

## INTERNATIONAL SEARCH REPORT

International application No.

PCT/KR2018/010435

## A. CLASSIFICATION OF SUBJECT MATTER

*H04M 1/02(2006.01)i, H01Q 1/24(2006.01)i*

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)

H04M 1/02; H04B 1/38; H04B 1/40; H04M 1/60; H04R 1/10; H04R 25/00; H04R 3/00; H01Q 1/24

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

Korean Utility models and applications for Utility models: IPC as above

Japanese Utility models and applications for Utility models: IPC as above

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

eKOMPASS (KIPO internal) &amp; Keywords: earset, earthing, connector, microphone, audio codec

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	KR 10-2008-0069401 A (SAMSUNG ELECTRONICS CO., LTD.) 28 July 2008 See paragraphs [38]-[46], and figures 3-4.	1,10-11
A		2-9,12
Y	KR 10-1607899 B1 (NUVOTON TECHNOLOGY CORPORATION) 31 March 2016 See paragraph [35], and figure 3.	1,10-11
A	KR 10-2013-0017441 A (LG ELECTRONICS INC.) 20 February 2013 See paragraphs [86]-[106], and figure 3.	1-12
A	KR 10-2017-0080638 A (QINGDAO GOERTEK TECHNOLOGY CO., LTD.) 10 July 2017 See paragraphs [23]-[50], and figures 1-2.	1-12
A	US 2009-0052720 A1 (NISHII, Daisuke et al.) 26 February 2009 See paragraphs [60]-[98], and figures 1A-4.	1-12



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

"&amp;" document member of the same patent family

Date of the actual completion of the international search

13 DECEMBER 2018 (13.12.2018)

Date of mailing of the international search report

13 DECEMBER 2018 (13.12.2018)

Name and mailing address of the ISA/KR

Korean Intellectual Property Office  
Government Complex Daejeon Building 4, 189, Cheongsu-ro, Seo-gu,  
Daejeon, 35208, Republic of Korea

Facsimile No. +82-42-481-8578

Authorized officer

Telephone No.

**INTERNATIONAL SEARCH REPORT**  
Information on patent family members

International application No.

**PCT/KR2018/010435**

Patent document cited in search report	Publication date	Patent family member	Publication date
KR 10-2008-0069401 A	28/07/2008	NONE	
KR 10-1607899 B1	31/03/2016	CN 104519444 A KR 10-2015-0040738 A US 2015-0098579 A1 US 9338570 B2	15/04/2015 15/04/2015 09/04/2015 10/05/2016
KR 10-2013-0017441 A	20/02/2013	KR 10-1822939 B1	29/01/2018
KR 10-2017-0080638 A	10/07/2017	CN 104363547 A CN 104363547 B JP 2017-538355 A KR 10-1887322 B1 WO 2016-086805 A1	18/02/2015 26/09/2017 21/12/2017 06/09/2018 09/06/2016
US 2009-0052720 A1	26/02/2009	EP 1991029 A1 JP 5180058 B2 WO 2007-094377 A1	12/11/2008 10/04/2013 23/08/2007