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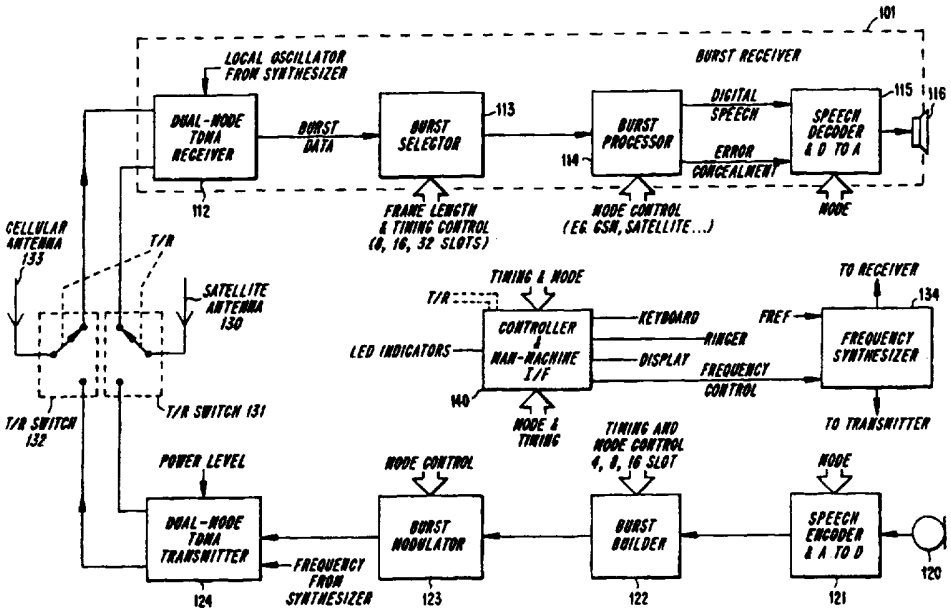
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24 April 1997 (24.04.97)

(54) Title: DUAL MODE SATELLITE/CELLULAR TERMINAL



(57) Abstract

A method and apparatus of communicating information using Time Division Multiple Access and adaptive transmission and reception are disclosed. Signal bursts are transmitted from TDMA transmitters to a TDMA receiver wherein the transmitter codes the information and transmits coded information to the receiver using at least one of two timeslots of a plurality of timeslots in a repetitive TDMA frame period. Both of the two timeslots are received whether or not the transmitter has transmitted using one or two timeslots and the received signals are classified as intended and non-intended. Successively received signals classified as intended are then assembled into a block for decoding to reproduce the information.

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INTERNATIONAL SEARCH REPORT

Inter I Application No
PCT/US 96/11390

A. CLASSIFICATION OF SUBJECT MATTER
IPC 6 H04B7/185

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 H04B 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)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	INTERNATIONAL CONFERENCE ON UNIVERSAL PERSONAL COMMUNICATIONS, vol. CONF.2, 12 October 1993, pages 339-343, XP000560221 PRISCOLLI F D: "NETWORK ASPECTS RELEVANT TO THE INTEGRATION BETWEEN THE GSM NETWORK AND A SATELLITE SYSTEM" see page 339, column 1, line 40 - line 49 see page 339, column 2, line 26 - line 30 see page 340, column 1, line 12 - line 20 see page 341, column 1, paragraph 3.3 see page 342, column 1, line 3 - line 31 --- -/--	1-17, 42-45

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

[X] Patent family members are listed in annex.

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Date of the actual completion of the international search	Date of mailing of the international search report
4 March 1997	17. 03. 97
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 Van den Berg, J.G.J.

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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	PROCEEDINGS OF THE GLOBAL TELECOMMUNICATIONS CONFERENCE (GLOBECOM), HOUSTON, NOV. 29 - DEC. 2, 1993, vol. 1 OF 4, 29 November 1993, INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS, pages 588-592, XP000428122 PRISCOLI F D ET AL: "STUDY ON THE INTEGRATION BETWEEN THE GSM CELLULAR NETWORK AND A SATELLITE SYSTEM" see page 588, column 2, line 34 - line 43 see page 589, column 2, line 19 - line 29 see page 590, column 2, paragraph 3.5 - page 591, column 1 ---	1
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X Y	US 5 404 376 A (DENT PAUL W) 4 April 1995 see column 2, line 51 - line 57 see column 3, line 15 - line 24 see column 7, line 45 - line 68 see column 8, line 47 - line 63 see column 9, line 67 - column 10, line 34 --- -/--	18 19,20

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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

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X	EP 0 627 827 A (CSELT CENTRO STUDI LAB TELECOM ;PHILIPS ELECTRONICS NV (NL)) 7 December 1994 abstract see page 2, line 45 - page 3, line 28 see page 3, line 33 - page 5, line 9 see claims 14,15 --- -/--	24,25, 29,30

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INTERNATIONAL SEARCH REPORT

Inter nal Application No
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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	EUROPEAN CONFERENCE ON SATELLITE COMMUNICATIONS, MANCHESTER, NOV. 2 - 4, 1993, no. CONF. 3, 2 November 1993, INSTITUTION OF ELECTRICAL ENGINEERS, pages 325-329, XP000458030 CULLEN C ET AL: "THE NETWORKING OF DYNAMIC SATELLITE CONSTELLATIONS" see page 326, column 2, line 9 - line 23 see page 328, column 1, line 36 - page 329, column 1, line 17 -----	22,35

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INTERNATIONAL SEARCH REPORT

'tional application No.
PCT/US 96/ 11390

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:

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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:

see extra sheet

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 searches 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.:

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.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/210

1. claims 1-17, 42-45: allocation of timeslots in TDMA burst signals in dual mode communication with a land based network station and an orbiting relay station
2. claims 18-21: TDMA communication apparatus with improved transmitter power control
3. claims 22-24,35-38: TDMA communication providing an improved transmit and receive diversity
4. claims 25-28: TDMA portable satellite communications terminal and transmission of control commands
5. claim 29: synchronisation and quality control in a TDMA portable satellite communications terminal
6. claim 30: communications system providing a communications service to a plurality of first stations with the aid of a network of relay stations
7. claims 31-34: communications system for relaying digitally coded voice signals to each of a plurality of remote stations
8. claims 39-41: TDMA format for transmitting traffic data and signalling data between a network station and a plurality of remote stations
9. claim 46: another method of capacity allocation in TDMA satellite or cellular communications system

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