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Datasheet for the decision of 18 February 2025

Case Number: T 1508/23 - 3.5.04

Application Number: 13871515.6

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Language of the proceedings: EN

Title of invention:

METHOD AND SYSTEM FOR GEO-REFERENCING AT LEAST ONE SENSOR IMAGE

Applicant:

Maxar International Sweden AB

Headword:

Relevant legal provisions:

EPC Art. 84, 111(1)
RPBA 2020 Art. 11

Keyword:
Main request - clarity (yes)
Appeal decision - remittal to the department of first instance (yes)

Decisions cited:

Catchword:

Europäisches Patentamt
European Patent Office
Office européen des brevets

Beschwerdekammern

Boards of Appeal

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Case Number: T 1508/23 - 3.5.04

D E C I S I O N
of Technical Board of Appeal 3.5.04
of 18 February 2025

Appellant: (Applicant)	Maxar International Sweden AB Hus 207-3 581 88 Linköping (SE)
Representative:	Zacco Sweden AB P.O. Box 5581 Löjtnantsgatan 21 114 85 Stockholm (SE)
Decision under appeal:	**Decision of the Examining Division of the European Patent Office posted on 24 February 2023 refusing European patent application No. 13871515.6 pursuant to Article 97(2) EPC.**

Composition of the Board:

Chair	B. Willems
Members:	F. Sanahuja
	B. Burm-Herregodts

Summary of Facts and Submissions

I. The appeal is against the examining division's decision to refuse European patent application No. 13 871 515.6.

II. The application was refused on the grounds that the independent claims of the main request and the first auxiliary request which had formed the basis for the decision under appeal were not clear (Article 84 EPC).

III. The applicant (appellant) filed notice of appeal. With its statement of grounds of appeal, the appellant maintained the main request underlying the decision under appeal and filed amended claims of first and second auxiliary requests. Moreover, the appellant provided arguments to support its opinion that the claims of all of the requests met the requirements of Article 84 EPC.

IV. The appellant requested that the decision under appeal be set aside and that a patent be granted "containing the set of claims presently on file". The appellant also requested that oral proceedings be held.

V. In a communication under Article 15(1) RPBA, the board expressed its preliminary view that the examining division erred in its finding that the independent claims of the main request did not meet the requirements of Article 84 EPC. The board was minded to exercise its discretion under Article 111(1) EPC by remitting the case to the department of first instance for further prosecution.

VI. With a letter dated 10 January 2025, the appellant withdrew its request for oral proceedings.

VII. By a communication from the Registry dated 16 January 2025, the appellant was informed that the oral proceedings had been cancelled.

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

"*Method (700) for geo-referencing at least one sensor image, said method comprising the steps of*

- generating (701) said at least one sensor image of a first scene with at least one sensor,

- accessing (702) a 3D model of the environment comprising geo-coded 3D coordinate data and related to at least one second scene, said second scene encompassing said first scene,

- matching (703) the sensor image with the 3D model to find a section of the 3D model where there is a match between the first and the second scenes,

- geo-referencing (704) the sensor image based on the geo-coded 3D coordinate data of the found section of the 3D model, and

- determining (705) a measure related to an uncertainty in the matching between the sensor image and the 3D model,

characterized in that

the 3D model of the environment comprises a mesh describing the environment and comprising nodes

interconnected by means of edges and surfaces boarded by the edges, wherein each node and/or edge and/or surface is associated to geo-coded 3D coordinate data and an associated mesh uncertainty, wherein the mesh uncertainty represents the uncertainty at that specific node and/or edge and/or surface of the model in at least two dimensions,

the 3D model is textured,

the matching involves matching texture information of the sensor image with texture information of the textured 3D model related to the second scene, and

the determining of the measure related to the uncertainty in the matching between the sensor image and the 3D model, takes into account the uncertainty associated with the mesh."

IX. Claim 11 of the main request reads as follows:

"*Computer program comprising a program code for geo-referencing at least one sensor image, comprising the step of:*

- generating said at least one sensor image of a first scene with at least one sensor,

- accessing a 3D model of the environment comprising geo-coded 3D coordinate data and related to at least one second scene, said second scene encompassing said first scene,

- matching the sensor image with the 3D model find a section of the 3D model where there is a match between the first and the second scenes,

- geo-referencing the sensor image based on the geo-coded 3D coordinate data of the found section of the 3D model, and

- determining a measure related to an uncertainty in the matching between the sensor image and the 3D model,

characterized in that

the 3D model of the environment comprises a mesh describing the environment and comprising nodes interconnected by means of edges and surfaces boarded by the edges, wherein each node and/or edge and/or surface is associated to geo-coded 3D coordinate data and an associated mesh uncertainty, wherein the mesh uncertainty represents the uncertainty at that specific node and/or edge and/or surface of the model in at least two dimensions,

the 3D model is textured

the matching involves matching texture information of the sensor image with texture information of the textured 3D model related to the second scene, and

the determining of the measure related to the uncertainty in the matching between the sensor image and the 3D model, takes into account the uncertainty associated with the mesh."

X. Claim 12 of the main request reads as follows:

"*System (200) for geo-referencing at least one sensor image, said system comprising:*

- at least one sensor (203) arranged to capture at least one image of the first scene,

- means (204) for accessing a 3D model comprising geo-coded 3D coordinate data, and

- a processing unit (205) arranged to accessing the 3D model, to match the sensor image with the 3D model so as to find a section of the 3D model where there is a match, to geo-reference the sensor image based on the geo-coded 3D coordinate data of the found section of the 3D model, and to determine a measure related to an uncertainty in the matching between the sensor image and the 3D model,

characterized in that

the 3D model of the environment comprises a mesh describing the environment and comprising nodes interconnected by means of edges and surfaces boarded by the edges, wherein each node and/or edge and/or surface is associated to geo-coded 3D coordinate data and an associated mesh uncertainty, wherein the mesh uncertainty represents the uncertainty at that specific node and/or edge and/or surface of the model in at least two dimensions,

the 3D model is textured

the matching involves matching texture information of the sensor image with texture information of the textured 3D model related to the second scene, and

the determining of the measure related to the uncertainty in the matching between the sensor image

and the 3D model, takes into account the uncertainty associated with the mesh."

Reasons for the Decision

1. The appeal is admissible.

2. *Main request - clarity (Article 84 EPC)*

2.1 Under Article 84 EPC, the claims must be clear.

2.2 The examining division found that the feature

"*the determining of the measure related to the uncertainty in the matching between the sensor image and the 3D model, takes into account the uncertainty associated with the mesh*"

in claim 1 was vague to such an extent that it did not define how the mesh uncertainty and the matching uncertainty were related or how the mesh uncertainty was taken into account to determine the matching uncertainty (see points 13.1 and 13.3 of the decision under appeal).

2.3 The appellant submitted that the relation between the uncertainty in the matching and the uncertainty in the mesh was clear since one related to an uncertainty in the matching and the other to an uncertainty in the 3D model. It was clear that the measure relating to an uncertainty in the matching between the sensor image and the 3D model was based on the uncertainty in the matching itself and in addition thereto it comprised a component from the uncertainty in the 3D model itself

(see the section "*Compliance with article 84 EPC*" on pages 1 to 3 of the statement of grounds of appeal).

2.4 Claim 1 specifies the mesh uncertainty as an uncertainty at nodes, edges and/or surfaces of the 3D model's mesh. It further specifies that determining the measure related to the uncertainty in the matching between the sensor image and the 3D model takes into account the mesh uncertainty. The board finds that by taking into account the mesh uncertainty for determining the measure related to the uncertainty in the matching, claim 1 defines how the two uncertainties are related.

2.5 The question of how the uncertainty associated with the mesh is taken into account for determining the measure related to the uncertainty in the matching between the sensor image and the 3D model does not preclude the clarity of the claim.

2.5.1 Under the case law of the boards of appeal, since the primary function of a claim is to set out the scope of protection sought for an invention, it is not always necessary for a claim to identify technical features or steps in detail. This primary function of the claims should be clearly distinguished from the requirement that the European patent application has to disclose the invention in such a way that it enables a person skilled in the art to carry out that same invention (see Case Law of the Boards of Appeal of the European Patent Office, 10th edition, 2022, "Case Law", II.A.3.2).

Broad features can only be considered clear under the proviso that the borders of the – broad – scope of protection could be clearly inferred by the skilled

person. A broad claim is not to be equated with one lacking clarity (see Case Law, II.A.3.3).

2.5.2 By not detailing how the mesh uncertainty is to be taken into account, claim 1 covers various possibilities. However, this breadth results in a claim that is broad rather than unclear. In the board's view, the examining division's statement that this feature was "technically understood" supports this conclusion (see point 13.1 of the decision under appeal).

The broad scope does not jeopardise the identification of the exact distinctions which delimit the scope of protection sought for the invention defined in claim 1. This is because this claim explicitly specifies that the mesh uncertainty is taken into account, i.e. it is a contributing factor, in determining the measure related to the uncertainty in the matching. Furthermore, the wording of claim 1 does not introduce ambiguity or risk of misinterpretation.

For the sake of completeness, the board notes that strategies for taking into account uncertainties or errors from different sources form part of the basic toolkit of the person skilled in the art for estimating uncertainty or error propagation. Therefore, the person skilled in the art would not encounter any difficulties in determining the measure related to the uncertainty in the matching by taking into account the mesh uncertainty.

2.6 The comments above also apply, *mutatis mutandis*, to independent claims 11 and 12.

2.7 In view of the above, the board finds that the examining division erred in its finding that the

independent claims of the main request did not meet the requirements of Article 84 EPC.

3. *Remittal (Article 111(1) EPC and Article 11 RPBA)*

3.1 For the reasons set out in section 2. above, the contested decision cannot be upheld.

3.2 Under Article 111(1) EPC, the board, when deciding upon the appeal, may exercise any power within the competence of the department which was responsible for the decision appealed or remit the case to that department for further prosecution.

Article 11 RPBA stipulates that a remittal should be the exception, requiring special reasons for it to be ordered.

3.3 The primary object of the appeal proceedings is a judicial review of the appealed decision (Article 12(2) RPBA).

3.4 In the present case, the decision of the examining division with respect to the main request was limited to the issue of clarity (Article 84 EPC).

3.5 In the section of the decision under appeal entitled "Obiter Dictum", the examining division pointed out that the subject-matter of claim 1 of the main request lacked an inventive step over the combined disclosure of documents D1 and D6 to D8 and common mathematical reasoning in the field of image matching.

3.5.1 However, it is not apparent to the board why the examining division was of the opinion that any model, and therefore any method step involving the model,

included an uncertainty. The board observes that even when a model is created using sensor data, any error or uncertainty in the sensor data is not necessarily carried over to the model or to any method step involving the model.

Furthermore, the examining division did not give reasons why the person skilled in the art would have adapted the disclosure of document D1 in view of the disclosures of documents D6 to D8 and common mathematical reasoning in the field of image matching to arrive at the claimed invention. Specifically, it is not apparent how the combination of said documents would have led to each of the distinguishing features, such as a 3D model comprising "*an associated mesh uncertainty, wherein the mesh uncertainty represents the uncertainty at that specific node and/or edge and/or surface of the model in at least two dimensions*".

3.5.2 On the basis of the examining division's perfunctory analysis, the board is unable to assess whether the examining division's findings in the "Obiter Dictum" section are correct. Therefore, the board is not in a position to review the conclusions on patentability (Article 12(2) RPBA).

3.6 In the board's view, the circumstances set out in points 3.3 to 3.5.2 above represent "special reasons" within the meaning of Article 11 RPBA for remittal of the case.

3.7 Consequently, the board has decided to exercise its discretion under Article 111(1) EPC by remitting the case to the department of first instance for further prosecution.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.

2. The case is remitted to the examining division for further prosecution.

The Registrar: The Chair:

K. Boelicke B. Willems

Decision electronically authenticated