(19) World Intellectual Property Organization International Bureau



(43) International Publication Date 17 January 2002 (17.01.2002)

PCT

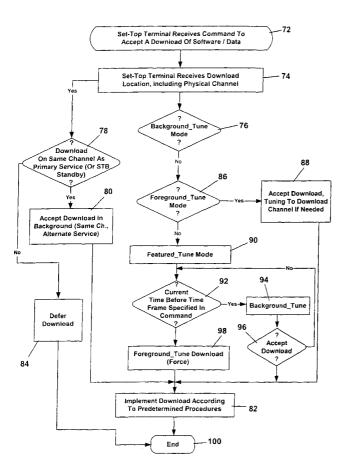
(10) International Publication Number WO 02/05560 A3

- (51) International Patent Classification7: H04N 7/24, 5/00
- (21) International Application Number: PCT/US01/21866
- (22) International Filing Date: 11 July 2001 (11.07.2001)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data: 09/614,089 12 July 2000 (12.07.2000)
- (71) Applicant: GENERAL INSTRUMENT CORPORA-TION [US/US]; 101 Tournament Drive, Horsham, PA 19044 (US).
- (72) Inventors: MAKOFKA, Douglas: 516 Fairhill Street, Willow Grove, PA 19090 (US). WU, Dongsheng: 7 Wells Court, Willow Grove, NJ 08060 (US).

- (74) Agent: KANANEN, Ronald; Rader Fishman & Grauer PLLC, 1233 20th Street, NW, Suite 501, Washington, DC 20036 (US).
- (81) Designated States (national): AE. AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, 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, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, 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).

[Continued on next page]

(54) Title: METHOD AND APPARATUS FOR DOWNLOADING OBJECTS VIA AN INBAND CHANNEL WITH MINIMAL SUBSCRIBER IMPACT



(57) Abstract: A download server at a headend of a cable system transmits a command to a digital set-top terminal causing it to operate in one of a background tune mode, a foreground tune mode, and a featured tune mode of operation. The background tune mode of operation configures the set-top terminal to accept the offered download of software or data objects to the set-top terminal when acceptance of the download would not affect a subscriber's primary service to thereby allow uninterrupted viewing of a subscriber selected program. The foreground tune mode of operation configures the set-top terminal to immediately accept a download from the download server by tuning to the download channel irrespective of any effect on the subscriber's primary service. In the featured tune mode of operation the set-top terminal is configured to attempt to download the objects in the background, without affecting the primary service, before a sepcified start time. Thereafter, the set-top terminal is reconfigured to immediately accept the download of the objects, wherein, through the foregoing, downloading via an inband channel may be made with minimal subscriber impact.

WO 02/05560 A3

WO 02/05560 A3



Published:

with international search report

(88) Date of publication of the international search report: 14 March 2002

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.

.ernational Application No PCT/US 01/21866

A. CLASSIFICATION OF SUBJECT MATTER IPC 7 H04N7/24 H04N5/00

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 HO4N G06F

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, WPI Data, PAJ

C. DOCUMENTS	CONSIDERED	TO BE RELEVANT

S 5 440 632 A (BACON KINNEY C ET AL) August 1995 (1995-08-08) ection "Summary of the invention" olumn 9, line 25 -column 10, line 4 olumn 15, line 55 -column 16, line 42 P 0 926 862 A (MATSUSHITA ELECTRIC IND CO	1,5,6, 8-10, 13-17 2-4,7, 18,19
olumn 9, line 25 -column 10, line 4 olumn 15, line 55 -column 16, line 42 P 0 926 862 A (MATSUSHITA ELECTRIC IND CO	2-4,7, 18,19 11,12
olumn 15, line 55 -column 16, line 42 P 0 926 862 A (MATSUSHITA ELECTRIC IND CO	11,12
TD) 30 June 1999 (1999-06-30) column 1, line 57 -column 2, line 6 ections '0020!,'0021! ections '0027!,'0032! ections '0038!,'0039! ections '0109!-'0125!	2-4,18, 19
-/	
	ections '0020!,'0021! ections '0027!,'0032! ections '0038!,'0039! ections '0109!-'0125!

Υ Further documents are listed in the continuation of box C.	Patent family members are listed in annex.		
 Special categories of cited documents: 'A' document defining the general state of the art which is not considered to be of particular relevance 'E' earlier document but published on or after the international filing date '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) 'O' document referring to an oral disclosure, use, exhibition or other means 'P' document published prior to the international filing date but later than the priority date claimed 	 *T* later document published after the international filling date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention *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 *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. *&* document member of the same patent family 		
Date of the actual completion of the international search 13 December 2001	Date of mailing of the international search report $27/12/2001$		
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 La, V		

1

PCT/US 01/21866

		FC1/U3 U1/21800
	ation) DOCUMENTS CONSIDERED TO BE RELEVANT	
Category °	Citation of document, with indication where appropriate, of the relevant passages	Relevant to claim No.
Y	US 5 797 010 A (BROWN RALPH W) 18 August 1998 (1998-08-18) section "Summary of the invention"	7
A	EP 0 732 850 A (GEN INSTRUMENT CORP) 18 September 1996 (1996-09-18) column 2, line 32 -column 5, line 3 column 8, line 43 -column 9, line 7 column 12, line 11 - line 24 column 14, line 3 - line 24	1–19
A	US 5 940 074 A (GOLDMAN PHILLIP Y ET AL) 17 August 1999 (1999-08-17) column 8, line 33 - line 50 column 9, line 29 - line 34 figure 7	1-19

Information on patent family members

.ernational Application No PCT/US 01/21866

Patent document cited in search repo	rt	Publication date		Patent family member(s)	Publication date
US 5440632	A	08-08-1995	US US US	6212278 B1 6166728 A 5715515 A	03-04-2001 26-12-2000 03-02-1998
EP 0926862	Α	30-06-1999	JP AU AU CN EP TW	11194943 A 726647 B2 9826398 A 1227934 A 0926862 A2 432854 B	21-07-1999 16-11-2000 15-07-1999 08-09-1999 30-06-1999 01-05-2001
US 5797010	Α	18-08-1998	NONE		
EP 0732850	A	18-09-1996	US EP AU AU CA DE DE DK EP HK IE JP	5003591 A 0732850 A1 154741 T 617279 B2 5481990 A 2013982 A1 69030933 D1 69030933 T2 399200 T3 0399200 A2 1008411 A1 80417 B1 960735 L 3021184 A	26-03-1991 18-09-1996 15-07-1997 21-11-1991 29-11-1990 25-11-1990 24-07-1997 08-01-1998 29-12-1997 28-11-1990 07-05-1999 01-07-1998 25-11-1990 29-01-1991
US 5940074	A	17-08-1999	US AU EP WOSSUUS US US US US US US US US US US US U	6034689 A 5918013 A 5261298 A 0848341 A2 10198571 A 9823059 A2 6023268 A 6230319 B1 6259442 B1 3139197 A 0811940 A2 10171842 A 274135 B1 2001003823 A1 9747143 A2 6133913 A 6008836 A 6005563 A 5945991 A 5974461 A 3375197 A 0811939 A2 10228437 A 274738 B1 9746943 A1 6141693 A 6311207 B1 6308222 B1 6073168 A 5935207 A	07-03-2000 29-06-1999 10-06-1998 17-06-1998 31-07-1998 28-05-1998 08-02-2000 08-05-2001 10-07-2001 05-01-1998 10-12-1997 26-06-1998 15-12-2000 14-06-2001 11-12-1997 17-10-2000 28-12-1999 21-12-1999 21-12-1999 31-08-1999 26-10-1998 10-12-1997 25-08-1998 15-12-2000 11-12-1997 31-0-2001 23-10-2001 06-06-2000 10-08-1999

Information on patent family members

.ernational Application No PCT/US 01/21866

Pat cited	ent document in search report	Publication date		Patent family member(s)	Publication date
US	5940074 A		US	5996022 A	30-11-1999
					1