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<p>(51) International classification :H01Q0009040000, H01Q0001380000, H04L0005000000, H01Q0013020000, H05K0001020000</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 : <b>1)Dr. Puneet Khanna</b> Address of Applicant :Professor, Department of Electronics &amp; Communication Engineering, School of Engineering &amp; Technology, IFTM University, Moradabad, Uttar Pradesh, Pin Code: 244102 -----</p> <p><b>2)Dr. Neelu Trivedi</b> <b>3)Ms. Ayushi Bharadwaj</b> <b>4)Dr. Amar Sharma</b> <b>5)Dr. Pooja Sharma</b> <b>6)Dr. Shalu</b> <b>7)Ms. Kanchan Singh</b> <b>8)Ms. Debika Chaudhuri</b> Name of Applicant : NA Address of Applicant : NA</p> <p>(72)Name of Inventor : <b>1)Dr. Puneet Khanna</b> Address of Applicant :Professor, Department of Electronics &amp; Communication Engineering, School of Engineering &amp; Technology, IFTM University, Moradabad, Uttar Pradesh, Pin Code: 244102 -----</p> <p><b>2)Dr. Neelu Trivedi</b> Address of Applicant :Professor, Department of Electronics &amp; Communication Engineering, School of Engineering &amp; Technology, IFTM University, Moradabad, Uttar Pradesh, Pin Code: 244102 -----</p> <p><b>3)Ms. Ayushi Bharadwaj</b> Address of Applicant :Assistant Professor, Department of Electronics &amp; Communication Engineering, School of Engineering &amp; Technology, IFTM University, Moradabad, Uttar Pradesh, Pin Code: 244102 -----</p> <p><b>4)Dr. Amar Sharma</b> Address of Applicant :Associate Professor, Department of Electronics &amp; Communication Engineering, School of Engineering &amp; Technology, IFTM University, Moradabad, Uttar Pradesh, Pin Code: 244102 -----</p> <p><b>5)Dr. Pooja Sharma</b> Address of Applicant :Assistant Professor, Department of Electronics &amp; Communication Engineering, School of Engineering &amp; Technology, IFTM University, Moradabad, Uttar Pradesh, Pin Code: 244102 -----</p> <p><b>6)Dr. Shalu</b> Address of Applicant :Assistant Professor, Department of Electronics &amp; Communication Engineering, School of Engineering &amp; Technology, IFTM University, Moradabad, Uttar Pradesh, Pin Code: 244102 -----</p> <p><b>7)Ms. Kanchan Singh</b> Address of Applicant :Assistant Professor, Department of Electronics &amp; Communication Engineering, School of Engineering &amp; Technology, IFTM University, Moradabad, Uttar Pradesh, Pin Code: 244102 -----</p> <p><b>8)Ms. Debika Chaudhuri</b> Address of Applicant :Assistant Professor, Department of Electronics &amp; Communication Engineering, School of Engineering &amp; Technology, IFTM University, Moradabad, Uttar Pradesh, Pin Code: 244102 -----</p>
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(57) Abstract :

This invention relates to an ultra-wideband triangular arc-cut microstrip patch antenna designed for high-frequency wireless communication applications in K and partial Ka bands. The antenna comprises a triangular radiating patch with arc-cut edges and an integrated C-shaped slot, fabricated on an FR4 substrate measuring 20x20x1.6 mm. The unique design achieves exceptional bandwidth performance through strategic edge cutting and slot integration, enabling operation across 15-36 GHz frequency range with 82.35% fractional bandwidth at 25.5 GHz center frequency. The antenna demonstrates superior return loss characteristics with multiple resonant frequencies at 19.72 GHz, 24.03 GHz, and 32.41 GHz, while maintaining compact dimensions suitable for satellite and mobile communication systems. The innovative geometry combines the advantages of triangular patch configuration with arc cutting techniques to enhance impedance matching and radiation characteristics. Experimental validation confirms excellent agreement between simulated and measured results, with gain values ranging from 1.7-5.2 dBi across the operating bandwidth, making it highly suitable for modern wireless communication applications.

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