

(19) World Intellectual Property Organization  
International Bureau



(43) International Publication Date  
16 December 2004 (16.12.2004)

PCT

(10) International Publication Number  
WO 2004/109935 A3

(51) International Patent Classification<sup>7</sup>: H04B 1/707,  
G01S 1/00, H04B 1/38

(21) International Application Number:  
PCT/US2004/017274

(22) International Filing Date: 1 June 2004 (01.06.2004)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:  
10/455,234 5 June 2003 (05.06.2003) US

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(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM,

AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

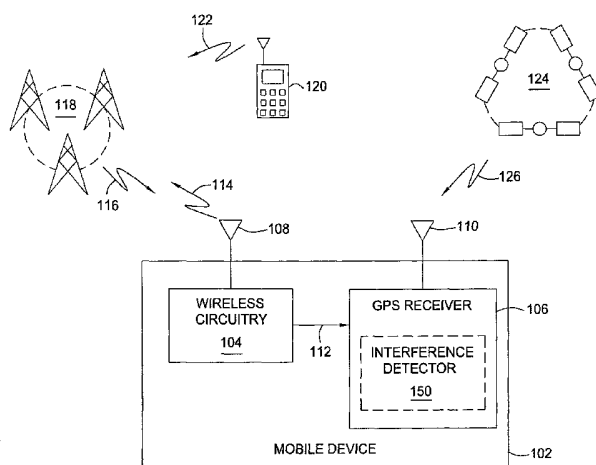
Published:

- with international search report
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

(88) Date of publication of the international search report:  
10 February 2005

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: METHOD AND APPARATUS FOR MITIGATING INTERFERENCE IN A SATELLITE SIGNAL RECEIVER



(57) Abstract: A method and apparatus for mitigating interference in a satellite signal receiver is described. The satellite signal receiver receives satellite signals from a plurality of satellites. In one example, data transmission of a wireless transceiver operating in proximity to the satellite signal receiver is monitored. A control signal is transmitted to the satellite signal receiver upon occurrence of data transmission from the wireless transceiver. Signal integration within the satellite signal receiver is then gated in response to the control signal. In another example, one or more values of satellite signal samples are selected from a plurality of possible values. A percentage of satellite signal samples having the one or more selected values is monitored over a predefined period. Signal integration within the satellite signal receiver is gated in response to the percentage exceeding a predefined threshold. In yet another example, a gain setting of an automatic gain control circuit within the satellite signal receiver is adjusted in response to detection of interference.

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INTERNATIONAL SEARCH REPORT

International Application No  
PCT/US2004/017274

A. CLASSIFICATION OF SUBJECT MATTER  
IPC 7 H04B1/707 G01S1/00 H04B1/38

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 G01S H04B

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 6 107 960 A (KRASNER NORMAN F) 22 August 2000 (2000-08-22)	1-3,19
Y	abstract; figures 1,2,4 column 1, line 11 - column 2, line 15 column 4, line 18 - line 47 column 6, line 1 - column 7, line 63 -----	4-6,8,21
Y	US 6 526 322 B1 (PENG LEON KUO-LIANG ET AL) 25 February 2003 (2003-02-25)	4-6
A	abstract; figure 4 column 1, line 62 - column 2, line 24 column 3, line 9 - line 30 -----	1-3,19
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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
- "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

5 October 2004

Date of mailing of the international search report

12.12.04

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INTERNATIONAL SEARCH REPORT

International Application No  
PCT/US2004/017274

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	<p>DANTONI F ET AL INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS: "A highly integrated GPS receiver for cellular handset"</p> <p>2001 IEEE RADIO FREQUENCY INTEGRATED CIRCUITS (RFIC) SYMPOSIUM. DIGEST OF PAPERS. PHOENIX, AZ, MAY 20 - 22, 2001, IEEE RADIO FREQUENCY INTEGRATED CIRCUITS SYMPOSIUM, NEW YORK, NY : IEEE, US, 20 May 2001 (2001-05-20), pages 93-96, XP010551329 ISBN: 0-7803-6601-8 * Section 2 *</p> <p style="text-align: center;">-----</p>	8,21

# INTERNATIONAL SEARCH REPORT

International application No.  
PCT/US2004/017274

## 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.:  
1-6, 8, 19-21, 26, 28

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: 1-6,8,19-21,26,28

Method (and related device) for mitigating interference in a satellite signals receiver, caused by the presence of another transceiver transmitting in the nearby, wherein: the TX activity of the potential interferer is monitored and interference is detected when the TX power trespasses a threshold  
a control signal related to the interference's detection gates the "signal integration"  
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## 2. claims: 9-18,22-25

Method (and related device) for mitigating interference in a satellite signals receiver, caused by the presence of another transceiver transmitting in the nearby, wherein: samples of signals from satellites are monitored for determining the percentage of them having one or more selected values over a predefined period  
the percentage trespassing a certain threshold gates the "signal integration" process  
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## 3. claims: 1,7,19,20,26,27,29-31

A method of controlling gain in a satellite signal receiver, wherein:  
when the presence of interference is detected a corresponding control signal is generated  
AGC's gain setting is adjusted based on the control signal in a way that AGC also during the occurrence of interference is maintained substantially at the same level as when no interference is detected.  
Independent claims 26 and 29 differ in that two different methods for ascertaining the presence of interference are used.  
Should the above common concept turn out not to be new/inventive a lack of unity a posteriori could arise.  
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# INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/US2004/017274

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
US 6107960	A	22-08-2000	AU 2327199 A	02-08-1999
			EP 1051638 A1	15-11-2000
			JP 2002509256 T	26-03-2002
			WO 9936795 A1	22-07-1999
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US 6526322	B1	25-02-2003	US 2003088741 A1	08-05-2003
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