

10 GHz Portable Attenuation Measurement System (PAMS-10G)

310-010042-004

PAMS-10G is a user-friendly, transmitter and receiver system that measures shielding effectiveness in RF shielded enclosures. Lightweight and compact, each PAMS-10G unit measures approximately 12" x 5" x 5" and weighs 5.5 lbs., making PAMS-10G ideally suited to field measurement tasks. Rugged construction insures instrument survivability in a field test environment.

PAMS-10G incorporates a self-calibrating architecture that provides for ease of use. It requires only minimal operator instruction for error-free operation. Its backlit LCD output displays shielding effectiveness, battery status, and other operating parameters.

PAMS-10G provides an optimum solution for measuring the shielding effectiveness of RF enclosures.

The PAMS-10G design is based on the field proven PAMS system which operates at 900 MHz. The PAMS-10G provides an additional level of assurance that the shielding effectiveness has been maintained even at the shorter wavelengths associated with 10 GHz operation.

When operating in the shielding level mode, PAMS-10G determines shielding integrity to levels as high as 120 dB at 10 GHz.

The PAMS-10G receiver and transmitter are synthesized, with a minimum tuning step size of 100 kHz. Both units are battery powered, and can be operated in an AC mode when connected to the external battery charger. Normal battery operation time is 4 hours for the receiver, and 1.5 hours for the transmitter. A complete charge cycle is completed in approximately 1.5 hours.

The receiver provides accurate level detection for signals in the range of -120 dBm to 0 dBm. Typical accuracy is +/-1.0 dB. An internal limiter provides protection to the receiver in the unlikely event that the receiver and transmitter are connected together.

The transmitter provides a maximum output power of +20 dBm (100 milliwatts). Output power can be adjusted in 1, 2,



- ▶ Measures Path Loss, Signal Strength, Shielding Effectiveness
- ▶ 10.051.2-10.123.2 GHz
- ▶ Path Loss Accuracy: +/- 1 dB Typ.
- ▶ Receiver Range: 0 to -120 dBm
- ▶ Transmitter Power: -40 to +20 dBm
- ▶ Synthesized: 1 MHz And 100 kHz Step Size
- ▶ AC Power or Battery Operation

or 5 dB steps down to -40 dBm. Internal ALC circuitry maintains output level accuracy. The output of the transmitter is fully protected against damage.

The PAMS-10G is equipped with durable female N-connectors which are designed to support the recommended 10dB gain waveguide antennas which are sold separately.

The PAMS-10G system includes transmitter, receiver, batteries, power packs, manual and a rugged transit case. Antennas, adapters, and cables are available separately.

Portable Attenuation Measurement System - 10 GHz

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Complete System

Includes	PAMS-10G Receiver PAMS-10G Transmitter 3 amp Battery Charger / AC Power Pack (2 each) 32 ohm headphones Operator's Manual Airtight & Watertight Heavy Duty Transit Case
Weight	28 lbs. Nominal (all items installed in Transit Case)
Size	21.5" L x 14.6" H x 8.1" D (Transit Case)

Specifications - PAMS Receiver

Operating Frequency	10.021.2-10.123.2 GHz
Tuning Step Size	1 MHz and 100 kHz
Operating Modes	Signal Strength, Shield Level, Spectrum Monitor, Monitor (TS-31)
IF Bandwidth	20 kHz nominal
RF Input Connector	N female
RF Input Impedance	50 ohms nominal
Input Preselection	80 MHz 1 dB bandwidth
Signal Level Relative Accuracy	+/- 1.0 dB (-120 dBm to 0 dBm)
Absolute Level Accuracy	+/- 2.0 dB (-120 dBm to 0 dBm)
Maximum Safe Input Level	+30 dBm (1 watt) minimum
Battery Operation	4 hours minimum at full charge
Batteries	Nickel Cadmium (standard)
AC/Charger Operation	95-265VAC, 48-65 Hz
Charge Time	90 minutes typical, "REFLEX" charge control
Controls	On/Off/Volume, Frequency Tune / F.DIGIT(frequency tune), THOLD (sets threshold level for go/no-go testing), LIGHT (backlights LCD display), CAL (used to provide path loss or shielding reference level normalization), MODE (selects threshold or monitor mode)
LED Indicators	Battery Overtemp, Battery Charge, Battery Fault
LCD Displayed Functions	Frequency, Battery Level, Mode (Path Loss, Shielding Level), Threshold Level Set, CAL Status, LOCK Status, Freq Adjust Status (Coarse or Fine)
Weight	5.5 lbs nominal
Case Size	11.7" H x 5.1" D x 4.9" W
Standard Accessories	32 ohm headphones, battery charger/power pack, manual

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310-010042-001

Specifications - PAMS Transmitter

Operating Frequency	10.021.2-10.123.2 GHz
Tuning Step Size	1 MHz and 100 kHz
Maximum Output Power	+20 dBm minimum
Output Power Control	10 dB steps from -30 to +30 dBm
Output Level Accuracy	+/-1.0 dB maximum
Harmonics	-60 dBc maximum
Output Impedance	50 ohms nominal
Load VSWR	Safe operation into infinite VSWR
RF Output Connector	N female
Battery Operation	1.5 hours minimum at full charge
Batteries	Nickel Cadmium
AC/Charger Operation	95-265VAC, 48-65 Hz
Charge Time	90 minutes typical, "REFLEX" charge control
Controls	On/Off, Frequency Tune, Coarse Fine (frequency tune), LIGHT (backlights LCD display), LOCK (locks out all controls), ATTEN (controls output power in 10 dB steps), MODE (future option)
LED Indicators	Battery Overtemp, Battery Charge, Battery Fault
LCD Displayed Functions	Frequency, Battery Level, Output Level, LOCK Status, Freq Adjust Status (Coarse or Fine), CW Mode
Weight	5.5 pounds nominal
Case Size	11.7" H x 5.1" D x 4.9" W
Standard Accessories	Battery charger/AC power pack, manual

NOTE:

The PAMS-10G transmitter operates from 10.051 GHz to 10.123 GHz to provide flexibility to the operator making test transmissions inside the enclosure. Operation in this band does not require a license, assuming the transmitter is not generating a power greater than +20dBm.

The PAMS-10G transmitter will transmit a power level of 100mW, +20dBm, when set to maximum output power. The recommended waveguide antenna sold separately will provide an additional 10dB of gain for a maximum total radiated power of +30dBm.

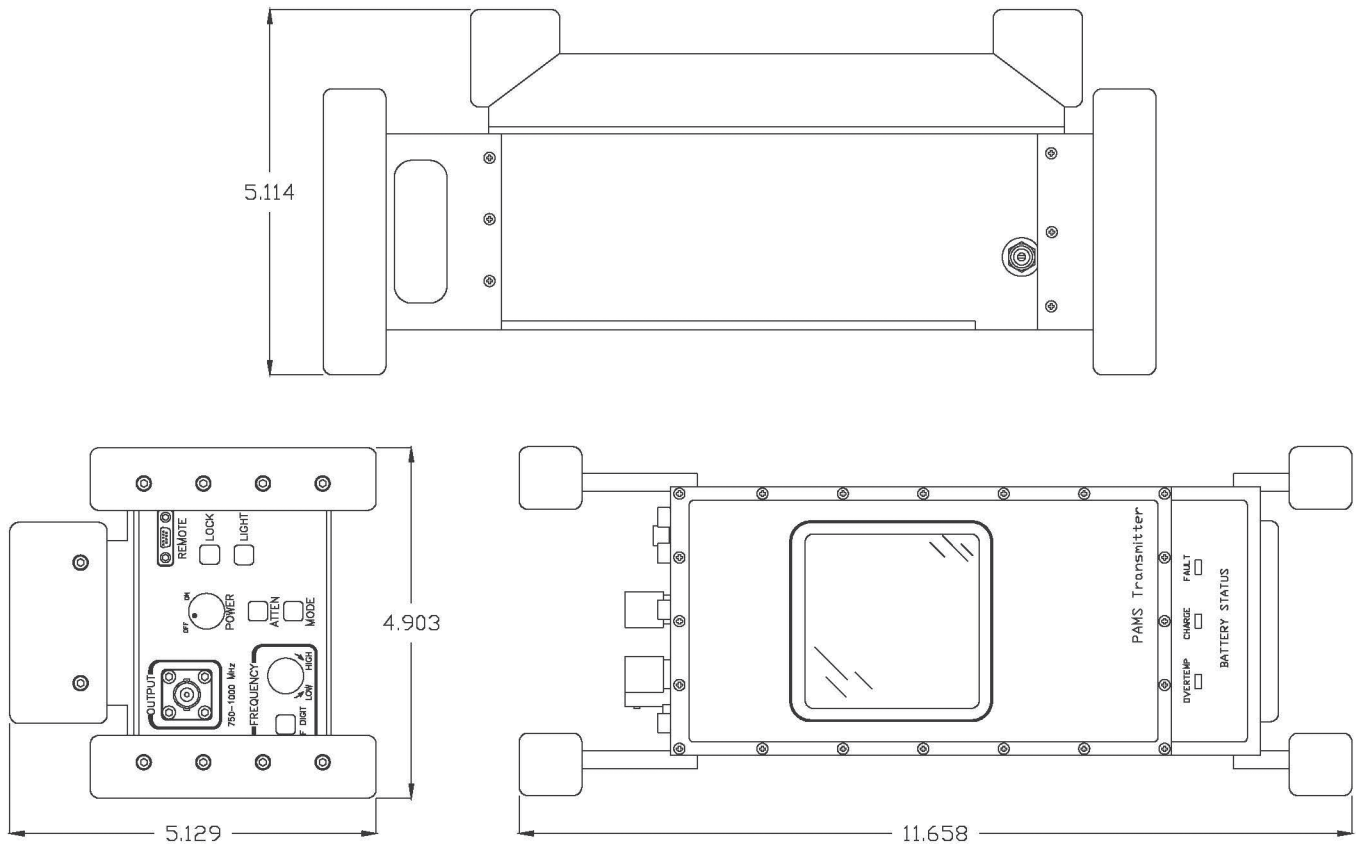
The recommended operating procedure has the operator position the transmitter inside the door with the calibration power level of -40 dBm being emitted and the waveguide antenna aperture facing the doorway.

After the receiver is calibrated to the transmitter, the transmitter's attenuator button is actuated and power jumps up to +20 dBm (+30 dBm EIRP). The door is then closed and under most conditions the transmitter level outside the room will be less than -30 dBm.

We also recommend that once the door is opened that the transmitter power be reduced using the ATTEN button to minimize interference to other operations.

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► PAMS-10G Ordering Information

PAMS-10G Complete System	310-010042-004
PAMS-10G Receiver Only	310-010046-006
PAMS-10G Transmitter Only	310-010045-006
Waveguide Antenna Kit	519-010007-001