

Precision Fixed Attenuators

Series 41 Gold Line Attenuators

for precision measurement applications

41W-x

DC to 110 GHz, 3 dB to 10 dB

41VA-x

DC to 70 GHz, 3 dB to 40 dB

41KC-x

DC to 40 GHz, 3 dB to 20 dB

41KB-x

DC to 26.5 GHz, 3 dB to 20 dB

Series 43 Silver Line Attenuators

for use in systems and OEM equipment

43KC-x

DC to 40 GHz, 3 dB to 20 dB

43KB-x

DC to 26.5 GHz, 3 dB to 20 dB



Introduction

Anritsu attenuators define the standard for fixed attenuator performance and reliability. The precision 41 and 43 series fixed attenuators are produced in two series: Gold Line and Silver Line. The Gold Line series covers DC to 110 GHz, whereas the Silver Line series covers DC to 40 GHz.

Features

- 3, 6, or 10 dB attenuation up to 110 GHz, 40 dB attenuation up to 70 GHz
- Low SWR, 1.28:1 up to 40 GHz; 2.0:1 up to 110 GHz
- The W1 Connector™ is compatible with 1 mm connectors
- The V Connector™ is compatible with 2.4 mm connectors
- The K Connector™ is compatible with 3.5 mm and SMA connectors
- Gold Line attenuators are serialized for traceability
- Design is robust and well suited for high frequency system and instrumentation applications
- Anritsu offers metrology-grade adapters and calibration devices for better repeatability and performance

Typical specifications are not tested and are not warranted. They are generally representative of characteristic performance.
Warranty: 1 year; Calibration period: 6 months

Available Models

Gold Line Model	Frequency Range	Attenuation	Connectors	Impedance	Max Input Power
41W-3, 41W-6, 41W-10	DC to 110 GHz	3 dB, 6 dB, 10 dB	W1(f) to W1(m)	50 Ω	0.2 W
41VA-3, 41VA-6, 41VA-10, 41VA-20, 41VA-30, 41VA-40	DC to 70 GHz	3 dB, 6 dB, 10 dB, 20 dB, 30dB, 40 dB	V(f) to V(m)	50 Ω	2.0 W
41KC-3, 41KC-6, 41KC-10, 41KC-20	DC to 40 GHz	3 dB, 6 dB, 10 dB, 20 dB	K(f) to K(m)	50 Ω	2.0 W
41KB-3, 41KB-6, 41KB-10, 41KB-20	DC to 26.5 GHz	3 dB, 6 dB, 10 dB, 20 dB	K(f) to K(m)	50 Ω	2.0 W
Silver Line Model					
43KC-3, 43KC-6, 43KC-10, 43KC-20	DC to 40 GHz	3 dB, 6 dB, 10 dB, 20 dB	K(f) to K(m)	50 Ω	2.0 W
43KB-3, 43KB-6, 43KB-10, 43KB-20	DC to 26.5 GHz	3 dB, 6 dB, 10 dB, 20 dB	K(f) to K(m)	50 Ω	2.0 W

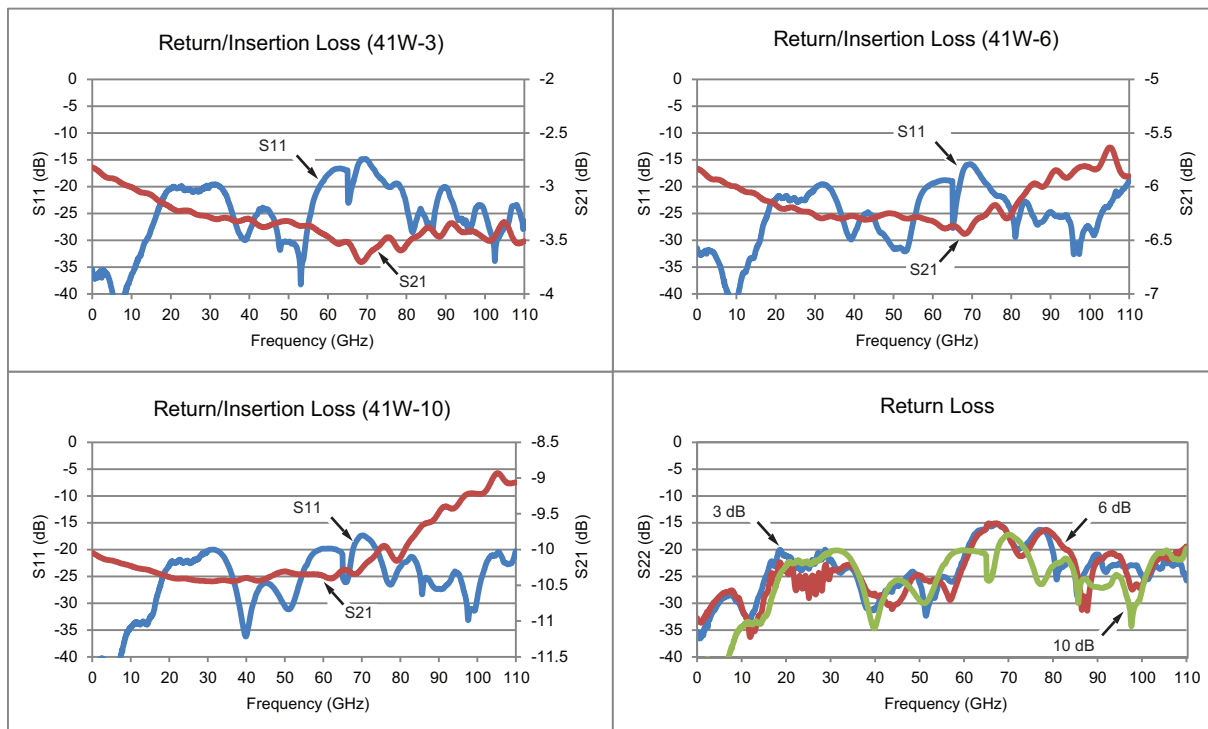
Specifications

General

Insertion Loss Temperature Coefficient: 0.001 dB/dB/°C max
 Temperature Range: 41W: Operating: 0 °C to +70 °C; Non-operating: -55 °C to +125 °C
 41VA, 41K, 43K: Operating: -55 °C to +85 °C; Non-operating: -55 °C to +125 °C
 Weight: 41W: 12 g
 41VA, 41K, 43K: 8 g

Gold Line Attenuators

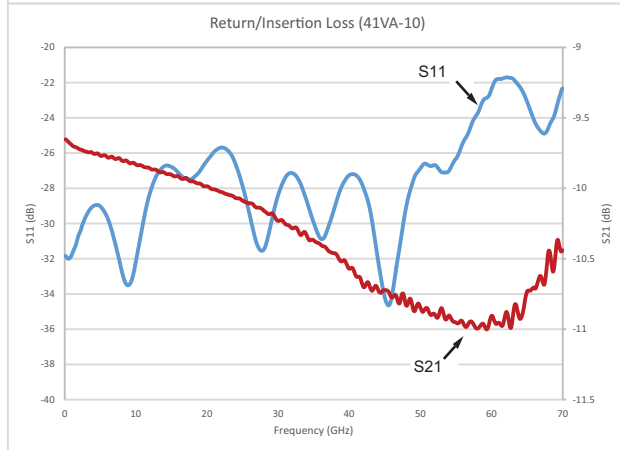
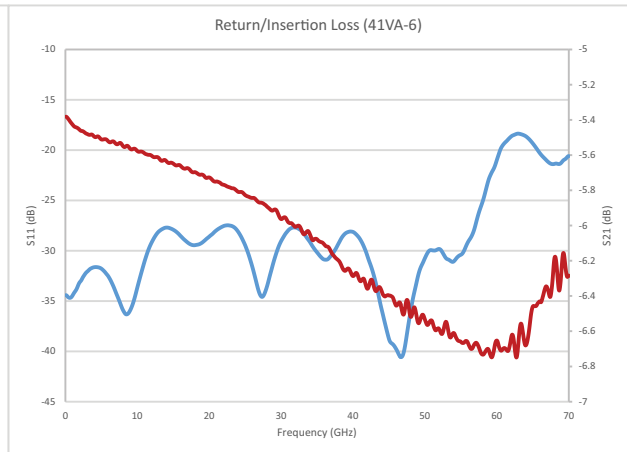
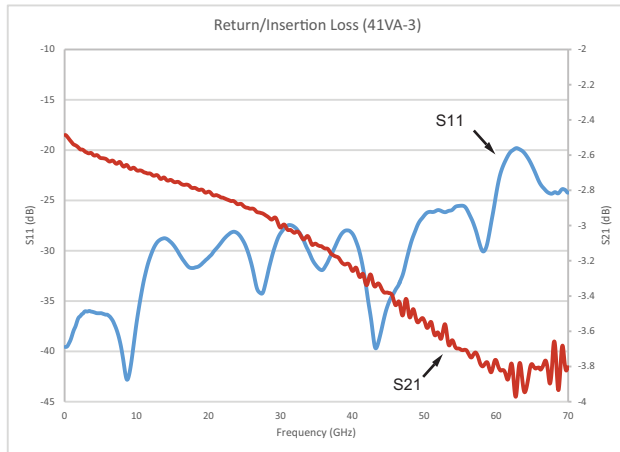
Model and Frequency Range	Insertion Loss		Return Loss (min)			
	DC to 20 GHz	>20 GHz to 110 GHz	DC to 15 GHz	>15 GHz to 50 GHz	>50 GHz to 105 GHz	>105 GHz to 110 GHz
41W-3	2.00 dB to 4.00 dB	1.00 dB to 5.00 dB	20.00 dB	15.00 dB	12.00 dB	10.00 dB
41W-6	5.00 dB to 7.00 dB	4.50 dB to 7.50 dB	20.00 dB	15.00 dB	12.00 dB	10.00 dB
41W-10	9.00 dB to 11.00 dB	8.50 dB to 11.50 dB	20.00 dB	15.00 dB	12.00 dB	10.00 dB



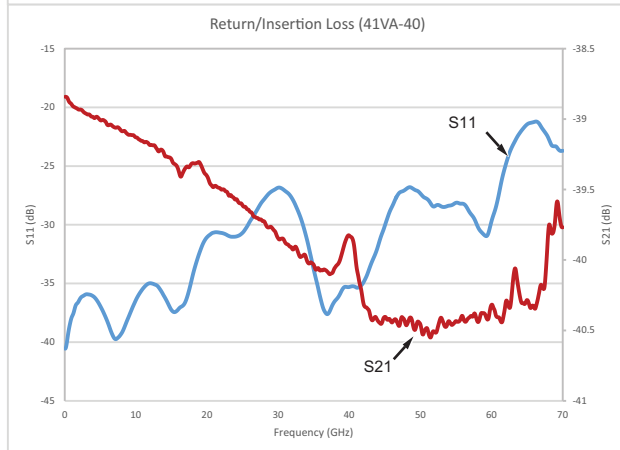
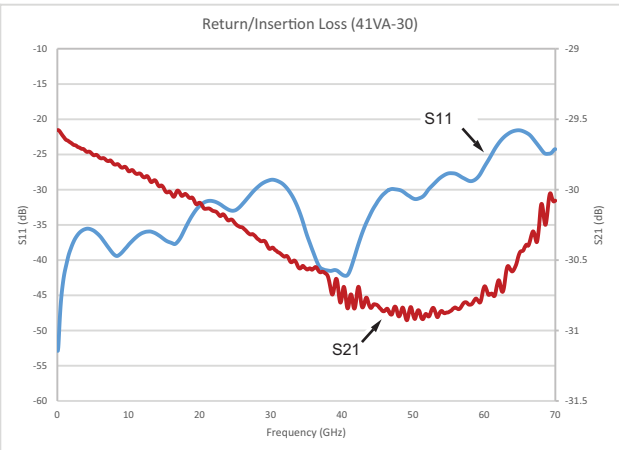
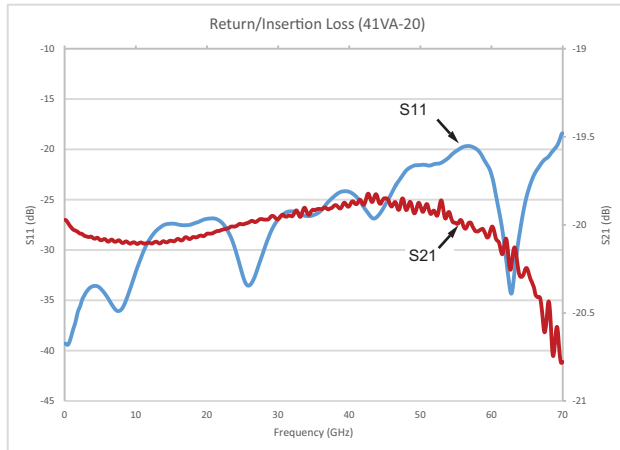
All plots typical.

Gold Line Attenuators

Model and Frequency Range	Insertion Loss						Return Loss (min)		
	DC to 2.5 GHz	> 2.5 GHz to 10 GHz	> 10 GHz to 20 GHz	> 20 GHz to 30 GHz	> 30 GHz to 50 GHz	> 50 GHz to 70 GHz	DC to 10 GHz	> 10 GHz to 45 GHz	> 45 GHz to 70 GHz
41VA-3	2.2 dB to 3.0 dB	2.4 dB to 3.6 dB	2.4 dB to 3.9 dB	2.4 dB to 4.5 dB	2.6 dB to 4.0 dB	3.1 dB to 4.4 dB	25.00 dB	20.00 dB	15.00 dB
41VA-6	5.1 dB to 5.8 dB	5.4 dB to 6.6 dB	5.3 dB to 6.3 dB	5.3 dB to 6.3 dB	5.6 dB to 6.9 dB	5.6 dB to 6.9 dB	25.00 dB	20.00 dB	15.00 dB
41VA-10	9.3dB to 10.2 dB	5.4 dB to 6.6 dB	9.5 dB to 10.6 dB	9.5 dB to 10.6 dB	9.5 dB to 10.6 dB	9.9 dB to 11.4 dB	25.00 dB	20.00 dB	15.00 dB



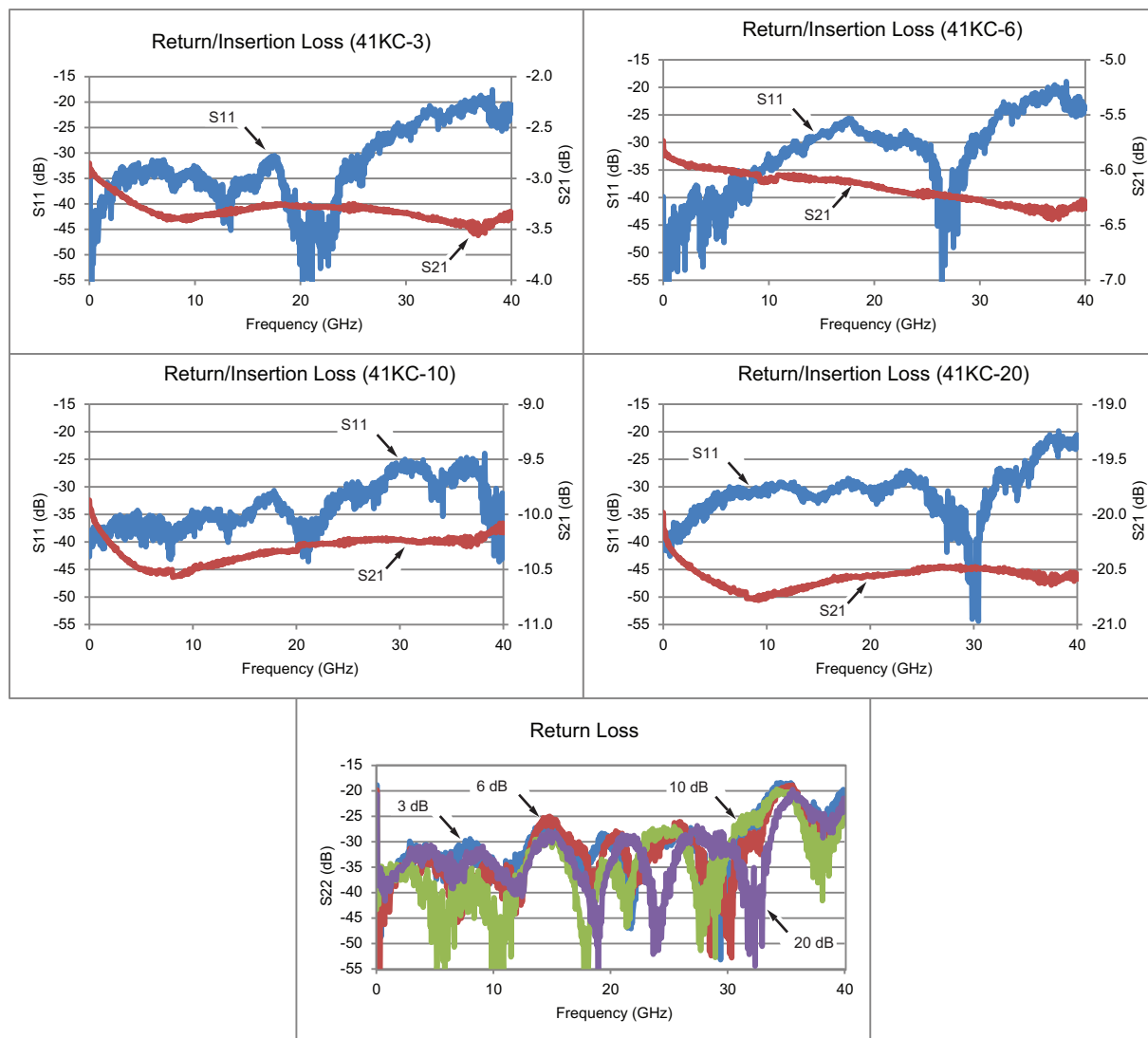
Model and Frequency Range	Insertion Loss						Return Loss (min)				
	DC to 2.5 GHz	> 2.5 GHz to 20 GHz	> 20 GHz to 40 GHz	> 40 GHz to 50 GHz	> 50 GHz to 60 GHz	> 60 GHz to 70 GHz	DC to 12 GHz	> 12 GHz to 18 GHz	> 18 GHz to 26.5 GHz	> 26.5 GHz to 40 GHz	> 40 GHz to 60 GHz
41VA-20	19.7 dB to 20.4 dB	19.7 dB to 20.4 dB	19.6 dB to 20.4 dB	19.5 dB to 20.4 dB	18.5 dB to 20.4 dB	19.7 dB to 21.1 dB	25.00 dB	20.00 dB	15.00 dB	15.00 dB	14.00 dB
41VA-30	29.2 dB to 30.6 dB	29.2 dB to 31.4 dB	29.6 dB to 31.4 dB	30.2 dB to 31.4 dB	30.2 dB to 31.4 dB	29.4 dB to 31.4 dB	25.00 dB	20.00 dB	20.00 dB	15.00 dB	15.00 dB
41VA-40	38.4 dB to 40 dB	38.4 dB to 40 dB	38.8 dB to 41.2 dB	38.8 dB to 41.1 dB	38.6 dB to 41.1 dB	38.6 dB to 41.1 dB	25.00 dB	20.00 dB	15.00 dB	15.00 dB	15.00 dB



All plots typical.

Gold Line Attenuators

Model and Frequency Range	Insertion Loss			Return Loss (min)			
	DC to 18 GHz	>18 GHz to 26.5 GHz	>26.5 GHz to 40 GHz	DC to 12 GHz	>12 GHz to 18 GHz	>18 GHz to 26.5 GHz	>26.5 GHz to 40 GHz
41KC-3	2.6 dB to 3.4 dB	2.5 dB to 3.5 dB	2.2 dB to 3.8 dB	26.44 dB	23.13 dB	19.73 dB	15.21 dB
41KC-6	5.6 dB to 6.4 dB	5.5 dB to 6.5 dB	5.2 dB to 6.8 dB	26.44 dB	23.13 dB	21.66 dB	18.22 dB
41KC-10	9.6 dB to 10.4 dB	9.5 dB to 10.5 dB	9.2 dB to 10.8 dB	26.44 dB	23.13 dB	21.66 dB	18.22 dB
41KC-20	19.6 dB to 20.4 dB	19.5 dB to 20.5 dB	19.2 dB to 20.8 dB	26.44 dB	23.13 dB	21.66 dB	18.22 dB
Model and Frequency Range	DC to 18 GHz	>18 GHz to 26.5 GHz		DC to 12 GHz	>12 GHz to 18 GHz	>18 GHz to 26.5 GHz	
41KB-3	2.6 dB to 3.4 dB	2.5 dB to 3.5 dB		26.44 dB	23.13 dB	19.73 dB	
41KB-6	5.6 dB to 6.4 dB	5.5 dB to 6.5 dB		26.44 dB	23.13 dB	21.66 dB	
41KB-10	9.6 dB to 10.4 dB	9.5 dB to 10.5 dB		26.44 dB	23.13 dB	21.66 dB	
41KB-20	19.6 dB to 20.4 dB	19.5 dB to 20.5 dB		26.44 dB	23.13 dB	21.66 dB	



All plots typical.

Silver Line Attenuators

Model and Frequency Range	Attenuation Flatness ^a			Return Loss (min)			
	DC to 18 GHz	>18 GHz to 26.5 GHz	>26.5 GHz to 40 GHz	DC to 12 GHz	>12 GHz to 18 GHz	>18 GHz to 26.5 GHz	>26.5 GHz to 40 GHz
43KC-3	±0.5 dB	±0.6 dB	±0.9 dB	23.13 dB	20.81 dB	17.69 dB	13.98 dB
43KC-6	±0.5 dB	±0.6 dB	±0.9 dB	23.13 dB	20.81 dB	17.69 dB	15.56 dB
43KC-10	±0.5 dB	±0.6 dB	±0.9 dB	23.13 dB	20.81 dB	17.69 dB	15.56 dB
43KC-20	±0.5 dB	±0.6 dB	±0.9 dB	23.13 dB	20.81 dB	17.69 dB	15.56 dB
Model and Frequency Range	DC to 18 GHz	>18 GHz to 26.5 GHz		DC to 12 GHz	>12 GHz to 18 GHz	>18 GHz to 26.5 GHz	
43KB-3	±0.5 dB	±0.6 dB		23.13 dB	20.81 dB	17.69 dB	
43KB-6	±0.5 dB	±0.6 dB		23.13 dB	20.81 dB	17.69 dB	
43KB-10	±0.5 dB	±0.6 dB		23.13 dB	20.81 dB	17.69 dB	
43KB-20	±0.5 dB	±0.6 dB		23.13 dB	20.81 dB	17.69 dB	

a. Attenuation accuracy: ±1 dB from DC to 26.5 GHz, ±1.3 dB from >26.5 to 40 GHz; including frequency response and DC offset

Environmental (per MIL-STD-202F)

Temperature Shock	-55 °C to +150 °C
Humidity	95% at 40 °C, 96 hours, Test 103B, Condition B
Shock	100 G _n peak sawtooth, method 213, Condition B
Vibration	Sinewave: 10 Hz to 2000 Hz, 0.06" DA, method 204, test condition D Random: 50 Hz to 2000 Hz, 11.6 Grms, Power Spectral Density 0.1 Grms 2 Hz, Method 214, Test Condition 1, Letter D
Salt Spray ¹	5% concentration for 48 hours, Method 101D, Condition B

Regulatory Compliance

41KC, 41KB, 43KC, 43KB	RoHS Directive 2011/65/EU
41W, 41VA	RoHS Directive 2015/863/EU

Ordering Information

Gold Line Model Precision Fixed Attenuators (each attenuator is serialized for traceability)

Part Number	Description
41W-3, 41W-6, 41W-10	DC to 110 GHz, 3 dB, 6 dB, 10 dB, W1(f) to W1(m), 50 Ω
41VA-3, 41VA-6, 41VA-10, 41VA-20, 41VA-30, 41VA-40	DC to 70 GHz, 3 dB, 6 dB, 10 dB, 20 dB, 30 dB, 40 dB, V(f) to V(m), 50 Ω
41KC-3, 41KC-6, 41KC-10, 41KC-20	DC to 40 GHz, 3 dB, 6 dB, 10 dB, 20 dB, K(f) to K(m), 50 Ω
41KB-3, 41KB-6, 41KB-10, 41KB-20	DC to 26.5 GHz, 3 dB, 6 dB, 10 dB, 20 dB, K(f) to K(m), 50 Ω
Precision Fixed Attenuator Sets	A set of 3, 6, 10, and 20 dB Gold Line Attenuators (Series 41) supplied in a hardwood case. Calibration data are included for each unit.
41VA-S	41VA Series Precision Fixed Attenuator Set
41KC-S	41KC Series Precision Fixed Attenuator Set
41KB-S	41KB Series Precision Fixed Attenuator Set

Silver Line Model Fixed Attenuators

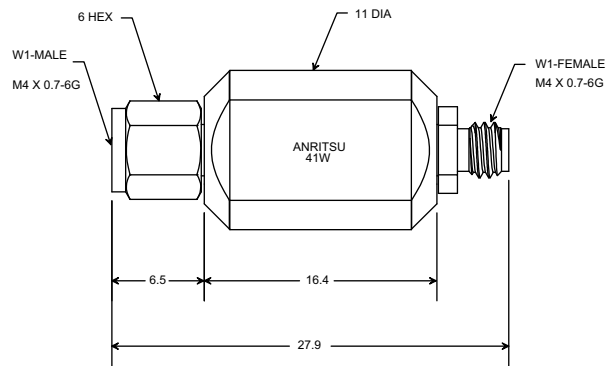
Part Number	Description
43KC-3, 43KC-6, 43KC-10, 43KC-20	DC to 40 GHz, 3 dB, 6 dB, 10 dB, 20 dB, K(f) to K(m), 50 Ω
43KB-3, 43KB-6, 43KB-10, 43KB-20	DC to 26.5 GHz, 3 dB, 6 dB, 10 dB, 20 dB, K(f) to K(m), 50 Ω

Calibration Data

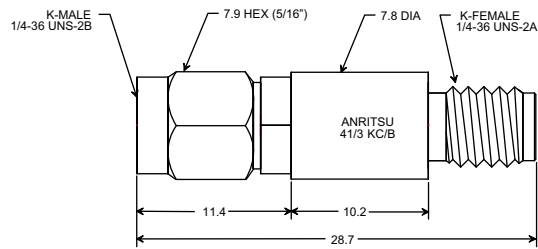
Part Number	Description
41W-099	Premium Calibration to ISO17025 and ANSI/NCCL Z540-1. Includes calibration certificate, test report, and uncertainty data.
41K-CAL	Standard Calibration to ISO17025 and ANSI/NCCL Z540-1. Includes calibration certificate.
41VA-99	Premium Calibration to ISO17025 and ANSI/NCCL Z540-1. Includes calibration certificate, test report, and uncertainty data.

1. Salt spray does not apply to the 41W series attenuators or 41VA-3, 41VA-6, and 41VA-10 attenuators.

Dimensions

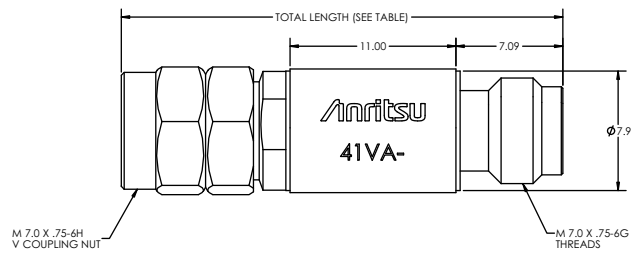


Models 41W-x



Models 41K-x/43K-x

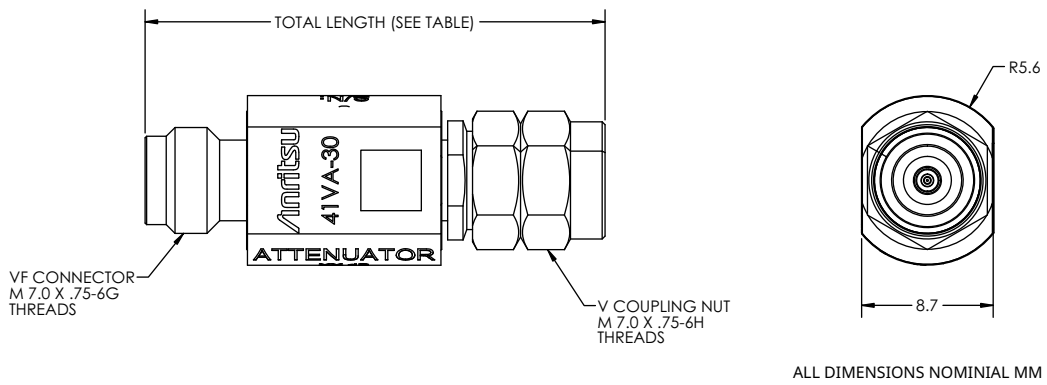
All dimensions in mm



Models 41VA-3, 6, 10, 20

Technical Data

Fixed Attenuators



Models 41VA-30, 40

Model	Total Length (mm)
41VA-3	29.00
41VA-6	29.00
41VA-10	29.00
41VA-20	29.45
41VA-30	30.20
41VA-40	30.65

Training at Anritsu

Anritsu has designed courses to help you stay up to date with technologies important to your job. For available training courses, visit: www.anritsu.com/training



• United States

Anritsu Americas Sales Company
450 Century Parkway, Suite 190
Allen, TX 75013, U.S.A.
Phone: +1-800-Anritsu (1-800-267-4878)

• Canada

Anritsu Electronics Ltd.
700 Silver Seven Road, Suite 120
Kanata, Ontario K2V 1C3, Canada
Phone: +1-613-591-2003
Fax: +1-613-591-1006

• Brazil

Anritsu Eletronica Ltda.
Praça Amadeu Amaral, 27 - 1 Andar
01327-010 - Bela Vista - Sao Paulo - SP
Brazil
Phone: +55-11-3283-2511
Fax: +55-11-3288-6940

• Mexico

Anritsu Company, S.A. de C.V.
Blvd Miguel de Cervantes Saavedra #169 Piso 1,
Col. Granada
Mexico, Ciudad de Mexico, 11520, MEXICO
Phone: +52-55-4169-7104

• United Kingdom

Anritsu EMEA L td.
200 Capability Green
Luton, Bedfordshire, LU1 3LU, U.K.
Phone: +44-1582-433200
Fax: +44-1582-731303

• France

Anritsu S.A.
12 avenue du Québec, Bâtiment Iris 1- Silic 612,
91140 Villebon-sur-Yvette, France
Phone: +33-1-60-92-15-50
Fax: +33-1-64-46-10-65

• Germany

Anritsu GmbH
Nemetschek Haus, Konrad-Zuse-Platz 1
81829 München, Germany
Phone: +49-89-442308-0
Fax: +49-89-442308-55

• Italy

Anritsu S.r.l.
Via Elio Vittorini 129, 00144 Roma, Italy
Phone: +39-6-509-9711
Fax: +39-6-502-2425

List Revision Date: 20200602

• Sweden

Anritsu AB
Isafjordsgatan 32C
164 40 Kista, Sweden
Phone: +46-8-534-707-00

• Finland

Anritsu AB
Teknobulevardi 3-5
FI-01530 Vantaa, Finland
Phone: +358-20-741-8100
Fax: +358-20-741-8111

• Denmark

Anritsu A/S
c/o Regus Winghouse, Ørestads Boulevard 73, 4th
floor,
2300 Copenhagen S, Denmark
Phone: +45-7211-2200

• Russia

Anritsu EMEA Ltd.
Representation Office in Russia
Tverskaya str. 16/2, bld. 1, 7th floor
Moscow 125009, Russia
Phone: +7-495-363-1694
Fax: +7-495-935-8962

• Spain

Anritsu EMEA Ltd.
Representation Office in Spain
Paseo de la Castellana, 141.
Planta 5, Edificio Cuzco IV
28046, Madrid, Spain
Phone: +34-91-572-6761

• United Arab Emirates

Anritsu EMEA Ltd.
Dubai Liaison Office
902 Aurora Tower
P O Box: 500311 - Dubai Internet City
Dubai, United Arab Emirates
Phone: +971-4-3758479
Fax: +971-4-4249036

• India

Anritsu India Private Limited
6th Floor, Indiqueb ETA, No.38/4
Adjacent to EMC2, Doddanekundi, Outer Ring Road
Bengaluru 560048, India
Phone: +91-80-6728-1300
Fax: +91-80-6728-1301

• Singapore

Anritsu Pte. Ltd.
11 Chang Charn Road, #04-01, Shriro House
Singapore 159640
Phone: +65-6282-2400
Fax: +65-6282-2533

• P.R. China (Shanghai)

Anritsu (China) Co., Ltd.
Room 2701-2705, Tower A
New Caohejing International Business Center
No. 391 Gui Ping Road
Shanghai 200233, P.R. China
Phone: +86-21-6237-0898
Fax: +86-21-6237-0899

• P.R. China (Hong Kong)

Anritsu Company Ltd.
Unit 1006-7, 10/F.
Greenfield Tower, Concordia Plaza
No. 1 Science Museum Road
Tsim Sha Tsui East, Kowloon
Hong Kong, P.R. China
Phone: +852-2301-4980
Fax: +852-2301-3545

• Japan

Anritsu Corporation
8-5, Tamura-cho, Atsugi-shi, Kanagawa, 243-0016
Japan
Phone: +81-46-296-6509
Fax: +81-46-225-8352

• South Korea

Anritsu Corporation, Ltd.
5FL, 235 Pangyojeok-ro
Bundang-gu, Seongnam-si
Gyeonggi-do 13494, South Korea
Phone: +82-31-696-7750
Fax: +82-31-696-7751

• Australia

Anritsu Pty. Ltd.
Unit 20, 21-35 Ricketts Road
Mount Waverley, Victoria 3149, Australia
Phone: +61-3-9558-8177
Fax: +61-3-9558-8255

• Taiwan

Anritsu Company Inc.
7F, No. 316, Sec. 1, NeiHu Rd. Taipei 114, Taiwan
Phone: +886-2-8751-1816
Fax: +886-2-8751-1817