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Datasheet for the decision of 1 December 2023

Case Number: T 0855/22 - 3.5.05

Application Number: 18732946.1

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Title of invention:
System and method for mapping local activation times

Applicant:
St. Jude Medical, Cardiology Division, Inc.

Headword:
Mapping sub-conventions/ST. JUDE MEDICAL

Relevant legal provisions:
EPC Art. 56, 123(2)
RPBA 2020 Art. 12(4)

Keyword:
Inventive step - main request (no)
Admittance of claim requests filed on appeal - 1st, 2nd and 4th auxiliary requests (no)
Added subject-matter - 3rd auxiliary request (yes)

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Case Number: T 0855/22 - 3.5.05

D E C I S I O N
of Technical Board of Appeal 3.5.05
of 1 December 2023

Appellant: (Applicant)	St. Jude Medical, Cardiology Division, Inc. 177 East County Road B St. Paul, MN 55117 (US)
Representative:	Alpspitz IP Longinusstraße 1 81247 München (DE)
Decision under appeal:	**Decision of the Examining Division of the European Patent Office posted on 6 December 2021 refusing European patent application No. 18732946.1 pursuant to Article 97(2) EPC.**

Composition of the Board:

Chair	K. Bengi-Akyürek
Members:	E. Konak
	R. Romandini

Summary of Facts and Submissions

I. The appeal is against the examining division's decision to refuse the present application on the grounds that the main request and auxiliary requests 1 to 3 then on file did not comply with Article 56 EPC in view of the following document:

D1: US 2015/228254 A1.

II. With the statement setting out the grounds of appeal, the appellant filed a **main request** and **auxiliary requests 1 to 4**.

The main request and auxiliary request 3 are identical to the main request and auxiliary request 3 on which the contested decision is based. Auxiliary requests 1, 2 and 4 were filed for the first time with the statement of grounds of appeal. The appellant requested that the decision under appeal be set aside and a patent be granted on the basis of one of these requests.

III. The board summoned the appellant to oral proceedings. In a communication pursuant to Article 15(1) RPBA, it gave its preliminary opinion that the appeal has to be dismissed since claim 1 of the main request did not involve an inventive step (Article 56 EPC) and auxiliary request 3 did not meet the requirements of Article 123(2) and 56 EPC. The board was minded not to admit auxiliary requests 1, 2 and 4 into the appeal proceedings.

IV. The appellant did not reply in substance to the board's preliminary opinion. Instead, it informed the board

that it would not be attending the scheduled oral proceedings.

V. The oral proceedings were thus cancelled (cf. Article 12(8) RPBA 2020).

VI. Claim 1 of the **main request** reads as follows:

"A computer implemented method of mapping local activation times from a plurality of electrophysiology data points, the method comprising:

receiving the plurality of electrophysiology data points as an LAT map;

computing (304) an LAT range for the plurality of electrophysiology data points which is the variation between the earliest and latest LATs within the LAT map;

splitting (306) the LAT range into at least a first LAT sub-range covering less than 50% of the LAT range and a second LAT sub-range covering the remainder of the LAT range;

identifying at least a first subset of the plurality of electrophysiology data points falling within the first LAT sub-range and a second subset of the plurality of electrophysiology data points falling within the second LAT sub-range; and

generating (308) at least a first LAT sub-map of the first subset of the plurality of electrophysiology data points using a first mapping sub-convention and a second LAT sub-map of the second subset of the plurality of electrophysiology data points using a second mapping sub-convention."

Claim 1 of **auxiliary request 1** reads as follows:

"A computer implemented method of mapping local activation times from a plurality of electrophysiology data points, the method comprising:

receiving the plurality of electrophysiology data points as an LAT map wherein each electrophysiology data point comprises an associated LAT;

computing (304) an LAT range for the plurality of electrophysiology data points which is the variation between the earliest and latest LATs within the LAT map;

splitting (306) the LAT range into at least a first LAT sub-range covering less than 50% of the LAT range and a second LAT sub-range covering the remainder of the LAT range;

identifying at least a first subset of the plurality of electrophysiology data points falling within the first LAT sub-range and a second subset of the plurality of electrophysiology data points falling within the second LAT sub-range; and

generating (308) at least a first LAT sub-map of the first subset of the plurality of electrophysiology data points using a first mapping sub-convention and a second LAT sub-map of the second subset of the plurality of electrophysiology data points using a second mapping sub-convention."

Claim 1 of **auxiliary request 2** reads as follows:

"A computer implemented method of mapping local activation times from a plurality of electrophysiology data points, the method comprising:

computing (304) an LAT range using a plurality of LATs of each of the plurality of electrophysiology data points, the LAT range being a time range between an earliest LAT and a latest LAT;

splitting (306) the LAT range into at least a first LAT sub-range and a second LAT sub-range;

defining at least a first subset of the plurality of electrophysiology data points falling within the first LAT sub-range and a second subset of the plurality of electrophysiology data points falling within the second LAT sub-range; and

generating (308) at least a first LAT sub-map of the first subset of the plurality of electrophysiology data points using a first mapping sub-convention and a second LAT sub-map of the second subset of the plurality of electrophysiology data points using a second mapping sub-convention,

wherein the first mapping sub-convention is continuous with the second mapping sub-convention,

the first mapping sub-convention is scaled to the first LAT sub-range,

the second mapping sub-convention is scaled to the second LAT sub-range, and

the scale of the first mapping sub-convention to the first LAT sub-range differs from the scale of the second mapping sub-convention to the second LAT sub-range."

Claim 1 of **auxiliary request 3** reads as follows:

"A computer implemented method of mapping local activation times from a plurality of electrophysiology data points, the method comprising:

computing (304) an LAT range using a plurality of LATs of each of the plurality of electrophysiology data points, the LAT range being a time range between an earliest LAT and a latest LAT;

splitting (306) the LAT range into at least a first LAT sub-range and a second LAT sub-range;

defining at least a first subset of the plurality of electrophysiology data points falling within the first LAT sub-range and a second subset of the plurality of electrophysiology data points falling within the second LAT sub-range; and

generating (308) at least a first LAT sub-map of the first subset of the plurality of electrophysiology data points using a first mapping sub-convention by scaling and varying the first mapping sub-convention to the first LAT sub-range, and a second LAT sub-map of the second subset of the plurality of electrophysiology data points using a second mapping sub-convention by scaling and varying the second mapping sub-convention to the second LAT sub-range,

wherein the first mapping sub-convention is continuous with the second mapping sub-convention, and the scale of the first mapping sub-convention to the first LAT sub-range differs from the scale of the second mapping sub-convention to the second LAT sub-range."

Claim 1 of **auxiliary request 4** reads as follows:

"A computer implemented method of mapping local activation times from a plurality of electrophysiology data points, the method comprising:

receiving the plurality of electrophysiology data points as LAT map wherein each electrophysiology data point comprises an associated LAT;

computing (304) an LAT range using a plurality of LATs of each of the plurality of electrophysiology data points, the LAT range being a time range between an earliest LAT and a latest LAT;

splitting (306) the LAT range into at least a first LAT sub-range and a second LAT sub-range;

defining at least a first subset of the plurality of electrophysiology data points falling within the first LAT sub-range and a second subset of the plurality of electrophysiology data points falling within the second LAT sub-range;

generating (308) at least a first LAT sub-map of the first subset of the plurality of electrophysiology data points using a first mapping sub-convention by scaling and varying the first mapping sub-convention to the first LAT sub-range, and a second LAT sub-map of the second subset of the plurality of electrophysiology data points using a second mapping sub-convention by scaling and varying the second mapping sub-convention to the second LAT sub-range for increasing granularity when graphically representing some LAT sub-maps relative to other LAT-maps,

wherein the first mapping sub-convention is continuous with the second mapping sub-convention, and the scale of the first mapping sub-convention to the first LAT sub-range differs from the scale of the second mapping sub-convention to the second LAT sub-range for improving visualization of a portion of the overall LAT range corresponding to the earliest activations for mapping extrasystoles; and

outputting (310) a graphical representation of at least the first LAT sub-map and the second LAT sub-map on a three-dimensional cardiac model."

Reasons for the Decision

1. Main request

1.1 Claim 1 of the main request includes the following limiting features (board's labelling):

A computer-implemented method of mapping local activation times (LAT) from a plurality of electrophysiology data points, the method comprising:
(a) receiving the plurality of electrophysiology data points as an LAT map;
(b) computing an LAT range for the plurality of electrophysiology data points which is the variation between the earliest and latest LATs within the LAT map;
(c) splitting the LAT range into at least a first LAT sub-range covering less than 50% of the LAT range and a second LAT sub-range covering the remainder of the LAT range;
(d) identifying at least a first subset of the plurality of electrophysiology data points falling within the first LAT sub-range and a second subset of the plurality of electrophysiology data points falling within the second LAT sub-range;
(e) generating at least a first LAT sub-map of the first subset of the plurality of electrophysiology data points using a first mapping sub-convention and a second LAT sub-map of the second subset of the plurality of electrophysiology data points using a second mapping sub-convention.

1.2 Claim 1 of the main request differs from D1 essentially in that different mapping sub-conventions are used for different sub-maps of an LAT map corresponding to sub-ranges of LAT data. The appellant argued that this allowed an "improved visualization of arrythmias by increasing granularity when graphically representing the LAT sub-maps".

1.3 However, contrary to Reasons 11.3 of the contested decision, the board is not convinced that the distinguishing features of claim 1 of the main request

solve any objective technical problem. Instead, they merely involve "presentation of information" as such. An "increased graphical granularity" does not relate to a technical effect but to a non-technical cognitive effect.

1.4 The appellant argued that there was a technical effect in the case at hand since it assisted a physician to treat arrythmia but did not explain this any further. However, "presentation of information" can rarely contribute to the technical character of the invention if it credibly assists the user in performing a technical task by means of a continued and guided human-machine interaction process. For this purpose, it is not enough - as in the present case - merely to assert that the "presentation of information" assists the user in doing something. The board can only speculate as to whether the appellant meant that the presentation of information in the case at hand might be useful for a physician to distinguish different patterns of arrythmia. However, this is not a *technical* task but an *intellectual* task eventually performed by the physician. The board does not regard such kind of an assistance as a technical effect. Thus, the above distinguishing features cannot support the presence of inventive step.

1.5 Therefore, in accordance with the conclusions of the contested decision, claim 1 of the main request does not involve an inventive step (Article 56 EPC).

2. Admittance of auxiliary requests 1, 2 and 4

2.1 In view of the primary object of the appeal proceedings to review the decision under appeal in a judicial manner, an appellant's appeal case must be directed to

the requests on which the decision under appeal was based (Article 12(2) RPBA 2020). Any part of an appellant's appeal case which does not meet this requirement is to be regarded as an "amendment", unless the appellant demonstrates that this part was raised and maintained in the proceedings leading to the decision under appeal. Any such amendment may be admitted only at the discretion of the board. The appellant should provide reasons for submitting the amendments in appeal proceedings (Article 12(4) RPBA 2020).

2.2 In the present case, the contested decision is not based on auxiliary requests 1, 2 and 4. Therefore, these requests on file are "amendments" within the meaning of Article 12(2) and (4) RPBA 2020, and thus can only be admitted at the discretion of the board.

2.3 Although claim 1 of **auxiliary requests 1 and 2** is identical to claim 1 of auxiliary requests 1 and 2 on which the contested decision is based, the appellant made additional amendments in particular to claim 12 of both requests (now claim 11 of auxiliary request 1 and claim 10 of auxiliary request 2). The appellant, however, did not provide reasons for submitting these amendments to auxiliary requests 1 and 2 for the first time in these appeal proceedings, contrary to Article 12(4) RPBA 2020. According to Reasons 5 and 6 of the contested decision, the appellant amended only claim 1 of these requests in examination proceedings and postponed corresponding amendments to the other independent claims. However, such amendments should have been made already during the examination proceedings and not postponed until appeal (cf. Article 12(6), second sentence, RPBA 2020).

2.4 Regarding **auxiliary request 4**, the appellant argued that it was amended "in view of the reasons given in item 11.4 of the decision". It is however not apparent from this reasoning, in particular from a mere reference to Reasons 11.4 of the decision, why this amendment is filed for the first time in appeal proceedings (cf. Article 12(4) RPBA 2020).

2.5 Therefore, the board did not admit auxiliary requests 1, 2 and 4 into the appeal proceedings.

3. Auxiliary request 3

3.1 Claim 1 of auxiliary request 3 has *inter alia* the added feature of "[scaling and] varying the first/second sub-convention to the first/second LAT sub-range", which is not directly and unambiguously derivable from the application as filed (Article 123(2) EPC).

3.2 As auxiliary request 3 was drafted only during the oral proceedings before the examining division, the appellant did not provide the basis for the amendments in writing. In the contested decision, the examining division was satisfied that the amendments had basis in paragraphs [0008], [0050], [0054] and [0056] of the application as filed. However, the board cannot see in any of the passages a basis for the amendment in question, in particular the "varying of the sub-convention".

3.3 Hence, auxiliary request 3 contravenes Article 123(2) EPC.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar: The Chair:

B. Brückner K. Bengi-Akyürek

Decision electronically authenticated