RF and Microwave Test Accessories More Options than Ever Before

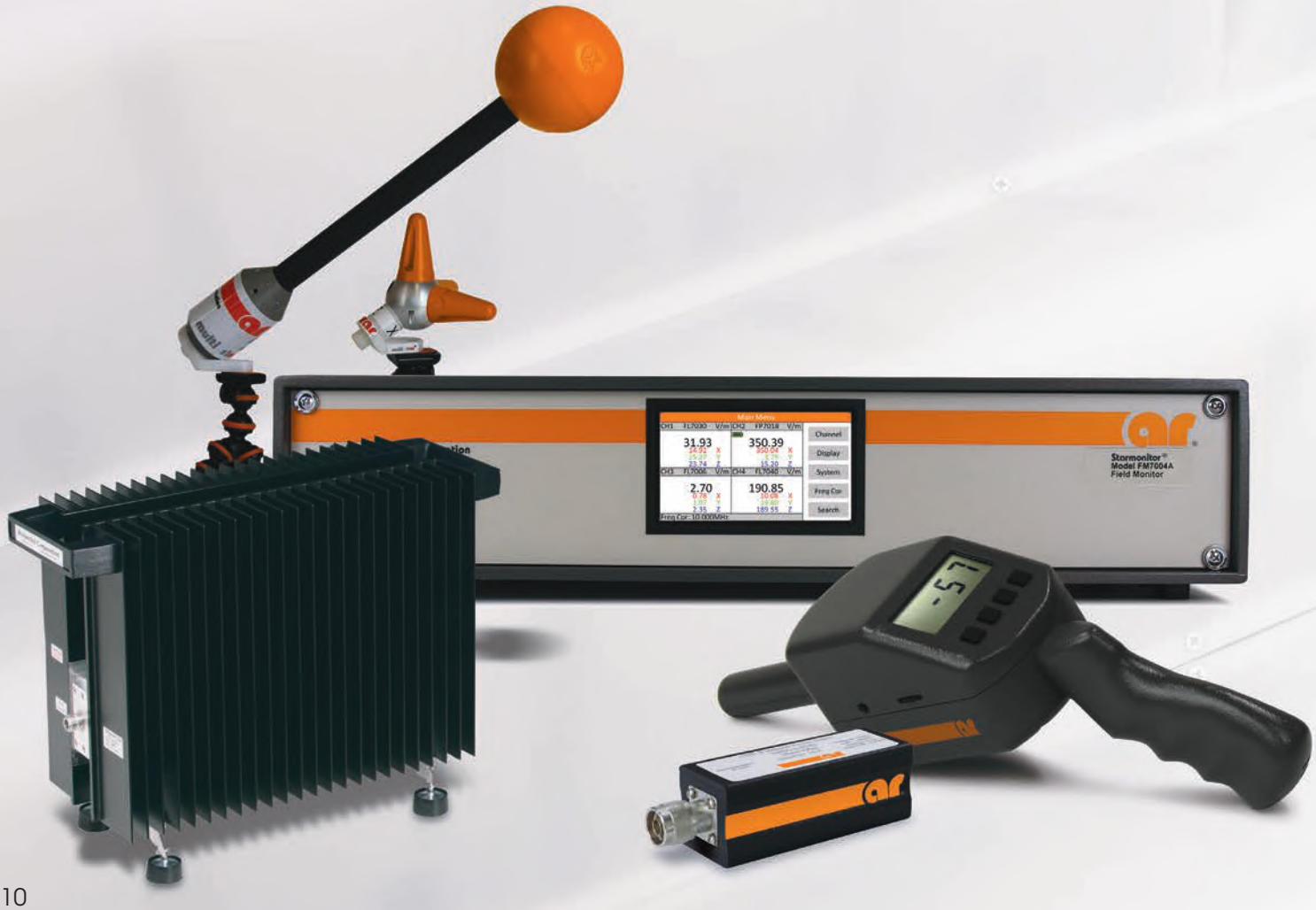
Power and Frequency Matched to AR Amplifiers

If you use AR amplifiers, you obviously recognize the importance of quality and reliability. But when you add accessories, that's no time for a weak link.

All it takes is one component in your test setup that doesn't perform as well as it should, and all your test results become questionable. Why take chances?

AR offers a complete selection of accessories that give you the most reliable results. Many even make testing quicker, more efficient, and more accurate.

We've got probes, software, system controllers, couplers, and more. They're all matched to our amplifiers to make your setup as easy as possible…and to help you avoid any weak links.



Three-Channel Power Meter Features High-Speed Measurement Capability

Advanced digital signal processing combined with a full line of fast-response diode heads allow the PM2003 to deliver 200 readings per second with one channel or 100 per second when two channels are used. Two channels at a time can be simultaneously displayed and recorded, and the third channel can easily be switched in to be displayed or recorded. The PM2003 measures signals from -70 dBm to +44 dBm (with appropriate powerhead), and can store calibration data for up to four heads in its internal, non-volatile memory. Its dynamic range extends to 90 dB when diode heads are used.

We offer a family of diode or thermo-couple 50 ohm powerheads with excellent specifications. All are supplied with NIST-traceable calibration factors. Each new powerhead is supplied with a Powerhead Data Adapter that has complete calibration data stored in a built-in EEPROM, and a 5 ft. powerhead cable. Please visit our web site for a full listing of available powerheads.

PM2003 Three-Channel Power Meter

Frequency Range	10 kHz to 40 GHz, powerhead dependent
Power Range	-70 dBm to +44 dBm, powerhead dependent
Measurement Speed:	1 channel: 200 Readings/Sec. 2 channels: 100 Readings/Sec.
Dynamic Range	Up to 90 dB with diode heads, 50 dB with thermocouple heads.
Inputs	Rear panel HEAD connectors and rear panel IEEE-488 connector standard.
Outputs	Rear panel PWR/REF connector, 0 dBm, 50 MHz. Rear panel RECORDER BNC connector, 0 to 10 V into 1 MΩ. Output impedance is 9.09 kΩ. May be operated into 1 kΩ or 1 V fs.

Standard Power Heads (Sensors)	Frequency	Dynamic range (model PM2003)
PH2000A Dual diode	10 kHz to 8 GHz	-60 to +20 dBm
PH2005 Dual diode	500 kHz to 18 GHz	-70 to +20 dBm
PH2010 Dual diode	30 MHz to 40 GHz	-70 to +20 dBm

Rack mount kit (RM2000) also available for the PM2003.

PSP Series Pulse Power Sensors

The PSP Series Wideband USB pulse power sensors turn your PC or laptop with a standard USB 2.0 port into a pulse power analyzer without the need for any other instrument. Power measurements from the PSP Series can be displayed on the PC or can be integrated into a test system with a set of remote commands. A status LED on the sensor provides indication of its operational state for diagnostic purposes.

The PSP sensors PSP001 through PSP005 include 6, 18, and 40 GHz models for measurement of wideband modulated and unmodulated signals over a frequency range of 50 MHz up to 40 GHz.

The PSP Series Wideband USB pulse power sensors are supported by both AR's emcware® software and PulsewARe. PulsewARe is a Windows-based software package that provides control and readout of the sensors.

The unique PSP102 power sensor measures down to 4 kHz and has an upper frequency of 6 GHz.

The PSP Series is ideal for radiated and conducted immunity, telecommunications, and intentional radiator EMC testing as well as applications in manufacturing, design, and research. The design of these products allows for fast, accurate, and reliable RF power measurements of a wide range of pulsed, modulated, and CW signals.

PSP001-PSP005 Pulse Power Sensors.

Sampling Techniques:	Real-time/Equivalent Time/Statistical Sampling
Continuous Sample Rate:	100 MHz
Effective Sample Rate:	10 GHz
Time Resolution:	100 ps
Statistical Analysis:	Continuous or gated CCDF
Statistical Speed:	100 M points/sec
Trigger Sources:	Internal or External TTL
External Trigger in/out:	TTL in (slave) or out (master), SMB connector
Minimum Trigger Width:	10 ns
Maximum Trigger Frequency:	50 MHz
Trigger Jitter:	0.1 ns rms
Trace Acquisition Speed:	100 K sweeps/second
Measurement Speed:	100 K meas/sec (buffered mode) over USB 800 meas/sec (continuous)
Trigger Modes:	Auto, Normal, Single, Free run
Trigger Arming:	Continuous, Trigger Holdoff, Frame (gap) Holdoff
Remote Connectivity:	USB 2.0, type B connector
Command Protocol:	IVI-C and IVI-Com
Maximum Input Power:	200 mW avg, 1W for 1us peak
Size (LxWxH):	145 x 43 x 43 mm (5.7 x 1.7 x 1.7 in.)
Weight:	363 grams/0.8 lb.
Power Consumption:	2.5W max (USB high power device)

PSP102 Pulse Power Sensor.

Continuous sample rate:	25 MSPS
Effective sample rate:	1 GSPS
Time resolution:	1 ns
Tiger source:	internal or external TTL
External Trigger in/out:	TTL in (slave) or out (master)
Minimum Trigger Width:	4 us
Maximum Trigger Frequency:	120 kHz
Trigger Jitter:	1 ns rms, 20 ns rms (external)
Trace Acquisition Speed:	> 30 k sweeps/second
Measurement Speed:	100 k meas/sec (buffered mode) over USB 1000 meas/sec (continuous)
Trigger Modes:	Auto, Normal, Single, Free run
Trigger Arming:	Continuous, Trigger Holdoff, Frame (gap) Holdoff
Remote Connectivity:	USB 2.0, type B connector
Command Protocol:	M-C and IVI-Com
Maximum Input Power:	200 mW avg, 1W for 1 us peak
Size (LxWxH):	145 x 43 x 43 mm (5.7 x 1.7 x 1.7 in.)
Weight:	363 grams/0.8 lb.
Power Consumption:	2.0W, (USB high power device)

Sensor Model	Frequency Range	Dynamic range
PSP001	50 MHz to 6 GHz	-60 to +20 dBm
PSP002	50 MHz to 18 GHz	-34 to +20 dBm
PSP003	50 MHz to 40 GHz	-34 to +20 dBm
PSP004	50 MHz to 18 GHz	-50 to +20 dBm
PSP005	50 MHz to 40 GHz	-50 to +20 dBm
PSP102	4 kHz to 6 GHz	-60 to +20 dBm

Laser Powered E-field Probes

AR's Complete and Rugged Line of EMC Field Monitoring Equipment

Starprobe® Laser Powered Probes Cover the Broadest Frequency Range—5 kHz to 60 GHz!

AR has designed and manufactured a highly-advanced line of field-monitoring equipment. These E-field laser probes contain an internal microprocessor which provides the field probes with important features. Some features allow for optimal linearization, temperature compensation, control, and communication functions. And because they're laser powered, you never have to replace or recharge batteries. Ruggedized antenna cones and fiber optic cables provide exceptional reliability.

The Most Advanced Laser Powered E-Field Probes on the Planet

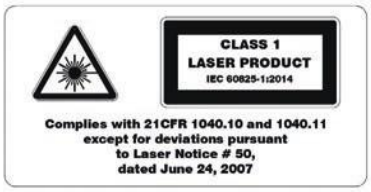
Field Probes	Starprobe® 1 (Model FL7030)	Starprobe® 2 (Model FL7006)	Starprobe® 3 (Model FL7040)
Sensor Type	Electric (E) field	Electric (E) field	Electric (E) field
Frequency	5 kHz–30 MHz	100 kHz–6 GHz	2 MHz–40 GHz
Probe Use	CW	CW	CW
Amplitude Accuracy (field aligned with sensor axes)	±1.0 dB, 10 MHz with calibration factors applied: (typical expanded measurement uncertainty — 95% confidence interval) 0.8 dB, 5 kHz–30 MHz	±1.0 dB, 10 MHz with calibration factors applied: (typical expanded measurement uncertainty — 95% confidence interval) 0.8 dB, 100 kHz–1 GHz 1.4 dB, 1 GHz–6 GHz	±1.0 dB, 10 MHz with calibration factors applied: (typical expanded measurement uncertainty — 95% confidence interval) 0.8 dB, 2 MHz–1 GHz 1.4 dB, 1 GHz–40 GHz
Response Time/Sampling Rate (through FI7000)	20 msec/up to 50 samples per second, USB and GPIB only	20 msec/up to 50 samples per second, USB and GPIB only	20 msec/up to 50 samples per second, USB and GPIB only
Isotropic Deviation (measured at the ortho angle)	±0.5 dB, 10 MHz ±0.5 dB, 5 kHz–30 MHz typ.	±0.5 dB, 10 MHz ±0.5 dB, 0.5 MHz–2 GHz typ.	±0.5 dB, 10 MHz ±1.5 dB, 2 MHz–40 GHz typ.
Sensitivity	1.5–300 V/m	0.5–800 V/m, 100 kHz–1 GHz 0.5–600 V/m, 1–4 GHz 0.7–800 V/m, 4–6 GHz	2–1,000 V/m
Linearity	(1.5–300 V/m) ±0.5 dB and +0.9 V/m	(0.5–800 V/m) ±0.5 dB and ±0.3 V/m	(2–1,000 V/m) ±0.5 dB
Temperature Stability	±0.5 dB over operating temperature range	±0.5 dB over operating temperature range	±0.5 dB over operating temperature range
Damage Level	1,000 V/m continuous field	1,000 V/m continuous field	1,200 V/m CW
Ranges	Single	Single	Single
Data Returned from Probe	X, Y, Z axes, and composite	X, Y, Z axes, and composite	X, Y, Z axes, and composite
Power Requirement	Laser powered from FI7000 interface	Laser powered from FI7000 interface	Laser powered from FI7000 interface
Dimensions	5.7 x 5.7 x 5.7 cm (2.25 x 2.25 x 2.25 in.) 2.92 cm (1.15 in.) DIA spherical housing 3.18 cm (1.25 in.) sensor Radome per axes	5.7 x 5.7 x 5.7 cm (2.25 x 2.25 x 2.25 in.) 2.92 cm (1.15 in.) DIA spherical housing 3.18 cm (1.25 in.) sensor Radome per axes	27.8 x 6.5 x 6.5 cm (10.9 x 2.6 x 2.6 in.) 65 mm Probe head diameter
Weight	62.5 g (2.2 oz)	62.5 g (2.2 oz)	150 g (5.3 oz)
Operating Temperature Range	10–40°C (50–104°F) @ 5–95% RH non-condensing	10–40°C (50–104°F) @ 5–95% RH non-condensing	10–40°C (50–104°F) @ 5–95% RH non-condensing

Accredited Calibration of Field Probes is Available Through Our In-house Calibration Lab

FI7000 Probe Interface

Provides both power and a serial communication with the FL7000 and PL7000 series probes. An additional, low-level loop back fiber-optic connection is used to sense unexpected disconnect of laser-driven fibers to ensure user-safe laser operation. The FI7000 can be used with the FM7004A field monitor or a PC by direct communication using the USB, GPIB, or RS-232 interfaces. All "FL7000" and "PL7000" series probes require the FI7000 probe interface.

Model FI7000



All AR Laser Probes kits include—:

- 10 meter fiber-optic cable set
- Accredited calibration report

Starprobe® 4 (Model PL7004)*	Starprobe® 5 (Model FL7060)	Starprobe® 6 (Model FL7218)
Electric (E) field Relative Flatness (field aligned with sensor axes): ±2.5 dB, 800 MHz–3 GHz ±3.0 dB, 3–3.6 GHz	Electric (E) field	Electric (E) field
800 MHz–3.6 GHz	2 MHz–60 GHz	2 MHz–18 GHz
Pulse	CW	CW
±1.5 dB, 1 GHz with calibration factors applied: (typical expanded measurement uncertainty— 95% confidence interval) 0.8 dB, 800 MHz–1 GHz 1.4 dB, 1–3.6 GHz	±1.0 dB, 10 MHz with calibration factors applied: (typical expanded measurement uncertainty— 95% confidence interval) 0.95 dB, 2 MHz–1 GHz 1.5 dB, 1 GHz–60 GHz	±1.0 dB, 10 MHz with calibration factors applied: (typical expanded measurement uncertainty— 95% confidence interval) 0.8 dB, 2 MHz–1 GHz 1.4 dB, 1 GHz–18 GHz
20 msec/up to 50 samples per second, USB and GPIB only	20 msec/up to 50 samples per second USB and GPIB only	20 msec/up to 50 samples per second, USB and GPIB only
±1 dB at 1 GHz (for improved accuracy this probe should be used with a single axis aligned with the e-field being measured)	±0.5 dB, 10 MHz ±1.5 dB, 2 MHz–60 GHz typ.	±0.5 dB, 10 MHz ±1.5 dB, 2 MHz–18 GHz typ.
80–800 V/m Pulse width: 1 to 100 microseconds Pulse period: up to 5 milliseconds between pulses (greater than 200 Hz pulse rate) Pulse duty: 0.02% to 2% Pulse measurement variation (over range of pulse width, period, and duty relative to a 10 microsecond pulse width and 1 millisecond pulse period, 1 kHz pulse rate, 1% duty): +0.5 dB/-1.0 dB (typ.)	2–1,000 V/m	2–1,000 V/m
(80–800 V/m) ±0.5 dB	(2–1,000 V/m) ±0.5 dB	(2–1,000 V/m) ±0.5 dB
±0.5 dB over operating temperature range	±0.5 dB over operating temperature range	+0.5 dB over operating temperature range
1,200 V/m CW	1,200 V/m continuous field	1,200 V/m CW
Single	Single	Single
X, Y, Z axes, and composite	X, Y, Z axes, and composite	X, Y, Z axes, and composite
Laser powered from FI7000 interface	Laser powered from FI7000 interface	Laser powered from FI7000 interface
5.7 x 5.7 x 5.7 cm (2.25 x 2.25 x 2.25 in.) 2.92 cm (1.15 in.) DIA spherical housing 3.18 cm (1.25 in.) sensor Radome per axes	27.8 x 6.5 x 6.5 cm (10.9 x 2.6 x 2.6 in.) 65 mm Probe head diameter	27.8 x 6.5 x 6.5 cm (10.9 x 2.6 x 2.6 in.) 65 mm Probe head diameter
62.5 g (2.2 oz)	150 g (5.3 oz)	150 g (5.3 oz)
10–40°C (50–104°F) @ 5–95% RH non-condensing	10–40°C (50–104°F) @ 5–95% RH non-condensing	10–40°C (50–104°F) @ 5–95% RH non-condensing

** The model PL7004 is the only commercial pulsed E-Field probe approved by name in the new Ford-EMC-CS2009 specification.*

Field Monitor

Starmonitor® Field Monitor

Model FM7004A is an E- and H-field control center that offers monitoring and display capabilities for immunity-test environments for up to four field probes or field analyzers. It is exceptionally precise, with auto-recognition to adapt to laser or battery-powered probes. The unit allows field-strength measurement for up to four probe locations simultaneously, with results displayed on a backlit color touch LCD.

The FM7004A has the ability to internally apply correction factors to field probe readings. Up to six tables of correction factors containing up to 30 different frequency points can be stored. From the menu-controlled front panel, call up composite field readings, or choose readings from each axis of a three-axis probe.

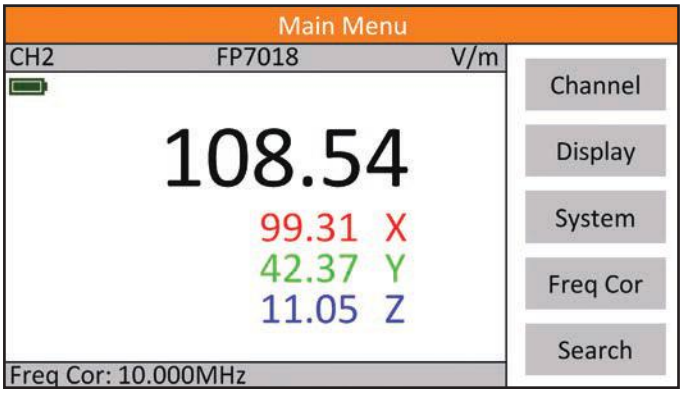
The FM7004A field monitor provides four digital interfaces (USB, GPIB, RS-232, and Ethernet) and a highly readable, user-configurable LCD touch display. Menu options are at your disposal. Communication from the chamber to the FM7004A is through fiber-optic cables.

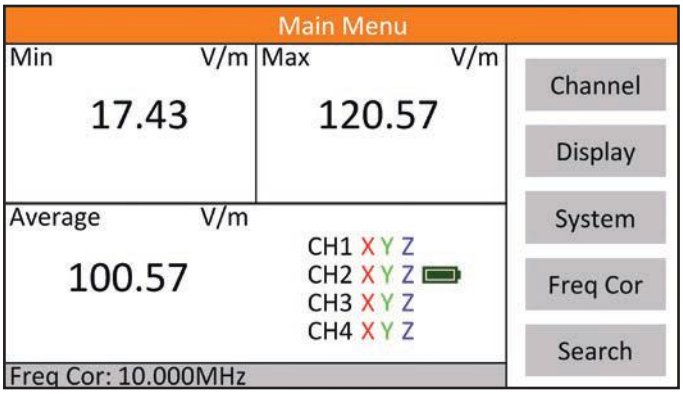
Virtual Field Monitor

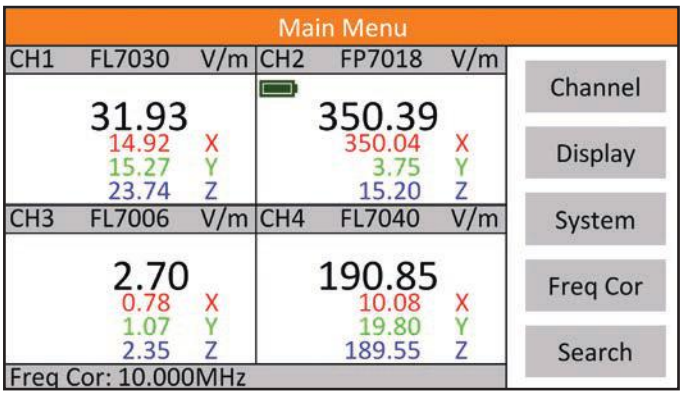
AR's VM7000 Virtual Field Monitor Software converts your computer into a field monitor. It can simultaneously control and operate any combination of the 7000 Series field probes or field analyzers. The VM7000 provides a graphical user interface that allows effortless control of all probe functions while clearly displaying probe data and status.

With this system, your computer becomes a direct connection for up to 16 simultaneous field probes and also acts as a complete control center. From the computer, you can enable and disable the individual axes of all probes at once or the ax of just one specific probe. Over-range, battery voltage, and temperature status can be displayed for continued and proper field monitoring. Field strength data can be displayed in a number of ways, and readings from all modes can be data logged.

The VM7000 runs under the Windows 7, 8, and 10 operating systems.







AR Field Monitors can display single-channel, multichannel, minimum and maximum, and average field-strength data.

Cables, Clamps, and Everything You Need to Do the Job Right

FC Series Fiber-Optic Cables

For use with our field-measurement systems

Model	Length (meters)	Compatible AR Equipment
FC7010	10	FI7000, FL7XXX, PL7XXX
FC7020	20	
FC7050	50	
FC7100	100	

MA7000 Fiber-Optic Mating Adapter Set

Used to join two FC7000 Series cables together

PS2000B Probe Stand
Adjustable to 7.5 ft., also includes one CL2000B clamp

CL2000B Probe Clamp
Extra clamp for PS2000B probe stand

Model PS2000B

Measure CW and Pulse Modulated RF fields with the FA7000 Series Field Analyzers

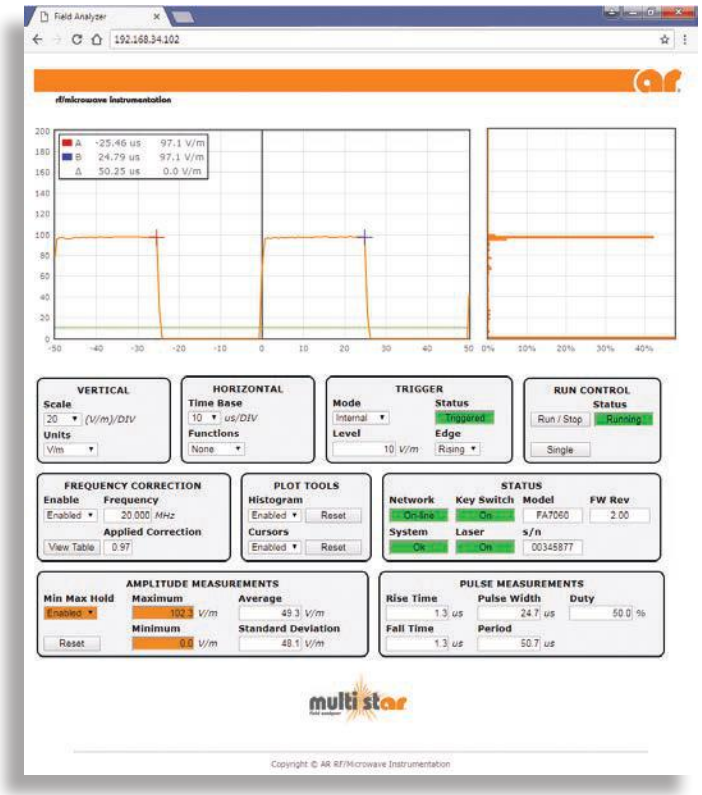
The FA7000 Series Field Analyzers detect and accurately measure modulated and CW electric fields. This innovative device uses an isotropic field sensor to sample the composite field and transmits its amplitude digitally over optical fiber to a processor unit. The sample rate of the FA7000 Field Analyzer is 1.5 million samples per second—significantly faster than conventional RF field probes—enabling it to accurately measure pulsed electric fields in the microsecond range.

Each of the FA7000 Series analyzer kits provides a web-based, oscilloscope-type display of the instantaneous electric field strength or power density over time and calculates the minimum, maximum, and average field strength of the waveform as displayed. Each kit consists of an isotropic field sensor, glass fiber-optic cabling, and a processor unit. The processor unit stores all of the necessary amplitude corrections for its associated field sensor.

Frequency correction factors are provided with each kit. Loading these factors into the processor unit automatically corrects the field readings. Linear interpolation is used between calibration frequencies.

FA7006, FA7218, FA7040, and FA7060 Processor Unit

Rack mount kit (RK7000) available for use with any FA7000 Series Field Analyzer.



Embedded webpage for viewing the modulation envelope of the measured electric field

FA7000 Series Processor Unit

Dimensions (W x H x D)	21.91 x 4.45 x 27.69 cm
Weight	1.36 kg
Operating Temperature Range	10°C to 40°C @ 5% to 95% RH non-condensing
Fiber Optic Connector	E2000 compact duplex (Yellow, keying #3)
Fiber Optic Cable length	20 m (supplied with kit)
Max Fiber Optic length	100 m (sold separately)
Remote Interfaces	LAN (Ethernet) USB 2.0 (Test and Measurement class) IEEE-488 (GPIB) Fiber Optic Serial (FSMA connectors; Reserved for use with FM7004A Field Monitor)
Max Remote Transfer Rate	20 queries per second
External Trigger Port	
Impedance	>10 MΩ
Threshold Voltage	3 V
Maximum Input Voltage	5 V
Minimum Pulse Width	40 ns
Readout Display	Embedded Web Application through PC (PC not included)
Remote Interface	LAN (Ethernet)
Compatible Web Browsers	Chrome, Internet Explorer, Safari, Firefox, Opera
Timebase Range	1 µs/Div to 400 µs/Div
Scale Range	0.1 (V/m)/Div to 5,000 (V/m)/Div
Trigger Modes	Free Run, Internal (conventional threshold), External
Edges (Threshold trigger)	Rising and Falling
Vertical Divisions	10
Horizontal Divisions	10
Laser	
Wavelength	830 nm
Output Power	≤500 mW
Shutdown Time	<1 ms after fiber disconnect
Power Requirements	
Input Voltage	90–260 VAC, 50–60 Hz
Input Current	0.2–0.6A
Input type	IEC inlet with filter
Sample Rate	1.5 MS/s
Max Record Length	6 k Points
Modulation Frequency Range	250 Hz to 750 kHz
Measurement Format	Composite only
Calibration Data	Accredited Calibration Report supplied with kit

FAC Series Fiber-Optic Cables

For use with our field analyzer systems

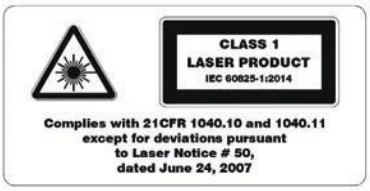
Model	Length (meters)	Compatible AR Equipment
FAC7010	10	FA7XXX
FAC7020	20	
FAC7050	50	
FAC7100	100	

FAM7000 Fiber-Optic Mating Adapter

Used to join two FAC7000 Series cables together

FA7006
Field Sensor

FA7218, FA7040, and FA7060
Field Sensor



FA7000 Series Field Sensors

	FA7006	FA7218	FA7040	FA7060
Amplitude Accuracy[1]	±1.0 dB @ 10 MHz[2] 0.8 dB, 100 kHz–1 GHz[3,4] 1.4 dB, 1 GHz–6 GHz[3,4]	±1.0 dB @ 10 MHz[2] 0.8 dB, 2 MHz–1 GHz[3,4] 1.4 dB, 1 GHz–18 GHz[3,4]	±1.0 dB @ 10 MHz[2] 0.8 dB, 2 MHz–1 GHz[3,4] 1.4 dB, 1 GHz–40 GHz[3,4]	±1.0 dB @ 10 MHz[2] 0.95 dB, 2 MHz–1 GHz[3,4] 1.5 dB, 1 GHz–60 GHz[3,4]
Isotropic Deviation[4,5]	±1.2 dB @ 10 MHz ≤ 200 V/m ±2.0 dB @ 10 MHz > 200 V/m	±1.0 dB @ 10 MHz ≤ 200 V/m ±2.0 dB @ 10 MHz > 200 V/m	±1.0 dB @ 10 MHz ≤ 200 V/m ±2.0 dB @ 10 MHz > 200 V/m	±1.0 dB @ 10 MHz ≤ 200 V/m ±2.0 dB @ 10 MHz > 200 V/m
Operating Range[9]	9–900 V/m	14–1,400 V/m	14–1,400 V/m	14–1,400 V/m
Linearity	±0.5 dB	±0.5 dB	±0.5 dB	±0.5 dB
Typical Analog Rise Time[6,7]	300 nS	300 nS	300 nS	300 nS
Minimum Pulse Width	1 ms	1 ms	1 ms	1 ms
Damage Level (CW)	1,000 V/m	1,200 V/m	1,200 V/m	1,200 V/m
Temperature Stability	±1.0 dB, 10°C–40°C[8]	±1.0 dB, 10°C–40°C[8]	±1.0 dB, 10°C–40°C[8]	±1.0 dB, 10°C–40°C[8]
Approximate Dimensions (w x h x d)	5.7 x 5.7 x 5.7 cm	27.8 x 6.5 x 6.5 cm	27.8 x 6.5 x 6.5 cm	27.8 x 6.5 x 6.5 cm
Weight	62.5 g	150 g	150 g	150 g

[1] Single axis aligned with field
[2] Without correction factors applied
[3] With correction factors applied
[4] Typical expanded measurement uncertainty (95% confidence interval)
[5] Measured at the ortho angle
[6] 10%–90%
[7] Pre-digitization
[8] 5%–95% Relative humidity, non-condensing
[9] Less than 50% duty

emcware® 5.0 for Automated EMC Testing

The emcware® 5.0 Suite by AR RF/Microwave Instrumentation provides automated Electromagnetic Compatibility (EMC) testing and report generation for users ranging from OEM, independent, and R&D test laboratories. It is a standalone software application designed to operate on a PC running a Microsoft Windows™ operating system.

The emcware® suite stands apart from other EMC software packages by implementing a unique workflow, producing an extremely user-friendly and flexible tool for laboratories. It is broken up into modules based on different types of EMC testing. Within each module, there are pre-defined standards. The ability to create custom test standards is also available through emcware®.

Equipment Management

Contained within the emcware® is a built-in Equipment List Manager. This tool allows for equipment to be entered one time and then accessed from within any of the modules. The Equipment List Manager also keeps track of calibration dates and can warn the user when the calibration date of a specific piece of equipment is approaching.

EUT Monitoring

Use custom equipment or a National Instruments DAQ card to monitor and report the status of the equipment under test (EUT). Custom equipment, in conjunction with dynamic link library (DLL) files, allows for complete EUT monitoring and control.

Instrument Drivers

An extensive equipment driver library is installed with the software. Drivers can also be created and imported by the user in the form of dynamic link library (dll's) files. The software can communicate with equipment through GPIB, RS-232, and USB remote interfaces.

Signal Routing

The emcware® is designed to allow the user to select between manual and automatic signal routing. Automatic signal routing is implemented using one or more AR RF/Microwave Instrumentation Model SC2000 System Controllers.

User Security Levels

Define equipment and test setups as a system administrator, then change the security level to Restricted User to ensure secure testing.

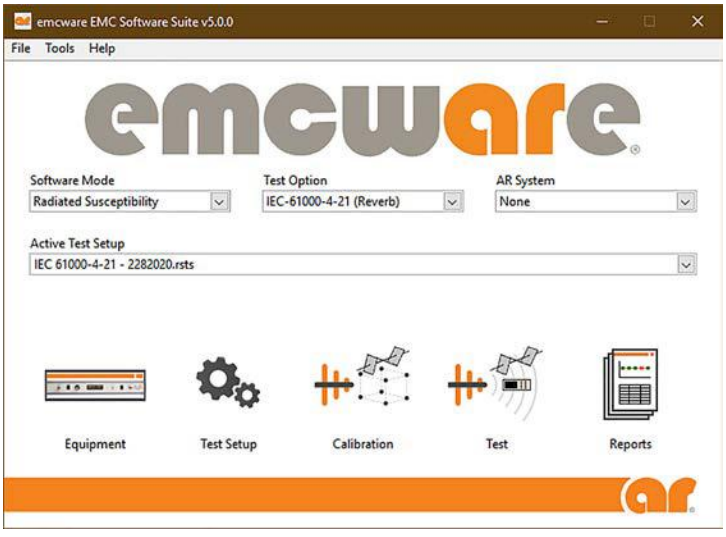
Reports

Extensive report generation capability is built in using Microsoft Word and Microsoft Excel.

Help File

Included with the software is a detailed help utility with tutorials and a searchable index.

A yearly support contract for emcware® is available.



emcware® 5.0

Included Test Standards

Radiated Susceptibility Module

- IEC 61000-4-3
  - 50130-4
  - 61000-6-1
  - 60601-1-2
  - 61326
- GR-1089
- ISO 11452
  - 11452-2
    ES-XW7T-1A278-AC (FORD)
    GMW3097 (GM)
  - 11452-3
  - 11452-5
- MIL STD 461 RS103 (Rev D, E, F, G)
- RTCA/DO-160 Section 20 (Rev D, E, F, G)

Conducted Immunity Module

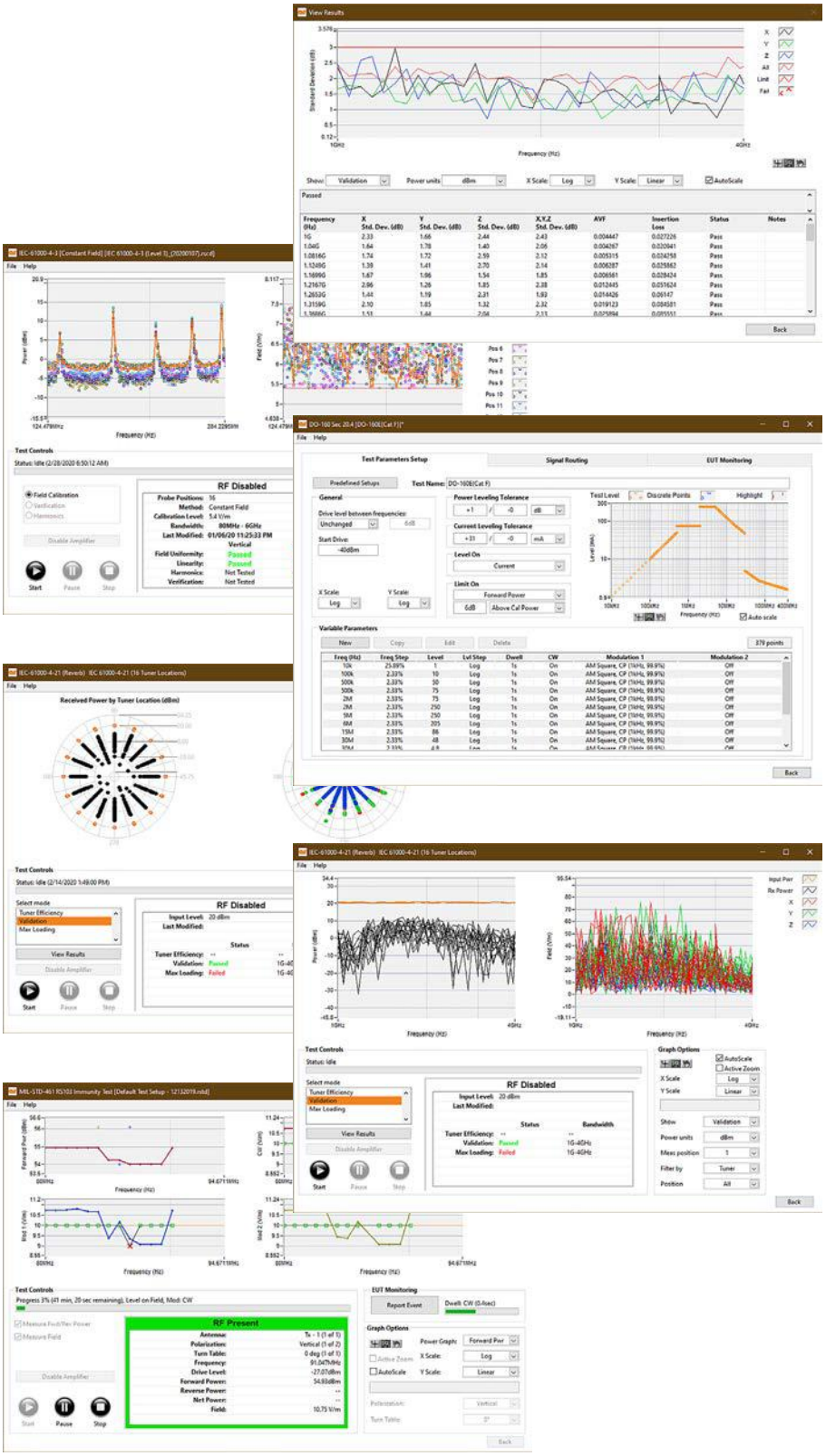
- IEC 61000-4-6
  - 50130-4
  - 61326
  - 60601-1-2
  - 61000-6-2
  - 61000-6-1
- ISO 11452-4
  - ES-XW7T-1A278-AC (FORD)
  - GMW3097 (GM)
  - 36-00-808 (Renault)
  - GS 95002 (BMW)
  - B21 7110 (Peugeot)
  - DC11224 (Chrysler)
- MIL STD 461 CS114 (Rev D, E, F, G)
- RTCA/DO-160 Section 20 (Rev D, E, F, G)

Emissions Module

- MIL STD 461 (RE101/RE102/CE101/CE102)
- RTCA/DO-160 Section 21
- CISPR 11, 25 and 32

Reverb Test

- RTCA DO-160F/G
- MIL STD-461G
- IEC61000-4-21



The AR SI1000 System Interlock

The SI1000 System Interlock provides a means of interlocking up to 12 independent pieces of equipment and/or other SI1000 units through the use of relay contacts and a fiber-optic output, which change state based on a single master interlock signal. The master interlock signal can be either a monitored switch state change or a fiber-optic signal state change. The master interlock input signal and relay output signals can be wired either NO or NC. A front-panel key switch enables the system and can be removed in the disabled position to lockout the system from accidental access. Interlock status is displayed on the front panel through the use of a bicolor (red and green) LED.

By using two SI1000 units, one configured for wired master interlock and one configured for fiber-optic master interlock and a connecting fiber-optic cable, a single switch outside an anechoic chamber (door closure switch) can be used to disable the RF generation of a system inside the chamber. Multiple units can be linked together either by wires or fiber optically to expand the interlock system.

The SI1000 front panel also includes a main power (on/off) switch and an emergency power off (EPO) switch. The outputs of these switches are routed to the rear panel of the interlock system and are provided for systems with power distribution systems with remote capability.

SI1000 System Interlock

Specifications

Wired Interlock, Remote Out, and Relay Connections	Molex receptacle, 3-pin, 0.093 in. DIA terminals
Mating 3-pin plug connector and terminals supplied	
Fiber Optic Connectors	(2) FSMA for fiber connection
Compatible with FC2000 Series Cables	
Power Requirements	
Input Voltage	90-260 VAC, 50-60 Hz
Input Current	0.2–0.6 A
Input type	IEC inlet with filter
Enclosure	Rack mount case, 1U high
Dimensions (WxHxD)	48.3 x 4.5 x 17.8 cm (19.0 x 1.75 x 7.0 in.)
Weight	2.5 kg (6.25 lb.)
Operating Temperature Range	10 C to 40 C (50 F to 104 F) @ 5% to 95% RH non-condensing

AR's SC2000 System Controller Makes System Integration Possible

The SC2000 switch controller family is a versatile and expandable platform which provides switching functions for RF systems. Unlike our previous design, the SC2000 has five user-configurable module slots on the rear panel that offer great flexibility for numerous applications. Eighteen different SCM series switch modules are available to populate the available slots; these switch modules include different switching configurations and connector types—SMA(f), K(f), or N(f). The SC2000 system can be further expanded by fiber optically linking up to seven SCX2000 expansion units that include an additional five module slots.

Features:

- Five user configurable slots per chassis
- Fiber-optically expandable up to 8 chassis
- Preconfigured versions available (Drop-in replacements for legacy model, SC1000)
- Color touch screen
- Remote or local control
- Multiple interlocks
- User defined switch states
- More than 18 switch modules available

The SC2000 switch control platform accommodates systems using combinations of multiple signal sources, amplifiers, antennas, and forward/reverse power-measurement equipment for radiated immunity testing in a wide variety of configurations. Alternative applications include the use of the system controller to switch in various RF filters for reducing harmonic distortion.

The SCP2000 model variants are preconfigured versions of the SC2000 family specifically configured to replace, on a one-for-one basis, the legacy model SC1000 System Controller model variants with the same switching and control functionality.

System-interlock capability is provided by sensing a switch closure. Interlock, "safe," and common switch states are user programmable. A fused 24 VDC output, four open drain outputs, and four TTL I/O lines are supplied to allow the control and monitoring of external switches or other peripherals.

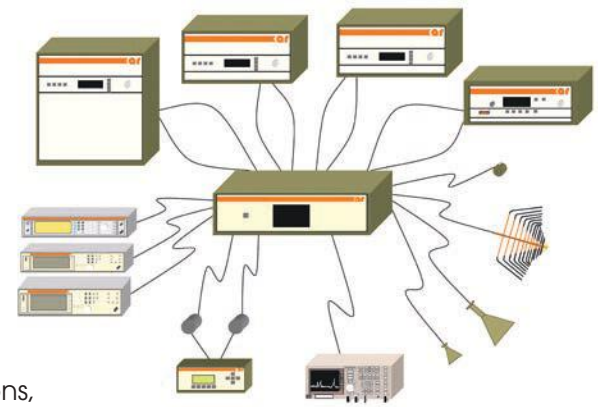
Operational control is available manually, using the provided color LCD touch screen display, or remotely, using any of the four provided remote ports (USB, GPIB, RS-232, and Ethernet).

For more information, see the specification sheets on www.arworld.us for details on the SC2000, SCX2000 and SCP2000 products and their RF switch modules, configurations, and performance (power handling and derating factors), along with specifications for base unit dimensions, weight, power requirements, power consumption, etc.

SC2000 Configuration Guide

SC2000 Versions	Max # of signal generators	Max # of amplifiers	Max # of Loads	Ability to Switch in a receiver/spectrum analyzer	# of forward power ports can be switched to 1 power head	# of reverse power ports can be switched to 1 power head	Can work up to 40 GHz	Total # of switches installed
SCP2000	3	4	4	No	4	NA	No	5
SCP2000M1	3	4	4	Yes	4	4	No	7
SCP2000M2	3	4	NA	No	4	NA	No	3
SCP2000M3	3	4	NA	No	4	4	No	4
SCP2000M4	3	4	NA	No	4	4	Yes	4
SCP2000M5	3	4	NA	No	4	4	No	5
SCX2000	3	4	4	No	4	NA	No	5

System Configuration Example



The Competitive Edge in Couplers

A Wide Range of Couplers Monitor Forward And Reflected Power to 50 GHz

Cover the RF spectrum from 4 kHz to 50 GHz with power handling capability from 50 to 15,000 watts continuous, 60,000 watts peak pulse power. This broad range gives you flexibility in coupling low- and high-power amplifiers to power meters, spectrum analyzers, receivers, oscilloscopes, and other sensitive measuring instruments.

Dual directional design—two couplers in the same package—lets you monitor forward and reflected power. The directivity, flatness, and coupling factors are excellent, allowing for accurate measurement of power.

Dual directional couplers are required for measurements per IEC 61000-4-3 and -6. Popular applications include power sampling, amplifier leveling, VSWR monitoring, field control, and amplifier load protection.

All AR couplers are power- and frequency-matched to our amplifiers and antennas.

Different connector configurations are available for all models.

RF Couplers 4 kHz to 1 GHz.

	DC2035A	DC2500AM1	DC2600A	DC3001A	DC3010A	DC3100	DC3100A	DC3300A
Frequency Range	10 kHz–250 MHz	10 kHz–250 MHz	10 kHz–250 MHz	100 kHz–1,000 MHz	10 kHz–1,000 MHz	10 kHz–1,000 MHz	10 kHz–1,000 MHz	4 kHz–400 MHz
Power (max. watts)	3,500 CW	1,000 CW 2,000 peak	600 CW, 1,200 peak (10 kHz–100 MHz)	100 CW 1,000 peak	100 CW 200 peak	500 CW	500 CW	250 CW
Flatness (max.)	± 0.9 dB	± 0.9 dB	± 0.5 dB	± 0.6 dB	± 0.6 dB	± 0.5 dB	± 0.5 dB	50 ± 1.5 dB (4 kHz–10 kHz) 50 ± .75 dB (.01 MHz–400 MHz)
Coupling Factor (includes flatness)	50 ± 1 dB	50 ± 1 dB	50 ± 1 dB	40 ± 0.8 dB	40 ± 0.8 dB	40 ± 1.5 dB	40 ± 1.5 dB	50 ± 1.5 dB (4 kHz–10 kHz) 50 ± 1 dB (.01 MHz–400 MHz)
Directivity								
typical	25 dB	25 dB	25 dB	25 dB	25 dB	25 dB	25 dB	20 dB
minimum	20 dB	20 dB (20 kHz–250 MHz) 18 dB (10 kHz–20 kHz)	18 dB	20 dB	20 dB	20 dB	20 dB	15 dB
Insertion Loss (max.)	0.30 dB	0.22 dB	0.25 dB	0.6 dB	0.6 dB	0.45 dB	0.45 dB	0.2 dB
VSWR (main line)	1.2:1 max.	1.2:1 max.	1.3:1 max.	1.3:1 max.	1.3:1 max.	1.30:1 max.	1.30:1 max.	1.2:1 max.
Connectors								
main line (J1/J2)	7-16(M)/7-16(F)	N(M)/N(F)	N(M)/N(F)	N(M)/N(F)	N(M)/N(F)	N(F)/N(F)	N(M)/N(F)	N(M)/N(F)
coupled (J3/J4)	N(F)/N(F)	N(F)/N(F)	N(F)/N(F)	N(F)/N(F)	N(F)/N(F)	N(F)/N(F)	N(F)/N(F)	N(F)/N(F)
Weight (max.)	1.8 kg 4 lb.	1.13 kg 2.5 lb.	0.64 kg 1.4 lb.	0.39 kg 0.86 lb.	0.9 kg 2 lb.	1.1 kg 2.5 lb.	1.1 kg 2.5 lb.	.36 kg 0.8 lbb
Size (approx.) W x H x D	25.4 x 8.9 x 11.7 cm (10 x 3.5 x 4.6 in.)	26.6 x 8.1 x 7.6 cm (10.1 x 3.2 x 3.0 in.)	10.2 x 7.6 x 6.6 cm (4 x 3 x 2.6 in.)	12.7 x 5.1 x 3.8 cm (5 x 2 x 1.5 in.)	12.7 x 5.1 x 3.8 cm (5 x 2 x 1.5 in.)	17 x 5.8 x 4.3 cm (6.7 x 2.27 x 1.69 in.)	17 x 5.8 x 4.3 cm (6.7 x 2.27 x 1.69 in.)	19.3 x 5.1 x 5.6 cm (7.6 x 2.0 x 2.2 in.)

	DC3400A	DC3401A	DC3510A	DC4255*	DC4256*	DC4260*	DC6080A	DC6180A
Frequency Range	10 kHz–400 MHz	10 kHz–400 MHz	9 kHz–1,000 MHz	10 kHz–250 MHz	10 kHz–250 MHz	10 kHz–250 MHz	80–1,000 MHz	80–1,000 MHz
Power (max. watts)	250 CW 400 peak	500W CW	200 CW 400 peak	10,000 CW 35,000 peak	13,000 CW 50,000 peak	20,000 CW 60,000 peak	500 CW 1,000 peak	600 CW 1,000 peak
Flatness (max.)	± 0.5 dB	±0. 6 dB	± 0.6 dB	± 0.9 dB	±1 dB	± 2 dB	± 0.5 dB	± 0.5 dB
Coupling Factor (includes flatness)	40 ± 1.0 dB	50 dB ±0.8 dB	40 ± 0.8 dB	60 dB ± 1 dB	60 dB ± 1 dB	60 dB ± 2 dB	40 dB ± 1 dB	60 ± 1 dB
Directivity								
typical	25 dB	25 dB	25 dB	25 dB	25 dB	25 dB	25 dB	25 dB
minimum	20 dB	20 dB	20 dB (.01–1,000 MHz) 15 dB (.009–.01 MHz)	20 dB	20 dB	20 dB	20 dB	20 dB
Insertion Loss (max.)	0.5 dB	0.5 dB	0.5 dB	0.1 dB	0.1 dB	0.1 dB	0.25 dB	0.15 dB
VSWR (main line)	1.3:1 max.	1.30:1 max.	1.3:1 max..	1.20:1 max.	1.20:1 max.	1.25:1 max.	1.2:1 max.	1.15:1 max.
Connectors								
main line (J1/J2)	N(M)/N(F)	N(M)/N(F)	N(M)/N(F)	EIA fixed flanges 1 5/8 in. EIA (m)	EIA fixed flanges 1 5/8 in. EIA (m)	EIA fixed flanges 3 1/8 in. EIA (m)	N(M)/N(F)	N(M)/N(F)
coupled (J3/J4)	N(F)/N(F)	N(F)/N(F)	N(F)/N(F)	N(F)/N(F)	N(F)/N(F)	N(F)/N(F)	N (F)/N F)	N(F)/N(F)
Weight (max.)	0.8 kg 1.8 lb.	0.8 kg 1.8 lb.	1.36 kg 3 lb.	7 kg 15.5 lb.	7 kg 15.5 lb.	7.9 kg 17.5 lb.	0.45 kg 1 lb.	0.6 kg 1.2 lb.
Size (approx.) W x H x D	13.2 x 6.8 x 4.1 cm (5.2 x 2.7 x 1.6 in.)	13.2 x 6.8 x 4.32 cm (5.2 x 2.7 x 1.7 in.)	15.7 x 5.8 x 4.3 cm (6.2 x 2.28 x 1.69 in.)	15.2 x 11.4 x 30.48 cm (6.0 x 4.5 x 12 in.)	15.24 x 11.43 x 32.38 cm (6.0 x 4.5 x 12.75 in.)	25.4 x 25.4 x 23 cm (10 x 10 x 9 in.)	7.62 x 7.62 x 2.77 cm (3.0 x 3.0 x 1.09 in.)	10.9 x 6.3 x 3.2 cm (4.3 x 2.5 x 1.3 in.)

**Power required for fan cooling.*

RF Couplers 4 kHz to 1 GHz (cont.)

	DC6280AM1	DC6380	DC6380M1	DC6380M2	DC6430	DC6440	DC6580AM1
Frequency Range	80–1,000 MHz	80–1,000 MHz	80–1,000 MHz	80–1,000 MHz	80–1,000 MHz	80–1,000 MHz	80–1,000 MHz
Power (max. watts)	1,500 CW 3,000 peak	3,000 CW 6,000 peak	4,500 CW 9,000 peak	7,000 CW 10,000 peak	15,000 CW	15,000 CW	1,500 CW 3,000 peak
Flatness (max.)	± 0.5 dB	± 1.0 dB	± 1.0 dB	± 1.0 dB	± 1.0 dB	± 1.0 dB	± 0.5 dB
Coupling Factor (includes flatness)	63 ± 1 dB	65 ± 1.5 dB	68 ± 1.5 dB	70 ± 1.5 dB	68 dB	70 dB	50 ± 1 dB
Directivity							
typical	25 dB	25 dB	25 dB	25 dB	20 dB	20 dB	25 dB
minimum	20 dB	20 dB	20 dB	20 dB	18 dB	18 dB	20 dB
Insertion Loss (max.)	0.15 dB	0.15 dB	0.15 dB	0.15 dB	0.1 dB	0.1 dB	0.15 dB
VSWR (main line)	1.2:1 max.	1.5:1 max.	1.5:1 max.	1.5:1 max	1.15:1 max.	1.10:1 max.	1.2:1 max.
Connectors							
main line (J1/J2)	7-16(M)/7-16(F)	EIA flange 1 5/8 in. EIA (m)	EIA flange 1 5/8 in. EIA (m)	EIA flange 1 5/8 in. EIA (m)	EIA fixed/swivel flanges, 3 1/8 in.	EIA fixed/swivel flanges, 4 1/16 in.	7-16(M)/7-16(F)
coupled (J3/J4)	N(F)/N(F)	N(F)	N(F)	N(F)	N(F)	N(F)	N(F)/N(F)
Weight (max.)	0.6 kg 1.2 lb.	1.8 kg 4 lb.	1.8 kg 4 lb.	1.8 kg 4 lb.	3.0 kg 6.6 lb.	3.5 kg 7.7 lb.	0.6 kg 1.2 lb.
Size (approx.) W x H x D	10.9 x 6.3 x 3.2 cm (4.3 x 2.5 x 1.3 in.)	20.3 x 8.9 x 10.2 cm (8 x 3.5 x 4 in.)	20.3 x 8.9 x 10.2 cm (8 x 3.5 x 4 in.)	20.3 x 8.9 x 10.2 cm (8 x 3.5 x 4 in.)	15.2 x 13.2 cm (6.0 x 5.2 in.)	15.2 x 15.8 cm (6.0 x 6.2 in.)	7.62 x 7.62 x 2.79 cm (3 x 3 x 1.1 in.)

Microwave Couplers 0.7 to 50 GHz.

	DC7128A	DC7144A	DC7154A	DC7154AM1	DC7164	DC7164M1	DC7200A	DC7205A
Frequency Range	0.8–2.8 GHz	0.7–4.2 GHz	0.7–4.2 GHz	0.7–4.2 GHz	0.8–4.2 GHz	0.8–4.2 GHz	1–6 GHz	0.7–6 GHz
Power (max. watts)	1,500 CW 10 K peak	400 CW 4 K peak	400 CW	700 CW	700 CW	1,400 CW	250 CW	250 CW
Flatness (max.)	± 0.8 dB	± 0.8 dB	± 0.8 dB	± 0.8 dB	± 0.8 dB	± 0.8 dB	± 0.8 dB	± 0.8 dB
Coupling Factor (includes flatness)	50 ± 1.0 dB	40 ± 1.3 dB	50 ± 1.3 dB	50 ± 1.3 dB	60 dB ±1 dB	65 dB ±1 dB	40 ± 1.2 dB	41 ± 1.2 dB
Directivity								
typical	25 dB	19 dB	19 dB	19 dB	19 dB	19 dB	18 dB	18 dB
minimum	20 dB	15 dB	15 dB	15 dB	15 dB	15 dB	15 dB	15 dB
Insertion Loss (max.)	0.2 dB	0.4 dB	0.4 dB	0.4 dB	0.4 dB	0.4 dB	0.2 dB	0.2 dB
VSWR (main line)	1.3:1 max.	1.25:1 max.	1.25:1 max.	1.25:1 max.	1.25:1 max.	1.25:1 max.	1.2:1 max.	1.2:1 max.
Connectors								
main line (J1/J2)	7-16(M)/7-16(F)	N(M)/N(F)	N(M)/N(F)	7-16(M)/7-16(F)	7/8 EIA	7/8 EIA	N(M)/N(F)	N(M)/N(F)
coupled (J3/J4)	N(F)/N(F)	N(F)/N(F)	N(F)/N(F)	N(F)/N(F)	N(F)	N(F)	N(F)/N(F)	N(F)/N(F)
Weight (max.)	0.7 kg 1.5 lb.	0.24 kg 0.525 lb.	0.29 kg 0.64 lb.	0.29 kg 0.64 lb.	0.91 kg 2 lb.	0.91 kg 2 lb.	0.27 kg 0.6 lb.	0.27 kg 0.6 lb.
Size (approx.) W x H x D	7.6 x 7.6 x 2.9 cm (3 x 3 x 1.125 in.)	2.35 x 5.84 x 19 cm (0.925 x 2.3 x 7.48 in.)	3.2 x 6.3 x10.9 cm (1.3 x 2.5 x 4.3 in.)	3.2 x 6.3 x 10.9 cm (1.3 x 2.5 x 4.3 in.)	5.71 x 8.25 x 15.25 cm (2.25 x 3.25 x 6.0 in.)	5.71 x 8.25 x 15.25 cm (2.25 x 3.25 x 6.0 in.)	6.8 x 5.1 x 3.05 cm (2.7 x 2.0 x 1.2 in.)	6.8 x 5.1 x 3.05 cm (2.7 x 2.0 x 1.2 in.)

Microwave Couplers 0.7 to 50 GHz (cont.)

	DC7210A	DC7215A	DC7230	DC7230A	DC7276M1	DC7281A	DC7351	DC7352A
Frequency Range	0.7–6 GHz	0.7–6 GHz	0.7–6 GHz	0.7–6 GHz	2.5–7.5 GHz	2–8 GHz	4–8 GHz	4–8 GHz
Power (max. watts)	500 CW	750 CW	500 CW 20 K peak	500 CW	2,800 CW	600 CW 10 K peak	6,000 CW 92 K peak	600 CW 10 K peak
Flatness (max.)	± 1.0 dB	±0.5 dB	± 0.5 dB	± 0.5 dB	± 2.5 dB	± 1 dB	± 1.5 dB	± 1 dB
Coupling Factor (includes flatness)	50 dB ± 1.2 dB	50 dB ± 1.5 dB	48 dB ± 1.5 dB	48 dB ± 1.5 dB	50 ± 3 dB	50 ± 2 dB	40 ± 2 dB	50 ± 2 dB
Directivity								
typical	18 dB	18 dB	20 dB	20 dB	28 dB	15 dB	35 dB	15 dB
minimum	15 dB	15 dB	15 dB	15 dB	25 dB	16 dB	30 dB	18 dB
Insertion Loss (max.)	0.2 dB	0.2 dB	0.2 dB	0.2 dB	0.3 dB	0.2 dB max.	0.15 dB max.	0.2 dB
VSWR (main line)	1.35:1 max.	1.35:1 typ. 1.45:1 max.	1.35:1 max.	1.35:1 max.	1.1:1 max..	1.30:1 max.	1.1:1 max.	1.30:1 max.
Connectors								
main line (J1/J2)	7-16(M)/7-16(F)	7-16(M)/7-16(F)	N(F)/N(F)	N(M)/N(F)	WRD-250	N(M)/N(F)	WRD-350	N(M)/N(F)
coupled (J3/J4)	N(F)/N(F)	N(F)/N(F)	N(F)/N(F)	N(F)/N(F)	N(F)	N(F)/N(F)	N(F)	N(F)/N(F)
Weight (max.)	0.27 kg 0.6 lb.	0.27 kg 0.6 lb.	0.27 kg 0.6 lb.	0.27 kg 0.6 lb.	1.7 kg 3.8 lb.	0.22 kg 0.48 lb.	1.24 kg 2.75 lb.	0.22 kg 0.48 lb.
Size (approx.) W x H x D	54.6 x 50.8 x 34.5 cm (2.15 x 2.0 x 1.36 in.)	5.5 x 5.1 x 3.5 cm (2.15 x 2.0 x 1.36 in.)	5.1 x 5.1 x 2.7 cm (2.0 x 2.0 x 1.06 in.)	5.1 x 5.1 x 2.7 cm (2.0 x 2.0 x 1.06 in.)	45.7 x 8.1 x 8.1 cm (18 x 3.2 x 3.2 in.)	10.49 x 3.07 x 2.54 cm (4.13 x 1.21 x 1 in.)	4.1 x 6.9 x 45.8 cm (1.61 x 2.72 x 18 in.)	10.49 x 3.07 x 2.54 cm (4.13 x 1.21 x 1 in.)

	DC7435A	DC7445	DC7450M1	DC7462	DC7490	DC7530	DC7620	DC7820
Frequency Range	4–18 GHz	6–18 GHz	7.5–18 GHz	12–18 GHz	8–12 GHz	18–26.5 GHz	26.5–40 GHz	33–50 GHz
Power (max. watts)	200 CW 3 K peak	3,000 CW 16 K peak	3,000 CW 21 K peak	1,400 CW 6.5 K peak	3,000 CW 208 K peak	300 CW 80 K peak	200 CW 30 K peak	200 CW 30 K peak
Flatness (max.)	± 1.0 dB	± 3.0 dB	± 1.5 dB	± 1.5 dB	± 1.5 dB	± 1 dB	± 1 dB	± 1.0 dB
Coupling Factor (includes flatness)	35 ± 2.5 dB	48 ± 4 dB	50 ± 2 dB	40 dB ± 2.0 dB	40 dB ± 2.0 dB	40 ± 2 dB	40 ± 2 dB	40 dB ± 2.0 dB
Directivity								
typical	16 dB	30 dB	28 dB	30 dB	40 dB	40 dB	28 dB	32 dB
minimum	12 dB	20 dB	25 dB	25 dB	35 dB	30 dB	23 dB	30 dB
Insertion Loss (max.)	0.6 dB	0.3 dB max.	0.15 dB	0.15 dB	0.14 dB	0.20 dB	0.26 dB max.	0.15 dB max.
VSWR (main line)	1.5:1 max.	1.3:1 max.	1.1:1 max.	1.1:1 max.	1.1:1 max.	1.10:1 max.	1.15:1 max.	1.1:1 max.
Connectors								
main line (J1/J2)	N(M)/N(F)	WRD-650	WRD-750 D24	WR62	WR90	WR42	WR28	WR22
coupled (J3/J4)	SMA(F)	N(F)	N(F)	N(F)	N(F)	K(F)	K(F)	2.4 mm (F)
Weight (max.)	0.1 kg 3 oz	0.64 kg 1.4 lb.	0.64 kg 1.42 lb.	0.17 kg 0.38 lb.	0.45 kg 1.0 lb.	204 g 7.2 oz	113 g 4 oz	0.45 kg 1 lb.
Size (approx.) W x H x D	4.3 x 1.6 x 1.9 cm (1.7 x 0.625 x 0.75 in.)	2.9 x 3.5 x 30.5 cm (1.13x1.4x12 in.)	3.5 x 4.4 x 30.5 cm (1.4 x 1.7 x 12 in.)	1.8 x 7.6 x 28 cm (0.7 x 3.0 x 11 in.)	2.54 x 8.43 x 33 cm (1.0 x 3.32 x 13 in.)	2.2 x 3.5 x 22.9 cm (0.88 x 1.4 x 9 in.)	3.5 x 1.9 x 14 cm 1.4 x 0.75 x 5.5 in.)	3.3 x 3.3 x 15.24 cm (1.3 x 1.3 x 6 in.)

Please check individual coupler data sheets available on the AR web site price list for other connector combinations.

Dual Directional Couplers and Termination Loads for RF Amplifiers

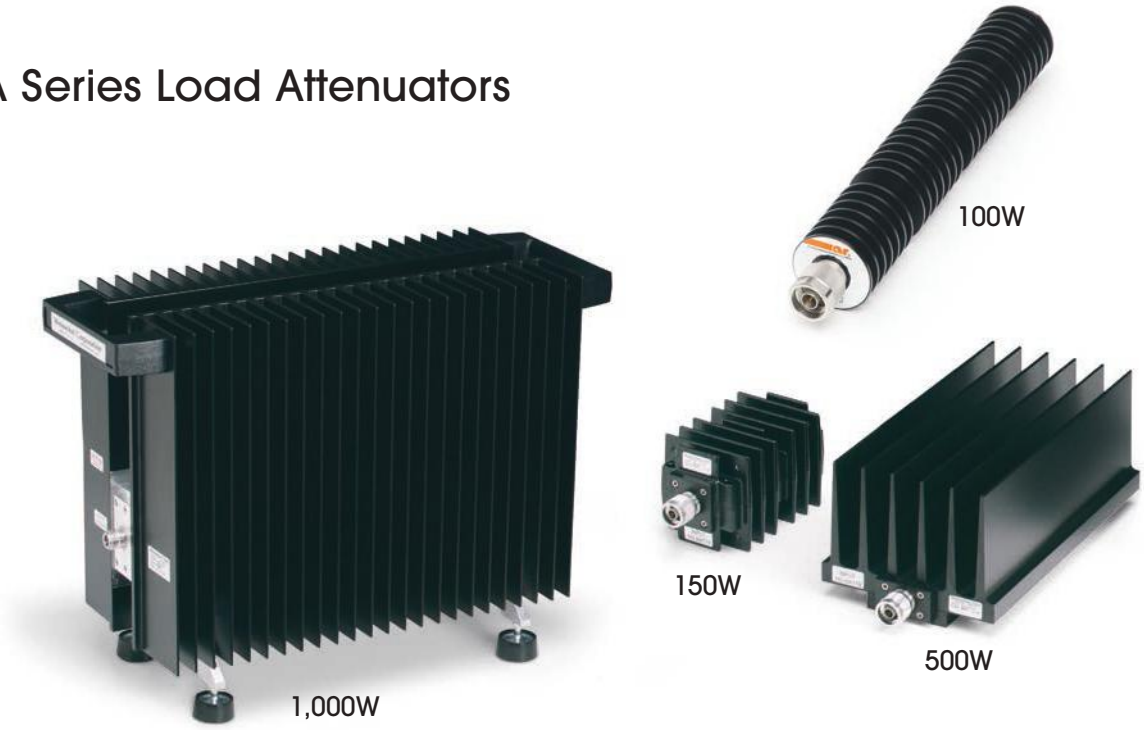
Power Amplifier	Dual Directional Coupler	Load Resistor or Attenuator
"U" Series Amplifiers		
1U1000	DC3010A	
2.5U1000	DC3010A	
5U1000	DC3010A	
10U1000	DC3010A	
25U1000	DC3010A	
50U1000	DC3010A	
100U1000	DC3100A	
250U1000	DC3100A	
500U1000	Call Factory	
"A" Series Amplifiers		
350AH1	Call Factory	
800A3B	DC2500AM1	
150A100D	DC2600A	LA500
1200A225	DC2500AM2	
2500A225B	DC2035A	
5000A225A	DC4255	
10000A225A-A	DC4256	
12500A225A-L	DC4256	
16000A225-A	DC4260	
20000A225A-L	Call Factory	
25A250B	DC3010A	
50A250	DC2600A	
125A250	DC2600A	LA150
500A250D	DC2500AM1	
100A400A	DC3400A	LA150
100A400AM20	DC3300A	
175A400	DC3401A	
250A400	DC3401A	
350A400	DC3401A	
600A400	DC3410A	
1000A400	DC3410A	
"W" Series Amplifiers		
50W1000D	DC3001A	
150W1000B	DC6080A	LA250
250W1000C	DC6180A	LA500
500W1000C	DC6180A	LA1000
750W1000B	DC6280AM1	
1000W1000G	DC6280AM1	LA4000
1500W1000A	DC6380	
2000W1000D	DC6380	LR5000
3000W1000B	DC6380M1	LR5000
4000W1000B	DC6380M2	LR5000
6000W1000	DC6430	
10000W1000A	DC6440	

Power Amplifier	Dual Directional Coupler	Load Resistor or Attenuator
"S" Series Amplifiers		
15S1G6	DC7205A	
30S1G6	DC7200A	
50S1G6AB	DC7200A	
60S1G6	DC7205A	
100S1G6AB	DC7200A	
125S1G6	DC7205A	
250S1G6	DC7230A	
350S1G6A	DC7210A	
500S1G6A	DC7215A	
125S1G2z5	DC7144A	
250S1G2z5B	DC7144A	
500S1G2z5A	DC7154AM1	
1000S1G2z5B	DC7164M1	
2000S1G2z5	DC7128AM6	
3000S1G2z5	DC7128AM6	
20S6G18A-L	DC7435AM1	
40S6G18A-L	DC7435AM1	
Dual-Band, Solid State Amplifiers		
150/150AW1000	DC3510A	
xx/xxS1G18 dual-output	DC7205A and DC7435AM1	

Power Amplifier	Dual Directional Coupler	Load Resistor or Attenuator
Solid State Pulsed Amplifiers		
1300SP1G2	DC7154A	
2000SP1G2	DC7128A	
4000SP1G2	DC7128A	
8000SP1G2	DC7128A	
1500SP1z2G1z4	DC7154A	
4000SP1z2G1z4	DC7128A	
8000SP1z2G1z4	DC7128A	
15000SP1z2G1z4	Call Factory	
1000SP2G4	DC7154A	
2000SP2G4	DC7154A	
10000SP2G4	DC7154AM1	
1000SP2z7G3z1	DC7154AM1	
3000SP2z7G3z1	Call Factory	
6000SP2z7G3z1	Call Factory	
12000SP2z7G3z1	Call Factory	
TWT Amplifiers—CW		
300T2G8	DC7281A	
500T2G8	DC7281AM2	
1000T2G8B	DC7276M1	LR2000M1
1500T2G8A	DC7276M1	LR2000M1
200T4G8	DC7352A	LR0500
250T6G18	DC7445	
250T8G18	DC7450M1	
500T8G18	DC7450M1	LR1000
1000T8G18B	DC7450M1	LR1500M1
1500T8G18	DC7450M1	LR1500M1
40T18G26A	DC7530	LR142
130T18G26z5B	DC7530	
200T18G26z5A	DC7530	
40T26G40A	DC7620	LR128
130T26z5G40B	DC7620	
200T26z5G40A	DC7620	
70T40G50	DC7820	
100T40G50	DC7820	

Power Amplifier	Dual Directional Coupler	Load Resistor or Attenuator
TWT Amplifiers—Pulse		
1000TP8G18	DC7450M1	LR1000
2000TP2G8B	DC7281A	LR2000M1
2000TP8G18	DC7450M1	LR1000
4000TP2G4	DC7281A	LA500
12000TP2G4	DC7281A	
4000TP4G8	DC7351	
12000TP4G8	DC7351	
4000TP8G12	DC7490	
20000TP8G12	DC7490	
3000TP12G18	DC7462	
5700TP12G18	DC7462	
6500TP1z5G2	DC7128A	
6900TP2G4	DC7154AM1	
7400TP4G8	DC7351	
8000TP1G1z5	DC7128A	
8000TP2z7G3z1	DC7154AM1	
8300TP8G12	DC7490	
10000TP8G10	DC7490M1	

LA Series Load Attenuators



Monitor Signals at Acceptable Levels

This series of high-power fixed coaxial attenuators is recommended for use with RF power amplifiers that operate in the same frequency and power range as the attenuators. The attenuated output provides a means of monitoring the signal at an acceptable level by sensitive measuring instruments like a spectrum analyzer, power meter, or oscilloscope and permits use of a detector for RF leveling.

LA Load Attenuators

	LA100	LA150	LA500	LA1000
Frequency Range	DC–18 GHz	DC–6 GHz	DC–5 GHz	DC–3 GHz
Power (max. watts)	100 W continuous to 25°C*	150 W continuous to 25°C*	500 W continuous to 25°C*	1,000 W continuous to 25°C*
Attenuation	40 dB**	40 dB**	40 dB**	40 dB**
Input VSWR (max.)	1.25:1 (DC–8 GHz)	1.1:1 (DC–2 GHz) 1.2:1 (2–6 GHz)	1.15:1 (DC–2.5 GHz) 1.35:1 (2.5–5 GHz)	1.15:1 (DC–1.5 GHz) 1.25:1 (1.5–3 GHz)
Output VSWR (max.)	1.35:1 (8–12.4 GHz) 1.45:1 (12.4–18 GHz)	1.20:1 (2–5 GHz)	1.15:1 (DC–2.5 GHz) 1.25:1 (2.5–5 GHz)	1.15:1 (DC–1.5 GHz) 1.25:1 (1.5–3 GHz)
Connectors Input Output	N (M) N (F)	N (M) N (F)	N (M) N (F)	N (F) N (F)
Ambient Temperature Range	–55°C to 125°C	–55°C to 125°C	–55°C to 125°C	–55°C to 125°C
Operating Position	Horizontal Only	Horizontal Only	Horizontal Only	Horizontal Only
Weight (max.)	320 g 11 oz	1.13 kg 2.5 lb.	3.63 kg 8 lb.	13.15 kg 29 lb.
Size (approximate) W x H x D	21.8 x 4.2 x 4.2 cm (8.6 x 1.62 x 1.62 in.)	80 x 80 x 137.1 mm (3.15 x 3.15 x 5.4 in.)	138.7 x 109.5 x 259.6 mm (5.46 x 4.31 x 10.22 in.)	178 x 332 x 451 mm (7.00 x 13.1 x 17.76 in.)

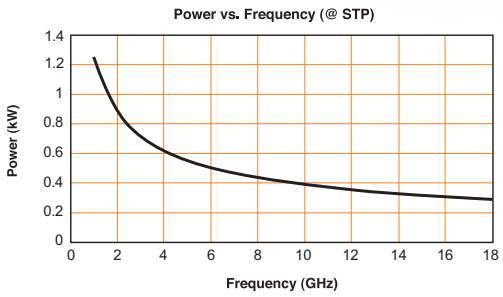
** See specification sheet for derating curves.*
*** See specification sheet for tolerances.*

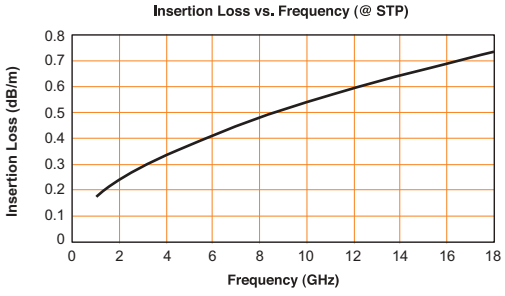
Coaxial Cables

Coaxial Cables

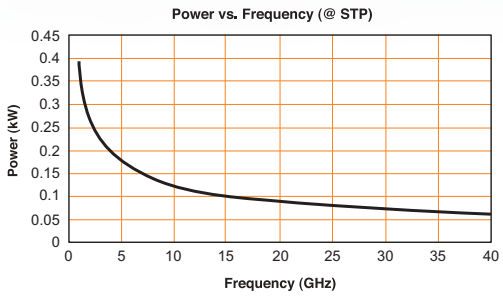
AR offers a line of low-loss microwave coaxial cables. Several connector options and lengths are available. To see a full listing of our available cables, please view the specification sheets on our website.

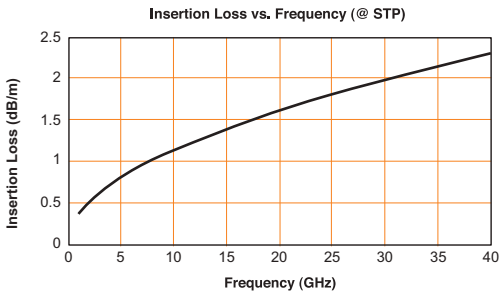
CC1 Series: Armored low-loss microwave cables for applications with frequencies less than 18 GHz, VSWR typically less than 1.35:1



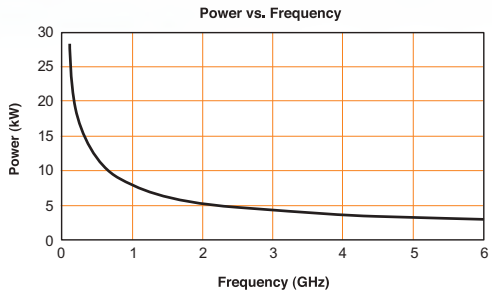


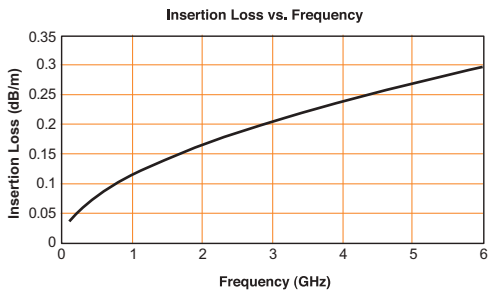
CC2 Series: Armored low-loss microwave cables for applications with frequencies less than 40 GHz. VSWR is typically less than 1.45:1



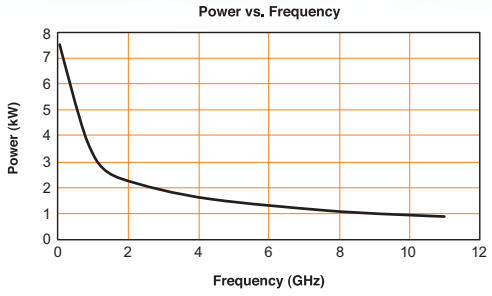


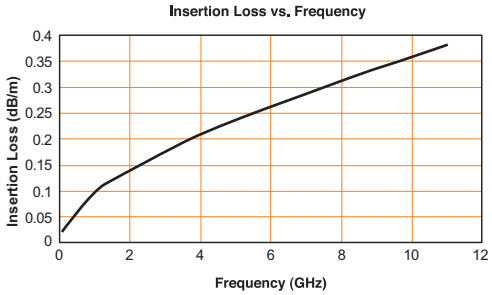
CC4 cables are recommended for AR's high power "A," "W," and "S" series amplifiers or other applications in the appropriate frequency and power range. VSWR is typically less than 1.25:1.



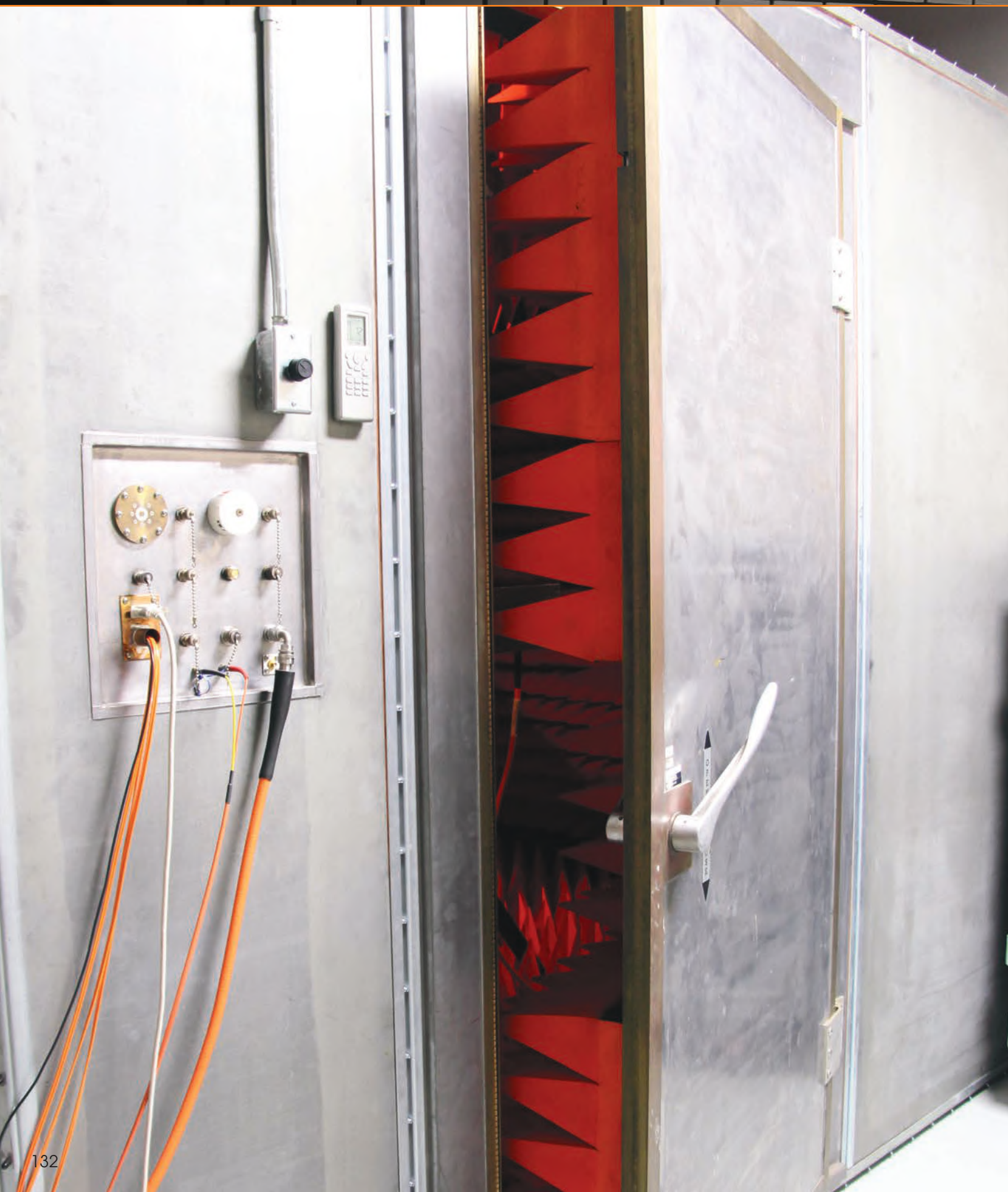


CC5 Series: Low-loss microwave cables designed for higher power applications with frequencies up to 11 GHz. VSWR typically less than 1.25:1.





EMI Accessories



Identify Shielding Discontinuities with the AR CL-105A/CL-106A Shielded Enclosure Leak Detection System (SELDS)

The CL-105A/CL-106A provides a convenient and easy-to-use means of testing electromagnetic shielding effectiveness. The CL-105A/CL-106A can be used on shielded apparatuses such as shielded cables, cable plenums, and shielded enclosures. This leakage detector is specifically designed to identify points of degradation in seams, doors, patch panels, and cable to enclosure interfaces, to name a few. The system consists of a transmitter, receiver, headphones, and durable carrying case. The incredible sensitivity of the model CL-105A Receiver allows it to meet the most rigid MIL standards (i.e., MIL-STD-188/125) for shielded room acceptance. The rugged construction and sleek appearance allow it to be used under the most adverse conditions.

The transmitter generates an output signal that is coupled directly to the shield under test. The receiver is then moved along the surface of any suspect areas of the item under test to detect and alert the user both visually and audibly in the event a discontinuity in the shield is detected. This method can detect much smaller discontinuities than typical shielding effectiveness measurements. To further aid the user with detection of leakages, the receiver features a meter, audio output for headphone operation, battery operation for portable use, and dynamic range of 120 dB. The meter is calibrated in logarithmic units that provide an indication of how severe the shielding discontinuity is.

For information about Shielding Effectiveness and Shielded Enclosure Leakage Detector System (SELDS), download Application Note—Shielding Effectiveness and Shielded Enclosure Leakage Detector System (SELDS), http://bit.ly/AppNote80.