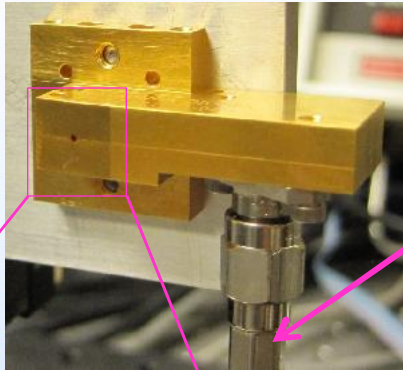


VDI WR-0.4 (1.8-2.8 THz) Mixer

WR-0.4FM



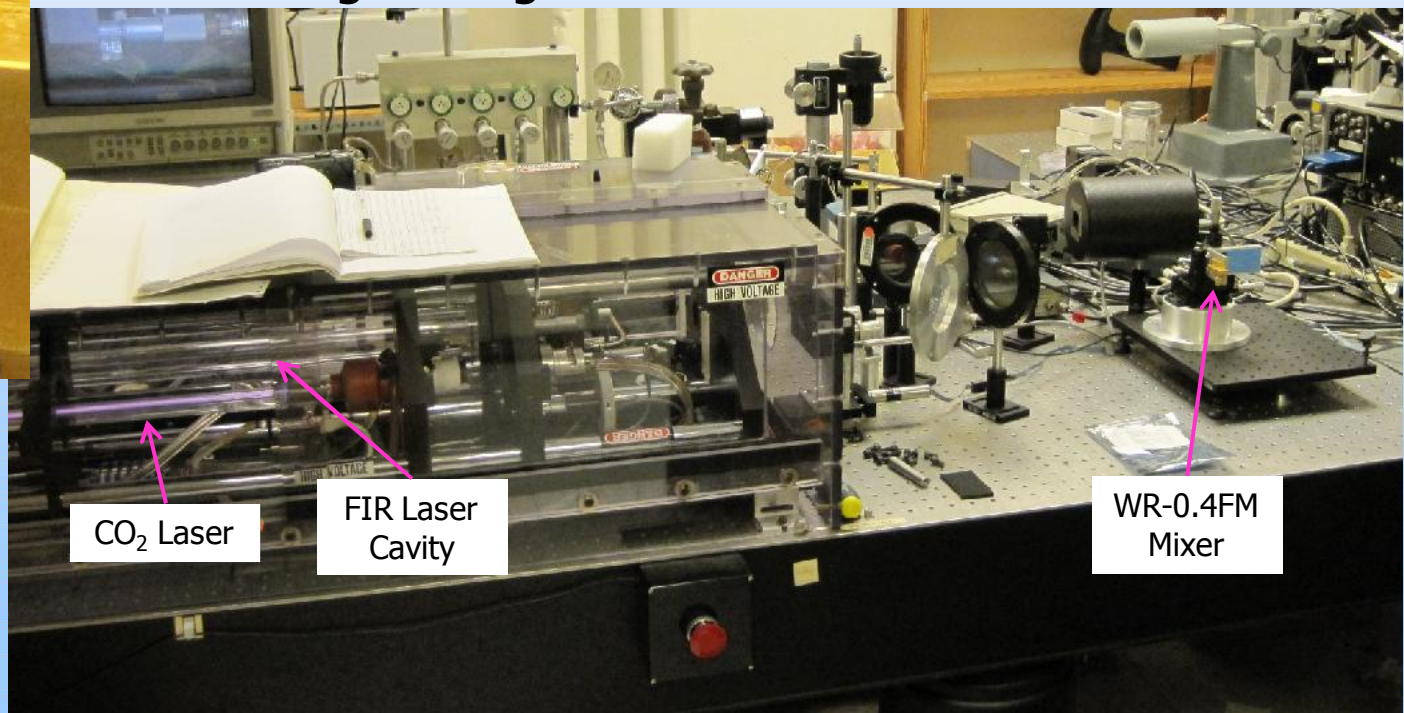
IF/DC
Coax

- Planar Schottky Diode Mixer
 - Integrated Schottky Diode
 - WR-0.4 Waveguide
 - Integrated Diagonal Horn
 - 25 dB Gain (nom.)
 - Beam Waist Radius 0.27 mm

Mixer during testing at UVa Far-Infrared Receiver Lab



Diagonal Horn



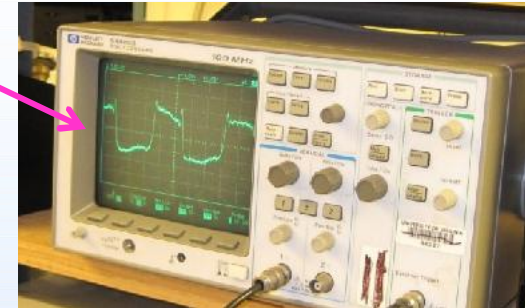
CO₂ Laser

FIR Laser
Cavity

WR-0.4FM
Mixer

VDI WR-0.4 (1.8-2.8 THz) Mixer

- Responsivity testing using 2.5 THz Laser
 - 5-10 mW available from laser
- Shine FIR Laser directly onto mixer
 - No focusing optics used
 - Laser beam waist ~ 9 mm
 - Mixer beam waist 0.27 mm
- Measured peak video response of 7 mV for 4 mW laser power
 - Assuming the laser is gaussian then ~ 14 μ W coupled to mixer
 - However, moving mixer in beam varied response from 3-7 mV
 - Beam not perfectly gaussian
- Responsivity estimated to be in the range of 200-400 V/W
 - Beam pattern measurements underway to determine a more accurate number
- Video response from mixer
 - Ibias=1 μ A
 - No video amp used
 - Laser chopped at 22 Hz



Mixer during testing at FIRLab

