

Internal distribution code:

- (A) [-] Publication in OJ
(B) [-] To Chairmen and Members
(C) [-] To Chairmen
(D) [X] No distribution

**Datasheet for the decision
of 22 February 2022**

Case Number: T 2297/18 - 3.5.02
Application Number: 08250071.1
Publication Number: 1944851
IPC: H02J7/02, H02J7/04, H01F38/14
Language of the proceedings: EN

Title of invention:
Noncontact Charging Device

Applicant:
Sony Mobile Communications Japan, Inc.
Seiko Epson Corporation

Relevant legal provisions:
EPC Art. 123(2), 84, 56
RPBA 2020 Art. 13(2)

Keyword:
Amendments - allowable (yes)
Claims - clarity after amendment (yes) - reference to second entity does not cast doubt on the subject-matter for which protection is sought
Inventive step - (yes)
Amendment after summons - exceptional circumstances (yes) - new evidence and new objections raised by the board in the summons



Beschwerdekammern
Boards of Appeal
Chambres de recours

Boards of Appeal of the
European Patent Office
Richard-Reitzner-Allee 8
85540 Haar
GERMANY
Tel. +49 (0)89 2399-0
Fax +49 (0)89 2399-4465

Case Number: T 2297/18 - 3.5.02

D E C I S I O N
of Technical Board of Appeal 3.5.02
of 22 February 2022

Appellant: Sony Mobile Communications Japan, Inc.
(Applicant 1) 1-8-15 Konan,
Minato-ku
Tokyo (JP)

Appellant: Seiko Epson Corporation
(Applicant 2) 4-1, Nishi-Shinjuku 2-chome
Shinjuku-ku
Tokyo 163-0811 (JP)

Representative: D Young & Co LLP
120 Holborn
London EC1N 2DY (GB)

Decision under appeal: **Decision of the Examining Division of the
European Patent Office posted on 26 March 2018
refusing European patent application No.
08250071.1 pursuant to Article 97(2) EPC.**

Composition of the Board:

Chairman G. Flyng
Members: F. Giesen
R. Cramer

Summary of Facts and Submissions

- I. The present appeal by the applicants (appellants) lies from the decision of the examining division posted on 26 March 2018 refusing European patent application No. 08250071.1 pursuant to Article 97(2) EPC.

For the reasons, the examining division referred to the communications dated 25 September 2017 and 27 February 2018. The reasons for the impugned decision were essentially non-compliance of the claims with Articles 123(2) EPC, Article 84 EPC, and with Article 56 EPC, when starting from document

D1 KR 2006 0107148 A.

- II. In a communication pursuant to Article 15(1) RPBA 2020, the board introduced document

D7 JP 2006 060909 A

and informed the appellants of the board's preliminary opinion that probably none of the requests then on file involved an inventive step in view of documents D1 and D7. Document D7 is in Japanese. A hyperlink to the machine translation was included in the above communication and a permanent copy was notified to the appellants on 21 February 2022.

- III. Oral proceedings before the board took place on 22 February 2022. The oral proceedings were held in the form of a videoconference, as requested by the appellants on 23 September 2021.

During the oral proceedings the appellants filed a new main and first auxiliary request at 11:30.

The appellants final requests were as follows:

The appellants request

that the impugned decision be set aside and that a patent be granted on the basis of the claims of the main request filed at 11:30 during the oral proceedings, or as an auxiliary measure on the basis of the claims of the first auxiliary request filed at 11:30 during the oral proceedings, or on the basis of the claims of one of the main or first to third auxiliary requests filed with the statement of grounds of appeal, renumbered to second to fifth auxiliary requests.

IV. Claim 1 of the **main request** reads as follows:

*"A noncontact charging device, comprising:
an alternating current, AC, adaptor (3);
an oscillator (2);
a driver (6);
a mounting portion (1) on which a device
charged in a noncontact manner is mountable;
a primary transmission coil (5) for supplying
power to a secondary transmission coil provided to
the device by the use of electromagnetic induction;
a temperature-detecting element (5) for
detecting a temperature of a material mounted on
the mounting portion the temperature-detecting
element being smaller than the primary transmission
coil; and*

control circuit (9) for receiving identification information through the primary and secondary transmission coils from the mounted device and for providing, via the primary and secondary transmission coils (5), identification information of the noncontact charging device in order that mutual authentication can be attained whereby after the mutual authentication has been attained, charging of a battery of the mounted device is initiated, wherein when the charging is initiated, the control circuit is configured to convert a DC power from the AC adaptor into an AC power at a predetermined frequency on the basis of an oscillating frequency signal from the oscillator, the AC power being supplied to the primary transmission coil through the driver, and terminating the power supply to the primary transmission coil when a predetermined temperature or higher is detected by the temperature-detecting element, wherein

the temperature-detecting element is located on a side of a contact surface between the mounting portion and the primary transmission coil, and the center of the temperature-detecting element is located within a range of the diameter of the primary transmission coil from the center position of the primary transmission coil."

Claim 2 of the main request is dependent on claim 1.

The wording of the claims of the remaining requests is not relevant for the present decision and consequently not reproduced here.

V. The arguments of the appellants which are relevant for the present decision can be summarised as follows:

Claim 1 of the main request had been amended in compliance with Article 123(2) EPC. The basis could be found on page 32, lines 5 to 26 of the application as filed. Claim 1 defined all those technical features of the non-contact charging device which were required to perform the exchange of the identification information between the non-contact charging device and the chargeable device. Since the claim was only directed to the non-contact charging device it did not need to define the features of the chargeable device.

Claim 1 of the main request was also clear in compliance with Article 84 EPC. The non-contact charging device could be sold independently of the chargeable device. The appellant was therefore entitled to independent protection of the non-contact charging device. The technical features of the non-contact charging device which were required to perform the mutual authentication were clearly defined in the subject-matter of claim 1 in accordance with the requirements of Article 84 EPC. There was no requirement for the control device of the chargeable device to feature within the claimed subject-matter.

The subject-matter of claim 1 of the main request involved an inventive step. The distinguishing features with regard to document D1 were, *inter alia*,

a control circuit of a non-contact charging device for:

(i) receiving identification information through the primary and secondary transmission coils from the mounted device,

(ii) providing, via the primary and secondary transmission coils, identification information of the non-contact charging device, and
(iii) after the mutual authentication has been attained, charging of a battery of the mounted device is initiated, wherein when the charging is initiated, the control circuit is configured to convert a DC power from the AC adaptor into an AC power at a predetermined frequency on the basis of an oscillating frequency signal from the oscillator, the AC power being supplied to the primary transmission coil through the driver.

According to claim 1, charging of a battery of the mounted device was initiated only after mutual authentication had been attained. This reduced the risk of power being supplied to the primary transmission coil when an object other than a legitimate object to be charged, such as a metal coin, was mounted on the non-contact charging device. This helped prevent dangerous heating of such foreign objects. The technical problem solved by these distinguishing features was to increase the safety of the non-contact charging device.

D7 proposed a different solution from that of claim 1. According paragraphs [0053] to [0054] of the machine translation of D7, the power receiving device generated a 24-bit code including an ID code and transmitted it to the power transmitting device. According to paragraph 59, the power transmitting devices received the code and checked whether the ID code matched a predetermined ID code. If there was no match, the power transmission was stopped. According to paragraph 61, the power transmitting device generated another 24 bit-

code including an authentication code of itself and transmitted it to the power receiving device. Importantly, according to paragraph [0063], the power transmitting device then started full-scale power transmission without waiting. According to paragraphs [0065] to [0066] and [0069], the power receiving device of D7 received the code and checked whether the authentication code matched a predetermined authentication code. If there was a match, the power receiving device started full-scale power reception. If not, a "stop flag" was transmitted back to the power transmitting device and full-scale power transmission was stopped.

According to the claimed subject matter, no power transmission was enabled until after mutual authentication. On the other hand, according to D7, power transmission was enabled without waiting until mutual authentication had been attained and was subsequently stopped if mutual authentication was not successful. Even if the skilled person were to have looked to D7, they would still not have arrived at the claimed subject matter.

Reasons for the Decision

1. *Admissibility of the Appeal*

The appeal complies with the requirements of Articles 106 and 108 EPC, as well as those of Rule 99 EPC. It is therefore admissible.

2. *Main Request - Admissibility*

2.1 The main request is admissible.

2.2 The board introduced a new document, document D7, into the appeal proceedings and raised objections, based on that document, which had not been part of the decision under appeal.

Under Article 13(2) RPBA 2020 the admission of an amendment to the appellants' appeal case at this stage of the proceedings is subject to the presence of exceptional circumstances. When exercising its discretion the board may rely on the criteria of Article 13(1) RPBA 2020. In the present case the amendment is suitable to overcome the issues first raised by the board in its communication under Article 15(1) RPBA, and the amendment benefits procedural economy as due to the re-ordering of the requests the board can deal with this request first.

3. *Main Request - Article 123(2) EPC*

3.1 The amendments of claim 1 comply with the requirements of Article 123(2) EPC.

3.2 The board is satisfied that the amendments to claim 1 contain all the features originally disclosed in combination on page 32 of the description as originally filed pertaining to the non-contact charging device.

3.3 Claim 1 also correctly reflects the originally disclosed order of steps carried out by the control unit of the non-contact charging device.

3.4 The passage on pages 31 and 32 of the description as originally filed describes the operation of the non-contact charging device in the context of a specific embodiment of the non-contact charging device being a cradle for a mobile phone. The original application documents are directed to non-contact chargers and corresponding chargeable devices in general. A skilled person would recognise without doubt, that while being disclosed in an exemplary context of a cradle and a mobile phone, the mutual authentication is by no means limited to be used in this specific context, but rather that it was meant to be used in the broader context of the application as originally filed. The amended claim therefore does not have to be limited to a cradle for a mobile phone in order to comply with the requirements of Article 123(2) EPC.

4. *Main Request - Article 84 EPC*

4.1 Claim 1 of the main request complies with the requirements of Article 84 EPC.

4.2 The application is directed to a non-contact charging device, which, as the appellants correctly pointed out, can be sold independently of any device which is to be charged by it. The board would not subscribe to the appellants' argument, that they were "entitled to independent protection", without reservation. However, the board agrees that the appellants have a legitimate interest in seeking independent protection, which should be granted under the condition that a claim directed to a non-contact charger alone complies with the requirements of the Convention, in particular those of Article 84 EPC.

4.3 The board accepts the appellants' argument that claim 1 of the main request clearly defines those features of the claimed entity, the non-contact charging device, which take part in mutual authentication. A skilled reader would understand without doubt that in order to attain mutual authentication, the non-contact charging device as well as the chargeable device each have to transmit their own identity, receive the identity of the other device and verify the received identity. It is apparent that these steps can clearly be attributed to either the claimed entity, the non-contact charging device, or to the second entity, the device to be charged, to which claim 1 makes reference by claiming mutual authentication. Furthermore, the board accepts that the term "authentication" implies that the aforementioned identity information would have to be suitably verified, e.g. by matching it to stored identity information. This detail is inherent in the term authentication and does not have to be spelled out in claim 1 for it to be clear.

In this respect all references to the mounted device and its features, or processes that are carried out in cooperation, provide context for the claimed non-contact charger, without casting doubt on the subject-matter for which protection is sought. In particular, claim 1 of the main request no longer implies that mutual authentication could be performed in the charger alone.

4.4 Moreover, the board observes that claim 1 contains the feature "after mutual authentication has been attained, charging of the battery of the mounted device is initiated". In the board's view, a skilled reader would undoubtedly understand from this feature that the subject-matter of claim 1 of the main request limits

the control unit of the charging device by a functional definition to being configured to receive information from the device to be charged as to whether the charging device has been successfully identified by it. The board has no doubts that the functional definition used in the claim is clear for a skilled person. Claim 1 is broad in the sense that it is not limited as to the manner of informing the non-contact charging device about its successful authentication by the chargeable device, but it is clearly limited as to the transmission of the information to the non-contact charging device.

5. *Main Request - Inventive Step*

5.1 The subject-matter of claim 1 of the main request is not obvious in view of the available prior art and hence is considered as involving an inventive step within the meaning of Article 56 EPC.

5.2 Starting Point

The board is satisfied that document D1 represents a suitable starting point for the assessment of inventive step. In particular, D1 is directed to a non-contact charging device with a temperature sensor to detect overheating during charging. The appellants did not contest the examining division's choice in this respect.

5.3 Distinguishing Features

The appellants argued, correctly in the board's opinion, that the following represent distinguishing features over the device according to document D1:

a control circuit of a non-contact charging device for:

(i) receiving identification information through the primary and secondary transmission coils from the mounted device,

(ii) providing, via the primary and secondary transmission coils, identification information of the non-contact charging device, and

(iii) after the mutual authentication has been attained, initiating charging of a battery of the mounted device, wherein when the charging is initiated, the control circuit is configured to convert a DC power from the AC adaptor into an AC power at a predetermined frequency on the basis of an oscillating frequency signal from the oscillator, the AC power being supplied to the primary transmission coil through the driver.

In view of the board's positive assessment on inventive step in the light of these features, there is no need to examine the features of an alternating current adaptor, an oscillator and a driver in more detail to establish the extent to which they might be further distinguishing features.

5.4 Technical Effect and Objective Technical Problem

The board agrees with the appellants, that the distinguishing features (i) to (iii) define a process of mutual authentication that takes place before the charging of the battery of the mounted device is initiated.

The board agrees with the appellants' assertion that the present application is generally concerned with increasing the safety of the non-contact charger, in particular by detecting overheating, which can be caused by metal objects on the non-contact charging device, see for example page 3, lines 2 to 5 of the original description, which states that an abnormal increase in temperature of a foreign metal substance or the like can be promptly controlled to assure the enhanced safety of the non-contact charging device. Moreover, the board can agree to the appellants' argument that in the context of this general aim of the invention, a skilled person would recognise that mutual authentication between a device to be charged and the non-contact charging device can increase safety because it prevents any attempt to charge non-compatible devices.

The board is therefore satisfied that the objective technical problem is to be seen in increasing the safety against overheating of a non-contact charging device.

5.5 Assessment of the Solution

The board is convinced that in order to solve the above problem a skilled person would turn to document D7. This document also deals with the safety of non-contact charging devices by preventing overheating. In particular, document D7 also discloses that a non-contact charging device and a device to be charged perform mutual authentication by exchanging their identification information.

The board considers the appellants' interpretation of the respective disclosure of D7 as presented in the

summary of the facts and submissions to be correct. According to paragraph [0081] of the machine translation of D7, prior to power transmission, whether or not the power transmitting device 1 and the power receiving device 2 are legitimate is mutually confirmed (authenticated) by communication, and power transmission is performed only after the confirmation is completed. The apparatus 1 starts full-scale power transmission to the power receiving apparatus 2. For this reason, the power transmission device 1 can perform power transmission only when the power receiving device 2 is reliable.

At first sight, this paragraph appears to disclose the solution as proposed by claim 1. However, as it starts with the phrase "As described above", it is to be noted that paragraph [0081] merely represents a summary of the more detailed description *inter alia* of paragraphs [0051] to [0066], which describe how power transmission is initiated.

According to paragraphs [0053] and [0054], the device to be charged produces a 24-bit code containing its identity and transmits it via the secondary and primary transmission coils to the non-contact charging device. The non-contact charging device receives the codes and performs various checks, including authenticating the identity of the device to be charged, see paragraph [0059]. Then, according to paragraphs [0061] to [0063] of D7, the non-contact charging device transmits its identity to the device to be charged - and this is the salient point - then begins full scale power transmission without waiting any further. According to paragraph [0065], the device to be charged authenticates the identity of the non-contact charging device, and then begins full-scale power reception. The

device to be charged can create a stop flag and transmit it to the non-contact charging device to stop full-scale power transmission, for example when its battery is fully charged.

However, the above passages make it clear that according to D7, the non-contact charging device does not wait until after mutual authentication to initiate charging of the battery of the mounted device as required by claim 1, which defines AC power being supplied to the primary transmission coil as a part of what occurs when charging is initiated.

The solution according to D7 is, in the board's opinion, very similar to that of claim 1. Nevertheless, the board has to acknowledge that the combination of D1 and D7 does not lead the skilled person to the solution as claimed. Under the circumstances of the present case, the onus on demonstrating that the solution would have been obvious is borne by the examining division or the board. Since the disclosure of D7 does not contain any objective pointer to modifying it further, judging the claimed solution to be obvious would amount to a subjective judgement based on hindsight.

5.6 Finally, the board wishes to observe that it was not convinced by the appellants' further argument resting on the interpretation that according to the invention of claim 1 before authentication no power was transmitted to a mounted device at all. This interpretation is in clear contrast to the description on page 31, lines 17 to 24, which discloses that prior to authentication presence detection is performed using the primary transmission coil. The board also notes that the transmission of identities is done via the primary and secondary coils and also requires an AC

voltage to be applied to the primary coil. In this respect, there is therefore no difference between the subject-matter of claim 1 and the disclosure of D7.

6. *Conclusions*

Given the above considerations, the board accedes to the appellants' main request. The board notes that the description has not yet been adapted to the amended claims. In addition to the necessity to bring it into conformity with the amended claims, it still contains statements such as the one on page 5, lines 7 to 10, which indicates that protection is sought for feature combinations other than those claimed, which leads to a lack of clarity if the claims have to be interpreted in the light of the description.

The required adaptations were in the board's opinion too extensive to be done during the oral proceedings. The appellants agreed to the board's intention to remit the case for an adaptation of the description.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.
2. The case is remitted to the examining division with the order to grant a patent on the basis of the claims of the main request filed in the oral proceedings of 22 February 2022 at 11:30, and a description to be adapted thereto.

The Registrar:

The Chairman:



U. Bultmann

G. Flyng

Decision electronically authenticated