

(54) Title of the invention : A COMPACT WIDEBAND FOUR-ELEMENT MIMO ANTENNA FOR 5G (SUB-6GHZ) COMMUNICATION.

<p>(51) International classification :H01Q0009040000, H01Q0001380000, H01Q0001520000, H01Q0021280000, H01Q0001500000</p> <p>(86) International Application No :NA Filing Date :NA</p> <p>(87) International Publication No : NA</p> <p>(61) Patent of Addition to Application Number :NA Filing Date :NA</p> <p>(62) Divisional to Application Number :NA Filing Date :NA</p>	<p>(71)Name of Applicant :</p> <p>1)Jetti Chandrasekhar Rao Address of Applicant :Associate Professor, Department of Electronics and Communication Engineering Bapatla Engineering College, Bapatla 522102, Andhra Pradesh, India -----</p> <p>2)Bapatla Engineering College</p> <p>3)Motamarri Venkata Vignesh</p> <p>4)Vinayakupuram Lakshmi Sirisha</p> <p>5)Jetti Anusha</p> <p>6)Bejjam Pavani</p> <p>7)Gurram Hima Bindhu</p> <p>Name of Applicant : NA Address of Applicant : NA</p> <p>(72)Name of Inventor :</p> <p>1)Jetti Chandrasekhar Rao Address of Applicant :Associate Professor, Department of Electronics and Communication Engineering Bapatla Engineering College, Bapatla 522102, Andhra Pradesh, India -----</p> <p>2)Motamarri Venkata Vignesh Address of Applicant :Mr. Motamarri Venkata Vignesh, Department of ECE, Bapatla Engineering College, Bapatla-522102, Andhra Pradesh, India. Bapatla -----</p> <p>3)Vinayakupuram Lakshmi Sirisha Address of Applicant :Ms. Vinayakupuram Lakshmi Sirisha, Department of ECE, Bapatla Engineering College, Bapatla-522102, Andhra Pradesh, India. Bapatla -----</p> <p>4)Jetti Anusha Address of Applicant :Ms. Jetti Anusha, Department of ECE, Bapatla Engineering College, Bapatla-522102, Andhra Pradesh, India. Bapatla ----</p> <p>-----</p> <p>5)Bejjam Pavani Address of Applicant :Ms. Bejjam Pavani, Department of ECE, Bapatla Engineering College, Bapatla-522102, Andhra Pradesh, India. Bapatla ----</p> <p>-----</p> <p>6)Gurram Hima Bindhu Address of Applicant :Ms. Gurram Hima Bindhu, Department of ECE, Bapatla Engineering College, Bapatla-522102, Andhra Pradesh, India. Bapatla -----</p>
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(57) Abstract :

A new compact wideband four-element multiple input multiple output (MIMO) antenna working in the N41, N77, and N79 frequencies is disclosed in this invention for 5G communications. The antenna is of size 48mm x 36mm x 1.6mm and is made on FR-4 dielectric. The disclosed MIMO antenna is made up of four multi-slotted fork-shaped circular radiating patches (antenna element) and a slotted T-shaped defective ground plane. To produce the required working bands at 2.5GHz, 3.6GHz, and 4.65GHz frequency bands, the radiating patch was split with a rectangular slot, an inverted T-shaped stub, and multiple rectangular slots in the ground plane. The disclosed antenna operates with reasonable impedance matching at 2.5GHz (N41:2.49-2.69GHz), 3.6GHz (N77:3.3-4.2GHz), and 4.65GHz (N79:4.4-4.73GHz). Utilizing an inverted T-shaped rectangular stub in conjunction with a T-shaped decoupling structure enhances the MIMO antenna's impedance and isolation capabilities by over 15dB.

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