(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
2 September 2004 (02.09.2004)

PCT

(10) International Publication Number
WO 2004/075469 A3

(51) International Patent Classification[7]: H04L 25/03, 27/38

(21) International Application Number: PCT/US2004/004887

(22) International Filing Date: 19 February 2004 (19.02.2004)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
60/448,643 19 February 2003 (19.02.2003) US

(71) Applicant *(for all designated States except US)*: **DOT-CAST INC.** [US/US]; 20425 72ND Ave.S., Suite 200, Kent, WA 98032 (US).

(72) Inventors; and

(75) Inventors/Applicants *(for US only)*: **ENDRES, Thomas, J.** [US/US]; 8916 41ST Ave. SW, Seattle, WA 98136 (US). **LONG, Christopher, D.** [US/US]; 23326 SE 199TH Street, Maple Valley, WA 98038 (US). **FAGAN, Rory** [US/US]; 6406 Augusta Court, Mukilteo, WA 982785 (US). **CHUNG, Wonzoo** [KR/US]; 23606 2nd Ave., S, Apt. C101, Kent, WA 98032 (US).

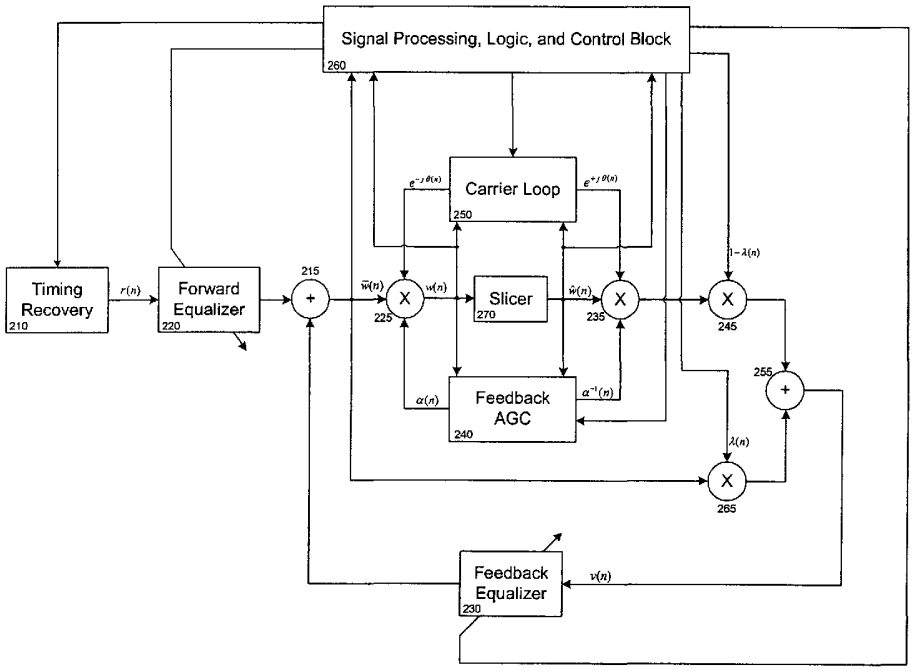
(74) Agents: **PRATT, John, S.** et al.; 1100 Peachtree Street, Suite 2800, Atlanta, GA 30309-4530 (US).

(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, DE, DK, DM, DZ, EC, EE, EG, 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, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, 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, 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, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

[Continued on next page]

(54) Title: JOINT, ADAPTIVE CONTROL OF EQUALIZATION, SYNCHRONIZATION, AND GAIN IN A DIGITAL COMMUNICATIONS RECEIVER



(57) Abstract: Various aspects and embodiments of the present invention derive statistics of received signal quality and use these statistics to jointly control operation of timing recovery, carrier recovery, automatic gain control, and equalization functions.

WO 2004/075469 A3

Published:
— *with international search report*
— *before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments*

(88) Date of publication of the international search report:
7 October 2004

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

International Application No
PCT/US2004/004887

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 H04L25/03 H04L27/38

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 H04L

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, INSPEC, COMPENDEX

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 6 073 030 A (BRUN ZDENEK ET AL) 6 June 2000 (2000-06-06) column 7, line 49 - column 8, line 5 column 8, line 30 - line 46	1
X	US 4 607 230 A (ENDO CHIHIRO ET AL) 19 August 1986 (1986-08-19) column 6, line 42 - line 58 column 7, line 7 - line 63	1

-/--

[X] Further documents are listed in the continuation of box C.

[X] 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 filing 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	Date of mailing of the international search report
20 August 2004	30/08/2004

Name and mailing address of the ISA	Authorized officer
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	Orozco Roura, C

INTERNATIONAL SEARCH REPORT

International Application No
PCT/US2004/004887

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	SIRIKIAT ARIYAVISITAKUL ED - INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS: "EQUALIZATION OF A HARD-LIMITED SLOWLY-FADING MULTIPATH SIGNAL USING A PHASE EQUALIZER WITH A TIME-REVERSAL STRUCTURE" 6 May 1990 (1990-05-06), VEHICULAR TECHNOLOGY CONFERENCE. ORLANDO, MAY 6 - 9, 1990, NEW YORK, IEEE, US, PAGE(S) 520-526 , XP000204168 page 523, right-hand column - page 524, left-hand column ----	1

INTERNATIONAL SEARCH REPORT

International Application No
PCT/US2004/004887

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 6073030 A	06-06-2000	US 5862491 A	19-01-1999
US 4607230 A	19-08-1986	JP 1623854 C	18-11-1991
		JP 2049065 B	29-10-1990
		JP 61082545 A	26-04-1986
		CA 1251518 A1	21-03-1989
		DE 3581863 D1	04-04-1991
		EP 0173569 A2	05-03-1986