

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202341050227 A

(19) INDIA

(22) Date of filing of Application :26/07/2023

(43) Publication Date : 01/09/2023

(54) Title of the invention : Design of Ultra Compact Dual-band 26/38 GHz monopole Antenna for 5G mm-wave applications

(51) International classification :H01Q0009040000, H01Q0001380000, H01Q0001240000, H01Q0021060000, H01Q0001500000
(86) International Application No :PCT//
Filing Date :01/01/1900
(87) International Publication No : NA
(61) Patent of Addition to Application Number :NA
Filing Date :NA
(62) Divisional to Application Number :NA
Filing Date :NA

(71)Name of Applicant :

1)Shaik Idrish

Address of Applicant :19-2-8/3g, NV palem -----

2)Dr. S. Krishna Veni

3)Gatram mahesh

4)Kakumanu Nagaraju

Name of Applicant : NA

Address of Applicant : NA

(72)Name of Inventor :

1)Shaik Idrish

Address of Applicant :19-2-8/3g, NV palem -----

2)Dr. S. Krishna Veni

Address of Applicant :Dr. S. Krishna Veni, Department of Electronics and Communication Engineering, Gayatri Vidya Parishad College for Degree and PG Courses, Vishakhapatnam-530003, Andhra Pradesh, India Vishakhapatnam -----

3)Gatram mahesh

Address of Applicant :Mr. Gatram Mahesh, Assistant Professor, Department of Electronics and Communication Engineering, Bapatla Engineering College, Bapatla-522102, Andhra Pradesh, India Bapatla -----

4)Kakumanu Nagaraju

Address of Applicant :Mr. Kakumanu Nagaraju, Department of Electronics and Communication Engineering, Bapatla Engineering College, Bapatla-522102, Andhra Pradesh, India Bapatla -----

(57) Abstract :

The present invention discloses a dual-band mm-wave microstrip antenna featuring parasitic elements was proposed for use in 5G NR n-258 and n-260 band applications. The modified Y-shaped main patch, the secondary three parasitic patch elements, and the square looping partial ground plane were used to model the dual-band composite patch antenna. The major Y-shaped patch was fed using the strip line feed technique, and the secondary parasitic patches were fed indirectly via edge coupling with the primary patch. With measurements of 6.8x6.8x0.4 mm³, this modified patch structure was put on a Rogers's 5880 substrate (dielectric constant 2.2). This embedded antenna's radiating structure resonated in two mm-wave bands: the first, from 23.61- 27.73 GHz, with a center frequency of 26 GHz with a bandwidth of 4.25GHz, and the second, from 37.33 to 38.63 GHz, with a center frequency of 38.00 GHz and 1.4GHz bandwidth obtained. 5.04 dBi and 6.15 dBi were the maximum gains obtained over the first and second band, and greater than 95% radiation efficiency was observed over both bands. From the results extracted, it was found that the antenna is capable of covering the 5G NR n-258 and n-260 bands with significant bandwidth, gain, and efficiency.

No. of Pages : 18 No. of Claims : 4