

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 P1101408WO01	FOR FURTHER ACTION		See item 4 below
International application No. PCT/JP2012/067769	International filing date (<i>day/month/year</i>) 12 July 2012 (12.07.2012)	Priority date (<i>day/month/year</i>) 22 July 2011 (22.07.2011)	
International Patent Classification (8th edition unless older edition indicated) See relevant information in Form PCT/ISA/237			
Applicant SANYO Electric Co., Ltd.			

<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 28 January 2014 (28.01.2014)
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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)	09.10.2012
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Applicant's or agent's file reference P1101408WO01	FOR FURTHER ACTION See paragraph 2 below
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International application No. PCT/JP2012/067769	International filing date (day/month/year) 12.07.2012	Priority date (day/month/year) 22.07.2011
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International Patent Classification (IPC) or both national classification and IPC
H02J17/00 (2006.01) i, H01M10/46 (2006.01) i, H02J7/00 (2006.01) i, H02J7/02 (2006.01) i

Applicant
SANYO Electric Co., Ltd.

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.

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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 43*bis*.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:

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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		
1. Statement	Novelty (N)	Claims <u>1-5</u> Claims _____	YES NO
	Inventive step (IS)	Claims _____ Claims <u>1-5</u>	YES NO
	Industrial applicability (IA)	Claims <u>1-5</u> Claims _____	YES NO
2. Citations and explanations:			
<p>Document 1: JP 2008-206297 A (SONY ERICSSON MOBILE COMMUNICATIONS JAPAN, INC.) 04 September 2008, paragraphs [0028], [0029], [0055] to [0059], fig. 1 and 2 (Family: none)</p> <p>Document 2: Microfilm of the specification and drawings annexed to the request of Japanese Utility Model Application No. 018454/1990 (Laid-open No. 109175/1991) (YOKOGAWA ELECTRIC CORP.), 08 November 1991, page 3, line 15 to page 4, line 7; page 5, line 10 to page 9, line 6, fig. 1 and 5 (Family: none)</p> <p>Document 3: Microfilm of the specification and drawings annexed to the request of Japanese Utility Model Application No. 063232/1990 (Laid-open No. 021977/1992) (YOKOGAWA ELECTRIC CORP.), 24 February 1992, page 4, line 5 to 11; page 5, line 14 to page 8, line 11, fig. 1, 2 and 5 (Family: none)</p> <p>Document 4: JP 4-140924 A (MEIDENSHA CORP.) 14 May</p>			

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1992, entire text, fig. 1, 2 and 4

(Family: none)

Document 5: JP 2007-234541 A (SONY CORP.) 13
September 2007, paragraphs [0030] to
[0033], fig. 1 and 2 (Family: none)

The invention as in claims 1-3 and 5 does not involve an inventive step in the light of documents 1 through 4 cited in the international search report.

(Claim 1)

Document 1 describes "a built-in battery device (2) provided with a power receiving coil (14) which is electromagnetically coupled with a power transmission coil (10) of a set charging base (1) and supplies charging power to and charges an internal battery (15, 45); said built-in battery device (2) is provided with an AC detection circuit (43) which detects an AC signal outputted from the aforementioned power transmission coil, and this AC detection circuit detects the AC signal induced in the power receiving coil or the pulsating current after rectification, obtained by rectifying said alternating current, and determines the power transmission state of the charging base; the AC detection circuit is provided with an A/D conversion circuit (voltage / waveform detector (52)) which converts to a digital signal the analogue signal induced in the power-receiving coil, or the analogue signal after rectification, and with a microprocessor (the control circuit (50)) which determines, from the output of the A/D conversion circuit, the power transmission state and power non-transmission state of the charging base; the

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

A/D conversion circuit converts to a digital signal the signal induced in the power-receiving coil or the signal after rectification, and outputs this to the microprocessor (paragraph [0056]); and the microprocessor determines the power transmission state and the power non-transmission state (whether the local terminal (2) is near or far from the terminal-mounted base) by the signal inputted from the A/D conversion circuit (paragraphs [0028], [0029] and [0059])."

When using a A/D conversion circuit to convert an analogue signal to a digital signal, improving detection accuracy of the analogue signal by performing the A/D conversion with random timing is a known technique, as seen in document 2 (in particular, fig. 1 and 5), document 3 (in particular, fig. 1, 2 and 5), and document 4 (in particular, fig. 1, 2 and 4).

In the invention described in document 1, a person skilled in the art could easily have adopted the aforementioned known technique in order to improve detection accuracy of the analogue signal in the A/D conversion circuit.

(Claims 2, 3 and 5)

Paragraph [0029] of document 1 describes enabling notifying the user by output of a sound or display of an image of whether or not, on the basis of the results of comparing a reference voltage value and the voltage value generated from the secondary coil (14), a mobile phone terminal (2) is in the optimal position range on the terminal mounting base of a cradle (1).

In the invention described in document 1, a person

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skilled in the art could have achieved, as appropriate, adopting, for example, the "LED which turns on within the optimal position range and turns off outside of the optimal position range" as the means for performing said notification. Further, if an LED were provided on a mobile phone terminal (2), supplying operating power to the LED from the internal battery or the power receiving coil in a power transmission state, and cutting off the supply of operating power to the LED from the internal battery in the power non-transmission state, would be a matter of course.

The invention as in claim 4 does not involve an inventive step in the light of documents 1 to 4, and document 5 cited in the international search report.

Document 5 describes having a control circuit (20) which controls the charge state of a battery, wherein operating power is supplied to the control circuit in a charging state, and the supply of operating power to the control circuit is cut off from the battery in a non-charging state (paragraphs [0030] to [0033]; by this means, self-discharge of the battery capacity during charging and during standby is reduced.

In the invention described in document 1, a person skilled in the art could easily have adopted the control circuit described in document 5.