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Datasheet for the decision of 30 October 2007

Case Number: T 0991/06 - 3.5.03

Application Number: 99962704.5

Publication Number: 1053604

IPC: H04B 7/185

Language of the proceedings: EN

Title of invention:
Satellite system

Applicant:
Hughes Electronics Corporation

Opponent:
-

Headword:
Satellite system/HUGHES ELECTRONICS

Relevant legal provisions:
-

Relevant legal provisions:
EPC Art. 54, 84, 113(1)
EPC R. 71(2) as in force on 30 October 2007

Keyword:
"Novelty - main request (no)"
"Clarity - auxiliary requests (no)"
"Oral proceedings held in absence of appellant"

Decisions cited:
-

Catchword:
-

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Beschwerdekammern | Boards of Appeal | Chambres de recours

Case Number: T 0991/06 - 3.5.03

D E C I S I O N
of the Technical Board of Appeal 3.5.03
of 30 October 2007

Appellant: Hughes Electronics Corporation
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Decision under appeal: **Decision of the examining division of the European Patent Office posted 19 December 2005 refusing European application No. 99962704.5 pursuant to Article 97(1) EPC.**

Composition of the Board:

Chairman: A. S. Clelland
Members: F. van der Voort
M.-B. Tardo-Dino

Summary of Facts and Submissions

I. This appeal is against the decision of the examining division refusing European patent application No. 99962704.5 (publication number EP 1053604), which was originally filed as international application PCT/US99/26147 (publication number WO 00/28678 A).

II. The reasons for the refusal were that the subject-matter of independent claims 1 and 6 of a main request, independent claims 1 and 3 of a first auxiliary request, and independent claim 1 of a second auxiliary request lacked an inventive step (Article 56 EPC).

III. The following document which was referred to in the impugned decision is relevant to the present decision:

D3: US 5 551 624 A.

IV. With the statement of grounds of appeal the appellant filed claims of a main request and of two auxiliary requests and submitted arguments in support. The appellant requested that the decision be set aside and that a patent be granted on the basis of the claims of the main request or, failing that, on the basis of the claims of either the first or the second auxiliary request. Oral proceedings were conditionally requested.

V. The appellant was summoned to oral proceedings. In a communication accompanying the summons, the board raised, without prejudice to the board's final decision, objections under, *inter alia*, Article 84 EPC (lack of clarity) and Article 52(1) EPC in combination with Article 54 EPC (lack of novelty).

VI. No substantive response was filed. Instead, on the date scheduled for the oral proceedings, the appellant informed the board that it would not attend the oral proceedings.

VII. Oral proceedings were held on 30 October 2007 in the absence of the appellant. At the end of the oral proceedings, after deliberation, the board's decision was announced.

VIII. Claim 1 of the main request, which is identical to claim 1 of the main request before the examining division, reads as follows:

"A satellite constellation comprising:

a first deployment of a plurality of position—adjustable satellites (12) deployed in a medium earth orbit;

the first deployment of satellites (12) having a first configuration corresponding to a first initial operation configuration having orbital voids (39); and

a second deployment of a plurality of position-adjustable satellites (12) deployed in the medium earth orbit in said orbital voids (39) and interleaved between said first deployment, said first and second deployments of satellites (12) forming a second operation configuration."

Claim 6 of the main request, which is identical to claim 6 of the main request before the examining division, reads as follows:

"A method of deploying a satellite system comprising the steps:

deploying a first plurality of satellites into *[sic]* medium earth orbit into a first configuration;

adjusting the first plurality of satellites to a second configuration having orbital voids;

deploying a second plurality of satellites into *[sic]* medium earth orbit in said orbital voids and interleaved between said first configuration, said first plurality and said second plurality together forming a third configuration."

Claim 1 of the first auxiliary request is identical to claim 1 of the main request, except for the addition of the following feature after "a second operation configuration":

"on an equatorial plane (32) and said medium earth orbit being substantially about 15000 km above the earth (30), wherein said satellites (12) use the same frequencies as geostationary satellites."

Claim 3 of the first auxiliary request and claim 1 of the second auxiliary request read as follows:

"A method of deploying a satellite system comprising the steps:

deploying a first plurality of satellites into *[sic]* medium earth orbit substantially about 15000km above the earth into a first configuration on an equatorial plane, said configuration having orbital voids; and

deploying a second plurality of satellites into *[sic]* medium earth orbit in said orbital voids and interleaved between said first configuration, said first plurality

and said second plurality together forming a third configuration, wherein said satellites (12) use the same frequencies as geostationary satellites."

Reasons for the Decision

1. *Procedural matters*

1.1 The board considered it to be expedient to hold oral proceedings for reasons of procedural economy (Article 116(1) EPC). The appellant, which was duly summoned, had informed the board that it would not attend the oral proceedings and, indeed, was absent. The oral proceedings were therefore held in the absence of the appellant (Rule 71(2) EPC, Article 11(3) RPBA, both as in force on 30 October 2007).

1.2 In the communication accompanying the summons, objections under, *inter alia*, Article 84 EPC and Article 52(1) EPC in combination with Article 54 EPC were raised. The appellant was also informed that at the oral proceedings it would be necessary to discuss these objections. In deciding not to attend the oral proceedings the appellant chose not to make use of the opportunity to comment at the oral proceedings on any of these objections but, instead, chose to rely on the arguments as set out in the statement of grounds of appeal, which the board duly considered below.

1.3 In view of the above and for the reasons set out below, the board was in a position to give at the oral proceedings a decision which complied with the requirements of Article 113(1) EPC.

2. *Interpretation of claim 1 of the main request*

2.1 In the course of the oral proceedings before the examining division, the applicant argued that claim 1 of the main request was directed to a system, i.e. a product, rather than to a method (see the minutes, point 6).

2.2 The board notes however that in claim 1 reference is made to a first and second deployment of satellites. The expression "deployment" is understood by the board as meaning the action of deploying (cf. Oxford English Dictionary, second edition 1989) and, hence, as relating to a method step. In the board's view, these deployments do not impose any specific limitations on the claimed satellite constellation, since any satellite can be deployed and, in case of several deployments, the deployments may involve satellites which use the same technology or are even identical.

2.3 In view of the fact that claim 1 is directed to "A satellite constellation", whilst independent claim 6 of the main request is directed to "A method of deploying a satellite system", the board will hereinafter, in line with the applicant's argument, interpret claim 1 of the main request as a product claim.

2.4 Further, the feature "the first deployment of satellites (12) having a first configuration corresponding to a first initial operation configuration having orbital voids (39)" is understood such that the configuration of the first plurality of satellites merely needs to be capable of forming, rather than be in, an initial operation configuration having orbital voids. Indeed, as

follows from claim 1, last paragraph, the "orbital voids" are not void but define the locations of the second plurality of satellites.

2.5 Consequently, claim 1 defines a satellite constellation which includes in a medium earth orbit a first plurality of position-adjustable satellites and, in the same orbit, a second plurality of position-adjustable satellites which are interleaved between the first plurality of satellites, in which the first and second pluralities of satellites together form an operation configuration and in which the configuration of the first plurality of satellites is capable of forming an initial operation configuration having orbital voids, in which the orbital voids define the locations of the second plurality of satellites.

3. *Novelty - claim 1 of the main request*

3.1 The subject-matter of claim 1 lacks novelty having regard to the disclosure of D3 for the following reasons:

3.2 D3 discloses (see the abstract, col. 8, lines 19 to 22 and 52 to 62, and Fig. 8) a satellite-based cellular telecommunications system including a satellite constellation. The satellite constellation includes a first pair of position-adjustable satellites 40a, 40c in a medium earth orbit in an orbital plane P_7 and, in the same medium earth orbit, a second pair of position-adjustable satellites 40b, 40d which are interleaved between the satellites 40a and 40c. The satellites 40a-d together with further satellites 42a-d and 44a-d form an operation configuration which is referred to as a "full satellite constellation".

Further, the configuration of the satellites 40a and 40c is capable of forming a first initial operation configuration having orbital voids as shown in Fig. 6, in which the satellites 40a and 40b are in the same positions and orbit as the satellites 40a and 40c of Fig. 8 and, together with satellites 42a, 42b, 44a and 44b, form an initial operation configuration referred to as "original constellation" (see col. 2, lines 49 to 64, and col. 8, lines 23 to 35). Comparing Figures 6 and 8, it also follows that the satellites 40b and 40d in the full satellite constellation are at locations which correspond to the orbital voids in the original constellation.

3.3 In the statement of grounds of appeal the appellant argued that the subject-matter of claim 1 differed from the system of D3 in that D3 did not disclose a satellite constellation, in which the second deployment consisted of deploying in the same medium earth orbit a plurality of satellites interleaved between the satellites of the initial constellation. D3 rather taught the use of several orbits if two or more satellites were launched on the same vehicle.

Further, the appellant argued that the system of D3 always required the use of two-dimensional tracking antennas. These antennas were however more complex and expensive than one-dimensional tracking antennas. On the other hand, in the claimed constellation, at least in the initial operation configuration, the satellites were in one orbit only and, hence, one-dimensional tracking antennas could be used.

3.4 The board does not find these arguments convincing for the following reasons:

The actions of deploying the satellites do not imply any constructional features of the claimed satellite constellation (see point 2 above). Conversely, the claimed satellite constellation does not impose any limitations on the number of deployments required. The board further notes that claim 1 ("A satellite constellation comprising:") does not exclude the constellation including further satellites in other orbits, which, together with the satellites explicitly referred to in the claim, form or at least correspond to an operational configuration.

Whether or not the system of D3 requires "two-dimensional" rather than "one-dimensional" tracking antennas is not relevant to the question of novelty, since claim 1 neither implicitly nor explicitly defines as part of the claimed satellite constellation tracking antennas of any type.

3.5 The board therefore concludes that the subject-matter of claim 1 of the main request lacks novelty having regard to the disclosure of D3 (Articles 52(1) and 54 EPC).

4. *Clarity - claim 1 of the auxiliary requests*

4.1 Claim 1 of the first auxiliary request differs from claim 1 of the main request in that it additionally specifies that:
(i) the second operation configuration is formed on an equatorial plane;

(ii) the medium earth orbit is substantially about 15000 km above the earth; and
(iii) the satellites use the same frequencies as geostationary satellites.

4.2 The term "substantially about" in feature (ii) is vague. Further, with respect to feature (iii) it is noted that the frequencies used by geostationary satellites are not generally-recognised standard frequencies and may vary considerably, e.g. frequencies within the C and/or Ku band(s), but also within the Ka, X, S and/or L band(s), including different frequencies for the up- and downlinks and different frequencies for inter-satellite and earth-satellite communications. The features (ii) and (iii) therefore render the matter for which protection is sought by the claim unclear.

4.3 The above objections (point 4.2) apply *mutatis mutandis* to claim 1 of the second auxiliary request. In addition, claim 1 of this request is unclear in that, whereas reference is made to a first and a third configuration, a second configuration is not specified at all.

4.4 The appellant did not submit any arguments and/or amendments in order to meet these clarity objections.

4.5 In view of the above, the board concludes that claim 1 of each of the first and second auxiliary requests does not meet the requirements of Article 84 EPC due to a lack of clarity.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar: The Chairman:

D. Magliano A. S. Clelland