Abstracts

A 2.5-THz receiver front end for spaceborne applications

M.C. Gaidis, H.M. Pickett, C.D. Smith, S.C. Martin, R.P. Smith and P.H. Siegel. "A 2.5-THz receiver front end for spaceborne applications." 2000 Transactions on Microwave Theory and Techniques 48.4 (Apr. 2000, Part II [T-MTT] (Special Issue on Terahertz Electronics)): 733-739.

The OH radical is an important player in known ozone depletion cycles; however, due to its location in the atmosphere, it must be studied from either a balloon or spaceborne platform. For long-term mapping over large portions of the earth, a spaceborne platform is the most desirable. NASA's Earth Observing System Microwave Limb Sounder instrument is slated to house a 2.5-THz Schottky-diode receiver for such measurements. In this paper, we describe the design, fabrication, and testing of the receiver front end. Measured double-sideband (DSB) receiver noise temperatures of better than 9000 K are reproducibly achieved with all devices of our best design. Estimated mixer noise is 3500-K DSB for optimal bias conditions and at room temperature. Selected components will be used in the first terahertz heterodyne receiver to be flown in space.

❑ Return to main document.