

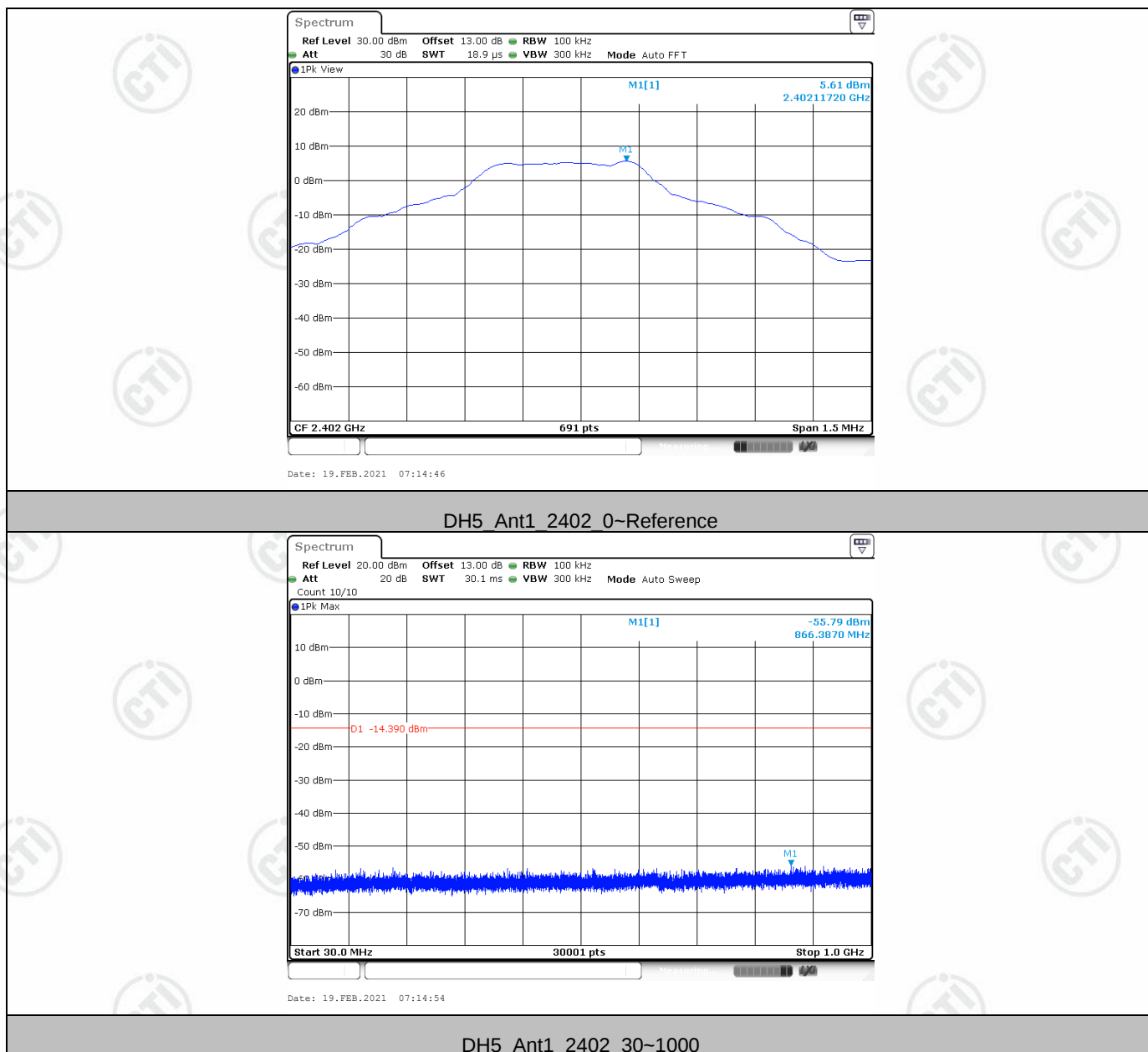
Appendix G): Conducted Spurious Emissions

Result Table:

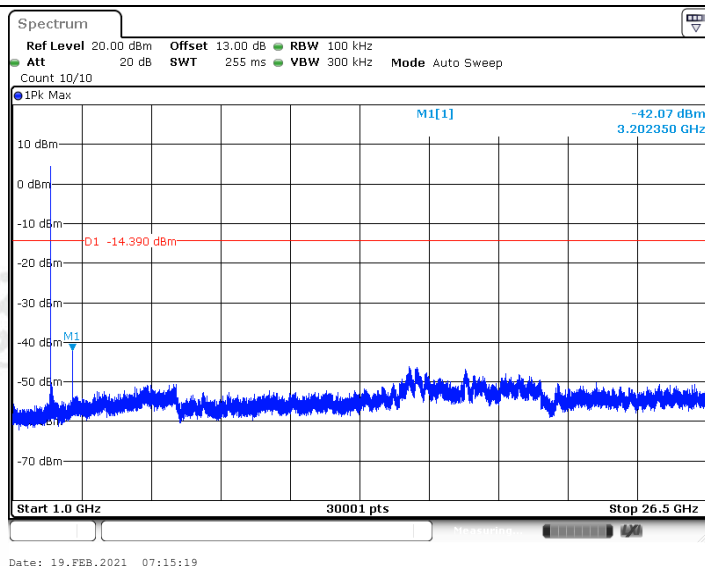
Test Mode	Antenna	Channel	Freq Range [MHz]	Ref Level [dBm]	Result [dBm]	Limit [dBm]	Verdict
DH5	Ant1	2402	Reference	5.61	5.61	---	PASS
			30~1000	5.61	-55.79	<=-14.39	PASS
			1000~26500	5.61	-42.07	<=-14.39	PASS
		2441	Reference	7.18	7.18	---	PASS
			30~1000	7.18	-55.95	<=-12.82	PASS
			1000~26500	7.18	-44.13	<=-12.82	PASS
		2480	Reference	7.85	7.85	---	PASS
			30~1000	7.85	-55.36	<=-12.15	PASS
			1000~26500	7.85	-45.78	<=-12.15	PASS
2DH5	Ant1	2402	Reference	2.11	2.11	---	PASS
			30~1000	2.11	-55.76	<=-17.89	PASS
			1000~26500	2.11	-42.62	<=-17.89	PASS
		2441	Reference	3.67	3.67	---	PASS
			30~1000	3.67	-55.79	<=-16.33	PASS
			1000~26500	3.67	-44.7	<=-16.33	PASS
		2480	Reference	4.23	4.23	---	PASS
			30~1000	4.23	-55.45	<=-15.77	PASS
			1000~26500	4.23	-45.49	<=-15.77	PASS
3DH5	Ant1	2402	Reference	2.22	2.22	---	PASS
			30~1000	2.22	-55.57	<=-17.78	PASS
			1000~26500	2.22	-42.11	<=-17.78	PASS
		2441	Reference	3.80	3.80	---	PASS
			30~1000	3.80	-54.78	<=-16.2	PASS
			1000~26500	3.80	-44.81	<=-16.2	PASS
		2480	Reference	4.44	4.44	---	PASS
			30~1000	4.44	-55.14	<=-15.56	PASS
			1000~26500	4.44	-45.89	<=-15.56	PASS

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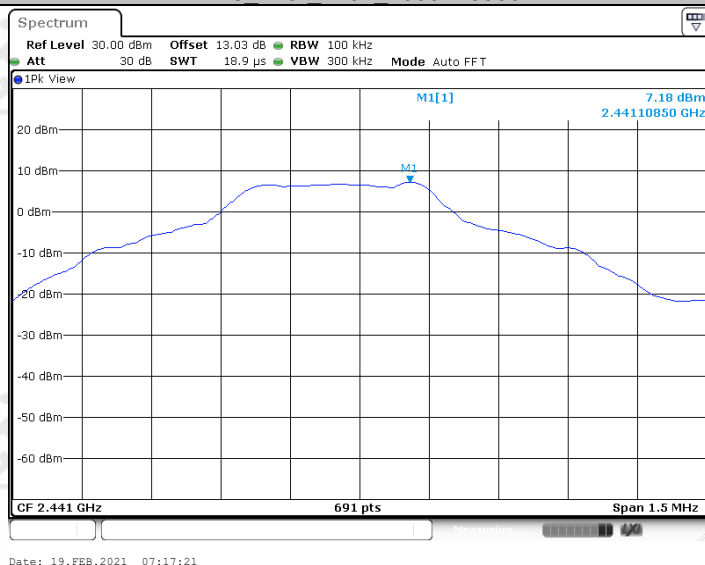
Test Graph:



Report No. : EED39N00008302

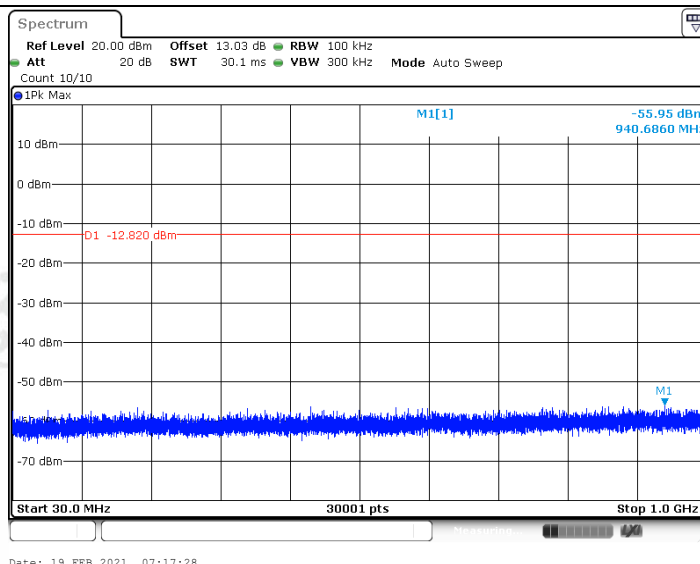


DH5 Ant1 2402 1000~26500

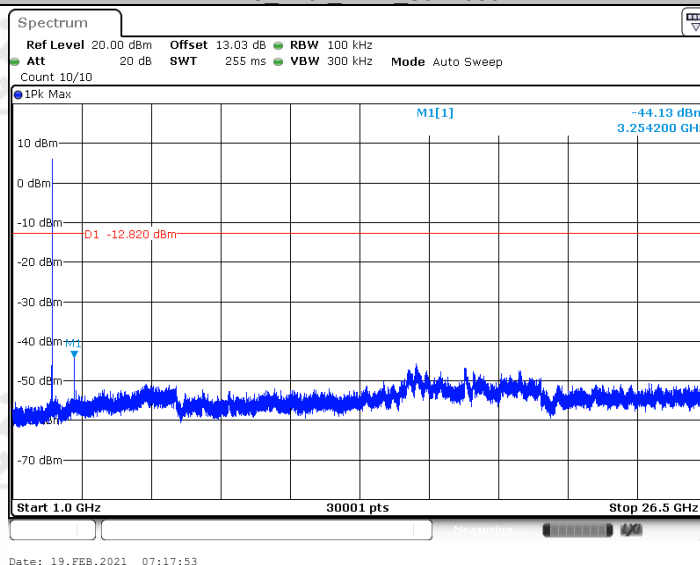


DH5 Ant1 2441 0-Reference

Report No. : EED39N00008302

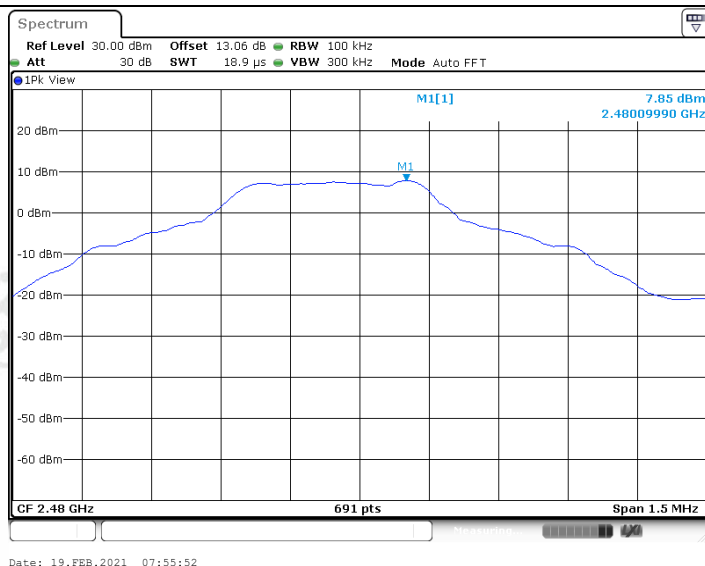


DH5 Ant1 2441 30~1000

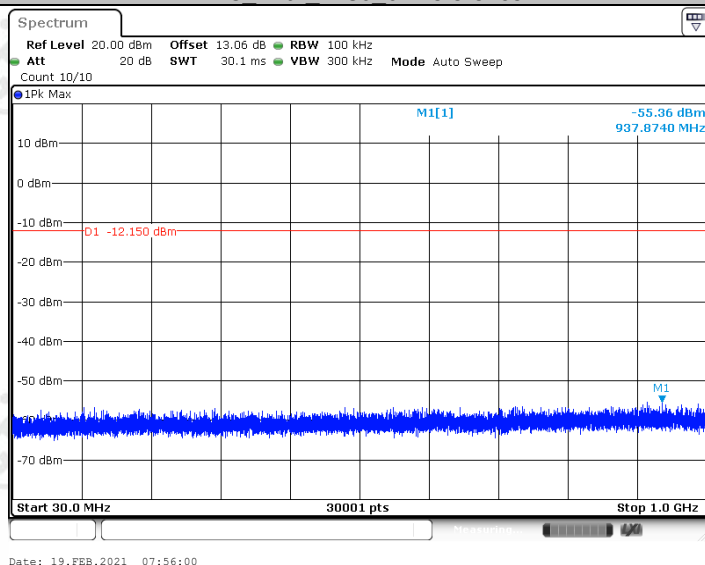


DH5 Ant1 2441 1000~26500

Report No. : EED39N00008302

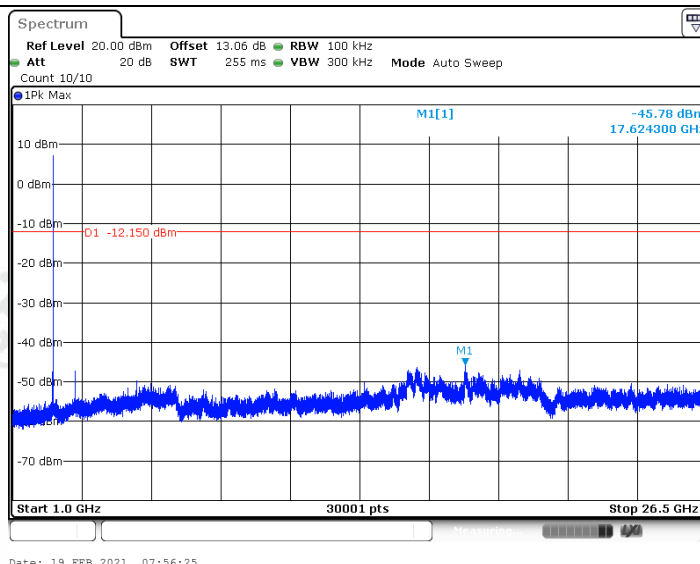


DH5 Ant1 2480 0-Reference

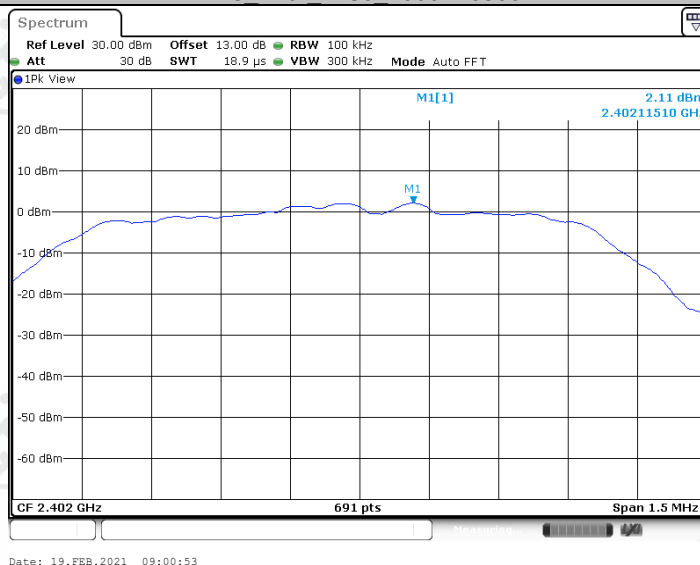


DH5 Ant1 2480 30-1000

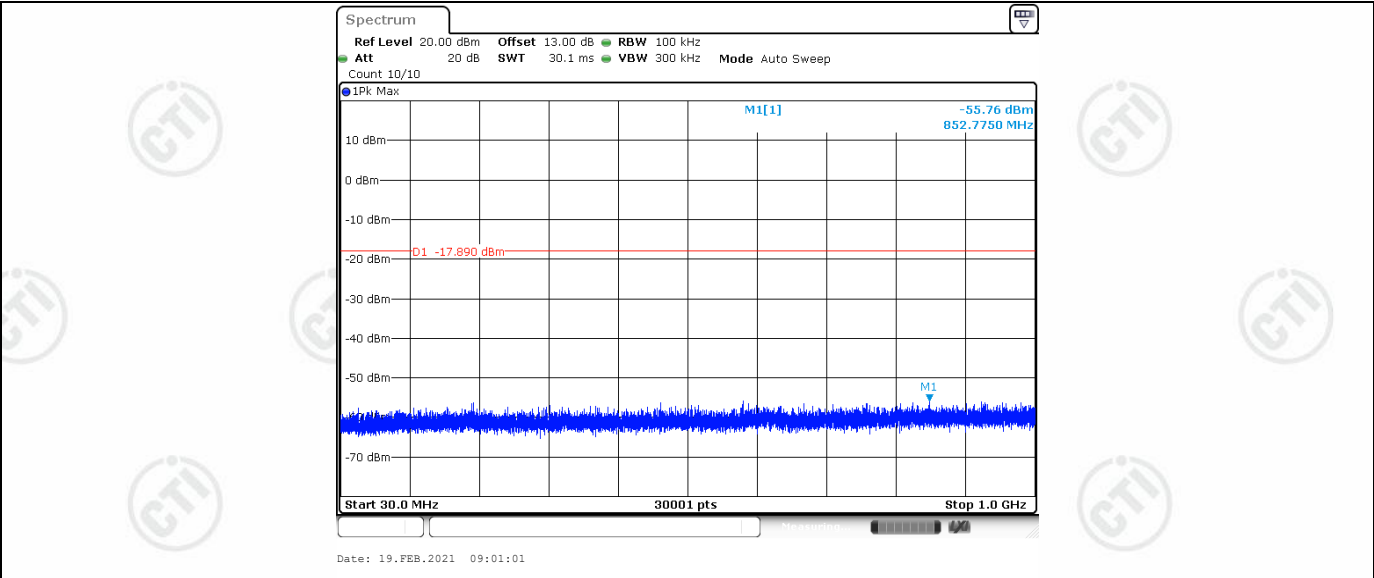
Report No. : EED39N00008302



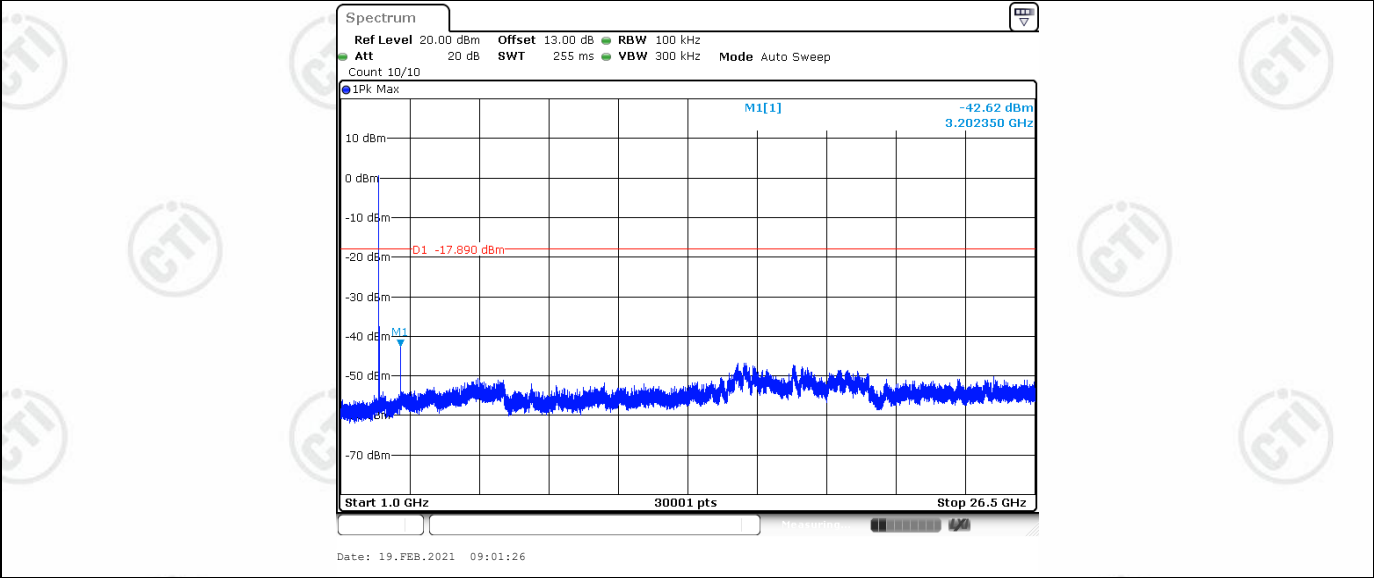
DH5 Ant1 2480 1000~26500



2DH5 Ant1 2402 0~Reference

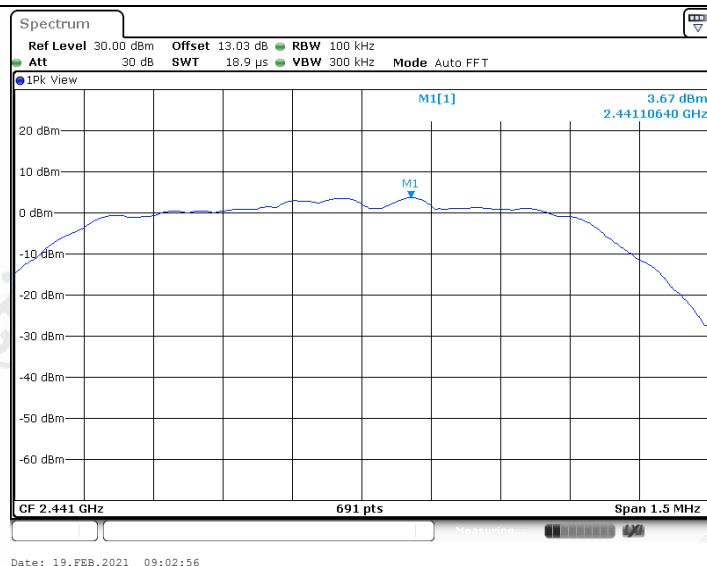


2DH5 Ant1 2402 30~1000

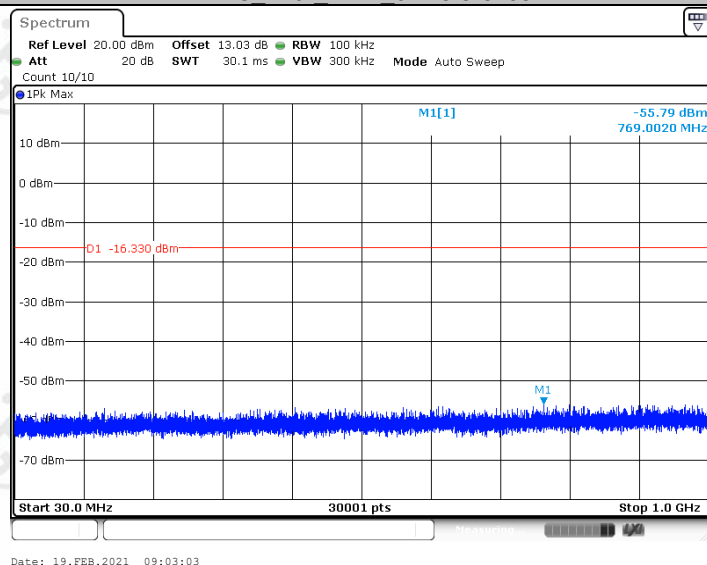


2DH5 Ant1 2402 1000~26500

Report No. : EED39N00008302

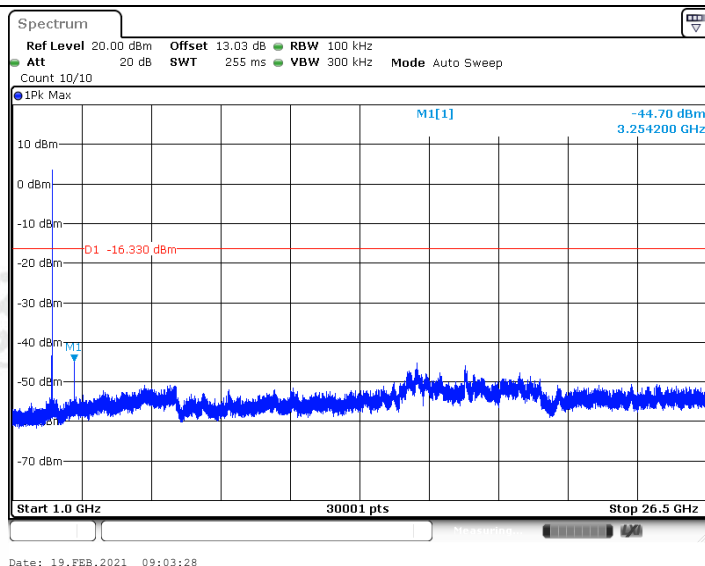


2DH5 Ant1 2441 0~Reference

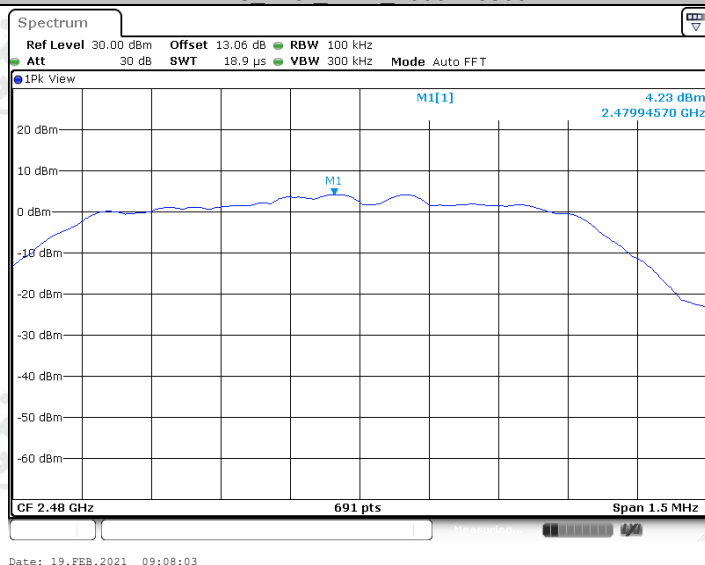


2DH5 Ant1 2441 30~1000

Report No. : EED39N00008302

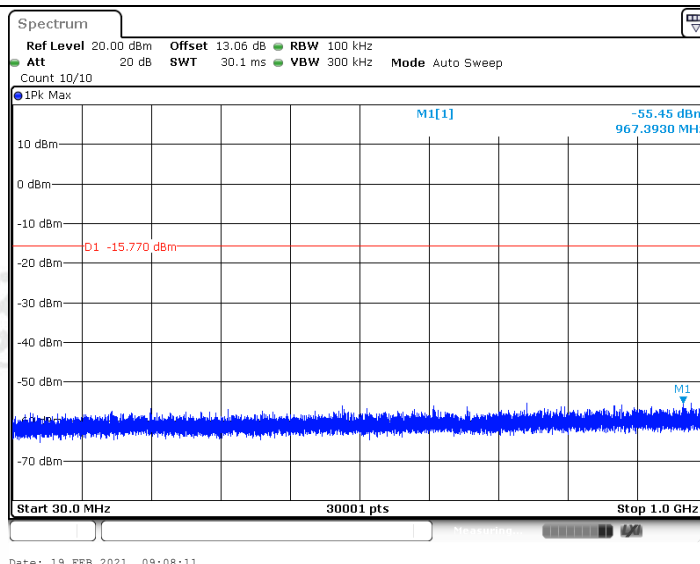


2DH5 Ant1 2441 1000~26500

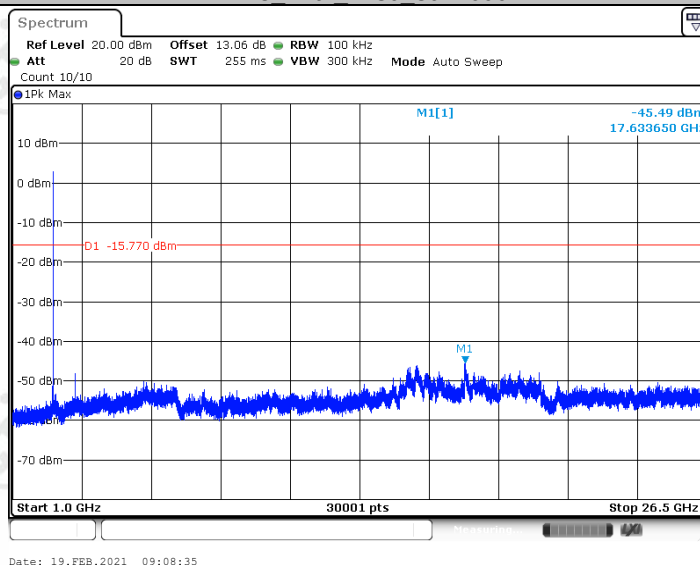


2DH5 Ant1 2480 0~Reference

Report No. : EED39N00008302

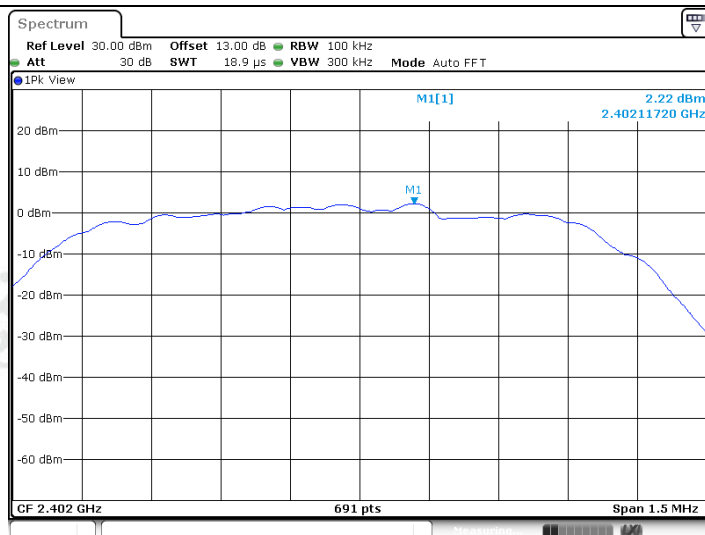


2DH5 Ant1 2480 30~1000



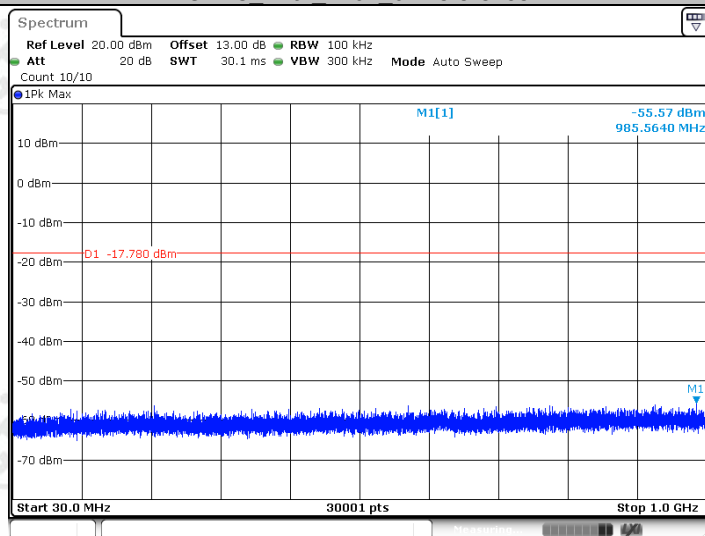
2DH5 Ant1 2480 1000~26500

Report No. : EED39N00008302



Date: 19.FEB.2021 09:18:33

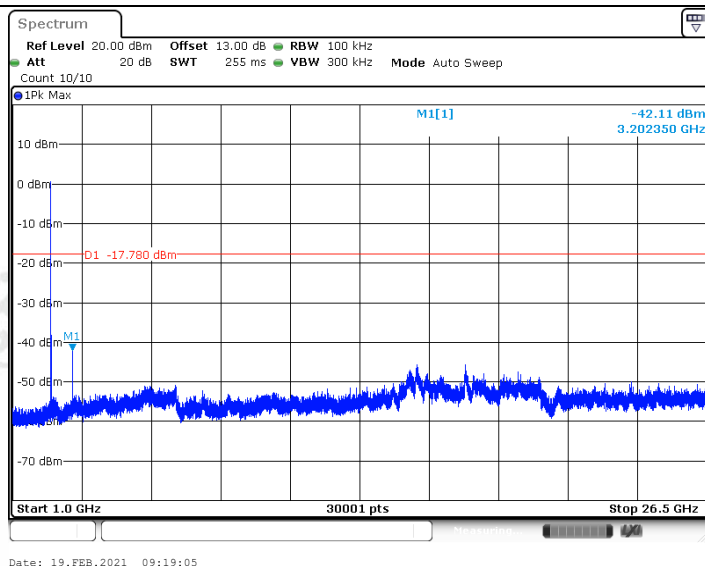
3DH5 Ant1 2402 0~Reference



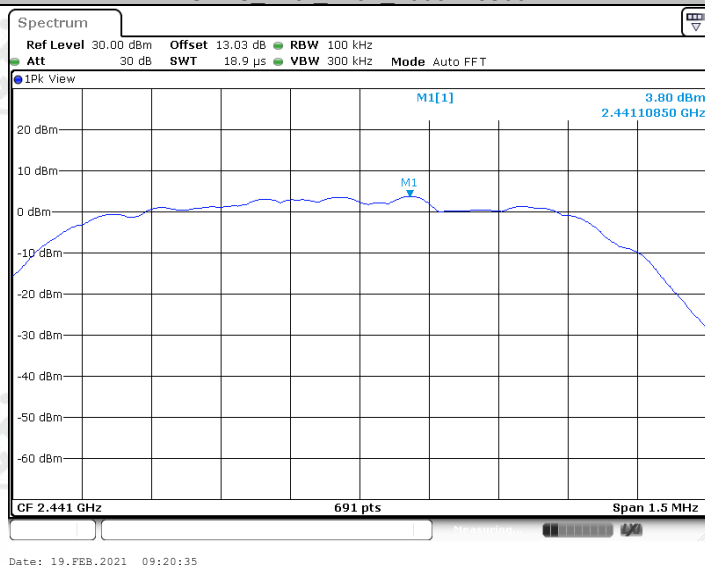
Date: 19.FEB.2021 09:18:41

3DH5 Ant1 2402 30~1000

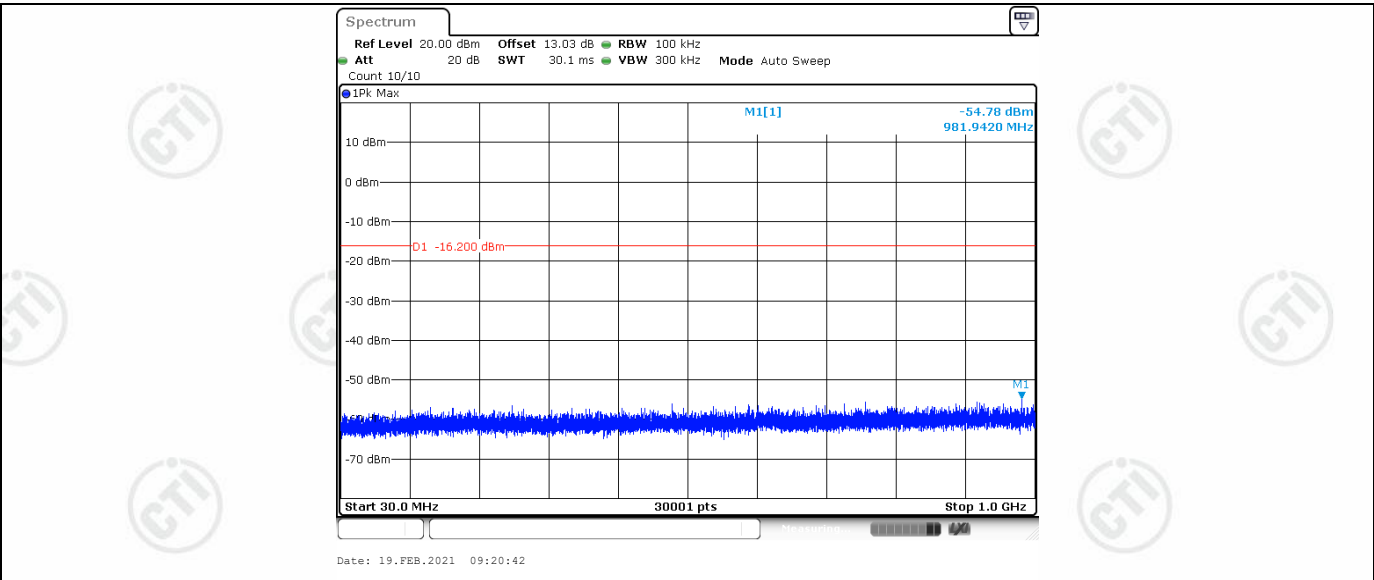
Report No. : EED39N00008302



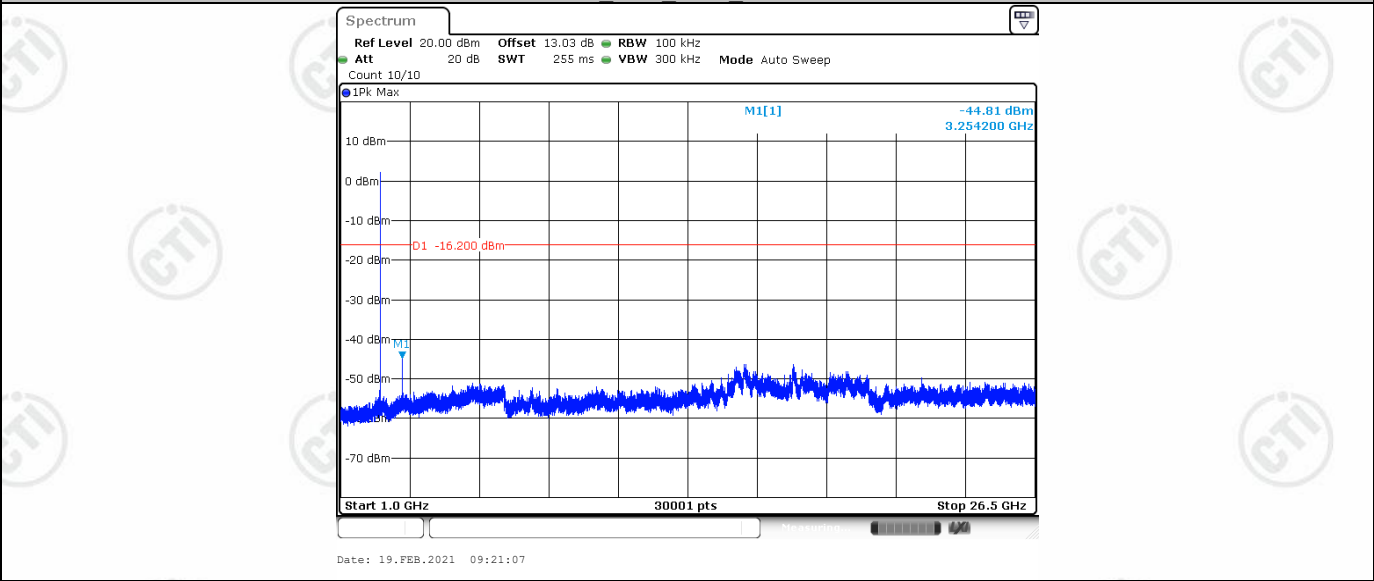
3DH5 Ant1 2402 1000-26500



3DH5 Ant1 2441 0~Reference

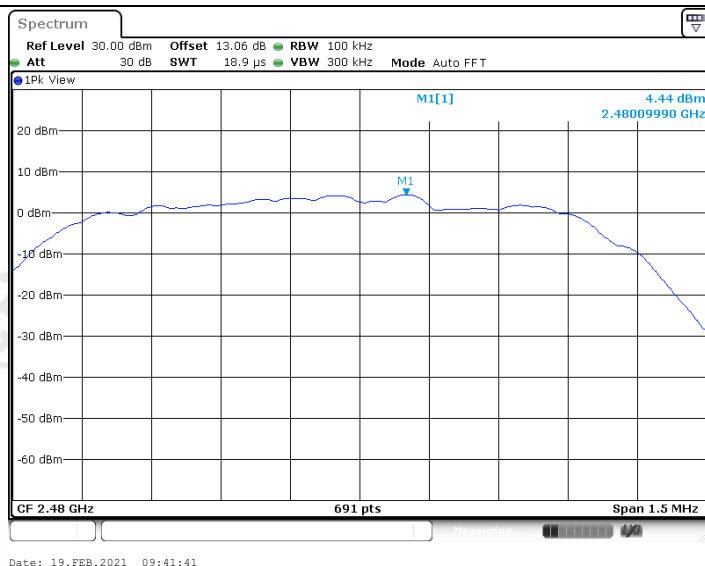


3DH5 Ant1 2441 30~1000

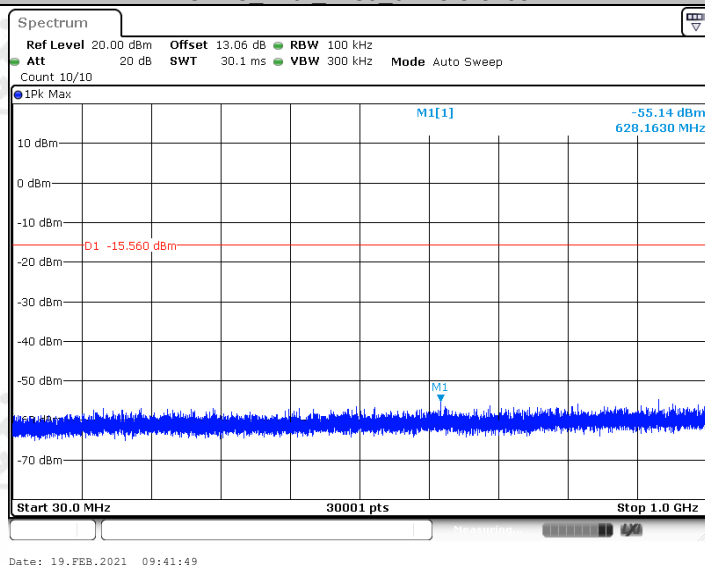


3DH5 Ant1 2441 1000~26500

Report No. : EED39N00008302

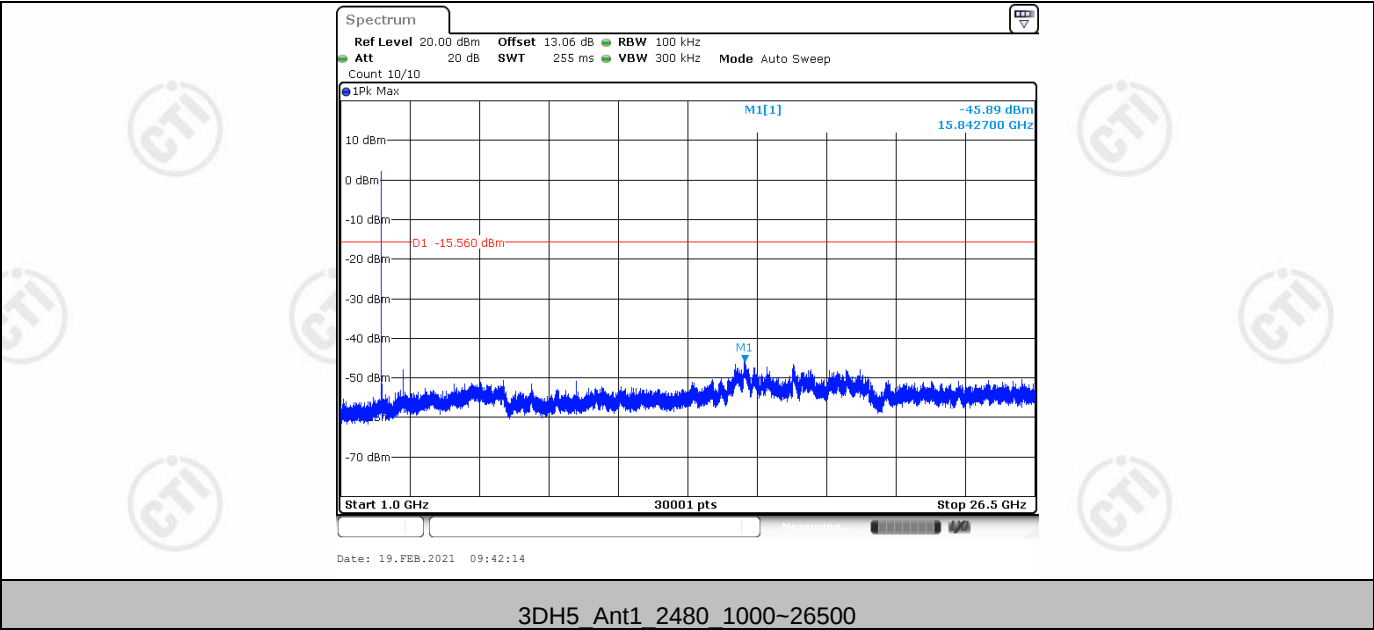


3DH5 Ant1 2480 0~Reference



3DH5 Ant1 2480 30~1000

Report No. : EED39N00008302



Appendix H): Antenna Requirement

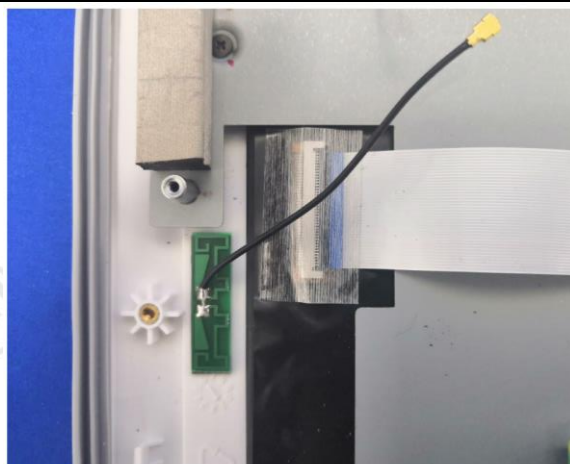
15.203 requirement:

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:



The antenna is PCB Antenna and no consideration of replacement.

Appendix I): AC Power Line Conducted Emission

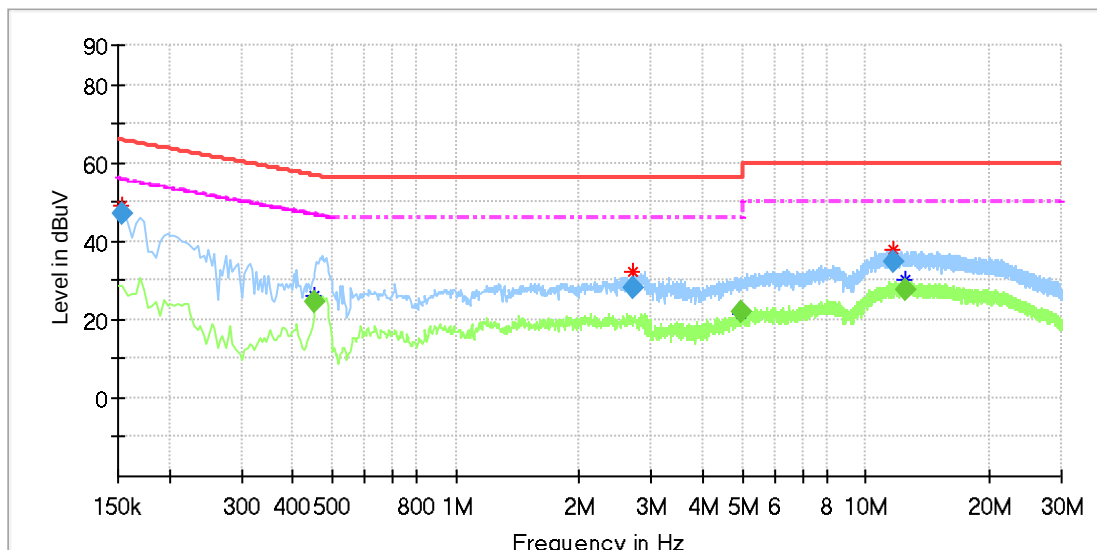
Test Procedure:	Test frequency range :150KHz-30MHz 1)The mains terminal disturbance voltage test was conducted in a shielded room. 2) The EUT was connected to AC power source through a LISN 1 (Line Impedance Stabilization Network) which provides a 50Ω/50μH + 5Ω linear impedance. The power cables of all 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:



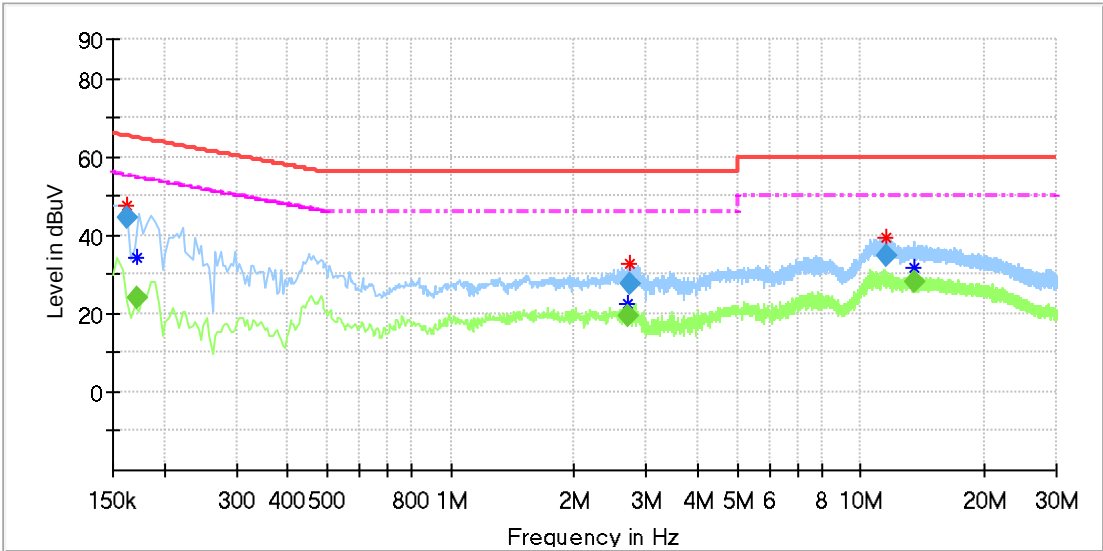
Final_Result

Frequency (MHz)	QuasiPeak (dbuV)	Average (dBuV)	Limit (dBuV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.154217	46.97	---	65.77	18.80	1000.0	9.000	L1	20.0
0.453168	---	24.30	46.82	22.52	1000.0	9.000	L1	20.1
2.707124	27.94	---	56.00	28.06	1000.0	9.000	L1	20.2
4.959598	---	21.83	46.00	24.17	1000.0	9.000	L1	20.1
11.708346	34.50	---	60.00	25.50	1000.0	9.000	L1	20.1
12.461208	---	27.80	50.00	22.20	1000.0	9.000	L1	20.1

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)
0.162012	44.42	---	65.36	20.94	1000.0	9.000	N	19.9
0.170790	---	23.92	54.92	31.00	1000.0	9.000	N	19.9
2.704924	---	19.28	46.00	26.72	1000.0	9.000	N	19.9
2.742964	27.80	---	56.00	28.20	1000.0	9.000	N	19.9
11.474442	34.70	---	60.00	25.30	1000.0	9.000	N	19.8
13.517540	---	28.14	50.00	21.86	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 J): 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 meters 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 table 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. 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																			

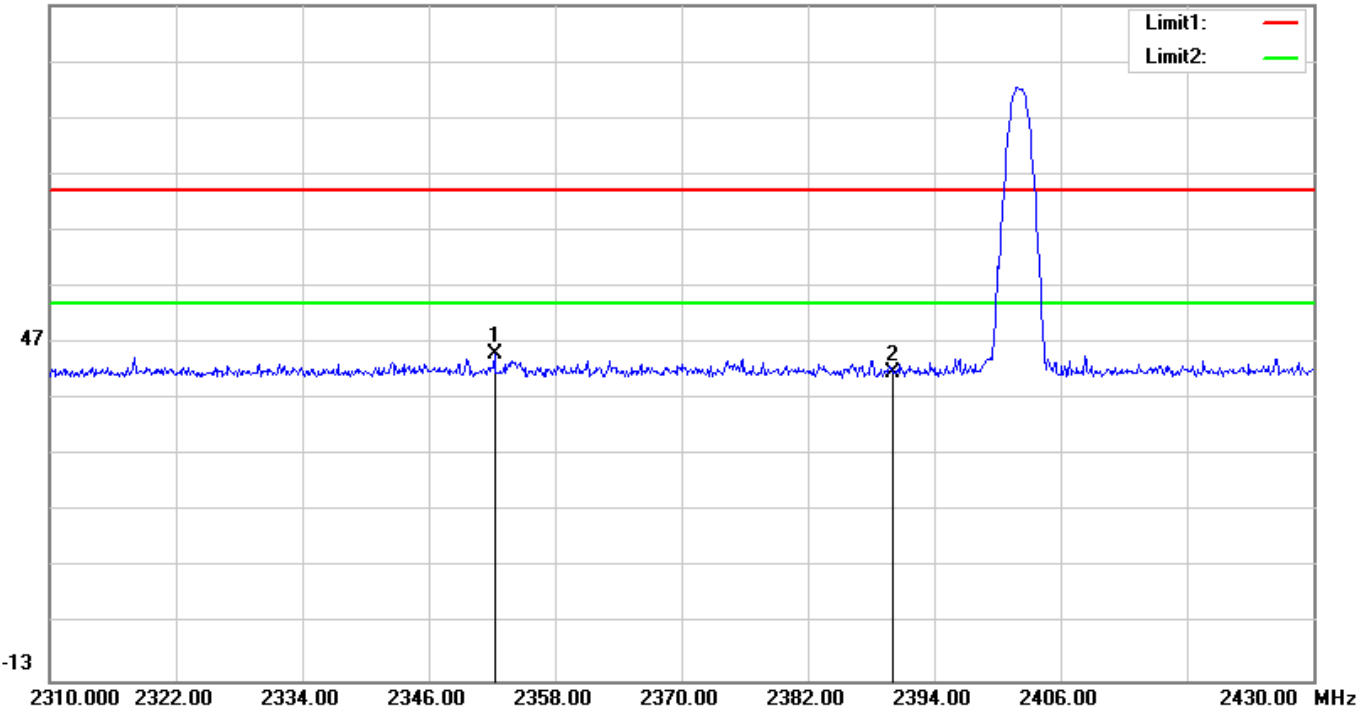
Report No. : EED39N00008302

Test plot as follows:

Mode:	GFSK Transmitting	Channel:	2402
Remark:	Horizontal		

Test Graph

107.0 dBuV/m

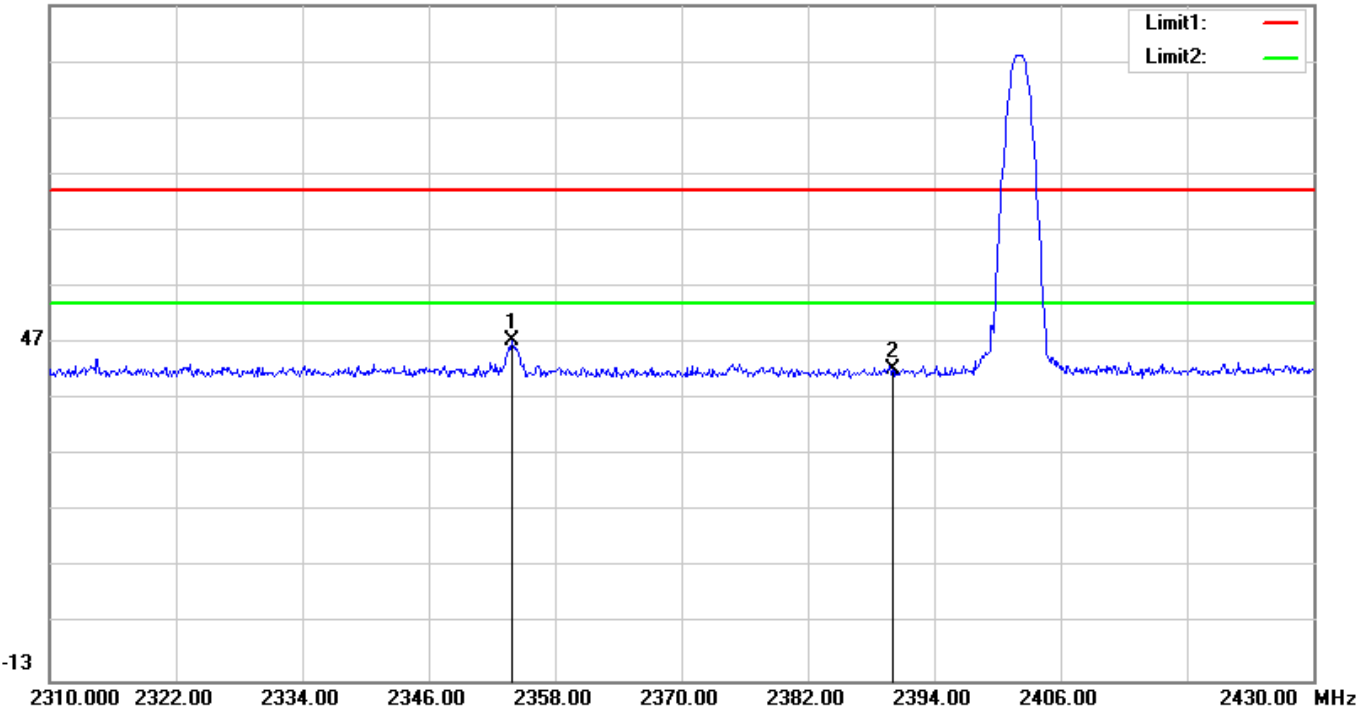


No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(deg.)	
1	2352.240	42.41	2.61	45.02	74.00	-28.98	100	70	peak
2	2390.000	38.92	2.71	41.63	74.00	-32.37	100	0	peak

Mode:	GFSK Transmitting	Channel:	2402
Remark:	Vertical		

Test Graph

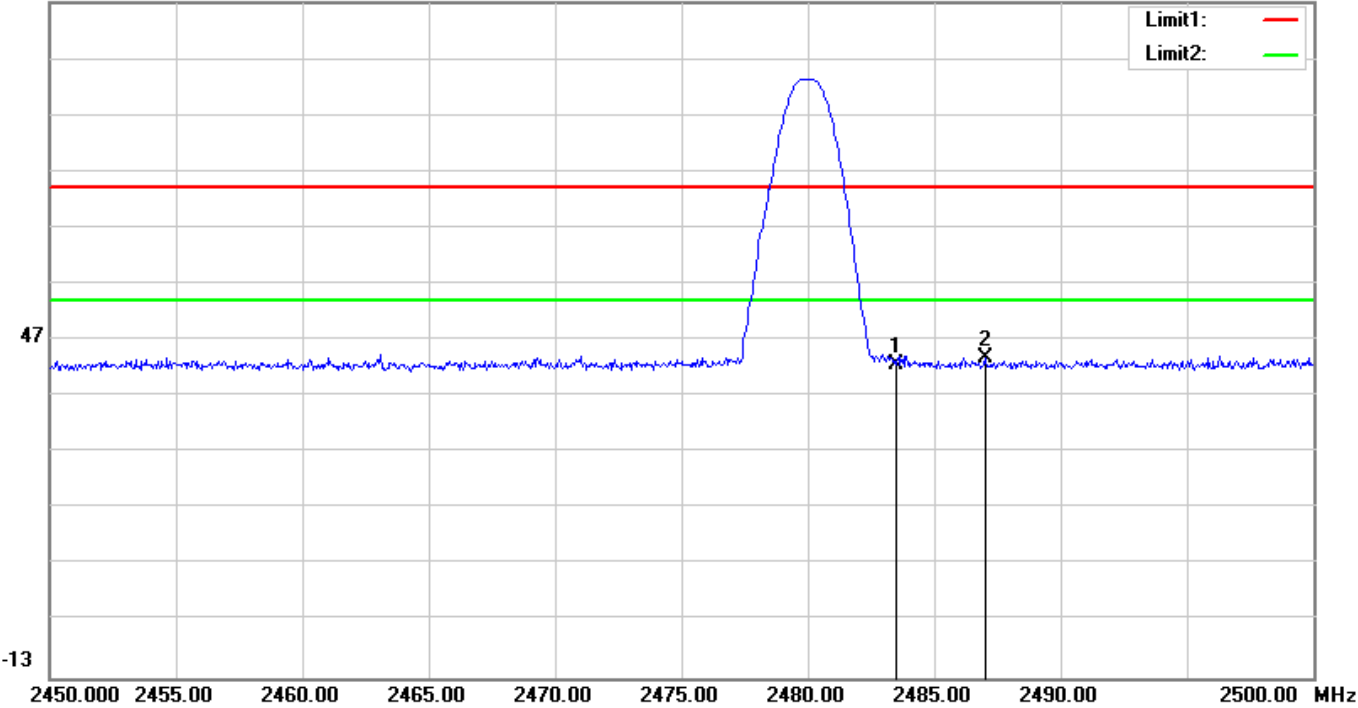
107.0 dBuV/m



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2353.920	44.69	2.62	47.31	74.00	-26.69	100	38	peak
2	2390.000	39.49	2.71	42.20	74.00	-31.80	100	334	peak

Mode:	GFSK Transmitting	Channel:	2480
Remark:	Horizontal		

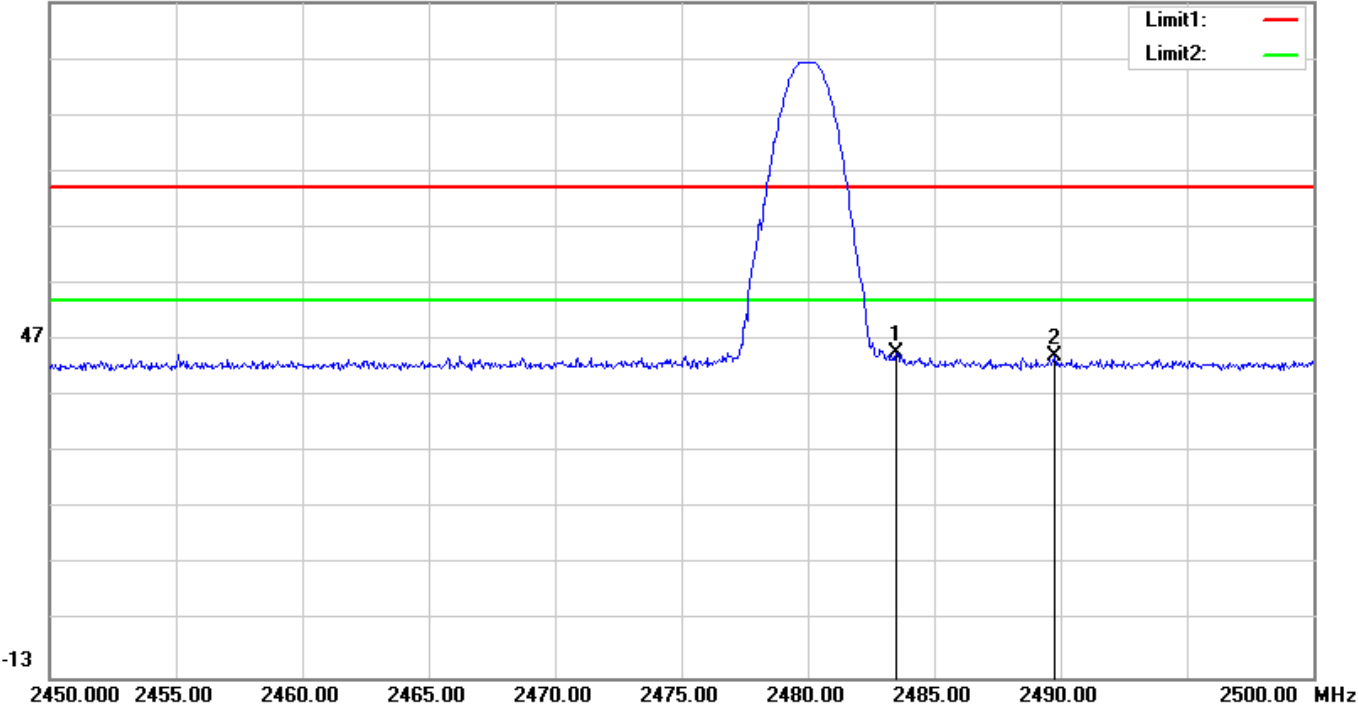
Test Graph
107.0 dBuV/m



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	39.79	2.92	42.71	74.00	-31.29	131	360	peak
2	2487.000	40.96	2.92	43.88	74.00	-30.12	100	72	peak

Mode:	GFSK Transmitting	Channel:	2480
Remark:	Vertical		

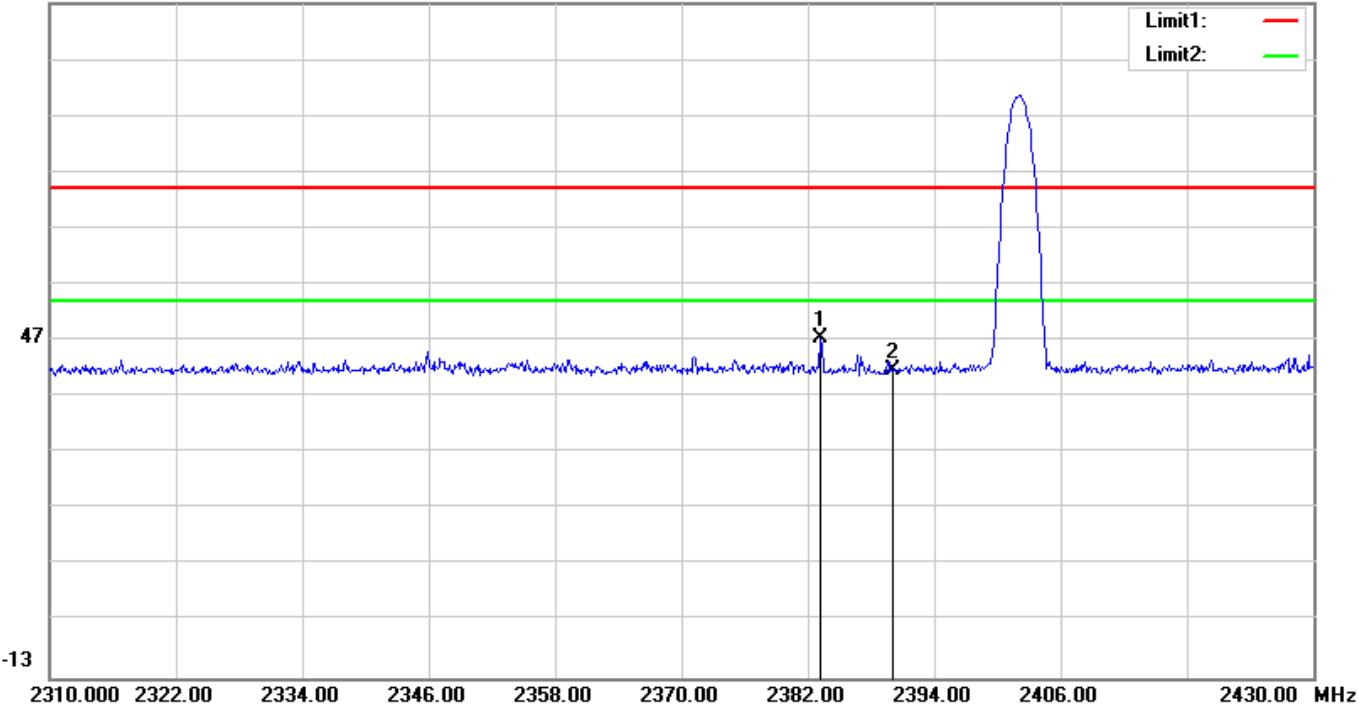
Test Graph
107.0 dBuV/m



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	41.80	2.92	44.72	74.00	-29.28	100	322	peak
2	2489.750	41.09	2.93	44.02	74.00	-29.98	200	243	peak

Mode:	$\pi/4$ DQPSK Transmitting	Channel:	2402
Remark:	Horizontal		

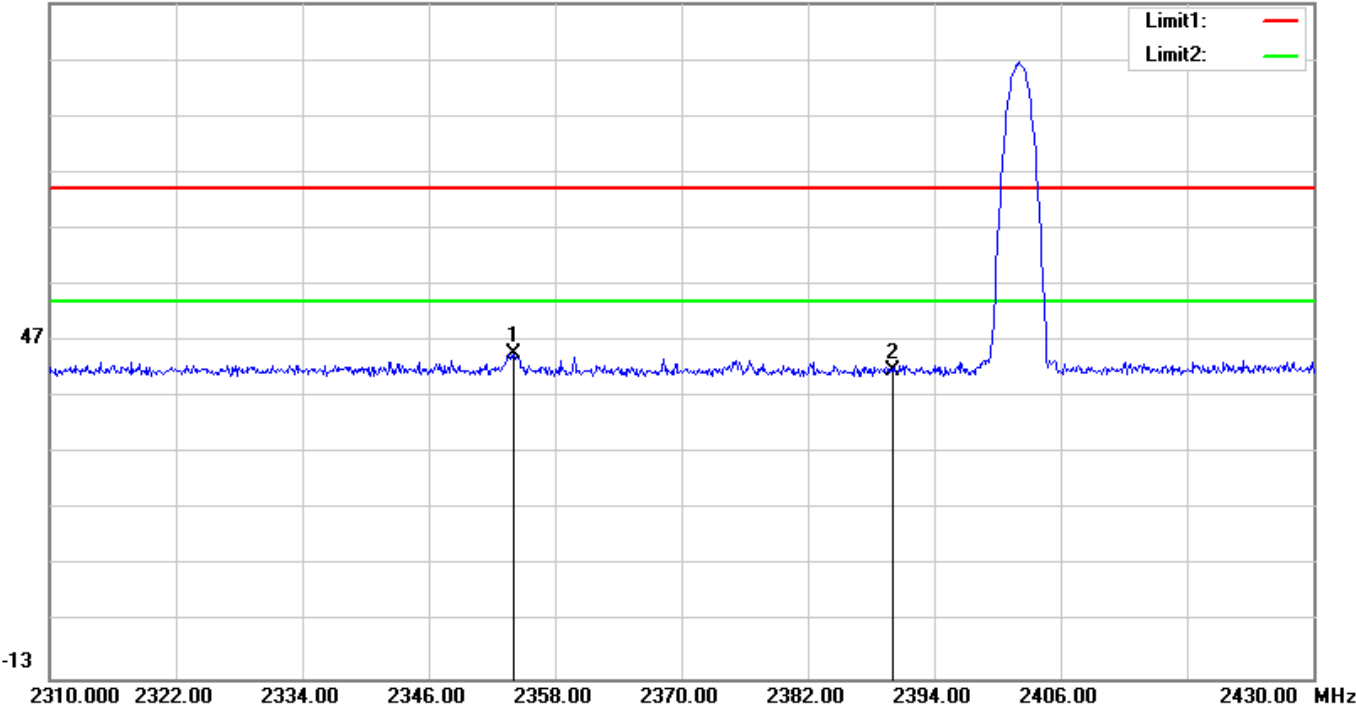
Test Graph
107.0 dBuV/m



No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(deg.)	
1	2383.200	44.81	2.69	47.50	74.00	-26.50	100	348	peak
2	2390.000	38.90	2.71	41.61	74.00	-32.39	200	352	peak

Mode:	$\pi/4$ DQPSK Transmitting	Channel:	2402
Remark:	Vertical		

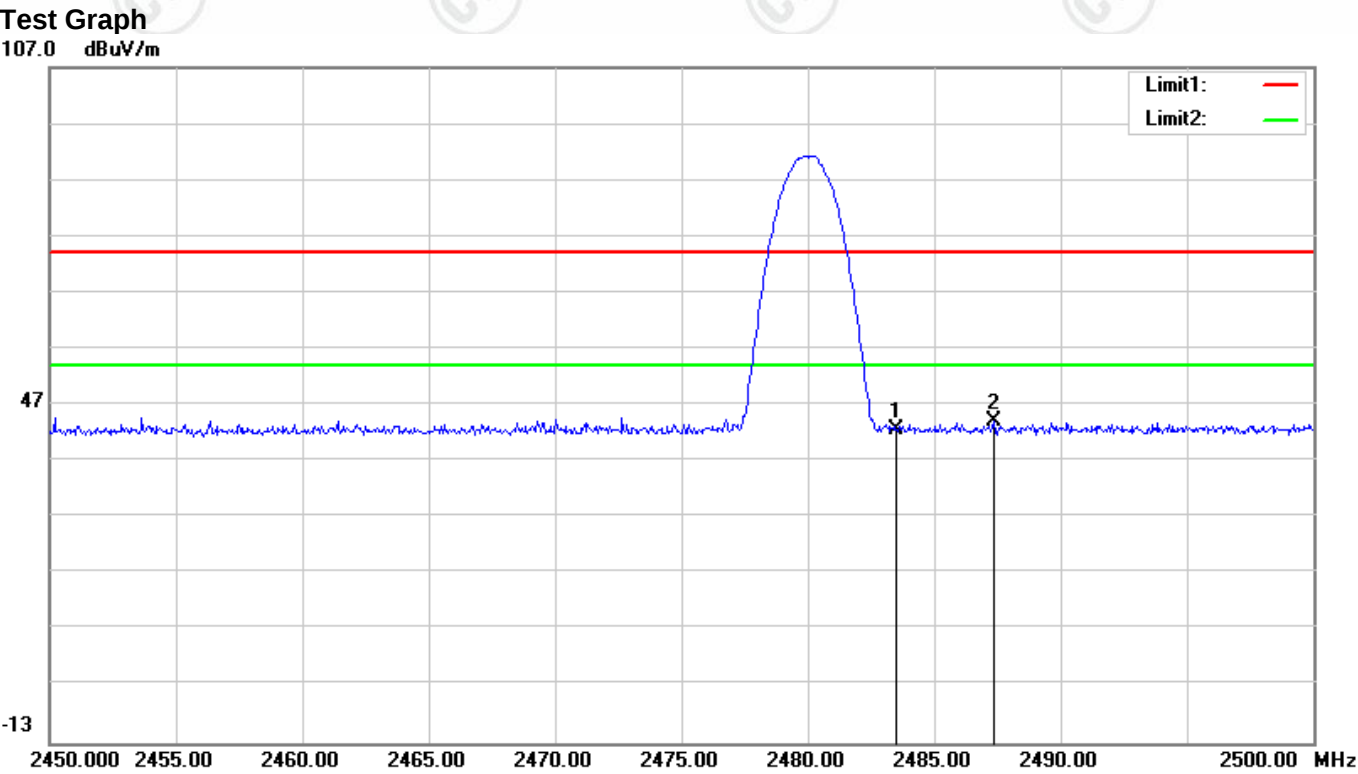
Test Graph
107.0 dBuV/m



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2354.040	42.21	2.62	44.83	74.00	-29.17	100	38	peak
2	2390.000	39.13	2.71	41.84	74.00	-32.16	200	359	peak

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Mode:	$\pi/4$ DQPSK Transmitting	Channel:	2480
Remark:	Horizontal		

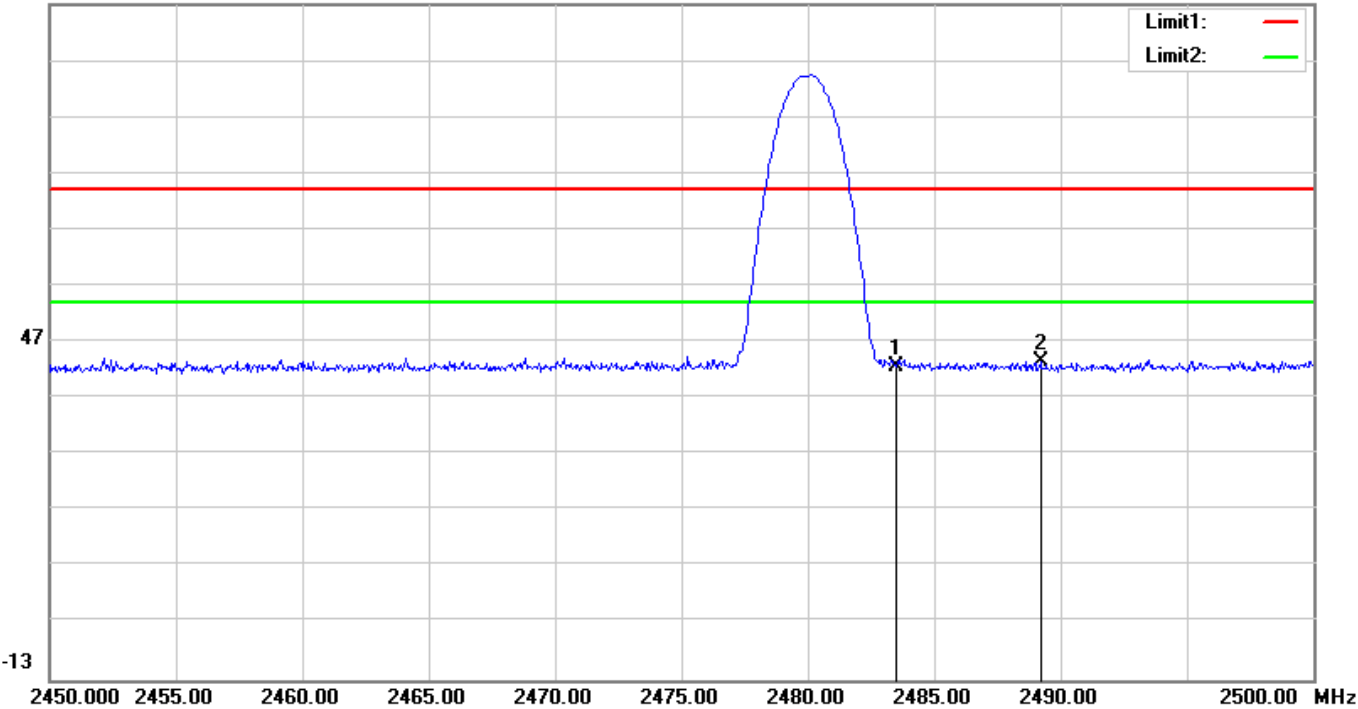


No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(deg.)	
1	2483.500	39.87	2.92	42.79	74.00	-31.21	100	253	peak
2	2487.350	41.35	2.92	44.27	74.00	-29.73	200	1	peak

Report No. : EED39N00008302

Mode:	$\pi/4$ DQPSK Transmitting	Channel:	2480
Remark:	Vertical		

Test Graph
107.0 dBuV/m

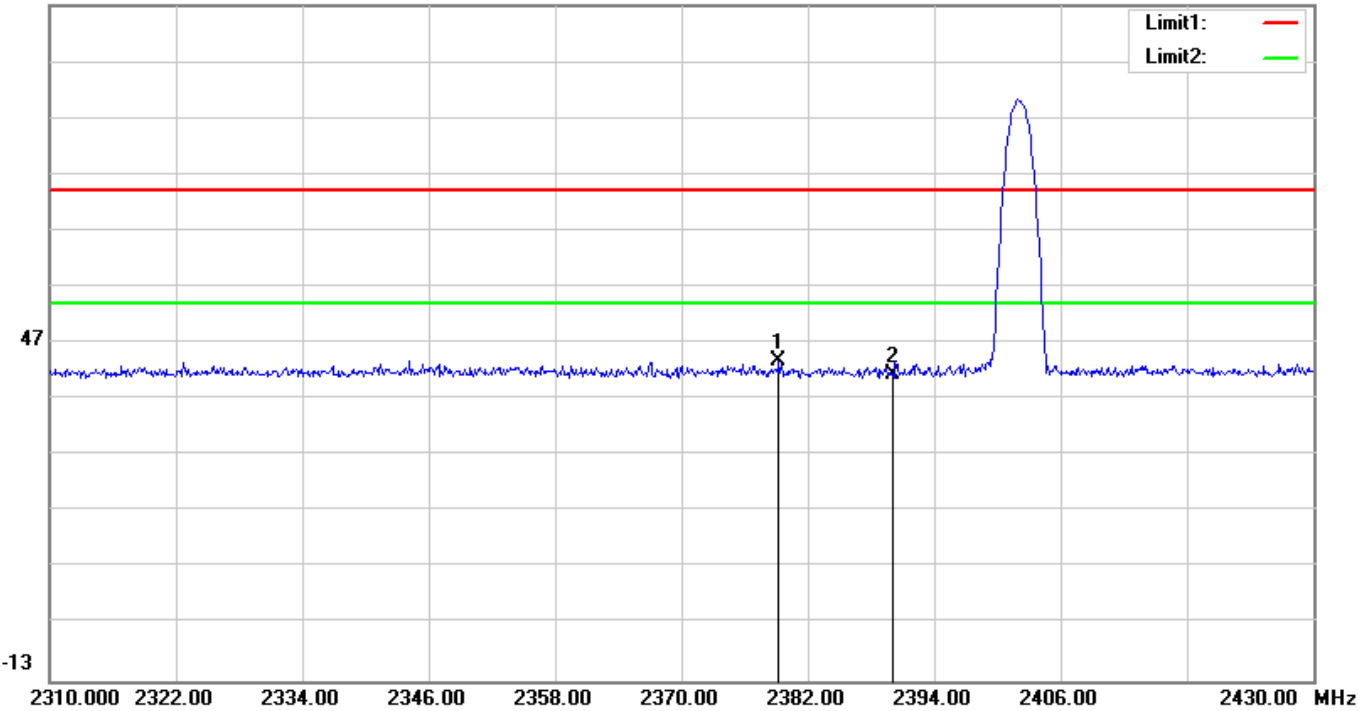


No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2483.500	39.74	2.92	42.66	74.00	-31.34	122	360	peak
2	2489.200	40.64	2.93	43.57	74.00	-30.43	100	290	peak

Mode:	8DPSK Transmitting	Channel:	2402
Remark:	Horizontal		

Test Graph

107.0 dBuV/m

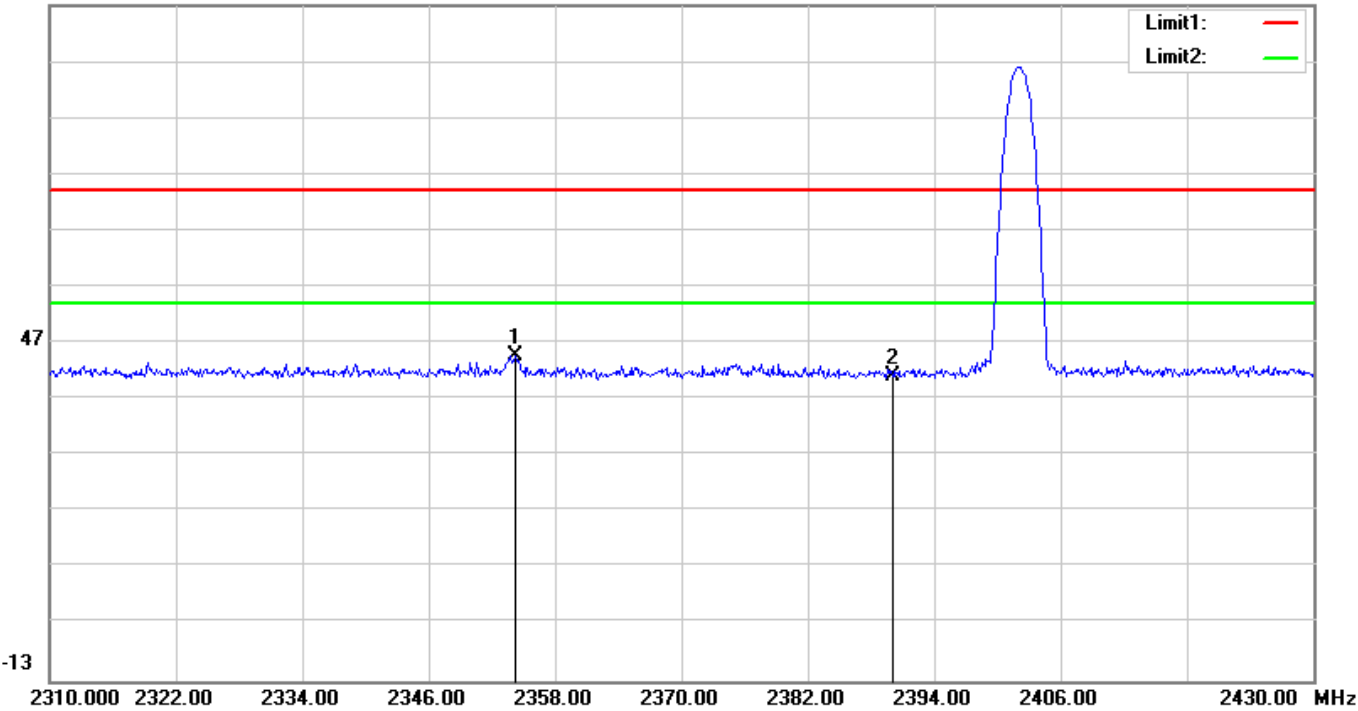


No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2379.240	41.24	2.68	43.92	74.00	-30.08	159	360	peak
2	2390.000	38.66	2.71	41.37	74.00	-32.63	200	358	peak

Mode:	8DPSK Transmitting	Channel:	2402
Remark:	Vertical		

Test Graph

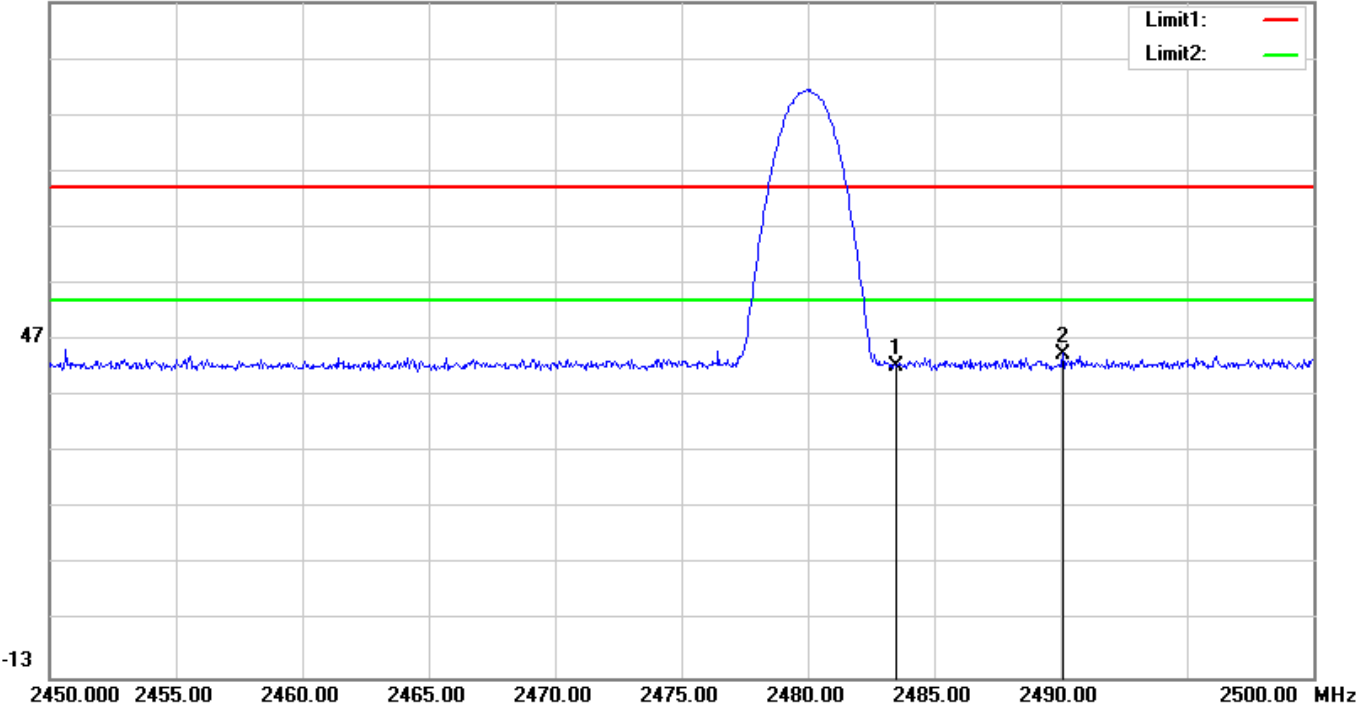
107.0 dBuV/m



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2354.280	42.21	2.62	44.83	74.00	-29.17	100	49	peak
2	2390.000	38.58	2.71	41.29	74.00	-32.71	200	293	peak

Mode:	8DPSK Transmitting	Channel:	2480
Remark:	Horizontal		

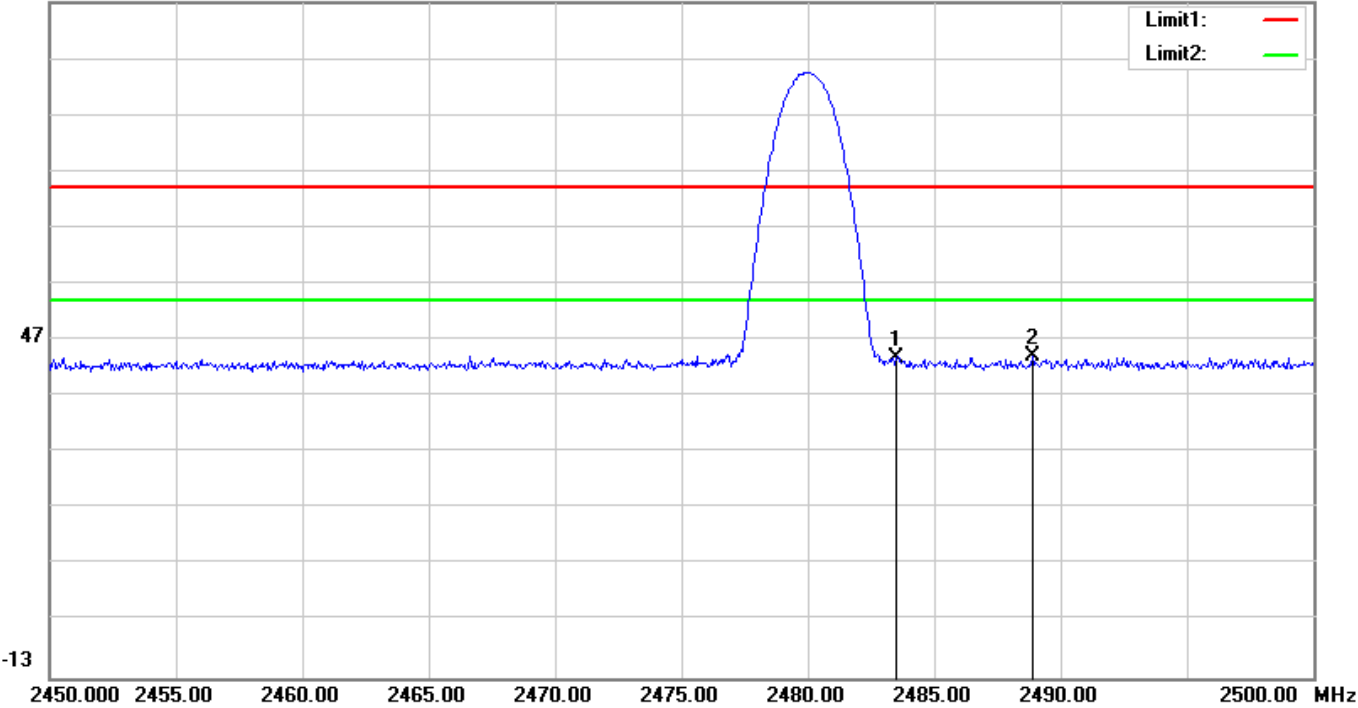
Test Graph
107.0 dBuV/m



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	39.51	2.92	42.43	74.00	-31.57	184	360	peak
2	2490.100	41.67	2.93	44.60	74.00	-29.40	138	360	peak

Mode:	8DPSK Transmitting	Channel:	2480
Remark:	Vertical		

Test Graph
107.0 dBuV/m

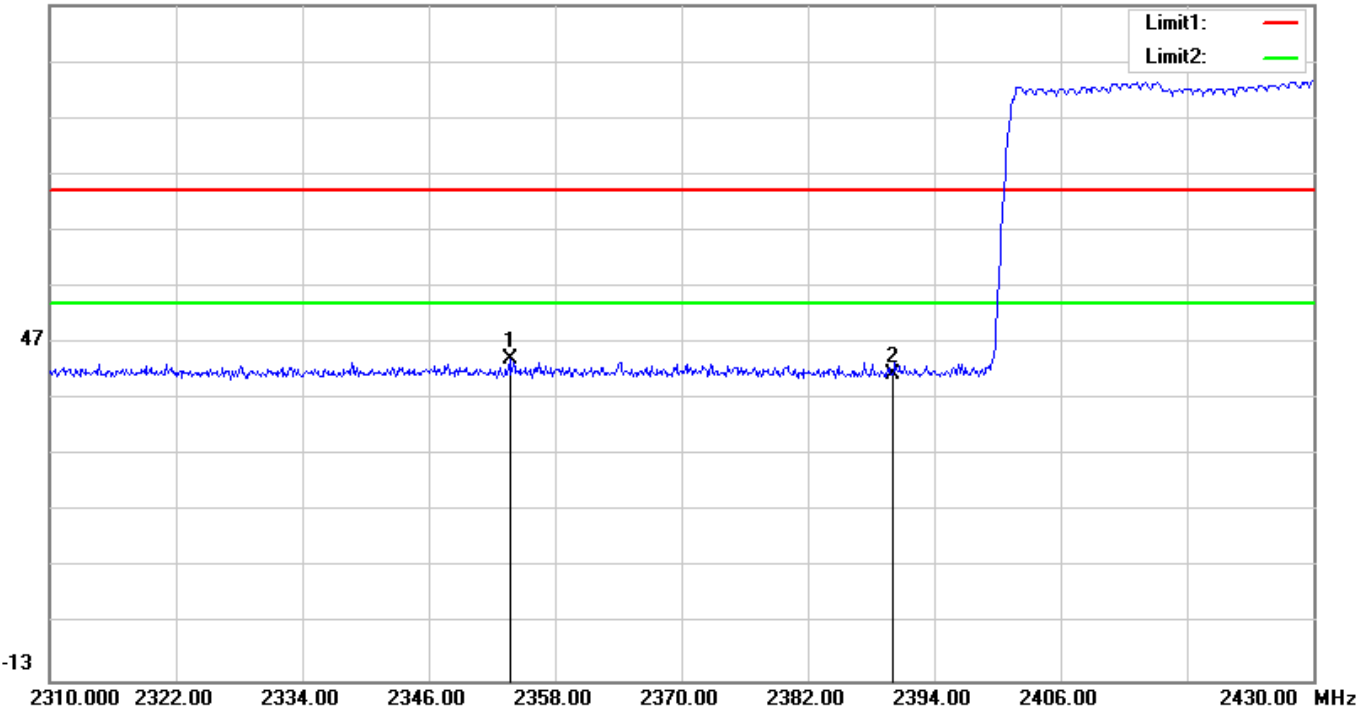


No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2483.500	41.00	2.92	43.92	74.00	-30.08	199	360	peak
2	2488.900	41.10	2.93	44.03	74.00	-29.97	100	274	peak

Mode:	GFSK Hopping	Channel:	2402
Remark:	Horizontal		

Test Graph

107.0 dBuV/m

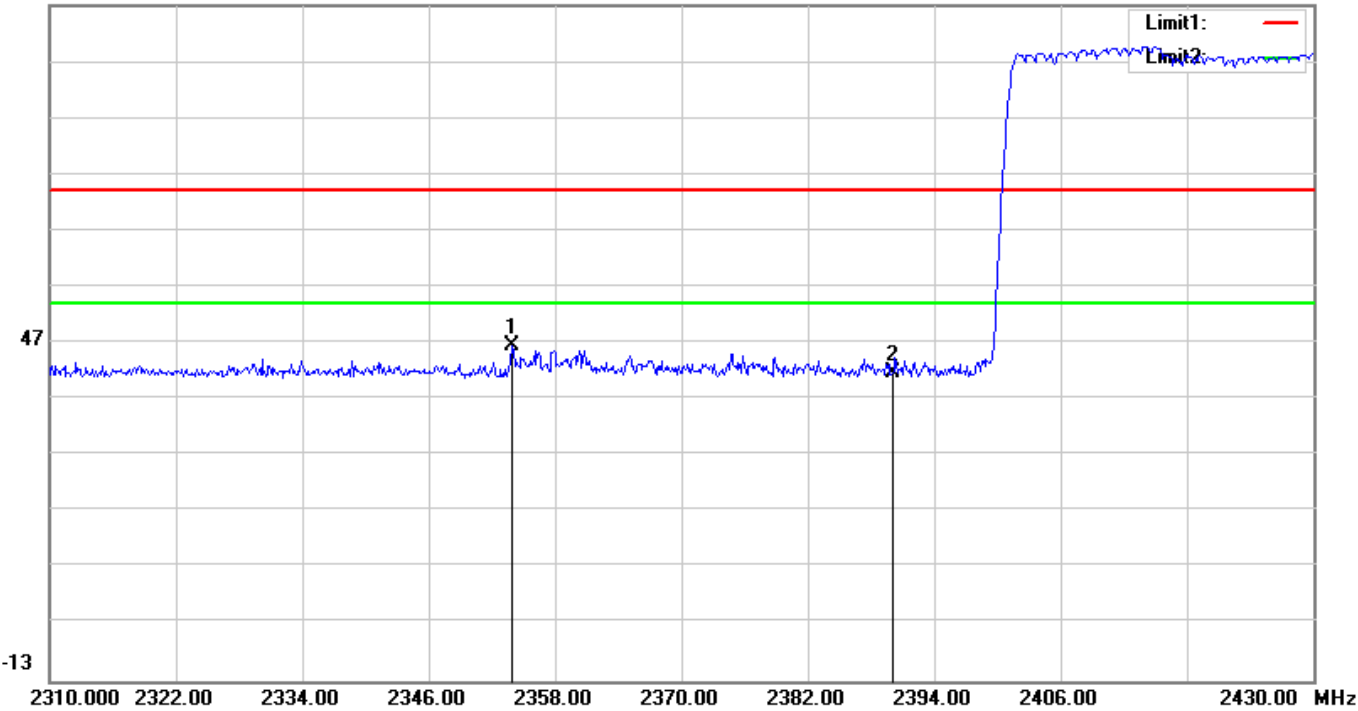


No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2353.680	41.48	2.61	44.09	74.00	-29.91	157	360	peak
2	2390.000	38.82	2.71	41.53	74.00	-32.47	103	360	peak

Mode:	GFSK Hopping	Channel:	2402
Remark:	Vertical		

Test Graph

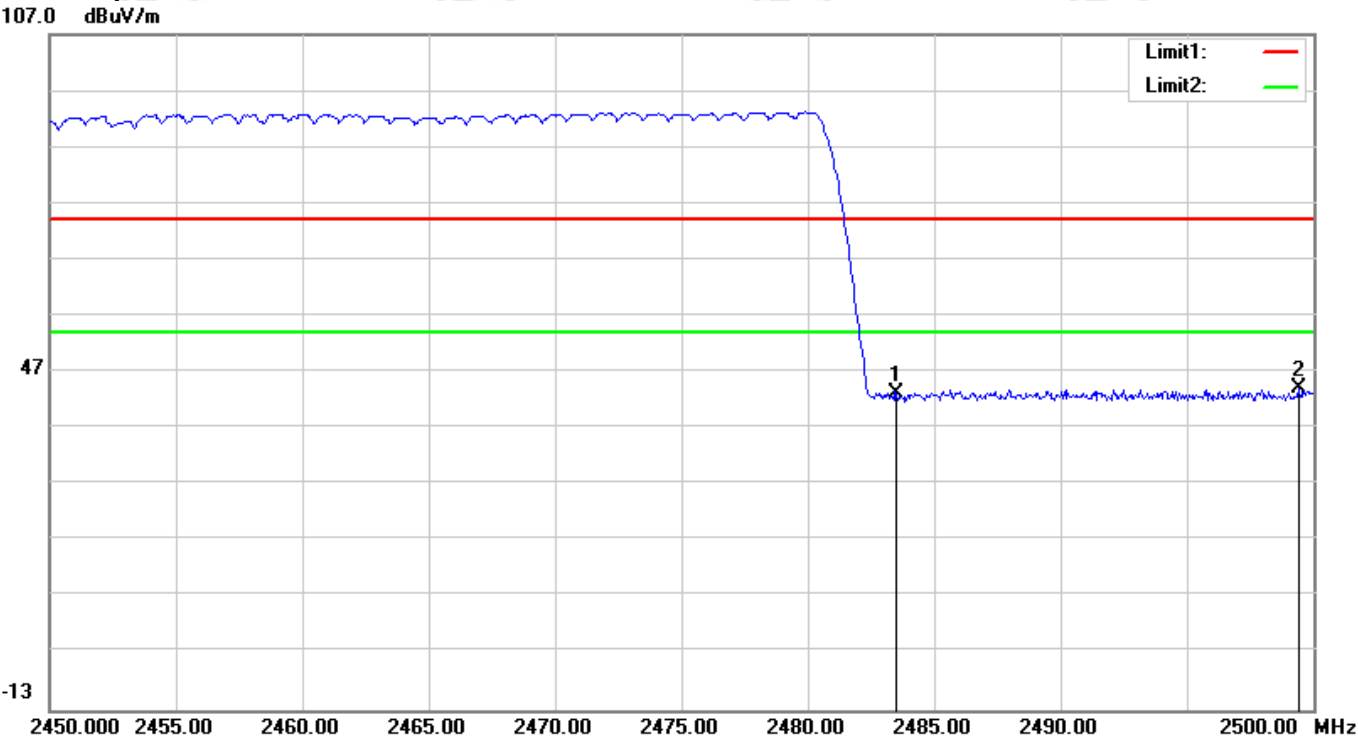
107.0 dBuV/m



No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(deg.)	
1	2353.920	43.96	2.62	46.58	74.00	-27.42	100	33	peak
2	2390.000	39.05	2.71	41.76	74.00	-32.24	100	360	peak

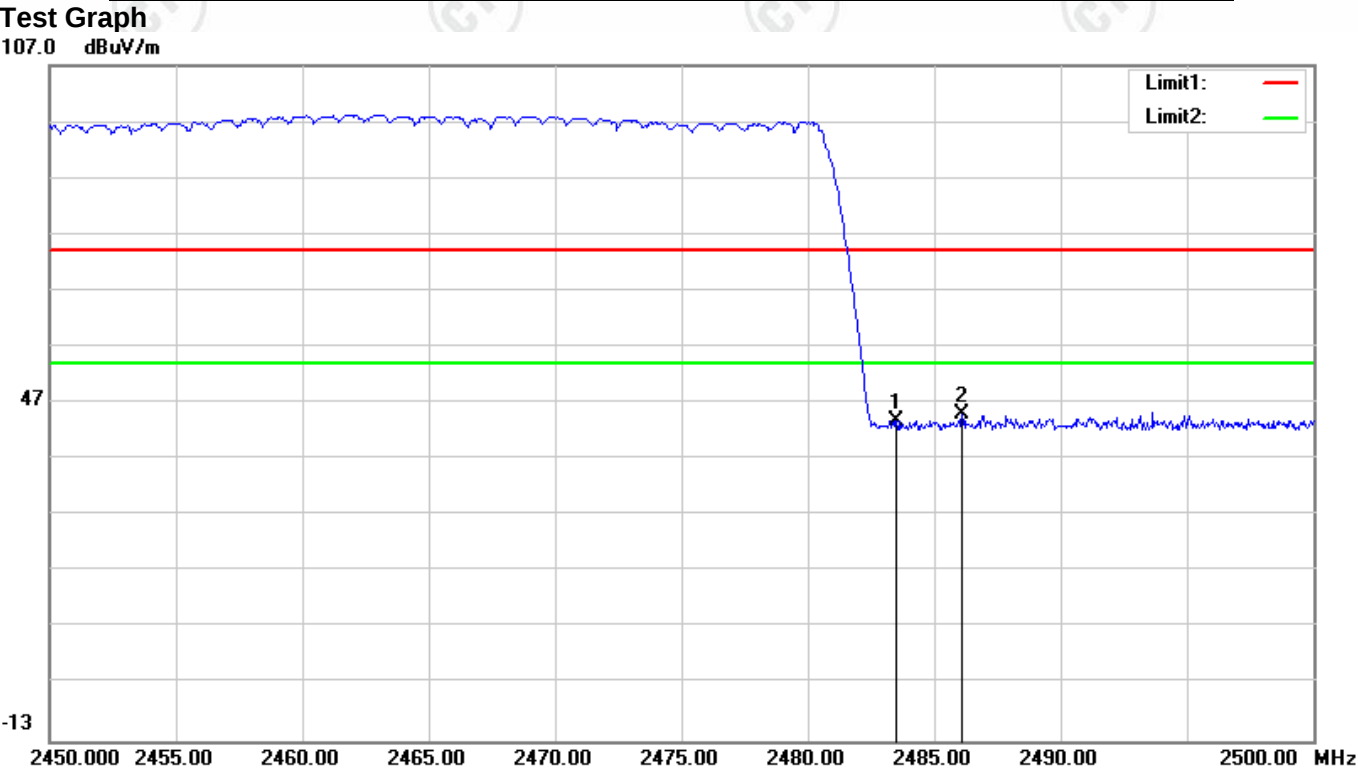
Mode:	GFSK Hopping	Channel:	2480
Remark:	Horizontal		

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	40.39	2.92	43.31	74.00	-30.69	200	12	peak
2	2499.400	41.08	2.95	44.03	74.00	-29.97	100	82	peak

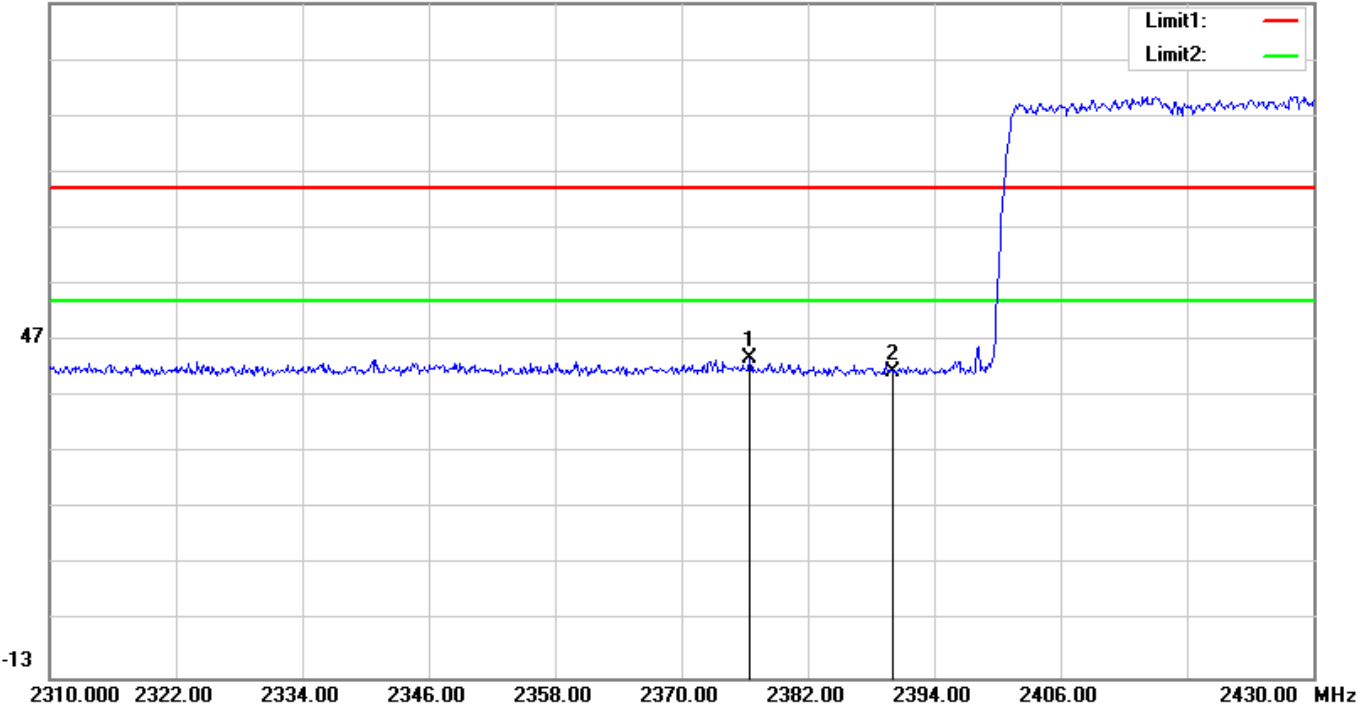
Mode:	GFSK Hopping	Channel:	2480
Remark:	Vertical		



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	40.86	2.92	43.78	74.00	-30.22	100	31	peak
2	2486.100	42.07	2.92	44.99	74.00	-29.01	100	359	peak

Mode:	$\pi/4$ DQPSK Hopping	Channel:	2402
Remark:	Horizontal		

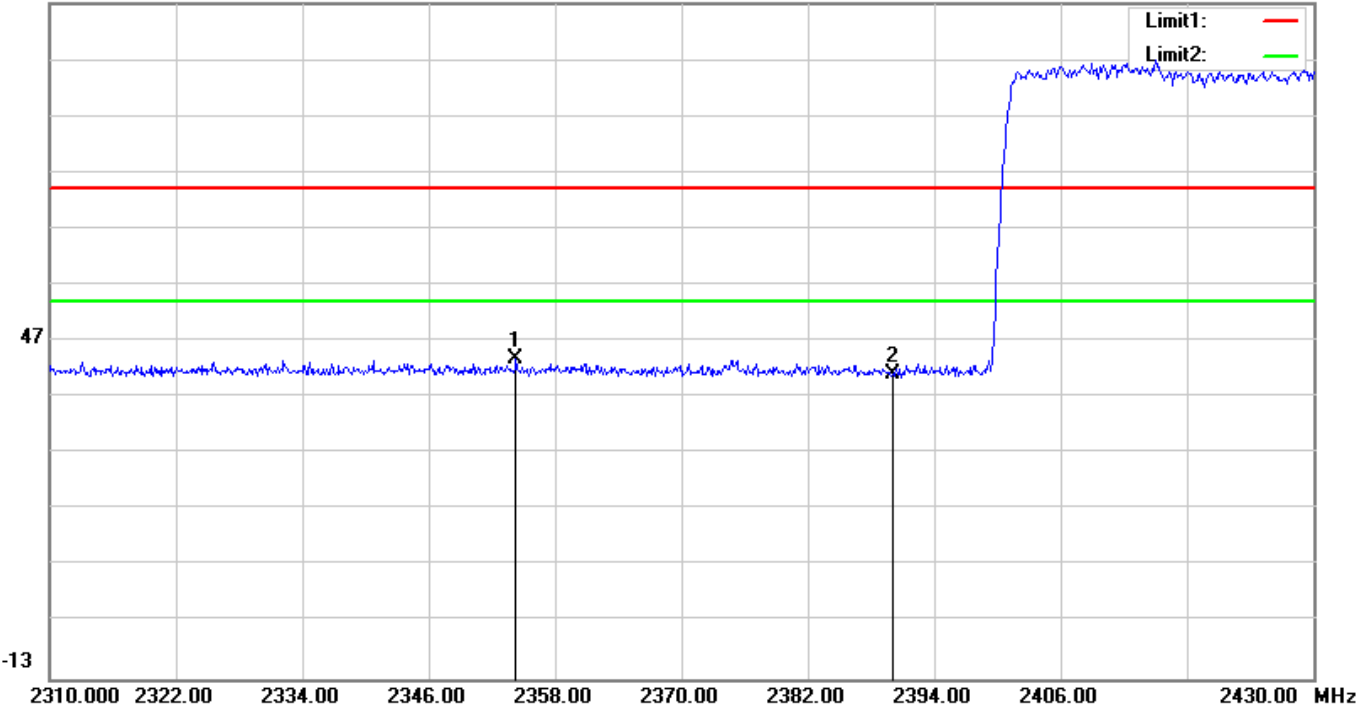
Test Graph
107.0 dBuV/m



No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(deg.)	
1	2376.480	41.03	2.68	43.71	74.00	-30.29	134	360	peak
2	2390.000	38.63	2.71	41.34	74.00	-32.66	200	129	peak

Mode:	π /4DQPSK Hopping	Channel:	2402
Remark:	Vertical		

Test Graph
107.0 dBuV/m

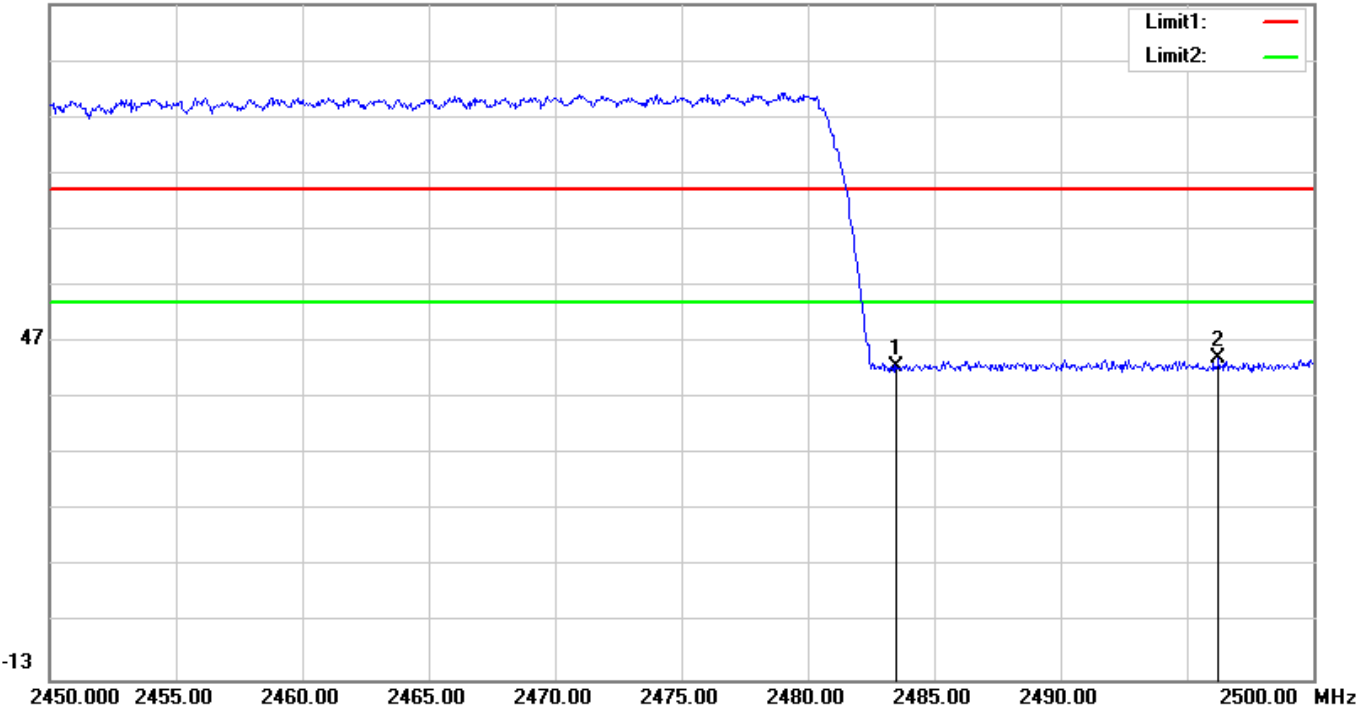


No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2354.280	41.30	2.62	43.92	74.00	-30.08	100	19	peak
2	2390.000	38.34	2.71	41.05	74.00	-32.95	100	39	peak

Report No. : EED39N00008302

Mode:	$\pi/4$ DQPSK Hopping	Channel:	2480
Remark:	Horizontal		

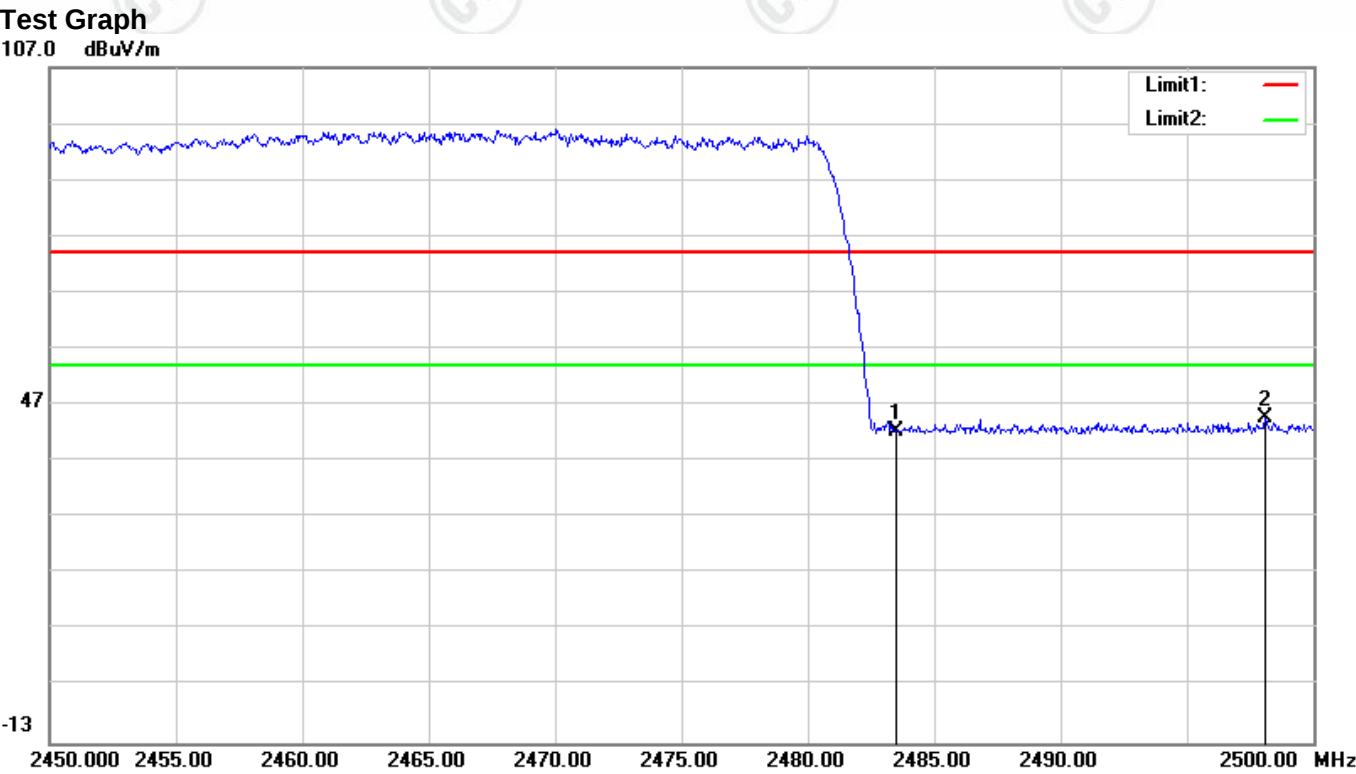
Test Graph
107.0 dBuV/m



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	45.24	2.92	48.16	74.00	-25.84	136	360	peak
2	2496.228	46.80	2.94	49.74	74.00	-24.26	136	360	peak

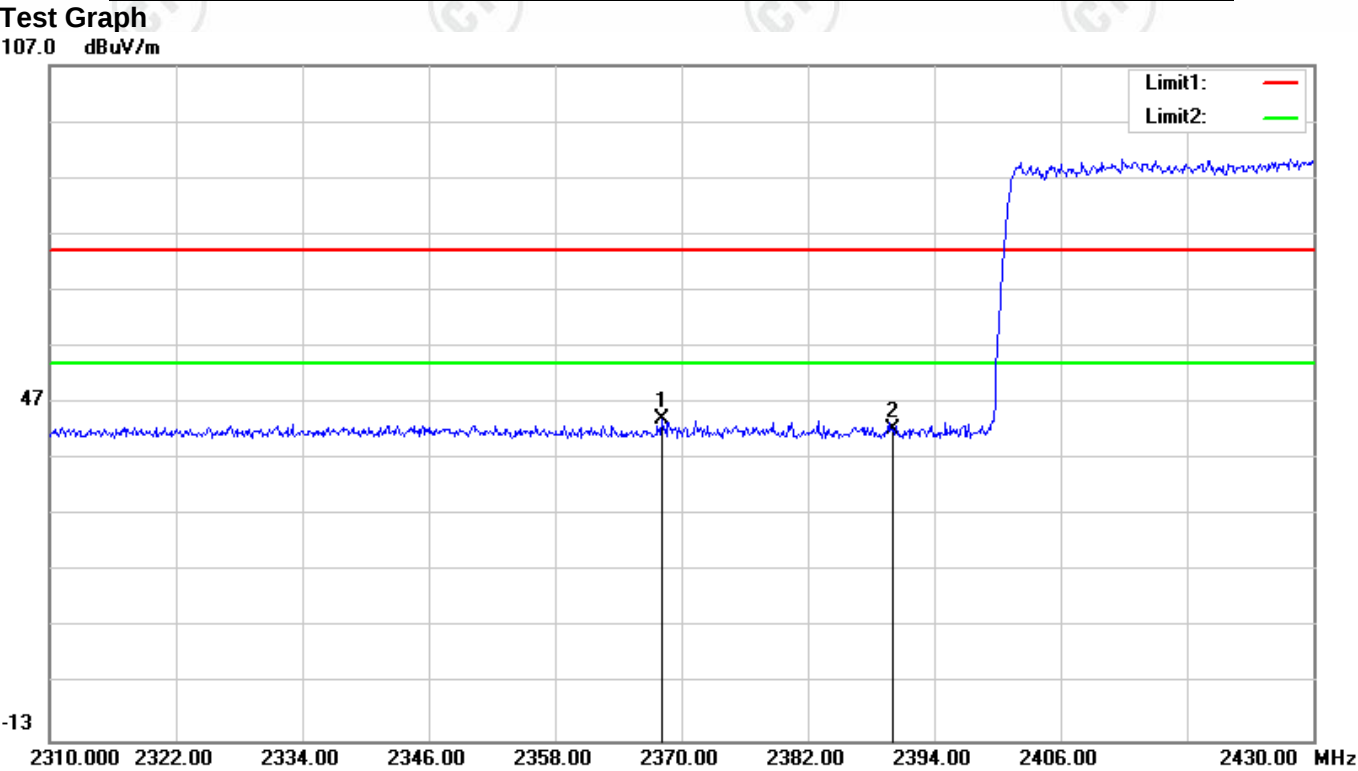
Report No. : EED39N00008302

Mode:	$\pi/4$ DQPSK Hopping	Channel:	2480
Remark:	Vertical		



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	39.39	2.92	42.31	74.00	-31.69	152	360	peak
2	2498.100	41.95	2.95	44.90	74.00	-29.10	169	360	peak

Mode:	8DPSK Hopping	Channel:	2402
Remark:	Horizontal		

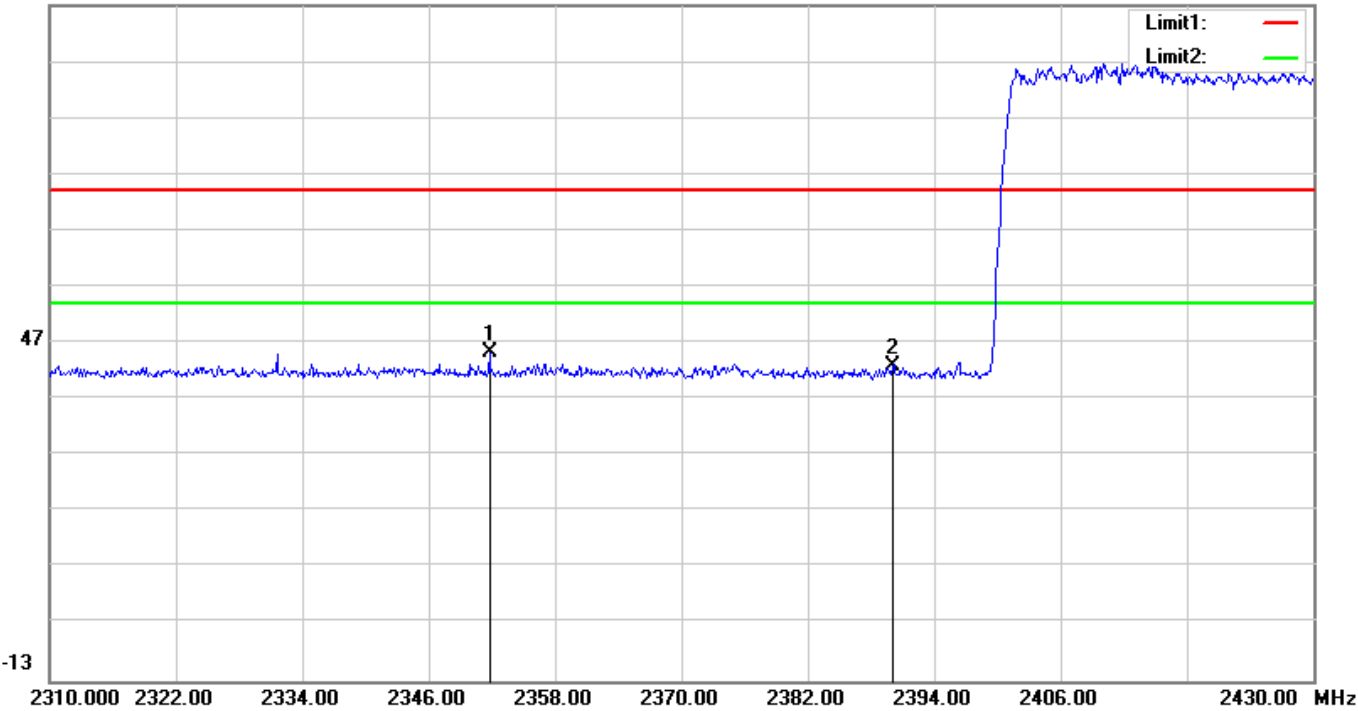


No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(deg.)	
1	2368.200	41.43	2.65	44.08	74.00	-29.92	198	360	peak
2	2390.000	39.57	2.71	42.28	74.00	-31.72	141	360	peak

Mode:	8DPSK Hopping	Channel:	2402
Remark:	Vertical		

Test Graph

107.0 dBuV/m

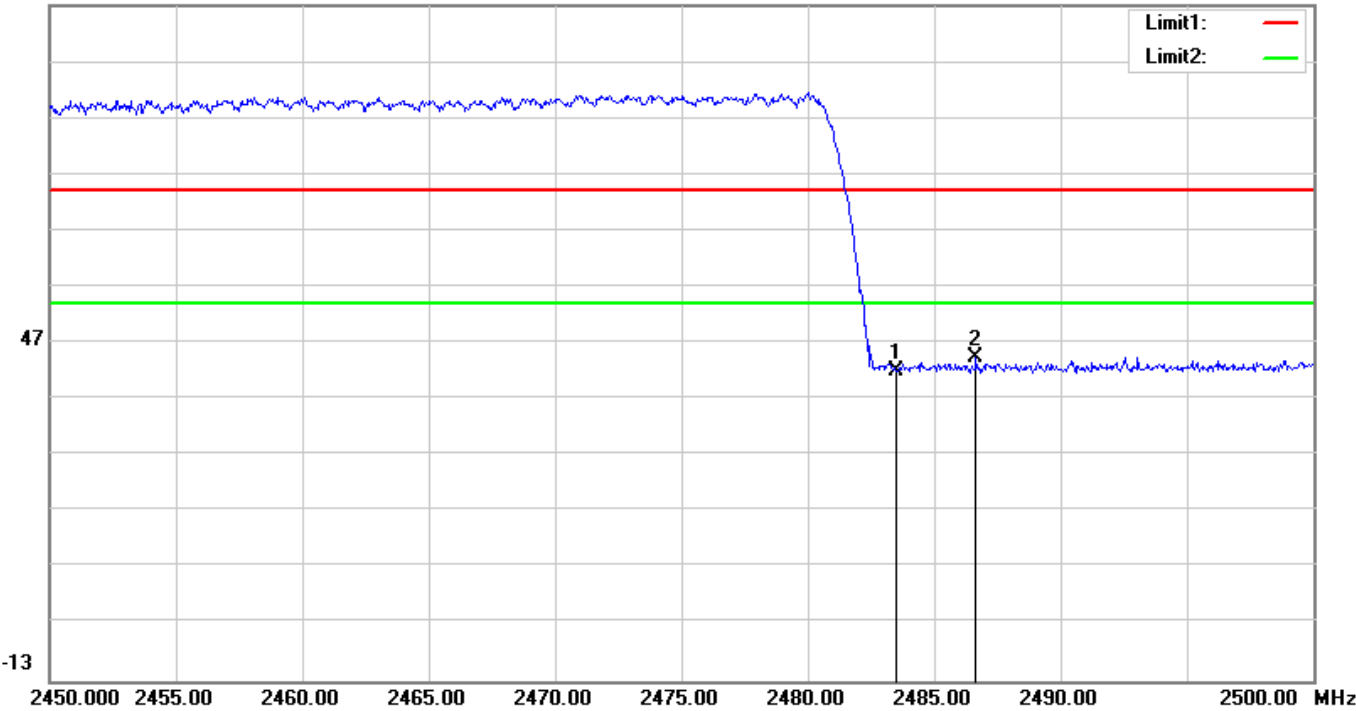


No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(deg.)	
1	2351.760	42.86	2.61	45.47	74.00	-28.53	100	340	peak
2	2390.000	40.32	2.71	43.03	74.00	-30.97	100	37	peak

Mode:	8DPSK Hopping	Channel:	2480
Remark:	Horizontal		

Test Graph

107.0 dBuV/m

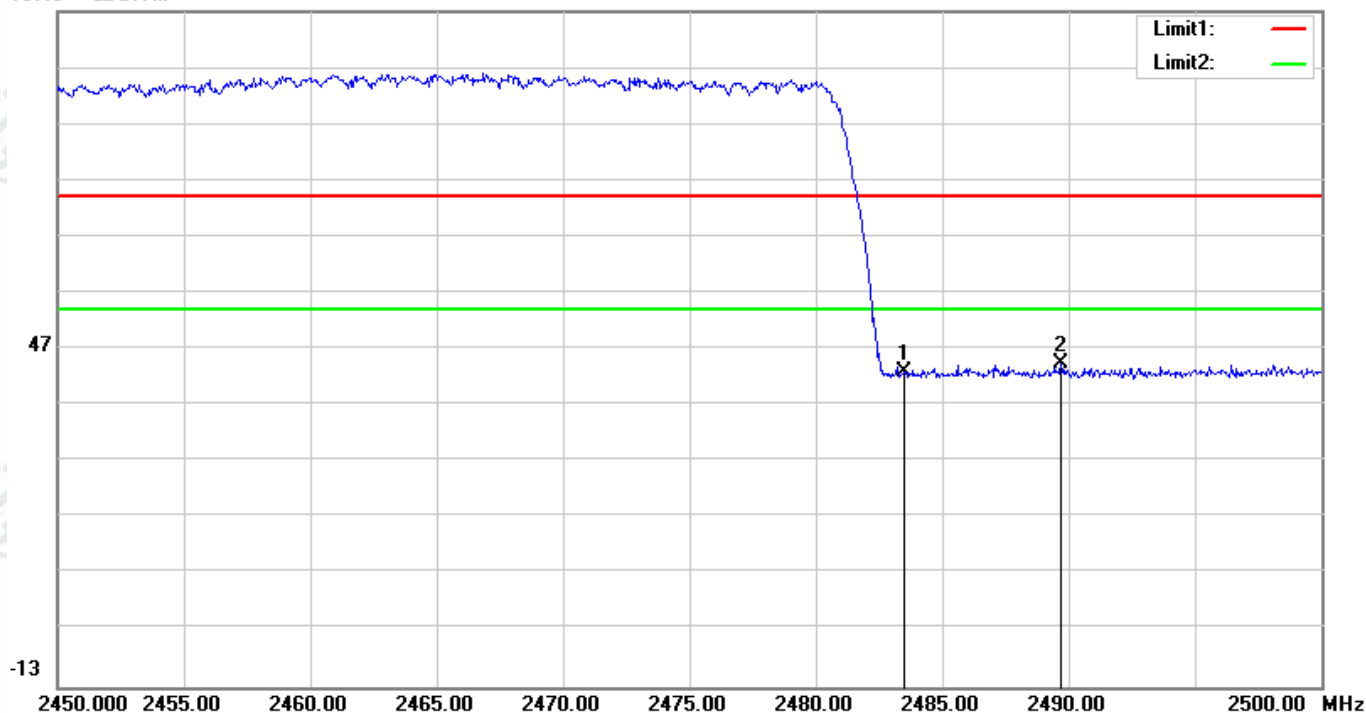


No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(deg.)	
1	2483.500	39.19	2.92	42.11	74.00	-31.89	200	212	peak
2	2486.650	41.67	2.92	44.59	74.00	-29.41	200	13	peak

Mode:	8DPSK Hopping	Channel:	2480
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	39.98	2.92	42.90	74.00	-31.10	164	360	peak
2	2489.700	41.38	2.93	44.31	74.00	-29.69	126	360	peak

Notes:

1) As shown in this section, 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

Appendix K): 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>10Hz</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	10Hz	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	10Hz	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 table 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 peak emission level radiated by the device.	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:	$\pi/4$ DQPSK Transmitting	Channel:	2402
Remark:			

Frequency (MHz)	Ant. Pol. (H/V)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
43.5800	V	53.99	-22.55	31.44	40.00	-8.56	QP
93.0500	V	49.28	-24.11	25.17	43.50	-18.33	QP
624.6100	V	49.66	-16.50	33.16	46.00	-12.84	QP
697.3600	V	53.32	-16.31	37.01	46.00	-8.99	QP
717.7300	V	52.19	-15.83	36.36	46.00	-9.64	QP
874.8700	V	49.76	-14.13	35.63	46.00	-10.37	QP
42.6100	H	44.06	-22.65	21.41	40.00	-18.59	QP
83.3500	H	49.21	-26.94	22.27	40.00	-17.73	QP
245.3400	H	49.44	-22.91	26.53	46.00	-19.47	QP
624.6100	H	45.75	-16.50	29.25	46.00	-16.75	QP
717.7300	H	49.11	-15.83	33.28	46.00	-12.72	QP
874.8700	H	47.03	-14.13	32.90	46.00	-13.10	QP

Notes:

- 1) Through Pre-scan then find the $\pi/4$ DQPSK -CH0 is the worst case mode and only the worst data was recorded.

Transmitter Emission above 1GHz:

Mode:	GFSK Transmitting	Channel:	2402
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	3193.000	40.54	5.21	45.75	74.00	-28.25	100	20	peak
2	7341.000	32.87	12.23	45.10	74.00	-28.90	100	142	peak
3	9976.000	31.69	14.57	46.26	74.00	-27.74	100	115	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	3193.000	45.11	5.21	50.32	74.00	-23.68	100	330	peak
2	6831.000	33.94	11.54	45.48	74.00	-28.52	100	103	peak
3	11013.000	31.32	16.53	47.85	74.00	-26.15	100	63	peak

Mode:	GFSK Transmitting	Channel:	2441
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	3193.000	40.19	5.21	45.40	74.00	-28.60	100	325	peak
2	6814.000	33.83	11.52	45.35	74.00	-28.65	100	42	peak
3	11013.000	31.20	16.53	47.73	74.00	-26.27	100	267	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	3193.000	45.41	5.21	50.62	74.00	-23.38	100	335	peak
2	7086.000	32.81	11.82	44.63	74.00	-29.37	100	153	peak
3	10214.000	31.40	15.15	46.55	74.00	-27.45	100	327	peak

Mode:	GFSK Transmitting	Channel:	2480
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	3193.000	40.35	5.21	45.56	74.00	-28.44	100	26	peak
2	7596.000	32.16	12.47	44.63	74.00	-29.37	100	347	peak
3	10214.000	31.49	15.15	46.64	74.00	-27.36	100	220	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	3193.000	45.28	5.21	50.49	74.00	-23.51	100	332	peak
2	8786.000	32.80	13.87	46.67	74.00	-27.33	100	16	peak
3	12288.000	31.43	17.83	49.26	74.00	-24.74	100	67	peak

Mode:	$\pi/4$ DQPSK Transmitting	Channel:	2402
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	3193.000	40.61	5.21	45.82	74.00	-28.18	100	325	peak
2	8412.000	31.84	13.54	45.38	74.00	-28.62	100	227	peak
3	11183.000	30.73	16.82	47.55	74.00	-26.45	100	275	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	3193.000	44.89	5.21	50.10	74.00	-23.90	100	332	peak
2	6848.000	33.30	11.55	44.85	74.00	-29.15	100	236	peak
3	10520.000	30.45	15.78	46.23	74.00	-27.77	100	246	peak

Mode:	$\pi/4$ DQPSK Transmitting	Channel:	2441
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	4621.000	34.30	8.66	42.96	74.00	-31.04	100	173	peak
2	6831.000	32.88	11.54	44.42	74.00	-29.58	100	116	peak
3	11200.000	31.06	16.85	47.91	74.00	-26.09	100	2	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	4162.000	35.04	8.25	43.29	74.00	-30.71	100	297	peak
2	7341.000	32.80	12.23	45.03	74.00	-28.97	100	0	peak
3	12509.000	30.59	18.28	48.87	74.00	-25.13	100	217	peak

Mode:	$\pi/4$ DQPSK Transmitting	Channel:	2480
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	4893.000	33.28	9.35	42.63	74.00	-31.37	100	1	peak
2	8973.000	31.93	14.05	45.98	74.00	-28.02	100	7	peak
3	11200.000	30.72	16.85	47.57	74.00	-26.43	100	273	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	3295.000	40.87	5.49	46.36	74.00	-27.64	100	338	peak
2	7341.000	32.82	12.23	45.05	74.00	-28.95	100	78	peak
3	10214.000	31.66	15.15	46.81	74.00	-27.19	100	340	peak

Mode:	8DPSK Transmitting	Channel:	2402
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	4774.000	33.93	9.07	43.00	74.00	-31.00	100	77	peak
2	8395.000	31.76	13.51	45.27	74.00	-28.73	100	86	peak
3	11013.000	31.12	16.53	47.65	74.00	-26.35	100	132	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	3295.000	41.78	5.49	47.27	74.00	-26.73	100	336	peak
2	8208.000	32.34	13.24	45.58	74.00	-28.42	100	163	peak
3	10231.000	32.29	15.18	47.47	74.00	-26.53	100	349	peak

Mode:	8DPSK Transmitting	Channel:	2441
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	4927.000	33.67	9.43	43.10	74.00	-30.90	100	360	peak
2	7613.000	32.34	12.49	44.83	74.00	-29.17	100	359	peak
3	11013.000	30.89	16.53	47.42	74.00	-26.58	100	15	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	3295.000	41.62	5.49	47.11	74.00	-26.89	100	335	peak
2	7358.000	32.57	12.25	44.82	74.00	-29.18	100	82	peak
3	10996.000	30.61	16.50	47.11	74.00	-26.89	100	249	peak

Mode:	8DPSK Transmitting	Channel:	2480
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	33.08	11.54	44.62	74.00	-29.38	100	174	peak
2	10809.000	30.51	16.26	46.77	74.00	-27.23	100	263	peak
3	12509.000	29.54	18.28	47.82	74.00	-26.18	100	319	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	3295.000	41.45	5.49	46.94	74.00	-27.06	100	336	peak
2	4961.000	35.54	9.51	45.05	74.00	-28.95	100	21	peak
3	11200.000	31.69	16.85	48.54	74.00	-25.46	100	22	peak

Notes:

- 1) Through Pre-scan transmitter mode with all kind of modulation and all kind of data type, find the 1-DH5 of data type is the worse case of GFSK modulation type, the 2-DH5 of data type is the worse case of $\pi/4$ DQPSK modulation type, the 3-DH5 of data type is the worse case of 8DPSK modulation type
- 2) 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.
- 3) 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
- 4) Scan from 9kHz to 25GHz, the disturbance above 13GHz 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.

APPENDIX 1 PHOTOGRAPHS OF TEST SETUP

Refer to Report No. EED39N00008301 for test setup photos.

APPENDIX 2 PHOTOGRAPHS OF EUT CONSTRUCTIONAL DETAILS

Refer to Report No. EED39N00008301 for EUT external and internal photos.

The testing data and results in this report are just for scientific research, education, internal quality control and product development etc.

*** End of Report ***

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