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- (71) Applicant (for all designated States except US): **AWARE, INC.** [US/US]; 40 Middlesex Turnpike, Bedford, MA 01730-1432 (US).
- (72) Inventors; and
- (75) Inventors/Applicants (for US only): **KIM, Joon, Bae** [KR/US]; 14 Pine Knoll Road, Lexington, MA 02420 (US). **TZANNES, Marcos, T.** [US/US]; 121 La Espiral, Orinda, CA 94563 (US). **HELLER, Peter, Niels** [US/US]; 30 Wallace Street, Somerville, MA 02144 (US). **SANDBERG, Stuart** [US/US]; 8 Stacy's Way, Acton, MA 01720 (US).
- (74) Agent: **VICK, Jason, H.**; Sheridan Ross P.C., 1560 Broadway, Suite 1200, Denver, CO 80202 (US).
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[Continued on next page]

(54) Title: TRANSMIT PSD CEILING IN PACKET-BASED OFDM SYSTEMS

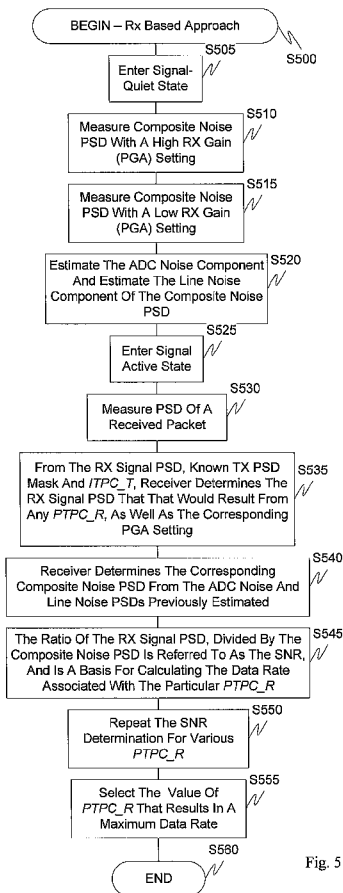


Fig. 5

(57) Abstract: Adjusted maximum transmit PSD levels have an effect on the SNR. If the ADC noise is assumed to be the limiting factor, then there can be a benefit for reducing the maximum transmit PSD level. For example, by lowering the maximum transmit PSD level from -50 dBm/Hz to -70 dBm/Hz results in an increase in SNR for subcarriers above 30 MHz. The SNR for subcarriers above 30 MHz can increase from 30db (-80-(-110)) to 50db (-80-(-130)). Therefore, by changing the maximum transmit PSD level, applying a ceiling on PSD mask, the aggregate sum of the available SNR's over the available subcarriers is increased, therefore increasing the obtainable OFDM data rate. In other words, a maximum transmit PSD mask can be used to lower the transmit PSD value of at least one subcarrier which results in an increase in SNR for at least one subcarrier.

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NO, NZ, OM, PE, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

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INTERNATIONAL SEARCH REPORT

International application No
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A. CLASSIFICATION OF SUBJECT MATTER
INV. H04L5/00
ADD.

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

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, COMPENDEX

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 2008/048894 A2 (QUALCOMM INC [US]; GOROKHOV ALEXEI [US]; BHUSHAN NAGA [US]) 24 April 2008 (2008-04-24)	1-5
Y	paragraphs [0003], [0037] - [0040]; figure 5	9-12
X	WO 2007/050842 A2 (QUALCOMM INC [US]; PRAKASH RAJAT [US]; ULUPINAR FATIH [US]; SUTIVONG A) 3 May 2007 (2007-05-03)	1-5
Y	paragraphs [0004], [0009]	9-12
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Y	page 4, line 7 page 3, line 26 - page 5, line 10; figures 1-2	9-12, 18, 19
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Further documents are listed in the continuation of Box C.

See patent family 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)
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- "P" document published prior to the international filing date but later than the priority date claimed

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- "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
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- "&" document member of the same patent family

Date of the actual completion of the international search
26 August 2010

Date of mailing of the international search report
03/09/2010

Name and mailing address of the ISA/
 European Patent Office, P.B. 5818 Patentlaan 2
 NL - 2280 HV Rijswijk
 Tel. (+31-70) 340-2040,
 Fax: (+31-70) 340-3016

Authorized officer
Barrientos Lezcano

INTERNATIONAL SEARCH REPORT

International application No

PCT/US2009/054849

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	CORY S MODLIN TEXAS INSTRUMENTS INC USA: "G.997.1, G.992.3, G.992.5: Changes to support annexes with selectable PSD masks; D 836" ITU-T DRAFT STUDY PERIOD 2001-2004, INTERNATIONAL TELECOMMUNICATION UNION, GENEVA ; CH, vol. STUDY GROUP 15, 21 October 2003 (2003-10-21), pages 1-7, XP017417568 section 7.3.1.2.2	3
A	WO 2005/057315 A2 (ADAPTIVE SPECTRUM & SIGNAL [US]; CIOFFI JOHN M [US]; RHEE WONJONG [US]) 23 June 2005 (2005-06-23) page 4, lines 13-20	16
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A	EP 1 311 097 A1 (EVOLIUM SAS [FR]) 14 May 2003 (2003-05-14) * abstract paragraphs [0014] - [0016], [0020]	1-20

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

Continuation of Box II.2

Claims Nos.: 21-347

The present application contains 347 claims, of which 51 are independent. There is no clear distinction between the independent claims because of overlapping scope. There are so many claims, and they are drafted in such a way that the claims as a whole are not in compliance with the provisions of clarity and conciseness of Article 6 PCT, as it is particularly burdensome for a skilled person to establish the subject-matter for which protection is sought. The non-compliance with the substantive provisions is to such an extent, that the search was performed taking into consideration the non-compliance in determining the extent of the search (PCT Guidelines 9.19 and 9.25). - Claims 21-347 appear to relate effectively to the same subject-matter as claims 1-20 and to differ from each other only with regard to the definition of the subject-matter for which protection is sought and/or in respect of the terminology used for the features of that subject-matter. The aforementioned claims therefore lack conciseness and as such do not meet the requirements of Article 6 PCT. The search was based on the subject-matter that, as far as can be understood, could reasonably be expected to be claimed later in the procedure, and the corresponding claims, namely claims 1-20.

The applicant's attention is drawn to the fact that claims relating to inventions in respect of which no international search report has been established need not be the subject of an international preliminary examination (Rule 66.1(e) PCT). The applicant is advised that the EPO policy when acting as an International Preliminary Examining Authority is normally not to carry out a preliminary examination on matter which has not been searched. This is the case irrespective of whether or not the claims are amended following receipt of the search report or during any Chapter II procedure. If the application proceeds into the regional phase before the EPO, the applicant is reminded that a search may be carried out during examination before the EPO (see EPO Guideline C-VI, 8.2), should the problems which led to the Article 17(2) declaration be overcome.

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2009/054849

Box No. 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.: 21-347
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:
see FURTHER INFORMATION sheet PCT/ISA/210

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 No. 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:

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 fees, this Authority did not invite payment of additional fees.

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 and, where applicable, the payment of a protest fee.
- The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.
- No protest accompanied the payment of additional search fees.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/US2009/054849

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