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# Ultra-Wide Band Microstrip Patch Antenna for Millimetre-Wave Band Applications

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### Abstract

This paper presents the design for a compact microstrip patch antenna that operates in the Ka band with dimensions (13  $\times$  13) mm<sup>2</sup> and is applicable for 5G communication. The antenna resonates at a central frequency of 34.2 GHz, providing a gain of 7.5 dB. It comprises of a partial ground structure in order to provide a large bandwidth ranging from 24.1 to 49.9 GHz. This antenna has been simulated on Ansys HFSS 19.1 using Rogers RO4003, of dielectric constant 3.55, as the substrate.

#### Keywords

Ka band Millimetre Wave (mmWave) Partial grounds Ultra-wide band Ansys HFSS This is a preview of subscription content, access via your institution.

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