

Conformal Leaky-Wave Antennas for Terahertz Wireless Links

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Abstract

We explore the performance of curved leaky-wave antennas in the terahertz range. We identify two distinct regimes in which the far-field emission pattern varies relative to that of a planar antenna. We show that a curved multi-aperture leaky-wave antenna can be used for agile far-field beam forming, and demonstrate high-gain wireless links at gigabit-per-second data rate with low bit error rate, in multiple directions simultaneously. This work lays the foundation for the implementation of terahertz leaky-wave structures in conformal geometries.