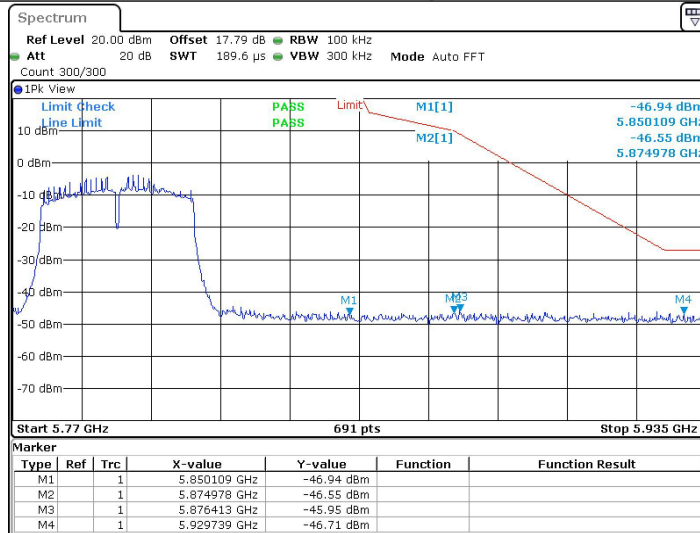
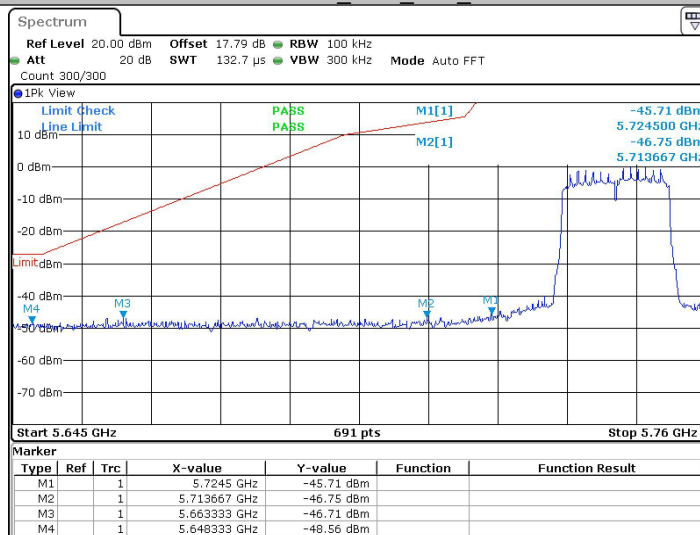


11N40SISO_Ant1_High_5795



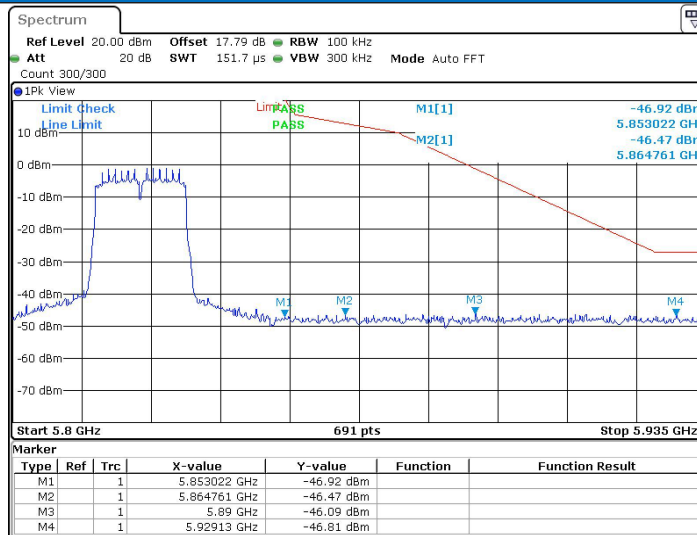
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11AC20SISO_Ant1_Low_5745



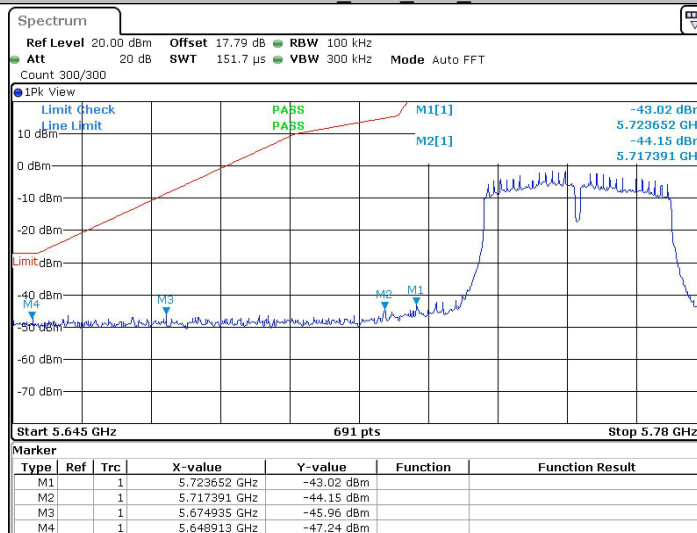
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11AC20SISO_Ant1_High_5825



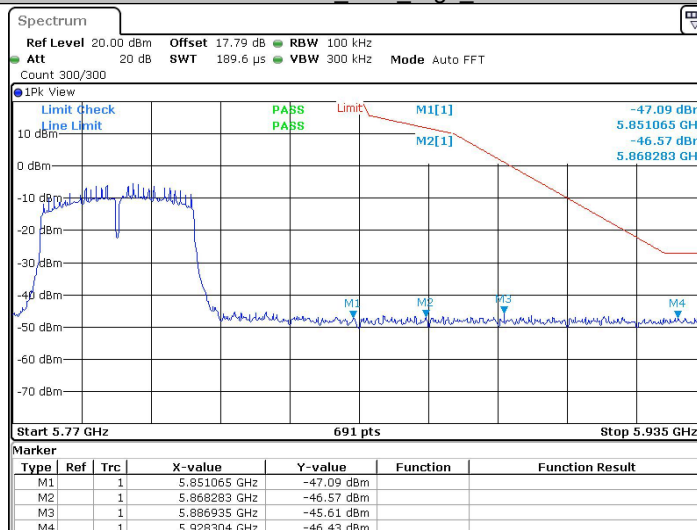
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11AC40SISO_Ant1_Low 5755



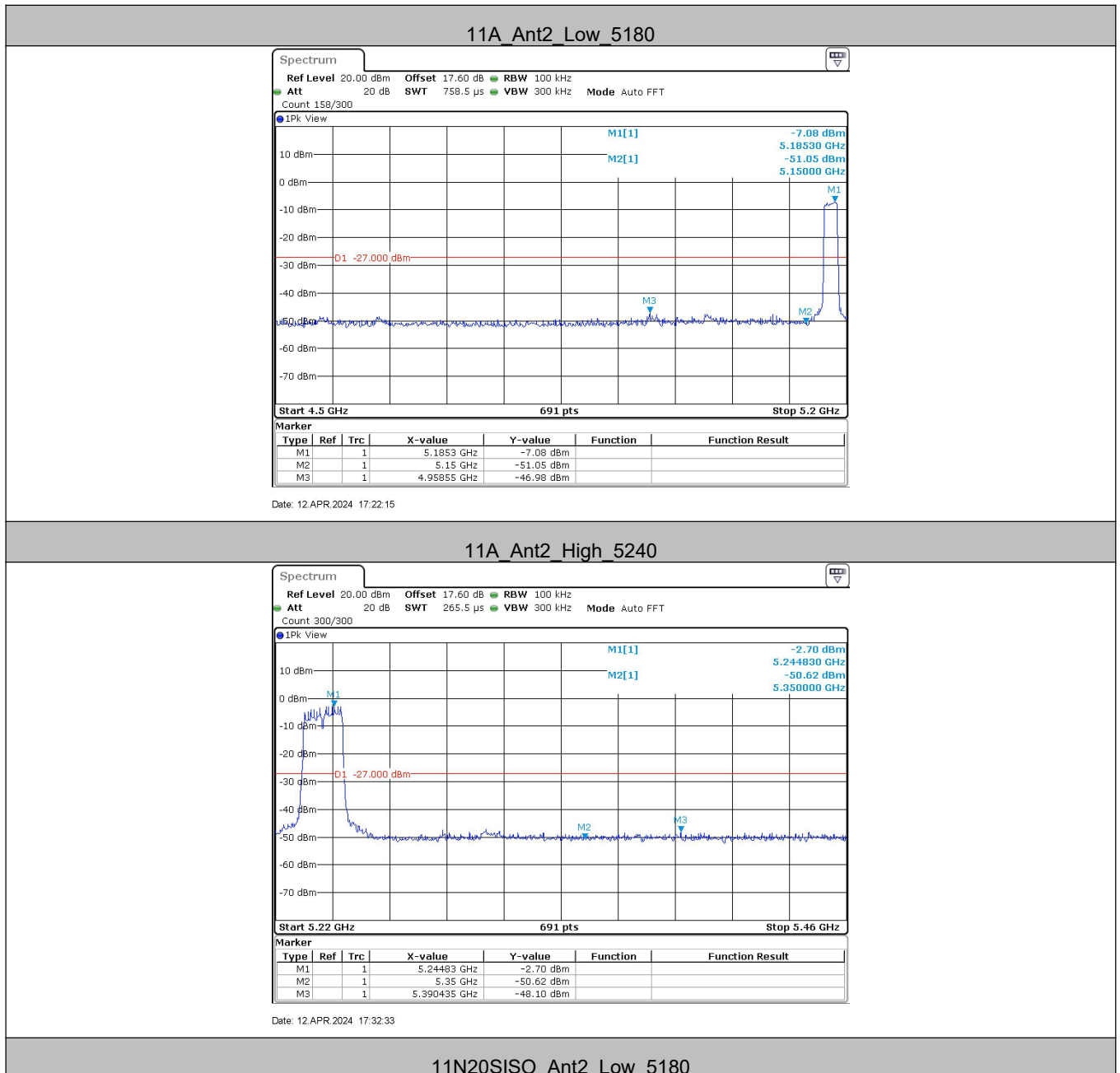
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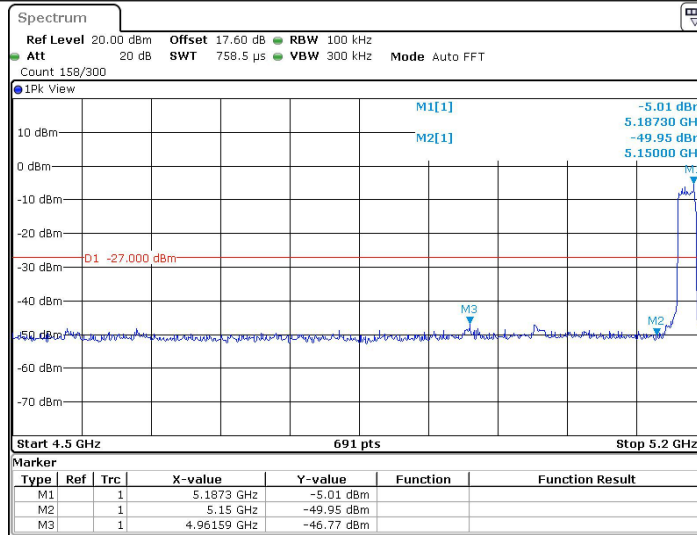
11AC40SISO_Ant1_High 5795



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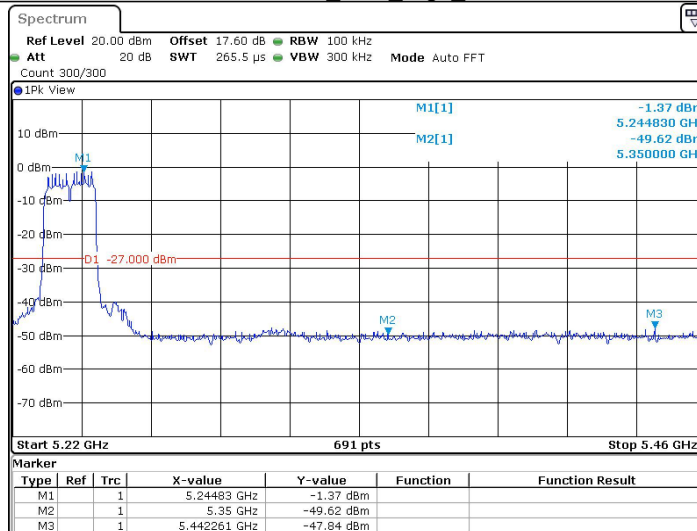
7.1.3 Test Graphs B1





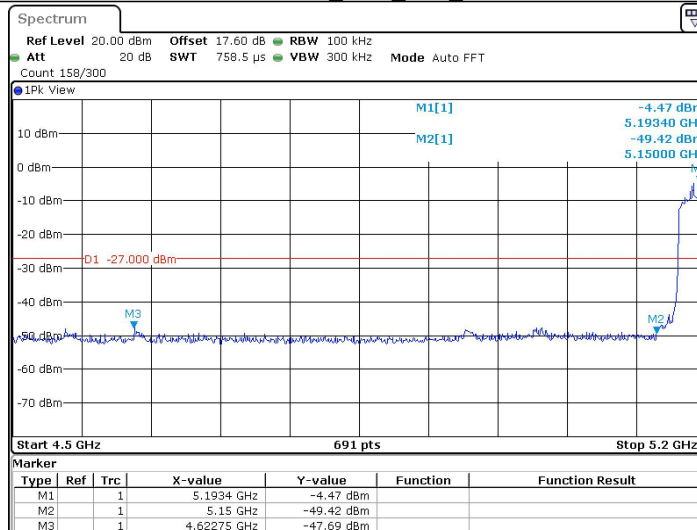
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11N20SISO_Ant2_High_5240



Date: 15 APR 2024 08:55:22

11N40SISO_Ant2_Low_5190



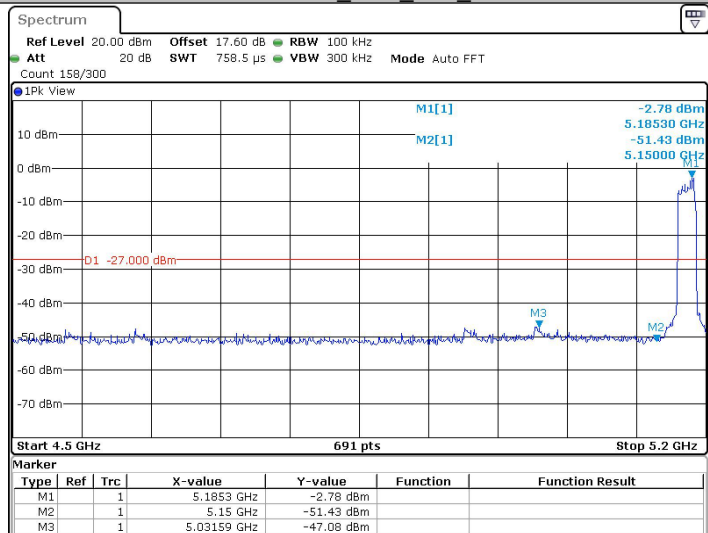
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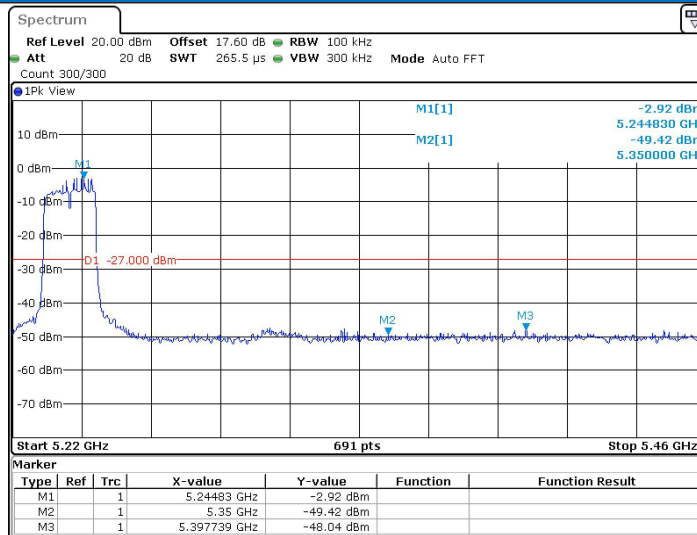
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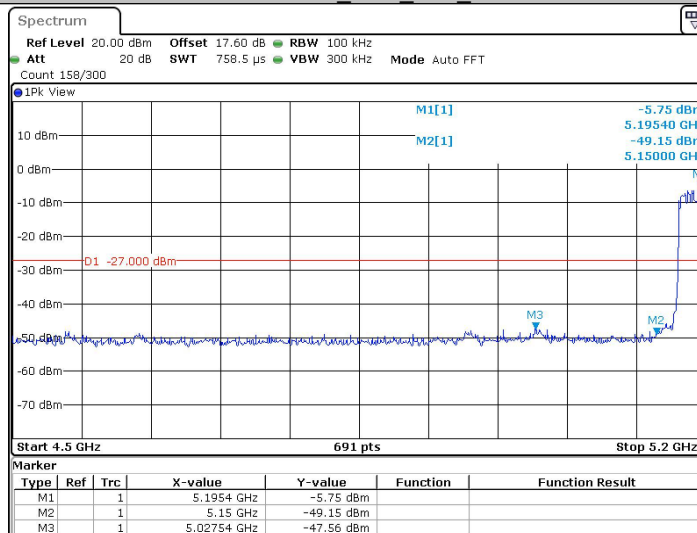
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11AC20SISO_Ant2_High_5240



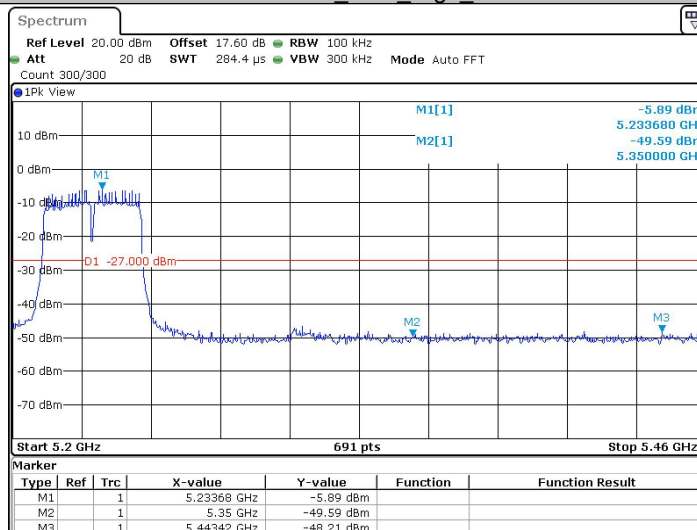
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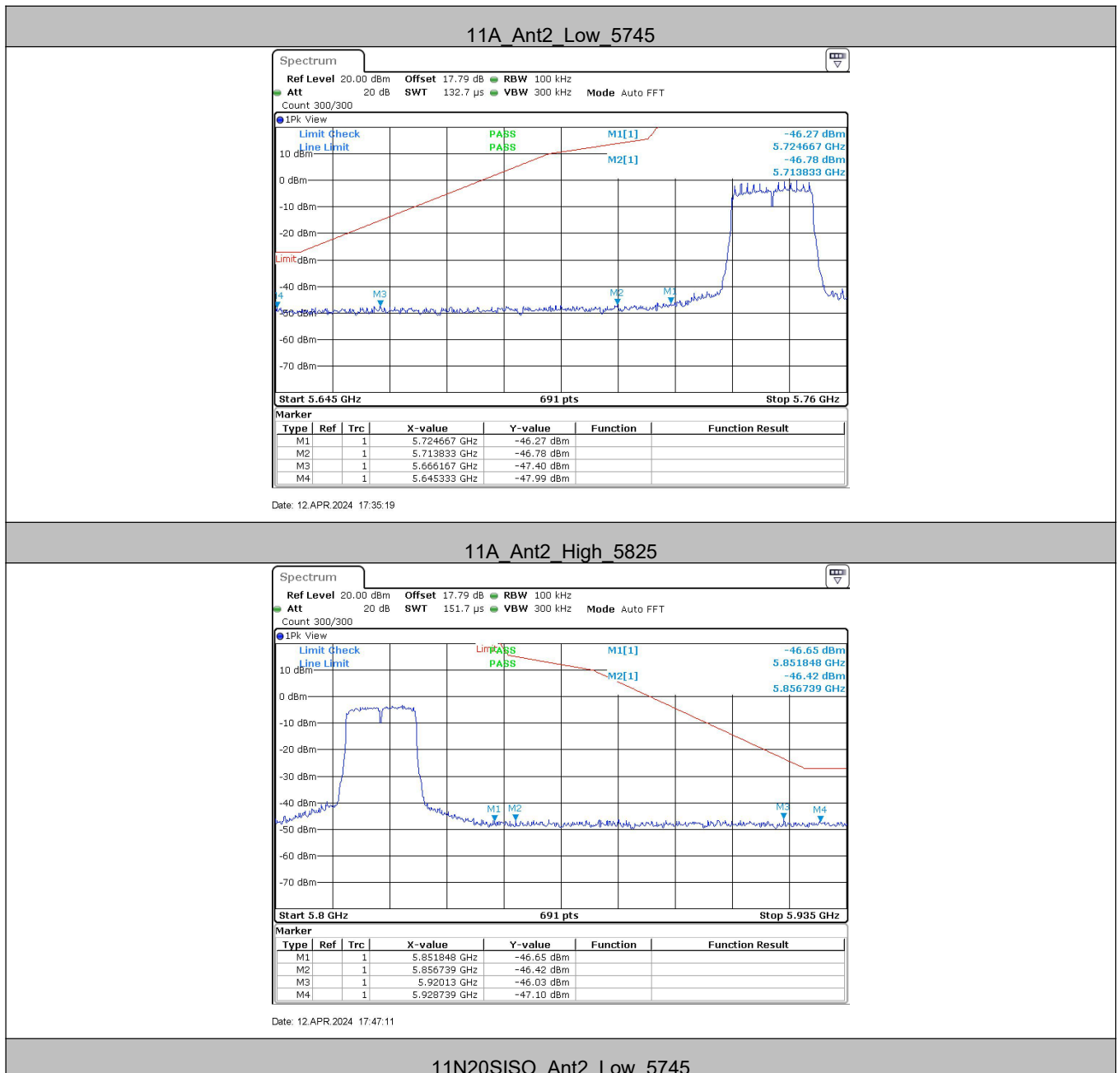
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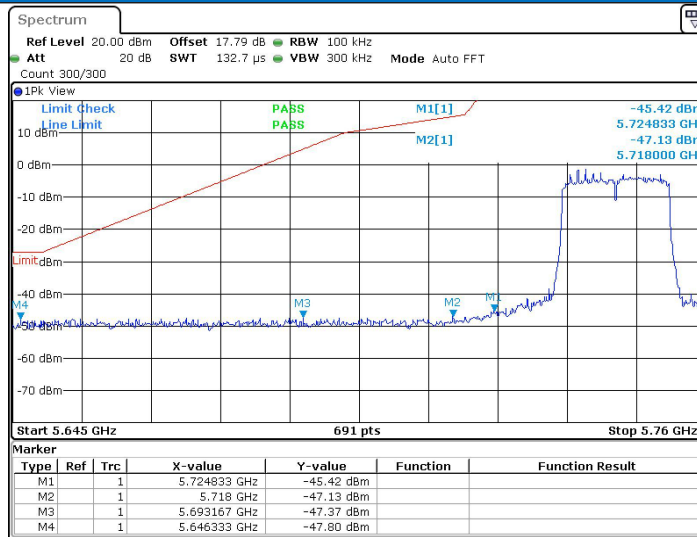
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Date: 15 APR 2024 09:58:38

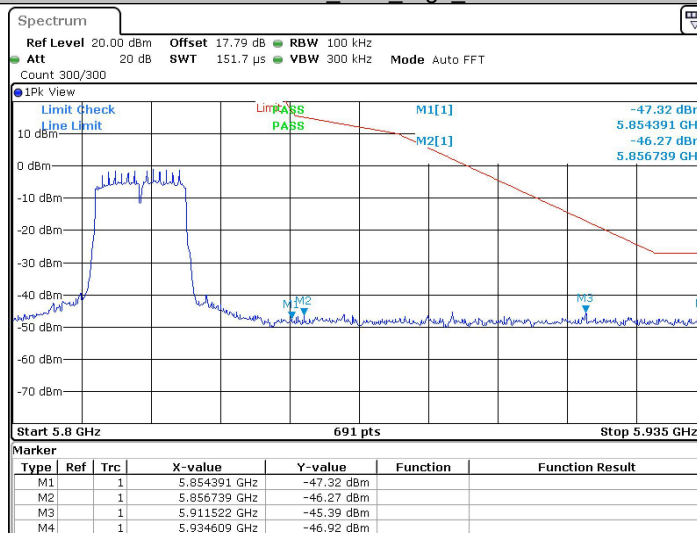
7.1.4 Test Graphs B4





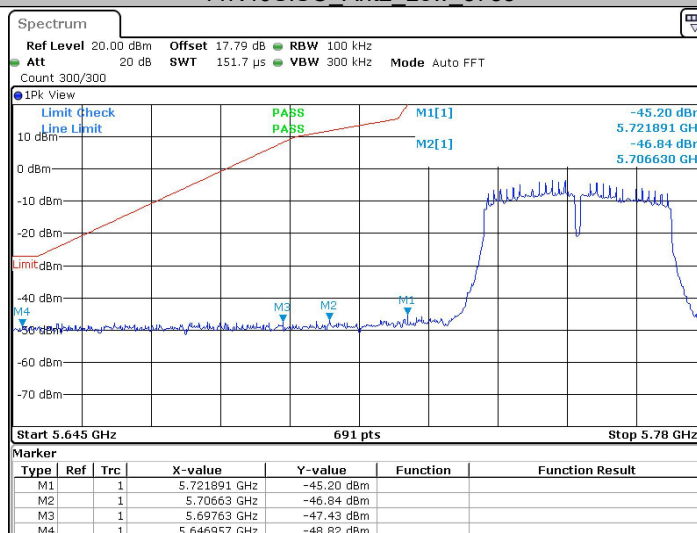
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11N20SISO Ant2 High 5825



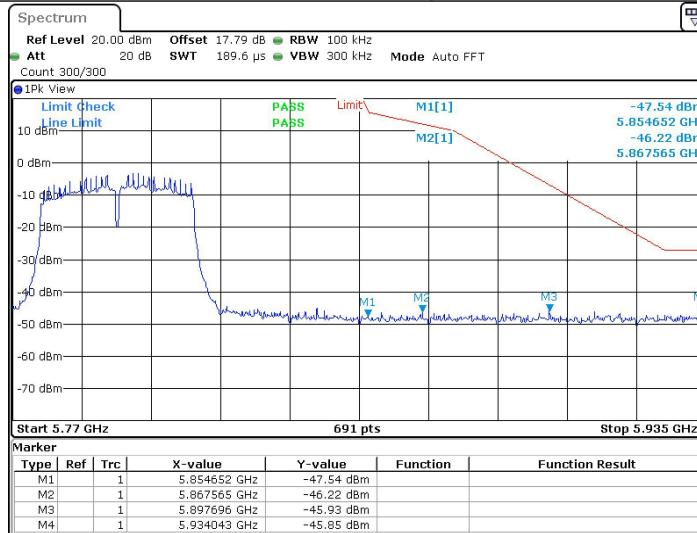
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11N40SISO Ant2 Low 5755



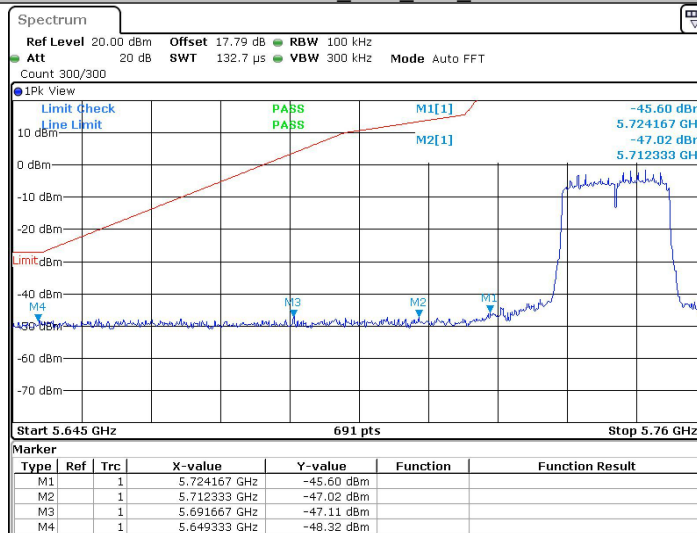
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11N40SISO_Ant2_High_5795



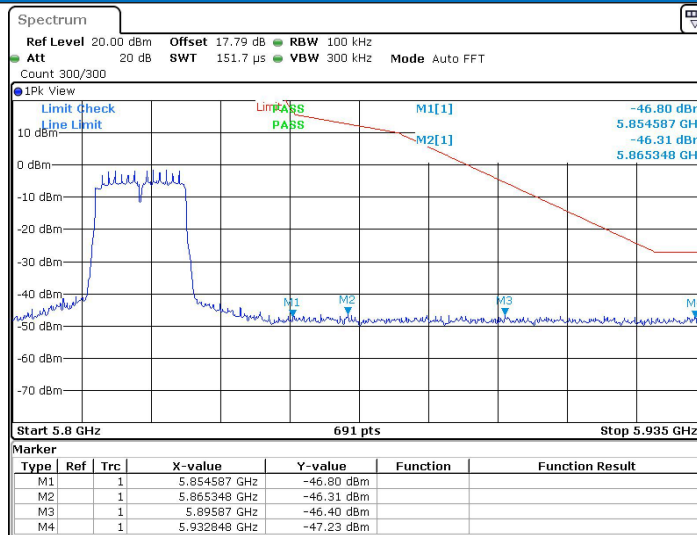
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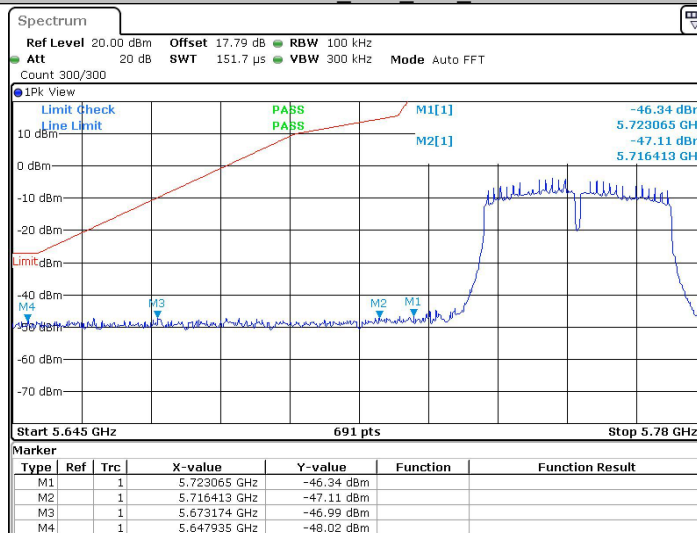
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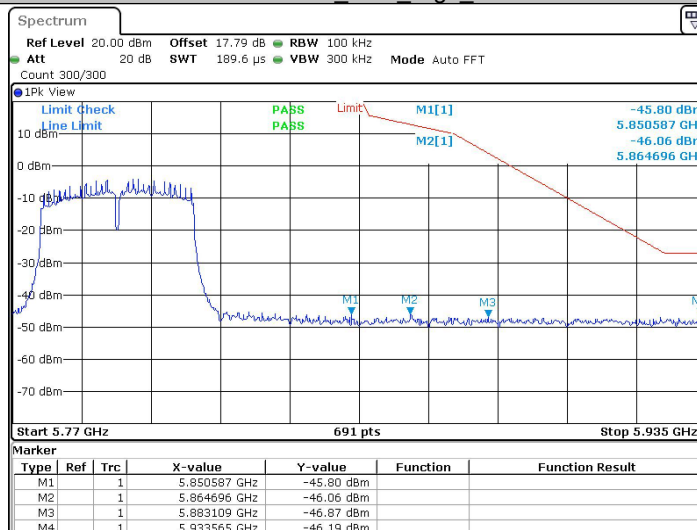
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11AC40SISO_Ant2_Low_5755



Date: 15 APR 2024 10:03:20

11AC40SISO_Ant2_High_5795



Date: 15 APR 2024 10:05:47

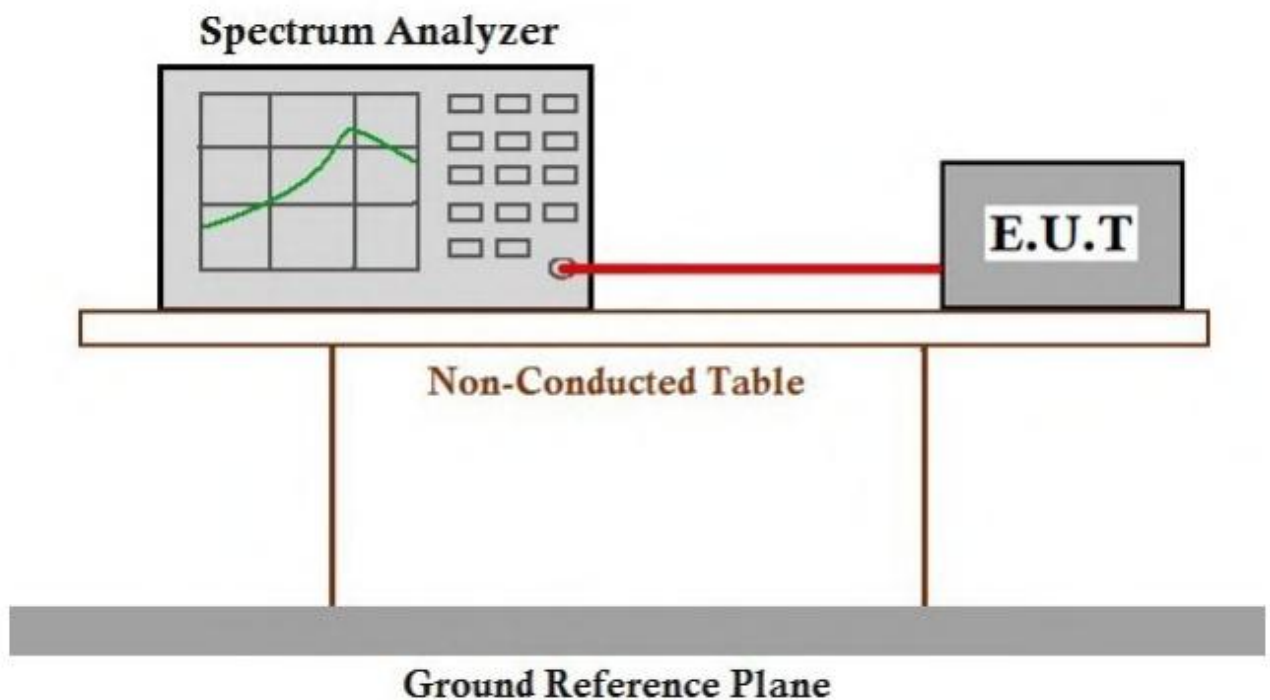
Appendix E): Frequency Stability

Test Requirement 47 CFR Part 15, Subpart C 15.407 (g)

Test Method: ANSI C63.10 (2013) Section 6.8

Limit: The frequency tolerance shall be maintained within the band of operation frequency over a temperature variation of 14.4 degrees to 17.6 degrees C at normal supply voltage, and for a variation in the primary supply voltage from 85% to 115% of the rated supply voltage at a temperature of 20 degrees C.

Test Setup Diagram



Measurement Data

ANT1:

Frequency Stability Versus Temp.			
Operating Frequency: 5240 MHz			
Temp	Voltage	Deviation	Frequency Drift
(°C)		(Hz)	(ppm)
45	VN	-30000.00	-5.725191
35		-30000.00	-5.725191
25		-30000.00	-5.725191
15		-30000.00	-5.725191
10		-30000.00	-5.725191
0		-30000.00	-5.725191
-10		-30000.00	-5.725191

Frequency Stability Versus Temp.			
Operating Frequency: 5180 MHz			
Temp.	Voltage	Deviation	Frequency Drift
		(Hz)	(ppm)
TN	VL	-30000.00	-5.791506
	VN	-30000.00	-5.791506
	VH	-30000.00	-5.791506

Frequency Stability Versus Temp.			
Operating Frequency: 5745 MHz			
Temp	Voltage	Deviation	Frequency Drift
(°C)		(Hz)	(ppm)
45	VN	-33000.00	-5.744125
35		-33000.00	-5.744125
25		-33000.00	-5.744125
15		-33000.00	-5.744125
10		-33000.00	-5.744125
0		-33000.00	-5.744125
-10		-33000.00	-5.744125

Frequency Stability Versus Temp.			
Operating Frequency: 5785 MHz			
Temp.	Voltage	Deviation	Frequency Drift
		(Hz)	(ppm)
TN	VL	-33000.00	-5.704408
	VN	-33000.00	-5.704408
	VH	-33000.00	-5.704408

Note: All the modulation and channels had been tested, but only the worst data recorded in the report.

ANT2:

Frequency Stability Versus Temp.			
Operating Frequency: 5240 MHz			
Temp (°C)	Volta ge	Deviation (Hz)	Frequency Drift (ppm)
45	VN	-30000.00	-5.725191
35		-30000.00	-5.725191
25		-30000.00	-5.725191
15		-30000.00	-5.725191
10		-30000.00	-5.725191
0		-30000.00	-5.725191
-10		-30000.00	-5.725191

Frequency Stability Versus Temp.			
Operating Frequency: 5180 MHz			
Temp.	Volta ge	Deviation (Hz)	Frequency Drift (ppm)
TN	VL	-30000.00	-5.791506
	VN	-30000.00	-5.791506
	VH	-30000.00	-5.791506

Frequency Stability Versus Temp.			
Operating Frequency: 5745 MHz			
Temp (°C)	Volta ge	Deviation (Hz)	Frequency Drift (ppm)
45	VN	-33000.00	-5.744125
35		-33000.00	-5.744125
25		-33000.00	-5.744125
15		-33000.00	-5.744125
10		-33000.00	-5.744125
0		-33000.00	-5.744125
-10		-33000.00	-5.744125

Frequency Stability Versus Temp.			
Operating Frequency: 5785 MHz			
Temp.	Voltage	Deviation	Frequency Drift
		(Hz)	(ppm)
TN	VL	-33000.00	-5.704408
	VN	-33000.00	-5.704408
	VH	-33000.00	-5.704408

Note: All the modulation and channels had been tested, but only the worst data recorded in the report.

Appendix F): Antenna Requirement

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.

15.407(a)(1) (2) requirement:

The conducted output power limit specified in paragraph (a) of this section is based on the use of antennas with directional gains that do not exceed 6 dBi. Except as shown in paragraph (a) of this section, if transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power and the peak power spectral density shall be reduced by the by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

EUT Antenna:



The antenna is internal antenna with ipex connector. The best case gain of the 5G WiFi antenna is 3.77dBi@Band 1, 3.32dBi@Band 4.

Appendix G): Operation in the absence of information to the transmit

15.407(c) requirement:

The device shall automatically discontinue transmission in case of either absence of information to transmit or operational failure. These provisions are not intended to preclude the transmission of control or signaling information or the use of repetitive codes used by certain digital technologies to complete frame or burst intervals. Applicants shall include in their application for equipment authorization a description of how this requirement is met.

Operation in the absence of information to the transmit

While the EUT is not transmitting any information, the EUT can automatically discontinue transmission and become standby mode for power saving. The EUT can detect the controlling signal of ASK message transmitting from remote device and verify whether it shall resend or discontinue transmission. (manufacturer declare)

Appendix H): AC Power Line Conducted Emission

Test Procedure:	Test frequency range :150KHz-30MHz 1)The mains terminal disturbance voltage test was conducted in a shielded room. 2) The EUT was connected to AC power source through a LISN 1 (Line Impedance Stabilization Network) which provides a $50\Omega/50\mu\text{H} + 5\Omega$ linear impedance. The power cables of all other units of the EUT were connected to a second LISN 2, which was bonded to the ground reference plane in the same way as the LISN 1 for the unit being measured. A multiple socket outlet strip was used to connect multiple power cables to a single LISN provided the rating of the LISN was not exceeded. 3)The tabletop EUT was placed upon a non-metallic table 0.8m above the ground reference plane. And for floor-standing arrangement, the EUT was placed on the horizontal ground reference plane, 4) The test was performed with a vertical ground reference plane. The rear of the EUT shall be 0.4 m from the vertical ground reference plane. The vertical ground reference plane was bonded to the horizontal ground reference plane. The LISN 1 was placed 0.8 m from the boundary of the unit under test and bonded to a ground reference plane for LISNs mounted on top of the ground reference plane. This distance was between the closest points of the LISN 1 and the EUT. All other units of the EUT and associated equipment was at least 0.8 m from the LISN 2. 5) In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.10 on conducted measurement.															
Limit:	<table border="1"> <thead> <tr> <th rowspan="2">Frequency range (MHz)</th><th colspan="2">Limit (dBμV)</th></tr> <tr> <th>Quasi-peak</th><th>Average</th></tr> </thead> <tbody> <tr> <td>0.15-0.5</td><td>66 to 56*</td><td>56 to 46*</td></tr> <tr> <td>0.5-5</td><td>56</td><td>46</td></tr> <tr> <td>5-30</td><td>60</td><td>50</td></tr> </tbody> </table> * The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.50 MHz. NOTE : The lower limit is applicable at the transition frequency		Frequency range (MHz)	Limit (dB μ V)		Quasi-peak	Average	0.15-0.5	66 to 56*	56 to 46*	0.5-5	56	46	5-30	60	50
Frequency range (MHz)	Limit (dB μ V)															
	Quasi-peak	Average														
0.15-0.5	66 to 56*	56 to 46*														
0.5-5	56	46														
5-30	60	50														

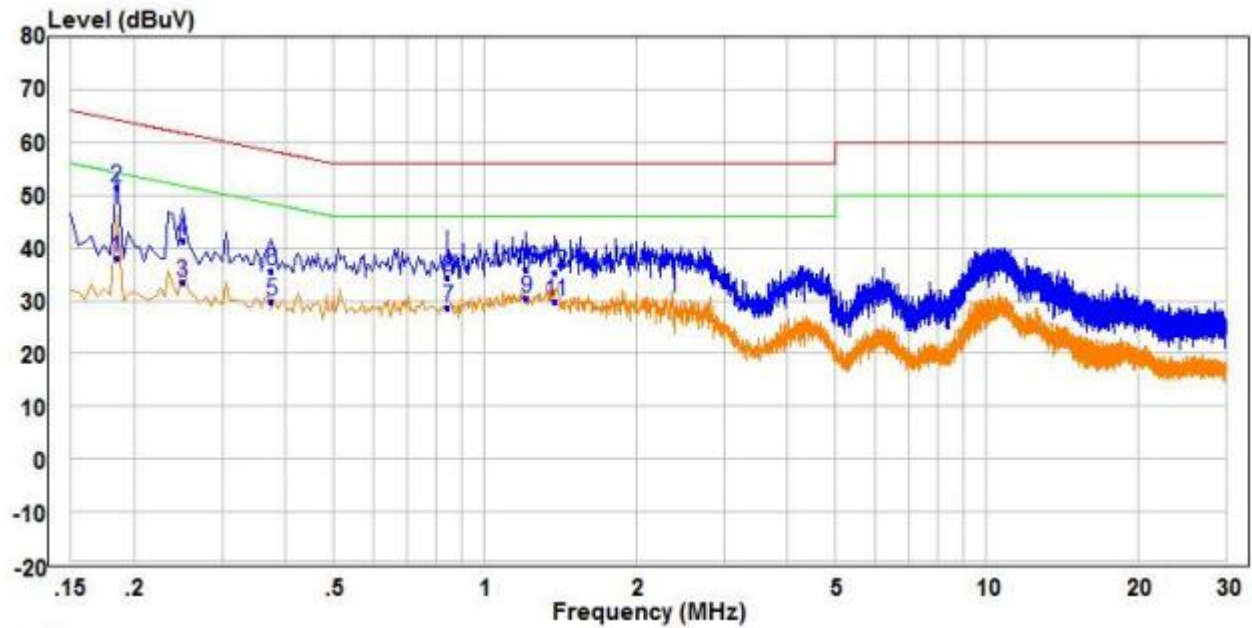
Measurement Data

An initial pre-scan was performed on the live and neutral lines with peak detector.

Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission were detected.

Ant1

;Live line:



		Read		Limit	Over		
	Freq	Level	Factor	Level	Line	Limit	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	Pol/Phase
1	0.185	28.48	9.64	38.12	54.26	-16.14	Average
2	PP	0.185	41.89	9.64	51.53	64.26	-12.73 QP
3	0.250	23.82	9.55	33.37	51.76	-18.39	Average
4	0.250	31.89	9.55	41.44	61.76	-20.32	QP
5	0.375	20.25	9.58	29.83	48.39	-18.56	Average
6	0.375	26.04	9.58	35.62	58.39	-22.77	QP
7	0.845	18.94	9.80	28.74	46.00	-17.26	Average
8	0.845	24.51	9.80	34.31	56.00	-21.69	QP
9	AV	1.210	20.25	10.23	30.48	46.00	-15.52
10	1.210	25.62	10.23	35.85	56.00	-20.15	QP
11	1.380	19.30	10.60	29.90	46.00	-16.10	Average
12	1.380	24.59	10.60	35.19	56.00	-20.81	QP

		Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark	Pol/Phase
		MHz	dBuV	dB	dBuV	dBuV	dB		
1	AV	0.175	30.09	9.65	39.74	54.72	-14.98	Average	Neutral
2	PP	0.175	43.64	9.65	53.29	64.72	-11.43	QP	Neutral
3		0.365	23.48	9.56	33.04	48.61	-15.57	Average	Neutral
4		0.365	30.88	9.56	40.44	58.61	-18.17	QP	Neutral
5		0.460	19.86	9.66	29.52	46.69	-17.17	Average	Neutral
6		0.460	28.34	9.66	38.00	56.69	-18.69	QP	Neutral
7		0.485	21.57	9.69	31.26	46.25	-14.99	Average	Neutral
8		0.485	29.36	9.69	39.05	56.25	-17.20	QP	Neutral
9		0.680	19.02	9.88	28.90	46.00	-17.10	Average	Neutral
10		0.680	24.22	9.88	34.10	56.00	-21.90	QP	Neutral
11		1.240	20.37	9.71	30.08	46.00	-15.92	Average	Neutral
12		1.240	25.76	9.71	35.47	56.00	-20.53	QP	Neutral

1. The following Quasi-Peak and Average measurements were performed on the EUT:
2. Final Test Level =Receiver Reading + LISN Factor + Cable Loss.
3. The Ant1 6Mbps of rate of 802.11A 5240 is the worst case, only the worst data recorded in the report.