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Datasheet for the decision of 17 December 2007

Case Number: T 1076/07 - 3.2.02

Application Number: 97949822.7

Publication Number: 0906059

IPC: A61B 6/00

Language of the proceedings: EN

Title of invention:
Exact regional reconstruction of longitudinally-unbounded objects using a circle-and-line cone beam tomographic system

Applicant:
GENERAL ELECTRIC COMPANY

Headword:
-

Relevant legal provisions:
EPC Art. 84

Relevant legal provisions (EPC 1973):
-

Keyword:
"Clarity (no)"

Decisions cited:
-

Catchword:
-

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Case Number: T 1076/07 - 3.2.02

D E C I S I O N
of the Technical Board of Appeal 3.2.02
of 17 December 2007

Appellant: GENERAL ELECTRIC COMPANY
1 River Road
Schenectady, NY 12345 (US)

Representative: Goode, Ian Roy
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Decision under appeal: **Decision of the Examining Division of the European Patent Office posted 16 January 2007 refusing European application No. 97949822.7 pursuant to Article 97(1) EPC.**

Composition of the Board:

Chairman: T. Kriner
Members: S. Chowdhury
A. Pignatelli

Summary of Facts and Submissions

I. This appeal is against the decision of the examining division dated 16 January 2007 to refuse European patent application No. 97 949 822.7.

The application was refused on the grounds of Articles 83 and 84 EPC in that claim 1 lacked clarity and the application did not disclose the invention sufficiently.

II. On 22 March 2007 the appellant (applicant) lodged an appeal against the decision and paid the prescribed fee on the same day. On 25 May 2007 a statement of grounds of appeal was filed.

III. The appellant requested that the decision under appeal be set aside and that a patent be granted on the basis of claims 1 to 8 filed with the grounds of appeal on 25 May 2007. In the event that the Board did not consider the claims to be allowable oral proceedings were requested.

IV. In the annex to the summons to the oral proceedings, dated 2 October 2007, the Board communicated its objections under Articles 83 and 84 EPC to the appellant.

V. Oral proceedings were held on 17 December 2007 in the appellant's absence, it having stated, by telefax dated 14 December 2007, its intention not to attend.

VI. Independent claim 1 reads as follows:

"A method for reconstructing an image of a longitudinally-unbounded object, in a computed tomography imaging system wherein the longitudinally-unbounded object (10) is oriented with respect to a source of cone beam radiation (12) and a detector array (16), the method comprising the steps of:
establishing relative movement between the longitudinally-unbounded object (10) and the cone beam source (12) along at least one circular scan path and at least one linear scan path;
operating the cone beam to irradiate measurable regions of the object while a prescribed orbit is traversed, to project an image of the longitudinally-unbounded object as cone beam data, onto the detector array;
defining a scan field of view (52) relative to geometry of the cone beam;
determining error propagation distance in a Z direction for the scan, wherein the Z direction is determined to pass through the object (10) in orthogonal relationship with a mid plane (28) of the detector array (16), by analyzing the contamination of each term in an image reconstruction algorithm (f(r));
modifying the definition of the scan field of view, according to error propagation distance; and
generating a set of image reconstruction data within the modified scan field of view from the at least one circular scan path and the at least one linear scan path, where in the reconstruction algorithm is defined as
$f(r) = f_{co}(r) + f_{c1}(r) + f_{l}(r)$, wherein

the $f_{co}(r)$ term, computed from circularly scanned data, corresponds to the Feldkamp reconstruction (Equation 3 below),
the term $f_{c1}(r)$, is as formulated in Equation 4 below, and is derived from the circularly scanned cone beam projection data, and the term $f_l(r)$ is derived from the linearly scanned cone beam projection data using Equation 5, where (Y_o,Z_o) are from backprojections derived from Equation 6 below..."

[There follow Equations 1 to 6 whose form is immaterial for the present decision].

Claims 2 to 4 are dependent method claims. Claim 5 is a system claim corresponding to claim 1 and has claims 6 to 8 as dependent claims.

Reasons for the Decision

1. The appeal is admissible.

2. *Article 84 EPC*

At least the expressions "error propagation distance", and "the contamination of each term in an image reconstruction algorithm", in claim 1, are not understood. These expressions are neither clear in the context of claim 1 nor are they explained in the description. In particular, the corresponding description on page 9 and 10, regarding these expressions, is not understood because of the use of obscure expressions such as "the error induced by the longitudinally-unbounded object may propagate inwardly

from the top and bottom and contaminate the reconstruction in the top and bottom layers of the FOV".

In response to the communication of 2 October 2007 from the Board, setting out these objections, the appellant has not provided any clarification.

Therefore, claim 1 is unclear.

ORDER

For these reasons, it is decided that:

The appeal is dismissed.

The Registrar: V. Commare

The Chairman: T. Kriner