THC1450A03

Hybrid Coupler 3dB， 90°

Rev A1.0

The THC1450A03 is a low profile, high performance 3dB hybrid coupler in a new easy to use, manufacturing friendly surface mount package. It is designed for AMPS Band applications. The THC1450A03 is particularly for balanced power and low noise amplifiers, plus signal designed distribution and other applications where low insertion loss and tight amplitude and phase balance is required. It can be used in power applications up to 200 Watts.

Parts have been subjected to rigorous qualification testing and they are manufactured using materials with coefficients of thermal expansion (CTE) compatible with common substrates such as FR4, G-10, RF-35, RO4350 and polyimide.

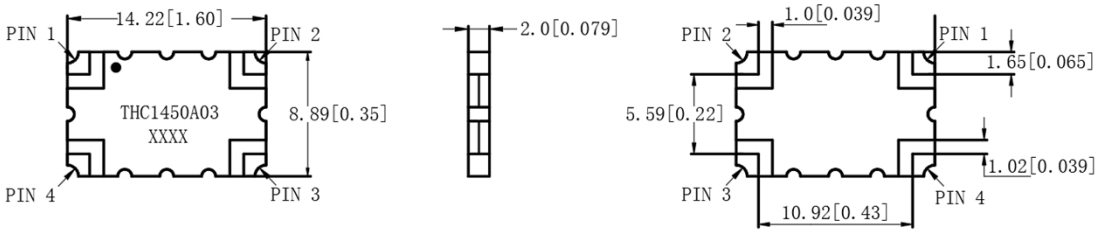
Features:

.950-1850 MHz
.AMPS
.High Power
.Very Low Loss
.Tight Amplitude Balance
.High Isolation
.Low VSWR
.Good Repeatability
.CTE compatible with FR4, G-10, RF-35, RO4350B and polyimide
.Immersion gold, prevent surface oxidation & scratch
.RoHS Compliant
.Tape & Reel Package available

Electrical Specifications

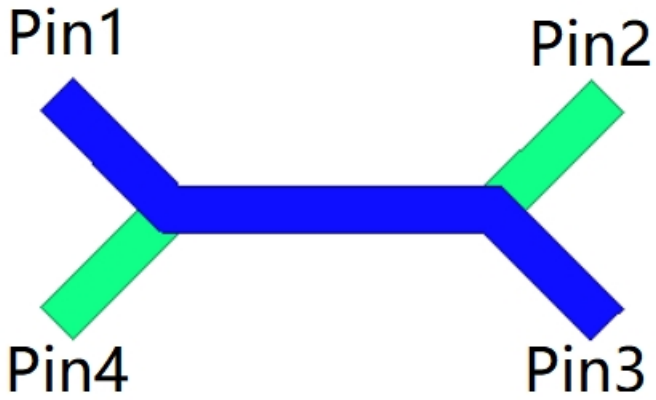
Frequency	Isolation	Insertion Loss	VSWR	Amplitude Balance
MHz	dB Min	dB Max	Max:1	dB Max
950-1850	-23.0	0.10	1.18	±0.50
Phase Balance	**Power**	**Size**	**Thickness**	**Operating Temp.**
Degrees	Avg.CW.Watts	mm	mm	℃
90±1.5	200	14.22*8.89	2.0	-55 to+105

TOP VIEW SIDE VIEW BOTTOM VIEW



Hybrid Coupler Pin Configuration

The THC1450A03 has an orientation marker to denote Pin 1. Once port one has been identified the other ports are known automatically. Please see the chart below for clarification:



Configuration	Pin 1	Pin 2	Pin 3	Pin 4
Splitter	Input	Isolated	-3dB∠θ-90°	-3dB∠θ
Splitter	Isolated	Input	-3dB∠θ	-3dB∠θ-90°
Splitter	-3dB∠θ-90°	-3dB∠θ	Input	Isolated
Splitter	-3dB∠θ	-3dB∠θ-90°	Isolated	Input
Combiner	A∠θ-90°	A∠θ	Isolated	Output
Combiner	A∠θ	A∠θ-90°	Output	Isolated
Combiner	Isolated	Output	A∠θ-90°	A∠θ
Combiner	Output	Isolated	A∠θ	A∠θ-90°

Note:

"A" is the amplitude of the applied signals. When two quadrature signals with equal amplitudes are applied to the coupler as described in the table, they will combine at the output port. If the amplitudes are not equal, some of the applied energy will be directed to the isolated port.

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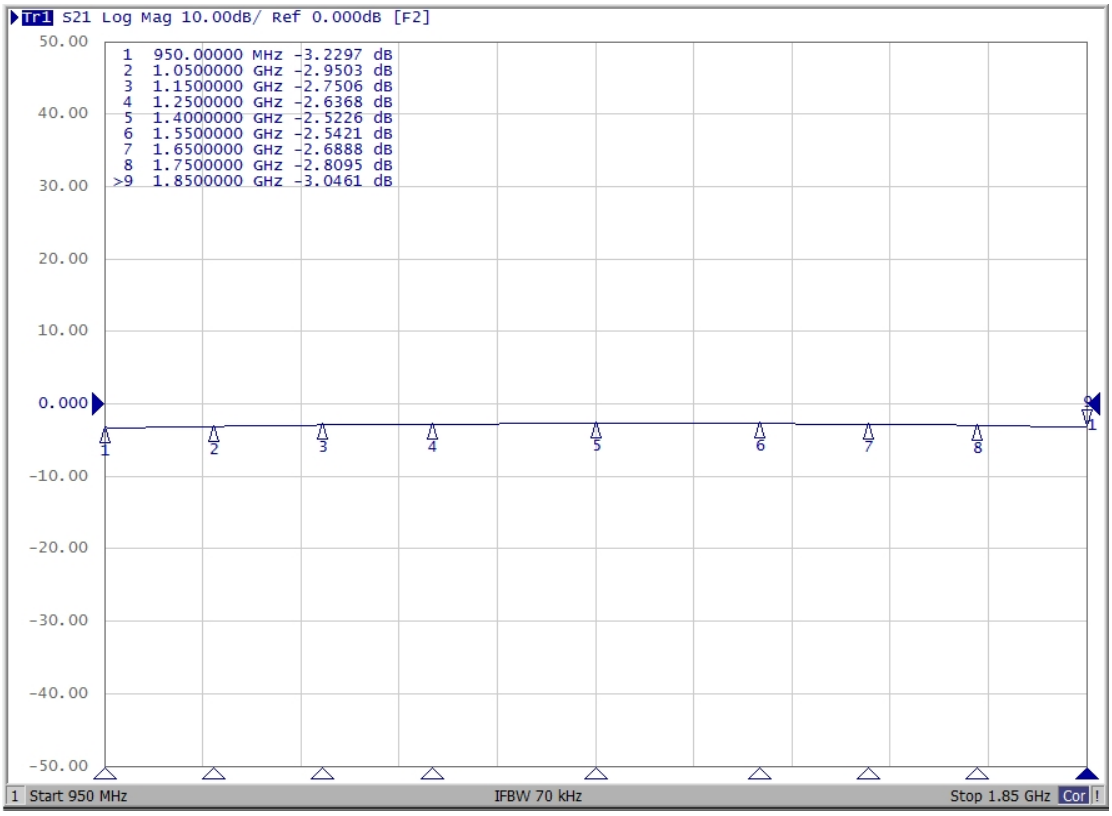
Typical Performance Data

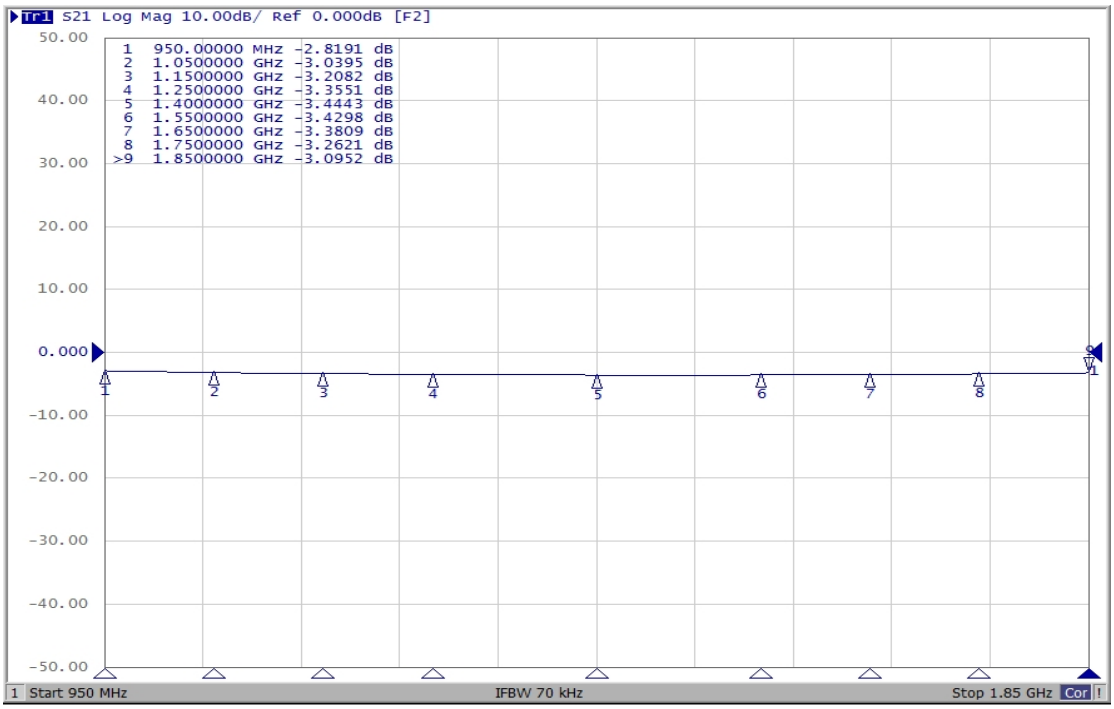
Frequency		MHz	950	1050	1150	1250	1400	1550	1650	1750	1850
Coupling		dB	-3.23	-2.95	-2.75	-2.64	-2.52	-2.54	-2.69	-2.81	-3.05
Transmission		dB	-2.82	-3.04	-3.21	-3.36	-3.45	-3.43	-3.38	-3.26	-3.10
Insertion Loss		dB	-0.02	-0.01	-0.01	-0.01	-0.01	-0.01	-0.03	-0.03	-0.07
Isolation		dB	-24.54	-25.01	-25.63	-26.42	-27.90	-29.81	-31.14	-31.60	-30.45
Phase		degree	89.88	90.02	90.17	90.16	90.35	90.63	90.94	90.88	91.37
VSWR	Input	/	1.11	1.09	1.07	1.05	1.03	1.03	1.04	1.06	1.09
	coupler	/	1.17	1.16	1.14	1.13	1.10	1.08	1.06	1.04	1.03
	Transmission	/	1.13	1.11	1.10	1.08	1.06	1.03	1.02	1.02	1.04
	Isolated	/	1.17	1.15	1.14	1.12	1.10	1.07	1.05	1.03	1.02

Typical Performance

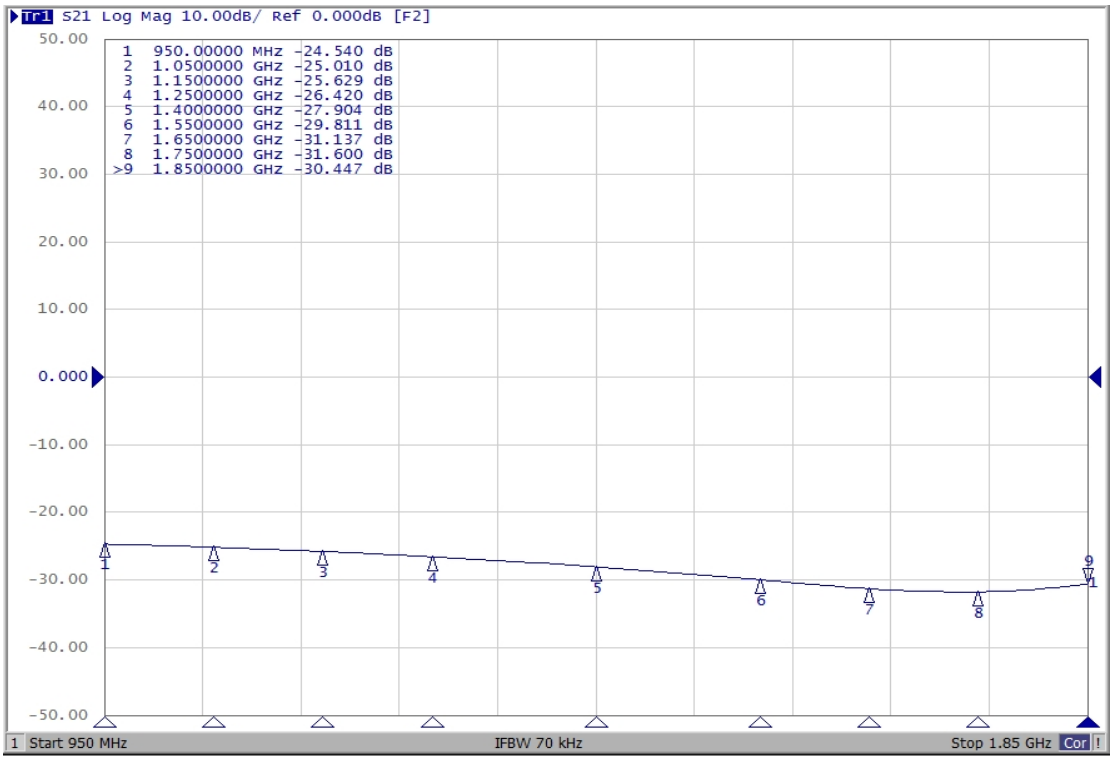
Coupling(dB):



Transmission(dB):

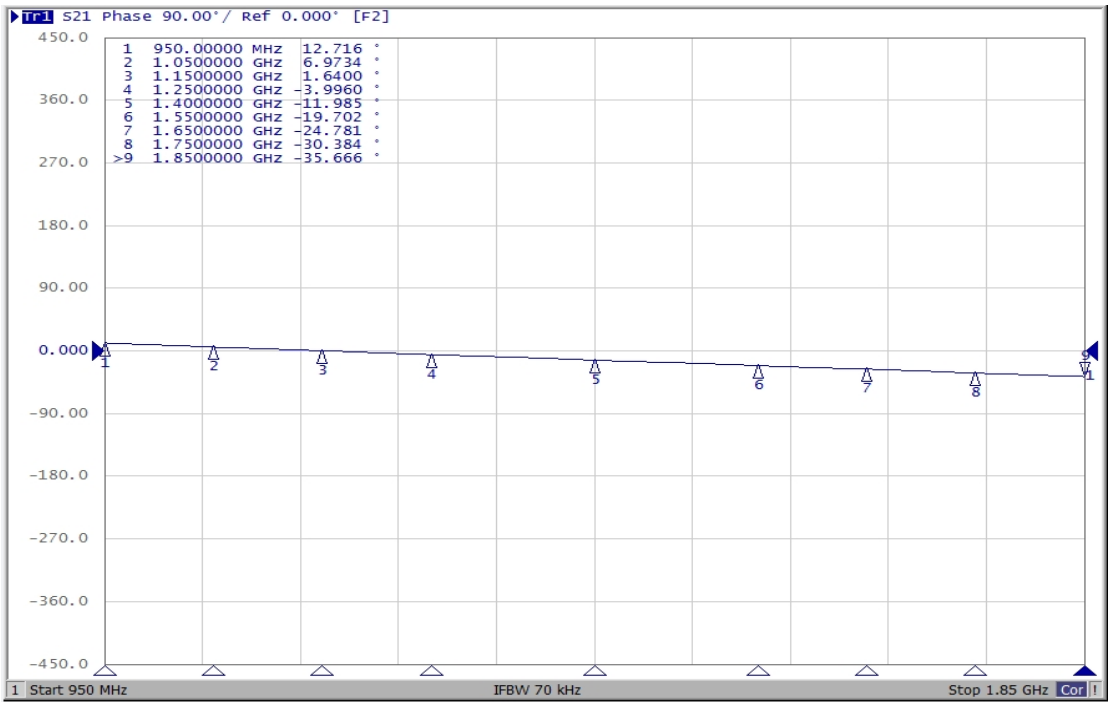


Isolation(dB):

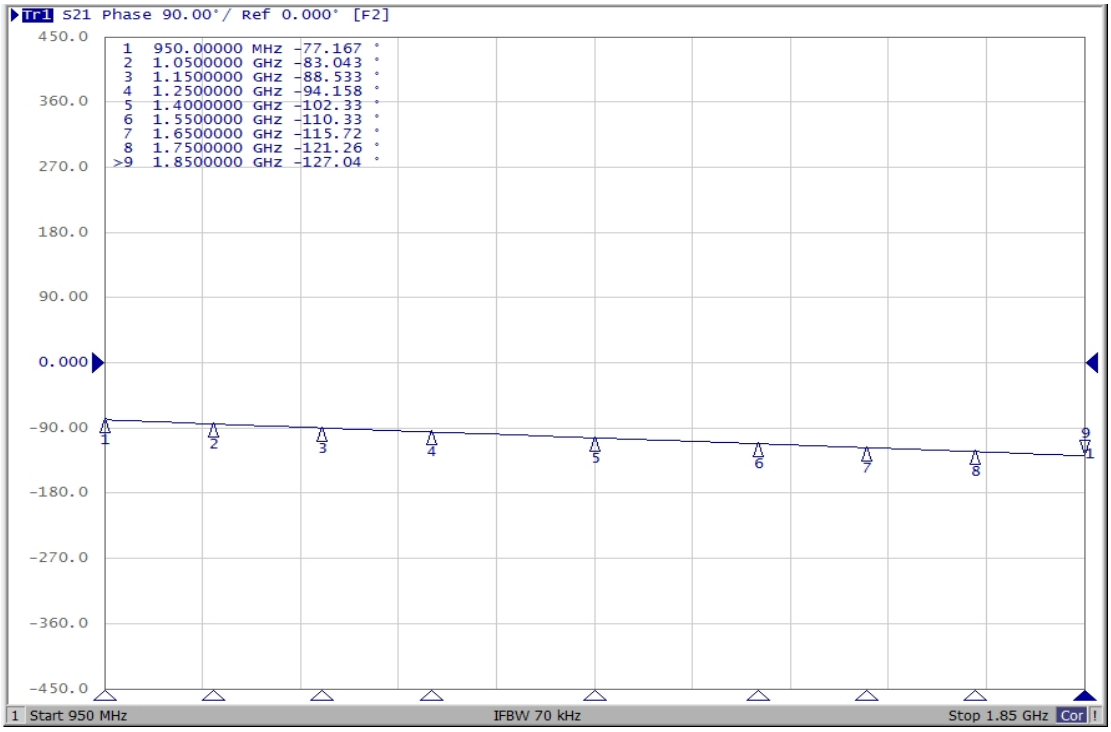


Phase(degree):

Coupling Phase(degree):

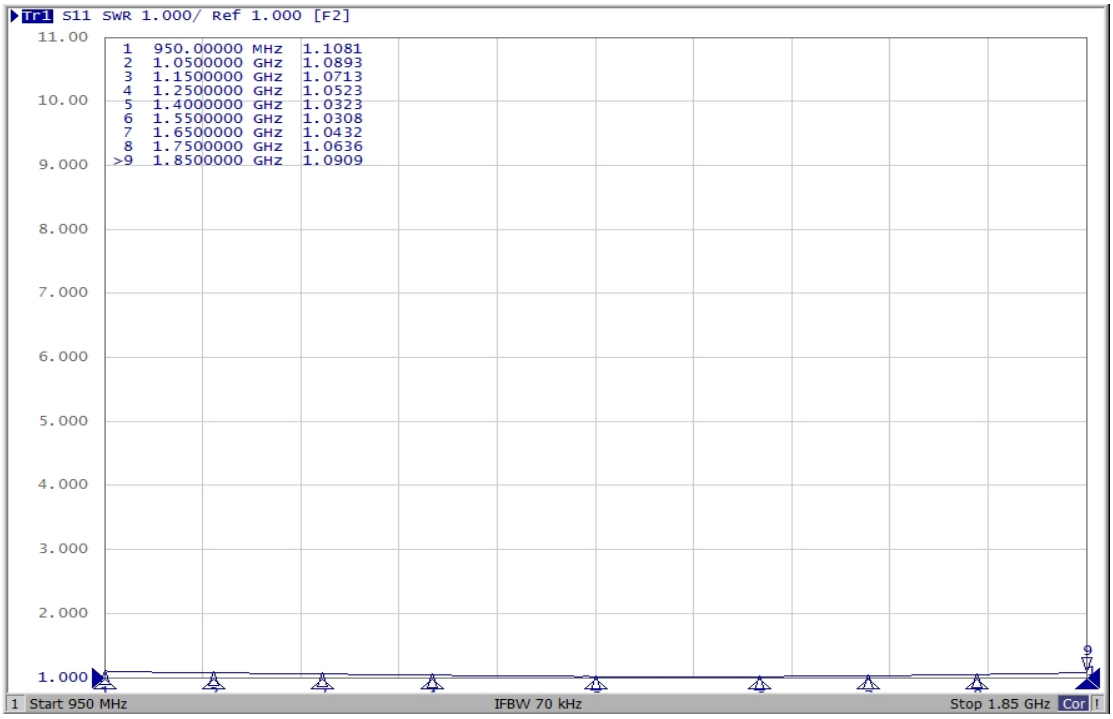


Transmission Phase(degree)**:**

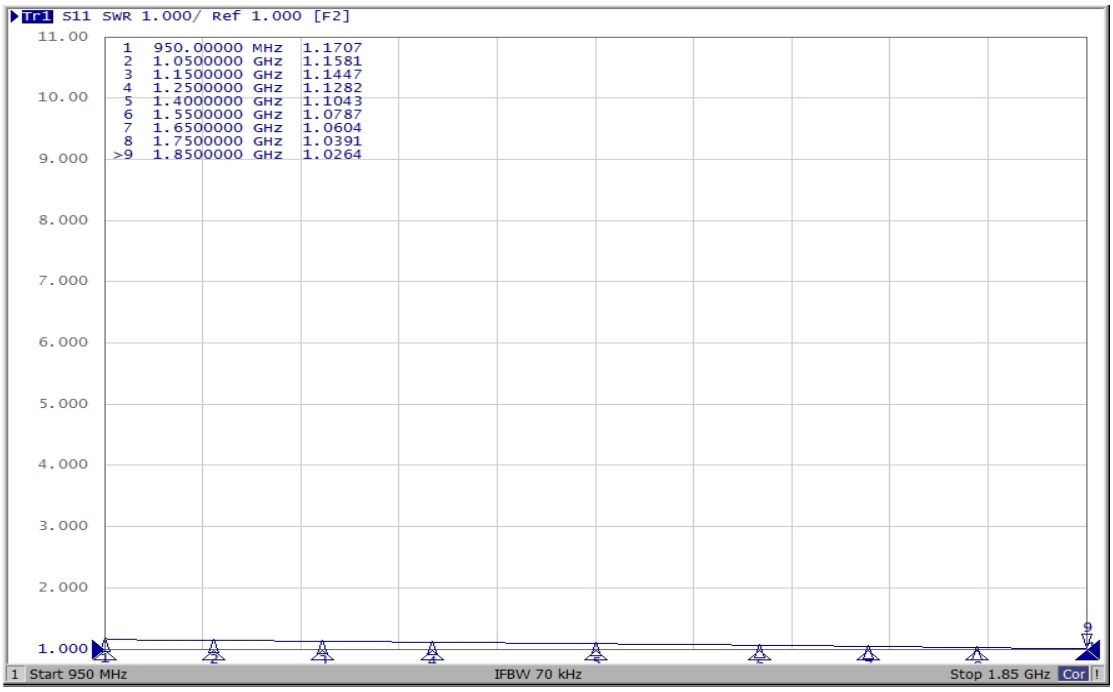


VSWR :

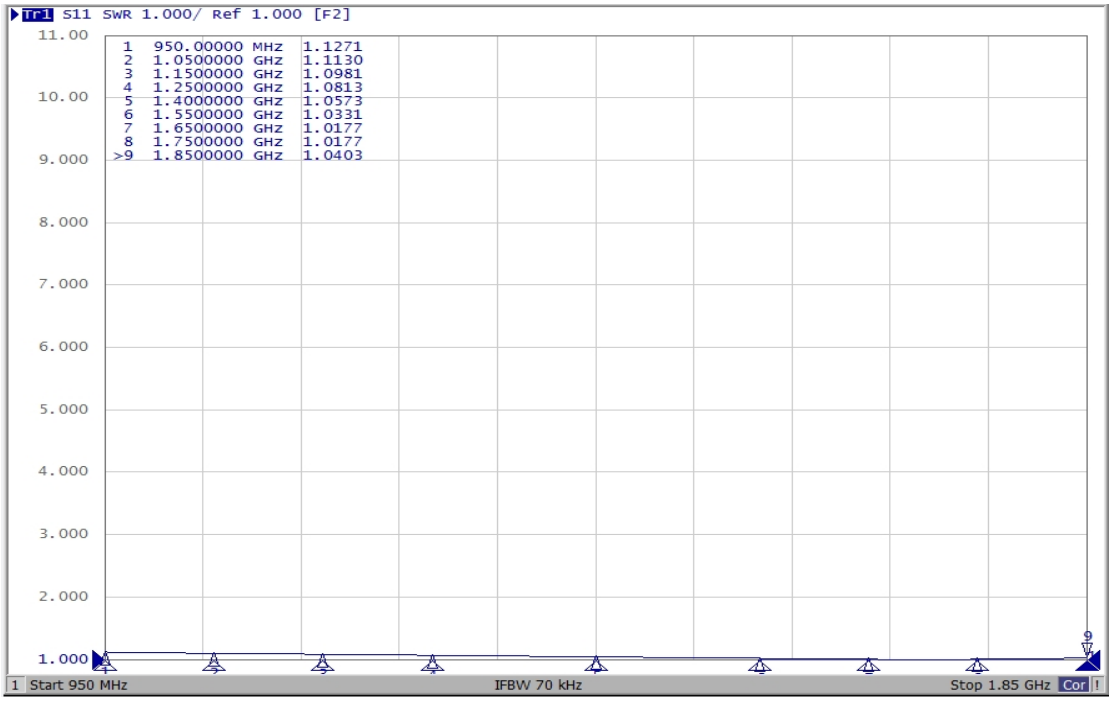
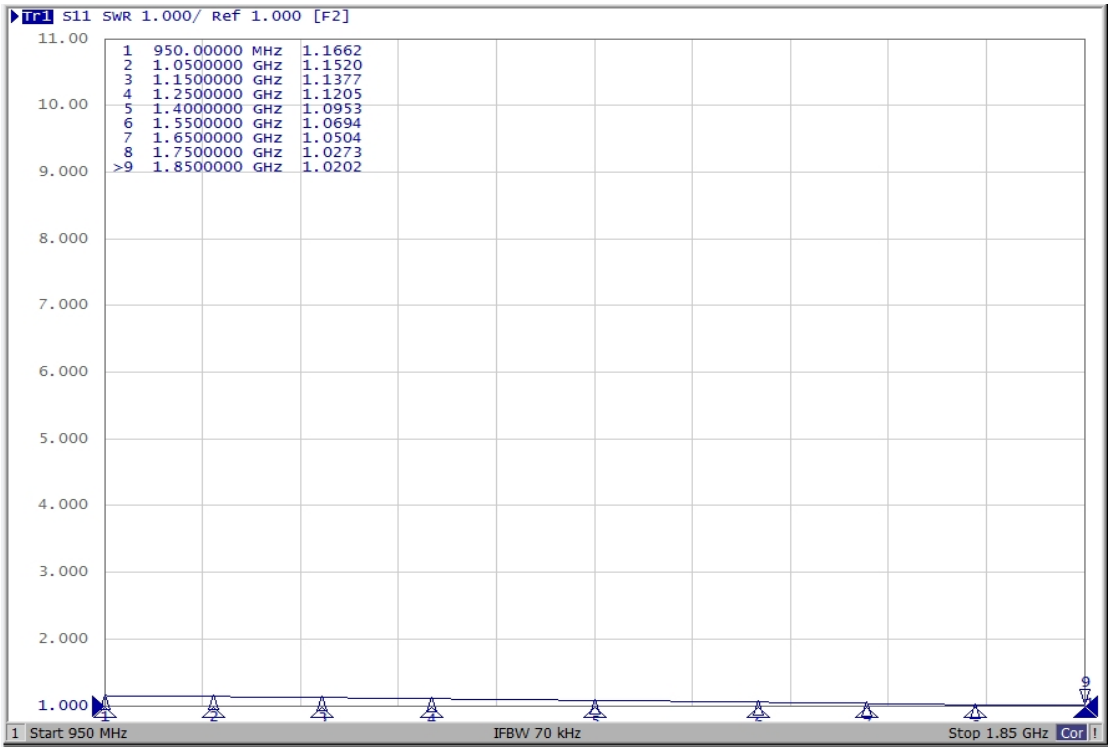
Input Port:



Coupling Port:



Transmission Port:



Isolation Port: