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(57) Abstract :

The present disclosure relates to an inverted marquee shaped compact and conformal four-port configured mm-wave MIMO antenna for 5G applications. The antenna structure (500) is designed with a pentagon patch on a full ground, measuring $12 \times 12 \times 0.254 \text{ mm}^3$, on a Rogers-Duroid-5880 substrate (504) with specific dielectric properties. Initially designed and analysed a single-port antenna using a simulator, the antenna's characteristics evaluated. Subsequently, the single-port antenna is transformed into a four-port MIMO configuration to enhance capacity and data rate, with all results obtained through simulation. A stub (512) is introduced for impedance matching at both frequencies. A 50 Ω microstrip feed excites the element, resonating at 28 GHz with an impedance bandwidth of 0.9 GHz, covering the n261 band, and at 38 GHz and 39 GHz with a 2 GHz bandwidth, encompassing the n260 band for 5G applications.

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