PicoVNA 108

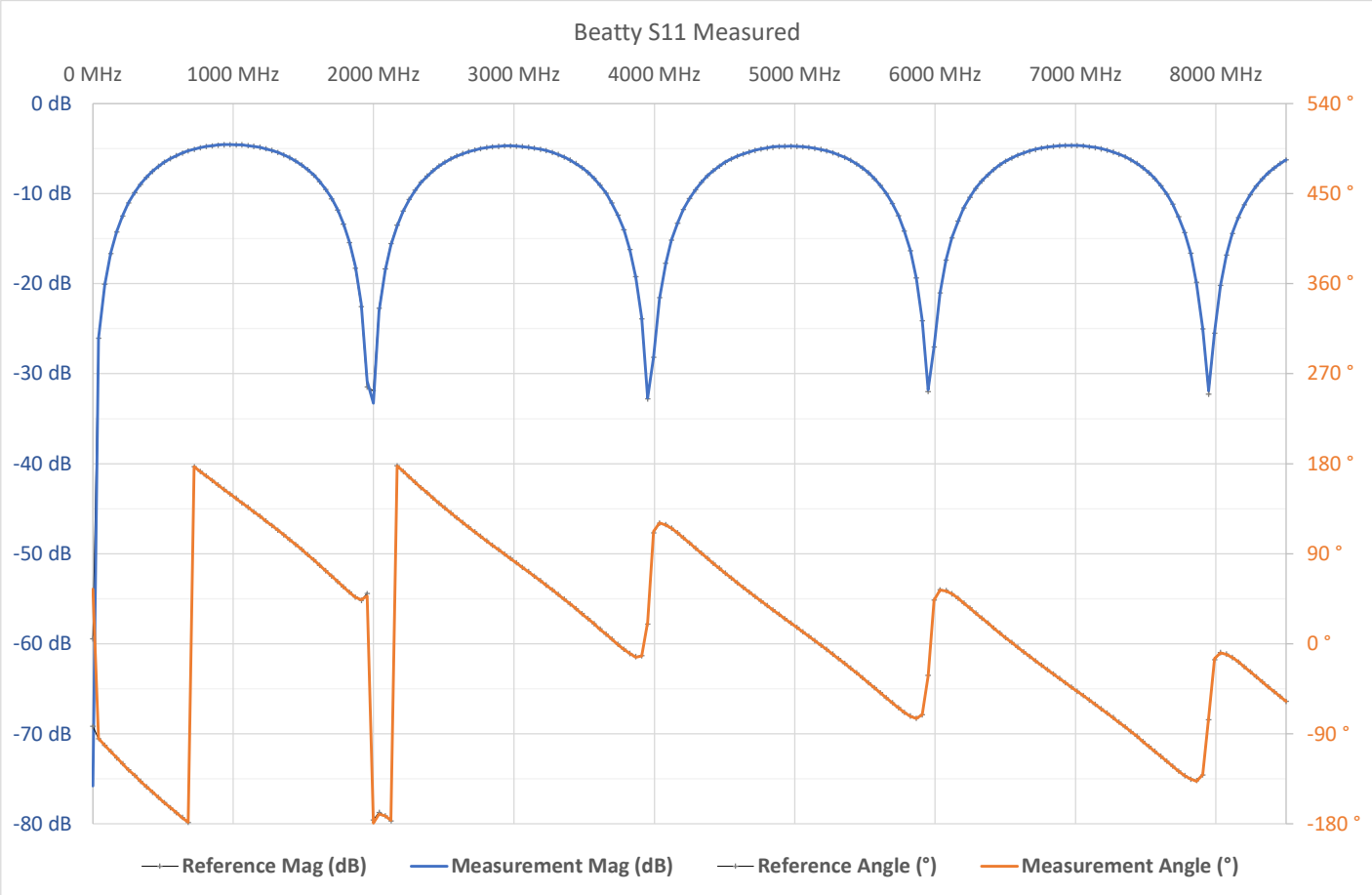
8.5 GHz Vector Network Analyser

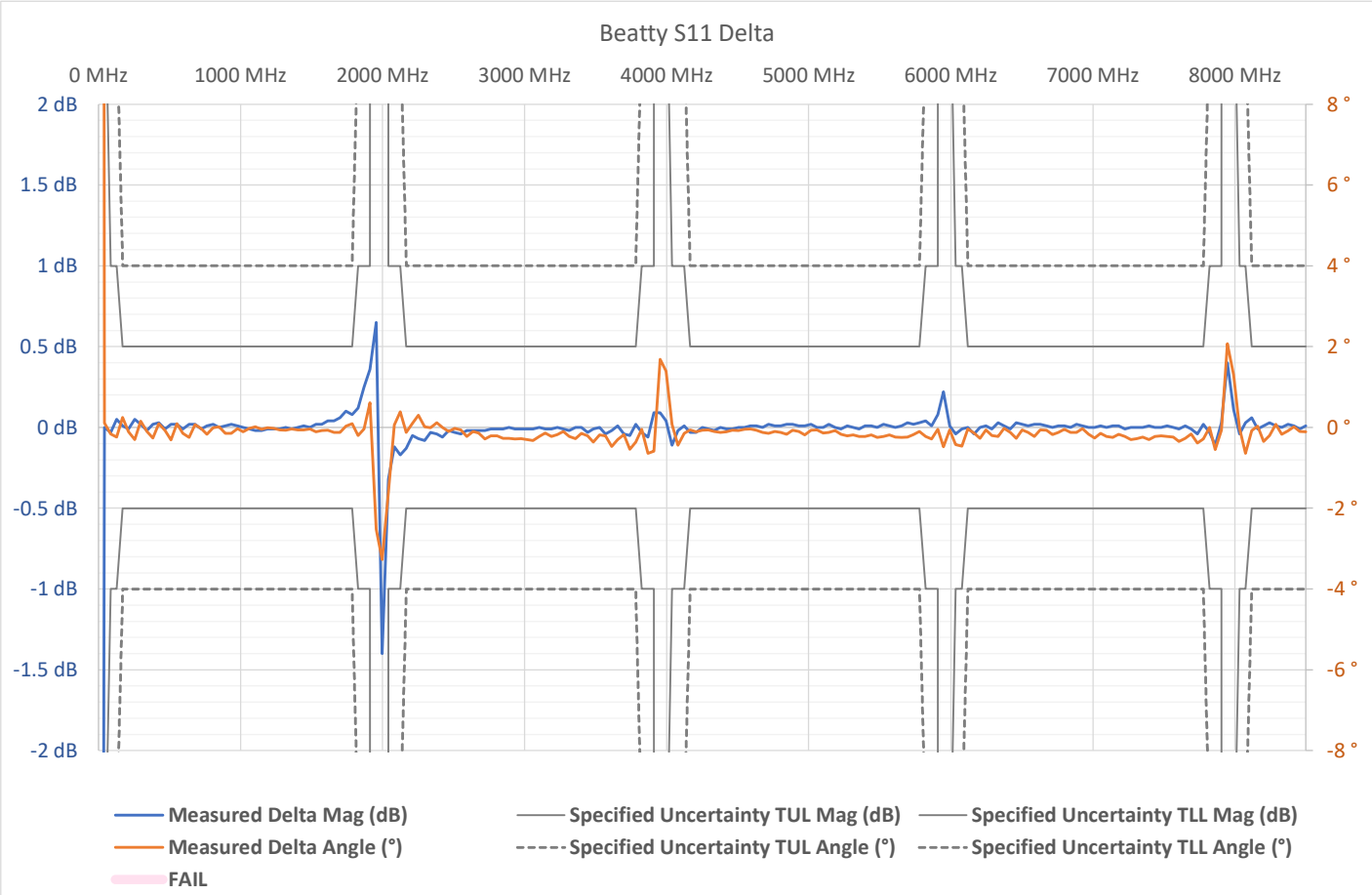
Performance Test Record

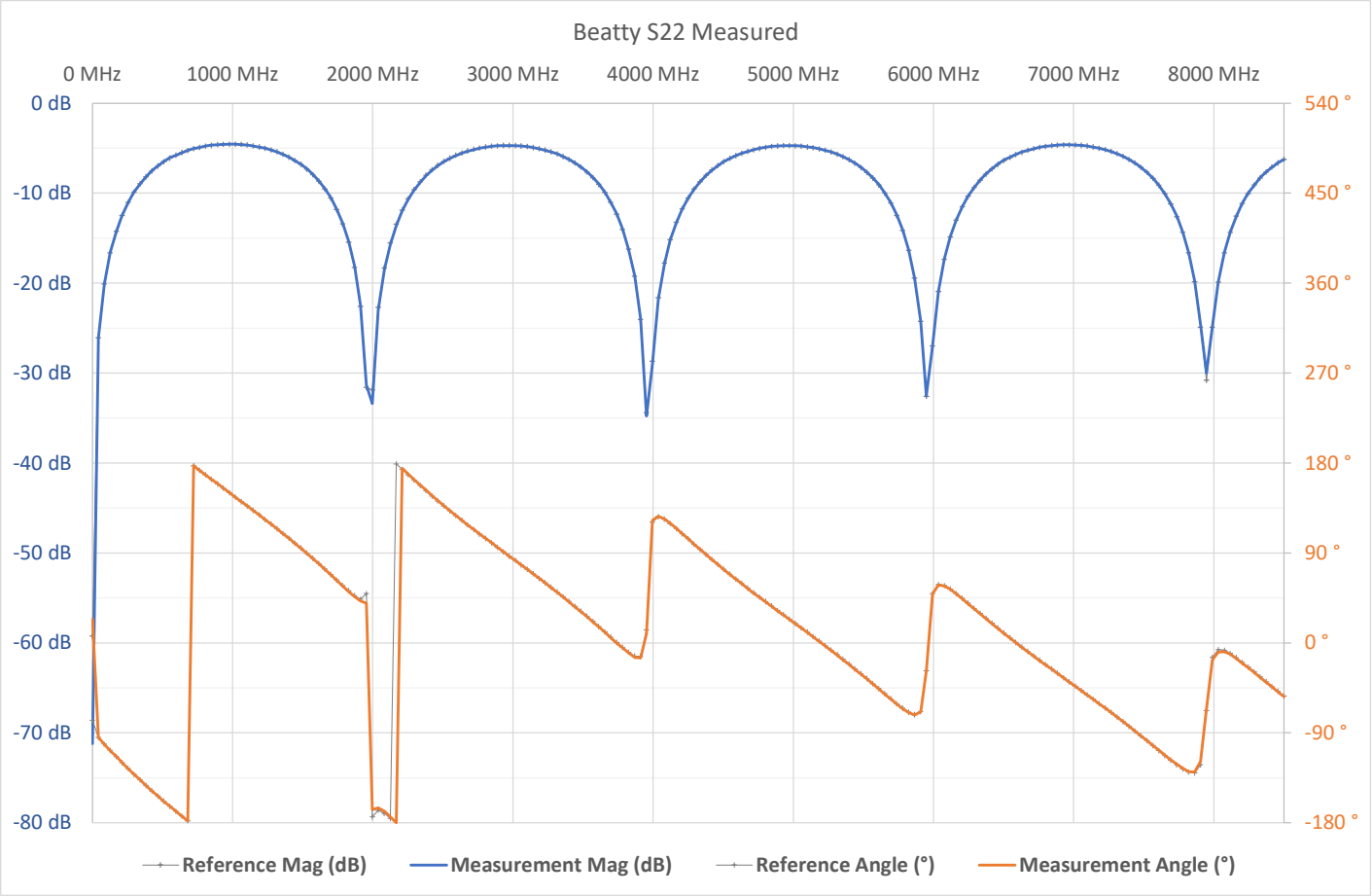
Instrument Model Number:	**108**
Description:	**8.5 GHz Vector Network Analyser**
Batch Number:	**PILOT**
Serial Number:	**09290**
Date of Calibration:	**03 Jul 2020**
As Found / As Left / New Unit:	**New Unit**
Test Record Reference:	**PILOT_09290_44015**
Ambient Temperature:	**23.0 °C**
Performed by:	**NN**
This Test Record supports Certificate No:	**SAMPLE**
Certificate issued for end Customer name:	**Release Sign-off**
Market (re)installation date:	**17 Aug 2020**

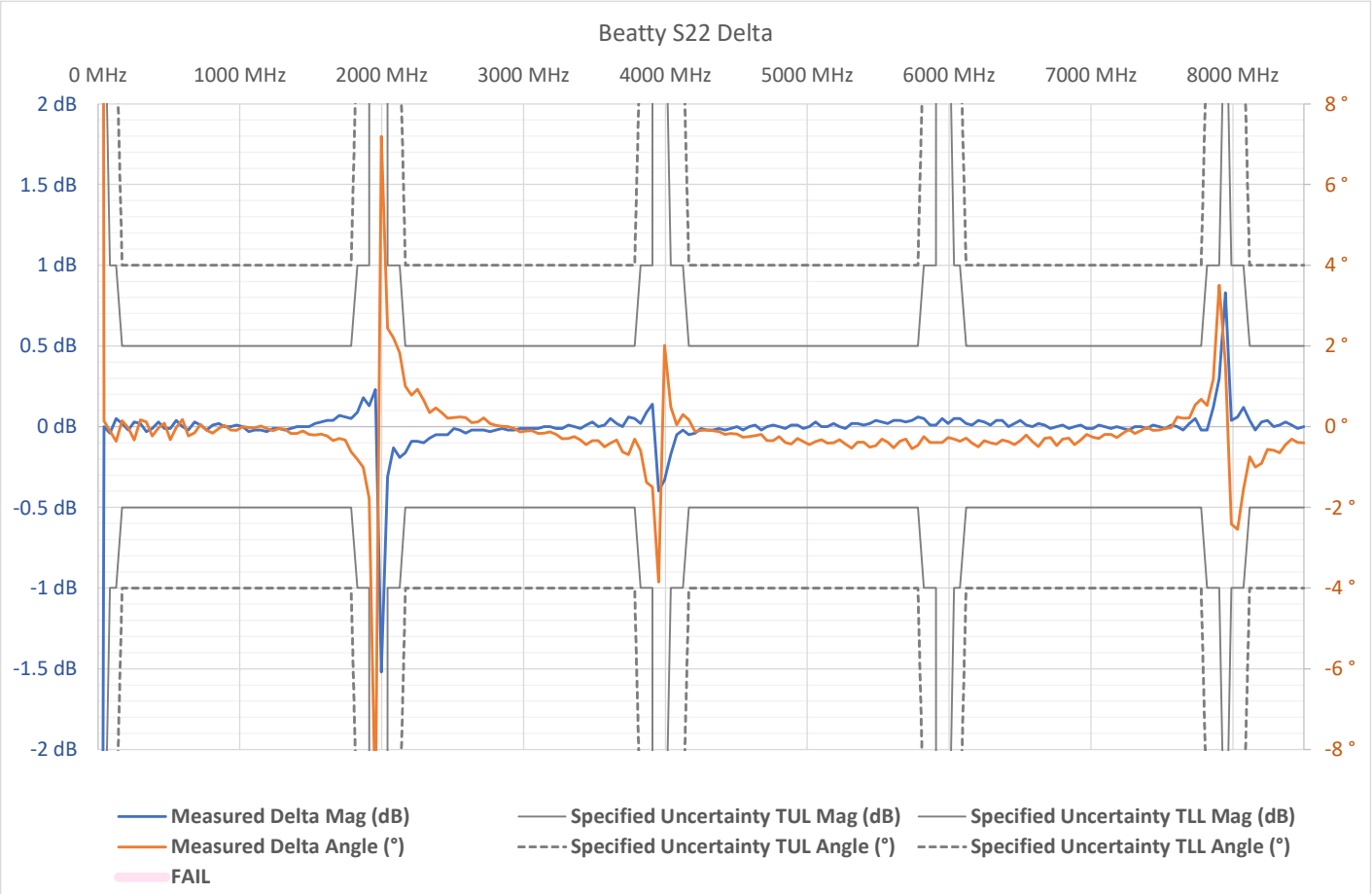
Calibration Standards	**Manufacturer**	**Model No.**	**Serial No.**	**Cal due date**
Vector Network Analyser	**Rohde & Schwarz**	**ZNB40**	**101419**	**26 Nov 2020**
Calibration Kit	**Agilent**	**85052C**	**3101A00890**	**02 Dec 2021**
USB Power Sensor	**Agilent**	**U8481A**	**MY53040022**	**08 Jan 2021**
Spectrum Analyser	**Agilent**	**HP4407B**	**US399440798**	**11 Jan 2021**
DMM	**Agilent**	**HP34401A**	**MY47046197**	**11 Mar 2021**
Stepped Line	**Rosenberger**	**02S1A2-K100**	**91804**	**18 Nov 2020**
Amplifier	**Mini-Circuits**	**ZFL-100N**	**D053196**	**16 Oct 2020**

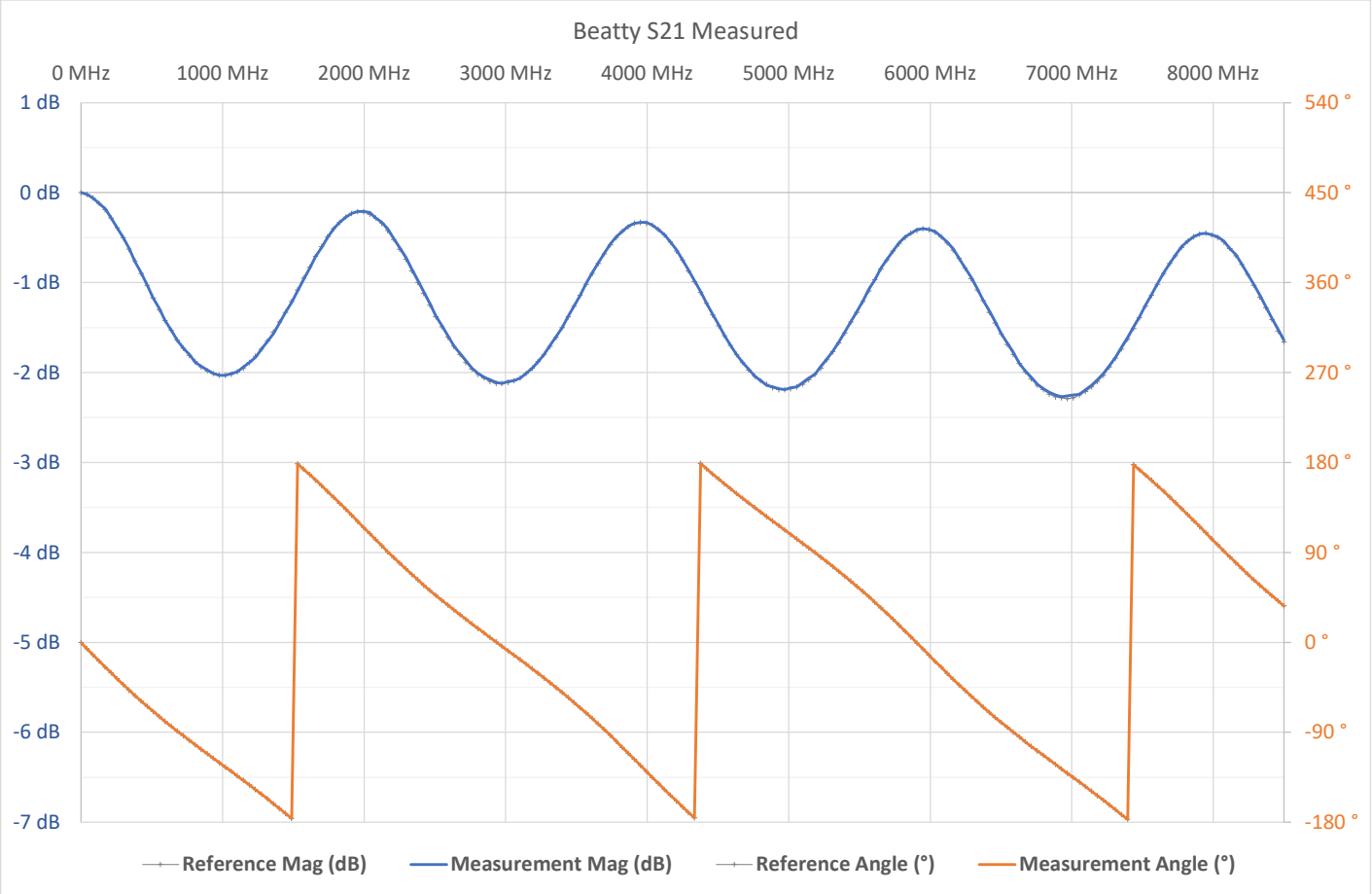
Functional Test	**Purpose**	**Minimum**	**Actual**	**Maximum**	**Performance Results**
	FUNCTIONAL TESTS				
Supply current @ 15 V	Check supply current within limits	1500 mA	1572 mA	1650 mA	PASS
Fan Operation	Test fan connected and correct operation	1 (true)	1	1 (true)	PASS
RAM Test	Test RAM functional	-	0 Errs	0 Errs	PASS
10 MHz Ref Freq and Lock	Check frequency and lock	-10 Hz	-3 Hz	10 Hz	PASS
10 MHz Output Level	Check connection and level	-2 dBm	2.52 dBm	3 dBm	PASS
Trigger In Operation	Check connection is present	1 (true)	1	1 (true)	PASS
Trigger Out Level	Check connection and level	3 V	3.266 V	4 V	PASS
Port1 Bias-T connectivity	Check connection is present	1 (true)	1	1 (true)	PASS
Port2 Bias-T connectivity	Check connection is present	1 (true)	1	1 (true)	PASS
VCO adjust file	Store VCO adjust file to EEPROM	1 (true)	1	1 (true)	PASS
Port1 level minimum (> 4 GHz)	Check minimum power above 4 GHz	7 dBm	8.69 dBm	-	PASS
Average RX noise floor @ 1 kHz	Check receiver noise floor	-	-105.62 dB	-98 dB	PASS
Adjust RX sensitivity	Store gain adjust file to EEPROM	1 (true)	1	1 (true)	PASS
P1dB performance	Tests P1dB performance against standard	6.2 dBm	6.91 dBm	7.2 dBm	PASS
12 term calibration	Confirm unit meets accuracy and dynamic range spec	1 (true)	1	1 (true)	PASS
Unknown thru calibration	Unknown through Cal and store to EEPROM	1 (true)	1	1 (true)	PASS
Beatty line comparison (see plots and table below)	Compare reference Beatty line s-params with traceable result set (4x 201 pts).	804 Passes	804 Passes	804 Passes	PASS
Unit ID	Store Unit information to EEPROM	1 (true)	1	1 (true)	PASS
Stds had valid calibration	Cal standards due dates are all valid at the calibration date.	1 (true)	1	1 (true)	PASS
Market install date valid	Market install date no later than 6 months after calibration date.	1 (true)	1	1 (true)	PASS

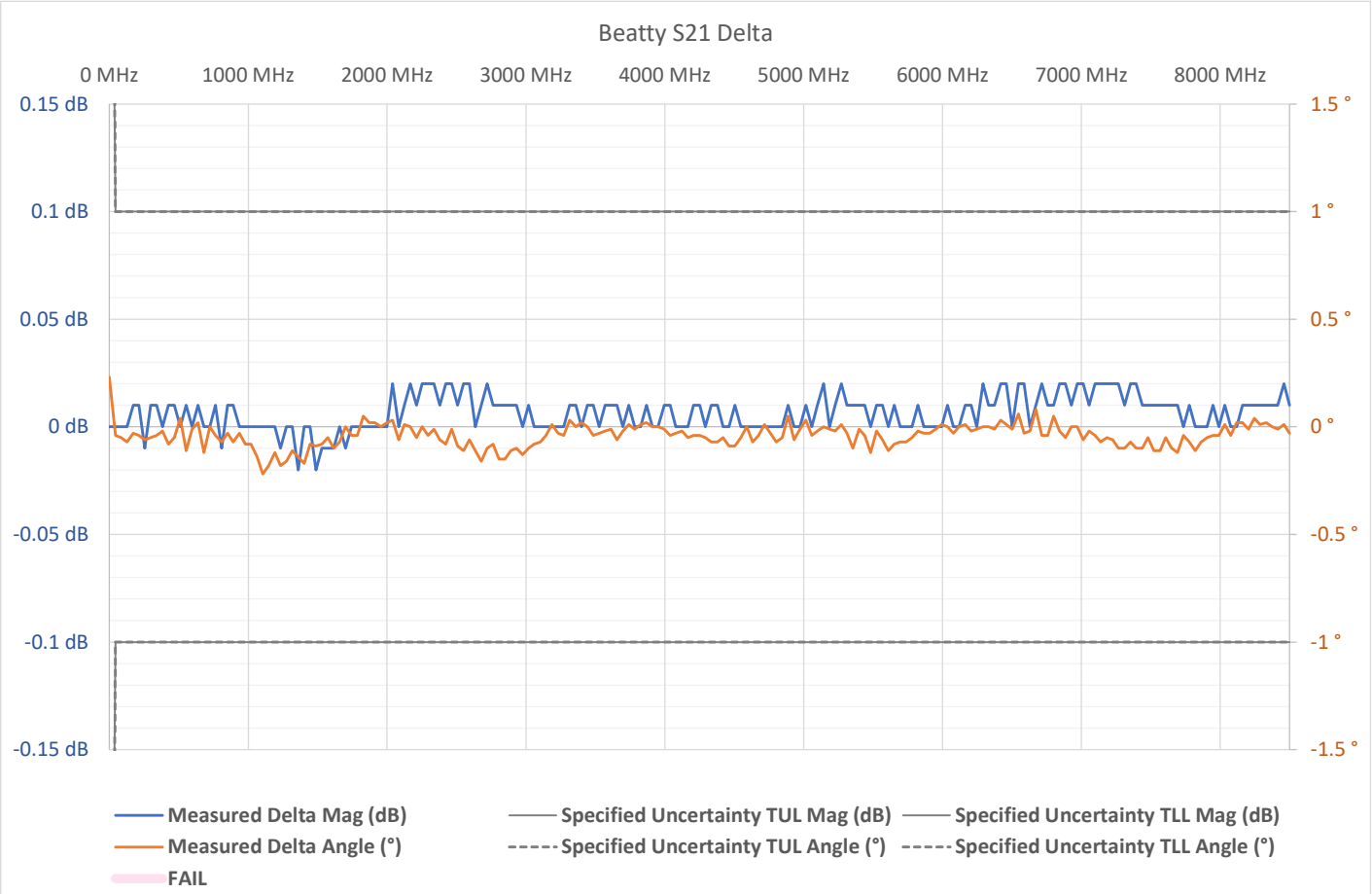

Beatty S11 Measured
0 MHz
1000 MHz
2000 MHz
3000 MHz
4000 MHz
5000 MHz
6000 MHz
7000 MHz
8000 MHz
0 dB
-10 dB
-20 dB
-30 dB
-40 dB
-50 dB
-60 dB
-70 dB
-80 dB
540 °
450 °
360 °
270 °
180 °
90 °
0 °
-90 °
-180 °
Reference Mag (dB)
Measurement Mag (dB)
Reference Angle (°)
Measurement Angle (°)

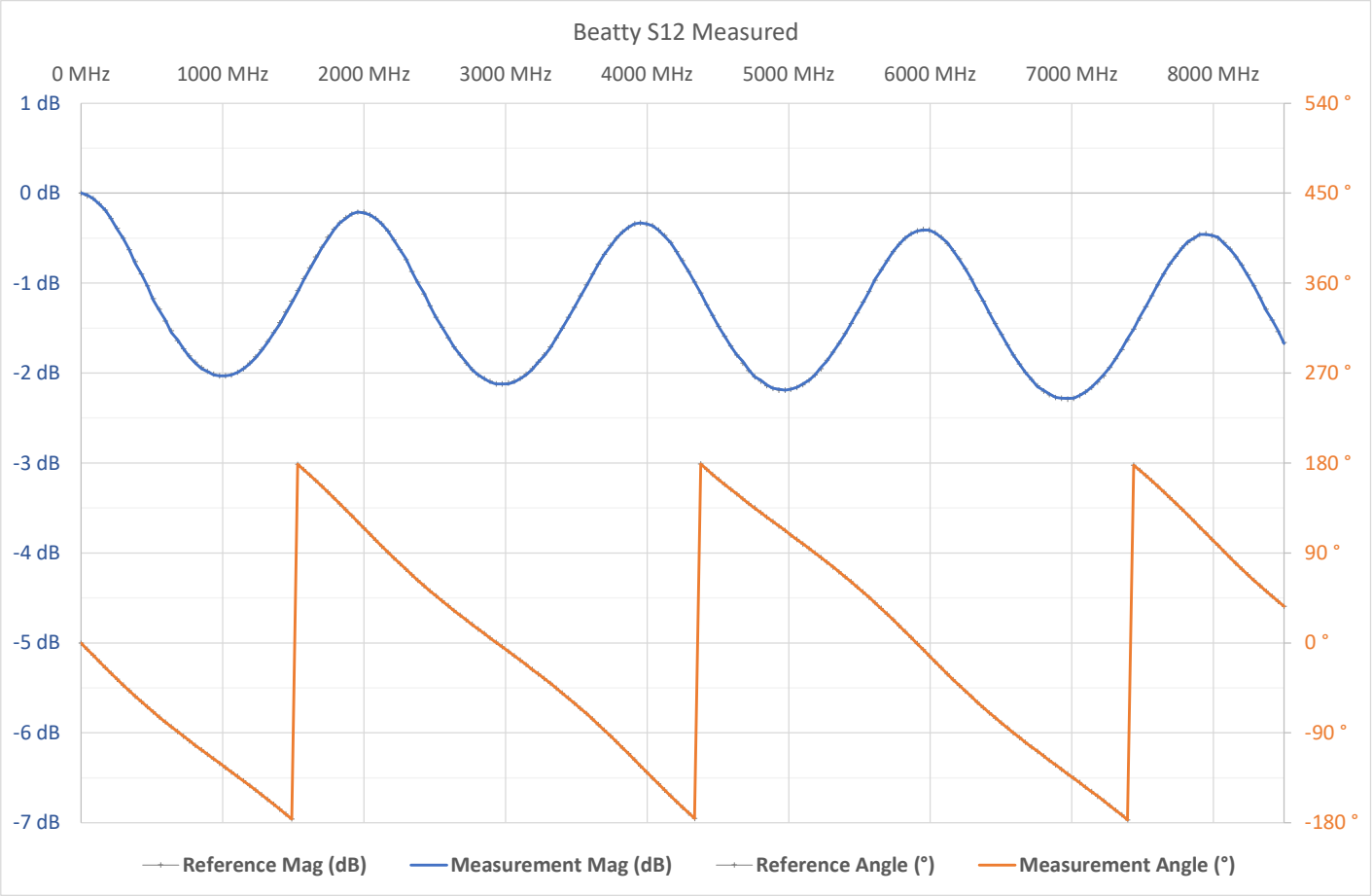

Beatty S11 Delta
0 MHz
1000 MHz
2000 MHz
3000 MHz
4000 MHz
5000 MHz
6000 MHz
7000 MHz
8000 MHz
2 dB
1.5 dB
1 dB
0.5 dB
0 dB
-0.5 dB
-1 dB
-1.5 dB
-2 dB
8 °
6 °
4 °
2 °
0 °
-2 °
-4 °
-6 °
-8 °
Measured Delta Mag (dB)
Specified Uncertainty TUL Mag (dB)
Specified Uncertainty TLL Mag (dB)
Measured Delta Angle (°)
Specified Uncertainty TUL Angle (°)
Specified Uncertainty TLL Angle (°)
FAIL

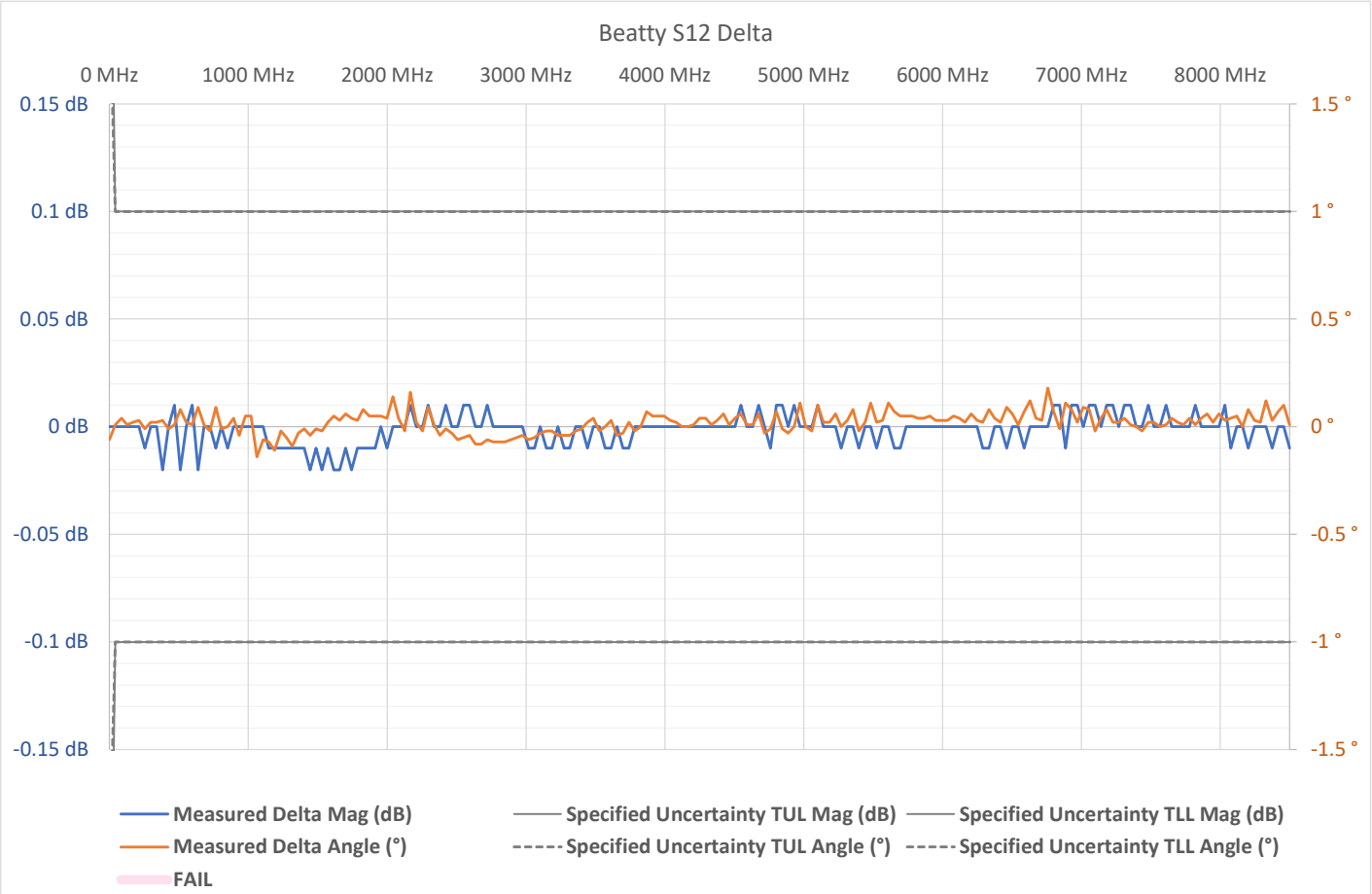

Beatty S22 Measured
0 MHz
1000 MHz
2000 MHz
3000 MHz
4000 MHz
5000 MHz
6000 MHz
7000 MHz
8000 MHz
0 dB
-10 dB
-20 dB
-30 dB
-40 dB
-50 dB
-60 dB
-70 dB
-80 dB
540 °
450 °
360 °
270 °
180 °
90 °
0 °
-90 °
-180 °
Reference Mag (dB)
Measurement Mag (dB)
Reference Angle (°)
Measurement Angle (°)


Beatty S22 Delta
0 MHz
1000 MHz
2000 MHz
3000 MHz
4000 MHz
5000 MHz
6000 MHz
7000 MHz
8000 MHz
2 dB
1.5 dB
1 dB
0.5 dB
0 dB
-0.5 dB
-1 dB
-1.5 dB
-2 dB
8 °
6 °
4 °
2 °
0 °
-2 °
-4 °
-6 °
-8 °
Measured Delta Mag (dB)
Measured Delta Angle (°)
FAIL
Specified Uncertainty TUL Mag (dB)
Specified Uncertainty TUL Angle (°)
Specified Uncertainty TLL Mag (dB)
Specified Uncertainty TLL Angle (°)


Beatty S21 Measured
0 MHz
1000 MHz
2000 MHz
3000 MHz
4000 MHz
5000 MHz
6000 MHz
7000 MHz
8000 MHz
1 dB
0 dB
-1 dB
-2 dB
-3 dB
-4 dB
-5 dB
-6 dB
-7 dB
540 °
450 °
360 °
270 °
180 °
90 °
0 °
-90 °
-180 °
Reference Mag (dB)
Measurement Mag (dB)
Reference Angle (°)
Measurement Angle (°)


Beatty S21 Delta
0 MHz
1000 MHz
2000 MHz
3000 MHz
4000 MHz
5000 MHz
6000 MHz
7000 MHz
8000 MHz
0.15 dB
0.1 dB
0.05 dB
0 dB
-0.05 dB
-0.1 dB
-0.15 dB
1.5 °
1 °
0.5 °
0 °
-0.5 °
-1 °
-1.5 °
Measured Delta Mag (dB)
Specified Uncertainty TUL Mag (dB)
Specified Uncertainty TLL Mag (dB)
Measured Delta Angle (°)
Specified Uncertainty TUL Angle (°)
Specified Uncertainty TLL Angle (°)
FAIL


Beatty S12 Measured
0 MHz
1000 MHz
2000 MHz
3000 MHz
4000 MHz
5000 MHz
6000 MHz
7000 MHz
8000 MHz
1 dB
0 dB
-1 dB
-2 dB
-3 dB
-4 dB
-5 dB
-6 dB
-7 dB
540 °
450 °
360 °
270 °
180 °
90 °
0 °
-90 °
-180 °
Reference Mag (dB)
Measurement Mag (dB)
Reference Angle (°)
Measurement Angle (°)


Beatty S12 Delta
0 MHz
1000 MHz
2000 MHz
3000 MHz
4000 MHz
5000 MHz
6000 MHz
7000 MHz
8000 MHz
0.15 dB
0.1 dB
0.05 dB
0 dB
-0.05 dB
-0.1 dB
-0.15 dB
1.5 °
1 °
0.5 °
0 °
-0.5 °
-1 °
-1.5 °
Measured Delta Mag (dB)
Specified Uncertainty TUL Mag (dB)
Specified Uncertainty TLL Mag (dB)
Measured Delta Angle (°)
Specified Uncertainty TUL Angle (°)
Specified Uncertainty TLL Angle (°)
FAIL

Frequency	Measurement		Reference		Measured Delta		Specified Uncertainty TUL		Test
MHz	Mag (dB)	Angle (°)	Mag (dB)	Angle (°)	Mag (dB)	Angle (°)	Mag (dB)	Angle (°)	Verdict
S11 Tests									
0.3 MHz	-75.79 dB	54.46 °	-59.45 dB	-82.53 °	-16.33 dB	137 °	200 dB	360 °	Pass
42.8 MHz	-26.08 dB	-94.6 °	-26.08 dB	-94.71 °	0 dB	0.11 °	3 dB	20 °	Pass
85.3 MHz	-20.12 dB	-101.49 °	-20.08 dB	-101.33 °	-0.03 dB	-0.16 °	1 dB	10 °	Pass
127.8 MHz	-16.59 dB	-107.92 °	-16.64 dB	-107.68 °	0.05 dB	-0.24 °	1 dB	10 °	Pass
170.29 MHz	-14.25 dB	-113.62 °	-14.26 dB	-113.87 °	0.01 dB	0.25 °	0.5 dB	4 °	Pass
212.79 MHz	-12.48 dB	-119.97 °	-12.47 dB	-119.86 °	-0.01 dB	-0.11 °	0.5 dB	4 °	Pass
255.29 MHz	-11.01 dB	-126.07 °	-11.06 dB	-125.76 °	0.05 dB	-0.3 °	0.5 dB	4 °	Pass
297.79 MHz	-9.88 dB	-131.39 °	-9.91 dB	-131.54 °	0.02 dB	0.15 °	0.5 dB	4 °	Pass
340.29 MHz	-8.98 dB	-137.31 °	-8.97 dB	-137.21 °	-0.02 dB	-0.1 °	0.5 dB	4 °	Pass
382.79 MHz	-8.17 dB	-143.08 °	-8.19 dB	-142.82 °	0.02 dB	-0.26 °	0.5 dB	4 °	Pass
425.29 MHz	-7.5 dB	-148.17 °	-7.53 dB	-148.25 °	0.03 dB	0.09 °	0.5 dB	4 °	Pass
467.78 MHz	-6.99 dB	-153.6 °	-6.99 dB	-153.52 °	-0.01 dB	-0.08 °	0.5 dB	4 °	Pass
510.28 MHz	-6.5 dB	-159 °	-6.52 dB	-158.69 °	0.02 dB	-0.31 °	0.5 dB	4 °	Pass
552.78 MHz	-6.1 dB	-163.69 °	-6.12 dB	-163.77 °	0.02 dB	0.09 °	0.5 dB	4 °	Pass
595.28 MHz	-5.8 dB	-168.85 °	-5.79 dB	-168.7 °	-0.01 dB	-0.15 °	0.5 dB	4 °	Pass
637.78 MHz	-5.49 dB	-173.83 °	-5.51 dB	-173.58 °	0.02 dB	-0.25 °	0.5 dB	4 °	Pass
680.28 MHz	-5.25 dB	-178.3 °	-5.27 dB	-178.37 °	0.02 dB	0.07 °	0.5 dB	4 °	Pass
722.77 MHz	-5.09 dB	176.92 °	-5.08 dB	176.96 °	-0.01 dB	-0.03 °	0.5 dB	4 °	Pass
765.27 MHz	-4.91 dB	172.17 °	-4.92 dB	172.34 °	0.01 dB	-0.17 °	0.5 dB	4 °	Pass
807.77 MHz	-4.77 dB	167.76 °	-4.79 dB	167.77 °	0.02 dB	-0.01 °	0.5 dB	4 °	Pass
850.27 MHz	-4.7 dB	163.28 °	-4.7 dB	163.26 °	0 dB	0.02 °	0.5 dB	4 °	Pass
892.77 MHz	-4.62 dB	158.62 °	-4.63 dB	158.77 °	0.01 dB	-0.15 °	0.5 dB	4 °	Pass
935.27 MHz	-4.57 dB	154.17 °	-4.59 dB	154.32 °	0.02 dB	-0.15 °	0.5 dB	4 °	Pass
977.77 MHz	-4.56 dB	149.85 °	-4.57 dB	149.88 °	0.01 dB	-0.03 °	0.5 dB	4 °	Pass
1020.26 MHz	-4.58 dB	145.32 °	-4.58 dB	145.43 °	0 dB	-0.11 °	0.5 dB	4 °	Pass
1062.76 MHz	-4.6 dB	140.89 °	-4.59 dB	140.91 °	-0.01 dB	-0.02 °	0.5 dB	4 °	Pass
1105.26 MHz	-4.68 dB	136.48 °	-4.66 dB	136.48 °	-0.02 dB	0.01 °	0.5 dB	4 °	Pass
1147.76 MHz	-4.77 dB	131.92 °	-4.75 dB	131.97 °	-0.02 dB	-0.05 °	0.5 dB	4 °	Pass
1190.26 MHz	-4.88 dB	127.46 °	-4.87 dB	127.47 °	-0.01 dB	-0.01 °	0.5 dB	4 °	Pass
1232.76 MHz	-5.03 dB	122.92 °	-5.02 dB	122.94 °	-0.01 dB	-0.02 °	0.5 dB	4 °	Pass
1275.26 MHz	-5.22 dB	118.26 °	-5.21 dB	118.33 °	-0.01 dB	-0.06 °	0.5 dB	4 °	Pass
1317.75 MHz	-5.43 dB	113.61 °	-5.43 dB	113.68 °	0 dB	-0.07 °	0.5 dB	4 °	Pass
1360.25 MHz	-5.71 dB	108.89 °	-5.7 dB	108.93 °	-0.01 dB	-0.04 °	0.5 dB	4 °	Pass
1402.75 MHz	-6.02 dB	104.03 °	-6.02 dB	104.1 °	0 dB	-0.06 °	0.5 dB	4 °	Pass
1445.25 MHz	-6.38 dB	99.16 °	-6.39 dB	99.23 °	0.01 dB	-0.06 °	0.5 dB	4 °	Pass
1487.75 MHz	-6.83 dB	94.17 °	-6.83 dB	94.2 °	0 dB	-0.04 °	0.5 dB	4 °	Pass
1530.25 MHz	-7.32 dB	89.01 °	-7.34 dB	89.12 °	0.02 dB	-0.11 °	0.5 dB	4 °	Pass
1572.74 MHz	-7.93 dB	83.88 °	-7.95 dB	83.96 °	0.02 dB	-0.08 °	0.5 dB	4 °	Pass
1615.24 MHz	-8.64 dB	78.55 °	-8.68 dB	78.62 °	0.04 dB	-0.07 °	0.5 dB	4 °	Pass
1657.74 MHz	-9.5 dB	73.13 °	-9.53 dB	73.25 °	0.04 dB	-0.12 °	0.5 dB	4 °	Pass
1700.24 MHz	-10.51 dB	67.73 °	-10.57 dB	67.85 °	0.06 dB	-0.12 °	0.5 dB	4 °	Pass
1742.74 MHz	-11.74 dB	62.39 °	-11.84 dB	62.36 °	0.1 dB	0.03 °	0.5 dB	4 °	Pass
1785.24 MHz	-13.33 dB	56.98 °	-13.41 dB	56.89 °	0.08 dB	0.09 °	0.5 dB	4 °	Pass
1827.74 MHz	-15.35 dB	51.48 °	-15.46 dB	51.68 °	0.12 dB	-0.2 °	1 dB	10 °	Pass
1870.23 MHz	-18.02 dB	46.71 °	-18.27 dB	46.76 °	0.25 dB	-0.04 °	1 dB	10 °	Pass
1912.73 MHz	-22.21 dB	44.01 °	-22.56 dB	43.41 °	0.36 dB	0.61 °	1 dB	10 °	Pass
1955.23 MHz	-30.83 dB	47.64 °	-31.48 dB	50.16 °	0.65 dB	-2.52 °	200 dB	360 °	Pass
1997.73 MHz	-33.29 dB	-179.34 °	-31.89 dB	-176.07 °	-1.4 dB	-3.27 °	200 dB	360 °	Pass
2040.23 MHz	-23.06 dB	-170.22 °	-22.74 dB	-168.6 °	-0.32 dB	-1.61 °	1 dB	10 °	Pass
2082.73 MHz	-18.49 dB	-171.96 °	-18.37 dB	-172.02 °	-0.12 dB	0.06 °	1 dB	10 °	Pass
2125.23 MHz	-15.73 dB	-176.46 °	-15.56 dB	-176.85 °	-0.17 dB	0.39 °	1 dB	10 °	Pass
2167.72 MHz	-13.63 dB	177.68 °	-13.51 dB	177.81 °	-0.13 dB	-0.13 °	0.5 dB	4 °	Pass
2210.22 MHz	-11.97 dB	172.48 °	-11.92 dB	172.38 °	-0.05 dB	0.1 °	0.5 dB	4 °	Pass
2252.72 MHz	-10.73 dB	167.23 °	-10.66 dB	166.93 °	-0.07 dB	0.3 °	0.5 dB	4 °	Pass
2295.22 MHz	-9.7 dB	161.53 °	-9.62 dB	161.52 °	-0.08 dB	0.01 °	0.5 dB	4 °	Pass
2337.72 MHz	-8.79 dB	156.17 °	-8.76 dB	156.18 °	-0.03 dB	-0.01 °	0.5 dB	4 °	Pass
2380.22 MHz	-8.09 dB	151.06 °	-8.05 dB	150.94 °	-0.04 dB	0.12 °	0.5 dB	4 °	Pass
2422.71 MHz	-7.5 dB	145.75 °	-7.45 dB	145.74 °	-0.06 dB	0 °	0.5 dB	4 °	Pass
2465.21 MHz	-6.96 dB	140.58 °	-6.94 dB	140.69 °	-0.02 dB	-0.1 °	0.5 dB	4 °	Pass
2507.71 MHz	-6.53 dB	135.74 °	-6.5 dB	135.76 °	-0.03 dB	-0.02 °	0.5 dB	4 °	Pass
2550.21 MHz	-6.17 dB	130.79 °	-6.14 dB	130.85 °	-0.04 dB	-0.06 °	0.5 dB	4 °	Pass
2592.71 MHz	-5.84 dB	125.83 °	-5.82 dB	126.04 °	-0.02 dB	-0.22 °	0.5 dB	4 °	Pass
2635.21 MHz	-5.58 dB	121.21 °	-5.56 dB	121.31 °	-0.02 dB	-0.1 °	0.5 dB	4 °	Pass
2677.71 MHz	-5.36 dB	116.53 °	-5.34 dB	116.67 °	-0.02 dB	-0.14 °	0.5 dB	4 °	Pass
2720.2 MHz	-5.18 dB	111.82 °	-5.16 dB	112.11 °	-0.02 dB	-0.29 °	0.5 dB	4 °	Pass
2762.7 MHz	-5.02 dB	107.37 °	-5.01 dB	107.58 °	-0.01 dB	-0.21 °	0.5 dB	4 °	Pass
2805.2 MHz	-4.91 dB	102.87 °	-4.89 dB	103.09 °	-0.01 dB	-0.21 °	0.5 dB	4 °	Pass
2847.7 MHz	-4.82 dB	98.36 °	-4.81 dB	98.63 °	-0.01 dB	-0.27 °	0.5 dB	4 °	Pass
2890.2 MHz	-4.75 dB	93.92 °	-4.75 dB	94.19 °	0 dB	-0.27 °	0.5 dB	4 °	Pass
2932.7 MHz	-4.72 dB	89.54 °	-4.72 dB	89.82 °	-0.01 dB	-0.29 °	0.5 dB	4 °	Pass
2975.2 MHz	-4.72 dB	85.14 °	-4.71 dB	85.41 °	-0.01 dB	-0.28 °	0.5 dB	4 °	Pass
3017.69 MHz	-4.74 dB	80.7 °	-4.73 dB	81 °	-0.01 dB	-0.3 °	0.5 dB	4 °	Pass
3060.19 MHz	-4.78 dB	76.3 °	-4.78 dB	76.62 °	-0.01 dB	-0.32 °	0.5 dB	4 °	Pass
3102.69 MHz	-4.85 dB	71.96 °	-4.85 dB	72.18 °	0 dB	-0.22 °	0.5 dB	4 °	Pass
3145.19 MHz	-4.96 dB	67.56 °	-4.95 dB	67.7 °	-0.01 dB	-0.14 °	0.5 dB	4 °	Pass
3187.69 MHz	-5.09 dB	63.01 °	-5.08 dB	63.22 °	-0.01 dB	-0.22 °	0.5 dB	4 °	Pass
3230.19 MHz	-5.24 dB	58.54 °	-5.24 dB	58.71 °	0 dB	-0.18 °	0.5 dB	4 °	Pass
3272.68 MHz	-5.44 dB	54.02 °	-5.43 dB	54.11 °	-0.01 dB	-0.1 °	0.5 dB	4 °	Pass
3315.18 MHz	-5.69 dB	49.26 °	-5.67 dB	49.49 °	-0.02 dB	-0.23 °	0.5 dB	4 °	Pass
3357.68 MHz	-5.95 dB	44.48 °	-5.96 dB	44.76 °	0 dB	-0.28 °	0.5 dB	4 °	Pass
3400.18 MHz	-6.29 dB	39.78 °	-6.29 dB	39.93 °	0 dB	-0.15 °	0.5 dB	4 °	Pass
3442.68 MHz	-6.7 dB	34.9 °	-6.67 dB	35.11 °	-0.03 dB	-0.21 °	0.5 dB	4 °	Pass
3485.18 MHz	-7.14 dB	29.8 °	-7.13 dB	30.16 °	-0.01 dB	-0.36 °	0.5 dB	4 °	Pass
3527.68 MHz	-7.66 dB	24.96 °	-7.67 dB	25.16 °	0 dB	-0.19 °	0.5 dB	4 °	Pass
3570.17 MHz	-8.34 dB	19.92 °	-8.3 dB	20.13 °	-0.04 dB	-0.21 °	0.5 dB	4 °	Pass
3612.67 MHz	-9.08 dB	14.53 °	-9.06 dB	15 °	-0.02 dB	-0.47 °	0.5 dB	4 °	Pass
3655.17 MHz	-9.94 dB	9.53 °	-9.95 dB	9.83 °	0.01 dB	-0.3 °	0.5 dB	4 °	Pass
3697.67 MHz	-11.08 dB	4.58 °	-11.04 dB	4.76 °	-0.04 dB	-0.18 °	0.5 dB	4 °	Pass
3740.17 MHz	-12.42 dB	-0.93 °	-12.37 dB	-0.39 °	-0.05 dB	-0.54 °	0.5 dB	4 °	Pass
3782.67 MHz	-14.01 dB	-5.68 °	-14.03 dB	-5.32 °	0.02 dB	-0.36 °	0.5 dB	4 °	Pass
3825.17 MHz	-16.24 dB	-9.62 °	-16.21 dB	-9.57 °	-0.03 dB	-0.05 °	1 dB	10 °	Pass
3867.66 MHz	-19.29 dB	-13.4 °	-19.23 dB	-12.76 °	-0.06 dB	-0.64 °	1 dB	10 °	Pass
3910.16 MHz	-23.82 dB	-12.31 °	-23.92 dB	-11.73 °	0.09 dB	-0.59 °	1 dB	10 °	Pass
3952.66 MHz	-32.71 dB	21.65 °	-32.8 dB	19.96 °	0.09 dB	1.69 °	200 dB	360 °	Pass
3995.16 MHz	-28.13 dB	112.33 °	-28.18 dB	110.94 °	0.04 dB	1.39 °	3 dB	20 °	Pass
4037.66 MHz	-21.65 dB	120.76 °	-21.54 dB	120.68 °	-0.11 dB	0.08 °	1 dB	10 °	Pass
4080.16 MHz	-17.77 dB	118.85 °	-17.74 dB	119.29 °	-0.02 dB	-0.44 °	1 dB	10 °	Pass
4122.65 MHz	-15.17 dB	115.46 °	-15.17 dB	115.61 °	0.01 dB	-0.15 °	1 dB	10 °	Pass
4165.15 MHz	-13.29 dB	110.91 °	-13.27 dB	110.97 °	-0.03 dB	-0.06 °	0.5 dB	4 °	Pass
4207.65 MHz	-11.79 dB	105.82 °	-11.76 dB	105.94 °	-0.03 dB	-0.11 °	0.5 dB	4 °	Pass
4250.15 MHz	-10.56 dB	100.77 °	-10.56 dB	100.85 °	0 dB	-0.07 °	0.5 dB	4 °	Pass

Frequency	Measurement		Reference		Measured Delta		Specified Uncertainty TUL		Test
MHz	Mag (dB)	Angle (°)	Mag (dB)	Angle (°)	Mag (dB)	Angle (°)	Mag (dB)	Angle (°)	Verdict
4292.65 MHz	-9.58 dB	95.63 °	-9.57 dB	95.69 °	-0.01 dB	-0.06 °	0.5 dB	4 °	Pass
4335.15 MHz	-8.75 dB	90.47 °	-8.73 dB	90.57 °	-0.02 dB	-0.1 °	0.5 dB	4 °	Pass
4377.65 MHz	-8.04 dB	85.4 °	-8.04 dB	85.53 °	0 dB	-0.12 °	0.5 dB	4 °	Pass
4420.14 MHz	-7.46 dB	80.38 °	-7.45 dB	80.49 °	-0.01 dB	-0.11 °	0.5 dB	4 °	Pass
4462.64 MHz	-6.95 dB	75.44 °	-6.95 dB	75.51 °	-0.01 dB	-0.07 °	0.5 dB	4 °	Pass
4505.14 MHz	-6.52 dB	70.53 °	-6.53 dB	70.62 °	0 dB	-0.08 °	0.5 dB	4 °	Pass
4547.64 MHz	-6.16 dB	65.72 °	-6.16 dB	65.77 °	0 dB	-0.05 °	0.5 dB	4 °	Pass
4590.14 MHz	-5.84 dB	61.01 °	-5.86 dB	61.05 °	0.01 dB	-0.04 °	0.5 dB	4 °	Pass
4632.64 MHz	-5.59 dB	56.35 °	-5.6 dB	56.42 °	0.01 dB	-0.07 °	0.5 dB	4 °	Pass
4675.14 MHz	-5.38 dB	51.73 °	-5.38 dB	51.85 °	0 dB	-0.12 °	0.5 dB	4 °	Pass
4717.63 MHz	-5.18 dB	47.17 °	-5.2 dB	47.31 °	0.02 dB	-0.15 °	0.5 dB	4 °	Pass
4760.13 MHz	-5.04 dB	42.72 °	-5.05 dB	42.82 °	0.01 dB	-0.1 °	0.5 dB	4 °	Pass
4802.63 MHz	-4.93 dB	38.26 °	-4.94 dB	38.39 °	0.01 dB	-0.13 °	0.5 dB	4 °	Pass
4845.13 MHz	-4.82 dB	33.8 °	-4.85 dB	33.97 °	0.02 dB	-0.17 °	0.5 dB	4 °	Pass
4887.63 MHz	-4.77 dB	29.49 °	-4.79 dB	29.56 °	0.02 dB	-0.07 °	0.5 dB	4 °	Pass
4930.13 MHz	-4.75 dB	25.11 °	-4.76 dB	25.21 °	0.01 dB	-0.1 °	0.5 dB	4 °	Pass
4972.62 MHz	-4.74 dB	20.63 °	-4.75 dB	20.82 °	0.01 dB	-0.19 °	0.5 dB	4 °	Pass
5015.12 MHz	-4.75 dB	16.37 °	-4.77 dB	16.45 °	0.02 dB	-0.07 °	0.5 dB	4 °	Pass
5057.62 MHz	-4.8 dB	12.01 °	-4.81 dB	12.07 °	0 dB	-0.06 °	0.5 dB	4 °	Pass
5100.12 MHz	-4.88 dB	7.54 °	-4.88 dB	7.68 °	0 dB	-0.14 °	0.5 dB	4 °	Pass
5142.62 MHz	-4.96 dB	3.14 °	-4.98 dB	3.26 °	0.02 dB	-0.12 °	0.5 dB	4 °	Pass
5185.12 MHz	-5.1 dB	-1.24 °	-5.11 dB	-1.16 °	0 dB	-0.08 °	0.5 dB	4 °	Pass
5227.62 MHz	-5.27 dB	-5.82 °	-5.27 dB	-5.65 °	-0.01 dB	-0.17 °	0.5 dB	4 °	Pass
5270.11 MHz	-5.45 dB	-10.39 °	-5.46 dB	-10.17 °	0.01 dB	-0.21 °	0.5 dB	4 °	Pass
5312.61 MHz	-5.7 dB	-14.95 °	-5.7 dB	-14.76 °	0 dB	-0.19 °	0.5 dB	4 °	Pass
5355.11 MHz	-5.99 dB	-19.66 °	-5.98 dB	-19.43 °	-0.01 dB	-0.22 °	0.5 dB	4 °	Pass
5397.61 MHz	-6.3 dB	-24.38 °	-6.31 dB	-24.15 °	0.01 dB	-0.22 °	0.5 dB	4 °	Pass
5440.11 MHz	-6.7 dB	-29.13 °	-6.71 dB	-28.94 °	0.01 dB	-0.19 °	0.5 dB	4 °	Pass
5482.61 MHz	-7.17 dB	-34.1 °	-7.17 dB	-33.84 °	0 dB	-0.25 °	0.5 dB	4 °	Pass
5525.11 MHz	-7.69 dB	-39 °	-7.71 dB	-38.77 °	0.02 dB	-0.23 °	0.5 dB	4 °	Pass
5567.6 MHz	-8.34 dB	-43.93 °	-8.35 dB	-43.74 °	0.01 dB	-0.19 °	0.5 dB	4 °	Pass
5610.1 MHz	-9.11 dB	-49.05 °	-9.1 dB	-48.82 °	0 dB	-0.24 °	0.5 dB	4 °	Pass
5652.6 MHz	-9.99 dB	-54.1 °	-10.01 dB	-53.84 °	0.01 dB	-0.25 °	0.5 dB	4 °	Pass
5695.1 MHz	-11.08 dB	-59.04 °	-11.11 dB	-58.8 °	0.03 dB	-0.24 °	0.5 dB	4 °	Pass
5737.6 MHz	-12.44 dB	-63.93 °	-12.45 dB	-63.75 °	0.02 dB	-0.18 °	0.5 dB	4 °	Pass
5780.1 MHz	-14.11 dB	-68.49 °	-14.14 dB	-68.39 °	0.03 dB	-0.1 °	0.5 dB	4 °	Pass
5822.59 MHz	-16.3 dB	-72.41 °	-16.34 dB	-72.19 °	0.04 dB	-0.22 °	1 dB	10 °	Pass
5865.09 MHz	-19.37 dB	-74.61 °	-19.38 dB	-74.32 °	0.01 dB	-0.29 °	1 dB	10 °	Pass
5907.59 MHz	-24.04 dB	-70.97 °	-24.13 dB	-70.92 °	0.08 dB	-0.05 °	1 dB	10 °	Pass
5950.09 MHz	-31.78 dB	-31.97 °	-32 dB	-31.48 °	0.22 dB	-0.48 °	200 dB	360 °	Pass
5992.59 MHz	-26.99 dB	43.75 °	-27.01 dB	43.8 °	0.01 dB	-0.06 °	3 dB	20 °	Pass
6035.09 MHz	-21.06 dB	53.6 °	-21.02 dB	54.01 °	-0.04 dB	-0.42 °	1 dB	10 °	Pass
6077.59 MHz	-17.41 dB	52.86 °	-17.4 dB	53.32 °	-0.01 dB	-0.46 °	1 dB	10 °	Pass
6120.08 MHz	-14.91 dB	49.89 °	-14.92 dB	49.92 °	0 dB	-0.04 °	0.5 dB	4 °	Pass
6162.58 MHz	-13.09 dB	45.41 °	-13.05 dB	45.56 °	-0.04 dB	-0.14 °	0.5 dB	4 °	Pass
6205.08 MHz	-11.57 dB	40.48 °	-11.58 dB	40.74 °	0 dB	-0.27 °	0.5 dB	4 °	Pass
6247.58 MHz	-10.39 dB	35.71 °	-10.4 dB	35.77 °	0.01 dB	-0.06 °	0.5 dB	4 °	Pass
6290.08 MHz	-9.43 dB	30.56 °	-9.42 dB	30.77 °	-0.01 dB	-0.2 °	0.5 dB	4 °	Pass
6332.58 MHz	-8.57 dB	25.51 °	-8.61 dB	25.74 °	0.03 dB	-0.23 °	0.5 dB	4 °	Pass
6375.08 MHz	-7.91 dB	20.69 °	-7.92 dB	20.71 °	0.01 dB	-0.02 °	0.5 dB	4 °	Pass
6417.57 MHz	-7.34 dB	15.64 °	-7.33 dB	15.77 °	-0.01 dB	-0.13 °	0.5 dB	4 °	Pass
6460.07 MHz	-6.81 dB	10.63 °	-6.84 dB	10.9 °	0.03 dB	-0.27 °	0.5 dB	4 °	Pass
6502.57 MHz	-6.4 dB	6.02 °	-6.42 dB	6.08 °	0.02 dB	-0.06 °	0.5 dB	4 °	Pass
6545.07 MHz	-6.05 dB	1.24 °	-6.06 dB	1.37 °	0.01 dB	-0.13 °	0.5 dB	4 °	Pass
6587.57 MHz	-5.73 dB	-3.54 °	-5.75 dB	-3.31 °	0.02 dB	-0.23 °	0.5 dB	4 °	Pass
6630.07 MHz	-5.48 dB	-7.98 °	-5.49 dB	-7.92 °	0.02 dB	-0.06 °	0.5 dB	4 °	Pass
6672.56 MHz	-5.27 dB	-12.53 °	-5.28 dB	-12.46 °	0.01 dB	-0.07 °	0.5 dB	4 °	Pass
6715.06 MHz	-5.09 dB	-17.13 °	-5.1 dB	-16.95 °	0 dB	-0.18 °	0.5 dB	4 °	Pass
6757.56 MHz	-4.94 dB	-21.51 °	-4.95 dB	-21.38 °	0.01 dB	-0.13 °	0.5 dB	4 °	Pass
6800.06 MHz	-4.83 dB	-25.82 °	-4.84 dB	-25.76 °	0.01 dB	-0.05 °	0.5 dB	4 °	Pass
6842.56 MHz	-4.75 dB	-30.26 °	-4.75 dB	-30.13 °	0 dB	-0.13 °	0.5 dB	4 °	Pass
6885.06 MHz	-4.68 dB	-34.62 °	-4.69 dB	-34.5 °	0.02 dB	-0.12 °	0.5 dB	4 °	Pass
6927.56 MHz	-4.66 dB	-38.85 °	-4.67 dB	-38.81 °	0.01 dB	-0.03 °	0.5 dB	4 °	Pass
6970.05 MHz	-4.66 dB	-43.25 °	-4.66 dB	-43.09 °	0 dB	-0.17 °	0.5 dB	4 °	Pass
7012.55 MHz	-4.67 dB	-47.62 °	-4.67 dB	-47.36 °	0 dB	-0.26 °	0.5 dB	4 °	Pass
7055.05 MHz	-4.72 dB	-51.83 °	-4.72 dB	-51.68 °	0.01 dB	-0.15 °	0.5 dB	4 °	Pass
7097.55 MHz	-4.79 dB	-56.26 °	-4.8 dB	-56.04 °	0 dB	-0.22 °	0.5 dB	4 °	Pass
7140.05 MHz	-4.89 dB	-60.68 °	-4.9 dB	-60.43 °	0.01 dB	-0.25 °	0.5 dB	4 °	Pass
7182.55 MHz	-5.02 dB	-65.01 °	-5.03 dB	-64.84 °	0.01 dB	-0.17 °	0.5 dB	4 °	Pass
7225.05 MHz	-5.19 dB	-69.49 °	-5.19 dB	-69.27 °	-0.01 dB	-0.22 °	0.5 dB	4 °	Pass
7267.54 MHz	-5.38 dB	-74.05 °	-5.39 dB	-73.75 °	0 dB	-0.3 °	0.5 dB	4 °	Pass
7310.04 MHz	-5.64 dB	-78.55 °	-5.63 dB	-78.27 °	0 dB	-0.28 °	0.5 dB	4 °	Pass
7352.54 MHz	-5.92 dB	-83.12 °	-5.92 dB	-82.88 °	0 dB	-0.24 °	0.5 dB	4 °	Pass
7395.04 MHz	-6.26 dB	-87.91 °	-6.27 dB	-87.61 °	0.01 dB	-0.3 °	0.5 dB	4 °	Pass
7437.54 MHz	-6.67 dB	-92.63 °	-6.67 dB	-92.4 °	0 dB	-0.23 °	0.5 dB	4 °	Pass
7480.04 MHz	-7.14 dB	-97.63 °	-7.14 dB	-97.42 °	0 dB	-0.21 °	0.5 dB	4 °	Pass
7522.53 MHz	-7.69 dB	-102.58 °	-7.7 dB	-102.35 °	0.01 dB	-0.23 °	0.5 dB	4 °	Pass
7565.03 MHz	-8.36 dB	-107.54 °	-8.35 dB	-107.3 °	0 dB	-0.24 °	0.5 dB	4 °	Pass
7607.53 MHz	-9.14 dB	-112.62 °	-9.13 dB	-112.27 °	-0.01 dB	-0.35 °	0.5 dB	4 °	Pass
7650.03 MHz	-10.04 dB	-117.52 °	-10.05 dB	-117.25 °	0.01 dB	-0.27 °	0.5 dB	4 °	Pass
7692.53 MHz	-11.19 dB	-122.39 °	-11.18 dB	-122.22 °	-0.01 dB	-0.16 °	0.5 dB	4 °	Pass
7735.03 MHz	-12.62 dB	-127.47 °	-12.58 dB	-127.08 °	-0.04 dB	-0.39 °	0.5 dB	4 °	Pass
7777.53 MHz	-14.31 dB	-131.91 °	-14.33 dB	-131.62 °	0.02 dB	-0.29 °	0.5 dB	4 °	Pass
7820.02 MHz	-16.65 dB	-135.22 °	-16.62 dB	-135.22 °	-0.03 dB	0 °	1 dB	10 °	Pass
7862.52 MHz	-19.95 dB	-137.23 °	-19.85 dB	-136.68 °	-0.11 dB	-0.55 °	1 dB	10 °	Pass
7905.02 MHz	-24.98 dB	-131.01 °	-25.01 dB	-130.94 °	0.03 dB	-0.07 °	1 dB	10 °	Pass
7947.52 MHz	-31.89 dB	-73.92 °	-32.28 dB	-76 °	0.4 dB	2.07 °	200 dB	360 °	Pass
7990.02 MHz	-25.37 dB	-14.52 °	-25.49 dB	-15.81 °	0.11 dB	1.3 °	3 dB	20 °	Pass
8032.52 MHz	-20.23 dB	-8.81 °	-20.19 dB	-8.8 °	-0.04 dB	-0.02 °	1 dB	10 °	Pass
8075.02 MHz	-16.8 dB	-10.8 °	-16.83 dB	-10.16 °	0.03 dB	-0.64 °	1 dB	10 °	Pass
8117.51 MHz	-14.38 dB	-13.82 °	-14.45 dB	-13.74 °	0.06 dB	-0.08 °	0.5 dB	4 °	Pass
8160.01 MHz	-12.66 dB	-18.02 °	-12.66 dB	-18.05 °	-0.01 dB	0.03 °	0.5 dB	4 °	Pass
8202.51 MHz	-11.25 dB	-23.18 °	-11.26 dB	-22.83 °	0.01 dB	-0.35 °	0.5 dB	4 °	Pass
8245.01 MHz	-10.09 dB	-28.06 °	-10.12 dB	-27.86 °	0.03 dB	-0.2 °	0.5 dB	4 °	Pass
8287.51 MHz	-9.16 dB	-32.83 °	-9.18 dB	-32.91 °	0.01 dB	0.08 °	0.5 dB	4 °	Pass
8330.01 MHz	-8.39 dB	-38.11 °	-8.38 dB	-37.94 °	0 dB	-0.17 °	0.5 dB	4 °	Pass
8372.5 MHz	-7.7 dB	-43 °	-7.72 dB	-42.91 °	0.02 dB	-0.09 °	0.5 dB	4 °	Pass
8415 MHz	-7.15 dB	-47.77 °	-7.16 dB	-47.79 °	0.01 dB	0.02 °	0.5 dB	4 °	Pass
8457.5 MHz	-6.68 dB	-52.73 °	-6.67 dB	-52.63 °	-0.01 dB	-0.1 °	0.5 dB	4 °	Pass
8500 MHz	-6.26 dB	-57.5 °	-6.27 dB	-57.39 °	0.01 dB	-0.11 °	0.5 dB	4 °	Pass

Frequency	Measurement		Reference		Measured Delta		Specified Uncertainty TUL		Test
MHz	Mag (dB)	Angle (°)	Mag (dB)	Angle (°)	Mag (dB)	Angle (°)	Mag (dB)	Angle (°)	Verdict
S22 Tests									
0.3 MHz	-71.19 dB	24.06 °	-59.23 dB	-77.3 °	-11.96 dB	101.36 °	200 dB	360 °	Pass
42.8 MHz	-26.08 dB	-94.58 °	-26.08 dB	-94.72 °	0 dB	0.14 °	3 dB	20 °	Pass
85.3 MHz	-20.12 dB	-101.41 °	-20.08 dB	-101.3 °	-0.04 dB	-0.11 °	1 dB	10 °	Pass
127.8 MHz	-16.58 dB	-107.89 °	-16.63 dB	-107.54 °	0.05 dB	-0.36 °	1 dB	10 °	Pass
170.29 MHz	-14.23 dB	-113.54 °	-14.25 dB	-113.69 °	0.02 dB	0.15 °	0.5 dB	4 °	Pass
212.79 MHz	-12.48 dB	-119.77 °	-12.46 dB	-119.74 °	-0.02 dB	-0.03 °	0.5 dB	4 °	Pass
255.29 MHz	-11.01 dB	-126.02 °	-11.04 dB	-125.69 °	0.03 dB	-0.33 °	0.5 dB	4 °	Pass
297.79 MHz	-9.87 dB	-131.34 °	-9.89 dB	-131.51 °	0.02 dB	0.17 °	0.5 dB	4 °	Pass
340.29 MHz	-8.98 dB	-137.03 °	-8.95 dB	-137.15 °	-0.03 dB	0.12 °	0.5 dB	4 °	Pass
382.79 MHz	-8.18 dB	-142.88 °	-8.17 dB	-142.66 °	-0.01 dB	-0.23 °	0.5 dB	4 °	Pass
425.29 MHz	-7.49 dB	-148.08 °	-7.52 dB	-148.05 °	0.03 dB	-0.03 °	0.5 dB	4 °	Pass
467.78 MHz	-6.98 dB	-153.21 °	-6.97 dB	-153.3 °	-0.01 dB	0.09 °	0.5 dB	4 °	Pass
510.28 MHz	-6.51 dB	-158.77 °	-6.5 dB	-158.46 °	-0.01 dB	-0.32 °	0.5 dB	4 °	Pass
552.78 MHz	-6.06 dB	-163.54 °	-6.11 dB	-163.53 °	0.04 dB	-0.02 °	0.5 dB	4 °	Pass
595.28 MHz	-5.77 dB	-168.27 °	-5.77 dB	-168.45 °	0 dB	0.18 °	0.5 dB	4 °	Pass
637.78 MHz	-5.51 dB	-173.51 °	-5.49 dB	-173.28 °	-0.02 dB	-0.23 °	0.5 dB	4 °	Pass
680.28 MHz	-5.23 dB	-178.17 °	-5.25 dB	-178.02 °	0.03 dB	-0.15 °	0.5 dB	4 °	Pass
722.77 MHz	-5.04 dB	177.38 °	-5.06 dB	177.32 °	0.01 dB	0.06 °	0.5 dB	4 °	Pass
765.27 MHz	-4.92 dB	172.63 °	-4.9 dB	172.71 °	-0.02 dB	-0.09 °	0.5 dB	4 °	Pass
807.77 MHz	-4.77 dB	168 °	-4.78 dB	168.16 °	0.01 dB	-0.16 °	0.5 dB	4 °	Pass
850.27 MHz	-4.66 dB	163.61 °	-4.68 dB	163.65 °	0.02 dB	-0.04 °	0.5 dB	4 °	Pass
892.77 MHz	-4.61 dB	159.2 °	-4.61 dB	159.17 °	0 dB	0.03 °	0.5 dB	4 °	Pass
935.27 MHz	-4.58 dB	154.62 °	-4.57 dB	154.71 °	0 dB	-0.08 °	0.5 dB	4 °	Pass
977.77 MHz	-4.55 dB	150.21 °	-4.56 dB	150.3 °	0.01 dB	-0.09 °	0.5 dB	4 °	Pass
1020.26 MHz	-4.57 dB	145.87 °	-4.57 dB	145.87 °	0 dB	0 °	0.5 dB	4 °	Pass
1062.76 MHz	-4.61 dB	141.34 °	-4.57 dB	141.36 °	-0.03 dB	-0.02 °	0.5 dB	4 °	Pass
1105.26 MHz	-4.66 dB	136.92 °	-4.64 dB	136.96 °	-0.02 dB	-0.03 °	0.5 dB	4 °	Pass
1147.76 MHz	-4.75 dB	132.52 °	-4.73 dB	132.49 °	-0.02 dB	0.02 °	0.5 dB	4 °	Pass
1190.26 MHz	-4.88 dB	127.97 °	-4.85 dB	128.01 °	-0.03 dB	-0.04 °	0.5 dB	4 °	Pass
1232.76 MHz	-5.01 dB	123.38 °	-5 dB	123.49 °	-0.01 dB	-0.1 °	0.5 dB	4 °	Pass
1275.26 MHz	-5.2 dB	118.85 °	-5.19 dB	118.89 °	-0.01 dB	-0.04 °	0.5 dB	4 °	Pass
1317.75 MHz	-5.43 dB	114.18 °	-5.41 dB	114.23 °	-0.02 dB	-0.06 °	0.5 dB	4 °	Pass
1360.25 MHz	-5.69 dB	109.36 °	-5.68 dB	109.54 °	-0.01 dB	-0.17 °	0.5 dB	4 °	Pass
1402.75 MHz	-6 dB	104.58 °	-6 dB	104.75 °	0 dB	-0.17 °	0.5 dB	4 °	Pass
1445.25 MHz	-6.37 dB	99.72 °	-6.37 dB	99.83 °	0 dB	-0.11 °	0.5 dB	4 °	Pass
1487.75 MHz	-6.81 dB	94.67 °	-6.81 dB	94.87 °	0 dB	-0.19 °	0.5 dB	4 °	Pass
1530.25 MHz	-7.31 dB	89.56 °	-7.33 dB	89.78 °	0.02 dB	-0.21 °	0.5 dB	4 °	Pass
1572.74 MHz	-7.91 dB	84.37 °	-7.94 dB	84.56 °	0.03 dB	-0.18 °	0.5 dB	4 °	Pass
1615.24 MHz	-8.62 dB	79.11 °	-8.66 dB	79.35 °	0.04 dB	-0.23 °	0.5 dB	4 °	Pass
1657.74 MHz	-9.48 dB	73.63 °	-9.52 dB	73.97 °	0.04 dB	-0.34 °	0.5 dB	4 °	Pass
1700.24 MHz	-10.49 dB	68.19 °	-10.55 dB	68.48 °	0.07 dB	-0.29 °	0.5 dB	4 °	Pass
1742.74 MHz	-11.75 dB	62.76 °	-11.82 dB	63.09 °	0.06 dB	-0.33 °	0.5 dB	4 °	Pass
1785.24 MHz	-13.35 dB	56.99 °	-13.4 dB	57.6 °	0.05 dB	-0.62 °	0.5 dB	4 °	Pass
1827.74 MHz	-15.36 dB	51.41 °	-15.45 dB	52.22 °	0.09 dB	-0.81 °	1 dB	10 °	Pass
1870.23 MHz	-18.08 dB	46.34 °	-18.26 dB	47.36 °	0.18 dB	-1.01 °	1 dB	10 °	Pass
1912.73 MHz	-22.45 dB	42.05 °	-22.58 dB	43.83 °	0.13 dB	-1.78 °	1 dB	10 °	Pass
1955.23 MHz	-31.36 dB	39.78 °	-31.6 dB	49.38 °	0.23 dB	-9.6 °	200 dB	360 °	Pass
1997.73 MHz	-33.4 dB	-166.93 °	-31.89 dB	-174.12 °	-1.52 dB	7.19 °	200 dB	360 °	Pass
2040.23 MHz	-22.99 dB	-164.84 °	-22.68 dB	-167.28 °	-0.31 dB	2.44 °	1 dB	10 °	Pass
2082.73 MHz	-18.46 dB	-168.46 °	-18.33 dB	-170.67 °	-0.13 dB	2.2 °	1 dB	10 °	Pass
2125.23 MHz	-15.71 dB	-173.8 °	-15.52 dB	-175.63 °	-0.19 dB	1.83 °	1 dB	10 °	Pass
2167.72 MHz	-13.62 dB	-179.89 °	-13.47 dB	179.1 °	-0.16 dB	1.01 °	0.5 dB	4 °	Pass
2210.22 MHz	-11.97 dB	174.48 °	-11.89 dB	173.7 °	-0.09 dB	0.78 °	0.5 dB	4 °	Pass
2252.72 MHz	-10.71 dB	169.17 °	-10.62 dB	168.24 °	-0.09 dB	0.93 °	0.5 dB	4 °	Pass
2295.22 MHz	-9.68 dB	163.49 °	-9.59 dB	162.83 °	-0.1 dB	0.66 °	0.5 dB	4 °	Pass
2337.72 MHz	-8.8 dB	157.84 °	-8.73 dB	157.49 °	-0.07 dB	0.35 °	0.5 dB	4 °	Pass
2380.22 MHz	-8.06 dB	152.71 °	-8.01 dB	152.24 °	-0.05 dB	0.47 °	0.5 dB	4 °	Pass
2422.71 MHz	-7.46 dB	147.4 °	-7.41 dB	147.05 °	-0.05 dB	0.35 °	0.5 dB	4 °	Pass
2465.21 MHz	-6.96 dB	142.21 °	-6.9 dB	142 °	-0.05 dB	0.21 °	0.5 dB	4 °	Pass
2507.71 MHz	-6.49 dB	137.25 °	-6.48 dB	137.01 °	-0.01 dB	0.23 °	0.5 dB	4 °	Pass
2550.21 MHz	-6.13 dB	132.36 °	-6.11 dB	132.12 °	-0.02 dB	0.24 °	0.5 dB	4 °	Pass
2592.71 MHz	-5.83 dB	127.59 °	-5.79 dB	127.36 °	-0.04 dB	0.23 °	0.5 dB	4 °	Pass
2635.21 MHz	-5.55 dB	122.76 °	-5.53 dB	122.66 °	-0.02 dB	0.1 °	0.5 dB	4 °	Pass
2677.71 MHz	-5.33 dB	118.12 °	-5.31 dB	118 °	-0.02 dB	0.12 °	0.5 dB	4 °	Pass
2720.2 MHz	-5.15 dB	113.63 °	-5.13 dB	113.41 °	-0.02 dB	0.22 °	0.5 dB	4 °	Pass
2762.7 MHz	-5.01 dB	108.97 °	-4.98 dB	108.89 °	-0.03 dB	0.08 °	0.5 dB	4 °	Pass
2805.2 MHz	-4.88 dB	104.47 °	-4.87 dB	104.44 °	-0.02 dB	0.03 °	0.5 dB	4 °	Pass
2847.7 MHz	-4.79 dB	100.04 °	-4.78 dB	100.03 °	-0.01 dB	0.01 °	0.5 dB	4 °	Pass
2890.2 MHz	-4.74 dB	95.58 °	-4.73 dB	95.59 °	-0.02 dB	0 °	0.5 dB	4 °	Pass
2932.7 MHz	-4.71 dB	91.15 °	-4.69 dB	91.19 °	-0.02 dB	-0.04 °	0.5 dB	4 °	Pass
2975.2 MHz	-4.7 dB	86.7 °	-4.68 dB	86.83 °	-0.01 dB	-0.13 °	0.5 dB	4 °	Pass
3017.69 MHz	-4.72 dB	82.34 °	-4.71 dB	82.45 °	-0.01 dB	-0.11 °	0.5 dB	4 °	Pass
3060.19 MHz	-4.76 dB	77.94 °	-4.75 dB	78.05 °	-0.01 dB	-0.1 °	0.5 dB	4 °	Pass
3102.69 MHz	-4.83 dB	73.48 °	-4.82 dB	73.65 °	-0.01 dB	-0.17 °	0.5 dB	4 °	Pass
3145.19 MHz	-4.92 dB	69.04 °	-4.92 dB	69.2 °	0 dB	-0.16 °	0.5 dB	4 °	Pass
3187.69 MHz	-5.05 dB	64.57 °	-5.05 dB	64.7 °	0 dB	-0.13 °	0.5 dB	4 °	Pass
3230.19 MHz	-5.22 dB	60 °	-5.21 dB	60.18 °	-0.01 dB	-0.19 °	0.5 dB	4 °	Pass
3272.68 MHz	-5.41 dB	55.31 °	-5.4 dB	55.61 °	-0.01 dB	-0.3 °	0.5 dB	4 °	Pass
3315.18 MHz	-5.63 dB	50.63 °	-5.64 dB	50.92 °	0.01 dB	-0.29 °	0.5 dB	4 °	Pass
3357.68 MHz	-5.92 dB	45.95 °	-5.92 dB	46.18 °	0 dB	-0.24 °	0.5 dB	4 °	Pass
3400.18 MHz	-6.26 dB	41.08 °	-6.25 dB	41.41 °	-0.01 dB	-0.33 °	0.5 dB	4 °	Pass
3442.68 MHz	-6.63 dB	36.12 °	-6.65 dB	36.57 °	0.01 dB	-0.45 °	0.5 dB	4 °	Pass
3485.18 MHz	-7.08 dB	31.27 °	-7.1 dB	31.61 °	0.03 dB	-0.34 °	0.5 dB	4 °	Pass
3527.68 MHz	-7.63 dB	26.26 °	-7.64 dB	26.6 °	0 dB	-0.34 °	0.5 dB	4 °	Pass
3570.17 MHz	-8.26 dB	20.97 °	-8.27 dB	21.47 °	0.01 dB	-0.5 °	0.5 dB	4 °	Pass
3612.67 MHz	-8.97 dB	15.9 °	-9.02 dB	16.3 °	0.05 dB	-0.41 °	0.5 dB	4 °	Pass
3655.17 MHz	-9.9 dB	10.74 °	-9.92 dB	11.07 °	0.02 dB	-0.33 °	0.5 dB	4 °	Pass
3697.67 MHz	-11.01 dB	5.14 °	-11.01 dB	5.76 °	0 dB	-0.62 °	0.5 dB	4 °	Pass
3740.17 MHz	-12.27 dB	-0.16 °	-12.34 dB	0.53 °	0.06 dB	-0.69 °	0.5 dB	4 °	Pass
3782.67 MHz	-13.96 dB	-4.89 °	-14.02 dB	-4.57 °	0.05 dB	-0.31 °	0.5 dB	4 °	Pass
3825.17 MHz	-16.19 dB	-9.94 °	-16.21 dB	-9.35 °	0.02 dB	-0.59 °	1 dB	10 °	Pass
3867.66 MHz	-19.16 dB	-14.57 °	-19.25 dB	-13.19 °	0.09 dB	-1.38 °	1 dB	10 °	Pass
3910.16 MHz	-23.92 dB	-15.07 °	-24.06 dB	-13.57 °	0.14 dB	-1.5 °	1 dB	10 °	Pass
3952.66 MHz	-34.78 dB	9.24 °	-34.39 dB	13.08 °	-0.4 dB	-3.85 °	200 dB	360 °	Pass
3995.16 MHz	-28.99 dB	122.63 °	-28.66 dB	120.62 °	-0.33 dB	2.02 °	3 dB	20 °	Pass
4037.66 MHz	-21.77 dB	126.87 °	-21.6 dB	126.38 °	-0.17 dB	0.49 °	1 dB	10 °	Pass
4080.16 MHz	-17.8 dB	123.87 °	-17.76 dB	123.82 °	-0.05 dB	0.05 °	1 dB	10 °	Pass
4122.65 MHz	-15.2 dB	119.72 °	-15.17 dB	119.42 °	-0.02 dB	0.3 °	1 dB	10 °	Pass
4165.15 MHz	-13.29 dB	114.6 °	-13.24 dB	114.42 °	-0.05 dB	0.17 °	0.5 dB	4 °	Pass
4207.65 MHz	-11.77 dB	109.24 °	-11.74 dB	109.37 °	-0.04 dB	-0.12 °	0.5 dB	4 °	Pass
4250.15 MHz	-10.55 dB	104.03 °	-10.54 dB	104.12 °	-0.01 dB	-0.09 °	0.5 dB	4 °	Pass

Frequency	Measurement		Reference		Measured Delta		Specified Uncertainty TUL		Test
MHz	Mag (dB)	Angle (°)	Mag (dB)	Angle (°)	Mag (dB)	Angle (°)	Mag (dB)	Angle (°)	Verdict
4292.65 MHz	-9.56 dB	98.73 °	-9.54 dB	98.81 °	-0.02 dB	-0.08 °	0.5 dB	4 °	Pass
4335.15 MHz	-8.73 dB	93.54 °	-8.71 dB	93.65 °	-0.02 dB	-0.1 °	0.5 dB	4 °	Pass
4377.65 MHz	-8.03 dB	88.38 °	-8.02 dB	88.5 °	-0.01 dB	-0.12 °	0.5 dB	4 °	Pass
4420.14 MHz	-7.45 dB	83.2 °	-7.43 dB	83.39 °	-0.02 dB	-0.19 °	0.5 dB	4 °	Pass
4462.64 MHz	-6.93 dB	78.3 °	-6.92 dB	78.46 °	-0.01 dB	-0.17 °	0.5 dB	4 °	Pass
4505.14 MHz	-6.5 dB	73.41 °	-6.5 dB	73.59 °	0 dB	-0.18 °	0.5 dB	4 °	Pass
4547.64 MHz	-6.16 dB	68.52 °	-6.13 dB	68.78 °	-0.02 dB	-0.26 °	0.5 dB	4 °	Pass
4590.14 MHz	-5.82 dB	63.75 °	-5.83 dB	64 °	0 dB	-0.25 °	0.5 dB	4 °	Pass
4632.64 MHz	-5.56 dB	59.12 °	-5.57 dB	59.34 °	0.01 dB	-0.22 °	0.5 dB	4 °	Pass
4675.14 MHz	-5.37 dB	54.55 °	-5.35 dB	54.74 °	-0.02 dB	-0.19 °	0.5 dB	4 °	Pass
4717.63 MHz	-5.17 dB	49.88 °	-5.17 dB	50.23 °	0 dB	-0.35 °	0.5 dB	4 °	Pass
4760.13 MHz	-5.01 dB	45.41 °	-5.02 dB	45.75 °	0.01 dB	-0.35 °	0.5 dB	4 °	Pass
4802.63 MHz	-4.91 dB	41.07 °	-4.91 dB	41.3 °	0 dB	-0.24 °	0.5 dB	4 °	Pass
4845.13 MHz	-4.82 dB	36.52 °	-4.82 dB	36.91 °	-0.01 dB	-0.39 °	0.5 dB	4 °	Pass
4887.63 MHz	-4.75 dB	32.12 °	-4.76 dB	32.55 °	0.01 dB	-0.43 °	0.5 dB	4 °	Pass
4930.13 MHz	-4.71 dB	27.87 °	-4.72 dB	28.17 °	0.01 dB	-0.29 °	0.5 dB	4 °	Pass
4972.62 MHz	-4.73 dB	23.45 °	-4.72 dB	23.82 °	-0.01 dB	-0.37 °	0.5 dB	4 °	Pass
5015.12 MHz	-4.73 dB	19.04 °	-4.74 dB	19.48 °	0 dB	-0.44 °	0.5 dB	4 °	Pass
5057.62 MHz	-4.75 dB	14.73 °	-4.78 dB	15.11 °	0.03 dB	-0.37 °	0.5 dB	4 °	Pass
5100.12 MHz	-4.85 dB	10.4 °	-4.85 dB	10.73 °	0 dB	-0.32 °	0.5 dB	4 °	Pass
5142.62 MHz	-4.94 dB	5.91 °	-4.95 dB	6.32 °	0 dB	-0.41 °	0.5 dB	4 °	Pass
5185.12 MHz	-5.06 dB	1.46 °	-5.07 dB	1.86 °	0.02 dB	-0.4 °	0.5 dB	4 °	Pass
5227.62 MHz	-5.23 dB	-2.96 °	-5.23 dB	-2.64 °	0 dB	-0.32 °	0.5 dB	4 °	Pass
5270.11 MHz	-5.43 dB	-7.6 °	-5.43 dB	-7.17 °	-0.01 dB	-0.43 °	0.5 dB	4 °	Pass
5312.61 MHz	-5.65 dB	-12.28 °	-5.67 dB	-11.75 °	0.02 dB	-0.53 °	0.5 dB	4 °	Pass
5355.11 MHz	-5.93 dB	-16.77 °	-5.95 dB	-16.4 °	0.02 dB	-0.38 °	0.5 dB	4 °	Pass
5397.61 MHz	-6.28 dB	-21.5 °	-6.29 dB	-21.12 °	0.01 dB	-0.38 °	0.5 dB	4 °	Pass
5440.11 MHz	-6.66 dB	-26.43 °	-6.68 dB	-25.92 °	0.02 dB	-0.51 °	0.5 dB	4 °	Pass
5482.61 MHz	-7.1 dB	-31.27 °	-7.14 dB	-30.8 °	0.04 dB	-0.47 °	0.5 dB	4 °	Pass
5525.11 MHz	-7.66 dB	-36.05 °	-7.69 dB	-35.74 °	0.03 dB	-0.31 °	0.5 dB	4 °	Pass
5567.6 MHz	-8.31 dB	-41.12 °	-8.33 dB	-40.74 °	0.02 dB	-0.38 °	0.5 dB	4 °	Pass
5610.1 MHz	-9.05 dB	-46.29 °	-9.09 dB	-45.77 °	0.04 dB	-0.52 °	0.5 dB	4 °	Pass
5652.6 MHz	-9.95 dB	-51.19 °	-9.99 dB	-50.82 °	0.04 dB	-0.36 °	0.5 dB	4 °	Pass
5695.1 MHz	-11.07 dB	-56.2 °	-11.1 dB	-55.89 °	0.03 dB	-0.31 °	0.5 dB	4 °	Pass
5737.6 MHz	-12.41 dB	-61.28 °	-12.45 dB	-60.75 °	0.04 dB	-0.54 °	0.5 dB	4 °	Pass
5780.1 MHz	-14.09 dB	-65.81 °	-14.14 dB	-65.34 °	0.06 dB	-0.46 °	0.5 dB	4 °	Pass
5822.59 MHz	-16.31 dB	-69.66 °	-16.36 dB	-69.42 °	0.05 dB	-0.24 °	1 dB	10 °	Pass
5865.09 MHz	-19.41 dB	-72.22 °	-19.43 dB	-71.83 °	0.01 dB	-0.39 °	1 dB	10 °	Pass
5907.59 MHz	-24.25 dB	-68.95 °	-24.26 dB	-68.56 °	0.01 dB	-0.39 °	1 dB	10 °	Pass
5950.09 MHz	-32.53 dB	-28.23 °	-32.57 dB	-27.85 °	0.05 dB	-0.39 °	200 dB	360 °	Pass
5992.59 MHz	-26.96 dB	49.06 °	-26.98 dB	49.33 °	0.02 dB	-0.27 °	3 dB	20 °	Pass
6035.09 MHz	-20.89 dB	58.09 °	-20.94 dB	58.4 °	0.05 dB	-0.31 °	1 dB	10 °	Pass
6077.59 MHz	-17.29 dB	57.09 °	-17.34 dB	57.45 °	0.05 dB	-0.36 °	1 dB	10 °	Pass
6120.08 MHz	-14.84 dB	53.65 °	-14.86 dB	53.93 °	0.02 dB	-0.28 °	0.5 dB	4 °	Pass
6162.58 MHz	-12.98 dB	49.04 °	-12.99 dB	49.45 °	0.01 dB	-0.41 °	0.5 dB	4 °	Pass
6205.08 MHz	-11.48 dB	44.19 °	-11.52 dB	44.69 °	0.04 dB	-0.5 °	0.5 dB	4 °	Pass
6247.58 MHz	-10.32 dB	39.35 °	-10.34 dB	39.68 °	0.03 dB	-0.34 °	0.5 dB	4 °	Pass
6290.08 MHz	-9.36 dB	34.19 °	-9.37 dB	34.59 °	0.01 dB	-0.4 °	0.5 dB	4 °	Pass
6332.58 MHz	-8.52 dB	29.13 °	-8.56 dB	29.57 °	0.04 dB	-0.43 °	0.5 dB	4 °	Pass
6375.08 MHz	-7.83 dB	24.26 °	-7.87 dB	24.59 °	0.04 dB	-0.33 °	0.5 dB	4 °	Pass
6417.57 MHz	-7.29 dB	19.27 °	-7.29 dB	19.64 °	0 dB	-0.37 °	0.5 dB	4 °	Pass
6460.07 MHz	-6.77 dB	14.33 °	-6.79 dB	14.77 °	0.02 dB	-0.44 °	0.5 dB	4 °	Pass
6502.57 MHz	-6.34 dB	9.57 °	-6.38 dB	9.92 °	0.04 dB	-0.35 °	0.5 dB	4 °	Pass
6545.07 MHz	-6.01 dB	4.94 °	-6.02 dB	5.16 °	0.01 dB	-0.21 °	0.5 dB	4 °	Pass
6587.57 MHz	-5.71 dB	0.18 °	-5.71 dB	0.55 °	0 dB	-0.37 °	0.5 dB	4 °	Pass
6630.07 MHz	-5.43 dB	-4.49 °	-5.45 dB	-4 °	0.02 dB	-0.49 °	0.5 dB	4 °	Pass
6672.56 MHz	-5.23 dB	-8.83 °	-5.24 dB	-8.54 °	0.01 dB	-0.29 °	0.5 dB	4 °	Pass
6715.06 MHz	-5.07 dB	-13.26 °	-5.06 dB	-12.99 °	-0.01 dB	-0.27 °	0.5 dB	4 °	Pass
6757.56 MHz	-4.91 dB	-17.86 °	-4.91 dB	-17.39 °	0 dB	-0.47 °	0.5 dB	4 °	Pass
6800.06 MHz	-4.79 dB	-22.09 °	-4.8 dB	-21.78 °	0.01 dB	-0.31 °	0.5 dB	4 °	Pass
6842.56 MHz	-4.72 dB	-26.36 °	-4.71 dB	-26.07 °	-0.01 dB	-0.28 °	0.5 dB	4 °	Pass
6885.06 MHz	-4.66 dB	-30.77 °	-4.66 dB	-30.32 °	0 dB	-0.45 °	0.5 dB	4 °	Pass
6927.56 MHz	-4.62 dB	-35.01 °	-4.64 dB	-34.68 °	0.01 dB	-0.33 °	0.5 dB	4 °	Pass
6970.05 MHz	-4.63 dB	-39.24 °	-4.63 dB	-39.06 °	-0.01 dB	-0.19 °	0.5 dB	4 °	Pass
7012.55 MHz	-4.65 dB	-43.59 °	-4.64 dB	-43.34 °	-0.01 dB	-0.26 °	0.5 dB	4 °	Pass
7055.05 MHz	-4.69 dB	-47.92 °	-4.69 dB	-47.63 °	0.01 dB	-0.29 °	0.5 dB	4 °	Pass
7097.55 MHz	-4.77 dB	-52.14 °	-4.77 dB	-51.96 °	0 dB	-0.19 °	0.5 dB	4 °	Pass
7140.05 MHz	-4.88 dB	-56.49 °	-4.87 dB	-56.3 °	-0.01 dB	-0.19 °	0.5 dB	4 °	Pass
7182.55 MHz	-5.01 dB	-60.97 °	-5 dB	-60.7 °	0 dB	-0.27 °	0.5 dB	4 °	Pass
7225.05 MHz	-5.17 dB	-65.29 °	-5.16 dB	-65.13 °	-0.01 dB	-0.16 °	0.5 dB	4 °	Pass
7267.54 MHz	-5.38 dB	-69.68 °	-5.36 dB	-69.61 °	-0.02 dB	-0.07 °	0.5 dB	4 °	Pass
7310.04 MHz	-5.62 dB	-74.32 °	-5.61 dB	-74.15 °	0 dB	-0.17 °	0.5 dB	4 °	Pass
7352.54 MHz	-5.91 dB	-78.85 °	-5.9 dB	-78.75 °	0 dB	-0.1 °	0.5 dB	4 °	Pass
7395.04 MHz	-6.26 dB	-83.38 °	-6.25 dB	-83.37 °	-0.01 dB	-0.01 °	0.5 dB	4 °	Pass
7437.54 MHz	-6.65 dB	-88.17 °	-6.66 dB	-88.08 °	0.01 dB	-0.09 °	0.5 dB	4 °	Pass
7480.04 MHz	-7.13 dB	-92.99 °	-7.13 dB	-92.91 °	0 dB	-0.08 °	0.5 dB	4 °	Pass
7522.53 MHz	-7.69 dB	-97.79 °	-7.68 dB	-97.74 °	-0.01 dB	-0.04 °	0.5 dB	4 °	Pass
7565.03 MHz	-8.33 dB	-102.69 °	-8.34 dB	-102.67 °	0.01 dB	-0.02 °	0.5 dB	4 °	Pass
7607.53 MHz	-9.12 dB	-107.44 °	-9.12 dB	-107.68 °	0 dB	0.24 °	0.5 dB	4 °	Pass
7650.03 MHz	-10.07 dB	-112.34 °	-10.05 dB	-112.56 °	-0.02 dB	0.21 °	0.5 dB	4 °	Pass
7692.53 MHz	-11.17 dB	-117.14 °	-11.19 dB	-117.36 °	0.02 dB	0.22 °	0.5 dB	4 °	Pass
7735.03 MHz	-12.55 dB	-121.45 °	-12.6 dB	-121.99 °	0.05 dB	0.54 °	0.5 dB	4 °	Pass
7777.53 MHz	-14.36 dB	-125.41 °	-14.34 dB	-126.09 °	-0.02 dB	0.68 °	0.5 dB	4 °	Pass
7820.02 MHz	-16.65 dB	-128.81 °	-16.63 dB	-129.34 °	-0.02 dB	0.53 °	1 dB	10 °	Pass
7862.52 MHz	-19.74 dB	-129.02 °	-19.86 dB	-130.2 °	0.12 dB	1.18 °	1 dB	10 °	Pass
7905.02 MHz	-24.59 dB	-118.5 °	-24.89 dB	-122 °	0.3 dB	3.5 °	1 dB	10 °	Pass
7947.52 MHz	-29.98 dB	-66.21 °	-30.81 dB	-67.75 °	0.83 dB	1.54 °	3 dB	20 °	Pass
7990.02 MHz	-24.86 dB	-16.76 °	-24.91 dB	-14.35 °	0.04 dB	-2.41 °	1 dB	10 °	Pass
8032.52 MHz	-19.85 dB	-9.29 °	-19.9 dB	-6.75 °	0.06 dB	-2.54 °	1 dB	10 °	Pass
8075.02 MHz	-16.52 dB	-8.93 °	-16.65 dB	-7.38 °	0.12 dB	-1.55 °	1 dB	10 °	Pass
8117.51 MHz	-14.28 dB	-11.28 °	-14.33 dB	-10.53 °	0.04 dB	-0.75 °	0.5 dB	4 °	Pass
8160.01 MHz	-12.58 dB	-15.82 °	-12.56 dB	-14.81 °	-0.02 dB	-1 °	0.5 dB	4 °	Pass
8202.51 MHz	-11.13 dB	-20.33 °	-11.16 dB	-19.42 °	0.03 dB	-0.91 °	0.5 dB	4 °	Pass
8245.01 MHz	-10 dB	-24.69 °	-10.04 dB	-24.13 °	0.04 dB	-0.56 °	0.5 dB	4 °	Pass
8287.51 MHz	-9.11 dB	-29.62 °	-9.1 dB	-29.04 °	0 dB	-0.58 °	0.5 dB	4 °	Pass
8330.01 MHz	-8.31 dB	-34.61 °	-8.32 dB	-33.96 °	0.01 dB	-0.65 °	0.5 dB	4 °	Pass
8372.5 MHz	-7.62 dB	-39.29 °	-7.66 dB	-38.83 °	0.03 dB	-0.45 °	0.5 dB	4 °	Pass
8415 MHz	-7.09 dB	-44.04 °	-7.1 dB	-43.73 °	0.01 dB	-0.31 °	0.5 dB	4 °	Pass
8457.5 MHz	-6.63 dB	-48.9 °	-6.62 dB	-48.52 °	-0.01 dB	-0.39 °	0.5 dB	4 °	Pass
8500 MHz	-6.23 dB	-53.61 °	-6.23 dB	-53.21 °	0 dB	-0.4 °	0.5 dB	4 °	Pass

Frequency	Measurement		Reference		Measured Delta		Specified Uncertainty TUL		Test
MHz	Mag (dB)	Angle (°)	Mag (dB)	Angle (°)	Mag (dB)	Angle (°)	Mag (dB)	Angle (°)	Verdict
S21 Tests									
0.3 MHz	0 dB	0.07 °	0 dB	-0.16 °	0 dB	0.23 °	0.4 dB	6 °	Pass
42.8 MHz	-0.02 dB	-6.32 °	-0.02 dB	-6.27 °	0 dB	-0.04 °	0.1 dB	1 °	Pass
85.3 MHz	-0.06 dB	-12.49 °	-0.06 dB	-12.44 °	0 dB	-0.05 °	0.1 dB	1 °	Pass
127.8 MHz	-0.12 dB	-18.63 °	-0.12 dB	-18.56 °	0 dB	-0.07 °	0.1 dB	1 °	Pass
170.29 MHz	-0.18 dB	-24.64 °	-0.19 dB	-24.61 °	0.01 dB	-0.03 °	0.1 dB	1 °	Pass
212.79 MHz	-0.28 dB	-30.62 °	-0.28 dB	-30.58 °	0.01 dB	-0.04 °	0.1 dB	1 °	Pass
255.29 MHz	-0.39 dB	-36.5 °	-0.39 dB	-36.44 °	-0.01 dB	-0.06 °	0.1 dB	1 °	Pass
297.79 MHz	-0.5 dB	-42.24 °	-0.5 dB	-42.19 °	0.01 dB	-0.05 °	0.1 dB	1 °	Pass
340.29 MHz	-0.62 dB	-47.86 °	-0.63 dB	-47.82 °	0.01 dB	-0.04 °	0.1 dB	1 °	Pass
382.79 MHz	-0.77 dB	-53.35 °	-0.76 dB	-53.33 °	0 dB	-0.02 °	0.1 dB	1 °	Pass
425.29 MHz	-0.89 dB	-58.79 °	-0.9 dB	-58.71 °	0.01 dB	-0.08 °	0.1 dB	1 °	Pass
467.78 MHz	-1.03 dB	-64.03 °	-1.03 dB	-63.98 °	0.01 dB	-0.05 °	0.1 dB	1 °	Pass
510.28 MHz	-1.17 dB	-69.09 °	-1.17 dB	-69.13 °	0 dB	0.04 °	0.1 dB	1 °	Pass
552.78 MHz	-1.29 dB	-74.27 °	-1.3 dB	-74.16 °	0.01 dB	-0.11 °	0.1 dB	1 °	Pass
595.28 MHz	-1.42 dB	-79.1 °	-1.42 dB	-79.09 °	0 dB	-0.01 °	0.1 dB	1 °	Pass
637.78 MHz	-1.53 dB	-83.9 °	-1.53 dB	-83.92 °	0.01 dB	0.02 °	0.1 dB	1 °	Pass
680.28 MHz	-1.64 dB	-88.8 °	-1.64 dB	-88.67 °	0 dB	-0.12 °	0.1 dB	1 °	Pass
722.77 MHz	-1.73 dB	-93.34 °	-1.73 dB	-93.34 °	0 dB	0 °	0.1 dB	1 °	Pass
765.27 MHz	-1.8 dB	-97.99 °	-1.81 dB	-97.95 °	0.01 dB	-0.04 °	0.1 dB	1 °	Pass
807.77 MHz	-1.89 dB	-102.57 °	-1.88 dB	-102.5 °	-0.01 dB	-0.07 °	0.1 dB	1 °	Pass
850.27 MHz	-1.93 dB	-107.04 °	-1.94 dB	-107.01 °	0.01 dB	-0.03 °	0.1 dB	1 °	Pass
892.77 MHz	-1.97 dB	-111.55 °	-1.98 dB	-111.48 °	0.01 dB	-0.07 °	0.1 dB	1 °	Pass
935.27 MHz	-2.01 dB	-115.98 °	-2.01 dB	-115.94 °	0 dB	-0.03 °	0.1 dB	1 °	Pass
977.77 MHz	-2.03 dB	-120.46 °	-2.03 dB	-120.38 °	0 dB	-0.08 °	0.1 dB	1 °	Pass
1020.26 MHz	-2.03 dB	-124.89 °	-2.03 dB	-124.81 °	0 dB	-0.08 °	0.1 dB	1 °	Pass
1062.76 MHz	-2.01 dB	-129.26 °	-2.02 dB	-129.12 °	0 dB	-0.14 °	0.1 dB	1 °	Pass
1105.26 MHz	-1.99 dB	-133.8 °	-1.99 dB	-133.58 °	0 dB	-0.22 °	0.1 dB	1 °	Pass
1147.76 MHz	-1.94 dB	-138.26 °	-1.95 dB	-138.07 °	0 dB	-0.18 °	0.1 dB	1 °	Pass
1190.26 MHz	-1.89 dB	-142.72 °	-1.89 dB	-142.61 °	0 dB	-0.12 °	0.1 dB	1 °	Pass
1232.76 MHz	-1.83 dB	-147.36 °	-1.82 dB	-147.18 °	-0.01 dB	-0.18 °	0.1 dB	1 °	Pass
1275.26 MHz	-1.74 dB	-151.97 °	-1.74 dB	-151.81 °	0 dB	-0.16 °	0.1 dB	1 °	Pass
1317.75 MHz	-1.65 dB	-156.63 °	-1.65 dB	-156.51 °	0 dB	-0.11 °	0.1 dB	1 °	Pass
1360.25 MHz	-1.57 dB	-161.44 °	-1.55 dB	-161.3 °	-0.02 dB	-0.14 °	0.1 dB	1 °	Pass
1402.75 MHz	-1.45 dB	-166.33 °	-1.44 dB	-166.15 °	0 dB	-0.17 °	0.1 dB	1 °	Pass
1445.25 MHz	-1.33 dB	-171.21 °	-1.33 dB	-171.12 °	0 dB	-0.08 °	0.1 dB	1 °	Pass
1487.75 MHz	-1.22 dB	-176.28 °	-1.21 dB	-176.18 °	-0.02 dB	-0.09 °	0.1 dB	1 °	Pass
1530.25 MHz	-1.09 dB	178.57 °	-1.08 dB	178.65 °	-0.01 dB	-0.08 °	0.1 dB	1 °	Pass
1572.74 MHz	-0.97 dB	173.3 °	-0.95 dB	173.36 °	-0.01 dB	-0.05 °	0.1 dB	1 °	Pass
1615.24 MHz	-0.84 dB	167.85 °	-0.83 dB	167.95 °	-0.01 dB	-0.1 °	0.1 dB	1 °	Pass
1657.74 MHz	-0.71 dB	162.34 °	-0.71 dB	162.41 °	0 dB	-0.07 °	0.1 dB	1 °	Pass
1700.24 MHz	-0.61 dB	156.77 °	-0.6 dB	156.77 °	-0.01 dB	0 °	0.1 dB	1 °	Pass
1742.74 MHz	-0.5 dB	150.97 °	-0.49 dB	151.02 °	0 dB	-0.04 °	0.1 dB	1 °	Pass
1785.24 MHz	-0.4 dB	145.12 °	-0.4 dB	145.16 °	0 dB	-0.04 °	0.1 dB	1 °	Pass
1827.74 MHz	-0.33 dB	139.25 °	-0.33 dB	139.21 °	0 dB	0.05 °	0.1 dB	1 °	Pass
1870.23 MHz	-0.27 dB	133.2 °	-0.27 dB	133.19 °	0 dB	0.02 °	0.1 dB	1 °	Pass
1912.73 MHz	-0.23 dB	127.11 °	-0.23 dB	127.1 °	0 dB	0.02 °	0.1 dB	1 °	Pass
1955.23 MHz	-0.21 dB	120.99 °	-0.21 dB	120.99 °	0 dB	0 °	0.1 dB	1 °	Pass
1997.73 MHz	-0.21 dB	114.89 °	-0.21 dB	114.87 °	0 dB	0.02 °	0.1 dB	1 °	Pass
2040.23 MHz	-0.22 dB	108.79 °	-0.24 dB	108.76 °	0.02 dB	0.03 °	0.1 dB	1 °	Pass
2082.73 MHz	-0.28 dB	102.64 °	-0.28 dB	102.7 °	0 dB	-0.06 °	0.1 dB	1 °	Pass
2125.23 MHz	-0.33 dB	96.69 °	-0.34 dB	96.68 °	0.01 dB	0.01 °	0.1 dB	1 °	Pass
2167.72 MHz	-0.4 dB	90.74 °	-0.42 dB	90.74 °	0.02 dB	0 °	0.1 dB	1 °	Pass
2210.22 MHz	-0.51 dB	84.83 °	-0.52 dB	84.89 °	0.01 dB	-0.05 °	0.1 dB	1 °	Pass
2252.72 MHz	-0.61 dB	79.14 °	-0.63 dB	79.14 °	0.02 dB	0 °	0.1 dB	1 °	Pass
2295.22 MHz	-0.72 dB	73.45 °	-0.74 dB	73.5 °	0.02 dB	-0.04 °	0.1 dB	1 °	Pass
2337.72 MHz	-0.85 dB	67.96 °	-0.87 dB	67.98 °	0.02 dB	-0.01 °	0.1 dB	1 °	Pass
2380.22 MHz	-0.98 dB	62.53 °	-1 dB	62.59 °	0.01 dB	-0.06 °	0.1 dB	1 °	Pass
2422.71 MHz	-1.1 dB	57.22 °	-1.12 dB	57.3 °	0.02 dB	-0.08 °	0.1 dB	1 °	Pass
2465.21 MHz	-1.23 dB	52.11 °	-1.25 dB	52.12 °	0.02 dB	-0.01 °	0.1 dB	1 °	Pass
2507.71 MHz	-1.37 dB	46.99 °	-1.38 dB	47.08 °	0.01 dB	-0.09 °	0.1 dB	1 °	Pass
2550.21 MHz	-1.48 dB	42 °	-1.49 dB	42.11 °	0.02 dB	-0.11 °	0.1 dB	1 °	Pass
2592.71 MHz	-1.59 dB	37.18 °	-1.61 dB	37.24 °	0.02 dB	-0.06 °	0.1 dB	1 °	Pass
2635.21 MHz	-1.71 dB	32.36 °	-1.71 dB	32.46 °	0 dB	-0.11 °	0.1 dB	1 °	Pass
2677.71 MHz	-1.79 dB	27.59 °	-1.8 dB	27.75 °	0.01 dB	-0.16 °	0.1 dB	1 °	Pass
2720.2 MHz	-1.87 dB	23.01 °	-1.89 dB	23.1 °	0.02 dB	-0.1 °	0.1 dB	1 °	Pass
2762.7 MHz	-1.95 dB	18.44 °	-1.96 dB	18.52 °	0.01 dB	-0.08 °	0.1 dB	1 °	Pass
2805.2 MHz	-2.01 dB	13.84 °	-2.02 dB	13.99 °	0.01 dB	-0.15 °	0.1 dB	1 °	Pass
2847.7 MHz	-2.05 dB	9.33 °	-2.06 dB	9.48 °	0.01 dB	-0.15 °	0.1 dB	1 °	Pass
2890.2 MHz	-2.08 dB	4.9 °	-2.1 dB	5 °	0.01 dB	-0.11 °	0.1 dB	1 °	Pass
2932.7 MHz	-2.11 dB	0.44 °	-2.12 dB	0.54 °	0.01 dB	-0.1 °	0.1 dB	1 °	Pass
2975.2 MHz	-2.12 dB	-4.03 °	-2.12 dB	-3.9 °	0 dB	-0.13 °	0.1 dB	1 °	Pass
3017.69 MHz	-2.1 dB	-8.45 °	-2.11 dB	-8.35 °	0.01 dB	-0.1 °	0.1 dB	1 °	Pass
3060.19 MHz	-2.09 dB	-12.89 °	-2.09 dB	-12.82 °	0 dB	-0.08 °	0.1 dB	1 °	Pass
3102.69 MHz	-2.06 dB	-17.38 °	-2.06 dB	-17.31 °	0 dB	-0.07 °	0.1 dB	1 °	Pass
3145.19 MHz	-2.01 dB	-21.87 °	-2.01 dB	-21.83 °	0 dB	-0.04 °	0.1 dB	1 °	Pass
3187.69 MHz	-1.95 dB	-26.37 °	-1.95 dB	-26.39 °	0 dB	0.01 °	0.1 dB	1 °	Pass
3230.19 MHz	-1.88 dB	-31.02 °	-1.88 dB	-30.99 °	0 dB	-0.03 °	0.1 dB	1 °	Pass
3272.68 MHz	-1.8 dB	-35.72 °	-1.8 dB	-35.68 °	0 dB	-0.04 °	0.1 dB	1 °	Pass
3315.18 MHz	-1.7 dB	-40.41 °	-1.71 dB	-40.43 °	0.01 dB	0.03 °	0.1 dB	1 °	Pass
3357.68 MHz	-1.6 dB	-45.27 °	-1.61 dB	-45.27 °	0.01 dB	0 °	0.1 dB	1 °	Pass
3400.18 MHz	-1.5 dB	-50.15 °	-1.5 dB	-50.17 °	0 dB	0.02 °	0.1 dB	1 °	Pass
3442.68 MHz	-1.37 dB	-55.15 °	-1.38 dB	-55.15 °	0.01 dB	0 °	0.1 dB	1 °	Pass
3485.18 MHz	-1.26 dB	-60.28 °	-1.26 dB	-60.24 °	0.01 dB	-0.04 °	0.1 dB	1 °	Pass
3527.68 MHz	-1.14 dB	-65.47 °	-1.14 dB	-65.44 °	0 dB	-0.03 °	0.1 dB	1 °	Pass
3570.17 MHz	-1.01 dB	-70.77 °	-1.02 dB	-70.75 °	0.01 dB	-0.02 °	0.1 dB	1 °	Pass
3612.67 MHz	-0.89 dB	-76.18 °	-0.9 dB	-76.17 °	0.01 dB	-0.01 °	0.1 dB	1 °	Pass
3655.17 MHz	-0.78 dB	-81.77 °	-0.79 dB	-81.72 °	0.01 dB	-0.06 °	0.1 dB	1 °	Pass
3697.67 MHz	-0.67 dB	-87.41 °	-0.68 dB	-87.39 °	0 dB	-0.02 °	0.1 dB	1 °	Pass
3740.17 MHz	-0.57 dB	-93.15 °	-0.58 dB	-93.16 °	0.01 dB	0.01 °	0.1 dB	1 °	Pass
3782.67 MHz	-0.49 dB	-99.04 °	-0.5 dB	-99.02 °	0 dB	-0.01 °	0.1 dB	1 °	Pass
3825.17 MHz	-0.43 dB	-104.96 °	-0.43 dB	-104.97 °	0 dB	0.01 °	0.1 dB	1 °	Pass
3867.66 MHz	-0.37 dB	-110.96 °	-0.38 dB	-110.98 °	0.01 dB	0.02 °	0.1 dB	1 °	Pass
3910.16 MHz	-0.34 dB	-117.02 °	-0.34 dB	-117.02 °	0 dB	0 °	0.1 dB	1 °	Pass
3952.66 MHz	-0.33 dB	-123.07 °	-0.33 dB	-123.07 °	0 dB	0 °	0.1 dB	1 °	Pass
3995.16 MHz	-0.33 dB	-129.14 °	-0.34 dB	-129.13 °	0.01 dB	-0.01 °	0.1 dB	1 °	Pass
4037.66 MHz	-0.36 dB	-135.23 °	-0.36 dB	-135.19 °	0.01 dB	-0.04 °	0.1 dB	1 °	Pass
4080.16 MHz	-0.41 dB	-141.24 °	-0.41 dB	-141.21 °	0 dB	-0.03 °	0.1 dB	1 °	Pass
4122.65 MHz	-0.47 dB	-147.19 °	-0.47 dB	-147.18 °	0 dB	-0.02 °	0.1 dB	1 °	Pass
4165.15 MHz	-0.55 dB	-153.13 °	-0.55 dB	-153.07 °	0 dB	-0.05 °	0.1 dB	1 °	Pass
4207.65 MHz	-0.64 dB	-158.91 °	-0.65 dB	-158.87 °	0.01 dB	-0.04 °	0.1 dB	1 °	Pass
4250.15 MHz	-0.75 dB	-164.62 °	-0.75 dB	-164.58 °	0.01 dB	-0.04 °	0.1 dB	1 °	Pass

Frequency	Measurement		Reference		Measured Delta		Specified Uncertainty TUL		Test
MHz	Mag (dB)	Angle (°)	Mag (dB)	Angle (°)	Mag (dB)	Angle (°)	Mag (dB)	Angle (°)	Verdict
4292.65 MHz	-0.86 dB	-170.24 °	-0.87 dB	-170.19 °	0 dB	-0.05 °	0.1 dB	1 °	Pass
4335.15 MHz	-0.98 dB	-175.74 °	-0.99 dB	-175.67 °	0.01 dB	-0.07 °	0.1 dB	1 °	Pass
4377.65 MHz	-1.1 dB	178.89 °	-1.11 dB	178.96 °	0.01 dB	-0.07 °	0.1 dB	1 °	Pass
4420.14 MHz	-1.23 dB	173.64 °	-1.23 dB	173.68 °	0 dB	-0.05 °	0.1 dB	1 °	Pass
4462.64 MHz	-1.35 dB	168.46 °	-1.36 dB	168.54 °	0 dB	-0.09 °	0.1 dB	1 °	Pass
4505.14 MHz	-1.47 dB	163.38 °	-1.48 dB	163.47 °	0.01 dB	-0.09 °	0.1 dB	1 °	Pass
4547.64 MHz	-1.59 dB	158.48 °	-1.59 dB	158.52 °	0 dB	-0.05 °	0.1 dB	1 °	Pass
4590.14 MHz	-1.7 dB	153.65 °	-1.7 dB	153.65 °	0 dB	0 °	0.1 dB	1 °	Pass
4632.64 MHz	-1.8 dB	148.81 °	-1.8 dB	148.88 °	0 dB	-0.07 °	0.1 dB	1 °	Pass
4675.14 MHz	-1.89 dB	144.14 °	-1.89 dB	144.18 °	0 dB	-0.04 °	0.1 dB	1 °	Pass
4717.63 MHz	-1.96 dB	139.54 °	-1.97 dB	139.53 °	0 dB	0.01 °	0.1 dB	1 °	Pass
4760.13 MHz	-2.04 dB	134.91 °	-2.04 dB	134.94 °	0 dB	-0.03 °	0.1 dB	1 °	Pass
4802.63 MHz	-2.09 dB	130.33 °	-2.09 dB	130.4 °	0 dB	-0.07 °	0.1 dB	1 °	Pass
4845.13 MHz	-2.14 dB	125.84 °	-2.13 dB	125.89 °	0 dB	-0.05 °	0.1 dB	1 °	Pass
4887.63 MHz	-2.16 dB	121.45 °	-2.17 dB	121.4 °	0.01 dB	0.05 °	0.1 dB	1 °	Pass
4930.13 MHz	-2.18 dB	116.86 °	-2.19 dB	116.92 °	0 dB	-0.06 °	0.1 dB	1 °	Pass
4972.62 MHz	-2.19 dB	112.44 °	-2.19 dB	112.45 °	0 dB	-0.01 °	0.1 dB	1 °	Pass
5015.12 MHz	-2.17 dB	108.02 °	-2.18 dB	107.99 °	0.01 dB	0.03 °	0.1 dB	1 °	Pass
5057.62 MHz	-2.16 dB	103.48 °	-2.16 dB	103.52 °	0 dB	-0.04 °	0.1 dB	1 °	Pass
5100.12 MHz	-2.11 dB	99.01 °	-2.13 dB	99.03 °	0.01 dB	-0.02 °	0.1 dB	1 °	Pass
5142.62 MHz	-2.06 dB	94.49 °	-2.08 dB	94.5 °	0.02 dB	0 °	0.1 dB	1 °	Pass
5185.12 MHz	-2.02 dB	89.93 °	-2.02 dB	89.93 °	0 dB	-0.01 °	0.1 dB	1 °	Pass
5227.62 MHz	-1.93 dB	85.29 °	-1.95 dB	85.31 °	0.01 dB	-0.02 °	0.1 dB	1 °	Pass
5270.11 MHz	-1.85 dB	80.65 °	-1.86 dB	80.64 °	0.02 dB	0.01 °	0.1 dB	1 °	Pass
5312.61 MHz	-1.76 dB	75.86 °	-1.77 dB	75.9 °	0.01 dB	-0.03 °	0.1 dB	1 °	Pass
5355.11 MHz	-1.66 dB	70.98 °	-1.67 dB	71.08 °	0.01 dB	-0.1 °	0.1 dB	1 °	Pass
5397.61 MHz	-1.55 dB	66.16 °	-1.56 dB	66.18 °	0.01 dB	-0.01 °	0.1 dB	1 °	Pass
5440.11 MHz	-1.43 dB	61.12 °	-1.44 dB	61.17 °	0.01 dB	-0.04 °	0.1 dB	1 °	Pass
5482.61 MHz	-1.32 dB	55.93 °	-1.33 dB	56.05 °	0 dB	-0.12 °	0.1 dB	1 °	Pass
5525.11 MHz	-1.2 dB	50.81 °	-1.21 dB	50.83 °	0.01 dB	-0.02 °	0.1 dB	1 °	Pass
5567.6 MHz	-1.07 dB	45.45 °	-1.09 dB	45.52 °	0.01 dB	-0.06 °	0.1 dB	1 °	Pass
5610.1 MHz	-0.97 dB	39.96 °	-0.97 dB	40.08 °	0 dB	-0.11 °	0.1 dB	1 °	Pass
5652.6 MHz	-0.84 dB	34.45 °	-0.85 dB	34.53 °	0.01 dB	-0.08 °	0.1 dB	1 °	Pass
5695.1 MHz	-0.74 dB	28.8 °	-0.75 dB	28.87 °	0 dB	-0.07 °	0.1 dB	1 °	Pass
5737.6 MHz	-0.65 dB	23.03 °	-0.65 dB	23.1 °	0 dB	-0.07 °	0.1 dB	1 °	Pass
5780.1 MHz	-0.56 dB	17.2 °	-0.57 dB	17.25 °	0 dB	-0.05 °	0.1 dB	1 °	Pass
5822.59 MHz	-0.49 dB	11.29 °	-0.5 dB	11.31 °	0.01 dB	-0.02 °	0.1 dB	1 °	Pass
5865.09 MHz	-0.45 dB	5.27 °	-0.45 dB	5.3 °	0 dB	-0.03 °	0.1 dB	1 °	Pass
5907.59 MHz	-0.41 dB	-0.78 °	-0.42 dB	-0.75 °	0 dB	-0.03 °	0.1 dB	1 °	Pass
5950.09 MHz	-0.4 dB	-6.84 °	-0.4 dB	-6.83 °	0 dB	-0.01 °	0.1 dB	1 °	Pass
5992.59 MHz	-0.41 dB	-12.9 °	-0.41 dB	-12.91 °	0 dB	0.01 °	0.1 dB	1 °	Pass
6035.09 MHz	-0.43 dB	-18.98 °	-0.44 dB	-18.97 °	0.01 dB	0 °	0.1 dB	1 °	Pass
6077.59 MHz	-0.49 dB	-25.02 °	-0.49 dB	-24.99 °	0 dB	-0.03 °	0.1 dB	1 °	Pass
6120.08 MHz	-0.55 dB	-30.95 °	-0.56 dB	-30.96 °	0 dB	0 °	0.1 dB	1 °	Pass
6162.58 MHz	-0.62 dB	-36.83 °	-0.64 dB	-36.85 °	0.01 dB	0.01 °	0.1 dB	1 °	Pass
6205.08 MHz	-0.73 dB	-42.66 °	-0.73 dB	-42.65 °	0.01 dB	-0.02 °	0.1 dB	1 °	Pass
6247.58 MHz	-0.84 dB	-48.35 °	-0.84 dB	-48.35 °	0 dB	-0.01 °	0.1 dB	1 °	Pass
6290.08 MHz	-0.94 dB	-53.93 °	-0.96 dB	-53.93 °	0.02 dB	0 °	0.1 dB	1 °	Pass
6332.58 MHz	-1.07 dB	-59.41 °	-1.08 dB	-59.41 °	0.01 dB	0 °	0.1 dB	1 °	Pass
6375.08 MHz	-1.2 dB	-64.77 °	-1.2 dB	-64.77 °	0.01 dB	-0.01 °	0.1 dB	1 °	Pass
6417.57 MHz	-1.31 dB	-69.99 °	-1.33 dB	-70.01 °	0.02 dB	0.03 °	0.1 dB	1 °	Pass
6460.07 MHz	-1.43 dB	-75.15 °	-1.45 dB	-75.16 °	0.02 dB	0.01 °	0.1 dB	1 °	Pass
6502.57 MHz	-1.57 dB	-80.2 °	-1.57 dB	-80.19 °	0 dB	-0.01 °	0.1 dB	1 °	Pass
6545.07 MHz	-1.67 dB	-85.07 °	-1.69 dB	-85.13 °	0.02 dB	0.06 °	0.1 dB	1 °	Pass
6587.57 MHz	-1.78 dB	-90.01 °	-1.8 dB	-89.98 °	0.02 dB	-0.03 °	0.1 dB	1 °	Pass
6630.07 MHz	-1.9 dB	-94.75 °	-1.9 dB	-94.73 °	0 dB	-0.02 °	0.1 dB	1 °	Pass
6672.56 MHz	-1.98 dB	-99.34 °	-1.99 dB	-99.42 °	0.01 dB	0.08 °	0.1 dB	1 °	Pass
6715.06 MHz	-2.05 dB	-104.09 °	-2.07 dB	-104.05 °	0.02 dB	-0.04 °	0.1 dB	1 °	Pass
6757.56 MHz	-2.13 dB	-108.65 °	-2.14 dB	-108.61 °	0.01 dB	-0.04 °	0.1 dB	1 °	Pass
6800.06 MHz	-2.18 dB	-113.09 °	-2.19 dB	-113.14 °	0.01 dB	0.05 °	0.1 dB	1 °	Pass
6842.56 MHz	-2.22 dB	-117.63 °	-2.24 dB	-117.62 °	0.02 dB	-0.02 °	0.1 dB	1 °	Pass
6885.06 MHz	-2.25 dB	-122.12 °	-2.27 dB	-122.07 °	0.02 dB	-0.05 °	0.1 dB	1 °	Pass
6927.56 MHz	-2.27 dB	-126.53 °	-2.28 dB	-126.53 °	0.01 dB	0 °	0.1 dB	1 °	Pass
6970.05 MHz	-2.26 dB	-130.98 °	-2.29 dB	-130.98 °	0.02 dB	0 °	0.1 dB	1 °	Pass
7012.55 MHz	-2.25 dB	-135.46 °	-2.28 dB	-135.4 °	0.02 dB	-0.06 °	0.1 dB	1 °	Pass
7055.05 MHz	-2.24 dB	-139.87 °	-2.25 dB	-139.85 °	0.01 dB	-0.02 °	0.1 dB	1 °	Pass
7097.55 MHz	-2.19 dB	-144.37 °	-2.21 dB	-144.33 °	0.02 dB	-0.04 °	0.1 dB	1 °	Pass
7140.05 MHz	-2.14 dB	-148.92 °	-2.16 dB	-148.85 °	0.02 dB	-0.07 °	0.1 dB	1 °	Pass
7182.55 MHz	-2.08 dB	-153.45 °	-2.1 dB	-153.4 °	0.02 dB	-0.05 °	0.1 dB	1 °	Pass
7225.05 MHz	-2.01 dB	-158.06 °	-2.03 dB	-158 °	0.02 dB	-0.06 °	0.1 dB	1 °	Pass
7267.54 MHz	-1.92 dB	-162.75 °	-1.94 dB	-162.65 °	0.02 dB	-0.1 °	0.1 dB	1 °	Pass
7310.04 MHz	-1.83 dB	-167.48 °	-1.84 dB	-167.39 °	0.01 dB	-0.1 °	0.1 dB	1 °	Pass
7352.54 MHz	-1.72 dB	-172.27 °	-1.74 dB	-172.21 °	0.02 dB	-0.07 °	0.1 dB	1 °	Pass
7395.04 MHz	-1.61 dB	-177.21 °	-1.63 dB	-177.11 °	0.02 dB	-0.1 °	0.1 dB	1 °	Pass
7437.54 MHz	-1.49 dB	177.79 °	-1.51 dB	177.89 °	0.01 dB	-0.1 °	0.1 dB	1 °	Pass
7480.04 MHz	-1.38 dB	172.63 °	-1.39 dB	172.69 °	0.01 dB	-0.05 °	0.1 dB	1 °	Pass
7522.53 MHz	-1.25 dB	167.37 °	-1.26 dB	167.48 °	0.01 dB	-0.11 °	0.1 dB	1 °	Pass
7565.03 MHz	-1.13 dB	162.03 °	-1.14 dB	162.14 °	0.01 dB	-0.11 °	0.1 dB	1 °	Pass
7607.53 MHz	-1.01 dB	156.63 °	-1.02 dB	156.68 °	0.01 dB	-0.05 °	0.1 dB	1 °	Pass
7650.03 MHz	-0.89 dB	151.02 °	-0.9 dB	151.12 °	0.01 dB	-0.1 °	0.1 dB	1 °	Pass
7692.53 MHz	-0.79 dB	145.33 °	-0.79 dB	145.46 °	0.01 dB	-0.12 °	0.1 dB	1 °	Pass
7735.03 MHz	-0.69 dB	139.63 °	-0.7 dB	139.67 °	0 dB	-0.04 °	0.1 dB	1 °	Pass
7777.53 MHz	-0.6 dB	133.71 °	-0.61 dB	133.79 °	0.01 dB	-0.07 °	0.1 dB	1 °	Pass
7820.02 MHz	-0.54 dB	127.72 °	-0.54 dB	127.83 °	0 dB	-0.11 °	0.1 dB	1 °	Pass
7862.52 MHz	-0.49 dB	121.73 °	-0.49 dB	121.8 °	0 dB	-0.07 °	0.1 dB	1 °	Pass
7905.02 MHz	-0.46 dB	115.69 °	-0.46 dB	115.73 °	0 dB	-0.05 °	0.1 dB	1 °	Pass
7947.52 MHz	-0.45 dB	109.59 °	-0.45 dB	109.64 °	0.01 dB	-0.04 °	0.1 dB	1 °	Pass
7990.02 MHz	-0.47 dB	103.51 °	-0.47 dB	103.55 °	0 dB	-0.04 °	0.1 dB	1 °	Pass
8032.52 MHz	-0.49 dB	97.48 °	-0.5 dB	97.48 °	0.01 dB	0.01 °	0.1 dB	1 °	Pass
8075.02 MHz	-0.54 dB	91.41 °	-0.55 dB	91.45 °	0 dB	-0.04 °	0.1 dB	1 °	Pass
8117.51 MHz	-0.62 dB	85.51 °	-0.62 dB	85.49 °	0 dB	0.02 °	0.1 dB	1 °	Pass
8160.01 MHz	-0.69 dB	79.62 °	-0.7 dB	79.6 °	0.01 dB	0.02 °	0.1 dB	1 °	Pass
8202.51 MHz	-0.8 dB	73.8 °	-0.8 dB	73.81 °	0.01 dB	-0.01 °	0.1 dB	1 °	Pass
8245.01 MHz	-0.91 dB	68.18 °	-0.91 dB	68.14 °	0.01 dB	0.04 °	0.1 dB	1 °	Pass
8287.51 MHz	-1.02 dB	62.58 °	-1.03 dB	62.58 °	0.01 dB	0.01 °	0.1 dB	1 °	Pass
8330.01 MHz	-1.14 dB	57.15 °	-1.16 dB	57.13 °	0.01 dB	0.02 °	0.1 dB	1 °	Pass
8372.5 MHz	-1.27 dB	51.79 °	-1.28 dB	51.79 °	0.01 dB	0 °	0.1 dB	1 °	Pass
8415 MHz	-1.4 dB	46.57 °	-1.41 dB	46.57 °	0.01 dB	-0.01 °	0.1 dB	1 °	Pass
8457.5 MHz	-1.52 dB	41.48 °	-1.54 dB	41.47 °	0.02 dB	0.01 °	0.1 dB	1 °	Pass
8500 MHz	-1.64 dB	36.45 °	-1.66 dB	36.48 °	0.01 dB	-0.03 °	0.1 dB	1 °	Pass

Frequency	Measurement		Reference		Measured Delta		Specified Uncertainty TUL		Test
MHz	Mag (dB)	Angle (°)	Mag (dB)	Angle (°)	Mag (dB)	Angle (°)	Mag (dB)	Angle (°)	Verdict
S12 Tests									
0.3 MHz	0 dB	-0.22 °	0 dB	-0.16 °	0 dB	-0.06 °	0.3 dB	2 °	Pass
42.8 MHz	-0.02 dB	-6.26 °	-0.03 dB	-6.27 °	0 dB	0.01 °	0.1 dB	1 °	Pass
85.3 MHz	-0.06 dB	-12.41 °	-0.06 dB	-12.45 °	0 dB	0.04 °	0.1 dB	1 °	Pass
127.8 MHz	-0.12 dB	-18.57 °	-0.12 dB	-18.57 °	0 dB	0.01 °	0.1 dB	1 °	Pass
170.29 MHz	-0.19 dB	-24.6 °	-0.19 dB	-24.62 °	0 dB	0.02 °	0.1 dB	1 °	Pass
212.79 MHz	-0.28 dB	-30.56 °	-0.28 dB	-30.59 °	0 dB	0.03 °	0.1 dB	1 °	Pass
255.29 MHz	-0.4 dB	-36.46 °	-0.39 dB	-36.45 °	-0.01 dB	-0.01 °	0.1 dB	1 °	Pass
297.79 MHz	-0.5 dB	-42.18 °	-0.5 dB	-42.21 °	0 dB	0.02 °	0.1 dB	1 °	Pass
340.29 MHz	-0.63 dB	-47.81 °	-0.63 dB	-47.83 °	0 dB	0.02 °	0.1 dB	1 °	Pass
382.79 MHz	-0.78 dB	-53.31 °	-0.76 dB	-53.34 °	-0.02 dB	0.03 °	0.1 dB	1 °	Pass
425.29 MHz	-0.9 dB	-58.74 °	-0.9 dB	-58.73 °	0 dB	-0.01 °	0.1 dB	1 °	Pass
467.78 MHz	-1.03 dB	-63.99 °	-1.03 dB	-64 °	0.01 dB	0.01 °	0.1 dB	1 °	Pass
510.28 MHz	-1.19 dB	-69.07 °	-1.17 dB	-69.15 °	-0.02 dB	0.08 °	0.1 dB	1 °	Pass
552.78 MHz	-1.3 dB	-74.16 °	-1.29 dB	-74.19 °	0 dB	0.02 °	0.1 dB	1 °	Pass
595.28 MHz	-1.41 dB	-79.1 °	-1.42 dB	-79.11 °	0.01 dB	0.01 °	0.1 dB	1 °	Pass
637.78 MHz	-1.55 dB	-83.84 °	-1.53 dB	-83.93 °	-0.02 dB	0.09 °	0.1 dB	1 °	Pass
680.28 MHz	-1.63 dB	-88.67 °	-1.64 dB	-88.68 °	0 dB	0.01 °	0.1 dB	1 °	Pass
722.77 MHz	-1.73 dB	-93.37 °	-1.73 dB	-93.35 °	0 dB	-0.02 °	0.1 dB	1 °	Pass
765.27 MHz	-1.82 dB	-97.86 °	-1.81 dB	-97.95 °	-0.01 dB	0.09 °	0.1 dB	1 °	Pass
807.77 MHz	-1.89 dB	-102.51 °	-1.88 dB	-102.51 °	0 dB	-0.01 °	0.1 dB	1 °	Pass
850.27 MHz	-1.95 dB	-107.01 °	-1.94 dB	-107.01 °	-0.01 dB	0 °	0.1 dB	1 °	Pass
892.77 MHz	-1.98 dB	-111.46 °	-1.98 dB	-111.49 °	0 dB	0.04 °	0.1 dB	1 °	Pass
935.27 MHz	-2.02 dB	-115.99 °	-2.01 dB	-115.95 °	0 dB	-0.04 °	0.1 dB	1 °	Pass
977.77 MHz	-2.03 dB	-120.33 °	-2.03 dB	-120.38 °	0 dB	0.05 °	0.1 dB	1 °	Pass
1020.26 MHz	-2.03 dB	-124.78 °	-2.03 dB	-124.82 °	0 dB	0.05 °	0.1 dB	1 °	Pass
1062.76 MHz	-2.02 dB	-129.27 °	-2.02 dB	-129.13 °	0 dB	-0.14 °	0.1 dB	1 °	Pass
1105.26 MHz	-1.99 dB	-133.64 °	-1.99 dB	-133.59 °	0 dB	-0.06 °	0.1 dB	1 °	Pass
1147.76 MHz	-1.95 dB	-138.15 °	-1.95 dB	-138.08 °	-0.01 dB	-0.07 °	0.1 dB	1 °	Pass
1190.26 MHz	-1.9 dB	-142.71 °	-1.89 dB	-142.6 °	-0.01 dB	-0.11 °	0.1 dB	1 °	Pass
1232.76 MHz	-1.83 dB	-147.21 °	-1.82 dB	-147.18 °	-0.01 dB	-0.02 °	0.1 dB	1 °	Pass
1275.26 MHz	-1.75 dB	-151.86 °	-1.74 dB	-151.81 °	-0.01 dB	-0.05 °	0.1 dB	1 °	Pass
1317.75 MHz	-1.66 dB	-156.6 °	-1.65 dB	-156.51 °	-0.01 dB	-0.09 °	0.1 dB	1 °	Pass
1360.25 MHz	-1.56 dB	-161.32 °	-1.55 dB	-161.29 °	-0.01 dB	-0.03 °	0.1 dB	1 °	Pass
1402.75 MHz	-1.46 dB	-166.16 °	-1.44 dB	-166.15 °	-0.01 dB	-0.01 °	0.1 dB	1 °	Pass
1445.25 MHz	-1.34 dB	-171.16 °	-1.32 dB	-171.12 °	-0.02 dB	-0.04 °	0.1 dB	1 °	Pass
1487.75 MHz	-1.22 dB	-176.2 °	-1.2 dB	-176.18 °	-0.01 dB	-0.01 °	0.1 dB	1 °	Pass
1530.25 MHz	-1.1 dB	178.62 °	-1.08 dB	178.64 °	-0.02 dB	-0.02 °	0.1 dB	1 °	Pass
1572.74 MHz	-0.97 dB	173.36 °	-0.95 dB	173.35 °	-0.01 dB	0.02 °	0.1 dB	1 °	Pass
1615.24 MHz	-0.85 dB	167.98 °	-0.83 dB	167.93 °	-0.02 dB	0.05 °	0.1 dB	1 °	Pass
1657.74 MHz	-0.73 dB	162.43 °	-0.71 dB	162.4 °	-0.02 dB	0.03 °	0.1 dB	1 °	Pass
1700.24 MHz	-0.61 dB	156.82 °	-0.6 dB	156.76 °	-0.01 dB	0.06 °	0.1 dB	1 °	Pass
1742.74 MHz	-0.51 dB	151.05 °	-0.49 dB	151 °	-0.02 dB	0.04 °	0.1 dB	1 °	Pass
1785.24 MHz	-0.41 dB	145.17 °	-0.4 dB	145.15 °	-0.01 dB	0.03 °	0.1 dB	1 °	Pass
1827.74 MHz	-0.33 dB	139.28 °	-0.33 dB	139.2 °	-0.01 dB	0.08 °	0.1 dB	1 °	Pass
1870.23 MHz	-0.28 dB	133.24 °	-0.27 dB	133.19 °	-0.01 dB	0.05 °	0.1 dB	1 °	Pass
1912.73 MHz	-0.23 dB	127.16 °	-0.23 dB	127.11 °	-0.01 dB	0.05 °	0.1 dB	1 °	Pass
1955.23 MHz	-0.21 dB	121.05 °	-0.21 dB	121 °	0 dB	0.05 °	0.1 dB	1 °	Pass
1997.73 MHz	-0.22 dB	114.93 °	-0.21 dB	114.89 °	-0.01 dB	0.04 °	0.1 dB	1 °	Pass
2040.23 MHz	-0.24 dB	108.91 °	-0.24 dB	108.77 °	0 dB	0.14 °	0.1 dB	1 °	Pass
2082.73 MHz	-0.28 dB	102.74 °	-0.28 dB	102.7 °	0 dB	0.04 °	0.1 dB	1 °	Pass
2125.23 MHz	-0.34 dB	96.67 °	-0.34 dB	96.69 °	0 dB	-0.02 °	0.1 dB	1 °	Pass
2167.72 MHz	-0.42 dB	90.9 °	-0.42 dB	90.74 °	0.01 dB	0.16 °	0.1 dB	1 °	Pass
2210.22 MHz	-0.52 dB	84.91 °	-0.52 dB	84.89 °	0 dB	0.02 °	0.1 dB	1 °	Pass
2252.72 MHz	-0.63 dB	79.12 °	-0.63 dB	79.14 °	0 dB	-0.02 °	0.1 dB	1 °	Pass
2295.22 MHz	-0.73 dB	73.59 °	-0.74 dB	73.51 °	0.01 dB	0.09 °	0.1 dB	1 °	Pass
2337.72 MHz	-0.87 dB	67.99 °	-0.87 dB	67.98 °	0 dB	0.01 °	0.1 dB	1 °	Pass
2380.22 MHz	-1 dB	62.55 °	-0.99 dB	62.59 °	0 dB	-0.04 °	0.1 dB	1 °	Pass
2422.71 MHz	-1.11 dB	57.29 °	-1.12 dB	57.3 °	0.01 dB	-0.01 °	0.1 dB	1 °	Pass
2465.21 MHz	-1.25 dB	52.1 °	-1.25 dB	52.13 °	0 dB	-0.03 °	0.1 dB	1 °	Pass
2507.71 MHz	-1.38 dB	47.02 °	-1.38 dB	47.08 °	0 dB	-0.06 °	0.1 dB	1 °	Pass
2550.21 MHz	-1.49 dB	42.06 °	-1.49 dB	42.12 °	0.01 dB	-0.05 °	0.1 dB	1 °	Pass
2592.71 MHz	-1.6 dB	37.2 °	-1.61 dB	37.24 °	0.01 dB	-0.04 °	0.1 dB	1 °	Pass
2635.21 MHz	-1.71 dB	32.38 °	-1.71 dB	32.46 °	0 dB	-0.08 °	0.1 dB	1 °	Pass
2677.71 MHz	-1.8 dB	27.68 °	-1.8 dB	27.75 °	0 dB	-0.08 °	0.1 dB	1 °	Pass
2720.2 MHz	-1.88 dB	23.04 °	-1.89 dB	23.11 °	0.01 dB	-0.06 °	0.1 dB	1 °	Pass
2762.7 MHz	-1.96 dB	18.46 °	-1.96 dB	18.53 °	0 dB	-0.07 °	0.1 dB	1 °	Pass
2805.2 MHz	-2.02 dB	13.92 °	-2.02 dB	13.99 °	0 dB	-0.07 °	0.1 dB	1 °	Pass
2847.7 MHz	-2.06 dB	9.43 °	-2.06 dB	9.5 °	0 dB	-0.07 °	0.1 dB	1 °	Pass
2890.2 MHz	-2.1 dB	4.96 °	-2.09 dB	5.02 °	0 dB	-0.06 °	0.1 dB	1 °	Pass
2932.7 MHz	-2.12 dB	0.5 °	-2.12 dB	0.56 °	0 dB	-0.05 °	0.1 dB	1 °	Pass
2975.2 MHz	-2.12 dB	-3.93 °	-2.12 dB	-3.89 °	0 dB	-0.04 °	0.1 dB	1 °	Pass
3017.69 MHz	-2.12 dB	-8.4 °	-2.11 dB	-8.34 °	-0.01 dB	-0.06 °	0.1 dB	1 °	Pass
3060.19 MHz	-2.1 dB	-12.87 °	-2.09 dB	-12.81 °	-0.01 dB	-0.05 °	0.1 dB	1 °	Pass
3102.69 MHz	-2.06 dB	-17.34 °	-2.06 dB	-17.31 °	0 dB	-0.03 °	0.1 dB	1 °	Pass
3145.19 MHz	-2.02 dB	-21.85 °	-2.01 dB	-21.83 °	-0.01 dB	-0.02 °	0.1 dB	1 °	Pass
3187.69 MHz	-1.96 dB	-26.41 °	-1.95 dB	-26.39 °	-0.01 dB	-0.02 °	0.1 dB	1 °	Pass
3230.19 MHz	-1.88 dB	-31.02 °	-1.88 dB	-30.98 °	0 dB	-0.04 °	0.1 dB	1 °	Pass
3272.68 MHz	-1.81 dB	-35.7 °	-1.8 dB	-35.65 °	-0.01 dB	-0.04 °	0.1 dB	1 °	Pass
3315.18 MHz	-1.72 dB	-40.43 °	-1.71 dB	-40.39 °	-0.01 dB	-0.04 °	0.1 dB	1 °	Pass
3357.68 MHz	-1.61 dB	-45.27 °	-1.61 dB	-45.24 °	0 dB	-0.02 °	0.1 dB	1 °	Pass
3400.18 MHz	-1.5 dB	-50.17 °	-1.5 dB	-50.16 °	0 dB	-0.01 °	0.1 dB	1 °	Pass
3442.68 MHz	-1.39 dB	-55.13 °	-1.38 dB	-55.15 °	-0.01 dB	0.02 °	0.1 dB	1 °	Pass
3485.18 MHz	-1.27 dB	-60.21 °	-1.27 dB	-60.25 °	0 dB	0.04 °	0.1 dB	1 °	Pass
3527.68 MHz	-1.15 dB	-65.47 °	-1.14 dB	-65.44 °	0 dB	-0.02 °	0.1 dB	1 °	Pass
3570.17 MHz	-1.03 dB	-70.75 °	-1.02 dB	-70.75 °	-0.01 dB	0 °	0.1 dB	1 °	Pass
3612.67 MHz	-0.91 dB	-76.14 °	-0.9 dB	-76.17 °	-0.01 dB	0.03 °	0.1 dB	1 °	Pass
3655.17 MHz	-0.79 dB	-81.75 °	-0.79 dB	-81.71 °	0 dB	-0.04 °	0.1 dB	1 °	Pass
3697.67 MHz	-0.68 dB	-87.38 °	-0.68 dB	-87.35 °	-0.01 dB	-0.03 °	0.1 dB	1 °	Pass
3740.17 MHz	-0.59 dB	-93.09 °	-0.58 dB	-93.11 °	-0.01 dB	0.02 °	0.1 dB	1 °	Pass
3782.67 MHz	-0.5 dB	-99 °	-0.5 dB	-98.97 °	0 dB	-0.02 °	0.1 dB	1 °	Pass
3825.17 MHz	-0.43 dB	-104.92 °	-0.43 dB	-104.92 °	0 dB	0 °	0.1 dB	1 °	Pass
3867.66 MHz	-0.38 dB	-110.88 °	-0.38 dB	-110.95 °	0 dB	0.07 °	0.1 dB	1 °	Pass
3910.16 MHz	-0.34 dB	-116.96 °	-0.34 dB	-117 °	0 dB	0.05 °	0.1 dB	1 °	Pass
3952.66 MHz	-0.33 dB	-123.04 °	-0.33 dB	-123.09 °	0 dB	0.05 °	0.1 dB	1 °	Pass
3995.16 MHz	-0.34 dB	-129.12 °	-0.34 dB	-129.16 °	0 dB	0.05 °	0.1 dB	1 °	Pass
4037.66 MHz	-0.36 dB	-135.18 °	-0.36 dB	-135.21 °	0 dB	0.03 °	0.1 dB	1 °	Pass
4080.16 MHz	-0.41 dB	-141.2 °	-0.41 dB	-141.23 °	0 dB	0.02 °	0.1 dB	1 °	Pass
4122.65 MHz	-0.48 dB	-147.18 °	-0.47 dB	-147.18 °	0 dB	0 °	0.1 dB	1 °	Pass
4165.15 MHz	-0.55 dB	-153.08 °	-0.55 dB	-153.08 °	0 dB	0 °	0.1 dB	1 °	Pass
4207.65 MHz	-0.65 dB	-158.88 °	-0.65 dB	-158.89 °	0 dB	0.01 °	0.1 dB	1 °	Pass
4250.15 MHz	-0.76 dB	-164.55 °	-0.75 dB	-164.59 °	0 dB	0.04 °	0.1 dB	1 °	Pass

Frequency	Measurement		Reference		Measured Delta		Specified Uncertainty TUL		Test
MHz	Mag (dB)	Angle (°)	Mag (dB)	Angle (°)	Mag (dB)	Angle (°)	Mag (dB)	Angle (°)	Verdict
4292.65 MHz	-0.87 dB	-170.17 °	-0.87 dB	-170.2 °	0 dB	0.04 °	0.1 dB	1 °	Pass
4335.15 MHz	-0.99 dB	-175.66 °	-0.99 dB	-175.67 °	0 dB	0.01 °	0.1 dB	1 °	Pass
4377.65 MHz	-1.11 dB	178.99 °	-1.11 dB	178.96 °	0 dB	0.03 °	0.1 dB	1 °	Pass
4420.14 MHz	-1.24 dB	173.74 °	-1.24 dB	173.68 °	0 dB	0.06 °	0.1 dB	1 °	Pass
4462.64 MHz	-1.36 dB	168.57 °	-1.36 dB	168.56 °	0 dB	0.01 °	0.1 dB	1 °	Pass
4505.14 MHz	-1.48 dB	163.53 °	-1.48 dB	163.5 °	0 dB	0.04 °	0.1 dB	1 °	Pass
4547.64 MHz	-1.59 dB	158.59 °	-1.59 dB	158.53 °	0.01 dB	0.06 °	0.1 dB	1 °	Pass
4590.14 MHz	-1.7 dB	153.67 °	-1.7 dB	153.66 °	0 dB	0.01 °	0.1 dB	1 °	Pass
4632.64 MHz	-1.8 dB	148.9 °	-1.8 dB	148.89 °	0 dB	0.01 °	0.1 dB	1 °	Pass
4675.14 MHz	-1.87 dB	144.23 °	-1.89 dB	144.18 °	0.01 dB	0.06 °	0.1 dB	1 °	Pass
4717.63 MHz	-1.96 dB	139.5 °	-1.97 dB	139.54 °	0 dB	-0.03 °	0.1 dB	1 °	Pass
4760.13 MHz	-2.04 dB	134.93 °	-2.04 dB	134.95 °	-0.01 dB	-0.01 °	0.1 dB	1 °	Pass
4802.63 MHz	-2.08 dB	130.48 °	-2.09 dB	130.41 °	0.01 dB	0.07 °	0.1 dB	1 °	Pass
4845.13 MHz	-2.13 dB	125.89 °	-2.14 dB	125.9 °	0.01 dB	-0.01 °	0.1 dB	1 °	Pass
4887.63 MHz	-2.17 dB	121.38 °	-2.17 dB	121.41 °	0 dB	-0.03 °	0.1 dB	1 °	Pass
4930.13 MHz	-2.18 dB	116.95 °	-2.19 dB	116.95 °	0.01 dB	0 °	0.1 dB	1 °	Pass
4972.62 MHz	-2.19 dB	112.58 °	-2.19 dB	112.48 °	0 dB	0.11 °	0.1 dB	1 °	Pass
5015.12 MHz	-2.18 dB	108.01 °	-2.18 dB	108.01 °	0 dB	0 °	0.1 dB	1 °	Pass
5057.62 MHz	-2.16 dB	103.52 °	-2.16 dB	103.54 °	0 dB	-0.02 °	0.1 dB	1 °	Pass
5100.12 MHz	-2.12 dB	99.14 °	-2.13 dB	99.04 °	0.01 dB	0.1 °	0.1 dB	1 °	Pass
5142.62 MHz	-2.08 dB	94.53 °	-2.08 dB	94.52 °	0 dB	0.02 °	0.1 dB	1 °	Pass
5185.12 MHz	-2.02 dB	89.98 °	-2.02 dB	89.96 °	0 dB	0.02 °	0.1 dB	1 °	Pass
5227.62 MHz	-1.94 dB	85.4 °	-1.95 dB	85.34 °	0 dB	0.06 °	0.1 dB	1 °	Pass
5270.11 MHz	-1.87 dB	80.67 °	-1.86 dB	80.67 °	-0.01 dB	0 °	0.1 dB	1 °	Pass
5312.61 MHz	-1.77 dB	75.95 °	-1.77 dB	75.93 °	0 dB	0.03 °	0.1 dB	1 °	Pass
5355.11 MHz	-1.67 dB	71.18 °	-1.67 dB	71.1 °	0 dB	0.08 °	0.1 dB	1 °	Pass
5397.61 MHz	-1.57 dB	66.17 °	-1.56 dB	66.2 °	-0.01 dB	-0.02 °	0.1 dB	1 °	Pass
5440.11 MHz	-1.45 dB	61.21 °	-1.45 dB	61.19 °	0 dB	0.02 °	0.1 dB	1 °	Pass
5482.61 MHz	-1.33 dB	56.19 °	-1.33 dB	56.08 °	0 dB	0.11 °	0.1 dB	1 °	Pass
5525.11 MHz	-1.22 dB	50.88 °	-1.21 dB	50.86 °	-0.01 dB	0.02 °	0.1 dB	1 °	Pass
5567.6 MHz	-1.09 dB	45.57 °	-1.09 dB	45.54 °	0 dB	0.03 °	0.1 dB	1 °	Pass
5610.1 MHz	-0.96 dB	40.2 °	-0.97 dB	40.09 °	0 dB	0.11 °	0.1 dB	1 °	Pass
5652.6 MHz	-0.86 dB	34.62 °	-0.85 dB	34.55 °	-0.01 dB	0.07 °	0.1 dB	1 °	Pass
5695.1 MHz	-0.75 dB	28.94 °	-0.75 dB	28.89 °	-0.01 dB	0.05 °	0.1 dB	1 °	Pass
5737.6 MHz	-0.65 dB	23.18 °	-0.65 dB	23.12 °	0 dB	0.05 °	0.1 dB	1 °	Pass
5780.1 MHz	-0.57 dB	17.31 °	-0.57 dB	17.27 °	0 dB	0.05 °	0.1 dB	1 °	Pass
5822.59 MHz	-0.5 dB	11.37 °	-0.5 dB	11.33 °	0 dB	0.04 °	0.1 dB	1 °	Pass
5865.09 MHz	-0.45 dB	5.36 °	-0.45 dB	5.32 °	0 dB	0.04 °	0.1 dB	1 °	Pass
5907.59 MHz	-0.42 dB	-0.68 °	-0.42 dB	-0.73 °	0 dB	0.05 °	0.1 dB	1 °	Pass
5950.09 MHz	-0.41 dB	-6.78 °	-0.4 dB	-6.8 °	0 dB	0.03 °	0.1 dB	1 °	Pass
5992.59 MHz	-0.41 dB	-12.86 °	-0.41 dB	-12.89 °	0 dB	0.03 °	0.1 dB	1 °	Pass
6035.09 MHz	-0.44 dB	-18.92 °	-0.44 dB	-18.95 °	0 dB	0.03 °	0.1 dB	1 °	Pass
6077.59 MHz	-0.49 dB	-24.93 °	-0.49 dB	-24.98 °	0 dB	0.05 °	0.1 dB	1 °	Pass
6120.08 MHz	-0.55 dB	-30.9 °	-0.56 dB	-30.94 °	0 dB	0.04 °	0.1 dB	1 °	Pass
6162.58 MHz	-0.64 dB	-36.81 °	-0.64 dB	-36.83 °	0 dB	0.02 °	0.1 dB	1 °	Pass
6205.08 MHz	-0.74 dB	-42.56 °	-0.73 dB	-42.62 °	0 dB	0.06 °	0.1 dB	1 °	Pass
6247.58 MHz	-0.84 dB	-48.29 °	-0.84 dB	-48.32 °	0 dB	0.03 °	0.1 dB	1 °	Pass
6290.08 MHz	-0.96 dB	-53.88 °	-0.96 dB	-53.91 °	-0.01 dB	0.02 °	0.1 dB	1 °	Pass
6332.58 MHz	-1.08 dB	-59.31 °	-1.08 dB	-59.38 °	-0.01 dB	0.08 °	0.1 dB	1 °	Pass
6375.08 MHz	-1.2 dB	-64.71 °	-1.2 dB	-64.75 °	0 dB	0.04 °	0.1 dB	1 °	Pass
6417.57 MHz	-1.33 dB	-69.98 °	-1.33 dB	-70 °	0 dB	0.02 °	0.1 dB	1 °	Pass
6460.07 MHz	-1.46 dB	-75.05 °	-1.45 dB	-75.13 °	-0.01 dB	0.09 °	0.1 dB	1 °	Pass
6502.57 MHz	-1.57 dB	-80.1 °	-1.57 dB	-80.17 °	0 dB	0.06 °	0.1 dB	1 °	Pass
6545.07 MHz	-1.69 dB	-85.1 °	-1.69 dB	-85.1 °	0 dB	0.01 °	0.1 dB	1 °	Pass
6587.57 MHz	-1.8 dB	-89.89 °	-1.8 dB	-89.96 °	-0.01 dB	0.07 °	0.1 dB	1 °	Pass
6630.07 MHz	-1.9 dB	-94.6 °	-1.9 dB	-94.72 °	0 dB	0.12 °	0.1 dB	1 °	Pass
6672.56 MHz	-1.99 dB	-99.37 °	-1.99 dB	-99.41 °	0 dB	0.04 °	0.1 dB	1 °	Pass
6715.06 MHz	-2.07 dB	-104.01 °	-2.07 dB	-104.04 °	0 dB	0.03 °	0.1 dB	1 °	Pass
6757.56 MHz	-2.15 dB	-108.41 °	-2.14 dB	-108.59 °	0 dB	0.18 °	0.1 dB	1 °	Pass
6800.06 MHz	-2.19 dB	-113.03 °	-2.2 dB	-113.1 °	0.01 dB	0.07 °	0.1 dB	1 °	Pass
6842.56 MHz	-2.23 dB	-117.59 °	-2.24 dB	-117.58 °	0.01 dB	-0.01 °	0.1 dB	1 °	Pass
6885.06 MHz	-2.27 dB	-121.92 °	-2.27 dB	-122.03 °	-0.01 dB	0.11 °	0.1 dB	1 °	Pass
6927.56 MHz	-2.28 dB	-126.43 °	-2.28 dB	-126.5 °	0.01 dB	0.08 °	0.1 dB	1 °	Pass
6970.05 MHz	-2.28 dB	-130.95 °	-2.29 dB	-130.96 °	0.01 dB	0.02 °	0.1 dB	1 °	Pass
7012.55 MHz	-2.28 dB	-135.29 °	-2.28 dB	-135.38 °	0 dB	0.09 °	0.1 dB	1 °	Pass
7055.05 MHz	-2.25 dB	-139.74 °	-2.25 dB	-139.82 °	0.01 dB	0.08 °	0.1 dB	1 °	Pass
7097.55 MHz	-2.21 dB	-144.31 °	-2.21 dB	-144.3 °	0.01 dB	-0.02 °	0.1 dB	1 °	Pass
7140.05 MHz	-2.16 dB	-148.78 °	-2.16 dB	-148.81 °	0 dB	0.04 °	0.1 dB	1 °	Pass
7182.55 MHz	-2.09 dB	-153.3 °	-2.1 dB	-153.38 °	0.01 dB	0.08 °	0.1 dB	1 °	Pass
7225.05 MHz	-2.02 dB	-157.96 °	-2.03 dB	-157.98 °	0.01 dB	0.02 °	0.1 dB	1 °	Pass
7267.54 MHz	-1.94 dB	-162.63 °	-1.94 dB	-162.65 °	0 dB	0.02 °	0.1 dB	1 °	Pass
7310.04 MHz	-1.84 dB	-167.34 °	-1.84 dB	-167.38 °	0.01 dB	0.04 °	0.1 dB	1 °	Pass
7352.54 MHz	-1.73 dB	-172.18 °	-1.74 dB	-172.19 °	0.01 dB	0.01 °	0.1 dB	1 °	Pass
7395.04 MHz	-1.62 dB	-177.1 °	-1.63 dB	-177.1 °	0 dB	0 °	0.1 dB	1 °	Pass
7437.54 MHz	-1.51 dB	177.87 °	-1.51 dB	177.89 °	0 dB	-0.02 °	0.1 dB	1 °	Pass
7480.04 MHz	-1.38 dB	172.72 °	-1.39 dB	172.69 °	0.01 dB	0.02 °	0.1 dB	1 °	Pass
7522.53 MHz	-1.26 dB	167.5 °	-1.26 dB	167.48 °	0 dB	0.02 °	0.1 dB	1 °	Pass
7565.03 MHz	-1.14 dB	162.15 °	-1.14 dB	162.15 °	0 dB	0 °	0.1 dB	1 °	Pass
7607.53 MHz	-1.01 dB	156.7 °	-1.02 dB	156.69 °	0.01 dB	0.01 °	0.1 dB	1 °	Pass
7650.03 MHz	-0.9 dB	151.17 °	-0.9 dB	151.13 °	0 dB	0.04 °	0.1 dB	1 °	Pass
7692.53 MHz	-0.79 dB	145.48 °	-0.79 dB	145.46 °	0 dB	0.02 °	0.1 dB	1 °	Pass
7735.03 MHz	-0.7 dB	139.69 °	-0.7 dB	139.68 °	0 dB	0.01 °	0.1 dB	1 °	Pass
7777.53 MHz	-0.61 dB	133.84 °	-0.61 dB	133.8 °	0 dB	0.04 °	0.1 dB	1 °	Pass
7820.02 MHz	-0.54 dB	127.85 °	-0.55 dB	127.84 °	0.01 dB	0.01 °	0.1 dB	1 °	Pass
7862.52 MHz	-0.5 dB	121.86 °	-0.5 dB	121.82 °	0 dB	0.04 °	0.1 dB	1 °	Pass
7905.02 MHz	-0.46 dB	115.81 °	-0.46 dB	115.74 °	0 dB	0.06 °	0.1 dB	1 °	Pass
7947.52 MHz	-0.46 dB	109.67 °	-0.45 dB	109.65 °	0 dB	0.02 °	0.1 dB	1 °	Pass
7990.02 MHz	-0.47 dB	103.61 °	-0.47 dB	103.55 °	0 dB	0.06 °	0.1 dB	1 °	Pass
8032.52 MHz	-0.49 dB	97.52 °	-0.5 dB	97.49 °	0.01 dB	0.03 °	0.1 dB	1 °	Pass
8075.02 MHz	-0.56 dB	91.5 °	-0.55 dB	91.46 °	-0.01 dB	0.04 °	0.1 dB	1 °	Pass
8117.51 MHz	-0.62 dB	85.55 °	-0.62 dB	85.5 °	0 dB	0.05 °	0.1 dB	1 °	Pass
8160.01 MHz	-0.7 dB	79.62 °	-0.71 dB	79.63 °	0 dB	0 °	0.1 dB	1 °	Pass
8202.51 MHz	-0.81 dB	73.92 °	-0.8 dB	73.84 °	-0.01 dB	0.08 °	0.1 dB	1 °	Pass
8245.01 MHz	-0.92 dB	68.19 °	-0.91 dB	68.15 °	0 dB	0.03 °	0.1 dB	1 °	Pass
8287.51 MHz	-1.03 dB	62.6 °	-1.03 dB	62.58 °	0 dB	0.02 °	0.1 dB	1 °	Pass
8330.01 MHz	-1.16 dB	57.26 °	-1.16 dB	57.14 °	0 dB	0.12 °	0.1 dB	1 °	Pass
8372.5 MHz	-1.3 dB	51.84 °	-1.29 dB	51.81 °	-0.01 dB	0.03 °	0.1 dB	1 °	Pass
8415 MHz	-1.41 dB	46.66 °	-1.41 dB	46.59 °	0 dB	0.07 °	0.1 dB	1 °	Pass
8457.5 MHz	-1.53 dB	41.59 °	-1.54 dB	41.49 °	0 dB	0.1 °	0.1 dB	1 °	Pass
8500 MHz	-1.67 dB	36.52 °	-1.66 dB	36.51 °	-0.01 dB	0.01 °	0.1 dB	1 °	Pass