Internal distribution code:

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

Datasheet for the decision of 1 October 2024

Case Number: T 1040/22 - 3.5.05

Application Number: 18718973.3

Publication Number: 3603039

IPC: H04M1/725, H04W12/04

Language of the proceedings: EN

Title of invention:
A method of provisioning headless devices of a wireless communication system

Applicant:
Carrier Corporation

Headword:
Provisioning of headless devices/CARRIER

Relevant legal provisions:
EPC Art. 56

Keyword:
Inventive step - all claim requests (no)

Europäisches Patentamt
European Patent Office
Office européen des brevets

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

Case Number: T 1040/22 - 3.5.05

D E C I S I O N
of Technical Board of Appeal 3.5.05
of 1 October 2024

Appellant: (Applicant)	Carrier Corporation 13995 Pasteur Boulevard Palm Beach Gardens, FL 33418 (US)
Representative:	Dehns 10 Old Bailey London EC4M 7NG (GB)
Decision under appeal:	**Decision of the Examining Division of the European Patent Office posted on 14 December 2021 refusing European patent application No. 18718973.3 pursuant to Article 97(2) EPC.**

Composition of the Board:

Chair	K. Bengi-Akyürek
Members:	J. Eraso Helguera
	C. Almberg

Summary of Facts and Submissions

I. The appellant lodged an appeal against the decision of the examining division to refuse the present European patent application for lack of an inventive step (Article 56 EPC) with respect to a main request and three auxiliary requests.

II. The decision under appeal referred, *inter alia*, to the following prior-art document:

D5: FR 2 938 393 A1.

III. Oral proceedings before the board were held on 1 October 2024.

The appellant requested that the decision under appeal be set aside and that a patent be granted on the basis of the claims of one of four claim requests: a **main request** and **first to third auxiliary requests**, all of them subject to the appealed decision.

At the end of the oral proceedings, the board announced its decision.

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

"A method of provisioning a headless device (22) comprising:
acquiring (100) credentials for a user application (26);
placing (102) the headless device in a provisioning mode;
displaying (106) characters associated with the credentials by the user application;

obtaining (108) the characters by an optical sensor (56) of the headless device; and

joining (112) a network associated with the credentials;

wherein the headless device includes a user interface (58) for placing the headless device in the provisioning mode, and

wherein the user interface is a switch constructed and arranged to be manually actuated for enabling the provisioning mode of the headless device."

Claim 1 of the **first auxiliary request** differs from claim 1 of the main request in the insertion of the following wording:

"sending (114) a provisioning success signal by the headless device (22) and to the user application (26) for notifying of the user of the provisioning success;"

right after the phrase "joining (112) a network associated with the credentials".

Claim 1 of the **second auxiliary request** differs from claim 1 of the main request and claim 1 of the **third auxiliary request** differs from claim 1 of the first auxiliary request in the insertion of the following phrase:

", for a prescribed period of time,"

right after the expression "manually activated for enabling".

Reasons for the Decision

1. MAIN REQUEST

1.1 Claim 1 - inventive step (Article 56 EPC)

1.1.1 Using the wording of claim 1, document **D5** discloses (board's feature labelling):

A method of provisioning a headless device (Fig. 1: 200") comprising:
(a) acquiring credentials ("le couple SSID/Key") for a user application (p. 7, l. 13-19);
(b) placing the headless device in a provisioning mode;
(c) displaying characters ("code matriciel", "QR code") associated with the credentials by the user application (p. 8, l. 29 - p. 9, l. 4);
(d) obtaining the characters by an optical sensor ("caméra") of the headless device (p. 9, l. 14-17);
(e) joining a network ("connexion Wifi") associated with the credentials (p. 9, l. 21-24).

1.1.2 Accordingly, as acknowledged by both the examining division and the appellant, the subject-matter of claim 1 differs from the method of D5 in that:

(f) the headless device includes a user interface for placing the headless device in the provisioning mode,
(g) the user interface is a switch constructed and arranged to be manually actuated for enabling the provisioning mode of the headless device.

1.1.3 The technical effect associated with the distinguishing features follows, in the board's view, from the fact that the user can manually control when to activate the

"provisioning mode". Thereby, the "provisioning mode" need not be constantly activated, i.e. the processing unit of D5 need not try to decode every QR code captured by the camera. It further prevents the "headless device" from being misconfigured if the user inadvertently places it in front of the wrong QR code or if some malicious third party shows a rogue QR code in front of the device.

The appellant had identified the technical effects of "added security and reduced power consumption as the provisioning mode can be turned on and off" with reference to paragraph [0035] of the application as filed (see statement of grounds, page 5, penultimate paragraph). At the oral proceedings before the board, it further argued that the second aspect of the technical effect was, as an alternative to the reduction of power consumption, the reduction of processing as a whole.

However, as indicated by the examining division, the advantages of paragraph [0035] refer in general to the *complete* provisioning method rather than to the distinguishing features (i.e. the "switch" according to feature (g)) in particular. In this respect, the board recognises that the "switch" would indeed reduce the processing load and memory requirements of the headless device of D5, insofar as the provisioning routine would be run only occasionally. Nonetheless, this does not necessarily translate into a "reduced power consumption". The objective technical problem can thus be framed as "how to prevent misconfigurations of the headless device of D5". The board notes that, contrary to the problem adopted by the examining division, this formulation does not include any pointers towards features (f) and (g).

1.1.4 The subject-matter of claim 1 does not involve an inventive step (Article 56 EPC) for the following reasons:

Starting from D5 and faced with the problem defined above, the skilled person would have immediately realised that, by the application's effective filing date (i.e. 2017, assuming a valid priority claim), it was well known to provide headless devices with a switch which, when manually actuated, would activate the provisioning mode of the headless device. In addition to the "wireless mouse" mentioned by the examining division, such switch was present in many other devices. For instance, embodied as a so-called "WPS button" in wireless routers and repeaters, it would temporarily set the device into a "provisioning mode" in order to obtain WiFi credentials in a secure and user-controlled environment. Or, as a physical slide switch or button, it would enable the pairing of Bluetooth peripherals: mice, earphones and the like. Besides, it would have been self-evident that running the provisioning routine only *occasionally* rather than *continuously* would indeed prevent misconfigurations of the headless device of D5. Thus, the skilled person would have readily introduced features (f) and (g) into the headless device of D5 for the very same purpose and would have arrived at the claimed subject-matter, without the involvement of any inventive skills.

1.1.5 The appellant submitted that the "non-creative skilled person", faced with the objective problem to be solved, starting from D5 and with the knowledge of the available prior art, would not have had any cause to consider adding a specific switching arrangement for the "provisioning mode", i.e. a "manual switch" as opposed to no switch (as in the prior art) or some

other form of activation such as automatic or computer-controlled switching. The prior art contained no hint at or suggestion of such a manual switch in connection with a headless device and the non-creative skilled person did not have the ability to introduce such a feature.

1.1.6 As to the examples cited by the board, the appellant submitted that the initiation of the "provisioning mode" in WPS and Bluetooth was very different. In the application, the optical sensor *received* the credentials. The claimed switch caused the optical sensor to search for a specific type of data. Thus, what was triggered by the claimed "switch" was the *processing* of the data *received* by the optical sensor. This differed from the type of "provisioning mode" according to WPS and Bluetooth systems. In the latter, the headless device would start to advertise and *send* data, requiring interaction with another device. The claimed "switch" however just triggered *internal processing*. In the examples cited by the board, the switch triggered *broadcasting* of a signal and required further interaction with another device. Those were quite different types of "provisioning modes". Besides, the application used camera or audio sensors rather than radio signals. Thus, the skilled person would not have looked into those systems.

1.1.7 The board disagrees. Firstly, the examples given by the board are by no means exhaustive. The use of a manual switch to activate a "provisioning mode" or "configuration mode" in an electronic device was well known in the art at the application's priority date. Such switch could have taken any known form, including "push buttons", "DIP switches", "slide switches", etc. The skilled person would have

immediately recognised that the advantages (as well as the drawbacks) of adding a manual switch to enter into the "provisioning mode" were applicable to the device of D5 in a straightforward manner. Secondly, the claim does not define what the "provisioning mode" entails, let alone what it rules out. For instance, claim 1 does not require the "headless device" to carry out step (d) - and possibly step (e) - only when it is placed "in a provisioning mode". This makes any allegations of a reduced power consumption at the headless device hardly convincing. Moreover, the claim certainly does not prevent the headless device from carrying out further "active" steps when placed "in a provisioning mode", as is the case in the two examples mentioned by the board.

1.2 It follows that the main request is not allowable under Article 56 EPC.

2. AUXILIARY REQUESTS

Claim 1 of each of the auxiliary requests comprises the same limiting features as claim 1 of the main request with the following additions (board's emphasis):

(h) sending a provisioning success signal by the headless device and to the user application for notifying the user of the provisioning success [**first and third auxiliary requests**];

(i) the enabling in feature (g) is for a prescribed period of time [**second and third auxiliary requests**].

2.1 Claim 1 - inventive step (Article 56 EPC)

2.1.1 As to added **feature (h)**, the board concurs with the examining division in that D5 already discloses sending a "provisioning success signal" by the headless device for notifying the user of the provisioning success (see page 9, lines 18-21) and in that sending the signal to the *user application* rather than directly to the *user* would have been just a straightforward alternative embodiment compared to the general "signal" mentioned in D5.

2.1.2 With respect to added **feature (i)**, the state-of-the-art manual switches mentioned in point 1.1.7 above were typically associated with a predefined duration of the provisioning or pairing period. Thus, the straightforward combination of D5 with the known switches would have also led to the introduction of feature (i) into the system of D5 without additional motivation.

2.1.3 The appellant argued that feature (h) was functionally interdependent on feature (g), at least as it relied on the switch being actuated to enter the provisioning mode and the provisioning subsequently being successful. In addition, feature (i) was functionally interdependent on feature (g), at least as it relied on the switch being actuated. These features were further functionally interdependent on one another, since, for example, if during the prescribed period of time of the provisioning mode the provisioning was successful then the "provisioning success signal" was sent. Moreover, the "provisioning success signal" of feature (h) indicated both a successful *obtention* of the credentials and a successful *connection* to the network associated with the credentials. In the system of D5, the signal described in the antepenultimate paragraph of page 9 merely indicated a successful obtention of

the QR code, after which the device rebooted in order to connect to the WiFi network using the obtained credentials.

2.1.4 This is not convincing. Feature (h) is indeed linked to the "provisioning mode" being activated, as is the case in the system of D5, irrespective of *how* the activation actually took place. As regards feature (i), the introduction of a state-of-the-art manual switch, such as the "WPS button" or the "Bluetooth pairing" mentioned above, would have typically been linked to a predetermined period for the provisioning to take place. No additional incentive would have been required for the skilled person to arrive at the introduction of this feature in view of their common general knowledge. Finally, the differences between "provisioning success signals" identified by the appellant rely on the assumption that the claimed "provisioning mode" necessarily encompasses both steps (d) and (e), rather than, for instance, step (d) alone. As however explained in point 1.1.7 above, claim 1 does not impose any limitation in this respect. So, it encompasses embodiments in which the "provisioning mode" only comprises step (d), as it would be the case in the system of D5.

2.2 Consequently, none of the auxiliary requests is allowable under Article 56 EPC either.

3. Since there is no allowable claim request on file, 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