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(54) Title: MULTI-FREQUENCY BAND COMMON-APERTURE ANTENNA AND COMMUNICATION DEVICE

(54) 发明名称: 一种多频段共口径天线及通信设备

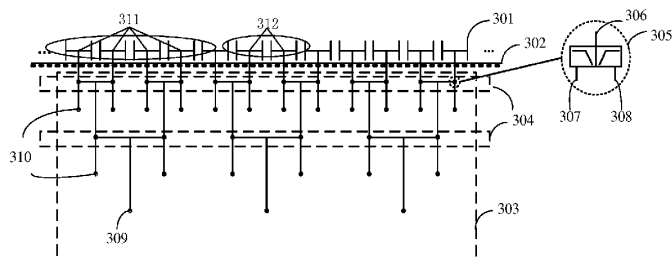


图 3a

(57) Abstract: Provided are a multi-frequency band common-aperture antenna and communication device; the multi-frequency band common-aperture antenna comprises a coupled array element, a frequency splitting and combining unit, a low-frequency feed unit, and a high-frequency feed unit; the coupled array element is arranged on a reflector plate; the frequency splitting and combining unit is connected to the coupled array element; the frequency splitting and combining unit comprises a frequency splitting and combining layer; the frequency splitting and combining layer comprises a frequency division combiner; the frequency division combiner comprises an antenna port, a high-frequency port, and a low frequency port; at 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 connected to the high-frequency feed unit; at at least two layers, between two adjacent layers, the upper-layer low-frequency port is connected to the lower-layer antenna port, the first-layer antenna port is connected to the coupled array element, the first-layer high-frequency port is connected to the high-frequency feed unit, the last-layer low-frequency port is connected to the low-frequency feed unit, and the last-layer high-frequency port is connected to the high-frequency feed unit. Using the described technical solution enables an antenna to have multifrequency expansion capability, and to have broader beam scanning capability in all frequency bands.

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ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US,
UZ, VC, VN, WS, ZA, ZM, ZW。

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本国际公布:

— 包括国际检索报告 (条约第21条(3))。

(57) 摘要: 一种多频段共口径天线及通信设备, 该多频段共口径天线包括耦合阵元、分频合路单元、低频馈电单元、高频馈电单元; 耦合阵元设置在反射板上; 分频合路单元与耦合阵元连接, 分频合路单元包括分频合路层, 分频合路层包括分频合路器, 分频合路器包括天线端口、高频端口及低频端口, 一层时, 天线端口与耦合阵元连接, 低频端口与低频馈电单元连接, 高频端口与高频馈电单元连接; 至少两层时, 相邻两层间, 上层低频端口与下层天线端口连接, 首层天线端口与耦合阵元连接, 首层高频端口与高频馈电单元连接, 末层低频端口与低频馈电单元连接, 末层高频端口与高频馈电单元连接。利用上述技术方案, 使得天线具备多频扩展能力, 在各频段都有较宽的波束扫描能力。