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Datasheet for the decision
of 31 March 2017

Case Number: T 1288/13 - 3.5.03
Application Number: 06765501.9
Publication Number: 1958470
IPC: H04B5/02
Language of the proceedings: EN

Title of invention:
Passive NFC activation of short distance wireless communication

Patent Proprietor:
Sony Ericsson Mobile Communications AB

Opponent:
Broadcom Corporation

Headword:
Passive NFC activation of wireless communication/SONY

Relevant legal provisions:
EPC Art. 56

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Inventive step - (no)
Decisions cited:

Catchword:
Case Number: T 1288/13 - 3.5.03

DECISION of Technical Board of Appeal 3.5.03 of 31 March 2017

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Composition of the Board:
Chairman F. van der Voort
Members: K. Schenkel
O. Loizou
Summary of Facts and Submissions

I. This case concerns appeals filed by both the opponent and the proprietor against the interlocutory decision of the opposition division in opposition proceedings concerning European patent No. EP 1 958 470.

The opposition division held *inter alia* that, account having been taken of the amendments made by the proprietor in accordance with a fourth auxiliary request, the patent and the invention to which it relates according to this request met the requirements of the EPC.

In particular, the opposition division held that the subject-matter of claim 1 of the fourth auxiliary request was both new and involved an inventive step having regard to the disclosure of document:

D1: WO 03/098851 A.

Further, in the decision reference was made to the following document in support of the common general knowledge of a person skilled in the art at the claimed priority date:


II. The patent proprietor requested in its statement of grounds of appeal, in this order, that the decision under appeal be set aside and the patent be maintained in amended form on the basis of the set of claims of a main request or, in the alternative, of one of first to fourth auxiliary requests, all as filed with the
statement of grounds of appeal, or that the appeal filed by the opponent be dismissed (henceforth fifth auxiliary request) or that the decision under appeal be set aside and the patent be maintained in amended form on the basis of the claims of a further request filed with the letter dated 18 November 2013 (henceforth sixth auxiliary request).

III. The opponent requested in its statement of grounds of appeal that the decision under appeal be set aside and that the patent be revoked in its entirety.

IV. In a communication accompanying a summons to oral proceedings, the board gave a preliminary opinion that the subject-matter of the independent claim(s) of the main request and first to sixth auxiliary requests did not appear to involve an inventive step.

V. In a letter of reply dated 28 February 2017, the patent proprietor contested the board's preliminary view.

VI. With a letter dated 30 March 2017, the opponent informed the board that it would not be attending the oral proceedings.

VII. Oral proceedings were held on 31 March 2017 in the absence of the opponent.

The proprietor maintained its requests (see point II).

At the end of the oral proceedings, the chairman announced the board's decision.

VIII. Claim 1 of the main request reads as follows:
"A method performed by a first mobile terminal (100-A) being a radio telephone or appliance including a radiotelephone transceiver (100-A), characterized in that it comprises the steps of:

receiving, by a passive near field communication NFC receiver device (235), an NFC protocol activation signal from a second mobile terminal (100-B) being a radio telephone or appliance including a radiotelephone transceiver;

and

using, by the passive NFC receiver device (235), power from the NFC protocol activation signal to transmit a signal within the first mobile terminal (100-A) to begin establishing a wireless connection with the second mobile terminal."

IX. Claim 1 of the first auxiliary request differs from claim 1 of the main request in that, in the last paragraph,

(a) the wording "to transmit a signal within the first mobile terminal" has been replaced by "to transmit an activation signal to a wireless logic (240) within the first mobile terminal" and

(b) the wording "to begin establishing a wireless connection" has been replaced by "to begin establishing a short distance wireless connection".

X. Claim 1 of the second auxiliary request differs from claim 1 of the first auxiliary request in that:
(a) in the last paragraph, the wording "wireless logic" has been replaced by "wireless transceiver"; and in that

(b) at the end, the following paragraph has been added:

"wherein the using the power includes using power from the NFC protocol activation signal to activate scanning in the wireless transceiver (240)".

XI. Claim 1 of the third auxiliary request differs from claim 1 of the first auxiliary request in that, at the end, the following paragraph has been added:

"the first mobile terminal furthermore performing the steps of transmitting, by active NFC logic (230) capable of transmitting data and control signals using the NFC protocol, an NFC activation signal to cause another mobile terminal being a radio telephone or appliance including a radio telephone transceiver (100-A) to activate its wireless logic (240)".

XII. Claim 1 of the fourth auxiliary request differs from claim 1 of the second auxiliary request in that, at the end, the following paragraph has been added:

"the first mobile terminal furthermore performing the steps of transmitting, by active NFC logic (230) capable of transmitting data and control signals using the NFC protocol, an NFC activation signal to cause another mobile terminal to activate its wireless logic (240)".

XIII. Claim 1 of the fifth auxiliary request reads as follows:
"A mobile terminal being a radio telephone or appliance including a radiotelephone transceiver (100-A), characterized in that it comprises:

active near field communication NFC logic (230) including a transmitter device capable of transmitting data and control signals using the NFC protocol for transmitting an NFC activation signal to another mobile terminal that causes the other mobile terminal to activate its wireless logic;

a near field communication NFC receiver (235) configured to

receive an NFC activation signal from another mobile terminal (100-B) being a radio telephone or appliance including a radiotelephone transceiver, the NFC activation signal including mobile terminal identification information,

determine, based on the mobile terminal identification information, whether the NFC activation signal is intended for the mobile terminal (100-A), and

transmit, in response to the NFC activation signal being determined to be intended for the mobile terminal (100-A), an activation signal using power from the NFC activation signal;

and

a wireless transceiver (240) configured to:

receive the activation signal, and establish a short distance wireless connection with the other mobile
terminal (100-B) in response to receiving the activation signal;

wherein scanning is deactivated in the wireless transceiver prior to receiving the second signal, and wherein when establishing the short distance wireless connection, the wireless transceiver is configured to perform scanning."

XIV. Claim 1 of the sixth auxiliary request differs from claim 1 of the fifth auxiliary request in that, in the fourth paragraph, i.e. the paragraph beginning with "receive an NFC activation signal", the following wording has been deleted:

"being a radio telephone or appliance including a radiotelephone transceiver".

Reasons for the Decision

1. Main request - claim 1 - inventive step

1.1 D1 represents the closest prior art and discloses a wireless transceiver with a low power radio frequency (LPRF) component which can be powered down in order to conserve energy and which can be powered up in response to a signal provided by a second receiver of the wireless transceiver in response to receiving a radio frequency broadcast (see the abstract).

A plurality of wireless transceivers may form the nodes of a dynamic, randomly-changing, ad hoc communication network (page 1, lines 24 to 31). In a preferred embodiment, the wireless transceivers may be used as wireless reader tags (WRT) for reading wireless tags
(WT), for example in the context of an asset-tracking application (page 8, lines 29 to 32), in which each wireless reader tag is attached to a pallet (page 19, lines 14 to 19). According to an embodiment of a preferred WRT architecture which may be used in asset-tracking applications and which is described on page 13, line 14, to page 18, line 11, each wireless reader tag is battery-powered (page 14, lines 24 and 25). Hence, it is implicit that the wireless reader tags are mobile.

Further, the WRT 5008 (Figure 24) includes a low-power radio frequency LPRF component 5010 and a WT component 5014 which can turn on the LPRF component (see the abstract and page 14, lines 16 to 20). The WT component 5014 provides an electronic signal for activating the LPRF component 5010 in response to receiving a radio frequency broadcast (page 15, line 33, to page 16, line 4). The broadcast is a targeted broadcast and may originate from another WRT 5008 (page 16, lines 5 to 10). The WT component 5014 may comprise an RFID tag modified to provide the wake-up signal (page 16, lines 31 and 32). Given its short range, RFID technology is an example of near field communication technology.

In operation, the LPRF component 5010 may exchange data with another WRT 5008 (page 15, lines 22 to 25). The exchange of data using the LPRF component implies the establishment of a wireless connection between the two WRTs 5008 for exchanging data after the LPRF components 5010 of these WRTs 5008 have become active.

1.2 Referring to the above-mentioned embodiment of the preferred WRT architecture and using the language of claim 1 of the main request, D1 thus discloses a method
performed by a first mobile terminal (WRT 5008) being an appliance, comprising the steps of:

receiving, by a near-field communication receiver device (WT component 5014), an activation signal (broadcast) from a second mobile terminal (another WRT 5008) being an appliance; and

using, by the receiver device (WT component 5014), the activation signal to transmit a signal within the first mobile terminal (WRT 5008) to begin establishing a wireless connection with another mobile terminal (another WRT 5008).

1.3 The method of claim 1 thus differs from the method disclosed in D1 in connection with the above-mentioned embodiment in that:

a) the near-field communication receiver device is passive;

b) the near-field communication receiver device uses power from the activation signal to transmit the signal within the first mobile terminal to begin establishing a wireless connection with the second mobile terminal;

c) the near-field communication receiver device is an NFC receiver;

d) the activation signal is an NFC protocol activation signal;

e) each of the mobile terminals includes a radiotelephone transceiver; and in that

f) the first mobile terminal establishes the wireless connection with the second mobile terminal from which it received the activation signal.
1.4 An advantage of using a passive receiver device is that it can be operated in a receipt mode in which it does not consume any power, whilst it is still able to process incoming radio frequency signals.

The technical problem underlying feature a) may therefore be seen in further reducing the power consumption by the first mobile terminal. Since D1, for example in the summary of the invention (page 3, lines 6 to 8) already mentions the aim of conserving energy, the formulation of this technical problem does not contribute to an inventive step.

1.5 In the above-mentioned embodiment in D1, in order to reduce the power consumption, the LPRF component is not merely put into a standby mode, but is switched off completely, whilst the near field communication receiver, i.e. the WT component, is in a receipt mode, in which it can power up the LPRF component. In doing so, less power is consumed than in a standby mode (page 17, lines 10 to 21). Since the LPRF component of the wireless transceiver can thereby already be deactivated completely, it would be obvious to the person skilled in the art that further measures aiming at a reduction of the power consumption may potentially be taken in connection with the near-field communication receiver.

D1 (see page 16, lines 31 and 32) already suggests the use of an RFID tag for the near-field communication receiver, i.e. the WT component, and discloses that the receiver for powering up the LPRF component may be passive (page 4, lines 25 to 28). Further, at the claimed priority date of the patent in suit, passive embodiments of RFID tags were well-known (see, e.g., D6, page 6).
Hence, in order to further reduce the power consumption of the mobile terminal, the skilled person would follow the suggestion given in D1 and implement the near-field communication receiver as a passive receiver.

Feature a) in point 1.3 above implies feature b), since a passive radio frequency receiver without its own energy source has to use the power of the received radio frequency signal in order to perform its functions.

As mentioned above, D1 discloses the WRTs against the background of wireless ad-hoc networks, which allow node-to-node communication without central control and which may include multihop topologies (page 1, lines 28 to 30). In this respect, D1 also discloses the cooperation of multiple WRTs in order to propagate a network (page 20, lines 26 to 28). Taking further into account that the WRTs can wake up each other and exchange data among each other (see point 1.1 above), the skilled person would, in order to use the WRTs according to the above-mentioned embodiment in an ad-hoc network, implement it such that a first WRT can wake up a second one, in order to establish a wireless connection with the first, as stated by feature f). Otherwise, the formation of an ad-hoc network would not be possible in a case in which a WRT is deactivated and can only be reached via another WRT.

Features a), b) and f) do not therefore contribute to an inventive step.

Further, as discussed during the oral proceedings, at the claimed priority date of the patent in suit, it was well-known that NFC technology uses RFID chips and
includes a passive mode (see, e.g., D6, pages 24 and 27).

Hence, NFC was a well-known alternative to an RFID tag for implementing a passive receiver for powering up a wireless transceiver on receipt of an activation signal. Choosing NFC technology for use in the above-mentioned embodiment of D1 was therefore within the ordinary skills of the skilled person.

Once an implementation with an NFC receiver is chosen, it goes without saying that an NFC protocol activation signal has to be used in order to make the NFC receiver respond and power up the LPRF component of the wireless transceiver.

Features c) and d) do not therefore contribute to an inventive step either.

According to feature e), each mobile terminal includes a radiotelephone transceiver. This feature is however not linked to any of the other features in claim 1. In connection with this feature, a separate partial problem may therefore be formulated. Starting out from the above-mentioned embodiment of D1, in which the network of WRTs communicates via a gateway with an external network which may be a radiotelephony network (page 13, line 31 to page 14, line 1: "In forwarding communications between the external network and the radio network of the WRTs 5008, the Gateway 5000 translates a radio link protocol to Ethernet, PSTN (Public Switched Telephone Network), Mobile Phones (including GSM, TDMA, CDMA, PDC, AMPS, Ricochet, etc.)..."), the problem may be seen in providing the WRTs itself with a communication device for communicating with a radiotelephony network. Forwarding
communications between the WRTs and the external network implies a bidirectional data transfer for which a transceiver is required.

In this respect, D1 discloses that the WRT may further include an external network communications component which may comprise a cellular transceiver (page 5, lines 21 to 24), an example of which is a radiotelephony network. Hence, D1 already suggests to include a communication device in the WRT in order to provide a link to the external network.

It follows that, in order to provide the WRT itself with a transceiver to access the external telephony network, the skilled person would follow the suggestion given in D1 and include a radiotelephony transceiver in the WRT.

Feature e) does not therefore contribute to an inventive step either.

1.6 Patent proprietor's arguments

1.6.1 The patent proprietor argued that the skilled person would not use an NFC receiver as an alternative to the RFID tag, because NFC technology had a shorter range which was not feasible or at least too close to the technical limit for the asset-tracking application. Further, NFC technology required that the communicating devices touched each other or were at most within a few centimeters distance from each other.

For the following reasons, the board is not convinced by these arguments:
In connection with the above-mentioned embodiment of the preferred WRT architecture, asset tracking is only mentioned as one example without limitation to a specific field of application (see page 13, lines 13 to 15: "Whether utilized in asset-tracking applications, sensor derived information gathering, or otherwise, the preferred WRT architecture significantly prolongs the useful life of a WRT."). Consequently, D1 does not imply minimum requirements with respect to the range, which could otherwise exclude specific kinds of near-field communication receivers.

Further, NFC technology also includes a mode with a range up to 1 meter (see D6, page 27). It can, thus, also cover typical RFID applications like, for example, the identification of goods, use in passports or access control in keyless entry systems. The skilled person would therefore have considered NFC technology.

1.6.2 The patent proprietor further argued that D1 only disclosed a modified RFID tag (see page 16, lines 31 and 32). It was therefore unclear whether RFID technology was actually used in order to receive the activation signal and not, for example, Bluetooth technology, which was mentioned elsewhere in D1.

The board notes, however, that the modification of the RFID tag mentioned in D1 only concerns the reaction triggered by the received activation signal and not the technology used for its reception (see page 16, line 31, to page 17, line 3: "In commercial practice, for example, the WT component could comprise a simple RFID tag modified to provide the wake up signal to the LPRF communications component. Such a wireless tag in standard operation "chirps" in response to receipt of incident RF energy, and the RFID tag would only need to
be modified in order to channel the energy otherwise used for the "chirp" to the input of the LPRF communications component in order to wake it up. The present invention thus provides a method of using "wireless tag technology" (i.e., the receiver circuit of wireless tags) to wake the LPRF communications component when communication needs to commence.

1.6.3 The patent proprietor further argued that D1 did not disclose the feature of transmitting a signal to establish a wireless connection. In support of this argument, it was put forward that D1 did not specify what actions were taken after the wireless transceiver had been activated, that the transmission of data was different from the establishment of a wireless connection, and that D1 showed the creation of a network, but not the situation of the first and second terminals establishing a wireless connection with each other.

The board is not convinced by these arguments for the following reasons:

D1 discloses that the wireless transceiver (LPRF component) which is activated by the near-field communication receiver device (WT component) may, in operation, exchange data with another mobile terminal (WRT), see point 1.1 above. From this, it follows that the data exchange requires the prior transmission of the activation signal to the wireless transceiver. This is, however, encompassed by the wording of claim 1 "to transmit a signal ... to begin establishing a wireless connection". The board further notes that any wireless data transmission between two terminals, including a data transmission for establishing a network, implies the establishment of a wireless connection, since the
very general term "connection" encompasses a link between two items as, for example, between two mobile terminals exchanging data.

1.7 The board concludes that the subject-matter of claim 1 of the main request does not involve an inventive step (Articles 52(1) and 56 EPC).

2. First auxiliary request - claim 1 - inventive step

Claim 1 of the first auxiliary request (see point IX above) differs from claim 1 of the main request in that it further specifies that:

a) the signal transmitted to begin establishing a wireless connection to the second mobile terminal is an activation signal;

b) the activation signal is transmitted to a wireless logic; and that

c) the wireless connection to the second mobile terminal is a short-distance wireless communication.

2.1 Feature a) is merely a matter of linguistics without defining an additional technical feature and does not therefore contribute to inventive step.

The fact that in the above-mentioned embodiment of D1 the LPRF component can be powered up by the near-field communication receiver (WT component) implies the presence of a wireless logic which can receive the power-up command from the near-field communication receiver and act upon it. Hence, D1 implicitly discloses feature b).
Further, in the above-mentioned embodiment of D1, the LPRF component comprises a Bluetooth radio, which is a short-distance communication device (page 17, lines 12 to 15). Hence, D1 also discloses feature c).

2.2 In view of the above and the reasons set out in point 1 above, the board concludes that the subject-matter of claim 1 of the first auxiliary request does not involve an inventive step (Articles 52(1) and 56 EPC).

3. Second auxiliary request - claim 1 - inventive step

3.1 Claim 1 of the second auxiliary request (see point X above) differs from claim 1 of the first auxiliary request in that the activation signal is transmitted to a wireless transceiver instead of a wireless logic, and by the addition of the following step:

"wherein the using the power includes using power from the NFC protocol activation signal to activate scanning in the wireless transceiver (240)".

3.2 In D1, the activation signal is sent to the LPRF component in order to power it up. Further, in operation, the LPRF component receives data from and transmits data to other WRTs (page 15, lines 22 to 25) and is, hence, a transceiver. Further, D1 discloses that the LPRF component comprises a Bluetooth transceiver (see point 2.1 above). The board notes that establishing a wireless connection according to Bluetooth technology includes scanning, which was not disputed by the patent proprietor.

3.3 Therefore, the above additional features are known from D1.
3.4 In view of the above and the reasons set out in point 2, the board concludes that the subject-matter of claim 1 of the second auxiliary request does not involve an inventive step (Articles 52(1) and 56 EPC).

4. Third auxiliary request – claim 1 – inventive step

4.1 Claim 1 of the third auxiliary request (see point XI above) adds to claim 1 of the first auxiliary request the feature that the first mobile terminal performs the step of transmitting, by active NFC logic capable of transmitting data and control signals using the NFC protocol, an NFC activation signal to cause another mobile terminal being an appliance including a radio telephone transceiver to activate its wireless logic.

4.2 In the above-mentioned embodiment of D1, a WRT may send a targeted broadcast including at least one target identification to wake up a specific other WRT (page 16, lines 5 to 10), which includes activating its wireless logic (LPRF component, page 14, lines 16 to 20). This implies that the WRT which sends the wake-up signal comprises an active logic capable of transmitting data (target information) and control signals (implied by the digital data transmission).

It follows that the additional feature does not contribute to an inventive step.

4.3 In view of the above and the reasons set out in point 2, the board therefore concludes that the subject-matter of claim 1 of the third auxiliary request does not involve an inventive step either (Articles 52(1) and 56 EPC).

5. Fourth auxiliary request – claim 1 – inventive step
5.1 Claim 1 of the fourth auxiliary request (see point XII above) adds to claim 1 of the second auxiliary request the feature that the first mobile terminal performs the step of transmitting, by active NFC logic capable of transmitting data and control signals using the NFC protocol, an NFC activation signal to cause another mobile terminal to activate its wireless logic.

5.2 The additional feature corresponds to the additional feature of claim 1 of the third auxiliary request, but without the limitation that the other mobile terminal which is caused to activate its wireless logic is an appliance including a radio telephone transceiver.

The considerations made in respect of claim 1 of the third auxiliary request (see point 4 above) therefore apply mutatis mutandis to claim 1 of the fourth auxiliary request.

5.3 For these reasons, the subject-matter of claim 1 of the fourth auxiliary request does not involve an inventive step (Articles 52(1) and 56 EPC) either.

6. **Fifth auxiliary request - claim 1 - inventive step**

6.1 Claim 1 of the fifth auxiliary request (see point XIII) is directed to a mobile terminal. With reference to point 1.1 above and using the language of claim 1, D1 discloses a mobile terminal (WRT 5008) being an appliance, the mobile terminal comprising:

active near-field communication logic including a transmitter device capable of transmitting data and control signals for transmitting an activation signal (broadcast) to another mobile terminal that causes the
other mobile terminal to activate its wireless logic
(the fact that a WRT can wake up another WRT implies
that the former WRT comprises an active logic to
transmit the activation signal);

a near-field communication receiver (WT component 5014)
configured to

receive an activation signal (broadcast) from another
mobile terminal (WRT 5008) being an appliance, the
activation signal including mobile terminal
identification information (see D1, page 16, lines 5 to
10 ("target identifications")),

determine, based on the mobile terminal identification
information, whether the activation signal is intended
for the mobile terminal (see D1, page 16, lines 11 to
15: "... and when a broadcast is received, the WT
component 5014 screens or filters the broadcast to
determine if the target identification in the broadcast
matches the identification stored in the WT component
5014"), and

transmit, in response to the activation signal being
determined to be intended for the mobile terminal, an
activation signal (see page 16, lines 18 and 19: "... a
match results in the WT component 5014 generating the
electric signal ... which awakens the LPRF
communications component 5010");

and

a wireless transceiver (LPRF component 5010) configured
to:
receive the activation signal (electric signal generated by the WT component) and establish a short-distance wireless connection (the LPRF component comprises a Bluetooth radio which is a short-distance communication device (see D1, page 17, lines 12 to 15)) with the another mobile terminal in response to receiving the activation signal;

wherein scanning is deactivated in the wireless transceiver prior to receiving the second signal, and wherein when establishing the short-distance wireless connection, the wireless transceiver is configured to perform scanning (reference is made to the considerations in point 3.2 above with respect to scanning as part of establishing a Bluetooth connection, the scanning being implicitly deactivated before the LPRF component 5010 is activated and establishes the Bluetooth connection).

6.2 The mobile terminal of claim 1 thus differs from that disclosed in D1 in connection with the above-mentioned embodiment essentially in that the activation signal is an NFC signal, the components which process the activation signal have the required NFC functionality, the receiver (LPRF component 5010) is configured to transmit the activation signal using power from the received activation signal, the mobile terminals include a radiotelephony transceiver, and in that the short-distance wireless connection is established with the mobile terminal from which the activation signal is received.

6.3 As already discussed in point 1.5 above, NFC technology was a well-known alternative to RFID technology for use in near-field communication. In NFC technology, the component for sending an NFC signal includes active NFC
logic and the component for receiving the NFC activation signal includes an NFC receiver. The respective distinguishing features do not therefore contribute to inventive step.

Further, the feature of using power from the received activation signal to transmit the activation signal is inherent to the use of a passive receiver (WT component 5014), see point 1.5 above. Referring to this point, choosing a passive implementation is already suggested in D1. This feature does not therefore contribute to an inventive step either.

With respect to the features of including a radiotelephony transceiver in the mobile terminals and establishing the short-distance wireless connection with the mobile terminal from which the activation signal is received, reference is made to the respective considerations in point 1.5 above. These features do not therefore contribute to an inventive step either.

6.4 The subject-matter of claim 1 of the fifth auxiliary request does not therefore involve an inventive step (Articles 52(1) and 56 EPC).

7. Sixth auxiliary request - claim 1 - inventive step

7.1 Claim 1 of the sixth auxiliary request (see point XIV above) differs from claim 1 of the fifth auxiliary request in that a limitation ("being a radio telephone or appliance including a radiotelephone transceiver") has been deleted. The claim is thus broader than claim 1 of the fifth auxiliary request.

7.2 The reasons given in point 6 in respect of the subject-matter of claim 1 of the fifth auxiliary request
therefore apply *mutatis mutandis* to claim 1 of the sixth auxiliary request.

7.3 The board concludes that the subject-matter of claim 1 of the sixth auxiliary request does not involve an inventive step (Articles 52(1) and 56 EPC) either.

8. Since the ground for opposition under Article 100(a) EPC (here: lack of inventive step) prejudices the maintenance of the patent on the basis of the claims of any of the main request and first to sixth auxiliary requests on file, the patent is to be revoked.

**Order**

**For these reasons it is decided that:**

1. The decision under appeal is set aside.

2. The patent is revoked.

The Registrar: The Chairman:

G. Rauh F. van der Voort

Decision electronically authenticated