

Title (en)

MULTI-FREQUENCY BAND COMMON-APERTURE ANTENNA AND COMMUNICATION DEVICE

Title (de)

MEHRFREQUENZBANDANTENNE MIT GEMEINSAMER APERTUR UND KOMMUNIKATIONSVORRICHTUNG

Title (fr)

ANTENNE À OUVERTURE COMMUNE À BANDE MULTIFRÉQUENCE ET DISPOSITIF DE COMMUNICATION

Publication

**EP 4220864 A4 20231129 (EN)**

Application

**EP 20956967 A 20201012**

Priority

CN 2020120485 W 20201012

Abstract (en)

[origin: EP4220864A1] A multi-band shared-aperture antenna and a communication device are provided. The multi-band shared-aperture antenna includes coupled array elements, a frequency combining unit, a low-frequency feed unit, and a high-frequency feed unit. The coupled array element is disposed on a reflection panel. The frequency combining unit is connected to the coupled array elements. The frequency combining unit includes a frequency combining layer. The frequency combining layer includes a frequency combiner. The frequency combiner includes an antenna port, a high-frequency port, and a low-frequency port. When there is one layer, the antenna port is connected to the coupled array element, the low-frequency port is connected to the low-frequency feed unit, and the high-frequency port is connected to the high-frequency feed unit. When there are at least two layers, between two adjacent layers, an upper-layer low-frequency port is connected to a lower-layer antenna port, a first-layer antenna port is connected to a coupled array element, a first-layer high-frequency port is connected to the high-frequency feed unit, a last-layer low-frequency port is connected to the low-frequency feed unit, and a last-layer high-frequency port is connected to the high-frequency feed unit. According to the foregoing technical solution, the antenna has a multi-frequency extension capability, and has a wide-angle beam scanning capability in frequency bands.

IPC 8 full level

**H01Q 5/42** (2015.01); **H01Q 1/24** (2006.01); **H01Q 3/36** (2006.01); **H01Q 21/06** (2006.01); **H01Q 21/26** (2006.01)

CPC (source: EP KR)

**H01Q 1/246** (2013.01 - EP); **H01Q 3/30** (2013.01 - KR); **H01Q 3/36** (2013.01 - EP); **H01Q 5/357** (2015.01 - KR); **H01Q 5/42** (2013.01 - EP); **H01Q 5/45** (2015.01 - KR); **H01Q 5/48** (2015.01 - KR); **H01Q 5/50** (2015.01 - KR); **H01Q 19/108** (2013.01 - KR); **H01Q 21/061** (2013.01 - EP); **H01Q 21/062** (2013.01 - KR); **H01Q 21/26** (2013.01 - EP); **H01Q 21/30** (2013.01 - KR)

Citation (search report)

- [A] US 2011267998 A1 20111103 - MEHARRY DAVID E [US], et al
- [A] ZHOU YONGGANG ET AL: "Tightly Coupled Array Antennas for Ultra-Wideband Wireless Systems", IEEE ACCESS, vol. 6, 4 October 2018 (2018-10-04), pages 61851 - 61866, XP011702998, DOI: 10.1109/ACCESS.2018.2873741
- [A] HUANG HAO ET AL: "Ultrawideband tightly coupled array for multiband communications at S-X frequencies", 2016 IEEE INTERNATIONAL WORKSHOP ON ELECTROMAGNETICS: APPLICATIONS AND STUDENT INNOVATION COMPETITION (IWEM), IEEE, 16 May 2016 (2016-05-16), pages 1 - 3, XP032919493, DOI: 10.1109/IWEM.2016.7504919
- See also references of WO 2022077185A1

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

Designated extension state (EPC)

BA ME

Designated validation state (EPC)

KH MA MD TN

DOCDB simple family (publication)

**EP 4220864 A1 20230802**; **EP 4220864 A4 20231129**; CN 116325363 A 20230623; JP 2023544437 A 20231023; KR 20230085169 A 20230613; WO 2022077185 A1 20220421

DOCDB simple family (application)

**EP 20956967 A 20201012**; CN 2020120485 W 20201012; CN 202080105245 A 20201012; JP 2023521865 A 20201012; KR 20237015748 A 20201012