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Title:Sub-millimeter wave frequency scanning 8 1 antenna array

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Abstract:In this work, a sub-millimeter wave frequency scanning 8×1 element antenna array is presented for its use in a terahertz imaging system operating in the 220-330 GHz frequency band. The antenna array is formed by eight open ended waveguides, a phaseshifting network implemented with WR-3 rectangular waveguides and a power divider. Dielectric rods are used to improve the radiation patterns at large beam-steering angles. Prototypes of antenna arrays with and without the dielectric rods have been manufactured and experimentally characterized. A beam-steering range greater than 40° has been obtained for a frequency sweep between 270 GHz and 330 GHz.

Number of references:37

Main heading:Antenna arrays

Controlled terms:Frequency bands - Millimeter waves

Uncontrolled terms:Beam-steering - Dielectric rods - Element antenna - Frequency sweep - Open ended waveguides - Phase-shifting - Power divider - Submillimeters - Terahertz imaging systems - Wave frequencies

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