



## Characterization Report

**RF Coaxial Cable Assemblies**  
**Raw Cable Type: Temp-Flex 047-2801**

**RF047-11SP9-11SP9-0305**

Test Date: 10 Dec. 2014

**RF047-11RP9-11RP9-0305**

Test Date: 13 Oct. 2014

**RF047-01SP1-01SP1-0305**

Test Date: 20 Jan. 2015

**Cable Series:** RF047

**Description:** RF cable Assembly, 50Ω, Temp-Flex 047-2801, Length 305 mm (12.0")

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**Cable Series:** RF047

**Description:** RF cable Assembly, 50Ω, Temp-Flex 047-2801, Length 305 mm (12.0")

## Test Information

### Scope:

Provide insertion loss, return loss, and standing wave ratio performance parameters for RF connector types terminated to RF047 series coaxial cable. Where specified, provide extended bandwidth and TDR information.

### Instrument Setup & Test Accessories:

**SAMTEC SIGNAL INTEGRITY GROUP**  
Mechanicsburg, PA USA  
Agilent 8364B/N4421B 4-Port PNA, Front Panel, S2P file format  
4000pts., 1 KHz RBW, 10MHz to 40.0 GHz,  
Facility Capability: 67GHz

**SAMTEC HUIZHOU**  
Huizhou City, Guangdong Province, China  
Agilent N5230A 4-Port PNA, Front Panel, S2P file format  
1601pts., 1 KHz RBW, 300KHz to 20.0 GHz,  
Facility Capability: 20GHz

### Calibration Type:

**SAMTEC SIGNAL INTEGRITY GROUP**  
Mechanicsburg, PA USA  
Mechanical Cal, Maury Microwave 8770D Economy Cal Kit, Full 2-Port SOLT  
Unknown Thru Adapter Calibration, DC-40 GHz

**SAMTEC HUIZHOU**  
Huizhou City, Guangdong Province, China  
Mechanical Cal, Agilent 85052D Economy Cal Kit, Full 2-Port SOLT Calibration,  
Adapter Inclusive, DC-26.5 GHz,

### Adapter Use:

**SAMTEC SIGNAL INTEGRITY GROUP**  
Mechanicsburg, PA USA  
Huber-Suhner (Astrolabs) Model 16301, 2.92 male to 2.92 Male Unknown Thru  
Adapter, 53.4ps delay - [Two-port NA calibration Using an Unknown Thru.pdf](#) ,  
Rule of Reciprocity, Negligent adapter effect

**SAMTEC HUIZHOU**  
Huizhou City, Guangdong Province, China  
Mechanical Calibration - Agilent 85052D Economy Cal Kit - Full 2-Port SOLT  
Calibration - DC-26.5 GHz - Utilizes Pasternack Enterprises RF type adapters,  
One **PE91007 adapter** at each test port – Measurements include adapter ef-  
fects.



**E8364B**



**N5230C**

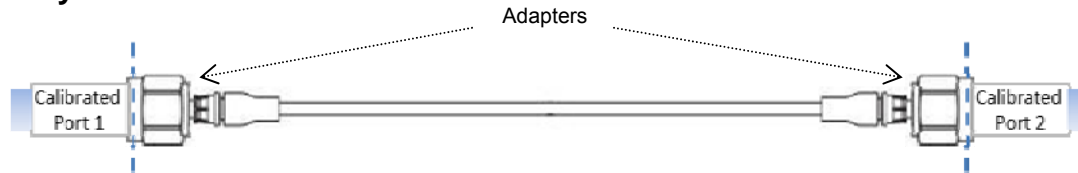
Typical Setup (Actual parts are not depicted)

**Cable Series:** RF047

**Description:** RF cable Assembly, 50Ω, Temp-Flex 047-2801, Length 305 mm (12.0")

**RF047-11SP9-11SP9-0305 Test Definition**

Part Number	Length	End 1	End 2
RF047-11SP9-11SP9-0305	305mm	HMHF1, Straight Plug	HMHF1, Straight Plug

**Assembly under Test:**

**Rating Opportunity:**

Cable Assembly TDR Response Profiles, SWR < 1.30 mU to 12.0 GHz, R.L. < -17.692 to 12.0 GHz, For Insertion Loss see cable ratings

**Conclusion:**

HMHF1 straight plug cable assemblies are consistent in RL/SWR/IL response to 12.0 GHz. Assemblies correspond well with suggested rating opportunity.

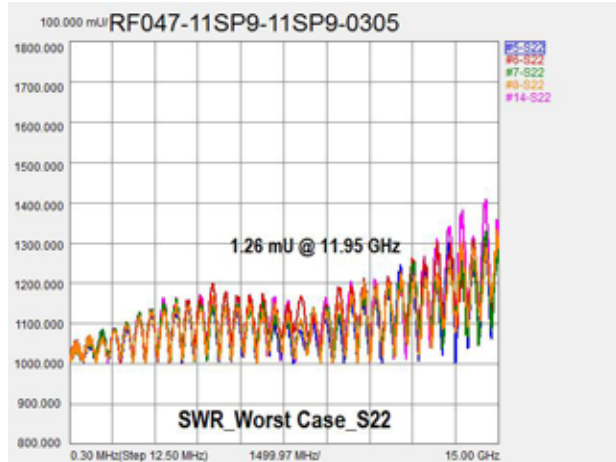
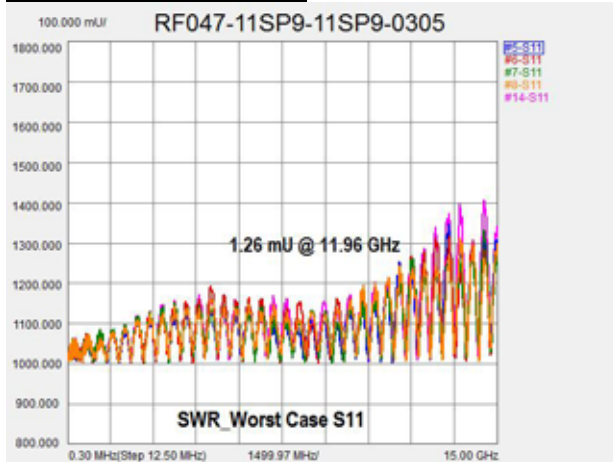
**Results: RF047-11SP9-11SP9-0305**

RF047-11SP9-11SP9-0305						
DUT	10 MHz to 12.0 GHz			12 GHz to 15.0 GHz		
	SWR (max)	RL (max)	IL (min)	SWR (max)	RL (max)	IL (min)
<b>5</b> (S11,S21)	1.25 @ 11.56	-18.99 @ 11.56	-1.35 @ 11.98	1.35 @ 13.29	-16.63 @ 13.29	-1.53 @ 14.98
(S22,S12)	1.25 @ 11.55	-19.22 @ 11.55	-1.35 @ 11.96	1.33 @ 14.91	-16.94 @ 14.91	-1.53 @ 14.90
<b>6</b> (S11,S21)	1.27 @ 11.98	-18.58 @ 11.98	-1.37 @ 11.98	1.32 @ 13.29	-17.24 @ 13.29	-1.53 @ 14.98
(S22,S12)	1.26 @ 11.95	-18.67 @ 11.95	-1.37 @ 11.96	1.33 @ 14.91	-17.05 @ 14.91	-1.52 @ 14.90
<b>7</b> (S11,S21)	1.26 @ 11.98	-18.79 @ 11.98	-1.38 @ 11.96	1.33 @ 14.51	-16.92 @ 14.54	-1.54 @ 14.53
(S22,S12)	1.25 @ 11.95	-19.19 @ 11.95	-1.32 @ 11.73	1.33 @ 14.54	-16.98 @ 14.71	-1.53 @ 14.90
<b>8</b> (S11,S21)	1.24 @ 11.56	-19.29 @ 11.56	-1.36 @ 11.98	1.31 @ 13.66	-17.38 @ 13.66	-1.53 @ 14.98
(S22,S12)	1.23 @ 11.55	-19.87 @ 11.55	-1.35 @ 11.96	1.33 @ 14.91	-16.86 @ 14.91	-1.53 @ 14.90
<b>14</b> (S11,S21)	1.27 @ 11.96	-18.59 @ 11.96	-1.36 @ 11.98	1.41 @ 14.51	-15.44 @ 14.51	-1.56 @ 14.53
(S22,S12)	1.25 @ 11.95	-19.22 @ 11.95	-1.35 @ 11.96	1.41 @ 14.54	-15.40 @ 14.54	-1.54 @ 14.54

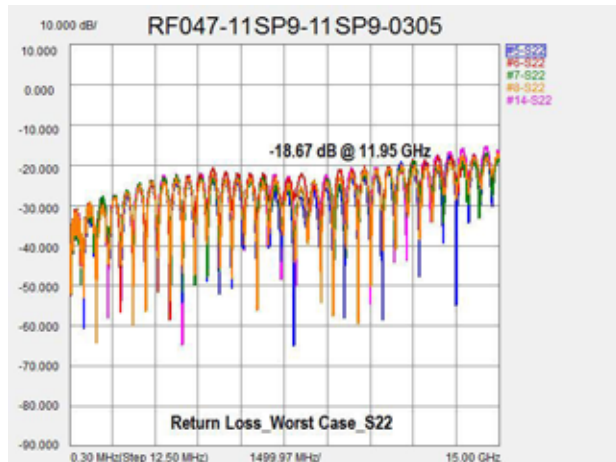
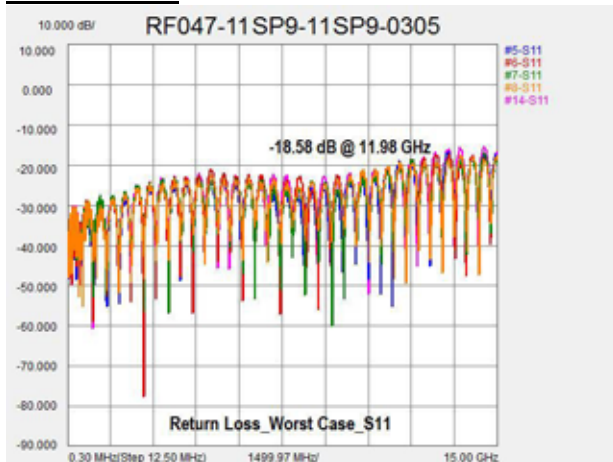
**Cable Series:** RF047

**Description:** RF cable Assembly, 50Ω, Temp-Flex 047-2801, Length 305 mm (12.0")

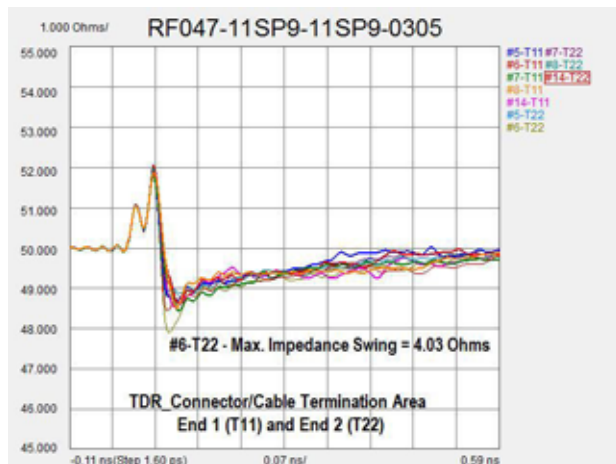
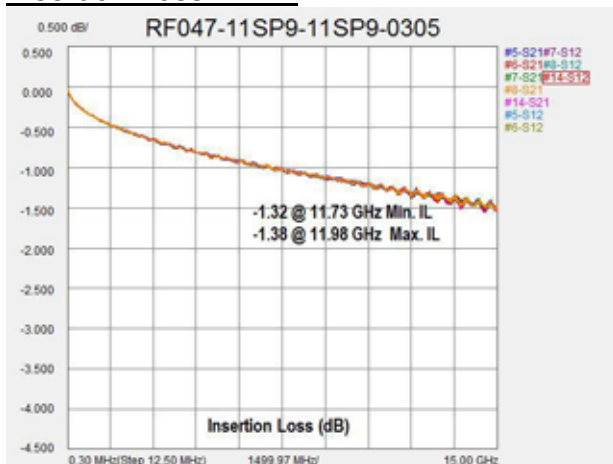
## Standing Wave Ratio



## Return Loss



## Insertion Loss / TDR

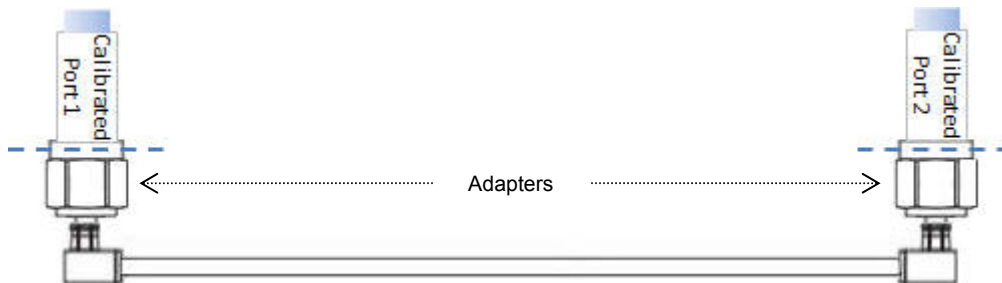


**Cable Series:** RF047

**Description:** RF cable Assembly, 50Ω, Temp-Flex 047-2801, Length 305 mm (12.0")

**RF047-11RP9-11RP9-0305 Test Definition**

Part Number	Length	End 1	End 2
RF047-11RP9-11RP9-0305	305mm	HMHF1, Right Angle Plug	HMHF1, Right Angle Plug

**Assembly under Test:**

**Rating Opportunity:**

Cable Assembly TDR Response Profiles, SWR < 1.30 mU to 12.0 GHz, R.L. < -17.692 to 12.0 GHz, For Insertion Loss see cable ratings

**Conclusion:**

HMHF1 Right Angle Plug cable assemblies are consistent in RL/SWR/IL response to 12.0 GHz. Assemblies correspond well with suggested rating opportunity.

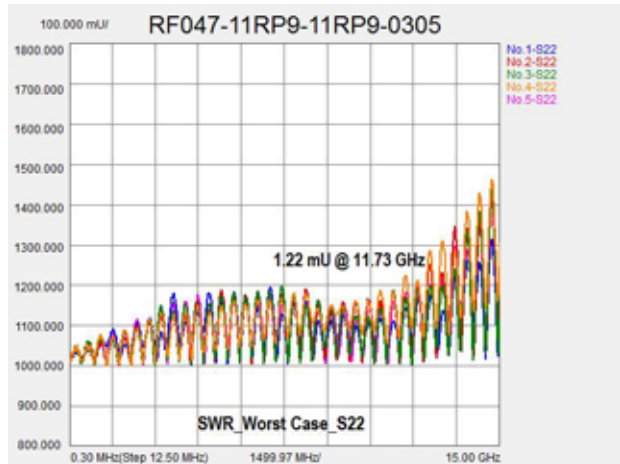
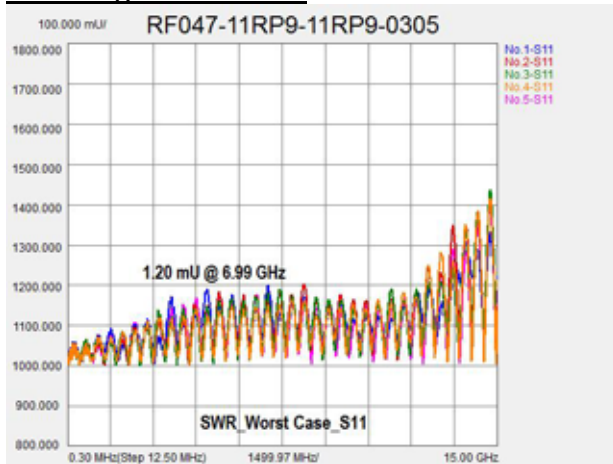
**Results: RF047-11RP9-11RP9-0305**

RF047-11RP9-11RP9-0305						
DUT	10 MHz to 12.0 GHz			12 GHz to 15.0 GHz		
	SWR (max)	RL (max)	IL (min)	SWR (max)	RL (max)	IL (min)
1 (S11,S21)	1.20 @ 6.99	-20.81 @ 6.99	-1.32 @ 11.98	1.33 @ 14.73	-16.91 @ 14.73	-1.54 @ 14.74
(S22,S12)	1.20 @ 7.00	-20.99 @ 7.00	-1.33 @ 11.96	1.31 @ 14.71	-17.34 @ 14.71	-1.54 @ 14.70
2 (S11,S21)	1.20 @ 8.24	-20.67 @ 8.24	-1.30 @ 11.98	1.42 @ 14.73	-15.23 @ 14.73	-1.58 @ 14.74
(S22,S12)	1.19 @ 8.23	-21.19 @ 8.23	-1.31 @ 11.96	1.42 @ 14.73	-15.27 @ 14.73	-1.58 @ 14.70
3 (S11,S21)	1.19 @ 7.38	-21.19 @ 7.39	-1.32 @ 11.73	1.44 @ 14.73	-14.94 @ 14.73	-1.61 @ 14.73
(S22,S12)	1.20 @ 7.39	-20.89 @ 7.39	-1.32 @ 11.73	1.43 @ 14.71	-14.98 @ 14.71	-1.61 @ 14.73
4 (S11,S21)	1.18 @ 11.69	-21.59 @ 11.69	-1.32 @ 11.74	1.42 @ 14.73	-15.27 @ 14.73	-1.60 @ 14.74
(S22,S12)	1.22 @ 11.73	-19.93 @ 11.73	-1.33 @ 11.74	1.46 @ 14.71	-14.54 @ 14.71	-1.60 @ 14.70
5 (S11,S21)	1.18 @ 6.60	-21.77 @ 6.60	-1.31 @ 11.73	1.40 @ 14.73	-15.55 @ 14.73	-1.57 @ 14.73
(S22,S12)	1.19 @ 6.56	-21.44 @ 6.56	-1.32 @ 11.73	1.41 @ 14.71	-15.46 @ 14.71	-1.57 @ 14.70

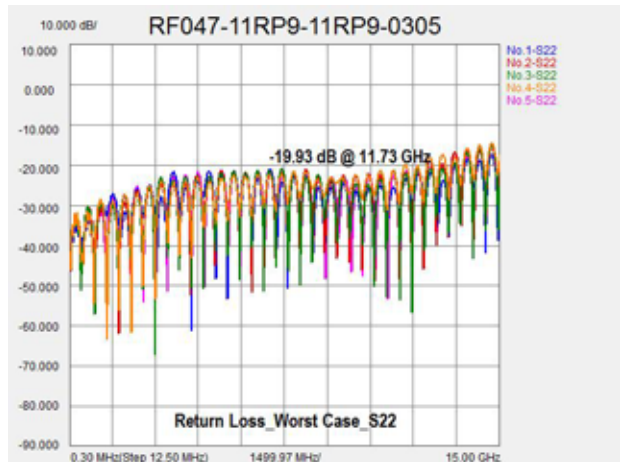
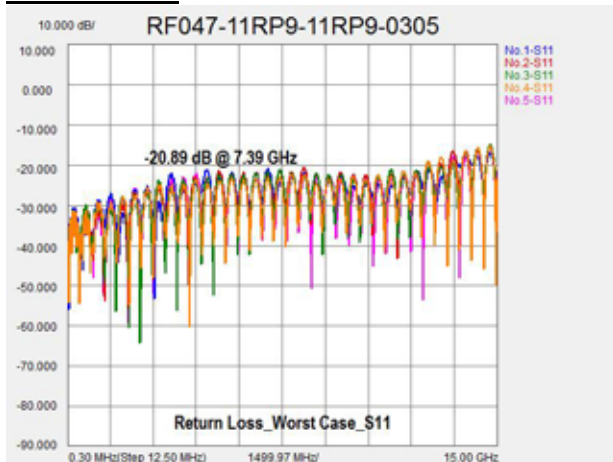
**Cable Series:** RF047

**Description:** RF cable Assembly, 50Ω, Temp-Flex 047-2801, Length 305 mm (12.0")

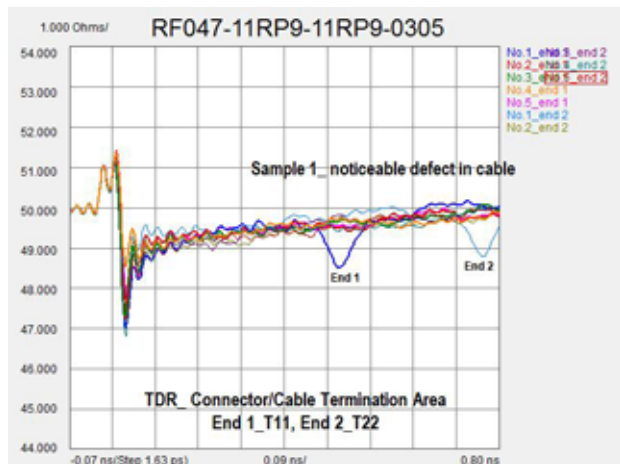
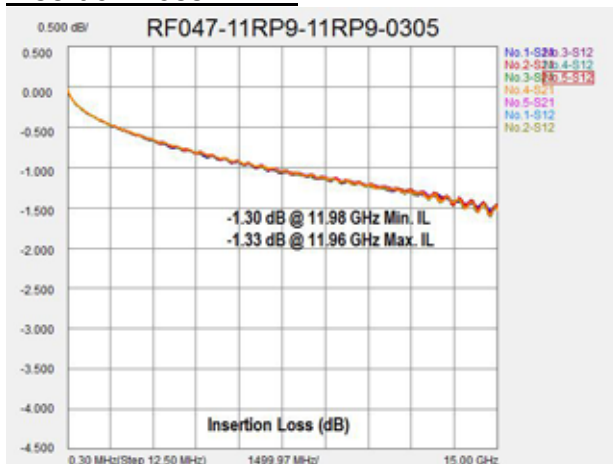
## Standing Wave Ratio



## Return Loss



## Insertion Loss / TDR



**Cable Series:** RF047

**Description:** RF cable Assembly, 50Ω, Temp-Flex 047-2801, Length 305 mm (12.0")

## RF047-01SP1-01SP1-0305 Test Definition

Part Number	Length	End 1	End 2
RF047-01SP1-01SP1-0305	305mm	SMA, Straight Plug	SMA, Straight Plug

### Assembly under Test:



### Rating Opportunity:

Cable Assembly TDR Response Profiles, SWR < 1.30 mU to 26.5 GHz, R.L. < -17.692 to 26.5 GHz, For Insertion Loss see cable rating.

### Conclusion:

SMA Straight Plug cable assemblies are consistent in RL/SWR/IL response to 26.5 GHz. Assemblies correspond well with suggested rating opportunity.

### Results: RF047-01SP1-01SP1-0305

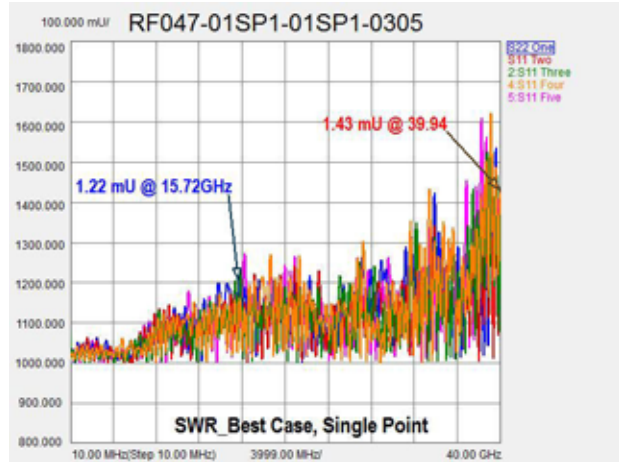
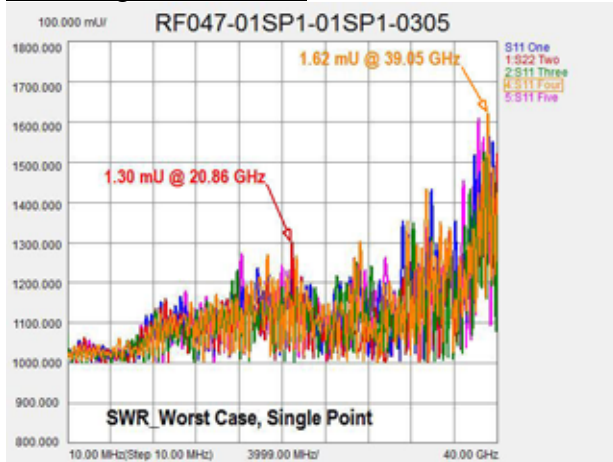
RF047-01SP1-01SP1-0305						
DUT	10 MHz to 26.5 GHz			26.5 GHz to 40.0 GHz		
	SWR (max)	RL (max)	IL (min)	SWR (max)	RL (max)	IL (min)
1 (S11,S21)	1.24 @ 17.65	-19.51 @ 17.65	-1.78 @ 26.27	1.58 @ 39.12	-12.92 @ 39.12	-2.44 @ 35.02
(S22,S12)	<b>1.22 @ 15.72</b>	<b>-19.99 @ 15.72</b>	-1.77 @ 26.28	1.54 @ 39.52	-13.50 @ 39.52	-2.43 @ 35.02
2 (S11,S21)	1.24 @ 20.84	-19.34 @ 20.84	-1.76 @ 26.42	<b>1.43 @ 39.94</b>	<b>-15.04 @ 39.94</b>	-2.63 @ 34.92
(S22,S12)	<b>1.30 @ 20.86</b>	<b>-17.68 @ 20.86</b>	-1.75 @ 26.43	1.52 @ 39.94	-13.70 @ 39.94	-2.61 @ 35.03
3 (S11,S21)	1.23 @ 15.79	-19.69 @ 15.79	-1.74 @ 26.42	1.52 @ 38.71	-13.66 @ 38.71	-2.48 @ 35.04
(S22,S12)	1.23 @ 15.79	-19.69 @ 15.79	<b>-1.73 @ 26.42</b>	1.49 @ 39.57	-14.17 @ 39.57	-2.47 @ 35.04
4 (S11,S21)	1.27 @ 18.60	-18.46 @ 18.60	-1.77 @ 26.08	<b>1.62 @ 39.05</b>	<b>-12.50 @ 39.05</b>	-2.52 @ 35.02
(S22,S12)	1.29 @ 21.28	-17.98 @ 21.28	-1.77 @ 26.12	1.51 @ 39.01	-13.88 @ 39.01	-2.52 @ 35.02
5 (S11,S21)	1.27 @ 16.17	-19.69 @ 15.79	<b>-1.79 @ 26.48</b>	1.61 @ 38.17	-13.66 @ 38.71	-2.83 @ 35.04
(S22,S12)	1.29 @ 20.39	-17.86 @ 20.39	-1.78 @ 26.48	1.47 @ 36.77	-14.43 @ 36.77	-2.81 @ 35.04



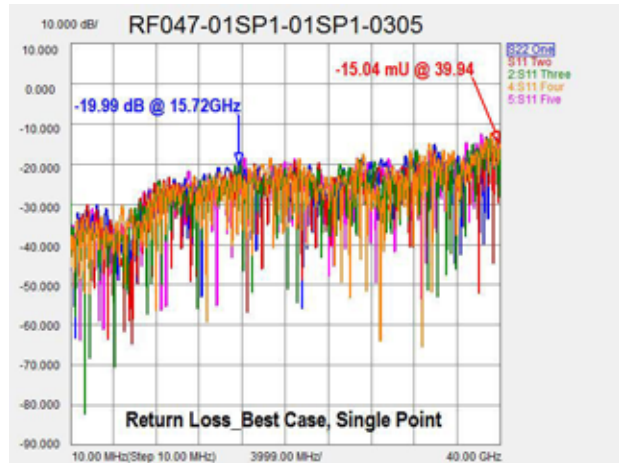
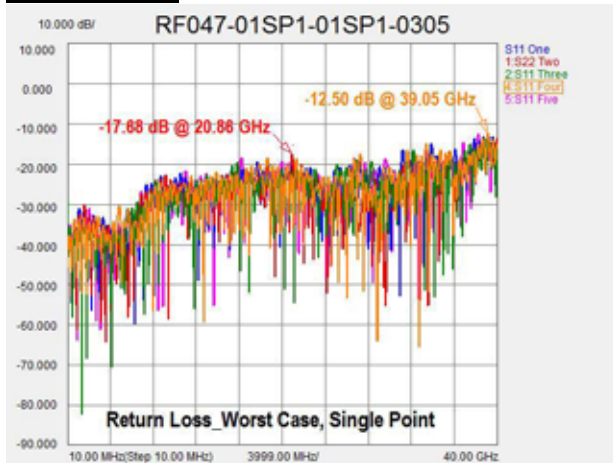
**Cable Series:** RF047

**Description:** RF cable Assembly, 50Ω, Temp-Flex 047-2801, Length 305 mm (12.0")

## Standing Wave Ratio



## Return Loss



## Insertion Loss / TDR

