## (19) World Intellectual Property Organization

International Bureau





(43) International Publication Date 9 June 2005 (09.06.2005) (10) International Publication Number WO 2005/053210 A3

- (51) International Patent Classification: *H04B 1/38* (2006.01) *H04L 27/00* (2006.01)
- (21) International Application Number:

PCT/US2004/039643

**English** 

(22) International Filing Date:

23 November 2004 (23.11.2004)

- (25) Filing Language:
- (26) Publication Language: English
- (30) Priority Data:

60/525,365 25 November 2003 (25.11.2003) US 10/996,625 23 November 2004 (23.11.2004) US

- (71) Applicant (for all designated States except US): AR-CWAVE, INC. [US/US]; 910 Campisi Way, Suite 1C, Campbell, CA 95008 (US).
- (72) Inventors: BERTONIS, James, G.; 763 Blossom Hill Road, Los Gatos, CA 95032 (US). FUJIMOTO, William; 301 Ballymore Circle, San Jose, CA 95136 (US).
- (74) Agents: GLENN, Michael, A. et al.; Glenn Patent Group, 3475 Edison Way, Suite L, Menlo Park, CA 94025 (US).

- (81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.
- (84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

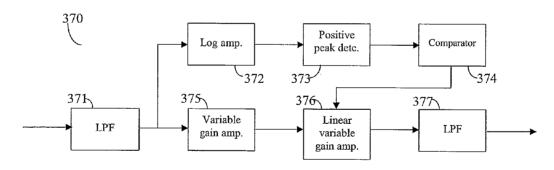
## **Published:**

with international search report

(88) Date of publication of the international search report: 12 April 2007

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: REDUCTION OF WIRELESS LINKS NOISE INJECTION TO A CABLE MODEM



(57) Abstract: A DOCSIS cable modem service can be extended by providing wireless links that connect users that are beyond the physical reach of the system. This may require that the downstream data are transferred over a wireless link to a remote subscriber radio frequency (RF) unit connected to a cable modem that provides the downstream data to the subscriber. Similarly, upstream data are sent from the subscriber cable modem over the wireless link to the wireless hub transceiver, where such data are inserted back to the distribution coax cable. This insertion causes the injection of noise into the DOCSIS cable modem system. Connecting a plurality of such devices can cause noise beyond the system limitations. By using a burst detect system, the RIF receiver portion of the device is connected to the DOCSIS cable only when injecting data upstream, thereby reducing the overall noise injection.



## INTERNATIONAL SEARCH REPORT

International application No.
PCT/US04/39643

A. CLASSIFICATION OF SUBJECT MATTER IPC: H04B 1/38( 2007.01),H04L 27/00			
IFC. R04B 1/36( 2007.01), 1104L 27/60			
USPC: 375/222,375/316,375/324 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.: 375/222, 375/316, 375/324			
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) EAST			
C. DOCUMENTS CONSIDERED TO BE RELEVANT			
Category *	Citation of document, with indication, where appropriate, of the relevant passages		Relevant to claim No.
Х	US 6,363,241 B1 (Barakat et al.) 26 March 2002 (26.03.2002) column 5, lines 46 - column 8, lines 10		1-5
A,P	US 6,674,809 B1 (Kay) 06 January 2004 (06.01.2004) figure 2 and column 2 -column 3.		1-5
			; ;
Further	documents are listed in the continuation of Box C.	See patent family annex.	İ
* 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	
	defining the general state of the art which is not considered to be of relevance	"X" principle or theory underlying the invent "X" document of particular relevance; the cla	
"E" earlier ap	plication or patent published on or after the international filing date	considered novel or cannot be considered when the document is taken alone	
"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		"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" document published prior to the international filing date but later than the priority date claimed		"&" document member of the same patent family	
	ctual completion of the international search	Date of mailing of the international search	n report
06 December	2006 (06.12.2006)	24 JAN 2007	
Name and mailing address of the ISA/US		Authorized officer	
Mail Stop PCT, Attn: ISA/US Commissioner for Patents		Chieh Fan Wylnia Zagan	
P.O. Box 1450 Alexandria, Virginia 22313-1450 Escripile No. (571) 273-3201		Telephone No. (572) 272-2690	1