

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
3 July 2003 (03.07.2003)

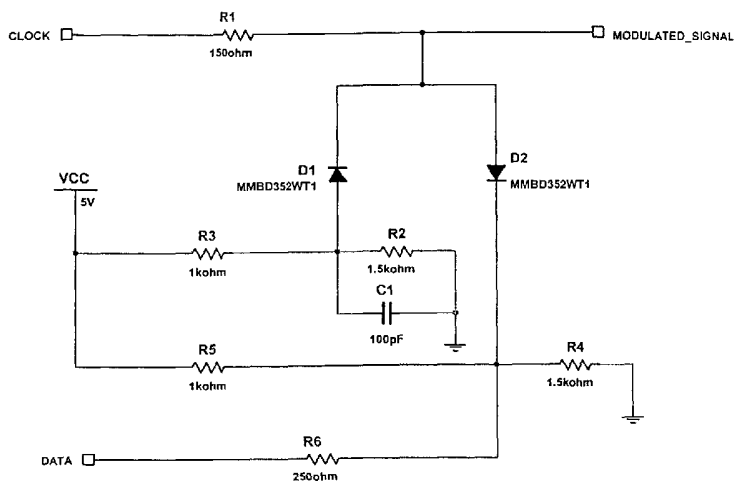
PCT

(10) International Publication Number
WO 03/055161 A3

- (51) International Patent Classification⁷: **H04L 27/02**
 - (21) International Application Number: PCT/US02/40964
 - (22) International Filing Date:
19 December 2002 (19.12.2002)
 - (25) Filing Language: English
 - (26) Publication Language: English
 - (30) Priority Data:
60/341,929 19 December 2001 (19.12.2001) US
 - (71) Applicant: ISLAND LABS, LLC [US/US]; 22974 Overseas Highway #2, Cudjoe Key, FL 33042 (US).
 - (72) Inventors: GREER, Mike; 1527 Fletcher Street, Hollywood, FL 33020 (US). KHAN, Nadeem; House #587D, Satellite Town, Rawalpindi (PK).
 - (74) Agents: COOK, Dennis, L. et al.; Fowler White Boggs Banker, P.A., Suite 1700, 501 East Kennedy Boulevard, Tampa, FL 33602 (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, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW.
 - (84) Designated States (regional): European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, SI, SK, TR).
- 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:**
14 August 2003

[Continued on next page]

(54) Title: METHOD AND APPARATUS FOR AMPLITUDE MODULATING DATA SIGNALS USING A SQUARE WAVE SIGNAL



(57) Abstract: A system and a method of modulation wherein digital data streams are radio transmitted at a high level of efficiency and speed, and without a large continuous concomitant formation of side frequency phenomena. Thus, bandwidths assigned for this transmissional task are quite narrow, with data transmission speeds at the singular frequency of the RF carrier itself. This invention can send high-speed data in RF channels that are very narrow and that would ordinarily be considered useful only for very low speed data or analog voice. This invention provides a means by which a radio frequency carrier, expressed, as a square wave can be amplitude modulated with maximum efficiency and speed with minimum phase delay and distortion. RF filtering is used to reduce the modulated square wave to its base band sine wave component after modulation. This circuit may be used to modulate the carrier (clock) at any frequency up to and beyond the carrier frequency itself. This is useful in the implementation of broadband wireless systems. This invention can also be used with multiple access systems.



WO 03/055161 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

International Application No
PCT/US 02/40964

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 H04L27/02

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, INSPEC, WPI Data, PAJ

C. DOCUMENTS CONSIDERED TO BE RELEVANT

| Category ° | Citation of document, with indication, where appropriate, of the relevant passages | Relevant to claim No. |
|------------|---|-----------------------|
| X | US 4 201 942 A (DOWNER EDWARD W) 6 May 1980 (1980-05-06) abstract column 1, line 10 - line 35 column 1, line 65 -column 3, line 15 column 4, line 25 -column 5, line 20 --- | 1-8 |
| X | US 3 863 025 A (GONSEWSKI LEONARD E ET AL) 28 January 1975 (1975-01-28) column 1, line 25 -column 2, line 20 column 2, line 45 - line 55 --- | 1-8 |
| A | US 5 909 472 A (ARNETT DAVID W) 1 June 1999 (1999-06-01) abstract column 1, line 10 -column 3, line 5 column 4, line 5 - line 30 --- | 1,2,5,6 |
| | -/-- | |

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 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

22 May 2003

Date of mailing of the international search report

03/06/2003

Name and mailing address of the ISA

European Patent Office, P.B. 5618 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,
Fax: (+31-70) 340-3016

Authorized officer

Litton, R

INTERNATIONAL SEARCH REPORT

International Application No
PCT/US 02/40964

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

| Category * | Citation of document, with indication, where appropriate, of the relevant passages | Relevant to claim No. |
|------------|---|-----------------------|
| A | US 5 677 927 A (FULLERTON LARRY W ET AL) 14 October 1997 (1997-10-14) abstract column 25, line 60 -column 26, line 50 ----- | 1,2,5,6 |

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/US 02/40964

| Patent document cited in search report | | Publication date | Patent family member(s) | Publication date |
|--|---|------------------|--|--|
| US 4201942 | A | 06-05-1980 | NONE | |
| US 3863025 | A | 28-01-1975 | CA 1016469 A1 DE 2417124 A1 | 30-08-1977 14-11-1974 |
| US 5909472 | A | 01-06-1999 | US 5889819 A EP 0823801 A2 JP 10143271 A | 30-03-1999 11-02-1998 29-05-1998 |
| US 5677927 | A | 14-10-1997 | AU 712260 B2 AU 3685595 A CA 2200475 A1 CN 1169220 A , B EP 0782791 A1 JP 10508725 T US 6430208 B1 WO 9609694 A1 US 2003043931 A1 US 6549567 B1 US 5832035 A US 6031862 A US 5963581 A US 5995534 A US 5960031 A | 04-11-1999 09-04-1996 28-03-1996 31-12-1997 09-07-1997 25-08-1998 06-08-2002 28-03-1996 06-03-2003 15-04-2003 03-11-1998 29-02-2000 05-10-1999 30-11-1999 28-09-1999 |