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**Datasheet for the decision
of 10 May 2019**

Case Number: T 2239/13 - 3.4.01

Application Number: 08858753.0

Publication Number: 2223135

IPC: G01R33/3415

Language of the proceedings: EN

Title of invention:

TRANSMIT/RECEIVE COIL FOR ULTRA-HIGH FIELD MRI

Applicant:

Koninklijke Philips N.V.

Headword:

Transmit/Receive Coil / Philips

Relevant legal provisions:

EPC Art. 84

RPBA Art. 13(1)

Keyword:

Claims - clarity - main request (no)

Late-filed auxiliary requests - admitted (no)



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Case Number: T 2239/13 - 3.4.01

D E C I S I O N
of Technical Board of Appeal 3.4.01
of 10 May 2019

Appellant:
(Applicant)

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Decision under appeal:

**Decision of the Examining Division of the
European Patent Office posted on 10 July 2013
refusing European patent application No.
08858753.0 pursuant to Article 97(2) EPC.**

Composition of the Board:

Chairman P. Scriven
Members: T. Zinke
J. Geschwind

Summary of Facts and Submissions

- I. The Examining Division refused European patent application 08 858 753.
- II. In its decision, the Examining Division held that the claims of the main request lacked clarity and support by the description (Article 84 EPC) and contravened Article 123(2) EPC. Further, it was held that the application lacked sufficiency of disclosure (Article 83 EPC) and that claim 1 of the main request lacked novelty in view of each of documents
- D1 (US-A-2003/122546),
D2 (US-A-2007/241753) and
D3 (R.F.Lee et al., *Advantages of Parallel Imaging in Conjunction With Hyperpolarized Helium - A New Approach to MRI of the Lung*, *Magnetic Resonance in Medicine*, vol. 55, pages 1132-1141, 2006).
- An auxiliary request was not admitted into the examination proceedings, since it was considered not to address all of the objections and, in addition, raised further objections under Article 84 EPC.
- III. The applicant filed an appeal against the decision.
- IV. With the statement setting out the grounds of appeal, the appellant requested that the decision under appeal be set aside and that a patent be granted on the basis of the claims according to the main request or the auxiliary request as before the Examining Division.

There was a "further auxiliary request" for oral proceedings.

- V. The Board arranged to hold oral proceedings. In a communication pursuant to Article 15(1) RPBA, the appellant was informed of Board's preliminary opinion. In particular, the Board agreed with the position of the Examining Division that the claims of the main request lacked clarity, conciseness and support by the description (Article 84 EPC) and that the application lacked sufficiency of disclosure (Article 83 EPC). The Board also considered that objections under Article 123(2) EPC and with regard to novelty and/or inventive step should be discussed only after the clarity issues were resolved. With regard to the auxiliary request, the Board's preliminary view was that most of the objections against the main request applied equally.
- VI. In reply - two days before oral proceedings - the appellant filed claim sets for new first to fourth auxiliary requests. The main request was maintained. In addition, the appellant provided arguments with regard to the issues raised against the main request and argued for bases in the original application for the new auxiliary requests.
- VII. During oral proceedings the appellant confirmed its requests.

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

*A magnetic resonance coil comprising:
a first set of at least two coil elements
(54, 56, 80), operatively connectable with a
transmit channel (66, 74) to couple with a
transmit region of sensitivity for a
selected load at a magnetic field strength,
the first set of coil elements forming an
array and being arranged proximate to but
not surrounding the transmit region of
sensitivity;
a second set of at least two coil elements
(52, 54, 82), different from the first set
of coil elements, operatively connectable
with a receive channel (66, 74) to couple
with a receive region of sensitivity for the
selected load at the magnetic field
strength, the second set of coil elements
forming an array and being arranged
proximate to but not surrounding the receive
region of sensitivity;
characterized in that:
the first and the second set of coil
elements' sensitivity patterns define
substantially similar transmit and receive
regions of sensitivity for the selected load
at the magnetic field strength.*

IX. Independent claim 12 of the main request is formulated as a corresponding method claim.

- X. In claim 1 of the first auxiliary request the characterizing feature was amended with an additional feature at the end, so that it reads (emphasis added)

the first and the second set of coil elements' sensitivity patterns define substantially similar transmit and receive regions of sensitivity for the selected load at the magnetic field strength, which is satisfied when at least the region of maximum sensitivity for transmit and receive overlap in space.

The method claims 12 to 14 were cancelled.

- XI. Claim 1 of the second auxiliary request is based on the auxiliary request as before the Examining Division and as originally filed in appeal proceedings. It reads:

*A magnetic resonance coil comprising:
a first set of at least two coil elements (54, 56, 80), operatively connectable with a transmit channel (66, 74) to couple with a transmit region of sensitivity for a selected load at a magnetic field strength, the first set of coil elements forming an array and being arranged proximate to but not surrounding the transmit region of sensitivity;
a second set of at least two coil elements (52, 54, 82), operatively connectable with a receive channel (66, 74) to couple with a receive region of sensitivity for the selected load at the magnetic field strength, the second set of coil elements*

forming an array and being arranged proximate to but not surrounding the receive region of sensitivity; wherein sensitivity refers to the $|B_1^+|$ field that is generated at a spatial point per unit current and the $|B_1^-|$ spatial field intensity that can generate a unit of current in the second set of the at least two coil elements (52, 54, 82); characterized in that: the first set of coil elements and the second set of coil elements having at least one coil element (52, 56) not in common; and the first and the second sets of coil elements defining substantially similar transmit and receive regions of sensitivity for the selected load at the magnetic field strength.

Independent claim 12 is a correspondingly formulated method claim.

XII. Independent claim 1 of the third auxiliary request is a combination of the features of claims 1 of the first and the second auxiliary request.

XIII. Independent claim 1 of the fourth auxiliary request was newly drafted and reads:

A magnetic resonance scanner with a magnetic resonance coil (30), the magnetic resonance coil (30) being an array coil with an array of transmit and receive coil element sub-sets comprising:

a first set of at least two coil elements (54, 56, 80), operatively connected with a transmit channel (66, 74) of the magnetic resonance scanner and serving as a transmit coil element sub-set; and

a second set of at least two coil elements (53, 54, 82), operatively connected with a receive channel (66, 74) of the magnetic resonance scanner and serving as a receive coil element sub-set

characterized in that:

the first set of coil elements (54, 56, 80) and the second set of coil elements (52, 54, 82) have at least one coil element (54) in common and at least one coil element (52, 56) not in common.

Reasons for the Decision

*Main request - Claim Interpretation and lack of clarity
(Article 84 EPC)*

1. Although a plurality of objections under Article 84 EPC were addressed by the Board in its communication under Article 15(1) RPBA and by the appellant in its reply, the discussion during oral proceedings focused on the feature *substantially similar transmit and receive regions of sensitivity* in independent claims 1 and 12, which the Board considered a major issue.
2. The term *substantially similar* is not suited to distinguishing between the claimed and the non-claimed subject-matter. Both words, *substantially* and *similar*,

are vague and it is left entirely open, for the skilled person, when the conditions are met and when not. Hence, this formulation is unclear.

3. In particular, it is not defined in what way these regions of sensitivity should be *substantially similar*, whether it is their size, their position, their *sensitivity pattern*, or all of them.
4. With its letter filed in reply to the preliminary position of the Board, as well as during oral proceedings, the appellant argued that the use of the

... term "substantially similar" refers to the goal of the invention to reduce the differences in the transmit and receive fields and, hence, would be considered to be fulfilled when at least the region of maximum sensitivity for transmit and receive overlap in space (p.8, l. 16 and 17 of the original specification).

(letter of 8 May 2019, page 2, 2nd full paragraph).

5. It was further argued that the invention did not consist in providing exact parameters for certain special configurations of coil and load arrangements, but that the inventive concept was the recognition of a heretofore generally uncorrected effect, i.e. the differences between transmit and receive regions and the approach of making a correction by selectively using different sub-sets of coil elements for transmission and reception. In this way, it became feasible to design the coil or the coil excitation so as to reduce the effect without substantial hardware and software cost. The invention did not lie in

providing exact parameters for this purpose. These parameters might be found by the man skilled in the art for each individual case, due to his expert knowledge.

6. These arguments are not persuasive. According to Article 84 EPC, it is required that the claims define the matter for which protection is sought and that they be clear, concise, and supported by the description. This is important, since the claims determine the extent of protection (Article 69 EPC). Hence, it is important to define the limits of a claim in order to be able to identify whether or not a product or a method actually falls within the definition of a claim. As the application lacks a clear definition of *substantially similar*, this distinction is impossible to draw.
7. The appellant's additional argument, that *substantially similar would be considered to be fulfilled when at least the region of maximum sensitivity for transmit and receive overlap in space* does nothing to clarify the issue. One difficulty is that a maximum in sensitivity is not normally achieved in a region but only at a point. To define a *region* in this case, it would be necessary to define the range below the *maximum sensitivity* which would still be considered as being *maximum sensitivity*. Any such definition, however, is lacking.
8. Therefore, the main request is not allowable.

First, second and third auxiliary request - Admissibility

9. The first, second and third auxiliary requests were filed two days prior to the oral proceedings.
10. According to Article 13(1) RPBA, *Any amendment to a party's case after it has filed its grounds of appeal ... may be admitted and considered at the Board's discretion.*
11. In accordance with established jurisprudence of the boards of appeal (cf. Case Law of the Boards of Appeal of the EPO, 8th edition, July 2016, section IV.E.4.4.1, *Criteria for consideration of amended claims- Introduction*)

As a rule, the boards' decisions should be based on the issues in dispute at first instance, which does not rule out the admission of new submissions, but does subject it to the fulfillment of certain criteria, given that no entirely "fresh case" should be created on appeal Thus, in addition to the factors referred to in Art. 13(1) RPBA, the following criteria may ... likewise be decisive: there must be sound reasons for filing a request at a late stage in the proceedings, as may be the case where amendments are occasioned by developments during the proceedings or where the request addresses still outstanding objections. The amendments must be prima facie clearly allowable, ...

It should be immediately apparent to the board that the amendments made successfully address the issues raised, without giving rise to new ones.

12. In the present case, the appellant amended the claims of the first and third auxiliary request, by adding features taken from the original description (cf. page 6, lines 14 to 16), i.e. that *substantially similar* transmit and receive regions would be satisfied, when at least the region of maximum sensitivity for transmit and receive overlap in space. A major objection concerning the term *substantially similar* had arisen, and the amendment can be considered as addressing it. However, the amendments give rise to new objections under Article 84 EPC. As already discussed above, (section 1.1.5), the amendment is also not clear, since the *regions of maximum sensitivity* are not clearly defined. Hence, the first and third auxiliary requests are not clearly allowable.
13. In the claims of the second auxiliary request, the term *substantially similar* remains without further clarification. Hence, the amendments of the second auxiliary request do not address this clarity objection against the main request, so that this request is not clearly allowable.
14. The first, second, and third auxiliary request are not admitted into the appeal proceedings (Article 13(1) RPBA).

Fourth auxiliary request - Admissibility

15. The fourth auxiliary request was also filed two days prior to oral proceedings.
16. In the claims of the fourth auxiliary request, the term *substantially similar* is not used, and the appellant has tried to define the magnetic resonance scanner by means of features that reflect its structure, without strong reference to its function, unlike the approach of the main request. According to the appellant, such an amendment would be possible under Article 123(2) EPC, since a person skilled in the art could derive such a device from the originally filed application, and it *provides all necessary apparatus features for solving the object of the invention* (letter of 8 May 2019, page 5, 1st paragraph).
17. Hence, the appellant adopted a new line of argumentation, fundamentally different from the one initially adopted throughout the whole examination and appeal proceedings. At this particularly late stage of the proceedings, a decision to admit this request would be contrary to the principle of procedural economy referred to in Article 13(1) RPBA. In particular, a new assessment of novelty and inventive step (Article 54(1), (2) and 56 EPC) would be necessary, since the Examining Division considered the removed functional features (for instance, the *substantially similar regions of sensitivity*) when analysing novelty and inventive step of the claims originally filed and pending throughout the examination proceedings.
18. Consequently, the Board decided not to admit the fourth auxiliary request into the proceedings (Article 13(1) RPBA).

Order

For these reasons it is decided that:

1. The appeal is dismissed.

The Registrar:

The Chairman:



R. Schumacher

P. Scriven

Decision electronically authenticated