Agilent 8491C
Coaxial Fixed Attenuators

Product Overview

- **Broad band (dc to 18 GHz)**
- **Low SWR**
- **Small size**
- **Economical**

The Agilent Technologies 8491C precision coaxial fixed attenuator is available in five attenuation values: 3, 6, 10, 20, and 30 dB. Performance is specified from dc to 18 GHz, with Type-N connectors. These attenuators are tested on precision Agilent automatic network analyzers to assure specifications over the full frequency range.

Precision construction

These attenuators employ a film on an attenuator card as the resistive element. The uniformity and repeatability of the film deposition process results in high accuracy and low SWR over a wide frequency range. The 8491C is furnished with Type-N connectors whose dimensions are compatible with either MIL-C-71 or MIL-C-39012 connector specifications. These connectors are manufactured from stainless steel for long wear and high repeatability.

Applications

Ruggedness, reliability, and small size make these attenuators useful both on the bench and in systems applications. With their high accuracy and low SWR they are ideally suited for extending the range of sensitive power meters for higher power measurements and for “padding” badly matched devices to improve system SWR. With their dc to 18 GHz frequency range and low cost, general applications such as reducing power levels to sensitive components and instrumentation systems are attractive and appropriate uses for these attenuators.

Accuracy

The accuracy of an attenuator directly affects the accuracy of any measurements where the attenuator is used. The 8491C attenuators achieve flat frequency response (typically a few hundredths of a dB) and overall accuracy through the use of thin-film attenuator cards. These cards are composed of high stability tantalum nitride resistive film deposited and an alumina substrate.

Economy

Automated procedures have resulted in economies of scale in production and testing. The automated resistive film deposition process permits high volume manufacturing combined with excellent yield. Since characteristics are consistently uniform, special “tuning” is not required to meet specifications. Automatic testing allows thorough, highly accurate testing in extremely low test times. The overall result is excellent performance at a very economic price.

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Specifications

Specifications describe the instrument's warranted performance. **Supplemental characteristics**, (shown in italics), are intended to provide information useful in applying the instrument by giving typical, although not warranted, performance parameters.

Frequency range:
dc to 18 GHz

Attenuation accuracy:

dB	dc to 12.4 GHz	12.4 to 18 GHz
3	± 0.3 dB	± 0.4 dB
6	± 0.4 dB	± 0.5 dB
10	± 0.6 dB	± 0.6 dB
20	± 0.6 dB	± 1.0 dB
30	± 1.0 dB	± 1.0 dB

SWR:

dB	dc to 8 GHz	8 to 12.4 GHz	12.4 to 18 GHz
3	1.25	1.35	1.5
6	1.2	1.3	1.5
10	1.2	1.3	1.5
20	1.2	1.3	1.5
30	1.2	1.3	1.5

Environmental

Temperature, Non-operating:
-55 to +85 deg C

Temperature, operating:
0 to +55 deg C

EMC
Radiated interference is within the requirements of MIL STD 461 method RE02, VDE 0871, and CISPR Publication 11

Connectors
Type N (m), (f)
(Mate with MIL-C-71 or MIL-C-39012 connectors)

Dimensions

Length:	62 mm (2 7/16 in)
Diameter:	21 mm (13/16 in)
Weight:	110 g (4 oz) net 220 g (8 oz) shipping

Supplemental Characteristics

Temperature stability:	*0.0001 dB/dB/deg C*
Maximum input power:	*2 W avg, 100 W peak at 20 deg C (derated to 1.3 W avg at 55 deg C)*
Power sensitivity:	*0.001 dB/dB/W*

Ordering Information:

To order, option number must be added to model number to specify attenuation value.

Ordering example:
8491C Option 003

Option	Attenuation
003	3 dB
006	6 dB
010	10 dB
020	20 dB
030	30 dB

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