

ABSTRACT

MULTI-BAND SHARED-APERTURE ANTENNA AND COMMUNICATION DEVICE

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.

Figure 3a