

RPG WFA – WAVEGUIDE FIXED ATTENUATOR

Specifications



Radiometer Physics
A Rohde & Schwarz Company

Definitions

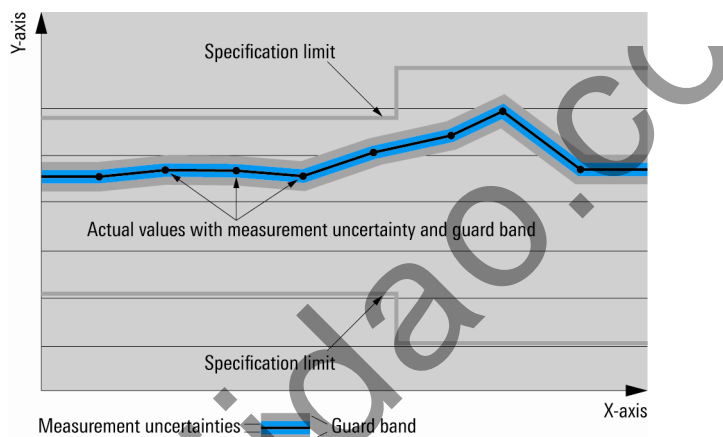
General

Product data applies under the following conditions:

- Three hours storage at ambient temperature followed by 30 minutes warm-up operation
- Specified environmental conditions met
- Recommended calibration interval adhered to
- All internal automatic adjustments performed, if applicable

Specifications with limits

Represent warranted product performance by means of a range of values for the specified parameter. These specifications are marked with limiting symbols such as $<$, \leq , $>$, \geq , \pm , or descriptions such as maximum, limit of, minimum. Compliance is ensured by testing or is derived from the design. Test limits are narrowed by guard bands to take into account measurement uncertainties, drift and aging, if applicable.



Non-traceable specifications with limits (n. trc.)

Represent product performance that is specified and tested as described under "Specifications with limits" above. However, product performance in this case cannot be warranted due to the lack of measuring equipment traceable to national metrology standards. In this case, measurements are referenced to standards used in the Radiometer Physics laboratories.

Specifications without limits

Represent warranted product performance for the specified parameter. These specifications are not specially marked and represent values with no or negligible deviations from the given value (e.g. dimensions or resolution of a setting parameter). Compliance is ensured by design.

Typical data (typ.)

Characterizes product performance by means of representative information for the given parameter. When marked with $<$, $>$ or as a range, it represents the performance met by approximately 80 % of the instruments at production time. Otherwise, it represents the mean value.

Nominal values (nom.)

Characterize product performance by means of a representative value for the given parameter (e.g. nominal impedance). In contrast to typical data, a statistical evaluation does not take place and the parameter is not tested during production.

Measured values (meas.)

Characterize expected product performance by means of measurement results gained from individual samples.

Uncertainties

Represent limits of measurement uncertainty for a given measurand. Uncertainty is defined with a coverage factor of 2 and has been calculated in line with the rules of the Guide to the Expression of Uncertainty in Measurement (GUM), taking into account environmental conditions, aging, wear and tear.

Device settings and GUI parameters are indicated as follows: "parameter: value".

Non-traceable specifications with limits, typical data as well as nominal and measured values are not warranted by Radiometer Physics.

General information

The RPG Waveguide Fixed Attenuators (WFA) are available for the frequency bands:

- 50 GHz to 75 GHz (WFA 50-75)
- 60 GHz to 90 GHz (WFA 60-90)
- 75 GHz to 110 GHz (WFA 75-110)
- 90 GHz to 140 GHz (WFA 90-140)
- 110 GHz to 170 GHz (WFA 110-170)
- 140 GHz to 220 GHz (WFA 140-220)
- 170 GHz to 260 GHz (WFA 170-260)
- 220 GHz to 330 GHz (WFA 220-330)
- 260 GHz to 400 GHz (WFA 260-400)
- 330 GHz to 500 GHz (WFA 330-500)
- 500 GHz to 750 GHz (WFA 500-750)

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Specifications

Test Port

RF-Frequency range [GHz]	WFA 50-75	50 - 75
	WFA 60-90	60 - 90
	WFA 75-110	75 - 110
	WFA 90-140	90 - 140
	WFA 110-170	110 - 170
	WFA 140-220	140 - 220
	WFA 170-260	170 - 260
	WFA 220-330	220 - 330
	WFA 260-400	260 - 400
	WFA 330-500	330 - 500
	WFA 500-750	500 - 750
Waveguide designator	WFA 50-75	WR-15
	WFA 60-90	WR-12
	WFA 75-110	WM-2540 (WR-10)
	WFA 90-140	WM-2032 (WR-8)
	WFA 110-170	WM-1651 (WR-6.5)
	WFA 140-220	WM-1295 (WR-5.1)
	WFA 170-260	WM-1092 (WR-4.3)
	WFA 220-330	WM-864 (WR-3.4)
	WFA 260-400	WM-710
	WFA 330-500	WM-570
	WFA 500-750	WM-380
Connector type	WFA 50-75	R&S precision waveguide flange (compatible with UG-387/U-M)
	WFA 60-90	
	WFA 75-110	
	WFA 90-140	
	WFA 110-170	
	WFA 140-220	
	WFA 170-260	
	WFA 220-330	
	WFA 260-400	
	WFA 330-500	
	WFA 500-750	
Attenuation [dB] (due to customer specification)	WFA 50-75	0 – 40
	WFA 60-90	
	WFA 75-110	
	WFA 90-140	
	WFA 110-170	
	WFA 140-220	
	WFA 170-260	
	WFA 220-330	
	WFA 260-400	
	WFA 330-500	
	WFA 500-750	
VSWR	WFA 50-75	> 1.6:1 @ 40 dB attenuation, better for lower attenuation values
	WFA 60-90	
	WFA 75-110	
	WFA 90-140	
	WFA 110-170	
	WFA 140-220	
	WFA 170-260	
	WFA 220-330	
	WFA 260-400	
	WFA 330-500	
	WFA 500-750	

Absolut Maximum Ratings

RF-Input power [dBm]	WFA 50-75	+ 20
	WFA 60-90	
	WFA 75-110	
	WFA 90-140	
	WFA 110-170	
	WFA 140-220	
	WFA 170-260	
	WFA 220-330	
	WFA 260-400	
	WFA 330-500	
	WFA 500-750	

General data

Temperature loading	operating temperature range	+18 °C to +28 °C
	permissible temperature range	+5 °C to +40 °C
	storage temperature range	-40 °C to +70 °C
Damp heat		in line with IEC 60068-2-1 and IEC 60068-2-2
		+40 °C at 80 % rel. humidity, in line with IEC 60068-2-30
Mechanical resistance	vibration, sinusoidal	5 Hz to 150 Hz, in line with IEC 60068-2-6
	vibration, random	10 Hz to 300 Hz, in line with IEC 60068-2-64
	shock	40 g shock spectrum, in line with MIL-STD-810, method 516, procedure I
Operation	permissible altitude	3000 m above sea level
Weight		70 gram (0.15 lb)
Shipping Weight		100 gram (0.22 lb)

Ordering information

Designation	RPG-Order No.
WFA 50-75	04710023
WFA 60-90	04710025
WFA 75-110	04710027
WFA 90-140	04710029
WFA 110-170	04710031
WFA 140-220	04710033
WFA 170-260	04710035
WFA 220-330	04710037
WFA 260-400	04710049
WFA 330-500	04710039
WFA 500-750	04710041

Outline Drawing

