PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

To:

see form PCT/ISA/220

PCT

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43*bis*.1)

Date of mailing
(day/month/year)   see form PCT/ISA/210 (second sheet)

Applicant's or agent's file reference	**FOR FURTHER ACTION**
see form PCT/ISA/220	See paragraph 2 below

International application No.	International filing date *(day/month/year)*	Priority date *(day/month/year)*
PCT/EP2018/073491	31.08.2018	08.09.2017

International Patent Classification (IPC) or both national classification and IPC
INV. G16H30/40 G16H30/20

Applicant
KONINKLIJKE PHILIPS N.V.

1. This opinion contains indications relating to the following items:

   ☒ Box No. I   Basis of the opinion

   ☐ Box No. II   Priority

   ☐ Box No. III   Non-establishment of opinion with regard to novelty, inventive step and industrial applicability

   ☐ Box No. IV   Lack of unity of invention

   ☒ Box No. V   Reasoned statement under Rule 43*bis*.1(a)(i) with regard to novelty, inventive step and industrial applicability; citations and explanations supporting such statement

   ☐ Box No. VI   Certain documents cited

   ☐ Box No. VII   Certain defects in the international application

   ☒ Box No. VIII   Certain observations on the international application

2. **FURTHER ACTION**

   If a demand for international preliminary examination is made, this opinion will usually be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notifed the International Bureau under Rule 66.1*bis*(b) that written opinions of this International Searching Authority will not be so considered.

   If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

   For further options, see Form PCT/ISA/220.

Name and mailing address of the ISA:	Date of completion of this opinion	Authorized Officer
European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Fax: +49 89 2399 - 4465	see form PCT/ISA/210	Menschner, Philipp Telephone No. +49 89 2399-0

Box No. I   Basis of the opinion

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1. With regard to the **language**, this opinion has been established on the basis of:

   ☒   the international application in the language in which it was filed.

   ☐   a translation of the international application into , which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1 (b)).

2. ☐   This opinion has been established taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91 (Rule 43*bis*.1(a))

3. ☐   With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, this opinion has been established on the basis of a sequence listing:

   a.   ☐   forming part of the international application as filed:

   ☐   in the form of an Annex C/ST.25 text file.

   ☐   on paper or in the form of an image file.

   b.   ☐   furnished together with the international application under PCT Rule 13*ter*.1(a) for the purposes of international search only in the form of an Annex C/ST.25 text file.

   c.   ☐   furnished subsequent to the international filing date for the purposes of international search only:

   ☐   in the form of an Annex C/ST.25 text file (Rule 13*ter*.1(a)).

   ☐   on paper or in the form of an image file (Rule 13*ter*.1(b) and Administrative Instructions, Section 713).

4. ☐   In addition, in the case that more than one version or copy of a sequence listing has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that forming part of the application as filed or does not go beyond the application as filed, as appropriate, were furnished.

5. Additional comments:

Box No. V   Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes:	Claims	1-20
	No:	Claims	
Inventive step (IS)	Yes:	Claims	
	No:	Claims	1-20
Industrial applicability (IA)	Yes:	Claims	1-20
	No:	Claims	

2. Citations and explanations

see separate sheet

Box No. VIII   Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

see separate sheet

Re Item V

Reasoned statement with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1	**State of the art**

Reference is made to the following documents:

D1   US 2016/275709 A1 (GOTMAN SHLOMO [IL] ET AL) 22 September 2016 (2016-09-22)

D2   WO 2016/116795 A1 (KONINKL PHILIPS NV [NL]) 28 July 2016 (2016-07-28)

2	**Clarity (Article 6 PCT)**

2.1   The application does not meet the requirements of Article 6 PCT, because claims 1, 14 and 18 are not clear (see section 4 below).

3	**Inventive step (Article 33(3) PCT)**

3.1   Furthermore, the above-mentioned lack of clarity notwithstanding, the subject-matter of claims 1-20 does not involve an inventive step in the sense of Article 33(3) PCT, and the criteria of Article 33(1) PCT are therefore not met.

3.2   Independent claims 1, 14 and 18:

1. Assessment of inventive step of mixed-type inventions

Claim 1 comprises technical and non-technical features. The assessment of inventive step is therefore carried out in accordance with section G-VII, 5.4 of the PCT-Guidelines for Examination.

In the case of claims comprising technical and non-technical features, only those features which contribute to the technical character of the invention are taken into account for the assessment of inventive step.

2. Closest prior art and distinguishing features

D1 is considered to be the prior art closest to the subject-matter of claim 1 and discloses the following features thereof, whereby features deemed not to be disclosed in D1 are ~~struck through~~ (references in parentheses applying to this document):

A computing system, comprising (Figure 1, [0024]):

a memory device configured to store image visualization application software, spectral imaging data, and spectral image reconstruction algorithms,wherein the image visualization application software is configured to read electronic files containing images and formatted in a first format, the spectral imaging data is formatted in a second different format, ~~which the image visualization application software cannot read and/or interpret,~~ and the spectral image reconstruction algorithms are configured to read electronic files formatted in the second different format ([0026] "visualization instructions"; [0008] and [0026] disclosing that different processing algorithms can be applied to an image for different views);

a processor configured to access at least one of the spectral image reconstruction algorithms through a proprietary software interface and process the spectral imaging data with the at least one of the spectral image reconstruction algorithms to produce a spectral image ([0008] and [0027] disclose different processing algorithms for spectral images, also [0030], [0045]),

and configured to execute the image visualization application software to construct a graphical user interface with an image viewport displaying the spectral image ([0028] and Fig. 2 disclosing displaying/visualisation of the results);

and
a display configured to display the graphical user interface with the spectral image displayed in the viewport (Fig. 2 and [0024] and [0036]).

3. Analysis of the technical character of the distinguishing features

3.1   The distinguishing features – *when taken in isolation* – are all non-technical for the following reasons:

Whether the software cannot read or interpret the image data merely relies to administrative considerations for software interfaces, which is considered non-technical as such. Further, neither the claim wording nor the description present any hints or technical details that go beyond the mere statement that the software cannot fulfil this without providing any technical evidence.

3.2 Features which are non-technical when taken in isolation may nevertheless contribute to the technical character of an invention if, in the context of the invention, they contribute to producing a technical effect serving a technical purpose (PCT-Guidelines G-VII, 5.4, second paragraph).

3.3 In the present case, the distinguishing features do not contribute to the technical character of the invention for the reasons following.

3.3.1 Purpose and effect

The purpose which these distinguishing features serve in the context of claim 1 is to display or visualize data in a format that the claimed system is not able to do, i.e. this merely relates to transforming data formats based on administrative considerations.

This purpose is non-technical because it merely relates to a straightforward implementation of administrative or user-specific considerations (in particular synchronisation of data formats desired by the user), without providing any technical effect.

3.3.2 Thus, the distinguishing features of claim 1 do not, in the context of the invention, contribute to the technical character of the invention and therefore cannot support the presence of an inventive step.

4. Conclusion regarding inventive step

As claim 1 does not comprise any feature making a technical contribution over the teaching of D1, it cannot be regarded as involving an inventive step within the meaning of Article 33 PCT(PCT-Guidelines G-VII, 5.4(iii)(b)).

5. Further remarks

Notwithstanding the aforementioned objection of lack of an inventive step, the applicant's attention is drawn to the fact that claim 1 appears to contain more features – disclosed in D1– which do not contribute to the technical character of the claimed invention and cannot, therefore, support the presence of an inventive step in the sense of Article 33 PCT (see PCT-Guidelines G-VII, 5.4 in combination with G-II, 3):

It is at present not apparent, which technical effect is achieved by the presentation and display of spectral data to a user. In particular, it is not apparent how this could credibly assist the user in performing whatever technical task to be achieved.

Should the applicant rely on any of these features when providing arguments for the presence of an inventive step, it will be necessary to substantiate why said features are considered by the applicant to make a technical contribution over D1, i.e. to contribute to a technical effect for solving a technical problem over D1.

The same argumentation applies, mutatis mutandis, to the corresponding claims 14 and 18.

For the sake of completeness, a similar argumentation could have been substantiated starting from D2 as closest prior art (see the passages cited in the search report). D2 discloses a method and system for displaying segmented images based on different spectral algorithms.

3.3   Dependent claims 2-13, 15-17, 19 and 20:

With regard to claims 2, 15, and 19:

The DICOM format is well known to the skilled person and would be obvious when exchanging medical images, therefore cannot be considered to invole an inventive step.

With regard to claims 3, 4, 16 and 20:

D1 further discloses storage and display of non-spectral imaging data (e.g. [0019], [0058]), and several algorithms for spectral image reconstruction (e.g. [0023], [0027], [0034]).

With regard to claims 5-13:

D1 further discloses a menu for selecting different algorithms, a split screen format etc. (e.g. Figure 2, [0045], [0051]). Further, these features merely relate to user driven requirements for presentation of information, therefore any features merely directed to improved cognitive processes of a human

mind (i.e. a medical professional being able to better interpret the results) would not lead to a technical effect serving a technical purpose. The subject-matter of said claims therefore do not contribute to provide an inventive step.

With regard to claim 17:

D1 further discloses a computer system to carry out the method (e.g. [0025]).

Re Item VIII

Certain observations on the international application

4   **Clarity (Article 6 PCT)**

4.1   The application does not meet the requirements of Article 6 PCT, because claims 1, 14 and 18 are not clear.

4.2   Claims 1, 14 and 18 do not meet the requirements of Article 6 PCT because the matter for which protection is sought is not clearly defined. The claim attempts to define the subject-matter in terms of the result to be achieved, which merely amounts to a statement of the underlying problem, without providing the technical features necessary for achieving this result, i.e. determining an unspecified display of medical images that are reconstructed based on unspecified parameters.

In particular, the disclosed method infers the determination of an unspecified reconstruction algorithm by unspecified calculations based on unspecified values to produce a spectral image that is displayed to the user.

4.3   As a further consequence, it seems doubtful whether the application discloses sufficient information for the skilled person to carry out the calculations for determining the reconstruction of the image.