

(19) World Intellectual Property Organization  
International Bureau



(43) International Publication Date  
28 June 2001 (28.06.2001)

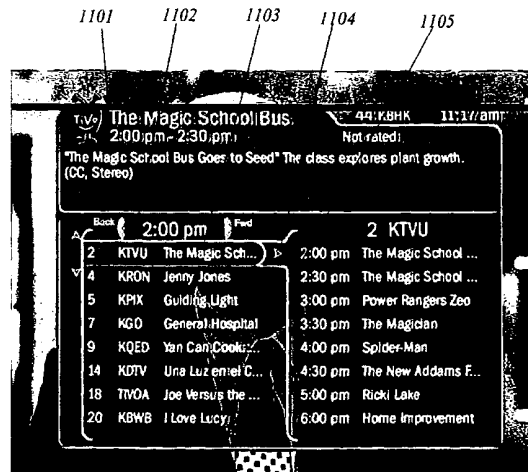
PCT

(10) International Publication Number  
WO 01/47249 A3

- (51) International Patent Classification<sup>7</sup>: H04N 5/782 (74) Agents: GLENN, Michael et al.; Glenn Patent Group, Suite L., 3475 Edison Way, Menlo Park, CA 94025 (US).
- (21) International Application Number: PCT/US00/35188
- (22) International Filing Date: 20 December 2000 (20.12.2000)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data: 60/171,829 21 December 1999 (21.12.1999) US
- (71) Applicant (for all designated States except US): TIVO, INC. [US/US]; 2160 Gold Street, P.O. Box 2160, Alviso, CA 95002-2160 (US).
- (72) Inventors; and
- (75) Inventors/Applicants (for US only): BEACH, Brian [US/US]; 326 Moreno Drive, Santa Cruz, CA 95060 (US). WATERMAN, Alan [US/US]; 112 Cherry Wood Court, Los Gatos, CA 95030 (US).
- (81) Designated States (national): AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW.
- (84) Designated States (regional): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).
- Published: — with international search report
- (88) Date of publication of the international search report: 3 January 2002

[Continued on next page]

(54) Title: BROADCAST PROGRAM RECORDING OVERRUN AND UNDERRUN SCHEDULING SYSTEM



(57) Abstract: The start and end times of a broadcast program's recording schedule that has a predetermined start and end broadcast time can be adjusted. An on screen program guide (1101) is displayed to the viewer and lists the predetermined scheduled broadcast times (1102) and channels of a plurality of programs (1103). The viewer selects a particular broadcast program (1105) to record from the program guide. The program's information such as program identifier, start and end times (1104, 1105) and storage duration are inserted into a recording schedule database. The viewer can adjust the scheduled start and/or end recording (1104, 1105) times for a program (1103) by specifying the time increment (1403) to add or subtract from the start and/or end recording times (1104, 1105) of a specific program (1103) or series of programs even during the recording. The recording schedule is adjusted to the viewer's modifications. Programs are recorded, when the recording schedule indicates that it is time to do so. The viewer can randomly access the recorded programs for play back.



WO 01/47249 A3



---

*For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.*

# INTERNATIONAL SEARCH REPORT

national Application No PCT/US 00/35188
--

**A. CLASSIFICATION OF SUBJECT MATTER**  
 IPC 7 H04N5/782

According to International Patent Classification (IPC) or to both national classification and IPC

**B. FIELDS SEARCHED**

Minimum documentation searched (classification system followed by classification symbols)  
 IPC 7 H04N

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)  
 EPO-Internal

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	EP 0 825 771 A (SONY CORPORATION) 25 February 1998 (1998-02-25)  the whole document	1-3, 5-10, 12-17, 19-21
A	WO 94 11990 A (DAEWOO ELECTRONICS CO., LTD) 26 May 1994 (1994-05-26)  the whole document	1,5-8, 12-15, 19-21

Further documents are listed in the continuation of box C.
  Patent family members are listed in annex.

° Special categories of cited documents :

<p>*A* document defining the general state of the art which is not considered to be of particular relevance</p> <p>*E* earlier document but published on or after the international filing date</p> <p>*L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)</p> <p>*O* document referring to an oral disclosure, use, exhibition or other means</p> <p>*P* document published prior to the international filing date but later than the priority date claimed</p>	<p>*T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention</p> <p>*X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone</p> <p>*Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.</p> <p>*Z* document member of the same patent family</p>
--	--

Date of the actual completion of the international search  <b>24 July 2001</b>	Date of mailing of the international search report  <b>30/07/2001</b>
--	---

Name and mailing address of the ISA European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl. Fax: (+31-70) 340-3016	Authorized officer  <b>Verleye, J</b>
--	---

# INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/US 00/35188

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
EP 825771	A	25-02-1998	JP 10064136 A	06-03-1998
WO 9411990	A	26-05-1994	KR 130461 B	17-04-1998
			AU 685762 B	29-01-1998
			AU 5534394 A	08-06-1994
			BR 9307386 A	31-08-1999
			CA 2148233 A	26-05-1994
			DE 69323555 D	25-03-1999
			DE 69323555 T	17-06-1999
			EP 0668003 A	23-08-1995
			JP 8506682 T	16-07-1996
			US 6118926 A	12-09-2000