

Appendix E): Maximum Power Spectral Density

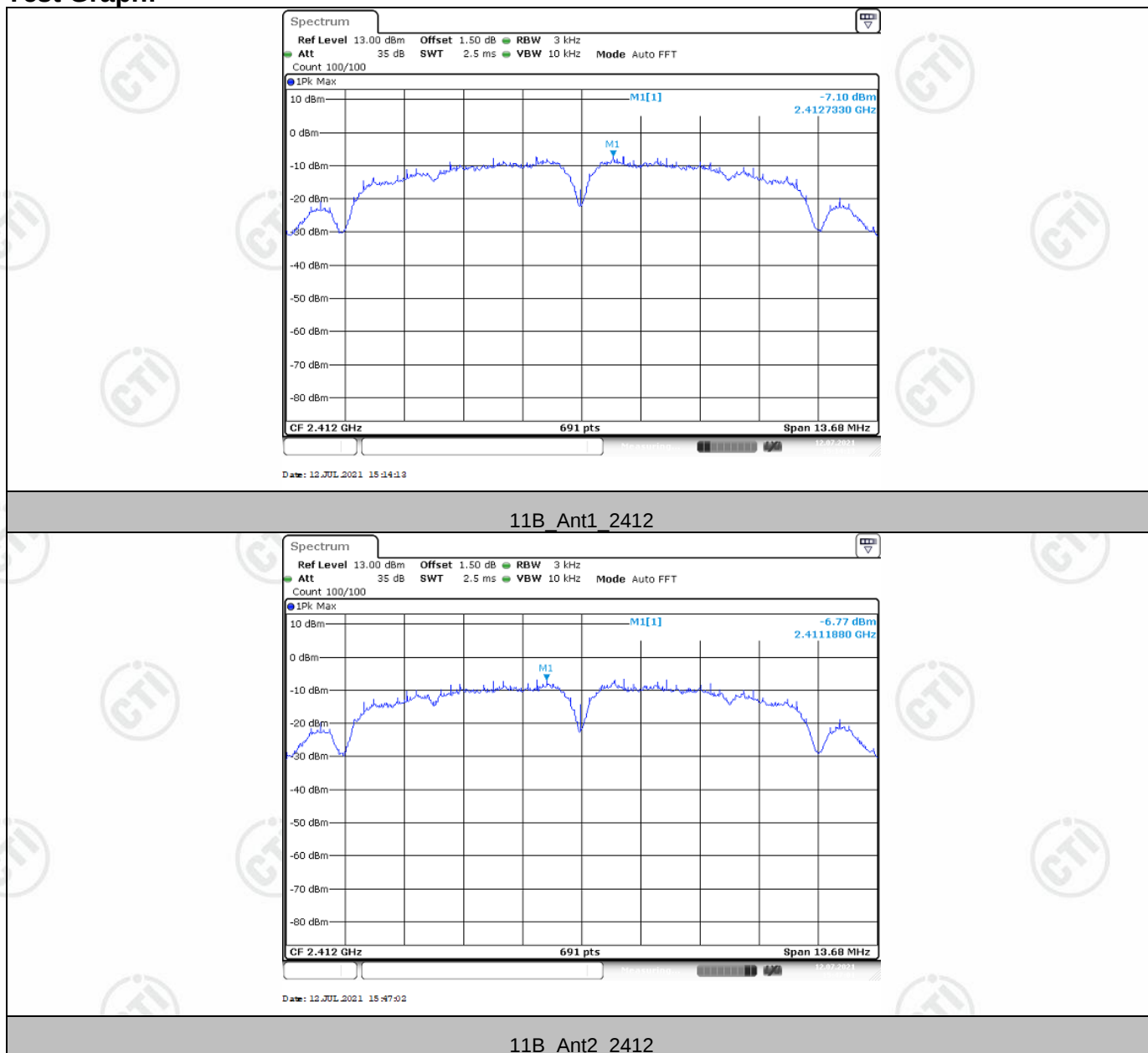
Result Table:

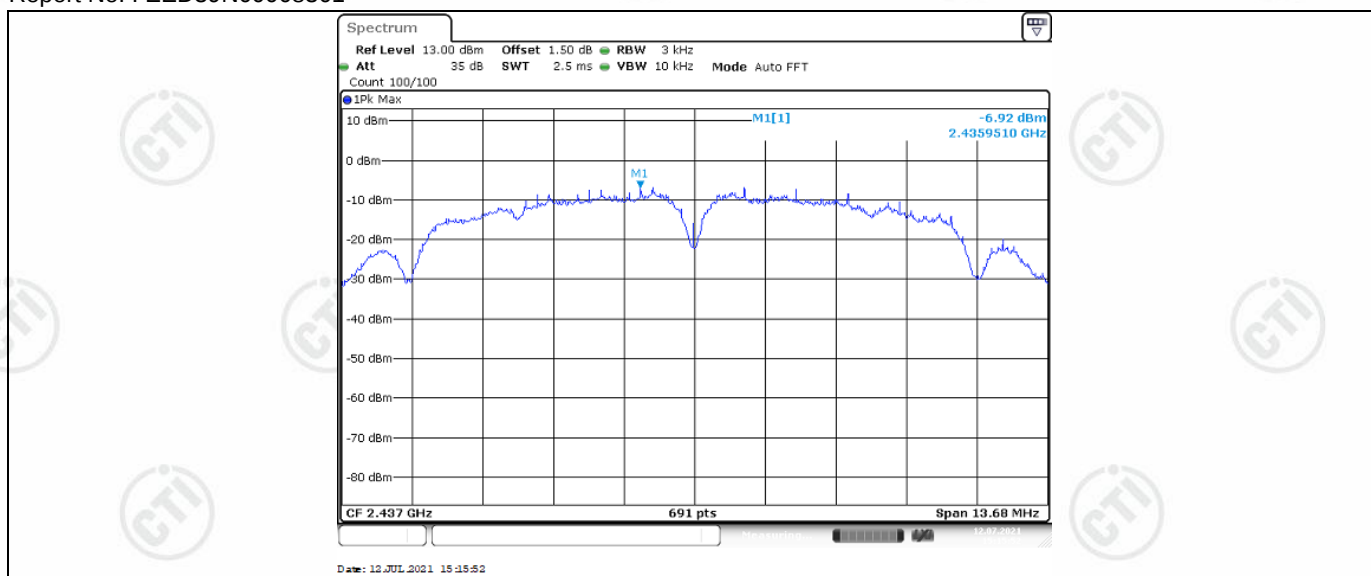
Test Mode	Antenna	Channel	Result[dBm/3kHz]	Limit[dBm/3kHz]	Verdict
11B	Ant1	2412	-7.10	<=8	PASS
	Ant2	2412	-6.77	<=8	PASS
	Ant1	2437	-6.92	<=8	PASS
	Ant2	2437	-6.49	<=8	PASS
	Ant1	2462	-6.30	<=8	PASS
	Ant2	2462	-6.74	<=8	PASS
11G	Ant1	2412	-11.62	<=8	PASS
	Ant2	2412	-10.57	<=8	PASS
	Ant1	2437	-11.01	<=8	PASS
	Ant2	2437	-10.22	<=8	PASS
	Ant1	2462	-10.86	<=8	PASS
	Ant2	2462	-9.96	<=8	PASS
11N20SISO	Ant1	2412	-10.56	<=8	PASS
	Ant2	2412	-10.27	<=8	PASS
	Ant1	2437	-9.74	<=8	PASS
	Ant2	2437	-9.48	<=8	PASS
	Ant1	2462	-9.17	<=8	PASS
	Ant2	2462	-9.79	<=8	PASS
11N20MIMO	Ant1	2412	-10.10	<=8	PASS
	Ant2	2412	-9.68	<=8	PASS
	total	2412	-6.87	<=8	PASS
	Ant1	2437	-10.81	<=8	PASS
	Ant2	2437	-9.20	<=8	PASS
	total	2437	-6.92	<=8	PASS
	Ant1	2462	-10.45	<=8	PASS
	Ant2	2462	-9.61	<=8	PASS
	total	2462	-7.00	<=8	PASS

Remark:

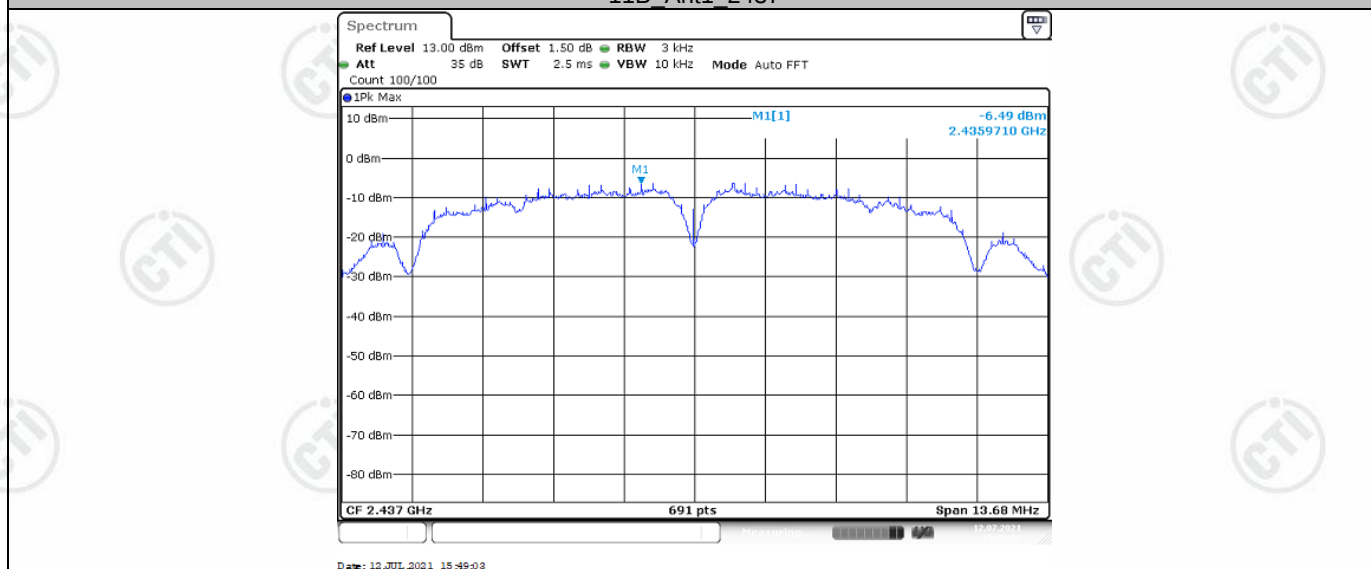
- 1.Total Power spectral density (dBm/3kHz) = $10 \log[(10^{P1/10} + 10^{P2/10} + \dots + 10^{PN/10})]$
2. Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2 / N_{ANT}]$ dBi=2.77 dBi

Test Graph:

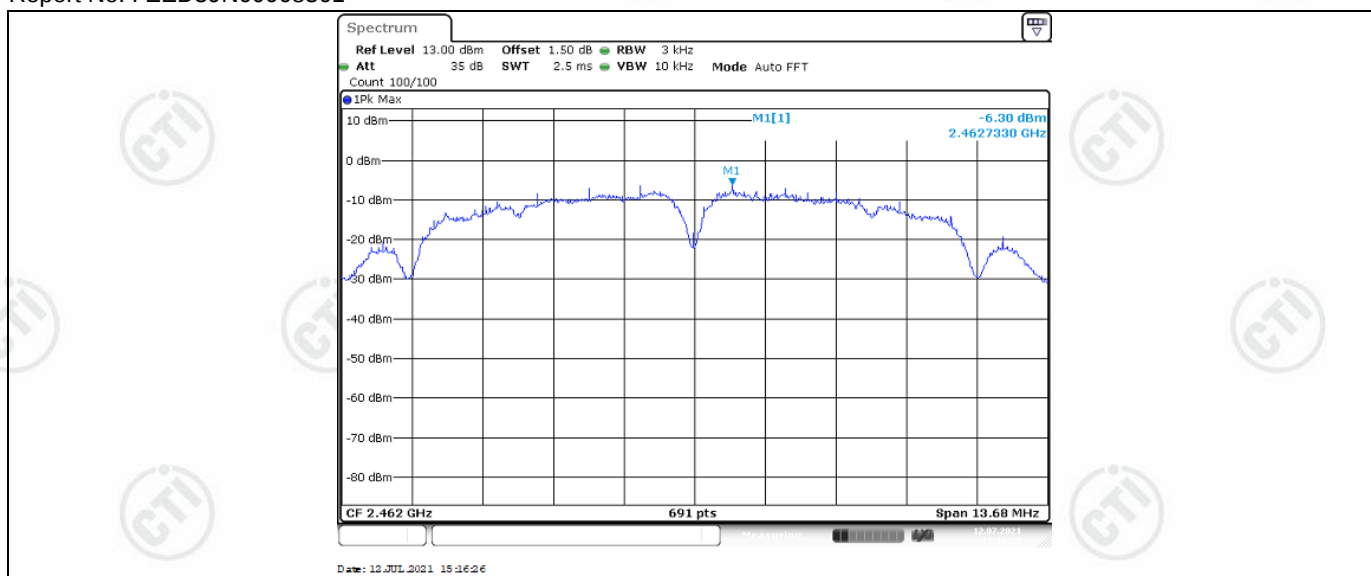




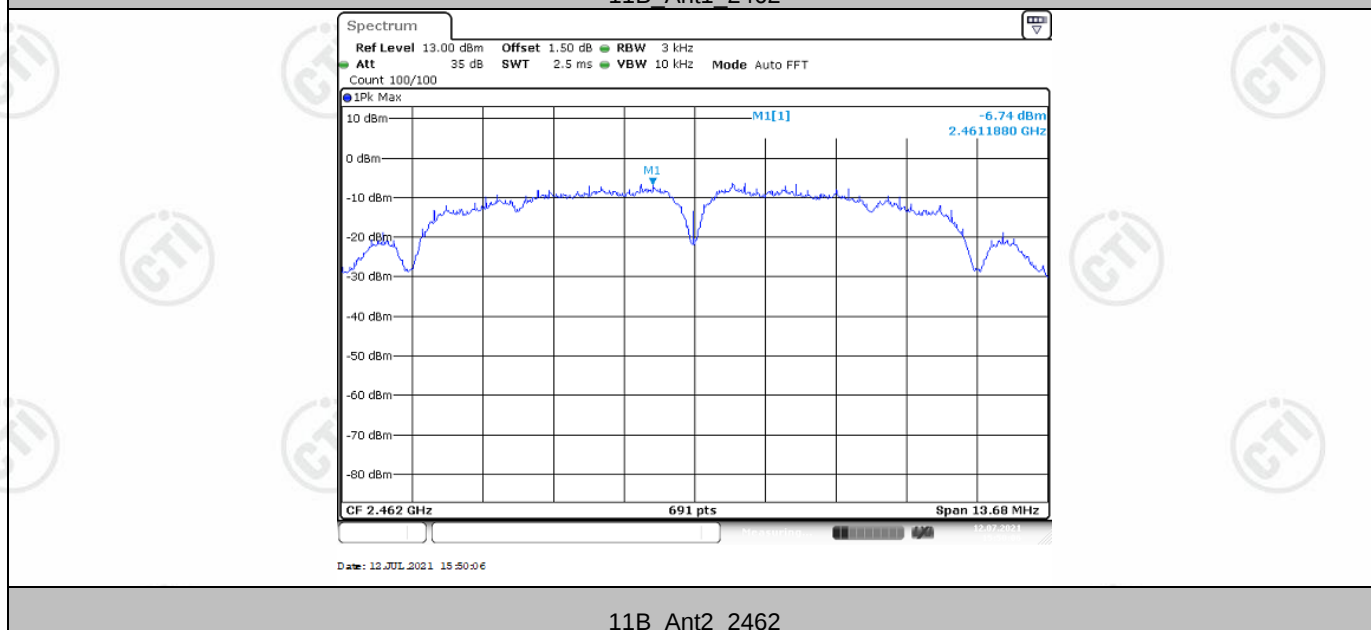
11B_Ant1_2437



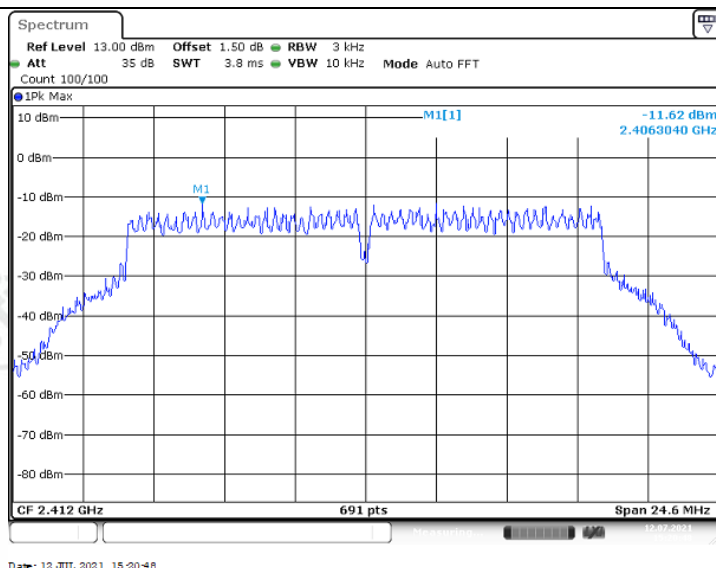
11B_Ant2_2437



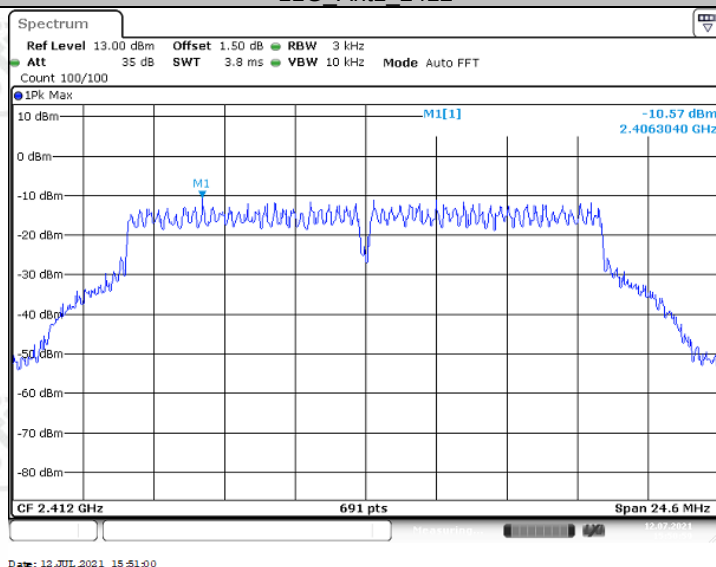
11B_Ant1_2462



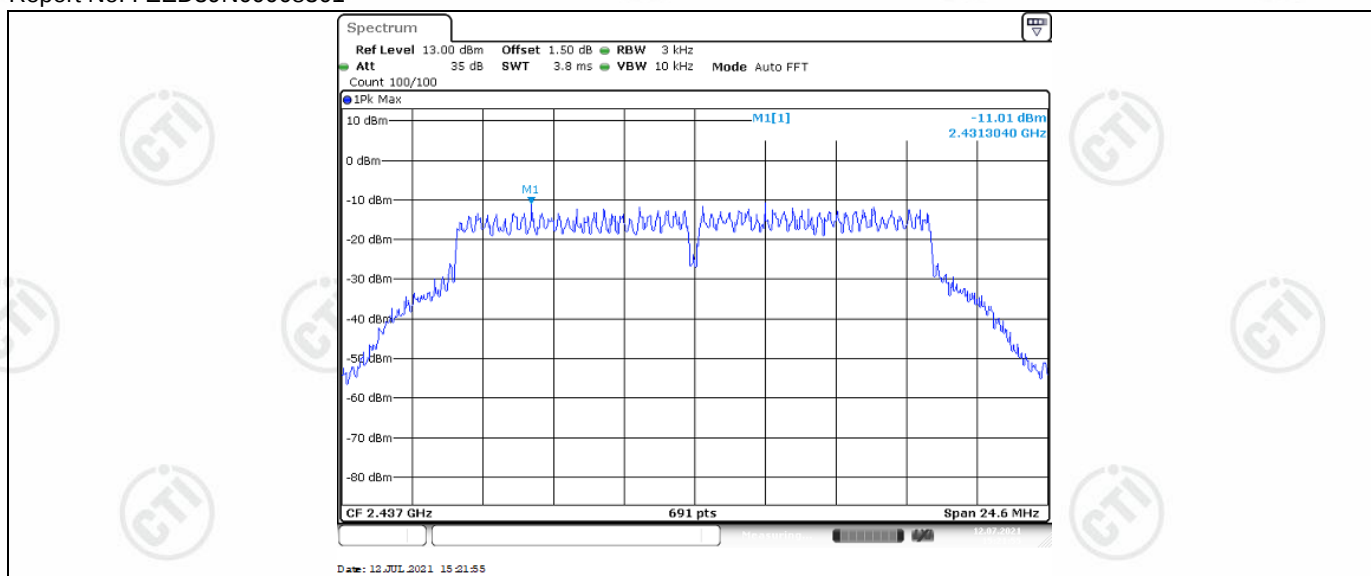
11B_Ant2_2462



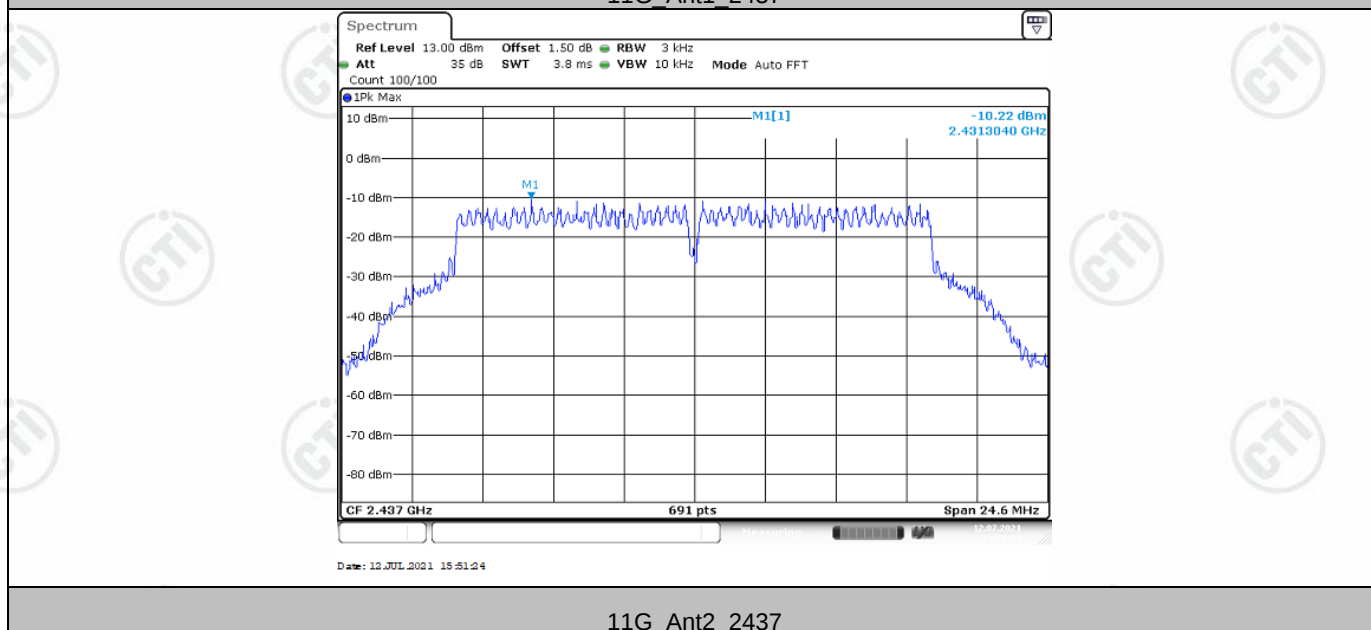
11G_Ant1_2412



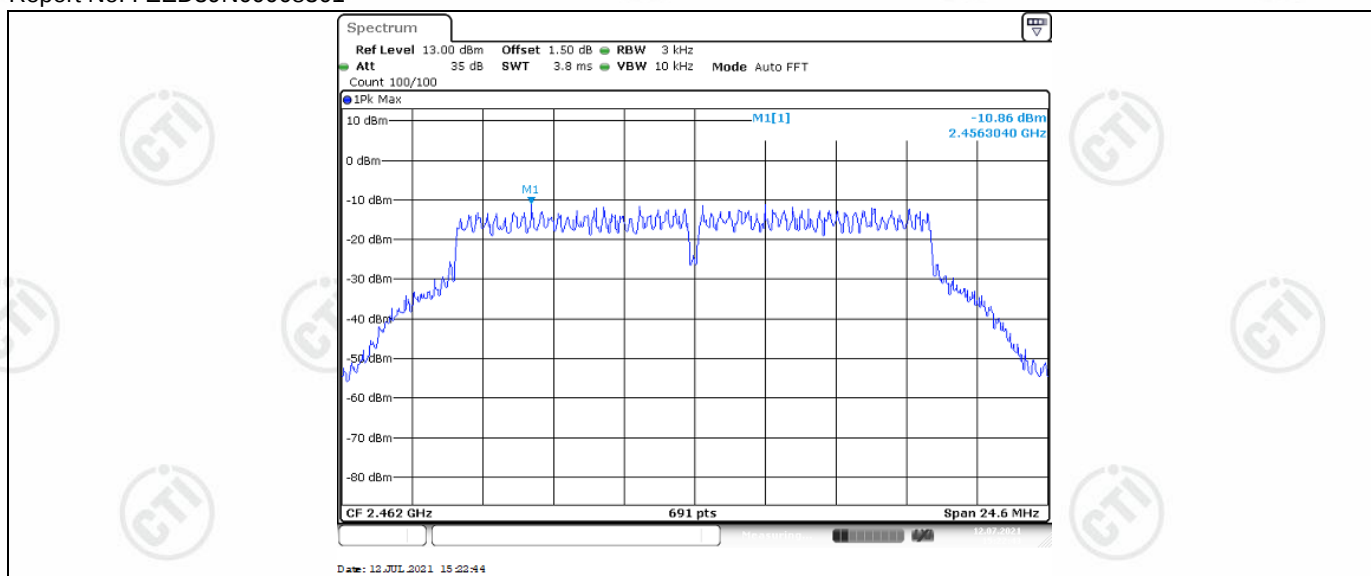
11G_Ant2_2412



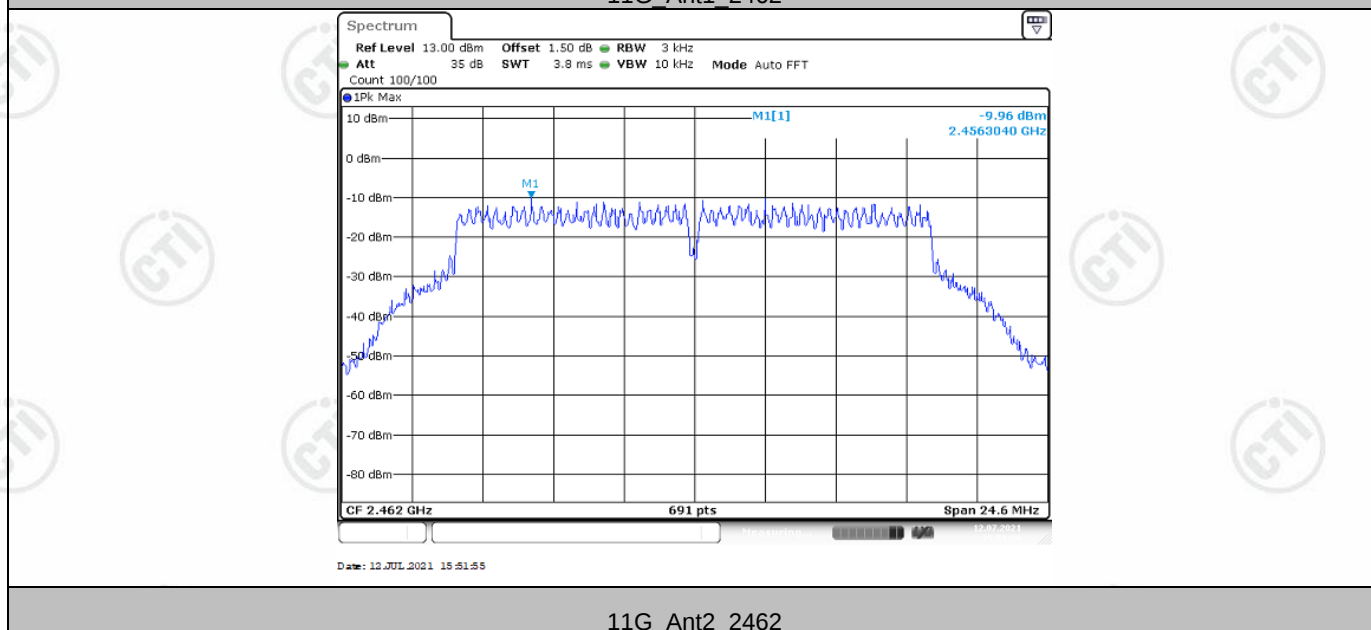
11G_Ant1_2437



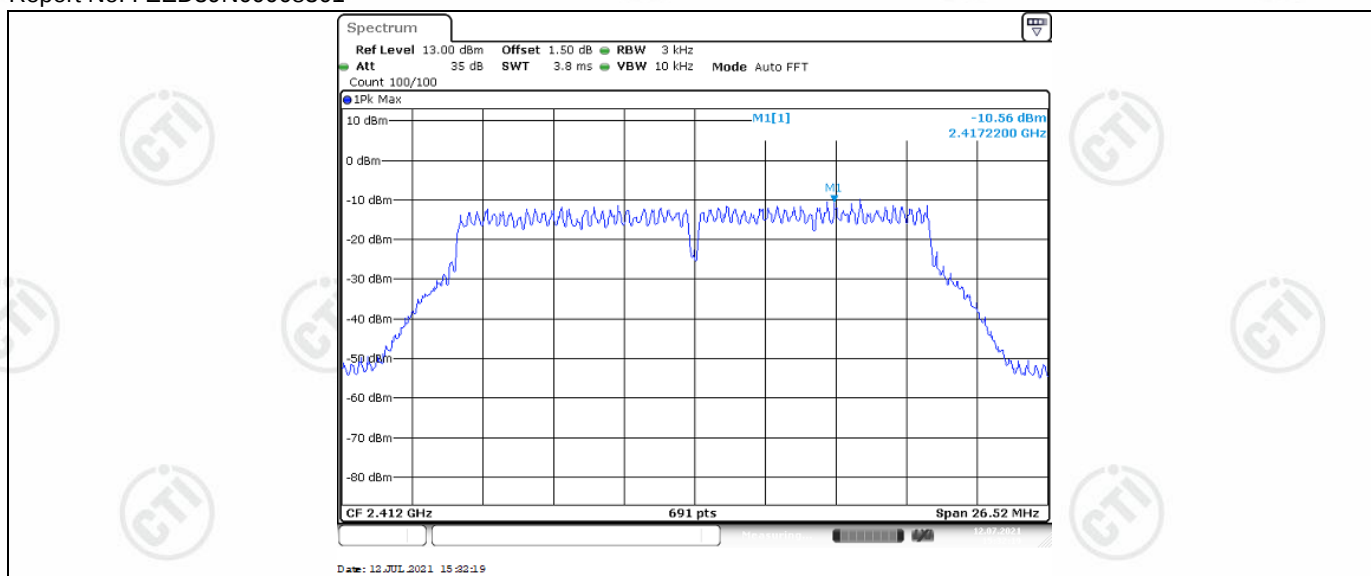
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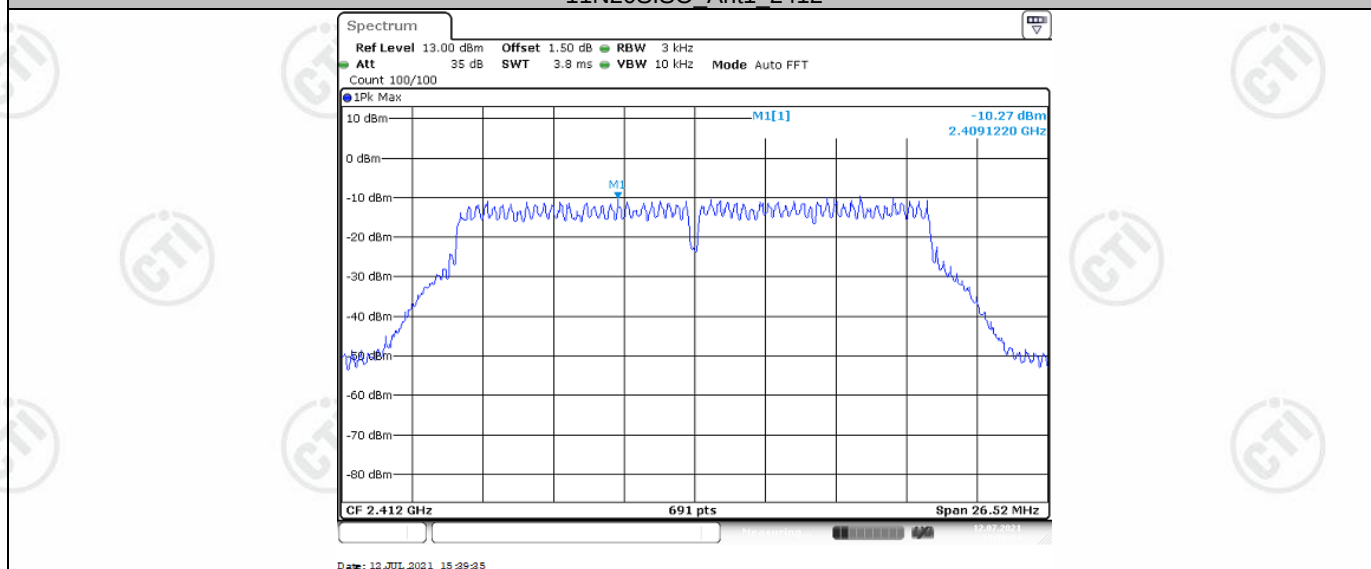
11G_Ant1_2462



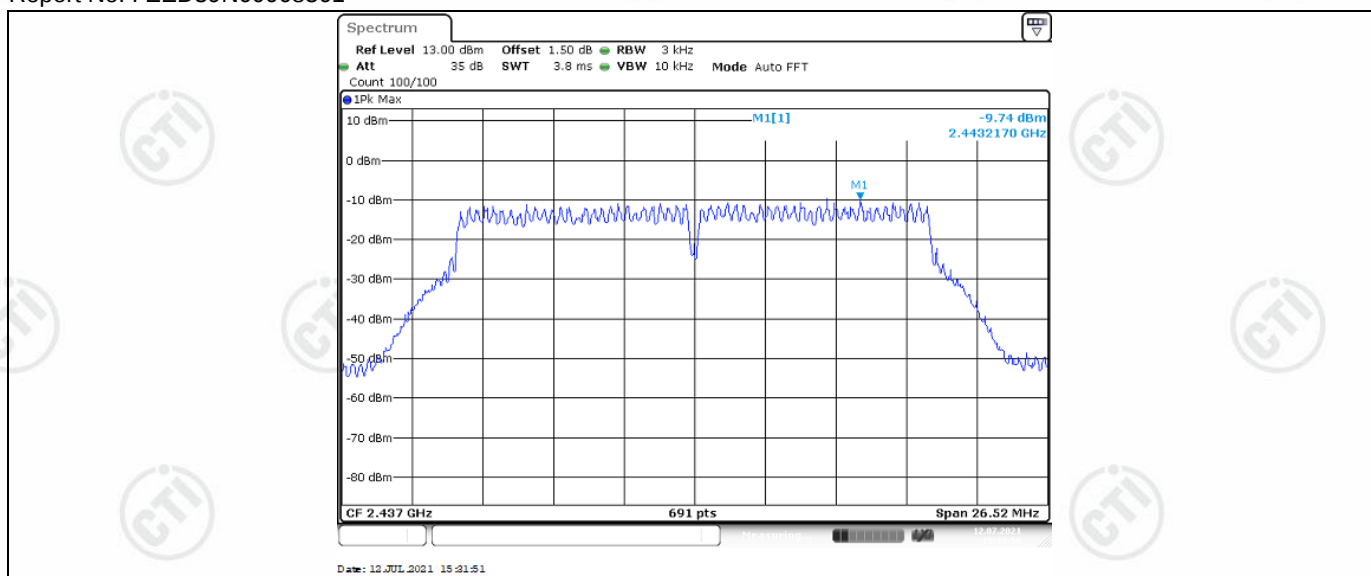
11G_Ant2_2462



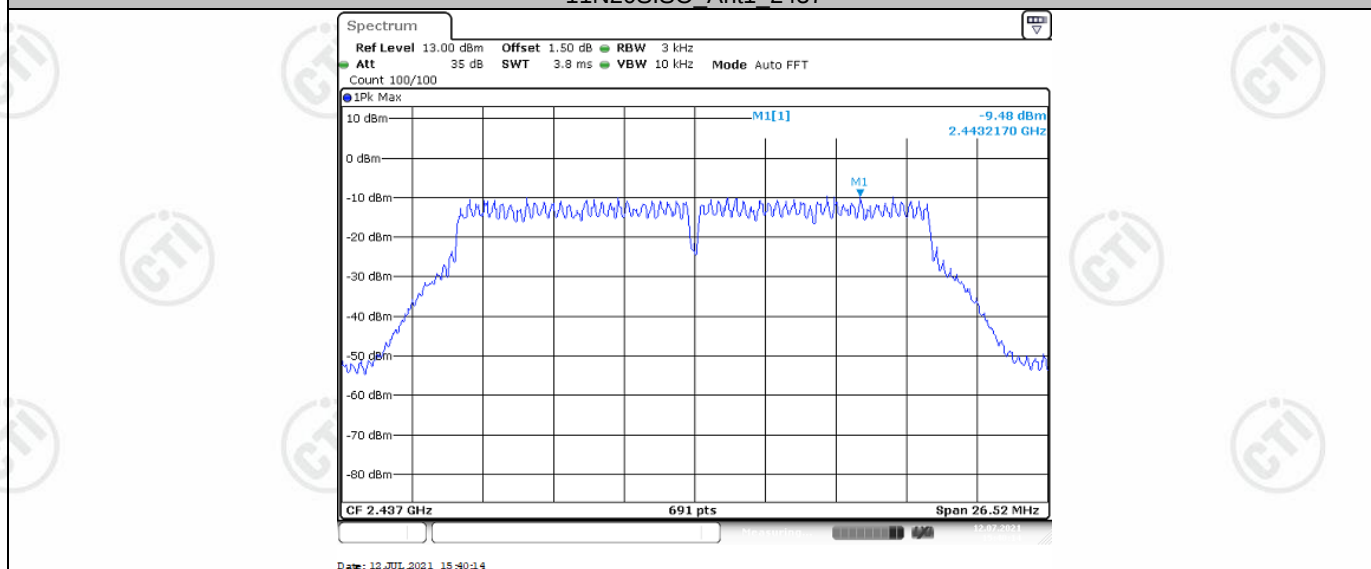
11N20SISO_Ant1_2412



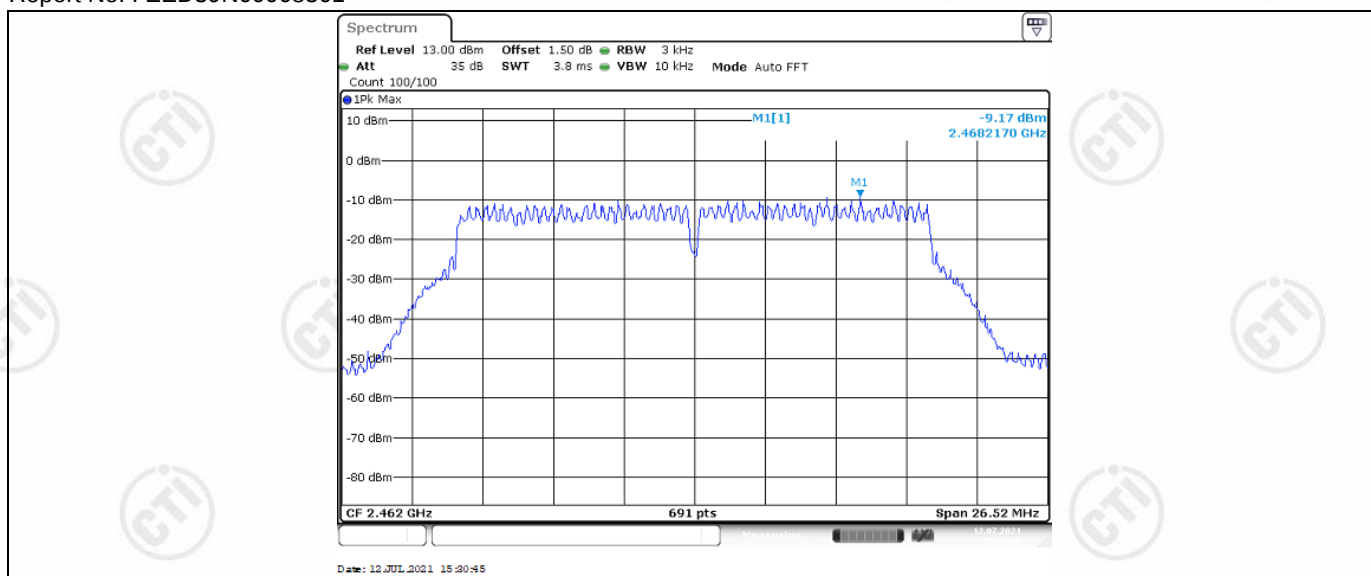
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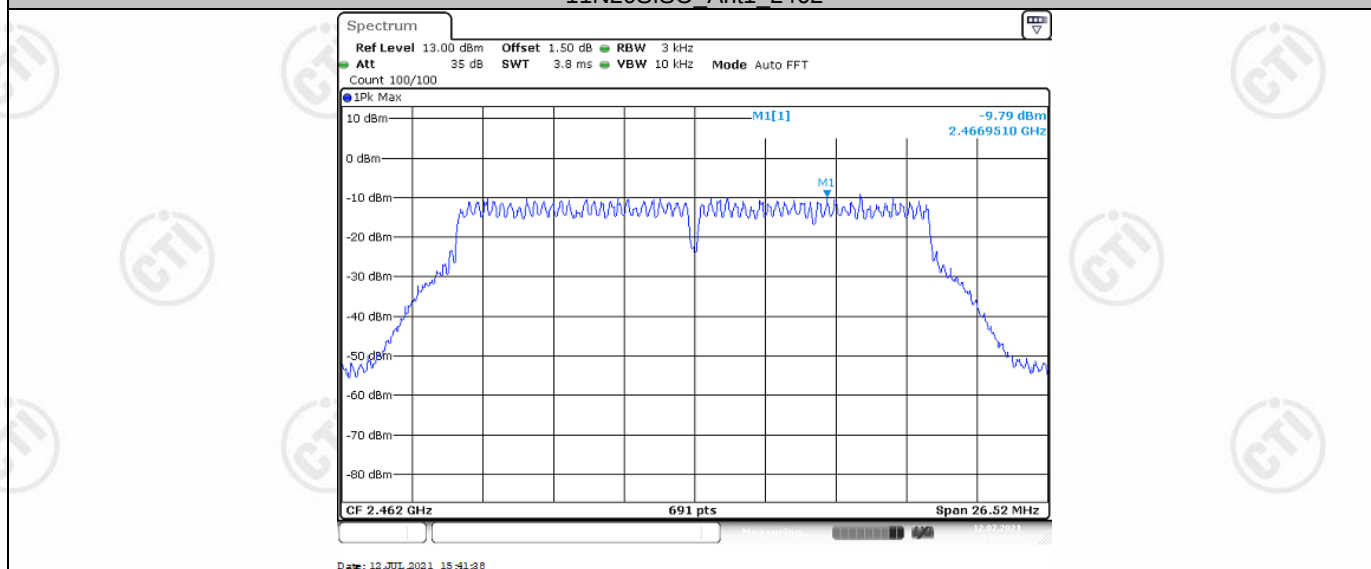
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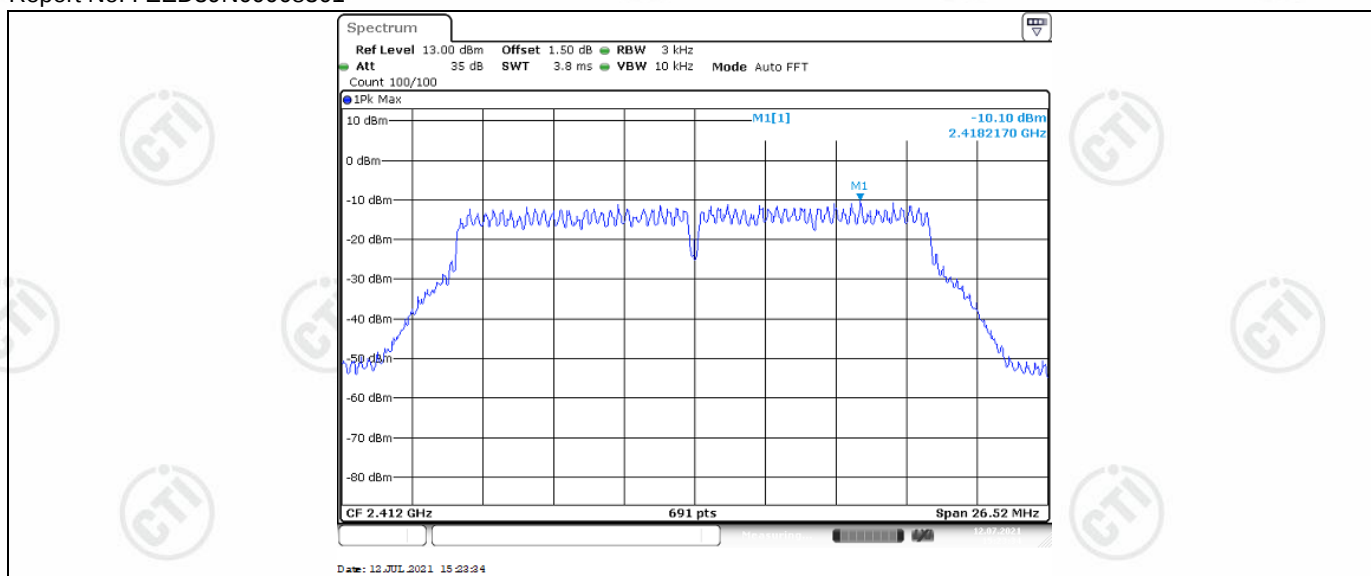
11N20SISO_Ant2_2437



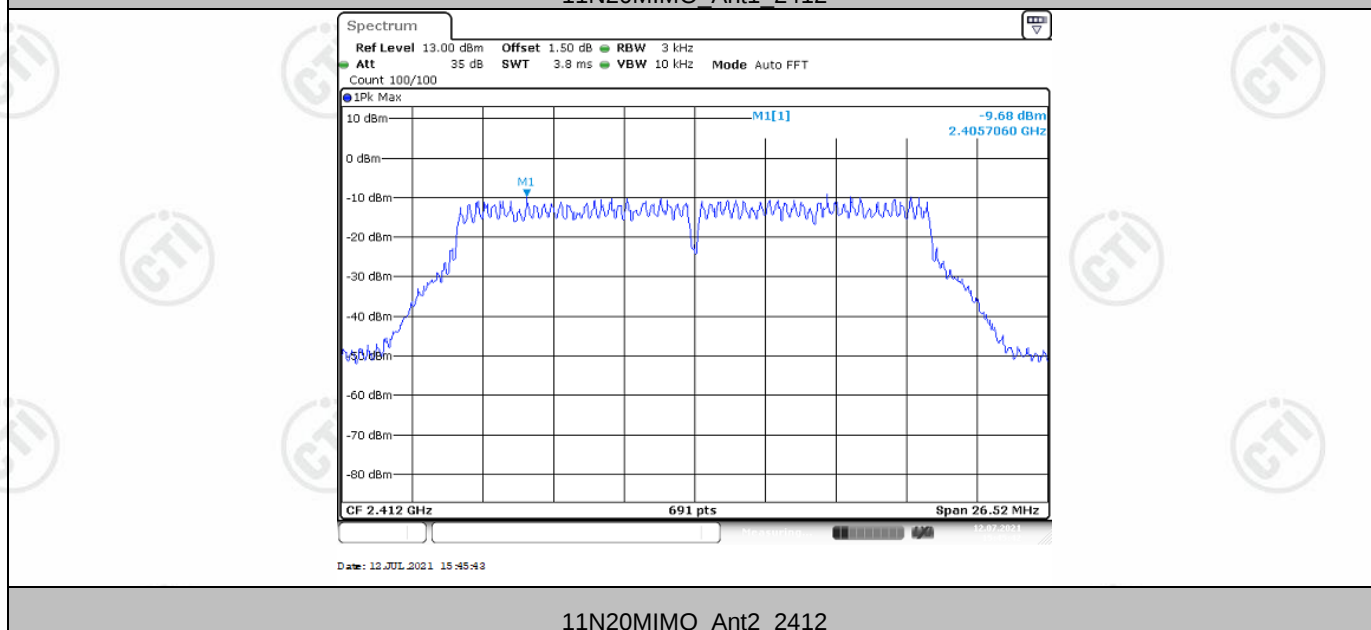
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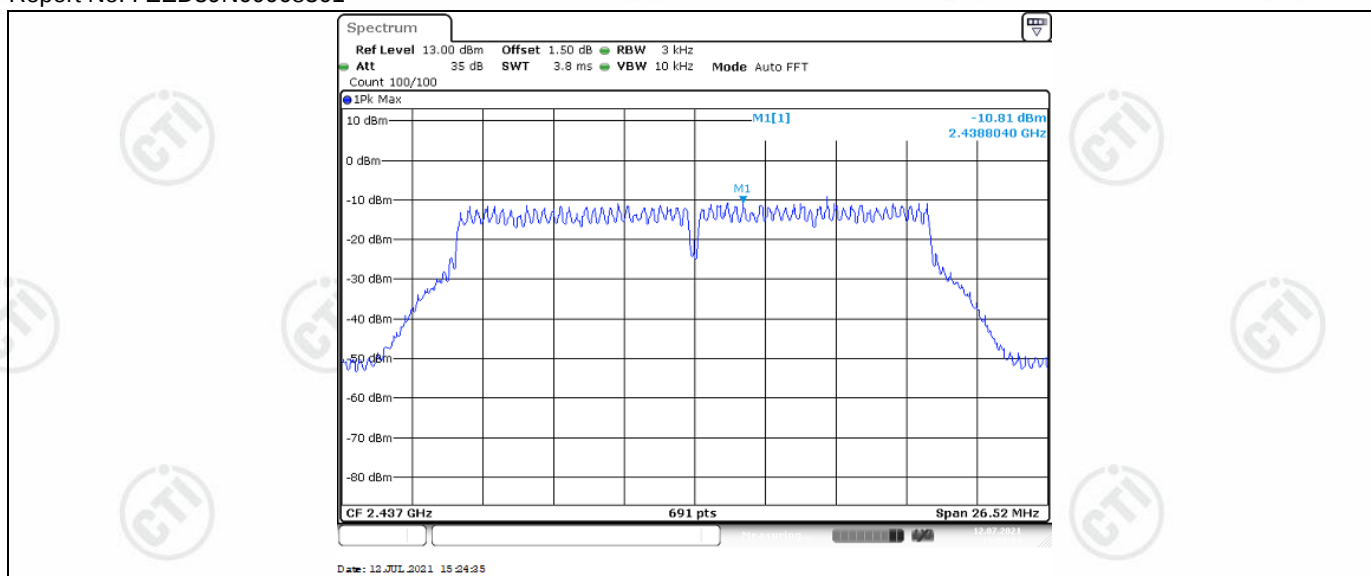
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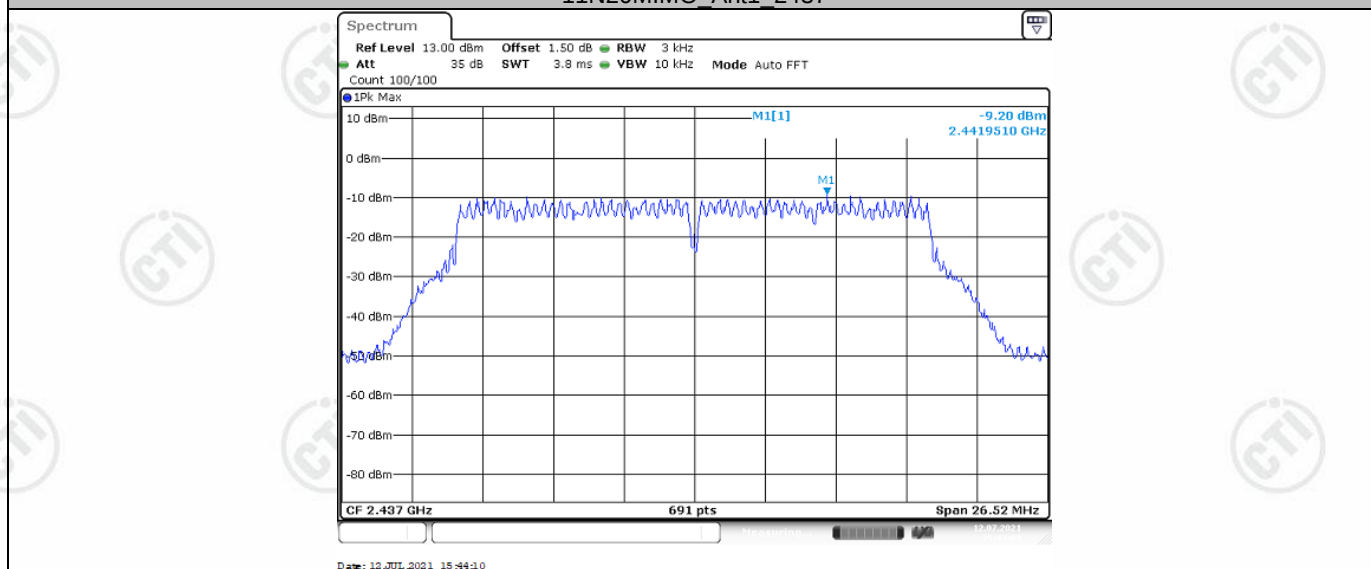
11N20MIMO_Ant1_2412



11N20MIMO_Ant2_2412

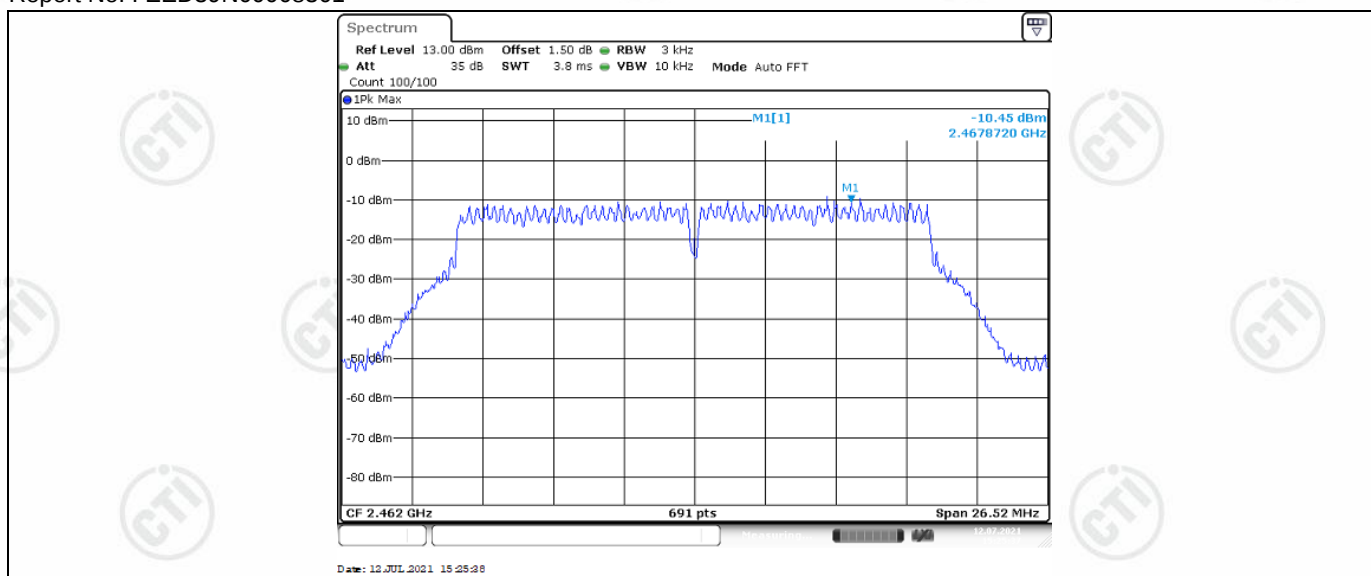


11N20MIMO_Ant1_2437

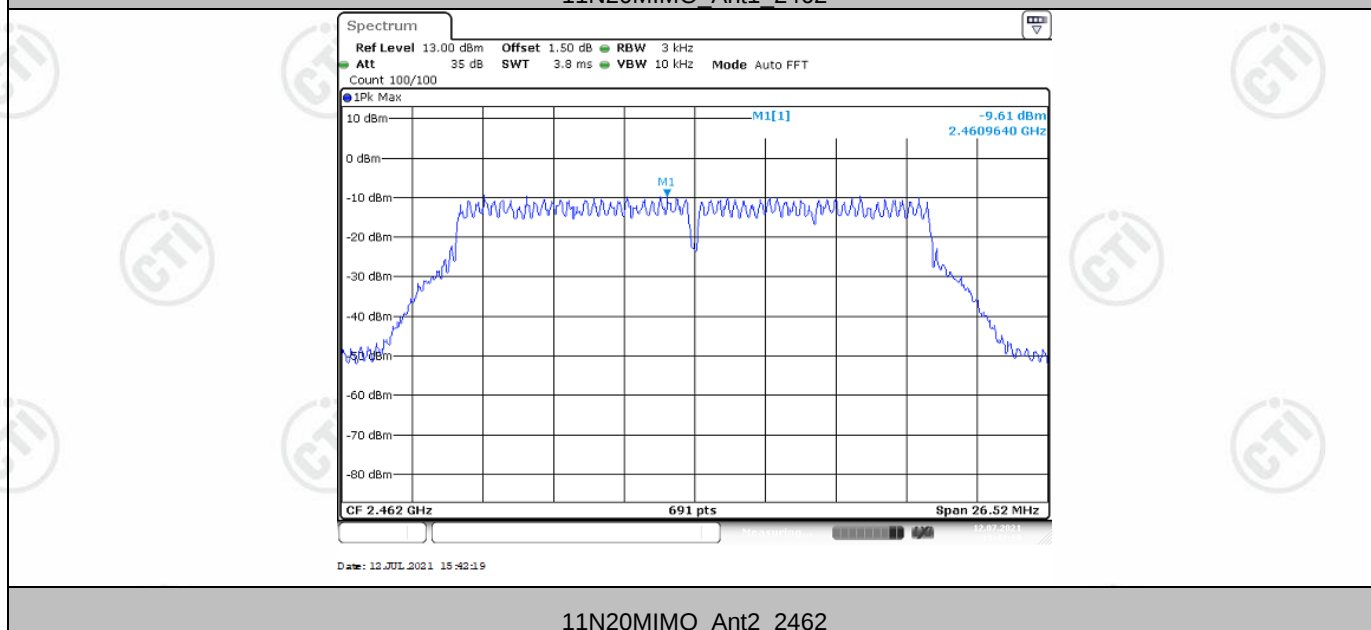


11N20MIMO_Ant2_2437

Report No. : EED39N00008301



11N20MIMO_Ant1_2462

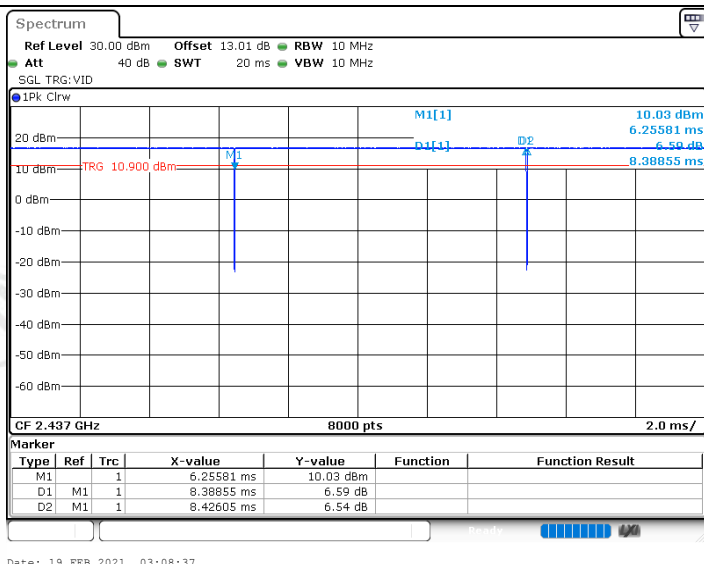


11N20MIMO_Ant2_2462

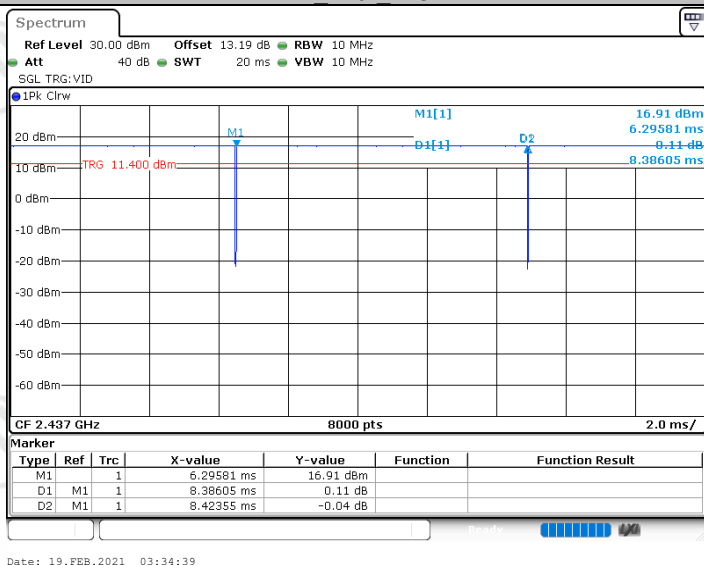
Appendix F): Duty cycle

Result Table:



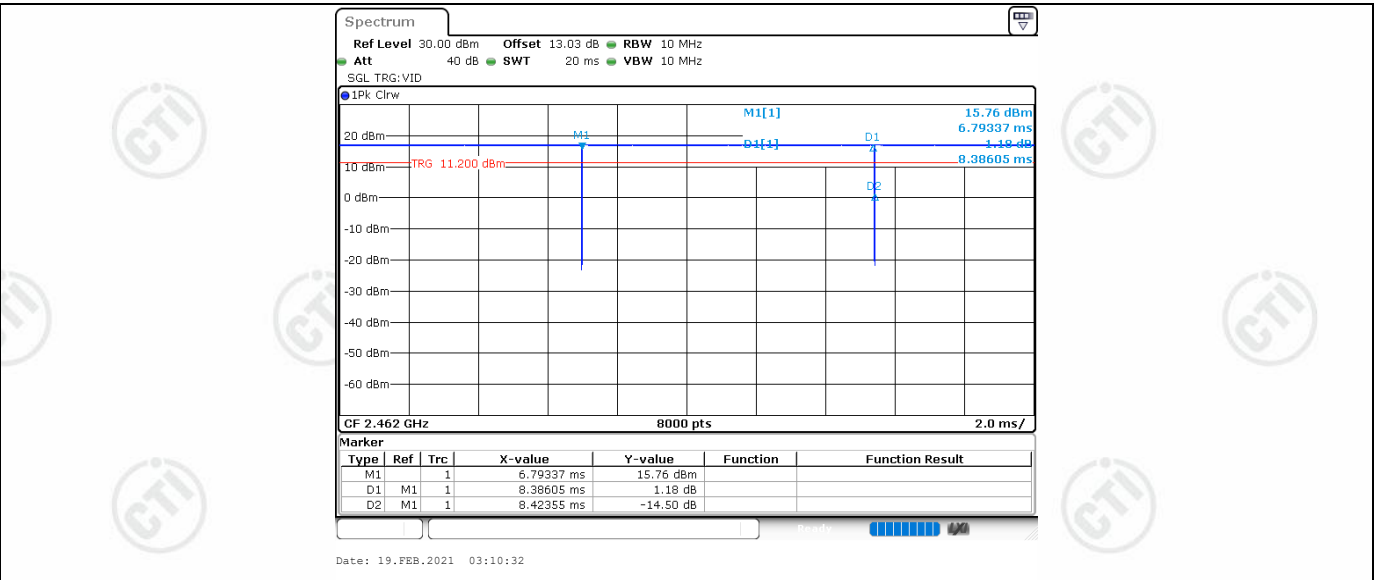


11B Ant1 2437

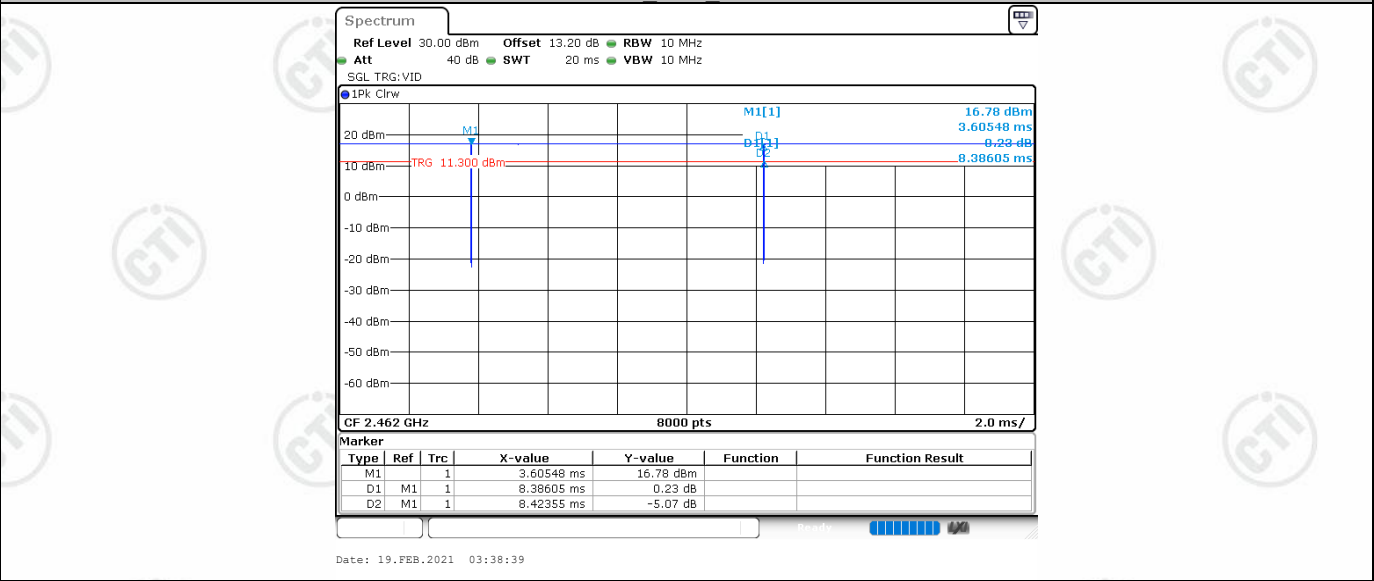


11B Ant2 2437

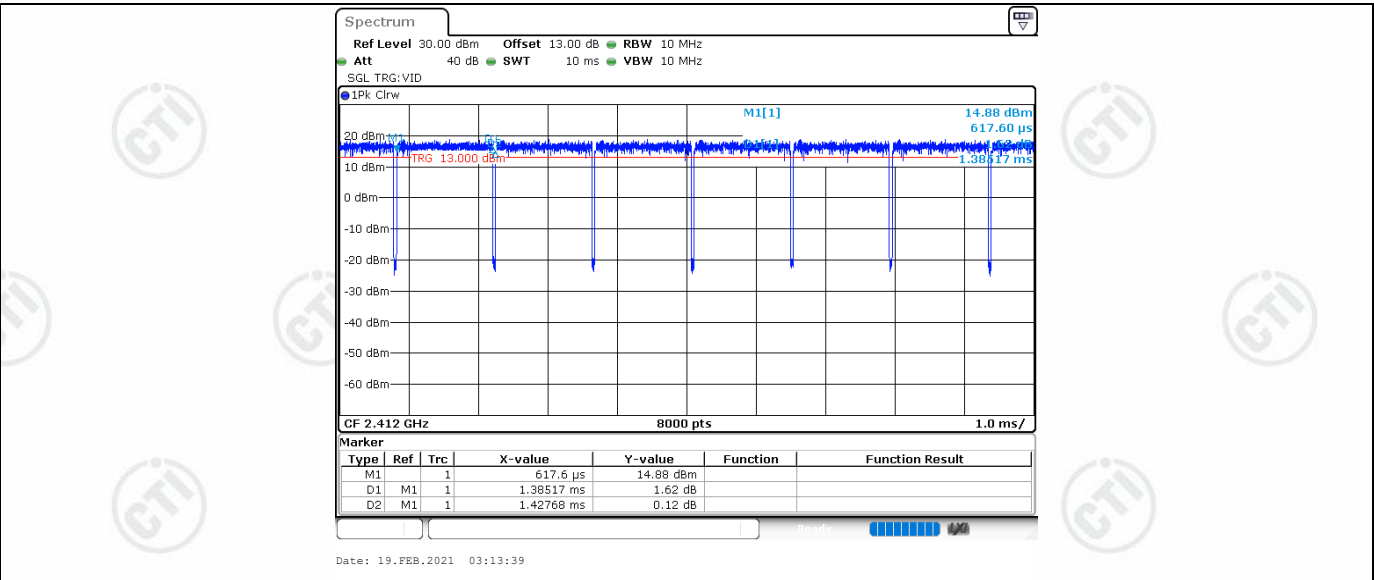
Report No. : EED39N00008301



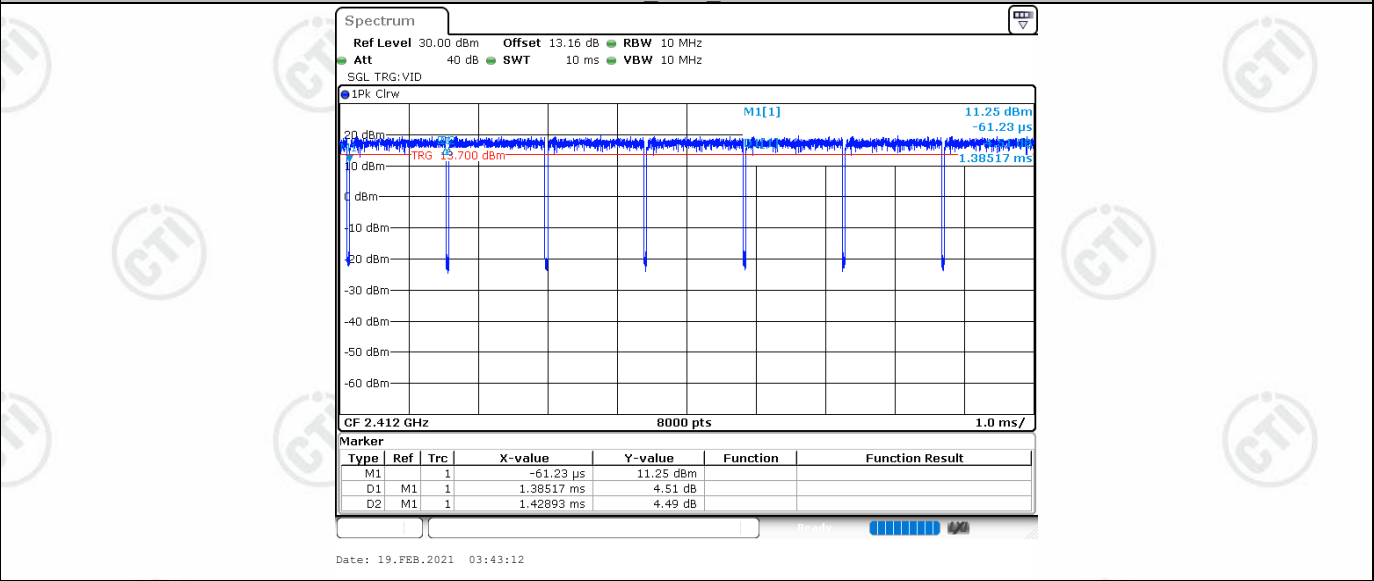
11B Ant1 2462



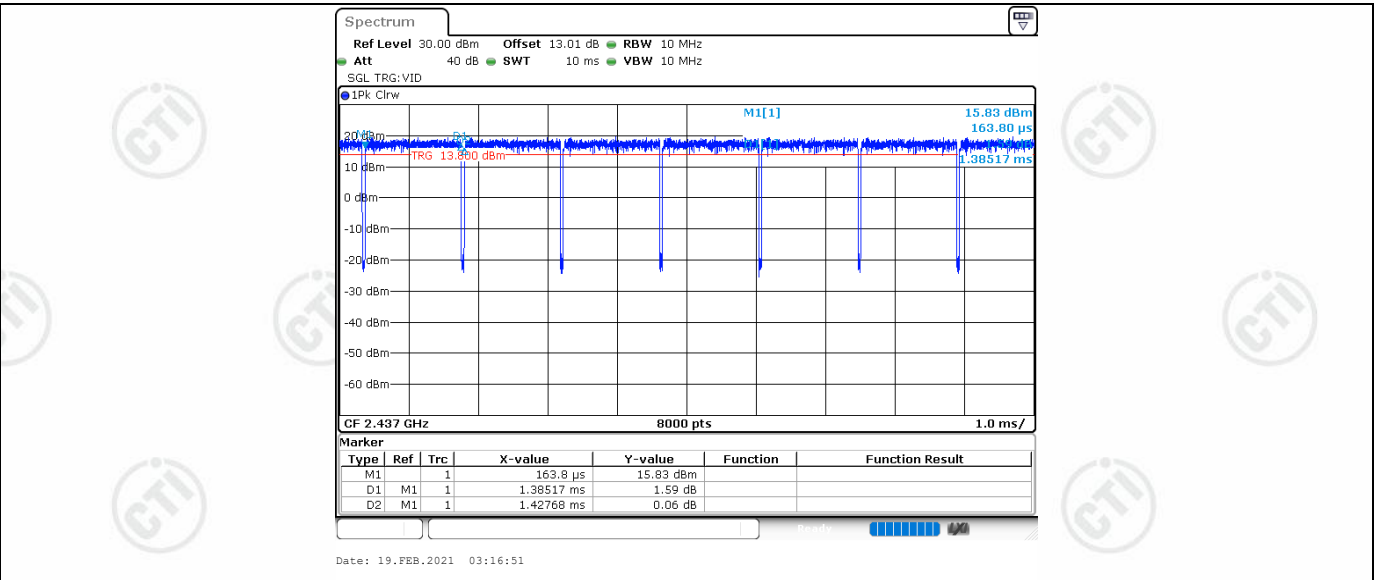
11B Ant2 2462



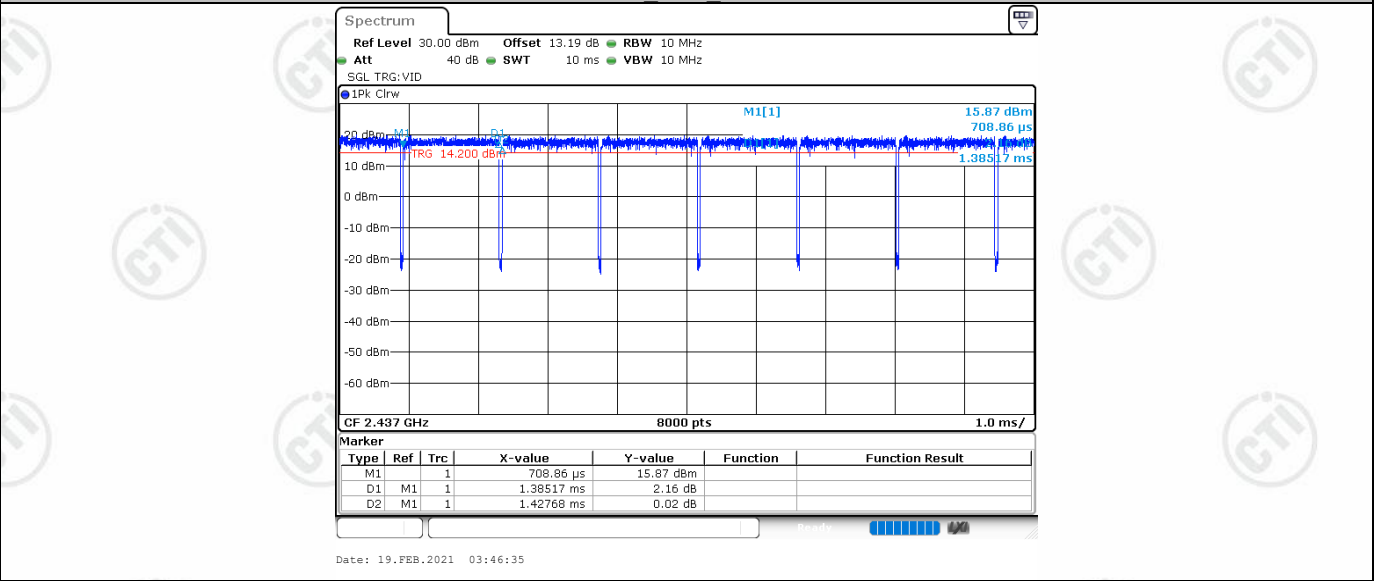
11G Ant1 2412



11G Ant2 2412

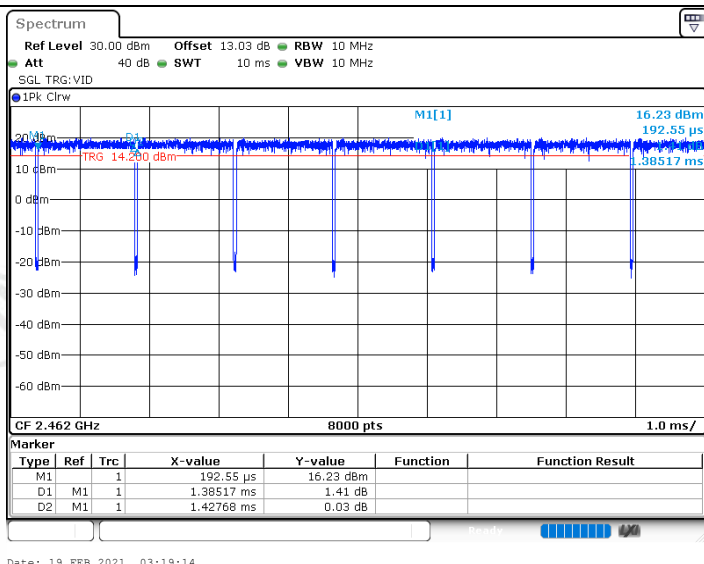


11G Ant1 2437

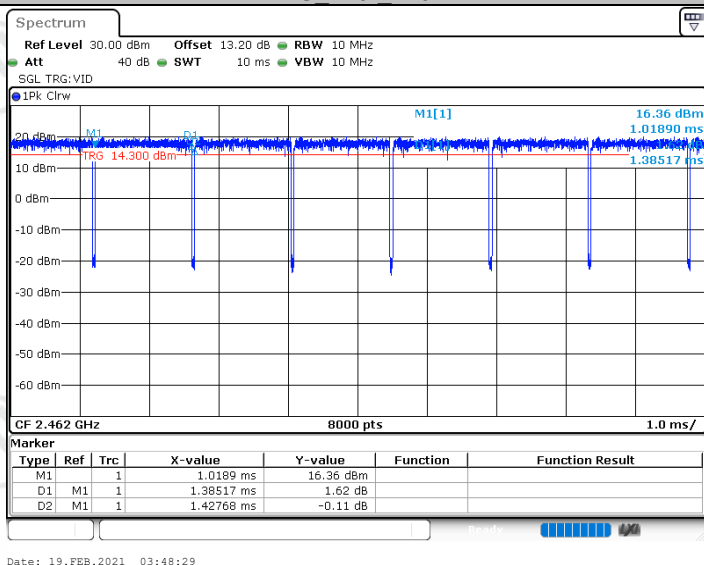


11G Ant2 2437

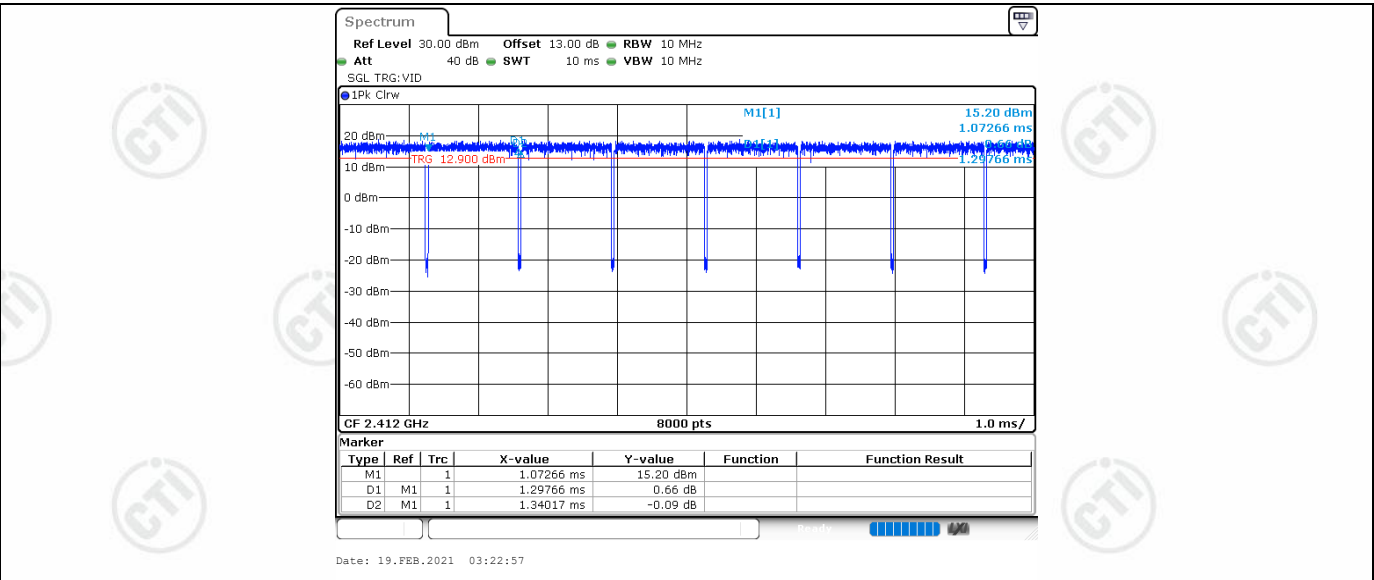
Report No. : EED39N00008301



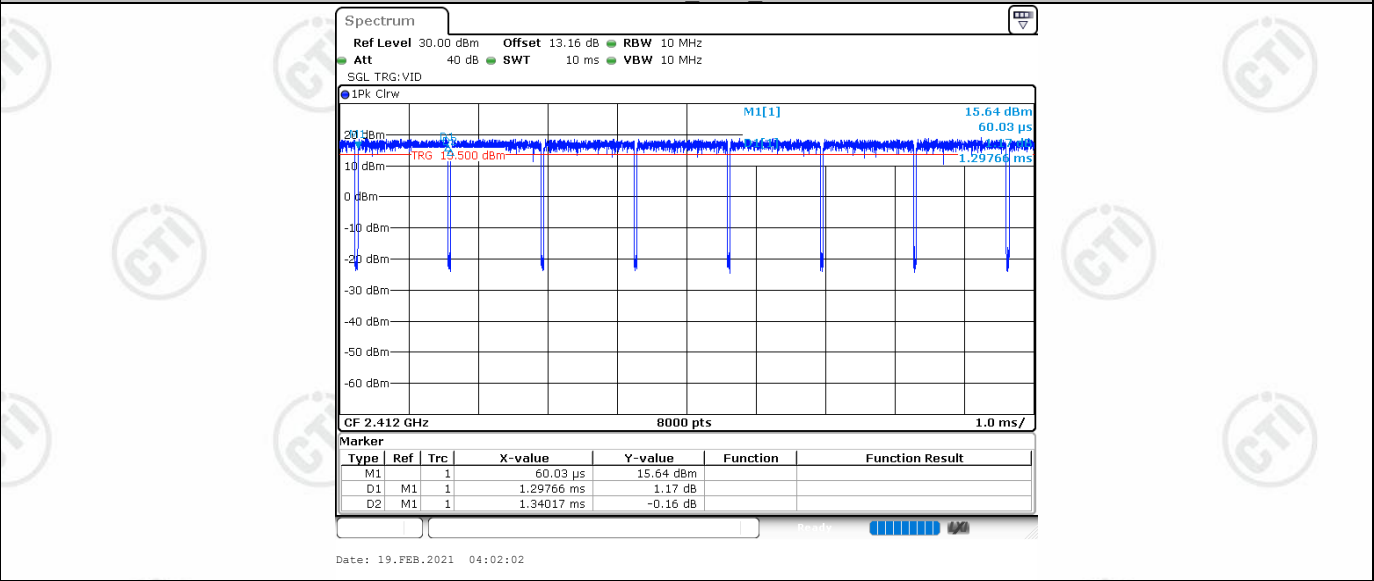
11G Ant1 2462



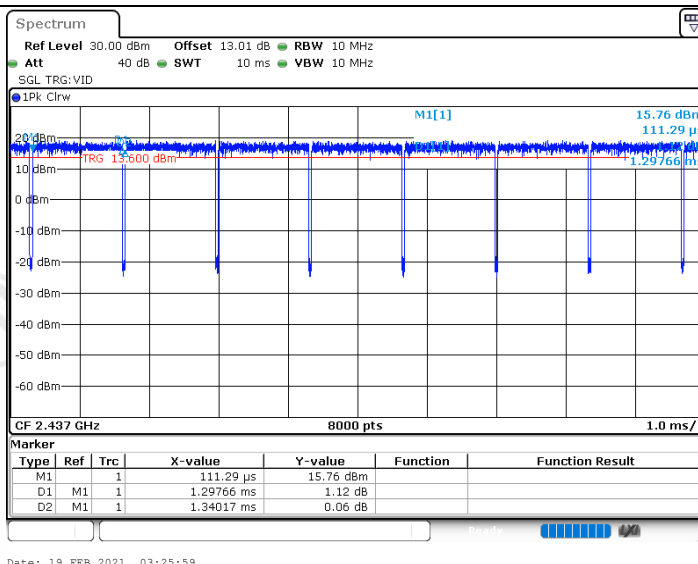
11G Ant2 2462



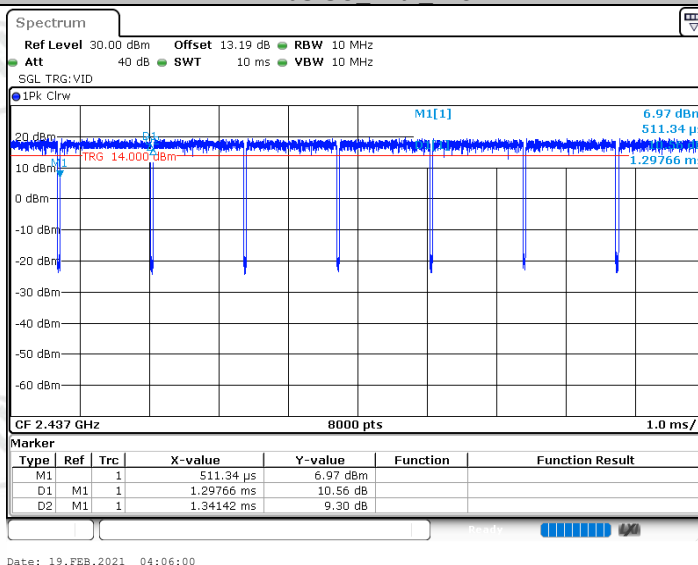
11N20SISO Ant1 2412



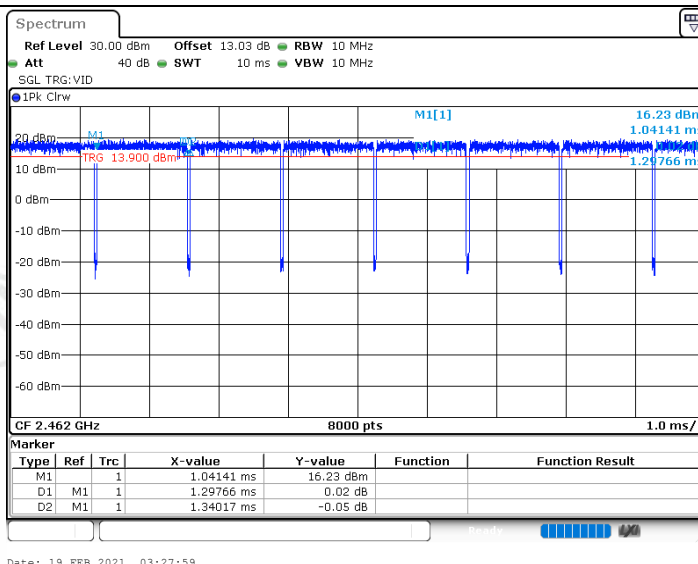
11N20SISO Ant2 2412



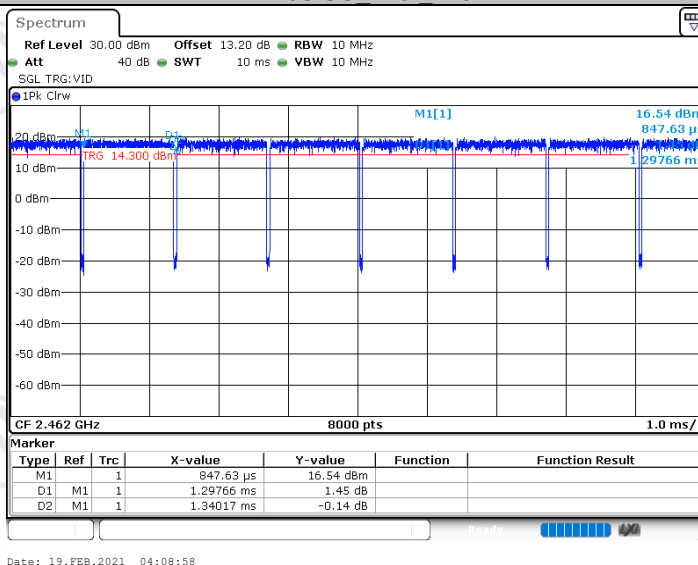
11N20SISO Ant1 2437



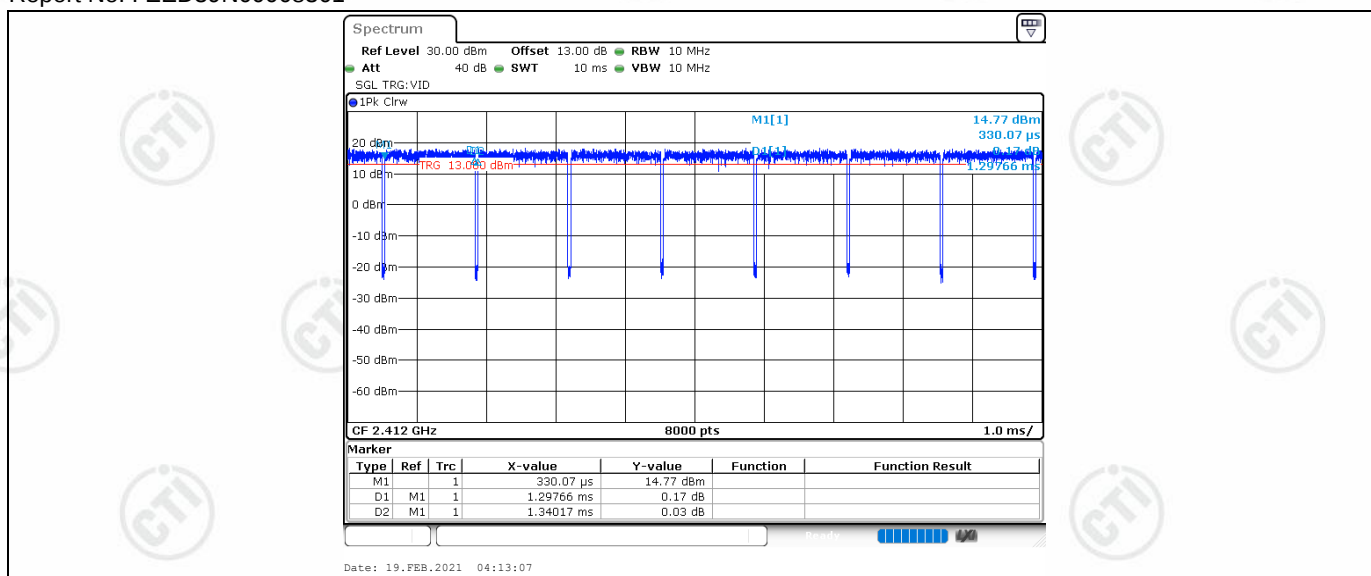
11N20SISO Ant2 2437



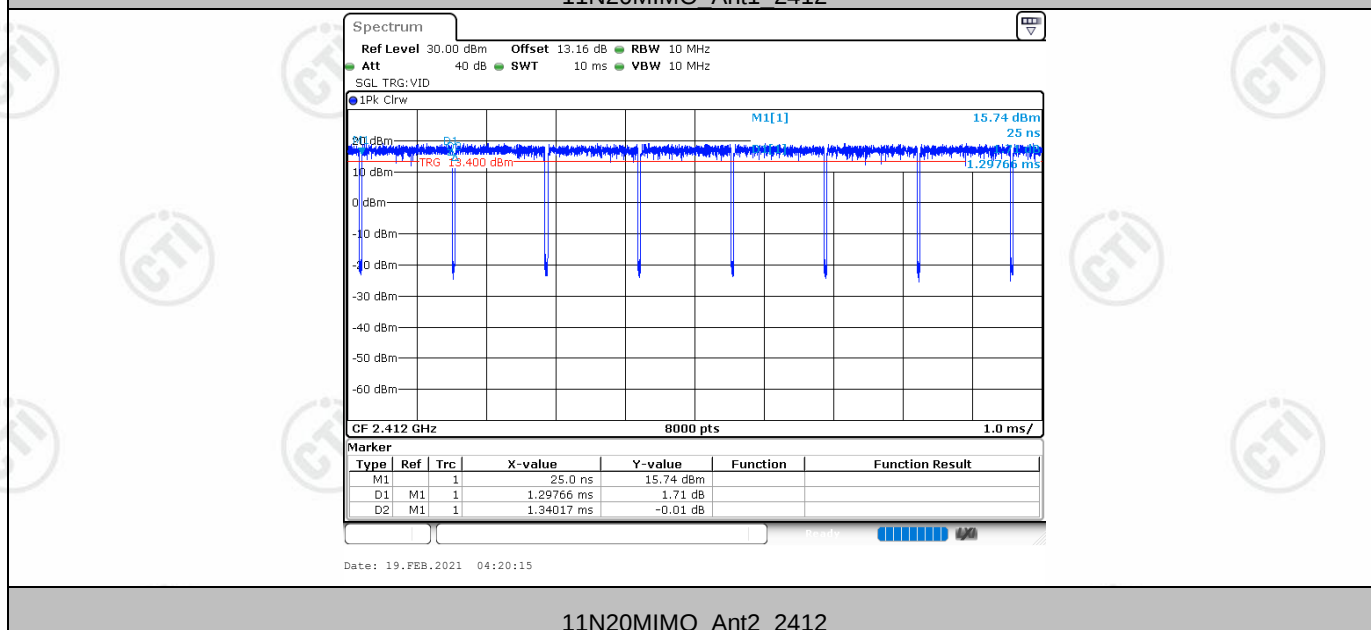
11N20SISO Ant1 2462



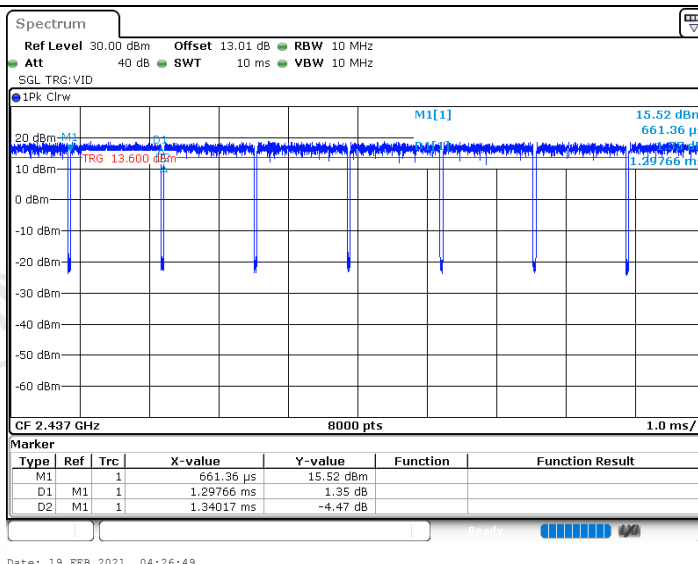
11N20SISO Ant2 2462



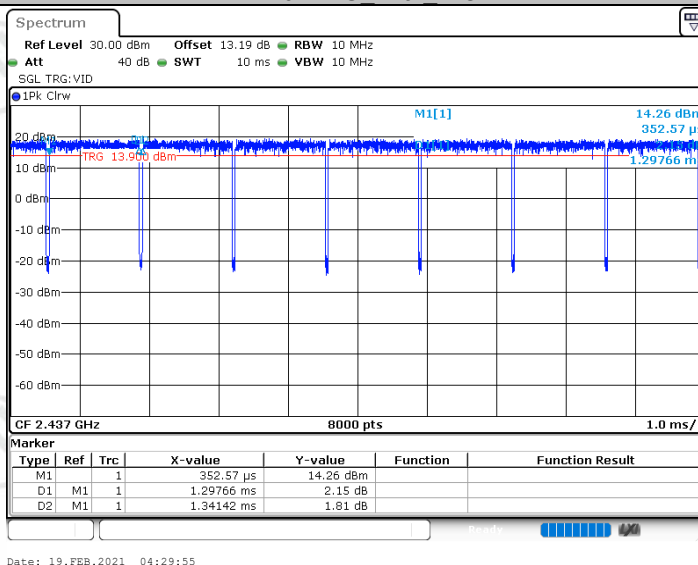
11N20MIMO Ant1 2412



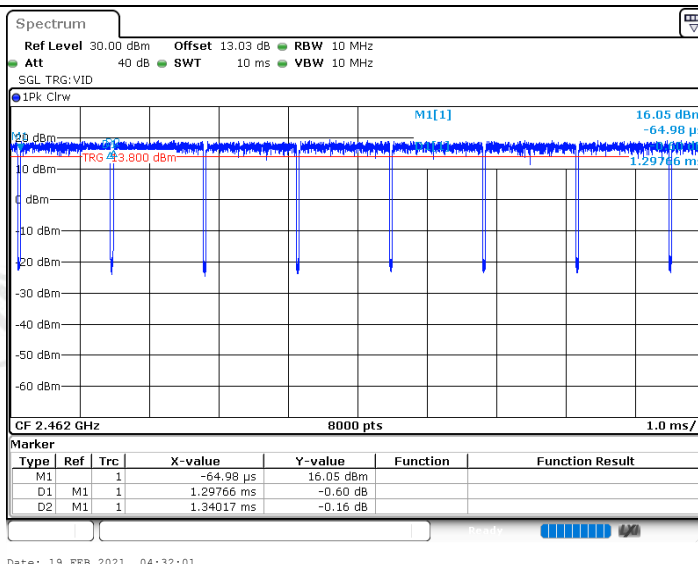
11N20MIMO Ant2 2412



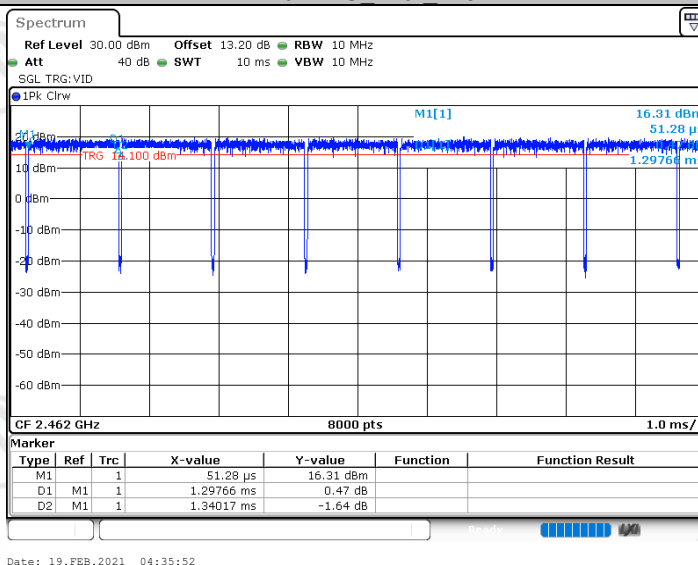
11N20MIMO Ant1 2437



11N20MIMO Ant2 2437



11N20MIMO Ant1 2462



11N20MIMO Ant2 2462

Appendix G): 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.

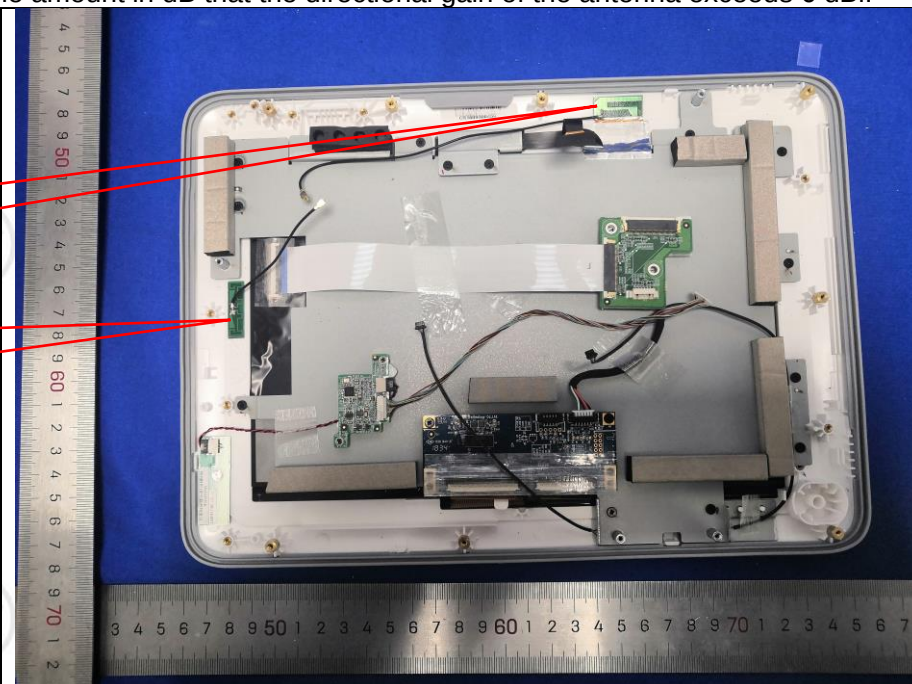
15.247(b) (4) requirement:

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 6 dBi.

EUT Antenna:

FPC antenna 1

FPC antenna 2



The antenna is integrated on the main PCB and no consideration of replacement.
All transmit signals are completely uncorrelated with each other.

Appendix H): AC Power Line Conducted Emission

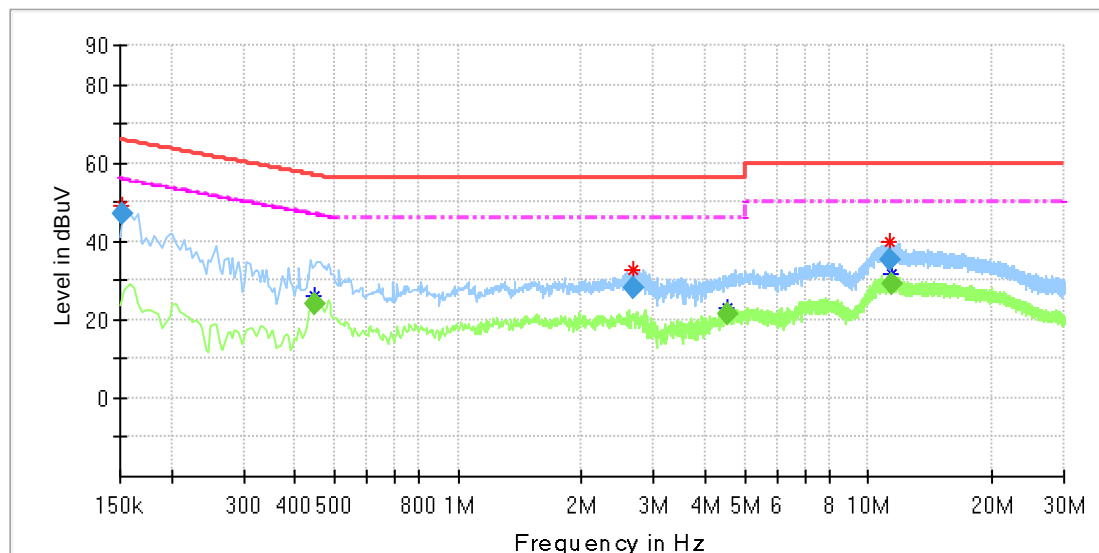
Test Procedure:	Test frequency range :150KHz-30MHz 1)The mains terminal disturbance voltage test was conducted in a shielded room. 2) The EUT was connected to AC power source through a LISN 1 (Line Impedance Stabilization Network) which provides a 50Ω/50μH + 5Ω linear impedance. The power cables of all 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><tr><th rowspan="2">Frequency range (MHz)</th><th colspan="2">Limit (dBμV)</th></tr><tr><th>Quasi-peak</th><th>Average</th></tr><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></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 (dBμV)		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 (dBμV)														
	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.

L1 line:



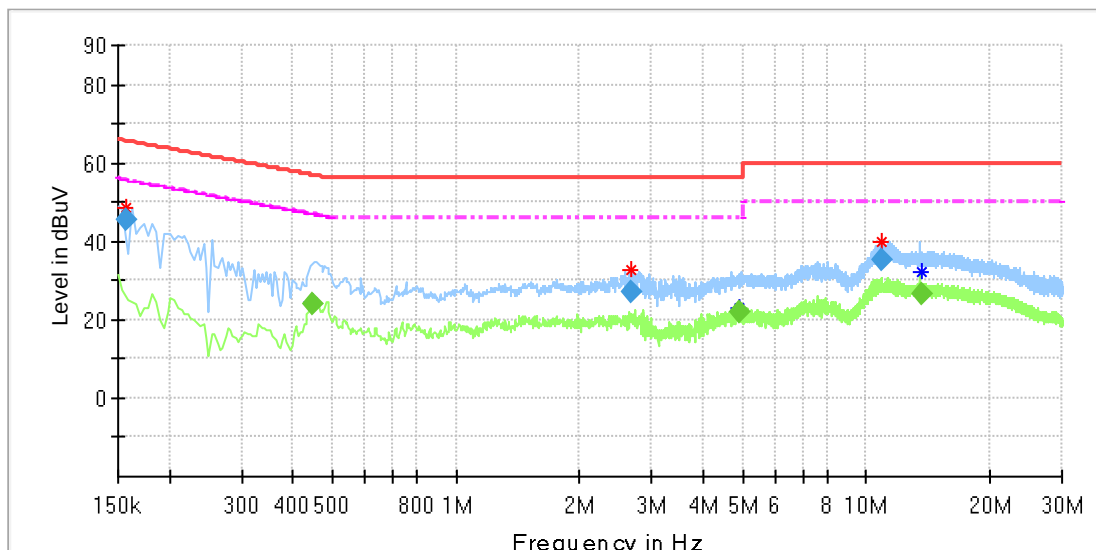
Final_Result

Frequency (MHz)	QuasiPeak (dbuV)	Average (dBuV)	Limit (dBuV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.152457	46.80	---	65.87	19.07	1000.0	9.000	L1	20.0
0.448094	---	24.03	46.91	22.88	1000.0	9.000	L1	20.1
2.667496	28.27	---	56.00	27.73	1000.0	9.000	L1	20.2
4.550068	---	21.26	46.00	24.74	1000.0	9.000	L1	20.1
11.322404	35.38	---	60.00	24.62	1000.0	9.000	L1	20.0
11.347792	---	29.14	50.00	20.86	1000.0	9.000	L1	20.0

Notes:1. The following Quasi-Peak and Average measurements were performed on the EUT:

2. Final Test Level =Receiver Reading + LISN Factor + Cable Loss.

Neutral line:



Final_Result

Frequency (MHz)	QuasiPeak (dBuV)	Average (dBuV)	Limit (dBuV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.157500	45.42	---	65.60	20.17	1000.0	9.000	N	19.9
0.448122	---	23.87	46.91	23.04	1000.0	9.000	N	19.9
2.673680	27.16	---	56.00	28.85	1000.0	9.000	N	19.9
4.929892	---	21.89	46.00	24.11	1000.0	9.000	N	19.8
10.924976	35.49	---	60.00	24.51	1000.0	9.000	N	19.8
13.632604	---	26.74	50.00	23.26	1000.0	9.000	N	19.8

Notes:1. The following Quasi-Peak and Average measurements were performed on the EUT:

2. Final Test Level =Receiver Reading + LISN Factor + Cable Loss.

Appendix I): Restricted Bands around Fundamental Frequency (Radiated)

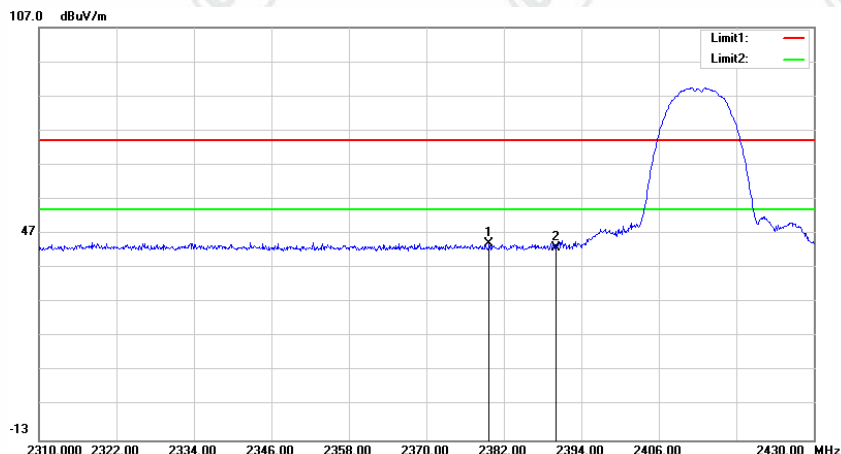
Receiver Setup:	<table><tr><td>Frequency</td><td>Detector</td><td>RBW</td><td>VBW</td><td>Remark</td></tr><tr><td>30MHz-1GHz</td><td>Quasi-peak</td><td>120kHz</td><td>300kHz</td><td>Quasi-peak</td></tr><tr><td rowspan="2">Above 1GHz</td><td>Peak</td><td>1MHz</td><td>3MHz</td><td>Peak</td></tr><tr><td>Peak</td><td>1MHz</td><td>10Hz</td><td>Average</td></tr></table>	Frequency	Detector	RBW	VBW	Remark	30MHz-1GHz	Quasi-peak	120kHz	300kHz	Quasi-peak	Above 1GHz	Peak	1MHz	3MHz	Peak	Peak	1MHz	10Hz	Average	
Frequency	Detector	RBW	VBW	Remark																	
30MHz-1GHz	Quasi-peak	120kHz	300kHz	Quasi-peak																	
Above 1GHz	Peak	1MHz	3MHz	Peak																	
	Peak	1MHz	10Hz	Average																	
Test Procedure:	Below 1GHz test procedure as below: a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic camber. The table was rotated 360 degrees to determine the position of the highest radiation. b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower. c. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement. d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable was turned from 0 degrees to 360 degrees to find the maximum reading. e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode. f. Place a marker at the end of the restricted band closest to the transmit frequency to show compliance. Also measure any emissions in the restricted bands. Save the spectrum analyzer plot. Repeat for each power and modulation for lowest and highest channel Above 1GHz test procedure as below: a. Different between above is the test site, change from Semi- Anechoic Chamber to fully Anechoic Chamber and change form table 0.8 meter to 1.5 meter(Above 18GHz the distance is 1 meter and table is 1.5 meter). b. . Test the EUT in the lowest channel , the Highest channel c. The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, and found the X axis positioning which it is worse case. d. Repeat above procedures until all frequencies measured was complete.																				
Limit:	<table><tr><td>Frequency</td><td>Limit (dBμV/m @3m)</td><td>Remark</td></tr><tr><td>30MHz-88MHz</td><td>40.0</td><td>Quasi-peak Value</td></tr><tr><td>88MHz-216MHz</td><td>43.5</td><td>Quasi-peak Value</td></tr><tr><td>216MHz-960MHz</td><td>46.0</td><td>Quasi-peak Value</td></tr><tr><td>960MHz-1GHz</td><td>54.0</td><td>Quasi-peak Value</td></tr><tr><td rowspan="2">Above 1GHz</td><td>54.0</td><td>Average Value</td></tr><tr><td>74.0</td><td>Peak Value</td></tr></table>	Frequency	Limit (dBμV/m @3m)	Remark	30MHz-88MHz	40.0	Quasi-peak Value	88MHz-216MHz	43.5	Quasi-peak Value	216MHz-960MHz	46.0	Quasi-peak Value	960MHz-1GHz	54.0	Quasi-peak Value	Above 1GHz	54.0	Average Value	74.0	Peak Value
Frequency	Limit (dBμV/m @3m)	Remark																			
30MHz-88MHz	40.0	Quasi-peak Value																			
88MHz-216MHz	43.5	Quasi-peak Value																			
216MHz-960MHz	46.0	Quasi-peak Value																			
960MHz-1GHz	54.0	Quasi-peak Value																			
Above 1GHz	54.0	Average Value																			
	74.0	Peak Value																			

Report No. : EED39N00008301

Test plot as follows:

Mode:	802.11b Transmitting	Channel:	2412
Remark:	Horizontal		

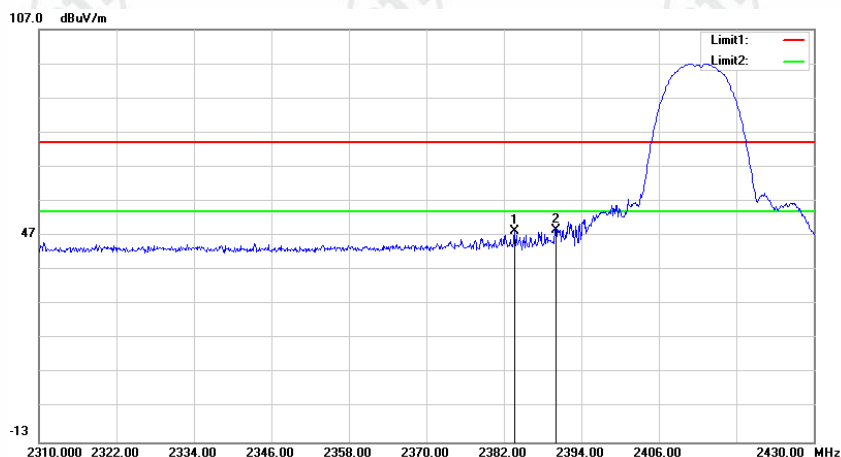
Test Graph



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2379.720	41.40	2.69	44.09	74.00	-29.91	200	91	peak
2	2390.000	40.28	2.71	42.99	74.00	-31.01	200	117	peak

Mode:	802.11b Transmitting	Channel:	2412
Remark:	Vertical		

Test Graph



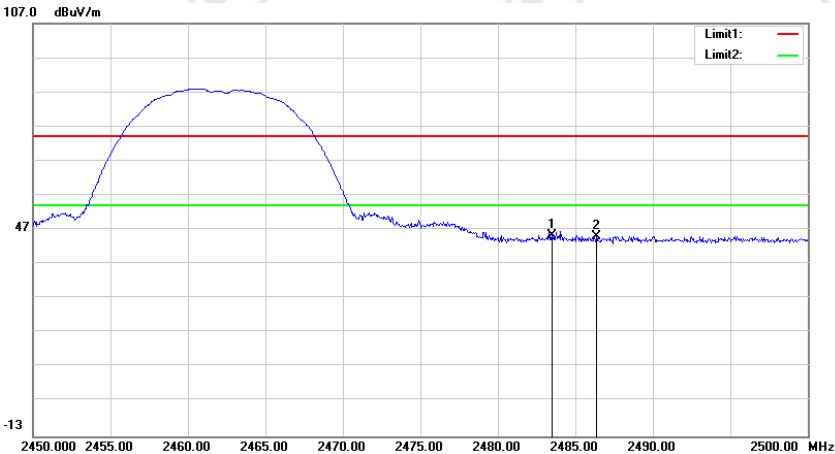
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2383.680	45.74	2.70	48.44	74.00	-25.56	151	360	peak
2	2390.000	45.86	2.71	48.57	74.00	-25.43	100	360	peak

Report No. : EED39N00008301

Test plot as follows:

Mode:	802.11b Transmitting	Channel:	2462
Remark:	Horizontal		

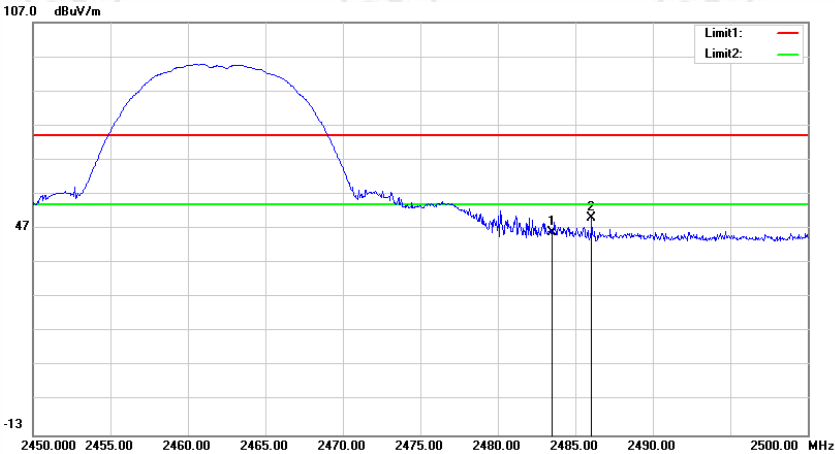
Test Graph



No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(deg.)	
1	2483.500	42.28	2.92	45.20	74.00	-28.80	200	318	peak
2	2486.350	42.23	2.92	45.15	74.00	-28.85	140	360	peak

Mode:	802.11b Transmitting	Channel:	2462
Remark:	Vertical		

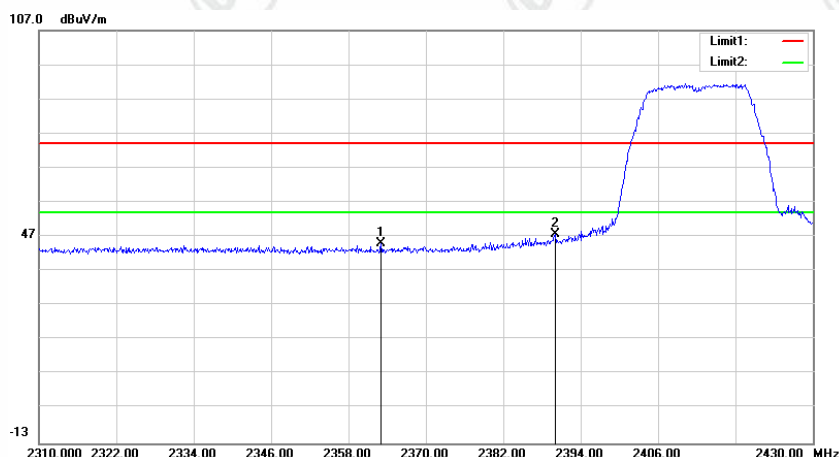
Test Graph



No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(deg.)	
1	2483.500	43.04	2.92	45.96	74.00	-28.04	191	360	peak
2	2486.050	47.17	2.92	50.09	74.00	-23.91	176	360	peak

Mode:	802.11g Transmitting	Channel:	2412
Remark:	Horizontal		

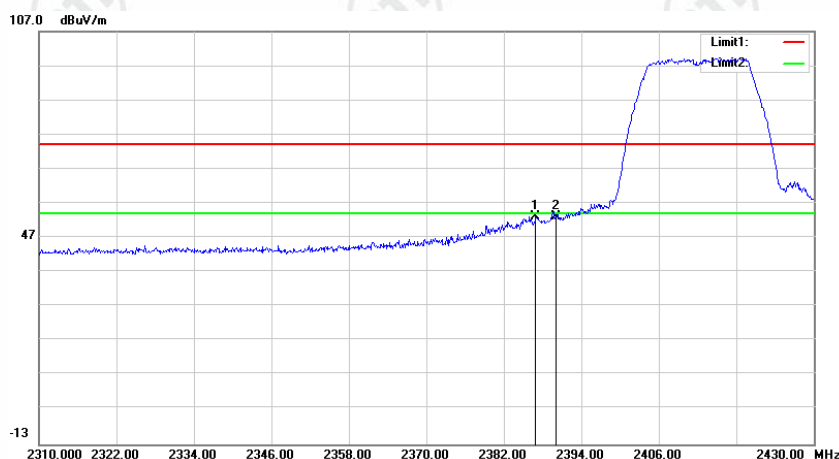
Test Graph



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2363.040	42.46	2.64	45.10	74.00	-28.90	100	347	peak
2	2390.000	44.96	2.71	47.67	74.00	-26.33	200	344	peak

Mode:	802.11g Transmitting	Channel:	2412
Remark:	Vertical		

Test Graph

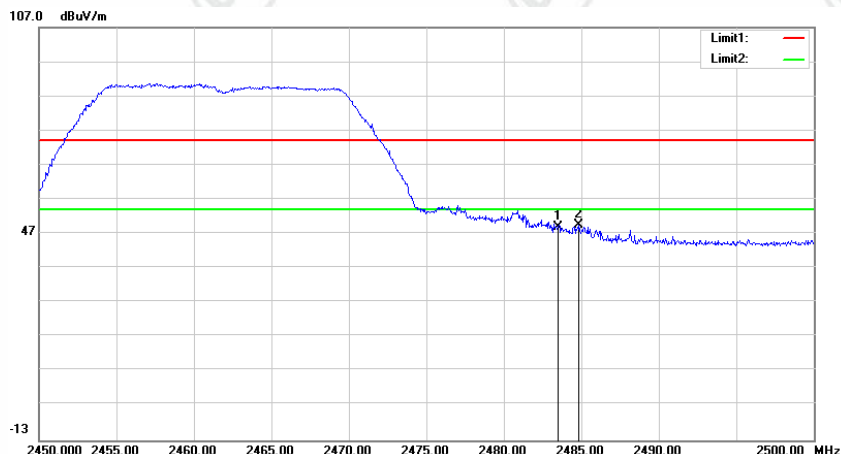


No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2386.920	50.36	2.70	53.06	74.00	-20.94	200	27	peak
2	2390.000	50.57	2.71	53.28	74.00	-20.72	100	17	peak

Test plot as follows:

Mode:	802.11g Transmitting	Channel:	2462
Remark:	Horizontal		

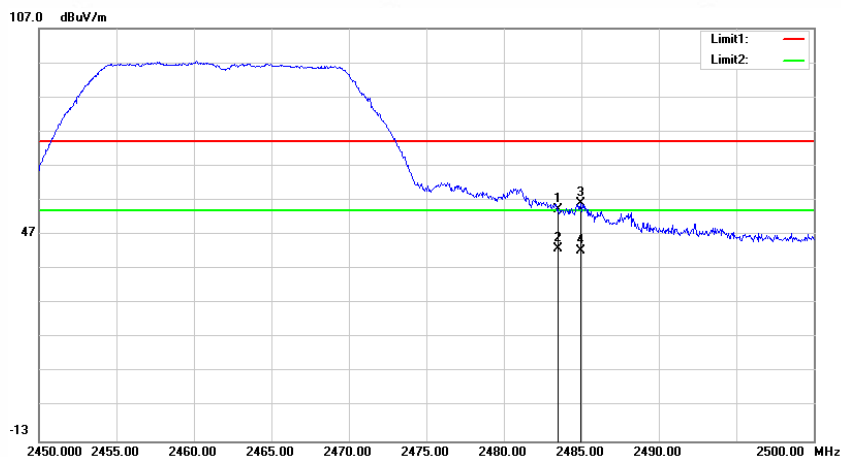
Test Graph



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2483.500	46.00	2.92	48.92	74.00	-25.08	100	32	peak
2	2484.850	46.52	2.92	49.44	74.00	-24.56	100	30	peak

Mode:	802.11g Transmitting	Channel:	2462
Remark:	Vertical		

Test Graph



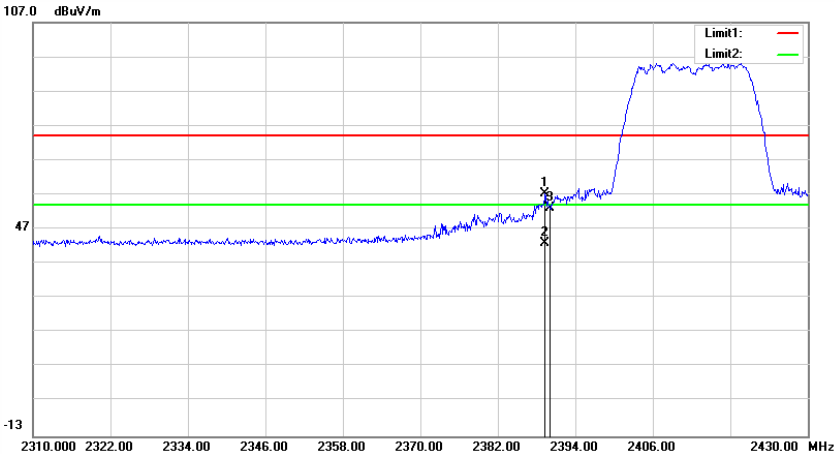
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2483.500	51.31	2.92	54.23	74.00	-19.77	142	360	peak
2	2483.500	40.05	2.92	42.97	54.00	-11.03	142	360	AVG
3	2484.950	53.10	2.92	56.02	74.00	-17.98	195	360	peak
4	2484.950	39.41	2.92	42.33	54.00	-11.67	195	360	AVG

Mode:	802.11n20 Transmitting	Channel:	2412
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Report No. : EED39N00008301

Remark:	Horizontal
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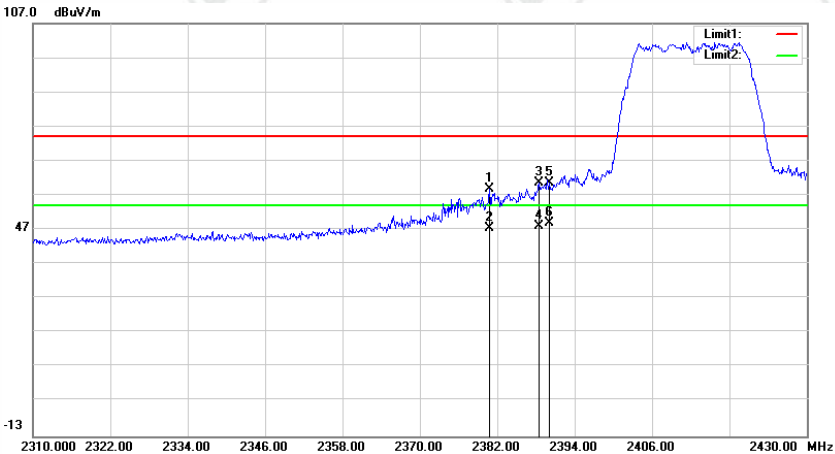
Test Graph



No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(deg.)	
1	2389.320	54.68	2.71	57.39	74.00	-16.61	200	270	peak
2	2389.320	40.18	2.71	42.89	54.00	-11.11	200	271	AVG
3	2390.000	50.48	2.71	53.19	74.00	-20.81	200	72	peak

Mode:	802.11n20 Transmitting	Channel:	2412
Remark:	Vertical		

Test Graph



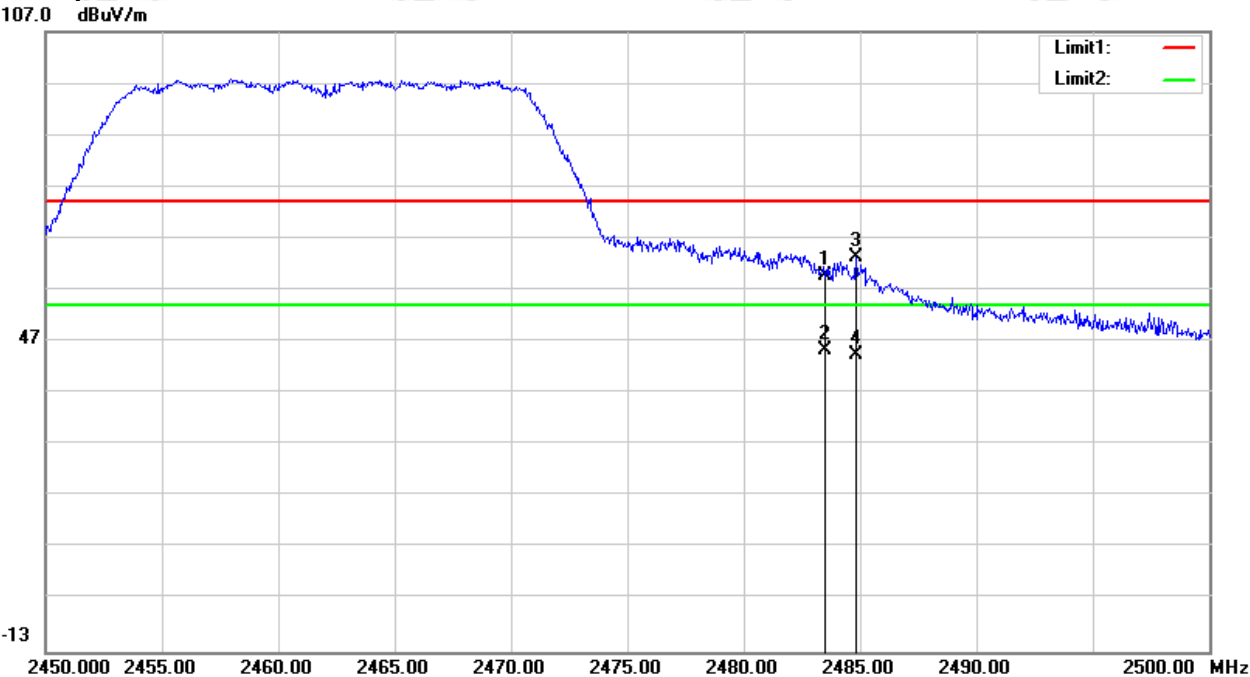
No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(deg.)	
1	2380.800	56.18	2.69	58.87	74.00	-15.13	100	41	peak
2	2380.800	44.82	2.69	47.51	54.00	-6.49	100	41	AVG
3	2388.480	58.05	2.71	60.76	74.00	-13.24	200	37	peak
4	2388.480	45.45	2.71	48.16	54.00	-5.84	200	37	AVG
5	2390.000	58.04	2.71	60.75	74.00	-13.25	200	21	peak
6	2390.000	46.32	2.71	49.03	54.00	-4.97	200	21	AVG

Report No. : EED39N00008301

Test plot as follows:

Mode:	802.11n20 Transmitting	Channel:	2462
Remark:	Horizontal		

Test Graph

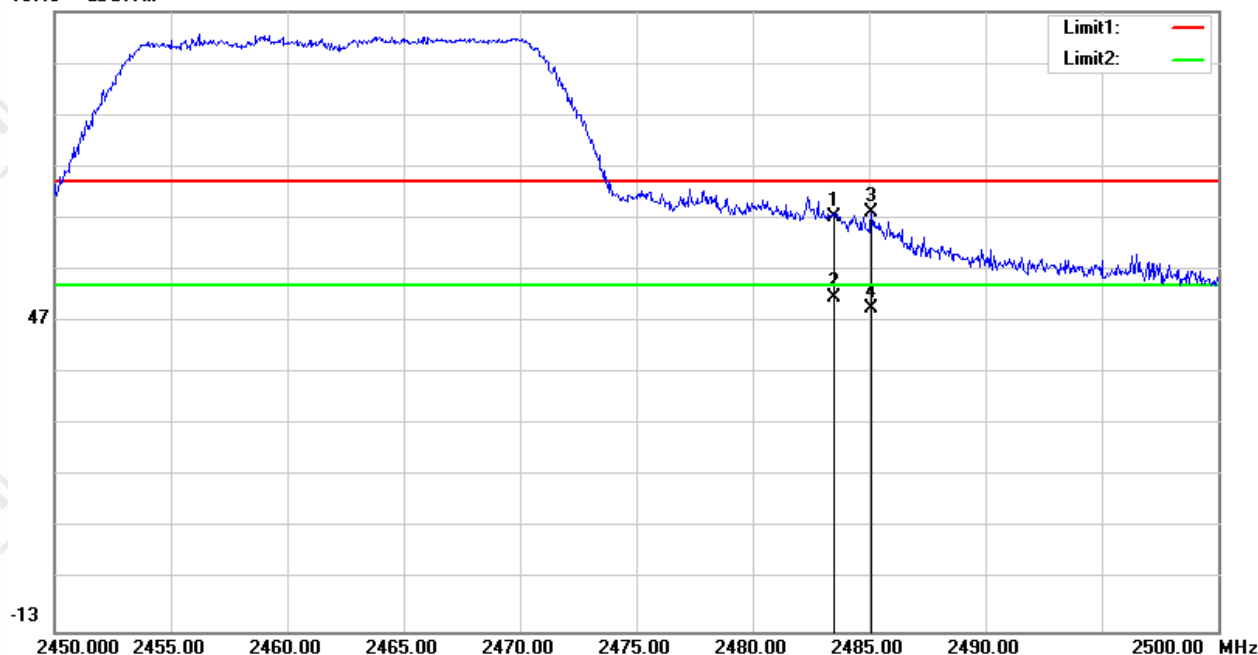


No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2483.500	56.68	2.92	59.60	74.00	-14.40	100	18	peak
2	2483.500	42.45	2.92	45.37	54.00	-8.63	100	18	AVG
3	2484.800	60.39	2.92	63.31	74.00	-10.69	100	6	peak
4	2484.800	41.49	2.92	44.41	54.00	-9.59	100	2	AVG

Mode:	802.11n20 Transmitting	Channel:	2462
Remark:	Vertical		

Test Graph

107.0 dBuV/m



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2483.500	64.46	2.92	67.38	74.00	-6.62	109	0	peak
2	2483.500	48.63	2.92	51.55	54.00	-2.45	109	360	AVG
3	2485.100	65.28	2.92	68.20	74.00	-5.80	104	0	peak
4	2485.100	46.74	2.92	49.66	54.00	-4.34	104	1	AVG

1)As shown in this section, for frequencies above 1GHz, the field strength limits are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20dB under any condition of modulation. So, only the peak values are measured:

2) The field strength is calculated by adding the correct Factor. The basic equation with a sample calculation is as follows:

Final Test Level = Reading +Correct Factor

Correct Factor = Preamplifier Factor– Antenna Factor–Cable Factor

Appendix J): Radiated Spurious Emissions

Receiver Setup:	<table><tr><th>Frequency</th><th>Detector</th><th>RBW</th><th>VBW</th><th>Remark</th></tr><tr><td>0.009MHz-0.090MHz</td><td>Peak</td><td>10kHz</td><td>30kHz</td><td>Peak</td></tr><tr><td>0.009MHz-0.090MHz</td><td>Average</td><td>10kHz</td><td>30kHz</td><td>Average</td></tr><tr><td>0.090MHz-0.110MHz</td><td>Quasi-peak</td><td>10kHz</td><td>30kHz</td><td>Quasi-peak</td></tr><tr><td>0.110MHz-0.490MHz</td><td>Peak</td><td>10kHz</td><td>30kHz</td><td>Peak</td></tr><tr><td>0.110MHz-0.490MHz</td><td>Average</td><td>10kHz</td><td>30kHz</td><td>Average</td></tr><tr><td>0.490MHz -30MHz</td><td>Quasi-peak</td><td>10kHz</td><td>30kHz</td><td>Quasi-peak</td></tr><tr><td>30MHz-1GHz</td><td>Quasi-peak</td><td>120kHz</td><td>300kHz</td><td>Quasi-peak</td></tr><tr><td rowspan="2">Above 1GHz</td><td>Peak</td><td>1MHz</td><td>3MHz</td><td>Peak</td></tr><tr><td>Peak</td><td>1MHz</td><td>1/T</td><td>Average</td></tr></table>	Frequency	Detector	RBW	VBW	Remark	0.009MHz-0.090MHz	Peak	10kHz	30kHz	Peak	0.009MHz-0.090MHz	Average	10kHz	30kHz	Average	0.090MHz-0.110MHz	Quasi-peak	10kHz	30kHz	Quasi-peak	0.110MHz-0.490MHz	Peak	10kHz	30kHz	Peak	0.110MHz-0.490MHz	Average	10kHz	30kHz	Average	0.490MHz -30MHz	Quasi-peak	10kHz	30kHz	Quasi-peak	30MHz-1GHz	Quasi-peak	120kHz	300kHz	Quasi-peak	Above 1GHz	Peak	1MHz	3MHz	Peak	Peak	1MHz	1/T	Average
Frequency	Detector	RBW	VBW	Remark																																														
0.009MHz-0.090MHz	Peak	10kHz	30kHz	Peak																																														
0.009MHz-0.090MHz	Average	10kHz	30kHz	Average																																														
0.090MHz-0.110MHz	Quasi-peak	10kHz	30kHz	Quasi-peak																																														
0.110MHz-0.490MHz	Peak	10kHz	30kHz	Peak																																														
0.110MHz-0.490MHz	Average	10kHz	30kHz	Average																																														
0.490MHz -30MHz	Quasi-peak	10kHz	30kHz	Quasi-peak																																														
30MHz-1GHz	Quasi-peak	120kHz	300kHz	Quasi-peak																																														
Above 1GHz	Peak	1MHz	3MHz	Peak																																														
	Peak	1MHz	1/T	Average																																														
Test Procedure:	Below 1GHz test procedure as below: - The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic camber. The table was rotated 360 degrees to determine the position of the highest radiation. - The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower. - The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement. - For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rotatable was turned from 0 degrees to 360 degrees to find the maximum reading. - The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode. - If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet. Above 1GHz test procedure as below: - Different between above is the test site, change from Semi- Anechoic Chamber to fully Anechoic Chamber and change form table 0.8 meter to 1.5 meter(Above 18GHz the distance is 1 meter and table is 1.5 meter). - Test the EUT in the lowest channel ,the middle channel ,the Highest channel - The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, and found the X axis positioning which it is worse case. - Repeat above procedures until all frequencies measured was complete.																																																	
Limit:	<table><tr><th>Frequency</th><th>Field strength microvolt/meter)</th><th>Limit (dBμV/m)</th><th>Remark</th><th>Measurement distance (m)</th></tr><tr><td>0.009MHz-0.490MHz</td><td>2400/F(kHz)</td><td>-</td><td>-</td><td>300</td></tr><tr><td>0.490MHz-1.705MHz</td><td>24000/F(kHz)</td><td>-</td><td>-</td><td>30</td></tr><tr><td>1.705MHz-30MHz</td><td>30</td><td>-</td><td>-</td><td>30</td></tr><tr><td>30MHz-88MHz</td><td>100</td><td>40.0</td><td>Quasi-peak</td><td>3</td></tr><tr><td>88MHz-216MHz</td><td>150</td><td>43.5</td><td>Quasi-peak</td><td>3</td></tr><tr><td>216MHz-960MHz</td><td>200</td><td>46.0</td><td>Quasi-peak</td><td>3</td></tr><tr><td>960MHz-1GHz</td><td>500</td><td>54.0</td><td>Quasi-peak</td><td>3</td></tr><tr><td>Above 1GHz</td><td>500</td><td>54.0</td><td>Average</td><td>3</td></tr></table> Note: 15.35(b), Unless otherwise specified, the limit on peak radio frequency emissions is 20dB above the maximum permitted average emission limit applicable to the equipment under test. This peak limit applies to the total	Frequency	Field strength microvolt/meter)	Limit (dBμV/m)	Remark	Measurement distance (m)	0.009MHz-0.490MHz	2400/F(kHz)	-	-	300	0.490MHz-1.705MHz	24000/F(kHz)	-	-	30	1.705MHz-30MHz	30	-	-	30	30MHz-88MHz	100	40.0	Quasi-peak	3	88MHz-216MHz	150	43.5	Quasi-peak	3	216MHz-960MHz	200	46.0	Quasi-peak	3	960MHz-1GHz	500	54.0	Quasi-peak	3	Above 1GHz	500	54.0	Average	3				
Frequency	Field strength microvolt/meter)	Limit (dBμV/m)	Remark	Measurement distance (m)																																														
0.009MHz-0.490MHz	2400/F(kHz)	-	-	300																																														
0.490MHz-1.705MHz	24000/F(kHz)	-	-	30																																														
1.705MHz-30MHz	30	-	-	30																																														
30MHz-88MHz	100	40.0	Quasi-peak	3																																														
88MHz-216MHz	150	43.5	Quasi-peak	3																																														
216MHz-960MHz	200	46.0	Quasi-peak	3																																														
960MHz-1GHz	500	54.0	Quasi-peak	3																																														
Above 1GHz	500	54.0	Average	3																																														

Radiated Spurious Emissions test Data:

Radiated Emission below 1GHz:

Mode:	802.11N20 Transmitting	Channel:	2412
Remark:			

Frequency (MHz)	Ant. Pol. (H/V)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
43.6130	V	53.05	-22.55	30.50	40.00	-9.50	QP
91.1100	V	49.16	-24.58	24.58	43.50	-18.92	QP
625.5800	V	48.89	-16.50	32.39	46.00	-13.61	QP
697.3600	V	52.33	-16.31	36.02	46.00	-9.98	QP
717.7300	V	53.47	-15.83	37.64	46.00	-8.36	QP
874.8700	V	50.29	-14.13	36.16	46.00	-9.84	QP
43.5800	H	45.51	-22.55	22.96	40.00	-17.04	QP
83.3500	H	51.09	-26.94	24.15	40.00	-15.85	QP
245.3400	H	48.28	-22.91	25.37	46.00	-20.63	QP
625.5800	H	46.98	-16.50	30.48	46.00	-15.52	QP
717.7300	H	49.75	-15.83	33.92	46.00	-12.08	QP
875.8400	H	47.14	-14.12	33.02	46.00	-12.98	QP

Notes:

- 1) Through Pre-scan then find the 802.11N20-CH1 is the worst case mode and only the worst data was recorded.

Transmitter Emission above 1GHz:

Mode:	802.11b Transmitting	Channel:	2412
Remark:			

Horizontal

No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(deg.)	
1	6831.000	33.84	11.54	45.38	74.00	-28.62	100	1	peak
2	11200.000	31.21	16.85	48.06	74.00	-25.94	100	23	peak
3	14039.000	30.62	21.56	52.18	74.00	-21.82	100	27	peak

Vertical

No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(deg.)	
1	6865.000	33.23	11.57	44.80	74.00	-29.20	100	41	peak
2	10214.000	31.41	15.15	46.56	74.00	-27.44	100	106	peak
3	13665.000	30.45	20.76	51.21	74.00	-22.79	100	115	peak

Mode:	802.11b Transmitting	Channel:	2437
Remark:			

Horizontal

No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(deg.)	
1	8786.000	32.87	13.87	46.74	74.00	-27.26	100	178	peak
2	12509.000	30.03	18.28	48.31	74.00	-25.69	100	11	peak
3	14923.000	28.62	22.99	51.61	74.00	-22.39	100	209	peak

Vertical

No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(deg.)	
1	8429.000	34.31	13.56	47.87	74.00	-26.13	100	166	peak
2	11591.000	31.59	17.27	48.86	74.00	-25.14	100	29	peak
3	14413.000	28.80	22.24	51.04	74.00	-22.96	100	338	peak

Mode:	802.11b Transmitting	Channel:	2462
Remark:			

Horizontal

No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(deg.)	
1	6865.000	33.65	11.57	45.22	74.00	-28.78	100	219	peak
2	8395.000	31.82	13.51	45.33	74.00	-28.67	100	223	peak
3	10996.000	31.06	16.50	47.56	74.00	-26.44	100	334	peak

Vertical

No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(deg.)	
1	5284.000	34.39	9.58	43.97	74.00	-30.03	100	267	peak
2	6848.000	33.72	11.55	45.27	74.00	-28.73	100	87	peak
3	10214.000	31.38	15.15	46.53	74.00	-27.47	100	360	peak

Mode:	802.11g Transmitting	Channel:	2412
Remark:			

Horizontal

No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(deg.)	
1	6831.000	33.61	11.54	45.15	74.00	-28.85	100	275	peak
2	8429.000	31.45	13.56	45.01	74.00	-28.99	100	286	peak
3	10996.000	31.44	16.50	47.94	74.00	-26.06	100	227	peak

Vertical

No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(deg.)	
1	6848.000	32.74	11.55	44.29	74.00	-29.71	100	33	peak
2	10197.000	31.14	15.12	46.26	74.00	-27.74	100	172	peak
3	12509.000	29.80	18.28	48.08	74.00	-25.92	100	290	peak

Mode:	802.11g Transmitting	Channel:	2437
Remark:			

Horizontal

No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(deg.)	
1	7579.000	34.26	12.45	46.71	74.00	-27.29	100	112	peak
2	11574.000	32.59	17.26	49.85	74.00	-24.15	100	206	peak

Vertical

No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(deg.)	
1	7307.000	35.42	12.17	47.59	74.00	-26.41	100	12	peak
2	11523.000	32.05	17.21	49.26	74.00	-24.74	100	77	peak

Mode:	802.11g Transmitting	Channel:	2462
Remark:			

Horizontal

No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(deg.)	
1	6865.000	32.78	11.57	44.35	74.00	-29.65	100	231	peak
2	10214.000	30.94	15.15	46.09	74.00	-27.91	100	303	peak
3	13682.000	30.67	20.81	51.48	74.00	-22.52	100	6	peak

Vertical

No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(deg.)	
1	7103.000	32.74	11.84	44.58	74.00	-29.42	100	359	peak
2	10231.000	31.39	15.18	46.57	74.00	-27.43	100	330	peak
3	11625.000	30.49	17.25	47.74	74.00	-26.26	100	145	peak

Mode:	802.11n Transmitting	Channel:	2412
Remark:			

Horizontal

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	6831.000	32.97	11.54	44.51	74.00	-29.49	100	121	peak
2	8582.000	31.45	13.77	45.22	74.00	-28.78	100	299	peak
3	11183.000	31.33	16.82	48.15	74.00	-25.85	100	223	peak

Vertical

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	6848.000	32.83	11.55	44.38	74.00	-29.62	100	22	peak
2	8786.000	31.36	13.87	45.23	74.00	-28.77	100	239	peak
3	11183.000	32.16	16.82	48.98	74.00	-25.02	100	184	peak

Mode:	802.11n20 Transmitting	Channel:	2437
Remark:			

Horizontal

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	7103.000	34.92	11.84	46.76	74.00	-27.24	100	141	peak
2	11829.000	32.68	17.00	49.68	74.00	-24.32	100	12	peak
3	13665.000	31.56	20.76	52.32	74.00	-21.68	100	237	peak

Vertical

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	6610.000	36.40	11.35	47.75	74.00	-26.25	100	303	peak
2	11642.000	32.88	17.22	50.10	74.00	-23.90	100	58	peak
3	13665.000	30.03	20.76	50.79	74.00	-23.21	100	162	peak

Mode:	802.11n20 Transmitting	Channel:	2462
Remark:			

Horizontal

No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(deg.)	
1	4740.000	34.21	8.98	43.19	74.00	-30.81	100	238	peak
2	7613.000	32.02	12.49	44.51	74.00	-29.49	100	236	peak
3	10231.000	31.77	15.18	46.95	74.00	-27.05	100	280	peak

Vertical

No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(deg.)	
1	6610.000	33.53	11.35	44.88	74.00	-29.12	100	301	peak
2	8412.000	32.57	13.54	46.11	74.00	-27.89	100	310	peak
3	10979.000	31.07	16.48	47.55	74.00	-26.45	100	0	peak

Note:

1)As shown in this section, for frequencies above 1GHz, the field strength limits are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation. So, only the peak values are measured:

2) The field strength is calculated by adding the correct Factor. The basic equation with a sample calculation is as follows:

Final Test Level = Reading +Correct Factor

Correct Factor = Preamplifier Factor– Antenna Factor–Cable Factor

3) Scan from 9kHz to 25GHz, the disturbance above 18GHz and below 30MHz was very low, and the above harmonics were the highest point could be found when testing, so only the above harmonics had been displayed. The amplitude of spurious emissions from the radiator which are attenuated more than 20dB below the limit need not be reported.