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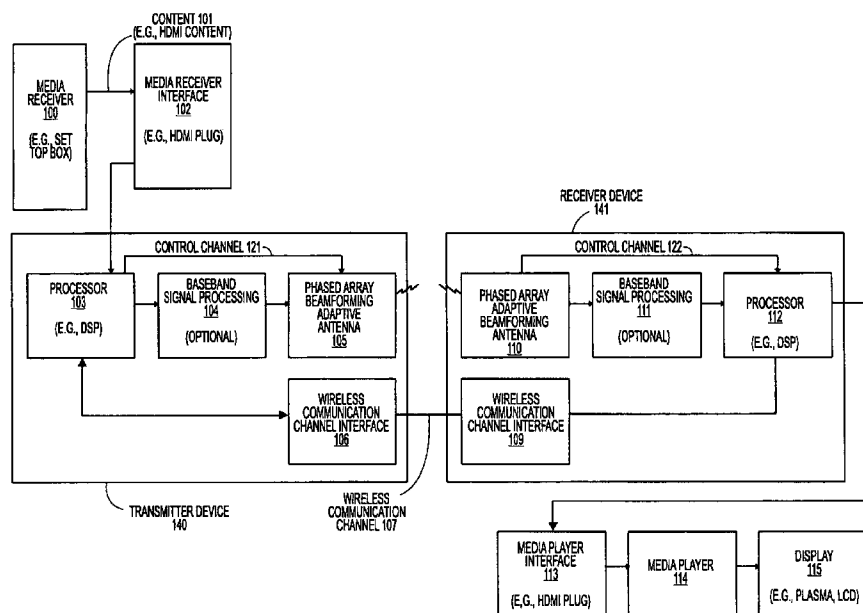
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(54) Title: HD PHYSICAL LAYER OF A WIRELESS COMMUNICATION DEVICE



(57) Abstract: A radio frequency (RF) transmitter is coupled to and controlled by a processor to transmit data. A physical layer circuit is coupled to the RF transmitter to encode and decode between a digital signal and a modulated analog signal. The physical layer circuit comprises a high rate physical layer circuit (HRP) and a low rate physical layer circuit (LRP). The low rate channels generated by the low rate physical layer circuit (LRP) share a same frequency band as a corresponding high rate channel generated by the high rate physical layer circuit (HRP).

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A. CLASSIFICATION OF SUBJECT MATTER INV. H04L1/00		
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) H04L H04B 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) EPO-Internal, WPI Data, INSPEC		
C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
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Y	abstract page 2, line 7 - line 24 page 4, line 20 - page 12, line 17 figure 2	14-17, 20-33, 44-47, 50-64, 72
<div style="display: flex; justify-content: space-between;"> <input checked="" type="checkbox"/> Further documents are listed in the continuation of Box C. <input checked="" type="checkbox"/> See patent family annex. </div>		
* Special categories of cited documents:		
<div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <p>*A* document defining the general state of the art which is not considered to be of particular relevance</p> <p>*E* earlier document but published on or after the international filing date</p> <p>*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)</p> <p>*O* document referring to an oral disclosure, use, exhibition or other means</p> <p>*P* document published prior to the international filing date but later than the priority date claimed</p> </div> <div style="width: 45%;"> <p>*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</p> <p>*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</p> <p>*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.</p> <p>*&* document member of the same patent family</p> </div> </div>		
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Name and mailing address of the ISA/ European Patent Office, P.O. 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;">TOUMPOULIDIS, T</p>

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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.
X	TSIE K Y ET AL: "Concatenated trellis-coded 8-ary PSK for land mobile satellite communications" DISCOVERING A NEW WORLD OF COMMUNICATIONS. CHICAGO, JUNE 14 - 18, 1992. BOUND TOGETHER WITH B0190700, VOL. 3, PROCEEDINGS OF THE INTERNATIONAL CONFERENCE ON COMMUNICATIONS, NEW YORK, IEEE, US, vol. VOL. 4, 14 June 1992 (1992-06-14), pages 778-782, XPO10062007 ISBN: 0-7803-0599-X	73-84
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INTERNATIONAL SEARCH REPORT

International application No.
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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.:

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: 1-13,18-43,48-71

Apparatus and methods for transmitting high rate and low rate digital signals having overlapping transmission spectrum

2. claims: 1,14-17,35,44-47,68,72-84

Apparatus and method for coding high rate digital signals

3. claims: 85-88

Apparatus for transmission of low rate signals

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/US2007/003997

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Information on patent family members

International application No

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