STA-60-12-S1

WR-12, Digital Direct Reading and Programmable Attenuator

STA-60-12-S1 is a dual function direct reading and programmable rotary vane type attenuator for use in millimeterwave systems across the standard E-band frequency range of 60 to 90 GHz. The attenuator is an ideal piece of equipment in waveguide systems where a broad direct reading of attenuation is required. The default mode of operation is manual direct reading. In manual mode, the attenuation is adjustable with the large knob and the digital LCD screen displays the current attenuation value. The LCD screen is powered by an internal rechargeable battery, which is charged via the 2.1 mm DC jack by a provided DC to AC adapter. The 2.1 mm DC jack also provides power to the stepper motor, encoder and internal microprocessor for the programmable mode function. The user can quickly switch to programmable mode by connecting the powered-up attenuator to a computer with the USB Type B port. In programmable mode, the attenuation is finely adjusted with a precision stepper motor by the internal microprocessor via user-entered serial port commands from the computer. The small but powerful stepper motor is capable of changing the attenuation from 0 dB to 60 dB in around 5 seconds. The attenuator is packaged individually in a rugged equipment box with additional hardware and tools.

Electrical Specifications:

Parameter	Minimum	Typical	Maximum
Frequency Range	60 GHz		90 GHz
Insertion Loss		1.7 dB	
Attenuation Range	0 dB		60 dB
Attenuation Accuracy	0.1 dB or 3% of reading, whichever is larger, up to 40 dB		
Attenuation Resolution	0.1 dB from 0 to 10 dB, 0.2 dB from 10 to 30 dB, 0.5 dB from 30 to 40 dB, 1 dB from 40-60 dB		
Return Loss		20 dB	
Operating Voltage	+24 V_{DC} (100 to 240 V_{AC} Adapter is Supplied)		
Power Handling			0.3 W (CW)
Specification Temperature		+25°C	
Operating Temperature		+25°C	

***This product is intended to be used in a controlled lab environment. To ensure best possible accuracy and prevent unintended behavior, please operate the unit as close to +25 °C room temperature as possible.**

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FEATURES

- Full Band Coverage
- Manual and Programmable Operation
- Rechargeable Internal Battery w/ 20-hour life from full charge
- USB Type B Port Communication Interface
- Digital LCD Display Screen With Backlight

APPLICATIONS

- Test Lab
- Instrumentations

SUPPLEMENTAL DETAILS

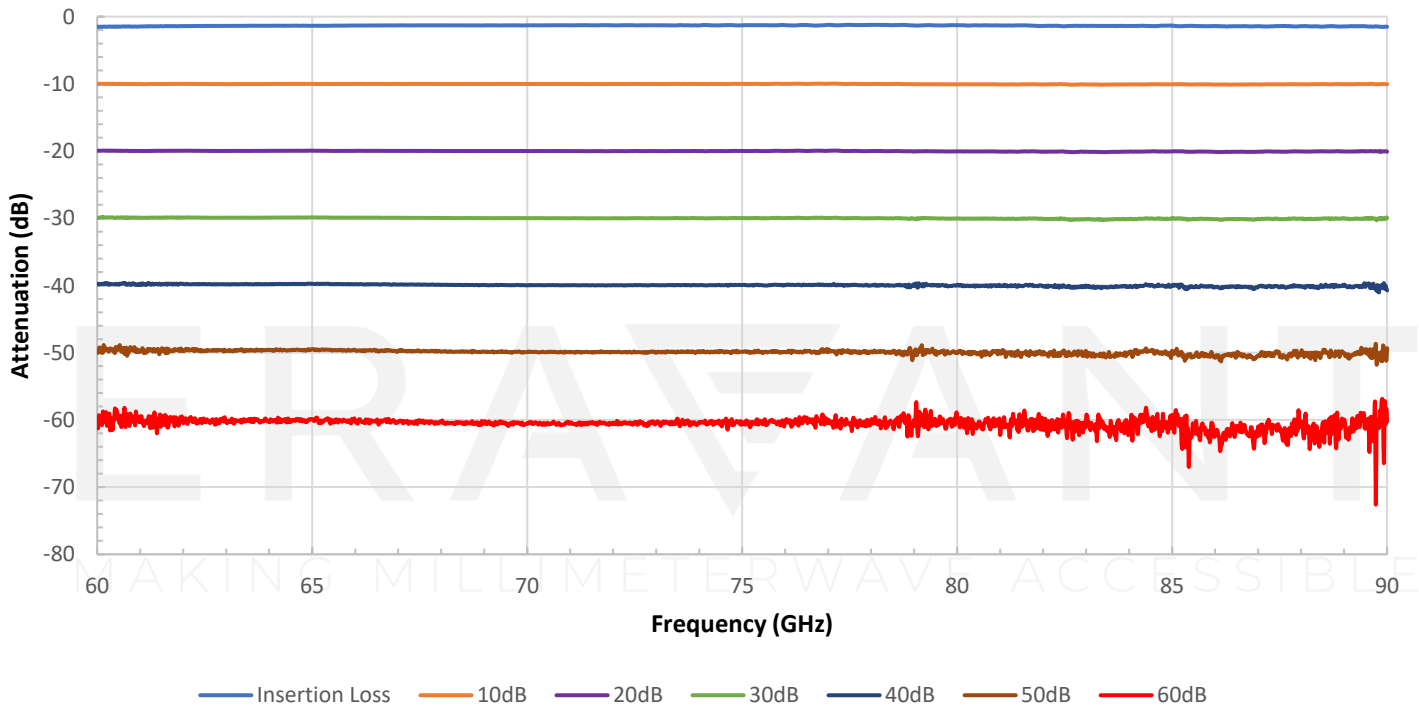
Mechanical Specifications:

Item	Specification
RF Ports	WR-12 Waveguide with UG-387/U Anti-Cocking Flange
Communication Port	USB Type-B
Power Supply Port	2.1 mm DC Jack (AC-to-DC power adapter included)
Insertion Length	3.5”
Finish	Gold Plated Waveguide, Black Anodized Body
Weight	4.4 lbs.
Outline	TA-SE-A

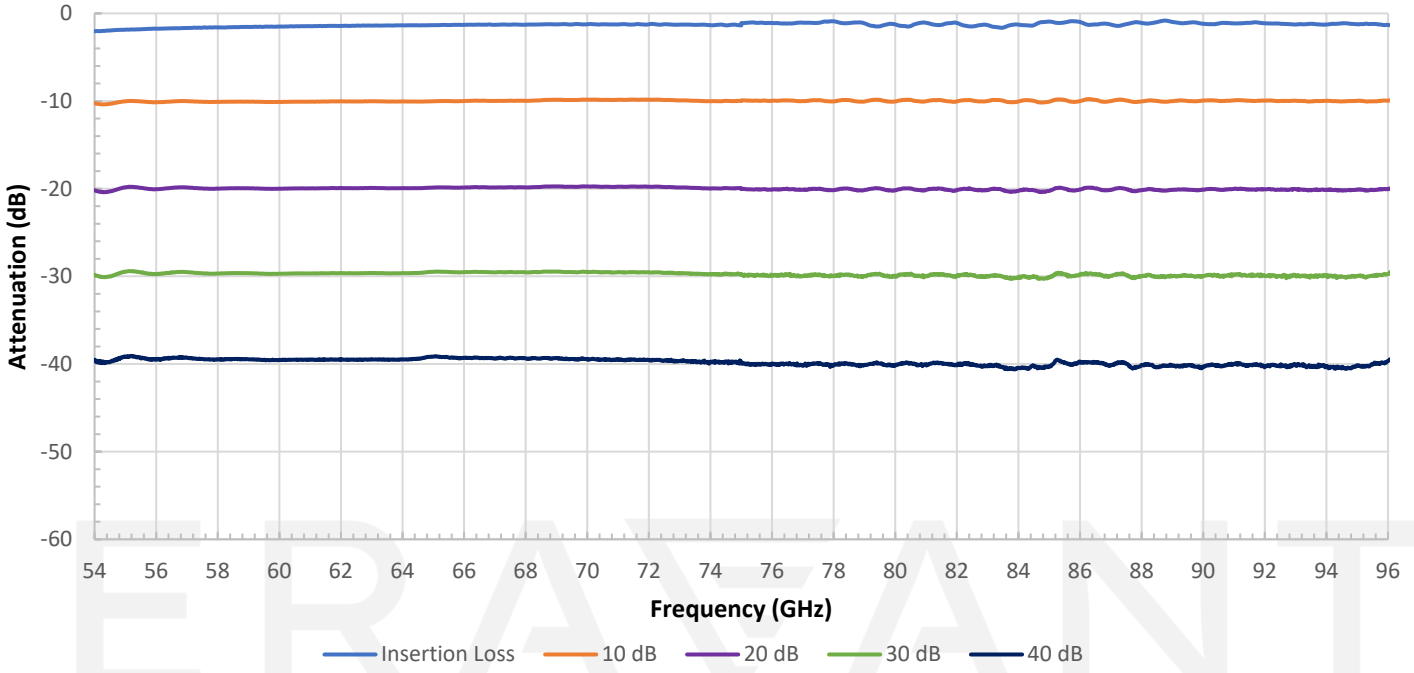
Included Accessory Components:

Item	Eravant Model Number	Quantity
Waveguide Quick Connect, 0.75” Circular Flange	SWH-QC-0750C-R2	2
Waveguide Screwdriver, 3/32 Hex Head	SWH-332-DS	1
Waveguide Flange Hardware Kit		2
AC to DC Power Adapter		1
USB 2.0 A Male to USB B Male Shielded Cable, 2.0m Long		1
USB Flash Drive with Calibration/Test Data		1

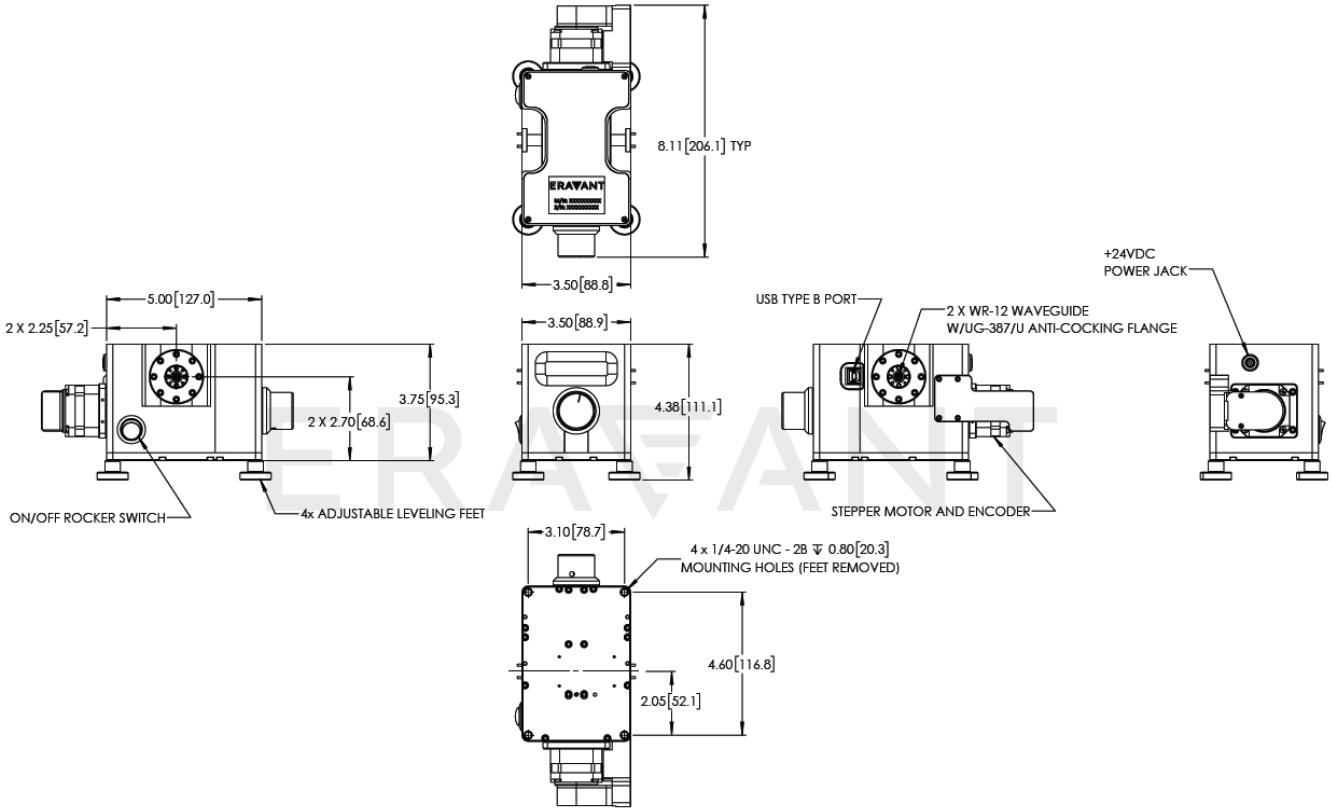
Typical Measured Attenuation vs Frequency



Typical Measured Attenuation vs Frequency (Extended Bandwidth)



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.
- **Extended bandwidth data presented is for reference only.**
- All calibration and testing is performed under +25 °C room temperature.
- **This product is intended to be used in a controlled lab environment. To ensure best possible accuracy and prevent unintended behavior, please operate the unit as close to +25 °C room temperature as possible.**
- The phase shift value does change while varying the attenuation.
- AC-to-DC power adapter and USB Type B to Type A adapter cable are included.
- When the DC power supply is unplugged, the internal battery only provides power to the necessary internal functions for manual mode operation. The battery does not provide power for programmable mode operation; the DC power supply must be always plugged in during programmable mode operation.
- Internal battery requires about 5 hours to recharge fully.
- Internal battery performance will degrade over time during normal usage and charging.
- Eravant reserves the right to change the information presented without notice.

CAUTION:

- **The adjustable knob should not be turned when the attenuator is powered and operating under programmable mode. In programmable mode, the stepper motor receives power from the DC power supply. Turning the adjustable knob while the stepper motor is powered can generate back-EMF, which can damage the motor and impair the function of the unit.**
- Exceeding absolute maximum ratings shown will damage the device.
- Any foreign objects in the waveguide will cause performance degradation and may damage the device. When not in use, use dust covers on the waveguide ports to prevent the ingress of dust and particles into the waveguides.

Appendix: Case View with Included Components