

## The Design of Broadband 8x2 Phased Array 5G Antenna MIMO 28 GHz for Base Station

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**Abstract :** This paper proposed a design of 16 elements, 8x2 linear fed patch antenna array with 16 ports, for 28 GHz, mm-wave band 5G for base station. The phased array covers along the azimuth plane to provide the coverage to the users in omnidirectional. The proposed antenna is designed RT Duroid 5880 substrate with the overall size of 85x35.6x0.787 mm<sup>3</sup>. The array is operating from 27.43 GHz to 28.34 GHz with a 910 MHz impedance bandwidth. The gain of the array is 18.3 dB, while the suppression of the side lobes is -1.0 dB. The main lobe direction of the array is 15 deg. The array shows a high array gain throughout the impedance bandwidth with overall of VSWR is below 1.12. The design will be proposed in single element and 16 elements antenna.

**Keywords :** 5G antenna, 28 GHz, MIMO, omnidirectional, phased array, base station, broadband

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