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GONZALEZ et al.(10) **Pub. No.: US 2023/0231319 A1**(43) **Pub. Date: Jul. 20, 2023**(54) **ANTENNA DEVICE, ARRAY OF ANTENNA DEVICES**(71) Applicant: **HUAWEI TECHNOLOGIES CO., LTD.**, Shenzhen (CN)(72) Inventors: **Ignacio GONZALEZ**, Munich (DE); **Grzegorz WOLOSINSKI**, Munich (DE); **Bruno BISCONTINI**, Munich (DE)(21) Appl. No.: **18/190,266**(22) Filed: **Mar. 27, 2023****Related U.S. Application Data**

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CPC **H01Q 21/061** (2013.01); **H01Q 5/10** (2015.01)(57) **ABSTRACT**

An antenna device, an array of antenna devices, and a base station having an antenna device. A radiator is configured to radiate an electromagnetic signal in a direction parallel to a radiating axis of the antenna device. The radiator has a substantially planar shape perpendicular to the radiating axis and a resonant structure adjacent to the radiator. The resonant structure has a substantially planar shape parallel to the radiator, wherein the radiator is configured to radiate the electromagnetic signal in a first frequency band and the resonant structure is configured to have a resonant frequency within the first frequency band.

