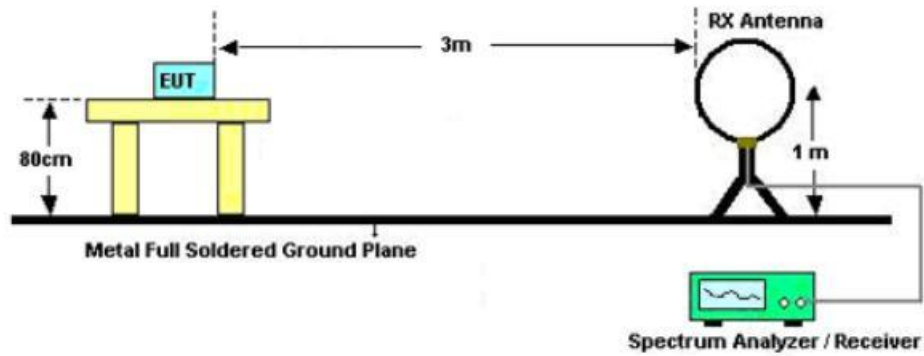


meters above ground to find the maximum value of the field strength for both horizontal polarization and vertical polarization of the antenna.

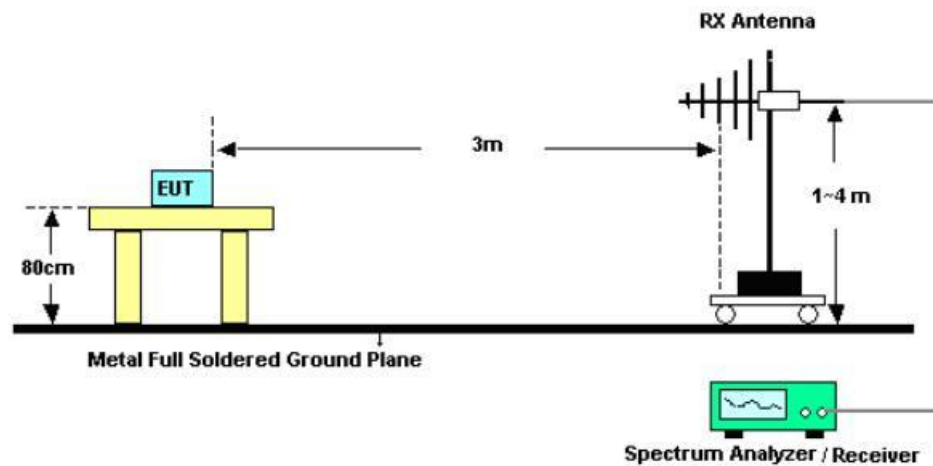
5. For each suspected emission, the EUT was arranged to its worst case and then adjust the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading.
6. For testing below 1GHz, if the emission level of the EUT in peak mode was 3 dB lower than the limit specified, then peak values of EUT will be reported, otherwise, the emissions will be repeated one by one using the CISPR quasi-peak method and reported.
7. For testing above 1GHz, the emission level of the EUT in peak mode was 20dB lower than peak limit (that means the emission level in average mode also complies with the limit in average mode), then peak values of EUT will be reported, otherwise, the emissions will be measured in average mode again and reported.

4.4.4 Test Setup

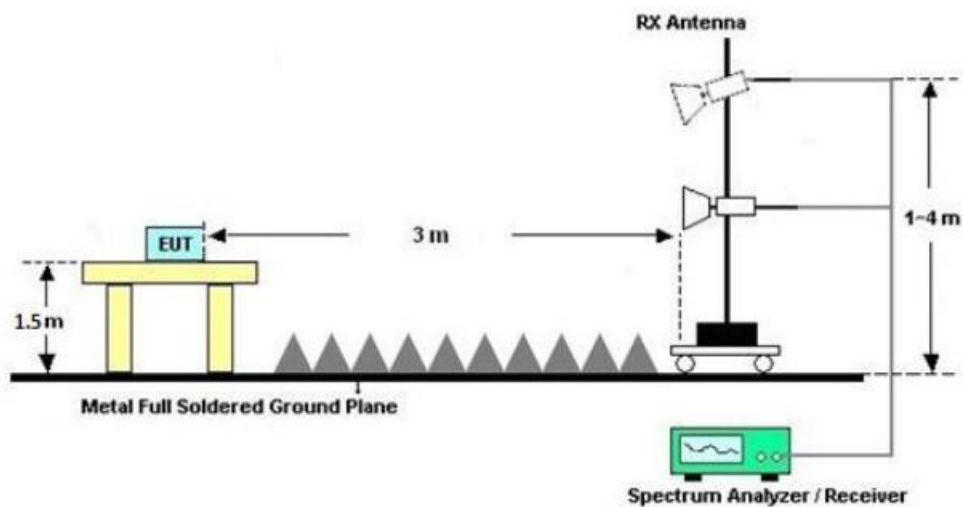
For radiated emissions below 30MHz



For radiated emissions from 30MHz to 1GHz



For radiated emissions above 1GHz



4.4.5 Test Results of Radiated Spurious Emissions (9 kHz - 30 MHz)

The low frequency, which started from 9 kHz to 30MHz, was pre-scanned and the result which was 20dB lower than the limit line was not reported.

There is a comparison data of both open-field test site and semi-Anechoic chamber, and the result came out very similar.

4.4.6 Test Result of Radiated Spurious at Band Edges

Please refer to Appendix B.1.

4.4.7 Test Result of Radiated Spurious Emissions (30MHz - 10th Harmonic or 40GHz whichever is lower)

Please refer to Appendix B.1

4.4.8 Duty Cycle

Please refer to Appendix A.4.

4.5 AC Conducted Emission Measurement

4.5.1 Limit of AC Conducted Emission

For equipment that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits in the following table.

Frequency of emission (MHz)	Conducted limit (dBμV)	
	Quasi-peak	Average
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50

Decreases with the logarithm of the frequency.

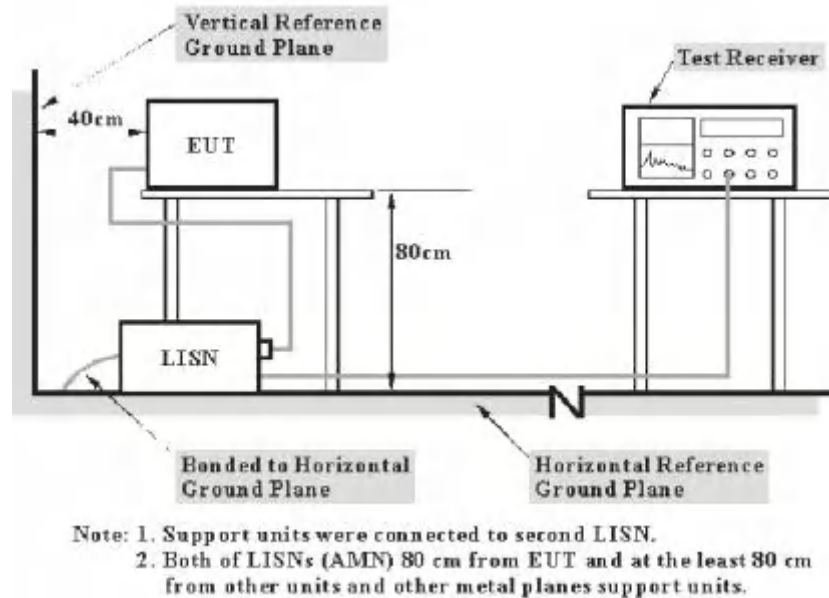
4.5.2 Measuring Instruments

The section 3.3 of List of Measuring Equipment of this test report is used for test.

4.5.3 Test Procedures

1. The EUT was placed 0.4 meter from the conducting wall of the shielding room was kept at least 80 centimeters from any other grounded conducting surface.
2. Connect EUT to the power mains through a line impedance stabilization network (LISN).
3. All the support units are connecting to the other LISN.
4. The LISN provides 50 ohm coupling impedance for the measuring instrument.
5. The FCC states that a 50 ohm, 50 microhenry LISN should be used.
6. Both sides of AC line were checked for maximum conducted interference.
7. The frequency range from 150 kHz to 30 MHz was searched.
8. Set the test-receiver system to Peak Detect Function and specified bandwidth (IF Bandwidth =9kHz) with Maximum Hold Mode. Then measurement is also conducted by Average Detector and Quasi-Peak Detector Function respectively.

4.5.4 Test Setup



4.5.5 Uncertainty Measurement

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT. The listed uncertainties are the worst case uncertainty for the entire range of measurement. Please note that the uncertainty values are provided for informational purposes only and are not used in determining the PASS/FAIL results.

This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of $k=2$.

CASE	Uncertainty
Continuous Emission (AC port)	2.92 dB

4.5.6 Test Result

Remark: The product is DC powered, this test item is not applicable.

4.6 Antenna Requirements

4.6.1 Standard Applicable

15.203 requirement: An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

15.247(b) (4) requirement: The conducted output power limit specified in paragraph (b) of this section is based on the use of antennas with directional gains that do not exceed 6 dBi. Except as shown in paragraph (c) of this section, if transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values in paragraphs (b)(1), (b)(2), and (b)(3) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6dBi.

4.6.2 Antenna Anti-Replacement Construction

The antenna is External on the main PCB and no consideration of replacement. The best case gain of the antenna is 1.28dBi.

Appendix A – Test Results of Conducted Test

A.1 6dB and 26dB and 99% Occupied Bandwidth Measurement

Test Result_26dB Bandwidth

Test Mode	Antenna	Frequency[MHz]	26db EBW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11A	Ant1	5180	21.400	5169.360	5190.760	---	---
11A	Ant1	5220	22.280	5208.680	5230.960	---	---
11A	Ant1	5240	21.640	5229.360	5251.000	---	---
11A	Ant1	5260	21.560	5249.560	5271.120	---	---
11A	Ant1	5300	22.360	5288.680	5311.040	---	---
11A	Ant1	5320	22.600	5308.640	5331.240	---	---
11A	Ant1	5500	22.360	5488.960	5511.320	---	---
11A	Ant1	5580	20.840	5569.920	5590.760	---	---
11A	Ant1	5700	22.240	5688.800	5711.040	---	---
11A	Ant1	5720	21.000	5709.440	5730.440	---	---
11A	Ant1	5720_UNII-2C	15.56	5709.440	5725	---	---
11A	Ant1	5720_UNII-3	5.44	5725	5730.440	---	---
11A	Ant1	5745	21.040	5734.640	5755.680	---	---
11A	Ant1	5785	21.200	5774.520	5795.720	---	---
11A	Ant1	5825	20.520	5814.720	5835.240	---	---
11N20SISO	Ant1	5180	22.200	5169.120	5191.320	---	---
11N20SISO	Ant1	5220	22.440	5208.320	5230.760	---	---
11N20SISO	Ant1	5240	23.000	5228.560	5251.560	---	---
11N20SISO	Ant1	5260	22.080	5249.080	5271.160	---	---
11N20SISO	Ant1	5300	22.960	5288.880	5311.840	---	---
11N20SISO	Ant1	5320	22.360	5309.000	5331.360	---	---
11N20SISO	Ant1	5500	23.920	5488.320	5512.240	---	---
11N20SISO	Ant1	5580	22.200	5569.520	5591.720	---	---
11N20SISO	Ant1	5700	21.600	5689.040	5710.640	---	---
11N20SISO	Ant1	5720	23.320	5708.400	5731.720	---	---
11N20SISO	Ant1	5720_UNII-2C	16.6	5708.400	5725	---	---
11N20SISO	Ant1	5720_UNII-3	6.72	5725	5731.720	---	---
11N20SISO	Ant1	5745	22.640	5733.480	5756.120	---	---
11N20SISO	Ant1	5785	22.920	5773.640	5796.560	---	---
11N20SISO	Ant1	5825	20.840	5814.800	5835.640	---	---
11N40SISO	Ant1	5190	40.400	5169.920	5210.320	---	---
11N40SISO	Ant1	5230	40.720	5209.760	5250.480	---	---
11N40SISO	Ant1	5270	40.400	5249.920	5290.320	---	---

11N40SISO	Ant1	5310	40.480	5290.000	5330.480	---	---
11N40SISO	Ant1	5510	40.320	5490.080	5530.400	---	---
11N40SISO	Ant1	5550	40.560	5529.840	5570.400	---	---
11N40SISO	Ant1	5670	40.480	5650.000	5690.480	---	---
11N40SISO	Ant1	5710	40.480	5689.840	5730.320	---	---
11N40SISO	Ant1	5710_UNII-2C	35.16	5689.840	5725	---	---
11N40SISO	Ant1	5710_UNII-3	5.32	5725	5730.320	---	---
11N40SISO	Ant1	5755	40.160	5735.240	5775.400	---	---
11N40SISO	Ant1	5795	40.720	5774.600	5815.320	---	---
11AC20SISO	Ant1	5180	22.640	5169.080	5191.720	---	---
11AC20SISO	Ant1	5220	21.360	5209.480	5230.840	---	---
11AC20SISO	Ant1	5240	21.880	5228.720	5250.600	---	---
11AC20SISO	Ant1	5260	23.600	5249.240	5272.840	---	---
11AC20SISO	Ant1	5300	22.800	5288.840	5311.640	---	---
11AC20SISO	Ant1	5320	23.440	5308.760	5332.200	---	---
11AC20SISO	Ant1	5500	22.080	5489.080	5511.160	---	---
11AC20SISO	Ant1	5580	22.280	5569.040	5591.320	---	---
11AC20SISO	Ant1	5700	22.240	5689.200	5711.440	---	---
11AC20SISO	Ant1	5720	21.960	5708.520	5730.480	---	---
11AC20SISO	Ant1	5720_UNII-2C	16.48	5708.520	5725	---	---
11AC20SISO	Ant1	5720_UNII-3	5.48	5725	5730.480	---	---
11AC20SISO	Ant1	5745	22.800	5733.680	5756.480	---	---
11AC20SISO	Ant1	5785	23.560	5773.600	5797.160	---	---
11AC20SISO	Ant1	5825	21.400	5814.040	5835.440	---	---
11AC40SISO	Ant1	5190	40.400	5169.840	5210.240	---	---
11AC40SISO	Ant1	5230	40.480	5209.920	5250.400	---	---
11AC40SISO	Ant1	5270	40.240	5250.080	5290.320	---	---
11AC40SISO	Ant1	5310	40.240	5290.080	5330.320	---	---
11AC40SISO	Ant1	5510	40.160	5490.080	5530.240	---	---
11AC40SISO	Ant1	5550	40.640	5529.920	5570.560	---	---
11AC40SISO	Ant1	5670	40.720	5649.520	5690.240	---	---
11AC40SISO	Ant1	5710	41.280	5689.840	5731.120	---	---
11AC40SISO	Ant1	5710_UNII-2C	35.16	5689.840	5725	---	---
11AC40SISO	Ant1	5710_UNII-3	6.12	5725	5731.120	---	---
11AC40SISO	Ant1	5755	40.880	5734.680	5775.560	---	---
11AC40SISO	Ant1	5795	40.320	5775.080	5815.400	---	---
11AC80SISO	Ant1	5210	92.480	5159.760	5252.240	---	---
11AC80SISO	Ant1	5290	87.840	5250.000	5337.840	---	---
11AC80SISO	Ant1	5530	92.320	5486.160	5578.480	---	---

11AC80SISO	Ant1	5610	86.080	5569.360	5655.440	---	---
11AC80SISO	Ant1	5690	99.840	5638.800	5738.640	---	---
11AC80SISO	Ant1	5690_UNII-2C	86.2	5638.800	5725	---	---
11AC80SISO	Ant1	5690_UNII-3	13.64	5725	5738.640	---	---
11AC80SISO	Ant1	5775	95.520	5722.680	5818.200	---	---

Test Result_6dB Bandwidth

U-NII-3

Test Mode	Antenna	Frequency[MHz]	6db EBW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11A	Ant1	5745	16.360	5736.800	5753.160	0.5	PASS
11A	Ant1	5785	16.240	5776.840	5793.080	0.5	PASS
11A	Ant1	5825	16.360	5816.800	5833.160	0.5	PASS
11N20SISO	Ant1	5745	16.920	5736.480	5753.400	0.5	PASS
11N20SISO	Ant1	5785	17.560	5776.200	5793.760	0.5	PASS
11N20SISO	Ant1	5825	17.040	5816.480	5833.520	0.5	PASS
11N40SISO	Ant1	5755	36.320	5736.840	5773.160	0.5	PASS
11N40SISO	Ant1	5795	36.080	5777.080	5813.160	0.5	PASS
11AC20SISO	Ant1	5745	17.560	5736.200	5753.760	0.5	PASS
11AC20SISO	Ant1	5785	16.800	5776.600	5793.400	0.5	PASS
11AC20SISO	Ant1	5825	15.040	5817.480	5832.520	0.5	PASS
11AC40SISO	Ant1	5755	34.800	5738.360	5773.160	0.5	PASS
11AC40SISO	Ant1	5795	35.920	5776.840	5812.760	0.5	PASS
11AC80SISO	Ant1	5775	75.360	5737.080	5812.440	0.5	PASS

Test Result_99% Bandwidth

Test Mode	Antenna	Frequency[MHz]	OCB [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11A	Ant1	5180	16.659	5171.7024	5188.3614	---	---
11A	Ant1	5220	16.721	5211.6788	5228.3998	---	---
11A	Ant1	5240	16.652	5231.6645	5248.3165	---	---
11A	Ant1	5260	16.678	5251.6666	5268.3446	---	---
11A	Ant1	5300	16.695	5291.6702	5308.3652	---	---
11A	Ant1	5320	16.653	5311.6759	5328.3289	---	---
11A	Ant1	5500	16.680	5491.7046	5508.3846	---	---
11A	Ant1	5580	16.644	5571.6909	5588.3349	---	---
11A	Ant1	5700	16.643	5691.6641	5708.3071	---	---
11A	Ant1	5720	16.726	5711.6332	5728.3592	---	---
11A	Ant1	5720_UNII-2C	13.367	5711.6332	5725	---	---
11A	Ant1	5720_UNII-3	3.359	5725	5728.3592	---	---
11A	Ant1	5745	16.694	5736.6907	5753.3847	---	---

11A	Ant1	5785	16.657	5776.6975	5793.3545	---	---
11A	Ant1	5825	16.683	5816.6440	5833.3270	---	---
11N20SISO	Ant1	5180	17.828	5171.1030	5188.9310	---	---
11N20SISO	Ant1	5220	17.833	5211.0762	5228.9092	---	---
11N20SISO	Ant1	5240	17.874	5231.0630	5248.9370	---	---
11N20SISO	Ant1	5260	17.888	5251.0721	5268.9601	---	---
11N20SISO	Ant1	5300	17.901	5291.0468	5308.9478	---	---
11N20SISO	Ant1	5320	17.858	5311.1138	5328.9718	---	---
11N20SISO	Ant1	5500	17.852	5491.0921	5508.9441	---	---
11N20SISO	Ant1	5580	17.840	5571.0839	5588.9239	---	---
11N20SISO	Ant1	5700	17.822	5691.1029	5708.9249	---	---
11N20SISO	Ant1	5720	17.882	5711.0453	5728.9273	---	---
11N20SISO	Ant1	5720_UNII-2C	13.955	5711.0453	5725	---	---
11N20SISO	Ant1	5720_UNII-3	3.927	5725	5728.9273	---	---
11N20SISO	Ant1	5745	17.863	5736.0703	5753.9333	---	---
11N20SISO	Ant1	5785	17.876	5776.0629	5793.9389	---	---
11N20SISO	Ant1	5825	17.861	5816.0692	5833.9302	---	---
11N40SISO	Ant1	5190	36.267	5171.9112	5208.1782	---	---
11N40SISO	Ant1	5230	36.325	5211.8567	5248.1817	---	---
11N40SISO	Ant1	5270	36.286	5251.9209	5288.2069	---	---
11N40SISO	Ant1	5310	36.365	5291.8236	5328.1886	---	---
11N40SISO	Ant1	5510	36.322	5491.8894	5528.2114	---	---
11N40SISO	Ant1	5550	36.264	5531.8840	5568.1480	---	---
11N40SISO	Ant1	5670	36.323	5651.8234	5688.1464	---	---
11N40SISO	Ant1	5710	36.337	5691.8514	5728.1884	---	---
11N40SISO	Ant1	5710_UNII-2C	33.149	5691.8514	5725	---	---
11N40SISO	Ant1	5710_UNII-3	3.188	5725	5728.1884	---	---
11N40SISO	Ant1	5755	36.262	5736.8852	5773.1472	---	---
11N40SISO	Ant1	5795	36.342	5776.8770	5813.2190	---	---
11AC20SISO	Ant1	5180	17.902	5171.0844	5188.9864	---	---
11AC20SISO	Ant1	5220	17.874	5211.0470	5228.9210	---	---
11AC20SISO	Ant1	5240	17.841	5231.0630	5248.9040	---	---
11AC20SISO	Ant1	5260	17.891	5251.0622	5268.9532	---	---
11AC20SISO	Ant1	5300	17.895	5291.0428	5308.9378	---	---
11AC20SISO	Ant1	5320	17.865	5311.0730	5328.9380	---	---
11AC20SISO	Ant1	5500	17.882	5491.0460	5508.9280	---	---
11AC20SISO	Ant1	5580	17.859	5571.0604	5588.9194	---	---
11AC20SISO	Ant1	5700	17.906	5691.0429	5708.9489	---	---
11AC20SISO	Ant1	5720	17.915	5711.0137	5728.9287	---	---

11AC20SISO	Ant1	5720_UNII-2C	13.986	5711.0137	5725	---	---
11AC20SISO	Ant1	5720_UNII-3	3.929	5725	5728.9287	---	---
11AC20SISO	Ant1	5745	17.840	5736.0642	5753.9042	---	---
11AC20SISO	Ant1	5785	17.835	5776.0675	5793.9025	---	---
11AC20SISO	Ant1	5825	17.791	5816.1091	5833.9001	---	---
11AC40SISO	Ant1	5190	36.316	5171.8401	5208.1561	---	---
11AC40SISO	Ant1	5230	36.384	5211.8644	5248.2484	---	---
11AC40SISO	Ant1	5270	36.339	5251.9025	5288.2415	---	---
11AC40SISO	Ant1	5310	36.289	5291.9548	5328.2438	---	---
11AC40SISO	Ant1	5510	36.267	5491.8860	5528.1530	---	---
11AC40SISO	Ant1	5550	36.255	5531.9008	5568.1558	---	---
11AC40SISO	Ant1	5670	36.368	5651.8194	5688.1874	---	---
11AC40SISO	Ant1	5710	36.339	5691.8417	5728.1807	---	---
11AC40SISO	Ant1	5710_UNII-2C	33.158	5691.8417	5725	---	---
11AC40SISO	Ant1	5710_UNII-3	3.181	5725	5728.1807	---	---
11AC40SISO	Ant1	5755	36.339	5736.8261	5773.1651	---	---
11AC40SISO	Ant1	5795	36.298	5776.8502	5813.1482	---	---
11AC80SISO	Ant1	5210	75.849	5172.1469	5247.9959	---	---
11AC80SISO	Ant1	5290	75.808	5252.3343	5328.1423	---	---
11AC80SISO	Ant1	5530	75.966	5492.1055	5568.0715	---	---
11AC80SISO	Ant1	5610	75.743	5572.2176	5647.9606	---	---
11AC80SISO	Ant1	5690	75.878	5652.1213	5727.9993	---	---
11AC80SISO	Ant1	5690_UNII-2C	72.879	5652.1213	5725	---	---
11AC80SISO	Ant1	5690_UNII-3	2.999	5725	5727.9993	---	---
11AC80SISO	Ant1	5775	75.878	5737.0064	5812.8844	---	---

Test Graphs

26dB Occupied Bandwidth

11A-Ant1-5180	11A-Ant1-5220
11A-Ant1-5240	11A-Ant1-5260



11A-Ant1-5745

11A-Ant1-5785





11N20SISO-Ant1-5580



11N20SISO-Ant1-5700



11N20SISO-Ant1-5720



11N20SISO-Ant1-5745



11N20SISO-Ant1-5785



11N20SISO-Ant1-5825



11N40SISO-Ant1-5190



11N40SISO-Ant1-5230



11N40SISO-Ant1-5270



11N40SISO-Ant1-5310



11N40SISO-Ant1-5510



11N40SISO-Ant1-5550



11N40SISO-Ant1-5670



11N40SISO-Ant1-5710



11N40SISO-Ant1-5755



11N40SISO-Ant1-5795



11AC20SISO-Ant1-5180



11AC20SISO-Ant1-5220



11AC20SISO-Ant1-5240



11AC20SISO-Ant1-5260



11AC20SISO-Ant1-5300



11AC20SISO-Ant1-5320



11AC20SISO-Ant1-5500



11AC20SISO-Ant1-5580



11AC20SISO-Ant1-5700



11AC20SISO-Ant1-5720



11AC20SISO-Ant1-5745



11AC20SISO-Ant1-5785



11AC20SISO-Ant1-5825



11AC20SISO-Ant1-5785



11AC40SISO-Ant1-5230



11AC40SISO-Ant1-5270



11AC40SISO-Ant1-5310



11AC40SISO-Ant1-5510



11AC40SISO-Ant1-5550



11AC40SISO-Ant1-5670



11AC40SISO-Ant1-5710



11AC40SISO-Ant1-5755



11AC40SISO-Ant1-5795



11AC80SISO-Ant1-5210



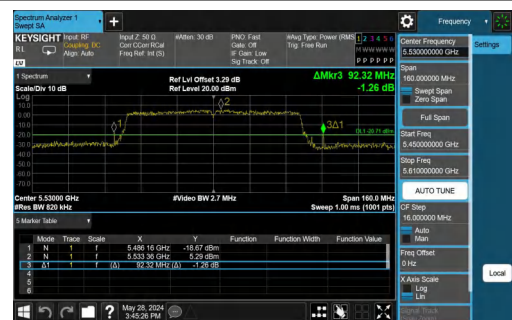
11AC80SISO-Ant1-5290



11AC80SISO-Ant1-5530



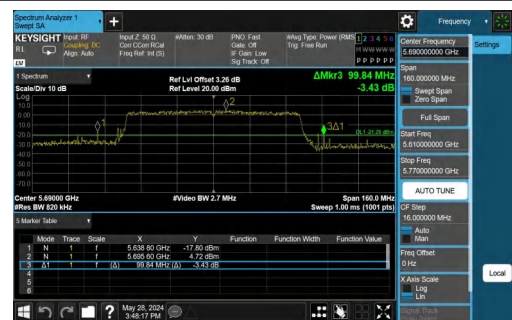
11AC80SISO-Ant1-5610



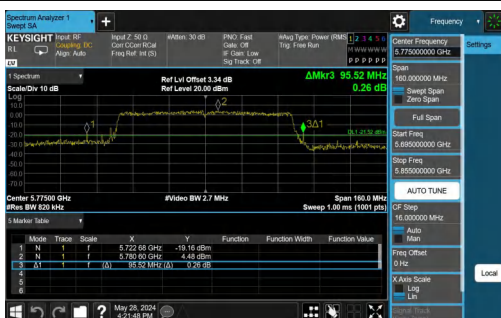
11AC80SISO-Ant1-5690



11AC80SISO-Ant1-5775



/



/

6dB Bandwidth U-NII-3

11A-Ant1-5745-PASS



11A-Ant1-5785-PASS



11A-Ant1-5825-PASS



11N20SISO-Ant1-5745-PASS



11N20SISO-Ant1-5785-PASS



11N20SISO-Ant1-5825-PASS



11N40SISO-Ant1-5755-PASS



11N40SISO-Ant1-5795-PASS



11AC20SISO-Ant1-5745-PASS



11AC20SISO-Ant1-5785-PASS

