RPG WFI – WAVEGUIDE FULLBAND ISOLATORS

Specifications

Radiometer Physics
A Rohde & Schwarz Company

Definitions

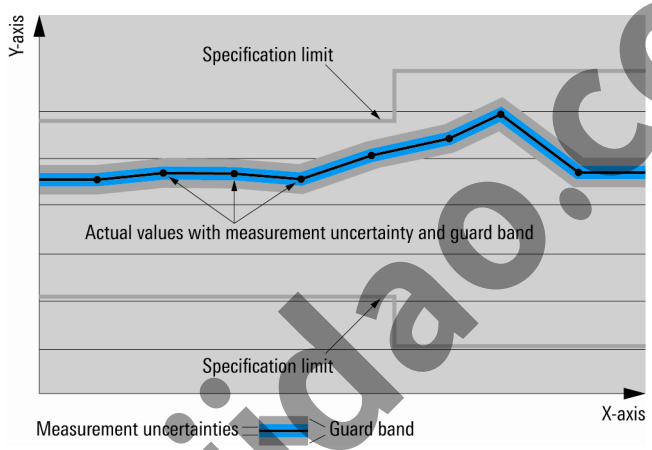
General

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 <, ≤, >, ≥, ±, 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 tea

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 Fullband Isolators (WFI) are available for the frequency bands:

- 50 GHz to 75 GHz (WFI 50-75)
- 60 GHz to 90 GHz (WFI 60-90)
- 75 GHz to 110 GHz (WFI 75-110)
- 90 GHz to 140 GHz (WFI 90-140)
- 110 GHz to 170 GHz (WFI 110-170)
- 140 GHz to 220 GHz (WFI 140-220)

Specifications

Test Port

RF-Frequency range [GHz]	WFI 50-75	50 - 75
	WFI 60-90	60 - 90
	WFI 75-110	75 - 110
	WFI 90-140	90 - 140
	WFI 110-170	110 - 170
	WFI 140-220	140 - 220
Waveguide designator	WFI 50-75	WR-15
	WFI 60-90	WR-12
	WFI 75-110	WM-2540 (WR-10)
	WFI 90-140	WM-2032 (WR-8)
	WFI 110-170	WM-1651 (WR-6.5)
	WFI 140-220	WM-1295 (WR-5.1)
Connector type	WFI 50-75	RPG standard waveguide flange (UG-387/ U-M compatible)
	WFI 60-90	
	WFI 75-110	
	WFI 90-140	
	WFI 110-170	
	WFI 140-220	
VSWR	WFI 50-75	> 1.4:1
	WFI 60-90	
	WFI 75-110	
	WFI 90-140	
	WFI 110-170	
	WFI 140-220	
Insertion loss (typ.) [dB]	WFI 50-75	0.8
	WFI 60-90	1.0
	WFI 75-110	1.0
	WFI 90-140	1.3
	WFI 110-170	1.5
	WFI 140-220	1.7
Isolation (typ.) [dB]	WFI 50-75	> 20
	WFI 60-90	
	WFI 75-110	
	WFI 90-140	
	WFI 110-170	
	WFI 140-220	

Absolut Maximum Ratings

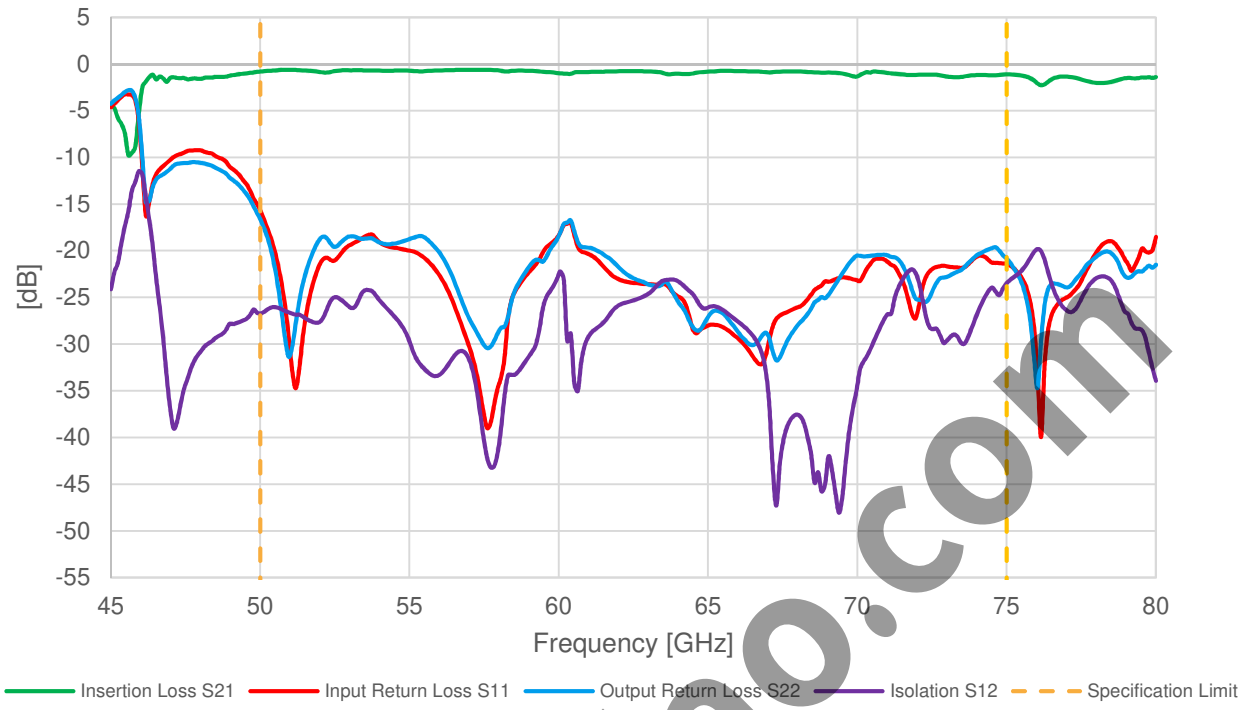
RF-Input power [dBm]	WFI 40-60	+ 20
	WFI 50-75	
	WFI 60-90	
	WFI 75-110	
	WFI 90-140	
	WFI 110-170	
	WFI 140-220	

General data

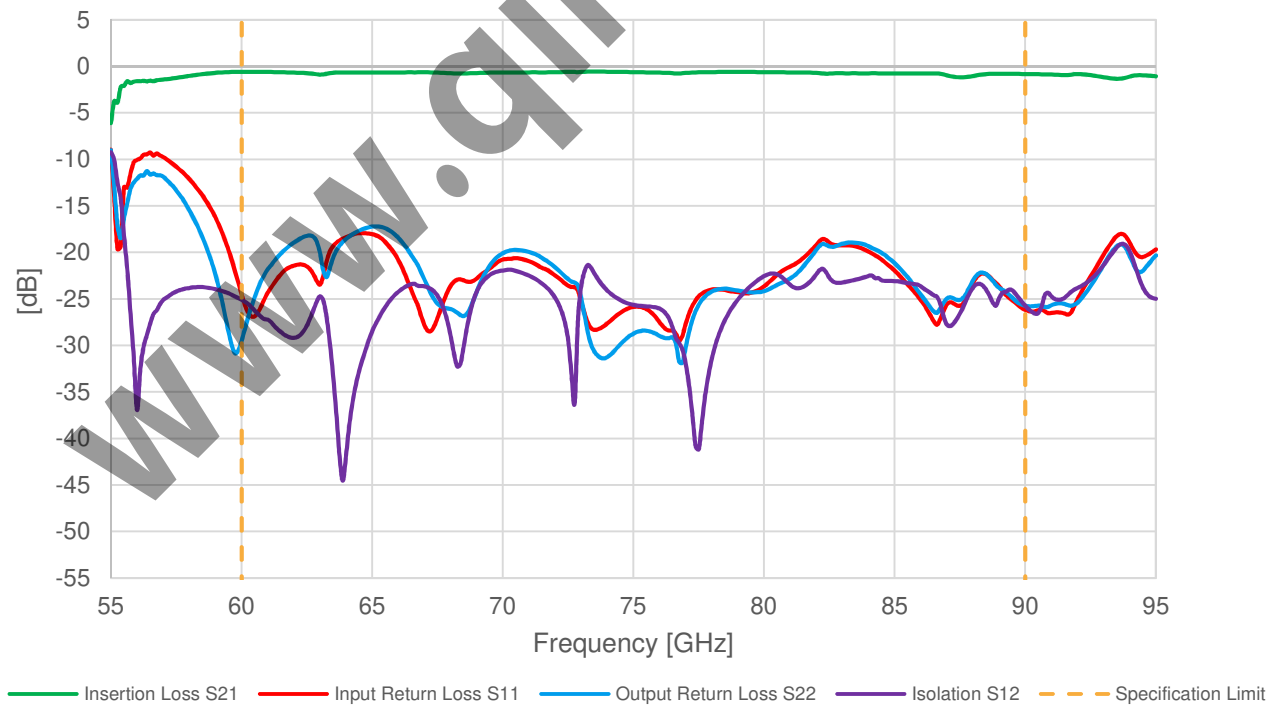
Temperature loading	operating temperature range	+18 °C to +28 °C
	permissible temperature range	+5 °C to +40 °C
	storage temperature range	–40 °C to +70 °C
		in line with IEC 60068-2-1 and IEC 60068-2-2
Damp heat		+40 °C at 80 % rel. humidity, in line with IEC 60068-2-30
Mechanical resistance	vibration, 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

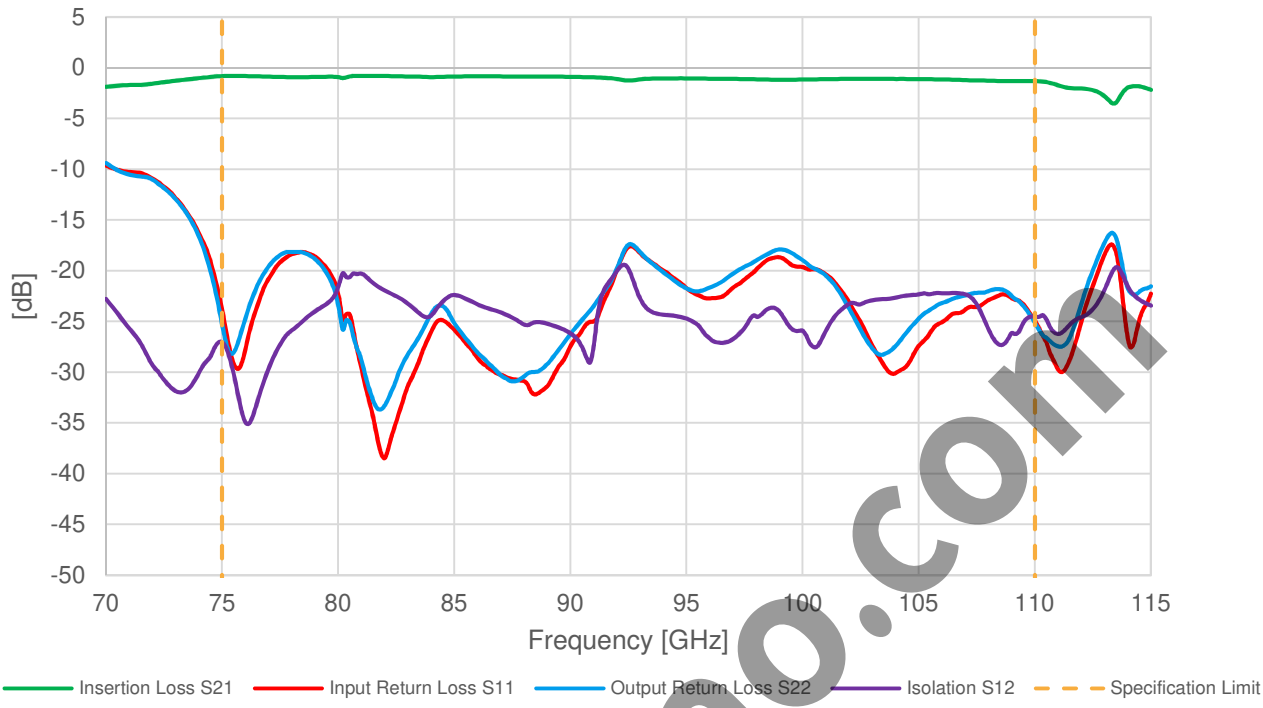
Designation	**RPG-Order No.**
WFI 50-75	**04800024**
WFI 60-90	**04800021**
WFI 75-110	**04800020**
WFI 90-140	**04800007**
WFI 110-170	**04800008**
WFI 140-220	**04800022**



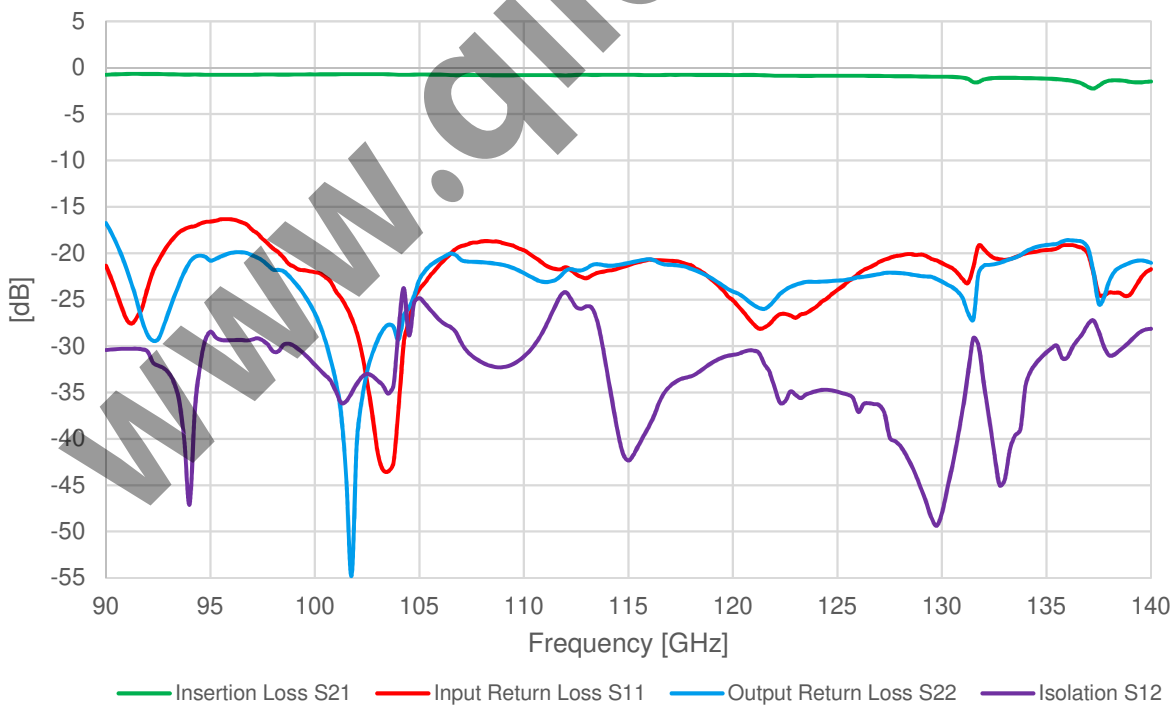
typ. Figure 1: WFI 50-75 S-Parameter between 45 GHz and 80 GHz



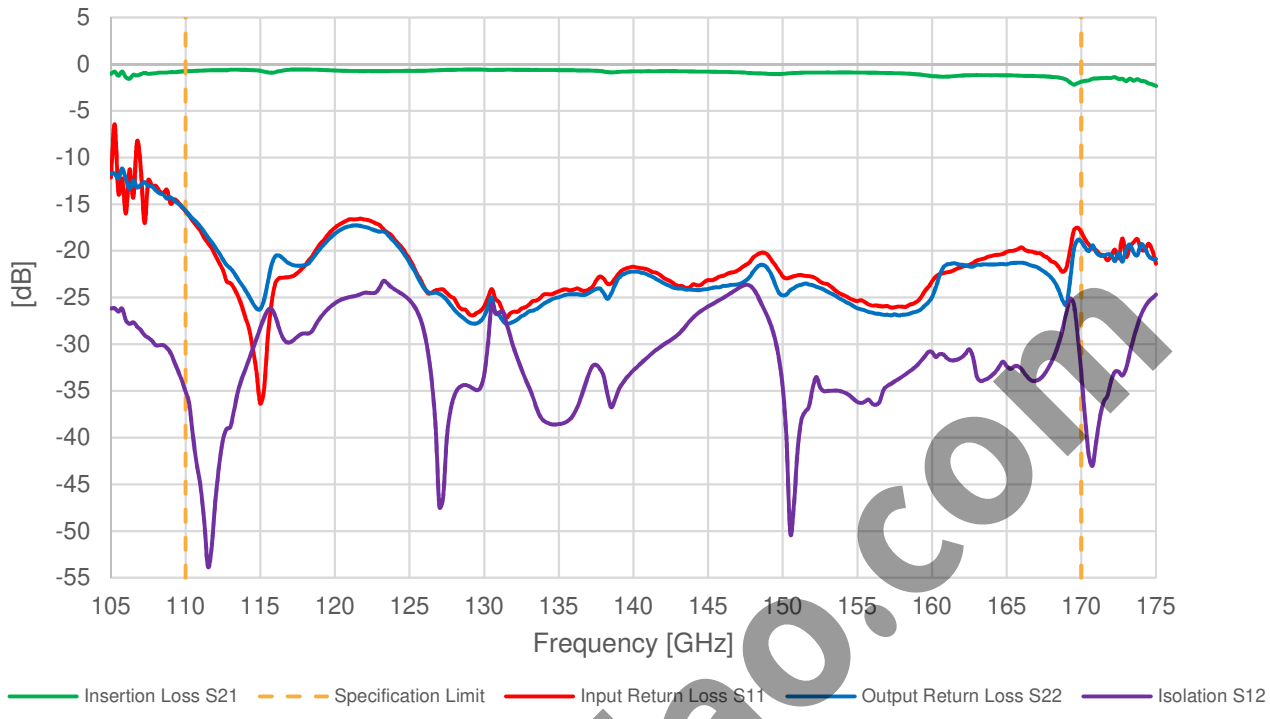
typ. Figure 2: WFI 60-90 S-Parameter between 55 GHz and 95 GHz



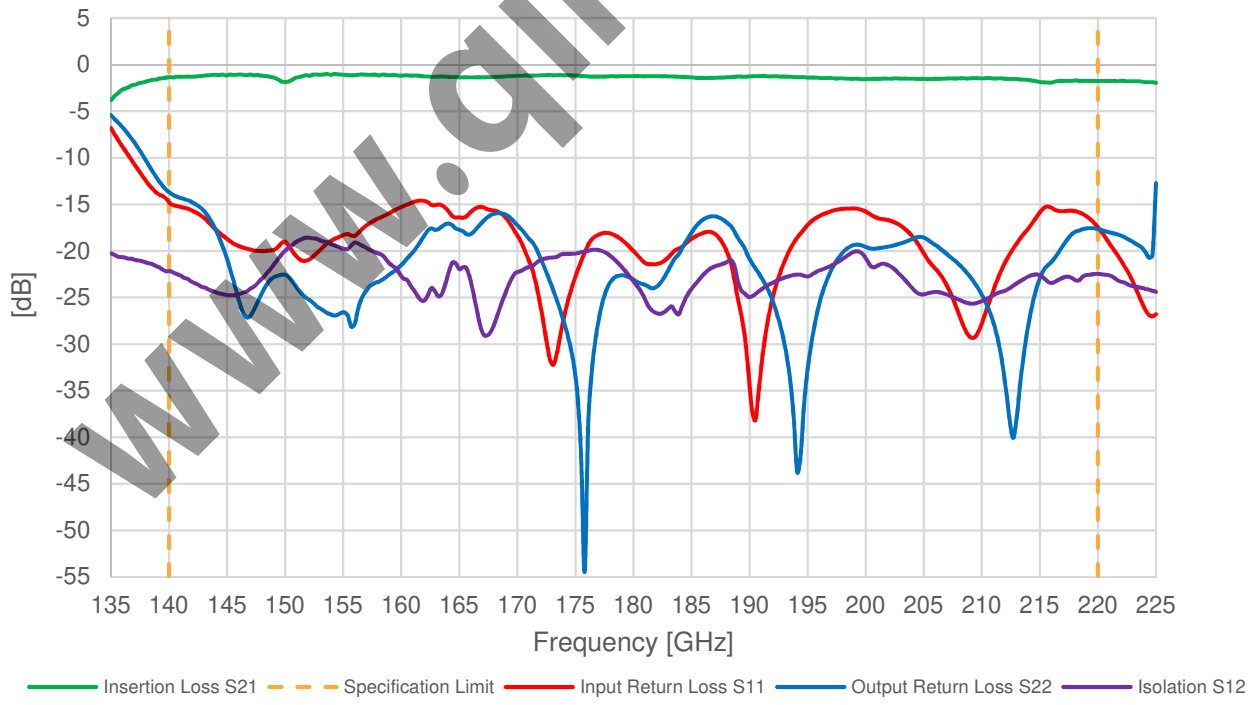
typ. Figure 3: WFI 75-110 S-Parameter between 70 GHz and 115 GHz



typ. Figure 4: WFI 90-140 S-Parameter between 90 GHz and 140 GHz



typ. Figure 5: WFI 110-170 S-Parameter between 105 GHz and 175 GHz



typ. Figure 6: WFI 140-220 S-Parameter between 135 GHz and 225 GHz

Outline Drawing