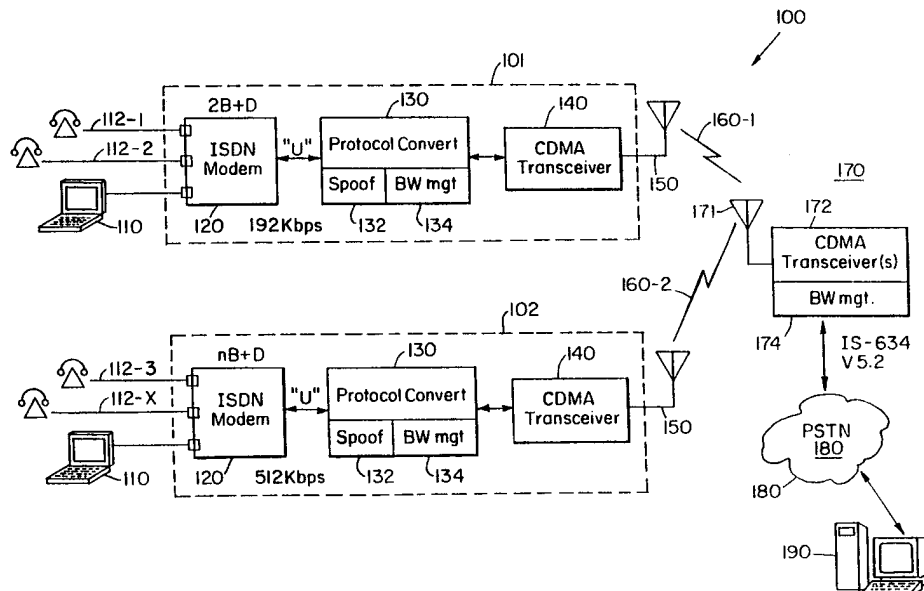




INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

<p>(51) International Patent Classification <sup>6</sup> : <b>H04Q 7/24</b></p>	<p><b>A3</b></p>	<p>(11) International Publication Number: <b>WO 98/59447</b> (43) International Publication Date: 30 December 1998 (30.12.98)</p>
<p>(21) International Application Number: PCT/US98/12875 (22) International Filing Date: 18 June 1998 (18.06.98) (30) Priority Data: 60/050,277 20 June 1997 (20.06.97) US 60/050,338 20 June 1997 (20.06.97) US 08/992,759 17 December 1997 (17.12.97) US (71) Applicant: TANTIVY COMMUNICATIONS, INC. [US/US]; Suite 300, 2200 Front Street, Melbourne, FL 32901 (US). (72) Inventors: GORSUCH, Thomas, E.; 530 Franklyn Avenue, Indialantic, FL 32903 (US). AMALFITANO, Carlo; 705 Riverside Drive, Melbourne Beach, FL 32951 (US). (74) Agents: THIBODEAU, David, J., Jr. et al.; Hamilton, Brook, Smith &amp; Reynolds, P.C., Two Militia Drive, Lexington, MA 02173 (US).</p>	<p>(81) Designated States: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, GM, GW, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, UZ, VN, YU, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SZ, 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), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG).</p> <p><b>Published</b> <i>With international search report.</i></p> <p>(88) Date of publication of the international search report: 18 March 1999 (18.03.99)</p>	

(54) Title: PROTOCOL CONVERSION AND BANDWIDTH REDUCTION TECHNIQUE PROVIDING MULTIPLE nB+D ISDN BASIC RATE INTERFACE LINKS OVER A WIRELESS CODE DIVISION MULTIPLE ACCESS COMMUNICATION SYSTEM



(57) Abstract

A technique for integrating services digital network (ISDN) and code division multiple access (CDMA) or other digital wireless communication protocols by a technique that strips off lower protocol layers, such as layers one and two of the ISDN protocol and sending only layer three and above messages over a more efficient wireless protocol.

**FOR THE PURPOSES OF INFORMATION ONLY**

Codes used to identify States party to the PCT on the front pages of pamphlets publishing international applications under the PCT.

<b>AL</b>	Albania	<b>ES</b>	Spain	<b>LS</b>	Lesotho	<b>SI</b>	Slovenia
<b>AM</b>	Armenia	<b>FI</b>	Finland	<b>LT</b>	Lithuania	<b>SK</b>	Slovakia
<b>AT</b>	Austria	<b>FR</b>	France	<b>LU</b>	Luxembourg	<b>SN</b>	Senegal
<b>AU</b>	Australia	<b>GA</b>	Gabon	<b>LV</b>	Latvia	<b>SZ</b>	Swaziland
<b>AZ</b>	Azerbaijan	<b>GB</b>	United Kingdom	<b>MC</b>	Monaco	<b>TD</b>	Chad
<b>BA</b>	Bosnia and Herzegovina	<b>GE</b>	Georgia	<b>MD</b>	Republic of Moldova	<b>TG</b>	Togo
<b>BB</b>	Barbados	<b>GH</b>	Ghana	<b>MG</b>	Madagascar	<b>TJ</b>	Tajikistan
<b>BE</b>	Belgium	<b>GN</b>	Guinea	<b>MK</b>	The former Yugoslav Republic of Macedonia	<b>TM</b>	Turkmenistan
<b>BF</b>	Burkina Faso	<b>GR</b>	Greece			<b>TR</b>	Turkey
<b>BG</b>	Bulgaria	<b>HU</b>	Hungary	<b>ML</b>	Mali	<b>TT</b>	Trinidad and Tobago
<b>BJ</b>	Benin	<b>IE</b>	Ireland	<b>MN</b>	Mongolia	<b>UA</b>	Ukraine
<b>BR</b>	Brazil	<b>IL</b>	Israel	<b>MR</b>	Mauritania	<b>UG</b>	Uganda
<b>BY</b>	Belarus	<b>IS</b>	Iceland	<b>MW</b>	Malawi	<b>US</b>	United States of America
<b>CA</b>	Canada	<b>IT</b>	Italy	<b>MX</b>	Mexico	<b>UZ</b>	Uzbekistan
<b>CF</b>	Central African Republic	<b>JP</b>	Japan	<b>NE</b>	Niger	<b>VN</b>	Viet Nam
<b>CG</b>	Congo	<b>KE</b>	Kenya	<b>NL</b>	Netherlands	<b>YU</b>	Yugoslavia
<b>CH</b>	Switzerland	<b>KG</b>	Kyrgyzstan	<b>NO</b>	Norway	<b>ZW</b>	Zimbabwe
<b>CI</b>	Côte d'Ivoire	<b>KP</b>	Democratic People's Republic of Korea	<b>NZ</b>	New Zealand		
<b>CM</b>	Cameroon		Republic of Korea	<b>PL</b>	Poland		
<b>CN</b>	China	<b>KR</b>	Republic of Korea	<b>PT</b>	Portugal		
<b>CU</b>	Cuba	<b>KZ</b>	Kazakstan	<b>RO</b>	Romania		
<b>CZ</b>	Czech Republic	<b>LC</b>	Saint Lucia	<b>RU</b>	Russian Federation		
<b>DE</b>	Germany	<b>LI</b>	Liechtenstein	<b>SD</b>	Sudan		
<b>DK</b>	Denmark	<b>LK</b>	Sri Lanka	<b>SE</b>	Sweden		
<b>EE</b>	Estonia	<b>LR</b>	Liberia	<b>SG</b>	Singapore		

# INTERNATIONAL SEARCH REPORT

national Application No  
PCT/US 98/12875

<b>A. CLASSIFICATION OF SUBJECT MATTER</b> IPC 6 H04Q7/24				
According to International Patent Classification (IPC) or to both national classification and IPC				
<b>B. FIELDS SEARCHED</b>				
Minimum documentation searched (classification system followed by classification symbols) IPC 6 H04Q 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)				
<b>C. DOCUMENTS CONSIDERED TO BE RELEVANT</b>				
Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.		
Y	EP 0 719 062 A (AT & T CORP) 26 June 1996 see column 1, line 39 - column 2, line 35 see column 3, line 48 - line 54 see column 4, line 31 - line 53 see column 8, line 37 - column 10, line 5 see claims 1-8	1-3,8,9		
Y	--- MELANCHUK T ET AL: "CDPD AND EMERGING DIGITAL CELLULAR SYSTEMS" DIGEST OF PAPERS OF COMPCON (COMPUTER SOCIETY CONFERENCE) 1996, TECHNOLOGIES FOR THE INFORMATION SUPERHIGHWAY SANTA CLARA, FEB. 25 - 28, 1996, no. CONF. 41, 25 February 1996, pages 2-8, XP000628458 INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS see the whole document --- -/--	1-3,8,9		
<input checked="" type="checkbox"/> Further documents are listed in the continuation of box C.				
<input checked="" type="checkbox"/> Patent family members are listed in annex.				
* Special categories of cited documents :				
<table style="width: 100%; border: none;"> <tr> <td style="width: 50%; border: none; vertical-align: top;">                     "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                 </td> <td style="width: 50%; border: none; vertical-align: top;">                     "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.                      "&amp;" document member of the same patent family                 </td> </tr> </table>			"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
"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  <p style="text-align: center; font-size: 1.2em;">10 December 1998</p>		Date of mailing of the international search report  <p style="text-align: center; font-size: 1.2em;">17/12/1998</p>		
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  <p style="text-align: center; font-size: 1.2em;">CASALS CASTANE, J</p>		

INTERNATIONAL SEARCH REPORT

International Application No

PCT/US 98/12875

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category <sup>a</sup>	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	<p>EP 0 682 423 A (AT &amp; T CORP)                      15 November 1995                      see column 1, line 43 - line 57                      see column 5, line 53 - column 8, line 1                      see column 9, line 5 - line 11                      see figure 5</p> <p style="text-align: center;">---</p>	1-3,8,9
A	<p>WO 96 08934 A (ALBROW RICHARD JOHN ;BLACK                      SIMON ALEXANDER (GB); MARTIN PAUL MAXWE)                      21 March 1996                      see page 2, line 4 - page 4, line 2                      see page 9, line 8 - page 10, line 10</p> <p style="text-align: center;">---</p>	1-3,8,9
A	<p>WO 96 37081 A (ROKE MANOR RESEARCH ;DAVIS                      SIMON PAUL (GB)) 21 November 1996                      see page 4, line 9 - page 7, line 12                      see page 10, line 2 - line 5</p> <p style="text-align: center;">-----</p>	1-3,8

# INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/US 98/12875

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
EP 0719062    A	26-06-1996	US 5592470 A	07-01-1997
		JP 8280058 A	22-10-1996
EP 0682423    A	15-11-1995	US 5442625 A	15-08-1995
		CA 2145708 A	14-11-1995
		JP 8065273 A	08-03-1996
WO 9608934    A	21-03-1996	AU 3477995 A	29-03-1996
		BR 9508943 A	11-11-1997
		CN 1160468 A	24-09-1997
		EP 0795255 A	17-09-1997
		FI 971088 A	14-03-1997
		JP 10505969 T	09-06-1998
		ZA 9507745 A	06-05-1996
WO 9637081    A	21-11-1996	CN 1157083 A	13-08-1997
		EP 0771510 A	07-05-1997
		JP 10503357 T	24-03-1998