

(19) World Intellectual Property
Organization
International Bureau



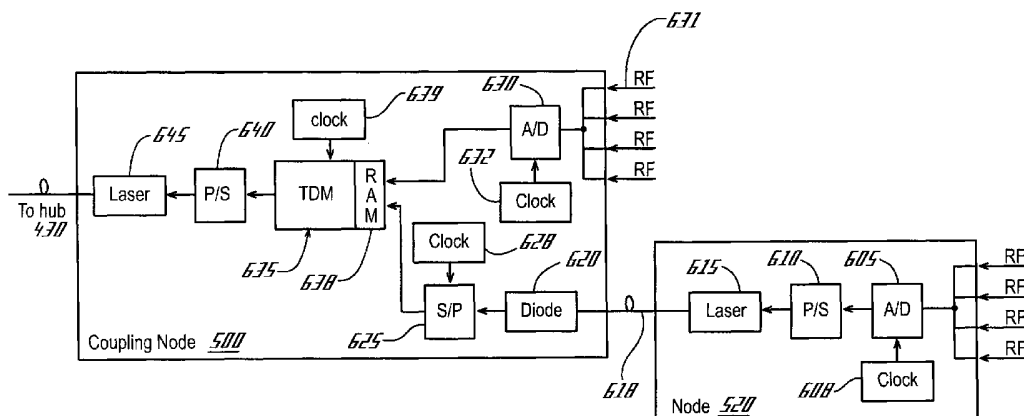
(43) International Publication Date
19 February 2004 (19.02.2004)

PCT

(10) International Publication Number
WO 2004/015962 A3

- (51) International Patent Classification⁷: **G02F 1/00** (US). **PIDGEON, Rezin, E., Jr.**; 830 Edgewater Drive, N.W., Atlanta, GA 30328 (US).
- (21) International Application Number: PCT/US2003/025326 (74) Agents: **COUTURIER, Shelley, L.** et al.; Scientific-Atlanta, Inc., Intellectual Property Dept. (4.3.517), 5030 Sugarloaf Parkway, Lawrenceville, GA 30044 (US).
- (22) International Filing Date: 12 August 2003 (12.08.2003)
- (25) Filing Language: English (81) Designated State (*national*): BR.
- (26) Publication Language: English (84) Designated States (*regional*): European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR).
- (30) Priority Data: 10/217,886 13 August 2002 (13.08.2002) US Published: — with international search report
- (71) Applicant: **SCIENTIFIC-ATLANTA, INC.** [US/US]; 5030 Sugarloaf Parkway, Lawrenceville, GA 30044 (US). (88) Date of publication of the international search report: 7 October 2004
- (72) Inventors: **BROWN, Douglas, E.**; 1070 Prestonwood Drive, Lawrenceville, GA 30043 (US). **FARHAN, Fariborz, M.**; 135 Autry Landing Way, Alpharetta, GA 30022 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.

(54) Title: CABLE TELEVISION SYSTEM WITH DIGITAL REVERSE PATH ARCHITECTURE



(57) Abstract: A communications system includes forward and reverse paths. Reverse path circuitry within an optical node of the system receives reverse analog electrical signals from subscriber equipment and generates therefrom a multiplexed reverse digital optical signal. A coupling node combines digital optical signals and/or RF signals from an optical node or from coaxial cable, respectively. The combined digital optical signal is transmitted over a fiber optic cable to a cable television hub, the reverse path portion of which includes no active circuitry. The hub multiplexes the digital optical signal with other digital optical signals from other nodes to generate one or more forwarded digital optical signals at a hub output, wherein generation of the one or more forwarded digital optical signals requires only passive devices in the reverse path of the hub.

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US03/25326

A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : G02F 1/00

US CL : 725/121, 127; 370/408; 359/109

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)

U.S. : 725/121, 127, 124, 119, 125, 129, 105; 370/408; 359/109; 398/66, 68, 70, 71, 161.5

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 practicable, search terms used)
Please See Continuation Sheet**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X,P ---	US 6,484,317 B1 (WRIGHT) 29 November 2002, fig. 1; col. 6, lines 10-13; col. 3, lines 49-63.	1, 19 -----
Y,P		2-18, 20-22
Y,P	US 2002/0154367 A1 (WEST, JR.) 24 October 2002, fig. 5 item 515; para 26, lines 5-11.	2-9, 11, 12, 17, 18
Y,P	US 2002/0129379 A1 (LEVINSON et al) 12 September 2002, fig. 4 item 206; para 62, lines 11-14.	2-18, 20-22
Y	US 5,949,778 A (ABU-AMARA et al) 07 September 1999, fig. 2, item 206; col. 6, lines 49-55.	4-9, 13-18
Y,P	US 2003/0126614 A1 (STSIGER) 03 July 2003, para 18, lines 13-16.	8, 9, 17, 18, 21, 22
Y	US 5,623,565 A (BLAIR et al) 22 April 1997, fig. 1 item 7, col. 5, lines 22-26.	9, 18, 22
Y,P	US 2003/0028894 A1 (JOYCE et al) 06 February 2002, fig. 3, para 50, lines 1-3.	10-18
Y	US 5,835,498 A (KIM et al) 10 November 1998, fig. 2 item 50; col. 8, lines 19-28.	20-22



Further documents are listed in the continuation of Box C.



See patent family annex.

* Special categories of cited documents:		"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
"A"	document defining the general state of the art which is not considered to be of particular relevance	"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
"E"	earlier application or patent published on or after the international filing date	"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
"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)	"&"	document member of the same patent family
"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		

Date of the actual completion of the international search

02 July 2004 (02.07.2004)

Date of mailing of the international search report

19 JUL 2004

Name and mailing address of the ISA/US

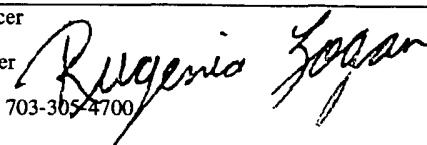
Mail Stop PCT, Attn: ISA/US
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

Facsimile No. (703) 305-3230

Authorized officer

Kenneth Wieder

Telephone No. 703-305-4700



INTERNATIONAL SEARCH REPORT

PCT/US03/25326

Continuation of B. FIELDS SEARCHED Item 3:
USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB
hub with mux