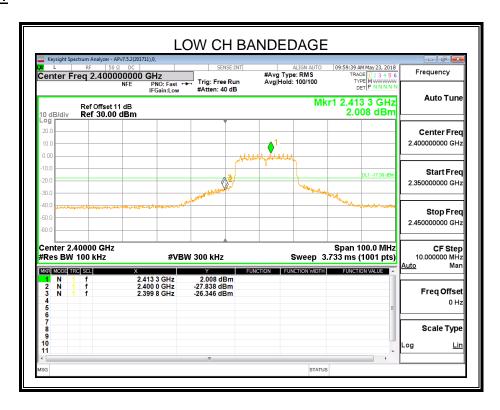
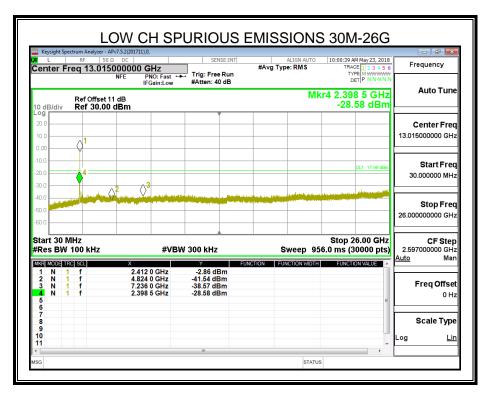


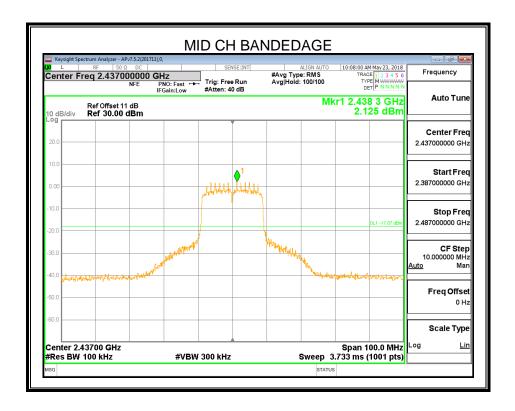


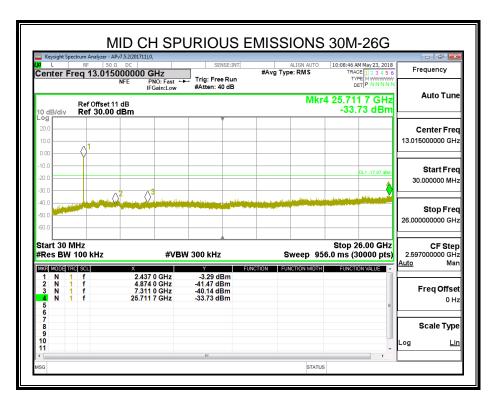
7.5.3. 802.11n20 MODE



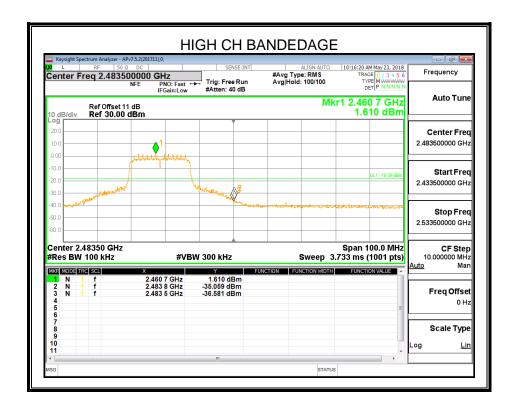


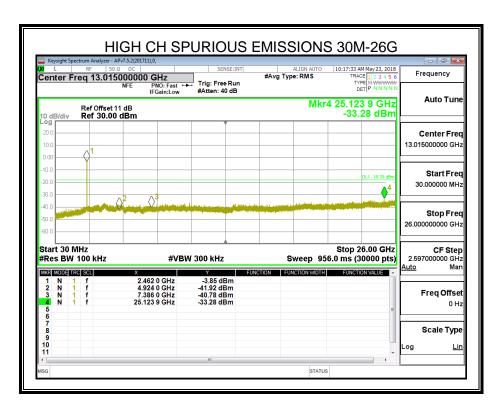




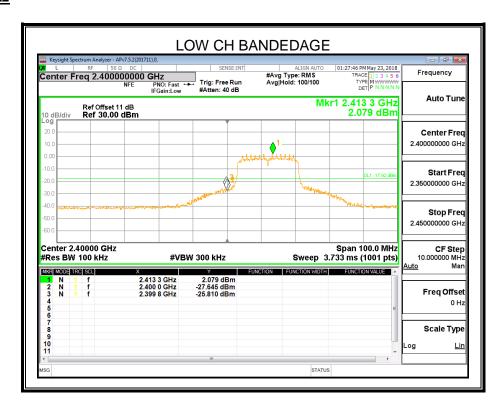


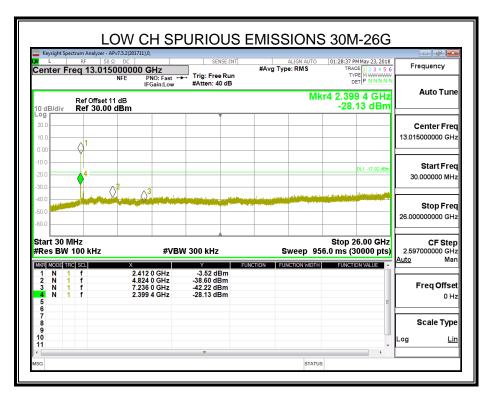




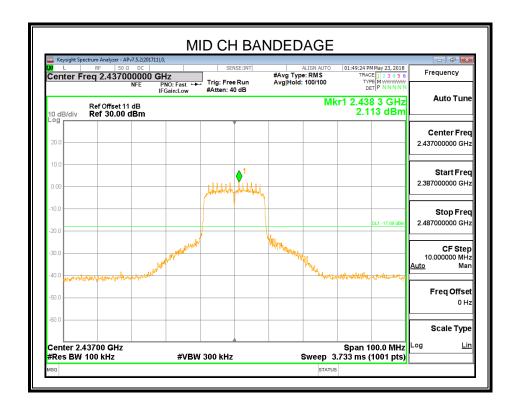


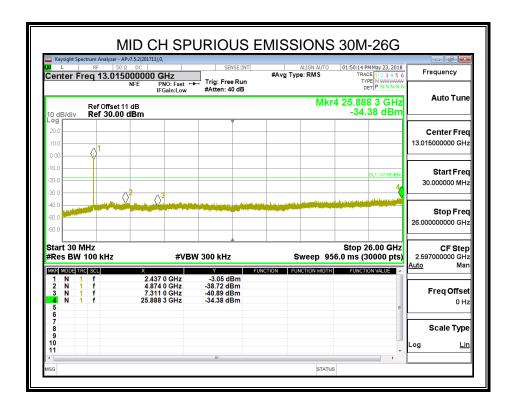




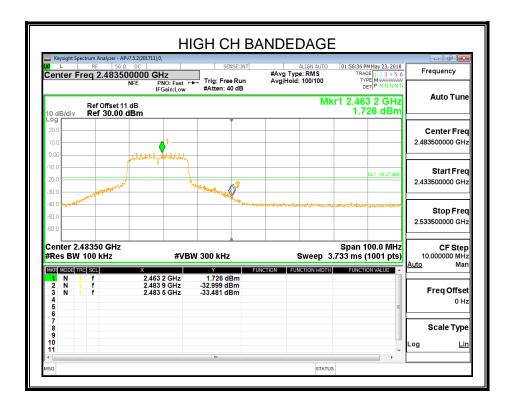


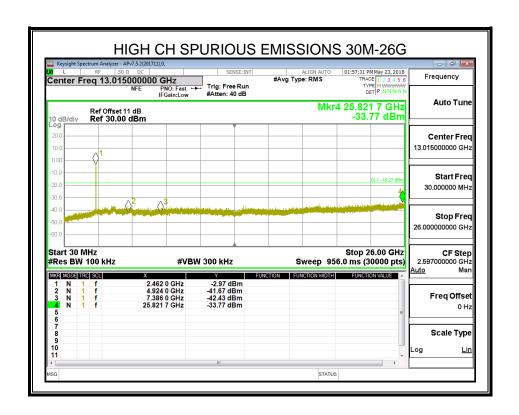






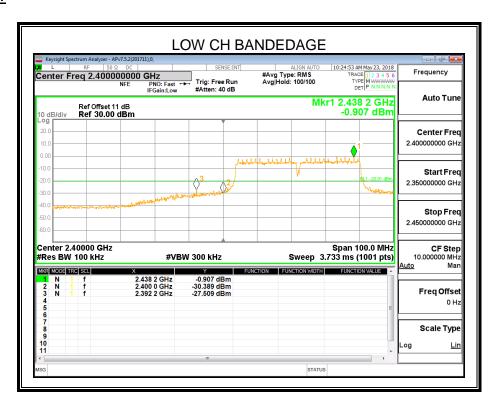


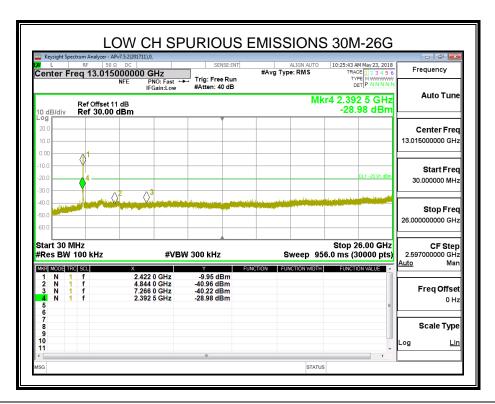




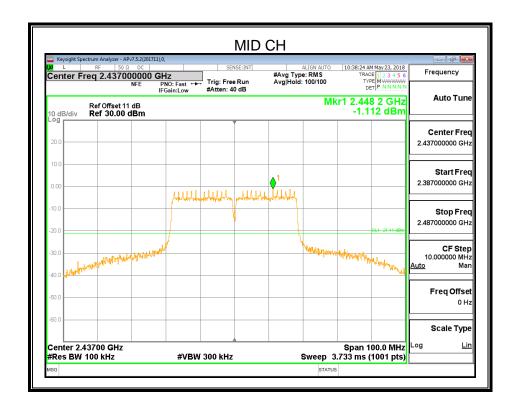


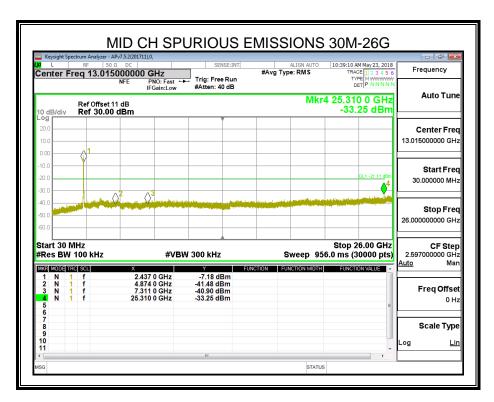
7.5.4. 802.11n40 MODE



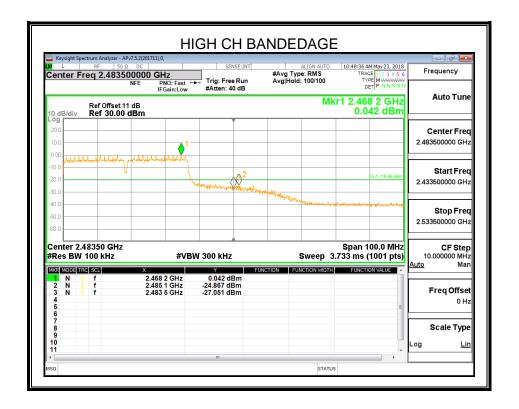


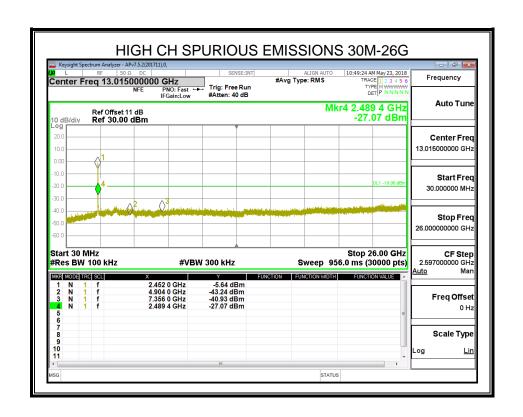




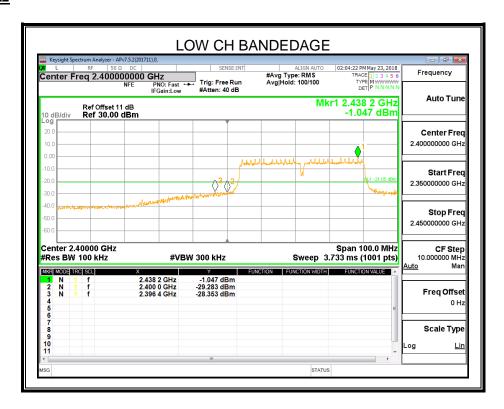


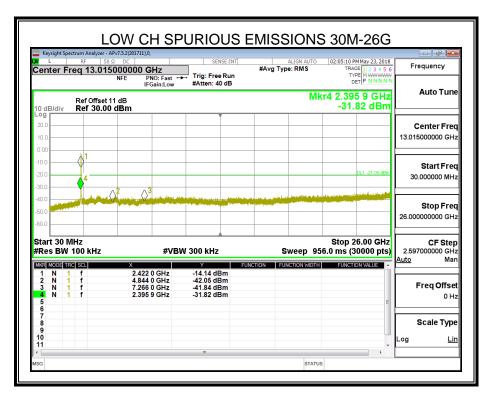




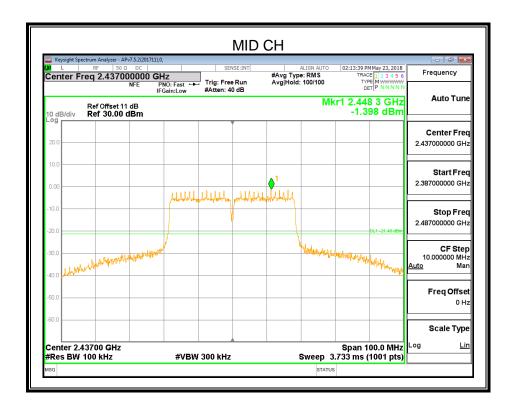


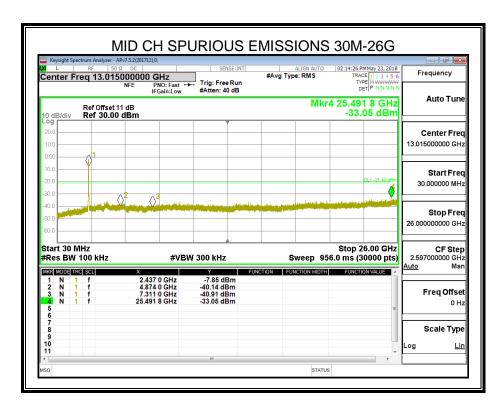




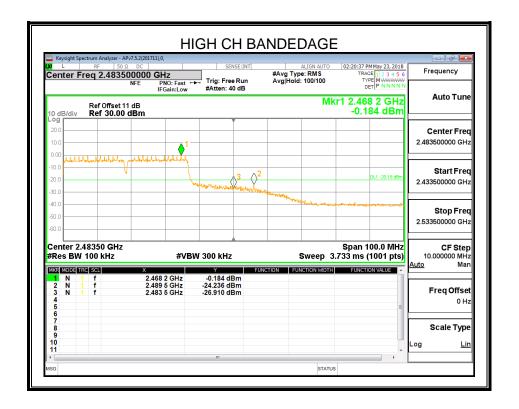


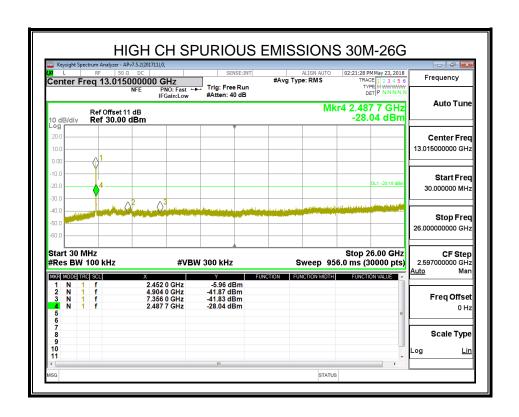














8. RADIATED TEST RESULTS

LIMITS

Please refer to FCC §15.205 and §15.209 Please refer to RSS-GEN Clause 8.9

Radiation Disturbance Test Limit for FCC (Class B)(9KHz-1GHz)

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
960~1000	500	3

Note: 1) At frequencies at or above 30 MHz, measurements may be performed at a distance other than what is specified provided: measurements are not made in the near field except where it can be shown that near field measurements are appropriate due to the characteristics of the device; and it can be demonstrated that the signal levels needed to be measured at the distance employed can be detected by the measurement equipment. Measurements shall not be performed at a distance greater than 30 meters unless it can be further demonstrated that measurements at a distance of 30 meters or less are impractical. When performing measurements at a distance other than that specified, the results shall be extrapolated to the specified distance using an extrapolation factor of 20 dB/decade (inverse linear-distance for field strength measurements; inverse-linear-distance-squared for power density measurements).

(2) At frequencies below 30 MHz, measurements may be performed at a distance closer than that specified in the regulations; however, an attempt should be made to avoid making measurements in the near field. Pending the development of an appropriate measurement procedure for measurements performed below 30 MHz, when performing measurements at a closer distance than specified, the results shall be extrapolated to the specified distance by either making measurements at a minimum of two distances on at least one radial to determine the proper extrapolation factor or by using the square of an inverse linear distance extrapolation factor (40 dB/decade). This paragraph (f) shall not apply to Access BPL devices operating below 30 MHz.

Radiation Disturbance Test Limit for FCC (Above 1G)

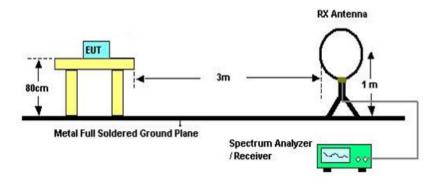
Frequency (MHz)	dB(uV/m) (at 3 meters)	
Frequency (Miriz)	Peak	Average
Above 1000	74	54

About Restricted bands of operation please refer to RSS-Gen section 8.10 and FCC §15.205 (a)



TEST SETUP AND PROCEDURE

Below 30MHz



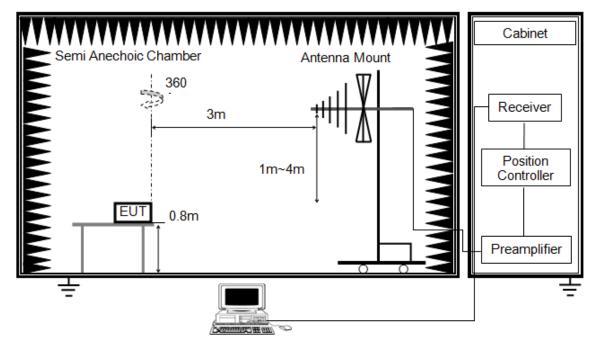
The setting of the spectrum analyser

RBW	200Hz (From 9kHz to 0.15MHz)/ 9KHz (From 0.15MHz to 30MHz)
VBW	200Hz (From 9kHz to 0.15MHz)/ 9KHz (From 0.15MHz to 30MHz)
Sweep	Auto
Detector	Peak/QP/ Average
Trace	Max hold

- 1. The testing follows the guidelines in ANSI C63.10-2013
- 2. The EUT was arranged to its worst case and then turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better signal level. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- 3. The EUT was placed on a turntable with 0.8 meter above ground.
- 4. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.
- 5. For measurement below 1GHz, the initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured. If the emission level of the EUT measured by the peak detector is 3 dB lower than the applicable limit, the peak emission level will be reported. Otherwise, the emission measurement will be repeated using the quasi-peak detector and reported.
- 6. For the actual test configuration, please refer to the related item in this test report (Photographs of the Test Configuration)
- 7. Although these tests were performed other than open area test site, adequate comparison measurements were confirmed against 30m open are test site. Therefore sufficient tests were made to demonstrate that the alternative site produces results that correlate with the ones of tests made in an open field based on KDB 414788.



Below 1G

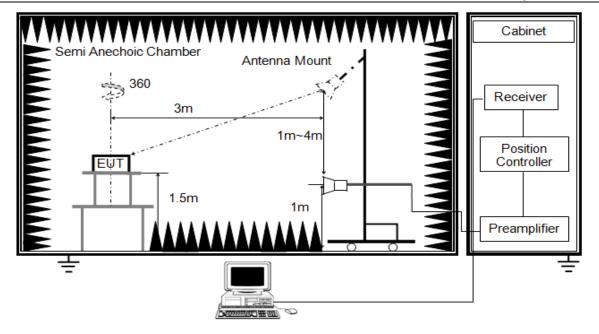


The setting of the spectrum analyser

RBW	120K
VBW	300K
Sweep	Auto
Detector	Peak/QP
Trace	Max hold

- 1. The testing follows the guidelines in ANSI C63.10-2013.
- 2. The EUT was arranged to its worst case and then tune the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better signal level. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- 3. The EUT was placed on a turntable with 0.8 meter above ground.
- 4. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.
- 5. For measurement below 1GHz, the initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured. If the emission level of the EUT measured by the peak detector is 3 dB lower than the applicable limit, the peak emission level will be reported. Otherwise, the emission measurement will be repeated using the quasi-peak detector and reported.
- 6. For the actual test configuration, please refer to the related Item in this test report (Photographs of the Test Configuration)





The setting of the spectrum analyser

RBW	1M
1\/B\/\/	PEAK: 3M AVG: see note 6
Sweep	Auto
Detector	Peak
Trace	Max hold

- 1. The testing follows the guidelines in ANSI C63.10-2013.
- 2. The EUT was arranged to its worst case and then tune the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better signal level. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- 3. The EUT was placed on a turntable with 1.5m above ground.
- 4. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.
- 5. For measurement above 1GHz, the emission measurement will be measured by the peak detector. This peak level, once corrected, must comply with the limit specified in Section 15.209.



6. For measurements above 1 GHz the resolution bandwidth is set to 1 MHz, then the video bandwidth is set to 3 MHz for peak measurements and 1 MHz resolution bandwidth with 1/T video bandwidth with peak detector. If the transmit with D \geq 98%, then set VBW \leq RBW / 100, but not less than 10 Hz.

For the Duty Cycle and Correction Factor please refer to clause 7.1.ON TIME AND DUTY CYCLE.

If that calculated VBW is not available on the analyzer then the next higher value should be used.

The following value will be used:

 $802.11b: 10Hz(D \ge 98\%)$

802.11g: 2KHz 802.11n20: 2KHz 802.11n40: 3KHz

7. For the actual test configuration, please refer to the related item in this test report (Photographs of the Test Configuration)

X axis, Y axis, Z axis positions:

Note 1: For all radiated test, EUT in each of three orthogonal axis emissions had been tested, but only the worst case (X axis) data recorded in the report.

Note 2: All the EUT's emissions had been evaluated for simultaneous transmission with the other WIFI 2.4GHz, WIFI 5GHz,BT and 2.4G transmitter and there were no any additional or worse emissions found.

Note 3: All the antennas had been tested, but only the worst data record in the report

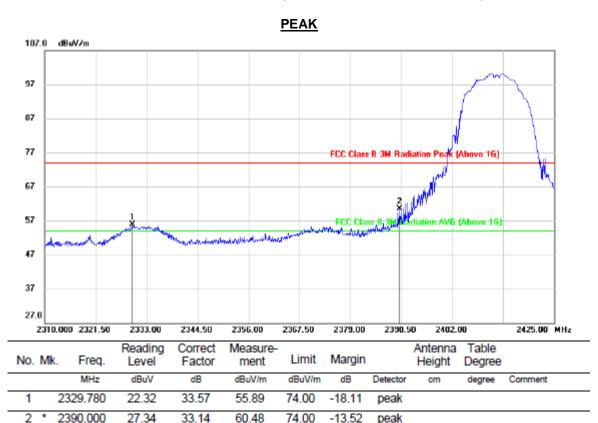


8.1. RESTRICTED BANDEDGE

8.1.1. 802.11b MODE

ANTENNA1 (WORST-CASE CONFIGURATION)

RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)



Note: 1. Measurement = Reading Level + Correct Factor.

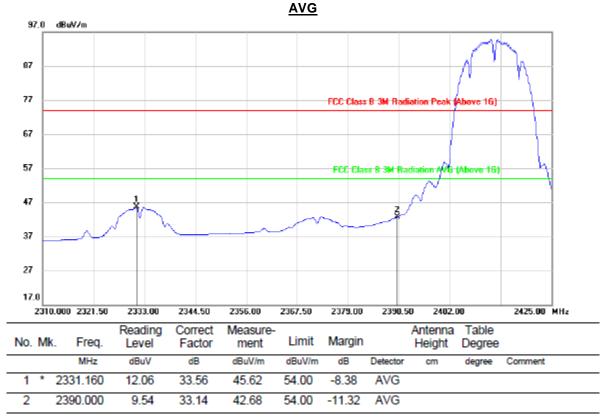
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

peak

- 3. Peak: Peak detector.
- 4. Only the worst case emission will be recorder, if it complies with the limit, the other emissions deemed to comply with the limit.

60.48

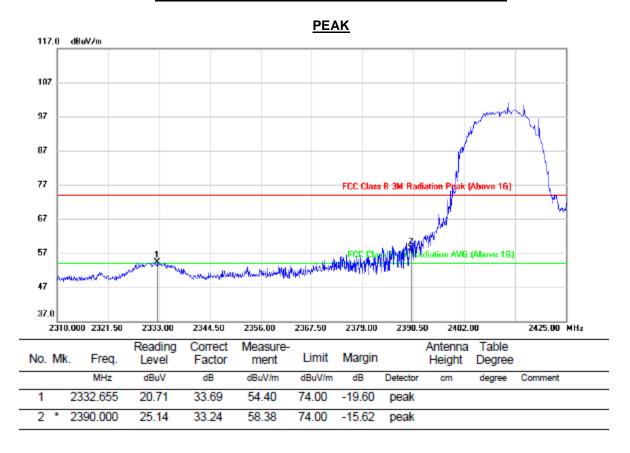




- 2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
- 3. AVG: VBW=10Hz.
- 4. For transmit duration, please refer to clause 7.1.
- 5. Only the worst case emission will be recorder, if it complies with the limit, the other emissions deemed to comply with the limit.

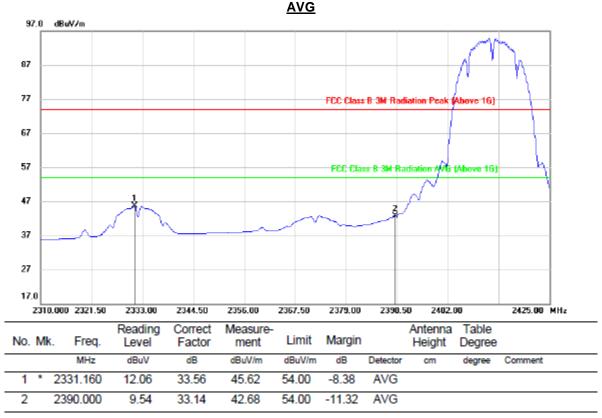


RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)



- 2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
- 3. Peak: Peak detector.
- 4. Only the worst case emission will be recorder, if it complies with the limit, the other emissions deemed to comply with the limit.



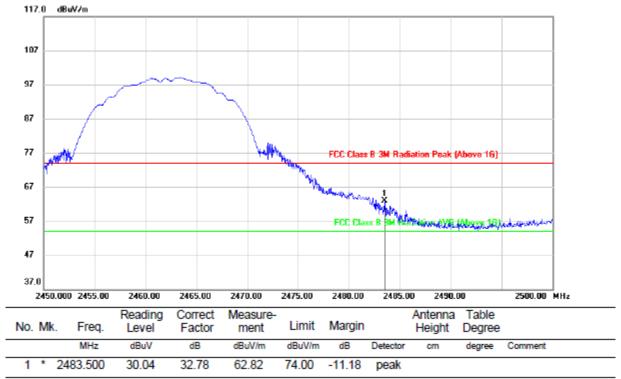


- 2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
- 3. AVG: VBW=10Hz.
- 4. For transmit duration, please refer to clause 7.1.
- 5. Only the worst case emission will be recorder, if it complies with the limit, the other emissions deemed to comply with the limit.



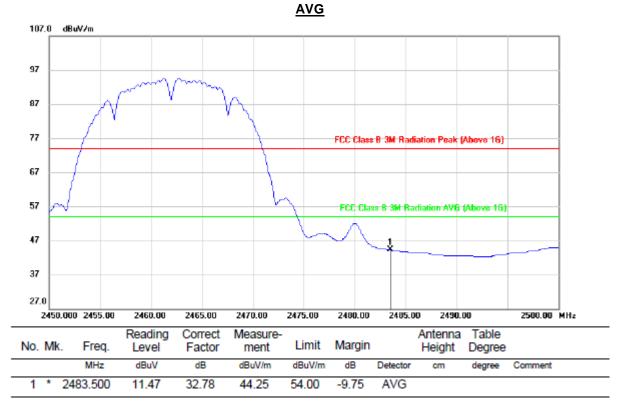
RESTRICTED BANDEDGE (HIGH CHANNEL, HORIZONTAL)





- 2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
- 3. Peak: Peak detector.
- 4. Only the worst case emission will be recorder, if it complies with the limit, the other emissions deemed to comply with the limit.



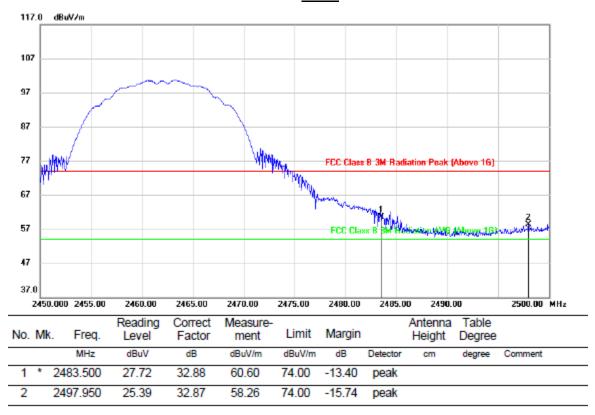


- 2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
- 3. AVG: VBW=10Hz.
- 4. For transmit duration, please refer to clause 7.1.
- 5. Only the worst case emission will be recorder, if it complies with the limit, the other emissions deemed to comply with the limit.



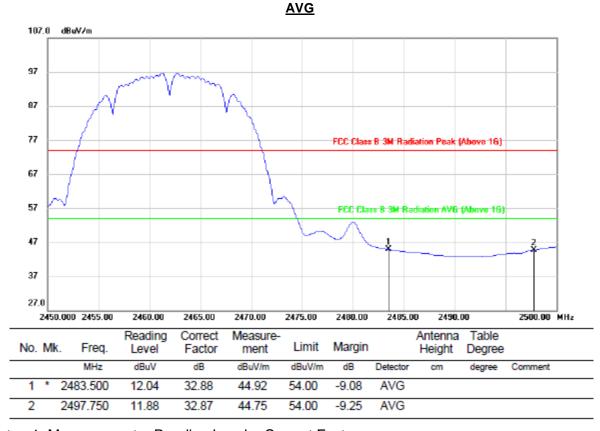
RESTRICTED BANDEDGE (HIGH CHANNEL, VERTICAL)

PEAK



- 2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
- 3. Peak: Peak detector.
- 4. Only the worst case emission will be recorder, if it complies with the limit, the other emissions deemed to comply with the limit.





- 2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
- 3. AVG: VBW=10Hz.
- 4. For transmit duration, please refer to clause 7.1.
- 5. Only the worst case emission will be recorder, if it complies with the limit, the other emissions deemed to comply with the limit.

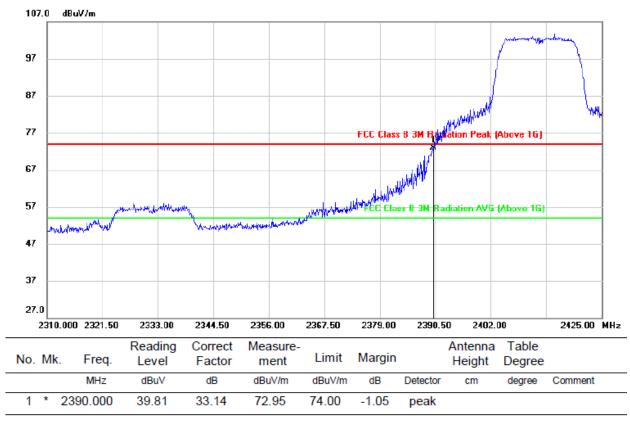


8.1.2. 802.11g MODE

ANTENNA1 (WORST-CASE CONFIGURATION)

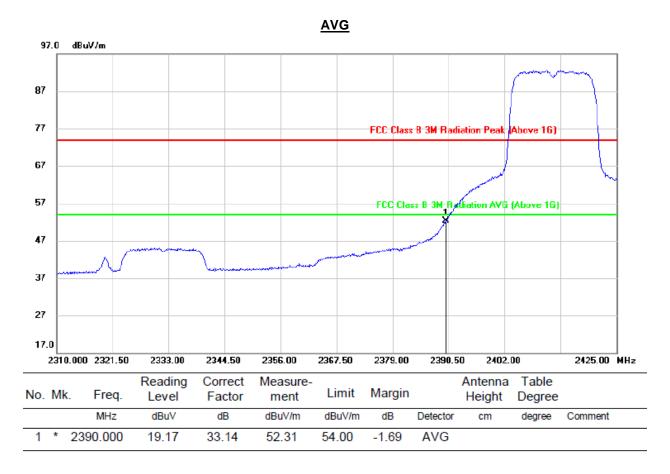
RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)

PEAK



- 2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
- 3. Peak: Peak detector.
- 4. Only the worst case emission will be recorder, if it complies with the limit, the other emissions deemed to comply with the limit.

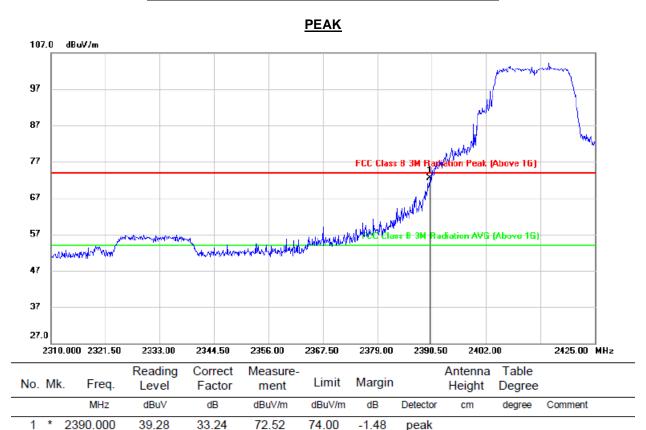




- 2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
- 3. AVG: VBW=1/Ton where: ton is transmit duration.
- 4. For transmit duration, please refer to clause 7.1.
- 5. Only the worst case emission will be recorder, if it complies with the limit, the other emissions deemed to comply with the limit.

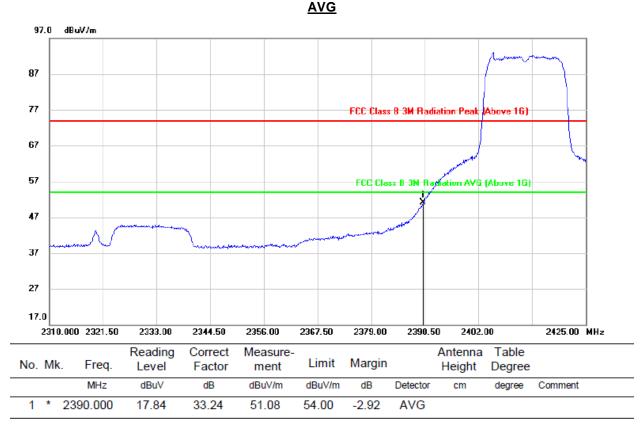


RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)



- 2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
- 3. Peak: Peak detector.
- 4. Only the worst case emission will be recorder, if it complies with the limit, the other emissions deemed to comply with the limit.



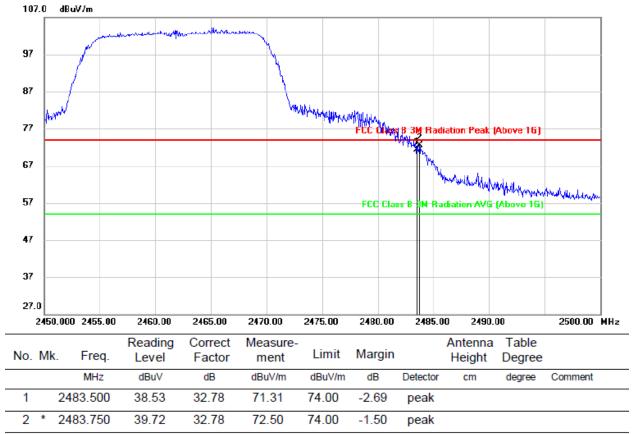


- 2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
- 3. AVG: VBW=1/Ton where: ton is transmit duration.
- 4. For transmit duration, please refer to clause 7.1.
- 5. Only the worst case emission will be recorder, if it complies with the limit, the other emissions deemed to comply with the limit.



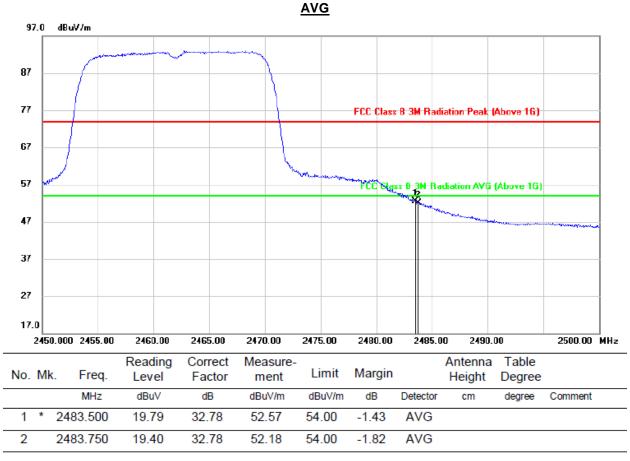
RESTRICTED BANDEDGE (HIGH CHANNEL, HORIZONTAL)

<u>PEAK</u>



- 2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
- 3. Peak: Peak detector.
- 4. Only the worst case emission will be recorder, if it complies with the limit, the other emissions deemed to comply with the limit.





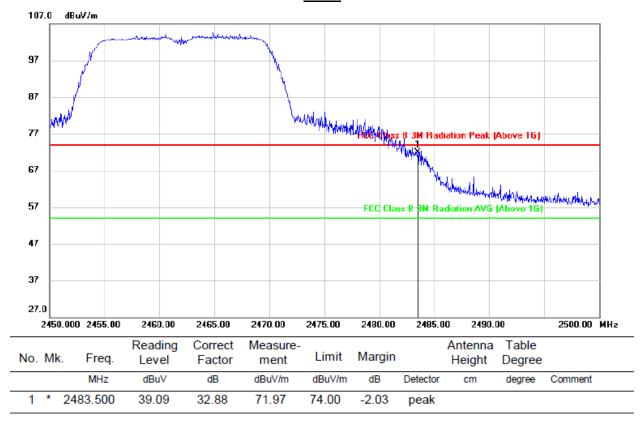
Note: 1. Measurement = Reading Level + Correct Factor.

- 2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
- 3. AVG: VBW=1/Ton where: ton is transmit duration.
- 4. For transmit duration, please refer to clause 7.1.
- 5. Only the worst case emission will be recorder, if it complies with the limit, the other emissions deemed to comply with the limit.



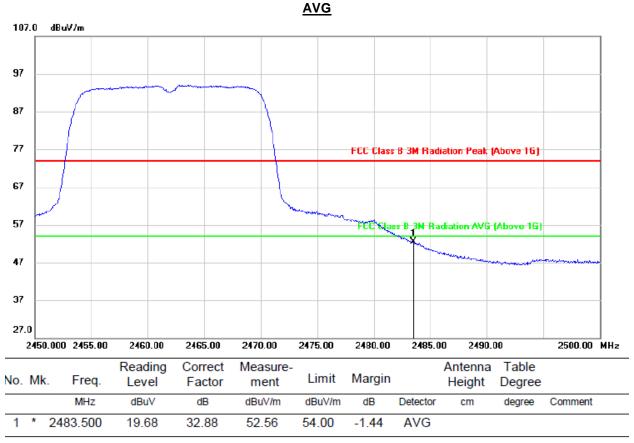
RESTRICTED BANDEDGE (HIGH CHANNEL, VERTICAL)

PEAK



- 2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
- 3. Peak: Peak detector.
- 4. Only the worst case emission will be recorder, if it complies with the limit, the other emissions deemed to comply with the limit.





- 2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
- 3. AVG: VBW=1/Ton where: ton is transmit duration.
- 4. For transmit duration, please refer to clause 7.1.
- 5. Only the worst case emission will be recorder, if it complies with the limit, the other emissions deemed to comply with the limit.

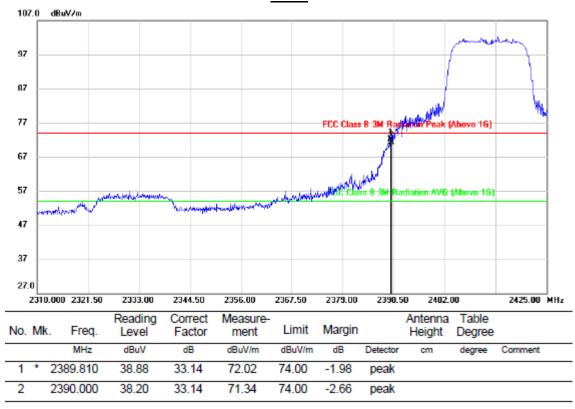


8.1.3. 802.11n20 MODE

ANTENNA1 (WORST-CASE CONFIGURATION)

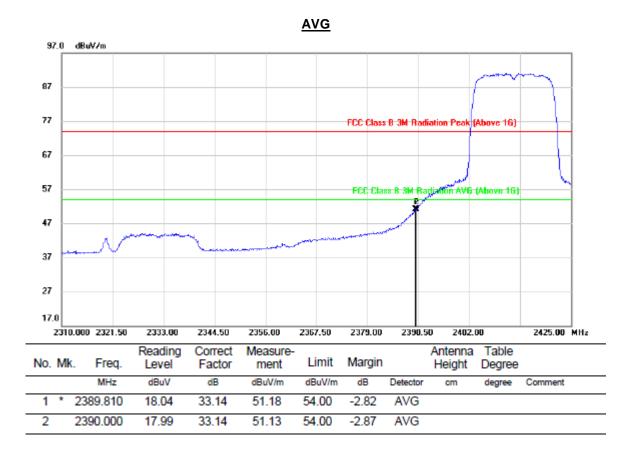
RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)

PEAK



- 2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
- 3. Peak: Peak detector.
- 4. Only the worst case emission will be recorder, if it complies with the limit, the other emissions deemed to comply with the limit.

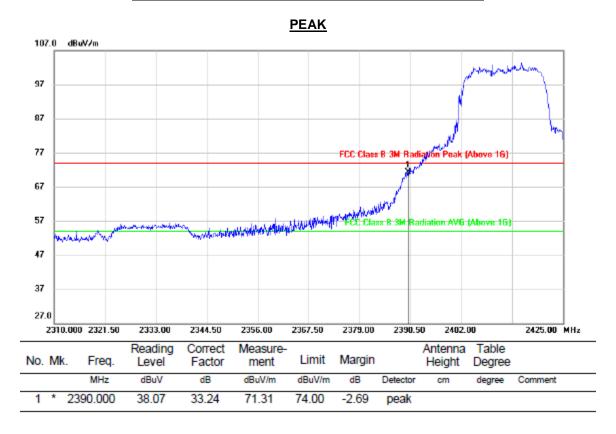




- 2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
- 3. AVG: VBW=1/Ton where: ton is transmit duration.
- 4. For transmit duration, please refer to clause 7.1.
- 5. Only the worst case emission will be recorder, if it complies with the limit, the other emissions deemed to comply with the limit.

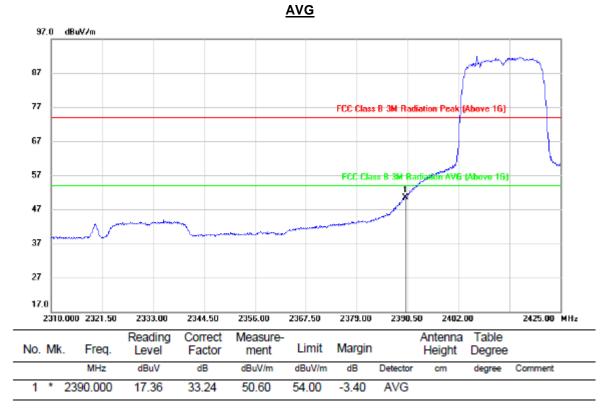


RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)



- 2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
- 3. Peak: Peak detector.
- 4. Only the worst case emission will be recorder, if it complies with the limit, the other emissions deemed to comply with the limit.



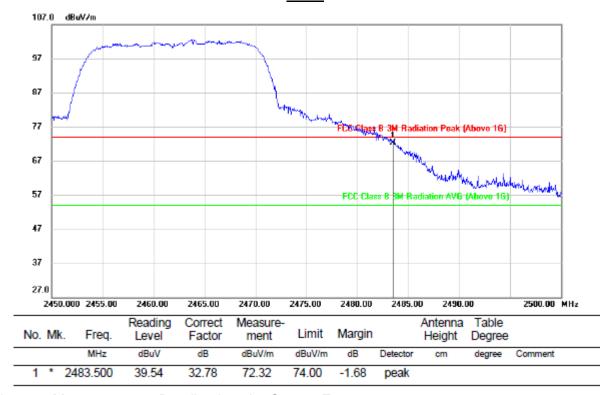


- 2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
- 3. AVG: VBW=1/Ton where: ton is transmit duration.
- 4. For transmit duration, please refer to clause 7.1.
- 5. Only the worst case emission will be recorder, if it complies with the limit, the other emissions deemed to comply with the limit.



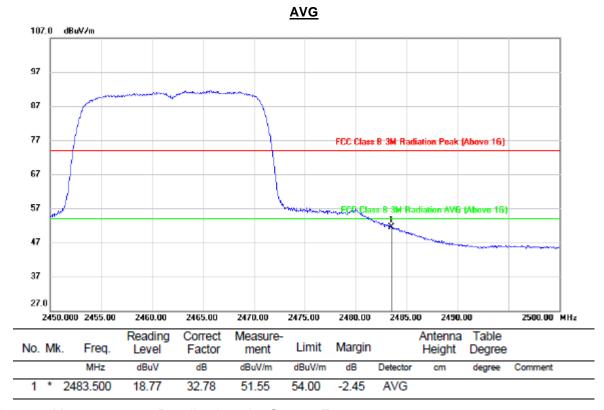
RESTRICTED BANDEDGE (HIGH CHANNEL, HORIZONTAL)

PEAK



- 2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
- 3. Peak: Peak detector.
- 4. Only the worst case emission will be recorder, if it complies with the limit, the other emissions deemed to comply with the limit.



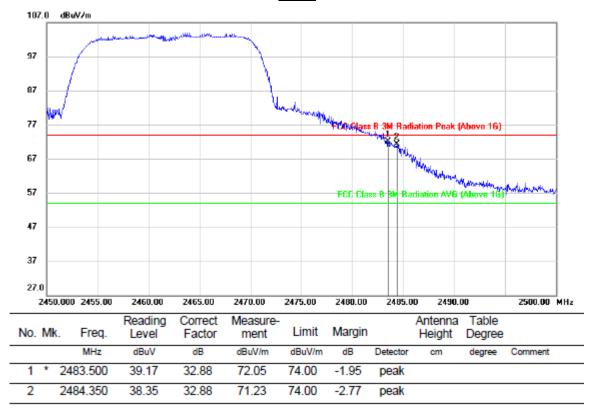


- 2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
- 3. AVG: VBW=1/Ton where: ton is transmit duration.
- 4. For transmit duration, please refer to clause 7.1.
- 5. Only the worst case emission will be recorder, if it complies with the limit, the other emissions deemed to comply with the limit.



RESTRICTED BANDEDGE (HIGH CHANNEL, VERTICAL)

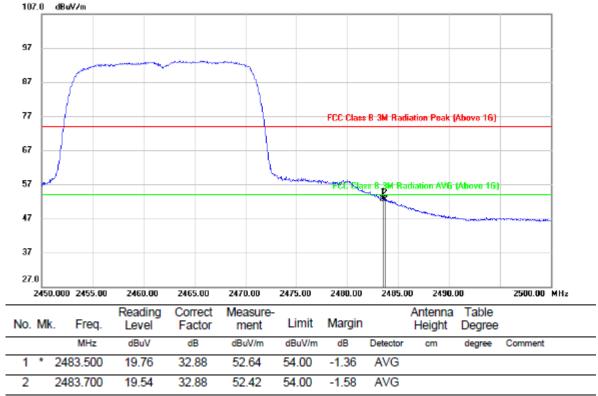
PEAK



- 2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
- 3. Peak: Peak detector.
- 4. Only the worst case emission will be recorder, if it complies with the limit, the other emissions deemed to comply with the limit.







- 2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
- 3. AVG: VBW=1/Ton where: ton is transmit duration.
- 4. For transmit duration, please refer to clause 7.1.
- 5. Only the worst case emission will be recorder, if it complies with the limit, the other emissions deemed to comply with the limit.

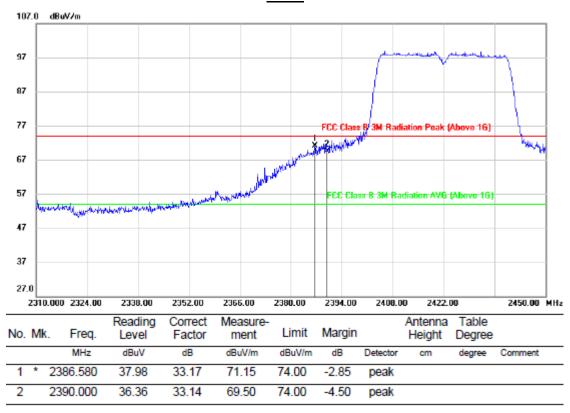


8.1.4. 802.11n40 MODE

ANTENNA1 (WORST-CASE CONFIGURATION)

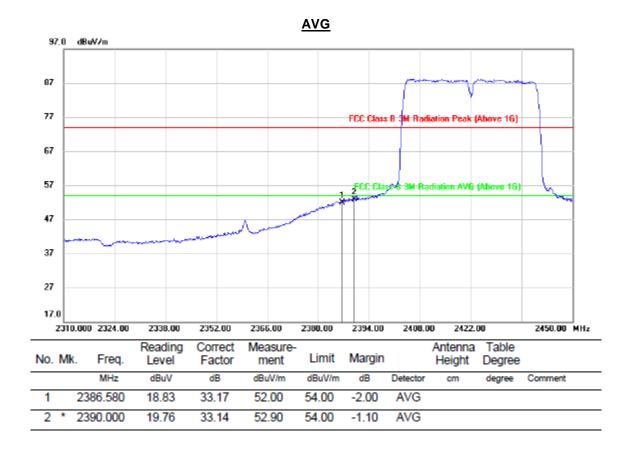
RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)

PEAK



- 2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
- 3. Peak: Peak detector.
- 4. Only the worst case emission will be recorder, if it complies with the limit, the other emissions deemed to comply with the limit.



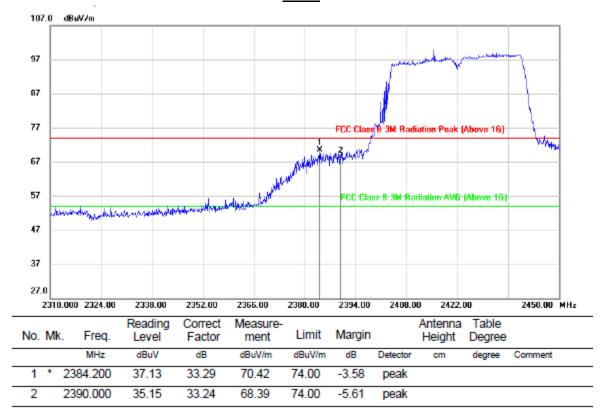


- 2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
- 3. AVG: VBW=1/Ton where: ton is transmit duration.
- 4. For transmit duration, please refer to clause 7.1.
- 5. Only the worst case emission will be recorder, if it complies with the limit, the other emissions deemed to comply with the limit.



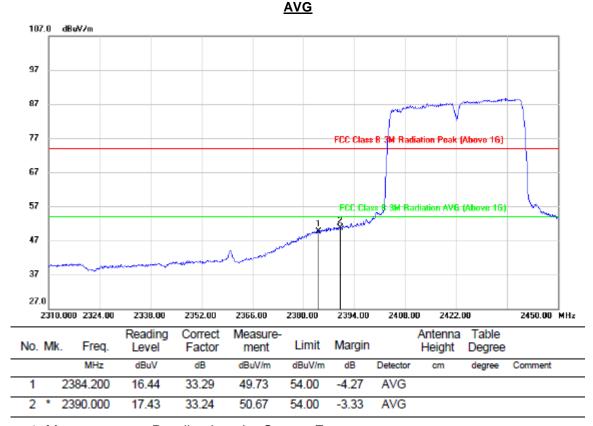
RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)

PEAK



- 2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
- 3. Peak: Peak detector.
- 4. Only the worst case emission will be recorder, if it complies with the limit, the other emissions deemed to comply with the limit.



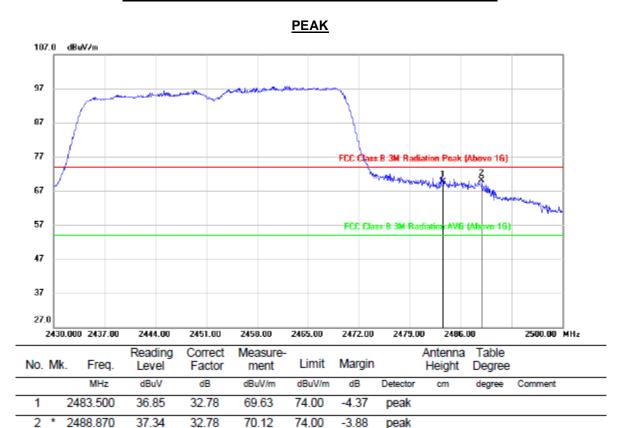


Note: 1. Measurement = Reading Level + Correct Factor.

- 2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
- 3. AVG: VBW=1/Ton where: ton is transmit duration.
- 4. For transmit duration, please refer to clause 7.1.
- 5. Only the worst case emission will be recorder, if it complies with the limit, the other emissions deemed to comply with the limit.

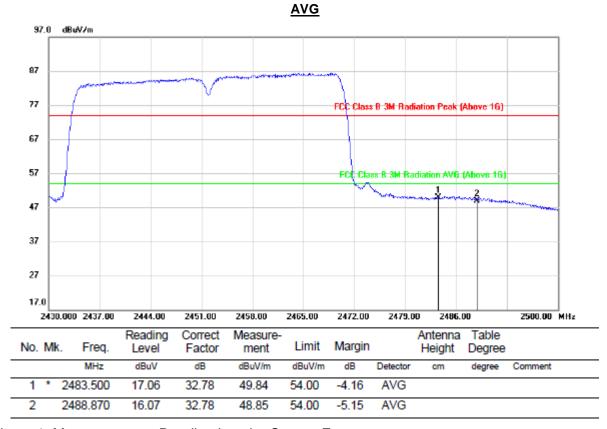


RESTRICTED BANDEDGE (HIGH CHANNEL, HORIZONTAL)



- 2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
- 3. Peak: Peak detector.
- 4. Only the worst case emission will be recorder, if it complies with the limit, the other emissions deemed to comply with the limit.



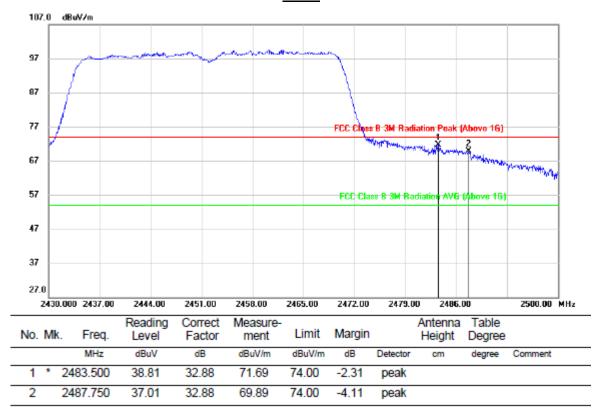


- 2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
- 3. AVG: VBW=1/Ton where: ton is transmit duration.
- 4. For transmit duration, please refer to clause 7.1.
- 5. Only the worst case emission will be recorder, if it complies with the limit, the other emissions deemed to comply with the limit.



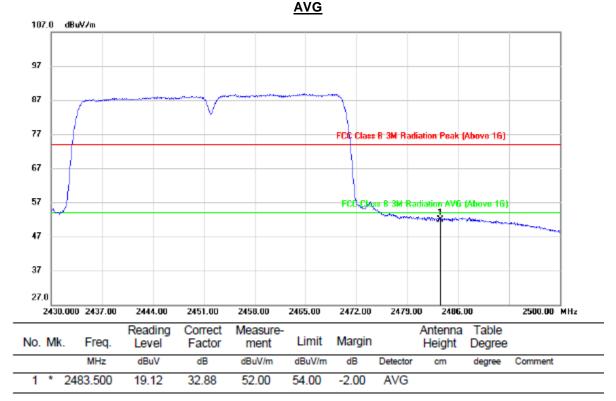
RESTRICTED BANDEDGE (HIGH CHANNEL, VERTICAL)

PEAK



- 2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
- 3. Peak: Peak detector.
- 4. Only the worst case emission will be recorder, if it complies with the limit, the other emissions deemed to comply with the limit.





- 2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
- 3. AVG: VBW=1/Ton where: ton is transmit duration.
- 4. For transmit duration, please refer to clause 7.1.
- 5. Only the worst case emission will be recorder, if it complies with the limit, the other emissions deemed to comply with the limit.



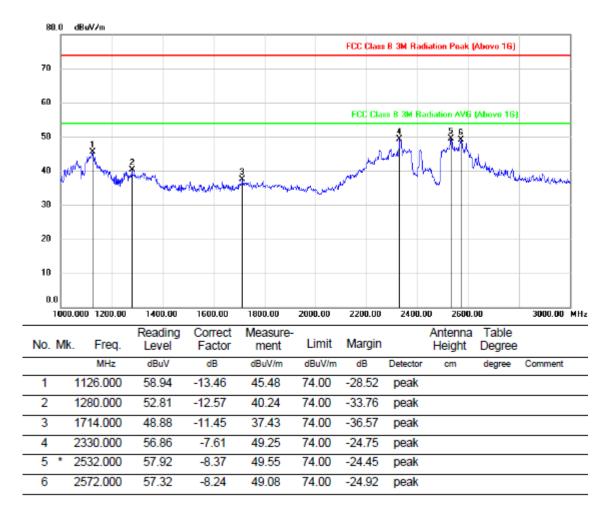
8.2. SPURIOUS EMISSIONS (1~18GHz)

8.2.1. 802.11b MODE

ANTENNA1 (WORST-CASE CONFIGURATION)

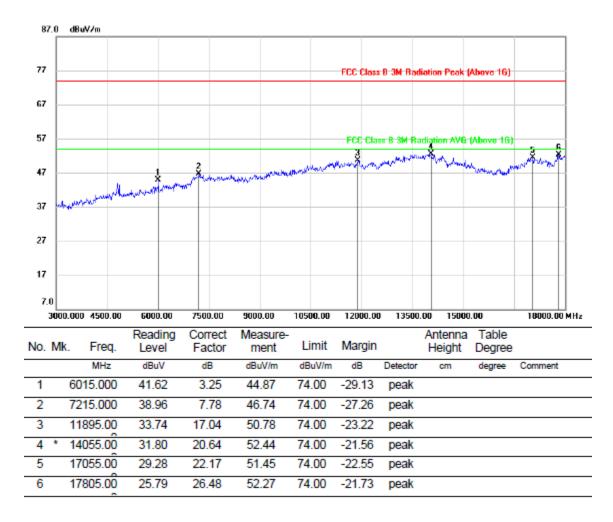
HARMONICS AND SPURIOUS EMISSIONS (LOW CHANNEL, HORIZONTAL)

1-3GHz



- 2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
- 3. Peak: Peak detector.





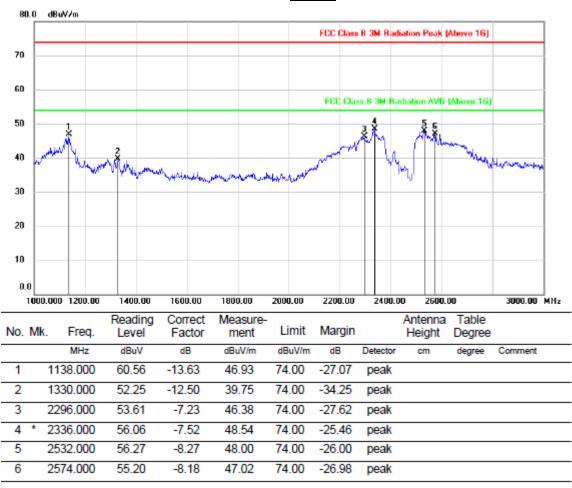
Note: 1. Measurement = Reading Level + Correct Factor.

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.



HARMONICS AND SPURIOUS EMISSIONS (LOW CHANNEL, VERTICAL)

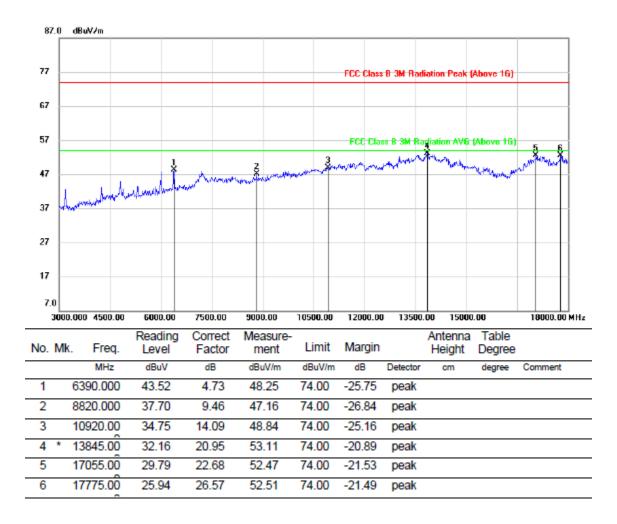
1-3GHz



Note: 1. Measurement = Reading Level + Correct Factor.

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.



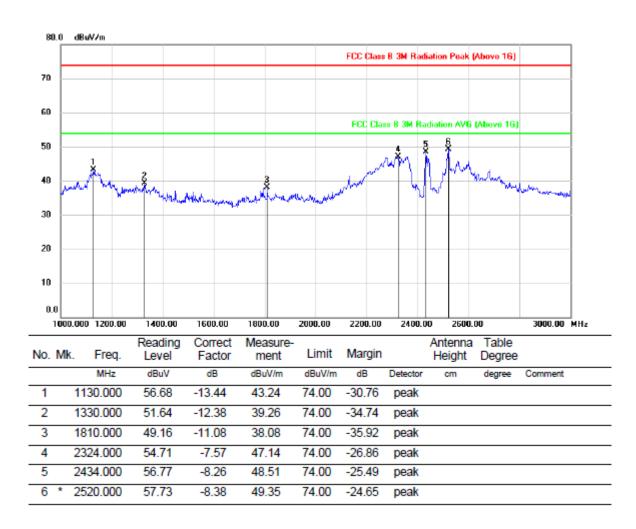


Note: 1. Measurement = Reading Level + Correct Factor.

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

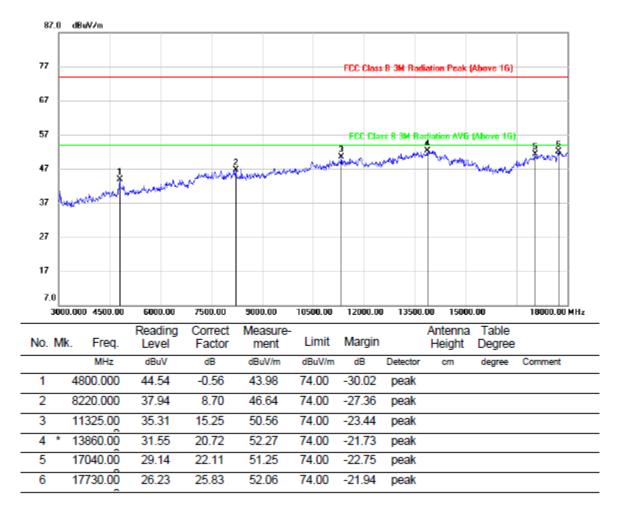


HARMONICS AND SPURIOUS EMISSIONS (MID CHANNEL, HORIZONTAL) 1-3GHz



- 2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
- 3. Peak: Peak detector.



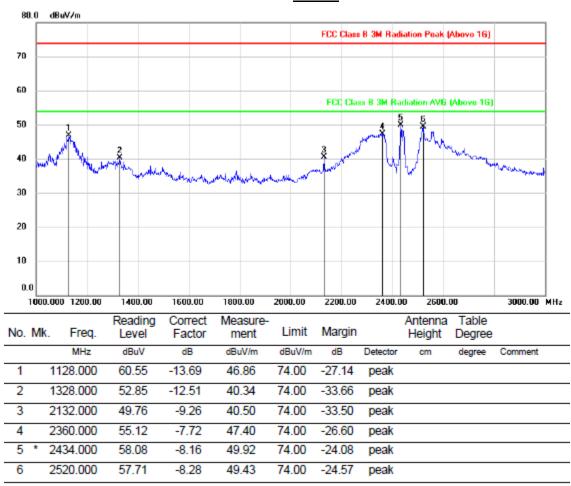


- 2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
- 3. Peak: Peak detector.



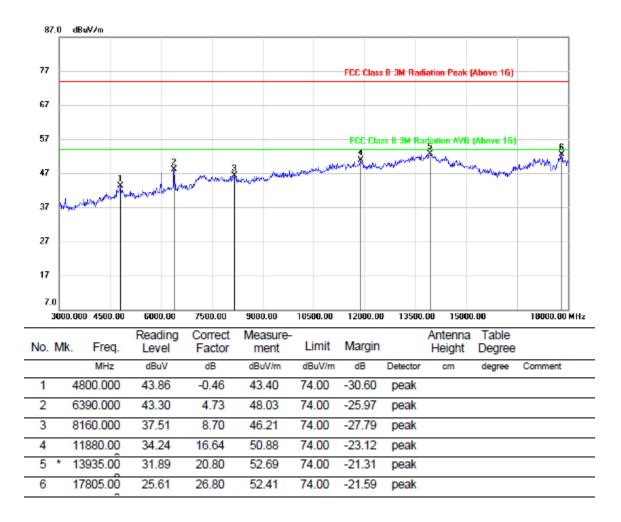
HARMONICS AND SPURIOUS EMISSIONS (MID CHANNEL, VERTICAL)

1-3GHz



- 2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
- 3. Peak: Peak detector.



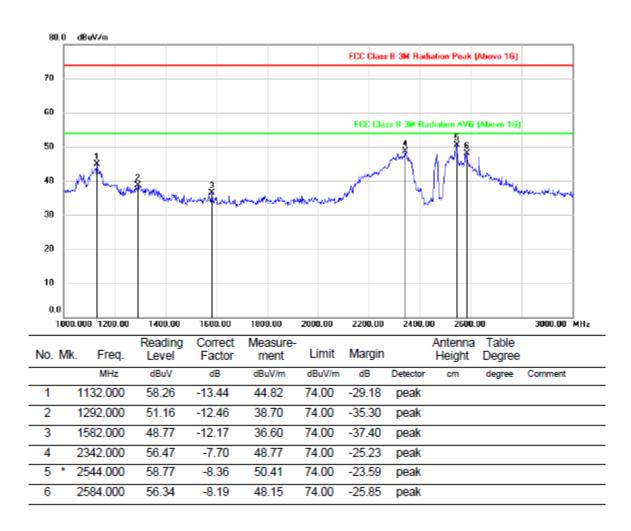


Note: 1. Measurement = Reading Level + Correct Factor.

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.



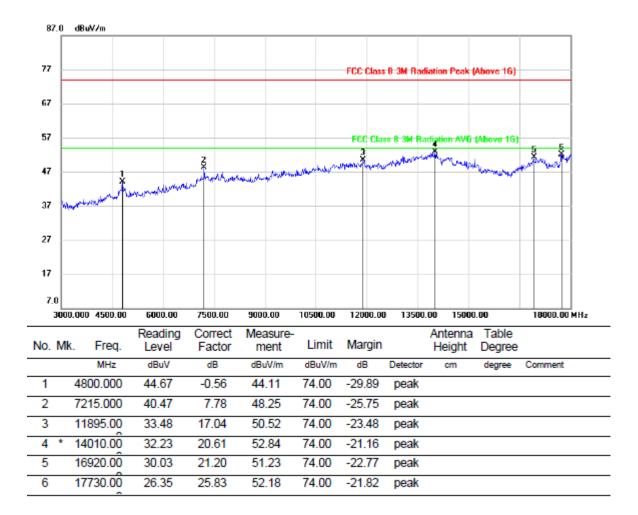
HARMONICS AND SPURIOUS EMISSIONS (HIGH CHANNEL, HORIZONTAL) 1-3GHz



Note: 1. Measurement = Reading Level + Correct Factor.

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.



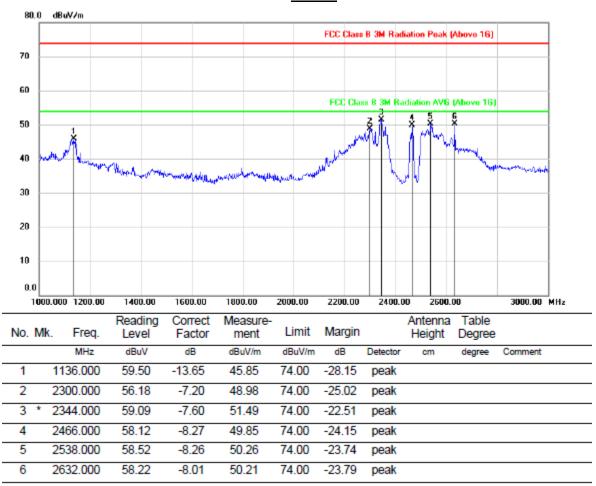


- 2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
- 3. Peak: Peak detector.



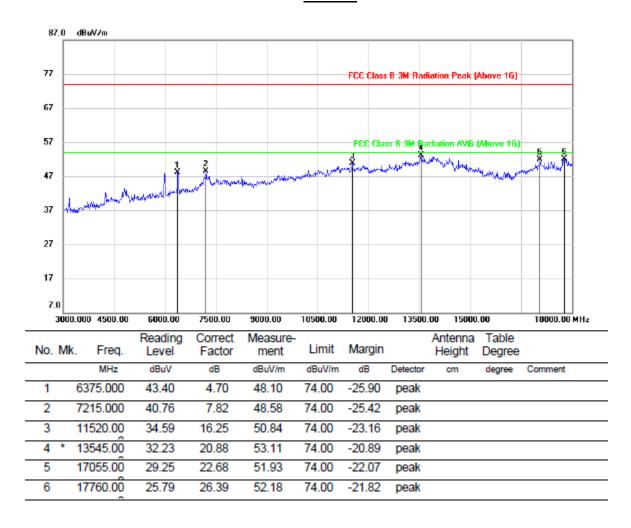
HARMONICS AND SPURIOUS EMISSIONS (HIGH CHANNEL, VERTICAL)

1-3GHz



- 2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
- 3. Peak: Peak detector.





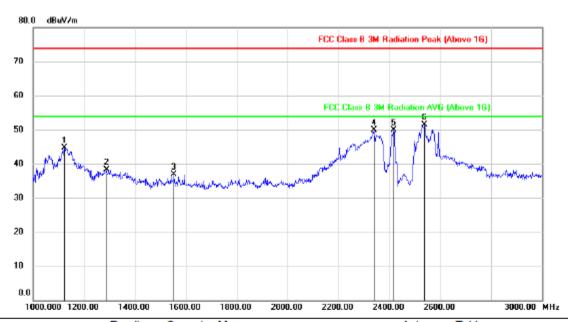
- 2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
- 3. Peak: Peak detector.



8.2.2. 802.11g MODE

ANTENNA1 (WORST-CASE CONFIGURATION)

HARMONICS AND SPURIOUS EMISSIONS (LOW CHANNEL, HORIZONTAL) 1-3GHz

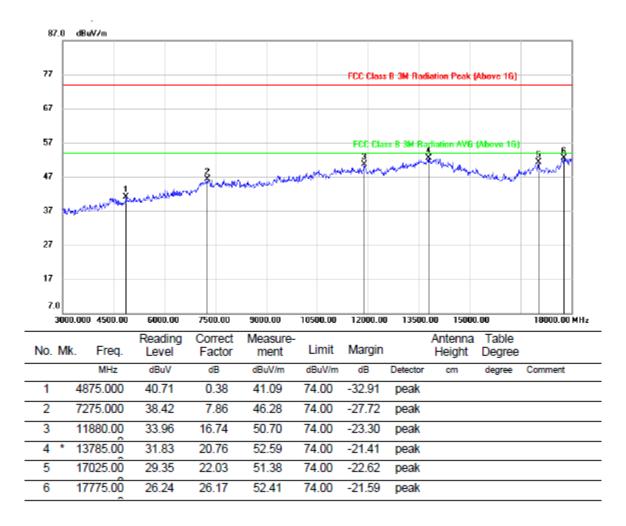


١	lo.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Margin		Antenna Height	Table Degree	
			MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
	1	,	1124.000	58.25	-13.46	44.79	74.00	-29.21	peak			
	2	,	1288.000	50.80	-12.50	38.30	74.00	-35.70	peak			
	3	,	1554.000	49.33	-12.35	36.98	74.00	-37.02	peak			
	4	- 2	2340.000	57.64	-7.68	49.96	74.00	-24.04	peak			
	5	- 2	2416.000	58.01	-8.18	49.83	74.00	-24.17	peak			
	6	* 1	2538.000	59.80	-8.36	51.44	74.00	-22.56	peak			

Note: 1. Measurement = Reading Level + Correct Factor.

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.



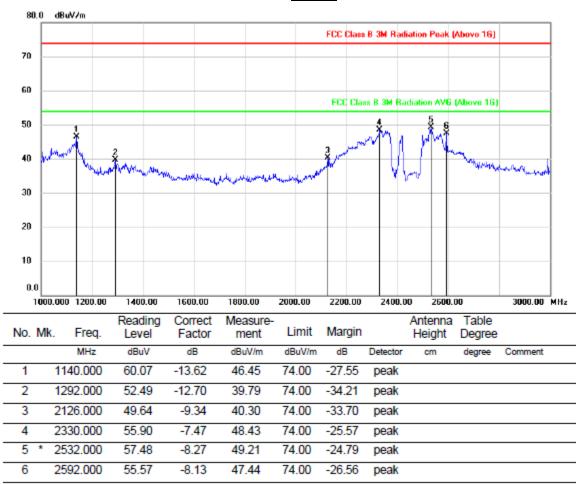


- 2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
- 3. Peak: Peak detector.



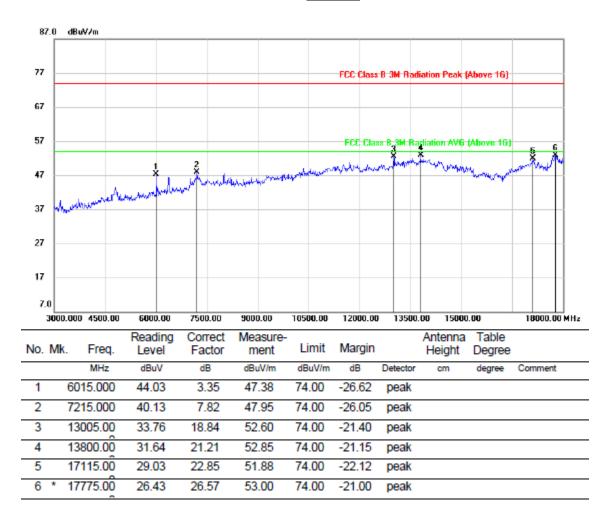
HARMONICS AND SPURIOUS EMISSIONS (LOW CHANNEL, VERTICAL)

1-3GHz



- 2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
- 3. Peak: Peak detector.



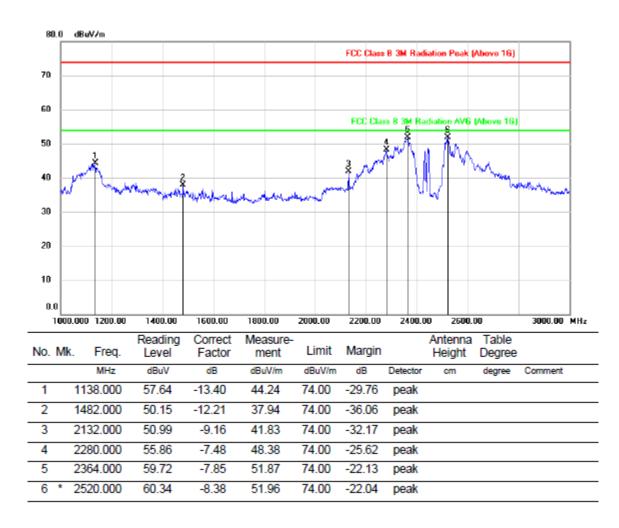


Note: 1. Measurement = Reading Level + Correct Factor.

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

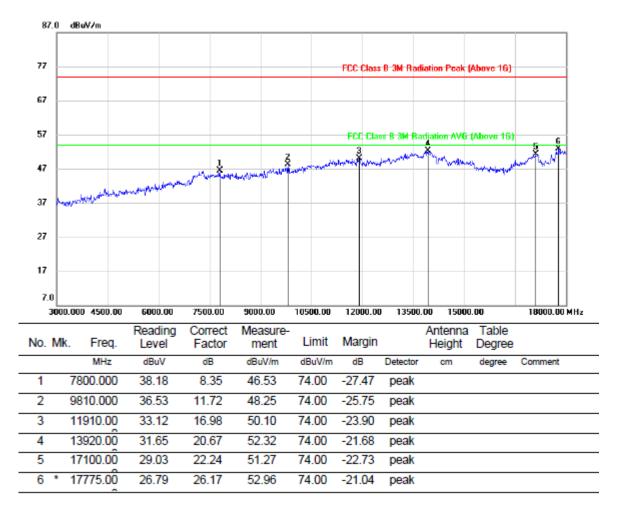


HARMONICS AND SPURIOUS EMISSIONS (MID CHANNEL, HORIZONTAL) 1-3GHz



- 2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
- 3. Peak: Peak detector.





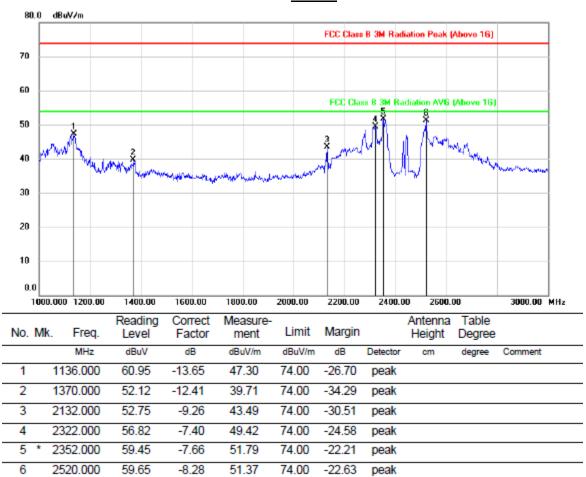
Note: 1. Measurement = Reading Level + Correct Factor.

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.



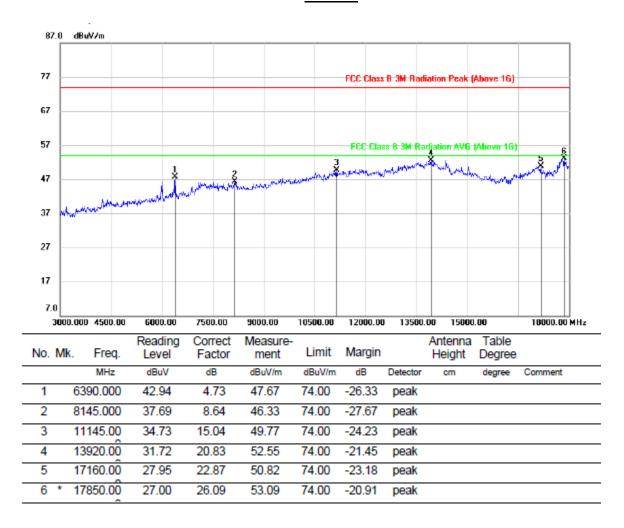
HARMONICS AND SPURIOUS EMISSIONS (MID CHANNEL, VERTICAL)

1-3GHz



- 2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
- 3. Peak: Peak detector.

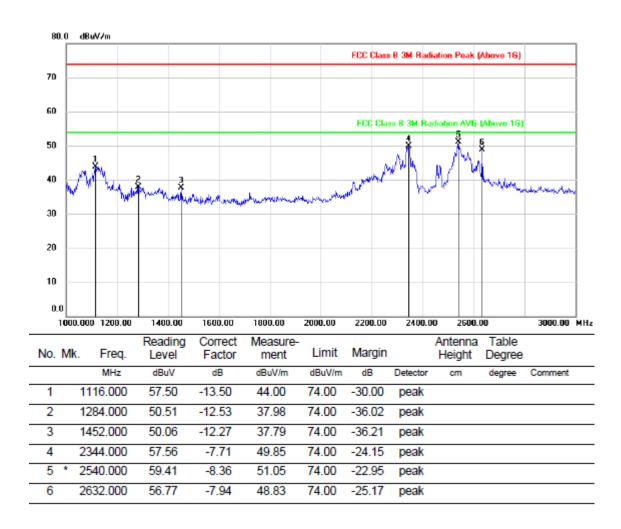




- 2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
- 3. Peak: Peak detector.



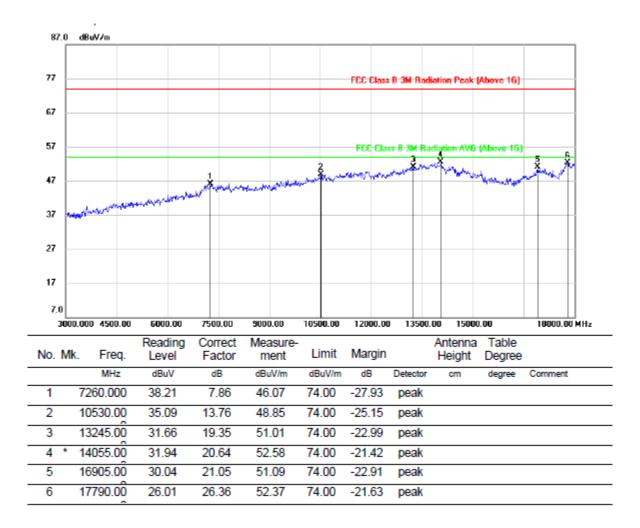
HARMONICS AND SPURIOUS EMISSIONS (HIGH CHANNEL, HORIZONTAL) 1-3GHz



Note: 1. Measurement = Reading Level + Correct Factor.

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.



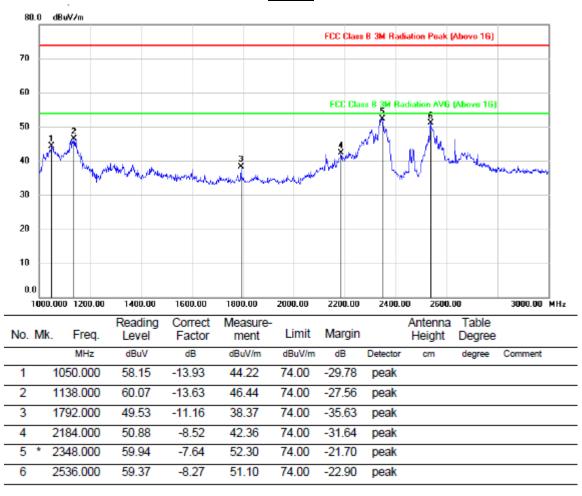


- 2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
- 3. Peak: Peak detector.



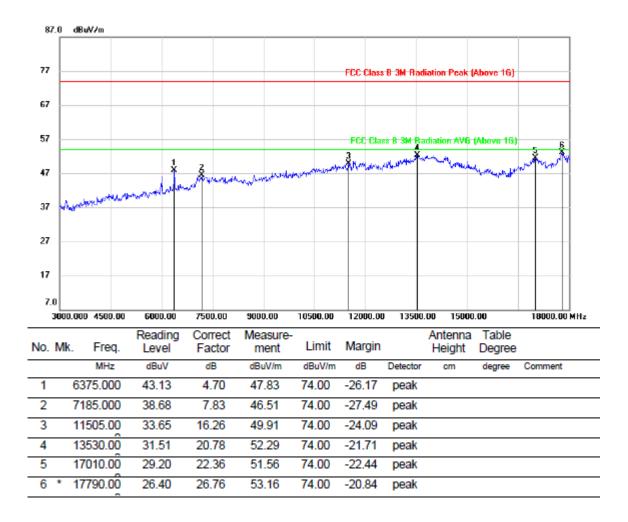
HARMONICS AND SPURIOUS EMISSIONS (HIGH CHANNEL, VERTICAL)

1-3GHz



- 2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
- 3. Peak: Peak detector.





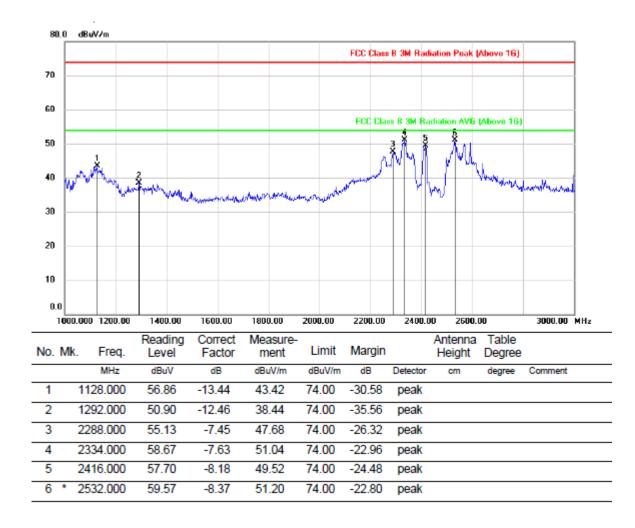
- 2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
- 3. Peak: Peak detector.



8.2.3. 802.11n20 MODE

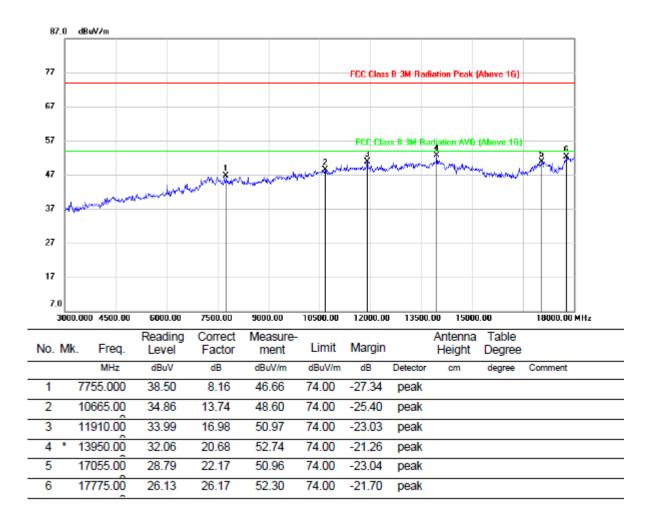
ANTENNA1 (WORST-CASE CONFIGURATION)

HARMONICS AND SPURIOUS EMISSIONS (LOW CHANNEL, HORIZONTAL) 1-3GHz



- 2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
- 3. Peak: Peak detector.



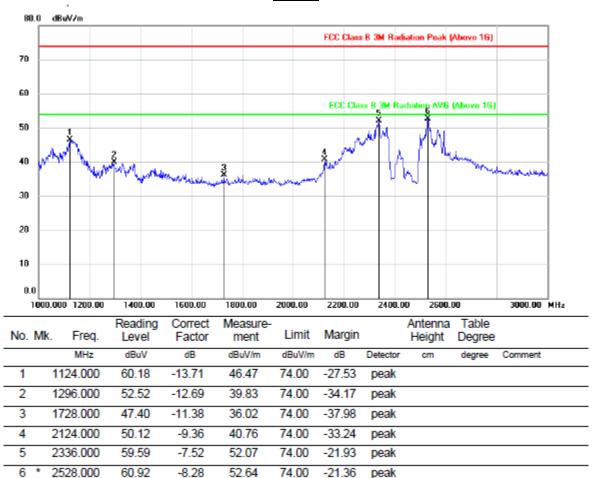


- 2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
- 3. Peak: Peak detector.



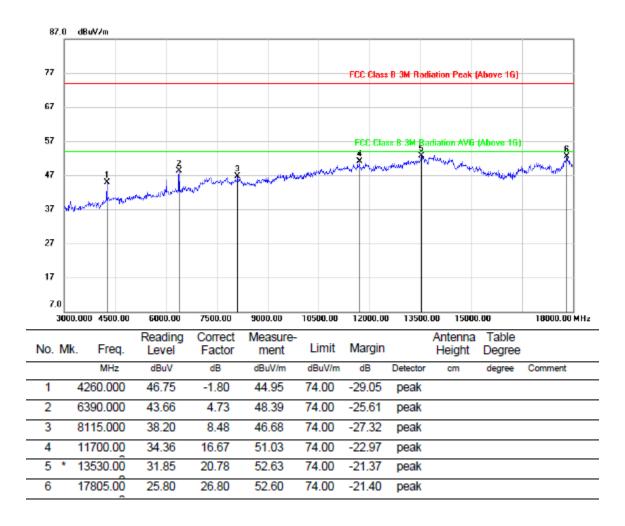
HARMONICS AND SPURIOUS EMISSIONS (LOW CHANNEL, VERTICAL)

1-3GHz



- 2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
- 3. Peak: Peak detector.

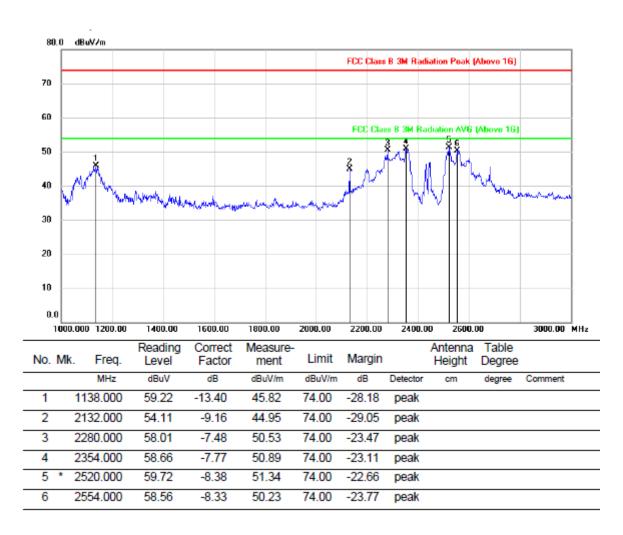




- 2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
- 3. Peak: Peak detector.

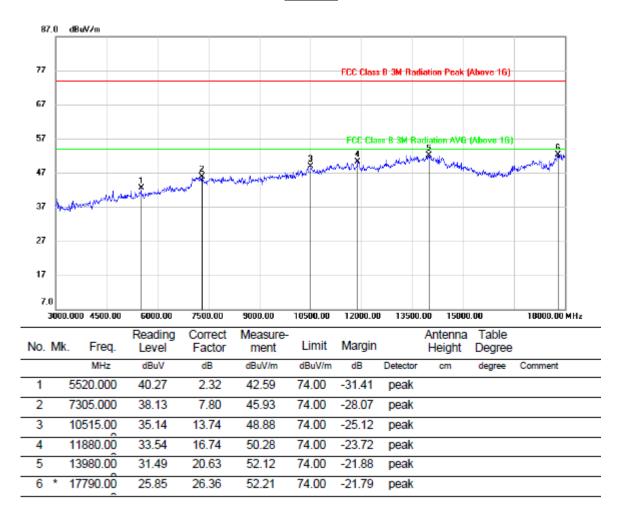


HARMONICS AND SPURIOUS EMISSIONS (MID CHANNEL, HORIZONTAL) 1-3GHz



- 2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
- 3. Peak: Peak detector.





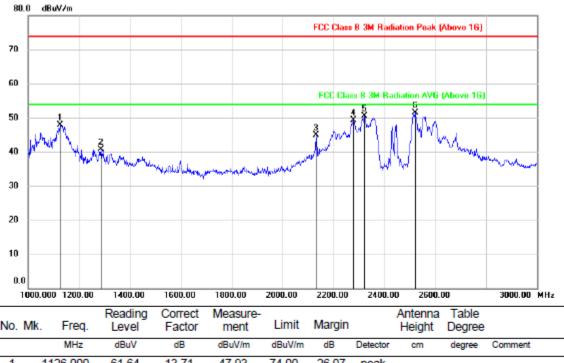
Note: 1. Measurement = Reading Level + Correct Factor.

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.



HARMONICS AND SPURIOUS EMISSIONS (MID CHANNEL, VERTICAL)

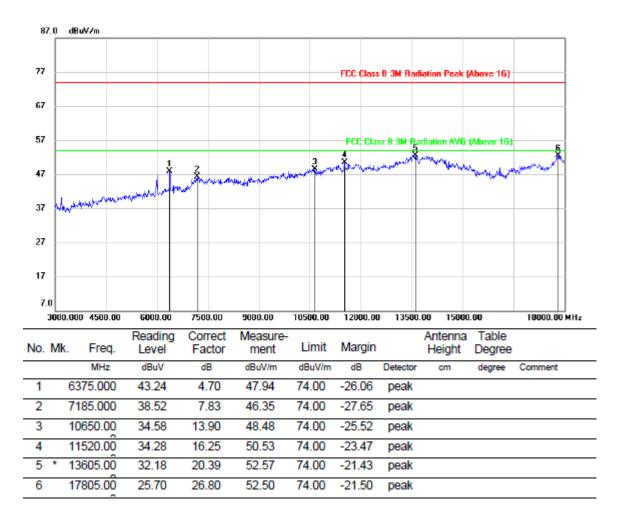
1-3GHz



No.	Mk	. Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Margin		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1		1126.000	61.64	-13.71	47.93	74.00	-26.07	peak			
2		1286.000	53.35	-12.70	40.65	74.00	-33.35	peak			
3		2132.000	54.21	-9.26	44.95	74.00	-29.05	peak			
4		2278.000	56.64	-7.37	49.27	74.00	-24.73	peak			
5		2320.000	57.97	-7.38	50.59	74.00	-23.41	peak			
6	*	2520.000	59.73	-8.28	51.45	74.00	-22.55	peak			

- 2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
- 3. Peak: Peak detector.

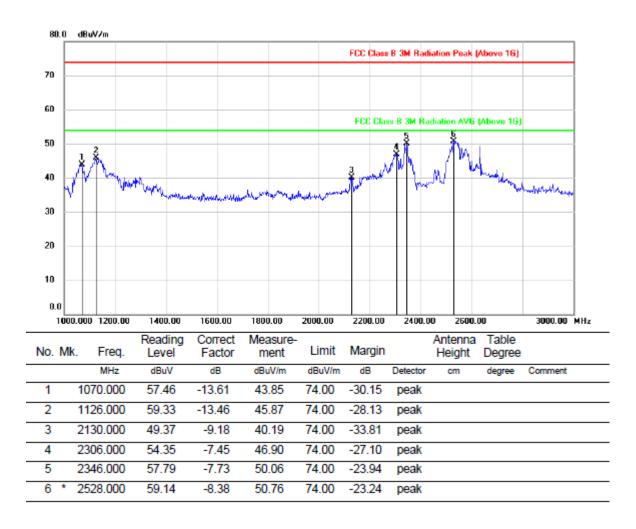




- 2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
- 3. Peak: Peak detector.

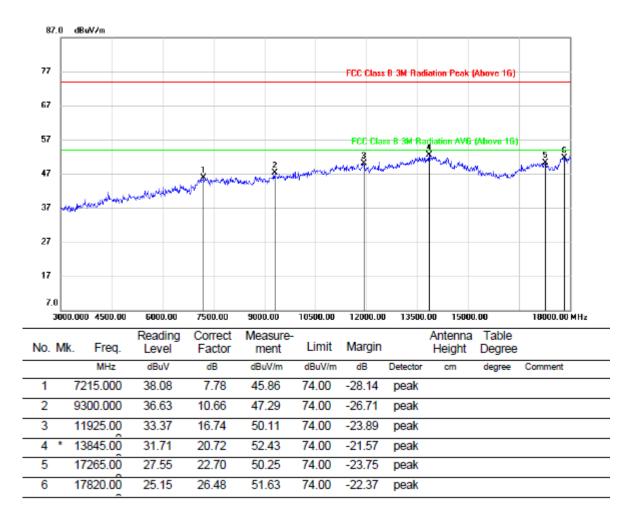


HARMONICS AND SPURIOUS EMISSIONS (HIGH CHANNEL, HORIZONTAL) 1-3GHz



- 2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
- 3. Peak: Peak detector.





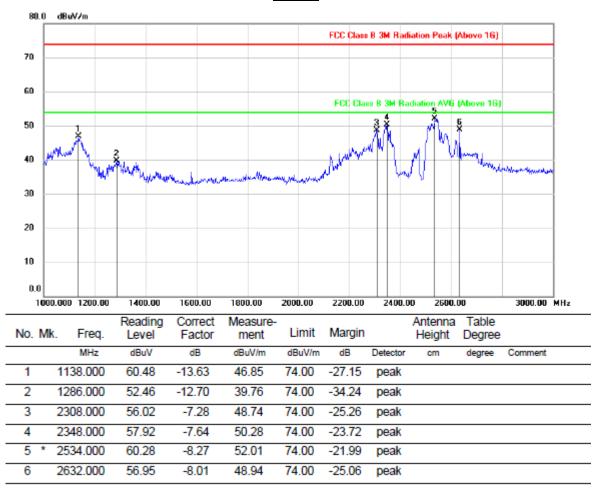
Note: 1. Measurement = Reading Level + Correct Factor.

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.



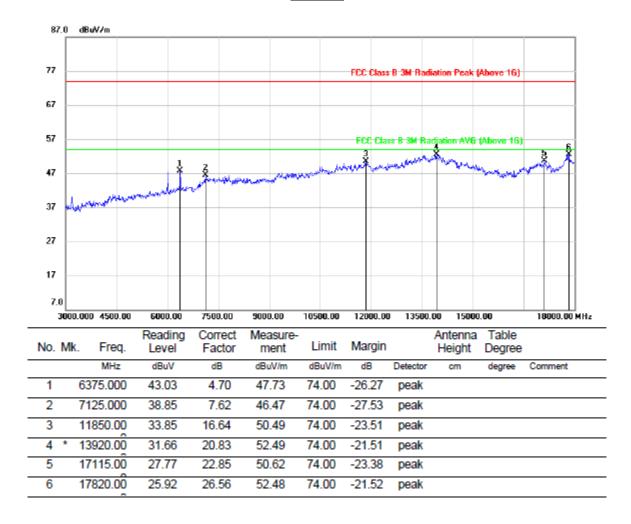
HARMONICS AND SPURIOUS EMISSIONS (HIGH CHANNEL, VERTICAL)

1-3GHz



- 2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
- 3. Peak: Peak detector.





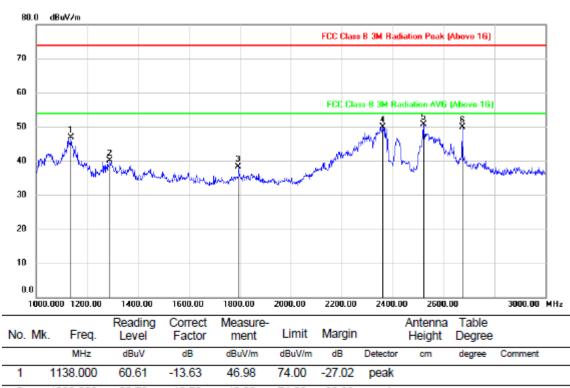
- 2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
- 3. Peak: Peak detector.



8.2.4. 802.11n40 MODE

ANTENNA1 (WORST-CASE CONFIGURATION)

HARMONICS AND SPURIOUS EMISSIONS (LOW CHANNEL, HORIZONTAL) 1-3GHz

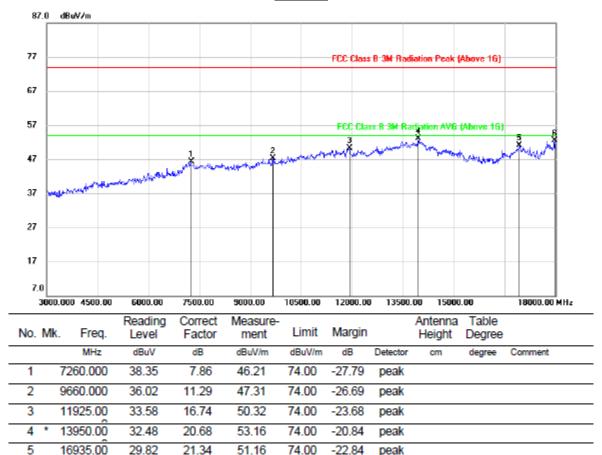


52.72 2 1290.000 -12.70 40.02 74.00 -33.98 peak 1794.000 74.00 3 49.50 -11.15 38.35 -35.65 peak 2360.000 57.60 -7.72 74.00 49.88 -24.12 4 peak 5 2520.000 58.93 -8.28 50.65 74.00 -23.35 peak 2672.000 57.74 -7.80 49.94 74.00 -24.06 6 peak

- 2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
- 3. Peak: Peak detector.







Note: 1. Measurement = Reading Level + Correct Factor.

27.04

52.55

25.51

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

74.00

-21.45

peak

3. Peak: Peak detector.

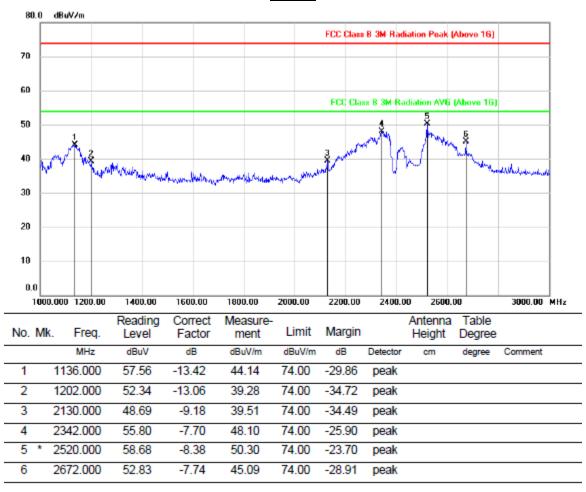
17970.00

6



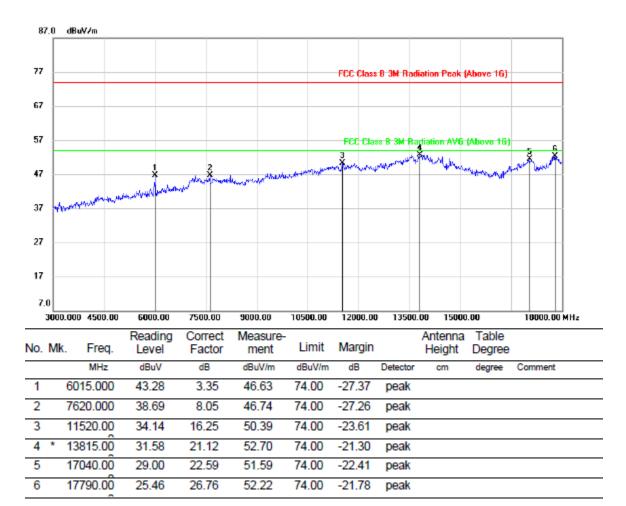
HARMONICS AND SPURIOUS EMISSIONS (LOW CHANNEL, VERTICAL)

1-3GHz



- 2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
- 3. Peak: Peak detector.



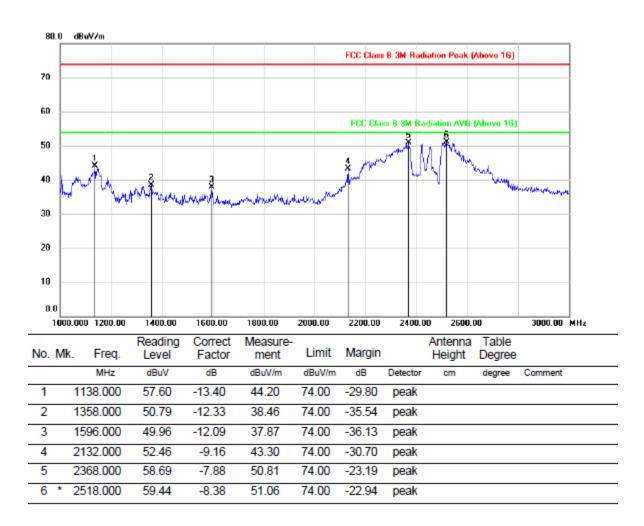


Note: 1. Measurement = Reading Level + Correct Factor.

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.



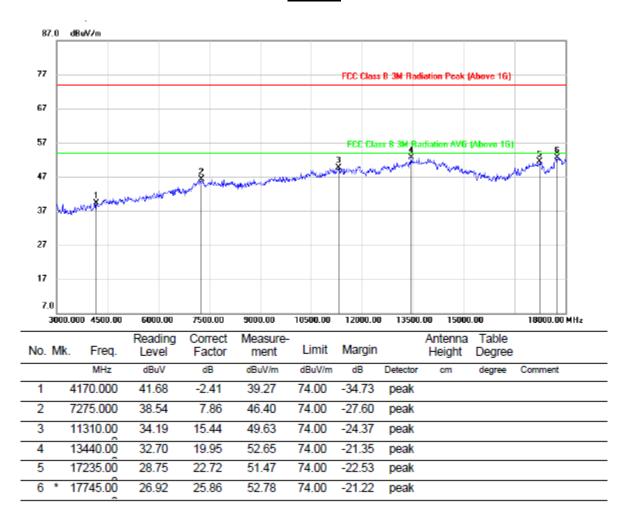
HARMONICS AND SPURIOUS EMISSIONS (MID CHANNEL, HORIZONTAL) 1-3GHz



Note: 1. Measurement = Reading Level + Correct Factor.

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.





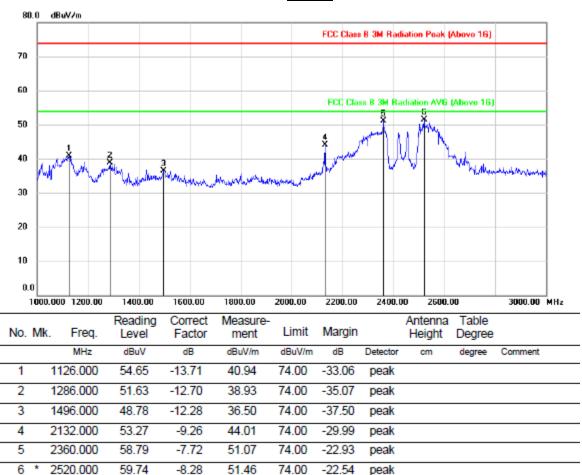
Note: 1. Measurement = Reading Level + Correct Factor.

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.



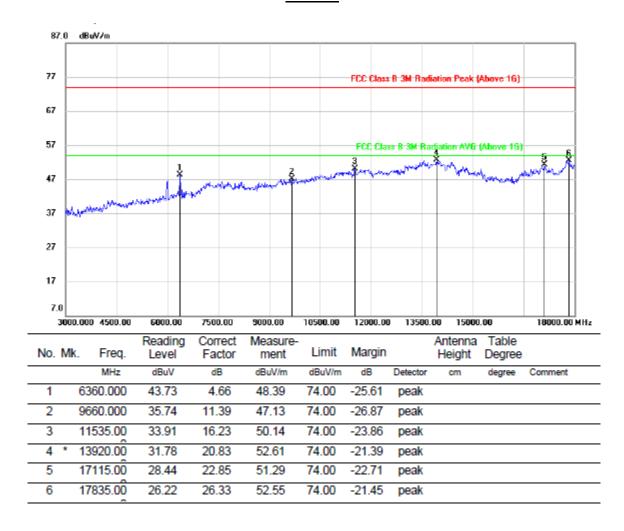
HARMONICS AND SPURIOUS EMISSIONS (MID CHANNEL, VERTICAL)

1-3GHz



- 2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
- 3. Peak: Peak detector.

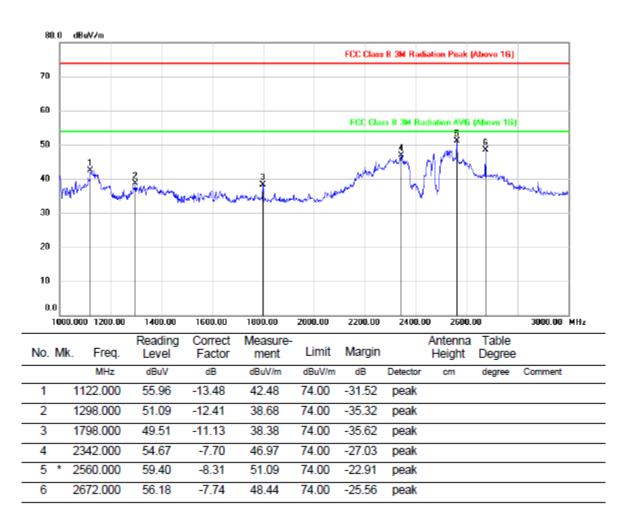




- 2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
- 3. Peak: Peak detector.

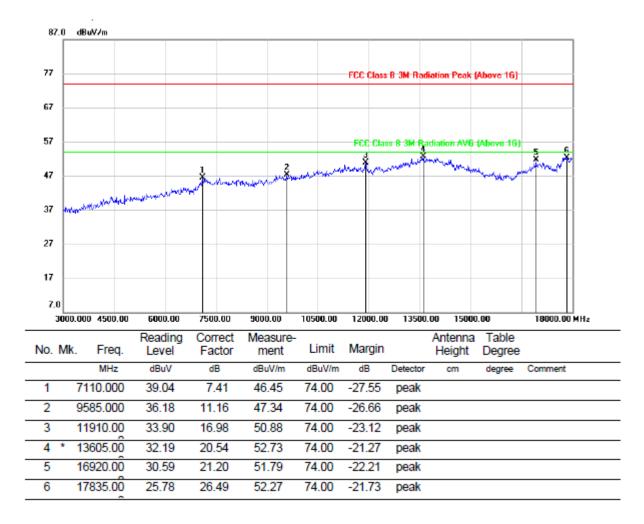


HARMONICS AND SPURIOUS EMISSIONS (HIGH CHANNEL, HORIZONTAL) 1-3GHz



- 2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
- 3. Peak: Peak detector.



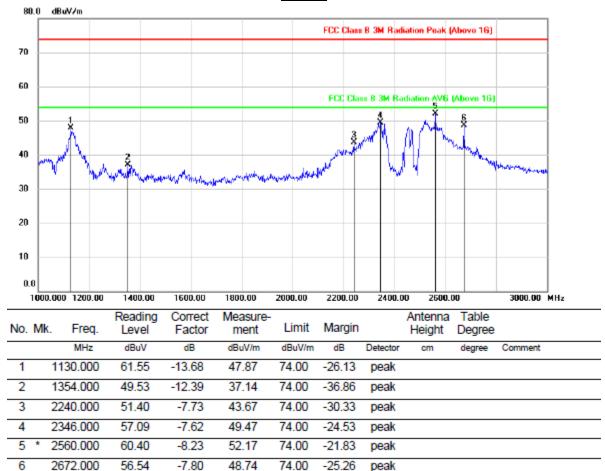


- 2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
- 3. Peak: Peak detector.



HARMONICS AND SPURIOUS EMISSIONS (HIGH CHANNEL, VERTICAL)

1-3GHz



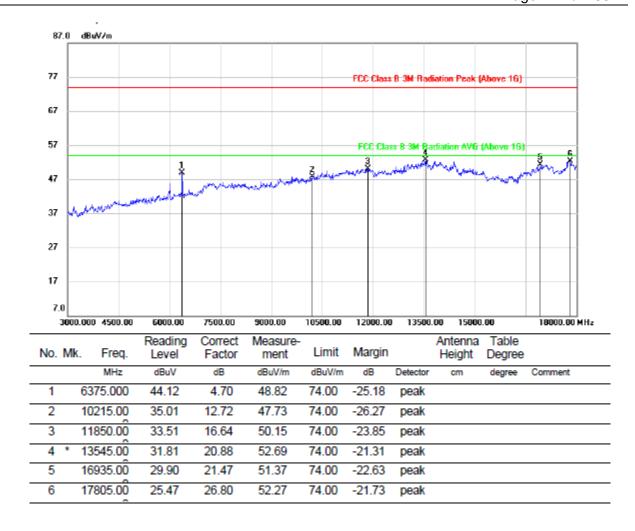
Note: 1. Measurement = Reading Level + Correct Factor.

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Peak: Peak detector.

3-18GHz





Note: 1. Measurement = Reading Level + Correct Factor.

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.



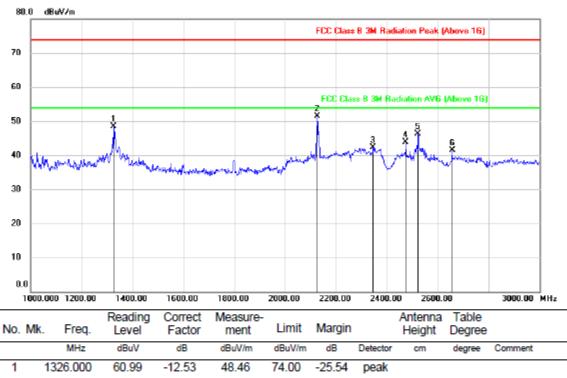
8.3. WORST-CASE CO-LOCATION

8.3.1. 2.4G AND 802.11n HT20 MODE

ANTENNA1 (WORST-CASE CONFIGURATION)

SPURIOUS EMISSIONS (MID CHANNEL, WORST-CASE CONFIGURATION, HORIZONTAL)

1-3GHz

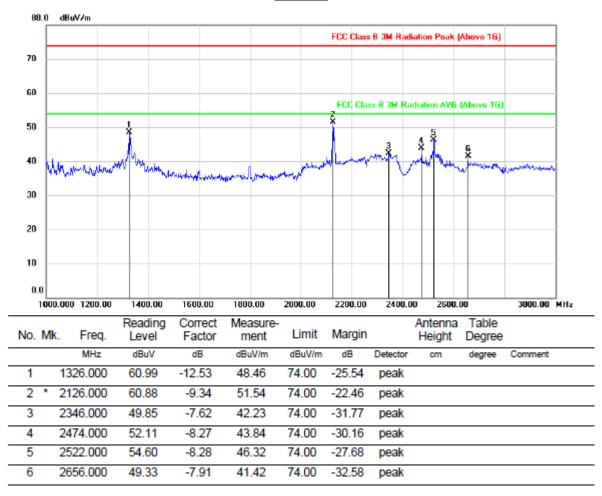


No.	Mk.	Freq.	Level	Factor	ment	Limit	Margin		Height	Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1		1326.000	60.99	-12.53	48.46	74.00	-25.54	peak			
2	*	2126.000	60.88	-9.34	51.54	74.00	-22.46	peak			
3		2346.000	49.85	-7.62	42.23	74.00	-31.77	peak			
4		2474.000	52.11	-8.27	43.84	74.00	-30.16	peak			
5		2522.000	54.60	-8.28	46.32	74.00	-27.68	peak			
6		2656.000	49.33	-7.91	41.42	74.00	-32.58	peak			

Note: 1. Measurement = Reading Level + Correct Factor.

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.



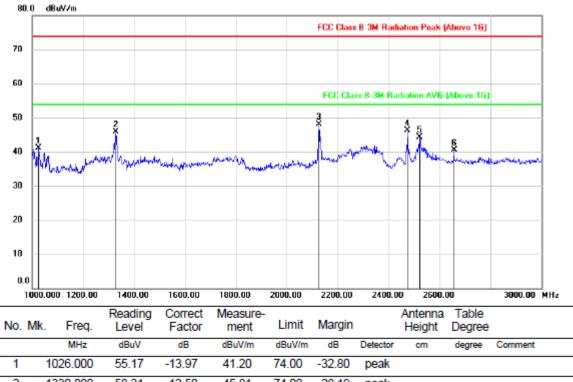


- 2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
- 3. Peak: Peak detector.
- 4. AVG: VBW=1/Ton where: ton is transmit duration.
- 5. For transmit duration, please refer to clause 7.1.



SPURIOUS EMISSIONS (HIGH CHANNEL, WORST-CASE CONFIGURATION, VERTICAL)

1-3GHz

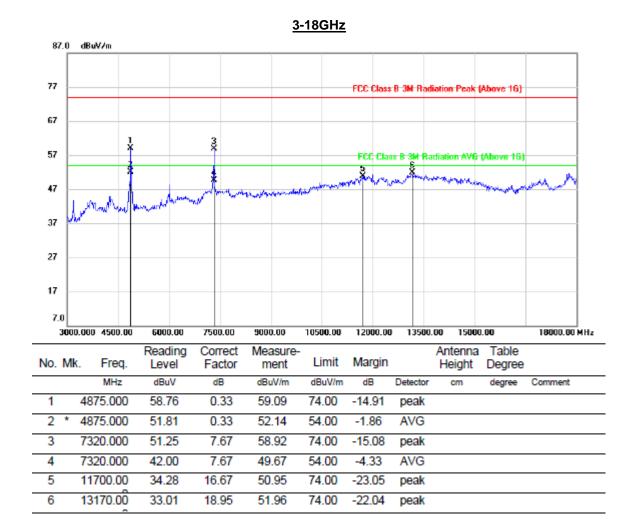


No.	Mk.	. Freq.	Level	Factor	ment	Limit	Margin		Height	Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1		1026.000	55.17	-13.97	41.20	74.00	-32.80	peak			
2		1330.000	58.31	-12.50	45.81	74.00	-28.19	peak			
3	*	2126.000	57.38	-9.34	48.04	74.00	-25.96	peak			
4		2474.000	54.61	-8.27	46.34	74.00	-27.66	peak			
5		2522.000	52.60	-8.28	44.32	74.00	-29.68	peak			
6		2656.000	48.33	-7.91	40.42	74.00	-33.58	peak			

Note: 1. Measurement = Reading Level + Correct Factor.

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.





Note: 1. Measurement = Reading Level + Correct Factor.

- 2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
- 3. Peak: Peak detector.
- 4. AVG: VBW=1/Ton where: ton is transmit duration.
- 5. For transmit duration, please refer to clause 7.1.

Note: All the modes had been tested, but only the worst data were recorded in the report.

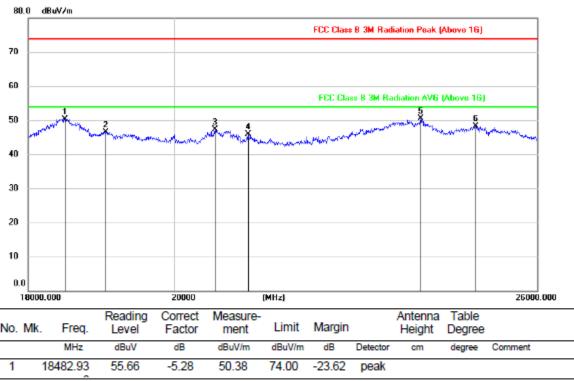


8.4. SPURIOUS EMISSIONS (18~26GHz)

8.4.1. 802.11n HT20 MODE

ANTENNA1 (WORST-CASE CONFIGURATION)

SPURIOUS EMISSIONS (HIGH CHANNEL, WORST-CASE CONFIGURATION, HORIZONTAL)



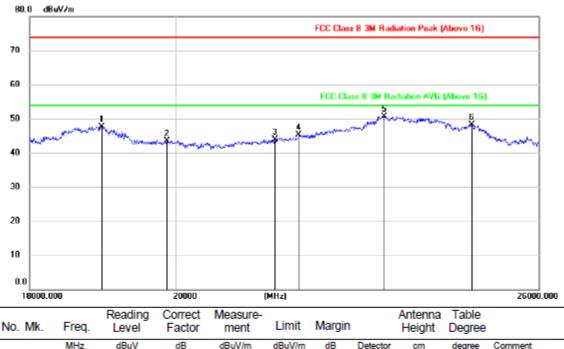
No.	Mk.	. Freq.	Level	Factor	ment	Limit	Margin		Height	Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1		18482.93	55.66	-5.28	50.38	74.00	-23.62	peak			
2		19041.74	51.81	-5.28	46.53	74.00	-27.47	peak			
3		20600.73	52.59	-5.26	47.33	74.00	-26.67	peak			
4		21099.06	50.82	-4.83	45.99	74.00	-28.01	peak			
5	*	23900.21	53.50	-2.93	50.57	74.00	-23.43	peak			
6		24868.49	50.46	-2.22	48.24	74.00	-25.76	peak			

Note: 1. Measurement = Reading Level + Correct Factor.

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.



SPURIOUS EMISSIONS (HIGH CHANNEL, WORST-CASE CONFIGURATION, VERTICAL)



No.	Mk.	Freq.	Reading Level	Factor	Measure- ment	Limit	Margin		Antenna Height	Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1		18964.87	53.04	-5.25	47.79	74.00	-26.21	peak			
2		19878.87	48.85	-5.36	43.49	74.00	-30.51	peak			
3		21490.58	48.58	-4.69	43.89	74.00	-30.11	peak			
4		21865.24	49.70	-4.40	45.30	74.00	-28.70	peak			
5	*	23250.07	54.15	-3.36	50.79	74.00	-23.21	peak		·	
6		24768.10	50.65	-2.31	48.34	74.00	-25.66	peak		·	

Note: 1. Measurement = Reading Level + Correct Factor.

- 2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
- 3. Peak: Peak detector.

Note: All the modes had been tested, but only the worst data were recorded in the report.

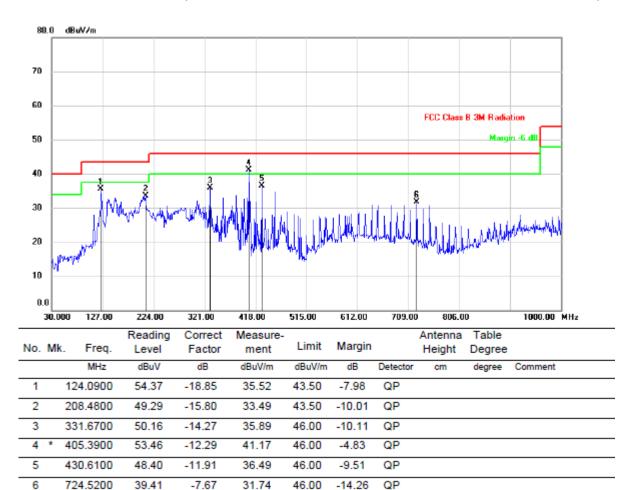


8.5. SPURIOUS EMISSIONS (30M ~ 1 GHz)

8.5.1. 802.11n HT20 MODE

ANTENNA1 (WORST-CASE CONFIGURATION)

SPURIOUS EMISSIONS (LOW CHANNEL, WORST-CASE CONFIGURATION, HORIZONTAL)

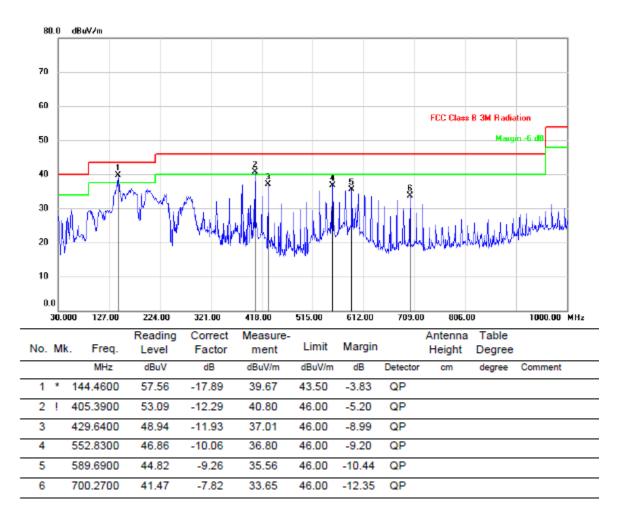


Note: 1. Result Level = Read Level + Correct Factor.

- 2. If Peak Result complies with QP limit, QP Result is deemed to comply with QP limit.
- 3. Test setup: RBW: 120 kHz, VBW: 300 kHz, Sweep time: auto.



SPURIOUS EMISSIONS (LOW CHANNEL, WORST-CASE CONFIGURATION, VERTICAL)



Note: 1. Result Level = Read Level + Correct Factor.

- 2. If Peak Result complies with QP limit, QP Result is deemed to comply with QP limit.
- 3. Test setup: RBW: 120 kHz, VBW: 300 kHz, Sweep time: auto

Note: All the modes had been tested, but only the worst data were recorded in the report.

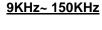


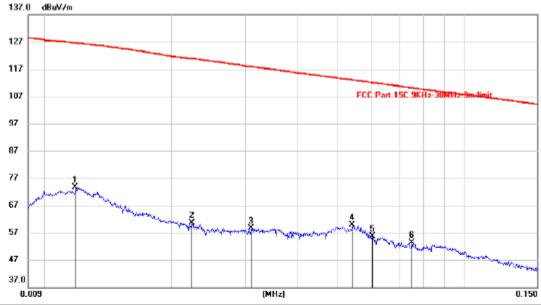
8.6. SPURIOUS EMISSIONS BELOW 30M

8.6.1. 802.11n HT20 MODE

ANTENNA1 (WORST-CASE CONFIGURATION)

SPURIOUS EMISSIONS (LOW CHANNEL, WORST-CASE CONFIGURATION, HORIZONTAL)



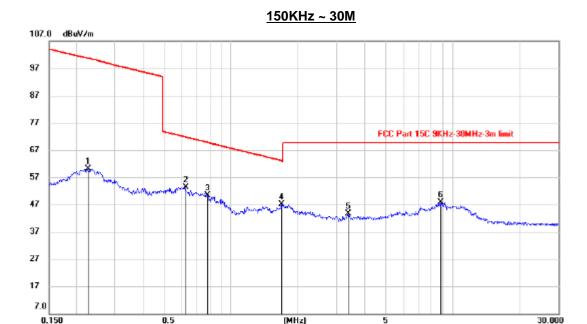


No. MI	k. F	req.	Reading Level	Correct Factor	Measure- ment	Limit	Margin		Antenna Height	Table Degree	
	M	lHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1 *	0.0	117	53.29	20.23	73.52	126.5	-53.06	peak			
2	0.0	223	40.28	20.31	60.59	120.7	-60.18	peak			
3	0.0	309	38.37	20.31	58.68	117.8	-59.16	peak			
4	0.0	539	39.63	20.31	59.94	113.0	-53.06	peak			
5	0.0	604	35.44	20.31	55.75	111.9	-56.24	peak			
6	0.0	752	32.98	20.31	53.29	110.1	-56.81	peak			

Note: 1. Measurement = Reading Level + Correct Factor.

2. If Peak Result complies with AV and QP limit, AV and QP Result are deemed to comply with AV limit.





Reading Correct Measure-Table Antenna No. Mk. Freq. Level Factor ment Limit Margin Height Degree MHz dBuV dBuV/m dBuV/m dΒ Detector degree Comment 1 0.2255 39.86 20.34 60.20 100.6 -40.48 peak 2 0.6205 33.12 20.30 53.42 71.77 -18.35 peak 3 0.7832 30.09 20.36 50.45 69.73 -19.28 peak 26.57 47.18 1.6800 20.61 63.10 -15.92 4 peak 5 22.78 43.74 3.3635 20.96 69.54 -25.80 peak 26.94 47.95 8.8688 21.01 69.54 -21.59 6 peak

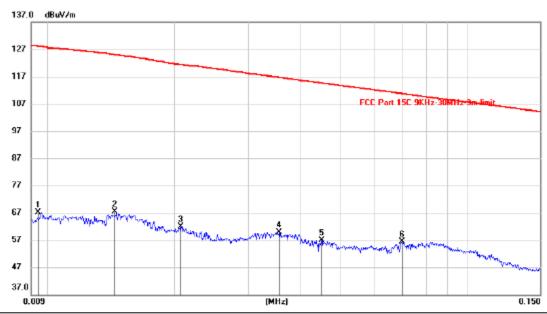
Note: 1. Measurement = Reading Level + Correct Factor.

2. If Peak Result complies with AV and QP limit, AV and QP Result are deemed to comply with AV limit.



SPURIOUS EMISSIONS (LOW CHANNEL, WORST-CASE CONFIGURATION, VERTICAL)

9KHz~ 150KHz



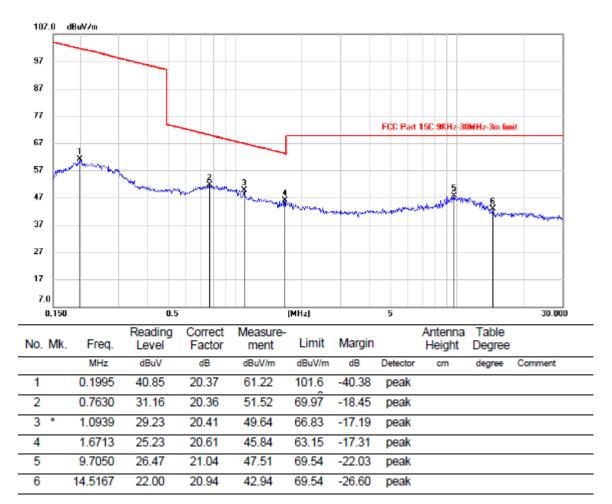
No. Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Margin		Antenna Height	Table Degree	
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1	0.0094	46.90	20.26	67.16	128.0	-60.90	peak			
2	0.0143	47.19	20.25	67.44	125.0	-57.57	peak			
3	0.0206	41.57	20.31	61.88	121.3	-59.49	peak			
4	0.0354	39.47	20.31	59.78	116.7	-56.93	peak			
5	0.0449	36.68	20.31	56.99	114.6	-57.62	peak			
6 *	0.0700	35.95	20.31	56.26	110.7	-54.44	peak			

Note: 1. Measurement = Reading Level + Correct Factor.

2. If Peak Result complies with AV and QP limit, AV and QP Result are deemed to comply with AV limit.



150KHz ~ 30M



Note: 1. Measurement = Reading Level + Correct Factor.

2. If Peak Result complies with AV and QP limit, AV and QP Result are deemed to comply with AV limit.

Note: All the modes had been tested, but only the worst data were recorded in the report.



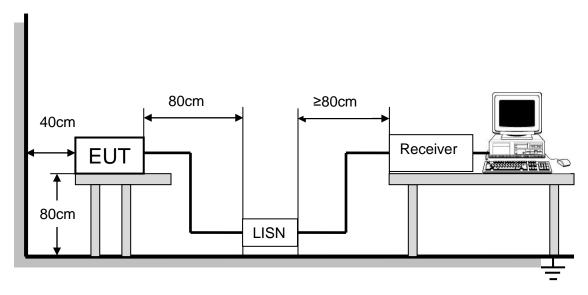
9. AC POWER LINE CONDUCTED EMISSIONS

LIMITS

Please refer to FCC §15.207 (a) and RSS-Gen Clause 8.8.

FREQUENCY (MHz)	Class A	(dBuV)	Class B (dBuV)			
FREQUENCY (MINZ)	Quasi-peak	Average	Quasi-peak	Average		
0.15 -0.5	79.00	66.00	66 - 56 *	56 - 46 *		
0.50 -5.0	73.00	60.00	56.00	46.00		
5.0 -30.0	73.00	60.00	60.00	50.00		

TEST SETUP AND PROCEDURE



The EUT is put on a table of non-conducting material that is 80cm high. The vertical conducting wall of shielding is located 40cm to the rear of the EUT. The power line of the EUT is connected to the AC mains through a Artificial Mains Network (A.M.N.). A EMI Measurement Receiver (R&S Test Receiver ESR3) is used to test the emissions from both sides of AC line. According to the requirements in Section 6.2 of ANSI C63.10 -2013. Conducted emissions from the EUT measured in the frequency range between 0.15 MHz and 30MHz using CISPR Quasi-Peak and average detector mode. The bandwidth of EMI test receiver is set at 9kHz.

The arrangement of the equipment is installed to meet the standards and operating in a manner, which tends to maximize its emission characteristics in a normal application.

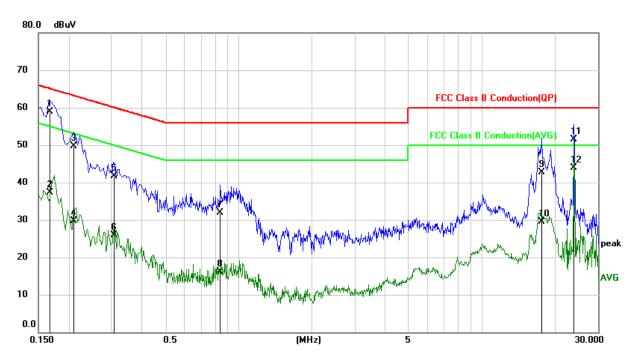


TEST RESULTS

ANTENNA1 (WORST-CASE CONFIGURATION)

9.1.1. 802.11n20 MODE

LINE N RESULTS (LOW CHANNEL, WORST-CASE CONFIGURATION)



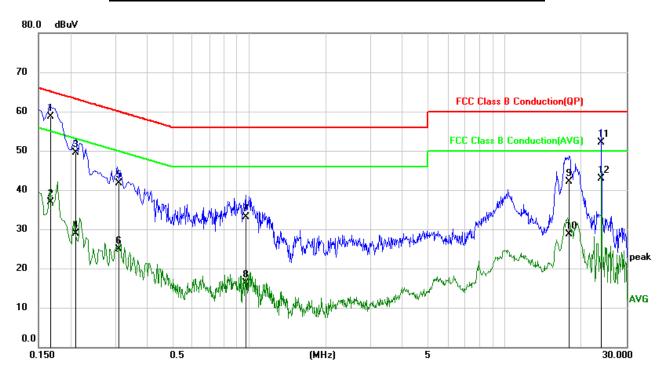
No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB)	(dBuV)	(dBuV)	(dB)	
1	0.1678	49.25	9.62	58.87	65.07	-6.20	QP
2	0.1678	27.78	9.62	37.40	55.07	-17.67	AVG
3	0.2090	40.13	9.62	49.75	63.24	-13.49	QP
4	0.2090	20.10	9.62	29.72	53.24	-23.52	AVG
5	0.3082	32.13	9.62	41.75	60.02	-18.27	QP
6	0.3082	16.26	9.62	25.88	50.02	-24.14	AVG
7	0.8400	22.24	9.63	31.87	56.00	-24.13	QP
8	0.8400	6.56	9.63	16.19	46.00	-29.81	AVG
9	17.6944	32.86	9.86	42.72	60.00	-17.28	QP
10	17.6944	19.67	9.86	29.53	50.00	-20.47	AVG
11	23.9870	41.48	9.94	51.42	60.00	-8.58	QP
12	23.9870	34.00	9.94	43.94	50.00	-6.06	AVG

Note: 1. Result = Reading +Correct Factor.

- 2. If QP Result complies with AV limit, AV Result is deemed to comply with AV limit.
- 3. Test setup: RBW: 200 Hz (9 kHz—150 kHz), 9 kHz (150 kHz—30 MHz).
- 4. Step size: 80Hz (0.009MHz-0.15MHz), 4 kHz (0.15MHz-30MHz), Scan time: auto.



LINE L RESULTS (LOW CHANNEL, WORST-CASE CONFIGURATION)



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB)	(dBuV)	(dBuV)	(dB)	
1	0.1678	49.10	9.63	58.73	65.07	-6.34	QP
2	0.1678	27.31	9.63	36.94	55.07	-18.13	AVG
3	0.2085	39.91	9.63	49.54	63.26	-13.72	QP
4	0.2085	19.37	9.63	29.00	53.26	-24.26	AVG
5	0.3086	32.10	9.63	41.73	60.01	-18.28	QP
6	0.3086	15.30	9.63	24.93	50.01	-25.08	AVG
7	0.9774	23.51	9.64	33.15	56.00	-22.85	QP
8	0.9774	6.63	9.64	16.27	46.00	-29.73	AVG
9	17.8537	32.25	9.84	42.09	60.00	-17.91	QP
10	17.8537	18.83	9.84	28.67	50.00	-21.33	AVG
11	23.9877	42.11	9.90	52.01	60.00	-7.99	QP
12	23.9877	33.10	9.90	43.00	50.00	-7.00	AVG

Note: 1. Result = Reading +Correct Factor.

- 2. If QP Result complies with AV limit, AV Result is deemed to comply with AV limit.
- 3. Test setup: RBW: 200 Hz (9 kHz—150 kHz), 9 kHz (150 kHz—30 MHz).
- 4. Step size: 80Hz (0.009MHz-0.15MHz), 4 kHz (0.15MHz-30MHz), Scan time: auto.

Note: All the modes had been tested, but only the worst data were recorded in the report.



10. ANTENNA REQUIREMENTS

APPLICABLE REQUIREMENTS

Please refer to FCC §15.203

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 shall be considered sufficient to comply with the provisions of this section. 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.

Please refer to FCC §15.247(b)(4)

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.

ANTENNA CONNECTOR

EUT has an internal antenna with antenna connector, it will be installed in a specific environment and users cannot change the antenna.

ANTENNA GAIN

The antenna gain of EUT is less than 6 dBi.

END OF REPORT