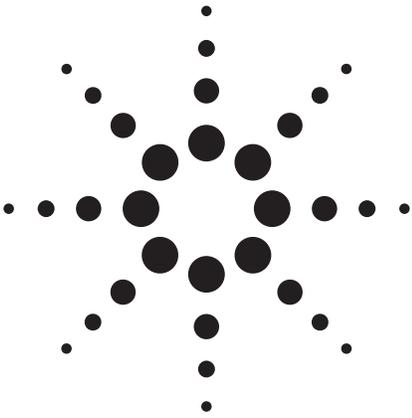


EMC Accessories Catalog



Transducers and Accessories

Agilent 11966 Series Antennas

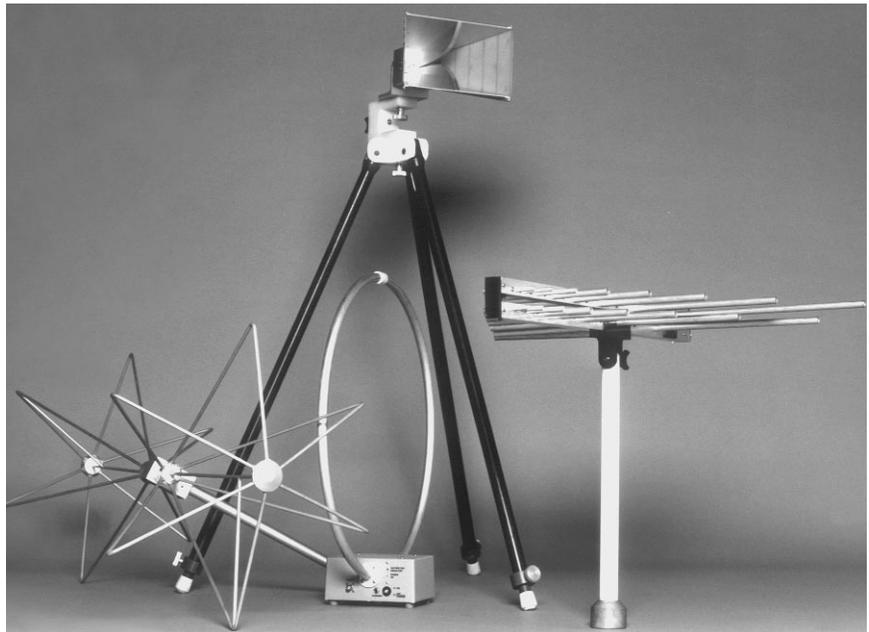
Agilent 11967 Series Conducted EMC Accessories

Agilent 11968 Series EMC Positioning Accessories

A fully equipped electromagnetic compatibility (EMC) laboratory requires a wide variety of instruments, equipment, and accessories to allow measurements to be made accurately and efficiently. On a smaller scale, design engineers and test technicians also need an assortment of measurement tools to evaluate their product designs prior to formal EMC compliance testing.

This EMC accessories catalog helps you quickly find the equipment you need to make your EMC measurements.

You'll find a large selection of antennas, current probes, LISNs, cables, tripods, preamplifiers, and other accessories. Each is designed to enhance your EMC measurement capabilities and provide lasting value.



Agilent Technologies is continually expanding its line of EMC accessories to ensure the most comprehensive line of EMC test equipment available. Be sure to check with your local Agilent sales representative if you need an item that is not listed in this product overview.



Agilent Technologies

Innovating the HP Way

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21	11729-60014	Low Noise Preamplifier

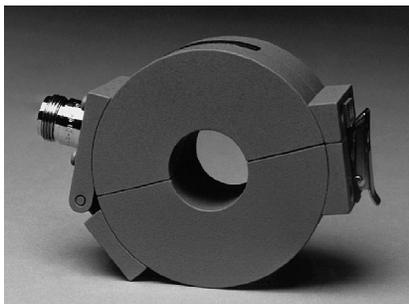
Recommended Transducers for Commercial and MIL-STD EMI Testing



Conducted EMI Accessories

Agilent 11967A Current Probe

This current probe is designed for MIL-STD 461A/B/C CE-03 measurements of conducted emissions on power and has a constant transfer impedance of 0.5Ω (± 2 dB) from 50 kHz to 50 MHz.



Frequency Range 15 kHz–50 MHz
Max Primary Power 350 A, DC–60 Hz
Aperture Diameter 25 mm (1 in)
Connector Type N female

Agilent 11967B Current Probe

This current probe is designed for MIL-STD 461A/B/C CE-01 and 461D CE101 measurements of conducted emissions on power and interconnecting leads. The probe has a constant transfer impedance of 0.3Ω (± 2 dB) from 2 kHz to 2 MHz.



Frequency Range 20 Hz–2 MHz
Max Primary Power 100 A, DC–400 Hz
Aperture Diameter 25 mm (1 in)
Connector Type N female

0160-6683 10 μ F Capacitor

Many MIL-STD 461A/B/C conducted emissions test setups require a $10 \mu\text{F}$ capacitor be placed between each line being tested and the metallic tabletop surface where the test is being made.



Capacitance Value $10 \mu\text{F} \pm 10\%$
Maximum Voltage 600 VDC, 250 V at 400 Hz
Maximum Current 50A
Connector Type 1/4-28 feed-thru stud

Conducted EMI Accessories

Agilent 11967D 10A Line Impedance Stabilization Network

This V-network, two line, single phase line impedance stabilization network (LISN) meets the requirements of the FCC, VDE, and the European Norms (ENs) for commercial conducted emissions testing. NEMA power outlet comes standard with product.



Frequency Range	9 kHz–30 MHz
Power Source Frequency	DC–60 Hz
Maximum Current	10 A
Maximum Voltage	460 VAC line-to-line 250 VAC line-to-ground
Network Inductance	50 μH–250 μH
Network Impedance	50 Ω
Connector Type	BNC female
Option 001	SCHUKO outlet
Option 002	British outlet

Agilent 11967E 25A Line Impedance Stabilization Network

This LISN is a two line single phase device. It has a standard NEMA power outlet adapter.

Frequency Range	9 kHz–30 MHz
Power Source Frequency	DC–60 Hz
Maximum Current	25 A
Maximum Voltage	460 VAC line-to-line 250 VAC line-to-ground
Network Inductance	30 μH–250 μH
Network Impedance	50 Ω
Connector Type	BNC female
Option 001	SCHUKO outlet
Option 002	British outlet
Option 003	Australian outlet

Agilent 11967A K05 Absorbing Clamp

The absorbing clamp is used in CISPR 14 based tests to measure interference power levels on cables connected to electronic and electrical devices.



Frequency Range	30 MHz–1 GHz
Aperture Size	27 mm
Connector Type	BNC female

Antennas¹

Agilent 11966A Active Magnetic Loop Antenna

The 11966A active loop antenna was designed specifically for three-meter VDE 0871 Limit B magnetic-emissions testing. A built-in preamplifier in the antenna base matches the low impedance of the loop with the 50 watt input of the EMI receiver and provides a consistent, linear antenna factor over the frequency range of the antenna. A built-in saturation indicator alerts the operator to overload conditions. The standard unit is supplied with a 120 VAC/60 Hz battery charger. Option 220 replaces the standard battery charger with a 220 VAC/50 Hz unit.

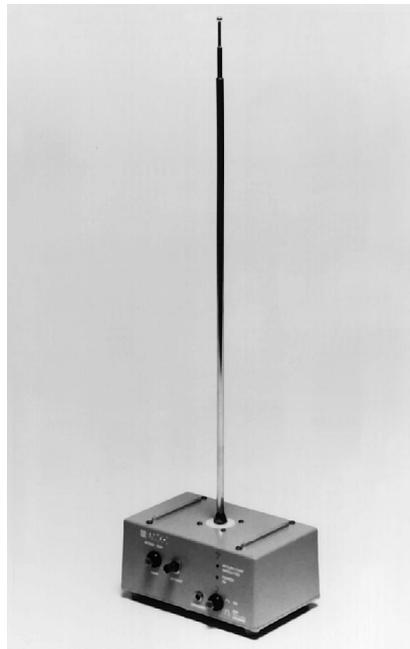


Frequency Range 10 kHz–30 MHz
Loop Diameter 600 mm (23.6 inches)
Battery Type Rechargeble, sealed lead-acid
Impedance 50 Ω
Connector Type BNC female
Mounting Base (to attach unit to tripod) 1/4 inch x 20 female thread

Frequency (MHz)	Typical Antenna Factor (dB)
0.01	17.7
0.02	13.4
0.05	10.0
0.07	10.4
0.1	10.2
0.15	10.1
0.25	10.1
0.5	10.2
0.75	10.3
1	10.4
2	10.5
3	10.5
4	10.6
5	10.6
10	10.6
15	10.3
20	9.6
25	8.6
30	7.1

Agilent 11966B Active Monopole Antenna

This broadband active rod E-field antenna has a preamplifier built into its base. This design provides sensitivity, high dynamic range, and a flat antenna factor, yet eliminates the need for manual tuning or band-switching. A built-in saturation indicator alerts the operator to overload conditions. The standard unit is supplied with a 120 VAC/60 Hz battery charger. Option 220 replaces the standard battery charger with a 220 VAC/50 Hz unit.



Frequency Range 30 Hz–50 MHz
Internal Atten 10 and 30 dB
Saturation Point 22 V/m (using 30 dB atten)
Battery Type Rechargeble, sealed lead-acid
Impedance 50 Ω
Connector Type BNC female
Mounting Base (to attach unit to tripod) 1/4 inch x 20 female thread

Frequency (MHz)	Typical Antenna Factor (dB)
0.0001	5.3
0.0003	1.7
0.0005	1.2
0.0007	1.1
0.0009	1.0
0.001	1.1
0.003	0.9
0.005	0.8
0.007	0.9
0.009	0.6
0.01	1.0
0.03	0.7
0.05	0.6
0.07	0.5
0.09	0.5
0.1	0.6
0.3	0.5
0.5	0.5
0.7	0.5
0.9	0.6
1	0.6
3	1.4
5	1.6
7	1.9
9	2.2
20	2.9
50	9.6

Antennas¹

Agilent 11966A K24 Biconical Antenna

The rugged balun design of this antenna makes it especially suitable for susceptibility tests where high input powers are needed.

Frequency Range 20 MHz–300 MHz
Max Contin Power 2000
VSWR (avg) 1.9 : 1
Impedance 50 Ω
Connector Type N female
Mounting Base 1/4 inch x 20 female thread

Frequency (MHz)	Antenna Factors (dB)	
	11966A K24	11966A K38
20	11.5	—
30	13.0	13.5
40	14.7	15
50	12.2	12.7
60	10.1	10.4
70	8.9	8.9
80	8.0	8.5
90	8.9	8.8
100	9.6	9.6
110	11.3	11.3
120	12.8	12.6
130	14.5	14.1
140	15.9	16.0
150	16.5	16.6
160	16.0	16.5
170	15.3	15.6
180	14.5	14.8
190	14.5	14.5
200	13.8	14.1
210	14.0	14.1
220	14.5	14.4
230	15.8	15.8
240	16.8	17.0
250	18.3	18.9
260	19.9	20.3
270	21.4	22.0
280	22.6	23.1
290	20.9	21.0
300	24.6	22.7

Agilent 11966A K38 Biconical Antenna

This versatile antenna is useful for both emissions and immunity measurements and can handle up to 300 watts of continuous power.

Frequency Range 30 MHz–300 MHz
Max Contin Power 300 W
VSWR (avg) < 2.5 : 1
Impedance 50 Ω
Connector Type N female
Mounting Base 1/4 inch x 20 female thread

Agilent 11955A Biconical Antenna

This economical antenna has typical antenna factors.

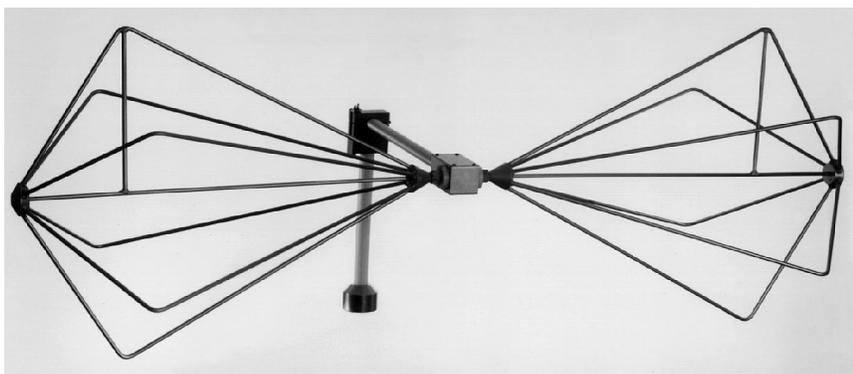
Frequency Range 30 MHz–300 MHz
Max Contin Power 0.5 W
VSWR (avg) 1.8 : 1
Impedance 50 Ω
Connector Type N female
Mounting Base 1/4 inch x 20 female thread

Agilent 11966C Biconical Antenna

This state-of-the-art antenna uses ferrites in the balun and along the feed-line to eliminate common-mode currents. It employs a novel element-cage design that allows an extremely smooth response curve.

Frequency Range 30 MHz–300 MHz
Max Contin Power 0.5 W
VSWR (avg) < 1.8 : 1 (with 6 db pads)
Impedance 50 Ω
Connector Type N female
Mounting Base 1/4 inch x 20 female thread

Frequency (MHz)	Typical Antenna Factor (dB)
30	19.0
40	17.9
50	13.2
60	9.0
70	6.6
80	7.6
90	9.2
100	10.5
110	12.0
120	14.0
130	16.3
140	18.4
150	19.4
160	19.0
170	18.3
180	17.6
190	17.0
200	16.7
210	17.0
220	17.4
230	18.2
240	19.1
250	20.4
260	22.4
270	24.5
280	25.5
290	25.0
300	24.9



1. All antennas sold by Agilent are individually calibrated. They include a calibration certificate showing actual performance data. The antenna factors shown in this catalog are intended to show typical performance only.

Antennas¹

Agilent 11956A Log Periodic Antenna

This economical antenna has typical antenna factors.

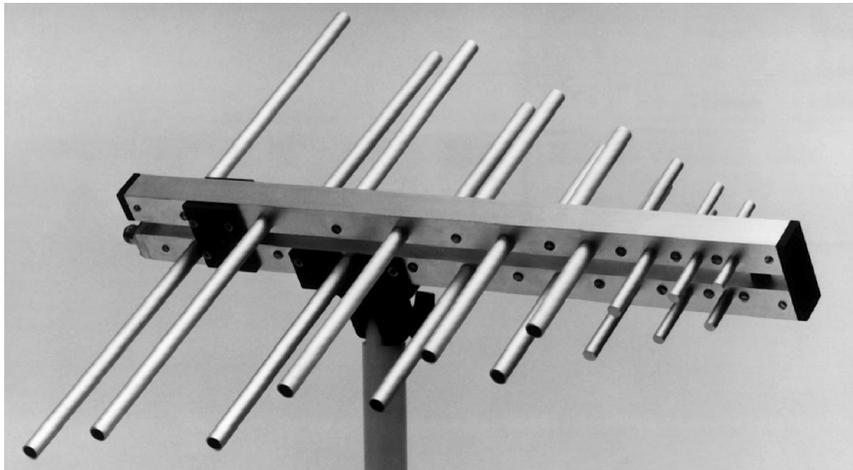
Frequency Range	200 MHz–1 GHz
VSWR (avg)	< 2 : 1
Impedance	50 Ω
Connector Type	Type-N
Mounting Base	1/4 inch x 20 female thread

Frequency (MHz)	Typical Antenna Factor (dB)
200	17.0
225	14.8
250	14.3
275	14.9
300	16.8
325	17.5
350	18.7
375	17.5
400	17.1
425	17.4
450	18.4
475	19.8
500	20.5
525	19.2
550	19.5
575	19.7
600	20.7
625	21.5
650	22.0
675	21.6
700	21.6
725	22.1
750	22.7
775	22.8
800	22.6
825	22.6
850	23.2
875	24.0
900	24.4
925	24.3
950	23.9
975	24.4
1000	25.1

Agilent 11966D Log Periodic Antenna

The 11966D is a broadband, relatively high-gain antenna that is suitable for both commercial and military EMC measurements.

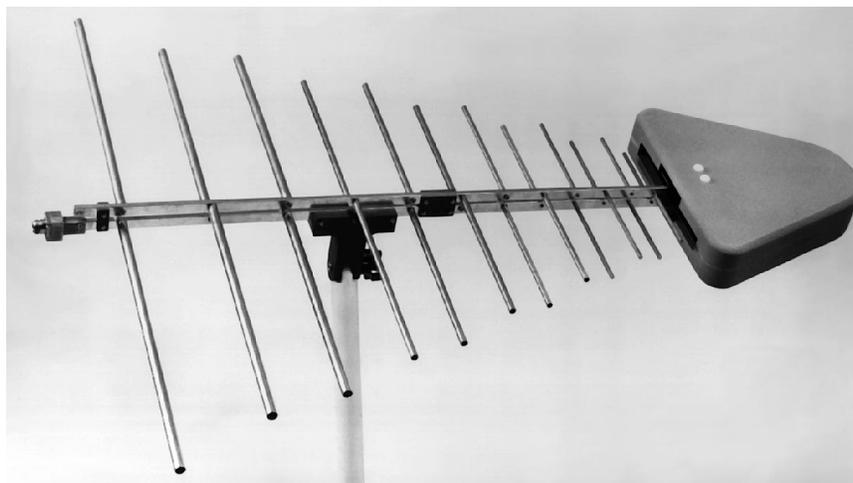
Frequency Range	200 MHz–1 GHz
Max Contin Power	1000 W
VSWR (avg)	< 2 : 1
Impedance	50 Ω
Connector Type	N female
Mounting Base	1/4 inch x 20 female thread



Agilent 11966N Log Periodic Antenna

This antenna has similar performance characteristics to the 11966D, but has an extended frequency range to 5 GHz. This is useful for some of the new commercial test requirements, such as FCC part 15 limits for high-speed unintentional radiators, which now extend beyond 1 GHz.

Frequency Range	200 MHz–5 GHz
Max Contin Power	80 W
VSWR (avg)	2 : 1
Impedance	50 Ω
Connector Type	N female
Mounting Base	1/4 inch x 20 female thread



Frequency (GHz)	Antenna Factor (dB)
0.2	10
0.5	17
1.0	23
1.5	27
2.0	29
2.5	32
3.0	34
3.5	37
4.0	38
4.5	41
5.0	42

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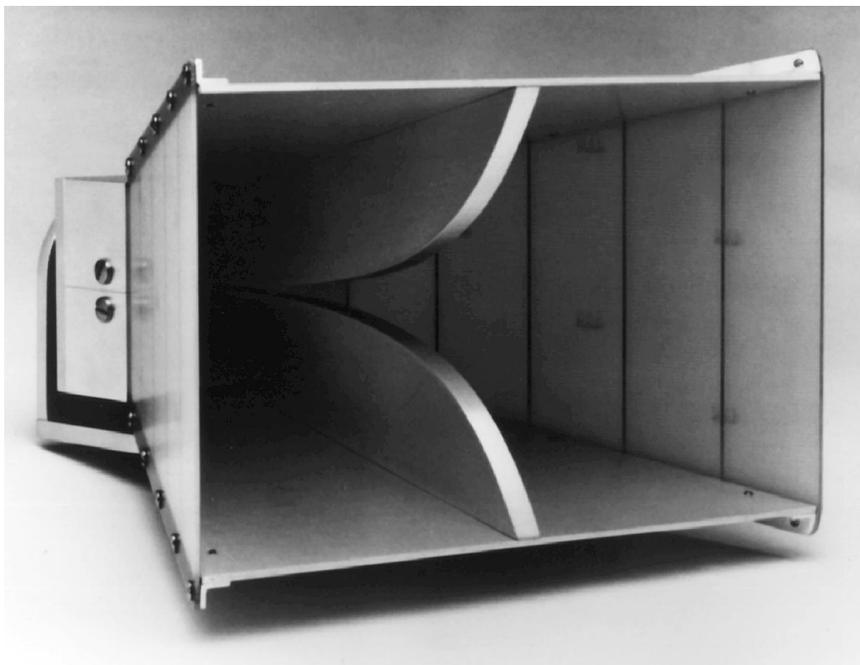
Antennas¹

Agilent 11966E Double Ridged Waveguide Horn Antenna

This antenna covers a very broad frequency range and provides excellent gain and VSWR characteristics. It is suitable for receiving and transmitting signals and can handle up to 300 watts of power.

Frequency Range 1 GHz–18 GHz
Maxi Contin Power 300 W
VSWR (avg) < 1.5 : 1
Impedance 50 Ω
Connector Type N female
Mounting Base 1/4 inch x 20 female thread

Frequency (MHz)	Typical Antenna Factor (dB)
1000	24.4
1500	25.7
2000	28.4
2500	29.4
3000	31.0
3500	32.2
4000	33.8
4500	33.0
5000	34.7
5500	35.4
6000	35.4
6500	35.7
7000	36.5
7500	37.8
8000	38.0
8500	38.1
9000	38.4
9500	38.4
10000	38.5
10500	38.6
11000	39.0
11500	39.3
12000	39.4
12500	39.0
13000	39.9
13500	41.3
14000	41.4
14500	41.3
15000	39.9
15500	37.5
16000	38.2
16500	39.8
17000	41.7
17500	44.6
18000	46.9



Agilent 11966I Horn Antenna

This horn covers the RF range and is very useful as a receiving antenna for MIL-STD emissions tests. Its high power handling capability also makes it an excellent transmitting antenna for susceptibility/immunity tests.

Frequency Range 200 MHz–2 GHz
Max Contin Power 800 W
VSWR (avg) 1.6 : 1
Impedance 50 Ω
Connector Type N female
Mounting Base 1/4 inch x 20 female thread

Frequency (GHz)	Antenna Factor (dB)
0.2	11
0.4	14
0.6	18
0.8	19
1.0	22
1.2	23
1.4	25
1.6	26
1.8	25
2.0	32

HP 11966J Horn Antenna

The double-ridged design of this horn enables it to cover two waveguide bands with a single antenna.

Frequency Range 18 GHz–40 GHz
Max Contin Power 50 W
VSWR (avg) 1.6 : 1
Impedance 50 Ω
Connector Type K female
Mounting Base 1/4 inch x 20 female thread

Frequency (GHz)	Antenna Factor (dB)
18	45
20	44
25	46
30	47
35	50
40	46

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Antennas¹

Agilent 11966A K30 Passive Rod Antenna

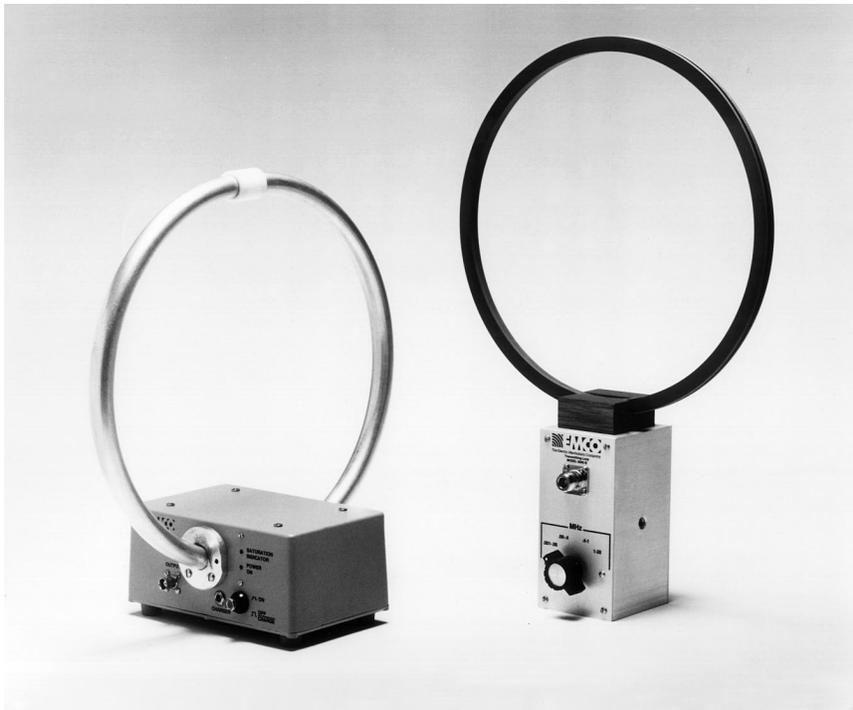
The 11966A K30 is a passive broadband electric field monopole transmitting antenna that has a frequency range of 1 kHz to 30 MHz. It features manual band switching between 0.001 to 5 MHz, and 5 to 30 MHz.

Frequency Range 1 kHz–30 MHz
Max Contin Power 300 W
Impedance 50 Ω
Connector Type N female
Mounting Base 1/4 inch x 20 female thread

Agilent 11966A K12 Passive Loop Set

The 11966A K12 passive loop set is designed for measuring shielding effectiveness. It consists of two loop antennas. The first one has a built-in, battery operated preamplifier. The preamplifier provides greater sensitivity and uniform antenna factors. The second antenna is band-selectable in four bands and can accept up to 1 kW input power.

Frequency Range 1 kHz–30 MHz
Connector Type BNC on antenna 1
N female on antenna 2
Sensitivity (ant 1) -29 dB $\mu\text{A}/\text{M}$ (@ 1 MHz)
Dynamic Range (ant 1) 116 dB @ 1 MHz
Max Power (ant 2) 1 kW
Mounting Base 1/4 inch x 20 female thread



Agilent 11966A K40 Royce Field Site Source

The 11966A K40 Royce field site source generates radiated emissions of a consistent frequency and amplitude. The emissions are used to create a base standard for a specific test site. The site could be either an indoor or outdoor facility. The Royce source is used in place of a DUT and a normal radiated emissions test is then performed. These test results become the bases by which future site tests are compared. Deviation from the base data could indicate test site problems. Frequency range: 10 MHz to 600 MHz



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Antennas¹

Agilent 11966F Conical Log Spiral Antenna

The 11966F was designed specifically for MIL-STD 461A/B/C radiated measurements. Because it is circularly polarized, it can receive fields in any polarity. This eliminates the need to duplicate the measurement in both horizontal and vertical orientation to find maximum emissions.

Frequency Range 200 MHz–1 GHz
Max Contin Power 100 W
VSWR (avg) < 2.5 : 1
Impedance 50 Ω
Connector Type N female
Mounting Base 1/4 inch x 20 female thread

Frequency (MHz)	Typical Antenna Factor (dB)
200	17.0
225	14.8
250	14.3
275	14.9
300	16.8
325	17.5
350	18.7
375	17.5
400	17.1
425	17.4
450	18.4
475	19.8
500	20.5
525	19.2
550	19.5
575	19.7
600	20.7
625	21.5
650	22.0
675	21.6
700	21.6
725	22.1
750	22.7
775	22.8
800	22.6
825	22.6
850	23.2
875	24.0
900	24.4
925	24.3
950	23.9
975	24.4
1000	25.1

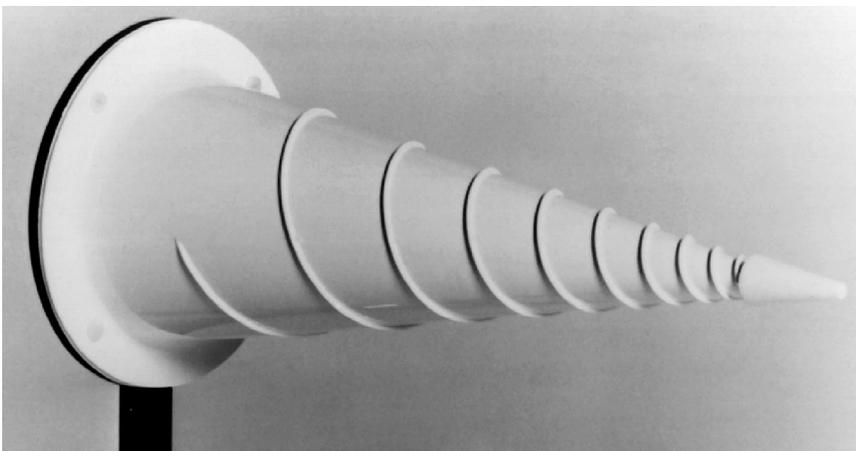


Agilent 11966G Conical Log Spiral Antenna

This antenna is similar to the 11966F, but it is designed to operate in the 1 to 10 GHz region. It is ideally suited for MIL-STD 461A/B/C microwave radiated measurements.

Frequency Range 1 GHz–10 GHz
Max Contin Power 50 W
VSWR (avg) < 2 : 1
Impedance 50 Ω
Connector Type N female

Frequency (MHz)	Typical Antenna Factor (dB)
1000	27.1
2000	33.3
3000	36.1
4000	40.4
5000	42.3
6000	43.3
7000	45.1
8000	46.1
9000	47.9
10000	49.9

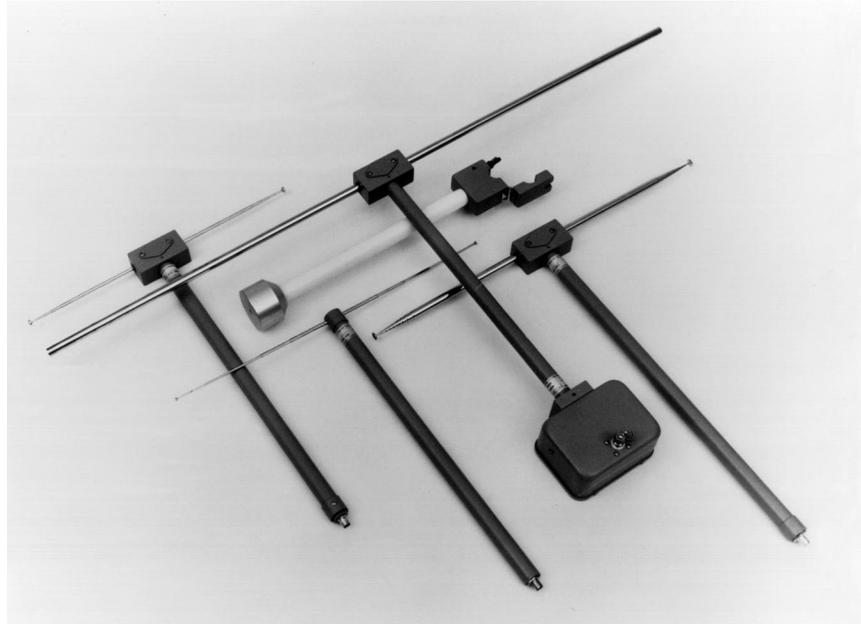


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Antennas¹

Agilent 11966H Dipole Antenna Set

The 11966H dipole antenna set consists of four baluns with adjustable and removable stainless steel elements. They can be used for site-attenuation measurements as well as for general EMI testing. Included are a mounting clamp, five-meter measuring tape, ruler and storage case.



Frequency Range 28 MHz–1 GHz
 Balun 1: 28–60 MHz
 Balun 2: 60–140 MHz
 Balun 3: 140–400 MHz
 Balun 4: 400–1000 MHz
Max Contin Power 20 W
VSWR (avg) < 1.6 : 1
Impedance 50 Ω
ConnectorType N female

Frequency (MHz)	Typical Antenna Factor (dB)
30	0.2
40	1.2
50	3.0
60	4.9

Frequency (MHz)	Typical Antenna Factor (dB)
60	4.2
70	5.1
80	6.3
90	8.3
100	9.3
110	10.4
120	11.6
130	11.0
140	12.2

Frequency (MHz)	Typical Antenna Factor (dB)
140	13.0
180	13.7
220	15.7
260	17.7
300	18.3
340	18.8
400	21.5

Frequency (MHz)	Typical Antenna Factor (dB)
400	22.0
500	24.6
600	24.7
700	25.8
800	26.8
900	28.4
1000	28.7

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Antennas¹

Agilent 11966K Magnetic Field Pickup Coil

This antenna is designed specifically for MIL-STD 462 RE-01 and RE-101 measurements. The loop is constructed of aluminum and has 36 turns of 7 x 41 Litz wire for lower inductance.

Frequency (kHz)	Typical Antenna Factor (dB)
0.02	84
0.04	78
0.06	74
0.08	72
0.1	70
0.2	64
0.4	58
0.6	54
0.8	52
1.0	50
2.0	44
4.0	38
6.0	34
8.0	32
10.0	30
20.0	25
40.0	24
50.0	23



Agilent 11967A K06 Cavity Rejection Networks

The 11967A K06 cavity rejection networks have a continuously tunable frequency range from 1 GHz to 10 GHz in four bands. They also offer low insertion loss with very sharp resonances.

Frequency Range 20 Hz–50 kHz
Loop Diameter 133 mm (5.25 inches)
Connector Type BNC female

Agilent 11967A K23 Bridged-T Rejection Networks

The 11967A K23 bridged-T rejection networks are designed for radio frequency interference testing according to various military specifications. The three networks are passive and continuously tunable over the 10 kHz to 1 GHz frequency range.

Frequency Range 1 GHz–10 GHz
Rejection 80 dB minimum at tuned frequency
Insertion Loss 5 dB or less (avg)
Bandwidth 0.2 % of tuned frequency at 20 dB point and 0.4 % at 10 dB point
Connector Type N female

Frequency Range Network 1: 10 kHz–100 MHz
 Network 2: 100 MHz–400 MHz
 Network 3: 400 MHz–1 GHz
Maximum Power 2 kW
Connector Type N female

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Antennas¹

Agilent 11966P Broadband Antenna

The 11966P broadband antenna covers 30 MHz to 1 GHz. This broadband antenna removes the need to change antennas above 200 MHz when making radiated EMI measurements. The antenna's high power handling capability makes it ideal for immunity testing generating fields of up to 10 volts/meter.



Frequency (MHz)	Typical Antenna Factor (dB)
30	18.2
50	8.0
70	5.0
90	8.0
100	9.5
150	11.0
200	10.0
250	12.0
300	13.0
350	14.5
400	16.2
450	16.7
500	18.5
550	19.0
600	19.8
650	20.4
700	21.1
750	22.0
800	23.0
850	23.0
900	23.0
950	25.0
1000	25.0

Frequency Range	30 MHz–1 GHz
Maximum Continuous Power	130 W
VSWR (avg)	2 : 1
Impedance (nominal)	50 Ω
Connector Type	N (female)

Note: Tripod not included

1. All antennas sold by Agilent are individually calibrated. They include a calibration certificate showing actual performance data. The antenna factors shown in this catalog are intended to show typical performance only.

EMC Accessory Application Guide

Commercial Measurements

Agency	Test	Frequency Range	Recommended Accessories	
FCC	Part 15	conducted	450 kHz–30 MHz	11967D or E LISN
		radiated	30 MHz–300 MHz	11966C Biconical Antenna
			200 MHz–1 GHz	11966D Log Periodic Antenna or
			28 MHz–1 GHz	11966H Dipole Antenna Set ¹
VDE	0871, 0875	conducted	10 kHz–30 MHz	11967D or E LISN
		radiated	30 MHz–300 MHz	11966A Active Loop
			200 MHz–1 GHz	11966C Biconical Antenna
			28 MHz–1 GHz	11966D Log Periodic Antenna or 11966H Dipole Antenna Set ¹
CISPR	14	power	30 MHz–300 MHz	11967A K05 Absorbing Clamp
		22	conducted	150 kHz–30 MHz
	radiated		28 MHz–1 GHz	11966H Dipole Antenna Set ¹
		VCCI		conducted
radiated	30 MHz–300 MHz			11966C Biconical Antenna
	200 MHz–1 GHz			11966D Log Periodic Antenna or
	28 MHz–1 GHz			11966H Dipole Antenna Set ¹
CENELEC	EN 55014	conducted	150 kHz–30 MHz	11967D or E LISN
		radiated	30 MHz–300 MHz	11966C Biconical Antenna
	EN 55022	conducted	150 kHz–30 MHz	11967D or E LISN
		radiated	30 MHz–1 GHz	11966C Biconical Antenna 11966D Log Periodic Antenna
	EN 55011	conducted	150 kHz–30 MHz	11967D or E LISN
		radiated	150 kHz–1 GHz	11966A Active Loop Antenna
				11966C Biconical Antenna 11966D Log Periodic Antenna

1. These adjustable dipole antennas are particularly suited for making accurate site attenuation measurements, such as those outlined in the FCC's OST-55 bulletin. They can also be used for making measurements of emissions from the equipment under test (EUT). Broadband antennas, such as biconical and log periodic antennas, are typically used for emissions measurements of the EUT because of their ease of use.

Military Measurements

Agency	Test	Frequency Range	Recommended Accessories
MIL-STD	461/462		
	CE-01	30 Hz–15 kHz	11967B Current Probe 0160-6683 10 µf Capacitor
	CE-03	15 kHz–50 MHz	11967A Current Probe 0160-6683 10 µf Capacitor
	CE-06	10 kHz–12.4 GHz	11729-60014 Preamplifier
	RE-01	30 Hz–15 kHz	11966K Magnetic Coil
	RE-02	14 kHz–30 MHz	11966B Active Rod
		30 MHz–300 MHz	11966C Biconical Antenna
	RE-02	200 MHz–1 GHz	11966D Log Periodic Antenna ² or 11966F Conical Spiral Antenna
		1 GHz–10 GHz	11966E Waveguide Horn Antenna or 11966G Conical Spiral Antenna
			8449B Preamplifier ³
	RE-03	10 kHz–30 MHz	11966B Active Rod
		30 MHz–300 MHz	11966C Biconical Antenna
		200 MHz–1 GHz	11966D Log Periodic Antenna or 11966F Conical Spiral Antenna
		1 GHz–10 GHz	11966G Conical Spiral Antenna
RE-03	1 GHz–18 GHz	11966E Waveguide Horn Antenna	
	1 GHz–26.5 GHz	8449B Preamplifier ³	
CE-101	30 Hz–10 kHz	11967B Current Probe 0160-6683 10 µf Capacitor	
CE-102	10 kHz–10 MHz	11967D or E LISN	
RE-101	30 Hz–50 kHz	11966K Magnetic Field Pickup Coil	
RE-102	10 kHz–30 MHz	11966B Active Rod	
	30 MHz–200 MHz	11966C Biconical Antenna	
	200 MHz–2 GHz	11966I Horn Antenna	
	25 Hz–18 GHz	11966E Double-ridged Horn Antenna	

- MIL-STD radiated emission 02 tests can be performed with either linearly polarized antennas, such as the log periodic, or circularly polarized antennas, such as the conical spiral. Linear antennas offer slightly better gain and antenna factor, but they require separate scans over the full frequency range once in horizontal polarization and again in vertical polarization. While circularly polarized antennas typically are slightly less sensitive, they allow the measurement to be made in a single scan because they can receive signals that have either horizontal or vertical polarization.
- The 8449B microwave preamplifier offers improved sensitivity for microwave emissions measurements. With improved sensitivity, wider receiver bandwidths can be used, result in faster measurement times.

Antenna Masts

Agilent 11968B Manual Antenna Positioning Mast

The 11968B is a lightweight, portable, antenna positioning mast. Antenna height is controlled with a manual winch. The cross boom can be rotated 90 degrees to enable measurements in horizontal and vertical polarization. This low-cost unit is ideal for precompliance testing and is also suitable for final qualification measurements.

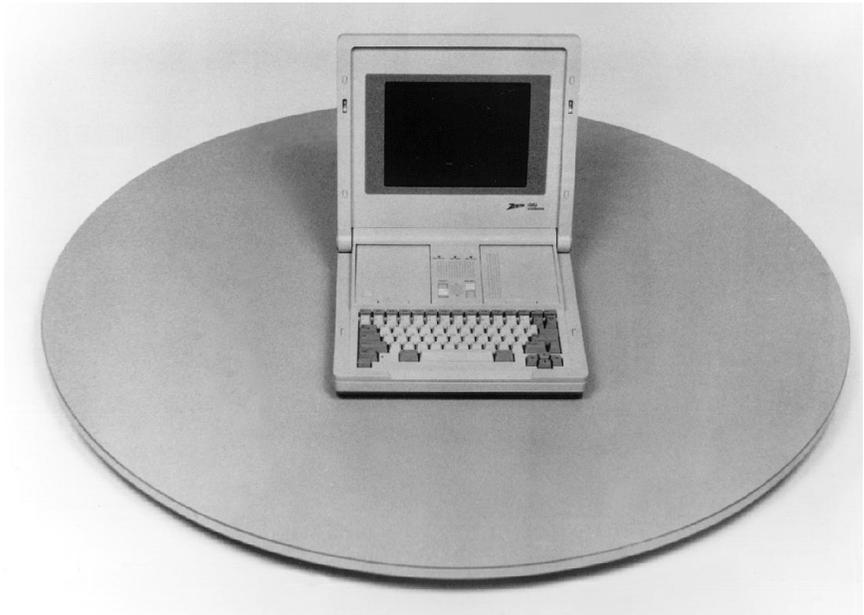


Mast Height	4.4 m (14.4 ft)
Maximum Load at Tip of Cross-Boom	11.3 kg (25 lb)

Equipment Testing Turntable

Agilent 11968E Manual Equipment Test Turntable

This manually operated, non-metallic turntable is suitable for both indoor and outdoor use. It is especially useful in cost sensitive applications, such as precompliance testing.



Diameter 1.2 m (14 ft)
Height 76 mm (3 in)
Maximum Load 455 kg (1000 lb)

Agilent 85876B Commercial Radiated EMI

Measurement Software

The 85876B commercial EMI measurement software runs in Microsoft® 3.1 or later, Windows 95, or Windows NT 4.0 PC computing platform. It contains sophisticated measurement algorithms and automation capabilities that can help you increase your EMI test throughput. A built-in report generator enables you to port graphics and data to popular word processing and spreadsheet programs. This software is compatible with the 8542E, 8522E, 8546A, 85462A, 8571A, 8572A, and other 8566B-based systems. The software also supports tower and turntable controllers Sunol Sciences CON 94 revision 3.1, EMCO 1050, 1060 and 2090 revision 2.0 or later, and Deisel HD100 revision 5.5.

Agilent 11961A EMI Measurement Software

Performs radiated and conducted emissions measurements automatically. Measurements are corrected for transducer losses and system gains. Use the report generation capabilities to document measurement results.

Agilent 85878A EMI Report Generator

Link the power of EMC analyzers or EMI receivers to your PC. Archive and view displays, measurement lists, graphs and more. Generate reports automatically.

Agilent 11968A K07 Shielded Room Kit

The 11968A K07 shielded room kit provides the cables and bulkhead connector to interface either the 11968A antenna mast or the 11968D turntable inside a shielded room to the controllers outside the room.

Cables ¹

Agilent 11966L

This 10 meter (32.8 ft) antenna cable is constructed of RG-214/U coaxial cable with type-N male connectors at both ends.

Agilent 11966M

This 10 meter (32.8 ft) antenna cable is constructed of RG-223/U coaxial cable with type-BNC male connectors at both ends.

Agilent 11966A K47

Five meter low-loss cable with APC 3.5 male connectors.

Agilent 11966A K48

Ten meter low-loss cable with APC 3.5 male connectors.

Agilent 11500A Cable

Six foot long RG-214/U cable with type-N connectors.

Agilent 11500F Cable

150 centimeter cable with APC 3.5 male connector.

8120-1840

122 centimeter (48 inches) coaxial cable with type-BNC male connectors at both ends.

Limiters

Agilent 11947A Transient Limiter

In precompliance applications where a spectrum analyzer is used for measurements instead of an EMI receiver, it is always a good idea to use a transient limiter. Transient limiters protect the spectrum analyzer input from damage caused by high-level transients from line impedance stabilization networks (LISNs) during EMI testing for conducted emissions.



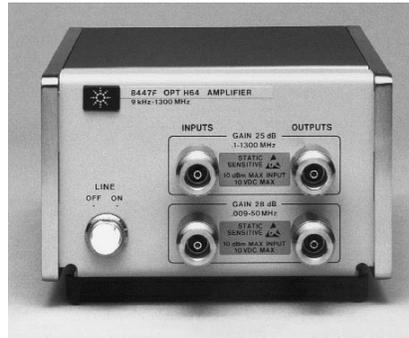
Frequency Range	9 kHz–200 MHz
Insertion Loss	10 dB
Maximum Input Level	Continuous: 2.5 W (+34 dBm) Pulse: 10 kW for 10 µsec DC: ±12 V

1. Other custom cable lengths and types are available. For more information, consult your local Agilent sales representative.

Preamplifiers

Agilent 8447F Option H64 Dual Preamplifier

This dual preamplifier improves receiver and spectrum analyzer sensitivity. It is ideally suited for use with the 11940A and 11941A close-field probes to detect low-level emissions from a device under test. Radiated emission measurements using a spectrum analyzer and antenna are improved by the increased sensitivity that this unit offers.



	Band 1	Band 2
Frequency Range	9 kHz– 50 MHz	100 kHz– 1.3 GHz
Noise Figure	< 7.0 dB	8.5 dB
Gain	28 dB	26 dB
Gain Flatness	±2.0 dB	±1.5 dB
Connector Type	N female	N female

11729-60014 Low Noise Preamplifier

This amplifier provides the sensitivity needed for MIL-STD 461C CE-06 receiver/transmitter key-up testing.

Frequency Range	10 Hz–25 MHz
Gain	40 dB
Power Requirements	+24 V DC
Connector Type	SMC female



Agilent 8449B Microwave Preamplifier

A high-gain, low-noise preamplifier to provide additional sensitivity for MIL-STD radiated measurements.

Frequency Range	1 GHz–26.5 GHz
Noise Figure	1.0–12.5 GHz 8.5 dB 12.5–22.0 GHz 12.5 dB 22.0–26.5 GHz 14.5 dB
Minimum Gain	23.5 dB
Gain Flatness	1.0–26.5 GHz ± 4.5 dB 2.0–22.0 GHz ± 3.5 dB
Connector Type	APC–3.5 female



Magnetic Field Probes

Agilent 11940A and 11941A Close Field Probes

These hand-held probes are specially designed to measure magnetic field radiation from surface currents, slots, cables, and ICs for EMC diagnostic and troubleshooting measurements. Their unique design results in a high level of electric field rejection. This significantly reduces errors allowing calibrated and repeatable measurements. Each probe is calibrated and comes with a two-meter, RG-223 coaxial cable, an SMA(f) to Type-N(m) adapter, and an SMA(f) to BNC(m) adapter.



Frequency Range	11940A: 30 MHz–1 GHz 11941A: 9 kHz–30 MHz
Maximum Input Power	0.5 W
Temperature Range	Variation over 0° C to + 40° C
Dielectric Breakdown Connector	± 1 dB, typical SMA, replaceable barrel
VSWR	< 3 : 1, typical for 11940A only
Antenna Factor Accuracy	Individually calibrated to within ± 2 dB in a 377 Ω field impedance

Agilent 11945A Close Field Probe Set

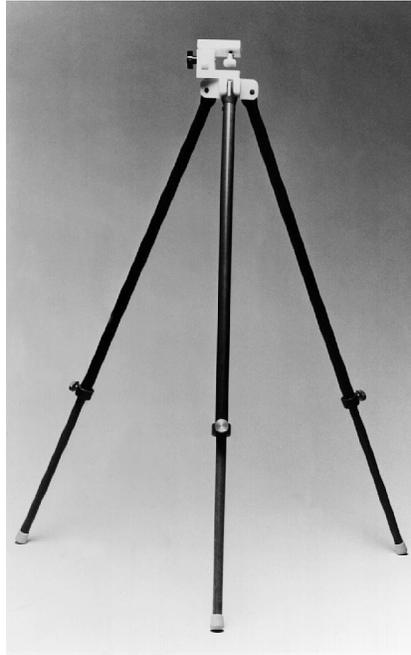
The 11945A close field probe set includes both the 11940A and 11941A probes to provide full coverage from 9 kHz to 1 GHz. This set provides a powerful measurement tool for electrical and mechanical designers who want to search for and eliminate sources of interference from their products early in the design process. Option E51 adds the 8447F Option H64 dual preamplifier, a 36 inch (914 mm) Type-N cable and a carrying bag to store and protect the entire set of probes, preamplifier, and cables.



Tripods

Agilent 11968C Antenna Tripod

The 11968C is a non-metallic tripod made of linen phenolic and delrin to minimize unwanted reflections in the test environment.



Misc. EMC Accessories

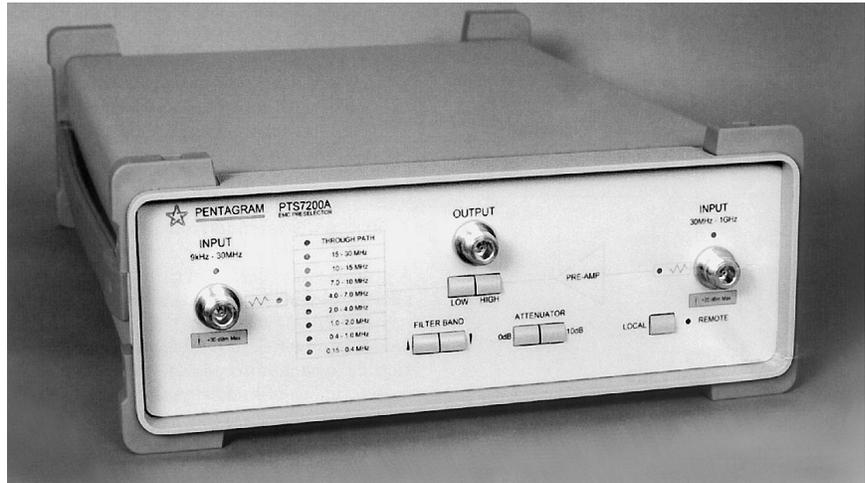
Agilent 11960A EMC Preselector

Reduces RF overload from broad-band and out-of-band signals. Perform near compliant conductor emissions measurements. Improve radiated emission measurement sensitivity. The 11960A has a 30 dB gain amplifier built-in.

Agilent 85685A RF Preselector

The 85685A RF preselector is designed to operate with the 8566B and 8568B spectrum analyzers. The RF preselector adds tracking filters to reduce overloading from out-of-band signal and preamplifiers for improved system sensitivity over the 20 Hz to 2 GHz frequency range. The 85685A RF preselector has two inputs, 20 Hz to 50 MHz and 20 MHz to 2 GHz. There is also a bypass mode which is DC to 18 GHz. Input 1 has a built-in transient limiter for protection from transients generated by line impedance stabilization networks (LISN).

The RF preselector is fully programmable over the GPIB (IEEE-488).



Preselector Filters

Start Frequency (MHz)	Stop Frequency (MHz)	Filter Type
0.0	0.0655	Fixed tuned
0.101	0.0756	Fixed tuned
0.074	0.2051	Fixed tuned
0.1975	0.5252	Fixed tuned
0.525	1.0493	Fixed tuned
1.025	2.0736	Fixed tuned
1.96	5.8922	Variable
5.83	17.3643	Variable
17.33	28.8643	Variable
28.73	51.7987	Variable
51.73	97.8673	Variable
97.83	152.356	Variable
152.33	219.4389	Variable
216.33	333.7705	Variable
332.23	500.0022	Variable
500.00	2009.9494	Variable

Input Specifications

	Input 1	Input 2
Frequency Range	20 Hz–50 MHz Bypass	20 MHz–2 GHz DC to 18 GHz
Connector Type	BNC (50 Ω)	Type-N (50 Ω)
Fuse Blow Time	< 0.1 sec for > + 35 dBm NA	
Maximum Save Input Power		
Average	+ 30 dBm (1 W)	
Impulsive Signals	100 W peak for 10μ sec pulse	
DC Voltage	0 V	
Standing Wave Ratio		
> 10 dB RFP Atten	< 1.5 : 1	< 1.5 : 1
0 dB Atten	< 1.5 : 1 nominal	< 2.0 : 1 nominal
RFP Anen Range	0–50 dB (10 dB steps)	
Preamp Gain	20 dB for 0 dB RFP atten	

Comb Generator

Output

100 kHz, 500 kHz, 1 MHz, 5 MHz (nominal)
-40 to -60 dBm

Agilent 85650A Quasi-Peak Adapter

The 85650A quasi-peak adapter is an accessory used with the 8566B or 8568B spectrum analyzers for performing quasi-peak measurements as recommended by CISPR. These include the correct 6 dB bandwidths (200 Hz, 9 kHz, 120 kHz) and the specified detector charge and discharge time constants.



The bypass mode returns the spectrum analyzer back to standard operation unaffected by the quasi-peak adapter. In the normal mode the three CISPR bandwidths are available and the quasi-peak detector can be turned on and off.

There is a built-in speaker and phone jack for monitoring signals.

The 85650A provides nine form C (SPDT) auxiliary switches can be used with external power supplies to switch coax relays, DUT power, or your individual switching needs. Six switches are multiplexed such that when one is on five are off.

All functions are controlled over the GPIB (IEEE 488) except volume and line.

Frequency Band (MHz)	Bandwidth at 6 dB	Charge TC (ms)	Discharge TC (ms)
0.01–0.15	200 Hz	45	500
0.15–30	9 kHz	1	160
30–1000	120 kHz	1	550

Quasi-peak Response to CISPR Pulse (dB μ V)

PRF (Hz)	10 to 150 kHz	0.15 to 30 MHz	30 to 1000 MHz
1000	—	64.5 \pm 2.5	68.0 \pm 2.5
100	64.0 \pm 2.5	60.0 \pm 1.5	60.0 \pm 1.5
60	63.0 \pm 2.5	—	—
25	60.0 \pm 1.5	—	—
20	—	53.5 \pm 2.5	51.0 \pm 2.5
10	56.0 \pm 2.5	50.0 \pm 3.0	46.0 \pm 3.0
5	52.5 \pm 3.0	—	—
2	47.0 \pm 3.5	39.5 \pm 3.5	34.0 \pm 3.5
1	43.0 \pm 3.5	37.5 \pm 3.5	31.5 \pm 3.5
Isolated Pulse	41.0 \pm 3.5	36.5 \pm 3.5	28.5 \pm 3.5

Ordering Information

Listed by Agilent Technologies Model Number

11500A	Six foot RG-214U Cable with Type-N Connector
11500F	150 cm Cable (APC 3.5 Male Connectors)
11940A	Close Field Probe 30 MHz to 1 GHz
11941A	Close Field Probe 9 KHz to 30 MHz
11945A	Close Field Probe Set
11947A	Transient Limiter
11955A	Biconical Antenna
11956A	Log Periodic Antenna
11960A	EMC Preselector
11961A	EMI Measurement Software
11966A	Active Magnetic Loop Antenna
11966A K12	Passive Loop Set
11966A K24	Biconical Antenna 20 MHz to 300 MHz (2000 Watts)
11966A K30	Passive Rod Antenna
11966A K38	Biconical Antenna 30 MHz to 300 MHz (300 Watts)
11966A K40	Royce Field Site Source
11966A K47	Five Meter Cable (APC 3.5 Male Connector)
11966A K48	Ten Meter Cable (APC 3.5 Male Connector)
11966B	Active Monopole Antenna
11966C	Biconical Antenna 30 MHz to 300 MHz
11966D	Log-Periodic Antenna 200 MHz to 1 GHz
11966E	Double-Ridged Waveguide Horn Antenna 1 to 18 GHz
11966F	Conical Log Spiral Antenna 200 MHz to 1 GHz
11966G	Conical Log Spiral Antenna 1 GHz to 10 GHz
11966H	Dipole Antenna Set 28 MHz to 1000 MHz
11966I	Horn Antenna 200 MHz to 2 GHz
11966J	Horn Antenna 18 GHz to 40 GHz
11966K	Magnetic Field Pickup Coil 20 Hz to 50 kHz
11966L	Coaxial Cable 10 Meter Type-N
11966M	Coaxial Cable 10 Meter BNC
11966N	Log Periodic Antenna 200 MHz to 5 GHz
11966P	Broadband Antenna
11967A K05	Absorbing Clamp
11967A K06	Cavity Rejection Network
11967A K23	Bridged-T Rejection Networks
11967A	Current Probe 15 kHz to 50 MHz
11967B	Current Probe 20 Hz to 2 MHz
11967D	10 Amp Line Impedance Stabilization Network
11967E	25 Amp Line Impedance Stabilization Network
11968A K07	Shielded Room Kit
11968B	Manual Antenna Positioning Mast
11968C	Antenna Tripod
11968E	Manual Equipment Test Turntable
8447F H64	Dual Preamplifier 0.1 to 1300 MHz
8449B	Microwave Preamplifier 1 GHz to 26.5 GHz
85650A	Quasi-Peak Adapter
85685A	RF Preselector
85876A	Commercial Radiated EMI Software
85878A	EMI Report Generator
0160-6683	10 μ F Capacitor
8120-1840	122 Centimeter Coaxial Cable
11729-60014	Low Noise Preamplifier

Agilent Technologies' Test and Measurement Support, Services, and Assistance

Agilent Technologies aims to maximize the value you receive, while minimizing your risk and problems. We strive to ensure that you get the test and measurement capabilities you paid for and obtain the support you need. Our extensive support resources and services can help you choose the right Agilent products for your applications and apply them successfully. Every instrument and system we sell has a global warranty. Support is available for at least five years beyond the production life of the product. Two concepts underlie Agilent's overall support policy: "Our Promise" and "Your Advantage."

Our Promise

"Our Promise" means your Agilent test and measurement equipment will meet its advertised performance and functionality. When you are choosing new equipment, we will help you with product information, including realistic performance specifications and practical recommendations from experienced test engineers. When you use Agilent equipment, we can verify that it works properly, help with product operation, and provide basic measurement assistance for the use of specified capabilities, at no extra cost upon request. Many self-help tools are available.

Your Advantage

"Your Advantage" means that Agilent offers a wide range of additional expert test and measurement services, which you can purchase according to your unique technical and business needs. Solve problems efficiently and gain a competitive edge by contracting with us for calibration, extra-cost upgrades, out-of-warranty repairs, and on-site education and training, as well as design, system integration, project management, and other professional services. Experienced Agilent engineers and technicians worldwide can help you maximize your productivity, optimize the return on investment of your Agilent instruments and systems, and obtain dependable measurement accuracy for the life of those products.

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