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**Datasheet for the decision
of 26 June 2014**

Case Number: T 1024/10 - 3.4.01

Application Number: 02703889.2

Publication Number: 1371327

IPC: A61B5/055, G01R33/54

Language of the proceedings: EN

Title of invention:

MAGNETIC RESONANCE IMAGING APPARATUS AND METHOD

Applicant:

HITACHI MEDICAL CORPORATION

Headword:

Relevant legal provisions:

EPC 1973 Art. 82

RPBA Art. 13(1)

Keyword:

Unity of invention (no: main request, auxiliary request 2)
Admissibility (no: auxiliary requests 1, 3 and 4)

Decisions cited:

G 0002/92

Catchword:



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Case Number: T 1024/10 - 3.4.01

D E C I S I O N
of Technical Board of Appeal 3.4.01
of 26 June 2014

Appellant:
(Applicant)

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Representative:

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Decision under appeal:

**Decision of the Examining Division of the
European Patent Office posted on 15 December
2009 refusing European patent application No.
02703889.2 pursuant to Article 97(2) EPC.**

Composition of the Board:

Chairman G. Assi
Members: H. Wolfrum
J. Geschwind

Summary of Facts and Submissions

- I. European patent application 02 703 889.2 (publication No. EP 1 371 327) was refused by a decision of the examining division dispatched on 15 December 2009 because of a contravention of Rule 137(4) EPC by the main request then on file and for the reasons of lack of clarity and support by the description (Article 84 EPC 1973), added subject-matter (Article 123(2) EPC) and lack of inventive step (Articles 52(1) and 56 EPC 1973) for the two auxiliary requests then on file.

The Supplementary European Search Report stated that the European patent application, by relating to three inventions, did not comply with the requirement of unity of invention and that no further search fee had been within the fixed time limit. The finding of lack of unity had been confirmed by the examining division.

- II. The applicant lodged an appeal against the decision on 24 February 2010. The prescribed appeal fee was paid on the same day. A statement setting out the grounds of appeal was filed on 26 April 2010.

The appellant requested that the decision under appeal be set aside and a patent be granted on the basis of claims 1 according to a main request or two auxiliary requests. Claim 1 of the main request corresponded to claim 1 of the main request filed by letter of 4 November 2009 in examination.

- III. On 28 January 2014 the appellant was summoned to oral proceedings.

In a communication of 4 February 2014 the Board addressed primarily the issue of lack of unity of the

claimed subject-matter with respect to the invention for which the search fee had been paid.

- IV. With its submission by letter of 23 May 2014, the appellant maintained claim 1 of the main request and filed claims 1 of a first to fourth auxiliary request, respectively, with claim 1 of the second auxiliary request being identical to that of the second auxiliary request put forward with the statement of grounds of appeal.
- V. In the oral proceedings, which took place on 26 June 2014, the appellant reiterated its requests made in writing.
- VI. Claim 1 of the appellant's **main request** which corresponds to claim 1 as filed by letter of 4 November 2009 reads as follows:

*"1. A magnetic resonance imaging apparatus comprising magnetic field generation means (403, 404) for applying gradient magnetic fields (602 to 604) and a radio-frequency magnetic field (601) to a patient (401) placed in a static magnetic field in a predetermined pulse sequence,
a first RF receiving coil for receiving the nuclear magnetic resonance signals generated from the entire measuring region of the patient (401),
a plurality of second RF receiving coils (4051 to 4058) for receiving the nuclear magnetic resonance signals (606) generated from the patient (401), and
image reconstruction means (407, 411) for reconstructing an image by processing the nuclear magnetic resonance signals (606) received while thinning encode steps in a measuring space,*

wherein the image reconstruction means (407, 411) comprises:
coil selection means for selecting a plurality of RF second receiving coil groups that are preset by combining the plurality of second RF receiving coils (4051 to 4058) according to imaging conditions;
first synthesization means for synthesizing the present measured data (1042) received by the respective second RF receiving coils (4051 to 4058) of each of the plurality of selected second RF receiving coil groups;
second synthesization means for synthesizing the previous measured data (1041) received by the respective second RF receiving coils (4051 to 4058) of each of the plurality of selected second RF receiving coil groups;
sensitivity distribution calculation means for calculating the sensitivity distribution (107) of each of the second RF receiving coil groups based on the second synthesized data synthesized by the second synthesization means;
low signal region setting means for setting a low signal region on a measuring slice section where pixel values of image data (100) obtained from the first RF receiving coil are equal to or less than a predetermined threshold; and
matrix calculation means for eliminating aliasing artifacts by executing a matrix calculation excluding the sensitivity distribution (107) of each of the RF receiving coil groups and the data included in the low signal region, which is set by the low signal region setting means, of the first synthesized data synthesized by the first synthesization means."

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

"1. A magnetic resonance imaging apparatus comprising at least two RF receiving coils (4051 to 4058) and control means (407, 411) for obtaining a sensitivity image (7021 to 7023) and a morphological image (7031 to 7033) of each of the RF receiving coils (4051 to 4058) by measuring the nuclear magnetic resonance signals (606) received by the RF receiving coils (4051 to 4058) while thinning encode steps in a measuring space and executing a calculation for eliminating aliasing artifacts in the respective morphological images (7031 to 7033) using sensitivity distributions (7051 to 7053) based on the sensitivity images (7021 to 7023) of the RF receiving coils (4051 to 4058) as well as obtaining a single morphological image (708) by coupling the above respective morphological images (7031 to 7033), wherein the control means (407, 411) is adapted to create an entire sensitivity image (803) in which the sensitivity images (7021 to 7023) obtained by the respective RF receiving coils (4051 to 4058) are combined, and to calculate the sensitivity distributions (7051 to 7053) of the respective RF receiving coils (4051 to 4058) by dividing said sensitivity images (7021 to 7023) by the entire sensitivity image (803), characterized in that the control means (407, 411) is adapted to create the entire sensitivity image (803) by determining a weighted sum of the sensitivity images (7021 to 7023) received by the respective RF receiving coils (4051 to 4058), wherein the weights of said weighted sum are obtained by filtering the sensitivity images (7021 to 7023) with a low pass filter, create a mask matrix (712, 714) which is divided into a non-image region where all matrix entries are 0 and an image region where all matrix entries are 1, wherein the non-image region is a low signal region where the

pixel values of the entire sensitivity image (803) are equal to or less than a predetermined threshold (508), and execute, in said calculation for eliminating aliasing artifacts, a step of multiplying the sensitivity distributions (7051 to 7053) of the RF receiving coils (4051 to 4058) and the mask matrix (712, 714)."

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

"1. A magnetic resonance imaging apparatus comprising at least two RF receiving coils (4051 to 4058) and control means (407, 411) for obtaining sensitivity image data (7021 to 7023) and measured image data (7031 to 7033) from the respective RF receiving coils (4051 to 4058) by measuring the nuclear magnetic resonance signals (606) received by the RF receiving coils (4051 to 4058) while thinning encode steps in a measuring space and executing a calculation for eliminating aliasing effects in the respective images using receiving sensitivity distributions (7051 to 7053) of the respective RF receiving coils (4051 to 4058) and obtaining a resultant image (708) by coupling the respective measured image data (7031 to 7033), wherein the control means (407, 411) is adapted to create a pseudo image (803) corresponding to the sensitivity image of an entire measuring region of the RF receiving coils (4051 to 4058) and to determine the receiving sensitivity distributions (7051 to 7053) of the RF receiving coils (4051 to 4058) by dividing said sensitivity image data (7021 to 7023) obtained from the RF receiving coils (4051 to 4058) by the data of said pseudo image (803), characterized in that the control means (407, 411) is adapted to

create the pseudo image (803) by determining a weighted sum of the sensitivity image data (7021 to 7023) received by the respective RF receiving coils (4051 to 4058), wherein the weights of said weighted sum are obtained by filtering the sensitivity image data (7021 to 7023) with a low pass filter, create a mask matrix (712, 714), which is divided into a non-image region where all matrix entries are 0 and an image region where all matrix entries are 1, wherein the non-image region is a low signal region where the pixel values of the pseudo image data are equal to or less than a predetermined threshold (508), and multiply the receiving sensitivity distributions (7051 to 7053) of the RF receiving coils (4051 to 4058) and the mask matrix (712, 714) in said calculation for eliminating aliasing effects in the respective images."

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

"1. A magnetic resonance imaging apparatus comprising at least two RF receiving coils (4051 to 4058) and control means (407, 411) for obtaining a sensitivity image (7021 to 7023) and a morphological image (7031 to 7033) of each of the RF receiving coils (4051 to 4058) by measuring the nuclear magnetic resonance signals (606) received by the RF receiving coils (4051 to 4058) while thinning encode steps in a measuring space and executing a calculation for eliminating aliasing artifacts in the respective morphological images (7031 to 7033) using sensitivity distributions (7051 to 7053) based on the sensitivity images (7021 to 7023) of the RF receiving coils (4051 to 4058) as well as obtaining a single morphological image (708) by coupling the above respective morphological images (7031 to 7033), wherein the control means (407, 411) is adapted to create an entire sensitivity image (803) in which the

sensitivity images (7021 to 7023) obtained by the respective RF receiving coils (4051 to 4058) are combined, and to calculate the sensitivity distributions (7051 to 7053) of the respective RF receiving coils (4051 to 4058) by dividing said sensitivity images (7021 to 7023) by the entire sensitivity image (803), characterized in that the control means (407, 411) is adapted to determine the entire sensitivity image (803) as $s'_c(x,y)$ by the expression

$$s'_c(x,y) = \frac{\sum_{i=1}^N s_i(x,y) \cdot w_i^*(x,y)}{\sqrt{\sum_{i=1}^N |w_i(x,y)|^2}}$$

wherein N is the total number of the RF receiving coils (4051 to 4058), $s_i(x,y)$ are the sensitivity images (7021 to 7023) received by the respective RF receiving coils (4051 to 4058), $w_i(x,y)$ are images obtained by filtering $s_i(x,y)$ with a low pass filter, and $w_i^*(x,y)$ are the complex conjugates of $w_i(x,y)$, create a mask matrix (712, 714) which is divided into a non-image region where all matrix entries are 0 and an image region where all matrix entries are 1, wherein the non-image region is a low signal region where the pixel values of the entire sensitivity image (803) are equal to or less than a predetermined threshold (508), and execute, in said calculation for eliminating aliasing artifacts, a step of multiplying the sensitivity distributions (7051 to 7053) of the RF receiving coils (4051 to 4058) and the mask matrix (712, 714)."

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

"1. A magnetic resonance imaging apparatus comprising at least two RF receiving coils (4051 to 4058) and control means (407, 411) for obtaining a sensitivity image (7021 to 7023) and a morphological image (7031 to 7033) of each of the RF receiving coils (4051 to 4058) by measuring the nuclear magnetic resonance signals (606) received by the RF receiving coils (4051 to 4058) while thinning encode steps in a measuring space and executing a calculation for eliminating aliasing artifacts in the respective morphological images (7031 to 7033) using sensitivity distributions (7051 to 7053) based on the sensitivity images (7021 to 7023) of the RF receiving coils (4051 to 4058) as well as obtaining a single morphological image (708) by coupling the above respective morphological images (7031 to 7033), wherein the control means (407, 411) is adapted to create an entire sensitivity image (803) in which the sensitivity images (7021 to 7023) obtained by the respective RF receiving coils (4051 to 4058) are combined, calculate the sensitivity distributions (7051 to 7053) of the respective RF receiving coils (4051 to 4058) by dividing said sensitivity images (7021 to 7023) by the entire sensitivity image (803), and obtain the single morphological image (708) from which the aliasing artifacts are eliminated by executing an inverse matrix calculation processing of the morphological images (7031 to 7033) using a matrix of the sensitivity distributions (7051 to 7053), characterized in that the control means (407, 411) is adapted to determine the entire sensitivity image (803) as $s'_c(x,y)$ by the expression

$$s'_c(x, y) = \frac{\sum_{i=1}^N s_i(x, y) \cdot w_i^*(x, y)}{\sqrt{\sum_{i=1}^N |w_i(x, y)|^2}}$$

wherein N is the total number of the RF receiving coils (4051 to 4058), $s_i(x, y)$ are the sensitivity images (7021 to 7023) received by the respective RF receiving coils (4051 to 4058), $w_i(x, y)$ are images obtained by filtering $s_i(x, y)$ with a low pass filter, and $w_i^*(x, y)$ are the complex conjugates of $w_i(x, y)$, subject the entire sensitivity image (803) to sensitivity correction processing, create a mask matrix (712, 714) which is divided into a non-image region where all matrix entries are 0 and an image region where all matrix entries are 1, wherein the non-image region is a low signal region where the pixel values of the entire sensitivity image (803) are equal to or less than a predetermined threshold (508), and execute, in said calculation for eliminating aliasing artifacts, a step of multiplying the sensitivity distributions (7051 to 7053) of the RF receiving coils (4051 to 4058) and the mask matrix (712, 714) to obtain said matrix of sensitivity distributions."

VII. The appellant's arguments may be summarized as follows:

Claim 1 of the present main request, which was based on original claim 16, should be considered as belonging to the first group of inventions according to original claims 1 and 8, the subject-matter of which was the only one for which a search report had been issued. Notwithstanding the fact that present claim 1 also encompassed the features of original claim 2, which the examining division had considered to belong to a

second, non-unitary group of inventions, claim 1 on file shared with original claims 1 and 8 the common inventive concept of eliminating aliasing artefacts by excluding data from low signal areas. Besides, it should be possible to establish unity of invention by adding features of the unitary invention to a claim directed to a non-unitary invention. For these reasons, unity of invention should be acknowledged and an additional search should be carried out for the subject-matter of claim 1 of the main request even though no additional search fee had been paid.

In contrast to claim 1 of the main request, claim 1 of new auxiliary request 1 did not include any features from the unsearched subject-matter of original claim 2. It was based on original independent claim 14, which belonged to the searched first group of inventions. Since its subject-matter substantially corresponded to that of claim 1 of auxiliary request 2 as filed with the statement setting out the grounds of appeal, except for differences resulting from the use of the specific claim language stemming from original independent claim 14, the additional effort for studying new auxiliary request 1 was comparatively low so that its late filing should be considered acceptable. The creation of an "*entire sensitivity image*" (or of a "*pseudo image*", as dubbed in original claim 17) did not constitute a third group of inventions but concerned a modification within the first group of inventions so as to cope with the absence of an entire body coil. In fact, this modification was the subject of original claims 12 and 14 which the examining division had correctly assigned to the first group of inventions in accordance with the guidelines for search and examination. After all, the second auxiliary request refused with the contested decision of 15 December 2009, also included the feature

of imitating the entire body coil sensitivity distribution without having being objected to by the examining division for lack of unity. The idea of having a synthesised or imitated "pseudo" entire sensitivity image was to be considered as belonging to the first group of inventions as long as the other characterising features of the claims belonging to said first group (in particular the mask processing for eliminating low signal areas) were also called for. The close association of the alternative of synthesising the entire body coil image with the first group of inventions found repeated confirmation throughout the description (page 9, line 15 - page 10, line 4; page 37, lines 9-10; page 44, line 21; page 45, lines 14-16; page 46, lines 2-3; page 47, lines 1-2; and page 48, lines 3-7). Furthermore, creation of an entire sensitivity image was standard practice as was evidenced by each of documents D1 (page 15, equation (6)) and D2 (page 12, lines 8-9). The reason why original claim 17 had not been assigned to the first claim group but to a third claim group was only that this original claim 17 called for the idea of pseudo image creation alone, ie without any features relating to the mask processing for eliminating low signal areas of the first claim group or the coil selection processing of the second claim group. Only due to this rather broad scope of original claim 17, the search examiner required the payment of an additional third claim fee for original claim 17. Finally, in the circumstances of the present case no valid objection of lack of unity could be raised on the basis of an *a priori* consideration.

These arguments applied to the subject-matter of auxiliary requests 2 to 4 as well so that these

requests could also not be objected to for lack of unity of invention.

Reasons for the Decision

1. The appeal complies with the requirements of Articles 106 to 108 and Rule 99 EPC and is, therefore, admissible.

2. Main request - unity of invention

The present main request is identical to the previous main request submitted with the grounds of appeal and constitutes a request that had already been filed in the first instance proceedings. It is therefore in the appeal proceedings (Article 12(1)(a) RPBA).

2.1 The International Search Report and subsequently the Supplementary European Search Report identified three different, non-unitary inventions comprised in the application as originally filed. This finding was confirmed by the examining division.

In the Board's view, the first of these inventions is defined in original independent claims 1 and 8 and dependent claim 11 and addresses the problem of an occurrence of noisy signal components from "*low signal regions*" which, when included in the matrix calculations for image reconstruction, result in errors leading to image deteriorations and spot artefacts (see page 4, lines 7-14, and page 39, lines 8-14, of the originally-filed description). This problem is solved by the provision of "*means for eliminating*" "*for suppressing or eliminating the low signal region of the measured signal*" (original claim 1) or of "*control*

means" which creates a mask, that is divided into a "non-image region" and an "image region" (original claim 8) and is arranged such that the "non-image region" is a "low signal region" (original claim 11).

The second invention which is comprised in the present application is defined inter alia in original claims 2 and 16 and addresses the problem of an occurrence of low sensitivity regions (which can be perceived as a kind of 'blind spots' for the ensemble of the RF coils), depending on the positional relation among the plurality of RF receiving coils (see page 25, line 20 - page 27, line 1; and Figure 7A of the application as originally-filed). The problem is solved by the provision of "coil selection means" for selecting a plurality of "RF receiving coil groups" that are "preset by combining the plurality of RF receiving coils" "according to imaging conditions" and of "synthesization means" "for synthesizing the measured data" (original claim 2).

Finally, the third invention which is comprised in the present application is defined inter alia in original claim 17 and addresses the problem that arises from the absence of a whole body coil, the data of which are usually required for obtaining the sensitivity distributions of the respective RF coils (page 44, lines 22-25, of the application as originally filed). This problem is solved by the provision of "pseudo image creation means" for creating a "pseudo image" corresponding to the "sensitivity image of an entire measuring region" based on "previous measured data received by the respective RF receiving coils" (original claim 17).

2.2 It is immediately apparent from this overview that the three inventions solve different problems by mutually different technical means. Thus, the Board shares in essence the examining division's finding of lack of unity of invention of the application as originally filed. It is noted that this finding is based on a purely *a priori* assessment, ie it does not contain any *a posteriori* considerations.

2.3 No further search fees had been paid by the applicant.

For such a case the Enlarged Board of Appeal held in decision G 0002/92 (OJ 1993, 591) that "*An applicant who fails to pay the further search fees for a non-unitary application when requested to do so by the Search Division under Rule 46(1) EPC cannot pursue that application for the subject-matter in respect of which no search fees have been paid. Such an applicant must file a divisional application in respect of such subject-matter if he wishes to seek protection for it.*" (Headnote of the decision). In point 2 of the Reasons for the Decision the Enlarged Board concretises: "*It is clear ... that in order to proceed to grant, a European patent application is required to contain claims relating to one invention only.*" and "*... in response to an invitation from the Search Division to pay one or more further search fees in respect of one or more further inventions to which the application relates, an applicant must pay such further search fees if he wishes to ensure that one of the further inventions could become the subject of the claims of that application.*".

Thus, decision G 0002/92 leaves no doubt that the claims of an application may relate only to one

invention and therefore cannot contain features of different, non-unitary inventions.

- 2.4 Claim 1 of the main request on file combines however the features of the first invention (notably "*low signal region setting means*" and "*matrix calculation means ... executing a matrix calculation excluding ... the data included in the low signal region*") and those of the second invention (notably "*coil selection means for selecting a plurality of RF second receiving coil groups that are preset by combining the plurality of second RF receiving coils ... according to imaging conditions*") reviewed in paragraph 2.1 above. Claim 1 under consideration thus constitutes a claim by which protection is sought for subject-matter which relates to two mutually non-unitary inventions. Moreover, no search fee had been paid for one of these inventions so that in line with the ruling of G 0002/92 the corresponding subject-matter can no longer be pursued in the present application. If a claim construction, as that of present claim 1, in which the non-unitary subject-matter is added to the invention for which the search fee had been paid were accepted, the *ratio legis* of G 0002/92 would be undermined.

According to the principles of decision G 0002/92, a claim such as present claim 1 has to be considered as infringing the requirement of unity of invention according to Article 82 EPC 2973 and thus is not allowable.

- 2.5 The appellant's argumentation that original claim 16, on which the subject-matter of present claim 1 of the main request is based, should be considered as belonging to the first, searched invention according to

original claim 1, cannot convince the Board already because of the fact that any assessment of closer similarity to the searched invention than to the non-searched invention according to original claim 2 is futile in the light of decision G 0002/92, banning pursuit of any non-unitary invention for which, upon a respective request from the Search Division, no search fee had been paid.

Moreover, the Board cannot share the appellant's opinion that unity of invention was established due to the fact that claim 1 comprised as a common inventive concept the first invention for which the search fee had been paid and that any claim definition adding features to this common inventive concept could not be objected to for lack of unity of invention. As before, according to G 0002/92, no claim may contain more than one invention.

- 2.6 In conclusion, claim 1 of the main request does not comply with the requirement of unity of invention according to Article 82 EPC 973.

The main request is therefore not allowable.

3. Auxiliary request 1 - admissibility

- 3.1 Auxiliary request 1 was filed by letter of 23 May 2014 following the summons to oral proceedings.

Article 13(1) RPBA confers a discretion on a board of appeal to admit an amendment to a party's case after the filing of the grounds of appeal. According to established case law, criteria for exercising this discretion are inter alia the questions as to whether or not the proposed amendment overcomes the previously

raised objection(s) and/or whether or not the amendment gives rise to new objections, judged on a *prima facie* basis.

In the following it will thus be established whether claim 1 of auxiliary request 1 meets the requirement of unity of invention.

3.2 Claim 1 of auxiliary request 1 comprises, in addition to features relating to the aforementioned first group of invention, features of the third group concerning the provision of a *"control means"* which is *"adapted to create an entire sensitivity image"*. To this end, the control means obtains *"sensitivity images"* from each of the RF receiving coils. This function of the control means compensates the absence of a whole body coil. It is noted in this context that the expression *"entire sensitivity image"* and the term *"pseudo image"* are used alternatively throughout the (see for instance page 14, lines 11-15 of the application as originally filed). Similarly, the terms *"control means for obtaining a sensitivity image"* (original claim 14) and *"pseudo image creation means"* (original claim 17) are synonymous.

It follows that claim 1 of auxiliary request 1 contains two inventions, which concern in this case the first and the third invention as summarised in paragraph 2.1 above and which have to be considered as being non-unitary with respect to each other.

Thus, in view of the principles of decision G 0002/92 set out in paragraph 2.3 above, claim 1 of auxiliary request 1 infringes the requirement of Article 82 EPC 1973.

3.3 The appellant's arguments in support of unity of invention rely in particular on the circumstance that the amendments to claim 1 of auxiliary request 1 concerned features which were derived from original claims 12 and 14 and thus constituted subject-matter which belonged to the first group of inventions, as was acknowledged in the first instance proceedings. Since this subject-matter was searched and examined, the findings of decision G 0002/92 did not apply.

Although the appellant's observation regarding the first instance proceedings is not disputed, the Board cannot agree with the appellant's conclusion drawn therefrom as to unity of invention. The issue is not whether the International Search Authority and the Search Division drawing up the Supplemental European Search Report correctly assigned each of the eight independent claims comprised in the set of the originally-filed claims (and their corresponding dependent claims) to a respective one of the three established inventions. Such an exercise would be pointless anyway, given the fact that claim 1 of auxiliary request 1 is not identical to any of the claims as originally filed. What matters instead is an analysis of the content of the claim under consideration with respect to the three inventions identified in the present application, irrespective of the varying linguistic appearances and inconsistencies of their definitions in the application documents as filed, as is given in paragraph 3.2 above.

Moreover, it is noted that, contrary to the appellant's submission, neither original claim 12 nor original claim 14, referred to by the appellant as evidence that the searched claims comprised control means for low signal suppression and control means for pseudo image

creation, comprise these two means in combination. Although both claims comprise a definition of control means for the determination of "*receiving sensitivity distributions of the entire region*" (original claim 12) or the creation of "*an entire sensitivity image*" (original claim 14), respectively, none of them actually comprises a control means arranged for low signal suppression. In fact, original claim 12 makes reference to original claim 7 via original claim 9. Original claim 7, however, refers to a step of selecting coils and thus addresses the same invention as defined in original claim 2 (ie the second one of the inventions reviewed in paragraph 2.1 above). Original claim 14, on the other hand, refers to a control means which creates a mask "*for dividing the non-image region and the image region*", which does not necessarily imply low signal suppression, as becomes apparent from a comparison of original independent claim 8 (referring to division in an "*image region*" and a "*non-image region*") and original dependent claim 11 (specifying that the "*non-image region*" is a "*low signal region*"). Thus, the appellant's assertion that the search reports encompassed the subject-matter of claim 1 of auxiliary request 1 and that the findings of decision G 0002/92 were thus not applicable is unconvincing.

- 3.4 Consequently, claim 1 of auxiliary request 1 does not overcome the objection of lack of unity of invention but only replaces the problem associated with claim 1 of the main request by another problem.

Therefore, the Board, in exercising its discretion under Article 13(1) RPBA, has not admitted auxiliary request 1 into the proceedings.

4. Auxiliary request 2 - unity of invention

In distinction to auxiliary request 1, auxiliary request 2 has an antecedent in the requests filed with the statement setting out the grounds of appeal. By virtue of Article 12(1) RPBA, auxiliary request 2 is therefore in the appeal proceedings.

As acknowledged by the appellant, the subject-matter of auxiliary request 2 is virtually identical to that of auxiliary request 1, the differences resulting only from variances in the claim language.

Therefore, the reasoning as to lack of unity of invention given in paragraph 3 above applies with equal force to claim 1 of auxiliary request 2.

Consequently, auxiliary request 2 is not allowable.

5. Auxiliary requests 3 and 4 - admissibility

These auxiliary requests were filed by letter of 23 May 2014. Therefore, the Board has a discretionary power to admit them into the proceedings (Article 13(1) RPBA).

As correctly stated by the appellant, claim 1 of each of auxiliary requests 3 and 4 is identical to claim 1 of auxiliary request 1 except for the addition of further limiting features concerning inter alia the determination of the "entire sensitivity image".

The reasoning as to lack of unity of invention given in paragraph 3 above thus applies with equal force to claim 1 of each of auxiliary requests 3 and 4.

Therefore, in exercising its discretion under Article 13(1) RPBA, the Board has not admitted auxiliary requests 3 and 4 into the proceedings.

6. In the absence of any allowable or admissible claim version, the appellant's request for grant of a patent is not allowable.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar:

The Chairman:



R. Schumacher

G. Assi

Decision electronically authenticated