The projected patent number and issue date are specified above.

**Determination of Patent Term Adjustment under 35 U.S.C. 154 (b)**
(application filed on or after May 29, 2000)

The Patent Term Adjustment is 1460 day(s). Any patent to issue from the above-identified application will include an indication of the adjustment on the front page.

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (http://pair.uspto.gov).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Application Assistance Unit (AAU) of the Office of Data Management (ODM) at (571)-272-4200.

**APPLICANT(s)** (Please see PAIR WEB site http://pair.uspto.gov for additional applicants):

Seong OH, Seoul, KOREA, REPUBLIC OF;
Eun-Kyung KWAK, Seoul, KOREA, REPUBLIC OF;

The United States represents the largest, most dynamic marketplace in the world and is an unparalleled location for business investment, innovation, and commercialization of new technologies. The USA offers tremendous resources and advantages for those who invest and manufacture goods here. Through SelectUSA, our nation works to encourage and facilitate business investment. To learn more about why the USA is the best country in the world to develop technology, manufacture products, and grow your business, visit SelectUSA.gov.
PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), to: Mail
Mail Stop ISSUE FEE
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

or Fax
(571) 273-2885

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

KED & ASSOCIATES, LLP
P.O. Box 8638
Reston, VA 20195

APPLICATION NO. 11/872,132
FILING DATE 10/15/2007
FIRST NAMED INVENTOR Seong OH
ATTORNEY DOCKET NO. EZ-0003
CONISTRATION NO. 8284

TITLE OF INVENTION: DIGITAL BROADCASTING RECEIVER FOR PROGRAMMING RECORDING OF BROADCASTING PROGRAM AND METHOD THEREOF

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EXAMINER DANG, HUNG Q
ART UNIT 2484
CLASS-SUBCLASS 386-251000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.563).
   - Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.
   - "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47, Rev 03-02 or more recent) attached. Use of a Customer Number is required.

2. For printing on the patent front page, list
   - The names of up to 3 registered patent attorneys or agents OR, alternatively,
   - The name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)
   - PLEASE NOTE: Unless an assignee is identified below, no assignee data will be printed on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.1. Completion of this form is NOT a substitute for filling an assignment.
   - (A) NAME OF ASSIGNEE
     HUMAX CO., LTD.
   - (B) RESIDENCE: (CITY and STATE OR COUNTRY)
     SEOUL, KOREA

4a. The following fee(s) are submitted:
   - Issue Fee
   - Publication Fee (No small entity discount permitted)
   - Advance Order - # of Copies

4b. Payment of fee(s): (Please first reapply any previously paid issue fee shown above)
   - A check is enclosed.
   - Payment by credit card.
   - The Director is hereby authorized to charge the required fee(s), any deficiency, or credits any overpayment, to Deposit Account Number 16-6-02-07-1 (enclose an extra copy of this form).

5. Change in Entity Status (from status indicated above)
   - Applicant certifying micro entity status. See 37 CFR 1.29
   - Applicant asserting small entity status. See 37 CFR 1.27
   - Applicant changing to regular undiscounted fee status.

NOTE: Absent a valid certification of Micro Entity Status (see forms PTO/SB/15A and 15B), issue fee payment in the micro entity amount will not be accepted at the risk of application abandonment.

NOTE: If the application was previously under micro entity status, checking this box will be taken to be a notification of loss of entitlement to micro entity status.

NOTE: Checking this box will be taken to be a notification of loss of entitlement to small or micro entity status, as applicable.

Authorized Signature

Typed or printed name Paul H. KANG

Date November 14, 2014
Registration No. 66,545

PTOL-85 Part B (10-13) Approved for use through 10/31/2013.

OMB 0651-0033 U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
**Electronic Patent Application Fee Transmittal**

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**Utility under 35 USC 111(a) Filing Fees**

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**Title of Invention:** DIGITAL BROADCASTING RECEIVER FOR PROGRAMMING RECORDING OF BROADCASTING PROGRAM AND METHOD THEREOF

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- **Submitted with Payment:** yes
- **Payment Type:** Credit Card
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- **RAM confirmation Number:** 10378
- **Deposit Account**
- **Authorized User**

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**Warnings:**

**Information:**

- **Total Files Size (in bytes):** 248210

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

**New Applications Under 35 U.S.C. 111**

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

**National Stage of an International Application under 35 U.S.C. 371**

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

**New International Application Filed with the USPTO as a Receiving Office**

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.
NOTICE OF ALLOWANCE AND FEE(S) DUE

34610 7590 08/15/2014
KED & ASSOCIATES, LLP
P.O. Box 8638
Reston, VA 20195

EXAMINER
DANG, HUNG Q

ART UNIT  PAPER NUMBER
2484

DATE MAILED: 08/15/2014

APPLICATION NO.  FILING DATE  FIRST NAMED INVENTOR  ATTORNEY DOCKET NO.  CONFIRMATION NO.
11/872,132  10/15/2007  Seong OH  EZ-0003  8284

TITLE OF INVENTION: DIGITAL BROADCASTING RECEIVER FOR PROGRAMMING RECORDING OF BROADCASTING PROGRAM AND METHOD THEREOF

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THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED. THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED. SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.

HOW TO REPLY TO THIS NOTICE:

I. Review the ENTITY STATUS shown above. If the ENTITY STATUS is shown as SMALL or MICRO, verify whether entitlement to that entity status still applies.

If the ENTITY STATUS is the same as shown above, pay the TOTAL FEE(S) DUE shown above.

If the ENTITY STATUS is changed from that shown above, on PART B - FEE(S) TRANSMITTAL, complete section number 5 titled "Change in Entity Status (from status indicated above)."

For purposes of this notice, small entity fees are 1/2 the amount of undiscounted fees, and micro entity fees are 1/2 the amount of small entity fees.

II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

IMPORTANT REMINDER: Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.
PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), to: Mail
Mail Stop ISSUE FEE
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

or Fax
(571)-273-2885

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

34610
7590
08/15/2014
KED & ASSOCIATES, LLP
P.O. Box 8638
Reston, VA 20195

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

Certificate of Mailing or Transmission
I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

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TITLE OF INVENTION: DIGITAL BROADCASTING RECEIVER FOR PROGRAMMING RECORDING OF BROADCASTING PROGRAM AND METHOD THEREOF

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APPLN. TYPE | ENTITY STATUS | ISSUE FEE DUE | PUBLICATION FEE DUE | FREV. PAID ISSUE FEE | TOTAL FEE(S) DUE | DATE DUE |
-------------|---------------|---------------|---------------------|---------------------|-------------------|----------|
nonprovisional | UNDISCOUNTED | $960          | $0                  | $0                  | $960              | 11/17/2014 |

EXAMINER | ART UNIT | CLASS-SUBCLASS |
--------|----------|----------------|
DANG, HUNG Q | 2484 | 386-251000 |

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

- Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.
- "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. Use of a Customer Number is required.

2. For printing on the patent front page, list:

   (1) The names of up to 3 registered patent attorneys or agents OR, alternatively,
       (2) The name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recording as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE

(B) RESIDENCE: (CITY AND STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent):

- [ ] Individual
- [ ] Corporation or other private group entity
- [ ] Government

4a. The following fee(s) are submitted:

- [ ] Issue Fee
- [ ] Publication Fee (No small entity discount permitted)
- [ ] Advance Order - # of Copies __________________

4b. Payment of Fee(s): (Please first reapply any previously paid issue fee shown above)

- [ ] A check is enclosed.
- [ ] Payment by credit card. Form PTO-2038 is attached.
- [ ] The Director is hereby authorized to charge the required fee(s), any deficiency, or credits any overpayment, to Deposit Account Number ______________ (enclose an extra copy of this form).

5. Change in Entity Status (from status indicated above)

- [ ] Applicant certifying micro entity status. See 37 CFR 1.29
- [ ] Applicant asserting small entity status. See 37 CFR 1.27
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Authorized Signature ________________________ Date __________
Typed or printed name ________________________ Registration No. ______________

Page 2 of 3

PTOL-85 Part B (10-13) Approved for use through 10/31/2013.

OMB 0651-0033 U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Determination of Patent Term Adjustment under 35 U.S.C. 154 (b)

(Applications filed on or after May 29, 2000)

The Office has discontinued providing a Patent Term Adjustment (PTA) calculation with the Notice of Allowance.

Section 1(h)(2) of the AIA Technical Corrections Act amended 35 U.S.C. 154(b)(3)(B)(i) to eliminate the requirement that the Office provide a patent term adjustment determination with the notice of allowance. See Revisions to Patent Term Adjustment, 78 Fed. Reg. 19416, 19417 (Apr. 1, 2013). Therefore, the Office is no longer providing an initial patent term adjustment determination with the notice of allowance. The Office will continue to provide a patent term adjustment determination with the Issue Notification Letter that is mailed to applicant approximately three weeks prior to the issue date of the patent, and will include the patent term adjustment on the patent. Any request for reconsideration of the patent term adjustment determination (or reinstatement of patent term adjustment) should follow the process outlined in 37 CFR 1.705.

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.
OMB Clearance and PRA Burden Statement for PTOL-85 Part B

The Paperwork Reduction Act (PRA) of 1995 requires Federal agencies to obtain Office of Management and Budget approval before requesting most types of information from the public. When OMB approves an agency request to collect information from the public, OMB (i) provides a valid OMB Control Number and expiration date for the agency to display on the instrument that will be used to collect the information and (ii) requires the agency to inform the public about the OMB Control Number’s legal significance in accordance with 5 CFR 1320.5(b).

The information collected by PTOL-85 Part B is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450. Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency’s responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.
Notice of Allowability

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS. This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☑ This communication is responsive to amendment filed 06/25/2014.
   - A declaration(s)/affidavit(s) under 37 CFR 1.130(b) was/were filed on______.

2. ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.

3. ☑ The allowed claim(s) is/are 1-5, 7, 9-15, 17, 20-21, and 23-26. As a result of the allowed claim(s), you may be eligible to benefit from the Patent Prosecution Highway program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to PPHfeedback@uspto.gov.  

4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

Certified copies:
   a) ☐ All    b) ☑ Some    *c) ☑ None of the:
      1. ☑ Certified copies of the priority documents have been received.
      2. ☑ Certified copies of the priority documents have been received in Application No. _____.
      3. ☑ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____

Applicant has THREE MONTHS FROM THE “MAILING DATE” of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ CORRECTED DRAWINGS (as “replacement sheets”) must be submitted.
   - including changes required by the attached Examiner’s Amendment / Comment or in the Office action of Paper No./Mail Date ______.
   - Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

6. ☑ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner’s comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)
1. ☑ Notice of References Cited (PTO-892)  5. ☐ Examiner’s Amendment/Comment
2. ☑ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date 10/06/2009  6. ☑ Examiner’s Statement of Reasons for Allowance
3. ☑ Examiner’s Comment Regarding Requirement for Deposit of Biological Material  7. ☐ Other _____
4. ☑ Interview Summary (PTO-413), Paper No./Mail Date ______.

/HUNG DANG/
Primary Examiner, Art Unit 2484
The present application is being examined under the pre-AIA first to invent provisions.

DETAILED ACTION

Allowable Subject Matter

Claims 1-5, 7, 9-15, 17, 19-21, and 23-26 are allowed.

Claims 1, 11, 21, and 25-26, when considered as a whole, are allowable over the prior art of record. Specifically, the prior art of record fails to clearly teach a combination of following limitations:

- detecting a change in an event received in the broadcast data received from the programmed channel, to determine a time period for a gap between the change in the event in the programmed channel and a subsequent change in the event in the same programmed channel,

- deleting broadcast data that corresponds to the gap when the time period is less than or equal to a prescribed amount of time.

- detect a first event in the broadcast data, detect a second event in the broadcast data, wherein the first and second events in the broadcast data correspond to a change in a type of content,

- determining a time period between the first event and the second event in the broadcast data, and

- when the determined time period is less than or equal to a prescribed amount of time, deleting a portion of the broadcast data that corresponds to the time period,
and wherein the first or second events are a change in a display of an icon or text displayed in a prescribed area of the display;

- detecting graphic or text that is displayed on a particular area of a series of temporally-connected image frames and deleting broadcast data corresponding to a program that includes the graphic or the text,

- wherein the graphic or the text includes information of a program to follow.

Other claims depend on a corresponding independent claims above, thus are also allowable over the prior art of record.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to HUNG DANG whose telephone number is (571)270-1116. The examiner can normally be reached on IFT.

If attempts to reach the examiner by telephone are unsuccessful, the examiner’s supervisor, THAI Q. TRAN can be reached on 571-272-7382. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.
Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/HUNG DANG/
Primary Examiner, Art Unit 2484
**Notice of References Cited**

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**U.S. PATENT DOCUMENTS**

**FOREIGN PATENT DOCUMENTS**

**NON-PATENT DOCUMENTS**

Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).) Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.*

**PTO-892 (Rev. 01-2001) - Notice of References Cited**

Part of Paper No. 20140801
# Index of Claims

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### EAST Search History

#### EAST Search History (Prior Art)

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(Primary Examiner)  
(Date)  
08/01/2014

O.G. Print Claim(s)  
O.G. Print Figure

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U.S. Patent and Trademark Office  
Part of Paper No: 20140801
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**9/80 (2006.01.01)**

**5/76 (2006.01.01)**

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(Assistant Examiner) (Date)

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Primary Examiner, Art Unit 2484

(Primary Examiner) (Date)

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**PTO-1449**

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## OTHER ART (Including Author, Title, Date, Pertinent Pages, Publisher, Place of Publication, Etc.)

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Japanese Office Action dated July 14, 2009  
for JP2007-290941  
2007

EXAMINER: /Hung Dang/  
DATE CONSIDERED: 08/05/2014
IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: Seong OH and Eun-Kyung KWAK

Confirmation No.: 8284

Group Art Unit: 2484

Serial No.: 11/872,132

Examiner: Hung Q. DANG

Filed: October 15, 2007

Customer No.: 34610

For: DIGITAL BROADCASTING RECEIVER FOR PROGRAMMING RECORDING OF BROADCASTING PROGRAM AND METHOD THEREOF

AMENDMENT AND/OR REPLY

U.S. Patent and Trademark Office
Customer Window, Mail Stop Amendment
Randolph Building
401 Dulany Street
Alexandria, Virginia 22314

Sir:

In reply to the Office Action of February 25, 2014, please amend the above-identified application as follows:

Amendments to the Claims are reflected in the listing of claims.

Remarks/Arguments begin after the listing of the claims.
AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) A method of programming a recording in a digital broadcasting receiver, comprising:

   registering a programmed channel among one or more channels;

   storing broadcast data received from the programmed channel in a storage device as a programmed-recording program in accordance with a predetermined criterion;

   storing a next programmed-recording program in the storage device to replace the stored programmed-recording program if the programmed-recording program is completely stored and broadcast data corresponding to the next programmed-recording program is received;

   detecting a change in an event received in the broadcast data received in the programmed channel;

   determining a time period for a gap between the change in the event in the programmed channel and a subsequent change in the event in the same programmed channel; and
deleting from the storage device a portion of the stored programmed-recording program or the next stored programmed-recording program corresponding to the gap when the time period is less than or equal to n minutes a prescribed amount of time.

2. (Original) The method of Claim 1, wherein the predetermined criterion includes at least one broadcast program unit or at least one broadcast program unit, the programmed recording time of which is restricted.

3. (Previously Presented) The method of claim 1, further comprising:

playing back the broadcast data stored as the programmed-recording program from the beginning in accordance with a request to playback the broadcast data stored as the programmed-recording program;

changing the channel for play back in response to a request to change the channel;

and

recording or editing a portion of the broadcast data stored as the programmed-recording program corresponding to a point at which the channel is changed.

4. (Original) The method of Claim 3, further comprising selecting whether to continue or stop recording the programmed-recording program, if the programmed-recording program is not played back from the beginning.
5. (Original) The method of Claim 3, further comprising selecting whether to continue or stop recording the programmed-recording program which is being played back on the programmed channel, if the programmed channel, on which the programmed-recording program is being played back, is changed to another channel.

6. (Canceled)

7. (Original) The method of Claim 1, further comprising cancelling one or more channels of the programmed channel and registering another channel as the programmed channel.

8. (Canceled)

9. (Currently Amended) The method of Claim 1, wherein the [prescribed amount of time] is between 0.1 and 10 minutes.

10. (Original) The method of Claim 1, further comprising detecting a commercial program by using commercial program identification information included in the broadcast data and deleting broadcast data corresponding to the detected commercial program.
11. (Currently Amended) A digital broadcasting receiver, comprising:

a control unit, registering a programmed channel, storing broadcast data received from the programmed channel as a programmed-recording program in accordance with a predetermined criterion, and storing a next programmed-recording program to replace the stored programmed-recording program if the programmed-recording program is completely stored and broadcast data corresponding to the next programmed-recording program is received;

a storage unit, storing broadcast data corresponding to the programmed-recording program and channel information registered as the programmed channel; and

a detection unit that detects a change in an event received in the broadcast data received from the programmed channel, to determine a time period for a gap between the change in the event in the programmed channel and a subsequent change in the event in the same programmed channel,

wherein the control unit deletes broadcast data that corresponds to the gap when the time period is less than or equal to a prescribed amount of time, and

wherein the event is a change in a title of content received in the broadcast data.

12. (Original) The digital broadcasting receiver of Claim 11, wherein the predetermined criterion includes at least one broadcast program unit or at least one broadcast program unit, the programmed recording time of which is restricted.
13. (Previously Presented) The digital broadcasting receiver of claim 11, further comprising:

a user interface for allowing a user to select whether broadcast data stored as the programmed-recording program is to be played back from the beginning, and to change the channel for playback,

wherein the control unit records or edits a portion of the broadcast data stored as the programmed-recording program corresponding to a point at which the channel is changed.

14. (Original) The digital broadcasting receiver of Claim 13, wherein the user selects through the user interface whether to continue or stop recording the programmed-recording program, if the programmed-recording program is not played back from the beginning.

15. (Original) The digital broadcasting receiver of Claim 13, wherein the control unit selects whether to continue or stop recording the programmed-recording program which is being played back on the programmed channel, if the programmed channel, on which the programmed-recording program is being played back, is changed to another channel.

16. (Canceled)
17. (Original) The digital broadcasting receiver of Claim 11, wherein the control
unit cancels one or more channels of the programmed channel and registers another channel
as the programmed channel.

18. (Canceled)

19. (Currently Amended) The digital broadcasting receiver of Claim 11, wherein
the prescribed amount of time is between 0.1 and 10 minutes.

20. (Original) The digital broadcasting receiver of Claim 11, wherein the control
unit detects a commercial program by using commercial program identification information
included in the broadcast data and deletes broadcast data corresponding to the detected
commercial program.

21. (Previously Presented) A digital broadcasting receiver, comprising:

at least one tuner for tuning to a channel to receive broadcast data;

a storage device for storing the received broadcast data; and

a controller for processing the broadcast data,

wherein the controller is configured to
detect a first event in the broadcast data, detect a second event in the broadcast data, wherein the first and second events in the broadcast data correspond to a change in a type of content,

determine a time period between the first event and the second event in the broadcast data, and

when the determined time period is less than or equal to a prescribed amount of time, delete a portion of the broadcast data that corresponds to the time period, and

wherein the first or second events are a change in a display of an icon or text displayed in a prescribed area of the display.

22. (Canceled)

23. (Currently Amended) The digital broadcasting receiver of claim [[22]]21, wherein the first event in the broadcast data corresponds to a start of a commercial in the broadcast data and the second event in the broadcast data corresponds to an end of the commercial in the broadcast data.

24. (Previously Presented) The digital broadcasting receiver of claim 21, wherein the prescribed amount of time is between 0.1 and 10 minutes.
25. (New) A method of programming a recording in a digital broadcasting receiver, comprising:

registering a programmed channel among one or more channels;

storing broadcast data received from the programmed channel in a storage device as a programmed-recording program in accordance with a predetermined criterion;

storing a next programmed-recording program in a storage device to replace the stored programmed-recording program if the programmed-recording program is completely stored and broadcast data corresponding to the next programmed-recording program is received; and

detecting graphic or text that is displayed on a particular area of a series of temporally-connected image frames and deleting broadcast data corresponding to a program that includes the graphic or the text,

wherein the graphic or the text includes information of a program to follow.

26. (New) A digital broadcasting receiver, comprising:

a control unit configured to register one or more channels as a programmed channel, store broadcast data received from the programmed channel as a programmed-recording program in accordance with a predetermined criterion, and store a next programmed-recording program to replace the stored programmed-recording program if the
programmed-recording program is completely stored and broadcast data corresponding to
the next programmed-recording program is received; and

a storage unit that stores broadcast data corresponding to the programmed-recording
program and channel information registered as the programmed channel,

wherein the control unit controls to detect graphic or text that is displayed on a
particular area of a series of temporally-connected image frames and delete broadcast data
corresponding to a program that includes the graphic or the text, and

wherein the graphic or the text includes information of a program to follow.
REMARKS/ARGUMENTS

Claims 1-5, 7, 9-15, 17, 19-21 and 23-26 are pending in this application. By this Reply, claims 1, 9, 11, 19 and 23 are amended and new claims 25-26 are added. No new matter is added. Support for the claims can be found throughout the specification, including the original claims and the drawings. Withdrawal of the rejections in view of the above amendments and the following remarks is respectfully requested.


The proposed combination of Nakamura, Ellis and Ishihara fails to establish a prima facie case of obviousness, as required under Section 103. For example, Nakamura, Ellis and Ishihara fail to teach or suggest at least

“detecting a change in an event received in the broadcast data received in the programmed channel;

determining a time period for a gap between the change in the event in the programmed channel and a subsequent change in the event in the same programmed channel; and

deleting from the storage device a portion of the stored programmed-recording program or the next stored programmed-recording program corresponding to the gap when the time period is less than a prescribed amount of time,”

and the combination thereof, as recited in amended independent claim 1, nor
“a detection unit that detects a change in an event received in the broadcast data received from the programmed channel, to determine a time period for a gap between the change in the event in the programmed channel and a subsequent change in the event in the same programmed channel,

wherein the control unit deletes broadcast data that corresponds to the gap when the time period is less than or equal to a prescribed amount of time,”

and the combination thereof, as recited in amended independent claim 11.

As acknowledged by the Patent Office, Nakamura and Ellis fail to disclose detecting a change in an event received in the broadcast data received in the programmed channel; determining a time period for a gap between the change in the event in the programmed channel and a subsequent change in the event in the same programmed channel; and deleting from the storage device a portion of the stored programmed-recording program or the next stored programmed-recording program corresponding to the gap when the time period is less than a prescribed amount of time, as recited in independent claim 1. The Patent Office further relies upon Ishihara, but it is respectfully submitted that Ishihara fails to disclose the features found lacking in Nakamura and Ellis.

That is, Ishihara merely discloses detecting commercials based on PID information and deleting the blocks that correspond to the detected commercials. However, Ishihara fails to teach or suggest that the presence of commercials is determined based on a gap time nor using the PID information to determine the gap time used to decide whether to delete portions of the broadcast. Accordingly, Ishihara fails to teach or suggest determining a time
period for a gap between the change in the event in the programmed channel and a subsequent change in the event in the same programmed channel, and deleting from the storage device a portion of the stored programmed-recording program or the next stored programmed-recording program corresponding to the gap when the time period is less than a prescribed amount of time, as recited in independent claim 1.

For at least these reasons, it is respectfully submitted that independent claim 1 is allowable over Nakamura, Ellis and Ishihara. While drawn to a different embodiment, independent claim 11 recites similar features in varying scope, and hence, independent claim 11 is allowable over Nakamura, Ellis and Ishihara for similar reasons. Dependent claims 2-5, 7, 9-10, 12-15, 17 and 19-20 are allowable over Nakamura, Ellis and Ishihara at least for the reasons set forth above with respect to independent claim 1 and 11, from which they respectively depend, as well as for their added features.


The proposed combination of Nakamura, Ishihara and Horiuchi fails to establish a prima facie case of obviousness, as required under Section 103. For example, Nakamura, Ishihara and Horiuchi fail to teach or suggest at least

“wherein the controller is configured to detect a first event in the broadcast data, detect a second event in the broadcast data, wherein the first and second events
in the broadcast data correspond to a change in a type of content, determine a time period between the first event and the second event in the broadcast data, and when the determined time period is less than or equal to a prescribed amount of time, delete a portion of the broadcast data that corresponds to the time period, and wherein the first or second events are a change in a display of an icon or text displayed in a prescribed area of the display,”

and the combination thereof, as recited in independent claim 21.

As acknowledged by the Patent Office, Nakamura fails to disclose that the controller is configured to detect a first event in the broadcast data, detect a second event in the broadcast data, wherein the first and second events in the broadcast data correspond to a change in a type of content, determine a time period between the first event and the second event in the broadcast data, and when the determined time period is less than or equal to a prescribed amount of time, delete a portion of the broadcast data that corresponds to the time period, as recited in independent claim 21. The Patent Office relies upon Ishihara, but it is respectfully submitted that Ishihara fails to disclose the features found lacking in Nakamura.

That is, as previously discussed, Ishihara merely discloses detecting commercials based on PID information and deleting the blocks that correspond to the detected commercials. Ishihara fails to teach or suggest that the presence of commercials is determined based on a gap time. Accordingly, Ishihara fails to teach or suggest: determine a
time period between the first event and the second event in the broadcast data, and when the determined time period is less than or equal to a prescribed amount of time, delete a portion of the broadcast data that corresponds to the time period, as recited in independent claim 21.

The Patent Office further relies upon Horiuchi, but Horiuchi fails to remedy the deficiencies of Nakamura and Ishihara as Horiuchi was merely cited as allegedly disclosing wherein the first or second events are a change in a display of an icon or text displayed in a prescribed area of the display. Hence, a *prima facie* case of obviousness cannot be established based on Horiuchi.

For at least these reasons, it is respectfully submitted that independent claim 21 is allowable over Nakamura, Ishihara and Horiuchi. Dependent claims 23-24 are allowable over Nakamura, Ishihara and Horiuchi at least for the reasons set forth above with respect to independent claim 21, from which they depend, as well as for their added features.

By this Reply, new independent claims 25 and 26 are added. It is respectfully submitted that claims 25 and 26 also define over the applied prior art. That is, neither Nakamura, Ishihara nor Horiuchi teach or suggest at least

"detecting graphic or text that is displayed on a particular area of a series of temporally-connected image frames and deleting broadcast data corresponding to a program that includes the graphic or the text, wherein the graphic or the text include information of a program to follow,"

15
and the combination thereof, as recited in new independent claim 25, nor

            wherein the control unit controls to detect graphic or
text that is displayed on a particular area of a series of
temporally-connected image frames and delete broadcast data
对应 to a program that includes the graphic or the
text, and

            wherein the graphic or the text include information of a
program to follow,”

and the combination thereof, as recited in new independent claim 26. Such features are
supported in, for example, paragraph [0120] of the present application as published.

        For example, Horiuchi discloses generating an indexed data for selection and
reproduction of scenes in recorded content. The indexed data is generated by extracting
telop data from the program to identify, for example, changes in a game when a score
changes or there is a change in offence and defense, or the like. However, the indexed or
telop data is not used to identify programming to follow, such as a commercial program, nor
delete such identified programming that follows.
CONCLUSION

In view of the foregoing amendments and remarks, it is respectfully submitted that the application is in condition for allowance. Favorable consideration and prompt allowance are earnestly solicited.

If the Examiner believes that any additional changes would place the application in better condition for allowance, the Examiner is invited to contact the undersigned attorney, Paul H. Kang, at the telephone number listed below.

To the extent necessary, a petition for an extension of time under 37 C.F.R. §1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this, concurrent and future replies, including extension of time fees, to Deposit Account 16-0607 and please credit any excess fees to such deposit account.

Respectfully Submitted,
KED & ASSOCIATES, LLP

[Signature]
Daniel Y.J. Kim
Registration No. 36,186
Paul H. Kang
Registration No. 66,545

Correspondence Address:
P.O. Box 8638
Reston, VA 20195
703 766-3777 DYK/PHKyc
Please direct all correspondence to Customer Number 34610
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This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

**New Applications Under 35 U.S.C. 111**

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

**National Stage of an International Application under 35 U.S.C. 371**

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

**New International Application Filed with the USPTO as a Receiving Office**

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.
IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of

Seong OH and Eun-Kyung KWAK

Confirmation No.: 8284

Group Art Unit: 2484

Serial No.: 11/872,132

Examiner: Hung Q. DANG

Filed: October 15, 2007

Customer No.: 34610

For: DIGITAL BROADCASTING RECEIVER FOR PROGRAMMING RECORDING OF BROADCASTING PROGRAM AND METHOD THEREOF

U.S. Patent and Trademark Office
Customer Window, MAIL STOP AMENDMENT
Randolph Building
401 Dulany Street
Alexandria, Virginia 22314

Dear Sir:

Transmitted herewith is an Amendment and/or Reply in the above identified application.

☐ No additional fee is required.

☐ Also attached:

The fee has been calculated as shown below:

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If multiple claims newly presented, add $780.00

Fee for extension of time

TOTAL FEE DUE $920.00

☐ Please charge my Credit Card.

☐ The Commissioner is hereby authorized to charge payment of any fees associated with this communication or credit any overpayment, to Deposit Account No. 16,0607, including any filing fees under 37 C.F.R.§1.16 for presentation of extra claims and any patent application processing fees under 37 C.F.R. §1.17.

Respectfully Submitted,

KED & ASSOCIATES, LLP

Daniel Y.J. Kim
Registration No. 36,186
Paul H. Kang
Registration No. 66,545

Correspondence Address:
P.O. Box 8638
Reston, VA 20195
(703) 766-3777 /DK/PKH/yc

Please direct all correspondence to Customer Number 34610
**Electronic Patent Application Fee Transmittal**

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**Filed as Large Entity**

**Utility under 35 USC 111(a) Filing Fees**

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**Title of Invention:** DIGITAL BROADCASTING RECEIVER FOR PROGRAMMING RECORDING OF BROADCASTING PROGRAM AND METHOD THEREOF

| **First Named Inventor/Applicant Name:** | Seong OH                                     |
| **Customer Number:**                    | 34610                                        |
| **Filer:**                              | David Carlton Oren/Kathy Humphries           |
| **Filer Authorized By:**                | David Carlton Oren                           |
| **Attorney Docket Number:**             | EZ-0003                                      |
| **Receipt Date:**                       | 25-JUN-2014                                  |
| **Filing Date:**                        | 15-OCT-2007                                  |
| **Time Stamp:**                         | 18:40:36                                     |
| **Application Type:**                   | Utility under 35 USC 111(a)                  |

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New Applications Under 35 U.S.C. 111
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PATENT APPLICATION FEE DETERMINATION RECORD

Application or Docket Number 11/872,132
Filing Date 10/15/2007

ENTITY: □ LARGE □ SMALL □ MICRO

APPLICATION AS FILED – PART I

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APPLICATION SIZE FEE (37 CFR 1.16(a))
If the specification and drawings exceed 100 sheets of paper, the application size fee due is $310 ($155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).

MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))

TOTAL

APPLICATION AS AMENDED – PART II

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* If the entry in column 1 is less than the entry in column 2, write "0" column 3.
** If the "Highest Number Previously Paid For" in this SPACE is less than 20, enter "20".
*** If the "Highest Number Previously Paid For" in this SPACE is less than 3, enter "3".

The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.
Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.
Office Action Summary

Application No. 11/872,132

Applicant(s) OH ET AL.

Examiner HUNG DANG

Art Unit 2484

AIA (First Inventor to File) Status No

--- The MAILING DATE of this communication appears on the cover sheet with the correspondence address ---

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTHS FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).

Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) [x] Responsive to communication(s) filed on 12/13/2013.

☐ A declaration(s)/affidavit(s) under 37 CFR 1.130(b) was/were filed on ________.

2a) [□] This action is FINAL. 2b) [x] This action is non-final.

3) [□] An election was made by the applicant in response to a restriction requirement set forth during the interview on ________; the restriction requirement and election have been incorporated into this action.

4) [☐] Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under Ex parte Quayle, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims*

5) [x] Claim(s) 1-5, 7, 9-15, 17, 19-21, 23 and 24 is/are pending in the application.

5a) Of the above claim(s) ________ is/are withdrawn from consideration.

6) [□] Claim(s) ________ is/are allowed.

7) [x] Claim(s) 1-5, 7, 9-15, 17, 19-21, 23 and 24 is/are rejected.

8) [□] Claim(s) ________ is/are objected to.

9) [□] Claim(s) ________ are subject to restriction and/or election requirement.

* If any claims have been determined allowable, you may be eligible to benefit from the Patent Prosecution Highway program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to PPHfeedback@uspto.gov.

Application Papers

10) [□] The specification is objected to by the Examiner.

11) [□] The drawing(s) filed on ________ is/are: a) [□] accepted or b) [□] objected to by the Examiner.

   Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

   Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

Priority under 35 U.S.C. § 119

12) [□] Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

Certified copies:

a) [□] All  b) [□] Some**  c) [□] None of the:

   1. [□] Certified copies of the priority documents have been received.
   2. [□] Certified copies of the priority documents have been received in Application No. ________.
   3. [□] Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

** See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) [x] Notice of References Cited (PTO-892)

2) [□] Information Disclosure Statement(s) (PTO/SB/08a and/or PTO/SB/08b)

   Paper No(s)/Mail Date ________

3) [□] Interview Summary (PTO-413)

   Paper No(s)/Mail Date: ________

4) [□] Other: ________

U.S. Patent and Trademark Office
PTOL-326 (Rev. 11-13) Office Action Summary  Part of Paper No./Mail Date 20140204
DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant’s submission filed on 12/13/2013 has been entered.

Response to Arguments

Applicant’s arguments filed 11/19/2013 have been fully considered but they are moot in view of a new ground of rejections.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.


Regarding claim 1, Nakamura discloses method of programming a recording in a digital broadcasting receiver, comprising: registering a programmed channel among one
or more channels ([0023]; [0062] – registering by generating a list of program starting times by channel to be recorded – since the programs of the channel are registered in the list to be recorded at their corresponding starting times, the channel is interpreted as programmed channel); storing broadcast data received from the programmed channel in a storage device as a programmed-recording program ([0023]; [0062] – when a time for a program to start arrives, the newly starting program is recorded); and storing a next programmed-recording program in the storage device to replace the stored programmed-recording program if the programmed-recording program is completely stored and broadcast data corresponding to the next programmed-recording program is received ([0023]; [0062] – based on the program information, a program on each channel is recorded from its beginning, and when the program ends and the next program starts, the next program is recorded overwriting the previous program recorded).

However, Nakamura does not explicitly disclose storing broadcast data received from the programmed channel as a programmed-recording program in accordance with a predetermined criterion; detecting a change in an event received in the broadcast data received in the programmed channel; determining a time period for a gap between the change in the event in the programmed channel and a subsequent change in the event in the same programmed channel; and deleting from the storage device a portion of the stored programmed-recording program or the next stored programmed-recording program corresponding to the gap when the time period is less than or equal to n minutes.
Ellis discloses storing broadcast data received from a programmed channel in a storage device as a programmed-recording program in accordance with a predetermined criterion ([0225]; [0343] – recording options for scheduled recordings or alternatively user preferences as disclosed in [0413], or alternatively the priority recording options as described at least in [0198] and [0246] are interpreted as the recited predetermined criterion).

One of ordinary skill in the art at the time the invention was made would have been motivated to incorporate the teachings of Ellis into the method taught by Nakamura in order to enhance the recording interface of the method by allowing users to set the recording options as they desire and/or to automatically select the programs to be recorded according to the user’s preferences.

However, Nakamura and Ellis do not disclose detecting a change in an event received in the broadcast data received from the programmed channel; determining a time period for a gap between the change in the event in the programmed channel and a subsequent change in the event in the same programmed channel; and deleting a portion of the stored programmed or the next stored programmed-recording program corresponding to the gap when the time period is less than or equal to n minutes.

Ishihara discloses detecting a change in an event received in broadcast data received from a channel ([0087] – PID change in broadcast data received from a channel); determining a time period for a gap between the change in the event in the channel and a subsequent change in the event in the same channel ([0087] – PID change again in the same PID as further shown in Fig. 9A, Fig. 9B, and Fig. 9C); and
deleting from a storage device a portion of stored programmed-recording program or a next stored programmed-recording program corresponding to the gap when the time period is less than or equal to n minutes ([0087]; [0089]; Fig. 9C; Fig. 9D – portions of broadcast data of stored programmed-recording program or next stored programmed-recording program corresponding to CMs are deleted – herein, the CMs are interpreted as part of either the stored programmed-recording program or the next stored programmed-recording program – the longest CM as shown is 3 seconds in length, which equals to 0.05 minutes).

One of ordinary skill in the art at the time the invention was made would have been motivated to incorporate the teachings of Ishihara into the method taught by Nakamura and Ellis, to delete commercial sections in the channel as desired by the users.

Regarding claim 2, in the proposed combination of Nakamura, Ellis, and Ishihara as discussed in claim 1 above, in which Ellis also discloses wherein the predetermined criterion includes at least one broadcast program unit ([0198]; [0246] – a recording priority is set for at least one program - such a program is interpreted as one broadcast program unit – as such, the predetermined criterion includes one broadcast program unit, which is specified as to be recorded with the given priority) or at least one broadcast program unit, the programmed recording time of which is restricted ([0343]; Fig. 57 – one program is interpreted as the recited one broadcast program unit - the recording options, as disclosed, comprise setting the time to restrict the programmed recording time to the set time – as such the predetermined criterion includes one
broadcast program unit, which is specified as to be recorded at the restricted programmed recording time). The motivation for incorporating Ellis into the method has been discussed in claim 1 above.

Regarding claim 3, see the teachings of Nakamura, Ellis, and Ishihara as discussed in claim 1 above. Further, Nakamura also discloses playing back the broadcast data stored as the programmed-recording program from the beginning in accordance with a request to play back the broadcast data stored as the programmed-recording program (Fig. 3; [0029] – when the user presses a button on a remote controller to select channel 1, at point 400 as shown in Fig. 3(d), program A is displayed back from its beginning and when the user presses another button to switch to program C, at point 401 as shown in Fig. 3(d), the program C is played back from its beginning); changing the channel for playback in response to a request to change the channel (Fig. 3; [0029] – when the user presses a button on a remote controller to select channel 1, at point 400 as shown in Fig. 3(d), program A is displayed back from its beginning and when the user presses another button to switch to program C, at point 401 as shown in Fig. 3(d), the program C is played back from its beginning).

However, Nakamura does not explicitly disclose recording or editing a portion of the broadcast data stored as the programmed-recording program corresponding to a point at which the channel is changed.

Ishihara discloses recording or editing a portion of broadcast data stored as recording program corresponding to a point at which the channel is changed ([0087]; [0089]; Fig. 9C; Fig. 9D – portions of broadcast data of stored programmed-recording
program or next stored programmed-recording program corresponding to CMs are deleted – herein, the CMs are interpreted as part of either the stored programmed-recording program or the next stored programmed-recording program).

The motivation for incorporating the teachings of Ishihara has been discussed in claim 1 above.

Regarding claim 4, see the teachings of Nakamura, Ellis, and Ishihara as discussed in claim 3 above. However, Nakamura, Ellis, and Ishihara in the previously proposed combination do not disclose selecting whether to continue or stop recording the programmed-recording program, if the programmed-recording program is not played back from the beginning.

Ellis further discloses selecting whether to continue or stop recording the programmed-recording program, if the programmed-recording program is not played back from the beginning ([0289]-[0290]; Fig. 34; [0304] – a program that is currently being recorded is selected to be watched live, thus the starting watching point is the point at current time and not from the beginning, and the user is allowed to select whether or not to cancel the recording at least by selecting the 'watch and cancel' options as shown in Fig. 34 and further described in [0304]).

One of ordinary skill in the art at the time the invention was made would have been motivated to further incorporate the feature of "selecting whether to continue or stop recording the programmed-recording program, if the programmed-recording program is not played back from the beginning" as disclosed by Ellis into the method
taught by Nakamura, Ellis, and Ishihara in the previously proposed combination to provide users with options of not storing programs undesired by users.

Regarding claim 5, see the teachings of Nakamura, Ellis, and Ishihara in the proposed combination as discussed in claim 3 above. Further, Nakamura further discloses the recording of the programmed-recording program which is being played back on the programmed channel continues, if the programmed channel, on which the programmed-recording program is being played back, is changed to another channel (Fig. 3; [0029]-[0030] – when the user switch to view another channel, the other programs are still recorded so that when the use switches back to view the previous channel, it starts playing back at the previous stop position).

The subject matter of claim 5 therefore differs from the method of Nakamura in that the user does not have an option to select whether to continue or stop recording the programmed-recording program if the channel being recorded and watched is changed to another channel. The technical effect of this difference is providing a friendlier user interface so that the user can have more control over the recording process. As such, the problem to be solved may therefore be regarded as how to provide an option for the user to select whether to continue or to stop the recording of the channel when the user changes to another channel.

One solution to the problem is further disclosed by Ellis that teaches that the user has an option for selecting whether to continue or stop recording the programmed-recording program which is being played back on the programmed channel, if the programmed channel, on which the programmed-recording program is being played
back, is changed to another channel ([0296]-[0297]; Fig. 31 – when a program is being watched and recorded, overlay is displayed over the current video for a program in response to the user attempting to change a current channel while the video is being recorded, press ‘no’ to continue recording and press ‘yes’ to stop recording).

One of ordinary skill in the art at the time the invention was made would have been motivated to further incorporate the feature of “selecting whether to continue or stop recording the programmed-recording program which is being played back on the programmed channel, if the programmed channel, on which the programmed-recording program is being played back, is changed to another channel” as taught by Ellis above into the method disclosed by Nakamura, Ellis, and Ishihara in the previously proposed combination in order to further enhance the recording interface of the method by providing the user with more recording options to control the recording process.

Regarding claim 7, see the teachings of Nakamura, Ellis, and Ishihara as discussed in claim 1 above. Nakamura, Ellis, and Ishihara in the proposed combination do not disclose cancelling one or more channels of the programmed channel and registering another channel as the programmed channel.

Ellis further discloses cancelling one or more channels of the programmed channel ([0327] – the user is allowed to cancel a scheduled recording of a program on a corresponding channel) and registering another channel as the programmed channel ([0214] – the user can register another channel via setting for manual recording of the channel).
One of ordinary skill in the art at the time the invention was made would have been motivated to further incorporate the teachings of Ellis above into the method taught by Nakamura, Ellis, and Ishihara in the previously proposed combination to further enhance the recording interface of the method by allowing the user register new channels that he or she desires and cancel any scheduled channel if he or she no longer wants to record.

Regarding claim 9, Ishihara also discloses the n is between 0.1 and 10 (Fig. 9A; Fig. 9B; Fig. 9C; [0088]-[0089] – it is up to the user who chooses to delete any block, if the user chooses to delete the block from 7:15 to 7:28, which has a length of 13 seconds, then n is between 0.1 and 10 minutes).

One of ordinary skill in the art at the time the invention was made would have been motivated to incorporate the teachings of Ishihara into the method as proposed to allow the user to delete any block that he or she desires.

Regarding claim 10, see the teachings of Nakamura, Ellis, and Ishihara as discussed in claim 1 above, in which Ishihara also discloses detecting a commercial program by using commercial program identification information included in the broadcast data ([0054]) and deleting broadcast data corresponding to the detected commercial program (Fig. 9C; Fig. 9D; [0088]-[0089]). The motivation for the combination has been discussed in claim 1 above.

Regarding claim 11, Nakamura discloses a digital broadcasting receiver, comprising: a control unit, registering a programmed channel (Fig. 1; [0023]; [0062] – registering by generating a list of program starting times by channel to be recorded –
since the programs of the channel are registered in the list to be recorded at their corresponding starting times, the channel is interpreted as programmed channel); storing broadcast data received from the programmed channel as a programmed-recording program ([0023]; [0062] – when a time for a program to start arrives, the newly starting program is recorded); and storing a next programmed-recording program to replace the stored programmed-recording program if the programmed-recording program is completely stored and broadcast data corresponding to the next programmed-recording program is received ([0023]; [0062] – based on the program information, a program on each channel is recorded from its beginning, and when the program ends and the next program starts, the next program is recorded overwriting the previous program recorded); a storage unit, storing broadcast data corresponding to the programmed-recording program and channel information registered as the programmed channel ([0062] – the storage unit comprising the memory storing the program data and the memory that holds the list of program to be recorded).

However, Nakamura does not explicitly disclose the control unit storing broadcast data received from the programmed channel as a programmed-recording program in accordance with a predetermined criterion; and a detection unit that detects a change in an event received in the broadcast data received from the programmed channel, to determine a time period for a gap between the change in the event in the programmed channel and a subsequent change in the event in the same programmed channel, wherein the control unit deletes broadcast data that corresponds to the gap when the
time period is less than or equal to n minutes, and wherein the event is a change in a title of content received in the broadcast data.

Ellis discloses a control unit storing broadcast data received from the programmed channel as a programmed-recording program in accordance with a predetermined criterion ([0225]; [0343] – recording options for scheduled recordings or alternatively user preferences as disclosed in [0413], or alternatively the priority recording options as described at least in [0198] and [0246] are interpreted as the recited predetermined criterion).

One of ordinary skill in the art at the time the invention was made would have been motivated to incorporate the teachings of Ellis into the receiver taught by Nakamura in order to enhance the recording interface of the receiver by allowing users to set the recording options as they desire and/or to automatically select the programs to be recorded according to the user's preferences.

However, Nakamura and Ellis do not disclose a detection unit that detects a change in an event received in the broadcast data received from the programmed channel, to determine a time period for a gap between the change in the event in the programmed channel and a subsequent change in the event in the same programmed channel, wherein the control unit deletes broadcast data that corresponds to the gap when the time period is less than or equal to n minutes, wherein the event is a change in a title of content received in the broadcast data.

Ishihara discloses a detection unit that detects a change in an event received in broadcast data received from a channel ([0087] – PID change in broadcast data
received from a channel) to determine a time period for a gap between the change in
the event in the channel and a subsequent change in the event in the same channel
([0087] – PID change again in the same PID as further shown in Fig. 9A, Fig. 9B, and
Fig. 9C); and a control unit deletes broadcast data that corresponds to the gap when the
time period is less than or equal to n minutes (Fig. 9A; Fig. 9B; Fig. 9C; Fig. 9D –
deleting the commercial when the its recording session is less than or equal to 0.05
minutes – according Fig. 9A, Fig. 9B, Fig. 9C – the longest CM is 3 seconds, which
equals to 0.05 minutes), wherein the event is a change in a title of content received in
the broadcast data ([0088] – PID change is interpreted as a title change).

One of ordinary skill in the art at the time the invention was made would have
been motivated to incorporate the teachings of Ishihara into the receiver taught by
Nakamura and Ellis, to delete commercial sections in the channel as desired by the
users.

Claim 12 is rejected for the same reason as discussed in claim 2 above.

Regarding claim 13, see the teachings of Nakamura, Ellis, and Ishihara as
discussed in claim 11 above. However, the proposed combination does not comprises
the feature of ‘a user interface for allowing a user to select whether broadcast data
stored as the programmed-recording program is to be played back from the beginning,
and to change the channel for playback; wherein the control unit records or edits a
portion of the broadcast data stored as the programmed-recording program
corresponding to a point at which the channel is changed.”
Ellis also discloses a user interface for allowing a user to select whether broadcast data stored as the programmed-recording program is to be played back from the beginning and to change the channel for playback ([0306]; [0310]; [0315] – the user is presented with multiple play options to allow the user to play from the beginning of the recorded program or to play the recording from the position of playback counter, or a current playback location etc.).

One of ordinary skill in the art at the time the invention was made would have been motivated to incorporate the teachings of Ellis into the receiver taught by Nakamura, Ellis, and Ishihara in the previously proposed combination in order to enhance the recording interface of the receiver by allowing users to set the recording options as they desire and/or to automatically select the programs to be recorded according to the user’s preferences.

However, the proposed combination does not comprises the feature of “the control unit records or edits a portion of the broadcast data stored as the programmed-recording program corresponding to a point at which the channel is changed.”

Ishihara also discloses a control unit records or edits a portion of the broadcast data stored as the recording program corresponding to a point at which the channel is changed (Fig. 9A; Fig. 9B; Fig. 9C; Fig. 9D; [0088]-[0089]).

The motivation for incorporating the teachings of Ishihara has been discussed in claim 11 above.

Regarding claim 14, see the teachings of Nakamura, Ellis, and Ishihara as discussed in claim 13 above. However, Nakamura, Ellis, and Ishihara in the previously
proposed combination do not disclose the user selects through the user interface whether to continue or stop recording the programmed-recording program, if the programmed-recording program is not played back from the beginning.

Ellis further discloses the user selects through the user interface whether to continue or stop recording the programmed-recording program, if the programmed-recording program is not played back from the beginning ([0289]-[0290]; Fig. 34; [0304] — a program that is currently being recorded is selected to be watched live, thus the starting watching point is the point at current time and not from the beginning, and the user is allowed to select whether or not to cancel the recording at least by selecting the 'watch and cancel' options as shown in Fig. 34 and further described in [0304]).

One of ordinary skill in the art at the time the invention was made would have been motivated to further incorporate the feature of "selecting whether to continue or stop recording the programmed-recording program, if the programmed-recording program is not played back from the beginning" as disclosed by Ellis into the digital broadcasting receiver taught by Nakamura, Ellis, and Ishihara in the previously proposed combination to provide users with options of not storing programs undesired by users..

Claim 15 is rejected for the same reason as discussed in claim 5 above.

Claim 17 is rejected for the same reason as discussed in claim 7 above.

Claim 19 is rejected for the same reason as discussed in claim 9 above.

Claim 20 is rejected for the same reason as discussed in claim 10 above.

Regarding claim 21, Nakamura discloses a digital broadcasting receiver, comprising: at least one tuner for tuning to a channel to receive broadcast data ([0023]; [0062]; Fig. 1 - one of the tuners as shown in Fig. 1 tuning to a channel to receive broadcast data); a storage device for storing the received broadcast data ([0023]; [0062]; Fig. 1 – storing the received broadcast data into recording medium 140).

However, Nakamura does not disclose a controller for processing the broadcast data, wherein the controller is configured to detect a first event in the broadcast data, detect a second event in the broadcast data, determine a time period between the first event and the second event in the broadcast data, and when the determined time period is less than or equal to a prescribed amount of time, delete a portion of the broadcast data that corresponds to the time period, wherein the first or second events are a change in a display of an icon or text displayed in a prescribed area of the display.

Ishihara discloses a controller for processing the broadcast data, wherein the controller is configured to detect a first event in the broadcast data ([0087]-[0089] – PID change), detect a second event in the broadcast data ([0088]-[0089] – PID changes again), wherein the first and second events in the broadcast data correspond to a change in a type of content ([0087]-[0089] – change between normal programs and CMs), determine a time period between the first event and the second event in the broadcast data (Fig. 9A; Fig. 9B; Fig. 9C – determining the time period via
corresponding time lengths of corresponding blocks), and when the determined time period is less than or equal to a prescribed amount of time, delete a portion of the broadcast data that corresponds to the time period ([0088]-[0089] – deleting CMs when the CMs are equal to or less than 3 seconds).

One of ordinary skill in the art at the time the invention was made would have been motivated to incorporate the teachings of Ishihara into the digital broadcasting receiver taught by Nakamura, wherein broadcast data taught by Ishihara is applied to a programmed broadcast data taught by Nakamura discussed above, to delete unwanted recordings.

However, Nakamura and Ishihara do not disclose the first or second events are a change in a display of an icon or text displayed in a prescribed area of the display.

Horiuchi discloses first or second events are a change in a display of an icon or text displayed in a prescribed area of the display ([0037] – generating index data for segmenting the program based on a change in text or symbols in the image – the change is detected in a prescribed area of the display as further described in at least [0071]-[0073]).

One of ordinary skill in the art at the time the invention was made would have been motivated to incorporate the teachings of Horiuchi into the digital broadcasting receiver taught by Nakamura and Ishihara to divide program into various finer blocks even in programs having the same PID to further allow the user to delete those blocks that are not interesting to the user.
Regarding claim 23, Ishihara also discloses the first event in the broadcast data corresponds to a start of a commercial in the broadcast data and the second event in the broadcast data corresponds to an end of the commercial in the broadcast data ([0088]-[0089]). The motivation for the combination has been discussed in claim 22 above.

Regarding claim 24, Ishihara also discloses the prescribed amount of time is between 0.1 and 10 (Fig. 9A; Fig. 9B; Fig. 9C; [0088]-[0089] – it is up to the user who chooses to delete any block, if the user chooses to delete the block from 7:15 to 7:28, which has a length of 13 seconds, then n is between 0.1 and 10 minutes). The motivation for the combination has been discussed in claim 21 above.

**Conclusion**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hung Q. Dang whose telephone number is (571)270-1116. The examiner can normally be reached on IFT.

If attempts to reach the examiner by telephone are unsuccessful, the examiner’s supervisor, THAI Q. TRAN can be reached on 571-272-7382. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.
Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Hung Q Dang/
Primary Examiner, Art Unit 2484
### U.S. Patent Documents

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U.S. Patent and Trademark Office
PTO-892 (Rev. 01-2001)
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REQUEST FOR CONTINUED EXAMINATION (RCE)
TRANSMITTAL UNDER 37 C.F.R. §1.114

DOCKET NUMBER: EZ-0003
Prior Appln Serial No.: 11/872,132
Filed: October 15, 2007
Inventor(s): Seong OH and Eun-Kyung KWAK
Confirmation No.: 8284
Group Art Unit: 2484
Examiner: Hung Q. DANG

U.S. Patent and Trademark Office
Customer Service Window, Mail Stop RCE
Randolph Building
401 Dulany Street
Alexandria, Virginia 22314

Sir:


1. Submission required under 37 C.F.R. §1.114
   a. ☒ Previously submitted
      i. ☒ Consider the amendments/reply under 37 C.F.R. §1.116 previously filed on November 19, 2013
         (Any unentered amendment(s) referred to above will be entered).
      ii. □ Consider the arguments in the Appeal Brief or Reply Brief previously filed on ______
      iii. □ Other: ______
   b. □ Enclosed
      i. □ Amendment/Reply
      ii. □ Affidavit(s)/Declaration(s)
      iii. □ Information Disclosure Statement (IDS)
      iv. □ Other. ______

2. Miscellaneous
   a. □ Suspension of action on the above-identified application is requested under 37 C.F.R. §1.103(c) for a period of ______ months. Fee amount $130.00 under 37 C.F.R. §1.17(f) enclosed. (Period of suspension shall not exceed 3 months; Fee under 37 C.F.R.§1.17(f) required).
   b. □ Other. ______

3. Fees ☒ RCE fee required under 37 C.F.R. §1.17(e); Small Entity $600.00, other than small entity $1,700.00. The RCE fee under 37 C.F.R. §1.17(e) is required by 37 C.F.R. §1.114 when the RCE is filed.
   ☒ Extension of time fee (37 C.F.R. §§1.136 and 1.17)

Payment by:
   a. □ Check in the amount of $______ (Check No. ______) enclosed.
   b. ☒ Please charge my Credit Card.
   c. □ Please charge my Deposit Account No. 16-0607 in the amount of $______. A duplicate copy of this sheet is enclosed.

The Commissioner is hereby authorized to charge payment of any deficiency in the above fees associated with this communication or credit any overpayment to Deposit Account No. 16-0607.

Respectfully Submitted,
KED & ASSOCIATES, LLP

Daniel Y.J. Kim
Registration No. 36,186
Paul H. Kang
Registration No. 66,545

Correspondence Address:
P.O. Box 8638
Reston, VA 20195
703 766-3777 DYK/PHK-y/c
Date: December 13, 2013
Please direct all correspondence to Customer Number 34610
IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of  
Confirmation No.: 8284
Seong OH and Eun-Kyung KWAK  
Group Art Unit: 2484
Serial No.: 11/872,132  
Examiner: Hung Q. DANG
Filed: October 15, 2007  
Customer No.: 34610

For:  DIGITAL BROADCASTING RECEIVER FOR PROGRAMMING RECORDING OF BROADCASTING PROGRAM AND METHOD THEREOF

PETITION FOR EXTENSION OF TIME UNDER 37 C.F.R. §1.136(a)(1)

U.S. Patent and Trademark Office  
Customer Service Window  
Randolph Building  
401 Dulany Street  
Alexandria, Virginia 22314

Sir:

Applicant petitions the Commissioner of Patents and Trademarks to extend the time for response to the Advisory Action dated November 25, 2013 for one (1) month from November 19, 2013 to December 19, 2013.

Please charge our credit card in the amount of $200.00 for the extension of time under 37 C.F.R. §1.17(a). Any deficiency or overpayment should be charged or credited to Deposit Account No. 16-0607.

Respectfully Submitted,
KED & ASSOCIATES, LLP

Daniel Y.J. Kim  
Registration No. 36,186  
Paul H. Kang  
Registration No. 66,545

Correspondence Address:  
P.O. Box 8638  
Reston, VA 20195  
703 766-3777 DYK/PHK/yjc

Date: December 13, 2013  
Please direct all correspondence to Customer Number 34610

Q:\Documents\2309-003\415713
**Electronic Patent Application Fee Transmittal**

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### Utility under 35 USC 111(a) Filing Fees

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This is not a USPTO supplied RCE SB30 form.

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This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

**New Applications Under 35 U.S.C. 111**

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

**National Stage of an International Application under 35 U.S.C. 371**

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

**New International Application Filed with the USPTO as a Receiving Office**

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

**Total Files Size (in bytes):** 127645
### PATENT APPLICATION FEE DETERMINATION RECORD

Substitute for Form PTO-875

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### APPLICATION AS FILED – PART I

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TOTAL ADD'L FEE: 0

* If the entry in column 1 is less than the entry in column 2, write “0” in column 3.

** If the “Highest Number Previously Paid For” in THIS SPACE is less than 20, enter “20”.

*** If the “Highest Number Previously Paid For” in THIS SPACE is less than 3, enter “3”.

The “Highest Number Previously Paid For” (Total or Independent) is the highest number found in the appropriate box in column 1.

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.
Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.
Advisory Action
Before the Filing of an Appeal Brief

---The MAILING DATE of this communication appears on the cover sheet with the correspondence address---

THE REPLY FILED 19 NOVEMBER 2013 FAILS TO PLACE THIS APPLICATION IN CONDITION FOR ALLOWANCE.

NO NOTICE OF APPEAL FILED

1. The reply was filed after a final rejection. No Notice of Appeal has been filed. To avoid abandonment of this application, applicant must timely file one of the following replies: (1) an amendment, affidavit, or other evidence, which places the application in condition for allowance;
   (2) a Notice of Appeal (with appeal fee) in compliance with 37 CFR 41.31; or (3) a Request for Continued Examination (RCE) in compliance with 37 CFR 1.114 if this is a utility or plant application. Note that RCEs are not permitted in design applications. The reply must be filed within one of the following time periods:
   a) The period for reply expires 3 months from the mailing date of the final rejection.
   b) The period for reply expires on: (1) the mailing date of this Advisory Action; or (2) the date set forth in the final rejection, whichever is later. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of the final rejection.
   c) A prior Advisory Action was mailed more than 3 months after the mailing date of the final rejection in response to a first after-final reply filed within 2 months of the mailing date of the final rejection. The current period for reply expires 3 months from the mailing date of the prior Advisory Action or SIX MONTHS from the mailing date of the final rejection, whichever is earlier.

Examiner Note: If box 1 is checked, check either box (a), (b) or (c). ONLY CHECK BOX (b) WHEN THIS ADVISORY ACTION IS THE FIRST RESPONSE TO APPLICANT’S FIRST AFTER-FINAL REPLY WHICH WAS FILED WITHIN TWO MONTHS OF THE FINAL REJECTION. ONLY CHECK BOX (c) IN THE LIMITED SITUATION SET FORTH UNDER BOX (c). See MPEP 706.07(l).

Extensions of time may be obtained under 37 CFR 1.136(a). The date on which the petition under 37 CFR 1.136(a) and the appropriate extension fee have been filed is the date for purposes of determining the period of extension and the corresponding amount of the fee. The appropriate extension fee under 37 CFR 1.17(a) is calculated from: (1) the expiration date of the shortened statutory period for reply originally set in the final Office action; or (2) as set forth in (b) or (c) above, if checked. Any reply received by the Office later than three months after the mailing date of the final rejection, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

NOTICE OF APPEAL

2. The Notice of Appeal was filed on _______. A brief in compliance with 37 CFR 41.37 must be filed within two months of the date of filing the Notice of Appeal (37 CFR 41.37(a)), or any extension thereof (37 CFR 41.37(e)), to avoid dismissal of the appeal. Since a Notice of Appeal has been filed, any reply must be filed within the time period set forth in 37 CFR 41.37(a).

AMENDMENTS

3. The proposed amendments filed after a final rejection, but prior to the date of filing a brief, will not be entered because
   a) They raise new issues that would require further consideration and/or search (see NOTE below);
   b) They raise the issue of new matter (see NOTE below);
   c) They are not deemed to place the application in better form for appeal by materially reducing or simplifying the issues for appeal; and/or
   d) They present additional claims without canceling a corresponding number of finally rejected claims.

NOTE: See Continuation Sheet. (See 37 CFR 1.116 and 41.33(a)).

4. The amendments are not in compliance with 37 CFR 1.121. See attached Notice of Non-Compliant Amendment (PTOL-324).

5. Applicant’s reply has overcome the following rejection(s): _______.

6. Newly proposed or amended claim(s) _______ would be allowable if submitted in a separate, timely amendment canceling the non-allowable claim(s).

7. For purposes of appeal, the proposed amendment(s) (a) _ will not be entered, or (b) _ will be entered, and an explanation of how the new or amended claims would be rejected is provided below or appended.

AFFIDAVIT OR OTHER EVIDENCE

8. A declaration(s)/affidavit(s) under 37 CFR 1.130(b) was/were filed on _______.

9. The affidavit or other evidence filed after final action, but before or on the date of filing a Notice of Appeal will not be entered because applicant failed to provide a showing of good and sufficient reasons why the affidavit or other evidence is necessary and was not earlier presented. See 37 CFR 1.116(e).

10. The affidavit or other evidence filed after the date of filing the Notice of Appeal, but prior to the date of filing a brief, will not be entered because the affidavit or other evidence failed to overcome all rejections under appeal and/or appellant fails to provide a showing of good and sufficient reasons why it is necessary and was not earlier presented. See 37 CFR 41.33(d)(1).

11. The affidavit or other evidence is entered. An explanation of the status of the claims after entry is below or attached.

REQUEST FOR RECONSIDERATION/OTHER

12. The request for reconsideration has been considered but does NOT place the application in condition for allowance because: _______.

13. Note the attached Information Disclosure Statement(s), (PTO SB/08) Paper No(s). _______.

14. Other: _______.

STATUS OF CLAIMS

15. The status of the claim(s) is (or will be) as follows:
   Claim(s) allowed: _______.
   Claim(s) objected to: _______.
   Claim(s) rejected: 1-5, 7, 9-15, 17, 19-21, 23 and 24.
   Claim(s) withdrawn from consideration: _______.

/HUNG DANG/
Primary Examiner, Art Unit 2484

U.S. Patent and Trademark Office
PTOL-303 (Rev. 08-2013) Advisory Action Before the Filing of an Appeal Brief Part of Paper No. 20131122
Continuation of 3. NOTE: amended features in claims 1, 11, and 21 raise new issues that would require further consideration and/or search.
DO NOT ENTER: /H.D./
11/22/2013

Docket No.: EZ-0003

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In Re Application of: Seong OH and Eun-Kyung KWAK

Serial No.: 11/872,132
Confirmation No.: 8284

Filed: October 15, 2007

For: DIGITAL BROADCASTING RECEIVER FOR PROGRAMMING RECORDING OF BROADCASTING PROGRAM AND METHOD THEREOF

EXPEDITED PROCEDURE
UNDER 37 C.F.R. §1.116

Group Art Unit: 2484
Examiner: Hung Q. DANG

Customer No.: 34610

REPLY AND/OR AMENDMENT
UNDER 37 C.F.R. §1.116

U.S. Patent and Trademark Office
Customer Window, Mail Stop AF
Randolph Building
401 Dulany Street
Alexandria, VA 22314

Sir:

In reply to the Final Office Action dated August 19, 2013, please amend the above-identified application as follows:

Amendments to the Claims are reflected in the listing of claims.

Remarks/Arguments begin after the listing of the claims.
In reply to the Final Office Action dated August 19, 2013, please amend the above-identified application as follows:

Amendments to the Claims are reflected in the listing of claims.

Remarks/Arguments begin after the listing of the claims.
AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) A method of programming a recording in a digital broadcasting receiver, comprising:
   
   registering a programmed channel among one or more channels;
   
   storing broadcast data received from the programmed channel in a storage device as a programmed-recording program in accordance with a predetermined criterion;
   
   storing a next programmed-recording program in the storage device to replace the stored programmed-recording program if the programmed-recording program is completely stored and broadcast data corresponding to the next programmed-recording program is received;
   
   detecting a change in an event received in the broadcast data received in the programmed channel;
   
   determining a time period for a gap between the change in the event in the programmed channel and a subsequent change in the event in the same programmed channel; and
deleting broadcast data from the storage device a portion of the stored programmed-recording program or the next stored programmed-recording program corresponding to the gap when the time period is less than or equal to \( n \) minutes.

2. (Original) The method of Claim 1, wherein the predetermined criterion includes at least one broadcast program unit or at least one broadcast program unit, the programmed recording time of which is restricted.

3. (Previously Presented) The method of claim 1, further comprising:

   playing back the broadcast data stored as the programmed-recording program from the beginning in accordance with a request to playback the broadcast data stored as the programmed-recording program;

   changing the channel for play back in response to a request to change the channel; and

   recording or editing a portion of the broadcast data stored as the programmed-recording program corresponding to a point at which the channel is changed.
4. (Original) The method of Claim 3, further comprising selecting whether to continue or stop recording the programmed-recording program, if the programmed-recording program is not played back from the beginning.

5. (Original) The method of Claim 3, further comprising selecting whether to continue or stop recording the programmed-recording program which is being played back on the programmed channel, if the programmed channel, on which the programmed-recording program is being played back, is changed to another channel.

6. (Canceled)

7. (Original) The method of Claim 1, further comprising cancelling one or more channels of the programmed channel and registering another channel as the programmed channel.

8. (Canceled)

9. (Previously Presented) The method of Claim 1, wherein the n is between 0.1 and 10.
10. (Original) The method of Claim 1, further comprising detecting a commercial program by using commercial program identification information included in the broadcast data and deleting broadcast data corresponding to the detected commercial program.

11. (Currently Amended) A digital broadcasting receiver, comprising:

    a control unit, registering a programmed channel, storing broadcast data received from the programmed channel as a programmed-recording program in accordance with a predetermined criterion, and storing a next programmed-recording program to replace the stored programmed-recording program if the programmed-recording program is completely stored and broadcast data corresponding to the next programmed-recording program is received;

    a storage unit, storing broadcast data corresponding to the programmed-recording program and channel information registered as the programmed channel; and

    a detection unit that detects a change in an event received in the broadcast data received from the programmed channel, to determine a time period for a gap between the change in the event in the programmed channel and a subsequent change in the event in the same programmed channel,

    wherein the control unit deletes broadcast data that corresponds to the gap when the time period is less than or equal to n minutes, and
wherein the event is a change in a title of content received in the broadcast data.

12. (Original) The digital broadcasting receiver of Claim 11, wherein the predetermined criterion includes at least one broadcast program unit or at least one broadcast program unit, the programmed recording time of which is restricted.

13. (Previously Presented) The digital broadcasting receiver of claim 11, further comprising:

   a user interface for allowing a user to select whether broadcast data stored as the programmed-recording program is to be played back from the beginning, and to change the channel for playback,

   wherein the control unit records or edits a portion of the broadcast data stored as the programmed-recording program corresponding to a point at which the channel is changed.

14. (Original) The digital broadcasting receiver of Claim 13, wherein the user selects through the user interface whether to continue or stop recording the programmed-
recording program, if the programmed-recording program is not played back from the beginning.

15. (Original) The digital broadcasting receiver of Claim 13, wherein the control unit selects whether to continue or stop recording the programmed-recording program which is being played back on the programmed channel, if the programmed channel, on which the programmed-recording program is being played back, is changed to another channel.

16. (Canceled)

17. (Original) The digital broadcasting receiver of Claim 11, wherein the control unit cancels one or more channels of the programmed channel and registers another channel as the programmed channel.

18. (Canceled)

19. (Previously Presented) The digital broadcasting receiver of Claim 11, wherein the n is between 0.1 and 10.
20. (Original) The digital broadcasting receiver of Claim 11, wherein the control unit detects a commercial program by using commercial program identification information included in the broadcast data and deletes broadcast data corresponding to the detected commercial program.

21. (Currently Amended) A digital broadcasting receiver, comprising:

at least one tuner for tuning to a channel to receive broadcast data;

a storage device for storing the received broadcast data; and

a controller for processing the broadcast data,

wherein the controller is configured to

detect a first event in the broadcast data, detect a second event in the broadcast data, wherein the first and second events in the broadcast data correspond to a change in a type of content,

determine a time period between the first event and the second event in the broadcast data, and

when the determined time period is less than or equal to a prescribed amount of time, delete a portion of the broadcast data that corresponds to the time period, and

wherein the first or second events are a change in a display of an icon or text displayed in a prescribed area of the display.
22. (Canceled)

23. (Previously Presented) The digital broadcasting receiver of claim 22, wherein the first event in the broadcast data corresponds to a start of a commercial in the broadcast data and the second event in the broadcast data corresponds to an end of the commercial in the broadcast data.

24. (Previously Presented) The digital broadcasting receiver of claim 21, wherein the prescribed amount of time is between 0.1 and 10 minutes.
REMARKS/ARGUMENTS

Claims 1-5, 7, 9-15, 17, 19-21 and 23-24 are pending in this application. By this Reply, claims 1, 11 and 21 are amended. No new matter is added.

At the outset, the Examiner is thanked for courtesies extended to Applicants’ representative on November 7, 2013. The points discussed are incorporated herein.


The proposed combination of Nakamura, Ellis and Iggulden fails to establish a prima facie case of obviousness, as required under Section 103. For example, Nakamura, Ellis and/or Iggulden, alone or in combination, fail to disclose or suggest at least

“storing broadcast data received from the programmed channel in a storage device as a programmed-recording program in accordance with a predetermined criterion,

storing a next programmed-recording program in the storage device...

deleting from the storage device a portion of the stored programmed-recording program or the next stored programmed-recording program corresponding to the gap when the time period is less than or equal to n minutes,”

and the combination thereof, as recited in amended independent claim 1, nor
“a detection unit that detects a change in an event received in the broadcast data received from the programmed channel, to determine a time period for a gap between the change in the event in the programmed channel and a subsequent change in the event in the same programmed channel,

wherein the control unit deletes broadcast data that corresponds to the gap when the time period is less than or equal to n minutes, and

wherein the event is a change in a title of content received in the broadcast data,”

and the combination thereof, as recited in amended independent claim 11.

As acknowledged by the Patent Office, Nakamura and Ellis fails to disclose at least deleting broadcast data corresponding to the gap when the time period is less than or equal to n minutes. The Patent Office relies upon Iggulden, but Iggulden fails to disclose the features found lacking in Nakamura and Ellis. Iggulden is drawn to skipping commercials on a VHS tape. The Patent Office concludes that deleting the stored event list corresponds to the claimed deleting the broadcast content (See column 11, lines 33-36 and Figure 7 of Iggulden). As discussed during the interview, however, the event lists which are deleted in Iggulden are lists of identifiers that indicate instances of events (e.g., black video frames) and their locations, and are not broadcast content. Moreover, in Iggulden, events are detected and their locations on a VHS tape are stored in an event list for identifying commercials. The identified commercials are skipped on the VHS tape, and are not stored on or deleted from a storage device. Hence, deleting the events lists as taught by Iggulden is not correctly
corresponded to storing broadcast data in a storage device and deleting from the storage device a portion of the stored programmed-recording program or the next stored programmed-recording program corresponding to the gap, as recited in amended independent claim 1.

Regarding independent claim 11, Nakamura, Ellis and Iggunlen fail to disclose or suggest that the event is a change in a title of content received in the broadcast data, as discussed during the interview. An example of such features may be found in, for example, paragraph [0113] of the present Application as published. As previously discussed, the detected events in Iggunlen are black, silent video frames on a VHS tape, and hence, are not correctly corresponded to the claimed event which is a change in title of content or change in a displayed icon or text of received broadcast data, as now recited in independent claim 11.

For at least these reasons, it is respectfully submitted that independent claims 1 and 11 are allowable over Nakamura, Ellis and Iggunlen, either alone or in combination. Accordingly, the rejection of independent claims 1 and 11 should be withdrawn. Dependent claims 2-5, 7, 9-10, 12-15, 17 and 19-20 are allowable over Nakamura, Ellis and/or Iggunlen at least for the reasons set forth above with respect to independent claims 1 and 11, from which they respectively depend, as well as for their added features.

The proposed combination of Nakamura and Kato fails to establish a *prima facie* case of obviousness, as required under Section 103. For example, Nakamura alone or in combination with Kato fails to disclose or suggest at least

> “wherein the first or second events are a change in a display of an icon or text displayed in a prescribed area of the display,”

and the combination thereof, as recited in amended independent claim 21.

As acknowledged by the Patent Office, Nakamura fails to disclose detecting a first and second events in the broadcast data. The Patent Office relies upon Kato, but Kato fails to remedy the deficiencies of Nakamura. That is, Kato detects portions of distorted video caused when a tuner changes channels. However, as discussed during the interview, Kato fails to disclose or suggest that the event is a change in a display of an icon or text displayed in a prescribed area of the display, as claimed. An example of such features may be found in, for example, paragraph [0120] of the present Application as published.

For at least these reasons, it is respectfully submitted that independent claim 21 is allowable over Nakamura and Kato, either alone or in combination. Accordingly, the rejection of independent claim 21 should be withdrawn. Dependent claims 23-24 are
allowable over Nakamura and Kato at least for the reasons set forth above with respect to independent claim 21, from which they depend, as well as for their added features.

Entry of the amended claims is proper under 37 C.F.R. §1.116 since the amendments: (1) place the application in condition for allowance (for the reasons discussed herein); (2) do not raise any new issues requiring further search and/or consideration (since the amendments amplify issues previously discussed throughout prosecution without incorporating additional subject matter); (3) satisfy a requirement of form asserted in the previous Office Action; and/or (4) place the application in better form for appeal (if necessary). Entry is thus requested.
CONCLUSION

In view of the foregoing amendments and remarks, it is respectfully submitted that the application is in condition for allowance. Favorable consideration and prompt allowance are earnestly solicited.

If the Examiner believes that any additional changes would place the application in better condition for allowance, the Examiner is invited to contact the undersigned attorney, Paul H. Kang, at the telephone number listed below.

To the extent necessary, a petition for an extension of time under 37 C.F.R. §1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this, concurrent and future replies, including extension of time fees, to Deposit Account 16-0607 and please credit any excess fees to such deposit account.

Respectfully Submitted,
KED & ASSOCIATES, LLP

Daniel Y.J. Kim
Registration No. 36,186
Paul H. Kang
Registration No. 66,545

Correspondence Address:
P.O. Box 8638
Reston, VA 20195
703 766-3777 DYK/PHKyc

Date: November 19, 2013
Please direct all correspondence to Customer Number 34610
**Electronic Acknowledgement Receipt**

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**Title of Invention:** DIGITAL BROADCASTING RECEIVER FOR PROGRAMMING RECORDING OF BROADCASTING PROGRAM AND METHOD THEREOF

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Total Files Size (in bytes): 530340

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

**New Applications Under 35 U.S.C. 111**
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

**National Stage of an International Application under 35 U.S.C. 371**
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

**New International Application Filed with the USPTO as a Receiving Office**
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.
IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of

Seong OH and Eun-Kyung KWAK

Serial No.: 11/872,132

Filed: October 15, 2007

Confirmation No.: 8284

For DIGITAL BROADCASTING RECEIVER FOR PROGRAMMING RECORDING OF BROADCASTING PROGRAM AND METHOD THEREOF

EXPEDITED PROCEDURE
UNDER 37 C.F.R. § 1.116

Group Art Unit: 2484

Examiner: Hung Q. DANG

Customer No.: 34610

U.S. Patent and Trademark Office
Customer Window, MAIL STOP AF
Randolph Building
401 Dulany Street
Alexandria, VA 22314

Dear Sir:

Transmitted herewith is an Amendment and/or Reply in the above identified application.

☐ No additional fee is required.
☐ Also attached:

The fee has been calculated as shown below:

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If multiple claims newly presented, add $780.00 $0.00

Fee for extension of time $0.00

TOTAL FEE DUE $0.00

☐ Please charge my Deposit Account No. 16-0607 in the amount of $______. An additional copy of this transmittal sheet is submitted herewith.

☐ Please charge my Credit Card. (Please see completed form PTO-2038 attached).

☒ The Commissioner is hereby authorized to charge payment of any fees associated with this communication or credit any overpayment, to Deposit Account No. 16-0607, including any filing fees under 37 C.F.R. §1.16 for presentation of extra claims and any patent application processing fees under 37 C.F.R. §1.17.

Respectfully Submitted,
KED & ASSOCIATES, LLP

[Signature]

Daniel Y.J. Kim
Registration No. 36,186
Paul H. Kang
Registration No. 66,545

Correspondence Address:
P.O. Box 8638
Reston, VA 20195
(703) 766-3777 DYK/PHK/yjc
Date: November 19, 2013

Please direct all correspondence to Customer Number 34610

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# PATENT APPLICATION FEE DETERMINATION RECORD

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| EXAMINATION FEE  
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| INDEPENDENT CLAIMS  
(37 CFR 1.16(b)) | minus 3 = * | x $ =       |

**APPLICATION SIZE FEE**

(37 CFR 1.16(a))

If the specification and drawings exceed 100 sheets of paper, the application size fee due is $310 ($155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(e).

**MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))**

* If the difference in column 1 is less than zero, enter “0” in column 2.

**TOTAL**

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**FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))**

**TOTAL ADD'L FEE**

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**FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))**

**TOTAL ADD'L FEE**

LIE

/Viola Rogers/

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This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.
Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.
All participants (applicant, applicant’s representative, PTO personnel):

(1) **HUNG DANG**.
(3) _____.

(2) **PAUL KANG**.
(4) _____.

Date of Interview: **07 November 2013**.

Type:  ☑ Telephonic  ☐ Video Conference
      ☐ Personal [copy given to:  ☐ applicant  ☐ applicant’s representative]

Exhibit shown or demonstration conducted:  ☐ Yes  ☐ No.
   If Yes, brief description: _____.

Issues Discussed  ☐101  ☐112  ☐102  ☐103  ☐Others
(For each of the checked box(es) above, please describe below the issue and detailed description of the discussion)

Claim(s) discussed:  **1, 11 and 21**.

Identification of prior art discussed:  **iguldén**.

Substance of Interview
(For each issue discussed, provide a detailed description and indicate if agreement was reached. Some topics may include: identification or clarification of a reference or a portion thereof, claim interpretation, proposed amendments, arguments of any applied references etc...)

**Examiner agreed that amending the claims to recite (1) storing broadcast data onto a storage device and deleting the broadcast data from the storage device, or (2) events are detected by detecting title changes or changes of icons on frame images, would overcome the currently applied prior art.**

**Applicant recordation instructions:** The formal written reply to the last Office action must include the substance of the interview. (See MPEP section 713.04). If a reply to the last Office action has already been filed, applicant is given a non-extendable period of the longer of one month or thirty days from this interview date, or the mailing date of this interview summary form, whichever is later, to file a statement of the substance of the interview.

**Examiner recordation instructions:** Examiners must summarize the substance of any interview of record. A complete and proper recordation of the substance of an interview should include the items listed in MPEP 713.04 for complete and proper recordation including the identification of the general thrust of each argument or issue discussed, a general indication of any other pertinent matters discussed regarding patentability and the general results or outcome of the interview, to include an indication as to whether or not agreement was reached on the issues raised.

☐ Attachment

/Hung Q Dang/
Primary Examiner, Art Unit 2484
Summary of Record of Interview Requirements

Manual of Patent Examining Procedure (MPEP), Section 713.04, Substance of Interview Must be Made of Record

A complete written statement as to the substance of any face-to-face, video conference, or telephone interview with regard to an application must be made of record in the application whether or not an agreement with the examiner was reached at the interview.

Title 37 Code of Federal Regulations (CFR) § 1.133 Interviews
Paragraph (b)

In every instance where reconsideration is requested in view of an interview with an examiner, a complete written statement of the reasons presented at the interview as warranting favorable action must be filed by the applicant. An interview does not remove the necessity for reply to Office action as specified in §§ 1.111, 1.135. (35 U.S.C. 132)

37 CFR §1.2 Business to be transacted in writing.

All business with the Patent or Trademark Office should be transacted in writing. The personal attendance of applicants or their attorneys or agents at the Patent and Trademark Office is unnecessary. The action of the Patent and Trademark Office will be based exclusively on the written record in the Office. No attention will be paid to any alleged oral promise, stipulation, or understanding in relation to which there is disagreement or doubt.

The action of the Patent and Trademark Office cannot be based exclusively on the written record in the Office if that record is itself incomplete through the failure to record the substance of interviews.

It is the responsibility of the applicant or the attorney or agent to make the substance of an interview of record in the application file, unless the examiner indicates he or she will do so. It is the examiner’s responsibility to see that such a record is made and to correct material inaccuracies which bear directly on the question of patentability.

Examiners must complete an Interview Summary Form for each interview held where a matter of substance has been discussed during the interview by checking the appropriate boxes and filling in the blanks. Discussions regarding only procedural matters, directed solely to restriction requirements for which interview recordation is otherwise provided for in Section 812.01 of the Manual of Patent Examining Procedure, or pointing out typographical errors or unreadable script in Office actions or the like, are excluded from the interview recordation procedures below. Where the substance of an interview is completely recorded in an Examiners Amendment, no separate Interview Summary Record is required.

The Interview Summary Form shall be given an appropriate Paper No., placed in the right hand portion of the file, and listed on the “Contents” section of the file wrapper. In a personal interview, a duplicate of the Form is given to the applicant (or attorney or agent) at the conclusion of the interview. In the case of a telephone or video-conference interview, the copy is mailed to the applicant’s correspondence address either with or prior to the next official communication. If additional correspondence from the examiner is not likely before an allowance or if other circumstances dictate, the Form should be mailed promptly after the interview rather than with the next official communication.

The Form provides for recordation of the following information:

- Application Number (Series Code and Serial Number)
- Name of applicant
- Name of examiner
- Date of interview
- Type of interview (telephonic, video-conference, or personal)
- Name of participant(s) (applicant, attorney or agent, examiner, other PTO personnel, etc.)
- An indication whether or not an exhibit was shown or a demonstration conducted
- An identification of the specific prior art discussed
- An indication whether an agreement was reached and if so, a description of the general nature of the agreement (may be by attachment of a copy of amendments or claims agreed as being allowable). Note: Agreement as to allowability is tentative and does not restrict further action by the examiner to the contrary
- The signature of the examiner who conducted the interview (if Form is not an attachment to a signed Office action)

It is desirable that the examiner orally remind the applicant of his or her obligation to record the substance of the interview of each case. It should be noted, however, that the Interview Summary Form will not normally be considered a complete and proper recordation of the interview unless it includes, or is supplemented by the applicant or the examiner to include, all of the applicable items required below concerning the substance of the interview.

A complete and proper recordation of the substance of any interview should include at least the following applicable items:

1) A brief description of the nature of any exhibit shown or any demonstration conducted,
2) an identification of the claims discussed,
3) an identification of the specific prior art discussed,
4) an identification of the principal proposed amendments of a substantive nature discussed, unless these are already described on the Interview Summary Form completed by the Examiner,
5) a brief identification of the general thrust of the principal arguments presented to the examiner.
   (The identification of the arguments need not be lengthy or elaborate. A verbatim or highly detailed description of the arguments is not required. The identification of the arguments is sufficient if the general nature or thrust of the principal arguments made to the examiner can be understood in the context of the application file. Of course, the applicant may desire to emphasize and fully describe those arguments which he or she feels were or might be persuasive to the examiner.)
6) a general indication of any other pertinent matters discussed, and
7) if appropriate, the general results or outcome of the interview unless already described in the Interview Summary Form completed by the examiner.

Examiners are expected to carefully review the applicant’s record of the substance of an interview. If the record is not complete and accurate, the examiner will give the applicant an extendable one month time period to correct the record.

Examiner to Check for Accuracy

If the claims are allowable for other reasons of record, the examiner should send a letter setting forth the examiner’s version of the statement attributed to him or her. If the record is complete and accurate, the examiner should place the indication, “Interview Record OK” on the paper recording the substance of the interview along with the date and the examiner’s initials.
Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.
Office Action Summary

--- The MAILING DATE of this communication appears on the cover sheet with the correspondence address ---

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).

Any reply received by the Office after the period for reply is allowed will be treated as an abandonment of the application unless the period for reply is properly extended. See 37 CFR 1.136(b).

Status

1) ☑ Responsive to communication(s) filed on 2 August 2013.
   - ☐ A declaration(s)/affidavit(s) under 37 CFR 1.130(b) was/were filed on _____.

2a) ☑ This action is FINAL.
    2b) ☐ This action is non-final.

3) ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____. The restriction requirement and election have been incorporated into this action.

4) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under Ex parte Quayle, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

5) ☑ Claim(s) 1, 5, 7, 9, 15, 17, 19, 21, 23 and 24 is/are pending in the application.
   5a) Of the above claim(s) ____ is/are withdrawn from consideration.

6) ☐ Claim(s) ____ is/are allowed.

7) ☑ Claim(s) 1, 5, 7, 9, 15, 17, 19, 21, 23 and 24 is/are rejected.

8) ☐ Claim(s) ____ is/are objected to.

9) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

* If any claims have been determined allowable, you may be eligible to benefit from the Patent Prosecution Highway program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to PPHfeedback@uspto.gov.

Application Papers

10) ☐ The specification is objected to by the Examiner.

11) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
    - Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
    - Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

Priority under 35 U.S.C. § 119

12) ☑ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

Certified copies:

a) ☐ All  b) ☐ Some *  c) ☐ None of the:
   1. ☐ Certified copies of the priority documents have been received.
   2. ☐ Certified copies of the priority documents have been received in Application No. _____.
   3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☑ Notice of References Cited (PTO-892)

2) ☐ Information Disclosure Statement(s) (PTO-SB/08)
    Paper No(s)/Mail Date _____

3) ☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date _____

4) ☐ Other: _____

--- Part of Paper No./Mail Date 20130815 ---
DETAILED ACTION

Response to Arguments

Applicant's arguments filed 08/02/2013 have been fully considered but they are moot in view of a new ground of rejections.

However, on pages 12-13, Applicant argues that Kato does not disclose "deleting the commercials when a determined time period between the CM flags is less than or equal to a prescribed amount of time."

In response, Examiner respectfully disagrees and submits that Kato teaches deleting any program portion that is less than or equal to a prescribed amount of time at the points where the channels are switched. Further, Kato also discloses the user can switch TV-channel to skip CMs at the user's will in at least [0106].

As such, Applicant's arguments with respect to claims 21-24 are not persuasive.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Regarding claim 1, Nakamura discloses method of programming a recording in a digital broadcasting receiver, comprising: registering a programmed channel among one or more channels ([0023]; [0062] – registering by generating a list of program starting times by channel to be recorded – since the programs of the channel are registered in the list to be recorded at their corresponding starting times, the channel is interpreted as programmed channel); storing broadcast data received from the programmed channel as a programmed-recording program ([0023]; [0062] – when a time for a program to start arrives, the newly starting program is recorded); and storing a next programmed-recording program to replace the stored programmed-recording program if the programmed-recording program is completely stored and broadcast data corresponding to the next programmed-recording program is received ([0023]; [0062] – based on the program information, a program on each channel is recorded from its beginning, and when the program ends and the next program starts, the next program is recorded overwriting the previous program recorded).

However, Nakamura does not explicitly disclose storing broadcast data received from the programmed channel as a programmed-recording program in accordance with a predetermined criterion; detecting a change in an event received in the broadcast data received in the programmed channel; determining a time period for a gap between the change in the event in the programmed channel and a subsequent change in the event in the same programmed channel; and deleting broadcast data corresponding to the gap when the time period is less than or equal to n minutes.
Ellis discloses storing broadcast data received from a programmed channel as a programmed-recording program in accordance with a predetermined criterion ([0225]; [0343] – recording options for scheduled recordings or alternatively user preferences as disclosed in [0413], or alternatively the priority recording options as described at least in [0198] and [0246] are interpreted as the recited predetermined criterion).

One of ordinary skill in the art at the time the invention was made would have been motivated to incorporate the teachings of Ellis into the method taught by Nakamura in order to enhance the recording interface of the method by allowing users to set the recording options as they desire and/or to automatically select the programs to be recorded according to the user’s preferences.

However, Nakamura and Ellis do not disclose detecting a change in an event received in the broadcast data received from the programmed channel; determining a time period for a gap between the change in the event in the programmed channel and a subsequent change in the event in the same programmed channel; and deleting broadcast data corresponding to the gap when the time period is less than or equal to n minutes.

Ilgulden discloses detecting a change in an event received in broadcast data received from a channel (column 10, line 62 – column 21; Fig. 1 – detecting events denoting the beginning and end positions of commercial recording session by audio event detector and/or video event detector shown in Fig. 1); determining a time period for a gap between the change in the event in the channel and a subsequent change in the event in the same channel (column 11, lines 31-35; Fig. 7 – detecting the session
length, which is the recited gap, between the change in the event denoting the
beginning position of the commercial and a subsequent event denoting the end position
of the commercial); and deleting broadcast data corresponding to the gap when the time
period is less than or equal to n minutes (column 11, lines 31-35; Fig. 7 – deleting the
commercial if the its recording session is less than or equal to 15 minutes).

One of ordinary skill in the art at the time the invention was made would have
been motivated to incorporate the teachings of Iggulden into the method taught by
Nakamura and Ellis, to delete commercial sections in the channel as desired by the
users.

Regarding claim 2, in the proposed combination of Nakamura, Ellis, and Iggulden
as discussed in claim 1 above, in which Ellis also discloses wherein the predetermined
criterion includes at least one broadcast program unit ([0198]; [0246] – a recording
priority is set for at least one program - such a program is interpreted as one broadcast
program unit – as such, the predetermined criterion includes one broadcast program
unit, which is specified as to be recorded with the given priority) or at least one
broadcast program unit, the programmed recording time of which is restricted ([0343];
Fig. 57 – one program is interpreted as the recited one broadcast program unit - the
recording options, as disclosed, comprise setting the time to restrict the programmed
recording time to the set time – as such the predetermined criterion includes one
broadcast program unit, which is specified as to be recorded at the restricted
programmed recording time). The motivation for incorporating Ellis into the method has
been discussed in claim 1 above.
Regarding claim 3, see the teachings of Nakamura, Ellis, and Iggulden as discussed in claim 1 above. Further, Nakamura also discloses playing back the broadcast data stored as the programmed-recording program from the beginning in accordance with a request to play back the broadcast data stored as the programmed-recording program (Fig. 3; [0029] – when the user presses a button on a remote controller to select channel 1, at point 400 as shown in Fig. 3(d), program A is displayed back from its beginning and when the user presses another button to switch to program C, at point 401 as shown in Fig. 3(d), the program C is played back from its beginning); changing the channel for playback in response to a request to change the channel (Fig. 3; [0029] – when the user presses a button on a remote controller to select channel 1, at point 400 as shown in Fig. 3(d), program A is displayed back from its beginning and when the user presses another button to switch to program C, at point 401 as shown in Fig. 3(d), the program C is played back from its beginning).

However, Nakamura does not explicitly disclose recording or editing a portion of the broadcast data stored as the programmed-recording program corresponding to a point at which the channel is changed.

Iggulden discloses recording or editing a portion of broadcast data stored as recording program corresponding to a point at which the channel is changed (column 11, lines 31-35; Fig. 7 – deleting the commercial if the its recording session is less than or equal to 15 minutes thus recording a portion of broadcast data stored as recording program to a point at which the channel is changed to a commercial).
The motivation for incorporating the teachings of Iguldenden has been discussed in claim 1 above.

Regarding claim 4, see the teachings of Nakamura, Ellis, and Iguldenden as discussed in claim 3 above. However, Nakamura, Ellis, and Iguldenden in the previously proposed combination do not disclose selecting whether to continue or stop recording the programmed-recording program, if the programmed-recording program is not played back from the beginning.

Ellis further discloses selecting whether to continue or stop recording the programmed-recording program, if the programmed-recording program is not played back from the beginning ([0290]; Fig. 34; [0304] – a program that is currently being recorded is selected to be watched live, thus the starting watching point is the point at current time and not from the beginning, and the user is allowed to select whether or not to cancel the recording at least by selecting the 'watch and cancel' options as shown in Fig. 34 and further described in [0304]).

One of ordinary skill in the art at the time the invention was made would have been motivated to further incorporate the feature of "selecting whether to continue or stop recording the programmed-recording program, if the programmed-recording program is not played back from the beginning" as disclosed by Ellis into the method taught by Nakamura, Ellis, and Iguldenden in the previously proposed combination to provide users with options of not storing programs undesired by users.

Regarding claim 5, see the teachings of Nakamura, Ellis, and Iguldenden in the proposed combination as discussed in claim 3 above. Further, Nakamura further
discloses the recording of the programmed-recording program which is being played back on the programmed channel continues, if the programmed channel, on which the programmed-recording program is being played back, is changed to another channel (Fig. 3; [0029]-[0030] – when the user switch to view another channel, the other programs are still recorded so that when the user switches back to view the previous channel, it starts playing back at the previous stop position).

The subject matter of claim 5 therefore differs from the method of Nakamura in that the user does not have an option to select whether to continue or stop recording the programmed-recording program if the channel being recorded and watched is changed to another channel. The technical effect of this difference is providing a friendlier user interface so that the user can have more control over the recording process. As such, the problem to be solved may therefore be regarded as how to provide an option for the user to select whether to continue or to stop the recording of the channel when the user changes to another channel.

One solution to the problem is further disclosed by Ellis that teaches that the user has an option for selecting whether to continue or stop recording the programmed-recording program which is being played back on the programmed channel, if the programmed channel, on which the programmed-recording program is being played back, is changed to another channel ([0296]-[0297]; Fig. 31 – when a program is being watched and recorded, overlay is displayed over the current video for a program in response to the user attempting to change a current channel while the video is being recorded, press ‘no’ to continue recording and press ‘yes’ to stop recording).
One of ordinary skill in the art at the time the invention was made would have been motivated to further incorporate the feature of “selecting whether to continue or stop recording the programmed-recording program which is being played back on the programmed channel, if the programmed channel, on which the programmed-recording program is being played back, is changed to another channel” as taught by Ellis above into the method disclosed by Nakamura, Ellis, and Igfulden in the previously proposed combination in order to further enhance the recording interface of the method by providing the user with more recording options to control the recording process.

Regarding claim 7, see the teachings of Nakamura, Ellis, and Igfulden as discussed in claim 1 above. Nakamura and Ellis in the proposed combination do not disclose cancelling one or more channels of the programmed channel and registering another channel as the programmed channel.

Ellis further discloses cancelling one or more channels of the programmed channel ([0327] – the user is allowed to cancel a scheduled recording of a program on a corresponding channel) and registering another channel as the programmed channel ([0214] – the user can register another channel via setting for manual recording of the channel).

One of ordinary skill in the art at the time the invention was made would have been motivated to further incorporate the teachings of Ellis above into the method taught by Nakamura, Ellis, and Igfulden in the previously proposed combination to further enhance the recording interface of the method by allowing the user register new
channels that he or she desires and cancel any scheduled channel if he or she no longer wants to record.

Regarding claim 9, Iggulden also discloses the n is between 0.1 and 10 (column \textit{11, lines 31-35; Fig. 7 – the period less than 15 minutes including a period between 0.1 minutes and 10 minutes}). The motivation for the combination has been discussed in claim 1 above.

Regarding claim 10, see the teachings of Nakamura, Ellis, and Iggulden as discussed in claim 1 above, in which Iggulden also discloses detecting a commercial program by using commercial program identification information included in the broadcast data (column \textit{10, line 62 – column 21; Fig. 1 – detecting events denoting the beginning and end positions of commercial recording session by audio event detector and/or video event detector shown in Fig. 1}) and deleting broadcast data corresponding to the detected commercial program (column \textit{11, lines 31-35; Fig. 7 – deleting the commercial if the its recording session is less than or equal to 15 minutes}. The motivation for the combination has been discussed in claim 1 above.

Regarding claim 11, Nakamura discloses a digital broadcasting receiver, comprising: a control unit, registering a programmed channel (Fig. 1; [0023]; [0062] – registering by generating a list of program starting times by channel to be recorded – since the programs of the channel are registered in the list to be recorded at their corresponding starting times, the channel is interpreted as programmed channel); storing broadcast data received from the programmed channel as a programmed-recording program ([0023]; [0062] – when a time for a program to start arrives, the
newly starting program is recorded); and storing a next programmed-recording program to replace the stored programmed-recording program if the programmed-recording program is completely stored and broadcast data corresponding to the next programmed-recording program is received ([0023]; [0062] – based on the program information, a program on each channel is recorded from its beginning, and when the program ends and the next program starts, the next program is recorded overwriting the previous program recorded); a storage unit, storing broadcast data corresponding to the programmed-recording program and channel information registered as the programmed channel ([0062] – the storage unit comprising the memory storing the program data and the memory that holds the list of program to be recorded).

However, Nakamura does not explicitly disclose the control unit storing broadcast data received from the programmed channel as a programmed-recording program in accordance with a predetermined criterion; and a detection unit that detects a change in an event received in the broadcast data received from the programmed channel, to determine a time period for a gap between the change in the event in the programmed channel and a subsequent change in the event in the same programmed channel, wherein the control unit deletes broadcast data that corresponds to the gap when the time period is less than or equal to n minutes.

Ellis discloses a control unit storing broadcast data received from the programmed channel as a programmed-recording program in accordance with a predetermined criterion ([0225]; [0343] – recording options for scheduled recordings or alternatively user preferences as disclosed in [0413], or alternatively the priority
recording options as described at least in [0198] and [0246] are interpreted as the recited predetermined criterion).

One of ordinary skill in the art at the time the invention was made would have been motivated to incorporate the teachings of Ellis into the receiver taught by Nakamura in order to enhance the recording interface of the receiver by allowing users to set the recording options as they desire and/or to automatically select the programs to be recorded according to the user's preferences.

However, Nakamura and Ellis do not disclose a detection unit that detects a change in an event received in the broadcast data received from the programmed channel, to determine a time period for a gap between the change in the event in the programmed channel and a subsequent change in the event in the same programmed channel, wherein the control unit deletes broadcast data that corresponds to the gap when the time period is less than or equal to n minutes.

Iggunlden discloses a detection unit that detects a change in an event received in broadcast data received from a channel (column 10, line 62 – column 21; Fig. 1 – detecting events denoting the beginning and end positions of commercial recording session by audio event detector and/or video event detector shown in Fig. 1) to determine a time period for a gap between the change in the event in the channel and a subsequent change in the event in the same channel (column 11, lines 31-35; Fig. 7 – detecting the session length, which is the recited gap, between the change in the event denoting the beginning position of the commercial and a subsequent event denoting the end position of the commercial); and a control unit deletes broadcast data that
corresponds to the gap when the time period is less than or equal to n minutes (column 11, lines 31-35; Fig. 7 – deleting the commercial if the its recording session is less than or equal to 15 minutes).

One of ordinary skill in the art at the time the invention was made would have been motivated to incorporate the teachings of Iggulden into the receiver taught by Nakamura and Ellis, to delete commercial sections in the channel as desired by the users.

Claim 12 is rejected for the same reason as discussed in claim 2 above.

Regarding claim 13, see the teachings of Nakamura, Ellis, and Iggulden as discussed in claim 11 above. However, Nakamura does not explicitly disclose a user interface for allowing a user to select whether broadcast data stored as the programmed-recording program is to be played back from the beginning, and to change the channel for playback; wherein the control unit records or edits a portion of the broadcast data stored as the programmed-recording program corresponding to a point at which the channel is changed.

Ellis discloses a user interface for allowing a user to select whether broadcast data stored as the programmed-recording program is to be played back from the beginning and to change the channel for playback ([0306]; [0310]; [0315] – the user is presented with multiple play options to allow the user to play from the beginning of the recorded program or to play the recording from the position of playback counter, or a current playback location etc.).
One of ordinary skill in the art at the time the invention was made would have been motivated to incorporate the teachings of Ellis into the receiver taught by Nakamura in order to enhance the recording interface of the receiver by allowing users to set the recording options as they desire and/or to automatically select the programs to be recorded according to the user's preferences.

However, Nakamura and Ellis do not disclose the control unit records or edits a portion of the broadcast data stored as the programmed-recording program corresponding to a point at which the channel is changed.

Iggulden discloses a control unit records or edits a portion of the broadcast data stored as the recording program corresponding to a point at which the channel is changed \((\text{column 11, lines 31-35; Fig. 7 -- deleting the commercial if the its recording session is less than or equal to 15 minutes thus recording a portion of broadcast data stored as recording program to a point at which the channel is changed to a commercial})\).

The motivation for incorporating the teachings of Iggulden has been discussed in claim 11 above.

Regarding claim 14, see the teachings of Nakamura, Ellis, and Iggulden as discussed in claim 13 above. However, Nakamura, Ellis, and Iggulden in the previously proposed combination do not disclose the user selects through the user interface whether to continue or stop recording the programmed-recording program, if the programmed-recording program is not played back from the beginning.
Ellis further discloses the user selects through the user interface whether to continue or stop recording the programmed-recording program, if the programmed-recording program is not played back from the beginning ([0289]-[0290]; Fig. 34; [0304]) — a program that is currently being recorded is selected to be watched live, thus the starting watching point is the point at current time and not from the beginning, and the user is allowed to select whether or not to cancel the recording at least by selecting the 'watch and cancel' options as shown in Fig. 34 and further described in [0304]).

One of ordinary skill in the art at the time the invention was made would have been motivated to further incorporate the feature of "selecting whether to continue or stop recording the programmed-recording program, if the programmed-recording program is not played back from the beginning" as disclosed by Ellis into the digital broadcasting receiver taught by Nakamura, Ellis, and Iggulden in the previously proposed combination to provide users with options of not storing programs undesired by users.

Claim 15 is rejected for the same reason as discussed in claim 5 above.

Claim 17 is rejected for the same reason as discussed in claim 7 above.

Claim 19 is rejected for the same reason as discussed in claim 9 above.

Claim 20 is rejected for the same reason as discussed in claim 10 above.

Claims 21 and 23-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakamura and Kato.

Regarding claim 21, Nakamura discloses a digital broadcasting receiver, comprising: at least one tuner for tuning to a channel to receive broadcast data ([0023];
[0062]; Fig. 1 - one of the tuners as shown in Fig. 1 tuning to a channel to receive broadcast data); a storage device for storing the received broadcast data ([0023]; [0062]; Fig. 1 – storing the received broadcast data into recording medium 140).

However, Nakamura does not disclose a controller for processing the broadcast data, wherein the controller is configured to detect a first event in the broadcast data, detect a second event in the broadcast data, determine a time period between the first event and the second event in the broadcast data, and when the determined time period is less than or equal to a prescribed amount of time, delete a portion of the broadcast data that corresponds to the time period.

Kato discloses a controller for processing the broadcast data, wherein the controller is configured to detect a first event in the broadcast data ([0109]-[0114]), detect a second event in the broadcast data ([0109]-[0114]), wherein the first and second events in the broadcast data correspond to a change in a type of content ([0103]-[0104] – start and end of a commercial so that commercials in a channel are skipped), determine a time period between the first event and the second event in the broadcast data ([0109]-[0114] – see Response to Arguments above), and when the determined time period is less than or equal to a prescribed amount of time, delete a portion of the broadcast data that corresponds to the time period ([0109]-[0114] – see Response to Arguments above – 10 seconds is 0.16666… minutes).

One of ordinary skill in the art at the time the invention was made would have been motivated to incorporate the teachings of Kato into the digital broadcasting receiver taught by Nakamura, wherein broadcast data taught by Kato is applied to a
programmed broadcast data taught by Nakamura discussed above, to delete short-period pictures of programmed channel data. These short-period pictures should be deleted since they results in uncomfortable visual effects (Kato, [0112]).

Regarding claim 23, Kato also discloses the first event in the broadcast data corresponds to a start of a commercial in the broadcast data and the second event in the broadcast data corresponds to an end of the commercial in the broadcast data ([0103]-[0104] – start and end of a commercial so that commercials in a channel are skipped). The motivation for the combination has been discussed in claim 22 above.

Regarding claim 24, Kato also discloses the prescribed amount of time is between 0.1 and 10 (10 seconds is around 0.16666 minutes, which is between 0.1 and 10 minutes). The motivation for the combination has been discussed in claim 21 above.

Conclusion

Applicant’s amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, THIS ACTION IS MADE FINAL. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of
the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hung Q. Dang whose telephone number is (571)270-1116. The examiner can normally be reached on IFT.

If attempts to reach the examiner by telephone are unsuccessful, the examiner’s supervisor, THAI Q. TRAN can be reached on 571-272-7382. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Hung Q Dang/
Primary Examiner, Art Unit 2484
**Notice of References Cited**

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*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)

Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.
## EAST Search History

### EAST Search History (Prior Art)

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☐ Claims renumbered in the same order as presented by applicant

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: Seong OH and Eun-Kyung KWAK

Confirmation No.: 8284

Group Art Unit: 2484

Examiner: Hung Q. DANG

Serial No.: 11/872,132

Filed: October 15, 2007

Customer No.: 34610

For: DIGITAL BROADCASTING RECEIVER FOR PROGRAMMING RECORDING OF BROADCASTING PROGRAM AND METHOD THEREOF

AMENDMENT

U.S. Patent and Trademark Office
Customer Window, Mail Stop Amendment
Randolph Building
401 Dulany Street
Alexandria, Virginia 22314

Sir:

In reply to the Office Action of April 2, 2013, the date for reply having been extended by a Petition for Extension of Time filed herewith, please amend the above-identified application as follows:

Amendments to the Claims are reflected in the listing of claims.

Remarks/Arguments begin after the listing of the claims.
AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of Claims:**

1. (Currently Amended) A method of programming a recording in a digital broadcasting receiver, comprising:

   registering a programmed channel among one or more channels;

   storing broadcast data received from the programmed channel as a programmed-recording program in accordance with a predetermined criterion;

   storing a next programmed-recording program to replace the stored programmed-recording program if the programmed-recording program is completely stored and broadcast data corresponding to the next programmed-recording program is received;

   detecting a change in an event of received in the broadcast data received from in the programmed channel;

   determining a time period for a gap between the change in the event-from in the programmed channel and a subsequent change in the event—from in the same programmed channel; and

   deleting broadcast data corresponding to the gap when the time period is less than or equal to n minutes.
2. (Original) The method of Claim 1, wherein the predetermined criterion includes at least one broadcast program unit or at least one broadcast program unit, the programmed recording time of which is restricted.

3. (Previously Presented) The method of claim 1, further comprising:
   playing back the broadcast data stored as the programmed-recording program from the beginning in accordance with a request to playback the broadcast data stored as the programmed-recording program;
   changing the channel for play back in response to a request to change the channel; and
   recording or editing a portion of the broadcast data stored as the programmed-recording program corresponding to a point at which the channel is changed.

4. (Original) The method of Claim 3, further comprising selecting whether to continue or stop recording the programmed-recording program, if the programmed-recording program is not played back from the beginning.

5. (Original) The method of Claim 3, further comprising selecting whether to continue or stop recording the programmed-recording program which is being played back
on the programmed channel, if the programmed channel, on which the programmed-recording program is being played back, is changed to another channel.

6. (Canceled)

7. (Original) The method of Claim 1, further comprising cancelling one or more channels of the programmed channel and registering another channel as the programmed channel.

8. (Canceled)

9. (Previously Presented) The method of Claim 1, wherein the n is between 0.1 and 10.

10. (Original) The method of Claim 1, further comprising detecting a commercial program by using commercial program identification information included in the broadcast data and deleting broadcast data corresponding to the detected commercial program.
11. (Currently Amended) A digital broadcasting receiver, comprising:

a control unit, registering a programmed channel, storing broadcast data received from the programmed channel as a programmed-recording program in accordance with a predetermined criterion, and storing a next programmed-recording program to replace the stored programmed-recording program if the programmed-recording program is completely stored and broadcast data corresponding to the next programmed-recording program is received;

a storage unit, storing broadcast data corresponding to the programmed-recording program and channel information registered as the programmed channel; and

a detection unit that detects a change in an event of-received in the broadcast data received from the programmed channel, to determine a time period for a gap between the change in the event-from in the programmed channel and a subsequent change in the event-from in the same programmed channel,

wherein the control unit deletes broadcast data that corresponds to the gap when the time period is less than or equal to n minutes.

12. (Original) The digital broadcasting receiver of Claim 11, wherein the predetermined criterion includes at least one broadcast program unit or at least one broadcast program unit, the programmed recording time of which is restricted.
13. (Previously Presented) The digital broadcasting receiver of claim 11, further comprising:

   a user interface for allowing a user to select whether broadcast data stored as the programmed-recording program is to be played back from the beginning, and to change the channel for playback,

   wherein the control unit records or edits a portion of the broadcast data stored as the programmed-recording program corresponding to a point at which the channel is changed.

14. (Original) The digital broadcasting receiver of Claim 13, wherein the user selects through the user interface whether to continue or stop recording the programmed-recording program, if the programmed-recording program is not played back from the beginning.

15. (Original) The digital broadcasting receiver of Claim 13, wherein the control unit selects whether to continue or stop recording the programmed-recording program which is being played back on the programmed channel, if the programmed channel, on which the programmed-recording program is being played back, is changed to another channel.
16. (Canceled)

17. (Original) The digital broadcasting receiver of Claim 11, wherein the control unit cancels one or more channels of the programmed channel and registers another channel as the programmed channel.

18. (Canceled)

19. (Previously Presented) The digital broadcasting receiver of Claim 11, wherein the n is between 0.1 and 10.

20. (Original) The digital broadcasting receiver of Claim 11, wherein the control unit detects a commercial program by using commercial program identification information included in the broadcast data and deletes broadcast data corresponding to the detected commercial program.

21. (Currently Amended) A digital broadcasting receiver, comprising:

   at least one tuner for tuning to a channel to receive broadcast data;

   a storage device for storing the received broadcast data; and
a controller for processing the broadcast data,

wherein the controller is configured to detect a first event in the broadcast data, detect a second event in the broadcast data, wherein the first and second events in the broadcast data correspond to a change in a type of content, determine a time period between the first event and the second event in the broadcast data, and when the determined time period is less than or equal to a prescribed amount of time, delete a portion of the broadcast data that corresponds to the time period.

22. (Canceled)

23. (Previously Presented) The digital broadcasting receiver of claim 22, wherein the first event in the broadcast data corresponds to a start of a commercial in the broadcast data and the second event in the broadcast data corresponds to an end of the commercial in the broadcast data.

24. (Previously Presented) The digital broadcasting receiver of claim 21, wherein the prescribed amount of time is between 0.1 and 10 minutes.
REMARKS/ARGUMENTS

Claims 1-5, 7, 9-15, 17, 19-21 and 23-24 are pending in this application. By this Amendment, claims 1, 11 and 21 are amended and claim 22 is canceled without prejudice or disclaimer. No new matter is added. Support for the claims can be found throughout the specification, including the original claims and the drawings. Withdrawal of the rejections in view of the above amendments and the following remarks is respectfully requested.


The proposed combination of Nakamura, Ellis and Kato fails to establish a prima facie case of obviousness, as required under Section 103. For example, Nakamura alone or in combination with Ellis and/or Kato fails to disclose or suggest

“detecting a change in an event received in the broadcast data received in the programmed channel;

determining a time period for a gap between the change in the event in the programmed channel and a subsequent change in the event in the same programmed channel; and

deleting broadcast data corresponding to the gap when the time period is less than or equal to n minutes,”
and the combination thereof, as recited in independent claim 1. Independent claim 11 recites similar features in varying scope.

As acknowledged by the Patent Office, Nakamura and Ellis do not disclose the above features as recited in independent claim 1. The Patent Office relies upon Kato, but Kato fails to disclose the features found lacking in Nakamura and Ellis. That is, the Patent Office concludes that switching a channel as disclosed in Kato corresponds to the claimed change in an event received in the broadcast data received in the programmed channel. However, any event associated with switching a channel is associated with events external to the broadcast data received in a particular channel. For example, the claimed change in an event received in the broadcast data may be a change in programming to a commercial program. Hence, switching a channel is not correctly corresponded to detecting a change in an event received in the broadcast data received in the programmed channel, as recited in amended independent claim 1, let alone determining a time period for a gap between events received in the broadcast data for deleting corresponding broadcast data.

For at least these reasons, it is respectfully submitted that independent claims 1 and 11 are allowable over Nakamura, Ellis and Kato, either alone or in combination. Accordingly, the rejection of independent claims 1 and 11 should be withdrawn. Dependent claims 2-5, 7, 9, 12-15, 17 and 19 are allowable over Nakamura, Ellis and/or Kato at least for
the reasons set forth above with respect to independent claims 1 and 11, from which they respectively depend, as well as for their added features.

Claims 10 and 20 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Nakamura, Ellis, Kato, and further in view of U.S. Patent No. 7,269,330 B1 to Igulden (hereinafter "Igulden"). The rejection is respectfully traversed.

Dependent claims 10 and 20 are allowable at least for the reasons set forth above with respect to independent claims 1 and 11, from which they respectively depend, as well as for their added features. The Patent Office relies upon Igulden, but Igulden fails to remedy the deficiencies of Nakamura, Ellis and Kato, as Igulden was merely cited as allegedly disclosing detecting a commercial program by using commercial program identification information included in the broadcast data and deleting broadcast data corresponding to the detected commercial program. Accordingly, withdrawal of this rejection is respectfully requested.

Claims 21-24 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Nakamura and Kato. Claim 22 is canceled. The rejection is respectfully traversed insofar as they apply to the amended pending claims.

The proposed combination of Nakamura and Kato fails to establish a prima facie case of obviousness, as required under Section 103. For example, Nakamura alone or in combination with Kato fails to disclose or suggest that
“the controller is configured to detect a first event in the broadcast data, detect a second event in the broadcast data, wherein the first and second events in the broadcast data correspond to a change in a type of content, determine a time period between the first event and the second event in the broadcast data, and when the determined time period is less than or equal to a prescribed amount of time, delete a portion of the broadcast data that corresponds to the time period,”

and the combination thereof, as recited in amended independent claim 21.

As acknowledged by the Patent Office, Nakamura fails to disclose the claimed first and second events. The Patent Office relies upon Kato for these features, and concludes that the channel switching corresponds to the claimed events. However, channel switching is not an event in the broadcast data, as claimed, but rather an event external to the broadcast data.

The Patent Office then admits, in comments regarding canceled claim 22, whose features are incorporated in independent claim 21, the proposed combination of Nakamura and Kato fails to disclose that the first and second events in the broadcast data correspond to a change in a type of content. The Patent Office then concludes that the claimed events can also correspond to a “start and end of a commercial so that commercials in a channel are skipped.” (See Office Action, page 20, lines 1-3 and paragraphs [0103]-[0104] of Kato). However, Kato merely discloses commercial detection/skipping using CM flags, and does
not disclose, whatsoever, deleting the commercials when a determined time period between the CM flags is less than or equal to a prescribed amount of time, as claimed. In fact, Kato teaches away from such a modification as suggested by the Patent Office. That is, Kato discloses that distortions in signals due to TV-channel switching precludes using them as time pointers to detect and remove the distorted pictures (See paragraph [0105] of Kato).

For at least these reasons, it is respectfully submitted that independent claim 21 is allowable over Nakamura and Kato, either alone or in combination. Accordingly, the rejection of independent claim 21 should be withdrawn. Dependent claims 23-24 are allowable over Nakamura and Kato at least for the reasons set forth above with respect to independent claim 21, from which they depend, as well as for their added features.
CONCLUSION

In view of the foregoing amendments and remarks, it is respectfully submitted that the application is in condition for allowance. Favorable consideration and prompt allowance are earnestly solicited. If the Examiner believes that any additional changes would place the application in better condition for allowance, the Examiner is invited to contact the undersigned attorney, Paul H. Kang, Esq., at the telephone number listed below.

To the extent necessary, a petition for an extension of time under 37 C.F.R. §1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this, concurrent and future replies, including extension of time fees, to Deposit Account 16-0607 and please credit any excess fees to such deposit account.

Respectfully submitted,
KED & ASSOCIATES, LLP

[Signature]

Daniel Y.J. Kim
Registration No. 36,186
Paul H. Kang
Registration No. 66,545

Correspondence Address:
P.O. Box 8638
Reston, VA 20195
703 766-3777 DYK/PJK

Date: August 2, 2013
Please direct all correspondence to Customer Number 34610

Q:\Documents\2309-003\387621.doc
**Electronic Patent Application Fee Transmittal**

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This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

**New Applications Under 35 U.S.C. 111**

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

**National Stage of an International Application under 35 U.S.C. 371**

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

**New International Application Filed with the USPTO as a Receiving Office**

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.
IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of

Seong OH and Eun-Kyung KWAK

Confirmation No.: 8284

Group Art Unit: 2484

Serial No.: 11/872,132

Examiner: Hung Q. DANG

Filed: October 15, 2007

Customer No.: 34610

For: DIGITAL BROADCASTING RECEIVER FOR PROGRAMMING RECORDING OF BROADCASTING PROGRAM AND METHOD THEREOF

U.S. Patent and Trademark Office
Customer Window, MAIL STOP AMENDMENT
Randolph Building
401 Dulany Street
Alexandria, Virginia 22314

Dear Sir:

Transmitted herewith is an Amendment and/or Reply in the above identified application.
☒ No additional fee is required.
☒ Also attached: Petition for Extension of Time

The fee has been calculated as shown below:

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If multiple claims newly presented, add $780.00

Fee for extension of time
$200.00

TOTAL FEE DUE
$200.00

☐ Please charge my Deposit Account No. 16-0607 in the amount of $_______. An additional copy of this transmittal sheet is submitted herewith.

☐ Please charge my Credit Card. (Please see completed form PTO-2038 attached).

☒ The Commissioner is hereby authorized to charge payment of any fees associated with this communication or credit any overpayment, to Deposit Account No. 16-0607, including any filing fees under 37 C.F.R. §1.16 for presentation of extra claims and any patent application processing fees under 37 C.F.R. §1.17.

Respectfully submitted,
KED & ASSOCIATES, LLP

Daniel Y.J. Kim
Registration No. 36,186
Paul H. Kang
Registration No. 66,545

Correspondence Address:
P.O. Box 8638
Reston, VA 20195
(703) 766-3777 DYK/PHK:tm

Date: August 2, 2013

Please direct all correspondence to Customer Number 34610
IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of Seong OH and Eun-Kyung KWAK

Confirmation No.: 8284

Group Art Unit: 2484

Examiner: Hung Q. DANG

Serial No.: 11/872,132

Customer No.: 34610

Filed: October 15, 2007

For: DIGITAL BROADCASTING RECEIVER FOR PROGRAMMING RECORDING OF BROADCASTING PROGRAM AND METHOD THEREOF

PETITION FOR EXTENSION OF TIME UNDER 37 C.F.R. §1.136(a)(1)

U.S. Patent and Trademark Office
Customer Service Window
Randolph Building
401 Dulany Street
Alexandria, Virginia 22314

Sir:

Applicant petitions the Commissioner of Patents and Trademarks to extend the time for response to the Office Action dated April 2, 2013 for one month(s) from July 2, 2013 to August 2, 2013.

Please charge our credit card in the amount of $200.00 for the extension of time under 37 C.F.R. §1.17(a). Any deficiency or overpayment should be charged or credited to Deposit Account No. 16-0607.

Respectfully submitted,
KED & ASSOCIATES, LLP

[Signature]
Daniel Y.J. Kim
Registration No. 36,186
Paul H. Kang
Registration No. 66,545

Correspondence Address:
P.O. Box 8638
Reston, VA 20195
703 766-3777

Date: August 2, 2013

Please direct all correspondence to Customer Number 34610
**APPLICATION AS FILED – PART I**

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*** If the "Highest Number Previously Paid For" in this space is less than 3, enter "3".

The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.

Signed:

/Paula Britton/

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.
Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.
Office Action Summary

--- The MAILING DATE of this communication appears on the cover sheet with the correspondence address ---

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).

Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1) ☑️ Responsive to communication(s) filed on 22 February 2012.

2a) ☐ This action is FINAL.  
2b) ☑️ This action is non-final.

3) ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on ______; the restriction requirement and election have been incorporated into this action.

4) ☑️ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under Ex parte Quayle, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

5) ☑️ Claim(s) 1-5, 7, 9-15, 17 and 19-24 is/are pending in the application.

5a) Of the above claim(s) ______ is/are withdrawn from consideration.

6) ☐ Claim(s) ______ is/are allowed.

7) ☑️ Claim(s) 1-5, 7, 9-10, 15, 17, and 19-24 is/are rejected.

8) ☐ Claim(s) ______ is/are objected to.

9) ☐ Claim(s) ______ are subject to restriction and/or election requirement.

* If any claims have been determined allowable, you may be eligible to benefit from the Patent Prosecution Highway program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to PPHfeedback@uspto.gov.

**Application Papers**

10) ☐ The specification is objected to by the Examiner.

11) ☐ The drawing(s) filed on ______ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

**Priority under 35 U.S.C. § 119**

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

**Certified copies:**

a) ☐ All  
   b) ☐ Some *  
   c) ☐ None of the:

1. ☐ Certified copies of the priority documents have been received.

2. ☐ Certified copies of the priority documents have been received in Application No. ______.

3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Interim copies:**

a) ☐ All  
   b) ☐ Some  
   c) ☐ None of the:  Interim copies of the priority documents have been received.

**Attachment(s)**

1) ☐ Notice of References Cited (PTO-892)

2) ☐ Information Disclosure Statement(s) (PTO/SB/08)

3) ☐ Interview Summary (PTO-413)

4) ☐ Other: ______.

U.S. Patent and Trademark Office
PTOL-326 (Rev. 03-13)
DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant’s submission filed on 02/22/2012 has been entered.

Response to Arguments

 Applicant’s arguments filed 10/11/2011 have been fully considered but they are not persuasive.

On pages 11-13, Applicant argues that,

However, the claimed programmed channel is registered among one or more channels, and the claimed broadcast data as well as the event of the broadcast data are received from the same programmed channel. Moreover, the claimed events are received over the programmed channel, in contrast to the channel switch signals received from a remote controller as taught in Kato. Hence, the detection and deletion of segments of pictures from different channels during channel switching of Kato is not correctly corresponded to the determining a time period for a gap between the change in the event from the programmed channel and a subsequent change in the event from the same program channel, and deleting broadcast data corresponding to the gap when the time period is less than or equal to n minutes, as claimed.
In response, Examiner respectfully disagrees. In [0109]-[0114] and further illustrated in Fig. 7, Kato teaches a channel switching pattern, in which channel 4 is switched to channel 6 for 10 seconds or less, then switched to channel 8 for 10 seconds or less, then switched to channel 10. Clearly, this is only an exemplary pattern. From the teachings of Kato, the user can arbitrarily switch the channels in any pattern. Let’s take an example where the user records channel 4 for a long period of time, then, after switching to channel 6 for seconds or less, the user switches back to the channel 4 but only for 10 seconds or less, then switches to channel 10 for a long a period of time.

Specifically, this scenario is similar to that shown in Fig. 7 of Kato with the only difference being the user switching back to channel 4, instead of a new channel 8, for a short period of time (10 seconds).

Further in view of the combination of Nakamura and Ellis, channel 4 is a programmed channel to be recorded.

Thus, the programmed channel is channel 4. Now, the first “change in an event of the broadcast data received from the programmed channel” at least corresponds to switching back to channel 4 from channel 6 and the “subsequent change in the event from the same programmed channel” is switching from channel 4 to channel 10. The period of 10 seconds is determined as disclosed by Kato in [0112]. The broadcast data corresponding to this period is deleted as disclosed to eliminate distorted data from being recorded. Alternatively, the first “change in an event of the broadcast data received from the programmed channel” at least corresponds to switching from channel 4 back to channel 6 and the “subsequent change in the event from the same
programmed channel” is switching from channel 4 to channel 10. The gap of two periods, each of 10 seconds is determined as disclosed by Kato in [0112]. The broadcast data corresponding to the gap is the distorted portion of channel 4 data of 10 second long. This distorted portion of data is deleted as disclosed.

Therefore, Applicant’s arguments are not persuasive.

**Claim Rejections - 35 USC § 103**

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.


Regarding claim 1, Nakamura discloses method of programming a recording in a digital broadcasting receiver, comprising: registering a programmed channel among one or more channels ([0023]; [0062] – registering by generating a list of program starting times by channel to be recorded – since the programs of the channel are registered in the list to be recorded at their corresponding starting times, the channel is interpreted as programmed channel); storing broadcast data received from the programmed channel as a programmed-recording program ([0023]; [0062] – when a time for a program to start arrives, the newly starting program is recorded); and storing a next programmed-
recording program to replace the stored programmed-recording program if the
programmed-recording program is completely stored and broadcast data corresponding
to the next programmed-recording program is received ([0023]; [0062] – based on the
program information, a program on each channel is recorded from its beginning, and
when the program ends and the next program starts, the next program is recorded
overwriting the previous program recorded).

However, Nakamura does not explicitly disclose storing broadcast data received
from the programmed channel as a programmed-recording program in accordance with
a predetermined criterion; detecting a change in an event of the broadcast data
received from the programmed channel; determining a time period for a gap between
the change in the event from the programmed channel and a subsequent change in the
event from the same programmed channel; and deleting broadcast data corresponding
to the gap when the time period is less than or equal to n minutes.

Ellis discloses storing broadcast data received from a programmed channel as a
programmed-recording program in accordance with a predetermined criterion ([0225];
[0343] – recording options for scheduled recordings or alternatively user preferences as
disclosed in [0413], or alternatively the priority recording options as described at least in
[0198] and [0246] are interpreted as the recited predetermined criterion).

One of ordinary skill in the art at the time the invention was made would have
been motivated to incorporate the teachings of Ellis into the method taught by
Nakamura in order to enhance the recording interface of the method by allowing users
to set the recording options as they desire and/or to automatically select the programs to be recorded according to the user's preferences.

However, Nakamura and Ellis do not disclose detecting a change in an event of the broadcast data received from the programmed channel; determining a time period for a gap between the change in the event from the programmed channel and a subsequent change in the event from the same programmed channel; and deleting broadcast data corresponding to the gap when the time period is less than or equal to n minutes.

Kato discloses a technical problem with frequent TV-channel switching ([0112]-[0113]). Kato discloses a solution to the problem by detecting a change in an event of broadcast data received from a channel ([0109]-[0114] – see Response to Arguments above); determining a time period for a gap between the change in the event from the channel and a subsequent change in the event from the same channel ([0109]-[0114] – see Response to Arguments above); and deleting broadcast data corresponding to the gap when the time period is less than or equal to n minutes ([0109]-[0114] – see Response to Arguments above – 10 seconds is 0.16666… minutes).

One of ordinary skill in the art at the time the invention was made would have been motivated to incorporate the teachings of Kato into the method taught by Nakamura and Ellis, wherein broadcast data taught by Kato is applied to a programmed broadcast data taught by Nakamura discussed above, to delete short-period pictures of programmed channel data. These short-period pictures should be deleted since they results in uncomfortable visual effects (Kato, [0112]).
Regarding claim 2, in the proposed combination of Nakamura, Ellis, and Kato as discussed in claim 1 above, in which Ellis also discloses wherein the predetermined criterion includes at least one broadcast program unit ([0198]; [0246] – a recording priority is set for at least one program - such a program is interpreted as one broadcast program unit – as such, the predetermined criterion includes one broadcast program unit, which is specified as to be recorded with the given priority) or at least one broadcast program unit, the programmed recording time of which is restricted ([0343]; Fig. 57 – one program is interpreted as the recited one broadcast program unit - the recording options, as disclosed, comprise setting the time to restrict the programmed recording time to the set time – as such the predetermined criterion includes one broadcast program unit, which is specified as to be recorded at the restricted programmed recording time). The motivation for incorporating Ellis into the method has been discussed in claim 1 above.

Regarding claim 3, see the teachings of Nakamura, Ellis, and Kato as discussed in claim 1 above. Further, Nakamura also discloses playing back the broadcast data stored as the programmed-recording program from the beginning in accordance with a request to play back the broadcast data stored as the programmed-recording program (Fig. 3; [0029] – when the user presses a button on a remote controller to select channel 1, at point 400 as shown in Fig. 3(d), program A is displayed back from its beginning and when the user presses another button to switch to program C, at point 401 as shown in Fig. 3(d), the program C is played back from its beginning); changing the channel for playback in response to a request to change the channel (Fig. 3; [0029]
– when the user presses a button on a remote controller to select channel 1, at point 400 as shown in Fig. 3(d), program A is displayed back from its beginning and when the user presses another button to switch to program C, at point 401 as shown in Fig. 3(d), the program C is played back from its beginning).

However, Nakamura does not explicitly disclose recording or editing a portion of the broadcast data stored as the programmed-recording program corresponding to a point at which the channel is changed.

Kato discloses recording or editing a portion of broadcast data stored as recording program corresponding to a point at which the channel is changed ([0111]-[0113] – frequent channel switching in 10 seconds results in discontinuous pictures making a user uncomfortable and such pictures are erased or deleted. Further as shown in Fig. 7, when the channel is switched, the point at which the channel is changed is recorded).

The motivation for incorporating the teachings of Kato has been discussed in claim 1 above, wherein broadcast data taught by Kato is applied to a programmed broadcast data taught by Nakamura discussed above.

Regarding claim 4, see the teachings of Nakamura, Ellis, and Kato as discussed in claim 3 above. However, Nakamura, Ellis, and Kato in the previously proposed combination do not disclose selecting whether to continue or stop recording the programmed-recording program, if the programmed-recording program is not played back from the beginning.
Ellis further discloses selecting whether to continue or stop recording the programmed-recording program, if the programmed-recording program is not played back from the beginning ([0289]-[0290]; Fig. 34; [0304]– a program that is currently being recorded is selected to be watched live, thus the starting watching point is the point at current time and not from the beginning, and the user is allowed to select whether or not to cancel the recording at least by selecting the 'watch and cancel' options as shown in Fig. 34 and further described in [0304]).

One of ordinary skill in the art at the time the invention was made would have been motivated to further incorporate the feature of "selecting whether to continue or stop recording the programmed-recording program, if the programmed-recording program is not played back from the beginning" as disclosed by Ellis into the method taught by Nakamura, Ellis, and Kato in the previously proposed combination to provide users with options of not storing programs undesired by users.

Regarding claim 5, see the teachings of Nakamura, Ellis, and Kato in the proposed combination as discussed in claim 3 above. Further, Nakamura further discloses the recording of the programmed-recording program which is being played back on the programmed channel continues, if the programmed channel, on which the programmed-recording program is being played back, is changed to another channel (Fig. 3; [0029]-[0030]– when the user switch to view another channel, the other programs are still recorded so that when the use switches back to view the previous channel, it starts playing back at the previous stop position).
The subject matter of claim 5 therefore differs from the method of Nakamura in that the user does not have an option to select whether to continue or stop recording the programmed-recording program if the channel being recorded and watched is changed to another channel. The technical effect of this difference is providing a friendlier user interface so that the user can have more control over the recording process. As such, the problem to be solved may therefore be regarded as how to provide an option for the user to select whether to continue or to stop the recording of the channel when the user changes to another channel.

One solution to the problem is further disclosed by Ellis that teaches that the user has an option for selecting whether to continue or stop recording the programmed-recording program which is being played back on the programmed channel, if the programmed channel, on which the programmed-recording program is being played back, is changed to another channel ([0296]-[0297]; Fig. 31 – when a program is being watched and recorded, overlay is displayed over the current video for a program in response to the user attempting to change a current channel while the video is being recorded, press ‘no’ to continue recording and press ‘yes’ to stop recording).

One of ordinary skill in the art at the time the invention was made would have been motivated to further incorporate the feature of “selecting whether to continue or stop recording the programmed-recording program which is being played back on the programmed channel, if the programmed channel, on which the programmed-recording program is being played back, is changed to another channel” as taught by Ellis above into the method disclosed by Nakamura, Ellis, and Kato in the previously proposed
combination in order to further enhance the recording interface of the method by
providing the user with more recording options to control the recording process.

Regarding claim 7, see the teachings of Nakamura, Ellis, and Kato as discussed
in claim 1 above. Nakamura and Ellis in the proposed combination do not disclose
cancelling one or more channels of the programmed channel and registering another
channel as the programmed channel.

Ellis further discloses cancelling one or more channels of the programmed
channel ([(0327) – the user is allowed to cancel a scheduled recording of a program on a
corresponding channel] and registering another channel as the programmed channel
([(0214) – the user can register another channel via setting for manual recording of the
channel].

One of ordinary skill in the art at the time the invention was made would have
been motivated to further incorporate the teachings of Ellis above into the method
taught by Nakamura, Ellis, and Kato in the previously proposed combination to further
enhance the recording interface of the method by allowing the user register new
channels that he or she desires and cancel any scheduled channel if he or she no
longer wants to record.

Regarding claim 9, Kato also discloses the n is between 0.1 and 10 (10 seconds
is around 0.16666 minutes, which is between 0.1 and 10 minutes). The motivation for
the combination has been discussed in claim 1 above.

Regarding claim 11, Nakamura discloses a digital broadcasting receiver,
comprising: a control unit, registering a programmed channel (Fig. 1; [0023]; [0062] –
registering by generating a list of program starting times by channel to be recorded – since the programs of the channel are registered in the list to be recorded at their corresponding starting times, the channel is interpreted as programmed channel); storing broadcast data received from the programmed channel as a programmed-recording program ([0023]; [0062] – when a time for a program to start arrives, the newly starting program is recorded); and storing a next programmed-recording program to replace the stored programmed-recording program if the programmed-recording program is completely stored and broadcast data corresponding to the next programmed-recording program is received ([0023]; [0062] – based on the program information, a program on each channel is recorded from its beginning, and when the program ends and the next program starts, the next program is recorded overwriting the previous program recorded); a storage unit, storing broadcast data corresponding to the programmed-recording program and channel information registered as the programmed channel ([0062] – the storage unit comprising the memory storing the program data and the memory that holds the list of program to be recorded).

However, Nakamura does not explicitly disclose the control unit storing broadcast data received from the programmed channel as a programmed-recording program in accordance with a predetermined criterion; and a detection unit that detects a change in an event of the broadcast data received from the programmed channel, to determine a time period for a gap between the change in the event from the programmed channel and a subsequent change in the event from the same programmed channel, wherein
the control unit deletes broadcast data that corresponds to the gap when the time period is less than or equal to n minutes.

Ellis discloses a control unit storing broadcast data received from the programmed channel as a programmed-recording program in accordance with a predetermined criterion ([0225]; [0343] – recording options for scheduled recordings or alternatively user preferences as disclosed in [0413], or alternatively the priority recording options as described at least in [0198] and [0246] are interpreted as the recited predetermined criterion).

One of ordinary skill in the art at the time the invention was made would have been motivated to incorporate the teachings of Ellis into the receiver taught by Nakamura in order to enhance the recording interface of the receiver by allowing users to set the recording options as they desire and/or to automatically select the programs to be recorded according to the user’s preferences.

However, Nakamura and Ellis do not disclose a detection unit that detects a change in an event of the broadcast data received from the programmed channel, to determine a time period for a gap between the change in the event from the programmed channel and a subsequent change in the event from the same programmed channel, wherein the control unit deletes broadcast data that corresponds to the gap when the time period is less than or equal to n minutes.

Kato discloses a technical problem with frequent TV-channel switching ([0112]-[0113]). Kato discloses a solution to the problem by implementing a detection unit that detects a change in an event of the broadcast data received from the channel ([0109]-
[0114] – see Response to Arguments), to determine a time period for a gap between the change in the event from the channel and a subsequent change in the event from the same channel ([0109]-[0114] – see Response to Arguments above), wherein the control unit deletes broadcast data that corresponds to the gap when the time period is less than or equal to n minutes ([0109]-[0114] – see Response to Arguments above – 10 seconds is 0.1666... minutes).

One of ordinary skill in the art at the time the invention was made would have been motivated to incorporate the teachings of Kato into the receiver taught by Nakamura and Ellis, wherein broadcast data taught by Kato is applied to a programmed broadcast data taught by Nakamura discussed above, to delete short-period pictures. These short-period pictures should be deleted since they results in uncomfortable visual effects (Kato, [0112]).

Claim 12 is rejected for the same reason as discussed in claim 2 above.

Regarding claim 13, see the teachings of Nakamura, Ellis, and Kato as discussed in claim 11 above. However, Nakamura does not explicitly disclose a user interface for allowing a user to select whether broadcast data stored as the programmed-recording program is to be played back from the beginning, and to change the channel for playback; wherein the control unit records or edits a portion of the broadcast data stored as the programmed-recording program corresponding to a point at which the channel is changed.

Ellis discloses a user interface for allowing a user to select whether broadcast data stored as the programmed-recording program is to be played back from the
beginning and to change the channel for playback ([0306]; [0310]; [0315] – the user is presented with multiple play options to allow the user to play from the beginning of the recorded program or to play the recording from the position of playback counter, or a current playback location etc.).

One of ordinary skill in the art at the time the invention was made would have been motivated to incorporate the teachings of Ellis into the receiver taught by Nakamura in order to enhance the recording interface of the receiver by allowing users to set the recording options as they desire and/or to automatically select the programs to be recorded according to the user’s preferences.

However, Nakamura and Ellis do not disclose the control unit records or edits a portion of the broadcast data stored as the programmed-recording program corresponding to a point at which the channel is changed.

Kato discloses a control unit records or edits a portion of the broadcast data stored as the recording program corresponding to a point at which the channel is changed ([0111]-[0113] – frequent channel switching in 10 seconds results in discontinuous pictures making a user uncomfortable and such pictures are erased or deleted – 10 seconds is 0.1666... minutes. Further as shown in Fig. 7, when the channel is switched, the point at which the channel is changed is recorded).

One of ordinary skill in the art at the time the invention was made would have been motivated to incorporate the teachings of Kato into the receiver taught by Nakamura and Ellis, wherein broadcast data taught by Kato is applied to a programmed broadcast data taught by Nakamura discussed above, to allow users to switch to
different channels during recording, as such saving recording space when the number of received programs is high and to delete short-period pictures. These short-period pictures should be deleted since they result in uncomfortable visual effects (Kato, [0112]).

Regarding claim 14, see the teachings of Nakamura and Ellis as discussed in claim 13 above. However, Nakamura and Ellis in the previously proposed combination do not disclose the user selects through the user interface whether to continue or stop recording the programmed-recording program, if the programmed-recording program is not played back from the beginning.

Ellis further discloses the user selects through the user interface whether to continue or stop recording the programmed-recording program, if the programmed-recording program is not played back from the beginning ([0289]-[0290]; Fig. 34; [0304] – a program that is currently being recorded is selected to be watched live, thus the starting watching point is the point at current time and not from the beginning, and the user is allowed to select whether or not to cancel the recording at least by selecting the ’watch and cancel’ options as shown in Fig. 34 and further described in [0304]).

One of ordinary skill in the art at the time the invention was made would have been motivated to further incorporate the feature of “selecting whether to continue or stop recording the programmed-recording program, if the programmed-recording program is not played back from the beginning” as disclosed by Ellis into the digital broadcasting receiver taught by Nakamura and Ellis in the previously proposed combination to provide users with options of not storing programs undesired by users..
Claim 15 is rejected for the same reason as discussed in claim 5 above.

Claim 17 is rejected for the same reason as discussed in claim 7 above.

Claim 19 is rejected for the same reason as discussed in claim 9 above.

Claims 10 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakamura, Ellis, and Kato as applied to claims 1-5, 7, 9, 11-15, 17, and 19 above, and further in view of Iggulden (US Patent 7,269,330 B1 – hereinafter Iggulden).

Regarding claim 10, see the teachings of Nakamura, Ellis, and Kato as discussed in claim 1 above. However, Nakamura, Ellis, and Kato in the proposed combination does not disclose detecting a commercial program by using commercial program identification information included in the broadcast data and deleting broadcast data corresponding to the detected commercial program.

Ellis further discloses deleting broadcast data corresponding to the detected commercial program (Fig. 59; [0376] – commercials are removed or deleted from the recorded broadcast programs).

One of ordinary skill in the art at the time the invention was made would have been motivated to further incorporate the feature of deleting the broadcast data corresponding to the commercial programs disclosed by Ellis as described above into the method in the previously proposed combination of Nakamura, Ellis, and Kato in order to allow the user to delete the commercials as he or she desires thus further enhancing the recording interface of the method.
Nakamura, Ellis, and Kato in such a proposed combination do not disclose detecting a commercial program by using commercial program identification information included in the broadcast data.

Iggulden disclose detecting a commercial program by using commercial program identification information included in the broadcast data (*column 9, lines 11-33 – detecting event markers and a signature unique to each segment to detect data of commercial segment*).

One of ordinary skill in the art at the time the invention was made would have been motivated to incorporate the teachings of Iggulden into the method taught by Nakamura, Ellis, and Kato as discussed above to facilitate the process of deleting the commercial data from the recorded contents.

Claim 20 is rejected for the same reason as discussed in claim 10 above.

**Claims 21-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakamura and Kato.**

Regarding claim 21, Nakamura discloses a digital broadcasting receiver, comprising: at least one tuner for tuning to a channel to receive broadcast data ([0023]; [0062]; *Fig. 1 - one of the tuners as shown in Fig. 1 tuning to a channel to receive broadcast data*); a storage device for storing the received broadcast data ([0023]; [0062]; *Fig. 1 – storing the received broadcast data into recording medium 140*).

However, Nakamura does not disclose a controller for processing the broadcast data, wherein the controller is configured to detect a first event in the broadcast data, detect a second event in the broadcast data, determine a time period between the first
event and the second event in the broadcast data, and when the determined time period is less than or equal to a prescribed amount of time, delete a portion of the broadcast data that corresponds to the time period.

Kato discloses a controller for processing the broadcast data, wherein the controller is configured to detect a first event in the broadcast data ([0109]-[0114] – see Response to Arguments above), detect a second event in the broadcast data ([0109]-[0114] – see Response to Arguments above), determine a time period between the first event and the second event in the broadcast data ([0109]-[0114] – see Response to Arguments above), and when the determined time period is less than or equal to a prescribed amount of time, delete a portion of the broadcast data that corresponds to the time period ([0109]-[0114] – see Response to Arguments above – 10 seconds is 0.16666… minutes).

One of ordinary skill in the art at the time the invention was made would have been motivated to incorporate the teachings of Kato into the digital broadcasting receiver taught by Nakamura, wherein broadcast data taught by Kato is applied to a programmed broadcast data taught by Nakamura discussed above, to delete short-period pictures of programmed channel data. These short-period pictures should be deleted since they results in uncomfortable visual effects (Kato, [0112]).

Regarding claim 22, see the teachings of Nakamura and Kato as discussed in claim 21 above. However, the proposed combination does not comprise the feature of "the first and second events in the broadcast data correspond to a change in a type of content."
Kato also discloses the first and second events in the broadcast data correspond to a change in a type of content ([0103]-[0104] – *start and end of a commercial so that commercials in a channel are skipped*).

One of ordinary skill in the art at the time the invention was made would have been motivated to further incorporate the teachings of Kato into the digital broadcasting device in the previously proposed combination to eliminate commercials from being recorded thus saving storage space for wanted contents.

Regarding claim 23, Kato also discloses the first event in the broadcast data corresponds to a start of a commercial in the broadcast data and the second event in the broadcast data corresponds to an end of the commercial in the broadcast data ([0103]-[0104] – *start and end of a commercial so that commercials in a channel are skipped*). The motivation for the combination has been discussed in claim 22 above.

Regarding claim 24, Kato also discloses the prescribed amount of time is between 0.1 and 10 (*10 seconds is around 0.16666 minutes, which is between 0.1 and 10 minutes*). The motivation for the combination has been discussed in claim 21 above.

**Conclusion**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hung Q. Dang whose telephone number is (571)270-1116. The examiner can normally be reached on IFT.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, THAI Q. TRAN can be reached on 571-272-7382. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.
Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Hung Q Dang/
Examiner, Art Unit 2484
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U.S. Patent and Trademark Office  Part of Paper No. : 20130329
REQUEST FOR CONTINUED EXAMINATION (RCE)  
TRANSMITTAL UNDER 37 C.F.R. §1.114

DOCKET NUMBER: EZ-0003  
Prior Appln Serial No.: 11/872,132  
Filed: October 15, 2007  
Inventor(s): Seong OH and Eun-Kyung KWAK  
Confirmation No.: 8284  
Group Art Unit: 2484  
Examiner: Hung Q. DANG

U.S. Patent and Trademark Office  
Customer Service Window, Mail Stop RCE  
Randolph Building  
401 Dulany Street  
Alexandria, Virginia 22314

Sir:


1. Submission required under 37 C.F.R. §1.114
   a. □ Previously submitted
      i. □ Consider the amendment(s)/reply under 37 C.F.R. §1.116 previously filed on ______
         (Any unentered amendment(s) referred to above will be entered).
      ii. □ Consider the arguments in the Appeal Brief or Reply Brief previously filed on ______
      iii. □ Other: ______
   b. □ Enclosed
      i. □ Amendment/Reply
      ii. □ Affidavit(s)/Declaration(s)
      iii. □ Information Disclosure Statement (IDS)
      iv. □ Other: ______

2. Miscellaneous
   a. □ Suspension of action on the above-identified application is requested under 37 C.F.R. §1.103(c) for a period of ______ months. Fee amount $130.00 under 37 C.F.R. §1.17(i) enclosed. (Period of suspension shall not exceed 3 months; Fee under 37 C.F.R.§1.17(i) required).
   b. □ Other: ______

3. Fees □ RCE fee required under 37 C.F.R. §1.17(e); Small Entity $465.00, other than small entity $930.00. The RCE fee under 37 C.F.R. §1.17(e) is required by 37 C.F.R. §1.114 when the RCE is filed.
   □ Extension of time fee (37 C.F.R. §§1.136 and 1.17)

Payment by:
   a. □ Check in the amount of $_____ (Check No. _____) enclosed.
   b. □ Please charge my Credit Card.
   c. □ Please charge my Deposit Account No. 16-0607 in the amount of $_____. A duplicate copy of this sheet is enclosed.

The Commissioner is hereby authorized to charge payment of any deficiency in the above fees associated with this communication or credit any overpayment to Deposit Account No. 16-0607.

Respectfully submitted,
KED & ASSOCIATES, LLP

[Signature]
Daniel Y.J. Kim  
Registration No. 36,186
Paul H. Kang  
Registration No. 66,545

Correspondence Address:  
P.O. Box 8638  
Reston, VA 20195  
703 766-3777 DYK/PHKcmd
Date: February 22, 2012

Please direct all correspondence to Customer Number 34610
IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application of

Seong OH and Eun-Kyung KWAK

Serial No.: 11/872,132

Filed: October 15, 2007

Confirmation No.: 8284

For

DIGITAL BROADCASTING RECEIVER FOR PROGRAMMING RECORDING OF BROADCASTING PROGRAM AND METHOD THEREOF

U.S. Patent and Trademark Office
Customer Window, MAIL STOP AF
Randolph Building
401 Dulany Street
Alexandria, VA 22314

Dear Sir:

Transmitted herewith is an Amendment and/or Reply in the above identified application.

☒ No additional fee is required.
☐ Also attached:

The fee has been calculated as shown below:

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If multiple claims newly presented, add $450.00

Fee for extension of time

TOTAL FEE DUE

☐ Please charge my Deposit Account No. 16-0607 in the amount of $______ An additional copy of this transmittal sheet is submitted herewith.

☐ Please charge my Credit Card. (Please see completed form PTO-2038 attached).

☒ The Commissioner is hereby authorized to charge payment of any fees associated with this communication or credit any overpayment, to Deposit Account No. 16-0607, including any filing fees under 37 C.F.R. §1.16 for presentation of extra claims and any patent application processing fees under 37 C.F.R. §1.17.

Respectfully submitted,
KED & ASSOCIATES, LLP

Daniel Y.J. Kim
Registration No. 36,186
Paul H. Kang
Registration No. 66,545

Correspondence Address:
P.O. Box 8638
Reston, VA 20195
(703) 766-3777 DYK/PHK:tmdd
Date: February 22, 2012

Please direct all correspondence to Customer Number 34610
Docket No.: EZ-0003

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In Re Application of: Seong OH and Eun-Kyung KWAK

Serial No.: 11/872,132

Confirmation No.: 8284

Filed: October 15, 2007

For: DIGITAL BROADCASTING RECEIVER FOR PROGRAMMING RECORDING OF BROADCASTING PROGRAM AND METHOD THEREOF

REPLY AND/OR AMENDMENT

U.S. Patent and Trademark Office
Customer Window, Mail Stop AF
Randolph Building
401 Dulany Street
Alexandria, VA 22314

Sir:

In reply to the Final Office Action dated November 22, 2011, please amend the above-identified application as follows:

Amendments to the Claims are reflected in the listing of claims.

Remarks/Arguments begin after the listing of the claims.
AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) A method of programming a recording in a digital broadcasting receiver, comprising:

   registering a programmed channel including among one or more channels;

   storing broadcast data received from the programmed channel as a programmed-recording program in accordance with a predetermined criterion;

   storing a next programmed-recording program to replace the stored programmed-recording program if the programmed-recording program is completely stored and broadcast data corresponding to the next programmed-recording program is received; and

   deleting an n-minute segment of the stored broadcast data received from the programmed channel as the programmed-recording program if an event associated with the broadcast data received as the programmed-recording program changes at least twice within the n-minutes

   detecting a change in an event of the broadcast data received from the programmed channel;
determining a time period for a gap between the change in the event from the programmed channel and a subsequent change in the event from the same programmed channel; and

deleing broadcast data corresponding to the gap when the time period is less than or equal to n minutes.

2. (Original) The method of Claim 1, wherein the predetermined criterion includes at least one broadcast program unit or at least one broadcast program unit, the programmed recording time of which is restricted.

3. (Currently Amended) A-The method of programming a recording in a digital broadcasting receiver claim 1, further comprising:

registering a programmed channel including one or more channels;

storing broadcast data received from the programmed channel as a programmed-recording program in accordance with a predetermined criterion;

storing a next programmed-recording program to replace the stored programmed-recording program if the programmed-recording program is completely stored and broadcast data corresponding to the next programmed-recording program is received;
playing back the broadcast data stored as the programmed-recording program from the beginning in accordance with a request to playback the broadcast data stored as the programmed-recording program;

changing the channel for play back in response to a request to change the channel;

and

recording or editing a portion of the broadcast data stored as the programmed-recording program corresponding to a point at which the channel is changed.

4. (Original) The method of Claim 3, further comprising selecting whether to continue or stop recording the programmed-recording program, if the programmed-recording program is not played back from the beginning.

5. (Original) The method of Claim 3, further comprising selecting whether to continue or stop recording the programmed-recording program which is being played back on the programmed channel, if the programmed channel, on which the programmed-recording program is being played back, is changed to another channel.

6. (Canceled)
7. (Original) The method of Claim 1, further comprising cancelling one or more channels of the programmed channel and registering another channel as the programmed channel.

8. (Canceled)

9. (Previously Presented) The method of Claim 1, wherein the n is between 0.1 and 10.

10. (Original) The method of Claim 1, further comprising detecting a commercial program by using commercial program identification information included in the broadcast data and deleting broadcast data corresponding to the detected commercial program.

11. (Currently Amended) A digital broadcasting receiver, comprising:

   a control unit, registering one or more channels as a programmed channel, storing broadcast data received from the programmed channel as a programmed-recording program in accordance with a predetermined criterion, and storing a next programmed-recording program to replace the stored programmed-recording program if the programmed-recording program is
completely stored and broadcast data corresponding to the next programmed-recording program is received; and

a storage unit, storing broadcast data corresponding to the programmed-recording program and channel information registered as the programmed channel; and

wherein the control unit deletes an n minute segment of the stored broadcast data received from the programmed channel as the programmed-recording program if an event associated with the broadcast data received as the programmed-recording program changes at least twice within the n minutes

a detection unit that detects a change in an event of the broadcast data received from the programmed channel, to determine a time period for a gap between the change in the event from the programmed channel and a subsequent change in the event from the same programmed channel,

wherein the control unit deletes broadcast data that corresponds to the gap when the time period is less than or equal to n minutes.

12. (Original) The digital broadcasting receiver of Claim 11, wherein the predetermined criterion includes at least one broadcast program unit or at least one broadcast program unit, the programmed recording time of which is restricted.
13. (Currently Amended) A digital broadcasting receiver of claim 11, further comprising:

   a control unit, registering one or more channels as a programmed channel, storing broadcast data received from the programmed channel as a programmed-recording program in accordance with a predetermined criterion, and storing a next programmed-recording program to replace the stored programmed-recording program if the programmed-recording program is completely stored and broadcast data corresponding to the next programmed-recording program is received;

   a storage unit, storing broadcast data corresponding to the programmed-recording program and channel information registered as the programmed-channel; and

   a user interface for allowing a user to select whether broadcast data stored as the programmed-recording program is to be played back from the beginning, and to change the channel for playback,

   wherein the control unit records or edits a portion of the broadcast data stored as the programmed-recording program corresponding to a point at which the channel is changed.

14. (Original) The digital broadcasting receiver of Claim 13, wherein the user selects through the user interface whether to continue or stop recording the programmed-recording program, if the programmed-recording program is not played back from the beginning.
15. (Original) The digital broadcasting receiver of Claim 13, wherein the control unit selects whether to continue or stop recording the programmed-recording program which is being played back on the programmed channel, if the programmed channel, on which the programmed-recording program is being played back, is changed to another channel.

16. (Canceled)

17. (Original) The digital broadcasting receiver of Claim 11, wherein the control unit cancels one or more channels of the programmed channel and registers another channel as the programmed channel.

18. (Canceled)

19. (Previously Presented) The digital broadcasting receiver of Claim 11, wherein the n is between 0.1 and 10.

20. (Original) The digital broadcasting receiver of Claim 11, wherein the control unit detects a commercial program by using commercial program identification information included
in the broadcast data and deletes broadcast data corresponding to the detected commercial program.

21. (New) A digital broadcasting receiver, comprising:

at least one tuner for tuning to a channel to receive broadcast data;

a storage device for storing the received broadcast data; and

a controller for processing the broadcast data,

wherein the controller is configured to detect a first event in the broadcast data, detect a second event in the broadcast data, determine a time period between the first event and the second event in the broadcast data, and when the determined time period is less than or equal to a prescribed amount of time, delete a portion of the broadcast data that corresponds to the time period.

22. (New) The digital broadcasting receiver of claim 21, wherein the first and second events in the broadcast data correspond to a change in a type of content.

23. (New) The digital broadcasting receiver of claim 22, wherein the first event in the broadcast data corresponds to a start of a commercial in the broadcast data and the second event in the broadcast data corresponds to an end of the commercial in the broadcast data.
24. (New) The digital broadcasting receiver of claim 21, wherein the prescribed amount of time is between 0.1 and 10 minutes.
REMARKS/ARGUMENTS

Claims 1-5, 7, 9-15, 17 and 19-24 are pending in this application. By this Amendment, claims 1, 3, 11 and 13 are amended, and claims 21-24 are newly added. No new matter is added. Support for the claims can be found throughout the specification, including the original claims and the drawings. Withdrawal of the rejections in view of the above amendments and the following remarks is respectfully requested.


The proposed combination of Nakamura, Ellis and Kato fails to establish a prima facie case of obviousness, as required under Section 103. For example, Nakamura alone or in combination with Ellis and/or Kato fails to disclose or suggest “detecting a change in an event of the broadcast data received from the programmed channel, determining a time period for a gap between the change in the event from the programmed channel and a subsequent change in the event from the same programmed channel, and deleting broadcast data corresponding to the gap when the time period is less than or equal to n minutes,” and the combination thereof, as
recited in amended independent claim 1. Independent claim 11 recites similar features in varying scope.

As acknowledged by the Patent Office, Nakamura and Ellis do not disclose detecting a change in an event of a broadcast data to delete a portion of the broadcast data. The Patent Office relies upon Kato, but it is respectfully submitted that Kato does not disclose features found lacking in Nakamura and Ellis. The Patent Office concludes that detecting a channel switch signal of Kato corresponds to the claimed detecting a change in an event, and deleting a “short-period picture” from a channel during frequent TV channel switching of Kato corresponds to the claimed deleting broadcast data. Moreover, the Patent Office interprets the claimed stored broadcast data received from the programmed channel to include data received over channels CH4, CH6, CH8 and CH10 during channel switching of Kato. See, for example, page 2, lines 12-18 of the Office action.

However, the claimed programmed channel is registered among one or more channels, and the claimed broadcast data as well as the event of the broadcast data are received from the same programmed channel. Moreover, the claimed events are received over the programmed channel, in contrast to the channel switch signals received from a remote controller as taught in Kato. Hence, the detection and deletion of segments of pictures from different channels during channel switching of Kato is not correctly corresponded to the determining a time period for a gap between the change in the event from the programmed channel and a subsequent change in
the event from the same program channel, and deleting broadcast data corresponding to the gap when the time period is less than or equal to n minutes, as claimed.

For at least these reasons, it is respectfully submitted that independent claims 1 and 11 are allowable over Nakamura, Ellis and Kato, either alone or in combination. Accordingly, the rejection of independent claims 1 and 11 should be withdrawn. Dependent claims 2-5, 7, 9, 12-15, 17 and 19 are allowable over Nakamura, Ellis and/or Kato at least for the reasons set forth above with respect to independent claims 1 and 11, from which they respectively depend, as well as for their added features.


Dependent claims 10 and 20 are allowable at least for the reasons set forth above with respect to independent claims 1 and 11, from which they respectively depend, as well as for their added features. Iggulden does not disclose or teach the features found lacking in Nakamura, Ellis and Kato, and hence, any proposed combination of Iggulden with Nakamura, Ellis, and/or Kato cannot result in the claimed features. Hence, a prima facie case of obviousness cannot be established, and withdrawal of the Section 103 rejection is respectfully requested.

By this Amendment, claims 21-24 are added to the application. It is respectfully submitted that added claims 21-24 also define over the applied prior art.
CONCLUSION

In view of the foregoing amendments and remarks, it is respectfully submitted that the application is in condition for allowance. Favorable consideration and prompt allowance are earnestly solicited. If the Examiner believes that any additional changes would place the application in better condition for allowance, the Examiner is invited to contact the undersigned attorney, Paul H. Kang, Esq., at the telephone number listed below.

To the extent necessary, a petition for an extension of time under 37 C.F.R. §1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this, concurrent and future replies, including extension of time fees, to Deposit Account 16-0607 and please credit any excess fees to such deposit account.

Respectfully submitted,
KED & ASSOCIATES, LLP

Daniel Y.J. Kim
Registration No. 36,186
Paul H. Kang
Registration No. 66,545

Correspondence Address:
P.O. Box 8638
Reston, VA 20195
703 766-3777 DYK/PHK@md

Date:
Please direct all correspondence to Customer Number 34610
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**Electronic Patent Application Fee Transmittal**

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**Title of Invention:**

DIGITAL BROADCASTING RECEIVER FOR PROGRAMMING RECORDING OF BROADCASTING PROGRAM AND METHOD THEREOF

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- Authorized User: 

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**New Applications Under 35 U.S.C. 111**
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

**National Stage of an International Application under 35 U.S.C. 371**
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

**New International Application Filed with the USPTO as a Receiving Office**
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.
Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.
Office Action Summary

Application No. 11/872,132
Applicant(s) OH ET AL.
Examiner HUNG DANG
Art Unit 2484

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☑  Responsive to communication(s) filed on 11 October 2011.
2aa)☐  This action is FINAL.  2bb)☐  This action is non-final.
3)☐  An election was made by the applicant in response to a restriction requirement set forth during the interview on __________; the restriction requirement and election have been incorporated into this action.
4)☐  Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under Ex parte Quayle, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

5)☑  Claim(s) 1-5,7,9-15,17,19 and 20 is/are pending in the application.
   5a) Of the above claim(s) ______ is/are withdrawn from consideration.
6)☐  Claim(s) ______ is/are allowed.
7)☑  Claim(s) 1-5, 7, 9-15, 17, and 19-20 is/are rejected.
8)☐  Claim(s) ______ is/are objected to.
9)☐  Claim(s) ______ are subject to restriction and/or election requirement.

Application Papers

10)☐  The specification is objected to by the Examiner.
11)☐  The drawing(s) filed on ______ is/are:  a)☐ accepted or b)☐ objected by to the Examiner.

   Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

   Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
12)☐  The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

13)☐  Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
   a)☐ All  b)☐ Some * c)☐ None of:

   1.☐ Certified copies of the priority documents have been received.
   2.☐ Certified copies of the priority documents have been received in Application No. ______.
   3.☐ Copies of the certified copies of the priority documents have been received in this National Stage
      application from the International Bureau (PCT Rule 17.2(a)).

   * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☐ Notice of References Cited (PTO-892)
2)☐ Notice of Draftsman’s Patent Drawing Review (PTO-948)
3)☐ Information Disclosure Statement(s) (PTO/SB/08)
   Paper No(s)/Mail Date _____.
4)☐ Interview Summary (PTO-413)
   Paper No(s)/Mail Date _____.
5)☐ Notice of Informal Patent Application
6)☐ Other: _____.
DETAILED ACTION

Response to Arguments

Applicant's arguments filed 10/11/2011 have been fully considered but they are not persuasive.

On pages 8-9, Applicant argues that, “[i]n Kato, short segments of video during frequent channel switching are deleted. However, only the intermediate segments between the original channel and a final channel are deleted (e.g., CH6 and CH8 in Figure 7). In Kato, the video in the original channel (e.g., CH4) is not changed or deleted. Therefore, Kato fails to disclose or suggest deleting an n minute segment of the stored broadcast data received from the programmed channel as the programmed-recording program, as recited in independent claims 1 and 11.”

However, Examiner respectfully disagrees. Claims 1 and 11 recite the programmed channel including one or more programs. As such, data from these "one or more programs" are considered broadcast data received from the programmed channel. In Kato, stored data from CH4, CH6, CH8, and CH10 as shown in Fig. 7 are considered “stored broadcast data received from the programmed channel”. Therefore, at least the deleted data are part of the stored broadcast data received from the programmed channel as recited in the claims.

For at least that reason, Applicant’s arguments are not persuasive.

On pages 9-10, Applicant argues that, "in Kato, short segments of video are deleted during frequent channel switching, but the video in the original channel is not deleted. Accordingly, Kato does not teach or suggest "recording or editing a portion of
the broadcast data stored as the programmed-recording program corresponding to a point at which the channel is changed," as recited in independent claim 3 and 13."

This argument is not persuasive in view of the discussion above wherein Kato also discloses the point of the programmed-recording program at which the channel is changed is recorded and the deletion after recording is interpreted as editing.

Therefore, Applicant’s arguments are not persuasive.

**Claim Rejections - 35 USC § 103**

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negativied by the manner in which the invention was made.


Regarding claim 1, Nakamura discloses method of programming a recording in a digital broadcasting receiver, comprising: registering a programmed channel including one or more channels ([0023]; [0062] – registering by generating a list of program starting times by channel to be recorded – since the programs of the channel are registered in the list to be recorded at their corresponding starting times, the channel is interpreted as programmed channel); storing broadcast data received from the programmed channel as a programmed-recording program ([0023]; [0062] – when a
time for a program to start arrives, the newly starting program is recorded); and storing a next programmed-recording program to replace the stored programmed-recording program if the programmed-recording program is completely stored and broadcast data corresponding to the next programmed-recording program is received ([0023]; [0062] – based on the program information, a program on each channel is recorded from its beginning, and when the program ends and the next program starts, the next program is recorded overwriting the previous program recorded).

However, Nakamura does not explicitly disclose storing broadcast data received from the programmed channel as a programmed-recording program in accordance with a predetermined criterion; and deleting an n minute segment of the stored broadcast data received from the programmed channel as the programmed-recording program if an event associated with the broadcast data received as the programmed-recording program changes at least twice within the n minutes.

Ellis discloses storing broadcast data received from a programmed channel as a programmed-recording program in accordance with a predetermined criterion ([0225]; [0343] – recording options for scheduled recordings or alternatively user preferences as disclosed in [0413], or alternatively the priority recording options as described at least in [0198] and [0246] are interpreted as the recited predetermined criterion).

One of ordinary skill in the art at the time the invention was made would have been motivated to incorporate the teachings of Ellis into the method taught by Nakamura in order to enhance the recording interface of the method by allowing users
to set the recording options as they desire and/or to automatically select the programs to be recorded according to the user's preferences.

However, Nakamura and Ellis do not disclose deleting an n minute segment of the stored broadcast data received from the programmed channel as the programmed-recording program if an event associated with the broadcast data received as the programmed-recording program changes at least twice within the n minutes.

Kato discloses a technical problem with frequent TV-channel switching ([0112]-[0113]). Kato discloses a solution to the problem by deleting an n minute segment of stored broadcast data received from a programmed channel as a programmed-recording program if an event associated with the broadcast data received as the programmed-recording program changes at least twice within the n minutes ([0111]-[0113] – frequent channel switching in 10 seconds results in discontinuous pictures making a user uncomfortable and such pictures are erased or deleted – 10 seconds is 0.16666... minutes).

One of ordinary skill in the art at the time the invention was made would have been motivated to incorporate the teachings of Kato into the method taught by Nakamura and Ellis to delete short-period pictures. These short-period pictures should be deleted since they results in uncomfortable visual effects (Kato, [0112]).

Regarding claim 2, in the proposed combination of Nakamura, Ellis, and Kato as discussed in claim 1 above, in which Ellis also discloses wherein the predetermined criterion includes at least one broadcast program unit ([0198]; [0246] – a recording priority is set for at least one program - such a program is interpreted as one broadcast
program unit – as such, the predetermined criterion includes one broadcast program unit, which is specified as to be recorded with the given priority) or at least one broadcast program unit, the programmed recording time of which is restricted ([0343]; Fig. 57 – one program is interpreted as the recited one broadcast program unit - the recording options, as disclosed, comprise setting the time to restrict the programmed recording time to the set time – as such the predetermined criterion includes one broadcast program unit, which is specified as to be recorded at the restricted programmed recording time). The motivation for incorporating Ellis into the method has been discussed in claim 1 above.

Regarding claim 3, Nakamura discloses a method of programming a recording in a digital broadcasting receiver, comprising: registering a programmed channel including one or more channels ([0023]; [0062] – registering by generating a list of program starting times by channel to be recorded – since the programs of the channel are registered in the list to be recorded at their corresponding starting times, the channel is interpreted as programmed channel); storing broadcast data received from the programmed channel as a programmed-recording program ([0023]; [0062] – when a time for a program to start arrives, the newly starting program is recorded); and storing a next programmed-recording program to replace the stored programmed-recording program if the programmed-recording program is completely stored and broadcast data corresponding to the next programmed-recording program is received ([0023]; [0062] – based on the program information, a program on each channel is recorded from its beginning, and when the program ends and the next program starts, the next program is
recorded overwriting the previous program recorded); playing back the broadcast data stored as the programmed-recording program from the beginning in accordance with a request to play back the broadcast data stored as the programmed-recording program (Fig. 3; [0029] – when the user presses a button on a remote controller to select channel 1, at point 400 as shown in Fig. 3(d), program A is displayed back from its beginning and when the user presses another button to switch to program C, at point 401 as shown in Fig. 3(d), the program C is played back from its beginning); changing the channel for playback in response to a request to change the channel (Fig. 3; [0029] – when the user presses a button on a remote controller to select channel 1, at point 400 as shown in Fig. 3(d), program A is displayed back from its beginning and when the user presses another button to switch to program C, at point 401 as shown in Fig. 3(d), the program C is played back from its beginning).

However, Nakamura does not explicitly disclose storing broadcast data received from the programmed channel as a programmed-recording program in accordance with a predetermined criterion; and recording or editing a portion of the broadcast data stored as the programmed-recording program corresponding to a point at which the channel is changed.

Ellis discloses storing broadcast data received from a programmed channel as a programmed-recording program in accordance with a predetermined criterion ([0225]; [0343] – recording options for scheduled recordings or alternatively user preferences as disclosed in [0413], or alternatively the priority recording options as described at least in [0198] and [0246] are interpreted as the recited predetermined criterion).
One of ordinary skill in the art at the time the invention was made would have been motivated to incorporate the teachings of Ellis into the method taught by Nakamura in order to enhance the recording interface of the method by allowing users to set the recording options as they desire and/or to automatically select the programs to be recorded according to the user's preferences.

However, Nakamura and Ellis do not disclose recording or editing a portion of the broadcast data stored as the programmed-recording program corresponding to a point at which the channel is changed.

Kato discloses recording or editing a portion of the broadcast data stored as the programmed-recording program corresponding to a point at which the channel is changed ([0111]-[0113] – frequent channel switching in 10 seconds results in discontinuous pictures making a user uncomfortable and such pictures are erased or deleted – 10 seconds is 0.1666... minutes. Further as shown in Fig. 7, when the channel is switched, the point at which the channel is changed is recorded).

One of ordinary skill in the art at the time the invention was made would have been motivated to incorporate the teachings of Kato into the method taught by Nakamura and Ellis to allow users to switch to different channels during recording, as such saving recording space when the number of received programs is high and to delete short-period pictures. These short-period pictures should be deleted since they result in uncomfortable visual effects (Kato, [0112]).

Regarding claim 4, see the teachings of Nakamura, Ellis, and Kato as discussed in claim 3 above. However, Nakamura, Ellis, and Kato in the previously proposed
combination do not disclose selecting whether to continue or stop recording the programmed-recording program, if the programmed-recording program is not played back from the beginning.

Ellis further discloses selecting whether to continue or stop recording the programmed-recording program, if the programmed-recording program is not played back from the beginning ([0289]-[0290]; Fig. 34; [0304] – a program that is currently being recorded is selected to be watched live, thus the starting watching point is the point at current time and not from the beginning, and the user is allowed to select whether or not to cancel the recording at least by selecting the 'watch and cancel' options as shown in Fig. 34 and further described in [0304]).

One of ordinary skill in the art at the time the invention was made would have been motivated to further incorporate the feature of "selecting whether to continue or stop recording the programmed-recording program, if the programmed-recording program is not played back from the beginning" as disclosed by Ellis into the method taught by Nakamura, Ellis, and Kato in the previously proposed combination to provide users with options of not storing programs undesired by users.

Regarding claim 5, see the teachings of Nakamura, Ellis, and Kato in the proposed combination as discussed in claim 3 above. Further, Nakamura further discloses the recording of the programmed-recording program which is being played back on the programmed channel continues, if the programmed channel, on which the programmed-recording program is being played back, is changed to another channel (Fig. 3; [0029]-[0030] – when the user switch to view another channel, the other
programs are still recorded so that when the use switches back to view the previous channel, it starts playing back at the previous stop position).

The subject matter of claim 5 therefore differs from the method of Nakamura in that the user does not have an option to select whether to continue or stop recording the programmed-recording program if the channel being recorded and watched is changed to another channel. The technical effect of this difference is providing a friendlier user interface so that the user can have more control over the recording process. As such, the problem to be solved may therefore be regarded as how to provide an option for the user to select whether to continue or to stop the recording of the channel when the user changes to another channel.

One solution to the problem is further disclosed by Ellis that teaches that the user has an option for selecting whether to continue or stop recording the programmed-recording program which is being played back on the programmed channel, if the programmed channel, on which the programmed-recording program is being played back, is changed to another channel ([0296]-[0297]; Fig. 31 – when a program is being watched and recorded, overlay is displayed over the current video for a program in response to the user attempting to change a current channel while the video is being recorded, press ‘no’ to continue recording and press ‘yes’ to stop recording).

One of ordinary skill in the art at the time the invention was made would have been motivated to further incorporate the feature of “selecting whether to continue or stop recording the programmed-recording program which is being played back on the programmed channel, if the programmed channel, on which the programmed-recording
program is being played back, is changed to another channel” as taught by Ellis above into the method disclosed by Nakamura, Ellis, and Kato in the previously proposed combination in order to further enhance the recording interface of the method by providing the user with more recording options to control the recording process.

Regarding claim 7, see the teachings of Nakamura, Ellis, and Kato as discussed in claim 1 above. Nakamura and Ellis in the proposed combination do not disclose cancelling one or more channels of the programmed channel and registering another channel as the programmed channel.

Ellis further discloses cancelling one or more channels of the programmed channel ([0327] – the user is allowed to cancel a scheduled recording of a program on a corresponding channel) and registering another channel as the programmed channel ([0214] – the user can register another channel via setting for manual recording of the channel).

One of ordinary skill in the art at the time the invention was made would have been motivated to further incorporate the teachings of Ellis above into the method taught by Nakamura, Ellis, and Kato in the previously proposed combination to further enhance the recording interface of the method by allowing the user register new channels that he or she desires and cancel any scheduled channel if he or she no longer wants to record.

Regarding claim 9, Kato also discloses the n is between 0.1 and 10 (10 seconds is around 0.16666 minutes, which is between 0.1 and 10 minutes). The motivation for the combination has been discussed in claim 1 above.
Regarding claim 11, Nakamura discloses a digital broadcasting receiver, comprising: a control unit, registering one or more channels as a programmed channel, (Fig. 1; [0023]; [0062] – registering by generating a list of program starting times by channel to be recorded – since the programs of the channel are registered in the list to be recorded at their corresponding starting times, the channel is interpreted as programmed channel); storing broadcast data received from the programmed channel as a programmed-recording program ([0023]; [0062] – when a time for a program to start arrives, the newly starting program is recorded); and storing a next programmed-recording program to replace the stored programmed-recording program if the programmed-recording program is completely stored and broadcast data corresponding to the next programmed-recording program is received ([0023]; [0062] – based on the program information, a program on each channel is recorded from its beginning, and when the program ends and the next program starts, the next program is recorded overwriting the previous program recorded); a storage unit, storing broadcast data corresponding to the programmed-recording program and channel information registered as the programmed channel ([0023]; [0062] – the storage unit comprising the memory storing the program data and the memory that holds the list of program to be recorded).

However, Nakamura does not explicitly disclose the control unit storing broadcast data received from the programmed channel as a programmed-recording program in accordance with a predetermined criterion; and the control unit deletes an n minute segment of the stored broadcast data received from the programmed channel as the
programmed-recording program if an event associated with the broadcast data received as the programmed-recording program changes at least twice within the n minutes.

Ellis discloses a control unit storing broadcast data received from the programmed channel as a programmed-recording program in accordance with a predetermined criterion ([0225]; [0343] – recording options for scheduled recordings or alternatively user preferences as disclosed in [0413], or alternatively the priority recording options as described at least in [0198] and [0246] are interpreted as the recited predetermined criterion).

One of ordinary skill in the art at the time the invention was made would have been motivated to incorporate the teachings of Ellis into the receiver taught by Nakamura in order to enhance the recording interface of the receiver by allowing users to set the recording options as they desire and/or to automatically select the programs to be recorded according to the user’s preferences.

However, Nakamura and Ellis do not disclose control unit deletes an n minute segment of the stored broadcast data received from the programmed channel as the programmed-recording program if an event associated with the broadcast data received as the programmed-recording program changes at least twice within the n minutes.

Kato discloses a technical problem with frequent TV-channel switching ([0112]-[0113]). Kato discloses a solution to the problem by implementing a control unit to delete an n minute segment of the stored broadcast data received from the programmed channel as the programmed-recording program if an event associated with the broadcast data received as the programmed-recording program changes at least
twice within the n minutes ([0111]-[0113] – frequent channel switching in 10 seconds results in discontinuous pictures making a user uncomfortable and such pictures are erased or deleted – 10 seconds is 0.16666… minutes).

One of ordinary skill in the art at the time the invention was made would have been motivated to incorporate the teachings of Kato into the receiver taught by Nakamura and Ellis to delete short-period pictures. These short-period pictures should be deleted since they result in uncomfortable visual effects (Kato, [0112]).

Claim 12 is rejected for the same reason as discussed in claim 2 above.

Regarding claim 13, Nakamura discloses a digital broadcasting receiver, comprising: a control unit, registering one or more channels as a programmed channel (Fig. 1; [0023]; [0062] – registering by generating a list of program starting times by channel to be recorded – since the programs of the channel are registered in the list to be recorded at their corresponding starting times, the channel is interpreted as programmed channel), storing broadcast data received from the programmed channel as a programmed-recording program ([0023]; [0062] – when a time for a program to start arrives, the newly starting program is recorded); and storing a next programmed-recording program to replace the stored programmed-recording program if the programmed-recording program is completely stored and broadcast data corresponding to the next programmed-recording program is received ([0023]; [0062] – based on the program information, a program on each channel is recorded from its beginning, and when the program ends and the next program starts, the next program is recorded overwriting the previous program recorded); a storage unit, storing broadcast data
corresponding to the programmed-recording program and channel information
registered as the programmed channel ([0062] – the storage unit comprising the
memory storing the program data and the memory that holds the list of program to be
recorded).

However, Nakamura does not explicitly disclose the control unit storing broadcast
data received from the programmed channel as a programmed-recording program in
accordance with a predetermined criterion; a user interface for allowing a user to select
whether broadcast data stored as the programmed-recording program is to be played
back from the beginning, and to change the channel for playback; wherein the control
unit records or edits a portion of the broadcast data stored as the programmed-
recording program corresponding to a point at which the channel is changed.

Ellis discloses a control unit storing broadcast data received from the
programmed channel as a programmed-recording program in accordance with a
predetermined criterion ([0225]; [0343] – recording options for scheduled recordings or
alternatively user preferences as disclosed in [0413], or alternatively the priority
recording options as described at least in [0198] and [0246] are interpreted as the
recited predetermined criterion); and a user interface for allowing a user to select
whether broadcast data stored as the programmed-recording program is to be played
back from the beginning and to change the channel for playback ([0306]; [0310]; [0315]
– the user is presented with multiple play options to allow the user to play from the
beginning of the recorded program or to play the recording from the position of playback
counter, or a current playback location etc).
One of ordinary skill in the art at the time the invention was made would have been motivated to incorporate the teachings of Ellis into the receiver taught by Nakamura in order to enhance the recording interface of the receiver by allowing users to set the recording options as they desire and/or to automatically select the programs to be recorded according to the user's preferences.

However, Nakamura and Ellis do not disclose the control unit records or edits a portion of the broadcast data stored as the programmed-recording program corresponding to a point at which the channel is changed.

Kato discloses a control unit records or edits a portion of the broadcast data stored as the programmed-recording program corresponding to a point at which the channel is changed ([0111]-[0113] – frequent channel switching in 10 seconds results in discontinuous pictures making a user uncomfortable and such pictures are erased or deleted – 10 seconds is 0.16666... minutes. Further as shown in Fig. 7, when the channel is switched, the point at which the channel is changed is recorded).

One of ordinary skill in the art at the time the invention was made would have been motivated to incorporate the teachings of Kato into the receiver taught by Nakamura and Ellis to allow users to switch to different channels during recording, as such saving recording space when the number of received programs is high and to delete short-period pictures. These short-period pictures should be deleted since they results in uncomfortable visual effects (Kato, [0112]).

Regarding claim 14, see the teachings of Nakamura and Ellis as discussed in claim 13 above. However, Nakamura and Ellis in the previously proposed combination
do not disclose the user selects through the user interface whether to continue or stop recording the programmed-recording program, if the programmed-recording program is not played back from the beginning.

Ellis further discloses the user selects through the user interface whether to continue or stop recording the programmed-recording program, if the programmed-recording program is not played back from the beginning ([0289]-[0290]; Fig. 34; [0304] – a program that is currently being recorded is selected to be watched live, thus the starting watching point is the point at current time and not from the beginning, and the user is allowed to select whether or not to cancel the recording at least by selecting the 'watch and cancel' options as shown in Fig. 34 and further described in [0304]).

One of ordinary skill in the art at the time the invention was made would have been motivated to further incorporate the feature of "selecting whether to continue or stop recording the programmed-recording program, if the programmed-recording program is not played back from the beginning" as disclosed by Ellis into the digital broadcasting receiver taught by Nakamura and Ellis in the previously proposed combination to provide users with options of not storing programs undesired by users.

Claim 15 is rejected for the same reason as discussed in claim 5 above.

Claim 17 is rejected for the same reason as discussed in claim 7 above.

Claim 19 is rejected for the same reason as discussed in claim 9 above.

Claims 10 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakamura, Ellis, and Kato as applied to claims 1-5, 7, 9, 11-15, 17, and 19.

Regarding claim 10, see the teachings of Nakamura, Ellis, and Kato as discussed in claim 1 above. However, Nakamura, Ellis, and Kato in the proposed combination does not disclose detecting a commercial program by using commercial program identification information included in the broadcast data and deleting broadcast data corresponding to the detected commercial program.

Ellis further discloses deleting broadcast data corresponding to the detected commercial program (Fig. 59; [0376] – commercials are removed or deleted from the recorded broadcast programs).

One of ordinary skill in the art at the time the invention was made would have been motivated to further incorporate the feature of deleting the broadcast data corresponding to the commercial programs disclosed by Ellis as described above into the method in the previously proposed combination of Nakamura, Ellis, and Kato in order to allow the user to delete the commercials as he or she desires thus further enhancing the recording interface of the method.

Nakamura, Ellis, and Kato in such a proposed combination do not disclose detecting a commercial program by using commercial program identification information included in the broadcast data.

Iggunlen disclose detecting a commercial program by using commercial program identification information included in the broadcast data (column 9, lines 11-33 –
detecting event markers and a signature unique to each segment to detect data of commercial segment).

One of ordinary skill in the art at the time the invention was made would have been motivated to incorporate the teachings of Iggulden into the method taught by Nakamura, Ellis, and Kato as discussed above to facilitate the process of deleting the commercial data from the recorded contents.

Claim 20 is rejected for the same reason as discussed in claim 10 above.

**Conclusion**

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, THIS ACTION IS MADE FINAL. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hung Q. Dang whose telephone number is (571)270-1116. The examiner can normally be reached on IFT.

If attempts to reach the examiner by telephone are unsuccessful, the examiner’s supervisor, THAI Q. TRAN can be reached on 571-272-7382. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Hung Q Dang/
Examiner, Art Unit 2484

/Thai Tran/
Supervisory Patent Examiner, Art Unit 2484
## EAST Search History (Prior Art)

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- **Claims renumbered in the same order as presented by applicant**
- **CPA**
- **T.D.**
- **R.1.47**

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U.S. Patent and Trademark Office
Customer Window, Mail Stop Amendment
Randolph Building
401 Dulany Street
Alexandria, Virginia 22314

Sir:

In reply to the Office Action of June 8, 2011, please amend the above-identified application as follows:

Amendments to the Claims are reflected in the listing of claims.

Remarks/Arguments begin after the listing of the claims.
AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) A method of programming a recording in a digital broadcasting receiver, comprising:

   registering a programmed channel including one or more channels;  

   storing broadcast data received from the programmed channel as a programmed-recording program in accordance with a predetermined criterion; [[and]]

   storing a next programmed-recording program to replace the stored programmed-recording program if the programmed-recording program is completely stored and broadcast data corresponding to the next programmed-recording program is received; and

   deleting an n minute segment of the stored broadcast data received from the programmed channel as the programmed-recording program if an event associated with the broadcast data received as the programmed-recording program changes at least twice within the n minutes.

2. (Original) The method of Claim 1, wherein the predetermined criterion includes at least one broadcast program unit or at least one broadcast program unit, the programmed recording time of which is restricted.
3. (Currently Amended) The method of Claim 1, further comprising:

A method of programming a recording in a digital broadcasting receiver, comprising:

- registering a programmed channel including one or more channels;
- storing broadcast data received from the programmed channel as a programmed-recording program in accordance with a predetermined criterion;
- storing a next programmed-recording program to replace the stored programmed-recording program if the programmed-recording program is completely stored and broadcast data corresponding to the next programmed-recording program is received;
- playing back the broadcast data stored as the programmed-recording program from the beginning in accordance with a selection by a user, if playing back of broadcast data from one channel of the programmed channel is requested; a request to playback the broadcast data stored as the programmed-recording program;
- changing the channel for play back in response to a request to change the channel; and
- recording or editing a portion of the broadcast data stored as the programmed-recording program corresponding to a point at which the channel is changed.

4. (Original) The method of Claim 3, further comprising selecting whether to continue or stop recording the programmed-recording program, if the programmed-recording program is not played back from the beginning.
5. (Original) The method of Claim 3, further comprising selecting whether to continue or stop recording the programmed-recording program which is being played back on the programmed channel, if the programmed channel, on which the programmed-recording program is being played back, is changed to another channel.

6. (Canceled)

7. (Original) The method of Claim 1, further comprising cancelling one or more channels of the programmed channel and registering another channel as the programmed channel.

8. (Canceled)

9. (Currently Amended) The method of Claim 1, wherein the n is between 0.1 and 10.

10. (Original) The method of Claim 1, further comprising detecting a commercial program by using commercial program identification information included in the broadcast data and deleting broadcast data corresponding to the detected commercial program.
11. (Currently Amended) A digital broadcasting receiver, comprising:

a control unit, registering one or more channels as a programmed channel, storing broadcast data received from the programmed channel as a programmed-recording program in accordance with a predetermined criterion, and storing a next programmed-recording program to replace the stored programmed-recording program if the programmed-recording program is completely stored and broadcast data corresponding to the next programmed-recording program is received; and

a storage unit, storing broadcast data corresponding to the programmed-recording program and channel information registered as the programmed channel,

wherein the control unit deletes an n minute segment of the stored broadcast data received from the programmed channel as the programmed-recording program if an event associated with the broadcast data received as the programmed-recording program changes at least twice within the n minutes.

12. (Original) The digital broadcasting receiver of Claim 11, wherein the predetermined criterion includes at least one broadcast program unit or at least one broadcast program unit, the programmed recording time of which is restricted.
13. (Currently Amended) The digital broadcasting receiver of Claim 11, further comprising:

a control unit, registering one or more channels as a programmed channel, storing broadcast data received from the programmed channel as a programmed-recording program in accordance with a predetermined criterion, and storing a next programmed-recording program to replace the stored programmed-recording program if the programmed-recording program is completely stored and broadcast data corresponding to the next programmed-recording program is received;

a storage unit, storing broadcast data corresponding to the programmed-recording program and channel information registered as the programmed channel; and

a user interface for allowing a user to select whether broadcast data stored as the programmed-recording program is to be played back from the beginning, if playing back of broadcast data from one channel of the programmed channel is requested, and to change the channel for playback.

wherein the control unit records or edits a portion of the broadcast data stored as the programmed-recording program corresponding to a point at which the channel is changed.

14. (Original) The digital broadcasting receiver of Claim 13, wherein the user selects through the user interface whether to continue or stop recording the programmed-recording program, if the programmed-recording program is not played back from the beginning.
15. (Original) The digital broadcasting receiver of Claim 13, wherein the control unit selects whether to continue or stop recording the programmed-recording program which is being played back on the programmed channel, if the programmed channel, on which the programmed-recording program is being played back, is changed to another channel.

16. (Canceled)

17. (Original) The digital broadcasting receiver of Claim 11, wherein the control unit cancels one or more channels of the programmed channel and registers another channel as the programmed channel.

18. (Canceled)

19. (Currently Amended) The digital broadcasting receiver of Claim [[[18]]]11, wherein the n is between 0.1 and 10.

20. (Original) The digital broadcasting receiver of Claim 11, wherein the control unit detects a commercial program by using commercial program identification information included in the broadcast data and deletes broadcast data corresponding to the detected commercial program.
REMARKS/ARGUMENTS

Claims 1-5, 7, 9-15, 17, and 19-20 are pending in this application. By this Amendment, claims 1, 3, 9, 11, 13, and 19 are amended, and claims 6, 8, 16, and 18 are cancelled without prejudice or disclaimer. No new matter is added. Support for the claims can be found throughout the specification, including the original claims and the drawings. Withdrawal of the rejections in view of the above amendments and the following remarks is respectfully requested.


The proposed combination of Nakamura, Ellis, and Kato fails to establish a *prima facie* case of obviousness, as required under Section 103. For example, Nakamura, Ellis, and Kato, either alone or in combination, fail to disclose or suggest “deleting an n minute segment of the stored broadcast data received from the programmed channel as the programmed-recording program if an event associated with the broadcast data received as the programmed-recording program changes at least twice within the n minutes,” and the combination thereof, as recited in independent claim 1. Amended independent claim 11 recites similar features in varying scope.
As acknowledged by the Patent Office with respect to comments regarding canceled claims 8 and 18, whose subject matter is substantially incorporated into claims 1 and 11, respectively, Nakamura and Ellis fail to disclose deleting broadcast data stored for n minutes, if an event of the broadcast data received from the programmed channel is changed and the event of the broadcast data is changed again within the n minutes. See, for example, page 12 lines 6-10 of the Office action. The Patent Office relies upon Kato, but it is respectfully submitted that Kato does not teach the features found lacking in Nakamura and Ellis.

In Kato, short segments of video during frequent channel switching are deleted. However, only the intermediate segments between the original channel and a final channel are deleted (e.g., CH6 and CH8 in Figure 7). In Kato, the video in the original channel (e.g., CH4) is not changed or deleted. Therefore, Kato fails to disclose or suggest deleting an n minute segment of the stored broadcast data received from the programmed channel as the programmed-recording program, as recited in independent claims 1 and 11.

Moreover, Nakamura, Ellis, and Kato, either alone or in combination, fail to disclose or suggest “playing back the broadcast data stored as the programmed-recording program from the beginning in accordance with a request to playback the broadcast data stored as the programmed-recording program; changing the channel for playback in response to a request to change the channel; and recording or editing a portion of the broadcast data stored as the programmed-recording program corresponding to a point at which the channel is changed,” and
the combination thereof, as recited in independent claim 11. Amended independent claim 13 recites similar features in varying scope.

As acknowledged by the Patent Office with respect to comments regarding canceled claims 6 and 16, whose subject matter is substantially incorporated into claims 3 and 13, respectively, Nakamura and Ellis fail to disclose recording or editing a portion of the recorded program. See, for example, page 10, lines 19-22 of the Office action. The Patent Office relies upon Kato, but it is respectfully submitted that Kato does not teach the features found lacking in Nakamura and Ellis.

As previously discussed, in Kato, short segments of video are deleted during frequent channel switching, but the video in the original channel is not deleted. Accordingly, Kato does not teach or suggest “recording or editing a portion of the broadcast data stored as the programmed-recording program corresponding to a point at which the channel is changed,” as recited in independent claim 3 and 13.

For at least these reasons, it is respectfully submitted that independent claims 1, 3, 11, and 13 are allowable over Nakamura, Ellis, and Kato, either alone or in combination. Accordingly, the rejection of independent claims 1, 3, 11, and 13 should be withdrawn. Dependent claims 2, 4-5, 7, 9, 12, 14-15, 17, and 19 are allowable over Nakamura, Ellis, and Kato at least for the reasons set forth above with respect to independent claims 1, 3, 11, and 13, from which they respectfully depend, as well as for their added features.
Claims 10 and 20 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Nakamura and Ellis and further in view of U.S. Patent No. 7,269,330 to Igulden (hereinafter "Igulden"). This rejection is respectfully traversed.

Dependent claims 10 and 20 are allowable at least for the reasons set forth above with respect to independent claims 1, 3, 11, and 13, from which they respectfully depend, as well as for their added features. Igulden was merely cited for a method for deleting commercials in a program, and does not disclose the features found lacking in Nakamura, Ellis, and Kato.

CONCLUSION

In view of the foregoing amendments and remarks, it is respectfully submitted that the application is in condition for allowance. Favorable consideration and prompt allowance are earnestly solicited.

If the Examiner believes that any additional changes would place the application in better condition for allowance, the Examiner is invited to contact the undersigned attorney, Paul H. Kang, Esq., at the telephone number listed below.
Serial No. 11/872,132
Reply to Office Action dated June 8, 2011

To the extent necessary, a petition for an extension of time under 37 C.F.R. §1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this, concurrent and future replies, including extension of time fees, to Deposit Account 16-0607 and please credit any excess fees to such deposit account.

Respectfully submitted,
KED & ASSOCIATES, LLP

Daniel Y.J. Kim
Registration No. 36,186
Paul H. Kang
Registration No. 66,545

Correspondence Address:
P.O. Box 8638
Reston, VA 20195
703 766-3777 DSKKPHKtvmd

Date: October 11, 2011
Please direct all correspondence to Customer Number 34610
# Electronic Acknowledgement Receipt

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**Title of Invention:**

DIGITAL BROADCASTING RECEIVER FOR PROGRAMMING RECORDING OF BROADCASTING PROGRAM AND METHOD THEREOF

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New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.
IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of Seong OH and Eun-Kyung KWAK

Serial No: 11/872,132

Filed: October 15, 2007

For: DIGITAL BROADCASTING RECEIVER FOR PROGRAMMING RECORDING OF BROADCASTING PROGRAM AND METHOD THEREOF

U.S. Patent and Trademark Office
Customer Window, Mail Stop Amendment
Randolph Building
401 Dulany Street
Alexandria, Virginia 22314

Dear Sir:

Transmitted herewith is an Amendment and/or Reply in the above identified application.

☐ No additional fee is required.
☐ Also attached:

The fee has been calculated as shown below:

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If multiple claims newly presented, add $450.00
Fee for extension of time $0.00

TOTAL FEE DUE $250.00

☐ Please charge my Deposit Account No. 16-0607 in the amount of $250.00.

☐ Please charge my Credit Card. (Please see completed form PTO-2038 attached).

☒ The Commissioner is hereby authorized to charge payment of any fees associated with this communication or credit any overpayment, to Deposit Account No. 16-0607, including any filing fees under 37 C.F.R. §1.16 for presentation of extra claims and any patent application processing fees under 37 C.F.R. §1.17.

Respectfully submitted,
KED & ASSOCIATES, LLP

Daniel Y.J. Kim
Registration No. 36,186
Paul H. Kang
Registration No. 66,545

Correspondence Address:
P.O. Box 8638
Reston, VA 20195
(703) 766-3777 DYK/PHKlah

Date: October 11, 2011

Please direct all correspondence to Customer Number 34610
IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of

Seong OH and Eun-Kyung KWAK

Confirmation No.: 8284

Group Art Unit: 2484

Serial No.: 11/872,132

Examiner: Hung Q. DANG

Filed: October 15, 2007

Customer No.: 34610

For: DIGITAL BROADCASTING RECEIVER FOR PROGRAMMING RECORDING OF BROADCASTING PROGRAM AND METHOD THEREOF

U.S. Patent and Trademark Office
Customer Window, MAIL STOP AMENDMENT
Randolph Building
401 Dulany Street
Alexandria, Virginia 22314

Dear Sir:

Transmitted herewith is an Amendment and/or Reply in the above identified application.

☐ No additional fee is required.
☐ Also attached:

The fee has been calculated as shown below:

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Fee for extension of time $150.00

TOTAL FEE DUE $400.00

☐ Please charge my Deposit Account No. 16-0607 in the amount of $400.00.

☐ Please charge my Credit Card. (Please see completed form PTO-2038 attached).

☒ The Commissioner is hereby authorized to charge payment of any fees associated with this communication or credit any overpayment, to Deposit Account No. 16-0607, including any filing fees under 37 C.F.R. §1.16 for presentation of extra claims and any patent application processing fees under 37 C.F.R. §1.17.

Respectfully submitted,
KED & ASSOCIATES, LLP

[Signature]

Daniel Y.J. Kim
Registration No. 36,186
Paul H. Kang
Registration No. 66,545

Correspondence Address:
P.O. Box 8638
Reston, VA 20195
(703) 766-3777 DYK/PHKkah
Date: October 11, 2011
Please direct all correspondence to Customer Number 34610
IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of Seong OH and Eun-Kyung KWAK

Confirmation No.: 8284

Group Art Unit: 2484

Serial No.: 11/872,132

Examiner: Hung Q. DANG

Filed: October 15, 2007

Customer No.: 34610

For: DIGITAL BROADCASTING RECEIVER FOR PROGRAMMING RECORDING OF BROADCASTING PROGRAM AND METHOD THEREOF

PETITION FOR EXTENSION OF TIME UNDER 37 C.F.R. §1.136(a)(1)

U.S. Patent and Trademark Office
Customer Service Window
Randolph Building
401 Dulany Street
Alexandria, Virginia 22314

Sir:

Applicant petitions the Commissioner of Patents and Trademarks to extend the time for response to the Office Action dated June 8, 2011 for (1) month(s) from September 8, 2011 to October 8, 2011.

Please charge our deposit account in the amount of $150.00 for the extension of time under 37 C.F.R. §1.17(a). Any deficiency or overpayment should be charged or credited to Deposit Account No. 16-0607.

Respectfully submitted,
KED & ASSOCIATES, LLP

Daniel Y.J. Kim
Registration No. 36,186
Paul H. Kang
Registration No. 66,545

Correspondence Address:
P.O. Box 8638
Reston, VA 20195
703 766-3777 DYK/PHKcmd
Date: October 11, 2011
Please direct all correspondence to Customer Number 34610

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# Electronic Acknowledgement Receipt

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<td><strong>Confirmation Number:</strong></td>
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**Title of Invention:** DIGITAL BROADCASTING RECEIVER FOR PROGRAMMING RECORDING OF BROADCASTING PROGRAM AND METHOD THEREOF

| **First Named Inventor/Applicant Name:** | Seong OH |
| **Customer Number:** | 34610 |
| **Filer:** | Samuel Wade Ntiros/Kim Flanagan |
| **Filer Authorized By:** | Samuel Wade Ntiros |
| **Attorney Docket Number:** | EZ-0003 |
| **Receipt Date:** | 11-OCT-2011 |
| **Filing Date:** | 15-OCT-2007 |
| **Time Stamp:** | 18:05:14 |
| **Application Type:** | Utility under 35 USC 111(a) |

## Payment Information:

Submitted with Payment: no

## File Listing:

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## Warnings:

## Information:
This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

**New Applications Under 35 U.S.C. 111**

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

**National Stage of an International Application under 35 U.S.C. 371**

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

**New International Application Filed with the USPTO as a Receiving Office**

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.
DBROOKS   SALE   #00000002   Mailroom Dt:  10/11/2011   160607   11872132
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# Patent Application Fee Determination Record

## Application as Filed – Part I

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* If the difference in column 1 is less than zero, enter "0" in column 2.

## Application as Amended – Part II

### 10/11/2011

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- **TOTAL ADD’L FEE**

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.

"**" If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".

"***" If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".

The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.

Legal Instrument Examiner: /DORRETTA BROOKS/

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.
Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.
Office Action Summary

Application No. 11/872,132
Applicant(s) OH ET AL.
Examiner HUNG DANG
Art Unit 2484

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).

Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☑Responsive to communication(s) filed on 15 October 2007.
2a) ☐This action is FINAL.
2b) ☑This action is non-final.
3) ☐Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
closed in accordance with the practice under Ex parte Quayle, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☑Claim(s) 1-20 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐Claim(s) _____ is/are allowed.
6) ☑Claim(s) 1-20 is/are rejected.
7) ☐Claim(s) _____ is/are objected to.
8) ☐Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐The specification is objected to by the Examiner.
10) ☑The drawing(s) filed on 15 October 2007 is/are: a) ☑accepted or b) ☐objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) ☐The oath or declaration is objected to by the Examiner. Note the attached Office action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☑Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
   a) ☑All b) ☐Some * c) ☐None of:
   1. ☑Certified copies of the priority documents have been received.
   2. ☐Certified copies of the priority documents have been received in Application No. ______.
   3. ☑Copies of the certified copies of the priority documents have been received in this National Stage
      application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☑Notice of References Cited (PTO-892)
2) ☑Notice of Draftsman’s Patent Drawing Review (PTO-948)
3) ☑Information Disclosure Statement(s) (PTO/SB/08)
   Paper No(s)/Mail Date 05/28/2008, 10/06/2009, 03/25/2010
4) ☐Interview Summary (PTO-413)
   Paper No(s)/Mail Date ______.
5) ☐Notice of Informal Patent Application
6) ☐Other: ______.
DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-5, 7, 11-15, and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakamura et al. (US 2006/0177197 A1 – hereinafter Nakamura) and Ellis et al. (US 2002/0174430 A1 – hereinafter Ellis).

Regarding claim 1, Nakamura discloses method of programming a recording in a digital broadcasting receiver, comprising: registering a programmed channel including one or more channels ([0023]; [0062] – registering by generating a list of program starting times by channel to be recorded – since the programs of the channel are registered in the list to be recorded at their corresponding starting times, the channel is interpreted as programmed channel); storing broadcast data received from the programmed channel as a programmed-recording program ([0023]; [0062] – when a time for a program to start arrives, the newly starting program is recorded); and storing a next programmed-recording program to replace the stored programmed-recording program if the programmed-recording program is completely stored and broadcast data corresponding to the next programmed-recording program is received ([0023]; [0062] – based on the program information, a program on each channel is recorded from its
beginning, and when the program ends and the next program starts, the next program is recorded overwriting the previous program recorded).

However, Nakamura does not explicitly disclose storing broadcast data received from the programmed channel as a programmed-recording program in accordance with a predetermined criterion.

Ellis discloses storing broadcast data received from a programmed channel as a programmed-recording program in accordance with a predetermined criterion ([0225]; [0343] – recording options for scheduled recordings or alternatively user preferences as disclosed in [0413], or alternatively the priority recording options as described at least in [0198] and [0246] are interpreted as the recited predetermined criterion).

One of ordinary skill in the art at the time the invention was made would have been motivated to incorporate the teachings of Ellis into the method taught by Nakamura in order to enhance the recording interface of the method by allowing users to set the recording options as they desire and/or to automatically select the programs to be recorded according to the user's preferences.

Regarding claim 2, in the proposed combination of Nakamura and Ellis as discussed in claim 1 above, in which Ellis also discloses wherein the predetermined criterion includes at least one broadcast program unit ([0198]; [0246] – a recording priority is set for at least one program - such a program is interpreted as one broadcast program unit – as such, the predetermined criterion includes one broadcast program unit, which is specified as to be recorded with the given priority) or at least one broadcast program unit, the programmed recording time of which is restricted ([0343];
Fig. 57 – one program is interpreted as the recited one broadcast program unit - the recording options, as disclosed, comprise setting the time to restrict the programmed recording time to the set time – as such the predetermined criterion includes one broadcast program unit, which is specified as to be recorded at the restricted programmed recording time).

Regarding claim 3, Nakamura also discloses playing back the broadcast data stored as the programmed-recording program from the beginning in accordance with a selection by a user, if playing back of broadcast data from one channel of the programmed channel is requested (Fig. 3; [0029] – when the user presses a button on a remote controller to select channel 1, at point 400 as shown in Fig. 3(d), program A is displayed back from its beginning and when the user presses another button to switch to program C, at point 401 as shown in Fig. 3(d), the program C is played back from its beginning).

Regarding claim 4, see the teachings of Nakamura and Ellis as discussed in claim 3 above. However, Nakamura and Ellis in the previously proposed combination do not disclose selecting whether to continue or stop recording the programmed-recording program, if the programmed-recording program is not played back from the beginning.

Ellis further discloses selecting whether to continue or stop recording the programmed-recording program, if the programmed-recording program is not played back from the beginning ([0289]-[0290]; Fig. 34; [0304] – a program that is currently being recorded is selected to be watched live, thus the starting watching point is the point at current time and not from the beginning, and the user is allowed to select
whether or not to cancel the recording at least by selecting the "watch and cancel" options as shown in Fig. 34 and further described in [0304]).

One of ordinary skill in the art at the time the invention was made would have been motivated to further incorporate the feature of "selecting whether to continue or stop recording the programmed-recording program, if the programmed-recording program is not played back from the beginning" as disclosed by Ellis into the method taught by Nakamura and Ellis in the previously proposed combination to provide users with options of not storing programs undesignated by users.

Regarding claim 5, see the teachings of Nakamura and Ellis in the proposed combination as discussed in claim 3 above. Further, Nakamura further discloses the recording of the programmed-recording program which is being played back on the programmed channel continues, if the programmed channel, on which the programmed-recording program is being played back, is changed to another channel (Fig. 3; [0029]-[0030] – when the user switch to view another channel, the other programs are still recorded so that when the user switches back to view the previous channel, it starts playing back at the previous stop position).

The subject matter of claim 5 therefore differs from the method of Nakamura in that the user does not have an option to select whether to continue or stop recording the programmed-recording program if the channel being recorded and watched is changed to another channel. The technical effect of this difference is providing a friendlier user interface so that the user can have more control over the recording process. As such, the problem to be solved may therefore be regarded as how to provide an option for the
user to select whether to continue or to stop the recording of the channel when the user changes to another channel.

One solution to the problem is further disclosed by Ellis that teaches that the user has an option for selecting whether to continue or stop recording the programmed-recording program which is being played back on the programmed channel, if the programmed channel, on which the programmed-recording program is being played back, is changed to another channel ([0296]–[0297]; Fig. 31 – when a program is being watched and recorded, overlay is displayed over the current video for a program in response to the user attempting to change a current channel while the video is being recorded, press ‘no’ to continue recording and press ‘yes’ to stop recording).

One of ordinary skill in the art at the time the invention was made would have been motivated to further incorporate the feature of “selecting whether to continue or stop recording the programmed-recording program which is being played back on the programmed channel, if the programmed channel, on which the programmed-recording program is being played back, is changed to another channel” as taught by Ellis above into the method disclosed by Nakamura and Ellis in the previously proposed combination in order to further enhance the recording interface of the method by providing the user with more recording options to control the recording process.

Regarding claim 7, see the teachings of Nakamura and Ellis as discussed in claim 1 above. Nakamura and Ellis in the proposed combination do not disclose cancelling one or more channels of the programmed channel and registering another channel as the programmed channel.
Ellis further discloses cancelling one or more channels of the programmed channel ([0327] – the user is allowed to cancel a scheduled recording of a program on a corresponding channel) and registering another channel as the programmed channel ([0214] – the user can register another channel via setting for manual recording of the channel).

One of ordinary skill in the art at the time the invention was made would have been motivated to further incorporate the teachings of Ellis above into the method taught by Nakamura and Ellis in the previously proposed combination to further enhance the recording interface of the method by allowing the user register new channels that he or she desires and cancel any scheduled channel if he or she no longer wants to record.

Regarding claim 11, Nakamura discloses a digital broadcasting receiver, comprising: a control unit, registering one or more channels as a programmed channel, (Fig. 1; [0023]; [0062] – registering by generating a list of program starting times by channel to be recorded – since the programs of the channel are registered in the list to be recorded at their corresponding starting times, the channel is interpreted as programmed channel); storing broadcast data received from the programmed channel as a programmed-recording program ([0023]; [0062] – when a time for a program to start arrives, the newly starting program is recorded); and storing a next programmed-recording program to replace the stored programmed-recording program if the programmed-recording program is completely stored and broadcast data corresponding to the next programmed-recording program is received ([0023]; [0062] – based on the
program information, a program on each channel is recorded from its beginning, and when the program ends and the next program starts, the next program is recorded overwriting the previous program recorded); a storage unit, storing broadcast data corresponding to the programmed-recording program and channel information registered as the programmed channel ([0062] – the storage unit comprising the memory storing the program data and the memory that holds the list of program to be recorded).

However, Nakamura does not explicitly disclose the control unit storing broadcast data received from the programmed channel as a programmed-recording program in accordance with a predetermined criterion.

Ellis discloses a control unit storing broadcast data received from the programmed channel as a programmed-recording program in accordance with a predetermined criterion ([0225]; [0343] – recording options for scheduled recordings or alternatively user preferences as disclosed in [0413], or alternatively the priority recording options as described at least in [0198] and [0246] are interpreted as the recited predetermined criterion).

One of ordinary skill in the art at the time the invention was made would have been motivated to incorporate the teachings of Ellis into the receiver taught by Nakamura in order to enhance the recording interface of the receiver by allowing users to set the recording options as they desire and/or to automatically select the programs to be recorded according to the user's preferences.

Claim 12 is rejected for the same reason as discussed in claim 2 above.
Regarding claim 13, see the teachings of Nakamura and Ellis in the proposed combination as discussed in claim 11 above. However, in the proposed combination, Nakamura and Ellis do not disclose a user interface for allowing a user to select whether broadcast data stored as the programmed-recording program is to be played back from the beginning, if playing back of broadcast data from one channel of the programmed channel is requested.

Ellis further discloses a user interface for allowing a user to select whether broadcast data stored as the programmed-recording program is to be played back from the beginning, if playing back of broadcast data from one channel of the programmed channel is requested ([0306]; [0310]; [0315] – *the user is presented with multiple play options to allow the user to play from the beginning of the recorded program or to play the recording from the position of playback counter, or a current playback location etc*).

One of ordinary skill in the art at the time the invention was made would have been motivated to further incorporate the user interface as taught by Ellis above into the digital broadcasting receiver taught by Nakamura and Ellis in the previously proposed combination as discussed in claim 11 in order to enhance the playback interface of the receiver by providing the user with multiple playback options for playback.

Regarding claim 14, see the teachings of Nakamura and Ellis as discussed in claim 13 above. However, Nakamura and Ellis in the previously proposed combination do not disclose the user selects through the user interface whether to continue or stop recording the programmed-recording program, if the programmed-recording program is not played back from the beginning.
Ellis further discloses the user selects through the user interface whether to continue or stop recording the programmed-recording program, if the programmed-recording program is not played back from the beginning ([0289]-[0290]; Fig. 34; [0304]) – a program that is currently being recorded is selected to be watched live, thus the starting watching point is the point at current time and not from the beginning, and the user is allowed to select whether or not to cancel the recording at least by selecting the 'watch and cancel' options as shown in Fig. 34 and further described in [0304]).

One of ordinary skill in the art at the time the invention was made would have been motivated to further incorporate the feature of "selecting whether to continue or stop recording the programmed-recording program, if the programmed-recording program is not played back from the beginning" as disclosed by Ellis into the digital broadcasting receiver taught by Nakamura and Ellis in the previously proposed combination to provide users with options of not storing programs undesired by users.

Claim 15 is rejected for the same reason as discussed in claim 5 above.

Claim 17 is rejected for the same reason as discussed in claim 7 above.

Claims 6, 8-9, 16, and 18-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakamura and Ellis as applied to claims 1-5, 7, 11-15, and 17 above, and further in view of Kato (US 2003/0016944 A1 – hereinafter Kato).

Regarding claim 6, see the teachings of Nakamura and Ellis as discussed in claim 5 above. However, Nakamura and Ellis do not disclose clipping a portion corresponding to a point where the programmed-recording program is changed, if the programmed-recording program is continued to be recorded.
Kato teaches a technical problem when channel switching happens during program recording which requires a certain period of time for gaining normal video signals after the user switches to another TV channel ([0074]). Accordingly, Kato discloses a solution to the problem by clipping a portion corresponding to a point where the programmed-recording program is changed, if a recording is continued to be recorded ([0100]; [0107] – when a channel is switched, a distorted video portion is recorded during TV-channel switching as described in [0077], the distorted video portion is either not recorded or erased based on flags – as such, the distorted portion is clipped – ‘clipping’ is interpreted as ‘cutting off’ either physically by not recording or erasing after recording or logically by placing marks or flags to mark positions where the material is to be erased). Further, although Kato does not explicitly disclose a scenario where the same program is switched and continued to be recorded, Kato discloses channels are switched by short-periods of time depending on user's activities ([0111]). As such, the same teachings of Kato as described above can be applied for the case the user switches back to the same program to continue recording of the program within a short period of time that causes a distorted portion of video as described in paragraph [0074]. For example, as shown in Fig. 7, channels are switched in the order of CH4, CH6, CH8, and CH10. According to this teaching of Kato, if the user switches the channels in the order of CH4, CH6, CH8, and CH4, it would result in "the programmed-recording program is continued to be recorded".

One of ordinary skill in the art at the time the invention was made would have been motivated to incorporate the teachings of Kato into the method taught by
Nakamura and Ellis to eliminate a distorted portion as long as a recording is continued when a channel switching is performed (including the case the programmed recording program is changed and continued to be recorded as described above). The distorted portion should be eliminated since it either results in uncomfortable visual effects or contains incomplete data for stable decoding operation (Kato, [0069]).

Regarding claim 8, see the teachings of Nakamura and Ellis as discussed in claim 1 above. However, Nakamura and Ellis do not disclose deleting broadcast data stored for n minutes, if an event of the broadcast data received from the programmed channel is changed and the event of the broadcast data is changed again within the n minutes.

Kato discloses a technical problem with frequent TV-channel switching ([0112]-[0113]). Kato discloses a solution to the problem by deleting broadcast data stored for n minutes, if an event of the broadcast data received from the programmed channel is changed and the event of the broadcast data is changed again within the n minutes ([0111]-[0113] – frequent channel switching in 10 seconds results in discontinuous pictures making a user uncomfortable and such pictures are erased or deleted – 10 seconds is 0.1666... minutes).

One of ordinary skill in the art at the time the invention was made would have been motivated to incorporate the teachings of Kato into the method taught by Nakamura and Ellis to delete short-period pictures. These short-period pictures should be deleted since they results in uncomfortable visual effects (Kato, [0112]).
Regarding claim 9, Kato also discloses the n is between 0.1 and 10 (10 seconds is around 0.16666 minutes, which is between 0.1 and 10 minutes).

Claim 16 is rejected for the same reason as discussed in claim 6 above in further view of Kato also disclosing a recording of the programmed-recording program is selected (Fig. 7; [0111] – selected by user’s activities via a remote controller – as such, a continued recording of the programmed-recording program is selected by the user by switching the channel back to the first channel – for example, as shown in Fig. 7, channels are switched in the order of CH4, CH6, CH8, CH10, according to this teachings of Kato, if the user switches the channels in the order of CH4, CH6, CH8, and CH4, it would result in ‘a continued recording of the programmed-recording program is selected’).

Claim 18 is rejected for the same reason as discussed in claim 8 above.

Claim 19 is rejected for the same reason as discussed in claim 9 above.

Claims 10 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakamura and Ellis as applied to claims 1-5, 7, 11-15, and 17 above, and further in view of Igqulden (US Patent 7,269,330 B1 – hereinafter Igqulden).

Regarding claim 10, see the teachings of Nakamura and Ellis as discussed in claim 1 above. However, Nakamura and Ellis in the proposed combination does not disclose detecting a commercial program by using commercial program identification information included in the broadcast data and deleting broadcast data corresponding to the detected commercial program.
Ellis further discloses deleting broadcast data corresponding to the detected commercial program (Fig. 59; [0376] – commercials are removed or deleted from the recorded broadcast programs).

One of ordinary skill in the art at the time the invention was made would have been motivated to further incorporate the feature of deleting the broadcast data corresponding to the commercial programs disclosed by Ellis as described above into the method in the previously proposed combination of Nakamura and Ellis in order to allow the user to delete the commercials as he or she desires thus further enhancing the recording interface of the method.

Nakamura and Ellis in such a proposed combination do not disclose detecting a commercial program by using commercial program identification information included in the broadcast data.

Iggunlde disclose detecting a commercial program by using commercial program identification information included in the broadcast data (column 9, lines 11-33 – detecting event markers and a signature unique to each segment to detect data of commercial segment).

One of ordinary skill in the art at the time the invention was made would have been motivated to incorporate the teachings of Iggunlde into the method taught by Nakamura and Ellis as discussed above to facilitate the process of deleting the commercial data from the recorded contents.

Claim 20 is rejected for the same reason as discussed in claim 10 above.
Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hung Q. Dang whose telephone number is (571)270-1116. The examiner can normally be reached on IFT.

If attempts to reach the examiner by telephone are unsuccessful, the examiner’s supervisor, THAI Q. TRAN can be reached on 571-272-7382. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Hung Q Dang/
Examiner, Art Unit 2484

/Thai Tran/
Supervisory Patent Examiner, Art Unit 2484
### U.S. Patent Documents

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### Non-Patent Documents

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**Search Notes**

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**PTO-1449**

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/H.D./


EXAMINER /

/Hung Dang/

DATE CONSIDERED 05/16/2011

**EXAMINER**: Initial if reference considered, whether or not citation is in conformance with MPEP 609; draw line through citation if not in conformance and not considered. Include copy of this form with next communication to Applicant.
**LIST OF ART CITED BY APPLICANT**

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**DATE CONSIDERED**

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**APPLICANTS**
Seong OH, Seoul, KOREA, REPUBLIC OF;
Eun-Kyung KWAK, Seoul, KOREA, REPUBLIC OF;

**CONTINUING DATA**

**FOREIGN APPLICATIONS**
REPUBLIC OF KOREA 10-2007-0017121 02/20/2007

**IF REQUIRED, FOREIGN FILING LICENSE GRANTED**
10/29/2007

- [ ] Foreign Priority claimed  
- [ ] 35 USC 199(a-d) conditions met  
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KED & ASSOCIATES, LLP  
P.O. Box 8638  
Reston, VA 20195  
UNITED STATES

**TITLE**
DIGITAL BROADCASTING RECEIVER FOR PROGRAMMING RECORDING OF BROADCASTING PROGRAM AND METHOD THEREOF

**FILING FEE RECEIVED**
1160

FEES: Authority has been given in Paper
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No. __________ for following:

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- [ ] 1.16 Fees (Filing)
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A video signal recording and/or reproducing apparatus

An information signal is received, which includes a main information content signal carrying the contents of the information, a CM portion signal carrying commercial messages (CM) and an information mode discriminating signal used for discriminating information modes of the main information content signal and the CM signal from each other according to the contents. A video signal is encoded per plurality of several video frames, the video signal including the main information content signal and the CM portion signal. The encoded video signal is recorded in a storage medium. The video signal is reproduced, during the recording, from the storage medium while the CM portion signal is skipped. The received main information content signal and CM portion signal are recorded in the storage medium. The information mode discriminating signal is recorded in the storage medium or another temporary storage medium. At least the information mode discriminating signal is retrieved from the storage medium or the temporary storage medium. Locations of the recorded CM portion signal in the storage medium is detected based on information mode corresponding to the CM portion signal among a plurality of information modes discriminated by means of the information mode discriminating signal. The main information content signal is reproduced from the storage medium while skipping the CM portion signal based on recorded positions of the video signal encoded per plurality of video frames corresponding to the detected locations of the recorded CM portion signal.
BACKGROUND OF THE INVENTION

[0001] The present invention relates to a video signal recording apparatus, a video signal reproducing apparatus and a video signal recording and reproducing apparatus having a function of skipping commercial messages (abbreviated to CM hereinafter) and reproducing TV programs only in reproduction modes such as follow-up reproduction, cache recording/reproduction and variable-speed reproduction from a random access storage medium such as a hard disc on which video and audio signals have been recorded.

[0002] Here, the follow-up reproduction is a technique for reproducing already recorded portions while recording a TV program.

[0003] The cache recording/reproduction is a technique for sequentially recording video/audio information in a bitstream recording area for a certain period with overwriting new information on the oldest recorded information when recording has been carried out to the last portion of the recording area and reproducing video/audio information for a certain period from the information recorded before.

[0004] There are three modes, namely, monaural, bilingual and stereophonic for audio signals to be broadcast with video signals. One of the modes is selected in accordance with a TV program to be broadcast. Video signals are broadcast with audio signals of selected audio mode.

[0005] TV programs are broadcast with CM portions. Audio modes are mostly different between TV programs and CM portions. There are video tape recorders (VTRs) having a CM-cutting function in which audio modes for TV programs and CM portions are discriminated from each other so that CM portions will not be recorded based on the detected modes.

[0006] This technique for discriminating TV programs and CM portions from each other based on difference in audio mode is used in home-use VTRs because of low cost. Most CMs are broadcast in stereophonic mode. Thus, in this technique, when a broadcast TV program is in monaural or bilingual audio mode, stereophonic mode portions broadcast with the TV program are detected as CM portions, and thus the stereophonic audio mode portions will not be recorded.

[0007] Video signals are mostly recorded and reproduced by VTRs. However, a multi-functional video signal-recording/reproducing apparatus for recording/reproducing bitstreams of coded video signals on/from a storage medium such as a hard disc with high accessibility will be introduced in the near future.

[0008] The multi-functional video signal-recording/reproducing apparatus can record several TV programs at the same time because of short access time to recorded signals. The apparatus further has a follow-up reproduction function in which recording of a TV program for recording has been started is proceeding while reproduction follows up and reaches the TV program now on air.

[0009] Another type of multi-functional video signal-recording/reproducing apparatus is to record types of information such as a TV program itself and a CM portion as management data on a storage medium at portions different from video and audio information and reproduce the TV program with skipping the CM portion based on the management data.

[0010] Recording of TV programs without CM portions in home-use VTRs should avoid malfunctions which could occur due to such recording. This is because a TV program broadcast in stereophonic mode causes difficulty in discriminating the TV program from the CM portions. Thus, CM-cutting will be nonfunctional. And, if this function is erroneously set, the head portion of a TV program is detected as a CM portion, thus recording of the TV program will not start.

[0011] Such a problem also occurs for disc-recording/reproduction apparatus using a disc-like storage medium with short accessing time. This apparatus has a CM detector to detect a period of CM portions while recording TV programs. Data on the detected period of CM portions is temporarily stored in a memory controlled by a microcomputer. The stored CM-period data is recorded on a certain position of a disc at time of completion of TV program-recording.

[0012] The recording of CM-period data is similar to a technique for writing management data as TOC (Table of Contents) data on a certain position of an MD (Mini Disc which is a magneto-optical disc) when recording is completed. MDs are used for audio systems that mainly record audio signals.

[0013] Known disc-recording/reproduction apparatus record CM-period data during recording of a TV program is completed and retrieve the management data in reproduction. The retrieved disc-management data such as CM-period data is temporarily stored in a memory. The known apparatus, however, have no CM-cut or skip function.

[0014] The known apparatus also cannot skip CMs in reproduction while recording of a TV program is proceeding, such as, in follow-up reproduction and cache reproduction/recording.

SUMMARY OF THE INVENTION

[0015] A purpose of the present invention is to provide an apparatus and a method of recording and reproducing a video signal, capable of CM skipping in normal reproduction, follow-up reproduction and cache recording/reproduction.

[0016] The present invention provides a video signal recording apparatus comprising: a video signal recorder for receiving an information signal including a main information content signal carrying the contents of the information, a CM portion signal carrying commercial
messages (CM) and an information mode discriminating signal used for discriminating information modes of the main information content signal and the CM signal from each other according to the contents, encoding a video signal per plurality of video frames, the video signal including the main information content signal and the CM portion signal, and recording the encoded video signal in a storage medium so that the CM portion signal is skipped when the video signal is reproduced from the storage medium; a signal recorder for recording the received main information content signal and CM portion signal in the storage medium and recording the information mode discriminating signal in the storage medium or another temporary storage medium; a signal retriever for retrieving at least the information mode discriminating signal from the storage medium or the temporary storage medium; a detector for detecting locations of the recorded CM portion signal in the storage medium based on information mode corresponding to the CM portion signal among a plurality of information modes discriminated by means of the information mode discriminating signal; and a management data recorder for recording recorded position management data in the storage medium, the recorded position management data including data on the detected positions of the CM portion signal, data on video signal-recorded positions based on recorded positions of the video signal encoded per plurality of several video frames.

Moreover, the present invention provides a video signal recording and reproducing apparatus comprising: a video signal recorder/producer for receiving an information signal including a main information content signal carrying the contents of the information, a CM portion signal carrying commercial messages (CM) and an information mode discriminating signal used for discriminating information modes of the main information content signal and the CM signal from each other according to the contents, encoding a video signal per plurality of several video frames, the video signal including the main information content signal and the CM portion signal, recording the encoded video signal in a storage medium, and reproducing the video signal, during the recording, from the storage medium while the CM portion signal is skipped; a signal recorder for recording the received main information content signal and CM portion signal in the storage medium and recording the information mode discriminating signal in the storage medium or another temporary storage medium; a signal retriever for retrieving at least the information mode discriminating signal from the storage medium or the temporary storage medium; a detector for detecting locations of the recorded CM portion signal in the storage medium based on information mode corresponding to the CM portion signal among a plurality of information modes discriminated by means of the information mode discriminating signal; and a reproduction controller for reproducing the main information content signal from the storage medium while skipping the CM portion signal based on recorded positions of the video signal encoded per plurality of video frames corresponding to the detected locations of the recorded CM portion signal.
tained based on an information mode corresponding to the CM portion signal among a plurality of information modes discriminating by means of the information mode discriminating signal in the storage medium or the temporary storage medium; a reproduction controller for reproducing the video signal while skipping a portion of the video signal for a given reproducing time; and a reproduction controller for detecting a starting point of the video signal for next reproduction based on the data on locations of the CM portion signal when the portion of the video signal is skipped and controlling the reproduction to perform at a starting point of the main information content signal that is at least either a point of a signal that follows the main information content signal that starts after the CM portion signal has been finished or a point that comes during a period of the CM portion signal and also of a signal followed by the main information content signal.

[0020] Moreover, the present invention provides a method of recording a video signal comprising the steps of: receiving an information signal including a main information content signal carrying the contents of the information, a CM portion signal carrying commercial messages (CM) and an information mode discriminating signal used for discriminating information modes of the main information content signal and the CM signal from each other according to the contents; encoding a video signal per plurality of video frames, the video signal including the main information content signal and the CM portion signal; recording the encoded video signal in a storage medium; recording the received main information content signal and CM portion signal in the storage medium; detecting locations of the recorded CM portion signal in the storage medium based on recorded positions of the video signal encoded per plurality of video frames corresponding to the detected locations of the recorded CM portion signal.

[0022] Furthermore, the present invention provides a method of reproducing a video signal obtained by receiving an information signal including a main information content signal carrying the contents of the information, a CM portion signal carrying commercial messages (CM) and an information mode discriminating signal used for discriminating information modes of the main information content signal and the CM signal from each other according to the contents, encoding a video signal per plurality of video frames, the video signal including the main information content signal and the CM portion signal, recording the encoded video signal in a storage medium; recording the information mode discriminating signal in the storage medium or another temporary storage medium; retrieving the information mode discriminating signal from the storage medium or the temporary storage medium, and recording data on locations of the CM portion signal obtained based on information mode corresponding to the CM portion signal among a plurality of information modes discriminated by means of the information mode discriminating signal; and recording the encoded video signal recorded positions based on recorded positions of the video signal encoded per plurality of several video frames.

[0021] Moreover, the present invention provides a method of recording and reproducing a video signal comprising the steps of: receiving an information signal including main information content signal carrying the contents of the information, a CM portion signal carrying commercial messages (CM) and an information mode discriminating signal used for discriminating information modes of the main information content signal and the CM signal from each other according to the contents; encoding a video signal per plurality of several video frames, the video signal including the main information content signal and the CM portion signal; recording the encoded video signal in a storage medium; reproducing the video signal during the recording, from the storage medium while the CM portion signal is skipped; recording the received main information content signal and CM portion signal in the storage medium and recording the information mode discriminating signal in the storage medium or another temporary storage medium; retrieving at least the information mode discriminating signal from the storage medium or the temporary storage medium; detecting locations of the recorded CM portion signal in the storage medium based on information mode corresponding to the CM portion signal among a plurality of information modes discriminated by means of the information mode discriminating signal; and reproducing the main information content signal from the storage medium while skipping the CM portion signal based on recorded positions of the video signal encoded per plurality of video frames corresponding to the detected locations of the recorded CM portion signal.
storage medium; and reproducing the main information content signal at a set reproduction speed while skipping the CM portion signal even if the set reproduction speed is different from a standard speed based on the data on locations of the CM portion signal when the CM-skipping function is set.

[0023] Moreover, the present invention provides a method of reproducing a video signal obtained by receiving an information signal including a main information content signal carrying the contents of the information, a CM portion signal carrying commercial messages (CM) and an information mode discriminating signal used for discriminating information modes of the main information content signal and the CM signal from each other according to the contents, encoding a video signal per plurality of video frames, the video signal including the main information content signal and the CM portion signal, recording the encoded video signal in a storage medium, recording the information mode discriminating signal in the storage medium or another temporary storage medium; retrieving the information mode discriminating signal from in the storage medium or the temporary storage medium, and recording data on locations of the CM portion signal obtained based on an information mode corresponding to the CM portion signal among a plurality of information modes discriminated by means of the information mode discriminating signal in the storage medium or the temporary storage medium, the method comprising the steps of: reproducing the main information content signal from the storage medium while skipping the CM portion signal based on the data on locations of the CM portion signal that is retrieved from the storage medium or the temporary storage medium; controlling the reproduction of the video signal while skipping a portion of the video signal for a given reproducing time; and detecting a starting point of the video signal for next reproduction based on the data on locations of the CM portion signal when the portion of the video signal is skipped and controlling the reproduction to perform at a starting point of the main information content signal when detected starting point of the video signal is at least either a point of a signal that follows the main information content signal that starts after the CM portion signal has been finished or a point that comes during a period of the CM portion signal and also of a signal followed by the main information content signal.

BRIEF DESCRIPTION OF DRAWINGS

[0024] FIG. 1 shows a block diagram of an embodiment of a video signal recording apparatus according to the present invention;

FIG. 2 illustrates the relationship among clusters, GOPs and GOP headers in the embodiment according to the present invention;

FIG. 3 illustrates an audio mode-time chart for CMs and a TV program in the embodiment according to the present invention;

FIG. 4 illustrates a time chart for CMs and a TV program received in different audio modes in the embodiment according to the present invention;

FIG. 5 shows a block diagram of an embodiment of a video signal reproducing apparatus according to the present invention; and

FIG. 6 shows a block diagram of an embodiment of a video signal recording/reproduction apparatus according to the present invention.

DETAILED DESCRIPTION OF PREFERRED EMBODIMENTS

[0025] Preferred embodiments according to the present invention will be disclosed with reference to the attached drawings.

<VIDEO SIGNAL RECORDING APPARATUS>

[0026] FIG. 1 shows a block diagram of an embodiment of a video signal recording apparatus 41 for recording video signals on a hard disc according to the present invention.

[0027] The video signal-recording apparatus 41 is provided with an encoder section 50 for receiving a TV signal that is broadcast in a certain audio mode via an antenna AT and a recording/reproducing section 60 for recording the video signal via the encoded section 50 on a hard disc and reproducing the video signal from the hard disc.

[0028] The encoder section 50 is provided with a TV tuner 51, an audio-mode identifier 52, an A/D converter 53, an MPEG-2 (Moving Picture Experts Group-2) encoder 54, a buffer memory 55, a microcomputer 56 and a temporary memory 57.

[0029] The recording/reproducing section 60 is provided with a hard disc-recorder/reproducer 61, a hard disc 63 and a recording/reproduction controller 65.

[0030] An operation of the video signal recording apparatus 41 is disclosed.

[0031] A TV signal carrying a TV program signal and a CM signal broadcast from a TV station is received by the antenna AT and supplied to the TV tuner 51. The TV program signal that is a base-band video signal is demodulated from the radio-frequency TV signal.


[0033] The signal encoded by the highly efficient encoding is supplied to the buffer memory 55 and stored therein temporarily.
The stored signal is supplied to the hard disc-recorder/reproducer 61 and subjected to signal processing such as demodulation for recording. The processed signal is supplied to the hard disc 63 and stored thereon with a mode-identifying signal.

The mode-identifying signal is generated based on an audio-mode signal.

In detail, a signal component of the signal demodulated by the TV tuner 51 is supplied to the audio-mode identifier 52. The identifier 52 identifies an audio-mode signal of the received TV signal such as a stereophonic, monaural or bilingual signal.

The audio-mode signal is supplied to the microcomputer 66. The microcomputer 56 generates disc-management data including the audio-mode data (signal).

The disc-management data is stored in the memory 57 temporary and, after a certain period of time elapses, it is further stored on the hard disc 63 via the hard disc-recorder/reproducer 61. Signals to be stored on the hard disc 63 are time-shared signals divided into sectors.

FIG. 2 illustrates an MPEG-2-encoded signal that is divided into clusters on the hard disc 63.

A digital TV signal converted by the A/D converter 53 is encoded by the MPEG-2 encoder 54 per GOP (Group of Pictures) of a GOP-header, an I (Intra)-picture, a plurality of P (Predictive)-pictures and a plurality of B (Bi-directionally-Predictive)-pictures.

The encoded signal is divided into signal components for sectors and stored on the hard disc 63.

The signal components allocated to sectors are given sector numbers. The numbered-sector signals are stored on the hard disc 63 at respective certain positions. The relationship between the stored signals and the corresponding sector numbers are also stored as the disc-management data on a management-data-storing area of the hard disc 63.

Disclosed next is generation and recording of management data by the microcomputer 56. The management data include data on recorded positions of the signals encoded per GOP and of audio-mode signals.

The microcomputer 56 controls recording on the hard disc 63 and the signal processing by the MPEG-2 encoder 54.

Data supplied to the microcomputer 56 are from the MPEG-2 encoder 54 indicates sequence control on bitstreams of video and audio signals encoded under MPEG-2 and encoding-types for I-, P- and B-pictures of one GOP, a unit to be encoded.

Data on encoding includes the number of bytes that indicates an amount of data of each GOP, the number of frames of each GOP, a presentation time stamp, and so on.

These detailed data on encoding are also stored on the hard disc 63 as management data. The management data are very effective, for example, for special reproduction for decoding and displaying I-frames only because I-frame picture data are easily obtained through the management data.

The microcomputer 56 further controls recording/reproduction from the hard disc 63 with address management on the disc. The microcomputer 56 decides the locations on the hard disc 63 on which GOP signals are to be recorded and generates GOP-recording positional data.

The microcomputer 56 generates management data including positional data that indicates whether a video signal composed of GOPs is a TV program signal or a CM signal in addition to the detailed data on GOPs described above. The management data is stored in the memory 57 temporary.

The management data temporary stored in the memory 57 are recorded on the hard disc 63 per predetermined period.

The recording areas on the hard disc 63 are divided into a bitstream recording area and a management recording area.

GOP signals carrying bitstreams are firstly recorded on the bitstream recording area and then the management data are retrieved from the memory 57 and recorded on management recording area.

When a TV signal received via the antenna AT is a digital TV signal that carries MPEG-2 bitstreams, the TV signal can be directly supplied to the buffer memory 55 from the TV tuner 61 without being processed by the MPEG-2 encoder 54.

Data on GOPs obtained from the digital TV signal output by the TV tuner 51 can be supplied to the microcomputer 56 for recording on the hard disc 63 as described above.

Disclosed next is generation of CM-portion data based on the management data described above and recording of the CM-portion data on the hard disc 63.

Generation of CM-portion data that discriminates a CM portion from a TV program is performed by the microcomputer 56. When a TV signal is composed of several audio-mode signals, a stereophonic-mode signal component that is shorter than 5 min., for example, is detected as a CM portion.

FIG. 3 illustrates an audio mode-time chart for a movie broadcast by TV-terrestrial broadcasting.

In FIG. 3, sections "B" and "S" indicate a bilingual-modal portion and a stereophonic-modal portion, respectively.

The time at a moment T1 at which a mode is changed from the bilingual- to stereophonic-mode is stored in a RAM (not shown) connected to the microcomputer 56.

The time difference between a moment T2 at which a mode is changed from the stereophonic- to bilingual-mode and the moment T1 is obtained. The section "S" is determined as a CM portion when the time difference (T2 - T1) is 3 sec., or more but less than 5 min., for example.

Three seconds is set as the minimum time for
determination of a CM portion because a broadcasting time less than 3 sec., is too short for a CM portion and an audio mode detected within 3 sec., may be wrong if it is detected as a stereophonic mode.

[0062] A video signal, namely, the encoded data GOPs from the moment T1 to (T2 - 1) that is a moment just before the moment T2 is managed.

[0063] GOP management data is given a CM-data flag for identification of a CM portion.

[0064] Determination of a CM portion as time elapses is explained with reference to FIG. 4.

[0065] FIG. 4(a) illustrates that a TV signal has been received in a monaural (M) audio mode for 10 min., and then the mode is changed to a stereophonic (S) mode at a moment T3.

[0066] This stereophonic mode cannot be determined as a CM portion at a moment T4 because it is too short for receiving the TV signal in the stereophonic mode.

[0067] As illustrated in FIG. 4(b), the TV signal has continuously been received and, when the stereophonic mode is changed to the monaural audio mode at a moment T5, the period (T5 - T3), for example 3 min., is determined as a CM portion.

[0068] As disclosed, the management data generated for recording while a TV program is being received, are recorded on the management recording area of the hard disc 63 per group of GOPs for several minutes.

[0069] It may occur that management data on a GOP that is determined as a CM portion at a certain moment has already been recorded on the hard disc 63, not in the memory 57 temporary.

[0070] Such management data already recorded on the hard disc 63 is once retrieved from the hard disc 63 with change in a CM-flag and then recorded on the hard disc 63 again. This CM-flag changing operation is a time-shared operation while management data is retrieved and recorded again without interrupting recording of video signal bitstreams.

[0071] Disclosed so far is determination of a CM portion in accordance with audio mode of a received TV signal. Not only this, however, a CM portion can be determined in accordance with correlation between videos or change in voice pattern. Furthermore, when CM-indicating data is included in a digitally broadcast TV signal, the data may be extracted from the TV signal for determination of a CM portion.

[0072] Data on GOPs determined as a CM portion is generated as management data for managing recorded data with GOP-header data. Such management data-generation requires timing adjustment between a TV-program signal that is received through variable-length encoding under MPEG-2 and data on CM portions that are received at relatively constant intervals.

[0073] The timing adjustment is required for the following reason: A head portion of a CM signal starts with scene change, so that a CM signal is generally received relatively early and decoding of a signal encoded under MPEG-2 is completed almost at a time to be displayed on a monitor screen, which is managed by the presentation stamp. On the other hand, a last portion of a CM signal has a small of data such as a still picture for indicating names of sponsors, so that an encoded CM signal is decoded early followed by the next signal of a TV program at the next scene change.

[0074] Accordingly, video signals encoded under MPEG-2 and GOP headers are received with variation on time in accordance with redundancy on data of video information.

[0075] The timing adjustment between GOP header signals with variation on time and data on CM portions is made based on the CM-portion data (management data) temporary stored in the memory 57 or a RAM (not shown) connected to the microcomputer 56 and to be displayed at the same time as a GOP header.

[0076] The management data generated with the timing adjustment may not be recorded on a storage medium for storing video/audio bitstreams when a TV program is finished. For example, the video/audio bitstreams can be recorded on a disc storage medium whereas management data can be recording into a semiconductor memory in a recording/reproduction apparatus that houses the disc storage medium. In other words, the video/audio bitstreams and management data that manages the bitstreams can be recorded on different storage media.

<VIDEO SIGNAL REPRODUCING APPARATUS>

[0077] Disclosed next is a video signal reproducing apparatus for reproducing signals recorded as described above on the hard disc 63.

[0078] A video signal reproducing apparatus 42 is provided, as shown in FIG. 5, with a reproducing section 60 having a hard disc reproducer 62, a hard disc 63 and a reproduction controller 66, and a decoder section 70 having a buffer memory 71, an MPEG-2 decoder 72, a D/A converter 73, a microcomputer 74, a temporary memory 75, and a remote-controlled interface 76.

[0079] Moreover, a monitor 93 and a remote controller 95 are set in the vicinity of the reproducing apparatus 42.

[0080] Video/audio bitstreams and their management data have been recorded on the hard disc 63 by the video signal recording apparatus 41 as described above.

[0081] A user pushes buttons on the remote controller 95 to select a TV program. An infrared-ray signal modulated with the TV program-selection is sent to the remote-controlled interface 76.

[0082] The infrared-ray signal is demodulated by the remote-controlled interface 76 and supplied to the microcomputer 74.

[0083] In accordance with the TV program-selection, the microcomputer 74 finds the locations of the management data and video/audio bitstreams on the hard disc 63 based on management data for managing the hard disc 63. The location data are supplied to the reproduction controller 66 for reproduction of data record-
ed at those locations on the hard disc 63.

[0084] The video/audio bitstreams and the management data are subjected to amplification, demodulation and error-correction by the hard disc reproducer 62.

[0085] The management data and the video/audio bitstreams processed by the hard disc reproducer 62 are supplied to the microcomputer 74 and the buffer memory 71 for temporal storage, respectively.

[0086] The microcomputer 74 determines a decoding type based on the supplied management data that includes GOP encoding-type information. The video/audio bitstreams once stored in the buffer memory 71 are supplied to the MPEG-2 decoder 72 and decoded in accordance with the decoding type from the microcomputer 74, so that highly encoded video and audio signals are decoded.

[0087] The decoded video and audio signals are converted into analog video and audio signals by the D/A converter 73. The analog video signals are supplied to the monitor 90 whereas the analog audio signals are supplied to speakers (not shown).

[0088] The decoder section 70 outputs an analog video signal and audio signals at left and right channels via separated terminals. Or, MPEG-2-encoded bitstreams reproduced from the hard disc 63 by the hard disc reproducer 62 can be output as digital signals under IEEE1394 (Institute of Electrical and Electronics Engineers 1394) without decoding.

[0089] Positions on the hard disc 63 can be set by a reproducing head (not shown) while moving over the hard disc 63 at a high speed for reproduction. Therefore, the video signal recording apparatus 41 records bitstreams on the hard disc 63 over continuous recording areas or on separated areas.

[0090] In recording of bitstreams on such separated recording areas, the video signal recording apparatus 41 further records GOP data in the management data on the hard disc 63. And, in reproduction, the reproducing apparatus 42 retrieves the GOP data and detects the recorded positions of the GOPs to be decoded sequentially.

[0091] The management data retrieved from the hard disc 63 via the hard disc reproducer 62 is supplied to the microcomputer 74. The microcomputer 74 detects positions on the hard disc 63 for reproduction based on the management data and supplies the detected positional data to the reproduction controller 66. The hard disc 63 is then controlled by the controller 66 so that desired audio and video bitstreams are reproduced from the hard disc 63.

<VIDEO SIGNAL RECORDING/REPRODUCING APPARATUS>

[0092] The video signal reproducing apparatus 42 can be combined with the video signal recording apparatus 41 as a video signal recording/reproducing apparatus 40 shown in Fig. 8.

[0093] The recording/reproducing apparatus 40 is provided with the encoder section 50, the recording/reproducing section 60 and the decoder section 70. Video and audio bitstreams and management data are recorded and reproduced by the apparatus 40 in the same way as disclosed above.

[0094] High signal rates on the hard disc recorder/reproducer 61 and the hard disc 63 can be achieved by temporarily storing video and audio bitstreams to be recorded and temporary storing reproduced video and audio bitstreams in the buffer memory 71 for high-speed time-shared recording/reproduction (substantially simultaneous recording/reproduction).

[0095] Recording and reproduction on and from separated positions on the hard disc 63 can be performed substantially simultaneously by high-speed movement of a magnetic head (not shown) for follow-up reproduction.

[0096] In substantially simultaneous recording/reproduction such as follow-up reproduction or cache recording/reproduction, management data stored in the memory 57 temporarily is retrieved therefrom for reproduction of signals from the hard disc 63 when management data on the positions to be reproduced have still not been recorded thereon.

[0097] As disclosed, either the hard disc 63 or the temporary memory 57 is used as a CM-data storage medium in substantially simultaneous recording/reproduction, the stored CM data being looked up for CM skipping in reproduction.

[0098] Management data may be stored only in the temporary memory 57 (not on the hard disc 63) for cache recording/reproduction for recording a limited amount of video and audio bitstreams on the hard disc 63 without reproduction just after the recording.

[0099] CM-positional data involved in the management data recorded or stored as above can be retrieved for detection of positions of CM portions so that the CM portions are skipped during reproduction of video/audio bitstreams.

[0100] Reproduction of the present GOP is halted when it is detected as a CM portion according to the CM-positional data and then management data on the next GOP is retrieved.

[0101] When a retrieved management data on a GOP does not indicate a CM portion, this GOP is reproduced. A CM portion is skipped from a GOP just before the CM portion starts and video and audio bitstreams for TV program are reproduced based on positional data on a GOP just after the CM portion. Detection of GOPs that constitute the CM portion is performed based on a CM flag.

[0102] The microcomputer 74 analyzes the GOP-management data to look up a CM flag in a short time so that video and audio signals can be reproduced with no interruption.

[0103] Management data including CM data is updated whenever a CM portion is detected during recording
of video and audio bitstreams. Such up-dating offers CM skipping in cache recording/reproduction or follow-up reproduction based on CM data included in management data when a user selects CM skipping via the remote controller.

CM data have been included in management data together with GOP data indicating recorded positions of GOPs so that the CM data can be retrieved simultaneously with detection of positions of recorded GOPs by looking up the management data in reproduction.

CM-skipping is made possible based on CM data because a CM-indicating flag is added to a CM portion. This is, however, not possible in follow-up reproduction of signals where no CM portions such as shown in FIG. 4(a) are detected.

Moreover, CM-skipping is possible in special reproduction at a slow or a high speed or in reverse reproduction. CM-skipping allowed in reproduction at 3 x speed or less when it is selected via the remote controller. On the other hand, CM-skipping is prohibited in reproduction at a speed beyond 3 x speed.

As disclosed, CM-skipping is adaptively controlled in accordance with reproduction speed. This is because it is general that a user wants to view a TV program for a relatively short time at a certain degree of speed or less whereas he or she wants to grasp the overall contents of a TV program at higher speed.

Therefore, CM-skipping is useful for viewing a TV program at a relatively slow reproduction speed whereas reproduction of CM portions is useful for grasping the overall contents of a TV program at higher speed in which a user searches for particular scenes based on CM portions that are reproduced at a high speed in a short time.

The CM-skipping function according to the present invention is applicable not only for the embodiment, using a hard disk described above but also for known video signal recording/reproducing apparatus using a hard disc or another type of storage medium. When the CM-skipping function of the present invention is applied to known apparatus, CM-positional data can be stored in a storage medium all at once after recording of a TV program is finished.

Disclosed next is CM-skipping via a remote controller for skipping recorded signals for a set period of time.

For example, a specific button on a remote controller is depressed once for skipping 27-sec recorded portions. Depressing the button "n" times ("n" being an integer of 2 or more) results in skipping for certain seconds corresponding to 27 x n (n - 1).

This is adapted for skipping CM portions each being inserted into a TV program for (30 x m) seconds ("m" being an integer of 1 or more) in general.

The initial skipping time is set at 27 seconds, not (30 x n) seconds, due to a delay in CM-skipping operation via a remote controller by a user while reproducing a CM portion.

The adaptive CM-skipping operation via remote controller described above meets several kinds of user requirements such as how or which wants to watch CMs or view another TV program by channel hopping during CM reproduction or reproduce a TV program that follows the CM portions as soon as possible.

This adaptive CM-skipping operation in accordance with user requirements can also be performed with reproduction of data on CM portions indicating whether or not each GOP is a CM portion, that has been recorded with GOP management data.

Moreover, CM portions are skipped for a predetermined period of time in accordance with the number of times of depressing a CM-skip button on the remote controller. This skipping operation is controlled by the microcomputer so that a TV program starts at the moment when the CM portions are finished. Reproduction of the TV program would otherwise start after passing the starting point of the TV program that follows the CM portions due to skipping.

In other words, reproduction of the TV program starts at the starting point of the program recorded next to the CM portions even if a period of recorded CM portions is shorter than a CM-skipping period set by a user.

On the other hand, if a period of recorded CM portions is longer than a CM-skipping period set by a user, the set CM-skipping period is reset to a period up to the moment at which CM portions are finished, followed by reproduction at the starting point of the next TV program.

As disclosed, a period from a CM-portion starting point to a finishing point is automatically skipped with no relation to the number of times of depressing CM-skip button when a program is a CM portion at the moment where a user operates the CM-skipping button.

Disclosed so far is an automatic skipping operation in which CM portions that follow a TV program are almost not reproduced but the next TV program is reproduced.

Other methods of CM-portion skipping are such that CM portions are automatically and quickly reproduced or a picture of a TV program before a CM period fades out and then another picture of the TV program after the CM period fades in.

Another method of CM-portion skipping is that specific pictures are inserted for several seconds instead of CM portions. Such pictures may be special images created in video signal recording/reproducing apparatus according to the present invention or pictures including the title of a TV program that is being reproduced now. The title picture to be recorded at the head of the TV program may be used.

This method of inserting edit pictures or other related pictures instead of CM portions matches a general way of TV-program edition in which pictures and sound of a TV program for a short period just before CM
portions are inserted just after the CM portions for repetition so that viewers can recall the last scene of the TV program after CM portions.

[0124] A known CM-skipping function in such a general way of TV-program edition could make a user uncomfortable when he or she skips CM portions because the pictures displayed just before the skipped CM portions are displayed again. Such an uncomfortable feeling can be lightened by the fade-in/-out processing or insertion of a title picture instead of CM portions as described above.

[0125] The video signal recording apparatus and the video signal reproducing apparatus disclosed above may be set closely or apart.

[0126] The video signal recording apparatus and the video signal reproducing apparatus can be combined to constitute the video signal reproducing/reproduction apparatus 40 with the shared recording/reproducing section 60 as shown in FIG. 6, as disclosed above. Not only that, the encoder section 50 and the recording/reproducing section 60 can be combined to one unit as a home server to be set at home with set-top box-type decoder section 70 set in several rooms, a TV set being also set in each room, the decoder section 70 being connected to the home server.

[0127] The home server and each set-top box act as a bitstream transmitter and a bitstream receiver, respectively, and connected to each other via a high-speed wireless LAN or a home LAN. The transmitter and the receiver communicate each other in two-way communications in which a bitstream of video information recorded on a hard disc 63 is fed to a monitor TV and a demodulated video is displayed thereon via a set-top box operated by a user.

[0128] Moreover, the home server and set-top boxes in each home can be connected each other via a provider or a cable TV station, etc., for two-way communications described above among several homes. In order to establish such a network, home servers for several homes may be set, for example, in a cable TV station so that each home requires set-top boxes only.

[0129] A hard disc is used as a storage medium in the embodiments described above. Not only that, however, other types of storage medium with high-speed accessibility can be used, such as, a magneto-optical disc, a RAM- or RW-type DVD, and a semiconductor memory.

[0130] The recording and/or reproducing apparatus described so far are used for receiving broadcast signals carried by electromagnetic waves and record them on a hard disc.

[0131] In addition to electromagnetic waves, however, the apparatus according to the present invention can receive signals carried via a coaxial cable or an optical cable from a CATV station, or via xDSL or ISDN under internet broadcasting.

[0132] The CM-skipping techniques according to the present invention can be applied not only to moving pictures such as motion pictures, as described above, but also audio signals only, game programs for computer use, still pictures, and so on, distributed via Internet broadcasting when they include CMs and their corresponding mode signals.

[0133] Moreover, the CM-skipping techniques according to the present invention uses CM-portion positional data inserted at a GOP header under MPEG-2 system as described above. However, the CM-skipping techniques according to the present invention can also be applied to other types of encoding, such as, intraframe encoding (so-called motion JPEG), MPEG-4, MPEG-7, MPEG-21, and fractal encoding.

[0134] Furthermore, CM-flag management is performed per GOP in under MPEG-2 system in the embodiments described above due to that fact that encoding parameters for video signals are managed with GOP headers under MPEG-2 system.

[0135] A management method for encoding parameters and also CM flags thus depends on an encoding technique used for received video signals. CM-flag management per unit of video the same as that for encoding parameters makes less the number of accessing time for detection of CM flags thus offering the same advantages discussed above.

[0136] As disclosed above, the present invention provides a video signal recording apparatus including a video signal recorder for receiving an information signal including main information content signal carrying the contents of the information (such as a TV program), a CM portion signal carrying commercial messages (CM) and an information mode discriminating signal used for discriminating information modes of the main information content signal and the CM signal from each other according to the contents, encoding a video signal per plurality of video frames, the video signal including the main information content signal and the CM portion signal, and recording the encoded video signal in a storage medium so that the CM portion signal is skipped when the video signal is reproduced from the storage medium; a signal recorder for recording the received main information content signal and CM portion signal in the storage medium and recording the information mode discriminating signal in the storage medium or another temporary storage medium; a signal retriever for retrieving at least the information mode discriminating signal from the storage medium or the temporary storage medium; a detector for detecting locations of the recorded CM portion signal in the storage medium based on information mode corresponding to the CM portion signal among a plurality of information modes discriminated by means of the information mode discriminating signal; and a management data recorder for recording recorded position management data in the storage medium, the recorded position management data including data on the detected positions of the CM portion signal, data on video signal-recorded positions based on recorded positions of the video signal encoded per plurality of several video frames.
According to the video signal recording apparatus and the corresponding method, recorded position management data including data on positions of a CM portion signal that is obtained by searching a CM portion recorded on a storage medium based on the CM portion signal can be recorded on the storage medium. With the management data, a video signal recording apparatus that can record a recording signal for a video signal reproducing apparatus that reproduces a main information content signal (such as a TV program) only from the storage medium while skipping the CM portion, can be provided.

Moreover, as disclosed above, the present invention provides a video signal recording and reproducing apparatus including: a video signal recorder/reproducer for receiving an information signal including a main information content signal carrying the contents of the information (such as a TV program), a CM portion signal carrying commercial messages (CM) and an information mode discriminating signal used for discriminating information modes of the main information content signal and the CM signal from each other according to the contents, encoding a video signal per plurality of video frames, the video signal including the main information content signal and the CM portion signal, recording the encoded video signal in a storage medium, and reproducing the video signal, during the recording, from the storage medium while the CM portion signal is skipped; a signal recorder for recording the received main information content signal and CM portion signal in the storage medium and recording the information mode discriminating signal in the storage medium or another temporary storage medium; a signal retriever for retrieving at least the information mode discriminating signal from the storage medium or the temporary storage medium; a detector for detecting locations of the recorded CM portion signal in the storage medium based on information mode corresponding to the CM portion signal among a plurality of information modes discriminated by means of the information mode discriminating signal; and a reproduction controller for reproducing the main information content signal from the storage medium while skipping the CM portion signal based on recorded positions of the video signal encoded per plurality of video frames corresponding to the detected locations of the recorded CM portion signal.

According to the video signal recording and reproducing apparatus and the corresponding method, recorded position management data including data on positions of a CM portion signal that is obtained by searching a CM portion recorded on a storage medium based on the CM portion signal can be recorded on the storage medium. With the management data, a main information content signal (such as a TV program) is only reproduced from the storage medium while skipping the CM portion.

Moreover, as disclosed above, the present invention provides a video signal reproducing apparatus for reproducing a video signal obtained by receiving an information signal including a main information content signal carrying the contents of the information (such as a TV program), a CM portion signal carrying commercial messages (CM) and an information mode discriminating signal used for discriminating information modes of the main information content signal and the CM signal from each other according to the contents, encoding a video signal per plurality of video frames, the video signal including the main information content signal and the CM portion signal, recording the encoded video signal in a storage medium, recording the information mode discriminating signal in the storage medium or another temporary storage medium; retrieving the information mode discriminating signal from the storage medium or the temporary storage medium, and recording data on locations of the CM portion signal obtained based on an information mode corresponding to the CM portion signal among a plurality of information modes discriminated by means of the information mode discriminating signal in the storage medium or the temporary storage medium, the apparatus including: a reproducer for reproducing the main information content signal from the storage medium while skipping the CM portion signal based on the data on locations of the CM portion signal that is retrieved from the storage medium or the temporary storage medium; a CM-skipping setter for setting a CM-skipping function so that the CM portion signal is automatically skipped while the main information content signal is reproduced from the storage medium; and a reproduction controller for reproducing the main information content signal at a set reproduction speed while skipping the CM portion signal even if the set reproduction speed is different from a standard speed based on the data on locations of the CM portion signal when the CM-skipping function is set.

According to the video signal reproducing apparatus and the corresponding method, even if the set reproduction speed is different from a standard speed, data on locations of a CM portion signal is obtained from a storage medium, and based on time data that is the data on locations, a main information content signal (such as a TV program) is only reproduced from the storage medium while skipping the CM portion at a speed other than the standard speed.

When the set reproduction speed is higher than a specific speed, both the main information content signal and the CM portion signal are reproduced without skipping the CM portion signal even if the CM-skipping function is set. The CM portion signal can be used as an identifying signal for searching a desired portion of the main information content signal (such as a TV program).

Moreover, as disclosed above, the present invention provides a video signal reproducing apparatus for reproducing a video signal obtained by receiving an information signal including a main information content signal carrying the contents of the information (such as a TV program).
a TV program), a CM portion signal carrying commercial messages (CM) and an information mode discriminating signal used for discriminating information modes of the main information content signal and the CM signal from each other according to the contents, encoding a video signal per plurality of video frames, the video signal including the main information content signal and the CM portion signal, recording the encoded video signal in a storage medium, recording the information mode discriminating signal in the storage medium or another temporary storage medium; retrieving the information mode discriminating signal from in the storage medium or the temporary storage medium, and recording data on locations of the CM portion signal obtained based on an information mode corresponding to the CM portion signal among a plurality of information modes discriminated by means of the information mode discriminating signal in the storage medium or the temporary storage medium.

the apparatus including: a reproducer for reproducing the main information content signal from the storage medium while skipping the CM portion signal based on the data on locations of the CM portion signal that is retrieved from the storage medium or the temporary storage medium; a skip reproduction controller for controlling the reproduction of the video signal while skipping a portion of the video signal for a given reproducing time; and a reproduction controller for detecting a starting point of the video signal for next reproduction based on the data on locations of the CM portion signal when the portion of the video signal is skipped and controlling the reproduction to perform at a starting point of the main information content signal when detected starting point of the video signal is at least either a point of a signal that follows the main information content signal that starts after the CM portion signal has been finished or a point that comes during a period of the CM portion signal and also of a signal followed by the main information content signal.

[0144] According to the video signal reproducing apparatus and the corresponding method, based on data on locations (time data) of CM portions retrieved from a storage medium, the main information content signal (such as a TV program) is only reproduced at the starting point of the main information content signal while skipping the CM portions for a period shorter than a set skipping time when the set skipping time is longer than the CM portions recorded on the storage medium or for a period longer than the set skipping time when the set skipping time is shorter than the CM portions recorded on the storage medium.

Claims

1. A video signal recording apparatus comprising:

- a video signal recorder for receiving an information signal including a main information content signal carrying the contents of the information, a CM portion signal carrying commercial messages (CM) and an information mode discriminating signal used for discriminating information modes of the main information content signal and the CM signal from each other according to the contents, encoding a video signal per plurality of video frames, the video signal including the main information content signal and the CM portion signal, and recording the encoded video signal in a storage medium so that the CM portion signal is skipped when the video signal is reproduced from the storage medium;

- a signal recorder for recording the received main information content signal and CM portion signal in the storage medium and recording the information mode discriminating signal in the storage medium or another temporary storage medium;

- a signal retrieving for retrieving at least the information mode discriminating signal from the storage medium or the temporary storage medium;

- a detector for detecting locations of the recorded CM portion signal in the storage medium based on information mode corresponding to the CM portion signal among a plurality of information modes discriminated by means of the information mode discriminating signal; and

- a management data recorder for recording recorded position management data in the storage medium, the recorded position management data including data on the detected positions of the CM portion signal, data on video signal-recorded positions based on recorded positions of the video signal encoded per plurality of several video frames.

2. A video signal recording and reproducing apparatus comprising:

- a video signal recorder/reproducer for receiving an information signal including a main information content signal carrying the contents of the information, a CM portion signal carrying commercial messages (CM) and an information mode discriminating signal used for discriminating information modes of the main information content signal and the CM signal from each other according to the contents, encoding a video signal per plurality of several video frames, the video signal including the main information content signal and the CM portion signal, recording the encoded video signal in a storage medium, and reproducing the video signal, during the recording, from the storage medium while the CM portion signal is
skipped;
a signal recorder for recording the received main information content signal and CM portion signal in the storage medium and recording the information mode discriminating signal in the storage medium or another temporary storage medium;
a signal retriever for retrieving at least the information mode discriminating signal from the storage medium or the temporary storage medium;
a detector for detecting locations of the recorded CM portion signal in the storage medium based on information mode corresponding to the CM portion signal among a plurality of information modes discriminated by means of the information mode discriminating signal; and
a reproduction controller for reproducing the main information content signal from the storage medium while skipping the CM portion signal based on recorded positions of the video signal encoded per plurality of video frames corresponding to the detected locations of the recorded CM portion signal.

3. A video signal reproducing apparatus for reproducing a video signal obtained by receiving an information signal including a main information content signal carrying the contents of the information, a CM portion signal carrying commercial messages (CM) and an information mode discriminating signal used for discriminating information modes of the main information content signal and the CM signal from each other according to the contents, encoding a video signal per plurality of video frames, the video signal including the main information content signal and the CM portion signal, recording the encoded video signal in a storage medium, recording the information mode discriminating signal in the storage medium or another temporary storage medium; retrieving the information mode discriminating signal from in the storage medium or the temporary storage medium, and recording data on locations of the CM portion signal obtained based on an information mode corresponding to the CM portion signal among a plurality of information modes discriminated by means of the information mode discriminating signal in the storage medium or the temporary storage medium, the apparatus comprising:

- a reproducer for reproducing the main information content signal from the storage medium while skipping the CM portion signal based on the data on locations of the CM portion signal that is retrieved from the storage medium or the temporary storage medium;
a CM-skipping setter for setting a CM-skipping function so that the CM portion signal is automatically skipped while the main information content signal is reproduced from the storage medium; and
- a reproduction controller for reproducing the main information content signal at a set reproduction speed while skipping the CM portion signal even if the set reproduction speed is different from a standard speed based on the data on locations of the CM portion signal when the CM-skipping function is set.

4. The video signal reproducing apparatus according to claim 3 wherein both the main information content signal and the CM portion signal are reproduced when the set reproduction speed is higher than a specific speed without skipping the CM portion signal even if the CM-skipping function is set.

5. A video signal reproducing apparatus for reproducing a video signal obtained by receiving an information signal including a main information content signal carrying the contents of the information, a CM portion signal carrying commercial messages (CM) and an information mode discriminating signal used for discriminating information modes of the main information content signal and the CM signal from each other according to the contents, encoding a video signal per plurality of video frames, the video signal including the main information content signal and the CM portion signal, recording the encoded video signal in a storage medium, recording the information mode discriminating signal in the storage medium or another temporary storage medium; retrieving the information mode discriminating signal from in the storage medium or the temporary storage medium, and recording data on locations of the CM portion signal obtained based on an information mode corresponding to the CM portion signal among a plurality of information modes discriminated by means of the information mode discriminating signal in the storage medium or the temporary storage medium, the apparatus comprising:

- a reproducer for reproducing the main information content signal from the storage medium while skipping the CM portion signal based on the data on locations of the CM portion signal that is retrieved from the storage medium or the temporary storage medium;
- a skip reproduction controller for controlling the reproduction of the video signal while skipping a portion of the video signal for a given reproducing time; and
- a reproduction controller for detecting a starting point of the video signal for next reproduction based on the data on locations of the CM portion signal when the portion of the video signal is skipped and controlling the reproduction to
6. A method of recording a video signal comprising the steps of:

receiving an information signal including a main information content signal carrying the contents of the information, a CM portion signal carrying commercial messages (CM) and an information mode discriminating signal used for discriminating information modes of the main information content signal and the CM signal from each other according to the contents;

encoding a video signal per plurality of video frames, the video signal including the main information content signal and the CM portion signal;

recording the encoded video signal in a storage medium so that the CM portion signal is skipped when the video signal is reproduced from the storage medium;

recording the received main information content signal and CM portion signal in the storage medium and recording the information mode discriminating signal in the storage medium or another temporary storage medium;

retrieving at least the information mode discriminating signal from the storage medium or the temporary storage medium;

detecting locations of the recorded CM portion signal in the storage medium based on information mode corresponding to the CM portion signal among a plurality of information modes discriminated by means of the information mode discriminating signal; and

recording recorded position management data in the storage medium, the recorded position management data including data on the detected positions of the CM portion signal, data on video signal-recorded positions based on recorded positions of the video signal encoded per plurality of several video frames.

7. A method of recording and reproducing a video signal comprising the steps of:

receiving an information signal including a main information content signal carrying the contents of the information, a CM portion signal carrying commercial messages (CM) and an information mode discriminating signal used for discriminating information modes of the main information content signal and the CM signal from each other according to the contents;

recording the received main information content signal and CM portion signal in the storage medium and recording the information mode discriminating signal in the storage medium or another temporary storage medium;

retrieving at least the information mode discriminating signal from the storage medium or the temporary storage medium;

detecting locations of the recorded CM portion signal in the storage medium based on information mode corresponding to the CM portion signal among a plurality of information modes discriminated by means of the information mode discriminating signal; and

recording recorded position management data in the storage medium, the recorded position management data including data on the detected positions of the CM portion signal, data on video signal-recorded positions based on recorded positions of the video signal encoded per plurality of several video frames.

8. A method of reproducing a video signal obtained by receiving an Information signal including a main information content signal carrying the contents of the information, a CM portion signal carrying commercial messages (CM) and an information mode discriminating signal used for discriminating information modes of the main information content signal and the CM signal from each other according to the contents, encoding a video signal per plurality of video frames, the video signal including the main information content signal and the CM portion signal, recording the encoded video signal in a storage medium, recording the information mode discriminating signal in the storage medium or another temporary storage medium; retrieving the information mode discriminating signal from the storage medium or the temporary storage medium, and recording data on locations of the CM portion signal obtained based on an information mode corresponding to the CM portion signal among a plurality of information modes discriminated by means of the information mode discriminating signal in the storage medium or the temporary storage medium, the method comprising the steps of:
reproducing the main information content signal from the storage medium while skipping the CM portion signal based on the data on locations of the CM portion signal that is retrieved from the storage medium or the temporary storage medium; setting a CM-skipping function so that the CM portion signal is automatically skipped while the main information content signal is reproduced from the storage medium; and reproducing the main information content signal at a set reproduction speed while skipping the CM portion signal even if the set reproduction speed is different from a standard speed based on the data on locations of the CM portion signal when the CM-skipping function is set.

9. The method according to claim 8 wherein both the main information content signal and the CM portion signal are reproduced when the set reproduction speed is higher than a specific speed without skipping the CM portion signal even if the CM-skipping function is set.

10. A method of reproducing a video signal obtained by receiving an information signal including a main information content signal carrying the contents of the information, a CM portion signal carrying commercial messages (CM) and an information mode discriminating signal used for discriminating information modes of the main information content signal and the CM signal from each other according to the contents, encoding a video signal per plurality of video frames, the video signal including the main information content signal and the CM portion signal, recording the encoded video signal in a storage medium, recording the information mode discriminating signal in the storage medium or another temporary storage medium; retrieving the information mode discriminating signal from in the storage medium or the temporary storage medium, and recording data on locations of the CM portion signal obtained based on an information mode corresponding to the CM portion signal among a plurality of information modes discriminated by means of the information mode discriminating signal in the storage medium or the temporary storage medium, the method comprising the steps of:

reproducing the main information content signal from the storage medium while skipping the CM portion signal based on the data on locations of the CM portion signal that is retrieved from the storage medium or the temporary storage medium;

controlling the reproduction of the video signal while skipping a portion of the video signal for a given reproducing time; and detecting a starting point of the video signal for next reproduction based on the data on locations of the CM portion signal when the portion of the video signal is skipped and controlling the reproduction to perform at a starting point of the main information content signal when detected starting point of the video signal is at least either a point of a signal that follows the main information content signal that starts after the CM portion signal has been finished or a point that comes during a period of the CM portion signal and also of a signal followed by the main information content signal.
FIG. 4
Video signal recording and/or reproducing apparatus

An information signal is received, which includes a main information content signal carrying the contents of the information, a CM portion signal carrying commercial messages (CM) and an information mode discriminating signal used for discriminating information modes of the main information content signal and the CM signal from each other according to the contents. A video signal is encoded from a plurality of several video frames, the video signal including the main information content signal and the CM portion signal. The encoded video signal is recorded in a storage medium. The video signal is reproduced, during the recording, from the storage medium while the CM portion signal is skipped. The main information content signal and CM portion signal are recorded in the storage medium. The information mode discriminating signal is recorded in the storage medium or another temporary storage medium. At least the information mode discriminating signal is retrieved from the storage medium or the temporary storage medium. Locations of the recorded CM portion signal in the storage medium are detected based on information mode corresponding to the CM portion signal among a plurality of information modes discriminated by means of the information mode discriminating signal. The main information content signal is reproduced from the storage medium while skipping the CM portion signal based on recorded positions of the video signal encoded per plurality of video frames corresponding to the detected locations of the recorded CM portion signal.
## DOCUMENTS CONSIDERED TO BE RELEVANT

<table>
<thead>
<tr>
<th>Category</th>
<th>Citation of document with indication, where appropriate, of relevant passages</th>
<th>Relevant to claim</th>
<th>CLASSIFICATION OF THE APPLICATION (IPC)</th>
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<td>X</td>
<td>WO 96/08921 A (ARTHUR D. LITTLE ENTERPRISES, INC; IGULDEN, JERRY; FIELDS, KYLE; MCFA) 21 March 1996 (1996-03-21) * page 8, line 5 - page 36*</td>
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<td>A</td>
<td>EP 0 811 975 A (HITACHI DENSII KABUSHIKI KAISHA) 10 December 1997 (1997-12-10) * column 6, line 54 - column 20, line 2*</td>
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</table>

1. The present search report has been drawn up for all claims.

### TECHNICAL FIELDS SEARCHED (IPC)
- G11B
- H04N

### CATEGORY OF CITED DOCUMENTS
- T: theory or principle underlying the invention
- E: earlier patent document, but published on, or after the filing date
- D: document cited in the application
- L: document cited for other reasons
- S: member of the same patent family, corresponding document

### INFORMATION FROM THE OFFICE
- Name of designer: Materne, A
- Date of completion of the search: 20 December 2005
- Place of search: Berlin
<table>
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For more details about this annex: see Official Journal of the European Patent Office, No. 12/82
The present invention provides a recording/reproducing apparatus that can easily identify programs set for renewal recording in programs set for timer recording reservation. To a respective program set for renewal recording, a different reservation number is added as a specific identifying mark, and said reservation numbers are displayed on a monitor together with program information such as date and time for recording and so forth. Among recorded programs, programs set for renewal recording are added a renewal recording number as an identifying mark. To other programs, no identifying mark is added. Said renewal recording number is the same as the reservation number added to a program set for renewal recording at the time of reservation.

FIG. 1
BACKGROUND OF THE INVENTION

Field of the Invention:

[0001] The present invention relates to a recording/reproducing apparatus having a renewal recording function for performing overwrite recording of programs broadcasted either every day or every week in series on a random-access recording medium such as hard disc, DVD and so forth.

Prior Art:

[0002] In a recent recording/reproducing apparatus for recording and reproducing TV broadcast programs, there have been used disc-shaped recording means such as hard disc, DVD-R, DVD-RW and so forth as a random-access mass-storage means.

[0003] When a television program is recorded on such a disc-shaped recording medium, one file is formed on a predetermined area of the disc-shaped recording medium, and recording data encoding received video/audio signals are stored therein.

[0004] As one method of recording a broadcast program, a timer recording is well known. (In this case,) When necessary information pertaining to desired broadcast programs is input in order for the desired broadcast programs to be recorded at the designated time and date, the recording/reproducing apparatus automatically starts timer recording.

[0005] There are two ways of timer recording reservation. One is a weekly recording reservation in which timer recording is performed at the designated time of each designated day in every week. The other is a daily recording reservation in which timer recording is performed at the designated time every day, e.g., from Monday through Friday, from Monday through Saturday, or from Saturday through Sunday. In both cases of the weekly recording reservation and the daily recording reservation, a user can select renewal recording or usual timer recording. Renewal recording records new programs by overwrite recording every time on the same area of the recording medium. On the other hand, timer recording records new programs every time, without overwriting, on a different area of the recording medium.

[0006] When programs desired for recording are reserved, as shown in Fig. 5, a list panel of timer recording reservations is displayed. The list panel shows program information such as the date and time of a broadcast program, channel number, and recording mode.

[0007] Programs recorded on the recording medium on the basis of recording reservation are shown on a list panel of the recorded programs, as shown in Fig. 6. The list panel shows recorded program information such as the date and time, channel number, recording time and so forth. (In this case,) A renewal recording mark "□" is marked on a program recorded by renewal recording.

[0008] The renewal recording mark is added to the recording program information during the time period between recording reservation and recording start. The sequence of operations is set forth with reference to Fig. 7. When it comes to the set time to start timer recording after timer recording reservation has been made by inputting the program information of desired broadcast programs, it is determined whether or not renewal recording is set. In case no renewal recording is set, recording of the program reserved for timer recording starts automatically. The renewal recording mark is not added to the recorded program information.

[0009] In case renewal recording is set, it is determined whether or not renewal recording files are included in the recorded programs with respect to the same program. If there is no renewal recorded file with respect to the same program, the current timer recording reservation is a new renewal recording. So the renewal recording mark "□" is added to the program information and a renewal recorded file is newly formed. After that, recording of the programs reserved for timer recording starts. If there is the same renewal recorded file, overwrite recording onto the file is prepared. At that time, the renewal recording mark is succeeded.

[0010] A user can identify the renewal recorded program by the indication of the renewal recording mark on the list of the recording programs as shown in Fig.6. Therefore, if a previous program is not yet reproduced, the previous program can be kept remained and the current program can be recorded into a new file by removing the setting for renewal recording before the current program is automatically recorded overwriting the previous one, and thus, it is possible to prevent the user from missing the previous program.

[0011] As the renewal recording mark is indicated on the list of the recorded programs, a user can identify a program set for renewal recording. However, as there is indicated no renewal recording mark on the list of the timer recording reservations, it is necessary for identifying a program set for renewal recording in the timer recording reservation programs to compare the program information on the list panel of the timer recording reservation including the recording date, the recording start time, and the recording end time with the recorded program information of the list panel of the recorded programs. However, such a comparison is very troublesome and it is likely to cause mistakes.

[0012] Further, when a certain program is specified by mistake in the course of the above comparison, there is a possibility that reservation change may be made on an unintended program at the time of reservation change. For example, in the case where a plurality of programs are set for renewal recording, it is likely to happen that reservation change is made not on an intended program but on an unintended program.
SUMMARY OF THE INVENTION

[0013] It is therefore an object of the present invention to provide a recording/reproducing apparatus which can easily identify programs set for renewal recording in programs set for timer recording reservation.

[0014] In order to solve the above problems, the present invention provides the recording/reproducing apparatus comprising a reservation means for setting a program to be recorded on a recording medium, a reservation list display means for displaying a list of program information of reserved programs, and a program list display means for displaying a list of program information of recorded programs, wherein the reservation list display means indicates a specific identifying mark added to a reserved program and the program list display means indicates the identifying mark on a program set for renewal recording.

[0015] As a result, as for a program set for renewal recording, the identifying mark added at the time of recording reservation is added to program information at the time of recording for indication. Accordingly, a program set for renewal recording comes to have the same identifying mark thereon. Thus, the identifying mark is indicated without discrepancy between a list panel of reservations and a list panel of recorded programs, and so it becomes easy to identify a program set for renewal recording.

[0016] The present invention also provides the recording/reproducing apparatus comprising a designation means for adding a specific identifying mark to a reserved program, a reservation list display means for displaying a list of program information of reserved programs together with the identifying mark, a modification means for modifying an identifying mark of programs other than programs set for renewal recording to a different identifying mark from the identifying mark added to reserved programs at the time of recording on the recording medium, and a program list display means for displaying a list of program information of recorded programs together with the identifying mark.

[0017] At the time of reservation, each program is added a different identifying mark, respectively. At the time of recording, the same identifying mark as at the time of reservation is added to a program set for renewal recording and the identifying mark is modified to a different identifying mark from at the time of reservation with respect to a program not for renewal recording. Modification of the identifying mark includes no mark. In this case, only the identifying marks of the programs set for renewal recording are indicated, and so a user can easily identify the programs for renewal recording.

BRIEF DESCRIPTION OF THE DRAWINGS

[0018] For a better understanding of the invention, reference is made to the accompanying drawings, in which:

Fig. 1 is a block diagram showing one embodiment of a recording/reproducing apparatus according to the present invention;
Fig. 2 is a flow chart at the time an identifying mark is added to a recording program;
Fig. 3 is a view showing a list panel of timer recording reservation;
Fig. 4 is a view showing a list panel of recorded programs;
Fig. 5 is a view showing a list panel of timer recording reservation in prior arts;
Fig. 6 is a view showing a list panel of recorded programs in prior arts; and
Fig. 7 is a flow chart at the time an identifying mark is added to a recording program in prior arts.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0019] One embodiment of a recording/reproducing apparatus according to the present invention is shown in Fig. 1. The present recording/reproducing apparatus is provided with a random-access hard disc 1 as a recording medium, a tuner 2, a video/audio processing unit 3, a recording/reproducing unit 4, an input unit 5, and a control unit 6.

[0020] Waves from a ground wave broadcasting or a BS broadcasting are input to the tuner 2. The tuner 2 selects waves of a selected channel, and the received video/audio signals are output to the video/audio processing unit 3. At the video/audio processing unit 3, the input video/audio signals are demodulated or converted to digital signals. The digital video/audio signals are encoded and output to the recording/reproducing unit 4. At the recording/reproducing unit 4, a file is formed in a predetermined area of the hard disc 1, and subsequently the encoded video/audio signals are written therein. Thus, a broadcast program is recorded in the hard disc 1.

[0021] When the recorded program is reproduced, the recording/reproducing unit 4 reads out the file from the hard disc 1 and outputs the data stored in the file to the video/audio processing unit 3. At the video/audio processing unit 3, the encoded video/audio signals are decoded and converted to analog signals. The obtained analog video/audio signals are output to a display unit 7 such as a monitor and to a speaker.

[0022] The input unit 5 is a remote controller or an operation panel provided at the main body of the apparatus, which issues a direction of recording/reproducing of programs. The control unit 6 controls the tuner 2, the video/audio processing unit 3, the recording/reproducing unit 4, and the display unit 7 on the basis of the data input from the input unit 5.

[0023] Programs to be recorded on the hard disc 1 are set by inputting program information for timer recording such as the date and time, channel numbers at the input unit 5. Thus, the input unit 5 serves as a rea-
The control unit 6 is provided with: a designation means for adding a specific identifying mark to a program set for recording reservation; a reservation list display means for displaying a list of program information of reserved programs together with the identifying mark; a modification means for modifying a identifying mark of programs other than programs set for renewal recording to a different identifying mark from the identifying mark added to reserved programs at the time of recording on the hard disc 1; and a program list display means for displaying a list of program information of recorded programs together with the identifying mark. Namely, a program set for renewal recording has the same identifying mark as added at the time of reservation, and a program set for usual timer recording has a different identifying mark between at the time of reservation and at the time of recording.

Now, the sequence of operations for adding an identifying mark at the time of recording will be explained with reference to Fig. 2. Timer recording reservation is made by inputting program information of a desired program by means of the input unit 5. When setting a weekly recording reservation or a daily recording reservation, it is selected by ON/OFF direction whether or not renewal recording for overwriting on a recorded program is set.

For each of programs set for timer recording reservation, a reservation number as a specific identifying mark is designated. The list of timer recording reservations is displayed as shown in Fig. 3. Reservation numbers 2 and 3 are added to programs set for renewal recording, respectively. The reservation number can be designated from 1 through 16.

When it comes to the set time to start timer recording of a reserved program, it is determined whether or not renewal recording is set on the reserved program. In case no renewal recording is set, recording of the programs reserved for timer recording starts automatically. In case renewal recording is set, the program is designated to which reservation number of the programs set for timer recording corresponds. Next, it is determined whether or not a renewal recording file are included in the recorded programs with respect to the same program. If there is no renewal recording file with respect to the same program, the current timer recording reservation is a new renewal recording. So a renewal recording number that is the same as the reservation number is added to the program information as an identifying mark. And a renewal recorded file is newly formed. After that, recording of the programs reserved for timer recording starts.

If there is the renewal recorded file having the same program information with the program set for renewal recording, overwrite recording onto the file is prepared. At that time, the renewal recording number is succeeded automatically. After that, recording of the programs reserved for timer recording starts.

In this case, however, a program set for renewal recording is overwritten even if the program is not yet reproduced. In view of this, when it comes to a prescribed time before the timer recording starts, a message to the effect that timer recording starts is displayed on the display unit, thereby alerting a user before starting timer recording. If it is desired that a previous program is kept remained, timer recording reservation is changed so as to release the renewal recording by selecting OFF of ON/OFF direction. Thus, a new file for recording a current program is formed on the hard disc 1, and the current program is recorded thereon. If timer recording starts while a previous program is being reproduced, reproducing is forced to stop and a current program is recorded by overwriting the previous one.

Program information of the recorded programs is displayed on a list panel of the recorded programs as shown in Fig. 4. Programs set for renewal recording are shown with renewal reservation numbers 2 and 3. The renewal recording number of each program is the same as the reservation number of each program. A program set for usual timer recording, that is, recording only once, has no identifying mark and a space is kept blank. Namely, at the time of reservation, a reservation number is added as an identifying mark, and at the time of recording, the identifying mark is modified to a space mark that means blank.

Thus, a program set for renewal recording has the same identifying mark between at the list of timer recording reservation and at the list of recorded programs. Therefore, it is possible for a user to identify immediately programs set for renewal recording. Accordingly, when it is desired to stop or modify the setting for renewal recording, the objected program can be identified without fail, thus resulting in prevention of mistakes of modification.

The present invention is not limited to the above-described specific embodiments but is subject to various changes and modifications within the scope of the invention. For example, instead of hard discs, rewritable DVDs, CDs, and semiconductor memories are applicable as a recording medium. Identifying mark may be selected from any other marks than numerals such as letters, symbols, drawings and the like depending on a user's selection. In addition, program information of a program set for renewal recording may be indicated by color in order to differentiate from other programs.

As described heretofore, according to the present invention, both a reserved program set for renewal recording and a recorded program are displayed with a same identifying mark, so that the correspondence between the two can be identified immediately. Consequently, when modifying the setting for renewal recording, the objected program can be selected without fail from a plurality of programs, thus preventing mistakes of modification.
Claims

1. A recording/reproducing apparatus comprising a reservation means for setting a program to be recorded on a recording medium, a reservation list display means for displaying a list of program information of reserved programs, and a program list display means for displaying a list of program information of recorded programs, wherein said reservation list display means indicates a specific identifying mark added to a reserved program and said program list display means indicates said identifying mark on a program set for renewal recording.

2. A recording/reproducing apparatus comprising a designation means for adding a specific identifying mark to a reserved program, a reservation list display means for displaying a list of program information of reserved programs together with said identifying mark, a modification means for modifying a identifying mark of programs other than programs set for renewal recording to a different identifying mark from the identifying mark added to reserved programs at the time of recording on said recording medium, and a program list display means for displaying a list of program information of recorded programs together with said identifying mark.
Fig. 2

TIMER RECORDING START TIME

NO

IS RENEWAL RECORDING SET?

YES

DESIGNATION OF TIMER RECORDING RESERVATION NUMBER

IS THERE A RENEWAL RECORDING FILE FOR THE SAME PROGRAM?

NO

FORMING A RENEWAL RECORDING FILE WITH A NUMBER SAME AS A RESERVATION NUMBER (ADDITION A RENEWAL RECORDING NUMBER SAME AS A RESERVATION NUMBER)

YES

OVERWRITING A RENEWAL RECORDING FILE OF A NUMBER SAME AS A RESERVATION NUMBER (SUCCESSING A RENEWAL RECORDING NUMBER)

RECORDING START OF A PROGRAM SET FOR TIMER RECORDING RESERVATION
Fig. 3

<table>
<thead>
<tr>
<th>No.</th>
<th>DATE</th>
<th>START</th>
<th>END</th>
<th>CH</th>
<th>RECORDED</th>
<th>MODE</th>
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<td>25/THU</td>
<td>PM 9:00</td>
<td>PM 10:55</td>
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<td>2</td>
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<td>PM 7:00</td>
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▼ (Page 2)

▲ ▼/ENTER/DELETE/MENU

Fig. 4

**LIST OF RECORDED PROGRAMS**

<table>
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<tr>
<th>DATE</th>
<th>TIME</th>
<th>CH</th>
<th>RECORDING TIME</th>
<th>GENRE</th>
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<tr>
<td>12/25(THU)</td>
<td>PM 9:00</td>
<td>8</td>
<td>1:55:28</td>
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<td>3</td>
</tr>
<tr>
<td>2 12/28(FRI)</td>
<td>PM 7:00</td>
<td>6</td>
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<td>0</td>
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<td>3 12/29(SAT)</td>
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DETAILED LIST MENU/RETURN ▲▼ SELECT ENTER SORT ENTER
Fig. 5

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<th>CH</th>
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<th>MODE</th>
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<tr>
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Fig. 6

**LIST OF RECORDED PROGRAMS**

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<tr>
<td>☐ 12/29(SAT)</td>
<td>PM 7:00</td>
</tr>
</tbody>
</table>

DETAILED LIST MENU/RETURN ▲▼ SELECT ENTER SORT ENTER
Fig. 7

TIMER RECORDING START TIME

NO

IS RENEWAL RECORDING SET?

YES

IS THERE A RENEWAL RECORDING FILE FOR THE SAME PROGRAM?

YES

OVERWRITING A RENEWAL RECORDING FILE SAME AS A DESIGNATED PROGRAM SET FOR TIMER RECORDING RESERVATION (SUCCEEDING A RENEWAL RECORDING MARK (□))

NO

FORMING A RENEWAL RECORDING FILE WITH A RENEWAL RECORDING MARK (□)

RECORDING START OF A PROGRAM SET FOR TIMER RECORDING RESERVATION
The present invention provides a recording apparatus having a recorder that records information signals pertaining to broadcast programs received from a receiver onto a recording medium, a setting device that sets a repetitive recording reservation program specifying recording of a broadcast program at each predetermined time interval, and a controller that determines whether or not information signals previously recorded onto the recording medium in accordance with the repetitive recording reservation program have already been reproduced by a reproduction device, and if so causes the recorder to erase the previously recorded information signals and records information signals of a current broadcast, and if not causes the recorder to record the information signals of the current program without erasing the previously recorded information signals.

**FIG. 4**

```
BEGIN

OVERWRITE MODE?

YES

REPRODUCED?

YES

ERASE PREVIOUSLY RECORDED PROGRAM

RECORD

END

NO

PAST PROGRAM PRESENT?

YES

S404

S405

NO

S401

S402

S403
```
Description

FIELD OF THE INVENTION

[0001] The present invention relates to a recording apparatus, and more particularly, to a recording reservation function of a recording apparatus.

BACKGROUND OF THE INVENTION

[0002] Home VTR systems such as VHS and the like, which use magnetic tape as a recording medium, have become a common feature of most households. In recent years, as personal computers become more widespread, hard disk and other recording devices have continued to become cheaper as well as expand in capacity. At the same time, in the video camera field, DV-type digital recording is becoming the standard recording format.

[0003] Against this backdrop, the digitization wave has hit home video decks as well, with products now available that record and reproduce video signals encoded in MPEG2 format to and from a hard disk (hereinafter called a disk recorder).

[0004] This type of disk recorder has many advantages over the conventional VTR, such as content management and reproduction utilizing random accessibility, extended time recording, and the ability to play back previously recorded contents while recording new matter at the same time.

[0005] With respect to a recording reservation function installed in a disk recorder of this type, an overwrite function has come to be most common.

[0006] An overwrite function is a function effective for repeated daily or weekly reserved recordings. When the overwrite function is set to engage, when executing a new program recording, a previously recorded program is erased, so as to be able to use the disk efficiently. Whether the overwrite function is engaged or disengaged can be specified with each recording reservation. When the overwrite function is turned off and a recording reservation made, past programs are saved without being erased.

[0007] Japanese Laid-Open Patent Publication No. 2000-138886 discloses a technology in which a certain specified number of recordings are always saved. For example, if four recordings are specified, then the latest program plus the last three recorded programs are saved, with the oldest program automatically erased at the next recording. In addition, Japanese Laid-Open Patent Publication No. 2002-033983 discloses a technology in which, even if the overwrite function is set to be engaged, if past programs are set to an erasure prohibited setting, or if the apparatus is in the process of recording, the past programs will not be erased.

[0008] However, there remains the problem that, when the overwrite function is engaged, past programs are erased whether or not a user has viewed them.

[0009] In order to avoid such an outcome, it is enough, of course, to disengage the overwrite function. However, in the event that the user forgets to disengage the overwrite function when setting the recording reservation time, a previously recorded program will be overwritten and thus erased.

[0010] Moreover, there remains the problem that, with the methods described in the foregoing publications, the user must set the conditions of erasure separately for each of the recorded programs, making the apparatus extremely difficult to operate.

SUMMARY OF THE INVENTION

[0011] An embodiment of the present invention facilitates prevention of erasure of not-yet-viewed recorded programs while making efficient use of the recording medium, without burdening the user.

[0012] The present invention provides a recording apparatus, comprising:

- Receiving means for receiving a broadcast program;
- Recording means for recording information signals pertaining to the broadcast program received via the receiving means onto a recording medium;
- Reproduction means for reproducing the information signals from the recording medium;
- Setting means for setting a repetitive recording reservation program that designates repeated broadcast program recording at each predetermined time interval;
- Determination means for determining whether or not information signals recorded previously onto the recording medium in accordance with the repetitive recording reservation program have already been reproduced by the reproduction means; and
- Control means for controlling recording of a broadcast program specified by the repetitive recording reservation program in response to results of a determination performed by the determination means,

wherein the control means erases from the recording medium the previously recorded information signals and records information signals pertaining to a current broadcast program specified by the repetitive recording reservation program if the previously recorded information signals have already been reproduced, and records information signals pertaining to the current broadcast program without erasing the previously recorded information signals from the recording medium if the previously recorded information signals have not been reproduced.

[0013] Embodiments of the present invention will be described in conjunction with the accompanying drawings, in which like reference characters designate the same or similar parts throughout the figures thereof, and in which:
Fig. 1 is a diagram showing an example of the construction of a disk recorder according to a first embodiment of the present invention;
Fig. 2 is a diagram showing a recording reservation screen;
Fig. 3 is a diagram showing a data structure of a recording reservation program;
Fig. 4 is a flow chart showing a reserved recording operation according to the first embodiment of the present invention;
Fig. 5 is a diagram showing a recording reservation screen;
Fig. 6 is a diagram showing a recording reservation screen;
Fig. 7 is a diagram illustrating an overwrite mode setting operation using an overwrite mode setting dialog box;
Fig. 8 is a diagram showing a recording reservation screen;
Fig. 9 is a flow chart showing a reserved recording operation according to a second embodiment of the present invention;
Fig. 10 is a diagram showing a recording reservation screen; and
Fig. 11 is a diagram showing a genre setting screen.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0014] Preferred embodiments of the present invention will now be described in detail in accordance with the accompanying drawings.

(First Embodiment)

[0015] Fig. 1 is a diagram showing an example of the construction of a disk recorder according to a first embodiment of the present invention.

[0016] Reference numeral 110 designates a microcomputer that controls the entire system. The microcomputer 110 has at least a nonvolatile memory (ROM) that stores programs, a volatile memory (RAM) that provides work space, an external bus for exchanging data with other hardware and accessing a control register, and a timer for measuring time. Reference numeral 103 designates a bus. In addition to the microcomputer 110 external bus, blocks to be described later are also connected to the bus 103, and exchange data according to the control executed by the microcomputer 110. Reference numeral 101 designates a tuner. In accordance with the control executed by the microcomputer 110, the tuner 101 selects a channel from among broadcasts received through an antenna and a cable and outputs video signals of the selected channel.

[0017] Reference numeral 102 is an encoder. In accordance with the control exerted by the microcomputer 110, during video recording the encoder receives the video signals output from the tuner 101 which the encoder then successively converts into MPEG (Moving Picture Experts Group) format digital video data. In addition, the digital video data is output from the encoder 102 with an address at the head specified by the microcomputer 110. Reference numeral 106 designates a memory, blocks of which can be used as work space.

[0018] Reference numeral 104 designates a hard disk interface (hereinafter "HDD IF") and 105 designates a hard disk ("HDD"). The HDD IF 104 has an interface for the memory 106 and the microcomputer 110 connected to the bus 103 and an interface for the HDD 105, and converts and exchanges a variety of commands and data for accessing a control register of the HDD 105 from the microcomputer 110. In general, an external interface having a hard disk is an ATA (ATA Attachment) interface. Recording media other than the HDD 105, such as semiconductor memories and optical disks, may be used as the random-access recording medium for recording the digital video data.

[0019] If the HDD 105 is such type of hard disk, then the HDD IF 104 exchanges a variety of data so that the microcomputer 110 can access the HDD 105 ATA register through the bus 103. The HDD IF 104 is provided with a so-called direct memory access (DMA) function, in which read or write data is automatically transferred by specifying the data size and load address on the bus 103 as well as the load sector on the HDD 105.

[0020] Reference numeral 108 designates a decoder, which successively converts the digital video data in read video signals and audio signals and outputs those signals from the address on the bus 103 specified by the microcomputer 110. From memory 106, reference numeral 107 designates a video output terminal and 109 designates an audio output terminal. The video output terminal 107 and the audio output terminal 109 are terminals for outputting externally the respective video signals and audio signals converted into NTSC format by the decoder 108.

[0021] Reference numeral 113 is an on-screen display (OSD), which multiplexes onto the video output such information as a variety of setting menus as well as titles and times and generates a reservation setting screen to be described later. Reference numeral 111 designates a display panel, and is provided in order to display a minimum amount of information on the apparatus. Reference numeral 112 designates a group of operating controls, and functions as an input device for enabling a user to supply power, select record/reproduction, and make a reservation to record by a procedure to be described later.

[0022] Reference numeral 114 designates a remote control photoreceptor that receives signals from an infrared light remote control device that are then transmitted to the microcomputer 110 as pulses. The microcomputer 110 converts the pulses into data which it then recognizes as control commands. The infrared remote control is a user input means like the operating controls 112, and the description of operating the operating controls...
112 provided below basically applies to the remote control device as well.

[0023] Reference numeral 115 designates a real time clock, provided in order to transmit date and time data to the microcomputer 110. Initial values and count start commands are input by the user, using the operating controls 112, and provided through the microcomputer 110. The recording reservation function to be described later uses the time data generated by the real time clock 115. In addition, the time stamp given to the video recording also similarly uses the time data generated by the real time clock 115.

[0024] Software for handling a predetermined file system is installed in the microcomputer 110, and data is read from and written to the HDD 105 in accordance with the file system. In addition, a single recording from start to finish is managed as a single content item. For example, the file system may be a FAT (file allocation table)-type file system, treating a single content item as a single file and creating a file entry in accordance with a predetermined rule, and recorded on the HDD 105.

[0025] When power is supplied, the microcomputer 110 reads FAT data from the HDD 105 and looks for recordable (empty) space in the HDD 105. Similarly, the microcomputer 110 reads the directory entry and then determines in advance a file name for the next digital video data to be recorded.

[0026] The user selects a desired channel using the operating controls 112. The microcomputer 110 continuously detects the status of the operating controls 112, monitoring user operations. When the microcomputer 110 detects a channel selection, the microcomputer 110 outputs a control signal to the tuner 101, causing the tuner 101 to receive the specified channel. In the following description, unless refused, all user operations are transmitted to the microcomputer 110 via the operating controls 112.

[0027] Next, when the user issues a request to start recording, the microcomputer 110 controls the blocks so as to begin recording of the selected broadcast program. First, the microcomputer 110 causes the encoder 102 to begin encoding and to store digital video data with a predetermined memory 106 address at the lead. The encoder 102 notifies the microcomputer 110, by a means such as an insert, each time a predetermined amount of data is stored.

[0028] When the microcomputer 110 receives such notification, the microcomputer 110 notifies the encoder 102 of the next storage lead address. Further, the microcomputer 110 issues a command to the HDD I/F 104 to write the digital video data stored in the memory 106 by the encoder 102 to the HDD 105. At this time, the write space in the HDD 105 is recordable (empty) space detected by the file system. The entire process from encoding to writing to the HDD 105 is repeated until a request to stop recording is issued. In addition, management data such as the length of the time of the video recording is either added as a header (or a footer) to the file or generated as a content management file and recorded in the HDD 105.

[0029] Next, a description is given of the reproduction operation (reproduction). As might be expected, the user selects the recorded item he or she wishes to reproduce by using the operating controls 112. The usual sequence is involved herein, insofar as a contents list or a representative image (thumbnail image) correlated with the contents is displayed, a pointer is moved to the desired item, and reproduction begins upon selection of the item. Alternatively, the apparatus may be configured so that, by pressing a reproduction key directly (or a key assigned to issue a reproduction command), for example the lead item, a continuation of a previous reproduction, or the last recorded item is reproduced.

[0030] The microcomputer 110 then reads the digital video data of an item selected in the foregoing manner from the HDD 105. Specifically, in the reverse of what happens when recording, the microcomputer 110 issues a command to the HDD I/F 104 to cause the HDD I/F 104 to read data from the HDD 105 and store it in the memory 106. At this time, as with the recording operation, the HDD 105 read lead sector, the memory 106 write lead address and the data size are specified by the microcomputer 110.

[0031] Next, the microcomputer 110 issues a command to the decoder 108 to decode the digital video data stored in the memory 106. Until the item ends or the process is cancelled or paused by the user, the process of feeding digital video data to be decoded to the decoder 108 continuously and without interruption is repeated.

[0032] Next, a description is given of recording reservation, using Fig. 2. Recording reservation is now a common feature on most home video decks. Reference numeral 201 shows an example of a recording reservation mode display screen. As described above, when the user requests display using the operating controls 112, the microcomputer 110 generates a display screen like that shown in Fig. 2 using the OSD 113. It should be noted that generation of the recording reservation mode screen 201, even if a request is issued, is prohibited under certain circumstances, for example during video recording.

[0033] Reference numeral 202 designates a recording reservation setting title. From the left, CH designates a video recording channel. Date designates the date recorded. Start designates the time video recording began, End designates the time recording ended. Mode designates picture quality mode, and Overwrite turns an overwrite function ON and OFF. In addition, as a recording reservation setting, a title of a program may be further included. Reference numerals 203-207 designate recording reservation programs individually set by the user. The microcomputer 110 automatically records in accordance with the recording reservation program conditions. Directions for using the operating controls 112 and the like may be displayed in a space designated by reference numeral 208. Reference numeral 210 desig-
nates a cursor, which can be moved to an editable area by the user. For example, in Fig. 2 the cursor is positioned at a recording start time of recording reservation program 205, which time can be edited if necessary.

[0034] As for the date setting, as with recording reservations 203, 205, in addition to setting the date directly, it is possible to select "daily" as with recording reservation program 204, or "weekly X" like recording reservation programs 206, 207. "X" indicates the day of the week, i.e., "Sunday", "Monday", "Tuesday", "Wednesday", "Thursday", "Friday" or "Saturday".

[0035] If "daily" is specified, then recording is executed daily at a designated time. If "weekly" is specified, then recording is executed at a designated time each "X-day" of the week. For example, if the user wishes to record every broadcast of a program broadcast every day at a given time, then "daily" is selected, and if the user wishes to record every broadcast of a program, such as a serial drama, that is broadcast every week, then by specifying "every X-day" the user can eliminate the bother of having to set the reservation at every broadcast of the program. In the following description, these options are referred to as "daily reservation", "weekly reservation", and, if indicating both without distinction, "recurring reservation". It should be noted that that repetitive recording reservation program is saved even after repetitive recording reservation has been executed, but after execution of normal recording reservations like recording reservation programs 203, 205 the repetitive recording reservation program is at least deleted from the recording reservation mode screen 201.

[0036] It should be noted that although in Fig. 2 the picture quality mode has only the standard play SP and extended play LP typical of home video deck picture quality settings, further formats may be also included.

[0037] Moreover, the overwrite function can be selected only with recurring reservation, such that those programs having a mark (here Q) such as recording reservation programs 204 and 205, are set to ON, whereas programs left blank are set to OFF. Recording reservation programs 203 and 205 are not recurring reservations and hence the overwrite function cannot be selected.

[0038] When the overwrite function is selected (that is, turned ON), it operates as follows:

[0039] When executing recurring recording, the following determinations are made by the microcomputer 110:

- Determination 1: Is the previous program on the HDD 105?
- Determination 2: Has the previous program been reproduced at least once?

[0040] From the foregoing determinations the process shown in the flow chart in Fig. 4 is executed. In other words, at some predetermined time prior to the setting time of recurring recording (usually some minutes before), the microcomputer 110 executes the process in Fig. 4.

[0041] First, it is determined whether or not the overwrite mode has been set for the recording program (step S401), and if so, processing then proceeds to a step S402. In a step S402, it is determined whether or not the program last recorded by the recurring reservation program remains recorded on the HDD 105. If the results of this determination indicate that the previous program does exist on the HDD 105, it is then determined whether or not this previous program has been reproduced at least once (step S403). If it is determined that the previous program has been reproduced at least once, then the data for that previous program is erased from the HDD 105 (step S404). Then, when the reservation set time arrives, the specified channel broadcast program is received and recording started, with recording continuing until the recording end time (step S405).

[0042] If in steps S401, S402, S403 it is determined that the answer is "NO", then the time to begin recording is awaited and recording is started when that time arrives.

[0043] Thus, as described above, in order to identify the data of a program that is recorded by recurring reservation, in the present embodiment, recording reservation program management data unique to each recording reservation program is correlated with recording content and reproduction management data indicating whether or not the content has been reproduced is used.

[0044] Fig. 3 shows an example of the data structure of the recording reservation program used in the present embodiment.

[0045] Reference numeral 301 designates recording reservation data for a single recording reservation program. Reference numeral 302 designates a program ID, which is the recording reservation program identification number. Rules for assigning program IDs may, for example, be "registration month-year plus serial number", with a new program ID whenever the registration contents of the recording reservation program change. For example, if the user newly registers a recording reservation program on July 3, 2002, or if there is a change in the registered content, the program ID 302 is "2002070301". For items registered on the same day, or if there is a change in the registered content, the program ID 302 is "2002070302" and "2002070303". Here, the serial number is the last two digits, but may be any number that accommodates the number of recording reservation programs that can be registered.

[0046] Therefore, like 204 in Fig. 2, the same program ID is added to the recurring recording recorded item and recorded.

[0047] Reference numeral 303 designates recording reservation program setting data, whose content, which is set by the user using the recording reservation screen in Fig. 2, is written in a format that the microcomputer 110 can interpret. Thus, the recording reservation data
301 includes at least the program 302 and recording reservation setting data 303. Accordingly, the above-described recording reservation program management data is generated.

[0048] Further in Fig. 4, in the recording process in step S405, the program ID 302 is correlated with a recorded item and recorded. Specifically, the program ID 302 is stored in a management data space for the recorded item and recorded. Or, the program ID 302 may be attached to the file name. Or a management file may be created and recorded on the HDD 105.

[0049] By so doing, recording reservation program management data can be correlated with an item recorded on the HDD 105 by reserved recording. In addition, reproduction management information can also be created by checking the extent to which a recording is reproduced whenever the recording is reproduced and recording the results separately for each recorded item. The reproduction management data records content data such as the file name, the total number of frames in the recording, and the position of the frame at which reproduction ended. However, when updating the position of frame at which the last reproduction ended, the new recording is written over the old recording only when the new recording is larger than the position at which reproduction of the previously recorded item ended. The foregoing arrangement is designed to accommodate an instance in which the user renews the recording at some intermediate point during playback, thus moving the last reproduction position back.

[0050] Moreover, in case the last reproduction position is moved forward, for example by fast forwarding the tape or by predetermined time interval skipping, the intermediate frames are treated as having been reproduced.

[0051] Then, in the present embodiment, based on the total number of frames in the recording as well as the position of the frame at which the last reproduction ended, of the entire recording, if the reproduced portion proportion exceeds a predetermined value, then the entire recording is deemed to have been reproduced. The apparatus may be configured so that, if such a recording deemed to have been reproduced contains portions that have not in fact been reproduced, the user is notified of that fact.

[0052] In addition, in step S402 in Fig. 4, the apparatus may be configured so as to search not only for just the last recorded program but also for a plurality of previously recorded programs recorded using the same repetitive recording reservation program, identify whether or not any of the plurality of previously recorded programs has been reproduced, and automatically erases the reproduced programs.

[0053] Moreover, the apparatus may be configured so that, if there is insufficient capacity for storing the latest program except for the space needed for other recording reservation programs, the apparatus deletes past programs having the same program ID, regardless of whether such past programs have been reproduced or not. In addition, the apparatus may be configured so that, if a previously recorded program, only the already reproduced portion of the data is erased. Further, the apparatus may be configured so that during reproduction, even if reproduction of the latest program is specified, reproduction begins not with the latest program but with a not-yet-reproduced program if such a program exists, after which reproduction continues with the latest program. The apparatus may also be configured so as to display notification of such an operation. Or, during reproduction, even if reproduction of the latest program is specified, the apparatus may be configured so as to notify the user that not-yet-reproduced past programs are present, if in fact such programs do exist.

[0054] By the foregoing processes, when executing repetitive recording reservation, the present embodiment can make efficient use of the hard disk that is the recording medium by erasing previously recorded programs using a recording reservation program specifying overwrite recording, while at the same time saving recorded programs that the user has not yet viewed. It should be noted that the repetitive recording reservation program described above may be configured to have modes of from Monday to Friday, and Monday to Thursday.

(Second Embodiment)

[0055] In the first embodiment of the present invention, the apparatus is configured so that for all the recording reservation programs for which overwrite is specified, a determination is made as to whether or not a particular program has been reproduced and not-yet-reproduced programs are not deleted. Such an arrangement is effective in a situation in which, for example, the user employs a repetitive recording reservation program to record program such as a serial drama that is broadcast at regular intervals and wishes to erase the programs once viewed. However, in some cases, such as news broadcasts and weather reports, it is preferable to save the latest program.

[0056] Accordingly, a second embodiment of the present invention is provided with three types of overwrite functions, enabling the user to select either a forced overwrite, a normal overwrite or an no overwrite option.

[0057] In the forced overwrite mode, if a past program previously recorded by the same recording reservation program is recorded on the HDD 105 when a new program is recorded, then that past program is erased regardless of whether it has been reproduced or not. The normal overwrite mode is the same as the overwrite function described in the first embodiment.

[0058] The processes performed during execution of the repetitive recording reservation in the present embodiment are described with reference to the flow chart in Fig. 9.
When a predetermined time prior to recording reservation time arrives, it is determined whether or not the repetitive recording reservation program is set to the forced overwrite mode (step S901), and if so, it is determined whether or not past programs recorded by the repetitive recording reservation program are recorded on the HDD 105 (step S902). If past programs are recorded, then past programs recorded using the same recording reservation program are erased from the HDD 105 (step S903). Then, when the time to begin recording arrives, the tuner 101 channel and encoder 102 recording mode are set according to the recording reservation program and recording continues from starting time to ending time.

If in step S902 it is determined that no such previously recorded programs exist, recording commences as is in accordance with the recording reservation program.

Moreover, if in step S901 it is determined that the apparatus is not in the forced overwrite mode, processing proceeds to step S905 and the series of processes shown in the flow chart in Fig. 4 is carried out.

Next, a description is given of an example in which the apparatus is set to overwrite mode using a recording reservation screen. Fig. 5 shows an example of a display screen during recording reservation mode like that shown in Fig. 2, with parts identical in both drawings given identical reference numerals. The screen shown in Fig. 5 differs from that shown in Fig. 2 only in that the cursor 210 is moved to the position of the recording reservation program 204 overwrite setting.

Reference numeral 211 designates a normal overwrite mark, indicating that the current setting is the normal overwrite mode. A display screen for a case in which in such state there has been an operation for the purpose of changing the contents of the recording reservation contents is shown in Fig. 6. Reference numeral 612 designates an overwrite mode setting dialog box. The overwrite mode setting dialog box 612 displays "forced overwrite", "normal overwrite" and "none", and of these three options the one with the shaded portion consisting of slanted lines is selected.

Fig. 7 is a diagram illustrating only the overwrite mode setting dialog box 612. Reference numeral 612-a is the state shown in Fig. 6, with the normal overwrite mode selected. Reference numeral 701 designates the selection, with the background of the shaded portion of the selected item shown (for example) as gray so as to be able to indicate to the user the item currently being selected. Reference numeral 612-b designates a case in which the user has dropped selection down a rung, indicating that no overwrite state is selected. Similarly, reference numeral 612-c indicates a state in which selection has been raised a rung and the forced overwrite mode selected.

In Fig. 8, reference numeral 811 designates the forced overwrite mark, indicating that the current setting is the forced overwrite mode. Accordingly, the normal overwrite mark in Fig. 5 is changed to the forced overwrite mark 811, indicating that the recording reservation program 204 is set to the forced overwrite mode.

As a result, when executing repetitive recording reservation using the process described above, the present embodiment enables the user to choose between a forced overwrite mode, in which only the latest program is saved whether it has been reproduced or not, and a normal overwrite mode, in which the operations described above in the first embodiment are carried out, and can thus make more efficient use of the hard disk.

A description is now given of a third embodiment of the present invention, using Figs. 10 and 11.

In contrast to the recording reservation screen described in the second embodiment, Fig. 10 shows an example of a display screen with an enhanced number of display genres. The genres in Fig. 10 are grouped according to program content, and include for example news, drama, movies, educational programming (such as language lectures), variety shows and the like. Reference numeral 1021 designates the genre setting title, and is the same as the other recording reservation settings. Each of reference numerals 1022 through 1026 designates a genre, such that 1022 designates variety shows, 1023 designates news, 1024 designates movies, 1025 designates dramas and 1026 designates educational programming.

When setting the genre, as described in the second embodiment, the user moves the cursor 210 to the genre of the recording reservation program for which the genre is to be changed or set. Next, a genre setting dialog box similar to the overwrite mode setting dialog box 612 described above is displayed, after which the user merely has to select the desired genre. Each genre is correlated with one of either the normal overwrite mode, the forced overwrite mode or no overwrite. Fig. 11 shows such a correlation setting screen.

Reference numeral 1102 designates a genre title and reference numeral 1108 designates an overwrite setting title. Each of reference numerals 1103 through 1107 designates a specific genre, and each of reference numerals 1109 to 1113 designates the overwrite mode corresponding to individual genres. Thus, the overwrite mode corresponding to the "variety show" genre 1103 is no overwrite as indicated by reference numeral 1109, the overwrite mode corresponding to the "news" genre 1104 is the forced overwrite mode indicated by reference numeral 1110, and the overwrite mode corresponding to the "drama" genre 1106 is the forced overwrite mode indicated by reference numeral 1111. Accordingly, it is possible to set the overwrite mode corresponding for each genre separately.
Moreover, the overwrite modes for the genres can be changed by user operation. In addition, the apparatus may be configured so as to enable the user to set up new genres. By thus correlating genres and overwrite modes as described above, the overwrite mode like that shown in Fig. 11 is automatically set when the genre is set using the recording reservation screen in Fig. 10. Moreover, an automatically set overwrite mode automatically set as described above can also be changed with each recording reservation program by user operation. (Note: For repetitive recording reservation program only.)

In addition, by providing the apparatus with a function that can receive an EPG (Electronic Program Guide) distributed over the airwaves or the Internet and can use that EPG for recording reservation, the apparatus may also use genre information sent by EPG. When selecting a program using recording reservation, that recording reservation program genre can also be selected automatically, thus simplifying operation. According to the foregoing embodiment, by using genre information setting of the overwrite mode can be carried out more simply.

Moreover, although the present invention is described in terms of the foregoing three embodiments, the present invention is not limited to the hardware, software, screen structure and designs described herein. For example, different configurations which achieve similar capabilities to the described embodiments are possible. For example, an embodiment may be implemented by software that runs on a personal computer equipped with a built-in tuner and that achieves the capabilities described above.

As described above, according to the present embodiment a video recording and reproduction apparatus can be achieved that has the following advantage: In repetitive recording reservation that repeatedly records at regular intervals, when executing a recording reservation program in which an overwrite is specified that automatically erases programs previously recorded using the same recording reservation program, efficient use can be made of the recording medium by deleting previously recorded programs that have already been reproduced at least once, and at the same time, recorded programs that have not been reproduced even once can be saved.

Moreover, when executing repetitive recording reservation, even more efficient use can be made of the recording medium by providing a forced overwrite mode that saves only the last recorded program regardless of whether or not such program has been viewed. In addition, operability can be further improved by using genre information.

Furthermore, embodiments of the present invention can be achieved by supplying a carrier carrying a software program that implements the functions of the foregoing embodiments to a system or apparatus, reading the supplied program code carried by the carrier with a computer (or CPU or MPU) of the system or apparatus, and then executing the program code.

In this case, since the program code read from the carrier implements the functions of the above-described embodiment, the carrier carrying the program code itself constitutes an embodiment of the invention. The carrier may be a storage medium or a signal (such as an electrical or optical signal).

Examples of storage media that can be used for supplying the program are a floppy disk, a hard disk, an optical disk, a magneto-optical disk, a CD-ROM, a CD-R, a CD-RW, a magnetic tape, a non-volatile type memory card, a ROM, and a DVD (DVD-ROM and a DVD-R).

Besides those cases in which the aforementioned functions according to the embodiments are implemented by executing the program read by computer, an embodiment may also be implemented by a case in which an operating system or the like running on the computer performs all or a part of the actual processing according to the program instructions, so that the functions of the foregoing embodiments are implemented by this processing.

Furthermore, after the program read from the storage medium is written to a function expansion board inserted into the computer or to a memory provided in a function expansion unit connected to the computer, a CPU or the like mounted on the function expansion board or function expansion unit performs all or part of the actual processing so that the functions of the foregoing embodiment can be implemented by this processing.

Claims

1. A recording apparatus, comprising:

   receiving means for receiving a broadcast program;
   recording means for recording information signals pertaining to the broadcast program received via the receiving means onto a recording medium;
   reproduction means for reproducing the information signals from the recording medium;
   setting means for setting a repetitive recording reservation program that designates repeated broadcast program recording at each predetermined time interval;
   determination means for determining whether or not information signals recorded previously onto the recording medium in accordance with the repetitive recording reservation program have already been reproduced by the reproduction means; and
   control means for controlling recording of a broadcast program specified by the repetitive
recording reservation program in response to results of a determination performed by the determination means,

wherein the control means erases from the recording medium the previously recorded information signals and records information signals pertaining to a current broadcast program specified by the repetitive recording reservation program if the previously recorded information signals have already been reproduced, and records information signals pertaining to the current broadcast program without erasing the previously recorded information signals from the recording medium if the previously recorded information signals have not been reproduced.

2. An apparatus according to claim 1, wherein the determination means determines that the previously recorded information signals have already been reproduced if a previously reproduced proportion of the previously recorded information signals exceeds a predetermined value.

3. An apparatus according to claim 1, wherein:

the determination means determines whether or not each of information signals pertaining to a plurality of broadcasts previously recorded onto the recording medium in accordance with the repetitive recording reservation program have been reproduced by the reproduction means; and

the control means erases from the recording medium information signals that have already been reproduced from among the information signals pertaining to the plurality of previously recorded broadcasts.

4. An apparatus according to claim 1, wherein:

the setting means can be set either to erase or not erase previously recorded information signals attendant upon recording of information signals pertaining to the current broadcast program; and

the control means erases the previously recorded information signals regardless of the results of the determination performed by the determination means if the setting means is set to prohibit erasure of the previously recorded information signals.

5. An apparatus according to claim 1, wherein the setting means can set an interval of the repetitive recording to an arbitrary interval length.

6. An apparatus according to claim 1, wherein:

the recording means further records management data relating to the repetitive recording reservation program set by the setting means together with the information signals and detects; and

based on the management data, the determination means detects information signals previously recorded in accordance with the repetitive recording reservation program.

7. An apparatus according to claim 1, further comprising a display control means for generating a program display screen showing contents of the repetitive recording reservation program set using the setting means and outputting the screen to a display device,

wherein, using the program display screen, the setting means can be set either to erase or not erase previously recorded information signals attendant upon recording of information signals pertaining to the current broadcast program.

8. A recording apparatus comprising:

receiving means for receiving a broadcast program;

recording means for recording information signals pertaining to the broadcast program received via the receiving means onto a recording medium;

reproduction means for reproducing the information signals from the recording medium;

reservation setting means for setting a repetitive recording reservation program that designates repeated broadcast program recording at each predetermined time interval;

determination means for determining whether or not information signals recorded previously onto the recording medium in accordance with the repetitive recording reservation program have already been reproduced by the reproduction means;

mode setting means for setting a first mode and a second mode, in the first mode erasing from the recording medium the previously recorded information signals and recording information signals pertaining to a current broadcast program specified by the repetitive recording reservation program if it is determined by the determination means that the previously recorded information signals have already been reproduced, and recording information signals pertaining to the current broadcast program without erasing the previously recorded information signals from the recording medium if it is determined that the previously recorded information signals have not been reproduced, and in the second mode erasing the previously recorded
information signals regardless of the results of the determination performed by the determination means and recording information signals pertaining to the current broadcast program; and
the reservation setting means can set a plurality of repetitive recording reservation programs; the display control means displays contents of the plurality of repetitive recording reservation program on the program display screen; and the reservation setting means can be set to a first mode or a second mode independently for the plurality of repetitive recording reservation programs.

9. An apparatus according to claim 8, wherein the discrimination means determines that the previously recorded information signals have been reproduced if a previously reproduced proportion of the previously recorded information signals exceeds a predetermined value.

10. An apparatus according to claim 8, wherein:
the determination means determines whether or not each of information signals pertaining to a plurality of broadcasts previously recorded onto the recording medium in accordance with the repetitive recording reservation program have been reproduced by the reproduction means; and
in a first mode, the control means erases from the recording medium information signals that have already been reproduced from among the information signals pertaining to the plurality of previously recorded broadcasts.

11. An apparatus according to claim 8, wherein the reservation setting means can set an interval of the repetitive recording to an arbitrary interval length.

12. An apparatus according to claim 8, wherein:
the recording means further records management data relating to the repetitive recording reservation program set by the setting means together with the information signals; and
based on the management data, the determination means detects information signals previously recorded in accordance with the repetitive recording reservation program.

13. An apparatus according to claim 8, further comprising a display control means for generating a program display screen showing contents of the repetitive recording reservation program set using the setting means and outputting the screen to a display device,
wherein the mode setting means is set to the first mode or the second mode using the program display screen.

14. An apparatus according to claim 13, wherein:
receiving means for receiving a broadcast program; recording means for recording data pertaining to the broadcast program received via the receiving means; setting means for setting a repetitive recording reservation program that defines repetitive broadcast program recording by the recording means; and
control means for controlling recording of a broadcast program specified by the repetitive recording reservation program by determining whether or not data recorded previously have already been reproduced and:

15. An apparatus according to claim 8, wherein the mode setting means is set to either the first mode or the second mode depending on the genre of the broadcast program.

16. An apparatus according to claim 15, wherein the mode setting means detects the genre of a broadcast program specified by the repetitive recording reservation program based on genre information received from the reception means and added to the broadcast program.

17. An apparatus according to claim 15, wherein:
the reservation setting means, using program listing information transmitted together with the broadcast program, sets the repetitive recording reservation program; and
based on the program listing information, the mode setting means detects the genre of the broadcast program specified by the repetitive recording reservation program.

18. An apparatus according to claim 8, wherein the recording medium is a random-access recording medium.

19. An apparatus according to claim 8, wherein the recording medium is a disk medium.

20. A broadcast program recording apparatus, comprising:
receiving means for receiving a broadcast program; recording means for recording data pertaining to the broadcast program received via the receiving means; setting means for setting a repetitive recording reservation program that defines repetitive broadcast program recording by the recording means; and
control means for controlling recording of a broadcast program specified by the repetitive recording reservation program by determining whether or not data recorded previously have already been reproduced and:
- erasing the previously recorded data and recording data pertaining to a current broadcast program specified by the repeat-
  itive recording reservation program if the previously recorded data have already been reproduced; or
- recording data pertaining to the current broadcast program without erasing the previously recorded data if the previously recorded data have not been reproduced.
FIG. 3

301

302

PROGRAM ID

CH

DATE

BEGIN

END

MODE

OVERWRITE

303
FIG. 4

BEGIN

S401

OVERWRITE MODE?

YES

S402

PAST PROGRAM PRESENT?

NO

NO

YES

S403

REPRODUCED?

YES

S404

ERASE PREVIOUSLY RECORDED PROGRAM

RECORD

S405

END
### FIG. 8

#### RECORDING RESERVATION

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FIG. 9

BEGIN

S901
FORCED OVERWRITE MODE?

S902
PAST PROGRAM PRESENT?

S903
ERASE PAST PROGRAM

S904
RECORD

S905
NORMAL OVERWRITE

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The present search report has been drawn up for all claims.

Place of search: The Hague
Date of completion of the search: 15 November 2004
Examiner: Maetz, A

CATEGORY OF CITED DOCUMENTS:
- T: theory or principle underlying the invention
- E: earlier patent document, but published on, or after the filing date
- D: document cited in the application
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The members are as contained in the European Patent Office EDP file on.
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For more details about this annex: see Official Journal of the European Patent Office, No. 12/02
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<td>Daniel Y.J. Kim/Deborah Kimberlin</td>
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If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

**National Stage of an International Application under 35 U.S.C. 371**
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

**New International Application Filed with the USPTO as a Receiving Office**
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.
IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of Seong OH and Eun-Kyung KWAK
Confirmation No.: 8284
Group Art Unit: 2621
Examining Attorney: Thai Q. TRAN
Serial No.: 11/872,132
Customer No.: 34610
Filed: October 15, 2007

For: DIGITAL BROADCASTING RECEIVER FOR PROGRAMMING RECORDING OF BROADCASTING PROGRAM AND METHOD THEREOF

INFORMATION DISCLOSURE STATEMENT

U.S. Patent and Trademark Office
Customer Service Window
Randolph Building
401 Dulany Street
Alexandria, Virginia 22314

Sir:

Pursuant to 37 C.F.R. § 1.56, the attention of the Patent and Trademark Office is hereby directed to the references listed on the attached PTO-1449. One copy of each non-U.S. reference is attached. It is respectfully requested that the information be expressly considered during the prosecution of this application, and that the reference(s) be made of record therein and appear among the “References Cited” on any patent to issue therefrom.

Applicants have listed publication dates on the attached PTO-1449 based on information presently available to the undersigned. However, the listed publication dates should not be construed as an admission that the information was actually published on the indicated date. Applicant reserves the right to establish the patentability of the claimed invention over any of the information provided herewith, and/or to prove that this information may not be prior art, and/or to prove that this information may not be enabling for the teachings purportedly offered. This statement should not be construed as a representation that a search has been made, that information cited in the statement is considered to be and/or is material to patentability, or that information more material to the examination of the present patent application does not exist. The Examiner is specifically requested not to rely solely on the material submitted herewith. It is further understood that the Examiner will consider information that was cited or submitted to the U.S. Patent and Trademark Office in a prior application relied on under 35 U.S.C. § 120, 1138 OG 37, 38 (May 19, 1992).

☐ 1. This Information Disclosure Statement is being filed (i) within three months of the U.S. filing date of a U.S. application other than a CPA continued prosecution application under §1.53(d) OR (ii) within three months of the date of entry of the national stage as set forth in §1.491 in an international application OR (iii) before the mailing date of a first Office Action on the merits OR (iv) before the mailing of a first Office Action after the filing of a Request for continued examination under §1.114. No certification or fee is required. 37 C.F.R. §1.97(b).

☐ 2. This Information Disclosure Statement is being filed more than three months after the U.S. filing date AND after the mailing date of the first Office Action on the merits, but before the mailing date of a Final Rejection or Notice of Allowance OR an action that otherwise closes prosecution in the application. 37 C.F.R. §1.97(c).

☐ a. I hereby state that each item of information contained in this Information Disclosure Statement was first cited in a communication from a foreign patent office in a counterpart foreign application more than three months prior to the filing of this Information Disclosure Statement. 37 C.F.R. §1.97(e)(1). No fee is required.
b. I hereby state that no item of information in this Information Disclosure Statement was cited in a communication from a foreign patent office in a counterpart foreign application and, to my knowledge after making reasonable inquiry, was known to any individual designated in 37 C.F.R. §1.56(c) more than three months prior to the filing of this Information Disclosure Statement. 37 C.F.R. §1.97(e)(2).

c. Please charge our Credit Card in the amount of $180.00 in payment of the fee under 37 C.F.R. §1.17(p) per the attached PTO 2038 form. Please credit or debit Deposit Account No. 16-0607 as needed to ensure consideration of the disclosed information. Two duplicate copies of this paper are attached.

3. This Information Disclosure Statement is being filed after the mailing date of a Final Rejection OR Notice of Allowance OR an action that otherwise closes prosecution in the application, but on or before payment of the Issue Fee.

a. Please charge our Credit Card in the amount of $180.00 in payment of the fee under 37 C.F.R. §1.17(p) per the attached PTO 2038 form. Please credit or debit Deposit Account No. 16-0607 as needed to ensure consideration of the disclosed information. Two duplicate copies of this paper are attached. 37 C.F.R. §1.97(d).

b. I hereby state that each item of information contained in this Information Disclosure Statement was first cited in a communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of this Information Disclosure Statement. 37 C.F.R. §1.97(e)(1).

c. I hereby state that no item of information in this Information Disclosure Statement was cited in a communication from a foreign patent office in a counterpart foreign application or, to my knowledge after making reasonable inquiry, was known to any individual designated in 37 C.F.R. §1.56(c) more than three months prior to the filing of this Information Disclosure Statement. 37 C.F.R. §1.97(e)(2).

4. The references were cited in a corresponding European application. An English language version of the European Search Report dated January 8, 2010 is attached for the Examiner's information.

5. To the extent necessary, a petition for an extension of time under 37 C.F.R. §1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 16-0607 and please credit any excess fees to such deposit account.

Respectfully submitted,
KED & ASSOCIATES, LLP

Daniel Y.J. Kim
Registration No. 36,186

Correspondence Address:
P.O. Box 221200
Chantilly, VA 20153-1200
Telephone: (703) 766-3777
Date: March 25, 2010
Please direct all correspondence to Customer Number 34610
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# List of Art Cited by Applicant

**PTO-1449**

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**EXAMINER**

**DATE CONSIDERED**
DISPLAY AND METHOD HAVING TIME SHIFT FUNCTION

PROBLEM TO BE SOLVED: To attain an intellectual operation of a time shift function and a tampering or an erase of information associated with a part of displaying signal becoming unnecessary at a time shift.

SOLUTION: In a device having a time shift, means 104 storing a received displaying signal into a record media and processing a time shift so as to output the displaying signal, an intelligent function 110 processes a time shift to the displaying signal of the specified channel and outputs it by controlling the time shift means 104, unless any user operation of the time shift is not inputted.
Prior Art 1

Japanese Patent Publication

Publication Number: 2001-309268 (2001.11.02)

Name of invention: DISPLAY AND METHOD HAVING TIME SHIFT FUNCTION

Abstract:

PROBLEM TO BE SOLVED: To attain an intellectual operation of a time shift function and a tampering or an erase of information associated with a part of displaying signal becoming unnecessary at a time shift.

SOLUTION: In a device having a time shift, means 104 storing a received displaying signal into a record media and processing a time shift so as to output the displaying signal, an intelligent function 110 processes a time shift to the displaying signal of the specified channel and outputs it by controlling the time shift means 104, unless any user operation of the time shift is not inputted.
タイムシフト機能を有した表示装置及び方法

【要約】タイムシフト機能を知的に作動させることができ、また、タイムシフトしたときに不要となる表示用信号の一部に付随する情報を変更又は消去することができる。

【解決手段】受信した表示用信号を記憶媒体に記憶してタイムシフトして出力するタイムシフト手段１０４を有した装置において、タイムシフトに関するユーザ操作が入力しない限り、特定のチャンネルの表示用信号を前記タイムシフト手段を制御してタイムシフトして出力するインテリジェント機能１１０を有する。
ユーザが意識しないでもタイムシフト機能を制御するインタリジェント機能を備えるものである。

【0002】

【図解】

【0003】

【図解】

【0004】

【図解】

【0005】

【図解】

【0006】

【図解】

【発明の実施の形態】以下、本発明の実施例の形態を図面を参照して説明する。

【0009】

【図1】は、本発明の一実施の形態である。図1は、デジタルテレビジョン受信機の例を示している。
デジタル放送信号は、番組データ以外にインターネットやデータ放送のデータなども多重されている。このデジタル放送信号は、受信手段101に入力される。ここでは、所定のチャネルが選択される。これにより所望のチャネルの信号は、トランスポートストリームを分割手
段12に入力される。ここに入力信号が分割されること
でトランスポートストリームが得られ、このストリーム
は、情報分割手段103に入力される。情報分割手段1
03は、トランスポートストリームに含まれる各種の信
報を分離する。情報分割される情報としては、番組情報の他
に放送時刻データ、非常時データ、非常時データ検出信
報、エプ情報などがある。

【010】番組情報はタイムシフト手段104に入力
されるか、直接選択手段105に入力される。選択手段
105は、タイムシフト手段104から番組情報（タ
イムシフトしたもの）あるいは情報分割手段103から
の直接番組情報のいずれか一方を選択し、また制御手段
109からの情報を選択することができる。

【011】選択手段105は、タイムシフト番組情報
やくしくは直接番組情報の出力で、番組データデコード
手段106に供給し、その他のデータをデータデコード
手段107に供給する。その他のデータは、テロップ、
非常時情報、時刻情報、エプ情報などであり、主に制
御手段109から出来上がっているデータである。

【012】番組データデコード手段106、その他の
データデコード手段107は、制御手段109により制
御される。番組データデコード手段106、その他のデ
ータデコード手段107から出力された番組信号、その
他の信号は、多重化手段108に入力されて多重化さ
れ、表示装置に向けて出力される。

【013】ここでは、制御手段109には記憶手段11
が接続されており、情報分割手段103で分離された非
常時情報、時刻情報、エプ情報などを一时的に記
憶手段に記憶される。記憶手段113には、インデリ
ジェクト機能110が装備されており、この機能が有
ればこのような機能を備える。

【014】まず例えば、1週間の視聴データを取得す
る。視聴データは、電源オン時刻とその後にユーザが選
択した選択番組（選択チャンネル）、選択番組を選択時
間である。次に、上記の1週間の視聴データのテーブル
を作成し、習慣性のある視聴情報を確定する（ステップ
A1,A2）。つまり、1週間のうち、電源投入中に同じ
時刻にユーザが視聴している確立の多い選択番組であ
る（ステップA3）。

【015】この選択番組を好み番組とここでは仮に呼
ぶことにする。ここで、好み番組が開始される時刻と電
源オン時刻を比較し、時刻がずれているものを検出す
る（ステップA4）。好み番組が開始される時刻は、ト
ランスポートストリームの中に番組情報として伝達され
ている電子番組案内情報（エプ情報）から認識するこ
とができる。次に、タイムシフトボタンがオンされているか
どうかを判定し（ステップA5）、タイムシフトボ
タンがオンされている場合、検出した好み番組の開始時
刻と、電源オン時刻との差がステップA6が、最大
タイムシフト時間を判定する場合（ステップ
A7）。

【016】最大タイムシフト時間以内であれば、受信
装置の電源オン時刻及び好み番組開始時刻に設定し、
タイムシフトさせる場合の差の分だけ設定する（ステップ
A8）。最大タイムシフト時間は、ハードディスクや光
ディスクなどのタイムシフト用記憶容量（タイムシフ
ト）分、あるいは、番組に応じてタイムシフトが許可さ
れている分によって決まる。

【017】図3は、上記の1週間分の視聴データを取
得した場合のテーブルの例であり、1週間分が残るま
と、喜い順に上書きされる。このテーブルの内容から同
じ時刻に定期的に選択されている番組があれば、これを
好み番組と判定する。

【018】図3の例であると、第1日目、第2日目、第
3日目、...第7日目でユーザが視聴した番組と電源オン時
刻との関係を示している。第1日目では午前6時に電源
をオンし番組Aを視聴し、同じ日に午後7時30分に電源を
オンして番組Bを視聴している。第2日目では、午前5
時に電源をオンし番組Aを視聴し、同じ日に午後8時に電源
をオンして番組Bを視聴している。第3日目では、午前
5時30分に電源をオンし番組Aを視聴し、同じ日に午後
8時に電源をオンして番組Bを視聴している。第7日目
では、午前6時に電源をオンし番組Aを視聴し、同じ日に
午後7時30分に電源をオンして番組Bを視聴している。

【019】これからみると、番組Aと番組Bが視聴者の
好み番組であることがわかる。ここで番組Aは午前5時
30分から番組がスタートし、番組Bは午後に7時30分か
らスタートするものとする。すると、ユーザは、番組
Aについては第1、第2、第7日目では、5分間遅れて視聴
を開始したことが分かっており、番組Bについては、第2、第3
日目では5分遅れて視聴を開始したことが分かってくる。

【020】したがって、タイムシフトボタンがオンさ
れているときは、図2のステップA8では、タイマーに
逐電源オン及び番組Aの選択情報を午前5時30分に
設定し、電源オン及び番組Bの選択情報を午後7時30
分に設定することになる。また同時にタイムシフト時間
を30分と設定する。この場合にすると、番組Aが開始さ
らされることになる。この場合にすると、番組Aが開始さ
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らされることになる。この場合にると
【0021】なお、番組Aに関してユーザが5時30分より以前に電源をオンし視聴を開始しているとき、タイムシフト機能は実行されないように設定されている。
【0022】さらに上記のインテリジェント機能110は、次のような機能も備えている。
【0023】デジタル放送受信機においては、ユーザがEPC情報が画面に表示してあるときがある、このような場合にタイムシフトを行う番組が存在した場合、その番組の開始時刻およびタイムシフトインディストラクティブが開始される時刻とは異なることになる。すると、ユーザが自身あるいは家族の他のユーザが上記した番組A、Bに関して番組スタート時間（表示開始時間）を確認することになる。
【0024】そこで、図4に示すように、EPC情報の番組A、Bに関する表示情報を変更する機能を有する。
即ち、操作入力により、EPC情報の表示選択が行われると（ステップB1）、EPC情報が取得され（ステップB2）、タイムシフトチャンネル（タイムシフト番組）が存在するかどうかを検索（ステップB3）、タイムシフト番組が存在した場合、タイムシフト値（例えば図3の番組1の例である30秒）を認識する（ステップB4）。そして現在時刻（あるいはEPC情報に基づき表示された現在時刻表示情報）とタイムシフト値を最大タイムシフト時間（ステップB5）により、このシフト時間の情報にもとづいて番組Aの放送される時間帯を示す情報を変更し、EPC表示を行う（ステップB6）。
【0025】図5には、EPC表示を行った場合の表示例を示している。この例はB局の番組2がタイムシフトされた例を示し、この場合には、タイムシフト中の番組の表示例も示されるようにになっている。またタイムシフト状況を表示する場合、番組2の表示位置を移動させるほか、放送時間を追加する方法もある。
【0026】さらにこの情報表示では、最初に番組に挿入されている表示用時刻情報、緊急を知らせるデッジなど、タイムシフトされた番組が表示されるときに、消去する機能を備える。通常の動作モードでは、これらの時刻情報や、テロップ情報は、制御手段109に一旦取り込まれて、その他のデータコード手段107でコードされて表示信号エネルギー、映像に多重化手段108で多重化されて出力される。しかし、タイムシフトが行われた番組に対しても、番組に多重化されてきた時刻情報やテロップをこの番組を表示するときに同時に表示しないと、視聴者は時刻の変更や非常な情報送信のであろうとされることがある。
【0027】そこでこの装置では、インテリジェント機能110において、タイムシフトされた番組の表示が開始されたことを検出すると、この番組に付随している時刻情報やテロップを他のデータコード手段107に供給しないようにしている。
【0028】またこの装置は、単にタイムシフトした番組に付随している時刻情報や緊急を知らせる情報を消去だけでなく、内部クロックを用いたタイマーによりカウントされている正確な時刻情報を生成し、この時刻情報を時刻表示情報として生成し、多重化手段108に供給するようにしてもよい。
【0029】【発明の効果】以上の発明のようにこの発明によれば、①タイムシフト機能を有する機器で動作させることができ、②また、タイムシフトしたときに不要である表示用信号の一部を消去する機能を改善することができる。
【図面の簡単な説明】
【図1】この発明の一実施の概要を示すブロック図。
【図2】この発明に係る装置の動作例を説明するために示したフローチャート。
【図3】選択の視聴データを取得した場合のテーブル例を示す説明図。
【図4】この発明に係る装置の他の動作例を説明するために示したフローチャート。
【図5】この発明に係る装置のEPC表示例を示す図。
【図6】この発明に係る装置のEPC表示例を示す図。
【符号の説明】
101…受信手段、102…トランスポートストリーム復調手段、103…情報分離手段、104…タイムシフト手段、105…選択手段、106…番組データコード手段、107…その他のデータコード手段、108…多重化手段、111…記憶手段。
PROBLEM TO BE SOLVED: To provide a video signal recorder that records video and audio signals to an information signal recording medium that is random-accessible, such as a hard disk and smoothly conducts reproduction and special reproduction of a program main text, while applying skip-processing to a CM (commercial message).

SOLUTION: The video signal recorder is provided with a signal-recording means (63), that records a program consisting of the main text and the CM part and each information mode signal which is received with the program onto a signal recording medium, a temporary storage memory means (57) that reproduces the recorded signal to obtain an information mode identifying signal, a CM part recording position specifying means (56) that analyzes a consecutive time of the information mode identifying signal to specify parts, on which the CM part information signal is recorded, and a write/read control means (65). The video signal recorder skips the parts, on which the CM part information signal is recorded, so as to apply reproduction and special reproduction to the main text video image.
Prior Art 6

Japanese Patent Publication


Name of invention: VIDEO SIGNAL RECORDER, VIDEO SIGNAL REPRODUCING DEVICE, AND VIDEO SIGNAL RECORDING AND REPRODUCING DEVICE

Abstract:

PROBLEM TO BE SOLVED: To provide a video signal recorder that records video and audio signals to an information signal recording medium that is random-accessible, such as a hard disk and smoothly conducts reproduction and special reproduction of a program main text, while applying skip-processing to a CM (commercial message).

SOLUTION: The video signal recorder is provided with a signal-recording means (63), that records a program consisting of the main text and the CM part and each information mode signal which is received with the program onto a signal recording medium, a temporary storage memory means (57) that reproduces the recorded signal to obtain an information mode identifying signal, a CM part recording position specifying means (56) that analyzes a consecutive time of the information mode identifying signal to specify parts, on which the CM part information signal is recorded, and a write/read control means (85). The video signal recorder skips the parts, on which the CM part information signal is recorded, so as to apply reproduction and special reproduction to the main text video image.
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(54) [発明の名称] 映像信号記録装置、映像信号再生装置、及び映像信号記録再生装置

(57) [要約]
【課題】 ハードディスクなどのランダムアクセスが可能な情報信号記録媒体に映像と音声を記録する装置で、C M (コマーシャル) スキップ処理を行いつつスムーズな番組転換部の再生、及び特殊再生を行うようにする。

【解決手段】 本発明とCM装置で構成される装置と、それぞれの装置とともに受信される情報とモード信号情報を情報信号記録媒体に記録する信号記録手段 (6) と、その記録した信号を再生し情報モード識別信号を得る一時記憶メモリ手段 (5) と、情報モード識別信号の続続する時間分析し、CM装置情報信号が記録される部分を特定するCM装置記録信号決定手段 (6) と、書き込み読み出し制御手段 (6) とを有し、CM装置情報信号の記録される部分をスキップし、本転換映像の再生、及び特殊再生をするようにした。
【特許請求の範囲】
【請求項１】番組の本編部を構成する本編部情報信号と、前記番組のコマーシャルメッセージ（CM）部を構成するCM部情報信号と、前記本編部情報信号及び前記CM部情報信号の各情報モードを前記番組の内容に応じてそれぞれ識別するための情報モード識別信号と、を含むという番組信号を作り、受信して得られる前記本編部情報信号及び前記CM部情報信号を構成する映像信号を、複数のフレーム画像を単位として符号化して、情報信号記録媒体に記録し、その信号を再生する場合において、特記すべき再生機能を有して記録する映像信号記録装置において、受信して得られる前記本編部情報信号及び前記CM部情報信号を前記情報信号記録媒体に記録するとともに、前記情報モード識別信号を情報信号記録媒体に記録する。なお、あるいはその情報信号記録媒体とは異なる一時記憶手段に書き込む信号記録手段と、その信号記録手段で記録した信号のうち少なくとも前記情報モード識別信号を前記情報信号記録媒体、又は前記一時記憶手段より読み出して得る信号読み出し手段と、その信号読み出し手段より得られた前記情報モード識別信号が識別する複数のモード情報のうち、前記CM部情報信号に対応するモード情報信号を前記CM部情報信号が記録されるCM部記録位置を検出するCM部記録位置検出手段と、そのCM部記録位置検出手段により検出されたCM部記録位置情報と、前記複数のフレーム画像を単位として符号化された映像信号の記録位置に基づく映像信号記録位置情報を、を含む映像位置管理情報を前記情報信号記録媒体に記録する管理情報記録手段と、を具備して構成することを特徴とする映像信号記録装置と、

【請求項２】番組の本編部を構成する本編部情報信号と、前記番組のコマーシャルメッセージ（CM）部を構成するCM部情報信号と、前記本編部情報信号及び前記CM部情報信号の各情報モードを前記番組の内容に応じてそれぞれ識別するための情報モード識別信号と、を含むという番組信号を作り、受信して得られる前記本編部情報信号及び前記CM部情報信号を構成する映像信号を、複数のフレーム画像を単位として符号化して、情報信号記録媒体に記録する。なお、あるいはその情報信号記録媒体とは異なる一時記憶手段に書き込み、その書き込まれた前記情報モード識別信号を前記情報信号記録媒体、又は前記一時記憶手段より読み出し、その読み出された前記情報モード識別信号を前記情報信号記録媒体、又は前記一時記憶手段より読み出し、その読み出された前記情報モード識別信号が識別する複数のモード情報のうち、前記CM部情報信号に対応するモード情報信号を前記CM部情報信号が記録されるCM部記録位置を検出するCM部記録位置検出手段と、そのCM部記録位置検出手段により検出されたCM部記録位置情報と、前記複数のフレーム画像を単位として符号化された映像信号の記録位置に基づく映像信号記録位置情報を、を含む映像位置管理情報を前記情報信号記録媒体に記録する管理情報記録手段と、を具備して構成することを特徴とする映像信号記録装置と、

【請求項３】番組の本編部を構成する本編部情報信号と、前記番組のコマーシャルメッセージ（CM）部を構成するCM部情報信号と、前記本編部情報信号及び前記CM部情報信号の各情報モードを前記番組の内容に応じてそれぞれ識別するための情報モード識別信号と、を含むという番組信号を作り、受信して得られる前記本編部情報信号及び前記CM部情報信号を構成する映像信号を、複数のフレーム画像を単位として符号化して、情報信号記録媒体に記録する。なお、あるいはその情報信号記録媒体とは異なる一時記憶手段に書き込み、その書き込まれた前記情報モード識別信号を前記情報信号記録媒体、又は前記一時記憶手段より読み出し、その読み出された前記情報モード識別信号が識別する複数のモード情報のうち、前記CM部情報信号に対応するモード情報信号を前記CM部情報信号が記録されるCM部記録位置を検出するCM部記録位置検出手段と、そのCM部記録位置検出手段により検出されたCM部記録位置情報と、前記複数のフレーム画像を単位として符号化された映像信号の記録位置に基づく映像信号記録位置情報を、を含む映像位置管理情報を前記情報信号記録媒体に記録する管理情報記録手段と、を具備して構成することを特徴とする映像信号記録装置と、

【請求項４】前記情報信号記録装置の再生機能を有するマスキング機能を設定されたときは、前記再生装置が設定されたマスキング機能を設定する。
前記CMスキップ機能が設定されている場合でもCM部情報信号の再生をスキップせず、前記本編部情報信号、及び前記CM部情報信号その両方を高解像再生することを特徴とする請求項3記載の映像信号再生装置を含む。

【請求項5】番組の本編部を構成する本編部情報信号と、前記番組のコマーシャルメッセージ（CM）部を構成するCM部情報信号と、前記本編部情報信号及び前記CM部情報信号の各情報モードを前記装置の内容に応じてそれぞれ識別するための情報モード識別情報と、を含むとされる番組信号を受信し、受信した情報に関して前記本編部情報信号及び前記CM部情報信号を構成する映像信号を、複数のフレーム画像を単位として符号化し、情報信号記号媒体に記録するとともに、前記情報モード識別信号を前記情報信号記号媒体、又はその情報信号記号媒体とは異なる一時記録装置に書き込み、その書き込みされた前記情報モード識別信号を前記情報信号記号媒体、又は前記一時記録装置より読み出し、その読み出した前記情報モード識別信号が識別する複数のモード信号のうち、前記CM部情報信号に対応する情報モードを基として得られるCM部情報信号を前記情報信号記号媒体、又は前記一時記録装置に書き込み、その書き込みされたCM部情報信号を基として得られるCM部情報信号を基として得られるCM部情報信号を基として得られるCM部情報信号を基として得られるCM部情報信号を基として得られるCM部情報信号を基として得られるCM部情報信号を基として得られるCM部情報信号を基として得られるCM部情報信号を基として得られるCM部情報信号を基として得られるCM部情報信号を基として得られるCM部情報信号を基として得られるCM部情報信号を基として得られるCM部情報信号を基として得られるCM部情報信号を基として得られるCM部情報信号を基として得られるCM部情報信号を基として得られるCM部情報信号を基として得られるCM部情報信号を基として得られるCM部情報信号を基として得られるCM部情報信号を基として得られるCM部情報信号を基として得られるCM部情報信号を基として得られるCM部情報信号を基として得られるCM部情報信号を基として得られるCM部情報信号を基として得られるCM部情報信号を基として得られるCM部情報信号を基として得られるCM部情報信号を基として得られるCM部情報信号を基として得られるCM部情報信号を基として得られるCM部情報信号を基として得られるCM部情報信号を基として得られるCM部情報信号を基として得られるCM部情報信号を基として得られるCM部情報信号を基として得られるCM部情報信号を基として得されるものにCMスキップ再生機能を有する映像信号再生装置において、ボタン操作により再生中の映像信号の所定再生時間分をスキップして再生するためのスキップ再生操作手順と、そのスキップ再生操作手順によりスキップ操作がなされたときは、その操作に基づき所定の再生時間をスキップすると共に次の再生が開始される映像信号の開始位置を前記CM部情報信号を基として、その開始位置が前記CM部情報信号が読了されて前記本編部情報信号が開始された後の信号の位置であるとき、または、その開始位置が前記CM部情報信号の途中であって前記本編部情報信号が開始される前の信号の位置であるとき、の少なくともいずれかのときに、前記本編部情報信号の開始位置より再生を作用させる映像信号記号再生制御装置を、を具備して構成することを特徴とする映像信号再生装置。

【発明の詳細な説明】

【発明の実施例】本発明は、ハードディスクなどのラダムアクセス可能な情報信号記号媒体に映像と音声を記録し、後述進再生、キャッシュ進再、変速再生などの再生機能に対しても、記録されたコマーシャルメッセージ（以下CMとす）をスキップして番組本編部のみの再生を行うことができる映像信号記号装置、映像信号再生装置、及び映像信号記号再生装置の構成に関する。
い円盤状記録媒体を用いるディスク記録再生装置においても同様であり、従来のディスク再生装置は番組の記録中にCMが挿入できるCM期間を利用して記録が行われ、その記録されたCM期間情報は番組の記録終了時点でディスクの所定の位置に記録するようにしていた。

【0010】このCM期間情報の記録方法は、MD Disc（光ディスク記録媒体を用い、主に音声情報を記録するオーディオ装置に用いられる）の記録方式においてなされている。記録終了時に管理情報をT O C（Table of Contents）情報として、その記録媒体の所定の位置に書き込む方法と同様のものである。

【0011】従来のディスク型記録再生装置では、CM期間情報は、番組の記録終了時に記録媒体に記録し、その記録された管理情報を再生時に読み出しが行なうが、読み出したディスク管理情報、例えばCM期間情報は記録途中においても記録装置の一部記憶メモリに一時記憶されているものの、それらのCM期間情報も、へッド、CMスキャップ再生はなされていなかった。

【0012】それゆえ、ハードディスクを用いた記録再生装置により実現される追い出し再生（現在記録中の番組を記録しながら前に記録した部分を同時に再生）や、キャッシュ録再（所定の時間枠のビットストリーム記録領域に順次映像音声情報を記録し、その領域の最後まで記録したときは、領域中の番号古い記録に対して新しい情報を書き込む記録する）、所定時間の映像音声情報の除去などと再生される（所定時間の映像音声情報の除去などと再生される）ような、番組の記録が完了してから再生するのではなく、番組の一部が記録されている途中の状態で再生が行われる再生の場合は、CMスキャップが関与していない。

【0013】そこで本発明は、本端末と共に放送されるCM部をハードディスクに記録する際に、CM部位置情報も併せて記録し、そのCM部位置情報を再生することによりCM部を特定し、遅延再生、及びキャッシュ録再においても、特定されたCM部位置情報に基づいてCM部をスキャップして再生する機能を備えた映像信号記録装置、映像信号再生装置、及び映像信号記録再生装置の構成を提供しようとするものである。

【0014】【課題を解決するための手段】本発明の映像信号記録装置、映像信号再生装置及び映像信号記録再生装置は、上記課題を解決するために以下の１）〜５）の手段より成るものである。すなわち、

【0015】１番組の本端末を構成する本端末情報信号とも、前記番組のコマーシャルメッセージ（CM）部を構成するCM部情報信号と、前記番組情報信号をC M部情報信号及び前記CM部情報信号の各情報モードを前記番組の内容に応じてそれぞれ識別するための情報モード識別信号を、を含めできる番組信号を受信し、受信して得られる前記本端末情報信号及び前記CM部情報信号を構成する映像信号を、複数のフレーム画像を単位として符号化して、情報信号記録媒体に記録し、その記録した信号の再生は前記CM部情報信号を除いて前記前記情報信号を再生するようにするCMスキャップ再生機能を有する映像信号記録再生装置において、受信して得られる前記本端末情報信号及び前記CM部情報信号を前記番組情報信号として記録するCM部記録位置検出手段（56、57）と、そのCM部記録位置検出手段により検出されたCM部記録位置の情報と、前記フレーム画像を単位として符号化された映像信号の記録位置に基づく映像信号記録位置情報とを含め記録位置管理情報を前記番組情報信号記録媒体に記録する管理情報記録手段（61、63）と、を具備して構成することを特徴とする映像信号記録装置。

【0016】２番組の本端末を構成する本端末情報信号与、前記番組のコマーシャルメッセージ（CM）部を構成するCM部情報信号と、前記本端末情報信号及び前記CM部情報信号の各情報モードを前記番組の内容に応じてそれぞれ識別するための情報モード識別信号を、を含めできる番組信号を受信し、受信して得られる前記本端末情報信号及び前記CM部情報信号を構成する映像信号を、複数のフレーム画像を単位として符号化して、情報信号記録媒体に記録しつつ、その記録した信号の再生は前記CM部情報信号を除いて前記番組情報信号を再生するようにするCMスキャップ再生機能を有する映像信号記録再生装置において、受信して得られる前記本端末情報信号、及び前記CM部情報信号を前記番組情報信号として記録するCM部記録位置検出手段とともに、前記情報モード識別信号の前記情報信号記録媒体に記録する管理情報記録手段を含め記録すると、を具備して構成することを特徴とする映像信号記録装置。

る番組信号は空中線により受信されて、TVチューナー51に供給され、ここでは無線周波数の信号よりベースバンドのビデオ信号である番組信号を分離され、その後送信されたビデオ信号はA／D変換器53に供給される。

【0024】このA／D変換器53では、供給されたビデオ信号はデジタルビデオ信号に変換され、変換されたデジタルビデオ信号はMPEG－2（moving picture experts group－2）エンコーディング4に供給され、ここではISO／IEC（International Organization for Standardization／International Electrotechnical Commission）で定められるMPEG－2方式により高能率符号化がなされ、高能率符号化された信号はバッファメモリ55に供給されて、一時記憶され、一時記憶された信号はハードディスク記録再生器61に供給される。

【0025】ハードディスク記録再生器61に供給された信号は、ハードディスクに記録されるための記録変換などの信号処理が行われ、信号処理された信号はハードディスク63に供給され、モード識別信号とともに記録される。

【0026】そのモード識別信号は、識別された音声モード信号を基に生成されるが、その音声モード信号は、TVチューナ51で復調した信号の一部 максимальレベル識別器52に供給され、ステレオ送信、モノラル送信、二か国語送信といった音声モード信号が識別され、得られるものである。

【0027】そのようにして得られた音声モード信号はマイコン56に供給され、ここでは音声モード情報を含むディスク管理情報が生成され、生成されたディスク管理情報は一時記憶メモリ57に一時記憶されるとともに、所定の時間経過後その一時記憶メモリ57に一時記憶されたディスク管理情報は前述のハードディスク記録再生器61に送られてハードディスク63に記録される。

【0028】そのハードディスクに記録される信号は、セクタ構成される時間分割された信号である。図2にハードディスクに記録されるMPEG－2で符号化された信号と、そのクラス分離された信号との関係を示す。

【0029】図2において、MPEG－2エンコーディングで符号化された信号はGOPヘッダー、I（Intra）ビクチャ、復数のP（Predictive）ビクチャ、及び復数のB（Bi-directionally Predictive）ビクチャで構成される。GOP単位の信号として符号化され、その符号化された信号はセクタごとの信号に分割されてハードディスクに記録され、そのように構成される信号の様子を示したものである。

【0030】セクタごとに分割された信号の各々にはセクタ番号が付けられ、その番号の付されたセクタごとの信号は、ハードディスク63の所定の場所に記録され、その記録された情報とセクタ番号の関係はディスク管理情報としてハードディスク63の管理情報記録領域に記録される。

【0031】前述の図1に示したマイコン56は、このように構成されるGOP単位の符号化された信号の記録位置に関する情報、及び音声モード信号の記録位置に関する情報を含む管理情報の生成を行うと、その管理情報の生成と、生成された信号の記録について述べる。

【0032】即ち、マイコン56は、ハードディスク63の記録制御、及びエンコーディング50における信号系の制御を行っているが、そのMPEG－2エンコーディング54における信号系の制御としては、MPEG－2で符号化されて生成される映像、及び音声信号のビットストリームの生成に関するシークエンス制御のほかに、その符号化の単位であるGOPを構成するI、P、Bのそれぞれのビクチャにおける符号化方法に関する情報がマイコン56に供給される。

【0033】その情報は、GOP全体のデータ量を示すバイ特数、GOPを構成するフレーム数、各フレームのバイ特数、そしてプレゼンテーションタイムスタンプなどの情報が含まれており、このような詳細な符号化情報を管理情報として記録しておくことで、例えば特殊再生を行うときに1フレームのみをコードして表示する時、そのための1フレームの画像情報を容易に得て、目的とする特殊再生画像を生成するために効果的に利用できる。

【0034】そして、マイコン56はハードディスク63の記録、及び再生制御を行っており、さらにハードディスクに情報を記録するためのアドレス管理も行っている。即ち、マイコン56は、ビットストリームを構成するそれぞれのGOPの信号をハードディスク63のどの位置に記録するかを定め、そのためのGOP記録位置情報を生成している。

【0035】さらにマイコン56は、各GOPに関する上述の詳細情報に、そのGOPにより構成される映像信号が必ずしもカードであるか、CM部信号であるかのCM部位置情報に付加した管理情報を生成し、その生成された管理情報は一時記憶メモリ57に一時記憶される。

【0036】その一時記憶メモリ57に一時記憶された管理情報は、所定時間毎にハードディスク63に記録されるが、そのハードディスク63の記録エリアは、ビットストリーム記録エリア、及び管理情報記録エリアに分割されており、ビットストリームを構成するGOPの信号をビットストリーム記録エリアに記録するが、そのGOPの信号を記録した後に、管理情報を一時記憶メモリ57より読み出し、その読み出した管理情報を、管理情報記録エリアに記録するようにする。

【0037】以上、ハードディスク63へのGOP信号と、管理情報の記録情報について述べたが、空中線より供給される信号が、例えばデジタル放送信号であり、すでにMPEG－2のビットストリームを構成する信号として入る場合、A／D変換器53、及びMPEGエンコーディング54を経由せず、TVチューナー51より
ファッファメロミ55に直接信号を供給できる。
【0038】その場合はTVチューナ51より供給される
MPEG2映像音声ビットストリーム信号からGOP
に関する情報を得、その得られた情報をマイコン56
に供給することにより、同様の信号をハードディスク63
に記録することができる。
【0039】次に、このようにして記録された信号を基
にCM階情報が必要、その生成されたCM階情報がハ
ードディスク63に記録する方法について述べる。
その場合よりCM階を構成するCM階情報が必要に
56により行なわれ、音声モードが通常に受信される
ときは、例えば5分よりも短いステレオ音声モード部分
をCM階とみなす方法である。
【0040】図3に、テレビジョン地上波放送で映画番
組が受信されたときの音声モードの時間変化を示す。
図に示す、Bと示す部分で2カ国語放送がなされ、S
と示す部分でステレオ放送がなされている。
【0041】このとき、ステレオ以外のモードからステ
レオに変化した時点T1で、その時刻をマイコン56
に接続される図示しないRAMに記録する。次に、音
声モードがステレオからそれ以外のモードに変化した時
点T2との時間差を求め、その時間差が3秒以上で5分
以内ならば、その部分はCM階であると判断する。
【0042】ここで、時間差の判定が3秒以上となったの
は、3秒以下で放送時間はCM階としては短すぎること
と、3秒以下のステレオモードは、モード信号が検出
された可能性もあるので除外している。
【0043】このようにしてステレオ放送の部分をCM
階として判定することができるが、判定された時点T
1から時点T2の間である(2T1-2T2)までの信号化
された映像信号、すなわちその期間に該当する信号化デ
ータG0Pを管理する、GO0Pの管理情報にCM階の
フラグを立ててCM階であることを識別する。
【0044】図4に、CM階が判定される時間近辺に
ついて示し、説明する。図4に示す(a)は、モノラル
音声モードで10分間受信された後、時点T3でステレオ
モードに変わりの場合である。
【0045】時点T4で示す時点では、ステレオモード
で受信されている時間が短いため、このステレオモー
ドで受信されている画面がCM階であるか否かの判定を
確認できない。
【0046】さらに図5に示すように時点T5で音声モードが再びモノラルに戻ったと
すると、このステレオの期間の時間(T5-T3)によ
り前述のようにCM階であることが判定出来る。
【0047】このようにして、画像を受信しつつ記録す
る場合の管理情報は、順番のビットストリーム信号を記録し
ている間に、数分間程度の時間帯のGO0Pに対応する管
理情報をまとめて逐次ハードディスクの管理情報記録エリアに書き込むようにしているので、場合により、CM
階であると判定が出来た時点で、CM階であるとマーク
すべきGO0Pの管理情報は時間記憶メモリ57に記録
されてなく、すでにハードディスク63に記録されてい
ることもある。
【0048】その場合は、すでにハードディスクに書き
込まれた該当するGO0Pの管理情報を読み出し、CM階
を示すフラグを変更し、再度ハードディスクに書き込む
ようにする。そして、このような管理情報を変更するよ
うな動作は、映像信号ビットストリームの記録を中断す
ることなく時間帯処理によりハードディスクへの読み出
し、及び書き込み動作を行う。
【0049】なお、ここで、CM階であるか否かの判定
をする方法を、受信される音声モードによる方法で述べ
たが、そのCM階の判定時には限りなくなく、例えば
画像の相関性、音声のパターンの変化などを用いて行な
う方法でもよく、また、特にデジタル放送の受信におい
ては、CM階であることを示す情報が放送信号中に含まれ
ているときは、その放送信号からCM階に該当情報部分
を抽出し、その抽出したデータ部分を基に、CM階を判
定するようにしてもよい。
【0050】そして、そのようにして判定されたCM階の
情報はG0Pヘッダ情報とともに記録データを管理する
管理情報として生成されるが、その場合はMPEG2
方式に従い可変長符号化されて受信される番組信号と、
比較的規則的な時間間隔で伝送されるCM階に関する情報
信号との時間合わせが必要となる。
【0051】その時間合わせは、CM階信号の最初の部
分はシーンエンジンと共に開始されるため、通常はCM
階信号は比較的早い時間より受信され、MPEG2で
符号化された信号の送信がなされた場合で表示時間に近
い時間とされるためであり、またCM階の終わりの部分
はスペーサー名が静止的に、少ない情報量の信号とさ
れるため、符号化された映像信号は早い時間に終了さ
れ、次のシーンエンジンのなされた次の本端部信号が受
信されるためでもある。
【0052】このように、MPEG2で受信される映
像信号は映像情報に有する情報の冗長度に従って、時間
変動を伴いながら受信され、当然GO0Pヘッダもそれ
と共に時間変動されながら受信される。
【0053】このように、時間変動を伴うGO0Pヘッダ
信号と、CM階に関する情報信号の時間合わせが必要で
あるが、その時間合わせは前述の記憶メモリ57、あ
るいはマイコン56に接続されるRAMにそのCM階に
関する情報信号を一時記憶しておき、G0Pヘッダと同一
表示時間の関係にあるCM階情報を作成情報として使用
するようにする。
【0054】以上が、CM階情報とGO0Pヘッダの時間関
係について述べたが、その様にして生成される管理情報
は、順番の記録順に置いている中でも映像信号ビットストリ
ームを記録する記録媒体と同一の記録媒体に記録する必
要はなく、映像音声ビデオストリームはディスク媒体に記録し、例えば管理情報はそのディスク媒体を収納する記録再生装置内の半導体メモリに記録して保持するような方法でも良く、映像音声ビデオストリームとそれらのビデオストリームのデータ管理を行う方法情報はお互いに異なる記録媒体に記録して良い。

【0055】次に、このようにして記録されたハードディスクを再生する映像信号再生装置について述べる。図5は、この映像信号再生装置42の構成を示す図である。

【0056】同様において、映像信号再生装置42は、ハードディスク再生駆動62、ハードディスク63、及び紡糸制御駆66をより記録再生駆動60と、パッチファメモリ1、MP3Gのデコーダ72、D/A変換器73、マイコン74、一時記憶デバイス75、及びリモコンインタフェース76よりなりなるデコーダ部70とより構成される。また、その映像信号再生装置42の周辺にはモノラTV90、及びリモコン95が配置される。

【0057】次に、このように構成される映像信号再生装置42の動作について述べる。ハードディスク63には、前記の映像信号記録装置41に示される映像音声ビデオストリーム、およびその管理情報が記録されているが、この映像信号再生装置42はそれらの記録された信号を再生する。

【0058】まず、再生すべき番組をリモコン95のボタン操作により選択され、選択された作業内容は変更されなかった赤外光によりリモコンインタフェース76に供給される。リモコンインタフェースでは受信された赤外光情報が復写され、操作されたリモコンボタンの操作内容が得られ、得られた信号はマイコン74に供給される。

【0059】マイコン74は、供給されたボタン操作情報を基に、及びポジティブ再生装置で、及びその管理情報は基にハードディスク63が再生する管理情報及び映像音声ビデオストリームの再生位置を定め、その定められた再生すべき位置の情報を探出し制御回路66に供給し、ハードディスク63の再生位置を制御しつつハードディスク63の記録内容を再生する。

【0060】ハードディスク63を再生して得られた映像音声ビデオストリームの、及びその管理情報は、ハードディスク再生駆動62により再生選択、復写、及び選り取り、選択などの処理がなされ、信号処理がなされた管理情報はマイコン74に、そして映像音声ビデオストリーム信号はパッチファメモリ71に供給されて、一時記録される。

【0061】GOの計画情報の変更管理情報はマイコン74により変更生成の情報文を定め、定められた変更情報に従い、所定時間パッチファメモリ71に一時記録された映像音声ビデオストリーム信号はMP3Gのデコードで供給され、高解性信号化された映像、及び音声信号が復写される。

【0062】このようにして復写された映像音声のデジタル信号は、D/A変換器73によりアナログ映像音声信号に変換され、モニタTV90に供給され表示され、音声信号は図示しないスピーカより発音される。

【0063】ここで、マインコード70より供給される映像、音声信号の出力方法としては、図示したようにアナログ映像信号、及び左のアナログ音声信号を含む別の信号から出力する方法があるが、映像、音声信号の出力方法はこれに限らず、ハードディスク再生駆動62より得られたビデオストリームの信号を、MP3Gのデコード化された信号をデコードすることなく、その信号をIEEE1394（Institute of Electrical and Electronics Engineers 1394）で規定される仕様に基づく信号としてデジタル信号のまま出力する方法もある。

【0064】ところで、ハードディスク63は、図示しない再生ヘッドの位置を高速に変更させて、記録媒体の再生位置を設定することができるため、映像信号記録装置41により記録されるビデオストリーム信号が、記録媒体上の再生位置に記録する位置に限らず、現広域に記録される位置に記録される事もできる。

【0065】映像信号再生装置42は、予めそのような記録した位置に記録された映像音声ビデオストリームの記録位置情報を得て再生動作を行うが、映像信号記録装置41はGOの情報管理に記録し、この管理情報を読み出すことにより、連続して復写すべきGOの記録位置がわかるようにされている。

【0066】ここでは、ハードディスク再生駆動より得られる管理情報はマイコン74に供給され、マイコン74はその供給された管理情報を基にハードディスクの再生位置を設定し制御系を供給し、ハードディスクは設定した制御系により制御され、望む映像音声ビデオストリームが再生される。

【0067】以上、映像信号再生装置42の構成をモートについて述べたが、映像信号再生装置42は映像信号記録装置41と組み合わせて映像信号再生装置として構成できる。図6に、その映像信号記録再生装置の構成を示ス。

【0068】同様に示す映像信号記録再生装置40は、エンコーダ部50、記録再生駆動60、及びマインコード70より構成され、この装置における映像音声ビデオストリーム、及び管理情報は、前述と同様の方法で記録され、再生される。

【0069】そして、パッチファメモリ55に記録する映像音声ビデオストリーム信号を、パッチファメモリ71に再生された映像音声ビデオストリーム信号を一時記録することで、ハードディスク再生駆動61、及びハードディスク63の信号レートを高速化することはできる。映像信号、及び音声信号を時間分割で高速で書き込み、及び読み出しすることにより、実質上記録と再生を同時に行うことができる。

【0070】それは、前述のヘッド移動の高速性によ
り、ディスク上の離れた位置での信号の記録と再生が実現上同時にできるもので、この機能によりいわゆる後追い再生が可能となる。そして、後追い再生、及びビットストリームの記録と再生を同時に実行す

で、再生信号としての管理情報がハードディスクに記録されていないこともある、その場合には一時記憶メモリ57に蓄積されている管理情報から読み出し、記録信号の再生を行う。

【0071】この様に、記録と再生を同時に行う場合のCM情報管理手段として、ハードディスク媒体63、又は一時記憶メモリ57のいずれかを用い、再生時におけるCMスキーに対するCM情報の参照を行う。

【0072】そして、キャッシュ録再のよう、記録されている映像音声ビットストリームの容量を制限でており、ハードディスクにビットストリームを記録した直後、再生するようビットストリームの記録を保存を目的としていない場合には、管理情報は一時記憶メモリ57の蓄積、ハードディスク53に記録しないようにしてよい。

【0073】この様に、記録、又は記録された管理情報がCM情報に含まれることにより、そのCMの位置情報が与えられた位置において、映像音声ビットストリームの再生をCMスキーにより可能ということが出る。すなわち、そのCMの位置情報により、再生しようとするＧＧＰがCM部であるというとき、そのGGPの再生を省略し、次のGGPの管理情報を調べる。

【0074】そして、CM部であることが示されないGGPの管理情報が得られたときは、その管理情報に基づくGGPの再生を行う。そのようにして、CM部が開始される前のGGPから、CMスキーとし、CM部を終了した後のGGPの位置情報によって、パソコン内部の映像音声ビットストリームを再生するが、CM部のGGPがどこまでであるかを調べる動作は、単にCM部プログラムを調べることによりなされる。

【0075】そのCM部プログラムの調査、そのCM部プログラムのマイコンジュ4により調べることにより、短時間で行うことができるため、再生される映像音声信号は途切れないことなく、視聴的に再生することが可能になる。

【0076】そして、映像音声ビットストリームの記録時には、CM部が確定され次第、CM情報は管理情報を延べ書き替えため、記録されたビットストリームのキャッシュ録再、及び読み換え再生時ににおいても、リモコンボタンによりCMスキーが指示されたときは、管理情報に書き込まれたCM部情報を用いて、CMスキーを行うことができる。

【0077】そのCM部情報はGGPの記録位置を示すGGP情報とともに管理情報に書き込まれており、再生時にはその管理情報を参照しつつ再生すべきGGPの記録位置を特定するので、そのとき、同時にCM部情報を得ることができる。

【0078】そして、前述の図4(a)に示したCM部が表示されない記録間隔を後追い再生のような場合を除き、CM部にはCM部であることを示すブザーが立ち上がっているため、そのCM部情報を見る、CMスキーを行うことができる。

【0079】さらにそのCMスキーは、映像の再生速度がスロー再生、高速再生、逆方向再生で変わる特殊再生においてもCMスキーを行うことができる。そして、特殊再生時に、リモコンボタンによりCMスキーが操作されたときは、その再生速度が、例えば3倍速以上の再生速度の場合にはCMスキーを行い、3倍速を越えるときにはCMスキーを行わないようにする。

【0080】その、再生速度に応じて適応的にCMスキーを行う、又は行わないようにするため、再生速度において、ある程度以下の再生速度の場合は、視聴者は番組名を見る時間を短縮し、短時間に番組名を視聴しようとするが、所定速度以上の高速再生の場合は、番組名の見たいシーンを探す、あるいは番組の構成を把握する目的で視聴する場合が多いからである。

【0081】従って、再生速度が比較的高い場合にはCMスキーを行う方法が容易に行われやすく、再生速度が低い場合には、むしろCM部を再生した方が番組構成を把握しやすいなど、視聴者はCM部を基に見たい場所を探すことができ、CM部は高速で短時間に再生されるため、あえてCMスキーを行わない方が望ましいことになる。

【0082】以上、再生再編の再生速度においてCMスキーを行う、又は行わない場合に設定する映像信号の記録、再生について述べたが、このようなCMスキーの方法は、さらに映像音声ビットストリームを記録する記録装置におけるCM部情報の記録装置に隠れて、従来の映像信号記録再生装置において、又は他の記録装置を用いる映像音声記録再生装置においても、番組記録終了後にCM部の位置情報を再生に一括記録し、その再生をCMスキーにより行うような応用ができることが示唆されている。

【0083】さて、次に、ボタン操作によるCMスキーの方法について述べる。視聴者のボタン操作によるCMスキーとして、CM部5の所定のボタンを操作することにより、所定の再生時間分の記録間所をスキーで再生する方法がある。

【0084】この方法は、そのボタンを一回操作するとき、たとえば27秒の再生部分をスキップし、n（但し2以上の整数）回操作すると27＋30×(n-1)秒の記録間所の再生をスキップすることにより、通常30秒の整数倍の時間で挿入されるCM部の記録部分をスキーで再生するものである。

【0085】ここで、再生スキップする時間が30×nでなく、最初のスキップ時間が27秒であるときは、視聴者が、番組がCM部を再生していることを認識してボタ
操作を行うまでに要する操作の延長を考慮したものである。
【0086】このような視聴者のボタン操作によるCMスキャップの方法は、CM部の映像を視聴者が視聴を希望するとき、またはCM部再生中に、例えば他の放送中の番組をチャンネル切り換えにより視聴したいとき、あるいは早送り機能の再生したいときなど、多様性のあるため、一気にCM部をスキャップせずに視聴者の希望に応じた再生動作を行わせることが有効である。
【0087】それでは、視聴者の希望に応じた適正なCMスキャップの方法を、前述の各GOップゴとにCM部であるか、否かの情報、GOップの管理情報とともに管理情報記録部に記録し、その記録されたCM部情報を再生しそのCMスキャップの動作を行うことができる。
【0088】この動作は、所定のCMスキャップボタンが操作されたとき、再生中の番組がCM部分であり、かつ操作された回数により制限された再生スキャップ時間分の番組をスキャップして再生するが、その再生スキャップによりCM部を越えて本編部の開始位置を過ぎた位置より再生を開始することのないように、管理情報内のCM部情報により監視し、CM部を越えた時点より再生を開始するようにするものである。
【0089】このように、CMスキャップボタンが操作されたとき、視聴者が操作したCMスキャップに関する時間よりも記録されているCM部情報が短かいときでも、CM部の次に記録される本編部の開始位置より再生を行うようする。
【0090】それとは対反の場合で、視聴者が操作したCM部期間よりも記録された番組のCM部期間が長く、操作されたCM部期間よりも長い時間のCM情報が記録されているときは、スキャップする期間をCM部が終了するまでの期間として、次の本編部が開始される位置より再生動作をさせても良い。
【0091】このようにして、CMスキャップボタンが操作された時点での番組がCM部であれば、視聴者が操作したスキャップボタンの操作回数により、再生が始まる前のCM部のCM情報が終了するまでの期間を自動的にスキャップするようにすることができる。
【0092】そこで、その自動的に行われるCMスキャップの動作は、本編部の後に記録されるCM部部分を殆ど再生せず、次の本編部を直接に再生する例について説明したが、CM情報は自動的に高速で早送り再生され、CM情報は本編映像をフェードアウトしたものにCM情報の本編部映像をフェードインにより再生する方法がある。
【0093】さらには、CM部の代わりに本編映像内に生成したイメージ映像や、再生中の番組に関するタイトル情報等を含む映像を数秒間表示する方法もあり、タイトル映像は本編映像の最初の位置に記録されるものを用いるようにする方法もある。
【0094】このような、CM部の個所に編集された映像、あるいは他の番組映像を瞬時に表示する方法は、現在、一般的に行われている本編映像の番組映像において、CM部の後に視聴者が録音内容を思い出すための、CM部直前の短い時間の映像映像を再生しCM部直後に挿入し、繰り返し表示させることで有効である。
【0095】それは、CM部の直後に、CM部直前の映像を再記録してある映像を、CMスキャップにより視聴すると、CM部直前に及びCM部直後の同じ内容の映像が繰り返し表示されることとなり、視聴者の違和感を与えることとなるが、そのCMスキャップにより生じる違和感を軽減するためにフェードアウト、フェードイン処理、またタイトル映像の異なる映像の挿入は効果的である。
【0096】以上、管理データに記録されるCM部情報は、去CMスキャップを行う映像信号記録装置、映像信号再生装置、及び映像信号記録再生装置について述べた。ここで、映像信号記録装置と映像信号再生装置の設備場であるが、これらの接続して設置してもよく、また離れた場所に設置してもよい。
【0097】逆に、映像信号記録装置と映像信号再生装置は記録再生部を共通化して映像信号記録再生装置を構成できるが、その中のエンコーダー部50と記録再生部60を一体化、その一体化したものをシステムサーバーとして家庭内に設置し、そのシステムサーバーにエンコーダー部70をホームネットワークで接続し、そのエンコーダー部をモニタテレビの設置される場所ごとに、複数のセットトップボックスとして設置するように構成する方法もある。
【0098】この場合、そのシステムサーバーはビットストリーム出力装置として、セットトップボックスはビットストリーム受信端末として構成され、両者は同様のLAN、あるいはホームLANなどにより結合され、双方向通信を行いながらハードディスクに記録される映像信号情報が各装置からの動作命令により、目的とするビットストリームが視聴者の操作するセットトップボックスを介して、視聴するモニタTVに供給され、復表されるビデオ信号が表示されるようにされる。
【0099】このように、離れた場所に送信端末と受信端末としての記録装置とデコーダーを設置し、通信手段で接続して動作させる場合は、複数の送信端末、複数の受信端末がネットワークで結合して動作させるように構成されるものである。
【0100】さらに、記録再生部に用いられる記録媒体はハードディスクを中心として述べたが、記録媒体は高速アクセスが可能な媒体、例えば磁気ディスク、RA M形、又はRWM形のDVD、そして半導体メモリ型記録媒体であっても構わない。
【0101】また、放送波を受信してハードディスクに
記録する装置について述べたが、伝送の形態はテレビによるほか同様ブルー、光ケーブルを用いるCATV、更には電話線を用いるSDSL、ISDNによるインターネット放送であっても構わない。

【0102】そのときは騒音による配信のみならず、騒音のみの騒音による放送、またコンピュータ用ゲームプログラム、静止画情報など、これらのコンテンツの信頼中にCMが映され、そのCM映画に応答するモード信号があるときは、ここに提示した技術を用いてCMスキャン行うことができる。

【0103】以上、MPEG-2方式を例としてGOPヘッダの位置にCM映画情報を挿入する構成について明記したが、圧縮符号化の方法はこれに限らず、伴にモーションJPEGと呼ばれるフレーム内符号化による方法、あるいはMPEG-4方式、MPEG-7方式、これから規格を開始されるCM-2方式、その他フラクタルの圧縮手法を用いるものなどであってもよい。

【0104】そして、MPEG-2方式の場合は画像信号の符号化パラメータの管理をGOヘッダとこれに適応してCM映画の管理を行うため、CM映画情報の管理をGOヘッダで行なう方法として述べたが、符号化方法が異なれば符号化パラメータの管理方法も異なる。

【0105】そのような場合は、吸われる符号化パラメータを同一の映画情報単位でCM映画情報の管理を行えば、少ないアクセス数でCM映画情報を記録することができる、前述と同様の効果を有する。

【発明の効果】請求項1記載の発明によれば、本発明及び本発明で構成される番組を情報信号記録媒体に録音するとき、その番組の記録後に受信される、例えば音声モード信号、又はCM映画情報信号を情報信号記録媒体、又は情報信号一時記憶装置に書き込み、その書き込みされた情報信号記録媒体を記録されたCCD記録媒体に記録された音声信号又はCCD映画情報信号を記録した後、その書き込みされたCCD映画情報信号を記録してその書き込みされたCCD映画情報信号を記録した映画のCM映画を記録することができる。

【発明の詳細な説明】

【図1】本発明の発明の実施例に係る映像信号記録装置の構築図を示す。
【図3】本発明の実施例に係る異なる音声モードで受信されるCM部と本編部の時間関係を示した図である。
【図4】本発明の実施例に係る異なる音声モードで受信されるCM部と本編部の時間関係を示した図である。
【図5】本発明の実施例に係る映像信号再生装置の概略ブロック図である。
【図6】本発明の実施例に係る映像信号記録再生装置の概略ブロック図である。
【符号の説明】
40 映像信号記録再生装置
41 映像信号記録装置
42 映像信号再生装置
50 エンコーダ部
51 TVチューナ
52 音声モード識別器
53 A/D変換器
54 MPEG-2エンコーダ
55 バッファメモリ
10 バッファメモリ
20 MPEG-2デコーダ
30 D/A変換器
40 マイコン
50 デコーダ部
60 一時記憶メモリ
70 マイコン
71 一時記憶メモリ
72 MPEG-2デコーダ
73 D/A変換器
74 マイコン
75 一時記憶メモリ
76 リモコンインタフェース
80 モニタTV
90 モニタTV
95 リモコン

【図1】
フロントページの続き
(54) BROADCAST PROGRAM VIDEO RECORDER AND VIDEO RECORDING METHOD FOR BROADCAST PROGRAM

(57) Abstract:
PROBLEM TO BE SOLVED: To provide a broadcast program video recorder, and a video recording method for a broadcast program that can automatically record a broadcast program periodically viewed by a user without the need for setting of timer video recording.

SOLUTION: The broadcast program video recorder appends a channel of a received broadcast program, a broadcast date and a broadcast time zone to a reception program history memory in cross-reference with each other and obtains a channel of a broadcast program the broadcast date of which is the same as date by a prescribed period earlier than the date of this day and the broadcast time band of which is coincident with a current time by retrieving the
reception program history memory. The broadcast program video recorder applies channel selection control to a reception means to receive the broadcast wave of this channel and starts recording of the broadcast program received by the reception means.
Prior Art 4

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(54) [発明の名称] 放送番組録画装置及び放送番組の録画方法

(57) [要約]
【課題】 タイマ録画装置を行うことなく、使用者が定期的に視聴している放送番組を自動的に録画することが可能な放送番組録画装置、及び放送番組の録画方法を提供することを目的とする。
【解決手段】 受信された放送番組のチャンネル、放送日、及び放送時間帯々々を対応付けて受信番組履歴メモリに追記記憶し、この受信番組履歴メモリ内から、その放送日が本日の日付から所定期間前の日付と一致、かつ放送時間帯が現在時刻と一致する放送番組のチャンネルを検索する。そして、このチャンネルの放送波を受信させる、受信手段の選局制御を行うと共に、受信手段によって受信された放送番組の録画を開始する。
【特許請求の範囲】
【請求項１】放送された番組の録画を行う放送番組録画装置であって、
選局されたチャンネルの放送波を受信して放送番組を復調する受信手段と、
録画開始指令に応じて前記放送番組を記録媒体に録画する録画手段と、
前記受信手段によって受信及び復調された前記放送番組のチャンネル、放送日及び放送時間帯各々を対応付けして追記録録する受信番組履歴メモリと、
前記受信番組履歴メモリ内から、前記放送日が本日の日付から所定期間前の日付までを含むことを利用して前記チャンネルを検索する検索手段と、
前記受信手段によって受信及び復調された前記放送番組の放送波を受信させる前記受信手段の選局制御を行うと共に、前記録画手段に対して前記録画開始指令を送出する履歴録画制御手段と、を有することを特徴とする放送番組録画装置。

【請求項２】前記所定期間内は、１週間であることを特徴とする請求項１記載の放送番組録画装置。

【請求項３】放送された番組の録画を行う放送番組録画装置であって、
リンクアップ領域及び保存領域が形成されている記録媒体を備えた記録手段と、
選局されたチャンネルの放送波を受信して放送番組を復調する受信手段と、
前記受信手段によって受信及び復調された前記放送番組のチャンネル、放送日及び放送時間帯各々を対応付けして追記録録する受信番組履歴メモリと、
前記受信番組履歴メモリ内から、前記放送日が本日の日付から所定期間前の日付までを含むことを利用して前記チャンネルを検索する検索手段と、
前記受信手段によって受信及び復調された前記放送番組の放送波を受信させる前記受信手段の選局制御を行うと共に、前記受信手段によって受信して得られた前記放送番組を前記リンクアップ領域に記録させる前記記録手段の記録制御を行う前記保存手段と、
前記受信手段によって受信及び復調された前記放送番組の放送波を受信して得られた前記放送番組を前記リンクアップ領域に記録させる前記記録手段の記録制御を行う前記録画制御手段と、を有することを特徴とする放送番組録画装置。

【請求項４】前記所定期間内は、１週間であることを特徴とする請求項３記載の放送番組録画装置。

【請求項５】最近記録指令に応じて、前記受信手段によって受信及び復調された前記放送番組を前記保存領域に記録させる前記記録手段の記録制御を行う前記保存手段と、更に前記選局制御のための前記記録手段の記録制御を行う前記録画制御手段とを有することを特徴とする請求項３記載の放送番組録画装置。

【請求項６】前記履歴録画制御手段は、前記記録手段によって前記保存領域への記録動作を行なう場合には、前記保存領域への記録動作を復調するのに、又は前記検索手段によって検索されたチャンネルと同一チャンネルの放送番組を前記リンクアップ領域に記録する履歴録画を実施するのかを選択させるべき履歴録画実行確認通知を行う。

前記履歴録画の方法が選択された場合に限り前記履歴録画を実行することを特徴とする請求項３及び５記載の放送番組録画装置。

【請求項７】前記履歴録画実行確認通知においては、前記検索手段によって検索された前記チャンネルの放送番組を１週間前の日付までに視聴していた旨を知らせうメッセージが含まれていることを特徴とする請求項６記載の放送番組録画装置。

【請求項８】放送された番組の録画を行う放送番組録画装置であって、
リンクアップ領域及び保存領域が形成されている記録媒体を備えた記録手段と、
第１選局されたチャンネルの放送波を受信して第１の放送番組を復調する第１受信手段と、
第２選局されたチャンネルの放送波を受信して第２の放送番組を強調する第２受信手段と、
前記第１の放送番組のチャンネル、放送日及び放送時間帯各々を対応付けして追記録録する受信番組履歴メモリと、
録画指令操作に応じて、前記第１受信手段によって受信して得られた前記放送番組を前記保存領域に記録させる前記記録手段の記録制御を行う前記保存手段と、
前記受信手段によって受信及び復調された前記放送番組の放送波を受信して得られた前記放送番組を前記リンクアップ領域に記録させる前記記録手段の記録制御を行う前記録画制御手段と、を有することを特徴とする放送番組録画装置。

【請求項９】前記所定期間内は、１週間であることを特徴とする請求項８記載の放送番組録画装置。

【請求項１０】選局されたチャンネルの放送波を受信して放送番組を復調する受信手段と、記録開始指令に応じて前記放送番組を記録媒体に録画する録画手段と、を備えた放送番組録画装置における放送番組の録画方法であって、
前記受信手段によって受信及び復調された前記放送番組のチャンネル、放送日及び放送時間帯各々を対応付けしてメモリに前記記録をしめる受信番組履歴記録装置と、
前記履歴メモリ内から、前記放送日が本日の日付から所定期間前の日付までを含むことを利用して前記受信手段によって受信及び復調された前記放送番組の放送波を受信して得られた前記放送番組を前記リンクアップ領域に記録させる前記記録手段の記録制御を行う前記録画制御手段と、を有することを特徴とする放送番組録画装置。
る検査を行って、前記検査を行って検査された前記チャンネルの放射波を受信させる前記送信手段の選局制御を行うと共に、前記録画手段に対して前記録画開始指令を送る放射録画制御手段を、有する特徴とする放射番組の録画方法。

【請求項１】前記所述期間は、１週間であることを特徴とする請求項１記載の放射番組の録画方法。

【請求項２】選局されたチャンネルの放射波を受信して放射番組を複数する受信手段と、リングバッファ領域及び保存領域が形成されている記録媒体を備えた記録手段と、を有する放射番組録画装置における放射番組の録画方法であって、前記受信手段によって受信及び復帰された前記送信番組のチャンネル、送信日及び送信時間帯各々を対応付けしてメモリに追記録化しめる受信番組履歴記憶手段と、前記メモリ内から、前記送信日が本日の日付から所定期間前の日付と同一であるかつ前記送信時間帯が現在時刻と一致する送信番組に対応した前記チャンネルを検索する検索手段と、前記検索手段によって検索された前記チャンネルの放射波を受信させる前記送信手段の選局制御を行うと共に、前記受信手段によって受信して得られた前記送信番組を前記送信番組のリングバッファ領域に記録させる前記記録手段の記録制御を行う履歴録画制御手段を、有する特徴とする放射番組の録画方法。

【請求項１３】前記所述期間は、１週間であることを特徴とする請求項１記載の送信番組の録画方法。

【請求項１４】録画指令操作に応じて、前記受信手段によって受信して得られた前記送信番組の選局制御を行うと共に、前記受信手段によって受信して得られた前記送信番組を前記送信番組のリングバッファ領域に記録させる前記記録手段の記録制御を行う履歴録画制御手段を、有する特徴とする請求項１記載の送信番組の録画方法。

【請求項１５】前記履歴録画制御手段は、前記記録手段が前記保存領域への記録動作を実施する場合には、前記保存領域への記録動作を実施するのと、前記受信手段によって検索された前記送信番組のリングバッファ領域に記録させる履歴録画制御手段を、有する特徴とする請求項１記載の送信番組の録画方法。

【請求項１６】前記履歴録画制御手段においては、前記検査手段によって検査された前記送信番組の送信番組を１週間の現時時間帯を対応付けしてメモリに追記録化しめる旨を知らせたメッセージが含まれていることを特徴とする請求項１記載の送信番組の録画方法。

【請求項１７】第一選局されたチャンネルの放射波を受信して得られた放射番組を復帰する受信手段と、第二選局されたチャンネルの放射波を受信して得られた放射番組を復帰する受信手段と、リングバッファ領域及び保存領域が形成されている記録媒体と、を有する放射番組録画装置における放射番組の録画方法であって、前記第一選局された放射番組のチャンネル、放射波、及び放射時間帯各々を対応付けしてメモリに追記録化しめる受信番組履歴記憶手段と、録画指令操作に応じて、前記第一選局手段によって受信して得られた前記送信番組を前記保存領域に記録させる前記記録手段の記録制御を行う履歴録画制御手段を、前記メモリ内から、前記送信日が本日及び所定期間前の日付と同一であるかつ前記送信時間帯が現在時刻と一致する送信番組に対応した前記チャンネルを検索する検索手段と、前記検索手段によって検索された前記チャンネルの放射波を受信させる前記選局手段の選局制御を行うと共に、前記第二選局手段によって受信して得られた前記送信番組を前記送信番組のリングバッファ領域に記録させる前記記録手段の記録制御を行う履歴録画制御手段を、有する特徴とする放射番組の録画方法。

【請求項１８】前記所述期間は、１週間であることを特徴とする請求項１記載の送信番組の録画方法。

【発明の詳細な説明】

【０００１】

【発明の属する技術分野】本発明は、テレビジョン放送等によって提供される番組を録画する放送番組録画装置に関するものである。

【０００２】

【背景技術】現在のテレビジョン放送による番組編成では、１週間の揺り、同一タイプの番組（例えばドラマ）をその曜日の同一時間帯に放送するようになっている。従って、視聴者は、各日毎に、その曜日の決まった時間帯にテレビ視聴することになる。

【０００３】この際、上記時間帯にテレビを見ることができてない場合、使用者が、ビデオレコーダーの録画機能を利用してこの番組を録画することにより、視聴したい番組を録画することができる。ところが、録画機能を利用するには、録画希望する番組を予め設定しておく録画予約操作を行わなければならないが、その操作が煩わしいという問題があった。又、例えば、その時間帯にテレビ視聴が可能な状況にある、上記タイプの番組が変更の場合においても、使用者がテレビ視聴すること自体を忘れてしまうと、視聴したかった番組を見逃してしまうことがある。

【０００４】

【発明が解決しようとする課題】本発明は、かかる問題点を解決するたためのものであり、タイム録画設定を行うことなく、使用者が定期的に視聴している番組を自動的に録画することが可能な放送番組録画装置、及び放送番組の録画方法を提供することを目的とする。
【0005】
【課題を解決するための手段】本発明の第1の特徴によ
る放射管記録画装置は、放射された番組の映画を行う放
送番組記録画装置であって、選局されたチャンネルの放射
波を受信して放射番組を復写する受信手段と、記録開始
指令に応じて前記放射番組を記録媒体に録画する録画手
段と、前記受信手段によって受信及び復写された前記放
送番組のチャンネル、放射日、及び放射時間帯各々を対
応付けて前記記録する受信番組履歴モニタと、前記受
信番組履歴モニタ内から、前記放射番組が未定の日付から
所定期間前の日付と同一であるかつ前記放射時間帯が現
在時刻と一致する放射番組に対応した前記チャンネルを
検索する検索手段と、前記検索手段によって検索された
前記チャンネルの放射波を受信させるべく前記受信手段
の選局制御を行うと共に、前記録画手段に対して前記録
画開始指令を送出する履歴録画制御手段と、を有する。

【0006】又、本発明の第2の特徴による放射番組記
録画装置は、放射された番組の録画を行う放射番組記録画
装置であって、リングバック領域及び保存領域が形成さ
れている記録媒体を備えた記録手段と、選局されたチャ
ンネルの放射波を受信して放射番組を復写する受信手段
と、前記受信手段によって受信及び復写された前記放射
番組のチャンネル、放射日、及び放射時間帯各々を対応
付けて前記記録する受信番組履歴モニタと、前記受信
番組履歴モニタ内から、前記放射番組が未定の日付から
所定期間前の日付と同一であるかつ前記放射時間帯が現
在時刻と一致する放射番組に対応した前記チャンネルを
検索する検索手段と、前記検索手段によって検索された前
記チャンネルの放射波を受信させるべく前記受信手段
の選局制御を行うと共に、前記受信手段によって受信し
て復写された前記放射番組を前記リングバック領域に記
録させるべく前記録画手段の記録制御を行い履歴録画制
御手段と、を有する。

【0007】又、本発明の第1の特徴による放射番組の
録画方法は、選局されたチャンネルの放射波を受信して
放射番組を復写する受信手段と、録画開始指令に応じて
前記放射番組を記録媒体に録画する録画手段と、を備え
た放射番組記録画装置における放射番組の録画方法であっ
て、前記受信手段によって受信及び復写された前記放射
番組のチャンネル、放射日、及び放射時間帯各々に対応
付けてメモリに記録記憶させる受信番組履歴記憶行
程と、前記メモリ内から、前記放射波が未定の日付から
所定期間前の日付と同一であるかつ前記放射時間帯が現
在時刻と一致する放射番組に対応した前記チャンネルを
検索する検索手段と、前記検索手段によって検索された前
記チャンネルの放射波を受信させるべく前記受信手段
の選局制御を行うと共に、前記録画手段に対して前記録
画開始指令を送出する履歴録画制御手段と、を有する。

【0008】又、本発明の第2の特徴による放射番組の
録画方法は、選局されたチャンネルの放射波を受信して
放射番組を復写する受信手段と、リングバック領域及
び保存領域が形成されている記録媒体を備えた記録手段
と、前記放射番組を記録媒体に録画する録画手段と、前記
受信手段によって受信及び復写された前記放射番組のチャンネル、放射日、及び放射時間帯各々を対応付けてメモリに記録記憶させるとする受信番組履歴記憶モニタと、前記受信番組履歴モニタから、前記放射番組が未定の日付から所定期間前の日付と同一であるかつ前記放射時間帯が現在時刻と一致する放射番組に対応した前記チャンネルを検索する検索手段と、前記検索手段によって検索された前記チャンネルの放射波を受信させるべく前記受信手段の選局制御を行うと共に、前記録画手段に対して前記録画開始指令を送出する履歴録画制御手段と、を有する。
画像信号Dcに基づく画像表示を行う。

【0014】日時計時タイマー2は、本日及び現在時刻を計時し、これらを表示日時情報Tとシステム制御信号回路10、及びタイマー制御信号回路2に供給する。タイマー制御信号回路2は、操作装置2から供給される番組録画予約情報（番組録画予約とすべき番組のチャンネル番号、その番組の放送予定日、放送開始時間、及び放送終了時刻）を取り込み、これを図示する番組予約メモリに記憶する。尚、上記番組録画予約情報は、使用者が操作装置2を操作することにより適宜設定するものである。タイマー制御信号回路2は、上記番組録画予約情報に示されている放送予定日及び放送開始時刻が上記日時情報Tに示されるものと同一となった、上記放送終了時刻までの間、タイマー制御信号TMSをシステム制御信号回路10に供給する。これと共に、タイマー制御信号回路2は、上記番組録画予約情報に示されるチャンネル番号をタイマー予約チャンネル信号Tmcrとしてシステム制御信号回路10に供給する。

【0015】すなわち、タイマー制御信号回路2は、上記番組録画予約情報に示されている放送予定日及びその番組放送時間帯、上記チャンネル信号で放送されている番組を録画させるべく、タイマー制御信号TMS及びタイマー予約チャンネル信号Tmcrをシステム制御信号回路10に供給する。受信番組録画メモリ3は、システム制御信号回路10から供給された受信番組録画情報を記憶する。尚、受信番組録画情報Rcは、上記チューナ11で受信された番組の名称、その番組の放送日、放送開始時刻、放送終了時刻及びチャンネル番号を赤々示意するが、図3に示すように各番組毎に対応づけて記録される。

【0016】録画番組情報メモリ24は、システム制御信号回路10から供給された録画番組情報RHを記憶する。録画番組情報RHは、ハードディスク装置1の録画情報及び保存領域に記録された番組の番号、その番組の放送日、放送開始時刻、放送終了時刻及びチャンネル番号を記憶する。尚、録画モードまたは再生モードに設定する情報である。尚、録画モードまたは再生モードに設定する情報である。
日、放送開始時刻、放送終了時刻、チャンネル番号、録画モード、再生有無フラグを各々示す情報が、図4に示する番組表に対応づけて追記される。この際、ハードディスク装置12のリングバッファ領域に記録された番組に関する録画番組情報と、保存領域に記録された番組に関する録画番組情報とは、夫々、図4に示す如く区別されて録画番組情報メモリ24に記憶されている。

【0017】操作装置2は、使用者からの各種動作指令操作を受け付け、その操作に応じた各部操作信号をシステム制御回路0又はタイム録画制御回路22に供給する。尚、操作装置2は、ハードディスクレコーサ100の全体とは分離しているモニタコントローラである。以下、上記ハードディスクレコーサ100の各種動作（デジタル動作操作、連続録画動作、タイムシフト再生動作、番組保存動作、タイム録画動作、履歴録画動作）について説明する。

【0018】(1) テレビモニタ動作
放送中の番組をリアルタイムで視聴する場合、使用者は、まず、上記操作装置20を用いて所望チャンネルの指定操作を行う。かかる操作に応じて、操作装置20は、テレビジョンモニタ指令信号をシステム制御回路10に供給する。このテレビジョンモニタ指令信号に応じて、システム制御回路10は、上記所望チャンネルを示すチャンネル指定信号CHをチューナ11に供給する。これに同時において、システム制御回路10は、上記チューナ11から出力されたMPEG信号M1を特にMPEGデコーダ17に導出すべき選択信号をセレクタ13に供給する。更に、システム制御回路10は、MPEGデコーダ17から出力された映像信号Dwをセレクタ18に導出すべき選択信号をセレクタ18に供給する。以上の如く操作により、チューナ11にて受信及び処理されたMPEG信号M1は、MPEGデコーダ17で映像信号Dwに復されてディスプレイ装置20に供給されることになる。これにより、ディスプレイ装置20は、チューナ11にて受信した所望チャンネルのディジタル放送番組をリアルタイムで画像表示することになる。この際、システム制御回路10は、チューナ11から供給された受信番組情報P1、すなわち、受信番組の番号、放送日、放送開始時刻及び放送終了時刻、並びにチャンネル番号を示す情報を取り込む。そして、システム制御回路10は、その取り込んだ受信番組情報P1を受信番組履歴情報Rとして図3に示す如く受信番組履歴メモリ23に記録する。

【0019】(2) 連続録画動作
使用者が予め設定した特定のチャンネルで放送されている番組の各々を無作為に順次、連続して録画する場合、使用者は、上記操作装置20を用いて連続録画指令操作を行う。かかる連続録画指令操作に応じて操作装置20は、連続録画指令信号をシステム制御回路10に供給する。この連続録画指令信号に応じて、システム制御回路10は、リングバッファ記録指令信号をハードディスク装置12に供給する。かかるリングバッファ記録指令信号に応じて、ハードディスク装置12は、上記チューナ11にて受信及び処理されたMPEG信号M1又はM2を、図2に示す如きハードディスクコ12のリングバッファ領域に記録する。すなわち、ハードディスク装置12は、上記リングバッファ領域の所望位置から最寄位置へと、順次、上記MPEG信号M1又はM2を記録して行くのである。この際、ハードディスク装置12は、上記リングバッファ領域の最後尾位置までの記録が完了したら、再び、その先頭位置に戻ってそこから上記MPEG信号M1又はM2の記録を行う。ハードディスク装置12は、使用者から連続録画停止指令操作が為されるまで、上記リングバッファ領域内での記録動作を繰り返し実行する。よって、使用者が予め設定した特定のチャンネルで放送されている番組の各々は連続して上記リングバッファ領域内に記録されて行くのである。この際、システム制御回路10は、上述した如くハードディスク装置12のリングバッファ領域に記録した番組に関する各種情報（番組名、放送日、放送開始時刻、放送終了時刻、チャンネル番号、録画モード及び再生有無フラグ）を、図4に示す如く録画番組情報メモリ24に記憶する。

【0020】(3) タイムシフト再生動作
上記連続録画動作実行中に、録画済みの所望番組の再生を行う場合、使用者は、上記操作装置20を用いて所望番組の指定及び再生指令操作を行う。かかる操作に応じて操作装置20は、再生指令信号をシステム制御回路10に供給する。この再生指令信号に応じて、システム制御回路10は、使用者によって指定された所望番組の記録されているリングバッファ領域内の位置を示す情報及び再生開始指令信号をハードディスク装置12に供給する。これにより、ハードディスク装置12は、上記所望番組が記録されているリングバッファ領域内での位置から情報読取を行い、得られた再生MPEG信号Rをセレクタ13に供給する。ここで、システム制御回路10は、ハードディスク12から出力された上記再生MPEG信号Rをセレクタ17にてMPEGデコーダ17に導出すべき選択信号をセレクタ17に供給する。かかる動作により、MPEGデコーダ17は、上記再生MPEG信号Rを復写して映像信号Dwを、セレクタ18に導出してディスプレイ装置20に供給される。この際、システム制御回路10は、上述した如く再生動作と、上記連続録画動作をと、所定間隔毎に交互に実行する。これにより、システム制御回路10は、現在放送されている番組を録画しつつ、既に録画済みの番組を再生するという、いわゆるタイムシフト再生を実現するのである。この際、システム制御回路10は、上述した如く再生される所望した番組に対応した録画番組情報及び録画番組情報メモリ
【0021】（4）番組保存動作
現時点でチューナー1１で受信した放送番組を録画する場合、使用者は、上記操作装置2０を用いて録画指令
命令を行う。かかる操作に応じて、操作装置2０は、番組保存指令信号をシステム制御回路1０に供給する。
この番組保存指令信号に応じて、システム制御回路1０は、チューナー1１にて受信及び信号して得られたMPE
G信号M1（又はM2）を、図2示す如くハードディスク1２０の保存領域にて録画されるべき保存記録指令
信号をハードディスク装置1２に供給する。この際、シ
システム制御回路1０は、上述した如くハードディスク1２０の保存領域にて録画された番組に関する各種情報（番組
名称、放送日、放送開始時刻、放送終了時刻、チャンネ
ル番号、録画モード、及び再生有無フラグ）を、図4に
示す如く録画番組情報メモリー1４に記憶する。尚、この
番組保存動作により録画された番組に対しては、上記
録画モードとして“0”が記録される。
【0022】（5）タイマー録画動作
タイマー録画を実施する場合、使用者は、上記操作装置2０を用いることにより、番組録画予約すべき番組のチ
ャンネル番号、その番組の放送予定日、放送開始時刻、
及び放送終了時刻を入力する。すると、タイマー録画制
御回路2２に搭載されている番組予約メモリに、上述した
如く入力された各種情報が番組録画予約情報として記
憶される。タイマー録画制御回路2２は、上記番組予約メモ
リに記憶されている放送予定日が上記放送予定日にて
示される日付と同一となり、更にその番組の放送開始時刻
が現在時刻に一致した時、上記放送終了時刻までの
間、タイマー録画信号TMSをシステム制御回路1０に
供給しつつある。これとこれに、タイマー録画制御回路2２
は、上記番組録画予約指令にて示されるチャンネル番号
をタイマー予約チャンネル信号Tvにてシステム制御
回路1０に供給する。システム制御回路1０は、上記タ
イマー録画信号TMS及びタイマー予約チャンネル信号Tv
が供給されたら、先ず、上記タイマー予約チャンネル
信号Tvにて示されるチャンネルの番組を受信させる
べきチャンネル指定信号CHをチューナー1１に供給す
る。更に、システム制御回路1０は、上述した知くチュ
ーナー1１によって受信した番組を図2に示す如くハード
ディスク1２０の保存領域にて記録されるべき保存記録
指令信号をハードディスク装置1２に供給する。これに
より、予め使用者によって録画予約された番組は、その
番組の放送予定日及び時刻にて自動的に、ハードディ
スク1２０の保存領域にて記録される。この際、シ
ステム制御回路1０は、上述した知くハードディスク1２
０の保存領域にて記録した番組に関する各種情報、つまり
番組名称、放送日、放送開始時刻、放送終了時刻、チャンネ
ル番号、録画モード、及び再生有無フラグ各々を、図4に
示す如く録画番組情報メモリー1４に記憶する。
尚、上記録画モードとして、タイマー録画である
ことを示す“1”が記録される。
【0023】（6）履歴録画動作
使用者が、上記操作装置2０を用いることによりハード
ディスクレコーダー1００を履歴録画モードにて設定してお
くと、システム制御回路1０は、図5に示す如く履歴録
画制御ルーチンを所定時間おきに実施する。図5におい
て、システム制御回路1０は、先ず、タイマー録画制御回
路2２からタイマー録画信号TMSが供給されているか
否かを判断する（ステップS１）。尚、かかるステ
ップS１により、現在、タイマー録画中であるか否かを判
定するである。ステップS１において、タイマー録画中
信号TMSが供給されている、つまりタイマー録画中であ
ると判断された場合、システム制御回路1０は、履歴録
画制御ルーチンを抜けて、前述した如き各種動作を司る
メイン制御フロー（図示せぬ）の実行に戻り、上記タイ
マー録画動作を継続する。
【0024】一方、ステップS１において、タイマー録画
信号TMSが供給されていない、つまりタイマー録画中
でないと判断された場合、システム制御回路1０は、日
時計時タイマー2１から日時情報TĐを取り込む。そし
て、システム制御回路1０は、この日時情報TĐによっ
て示される本日の日付の１週間前の日付を、番組視聴日
D７として図示せぬ内蔵レジスタに記憶する（ステップ
S２）。次に、システム制御回路1０は、上記日時情報
TĐによって示される現在時刻を現在時刻Tcとして内
蔵レジスタに記憶する（ステップS３）。次に、システム
制御回路1０は、受信番組履歴メモリー2３に記憶されて
いる受信番組履歴情報中から、その放送日が上記番組視
聴日D７と同一であるか、かつ放送開始時刻が上記現在時
刻Tcと一致している番組を検索する（ステップS４）。
次に、システム制御回路1０は、上記ステップS４によ
る検索結果として、その放送日が番組視聴日D７と同一で
あり、かつ放送開始時刻が現在時刻Tcと一致している
番組が受信番組履歴メモリー2３に記憶されているか否
かを判断する（ステップS５）。かかるステップS５にお
いて、その放送日が番組視聴日D７と同一であり、かつ
放送開始時刻が現在時刻Tcと一致している番組が受信
番組履歴メモリー2３に記憶されていないと判断された場
合、システム制御回路1０は、この履歴録画制御ルーチ
ンを抜けて、前述した如き各種動作を司るメイン制御フ
ローの実行に戻る。
【0025】一方、上記ステップS５において、その放
送日が番組視聴日D７と同一であり、かつ放送開始時刻
が現在時刻Tcと同一である番組が受信番組履歴メモリー2３
に記憶されていると判断された場合、システム制御回路
1０は、この番組のチャンネル番号を送局チャンネル番
号Scとして内蔵レジスタに記憶する（ステップS６）。次
に、システム制御回路1０は、現在、ハードディスク
レコード100がスタンバイモード状態にあるか否かを判定する（ステップS7）。すなわち、主電源が入っているものの、システム制御回路10、操作装置20、日時計時タイマー21及びタイム製品制御回路22を除く他、モジュールへの電源供給が選択されるスタンバイモード状態にあるか否かを判定するのである。かかるステップS7において、ハードディスクレコーダ100がスタンバイモード状態にあると判定された場合、システム制御回路10は、強制的にハードディスクレコーダ100の電源を投入して、上記スタンバイモードを解除する（ステップS8）。かかるステップS8の実行により、ハードディスク装置12を含むモジュールに電源電圧が供給される。

【0026】一方、上記ステップS7において、ハードディスクレコーダ100がスタンバイモード状態にあると判定された場合、システム制御回路10は、ハードディスク装置12がハードディスク120の保存領域への番組録画中であるか否かを判定する（ステップS9）。かかるステップS9において、ハードディスク120の保存領域への番組録画中ではないと判定された場合、次に、システム制御回路10は、ハードディスク装置12がハードディスク120のリングバック領域への番組録画中であるか否かを判定する（ステップS10）。かかるステップS10において、ハードディスク120のリングバック領域への番組録画中であると判定された場合、次に、システム制御回路10は、ハードディスク装置12がタイムシフト再生動作中であるか否かの判定を行う（ステップS11）。

【0027】ステップS11においてタイムシフト再生動作中であると判定された場合、又は上記ステップS10においてリングバック領域への番組録画中でないと判定された場合、又は、上記ステップS9以外の電源投入後、システム制御回路10は、以下のステップS12及びS13を実行する。すなわち、システム制御回路10は、まず、上記選局チャンネル番号Sかをチャンネル指定信号CHとしてチューナ11に供給する（ステップS12）。ステップS12の実行により、チューナ11は、1週間前の同時刻に受信したチャンネルと同一チャンネルの送信放送を受信し、この際に得られたMPEG信号M1（又はM2）をハードディスク装置12に供給する。次に、システム制御回路10は、かかるMPEG信号M1（又はM2）を、ハードディスク120のリングバック領域に記録し続けるべきリングバック領域記録指令信号をハードディスク装置12に供給する（ステップS13）。

【0028】従って、上記ステップS12及びS13の実行により、使用者が1週間前の現時間帯に選局したチャンネルと同一チャンネルで放送されている番組を自動的に選局して録画する、いわゆる遅延録画が行わされるのである。上記ステップS13の実行後、システム制御回路10は、チューナ11から供給された受信番組情報P1に基づき、リングバック領域に記録した番組に関する録画番組情報R（番組名、放送日、放送開始时刻、放送終了時刻、チャンネル番号、録画モード、及び再生有無フラグ）を生成する。そして、かかる録画番組情報Rを図4に示す如く録画情報情報メモリ24に記憶する（ステップS14）。なお、この際、録画番組情報Rの中の録画モードとしては、履歴録画であることを示す“2”が記録される。

【0029】一方、上記ステップS11においてタイムシフト再生動作中であると判定された場合、又は上記ステップS9においてハードディスク120の保存領域への番組録画中であると判定された場合、システム制御回路10は、履歴録画実行確認メッセージ表示指令をOSD画像生成回路19に供給する（ステップS15）。すなわち、システム制御回路10は、1週間前の現時間帯に、使用者が上記選局チャンネル番号Sかにて示されるチャンネルの番組を観覧していた旨を知らせると共に、この番組を録画するか又は新規時点での録画を遅延録画させるのかを選択させる為の通知である履歴録画実行確認メッセージの表示指令をOSD画像生成回路19に供給する。次に、システム制御回路10は、上記OSD画像生成回路19から出力されたメッセージ情報信号DCを統一的にディスプレイ装置20に導入するべき選択信号をセレクタ18に供給する（ステップS16）。上記ステップS15及びS16の実行により、ディスプレイ装置200は、例えば、図6に示す如き履歴録画実行確認メッセージ画像を表示する。この際、使用者は、操作装置200を操作することにより、図6中の項目A及び項目Bのいずれか一方を選択する。尚、使用者は、現在の番組録画をそのまま継続させる場合には項目Aを選択し、選局チャンネル番号Sかに示される番組の録画（履歴録画）を切り換えられる場合には項目Bを選択する。次に、システム制御回路10は、使用者が項目B、すなわち“録画選択”を選択したか否かの判定を行う（ステップS17）。かかるステップS17において、項目Bが選択されていないと判定された場合、システム制御回路10は、項目A、すなわち“録画選択”が選択されたか否かの判定を行う（ステップS18）。かかるステップS18において、“録画選択”の選択がされていないと判定された場合、システム制御回路10は、上記ステップS15の実行にotleって前述した如き動作を繰り返し実行する。すなわち、図6に示す如き項目A及びBのいずれかが選択されなかった場合には、メッセージ画面画像表示を引き続き行うのである。

【0030】一方、上記ステップS17において、項目Bが選択された、すなわち前述した如く履歴録画を実施させるべき選択が為された場合、システム制御回路10は、MPEGデータ17から出された映像信号を統一的にディスプレイ装置200に導入すべき選択信号を
号をセレクタ１に供給する (ステップ S19)。かかるステップ S19 の実行後、システム制御回路 S20 は、上記ステップ S20 の実行に移り、前述した如き履歴録画を実施する。

【0031】すなわち、保存領域への録画中又はタイムシフト再生中に、1週間前に使用者が視聴した番組の放送開始時刻になると、その後の録画チャンネルを使用者に知らせて、現在の録画状態を確認するが、又は履歴録画した録画データを使用者に選択させるべき履歴録画実行確認メッセージを表示するのである。そして、履歴録画のため選択された場合に限り、この使用者が1週間前の放送開始時刻に選択したチャンネルと同一チャ }

【0032】又、上記ステップ S18 において、項目 A
者が選択された、すなわち、現在の録画動作を継続させるべき選択が為された場合、システム制御回路 S20 は、MPEGデータ / 1 から出力をされた映像信号 V d w を変形的にディスプレイ装置 S20 により出力する選択信号をセレクタ S20 に供給する。かかるステップ S20 の実行後、又は、上記ステップ S14 の実行後、システム制御回路 S20 は、履歴録画対象レコーダーを防ぎ、前述した如き各種動作を司るメイン制御フローネが動作する。例えば、前述した如き履歴録画対象レコーダーが実施された場合にはこの選択録画動作を再開させ、タイムシフト中履歴録画対象レコーダーが実施された場合には、このタイムシフト再生動作を再開させるのである。

【0033】このように、ハードディスクレコーダー S20 が履歴録画モードに設定されているが、使用者が1週間前の放送開始時刻に選択した番組を同一タレントで放送動作を自動的に選択され、これが録画される。よって、かかる履歴録画モードによって、定期的 (1週間) に放送される同一タイトルの映像の内、使用者が習慣的に視聴している所望の番組を自動的に選択され、この選択番組を自動録画されるので、所望番組の見逃しを防止される。

【0034】尚、図 1 に示すハードディスクレコーダー S20 は、選択番組を受信するチューナーを1つだけ搭載しているが、複数のチューナーを搭載するも如くです、図 7 は、チューナーを2台搭載したハードディスクレコーダー S20 の構成を示す図である。尚、図 7 においては、チューナー 11a、11b、セレクタ 31 及び 32 を除く他の構成は図 1 に示すものと同一である。よって、以下に、これらチューナー 11a、11b、セレクタ 31 及び 32 の動作を中心に、国 7 に示すハードディスクレコーダー S20 の動作について説明する。

【0035】チューナー 11a、11b、セレクタ 31 及び 32 から供給された選択番組信号 S1a に応じたチャンネルのジオデジタル信号波を受信する。この際、チューナー 11a、11b、セレクタ 31 及び 32 から供給された選択番組信号 S1a に応じたチャ }

【0036】チューナー 11a、システム制御回路 S20 から供給されたチャンネル指定信号 S1a に応じたチャ }

【0037】セレクタ 31、上記チューナー 11a 及び 11b から供給された選択番組信号 S1a 及び S1b から供給された選挙番組信号 S1a 及び S1b を EUROPEAN TELEVISION S20 チャンネルのジオデジタル信号波を受信する。
１４に供給する。
【0038】尚，システム制御回路１０は，前述した如きテレビミタ動作，連続録画動作，タイムシフト再生動作，番組保存動作，及びタイム転送動作の各動作時ににおいては，チーナ１１が出力したMPＥＧ信号M１（又はM２）を選択させるべき選択信号を，上記セレクタ３１及び３２の各々に供給する。図８は，国７に示す如きハードディスクレコーダ１００が履歴録画モードに設定されている際に，システム制御回路１０が所定期間おきに実施する履歴録画制御ルーチンを示す図である。

【0039】尚，図８に示されるステップＳ１～Ｓ８までの制御は，図５に示すものと同一であるので，以下に，ステップＳ８以下での動作のみ説明する。ステップS７において，ハードディスクレコーダ１００がスタンバイモード状態にはないと判定された場合，システム制御回路１０は，ハードディスク装置１２がハードディスク１２０の保存領域への番組録画中であるか否かを判定する（ステップS９）。かかるステップS９において，ハードディスク１２０の保存領域への番組録画中ではないと判定された場合，次に，システム制御回路１０は，ハードディスク装置１２がハードディスク１２０のリングバッファ領域への番組録画中であるか否かを判定する（ステップS１０）。かかるステップS１０において，ハードディスク１２０のリングバッファ領域への番組録画中であると判定された場合，システム制御回路１０は，以下のステップS３１，S３２，S１３及びS１４を実行する。すなわち，システム制御回路１０は，先ず，チーナ１１が出力したMPＥＧ信号M１（又はM２）を選択させるべき選択信号を，上記セレクタ３１及び３２の各々に供給する（ステップS３１）。次に，システム制御回路１０は，MPＥＧ信号M１（又はM２）をハードディスク装置１２に供給する。次に，システム制御回路１０は，かもMPＥＧ信号M１（又はM２）を，ハードディスク１２０のリングバッファ領域内に記録させるべきリングバッファ記録指令信号をハードディスク装置１２に供給する（ステップS３２）。ステップS３２の実行により，チーナ１１は，１週間前の同時間帯に受信したチャンネルと同一チャンネルの放送波を受信し，この際得られたMPＥＧ信号M１（又はM２）をハードディスク装置１２に供給する。次に，システム制御回路１０は，かもMPＥＧ信号M１（又はM２）を，ハードディスク１２０のリングバッファ領域内に記録させるべきリングバッファ記録指令信号をハードディスク装置１２に供給する（ステップS３３）。

【0040】従って，上記ステップS３１，S３２及びS３３の実行によれば，使用者が１週間前の時間帯に選択したチャンネルと同一チャンネルの放送波で放送されている番組を自動的に選択して録画する，いわゆる履歴録画が実現されるのである。上記ステップS３３の実行後，システム制御回路１０は，チーナ１１から供給された受信番組情報P１に基づき，リングバッファ領域に記録した番組に関する録画番組情報R（番組名，放送日，放送開始時刻，放送終了時刻，チャンネル番号，録画モード，及び再生設備）を生成する。そして，かかる録画番組情報Rを図４に示すように録画番組情報梅リメモリに追記する（ステップS１４）。尚，この際，録画番組情報R中の録画モードとしては，履歴録画であることを示す＂２"と記述される。

【0041】一方，上記ステップS１０において，現在，リングバッファ領域への番組録画中であると判定された場合，システム制御回路１０は，履歴録画制御確認メッセージ表示指令をOSD画像生成回路１９に供給する（ステップS１５）。すなわち，システム制御回路１０は，1週間前の現時間帯に，使用者が上記選択チャンネル番号Sを作成されるチャンネルの番組を視聴していない旨を知らせると共に，この番組を録画するか否かは現時点での録画を継続させるか否かを選択させる履歴録画実行確認メッセージ表示指令をOSD画像生成回路１９に供給する。次に，システム制御回路１０は，OSD画像生成回路１９から出力されたメッセージ画像信号Dをもとにディスプレイ装置２０に選択するべき選択信号をセレクタ１８に供給する（ステップS１６）。上記ステップS１６及びS１６の実行により，ディスプレイ装置２０は，例えば，図６に示す如き履歴録画実行確認メッセージ画像を表示する。この際，使用者は，操作装置２０を操作することにより，図６中の項目A及び項目Bのいずれか一方を選択する。尚，使用者は，現在の番組録画をそのまま継続させる場合には項目Aを選択し，選択チャンネル番号Sを作成される番組の録画（履歴録画）を切り変わる場合には項目Bを選択する。次に，システム制御回路１０は，使用者が項目B，すなわち“履歴録画”を選択したか否かの判定を行う（ステップS１７）。かかるステップS１７において，項目Bが選択されていないと判定された場合，システム制御回路１０は，項目A，すなわち“録画継続”が選択されたか否かの判定を行う（ステップS１８）。かかるステップS１８において，"録画継続"の選択が為されていないと判定された場合，システム制御回路１０は，上記ステップS１５の実行に戻って前述した如き動作を繰り返し実行する。すなわち，図６に示す如き項目A及びBのいずれかが選択されなかった場合には，このメッセージ画像表示を引き続き行うのである。

【0042】一方，上記ステップS１７において，項目Bが選択された，すなわち前述した如き履歴録画を実施させるべき選択が為された場合，システム制御回路１０は，MPＥＧデコーダ１７から出力された映像信号Dをもとにディスプレイ装置２０に選択するべき選択信号をセレクタ１８に供給する（ステップS１９）。かかるステップS１９の実行後，システム制御回路１０は，上記ステップS３１の実行に移り，前述した如き履歴録画を実施する。

【0043】すなわち，ハードディスク１２０のリング
バッファ領域への記録動作中に、1週間前に使用者が視聴した番組の放送開始時間になったら、図6に示すように、その番組のチャンネルを使用者側に知らせる。更に、この番組の録画を今後も継続させるか、又は現在の録画をそのまま継続させるかを使用者側に選択させる図6の如き履歴認識実施確認メッセージ表示を行う。これにより、履歴録画の選択が選択された場合に限り、この使用者が1週間前の実時間帯に選択したチャンネルと同一チャンネルで放送されている番組を自動的に選択して録画するのである。

【0044】一方、上記ステップS18において、項目Aが選択された、すなわち、現在の録画動作を選択させるべき選択が為された場合、システム制御回路10は、MPEGデータ17から出力された映像信号Dを一的的にディスプレイ装置200に導出すべき選択信号をセレクタ18に供給する（ステップS20）。又、上記ステップS9において、現在、ハードディスク120の保存領域への録画中であると判定された場合、システム制御回路10は、以下のステップS33〜S35を実行する。すなわち、システム制御回路10は、まず、チューナ11aが出力したMPEG信号M1a（又はM2a）を選択させるべき選択信号を、上記セレクタ31及び32の各々に供給する（ステップS33）。次に、システム制御回路10は、上記選択チャンネル番号Sαをチャンネル指定信号Cαとしてチューナ11aに供給する（ステップS34）。ステップS34の実行により、チューナ11aは、1週間前の同時帯に受信したチャンネルと同一チャンネルの放送波を受信し、この受信されたMPEG信号M1（又はM2）をハードディスク装置12に供給する。次に、システム制御回路10は、かかるMPEG信号M1a（又はM2a）をハードディスク120のリングバッファ領域内に記録し、レベルをメモリリングバッファ記録指令信号をハードディスク装置12に供給する（ステップS35）。上記ステップS33〜S35の実行によって、使用者が1週間前の放送開始時間に選択したチャンネルと同一チャンネルで放送されている番組を自動的に選択して録画する、いわゆる履歴録画が為される。【0045】上記ステップS35の実行後、システム制御回路10は、チューナ11aから供給された受信番組情報PIaに基づき、リングバッファ領域に記録した番組に関する録画番組情報RH（番組名、放送日、放送開始時刻、放送終了時刻、チャンネル番号、録画モード、及び再生有無フラグ）を生成する。そして、かかかる録画番組情報RHを図4に示す如く録画番組情報メモリ24に追記する（ステップS36）。尚、この際、録画番組情報RH中の録画モードとしては、履歴録画であることを示す"2"が記述される。

【0046】上記ステップS14、S20又はS36の実行後、システム制御回路10は、この履歴録画制御ルーチンを拔けて、前述した如き各種動作を司るメイン制御フローの実行に戻る。これにより、例えば、前述した如き番組保存動作中に履歴録画制御ルーチンが実施された場合にはこの番組保存動作を再開させ、タイムシフト再生中に履歴録画制御ルーチンが実施された場合には、このタイムシフト再生動作を再開させるのである。

【0047】従って、図7に示す如きチーナを2つ搭載したハードディスクスコレコーダ100'によって、例えば、保存領域への録画中であっても、これと平行してリングバッファ領域への履歴録画（ステップS33～S35）を実施させることができたとなる。尚、上記実施例においてはどう、履歴録画を行う際に1週間前に視聴したチャンネルを自動選択するようにしているが、1週間前に選択されたものではない。要するに、所定のN期間前に対して同一タイトルの番組を放送するような番組編成を採用している放送局から提供される放送番組に対しては、N期間前に使用者が視聴したチャンネルを自動的に選択及び録画すれば良いのである。

【0048】発明の効果】前記した如く、本発明による放送番組録画装置によれば、煩わしいタイムシフト録画設定操作を行なわなくても、使用者が定期的に視聴している番組を自動的に録画しておくことが可能となるので、所望番組の見逃しを防止できるようになる。

【図面の簡単な説明】
【図1】本発明による放送番組録画装置としてのハードディスクスコレコーダ100の内部構成を示す図である。
【図2】ハードディスク120内におけるリングバッファ領域及び保存領域と、リングバッファ領域内での記録再生動作を示す図である。
【図3】受信番組履歴メモリ23に追記される受信番組履歴情報Rの一例を示す図である。
【図4】録画番組情報メモリ24に追記される録画番組情報RHの一例を示す図である。
【図5】履歴録画制御ルーチンを示す図である。
【図6】履歴録画実行確認メッセージ画像の一例を示す図である。
【図7】本発明の他の実施例によるハードディスクスコレコーダ100'の内部構成を示す図である。
【図8】図7に示すハードディスクスコレコーダ100で実行される履歴録画制御ルーチンを示す図である。

【符号の説明】
10 システム制御回路
11 チーナ
12 ハードディスク装置
23 受信番組履歴メモリ
図6

1週間前の現時間帯には、チャンネルSの番組を視聴していました。
以下の項目A及びBのどちらかを選択してください
A. 現在の視聴を続ける
B. チャンネルSの番組を視聴を動画に切り換える

図7
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F ターム (参考) | SC025 AA23 CA09 CR07 CR08 DA01 |
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(54) SYSTEM, APPARATUS AND METHOD FOR VIDEO RECORDING TO RECORDING MEDIUM

(57) Abstract:
PROBLEM TO BE SOLVED: To provide a system, apparatus and method for video recording to a recording medium where reserved video recording is carried out only by mounting the recording medium to a device which the recording medium can be mounted without recording reservation information in the recording medium in advance, where video can be recorded in the whole area without regard to the presence/absence of the contents of the recording medium, and which can be utilized for only a TV receiver or a video recording and reproducing device corresponding to a video recording key by recording the recording key of a maker ID etc. to the recording medium in advance.

SOLUTION: When the recording medium is selected by selecting the recording medium by inputting and setting program reservation information, if automatic update (overwriting) of the recording medium is set during automatic video recording is set in the recording medium by setting automatic recording, the system enters a video recording mode only by mounting the recording medium to the device main body in the state. Then, program reservation is carried out, and video recording is performed always by overwriting from the top of the recording media through the whole area without regard to the presence/absence of the recorded contents of the recording medium.
Prior Art 2

Japanese Patent Publication


Name of invention: SYSTEM, APPARATUS AND METHOD FOR VIDEO RECORDING TO RECORDING MEDIUM

Abstract:

PROBLEM TO BE SOLVED: To provide a system, apparatus and method for video recording to a recording medium where reserved video recording is carried out only by mounting the recording medium to a device which the recording medium can be mounted without recording reservation information in the recording medium in advance, where video can be recorded in the whole area without regard to the presence/absence of the contents of the recording medium, and which can be utilized for only a TV receiver or a video recording and reproducing device corresponding to a video recording key by recording the recording key of a maker ID etc. to the recording medium in advance.

SOLUTION: When the recording medium is selected by selecting the recording medium by inputting and setting program reservation information, if automatic update (overwriting) of the recording medium is set during automatic video recording is set in the recording medium by setting automatic recording, the system enters a video recording mode only by mounting the recording medium to the device main body in the state. Then, program reservation is carried out, and video recording is performed always by overwriting from the top of the recording media through the whole area without regard to the presence/absence of the recorded contents of the recording medium.
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(57) 【要約】  
【発明の名称】 記録媒体録画システム、記録媒体録画装置及び記録媒体録画方法  

(54) [発明の名称] 記録媒体録画システム、記録媒体録画装置及び記録媒体録画方法  

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SA04 AB05 AB07 BC08 CC09 DE12  
DE17 DE05 FG05 FG18 G12  
HL05  

(57) 【要約】  
【発明の名称】 記録媒体を装着可能な機器において、予め記録媒体に予約情報を記録しておくことなく、記録媒体を装着するだけで予約録画を実行し、記録内容の有無にかかわらず全領域に録画でき、また予め記録メディアにメ－カーIDなど録画情報を記録しておき録画機に合ったTV受信機や記録再生機に対してのみ利用可能な記録媒体録画システム、記録媒体録画装置及び記録媒体録画方法を提供すること。  

【発明の詳細な説明】  
番組予約情報を入力設定し、記録メディアの選択を行い、記録メディアが選択された場合、自動録画を設定し、記録メディアへの自動録画が設定されている時に記録メディアの自動更新（上書き）を設定すると、その状態で、装置本体に記録メディアを装着するのみで、録画モードに入り、番組予約が実行され、記録メディアの記録内容に関らず記録メディアの先頭から全領域に亘って常に関書きによって録画できる。  
（選択図） 図4
【特許請求の範囲】
【請求項１】
番組予約情報が設定される設定手段と、
記録媒体が設置される装置手段と、
前記装置手段に記録媒体が設置されているか否かをチェックするチェック手段と、
前記チェック手段にて記録媒体が設置されていると判定されている状態で、前記番組予約情報を前記記録媒体に記録する記録手段と、
前記選択手段にて前記番組予約情報を前記記録媒体に記録するように選択されているとき、前記設定手段に設定されている前記番組予約情報を前記記録媒体に記録する記録手段と、
を備えた番組予約情報記録装置と、
テレビジョン放送信号を受信することを受信手段と、
受信した前記テレビジョン放送信号を復調する復調手段と、
前記記録媒体が設置される装置手段と、
前記装置手段に前記記録媒体が設置されているか否かをチェックするチェック手段と、
前記チェック手段にて記録媒体が設置されていると判定されている状態で、前記番組予約及び上書き録画可の情報を前記記録媒体に記録するか否かが選択される選択手段と、
前記選択手段にて前記番組予約及び上書き録画可の情報を前記記録媒体に記録するように選択されているとき、前記設定手段に設定されている前記番組予約及び上書き録画可の情報を前記記録媒体に記録する記録手段と、
を備えた番組予約情報記録装置と、
テレビジョン放送信号を受信することを受信手段と、
受信した前記テレビジョン放送信号を復調する復調手段と、
前記記録媒体が設置される装置手段と、
前記装置手段に前記記録媒体が設置されているか否かをチェックするチェック手段と、
前記チェック手段にて記録媒体が設置されていると判定されている状態で、前記記録媒体に記録されている前記番組予約及び上書き録画可の情報を実行し前記記録媒体の記録内容に関わらずその記録媒体の先頭から上書きするように前記復調された放送信号を録画する記録手段と、
を備えた番組予約情報実行装置と、
を具備したことを特徴とする記録媒体録画システム。
【請求項３】
装置本体の出所や分類に対応して、前記記録媒体に設定された録画箇所と、
前記装置手段に前記記録媒体が設置されたときに、前記録画箇所が一致するか否かを判定し、一致した場合のみ前記記録画を可能とする判定手段と、
をさらに具備したことを特徴とする請求項１又は２に記載の記録媒体録画システム。
前記第２の設定手段にて記録媒体への自動録画が設定されている状態で、記録媒体の自動更新が設定される第３の設定手段と、
記録媒体が装着されている装着手段と、
前記装着手段にて前記記録媒体が装着されているか否かをチェックするチェック手段と、
前記チェック手段にて記録媒体が装着されているか否かをチェックするチェック手段と、
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前記チェック手段にて前記記録媒体が装着されているか否かをチェックするチェック手段と、
前記チェック手段にて前記記録媒体が装着されているか否かをチェックするチェック手段と、
![](image)
受信した前記テレビジョン放送信号を復調する機材手段と、
番組予約情報が設定される第1の設定手段と、
番組が記録される記録媒体が選択される選択手段と、
前記選択手段にて記録媒体が選択された場合、自動録画動作が設定される第2の設定手段と、
記録媒体が装着されている装着手段と、
前記装着手段にて前記記録媒体が装着されているか否かをチェックする第1のチェック手段と、
前記第1のチェック手段にて前記記録媒体が装着されていると判定された場合に、その
記録媒体に記録可能な領域があるか否かをチェックする第2のチェック手段と、
前記第2のチェック手段にて前記記録媒体に記録可能な領域があると判定されている状
態で、前記第1の設定手段にて設定されている前記番組予約情報を実行し前記記録媒体に前
記復調された放送信号を録画する記録手段と、を備えた番組予約情報実行機能と、
を具備したことを特徴とする記録媒体録画装置。
【請求項10】
番組予約情報が設定される設定手段と、
記録媒体が装着される装着手段と、
前記装着手段にて記録媒体が装着されているか否かをチェックするチェック手段と、
前記チェック手段にて記録媒体が装着されていると判定されている状態で、前記番組予
約情報が前記記録媒体に記録するか否かが選択される選択手段と、
前記選択手段にて前記番組予約情報は前記記録媒体に記録するように選択されていると
とき、前記設定手段にて設定されている前記番組予約情報を前記記録媒体に記録する記録手段
と、を備えた番組予約情報記録機能と、
テレビジョン放送信号を受信する受信手段と、
受信した前記テレビジョン放送信号を復調する復調手段と、
番組予約の情報が設定される第1の設定手段と、
番組が記録される記録媒体が選択される選択手段と、
前記選択手段にて記録媒体が選択された場合、自動録画が設定される第2の設定手段と、
前記第2の設定手段にて記録媒体への自動録画が設定されている状態で、記録媒体の自
動更新が設定される第3の設定手段と、
記録媒体が装着される装着手段と、
前記装着手段にて前記記録媒体が装着されているか否かをチェックするチェック手段と、
前記チェック手段にて記録媒体が装着されていると判定されている状態で、前記第1の
設定手段にて設定されている前記番組予約情報を実行し前記記録媒体の記録内容に関わらず、
その記録媒体の先頭から上書きするように前記復調された放送信号を録画する記録手段と
を備えた番組予約情報実行機能と、
を具備したことを特徴とする記録媒体録画装置。
【請求項11】
装置本体の出所や分類に対応して、前記記録媒体に設定された録画鍵と、
前記装着手段にて前記記録媒体が装着されたときに、前記録画鍵が一致するか否かを判定
し、一致した場合のみ前記録画を可能とする設定手段と、
をさらに具備したことを特徴とする請求項9または10に記載の記録媒体録画装置。
【請求項12】
番組予約情報が設定される設定ステップと、
記録媒体が装着される装着ステップと、
前記装着手段にて記録媒体が装着されているか否かをチェックするチェックステップと、
前記チェックステップにて記録媒体が装着されていると判定されている状態で、前記番
組予約情報を前記記録媒体に記録するか否かが選択される選択ステップと、
前記選択ステップにて前記番組予約情報を前記記録媒体に記録するように選択されている
るとき、前記設定ステップに設定されている前記番組予約情報を記録する記録ステップと、前記記録媒体に記録する記録ステップと、を備えた番組予約情報記録ステップと、
テレビジョン受信信号を受信する受信手段と、
受信した前記テレビジョン受信信号を復調する復調ステップと、
前記記録媒体が装置される装置ステップと、
前記装置ステップに前記記録媒体が装置されているかどうかをチェックする第１のチェックステップと、
前記第１のチェックステップにて前記記録媒体が装置されていると判定された場合に、
その記録媒体に記録可能な領域があるか否かをチェックする第２のチェックステップと、
前記第２のチェックステップにて前記記録媒体に記録可能な領域があると判定されている状態で、前記記録媒体に記録されている前記番組予約情報を実行し前記記録媒体に前記
復調された受信信号を録画する記録ステップと、を備えた番組予約情報実行ステップと、
を具備したことを特徴とする記録媒体録画方法。
【発明の詳細な説明】
【技術分野】
【0001】
本発明は、テレビ受信機（以下、ＴＶ受信機）若しくは録画再生装置の装置本体に小型の記録媒体（メモリーカードや小型ハードディスクなど）を挿し込むだけで記録モードに入り映像及び音声データがその記録媒体に記録されるような録画機能を備えた記録媒体録画システム、記録媒体録画装置及び記録媒体録画方法に関する。
【背景技術】
【0002】
従来の録画再生装置、例えばＶＴＲでは基本的に再生モードが優先であった。ＶＴＲ本体にテープカセットを挿入すれば、自動的に再生モードに入り録画内容が再生される仕組みになっている。
【0003】
録画に関しては、ユーザーが受信機器や記録機器を操作することが出来ない時刻の番組を記録する場合はタイム予約などの設定を行い自動的に記録させていた。タイム予約の手順を簡便にするために、番組表機能のある受信機器録画・録音機器を制御する方法などがある。これらの予約は受信機単体で予約を行い、予約の実行も同一の機器で行われていた。
【0004】
一方、予約番組情報を予約記録装置を用いてメモリーカードのような小型の記録媒体に記録しておく、この小型記録媒體をＴＶ受信機や録画再生装置などの予約装置装置に挿し込むことで予約実行できる予約システムも提案されている（例えば、特許文献1参照）。
【特許文献1】特開2003－179837号公報
【発明の開示】
【発明が解決しようとする課題】
【0005】
従来では、録画再生の機能のうち再生部分を優先したものであり、メモリーカードを挿し込むだけで記録モードに入りといった録画優先の録画再生機は一般的には殆どなく、さらに例えば毎日のテレビ放送の特定時間にあるニュース番組を毎日同じメモリーカードに上書きして利用できるシステムはなかった。
【0006】
また、特許文献1では、予約番組情報を予約記録装置を用いてメモリーカードのような小型記録媒体に予め記録しておく、この小型記録媒体をＴＶ受信機や録画再生装置などの予約実行装置に挿し込むことで予約実行できるものであり、予め小型記録媒体に予約情報を記録しておく作業が必要であった。また、予め小型記録媒体にメーカーＩＤ（あるいは種類ＩＤ）を記録しておく同一メーカー（或いは機種）ＩＤを持つＴＶ受信機や録画再生装置に対してのみ利用可能のように録画制限及び録画予約制限を行うことができなかった。
そこで、本発明の目的は、記録媒体を装着可能な機器において、予め記録媒体に予約情報を記録しておくことなく、記録媒体を装着するだけで番組予約を実行する記録媒体録画システム、記録媒体録画装着及び記録媒体録画方法を提供することである。

また、本発明の目的は、記録媒体を装着可能な機器において、予め記録媒体に予約情報を記録しておくことなく、記録媒体を装着するだけで番組予約を実行し、記録媒体の内容の有無にかかわらず全領域に録画することができる記録媒体録画システム、記録媒体録画装着及び記録媒体録画方法を提供することである。

また、本発明の目的は、予め記録媒体にメーカー ID（あるいは機種 ID）を記録しておき同じメーカー（あるいは機種）IDを持った TV 受信機や録画再生機に対してのみ利用可能なように制限を設けた記録媒体録画システム、記録媒体録画装着及び記録媒体録画方法を提供することである。

【課題を解決するための手段】

本発明による記録媒体録画システムは、番組予約情報が設定される設定手段と、記録媒体が装着される装置手段と、前記装着手段に記録媒体が装着されているか否かをチェックするチェック手段と、前記チェック手段にて記録媒体が装着されていると判定されている状態で、前記番組予約情報を前記記録媒体に記録するか否かが選択される選択手段と、前記選択手段にて前記番組予約情報を前記記録媒体に記録するように選択されているとき、前記設定手段に設定されている前記番組予約情報を前記記録媒体に記録する記録手段と、を備えた番組予約情報記録装置と、テレビジョン送信信号を受信する受信手段と、受信した前記テレビジョン送信信号を復調する復調手段と、前記記録媒体が装着される装着手段と、前記装着手段にて前記記録媒体が装着されているか否かをチェックする第 1 のチェック手段と、前記第 1 のチェック手段にて前記記録媒体が装着されていると判定された場合に、その記録媒体に記録可能な領域があるか否かをチェックする第 2 のチェック手段と、前記第 2 のチェック手段にて前記記録媒体に記録可能な領域があると判定されている状態で、前記記録媒体に記録されている前記番組予約情報を設定し前記記録媒体に記録するように選択されているとき、前記設定手段にて設定されている前記番組予約及び上書き録画可能の情報に前記記録媒体に記録するように選択されているとき、前記設定手段にて前記記録媒体に記録する記録手段と、を備えた番組予約情報記録装置と、とを特徴とする。

本発明による記録媒体録画システムは、番組予約及び上書き録画可の情報が設定される設定手段と、記録媒体が装着される装着手段と、前記装着手段に記録媒体が装着されているか否かをチェックするチェック手段と、前記チェック手段にて記録媒体が装着されていると判定されている状態で、前記番組予約及び上書き録画可の情報を前記記録媒体に記録するか否かが選択される選択手段と、前記選択手段にて前記番組予約及び上書き録画可能の情報を前記記録媒体に記録するように選択されているとき、前記設定手段にて設定されている前記番組予約及び上書き録画可能の情報を前記記録媒体に記録する記録手段と、を備えた番組予約情報記録装置と、テレビジョン送信信号を受信する受信手段と、受信した前記テレビジョン送信信号を復調する復調手段と、前記記録媒体が装着される装着手段と、前記装着手段にて前記記録媒体が装着されているか否かをチェックするチェック手段と、
前記チェック手段にて前記記録媒体が装着されていると判定されている状態で、前記記録媒体に記録されている前記番組予約及び上書き録画可の情報の実行し前記記録媒体の記録内容に関わらずその記録媒体の先頭から上書きするように前記復調された放送信号を録画する記録手段と、を備えた番組予約情報実行装置と、を具備したことを特徴とする。
【0012】
以上述べた2つの発明による記録媒体録画システムは、番組予約情報記録装置と、番組予約情報実行装置とが別体に構成され、番組予約情報記録装置で番組予約情報が記録された記録媒体を、別体に構成される番組予約情報実行装置で番組予約（及び上書き録画）実行する場合の録画システムである。
【0013】
本発明による上記の記録媒体録画システムは、装置本体の出所や分類に対応して、前記記録媒体に設定された録画選択し、一致した場合のみ前記記録画を可能とする判定手段と、をさらに具備したことを特徴とする。
【0014】
本発明による記録媒体録画装置は、テレビジョン放送信号を受信する受信手段と、前記テレビジョン放送信号を復調する復調手段と、番組予約情報が設定される第1の設定手段と、番組が記録される記録媒体が選択される選択手段と、前記選択手段にて記録媒体が選択された場合、自動録画が設定される第2の設定手段と、前記第2の設定手段にて記録媒体への自動録画が設定されている状態で、記録媒体の自動更新が設定される第3の設定手段と、記録媒体が装着される装着手段と、前記装着手段にて記録媒体が装着されているか否かをチェックするチェック手段と、前記チェック手段にて記録媒体が装着されていると判定されている状態で、前記第1の設定手段にて設定されている前記番組予約情報を実行し前記記録媒体の記録内容に関わらずその記録媒体の先頭から上書きするように前記復調された放送信号を録画する記録手段と、を具備したことを特徴とする。
【0015】
この発明は、何も書き込まれていない記録媒体を、予め番組予約、自動録画及び自動更新（上書き可能にすること）が設定されている装置本体に押し込んで、記録媒体に録画する場合の構成である。
【0016】
本発明による記録媒体録画装置は、テレビジョン放送信号を受信する受信手段と、前記テレビジョン放送信号を復調する復調手段と、番組予約及び上書き録画可の情報が予め記録された記録媒体が装着される装着手段と、前記装着手段にて記録媒体が装着されているか否かをチェックするチェック手段と、前記チェック手段にて記録媒体が装着されていると判定されている状態で、前記記録媒体に記録されている前記番組予約及び上書き録画可の情報を実行し前記記録媒体の記録内容に関わらずその記録媒体の先頭から上書きするように前記復調された放送信号を録画する記録手段と、を具備したことを特徴とする。
【0017】
この発明は、予め番組予約及び上書き録画可の情報が記録された記録媒体を、装置本体に押し込んで、その記録媒体に録画する場合の構成である。
【0018】
本発明による上記の記録媒体録画装置は、
装置本体の出所や分類に対応して、前記記録媒体に設定された録画鍵と、
前記録着手段に前記記録媒体が装着されたときに、前記録画鍵が一致するか否かを判定
し、一致した場合のみ前記録画を可能とする判定手段と、をさらに具備したことを特徴と
する。

【００１９】
本発明による記録媒体録画装置は、
テレビジョン放送信号を受信する受信手段と、
前記テレビジョン放送信号を復調する復調手段と、
番組予約及び上書き録画可の情報が設定される設定手段と、
記録媒体が装着される装着手段と、
前記装着手段に記録媒体が装着されているか否かをチェックするチェック手段と、
前記チェック手段にて記録媒体が装着されていると判定されている状態で、前記番組予
約及び上書き録画可の情報を前記記録媒体に記録するか否かが選択される選択手段と、
前記選択手段にて前記番組予約及び上書き録画可の情報を前記記録媒体に記録するよう
に選択されているとき、前記設定手段にて設定されている前記番組予約及び上書き録画可の
情報を前記記録媒体に記録する記録手段と、を具備したことを特徴とする。

【００２０】
この発明は、何も書き込まれていない記録媒体に、番組予約及び上書き録画可の情報を
記録する場合の構成である。

【００２１】
ここで、前記記録媒体には、装置本体の出所や分類に対応した録画鍵が設定されている
ことを特徴とする。

【００２２】
本発明による記録媒体録画装置は、
番組予約情報が設定される設定手段と、
記録媒体が装着される装着手段と、
前記装着手段に記録媒体が装着されているか否かをチェックするチェック手段と、
前記チェック手段にて記録媒体が装着されていると判定されている状態で、前記番組予
約情報を前記記録媒体に記録するか否かが選択される選択手段と、
前記選択手段にて前記番組予約情報を前記記録媒体に記録するように選択されていると
き、前記設定手段にて設定されている前記番組予約情報を前記記録媒体に記録する記録手段
と、を備えた番組予約情報記録機能と、
テレビジョン放送信号を受信する受信手段と、
受信した前記テレビジョン放送信号を復調する復調手段と、
番組予約情報が設定される第１の設定手段と、
番組が記録される記録媒体が選択される選択手段と、
前記選択手段にて記録媒体が選択された場合、自動録画動作が設定される第２の設定手
段と、
記録媒体が装着される装着手段と、
前記装着手段に前記記録媒体が装着されているか否かをチェックする第１のチェック手
段と、
前記第１のチェック手段にて前記記録媒体が装着されていると判断された場合、その
記録媒体に記録可能な領域があるか否かをチェックする第２のチェック手段と、
前記第２のチェック手段にて前記記録媒体に記録可能な領域があると判断されている状
態で、前記第１の設定手段にて設定されている前記番組予約情報を実行し前記記録媒体に前
記復動された放送信号を録画する記録手段と、を備えた番組予約情報実行機能と、を具備
したことを特徴とする。

【００２３】
本発明による記録媒体録画装置は、
番組予約情報が設定される設定手段と、
記録媒体が装着される装着手段と、
前記装着手段に記録媒体が装着されているか否かをチェックするチェック手段と、
前記チェック手段にて記録媒体が装着されていると判定されている状態で、前記番組予約情報を前記記録媒体に記録する選択手段と、
前記選択手段にて前記番組予約情報を前記記録媒体に記録する選択手段の選択する選択手段と、
前記設定手段にて設定されている前記番組予約情報を前記記録媒体に記録する記録手段と、
を備えた番組予約情報記録機能とする、
テレビジョン放送信号を受信する受信手段と、
受信した前記テレビジョン放送信号を復調する復調手段と、
番組予約の情報が設定される第１の設定手段を、
番組が記録される記録媒体が選択される選択手段と、
前記選択手段にて記録媒体が選択された場合、自動録画が設定される第２の設定手段と、
前記第２の設定手段にて記録媒体への自動録画が設定されている状態で、記録媒体の自動更新が設定される第３の設定手段となる、
記録媒体が装着される装着手段と、
前記装着手段にて記録媒体が装着されているか否かをチェックするチェック手段と、
前記チェック手段にて記録媒体が装着されていると判定されている状態で、前記第１の設定手段にて設定されている前記番組予約情報を実行し前記記録媒体の記録内容に関わらずその記録媒体の先頭から書き換えるように前記復調された放送信号を録画する記録手段と、
を備えた番組予約情報実行機能を、と具備したことを特徴とする。
【００２４】
以上述べた２つの発明による記録媒体録画装置は、何の情報も書き込まれていない記録媒体を装置本体に押しだ込む、装置本体に前記設定された番組予約情報（及び上書き録画可の情報）をその記録媒体に書き込む状態予約情報記録機能と、何の情報も書き込まれていない記録媒体を装置本体に押しだ込む、予約録画モードに入り、装置本体に前記設定された番組予約情報（及び上書き録画可の情報）が実行され、受信されたテレビジョン放送信号をその記録媒体に記録する番組予約情報実行機能を、１つの記録媒体録画装置内に備えた構成である。
【００２５】
本発明による記録媒体録画装置は、
装置本体の所の分類に対応して、前記記録媒体に設定された録画記録、前記装着手段にて記録媒体が装着されているときに、前記録画記録が一致するか否かを判定し、一致した場合のみ前記録画を可能とする判定手段と、をさらに具備したことを特徴とする。
【００２６】
本発明による記録媒体録画方法は、
番組予約情報が設定される設定ステップと、
記録媒体が装着される装着ステップと、
前記装着手段にて記録媒体が装着されているか否かをチェックするチェックステップと、
前記チェックステップにて記録媒体が装着されていると判定されている状態で、前記番組予約情報を前記記録媒体に記録する記録ステップと、前記選択ステップにて前記番組予約情報を前記記録媒体に記録する選択ステップと、
前記選択ステップにて前記番組予約情報を前記記録媒体に記録する選択ステップを設定されている前記番組予約情報を前記記録媒体に記録する記録ステップと、
を備えた番組予約情報記録ステップと、
テレビジョン放送信号を受信する受信手段と、
受信した前記テレビジョン放送信号を復調する復調ステップと、
前記記録媒体が装着される装着ステップと、
前記装着ステップにて前記記録媒体が装着されているか否かをチェックする第１のチェックステップと、
前記第1のチェックステップにて前記記録媒体が装着されていると判定された場合に、その記録媒体に記録可能な領域があるか否かをチェックする第2のチェックステップと、前記第2のチェックステップにて前記記録媒体に記録可能な領域があると判定されている状態で、前記記録媒体に記録されている前記番組予約情報の実行し前記記録媒体に前記復調された放送信号を録画する記録ステップと、前記復調された放送信号を録画する記録ステップとを組み合わせたことを特徴とする。

【0027】
この発明による記録媒体録画方法は、番組予約情報記録ステップと、番組予約情報実行ステップが別体に構成され、番組予約情報記録ステップで番組予約情報が記録される記録媒体を、別体に構成される番組予約情報実行ステップで予約実行する場合の録画方法である。

【発明の効果】
【0028】
本発明によれば、記録媒体を装着可能な機器において、予め記録媒体に予約情報を記録しておくことなく、記録媒体を装着するだけで番組予約を実行することができる記録媒体録画システム、記録媒体録画装置及び録画媒体録画方法を実現することができる。

【0029】
また、本発明によれば、予め記録媒体に予約情報を記録しておくことなく、記録媒体を装着するだけで番組予約を実行し、記録媒体の内容の有無にかかわらず記録媒体の全領域に録画することができる記録媒体録画システム、記録媒体録画装置及び記録媒体録画方法を実現することが可能となる。

【0030】
また、本発明によれば、予め記録媒体にメーカーID（または機種ID）を記録しておくことなく、本発明の機器を装着するだけで番組予約を実行し、記録媒体の内容の有無にかかわらず記録媒体の全領域に録画することができる記録媒体録画システム、記録媒体録画装置及び記録媒体録画方法を実現することが可能となる。

【発明を実施するための最良の形態】
【0031】
発明の実施の形態について図面を参照して説明する。

【実施例1】
【0032】
図1は本発明の実施例1の記録媒体録画装置の概略構成を示すブロック図である。本実施例の記録装置は、デジタル受信機能を備えた装置となっている。

【0033】
図1の記録媒体録画装置10において、デジタルテレビジョン放送信号をデジタル放送受信アンテナ11に供給され受信手段であるチューナ12で受信される。その受信された映像データは映像処理手段であるMPEG2/4デコーダ13でデコード（映像）され、記録処理手段である記録媒体14内の大容量メモリカード18に記録される。これを録画するためには、記録媒体14内のメモリカード18に記録される。

【0034】
記録媒体録画装置10には、装置本体の各回路部などの記録再生の制御やデータの認識を行う制御手段としてのCPU15、MPEG2/4デコーダ13でデコードした映像データを表示するディスプレイ17、番組予約情報を入力設定する予約手段16、計時手段（図示せず）などが設置されている。

【0035】
記録部14には装置本体に設けられた図示しない装着手段にてメモリカード18が着脱自在に取付け可能となっている。

【0036】
MPEG 2／4 デコーダ 13 は、MPEG 2 で圧縮された映像及び音声データをデコード可能である一方、MPEG 4 で圧縮された映像及び音声データをデコード可能となっている。MPEG 4 は H.264 と同様に、MPEG 2 の 1/10 以下のデータ量でデータ伝送される規格であって、将来的には地上波デジタル放送などをマルチメディア機器で受信及び記録するように検討されている規格である。

【0037】
記録部 14 は、前述したように MPEG 2／4 デコーダ 13 でデコーダ（伸長）されたデータを記録可能である一方、チューナ部 12 からの MPEG 壓縮されたままのデータをも記録可能とされている。

【0038】
このような記録媒体録画装置 10 では、予め予約手段 16 にて番組予約情報（受信チャンネル、開始時刻、終了時刻など）を入力して予約設定をしておいた状態で、装置本体の装置手段にメモリカード 18 を挿し込んでおくと、録画開始時刻になると CPU 15 の制御の下に予約番組の記録が始始され、記録部 14 によってメモリカード 18 への録画が行われる。なお、メモリカード 18 には、録画機 181 としてメーカー ID（機種 ID）が記録されていて、録画動作の開始に先立って CPU 15 が記録媒体録画装置 10 の保有する ID と録画機 ID が一致するか否かを判定し、一致した場合にのみ録画を実行（開始）できるようにしてある。勿論、録画機 181 がなくても録画可能とすることもできる。

【0039】
このような記録媒体録画装置 10 によるメモリカード 18 への予約録画及びその録画データの利用例を、図 2 を参照して説明する。

【0040】
メモリカード 18 は、例えば図 2(a)に示すような録画装置 10 の装置手段に装着され、映像データ（及び音声データ）が録画された後、装置本体から外して図 2(b)のようなビューワー 20 の装着部に挿し込んで視聴することが可能となる。なお、通常、ビューワー 20 にはチューナ部がないので、映像データの再生機としては経済的に有利である。

【0041】
次に、図 1 の予約録画のための操作及び動作の一例について、図 3 のフローチャートを参照して説明する。
メモリカード 18 の装着及び番組予約録画を行う際、前記して、図示しないリモコンなどの操作手段を用いて予約録画の受信チャンネル、開始時刻、終了時刻などを含む番組予約情報を入力する。入力された番組予約情報は予約手段 16 に設定される（ステップ S1）。なお、番組予約情報の入力は、例えば、ディスプレイ 17 に表示されるメニュー画面の表示に従って行われる。そして、記録媒体の選択へ進む。

【0042】
まず、メモリカードに記録するか否かの選択が行われる（ステップ S2）。ステップ S2 でノー（NO）の判断をした場合、記録部 14 内のメイン記録媒体への予約録画設定へ進む。或いは、TV 受信機の機能で言えば番組視聴予約へ進む（ステップ S4）。

【0043】
ステップ S2 で「メモリカードに記録する」を選択した場合、自動録画設定をするか否かの選択が行われる（ステップ S3）。ステップ S3 でノー（NO）の選択をした場合、通常の記録媒体の予約方法での設定となる。つまり、タイマー録画ボタンを押さない限り録画モードに入らない状態となる（ステップ S6）。

【0044】
ステップ S3 で「自動録画設定をする」を選択した場合、装置本体側にメモリカードを装着した後（ステップ S5）、メモリカードが装置本体の装置手段に装着されているか否かが判定される（ステップ S7）。メモリカードが装着されていると判定されると、録画鍵が一致するか否かが判定され（ステップ S8）、録画鍵が一致していると、メモリカードに記録可能な領域があるか否かが判定される（ステップ S9）。

【0045】
ステップS9で、メモリカード18に記録可能な領域があると、ステップS12へに進み、自動的に番組予約情報を内容が実行される。

【0046】
なお、ステップS8で、録画鍵が一致しなかった場合や、ステップS9で記録可能な領域がない場合は、それぞれ、別のメモリカードを用意して（ステップS10, S11）、ステップS8にリターンし、S6～S8、またはS6～S9を繰り返す。

【0047】
上記のフローチャートのステップS2, S3で、全てイエス（YES）を選択した場合には、メモリカードへの録画優先を実行するものである。

【0048】
次に、図1の予約録画のための操作及び動作の他の例について、図4のフローチャートを参照して説明する。
メモリカード18の装着及び番組予約録画を行うに際して、前以って、図示しないリモコンなどの操作手段を用いて予約録画の受信チャンネル、開始時刻、終了時刻などを含む番組予約情報を入力する。入力された番組予約情報は予約手段16に設定される（ステップS21）。番組予約情報の入力は、例えば、ディスプレイ17に表示されるメニュー画面の指示に従って行われる。そして、記録媒体の選択で進む。

【0049】
まず、メモリカードに記録するか否かの選択が行われる（ステップS22）。ステップS22でノー（NO）の判断をした場合、記録用14内のメイン記録媒体への予約録画設定は進む。或いは、TV受信機の機能で言えば番組視聴予約へ進む（ステップS25）。

【0050】
ステップS22で「メモリカードに記録する」を選択した場合、自動録画設定をするか否かの選択が行われる（ステップS23）。ステップS23でノー（NO）の選択をした場合、通常の録画設定の予約方法での設定となる。つまり、タイマー録画ボタンを押さない限り録画モードに入らない状態となる（ステップS26）。

【0051】
ステップS23で「自動録画設定をする」を選択した場合、メモリカードを自動更新（上書きするか否かが選択される（ステップS24）。「自動更新するか否か」は、上書きの可否を選択することと同義である。ステップS24でノー（NO）の選択をした場合、通常行われている追記方式の録画環境、即ち、記録済み以外の録画領域への録画を行う。媒体の残容量が不足した場合は追記できないので、その部分は上限になるが、録画が停止する（ステップS27）。若しくは、先頭からの上書きとなる。

【0052】
ステップS24で「カード内容を自動更新する」を選択した場合、録画内容をメモリカードを装置した後（ステップS28）、メモリカードを装置した後（図示せず）に記載されているか否かが判断される（ステップS29）。メモリカードが装置されていると判断されると、録画鍵が一致するか否かが判断される（ステップS30）。ステップS30で、録画鍵が一致していなければ、別の録画鍵の合ったメモリカードを用意し（ステップS31）、ステップS28のメモリカード装置にリターンして、ステップS28, S29, S30を繰り返す。

【0053】
ステップS30で、録画鍵が一致していれば、ステップS32へ進み、自動的に番組予約情報の内容及び上書き録画が実行され、メモリカード18の記録済み内容に関わらずメモリカードの先頭から常に上書きする動作が行われる。メモリカードを上書きする動作とは、ブロック毎に可能な消去動作とその消去動作によって消去した領域への記録動作とを組み合せた動作を指している。

【0054】
上記のフローチャートのステップS22, S23, S24で、全てイエス（YES）を選択した場合には、メモリカードへの録画優先を実行するものであり、本報における最大の特徴


を得ることができる。
【0055】
以上により、例えば、毎日朝7時からニュースを録画しようとした場合、前日の夜帰宅時に予約設定されている録画媒体録画装置10としてのTV受信機もしくはVTR、DVDレコーダー等にメモリカード18を装着すれば、予め装置本体に予約設定してある番組予約情報に従って自動的に録画予約モードに入り自動的に予約録画が実行され、朝・外出時に録画媒体録画装置10からメモリカード18を取り出し、携帯型のカード再生機（ビューワー）にメモリカード18を装着してニュースを再生することが可能となる。その際、図4のフローのように装置本体に予めカード内容の自動更新が設定されてると、自動更新が設定後に常に、前日のメモリカードの内容に関わらずメモリカードの先頭から上書きする動作が行われるので、その都度、新しいメモリカードを用意する必要がなく、使い勝手がよい。
【実施例2】
【0056】
図5は本発明の実施例2の記録媒体録画装置の概略構成を示すブロック図である。ブロック的には図1と同様な構成となっているが、機能的には図1とは異なっているので、メモリカード以外は図1とは異なった符号を付してある。
【0057】
図5の実施例2では、一方の録画装置本体において予め、番組予約情報等メモリカード側に記録しておき、別の録画装置本体側に予約情報が全く設定されていない場合でも、番組予約情報が記録されたメモリカードを装着したときにその予約情報を読み込んで、自動的に録画予約がその装置側に設定されるようにしたものである。
【0058】
図5(a)は番組予約情報記録装置として機能する記録媒体録画装置10Aを示し、図5(b)は番組予約情報実行装置として機能する記録媒体録画装置10Bを示している。
【0059】
図5(a)の記録媒体録画装置10Aにおいて、符号11-1はデジタル放送受信アンテナ、12-1チューナ部、13-1はMPEG2/4デコーダ、14-1は録画部、15-1はCPU、16-1は予約手段、17-1はディスプレイ、18はメモリカード、181は識別子としての録画機、をそれぞれ示している。
記録媒体録画装置10Aを番組予約情報記録装置として機能させるには、予め装置本体の予約手段16-1に番組予約情報及び上書き録画可能情報を入力設定しておき、メモリカード18を装置本体に装着手段に装着すると、メニュー画面には「メモリカードに予約情報及び上書き録画可能を記録するか」が表示され、リモコンなどの操作手段（図示略）にてYES（YES）を選択した場合、番組予約情報18A-1を記録した予約記録媒体としてのメモリカード18Aを作成することができる。
【0060】
図5(b)の記録媒体録画装置10Bにおいて、符号11-2はデジタル放送受信アンテナ、12-2チューナ部、13-2はMPEG2/4デコーダ、14-2は録画部、15-2はCPU、16-2は予約手段、17-2はディスプレイ、18Aは番組予約情報18A-1が記録されたメモリカード、181は識別子としての録画機、をそれぞれ示している。CPU15-2は、メモリカード18Aから番組予約情報18A-1や録画機181を記録部14-2を介して読み込み、録画予約モードを設定する機能を有している。
【0061】
そして、記録媒体録画装置10Aの装置本体から番組予約情報18A-1を記録したメモリカード18Aを取り外して別の記録媒体録画装置10Bに装着すると、記録媒体録画装置10Bは番組予約情報実行装置として機能して、開始時刻になると、記録媒体録画装置10Bがメモリカード18Aに記録された番組予約情報の内容を自動的に実行して、チューナ部12-2にて選択した受信チャンネルの映像及び音声データがメモリカード18Aに録画される。
図6は図5における記録媒体録画装置10A、10Bの操作及び動作の一例を説明するフローチャートである。

まず、一方の記録媒体録画装置10Aに番組予約情報を入力する。入力された番組予約情報は予約手段16-1に設定される（ステップS41）。番組予約情報の入力は、例えば、ディスプレイ17-1に表示されるメニュー画面の表示に従って行われる。

そして、メモリカード18を装置本体の着装へ着装すると（ステップS42）、メモリカードが装着されているか否かが判定される（ステップS43）、メモリカードの装着が確認されると、次にメモリカードの録画鍵が装置本体のものと一致するか否かが判定される（ステップS44）。録画鍵が一致していないと、別の録画鍵の合ったメモリカードを用意する（ステップS45）。

ステップS44で録画鍵が一致していると、メニュー画面には「メモリカードに番組予約情報を記録するか」の選択画面が表示される（ステップS45）。ステップS45で、リモコンなどの操作手段（図示略）にてノー（NO）を選択した場合は、メモリカード18Aへの番組予約情報を書き込みが設定されず、通常予約モードから記録媒体選定を行って予約実行する（ステップS47）。

ステップS45でイエス（YES）を選択した場合、番組予約情報18A1-1がメモリカード18に書き込まれ、番組予約情報18A1-1が記録された自動録画予約記録媒体であるメモリカード18Aが作成される（ステップS48）。

つぎに、記録媒体録画装置10Aの装置本体からメモリカード18Aを取り外し後で別のTV受信機や録画再生機である記録媒体録画装置10Bに着装すると（ステップS49）、CPU15-2はメモリカード18Aが装着されているか否かの判定を行い（ステップS50）、メモリカードの装着が確認されると、メモリカード18Aの録画鍵181が記録媒体録画装置10Bのそれと一致するか否かが判定される（ステップS51）、録画鍵が一致していると、メモリカード18Aに記録可能な領域があるか否かが判定される（ステップS52）。

ステップS52で、メモリカード18Aに記録可能な領域があると、ステップS55へに進み、別の記録媒体録画装置10Bにて自動的に番組予約情報の内容が実行される。

すなわち、ステップS52でメモリカード18Aに記録可能な領域があれば、自動的にステップS55に進み、記録媒体録画装置10Bは番組予約情報実行装置として機能して、予約開始時刻になると、記録媒体録画装置10Bがメモリカード18Aに記録された番組予約情報の内容を自動的に実行して、チューナ部12-2にて選択した受信チャンネルの映像及び音声データがメモリカード18Aに録画される（ステップS55）。

なお、ステップS51で、録画鍵が一致しなかった場合や、ステップS52で記録可能な領域がない場合は、それぞれ、別のメモリカードを用意して（ステップS53、またはステップS54）、ステップS42にリターンし、S42～S51、またはS42～S52を繰り返す。

図5、及び図6の録画システムによれば、図5(b)の録画予約を実行する装置には、予約設定する必要があるが、番組予約情報の入ったメモリカード18Aを番組予約情報実行装置としての録画装置10Bに挿し込むだけでCPUが録画鍵の合致及び記録可能領域有りを確認して自動的に番組予約を実行できる。従って、番組予約情報実行装置として機能可能な録画装置が複数あった場合（例えば同じメーカーの録画装置やTV受信機が複数ある）
た場合）、番組予約及び上書き録画可の情報の入ったメモリカード１８Ａを別の録画装置やTV受信機に挿し込むでも、挿し込まれた装置本体に予め予約設定されていなくてもメモリカード１８Ａの番組予約情報だけで予約実行することができ、便利である。
【0072】
図7は図5における記録媒体録画装置10A、10Bの操作及び動作の他の例を説明するフローチャートである。
【0073】
まず、一方の記録媒体録画装置10Aに番組予約情報及び上書き録画可を示す情報を入力する。入力された番組予約及び上書き録画可の情報は予約手段16-1に設定される（ステップS61）。番組予約及び上書き録画可の情報の入力は、例えば、ディスプレイ17-1に表示されるメニュー画面の表示に従って行われる。
【0074】
そして、メモリカード18を装置本体の装置手段に装着すると（ステップS62）、メモリカードが装着されているか否かが判定され（ステップS63）、メモリカードの装着が確認されると、次にメモリカードの録画鍵が装置本体のものと一致するか否かが判定される（ステップS64）。録画鍵が一致していないと、録画鍵の合った別のメモリカードを選択する（ステップS65）。
【0075】
ステップS64で録画鍵が一致していると、メニュー画面には「メモリカードに番組予約及び上書き録画可の情報を記録するか」の選択画面が表示される（ステップS65）。ステップS65で、リモコンなどの操作手段（図示略）にてノー（NO）を選択した場合は、メモリカード１８Ａへの番組予約情報及び上書き録画可の情報の書き込み設定はなされず、通常予約モードから記録媒体選定を行って予約実行する（ステップS67）。
【0076】
ステップS65でイエス（YES）を選択した場合、番組予約情報18A-1として番組予約及び上書き録画可の情報をメモリカード18に書き込まれ、その番組予約情報18A-1が記録された自動録画予約記録媒体であるメモリカード１８Ａが作成される（ステップS68）。
【0077】
次に、記録媒体録画装置10Aの装置本体の装置手段（図示略）からメモリカード18Aを取り出そして別の記録媒体録画装置10Bに装着すると（ステップS69）、CPU15-2はメモリカード１8Aが装着手段に装着されているか否かの判定を行い（ステップS70）、メモリカードの装着が確認されると、メモリカード１8Aの録画鍵181が記録媒体録画装置10Bのそれに一致するか否かを判定する（ステップS71）。ステップS71で、録画鍵が一致しなかった場合は、別のメモリカードを選択して（ステップS72）、ステップS62に戻り、S62～S71を繰り返す。
【0078】
ステップS71で録画鍵が一致していれば、自動的にステップS73に進み、記録媒体録画装置10Bは番組予約情報実行装置として機能して、予約開始時刻になると、記録媒体録画装置10Bがメモリカード１8Aに記録された番組予約及び上書き録画可の情報を自動的に実行して、チューナ部１2-2にて選択した受信チャンネルの映像及び音声データがメモリカード１8Aの記録済み内容に関わらずに上書き録画される（ステップS73）。
【0079】
すなわち、ステップS71で録画鍵が一致していると、自動的にステップS73に進み、記録媒体録画装置10Bは番組予約情報実行装置として機能して、予約開始時刻になると、記録媒体録画装置10Bがメモリカード１8Aに記録された番組予約及び上書き録画可の情報を自動的に実行して、チューナ部１2-2にて選択した受信チャンネルの映像及び音声データがメモリカード１8Aに、メモリカード１8Aの記録済み内容に関わらずメモリカードの先頭から常に上書き録画される（ステップS73）。
【0080】
図5、及び図7の録画システムによれば、図5(b)の録画予約を実行する装置には、予約設定する必要がなく、番組予約及び上書き録画の情報の入ったメモリカード１Ａ及び番組予約情報実行装置としての録画装置１０Ｂに押し込むだけでCPUが録画録の合致を見出して自動的に番組予約及び上書き録画を実行できる。従って、番組予約情報実行装置として機能可能な録画装置が複数あった場合（例えば同じメーカーの録画装置やTV受信機が複数あった場合）、番組予約及び上書き録画の情報の入ったメモリカード１Ａをどの録画装置やTV受信機に押し込まれても、押し込まれた装置本体に予め予約設定されていないメモリカード１Ａの番組予約及び上書き録画の情報だけで予約実行及び上書き録画することができ、便利である。なお、録画録が実行されることにより、メモリカード１Ａに記録されるデータがあってもそれを上書きして新たに予約された映像及び音声データを録画することができる。

【実施例3】
【0081】
1つの記録媒体録画装置が、何の情報も書き込まれていない記録媒体であるメモリカードを装置本体に押し込むと、装置本体に予め設定された番組予約情報（及び上書き録画の情報）をそのメモリカードに書き込む番組予約情報記録機能と、何の情報も書き込まれていない記録媒体であるメモリカードを装置本体に押し込むと、予約録画モードに入り、装置本体に予め設定された番組予約情報（及び上書き録画の情報）が実行され、受信されたテレビジョン送信信号をそのメモリーカードに記録する番組予約情報実行機能を、を具備する構成としてもよい。

【0082】
このような番組予約情報記録機能と番組予約情報実行機能を具備した記録媒体録画装置の構成例として、次の2つの構成が可能です。

【0099】
1) 第1の構成例の記録媒体録画装置は、番組予約情報が設定される設定手段と、記録媒体が装置されている装置手段と、前記装置手段にて記録媒体が装置されているか否かをチェックするチェック手段と、前記チェック手段にて記録媒体が装置されていると判断されている状態で、前記番組予約情報を前記録画装置に記録するか否かが選択される選択手段と、前記選択手段にて前記番組予約情報を前記録画装置に記録するために選択されているとき、前記設定手段にて設定されている番組予約情報を前記録画装置に記録する記録手段と、を備えた番組予約情報記録機能と、テレビジョン送信信号を受信する受信手段と、受信した前記テレビジョン送信信号を復調する復調手段と、番組予約情報が設定される第1の設定手段と、番組が記録される記録手段と、前記選択手段にて記録媒体が選択された場合、自動録画動作が設定される第2の設定手段と、記録媒体が装置されている装置手段と、前記装置手段にて前記録画装置が装置されているか否かをチェックする第1のチェック手段と、前記第1のチェック手段にて前記録画装置が装置されていると判断された場合、その記録媒体に記録可能な領域があるか否かをチェックする第2のチェック手段と、前記第2のチェック手段にて前記録画装置に記録可能な領域があると判断されている状態で、前記第1の設定手段にて設定されている番組予約情報を実行し前記録画装置に前記復調された送信信号を録画する記録手段と、を備えた番組予約情報実行機能と、を具備したものである。

【0094】
上記の第1の構成例の記録媒体録画装置は、何の情報も書き込まれていない記録媒体を装置本体に押し込みと、装置本体に予め設定された番組予約情報をその記録媒体に書き込む番組予約情報記録機能と、何の情報も書き込まれていない記録媒体を装置本体に押し込むと、予約録画モードに入り、装置本体に予め設定された番組予約情報が実行され、受信されたテレビジョン送信信号をその記録媒体に記録する番組予約情報実行機能とを、1つの記録媒体録画装置内に備えたものである。

【0095】
第2の構成例の記録媒体録画装置は、番組予約情報が設定される設定手段と、記録媒体
が装着される装着手段と、前記装着手段に記録媒体が装着されているか否かをチェックするチェック手段と、前記チェック手段にて記録媒体が装着されていると判断されている状態で、前記番組予約情報は前記記録媒体に記録するか否かが選択される選択手段と、前記選択手段にて前記番組予約情報を前記記録媒体に記録するように選択されていると、前記設定手段にて設定されている前記番組予約情報を前記記録媒体に記録する手段と、を備えた番組予約情報記録機能と、テレビジョン放送信号を受信する受信手段と、受信した前記テレビジョン放送信号を復調する復調手段と、番組予約情報が設定される第1の設定手段と、番組が記録される記録媒体が選択される選択手段と、前記選択手段にて記録媒体が選択された場合、自動録画が設定される第2の設定手段と、前記第2の設定手段にて記録媒体への自動録画が設定されている状態で、記録媒体の自動更新が設定される第3の設定手段と、記録媒体が装着される装着手段と、前記装着手段にて前記記録媒体が装着されているか否かをチェックするチェック手段と、前記チェック手段にて記録媒体が装着されているか否かをチェックするチェック手段と、を備えた番組予約情報実行機能と、を具備したものである。

【0086】

上記の第2の構成例の記録媒体録画装置は、何の情報も書き込まれていない記録媒体を装置本体に押し込むと、装置本体に予め設定された番組予約及び上書き録画可の情報をその記録媒体に書き込む番組予約情報記録機能と、何の情報も書き込まれていない記録媒体を装置本体に押し込むと、予約録画モードに入り、装置本体に予め設定された番組予約及び上書き録画の情報が実行され、受信されたテレビジョン放送信号をその記録媒体に書き記録する番組予約情報実行機能を、1つ後の記録媒体録画装置内に備えたものである。

【産業上の利用可能性】

【0087】

本発明は、録画機能を有するT V 受信機や録画再生機器において、例えば番組録画予約を行う場合、着脱自在な記録媒体を利用して設定記録媒体を押し込むだけで、録画優先動作させる際に特に有用である。

【図面の簡単な説明】

【0088】

【図1】本発明の実施例1の記録媒体録画装置の構成を示すブロック図。

【図2】図1の記録媒体録画装置によるメモリカードへの予約録画及びその録画データの利用例を説明する斜視図。

【図3】図1の予約録画のための操作及び動作の一例を説明するフローチャート。

【図4】図1の予約録画のための操作及び動作の他の例を説明するフローチャート。

【図5】本発明の実施例2の記録媒体録画装置の構成を示すブロック図。

【図6】図5の予約録画のための操作及び動作の一例を説明するフローチャート。

【図7】図5の予約録画のための操作及び動作の他の例を説明するフローチャート。

【符号の説明】

【0089】

10…記録媒体録画装置
12…MPEG2/4デコーダ
14…記録部
15…CPU
16…予約手段
18，18A…メモリカード（記録媒体）
18A-1…番組予約情報
181…録画鍵

代理人  両理士  伊藤  造
BROADCAST RECEIVER HAVING VIEW RESERVATION FUNCTION

PROBLEM TO BE SOLVED: To enable the selection of video-recording of either a view reservation program or a viewing program, or the cancellation of the video recording reservation concerned according to the viewer's decision, in addition to switching to the view reservation program, when a different program is being viewed while the view reservation is effective.

SOLUTION: View reservation information is retained in the view reservation data retention section 21 of a main microcomputer 4. When the viewer is viewing a program received from a tuner 1, if the broadcast start time of the view reservation becomes close, a channel change confirmation message and a video recording confirmation message are displayed on a message display unit 24. The viewer can selectively switch either the viewing program or the view reservation program according to the viewer's decision. Also, the viewer can select either recording of the view reservation program or the viewing program, or cancellation of the video recording reservation concerned.
Prior Art 5

Japanese Patent Publication


Name of invention: BROADCAST RECEIVER HAVING VIEW RESERVATION FUNCTION

Abstract:

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(54) [発明の名称] 視聴予約機能を備えた放送受信装置

(57) 【説明】 視聴予約中に異なる番組を視聴していた場合、視聴者の判断で視聴予約番組への切り替えのみならず、視聴予約した番組か視聴中の番組の何れの番組を録画するか、その録画予約を取り消すかを選択することができるようにする。

【解決手段】 視聴予約した視聴予約情報はメインマイコンの視聴予約データ保持部２１に保持され、視聴者がチューナ１から送られる番組を視聴している状態で、視聴予約している放送開始時間が近づくと、メッセージ表示部２４によりチャンネル変更確認メッセージと録画確認メッセージが表示され、視聴者の判断で視聴中の番組か視聴予約した番組か選択的に切り換えることができる。これとともに、視聴予約した番組か視聴中の番組の何れの番組を録画するか、その録画予約を取り消すかを選択することができる。

【選択図】 図1
【特許請求の範囲】

【請求項1】
視聴予約する番組のチャンネルおよびその放送時間帯を視聴予約データとして保持する視聴予約データ保持部と、この視聴予約データ保持部からの視聴予約データに基づいて前記視聴予約された番組が開始する直前に、視聴者の番組から視聴予約した番組へとチャンネルを変更するか否かのチャンネル変更確認メッセージ及び視聴中の番組から視聴予約した番組の何れかを録画するか否かの録画確認メッセージを表示させるメッセージ表示部と、前記チャンネル変更確認メッセージの指示に従って選局するチャンネル選局部と、視聴予約データ保持部で保持した視聴予約データから時間情報を取得して予約開始時に前記録画確認メッセージの指示に従った番組を録画する録画動作部とを備えたことを特徴とする視聴予約機能を備えた放送受信装置。

【請求項2】
前記チャンネル変更確認メッセージ又は／及び録画確認メッセージ表示を表示させるか否かを選択する選択手段を有することを特徴とする請求項1記載の視聴予約機能を備えた放送受信装置。

【請求項3】
前記視聴予約時間前に表示させるチャンネル変更確認メッセージ又は／及び録画確認メッセージの表示タイミングの時間設定を選択する選択手段を有することを特徴とする請求項1又は2記載の視聴予約機能を備えた放送受信装置。

【発明の詳細な説明】

【技術分野】

【0001】
本発明は、視聴予約機能を備えた放送受信装置、特に、視聴予約中に異なる番組を視聴していた場合、視聴者の判断で視聴予約番組への切り換え選択が可能であるとともに、視聴予約番組か視聴中の番組かの何れか一方の番組を録画するか、あるいは録画予約を取り消すかを選択可能な視聴予約機能を備えた放送受信装置に関するものである。

【背景技術】

【0002】
従来から、テレビジョン受像機などの放送受信機では、視聴予約を行う場合、視聴者がリモコンなどを操作し、録画したい放送局のチャンネル、番組開始時刻、番組終了時刻を入力していた。また、視聴予約の補助手段として、電子番組ガイド（Electronic Program Guide以下、EPGと称す）が提示されている。EPGは、放送局名、番組名、番組開始時刻、番組終了時刻、等の情報が含まれており、例えば、指定日時のある番組一覧表を画面に表示し、視聴者はこの番組表を操作して、特定の番組の詳細情報を閲覧したり前記した視聴予約を行うことができる。視聴予約した場合、選択した番組の開始時刻になると受信機が自動選局などの処理を行い、選択した番組を受像機内蔵又は外部接続した記憶装置、例えば、アナログビデオレコーダ、デジタルビデオレコーダ、ハードディスク等に録画するか記憶するようになっている。ところが、視聴予約を設定している場合や同時帯に重複して視聴予約を設定している場合は、現在視聴中の番組の途中で視聴予約の開始時刻になると、視聴予約番組の受信に切り換えるのが一般的である。このため、視聴者が現在視聴しているチャンネルの番組を継続して見ることができない。

【0003】
このような問題を解決する技術として、特許文献1には、リマインダー機能により、視聴予約の放送開始直前に、視聴者に対して視聴予約した放送が始まることを知らせる情報を表示せることで、視聴者がチャンネルを切り換えるかどうか判断できるように構成したEPG受信装置が開示され、また、特許文献2には、同時帯に重複して予約された視聴予約について、あらかじめ定めた優先順位設定条件に基づいて放送受信を選択する視聴予約番組選択手段を備えた番組受信装置が開示されている。

【0004】
【特許文献1】特開平11-266414号公報
【特許文献２】特開2001-197382号公報
【発明の開示】
【発明が解決しようとする課題】

(3)

0005

前記特許文献1は視聴予約中に異なる番組を視聴していた場合、視聴予約の放送開始前に視聴予約後に視聴予約した放送の開始時間があることがあることが確認でき、視聴予約の判断で視聴予約番組への切り換えがあるかどうかを確認することができる。前記特許文献2は、視聴予約で視聴予約番組への切り換えがあるかどうかを確認するための表示手段を示す。このため、視聴予約番組の放送開始前に視聴中の番組か視聴予約番組の何れか一方の番組を表示することができる。したがって、視聴予約機能を備えた放送受信装置を発明する目的とする。

0006

本発明は、前記課題に鑑みてなされたもので、視聴予約中に異なる番組を視聴していた場合、視聴予約の判断で視聴予約番組への切り換えが確認できる（もしならず、視聴予約した番組か視聴中の番組の何れかの番組を表示するか）それを行い、その表示装置を取扱いが見逃すことができる視聴予約機能を備えた放送受信装置を提供することを目的とする。

0007

本発明の提案1の視聴予約機能を備えた放送受信装置は、視聴予約する番組のチャンネルおよびその放送時間を視聴予約データとして保持する視聴予約データ保持部と、この視聴予約データ保持部からの視聴予約データに基づいて前記視聴予約された番組開始前に、視聴中の番組から視聴予約された番組へとチャンネルを変更するか否かのチャネル変更確認メッセージ及び視聴中の番組から視聴予約した番組か何れかを録画するか否かの録画確認メッセージを表示させるメッセージ表示部と、前記チャネル変更確認メッセージの指示に従って選局するチャンネル選局部と、視聴予約データ保持部で保持した視聴予約データから時間情報を取得して予約開始時に前記録画確認メッセージの指示に従った番組を録画する録画動作部とを備えたことを特徴とする。

0008

請求項1の構成により、視聴予約された番組開始前にチャンネル変更確認を促すチャンネル変更確認メッセージが表示され、ここで視聴者の判断によって、チャンネルの変更を確認すれば、視聴中の番組から視聴予約された番組へチャンネルが切り換わり、一方、チャンネル変更をしない選択をしたならば、視聴中の番組が続けるに表示される。この後、視聴中の番組から視聴予約された番組のどちらかの番組を録画するか否かの録画確認メッセージが表示され、視聴者の判断によって、録画をする選択をすれば、視聴中の番組は視聴予約された番組の何れか一方の番組が録画され、録画をしない選択をすれば、視聴予約が取り消される。

0009

本発明の請求項2の視聴予約機能を備えた放送受信装置は、請求項1記載の視聴予約機能を備えた放送受信装置において、前記チャネル変更確認メッセージ又は／及び録画確認メッセージ表示を表示させるか否かを選択する選択手段を有することを特徴とする。

0010

請求項2の構成により、チャンネル変更確認メッセージ又は／及び録画確認メッセージ表示を表示させるか否かを選択することで、視聴者が選択した予約方法で視聴予約がされる。

0011

本発明の請求項3の視聴予約機能を備えた放送受信装置は、請求項1又は2記載の視聴予約機能と連携されている放送受信装置において、前記視聴予約時間前に表示させるチャンネル変更確認メッセージ又は／及び録画確認メッセージの表示タイミングの時間設定を選択する選択手段を有することを特徴とする。
請求項3の構成により、視聴予約している放送開始時間が遅ると視聴者が設定した表示タイミングでチャンネル変更確認メッセージが表示され、この後、チャンネル変更確認メッセージが表示される。

【発明の効果】

【0013】
本発明の請求項1の視聴予約機能を備えた放送受信装置によれば、視聴予約する番組のチャンネルおよびその放送時間帯を視聴予約データとして保持する視聴予約データ保持部と、この視聴予約データ保持部からの視聴予約データに基づいて前記視聴予約された番組が開始する直前に、視聴中の番組か視聴予約した番組へとチャンネルを変更するか否かのチャンネル変更確認メッセージ及び視聴中の番組か視聴予約した番組かの何れかを録画するか否かの録画確認メッセージを表示させるメッセージ表示部と、前記チャンネル変更確認メッセージの指示に従って選局するチャンネル選局部と、視聴予約データ保持部で保持した視聴予約データから時間情報を取得して予約開始時に前記録画確認メッセージの指示に従った番組を録画する録画動作部をとれたものであるから、視聴予約中に異なる番組を視聴していた場合、視聴者の判断で視聴予約番組への切り換え選択が可能であるとともに、視聴予約番組か視聴中の番組かの何れか一方の番組を録画するか、あるいは録画予約を取り消すかを選択することができる。これにより、視聴中の番組か視聴予約された番組の何れか一方の番組を見逃す心配がないとともに、録画開始が遅れることなく、確実に視聴者が望む番組を録画することができる。

【0014】
本発明の請求項2の視聴予約機能を備えた放送受信装置によれば、請求項1記載の視聴予約機能を備えた放送受信装置において、前記チャンネル変更確認メッセージ又は及び録画確認メッセージ表示を表示させるか否かを選択する選択手段を有するものであるから、視聴者にとって使い勝手のよい録画操作方法を設定できる。

【0015】
本発明の請求項3の視聴予約機能を備えた放送受信装置によれば、請求項1又は2記載の視聴予約機能を備えた放送受信装置において、前記視聴予約時間前に表示させるチャンネル変更確認メッセージ又は及び録画確認メッセージの表示タイミングの時間設定を選択する選択手段を有するものであるから、視聴者にとって最適なタイミングでチャンネル変更確認メッセージと録画確認メッセージ表示を表示することができる。

【発明を実施するための最良の形態】

【0016】
以下、添付図面を参酌しながら、本発明を実施するための最良の形態としての実施例を説明する。

【0017】
図1は本発明の一実施例である番組受信装置の回路構成を示すブロック図である。同図において、1はチューナ、2は映像信号処理部、3は音声信号処理部、4はメインマイコンコンピュータ（以下、メインマイコンと称する）であり、チューナ1から送られた映像信号又は音声信号は映像信号処理部2に出力される。映像信号処理部2はチューナ1から送られる映像信号を抽出し、これをメインマイコン4に出力してメインマイコン4によってCRTなどのモニタ5に映像を映し出すための処理を行う。さらに、メインマイコン4は、映像信号処理部2から送られる音声信号を音声信号処理部3に出力し、モニタ5から音声を発生させるために処理を行う。

【0018】
また、記憶再生装置として例えばDVD（Digital Versatile Disc）6を接続してディスク6Aの記憶／再生を行う場合、チューナ2からの映像・音声信号はVIDEOコーダ7に入力され、VIDEOコーダ7でアナログ信号をデジタル信号に変換し、これをDVDマイコン8及びMPEGエンコーダ9に出力する。MPEGエンコーダ9では、デジタル信号を圧縮し、ビックUP10に出力する。DVDマイコン
恩8では、VİDEOエンコーダ11やMİPEGデコーダ12に出力し、VİDEOエンコーダ11でデジタル信号をアナログ信号に変換し、MİPEGデコーダ12では圧縮されたデジタル信号の圧縮を戻す処理を行い、これらVİDEOエンコーダ11、MİPEGデコーダ12から映像信号処理部2、音声信号処理部3に出力し、モニター5から映像・音声を発生させるために処理を行う。なお、図1において13およびMİPEGデコーダ12の情報を格納するメモリ（R۴M）である。

【0019】

図2はリモコン装置あるいは本体操作から送られる各種指示信号に基づいて視聴者に選択するに至る処理を行うメインマイコン1内部の回路構成を示すブロック図である。同図において、15は、各種指示信号を受信し、マイコン1内部の各部に指示する動作指示部、16は動作指示部15からの指示に従いマイコン1内部の各部を制御する動作制御部である。動作制御部16は、動作指示部15からの指示に基づいて、Y/C、IC、CIを設定する信号を出力する録画動作部17、チャンネル切り換え信号を出力するチャンネル選択部18、視聴機器の画面の直前に視聴者に設定予約した放送が発生する時間を表示する時間設定部19、現在時刻を検出す检测部20、視聴者が必要した視聴者予約する番組のチャンネルおよび時間帯を視聴者に提案するデータとして保持する視聴者データ保持部21に指令信号を出力し、視聴者予約処理を行う。メッセージ表示部22は、視聴者予約された番組が開始する直前に視聴者に確認メッセージを表示させる。選択部23は、メッセージ表示部22で表示された指示に対して何が一方で選択したかを判断し、この選択部23で選択されたチャンネル情報は動作指示部15、動作制御部16を経て予約データ生成部26に出力され、予約データ生成部26によって選択部23で指示されたチャンネルで予約開始時間に録画が開始できるようにEPGやGコードなどの予約データを生成し、これらの予約データ生成部27からDVD5などの記憶再生装置に予約データを出力する。

【0020】

また、視聴予約する際の各条件の設定は視聴者に選択できるようになっており、図3の設定画面の説明図を参照して説明すると、視聴者ギリモコン送信機などのメニューキーを選択すると、表示画面には、初期設定メニューが表示され、予約確認設定を選択することによって、「チャンネル設定確認」「録画設定確認」「録画設定方法」「確認時間」の各項目の設定を行う。ここで視聴者がリモコン送信機のアップダウンキーを操作することによって、順次選択項目が上下方向に移動して所望の項目に選択し、決定キーを操作することにより、「チャンネル設定確認」を行うか否か、「録画設定確認」を行うか否か、「録画設定方法」において、「EPG」「Gコード」「録画の何回かの方法で行うかの選択」、メッセージを表示する際の「確認時間」を視聴者予約した放送開始前の30秒、60秒、90秒、120秒の間にタミングで表示させることができる設定が可能である。なお、この「確認時間」のタイミングは、30秒、60秒、90秒、120秒の所定の時間に設定する以外に視聴者が任意の時間に設定することも可能である。なお、図3においては、「チャンネル設定確認」「録画設定確認」「録画設定方法」をそれぞれ表示するように選択し、「録画設定方法」として録画、メッセージの表示を視聴者予約した放送開始の60秒前に設定した状態を示している。

【0021】

図4は、視聴予約した番組が録画されるまでの動作をフローチャート、図5は録画されるまでの動作をフローチャートを参照して視聴予約した番組が録画されるまでの動作について説明する。なお、図5は視聴者ギリモコン1Cを視聴し、視聴予約としてBS1に設定している場合を示している。視聴者予約した視聴予約情報はメインマイコン1の視聴者データ保持部21に保持され、視聴者がチューナ1から送られた番組（3C1）を視聴している状態で、かつ、「チャンネル設定確認」を表示させることで選択した状態において、視聴者予約している（BS1）の放送開始時間が迫る（ステップS1、S21）、メッセージ表示部24からモニター5に信号が出力され、モニター5にはチューナ1から送られる映像とともに、「チャンネル設定確認メッセージ」
30が表示される。このチャンネル変更確認メッセージ30を表示するタイミングは、「確認時間」の項目で設定した時間であり、図3の60秒前に設定している場合には、放送開始の60秒前に「視聴時間が近づいております。変更しますか？」というチャンネル変更確認メッセージ30が表示される（ステップS2、S20）。このチャンネル変更確認メッセージ30の指示に従って視聴中の番組から視聴予約した番組へチャンネルを切り換えるか否かを選択する（ステップS3）。視聴者の判断でリモコン送信機のキー入力などによって、チャンネル変更確認メッセージ30で「はい」を選択した場合、チャンネル選局部18により予約した時間に視聴予約した番組へのチャンネル切り換え（ステップS4、S30）。一方、チャンネル変更確認メッセージ30で「いいえ」を選択した場合、予約した時間がも視聴中番組の映像が繰り返しに表示される（ステップS40）。また、設定時に「録画設定確認」の項目で選択しているか否かを判定し（ステップS5、S50）、録画を確認するように設定した場合、メッセージ表示部24によりモニタ5には録画確認メッセージ31が表示される（ステップS6、S60）、一方、視聴中の番組の映像を繰り返しに表示されている場合、「予約した番組を録画しますか？」という録画確認メッセージ31が表示される（ステップS7、S70）。そして、その録画確認メッセージ31、32の指示に従って視聴者の判断でリモコン送信機のキー入力などによって録画するか否かを選択する（ステップS8、S9）。すなわち、ステップS8で録画確認メッセージ31で「はい」を選択すると切り換える前のチャンネル（CH3）で録画設定され、ステップS9で録画確認メッセージ32で「はい」を選択すると予約したチャンネル（BS1）で録画設定され（ステップS10、S80、S90）、これが予約データ生成部26に出力され、指示された番組及び予約開始時間に録画が開始される（ステップS100、S110）。また、ステップS8、S9で「いいえ」を選択すると、録画予約を取り消される処理が行われる。

【0022】
以上のように、本実施例においては、視聴予約開始時の直前にチャンネル変更確認を促すチャンネル変更確認メッセージ30が表示され、ここで視聴者の判断によって、チャンネルの変更を選択すれば、視聴中の番組から視聴予約した番組へチャンネルを切り換わり、一方、チャンネル変更をしない選択をしたならば、視聴中の番組が繰り返しに表示されることがある。これにより、視聴予約開始時において、視聴中に番組又は視聴予約された番組の何れか一方を見逃すことはない。さらに、チャンネル変更確認メッセージ30の指示に従ってチャンネル変更した後、それぞれ番組に対応して「チャンネル変更前の番組をチャンネル録画しますか？」又は「予約したチャンネル録画しますか？」という録画確認メッセージ31、32が表示され、ここで視聴者の判断によって、チャンネル変更前の番組あるいは予約したチャンネルの録画を選択すれば録画開始が遅れたり録画できない、という危険もなく、視聴者が望む番組を確実に録画することが可能となる。また、チャンネル変更前の番組あるいは予約したチャンネルの録画をしない選択をするか、予約の取り消しを行うことができ、予約設定ミスなどでによる無駄な録画を防止することができる。また、チャンネル変更確認メッセージ30又は及び録画確認メッセージ31、32を表示させるか否かを選択することができるから、視聴者にとって使い勝手のよい録画操作方法を設定できる。さらに、各メッセージ30、31、32の表示タイミングの時間設定を選択できるから、視聴者にとって最適なタイミングで各メッセージ30、31、32を表示させることができる。

【0023】
以上、本発明の実施例を詳細したが、本発明は前記実施例に限定されるものではなく、本発明の要旨の範囲内で種々の変形実施が可能である。例えば、番組受信装置の回路構成などは適宜選定すればよい。

【図面の簡単な説明】
図1：本発明の番組受信装置の回路構成を示すブロック図である。
図2：同上、メインマイコン内部の回路構成を示すブロック図である。
図3：同上、視聴予約する際の設定画面を示す説明図である。
図4：同上、視聴予約した番組が録画されるまでの動作示すフローチャートである。
図5：同上、録画されるまでの動作を番組毎に示したフローチャートである。

符号の説明
0025
17 録画動作部
18 チャンネル選択部
21 視聴予約データ保持部
24 メッセージ表示部
30 チャンネル変更確認メッセージ
31, 32 録画確認メッセージ
DIGITAL BROADCAST TRANSMITTING METHOD, AND DIGITAL BROADCAST RECEIVER AND METHOD THEREOF

PROBLEM TO BE SOLVED: To provide a digital broadcast transmitting method capable of performing proper copy control for a temporary record.

SOLUTION: A broadcast station transmits any signal in a system including at least a signal meaning permitted recording and unpermitted recording as temporary recording control information with respect to the temporary recording of a digital broadcast program. Also, the broadcast station transmits copy generation control information indicating permitted copy, permitted copy for only one generation and prohibited copy with respect to a digital broadcast program. A receiver receives the temporary recording control information, and performs recording control to temporarily record or not to temporarily record the received broadcast program, depending on the temporary recording control information.
Prior Art 3

Japanese Patent Publication

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Name of invention: DIGITAL BROADCAST TRANSMITTING METHOD, AND DIGITAL BROADCAST RECEIVER AND METHOD THEREOF

Abstract:

   PROBLEM TO BE SOLVED: To provide a digital broadcast transmitting method capable of performing proper copy control for a temporary record.

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(64) [発明の名称] デジタル放送送信方法、ディジタル放送受信装置および方法

(57) 【要約】
【課題】 一時記録に対して適切なコピー制御がなされ
るデジタル放送送信方法を提供する。
【解決手段】 放送局側ではデジタル放送の番組の一時記録に関して少なくとも記録可
及び記録不可を意味する信号を含む体系のそれ程の信号を
一時記録制御情報をとして送信す
る。また、ディジタル放送の番組に関してコピー可／1
世代のコピー可／コピー禁止を
示すコピー制御信号についても送信する。受信側で
はこの一時記録制御情報を受信し
、受信した放送番組の一時記録制御信号に応じて一時記
録するかは一時記録しない記
録制御を行う。
【選択図】 図2
【特許請求の範囲】

【請求項１】
ディジタル放送の番組を記録した後に再生する際における、現在放送中の時点から遅って視聴可能なシフト可能時間の不整を示すシフト可能制御情報を暗号化して暗号化するステップと、

前記ディジタル放送の番組と、前記ディジタル放送の番組に関してコピー可／１世代のみコピー可／コピー禁止を示すコピー世代制御情報、および前記暗号化されたシフト可能制御情報、および前記暗号化されたシフト可能制御情報の暗号を解くための復号鍵を多重するステップと、

この多重された情報を送信するステップと、

を有することを特徴とするディジタル放送受信方法。

【請求項２】
前記シフト可能制御情報の暗号化は、前記シフト可能制御情報をＥＣＭ（Entitlement Control Message）に含めることにより前記シフト可能制御情報を暗号化することを特徴とする請求項１記載のディジタル放送受信方法。

【請求項３】
ディジタル放送の番組と、このディジタル放送の番組に関してコピー可／１世代のみコピー可／コピー禁止を示すコピー世代制御情報、および前記ディジタル放送の番組を記録した後に再生する際の視聴可能なシフト可能時間の不整を示す暗号化を用いて暗号化されたシフト可能制御情報、前記番組受信手段により受信した前記番組を記録媒体に記録させる記録制御手段と、

前記暗号化されたシフト可能制御情報の暗号を解くための復号鍵を用いて前記暗号化されたシフト可能制御情報の暗号を解く暗号復号手段と、

前記記録媒体に記録された前記番組の前記コピー世代制御情報がコピー禁止を示す場合に、前記番組の前記暗号化が解かれたシフト可能時間内のみを遅って再生する再生手段と、

を有することを特徴とするディジタル放送受信装置。

【請求項４】
前記暗号化は、前記シフト可能制御情報をＥＣＭ（Entitlement Control Message）に含めることにより暗号化されており、

このＥＣＭの暗号を解くことにより前記シフト可能制御情報の暗号を解くことを特徴とする請求項３記載のディジタル放送受信装置。

【請求項５】
ディジタル放送の番組と、このディジタル放送の番組に関してコピー可／１世代のみコピー可／コピー禁止を示すコピー世代制御情報、および前記ディジタル放送の番組を記録した後に再生する際の視聴可能なシフト可能時間の不整を示す暗号化を用いて暗号化されたシフト可能制御情報が含まれたディジタル放送を受信する番組受信ステップと、

前記番組受信ステップにより受信した前記番組を記録媒体に記録させる記録制御ステップと、

前記暗号化されたシフト可能制御情報の暗号を解くための復号鍵を用いて前記暗号化されたシフト可能制御情報の暗号を解くステップと、

前記記録媒体に記録された前記番組の前記コピー世代制御情報がコピー禁止を示す場合に、前記番組の前記シフト可能時間内のみを遅って再生する再生ステップと、

を有することを特徴とするディジタル放送受信方法。

【請求項６】
前記暗号化は、前記シフト可能制御情報をＥＣＭ（Entitlement Control Message）に含めることにより暗号化されており、

このＥＣＭの暗号を解くことにより前記シフト可能制御情報の暗号を解くことを特徴とする請求項５記載のディジタル放送受信方法。

【発明の詳細な説明】

【技術分野】
この発明は、ディジタル放送の送／受信装置および方法に係わり、特に一時記録の管理を行う送／受信装置および方法に関する。
【背景技術】
一般的に、ディジタル放送では番組を構成する映像、音声ストリーム等と共に、その番組のコピーを許すか否かに関する制御情報を番組関連情報として付加し伝送する場合が多い。伝送されたコピー制御情報は、D－V I S などの記録機器に番組を記録する際に、記録の可否判定に用いられる。
このコピー制御情報の一例として、B S ／ C S 等のディジタル放送に使用する番組配列情報が規定する、A R I B S T D － B 1 0 1．2 版に記載されるディジタルコピー制御記録子のシンタクス構造を図 1 4 に示す。この中にはdigital_recording_control_dataというコピー制御情報は示す2ビットのフィールドが存在し、それらは図1 5 に示すように、「00」「01」「10」「11」がそれぞれ、無条件にコピー可、事業者により定義、1世代のみコピー可、コピー禁止を意味する。
また、限定受信番組では、送信される E C M (Entitlement Control Message) に番組制御情報が含まれており、その中に録画の可否に関する記録制御情報が含まれていることがある。B S デジタル放送の限定受信方式を規定する A R I B S T D － B 2 5 1．0 版によれば、ECM に基づくI C カードとIRD間のコンマンド／レスポンスの一つである契約確認コマンドのレスポンスで、録画制御フィールド（8ビット）が存在する。このうちの1ビットを挟む3ビットにより図1 6 に示すように、録画不可、契約者のみ録画可、録画可を意味する。そして、これらの情報に基づき、受信機では対象番組の記録の可否判定を行い、処理を実行する。
ところで、最近ではハードディスクなどのランダムアクセスが可能な番組メディアなどを受信機に搭載した場合の有力な機能アイテムの一つに番組のタイムシフト視聴がある。タイムシフト視聴とは、図1 7 に示すように、放送中の番組記録を継続しながら任意の時間に番組の最初から再生して視聴する機能である。この例では、視聴者が8：00PMからの番組Aを録画予約した場合、9：30PMの番組終了まで待たなくても、任意の時刻、例えば、8：00PMから番組Aの再生視聴を開始できる。
このタイムシフト視聴は、番組の永続的な記録に依らずとも一時的に記録が可能であれば実現可能である。また、通常の番組記録と異なり、再生にある程度の制限、例えば再生可能期間や再生可能回数があっても実現可能である。
ところが、上述のように、コピー制御情報やECM等による契約確認情報では、記録が可能ならば再生も無制限可能であり、記録不可ならばリアルタイムでの視聴のみが可能となるものである。このため、タイムシフト視聴のような一時記録／一時再生を想定した機能においても記録可能な番組でしか実現できず、コンテンツ供給者の意図を十分に反映できない上に視聴者の利益も限定したものになってしまう。
このように、受信機でタイムシフト視聴のような一時記録／一時再生で実現可能な機能を実装する場合、従来のシステムでは記録可能かつ再生無制限な番組でしか実現できないため、コンテンツ供給者の意図を十分に反映できず、視聴者の利益を制限してしまうという問題が存在する。
上述のように、ディジタル放送の番組に関して録音、録画などの記録制御を行う従来のコピー制御方法ではタイムシフト視聴等に対する一時記録に関してコピー制御がなかった。したがって、コンテンツ供給者及び視聴者の両者の面から納得のいく適切なコピー制御がなされないという問題があった。

【0010】
そこで、本発明は一時記録に対して適切なコピー制御がなされる、ディジタル放送送信方法、ディジタル放送受信装置および方法を提供することを目的とする。
【課題を解決するための手段】
【0011】
上記目的を達成するために、ディジタル放送の番組を記録した後に再生する際における、現在放送中の時点から遡って視聴可能なシフト可能時間時間を示すシフト可能制御情報の暗号鍵を用いて暗号化するステップと、前記ディジタル放送の番組と、前記ディジタル放送の番組に関してコピー可／1世代のみコピー可／コピー禁止を示すコピー世代制御情報、前記暗号化されたシフト可能制御情報、および前記暗号化されたシフト可能制御情報の暗号を解くための復号鍵を多重するステップと、この多重された情報を送信するステップと、を有することを特徴とするディジタル放送送信方法を提供する。

【0012】
また、上記目的を達成するために、ディジタル放送の番組と、このディジタル放送の番組に関してコピー可／1世代のみコピー可／コピー禁止を示すコピー世代制御情報、および前記ディジタル放送の番組を記録した後に再生する際の視聴可能なシフト可能時間時間を示し暗号鍵を用いて暗号化されたシフト可能制御情報が含まれたディジタル放送を受信する番組受信手段と、前記番組受信手段により受信した前記番組を記録媒体に記録させる記録制御手段と、前記暗号化されたシフト可能制御情報の暗号を解くための復号鍵を用いて前記暗号化されたシフト可能制御情報の暗号を解く暗号復号手段と、前記記録媒体に記録された前記番組の前記コピー世代制御情報がコピー禁止を示す場合に、前記番組の前記暗号化が解かれるシフト可能時間内のみを遡って再生する再生手段と、を有することを特徴とするディジタル放送受信装置を提供する。

【0013】
また、上記目的を達成するために、ディジタル放送の番組と、このディジタル放送の番組に関してコピー可／1世代のみコピー可／コピー禁止を示すコピー世代制御情報、および前記ディジタル放送の番組を記録した後に再生する際の視聴可能なシフト可能時間時間を示し暗号鍵を用いて暗号化されたシフト可能制御情報が含まれたディジタル放送を受信する番組受信ステップと、前記番組受信ステップにより受信した前記番組を記録媒体に記録させる記録制御ステップと、前記暗号化されたシフト可能制御情報の暗号を解くための復号鍵を用いて前記暗号化されたシフト可能制御情報の暗号を解くステップと、前記記録媒体に記録された前記番組の前記コピー世代制御情報がコピー禁止を示す場合に、前記番組の前記シフト可能時間内のみを遡って再生する再生ステップと、を有することを特徴とするディジタル放送受信方法を提供する。

【0014】
したがって、本発明によれば、一時記録に対して適切なコピー制御を行うことが可能な、ディジタル放送送信方法、ディジタル放送受信装置および方法が得られる。
【発明の効果】
【0015】
本発明によれば、一時記録に対して適切なコピー制御がなされる、ディジタル放送送信方法、ディジタル放送受信装置および方法を得ることができる。したがって、コンテンツ供給者の意向を反映させて、受信側でのタイムシフト視聴のような機能を多くの番組で実現しやすくすることができる。
【発明を実施するための最小の形態】
【0016】
以下、この発明の実施形態を図面を用いて説明する。
（実施形態１）
本発明のこの実施形態は、番組配列情報（ディジタルコピー制御記述子）を利用して番組の一時記録の可否情報を伝送し、受信装置では一時記録許可された番組がタイムシフト再生時間の制限を受けるものである。

【0017】
番組配列情報は、PMT（Program Map Table）、EIT（Event Information Table）、SDT（Service Definition Table）のいずれかを用いることができる。

【0018】
図1に、この実施形態によるディジタル放送情報送信装置の基本構成例を示す。
この放送装置は、映像、音声を符号化するMPEG映像符号化器11、MPEG/AC3映声符号化器12とも、符号化された映像、音声をスクリプト処理するスクリプトラ13及びスクリプトプラ17と、映像、音声のスクリプト型発生器14及びスクリプト型発生器18と、スクリプト型を符号化する際に用いるワーク鍵を発生するワーク鍵発生器110と、この発生器の出力を暗号化してEMM（Entitlement Management Message）を生成するEMM生成器111と、スクリプト鍵とワーク鍵から暗号化してECM（Entitlement Control Message）を生成するECM生成器112、ECM生成器119と、一時記録に関する制御情報を定義設定する一時記録制御情報設定器112と、番組関連情報を作成する番組関連情報生成器113と、これらの情報を多重化する多重化器115と、多重化された信号を読み込む符号化器114と、符号化された信号を変調する変調器115とから成る。

【0019】
ディジタル放送番組の映像、音声信号は、それぞれMPEG映像符号化器11、MPEG/AC3映声符号化器12に入力される。映像信号はMPEG映像符号化器11で符号化してスクリプトラ13に出力する。スクリプトラ13では、スクリプト型発生器14から発生したスクリプト型鍵を基に符号化された映像信号にスクリプト処理を施し、多重化器115に出力する。

【0020】
なお、このときスクリプト型発生器14から発生したスクリプト型鍵は、ECM生成器116にも入力され、暗号化してECMを生成し、共通情報として多重化器115に出力される。

【0021】
音声信号についても同様に、スクリプトプラ17を経て多重化器115に出力される。また、このときのスクリプト型鍵は、スクリプト型発生器118で発生したものを利用し、ECM生成器119で暗号化してECMを生成し、同じく多重化器115に出力する。

【0022】
更に、これらのスクリプト型鍵を暗号化する際に用いるワーク鍵はワーク鍵発生器110で発生し、EMM生成器111において暗号化してEMMを生成し、個別情報として多重化器115へ出力される。

【0023】
さて、番組に関する一時記録制御情報は、一時記録制御情報設定器112で設定され、番組関連情報生成器113へ出力する。番組関連情報生成器112ではこの情報やその他の番組関連情報記述子、更にはセクションと呼ばれる伝送フォーマットに変換して、多重化器115へ出力する。

【0024】
ここで、ディジタルコピー制御記述子に上記の一時記録に関するコピー制御情報をも設定（追加定義）した場合の一例を図3に示す。同記述子のディジタルコピー制御情報（2ビット）において、事業者定義に当たる「01」を、「コピー禁止かつ一時記録のみ可」として定義している。

【0025】
また、他の記録に関しては従来の定義と整合性を確保するため、コピー可ならば一時記録
も可、コピー禁止ならび一時記録も不可として解釈するように定義する。
そして、多重化器15では、各入力ストリームにPID（Packet ID）という識別子を
割り当て、188バイトの固定長パケットに分割多重し、トランスポートストリーム（Tr
ansport Stream、以下、TS）としてFEC（誤り訂正）符号化器114に出力する。
【0026】
FEC符号化器114では、入力されるTSをビクビ符号等の疊み込み符号化やRS（
リードソロモン）符号化により符号化して変調器115へ出力する。そして、変調器11
5では例えば、QAMやQPSK等のディジタル変調処理を行い、D／A変換後、高周波
（RF）に変換されて放送信号として出力される。
【0027】
次に、上述の送信装置により送信されたディジタル放送の受信装置（以下、IRD）の
基本構成の一例を図2に示す。
アンテナ端子から入力した高周波のディジタル放送信号は、図示しないチューナを経て
復調器21に入力される。復調器21ではA／D変換した後、例えば、QAMやQPSK
等の送信側でディジタル変調処理された信号を復調し、FEC（誤り訂正）復号化器22
に入力される。
【0028】
FEC復号化器22では、送信側でビクビ符号等の疊み込み符号化やRS（リードソロ
モン）符号化された信号を復号化してデスクランプラー23に出力する。
デスクランプラー23では、指定された番組のスクランプルされた映像や音声の信号を、
スクランプル鍵を基にデスクランプし、セレクタ24を経由してトランスポート処理器
25に出力する。
【0029】
トランスポート処理器25では、TSの形式で多重されてきた、一般には複数のサービス
（放送番組）の中から、リモコンなどの番組選択器26によって指定される所定のサ
ービスを選択してその番組を構成する映像や音声の信号を多重分離し、デパケット処理を
行ってそれぞれの圧縮信号に戻してMPEG映像復号化器27やMPEG／AC3音声復
号化器28に出力する。
【0030】
トランスポート処理器25は、映像、音声と共に多重されているPSI（Program Spec
ific Information）やSI（Service Information）などの番組関連情報も分離して、番
組関連情報再生器29に出力する。
【0031】
そして、MPEG映像復号化器27ではDRAM（図示せず）に復号化された映像フレ
ームを蓄えながら、MPEG2の映像高能率符号化方式で符号化された信号を復号して、
Y、Cb、Crのディジタルのコンポーネント信号として出力し、必要に応じてOSD処理
器210のグラフィック出力と加算器211で重畳処理して出力する。
【0032】
音声についても同様に、MPEG／AC3音声復号化器28において復号化して出力す
る。
なお、このIRDがアナログ出力する場合には、図示していないが加算器211の映像
出力は、例えば、NTSCエンコーダを経てNTSCアナログのコンポジット信号に変換
して出力する。また、MPEG／AC3音声復号化器28の出力は、音声のD／A変換器
に出力しアナログの音声信号として出力する。
【0033】
これらの信号処理を適切に行うため、マイクロコントローラ212が用意され、周辺機
器の支援を行っている。マイクロコントローラ212では、例えば放送番組選択器26な
どからのサービス指定入力に従い、番組関連情報再生器29で再生されるPSIデータを
解析し、指定されたサービス（番組）を構成する映像、音声などの各伝送識別子をトラン
スポーツ処理器25にセットする。
【0034】
また、デスクランプ処理に必要な音声情報を解凍し、このP1Dをデスクランプ23にセットする。更に、MPEG映像復号化器27、MPEG/AC3音声復号化器28、音声関連情報再生器29、OSSD処理器210などの周辺回路の再生動作を制御する。
【0035】
特にOSSD処理器210には、マイクロコントローラ212は、必要に応じ、音声関連情報再生器29で保持管理されるデータを加工編集し、EPG（電子音声ガイド）表示を実行するよう指示する。
【0036】
ところで、このIRDでは記録再生装置213がディジタルインターフェース214を介して接続されている。
リモコンなどの記録番組選択器217に、受信中のディジタル放送の多重信号中からある特定サービスの番組の記録始かが開始されると、この通知を受けたマイクロコン
トローラ212は放送信号のリアルタイム再生の場合と同様に、指定された番組関連情報を解釈し、トランスポート処理器25およびデスクランプ23に各伝送端子を設定する。この結果、トランスポート処理器25では必要な信号を多重分離してディジタルイン
ターフェース214を経由で記録再生装置213へ出力する。
【0037】
なお、DVBでは上記のように番組を選択（複数対）して記録（このストリームをパーシャルTSと呼ぶ）する際には、SMI（Storage Media Interoperability Table）と呼
ぶ音声関連情報をIRDで作成し、上記のS1に代わり使用することを規定している。
【0038】
SMIには、記録選択した番組の情報を記述したSIT（Selection Information Table）と、S1の不連続情報を記述するDIT（Discontinuity Information Table）という2
種類が存在する。
【0039】
SITはSIT作成器221において、選択情報作成器で放送信号中に多重されたS1の中から記録選択された番組もしくはサービスに関する情報のみを抽出・編集して作成され
トランスポート処理器25において記録信号中に多重される。
【0040】
また、DITはDIT作成器222でS1情報が不連続になり得る時点でこれを示すものとしてより記録ストリーム中に抑止される。
再生処理の場合には、セレクタ24および記録番組選択器215はいずれも記録再生処
理側の入力を選択出力する。トランスポート処理器25では、放送受信再生の場合と同様に、TS形式の多重信号の中から、リモコンなどの記録番組選択器216によって指定される所定のサービスを選択してその番組を構成する映像や音声の信号を多重分離し、デバ
ケーション処理を行ってそれぞれの圧縮信号に収めMPEG映像復号化器17やMPEG/AC3音声復号化器28に出力する。また、映像、音声と共に多重されているPSIやS
ITの番組関連情報を分離して番組関連情報再生器29に出力する。
【0041】
ここで、このIRDにおける記録制御処理及び再生制御処理に関して、以下に詳しく説
明する。
記録処理に関して、上記のマイクロコントローラ212は、図4に示すような手順で番
組の記録を制御する。
まず、ステップS41において、記録開始指示を受け付けると、ステップS42においてディジタルコピー制御情報を参照し、ステップS43においてディジタルコピー制御情報の値が「11」（コピー禁止かつ一時記録不可）でなければステ
ッテPステップS44に移動する。
【0042】
ステップS44においてディジタルコピー制御情報が「10」（1世代のみコピー可か
(8) JP 2006-270974 A 2006.10.5

「一時記録は可）であるか検知される。ディジタルコピー制御情報が「10」であれば、ステップS45においてコピー世代管理処理を行い、ステップS46において記録処理を実行する。

【0043】
また、ステップS43において「11」であれば、図3に示すように記録不可を意味するから、ステップS47においてその旨をO.S.D（On Screen Display）表示するなどの記録不可処理を実行する。記録処理は記録停止指示を受け付けるまで実行を続ける。

【0044】
次に、再生処理に関してマイクロコンタオーラ212は、図5に示すような手順で一時記録番組の再生を制御する。まず、ステップ51において、送信装置の間で予め決められたシフト可能時間Smaxを設定する。ステップ52において再生開始指示を受け付ける。そして、ステップ53において現在時刻と放送終了時刻が比較される。

【0045】
ステップ53において、現在時刻が放送終了時刻に達していないならばステップ54に移り、シフト範囲Tと、即ち（現在時刻－放送開始時刻）と（シフト可能時間）が比較されそのうちの小さい方の値が取られる。

【0046】
例えば、シフト可能時間が30分であり、ある番組が9:00P.Mか放送開始し現在9:40P.Mになっているすると、（現在時刻－放送開始時刻）即ち放送経過時間に40分となり、シフト可能時間の方が小さいのでシフト範囲Tは30分となる。

【0047】
次に、ステップ55に移り、現在再生位置が（現在時刻－シフト範囲）以上であるか、検知される。即ち、9:10P.Mから9:40P.Mの範囲で再生できる。したがって、ステップ56に移り9:10P.Mからタイムシフト視聴ができる。

【0048】
一方、ステップ53において、現在時刻が放送終了時刻を過ぎていれば放送が既に終了していることになるから、一時記録はなされず、ステップ57において一時記録データが削除される。

【0049】
以上のように一時記録制御情報を番組配列情報（ディジタルコピー制御記述子）に記載して伝送することで、受信機ではこの情報に従って番組の一時記録の再生制御を行うことができる。

【0050】
この実施形態では、通常ディジタル放送の番組と共に送信される番組配列情報を一時記録制御の情報としても利用するので、新たに信号を付加する必要がない。

（実施形態2）
上記実施形態では、一時記録とは記録が完了する前に再生が始まる場合を意味した。しかし、一時記録はこれだけでなく、再生の有効期限が設定されそれより前に再生する場合が一時記録と解釈される場合もある。次に、この種の実施形態であって限定受信関連情報により一時記録の可否情報な熱伝送する実施形態について説明する。即ち、送信装置から限定受信関連情報を利用して一時記録の可否情報を伝送し、受信装置では一時記録許可された番組が再生有効期限により制限を受ける。

【0051】
この実施形態での送信装置の基本構成の一例を図6に示す。
一時記録制御情報設定器612にて定義設定される一時記録に関する制御情報は、ECMS生成器G6及びECMS生成器G9に出力されている点だが、図1に構成を示した実施形態と異なる。ECMS生成器G6及びECMS生成器G9では、暗号化したスクランブル鍵と共に図7に示すような、一時記録制御を含む1バイトの録画制御情報を設定して多重化器G5に出力する。

【0052】
なおこの例では、一時記録制御情報設定器612にて定義される一時記録に関する制御情報は番組関連情報生成器613に出力していないが、ECMと番組配列情報に番組の一時記録制御情報をそれぞれ適宜設定しても構わない。

また、この受信装置の基本的な構成は、上記の第1の実施例の図2と同様である。
ECMはEMMと共にトランスポート処理器25で多重分離され、共通情報、個別情報として受信機に接続されたICカード（図示せず）に出力される。ICカードでは暗号化されたワーク鍵およびスクランブル鍵を復号し、デスクランブル処理23に設定し、映像、音声等のデスクランブル処理を可能にする。

この実施形態における記録制御の手順を図8に示す。
まず、ステップS81において記録開始の指示を受け付けると、ステップS82でECM受信に基づく契約確認コマンドを発行する。次に、ステップS83においてICカードからのレスポンスを受け取って録画制御情報を参照する。

ステップS84において、上記録画制御情報の値が「0x00」であれば、図7より、録画不可を意味するから、ステップS85に移り録画不可の旨をディスプレイ上に表示するなどの記録不可処理を行う。

ステップS84において、上記録画制御情報の値が「0x00」でなければ、ステップS86に移り、「0x10」であるかどうか検知される。ステップS86において、上記録画制御情報の値が「0x10」であれば、図7より録画可能を意味するから、ステップS87に移って記録処理を行う。

ステップS86において、上記録画制御情報の値が「0x10」でなければ、ステップS88に移り、「0x02」であるかどうか検知される。ステップS88において録画制御情報の値が「0x02」であれば、図7により一時録画可を意味するから、ステップS89に移って一時記録の処理を行う。

ステップS88において、上記録画制御情報の値が「0x02」でなければ、ステップS810に移り、「0x01」であるかどうか検知される。録画制御情報の値が「0x01」であれば図7より、契約者のみ録画可であるから、ステップS811に移り、OSD表示で該当番組を購入するか否かを視聴者に選択入力させる。

このステップS811において、視聴者が購入する旨の入力をした場合にはステップS812に移り、記録処理を行う。視聴者が購入しない場合には、記録処理を行わない。

ステップS810において、上記録画制御情報の値が「0x01」でなければ、ステップS813に移り、「0x03」であるかどうか検知される。録画制御情報の値が「0x03」であれば、ステップS814に移り、OSD表示でその番組を購入するか否かを視聴者に選択入力させる。視聴者がその番組を購入すればステップS815において一時記録処理を行う。視聴者が購入しない場合には、記録処理を行わない。

一方、ステップS813において、上記録画制御情報の値が「0x03」でなければ、ステップS816に移り、「0x04」であるかどうか検知される。録画制御情報の値が「0x04」であれば、図7により、「契約者のみ録画可かつ一時録画可」であるから、ステップS817に移り、OSD表示で番組を購入するか否かを視聴者に選択入力させる。

ステップS817において視聴者が購入する旨入力したら、ステップS818に移り記録処理を行う。購入しなければ一時録画可であるから、ステップS819に移り、一時記録処理を行う。
録処理を行う。ステップ S816 において録画制御情報の値が「0x04」でなければ、図 7 のどれも該当しないので、ステップ S820 に移って所定のエラー処理を実行する。

【0063】
次に、この実施形態における再生制御処理の手順を図 9 を用いて説明する。
まず、ステップ S91 において、送信装置と受信装置の間で予め決められた再生有効期
限を設定する。ステップ S92 において、再生開始の指示を受け付けると、ステップ S93
に移って現在の日時を参照し、次にステップ S94 で現在の日時が再生有効期限に達し
ているかどうか検知される。

【0064】
ステップ S94 において、現在の日時が再生有効期限を過ぎていないことが確認されると、ステップ S95 に移り、再生処理を実行する。
一方、ステップ S94 で現在の日時が再生有効期限を過ぎていることが判明すると、ステ
ップ S96 に移って、当該視聴者が視聴権を更新しているか確認する。ステップ S96 で視
聴権の更新が確認されると、ステップ S97 に移ってその更新内容を参照する。

【0065】
ステップ S97 で更新内容を参照し、ステップ S98 で再生が許されているかどうかを
確認する。再生が可能であることが確認されると、ステップ S99 に移って再生処理を実
行する。

【0066】
ステップ S98 において再生不可であることが確認された場合及び、ステップ S96 に
いて、当該視聴者により更新更新がなされていないことが確認された場合には、いずれ
もステップ S910 に移って、再生できない旨を表示するなどの再生不可処理を実行する。

【0067】
以上この実施形態にて述べたように、一時記録の制御情報を送信装置から受信関連
情報に記載して伝送し、受信装置ではこの制御情報に含まれている一時記録の制
御情報に従って番組の一時記録の再生制御を行うことができる。

【0068】
また、一時記録を再生有効期限を越えない期間での視聴と定義することも可能である。
なお、制限を越えていることにより一旦再生禁止された一時記録番組を、視聴要求を更改
することによって再生できるようにすることも可能である。

【0069】
（実施形態 3）
一時記録は、再生が所定回数以下であることと定義することもできる。また、一時記録
の制御情報は独立に伝送することもできる。
この実施形態では、番組配列情報で記述子を新しく定義して一時記録制御情報を送信装
置から伝送し、受信装置では一時記録許可された番組の再生が所定回数を越えたときに再
生の制限を受ける。

【0070】
送信装置及び受信装置の構成は、それぞれ実施形態の図 1、2 と同様である。
送信側では、図 1 に示した一時記録制御情報設定器 112 の出力を基に番組制御情報を
生成器 113 において、例えば図 10 (a) (b) (c) に示すような記述子を定義、作成
する。

【0071】
作成された記述子は、PMT や EIT などの該当テーブルセクションに記載して、多重
化器 15 に出力される。この新しく定義し作成された記述子をここでは、一時記録制御記
述子と名づける。

【0072】
ここで、図 10 (a) における一時記録制御記述子 temporal_digital_recordability
flagは、一時記録が許されるか否かを表し、例えば図10（a）に示すようにこの1ビットが「0」のとき、一時記録はできず、「1」のとき一時記録が許可される。

【0073】
図10（a）におけるnum_of__replayフィールドは、対象番組が一時記録された場合の再生可能回数（0〜15）であり、送信側で設定される。
図10（a）におけるover__process__controlフィールドは、一時記録番組が上記のように規定したnum_of__replayを超えた際の処理を規定するものであり、やはり送信側で設定される。そして、図10（c）に示すように、この値が「010」である場合には、一時記録番組の再生を時間的に制限することを意味する。したがって、この場合には再生を時間的に制限し、図11に示すような表示制御のパラメータを設定する。

【0074】
図11において、partial__replay__unitは、一時記録番組の番組開始からの部分再生の単位であり、この周期を番組終了まで繰り返す。ここで、partial__replay__on_timeはpartial__replay__unit期間内の表示時間、partial__replay__off_timeはそれに続く非表示時間を規定している。

【0075】
一方、受信側では、一時記録制御記述子を初期にする番組関連情報を図2の番組関連情報再生器29で再生、解析して記録制御する。この手続きを図12に用いて説明する。この場合のディジタルコピー制御情報は「11」の場合を除き、図3に基づいて判断される。

【0076】
まず、ステップS121において記録開始指示を受け付けると、ステップS122においてディジタルコピー制御記述子に記載のディジタルコピー制御情報を参照する。

【0077】
ステップS123において、このディジタルコピー制御情報の値が「11」であるかどうかチェックされる。ステップS123で、ディジタルコピー制御情報の値がコピー禁止を意味する「11」でなければ、ステップS124に移り、この値が「10」であるかどうかチェックされる。

【0078】
ステップS124において、ディジタルコピー制御情報の値が「10」であれば、図3より「1世代のみコピー可」を意味するから、ステップS125においてコピー世代管理の処理が行われ、次にステップS126において記録処理を実行する。

【0079】
一方、ステップS123においてディジタルコピー制御情報の値が「11」であれば、ステップS127において図10（a）における一時記録制御記述子temporal__digital__recordability__flagがチェックされる。

【0080】
ステップS127において一時記録制御記述子temporal__digital__recordability__flagが「1」であれば、ステップS128に移り一時記録処理を実行する。

【0081】
ステップS127において一時記録制御記述子temporal__digital__recordability__flagが「1」でなければ、ステップS129に移って、記録が許されない旨をスクリーン画面上に表示するなどの記録不可処理を実行する。

【0082】
なお、記録処理のルーチンは、記録停止指示を受け付けるまで実行を続ける。
次に、この一時記録の場合の再生制御の手続きを図13により説明する。
まず、ステップS131において一時記録制御記述子のnum_of__replayフィールドで規定される再生可能回数を設定し、ステップS132において再生回数をゼロにリセットしておく。

【0083】
ステップS133において再生開始の指示を受け付けると、ステップS134に移り、
再生回数 RN と再生可能回数 RNmax を比較する。ステップ S134 において、再生回数 RN が再生可能回数 RNmax 以下ならば、ステップ S135 に移り、通常の再生処理を実行し、次にステップ S136 に移り再生回数 RN をインクリメントする。

【0084】
ステップ S134 において、再生回数 RN が再生可能回数 RNmax を超えている場合、ステップ S137 に移り、over_process_controlフィールドの値が「000」かどうかチェックされる。

【0085】
ステップ S137 において、over_process_controlフィールドの値が「000」であった場合には、図10 (c) により、「一時記録番組データの削除」を意味するから、ステップ S138 に移って一時記録データを削除する。

【0086】
一方、ステップ S137 において、over_process_controlフィールドの値が「001」でなかった場合には、ステップ S139 に移り、この値が「001」であるかどうかチェックされる。ステップ S139 において、over_process_controlフィールドの値が「001」である場合には、図10 (c) により、「一時記録番組の再生禁止」を意味するから、ステップ S1310 に移って、再生禁止処理を実行する。

【0087】
ステップ S139 において、over_process_controlフィールドの値が「001」でない場合には、ステップ S1311 に移って、over_process_controlフィールドの値が「010」であるか否かチェックされる。

【0088】
ステップ S1311 において、over_process_controlフィールドの値が「010」であるならば、図10 (c) より「一時記録番組の再生を時間的に制限」を意味するから、ステップ S1312 において、図11のパラメータ設定に従って番組に部分再生を実行し、効果制御を実現する。即ち、所定時間毎に画面を再生することになり、視聴者に再び契約して完全な再生画像を見たい気を起こさせる。

【0089】
なお、この例では時間的な部分再生を例に説明したが、空間的に再生を制限する、即ち画面の一部のみを見ることができるようしたり、解像度に制限を加えておけば再生するようにしてもよい。

【0090】
この実施形態では、送信側から一時記録制御情報を記録子を定義して番組配列情報を記載して送信し、受信装置ではこの情報に従って番組の一時記録再生制御を行うことができる。この実施形態では、再生回数の制限を越えた場合に効果制御を行うこともできる。

【0091】
以上説明したように、一時記録は、記録が終了する以前の時点で再生すること、再生有効期限以前に再生すること、あるいは再生が所定回数以下の場合であることなどと定義することができる。

【0092】
また、この一時記録の制御情報は、ディジタル放送の番組の記録に関して制御を行う情報に加えて意味付けて送信することもでき、また限定受信されるディジタル放送の番組の記録に関して制御を行う情報に加えて意味付けて送信することもできるし、一時記録の記録制御情報として独立して送信することもできる。この一時記録制御情報の送る方法と前記一時記録の定義とは全く独立に選択できる。

【0093】
通常、一時記録はどのような場合であるか、送信及び受信装置間で予め取り決めておくことも、あるいはその定義を制御情報に先だって送信者から受信側に送ることもできる。また、一時記録の制御情報が送られてこない場合には、どのように解釈するか前もって決めておくこともできる。
【図面の簡単な説明】

【0 0 9 4】

【図1】本発明の一実施形態における送信装置の構成例を示す図。
【図2】本発明の一実施形態における受信装置の構成例を示す図。
【図3】本発明の一実施形態におけるディジタルコピー制御情報の意味の一例を説明するための図。
【図4】本発明の一実施形態における記録制御の解釈手順を説明するための図。
【図5】本発明の一実施形態における再生制御の解釈手順を説明するための図。
【図6】本発明の他の実施形態における送信装置の構成例を示す図。
【図7】本発明の他の実施形態における記録制御情報の意味の一例を説明するための図。
【図8】本発明の他の実施形態における記録制御の解釈手順を説明するための図。
【図9】本発明の他の実施形態における再生制御の解釈手順を説明するための図。
【図10】本発明の更に他の実施形態における一時記録制御記述子の構造の一例を説明するための図。
【図11】本発明の更に他の実施形態における時間的な部分再生を説明するための図。
【図12】本発明の更に他の実施形態における記録制御の解釈手順を説明するための図。
【図13】本発明の更に他の実施形態における再生制御の解釈手順を説明するための図。
【図14】従来のディジタルコピー制御記述子のシナクス構造の一例を説明するための図。
【図15】従来のディジタルコピー制御情報の一例を説明するための図。
【図16】従来の設定受信再生の録画制御情報の一例を説明するための図。
【図17】従来のタイムシフト視聴を説明するための図。
【符号の説明】

【0 0 9 5】

1 1, 6 1 ... MPEG映像符号化器、1 2, 6 2 ... MPEG/AC 3 音声符号化器、1 3, 6 3, 6 7 ...スクランブル、1 4, 6 4, 6 8 ...スクランブル録発生器、1 5, 6 5 ...多重化器、1 6, 6 6, 6 9 ...ECM生成器、2 1 ...復調器、2 2 ...FEC復調器、2 3 ...デスクランブル、2 4 ...セレクタ、2 5 ...トランスポート処理器、2 6 ...放送番組選択器、2 7 ...MPEG映像復調器、2 8 ...MPEG/AC 3 音声復調器、2 9 ...番組関連情報再生器、1 1 0, 6 1 0 ...ワーク鍵発生器、1 1 1, 6 1 1 ...ECM生成器、1 1 2 ...一時記録制御情報設定器、1 1 3 ...番組関連情報生成器、1 1 4, 6 1 4 ...FEC符号化器、1 1 5 ...変調器、2 1 0 ...OSD処理器、2 1 1 ...加算器、2 1 2 ...マイクロコントローラ、2 1 3 ...記録再生装置、2 1 4 ...ディジタルインタフェース、2 1 6 ...再生番組選択器、2 2 1 ...SIT作成器、2 2 2 ...D I T作成器。
【図14】

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This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

**New Applications Under 35 U.S.C. 111**

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

**National Stage of an International Application under 35 U.S.C. 371**

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

**New International Application Filed with the USPTO as a Receiving Office**

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.
IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of Seong OH and Eun-Kyung KWAK  
Confirmation No.: 8284

Group Art Unit: 2621

Serial No.: 11/872,132  
Examiner: Thai Q. TRAN

Filed: October 15, 2007  
Customer No.: 34610

For: DIGITAL BROADCASTING RECEIVER FOR PROGRAMMING RECORDING OF BROADCASTING PROGRAM AND METHOD THEREOF

INFORMATION DISCLOSURE STATEMENT

U.S. Patent and Trademark Office  
Customer Service Window  
Randolph Building  
401 Dulany Street  
Alexandria, Virginia 22314

Sir:

Pursuant to 37 C.F.R. § 1.56, the attention of the Patent and Trademark Office is hereby directed to the references listed on the attached PTO-1449. One copy of each non-U.S. reference is attached. It is respectfully requested that the information be expressly considered during the prosecution of this application, and that the reference(s) be made of record therein and appear among the “References Cited” on any patent to issue therefrom.

Applicants have listed publication dates on the attached PTO-1449 based on information presently available to the undersigned. However, the listed publication dates should not be construed as an admission that the information was actually published on the indicated date. Applicant reserves the right to establish the patentability of the claimed invention over any of the information provided herewith, and/or to prove that this information may not be prior art, and/or to prove that this information may not be enabling for the teachings purportedly offered. This statement should not be construed as a representation that a search has been made, that information cited in the statement is considered to be and/or is material to patentability, or that information more material to the examination of the present patent application does not exist. The Examiner is specifically requested not to rely solely on the material submitted herewith. It is further understood that the Examiner will consider information that was cited or submitted to the U.S. Patent and Trademark Office in a prior application relied on under 35 U.S.C. §120. 1138 OG 37, 38 (May 19, 1992).

1. This Information Disclosure Statement is being filed (i) within three months of the U.S. filing date of a U.S. application other than a CPA continued prosecution application under §1.53(d) OR (ii) within three months of the date of entry of the national stage as set forth in §1.491 in an international application OR (iii) before the mailing date of a first Office Action on the merits OR (iv) before the mailing of a first Office Action after the filing of a Request for continued examination under §1.114. No certification or fee is required. 37 C.F.R. §1.97(b).

☐ 2. This Information Disclosure Statement is being filed more than three months after the U.S. filing date AND after the mailing date of the first Office Action on the merits, but before the mailing date of a Final Rejection OR Notice of Allowance OR an action that otherwise closes prosecution in the application. 37 C.F.R. §1.97(c).

☐ a. I hereby state that each item of information contained in this Information Disclosure Statement was first cited in a communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of this Information Disclosure Statement. 37 C.F.R. §1.97(e)(1). No fee is required.
b. I hereby state that no item of information in this Information Disclosure Statement was cited in a communication from a foreign patent office in a counterpart foreign application and, to my knowledge after making reasonable inquiry, was known to any individual designated in 37 C.F.R. §1.56(c) more than three months prior to the filing of this Information Disclosure Statement. 37 C.F.R. §1.97(e)(2).

c. Attached is our check no. ______ in the amount of $180.00 in payment of the fee under 37 C.F.R. §1.17(p). Please credit or debit Deposit Account No. 16-0607 as needed to ensure consideration of the disclosed information. Two duplicate copies of this paper are attached.

d. Please charge our Credit Card in the amount of $180.00 in payment of the fee under 37 C.F.R. §1.17(p) per the attached PTO 2038 form. Please credit or debit Deposit Account No. 16-0607 as needed to ensure consideration of the disclosed information. Two duplicate copies of this paper are attached. 37 C.F.R. §1.97(d).

3. This Information Disclosure Statement is being filed after the mailing date of a Final Rejection OR Notice of Allowance OR an action that otherwise closes prosecution in the application, but on or before payment of the Issue Fee.

a. Attached is our check no. ______ in the amount of $180.00 in payment of the fee under 37 C.F.R. §1.17(p). Please credit or debit Deposit Account No. 16-0607 as needed to ensure consideration of the disclosed information. Two duplicate copies of this paper are attached. 37 C.F.R. §1.97(d).

b. Please charge our Credit Card in the amount of $180.00 in payment of the fee under 37 C.F.R. §1.17(p) per the attached PTO 2038 form. Please credit or debit Deposit Account No. 16-0607 as needed to ensure consideration of the disclosed information. Two duplicate copies of this paper are attached. 37 C.F.R. §1.97(d).

c. I hereby state that each item of information contained in this Information Disclosure Statement was first cited in a communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of this Information Disclosure Statement. 37 C.F.R. §1.97(e)(1).

d. I hereby state that no item of information in this Information Disclosure Statement was cited in a communication from a foreign patent office in a counterpart foreign application or, to my knowledge after making reasonable inquiry, was known to any individual designated in 37 C.F.R. §1.56(c) more than three months prior to the filing of this Information Disclosure Statement. 37 C.F.R. §1.97(e)(2).


5. To the extent necessary, a petition for an extension of time under 37 C.F.R. §1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 16-0607 and please credit any excess fees to such deposit account.

Respectfully submitted,
KED & ASSOCIATES, LLP

Daniel Y.I. Kim
Registration No. 36,186
Title: DIGITAL BROADCASTING RECEIVER FOR PROGRAMMING RECORDING OF BROADCASTING PROGRAM AND METHOD THEREOF

Publication Date: 08/21/2008

NOTICE OF PUBLICATION OF APPLICATION

The above-identified application will be electronically published as a patent application publication pursuant to 37 CFR 1.211, et seq. The patent application publication number and publication date are set forth above.

The publication may be accessed through the USPTO's publically available Searchable Databases via the Internet at www.uspto.gov. The direct link to access the publication is currently http://www.uspto.gov/patft/.

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In addition, information on the status of the application, including the mailing date of Office actions and the dates of receipt of correspondence filed in the Office, may also be accessed via the Internet through the Patent Electronic Business Center at www.uspto.gov using the public side of the Patent Application Information and Retrieval (PAIR) system. The direct link to access this status information is currently http://pair.uspto.gov/. Prior to publication, such status information is confidential and may only be obtained by applicant using the private side of PAIR.

Further assistance in electronically accessing the publication, or about PAIR, is available by calling the Patent Electronic Business Center at 1-866-217-9197.

Office of Data Management, Application Assistance Unit (571) 272-4000, or (571) 272-4200, or 1-888-786-0101
Docket No.: EZ-0003

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of Seong OH and Eun-Kyung KWAK

Confirmation No.: 8284

Group Art Unit: 2621

Serial No.: 11/872,132

Examiner: To Be Assigned

Filed: October 15, 2007

Customer No.: 34610

For: DIGITAL BROADCASTING RECEIVER FOR PROGRAMMING RECORDING OF BROADCASTING PROGRAM AND METHOD THEREOF

INFORMATION DISCLOSURE STATEMENT

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401 Dulany Street
Alexandria, Virginia 22314

Sir:

Pursuant to 37 C.F.R. § 1.56, the attention of the Patent and Trademark Office is hereby directed to the references listed on the attached PTO-1449. One copy of each reference is attached. It is respectfully requested that the information be expressly considered during the prosecution of this application, and that the reference(s) be made of record therein and appear among the “References Cited” on any patent to issue therefrom.

Applicants have listed publication dates on the attached PTO-1449 based on information presently available to the undersigned. However, the listed publication dates should not be construed as an admission that the information was actually published on the indicated date. Applicant reserves the right to establish the patentability of the claimed invention over any of the information provided herewith, and/or to prove that this information may not be prior art, and/or to prove that this information may not be enabling for the teachings purportedly offered. This statement should not be construed as a representation that a search has been made, that information cited in the statement is considered to be and/or is material to patentability, or that information more material to the examination of the present patent application does not exist. The Examiner is specifically requested not to rely solely on the materials submitted herewith. It is further understood that the Examiner will consider information that was cited or submitted to the U.S. Patent and Trademark Office in a prior application relied on under 35 U.S.C. § 120. 1138 OG 37, 38 (May 19, 1992).

☐ 1. This Information Disclosure Statement is being filed (i) within three months of the U.S. filing date of a U.S. application other than a CPA continued prosecution application under § 1.53(d) OR (ii) within three months of the date of entry of the national stage as set forth in § 1.491 in an international application OR (iii) before the mailing date of a first Office Action on the merits OR (iv) before the mailing of a first Office Action after the filing of a Request for continued examination under § 1.114. No certification or fee is required. 37 C.F.R. § 1.97(b).

☐ 2. This Information Disclosure Statement is being filed more than three months after the U.S. filing date AND after the mailing date of the first Office Action on the merits, but before the mailing date of a Final Rejection OR Notice of Allowance OR an action that otherwise closes prosecution in the application. 37 C.F.R. § 1.97(c).

☐ a. I hereby state that each item of information contained in this Information Disclosure Statement was first cited in a communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of this Information Disclosure Statement. 37 C.F.R. § 1.97(e)(1). No fee is required.
b. I hereby state that no item of information in this Information Disclosure Statement was cited in a communication from a foreign patent office in a counterpart foreign application and, to my knowledge after making reasonable inquiry, was known to any individual designated in 37 C.F.R. §1.56(c) more than three months prior to the filing of this Information Disclosure Statement. 37 C.F.R. §1.97(e)(2).

c. Attached is our check no. _____ in the amount of $180.00 in payment of the fee under 37 C.F.R. §1.17(p). Please credit or debit Deposit Account No. 16-0607 as needed to ensure consideration of the disclosed information. Two duplicate copies of this paper are attached.

d. Please charge our Credit Card in the amount of $180.00 in payment of the fee under 37 C.F.R. §1.17(p) per the attached PTO 2038 form. Please credit or debit Deposit Account No. 16-0607 as needed to ensure consideration of the disclosed information. Two duplicate copies of this paper are attached.

3. This Information Disclosure Statement is being filed after the mailing date of a Final Rejection OR Notice of Allowance OR an action that otherwise closes prosecution in the application, but on or before payment of the Issue Fee.

a. Attached is our check no. _____ in the amount of $180.00 in payment of the fee under 37 C.F.R. §1.17(p). Please credit or debit Deposit Account No. 16-0607 as needed to ensure consideration of the disclosed information. Two duplicate copies of this paper are attached. 37 C.F.R. §1.97(d).

b. Please charge our Credit Card in the amount of $180.00 in payment of the fee under 37 C.F.R. §1.17(p) per the attached PTO 2038 form. Please credit or debit Deposit Account No. 16-0607 as needed to ensure consideration of the disclosed information. Two duplicate copies of this paper are attached. 37 C.F.R. §1.97(d).

c. I hereby state that each item of information contained in this Information Disclosure Statement was first cited in a communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of this Information Disclosure Statement. 37 C.F.R. §1.97(e)(1).

d. I hereby state that no item of information in this Information Disclosure Statement was cited in a communication from a foreign patent office in a counterpart foreign application or, to my knowledge after making reasonable inquiry, was known to any individual designated in 37 C.F.R. §1.56(c) more than three months prior to the filing of this Information Disclosure Statement. 37 C.F.R. §1.97(e)(2).

4. The references were cited in a corresponding Korean application. A copy of the Office Action issued by the Korean Intellectual Property Officedated March 24, 2008 is attached for the Examiner’s information. An English language version of the Office Action is not currently available.

5. To the extent necessary, a petition for an extension of time under 37 C.F.R. §1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 16-0607 and please credit any excess fees to such deposit account.

Respectfully submitted,
KED & ASSOCIATES, LLP

Daniel Y.J. Kim
Registration No. 36,186
# LIST OF ART CITED BY APPLICANT

**PTO-1449**

**Applicant(s):** Seong OH and Eun-Kyung KWAK

**Filing Date:** October 15, 2007

## U.S. Patent Documents

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## U.S. Patent Application Publications

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## Other Art (Including Author, Title, Date, Pertinent Pages, Publisher, Place of Publication, Etc.)


**Examiner:**

**Date Considered:**
RESERVATION RECORD METHOD

Abstract:

PURPOSE: A reservation record method is provided to perform reservation record using EPG (Electronic Program Guide) information and progress the reservation record although current times transmitted from respective broadcasting stations differ. CONSTITUTION: EPG information or a time and channel is directly inputted, and reservation record is set up. The failure, re-setup and change item of the reservation record are judged according as a current time is changed, and it is judged whether it is possible to execute the reservation record (S210, S230, S240, S260). If it is impossible to execute the reservation record, the impossibility of the reservation record is informed to a user and the reservation record is cancelled (S220, S250, S270). If it is possible to execute the reservation record, the reservation record is executed in a recording medium (S280, S290).

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(12) 공개특허공보 (A)

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(74) 대리인 허용복

접수정구 : 없음

(54) 예약녹화 방법

요약
본 발명은 디지털 방송을 수신하여 녹화/재생할 수 있는 기기에서의 예약녹화 방법에 관한 것으로서 특히, AV신호와 함께 수신되는 현재시간 정보와 방송정보 (EPG)를 활용한 예약녹화 방법에 관한 것이다.

본 발명에 따른 예약녹화 방법은 EPG정보 또는 시간과 채널을 직접 입력하여 예약녹화를 설정하는 단계와, 현재시간이 변경되는 경우에 현재시간의 변경에 따라 예약녹화의 실패, 예약녹화의 재설정, 예약녹화의 변경사항 없음을 판단하여 녹화의 실행 가능성을 여부를 판단하는 예약녹화의 자가진단 단계와, 예약녹화가 불가능한 경우에는 사용자에게 알리고 예약녹화를 취소하고 예약녹화가 가능한 경우에는 저장매체에 녹화를 실행하는 예약녹화 실행단계가 포함되는 것을 특징으로 한다.

대표도

도 2
색인어

예약녹화, EPG

영세서

도면의 간단한 설명

도 1은 본 발명에 따른 예약 녹화 설정과정의 일시시 예를 설명하는 도면.

도 2는 본 발명에 따른 예약녹화 설정과정의 일시시 예를 설명하는 도면.

도 3은 본 발명에 따른 예약녹화 기능을 위해 필요한 모들을 설명하는 도면.
발명의 성질

발명의 목적

발명이 속하는 기술 및 그 분야의 종래기술

본 발명은 디지털 방송을 수신하여 녹화/재생할 수 있는 기기에서의 예약녹화 방법에 관한 것으로서 특히, AV신호와 함께 수신되는 현재시간 정보와 방송정보 (EPG)를 활용한 예약녹화 방법에 관한 것이다.

현재 각 방송사들은 디지털 방송의 시험단계를 거쳐 본 방송을 시작하는 단계에 있으며, 고화질의 방송 신호와 더불어 EPG (Electronic Program Guide)와 같은 데이터 방송의 보급이 현실화되고 있다.

이러한 부가적인 정보는 다양한 목적으로 사용될 수 있는데, 예를들어 현재 진행중인 방송 혹은 앞으로 방송될 프로그램의 상세 정보를 전사하거나 시청을 원하는 방송이 시작되는 시점에 TV가 자동으로 커지게 하거나, 재생이 자동적으로 전환되는 기능을 지원하게 할 수 있다.

특히, EPG 정보를 이용한 예약녹화 기능은 PVR (Personal Video Recorder)의 기본 기능으로 제공될 것이다.

종래의 예약녹화 방법은 사용자가 먼저 현재시간을 설정한 후 예약녹화를 원하는 채널과 녹화시작과 끝시간을 입력해야 하는 불편함이 있다.

또한, 전원이 오프 되는 경우에 현재시간을 때때 입력해야 하고 예약 녹화를 한 경우 녹화의 성공과 실패 여부를 미리 알 수 있는 방법이 없는 문제점이 있다.

발명의 이루고자 하는 기술적 과제

본 발명은 상기한 문제점을 해결하기 위한 것으로 EPG 정보를 이용하여 예약녹화가 가능하도록 하고, 각 방송사가 전송하는 현재시간이 각각 다름에도 불구하고 예약녹화가 진행되도록 하는 목적이 있다.

또한, 방송신호가 수신되는 경우와 수신되지 않는 경우를 구분하여 방송신호가 수신되지 않는 경우에 녹화를 하지 않거나 신호가 있는 부분만 선택하여 녹화가 가능하도록 하는데 그 목적이 있다.

또한, 예약 녹화시 기기장치에 낭비있는 녹화가능 용량 및 신호없음 등 가진 장단을 통한 녹화 실행에 문제가 있는 지 미리 파악하고 예약 녹화의 진행 또는 실패요인을 사용자에게 미리 알려주는 방법을 제시하는데 그 목적이 있다.

발명의 구성 및 작용

본 발명에 따른 예약녹화 방법은 EPG 정보 또는 시간과 채널을 직접 입력하여 예약녹화를 확인하는 단계와, 현재시간이 변경된 경우에 현재시간의 변경에 따라 예약녹화의 실패, 예약녹화의 제생성, 예약녹화의 변경사항 없음을 판단하여 녹화의 실행 가능성 여부를 판단하는 예약녹화의 초기진단 단계와, 예약녹화가 불가능한 경우에는 사용자에게 알리고 예약녹화를 취소하고 예약녹화가 가능한 경우에는 저장매체에 녹화를 실행하는 예약녹화 실행단계가 포함되는 것을 특징으로 한다.

또한, 상기 자기진단 단계는 방송신호의 유무, 녹화가능한 공간의 유무, 녹화기능의 장애 유무, 녹화가능한 목록의 초과여부를 판단하는 것을 특징으로 한다.

또한, 상기 예약녹화 실행단계는 사용자의 예약녹화 설정에 따라 예약녹화 모듈이 예약녹화의 시작/종료를 타이머 모듈에 입력하고, 타이머 모듈에서는 입력된 시간에 따라 예약녹화 이벤트를 발생시켜 예약녹화 모듈이 녹화의 시작/종료를 제어하도록 하는 것을 특징으로 한다.

먼저 본 발명이 실시되기 위해서는 내/외장된 저장장치를 이용해 방송을 저장/재생 할 수 있는 장치 (PVR)가 있어야 하며 각 방송사는 EPG 정보를 포함하는 방송을 실시간으로 송신하여야 한다.
또한, 디지털 방송을 저장/재생 할 수 있는 장치는 대기상태에서 예약녹화 시작시간이 되면 자동으로 전원을 켜 수 있는 기능이 있어야 하고 전원의 온/오프에도 불구하고 예약녹화 설정 내용을 저장/복구할 수 있는 기록장치가 있어야 한다.

또한, 예약녹화 모들은 채널의 전환, 예약녹화 시작과 종료를 내부적으로 제어 가능하여야 한다.

이하, 참조될 도면을 참조하여 본 설명에 따른 디지털 방송에서의 예약 녹화 방법에 대해 상세히 설명하도록 한다.

도 1은 본 설명에 따른 예약녹화 실행과정의 일시시표를 설명하는 도면이다.

도 1을 참조하면, 예약녹화의 설정은 EPG를 통한 설정(S100)과 시간과 채널을 직접입력(S110)하는 두가지 방법으로 가능하다. 두가지 방법 모두 예약이 설정된 후에는 설정 방법에 상관없이 설정된 시간과 채널 정보를 이용하여 예약녹화가 진행된다.

EPG를 통한 설정은 방송국 또는 EPG전송업체에서 보내주는 정보를 이용하여 녹화한 채널, 제작시간과 끝시간을 알 아내고 직접 예약녹화를 설정하는 경우에는 사용자가 예약녹화 시작시간과 끝시간, 채널 그리고 반복녹화 여부를 직접 입력한다.

반복녹화의 경우에는 매일, 매주, 일~화, 수~목, 월~금과 같이 시리즈로 반영되는 프로그램에 따라 다양한 선택이 가능하다.

반복 예약녹화 설정시 기준에 설정한 예약녹화 목록과 중복이 발생되는 경우(S120)에는 사용자에게 중복된 사실을 알려주고 하나의 목록을 삭제하거나 변경하도록 한다.(S130)

또한, 방송신호가 수신되지 않거나(S160) 녹화가능한 저장공간이 없는 경우, 녹화기능에 문제가 발생하는 경우, 녹화 가능한 목록 개수가 초과되는 경우, 현재 시간이 예약녹화 설정시간보다 미래로 변경되는 경우(S140)에는 자동 전환을 통하여 예약녹화 설정이 실패된 것을 확인하고 사용자에게 이 사실을 통보하게 된다.(S150)(S170)

상기 예약녹화 설정의 자가 전환에 대해 보다 상세히 설명하면, 방송신호가 없는 경우에는 예약녹화 설정이 종료될 시간까지 기기 내부적으로 예약녹화를 제시하여 신호가 없는 부분만이라도 녹화를 진행하고, 예약녹화를 시작해야 할 시점에 녹화 기능에 문제가 발생되거나 녹화 가능한 저장 공간이 없는 경우 또는 녹화 가능한 목록의 개수가 초과된 경우에는 사용자에게 이러한 사실을 통보하고 녹화를 취소한다.

특정한 시간에 예약녹화 설정후에 현재 시간이 예약녹화 시간보다 미래로 변경된 경우에는 시간 설정 문제로 녹화가 실패하였다고 사용자에게 통보하고, 현재시간이 과거로 변경된 경우에는 예약녹화 설정에 변화가 없다.

매일 또는 매주와 같이 반복으로 예약녹화를 설정한 경우에 현재시간이 기준에 설정된 예약녹화 시간보다 미래로 변경된 경우에는 변경된 시간에 가장 가까운 미래의 예약녹화 시간에 맞춰 예약녹화를 재설정한다.

도 2는 본 설명에 따른 예약녹화 실행과정의 일시시표를 설명하는 도면이다.

도 2를 참조하면 예약녹화가 설정이 되면 예약녹화를 설정한 방면에 상관없이 예약녹화는 시간, 채널, 반복녹화 여부에 따라 진행되는데, 예약녹화가 진행되기 1분전에 온 예약녹화를 시작한다는 메시지가 화면에 표시된다.(S200)

그리고, 예약녹화의 취소 여부를 확인한 후(S210) 예약녹화를 취소하거나 예약녹화를 진행한다.(S220)(S230).

예약녹화 시간이 되고 녹화가 시작되기 앞서서 저장공간이 있는지 여부를 체크하게 되는데 저장공간이 부족한 경우에는 예약녹화의 진행이 실패되고 실패원인 을 사용자에게 표시한다.(S240)(S250)(S270)

또한, 녹화 중 녹화 기능에 문제가 발생되는 경우에도 녹화가 실패되고 실패원인을 사용자에게 표시한다.(S260)(S250)(S270)

녹화에 문제가 없는 경우에는 TV모드로 전환한 후 예약녹화 채널로 변경한 후 녹화를 시작하게 된다.(S280)(S290)

예약녹화가 종료되면(S300) 예약녹화 시작시 전원의 온/오프 상태를 판단하여(S310) 예약녹화 시작시의 상태로 전원을 온/오프 한다.(S320)(S330)

도 3은 본 설명에 따른 예약녹화 기능을 위해 필요한 모듈을 설명하는 도면이다.
예약녹화 기능을 위해 필요한 모듈은 크게 타이머 모듈과 예약녹화 모듈, 저장매체가 포함되는데, 사용자가 예약녹화 모듈에 예약녹화를 설정하고 예약녹화 모듈은 타이머 모듈에 예약녹화 시작시간을 등록한다.

예약녹화 시작시간이 되면 (에뮬러이 시작시간 1분전) 타이머 모듈은 예약녹화 모듈에 예약녹화 이벤트를 전송하고 예약녹화 모듈은 저장매체에 녹화를 시작하게 된다.

또한, 예약녹화 모듈은 예약녹화 종료시간을 타이머 모듈에 등록하고 타이머 모듈은 예약녹화의 종료시간이 된 경우 예약녹화 모듈에 예약녹화 이벤트를 전송하고 저장매체 녹화가 종료되도록 한다.

상기와 같이 예약녹화 모듈은 타이머 모듈에서 전송되는 예약녹화 이벤트를 구별하여 예약녹화의 시작 또는 예약녹화가 종료되도록 한다.

세트톱박스(Settop box)의 내부에 전원공급장치와 시계 모듈이 존재하는 경우에는 방송국에서 EPG정보와 함께 보내어 지는 현재시간 정보를 무시하고 내부시계를 이용하여 예약녹화를 실행할 수 있으며, 방송국에서 보내주는 현재시간 정보를 이용할 수도 있다.

그러나, 각각의 채널이 별개의 현재시간 정보를 갖고 있기 때문에 채널이 변경될 때마다 현재시간 설정이 변경될 수 있으며, 사용자가 직접 현재시간을 변경할 수도 있다.

현재시간 변경에 따른 문제점은 예약녹화 시작을 위해 설정된 채널로 전환한 후 현재시간이 변경되어 녹화가 즉시 종료되거나 설정된 날짜가 많아지므로 시간동안 녹화를 하는 경우이다.

따라서, 녹화중에는 현재시간이 변경될 수 없도록 하여 예약녹화를 시작하기 위해 채널이 변경되거나 대기 상태에서 전원을 켜 경우에는 현재시간이 변경되지 않도록 한다.

본 발명은 디지털 방송 뿐만아니라 아날로그 방송에서도 EPG정보를 수신할 수 있는 환경과 녹화/재생 기능을 가진 기기들에서도 이와같은 예약녹화 기능을 제공할 수 있다.

발명의 효과

본 발명은 예약녹화 설정을 편리하게 할 수 있으며 디지털 방송의 장점을 이용해 예약녹화 실행여부와 예약녹화가 실패했을 때 그 원인을 사용자에게 알려주어 사용자가 쉽게 예약녹화를 동작할 수 있는 효과를 볼 수 있다.

(57) 정구의 범위

청구항 1.

EPG 정보 또는 시간과 채널을 직접 입력하여 예약녹화를 설정하는 단계와.

현재시간이 변경된 경우에 현재시간의 변경에 따라 예약녹화의 실행, 예약녹화의 재설정, 예약녹화의 변경사항 없음을 판단하여 녹화의 실행 가능성 여부를 판단하는 예약녹화의 자기진단 단계와,

예약녹화가 불가능한 경우에는 사용자에게 알리고 예약녹화를 취소하고 예약녹화가 가능한 경우에는 저장매체에 녹화를 실행하는 예약녹화 실행단계가 포함되는 것을 특징으로 하는 예약녹화 방법.

청구항 2.

제 1항에 있어서,

예약녹화의 자기진단 단계는 방송신호의 유무, 녹화가능한 공간의 유무, 녹화가능의 장점 유무, 녹화가능한 목록의 조건여부를 판단하는 것을 특징으로 하는 예약녹화 방법.

청구항 3.

제 1항에 있어서,

상기 예약녹화 실행단계는 사용자의 예약녹화 설정에 따라 예약녹화 모듈이 예약녹화의 시작/종료를 타이머 모듈에 입력하고, 타이머 모듈에서는 입력된 시간에 따라 예약녹화 이벤트를 발생시켜 예약녹화 모듈의 녹화의 시작/종료를
제어하도록 하는 것을 목적으로 하는 예약녹화 방법.

도면 1

생성, 시간설정 예약녹화설정

사건중복?
예 → EPG 예약녹화실패

아니오

사건시간알림?
예 → EPG 예약녹화실패

아니오

방송신호가 존재하는 채널?
예 → EPG 예약녹화실패

아니오 → 

예약녹화설정 성공

$S_{100}$ $S_{110}$ $S_{120}$ $S_{130}$ $S_{140}$ $S_{150}$ $S_{160}$ $S_{170}$ $S_{180}$
(54) METHOD FOR RECORDING PROGRAM AND METHOD FOR RECORDING AND PLAYING SUMMARIZED PROGRAM

(57) Abstract:

PURPOSE: A method for recording a program and a method for recording and playing a summarized program are provided to increase users' convenience by easily recording a repetitively broadcasted program and increase the efficiency of a recording medium. CONSTITUTION: A user sets up a program to be recorded through a user input or by using a specific guide(200). The user confirms a previously recorded program using a specific descriptor (201). It is judged whether the program is recorded in a consecutive recording mode(202). If so, program consecutive recording information is generated(203). The program is recorded after the previously recorded program(204). It is judged whether the program is recorded in a repetitive recording mode(205). If so, program repetitive information is generated(206). The previously recorded program is deleted, and the program is recorded at the deleted part(207).

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(54) 프로그램 녹화 방법 및 요약 녹화/재생 방법

요약
본 발명은 디지털 텔레비전에 관한 것으로, 보다 상세하게는 반복되어 방송되는 프로그램에 대한 녹화 방법 및 녹화 프로그램에 대한 요약 녹화/재생 방법에 관한 것이다. 프로그램 녹화 방법은 프로그램 녹화 방법에 있어서, (a) 녹화할 프로그램을 설정하고 녹화 모드를 설정하는 단계; 및 (b) 상기 설정된 녹화모드 중 연속 녹화 모드에 대해 이전에 녹화된 동일 프로그램 이후에 상기 프로그램을 녹화하거나, 상기 설정된 녹화모드 중 반복 녹화 모드에 대해 이전에 녹화된 동일 프로그램을 삭제한 부분에 상기 프로그램을 녹화하는 단계를 포함한다. 본 발명에 따르면, 반복되어 방송되는 프로그램에 대한 녹화를 쉽게 할 수 있어 사용자의 편의성이 증가되고, 이전에 녹화된 것을 자동으로 삭제하고 녹화하므로 저장 매체의 효율성을 높일 수 있으며, 인덱스 파일을 지원하여 사용자가 요약된 내용만을 보고 원하는 프로그램 위치로 이동할 수 있어 녹화물에 대한 사용자의 선택이 용이해지는 효과를 창출한다.

대표도

도 2

명세서

도면의 간단한 설명

도 1은 프로그램 녹화/재생 장치의 구성도를 보이는 플록도 이다.

도 2는 본 발명에 따른 프로그램 녹화 방법의 동작을 보이는 흐름도 이다.

도 3은 본 발명에 따른 요약 녹화/재생 방법의 동작을 보이는 흐름도 이다.

발명의 상세한 설명
발명의 목적

발명이 속하는 기술 및 그 분야의 증대기술

본 발명은 디지털 텔레비전에 관한 것으로, 보다 상세하게는 반복되어 방송되는 프로그램에 대한 녹화 방법 및 녹화 프로그램에 대한 요약 녹화/재생 방법에 관한 것이다.

현재 일반적으로 사용되는 비디오카세트 테이프 레코더(Video Cassette Tape Recorder : VCR)는 비디오 테이프 등과 같은 정보 기록 매체의 영상 정보 기록면에 기록된 영상 정보를 녹화하여 비디오 신호로서 텔레비전의 CRT 상에 영상 출력되도록 하는 영상 재생 동작을 수행한다.

또한, 소정 채널의 텔레비전 방송 프로그램에 따른 텔레비전 방송 신호를 임의로 받아 영상 신호처리 및 음성 신호 처리한 다음에 녹화 헤드의 녹화 동작을 통해 비디오 테이프 등과 같은 정보 기록 매체 상에 그 영상 신호와 음성 신호가 기록되도록 하는 영상 녹화 동작도 아울러 수행하고 있다.

이러한 영상 재생 기능 및 영상 녹화 기능을 구비하는 VCR은 사용자가 부재 시에 사용되는 소정 채널의 텔레비전 방송 프로그램을 시청하고자 하는 경우에 리모컨이나 그 VCR의 제어 페널에 구비된 키 메트릭스의 키 입력 동작을 통해 시청하고자 하는 텔레비전 방송 프로그램의 채널 번호와 예약 날짜 및 예약 시간을 설정하게 되면, 설정된 예약 날짜와 예약 시간이 경과함에 따라 소정 채널의 방송하는 텔레비전 방송 프로그램에 따른 텔레비전 방송 신호가 그 VCR 내에 내장된 트리거에 의해 동작되어 녹화 헤드의 녹화 동작을 통해 정보 기록 매체의 정보 기록면 상에 기록되도록 하는 예약 녹화 기능을 구비하고 있다.

디지털 텔레비전의 비약적인 발전에 따라, 대부분의 저장 매체를 구비한 디지털 텔레비전이 출시되어 별도의 VCR이 없어도 원하는 방송 프로그램을 녹화할 수 있게 되었다. 디지털 텔레비전에 프로그램을 녹화하는 기능은 상기에서 설명한 VCR의 기능과 유사하다. 단지 프로그램 녹화 설정을 VCR이 아닌 디지털 텔레비전에서 수행하며, 녹화될 프로그램은 디지털 텔레비전 내부에 구비된 저장 매체(미디시)에 저장된다.

그 결과 디지털 텔레비전에 프로그램 녹화 시에 녹화된 프로그램을 자동으로 삭제하고 저장하는 기능이 구비되어 있지만 다른 방식의 녹화 기능도 포함되어 있어서 부적절하게 기록하게 되면 녹화된 데이터의 보존이 불가능하다. 또한 설정 순서에 따라 순차적으로 프로그램을 녹화하기 때문에 사용자가 원하는 프로그램을 놓치지 않도록 시간이 빈번하게 소요되었다. 또한 요약 기능이 없어 녹화된 프로그램 시청 시에 사용자가 원하지 않는 부분까지도 시청해야 하는 불편한 문제점이 있었으며, 왼편 부분을 찾아가기 위해 시간을 많이 사용하게 되는 단점이 있다.

발명이 이루고자 하는 기술적 과제

본 발명이 이루고자 하는 기술적인 과제는 저장 매체의 효율성의 극대화 및 사용자에 의해 녹화된 프로그램을 신속하게 검색 및 재생할 수 있도록 연속 녹화 및 반복 녹화를 지원하는 녹화 방법을 제공하는 데 있다.

본 발명이 이루고자 하는 다른 기술적인 과제는 프로그램 녹화 시에 사용자의 선택에 따라 요약 녹화 실패에 따른 인터스 피임을 생성하고, 인터스 피임을 검색하여 재생하는 프로그램 중 요한 부분으로 빠르게 이동 및 재생할 수 있는 요약 녹화/재생 방법을 제공하는데 있다.

발명의 구현 및 작용

본 발명이 이루고자 하는 기술적인 과제를 해결하기 위한 프로그램 녹화 방법은 프로그램 녹화 방식에 있어서, (a) 녹화할 프로그램을 설정하고 녹화 모드를 설정하는 단계 및 (b) 상기 설정된 녹화모드 중 연속 녹화 모드에 대해 이전에 녹화된 동일 프로그램 이후에 상기 프로그램을 녹화하거나, 상기 설정된 녹화모드 중 반복 녹화 모드에 대해 이전에 녹화된 동일 프로그램을 삭제한 부분에 상기 프로그램을 녹화하는 단계를 포함하는 것이 바람직하다.

본 발명에 있어서, 상기 (a) 단계의 녹화한 프로그램 설정 시에 상기 프로그램의 시작 및 종료 시간은 입력하거나, 특정 코드를 입력하거나, 특정 가이드에서 제공하는 서비스를 이용하는 것으로 하고, 상기 (a) 단계 이후에 설정의 검색기로 사용하여 설정한 녹화 프로그램을 확인한 단계를 더 포함하면, 상기 녹화 프로그램 확인 시에 수신되는 프로그램을 사용하여 프로그램의 정보를 나타내는 그룹 확인자 검색하여 상기 프로그램이 녹화될 녹화모드인지 확인하는 것을 자동으로 한다. 또한 상기 (b) 단계에서 설정된 녹화모드 중 연속 녹화 모드에 대해 설정된 연속 녹화 정보를 생성하고, 설정된 녹화 모드 중 반복
녹화 모드에 대해 소정의 반복 녹화 정보를 생성하여 상기 프로그램과 함께 녹화하는 것을 특징으로 한다.

본 발명이 이루고자 하는 다른 기술적인 과제를 해결하기 위한 요약 녹화/재생 방법은 (a) 프로그램 녹화 시에 상기 프로그램을 요약 방송하는 요약 녹화 모드를 설정하는 단계; (b) 상기 프로그램 녹화 중 일정 시간마다 요약 방송을 제공하는 인덱스 파일을 생성하여 상기 프로그램과 함께 녹화하는 단계; 및 (c) 녹화 완료 후에 상기 인덱스 파일을 재생하여 원하는 부분을 선택하면, 상기 녹화된 프로그램 중 선택된 부분부터 재생되는 단계를 포함하는 것이 바람직하다.

본 발명에 있어서, 상기 (b) 단계에서의 인덱스 파일은 외부로부터 입력되는 상기 인덱스 파일 설정 시간마다 생성되거나 상기 프로그램의 특정 구간에 삽입된 트리거를 검색하여 상기 트리거가 삽입된 구간에서 생성되는 것을 특정으로 하고, 상기 (b) 단계에서의 인덱스 파일은 상기 프로그램이 저장될 때 특정 위치 정보만을 별도로 저장하여 생성하거나 상기 프로그램의 특정 부분을 중심으로 재생하는 것을 특징으로 한다.

이하, 첨부된 도면을 참조하여 본 발명을 상세히 설명한다.

도 1은 프로그램 녹화/재생 장치의 구성요인을 보이는 블록도로서, 튜너(100), 신호처리기(101), 디스플레이부(102), 저장부(103), 제어부(104)로 구성된다.

도 2는 본 발명에 따른 프로그램 녹화 방법의 동작을 보이는 흐름도로서, 사용자 입력 또는 특정 기여드를 이용하여 녹화할 프로그램 선택 단계(200), 녹화 프로그램 확인 단계(201), 연속 녹화 코드 선택 단계(202), 프로그램 연속 녹화 정보 생성 단계(203), 이전에 녹화된 동일한 프로그램 이후에 본 프로그램 녹화 단계(204), 반복 녹화 코드 선택 단계(205), 프로그램 반복 녹화 정보 생성 단계(206), 이전에 녹화된 동일한 프로그램 재생한 부분에 본 프로그램 녹화 단계(207)로 구성된다.

도 3은 본 발명에 따른 요약 녹화/재생 방법의 동작을 보이는 흐름도로서, 녹화할 프로그램 및 요약 녹화 코드 설정 단계(300), 프로그램 저장 도중 일정 시간마다 인덱스 파일을 생성하여 저장하는 단계(301), 프로그램 및 인덱스 파일 저장 완료 관련 단계(302), 인덱스 파일 재생 및 검색 단계(303), 재생되는 인덱스 파일 중 사용자가 원하는 부분 선택 단계(304), 선택된 부분부터 녹화된 프로그램 재생 단계(305)로 구성된다.

이어서, 도 1 및 도 2를 참조하여 프로그램 녹화 방법을 상세히 설명한다.

사용자 입력 또는 특정 기여드를 이용하여 녹화할 프로그램을 선택한다(200단계), 사용자는 녹화한 방송 시간과 종료 시간을 입력하거나, 특정 코드(예를 들면 G 코드 또는 KBPS 코드)를 사용하여 녹화할 프로그램을 설정한다. 또한 EPG(Electronic Program Guide)와 같은 특정 기여드에서 제공하는 서비스(PPIP, SI) 등의 정보를 이용하여 녹화할 프로그램을 설정한다. 설정된 녹화 프로그램 정보는 저장부(103)에 저장되고, 제어부(104) 내부의 태이머(비도시)가 구비되어 있어 시간을 카운트하다.

특정 검색키를 이용하여 녹화된 프로그램을 확인한다(201단계). 녹화된 프로그램을 확인하기 위해서는 별도의 검색기(Descriptor)가 필요하다. PMT(Program Map Table) 내에 식별자(ID: Identification) 검색기를 만들여야 하며, 이 검색기는 현재 프로그램의 고유 ID 및 그룹 ID 등이 필요하다. 이들은 프로그램 전송 시에 방송국에서 설정한다. 고유 ID는 방송되는 프로그램의 고유번호, 방송청자, 재방송 여부를 나타내는 필드로 구성된다. 그룹 ID는 연속물에 부여되는 특정 ID로 연속물 각각의 프로그램은 동일한 그룹 ID를 갖는다. 즉, 고유 ID가 있으면서 그룹 ID가 같다면 이는 하나의 연속물에 속하는 각각의 프로그램을 의미한다. 이 ID 검색기를 이용하여 현재 방송되는 프로그램이 사용자가 녹화를 요구하는 프로그램인지 확인한다. ID 검색기가 없는 경우 200단계에서 202 단계로 정착한다.

프로그램 설정 또는 녹화 프로그램 확인 후에 연속 녹화 코드로 녹화할 것인지 판단한다(202단계). 연속 녹화 코드는 프로그램 녹화 시에 기존에 저장되어 있는 프로그램 다음에 연속적으로 녹화되는 프로그램으로, 이전에 녹화된 프로그램은 삭제되지 않는다. 예를 들어 연속물이 기존에 저장되어 있다고 가정하면, 현재 방송 중인 오락 프로그램을 녹화하고자 하여 연속 녹화 코드를 선택한 경우 연속국 다음의 오락 프로그램을 녹화한다.

연속 녹화 코드를 선택한 경우 프로그램 연속 녹화 정보를 생성한다(203단계). 연속 녹화를 선택하면, 제어부(104)는 튜너(100) 및 신호처리기(101)로부터 출력되는 설정된 프로그램의 제목, 날짜 또는 시간, 연속된 특정 커버터 등의 연속 녹화 정보를 생성하여 저장부(103)에 저장한다.

연속 녹화 정보의 생성이 완료되면, 이전에 녹화된 프로그램 이후에 본 프로그램 녹화한다(204단계). 녹화된 프로그램은 저장부(103)에 저장되며, 이전의 프로그램은 삭제되지 않는다.

프로그램 설정 또는 녹화 프로그램 확인 후에 반복 녹화 코드로 녹화할 것인지 판단한다(202단계). 반복 녹화 코드는
프로그램 재배울 시에 기존에 저장되어 있는 프로그램 자리는 본 프로그램에 녹화하는 모드로, 이전에 녹화된 프로그램은 삭제된다. 예를 들어 연속극이 기존에 저장되어 있다고 가정하면, 현재 방송 중인 오락 프로그램을 녹화하고자 하여 반복 녹화 모드를 선택한 경우 연속극을 삭제하고 오락 프로그램을 녹화한다.

반복 녹화 모드를 선택한 경우 프로그램 반복 녹화 정보를 생성한다(206단계). 반복 녹화를 선택하면, 제어부(104)는 튜너(100) 및 신호처리부(101)로부터 출력되는 설정된 프로그램의 제목, 날짜 또는 시간, 연속된 특정 캐릭터 등의 반복 녹화 정보로 생성하여 저장부(103)에 저장한다.

반복 녹화 정보의 생성이 완료되면, 이전에 녹화된 프로그램을 삭제하고, 그 자리에 본 프로그램 녹화한다(207단계). 녹화된 프로그램은 저장부(103)에 저장되며, 이전의 프로그램은 삭제된다.

이어서, 도 1 및 도 2를 참조하여 요약 녹화/재생 방범을 상세히 설명한다.

녹화할 프로그램을 설정하고 요약 녹화 모드를 설정한다(300단계). 사용자는 녹화할 방송 시간과 종료 시간을 입력하거나, 특정 코드(예를 들어 G 코드 또는 KBPS 코드)를 사용하여 녹화할 프로그램을 설정한다. 또한 EPG(Electronic Program Guide)와 같은 특정 가이드에서 제공하는 서비스(PSIP, SD 등의 정보를 이동하여 녹화할 프로그램을 설정한다. 설정된 녹화 프로그램 정보는 저장부(103)에 저장되고, 제어부(104) 내부에 타이머(티미지)가 구비되어 있어 시간을 가산시켜 된다. 요약 녹화 모드는 녹화되는 프로그램에 대한 요약 정보를 생성하는 모드로 사용자가 원하는 정보를 선택하며, 프로그램의 줄거리나 요약 정보를 선택하면, 녹화된 프로그램의 줄거리가 표시된다. 요약 녹화 모드로 설정하면, 본 프로그램 녹화 모드는 일정 시간마다 인덱스 파일을 생성하여 저장부(103)에 저장한다(301단계). 제어부(104)에서 생성하는 인덱스 파일은 본 프로그램 녹화 모드에 특정 위치 정보만을 별도로 저장함으로써 저장되며, 요약 재생 시에 이를 이용하여 녹화된 프로그램의 특정 위치만을 재생하여 요약 기능을 제어한다. 또한 인덱스 파일은 본 프로그램 녹화 시에 특정 부분을 중복 저장하여 생성될 수 있다. 인덱스 파일은 일정 시간, 즉 사용자가 설정한 시간마다 생성될 수 있다. 또한 인덱스 파일은 프로그램에 인덱스 파일 생성을 위한 트리거를 입력하여 트리거가 발생되는 순간에 생성될 수 있다.

설정된 프로그램 녹화 및 요약 재생을 위한 인덱스 파일 저장이 완료되면, 후에 사용자는 저장부(103)로부터 인덱스 파일 재생하고 경색한다(302, 303단계).

재생되는 인덱스 파일을 선택하여 사용자가 원하는 부분을 선택한다(304단계). 사용자가 녹화된 프로그램의 줄거리를 파악하고자 하는 경우 원하는 부분을 선택하지 않는다.

사용자가 인덱스 파일 중 원하는 부분을 선택하면, 선택된 부분부터 녹화된 프로그램을 재생한다(305단계). 사용자가 인덱스 파일 중 원하는 부분을 선택하면, 제어부(104)는 이를 감지하여 저장부(103)를 엑세스하여 선택된 부분부터 녹화된 프로그램이 재생되도록 한다.

본 발명은 상술한 실시 예에 한정되지 않으며 본 발명의 사상 내에서 당연히에 의한 변형이 가능함은 물론이다.
프로그램은 단계를 포함하는 방법

**정구항 2.**
제 1항에 있어서, 상기 (a)단계의 방법만 사용 시에

상기 프로그램의 시작 및 종료 시간을 입력하거나, 특정 코드를 입력하거나, 특정 가이드에서 제공하는 서비스를 이용하는 것을 특정으로 하는 방법.

**정구항 3.**
제 1항에 있어서, 상기 (a) 단계 이후에

소정의 검색기에 의해 설정된 프로그램을 확인하는 단계를 더 포함하는 것을 특정으로 하는 방법.

**정구항 4.**
제 3항에 있어서, 상기 녹화 프로그램 확인 시에

수신되는 프로그램으로부터 고유 번호, 방송 횟수, 제방송 여부를 나타내는 고유 확인자 및 연속적으로 방송되는 프로그램 여부를 나타내는 그룹 확인자를 검색하여 상기 프로그램이 녹화될 프로그램인지 확인하는 것을 특정으로 하는 방법.

**정구항 5.**
제 1항에 있어서, 상기 (b) 단계에서 설정된 녹화모드 중 연속 녹화 모드에 대해 소정의 연속 녹화 정보를 생성하고, 설정된 녹화 모드 중 만복 녹화 모드에 대해 소정의 만복 녹화 정보를 생성하여 상기 프로그램과 함께 녹화하는 것을 특정으로 하는 방법.

**정구항 6.**
(a) 프로그램 녹화 시에 상기 프로그램을 요약 방송하는 요약 녹화 모드를 설정하는 단계;

(b) 상기 프로그램 녹화 중 일정 시간마다 요약 방송을 제공하는 인덱스 파일을 생성하여 상기 프로그램과 함께 녹화
    하는 단계 및

(c) 녹화 완료 후에 상기 인덱스 파일을 재생하여 원하는 부분을 선택하면, 상기 녹화된 프로그램 중 선택된 부분부터 재생되는 단계를 포함하는 요약 녹화/재생 방법.

**정구항 7.**
제 6항에 있어서, 상기 (b)단계에서의 인덱스 파일은

외부로부터 입력되는 상기 인덱스 파일 설정 시간마다 생성되는 것을 특정으로 하는 요약 녹화/재생 방법.

**정구항 8.**
제 6항에 있어서, 상기 (b)단계에서의 인덱스 파일은

상기 프로그램의 특정 구간에 삽입된 트리거를 검색하여 상기 트리거가 삽입된 구간에서 생성되는 것을 특정으로 하는 요약 녹화/재생 방법.

**정구항 9.**
제 6항에 있어서, 상기 (b)단계에서의 인덱스 파일은

상기 프로그램이 저장될 때 특정 위치 정보만을 별도로 저장하여 생성하거나, 상기 프로그램의 특정 부분을 중복 저장하여 생성되는 것을 특정으로 하는 요약 녹화/재생 방법.

도움
**Electronic Acknowledgement Receipt**

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**Title of Invention:**
DIGITAL BROADCASTING RECEIVER FOR PROGRAMMING RECORDING OF BROADCASTING PROGRAM AND METHOD THEREOF

| **First Named Inventor/Applicant Name:** | Seong OH |
| **Customer Number:** | 34610 |
| **Filer:** | Daniel Y.J. Kim/Deborah Kimberlin |
| **Filer Authorized By:** | Daniel Y.J. Kim |
| **Attorney Docket Number:** | EZ-0003 |
| **Receipt Date:** | 28-MAY-2008 |
| **Filing Date:** | 15-OCT-2007 |
| **Time Stamp:** | 15:10:34 |
| **Application Type:** | Utility under 35 USC 111(a) |

**Payment information:**
Submitted with Payment: no

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**Total Files Size (in bytes):** 2430119

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

**New Applications Under 35 U.S.C. 111**
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

**National Stage of an International Application under 35 U.S.C. 371**
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

**New International Application Filed with the USPTO as a Receiving Office**
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.
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CONFIRMATION NO. 8284
CORRECTED FILING RECEIPT

Date Mailed: 02/04/2008

Receipt is acknowledged of this non-provisional patent application. The application will be taken up for examination in due course. Applicant will be notified as to the results of the examination. Any correspondence concerning the application must include the following identification information: the U.S. APPLICATION NUMBER, FILING DATE, NAME OF APPLICANT, and TITLE OF INVENTION. Fees transmitted by check or draft are subject to collection. Please verify the accuracy of the data presented on this receipt. If an error is noted on this Filing Receipt, please write to the Office of Initial Patent Examination's Filing Receipt Corrections. Please provide a copy of this Filing Receipt with the changes noted thereon. If you received a "Notice to File Missing Parts" for this application, please submit any corrections to this Filing Receipt with your reply to the Notice. When the USPTO processes the reply to the Notice, the USPTO will generate another Filing Receipt incorporating the requested corrections.

Applicant(s)

Seong OH, Seoul, KOREA, REPUBLIC OF;
Eun-Kyung KWAK, Seoul, KOREA, REPUBLIC OF;

Power of Attorney: The patent practitioners associated with Customer Number 34610

Domestic Priority data as claimed by applicant

Foreign Applications
REPUBLIC OF KOREA 10-2007-0017121 02/20/2007

If Required, Foreign Filing License Granted: 10/29/2007

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is US 11/872,132

Projected Publication Date: 08/21/2008

Non-Publication Request: No

Early Publication Request: No
PROTECTING YOUR INVENTION OUTSIDE THE UNITED STATES

Since the rights granted by a U.S. patent extend only throughout the territory of the United States and have no effect in a foreign country, an inventor who wishes patent protection in another country must apply for a patent in a specific country or in regional patent offices. Applicants may wish to consider the filing of an international application under the Patent Cooperation Treaty (PCT). An international (PCT) application generally has the same effect as a regular national patent application in each PCT-member country. The PCT process simplifies the filing of patent applications on the same invention in member countries, but does not result in a grant of "an international patent" and does not eliminate the need of applicants to file additional documents and fees in countries where patent protection is desired.

Almost every country has its own patent law, and a person desiring a patent in a particular country must make an application for patent in that country in accordance with its particular laws. Since the laws of many countries differ in various respects from the patent law of the United States, applicants are advised to seek guidance from specific foreign countries to ensure that patent rights are not lost prematurely.

Applicants also are advised that in the case of inventions made in the United States, the Director of the USPTO must issue a license before applicants can apply for a patent in a foreign country. The filing of a U.S. patent application serves as a request for a foreign filing license. The application's filing receipt contains further information and guidance as to the status of applicant's license for foreign filing.

Applicants may wish to consult the USPTO booklet, "General Information Concerning Patents" (specifically, the section entitled "Treaties and Foreign Patents") for more information on timeframes and deadlines for filing foreign patent applications. The guide is available either by contacting the USPTO Contact Center at 800-786-9199, or it can be viewed on the USPTO website at http://www.uspto.gov/web/offices/pac/doc/general/index.html.

For information on preventing theft of your intellectual property (patents, trademarks and copyrights), you may wish to consult the U.S. Government website, http://www.stopfakes.gov. Part of a Department of Commerce initiative, this website includes self-help "toolkits" giving innovators guidance on how to protect intellectual property in specific countries such as China, Korea and Mexico. For questions regarding patent enforcement issues, applicants may call the U.S. Government hotline at 1-866-999-HALT (1-866-999-4158).

LICENSE FOR FOREIGN FILING UNDER

Title 35, United States Code, Section 184

Title 37, Code of Federal Regulations, 5.11 & 5.15

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This license is to be retained by the licensee and may be used at any time on or after the effective date thereof unless it is revoked. This license is automatically transferred to any related applications(s) filed under 37 CFR 1.53(d). This license is not retroactive.

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application of  
Seong OH and En-Kyung KWAK  

Confirmation No.: 8284  
Group Art Unit: 2621  
Examiner: To be Assigned  

Serial No.: 11/872,132  

Customer No.: 34610  

Filed: 10/15/2007  

For: DIGITAL BROADCASTING RECEIVER FOR PROGRAMMING  
RECORDING OF BROADCASTING PROGRAM AND METHOD THEREOF  

REQUEST FOR CORRECTED FILING RECEIPT

U.S. Patent and Trademark Office  
Customer Service Window, Mail Stop Patent Application  
Randolph Building  
401 Dulany Street  
Alexandria, VA 22314  

Sir:  

A corrected filing receipt is hereby requested in view of the errors which appear in the original. For the convenience of the Patent and Trademark Office, attached is a photocopy of the original receipt on which the errors have been noted in red.  

It is believed that no fee is due. However, please credit or debit Deposit Account No. 16-0607 as necessary to effect entry of the attached corrections.  

Respectfully submitted,  
KED & ASSOCIATES, LLP  

Daniel Y.J. Kim  
Registration No. 36,186  

P.O. Box 221200  
Chantilly, Virginia 20153-1200  
703 766 3777  

Date: January 24, 2008  

Please direct all correspondence to Customer Number 34610
Receipt is acknowledged of this non-provisional patent application. The application will be taken up for examination in due course. Applicant will be notified as to the results of the examination. Any correspondence concerning the application must include the following identification information: the U.S. APPLICATION NUMBER, FILING DATE, NAME OF APPLICANT, and TITLE OF INVENTION. Fees transmitted by check or draft are subject to collection. Please verify the accuracy of the data presented on this receipt. If an error is noted on this Filing Receipt, please write to the Office of Initial Patent Examination's Filing Receipt Corrections. Please provide a copy of this Filing Receipt with the changes noted thereon. If you received a "Notice to File Missing Parts" for this application, please submit any corrections to this Filing Receipt with your reply to the Notice. When the USPTO processes the reply to the Notice, the USPTO will generate another Filing Receipt incorporating the requested corrections.

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Power of Attorney: The patent practitioners associated with Customer Number 34610

Domestic Priority data as claimed by applicant

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REPUBLIC OF KOREA 10-2007-0017121 02/20/2007

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Projected Publication Date: 08/21/2008

Non-Publication Request: No

Early Publication Request: No
Title

DIGITAL BROADCASTING RECEIVER FOR PROGRAMMING RECORDING OF BROADCASTING PROGRAM AND METHOD THEREOF

Preliminary Class

386

PROTECTING YOUR INVENTION OUTSIDE THE UNITED STATES

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LICENSE FOR FOREIGN FILING UNDER

Title 35, United States Code, Section 184

Title 37, Code of Federal Regulations, 5.11 & 5.15

GRANTED

The applicant has been granted a license under 35 U.S.C. 184, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" followed by a date appears on this form. Such licenses are issued in all applications where
the conditions for issuance of a license have been met, regardless of whether or not a license may be required as set forth in 37 CFR 5.15. The scope and limitations of this license are set forth in 37 CFR 5.15(a) unless an earlier license has been issued under 37 CFR 5.15(b). The license is subject to revocation upon written notification. The date indicated is the effective date of the license, unless an earlier license of similar scope has been granted under 37 CFR 5.13 or 5.14.

This license is to be retained by the licensee and may be used at any time on or after the effective date thereof unless it is revoked. This license is automatically transferred to any related applications(s) filed under 37 CFR 1.53(d). This license is not retroactive.

The grant of a license does not in any way lessen the responsibility of a licensee for the security of the subject matter as imposed by any Government contract or the provisions of existing laws relating to espionage and the national security or the export of technical data. Licensees should apprise themselves of current regulations especially with respect to certain countries, of other agencies, particularly the Office of Defense Trade Controls, Department of State (with respect to Arms, Munitions and Implements of War (22 CFR 121-128)); the Bureau of Industry and Security, Department of Commerce (15 CFR parts 730-774); the Office of Foreign Assets Control, Department of Treasury (31 CFR Parts 500+) and the Department of Energy.

NOT GRANTED

No license under 35 U.S.C. 184 has been granted at this time, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" DOES NOT appear on this form. Applicant may still petition for a license under 37 CFR 5.12, if a license is desired before the expiration of 6 months from the filing date of the application. If 6 months has lapsed from the filing date of this application and the licensee has not received any indication of a secrecy order under 35 U.S.C. 181, the licensee may foreign file the application pursuant to 37 CFR 5.15(b).
DECLARATION AND POWER OF ATTORNEY

As a below named inventor, I hereby declare that:

My residence, post office and citizenship are as stated below next to my name,

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter claimed and for which a patent is sought on the invention entitled DIGITAL BROADCASTING RECEIVER FOR PROGRAMMING RECORDING OF BROADCASTING PROGRAM AND METHOD THEREOF, the specification of which

☐ is attached hereto  ☑ was filed on October 15, 2007 as Application Serial No. 11/872,132 and was amended on ___________________________ (if applicable)

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose information which is known to me to be material to patentability in accordance with Title 37, Code of Federal Regulations, Section 1.56(a).

I hereby claim foreign priority benefits under 35 U.S.C. 119(a)-(d) or 365(b) of any foreign application(s) for patent or inventor’s certificate, or 365(a) of any PCT international application which designated at least one country other than the United States of America, listed below and have also identified below, by checking the box, any foreign application for patent or inventor’s certificate, or of any PCT international application having a filing date before that of the application on which priority is claimed.

<table>
<thead>
<tr>
<th>Prior Foreign Application(s):</th>
<th>Country</th>
<th>Foreign Filing Date</th>
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<tbody>
<tr>
<td>Number 10-2007-0017121</td>
<td>Korea</td>
<td>February 20, 2007</td>
</tr>
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</table>

I hereby claim the benefit under 35 U.S.C. 119(c) of any United States provisional application(s) listed below.

Application Number(s): Filing Date (Month/Day/Year)

I hereby claim the benefit under 35 U.S.C. 120 of any United States application(s), or 365(c) of any PCT international application designating the United States of America, listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States or PCT international application in the manner provided by the first paragraph of 35 U.S.C. 112, I acknowledge the duty to disclose information which is material to patentability as defined in 37 CFR 1.56 which became available between the filing date of the prior application and the national or PCT international filing date of this application.

<table>
<thead>
<tr>
<th>Prior U.S. Application or PCT Patent Number</th>
<th>Filing Date (Month/Day/Year)</th>
<th>Parent Patent Number (if applicable)</th>
</tr>
</thead>
</table>

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

I hereby appoint the attorney(s) and/or agent(s) associated with Customer Number 34610 to prosecute this application and transact all business in the Patent and Trademark Office.

Direct all correspondence to Customer Number 34610
Full name of sole or first inventor: Seong OH
Inventor's signature: [Signature]
Date: Nov 8, 2007
Mailing Address: 1/1, 283-489, Sangdo 3-dong, dongjak-gu, Seoul 156-846 Republic of Korea
Citizenship: Republic of Korea

Residence Address
(only if different from mailing address):

Full name of joint inventor(s): Eun-Kyung KWAK
Inventor's signature: [Signature]
Date: Nov 8, 2007
Mailing Address: 232-61, Janggok 1-dong, Gwangjin-gu, Seoul 143-903 Republic of Korea
Citizenship: Republic of Korea

Residence Address
(only if different from mailing address):

Full name of joint inventor(s):
Inventor's signature: 
Date: 
Mailing Address:
Citizenship:

Residence Address
(only if different from mailing address):

Full name of joint inventor(s):
Inventor's signature: 
Date: 
Mailing Address:
Citizenship:
Residence Address
(only if different from mailing address):

Full name of joint inventor(s):
Inventor's signature: 
Date: 
Mailing Address:
Citizenship:
Residence Address
(only if different from mailing address):

Full name of joint inventor(s):
Inventor's signature: 
Date: 
Mailing Address:
Citizenship:
Residence Address
(only if different from mailing address):
Receipt is acknowledged of this non-provisional patent application. The application will be taken up for examination in due course. Applicant will be notified as to the results of the examination. Any correspondence concerning the application must include the following identification information: the U.S. APPLICATION NUMBER, FILING DATE, NAME OF APPLICANT, and TITLE OF INVENTION. Fees transmitted by check or draft are subject to collection. Please verify the accuracy of the data presented on this receipt. If an error is noted on this Filing Receipt, please write to the Office of Initial Patent Examination's Filing Receipt Corrections. Please provide a copy of this Filing Receipt with the changes noted thereon. If you received a "Notice to File Missing Parts" for this application, please submit any corrections to this Filing Receipt with your reply to the Notice. When the USPTO processes the reply to the Notice, the USPTO will generate another Filing Receipt incorporating the requested corrections

Applicant(s)
Seong OH, Seoul, KOREA, REPUBLIC OF;
En-Kyung KWAK, Seoul, KOREA, REPUBLIC OF;

Power of Attorney: The patent practitioners associated with Customer Number 34610

Domestic Priority data as claimed by applicant

Foreign Applications
REPUBLIC OF KOREA 10-2007-0017121 02/20/2007

If Required, Foreign Filing License Granted: 10/29/2007

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is US 11/872,132

Projected Publication Date: 08/21/2008

Non-Publication Request: No

Early Publication Request: No
PROTECTING YOUR INVENTION OUTSIDE THE UNITED STATES

Since the rights granted by a U.S. patent extend only throughout the territory of the United States and have no effect in a foreign country, an inventor who wishes patent protection in another country must apply for a patent in a specific country or in regional patent offices. Applicants may wish to consider the filing of an international application under the Patent Cooperation Treaty (PCT). An international (PCT) application generally has the same effect as a regular national patent application in each PCT-member country. The PCT process simplifies the filing of patent applications on the same invention in member countries, but does not result in a grant of "an international patent" and does not eliminate the need of applicants to file additional documents and fees in countries where patent protection is desired.

Almost every country has its own patent law, and a person desiring a patent in a particular country must make an application for patent in that country in accordance with its particular laws. Since the laws of many countries differ in various respects from the patent law of the United States, applicants are advised to seek guidance from specific foreign countries to ensure that patent rights are not lost prematurely.

Applicants also are advised that in the case of inventions made in the United States, the Director of the USPTO must issue a license before applicants can apply for a patent in a foreign country. The filing of a U.S. patent application serves as a request for a foreign filing license. The application’s filing receipt contains further information and guidance as to the status of applicant’s license for foreign filing.

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In reply to the Notice of Missing Parts of Application dated October 31, 2007, submitted herewith are the following documents for filing in the above-referenced application:

- Declaration and Power of Attorney.
- Filing Fee of $1,030.00.
- Additional claim fee of $_____.
- Late filing surcharge of $130.00 (large entity) $65.00 (small entity).
- Transmittal of certified priority document(s).
- Copy of Form PTO-1533 (Notice of Missing Parts).
- Authorization to Treat a Reply as Incorporating An Extension of Time under 37 C.F.R. §1.136(a)(3).
- A check in the amount of $______ (Check #_____ ) is enclosed.
- Please charge my Credit Card in the amount of $1,160.00.
- Verified English language translation.
- Surcharge for filing non-English Specification $130.00 (large entity) $65.00 small entity.
- Assignment Recordation Coversheet and Assignment.
- A check in the amount of $40.00 (Check #____)
Please charge my Credit Card $40.00, representing the recordation fee for the Assignment. (See completed form PTO-2038 enclosed).

It is requested that an Official Filing Receipt showing the data contained herewith now be issued.

Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 16-0607 and please credit any excess fees to such deposit account.

Respectfully submitted,
KED & ASSOCIATES, LLP

Daniel Y.J. Kim
Registration No. 36,186

Correspondence Address:
P.O. Box 221200
Chantilly, VA 20153-1200
703 766-3777  dyk/dak

Date: December 21, 2007
Please direct all correspondence to Customer Number 34610

\Fkt4\Documents\2309\2309-003\143595.doc
IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of Seong OH and En-Kyung KWAK

Confirmation No.: 8284

Group Art Unit: 2621

Serial No.: 11/872,132

Examiner: To Be Assigned

Filed: October 15, 2007

Customer No.: 34610

For: DIGITAL BROADCASTING RECEIVER FOR PROGRAMMING
RECORDING OF BROADCASTING PROGRAM AND METHOD
THEREOF

AUTHORIZATION TO TREAT A REPLY AS INCORPORATING
AN EXTENSION OF TIME UNDER 37 C.F.R. §1.136(a)(3)

U.S. Patent and Trademark Office
Customer Service Window, MAIL STOP MISSING PARTS
Randolph Building
401 Dulany Street
Alexandria, VA 22314

Sir:

The U.S. Patent and Trademark Office is hereby authorized to treat any concurrent or future reply that requires a petition for an extension of time under this paragraph for its timely submission, as incorporating a petition for extension of time for the appropriate length of time under 37 C.F.R. 1.136(a)(3). The U.S. Patent and Trademark Office is hereby authorized to charge all required extension of time fees to our Deposit Account No. 16-0607, if such fees are not otherwise provided for in such reply. A duplicate copy of this sheet is enclosed.

Respectfully submitted,
KED & ASSOCIATES, LLP

Daniel Y.J. Kim
Registration No. 36,186

Correspondence Address:
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Chantilly, VA 20153-1200
703 766-3777  DYK/dak

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I hereby appoint the attorney(s) and/or agent(s) associated with Customer Number 34610 to prosecute this application and transact all business in the Patent and Trademark Office.

Direct all correspondence to Customer Number 34610
# Electronic Patent Application Fee Transmittal

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<td>DIGITAL BROADCASTING RECEIVER FOR PROGRAMMING RECORDING OF BROADCASTING PROGRAM AND METHOD THEREOF</td>
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<tr>
<td>First Named Inventor/Applicant Name:</td>
<td>Seong OH</td>
</tr>
<tr>
<td>Filer:</td>
<td>Daniel Y.J. Kim/Deborah Kimberlin</td>
</tr>
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<td>EZ-0003</td>
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<td><strong>Application Type:</strong></td>
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**Payment information:**

- **Submitted with Payment:** yes
- **Payment Type:** Credit Card
- **Payment was successfully received in RAM:** $1160
- **RAM confirmation Number:** 1147
- **Deposit Account:**
- **Authorized User:**

**File Listing:**

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<th><strong>Multi Part / .zip</strong></th>
<th><strong>Pages (if appl.)</strong></th>
</tr>
</thead>
</table>
This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

**New Applications Under 35 U.S.C. 111**
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

**National Stage of an International Application under 35 U.S.C. 371**
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

**New International Application Filed with the USPTO as a Receiving Office**
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.
IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Docket No.: EZ-0003

For: DIGITAL BROADCASTING RECEIVER FOR PROGRAMMING RECORDING OF BROADCASTING PROGRAM AND METHOD THEREOF

TRANSMITTAL OF CERTIFIED PRIORITY DOCUMENT

U.S. Patent and Trademark Office
Customer Service Window, MAIL STOP MISSING PARTS
Randolph Building
401 Dulany Street
Alexandria, Virginia 22314

Sir:

At the time the above application was filed, priority was claimed based on the following application:


A copy of the priority application listed above is enclosed.

Respectfully submitted,
KED & ASSOCIATES, LLP

Daniel Y.J. Kim
Registration No. 36,186

Correspondence Address:
P.O. Box 221200
Chantilly, VA 20153-1200
703 766-3777  DVK/daK
Date: December 21, 2007
Please direct all correspondence to Customer Number 34610
This is to certify that the following application annexed hereto is a true copy from the records of the Korean Intellectual Property Office.

출원번호: 10-2007-0017121
Application Number

출원년월일: 2007년 02월 20일
Filing Date

출원인: 주식회사 휴맥스
Applicant(s)

2007년 08월 03일

COMMISSIONER

◆ This certificate was issued by Korean Intellectual Property Office. Please confirm any forgery or alteration of the contents by an issue number or a barcode of the document below through the KIPOnet-Online Issue of the Certificates' menu of Korean Intellectual Property Office homepage (www.kipo.go.kr). But please notice that the confirmation by the issue number is available only for 90 days.
【서지사항】
【서류명】 특허출원서
【권리구분】 특허
【수신처】 특허청장
【제출일자】 2007.02.20
【발명의 극문명칭】 방송 프로그램을 예약 녹화하는 디지털 방송 수신기 및 방 법
【발명의 영문명칭】 Digital broadcasting receiver for reserving broadcasting program and method thereof
【출원인】
【명칭】 주식회사 휴맥스
【출원인코드】 1-1998-000063-1
【대리인】
【성명】 이경란
【대리인코드】 9-1998-000651-6
【포괄위임등록번호】 2004-073908-7
【발명자】
【성명】 오승
【성명의 영문표기】 Oh, Seung
【주민등록번호】 770919-1XXXXXX
【우편번호】 156-846
【주소】 서울 동작구 상도3동 283-189 1/1
【국적】 KR
【발명자】
【성명】 곽은경
【성명의 영문표기】 Kwak, Eun Kyung
【주민등록번호】 770603-2XXXXXX
【우편번호】 143-903
【주소】 서울 광진구 중곡1동 232-61
【국적】 KR
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【취지】 특허법 제42조의 규정에 의한 출원, 특허법 제60조의 규정에 의한 상
사청구를 합니다.

대리인 이경란 (인)

【수수료】
【기본출원료】 0 면 38,000 원
【가산출원료】 39 면 0 원
【우선권주장료】 0 건 0 원
【상사청구료】 20 향 749,000 원
【합계】 787,000 원
【요약서】

【요약】

방송 프로그램을 예약 녹화하는 디지털 방송 수신기 및 방법이 개시된다. 디지털 방송 수신기는 하나 이상의 채널을 포함하는 예약 채널을 등록하고, 예약 채널로부터 수신되는 방송 데이터를 미리 설정된 기준에 따른 예약 녹화 프로그램으로써 저장하며, 예약 프로그램의 저장이 완료되고 다음 예약 프로그램에 따른 방송 데이터가 수신되면 저장된 예약 프로그램이 대체되도록 다음 예약 프로그램을 저장할 수 있다. 본 발명에 따르면, 방송 프로그램에 대한 정보가 없이도 예약 녹화할 수 있고, 사용자는 언제 TV를 켜는지와 관계 없이 현재 방송 중인 프로그램의 처음 시작 부분부터 시청하는 것이 가능하며, 광고 프로그램을 제외하고 예약 녹화할 수 있다.

【대표도】

도 3

【색인어】

예약 채널, 예약 녹화 프로그램, 클리핑,
【명세서】

【발명의 명칭】

방송 프로그램을 예약 녹화하는 디지털 방송 수신기 및 방법(Digital broadcasting receiver for reserving broadcasting program and method thereof)

【도면의 간단한 설명】

<1> 도 1은 본 발명의 일 실시예에 따른 디지털 방송 수신기에서의 예약녹화 방법을 제공하기 위한 전체 시스템을 개략적으로 나타낸 구성도.

<2> 도 2는 본 발명의 일 실시예에 따른 예약 녹화 방법이 적용되는 디지털 방송 수신기의 내부 구성요 나타낸 블록도.

<3> 도 3은 본 발명의 일 실시예에 따른 예약 녹화 방법을 나타내는 순서도.

<4> 도 4는 본 발명의 일 실시예에 따른 예약 녹화 프로그램의 재생 절차를 나타낸 순서도.

<5> 도 5는 본 발명의 일 실시예에 따른 예약 채널 변경에 따른 처리 방법을 나타낸 순서도.

<6> 도 6은 본 발명의 일 실시예에 따른 예약 녹화 프로그램에서 광고 프로그램을 제외하는 방법을 나타낸 순서도.

<7> <도면의 주요 부분에 대한 부호 설명>

<8> 110 : 디지털 방송 수신기

42-4
120 : 방송국
130 : 안테나
140 : 디스플레이 기기
210 : 제어부
220 : 방송 신호 처리부
222 : 튜너/복조부
224 : 역도중화부
226 : 디코더
230 : 사용자 인터페이스부
240 : 저장부
250 : 광고 검출부

【발명의 상세한 설명】

【발명의 목적】

【발명이 속하는 기술분야 및 그 분야의 종래기술】

본 발명은 방송 프로그램의 예약 녹화에 관한 것으로서, 좀 더 상세하게는
디지털 방송 프로그램을 예약 녹화하는 디지털 방송 수신기 및 그 방법에 관한 것
이다.

방송국에서 제공하는 방송 프로그램을 저장하였다가 보기 위해, 종래에는 하
드 디스크 드라이브(Hard Disk Drive : HDD, 이하 하드 디스크)를 이용한 개인용 비디오 저장 장치(Personal Video Recorder, 이하 PVR)라는 녹화 기기가 이용되었다.

PVR은 TV 등을 통해 수신되는 디지털 및 아날로그 방송 신호를 저장 장치인 하드 디스크에 기록하고 컴퓨터 등에서 이용되는 파일 재생 방식으로 재생한다. PVR에는 재생을 위한 중앙처리장치(CPU)와 운영체제, 재생 소프트웨어 등을 담은 메모리 칩 및 하드 디스크 등이 구비되어 있다.

일반적으로 PVR은 타임 쉐프트 녹화(Time Shifted Recording, 이하 TSR)용 파일을 사용한다. TSR은 시간 단위로 반복하여 방송 데이터를 저장함으로써, 특정 방송 프로그램의 일부만이 저장될 수도 있다. 이 경우, 사용자는 해당 방송 프로그램의 전체를 시청할 수 없게 된다.

이러한 TSR 저장 방식 외에, 일반적으로 사용되는 예약 녹화 기술은 사용자가 전자 프로그램 가이드(Electronic Program Guide, 이하 EPG)나 신문, 메거진 등을 통해서 예약 녹화 정보, 예를 들어 방송국(120) 명, 방송 채널 정보 또는 녹화 시간 정보 등을 등록하여야 하였다.

그러나, 이와 같은 예약 녹화 방법은 사용자가 방송 프로그램에 대한 정보를 수집하여, 날마다 예약 녹화 사항을 반복적으로 설정해야 하는 불편함이 있었다.
【발명이 이루고자 하는 기술적 과제】

따라서, 본 발명은 상술한 문제점을 해결하기 위해 안출된 것으로서, 사용자가 방송 프로그램에 대한 정확한 정보가 없이도 원하는 방송 프로그램을 예약 녹화할 수 있는 예약 녹화 방법 및 그 방법을 수행하는 디지털 방송 수신기를 제공하기 위한 것이다.

또한, 본 발명은 사용자가 언제 TV를 켜는지와 관계 없이 예약된 채널의 현재 방송 중인 프로그램의 처음 시작 부분부터 시청이 가능하도록 하는 디지털 방송 수신기 및 예약 녹화 방법을 제공하기 위한 것이다.

또한, 본 발명은 광고 프로그램을 제외하고 본 방송 프로그램만을 예약 녹화하도록 한 디지털 방송 수신기 및 예약 녹화 방법을 제공하기 위한 것이다.

본 발명의 다른 목적들은 이하에 서술되는 바람직한 실시예를 통하여 보다 명확해질 것이다.

【발명의 구성】

상술한 목적을 달성하기 위한 본 발명의 일측면에 따르면, 본 발명은 디지털 방송 수신기에서의 예약 녹화 방법에 있어서, 하나 이상의 채널을 포함하는 예약 채널을 동록하는 단계; 상기 예약 채널로부터 수신되는 방송 데이터를 미리 설정된 기준에 따른 예약 녹화 프로그램으로서 저장하는 단계; 및 상기 예약 프로그램
램의 저장이 완료되고 다음 예약 프로그램에 따른 방송 데이터가 수신되면 상기 저장된 예약 프로그램이 대체되도록 상기 다음 예약 프로그램을 저장하는 단계를 포함하는 예약 녹화 방법에 관한 것이다.

여기서, 상기 미리 설정된 기준은 하나 이상의 방송 프로그램 단위 또는 예약 녹화 시간이 제한된 하나 이상의 방송 프로그램 단위일 수 있다.

또한, 상기 예약 채널에 따른 하나의 채널로부터의 방송 데이터 제성이 요청되면, 사용자의 선택에 따라 상기 예약 녹화 프로그램으로써 저장된 방송 데이터를 처음부터 재생할 수 있다.

여기서, 상기 예약 녹화 프로그램을 처음부터 재생하지 않는 경우, 상기 예약 녹화 프로그램의 녹화를 유지할 것인지 또는 중지할 것인지 선택할 수 있다.

또한, 방송 중인 예약 채널에서 다른 채널로 변경되는 경우, 상기 예약 채널에서 재생하고 있던 예약 녹화 프로그램의 녹화를 유지할 것인지 또는 중지할 것인지 여부를 선택할 수 있다.

또한, 상기 예약 녹화 프로그램의 녹화를 유지하는 경우, 상기 예약 녹화 프로그램의 변경 시점에 상용하는 부분을 클리핑(clipping)하는 단계를 더 포함할 수 있다.

또한, 상기 예약 채널 중 하나 이상의 동록을 해지하고, 다른 채널을 예약 채널로서 동록하는 단계를 더 포함할 수 있다.

또한, 상기 예약 채널로부터 수신되는 방송 데이터의 이벤트가 변경되고 n번.
이내에 다시 방송 데이터의 이벤트가 변경된 경우, 상기 n분 동안 저장된 방송 데이터를 삭제할 수 있다.

여기서, 상기 n은 0.1 내지 10인 것일 수 있다.

또한, 상기 방송 데이터에 포함된 광고 프로그램 식별 정보를 이용하여 광고 프로그램을 검출하고, 상기 검출된 광고 프로그램에 따른 방송 데이터를 삭제하는 단계를 더 포함할 수 있다.

본 발명의 다른 측면에 따르면, 본 발명은 하나 이상의 채널을 예약 채널로 등록하고, 상기 예약 채널로부터 수신되는 방송 데이터를 미리 설정된 기준에 따른 예약 녹화 프로그램으로써 저장하며, 상기 예약 프로그램의 저장이 완료되고 다음 예약 프로그램에 따른 방송 데이터가 수신되면 상기 저장된 예약 프로그램이 대체되도록 상기 다음 예약 프로그램을 저장시키는 제어부; 및 상기 예약 채널로 등록된 채널 정보 및 상기 예약 녹화 프로그램에 따른 방송 데이터를 저장하는 저장부를 포함할 수 있다.

여기서, 미리 설정된 기준은 상기 미리 설정된 기준은 하나 이상의 방송 프로그램 단위 또는 예약 녹화 시간이 제한된 하나 이상의 방송 프로그램 단위일 수 있다.

또한, 상기 예약 채널에 따른 하나의 채널로부터의 방송 데이터 재생이 요청되면, 상기 예약 녹화 프로그램으로써 저장된 방송 데이터를 처음부터 재생할 것인 지를 사용자로부터 선택 받기 위한 사용자 인터페이스부를 더 포함할 수 있다.
또한, 상기 예약 녹화 프로그램을 처음부터 재생하지 않는 경우, 상기 예약 녹화 프로그램의 녹화를 유지할 것인지 또는 중지할 것인지지를 상기 사용자 인터페이스부를 통해 사용자로부터 선택받을 수 있다.

또한, 방송 중인 예약 채널에서 다른 채널로 변경되는 경우, 상기 제어부는 상기 예약 채널에서 재생하고 있던 예약 녹화 프로그램의 녹화를 유지할 것인지 또는 중지할 것인지 여부를 선택할 수 있다.

또한, 상기 예약 녹화 프로그램의 녹화가 유지되도록 선택된 경우, 상기 제어부는 상기 예약 녹화 프로그램의 변경 시점에 상응하는 부분을 클리핑(clipping)할 수 있다.

또한, 상기 제어부는 상기 예약 채널 중 하나 이상의 동록을 해지하고, 다른 채널을 예약 채널로서 동록할 수 있다.

또한, 상기 제어부는 상기 예약 채널로부터 수신되는 방송 데이터의 이벤트가 변경되고 n분 이내에 다시 방송 데이터의 이벤트가 변경된 경우, 상기 n분 동안 저장된 방송 데이터를 삭제할 수 있다.

여기서, 상기 n은 0.1 내지 10인 것일 수 있다.

또한, 상기 제어부는 상기 방송 데이터에 포함된 광고 프로그램 식별 정보를 이용하여 광고 프로그램을 검출하고, 상기 검출된 광고 프로그램에 따른 방송 데이터를 삭제할 수 있다.
본 발명은 다양한 변경을 가할 수 있고 여러 가지 실시예를 가질 수 있는 바, 특정 실시예들을 도면에 예시하고 상세한 설명에 상세하게 설명하고자 한다.

그러나, 이는 본 발명을 특정한 실시 형태에 대해 한정하려는 것이 아니며, 본 발명의 사상 및 기술 범위에 포함되는 모든 변경, 균등을 내지 대체물임을 포함하는 것으로 이해되어야 한다.

제1, 제2 등과 같이 서수를 포함하는 용어는 다양한 구성요소들을 설명하는데 사용될 수 있지만, 상기 구성요소들은 상기 용어들에 의해 한정되지 않는다는.

상기 용어들은 하나의 구성요소를 다른 구성요소로부터 구별하는 목적으로만 사용된다. 예를 들어, 본 발명의 권리 범위를 벗어나지 않으면서 제1 구성요소는 제2 구성요소로 명명될 수 있고, 유사하게 제2 구성요소도 제1 구성요소로 명명될 수 있다. 및/또는 이라는 용어는 복수의 관련된 기재된 항목들의 조합 또는 복수의 관련된 기재된 항목들 중의 어느 항목을 포함한다.

어떤 구성요소가 다른 구성요소에 "연결되어" 있다거나 "접속되어" 있다고 언급된 때에는, 그 다른 구성요소에 직접적으로 연결되어 있거나 또는 접속되어 있을 수도 있지만, 중간에 다른 구성요소가 존재할 수도 있다고 이해되어야 할 것이 다. 반면에, 어떤 구성요소가 다른 구성요소에 "직접 연결되어" 있다거나 "직접 접속되어" 있다고 언급된 때에는, 중간에 다른 구성요소가 존재하지 않는 것으로 이해되어야 할 것이다.

본 출원에서 사용한 용어는 단지 특정한 실시예를 설명하기 위해 사용된 것으로, 본 발명을 한정하려는 의도가 없다. 단수의 표현은 문맥상 명백하게 다르게.
게 뜻하지 않는 한, 복수의 표현을 포함한다. 본 출원에서, "포함하다" 또는 "가지다" 등의 용어는 명세서상에 기재된 특정, 숫자, 단계, 동작, 구성요소, 부품 또는 이들을 조합한 것이 존재함을 지정하려는 것이지, 하나 또는 그 이상의 다른 특징들이나 숫자, 단계, 동작, 구성요소, 부품 또는 이들을 조합한 것들의 존재 또는 부가 가능성을 미리 배제하지 않는 것으로 이해되어야 한다.

다르게 정의되지 않는 한, 기술적이거나 과학적인 용어를 포함해서 여기서 사용되는 모든 용어들은 본 발명이 속하는 기술 분야에서 통상의 지식을 가진 자에 의해 일반적으로 이해되는 것과 동일한 의미를 가지고 있다. 일반적으로 사용되는 사전에 정의되어 있는 것과 같은 용어들은 관련 기술의 문맥 상 가지는 의미와 일치하는 의미를 가지는 것으로 해석되어야 하며, 본 출원에서 명백하게 정의하지 않는 한, 이상적이거나 과도하게 형식적인 의미로 해석되지 않는다.

이하, 첨부한 도면들을 참조하여 본 발명에 따른 바람직한 실시예를 상세히 설명하기로 하며, 첨부 도면을 참조하여 설명함에 있어 도면 부호에 상관없이 동일하거나 대응하는 구성 요소는 동일한 참조번호를 부여하고 이에 대한 중복되는 설명은 생략하기로 한다.

도 1은 본 발명의 바람직한 일 실시예에 따른 디지털 방송 수신기에서의 예약녹화 방법을 제공하기 위한 전체 시스템을 개략적으로 나타낸 구성도이다.

도 1을 참조하면, 디지털 위성 방송을 수신하기 위한 셋톱 박스(settop box, 이하 STB)와 같은 디지털 방송 수신기(110)에는 방송국(120)에 연결된 안테나(13
0)와 텔레비전 등의 디스플레이 기기(140)가 연결 접속될 수 있다.

방송국(120)은 공중파 방송국, 케이블 방송국, 위성 방송국 등의 방송 프로그램을 제공하는 모든 장치가 동일하게 구현될 수 있다. 방송국(120)으로부터의 방송은 각각 공중파, 케이블 및 위성 등 중 하나 이상을 통하여 디지털 방송 수신기(110)로 수신된다.

안테나(130)는 예컨대, 위성 방송을 수신하는 경우, 방송 위성을 통해 중계되는 디지털 위성 방송을 수신하기 위한 것으로, 지상에 위치한 방송국(120)에서 송출한 송신 전파를 수신한 후, 이를 위성 내부에서 중복하여 지상으로 재송신하는 트랜스폰더(Transponder)에 의해 중계되는 디지털 위성 방송을 수신하여, 디지털 방송 수신기(110)로 출력하게 된다.

디지털 방송 수신기(110)는 공중파를 통한 방송 신호, 케이블을 통한 방송 신호 및 위성으로부터 수신된 방송 신호를 수신하여, 방송 신호 중 각각의 프로그램을 선택할 수 있다. 디지털 방송 수신기(110)는 선택된 방송 채널을 선곡하고, 선곡된 채널의 비디오/오디오 데이터를 텔레비전 등의 디스플레이 기기(140)에 출력한다.

그리고, 디지털 방송 수신기(110)는 수신되는 트랜스포트 스트림(Transport Stream)의 디지털 방송 프로그램을 원래의 비디오 및 오디오 신호로 복원 및 신호 처리한 후, 그 비디오 및 오디오 신호를 텔레비전을 통해 출력 표시하여, 사용자가 원하는 디지털 방송 프로그램을 시청할 수 있게 된다.
도 2는 본 발명의 일 실시예에 따른 예약 녹화 방법에 적용되는 디지털 방송 수신기의 내부 구성요소를 나타낸 블록도이다.

도 2를 참조하면, 본 실시예에 따른 디지털 방송 수신기(110)는 제어부(210), 방송 신호 처리부(220), 사용자 인터페이스부(230), 저장부(240) 및 광고 검출부(218)를 포함한다.

제어부(210)는 예약 녹화 제어부(212) 및 클리핑 제어부(214)를 포함할 수 있다. 또한, 방송 신호 처리부(220)는 튜닝/복조부(222), 역다중화부(224) 및 디코더부(226)를 포함할 수 있다.

튜닝/복조부(222)는 튜닝 제어부(216)로부터 제공되는 튜닝 제어 신호에 응답하여, 사용자가 예약 녹화하도록 등록한 채널을 튜닝한다. 즉, 안테나(130)를 통해 수신되는 방송 신호에서, 특정 채널의 방송 프로그램을 오디오 및 비디오 패킷 데이터들을 추출한다. 이렇게 추출된 오디오 및 비디오 패킷 데이터들은 중간 주파수로의 변환, 복조 및 오류 정정 등의 과정을 거쳐 전송 스트림으로 복원되어 역다중화부(224)로 전달된다.

이어서, 역다중화부(224)는 전송 스트림에서 오디오 패킷 데이터와 비디오 패킷 데이터를 분리하여 디코더부(226)로 전달한다. 디코더부(226)는 오디오 패킷 데이터와 비디오 패킷 데이터를 디코딩하여 스피커 및 LCD 등의 출력부(도시되지 않음)로 출력한다.

사용자 인터페이스부(230)는 예약 녹화를 위한 키입력 신호를 인가하는 리모
트 컨트롤러 또는 키메트릭스 등의 입력부(도시되지 않음)를 포함하며, 입력부로부터 수신된 예약 녹화 또는 해제 명령 등을 제어부(210)로 제공하는 역할을 수행한다.

저장부(240)에는 제어부(210)의 제어에 의해 동록된 예약 채널, 예약 녹화 시간 등의 예약 녹화 정보가 저장될 수 있다. 또한, 저장부(240)에는 예약 녹화된 오디오/비디오 데이터를 포함하는 예약 녹화 프로그램을 저장될 수 있다.

저장부(240)는 에코데, 고용량 저장 매체인 하드 디스크(HDD)일 수 있다. 본 발명의 다른 실시예에 따르면, 디지털 방송 수신기(110)는 저장부(240)를 구비하지 아니하고 통신망(예를 들어, 인터넷망), 로컬 네트워크(LAN) 등을 통해 결합된 임시 서버를 저장부(240)의 역할로서 대행시킬 수도 있다.

제어부(210)는 디지털 방송 수신기(110)의 전반적인 동작을 제어하여, 수신된 방송 신호를 디스플레이 기기(140)에게 제공하도록 한다. 에코데, 튜닝 제어 신호를 발생하여 사용자의 선택을 받거나 예약된 채널의 튜닝을 제어하고, 디코딩 제어 신호를 발생하여 압축 부호화된 오디오 및 비디오 신호의 디코딩을 제어한다.

특히, 예약 녹화 제어부(212)는 사용자 인터페이스부(230)를 통해 예약 채널, 예약 녹화 프로그램 또는 예약 녹화 시작/해제 시간 등을 입력 받아 저장부(240)에 저장하고, 그 예약 녹화 시간이 도래하면 예약 채널에 대한 녹화를 수행한다.

본 실시예에서 "예약 녹화"라는 함은 특정 채널의 프로그램에 대한 녹화 명령을 미리 설정하여 두면 제어부(210)의 제어에 따라 해당 채널의 현재 방송되는 방
송 프로그램을 자동으로 녹화하는 기능을 일 khiển한다. 또한, "예약 녹화 프로그램"이란 미리 설정된 기준에 따라 녹화된 방송 데이터를 의미한다. 미리 설정된 기준에 대한 설명은 후술하기로 한다.

다른 실시예에 따르면, 예약 녹화 제어부(212)는 사용자 인터페이스부(230)를 통한 사용자의 명령에 호응하여, 사용자가 시청하고 있는 예약 녹화 프로그램의 처음부터 재생할 것인지, 예약 녹화 프로그램의 녹화를 중지할 것인지 등을 제어하는 역할을 수행한다.

클리핑 제어부(214)는 시청자가 채널을 변경하는 시점의 방송 신호를 클리핑 (Clipping)하여 기억하였다가 추후 클리핑 부분을 복원하는 역할을 수행한다. 여기서, "클리핑"이란 시청자가 필요로 하는 일부분만을 기록하는 일부 녹화 또는 편집 기능 등을 일컫는다.

튜닝 제어부(216)는 사용자가 예약한 특정 채널을 튜닝하기 위하여, 튜너/복조부(222)를 제어하여 특정 채널의 방송 프로그램용 오디오 및 비디오 패킷 데이터 등을 추출한다.

광고 검출부(218)는 예약 녹화된 방송 데이터 중에서 광고 프로그램을 검출하는 역할을 수행한다. 광고 프로그램을 검출하기 위하여 여러 가지 실시예를 상정할 수 있다.

그 중의 일 실시예로서, 예약 채널로부터 수신되는 방송 데이터의 이벤트가 변경되고 n분 후에 다시 방송 데이터의 이벤트가 변경된 경우, 특히 상기 방송 프로그램의 길이가 10분 이하인 경우라면 광고 프로그램으로 판단할 수 있다.
따라서, 이러한 광고 프로그램에 상응하는 방송 테이터는 저장부(240)에서 삭제함으로써 본 방송 프로그램만을 저장하도록 할 수 있다. 이에 대한 상세한 설명은 후술하기로 한다.

다른 실시예로서, 예약 채널로부터 수신된 방송 테이터에 포함된 광고 프로그램 식별 정보를 이용하여 광고 프로그램을 검출할 수 있다. 이렇게 검출된 광고 프로그램은 제어부(210)의 제어 하에 녹화되지 않도록 함으로써 불필요한 방송 데이터를 저장하지 않도록 할 수 있다. 또는, 예약 채널로 수신된 방송 테이터는 예약 녹화 프로그램으로써 일단 저장하고, 차후 광고 검출부(218)에서 광고 프로그램을 검출한 후 삭제할 수도 있을 것이다.

여기서, 광고 식별 정보는 방송 신호에 실려있는 방송 프로그램 식별 코드일 수 있고, 상기 식별 코드를 본 방송 프로그램과 광고 프로그램을 구분하여 방송 신호에 실은 경우, 광고 검출부(218)는 식별 코드의 전송 유무에 따라 광고 프로그램을 구별할 수 있다.

또한, 광고 식별 정보는 방송 테이터의 영상 프레임 내에 포함된 예고 자막 표시일 수 있다. 광고 프로그램이 수신되는 경우, 그 광고 방송의 영상 프레임 중 우측 상단 부분에는 본 방송 프로그램을 예고하는 소형 크기의 예고 자막이 표시될 수 있다. 광고 검출부(218)는 시간적으로 연속되는 다수의 영상 프레임들의 특정 영역을 지속적으로 감시 및 비교하여, 예고 자막 표시가 오프되는 시점을 검출하게 된다. 이렇게 검출된 예고 자막이 계속 표시되고 있는 경우, 광고 검출부(218)는 광고 방송이 수신되고 있다고 판별할 수 있다.
도 3은 본 발명의 일 실시예에 따른 예약 녹화 방법을 나타낸순서도이다.

단계 310에서, 디지털 방송 수신기(110)는 하나 이상의 예약 채널을 설정한다. 즉, 사용자로부터 채널 정보를 포함하는 예약 녹화 명령이 입력되면, 디지털 방송 수신기(110)는 해당 채널을 예약 채널로써 등록한다.

여기서, 예약 녹화를 위하여 등록된 채널을 "예약 채널"이라고 하면, 예약 채널은 하나 이상일 수 있는데, 해당 디지털 방송 수신기에서 동시에 전송 가능한 최대의 채널 수만큼 설정할 수 있다.

즉, 복수의 예약 채널이 설정된 경우, 모든 예약 채널에서 동시 녹화할 수 있음을 물론이고, 그 중 하나의 채널의 방송을 시청하고 나머지 예약 채널에 대한 방송 프로그램은 동시에 녹화하는 것 또한 가능하다.

이는 복수의 튜너를 구비하거나, 복수의 디코더를 구비함으로써 가능할 수 있다. 즉, 복수 개의 튜너를 구비한 디지털 방송 수신기는 m개의 채널을 예약 채널로서 등록하고 각 튜너 별로 녹화할 수 있다. 또한, 1 튜너 제품이라 하더라도 디코더를 여러 개 구비한 경우, 하나의 트랜스폰더에 실려 있는 복수의 프로그램에 대해 예약 녹화할 수 있다.

도 3에서는 예약 채널을 미리 설정한 경우를 가정하였지만, 예약 채널의 설정 및 변경은 시청 중을 포함하여 어느 때라도 가능하다. 즉, 최대 예약 채널 개수 만큼 설정하지 않은 경우, 어느 때라도 예약 채널 설정을 시도할 수 있다. 또한,
최대 예약 채널 개수만큼 설정된 경우, 그 중 하나 이상의 예약 채널 설정을 해지하고 다른 채널을 예약 채널로 설정할 수 있다.

단체 320에서 디지털 방송 수신기(110)는 등록된 예약 채널 각각에 대하여 예약 녹화 시간, 예전의 예약 녹화 시작 시간 또는 예약 녹화 해제 시간 등을 함께 등록할 수 있다. 예를 들어, 사용자는 주로 시청하는 채널 11번과 7번을 예약 채널로 등록하면서, 자신의 퇴근 시간을 고려하여 예약 녹화 시작 시간을 오후 7시로 설정하고, 취침 시간을 고려하여 예약 녹화 해제 시간을 오후 11시로 설정할 수 있을 것이다.

디지털 방송 수신기(110)의 시스템 전원이 온(on) 또는 오프(off) 상태인지와 상관없이, 단계 330에서 제어부(210)는 예약 녹화를 위하여 대기 상태, 즉 마이클(도시되지 않음)의 전원이 온(on)된 상태일 수 있다.

이후, 단계 340에서 예약 녹화 시작 시간이 도래하면, 단계 340에서 디지털 방송 수신기(110)의 시스템 전원이 켜지고, 튜너/복조부(222)에서 예약 채널을 투

단체 360에서, 디지털 방송 수신기(110)는 예약 채널로 등록된 채널로부터 수신되는 방송 데이터 중 미리 설정된 기준에 따른 일부를 예약 녹화 프로그램으로 써 저장한다.

여기서, "미리 설정된 기준"이란 사용자에 의하여 지정된 프로그램 개수일 수 있고, 또한 프로그램 개수 및 녹화 시간 -예전, 프로그램 개수를 설정하여 써
대 녹화 시간을 제한하는 형태- 일 수도 있다.

한편, 본 실시예에서 미리 설정된 기준으로 예약 녹화하는 이유는 하드 디스크 등과 같은 메모리들의 저장 용량이 가격에 비례하여 증가된다는 일반적인 사실을 고려할 때, 가격 경쟁력을 저해하는 메모리 용량을 증대시키지 아니하기 위함이 다.

또한, 본 실시예에서 사용하는 "예약 녹화 프로그램"이라 는 용어는 미리 설정된 기준에 속하는 하나 이상의 방송 프로그램들을 모두 포함하는 의미이다. 이때, 예약 녹화 프로그램은 사용자 설정에 따라 광고를 포함한 형태일 수 있고, 광고를 제외한 방송 프로그램으로만 이루어진 형태일 수도 있다. 광고를 제외하는 방법에 대한 구체적인 방법은 후술하기로 한다.

본 실시예에서, 미리 설정된 기준은 1개의 프로그램일 수 있다. 즉, 예약 채널로 등록된 하나 이상의 채널에 대하여, 방송 프로그램 단위로 저장과 삭제를 반복할 수 있다. 이러한 경우, 복수 개의 프로그램을 예약 녹화 프로그램으로 지정한 경우보다 필요한 메모리 용량이 적어 경제적이다. 또한, 복수 개의 프로그램 중 재생하여야 할 방송 프로그램을 선택하는 단계를 거치지 않고, 바로 현재 시청하고 있는 방송 프로그램을 재생한다는 점에서 간편하다는 이점이 있다.

다시 도 3을 참조하면, 디지털 방송 수신기(110)는 하나의 예약 녹화 프로그램에 대한 녹화가 완료되면, 단계 370에서 해당 채널로부터 연속하여 수신되는 방송 데이터가 다음 예약 녹화 프로그램인지를 확인한다.

여기서, "다음 예약 녹화 프로그램"이란 저장되고 있는 하나의 예약 녹화 프
로그램 이후, 해당 채널에서 연속하여 방송되어 예약 녹화 프로그램으로써 저장될 방송 프로그램을 의미한다.

예약 채널에서 수신되는 프로그램이 다음 예약 녹화 프로그램이라면, 디지털 방송 수신기(110)는 단계 380에서 이전에 저장된 예약 녹화 프로그램을 대체하여 다음 예약 녹화 프로그램을 녹화할 수 있다.

즉, 녹화가 완료된 예약 녹화 프로그램에 상응하는 데이터를 삭제하고 다음 예약 녹화 프로그램을 녹화할 수 있다. 이때, 디지털 방송 수신기(110)는 이전 예약 녹화 프로그램을 모두 삭제할 수도 있고, 다음 예약 녹화 프로그램을 녹화하는 분량만큼 오래된 녹화분부터 또는 최근의 녹화분부터 순차적으로 삭제함으로써 녹화량을 일정하게 유지할 수도 있다.

물론, 디지털 방송 수신기(110)의 메모리 용량이 충분히 크다면, 다음 예약 녹화 프로그램이 모두 녹화 완료된 이후, 이전 예약 녹화 프로그램에 상응하는 데이터를 삭제될 수도 있다. 또한, 녹화가 완료된 이전 예약 녹화 프로그램을 삭제하지 않도록 설정할 수도 있을 것이다.

또한, 디지털 방송 수신기(110)는 예약 채널을 이용하여 예약 녹화 프로그램을 녹화하는 것과는 별도로 특정 방송 프로그램을 미리 저장하여 예약 녹화를 설정할 수 있는데, 예약 녹화하도록 설정된 특정 방송 프로그램이 상기 예약 녹화 프로그램과 동일하다면 해당 방송 프로그램은 삭제하지 않도록 설정할 수 있다.

이와 같이 본 실시예에 따르면, 디지털 방송 수신기(110)가 미리 설정된 기준으로 예약 녹화 프로그램을 저장함으로써, 사용자는 미리 방송 프로그램 스케줄
울 일일이 체크하여 예약 녹화하는 변경로움을 피할 수 있다.

또한, 사용자는 예약 채널로 설정한 해당 채널의 특정 방송 프로그램을 중간부터 시청하게 된 경우라도 하더라도 해당 방송 프로그램이 예약 녹화 프로그램으로써 저장되어 있으므로 처음부터 재생하여 시청할 수 있게 된다. 이에 대하여, 도 4에서 상세하게 설명하기로 한다.

도 4는 본 발명의 일 실시예에 따른 예약 녹화 프로그램의 재생 절차를 나타낸 순서도이다.

단계 410에서 디지털 방송 수신기(110)는 예약 채널을 선택한다. 예약 채널에서 방송되고 있는 프로그램이 예약 녹화 프로그램이 아닐 수도 있지만, 본 실시예에서는 단계 420과 같이 예약 녹화 프로그램에 속하는 프로그램이 방송되고 있는 경우를 상정한다.

본 실시예에 따르면, 디지털 방송 수신기(110)는 현재 재생 중인 프로그램의 처음부터 재생할 것인지지를 선택할 수 있는 기능이 설정되어 있다. 따라서, 예약 녹화 프로그램으로 녹화되고 있는 프로그램을 현재 재생하고 있다면, 디지털 방송 수신기(110)는 단계 430에서 예약 녹화 프로그램 재생 메시지(예컨대, "처음부터 재생하시겠습니까?"등)을 포함하는 선택 메뉴 화면을 출력한다. 이러한 예약 녹화 프로그램 재생 메시지 출력은 선택적으로 이루어질 수 있다.

본 실시예에서 "처음부터"라는 의미는 예약 채널에 따른 하나의 채널로부터
의 방송 데이터 재생이 요청되면, 사용자의 선택에 따라 상기 예약 녹화 프로그램으로서 저장된 방송 데이터를 처음부터 재생하는 것이다.

예약 녹화 프로그램의 단위가 1개의 방송 프로그램인 경우에는 현재 재생 중인 방송 프로그램의 시작을 의미하는 것이나, 예약 녹화 프로그램이 복수 개의 프로그램으로 지정되어 있다면 복수 개의 프로그램 중 어느 하나를 선택하여 재생하는 단계를 더 포함하게 될 것이다.

예약 재생 메시지 출력에 호응하여 처음부터 재생하거나 재생하지 않는 명령을 사용자가 입력하는 경우, 단계 440에서 디지털 방송 수신기(110)는 예약 녹화 프로그램 녹화의 유지 여부를 선택할 수 있는 메시지를 출력할 수 있다. 처음부터 재생하지 않는 경우에도 녹화 유지 여부를 선택할 수 있도록 하는 이유는, 사용자가 추후 현재의 방송을 처음부터 재생하여 시청하기를 희망할 수 있기 때문이다.

만약 사용자 인터페이스부(230)를 통하여 사용자로부터 녹화 중지 명령이 입력되면, 디지털 방송 수신기(110)는 단계 450에서 현재 예약 녹화 프로그램에 대한 녹화를 중지한다. 이로써 사용자가 희망하지 않는 방송 프로그램이 불필요하게 녹화되는 것을 사전에 차단할 수 있다.

그러나, 녹화 중지 명령이 입력되지 않거나 녹화 유지 명령이 입력되는 경우라면, 디지털 방송 수신기(110)는 단계 460에서 예약 채널에 따른 예약 녹화 프로그램의 녹화를 계속 수행하게 된다.

위의 실시예에서는 예약 녹화 유지 여부에 대한 메시지를 출력하여 현재 시청하고 있는 채널의 예약 녹화를 유지할 것인지에 물어 선택적으로 예약 녹화할 수
있다. 그러나, 사용자가 현재 방송 프로그램을 처음부터 재생하지 않는 것을 선택한 경우, 예약 녹화 유지 여부에 대한 메시지 출력 없이 바로 예약 녹화를 중지하도록 설정할 수도 있을 것이다.

또한, 본 실시예에서 전술한 예약 채널의 설정 및 해제, 변경은 해당 채널을 시청하고 있거나, 디지털 방송 수신기(110)가 대기 상태인 경우에도 가능하다.

본 발명의 또 다른 실시예로서, 예약 채널 시청 중에 사용자가 다른 채널을 시청하기 위해 채널 변경이 이루어지는 상황을 가정할 수도 있다. 즉, 사용자는 디지털 방송 수신기(110)를 조작(예를 들어, 리모트 컨트롤러로 제어)하여 채널 변경을 요청하면, 디스플레이되고 있는 채널을 변경할 수 있다. 이러한 경우는 아래의 도 5에 관한 설명에서 상세하게 다루기로 한다.

도 5는 본 발명의 일 실시예에 따른 예약 채널 변경에 따른 처리 방법을 나타낸 순서도이다.

디지털 방송 수신기(110)가 단계 510에서 예약 채널에 따른 프로그램을 재생하고 있는 도중, 단계 520에서 사용자 인터페이스부(230)를 통하여 사용자로부터 다른 채널로의 변경 명령이 입력될 수 있다.

이러한 명령을 수신한 디지털 방송 수신기(110)는 단계 530에서 기존의 예약 녹화 프로그램의 녹화를 중지할 것인지에 대한 예약 녹화 중지 메시지를 선택 메뉴화면을 통하여 사용자에게 출력한다.
여러한 예약 녹화 중지 메시지에 호응하여 사용자가 녹화 중지를 선택한 경우, 단계 540에서 디지털 방송 수신기(110)는 채널 변경 전의 예약 녹화 프로그램의 녹화를 중지할 수 있다.

반일 디지털 방송 수신기(110)가 단계 550과 같이 채널 전의 예약 녹화 프로그램의 녹화를 유지한다면, 이후 채널 전환시의 클리핑(clipping)하는 단계 560을 더 수행할 수 있다.

전술한 바와 같이, 클리핑은 시청자가 필요로 하는 일부분만을 기록하는 일부 녹화 또는 편집 기능 등을 일컫으며, 소프트클리핑(Soft-Clipping), 스무딩(Smoothing-Clipping) 등의 기술을 이용하여 구현될 수 있다.

본 실시예에서는 시청자가 채널을 변경하는 시점의 방송 신호를 클리핑하여 기억하였다가 추후 클리핑 부분을 복원함으로써, 향후 다시 본래 시청하던 예약 채널로 전환하면 사용자가 시청하던 부분부터 시청할 수 있게 된다.

따라서, 본 실시예에 따르면, 예약 녹화 프로그램을 처음부터 재생함으로써 동일한 내용을 반복하여 시청하는 불편함을 피하게 되어, 시청자의 편의를 증진시킬 수 있다.

도 6은 본 발명의 일 실시예에 따른 예약 녹화 프로그램에서 광고 프로그램을 제외하는 방법을 나타낸 순서도이다.

도 6을 참조하면, 단계 610에서 디지털 방송 수신기(110)는 예약 채널로부터
수신되는 방송 데이터를 미리 설정된 기준에 따른 예약 녹화 프로그램으로써 저장한다.

단계 620에서, 광고 검출부(218)는 수신되고 있는 방송 데이터의 이벤트 변경이 발생되었음을 인지한다. 여기서, 이벤트 변경이란 방송 프로그램이 달라지는 것을 의미한다. 예를 들어, "주몽"이라는 드라마가 끝나고 "XX 화장품에 대한 광고"를 방송하는 경우 방송 데이터의 이벤트가 변경된 것으로 볼 수 있다. 서로 다른 광고 프로그램 또한 이벤트가 변경되는 것으로 볼 것이다.

광고 검출부(218)는 방송 데이터의 이벤트 변경이 일어난 시점의 시간을 체크할 수 있다. 따라서, 단계 630에서 예약 녹화 프로그램 내의 방송 데이터의 이벤트 변경이 일어난 이후 n분 이내에, 그 다음의 방송 데이터 이벤트 변경이 발생하였는지 또한 체크할 수 있다.

여기서, n분은 0.1분(즉, 10초) 이상 10분 이하로 설정하는 것이 바람직하다. 이는 광고라고 볼 수 있는 프로그램이 보통 재생되는 시간을 고려한 것이다. 즉, 광고는 대체로 1분 미만이므로, 10분 내에 이벤트 변경이 발생하였다는 것은 그 시간 사이의 프로그램은 광고에 해당한다고 판단할 수 있을 것이다. 따라서, 광고 검출부(218)는 방송 데이터의 이벤트 변경 사이의 시간을 체크함으로써, 광고 프로그램과 본 방송 프로그램을 구분할 수 있다.

이와 같이 광고 프로그램을 선별한 경우, 단계 640에서 디지털 방송 수신기(110)는 광고 프로그램에 해당한다고 판단된, n분 동안 저장된 방송 데이터를 저장부(240)에서 삭제한다. 이로 인하여 볼 필요한 광고 방송이 예약 녹화 프로
그램으로써 저장되는 것을 피하고, 본 방송 프로그램만을 녹화할 수 있다.

도면에 도시하지 않았지만, 그 밖에도 광고를 제외하고 예약 녹화할 수 있는 다양한 실시예가 있을 수 있다.

다른 실시예로서, 방송국(120)으로부터 수신된 디지털 방송 스트림에 광고 프로그램이 포함된 경우에 광고 프로그램을 식별할 수 있는 광고 식별 정보를 함께 송출하고, 디지털 방송 수신기(110)에서는 예약 녹화 시에 광고 프로그램을 제외한 본 방송 프로그램만을 녹화하는 기술을 이용할 수 있을 것이다. 또는, 예약 채널로 수신된 방송 데이터는 예약 녹화 프로그램으로써 일단 저장하고, 차후 광고 검출부(218)에서 광고 프로그램을 검출한 후 삭제할 수도 있을 것이다.

전술한 바와 같이, 광고 식별 정보는 방송 신호에 실려있는 방송 프로그램 식별 코드일 수 있고, 광고 검출부(218)는 식별 코드의 전송 유무에 따라 광고 프로그램과 본 방송 프로그램을 구별할 수 있다.

또 다른 실시예로서, 광고 식별 정보는 방송 데이터의 영상 프레임 내에 포함된 예고 자막 표시를 할 수 있다. 광고 프로그램이 수신되는 경우, 그 광고 방송의 영상 프레임 중 우측 상단 부분에는 본 방송 프로그램을 예고하는 소형 크기의 예고 자막이 표시될 수 있다. 광고 검출부(218)는 시간적으로 연속되는 다수의 영상 프레임들의 특정 영역을 지속적으로 검사 및 비교하여, 예고 자막 표시가 오르는 시점을 검출하게 된다. 이렇게 검출된 예고 자막이 계속 표시되고 있는 경우, 광고 검출부(218)는 광고 방송이 수신되고 있다고 판별할 수 있다.

또 다른 실시예로서, 전자프로그램가이드(EPG)나 신문, 메거진 등을 통해서
프로그램 스케줄을 이용하여 본 방송 프로그램이 제생되는 시간만을 녹화하도록 할 수 있다. 예컨대, 본 방송 프로그램이 방송되는 시간인 7시 내지 7시 50분, 그리고 8시 내지 8시 50만을 녹화 시간으로 설정함으로써, 광고를 녹화하는 것을 피할 수 있을 것이다.

본 발명은 상기 실시예에 한정되지 않으며, 많은 변형이 본 발명의 사상 내에서 당 분야에서 통상의 지식을 가진 자에 의하여 가능함은 물론이다.

[발명의 효과]

이상에서 상술한 바와 같이 본 발명에 따르면, 하나 이상의 예약 채널에 대하여 미리 설정된 기준의 예약 녹화 프로그램을 녹화함으로써, 방송 프로그램에 대한 정보가 없이도 예약 녹화할 수 있다는 점에서 보다 예약 녹화 작업이 간편한 디지털 방송 수신기 및 예약 녹화 방법을 제공할 수 있는 효과가 있다.

또한, 본 발명의 일 실시예에 의하면, 사용자는 언제 TV를 켜는지와 관계 없이 현재 방송 중인 프로그램의 처음 시작 부분부터 시청이 가능함으로써 시청자에게 더 나은 서비스를 제공할 수 있다.

또한, 본 발명의 일 실시예에 의하면, 예약 채널을 이용하여 예약 녹화하는 경우에 광고 프로그램을 제외하고 본 방송 프로그램만을 녹화할 수 있어 경제적인 서비스를 제공할 수 있다.
상기에서는 본 발명의 바람직한 실시예를 참조하여 설명하였지만, 해당 기술
분야에서 통상의 지식을 가진 자라면 하기의 특히 청구범위에 기재된 본 발명의 사
상 및 영역으로부터 벗어나지 않는 범위 내에서 본 발명을 다양하게 수정 및 변경
시킬 수 있음을 이해할 수 있을 것이다.
【특허청구범위】

【청구항 1】

디지털 방송 수신기에서의 예약 녹화 방법에 있어서,

하나 이상의 채널을 포함하는 예약 채널을 동록하는 단계;

상기 예약 채널로부터 수신되는 방송 데이터를 미리 설정된 기준에 따른 예약 녹화 프로그램으로써 저장하는 단계; 및

상기 예약 프로그램의 저장이 완료되고 다음 예약 프로그램에 따른 방송 데이터가 수신되면 상기 저장된 예약 프로그램이 대체되도록 상기 다음 예약 프로그램을 저장하는 단계를 포함하는 예약 녹화 방법.

【청구항 2】

제 1항에 있어서,

상기 미리 설정된 기준은 하나 이상의 방송 프로그램 단위 또는 예약 녹화 시간이 제한된 하나 이상의 방송 프로그램 단위인 것을 특징으로 하는 예약 녹화 방법.

【청구항 3】

제 1항에 있어서,

상기 예약 채널에 따른 하나의 채널로부터의 방송 데이터 재생이 요청되면,
사용자의 선택에 따라 상기 예약 녹화 프로그램으로써 저장된 방송 데이터를 처음부터 재생하는 단계를 더 포함하는 예약 녹화 방법.

【청구항 4】

제 3항에 있어서,

상기 예약 녹화 프로그램을 처음부터 재생하지 않는 경우,

상기 예약 녹화 프로그램의 녹화를 유지할 것인지 또는 중지할 것인지를 선택하는 단계를 더 포함하는 예약 녹화 방법.

【청구항 5】

제 3항에 있어서,

재생 중인 예약 채널에서 다른 채널로 변경되는 경우,

상기 예약 채널에서 재생하고 있던 예약 녹화 프로그램의 녹화를 유지할 것인지 또는 중지할 것인지 여부를 선택하는 단계를 더 포함하는 예약 녹화 방법.

【청구항 6】

제 5항에 있어서,

상기 예약 녹화 프로그램의 녹화를 유지하는 경우,

상기 예약 녹화 프로그램의 변경 시점에 상응하는 부분을 클리핑(clipping)
하는 단계를 더 포함하는 예약 녹화 방법.

【청구항 7】

제 1항에 있어서,

상기 예약 채널 중 하나 이상의 동록을 해지하고, 다른 채널을 예약 채널로서 동록하는 단계를 더 포함하는 예약 녹화 방법.

【청구항 8】

제 1항에 있어서,

상기 예약 채널로부터 수신되는 방송 데이터의 이벤트가 변경되고 n분 이내에 다시 방송 데이터의 이벤트가 변경된 경우,

상기 n분 동안 저장된 방송 데이터를 삭제하는 것을 특징으로 하는 예약 녹화 방법.

【청구항 9】

제 8항에 있어서,

상기 n은 0.1 내지 10인 것을 특징으로 하는 예약 녹화 방법.
【청구항 10】

제 1항에 있어서,

상기 방송 데이터에 포함된 광고 프로그램 식별 정보를 이용하여 광고 프로그램을 검출하고, 상기 검출된 광고 프로그램에 따른 방송 데이터를 삭제하는 단계를 더 포함하는 예약 녹화 방법.

【청구항 11】

하나 이상의 채널을 예약 채널로 등록하고, 상기 예약 채널로부터 수신되는 방송 데이터를 미리 설정된 기준에 따른 예약 녹화 프로그램으로써 저장하며, 상기 예약 프로그램의 저장이 완료되고 다음 예약 프로그램에 따른 방송 데이터가 수신되면 상기 저장된 예약 프로그램이 대체되도록 상기 다음 예약 프로그램을 저장시키는 제어부; 및

상기 예약 채널로 등록된 채널 정보 및 상기 예약 녹화 프로그램에 따른 방송 데이터를 저장하는 저장부를 포함하는 디지털 방송 수신기.

【청구항 12】

제 11항에 있어서, 미리 설정된 기준은

상기 미리 설정된 기준은 하나 이상의 방송 프로그램 단위 또는 예약 녹화 시간이 제한된 하나 이상의 방송 프로그램 단위인 것을 특징으로 하는 디지털 방송
수신기.

【청구항 13】

제 11항에 있어서,

상기 예약 채널에 따른 하나의 채널로부터의 방송 데이터 재생이 요청되면,

상기 예약 녹화 프로그램으로서 저장된 방송 데이터를 처음부터 재생할 것인지 사용자로부터 선택 받기 위한 사용자 인터페이스부를 더 포함하는 것을 특징으로 하는 디지털 방송 수신기.

【청구항 14】

제 13항에 있어서,

상기 예약 녹화 프로그램을 처음부터 재생하지 않는 경우,

상기 예약 녹화 프로그램의 녹화를 유지할 것인지 또는 중지할 것인지를 상기 사용자 인터페이스부를 통해 사용자로부터 선택받는 것을 특징으로 하는 디지털 방송 수신기.

【청구항 15】

제 13항에 있어서,

재생 중인 예약 채널에서 다른 채널로 변경되는 경우,
상기 제어부는 상기 예약 채널에서 재생하고 있던 예약 녹화 프로그램의 녹화를 유지할 것인지 또는 중지할 것인지 여부를 선택하는 것을 특징으로 하는 디지털 방송 수신기.

【청구항 16】

제 15항에 있어서,

상기 예약 녹화 프로그램의 녹화가 유지되도록 선택된 경우,

상기 제어부는 상기 예약 녹화 프로그램의 변경 시점에 상응하는 부분을 클리핑(clipping)하는 것을 특징으로 하는 디지털 방송 수신기.

【청구항 17】

제 11항에 있어서,

상기 제어부는 상기 예약 채널 중 하나 이상의 등록을 해지하고, 다른 채널을 예약 채널로서 등록하는 것을 특징으로 하는 디지털 방송 수신기.

【청구항 18】

제 11항에 있어서,

상기 제어부는 상기 예약 채널로부터 수신되는 방송 데이터의 이벤트가 변경되고 n분 이내에 다시 방송 데이터의 이벤트가 변경된 경우,
상기 n분 동안 저장된 방송 데이터를 삭제하는 것을 특징으로 하는 디지털 방송 수신기.

【청구항 19】

제 18항에 있어서,

상기 n은 0.1 내지 10인 것을 특징으로 하는 디지털 방송 수신기.

【청구항 20】

제 11항에 있어서,

상기 제어부는 상기 방송 데이터에 포함된 광고 프로그램 식별 정보를 이용하여 광고 프로그램을 검출하고, 상기 검출된 광고 프로그램에 따른 방송 데이터를 삭제하는 것을 특징으로 하는 디지털 방송 수신기.
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【도 2】

방송 신호 처리부

튜너/복조부 → 역더좋화부 → 디코더부

제어부

예약녹화 제어부 → 사용자 인터페이스부

클리핑 제어부 → 저장부

튜닝 제어부

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n분동안 저장된 방송 데이터 삭제 640

종료
NOTICE TO FILE MISSING PARTS OF NONPROVISIONAL APPLICATION

FILED UNDER 37 CFR 1.53(b)

Filing Date Granted

Items Required To Avoid Abandonment:

An application number and filing date have been accorded to this application. The item(s) indicated below, however, are missing. Applicant is given TWO MONTHS from the date of this Notice within which to file all required items and pay any fees required below to avoid abandonment. Extensions of time may be obtained by filing a petition accompanied by the extension fee under the provisions of 37 CFR 1.136(a).

- The statutory basic filing fee is missing.
  Applicant must submit $310 to complete the basic filing fee for a non-small entity. If appropriate, applicant may make a written assertion of entitlement to small entity status and pay the small entity filing fee (37 CFR 1.27).
- The oath or declaration is missing.
  A properly signed oath or declaration in compliance with 37 CFR 1.63, identifying the application by the above Application Number and Filing Date, is required.
  Note: If a petition under 37 CFR 1.47 is being filed, an oath or declaration in compliance with 37 CFR 1.63 signed by all available joint inventors, or if no inventor is available by a party with sufficient proprietary interest, is required.

The applicant needs to satisfy supplemental fees problems indicated below.

The required item(s) identified below must be timely submitted to avoid abandonment:

- To avoid abandonment, a surcharge (for late submission of filing fee, search fee, examination fee or oath or declaration) as set forth in 37 CFR 1.16(f) of $130 for a non-small entity, must be submitted with the missing items identified in this notice.

SUMMARY OF FEES DUE:

Total additional fee(s) required for this application is $1160 for a non-small entity
- $310 Statutory basic filing fee.
- $130 Surcharge.
- The application search fee has not been paid. Applicant must submit $510 to complete the search fee.
- The application examination fee has not been paid. Applicant must submit $210 to complete the examination fee for a non-small entity.
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/meday/

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Office of Initial Patent Examination (571) 272-4000 or 1-800-PTO-9199
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CONFIRMATION NO. 8284

FILING RECEIPT

Date Mailed: 10/31/2007

Receipt is acknowledged of this non-provisional patent application. The application will be taken up for examination in due course. Applicant will be notified as to the results of the examination. Any correspondence concerning the application must include the following identification information: the U.S. APPLICATION NUMBER, FILING DATE, NAME OF APPLICANT, and TITLE OF INVENTION. Fees transmitted by check or draft are subject to collection. Please verify the accuracy of the data presented on this receipt. If an error is noted on this Filing Receipt, please write to the Office of Initial Patent Examination’s Filing Receipt Corrections. Please provide a copy of this Filing Receipt with the changes noted thereon. If you received a "Notice to File Missing Parts" for this application, please submit any corrections to this Filing Receipt with your reply to the Notice. When the USPTO processes the reply to the Notice, the USPTO will generate another Filing Receipt incorporating the requested corrections.

Applicant(s)

Seong OH, Residence Not Provided;
En-Kyung KWAK, Residence Not Provided;

Assignment For Published Patent Application

HUMAX Co., Ltd.

Power of Attorney: None

Domestic Priority data as claimed by applicant

Foreign Applications

REPUBLIC OF KOREA 10-2007-0017121 02/20/2007

If Required, Foreign Filing License Granted: 10/29/2007

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is US 11/872,132

Projected Publication Date: To Be Determined - pending completion of Missing Parts

Non-Publication Request: No

Early Publication Request: No
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UTILITY PATENT APPLICATION TRANSMITTAL UNDER 37 C.F.R.§1.53(b)

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Alexandria, VA 22314

Docket No.: EZ-0003

Sir:

Transmitted herewith for filing is the patent application of
INVENTORS: Seong OH and En-Kyung KWAK

FOR: DIGITAL BROADCASTING RECEIVER FOR PROGRAMMING RECORDING OF BROADCASTING PROGRAM AND METHOD THEREOF

Enclosed are:
1. ☒ 33 pages of specification, claims, abstract
2. ☒ 6 sheets of FORMAL drawings
3. ☐ _____ pages of newly executed Declaration & Power of Attorney (copy or original) (To Follow)
5. ☐ Applicant claims Small Entity Status
6. ☐ Information Disclosure Statement, Form PTO-1449 and _____ references
7. ☐ Assignment papers for HUMAX Co., Ltd. cover sheet, assignment and assignment fee) (To Follow)
8. ☐ Certified copy of Priority Application No. 10-2007-0017121 filed on February 20, 2007 in Korea (To Follow)
9. ☐ Two (2) return postcards
   ☐ Stamp & Return with Courier
   ☐ Prepaid postcard-stamped filing date & returned with unofficial Serial Number
10. ☐ Authorization under 37 C.F.R. §1.136(a)(3)
12. ☐ Other:

CLAIMS AS FILED

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Multiple Dependent Claims (If applicable) X $370.00

APPLICATION SIZE FEE ( - 100 = /50 x 260.00) BASIC FILING FEE $310.00

UTILITY SEARCH FEE $510.00

UTILITY EXAMINATION FEE $210.00

TOTAL FILING FEE $1,030.00

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☐ Any patent application processing fees under 37 C.F.R. 1.17.

☐ Any filing fees under 37 C.F.R. 1.16 for presentation of extra claims.

Respectfully submitted
KEDY & ASSOCIATES, LLP

Daniel Y.J. Kim
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703 766-3777 Dyk/da

Date: October 15, 2007

Please direct all correspondence to Customer Number 34610

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**Title of Invention:** DIGITAL BROADCASTING RECEIVER FOR PROGRAMMING RECORDING OF BROADCASTING PROGRAM AND METHOD THEREOF

**First Named Inventor/Applicant Name:** Seong OH

**Customer Number:** 34610

**Filer:** Daniel Y.J. Kim/Deborah Kimberlin

**Filer Authorized By:** Daniel Y.J. Kim

**Attorney Docket Number:** EZ-0003

**Receipt Date:** 15-OCT-2007

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**Time Stamp:** 12:44:09

**Application Type:** Utility under 35 USC 111(a)

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**New International Application Filed with the USPTO as a Receiving Office**
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DIGITAL BROADCASTING RECEIVER FOR PROGRAMMING RECORDING OF
BROADCASTING PROGRAM AND METHOD THEREOF

CROSS-REFERENCE TO RELATED PATENT APPLICATIONS

This application claims the benefit of Korean Patent Application No. 10-2007-0017121, filed on February 20, 2007, in the Korean Intellectual Property Office, the disclosure of which is incorporated herein in its entirety by reference.

BACKGROUND OF THE INVENTION

Field of the Invention

The present invention relates to programming a recording of a broadcast program. More specifically, the present invention relates to a digital broadcasting receiver for programming a recording of a digital broadcast program and a method thereof.

Description of the Related Technology

For the recording of a broadcast program transmitted from a broadcasting station, a personal video recorder (referred to as PVR, hereinafter) equipped with a hard disk drive (referred to as HDD, hereinafter) has been conventionally used.

The PVR records digital and analog broadcast signals, received through a television set, in the HDD, which is a storage device, and plays back the signals by use
of a file playback method that is used in a computer, for example. The PVR is equipped with a central processing unit (CPU), a memory chip, in which an operating system and playback software are installed, and an HDD.

Typically, the PVR uses a file for time shift recording (TSR), which repeatedly stores the broadcast data in time units. Because of this, only a portion of certain broadcast program may be stored, making a user unable to watch the complete program.

In other generally-used programmed recording technologies besides the TSR, the user had to register information for programmed recording, such as the name of the broadcasting station, the broadcasting channel, and the recording time, obtained through an electronic program guide (EPG), newspaper, and magazine.

Such programmed recording methods, however, required the user to collect the information on the broadcast program and program the recording information everyday.

**SUMMARY OF CERTAIN INVENTIVE ASPECTS**

The present invention provides a method for programming a recording of a desired broadcast program without exact information on the broadcast program and a digital broadcasting receiver executing the method.

The present invention also provides a digital broadcasting receiver and a method for programming a recording that allow the user to watch the currently broadcast program of a programmed channel from the beginning of the program.
regardless of when the user turns on the TV.

The present invention also provides a digital broadcasting receiver and a method for programming a recording that exclude commercials from a broadcast program during the programmed recording.

An aspect of the present invention features a method of programming a recording in a digital broadcasting receiver. The method of programming a recording in accordance with an embodiment of the present invention includes the steps of: registering a programmed channel including one or more channels; storing broadcast data received from the programmed channel as a programmed-recording program in accordance with a predetermined criterion; and storing a next programmed-recording program to replace the stored programmed-recording program if the programmed-recording program is completely stored and broadcast data corresponding to the next programmed-recording program is received.

The predetermined criterion can include at least one broadcast program unit or at least one broadcast program unit, the programmed recording time of which is restricted.

If playing back of broadcast data from one channel of the programmed channel is requested, the broadcast data stored as the programmed-recording program is played back from the beginning in accordance with a selection by a user.
If the programmed-recording program is not played back from the beginning, it can be selected whether to continue or stop recording the programmed-recording program.

If the programmed channel, on which the programmed-recording program is being played back, is changed to another channel, it can be selected whether to continue or stop recording the programmed-recording program which is being played back on the programmed channel,

If the programmed-recording program is continued to be recorded, a portion corresponding to a point where the programmed-recording program is changed can be clipped.

The method can also include cancelling one or more channels of the programmed channel and registering another channel as the programmed channel.

If an event of the broadcast data received from the programmed channel is changed and the event of the broadcast data is changed again within n minutes, broadcast data stored for the n minutes can be deleted.

Here, the n can be between 0.1 and 10.

The method can also include detecting a commercial program by using commercial program identification information included in the broadcast data and deleting broadcast data corresponding to the detected commercial program.

Another aspect of the present invention features a digital broadcasting receiver.
The digital broadcasting receiver in accordance with an embodiment of the present invention includes: a control unit, registering one or more channels as a programmed channel, storing broadcast data received from the programmed channel as a programmed-recording program in accordance with a predetermined criterion, and storing a next programmed-recording program to replace the stored programmed-recording program if the programmed-recording program is completely stored and broadcast data corresponding to the next programmed-recording program is received; and a storage unit, storing broadcast data corresponding to the programmed-recording program and channel information registered as the programmed channel.

The predetermined criterion can include at least one broadcast program unit or at least one broadcast program unit, the programmed recording time of which is restricted.

The digital broadcasting receiver can also include a user interface for allowing a user to select whether broadcast data stored as the programmed-recording program is to be played back from the beginning, if playing back of broadcast data from one channel of the programmed channel is requested.

If the programmed-recording program is not played back from the beginning, the user can select through the user interface whether to continue or stop recording the programmed-recording program.
If the programmed channel, on which the programmed-recording program is being played back, is changed to another channel, the control unit can select whether to continue or stop recording the programmed-recording program which is being played back on the programmed channel.

If continued recording of the programmed-recording program is selected, the control unit can clip a portion corresponding to a point where the programmed-recording program is changed.

The control unit can cancel one or more channels of the programmed channel and register another channel as the programmed channel.

If an event of the broadcast data received from the programmed channel is changed and the event of the broadcast data is changed again within n minutes, the control unit can delete broadcast data stored for the n minutes.

Here, the n can be between 0.1 and 10.

The control unit can detect a commercial program by using commercial program identification information included in the broadcast data and delete broadcast data corresponding to the detected commercial program.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 shows a brief diagram of an entire system for providing a method of programming a recording in a digital broadcasting receiver in accordance with an
embodiment of the present invention.

FIG. 2 shows a block diagram of an inside of a digital broadcasting receiver that is applied with the method of programming the recording in accordance with an embodiment of the present invention.

FIG. 3 shows a flowchart of the method of programming the recording in accordance with an embodiment of the present invention.

FIG. 4 shows a flowchart of playing back a programmed recording in accordance with an embodiment of the present invention.

FIG. 5 shows a flowchart of a processing method based on a change of programmed channel in accordance with an embodiment of the present invention.

FIG. 6 shows a flowchart of a method of excluding commercials from the programmed recording in accordance with an embodiment of the present invention.

DESCRIPTION OF CERTAIN INVENTIVE EMBODIMENTS

Hereinafter, some embodiments will be described in detail with reference to the accompanying drawings. Identical or corresponding elements will be given the same reference numerals, regardless of the figure number, and any redundant description of the identical or corresponding elements will not be repeated.

Unless otherwise defined, all terms, including technical terms and scientific terms, used herein have the same meaning as how they are generally understood by
those of ordinary skill in the art to which the invention pertains. Any term that is defined in a general dictionary shall be construed to have the same meaning in the context of the relevant art, and, unless otherwise defined explicitly, shall not be interpreted to have an idealistic or excessively formalistic meaning.

The terms used in the description are intended to describe certain embodiments only, and shall by no means restrict the present invention. Unless clearly used otherwise, expressions in the singular number include a plural meaning. In the present description, an expression such as “comprising” or “consisting of” is intended to designate a characteristic, a number, a step, an operation, an element, a part or combinations thereof, and shall not be construed to preclude any presence or possibility of one or more other characteristics, numbers, steps, operations, elements, parts or combinations thereof.

When one element is described as being “connected” or “accessed” to another element, it shall be construed as being connected or accessed to the other element directly but also as possibly having another element in between. On the other hand, if one element is described as being “directly connected” or “directly accessed” to another element, it shall be construed that there is no other element in between.

Terms such as “first” and “second” can be used in describing various elements, but the above elements shall not be restricted to the above terms. The above terms are used only to distinguish one element from the other. For instance, the first element can be named the second element, and vice versa, without departing the scope of claims of
the present invention. The term “and/or” shall include the combination of a plurality of
listed items or any of the plurality of listed items.

Since there can be a variety of permutations and embodiments of the present
invention, certain embodiments will be illustrated and described with reference to the
accompanying drawings. This, however, is by no means to restrict the present invention
to certain embodiments, and shall be construed as including all permutations,
equivalents and substitutes covered by the spirit and scope of the present invention.
Throughout the drawings, similar elements are given similar reference numerals.
Throughout the description of the present invention, when describing a certain
technology is determined to evade the point of the present invention, the pertinent
detailed description will be omitted.

FIG. 1 is a brief diagram showing an entire system for providing a method of
programming a recording in a digital broadcasting receiver in accordance with an
embodiment of the present invention.

Referring to FIG. 1, a digital broadcasting receiver 110, such as a settop box
(STB) for receiving a digital satellite broadcast program, can be connected to and
accessed by an antenna 130, which is connected to a broadcasting station 120, and a
display device 140, such as a television set.

The broadcasting station 120 can be any kind of broadcasting station, including
a ground wave broadcasting station, a cable broadcasting station, and a satellite broadcasting station, which provides broadcasting programs. The broadcast program from the broadcasting station 120 is received by the digital broadcasting receiver 110 through one or more of the ground wave, cable, and satellite.

The antenna 130 is for receiving a digital satellite broadcast program broadcast through a broadcasting satellite, if receiving a satellite broadcast program, for example. The antenna 130 receives a digital satellite broadcast program, which is broadcast by a transponder, which receives a transmission radio wave transmitted by a ground broadcasting station 120 and then amplifies the radio wave inside the satellite and re-transmits the radio wave to the ground, and outputs the digital satellite broadcast program to the digital broadcasting receiver 110.

The digital broadcasting receiver 110 can receive broadcasting signals through the ground wave, cable, and satellite, and select a variety of programs among the broadcasting signals. The digital broadcasting receiver 110 selects the broadcasting channel and outputs the video/audio data of the selected channel to the display device 140 such as a television set.

After the digital broadcasting receiver 110 restores and signal-processes the digital broadcast program of received transport streams to original video and audio signals, the digital broadcasting receiver 110 outputs and displays the video and audio signals through the television set to allow the user to watch a desired digital broadcast
FIG. 2 is a block diagram showing the internal structure of a digital broadcasting receiver applied with a method of programming a recording in accordance with an embodiment of the present invention.

Referring to FIG. 2, the digital broadcasting receiver 110 in accordance with this embodiment includes a control unit 210, a broadcasting signal processing unit 220, a user interface 230, a storage unit 240, and a commercial detection unit 218.

The control unit 210 can include a programmed recording controller 212 and a clipping controller 214. The broadcasting signal processing unit 220 can include a tuner/demodulator 222, a demultiplexer 224, and a decoder 226.

The tuner/demodulator 222 responds to a tuning control signal provided by a tuning controller 216 to tune to a channel that the user registered to program a recording. That is, audio and video packet data for a broadcast program of a particular channel are extracted from broadcasting signals received through the antenna 130. The extracted audio and video packet data are restored to transmission streams through a series of processes, including transformation, demodulation, and error-correction to an intermediate frequency, and are delivered to the demultiplexer 224.

Then, the demultiplexer 224 separates the audio packet data and the video packet data from the transmission streams and delivers the data to the decoder 226. The
decoder 226 decodes the audio packet data and the video packet data and outputs the data to an output unit (not shown) such as a speaker and an LCD.

The user interface 230 includes an input unit (not shown), such as a remote controller or a key matrix, which supplies key input signals for programmed recording. The user interface 230 provides to the control unit 210 commands to start or stop the programmed recording that are received from the input unit.

The storage unit 240 can be stored with programmed recording information, such as a programmed channel and programmed recording time, registered by the control of the control unit 210. The storage unit 240 can be also stored with programmed-recording program including the program-recorded audio/video data.

The storage unit 240 can be, for example, a hard disk drive (HDD), which is a high-capacity storage medium. In another embodiment of the present invention, the digital broadcasting receiver 110 may substitute a temporary server, coupled through a network (e.g., the Internet) or a local area network (LAN), as the storage unit 240, without using the actual storage unit 240.

The control unit 210 controls the overall operation of the digital broadcasting receiver 100 to supply the received broadcasting signal to the display device 140. In other words, the control unit 210 generates a tuning control signal to control the tuning of a channel, which is selected or programmed by the user, and generates a decoding control signal to control the decoding of compressed and encoded audio and video
signals.

The programmed recording controller 212, particularly, is inputted with a programmed channel, programmed-recording program, or programmed recording start/end time and stores the information in the storage unit 240. At the programmed recording time, the programmed recording controller 212 executes the recording for the programmed channel.

In the present embodiment, the “programmed recording” refers to a function of recording the currently broadcast program of a channel by the control of the control unit 210 in case a recording command for the program of the particular channel is pre-configured. Additionally, the “programmed-recording program” refers to broadcast data recorded according to predetermined criteria. The predetermined criteria will be described later.

In another embodiment, the programmed recording controller 212 controls whether the programmed-recording program, which the user is watching, is to be played back from the beginning or whether the recording of the programmed-recording program is to be stopped, in response to a command by the user through the user interface 230.

The clipping controller 214 clips and memorizes the broadcasting signal of a channel when the user switches the channel, and later restores the clipped portion of the channel. The “clipping” refers to a function of recording or editing a portion that the
user needs.

The tuning controller 216 controls the tuner/demodulator 222 to extract audio and video packet data for the broadcast program of a particular channel, in order to tune to the particular channel programmed by the user.

The commercial detection unit 218 detects commercials from the programmed-recording program. A variety of embodiments can be hypothesized for the detection of commercials.

In one of these embodiments, if an event of broadcast data received from the programmed channel is changed and the event is changed again after n minutes, and especially if the length of the program is 10 minutes or shorter, the program may be determined to be a commercial program. Therefore, by deleting the broadcast data corresponding to the commercial program from the storage unit 240, it can be made that only the main program is stored. Further details will be described later.

In another embodiment, the commercial program can be detected using commercial program identification information included in the broadcast data received from the programmed channel. Unnecessary broadcast data can be prevented from being stored by making the detected commercial program not recorded under the control of the control unit 210. Alternatively, the broadcast data received from the programmed channel can be first stored as a programmed-recording program and then detected and deleted by the commercial detection unit 218.
Here, the commercial identification information can be a broadcast program identification code included in the broadcasting signal. In case the identification code is included in the broadcasting signal by separating the main program and commercial program, the commercial detection unit 218 can depend on the transmission of the identification code to identify the commercial program.

The commercial identification information can be also program information displayed within the image frame of broadcast data. While a commercial program is received, an upper right corner of an image frame of the commercial program may be displayed with a small graphic or text disclosing the information of the main program to follow. The commercial detection unit 218 continuously monitors and compares a particular area of a series of temporally-connected image frames and detects the moment the graphic or text is turned off. While the detected graphic or text is continuously displayed, the commercial detection unit 218 can determine that the commercial program is being received.

FIG. 3 is a flowchart showing a method of programming a recording in accordance with an embodiment of the present invention.

In step 310, the digital broadcasting receiver 110 sets one or more programmed channels. That is, if a programmed recording command, including channel information, is inputted by the user, the digital broadcasting receiver 110 registers the channel(s) as
the programmed channel(s).

Here, the channel registered for programmed recording is referred to as "programmed channels," which can be more than one and can be set as many any the maximum number of channels that can be transmitted simultaneously.

In other words, if a plurality of channels are set, it is possible to record all programmed channels at the same time as well as to watch a program of one of the channels while simultaneously recording the rest of the programmed channels.

This is possible by having a plurality of tuner or a plurality of decoders. That is, the digital broadcasting receiver having a plurality of tuners can register m channels as programmed channels and make a recording for each tuner. Moreover, even if a product has one tuner only, a plurality of programs included in one transponder can be program-recorded as long as the product has a plurality of decoders.

Although FIG. 3 assumes that the programmed channels are preconfigured, the configuration and modification of the programmed channels can be made any time, including during the viewing. In other words, as long as the maximum number of programmed channels is not set, the programmed channels can be configured anytime. Moreover, even if the maximum number of programmed channels is set, one of the channels can be released to set another channel as a programmed channel.

In step 310, the digital broadcasting receiver 110 can also register a programmed recording time, such as a recording start time or a recording end time, for
each of the registered programmed channel. For example, the user can register his
favorite channels of 7 and 11, and set 7 p.m. as the recording start time in consideration
of the time he gets off the work and 11 p.m. as the recording end time in consideration
of his bed time.

Regardless of the on/off status of the system power of the digital broadcasting
receiver 110, the control unit 210 can be in a stand-by state, in step 320, for
programmed recording, that is, a micro computer (not shown) may be powered on.

Then, when it becomes the programmed recording start time in step 330, the
system power of the digital broadcasting receiver 110 is turned on in step 340, and the
tuner/demodulator 222 tunes to the programmed channel. If it is not a programmed
recording time, the digital broadcasting receiver 110 may maintain the stand-by state of
the step 320.

In step 350, the digital broadcasting receiver 110 some of the broadcast data,
received from the channels registered as the programmed channels, as a
programmed-recording program according to predetermined criteria.

Here, the “predetermined criteria” can be the number of programs designated
by the user or the number of programs and recording time, that is, the number of
programs with the maximum recording time.

In the present embodiment, the predetermined criteria are applied to the
programmed recording in order to prevent the memory capacity from being
unnecessarily too large because the price of the memory, such as the HDD, is
proportional to the storage capacity.

The "programmed-recording program" used in this embodiment includes all of
the one or more broadcast programs meeting the predetermined criteria. The
programmed-recording program may or may not include the commercials, based on the
user configuration. The method of excluding the commercials will be described later.

In the present embodiment, the predetermined criteria may include a single
program. In other words, for one or more channels registered as the programmed
channels, storing and deleting may be repeated for each broadcast program. In such a
case, less memory capacity is needed than when a plurality of programs are designated
as the programmed-recording program. Moreover, it is more convenient because the
currently viewed broadcast program is played back, without having to select a broadcast
program to play back among the plurality of programs.

Referring back to FIG. 3, the digital broadcasting receiver 110 verifies, in step
360, whether broadcast data successively received from the pertinent channel
correspond to a next programmed-recording program.

Here, the "next programmed-recording program" refers to a broadcast program
that is successively broadcast on the pertinent channel after the single
programmed-recording program being stored is finished and that is to be stored as a
programmed-recording program.
If the program received from the programmed channel is a next programmed-recording program, the digital broadcasting receiver 110 can record the next programmed-recording program, replacing the previously stored programmed-recording program, in step 370.

That is, the data corresponding to the programmed-recording program that is finished with recording can be deleted, and the next programmed-recording program can be recorded. Here, the digital broadcasting receiver 110 may delete all of the previously recorded programs or a portion of the previously recorded programs from the oldest or newest recording to correspond to the amount of the next programmed-recording program, thereby maintaining the recording to a fixed amount.

If there is sufficient amount of memory in the digital broadcasting receiver 110, it is, of course, possible to delete the data corresponding to the previously recorded programs after the next programmed-recording program is completely recorded. Alternatively, it is also possible that the previously recorded programs are not to be deleted.

The digital broadcasting receiver 110 can be also configured to predesignate a particular program to be programmed to be recorded, separately from recording the programmed-recording program by using the programmed channel. In this case, if the particular program designated to be programmed is identical to the above programmed-recording program, the pertinent broadcast program can be configured to
be not deleted.

According to the embodiment as described above, the user can avoid checking every program schedule to program a recording because the digital broadcasting receiver 110 can store the programmed-recording program based on the predetermined criteria.

Moreover, the user can view the programmed-recording program from the beginning although the particular broadcast program of the programmed channel has started broadcasting already because the particular broadcast program is stored as the programmed-recording program. This will be further described with reference to FIG. 4.

FIG. 4 is a flowchart showing the process of playing back the programmed-recording program in accordance with an embodiment of the present invention.

In step 410, the digital broadcasting receiver 110 selects a programmed channel. Although the program broadcast on the programmed channel may not a programmed-recording program, this embodiment assumes that a program corresponding to the programmed-recording program is being broadcast, as shown in step 420.

According to this embodiment, the digital broadcasting receiver 110 is configured with a function of selecting whether the program currently played back
should be played back from the beginning. Therefore, if the program being recorded as a programmed-recording program is played back at the moment, the digital broadcasting receiver 110 outputs, in step 430, a selection menu screen including a programmed-recording program playback message (e.g., “Play back from the beginning?”). Output of such a programmed-recording program playback message can be selectively made.

In this embodiment, “from the beginning” refers to playing back the broadcast data stored as the programmed-recording program from the beginning pursuant to the user’s selection after the broadcast data is requested by the programmed channel to be played back.

If only one broadcast program is programmed to be recorded, “from the beginning” would refer to the beginning of the program that is currently played back. However, if a plurality of broadcast programs are programmed to be recorded, there can be a step of selecting a program to play back.

If the user inputs a command to either play back from the beginning or not play back from the beginning in response to the output of the message to play back the programmed-recording program, the digital broadcasting receiver 110 can output a message, in step 440, to have the user select whether recording of the programmed-recording program should be maintained. The user is allowed to choose to maintain the current recording even if he chooses not to play back from the beginning
because he may later want to view the current broadcast program from the beginning.

If a command to stop recording is inputted by the user through the user interface 230, the digital broadcasting receiver 110 stops recording the current programmed-recording program in step 450. This way, the user can prevent an unwanted broadcast program from being recorded.

If, however, the command to stop recording is not inputted or the command to maintain recording is inputted, the digital broadcasting receiver 110 continues recording the programmed-recording program corresponding to the programmed channel, in step 460.

In this embodiment, recording of the currently viewed channel can be selectively programmed by outputting a message asking whether the recording should be maintained. However, if the user chooses not to play back the current broadcast program from the beginning, the programmed recording can be configured to be stopped immediately without outputting a message asking whether the programmed recording should be maintained.

Moreover, it is possible to set, cancel, or change the programmed channel describe above in this embodiment while the user is viewing the channel or the digital broadcasting receiver 110 is standing by.

In another embodiment of the present invention, it can be assumed that the user changes the channel to view another channel while viewing the programmed channel.
That is, if the user requests a channel change by operating the digital broadcasting receiver 110 (for example, by controlling the remote control), the channel being displayed can be changed. This will be described in detail with reference to FIG. 5.

FIG. 5 is a flowchart showing a processing method based on a change of programmed channel in accordance with an embodiment of the present invention.

While the digital broadcasting receiver 110 is playing back a program, corresponding to a programmed channel, in step 510, a command to change to another channel can be inputted by the user through the user interface 230 in step 520.

The digital broadcasting receiver 110 having received this command outputs, in step 530, to the user through the selection menu screen a programmed recording stop message asking whether the existing programmed-recording program is to stop recording.

If the user chooses to stop recording in response to the programmed recording stop message, the digital broadcasting receiver 110 can stop recording the programmed-recording program before changing the channel, in step 540.

If the digital broadcasting receiver 110 continues recording the programmed-recording program before changing the channel, as in step 550, a step of clipping when changing channel can be added in step 560.

As described above, "clipping" refers to a function of recording or editing a
portion that the viewer need, and it can be realized through, for example, soft-clipping and smoothing-clipping technologies.

In this embodiment, the broadcast signal of the place where the viewer changes the channel is clipped and restored later so that the viewer can watch from the place where he stopped watching earlier once he switches back to the original channel.

According to this embodiment, therefore, the programmed-recording program does not have to be played back from the beginning and the viewer does not have to repeat the same portion of a programmed-recording program.

FIG. 6 is a flowchart showing a method of excluding commercials from the programmed recording in accordance with an embodiment of the present invention.

Referring to FIG. 6, the digital broadcasting receiver 110 stores, in step 610, broadcast data received from a programmed channel as a programmed-recording program corresponding to predetermined criteria.

In step 620, the commercial detection unit 218 recognizes that an event has been changed in broadcast data being received. Here, change in even refers to change in broadcast program. For example, if a drama titled “Jumong” is finished and a “commercial for XX cosmetic” is broadcast, it can be inferred that a change in the broadcast data has occurred. A change to another commercial can be viewed as a change in event.
The commercial detection unit 218 can check the time when the change in event occurs. Therefore, it is also possible to check in step 630 whether another change in event of the broadcast data has occurred after n minutes of a change in event of the broadcast data in the programmed-recording program.

Here, it is preferable that n is configured to be between 0.1 minutes (i.e., 10 seconds) and 10 minutes, considering the length of typical commercials. That is, since most commercials are shorter than 1 minute, a change in event within 10 minutes may be determined to be caused by a commercial. Therefore, the commercial detection unit 218 can distinguish commercial programs from the main broadcast program by checking the time of change in event between the broadcast data.

If the commercials are identified as described above, the digital broadcasting receiver 110 deletes, in step 640, the n minutes of stored broadcast data, which are determined to be of commercial programs, from the storage unit 240. Thus, unnecessary commercial programs are prevented from being recorded as a part of a programmed-recording program, and only the main program can be recorded.

Although not illustrated in the drawings, there can be a variety of embodiments that can program the recording without the commercials.

In another embodiment, if commercial programs are included in the digital broadcasting stream received from the broadcasting station 120, it would be possible that the commercial identification information, with which the commercial program can
be identified, and the digital broadcasting receiver 110 record the main program only, excluding the commercial program, during the programmed recording. Alternatively, it would be possible that the broadcast data received to the programmed channel is first stored as a programmed-recording program and then the commercial detection unit 218 later detects and deletes the commercial program.

As described above, the commercial identification information can be a broadcasting program identification code included in broadcast signals, and the commercial detection unit 218 can distinguish the commercial program from the main program based on the presence of the identification code.

In yet another embodiment, the commercial identification information can be program information displayed within the image frame of broadcast data. When a commercial program is received, an upper right corner of an image frame of the commercial program may be displayed with a small graphic or text disclosing the information of the main program to follow. The commercial detection unit 218 continuously monitors and compares a particular area of a series of temporally-connected image frames and detects the moment the graphic or text is turned off. In case the detected graphic or text is continuously displayed, the commercial detection unit 218 can determine that the commercial program is being received.

In still another embodiment, it can be made that only the main program be recorded, by using a program schedule obtained from an EPG, newspaper or magazine.
For example, if the main programs are broadcast only between 7:00 and 7:50 and between 8:00 and 8:50, these times can be programmed for recording, avoiding the commercials from being recorded.

Although certain embodiments of the present invention have been described, anyone of ordinary skill in the art to which the invention pertains should be able to understand that a very large number of permutations are possible without departing the spirit and scope of the present invention, which shall only be defined by the claims appended below.
WHAT IS CLAIMED IS:

1. A method of programming a recording in a digital broadcasting receiver, comprising:
   - registering a programmed channel including one or more channels;
   - storing broadcast data received from the programmed channel as a programmed-recording program in accordance with a predetermined criterion; and
   - storing a next programmed-recording program to replace the stored programmed-recording program if the programmed-recording program is completely stored and broadcast data corresponding to the next programmed-recording program is received.

2. The method of Claim 1, wherein the predetermined criterion includes at least one broadcast program unit or at least one broadcast program unit, the programmed recording time of which is restricted.

3. The method of Claim 1, further comprising playing back the broadcast data stored as the programmed-recording program from the beginning in accordance with a selection by a user, if playing back of broadcast data from one channel of the programmed channel is requested.
4. The method of Claim 3, further comprising selecting whether to continue or stop recording the programmed-recording program, if the programmed-recording program is not played back from the beginning.

5. The method of Claim 3, further comprising selecting whether to continue or stop recording the programmed-recording program which is being played back on the programmed channel, if the programmed channel, on which the programmed-recording program is being played back, is changed to another channel.

6. The method of Claim 5, further comprising clipping a portion corresponding to a point where the programmed-recording program is changed, if the programmed-recording program is continued to be recorded.

7. The method of Claim 1, further comprising cancelling one or more channels of the programmed channel and registering another channel as the programmed channel.

8. The method of Claim 1, deleting broadcast data stored for n minutes, if an event of the broadcast data received from the programmed channel is changed and the event of the broadcast data is changed again within the n minutes.
9. The method of Claim 8, wherein the n is between 0.1 and 10.

10. The method of Claim 1, further comprising detecting a commercial program by using commercial program identification information included in the broadcast data and deleting broadcast data corresponding to the detected commercial program.

11. A digital broadcasting receiver, comprising:

   a control unit, registering one or more channels as a programmed channel, storing broadcast data received from the programmed channel as a programmed-recording program in accordance with a predetermined criterion, and storing a next programmed-recording program to replace the stored programmed-recording program if the programmed-recording program is completely stored and broadcast data corresponding to the next programmed-recording program is received; and

   a storage unit, storing broadcast data corresponding to the programmed-recording program and channel information registered as the programmed channel.
12. The digital broadcasting receiver of Claim 11, wherein the predetermined criterion includes at least one broadcast program unit or at least one broadcast program unit, the programmed recording time of which is restricted.

13. The digital broadcasting receiver of Claim 11, further comprising a user interface for allowing a user to select whether broadcast data stored as the programmed-recording program is to be played back from the beginning, if playing back of broadcast data from one channel of the programmed channel is requested.

14. The digital broadcasting receiver of Claim 13, wherein the user selects through the user interface whether to continue or stop recording the programmed-recording program, if the programmed-recording program is not played back from the beginning.

15. The digital broadcasting receiver of Claim 13, wherein the control unit selects whether to continue or stop recording the programmed-recording program which is being played back on the programmed channel, if the programmed channel, on which the programmed-recording program is being played back, is changed to another channel.
16. The digital broadcasting receiver of Claim 15, wherein the control unit clips a portion corresponding to a point where the programmed-recording program is changed, if continued recording of the programmed-recording program is selected.

17. The digital broadcasting receiver of Claim 11, wherein the control unit cancels one or more channels of the programmed channel and registers another channel as the programmed channel.

18. The digital broadcasting receiver of Claim 11, wherein the control unit deletes broadcast data stored for n minutes, if an event of the broadcast data received from the programmed channel is changed and the event of the broadcast data is changed again within the n minutes.

19. The digital broadcasting receiver of Claim 18, wherein the n is between 0.1 and 10.

20. The digital broadcasting receiver of Claim 11, wherein the control unit detects a commercial program by using commercial program identification information included in the broadcast data and deletes broadcast data corresponding to the detected commercial program.
ABSTRACT

A digital broadcasting receiver, programming a recording a broadcast program, and a method thereof are disclosed. The digital broadcasting receiver can register a programmed channel including one or more channels, stores broadcast data received from the programmed channel as a programmed-recording program in accordance with a predetermined criterion, and stores a next programmed-recording program to replace the stored programmed-recording program if the programmed-recording program is completely stored and broadcast data corresponding to the next programmed-recording program is received. With the present invention, it becomes possible to program a recording although no information on a broadcast program is available, to view a currently-broadcast program from the beginning regardless of when the TV is turned on, and program a recording to exclude commercial programs.
FIG. 1

120

Broadcasting station

130
Antenna

110
Digital broadcasting receiver

140
Display device
FIG. 2

Broadcasting signal processing unit

222 Tuner/demodulator
224 Demultiplexer
226 Decoder

210 Control unit
212 Programmed recording controller
214 Clipping controller
216 Tuning controller
218 Commercial detection unit

230 User interface
240 Storage unit
FIG. 3

Start

Register programmed channel 310

Stand-by 320

Recording time? 330

No

Yes

Turn on system power 340

Store programmed-recording program 350

Next programmed-recording program? 360

No

Yes

Replace previous programmed-recording program to store next programmed-recording program 370

End
FIG. 4

Start

Select programmed channel 410

Broadcast programmed-recording program 420

Select whether to play back programmed-recording program from the beginning 430

Continue recording programmed-recording program? 440

No

Stop recording 450

Yes

Continue recording 460

End
FIG. 5

Start

Broadcast programmed-recording program

Input command to change to another channel

Stop recording programmed-recording program?

Yes

Stop recording

No

Continue recording

Clipping

End
FIG. 6

Start

Store programmed-recording program 610

Change event of broadcast data 620

Event change of broadcast data occurred again after n minutes of event change? 630

Yes

Delete broadcast data stored for n minutes 640

End
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### APPLICATION AS AMENDED – PART II

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<th>APPLICATION SIZE FEE (37 CFR 1.16(s))</th>
<th>NUMBER FILED</th>
<th>NUMBER EXTRA</th>
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<tbody>
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### AMENDMENT B

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<th>CLAIMS REMAINING AFTER AMENDMENT</th>
<th>HIGHEST NUMBER PREVIOUSLY PAID FOR</th>
<th>PRESENT EXTRA</th>
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<td>Independent (37 CFR 1.16(h))</td>
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* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.

** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".

*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".

The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.

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