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摘要: This paper presents a numerical study of self-complementary antennas on substrate lenses made of high-permittivity dielectric material. Bowtie, logarithmically periodic, and logarithmic spiral antennas with the same outer and inner dimensions were selected for study, and their overall performances were compared in the terahertz band at frequencies up to 5.0 THz. The resonance and radiation characteristics of the three antennas were investigated in terms of input impedance, directivity, and radiation efficiency, using a full electromagnetic simulator. This study provides useful guidelines and partially solves the difficult problems of choosing the proper feed and optimizing the lens structure for a THz broadband integrated lens antenna.

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