

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference GOOGLE-2538	FOR FURTHER ACTION see Form PCT/ISA/220 as well as, where applicable, item 5 below.	
International application No. PCT/US2019/063628	International filing date (<i>day/month/year</i>) 27 November 2019 (27-11-2019)	(Earliest) Priority Date (<i>day/month/year</i>) 27 November 2018 (27-11-2018)
Applicant GOOGLE LLC		

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 3 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. 1
 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/US2019/063628

A. CLASSIFICATION OF SUBJECT MATTER
INV. H04R3/00
ADD.

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)
H04R H04S H04M

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	WO 2017/048476 A1 (APPLE INC [US]) 23 March 2017 (2017-03-23)	1-5,7,8, 11-15, 17,20
Y	paragraph [0012] - paragraph [0013] paragraphs [0034], [0060] -----	6,9,10, 16,18,19
X	US 2015/245129 A1 (DUSAN SORIN V [US] ET AL) 27 August 2015 (2015-08-27) paragraph [0019] - paragraph [0020] paragraphs [0033], [0042] -----	1-4, 11-14,20
Y	WO 2018/183020 A1 (MICROSOFT TECHNOLOGY LICENSING LLC [US]) 4 October 2018 (2018-10-04) paragraph [0056] -----	6,9,16, 18
Y	WO 2018/183636 A1 (BOSE CORP [US]) 4 October 2018 (2018-10-04) paragraph [0018] -----	10,19

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 31 January 2020	Date of mailing of the international search report 19/02/2020
--	--

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 De Haan, Aldert
--	---

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/US2019/063628

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 2017048476 A1	23-03-2017	CN 107852540 A	27-03-2018
		EP 3314907 A1	02-05-2018
		KR 20180021114 A	28-02-2018
		KR 20190044703 A	30-04-2019
		TW 201714460 A	16-04-2017
		TW 201830978 A	16-08-2018
		US 2017078780 A1	16-03-2017
		US 2017078781 A1	16-03-2017
		US 2017078785 A1	16-03-2017
		US 2018063621 A1	01-03-2018
		US 2019116415 A1	18-04-2019
		WO 2017048476 A1	23-03-2017

US 2015245129 A1	27-08-2015	US 2015245129 A1	27-08-2015
		US 2017127172 A1	04-05-2017

WO 2018183020 A1	04-10-2018	US 2018285056 A1	04-10-2018
		WO 2018183020 A1	04-10-2018

WO 2018183636 A1	04-10-2018	CN 110622524 A	27-12-2019
		EP 3603105 A1	05-02-2020
		US 2018286433 A1	04-10-2018
		WO 2018183636 A1	04-10-2018
