89
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Title:THz surface plasmon modes on planar Goubau lines
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Abstract:The dispersion relation and confinement of terahertz surface plasmon modes propagating along planar Goubau lines are studied using guided-wave time domain spectroscopy. We demonstrate the radial nature of the surface plasmon mode known as the Goubau mode and the transverse confinement of the electric field over a few tenths of microns (~1/10). We experimentally and computationally observed a transition of the shape of the THz pulses from unipolar to bipolar as the propagation distance increases, indicating that the Goubau line acts as a high-pass filter. The deviation of the dispersion relation curve from a linear law above 600 GHz is discussed.
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