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**Datasheet for the decision
of 15 October 2009**

Case Number: T 0570/07 - 3.5.04

Application Number: 03252712.9

Publication Number: 1358848

IPC: A61B 6/03

Language of the proceedings: EN

Title of invention:

An adaptive projection filtering scheme for noise reduction

Applicant:

GE Medical Systems Global Technology Company LLC

Opponent:

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Headword:

-

Relevant legal provisions:

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Relevant legal provisions (EPC 1973):

EPC Art. 108

Keyword:

"Form of appeal - grounds - substantiation (no)"

Decisions cited:

J 0010/07, T 0213/85, T 0169/89, T 0045/92

Catchword:

see points 2.8 and 2.9



Case Number: T 0570/07 - 3.5.04

D E C I S I O N
of the Technical Board of Appeal 3.5.04
of 15 October 2009

Appellant: GE Medical Systems Global Technology Company
LLC
3000 North Grandview Boulevard
Waukesha
Wisconsin 53188-1696 (US)

Representative: Pedder, James Cuthbert
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Decision under appeal: Decision of the Examining Division of the
European Patent Office posted 3 November 2006
refusing European application No. 03252712.9
pursuant to Article 97(1) EPC 1973.

Composition of the Board:

Chairman: F. Edlinger
Members: C. Kunzelmann
C. Vallet

Summary of Facts and Submissions

- I. The appeal is against the decision of the examining division to refuse European patent application No. 03 252 712.9.
- II. The decision under appeal was taken "according to the state of the file". The reasons for the decision were mainly based on Article 84 EPC 1973, Article 123(2) EPC and Article 56 EPC 1973 and had been given in sections 2, 3, and 4, respectively, of a communication dated 1 June 2006 accompanying a summons to oral proceedings.
- III. The decision under appeal was based on the following independent method claim 1. Independent claims 4 and 8 were apparatus claims.

Claim 1

"A method for reducing noise in an x-ray image generated by a computed tomography imaging system (1) using an adaptive projection filtering scheme (100) comprising:
generating system information (102);
obtaining original projection data (104);
determining a data characteristic of said original projection data (106), wherein said determining the data characteristic comprises determining a standard deviation from said original projection data and creating, in a different manner than a manner in which the standard deviation is determined, measured variation data from said original projection data; characterized in that:

processing said original projection data responsive to said system information and said data characteristic so as to create filtered projection data (108), wherein said processing said original projection data comprises applying a smoothing filter to said original projection data based on a comparison between the standard deviation and the measured variation data; and calculating resulting projection data responsive to said filtered projection data (110)."

- IV. The reasons for the decision under appeal can be summarised as follows as far as claim 1 is concerned.

Section 2 (Clarity)

The technical meaning of the expression "projection data" in claim 1 was not clear. The description suggested that, in the specific case of a computer tomography system, projection data were data prior to image reconstruction. But the description (and claim 8) also referred to a general X-ray imaging system in which a reconstruction step was not necessarily present.

The expression "original projection data (104)" in claim 1 was not clear because it was impossible to determine its precise meaning. According to the description, it could specify either original projection data $p(\gamma)$ or corrected and/or normalised, processed original projection data. Furthermore, on the one hand, the description identified $\sigma(\gamma)$ as the standard deviation of the original projection data $p(\gamma)$, it being known in the art that the standard deviation $\sigma(\gamma)$ of original projection data is calculated as $\sigma(\gamma) = C[p(\gamma)]^{1/2}$, with C being a constant not involving

normalization. On the other hand, according to the equation given for $\sigma(\gamma)$ on page 9 of the application (see paragraph [0023] of the published application), $\sigma(\gamma)$ was the standard deviation of processed original projection data, or at least of normalised original projection data.

According to the last but one paragraph of claim 1, the processing of the original projection data was responsive to system information and data characteristic $\xi(\gamma)$ so as to create filtered projection data ($p_f(\gamma)$). There was no support for this in the description. The description was silent about an involvement of the system information (namely $Aircal(\gamma)$ and $B(\gamma)$) for creating the filtered projection data ($p_f(\gamma)$).

The invention according to the description seemed to use the original projection data ($p(\gamma)$) in a first context and processed/normalised original projection data in a second context. Using the expression "original projection data" in claim 1 for both of these contexts made the claim broader than justified by the invention.

Section 3 (Basis in the application as filed)

The addition of the feature "wherein said determining ... projection data" in claim 1 infringed Article 123(2) EPC. There was no disclosure in the application as filed that the measured variation data were in general determined in **any** manner different from the standard deviation.

Section 4 (Inventive step)

The method of claim 1 did not involve an inventive step having regard to document

D3: US 5 461 655 A.

Furthermore the method of claim 1 did not involve an inventive step having regard to document

D2: HSIEH J. 'Aliasing Artifact Suppression with Adaptive Segmentation Based Edge Enhancement.' In: Proceedings, International Conference on Image Processing, 1997. IEEE Comput. Soc., Los Alamitos, CA, US, Vol. 1, 1997, pages 231 to 234 (XP010254151)

in combination with D3.

V. The applicant appealed and requested that the decision under appeal be set aside and a patent be granted. The appellant requested oral proceedings in the event that the board intended to confirm the decision under appeal.

VI. The appellant submitted in the statement of grounds of appeal that the claims on which the decision under appeal was based were "clearly and patentably differentiated from D2 and D3". The statement of grounds of appeal can be summarised as follows.

The main objection related to inventive step in respect of D2 and D3. The examining division had misunderstood D2 and deduced information from D2 that a person skilled in the art could not deduce therefrom. D2 did

not disclose a projection filtering technique. Instead it disclosed an image-space filter. In computer tomography projection data and image data were two completely different concepts. Also D3 disclosed an image space filtering technique. The approach used in D3 was completely out of the question for projections. In the application noise estimation indicated how the filtering needed to be carried out. The filtered projection data then underwent reconstruction to form an image.

Following these explanations the statement of grounds also comprised the following statement. " ... [W]ith this clarification of the difference between projection data and image data, the clarification problems in respect to Section 2 are resolved as is also the interpretation of the basis in the application as filed (Section 3)."

- VII. The board issued a communication dated 17 July 2009 pursuant to Article 15(1) of the Rules of Procedure of the Boards of Appeal (RPBA) annexed to a summons to oral proceedings. In this communication the board noted that, as far as the objections in sections 2 and 3 of the communication dated 1 June 2006 were concerned, the statement of grounds of appeal did not appear to contain any reasoning which allowed the board to immediately understand why the decision was alleged to be incorrect. The board expressed doubts that the statement of grounds of appeal could be considered a statement setting out the grounds of appeal within the meaning of Article 108, third sentence, EPC 1973.

- VIII. In a letter dated 25 August 2009 the appellant cancelled the request for oral proceedings and requested a decision according to the state of the file. The appellant did not submit any arguments concerning the objections raised in the board's communication.
- IX. Oral proceedings were held on 15 October 2009 in the absence of the appellant in application of Rule 71(2) EPC 1973. At the end of the oral proceedings the chairman announced the board's decision.

Reasons for the Decision

1. *Introductory note*

The present decision is being taken after the entry into force of the revised European Patent Convention (EPC) on 13 December 2007. At that time, the present European patent application was already pending. The board has therefore applied the transitional provisions in accordance with Article 7(1), second sentence, of the Revision Act of 29 November 2000 and the decisions of the Administrative Council of 28 June 2001 (Special edition No. 1, OJ EPO 2007, 197) and 7 December 2006 (Special edition No. 1, OJ EPO 2007, 89). Articles and Rules of the revised and former texts of the EPC are cited in accordance with the practice described on page 4 of the 13th edition of the Convention.

2. *Admissibility of the appeal*

2.1 Articles 106 to 108 and Rule 64 EPC 1973 are to be applied in the present case with regard to the admissibility of the appeal, since all the time limits for complying with the conditions for filing an appeal had expired before the revised EPC entered into force (see also J 10/07, OJ EPO 2007, 567, Reasons, point 1.2).

2.2 The appeal complies with Articles 106 and 107 and also with Article 108, first and second sentence, and Rule 64 EPC 1973. Its admissibility therefore depends solely on whether the appellant's statement of grounds of appeal is a statement setting out the grounds of appeal within the meaning of Article 108, third sentence, EPC 1973.

2.3 It is established case law (see Case Law of the Boards of Appeal of the European Patent Office, 5th edition 2006, VII.D.7.5.1) that the grounds of appeal must specify the legal or factual reasons why the impugned decision should be set aside. The arguments must be clearly and concisely presented to enable the board (and the other party or parties) to understand immediately why the decision is alleged to be incorrect, and on what facts the appellant bases its arguments, without first having to make investigations of their own.

2.4 Moreover it is also established case law that grounds sufficient for the admissibility of an appeal must be analysed in detail vis-à-vis the main reasons given for the contested decision (see T 213/85, OJ EPO 1987, 482;

T 169/89; T 45/92). It is not a matter of whether the arguments put forward are actually effective, but rather that these arguments may in principle be considered to upset the reasons for the contested decision.

- 2.5 In the present case, where the decision was taken according to the state of the file as requested by the applicant, the reasons for the decision under appeal are contained in the previous communication dated 1 June 2006 which sets out three points at issue, namely lack of clarity (Article 84 EPC 1973), added subject-matter (Article 123(2) EPC) and lack of inventive step.
- 2.6 In the statement of grounds of appeal the appellant alleges in substance that the examining division was incorrect because of a mistake in the interpretation of documents D2 and D3. These documents did not relate to an adaptive projection filtering scheme as specified in claim 1. Therefore the argumentation given in the decision under appeal as to why the method of claim 1 did not involve an inventive step was in the appellant's opinion incorrect.
- 2.7 Hence, as far as the admissibility of the present appeal is concerned, the only question at issue is whether the statement of grounds of appeal contains a sufficient reasoning as to why the decision under appeal should be set aside with regard to the two other legal reasons for refusal, namely lack of clarity (Article 84 EPC 1973) and added subject-matter (Article 123(2) EPC), to thereby fulfil the requirements of Article 108, third sentence, EPC 1973.

- 2.7.1 With respect to the first of these other legal reasons for refusal, namely lack of clarity, the "clarification of the difference between projection data and image data" given in the statement of grounds of appeal has, in the board's view, no connection with the clarity problems discussed in Section 2 of the communication dated 1 June 2006. In particular, this clarification does not address the alleged ambiguity of the expression "original projection data" ($p(\gamma)$ or corrected/normalised $p(\gamma)$) and the corresponding ambiguity as to whether the standard deviation $\sigma(\gamma)$ is calculated as $\sigma(\gamma) = C[p(\gamma)]^{\frac{1}{2}}$ or as $\sigma(\gamma) = [B(\gamma) * (p(\gamma))^{\frac{1}{2}}] / [p(\gamma_0)]$ (this is the equation given on page 9 of the application). The clarification neither addresses the objection that the meaning of "projection data" was not clear in the case of a general X-ray system in which no image reconstruction was necessary.
- 2.7.2 With respect to the second of the other legal reasons for refusal, namely added subject-matter (Article 123(2) EPC), the clarification submitted by the appellant has, in the board's view, no connection with the objection raised in Section 3 of the communication dated 1 June 2006.
- 2.8 The appellant's argument that the main objection related to inventive step has no basis in the facts of the case. In the present case the third reason for refusal (concerning lack of inventive step) is not a single main reason on which the other two depend. Instead any one of the three reasons individually constituted a reason for the refusal of the application.

For instance, the reason based on Article 123(2) EPC related to an allegedly undisclosed generalisation. Even if the appellant's assessment that the claimed subject-matter involved an inventive step (in the whole scope of the claim) was correct, an infringement of Article 123(2) EPC caused by an undisclosed generalisation nevertheless would result in the application having to be refused. Also in this case the board's opinion on the issue of inventive step would be without any effect on the other issues. Thus in the present case the main reasons given for the contested decision are not analysed in detail in the statement of grounds of appeal.

2.9 Consequently the appellant effectively leaves it to the board to ascertain any facts substantiating the appellant's assertion that the decision under appeal was incorrect also in respect of the first and second reasons for refusing the application. This in effect amounts to a request that the patentability of the subject-matter denied by the department of first instance be reconsidered without giving any reasons as to why the decision of the first instance should be set aside as far as the first and second reasons for refusing the application are concerned. The appeal is thus not substantiated.

2.10 The board had informed the appellant about its provisional opinion in the communication accompanying the summons to oral proceedings. The appellant has neither amended the claims nor presented any counterarguments. The board in its deliberation saw no reason to deviate from its reasoning in said communication.

Order

For these reasons it is decided that:

The appeal is rejected as inadmissible.

The Registrar:

The Chairman:

L. Fernández Gómez

F. Edlinger