

Title (en)

SUPER DIRECTIVE ARRAY OF VOLUMETRIC ANTENNA ELEMENTS FOR WIRELESS DEVICE APPLICATIONS

Title (de)

SUPERDIREKTIVE ANORDNUNG VON VOLUMETRISCHEN ANTENNENELEMENTEN FÜR ANWENDUNGEN IN DRAHTLOSEN VORRICHTUNGEN

Title (fr)

RÉSEAU SUPER-DIRECTIF D'ÉLÉMENTS D'ANTENNES VOLUMÉTRIQUES POUR APPLICATIONS DE DISPOSITIF SANS FIL

Publication

**EP 3549165 A4 20201223 (EN)**

Application

**EP 17877182 A 20171129**

Priority

- US 201615362988 A 20161129
- US 201662432973 P 20161212
- US 2017063559 W 20171129

Abstract (en)

[origin: WO2018102326A1] Antenna arrays that provide directive radiation over multiple frequencies, multiple polarizations, and/or operate in modes that reduce unnecessary radiation into a nearby human body. The arrays are particularly adapted for use with handheld wireless devices, such as smartphones, tablets, and cellular phones.

IPC 8 full level

**H01Q 1/24** (2006.01); **H01L 25/10** (2006.01); **H01Q 5/385** (2015.01); **H01Q 9/26** (2006.01); **H01Q 9/28** (2006.01); **H01Q 21/06** (2006.01); **H01Q 21/20** (2006.01); **H01Q 21/24** (2006.01); **H01Q 21/29** (2006.01)

CPC (source: EP)

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Citation (search report)

- [XYI] US 2014240186 A1 20140828 - ZHOU HONGYU [US], et al
- [Y] US 2007115199 A1 20070524 - APOSTOLOS JOHN T [US]
- [Y] US 2013222199 A1 20130829 - APOSTOLOS JOHN T [US], et al
- [Y] US 2005024281 A1 20050203 - APOSTOLOS JOHN T [US]
- [Y] US 2004090389 A1 20040513 - JO YOUNG-MIN [US], et al
- See references of WO 2018102326A1

Designated contracting state (EPC)

AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR

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**WO 2018102326 A1 20180607**; CN 110546761 A 20191206; EP 3549165 A1 20191009; EP 3549165 A4 20201223

DOCDB simple family (application)

**US 2017063559 W 20171129**; CN 201780084954 A 20171129; EP 17877182 A 20171129