Front End Issues

Paul Lilie
Front End Issues

- Ortho-Mode Transducers ("OMTs")
- Solar Observing
- Receiver Schedule
Front End Issues: OMTs

Octave Bandwidth Quad-Ridge OMT & 90° Hybrid for L, S, and C-bands

Four-Probe Design for X-band

Boiföt OMT & Phase Shifter for Ku, K, Ka-bands

Sloping Septum for Q-band
Quad-Ridge OMT
HFSS Model
Quad-Ridge OMT Simulation

Return Loss

Magnitude (dB)

Frequency (GHz)

S_1 : S(port.1:m1, port.1:m1) (mag)
S_1 : S(port.5:m1, port.5:m1) (mag)
S_1 : S(port.6:m1, port.6:m1) (mag)
Quad-Ridge OMT Simulation

L-Band OMT Loss (HFSS Simulation)
Room-Temperature Copper

GHz

Dissipation + Mismatch

Dissipation Only

vpyrlen5.xls
Quad-Ridge OMT Simulation

![Graph showing isolation vs frequency](image)

---

Lilie

EVLAs Advisory Committee Meeting

September 8-9, 2003
4-Probe OMT
HFSS Model
4-Probe OMT Simulation
Solar Observing
“Coupler-Fed”
Solar Observing
Signal/Noise Ratio

1 - 2 GHz Band ("L-Band")

-60.0 -50.0 -40.0 -30.0 -20.0 -10.0 0.0 10.0 20.0 30.0
Input, dB(Kelvin)

-60.0 -50.0 -40.0 -30.0 -20.0 -10.0 0.0 10.0 20.0 30.0
dB

Rcvr SNR
Cal 'Gain'
1 Jy
300 K
Quiet Sun
Active Sun
Flare
Receiver Schedule
Ku-Band

12 - 18 GHz Receiver Plan

Year

Old Receivers
New Receivers
Total Receives
Receiver Schedule

EVLA Antenna and Receiver Availability on NSF Plan
Black = Old, Red = Transition, Green = New, Blue = Total