

Title (en)

ANTENNA MODULE FOR A MOTOR VEHICLE

Title (de)

ANTENNENMODUL FÜR EIN KRAFTFAHRZEUG

Title (fr)

MODULE D'ANTENNE POUR VÉHICULE AUTOMOBILE

Publication

EP 4327406 A1 20240228 (DE)

Application

EP 22709174 A 20220216

Priority

- DE 102021203836 A 20210419
- DE 2022200021 W 20220216

Abstract (en)

[origin: WO202223078A1] The invention relates to an antenna module (10) for a motor vehicle (2), said antenna module (10) comprising at least one small electric AM-FM antenna (7) and a DAB antenna. According to the invention, the antenna module (10) has an antenna unit (5) which has a combination AM-FM antenna (7) and the DAB antenna (6), said antenna unit (5) having at least one first printed circuit board (24) with a first height in a first direction (z) and a first width in a second direction (x) perpendicular to the first direction (z), wherein helical antenna windings (7a, 6a) of the AM-FM antenna (7) and/or DAB antenna (6), which is at least partly designed as a planar helical antenna, are arranged on the at least one first printed circuit board (24), and the helical antenna windings (7a, 6a) at least largely run in the second direction (x). The at least one first telephone LTE 5G antenna (8) is arranged on a second printed circuit board (33) with a second height in the first direction (z) and a second width in a third direction (y) which differs from the first and second direction (x). Furthermore, tuners, transceivers, receivers, and bus systems as well as adjustment networks and amplifiers for the antennas can be integrated.

IPC 8 full level

H01Q 1/32 (2006.01); **H01Q 1/36** (2006.01); **H01Q 1/52** (2006.01); **H01Q 5/378** (2015.01); **H01Q 21/28** (2006.01)

CPC (source: EP US)

H01Q 1/3275 (2013.01 - EP US); **H01Q 1/36** (2013.01 - US); **H01Q 1/362** (2013.01 - EP); **H01Q 1/521** (2013.01 - EP); **H01Q 5/378** (2013.01 - EP); **H01Q 21/28** (2013.01 - EP US)

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)

DE 102021203836 A1 20221020; **DE 102021203836 B4 20221027**; CN 117223170 A 20231212; EP 4327406 A1 20240228; US 2024213661 A1 20240627; WO 202223078 A1 20221027

DOCDB simple family (application)

DE 102021203836 A 20210419; CN 202280029688 A 20220216; DE 2022200021 W 20220216; EP 22709174 A 20220216; US 202218287422 A 20220216