13. Title: The transition from a TEM-like mode to a plasmonic mode in parallel-plate waveguides
Author: Liu, JB; Mendis, R); Mittleman, DM
Source: APPLIED PHYSICS LETTERS
Volume:98
Issue:23
Pages: 231113
Publication year: 2011
Document type:Journal article (JA)
Abstract: We describe subwavelength-resolved measurements of the broadband terahertz field propagating inside a finite-width parallel-plate waveguide. We observe a transition in the spatial mode of the waveguide, in which the energy distribution shifts from the waveguide center to the edges with increasing frequency. This transition is surprisingly abrupt, and depends sensitively on the gap between the waveguide plates. These results may have important implications for a variety of terahertz experiments as well as in the design of optical systems and components in the visible and near-infrared regimes, which rely on plasmonic wave guiding.