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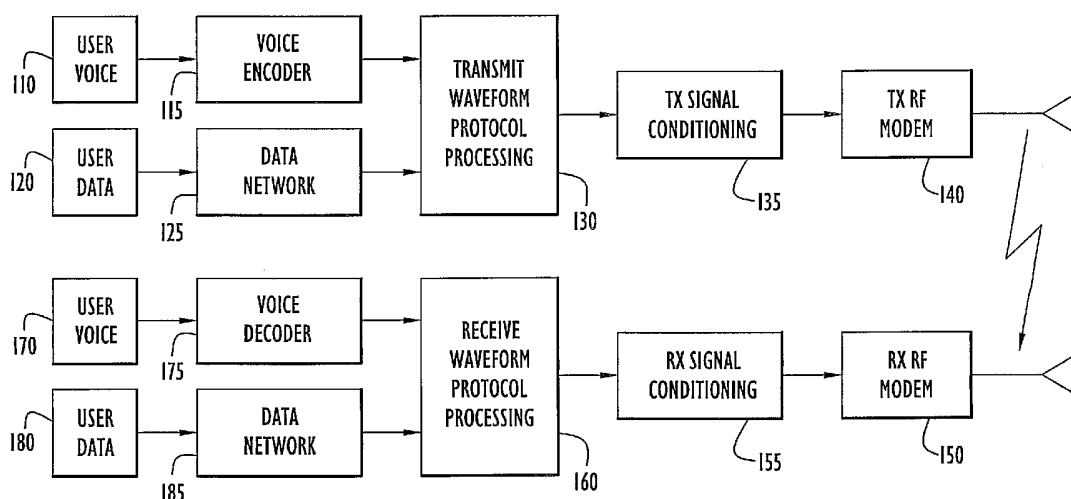
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(54) Title: EMBEDDED CHANNEL ANALYSIS FOR RF DATA MODEM



(57) Abstract: An embedded method for analyzing RF channel communication link parameters can include inserting data having a predetermined pattern to a transmission at a transmitter, processing the data through a waveform processor, transmitting the data across a communications link at traffic rates, receiving the transmitted data at a receiver, and determining a RF channel bit error rate of the transmitted data at the receiver. The transmitted data can include embedded synchronization and operating mode patterns such that the receiver can distinguish the transmitted data from contemporaneous voice or other data transmissions. A method for tracking received bits and counting received errors can include providing received bits to a decryption process, and providing test bits to an error analysis application to determine a total number of received errors.

INTERNATIONAL SEARCH REPORT

International Application No

PCT/US2005/015311

A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 H04L1/24

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

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5 802 105 A (TIEDEMANN, JR. ET AL) 1 September 1998 (1998-09-01)	1-3, 6-10,13, 14
Y	the whole document	4,5,11, 12
Y	EP 1 067 730 A (ALCATEL) 10 January 2001 (2001-01-10) column 2, paragraph 10	4,5,11, 12
A	US 6 292 516 B1 (PETSKO DAVID P ET AL) 18 September 2001 (2001-09-18) column 2, line 35 - column 3, line 33	1,8

☐

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

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"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)

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"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

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INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2005/015311

Box II Observations where certain claims were found unsearchable (Continuation of item 2 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 III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

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

see additional 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 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.:
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.:

1-14

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

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-14

Embedded method for analyzing RF channel communication link parameters

2. claims: 15-18

Process/method for tracking received bits and counting received errors

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/US2005/015311

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
US 5802105	A	01-09-1998	AU 706824 B2	24-06-1999
			AU 4371196 A	19-06-1996
			BR 9510001 A	13-01-1998
			CA 2206251 A1	06-06-1996
			CN 1174640 A	25-02-1998
			EP 0806101 A1	12-11-1997
			FI 972208 A	28-07-1997
			IL 116183 A	23-11-2003
			JP 3388752 B2	24-03-2003
			JP 10510121 T	29-09-1998
			RU 2142197 C1	27-11-1999
			WO 9617454 A1	06-06-1996
			ZA 9510109 A	06-06-1996

EP 1067730	A	10-01-2001	NONE	

US 6292516	B1	18-09-2001	NONE	
