

**INTERNATIONAL SEARCH REPORT**

International application No.

PCT/JP2020/020469

**A. CLASSIFICATION OF SUBJECT MATTER**

Int. Cl. H01F10/32(2006.01)i, C22C38/00(2006.01)i, B82Y10/00(2011.01)i, B82Y25/00(2011.01)i, H01L43/08(2006.01)i, G06F7/58(2006.01)i, H01L29/82(2006.01)i  
 FI: C06F7/58 680, H01L43/08 Z, H01L29/82 Z, B82Y10/00, B82Y25/00, H01F10/32, C22C38/00 303A

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)

Int. Cl. H01F10/32, C22C38/00, B82Y10/00, B82Y25/00, H01L43/08, G06F7/58, H01L29/82

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

Published examined utility model applications of Japan 1922-1996  
 Published unexamined utility model applications of Japan 1971-2020  
 Registered utility model specifications of Japan 1996-2020  
 Published registered utility model applications of Japan 1994-2020

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

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y A	JP 2011-13901 A (SONY CORP.) 20 January 2011, paragraphs [0028]-[0030], [0039], [0041], [0051], [0056], fig. 1, 4	1-3, 5-7 4, 8
Y A	US 2018/0165065 A1 (INTEL CORPORATION) 14 June 2018, paragraphs [0032]-[0041], [0044], fig. 1-2C, 3A	1-3, 5-7 4, 8
A	US 2010/0109660 A1 (WANG et al.) 06 May 2010, paragraphs [0020]-[0027], fig. 1, 2	1-8
A	JP 2008-310403 A (NATIONAL INSTITUTE OF ADVANCED INDUSTRIAL SCIENCE AND TECHNOLOGY) 25 December 2008, paragraphs [0010], [0028], [0029], [0037], fig. 1-3, 6	1-8

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 15.07.2020	Date of mailing of the international search report 28.07.2020
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Name and mailing address of the ISA/ Japan Patent Office 3-4-3, Kasumigaseki, Chiyoda-ku, Tokyo 100-8915, Japan	Authorized officer  Telephone No.
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**INTERNATIONAL SEARCH REPORT**  
Information on patent family members

International application No.  
PCT/JP2020/020469

Patent Documents referred to in the Report	Publication Date	Patent Family	Publication Date
JP 2011-13901 A	20.01.2011	(Family: none)	
US 2018/0165065 A1	14.06.2018	WO 2016/204750 A1 paragraphs [0032]- [0041], [0044], fig. 1-2C, 3A EP 3311264 A1 KR 10-2018-0018501 A CN 107995976 A TW 201706991 A	
US 2010/0109660 A1	06.05.2010	US 9087593 B2 column 2, line 57 to column 5, line 3, fig. 1, 2	
JP 2008-310403 A	25.12.2008	US 2010/0131578 A1 paragraphs [0021], [0076]-[0082], [0098]-[0101], fig. 1-3, 6 WO 2008/152845 A1 EP 2163984 A1	