



## SUPPLEMENTARY EUROPEAN SEARCH REPORT

Application number:  
EP 17 89 01 73

**Classification of the application (IPC):**  
H01Q 1/52, H01P 1/18, H01P 1/208, H01P 5/04, H01Q 21/28

**Technical fields searched (IPC):**  
H01P, H01Q

DOCUMENTS CONSIDERED TO BE RELEVANT		
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim
X	US 2007085540 A1 (DU JIAN J [CN] ET AL) 19 April 2007 (2007-04-19) * paragraphs [0002], [0009], [0043]; figure 14 *	1, 2, 11
X	US 2014300431 A1 (LYNCH JONATHAN J [US] ET AL) 09 October 2014 (2014-10-09) * paragraphs [0003], [0043], [0044]; figures 5a, 5b, 8 *	1, 2, 11
Y	US 2015195001 A1 (BARKER DAVID EDWIN [GB] ET AL) 09 July 2015 (2015-07-09) * paragraphs [0024], [0036]; figures 2, 6 *	1-11
Y	US 2015263420 A1 (WU KE-LI [CN] ET AL) 17 September 2015 (2015-09-17) * paragraphs [0017], [0034] - [0048]; figures 1-8, 11 *	1-11

The supplementary search report has been based on the last set of claims valid and available at the start of the search.

Place of search The Hague	Date of completion of the search 30 June 2020	Examiner Georgiadis, A
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### CATEGORY OF CITED DOCUMENTS

X: particularly relevant if taken alone	P: intermediate document
Y: particularly relevant if combined with another document of the same category	T: theory or principle underlying the invention
A: technological background	E: earlier patent document, but published on, or after the filing date
O: non-written disclosure	D: document cited in the application
& : member of the same patent family, corresponding document	L: document cited for other reasons

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## ANNEX TO SUPPLEMENTARY EUROPEAN SEARCH REPORT

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This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on 30-06-2020  
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Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 2007085540 A1	19-04-2007	CN 1941500 A	04-04-2007
		US 2007085540 A1	19-04-2007
US 2014300431 A1	09-10-2014	CN 104137339 A	05-11-2014
		CN 104769774 A	08-07-2015
		EP 2834881 A1	11-02-2015
		EP 2834885 A1	11-02-2015
		US 2014300431 A1	09-10-2014
US 2015195001 A1	09-07-2015	CN 106063233 A	26-10-2016
		EP 3092783 A1	16-11-2016
		JP 2017504264 A	02-02-2017
		KR 20160105805 A	07-09-2016
		US 2015195001 A1	09-07-2015
		WO 2015105803 A1	16-07-2015
US 2015263420 A1	17-09-2015	NONE	