

# PATENT COOPERATION TREATY

# PCT

From the INTERNATIONAL SEARCHING AUTHORITY

To:  
 Van Iersel, Hannie  
 Philips International B.V.  
 Intellectual Property & Standards  
 High Tech Campus 5  
 5656 AE Eindhoven  
 PAYS-BAS

INVITATION TO PAY ADDITIONAL FEES  
 AND, WHERE APPLICABLE, PROTEST FEE  
 (PCT Article 17(3)(a) and Rule 40.1 and 40.2(e))

	Date of mailing <i>(day/month/year)</i>
	17 December 2018 (17-12-2018)
Applicant's or agent's file reference 2017P01606WO	<b>PAYMENT DUE</b> within <b>ONE MONTH</b> from the above date of mailing
International application No. PCT/EP2018/073908	International filing date <i>(day/month/year)</i>
	5 September 2018 (05-09-2018)
Applicant  KONINKLIJKE PHILIPS N.V.	

1. This International Searching Authority

(i) considers that there are 2 *(number of)* inventions claimed in the international application covered by the claims indicated on an extra sheet:

(ii) therefore considers that **the international application does not comply with the requirements of unity of invention** (Rules 13.1, 13.2 and 13.3) for the reasons indicated on an extra sheet:

(iii)  has carried out a partial international search (see Annex)  will establish the international search report on those parts of the international application which relate to the invention first mentioned in claims Nos.:  
**see extra sheet**

(iv) will establish the international search report on the other parts of the international application only if, and to the extent to which, additional fees are paid.

2. Consequently, the applicant is hereby **invited to pay**, within the time limit indicated above, the amount indicated below:

<u>EUR 1.775,00</u>	x	<u>1</u>	=	<u>EUR 1.775,00</u>
Fee per additional invention		number of additional inventions		currency/total amount of additional fees

3. The applicant is informed that, according to Rule 40.2(c), **the payment of any additional fee may be made under protest**, i.e., a reasoned statement to the effect that the international application complies with the requirement of unity of invention or that the amount of the required additional fee is excessive, where applicable, subject to the payment of a protest fee.  
 Where the applicant pays additional fees under protest, the applicant is hereby invited, within the time limit indicated above, to pay a protest fee (Rule 40.2(e)) in the amount of EUR 875,00 *(currency/amount)*

Where the applicant has not, within the time limit indicated above, paid the required protest fee, the protest will be considered not to have been made and the International Searching Authority will so declare.

4.  Claim(s) Nos. \_\_\_\_\_ have been found to be unsearchable under Article 17(2)(b) because of defects under Article 17(2)(a) and therefore have not been included with any invention.

Name and mailing address of the International Searching Authority European Patent Office, P.B. 5818 Patentlaan 2 NL-2280 HV Rijswijk Tel. (+31-70) 340-2040 Fax: (+31-70) 340-3016	Authorized officer ULLRICH, Josef Tel: +49 (0)89 2399-8048
--	--

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-8, 17-20

Device and method with a dynamically adjustable bowtie filter

---

2. claims: 9-16

Computer readable storage medium with method for assessing acceptance of fluency levels.

---

Claim 1 relates to a device with a bowtie filter made of two half-wedges, with motors attached, which work with a controller to independently move these two half-wedges. This could possibly solve problems relating to a more dynamic set up.

Claim 9 however relates in effect to a method which only requires one wedge, and which estimates fluency of photons and acceptability of the results for a series of settings of the wedge.

There are no features which link these two claims, as they solve different problems with different features, with no features that correspond to each other. It is not possible to define a special, technical feature which finds its correspondence in both independent claims.

Claim 17, the method, is considered to belong to the first group, as it relates to the first and second half wedge and their movement, which finds its correspondence in claim 1.

1. The present communication is an Annex to the invitation to pay additional fees (Form PCT/ISA/206). It shows the results of the international search established on the parts of the international application which relate to the invention first mentioned in claims Nos.:
- see 'Invitation to pay additional fees'
2. This communication is not the international search report which will be established according to Article 18 and Rule 43.
3. If the applicant does not pay any additional search fees, the information appearing in this communication will be considered as the result of the international search and will be included as such in the international search report.
4. If the applicant pays additional fees, the international search report will contain both the information appearing in this communication and the results of the international search on other parts of the international application for which such fees will have been paid.

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 2012/174246 A2 (UNIV LELAND STANFORD JUNIOR [US]; PELC NORBERT J [US]; HSIEH SCOTT [US]) 20 December 2012 (2012-12-20) paragraph [0026] - paragraph [0071] -----	1-8, 17-20
X	US 2006/018435 A1 (TOTH THOMAS L [US] ET AL) 26 January 2006 (2006-01-26) paragraph [0016] - paragraph [0023]; figure 7 -----	1-8, 17-20
A	WO 2012/104751 A1 (KONINKL PHILIPS ELECTRONICS NV [NL]; PHILIPS INTELLECTUAL PROPERTY [DE]) 9 August 2012 (2012-08-09) page 7, line 26 - page 8, line 25 page 15, line 25 - page 16, line 16 -----	1-8, 17-20
A	US 2007/025520 A1 (THANDIACKAL LIJO J [US] ET AL) 1 February 2007 (2007-02-01) paragraph [0029] - paragraph [0046] -----	1-8, 17-20
A	EP 1 498 908 A2 (GE MED SYS GLOBAL TECH CO LLC [US]) 19 January 2005 (2005-01-19) paragraph [0022] - paragraph [0145] -----	1-8, 17-20

Further documents are listed in the continuation of box C.

Patent family members are listed in annex.

° Special categories of cited documents :

- "A" document defining the general state of the art which is not considered to be of particular relevance
- "E" earlier document but published on or after the international filing date
- "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- "O" document referring to an oral disclosure, use, exhibition or other means
- "P" document published prior to the international filing date but later than the priority date claimed

- "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- "&" document member of the same patent family

# Patent Family Annex

Information on patent family members

International Application No <b>PCT/EP2018/073908</b>
--

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 2012174246 A2	20-12-2012	US 2014192950 A1 WO 2012174246 A2	10-07-2014 20-12-2012
-----			
US 2006018435 A1	26-01-2006	CN 1736333 A DE 102005034518 A1 JP 4701029 B2 JP 2006026417 A NL 1029526 C2 US 2006018435 A1	22-02-2006 09-02-2006 15-06-2011 02-02-2006 07-08-2007 26-01-2006
-----			
WO 2012104751 A1	09-08-2012	CN 103339497 A EP 2671069 A1 JP 5869001 B2 JP 2014503828 A US 2013308848 A1 WO 2012104751 A1	02-10-2013 11-12-2013 24-02-2016 13-02-2014 21-11-2013 09-08-2012
-----			
US 2007025520 A1	01-02-2007	NONE	
-----			
EP 1498908 A2	19-01-2005	CN 1575766 A EP 1498908 A2 JP 4041025 B2 JP 2005034173 A KR 20050008512 A US 2005013411 A1	09-02-2005 19-01-2005 30-01-2008 10-02-2005 21-01-2005 20-01-2005
-----			

Application no:  
Demande n°: PCT/EP2018/073908  
Anmelde-Nr:

#### DISCLAIMER

The attached provisional opinion on the patentability of the first invention searched serves only as information.  
A reply addressing the points raised in the opinion is **not** required and will **not** be taken into account when issuing the final search report and opinion on patentability.

#### AVERTISSEMENT

L'avis provisoire ci-joint sur la brevetabilité de la première invention recherchée ne sert qu'à titre d'information.  
Une réponse abordant les points soulevés dans l'avis n'est **pas** nécessaire et ne sera **pas** prise en compte lors de l'établissement du rapport final de la recherche et de l'avis sur la brevetabilité.

#### DISCLAIMER

Die beigefügte vorläufige Stellungnahme zur Patentierbarkeit der ersten geprüften Erfindung dient lediglich zur Information.  
Eine Antwort auf die erhobenen Punkte in der Stellungnahme ist **nicht** erforderlich und bleibt bei der Erstellung des endgültigen Recherchenberichts und der Stellungnahme zur Patentierbarkeit **unberücksichtigt**.

1 **Re Item IV**

**Lack of unity of invention**

1.1 This Authority considers that the application does not meet the requirements of unity of invention and that there are 2 inventions covered by the claims indicated as follows:

Claims: 1-8, 17-20

Device and method with a dynamically adjustable bowtie filter

Claims: 9-16

Computer readable storage medium with method for assessing acceptance of fluency levels.

1.2 The reasons for which the inventions are not so linked as to form a single general inventive concept, as required by Rule 13.1 PCT, are as follows:

Claim 1 relates to a device with a bowtie filter made of two half-wedges, with motors attached, which work with a controller to independently move these two half-wedges. This could possibly solve problems relating to a more dynamic set up.

Claim 9 however relates in effect to a method which only requires one wedge, and which estimates fluency of photons and acceptability of the results for a series of settings of the wedge.

There are no features which link these two claims, as they solve different problems with different features, with no features that correspond to each other. It is not possible to define a special, technical feature which finds its correspondence in both independent claims.

Claim 17, the method, is considered to belong to the first group, as it relates to the first and second half wedge and their movement, which finds its correspondence in claim 1.

2 **Re Item V**

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

2.1 Reference is made to the following documents:

D1 WO 2012/174246 A2

D2 US 2006/018435 A1

- 2.2 The present application does not meet the criteria of Article 33(2) PCT, because the subject-matter of claim 1 is not new. The reasons are as follows.
- 2.3 D1 discloses (see D1, paragraph [0026] - paragraph [0071]) an imaging system (800), comprising: a radiation source (816) configured to emit radiation that traverses an examination region; a radiation detector array (824) having a plurality of detectors configured to detect the radiation traversing the examination region; a dynamic bowtie filter (820), disposed between the radiation source and the examination region, wherein the dynamic bowtie filter comprises a first half wedge (822) and a separate and distinct second half wedge with a material free space there between; a first motor (1104) in mechanical communication with the first half wedge, wherein the first motor is configured to move the first half wedge; a second motor in mechanical communication with the second half wedge, wherein the second motor is configured to move the second half wedge (see paragraph [0067]); and a controller (812) configured to independently control the first and second motors to move the first and second half wedges to increase or decrease a distance there between during an acquisition interval.
- 2.4 Furthermore, document D2 also shows (see D2, paragraph [0016] - paragraph [0023]; figure 7) an imaging system (12), comprising: a radiation source (14) configured to emit radiation that traverses an examination region; a radiation detector array (18) having a plurality of detectors (20) configured to detect the radiation traversing the examination region; a dynamic bowtie filter (76), disposed between the radiation source and the examination region, wherein the dynamic bowtie filter comprises a first half wedge and a separate and distinct second half wedge with a material free space there between (see figure 7); a first motor in mechanical communication with the first half wedge, wherein the first motor is configured to move the first half wedge; a second motor in mechanical communication with the second half wedge, wherein the second motor is configured to move the second half wedge; and a controller (26) configured to independently control the first and second motors to move the first and second half wedges to increase or decrease a distance there between during an acquisition interval.
- 2.5 The subject-matter of claim 1 is therefore already known in combination in the prior art, and the requirement of novelty, Article 33(2) PCT, is not complied with.
- 2.6 The same arguments apply, *mutatis mutandis*, to the corresponding method claim 17, which is also found as lacking in novelty, Article 33(2) PCT.

2.7 Dependent claims 2-8 and 18-20 do not contain any features which, in combination with the features of any claim to which they refer, meet the requirements of the PCT in respect of novelty and/or inventive step. The features claimed are either known from D1 or D2, or they amount to nothing more than trivial workshop modifications which a skilled person would effect without having to exercise any inventive skill, Article 33(3) PCT.

3 **Re Item VII**

**Certain defects in the international application**

- 3.1 Independent claims 1 and 17 are not in the two-part form in accordance with Rule 6.3(b) PCT, which in the present case would be appropriate, with those features known in combination from the prior art D1 being placed in the preamble (Rule 6.3(b)(i) PCT) and the remaining features being included in the characterising part (Rule 6.3(b)(ii) PCT).
- 3.2 Contrary to the requirements of Rule 5.1(a)(ii) PCT, the relevant background art disclosed in D1 and D2 is not mentioned in the description, nor are these documents identified therein.