

Anritsu envision : ensure

Precision Fixed Attenuators

Series 41 Gold Line Attenuators for precision measurement applications

41W-x

DC to 110 GHz, 3 dB to 10 dB

41V-x

DC to 60 GHz, 3 dB to 20 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



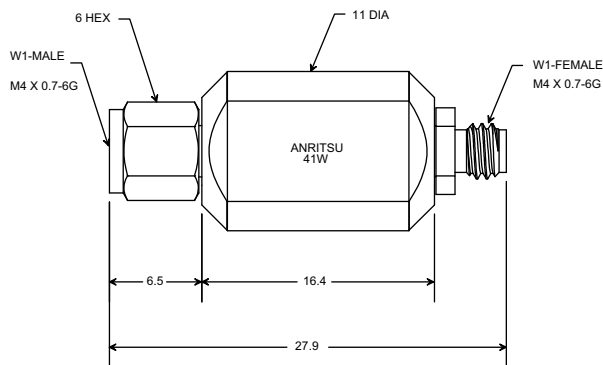
Introduction

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.

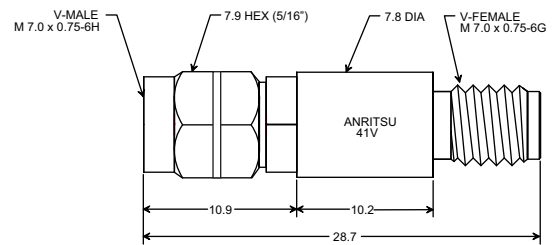
Features

- 3, 6, or 10 dB attenuation up to 110 GHz, 20 dB attenuation up to 60 GHz
- Low SWR, 1.28:1 up to 40 GHz; 2.0:1 up to 110 GHz
- W1 Connectors™ are compatible with 1 mm connectors
- V Connectors™ are compatible with 2.4 mm connectors
- K Connectors™ are 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

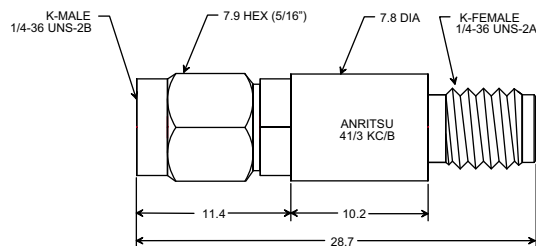
Dimensions



Models 41W-x



Models 41V-x



Models 41K-x/43K-x

All dimensions in mm

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
41V-3, 41V-6, 41V-10, 41V-20	DC to 60 GHz	3 dB, 6 dB, 10 dB, 20 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	Frequency Range	Attenuation	Connectors	Impedance	Max Input Power
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

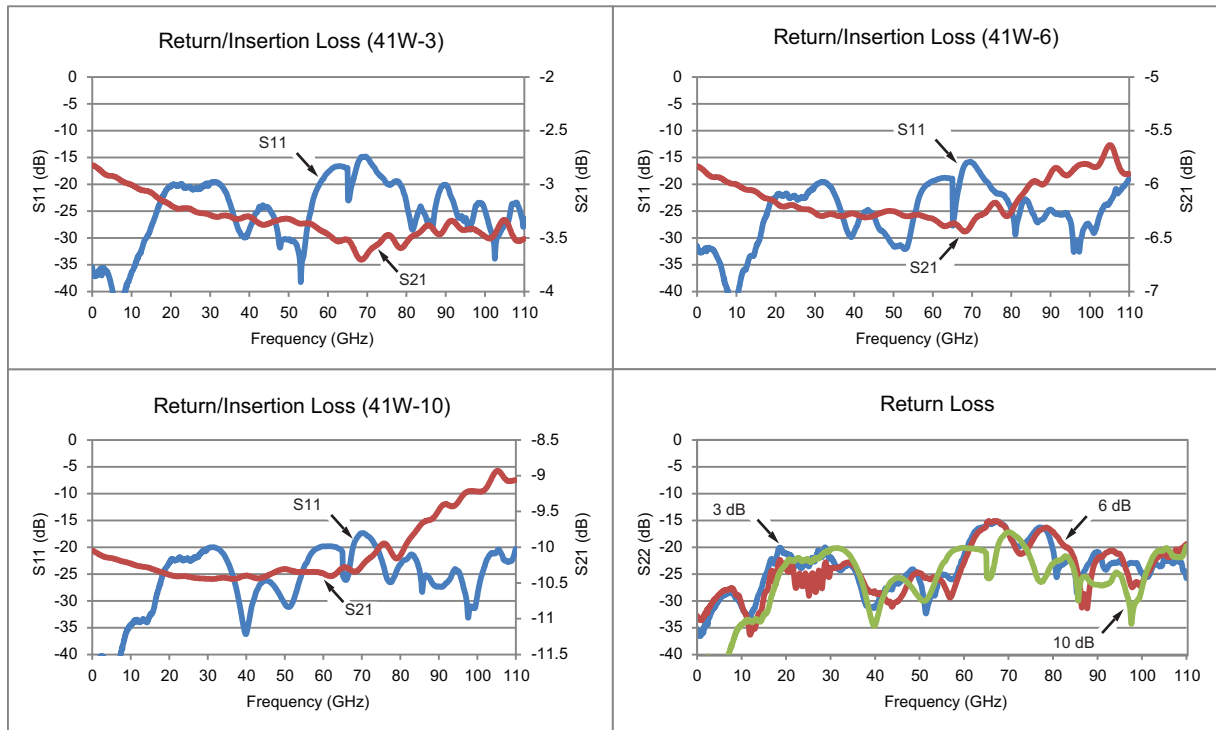
Specifications

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
 41V, 41K, 43K: Operating: -55 °C to +85 °C; Non-operating: -55 °C to +125 °C
 Weight 41W: 12 g
 41V, 41K, 43K: 8 g

Gold Line Attenuators

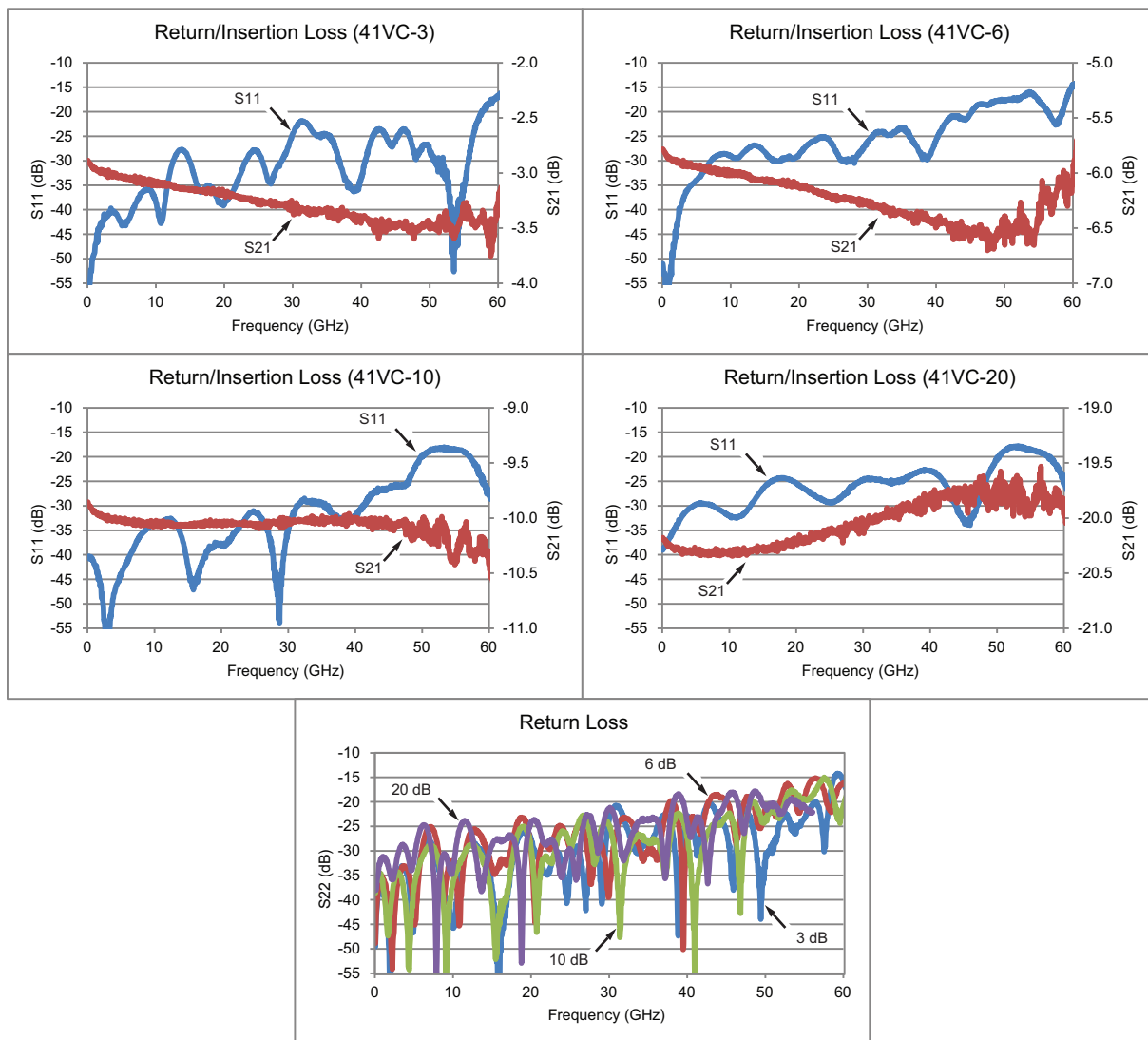
Model and Frequency Range	Insertion Loss		Return Loss (min)			
	DC to 20 GHz	>20 GHz to 110 GHz	DC to 15 GHz	>15 GHz to 50 GHz	>50 GHz to 105 GHz	>105 GHz to 110 GHz
41W-3	2.00 dB to 4.00 dB	1.00 dB to 5.00 dB	20.00 dB	15.00 dB	12.00 dB	10.00 dB
41W-6	5.00 dB to 7.00 dB	4.50 dB to 7.50 dB	20.00 dB	15.00 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 18 GHz	>18 GHz to 26.5 GHz	>26.5 GHz to 40 GHz	>40 GHz to 60 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
41V-3	2.5 dB to 3.5 dB	2.4 dB to 3.6 dB	2.1 dB to 3.9 dB	1.5 dB to 4.5 dB	23.13 dB	20.81 dB	17.69 dB	13.98 dB	10.16 dB
41V-6	5.5 dB to 6.5 dB	5.4 dB to 6.6 dB	5.1 dB to 6.9 dB	4.5 dB to 7.5 dB	23.13 dB	20.81 dB	19.09 dB	15.56 dB	10.16 dB
41V-10	9.5 dB to 10.5 dB	9.4 dB to 10.6 dB	9.1 dB to 10.9 dB	8.5 dB to 11.5 dB	23.13 dB	20.81 dB	19.09 dB	15.56 dB	10.16 dB
41V-20	19.5 dB to 20.5 dB	19.4 dB to 20.6 dB	19.1 dB to 20.9 dB	18.5 dB to 21.5 dB	23.13 dB	20.81 dB	19.09 dB	15.56 dB	10.16 dB

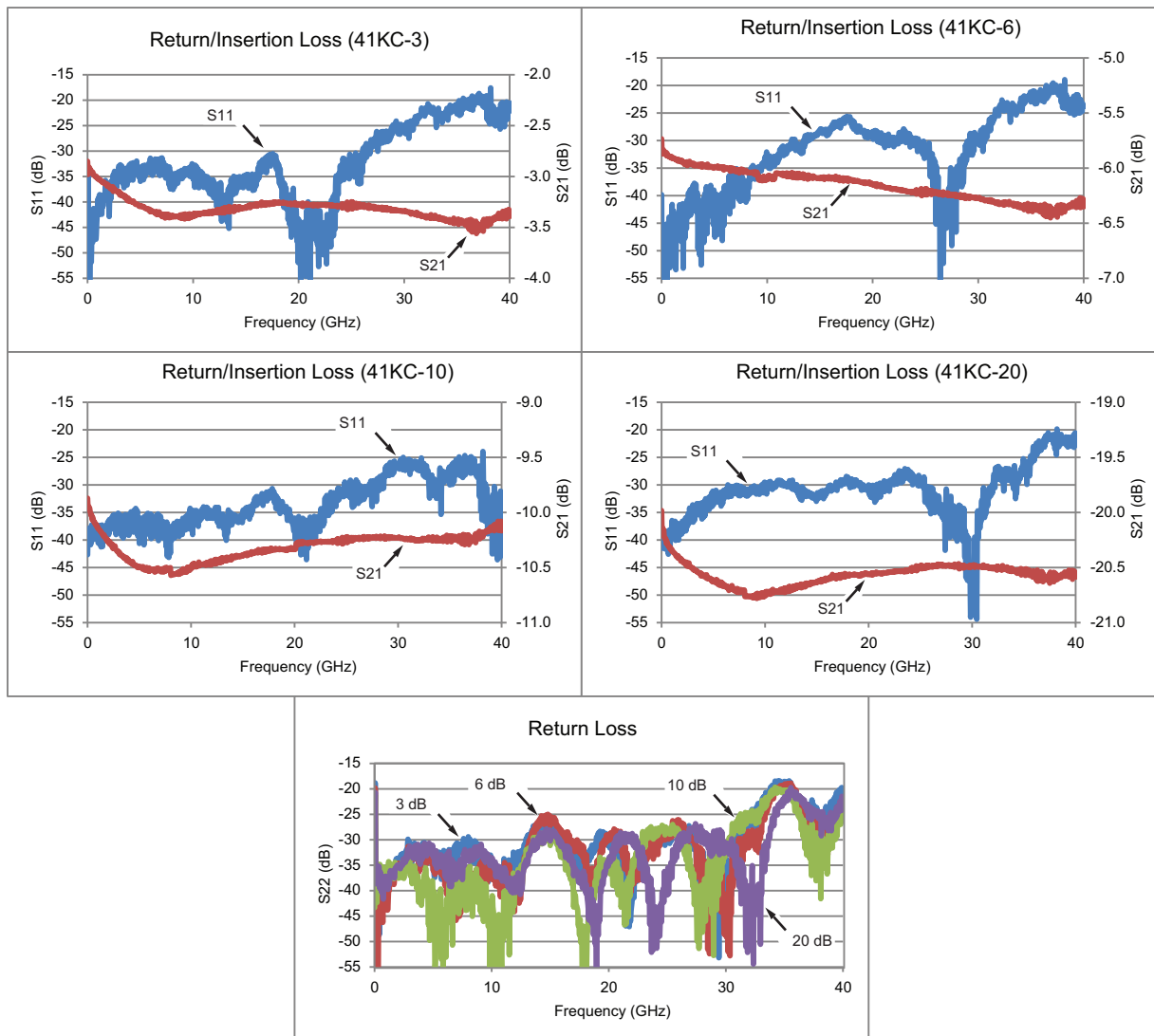


All plots typical.

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
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 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

European Union	RoHS Directive 2011/65/EU
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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
41V-3, 41V-6, 41V-10, 41V-20	DC to 60 GHz, 3 dB, 6 dB, 10 dB, 20 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.
41V-S	41V 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/NCSL Z540-1. Includes calibration certificate, test report, and uncertainty data.
41K-CAL	Standard Calibration to ISO17025 and ANSI/NCSL Z540-1. Includes calibration certificate.
41V-CAL	Standard Calibration to ISO17025 and ANSI/NCSL Z540-1. Includes calibration certificate.

1. Salt spray does not apply to the 41W series attenuators.

Training at Anritsu

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