



## W-Band Waveguide Bi-Directional Coupler, 3 dB

### Description:

**Model SWD-0340H-10-BB** is a W band, four-port waveguide bi-directional coupler that delivers a 3 dB nominal coupling level and 30 dB minimum directivity across the full waveguide band from 75 to 110 GHz. The four-port coupler uses a traditional multi-hole and split block design to achieve a flat coupling level, high directivity, and low insertion loss. The interfaces of the coupler are WR-10 waveguides with UG-387/U-M anti-cocking flanges. Custom coupling levels are available under different model numbers.



### Features:

- Full Band Operation
- Low Insertion Loss
- High Directivity

### Applications:

- Test Labs
- Instrumentation
- Sub-assemblies

### Electrical Specifications:

Parameter	Minimum	Typical	Maximum
Frequency	75 GHz		110 GHz
Insertion Loss*		1.0 dB	
Coupling*		3 dB	
Directivity*	30 dB	40 dB	
VSWR			1.1:1
Specification Temperature		+25°C	
Operating Temperature	-40°C		+85°C

\* The definition of the insertion loss, coupling and directivity is show as following. The required termination on the waveguide port is 30 dB or better for accurate measurement.

Insertion Loss =  $-10 \log_{10} [(P2+P3)/P1]$

Coupling Value =  $-10 \log_{10} [P3/P1]$

Isolation =  $-10 \log_{10} [P3/P2]$

Directivity = Isolation – Coupling Value



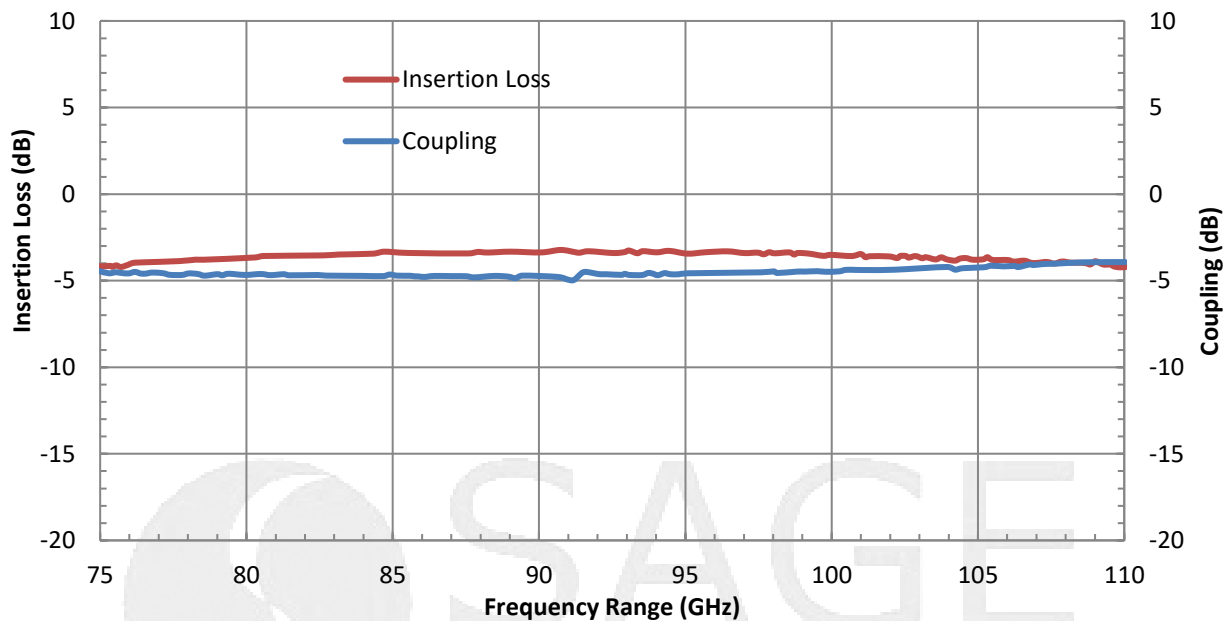


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### Mechanical Specifications:

Item	Specification
Through Ports	WR-10 Waveguide with UG-387/U-M Anti-Cocking Flange
Coupled Port	WR-10 Waveguide with UG-387/U-M Anti-Cocking Flange
Size	3.60" (L) X 0.95" (W) x 0.83" (H)
Material	Brass
Finish	Gold Plated
Weight	7.7 Oz
Outline	WD-BB-W-A

### Typical Insertion Loss and Coupling vs. Frequency



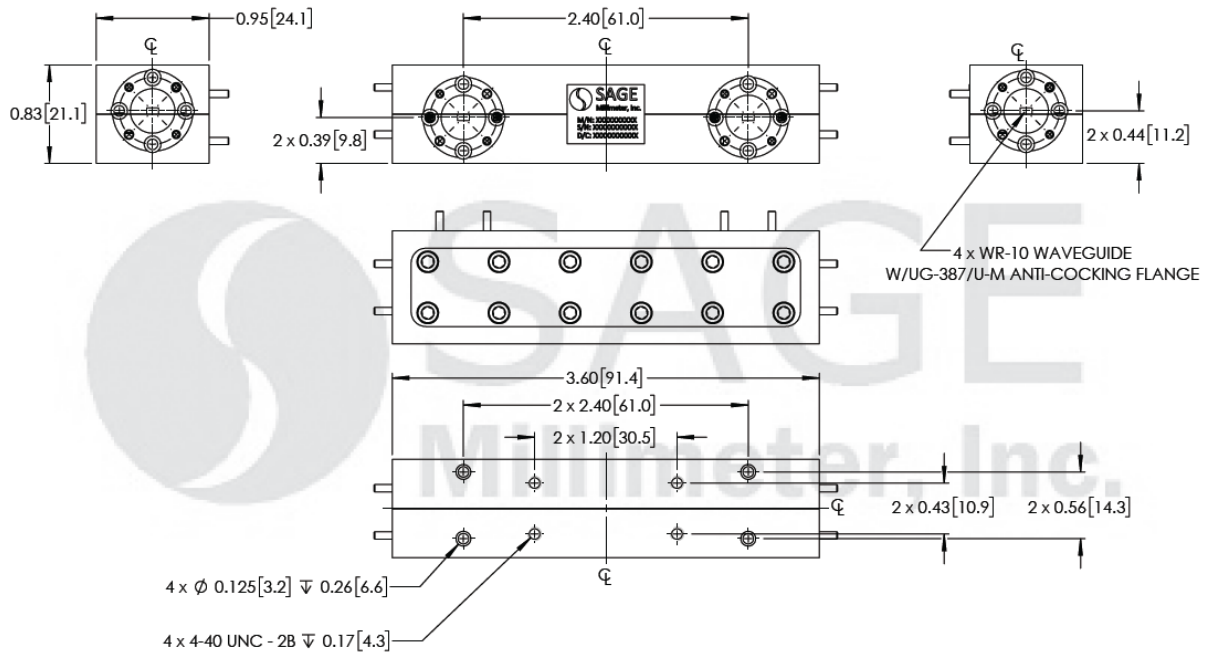
\*Insertion loss includes circuit loss





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**Mechanical Outline:** (Unless otherwise specified, all dimensions are in inches [millimeters])



**Note:**

- All data presented is collected from a sample lot. Actual data may vary unit to unit, slightly.
- All testing was performed under +25 °C case temperature.
- The insertion loss shown includes the loss due to coupling.
- SAGE Millimeter, Inc. reserves the right to change the information presented without notice.

**Caution:**

- Any foreign objects in the waveguide will degrade performance and/or damage the device.

