

Chip Antenna with Vivaldi-Like Structure for W-Band Design

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Abstract—This paper proposes an application for a W-band chip antenna using the CMOS 180nm process. The chip size is $800\ \mu\text{m} \times 1200\ \mu\text{m}$, and it employs by Vivaldi-like antenna for design and performance analysis. The bandwidth of simulation is 99.3 - 114.8 GHz. The result of measurement shows that the reflection coefficient (S11) is 91.1 - 107.1 GHz. The antenna gain is simulated by high-frequency electromagnetic simulation software, which is about -5 dBi to -4 dBi, and the deepest resonance point is at 108 GHz, showing a gain of -4.6 dBi.

Keyword—Chip antenna, CMOS, fifth generation, millimeter-wave, W-band



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