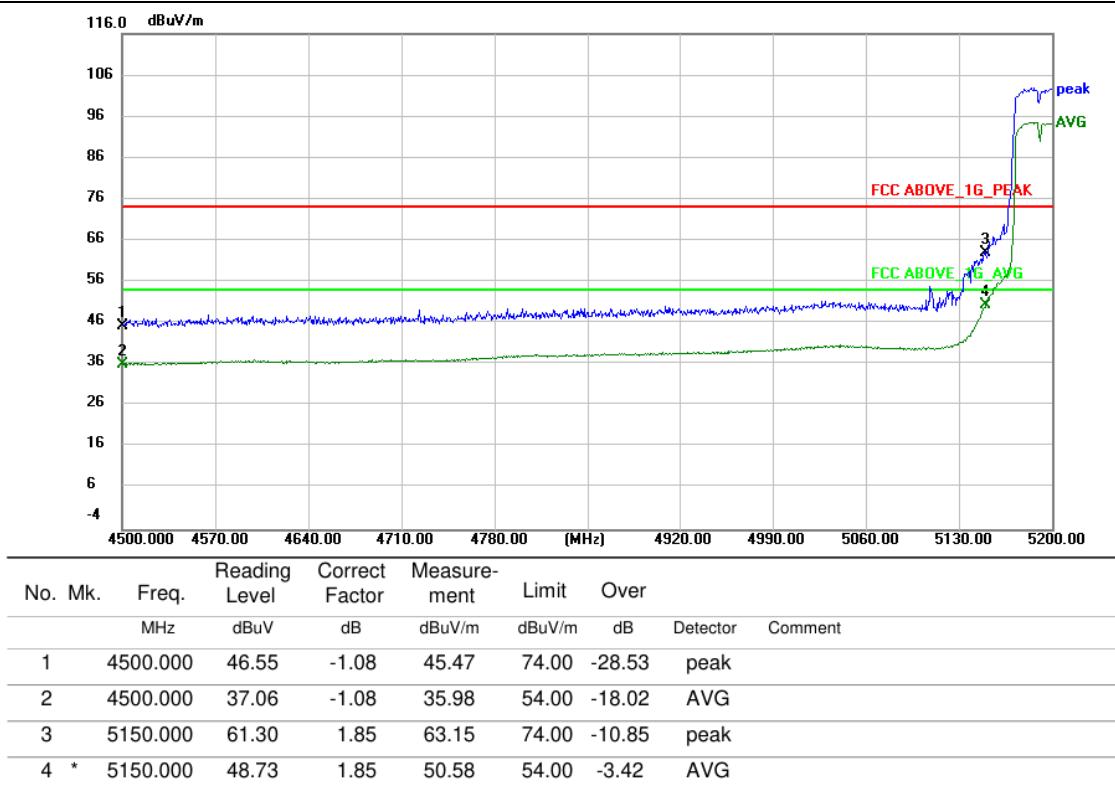


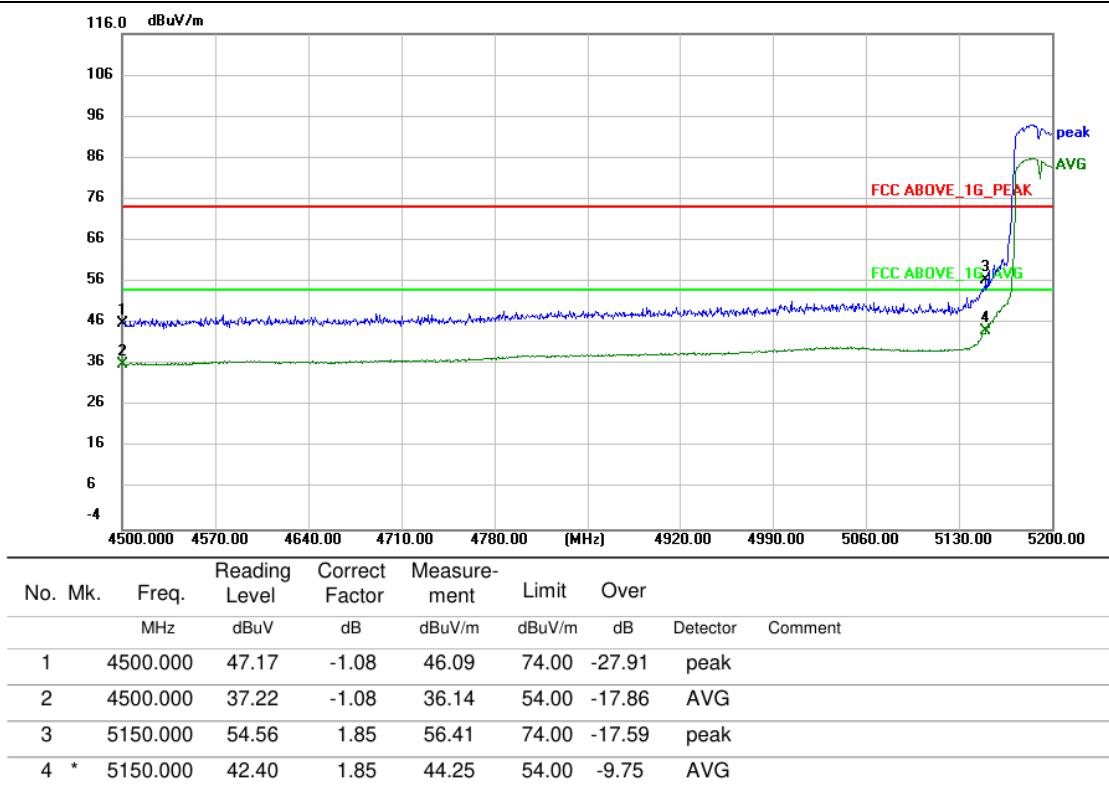


Mode8 / Polarization: Horizontal / CH: L



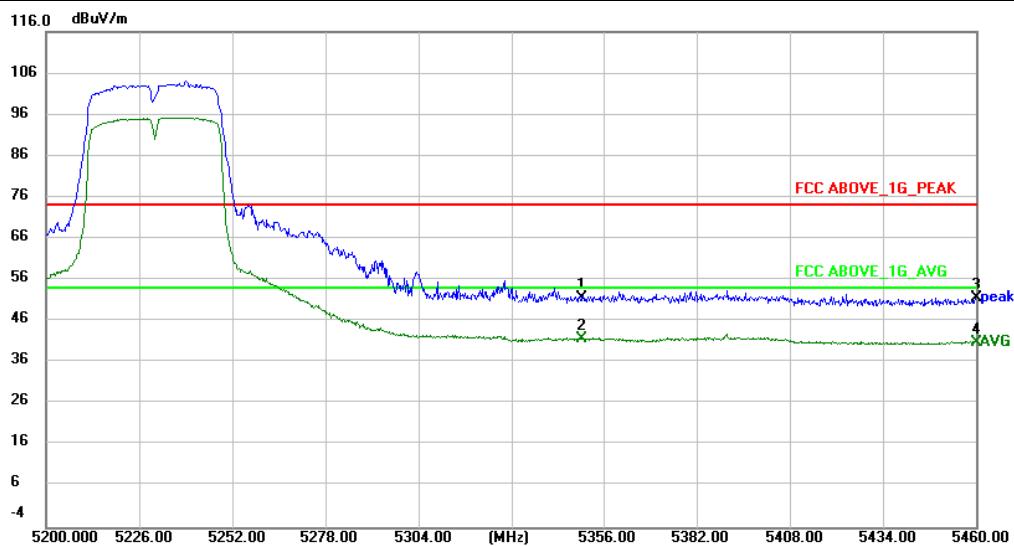


Mode8 / Polarization: Vertical / CH: L





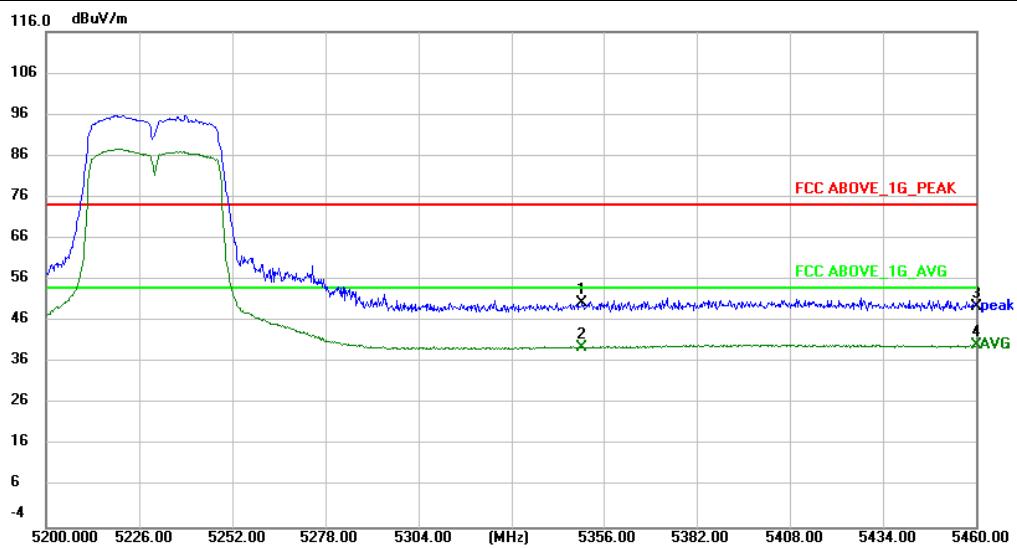
Mode8 / Polarization: Horizontal / CH: H



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		5350.000	49.39	2.30	51.69	74.00	-22.31	peak	
2	*	5350.000	39.31	2.30	41.61	54.00	-12.39	AVG	
3		5460.000	49.32	2.24	51.56	74.00	-22.44	peak	
4		5460.000	38.65	2.24	40.89	54.00	-13.11	AVG	



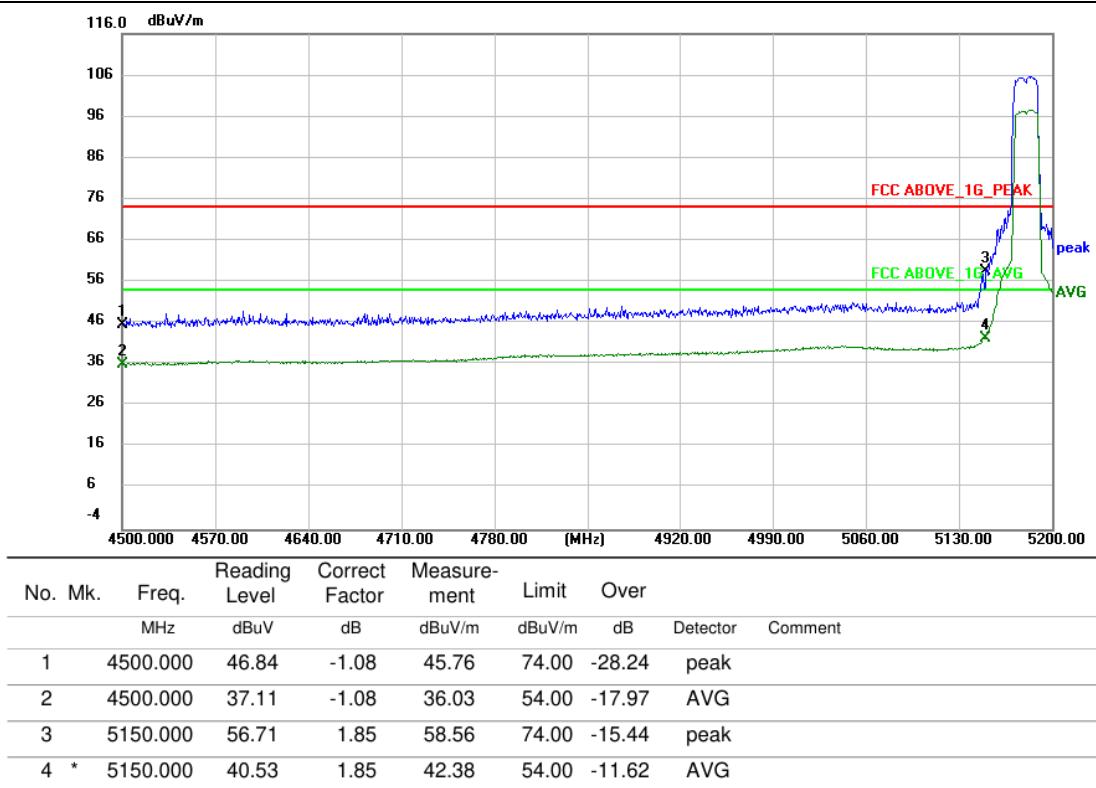
Mode8 / Polarization: Vertical / CH: H



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		5350.000	48.24	2.30	50.54	74.00	-23.46	peak	
2		5350.000	37.27	2.30	39.57	54.00	-14.43	AVG	
3		5460.000	47.39	2.24	49.63	74.00	-24.37	peak	
4	*	5460.000	38.06	2.24	40.30	54.00	-13.70	AVG	

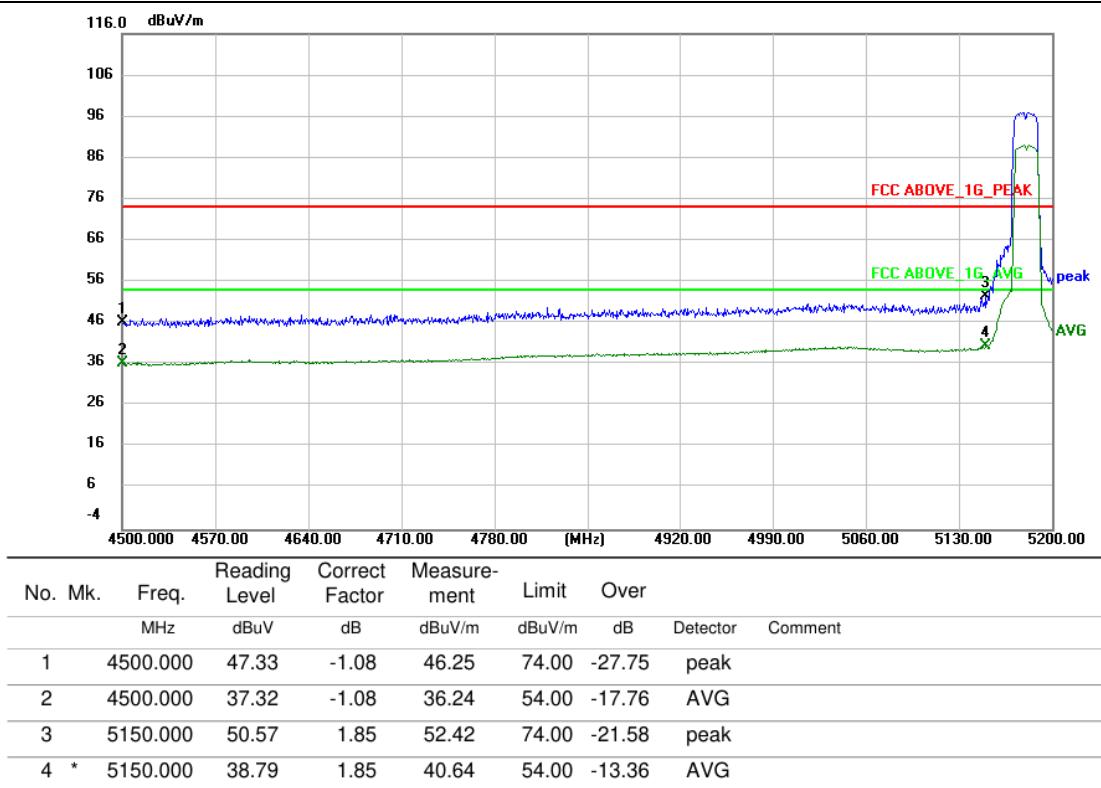


Mode9 / Polarization: Horizontal / CH: L



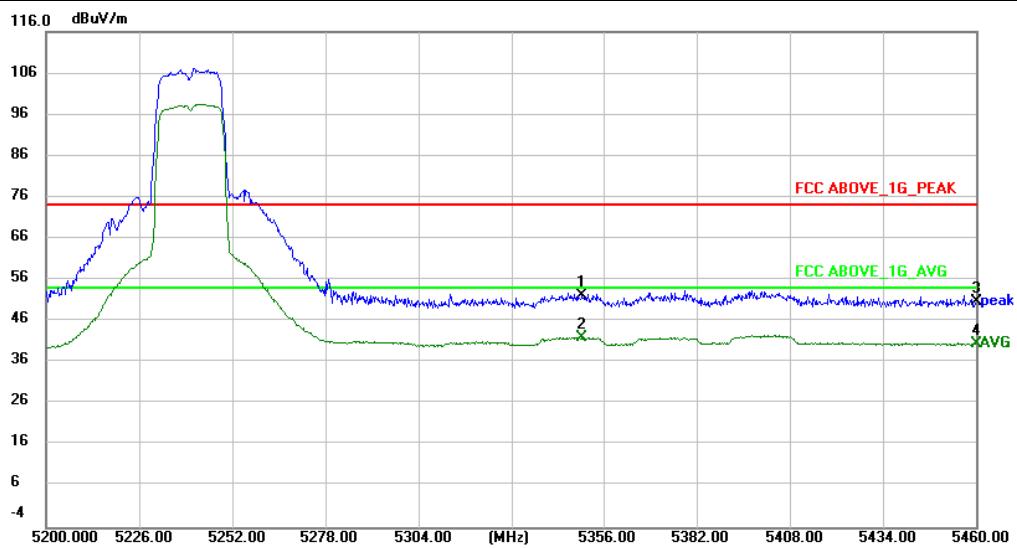


Mode9 / Polarization: Vertical / CH: L





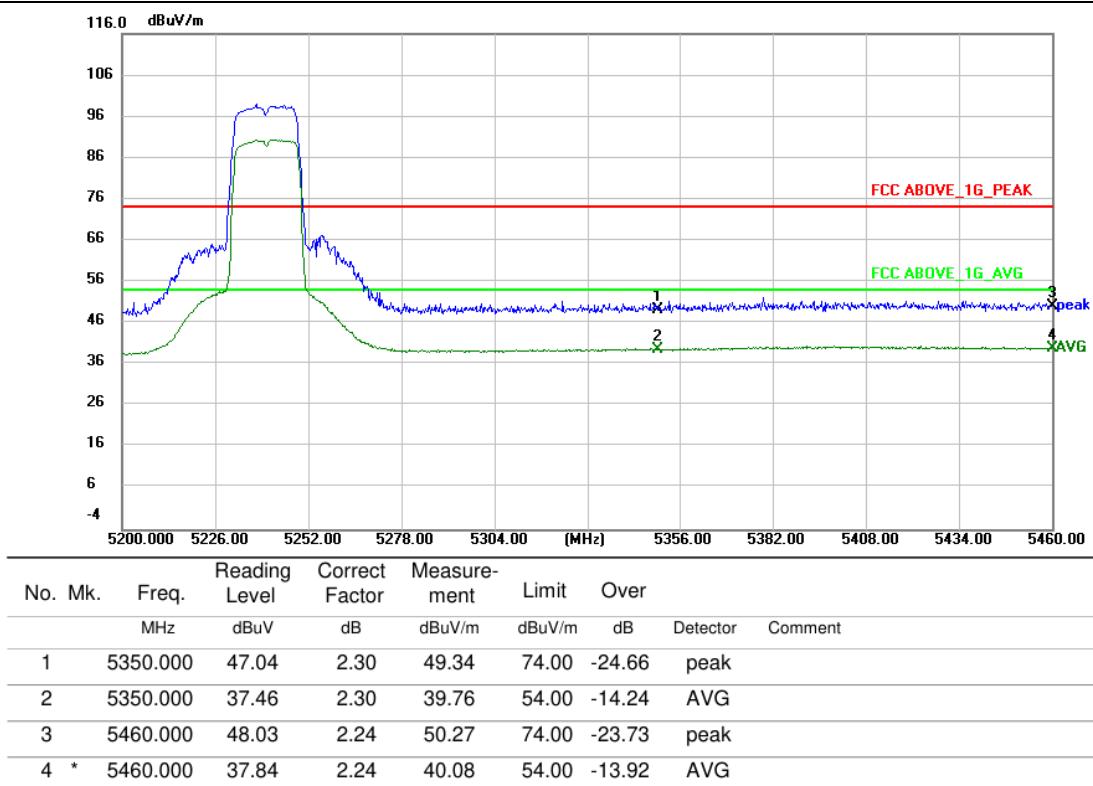
Mode9 / Polarization: Horizontal / CH: H



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		5350.000	49.87	2.30	52.17	74.00	-21.83	peak	
2	*	5350.000	39.64	2.30	41.94	54.00	-12.06	AVG	
3		5460.000	48.50	2.24	50.74	74.00	-23.26	peak	
4		5460.000	38.25	2.24	40.49	54.00	-13.51	AVG	

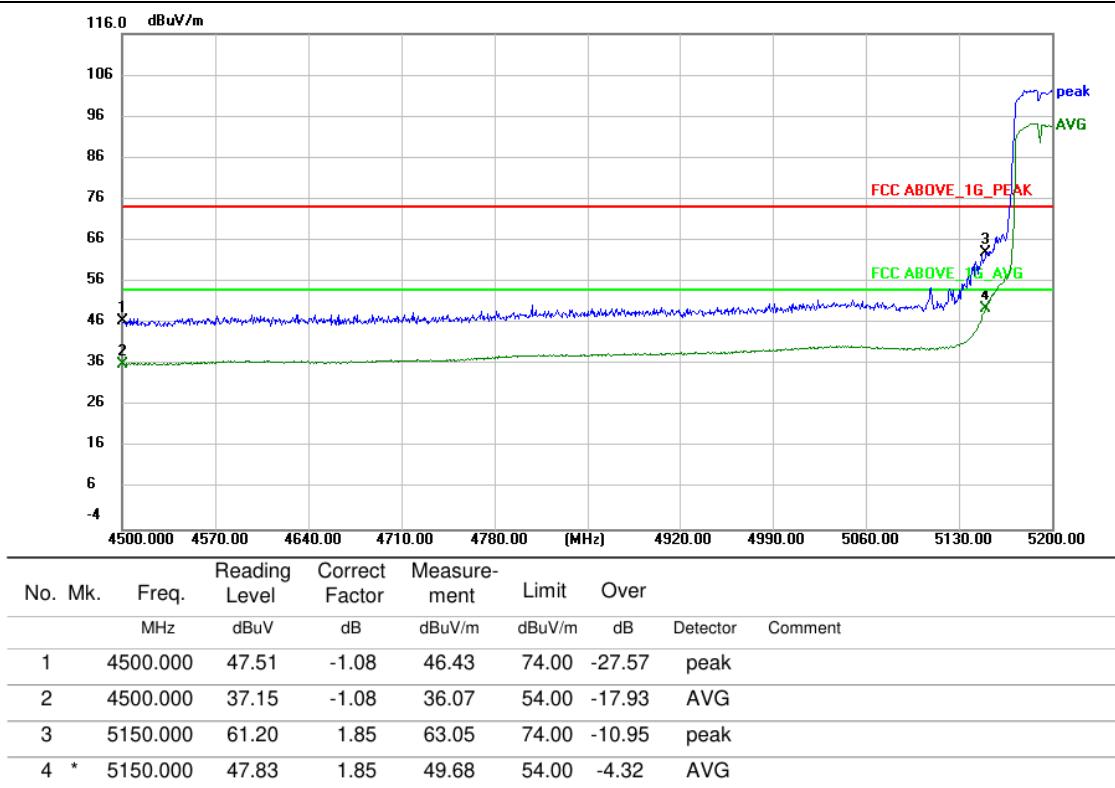


Mode9 / Polarization: Vertical / CH: H



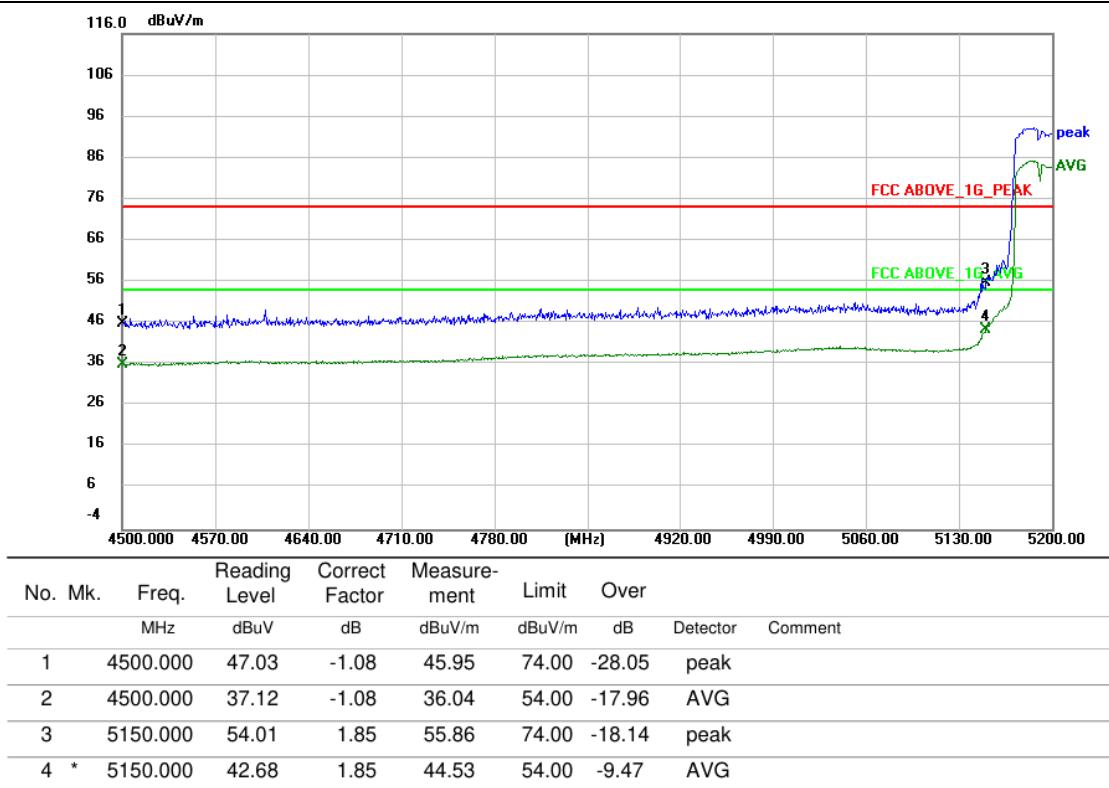


Mode10 / Polarization: Horizontal / CH: L



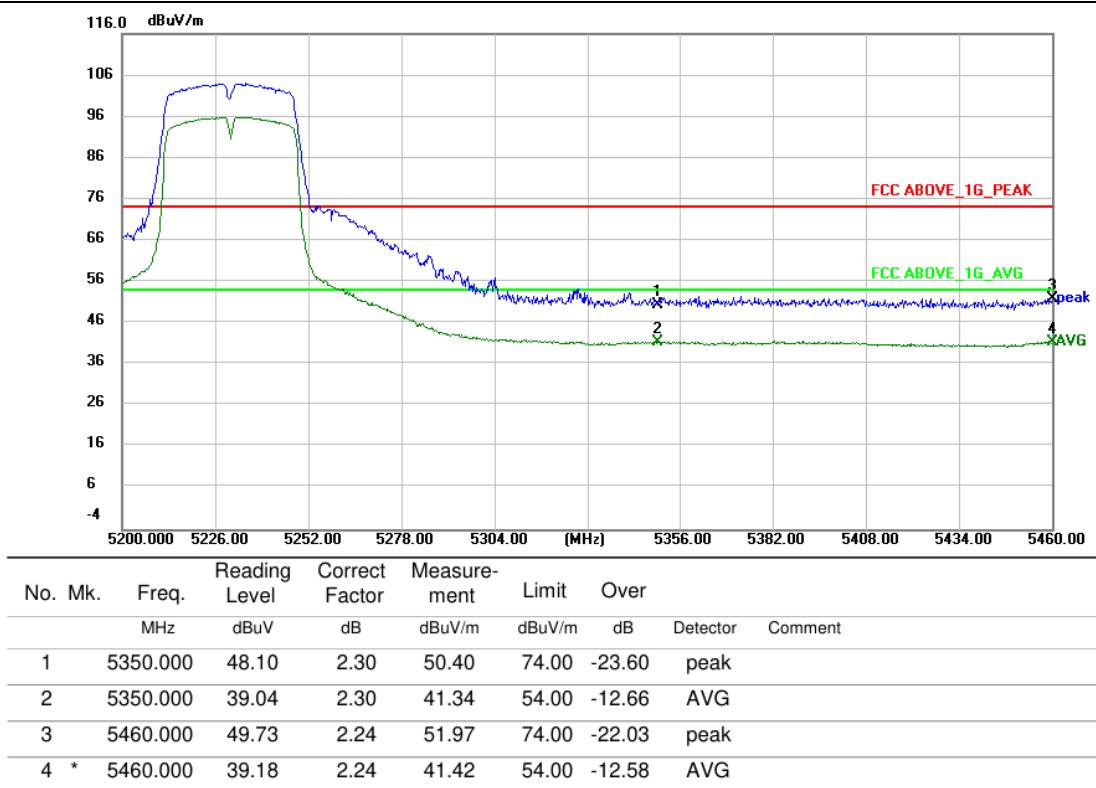


Mode10 / Polarization: Vertical / CH: L



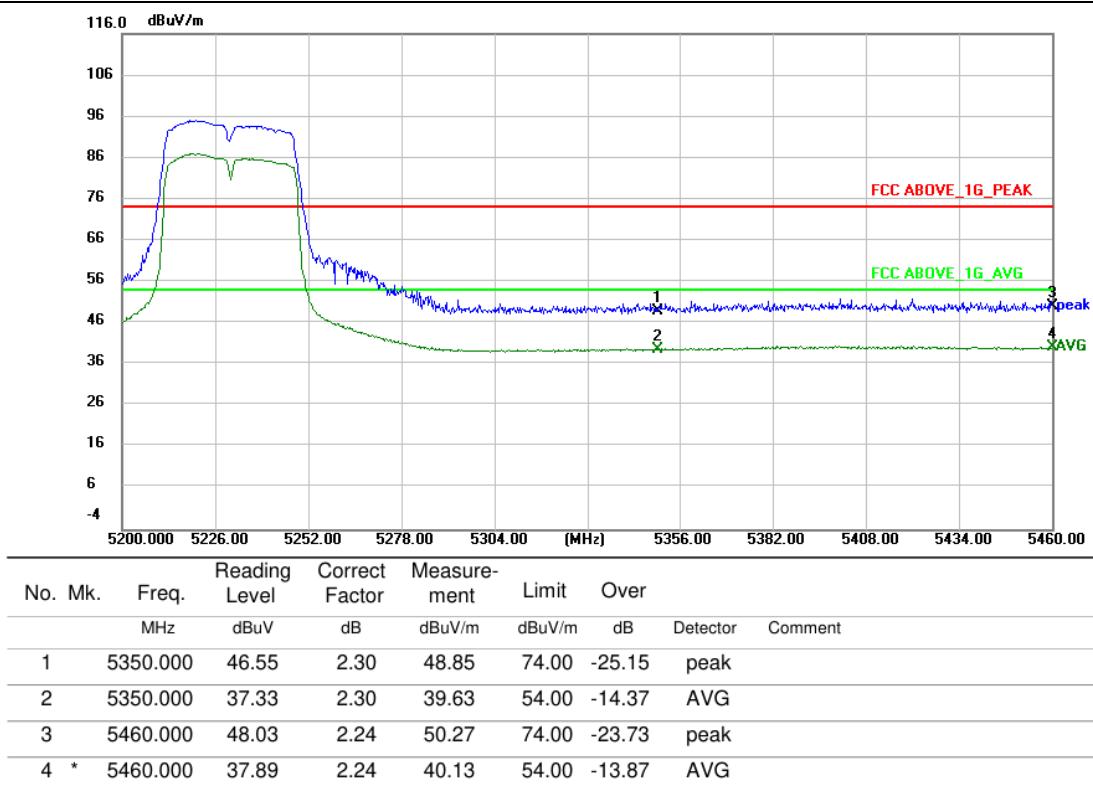


Mode10 / Polarization: Horizontal / CH: H

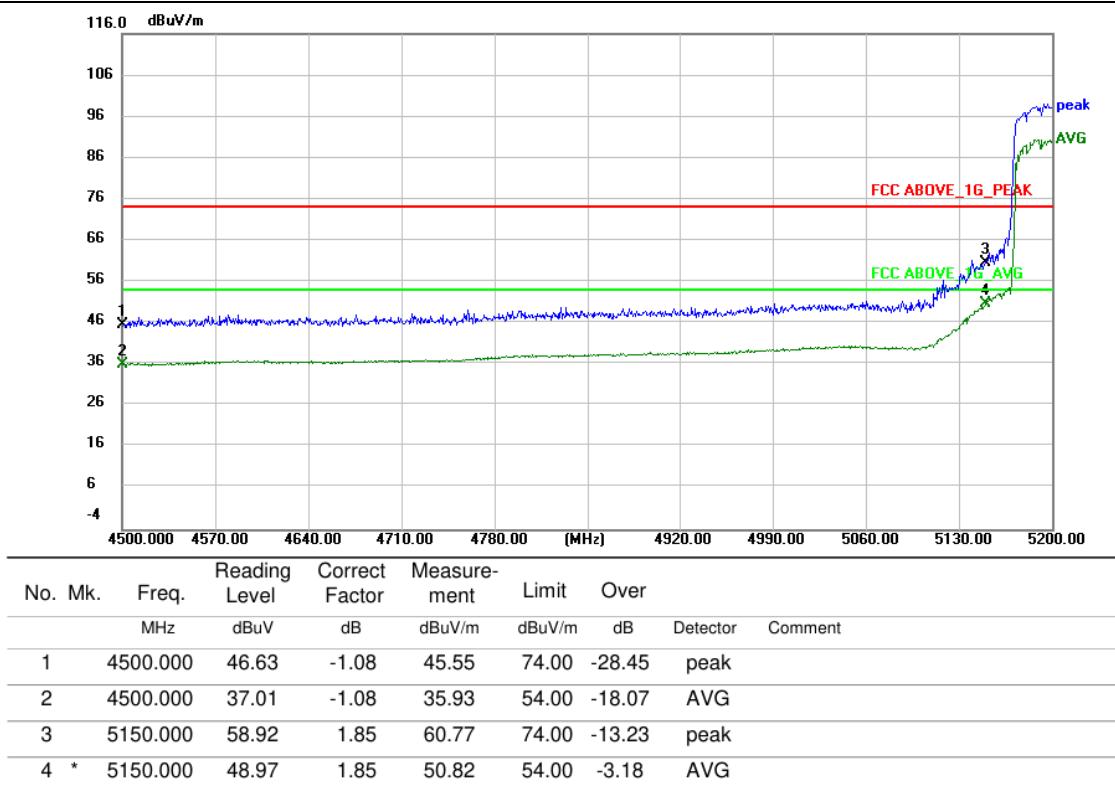




Mode10 / Polarization: Vertical / CH: H

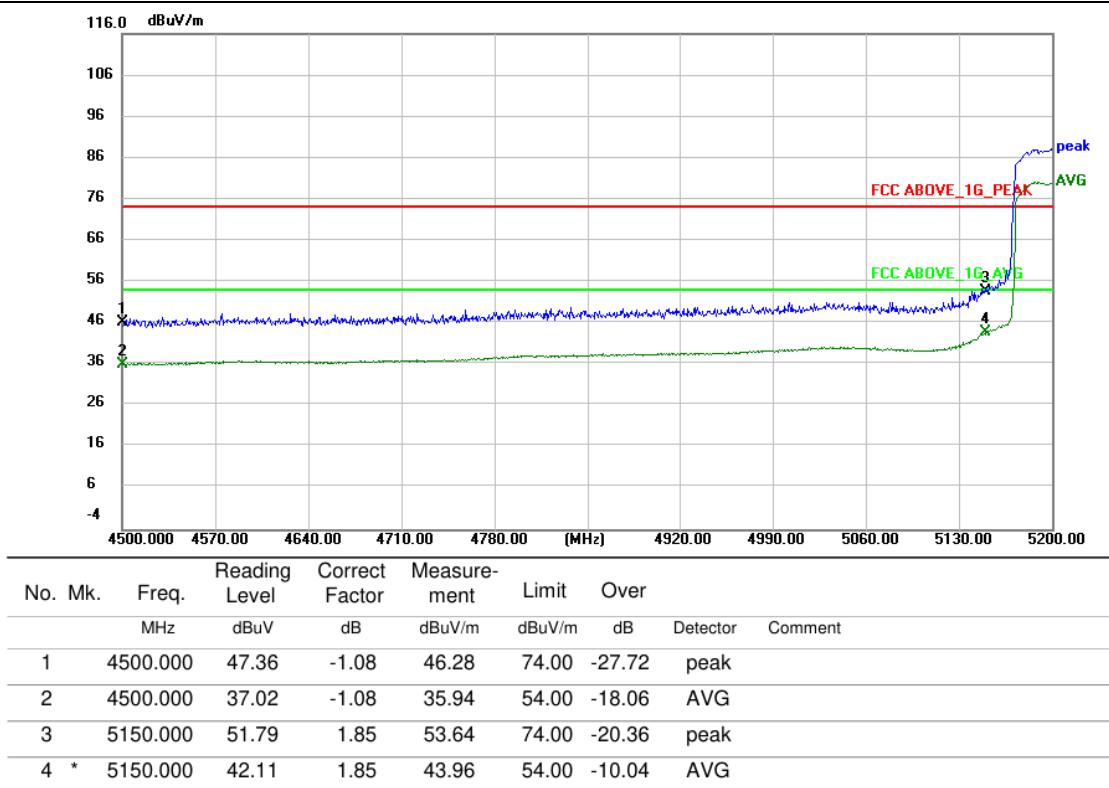


## Mode11 / Polarization: Horizontal / CH: L



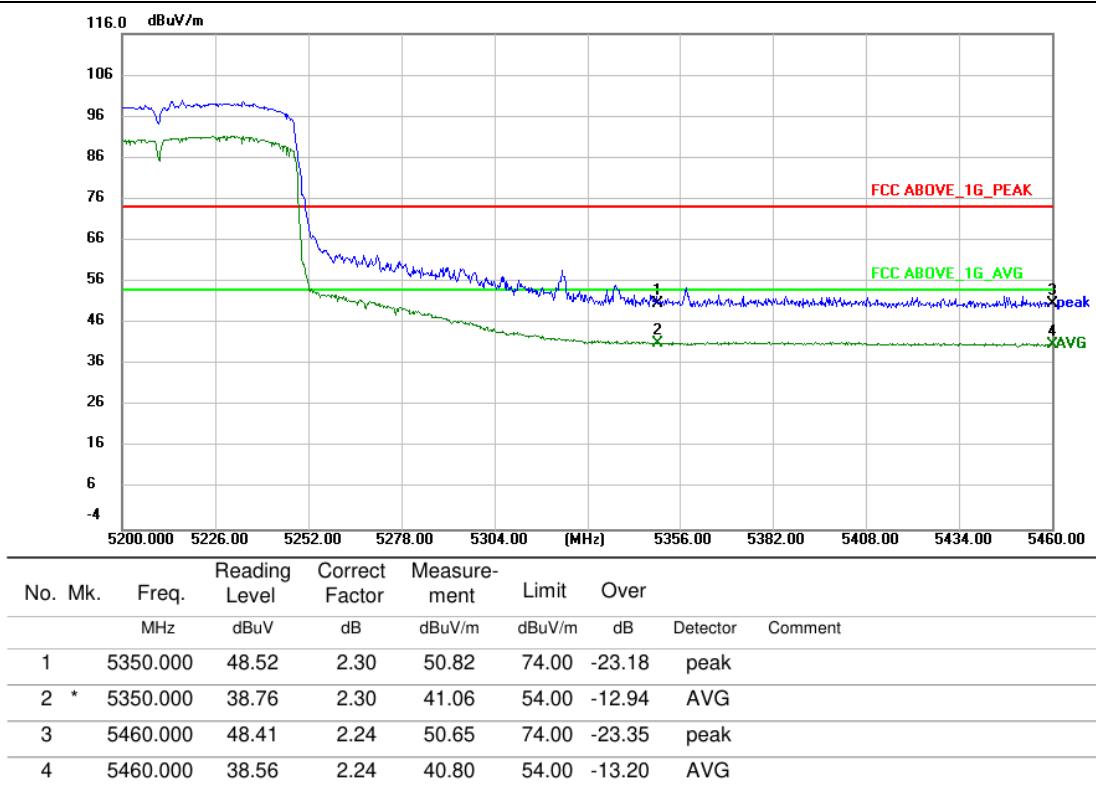


Mode11 / Polarization: Vertical / CH: L



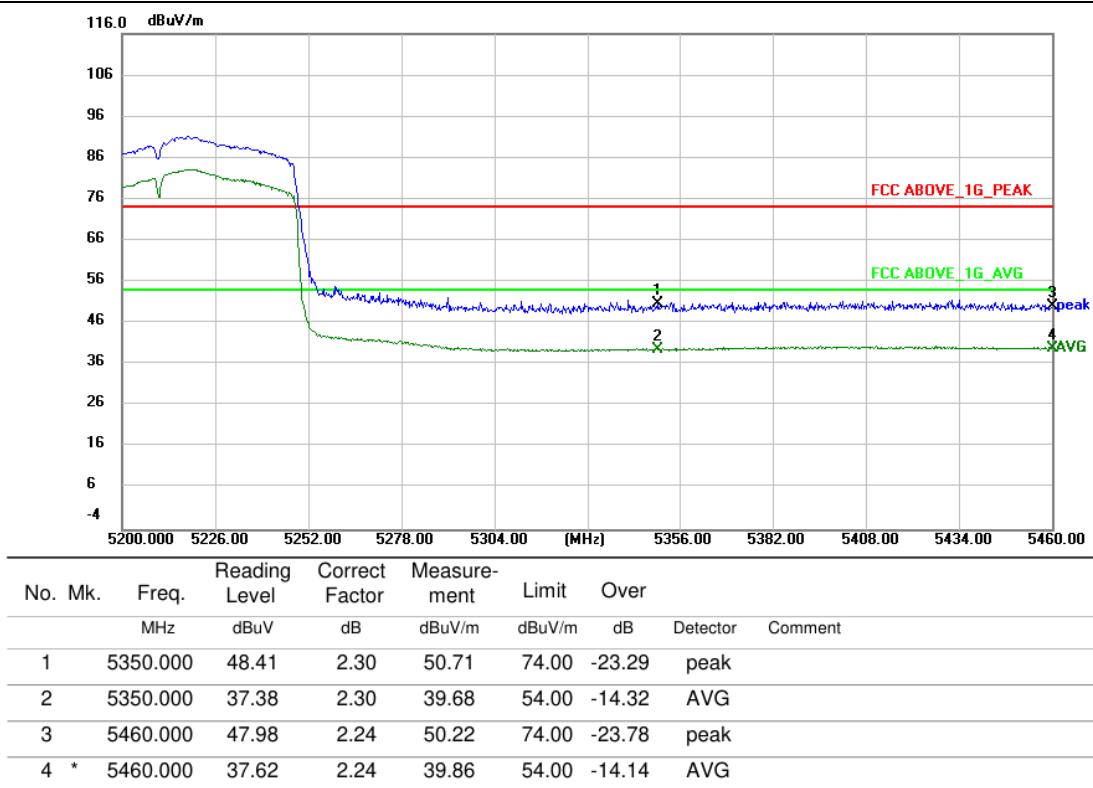


Mode11 / Polarization: Horizontal / CH: H



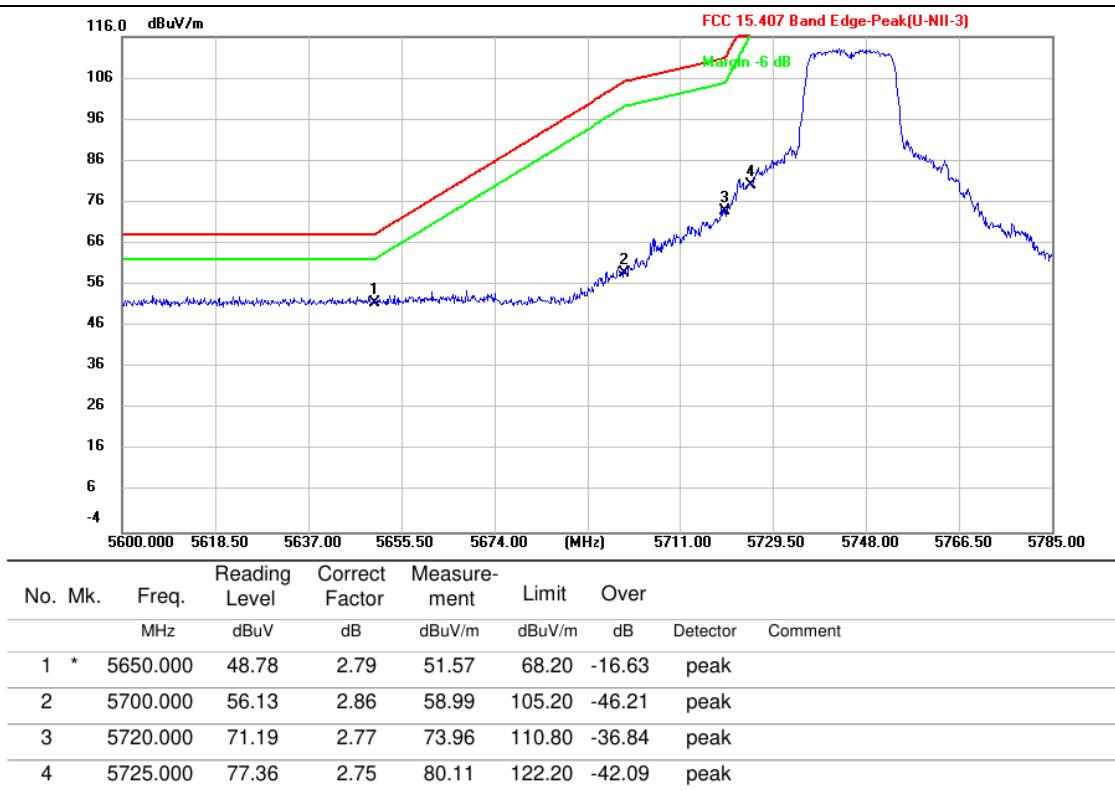


Mode11 / Polarization: Vertical / CH: H



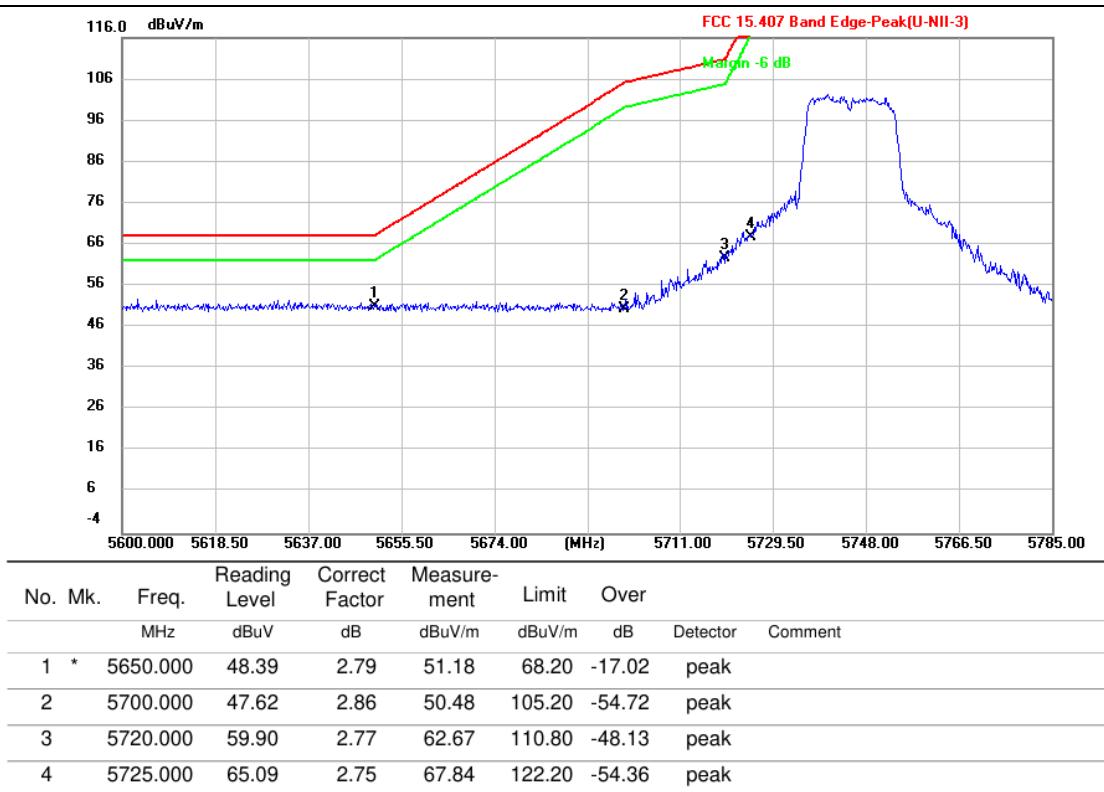
## ANT1+ ANT2 Band3:

Mode7 / Polarization: Horizontal / CH: L





Mode7 / Polarization: Vertical / CH: L





Mode7 / Polarization: Horizontal / CH: H



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		5850.000	51.86	2.67	54.53	122.20	-67.67	peak	
2		5855.000	52.08	2.72	54.80	110.80	-56.00	peak	
3		5875.000	48.64	2.91	51.55	105.20	-53.65	peak	
4	*	5920.000	48.94	3.22	52.16	71.90	-19.74	peak	



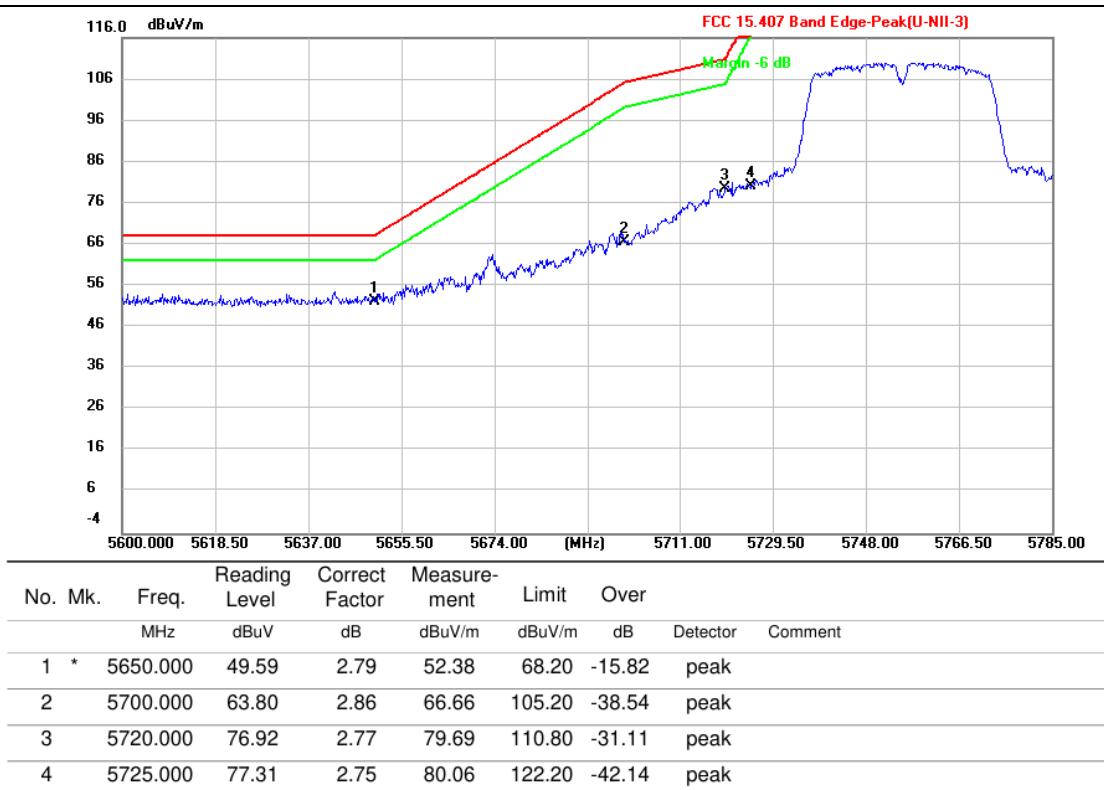
Mode7 / Polarization: Vertical / CH: H



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		5850.000	48.64	2.67	51.31	122.20	-70.89	peak	
2		5855.000	48.20	2.72	50.92	110.80	-59.88	peak	
3		5875.000	48.19	2.91	51.10	105.20	-54.10	peak	
4	*	5920.000	48.18	3.22	51.40	71.90	-20.50	peak	

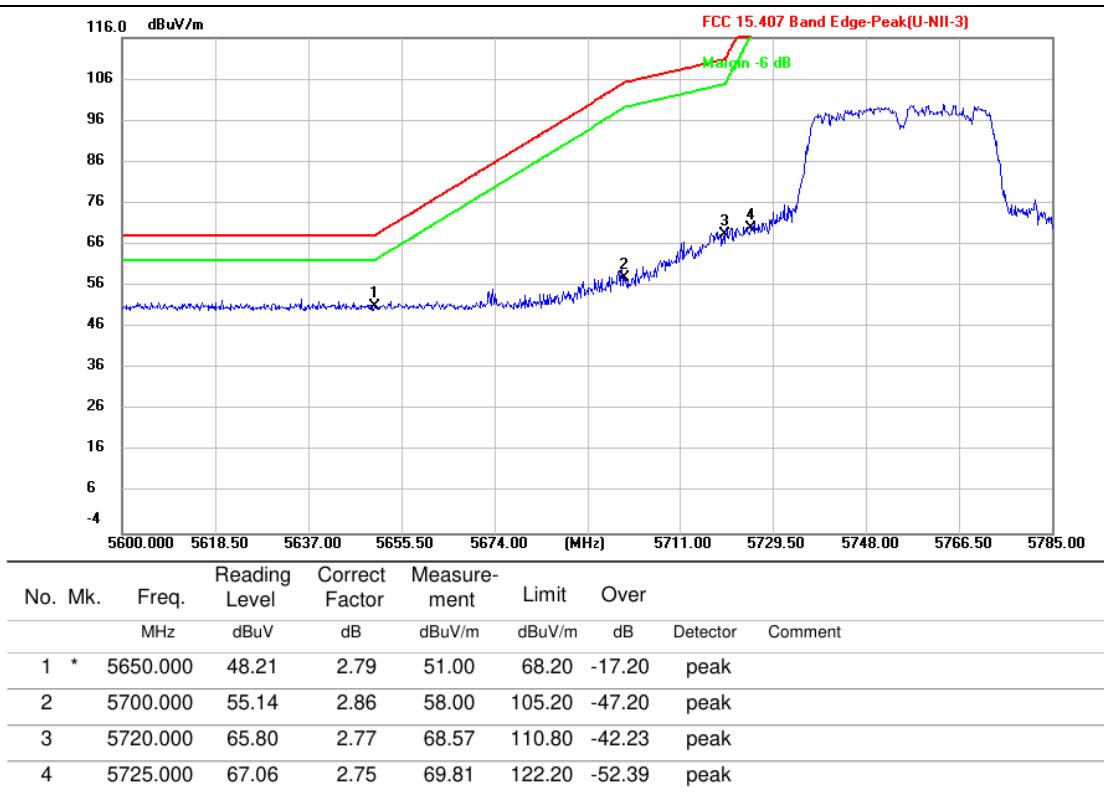


Mode8 / Polarization: Horizontal / CH: L



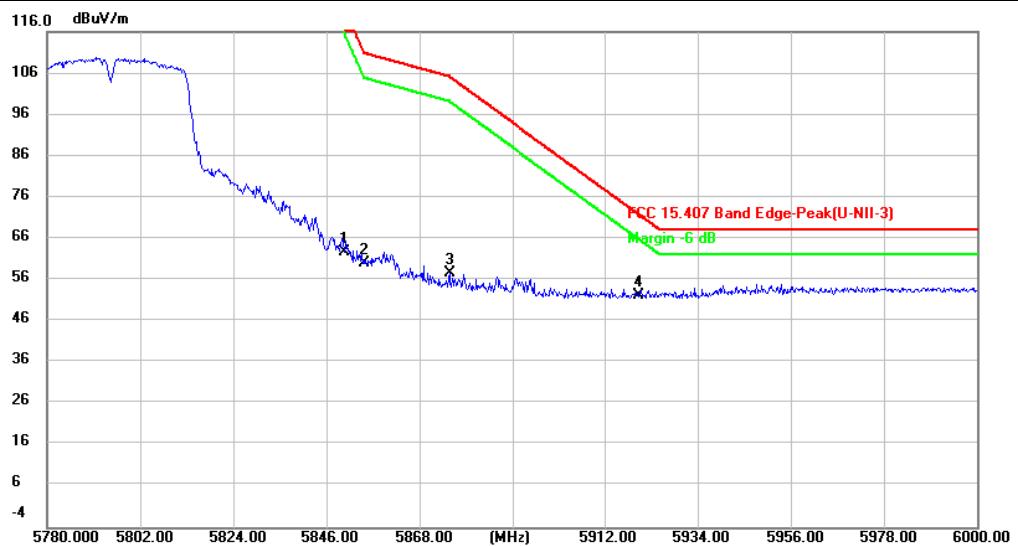


Mode8 / Polarization: Vertical / CH: L





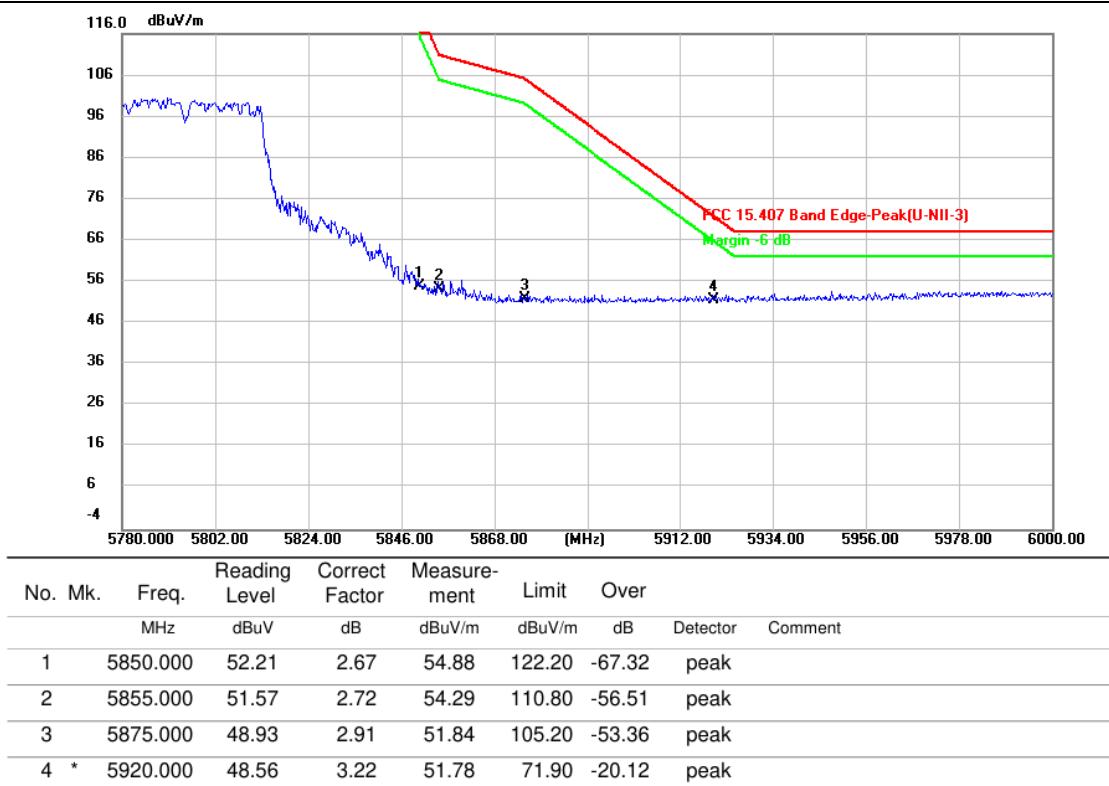
Mode8 / Polarization: Horizontal / CH: H



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		5850.000	60.06	2.67	62.73	122.20	-59.47	peak	
2		5855.000	57.29	2.72	60.01	110.80	-50.79	peak	
3		5875.000	54.82	2.91	57.73	105.20	-47.47	peak	
4	*	5920.000	49.05	3.22	52.27	71.90	-19.63	peak	

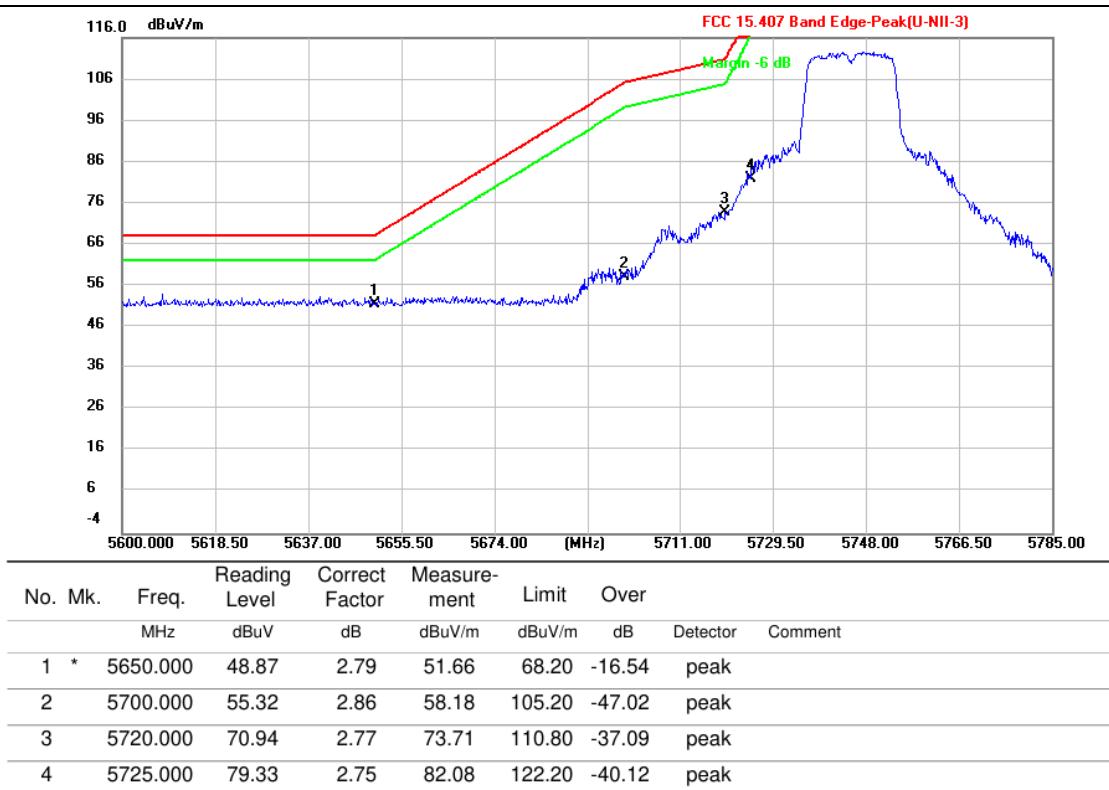


Mode8 / Polarization: Vertical / CH: H



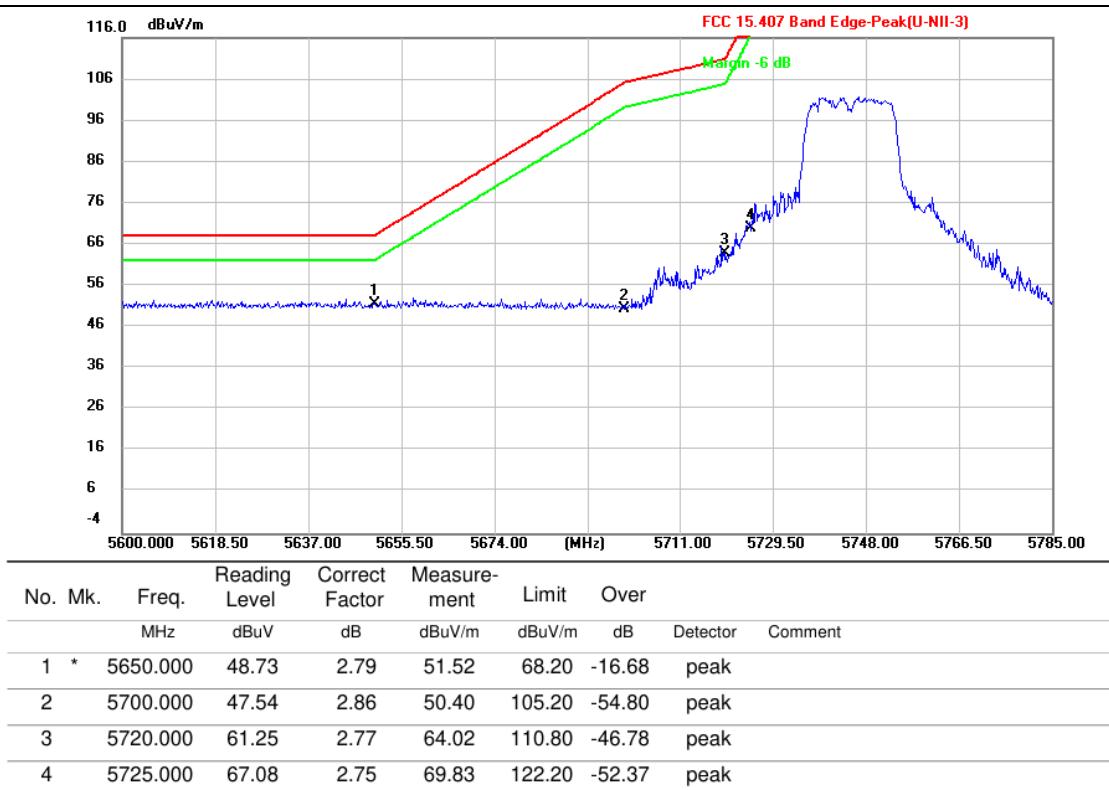


Mode9 / Polarization: Horizontal / CH: L



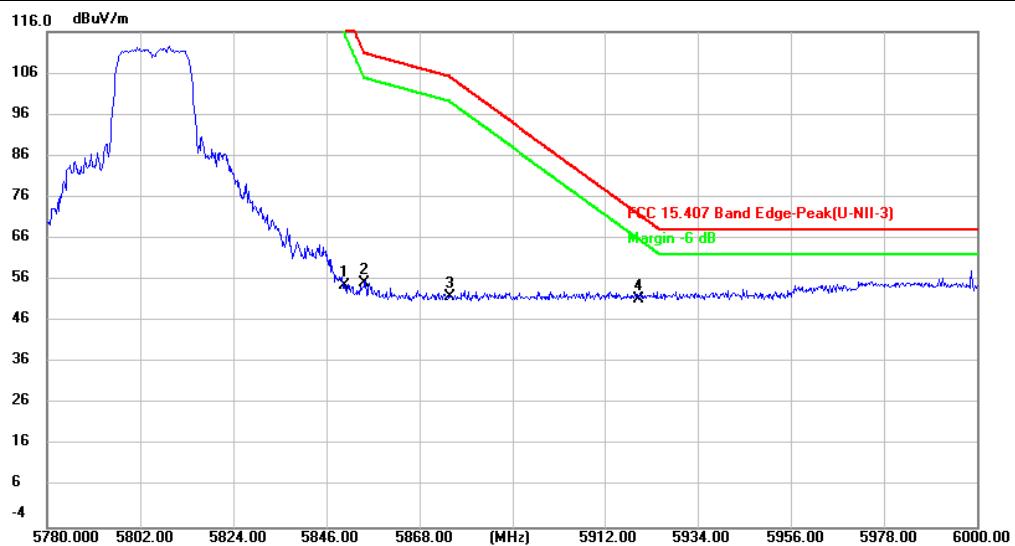


Mode9 / Polarization: Vertical / CH: L





Mode9 / Polarization: Horizontal / CH: H



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		5850.000	51.87	2.67	54.54	122.20	-67.66	peak	
2		5855.000	52.49	2.72	55.21	110.80	-55.59	peak	
3		5875.000	49.19	2.91	52.10	105.20	-53.10	peak	
4	*	5920.000	48.07	3.22	51.29	71.90	-20.61	peak	



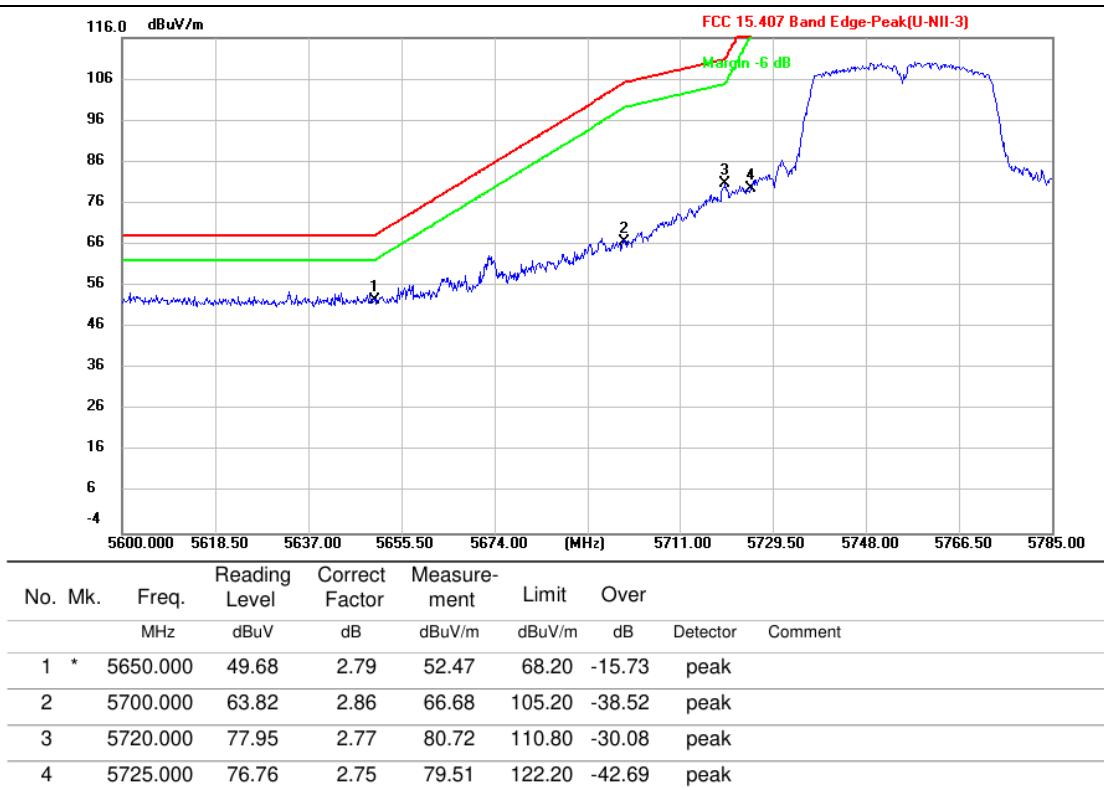
Mode9 / Polarization: Vertical / CH: H



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		5850.000	48.08	2.67	50.75	122.20	-71.45	peak	
2		5855.000	47.99	2.72	50.71	110.80	-60.09	peak	
3		5875.000	48.34	2.91	51.25	105.20	-53.95	peak	
4	*	5920.000	48.20	3.22	51.42	71.90	-20.48	peak	

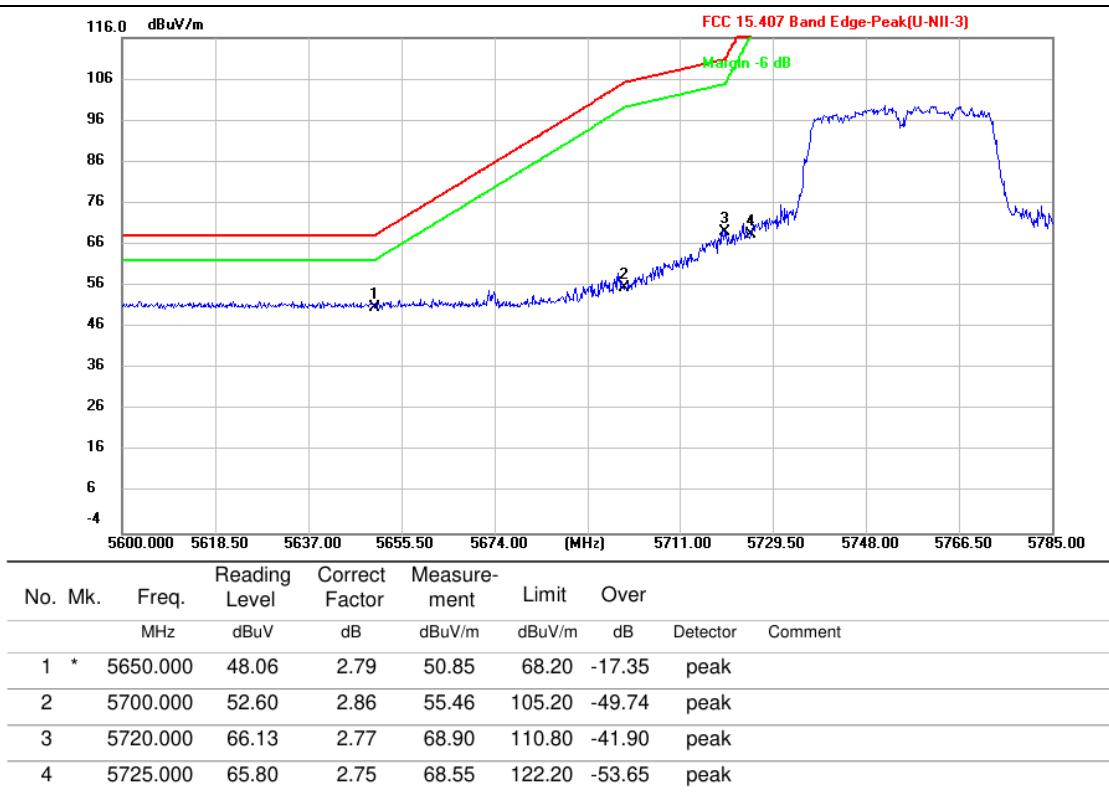


Mode10 / Polarization: Horizontal / CH: L



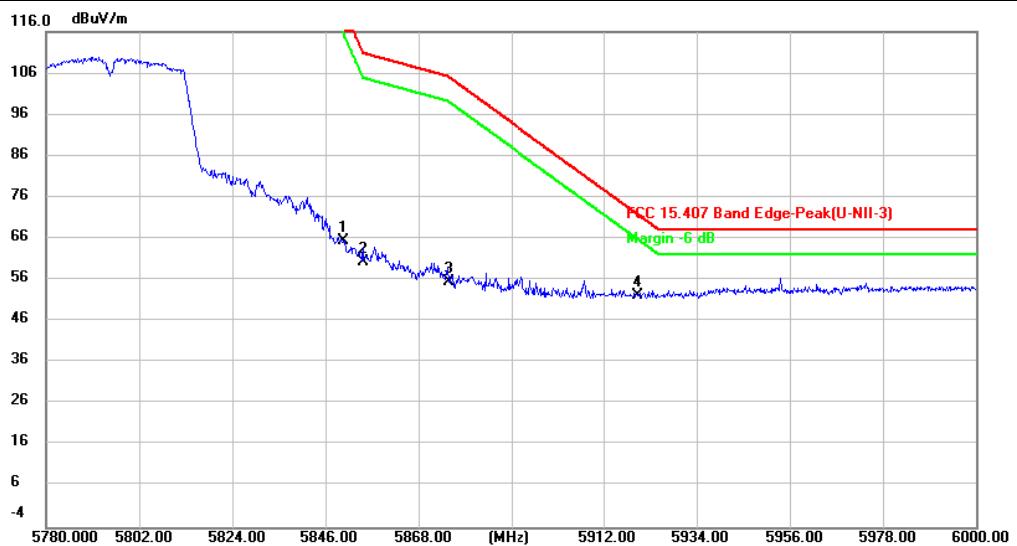


Mode10 / Polarization: Vertical / CH: L





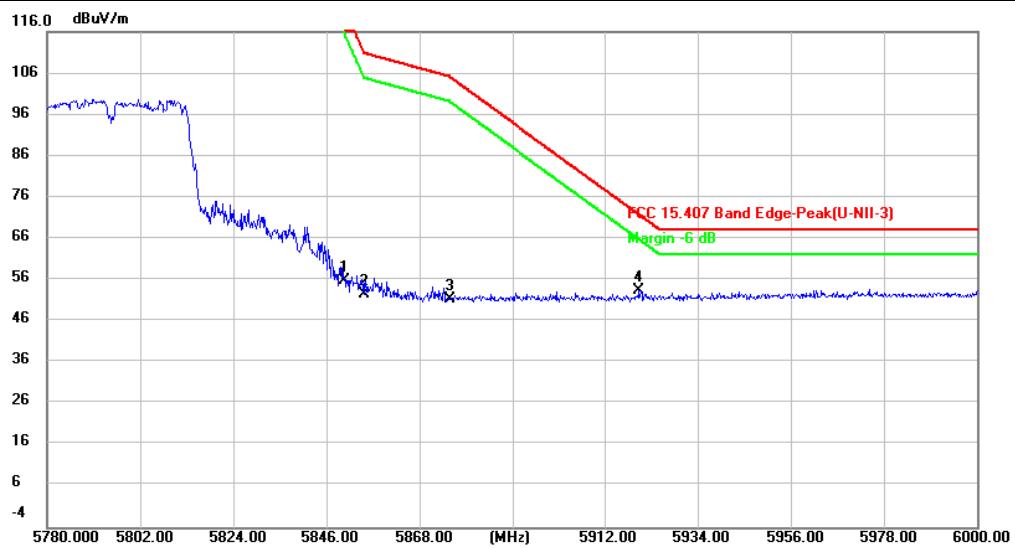
Mode10 / Polarization: Horizontal / CH: H



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	dB	Detector	Comment
1		5850.000	62.81	2.67	65.48	122.20	-56.72	peak	
2		5855.000	57.78	2.72	60.50	110.80	-50.30	peak	
3		5875.000	52.74	2.91	55.65	105.20	-49.55	peak	
4	*	5920.000	49.12	3.22	52.34	71.90	-19.56	peak	



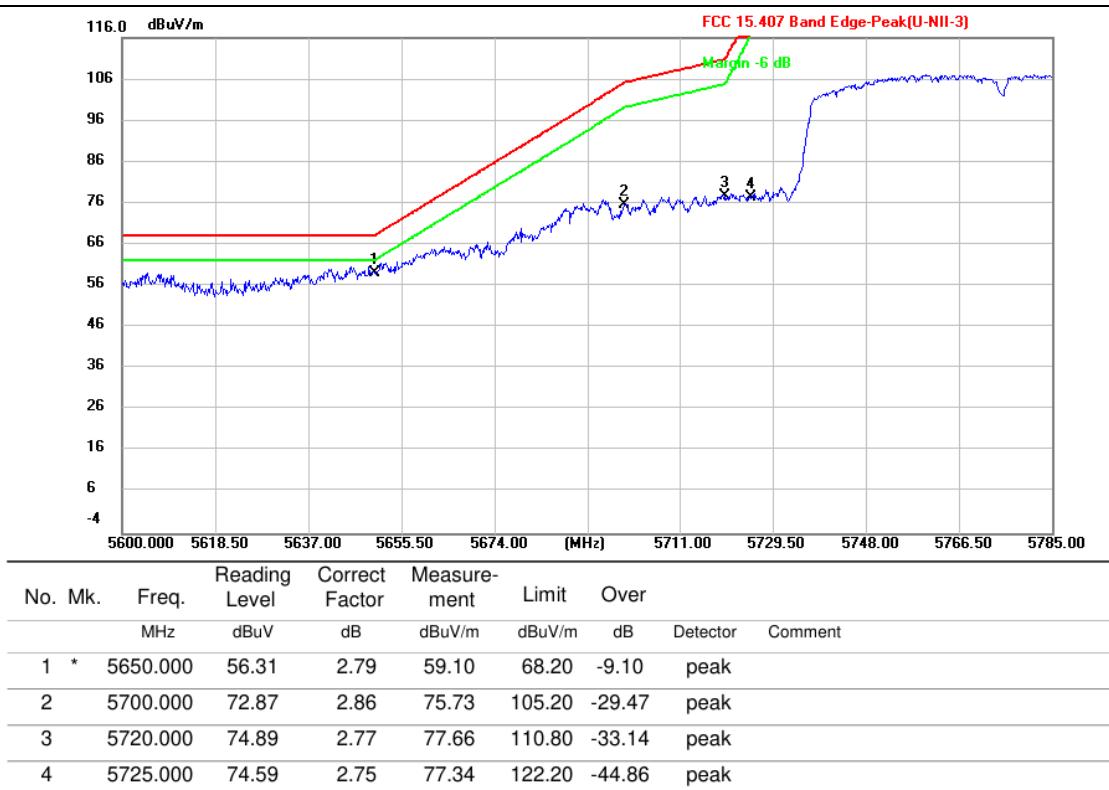
Mode10 / Polarization: Vertical / CH: H



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		5850.000	53.22	2.67	55.89	122.20	-66.31	peak	
2		5855.000	49.79	2.72	52.51	110.80	-58.29	peak	
3		5875.000	48.43	2.91	51.34	105.20	-53.86	peak	
4	*	5920.000	50.15	3.22	53.37	71.90	-18.53	peak	

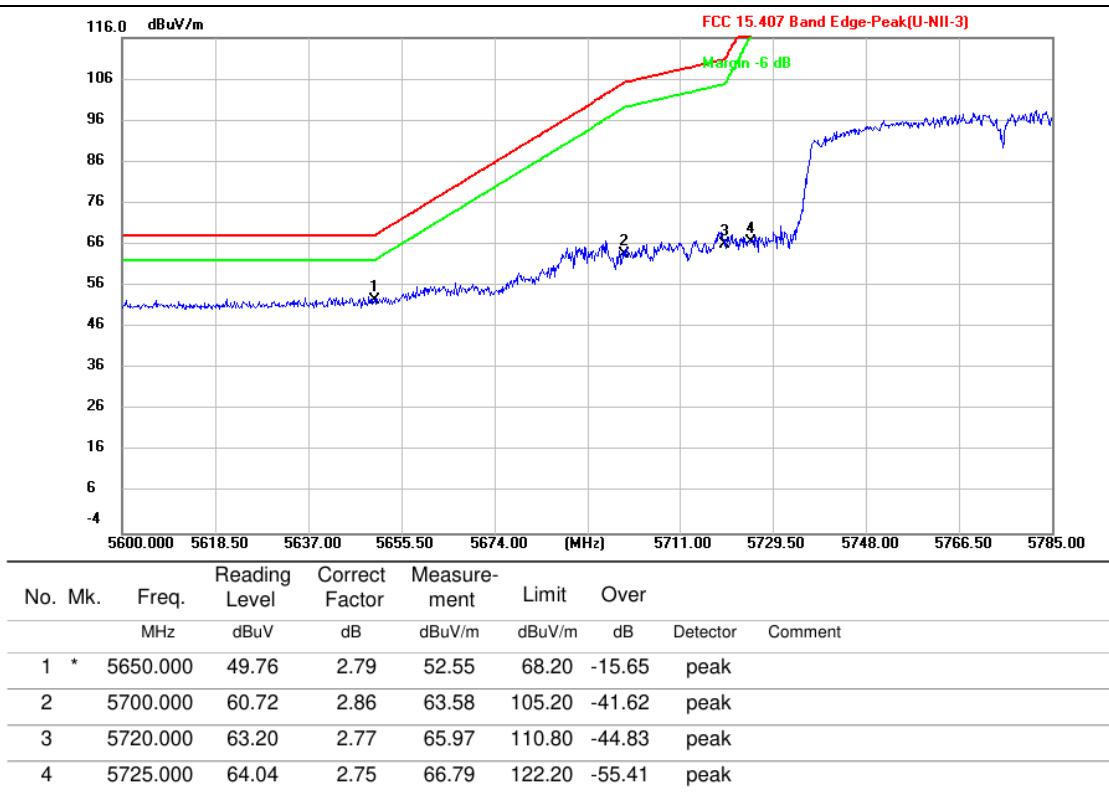


Mode11 / Polarization: Horizontal / CH: L



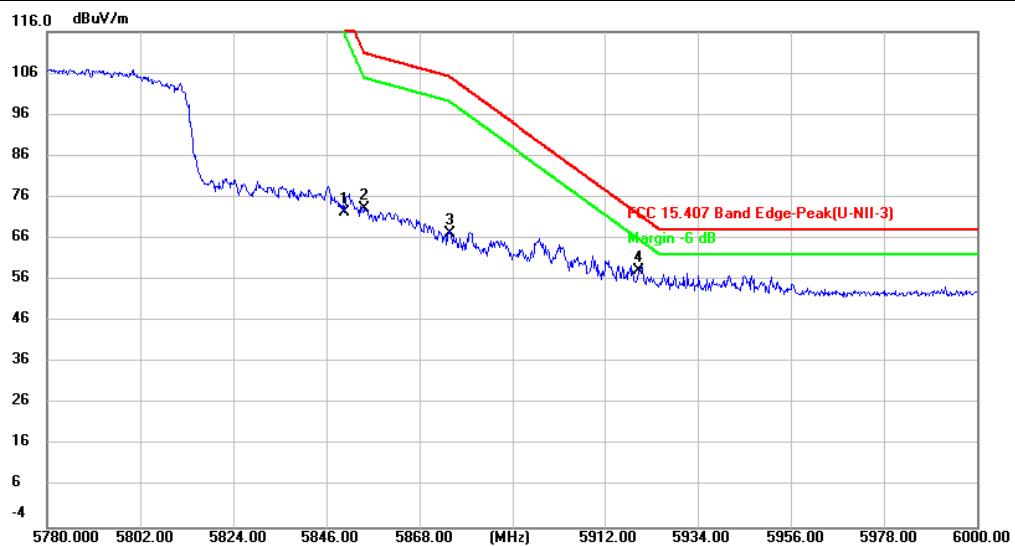


Mode11 / Polarization: Vertical / CH: L





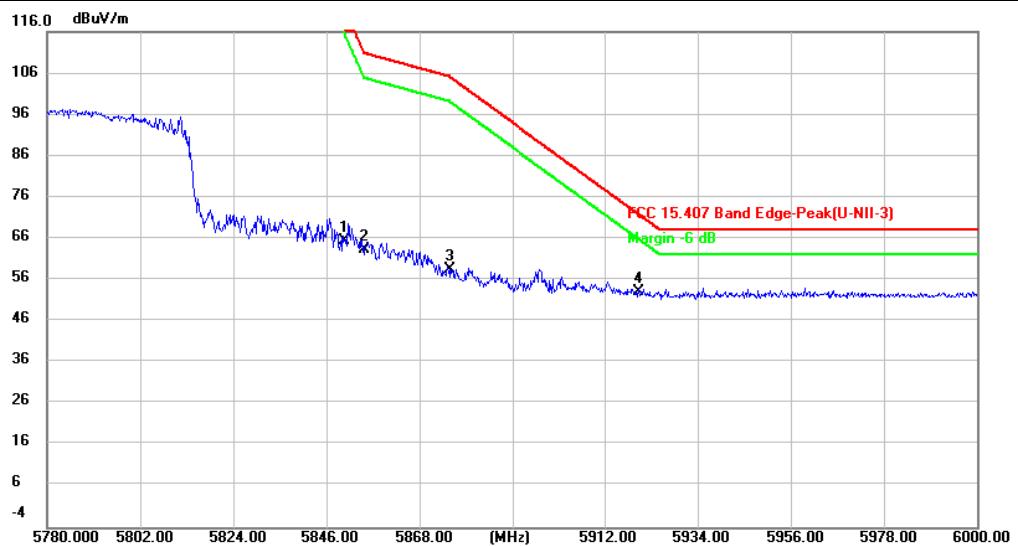
Mode11 / Polarization: Horizontal / CH: H



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		5850.000	69.78	2.67	72.45	122.20	-49.75	peak	
2		5855.000	70.48	2.72	73.20	110.80	-37.60	peak	
3		5875.000	64.23	2.91	67.14	105.20	-38.06	peak	
4	*	5920.000	54.92	3.22	58.14	71.90	-13.76	peak	



Mode11 / Polarization: Vertical / CH: H



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		5850.000	62.74	2.67	65.41	122.20	-56.79	peak	
2		5855.000	60.63	2.72	63.35	110.80	-47.45	peak	
3		5875.000	55.69	2.91	58.60	105.20	-46.60	peak	
4	*	5920.000	49.89	3.22	53.11	71.90	-18.79	peak	



## 6.6 Undesirable emission limits (below 1GHz)

Test Requirement:	47 CFR Part 15.407(b)(9)																								
Test Limit:	<p>Unwanted emissions below 1 GHz must comply with the general field strength limits set forth in § 15.209.</p> <p>Except as provided elsewhere in this subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table:</p> <table border="1"><thead><tr><th>Frequency (MHz)</th><th>Field strength (microvolts/meter)</th><th>Measurement distance (meters)</th></tr></thead><tbody><tr><td>0.009-0.490</td><td>2400/F(kHz)</td><td>300</td></tr><tr><td>0.490-1.705</td><td>24000/F(kHz)</td><td>30</td></tr><tr><td>1.705-30.0</td><td>30</td><td>30</td></tr><tr><td>30-88</td><td>100 **</td><td>3</td></tr><tr><td>88-216</td><td>150 **</td><td>3</td></tr><tr><td>216-960</td><td>200 **</td><td>3</td></tr><tr><td>Above 960</td><td>500</td><td>3</td></tr></tbody></table> <p>** Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of this part, e.g., §§ 15.231 and 15.241.</p> <p>In the emission table above, the tighter limit applies at the band edges. The emission limits shown in the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9–90 kHz, 110–490 kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector.</p>	Frequency (MHz)	Field strength (microvolts/meter)	Measurement distance (meters)	0.009-0.490	2400/F(kHz)	300	0.490-1.705	24000/F(kHz)	30	1.705-30.0	30	30	30-88	100 **	3	88-216	150 **	3	216-960	200 **	3	Above 960	500	3
Frequency (MHz)	Field strength (microvolts/meter)	Measurement distance (meters)																							
0.009-0.490	2400/F(kHz)	300																							
0.490-1.705	24000/F(kHz)	30																							
1.705-30.0	30	30																							
30-88	100 **	3																							
88-216	150 **	3																							
216-960	200 **	3																							
Above 960	500	3																							
Test Method:	ANSI C63.10-2013, section 12.7.4, 12.7.5																								
Procedure:	<p>Below 1GHz:</p> <ol style="list-style-type: none"><li>For below 1GHz, the EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.</li><li>The EUT was set 3 or 10 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.</li><li>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.</li><li>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.</li><li>The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.</li><li>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 quasi-peak method as specified and then reported in a data sheet.</li><li>Test the EUT in the lowest channel, the middle channel, the Highest channel.</li><li>The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, and found the X axis positioning which it is the worst case.</li><li>Repeat above procedures until all frequencies measured was complete.</li></ol>																								



Remark:

1. Level= Read Level+ Cable Loss+ Antenna Factor- Preamp Factor
2. Scan from 9kHz to 30MHz, the disturbance below 30MHz was very low. The points marked on above plots are the highest emissions could be found when testing, so only above points had been displayed. The amplitude of spurious emissions from the radiator which are attenuated more than 20dB below the limit need not be reported.
3. The disturbance below 1GHz was very low and the harmonics were the highest point could be found when testing, so only the above harmonics had been displayed.

Above 1GHz:

- a. For above 1GHz, the EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter fully-anechoic chamber. 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 (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.
- e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- f. 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 or average method as specified and then reported in a data sheet.
- g. Test the EUT in the lowest channel, the middle channel, the Highest channel.
- h. The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, and found the X axis positioning which it is the worst case.
- i. Repeat above procedures until all frequencies measured was complete.

Remark:

1. Level= Read Level+ Cable Loss+ Antenna Factor- Preamp Factor
2. Scan from 18GHz to 40GHz, the disturbance above 18GHz was very low. The points marked on above plots are the highest emissions could be found when testing, so only above points had been displayed. The amplitude of spurious emissions from the radiator which are attenuated more than 20dB below the limit need not be reported.
3. 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. For the emissions whose peak level is lower than the average limit, only the peak measurement is shown in the report.
4. The disturbance above 18GHz were very low and the harmonics were the highest point could be found when testing, so only the above harmonics had been displayed.

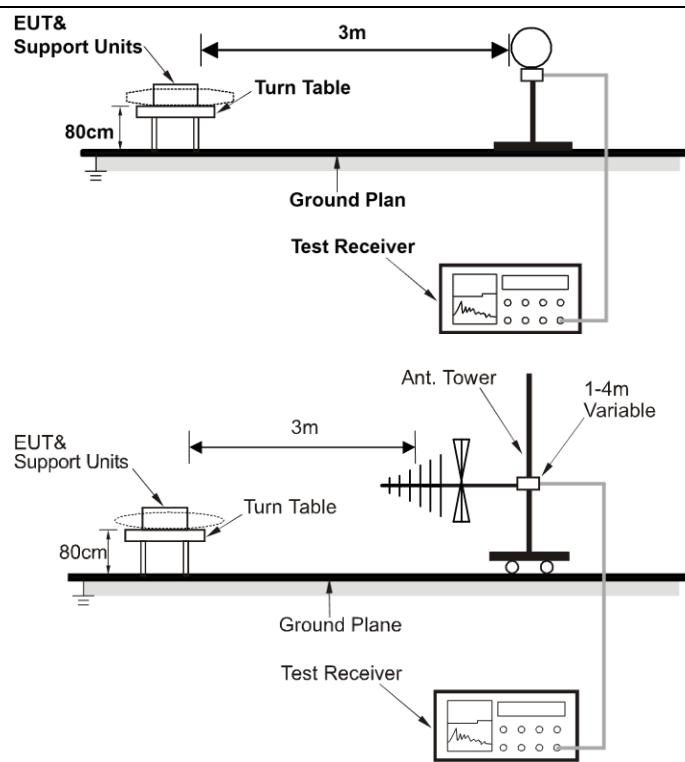
#### 6.6.1 E.U.T. Operation:

Operating Environment:



Temperature:	24 °C	Humidity:	54 %	Atmospheric Pressure:	101 kPa
Pre test mode:	Mode1, Mode2, Mode3, Mode4, Mode5, Mode6, Mode7, Mode8, Mode9, Mode10, Mode11				
Final test mode:	All of the listed pre-test mode were tested, only the data of the worst mode (Mode1, 7) is recorded in the report				

### 6.6.2 Test Setup Diagram:



### 6.6.3 Test Data:

Band1:

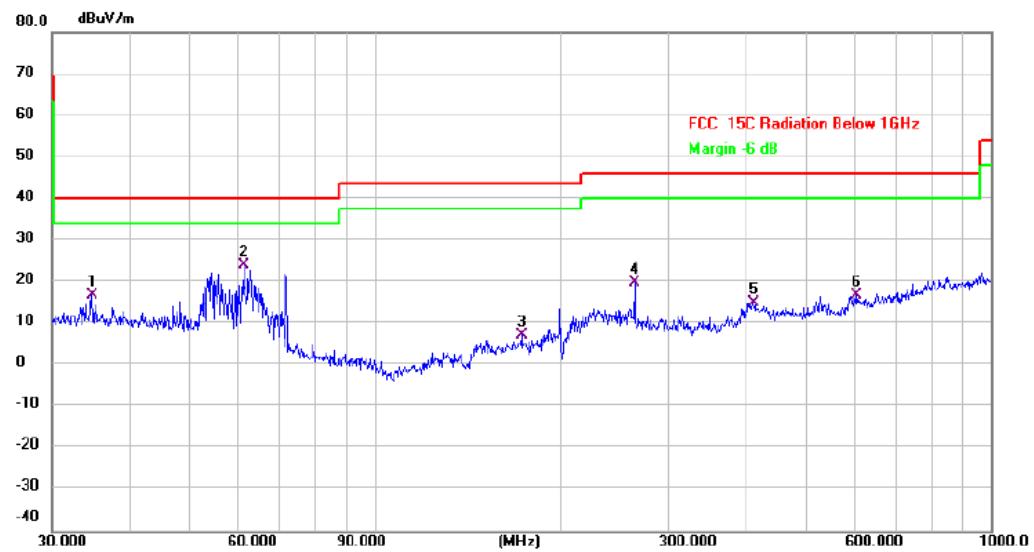
Mode1 / Polarization: Horizontal / CH: H /ANT1



No.	Mk.	Freq.	Reading	Correct	Measure-	Limit	Over	Detector	Comment
			Level	Factor	ment				
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB		
1		43.3534	27.02	-14.95	12.07	40.00	-27.93	QP	
2		71.8320	36.64	-21.68	14.96	40.00	-25.04	QP	
3		181.9202	35.40	-20.33	15.07	43.50	-28.43	QP	
4 *		279.0436	37.40	-16.17	21.23	46.00	-24.77	QP	
5		528.2458	30.13	-13.12	17.01	46.00	-28.99	QP	
6		744.8661	25.51	-7.73	17.78	46.00	-28.22	QP	



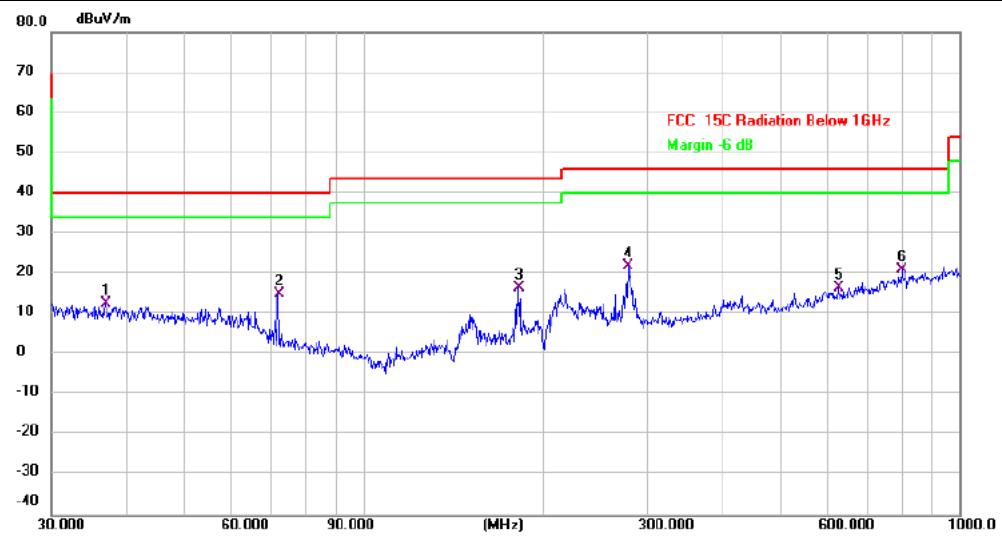
Moded1 / Polarization: Vertical / CH: H /ANT1



No.	Mk.	Freq.	Reading	Correct	Measure-	Limit	Over	Detector	Comment
			Level	Factor	ment				
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB		
1		34.7602	41.89	-24.96	16.93	40.00	-23.07	QP	
2	*	61.3463	45.34	-21.38	23.96	40.00	-16.04	QP	
3		173.2051	24.83	-17.50	7.33	43.50	-36.17	QP	
4		263.8190	36.73	-16.97	19.76	46.00	-26.24	QP	
5		410.3825	29.10	-13.94	15.16	46.00	-30.84	QP	
6		605.6592	27.41	-10.47	16.94	46.00	-29.06	QP	



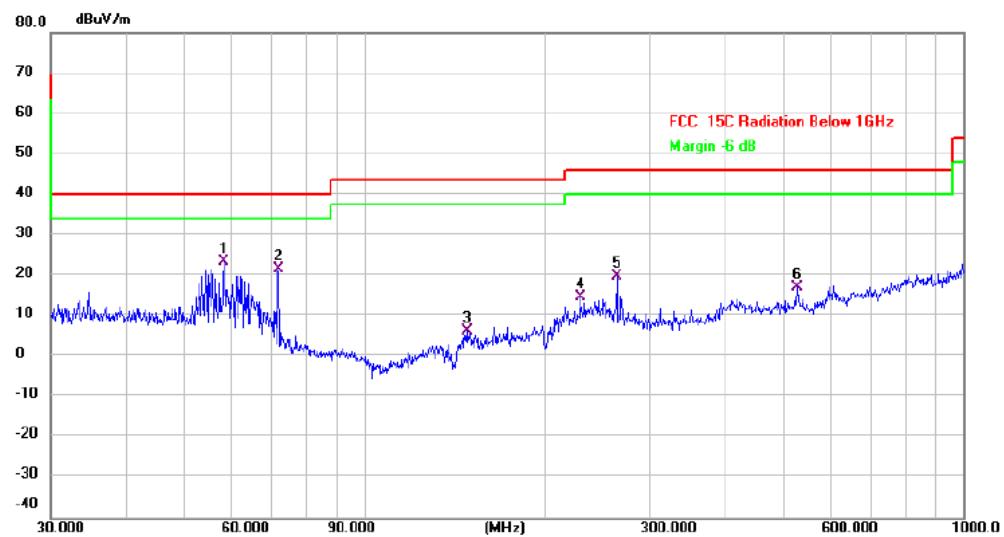
Moded7 / Polarization: Horizontal / CH: H / ANT1+ ANT2



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		36.8953	27.25	-14.68	12.57	40.00	-27.43	QP	
2		72.0843	36.85	-21.82	15.03	40.00	-24.97	QP	
3		181.9202	36.90	-20.33	16.57	43.50	-26.93	QP	
4	*	278.0668	38.07	-16.21	21.86	46.00	-24.14	QP	
5		625.0780	27.54	-11.11	16.43	46.00	-29.57	QP	
6		798.9797	27.04	-6.05	20.99	46.00	-25.01	QP	



Moded7 / Polarization: Vertical / CH: H / ANT1+ ANT2

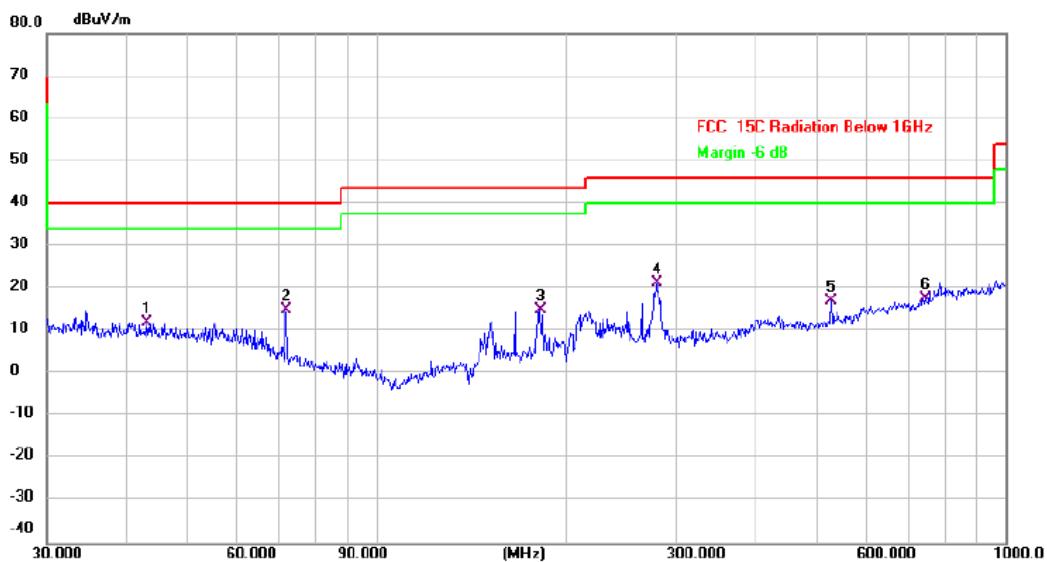


No.	Mk.	Freq.	Reading	Correct	Measure-	Limit	Over	Detector	Comment
			Level	Factor	ment				
		MHz	dBuV	dB	dBuV/m	dB			
1	*	58.4074	45.12	-21.60	23.52	40.00	-16.48	QP	
2		71.8320	40.53	-18.92	21.61	40.00	-18.39	QP	
3		148.4410	22.89	-16.40	6.49	43.50	-37.01	QP	
4		229.2931	35.31	-20.44	14.87	46.00	-31.13	QP	
5		263.8190	36.71	-16.97	19.74	46.00	-26.26	QP	
6		528.2458	29.92	-12.63	17.29	46.00	-28.71	QP	



Band3:

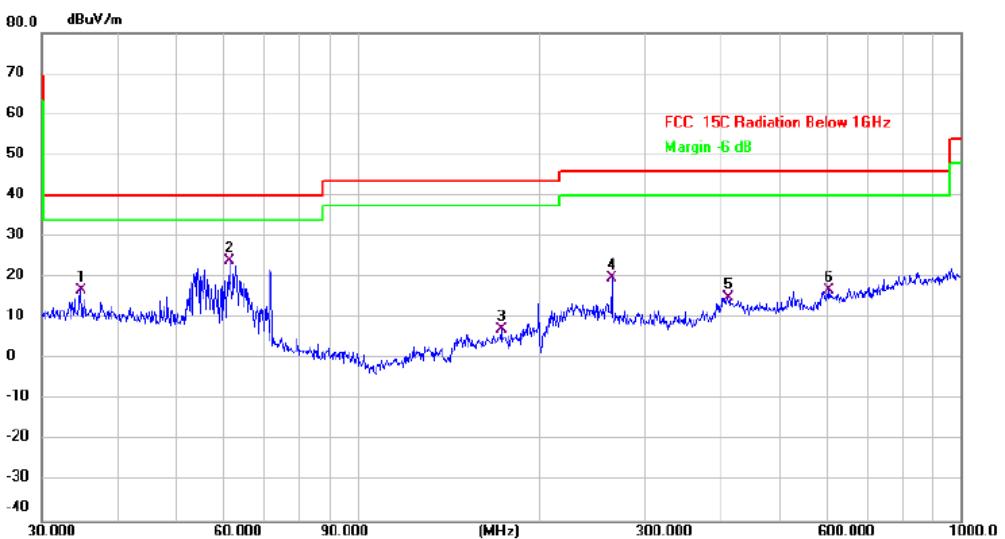
Mode1 / Polarization: Horizontal / CH: H /ANT1



No.	Mk.	Freq.	Reading	Correct	Measure-	Limit	Over	Detector	Comment
			Level	Factor	ment				
1		43.3534	27.02	-14.95	12.07	40.00	-27.93	QP	
2		71.8320	36.64	-21.68	14.96	40.00	-25.04	QP	
3		181.9202	35.40	-20.33	15.07	43.50	-28.43	QP	
4	*	279.0436	37.40	-16.17	21.23	46.00	-24.77	QP	
5		528.2458	30.13	-13.12	17.01	46.00	-28.99	QP	
6		744.8661	25.51	-7.73	17.78	46.00	-28.22	QP	



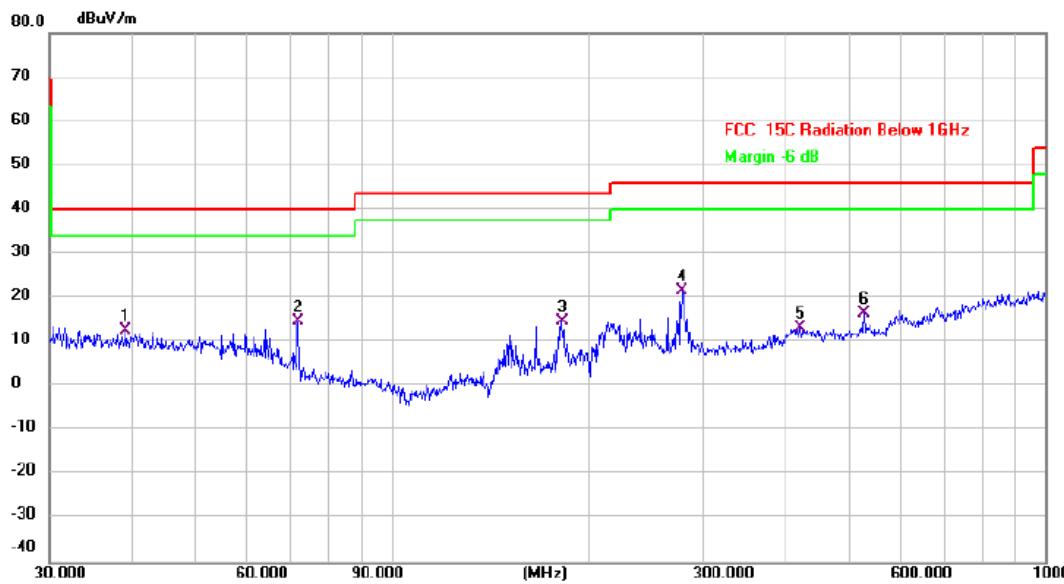
Mode1 / Polarization: Vertical / CH: H /ANT1



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		34.7602	41.89	-24.96	16.93	40.00	-23.07	QP	
2	*	61.3463	45.34	-21.38	23.96	40.00	-16.04	QP	
3		173.2051	24.83	-17.50	7.33	43.50	-36.17	QP	
4		263.8190	36.73	-16.97	19.76	46.00	-26.24	QP	
5		410.3825	29.10	-13.94	15.16	46.00	-30.84	QP	
6		605.6592	27.41	-10.47	16.94	46.00	-29.06	QP	



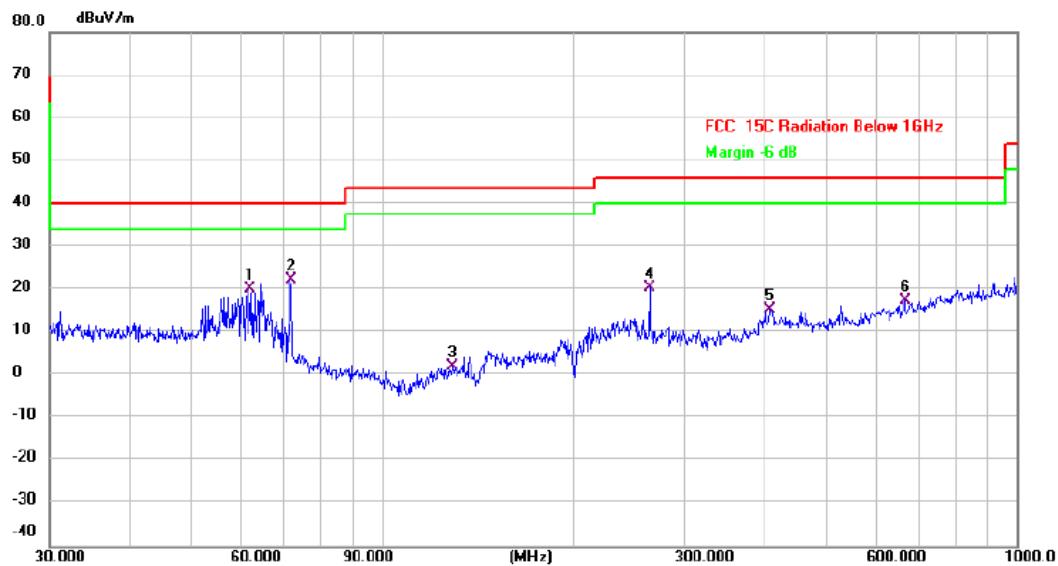
Mode7 / Polarization: Horizontal / CH: H / ANT1+ ANT2



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		39.2991	26.97	-14.32	12.65	40.00	-27.35	QP	
2		71.8320	36.53	-21.68	14.85	40.00	-25.15	QP	
3		181.9202	35.18	-20.33	14.85	43.50	-28.65	QP	
4	*	278.0668	37.82	-16.21	21.61	46.00	-24.39	QP	
5		422.0577	26.37	-13.22	13.15	46.00	-32.85	QP	
6		528.2458	29.80	-13.12	16.68	46.00	-29.32	QP	



Mode7 / Polarization: Vertical / CH: H / ANT1+ ANT2



No.	Mk.	Freq.	Reading	Correct	Measure-	Limit	Over	Detector	Comment
			Level	Factor	ment				
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB		
1		61.7781	41.46	-21.20	20.26	40.00	-19.74	QP	
2	*	71.8320	41.11	-18.92	22.19	40.00	-17.81	QP	
3		129.4677	17.63	-15.38	2.25	43.50	-41.25	QP	
4		263.8190	37.37	-16.97	20.40	46.00	-25.60	QP	
5		407.5145	29.26	-13.90	15.36	46.00	-30.64	QP	
6		665.8035	26.80	-9.27	17.53	46.00	-28.47	QP	



## 6.7 Undesirable emission limits (above 1GHz)

Test Requirement:	47 CFR Part 15.407(b)(1) 47 CFR Part 15.407(b)(4) 47 CFR Part 15.407(b)(10)																																																																										
Test Limit:	<p>For transmitters operating in the 5.15-5.25 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of -27 dBm/MHz.</p> <p>For transmitters operating solely in the 5.725-5.850 GHz band: All emissions shall be limited to a level of -27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.</p>																																																																										
<table border="1"> <thead> <tr> <th>MHz</th><th>MHz</th><th>MHz</th><th>GHz</th></tr> </thead> <tbody> <tr><td>0.090-0.110</td><td>16.42-16.423</td><td>399.9-410</td><td>4.5-5.15</td></tr> <tr><td><sup>1</sup>0.495-0.505</td><td>16.69475-16.69525</td><td>608-614</td><td>5.35-5.46</td></tr> <tr><td>2.1735-2.1905</td><td>16.80425-16.80475</td><td>960-1240</td><td>7.25-7.75</td></tr> <tr><td>4.125-4.128</td><td>25.5-25.67</td><td>1300-1427</td><td>8.025-8.5</td></tr> <tr><td>4.17725-4.17775</td><td>37.5-38.25</td><td>1435-1626.5</td><td>9.0-9.2</td></tr> <tr><td>4.20725-4.20775</td><td>73-74.6</td><td>1645.5-1646.5</td><td>9.3-9.5</td></tr> <tr><td>6.215-6.218</td><td>74.8-75.2</td><td>1660-1710</td><td>10.6-12.7</td></tr> <tr><td>6.26775-6.26825</td><td>108-121.94</td><td>1718.8-1722.2</td><td>13.25-13.4</td></tr> <tr><td>6.31175-6.31225</td><td>123-138</td><td>2200-2300</td><td>14.47-14.5</td></tr> <tr><td>8.291-8.294</td><td>149.9-150.05</td><td>2310-2390</td><td>15.35-16.2</td></tr> <tr><td>8.362-8.366</td><td>156.52475-156.52525</td><td>2483.5-2500</td><td>17.7-21.4</td></tr> <tr><td>8.37625-8.38675</td><td>156.7-156.9</td><td>2690-2900</td><td>22.01-23.12</td></tr> <tr><td>8.41425-8.41475</td><td>162.0125-167.17</td><td>3260-3267</td><td>23.6-24.0</td></tr> <tr><td>12.29-12.293</td><td>167.72-173.2</td><td>3332-3339</td><td>31.2-31.8</td></tr> <tr><td>12.51975-12.52025</td><td>240-285</td><td>3345.8-3358</td><td>36.43-36.5</td></tr> <tr><td>12.57675-12.57725</td><td>322-335.4</td><td>3600-4400</td><td>(<sup>2</sup>)</td></tr> <tr><td>13.36-13.41</td><td></td><td></td><td></td></tr> </tbody> </table>				MHz	MHz	MHz	GHz	0.090-0.110	16.42-16.423	399.9-410	4.5-5.15	<sup>1</sup> 0.495-0.505	16.69475-16.69525	608-614	5.35-5.46	2.1735-2.1905	16.80425-16.80475	960-1240	7.25-7.75	4.125-4.128	25.5-25.67	1300-1427	8.025-8.5	4.17725-4.17775	37.5-38.25	1435-1626.5	9.0-9.2	4.20725-4.20775	73-74.6	1645.5-1646.5	9.3-9.5	6.215-6.218	74.8-75.2	1660-1710	10.6-12.7	6.26775-6.26825	108-121.94	1718.8-1722.2	13.25-13.4	6.31175-6.31225	123-138	2200-2300	14.47-14.5	8.291-8.294	149.9-150.05	2310-2390	15.35-16.2	8.362-8.366	156.52475-156.52525	2483.5-2500	17.7-21.4	8.37625-8.38675	156.7-156.9	2690-2900	22.01-23.12	8.41425-8.41475	162.0125-167.17	3260-3267	23.6-24.0	12.29-12.293	167.72-173.2	3332-3339	31.2-31.8	12.51975-12.52025	240-285	3345.8-3358	36.43-36.5	12.57675-12.57725	322-335.4	3600-4400	( <sup>2</sup> )	13.36-13.41			
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<p><sup>1</sup> Until February 1, 1999, this restricted band shall be 0.490-0.510 MHz.</p> <p><sup>2</sup> Above 38.6</p> <p>The field strength of emissions appearing within these frequency bands shall not exceed the limits shown in § 15.209. At frequencies equal to or less than 1000 MHz, compliance with the limits in § 15.209 shall be demonstrated using measurement instrumentation employing a CISPR quasi-peak detector. Above 1000 MHz, compliance with the emission limits in § 15.209 shall be demonstrated based on the average value of the measured emissions. The provisions in § 15.35 apply to these measurements.</p> <p>Except as provided elsewhere in this subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table:</p>																																																																											



	Frequency (MHz)	Field strength (microvolts/meter)	Measurement distance (meters)
0.009-0.490	2400/F(kHz)	300	
0.490-1.705	24000/F(kHz)	30	
1.705-30.0	30	30	
30-88	100 **	3	
88-216	150 **	3	
216-960	200 **	3	
Above 960	500	3	

\*\* Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of this part, e.g., §§ 15.231 and 15.241.

In the emission table above, the tighter limit applies at the band edges. The emission limits shown in the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9–90 kHz, 110–490 kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector.

**Test Method:** ANSI C63.10-2013, section 12.7.4, 12.7.6, 12.7.7

**Procedure:**

Above 1GHz:

- For above 1GHz, the EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter fully-anechoic chamber. 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 or average method as specified and then reported in a data sheet.
- 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 the worst case.
- Repeat above procedures until all frequencies measured was complete.

**Remark:**

1. Level= Read Level+ Cable Loss+ Antenna Factor- Preamp Factor
2. Scan from 18GHz to 40GHz, the disturbance above 18GHz was very low. The points marked on above plots are the highest emissions could be found when testing, so only above points had been displayed. The amplitude of spurious emissions from the radiator which are attenuated more than 20dB below the limit need not be reported.
3. 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. For the emissions whose peak level is lower than the average limit, only the peak measurement is shown in the report.

4. The disturbance above 18GHz were very low and the harmonics were the highest point could be found when testing, so only the above harmonics had been displayed.

### 6.7.1 E.U.T. Operation:

Operating Environment:

Temperature:	24 °C	Humidity:	54 %	Atmospheric Pressure:	101 kPa
Pre test mode:	Mode1, Mode2, Mode3, Mode4, Mode5, Mode6, Mode7, Mode8, Mode9, Mode10, Mode11				
Final test mode:	All of the listed pre-test mode were tested, only the data of the worst mode (Mode1, 7) is recorded in the report				

The worst mode comes from antenna 1.



### 6.7.2 Test Data:

Band1:

Mode1 / Polarization: Horizontal / CH: L /ANT1

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector
1		10360.000	44.84	10.75	55.59	74.00	-18.41	peak
2		10360.000	34.61	10.75	45.36	54.00	-8.64	AVG
3		15540.000	46.01	13.16	59.17	74.00	-14.83	peak
4	*	15540.000	36.46	13.16	49.62	54.00	-4.38	AVG

Mode1 / Polarization: Vertical / CH: L /ANT1

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector
1		10360.000	44.91	10.75	55.66	74.00	-18.34	peak
2		10360.000	34.57	10.75	45.32	54.00	-8.68	AVG
3		15540.000	46.05	13.16	59.21	74.00	-14.79	peak
4	*	15540.000	36.18	13.16	49.34	54.00	-4.66	AVG



Mode1 / Polarization: Horizontal / CH: M /ANT1

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector
1		10400.000	45.16	10.85	56.01	74.00	-17.99	peak
2		10400.000	35.42	10.85	46.27	54.00	-7.73	AVG
3		15600.000	47.27	12.71	59.98	74.00	-14.02	peak
4	*	15600.000	36.97	12.71	49.68	54.00	-4.32	AVG

Mode1 / Polarization: Vertical / CH: M /ANT1

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector
1		10400.000	45.58	10.85	56.43	74.00	-17.57	peak
2		10400.000	35.47	10.85	46.32	54.00	-7.68	AVG
3		15600.000	46.10	12.71	58.81	74.00	-15.19	peak
4	*	15600.000	35.86	12.71	48.57	54.00	-5.43	AVG



Mode1 / Polarization: Horizontal / CH: H /ANT1

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector
1		10480.000	45.26	10.65	55.91	74.00	-18.09	peak
2		10480.000	34.82	10.65	45.47	54.00	-8.53	AVG
3		15720.000	47.26	12.68	59.94	74.00	-14.06	peak
4	*	15720.000	36.94	12.68	49.62	54.00	-4.38	AVG

Mode1 / Polarization: Vertical / CH: H /ANT1

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector
1		10480.000	45.09	10.65	55.74	74.00	-18.26	peak
2		10480.000	34.71	10.65	45.36	54.00	-8.64	AVG
3		15720.000	47.25	12.68	59.93	74.00	-14.07	peak
4	*	15720.000	37.05	12.68	49.73	54.00	-4.27	AVG



Band1:

Mode7 / Polarization: Horizontal / CH: L / ANT1+ ANT2

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector
1		10360.000	44.56	10.75	55.31	74.00	-18.69	peak
2		10360.000	34.57	10.75	45.32	54.00	-8.68	AVG
3		15540.000	46.07	13.16	59.23	74.00	-14.77	peak
4	*	15540.000	36.48	13.16	49.64	54.00	-4.36	AVG

Mode7 / Polarization: Vertical / CH: L / ANT1+ ANT2

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector
1		10360.000	44.91	10.75	55.66	74.00	-18.34	peak
2		10360.000	34.57	10.75	45.32	54.00	-8.68	AVG
3		15540.000	47.10	13.16	60.26	74.00	-13.74	peak
4	*	15540.000	36.98	13.16	50.14	54.00	-3.86	AVG



Mode7 / Polarization: Horizontal / CH: M / ANT1+ ANT2

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector
1		10400.000	44.85	10.85	55.70	74.00	-18.30	peak
2		10400.000	34.57	10.85	45.42	54.00	-8.58	AVG
3		15600.000	46.71	12.71	59.42	74.00	-14.58	peak
4	*	15600.000	36.76	12.71	49.47	54.00	-4.53	AVG

Mode7 / Polarization: Vertical / CH: M / ANT1+ ANT2

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector
1		10400.000	44.13	10.85	54.98	74.00	-19.02	peak
2		10400.000	33.77	10.85	44.62	54.00	-9.38	AVG
3		15600.000	47.37	12.71	60.08	74.00	-13.92	peak
4	*	15600.000	37.43	12.71	50.14	54.00	-3.86	AVG



Moded7 / Polarization: Horizontal / CH: H / ANT1+ ANT2

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB
1		10480.000	45.24	10.65	55.89	74.00	-18.11 peak
2		10480.000	35.09	10.65	45.74	54.00	-8.26 AVG
3		15720.000	47.41	12.68	60.09	74.00	-13.91 peak
4	*	15720.000	37.48	12.68	50.16	54.00	-3.84 AVG

Mode7 / Polarization: Vertical / CH: H / ANT1+ ANT2

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB
1		10480.000	45.23	10.65	55.88	74.00	-18.12 peak
2		10480.000	34.71	10.65	45.36	54.00	-8.64 AVG
3		15720.000	47.11	12.68	59.79	74.00	-14.21 peak
4	*	15720.000	36.83	12.68	49.51	54.00	-4.49 AVG



Band3:

Mode1 / Polarization: Horizontal / CH: L /ANT1

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
			MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector
1		11490.000	45.10	12.51	57.61	74.00	-16.39	peak	
2		11490.000	33.85	12.51	46.36	54.00	-7.64	AVG	
3		17235.000	45.99	14.54	60.53	74.00	-13.47	peak	
4	*	17235.000	34.60	14.54	49.14	54.00	-4.86	AVG	

Mode1 / Polarization: Vertical / CH: L /ANT1

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
			MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector
1		11490.000	44.37	12.51	56.88	74.00	-17.12	peak	
2		11490.000	32.85	12.51	45.36	54.00	-8.64	AVG	
3		17235.000	46.84	14.54	61.38	74.00	-12.62	peak	
4	*	17235.000	35.84	14.54	50.38	54.00	-3.62	AVG	



Mode1 / Polarization: Horizontal / CH: M /ANT1

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector
1		11570.000	44.51	12.37	56.88	74.00	-17.12	peak
2		11570.000	32.87	12.37	45.24	54.00	-8.76	AVG
3		17355.000	46.40	14.60	61.00	74.00	-13.00	peak
4	*	17355.000	36.08	14.60	50.68	54.00	-3.32	AVG

Mode1 / Polarization: Vertical / CH: M /ANT1

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector
1		11570.000	44.62	12.37	56.99	74.00	-17.01	peak
2		11570.000	32.99	12.37	45.36	54.00	-8.64	AVG
3		17355.000	46.31	14.60	60.91	74.00	-13.09	peak
4	*	17355.000	35.08	14.60	49.68	54.00	-4.32	AVG



## Mode1 / Polarization: Horizontal / CH: H /ANT1

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector
1	11610.000	45.96	12.28	58.24	74.00	-15.76	peak	
2	11610.000	34.98	12.28	47.26	54.00	-6.74	AVG	
3	17415.000	47.00	14.65	61.65	74.00	-12.35	peak	
4	*	17415.000	35.47	14.65	50.12	54.00	-3.88	AVG

## Mode1 / Polarization: Vertical / CH: H /ANT1

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector
1	11610.000	44.71	12.28	56.99	74.00	-17.01	peak	
2	11610.000	32.84	12.28	45.12	54.00	-8.88	AVG	
3	17415.000	47.39	14.65	62.04	74.00	-11.96	peak	
4	*	17415.000	36.24	14.65	50.89	54.00	-3.11	AVG



Band3:

Mode7 / Polarization: Horizontal / CH: L / ANT1+ ANT2

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB
1		11490.000	45.58	12.51	58.09	74.00	-15.91 peak
2		11490.000	35.81	12.51	48.32	54.00	-5.68 AVG
3		17235.000	46.34	14.54	60.88	74.00	-13.12 peak
4	*	17235.000	36.03	14.54	50.57	54.00	-3.43 AVG

Mode7 / Polarization: Vertical / CH: L / ANT1+ ANT2

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB
1		11490.000	44.41	12.51	56.92	74.00	-17.08 peak
2		11490.000	33.77	12.51	46.28	54.00	-7.72 AVG
3		17235.000	46.15	14.54	60.69	74.00	-13.31 peak
4	*	17235.000	35.93	14.54	50.47	54.00	-3.53 AVG



Mode7 / Polarization: Horizontal / CH: M / ANT1+ ANT2

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector
1		11570.000	45.51	12.37	57.88	74.00	-16.12	peak
2		11570.000	34.99	12.37	47.36	54.00	-6.64	AVG
3		17355.000	46.72	14.60	61.32	74.00	-12.68	peak
4	*	17355.000	36.34	14.60	50.94	54.00	-3.06	AVG

Mode7 / Polarization: Vertical / CH: M / ANT1+ ANT2

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector
1		11570.000	45.22	12.37	57.59	74.00	-16.41	peak
2		11570.000	34.78	12.37	47.15	54.00	-6.85	AVG
3		17355.000	45.97	14.60	60.57	74.00	-13.43	peak
4	*	17355.000	35.76	14.60	50.36	54.00	-3.64	AVG



Mode7 / Polarization: Horizontal / CH: H / ANT1+ ANT2

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector
1		11610.000	45.02	12.28	57.30	74.00	-16.70	peak
2		11610.000	32.95	12.28	45.23	54.00	-8.77	AVG
3		17415.000	45.69	14.65	60.34	74.00	-13.66	peak
4	*	17415.000	35.49	14.65	50.14	54.00	-3.86	AVG

Mode7 / Polarization: Vertical / CH: H / ANT1+ ANT2

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector
1		11610.000	45.44	12.28	57.72	74.00	-16.28	peak
2		11610.000	35.35	12.28	47.63	54.00	-6.37	AVG
3		17415.000	46.08	14.65	60.73	74.00	-13.27	peak
4	*	17415.000	35.59	14.65	50.24	54.00	-3.76	AVG

## Photographs of the test setup

Refer to Appendix - Test Setup Photos

## Photographs of the EUT

Refer to Appendix - EUT Photos

# Appendix



## Appendix A1: Emission bandwidth (26dB bandwidth)

### Test Result

Test Mode	Antenna	Frequency [MHz]	26db EBW [MHz]
11A	Ant1	5180	18.200
	Ant2	5180	18.200
	Ant1	5200	18.400
	Ant2	5200	18.360
	Ant1	5240	18.600
	Ant2	5240	18.680
	Ant1	5745	39.200
	Ant2	5745	32.440
	Ant1	5785	37.200
	Ant2	5785	28.720
	Ant1	5805	31.640
	Ant2	5805	26.840
	Ant1	5180	19.280
	Ant2	5180	19.440
11N20	Ant1	5200	19.760
	Ant2	5200	19.480
	Ant1	5240	19.440
	Ant2	5240	19.360
	Ant1	5745	39.320
	Ant2	5745	38.480
	Ant1	5785	38.880
	Ant2	5785	33.240
	Ant1	5805	37.800
	Ant2	5805	26.840
	Ant1	5190	41.600
	Ant2	5190	40.720
	Ant1	5230	44.960
	Ant2	5230	42.960
11N40	Ant1	5755	78.800
	Ant2	5755	71.280
	Ant1	5795	77.440
	Ant2	5795	64.720
	Ant1	5180	18.720
	Ant2	5180	19.400
	Ant1	5200	19.160
	Ant2	5200	19.360
11AC20	Ant1	5240	19.520
	Ant2	5240	19.520
	Ant1	5745	39.200
	Ant2	5745	32.560
	Ant1	5785	39.640
	Ant2	5785	31.120
	Ant1	5805	35.560
	Ant2	5805	29.680
	Ant1	5190	41.200
	Ant2	5190	40.960
	Ant1	5230	40.720
	Ant2	5230	41.040
11AC40	Ant1	5755	79.840
	Ant2	5755	76.160
	Ant1	5795	77.520
	Ant2	5795	69.600
	Ant1	5210	81.600
	Ant2	5210	81.280
	Ant1	5775	152.800
	Ant2	5775	146.240
11AC80	Ant1	5210	81.600
	Ant2	5210	81.280
	Ant1	5775	152.800
	Ant2	5775	146.240



## Test Graphs

