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Datasheet for the decision of 5 December 2011

Case Number: T 1203/09 - 3.5.03

Application Number: 01908940.8

Publication Number: 1254520

IPC: H04B 1/00

Language of the proceedings: EN

Title of invention:
Multiple band wireless telephone with multiple antennas

Applicant:
QUALCOMM INCORPORATED

Headword:
Wireless telephone/QUALCOMM

Relevant legal provisions:
EPC Art. 56

Relevant legal provisions (EPC 1973):
-

Keyword:
"Inventive step (no)"

Decisions cited:
-

Catchword:
-

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Beschwerdekammern | Boards of Appeal | Chambres de recours

Case Number: T 1203/09 - 3.5.03

D E C I S I O N
of the Technical Board of Appeal 3.5.03
of 5 December 2011

Appellant: QUALCOMM INCORPORATED
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Decision under appeal: **Decision of the examining division of the European Patent Office posted 12 December 2008 refusing European patent application No. 01908940.8 pursuant to Article 97(2) EPC.**

Composition of the Board:

Chairman: A. S. Clelland
Members: F. van der Voort
R. Moufang

Summary of Facts and Submissions

I. This appeal is against the decision of the examining division refusing European patent application No. 01908940.8 (publication number EP 1254520), which was originally filed as international application No. PCT/US01/03983 (publication number WO 01/59938 A).

II. The reason given for the refusal was that the subject-matter of claim 1 of each one of a main request and an auxiliary request lacked an inventive step, Articles 52(1) and 56 EPC.

III. The following documents which were referred to in the decision under appeal and/or in the international search report for the present application are referred to in the present decision:

D1: WO 99/57929 A; and

D4: Bursky, D., "Miniature Embeddable Antenna Targets Bluetooth Systems, Weighs In At 1 g", Electronic Design, Penton Publishing, Cleveland, Ohio, US, Vol. 47, No. 22, page 28.

IV. In the statement of grounds of appeal the appellant requested that the decision under appeal be set aside and that a patent be granted on the basis of claim 1 of a main request or, in the alternative, claim 1 of an auxiliary request, both claims as decided on by the examining division. Arguments were submitted in support.

V. The appellant was summoned to oral proceedings. In a communication accompanying the summons the board raised, without prejudice to its final decision, objections against claim 1 of each request under Article 52(1) EPC in combination with Article 56 EPC (lack of inventive step) and against claim 1 of the auxiliary request under Article 84 EPC (lack of clarity).

VI. In preparation for the oral proceedings, the appellant submitted further arguments in support of the requests on file.

VII. Oral proceedings were held on 5 December 2011.

The appellant requested that the decision under appeal be set aside and that a patent be granted on the basis of the single claim of the main request filed with the letter dated 11 July 2007 or, in the alternative, on the basis of the single claim of the auxiliary request filed with the letter dated 24 October 2008.

At the end of the oral proceedings, after deliberation, the board's decision was announced.

VIII. Claim 1 of the main request reads as follows:

"A wireless telephone (102), wherein:
a) the telephone (102) includes:
i) a telephone transceiver (204);
ii) an external antenna (210) connected to the telephone transceiver (204); and
iii) a Global Positioning System (GPS) receiver (106) connected to an internal antenna (220); and

b) the telephone (102) is characterized in that the telephone (102) also includes a Bluetooth transceiver (108) connected to the internal antenna (220) and the telephone (102) further includes a signal separator (216) connected to:
c) receive Bluetooth signals and GPS signals from the internal GPS antenna (220);
d) separate the Bluetooth signals and the GPS signals;
e) apply the Bluetooth signals to the Bluetooth transceiver (108); and apply the GPS signals to the GPS receiver (106)."

Claim 1 of the auxiliary request differs from claim 1 of the main request in that the following feature is added:

"wherein the internal antenna (220) is optimized to receive both GPS and Bluetooth signals".

Reasons for the Decision

1. *Main request*

1.1 The examining division regarded D1 as representing the closest prior art. The appellant did not contest this and neither does the board see a reason to question this.

1.2 D1 discloses (see the abstract, page 13, lines 22 to 32, page 14, lines 17 to 30, and Fig. 2) a wireless (cellular) telephone, i.e. a GPS/GSM receiver combination 100, which includes a telephone transceiver (GSM RF section 114) which is connected to an antenna 112, and a GPS receiver (GPS RF section 130) which is connected to an antenna 122.

1.3 The subject-matter of claim 1 of the main request differs from the wireless telephone disclosed in D1 in that according to claim 1:

i) the antenna connected to the telephone transceiver is an external antenna;

ii) the wireless telephone further includes a Bluetooth transceiver which is connected to an internal antenna;

iii) the antenna connected to the Bluetooth receiver is also used as the antenna connected to the GPS receiver; and

iv) the telephone further includes a signal separator connected to receive Bluetooth signals and GPS signals from the internal antenna, separate the Bluetooth signals and the GPS signals, apply the Bluetooth signals to the Bluetooth transceiver, and apply the GPS signals to the GPS receiver.

The appellant did not contest the above analysis.

1.4 The above distinguishing features i) to iv) do not contribute to an inventive step for the following reasons:

1.4.1 D1 does not give any implementation details of the antennas 112 and 122. However, at the priority date it was well-known to use an external antenna for wireless applications such as cellular telephones, see, e.g., D4, the figure ("typical whip antenna ... used in many

wireless applications"). Hence, feature i) does not contribute to an inventive step.

1.4.2 Further, it was well-known at the priority date that applications which use Bluetooth were often to be found in space-limited formats such as cellular telephones (see D4, col. 1, lines 6 to 10 ("cell phones, PDAs, laptop computers, and digital cameras")). Hence, the idea of including an application that uses Bluetooth in the cellular telephone disclosed in D1 would have been obvious to a person skilled in the art.

When starting out from D1 and faced with the problem of implementing an application that uses Bluetooth in the wireless telephone 100 of D1, a person skilled in the art would consider D4, since D4 relates to the use of Bluetooth in, for example, a cellular telephone.

More specifically, D4 discloses that the antenna for the Bluetooth application is an internal antenna which can optionally be enhanced for dual-band operation by adding a trap (see D4, col. 1, lines 35 and 36, and the figure (right)). Applying the teaching of D4 to the wireless telephone of D1 would thus result in a wireless telephone, i.e. GPS/GSM receiver combination 100, which further includes a Bluetooth transceiver connected to an internal antenna.

Hence, feature ii) (see point 1.3) does not contribute to an inventive step either.

1.4.3 Since according to the teaching of D4 the internal antenna with the trap is suitable for dual-band operation, it would have been obvious to the skilled

person to use the antenna not only for the Bluetooth frequency band but also for a second frequency band, e.g. the GSM frequency band used by the telephone transceiver (D1, GSM RF section 114) or the GPS frequency band used by the GPS receiver (D1, GPS RF section 130). More specifically, an implementation in which the internal Bluetooth antenna is additionally used for the GPS band would have been obvious, since it would further contribute to the "continuous need for reducing the size, power consumption, and cost of the GPS receiver", as pointed out in D1 (page 2, lines 4 to 6, and page 3, lines 1 to 4).

Hence, feature iii) (see point 1.3) does not contribute to an inventive step either.

1.4.4 Further, a dual-band operation implies that signals are received by the antenna in two different bands, in this case for Bluetooth and GPS, and that these signals are to be separated and to be applied to the respective receivers, i.e. the Bluetooth transceiver and the GPS receiver.

Hence, feature iv) does not contribute to an inventive step either.

1.5 In view of the above, it follows that at the priority date the person skilled in the art would have arrived at a wireless telephone which includes all the features of claim 1 of the main request without the exercise of inventive skill.

1.6 The appellant argued that the skilled person would have understood a "trap" as being a filter which was used to

eliminate an undesired frequency and which was not part of the antenna. Consequently, the trap provided in D4 did not allow reception of a frequency band other than the single band for which the antenna was designed. This also followed from a statement in D4 according to which "RangeStar expects the antenna to serve the new generation of cordless phones, which also operates at 2.4 GHz", i.e. within the same single frequency band as used for Bluetooth (2,4 - 2,48 GHz).

The board does not find this argument convincing. As pointed out during the oral proceedings, in the board's view, at the priority date a "trap" in the field of antenna design was commonly understood as being a device, usually consisting of an inductor-capacitor resonance circuit, which was inserted into an antenna, e.g. a single antenna, in order to utilize the (single) antenna for non-contiguous frequency bands, the trap effectively dividing the antenna into various electrical lengths with respective resonance frequencies. Thereby, an antenna was obtained which appeared to have been broken up into several antennas, each having a physical length corresponding to a respective frequency band. This understanding is also fully in line with the teaching of D4, since D4 explicitly states that "RangeStar ... have crafted a single- or dual-band antenna" and "By adding a trap, it *[i.e. the antenna]* can be enhanced for dual-band operation" (comment in square brackets and underlining by the board), in which, as shown in the figure (""Trap" for dual band"), the trap is part of the antenna. The board also notes that the statement in D4 referred to by the appellant concerning the use of the antenna with cordless phones is made without any suggestion that for that purpose the trap must be

included. In the board's view, if operation in only a single band is envisaged, the trap can be dispensed with.

The appellant further argued that "document D4 teaches to "replace the typical whip antenna" (see caption of the figure in D4) of a phone and is, thus, targeted for replacing the phone antenna" (letter dated 3 November 2011, page 4) and that replacing the telephone antenna of D1 by the antenna of D4 would result in the use of the single internal antenna for Bluetooth and telephony with a separate antenna for GPS, whereas the claimed telephone had an internal antenna for combining Bluetooth and GPS.

The board notes however that in D4 replacing a whip antenna by the disclosed internal antenna is merely described as an option and, in any case, is not limited to whip antennas of mobile phones (D4, the figure, "the surface-mountable Bluetooth antenna ... can replace the typical whip antenna ... used in many wireless applications" (underlining by the board)). Using the internal antenna of D4 for Bluetooth and GPS rather than Bluetooth and GSM would not therefore go against the teaching of D4 and, as set out at point 1.4.3 above, be an obvious choice for the skilled person when starting out from D1.

1.7 For the above reasons, 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).

1.8 The main request is therefore not allowable.

2. *Auxiliary request*

2.1 Claim 1 of the auxiliary request differs from claim 1 of the main request in that it is further defined that the internal antenna is optimized to receive both GPS and Bluetooth signals (see point VIII above).

2.2 The board accepts that at the priority date a person skilled in the art of antenna design was familiar with optimizing an antenna for a specific purpose. However, in the absence in the claim of a definition in terms of, e.g., gain, standing wave ratio (SWR), and/or bandwidth, or any other specific constructional features, it is unclear in what sense any given antenna is "optimized" to receive both GPS and Bluetooth signals and, hence, whether or not it falls under the claimed wording.

Claim 1 does not therefore meet the requirement of Article 84 EPC that the claims shall be clear.

Further, since the internal antenna of the wireless telephone according to claim 1 of the main request is for receiving both Bluetooth and GPS signals, it is implicit that the antenna is in effect "optimized" for receiving both GPS and Bluetooth signals. The subject-matter of claim 1 of the auxiliary request does not therefore involve an inventive step for the same reasons as set out above in respect of claim 1 of the main request.

2.3 The auxiliary request is therefore not allowable.

3. There being no allowable request, it follows that the appeal must be dismissed.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar: The Chairman:

G. Rauh A. S. Clelland