

# CERTIFICATE OF CALIBRATION



Issued by: Pico Technology Ltd.

Certificate Number:

of: James House,  
Colmworth Business Park,  
St. Neots, Cambridgeshire,  
PE19 8YP UNITED KINGDOM

**SAMPLE**

Signature:

Tel: +44 (0) 1480 396 395

Web: www.picotech.com

Certificate Revision: V 2.00

Signatory: M. Ashcroft

## **This certificate records compliance with specification at receipt of the instrument**

The instrument has been calibrated in accordance with the manufacturer's verification procedure using standards that are traceable to National Standards. The measurements were made in a controlled environment, ambient temperature during the test is recorded below.

The associated Performance Test Record details the calibration results with a further column indicating the instrument performance relative to the stated specification. The column headed 'Performance Results' indicates compliance or otherwise with the stated specification.

The two possible conditions are indicated as follows:

**Pass** The equipment complies with the stated specification at the measured points.

**Fail** The equipment does not comply with the stated specification at the measured points.

To the extent defined on the Performance Test Record, this certificate provides traceability of measurement to recognized consensus standards or ratio type measurements through national standards and to the international system of units of measurement (SI), realised and maintained at the National Physical Laboratory or other recognized national standards laboratories.

This certificate may not be reproduced other than in full, except with the prior written approval of Pico Technology Ltd..

Recalibration falls due 1 year following shipment from Pico Technology Ltd., this will not be later than 6 months after the certifying verification.

Unit Under Test Description      6 GHz Vector Network Analyser

Model      PicoVNA 106

Serial Number      99999

Measured:      07 Sep 17

Re-calibration due:      08 Sep 18

Ambient temperature during test:      24.0 °C

Result:      PASS

Performance Test Record:      A0000\_99999\_42985



# PicoVNA 106

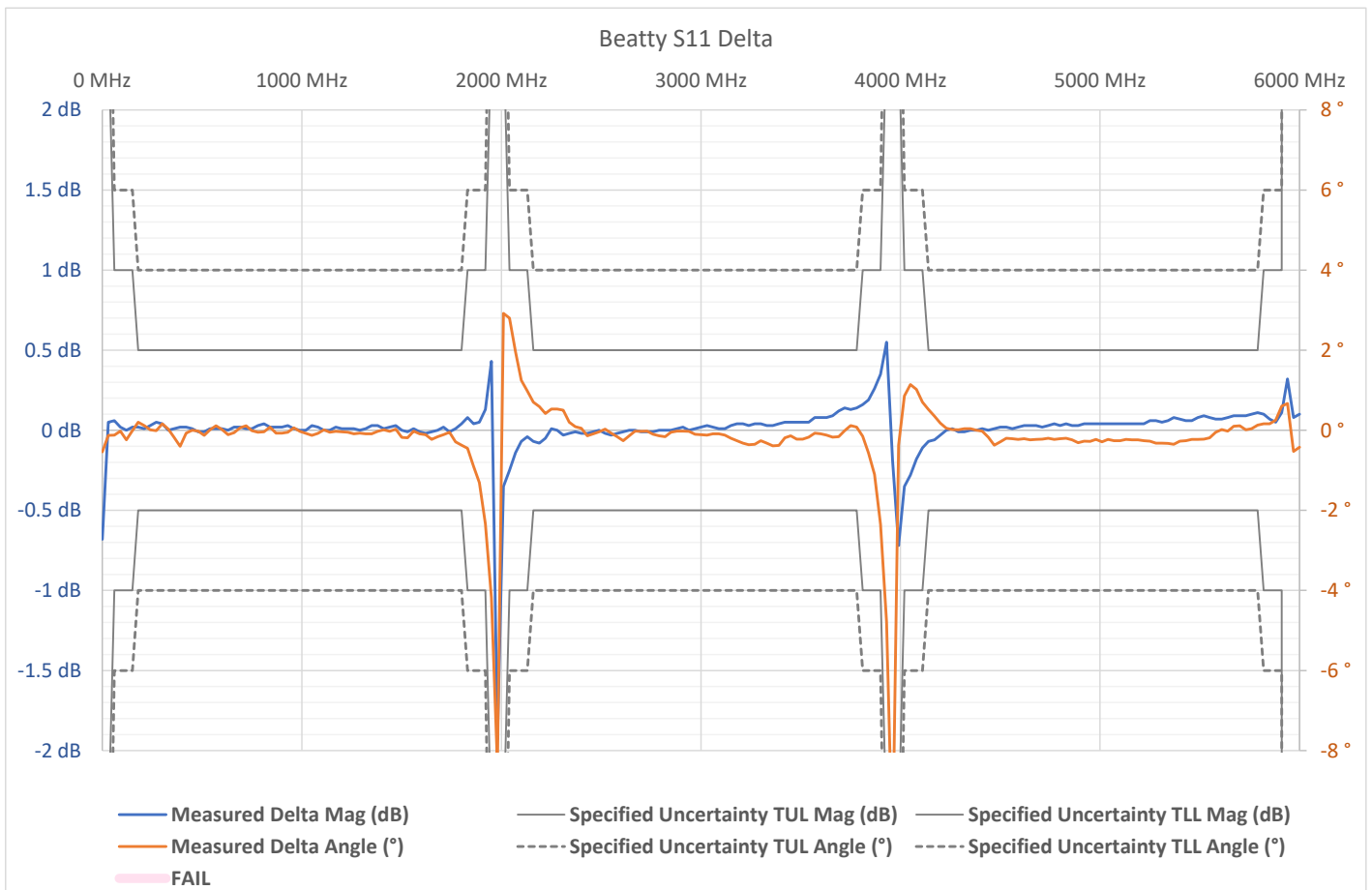
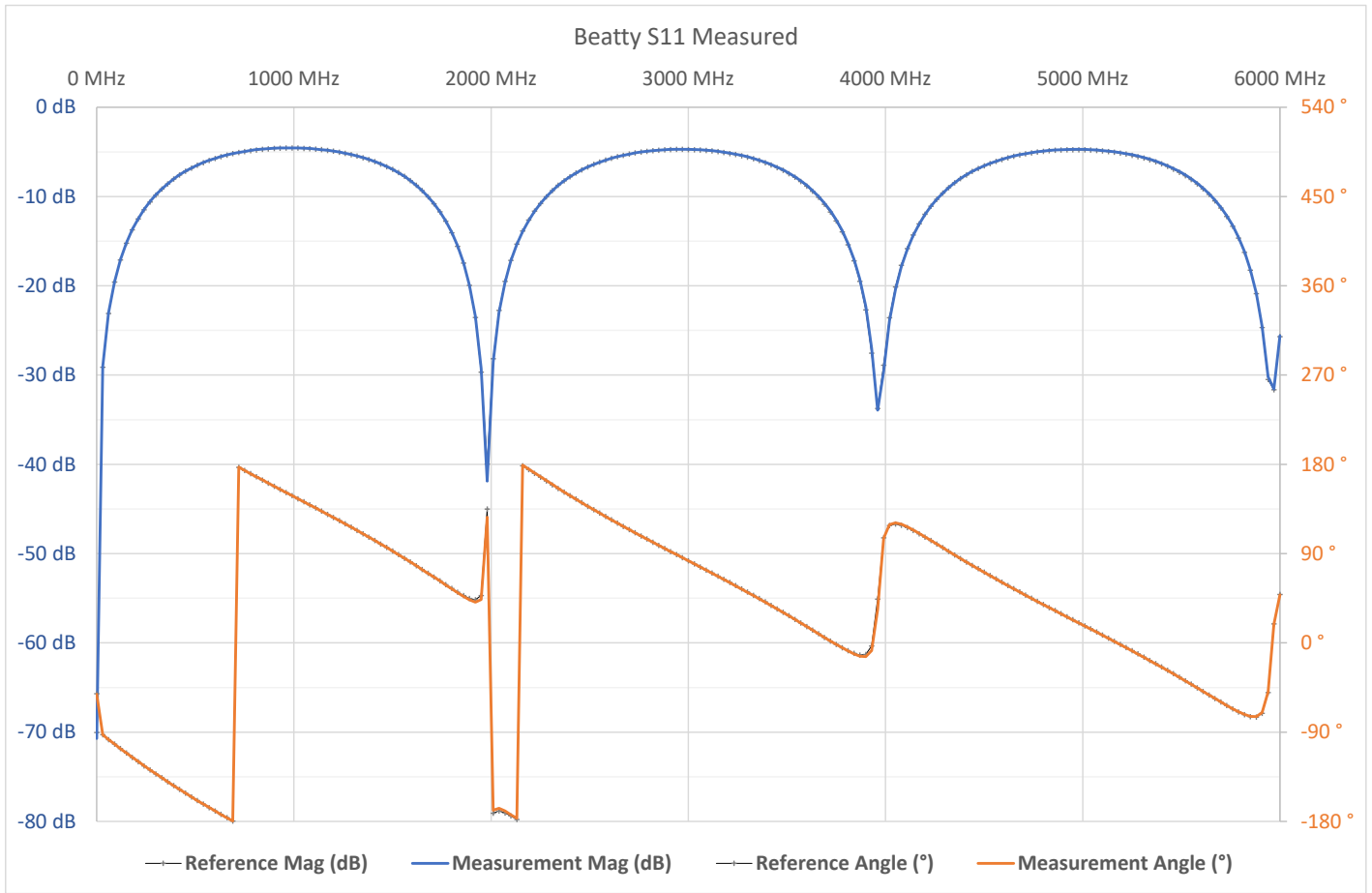
## 6 GHz Vector Network Analyser

### Performance Test Record

**Instrument Model Number:** 106  
**Description:** 6 GHz Vector Network Analyser  
**Batch Number:** A0000  
**Serial Number:** 99999  
  
**Date of Calibration:** 07 Sep 2017  
**As Found / As Left / New Unit:** SAMPLE ONLY  
**Test Record Reference:** A0000\_99999\_42985  
  
**Ambient Temperature:** 24.0 °C  
  
**Performed by:** MVA  
  
**This Test Record supports Certificate No:** SAMPLE  
**Certificate issued for end Customer name:** Unknown  
**Market (re)installation date:**

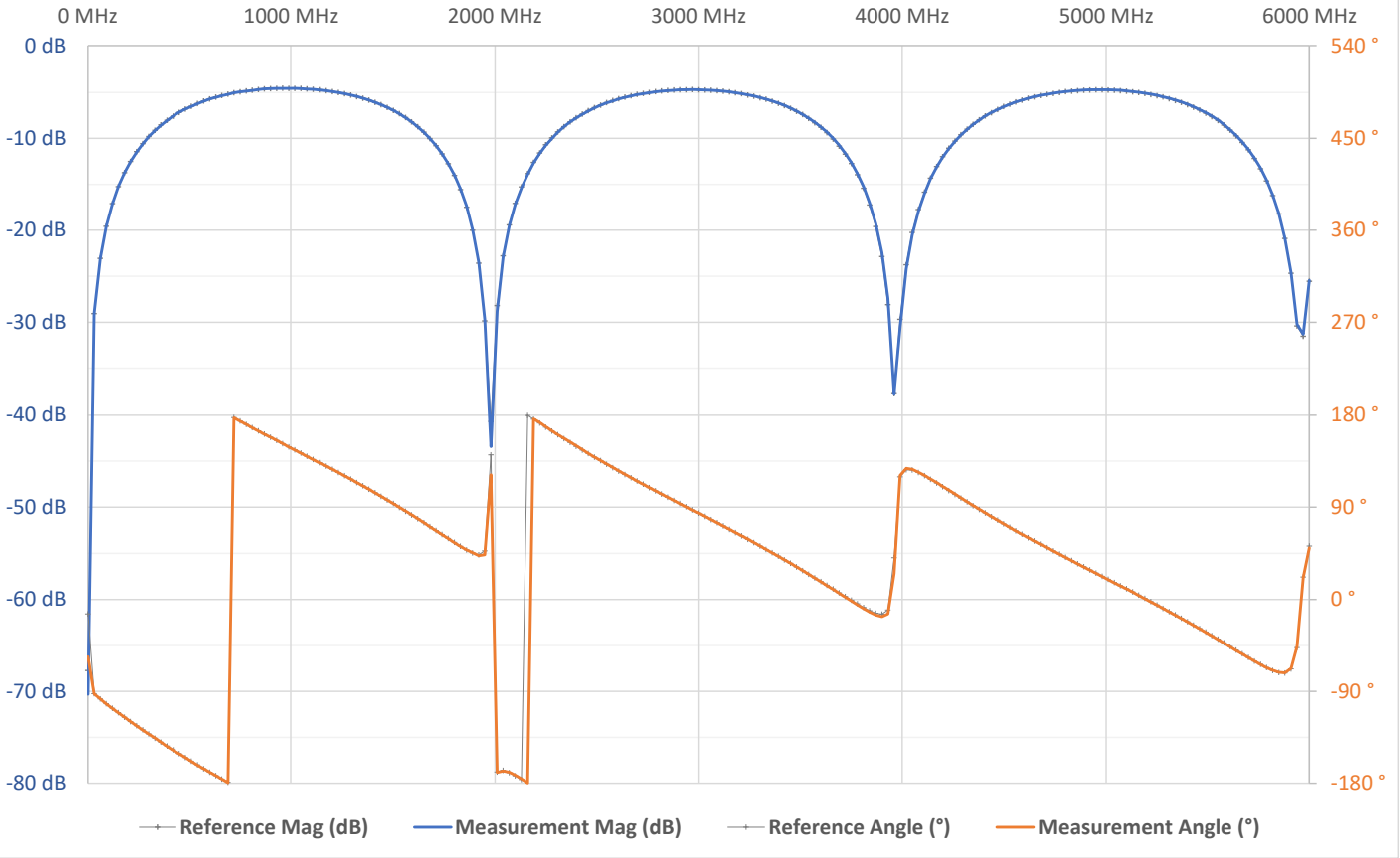
Calibration Standards	Manufacturer	Model No.	Serial No.	Cal due date
Vector Network Analyser	Anritsu	37369C	10510	04 Oct 2017
Calibration Kit	Anritsu	3652	8013	04 Oct 2017
USB Power Sensor	Agilent	U8481A	MY53040022	17 Nov 2017
Spectrum Analyser	Agilent	HP4407B	US39460772	22 Dec 2017
DMM	Agilent	HP34401A	MY47046197	14 Mar 2018
Stepped Line	Rosenberger	02S1A2-K100	91804	18 Jul 2018
Amplifier	Mini-Circuits	ZFL-100N	D053196	01 Aug 2018

Functional Test	Purpose	Minimum	Actual	Maximum	Performance Results
<b>FUNCTIONAL TESTS</b>					
Supply current @ 15 V	Check supply current within limits	1300 mA	1531 mA	1850 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	2.40 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	3.578 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	3.5 dBm	5.25 dBm	-	PASS
Average RX noise floor @ 1 kHz	Check receiver noise floor	-	-100.41 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	6.33 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

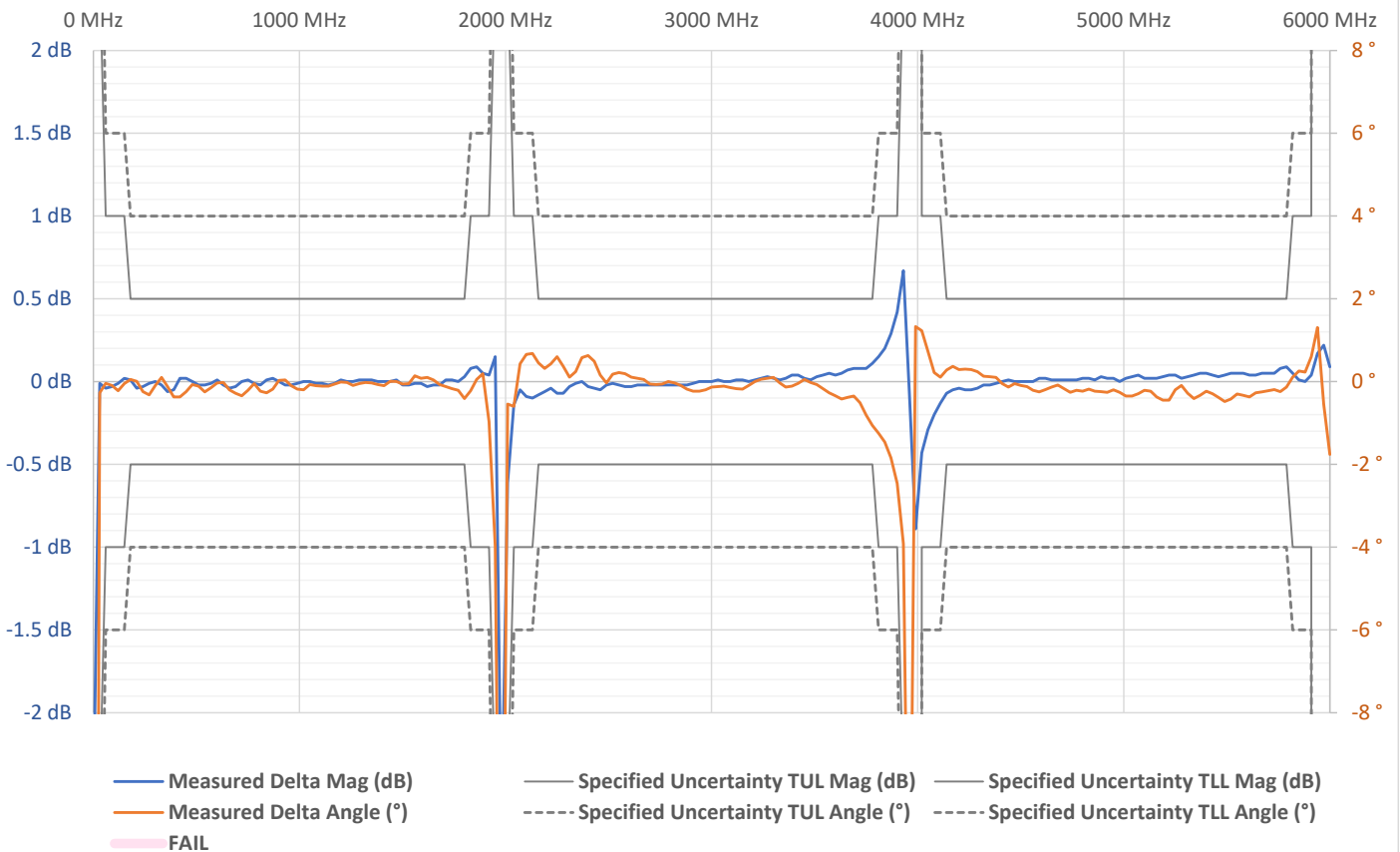




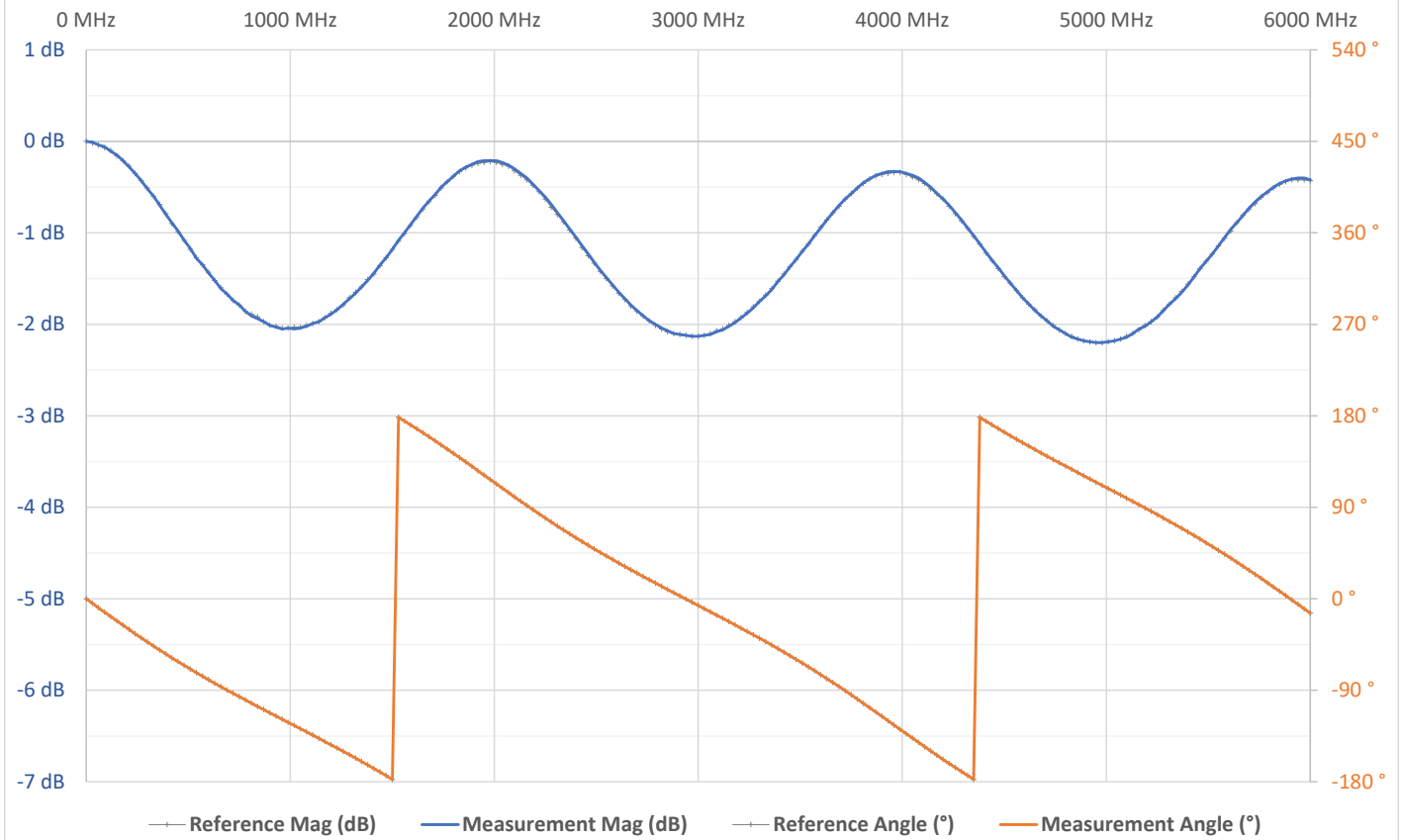
Beatty S22 Measured



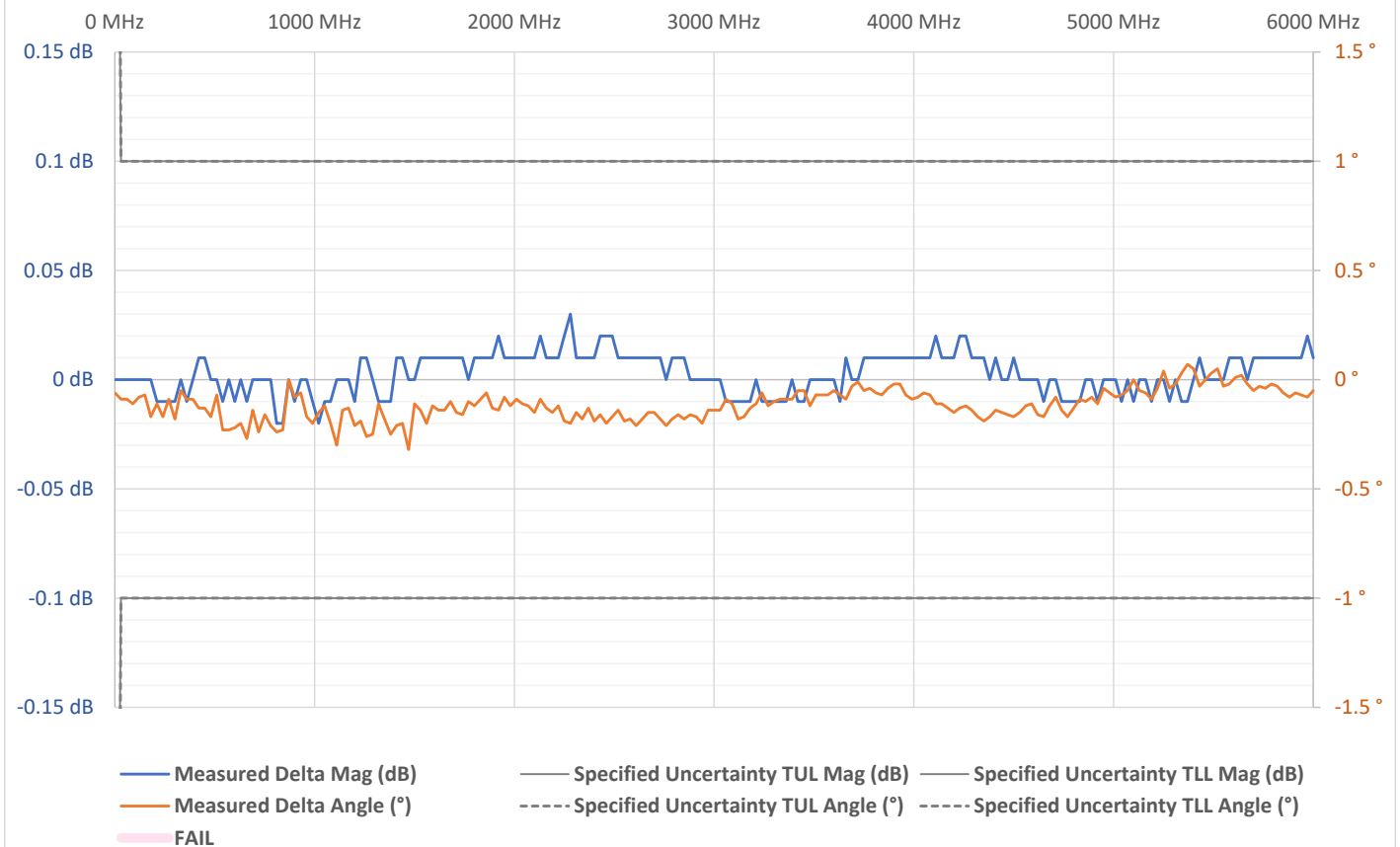
Beatty S22 Delta

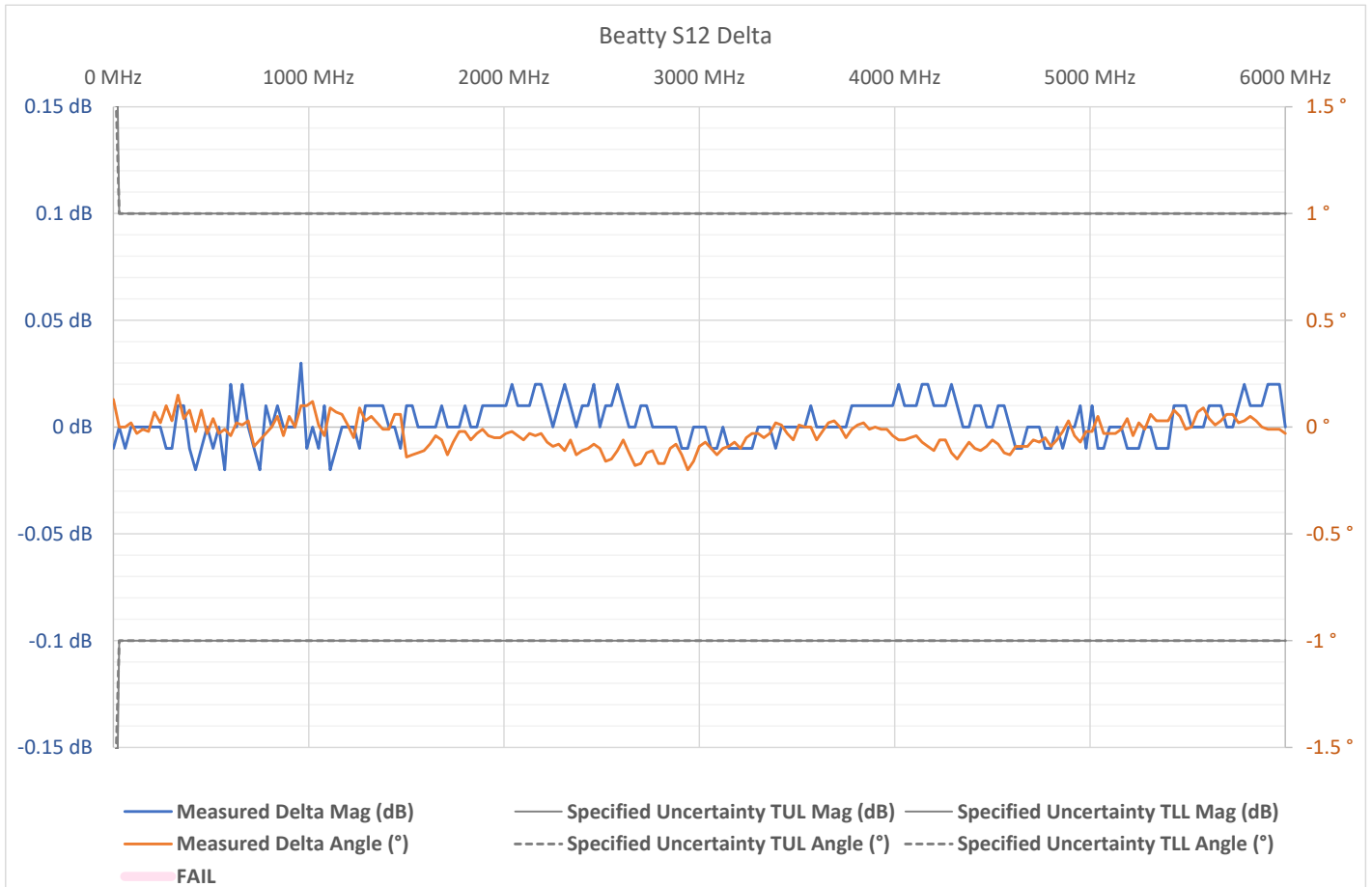


Beatty S21 Measured



Beatty S21 Delta





Frequency MHz	Measurement		Reference		Measured Delta		Specified Uncertainty TUL		Test Verdict
	Mag (dB)	Angle (°)	Mag (dB)	Angle (°)	Mag (dB)	Angle (°)	Mag (dB)	Angle (°)	
<b>S11 Tests</b>									
0.3 MHz	-70.71 dB	-51.8 °	-70.03 dB	-51.26 °	-0.68 dB	-0.54 °	200 dB	360 °	Pass
30.3 MHz	-29.05 dB	-92.64 °	-29.11 dB	-92.5 °	0.05 dB	-0.13 °	2.5 dB	15 °	Pass
60.3 MHz	-23.03 dB	-97.54 °	-23.09 dB	-97.41 °	0.06 dB	-0.12 °	1 dB	6 °	Pass
90.3 MHz	-19.56 dB	-102.09 °	-19.58 dB	-102.07 °	0.02 dB	-0.02 °	1 dB	6 °	Pass
120.29 MHz	-17.1 dB	-106.71 °	-17.1 dB	-106.47 °	0 dB	-0.24 °	1 dB	6 °	Pass
150.29 MHz	-15.21 dB	-110.99 °	-15.23 dB	-110.98 °	0.02 dB	-0.01 °	1 dB	6 °	Pass
180.29 MHz	-13.71 dB	-115.17 °	-13.73 dB	-115.38 °	0.02 dB	0.2 °	0.5 dB	4 °	Pass
210.29 MHz	-12.51 dB	-119.57 °	-12.51 dB	-119.69 °	0.01 dB	0.12 °	0.5 dB	4 °	Pass
240.29 MHz	-11.46 dB	-123.91 °	-11.49 dB	-123.92 °	0.03 dB	0.01 °	0.5 dB	4 °	Pass
270.29 MHz	-10.56 dB	-128 °	-10.61 dB	-127.99 °	0.05 dB	-0.01 °	0.5 dB	4 °	Pass
300.29 MHz	-9.8 dB	-131.93 °	-9.83 dB	-132.08 °	0.04 dB	0.16 °	0.5 dB	4 °	Pass
330.28 MHz	-9.16 dB	-135.99 °	-9.16 dB	-136.02 °	0 dB	0.03 °	0.5 dB	4 °	Pass
360.28 MHz	-8.57 dB	-140.07 °	-8.57 dB	-139.89 °	0.01 dB	-0.18 °	0.5 dB	4 °	Pass
390.28 MHz	-8.02 dB	-144.12 °	-8.04 dB	-143.73 °	0.02 dB	-0.4 °	0.5 dB	4 °	Pass
420.28 MHz	-7.55 dB	-147.69 °	-7.57 dB	-147.62 °	0.02 dB	-0.07 °	0.5 dB	4 °	Pass
450.28 MHz	-7.16 dB	-151.46 °	-7.17 dB	-151.45 °	0.01 dB	0 °	0.5 dB	4 °	Pass
480.28 MHz	-6.81 dB	-155.19 °	-6.8 dB	-155.17 °	-0.01 dB	-0.02 °	0.5 dB	4 °	Pass
510.27 MHz	-6.49 dB	-158.99 °	-6.48 dB	-158.85 °	-0.01 dB	-0.13 °	0.5 dB	4 °	Pass
540.27 MHz	-6.19 dB	-162.45 °	-6.2 dB	-162.46 °	0.01 dB	0.01 °	0.5 dB	4 °	Pass
570.27 MHz	-5.94 dB	-165.87 °	-5.95 dB	-165.98 °	0.01 dB	0.11 °	0.5 dB	4 °	Pass
600.27 MHz	-5.73 dB	-169.37 °	-5.73 dB	-169.39 °	0.01 dB	0.02 °	0.5 dB	4 °	Pass
630.27 MHz	-5.52 dB	-172.97 °	-5.53 dB	-172.86 °	0 dB	-0.11 °	0.5 dB	4 °	Pass
660.27 MHz	-5.33 dB	-176.32 °	-5.35 dB	-176.26 °	0.02 dB	-0.06 °	0.5 dB	4 °	Pass
690.27 MHz	-5.18 dB	-179.54 °	-5.19 dB	-179.6 °	0.02 dB	0.06 °	0.5 dB	4 °	Pass
720.26 MHz	-5.06 dB	177.22 °	-5.07 dB	177.11 °	0.01 dB	0.11 °	0.5 dB	4 °	Pass
750.26 MHz	-4.95 dB	173.82 °	-4.96 dB	173.83 °	0.01 dB	-0.01 °	0.5 dB	4 °	Pass
780.26 MHz	-4.84 dB	170.57 °	-4.86 dB	170.61 °	0.03 dB	-0.05 °	0.5 dB	4 °	Pass
810.26 MHz	-4.74 dB	167.42 °	-4.78 dB	167.46 °	0.04 dB	-0.04 °	0.5 dB	4 °	Pass
840.26 MHz	-4.69 dB	164.33 °	-4.71 dB	164.25 °	0.02 dB	0.08 °	0.5 dB	4 °	Pass
870.26 MHz	-4.63 dB	161.02 °	-4.65 dB	161.09 °	0.02 dB	-0.07 °	0.5 dB	4 °	Pass
900.26 MHz	-4.59 dB	157.88 °	-4.61 dB	157.95 °	0.02 dB	-0.07 °	0.5 dB	4 °	Pass
930.25 MHz	-4.56 dB	154.77 °	-4.59 dB	154.82 °	0.03 dB	-0.05 °	0.5 dB	4 °	Pass
960.25 MHz	-4.56 dB	151.72 °	-4.57 dB	151.66 °	0.01 dB	0.06 °	0.5 dB	4 °	Pass
990.25 MHz	-4.56 dB	148.5 °	-4.56 dB	148.52 °	0 dB	-0.03 °	0.5 dB	4 °	Pass
1020.25 MHz	-4.57 dB	145.34 °	-4.57 dB	145.42 °	0 dB	-0.08 °	0.5 dB	4 °	Pass
1050.25 MHz	-4.58 dB	142.19 °	-4.6 dB	142.32 °	0.03 dB	-0.13 °	0.5 dB	4 °	Pass
1080.25 MHz	-4.62 dB	139.11 °	-4.64 dB	139.18 °	0.02 dB	-0.08 °	0.5 dB	4 °	Pass
1110.24 MHz	-4.68 dB	136.01 °	-4.68 dB	136 °	0 dB	0.01 °	0.5 dB	4 °	Pass
1140.24 MHz	-4.75 dB	132.79 °	-4.74 dB	132.84 °	0 dB	-0.05 °	0.5 dB	4 °	Pass
1170.24 MHz	-4.81 dB	129.59 °	-4.83 dB	129.63 °	0.02 dB	-0.03 °	0.5 dB	4 °	Pass
1200.24 MHz	-4.91 dB	126.41 °	-4.92 dB	126.45 °	0.01 dB	-0.04 °	0.5 dB	4 °	Pass
1230.24 MHz	-5.02 dB	123.22 °	-5.03 dB	123.27 °	0.01 dB	-0.05 °	0.5 dB	4 °	Pass
1260.24 MHz	-5.15 dB	119.95 °	-5.15 dB	120.04 °	0.01 dB	-0.09 °	0.5 dB	4 °	Pass
1290.24 MHz	-5.29 dB	116.69 °	-5.3 dB	116.75 °	0 dB	-0.07 °	0.5 dB	4 °	Pass
1320.23 MHz	-5.45 dB	113.34 °	-5.46 dB	113.43 °	0.01 dB	-0.09 °	0.5 dB	4 °	Pass
1350.23 MHz	-5.63 dB	110 °	-5.66 dB	110.1 °	0.03 dB	-0.09 °	0.5 dB	4 °	Pass
1380.23 MHz	-5.84 dB	106.63 °	-5.87 dB	106.67 °	0.03 dB	-0.03 °	0.5 dB	4 °	Pass
1410.23 MHz	-6.08 dB	103.22 °	-6.09 dB	103.21 °	0.01 dB	0.01 °	0.5 dB	4 °	Pass
1440.23 MHz	-6.34 dB	99.73 °	-6.36 dB	99.76 °	0.02 dB	-0.03 °	0.5 dB	4 °	Pass
1470.23 MHz	-6.64 dB	96.23 °	-6.67 dB	96.21 °	0.03 dB	0.03 °	0.5 dB	4 °	Pass
1500.23 MHz	-6.95 dB	92.51 °	-6.95 dB	92.69 °	0 dB	-0.18 °	0.5 dB	4 °	Pass
1530.22 MHz	-7.32 dB	88.86 °	-7.31 dB	89.05 °	-0.01 dB	-0.19 °	0.5 dB	4 °	Pass
1560.22 MHz	-7.74 dB	85.29 °	-7.74 dB	85.32 °	0.01 dB	-0.02 °	0.5 dB	4 °	Pass
1590.22 MHz	-8.2 dB	81.58 °	-8.2 dB	81.67 °	-0.01 dB	-0.09 °	0.5 dB	4 °	Pass
1620.22 MHz	-8.75 dB	77.81 °	-8.73 dB	77.92 °	-0.02 dB	-0.11 °	0.5 dB	4 °	Pass
1650.22 MHz	-9.34 dB	73.85 °	-9.34 dB	74.08 °	-0.01 dB	-0.23 °	0.5 dB	4 °	Pass
1680.22 MHz	-10.02 dB	70.09 °	-10.02 dB	70.24 °	0 dB	-0.16 °	0.5 dB	4 °	Pass
1710.21 MHz	-10.79 dB	66.33 °	-10.8 dB	66.44 °	0.02 dB	-0.11 °	0.5 dB	4 °	Pass
1740.21 MHz	-11.71 dB	62.53 °	-11.7 dB	62.58 °	-0.01 dB	-0.05 °	0.5 dB	4 °	Pass
1770.21 MHz	-12.74 dB	58.41 °	-12.76 dB	58.7 °	0.01 dB	-0.29 °	0.5 dB	4 °	Pass
1800.21 MHz	-14 dB	54.54 °	-14.04 dB	54.91 °	0.04 dB	-0.37 °	0.5 dB	4 °	Pass
1830.21 MHz	-15.5 dB	50.76 °	-15.58 dB	51.21 °	0.08 dB	-0.45 °	1 dB	6 °	Pass
1860.21 MHz	-17.43 dB	46.85 °	-17.46 dB	47.76 °	0.04 dB	-0.9 °	1 dB	6 °	Pass
1890.21 MHz	-19.91 dB	43.53 °	-19.96 dB	44.84 °	0.05 dB	-1.31 °	1 dB	6 °	Pass
1920.2 MHz	-23.41 dB	41.04 °	-23.54 dB	43.38 °	0.13 dB	-2.34 °	1 dB	6 °	Pass
1950.2 MHz	-29.24 dB	43.65 °	-29.67 dB	47.83 °	0.43 dB	-4.18 °	2.5 dB	15 °	Pass
1980.2 MHz	-41.88 dB	126.65 °	-39.95 dB	135.06 °	-1.93 dB	-8.41 °	200 dB	360 °	Pass
2010.2 MHz	-28.51 dB	-168.87 °	-28.16 dB	-171.79 °	-0.35 dB	2.92 °	2.5 dB	15 °	Pass
2040.2 MHz	-23 dB	-166.67 °	-22.75 dB	-169.48 °	-0.25 dB	2.8 °	1 dB	6 °	Pass
2070.2 MHz	-19.63 dB	-169.43 °	-19.49 dB	-171.39 °	-0.14 dB	1.96 °	1 dB	6 °	Pass
2100.2 MHz	-17.21 dB	-173.19 °	-17.14 dB	-174.45 °	-0.07 dB	1.25 °	1 dB	6 °	Pass
2130.19 MHz	-15.36 dB	-176.92 °	-15.32 dB	-177.89 °	-0.04 dB	0.98 °	1 dB	6 °	Pass
2160.19 MHz	-13.92 dB	179.2 °	-13.85 dB	178.5 °	-0.07 dB	0.7 °	0.5 dB	4 °	Pass
2190.19 MHz	-12.71 dB	175.3 °	-12.63 dB	174.71 °	-0.08 dB	0.59 °	0.5 dB	4 °	Pass
2220.19 MHz	-11.67 dB	171.3 °	-11.62 dB	170.88 °	-0.05 dB	0.42 °	0.5 dB	4 °	Pass
2250.19 MHz	-10.77 dB	167.64 °	-10.78 dB	167.12 °	0.01 dB	0.53 °	0.5 dB	4 °	Pass
2280.19 MHz	-10.02 dB	163.75 °	-10.02 dB	163.22 °	0 dB	0.53 °	0.5 dB	4 °	Pass
2310.18 MHz	-9.35 dB	159.84 °	-9.32 dB	159.34 °	-0.03 dB	0.5 °	0.5 dB	4 °	Pass
2340.18 MHz	-8.76 dB	155.91 °	-8.74 dB	155.71 °	-0.02 dB	0.2 °	0.5 dB	4 °	Pass
2370.18 MHz	-8.24 dB	152.15 °	-8.23 dB	152.07 °	-0.01 dB	0.09 °	0.5 dB	4 °	Pass
2400.18 MHz	-7.79 dB	148.49 °	-7.77 dB	148.44 °	-0.02 dB	0.05 °	0.5 dB	4 °	Pass
2430.18 MHz	-7.38 dB	144.84 °	-7.36 dB	144.99 °	-0.02 dB	-0.14 °	0.5 dB	4 °	Pass
2460.18 MHz	-7.02 dB	141.32 °	-7.01 dB	141.42 °	-0.01 dB	-0.09 °	0.5 dB	4 °	Pass
2490.18 MHz	-6.69 dB	137.72 °	-6.69 dB	137.76 °	0 dB	-0.04 °	0.5 dB	4 °	Pass
2520.17 MHz	-6.4 dB	134.33 °	-6.39 dB	134.3 °	-0.02 dB	0.03 °	0.5 dB	4 °	Pass
2550.17 MHz	-6.15 dB	130.84 °	-6.13 dB	130.91 °	-0.03 dB	-0.07 °	0.5 dB	4 °	Pass
2580.17 MHz	-5.93 dB	127.36 °	-5.9 dB	127.52 °	-0.02 dB	-0.16 °	0.5 dB	4 °	Pass
2610.17 MHz	-5.72 dB	123.94 °	-5.71 dB	124.2 °	-0.01 dB	-0.26 °	0.5 dB	4 °	Pass
2640.17 MHz	-5.54 dB	120.73 °	-5.54 dB	120.87 °	0 dB	-0.14 °	0.5 dB	4 °	Pass
2670.17 MHz	-5.38 dB	117.52 °	-5.38 dB	117.54 °	0 dB	-0.02 °	0.5 dB	4 °	Pass
2700.17 MHz	-5.25 dB	114.23 °	-5.24 dB	114.26 °	-0.01 dB	-0.03 °	0.5 dB	4 °	Pass
2730.16 MHz	-5.12 dB	111.01 °	-5.12 dB	111.03 °	-0.01 dB	-0.02 °	0.5 dB	4 °	Pass
2760.16 MHz	-5.02 dB	107.77 °	-5.01 dB	107.86 °	-0.01 dB	-0.1 °	0.5 dB	4 °	Pass
2790.16 MHz	-4.93 dB	104.61 °	-4.93 dB	104.75 °	0 dB	-0.14 °	0.5 dB	4 °	Pass
2820.16 MHz	-4.86 dB	101.42 °	-4.86 dB	101.58 °	0 dB	-0.16 °	0.5 dB	4 °	Pass
2850.16 MHz	-4.8 dB	98.32 °	-4.81 dB	98.37 °	0 dB	-0.05 °	0.5 dB	4 °	Pass
2880.16 MHz	-4.76 dB	95.21 °	-4.77 dB	95.23 °	0.01 dB	-0.02 °	0.5 dB	4 °	Pass
2910.15 MHz	-4.72 dB	92.11 °	-4.74 dB	92.13 °	0.02 dB	-0.02 °	0.5 dB	4 °	Pass
2940.15 MHz	-4.71 dB	89.01 °	-4.71 dB	89.04 °	0 dB	-0.03 °	0.5 dB	4 °	Pass
2970.15 MHz	-4.7 dB	85.86 °	-4.71 dB	85.95 °	0.01 dB	-0.1 °	0.5 dB	4 °	Pass
3000.15 MHz	-4.71 dB	82.74 °	-4.73 dB	82.85 °	0.02 dB	-0.11 °	0.5 dB	4 °	Pass



Frequency MHz	Measurement		Reference		Measured Delta		Specified Uncertainty TUL		Test Verdict
	Mag (dB)	Angle (°)	Mag (dB)	Angle (°)	Mag (dB)	Angle (°)	Mag (dB)	Angle (°)	
3030.15 MHz	-4.73 dB	79.6 °	-4.76 dB	79.72 °	0.03 dB	-0.12 °	0.5 dB	4 °	Pass
3060.15 MHz	-4.77 dB	76.51 °	-4.78 dB	76.6 °	0.02 dB	-0.09 °	0.5 dB	4 °	Pass
3090.15 MHz	-4.82 dB	73.39 °	-4.83 dB	73.48 °	0.01 dB	-0.09 °	0.5 dB	4 °	Pass
3120.14 MHz	-4.87 dB	70.26 °	-4.89 dB	70.38 °	0.01 dB	-0.12 °	0.5 dB	4 °	Pass
3150.14 MHz	-4.94 dB	67.1 °	-4.97 dB	67.31 °	0.03 dB	-0.2 °	0.5 dB	4 °	Pass
3180.14 MHz	-5.03 dB	63.93 °	-5.07 dB	64.19 °	0.04 dB	-0.26 °	0.5 dB	4 °	Pass
3210.14 MHz	-5.14 dB	60.68 °	-5.18 dB	61 °	0.04 dB	-0.32 °	0.5 dB	4 °	Pass
3240.14 MHz	-5.26 dB	57.42 °	-5.29 dB	57.78 °	0.03 dB	-0.36 °	0.5 dB	4 °	Pass
3270.14 MHz	-5.39 dB	54.18 °	-5.43 dB	54.53 °	0.04 dB	-0.35 °	0.5 dB	4 °	Pass
3300.14 MHz	-5.54 dB	51 °	-5.59 dB	51.26 °	0.04 dB	-0.26 °	0.5 dB	4 °	Pass
3330.13 MHz	-5.73 dB	47.73 °	-5.76 dB	48.04 °	0.03 dB	-0.32 °	0.5 dB	4 °	Pass
3360.13 MHz	-5.94 dB	44.38 °	-5.97 dB	44.77 °	0.03 dB	-0.39 °	0.5 dB	4 °	Pass
3390.13 MHz	-6.16 dB	40.96 °	-6.2 dB	41.34 °	0.04 dB	-0.38 °	0.5 dB	4 °	Pass
3420.13 MHz	-6.41 dB	37.59 °	-6.46 dB	37.78 °	0.05 dB	-0.19 °	0.5 dB	4 °	Pass
3450.13 MHz	-6.7 dB	34.16 °	-6.75 dB	34.3 °	0.05 dB	-0.14 °	0.5 dB	4 °	Pass
3480.13 MHz	-7.02 dB	30.7 °	-7.07 dB	30.92 °	0.05 dB	-0.22 °	0.5 dB	4 °	Pass
3510.12 MHz	-7.38 dB	27.19 °	-7.42 dB	27.41 °	0.05 dB	-0.22 °	0.5 dB	4 °	Pass
3540.12 MHz	-7.78 dB	23.61 °	-7.84 dB	23.78 °	0.05 dB	-0.17 °	0.5 dB	4 °	Pass
3570.12 MHz	-8.22 dB	20.06 °	-8.31 dB	20.13 °	0.08 dB	-0.07 °	0.5 dB	4 °	Pass
3600.12 MHz	-8.74 dB	16.47 °	-8.82 dB	16.56 °	0.08 dB	-0.09 °	0.5 dB	4 °	Pass
3630.12 MHz	-9.32 dB	12.83 °	-9.4 dB	12.95 °	0.08 dB	-0.12 °	0.5 dB	4 °	Pass
3660.12 MHz	-9.98 dB	9.09 °	-10.07 dB	9.25 °	0.09 dB	-0.17 °	0.5 dB	4 °	Pass
3690.12 MHz	-10.72 dB	5.41 °	-10.85 dB	5.58 °	0.12 dB	-0.16 °	0.5 dB	4 °	Pass
3720.11 MHz	-11.59 dB	1.94 °	-11.73 dB	1.95 °	0.14 dB	-0.01 °	0.5 dB	4 °	Pass
3750.11 MHz	-12.6 dB	-1.44 °	-12.73 dB	-1.56 °	0.13 dB	0.12 °	0.5 dB	4 °	Pass
3780.11 MHz	-13.8 dB	-4.79 °	-13.94 dB	-4.87 °	0.14 dB	0.08 °	0.5 dB	4 °	Pass
3810.11 MHz	-15.25 dB	-8.05 °	-15.41 dB	-7.9 °	0.16 dB	-0.15 °	1 dB	6 °	Pass
3840.11 MHz	-17.02 dB	-11.07 °	-17.21 dB	-10.5 °	0.19 dB	-0.57 °	1 dB	6 °	Pass
3870.11 MHz	-19.26 dB	-13.34 °	-19.51 dB	-12.24 °	0.26 dB	-1.1 °	1 dB	6 °	Pass
3900.11 MHz	-22.33 dB	-13.95 °	-22.69 dB	-11.61 °	0.35 dB	-2.35 °	1 dB	6 °	Pass
3930.1 MHz	-26.98 dB	-7.86 °	-27.53 dB	-3.08 °	0.55 dB	-4.79 °	2.5 dB	15 °	Pass
3960.1 MHz	-33.93 dB	33.58 °	-33.74 dB	44.23 °	-0.19 dB	-10.64 °	200 dB	360 °	Pass
3990.1 MHz	-29.6 dB	105.56 °	-28.88 dB	105.93 °	-0.72 dB	-0.37 °	2.5 dB	15 °	Pass
4020.1 MHz	-23.92 dB	119.19 °	-23.58 dB	118.33 °	-0.35 dB	0.86 °	1 dB	6 °	Pass
4050.1 MHz	-20.42 dB	121 °	-20.13 dB	119.86 °	-0.28 dB	1.14 °	1 dB	6 °	Pass
4080.1 MHz	-17.87 dB	119.59 °	-17.69 dB	118.57 °	-0.18 dB	1.02 °	1 dB	6 °	Pass
4110.09 MHz	-15.93 dB	116.93 °	-15.82 dB	116.23 °	-0.11 dB	0.7 °	1 dB	6 °	Pass
4140.09 MHz	-14.38 dB	113.86 °	-14.31 dB	113.33 °	-0.07 dB	0.52 °	0.5 dB	4 °	Pass
4170.09 MHz	-13.11 dB	110.45 °	-13.06 dB	110.1 °	-0.06 dB	0.35 °	0.5 dB	4 °	Pass
4200.09 MHz	-12.03 dB	106.87 °	-11.99 dB	106.68 °	-0.03 dB	0.18 °	0.5 dB	4 °	Pass
4230.09 MHz	-11.09 dB	103.21 °	-11.09 dB	103.16 °	0 dB	0.05 °	0.5 dB	4 °	Pass
4260.09 MHz	-10.3 dB	99.63 °	-10.31 dB	99.61 °	0.01 dB	0.02 °	0.5 dB	4 °	Pass
4290.09 MHz	-9.62 dB	96.02 °	-9.61 dB	96.01 °	-0.01 dB	0.01 °	0.5 dB	4 °	Pass
4320.08 MHz	-9.01 dB	92.36 °	-9.01 dB	92.31 °	-0.01 dB	0.04 °	0.5 dB	4 °	Pass
4350.08 MHz	-8.46 dB	88.72 °	-8.46 dB	88.68 °	0 dB	0.04 °	0.5 dB	4 °	Pass
4380.08 MHz	-7.98 dB	85.12 °	-7.99 dB	85.12 °	0 dB	0 °	0.5 dB	4 °	Pass
4410.08 MHz	-7.56 dB	81.53 °	-7.57 dB	81.55 °	0.01 dB	-0.02 °	0.5 dB	4 °	Pass
4440.08 MHz	-7.19 dB	77.99 °	-7.19 dB	78.16 °	0 dB	-0.17 °	0.5 dB	4 °	Pass
4470.08 MHz	-6.85 dB	74.5 °	-6.86 dB	74.87 °	0.01 dB	-0.37 °	0.5 dB	4 °	Pass
4500.08 MHz	-6.55 dB	71.1 °	-6.57 dB	71.39 °	0.02 dB	-0.29 °	0.5 dB	4 °	Pass
4530.07 MHz	-6.28 dB	67.73 °	-6.3 dB	67.92 °	0.02 dB	-0.2 °	0.5 dB	4 °	Pass
4560.07 MHz	-6.05 dB	64.36 °	-6.06 dB	64.57 °	0.01 dB	-0.21 °	0.5 dB	4 °	Pass
4590.07 MHz	-5.83 dB	61.01 °	-5.85 dB	61.23 °	0.02 dB	-0.23 °	0.5 dB	4 °	Pass
4620.07 MHz	-5.63 dB	57.73 °	-5.66 dB	57.94 °	0.03 dB	-0.21 °	0.5 dB	4 °	Pass
4650.07 MHz	-5.46 dB	54.48 °	-5.49 dB	54.72 °	0.03 dB	-0.24 °	0.5 dB	4 °	Pass
4680.07 MHz	-5.32 dB	51.29 °	-5.34 dB	51.52 °	0.03 dB	-0.23 °	0.5 dB	4 °	Pass
4710.06 MHz	-5.2 dB	48.07 °	-5.22 dB	48.29 °	0.02 dB	-0.22 °	0.5 dB	4 °	Pass
4740.06 MHz	-5.09 dB	44.84 °	-5.12 dB	45.05 °	0.03 dB	-0.2 °	0.5 dB	4 °	Pass
4770.06 MHz	-4.99 dB	41.69 °	-5.02 dB	41.92 °	0.04 dB	-0.23 °	0.5 dB	4 °	Pass
4800.06 MHz	-4.91 dB	38.6 °	-4.94 dB	38.82 °	0.03 dB	-0.21 °	0.5 dB	4 °	Pass
4830.06 MHz	-4.84 dB	35.49 °	-4.87 dB	35.69 °	0.04 dB	-0.2 °	0.5 dB	4 °	Pass
4860.06 MHz	-4.79 dB	32.38 °	-4.82 dB	32.61 °	0.03 dB	-0.24 °	0.5 dB	4 °	Pass
4890.06 MHz	-4.75 dB	29.24 °	-4.79 dB	29.55 °	0.03 dB	-0.31 °	0.5 dB	4 °	Pass
4920.05 MHz	-4.73 dB	26.2 °	-4.77 dB	26.47 °	0.04 dB	-0.27 °	0.5 dB	4 °	Pass
4950.05 MHz	-4.72 dB	23.09 °	-4.75 dB	23.37 °	0.04 dB	-0.28 °	0.5 dB	4 °	Pass
4980.05 MHz	-4.71 dB	20.05 °	-4.75 dB	20.29 °	0.04 dB	-0.23 °	0.5 dB	4 °	Pass
5010.05 MHz	-4.72 dB	16.93 °	-4.77 dB	17.22 °	0.04 dB	-0.29 °	0.5 dB	4 °	Pass
5040.05 MHz	-4.75 dB	13.93 °	-4.79 dB	14.16 °	0.04 dB	-0.23 °	0.5 dB	4 °	Pass
5070.05 MHz	-4.79 dB	10.81 °	-4.83 dB	11.07 °	0.04 dB	-0.26 °	0.5 dB	4 °	Pass
5100.05 MHz	-4.85 dB	7.69 °	-4.89 dB	7.95 °	0.04 dB	-0.26 °	0.5 dB	4 °	Pass
5130.04 MHz	-4.91 dB	4.59 °	-4.96 dB	4.82 °	0.04 dB	-0.23 °	0.5 dB	4 °	Pass
5160.04 MHz	-4.99 dB	1.44 °	-5.03 dB	1.69 °	0.04 dB	-0.24 °	0.5 dB	4 °	Pass
5190.04 MHz	-5.09 dB	-1.71 °	-5.13 dB	-1.47 °	0.04 dB	-0.24 °	0.5 dB	4 °	Pass
5220.04 MHz	-5.2 dB	-4.93 °	-5.24 dB	-4.68 °	0.04 dB	-0.26 °	0.5 dB	4 °	Pass
5250.04 MHz	-5.32 dB	-8.12 °	-5.38 dB	-7.85 °	0.06 dB	-0.27 °	0.5 dB	4 °	Pass
5280.04 MHz	-5.47 dB	-11.33 °	-5.53 dB	-11.02 °	0.06 dB	-0.32 °	0.5 dB	4 °	Pass
5310.03 MHz	-5.64 dB	-14.61 °	-5.69 dB	-14.28 °	0.05 dB	-0.32 °	0.5 dB	4 °	Pass
5340.03 MHz	-5.82 dB	-17.92 °	-5.88 dB	-17.6 °	0.06 dB	-0.33 °	0.5 dB	4 °	Pass
5370.03 MHz	-6.03 dB	-21.27 °	-6.1 dB	-20.92 °	0.08 dB	-0.35 °	0.5 dB	4 °	Pass
5400.03 MHz	-6.28 dB	-24.51 °	-6.34 dB	-24.24 °	0.07 dB	-0.27 °	0.5 dB	4 °	Pass
5430.03 MHz	-6.55 dB	-27.86 °	-6.62 dB	-27.61 °	0.06 dB	-0.26 °	0.5 dB	4 °	Pass
5460.03 MHz	-6.87 dB	-31.28 °	-6.93 dB	-31.05 °	0.06 dB	-0.23 °	0.5 dB	4 °	Pass
5490.03 MHz	-7.19 dB	-34.8 °	-7.28 dB	-34.57 °	0.08 dB	-0.23 °	0.5 dB	4 °	Pass
5520.02 MHz	-7.57 dB	-38.28 °	-7.66 dB	-38.06 °	0.09 dB	-0.22 °	0.5 dB	4 °	Pass
5550.02 MHz	-8 dB	-41.75 °	-8.09 dB	-41.56 °	0.08 dB	-0.19 °	0.5 dB	4 °	Pass
5580.02 MHz	-8.5 dB	-45.33 °	-8.57 dB	-45.27 °	0.07 dB	-0.05 °	0.5 dB	4 °	Pass
5610.02 MHz	-9.05 dB	-48.9 °	-9.12 dB	-48.92 °	0.07 dB	0.02 °	0.5 dB	4 °	Pass
5640.02 MHz	-9.67 dB	-52.46 °	-9.75 dB	-52.43 °	0.08 dB	-0.02 °	0.5 dB	4 °	Pass
5670.02 MHz	-10.38 dB	-55.92 °	-10.47 dB	-56.03 °	0.09 dB	0.1 °	0.5 dB	4 °	Pass
5700.02 MHz	-11.2 dB	-59.48 °	-11.28 dB	-59.59 °	0.09 dB	0.11 °	0.5 dB	4 °	Pass
5730.01 MHz	-12.13 dB	-63.04 °	-12.22 dB	-63.05 °	0.09 dB	0.01 °	0.5 dB	4 °	Pass
5760.01 MHz	-13.22 dB	-66.41 °	-13.32 dB	-66.45 °	0.1 dB	0.04 °	0.5 dB	4 °	Pass
5790.01 MHz	-14.54 dB	-69.5 °	-14.64 dB	-69.62 °	0.11 dB	0.13 °	0.5 dB	4 °	Pass
5820.01 MHz	-16.15 dB	-72.17 °	-16.25 dB	-72.33 °	0.1 dB	0.16 °	1 dB	6 °	Pass
5850.01 MHz	-18.17 dB	-74.14 °	-18.24 dB	-74.3 °	0.07 dB	0.16 °	1 dB	6 °	Pass
5880.01 MHz	-20.82 dB	-74.45 °	-20.86 dB	-74.7 °	0.05 dB	0.25 °	1 dB	6 °	Pass
5910 MHz	-24.55 dB	-70.34 °	-24.66 dB	-70.94 °	0.11 dB	0.6 °	1 dB	6 °	Pass
5940 MHz	-30.18 dB	-49.39 °	-30.5 dB	-50.06 °	0.32 dB	0.67 °	200 dB	360 °	Pass
5970 MHz	-31.57 dB	18.67 °	-31.65 dB	19.21 °	0.08 dB	-0.53 °	200 dB	360 °	Pass
6000 MHz	-25.6 dB	48.4 °	-25.7 dB	48.81 °	0.1 dB	-0.42 °	2.5 dB	15 °	Pass



Frequency MHz	Measurement		Reference		Measured Delta		Specified Uncertainty TUL		Test Verdict
	Mag (dB)	Angle (°)	Mag (dB)	Angle (°)	Mag (dB)	Angle (°)	Mag (dB)	Angle (°)	
<b>S22 Tests</b>									
0.3 MHz	-70.32 dB	-56.2 °	-67.74 dB	-14.25 °	-2.58 dB	-41.95 °	200 dB	360 °	Pass
30.3 MHz	-29.07 dB	-92.51 °	-29.06 dB	-92.24 °	-0.01 dB	-0.27 °	2.5 dB	15 °	Pass
60.3 MHz	-23.09 dB	-97.42 °	-23.06 dB	-97.37 °	-0.04 dB	-0.04 °	1 dB	6 °	Pass
90.3 MHz	-19.59 dB	-102.21 °	-19.56 dB	-102.12 °	-0.03 dB	-0.09 °	1 dB	6 °	Pass
120.29 MHz	-17.12 dB	-106.79 °	-106.79 °	-17.11 dB	-0.01 dB	-0.22 °	1 dB	6 °	Pass
150.29 MHz	-15.23 dB	-110.96 °	-15.25 dB	-110.91 °	0.02 dB	-0.05 °	1 dB	6 °	Pass
180.29 MHz	-13.73 dB	-115.24 °	-13.74 dB	-115.29 °	0.01 dB	0.05 °	0.5 dB	4 °	Pass
210.29 MHz	-12.54 dB	-119.49 °	-12.5 dB	-119.5 °	-0.04 dB	0.01 °	0.5 dB	4 °	Pass
240.29 MHz	-11.48 dB	-123.86 °	-11.45 dB	-123.63 °	-0.03 dB	-0.24 °	0.5 dB	4 °	Pass
270.29 MHz	-10.58 dB	-128.08 °	-10.57 dB	-127.76 °	-0.01 dB	-0.32 °	0.5 dB	4 °	Pass
300.29 MHz	-9.79 dB	-131.87 °	-9.8 dB	-131.79 °	0 dB	-0.09 °	0.5 dB	4 °	Pass
330.28 MHz	-9.15 dB	-135.76 °	-9.13 dB	-135.86 °	-0.02 dB	0.1 °	0.5 dB	4 °	Pass
360.28 MHz	-8.58 dB	-139.89 °	-8.53 dB	-139.77 °	-0.06 dB	-0.12 °	0.5 dB	4 °	Pass
390.28 MHz	-8.06 dB	-143.95 °	-8.02 dB	-143.58 °	-0.05 dB	-0.37 °	0.5 dB	4 °	Pass
420.28 MHz	-7.55 dB	-147.75 °	-7.57 dB	-147.37 °	0.02 dB	-0.37 °	0.5 dB	4 °	Pass
450.28 MHz	-7.15 dB	-151.28 °	-7.17 dB	-151.04 °	0.02 dB	-0.24 °	0.5 dB	4 °	Pass
480.28 MHz	-6.8 dB	-154.8 °	-6.81 dB	-154.73 °	0 dB	-0.07 °	0.5 dB	4 °	Pass
510.27 MHz	-6.52 dB	-158.58 °	-6.5 dB	-158.46 °	-0.02 dB	-0.11 °	0.5 dB	4 °	Pass
540.27 MHz	-6.22 dB	-162.34 °	-6.2 dB	-162.1 °	-0.02 dB	-0.25 °	0.5 dB	4 °	Pass
570.27 MHz	-5.95 dB	-165.85 °	-5.94 dB	-165.7 °	-0.01 dB	-0.15 °	0.5 dB	4 °	Pass
600.27 MHz	-5.7 dB	-169.2 °	-5.7 dB	-169.17 °	0.01 dB	-0.03 °	0.5 dB	4 °	Pass
630.27 MHz	-5.53 dB	-172.51 °	-5.5 dB	-172.49 °	-0.02 dB	-0.02 °	0.5 dB	4 °	Pass
660.27 MHz	-5.36 dB	-176 °	-5.32 dB	-175.8 °	-0.04 dB	-0.2 °	0.5 dB	4 °	Pass
690.27 MHz	-5.2 dB	-179.4 °	-5.17 dB	-179.11 °	-0.03 dB	-0.28 °	0.5 dB	4 °	Pass
720.26 MHz	-5.04 dB	177.35 °	-5.04 dB	177.69 °	0 dB	-0.34 °	0.5 dB	4 °	Pass
750.26 MHz	-4.93 dB	174.2 °	-4.93 dB	174.41 °	0.01 dB	-0.21 °	0.5 dB	4 °	Pass
780.26 MHz	-4.85 dB	171 °	-4.84 dB	171.05 °	-0.01 dB	-0.05 °	0.5 dB	4 °	Pass
810.26 MHz	-4.78 dB	167.65 °	-4.76 dB	167.88 °	-0.02 dB	-0.23 °	0.5 dB	4 °	Pass
840.26 MHz	-4.68 dB	164.41 °	-4.69 dB	164.68 °	0.01 dB	-0.27 °	0.5 dB	4 °	Pass
870.26 MHz	-4.61 dB	161.34 °	-4.62 dB	161.52 °	0.02 dB	-0.18 °	0.5 dB	4 °	Pass
900.26 MHz	-4.58 dB	158.36 °	-4.58 dB	158.33 °	0 dB	0.03 °	0.5 dB	4 °	Pass
930.25 MHz	-4.57 dB	155.25 °	-4.55 dB	155.2 °	-0.02 dB	0.04 °	0.5 dB	4 °	Pass
960.25 MHz	-4.56 dB	152.02 °	-4.54 dB	152.12 °	-0.02 dB	-0.1 °	0.5 dB	4 °	Pass
990.25 MHz	-4.56 dB	148.83 °	-4.55 dB	149.01 °	-0.01 dB	-0.18 °	0.5 dB	4 °	Pass
1020.25 MHz	-4.55 dB	145.74 °	-4.56 dB	145.95 °	0 dB	-0.2 °	0.5 dB	4 °	Pass
1050.25 MHz	-4.58 dB	142.74 °	-4.57 dB	142.81 °	0 dB	-0.07 °	0.5 dB	4 °	Pass
1080.25 MHz	-4.63 dB	139.57 °	-4.61 dB	139.68 °	-0.01 dB	-0.1 °	0.5 dB	4 °	Pass
1110.24 MHz	-4.67 dB	136.42 °	-4.66 dB	136.53 °	-0.01 dB	-0.11 °	0.5 dB	4 °	Pass
1140.24 MHz	-4.74 dB	133.27 °	-4.72 dB	133.38 °	-0.02 dB	-0.11 °	0.5 dB	4 °	Pass
1170.24 MHz	-4.81 dB	130.17 °	-4.8 dB	130.23 °	-0.01 dB	-0.06 °	0.5 dB	4 °	Pass
1200.24 MHz	-4.9 dB	126.99 °	-4.9 dB	126.99 °	0.01 dB	-0.01 °	0.5 dB	4 °	Pass
1230.24 MHz	-5.01 dB	123.8 °	-5.01 dB	123.82 °	0 dB	-0.02 °	0.5 dB	4 °	Pass
1260.24 MHz	-5.14 dB	120.54 °	-5.13 dB	120.64 °	0 dB	-0.09 °	0.5 dB	4 °	Pass
1290.24 MHz	-5.28 dB	117.28 °	-5.28 dB	117.34 °	0.01 dB	-0.05 °	0.5 dB	4 °	Pass
1320.23 MHz	-5.44 dB	114.06 °	-5.45 dB	114.08 °	0.01 dB	-0.02 °	0.5 dB	4 °	Pass
1350.23 MHz	-5.62 dB	110.71 °	-5.63 dB	110.74 °	0.01 dB	-0.03 °	0.5 dB	4 °	Pass
1380.23 MHz	-5.84 dB	107.36 °	-5.83 dB	107.43 °	0 dB	-0.07 °	0.5 dB	4 °	Pass
1410.23 MHz	-6.07 dB	103.94 °	-6.07 dB	104.04 °	0 dB	-0.1 °	0.5 dB	4 °	Pass
1440.23 MHz	-6.33 dB	100.56 °	-6.33 dB	100.55 °	0 dB	0.01 °	0.5 dB	4 °	Pass
1470.23 MHz	-6.63 dB	97.01 °	-6.64 dB	97.01 °	0.01 dB	0 °	0.5 dB	4 °	Pass
1500.23 MHz	-6.96 dB	93.4 °	-6.94 dB	93.46 °	-0.02 dB	-0.06 °	0.5 dB	4 °	Pass
1530.22 MHz	-7.32 dB	89.69 °	-7.3 dB	89.74 °	-0.02 dB	-0.05 °	0.5 dB	4 °	Pass
1560.22 MHz	-7.74 dB	86.13 °	-7.73 dB	85.99 °	-0.01 dB	0.14 °	0.5 dB	4 °	Pass
1590.22 MHz	-8.21 dB	82.46 °	-8.19 dB	82.37 °	-0.01 dB	0.08 °	0.5 dB	4 °	Pass
1620.22 MHz	-8.75 dB	78.76 °	-8.72 dB	78.66 °	-0.03 dB	0.1 °	0.5 dB	4 °	Pass
1650.22 MHz	-9.35 dB	74.91 °	-9.33 dB	74.87 °	-0.02 dB	0.04 °	0.5 dB	4 °	Pass
1680.22 MHz	-10.03 dB	71 °	-10.02 dB	71.07 °	-0.02 dB	-0.07 °	0.5 dB	4 °	Pass
1710.21 MHz	-10.78 dB	67.18 °	-10.8 dB	67.3 °	0.01 dB	-0.12 °	0.5 dB	4 °	Pass
1740.21 MHz	-11.7 dB	63.34 °	-11.7 dB	63.51 °	0.01 dB	-0.17 °	0.5 dB	4 °	Pass
1770.21 MHz	-12.76 dB	59.46 °	-12.77 dB	59.66 °	0 dB	-0.21 °	0.5 dB	4 °	Pass
1800.21 MHz	-14.01 dB	55.39 °	-14.04 dB	55.8 °	0.03 dB	-0.41 °	0.5 dB	4 °	Pass
1830.21 MHz	-15.49 dB	51.82 °	-15.58 dB	52.03 °	0.08 dB	-0.22 °	1 dB	6 °	Pass
1860.21 MHz	-17.4 dB	48.56 °	-17.49 dB	48.51 °	0.09 dB	0.05 °	1 dB	6 °	Pass
1890.21 MHz	-19.93 dB	45.67 °	-19.99 dB	45.47 °	0.05 dB	0.19 °	1 dB	6 °	Pass
1920.2 MHz	-23.54 dB	42.82 °	-23.58 dB	43.79 °	0.04 dB	-0.97 °	1 dB	6 °	Pass
1950.2 MHz	-29.69 dB	43.66 °	-29.85 dB	47.64 °	0.15 dB	-3.98 °	2.5 dB	15 °	Pass
1980.2 MHz	-43.43 dB	121.62 °	-40.68 dB	141.01 °	-2.75 dB	-19.39 °	200 dB	360 °	Pass
2010.2 MHz	-28.82 dB	-169.48 °	-28.2 dB	-168.95 °	-0.61 dB	-0.54 °	2.5 dB	15 °	Pass
2040.2 MHz	-22.91 dB	-168.01 °	-22.77 dB	-167.42 °	-0.14 dB	-0.6 °	1 dB	6 °	Pass
2070.2 MHz	-19.48 dB	-169.12 °	-19.42 dB	-169.55 °	-0.05 dB	0.43 °	1 dB	6 °	Pass
2100.2 MHz	-17.17 dB	-172.12 °	-17.08 dB	-172.78 °	-0.09 dB	0.66 °	1 dB	6 °	Pass
2130.19 MHz	-15.4 dB	-175.77 °	-15.29 dB	-176.45 °	-0.1 dB	0.68 °	1 dB	6 °	Pass
2160.19 MHz	-13.92 dB	-179.75 °	-13.84 dB	179.81 °	-0.08 dB	0.45 °	0.5 dB	4 °	Pass
2190.19 MHz	-12.68 dB	176.4 °	-12.62 dB	176.08 °	-0.06 dB	0.32 °	0.5 dB	4 °	Pass
2220.19 MHz	-11.63 dB	172.66 °	-11.59 dB	172.23 °	-0.04 dB	0.43 °	0.5 dB	4 °	Pass
2250.19 MHz	-10.77 dB	168.81 °	-10.7 dB	168.21 °	-0.07 dB	0.6 °	0.5 dB	4 °	Pass
2280.19 MHz	-10.01 dB	164.78 °	-9.94 dB	164.41 °	-0.07 dB	0.37 °	0.5 dB	4 °	Pass
2310.18 MHz	-9.33 dB	160.87 °	-9.3 dB	160.76 °	-0.03 dB	0.11 °	0.5 dB	4 °	Pass
2340.18 MHz	-8.72 dB	157.18 °	-8.71 dB	156.94 °	-0.01 dB	0.24 °	0.5 dB	4 °	Pass
2370.18 MHz	-8.2 dB	153.73 °	-8.19 dB	153.15 °	0 dB	0.58 °	0.5 dB	4 °	Pass
2400.18 MHz	-7.78 dB	150.1 °	-7.75 dB	149.47 °	-0.03 dB	0.63 °	0.5 dB	4 °	Pass
2430.18 MHz	-7.38 dB	146.36 °	-7.34 dB	145.86 °	-0.04 dB	0.49 °	0.5 dB	4 °	Pass
2460.18 MHz	-7.03 dB	142.54 °	-6.98 dB	142.37 °	-0.05 dB	0.16 °	0.5 dB	4 °	Pass
2490.18 MHz	-6.68 dB	138.9 °	-6.66 dB	138.92 °	-0.02 dB	-0.03 °	0.5 dB	4 °	Pass
2520.17 MHz	-6.39 dB	135.57 °	-6.37 dB	135.4 °	-0.01 dB	0.18 °	0.5 dB	4 °	Pass
2550.17 MHz	-6.13 dB	132.19 °	-6.11 dB	131.97 °	-0.02 dB	0.22 °	0.5 dB	4 °	Pass
2580.17 MHz	-5.92 dB	128.85 °	-5.89 dB	128.65 °	-0.03 dB	0.19 °	0.5 dB	4 °	Pass
2610.17 MHz	-5.71 dB	125.4 °	-5.69 dB	125.29 °	-0.03 dB	0.11 °	0.5 dB	4 °	Pass
2640.17 MHz	-5.53 dB	122.01 °	-5.51 dB	121.93 °	-0.02 dB	0.08 °	0.5 dB	4 °	Pass
2670.17 MHz	-5.37 dB	118.7 °	-5.35 dB	118.65 °	-0.02 dB	0.05 °	0.5 dB	4 °	Pass
2700.17 MHz	-5.24 dB	115.42 °	-5.21 dB	115.48 °	-0.02 dB	-0.06 °	0.5 dB	4 °	Pass
2730.16 MHz	-5.12 dB	112.22 °	-5.1 dB	112.29 °	-0.02 dB	-0.07 °	0.5 dB	4 °	Pass
2760.16 MHz	-5.02 dB	109 °	-5 dB	109.06 °	-0.02 dB	-0.06 °	0.5 dB	4 °	Pass
2790.16 MHz	-4.92 dB	105.89 °	-4.91 dB	105.89 °	-0.02 dB	0 °	0.5 dB	4 °	Pass
2820.16 MHz	-4.85 dB	102.77 °	-4.83 dB	102.79 °	-0.02 dB	-0.03 °	0.5 dB	4 °	Pass
2850.16 MHz	-4.8 dB	99.62 °	-4.78 dB	99.71 °	-0.02 dB	-0.09 °	0.5 dB	4 °	Pass
2880.16 MHz	-4.76 dB	96.4 °	-4.74 dB	96.58 °	-0.02 dB	-0.18 °	0.5 dB	4 °	Pass
2910.15 MHz	-4.72 dB	93.22 °	-4.71 dB	93.45 °	-0.01 dB	-0.23 °	0.5 dB	4 °	Pass
2940.15 MHz	-4.7 dB	90.14 °	-4.7 dB	90.37 °	0 dB	-0.23 °	0.5 dB	4 °	Pass
2970.15 MHz	-4.69 dB	87.1 °	-4.69 dB	87.3 °	0 dB	-0.2 °	0.5 dB	4 °	Pass
3000.15 MHz	-4.7 dB	84.07 °	-4.7 dB	84.21 °	0 dB	-0.13 °	0.5 dB	4 °	Pass

Frequency MHz	Measurement		Reference		Measured Delta		Specified Uncertainty TUL		Test Verdict
	Mag (dB)	Angle (°)	Mag (dB)	Angle (°)	Mag (dB)	Angle (°)	Mag (dB)	Angle (°)	
3030.15 MHz	-4.73 dB	80.96 °	-4.73 dB	81.08 °	0.01 dB	-0.12 °	0.5 dB	4 °	Pass
3060.15 MHz	-4.76 dB	77.83 °	-4.76 dB	77.94 °	0 dB	-0.11 °	0.5 dB	4 °	Pass
3090.15 MHz	-4.8 dB	74.68 °	-4.81 dB	74.82 °	0 dB	-0.14 °	0.5 dB	4 °	Pass
3120.14 MHz	-4.86 dB	71.52 °	-4.87 dB	71.69 °	0.01 dB	-0.17 °	0.5 dB	4 °	Pass
3150.14 MHz	-4.93 dB	68.36 °	-4.94 dB	68.53 °	0.01 dB	-0.18 °	0.5 dB	4 °	Pass
3180.14 MHz	-5.02 dB	65.24 °	-5.03 dB	65.32 °	0 dB	-0.09 °	0.5 dB	4 °	Pass
3210.14 MHz	-5.12 dB	62.08 °	-5.14 dB	62.08 °	0.01 dB	0 °	0.5 dB	4 °	Pass
3240.14 MHz	-5.25 dB	58.92 °	-5.27 dB	58.86 °	0.02 dB	0.06 °	0.5 dB	4 °	Pass
3270.14 MHz	-5.39 dB	55.66 °	-5.41 dB	55.58 °	0.03 dB	0.08 °	0.5 dB	4 °	Pass
3300.14 MHz	-5.55 dB	52.35 °	-5.57 dB	52.25 °	0.02 dB	0.1 °	0.5 dB	4 °	Pass
3330.13 MHz	-5.73 dB	48.94 °	-5.74 dB	48.97 °	0.01 dB	-0.03 °	0.5 dB	4 °	Pass
3360.13 MHz	-5.93 dB	45.56 °	-5.95 dB	45.69 °	0.02 dB	-0.13 °	0.5 dB	4 °	Pass
3390.13 MHz	-6.15 dB	42.22 °	-6.19 dB	42.33 °	0.04 dB	-0.11 °	0.5 dB	4 °	Pass
3420.13 MHz	-6.41 dB	38.85 °	-6.44 dB	38.89 °	0.04 dB	-0.04 °	0.5 dB	4 °	Pass
3450.13 MHz	-6.7 dB	35.44 °	-6.72 dB	35.39 °	0.02 dB	0.05 °	0.5 dB	4 °	Pass
3480.13 MHz	-7.03 dB	31.85 °	-7.04 dB	31.87 °	0.01 dB	-0.02 °	0.5 dB	4 °	Pass
3510.12 MHz	-7.39 dB	28.25 °	-7.41 dB	28.32 °	0.03 dB	-0.07 °	0.5 dB	4 °	Pass
3540.12 MHz	-7.79 dB	24.61 °	-7.83 dB	24.77 °	0.04 dB	-0.17 °	0.5 dB	4 °	Pass
3570.12 MHz	-8.24 dB	20.93 °	-8.29 dB	21.19 °	0.05 dB	-0.27 °	0.5 dB	4 °	Pass
3600.12 MHz	-8.76 dB	17.21 °	-8.8 dB	17.55 °	0.04 dB	-0.34 °	0.5 dB	4 °	Pass
3630.12 MHz	-9.33 dB	13.48 °	-9.38 dB	13.91 °	0.05 dB	-0.42 °	0.5 dB	4 °	Pass
3660.12 MHz	-9.99 dB	9.85 °	-10.06 dB	10.24 °	0.07 dB	-0.38 °	0.5 dB	4 °	Pass
3690.12 MHz	-10.75 dB	6.13 °	-10.83 dB	6.48 °	0.08 dB	-0.35 °	0.5 dB	4 °	Pass
3720.11 MHz	-11.63 dB	2.29 °	-11.71 dB	2.8 °	0.08 dB	-0.51 °	0.5 dB	4 °	Pass
3750.11 MHz	-12.66 dB	-1.56 °	-12.74 dB	-0.75 °	0.08 dB	-0.81 °	0.5 dB	4 °	Pass
3780.11 MHz	-13.85 dB	-5.39 °	-13.96 dB	-4.33 °	0.11 dB	-1.06 °	0.5 dB	4 °	Pass
3810.11 MHz	-15.28 dB	-9.07 °	-15.43 dB	-7.82 °	0.15 dB	-1.25 °	1 dB	6 °	Pass
3840.11 MHz	-17.04 dB	-12.44 °	-17.24 dB	-10.98 °	0.2 dB	-1.46 °	1 dB	6 °	Pass
3870.11 MHz	-19.3 dB	-15.25 °	-19.59 dB	-13.41 °	0.29 dB	-1.84 °	1 dB	6 °	Pass
3900.11 MHz	-22.44 dB	-16.86 °	-22.86 dB	-14.4 °	0.42 dB	-2.46 °	1 dB	6 °	Pass
3930.1 MHz	-27.43 dB	-14.17 °	-28.09 dB	-10.25 °	0.67 dB	-3.92 °	2.5 dB	15 °	Pass
3960.1 MHz	-37.74 dB	25.27 °	-37.66 dB	40.87 °	-0.07 dB	-15.6 °	200 dB	360 °	Pass
3990.1 MHz	-30.58 dB	120.86 °	-29.69 dB	119.54 °	-0.89 dB	1.33 °	200 dB	360 °	Pass
4020.1 MHz	-24.18 dB	127.87 °	-23.75 dB	126.64 °	-0.43 dB	1.23 °	1 dB	6 °	Pass
4050.1 MHz	-20.52 dB	126.92 °	-20.23 dB	126.2 °	-0.29 dB	0.73 °	1 dB	6 °	Pass
4080.1 MHz	-17.95 dB	124.08 °	-17.75 dB	123.86 °	-0.2 dB	0.22 °	1 dB	6 °	Pass
4110.09 MHz	-15.98 dB	120.83 °	-15.84 dB	120.72 °	-0.13 dB	0.11 °	1 dB	6 °	Pass
4140.09 MHz	-14.39 dB	117.43 °	-14.32 dB	117.15 °	-0.07 dB	0.28 °	0.5 dB	4 °	Pass
4170.09 MHz	-13.11 dB	113.93 °	-13.06 dB	113.55 °	-0.05 dB	0.37 °	0.5 dB	4 °	Pass
4200.09 MHz	-12.03 dB	110.22 °	-11.99 dB	109.93 °	-0.04 dB	0.29 °	0.5 dB	4 °	Pass
4230.09 MHz	-11.12 dB	106.48 °	-11.07 dB	106.18 °	-0.05 dB	0.3 °	0.5 dB	4 °	Pass
4260.09 MHz	-10.32 dB	102.67 °	-10.28 dB	102.38 °	-0.05 dB	0.29 °	0.5 dB	4 °	Pass
4290.09 MHz	-9.63 dB	98.9 °	-9.59 dB	98.66 °	-0.04 dB	0.24 °	0.5 dB	4 °	Pass
4320.08 MHz	-9.01 dB	95.18 °	-8.99 dB	95.05 °	-0.02 dB	0.13 °	0.5 dB	4 °	Pass
4350.08 MHz	-8.47 dB	91.53 °	-8.46 dB	91.4 °	-0.02 dB	0.12 °	0.5 dB	4 °	Pass
4380.08 MHz	-7.99 dB	87.86 °	-7.98 dB	87.77 °	-0.01 dB	0.1 °	0.5 dB	4 °	Pass
4410.08 MHz	-7.56 dB	84.28 °	-7.56 dB	84.32 °	0 dB	-0.05 °	0.5 dB	4 °	Pass
4440.08 MHz	-7.18 dB	80.71 °	-7.19 dB	80.84 °	0.01 dB	-0.13 °	0.5 dB	4 °	Pass
4470.08 MHz	-6.84 dB	77.25 °	-6.85 dB	77.3 °	0 dB	-0.05 °	0.5 dB	4 °	Pass
4500.08 MHz	-6.55 dB	73.76 °	-6.54 dB	73.85 °	0 dB	-0.09 °	0.5 dB	4 °	Pass
4530.07 MHz	-6.28 dB	70.33 °	-6.28 dB	70.45 °	0 dB	-0.12 °	0.5 dB	4 °	Pass
4560.07 MHz	-6.04 dB	66.86 °	-6.04 dB	67.07 °	0 dB	-0.21 °	0.5 dB	4 °	Pass
4590.07 MHz	-5.82 dB	63.51 °	-5.83 dB	63.76 °	0.02 dB	-0.25 °	0.5 dB	4 °	Pass
4620.07 MHz	-5.63 dB	60.26 °	-5.64 dB	60.45 °	0.02 dB	-0.19 °	0.5 dB	4 °	Pass
4650.07 MHz	-5.45 dB	57.05 °	-5.47 dB	57.18 °	0.01 dB	-0.13 °	0.5 dB	4 °	Pass
4680.07 MHz	-5.31 dB	53.88 °	-5.32 dB	53.96 °	0.01 dB	-0.08 °	0.5 dB	4 °	Pass
4710.06 MHz	-5.2 dB	50.59 °	-5.2 dB	50.75 °	0.01 dB	-0.17 °	0.5 dB	4 °	Pass
4740.06 MHz	-5.09 dB	47.28 °	-5.1 dB	47.54 °	0.01 dB	-0.26 °	0.5 dB	4 °	Pass
4770.06 MHz	-4.98 dB	44.16 °	-5 dB	44.37 °	0.01 dB	-0.21 °	0.5 dB	4 °	Pass
4800.06 MHz	-4.9 dB	41.04 °	-4.91 dB	41.27 °	0.02 dB	-0.23 °	0.5 dB	4 °	Pass
4830.06 MHz	-4.83 dB	38.01 °	-4.85 dB	38.19 °	0.02 dB	-0.18 °	0.5 dB	4 °	Pass
4860.06 MHz	-4.79 dB	34.84 °	-4.8 dB	35.07 °	0.01 dB	-0.23 °	0.5 dB	4 °	Pass
4890.06 MHz	-4.74 dB	31.73 °	-4.77 dB	31.97 °	0.03 dB	-0.24 °	0.5 dB	4 °	Pass
4920.05 MHz	-4.72 dB	28.65 °	-4.74 dB	28.9 °	0.02 dB	-0.26 °	0.5 dB	4 °	Pass
4950.05 MHz	-4.7 dB	25.61 °	-4.72 dB	25.81 °	0.02 dB	-0.2 °	0.5 dB	4 °	Pass
4980.05 MHz	-4.72 dB	22.49 °	-4.72 dB	22.75 °	0 dB	-0.26 °	0.5 dB	4 °	Pass
5010.05 MHz	-4.72 dB	19.36 °	-4.74 dB	19.71 °	0.02 dB	-0.35 °	0.5 dB	4 °	Pass
5040.05 MHz	-4.74 dB	16.26 °	-4.77 dB	16.61 °	0.03 dB	-0.35 °	0.5 dB	4 °	Pass
5070.05 MHz	-4.77 dB	13.22 °	-4.81 dB	13.51 °	0.04 dB	-0.29 °	0.5 dB	4 °	Pass
5100.05 MHz	-4.83 dB	10.23 °	-4.85 dB	10.44 °	0.02 dB	-0.21 °	0.5 dB	4 °	Pass
5130.04 MHz	-4.91 dB	7.11 °	-4.92 dB	7.34 °	0.02 dB	-0.23 °	0.5 dB	4 °	Pass
5160.04 MHz	-4.99 dB	3.84 °	-5.01 dB	4.21 °	0.02 dB	-0.37 °	0.5 dB	4 °	Pass
5190.04 MHz	-5.08 dB	0.63 °	-5.11 dB	1.08 °	0.03 dB	-0.45 °	0.5 dB	4 °	Pass
5220.04 MHz	-5.18 dB	-2.5 °	-5.22 dB	-2.05 °	0.04 dB	-0.45 °	0.5 dB	4 °	Pass
5250.04 MHz	-5.31 dB	-5.56 °	-5.35 dB	-5.36 °	0.04 dB	-0.2 °	0.5 dB	4 °	Pass
5280.04 MHz	-5.47 dB	-8.82 °	-5.49 dB	-8.72 °	0.02 dB	-0.09 °	0.5 dB	4 °	Pass
5310.03 MHz	-5.64 dB	-12.1 °	-5.67 dB	-11.82 °	0.03 dB	-0.28 °	0.5 dB	4 °	Pass
5340.03 MHz	-5.82 dB	-15.4 °	-5.87 dB	-14.98 °	0.04 dB	-0.41 °	0.5 dB	4 °	Pass
5370.03 MHz	-6.03 dB	-18.66 °	-6.08 dB	-18.33 °	0.05 dB	-0.33 °	0.5 dB	4 °	Pass
5400.03 MHz	-6.27 dB	-21.91 °	-6.32 dB	-21.68 °	0.05 dB	-0.23 °	0.5 dB	4 °	Pass
5430.03 MHz	-6.56 dB	-25.34 °	-6.6 dB	-25.05 °	0.04 dB	-0.29 °	0.5 dB	4 °	Pass
5460.03 MHz	-6.87 dB	-28.83 °	-6.9 dB	-28.46 °	0.03 dB	-0.38 °	0.5 dB	4 °	Pass
5490.03 MHz	-7.2 dB	-32.36 °	-7.24 dB	-31.88 °	0.04 dB	-0.48 °	0.5 dB	4 °	Pass
5520.02 MHz	-7.58 dB	-35.78 °	-7.63 dB	-35.36 °	0.05 dB	-0.42 °	0.5 dB	4 °	Pass
5550.02 MHz	-8.01 dB	-39.19 °	-8.06 dB	-38.89 °	0.05 dB	-0.3 °	0.5 dB	4 °	Pass
5580.02 MHz	-8.5 dB	-42.73 °	-8.55 dB	-42.39 °	0.05 dB	-0.33 °	0.5 dB	4 °	Pass
5610.02 MHz	-9.06 dB	-46.37 °	-9.1 dB	-46 °	0.04 dB	-0.37 °	0.5 dB	4 °	Pass
5640.02 MHz	-9.68 dB	-49.95 °	-9.72 dB	-49.68 °	0.04 dB	-0.27 °	0.5 dB	4 °	Pass
5670.02 MHz	-10.39 dB	-53.48 °	-10.44 dB	-53.23 °	0.05 dB	-0.25 °	0.5 dB	4 °	Pass
5700.02 MHz	-11.21 dB	-56.99 °	-11.25 dB	-56.76 °	0.05 dB	-0.22 °	0.5 dB	4 °	Pass
5730.01 MHz	-12.14 dB	-60.46 °	-12.19 dB	-60.27 °	0.05 dB	-0.19 °	0.5 dB	4 °	Pass
5760.01 MHz	-13.23 dB	-63.78 °	-13.31 dB	-63.55 °	0.08 dB	-0.24 °	0.5 dB	4 °	Pass
5790.01 MHz	-14.54 dB	-66.77 °	-14.63 dB	-66.64 °	0.09 dB	-0.13 °	0.5 dB	4 °	Pass
5820.01 MHz	-16.17 dB	-69.35 °	-16.22 dB	-69.46 °	0.05 dB	0.11 °	1 dB	6 °	Pass
5850.01 MHz	-18.22 dB	-71.26 °	-18.23 dB	-71.52 °	0.01 dB	0.26 °	1 dB	6 °	Pass
5880.01 MHz	-20.89 dB	-71.71 °	-20.89 dB	-71.95 °	0 dB	0.23 °	1 dB	6 °	Pass
5910 MHz	-24.63 dB	-67.47 °	-24.67 dB	-68.07 °	0.04 dB	0.6 °	1 dB	6 °	Pass
5940 MHz	-30.24 dB	-45.72 °	-30.4 dB	-47.03 °	0.17 dB	1.31 °	200 dB	360 °	Pass
5970 MHz	-31.3 dB	21.48 °	-31.52 dB	22.03 °	0.22 dB	-0.55 °	200 dB	360 °	Pass
6000 MHz	-25.46 dB	50.53 °	-25.55 dB	52.29 °	0.09 dB	-1.76 °	2.5 dB	15 °	Pass

Frequency MHz	Measurement		Reference		Measured Delta		Specified Uncertainty TUL		Test Verdict
	Mag (dB)	Angle (°)	Mag (dB)	Angle (°)	Mag (dB)	Angle (°)	Mag (dB)	Angle (°)	
<b>S21 Tests</b>									
0.3 MHz	0 dB	-0.1 °	0 dB	-0.04 °	0 dB	-0.06 °	0.4 dB	6 °	Pass
30.3 MHz	-0.01 dB	-4.51 °	-0.02 dB	-4.42 °	0 dB	-0.09 °	0.1 dB	1 °	Pass
60.3 MHz	-0.04 dB	-8.88 °	-0.04 dB	-8.79 °	0 dB	-0.09 °	0.1 dB	1 °	Pass
90.3 MHz	-0.06 dB	-13.23 °	-0.07 dB	-13.13 °	0 dB	-0.11 °	0.1 dB	1 °	Pass
120.29 MHz	-0.11 dB	-17.56 °	-0.1 dB	-17.48 °	0 dB	-0.08 °	0.1 dB	1 °	Pass
150.29 MHz	-0.15 dB	-21.86 °	-0.16 dB	-21.79 °	0 dB	-0.07 °	0.1 dB	1 °	Pass
180.29 MHz	-0.21 dB	-26.13 °	-0.21 dB	-25.96 °	0 dB	-0.17 °	0.1 dB	1 °	Pass
210.29 MHz	-0.28 dB	-30.29 °	-0.27 dB	-30.18 °	-0.01 dB	-0.11 °	0.1 dB	1 °	Pass
240.29 MHz	-0.35 dB	-34.48 °	-0.35 dB	-34.31 °	-0.01 dB	-0.17 °	0.1 dB	1 °	Pass
270.29 MHz	-0.43 dB	-38.57 °	-0.43 dB	-38.48 °	-0.01 dB	-0.09 °	0.1 dB	1 °	Pass
300.29 MHz	-0.52 dB	-42.67 °	-0.51 dB	-42.49 °	-0.01 dB	-0.18 °	0.1 dB	1 °	Pass
330.28 MHz	-0.6 dB	-46.57 °	-0.6 dB	-46.52 °	0 dB	-0.05 °	0.1 dB	1 °	Pass
360.28 MHz	-0.7 dB	-50.54 °	-0.69 dB	-50.44 °	-0.01 dB	-0.09 °	0.1 dB	1 °	Pass
390.28 MHz	-0.8 dB	-54.37 °	-0.79 dB	-54.29 °	0 dB	-0.09 °	0.1 dB	1 °	Pass
420.28 MHz	-0.89 dB	-58.24 °	-0.9 dB	-58.11 °	0.01 dB	-0.13 °	0.1 dB	1 °	Pass
450.28 MHz	-0.98 dB	-61.92 °	-0.99 dB	-61.79 °	0.01 dB	-0.13 °	0.1 dB	1 °	Pass
480.28 MHz	-1.08 dB	-65.62 °	-1.08 dB	-65.45 °	0 dB	-0.17 °	0.1 dB	1 °	Pass
510.27 MHz	-1.17 dB	-69.16 °	-1.18 dB	-69.1 °	0 dB	-0.07 °	0.1 dB	1 °	Pass
540.27 MHz	-1.28 dB	-72.84 °	-1.27 dB	-72.61 °	-0.01 dB	-0.23 °	0.1 dB	1 °	Pass
570.27 MHz	-1.35 dB	-76.3 °	-1.35 dB	-76.07 °	0 dB	-0.23 °	0.1 dB	1 °	Pass
600.27 MHz	-1.44 dB	-79.77 °	-1.43 dB	-79.54 °	-0.01 dB	-0.22 °	0.1 dB	1 °	Pass
630.27 MHz	-1.52 dB	-83.14 °	-1.52 dB	-82.94 °	0 dB	-0.2 °	0.1 dB	1 °	Pass
660.27 MHz	-1.61 dB	-86.55 °	-1.6 dB	-86.28 °	-0.01 dB	-0.27 °	0.1 dB	1 °	Pass
690.27 MHz	-1.67 dB	-89.89 °	-1.67 dB	-89.75 °	0 dB	-0.14 °	0.1 dB	1 °	Pass
720.26 MHz	-1.74 dB	-93.17 °	-1.74 dB	-92.93 °	0 dB	-0.24 °	0.1 dB	1 °	Pass
750.26 MHz	-1.79 dB	-96.36 °	-1.79 dB	-96.21 °	0 dB	-0.16 °	0.1 dB	1 °	Pass
780.26 MHz	-1.86 dB	-99.63 °	-1.86 dB	-99.42 °	0 dB	-0.21 °	0.1 dB	1 °	Pass
810.26 MHz	-1.91 dB	-102.82 °	-1.89 dB	-102.58 °	-0.02 dB	-0.24 °	0.1 dB	1 °	Pass
840.26 MHz	-1.94 dB	-106.04 °	-1.92 dB	-105.81 °	-0.02 dB	-0.23 °	0.1 dB	1 °	Pass
870.26 MHz	-1.97 dB	-109.11 °	-1.97 dB	-109.11 °	0 dB	0 °	0.1 dB	1 °	Pass
900.26 MHz	-2.01 dB	-112.3 °	-2.01 dB	-112.22 °	-0.01 dB	-0.08 °	0.1 dB	1 °	Pass
930.25 MHz	-2.03 dB	-115.43 °	-2.02 dB	-115.38 °	0 dB	-0.06 °	0.1 dB	1 °	Pass
960.25 MHz	-2.05 dB	-118.64 °	-2.04 dB	-118.47 °	0 dB	-0.17 °	0.1 dB	1 °	Pass
990.25 MHz	-2.04 dB	-121.7 °	-2.04 dB	-121.5 °	-0.01 dB	-0.2 °	0.1 dB	1 °	Pass
1020.25 MHz	-2.05 dB	-124.79 °	-2.03 dB	-124.63 °	-0.02 dB	-0.15 °	0.1 dB	1 °	Pass
1050.25 MHz	-2.04 dB	-127.92 °	-2.03 dB	-127.8 °	-0.01 dB	-0.12 °	0.1 dB	1 °	Pass
1080.25 MHz	-2.02 dB	-131.12 °	-2.01 dB	-130.92 °	-0.01 dB	-0.2 °	0.1 dB	1 °	Pass
1110.24 MHz	-1.99 dB	-134.32 °	-1.99 dB	-134.02 °	0 dB	-0.3 °	0.1 dB	1 °	Pass
1140.24 MHz	-1.97 dB	-137.39 °	-1.97 dB	-137.26 °	0 dB	-0.14 °	0.1 dB	1 °	Pass
1170.24 MHz	-1.93 dB	-140.57 °	-1.93 dB	-140.44 °	0 dB	-0.13 °	0.1 dB	1 °	Pass
1200.24 MHz	-1.89 dB	-143.79 °	-1.88 dB	-143.58 °	-0.01 dB	-0.21 °	0.1 dB	1 °	Pass
1230.24 MHz	-1.84 dB	-147.03 °	-1.84 dB	-146.84 °	0.01 dB	-0.19 °	0.1 dB	1 °	Pass
1260.24 MHz	-1.78 dB	-150.3 °	-1.79 dB	-150.04 °	0.01 dB	-0.26 °	0.1 dB	1 °	Pass
1290.24 MHz	-1.72 dB	-153.55 °	-1.71 dB	-153.29 °	0 dB	-0.25 °	0.1 dB	1 °	Pass
1320.23 MHz	-1.66 dB	-156.86 °	-1.65 dB	-156.75 °	-0.01 dB	-0.11 °	0.1 dB	1 °	Pass
1350.23 MHz	-1.59 dB	-160.25 °	-1.59 dB	-160.07 °	-0.01 dB	-0.18 °	0.1 dB	1 °	Pass
1380.23 MHz	-1.52 dB	-163.66 °	-1.51 dB	-163.41 °	-0.01 dB	-0.25 °	0.1 dB	1 °	Pass
1410.23 MHz	-1.44 dB	-167.11 °	-1.45 dB	-166.9 °	0.01 dB	-0.21 °	0.1 dB	1 °	Pass
1440.23 MHz	-1.35 dB	-170.59 °	-1.36 dB	-170.39 °	0.01 dB	-0.2 °	0.1 dB	1 °	Pass
1470.23 MHz	-1.27 dB	-174.16 °	-1.27 dB	-173.84 °	0 dB	-0.32 °	0.1 dB	1 °	Pass
1500.23 MHz	-1.18 dB	-177.83 °	-1.18 dB	-177.72 °	0 dB	-0.11 °	0.1 dB	1 °	Pass
1530.22 MHz	-1.08 dB	178.49 °	-1.09 dB	178.63 °	0.01 dB	-0.14 °	0.1 dB	1 °	Pass
1560.22 MHz	-1 dB	174.8 °	-1.01 dB	175.01 °	0.01 dB	-0.2 °	0.1 dB	1 °	Pass
1590.22 MHz	-0.91 dB	171.04 °	-0.92 dB	171.16 °	0.01 dB	-0.12 °	0.1 dB	1 °	Pass
1620.22 MHz	-0.82 dB	167.19 °	-0.83 dB	167.32 °	0.01 dB	-0.14 °	0.1 dB	1 °	Pass
1650.22 MHz	-0.73 dB	163.28 °	-0.74 dB	163.42 °	0.01 dB	-0.14 °	0.1 dB	1 °	Pass
1680.22 MHz	-0.65 dB	159.34 °	-0.66 dB	159.45 °	0.01 dB	-0.1 °	0.1 dB	1 °	Pass
1710.21 MHz	-0.58 dB	155.34 °	-0.59 dB	155.49 °	0.01 dB	-0.15 °	0.1 dB	1 °	Pass
1740.21 MHz	-0.5 dB	151.26 °	-0.51 dB	151.42 °	0.01 dB	-0.16 °	0.1 dB	1 °	Pass
1770.21 MHz	-0.44 dB	147.15 °	-0.44 dB	147.26 °	0 dB	-0.1 °	0.1 dB	1 °	Pass
1800.21 MHz	-0.38 dB	142.98 °	-0.38 dB	143.1 °	0.01 dB	-0.12 °	0.1 dB	1 °	Pass
1830.21 MHz	-0.32 dB	138.79 °	-0.33 dB	138.88 °	0.01 dB	-0.09 °	0.1 dB	1 °	Pass
1860.21 MHz	-0.28 dB	134.55 °	-0.29 dB	134.61 °	0.01 dB	-0.06 °	0.1 dB	1 °	Pass
1890.21 MHz	-0.25 dB	130.25 °	-0.26 dB	130.38 °	0.01 dB	-0.13 °	0.1 dB	1 °	Pass
1920.2 MHz	-0.22 dB	125.94 °	-0.24 dB	126.08 °	0.02 dB	-0.14 °	0.1 dB	1 °	Pass
1950.2 MHz	-0.21 dB	121.65 °	-0.23 dB	121.72 °	0.01 dB	-0.08 °	0.1 dB	1 °	Pass
1980.2 MHz	-0.21 dB	117.31 °	-0.22 dB	117.43 °	0.01 dB	-0.12 °	0.1 dB	1 °	Pass
2010.2 MHz	-0.21 dB	113.02 °	-0.23 dB	113.11 °	0.01 dB	-0.09 °	0.1 dB	1 °	Pass
2040.2 MHz	-0.23 dB	108.66 °	-0.25 dB	108.77 °	0.01 dB	-0.11 °	0.1 dB	1 °	Pass
2070.2 MHz	-0.26 dB	104.41 °	-0.27 dB	104.53 °	0.01 dB	-0.12 °	0.1 dB	1 °	Pass
2100.2 MHz	-0.3 dB	100.11 °	-0.32 dB	100.26 °	0.01 dB	-0.15 °	0.1 dB	1 °	Pass
2130.19 MHz	-0.35 dB	95.88 °	-0.37 dB	95.97 °	0.02 dB	-0.09 °	0.1 dB	1 °	Pass
2160.19 MHz	-0.4 dB	91.66 °	-0.42 dB	91.79 °	0.01 dB	-0.13 °	0.1 dB	1 °	Pass
2190.19 MHz	-0.47 dB	87.5 °	-0.48 dB	87.65 °	0.01 dB	-0.15 °	0.1 dB	1 °	Pass
2220.19 MHz	-0.54 dB	83.42 °	-0.55 dB	83.54 °	0.01 dB	-0.12 °	0.1 dB	1 °	Pass
2250.19 MHz	-0.61 dB	79.34 °	-0.63 dB	79.53 °	0.02 dB	-0.19 °	0.1 dB	1 °	Pass
2280.19 MHz	-0.69 dB	75.34 °	-0.72 dB	75.54 °	0.03 dB	-0.2 °	0.1 dB	1 °	Pass
2310.18 MHz	-0.78 dB	71.4 °	-0.8 dB	71.55 °	0.01 dB	-0.15 °	0.1 dB	1 °	Pass
2340.18 MHz	-0.87 dB	67.5 °	-0.88 dB	67.68 °	0.01 dB	-0.18 °	0.1 dB	1 °	Pass
2370.18 MHz	-0.96 dB	63.73 °	-0.97 dB	63.86 °	0.01 dB	-0.13 °	0.1 dB	1 °	Pass
2400.18 MHz	-1.05 dB	59.89 °	-1.06 dB	60.08 °	0.01 dB	-0.19 °	0.1 dB	1 °	Pass
2430.18 MHz	-1.14 dB	56.23 °	-1.16 dB	56.39 °	0.02 dB	-0.16 °	0.1 dB	1 °	Pass
2460.18 MHz	-1.23 dB	52.54 °	-1.25 dB	52.74 °	0.02 dB	-0.2 °	0.1 dB	1 °	Pass
2490.18 MHz	-1.32 dB	48.95 °	-1.33 dB	49.12 °	0.02 dB	-0.17 °	0.1 dB	1 °	Pass
2520.17 MHz	-1.41 dB	45.43 °	-1.42 dB	45.58 °	0.01 dB	-0.14 °	0.1 dB	1 °	Pass
2550.17 MHz	-1.49 dB	41.91 °	-1.5 dB	42.09 °	0.01 dB	-0.19 °	0.1 dB	1 °	Pass
2580.17 MHz	-1.57 dB	38.48 °	-1.58 dB	38.66 °	0.01 dB	-0.18 °	0.1 dB	1 °	Pass
2610.17 MHz	-1.65 dB	35.05 °	-1.66 dB	35.27 °	0.01 dB	-0.21 °	0.1 dB	1 °	Pass
2640.17 MHz	-1.72 dB	31.72 °	-1.73 dB	31.9 °	0.01 dB	-0.18 °	0.1 dB	1 °	Pass
2670.17 MHz	-1.79 dB	28.4 °	-1.8 dB	28.55 °	0.01 dB	-0.15 °	0.1 dB	1 °	Pass
2700.17 MHz	-1.85 dB	25.08 °	-1.86 dB	25.24 °	0.01 dB	-0.15 °	0.1 dB	1 °	Pass
2730.16 MHz	-1.91 dB	21.82 °	-1.91 dB	22 °	0.01 dB	-0.18 °	0.1 dB	1 °	Pass
2760.16 MHz	-1.96 dB	18.59 °	-1.96 dB	18.8 °	0 dB	-0.21 °	0.1 dB	1 °	Pass
2790.16 MHz	-2 dB	15.4 °	-2.01 dB	15.58 °	0.01 dB	-0.18 °	0.1 dB	1 °	Pass
2820.16 MHz	-2.04 dB	12.22 °	-2.05 dB	12.38 °	0.01 dB	-0.16 °	0.1 dB	1 °	Pass
2850.16 MHz	-2.07 dB	9.03 °	-2.08 dB	9.2 °	0.01 dB	-0.18 °	0.1 dB	1 °	Pass
2880.16 MHz	-2.1 dB	5.86 °	-2.1 dB	6.03 °	0 dB	-0.16 °	0.1 dB	1 °	Pass
2910.15 MHz	-2.11 dB	2.72 °	-2.11 dB	2.89 °	0 dB	-0.17 °	0.1 dB	1 °	Pass
2940.15 MHz	-2.12 dB	-0.42 °	-2.12 dB	-0.23 °	0 dB	-0.2 °	0.1 dB	1 °	Pass
2970.15 MHz	-2.13 dB	-3.53 °	-2.13 dB	-3.39 °	0 dB	-0.14 °	0.1 dB	1 °	Pass
3000.15 MHz	-2.13 dB	-6.69 °	-2.13 dB	-6.54 °	0 dB	-0.14 °	0.1 dB	1 °	Pass



Frequency MHz	Measurement		Reference		Measured Delta		Specified Uncertainty TUL		Test Verdict
	Mag (dB)	Angle (°)	Mag (dB)	Angle (°)	Mag (dB)	Angle (°)	Mag (dB)	Angle (°)	
3030.15 MHz	-2.12 dB	-9.83 °	-2.12 dB	-9.69 °	0 dB	-0.14 °	0.1 dB	1 °	Pass
3060.15 MHz	-2.11 dB	-12.99 °	-2.1 dB	-12.99 °	-0.01 dB	-0.09 °	0.1 dB	1 °	Pass
3090.15 MHz	-2.08 dB	-16.16 °	-2.07 dB	-16.05 °	-0.01 dB	-0.11 °	0.1 dB	1 °	Pass
3120.14 MHz	-2.06 dB	-19.34 °	-2.05 dB	-19.16 °	-0.01 dB	-0.18 °	0.1 dB	1 °	Pass
3150.14 MHz	-2.02 dB	-22.54 °	-2.01 dB	-22.37 °	-0.01 dB	-0.17 °	0.1 dB	1 °	Pass
3180.14 MHz	-1.98 dB	-25.75 °	-1.97 dB	-25.61 °	-0.01 dB	-0.13 °	0.1 dB	1 °	Pass
3210.14 MHz	-1.93 dB	-28.98 °	-1.93 dB	-28.87 °	0 dB	-0.11 °	0.1 dB	1 °	Pass
3240.14 MHz	-1.88 dB	-32.21 °	-1.87 dB	-32.15 °	-0.01 dB	-0.06 °	0.1 dB	1 °	Pass
3270.14 MHz	-1.82 dB	-35.54 °	-1.81 dB	-35.42 °	-0.01 dB	-0.12 °	0.1 dB	1 °	Pass
3300.14 MHz	-1.75 dB	-38.83 °	-1.75 dB	-38.73 °	-0.01 dB	-0.1 °	0.1 dB	1 °	Pass
3330.13 MHz	-1.69 dB	-42.25 °	-1.68 dB	-42.16 °	-0.01 dB	-0.09 °	0.1 dB	1 °	Pass
3360.13 MHz	-1.62 dB	-45.66 °	-1.61 dB	-45.58 °	-0.01 dB	-0.09 °	0.1 dB	1 °	Pass
3390.13 MHz	-1.53 dB	-49.09 °	-1.53 dB	-48.99 °	0 dB	-0.09 °	0.1 dB	1 °	Pass
3420.13 MHz	-1.46 dB	-52.58 °	-1.45 dB	-52.53 °	-0.01 dB	-0.05 °	0.1 dB	1 °	Pass
3450.13 MHz	-1.37 dB	-56.12 °	-1.37 dB	-56.07 °	-0.01 dB	-0.05 °	0.1 dB	1 °	Pass
3480.13 MHz	-1.29 dB	-59.75 °	-1.29 dB	-59.63 °	0 dB	-0.12 °	0.1 dB	1 °	Pass
3510.12 MHz	-1.2 dB	-63.38 °	-1.2 dB	-63.31 °	0 dB	-0.07 °	0.1 dB	1 °	Pass
3540.12 MHz	-1.12 dB	-67.1 °	-1.12 dB	-67.03 °	0 dB	-0.07 °	0.1 dB	1 °	Pass
3570.12 MHz	-1.03 dB	-70.86 °	-1.03 dB	-70.78 °	0 dB	-0.07 °	0.1 dB	1 °	Pass
3600.12 MHz	-0.95 dB	-74.68 °	-0.94 dB	-74.63 °	0 dB	-0.05 °	0.1 dB	1 °	Pass
3630.12 MHz	-0.86 dB	-78.56 °	-0.86 dB	-78.49 °	-0.01 dB	-0.07 °	0.1 dB	1 °	Pass
3660.12 MHz	-0.78 dB	-82.48 °	-0.78 dB	-82.4 °	0.01 dB	-0.09 °	0.1 dB	1 °	Pass
3690.12 MHz	-0.7 dB	-86.46 °	-0.71 dB	-86.43 °	0 dB	-0.03 °	0.1 dB	1 °	Pass
3720.11 MHz	-0.63 dB	-90.5 °	-0.63 dB	-90.5 °	0 dB	-0.01 °	0.1 dB	1 °	Pass
3750.11 MHz	-0.57 dB	-94.62 °	-0.57 dB	-94.57 °	0.01 dB	-0.05 °	0.1 dB	1 °	Pass
3780.11 MHz	-0.51 dB	-98.76 °	-0.51 dB	-98.72 °	0.01 dB	-0.04 °	0.1 dB	1 °	Pass
3810.11 MHz	-0.45 dB	-102.95 °	-0.46 dB	-102.89 °	0.01 dB	-0.06 °	0.1 dB	1 °	Pass
3840.11 MHz	-0.41 dB	-107.17 °	-0.41 dB	-107.1 °	0.01 dB	-0.07 °	0.1 dB	1 °	Pass
3870.11 MHz	-0.37 dB	-111.41 °	-0.38 dB	-111.37 °	0.01 dB	-0.04 °	0.1 dB	1 °	Pass
3900.11 MHz	-0.35 dB	-115.69 °	-0.36 dB	-115.66 °	0.01 dB	-0.02 °	0.1 dB	1 °	Pass
3930.1 MHz	-0.33 dB	-119.95 °	-0.35 dB	-119.93 °	0.01 dB	-0.02 °	0.1 dB	1 °	Pass
3960.1 MHz	-0.33 dB	-124.28 °	-0.34 dB	-124.21 °	0.01 dB	-0.07 °	0.1 dB	1 °	Pass
3990.1 MHz	-0.33 dB	-128.58 °	-0.34 dB	-128.49 °	0.01 dB	-0.09 °	0.1 dB	1 °	Pass
4020.1 MHz	-0.35 dB	-132.86 °	-0.36 dB	-132.78 °	0.01 dB	-0.08 °	0.1 dB	1 °	Pass
4050.1 MHz	-0.37 dB	-137.12 °	-0.39 dB	-137.06 °	0.01 dB	-0.06 °	0.1 dB	1 °	Pass
4080.1 MHz	-0.4 dB	-141.38 °	-0.42 dB	-141.31 °	0.01 dB	-0.07 °	0.1 dB	1 °	Pass
4110.09 MHz	-0.45 dB	-145.62 °	-0.46 dB	-145.52 °	0.02 dB	-0.11 °	0.1 dB	1 °	Pass
4140.09 MHz	-0.5 dB	-149.81 °	-0.52 dB	-149.7 °	0.01 dB	-0.11 °	0.1 dB	1 °	Pass
4170.09 MHz	-0.57 dB	-153.97 °	-0.57 dB	-153.84 °	0.01 dB	-0.13 °	0.1 dB	1 °	Pass
4200.09 MHz	-0.63 dB	-158.08 °	-0.63 dB	-157.93 °	0.01 dB	-0.15 °	0.1 dB	1 °	Pass
4230.09 MHz	-0.7 dB	-162.11 °	-0.71 dB	-161.99 °	0.02 dB	-0.13 °	0.1 dB	1 °	Pass
4260.09 MHz	-0.78 dB	-166.11 °	-0.79 dB	-165.99 °	0.02 dB	-0.12 °	0.1 dB	1 °	Pass
4290.09 MHz	-0.86 dB	-170.07 °	-0.87 dB	-169.92 °	0.01 dB	-0.14 °	0.1 dB	1 °	Pass
4320.08 MHz	-0.95 dB	-173.97 °	-0.95 dB	-173.81 °	0.01 dB	-0.17 °	0.1 dB	1 °	Pass
4350.08 MHz	-1.03 dB	-177.83 °	-1.04 dB	-177.64 °	0.01 dB	-0.19 °	0.1 dB	1 °	Pass
4380.08 MHz	-1.12 dB	178.41 °	-1.12 dB	178.58 °	0 dB	-0.17 °	0.1 dB	1 °	Pass
4410.08 MHz	-1.21 dB	174.71 °	-1.22 dB	174.84 °	0.01 dB	-0.14 °	0.1 dB	1 °	Pass
4440.08 MHz	-1.3 dB	171.02 °	-1.3 dB	171.17 °	0 dB	-0.15 °	0.1 dB	1 °	Pass
4470.08 MHz	-1.38 dB	167.41 °	-1.39 dB	167.57 °	0 dB	-0.16 °	0.1 dB	1 °	Pass
4500.08 MHz	-1.47 dB	163.84 °	-1.48 dB	164.02 °	0.01 dB	-0.17 °	0.1 dB	1 °	Pass
4530.07 MHz	-1.55 dB	160.34 °	-1.55 dB	160.49 °	0 dB	-0.15 °	0.1 dB	1 °	Pass
4560.07 MHz	-1.63 dB	156.89 °	-1.63 dB	157.01 °	0 dB	-0.12 °	0.1 dB	1 °	Pass
4590.07 MHz	-1.71 dB	153.48 °	-1.71 dB	153.59 °	0 dB	-0.11 °	0.1 dB	1 °	Pass
4620.07 MHz	-1.78 dB	150.06 °	-1.78 dB	150.23 °	0 dB	-0.16 °	0.1 dB	1 °	Pass
4650.07 MHz	-1.85 dB	146.74 °	-1.84 dB	146.91 °	-0.01 dB	-0.17 °	0.1 dB	1 °	Pass
4680.07 MHz	-1.91 dB	143.45 °	-1.91 dB	143.57 °	0 dB	-0.12 °	0.1 dB	1 °	Pass
4710.06 MHz	-1.96 dB	140.19 °	-1.96 dB	140.27 °	0 dB	-0.08 °	0.1 dB	1 °	Pass
4740.06 MHz	-2.02 dB	136.91 °	-2.01 dB	137.05 °	-0.01 dB	-0.14 °	0.1 dB	1 °	Pass
4770.06 MHz	-2.06 dB	133.66 °	-2.06 dB	133.83 °	-0.01 dB	-0.17 °	0.1 dB	1 °	Pass
4800.06 MHz	-2.1 dB	130.48 °	-2.1 dB	130.61 °	-0.01 dB	-0.13 °	0.1 dB	1 °	Pass
4830.06 MHz	-2.14 dB	127.32 °	-2.13 dB	127.41 °	-0.01 dB	-0.09 °	0.1 dB	1 °	Pass
4860.06 MHz	-2.16 dB	124.13 °	-2.16 dB	124.23 °	0 dB	-0.1 °	0.1 dB	1 °	Pass
4890.06 MHz	-2.18 dB	120.99 °	-2.18 dB	121.06 °	0 dB	-0.08 °	0.1 dB	1 °	Pass
4920.05 MHz	-2.19 dB	117.8 °	-2.19 dB	117.91 °	-0.01 dB	-0.11 °	0.1 dB	1 °	Pass
4950.05 MHz	-2.2 dB	114.72 °	-2.2 dB	114.75 °	0 dB	-0.04 °	0.1 dB	1 °	Pass
4980.05 MHz	-2.2 dB	111.54 °	-2.2 dB	111.61 °	0 dB	-0.06 °	0.1 dB	1 °	Pass
5010.05 MHz	-2.19 dB	108.39 °	-2.19 dB	108.47 °	0 dB	-0.08 °	0.1 dB	1 °	Pass
5040.05 MHz	-2.18 dB	105.23 °	-2.18 dB	105.31 °	-0.01 dB	-0.07 °	0.1 dB	1 °	Pass
5070.05 MHz	-2.16 dB	102.07 °	-2.16 dB	102.12 °	0 dB	-0.05 °	0.1 dB	1 °	Pass
5100.05 MHz	-2.14 dB	98.95 °	-2.13 dB	98.95 °	-0.01 dB	0 °	0.1 dB	1 °	Pass
5130.04 MHz	-2.1 dB	95.71 °	-2.1 dB	95.76 °	0 dB	-0.05 °	0.1 dB	1 °	Pass
5160.04 MHz	-2.05 dB	92.51 °	-2.06 dB	92.56 °	0 dB	-0.06 °	0.1 dB	1 °	Pass
5190.04 MHz	-2.02 dB	89.26 °	-2.01 dB	89.36 °	-0.01 dB	-0.09 °	0.1 dB	1 °	Pass
5220.04 MHz	-1.97 dB	86.03 °	-1.97 dB	86.07 °	0 dB	-0.04 °	0.1 dB	1 °	Pass
5250.04 MHz	-1.92 dB	82.79 °	-1.92 dB	82.74 °	0 dB	0.04 °	0.1 dB	1 °	Pass
5280.04 MHz	-1.85 dB	79.38 °	-1.85 dB	79.42 °	-0.01 dB	-0.04 °	0.1 dB	1 °	Pass
5310.03 MHz	-1.78 dB	76.06 °	-1.78 dB	76.08 °	0 dB	-0.02 °	0.1 dB	1 °	Pass
5340.03 MHz	-1.72 dB	72.73 °	-1.71 dB	72.7 °	-0.01 dB	0.03 °	0.1 dB	1 °	Pass
5370.03 MHz	-1.65 dB	69.32 °	-1.64 dB	69.26 °	-0.01 dB	0.07 °	0.1 dB	1 °	Pass
5400.03 MHz	-1.57 dB	65.82 °	-1.56 dB	65.78 °	0 dB	0.05 °	0.1 dB	1 °	Pass
5430.03 MHz	-1.48 dB	62.23 °	-1.48 dB	62.26 °	0.01 dB	-0.03 °	0.1 dB	1 °	Pass
5460.03 MHz	-1.39 dB	58.69 °	-1.39 dB	58.69 °	0 dB	0 °	0.1 dB	1 °	Pass
5490.03 MHz	-1.31 dB	55.07 °	-1.31 dB	55.04 °	0 dB	0.03 °	0.1 dB	1 °	Pass
5520.02 MHz	-1.23 dB	51.42 °	-1.23 dB	51.37 °	0 dB	0.05 °	0.1 dB	1 °	Pass
5550.02 MHz	-1.14 dB	47.63 °	-1.14 dB	47.67 °	0 dB	-0.03 °	0.1 dB	1 °	Pass
5580.02 MHz	-1.05 dB	43.85 °	-1.06 dB	43.87 °	0.01 dB	-0.02 °	0.1 dB	1 °	Pass
5610.02 MHz	-0.96 dB	40 °	-0.98 dB	40 °	0.01 dB	0.01 °	0.1 dB	1 °	Pass
5640.02 MHz	-0.89 dB	36.1 °	-0.89 dB	36.08 °	0.01 dB	0.02 °	0.1 dB	1 °	Pass
5670.02 MHz	-0.81 dB	32.12 °	-0.81 dB	32.14 °	0 dB	-0.02 °	0.1 dB	1 °	Pass
5700.02 MHz	-0.73 dB	28.08 °	-0.74 dB	28.14 °	0.01 dB	-0.05 °	0.1 dB	1 °	Pass
5730.01 MHz	-0.66 dB	24.03 °	-0.68 dB	24.06 °	0.01 dB	-0.03 °	0.1 dB	1 °	Pass
5760.01 MHz	-0.6 dB	19.9 °	-0.61 dB	19.94 °	0.01 dB	-0.04 °	0.1 dB	1 °	Pass
5790.01 MHz	-0.55 dB	15.75 °	-0.56 dB	15.77 °	0.01 dB	-0.02 °	0.1 dB	1 °	Pass
5820.01 MHz	-0.5 dB	11.53 °	-0.51 dB	11.56 °	0.01 dB	-0.03 °	0.1 dB	1 °	Pass
5850.01 MHz	-0.46 dB	7.3 °	-0.47 dB	7.36 °	0.01 dB	-0.06 °	0.1 dB	1 °	Pass
5880.01 MHz	-0.43 dB	3.03 °	-0.44 dB	3.11 °	0.01 dB	-0.08 °	0.1 dB	1 °	Pass
5910 MHz	-0.41 dB	-1.25 °	-0.42 dB	-1.19 °	0.01 dB	-0.06 °	0.1 dB	1 °	Pass
5940 MHz	-0.4 dB	-5.55 °	-0.42 dB	-5.47 °	0.01 dB	-0.07 °	0.1 dB	1 °	Pass
5970 MHz	-0.4 dB	-9.85 °	-0.42 dB	-9.77 °	0.02 dB	-0.08 °	0.1 dB	1 °	Pass
6000 MHz	-0.42 dB	-14.15 °	-0.43 dB	-14.1 °	0.01 dB	-0.05 °	0.1 dB	1 °	Pass

Frequency MHz	Measurement		Reference		Measured Delta		Specified Uncertainty TUL		Test Verdict
	Mag (dB)	Angle (°)	Mag (dB)	Angle (°)	Mag (dB)	Angle (°)	Mag (dB)	Angle (°)	
<b>S12 Tests</b>									
0.3 MHz	0 dB	0°	0.01 dB	-0.13°	-0.01 dB	0.13°	0.3 dB	2°	Pass
30.3 MHz	-0.02 dB	-4.46°	-0.02 dB	-4.46°	0 dB	0°	0.1 dB	1°	Pass
60.3 MHz	-0.04 dB	-8.82°	-0.03 dB	-8.81°	-0.01 dB	0°	0.1 dB	1°	Pass
90.3 MHz	-0.07 dB	-13.18°	-0.07 dB	-13.2°	0 dB	0.02°	0.1 dB	1°	Pass
120.29 MHz	-0.11 dB	-17.52°	-0.11 dB	-17.49°	0 dB	-0.03°	0.1 dB	1°	Pass
150.29 MHz	-0.16 dB	-21.8°	-0.16 dB	-21.79°	0 dB	-0.01°	0.1 dB	1°	Pass
180.29 MHz	-0.21 dB	-26.08°	-0.21 dB	-26.06°	0 dB	-0.02°	0.1 dB	1°	Pass
210.29 MHz	-0.28 dB	-30.24°	-0.28 dB	-30.31°	0 dB	0.07°	0.1 dB	1°	Pass
240.29 MHz	-0.35 dB	-34.41°	-0.35 dB	-34.43°	0 dB	0.02°	0.1 dB	1°	Pass
270.29 MHz	-0.44 dB	-38.48°	-0.43 dB	-38.58°	-0.01 dB	0.1°	0.1 dB	1°	Pass
300.29 MHz	-0.51 dB	-42.58°	-0.5 dB	-42.61°	-0.01 dB	0.03°	0.1 dB	1°	Pass
330.28 MHz	-0.6 dB	-46.53°	-0.61 dB	-46.68°	0.01 dB	0.15°	0.1 dB	1°	Pass
360.28 MHz	-0.69 dB	-50.46°	-0.7 dB	-50.5°	0.01 dB	0.04°	0.1 dB	1°	Pass
390.28 MHz	-0.8 dB	-54.29°	-0.79 dB	-54.37°	-0.01 dB	0.08°	0.1 dB	1°	Pass
420.28 MHz	-0.89 dB	-58.14°	-0.88 dB	-58.12°	-0.02 dB	-0.02°	0.1 dB	1°	Pass
450.28 MHz	-0.99 dB	-61.86°	-0.98 dB	-61.94°	-0.01 dB	0.08°	0.1 dB	1°	Pass
480.28 MHz	-1.07 dB	-65.57°	-1.07 dB	-65.54°	0 dB	-0.03°	0.1 dB	1°	Pass
510.27 MHz	-1.18 dB	-69.11°	-1.17 dB	-69.15°	-0.01 dB	0.04°	0.1 dB	1°	Pass
540.27 MHz	-1.26 dB	-72.71°	-1.27 dB	-72.68°	0 dB	-0.03°	0.1 dB	1°	Pass
570.27 MHz	-1.36 dB	-76.23°	-1.35 dB	-76.22°	-0.02 dB	-0.01°	0.1 dB	1°	Pass
600.27 MHz	-1.44 dB	-79.74°	-1.45 dB	-79.7°	0.02 dB	-0.04°	0.1 dB	1°	Pass
630.27 MHz	-1.52 dB	-83.1°	-1.52 dB	-83.12°	0 dB	0.02°	0.1 dB	1°	Pass
660.27 MHz	-1.59 dB	-86.5°	-1.61 dB	-86.51°	0.02 dB	0.01°	0.1 dB	1°	Pass
690.27 MHz	-1.67 dB	-89.75°	-1.67 dB	-89.78°	0 dB	0.03°	0.1 dB	1°	Pass
720.26 MHz	-1.73 dB	-93.07°	-1.72 dB	-92.98°	-0.01 dB	-0.09°	0.1 dB	1°	Pass
750.26 MHz	-1.8 dB	-96.37°	-1.78 dB	-96.31°	-0.02 dB	-0.06°	0.1 dB	1°	Pass
780.26 MHz	-1.84 dB	-99.61°	-1.85 dB	-99.59°	0.01 dB	-0.03°	0.1 dB	1°	Pass
810.26 MHz	-1.89 dB	-102.77°	-1.89 dB	-102.77°	0 dB	0°	0.1 dB	1°	Pass
840.26 MHz	-1.94 dB	-105.86°	-1.95 dB	-105.91°	0.01 dB	0.05°	0.1 dB	1°	Pass
870.26 MHz	-1.98 dB	-109.09°	-1.98 dB	-109.04°	0 dB	-0.04°	0.1 dB	1°	Pass
900.26 MHz	-2 dB	-112.25°	-2 dB	-112.31°	0 dB	0.05°	0.1 dB	1°	Pass
930.25 MHz	-2.03 dB	-115.43°	-2.02 dB	-115.43°	0 dB	0°	0.1 dB	1°	Pass
960.25 MHz	-2.02 dB	-118.49°	-2.05 dB	-118.58°	0.03 dB	0.1°	0.1 dB	1°	Pass
990.25 MHz	-2.05 dB	-121.61°	-2.03 dB	-121.72°	-0.01 dB	0.1°	0.1 dB	1°	Pass
1020.25 MHz	-2.04 dB	-124.78°	-2.04 dB	-124.9°	0 dB	0.12°	0.1 dB	1°	Pass
1050.25 MHz	-2.04 dB	-127.94°	-2.03 dB	-127.95°	-0.01 dB	0.01°	0.1 dB	1°	Pass
1080.25 MHz	-2.01 dB	-131.09°	-2.01 dB	-131.05°	0.01 dB	-0.04°	0.1 dB	1°	Pass
1110.24 MHz	-1.99 dB	-134.18°	-1.97 dB	-134.27°	-0.02 dB	0.09°	0.1 dB	1°	Pass
1140.24 MHz	-1.96 dB	-137.34°	-1.96 dB	-137.41°	-0.01 dB	0.07°	0.1 dB	1°	Pass
1170.24 MHz	-1.93 dB	-140.56°	-1.93 dB	-140.62°	0 dB	0.06°	0.1 dB	1°	Pass
1200.24 MHz	-1.88 dB	-143.76°	-1.89 dB	-143.77°	0 dB	0.01°	0.1 dB	1°	Pass
1230.24 MHz	-1.83 dB	-146.99°	-1.83 dB	-146.94°	0 dB	-0.05°	0.1 dB	1°	Pass
1260.24 MHz	-1.78 dB	-150.21°	-1.78 dB	-150.3°	-0.01 dB	0.09°	0.1 dB	1°	Pass
1290.24 MHz	-1.72 dB	-153.53°	-1.73 dB	-153.56°	0.01 dB	0.03°	0.1 dB	1°	Pass
1320.23 MHz	-1.66 dB	-156.85°	-1.66 dB	-156.91°	0.01 dB	0.05°	0.1 dB	1°	Pass
1350.23 MHz	-1.59 dB	-160.19°	-1.6 dB	-160.21°	0.01 dB	0.02°	0.1 dB	1°	Pass
1380.23 MHz	-1.51 dB	-163.61°	-1.52 dB	-163.6°	0.01 dB	-0.01°	0.1 dB	1°	Pass
1410.23 MHz	-1.43 dB	-167.08°	-1.43 dB	-167.07°	0 dB	-0.01°	0.1 dB	1°	Pass
1440.23 MHz	-1.35 dB	-170.55°	-1.35 dB	-170.61°	0 dB	0.06°	0.1 dB	1°	Pass
1470.23 MHz	-1.27 dB	-174.11°	-1.26 dB	-174.17°	-0.01 dB	0.06°	0.1 dB	1°	Pass
1500.23 MHz	-1.18 dB	-177.83°	-1.18 dB	-177.7°	0.01 dB	-0.14°	0.1 dB	1°	Pass
1530.22 MHz	-1.09 dB	-178.53°	-1.1 dB	-178.65°	0.01 dB	-0.13°	0.1 dB	1°	Pass
1560.22 MHz	-1 dB	-174.84°	-1 dB	-174.96°	0 dB	-0.12°	0.1 dB	1°	Pass
1590.22 MHz	-0.91 dB	-171.07°	-0.91 dB	-171.18°	0 dB	-0.11°	0.1 dB	1°	Pass
1620.22 MHz	-0.82 dB	-167.22°	-0.83 dB	-167.3°	0 dB	-0.08°	0.1 dB	1°	Pass
1650.22 MHz	-0.74 dB	-163.34°	-0.75 dB	-163.38°	0 dB	-0.04°	0.1 dB	1°	Pass
1680.22 MHz	-0.65 dB	-159.39°	-0.66 dB	-159.46°	0.01 dB	-0.06°	0.1 dB	1°	Pass
1710.21 MHz	-0.58 dB	-155.34°	-0.58 dB	-155.47°	0 dB	-0.13°	0.1 dB	1°	Pass
1740.21 MHz	-0.51 dB	-151.31°	-0.51 dB	-151.38°	0 dB	-0.07°	0.1 dB	1°	Pass
1770.21 MHz	-0.44 dB	-147.2°	-0.45 dB	-147.22°	0 dB	-0.02°	0.1 dB	1°	Pass
1800.21 MHz	-0.38 dB	-143.05°	-0.39 dB	-143.07°	0.01 dB	-0.02°	0.1 dB	1°	Pass
1830.21 MHz	-0.33 dB	-138.81°	-0.33 dB	-138.87°	0 dB	-0.06°	0.1 dB	1°	Pass
1860.21 MHz	-0.28 dB	-134.58°	-0.28 dB	-134.61°	0 dB	-0.03°	0.1 dB	1°	Pass
1890.21 MHz	-0.25 dB	-130.3°	-0.26 dB	-130.31°	0.01 dB	-0.01°	0.1 dB	1°	Pass
1920.2 MHz	-0.23 dB	-125.98°	-0.24 dB	-126.02°	0.01 dB	-0.04°	0.1 dB	1°	Pass
1950.2 MHz	-0.21 dB	-121.68°	-0.22 dB	-121.73°	0.01 dB	-0.05°	0.1 dB	1°	Pass
1980.2 MHz	-0.21 dB	-117.35°	-0.22 dB	-117.41°	0.01 dB	-0.05°	0.1 dB	1°	Pass
2010.2 MHz	-0.22 dB	-113.04°	-0.23 dB	-113.07°	0.01 dB	-0.03°	0.1 dB	1°	Pass
2040.2 MHz	-0.23 dB	-108.73°	-0.25 dB	-108.74°	0.02 dB	-0.02°	0.1 dB	1°	Pass
2070.2 MHz	-0.26 dB	-104.43°	-0.28 dB	-104.47°	0.01 dB	-0.04°	0.1 dB	1°	Pass
2100.2 MHz	-0.3 dB	-100.15°	-0.31 dB	-100.21°	0.01 dB	-0.06°	0.1 dB	1°	Pass
2130.19 MHz	-0.35 dB	-95.93°	-0.36 dB	-95.96°	0.01 dB	-0.03°	0.1 dB	1°	Pass
2160.19 MHz	-0.4 dB	-91.71°	-0.42 dB	-91.75°	0.02 dB	-0.04°	0.1 dB	1°	Pass
2190.19 MHz	-0.46 dB	-87.57°	-0.49 dB	-87.6°	0.02 dB	-0.03°	0.1 dB	1°	Pass
2220.19 MHz	-0.54 dB	-83.45°	-0.55 dB	-83.52°	0.01 dB	-0.07°	0.1 dB	1°	Pass
2250.19 MHz	-0.61 dB	-79.38°	-0.62 dB	-79.48°	0 dB	-0.09°	0.1 dB	1°	Pass
2280.19 MHz	-0.7 dB	-75.4°	-0.7 dB	-75.48°	0.01 dB	-0.08°	0.1 dB	1°	Pass
2310.18 MHz	-0.78 dB	-71.43°	-0.8 dB	-71.53°	0.02 dB	-0.11°	0.1 dB	1°	Pass
2340.18 MHz	-0.87 dB	-67.59°	-0.88 dB	-67.65°	0.01 dB	-0.06°	0.1 dB	1°	Pass
2370.18 MHz	-0.96 dB	-63.71°	-0.97 dB	-63.84°	0 dB	-0.13°	0.1 dB	1°	Pass
2400.18 MHz	-1.05 dB	-59.98°	-1.06 dB	-60.08°	0.01 dB	-0.11°	0.1 dB	1°	Pass
2430.18 MHz	-1.14 dB	-56.24°	-1.16 dB	-56.34°	0.01 dB	-0.1°	0.1 dB	1°	Pass
2460.18 MHz	-1.23 dB	-52.59°	-1.24 dB	-52.67°	0.02 dB	-0.08°	0.1 dB	1°	Pass
2490.18 MHz	-1.33 dB	-48.99°	-1.33 dB	-49.1°	0 dB	-0.1°	0.1 dB	1°	Pass
2520.17 MHz	-1.41 dB	-45.42°	-1.42 dB	-45.58°	0.01 dB	-0.16°	0.1 dB	1°	Pass
2550.17 MHz	-1.5 dB	-41.94°	-1.5 dB	-42.09°	0.01 dB	-0.15°	0.1 dB	1°	Pass
2580.17 MHz	-1.57 dB	-38.5°	-1.59 dB	-38.61°	0.02 dB	-0.11°	0.1 dB	1°	Pass
2610.17 MHz	-1.65 dB	-35.14°	-1.66 dB	-35.2°	0.01 dB	-0.06°	0.1 dB	1°	Pass
2640.17 MHz	-1.73 dB	-31.74°	-1.73 dB	-31.86°	0 dB	-0.12°	0.1 dB	1°	Pass
2670.17 MHz	-1.79 dB	-28.39°	-1.8 dB	-28.57°	0 dB	-0.18°	0.1 dB	1°	Pass
2700.17 MHz	-1.85 dB	-25.09°	-1.86 dB	-25.26°	0.01 dB	-0.17°	0.1 dB	1°	Pass
2730.16 MHz	-1.9 dB	-21.86°	-1.91 dB	-21.98°	0.01 dB	-0.12°	0.1 dB	1°	Pass
2760.16 MHz	-1.96 dB	-18.65°	-1.96 dB	-18.76°	0 dB	-0.11°	0.1 dB	1°	Pass
2790.16 MHz	-2.01 dB	-15.41°	-2 dB	-15.58°	0 dB	-0.17°	0.1 dB	1°	Pass
2820.16 MHz	-2.04 dB	-12.2°	-2.04 dB	-12.38°	0 dB	-0.17°	0.1 dB	1°	Pass
2850.16 MHz	-2.07 dB	-9.05°	-2.07 dB	-9.15°	0 dB	-0.1°	0.1 dB	1°	Pass
2880.16 MHz	-2.09 dB	-5.91°	-2.1 dB	-5.99°	0 dB	-0.08°	0.1 dB	1°	Pass
2910.15 MHz	-2.12 dB	-2.74°	-2.11 dB	-2.87°	-0.01 dB	-0.13°	0.1 dB	1°	Pass
2940.15 MHz	-2.13 dB	-0.45°	-2.12 dB	-0.25°	-0.01 dB	-0.2°	0.1 dB	1°	Pass
2970.15 MHz	-2.13 dB	-3.57°	-2.13 dB	-3.41°	0 dB	-0.16°	0.1 dB	1°	Pass
3000.15 MHz	-2.12 dB	-6.67°	-2.13 dB	-6.58°	0 dB	-0.09°	0.1 dB	1°	Pass



Frequency MHz	Measurement		Reference		Measured Delta		Specified Uncertainty TUL		Test Verdict
	Mag (dB)	Angle (°)	Mag (dB)	Angle (°)	Mag (dB)	Angle (°)	Mag (dB)	Angle (°)	
3030.15 MHz	-2.12 dB	-9.8 °	-2.11 dB	-9.73 °	0 dB	-0.07 °	0.1 dB	1 °	Pass
3060.15 MHz	-2.11 dB	-12.95 °	-2.09 dB	-12.85 °	-0.01 dB	-0.1 °	0.1 dB	1 °	Pass
3090.15 MHz	-2.08 dB	-16.15 °	-2.07 dB	-16.01 °	-0.01 dB	-0.13 °	0.1 dB	1 °	Pass
3120.14 MHz	-2.05 dB	-19.32 °	-2.05 dB	-19.23 °	0 dB	-0.1 °	0.1 dB	1 °	Pass
3150.14 MHz	-2.02 dB	-22.51 °	-2.01 dB	-22.42 °	-0.01 dB	-0.09 °	0.1 dB	1 °	Pass
3180.14 MHz	-1.98 dB	-25.68 °	-1.97 dB	-25.61 °	-0.01 dB	-0.07 °	0.1 dB	1 °	Pass
3210.14 MHz	-1.93 dB	-28.96 °	-1.92 dB	-28.86 °	-0.01 dB	-0.1 °	0.1 dB	1 °	Pass
3240.14 MHz	-1.88 dB	-32.21 °	-1.87 dB	-32.16 °	-0.01 dB	-0.05 °	0.1 dB	1 °	Pass
3270.14 MHz	-1.82 dB	-35.51 °	-1.81 dB	-35.48 °	-0.01 dB	-0.03 °	0.1 dB	1 °	Pass
3300.14 MHz	-1.75 dB	-38.83 °	-1.75 dB	-38.8 °	0 dB	-0.03 °	0.1 dB	1 °	Pass
3330.13 MHz	-1.68 dB	-42.2 °	-1.68 dB	-42.15 °	0 dB	-0.05 °	0.1 dB	1 °	Pass
3360.13 MHz	-1.61 dB	-45.61 °	-1.61 dB	-45.58 °	0 dB	-0.03 °	0.1 dB	1 °	Pass
3390.13 MHz	-1.54 dB	-49.06 °	-1.53 dB	-49.08 °	-0.01 dB	0.02 °	0.1 dB	1 °	Pass
3420.13 MHz	-1.46 dB	-52.56 °	-1.46 dB	-52.57 °	0 dB	0.01 °	0.1 dB	1 °	Pass
3450.13 MHz	-1.37 dB	-56.1 °	-1.38 dB	-56.07 °	0 dB	-0.03 °	0.1 dB	1 °	Pass
3480.13 MHz	-1.29 dB	-59.7 °	-1.29 dB	-59.64 °	0 dB	-0.06 °	0.1 dB	1 °	Pass
3510.12 MHz	-1.2 dB	-63.32 °	-1.2 dB	-63.34 °	0 dB	0.01 °	0.1 dB	1 °	Pass
3540.12 MHz	-1.12 dB	-67.06 °	-1.12 dB	-67.06 °	0 dB	0 °	0.1 dB	1 °	Pass
3570.12 MHz	-1.03 dB	-70.8 °	-1.04 dB	-70.8 °	0.01 dB	0 °	0.1 dB	1 °	Pass
3600.12 MHz	-0.95 dB	-74.66 °	-0.95 dB	-74.6 °	0 dB	-0.06 °	0.1 dB	1 °	Pass
3630.12 MHz	-0.86 dB	-78.51 °	-0.86 dB	-78.49 °	0 dB	-0.02 °	0.1 dB	1 °	Pass
3660.12 MHz	-0.78 dB	-82.44 °	-0.78 dB	-82.46 °	0 dB	0.02 °	0.1 dB	1 °	Pass
3690.12 MHz	-0.7 dB	-86.44 °	-0.7 dB	-86.47 °	0 dB	0.03 °	0.1 dB	1 °	Pass
3720.11 MHz	-0.63 dB	-90.49 °	-0.63 dB	-90.49 °	0 dB	0 °	0.1 dB	1 °	Pass
3750.11 MHz	-0.56 dB	-94.6 °	-0.57 dB	-94.55 °	0 dB	-0.05 °	0.1 dB	1 °	Pass
3780.11 MHz	-0.5 dB	-98.72 °	-0.51 dB	-98.71 °	0.01 dB	-0.01 °	0.1 dB	1 °	Pass
3810.11 MHz	-0.45 dB	-102.91 °	-0.46 dB	-102.92 °	0.01 dB	0.01 °	0.1 dB	1 °	Pass
3840.11 MHz	-0.41 dB	-107.12 °	-0.42 dB	-107.14 °	0.01 dB	0.02 °	0.1 dB	1 °	Pass
3870.11 MHz	-0.37 dB	-111.38 °	-0.38 dB	-111.37 °	0.01 dB	-0.01 °	0.1 dB	1 °	Pass
3900.11 MHz	-0.35 dB	-115.64 °	-0.36 dB	-115.64 °	0.01 dB	0 °	0.1 dB	1 °	Pass
3930.1 MHz	-0.33 dB	-119.94 °	-0.35 dB	-119.93 °	0.01 dB	-0.01 °	0.1 dB	1 °	Pass
3960.1 MHz	-0.33 dB	-124.24 °	-0.34 dB	-124.22 °	0.01 dB	-0.01 °	0.1 dB	1 °	Pass
3990.1 MHz	-0.33 dB	-128.54 °	-0.35 dB	-128.5 °	0.01 dB	-0.04 °	0.1 dB	1 °	Pass
4020.1 MHz	-0.35 dB	-132.84 °	-0.36 dB	-132.78 °	0.02 dB	-0.06 °	0.1 dB	1 °	Pass
4050.1 MHz	-0.37 dB	-137.12 °	-0.39 dB	-137.06 °	0.01 dB	-0.06 °	0.1 dB	1 °	Pass
4080.1 MHz	-0.41 dB	-141.37 °	-0.42 dB	-141.32 °	0.01 dB	-0.05 °	0.1 dB	1 °	Pass
4110.09 MHz	-0.45 dB	-145.57 °	-0.46 dB	-145.54 °	0.01 dB	-0.04 °	0.1 dB	1 °	Pass
4140.09 MHz	-0.5 dB	-149.78 °	-0.52 dB	-149.71 °	0.02 dB	-0.07 °	0.1 dB	1 °	Pass
4170.09 MHz	-0.56 dB	-153.93 °	-0.58 dB	-153.85 °	0.02 dB	-0.09 °	0.1 dB	1 °	Pass
4200.09 MHz	-0.63 dB	-158.05 °	-0.64 dB	-157.95 °	0.01 dB	-0.11 °	0.1 dB	1 °	Pass
4230.09 MHz	-0.7 dB	-162.08 °	-0.71 dB	-162.03 °	0.01 dB	-0.06 °	0.1 dB	1 °	Pass
4260.09 MHz	-0.78 dB	-166.08 °	-0.79 dB	-166.02 °	0.01 dB	-0.06 °	0.1 dB	1 °	Pass
4290.09 MHz	-0.86 dB	-170.05 °	-0.88 dB	-169.93 °	0.02 dB	-0.12 °	0.1 dB	1 °	Pass
4320.08 MHz	-0.94 dB	-173.96 °	-0.96 dB	-173.81 °	0.01 dB	-0.15 °	0.1 dB	1 °	Pass
4350.08 MHz	-1.03 dB	-177.79 °	-1.03 dB	-177.68 °	0 dB	-0.11 °	0.1 dB	1 °	Pass
4380.08 MHz	-1.12 dB	178.45 °	-1.12 dB	178.52 °	0 dB	-0.07 °	0.1 dB	1 °	Pass
4410.08 MHz	-1.21 dB	174.73 °	-1.22 dB	174.83 °	0.01 dB	-0.1 °	0.1 dB	1 °	Pass
4440.08 MHz	-1.3 dB	171.06 °	-1.31 dB	171.17 °	0.01 dB	-0.11 °	0.1 dB	1 °	Pass
4470.08 MHz	-1.39 dB	167.45 °	-1.39 dB	167.54 °	0 dB	-0.09 °	0.1 dB	1 °	Pass
4500.08 MHz	-1.47 dB	163.89 °	-1.47 dB	163.96 °	0 dB	-0.06 °	0.1 dB	1 °	Pass
4530.07 MHz	-1.55 dB	160.39 °	-1.56 dB	160.47 °	0.01 dB	-0.08 °	0.1 dB	1 °	Pass
4560.07 MHz	-1.63 dB	156.92 °	-1.64 dB	157.04 °	0.01 dB	-0.12 °	0.1 dB	1 °	Pass
4590.07 MHz	-1.71 dB	153.47 °	-1.71 dB	153.6 °	0 dB	-0.13 °	0.1 dB	1 °	Pass
4620.07 MHz	-1.79 dB	150.1 °	-1.77 dB	150.19 °	-0.01 dB	-0.09 °	0.1 dB	1 °	Pass
4650.07 MHz	-1.85 dB	146.76 °	-1.84 dB	146.84 °	-0.01 dB	-0.09 °	0.1 dB	1 °	Pass
4680.07 MHz	-1.9 dB	143.48 °	-1.91 dB	143.57 °	0 dB	-0.09 °	0.1 dB	1 °	Pass
4710.06 MHz	-1.96 dB	140.24 °	-1.96 dB	140.3 °	0 dB	-0.06 °	0.1 dB	1 °	Pass
4740.06 MHz	-2.01 dB	136.94 °	-2.01 dB	137.01 °	0 dB	-0.07 °	0.1 dB	1 °	Pass
4770.06 MHz	-2.06 dB	133.72 °	-2.05 dB	133.77 °	-0.01 dB	-0.05 °	0.1 dB	1 °	Pass
4800.06 MHz	-2.1 dB	130.49 °	-2.1 dB	130.58 °	-0.01 dB	-0.09 °	0.1 dB	1 °	Pass
4830.06 MHz	-2.13 dB	127.35 °	-2.13 dB	127.4 °	0 dB	-0.06 °	0.1 dB	1 °	Pass
4860.06 MHz	-2.16 dB	124.17 °	-2.15 dB	124.19 °	-0.01 dB	-0.02 °	0.1 dB	1 °	Pass
4890.06 MHz	-2.17 dB	121.04 °	-2.17 dB	121.01 °	0 dB	0.03 °	0.1 dB	1 °	Pass
4920.05 MHz	-2.2 dB	117.85 °	-2.19 dB	117.89 °	0 dB	-0.04 °	0.1 dB	1 °	Pass
4950.05 MHz	-2.19 dB	114.7 °	-2.2 dB	114.77 °	0.01 dB	-0.07 °	0.1 dB	1 °	Pass
4980.05 MHz	-2.21 dB	111.59 °	-2.21 dB	111.62 °	-0.01 dB	-0.02 °	0.1 dB	1 °	Pass
5010.05 MHz	-2.19 dB	108.41 °	-2.19 dB	108.42 °	0.01 dB	-0.02 °	0.1 dB	1 °	Pass
5040.05 MHz	-2.18 dB	105.29 °	-2.17 dB	105.24 °	-0.01 dB	0.05 °	0.1 dB	1 °	Pass
5070.05 MHz	-2.16 dB	102.07 °	-2.16 dB	102.11 °	-0.01 dB	-0.03 °	0.1 dB	1 °	Pass
5100.05 MHz	-2.14 dB	98.95 °	-2.14 dB	98.98 °	0 dB	-0.03 °	0.1 dB	1 °	Pass
5130.04 MHz	-2.1 dB	95.73 °	-2.1 dB	95.77 °	0 dB	-0.03 °	0.1 dB	1 °	Pass
5160.04 MHz	-2.05 dB	92.51 °	-2.06 dB	92.52 °	0 dB	-0.01 °	0.1 dB	1 °	Pass
5190.04 MHz	-2.02 dB	89.33 °	-2.01 dB	89.29 °	-0.01 dB	0.04 °	0.1 dB	1 °	Pass
5220.04 MHz	-1.97 dB	86.02 °	-1.97 dB	86.06 °	-0.01 dB	-0.04 °	0.1 dB	1 °	Pass
5250.04 MHz	-1.92 dB	82.79 °	-1.91 dB	82.77 °	-0.01 dB	0.02 °	0.1 dB	1 °	Pass
5280.04 MHz	-1.85 dB	79.41 °	-1.84 dB	79.42 °	0 dB	-0.01 °	0.1 dB	1 °	Pass
5310.03 MHz	-1.78 dB	76.1 °	-1.78 dB	76.04 °	0 dB	0.06 °	0.1 dB	1 °	Pass
5340.03 MHz	-1.72 dB	72.69 °	-1.71 dB	72.66 °	-0.01 dB	0.03 °	0.1 dB	1 °	Pass
5370.03 MHz	-1.65 dB	69.28 °	-1.64 dB	69.25 °	-0.01 dB	0.03 °	0.1 dB	1 °	Pass
5400.03 MHz	-1.57 dB	65.79 °	-1.56 dB	65.77 °	-0.01 dB	0.03 °	0.1 dB	1 °	Pass
5430.03 MHz	-1.47 dB	62.31 °	-1.48 dB	62.23 °	0.01 dB	0.08 °	0.1 dB	1 °	Pass
5460.03 MHz	-1.39 dB	58.71 °	-1.4 dB	58.66 °	0.01 dB	0.05 °	0.1 dB	1 °	Pass
5490.03 MHz	-1.31 dB	55.05 °	-1.32 dB	55.06 °	0.01 dB	-0.01 °	0.1 dB	1 °	Pass
5520.02 MHz	-1.23 dB	51.38 °	-1.23 dB	51.38 °	0 dB	0 °	0.1 dB	1 °	Pass
5550.02 MHz	-1.14 dB	47.68 °	-1.14 dB	47.61 °	0 dB	0.07 °	0.1 dB	1 °	Pass
5580.02 MHz	-1.05 dB	43.89 °	-1.06 dB	43.8 °	0 dB	0.09 °	0.1 dB	1 °	Pass
5610.02 MHz	-0.97 dB	40.01 °	-0.97 dB	39.96 °	0.01 dB	0.04 °	0.1 dB	1 °	Pass
5640.02 MHz	-0.88 dB	36.08 °	-0.9 dB	36.07 °	0.01 dB	0.01 °	0.1 dB	1 °	Pass
5670.02 MHz	-0.81 dB	32.12 °	-0.82 dB	32.1 °	0.01 dB	0.03 °	0.1 dB	1 °	Pass
5700.02 MHz	-0.73 dB	28.12 °	-0.74 dB	28.06 °	0 dB	0.06 °	0.1 dB	1 °	Pass
5730.01 MHz	-0.67 dB	24.05 °	-0.66 dB	23.99 °	0 dB	0.06 °	0.1 dB	1 °	Pass
5760.01 MHz	-0.6 dB	19.93 °	-0.61 dB	19.91 °	0.01 dB	0.02 °	0.1 dB	1 °	Pass
5790.01 MHz	-0.55 dB	15.77 °	-0.57 dB	15.74 °	0.02 dB	0.03 °	0.1 dB	1 °	Pass
5820.01 MHz	-0.5 dB	11.57 °	-0.51 dB	11.52 °	0.01 dB	0.05 °	0.1 dB	1 °	Pass
5850.01 MHz	-0.46 dB	7.32 °	-0.47 dB	7.3 °	0.01 dB	0.03 °	0.1 dB	1 °	Pass
5880.01 MHz	-0.43 dB	3.06 °	-0.44 dB	3.06 °	0.01 dB	0 °	0.1 dB	1 °	Pass
5910 MHz	-0.41 dB	-1.22 °	-0.43 dB	-1.21 °	0.02 dB	-0.01 °	0.1 dB	1 °	Pass
5940 MHz	-0.4 dB	-5.52 °	-0.42 dB	-5.51 °	0.02 dB	-0.01 °	0.1 dB	1 °	Pass
5970 MHz	-0.4 dB	-9.81 °	-0.42 dB	-9.8 °	0.02 dB	-0.01 °	0.1 dB	1 °	Pass
6000 MHz	-0.42 dB	-14.1 °	-0.42 dB	-14.07 °	0 dB	-0.03 °	0.1 dB	1 °	Pass