

**PATENT COOPERATION TREATY**

**PCT**

**INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY**

(Chapter I of the Patent Cooperation Treaty)

(PCT Rule 44bis)

Applicant's or agent's file reference <b>21000044WO01</b>	<b>FOR FURTHER ACTION</b>		See item 4 below
International application No. <b>PCT/JP2011/068753</b>	International filing date ( <i>day/month/year</i> ) <b>19 August 2011 (19.08.2011)</b>	Priority date ( <i>day/month/year</i> ) <b>19 October 2010 (19.10.2010)</b>	
International Patent Classification (8th edition unless older edition indicated) <b>See relevant information in Form PCT/ISA/237</b>			
Applicant <b>HITACHI KOKUSAI ELECTRIC INC.</b>			

<p>1. This international preliminary report on patentability (Chapter I) is issued by the International Bureau on behalf of the International Searching Authority under Rule 44 bis.1(a).</p> <p>2. This REPORT consists of a total of 7 sheets, including this cover sheet.</p> <p>In the attached sheets, any reference to the written opinion of the International Searching Authority should be read as a reference to the international preliminary report on patentability (Chapter I) instead.</p>																								
<p>3. This report contains indications relating to the following items:</p> <table border="0"> <tr> <td><input checked="" type="checkbox"/></td> <td>Box No. I</td> <td>Basis of the report</td> </tr> <tr> <td><input type="checkbox"/></td> <td>Box No. II</td> <td>Priority</td> </tr> <tr> <td><input type="checkbox"/></td> <td>Box No. III</td> <td>Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</td> </tr> <tr> <td><input type="checkbox"/></td> <td>Box No. IV</td> <td>Lack of unity of invention</td> </tr> <tr> <td><input checked="" type="checkbox"/></td> <td>Box No. V</td> <td>Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</td> </tr> <tr> <td><input type="checkbox"/></td> <td>Box No. VI</td> <td>Certain documents cited</td> </tr> <tr> <td><input type="checkbox"/></td> <td>Box No. VII</td> <td>Certain defects in the international application</td> </tr> <tr> <td><input type="checkbox"/></td> <td>Box No. VIII</td> <td>Certain observations on the international application</td> </tr> </table> <p>4. The International Bureau will communicate this report to designated Offices in accordance with Rules 44bis.3(c) and 93bis.1 but not, except where the applicant makes an express request under Article 23(2), before the expiration of 30 months from the priority date (Rule 44bis .2).</p>	<input checked="" type="checkbox"/>	Box No. I	Basis of the report	<input type="checkbox"/>	Box No. II	Priority	<input type="checkbox"/>	Box No. III	Non-establishment of opinion with regard to novelty, inventive step and industrial applicability	<input type="checkbox"/>	Box No. IV	Lack of unity of invention	<input checked="" type="checkbox"/>	Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement	<input type="checkbox"/>	Box No. VI	Certain documents cited	<input type="checkbox"/>	Box No. VII	Certain defects in the international application	<input type="checkbox"/>	Box No. VIII	Certain observations on the international application
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	Date of issuance of this report <b>08 May 2013 (08.05.2013)</b>
The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland	Authorized officer  <b>Mineko Mohri</b>
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**PATENT COOPERATION TREATY**

**TRANSLATION**

From the  
INTERNATIONAL SEARCHING AUTHORITY

**PCT**

WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43bis.1)

To:

Date of mailing (day/month/year)	<b>20.09.2011</b>
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Applicant's or agent's file reference <b>21000044WO01</b>
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<b>FOR FURTHER ACTION</b> See paragraph 2 below
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International application No. <b>PCT/JP2011/068753</b>	International filing date (day/month/year) <b>19.08.2011</b>	Priority date (day/month/year) <b>19.10.2010</b>
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International Patent Classification (IPC) or both national classification and IPC <b>H04B1/10 (2006.01) i</b>
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Applicant <b>HITACHI KOKUSAI ELECTRIC INC.</b>
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1. This opinion contains indications relating to the following items:

- Box No. I Basis of the opinion
- Box No. II Priority
- Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- Box No. IV Lack of unity of invention
- Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- Box No. VI Certain documents cited
- Box No. VII Certain defects in the international application
- Box No. VIII Certain observations on the international application

2. **FURTHER ACTION**

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the ISA/JP	Date of completion of this opinion	Authorized officer
Facsimile No.		Telephone No.

WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY

International application No.

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Box No. I      Basis of this opinion

1. With regard to the **language**, this opinion has been established on the basis of:
  - the international application in the language in which it was filed
  - a translation of the international application into \_\_\_\_\_, which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b)).
2.  This opinion has been established taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91 (Rule 43bis.1(a))
3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, this opinion has been established on the basis of a sequence listing filed or furnished:
  - a. (means)
    - on paper
    - in electronic form
  - b. (time)
    - in the international application as filed
    - together with the international application in electronic form
    - subsequently to this Authority for the purposes of search
4.  In addition, in the case that more than one version or copy of a sequence listing has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
5. Additional comments:

**WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY**

International application No. PCT/JP2011/068753
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<b>Box No. V</b>	<b>Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</b>																		
1. Statement																			
<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 20%; padding: 2px;">Novelty (N)</td> <td style="padding: 2px;">Claims <u>1-7</u></td> <td style="width: 10%; text-align: right; padding: 2px;">YES</td> </tr> <tr> <td></td> <td style="padding: 2px;">Claims _____</td> <td style="width: 10%; text-align: right; padding: 2px;">NO</td> </tr> <tr> <td style="padding: 2px;">Inventive step (IS)</td> <td style="padding: 2px;">Claims <u>5</u></td> <td style="width: 10%; text-align: right; padding: 2px;">YES</td> </tr> <tr> <td></td> <td style="padding: 2px;">Claims <u>1-4, 6, 7</u></td> <td style="width: 10%; text-align: right; padding: 2px;">NO</td> </tr> <tr> <td style="padding: 2px;">Industrial applicability (IA)</td> <td style="padding: 2px;">Claims <u>1-7</u></td> <td style="width: 10%; text-align: right; padding: 2px;">YES</td> </tr> <tr> <td></td> <td style="padding: 2px;">Claims _____</td> <td style="width: 10%; text-align: right; padding: 2px;">NO</td> </tr> </table>	Novelty (N)	Claims <u>1-7</u>	YES		Claims _____	NO	Inventive step (IS)	Claims <u>5</u>	YES		Claims <u>1-4, 6, 7</u>	NO	Industrial applicability (IA)	Claims <u>1-7</u>	YES		Claims _____	NO	
Novelty (N)	Claims <u>1-7</u>	YES																	
	Claims _____	NO																	
Inventive step (IS)	Claims <u>5</u>	YES																	
	Claims <u>1-4, 6, 7</u>	NO																	
Industrial applicability (IA)	Claims <u>1-7</u>	YES																	
	Claims _____	NO																	
2. Citations and explanations:																			
<p>Document 1: Microfilm of the specification and drawings annexed to the request of Japanese Utility Model Application No. 191772/1986 (Laid-open No. 097928/1988) (HITACHI DENSHI, LTD.) 24 June 1988, pages 4 and 5; fig. 1 (Family: none)</p> <p>Document 2: JP 63-031318 A (NIHONATSU DENKI CO., LTD.) 10 February 1988, page 2, lower right column to page 3, upper right column; fig. 1 (Family: none)</p> <p>Document 3: JP 2003-218732 A (HITACHI KOKUSAI ELECTRIC INC.) 31 July 2003, paragraphs [0004] and [0005]; fig. 7 (Family: none)</p> <p>Document 4: JP 2-101825 A (NEC CORP.) 13 April 1990, page 2, lower left column; fig. 3 (Family: none)</p> <p style="text-align: center; margin-top: 20px;">The invention as in claims 1 and 2 does not involve an inventive step in the light of document 1 or 2 cited in the</p>																			

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**Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

ISR.

The "mixer circuit (11)" and "mixer circuit (11)" and the "rectifying circuit (10)" and "wave detection circuit (10)" disclosed in documents 1 and 2 respectively correspond to the "frequency shifting unit" and "determination unit" in the invention of the present application. A person skilled in the art could easily configure a device by providing an LPF instead of the "BPF8" or "BPF9" disclosed in documents 1 and 2.

The invention as in claim 3 does not involve an inventive step in the light of documents 1-3 cited in the ISR.

The invention disclosed in document 1 detects whether or not a tone signal passes through LPF10 and BPF8, so it could be said that the frequency is detected on the basis of filter output, and whether or not the detected frequency is within a predetermined frequency range is determined. Also, the tone signal is converted to DC voltage by a rectifying circuit, and a switch circuit (5) is controlled thereby, so it could be said that the power outputted by the filter is detected and whether or not the detected power is equal to or greater than a predetermined power is determined.

Document 2 discloses the same matters.

Therefore, a person skilled in the art could easily conceive of the invention as in claim 3 on the basis of the inventions disclosed in document 1 or 2.

Also, document 3 discloses determining that a tone squelch signal is present when the detected frequency is a predetermined frequency. In addition to detecting the power outputted by a filter and determining whether or not the detected power is equal to or greater than a predetermined

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**Box No. V** Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

value, as in the inventions disclosed in documents 1 and 2, a person skilled in the art could easily conceive of using the feature of the invention disclosed in document 3, i.e., determining that a tone squelch signal is present when the detected frequency is a predetermined frequency.

The invention as in claim 4 does not involve an inventive step in the light of documents 1-4 cited in the ISR. Document 4 discloses allowing an audio signal to pass when a specific signal is detected, and interrupting the audio signal upon detecting that a received electric field has vanished.

On the basis of the inventions disclosed in documents 1-4, a person skilled in the art could easily conceive of configuring matters so that in reception standby status, it is determined that a tone squelch signal is present when the frequency detected by a frequency detection unit continues, for a first predetermined time, to be within a predetermined frequency range, and in reception status, it is determined that a tone squelch signal is not present when the power detected by a power detection unit continues, for a second predetermined time, to be equal to or less than a predetermined power value.

The invention as in claims 6 and 7 does not involve an inventive step in the light of documents 1-4 cited in the ISR.

What sort of frequency to set as the passband for filter is a matter that should be designed as appropriate by a person skilled in the art.

The invention as in claim 5 involves an inventive step in relation to the documents cited in the ISR.

Documents 1-4 do not disclose or suggest shifting to a

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**Box No. V**

**Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability;  
citations and explanations supporting such statement**

first reception status and then shifting to a second reception status after the passage of a third predetermined time.