Abstract

In this paper, microstrip antenna array is discussed. The proposed antenna array is designed for millimeter-wave applications targeting the 24.25 GHz to 27.5 GHz and 26.5 GHz to 29.5 GHz range of the frequency spectrum. The dielectric substrate considered is the Rogers RT Duroid 6002. Initially, a conventional antenna is designed and simulated. The basic design is studied first and then is subjected to the next stage in the design. A 2X1 microstrip antenna array is later evolved from the initial conventional design whose radiation characteristics are studied. Later stage, another 2X1 antenna array is connected, which makes the end structure a combination of two 2X1 microstrip antenna array connected back to back. The end result is a 4 element antenna array with dual-band characteristics with S11 parameter -32.88 dB at 24.67 GHz with a gain of 8.67 dB and -35.07 dB at 29.35 GHz with a gain of 10.30 dB. The end structure is compared with the initial and intermediate stage designs in terms of S11, gain and VSWR and important findings are tabulated.


**Index Terms**

Computer Science  
Communications

**Keywords**

Millimeter-wave communications, dual-band antenna, 5G applications, mm-Wave.