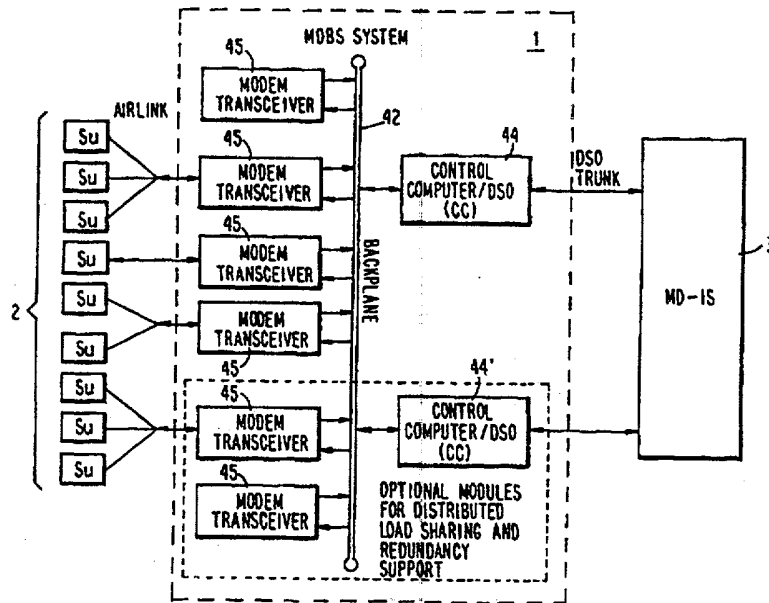




INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

<p>(51) International Patent Classification ⁶ : H04Q 7/22, H04M 7/00, H04Q 7/30, H03M 7/00</p>	<p>A3</p>	<p>(11) International Publication Number: WO 95/13685</p> <p>(43) International Publication Date: 18 May 1995 (18.05.95)</p>
<p>(21) International Application Number: PCT/US94/13026</p> <p>(22) International Filing Date: 14 November 1994 (14.11.94)</p> <p>(30) Priority Data: 08/152,005 12 November 1993 (12.11.93) US</p> <p>(71) Applicant: PACIFIC COMMUNICATION SCIENCES, INC. [US/US]; 10075 Barnes Canyon Road, San Diego, CA 92121 (US).</p> <p>(72) Inventors: ROBINSON, Mark; 2637 Valewood Avenue, Carlsbad, CA 92008 (US). GARDNER, Steven, H.; 5310 Bragg Street, San Diego, CA 92122 (US). WONG, Matt; 14871 Sunbreeze Way, San Diego, CA 92128 (US). KASMIR, Seton, P.; 12926 Melic Court, San Diego, CA 92129 (US). BALACHANDRAN, Kumar; 8444 Capricorn Way #13, San Diego, CA 92126 (US). GRAHAM, Sue; 1310 Walnutview Drive, Encinitas, CA 92024 (US). SCHJELDERUP, Gail; 16117 Martincoit Road, Poway, CA 92064 (US). QUICK, Roy, Franklin; 4502 Del Monte Avenue, San Diego, CA 92107 (US).</p> <p>(74) Agents: LEV, Robert, G. et al.; Lowe, Price, Leblanc & Becker, Suite 300, 99 Canal Center Plaza, Alexandria, VA 22314 (US).</p>	<p>(81) Designated States: AM, AT, AU, BB, BG, BR, BY, CA, CH, CN, CZ, DE, DK, EE, ES, FI, GB, GE, HU, JP, KE, KG, KP, KR, KZ, LK, LR, LT, LU, LV, MD, MG, MN, MW, NL, NO, NZ, PL, PT, RO, RU, SD, SE, SI, SK, TJ, TT, UA, UZ, VN, European patent (AT, BE, CH, DE, DK, ES, 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), ARIPO patent (KE, MW, SD, SZ).</p> <p>Published <i>With international search report.</i> <i>Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.</i></p> <p>(88) Date of publication of the international search report: 19 October 1995 (19.10.95)</p>	

(54) Title: A CELLULAR DIGITAL PACKET DATA MOBILE DATA BASE STATION



(57) Abstract

A cellular digital packet data (CDPD) system includes a mobile data base station (MDBS) configured to interface easily with an advanced mobile phone system (AMPS). The elements of the MDBS are arranged on modules and the functionality of the MDBS is divided among the modules to facilitate flexibility, compactness and quick expansion of the MDBS. To further facilitate compactness, the MDBS includes a transceiver/modem board which uses a single chip to carry out delta-sigma modulation. In order to maintain the integrity of CDPD transmission, a channel hopping scheme is used based upon avoidance of AMPS channel use. A distinctive protocol is used to encapsulate control/query/response data for transmission throughout the CDPD system. This protocol also facilitates easy control of each MDBS throughout the system.

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INTERNATIONAL SEARCH REPORT

International Application No
PCT/US 94/13026

A. CLASSIFICATION OF SUBJECT MATTER
IPC 6 H04Q7/22 H04M7/00 H04Q7/30 H03M7/00

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 6 H04Q H04L H04M H03M

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)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	CA-A-2 063 901 (NOVATEL) 26 September 1992	1-29, 32-37, 40, 42-48, 54, 63-72, 74,75, 92,93 84-91
A	see page 6, line 9 - page 10, line 29; figures 1-2A see page 11, line 20 - page 13, line 9 --- -/--	

Further documents are listed in the continuation of box C.

Patent family members are listed in annex.

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- *&* document member of the same patent family

Date of the actual completion of the international search 13 September 1995	Date of mailing of the international search report 14.09.95
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 Janyszek, J-M

INTERNATIONAL SEARCH REPORT

International Application No
PCT/US 94/13026

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	EP-A-0 521 610 (IBM) 7 January 1993	1-29, 32-37, 40, 42-48, 54, 63-72, 74,75 84,92
A	see column 8, line 8 - column 10, line 32; claims 1-8 see column 12, line 46 - column 14, line 24; figures 1,2,4 ---	
A	TELCOM REPORT, vol. 8, no. 5, October 1985 BERLIN DE, pages 337-343, HILDEBRANDT 'Die Basisstation im zellularen Funkfennsprechnetz C450' see the whole document ---	3-5,14, 16-19, 23,24, 36,37, 42-45
A	BELL SYSTEM TECHNICAL JOURNAL, vol. 58, no. 1, 1979 NEW YORK US, EHRlich 'Cell-Site-Hardware' see paragraph II - paragraph 2.2 see paragraph 4.1 see paragraph VI - paragraph 7.2.4 ---	3,16-20, 36,37,42
A	GB-A-2 241 854 (ALLEN-BRADLEY CO.) 11 September 1991 see page 7, line 1 - page 8, line 1 see page 8, line 12 - page 14, line 13 ---	3-5,8,9, 11,12, 14,15, 35,46,64
A	US-A-4 730 187 (MENICH ET AL.) 8 March 1988 see the whole document ---	6,7, 23-29, 34,35, 40,69-71
A	EP-A-0 439 926 (AT&T) 7 August 1991 see the whole document ---	6,40,42, 46,47
A	GB-A-2 260 064 (MITEL) 31 March 1993 see page 2, line 1 - page 4, line 28; figures 2,5A,B ---	1,4,7, 15,40
A	ARCHIV FUR ELEKTRONIK UND UBERTRAGUNGSTECHNIK, vol. 47, no. 4, July 1993 STUTTGART DE, pages 260-268, XP 000384430 HERRFELD ET AL. 'D/A-Wandlung mit Rauschfilterung' see abstract; figure 2 ---	95
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INTERNATIONAL SEARCH REPORT

Int: nal Application No
PCT/US 94/13026

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	<p>IEEE INTERNATIONAL SYMPOSIUM ON CIRCUITS AND SYSTEM, vol. 2, 4 May 1987 PHILADELPHIA, US, pages 475-478, EKELUND ET AL. 'A VLSI Sigma Delta Waveform Generator for a Quadrature Type CPM Transmitter' see the whole document -----</p>	95

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US 94/ 13026

Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

2. Claims Nos.:
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:

3. Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

1. Claims 1-75: Architecture of a CDPD base station
2. Claims 76-83: Data protocol used between the network management system (NMS) and the CDPD base station
3. Claims 84-94: AMPS channel selection for the use in the CDPD system
4. Claims 95-102: Delta-Sigma-modulation transmission system

1. As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2. As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:

1-75, 84-102
4. No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- The additional search fees were accompanied by the applicant's protest.
- No protest accompanied the payment of additional search fees.

INTERNATIONAL SEARCH REPORT

information on patent family members

International Application No
PCT/US 94/13026

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
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