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Title:Design of a T-shaped terahertz imager
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Abstract:To achieve relatively high frame rates with relatively low costs, a T-shaped terahertz imaging system with beam-scanning function is presented. The system employs two orthogonally oriented co-polarized scanning fan-beam antennas arranged in a T-shaped configuration. Both transmitting and receiving antennas consist of a pyramid horn feed, a fixed elliptical main-reflector to generate thin fan beam, and a rotating sub-reflector to realize beam scanning function, all of which are embedded between two parallel metal plates. In this paper, specific design details of such a system were discussed, especially for the systematic method proposed to design a fan-beam scanning antenna with high performance. In addition, some experimental imaging results were shown, which demonstrated the capability of the system.
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Controlled terms:Design - Receiving antennas - Scanning antennas
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