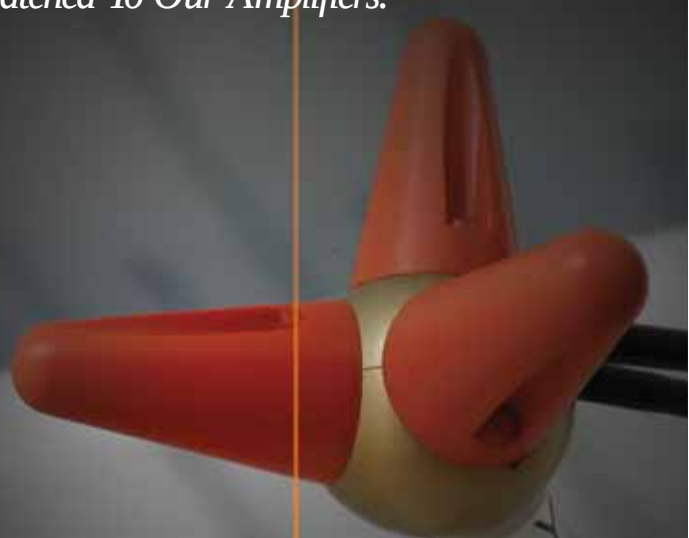
February 2008

RF/Microwave Accessories & Instruments

For All Your Testing Needs

Field Monitors,
Field Probes,
EMC Test Software,
System Controllers,
Couplers,
Signal Generators,
Power Meters,
Leak Detectors,
EMC Test Cells &
RF Conducted Probes & Clamps.
All Matched To Our Amplifiers.



rf/microwave instrumentation

The Competitive Edge in Precision, Power & Selection.

The World's Most Advanced – Most Complete and Most Rugged Line of EMC Field Monitoring Equipment.

Starprobe® Laser Powered Probes Cover The Broadest Frequency Range – 5 kHz to 18 GHz!

AR has designed & manufactured a highly-advanced line of field monitoring equipment. These E-field laser probes contain an internal microprocessor that enables them to "think" for themselves and adapt to their environment. This provides 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 fiberoptic cables provide unequalled reliability.

Starprobe® 1 *laser powered probe*
(Model FL7030) 5 kHz – 30 MHz / 1.5 – 300 V/m
Redesigned to meet IEC 6 GHz requirement!

Starprobe® 2 *laser powered probe*
(Model FL7006) 100 kHz – 6 GHz / 0.5 – 800 V/m
The world's first 18 GHz laser probe!

Starprobe® 3 *laser powered probe*
(Model FL7018) 3 MHz – 18 GHz / 1 – 1000 V/m

Starprobe® 4 *laser powered probe*
peak measuring probe for pulsed fields
(Model PL7004) 800 MHz - 3.6 GHz / 80 - 800 V/m

Clamps. Connectors and Everything You Need To Do The Job Right.

IF7000 Fiberoptic/RS-232 Interface
Allows for the easy connection of any RS-232 device to glass fiber optic cables, such as a PC to FP7000 and FH7000 field probes.

IF7001 Fiberoptic / USB Interface
Allows for easy connection of any FP7000 or FH7000 series field probe to a pc with a USB (1.1 or 2.0) port.

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

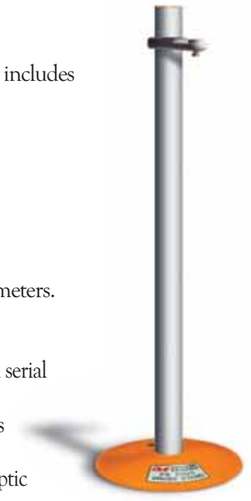
Field Probes	Starprobe® 1 (Model FL7030)	Starprobe® 2 (Model FL7006)	Starprobe® 3 (Model FL7018)	Starprobe® 4 (Model PL7004)
Sensor Type	Electric (E) field	Electric (E) field	Electric (E) field	Electric (E) field
Probe Use	CW	CW	CW	Pulse
Frequency Response	±2.0 dB, 5 kHz–30 MHz with calibration factors applied: ±1.0 dB, 5 kHz–30 MHz	±1.5 dB, 0.1 MHz–3 GHz ±3.0 dB, 3–6 GHz with calibration factors applied: ±1.0 dB, 0.5 MHz–4.2 GHz ±1.5 dB, 100 kHz–0.5 MHz, 4.2 GHz–6 GHz	with calibration factors applied: ±1.8 dB, 3 MHz–10 MHz ±0.5 dB, 10 MHz–200 MHz ±1.4 dB, 200 MHz–8 GHz ±1.8 dB, 8.0 GHz–18 GHz	±2.0 dB, 800 MHz–3.6 GHz with calibration factors applied: ±1.0 dB, 800 MHz–3.6 GHz
Response Time/Sampling Rate (through FI7000)	20 msec/up to 50 samples per second at FI7000 USB and GPIB only	20 msec/up to 50 samples per second at FI7000 USB and GPIB only	20 msec/up to 50 samples per second at FI7000 USB and GPIB only	20 msec/up to 50 samples per second at FI7000 USB and GPIB only
Isotropic Deviation	±0.5 dB (with on-axis sensitivity corrections applied)	±0.5 dB, (0.5 MHz–2 GHz) (with on-axis sensitivity corrections applied)	±1 dB (10 MHz–8 GHz) ±2 dB (8 GHz–18 GHz)	±1 dB (0.25–3.2 GHz) (with on-axis sensitivity calibration factors applied)
Sensitivity	1.5–300 V/m	1.2–800 V/m, 100 kHz–0.5 MHz 0.5–800 V/m, 0.5 MHz–1 GHz 0.5 – 500 V/m, 1 – 6 GHz	1–1000 V/m	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%
Linearity	1.5–300 V/m/±0.5dB and +0.9V/m	0.5–800 V/m/±0.5dB and ±0.3V/m	1–1000 V/m/±0.5dB and ±0.3 V/m	80–800 V/m/±0.5dB
Overload	1000 V/m continuous field	1000 V/m continuous field	1600 V/m CW	1000 V/m continuous field
Data Returned from Probe	X, Y, Z axes, and composite	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	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	28.4 x 6.4 x 6.4 cm (11.2 x 2.52 x 2.52 in.)	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
Weight	62.5 g (2.2 oz)	62.5 g (2.2 oz)	150 g (5.3 oz)	62.5 g (2.2 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	10–40°C (50–104°F) @ 5–95% RH non-condensing

PS2000 Probe Stand
Adjustable to 7.5 ft. Also includes one CL2000 clamp.

CL2000 Probe Clamp
Extra clamp for PS2000 probe stand.

Fiberoptic Cable Sets
Available in 10, 50, 100 meters.

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.



Model PS2000

The FI7000 can be used with the FM7004 field Monitor or a PC by direct communication using the USB, GPIB, or RS-232 interfaces. All laser probes require the FI7000 probe interface.

Model FI7000

The World's Largest Selection of Field Probes.

6 Probes Cover A Broad Spectrum. 100 kHz to 60 GHz. 0.4 to 1000 V/m. 0.012 to 17 A/m.

AR's six, battery-powered, rechargeable E&H field probes that cover the range from 100 kHz – 60 GHz, 0.4 to 1,000 V/m, 0.012 to 17 A/m. Individually, each probe covers a wider frequency range than most ordinary probes. They feature user-replaceable, rechargeable batteries and no re-calibration required (with battery change), and technology that's light years ahead of the competition. With quicker calibration turnaround, more complete data and excellent isotropy and linearity, these probes offer unmatched precision and accuracy. The FP7050 model even reads radar pulses. And for the ultimate in ease and portability, each field probe comes with a sturdy, protective carrying case.

With so many choices, AR has the right probe for you and your specific applications.

Battery-Powered Field Probes

Field Probes	Model FP7003	Model FP7018	Model FP7050	Model FP7060	Model FH7103	Model FH7110
Sensor Type	Electric (E) field	Electric (E) field	Electric (E) field	Electric (E) field	Magnetic (H) field	Magnetic (H) field
Frequency Response	± 0.5 dB, 100 kHz–100 MHz ± 1.4 dB, 100 MHz–3 GHz	± 1.8 dB, 3 MHz–10 MHz ± 0.5 dB, 10 MHz–100 MHz ± 1.4 dB, 100 MHz–8 GHz ± 1.8 dB, 8 GHz–18 GHz	300 MHz–50 GHz	± 0.5 dB, 27 MHz–150 MHz ± 0.8 dB, 150 MHz–1 GHz ± 0.5 dB, 1 GHz–40 GHz ± 1 dB, 40 GHz–60 GHz	± 0.5 dB, 300 kHz–30 MHz	± 0.5 dB, 27–300 MHz ± 0.65 dB, 300 MHz to 750 MHz ± 1.2 dB, 750 MHz to 1 GHz
Analog Response Time	50 usec	50 usec	100 msec	50 usec	50 usec	50 usec
Isotropic Deviation	± 1 dB for f>1MHz	± 1.5 dB, 10 MHz–8 GHz, ± 2 dB, f>8GHz	± 1 dB	± 1 dB	± 1 dB	± 1 dB
Sensitivity	0.4–660 V/m	0.6–1000 V/m	8–614 V/m	0.7–300 V/m	0.012–17 A/m	0.025–16 A/m
Linearity	± 3 dB (0.4–1.25 V/m) ± 1 dB (1.25–2.5 V/m) ± 0.5 dB (2.5–400 V/m) ± 0.7 dB (400–800 V/m)	± 3 dB (0.6–1.65V/m) ± 1 dB (1.65–3.3 V/m) ± 0.5 dB (3.3–300 V/m) ± 0.7 (300–1000 V/m)	± 0.5 dB (39–614 V/m)	+ 2 / –3 dB (1.0–2.0 V/m) ± 1 dB (2–250)	± 3 dB (0.0017–0.033 A/m) ± 1 dB (0.033–0.066 A/m)) ± 0.5 dB (0.066–3 A/m) ± 1 dB (3–17 A/m)	± 3 dB (0.025–0.05 A/m) ± 1 dB (0.05–0.1 A/m) ± 0.5 dB (0.1–3 A/m) ± 1 dB (3–16 A/m)
Damage Level	1600 V/m CW and 16,000 V/m peak	1600 V/m CW and 16,000 V/m peak	1500 V/m CW and 27.5K V pulse*	1600 V/m, CW	> 35 A/m, CW, 350 A/m pulse**	20 A/m CW, 200 A/m pulse**
Sampling Rate	60 Hz, 50 Hz, 5 Hz—user selectable	60 Hz, 50 Hz, 5 Hz—user selectable	60 Hz, 50 Hz, 5 Hz—user selectable	60 Hz, 50 Hz, 5 Hz—user selectable	60 Hz, 50 Hz, 5 Hz—user selectable	60 Hz, 50 Hz, 5 Hz—user selectable
Power Requirement	2 built-in NiMH batteries, size AA, rechargeable, changeable by operator, 40 hours operating life per charge.			2 built-in NiMH batteries, size AA, rechargeable, changeable by operator, 40 hours operating life per charge.		
Dimensions	Approx. 420 x 85 x 65 mm (16.5 x 3.4 x 2.6 in.) including base and probe head	Approx. 420 x 85 x 65 mm (16.5 x 3.4 x 2.6 in.) including base and probe head	Approx. 420 x 85 x 65 mm (16.5 x 3.4 x 2.6 in.) including base and probe head	Approx. 420 x 85 x 65 mm (16.5 x 3.4 x 2.6 in.) including base and probe head	Approx. 400 x 120 x 120 mm (15.7 x 4.7 x 4.7 in.) including base and probe head	Approx. 420 x 85 x 65 mm (16.5 x 3.4 x 2.6 in.) including base and probe head
Weight	350 g approx. (12.4 oz)	350 g approx. (12.4 oz)	350 g approx. (12.4 oz)	350 g approx. (12.4 oz)	350 g approx. (12.4 oz)	350 g approx. (12.4 oz)
Operating Temperature Range	0–50°C	0–50°C	0–50°C	0–50°C	0–50°C	0–50°C

*Pulse length 1 usec, duty cycle 1:1000
**Pulse length 1 usec, duty cycle 1:100

The Competitive Edge in Versatility.

Starmonitor® *Field Monitor*

Model FM7004 is an E- and H- field control center that offers monitoring, display, and alarm capabilities for immunity-test environments. Exceptionally precise with auto-recognition to adapt to laser or battery-powered probes. The FM7004 is self-calibrating and is programmed to be self-correcting. The unit allows field-strength measurement at up to four probe locations simultaneously with results displayed on a backlit color LCD. Choose from 10 field probes with sensitivity from 0.4 to 1000 V/m, 0.012 - 17A/m, and frequency response from 5 kHz to 60 GHz.

A new feature provides the ability to internally apply correction factors to field probe readings. Up to 4 tables of correction factors containing up to 30 different frequency points can be stored in the FM7004. From the menu-controlled front panel, call up composite field readings from E- or H-field probes, including a laser powered E-field probe, or choose readings from each axis of a three-axis probe.

The FM7004 field monitor provides four digital interfaces (USB, GPIB, RS-232 and Ethernet) and a highly readable user configurable, graphic, liquid crystal display. Menu options are at your disposal. Communication from the chamber to the FM7004 is through fiberoptic cables.

Virtual Field Monitor.

AR's VM7000 Virtual Field Monitor Software converts your computer into a field monitor. The system consists of software and any one of the available FP/FH7000 series probes (which interface fiberoptically via an electro-optic converter [IF7000 or IF7001] directly to your computer's RS-232 or USB port) or any one of the FL7000 and PL7000 series probes (which interfaces using the FI7000).

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 screen you may enable and disable the individual axes of all probes at once, or 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 2000, XP and NT operating systems.

Special Package Offer & Trade-In Program

Save over $2,000 on a probe/monitor package. Or trade in old equipment from any major manufacturer and save up to 30%! Contact your AR Sales Associate for details.

Lightweight Signal Generators Perform Heavy-Duty

Tasks Configured To Meet Many EMC Testing Standards.

Model SG1200

A lightweight signal generator with a frequency bandwidth from 9 kHz to 1.2 GHz. It provides electronic trip protection to protect the generator's output against reverse power up to 50 watts. The signal generator offers the convenience of control from the front panel as well as remote communications using either GPIB or RS-232. It also has rear panel connections and rack mounting ears for easy installation into systems. The SG1200 features 1 Hz frequency with 0.1dB amplitude resolution. (Internal or external AM/FM/Pulse/Phase modulation).

Model SG1200

Model SG6000

A lightweight high signal generator with a frequency bandwidth of 100 kHz to 6 GHz. It offers a comprehensive modulation capability and the convenience of control from the front panel and remote communications using either GPIB, RS-232, USB or LAN. Features electronic trip protection to protect the generator's output against reverse power up to 50 watts.

Model SG6000

Signal Generators

Signal Generator	SG1200	SG6000
Frequency Range (Resolution)	9 kHz - 1.2 GHz (1 Hz)	100 kHz - 6 GHz (0.01 Hz)
RF Output Range (Resolution)	-140 dBm - +13 dBm (0.1 dB)	-110 dBm - +7 dBm (0.02dB)
VSWR	<1.3:1 @ < -5 dBm <1.5:1 @ > -5 dBm	<1.7:1 @ ≥ 1.4 GHz <2.3:1 @ 1.4 GHz - 4 GHz <2.4:1 @ 4 GHz - 5 GHz <2.2:1 @ 5 GHz - 6 GHz
Max Reverse Power	Protected from up to 50 W from 50W source or 25 W from 5:1 VSWR	50 VDC Nominal 2 W Nominal
Harmonics	< -30 dBc typical @ < +7dBm < -25 dBc typical @ < +13dBm	< -30 dBc @ ≤ 3 GHz < -44 dBc @ > 3 GHz
Non- Harmonics	For >3 kHz offset < -64 dBc for full frequency range. see spec sheet for breakdown	For >10 kHz offset < -42 dBc for full frequency range. see spec sheet for breakdown
Modulations Internal & External	AM, Pulse (external only), FM, FSK, Phase	AM, Pulse, FM, FSK, Phase
AM (Amplitude modulation) Accuracy @ 1 kHz	0 - 99.9% (0.01% resolution) ±5% of set depth	0 - 90% (0.1% resolution) < ±4% of set depth (+1% typ.)
Pulse Modulation On / Off ratio Rise / Fall time Control	9 kHz - 1.2 GHz >80 dB < 20 ns (10 ns typ.) External rear panel BNC logic control 0=[0-.8V] 1=[2-5V]	10 MHz - 6 GHz >80 dB < 50 ns typ. Internal
Recommended Calibrations cycle	2 Years	2 Years
Connections	All connections on rear panel	All connections on rear panel
RF output	Type "N" (f) connector	Type "N" (f) connector
Communications	GPIB, RS-232	GPIB, USB, LAN, (SCPI communication)
Rack mounting	Rack mounting kit included	Rack mounting kit included
Dimensions	10.7x41.9x44 cm (4.21x16.49x17.32 in)	10.3x42.6x43.2 cm (4.07x16.8x17 in)
Weight	< 8 kg (17.6 lb)	≤ 12.5 kg (27.5 lb)
Operating temperature	0 - 55ºC	0 - 55ºC

The Competitive Edge in Innovation & Automation.

The AR SC1000 System Controller And Software Make Accuracy Easy.

SC1000 Configuration Guide

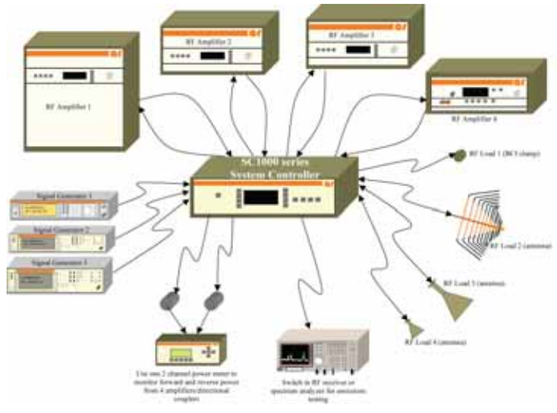
The SC1000s are versatile RF test system controllers (signal routing switch matrices) that coordinate multiple pieces of equipment in a single test set-up. This alleviates the need to change cable feeds due to frequency limitations of individual pieces. The SC1000s can be used as RF switch matrices and can also be controlled by SW888A and SW1006 software.

Designed for the use of up to three signal generators, four power amplifiers, four directional couplers, four different RF loads, and a spectrum analyzer or receiver for broadband RF testing, the SC system controllers operate in a frequency range from dc to 40 GHz via RS-232, IEEE-488 and/or by manual control via the front panel.

System interlock capability is provided by sensing a switch closure. Additionally, a switchable positive 12 VDC signal and four open collector outputs are supplied to allow the use of external switches. Alternative applications include the use of the system controller to switch in various RF filters for reducing harmonic distortion.

For more information on system controllers, please refer to application note #48 (available in the "Downloads" section of our web site).

SC1000 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
SC1000	3	4	4	No	4	NA	No	5
SC1000M1	3	4	4	Yes	4	4	No	7
SC1000M2	3	4	NA	No	4	NA	No	3
SC1000M3	3	4	NA	No	4	4	No	4
SC1000M4	3	4	NA	No	4	4	Yes	4



Software Packages Tailored To Users And Specs.

SW1006. Easy, Thorough Testing To Spec.
This user-friendly software package features Conducted Immunity Test software, Radiated Susceptibility Test software, and pre-compliance Conducted and Radiated Emissions Test software. It automatically performs both calibration and immunity testing in full compliance with EN61000-4-3, 4-6, MIL STD 461/462 RS103, CS114, RTCA/DO160 Section 20 specifications. In addition, the software enables the user to collect data and generate detailed reports.

The program also provides selectable test parameters and a "Thresholding" mode for pre-compliance investigation of equipment susceptibility. Closed loop leveling makes the program suitable for pre-compliance testing, troubleshooting and IEC 801-3 (1984) testing. Pre-compliance emissions testing can be done with the use of a spectrum analyzer and either a pre-amp or LISN.

This stand-alone Windows-based program was developed under the National Instruments (NI) LabVIEW environment, which makes available a library of over 500 instrument drivers from 45 vendors. User-installable custom drivers are also available.

The AR Brainlink® System
Together with the SC1000 System Controller, the SW1006 forms the "Brain" of AR's innovative Brainlink System which controls and coordinates multiple components of complete test systems. With Brainlink, users can conduct a series of tests with the push of a single button.

SW888A Leveling Software.
The SW888A software provides automated power or E-field leveling control for constant level testing. It controls the signal generator, field monitor, power meter and other equipment responsible for field power generation, and level maintenance. The software, which can also be used to control the SC1000 System Controller series, offers manual failure reporting and level thresholding.

Developed in National Instruments (NI) LabVIEW environment, users have access to hundreds of instrument drivers from many vendors. SW888A is supplied with an NI GPIB card and supporting GPIB cables.

The M1 release comes loaded onto a desktop PC; the M2 arrives loaded onto a notebook PC.

The Competitive Edge in Couplers.

A Wide Range Of Couplers Monitor Forward And Reflected Power To 50 GHz.

Cover the RF spectrum from 10 kHz to 50 GHz with power handling capability from 50 to 15,000 watts continuous, 50,000 watts peak pulse power. This broad range gives you flexibility in coupling low-and high-power amps 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.

RF Couplers 9 kHz to 1 GHz.

	DC2035M1*	DC2035M4*	DC2500M5	DC2600A	DC3001A	DC3002A	DC3010A	DC3400A	DC3510A
Frequency Range	10 kHz–250 MHz	10 kHz–250 MHz	10 kHz–250 MHz	10 kHz–250 MHz	100 kHz–1000 MHz	100 kHz–1000 MHz	10 kHz–1000 MHz	10 kHz–400 MHz	9 kHz–1000 MHz
Power (max. watts)	3500 cw 7 kW peak	3500 cw 7 kW peak	2500 cw 5 kW peak	600 cw, 1200 peak (10 kHz–100 MHz) 300 cw, 600 peak (100–250 MHz)	100 cw 1 kW peak	120 cw 1200 peak	100 cw 200 peak	200 cw 400 peak	200 cw 400 peak
Flatness (max.)	± 0.9 dB	± 0.9 dB	± 0.9 dB	± 0.5 dB	± 0.6 dB	± 0.6 dB	± 0.6 dB	± 0.6 dB	± 0.6 dB
Coupling Factor (includes flatness)	50 ± 1 dB	50 ± 1 dB	50 ± 1 dB	50 ± 1 dB	40 ± 0.8 dB	40 ± 0.8 dB	40 ± 0.8 dB	40 ± 0.8dB	40 ± 0.8 dB
Directivity typical minimum	 25 dB 20 dB	 25 dB 20 dB	 25 dB 20 dB	 25 dB 18 dB	 25 dB 20 dB	 25 dB 20 dB	 25 dB 20 dB	 25 dB 20 dB	 25 dB 20 dB
Insertion Loss (max.)	0.15 dB	0.15 dB	0.15 dB	0.25 dB	0.6 dB	0.65 dB	0.6 dB	0.5dB	0.5 dB
Impedance (main line)	1.2:1 max. (50 ohms)	1.2:1 max. (50 ohms)	1.2:1 max. (50 ohms)	1.3:1 max. (50 ohms)	1.3:1 max. (50 ohms)	1.3:1 max. (50 ohms)	1.3:1 max. (50 ohms)	1.25 max. (50 ohms)	1.3:1 max. (50 ohms)
Connectors main line (J1/J2) coupled (J3/J4)	 C(F)/C(F) N(F)/N(F)	 7-16(F)/7-16(F) N(F)/N(F)	 C(F)C(F) N(F)/N(F)	 N(M)/N(F) N(F)/N(F)	 N(M)/N(F) N(F)/N(F)	 N(M)/N(F) N(F)/N(F)	 N(M)/N(F) N(F)/N(F)	 N(M)/N(F) N(F)/N(F)	 N(M)/N(F) N(F)/N(F)
Weight (max.)	1.8 kg 4 lb	1.8 kg 4 lb	1.13 kg 2.5 lb	0.64 kg 1.4 lb	0.39 kg 0.86 lb	0.7 kg 1.5 lb	0.9 kg 2 lb	0.8 kg 1.8 lb	0.86 kg 1.9 lb
Size (approx.) W x H x D	25.4 x 8.9 x 11.7 cm (10 x 3.5 x 4.6 in.)	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 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.)	13.2 x 6.8 x 4.1 cm (5.2 x 2.7 x 1.6 in.)	12.7 x 5.1 x 3.8 cm (5 x 2 x 1.5 in.)	13.2 x 6.8 x 4.1 cm (5.2 x 2.7 x 1.6 in.)	4.3 x 5.8 x 15.7 cm (1.69 x 2.28 x 6.2 in.)

	DC4000M2*	DC4250*	DC6080	DC6180A	DC6280AM1	DC6380	DC6380M1	DC6380M2	DC6580A
Frequency Range	10 kHz–100 MHz	100 kHz–250 MHz	80–1000 MHz	80–1000 MHz	80–1000 MHz	80–1000 MHz	80–1000 MHz	80–1000 MHz	80–1000 MHz
Power (max. watts)	15 kW cw 50 kW peak	15 kW cw 50 kW peak	200 cw 1 kW peak	600 cw 1 kW peak	1500 cw 3 kW peak	3000 cw 6 kW peak	4500 cw 9 kW peak	7000 cw 10 kW peak	1500 cw 3 kW peak
Flatness (max.)	± 0.9 dB	± 0.9 dB	± 0.4 dB	± 0.5 dB	± 0.5 dB	± 1.0 dB	± 1.0 dB	± 1.0 dB	± 0.5 dB
Coupling Factor (includes flatness)	60 ± 1 dB	60 dB ± 1 dB	40 ± 0.5 dB	60 ± 1 dB	63 ± 1 dB	65 ± 1.5 dB	68 ± 1.5 dB	70 ± 1.5 dB	50 ± 1 dB
Directivity typical minimum	 25 dB 20 dB	 25 dB 20 dB	 25 dB 20 dB	 25 dB 20 dB	 25 dB 20 dB	 25 dB 20 dB	 25 dB 20 dB	 25 dB 20 dB	 25 dB 20 dB
Insertion Loss (max.)	0.1 dB	0.1 dB	0.25 dB	0.15 dB	0.15 dB	0.15 dB	0.15 dB	0.15 dB	0.15 dB
Impedance (main line)	1.25:1 max. (50 ohms)	1.2:1 max. (50 ohms)	1.2:1 max. (50 ohms)	1.15:1 max. (50 ohms)	1.2:1 max. (50 ohms)	1.5:1 max. (50 ohms)	1.5:1 max. (50 ohms)	1.5:1 max (50 ohms)	1.2:1 max. (50 ohms)
Connectors main line (J1/J2) coupled (J3/J4)	 EIA flange 1 5/8" EIA (m) N(F)	 EIA fixed flanges 1 5/8" EIA (m) N(F)	 N(F)/N(F) BNC(F)/BNC(F)	 N(M)/N(F) N(F)/N(F)	 7-16(M)/7-16(F) N(F)/N(F)	 EIA flange 1 5/8" EIA (m) N(F)	 EIA flange 1 5/8" EIA (m) N(F)	 EIA flange 1 5/8" EIA (m) N(F)	 C(M)/C(F) N(F)/N(F)
Weight (max.)	6.8 kg 15 lb	7 kg 15.5 lb	0.45 kg 1 lb	0.6 kg 1.2 lb	0.6 kg 1.2 lb	1.8 kg 4 lb	1.8 kg 4 lb	1.8 kg 4 lb	0.6 kg 1.2 lb
Size (approx.) W x H x D	25.4 x 10.2 x10.2 cm (10 x 4 x 4 in.)	35.56 x15.24 x 16.5 cm (14 x 6 x 6.5 in.)	7.62 x 7.62 x 2.86 cm (3 x 3 x 1.125 in.)	10.9 x 6.3 x 3.2 cm (4.3 x 2.5 x 1.3 in.)	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.)	2.79 x 7.62 x 7.62 cm (1.1 x 3 x 3 in.)

*Power required for fan cooling.

Microwave Couplers 0.8 to 50 GHz.

	DC7128A	DC7144A	DC7154A	DC7164	DC7275A	DC7276M1	DC7280A	DC7350A	DC7351
Frequency Range	0.8–2.8 GHz	0.8–4.2 GHz	0.8–4.2 GHz	0.8–4.2 GHz	2.5–8 GHz	2.5–7.5 GHz	2–8 GHz	4–8 GHz	4–8 GHz
Power (max. watts)	1500 cw 10 kW peak	400 cw 4 kW peak	400 cw 5 kW peak	700 cw 5 kW peak	700 cw 15 kW peak	2800 cw 20 kW peak	350 cw 5 kW peak	350 cw 700 peak	5000 cw 6.5 kW peak
Flatness (max.)	± 0.8 dB	± 0.8 dB	± 0.8 dB	± 0.8 dB	± 0.6 dB	± 2.5 dB	± 0.75 dB	± 0.75 dB	± 1.5 dB
Coupling Factor (includes flatness)	50 ± 1.0 dB	40 ± 1.3 dB	50 ± 1.3 dB	60 ± 1 dB	50 ± 1.3 dB	50 ± 3 dB	50 ± 1.3 dB	50 ± 1.3 dB	40 ± 2 dB
Directivity typical minimum	25 dB 20 dB	19 dB 15 dB	19 dB 15 dB	19 dB 15 dB	20 dB 15 dB	28 dB 25 dB	20 dB 16 dB	22 dB 18 dB	35 dB 30 dB
Insertion Loss (max.)	0.2 dB	0.4 dB	0.4 dB	0.4 dB	0.45 dB	0.25 dB	0.4 dB	0.4 dB	0.15 dB
Impedance (main line)	1.3:1 max. (50 ohms)	1.25:1 max. (50 ohms)	1.25:1 max. (50 ohms)	1.25:1 max. (50 ohms)	1.5:1 max. (50 ohms)	1.1:1 max. (50 ohms)	1.35:1 max. (50 ohms)	1.35:1 max. (50 ohms)	1.1:1 max.
Connectors main line (J1/J2) coupled (J3/J4)	7-16(M)/7-16(F) N(F)/N(F)	N(M)/N(F) N(F)/N(F)	N(M)/N(F) N(F)/N(F)	7/8" EIA (m) N(F)	7-16(M)/7-16(F) N(F)/N(F)	WRD-250 N(F)	N(M)/N(F) N(F)/N(F)	N(M)/N(F) N(F)/N(F)	WRD-350 N(F)
Weight (max.)	0.7 kg 1.5 lb	0.43 kg 0.94 lb	0.29 kg 0.64 lb	0.91 kg 2 lb	0.36 kg 0.80 lb	1.7 kg 3.8 lb	0.277 kg 0.48 lb	0.22 kg 0.48 lb	1.24 kg 2.75 lb
Size (approx.) WxHxD	7.6 x 7.6 x 2.9 cm (3x3x1.125 in)	2.35 x 5.84 x 19 cm (0.925 x 23 x 7.48 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 in.)	2.8 x 5.1 x 14 cm (1.1 x 2 x 5.5 in.)	45.7 x 8.1 x 8.1 cm (18 x 3.2 x 3.2 in.)	2.3 x 4.8 x 11.4 cm (0.9 x 1.9 x 4.5 in.)	2.3 x 4.8 x 8.8 cm (0.9 x 1.9 x 3.5 in.)	4.1 x 6.9 x 45.8 cm (1.61 x 2.72 x 18 in.)

	DC7420	DC7435A	DC7440A	DC7450M1	DC7462	DC7490	DC7530	DC7620	DC7750	DC7820
Frequency Range	0.8–18 GHz	4.2–18 GHz	4–12 GHz	7.5–18 GHz	12–18 GHz	8–12 GHz	18–26.5 GHz	26.5–40 GHz	18–40 GHz	33–50 GHz
Power (max. watts)	50 cw 300 peak	50 cw 300 peak	450 cw 900 peak	3000 cw 21 kW peak	1400 cw 6.5 kW peak	2400 cw 6.5 kW peak	300 cw 80 kW peak	200 cw 30 kW peak	500 cw 3 kW peak	200 cw
Flatness (max.)	± 1.2 dB	± 0.6 dB	± 1.5 dB	± 1.5 dB	± 1.5 dB	± 1.5 dB	± 1 dB	± 1 dB	± 1 dB	± 1.0 dB
Coupling Factor (includes flatness)	20 ± 1.3 dB	35 ± 1.3 dB	40 ± 2 dB	50 ± 2 dB	40 ± 2.0 dB	40 ± 2.0 dB	40 ± 2 dB	40 ± 2 dB	50 ± 2 dB	40 dB ± 2.0 dB
Directivity typical minimum	15 dB 12 dB	16 dB 12 dB	18 dB 15 dB	28 dB 25 dB	30 dB 25 dB	40 dB 35 dB	40 dB 30 dB	28 dB 23 dB	32dB 30dB	32 dB 30 dB
Insertion Loss (max.)	1.6 dB	0.6 dB	0.5 dB	0.15 dB	0.15 dB	0.14 dB	0.20 dB	0.26 dB max.	0.15 dB max.	0.15 dB max.
Impedance (main line)	1.5:1 max. (50 ohms)	1.5:1 max. (50 ohms)	1.35:1 max. (50 ohms)	1.1:1 max. (50 ohms)	1.1:1 max.	1.1:1 max.	1.10:1 max.	1.15:1 max.	1.1:1 max.	1.1:1 max.
Connectors main line (J1/J2) coupled (J3/J4)	SMA(F) SMA(F)	N(M)/N(F) SMA(F)	N(M)/N(F) N(F)/N(F)	WRD-750 D24 N(F)	WR62 N(F)	WR90 N(F)	WR42 K(F)	WR28 K(F)	WRD-180 C24 K(F)	WR22 K(F)
Weight (max.)	0.13 kg 4.5 oz	0.1 kg 3 oz	0.1 kg 3 oz	0.64 kg 1.42 lb	0.17 kg 0.38 lb	0.45 kg 1 lb	204 g 7.2 oz	113 g 4 oz	0.4 kg 0.875 lb	0.45 kg 1 lb
Size (approx.) WxHxD	19.6 x 2.74 x 1.3 cm (7.7 x 1.08 x 0.5 in.)	7.9 x 5.1 x 1.9 cm (3.1 x 2 x 0.75 in.)	10.1 x 5.1 x 2.35 cm (3.98 x 2.0 x 0.925 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 x 11 in.)	2.54 x 8.43 x 33 cm (1 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.)	3.5 x 4.4 x 20.3 cm (1.4 x 1.7 x 8 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.

More Choices To Make EMI Testing Faster, Easier, More Accurate.

CL105/106 Shielded Enclosure Leak Detector System (SELDS)

The CL-105/106 provides convenient means of testing the electromagnetic shielding effectiveness at the enclosures most likely points of degradation – the seams, doors and filter connections. The system consists of a transmitter, receiver, antenna probe, a flex antenna extension, headphones and durable carrying case. The improved sensitivity of the receiver allows it to meet the most rigid MIL standards for shielded room acceptance. The rugged construction yet sleek appearance allows it to be used under the most adverse conditions. The ability to replace the antenna probe shield when worn is also one of the features.

NM-21FFT RF Noise Meter

Radio Noise Meter Provides Precise Measurements Of Broadcast Band EMI Pollution Caused By Defective Power Line Insulators. The NM-21FFT operates at one fixed frequency, either 834 kHz in the Northwest or 1000 kHz in the Northeast. These particular frequencies were chosen because there is virtually no broadcasting activity at these bands, allowing for surveys to be performed at power generator and transmission installations. It is also available at a fixed frequency anywhere in the range of 600 kHz to 1500 kHz.

533X-11M Variable Repetition Rate Impulse Generator. 10 kHz to 1 GHz.

Model 533X-11M is a calibrated broadband signal source primarily intended for use as a calibrator when performing substitution type interference measurements. The Model 533X-11M pulse repetition rate is variable from 50 Hz to 5 MHz or it may be triggered by the power line frequency, an external trigger source or manually. The availability of these various operating modes provides versatility not found in other impulse generators. The Model 533X-11M is completely solid-state. Applications for the 533X-11M include: calibrated broadband signal source; used as a calibrator for substitution type broadband interface measurements; receiver bandwidth measurement; and rapid gain checking of tuners.

The Competitive Edge in Speed & Sensitivity.

Knife-edge Door

ARCells test cells bridge the gap between size-limited TEM (transverse electromagnetic) cells and expensive anechoic chambers for making pre-compliance radiated immunity and radiated emissions measurements on large objects. These test cells help you guard against remedial design, speed time to market and get to the test house ready for certification.

The unique design of the free-space system fits easily into small areas, allowing the cell to be constructed within a few inches from existing walls or ceiling. It's built from the inside-out, so it conforms to its environment. And it can be easily moved to a new location whenever necessary.

Other advantages of the ARCell test cells include:

- Large access for installation and removal of the EUT
- View window (located in the access door) to observe EUT
- Interior light with external on/off switch configured for 110 or 220 VAC
- 16 amp resettable circuit breaker
- Door open interlock
- User-modified access plate

TC2000C
1.2 x 1.2x 2.7m Test Cell
Max EUT size 50 cm/side (19.7 in)
TC3000B
2.4 x 2.6x 4.5m Test Cell
Max EUT size 100 cm/side (39.37 in)
TC4000B
2.4 x 2.6 x 5.7m Test Cell
Max EUT size 100 cm/size (39.37 in)

Sensitive Powerheads For One Great Meter.

Advanced digital signal processing combined with a full line of fast-response diode heads allows the PM2002 to deliver 200 readings per second in single-channel mode, 100 per second in two-channel mode. The PM2002 measures signals from -70 dBm to +20 dBm in one pass and can store calibration data for up to four heads in its internal non-volatile memory. Each new power head is supplied with a Powerhead Data Adapter that has complete calibration data stored right in a built-in EEPROM and a 5' power head cable.

The PM2002 also offers a host of other important features, including intuitive menus, two channels of information that can be changed simultaneously, and bar graphs that allow rapid peaking and tuning adjustments.

We offer a family of diode or thermo-couple 50 or 75 ohm powerheads with excellent specifications. All are supplied with carefully measured calibration factors that NIST-traceable. Please visit our web site for a full listing of available powerheads.

PM2002 Two-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 powerhead. 50 dB with thermocouple powerheads.
Inputs	Rear panel HEAD connectors and rear panel IEEE-488.
Outputs	Rear panel PWR/REF connector, 0 dBm. 50 MHz. Rear panel RECORDER BNC connector. 0 to 10 V into 1 Mohm. Output impedance is 9.09 kohms. May be operated into 1 kohm for 1 Vfs.
Standard IEEE-488 Bus	Complies with IEEE-488 and implements SH1, AH1, T6, L4, SR1, RL1, DC1 and DT1.

Standard Power Heads (Sensors)	Frequency	Dynamic range (model PM2002)
PH2000 Dual diode.	10 kHz to 8 GHz,	-60 to +20 dBm.
PH2004 Dual diode.	100 kHz to 18 GHz,	-60 to +20 dBm.
PH2010 Dual diode.	30 MHz to 40 GHz,	-70 to +20 dBm.

TEM Cells. For Small Objects. TEM Cells Save You A Trip To The Test House

These specially-designed structures can fit into the smallest rooms, enabling you to test objects up to 15 cm wide at frequencies from dc to 750 MHz in a TEM cell small enough to fit on your bench using model TC1510A. You can also test objects up to 30 cm wide from dc to 375 MHz in the larger TEM cell, model TC3020A.

AR's own resonant-mode suppression techniques permit greater bandwidth and test object size. Test house and free-space testing can wait until your design is final. You save time and money.

Conducted Immunity Testing Accessories

Conducted Immunity and Emissions Tubular Wave Couplers

Introducing a series of compact, versatile, affordable Tubular Wave Couplers for immunity testing and emissions measurement of power leads or other connection lines. The BI30000 Series features a bandwidth from 400 MHz to 3 GHz for immunity testing and 150 kHz to 3 GHz for emissions testing.

Immunity testing, using the BI30000 Series, is similar to a BCI probe as used in ISO 11451-2, ISO 11452-4, or IEC 61000-4-6, and emission measurements can be taken as a current probe according to EN 55025 (CISPR 25). With the proposed standards coming up in the automotive industry, the BI30000 Series will provide a low cost alternative to perform conductive testing up to 3 GHz.

	BI30410	BI30413	BI30416	BI30520	BI30526
Average ISL (dB)	7	8.5	10	12	15
ISL Value <10 dB	0.50–2.80 GHz	0.60–2.80 GHz	0.80–2.50 GHz	0.60–1.40 GHz	
ISL Value < 20 dB	0.15–3.00 GHz	0.15–3.00 GHz	0.20–3.00 GHz	0.15–2.50 GHz	0.20–2.50 GHz
Size	10 x 40 x 40 mm (0.394 x 1.575 x 1.575 in.)	13 x 40 x 40 mm (0.512 x 1.575 x 1.575 in.)	16 x 40 x 40 mm (0.630 x 1.575 x 1.575 in.)	20 x 50 x 50 mm (0.787 x 1.97 x 1.97 in.)	26 x 50 x 50 mm (1.02 x 1.97 x 1.97 in.)

Tubular Wave Coupler Calibration Kit

AR offers the CF30000 calibration fixture. This fixture is designed to work with the BI30000 Series Tubular Wave Couplers for the purpose of level setting prior to conducted immunity testing.

	Model CF30000
Frequency Range	400 MHz–3 GHz
Calibration Power (max. watts)	4 cw
Input Impedance	50Ω
Connectors	SMA(F)
Maximum Diameter of TWC	50 mm (1.97 in.)
Length of coupling line	120 mm (4.72 in.)
Weight	1.1 kg 2.42 lb
Size (approx.) L x W x H	230 x 95 x 90 mm (9.05 x 3.74 x 3.54 in.)

RF Conducted Probes and Clamps

The following accessories are for use with our RF Conducted Immunity CI systems, models CI00250 and CI00400.

Coupling/Decoupling Networks
AR offers a full line of coupling/decoupling networks to couple mode signals onto power supply lines. Designed to meet IEC 61000-4-6 specification requirements. All models are available in 16, 25, 32, 50, 100, 200 or 300 amps and available in 1 to 5 conductor cables.

CD10000 Series – 1 conductor
CD20000 Series – 2 conductors
CD30000 Series – 3 conductors (L-N-PE)
CD40000 Series – 4 conductors (3 phase with neutral)
CD50000 Series – 5 conductors (3 phase with neutral and PE)

Also available are coupling/decoupling networks (CDN's) for:
- Non-balanced lines – available for 2, 3, 4 or 8 lines
- Screened cables – available for 2, 3, 4, 9, 15 or 25 cables
- Unscreened balanced pair – available in 1, 2 or 4 pair

Matching calibration adapters for our CD and CDN's and 1 or 10 watt, 50 ohm termination resistors are available.

Model CI00400

Bulk Current Injection Probes
AR offers several models of bulk current injection probes for coupling disturbances onto unshielded cables in their specified frequency range.
- BI00250: 10 kHz – 250 MHz, used for testing IEC 61000-4-6 RF Conducted Immunity
- BI00400: 10 kHz – 400 MHz, used for testing MIL-STD 461 CS114 and DO160 RF Conducted Immunity
- BI00401: 1 – 400 MHz, used for testing to ISO 11452-4 and SAE J1113-4 Automotive RF Conducted Immunity
- BI01000: 100 kHz – 1000 MHz, used for testing Automotive RF Conducted Immunity

Current Monitor Probes
AR offers a line of clamp-on monitoring probes that are used to measure RF currents flowing through the conductor onto which the probe is placed. The following models are available:
- BP00100: 10 kHz – 100 MHz
- BP00400: 10 kHz – 400 MHz
- BP00250: 150 kHz – 250 MHz

Electromagnetic Clamps
AR's high-efficient electromagnetic clamps are for testing to IEC 61000-4-6 RF Conducted Immunity specifications. They operate in the 10 kHz – 1000 MHz range and due to their aperture size, are ideal for testing multiple conductors at once. 2 models are available, along with calibration fixtures for all current injection clamps we carry.
- EM10123 (23 mm aperture)
- EM10132 (32 mm aperture)

For more information about selecting accessories for our Conducted Immunity Systems, please see Application Note #41.

Waveguides and Waveguide adapters

AR also offers a full line of low loss microwave waveguides for high frequency testing. We offer several varieties of waveguides including flexible twistable, rigid, seamless, 90 degree rigid twist and 90 degree E of H bend. Our line of waveguide adapters are high power, double rigid waveguide-to-coax adapters. For a full listings of our offerings, please visit our website for the full specification sheets.

Waveguides Series

WF Series (flexible twistable waveguides)
WR Series (rigid waveguides)
WS Series (seamless waveguides)
WT Series (90 degree rigid twist waveguides)
WB Series (90 degree E of H bend)

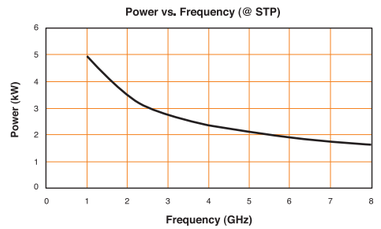
Waveguide Adapters

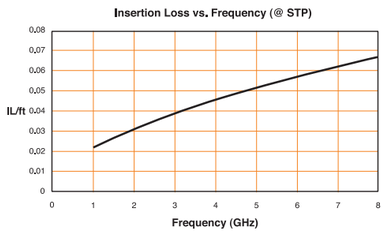
WAVEGUIDES					
	Frequency Range	Waveguide	Available Lengths	Power (watts)	Attenuation (dB/meter)
WF Series	7.5 to 18 GHz	WRD-750-D24	30.5 to 300 cm (1 to 9.84 ft)	250	0.8038
	18 to 26.5 GHz	WR-42	15.25 to 100 cm (0.5 to 3.28 ft)	100	1
	26.5 to 40 GHz	WR-28	15.25 to 100 cm (0.5 to 3.28 ft)	75	1.64
WR Series	7.5 to 18 GHz	WRD-750-D24	20.3 to 300 cm (8 in to 9.84 ft)	3000	0.4
	18 to 26.5 GHz	WR-42	30.5 to 91.44 cm (1 to 3 ft)	350	0.79
	26.5 to 40 GHz	WR-28	30.5 to 91.44 cm (1 to 3 ft)	250	1.27
WAVEGUIDE ADAPTERS					
Frequency Range	Waveguide	Coax Connector	Sex	Power	Comments
7.5 to 18 GHz	WRD-750-D24	N	M or F	500	Side or End Launch
		TNC	M or F	500	Side or End Launch
		N	M or F	250	Side Launch only
		SMA	F	250	Side Launch only
2.5 to 7.8 GHz	WRD-250-D30	7-16 DIN	M or F	750	Side or End Launch
		N	M or F	750	Side or End Launch
		SC	M or F	1000	Side or End Launch
		N	M or F	250	Side Launch only
		SMA	F	50	Side Launch only
18 to 26.5 GHz	WR-42	K	M or F	10	Side or End Launch
		SMA	F	50	Side Launch only
		SMA	F	100	End Launch only
26.5 to 40 GHz	WR-28	K	M or F	10	Side or End Launch

Coaxial Cables

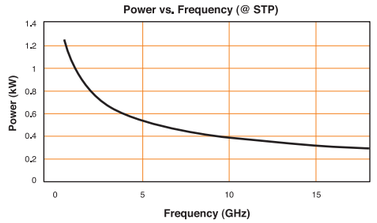
AR offers a line of low loss microwave coaxial cables. Several connector options and lengths are available. To see a full listing of our available cables, please view the specification sheets on our website.

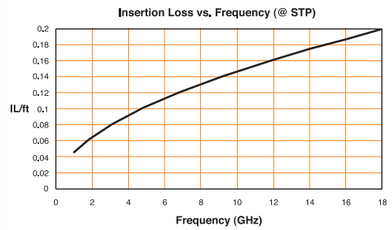
CC300000 Series: Low loss microwave cables for applications with frequencies less than 8 GHz and high power, VSWR typically less than 1.25:1



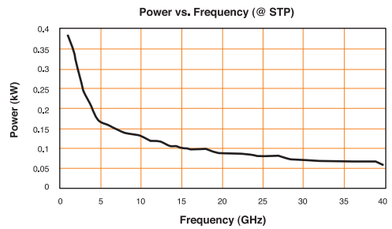


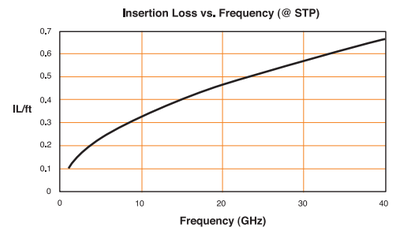
CC100000 Series: Armored low loss microwave cables for applications with frequencies less than 18 GHz, VSWR typically less than 1.35:1





CC200000 Series: Armored low loss microwave cables for applications with frequencies less than 40 GHz, VSWR typically less than 1.45:1





The Competitive Edge in Low Noise Amplifiers.

The LN1G11 Adds More Versatility To The Preamplifier Series, With A Frequency Response From 1.0 to 11.0 GHz.

These Preamplifiers Add Sensitivity to Low-Level Receivers.
With their very low noise figures, these preamplifiers increase the dynamic range of receivers with higher noise figures. Low noise, high gain (30 dB).
Bandwidth from 10 kHz to 11 GHz.
The model LN1000AM4 comes with SMA connectors and a gain vs. frequency plot, covering 10 kHz to 1000 MHz in 1 MHz steps per SAE test requirements.

LN Low Noise Amps

	LN1000A	LN1000B	LN1000AM4	LN1500	LN1G11
Power Output	+11 dBm at less than 1 dB gain compression	+11 dBm at less than 1 dB gain compression	+11 dBm at less than 1 dB gain compression	+10 dBm at less than 1 dB gain compression	+10 dBm at less than 1 dB gain compression
Frequency Response	10 kHz–1000 MHz	10 kHz–1000 MHz	10 kHz–1000 MHz	0.1–1500 MHz	1.0–11.0 GHz
Input for Rated Output	–18 dBm max	–18 dBm max	–18 dBm max	–19 dBm max	–16 dBm max
Gain	30 dB min	30 dB min	30 dB min	30 dB min	27 dB min
Gain Flatness	±1.5 dB	±1.5 dB	±1.5 dB	±1.5 dB	±1.5 dB
Noise Figure	3.5 dB typical 4.5 dB max (2–1000 MHz)	3.5 dB typical 4.5 dB max (2–1000 MHz)	3.5 dB typical 4.5 dB max (2–1000 MHz)	3.8 dB typical	6.5 dB typical
Input Impedance	VSWR 2.5:1 max (50 ohms)				
Output Impedance	VSWR 2.0:1 max (50 ohms)				
Mismatch Tolerance	100%, will operate without damage, foldback or oscillation with any magnitude and phase of source and load impedance.				
Modulation Capability	Will faithfully reproduce AM, FM, or pulse modulation appearing on the input signal				
Harmonic Distortion	–20 dBc max at +11 dBm output	–20 dBc max at +11 dBm output	–20 dBc max at +11 dBm output	–20 dBc max at +10 dBm output	–20 dBc max at +10 dBm output
Third Order Intercept Point	+21 dBm typical	+21 dBm typical	+21 dBm typical	+20 dBm typical	+20 dBm typical
Primary Power	100–240 VAC, 50/60 Hz with an IEC 320 AC input connector for LN1000B, LN1500 and LN1G11 (selected automatically); the LN1000A and LN1000AM4 have a external power supply and connectors.				
RF Connectors	BNC(F)	N Front(F)	SMA(F)	N Front(F)	N Front(F)
Weight (max.)	0.68 kg 24 oz	4.5 kg 10.0 lb	0.68 kg 24 oz	4.5 kg 10.0 lb	4.5 kg 10.0 lb
Size (approximate) W x H x D	12.7 x 3.8 x 5.1 cm* (5.0 x 1.5 x 2.0 in.)	26.0 x 11.7 x 21.6 cm (10.3 x 4.6 x 8.5 in.)	12.7 x 3.8 x 5.1 cm* (5.0 x 1.5 x 2.0 in.)	26.0 x 11.7 x 21.6 cm (10.3 x 4.6 x 8.5 in.)	26.0 x 11.7 x 21.6 cm (10.3 x 4.6 x 8.5 in.)

* Exclusive of power supply and connectors.

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

	LA150	LA250	LA500	LA1000
Frequency Range	DC–5 GHz	DC–5 GHz	DC–5 GHz	DC–3 GHz
Power (max. watts)	150 cw continuous to 55°C*	250 cw continuous to 55°C*	500 cw continuous to 35°C*	1000 cw continuous to 25°C*
Attenuation	40 dB ± 1.5 dB (DC–5 GHz)	40 dB ± 1.75 dB (DC–5 GHz)	40 dB ± 0.5 dB (DC–2.5 GHz) 40 dB + 1.5, –0.5dB (2.5–5 GHz)	40 dB ± 0.75 dB (DC–1.5 GHz) +1.5, –0.5 dB (1.5–3 GHz)
Input VSWR	1.1:1 (DC–2 GHz) 1.15:1 (2–5 GHz)	1.1:1 (DC–2 GHz) 1.15:1 (2–5 GHz)	1.1:1 (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	1.20:1 (2–5 GHz)	1.25:1 (DC–5 GHz)	1.1:1 (DC–2.5 GHz) 1.15:1 (2.5–5 GHz)	1.15:1 (DC–1.5 GHz) 1.25:1 (1.5–3 GHz)
Connectors	N male (Input) N(F) (Output)	N male (Input) N(F) (Output)	N male (Input) N(F) (Output)	N(F) (Input) N(F) (Output)
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.)	1.13 kg 2.5 lb	1.59 kg 3.5 lb	3.63 kg 8 lb	13.15 kg 29 lb
Size (approximate) W x H x D	80 x 80 x 137.1 mm (3.15 x 3.15 x 5.4 in.)	78.5 x 78.5 x 198 mm (3.09 x 3.09 x 7.8 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 derating curves on data sheets – contact AR for more details.

NE3000 Noise Emitter. 9 kHz to 3.5 GHz.

This broadband noise source can be used as a reference standard to compare different radiated emissions test sites such as OATS, anechoic chambers or ARcells.

Continuous broadband RF output reduces the probability of missed resonances. The device is powered by two C-sized batteries and will typically operate for up to six hours.

The NE3000 consists of a base unit, three monopoles (100mm and 115mm top loaded monopoles and a 1–5 GHz* monopole), and LISN adapter. It comes in a foam-lined carrying case. Vertical and horizontal OATS calibration data at 3 meters is supplied.

* Some frequencies above 3.5 GHz are possible, but care should be exercised.

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ar Global Promise

The AR warranty is more than just a warranty, it's a promise, backed by a knowledgeable support team that's always there for you to help solve any problems and answer any questions, today and tomorrow. AR warrants its amplifiers (all parts excluding traveling wave and vacuum tubes), antennas, pre-compliance test systems, transient generators, power meters, field monitoring equipment, conducted immunity generators, signal generators, couplers and tripods to be free of defects in materials and workmanship for a period of three years from date of shipment. Traveling wave tubes on the following amplifier models 200T1G3A, 200T2G8A, 200T8G18A, 250T1G3, 250T8G18 carry a two-year warranty. Vacuum tubes on our "L" series amplifiers and other traveling-wave tubes as well as powerheads carry a one-year warranty.

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