Thin-Film RF/Microwave Directional Couplers

CP0302/CP0402/CP0603/CP0805 and DB0603N/DB0805 3dB 90°

DB0805 3dB 90° Couplers

GENERAL DESCRIPTION ITF TECHNOLOGY

The ITF SMD 3dB 90° Coupler is based on thin-film multilayer technology. The technology provides a miniature part with excellent high frequency performance and rugged construction for reliable automatic assembly.

The ITF 3dB 90° Coupler is offered in a variety of frequency bands compatible with various types of high frequency wireless systems.

APPLICATIONS

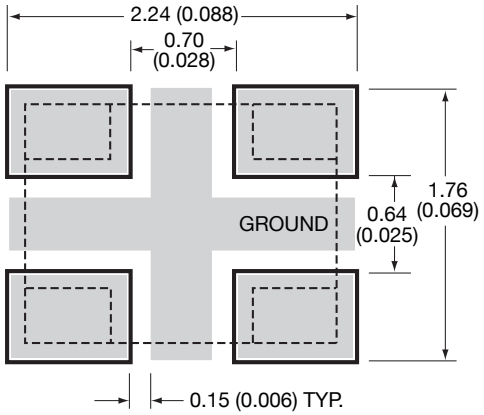
- Balanced Amplifiers and Signal Distribution in Mobile Communications

FEATURES

- Miniature 0805 size
- Low I. Loss
- High Isolation
- Power Handling: 10W RF CW
- Surface Mountable
- Supplied on Tape & Reel
- Operating Temperature -40°C to +85°C

RECOMMENDED PAD LAYOUT DIMENSIONS:

millimeters (inches)

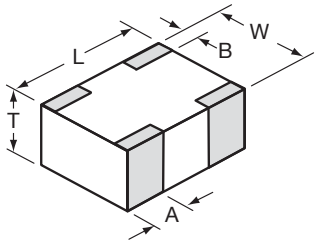


DIMENSIONS:

millimeters (inches)

L	2.03±0.10 (0.080±0.004)
W	1.55±0.10 (0.061±0.004)
T	0.98±0.15 (0.037±0.006)
A	0.56±0.25 (0.022±0.010)
B	0.35±0.15 (0.014±0.006)

BOTTOM VIEW



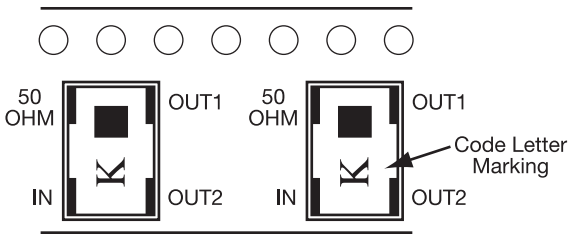
ELECTRICAL PARAMETERS*

Part Number**	Frequency FO [MHz]	I. Loss @ F_o [dB]	Phase Balance [deg] max.	Code Letter Marking
DB0805A0870ASTR	870±70	0.4	3	Y
DB0805A0880ASTR	880±30	0.35	3	Y
DB0805A0915ASTR	915±30	0.35	3	V
DB0805A0967ASTR	967±30	0.35	3	V
DB0805A1176ASTR	1176±13	0.2	3	G
DB0805A1350ASTR	1350±50	0.35	3	C
DB0805A1376ASTR	1376±211	0.6	8	G
DB0805A1650ASTR	1650±50	0.35	3	F
DB0805A1800ASTR	1800±50	0.30	3	F
DB0805A1850ASTR	1850±50	0.30	3	K
DB0805A1900ASTR	1900±50	0.30	3	K
DB0805A1950ASTR	1950±50	0.25	3	K
DB0805A2140ASTR	2140±50	0.25	3	L
DB0805A2325ASTR	2325±50	0.25	3	T

*With Recommended Pad Layout

NOTE: Additional Frequencies Available Upon Request

TERMINALS (TOP VIEW) ORIENTATION IN TAPE



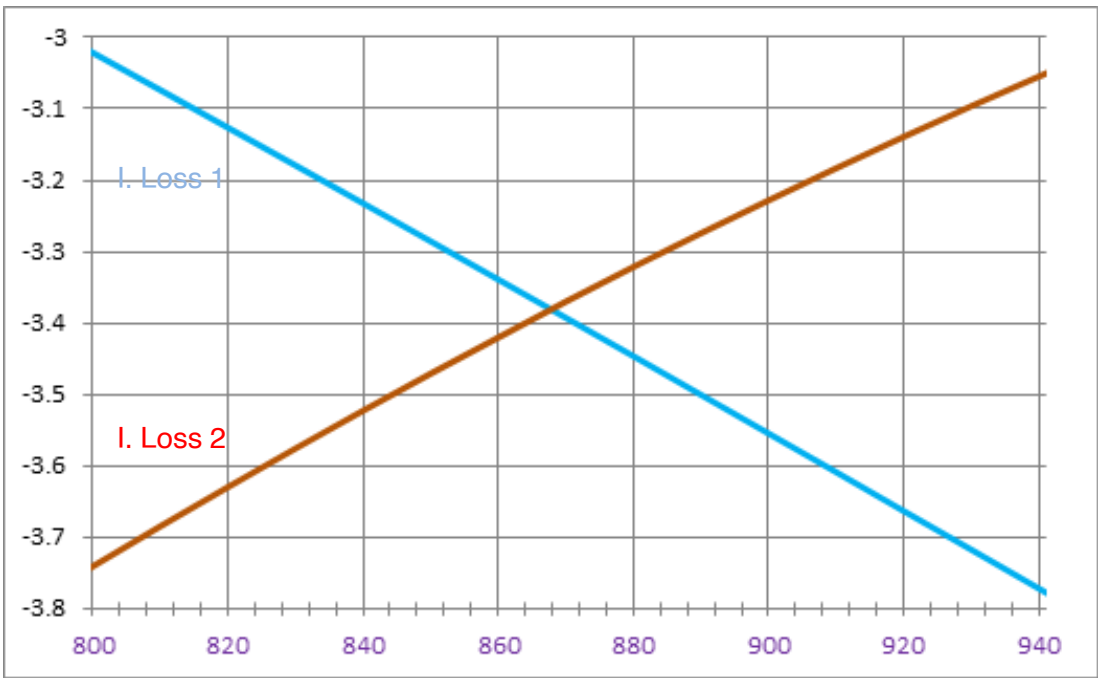
**LEAD FREE TERMINATION PART NUMBERS: DB0805AXXXXASTR

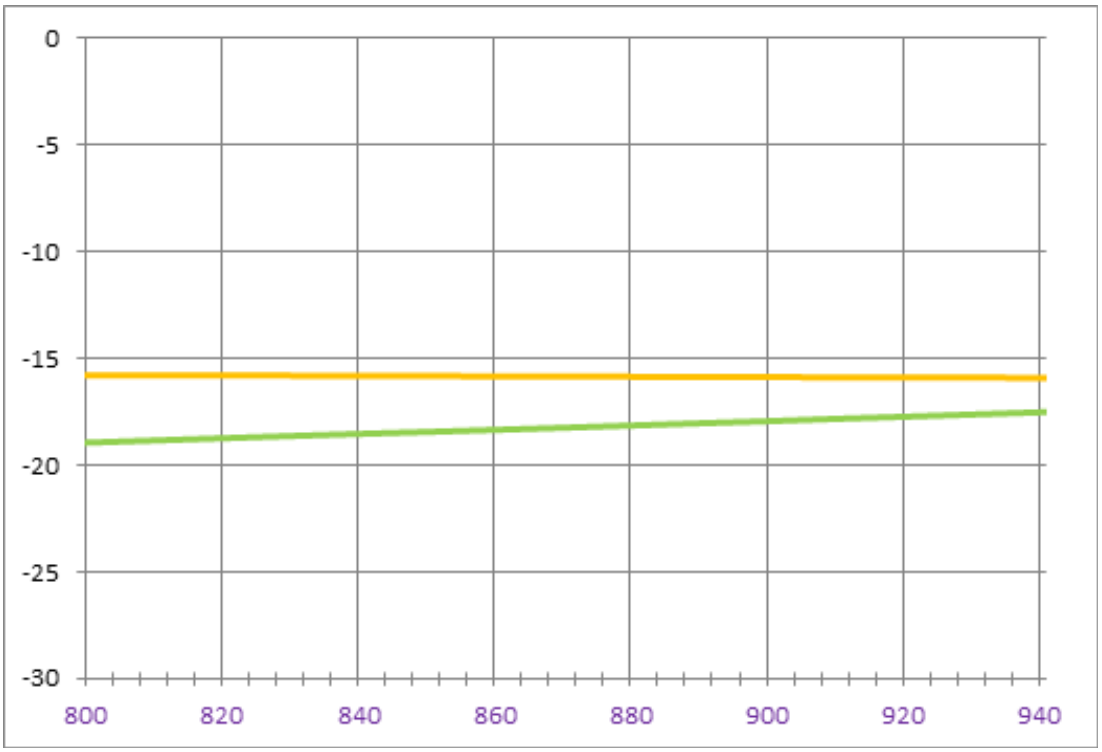
LEAD-FREE

LEAD-FREE COMPATIBLE COMPONENT

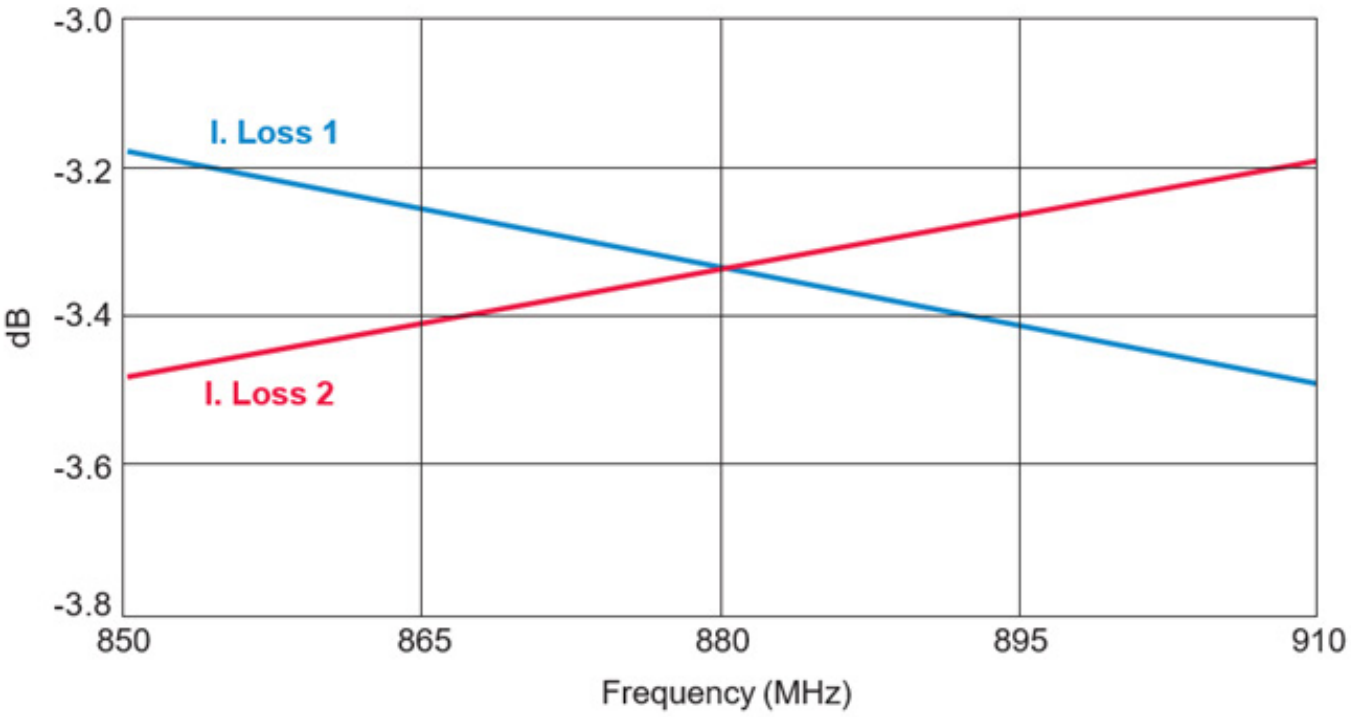
RoHS COMPLIANT

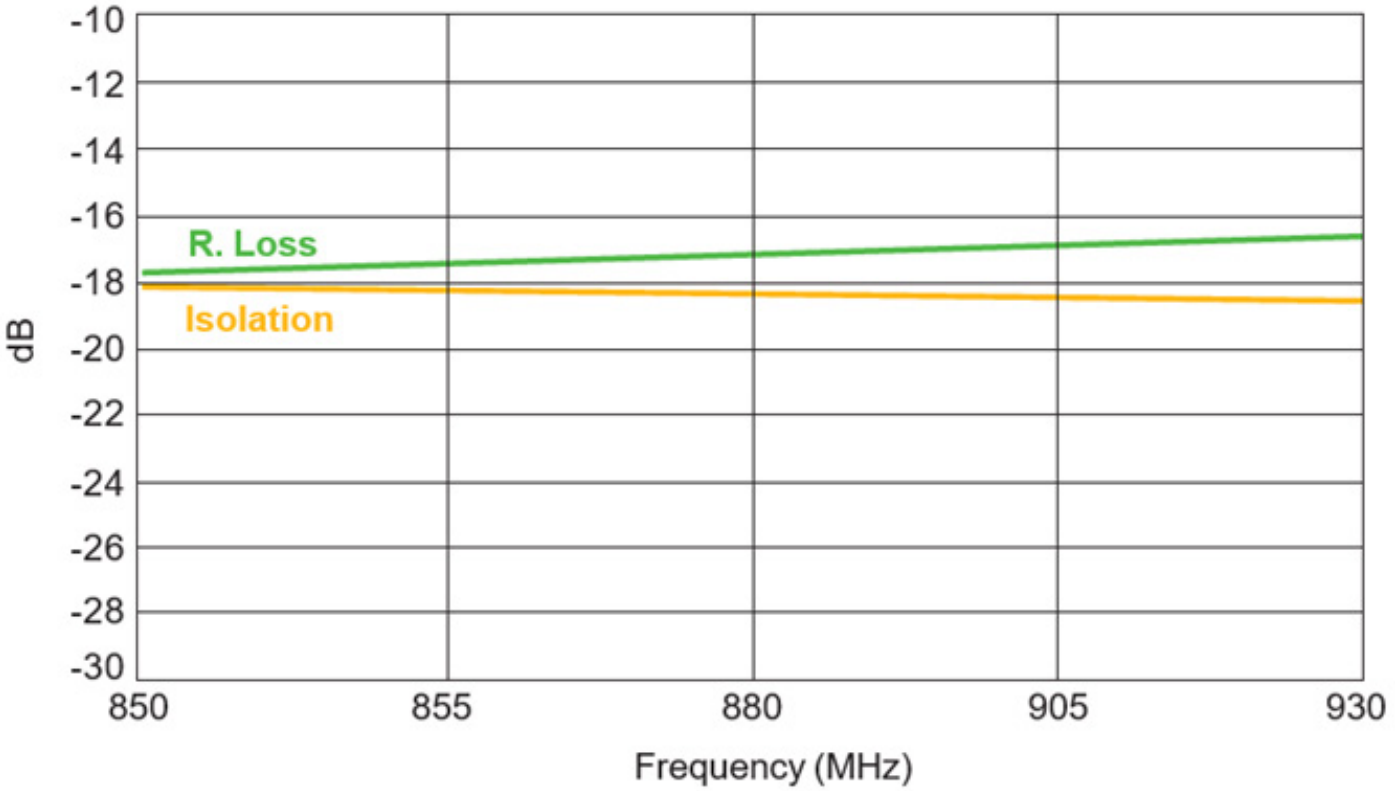
870 ± 13MHZ DB0805A0870ASTR



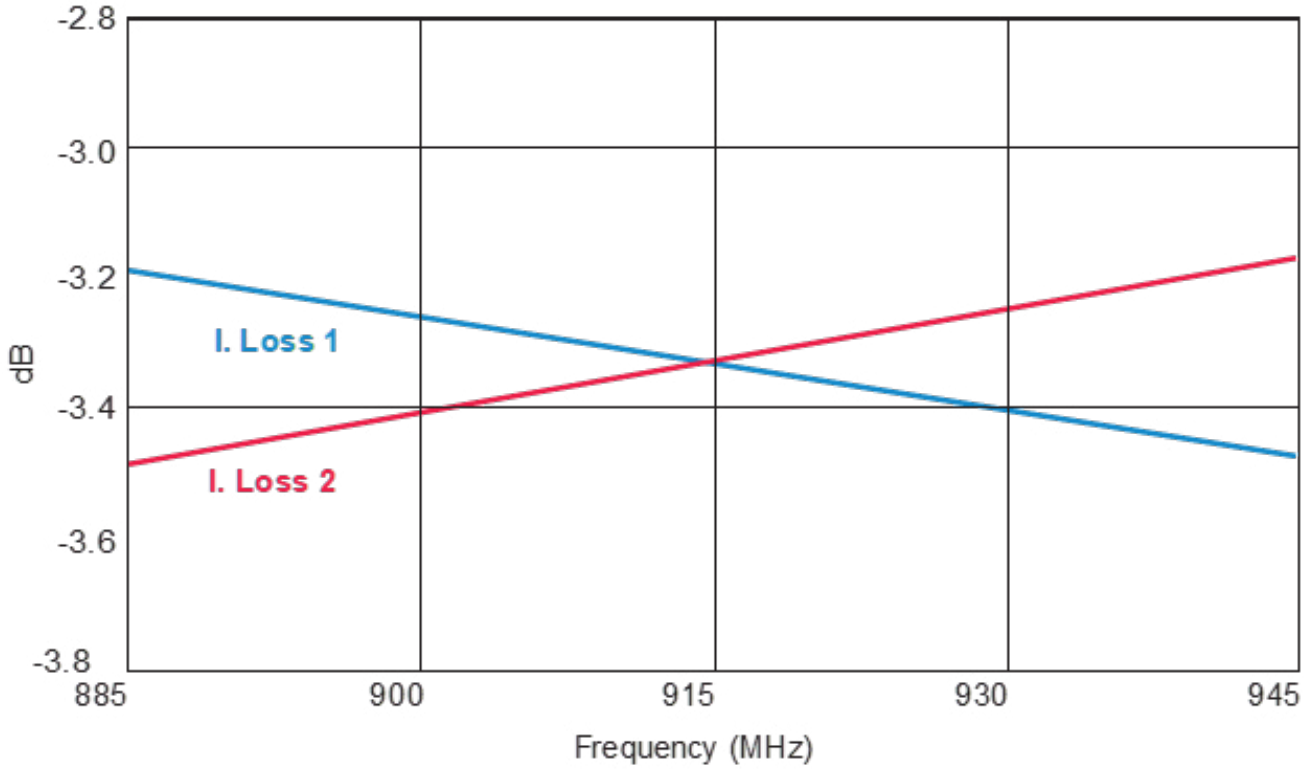


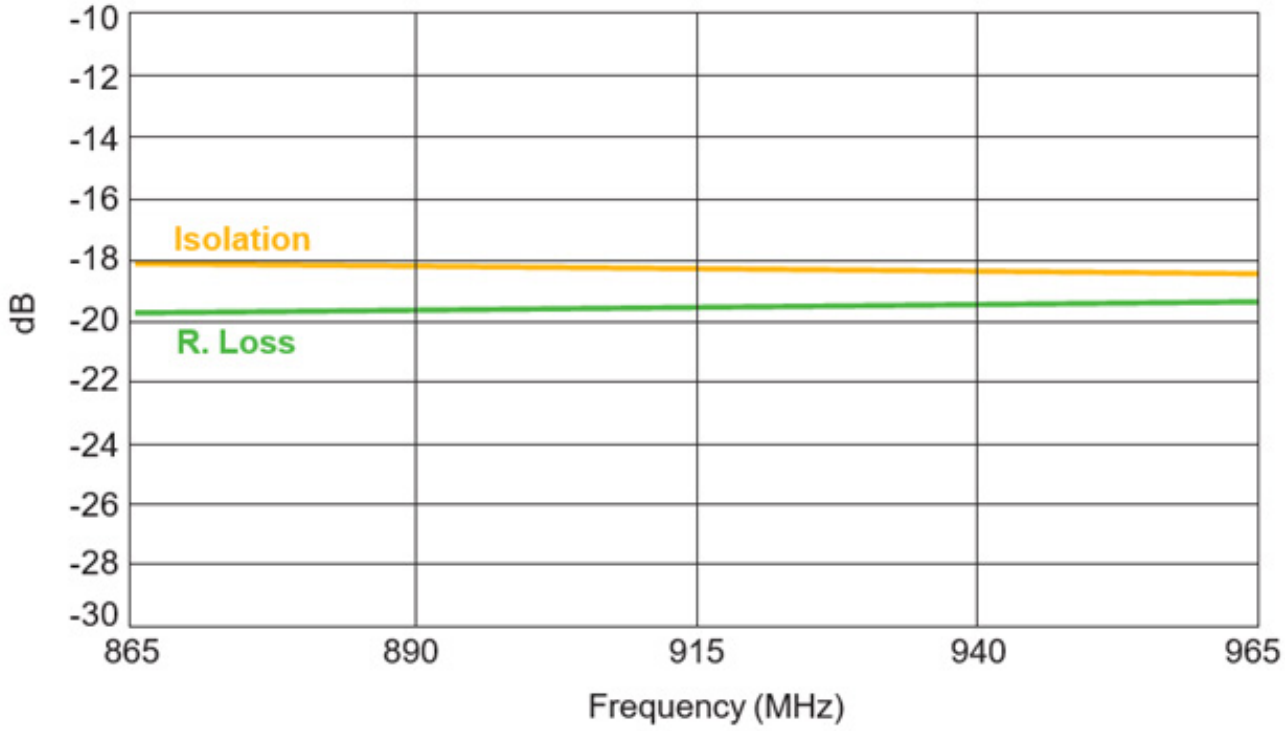
880 ± 30MHZ DB0805A0880ASTR



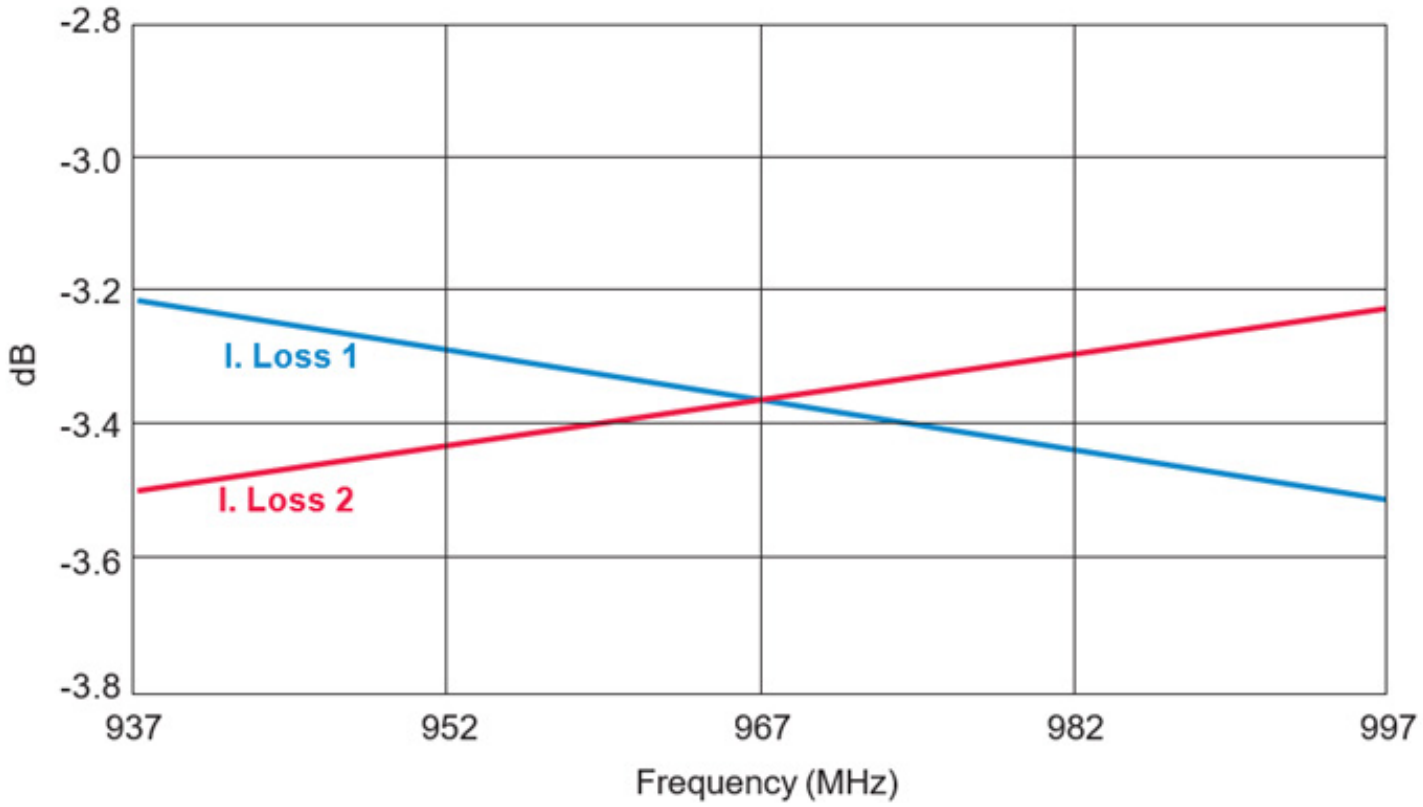


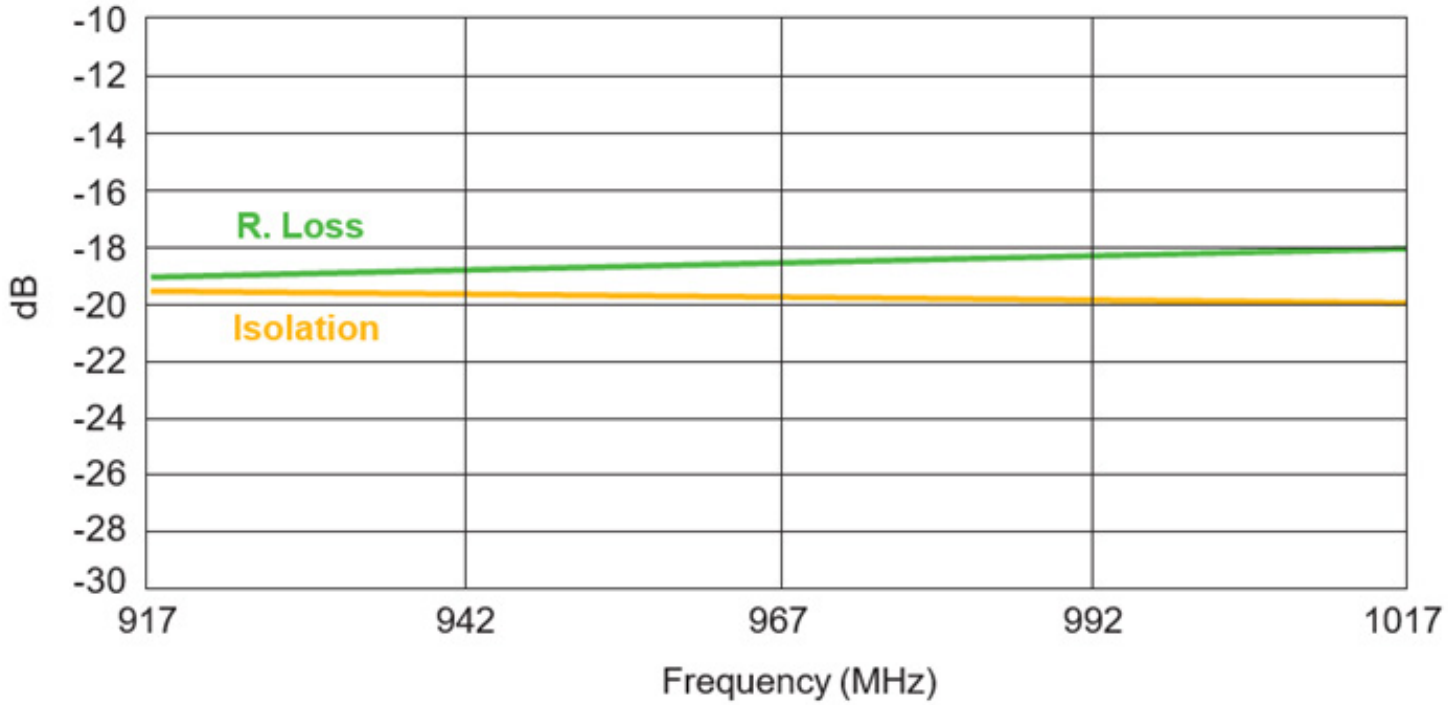
915 ± 30MHZ DB0805A0915ASTR



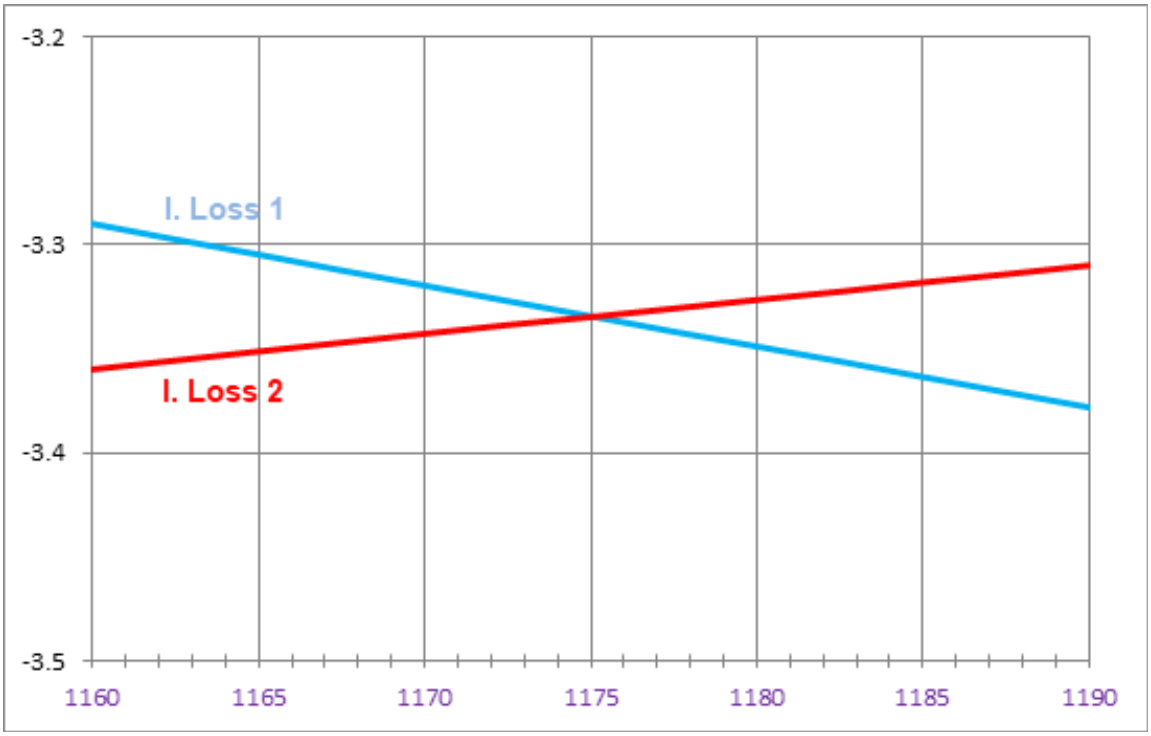


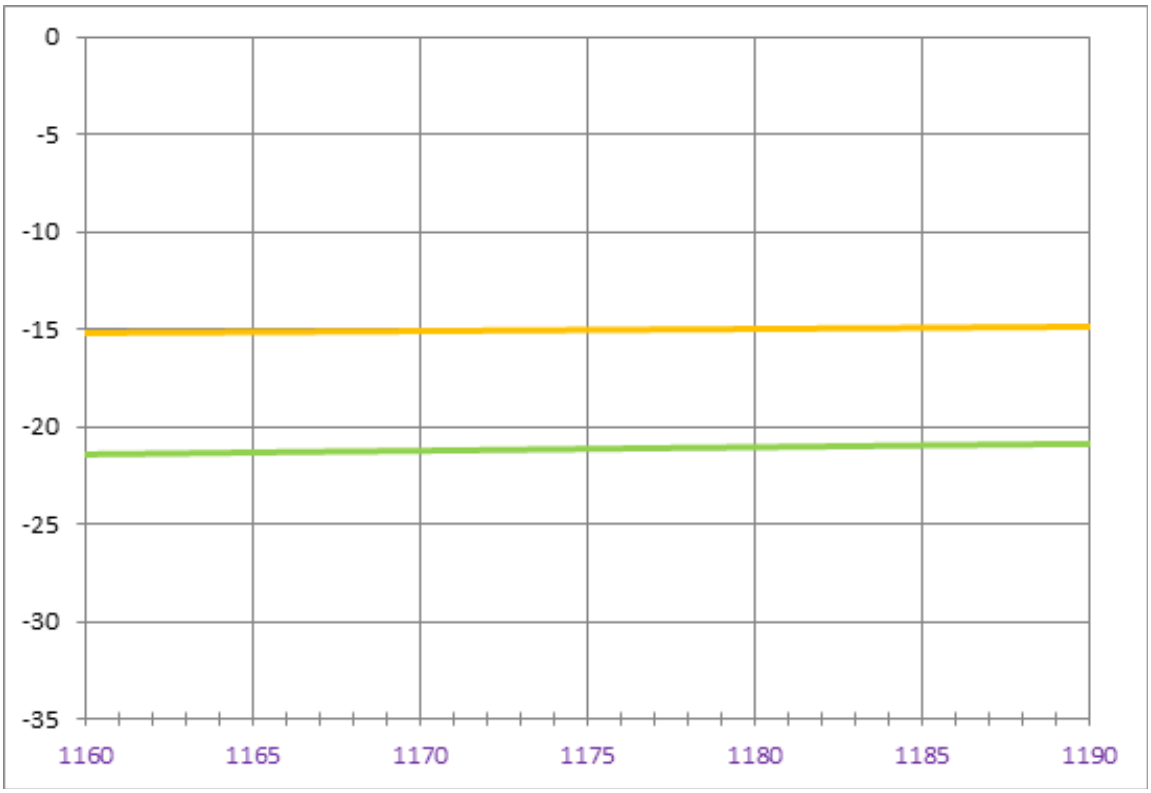
967± 30MHZ DB0805A0967ASTR



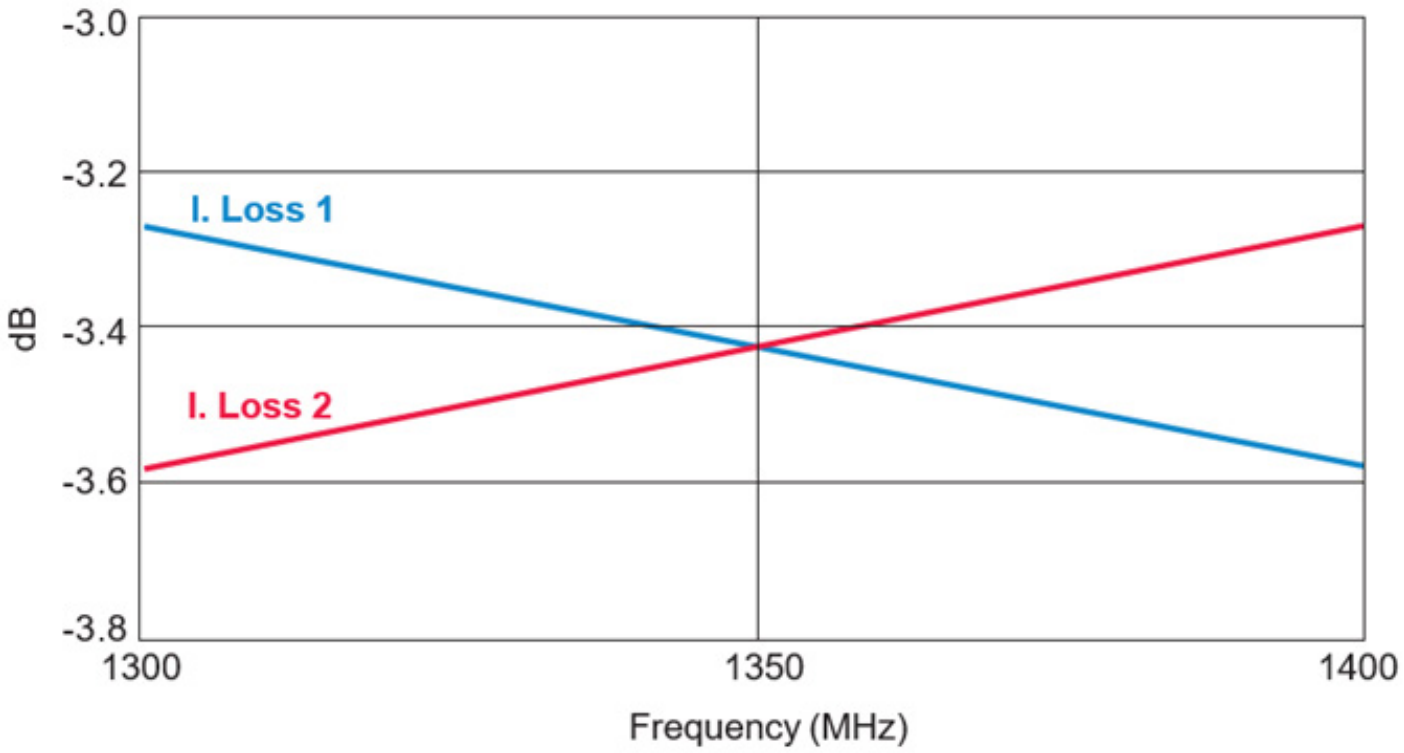


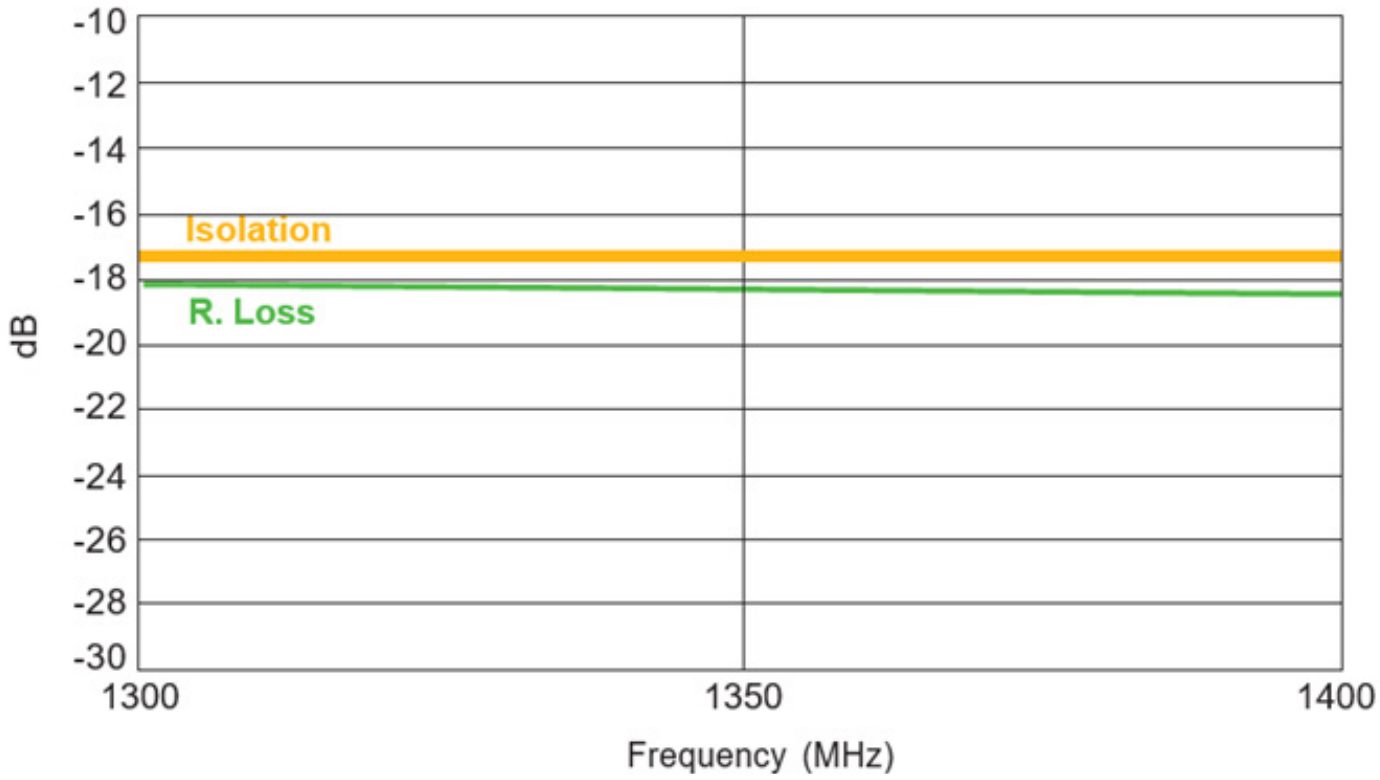
11760 ± 13MHZ DB0805A176ASTR (L1 BAND)



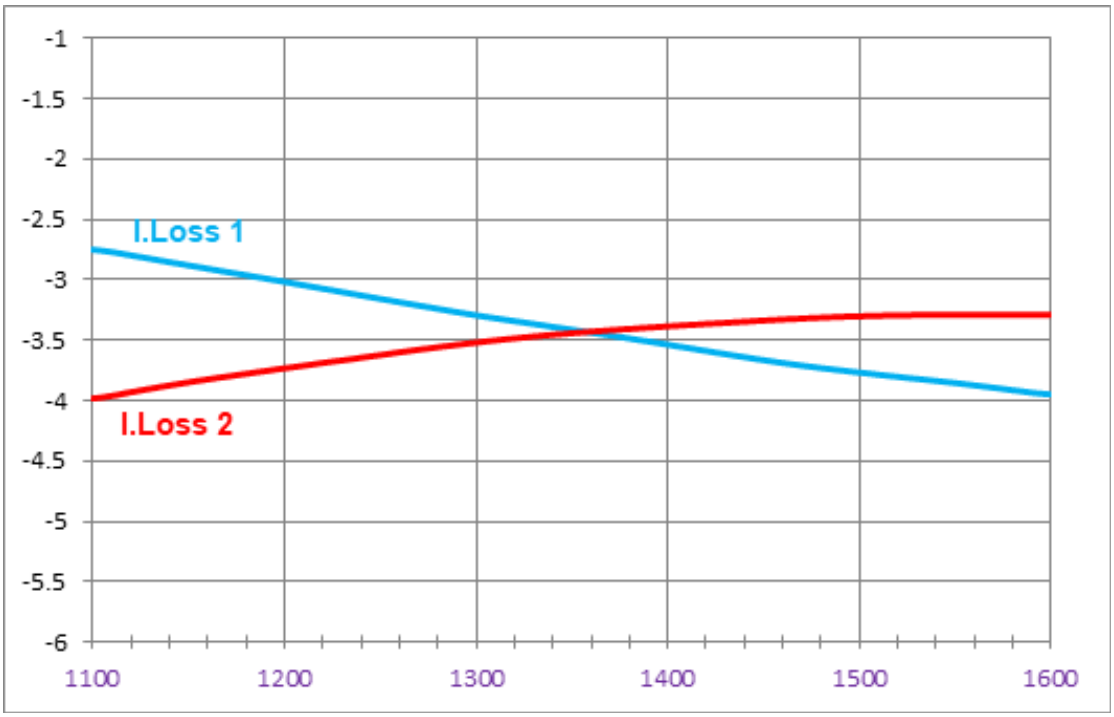


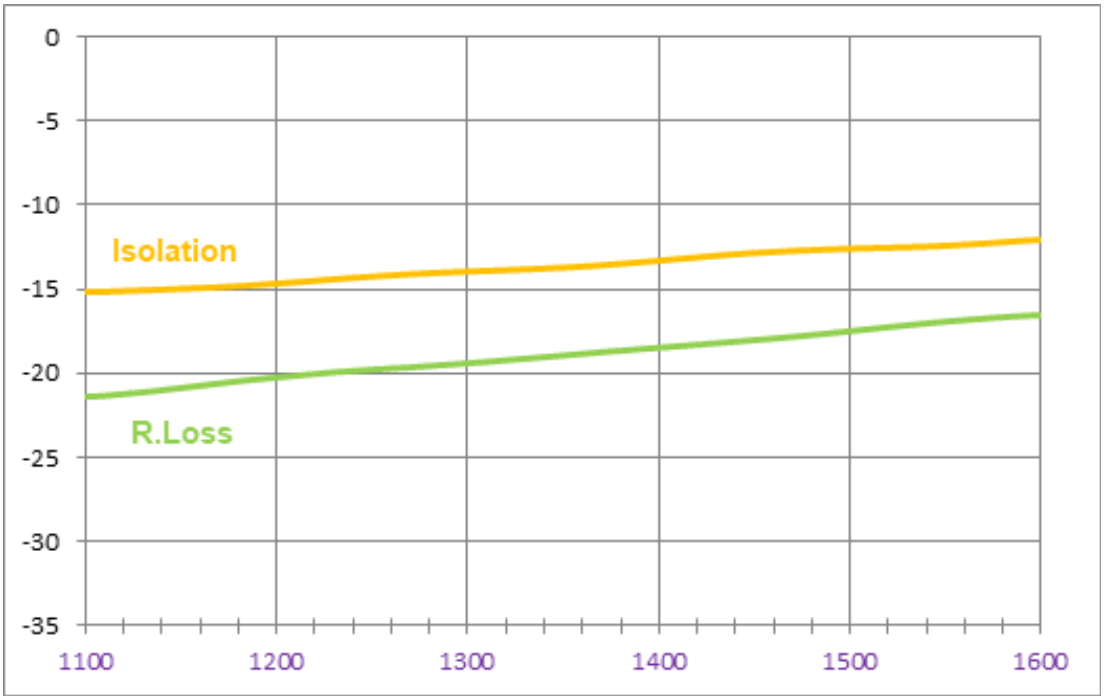
1350 ± 50MHZ DB0805A1350ASTR



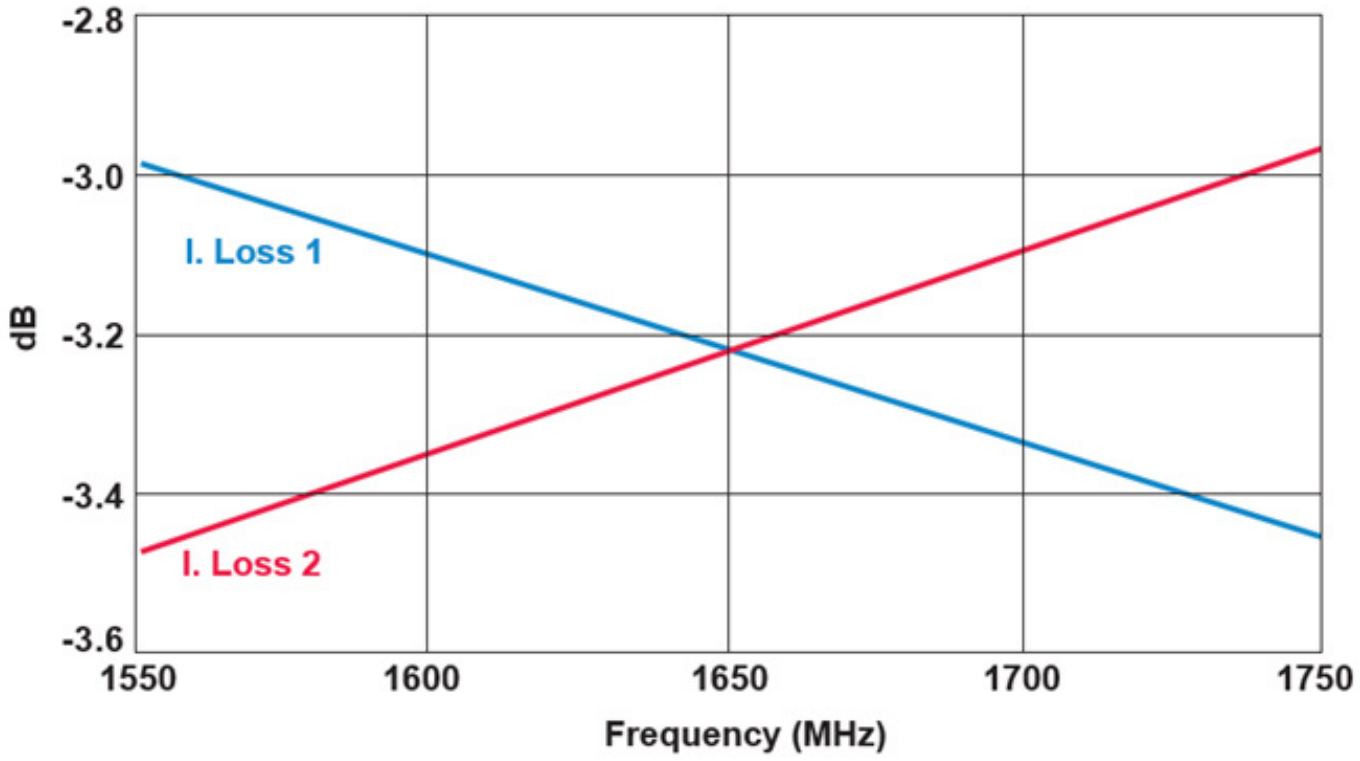


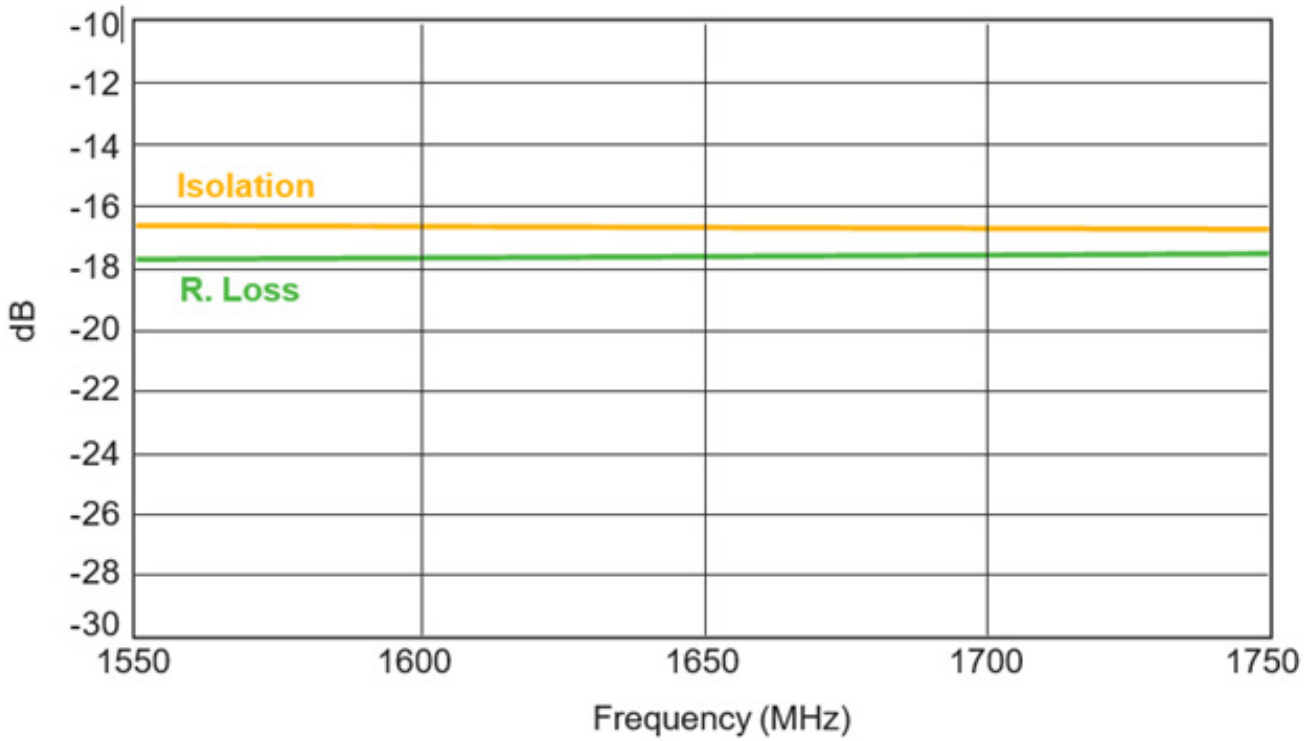
1376 ± 210 MHZ DB0805A1376ASTR (L5 BAND)



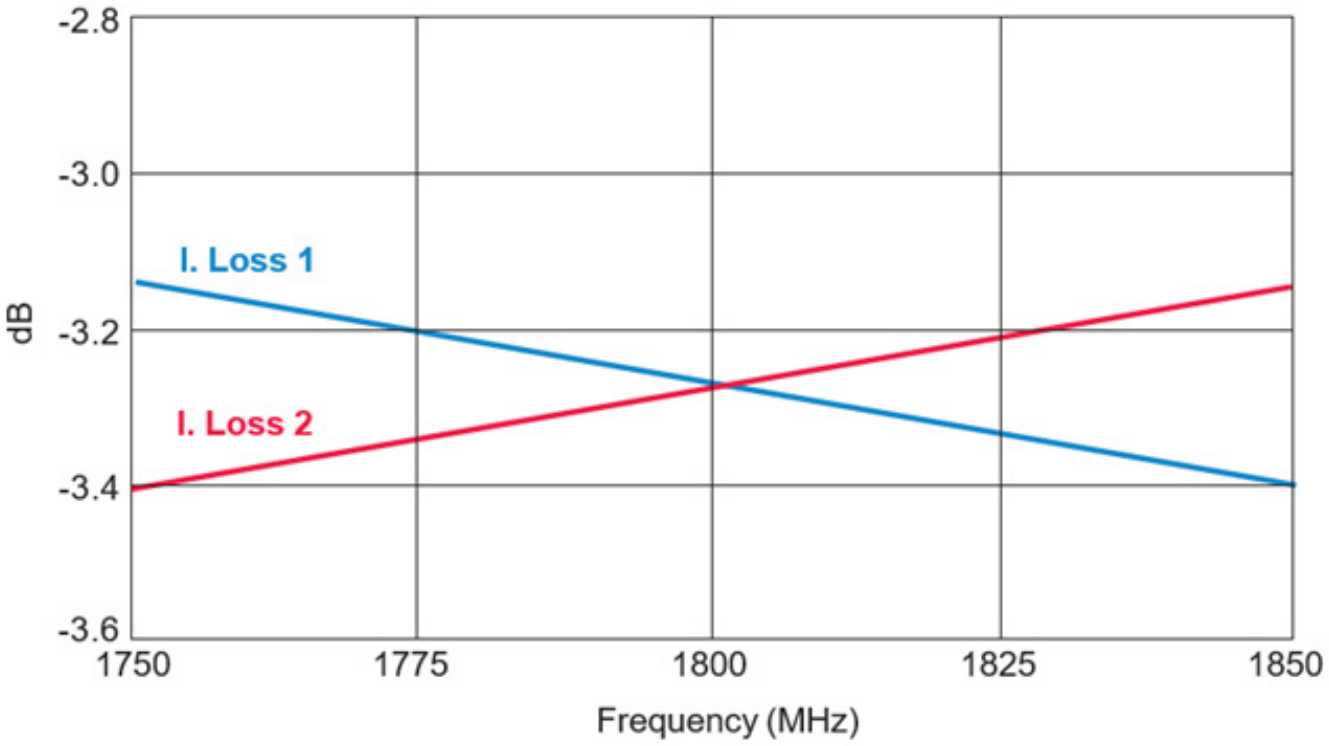


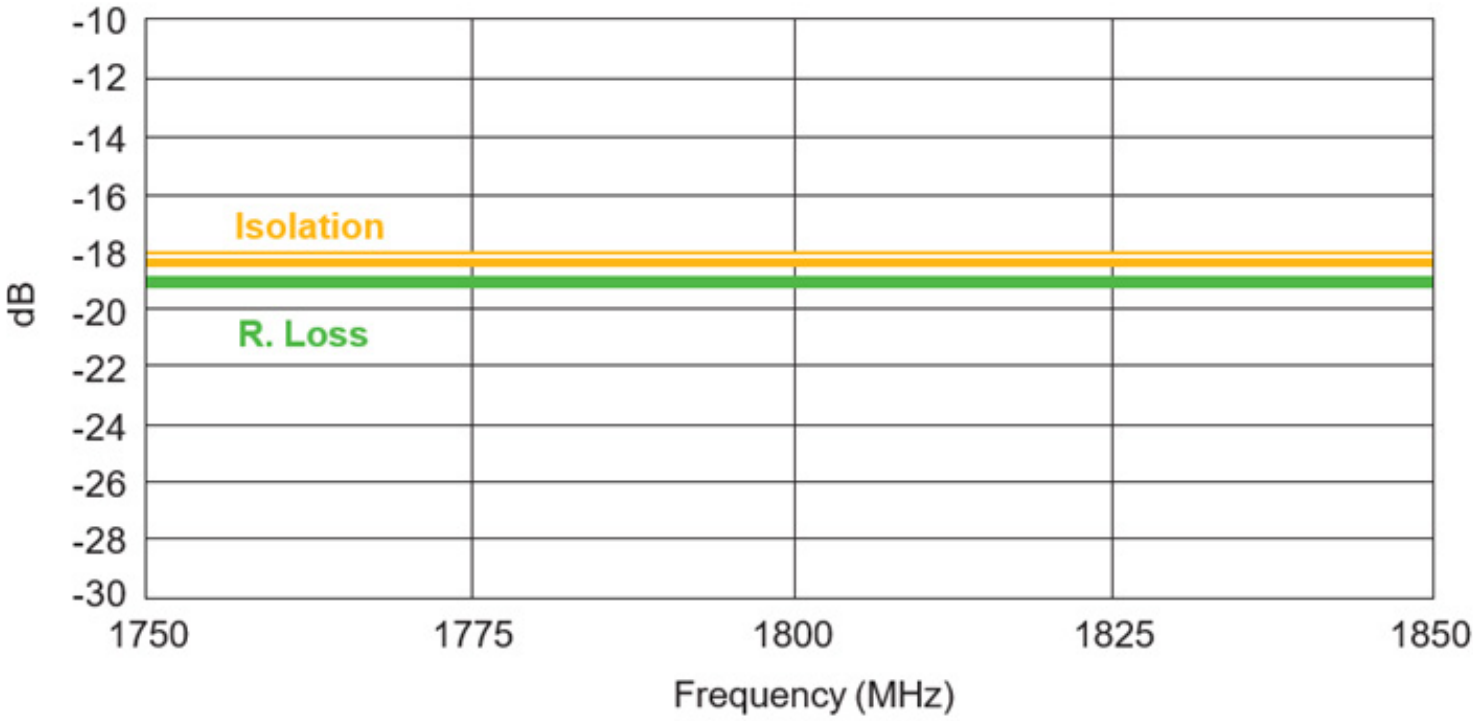
1650 ± 50MHZ DB0805A1650ASTR



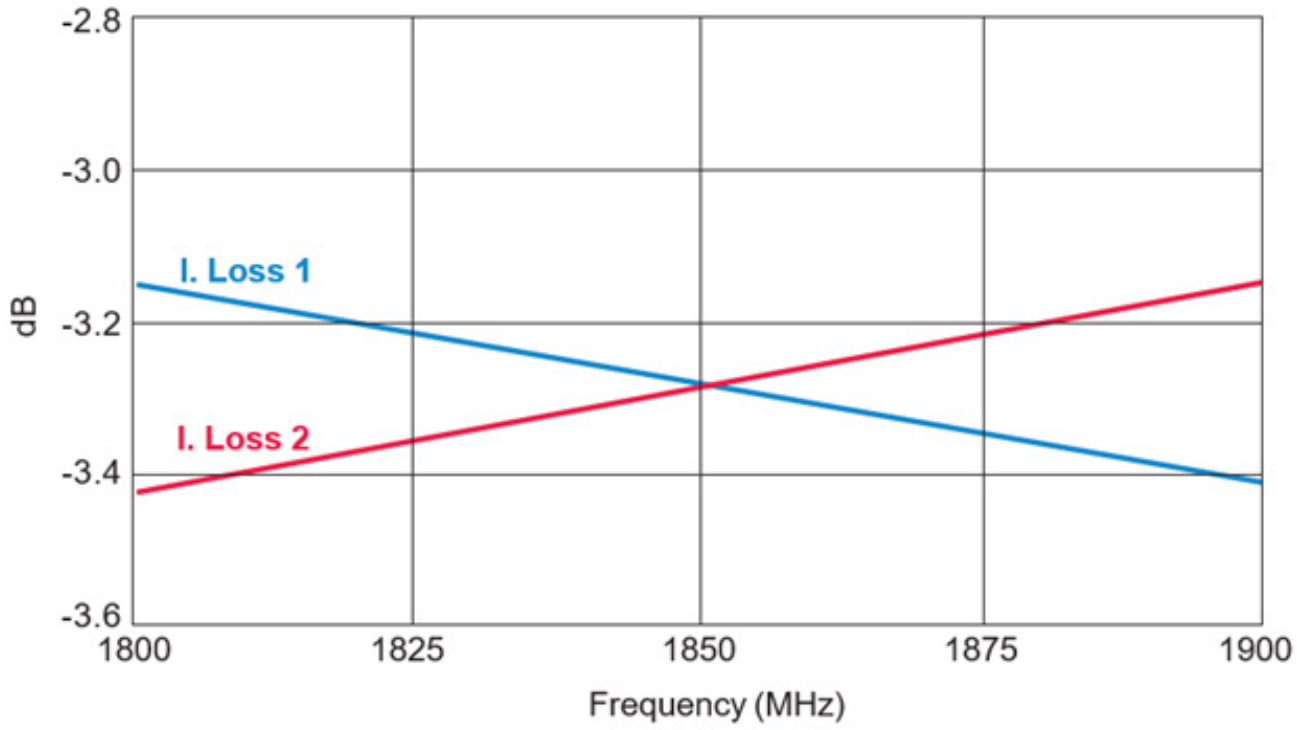


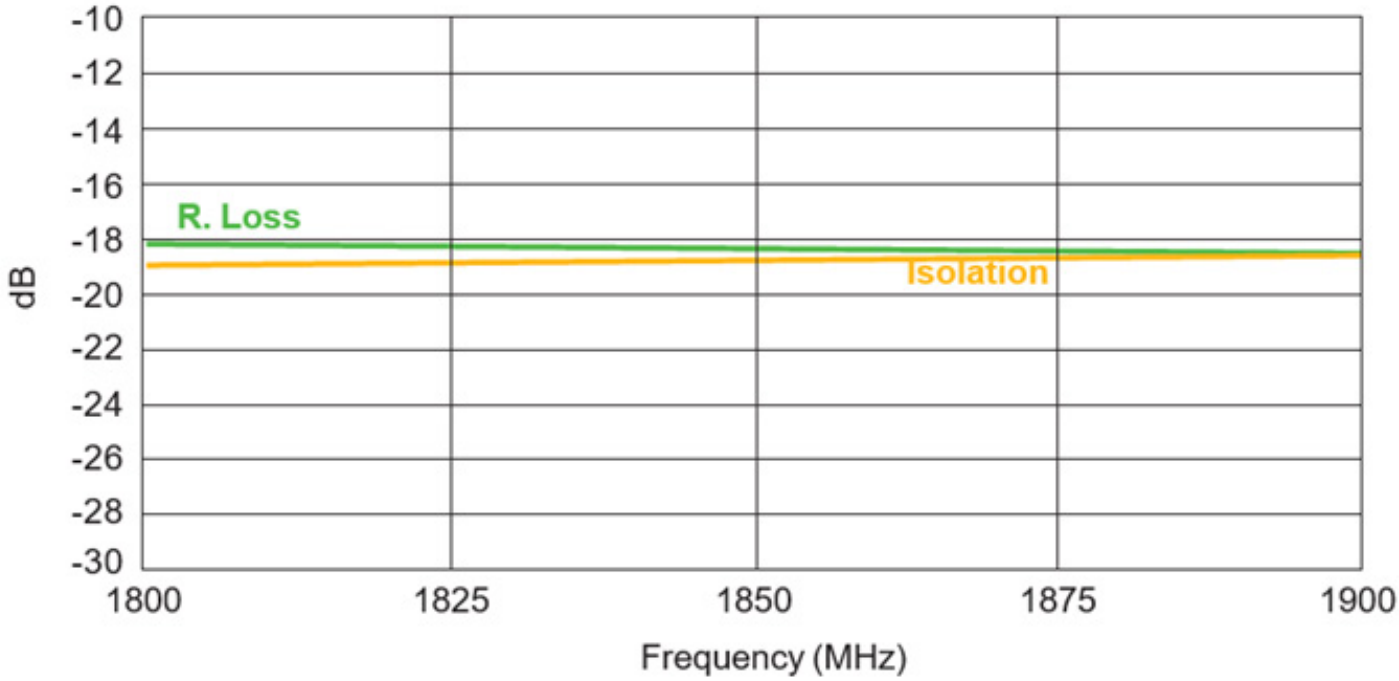
1800 ± 50MHZ DB0805A1800ASTR



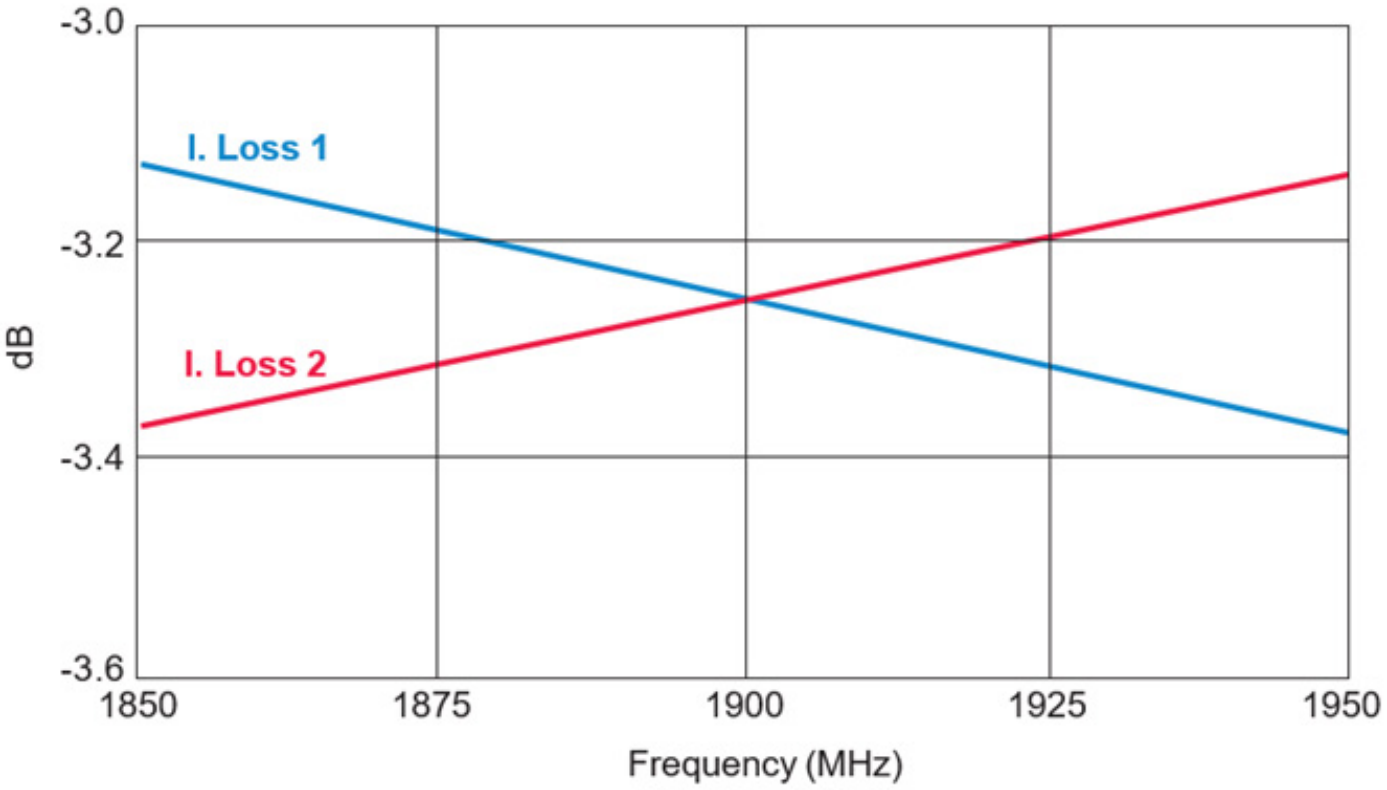


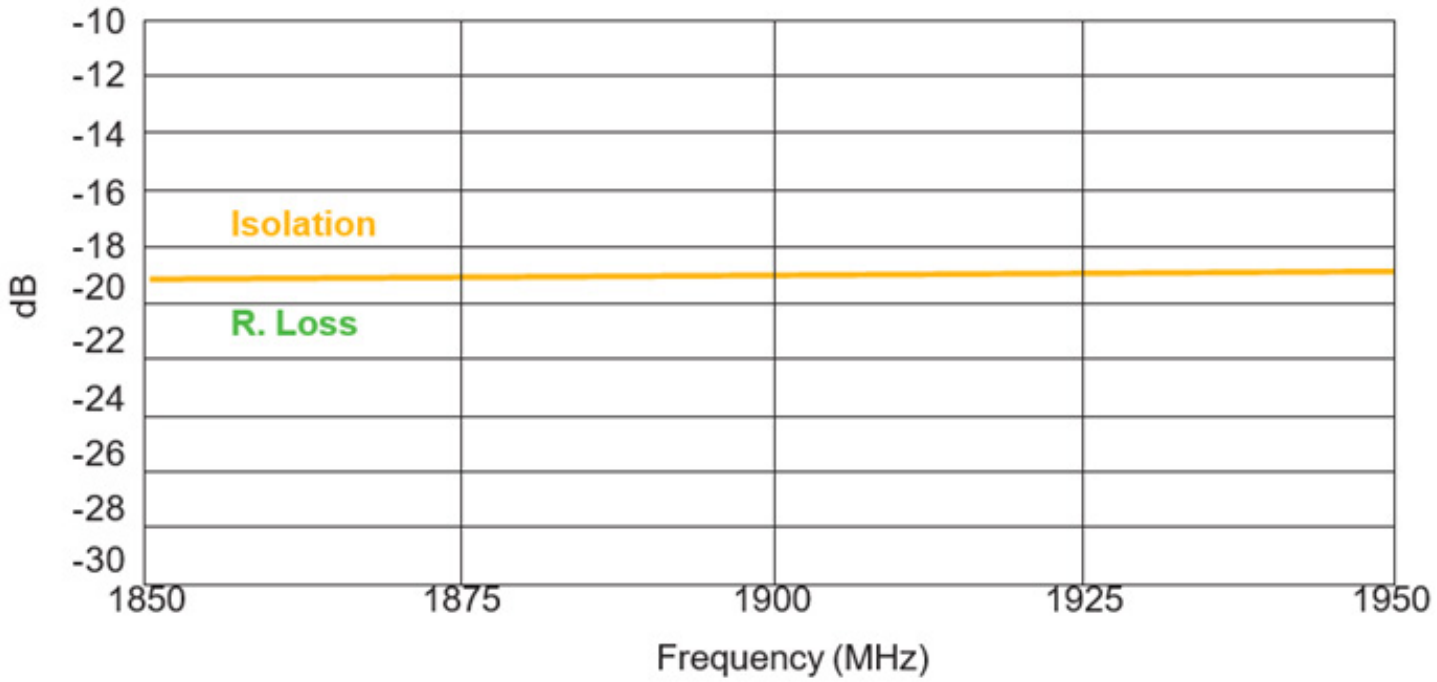
1850 ± 50MHZ DB0805A1850ASTR



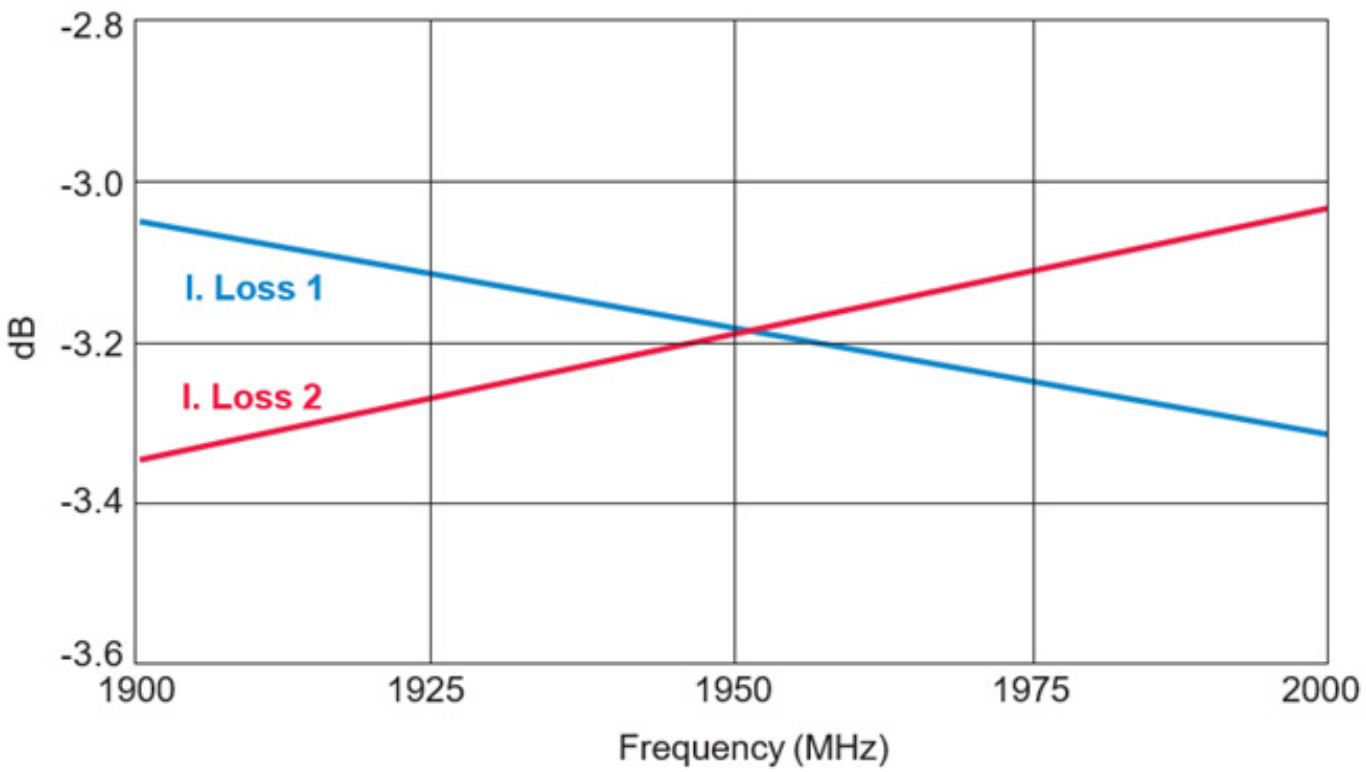


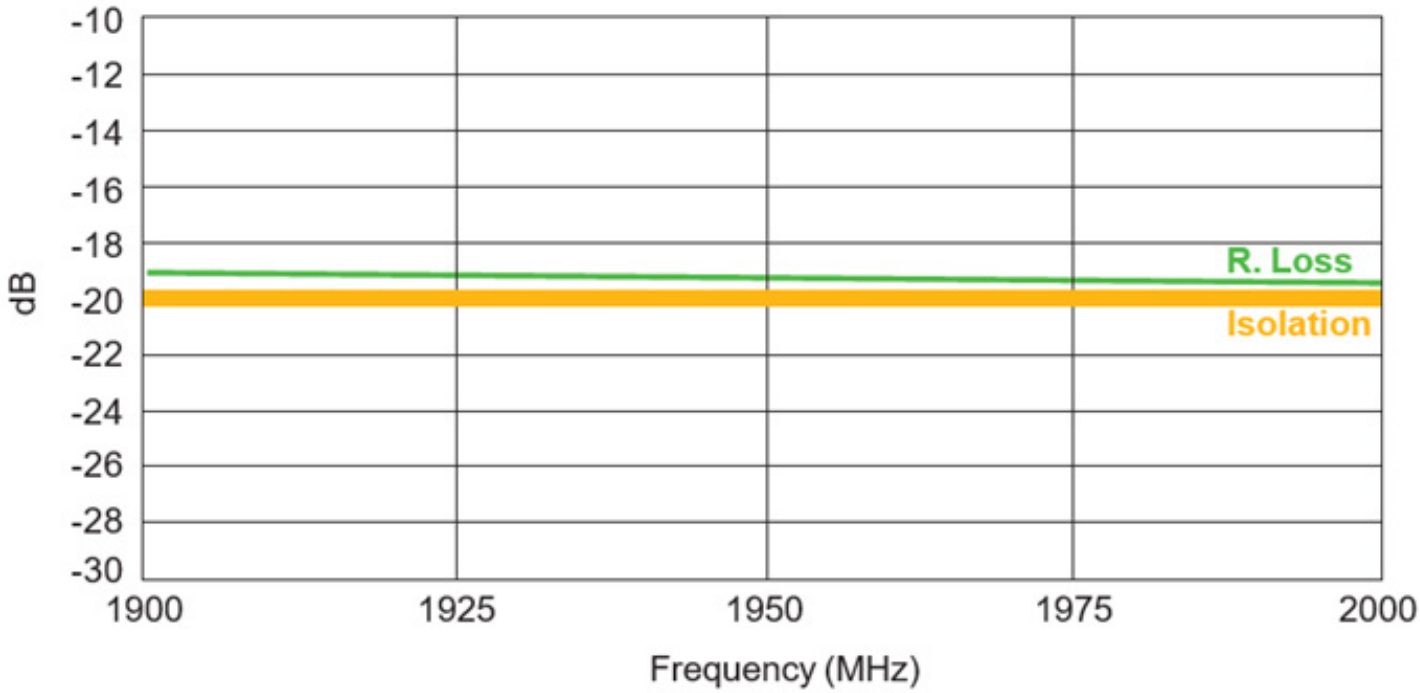
1900 ± 50MHZ DB0805A1900ASTR



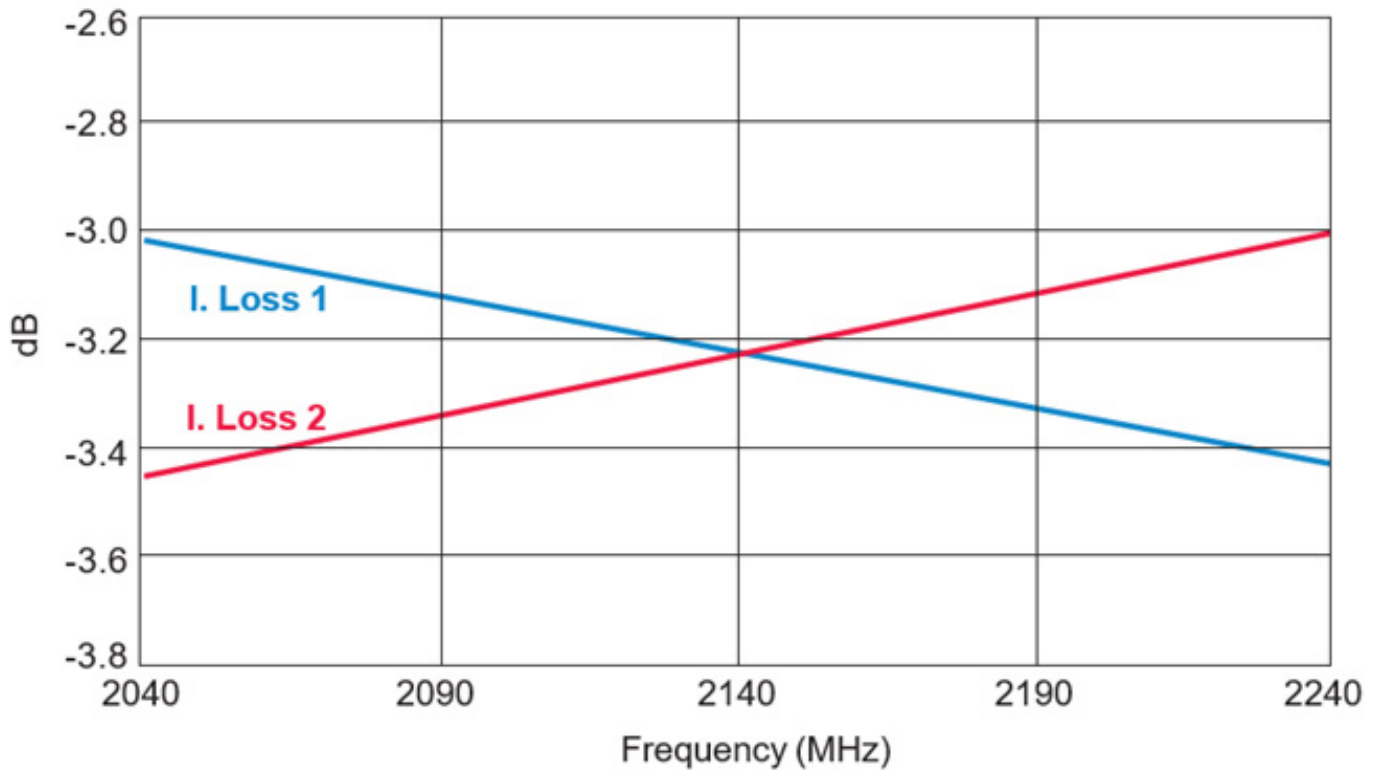


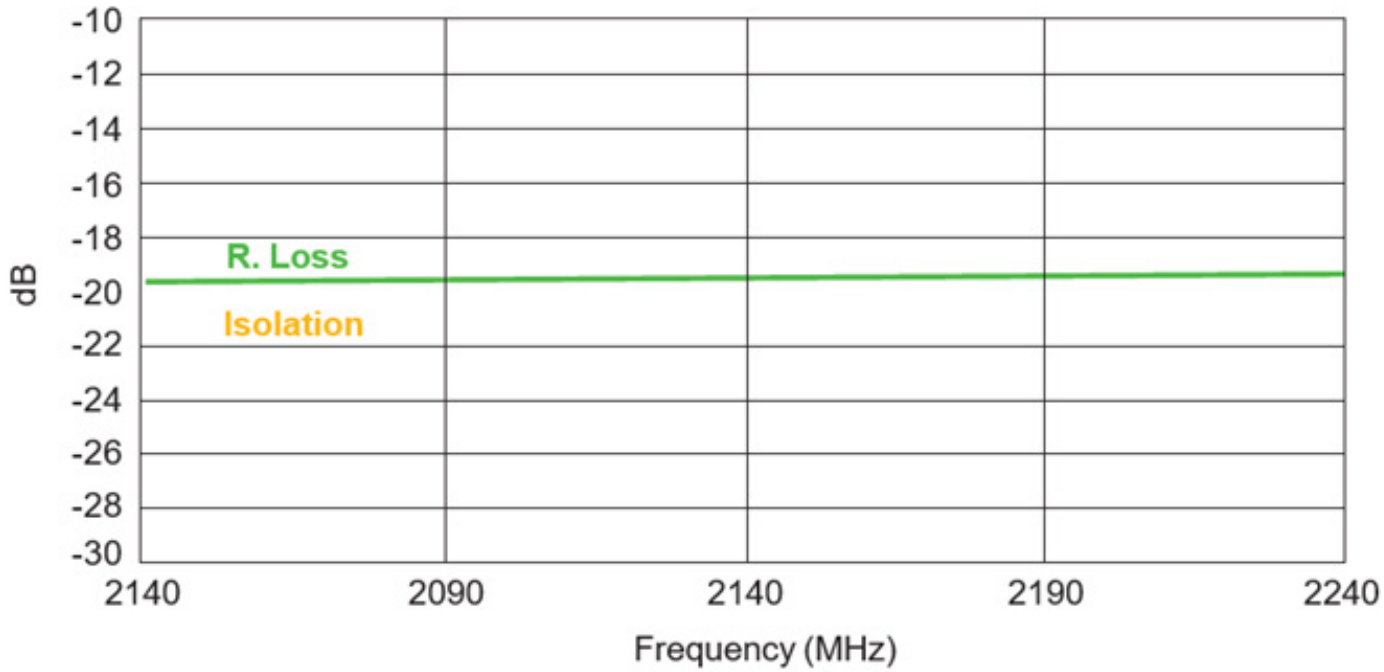
1950 ± 50MHZ DB0805A1950ASTR



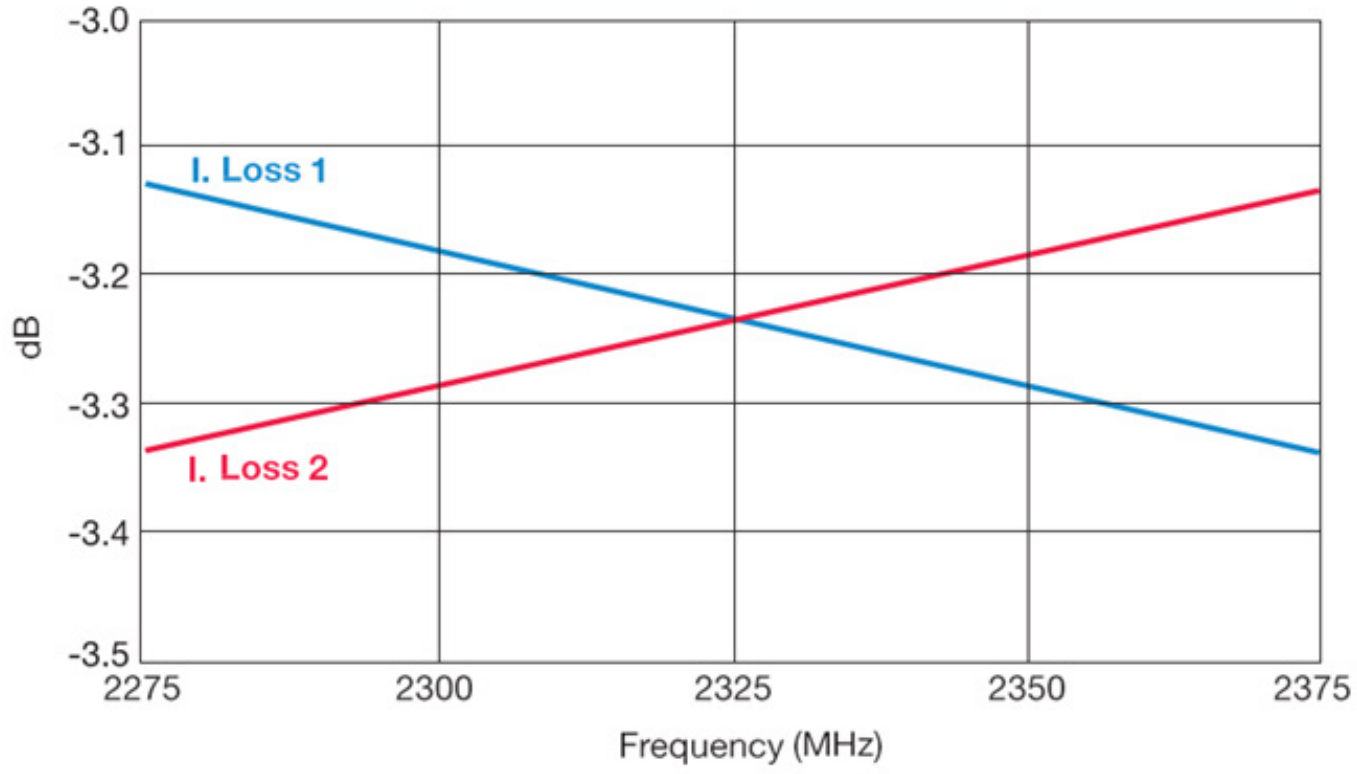


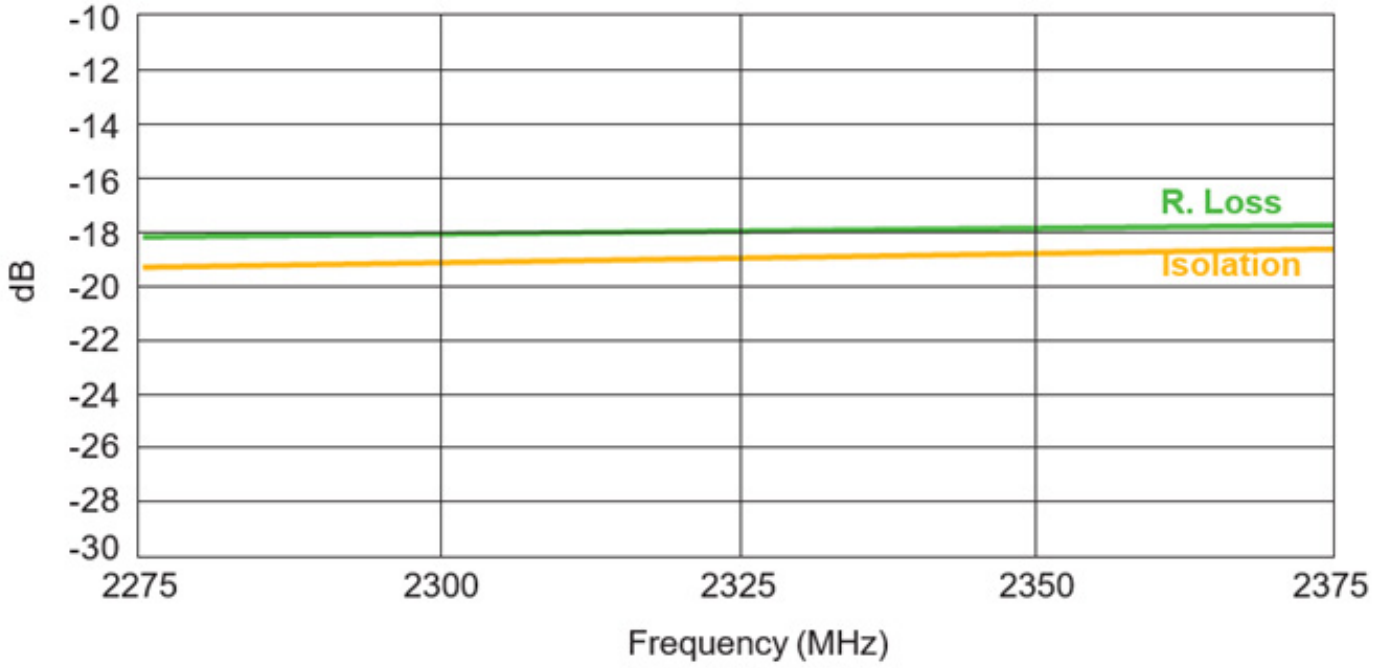
2140 ± 50MHZ DB0805A2140ASTR





2325 ± 50MHZ DB0805A2325ASTR





GENERAL DESCRIPTION

These jigs are designed for testing the DB0805 3dB 90° Couplers using a Vector Network Analyzer.

They consist of a dielectric substrate, having 50Ω microstrips as conducting lines and a bottom ground plane located at a distance of 0.254mm from the microstrips.

The substrate used is Neltec's NH9338ST0254C1BC.

The connectors are SMA type (female), 'Johnson Components Inc.' Product P/N: 142-0701-841.

Both a measurement jig and a calibration jig are provided.

The calibration jig is designed for a full 2-port calibration, and consists of an open line, short line and through line. LOAD calibration can be done by a 50Ω SMA termination.

MEASUREMENT PROCEDURE

When measuring a component, it can be either soldered or pressed using a non-metallic stick until all four ports touch the appropriate pads.

Set the VNA to the relevant frequency band. Connect the VNA using a 10dB attenuator on the jig terminal connected to port 2. Follow the VNA's instruction manual and use the calibration jwwig to perform a full 2-port calibration in the required bandwidths.

Place the coupler on the measurement jig as follows:

Input (Coupler) ➧ Connector 1 (Jig)
50Ω (Coupler) ➧ Connector 2 (Jig)
Output 1 (Coupler) ➧ Connector 3 (Jig)
Output 2 (Coupler) ➧ Connector 4 (Jig)

To measure R. Loss and I. Loss 1 connect:

Connector 1 (Jig) ➧ Port 1 (VNA)
Connector 2 (Jig) ➧ 50Ω
Connector 3 (Jig) ➧ Port 2 (VNA)
Connector 4 (Jig) ➧ 50Ω

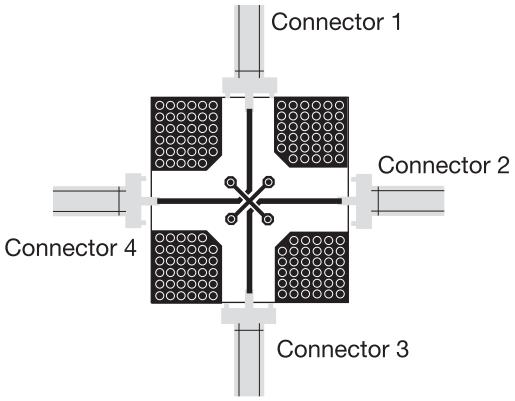
To measure R. Loss and I. Loss 2 connect:

Connector 1 (Jig) ➧ Port 1 (VNA)
Connector 2 (Jig) ➧ 50Ω
Connector 3 (Jig) ➧ 50Ω
Connector 4 (Jig) ➧ Port 2 (VNA)

To measure Isolation connect:

Connector 1 (Jig) ➧ 50Ω
Connector 2 (Jig) ➧ 50Ω
Connector 3 (Jig) ➧ Port 1 (VNA)
Connector 4 (Jig) ➧ Port 2 (VNA)

Measurement Jig



Calibration Jig