

## **Beam Pattern Measurements of a Picket-Potter Feed Horn at 1.9 THz**

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Pickett-Potter feed horns with a circular to rectangular waveguide transition have been designed, fabricated, and tested to advance the development of large format heterodyne arrays. These feed horns have several notable advantages over the standard diagonal feed horns because they have lower cross-polarization properties and are easier to design, machine, and assemble. We present beam pattern and cross-polarization measurements to verify performance of the new feed horn and waveguide transition design using a waveguide-coupled hot electron bolometer (HEB) mixer and a 1.9 THz multiplier chain local oscillator (LO) source. We employ an electronically chopped LO source and a nitrogen cold load on an XY stage for measurements. Theoretical and measured beamwaists and cross polarization are in close agreement.