OT034

WR-3.4 orthomode transducer

MicroHarmonics
Superior mm-Wave Components

Description

The OMT is a three-port device. It has a square waveguide common mode port (“antenna port” or “A-port”) supporting two orthogonal modes (“H-pol” and “V-pol”) and a pair of rectangular waveguide ports (“H-port” and “V-port) that each support a single mode.

Mechanical Specifications

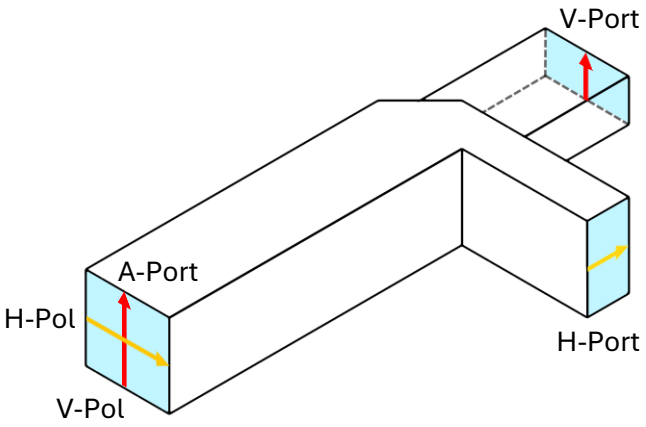
Parameter	Description
Flange | H-Port and V-Port	WR-3.4 UG-387/UM
Flange | A-Port	0.034” square UG-387/UM
Weight (Oz [g])	0.54 [15.2]
Specification Temp (°C) Operation Temp (°C)	23 -40 to +85

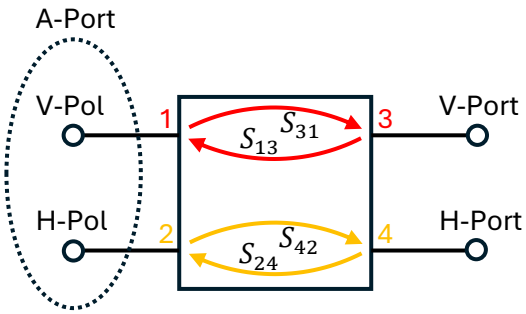
- Lowest insertion loss
- High cross-polarization isolation
- Anti-cocking waveguide flanges

Electrical Specifications

Parameter	Value	Units
Frequency	220-330	GHz
Insertion Loss | H-Port Insertion Loss | V-Port	0.8 0.8	dB, max
Insertion Loss | H-Port Insertion Loss | V-Port	0.5 0.5	dB, avg
Cross-Polarization | H-Port to A-Port, V-Pol Cross-Polarization | V-Port to A-Port, H-Pol	35 35	dB, typ min
Isolation | H-Port to V-Port	45	dB, typ min
Return Loss | H-Port Return Loss | V-Port Return Loss | A-Port, H-Pol Return Loss | A-Port, V-Pol	16 16 16 16	dB, typ min

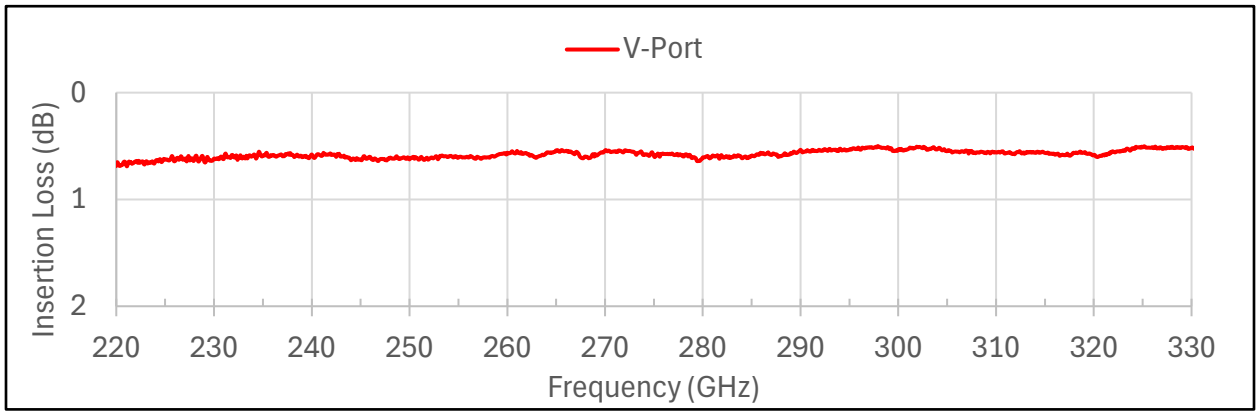
Insertion Loss

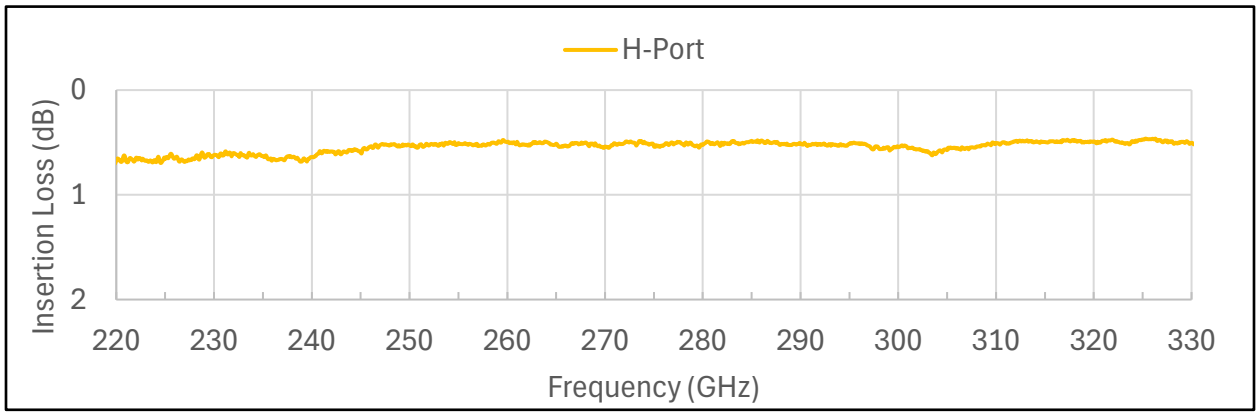




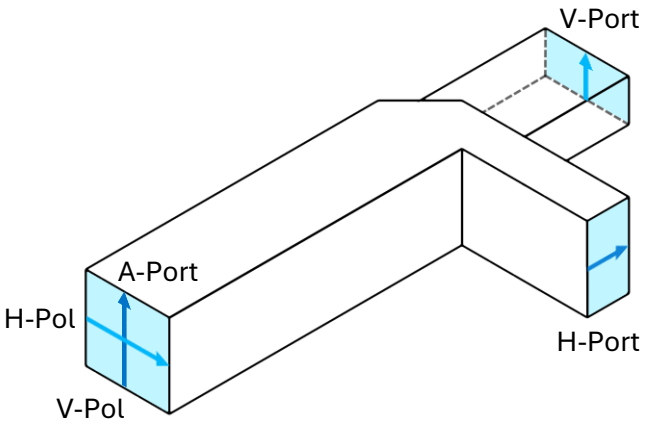
$$\begin{bmatrix} S_{11} & S_{12} & S_{13} & S_{14} \\ S_{21} & S_{22} & S_{23} & S_{24} \\ S_{31} & S_{32} & S_{33} & S_{34} \\ S_{41} & S_{42} & S_{43} & S_{44} \end{bmatrix}$$

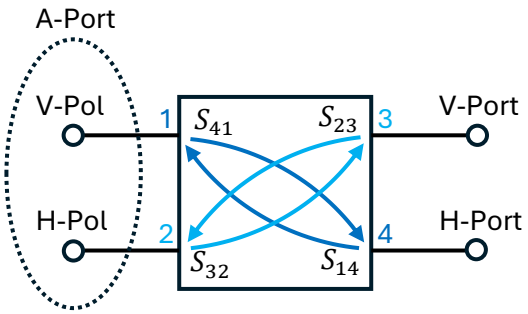
Insertion loss between a single mode rectangular port and the corresponding polarization on the common port





Cross-Polarization





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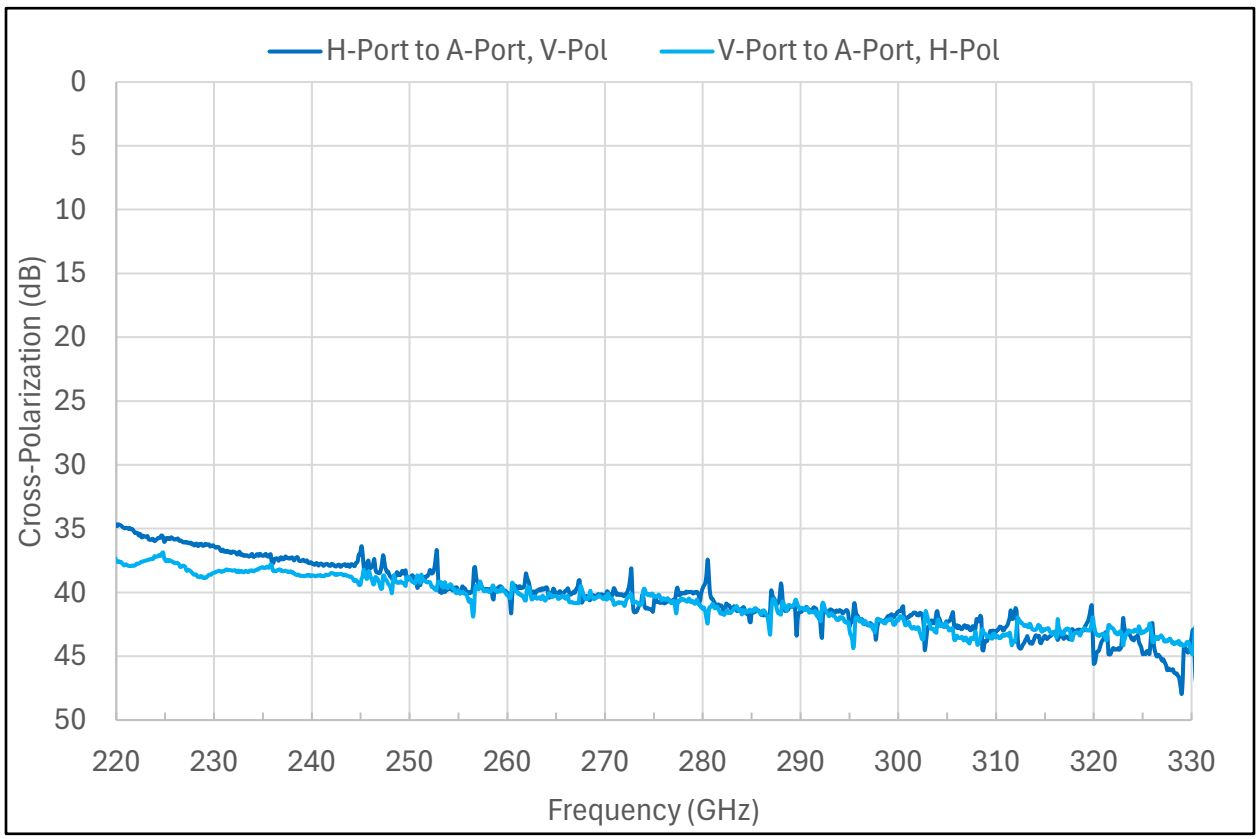
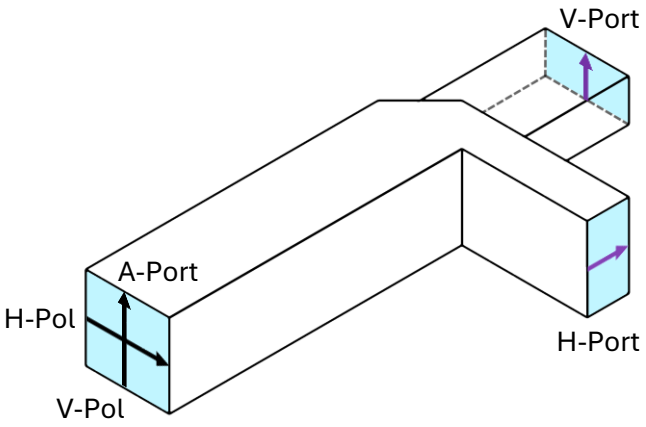
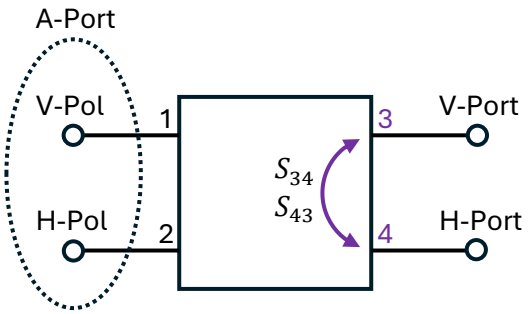
Cross-polarization coupling between a rectangular waveguide port and the opposite mode on the common port



Isolation





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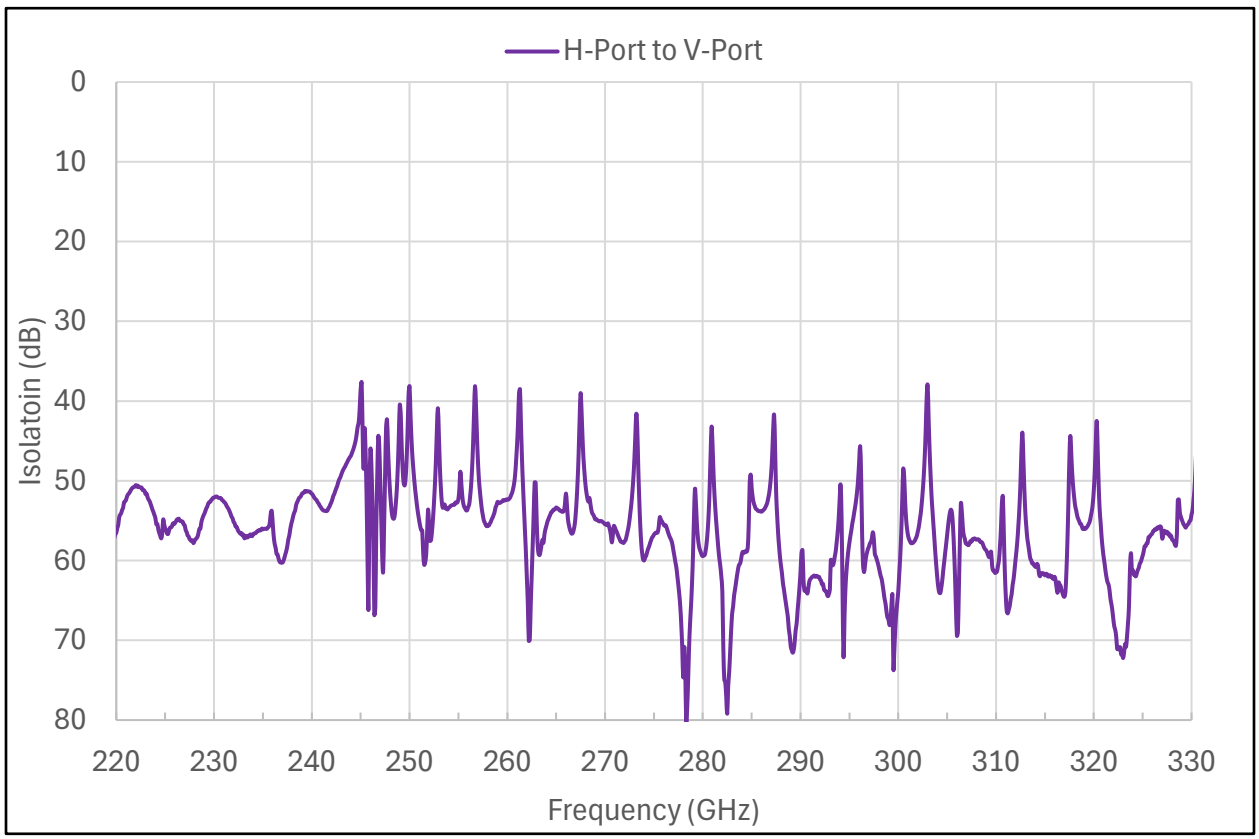
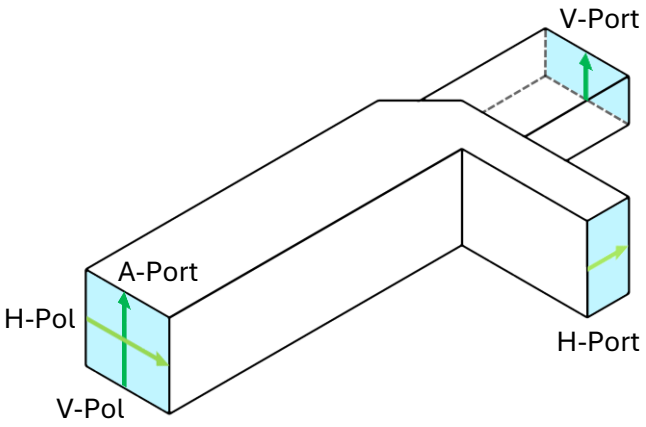
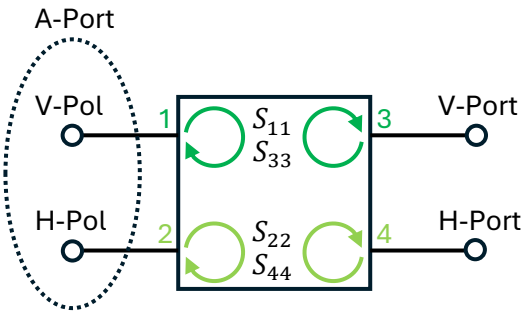
Isolation between the two rectangular waveguide ports
(noise in the data is a remnant of the RF test procedure)



Return Loss





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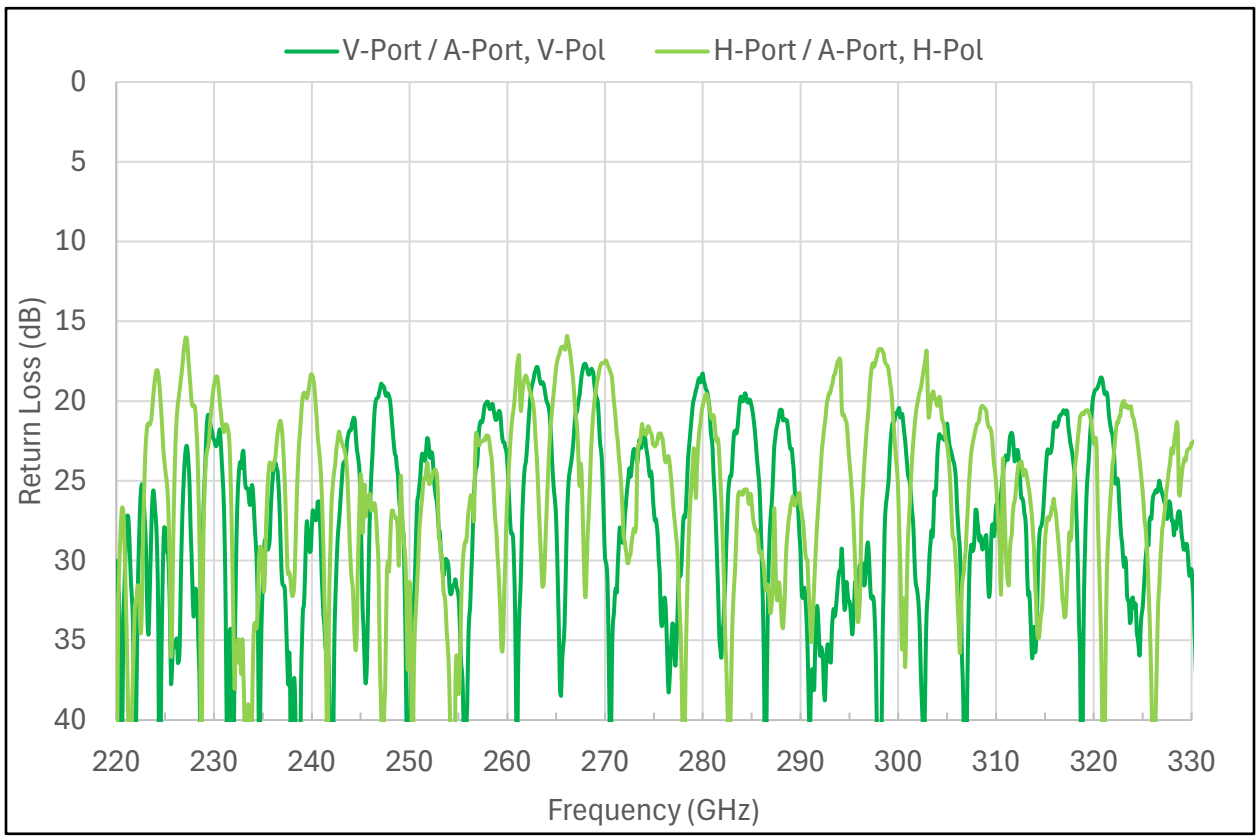
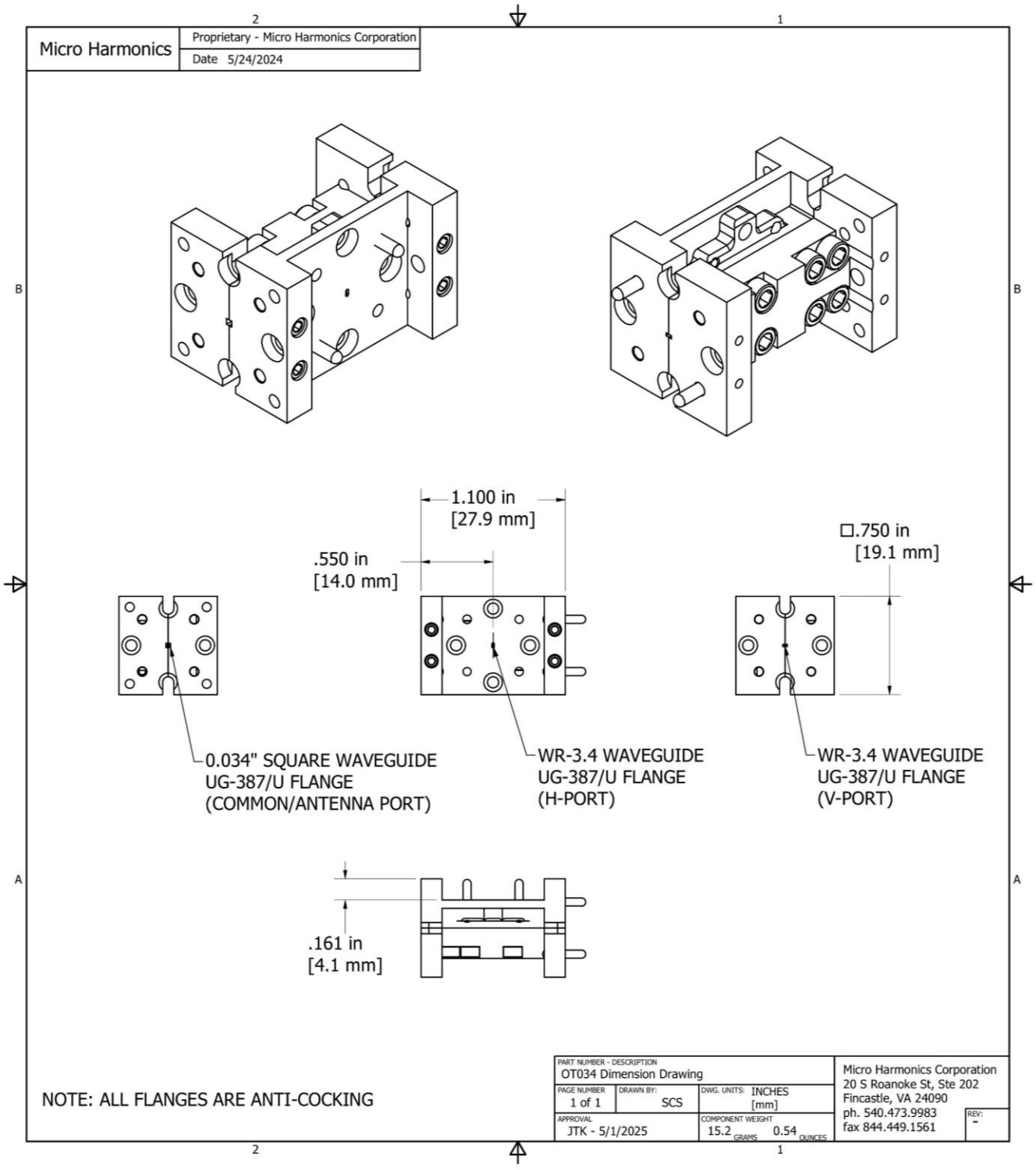
Return loss for each rectangular port and each mode on the common port




Micro Harmonics
Proprietary - Micro Harmonics Corporation
Date 5/24/2024
1.100 in
[27.9 mm]
.550 in
[14.0 mm]
□.750 in
[19.1 mm]
0.034" SQUARE WAVEGUIDE
UG-387/U FLANGE
(COMMON/ANTENNA PORT)
WR-3.4 WAVEGUIDE
UG-387/U FLANGE
(H-PORT)
WR-3.4 WAVEGUIDE
UG-387/U FLANGE
(V-PORT)
.161 in
[4.1 mm]
NOTE: ALL FLANGES ARE ANTI-COCKING
PART NUMBER - DESCRIPTION
OT034 Dimension Drawing
PAGE NUMBER 1 of 1
DRAWN BY: SCS
DWG. UNITS: INCHES [mm]
APPROVAL JTK - 5/1/2025
COMPONENT WEIGHT 15.2 GRAMS 0.54 OUNCES
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REV: -