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(71) Applicant: **QUALCOMM INCORPORATED** [US/US]; 5775 Morehouse Drive, San Diego, CA 92121-1714 (US).

(72) Inventors: **KETCHUM, John, W.**; 37 Candleberry Lane, Harvard, MA 01451 (US). **HOWARD, Steven, J.**; 75 Heritage Avenue, Ashland, MA 01721 (US). **WALTON, Jay, Rod**; 7 Ledgewood Drive, Westford, MA 01886 (US). **WALLACE, Mark, S.**; 4 Madel Lane, Bedford, MA 01730 (US). **LING, Funyun**; 5775 Morehouse Drive, San Diego, CA 92121 (US).

(74) Agents: **OGROD, Gregory, D.** et al.; Qualcomm Incorporated, 5775 Morehouse Drive, San Diego, CA 92121-1714 (US).

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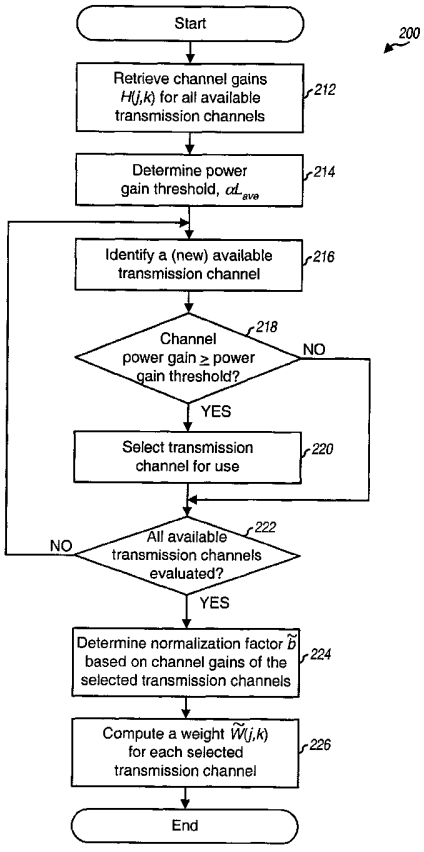
(54) Title: TRANSMISSION IN MULTI-CHANNEL COMMUNICATION SYSTEM USING SELECTIVE CHANNEL POWER CONTROL



(57) Abstract: Techniques to process data for transmission over a set of transmission channels selected from among all available transmission channels. In an aspect, the data processing includes coding data basd on a common coding and modulation scheme to provide modulation symbols and pre-weighting the modulation symbols for each selected channel based on the channel's characteristics. The pre-weighting may be achieved by "inverting" the selected channels so that the received SNRs are approximately similar for all selected channels. With selective channel inversion, only channels having SNRs at or above a particular threshold are selected, "bad" channels are not used, and the total available transmit power is distributed across only "good" channels. Inproved performance is achieved due to the combined benefits of using only the N_s best channels and matching the received SNR of each selected channel to the SNR required by the selected coding and modulation scheme.

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European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

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INTERNATIONAL SEARCH REPORT

Inte ial Application No
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A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 H04B7/005 H04L27/26

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 H04B 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, 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 4 679 227 A (HUGHES-HARTOGS DIRK) 7 July 1987 (1987-07-07) abstract figures 3,6,7 column 2, line 42 -column 3, line 16 column 4, line 56 - line 63 column 6, line 37 - line 44 column 7, line 51 - line 62 column 9, line 48 -column 11, line 65 column 12, line 62 -column 13, line 14 claim 1 --- -/--	1-25, 29-37

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

[X] 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

"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	Date of mailing of the international search report
24 September 2002	28. 11. 2002

Name and mailing address of the ISA	Authorized officer
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	Borges, P

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INTERNATIONAL SEARCH REPORT

Inte[illegible]al Application No
PC[illegible]/US 02/15404

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 6 005 893 A (HYLL MATTIAS) 21 December 1999 (1999-12-21) abstract figure 10 column 1, line 23 - line 36 column 3, line 43 -column 4, line 24 ---	1-3, 6-19, 29-37
A	US 5 784 363 A (LARSSON ROGER ET AL) 21 July 1998 (1998-07-21) the whole document ---	1-25, 29-37
A	US 4 438 511 A (BARAN PAUL) 20 March 1984 (1984-03-20) figure 1 column 4, line 45 -column 5, line 28 column 8, line 12 - line 16 column 9, line 15 - line 59 claim 1 ---	1-25, 29-37
A	US 5 991 284 A (WILLENEGGER SERGE ET AL) 23 November 1999 (1999-11-23) the whole document -----	1-25, 29-37

INTERNATIONAL SEARCH REPORT

ational application No.
PCT/US 02/15404

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:

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.:

1-25, 29-37

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: 1-25, 29-37

   Method and transmitter for power control in transmission over multiple transmission channels.

2. Claims: 26-28

   Method for determining thresholds for channel selection for transmission over multiple transmission channels

INTERNATIONAL SEARCH REPORT

Information on patent family members

Inte ɔnal Application No
PCT/US 02/15404

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