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**Datasheet for the decision
of 6 April 2016**

Case Number: T 2054/12 - 3.4.01

Application Number: 06825858.1

Publication Number: 1946138

IPC: G01R33/46, G01R33/561

Language of the proceedings: EN

Title of invention:

FREQUENCY SWEPT EXCITATION FOR MAGNETIC RESONANCE

Applicant:

Steady State Imaging

Headword:

Relevant legal provisions:

EPC 1973 Art. 87, 54, 56

RPBA Art. 13(1)

Keyword:

- claim to priority (not valid; main request and auxiliary requests 1 to 4)
- novelty (no; main request and auxiliary requests 1 to 4)
- late-filed request (not admitted: prima facie not inventive; auxiliary request 5)

Decisions cited:

Catchword:



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Case Number: T 2054/12 - 3.4.01

D E C I S I O N
of Technical Board of Appeal 3.4.01
of 6 April 2016

Appellant: Steady State Imaging
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Decision under appeal: **Decision of the Examining Division of the European Patent Office posted on 4 May 2012 refusing European patent application No. 06825858.1 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 06 825 858.1 (publication No. EP 1 946 138 and WO2007/044857) was refused by a decision of the examining division for the reasons of lack of clarity and support by the description (Article 84 EPC 1973), added subject-matter (Article 123(2) EPC), insufficiency of disclosure (Article 83 EPC 1973) and lack of novelty and/or inventive step (Articles 52(1), 54(1) and (2) and 56 EPC 1973) of the claims of the request then on file.

II. The applicant lodged an appeal against the decision.

With its statement setting out the grounds of appeal filed with a letter of 17 August 2012 the appellant requested that the decision under appeal be set aside and that the Board declared that the claims of either a new main request or of one of four auxiliary requests, all filed with the statement setting out the grounds of appeal, *"fulfil the requirements of Articles 83 and 84 EPC and that the application is returned to the Examining Division for discussion of novelty and inventiveness of the claims"*.

Moreover, an auxiliary request for oral proceedings was made.

In its reasoning, the appellant made reference to the following textbook article :
Richard R. Ernst : *"Sensitivity Enhancement in Magnetic Resonance"*; published in "ADVANCES IN MAGNETIC RESONANCE"; ed. John S. Waugh; vol. 2; 1996; pages 1 - 135.

III. The appellant was summoned to oral proceedings.

In a communication pursuant to Article 15(1) RPBA the Board noted that it failed to recognize any compelling reasons or arguments as to why it should not address all patentability requirements and should not conclude the appeal proceedings with a final decision.

Having regard to patentability, the Board expressed doubts as to whether the claimed subject-matter was entitled to the claimed priority.

In case the claim to priority turned out to be invalid, the document :

D9 : D. Idiyatullin; C. Corum; J-Y. Park; M. Garwood :
"*Fast and quiet MRI using a swept radiofrequency*";
Journal of Magnetic Resonance; vol. 181, no. 2; 1
August 2006, pages 342-349,

- which was available online on 19 June 2006 and for which the database "COMPENDEX" recorded a publication date of 1 August 2006 -
was to be considered to form part of the pre-published prior art within the meaning of Article 54(2) EPC, as was already indicated in the "WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY" under point "ad VI".

- IV. In its response with a letter of 14 March 2016, the appellant filed amended sets of claims according to a main request and four auxiliary requests and defended the validity of the claim to priority for the claimed subject-matter.
- V. At the oral proceedings which were held on 6 April 2016 the appellant maintained its requests as filed in writing and filed a fifth auxiliary request. It was discussed whether the subject-matter of the main

request and auxiliary requests 1 to 4 could validly claim the priority date of 11 October 2005 from US application 60/725,361. As regards auxiliary request 5, its admission into the proceedings was discussed.

VI. Independent claim 1 of the appellant's **main request** reads as follows :

"1. A method of nuclear magnetic resonance, the method comprising:

applying a magnetic field gradient to an object, wherein the object comprises isochromats when subjected to a static magnetic field B_0 , herein called B_0 field isochromats, and wherein the resonant frequencies of portions of these B_0 field isochromats are varied from their static magnetic field B_0 values as a result of the position of each portion of each of the B_0 field isochromats in the applied magnetic field gradient, thus forming new isochromats, herein called gradient field isochromats;

applying a sweeping excitation pulse to the object in the presence of the magnetic field gradient, the sweeping excitation pulse having a pulse duration (T_p) and being based on rapid passage in the linear region or based on intermediate passage in the linear region,;
[sic!]

acquiring a time domain signal during the pulse duration, the time domain signal being based on evolution of the gradient field isochromats which were excited by the sweeping excitation; and

processing the time domain signal using a convolution or correlation method."

Claims 2 to 5 are dependent claims.

Claim 1 of **auxiliary request 1** differs from claim 1 of the main request in that the feature "*and being based on rapid passage in the linear region or based on intermediate passage in the linear region*" has been deleted.

Claims 2 to 5 are dependent claims.

Claim 1 of **auxiliary request 2** is based on claim 1 of auxiliary request 1 and differs therefrom in that the feature "*applying a sweeping excitation pulse to the object in the presence of the magnetic field gradient, the sweeping excitation pulse having a pulse duration (T_p)*" is replaced by the features :

*"applying a sweeping excitation comprising:
a sequence of RF pulses each having a duration (T_p); wherein
either the frequency or the phase of the RF excitation is modulated in time during each RF pulse;
the method further comprising: ; [sic!]
changing the magnetic field gradient applied to the object in each successive RF pulse;"*.

Claims 2 to 7 are dependent claims.

Claim 1 of **auxiliary request 3** is based on claim 1 of auxiliary request 1 and differs therefrom in that the features "*applying a sweeping excitation pulse to the object in the presence of the magnetic field gradient, the sweeping excitation pulse having a pulse duration (T_p)*" and "*acquiring a time domain signal during the pulse duration, the time domain signal being based on evolution of the gradient field isochromats which were excited by the sweeping excitation; and*" are replaced by the features :

"applying a sweeping excitation pulse to the object in the presence of the magnetic field gradient, the sweeping excitation pulse comprising excitation segments having a period (τ_p) in which power is on and quiescent segments in which power is off, the sweeping excitation pulse having a pulse duration (T_p);

acquiring a time domain signal during the pulse duration in the quiescent segments, the time domain signal being based on evolution of the gradient field isochromats which were excited by the sweeping excitation during the excitation segments; and".

Claims 2 to 5 are dependent claims.

Claim 1 of **auxiliary request 4** is based on claim 1 of auxiliary request 3 and differs therefrom in that the features *"applying a sweeping excitation pulse to the object in the presence of the magnetic field gradient, the sweeping excitation pulse comprising excitation segments having a period (τ_p) in which power is on and quiescent segments in which power is off, the sweeping excitation pulse having a pulse duration (T_p);"* are replaced by the features :

"applying a sweeping excitation comprising:

a sequence of RF pulses each having a duration (T_p); wherein

each RF pulse is divided into N segments each having RF power on for a duration (τ_p), herein called an excitation segment, followed by a period in which RF power is off, herein called a quiescent segment; wherein further

either the frequency or the phase of the RF excitation is modulated in time during each RF pulse; the method further comprising:; [sic!]

changing the magnetic field gradient applied to the object in each successive RF pulse;"

Claims 2 to 7 are dependent claims.

The wording of claim 1 of **auxiliary request 5** complements that of claim 1 of auxiliary request 2 by the features "*and comprising no quiescent segments and being based on rapid passage in the linear region or based on intermediate passage in the linear region*" added after the phrase "*having a duration (Tp)*", by the term "*simultaneously*" inserted in front of the expression "*acquiring a time domain signal during the pulse duration*", and by the feature "*by decoupling a transmitter, which is transmitting the RF pulses, from a receiver, which is acquiring the time domain signal*" added after the said expression.

Claims 2 to 7 are dependent claims.

VII. Claims 1, 5 and 6 of the US priority application of 11 October 2005 which are relevant for the present decision read as follows :

"1. A method comprising:

applying a sweeping radio frequency excitation having a duration, the excitation configured to sequentially excite isochromats having different resonant frequencies; and

acquiring a time domain signal during the duration, the signal based on evolution of magnetization of the isochromats in a transverse plane.

5. The method of claim 1 further including generating spectra based on a correlation of the excitation and the time domain signal.

6. *The method of claim 5 further including applying a field gradient to create an image based on the spectra."*

VIII. The appellant's arguments presented in writing may be summarized as follows :

The subject-matter of claim 1 of the main request was entitled to the claimed priority, notwithstanding the explicit inclusion of the sweeping excitation pulse "*being based on rapid passage in the linear region or based on intermediate passage in the linear region*". This feature had been included in claim 1 in response to the decision of the Examining Division in order to implicitly limit the range of powers which could be applied to the object under test. Although the priority document did not give a word-for-word discussion of the sweeping excitation being based on either rapid passage or intermediate passage in the linear region, it was clear from the general definitions of the claims of the priority document that its teaching was not limited to any values or ranges for the applied sweeping excitation, and thus covered all known and logical frequencies and powers of the excitation irradiation. The present application itself on page 11 at line 20 indicated that the linear region was a region of either reduced RF amplitude or increased sweep rate of the applied excitation. As such, the disclosure in the priority document evidently explicitly included such well known regions for sweeping excitation, and further indicated that this was a region which was identical in each property of the sweeping excitation to adiabatic region, but was primarily characterised by a lower energy from either reduced RF amplitude or increased sweep rate. Given that the disclosure of the sweeping excitation from the

priority document explicitly covered all known ranges of the RF amplitude or sweep rate, the selection of a known region therefrom was likewise disclosed. Furthermore, the priority document discussed from page 8, line 20 to page 9, line 17, particular experiments. When considering this explicit disclosure, it was clear that the priority document did disclose working in the now claimed regions, and therefore the priority claim was valid.

At the oral proceedings, the appellant's representatives added that the term "*adiabatic*" used in the priority document should not be understood in a limiting sense as excluding other regions of operation, such as for instance the linear regions. For instance, the expression "*Frequency-swept pulses (also known as adiabatic pulses)*" in line 26 of page 6 of the priority document showed that the term "*adiabatic*" was used to describe just any kind of frequency-swept pulse. At the time of filing the priority document frequency-swept pulses were customarily referred to as "*adiabatic pulses*". Such a finding was further confirmed by the fact that the specific examples for the frequency-swept pulses described in the priority document and in the present application were identical, notably hyperbolic secant pulses of the HSn-family. As a matter of fact, equations (2) and (3) mathematically describing these types of pulses as well as Figure 2 of the present application found their respective antecedents in equations (1) and (2) and in Figure 1 of the priority document.

On the other hand, the representatives admitted that in case the Board came to the conclusion that the claim to priority was not valid for the subject-matter of the main request and of auxiliary requests 1 to 4 on file,

there was no claimed feature that could not be derived from the teaching of document D9.

However, this was not the case with regard to the subject of amended claim 1 of auxiliary request 5. This request was directed to a specific variant of exciting and acquiring the time domain signal, *i.e.* an excitation without quiescent segments within an RF pulse and a corresponding acquisition performed simultaneously with the excitation. In distinction, the teaching of document D9 concerned a "gapped" method, in which the signal was acquired during quiescent segments present in an RF pulse. Whereas in "normal" MRI techniques, a large power excitation signal in the order of kW was required in order to excite simultaneously all isochromats of a sample with a single constant-frequency excitation pulse, in the present technique a much smaller number of isochromats were required to be excited during a frequency-swept pulse. In fact an excitation required a pulse of only 50 mW. As was explained on page 13, last paragraph of the application description, an operation in the rapid passage, linear region allowed for an even further reduction of the exciting RF amplitude. Considering then that the derived signal from the spin was around 1 mW, it became clear that it was perfectly possible to decouple the transmitter and receiver.

The claims of auxiliary request 5 thus defined novel and inventive subject-matter. Given that the Board's finding of a deficient claim to priority for the main request and auxiliary requests 1 to 4 had become apparent to the appellant only in the course of the oral proceedings, the appellant should be given an opportunity to react to this situation. Therefore,

notwithstanding the lateness of its filing, auxiliary request 5 should be admitted into the proceedings.

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 - novelty (Articles 52(1) and 54(1) and (2) EPC)
 - 2.1 Claim to priority
 - 2.1.1 Claim 1 on file requires the sweeping excitation pulse to be based "*on rapid passage in the linear region*" or based on "*intermediate passage in the linear region*". This feature imposes a certain constraint on the sweep rate of the pulsed frequency-swept excitation.

In contrast, the priority document imposes a different constraint in that it refers throughout the description repeatedly and exclusively to an excitation by "*adiabatic pulses*" and a frequency sweep "*in the adiabatic passage region*" (page 3, lines 6, 15, 27; page 4, lines 15, 27; page 6, lines 26, 27; page 7, lines 3, 6, 8, 22, 23; page 8, lines 5-6).

It is as such uncontested textbook knowledge that adiabatic passage and rapid or intermediate passage in the linear region constitute mutually exclusive regimes of operation. Confirming evidence for this fact is provided by Figure 22 on page 76 of the aforementioned textbook article of R. R. Ernst.

2.1.2 There is no indication or explanation in the priority document which would support the appellant's argumentation that the priority document would not use the term "adiabatic" in its conventional meaning but rather as a generic term for a frequency-swept excitation in general. Therefore, the appellant's interpretation of the content of the priority document is in contradiction with the skilled person's understanding that, in a technical text, technical terms are used in their commonly recognized meaning.

2.1.3 The further argument of the appellant that the claims of the priority document, which constituted an autonomous source of technical information separate from the description, provided an implicit disclosure of a rapid or intermediate passage in the linear region in that the said claims did not specify any regime of operation for the sweep rate, is not convincing.

Indeed, the claims of the priority document provide broad definitions and are unspecific, in particular when it comes to constraints for the sweep rate. This does not mean, however, that the claims would constitute an unambiguous basis of disclosure for just any regime of operation. As regards the requirements for claiming priority, the Enlarged Board held in its opinion G2/98 (OJ 2001, 413, "Conclusion") : *"The requirement for claiming priority of "the same invention", referred to in Article 87(1) EPC, means that priority of a previous application in respect of a claim in a European patent application in accordance with Article 88 EPC is to be acknowledged only if the skilled person can derive the subject-matter of the claim directly and unambiguously, using common general knowledge, from the previous application as a whole."*

In the present case, this requirement is not met. In fact, as is apparent from Figure 22 on page 76 of the aforementioned textbook article of R. R. Ernst, the claimed regimes "*rapid passage in the linear region*" and "*intermediate passage in the linear region*" are but two regimes out of a number of further regimes, such as - apart from "*adiabatic passage*" - "*slow passage linear region*", "*slow passage saturation*", or "*intermediate passage, saturation*". In the absence of any respective hint in the claims of the priority document, the skilled person has no reason whatsoever to purposefully choose an operation in just the claimed two regimes, so as to achieve the advantage of an excitation with reduced RF amplitude, as mentioned on page 13, last paragraph of the application description. On the contrary, in view of the whole content of the priority document, the only direct and unambiguous disclosure for the skilled person is an operation in the regime of an "*adiabatic passage*".

- 2.1.4 Finally, the appellant's argument that the excitation by adiabatic pulses according to the priority document was identical to the excitation by the frequency-swept pulses described in the present application because both were hyperbolic secant pulses of the HSn-family, is technically incorrect because it confuses the time dependence of the pulse amplitude $\omega_1(t)$ (which indeed may follow the slope of a hyperbolic secant according to the priority document and the present application) and the regime of operation of the sweep rate a (which is the regime of adiabatic passage according to the priority document and the regime of fast passage or intermediate passage in the linear region according to claim 1 of the main request and the supporting description of the present application).

- 2.1.5 For the above reasons, the claim to priority is not valid for the subject-matter of claim 1 of the main request on file, thus leaving the international filing date of 11 October 2006 as the earliest date of filing of the European patent application.
- 2.2 Consequently, document D9 constitutes prior art within the meaning of Article 54(2) EPC.

The appellant does not contest, that D9 teaches a method of nuclear magnetic resonance imaging (MRI), dubbed SWIFT ("sweep imaging with Fourier transformation"), with all the features and measures defined in claim 1 of the main request. Indeed, Figure 1 and the corresponding description of document D9 are identical to Figure 2 and the respective description of the present application. The step of applying a static magnetic field B_0 and a magnetic field gradient is discussed in the paragraph following equation (1) in the right-hand column of page 343. The step of applying a sweeping excitation pulse is described for instance in the second paragraph of the left-hand column of page 343 and in the paragraph bridging pages 343 and 344, and the operation based on "*rapid passage in the linear region*" and "*intermediate passage in the linear region*" is mentioned in the paragraph bridging the two columns on page 344 and in the second paragraph of the right-hand column of page 345. The step of acquiring a time signal during the pulse duration is shown in Figure 2 and addressed for instance in the second paragraph of the left-hand column of page 343 and in the third paragraph of the right-hand column of page 344, where also the processing of the time domain signal by a correlation method is discussed.

Therefore, the subject-matter of claim 1 of the main request lacks novelty with respect to the teaching of document D9.

2.3 In consequence, the main request is not allowable.

3. Auxiliary requests 1 to 4 - novelty (Articles 52(1) and 54(1) and (2) EPC)

The Board admitted these requests into the proceedings.

3.1 Claim to priority

3.1.1 In distinction to claim 1 of the main request, claim 1 of each of auxiliary requests 1 to 4 does not specify that the sweeping excitation pulse or pulses had to be "*based on rapid passage in the linear region or based on intermediate passage in the linear region*".

In the appellant's view, the deletion of this feature from the respective requests established a valid claim to priority of the claimed subject-matter.

3.1.2 However, this is not the case for a number of reasons.

Notwithstanding the deletion of the requirement for the sweeping excitation to be "*based on rapid passage in the linear region or based on intermediate passage in the linear region*" from claim 1 of each of auxiliary requests 1 to 4, these two regimes of operation are still encompassed by the claimed subject-matter. As a matter of fact, these regimes are the only modes of operation which are described in the application description and thus provide support for the claimed subject-matter, whereas an operation by an adiabatic passage, as it is the subject of teaching of the priority document, is not disclosed as an option in the

description of the present application. Simply stated, the priority document and the present application refer to different inventions as regards the regimes of operation of the sweeping rate.

This finding is not changed by taking into consideration the teaching which is provided by the claims of the priority document. For example, to the extent that the claims of the priority document refer at all to the application of a "*field gradient*", claim 6 thereof requires the gradient to be applied "*to create an image based on the spectra*", which "*spectra*" are in turn defined in claim 5 of the priority document as being generated "*based on a correlation of the excitation and the time domain signal*". In distinction thereto, none of the definitions of claim 1 of auxiliary requests 1 to 4 on file requires the creation of an image based on "*spectra*". Conversely, according to claim 1 of each of auxiliary requests 1 to 4, processing of the time domain signal is done by a "*convolution method*" or by any kind of "*correlation method*".

For the sake of completeness it is added that there is no valid claim to priority for the acquisition of a signal based on any evolution of the isochromats as is defined in claim 1 of each of auxiliary requests 1 to 4, whereas claim 1 of the priority document refers in this respect specifically to an evolution of the magnetization of the isochromats. Moreover, there is no valid claim to priority for a sweeping excitation by a single pulse, as is defined in claim 1 of each of auxiliary requests 1 and 3.

- 3.1.3 For these reasons, the claim to priority is not valid for the subject-matter of claim 1 of each of auxiliary requests 1 to 4.

- 3.2 The appellant did not contest that the complementary features - if any - respectively added to claim 1 of each of auxiliary requests 1 to 4 are all known from document D9 as well.
 - 3.2.1 Since claim 1 of auxiliary request 1 differs from claim 1 of the main request by the omission of a feature, its subject-matter lacks novelty for the same reasons as set out for the main request.

 - 3.2.2 The application of a sequence of pulses for which the magnetic field gradient is successively changed from pulse to pulse (auxiliary requests 2 and 4) is shown in Figure 1 of D9 and described expressly in the right-hand column of page 343. Modulating in this context either the frequency or the phase of the RF excitation (auxiliary requests 2 and 4) is mentioned in the last paragraph of the left-hand column of page 343 of D9.

Dividing each RF pulse into (N) segments each having an excitation segment of duration (τ_p) during which RF power is on, followed by a quiescent segment in which RF power is off and during which the time domain signal is acquired (auxiliary requests 3 and 4) is shown by Figure 1 and mentioned in the last paragraph of the left-hand column of page 343 of D9.

Therefore, the subject-matter of claim 1 of each of auxiliary requests 1 to 4 lacks novelty with respect to the teaching of document D9.

3.3 In consequence, none of auxiliary requests 1 to 4 is allowable.

4. Auxiliary request 5 - admission into the proceedings (Article 13(1) RPBA)

Auxiliary request 5 was filed at a late stage of the oral proceedings before the Board.

4.1 Claim 1 of auxiliary request 5 is based on claim 1 of auxiliary request 2 and further amended in that the sweeping excitation is defined as "*being based on rapid passage in the linear region or based on intermediate passage in the linear region*" and in that the sequence of RF pulses is defined as "*comprising no quiescent segments*" so that further the "*time domain signal*" is acquired "*simultaneously*" "*during the pulse duration*" "*by decoupling a transmitter, which is transmitting the RF pulses, from a receiver, which is acquiring the time domain signal*".

4.2 In the appellant's view, these amendments distinguished the claimed subject-matter from the teaching of document D9. Whereas document D9 referred exclusively to a variant of the SWIFT method which became known as "*gapped SWIFT*", because the signal was acquired during quiescent segments of an excitation pulse, the subject-matter of claim 1 of auxiliary request 5 referred to a variant, dubbed "*continuous SWIFT*", for which the excitation pulses did not possess quiescent segments so that the signal acquisition took place strictly simultaneously with the excitation.

Although the request was filed at a late stage of the proceedings, it should be admitted into the proceedings for several reasons. The appellant had not expected

that the Board would consider the subject-matter of auxiliary requests 1 to 4 not to be entitled to the claimed priority, despite the deletion therefrom of the feature concerning the rapid or intermediate passage in the linear region, which feature had been identified in the Board's communication as the only obstacle to validly claim priority. Therefore, the Board's finding that document D9 belonged to the prior art for the subject-matter of auxiliary requests 1 to 4 created a new, unexpected situation for the appellant to which it should be given an opportunity to react. Moreover, the new request was closely based on existing auxiliary request 2, the amendments to which concerned features which had already played a role in the course of the proceedings.

- 4.3 Article 13(1) of the Rules of Procedure of the Boards of Appeal (RPBA) stipulates that *"Any amendment to a party's case after it has filed its grounds of appeal or reply may be admitted and considered at the Board's discretion. The discretion shall be exercised in view of inter alia the complexity of the new subject-matter submitted, the current state of the proceedings and the need for procedural economy."*

One of the criteria established by the case law of the boards of appeal for exercising this discretion is whether or not the amendments render the claimed subject-matter *prima facie* clearly allowable (see chapter IV.E.4.4.1 of the 7th edition (2013) of Case Law of the Boards of Appeal of the European Patent Office).

- 4.4 Contrary to the appellant's assertions, this is not the case for the subject-matter of auxiliary request 5.

Although the appellant correctly observes that Figure 1 of D9 and the corresponding description on page 343 refer to signal acquisition during quiescent pulse segments, D9 does not present this feature as an indispensable element of the SWIFT technique. The skilled person, who is familiar with the basic concepts of MRI, is aware of the purpose that is served by the quiescent segments in the example of Figure 1 of D9, namely to reduce the effects of an inadvertent coupling between the RF transmitter and the receiver.

On the other hand, it is basic knowledge in the field of nuclear magnetic resonance that an RF excitation incites a virtually instantaneous response of the spin system which is observable as a resonance signal. Indeed, D9 points to this fact at various occasions :
"*negligible time between excitation and signal acquisition*" (D9 : abstract);
"*The main advantage of SWIFT originates in its nearly simultaneous excitation and acquisition scheme.*" (D9 : page 343, third paragraph of the left-hand column);
"*Following the excitation time ..., the ensuing evolution resembles a FID.*" (D9 : second paragraph of the right-hand column of page 346) or the general reference to the occurrence of an instantaneous transverse magnetization (*i.e.* of an observable signal) (D9 : Figure 2 and the first paragraph of the right-hand column of page 344).

Therefore, the skilled person has no reason to delay signal acquisition if he disposes of equipment for which the receiver is decoupled from the RF transmitter. Any measures as to how and by which means such a decoupling would be achieved are not the subject of claim 1 of auxiliary request 5 and, besides, are not apparent from the present application as a whole.

The appellant's allegation that it was specifically the sweep by rapid or intermediate passage in the linear region which allowed for a reduction of the excitation power and thus reduced any inadvertent coupling between transmitter and receiver is not convincing. First of all, D9 expressly foresees an operation in the regime of a rapid or intermediate passage in the linear region and thus, implicitly, an operation with reduced power of excitation. Moreover, a reduction of the excitation power in comparison to another regime of operation results in a corresponding reduction of the signal amplitudes so that, judged on a prima facie basis, no advantage is gained as regards the signal-to-noise ratio and the problem of decoupling.

For these reasons, none of the amendments made to auxiliary request 5 renders the claimed subject-matter inventive (Article 56 EPC) and the request would clearly not be allowable.

4.5 As a result, in the oral proceedings the Board exercised its discretion under Article 13(1) RPBA and did not admit auxiliary request 5 into the proceedings.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar:

The Chairman:



R. Schumacher

G. Assi

Decision electronically authenticated