

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference	<b>FOR FURTHER ACTION</b>		see Form PCT/ISA/220 as well as, where applicable, item 5 below.
International application No.	International filing date ( <i>day/month/year</i> )	(Earliest) Priority Date ( <i>day/month/year</i> )	
PCT/EP2019/082488	26 November 2019 (26-11-2019)	28 November 2018 (28-11-2018)	
Applicant			
KONINKLIJKE PHILIPS N.V.			

This international search report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This international search report consists of a total of 4 sheets.

It is also accompanied by a copy of each prior art document cited in this report.

1. **Basis of the report**

a. With regard to the **language**, the international search was carried out 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))

b.  This international search report has been established taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91 (Rule 43.6**bis**(a)).

c.  With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, see Box No. I.

2.  **Certain claims were found unsearchable** (See Box No. II)

3.  **Unity of invention is lacking** (see Box No III)

4. With regard to the **title**,

- the text is approved as submitted by the applicant  
 the text has been established by this Authority to read as follows:

5. With regard to the **abstract**,

- the text is approved as submitted by the applicant  
 the text has been established, according to Rule 38.2, by this Authority as it appears in Box No. IV. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority

6. With regard to the **drawings**,

- a. the figure of the **drawings** to be published with the abstract is Figure No. 3  
 as suggested by the applicant  
 as selected by this Authority, because the applicant failed to suggest a figure  
 as selected by this Authority, because this figure better characterizes the invention
- b.  none of the figures is to be published with the abstract

INTERNATIONAL SEARCH REPORT

International application No  
PCT/EP2019/082488

A. CLASSIFICATION OF SUBJECT MATTER  
INV. A61N1/36  
ADD. A61B5/0484

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)  
A61N A61B

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)  
EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	JIANG DAI ET AL: "A Multichannel High-Frequency Power-Isolated Neural Stimulator With Crosstalk Reduction", IEEE TRANSACTIONS ON BIOMEDICAL CIRCUITS AND SYSTEMS, IEEE, US, vol. 12, no. 4, 1 August 2018 (2018-08-01), pages 940-953, XP011688660, ISSN: 1932-4545, DOI: 10.1109/TBCAS.2018.2832541 [retrieved on 2018-08-14]	1-4,6-15
Y	figures 2, 3, 4, 5, 7 page 940, left-hand column, paragraph 1 - page 946, right-hand column, paragraph 1 ----- -/--	5

Further documents are listed in the continuation of Box C.

See patent family 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 application or patent 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

Date of the actual completion of the international search  19 February 2020	Date of mailing of the international search report  28/02/2020
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Name and mailing address of the ISA/ European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Fax: (+31-70) 340-3016	Authorized officer  Ließmann, Frank
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## INTERNATIONAL SEARCH REPORT

International application No  
PCT/EP2019/082488

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	IAN WILLIAMS ET AL: "An Energy-Efficient, Dynamic Voltage Scaling Neural Stimulator for a Proprioceptive Prosthesis", IEEE TRANSACTIONS ON BIOMEDICAL CIRCUITS AND SYSTEMS, IEEE, US, vol. 7, no. 2, 1 April 2013 (2013-04-01), pages 129-139, XP011507012, ISSN: 1932-4545, DOI: 10.1109/TBCAS.2013.2256906 the whole document	5
A	----- ILIC M ET AL: "A PROGRAMMABLE ELECTRONIC STIMULATOR FOR FES SYSTEMS", IEEE TRANSACTIONS ON REHABILITATION ENGINEERING, IEEE INC. NEW YORK, US, vol. 2, no. 4, 1 December 1994 (1994-12-01), pages 234-239, XP000500278, ISSN: 1063-6528, DOI: 10.1109/86.340875 the whole document	1-15
A	----- US 5 941 906 A (BARRERAS SR FRANCISCO J [US] ET AL) 24 August 1999 (1999-08-24) the whole document	1-15
A	----- EP 3 181 036 A1 (UNIVERSITÄT HEIDELBERG [DE]) 21 June 2017 (2017-06-21) the whole document -----	1-15

# INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/EP2019/082488

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 5941906	A	24-08-1999	NONE
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EP 3181036	A1	21-06-2017	EP 3181036 A1 21-06-2017
		WO 2017102083 A1	22-06-2017
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