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# Datasheet for the decision of 29 June 2020

**Case Number:** T 2088/18 - 3.5.03

**Application Number:** 12175131.7

**Publication Number:** 2549786

**IPC:** H04W12/06, H04L12/24

**Language of the proceedings:** EN

**Title of invention:**
Provisioning credentials for embedded wireless devices

**Applicant:**
Honeywell International Inc.

**Headword:**
Credentials for a connected thermostat/HONEYWELL

**Relevant legal provisions:**
EPC Art. 56, 116

**Keyword:**
Oral proceedings - held as a videoconference in accordance with appellant's request
Inventive step - all requests (no): juxtaposition of obvious features

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**Case Number: T 2088/18 - 3.5.03**

# D E C I S I O N
# of Technical Board of Appeal 3.5.03
# of 29 June 2020

| | |
|---|---|
| **Appellant:** (Applicant) | Honeywell International Inc.<br>115 Tabor Road<br>Morris Plains, NJ 07950 (US) |
| **Representative:** | Houghton, Mark Phillip<br>Patent Outsourcing Limited<br>1 King Street<br>Bakewell, Derbyshire DE45 1DZ (GB) |
| **Decision under appeal:** | **Decision of the Examining Division of the European Patent Office posted on 2 March 2018 refusing European patent application No. 12175131.7 pursuant to Article 97(2) EPC.** |

**Composition of the Board:**

| | |
|---|---|
| **Chair** | K. Bengi-Akyürek |
| **Members:** | J. Eraso Helguera |
| | J. Geschwind |

## Summary of Facts and Submissions

I. The appeal was lodged by the applicant against the decision of the examining division refusing the present European patent application for lack of novelty (Article 54 EPC) with respect to the claims of a main request, for lack of inventive step (Article 56 EPC) with respect to the claims of first to third auxiliary requests and for added subject-matter (Article 123(2) EPC) with respect to the claims of a fourth auxiliary request.

II. In its decision, the examining division referred *inter alia* to the following prior-art document:

**D1**: iClarified: "Extend Your AirPort Wireless Network with an AirPort Express", pp. 1-4, posted 17 April 2008.

III. Oral proceedings were held on 29 June 2020 by videoconference in accordance with the appellant's request.

The appellant requested that the decision under appeal be set aside and that a patent be granted on the basis of the claims of any of a **main request** and **first to sixth auxiliary requests**, all of them filed with the statement of grounds appeal, or, in the alternative, on the basis of the claims of either of a **seventh and eighth auxiliary request** filed with a reply to the board's communication under Article 15(1) RPBA 2020.

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

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

"A method comprising:

initializing (210) an installed device (110) having an embedded network device (510);

the embedded network device (510) broadcasting (210) a beacon with connection information;

receiving (225, 340), responsive to the beacon, via the embedded network device port in the installed device (110), local premise network credentials from the host device (115);

the embedded network device (510) entering a client mode (230, 350) by disconnecting from the host device (115) and searching for the local premise network;

connecting (230, 360) the embedded network device (510) to the local premise network using the local premise network credentials received from the host device (115); and

connecting the installed device (510) to the host device (115) and controlling the installed device (510) with the host device (115) via the local premise network."

Claim 1 of the **first auxiliary request** reads (amendments vis-à-vis claim 1 of the main request indicated by the board):

"A method comprising:

initializing (210) an installed device (110) having an embedded network device (510);

the embedded network device (510) broadcasting (210) a beacon with connection information;

receiving (225, 340), responsive to the beacon, via the embedded network device port in the installed

device (110), local premise network credentials from the host device (115);

the embedded network device (510) entering a client mode (230, 350) by disconnecting from the host device (115) and searching for the local premise network;

connecting (230, 360) the embedded network device (510) to the local premise network using the local premise network credentials received from the host device (115); and

connecting the installed device (510) to the host device (115) and controlling setting information of the installed device (510) with the host device (115) via the local premise network."

Claim 1 of the **second auxiliary request** reads (amendments vis-à-vis claim 1 of the main request indicated by the board):

"A method comprising:

initializing (210) an installed device (110) having an embedded network device (510);

the embedded network device (510) broadcasting (210) a beacon with connection information;

receiving (225, 340), responsive to the beacon, via the embedded network device port in the installed device (110), local premise network credentials from the host device (115);

the embedded network device (510) entering a client mode (230, 350) by disconnecting from the host device (115) and searching for the local premise network;

connecting (230, 360) the embedded network device (510) to the local premise network using the local premise network credentials received from the host device (115); and

connecting the installed device (510) to the host device (115) and controlling setting information of the installed device (510) with the host device (115) via the local premise network,

wherein the installed device (510) has a processor (520) having an application for both implementing the device methods and controlling the embedded network device 510."

Claim 1 of the **third auxiliary request** reads (amendments vis-à-vis claim 1 of the main request indicated by the board):

"A method comprising:

initializing (210) an installed device (110) having an embedded network device (510);

the embedded network device (510) broadcasting (210) a beacon with connection information;

receiving (225, 340), responsive to the beacon, via the embedded network device port in the installed device (110), local premise network credentials from the host device (115);

the embedded network device (510) entering a client mode (230, 350) by disconnecting from the host device (115) and searching for the local premise network;

connecting (230, 360) the embedded network device (510) to the local premise network using the local premise network credentials received from the host device (115); and

connecting the installed device (510) to the host device (115) and controlling setting information of the installed device (510) with the host device (115) via the local premise network,

wherein the installed device (510) has a processor (520) having an application for both implementing the

device methods and controlling the embedded network device 510,
and
wherein the installed device (510) is a thermostat."

Claim 1 of the **fourth auxiliary request** reads (amendments vis-à-vis claim 1 of the main request indicated by the board):

"A method comprising:
initializing (210) an installed device (110) having an embedded network device (510);
the embedded network device (510) entering a router mode and broadcasting (210) a beacon with connection information via an installed device network, thereby turning the installed device (110) into a router;
receiving (225, 340), responsive to the beacon, via a pairing with a host device (115) over the installed device network and via an ~~the~~ embedded network device port in the installed device (110), local premise network credentials from the host device (115);
the embedded network device (510) entering a client mode (230, 350) by disconnecting from the installed device network and the host device (115), and searching for the local premise network;
connecting (230, 360) the embedded network device (510) to the local premise network using the local premise network credentials received from the host device (115); and
connecting the installed device (510) to the host device (115) and controlling the installed device (510) with the host device (115) over ~~via~~ the local premise network."

Claim 1 of the **fifth auxiliary request** reads (amendments vis-à-vis claim 1 of the main request indicated by the board):

"A method comprising:

initializing (210) an installed device (110) having an embedded network device (510);

the embedded network device (510) entering a router mode and broadcasting (210) a beacon with connection information via an installed device network, thereby turning the installed device (110) into a router;

receiving (225, 340), responsive to the beacon, via a pairing with a host device (115) over the installed device network and via an ~~the~~ embedded network device port in the installed device (110), local premise network credentials from the host device (115);

the embedded network device (510) entering a client mode (230, 350) by disconnecting from the installed device network and the host device (115), and searching for the local premise network;

connecting (230, 360) the embedded network device (510) to the local premise network using the local premise network credentials received from the host device (115); and

connecting the installed device (510) to the host device (115) and controlling setting information on the installed device (510) with the host device (115) over ~~via~~ the local premise network."

Claim 1 of the sixth auxiliary request reads (board's underlining and strike-through showing amendments vis-à-vis claim 1 of the main request):

"A method comprising:

initializing (210) an installed device (110) having an embedded network device (510);

the embedded network device (510) entering a router mode and broadcasting (210) a beacon with connection information via an installed device network, thereby turning the installed device (110) into a router;

receiving (225, 340), responsive to the beacon, via a pairing with a host device (115) over the installed device network and via an ~~the~~ embedded network device port in the installed device (110), local premise network credentials from the host device (115);

the embedded network device (510) entering a client mode (230, 350) by disconnecting from the installed device network and the host device (115), and searching for the local premise network;

connecting (230, 360) the embedded network device (510) to the local premise network using the local premise network credentials received from the host device (115); and

connecting the installed device (510) to the host device (115) and controlling setting information relating to the function of the installed device in a processor (520) of the installed device (510) with the host device (115) over ~~via~~ the local premise network."

Claim 1 of the seventh auxiliary request reads (board's underlining and strike-through showing amendments vis-à-vis claim 1 of the main request):

"A method comprising:

initializing (210) an installed device (110) having an embedded network device (510);

the embedded network device (510) entering a router mode and broadcasting (210) a beacon with connection information via an installed device network, thereby turning the installed device (110) into a router;

receiving (225, 340), responsive to the beacon, via a pairing with a host device (115) over the installed device network and via an ~~the~~ embedded network device port in the installed device (110), local premise network credentials from the host device (115);

the embedded network device (510) entering a client mode (230, 350) by disconnecting from the installed device network and the host device (115), and searching for the local premise network;

connecting (230, 360) the embedded network device (510) to the local premise network using the local premise network credentials received from the host device (115); and

connecting the installed device (510) to the host device (115) and controlling setting information of the installed device (510) with the host device (115) over ~~via~~ the local premise network,

wherein the installed device (510) has a processor having an application for both implementing the device methods and controlling the network device 510."

Claim 1 of the **eighth auxiliary request** reads (board's underlining and strike-through showing amendments vis-à-vis claim 1 of the main request):

"A method comprising:

initializing (210) an installed device (110) having an embedded network device (510);

the embedded network device (510) entering a router mode and broadcasting (210) a beacon with

connection information via an installed device network, thereby turning the installed device (110) into a router;

receiving (225, 340), responsive to the beacon, via a pairing with a host device (115) over the installed device network and via an ~~the~~ embedded network device port in the installed device (110), local premise network credentials from the host device (115);

the embedded network device (510) entering a client mode (230, 350) by disconnecting from the installed device network and the host device (115), and searching for the local premise network;

connecting (230, 360) the embedded network device (510) to the local premise network using the local premise network credentials received from the host device (115); and

connecting the installed device (510) to the host device (115) and controlling setting information of the installed device (510) with the host device (115) over ~~via~~ the local premise network,

wherein the installed device (510) has a processor having an application for both implementing the device methods and controlling the network device 510, and

wherein the device (110) is a thermostat."

## Reasons for the Decision

1. EIGHTH AUXILIARY REQUEST

Given that the independent claims of the **eighth auxiliary request** have the most limited scope, and in view of the matters to be addressed, the board

considers it expedient to begin with that eighth auxiliary request.

1.1 Claim 1 of the eighth auxiliary request comprises the following limiting features (outline based on that used in the impugned decision):

A method comprising:

(i) initialising an installed device having an embedded network device;

(ii) the embedded network device entering a router mode and broadcasting a beacon with connection information via an installed device network, thereby turning the installed device into a router;

(iii) receiving, responsive to the beacon, via a pairing with a host device over the installed device network and via an embedded network device port in the installed device, local premise network credentials from the host device;

(iv) the embedded network device entering a client mode by disconnecting from the installed device network and the host device, and searching for the local premise network;

(v) connecting the embedded network device to the local premise network using the local premise network credentials received from the host device;

(vi) connecting the installed device to the host device and controlling setting information of the installed device with the host device over via the local premise network,

(vii) wherein the installed device has a processor having an application for both implementing the device methods and controlling the network device,

(viii) wherein the device is a thermostat.

*1.1 Claim 1 - inventive step (Articles 52(1) and 56 EPC)*

1.1.1 The subject-matter of claim 1 of the eighth auxiliary request does not involve an inventive step (Article 56 EPC) starting out from document **D1**.

1.1.2 Prior-art document D1 discloses:

A method comprising:

(i) initialising an installed device ("AirPort Express") having an embedded network device (the "AirPort Express" must comprise at least an 802.11n network interface (see page 1, "Step One" and the figure on page 2 relating to Step Four);

(ii) the embedded network device entering a router mode and broadcasting a beacon with connection information via an installed device network, thereby turning the installed device into a router (see page 1, "Step Two"; the use of interface 802.11n in this configuration necessarily implies the transmission of beacons for the AirPort Express to be discovered in "Step Four");

(iii) receiving, responsive to the beacon, via a pairing with a host device (the computer running the "AirPort Utility") over the installed device network and via an embedded network device port in the installed device, local premise network credentials (i.e. network name, wireless security protocol, password) from the host device (see page 3, "Step Seven");

(iv) the embedded network device entering a client mode by disconnecting from the installed device network and the host device, and searching for

the local premise network (see page 3, "Step Eight");

(v) connecting the embedded network device to the local premise network using the local premise network credentials received from the host device (see page 4, "Step Eleven");

(vii) wherein the installed device has a processor having an application for both implementing the device methods and controlling the network device (the "AirPort Express" must have a processor controlling the 802.11n network interface, the USB print server and the iTunes music player).

1.1.3 The subject-matter of claim 1 of the eighth auxiliary request thus differs from the method of **D1** in the following features (board's underlining):

(vi) connecting the installed device to the host device and controlling setting information of the installed device with the host device over the local premise network, and

(viii) wherein the device is a thermostat.

1.1.4 The technical effect achieved by **distinguishing feature (vi)** is that the installed device can be configured by a host device already connected to the local premise network, without having to change the network or to reset the installed device to the factory settings. The objective technical problem associated with feature (vi) can thus be defined as "how to access the installed device for configuration purposes once it is connected to the local premise network of D1". This formulation slightly deviates from the formulation relied upon in the impugned decision (see Reasons, points 16.2 and 18.3).

1.1.5 The technical effect achieved by **distinguishing feature (viii)** is that the installed device can control the temperature of the room where it is installed. The objective technical problem associated with feature (viii) can thus be formulated as "how to expand the functionalities of the installed device".

1.1.6 The solution proposed in claim 1 of the eighth auxiliary request does not involve an inventive step for the following reasons:

1.1.7 The two distinguishing features are associated with independent partial objective problems. This means in turn that the contribution of those features to an inventive step can be individually assessed, i.e. on the merits of each group of distinguishing features *per se*.

1.1.8 As to **feature (vi)**, it is apparent when starting out from D1 that, once the AirPort Express system is configured to extend the underlying network "iClarified", there is still a need to access it, since the AirPort Express is provided with a password in Step Five allowing access to the device, typically for management or configuration purposes such as changing the AirPort Express Name, the network configuration, the password, etc. Those parameters may be considered as "setting information" in the claimed sense.

The straightforward solution would be to use the MAC address of the port connected to the AirPort Extreme Base Station and/or to provide the AirPort Express system with an IP address of the sub-network to which it has been attached by joining the iClarified wireless network. The latter may typically be done by using the DHCP scheme, since the default IP address 10.0.1.1 (see

the figure relating to Step Four on page 2) used for the initial attachment in router mode cannot be safely used without further considerations once the AirPort Express system joins another network. Therefore, a host device would connect to the AirPort Express and configure it over the iClarified network using either a customary configuration program (i.e. the AirPort Utility) or another means (typically a web browser) by means of a MAC address and/or an IP address of the local premise network specifically allocated to the AirPort Express, even when physically attached to the AirPort Extreme Base Station (i.e. "over the local premise network"; see the figure on page 1 relating to Step One). Thereby, the person skilled in the field of computer networks would readily incorporate feature (vi) into the system of D1 without the involvement of any inventive skills.

1.1.9 The appellant submitted that, since the AirPort Express was working as a WiFi range extender, it should be considered as a network bridge working at OSI-layer-two and therefore it did not need an OSI-layer-three address, i.e. an IP address, at all.

1.1.10 This argument is not convincing. Firstly, whilst it is true that the individual ports being bridged do not require IP addresses, network bridges typically also receive an IP address for the ease of management and configuration (e.g. in order to be able to use network management protocols such as SNMP). Secondly, even if the skilled person used a MAC address instead of an IP address to access the AirPort Express for configuration, this would still result in the addition of step (vi) of claim 1, because the claim does not further specify how the "connection" is actually established, in particular whether the connection is

established at the network layer, i.e. the IP layer, level.

1.1.11 The addition of **feature (viii)** also constitutes a straightforward option starting out from D1. Account being taken that the AirPort Express includes functionalities such as sharing a "USB printer" or "playing iTunes music" through speakers attached to the device, it should be considered as a "home appliance" rather than as a legacy network appliance (e.g. a router, switch, repeater, etc.). On this basis, the skilled person would readily include other functions typical of home appliances, such a thermostat, without the involvement of any inventive skills.

1.1.12 The appellant submitted that the skilled person would never consider adding a thermostat to the AirPort Express of D1 because the latter was a network appliance used exclusively for network connectivity purposes, whereas the claimed thermostat was a home appliance used for home automation. There was no reason to define an objective problem starting out from D1 since D1 was not the closest prior art. Instead, the closest prior art should be a document featuring a thermostat.

1.1.13 Firstly, as explained above, the AirPort Express of D1 is not just a WiFi range extender. It also provides other functions, such as playing iTunes music through speakers attached to the device, which fall well within the scope of home automation.

Secondly, according to the established case law, one of the several criteria used for selecting the closest prior art is that it should be directed to a similar purpose or effect as the invention or at least belong

to the same or a closely related technical field as the claimed invention. Following the established criteria, and in light of the technical problem identified in paragraph [0001] of the description as filed, which effectively relates to "devices" in general, there is no reason to discard D1 as the closest prior art. This is because D1 also concerns an installed device with minimal or no interface which is to be connected to a wireless home network, so that *manually* entering network credentials proves to be cumbersome (see also paragraph [0001] of the present application as filed).

Neither the background part of the application nor the alleged contribution are specific to thermostats. In fact, the whole of the description as filed includes only two references to the device being a thermostat, as a mere example and deprived of any particular implementation details (see paragraph [0002]: "... installed device such as a thermostat" and paragraph [0011]: "... The installed device, such as a thermostat, ...").

This can only mean that the selection of thermostat functionalities in the original context is to be considered as one of many customary possibilities, which is unrelated to the main purpose of the invention. In other words, its combination with network connectivity in a wireless home network should constitute a straightforward task for the skilled person, otherwise the mere reference to "... such as a thermostat" would be speculative and insufficiently disclosed.

1.2 Hence, the eighth auxiliary request is not allowable under Articles 52(1) and 56 EPC.

2. MAIN REQUEST AND FIRST TO SEVENTH AUXILIARY REQUESTS

*2.1 Claim 1 - inventive step (Articles 52(1) and 56 EPC)*

2.1.1 In spite of slight differences in formulation or minor re-wordings (see point IV above), the features of claim 1 of the main request and of each of the first to seventh auxiliary requests are essentially a subset of the features of claim 1 of the eighth auxiliary request.

2.1.2 Hence, the reasoning set out above applies *mutatis mutandis* to the subject-matter of claim 1 of the main request and of each of the first to seventh auxiliary requests. Therefore, claim 1 of those claim requests does not involve an inventive step starting out from D1 either. No further comments were made by the appellant in that regard during the oral proceedings before the board.

2.2 Accordingly, the main request and the first to seventh auxiliary requests are likewise not allowable under Articles 52(1) and 56 EPC.

3. As there is no allowable claim request, it follows that the appeal must be dismissed.

**Order**

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

The appeal is dismissed.

The Registrar: The Chair:

B. Brückner K. Bengi-Akyürek

Decision electronically authenticated