

MVE Low Loss Flexible Phase stable Coax Cable

MCBL-LL406P.50



Specifications

Features

- 74%Vp PTFE Tape + SPC Foil
- Ultra Low Loss, Excellent Temp Phase Stable

Applications

- Military / Commercial Communication Systems Interconnect
- Shipboard System
- Airborne Platform
- Radio Station

CONSTRUCTION

ITEM	MATERIAL	DIAMETER(mm)	Tolerance(mm)
INNER CONDUCTOR	Silver Plated Copper	0.51	±0.02
DIELECTRIC	LD PTFE	1.53	±0.05
OUTER CONDUCTOR	Silver-plated Copper Foil	1.70	±0.05
INNER LAYER	PET	1.73	±0.05
OUTER SHEILD	Silver-plated Copper	2.05	±0.05
JACKET	FEP (Clean / Gray)	2.30	±0.10

ELECTRICAL DATA

MIN. BEND RADIUS :Installation	9mm
MIN. BEND RADIUS: Repeated	23mm
WEIGHT (g/m)	15
OPERATING TEMP	-55°C ~ +165°C
TEMP STORAGE	-65°C ~ +165°C

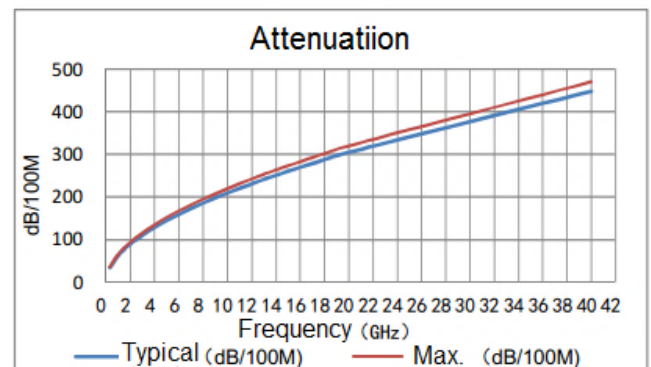
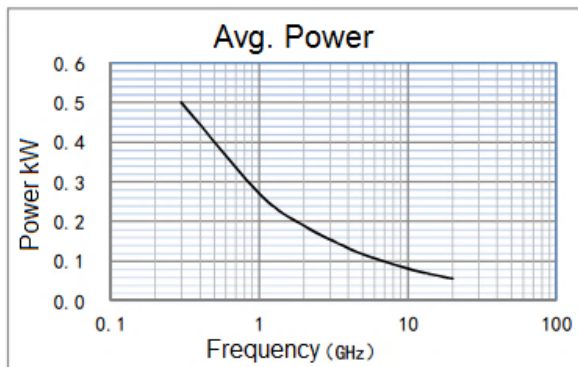
MECHANICAL DATA

FREQUENCY	40.0GHz
IMPEDANCE	50 Ohm
VELOCITY OF PROPAGATION	74.0 %
SHIELDING EFFECT	90 dB
VOLTAGE WITHSTAND	500 V.DC

TYP. ATTENUATION(25°C) and TYP. AVG. POWER (40°C)

Freq.(GHz)	0.3	1	2	4	6	8	10	12	18	26.5	40.0
dB/100m	36.1	66.3	94.4	134.6	166.0	192.7	216.5	238.2	295.0	362.6	452.8
Power kW	0.500	0.272	0.191	0.134	0.109	0.094	0.083	0.076	0.061	0.050	0.040

$$K1= 1.9500000 \quad K2= 0.0014500 \quad \text{Equation} = K1*\sqrt{F\text{MHz}} + K2*F \text{ MHz}$$



NOTES:

1. ALL SPECIFICATIONS ARE SUBJECT TO CHANGE WITHOUT NOTICE AT ANY TIME
2. CUSTOMER OUTLINE DRAWING FOR REFERENCE ONLY





Cable Assembly Part Number

MVE PART NUMBER	CONNECTOR 1	CONNECTOR 2	LENGTH (cm)	FREQUENCY (GHz)	VSWR
130632.LL406P.XX	2.4mm Female	SMPM Female R/A	15, 30, 50, 60, 90, 100	40	1.50
150480.LL406P.XX	2.92mm Female	SMP Female	15, 30, 50, 60, 90, 100	40	1.50
150482.LL406P.XX	2.92mm Female	SMP Female R/A	15, 30, 50, 60, 90, 100	26.5	1.60
480482.LL406P.XXH	SMP Female	SMP Female R/A	15, 30, 45, 60, 90, 100	40	1.60
482482.LL406P.XXH	SMP Female R/A	SMP Female R/A	15, 30, 50, 60, 90, 100	40	1.80
150482.LL406P1.XX	2.92mm Female	SMP Female R/A	15, 30, 50, 60, 90, 100	20	1.50
160482.LL406P1.XX	3.5mm Male	SMP Female R/A	15, 30, 50, 60, 90, 100	26.5	1.40
280480.LL406P.XX	SMA Male S/T	SMP Female S/T	15, 30, 50, 60, 90, 100	26.5	1.30
280480.LL406P1.XX	SMA Male S/T	SMP Female S/T	15, 30, 50, 60, 90, 100	8	1.40
280482.LL406P.XX(HR)	SMA Male S/T	SMP Female R/A	15, 30, 50, 60, 90, 100	26.5	1.50
280482.LL406P1.XX	SMA Male S/T	SMP Female R/A	15, 30, 50, 60, 90, 100	26.5	1.55
290480.LL406P1.XX	SMA Female S/T	SMP Female S/T	15, 30, 50, 60, 90, 100	26.5	1.60
290482.LL406P1.XX	SMA Female S/T	SMP Female R/A	15, 30, 50, 60, 90, 100	26.5	1.60
480480.LL406P1.XX	SMP Female S/T	SMP Female S/T	15, 30, 50, 60, 90, 100	20	1.55
482482.LL406P1.XX	SMP Female R/A	SMP Female R/A	15, 30, 50, 60, 90, 100	26.5	1.60
630630.LL406P1.XX	SMPM Female	SMPM Female	15, 30, 50, 60, 90, 100	40	1.50

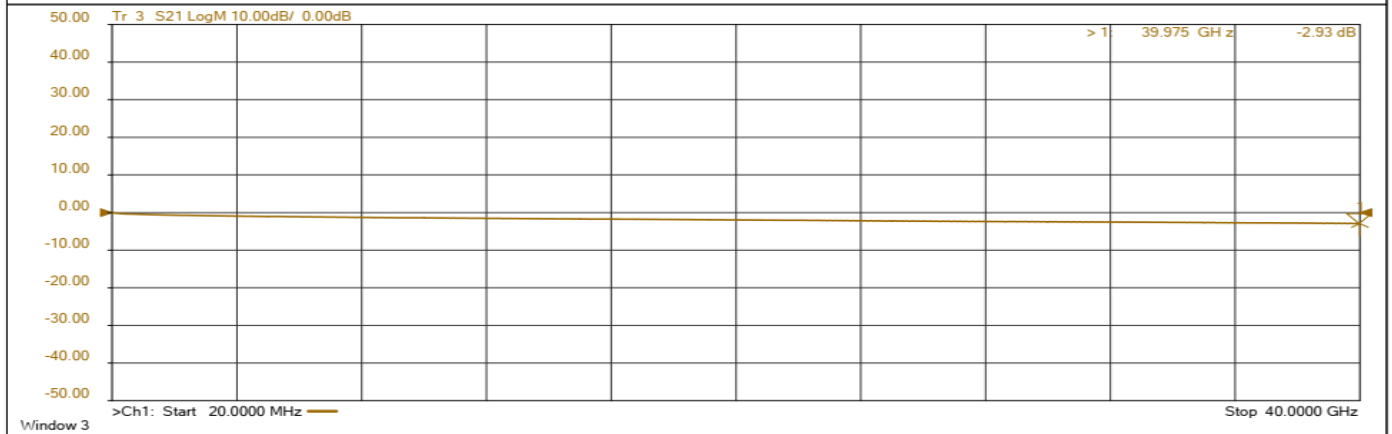
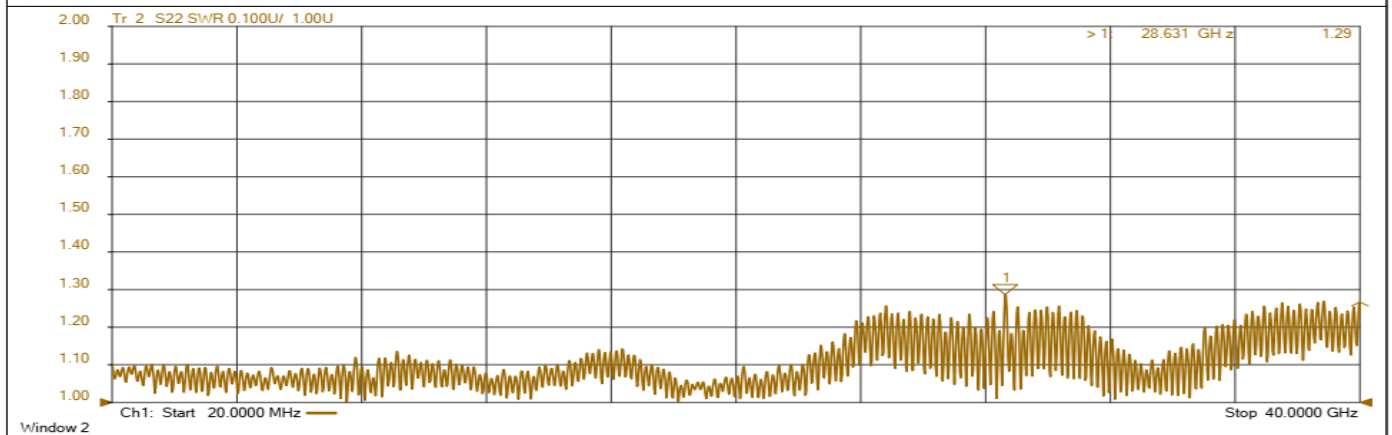
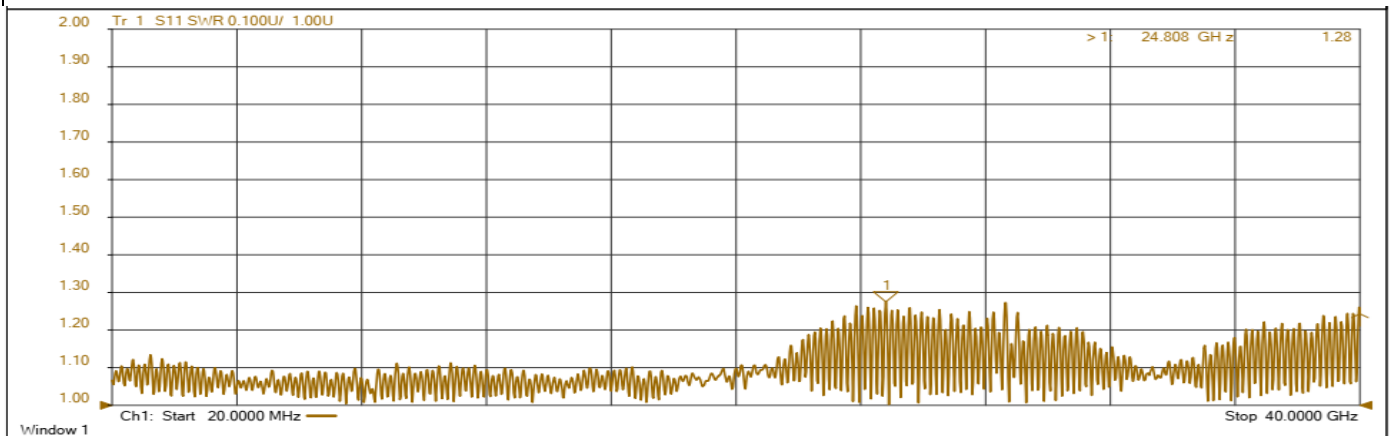
NOTES:

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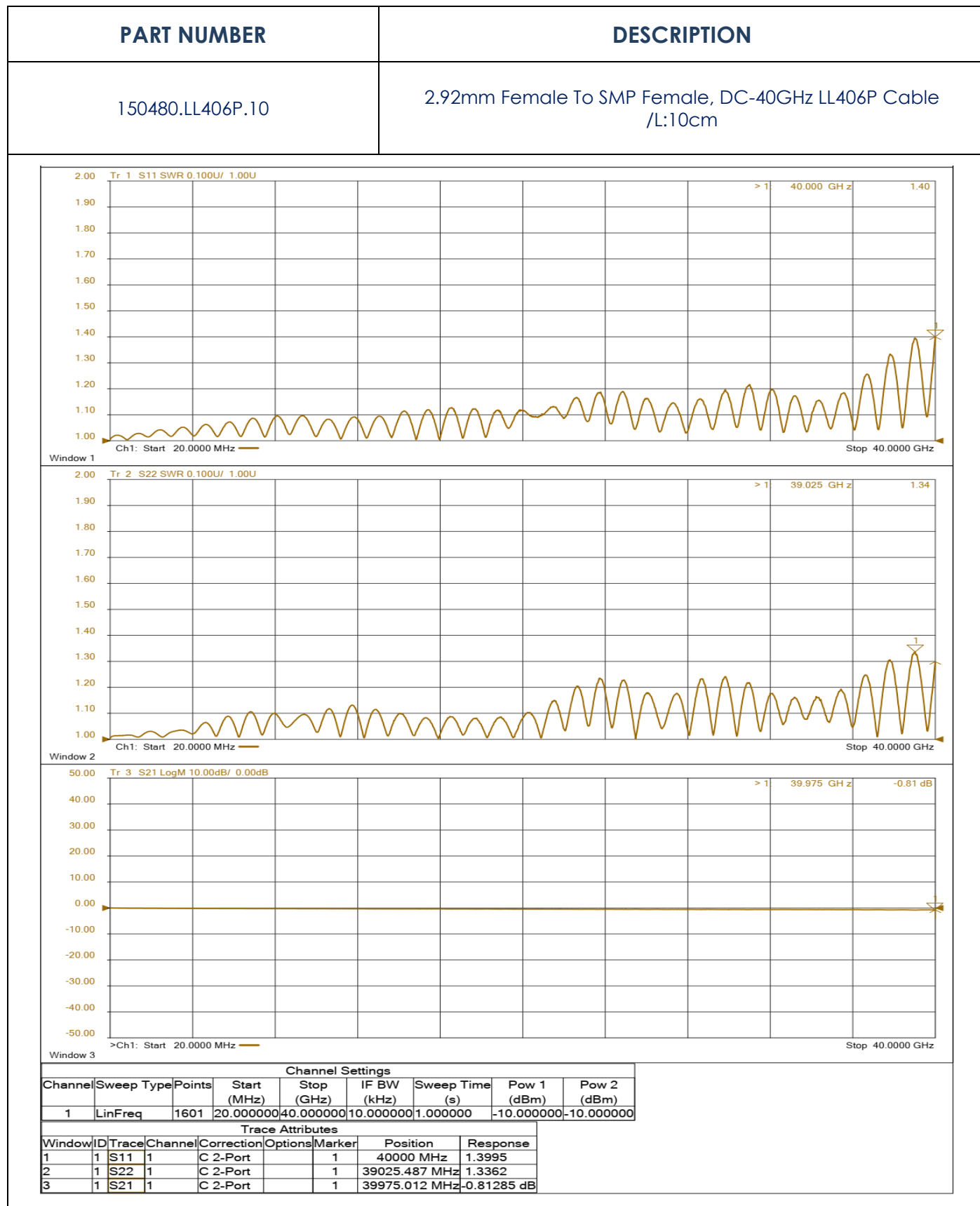
Typical Test Result

PART NUMBER	DESCRIPTION
130632.LL406P.60	2.4mm Female To SMPM Female R/A, DC-40GHz LL406P Cable Low Loss, Phase Stable Cable/L:60cm



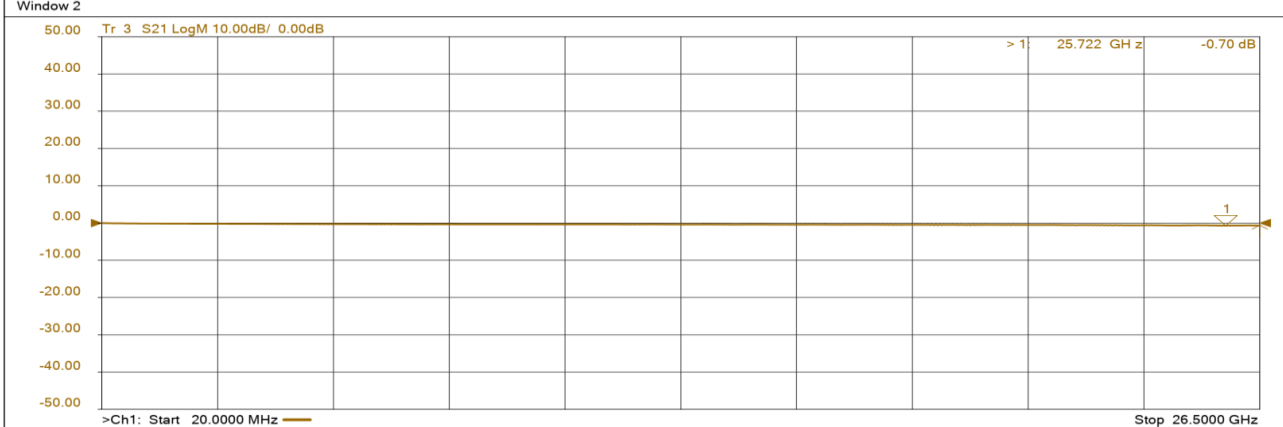
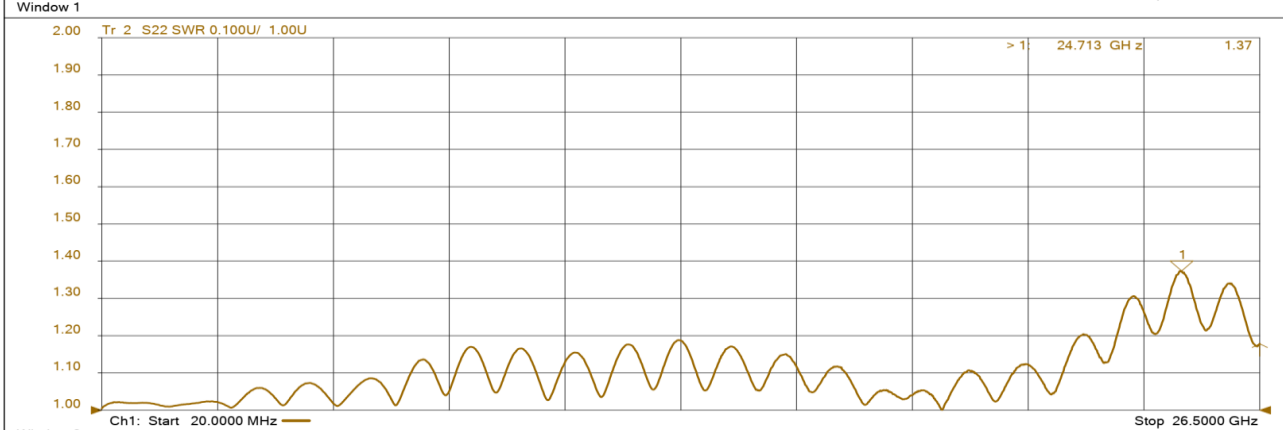
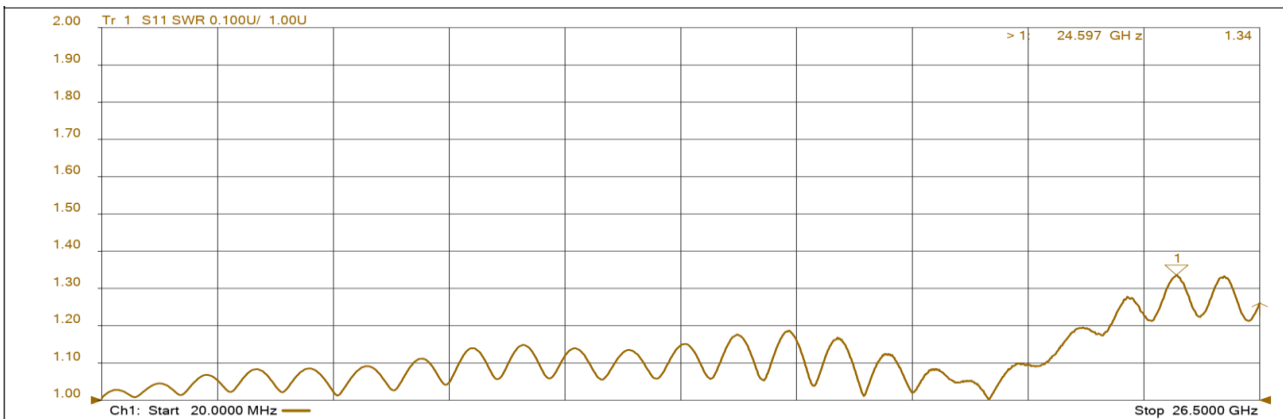
Channel Settings								
Channel	Sweep Type	Points	Start (MHz)	Stop (GHz)	IF BW (kHz)	Sweep Time (s)	Pow 1 (dBm)	Pow 2 (dBm)
1	LinFreq	1601	20.000000	40.000000	10.000000	1.000000	-10.000000	-10.000000
Trace Attributes								
Window	ID	Trace	Channel	Correction	Options	Marker	Position	Response
1	1	S11	1	C 2-Port		1	24807.6 MHz	1.2751
2	1	S22	1	C 2-Port		1	28630.688 MHz	1.2867
3	1	S21	1	C 2-Port		1	40000 MHz	-2.9365 dB

Typical Test Result



Typical Test Result

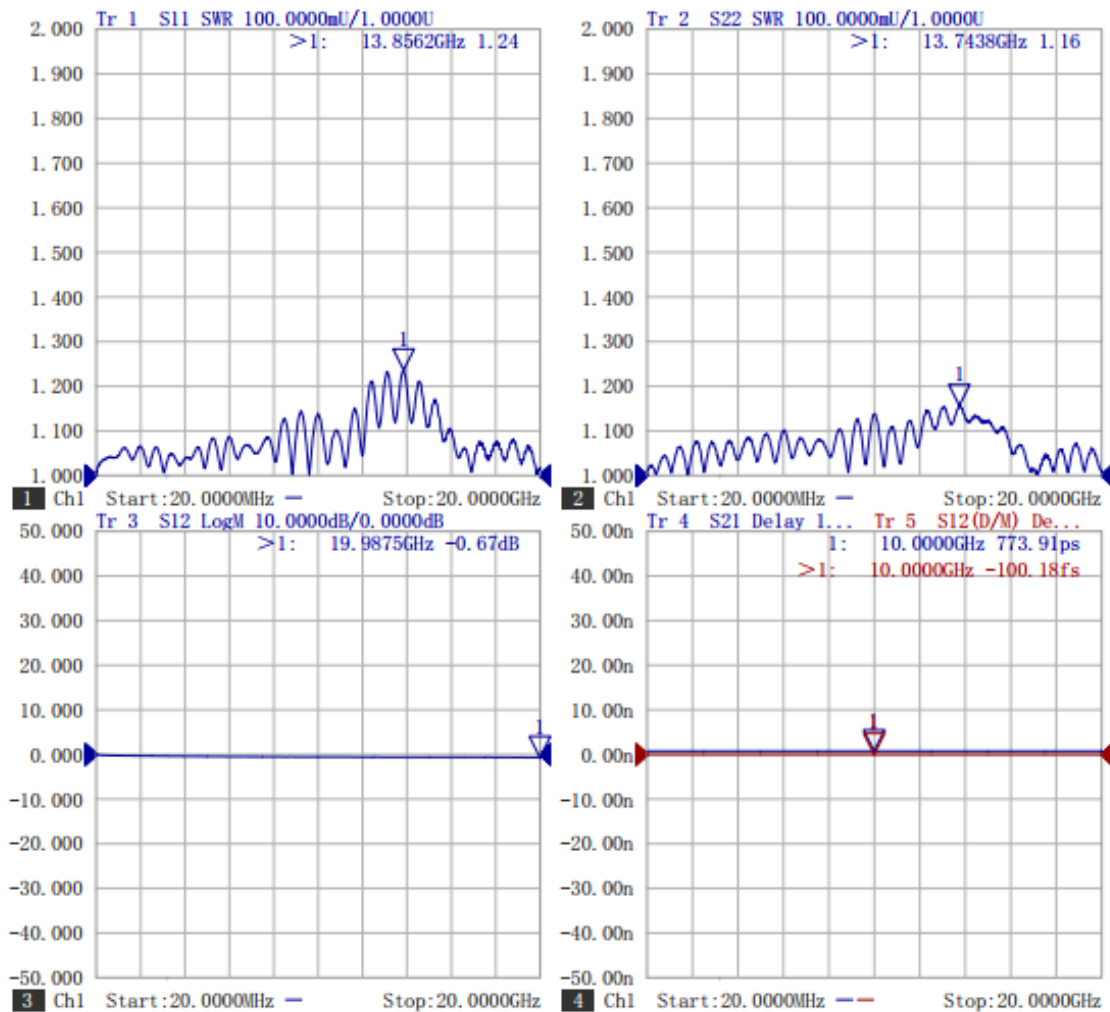
PART NUMBER	DESCRIPTION
150482.LL406P.10	2.92mm Female To SMP Female R/A, DC-26.5GHz LL406P Cable /L:10cm



Channel Settings								
Channel	Sweep Type	Points	Start (MHz)	Stop (GHz)	IF BW (kHz)	Sweep Time (s)	Pow 1 (dBm)	Pow 2 (dBm)
1	LinFreq	1601	20.000000	26.500000	10.000000	1.000000	-5.000000	-5.000000
Trace Attributes								
Window	ID	Trace	Channel	Correction	Options	Marker	Position	Response
1	1	S11	1	C 2-Port		1	24596.75 MHz	1.3364
2	1	S22	1	C 2-Port		1	24712.6 MHz	1.3738
3	1	S21	1	C 2-Port		1	25722.15 MHz	-0.70534 dB

Typical Test Result

PART NUMBER	DESCRIPTION
150482.LL406P1.15	2.92mm Female To SMP Female R/A, DC-20GHz LL406P Cable/Phase match<±1ps/pair/ L:15cm



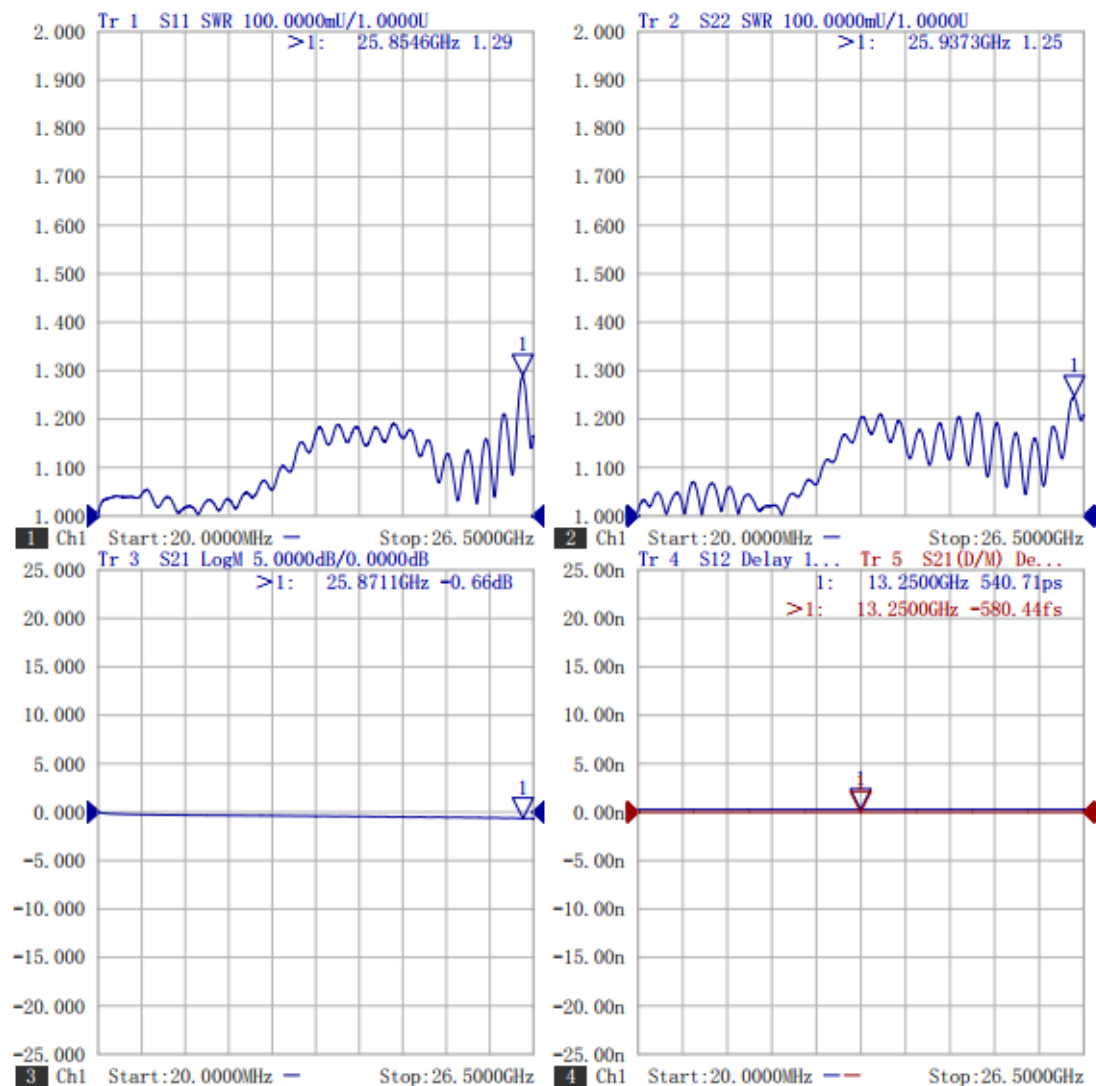
	SweepType	Start (GHz)	Stop (GHz)	Points	IF BW (Hz)	SweepTime (s)	Port1, 2Power (dBm)
Ch1	LIN_SWEEP	0.020000000	20.000000000	1601	10000	1.000000	0.00, 0.00

	Limit type	Start stimulus	Stop stimulus	Start value	Stop value
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	Marker	Delta	Stimulus	Response
Win1				
Trace1--S11	1		13.8562GHz	1.24
Win2				
Trace2--S22	1		13.7438GHz	1.16
Win3				
Trace3--S12	1		19.9875GHz	-0.67dB
Win4				
Trace4--S21	1		10.0000GHz	773.91ps
Trace5--S12	1		10.0000GHz	-100.18fs

Typical Test Result

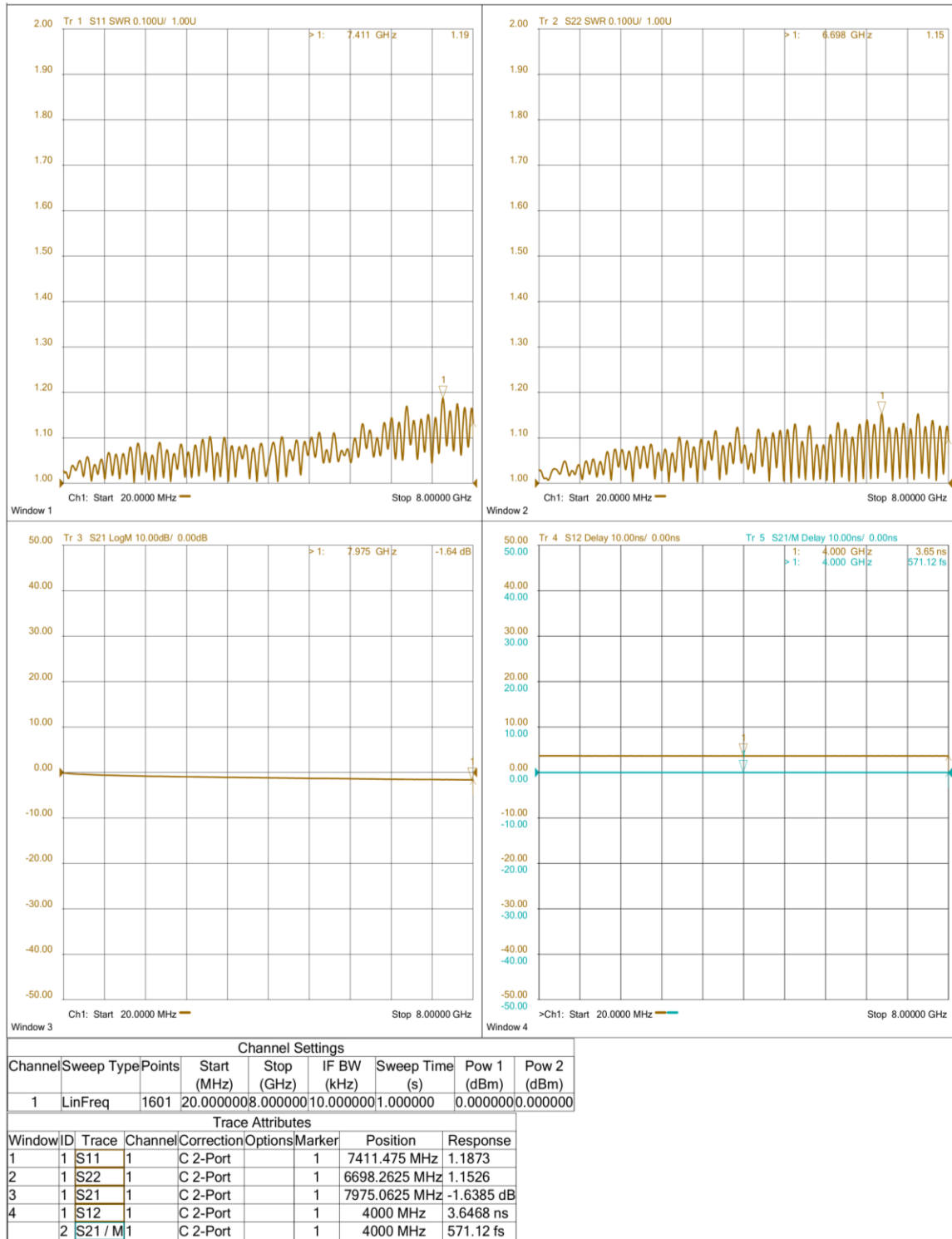
PART NUMBER	DESCRIPTION
160482.LL406P1.10	3.5mm Male To SMP Female R/A , DC-26.5GHz LL406P Cable/Phase match<±2ps/pair /L:10cm



	SweepType	Start (GHz)	Stop (GHz)	Points	IF BW (Hz)	SweepTime (s)	Port1, 2Power (dBm)
Ch1	LIN SWEEP	0.020000000	26.500000000	1601	10000	1.000000	0.00, 0.00

	Marker	Delta	Stimulus	Response
Win1				
Trace1--S11	1		25.8546GHz	1.29
Win2				
Trace2--S22	1		25.9373GHz	1.25
Win3				
Trace3--S21	1		25.8711GHz	-0.66dB
Win4				
Trace4--S12	1		13.2500GHz	540.71ps
Trace5--S21	1		13.2500GHz	-580.44fs

PART NUMBER	DESCRIPTION
280480.LL406P1.80	SMP Female R/A To SMP Female R/A, DC-26.5GHz LL406 Cable,Phase Match<±2ps/L:40cm



PART NUMBER	DESCRIPTION
280480.LL406P1.80(2)	SMP Female R/A To SMP Female R/A, DC-26.5GHz LL406 Cable, Phase Match<±2ps/L:40cm

2.00

Tr 1 S11 SWR 0.100U/ 1.00U

> 1: 6.703 GHz

1.19

Ch1: Start 20.0000 MHz

Stop 8.00000 GHz

Window 1

2.00

Tr 2 S22 SWR 0.100U/ 1.00U

> 1: 6.145 GHz

1.19

Ch1: Start 20.0000 MHz

Stop 8.00000 GHz

Window 2

50.00

Tr 3 S21 LogM 10.00dB/ 0.00dB

> 1: 7.995 GHz

-1.72 dB

Ch1: Start 20.0000 MHz

Stop 8.00000 GHz

Window 3

50.00

Tr 4 S12 Delay 10.00ns/ 0.00ns

Tr 5 S21/M Delay 10.00ns/ 0.00ns

1: 4.000 GHz

> 1: 4.000 GHz

3.64 ns

-1.45 ps

>Ch1: Start 20.0000 MHz

Stop 8.00000 GHz

Window 4

Channel Settings								
Channel	Sweep Type	Points	Start (MHz)	Stop (GHz)	IF BW (kHz)	Sweep Time (s)	Pow 1 (dBm)	Pow 2 (dBm)
1	LinFreq	1601	20.000000	8.000000	10.000000	1.000000	0.000000	0.000000

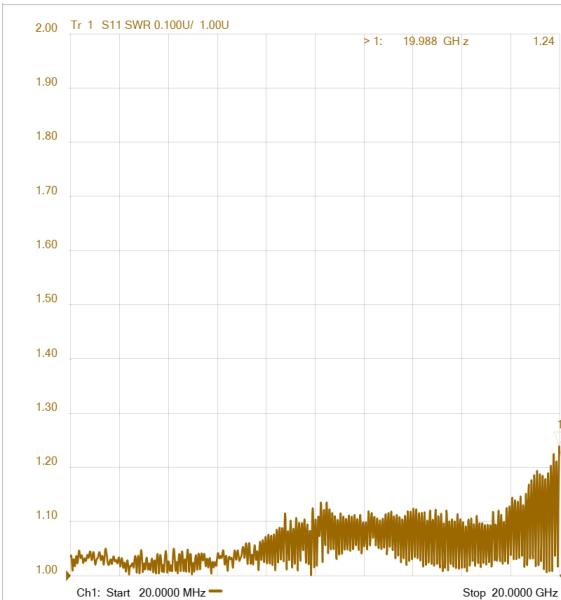
Trace Attributes								
Window	ID	Trace	Channel	Correction	Options	Marker	Position	Response
1	1	S11	1	C	2-Port	1	6703.25 MHz	1.1867
2	1	S22	1	C	2-Port	1	6144.65 MHz	1.1861
3	1	S21	1	C	2-Port	1	7995.0125 MHz	-1.7176 dB
4	1	S12	1	C	2-Port	1	4000 MHz	3.6443 ns
	2	S21 / M	1	C	2-Port	1	4000 MHz	-1.2858 ps

PART NUMBER	DESCRIPTION
280482.LL406P1.100(1)	SMA Male To SMP Female R/A, DC-26.5GHz LL406Cable(Phase Match≤±2ps,VSWR≤1.55, I.L<4.1dB)/L:100cm

2.00

Tr 1 S11 SWR 0.100U/ 1.00U

> 1: 19.988 GHz 1.24



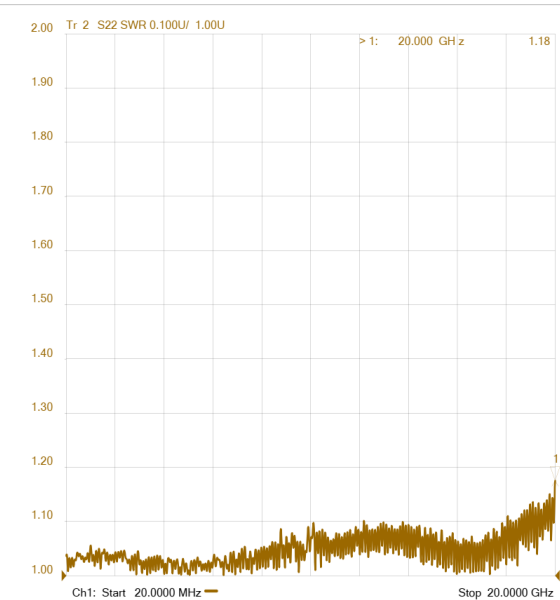
Ch1: Start 20.0000 MHz Stop 20.0000 GHz

Window 1

2.00

Tr 2 S22 SWR 0.100U/ 1.00U

> 1: 20.000 GHz 1.18



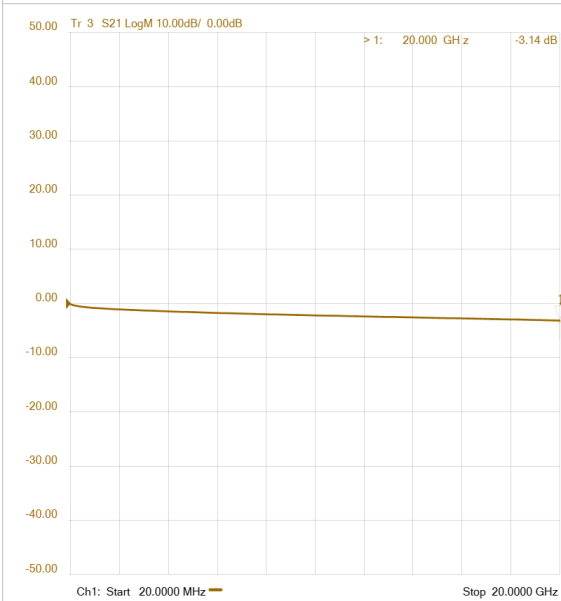
Ch1: Start 20.0000 MHz Stop 20.0000 GHz

Window 2

50.00

Tr 3 S21 LogM 10.00dB/ 0.00dB

> 1: 20.000 GHz -3.14 dB



Ch1: Start 20.0000 MHz Stop 20.0000 GHz

Window 3

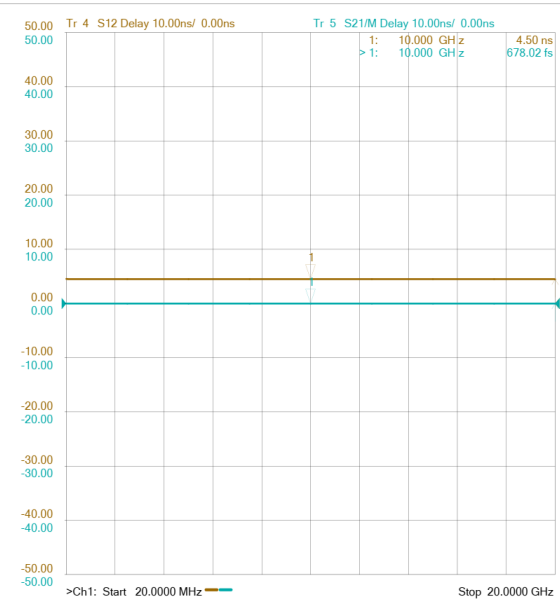
50.00

Tr 4 S12 Delay 10.00ns/ 0.00ns

Tr 5 S21/M Delay 10.00ns/ 0.00ns

> 1: 10.000 GHz 4.50 ns

> 1: 10.000 GHz 678.02 fs



>Ch1: Start 20.0000 MHz Stop 20.0000 GHz

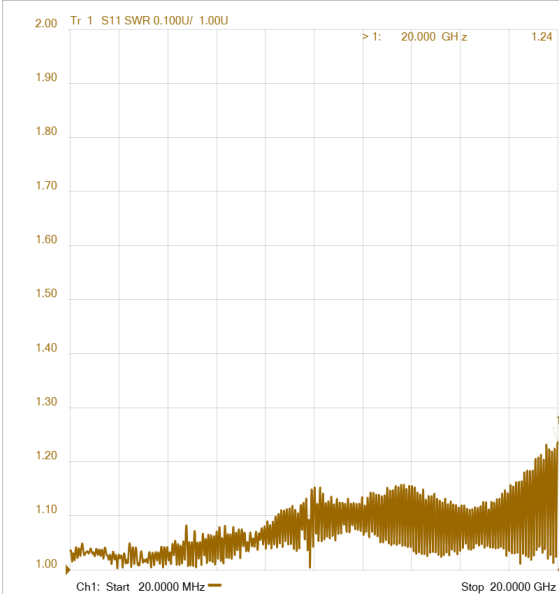
Window 4

Channel Settings								
Channel	Sweep Type	Points	Start (MHz)	Stop (GHz)	IF BW (kHz)	Sweep Time (s)	Pow 1 (dBm)	Pow 2 (dBm)
1	LinFreq	1601	20.000000	20.000000	10.000000	1.000000	0.000000	0.000000

Trace Attributes								
Window	ID	Trace	Channel	Correction	Options	Marker	Position	Response
1	1	S11	1	C 2-Port		1	19987.513 MHz	1.2382
2	1	S22	1	C 2-Port		1	20000 MHz	1.1751
3	1	S21	1	C 2-Port		1	19987.513 MHz	-3.1464 dB
4	1	S12	1	C 2-Port		1	10000 MHz	4.5026 ns
2	2	S21 / M	1	C 2-Port		1	10000 MHz	732.58 fs

PART NUMBER	DESCRIPTION
280482.LL406P1.100(2)	SMA Male To SMP Female R/A, DC-26.5GHz LL406Cable(Phase Match $\leq \pm 2\text{ps}$, VSWR ≤ 1.55 , I.L < 4.1dB)/L:100cm

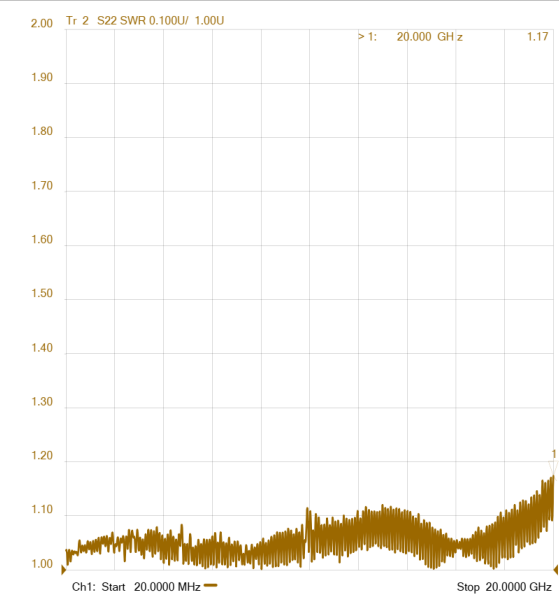
Window 1



Tr 1 S11 SWR 0.100U/ 1.00U
> 1: 20.000 GHz 1.24

Ch1: Start 20.0000 MHz Stop 20.0000 GHz

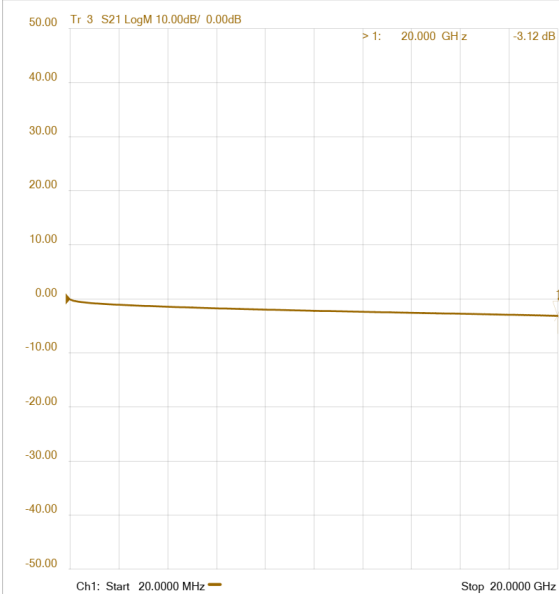
Window 2



Tr 2 S22 SWR 0.100U/ 1.00U
> 1: 20.000 GHz 1.17

Ch1: Start 20.0000 MHz Stop 20.0000 GHz

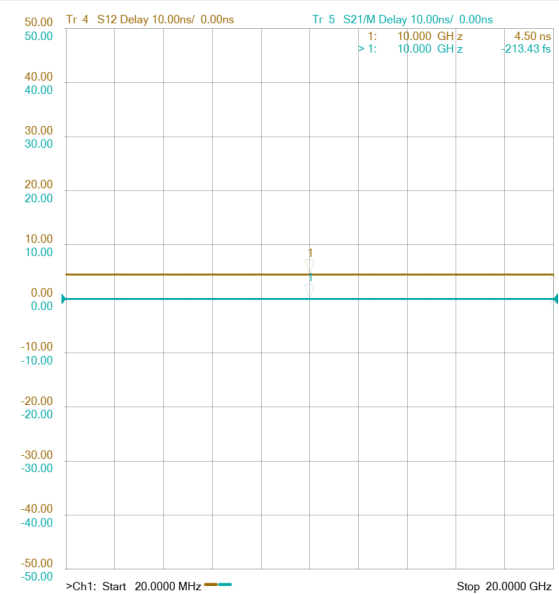
Window 3



Tr 3 S21 LogM 10.00dB/ 0.00dB
> 1: 20.000 GHz -3.12 dB

Ch1: Start 20.0000 MHz Stop 20.0000 GHz

Window 4



Tr 4 S12 Delay 10.00ns/ 0.00ns
Tr 5 S21/M Delay 10.00ns/ 0.00ns
1: 10.000 GHz 4.50 ns
> 1: 10.000 GHz -213.43 fs

>Ch1: Start 20.0000 MHz Stop 20.0000 GHz

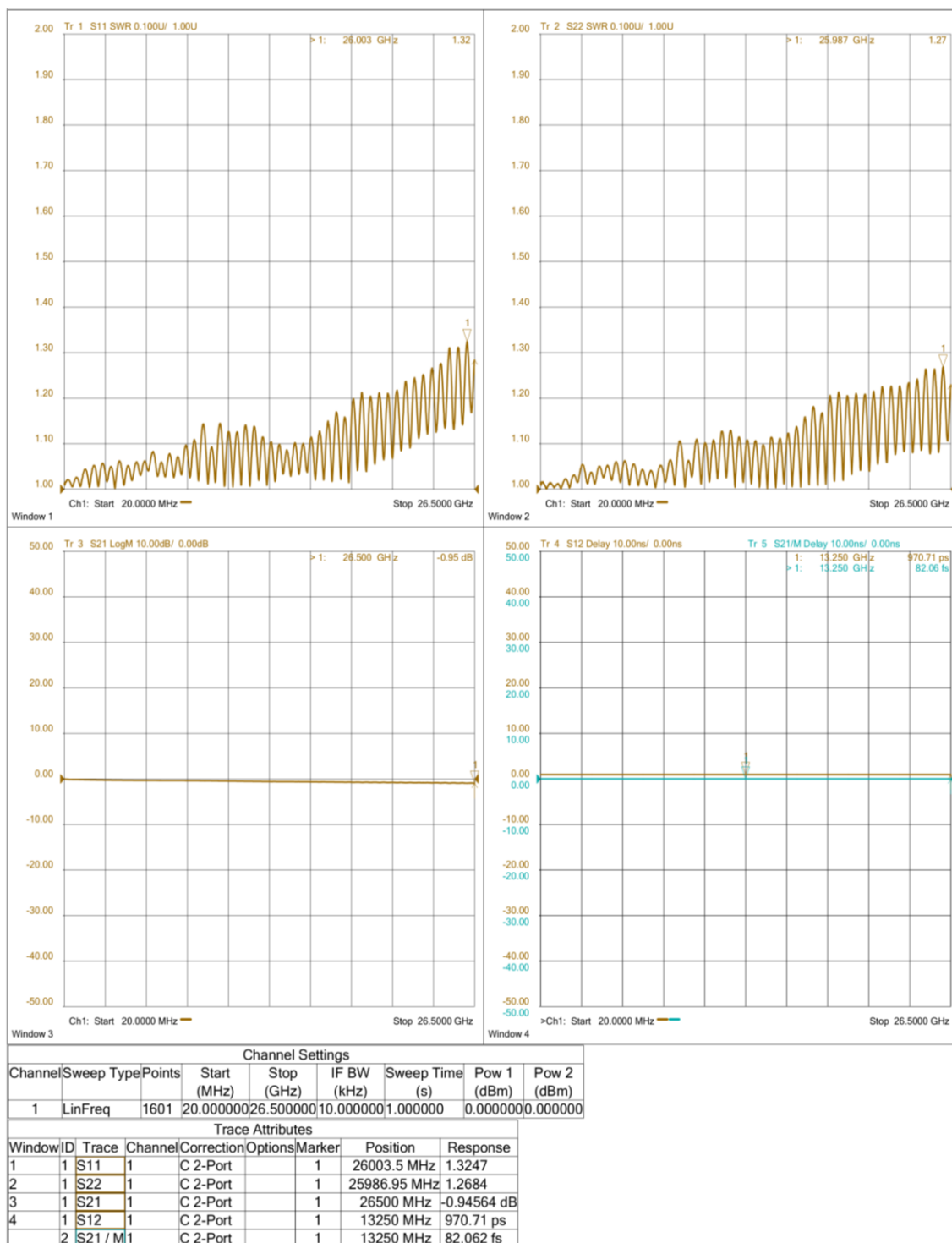
Channel Settings

Channel	Sweep	Type	Points	Start (MHz)	Stop (GHz)	IF BW (kHz)	Sweep Time (s)	Pow 1 (dBm)	Pow 2 (dBm)
1	Lin	Freq	1601	20.000000	20.000000	10.000000	1.000000	0.000000	0.000000

Trace Attributes

Window	ID	Trace	Channel	Correction	Options	Marker	Position	Response
1	1	S11	1	C	2-Port	1	20000 MHz	1.2361
2	1	S22	1	C	2-Port	1	20000 MHz	1.1741
3	1	S21	1	C	2-Port	1	20000 MHz	-3.1245 dB
4	1	S12	1	C	2-Port	1	10000 MHz	4.5019 ns
	2	S21 / M1	1	C	2-Port	1	10000 MHz	-213.43 fs

PART NUMBER	DESCRIPTION
290480.LL406P1.20(1)	SMA Female To SMP Female, DC-26.5GHz LL406 Cable, Phase Match<±2ps/L:20cm



PART NUMBER	DESCRIPTION
290480.LL406P1.20(2)	SMA Female To SMP Female, DC-26.5GHz LL406 Cable, Phase Match<±2ps/L:20cm

2.00

Tr 1 S11 SWR 0.100U/ 1.00U

> 1: 22.710 GHz

1.23

Ch1: Start 20.0000 MHz

Stop 26.5000 GHz

Window 1

2.00

Tr 2 S22 SWR 0.100U/ 1.00U

> 1: 22.727 GHz

1.22

Ch1: Start 20.0000 MHz

Stop 26.5000 GHz

Window 2

50.00

Tr 3 S21 LogM 10.00dB/ 0.00dB

> 1: 26.334 GHz

-0.89 dB

Ch1: Start 20.0000 MHz

Stop 26.5000 GHz

Window 3

50.00

Tr 4 S12 Delay 10.00ns/ 0.00ns

Tr 5 S21/M Delay 10.00ns/ 0.00ns

1: 13.250 GHz 971.12 ps

> 1: 13.250 GHz 342.95 fs

>Ch1: Start 20.0000 MHz

Stop 26.5000 GHz

Window 4

Channel Settings								
Channel	Sweep Type	Points	Start (MHz)	Stop (GHz)	IF BW (kHz)	Sweep Time (s)	Pow 1 (dBm)	Pow 2 (dBm)
1	LinFreq	1601	20.000000	26.500000	10.000000	1.000000	0.000000	0.000000

Trace Attributes								
Window	ID	Trace	Channel	Correction	Options	Marker	Position	Response
1	1	S11	1	C 2-Port		1	22710.05 MHz	1.2342
2	1	S22	1	C 2-Port		1	22726.6 MHz	1.2193
3	1	S21	1	C 2-Port		1	26334.5 MHz	-0.89423 dB
4	1	S12	1	C 2-Port		1	13250 MHz	971.12 ps
2	2	S21 / M1	1	C 2-Port		1	13250 MHz	342.95 fs

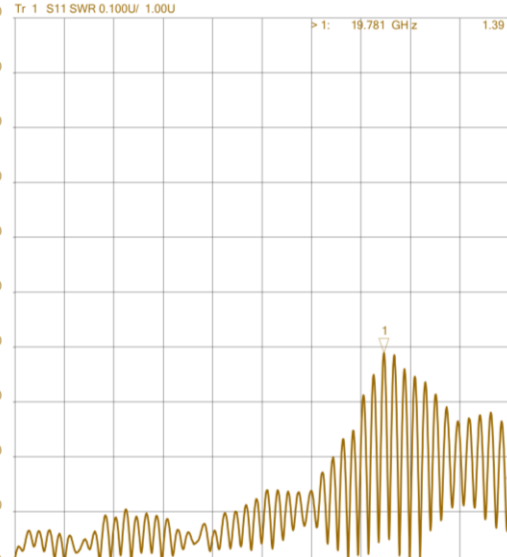
PART NUMBER	DESCRIPTION
290482.LL406P1.20(1)	SMA Female To SMP Female R/A, DC-26.5GHz LL406 Cable, Phase Match<±2ps/L:20cm

2.00

Tr 1 S11 SWR 0.100U/ 1.00U

> 1: 19.781 GHz

1.39



Ch1: Start 20.0000 MHz

Stop 26.5000 GHz

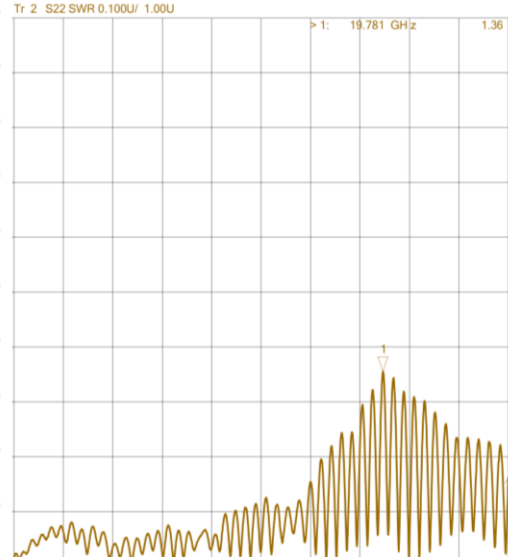
Window 1

2.00

Tr 2 S22 SWR 0.100U/ 1.00U

> 1: 19.781 GHz

1.36



Ch1: Start 20.0000 MHz

Stop 26.5000 GHz

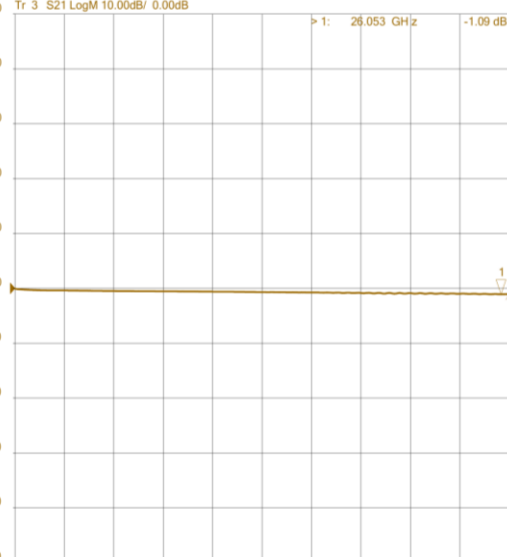
Window 2

50.00

Tr 3 S21 LogM 10.00dB/ 0.00dB

> 1: 26.053 GHz

-1.09 dB



Ch1: Start 20.0000 MHz

Stop 26.5000 GHz

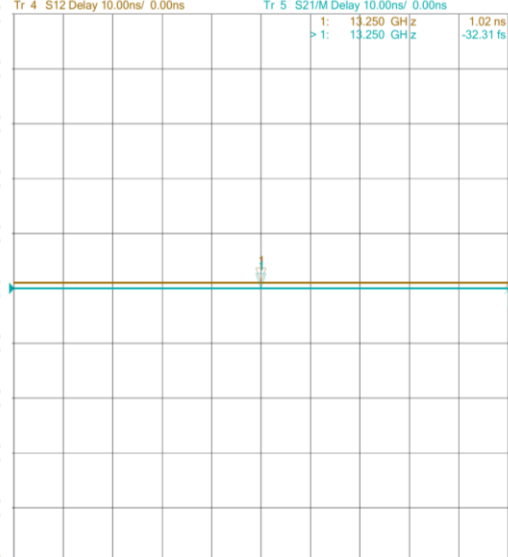
Window 3

50.00

Tr 4 S12 Delay 10.00ns/ 0.00ns

> 1: 13.250 GHz

1.02 ns



>Ch1: Start 20.0000 MHz

Stop 26.5000 GHz

Window 4

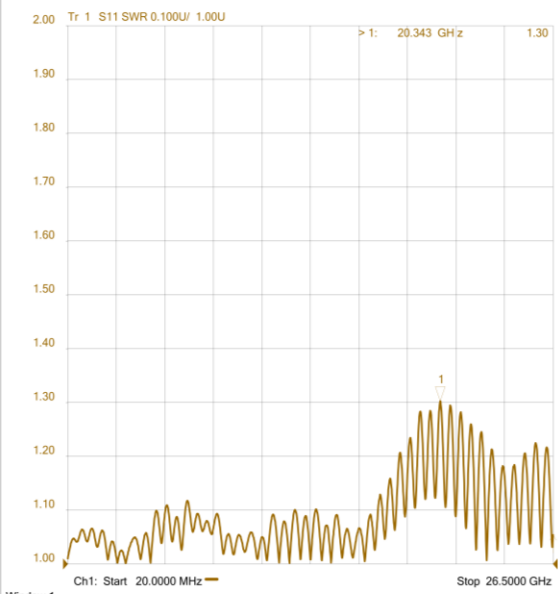
Channel Settings								
Channel	Sweep Type	Points	Start (MHz)	Stop (GHz)	IF BW (kHz)	Sweep Time (s)	Pow 1 (dBm)	Pow 2 (dBm)
1	LinFreq	1601	20.000000	26.500000	10.000000	1.000000	0.000000	0.000000

Trace Attributes								
Window	ID	Trace	Channel	Correction	Options	Marker	Position	Response
1	1	S11	1	C 2-Port		1	19780.7 MHz	1.3890
2	1	S22	1	C 2-Port		1	19780.7 MHz	1.3553
3	1	S21	1	C 2-Port		1	26053.15 MHz	-1.0886 dB
4	1	S12	1	C 2-Port		1	13250 MHz	1.0163 ns
2	2	S21 / M1	1	C 2-Port		1	13250 MHz	107.15 fs

PART NUMBER	DESCRIPTION
290482.LL406P1.20(2)	SMA Female To SMP Female R/A, DC-26.5GHz LL406 Cable, Phase Match<±2ps/L:20cm

Tr 1 S11 SWR 0.100U/ 1.00U

> 1: 20.343 GHz 1.30

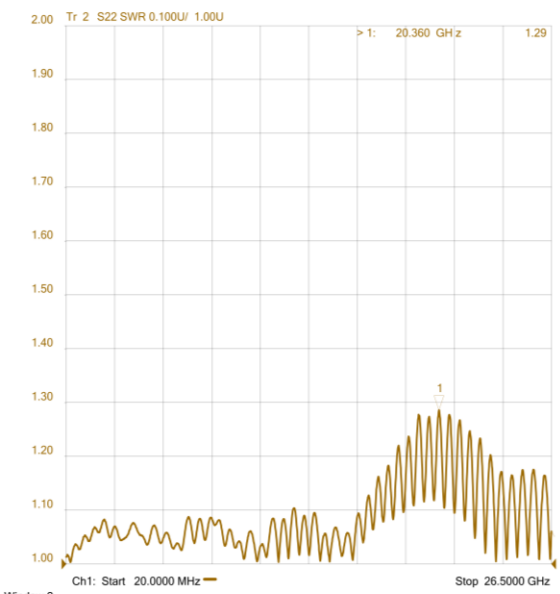


Ch1: Start 20.0000 MHz Stop 26.5000 GHz

Window 1

Tr 2 S22 SWR 0.100U/ 1.00U

> 1: 20.360 GHz 1.29

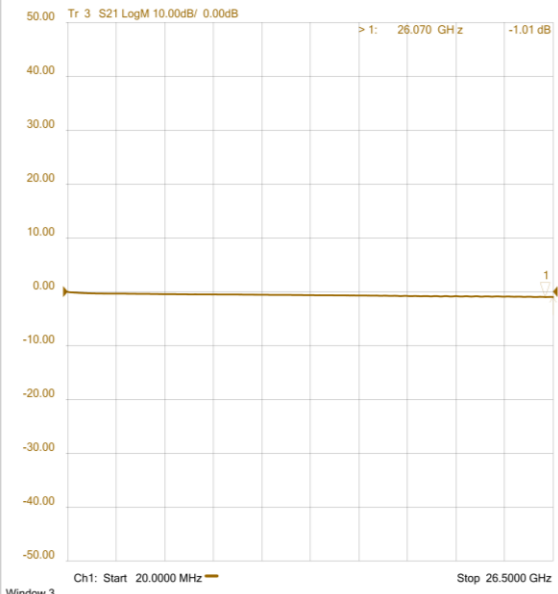


Ch1: Start 20.0000 MHz Stop 26.5000 GHz

Window 2

Tr 3 S21 LogM 10.00dB/ 0.00dB

> 1: 26.070 GHz -1.01 dB



Ch1: Start 20.0000 MHz Stop 26.5000 GHz

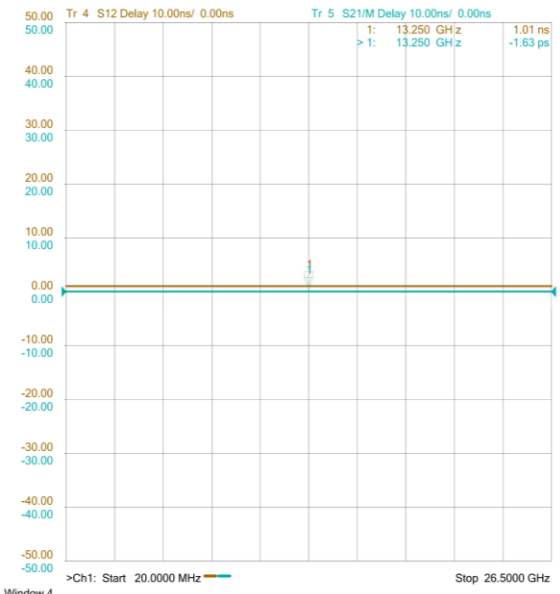
Window 3

Tr 4 S12 Delay 10.00ns/ 0.00ns

Tr 5 S21/M Delay 10.00ns/ 0.00ns

> 1: 13.250 GHz 1.01 ns

> 1: 13.250 GHz -1.63 ps



>Ch1: Start 20.0000 MHz Stop 26.5000 GHz

Window 4

Channel Settings							
Channel	Sweep	Type	Points	Start (MHz)	Stop (GHz)	IF BW (kHz)	Sweep Time (s)
1	Lin	Freq	1601	20.000000	26.500000	10.000000	1.000000

Trace Attributes							
Window	ID	Trace	Channel	Correction	Options	Marker	Position
1	1	S11	1	C	2-Port	1	20343.4 MHz
2	1	S22	1	C	2-Port	1	20359.95 MHz
3	1	S21	1	C	2-Port	1	26102.8 MHz
4	1	S12	1	C	2-Port	1	13250 MHz
2	2	S21 / M	1	C	2-Port	1	13250 MHz

PART NUMBER	DESCRIPTION
482482.LL406P1.40(1)	SMP Female R/A To SMP Female R/A, DC-26.5GHz LL406 Cable, Phase Match<±2ps/L:40cm

2.00

Tr 1 S11 SWR 0.100U/ 1.00U

> 1: 18.771 GHz

1.18

1.90

1.80

1.70

1.60

1.50

1.40

1.30

1.20

1.10

1.00

Ch1: Start 20.0000 MHz

Stop 26.5000 GHz

Window 1

2.00

Tr 2 S22 SWR 0.100U/ 1.00U

> 1: 18.771 GHz

1.22

1.90

1.80

1.70

1.60

1.50

1.40

1.30

1.20

1.10

1.00

Ch1: Start 20.0000 MHz

Stop 26.5000 GHz

Window 2

25.00

Tr 3 S12 LogM 5.000dB/ 0.00dB

> 1: 26.500 GHz

-1.89 dB

20.00

15.00

10.00

5.00

0.00

-5.00

-10.00

-15.00

-20.00

-25.00

Ch1: Start 20.0000 MHz

Stop 26.5000 GHz

Window 3

50.00

Tr 4 S21 Delay 10.00ns/ 0.00ns

Tr 5 S12/M Delay 10.00ns/ 0.00ns

> 1: 13.250 GHz

2.02 ns

40.00

30.00

20.00

10.00

0.00

-10.00

-20.00

-30.00

-40.00

-50.00

-Ch1: Start 20.0000 MHz

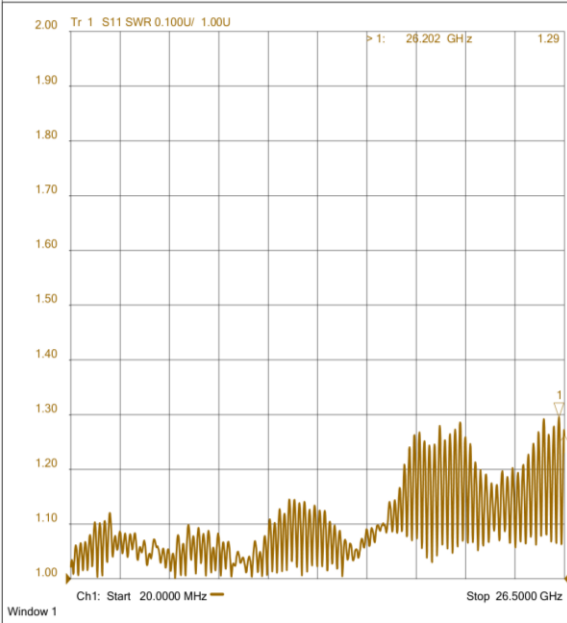
Stop 26.5000 GHz

Window 4

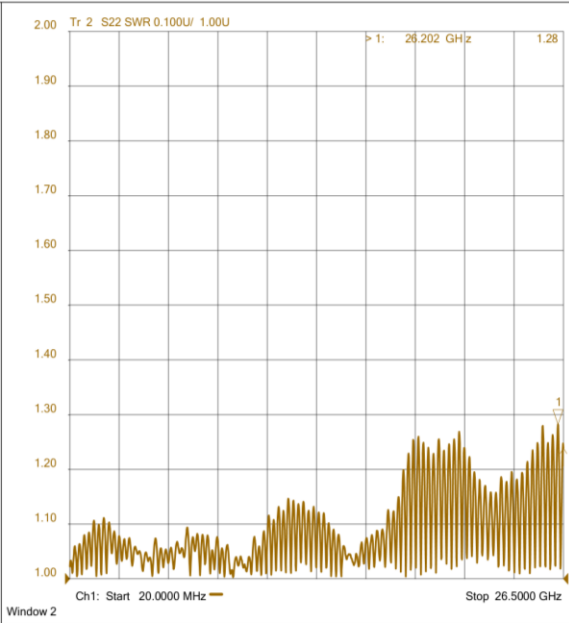
Channel Settings								
Channel	Sweep Type	Points	Start (MHz)	Stop (GHz)	IF BW (kHz)	Sweep Time (s)	Pow 1 (dBm)	Pow 2 (dBm)
1	LinFreq	1601	20.000000	26.500000	10.000000	1.000000	0.000000	0.000000

Trace Attributes								
Window	ID	Trace	Channel	Correction	Options	Marker	Position	Response
1	1	S11	1	C 2-Port		1	18771.15 MHz	1.1768
2	1	S22	1	C 2-Port		1	18771.15 MHz	1.2217
3	1	S12	1	C 2-Port		1	26500 MHz	-1.8893 dB
4	1	S21	1	C 2-Port		1	13250 MHz	2.0212 ns
	2	S12 / M1	1	C 2-Port		1	13250 MHz	-420.75 fs

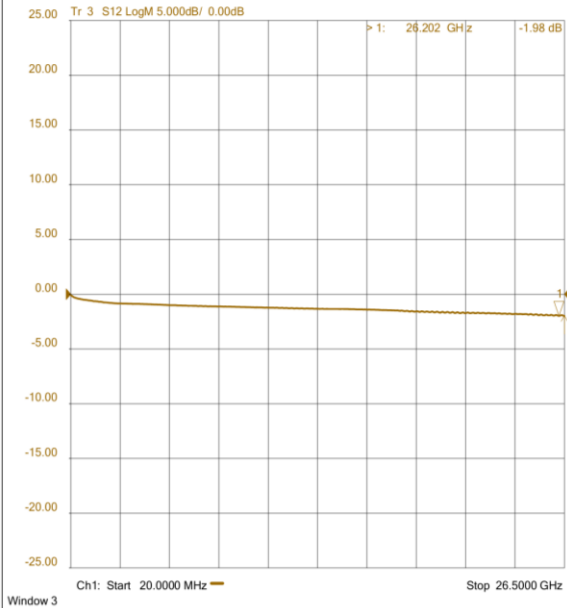
PART NUMBER	DESCRIPTION
482482.LL406P1.40(2)	SMP Female R/A To SMP Female R/A, DC-26.5GHz LL406 Cable, Phase Match<±2ps/L:40cm



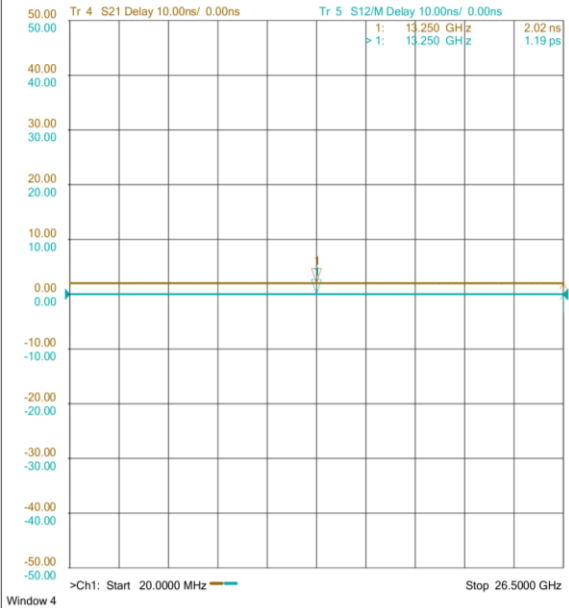
Window 1



Window 2



Window 3



Window 4

Channel Settings									
Channel	Sweep Type	Points	Start (MHz)	Stop (GHz)	IF BW (kHz)	Sweep Time (s)	Pow 1 (dBm)	Pow 2 (dBm)	
1	LinFreq	1601	20.000000	26.500000	10.000000	1.000000	0.000000	0.000000	

Trace Attributes							
Window	ID	Trace	Channel	Correction	Options	Marker	Response
1	1	S11	1	C 2-Port		1	26202.1 MHz 1.2947
2	1	S22	1	C 2-Port		1	26202.1 MHz 1.2821
3	1	S12	1	C 2-Port		1	26202.1 MHz -1.9816 dB
4	1	S21	1	C 2-Port		1	13250 MHz 2.0227 ns
2	2	S12 / M1	1	C 2-Port		1	13250 MHz 1.1949 ps

PART NUMBER	DESCRIPTION
480480.LL406P1.30	SMP Female To SMP Female, DC-20GHz LL406Cable/L:30cm

