

Multi-band notched patch antenna for 5G applications

ABSTRACT

In this paper, a multi-band notched patch antenna designed for 5G applications is presented. The extensive mobile usage and high data rate are among the applications that push 5G technology research. The proposed antenna is modified by introducing three pairs of notches to resonate additional frequency bands. The antenna operates at 27.3GHz and 49.2GHz for cellular network applications; and 60.75GHz and 75.38GHz for WiGig applications. The total antenna dimensions are 10x6.8x0.79 mm³. The simulated results of the proposed antenna show a total wide bandwidth of 4.1GHz at the lower bands and 7.5GHz at the higher bands. The design demonstrates a high gain at all operating bands that is suitable for 5G applications.

Keyword: 5G; 28GHz; WiGig; 60GHz; Millimeter-wave; Multi-band; Patch antenna