7.4. POWER SPECTRAL DENSITY

LIMITS

CFR 47 FCC Part15, Subpart E ISED RSS-247		
Test Item	Limit	Frequency Range (MHz)
Power Spectral Density	For FCC: Other than Mobile and portable:17dBm/MHz Mobile and portable:11dBm/MHz	5150-5250
	For RSS: e.i.r.p. 10dBm/MHz	
	11dBm/MHz	5250-5350
	11dBm/MHz	For FCC:5470-5725 For IC:5470-5600 5650-5725
	30dBm/500kHz	5725-5850
Note: 1. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi. 2. Directional gain = $10\log[(10^{G1/20} + 10^{G2/20})^2 / N_{ANT}] = 4.59 < 6$dBi, where N_{ANT} is the number of outputs, $G_{1/2}$ is the Antenna gain.		

TEST PROCEDURE

Connect the UUT to the spectrum analyser and use the following settings:

For U-NII-1, U-NII-2A and U-NII-2C band:

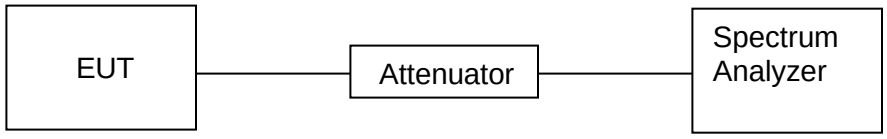
Center Frequency	The center frequency of the channel under test
Detector	RMS
RBW	1MHz
VBW	≥3 × RBW
Span	Encompass the entire emissions bandwidth (EBW) of the signal
Trace	Max hold
Sweep time	Auto

For U-NII-3:

Center Frequency	The center frequency of the channel under test
Detector	RMS
RBW	500kHz
VBW	≥3 × RBW
Span	Encompass the entire emissions bandwidth (EBW) of the signal
Trace	Max hold
Sweep time	Auto

Allow trace to fully stabilize and use the peak marker function to determine the maximum amplitude level within the RBW.

TEST SETUP



TEST ENVIRONMENT

Temperature	23.5°C	Relative Humidity	56%
Atmosphere Pressure	101kPa	Test Voltage	DC 3.3V

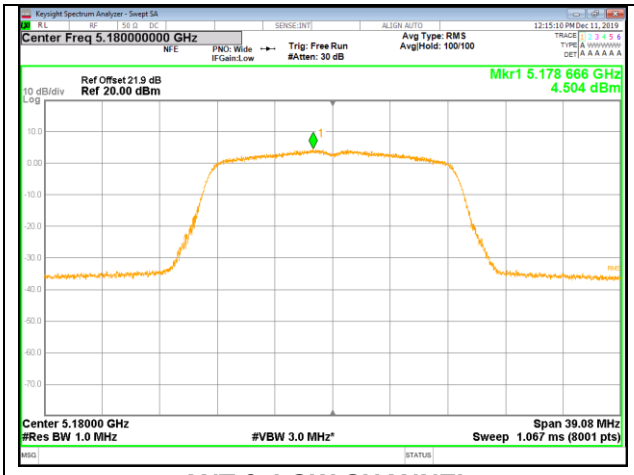
RESULTS

7.4.1. 802.11a SISO MODE

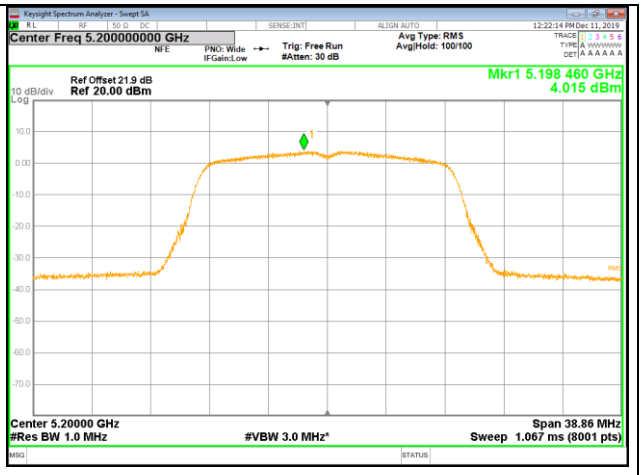
UNII-1 BAND

Test Channel	Frequency (MHz)	ANT	Meas. Level (dBm/MHz)		EIRP (dBm/MHz)	Limit (dBm/MHz)	ISED EIRP Limit (dBm/MHz)
			Single	Total			
Low	5180	0	4.583	N/A	6.593	11	10
		1	4.852		6.882		
Middle	5200	0	4.094		6.104		
		1	5.318		7.348		
High	5240	0	4.653		6.663		
		1	4.745		6.775		

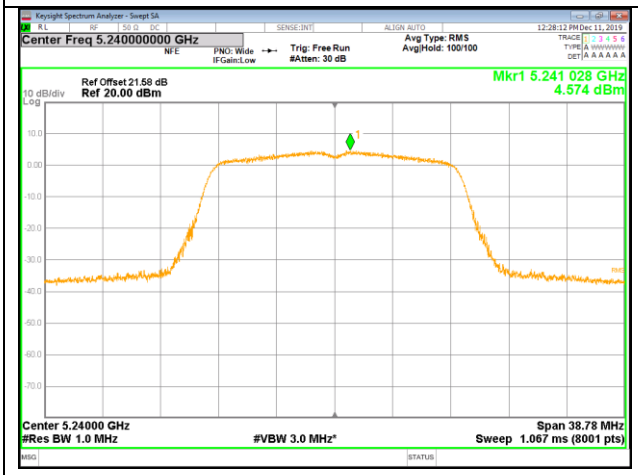
Note: 1.PSD= Test Plot Value + Correction Factor
2.EIRP= Meas. Level + Antenna Gain
3.About correction Factor please refer to section 7.1



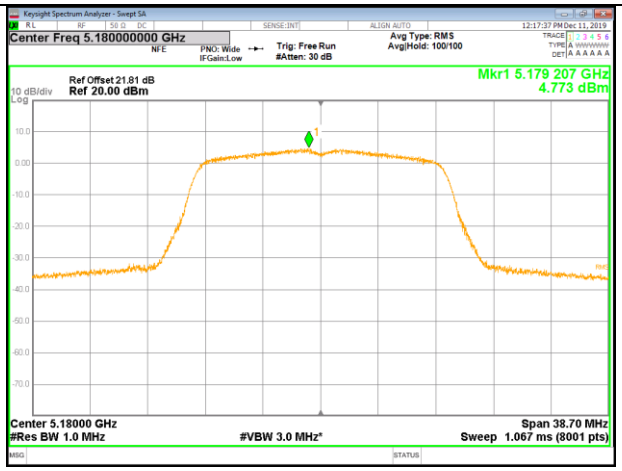
ANT 0, LOW CHANNEL



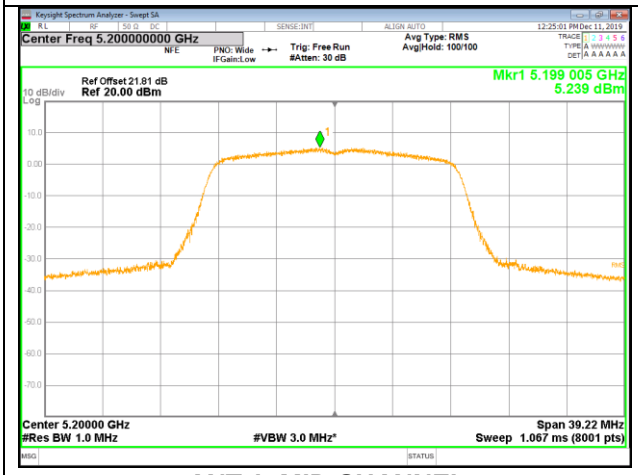
ANT 0, MID CHANNEL



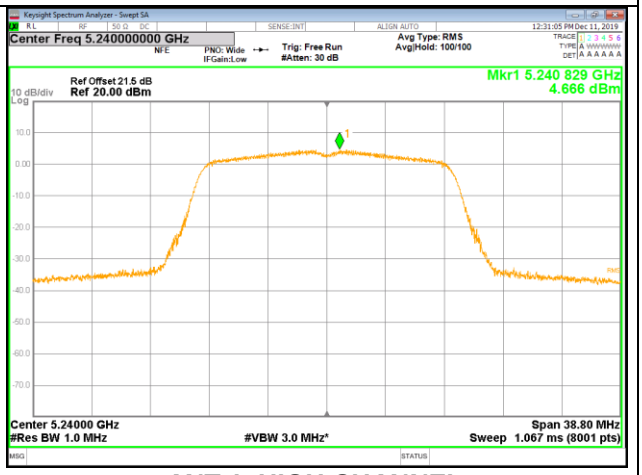
ANT 0, HIGH CHANNEL



ANT 1, LOW CHANNEL



ANT 1, MID CHANNEL

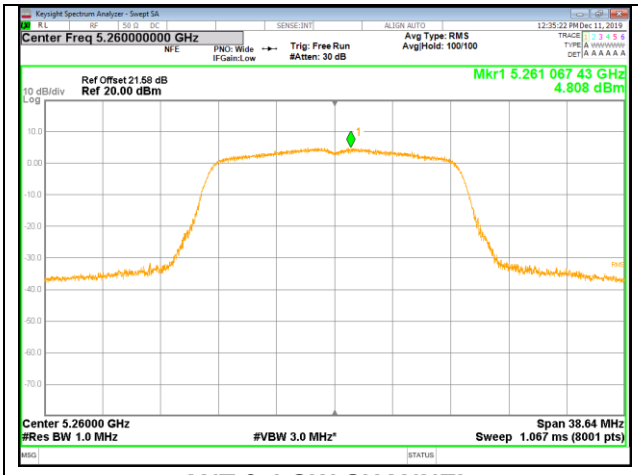


ANT 1, HIGH CHANNEL

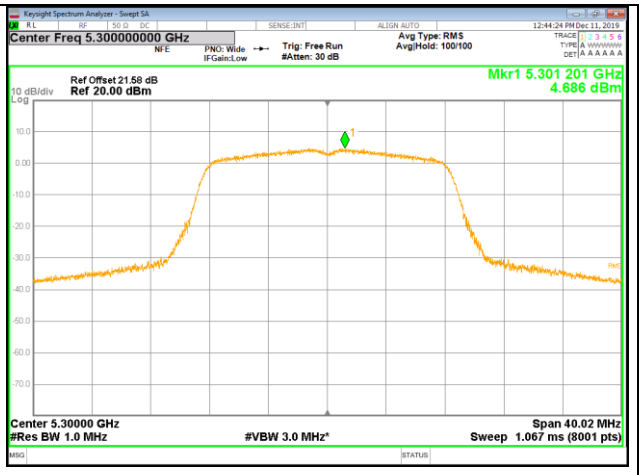
UNII-2A BAND

Test Channel	Frequency (MHz)	ANT	Meas. Level (dBm/MHz)		Limit (dBm/MHz)
			Single	Total	
Low	5260	0	4.887	N/A	11
		1	5.320		
Middle	5300	0	4.947		
		1	4.847		
High	5320	0	4.685		
		1	4.941		

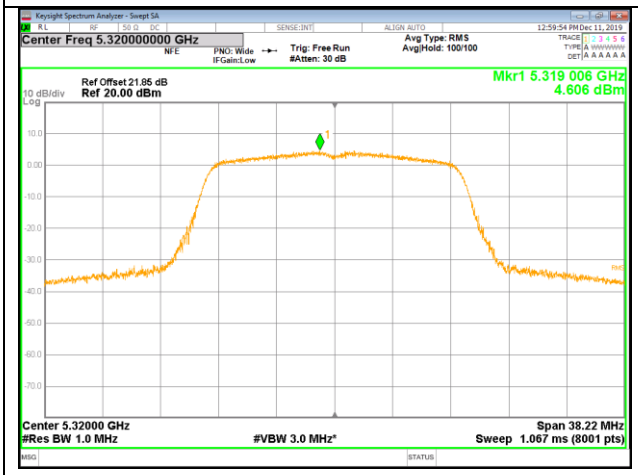
Note: 1.PSD=Meas. Level+ Correction Factor
2. About correction Factor please refer to section 7.1



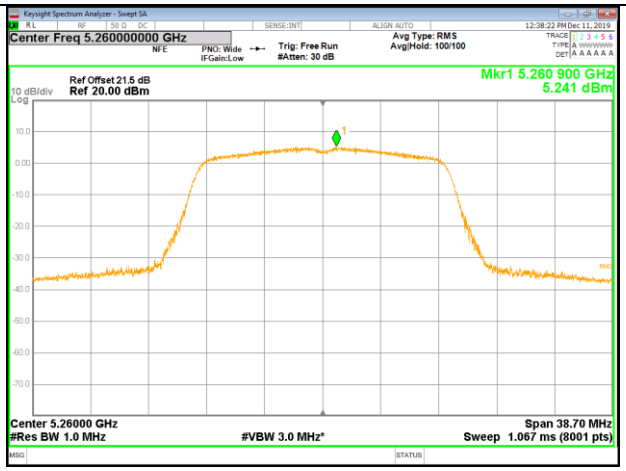
ANT 0, LOW CHANNEL



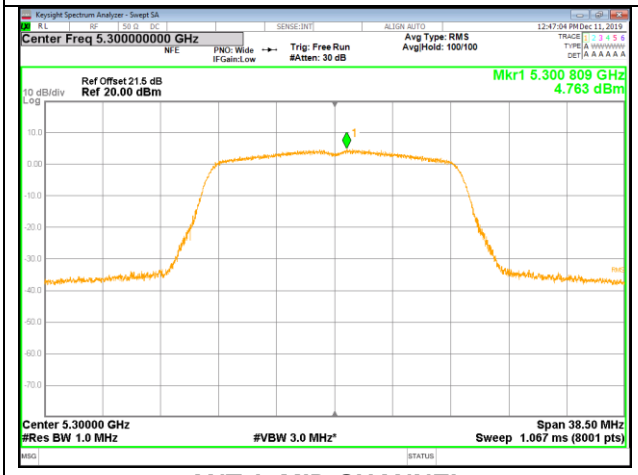
ANT 0, MID CHANNEL



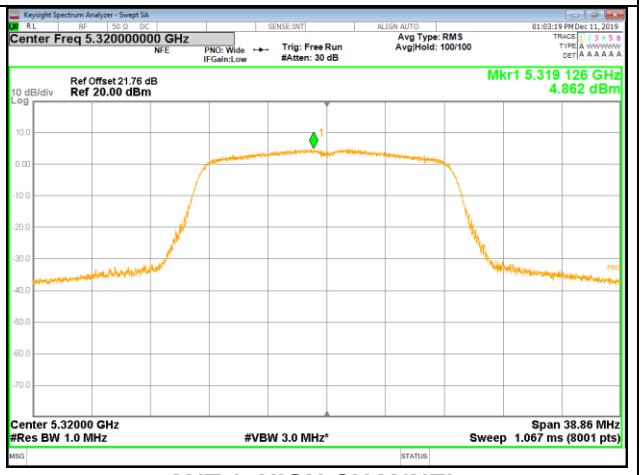
ANT 0, HIGH CHANNEL



ANT 1, LOW CHANNEL



ANT 1, MID CHANNEL

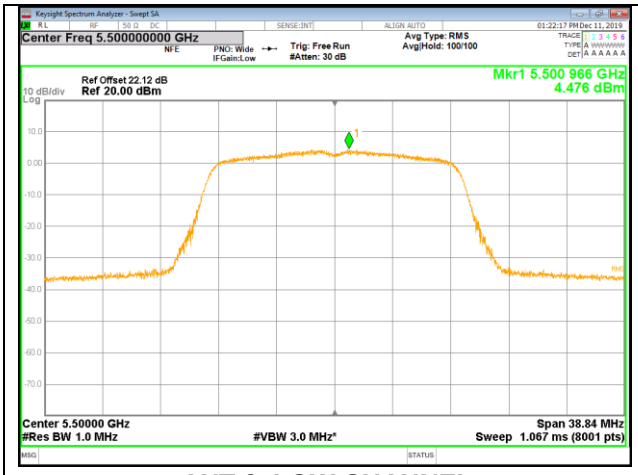


ANT 1, HIGH CHANNEL

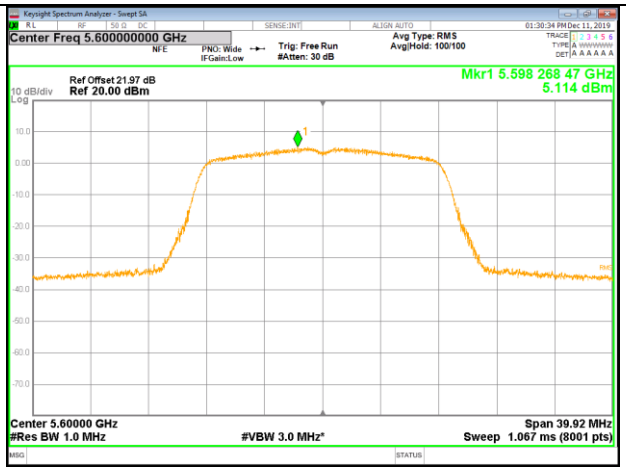
UNII-2C BAND

Test Channel	Frequency (MHz)	ANT	Meas. Level (dBm/MHz)		Limit (dBm/MHz)
			Single	Total	
Low	5500	0	4.555	N/A	11
		1	2.151		
Middle	5600	0	5.193		
		1	2.041		
High	5700	0	5.205		
		1	4.227		
Channel 144	5720	0	3.446		
		1	2.903		

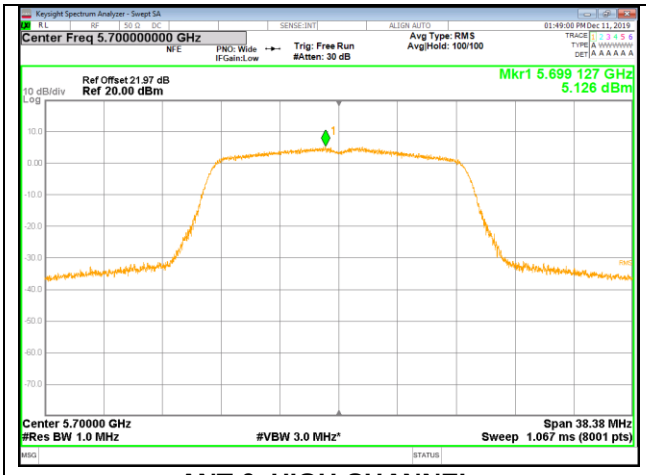
Note: 1.PSD=Meas. Level+ Correction Factor
2. About correction Factor please refer to section 7.1



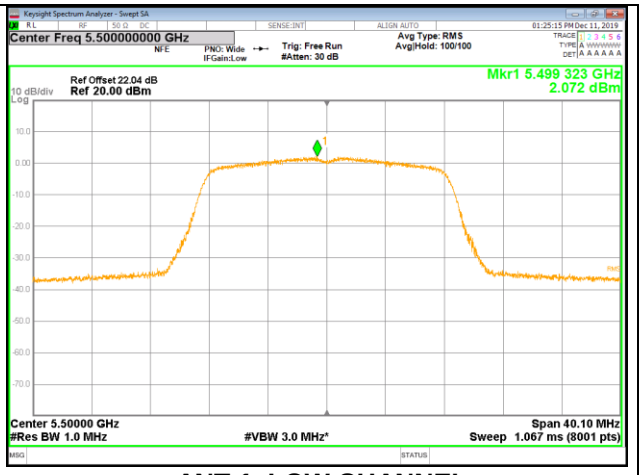
ANT 0, LOW CHANNEL



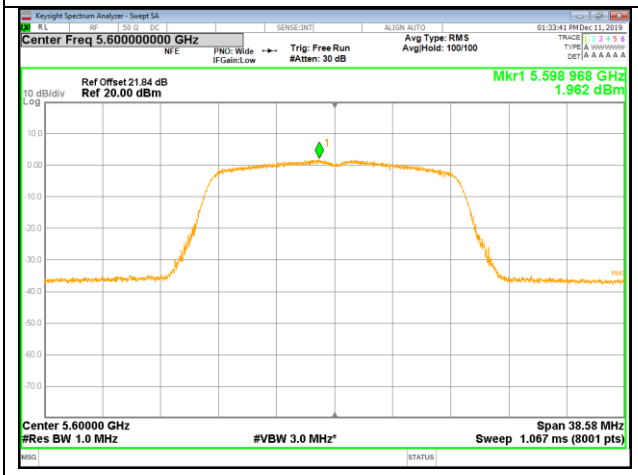
ANT 0, MID CHANNEL



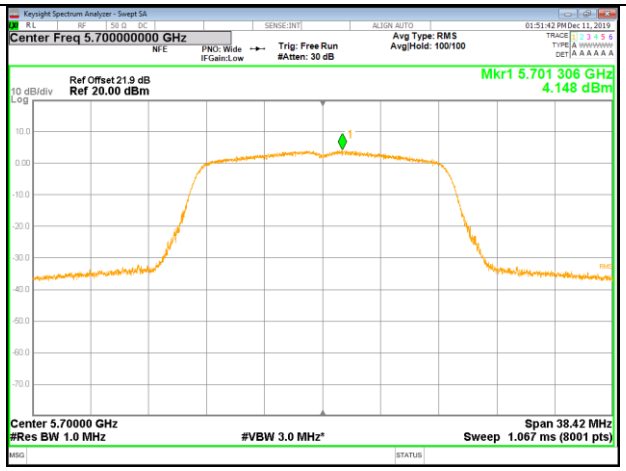
ANT 0, HIGH CHANNEL



ANT 1, LOW CHANNEL

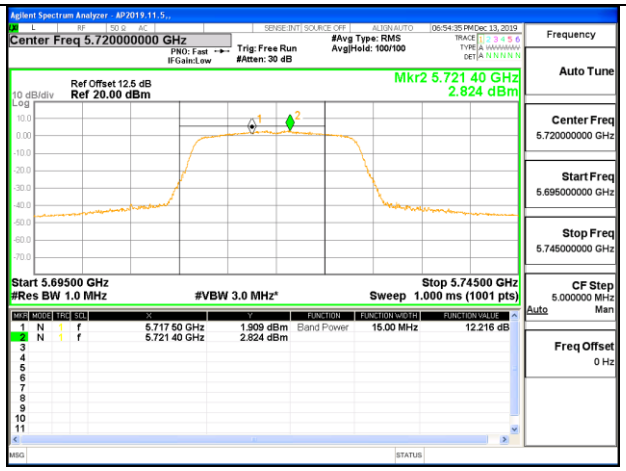


ANT 1, MID CHANNEL



ANT 1, HIGH CHANNEL

ANT 0, CHANNEL 144

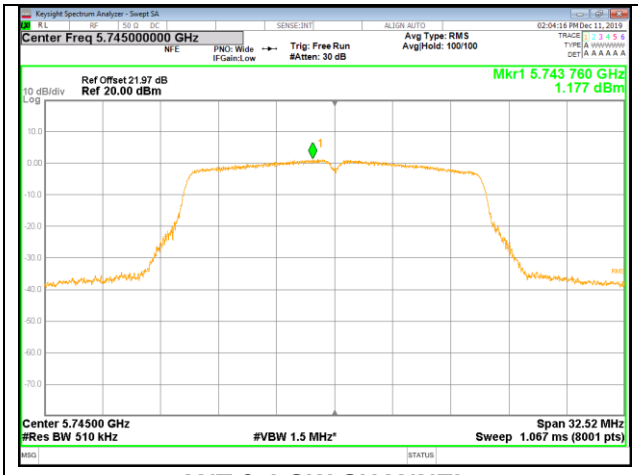


ANT 1, CHANNEL 144

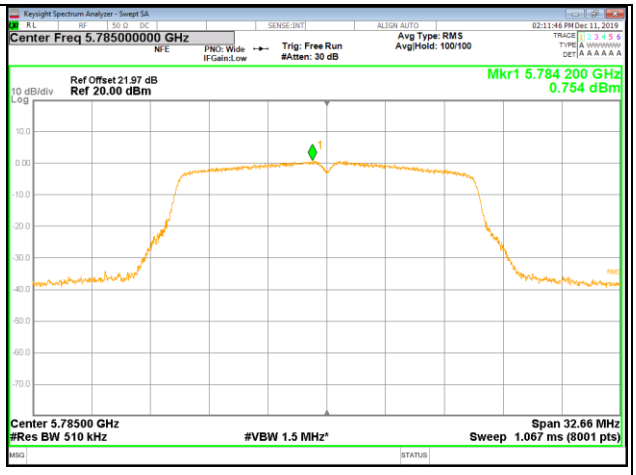
UNII-3 BAND

Test Channel	Frequency (MHz)	ANT	Meas. Level (dBm/500kHz)		Limit (dBm/500kHz)
			Single	Total	
Low	5745	0	1.256	N/A	30
		1	0.533		
Middle	5785	0	0.833		
		1	1.101		
High	5825	0	0.324		
		1	1.076		
Channel 144	5720	0	-1.217		
		1	-1.742		

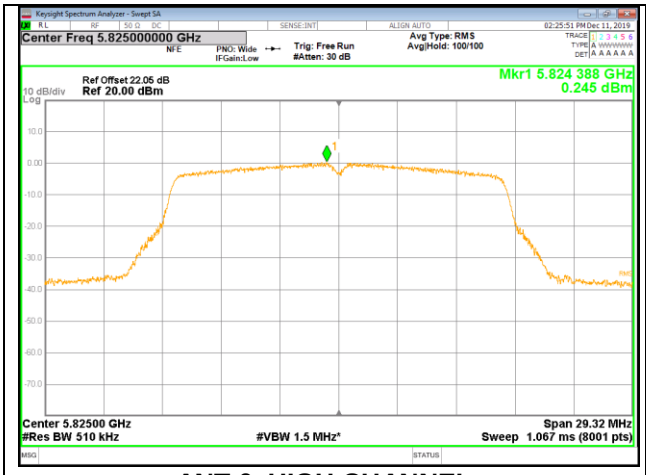
Note: 1.PSD=Meas. Level+ Correction Factor
2. About correction Factor please refer to section 7.1



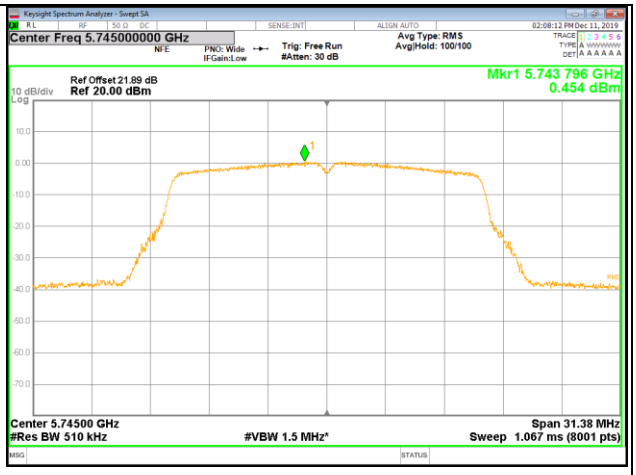
ANT 0, LOW CHANNEL



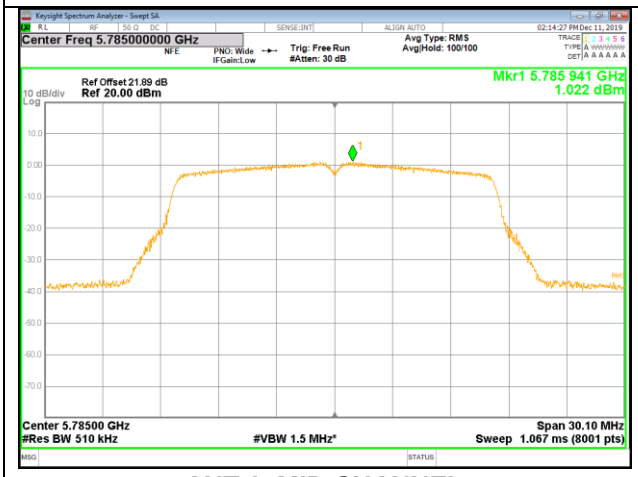
ANT 0, MID CHANNEL



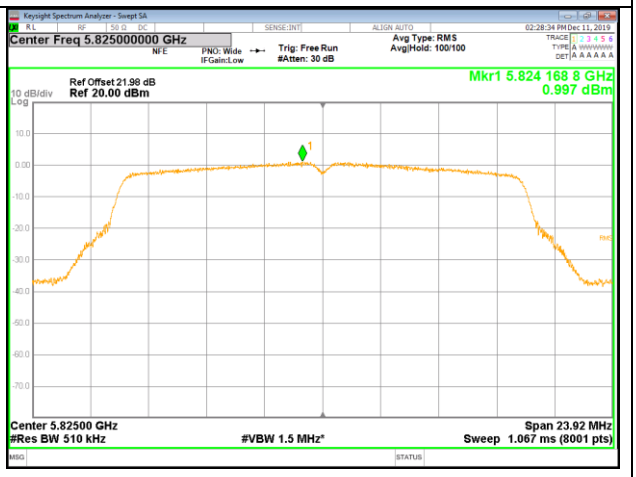
ANT 0, HIGH CHANNEL



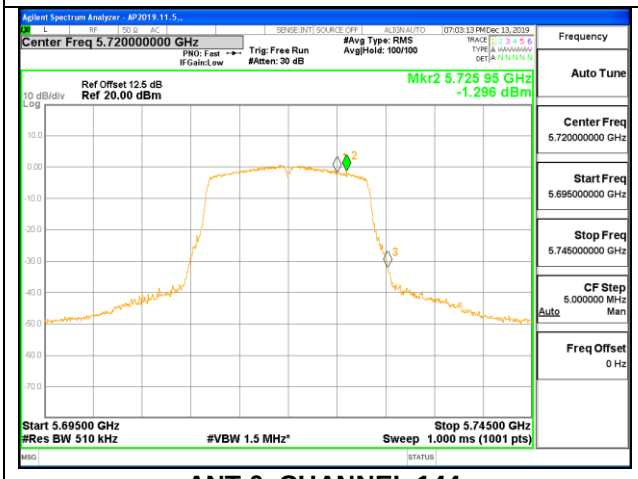
ANT 1, LOW CHANNEL



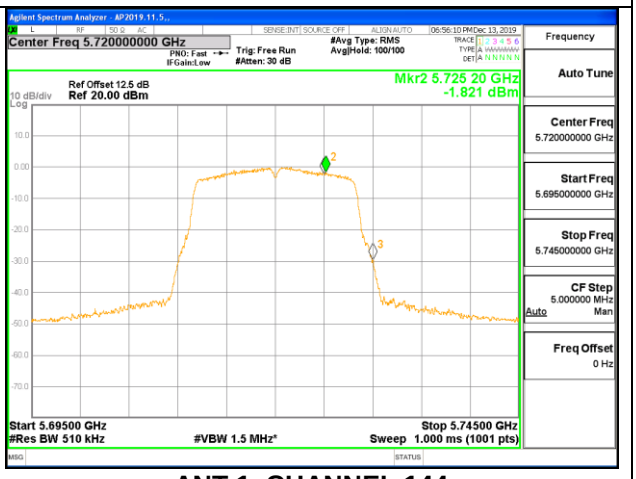
ANT 1, MID CHANNEL



ANT 1, HIGH CHANNEL



ANT 0, CHANNEL 144



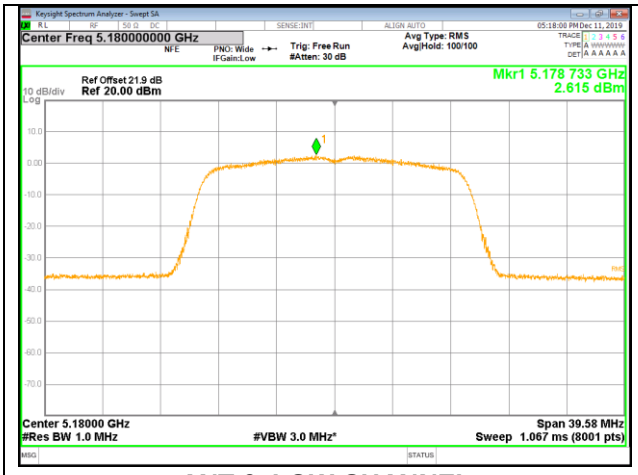
ANT 1, CHANNEL 144

7.4.2. 802.11ac VHT20 MIMO MODE

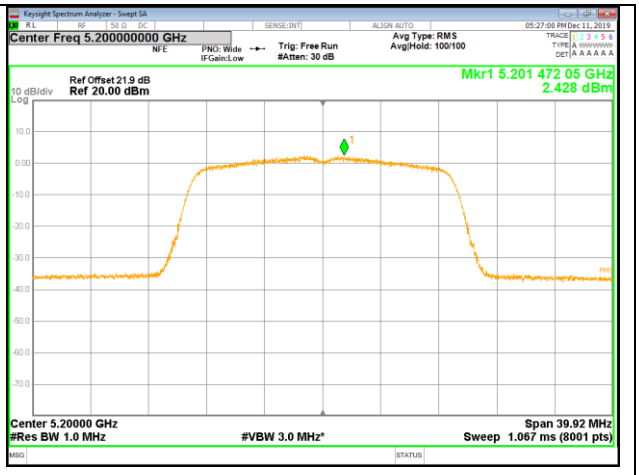
UNII-1 BAND

Test Channel	Frequency (MHz)	ANT	Meas. Level (dBm/MHz)		EIRP (dBm/MHz)	Limit (dBm/MHz)	ISED EIRP Limit (dBm/MHz)
			Single	Total			
Low	5180	0	2.838	6.025	8.055	11	10
		1	3.184				
Middle	5200	0	2.651	5.883	7.913		
		1	3.083				
High	5240	0	2.559	5.911	7.941		
		1	3.217				

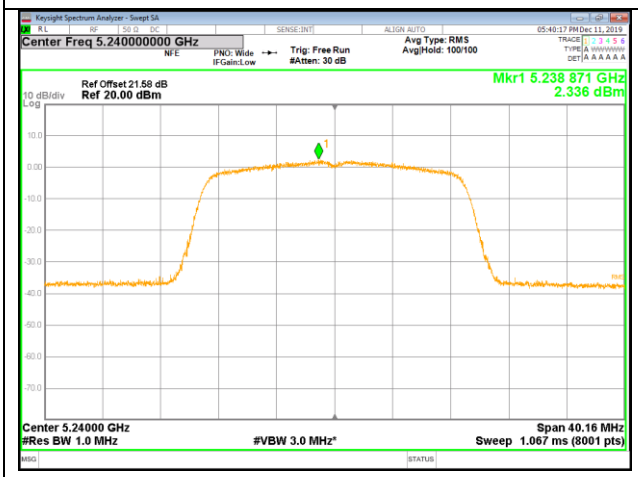
Note: 1.PSD= Test Plot Value + Correction Factor
2.EIRP= Meas. Level + Antenna Gain
3.About correction Factor please refer to section 7.1



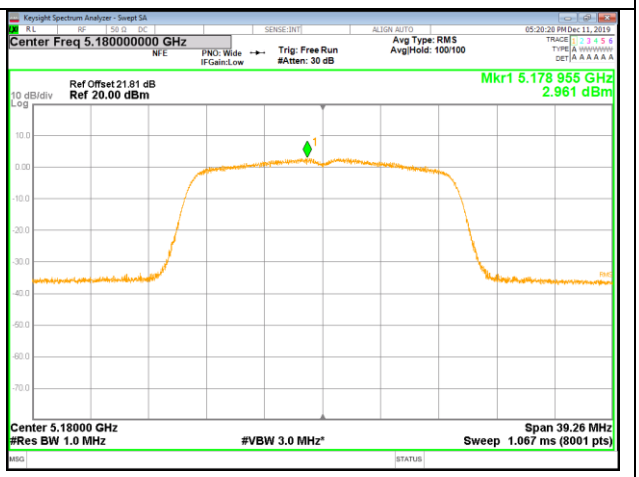
ANT 0, LOW CHANNEL



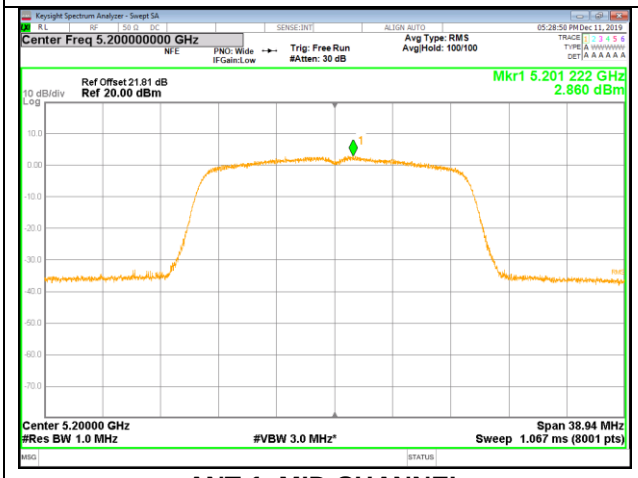
ANT 0, MID CHANNEL



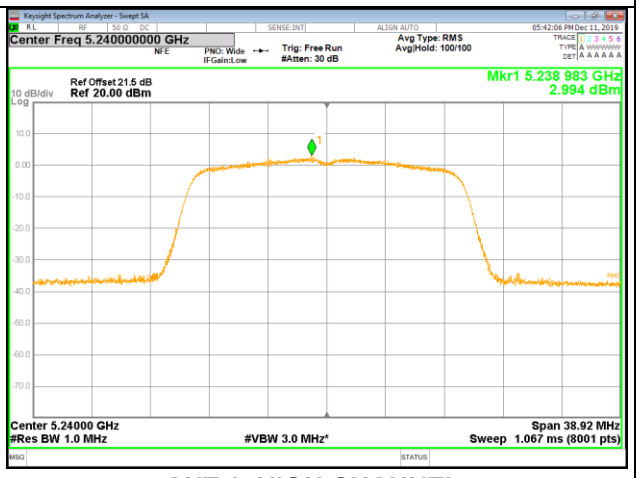
ANT 0, HIGH CHANNEL



ANT 1, LOW CHANNEL



ANT 1, MID CHANNEL

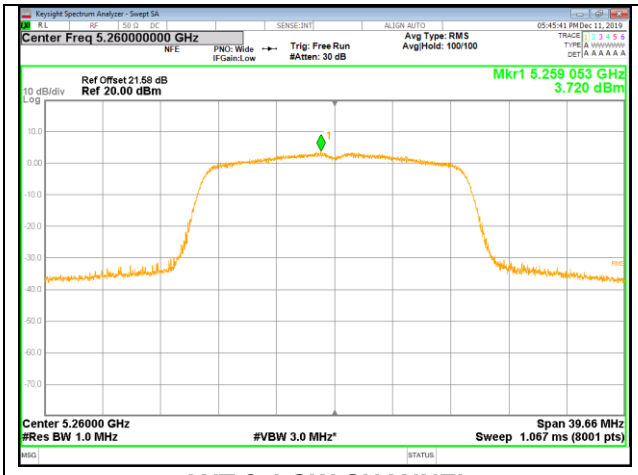


ANT 1, HIGH CHANNEL

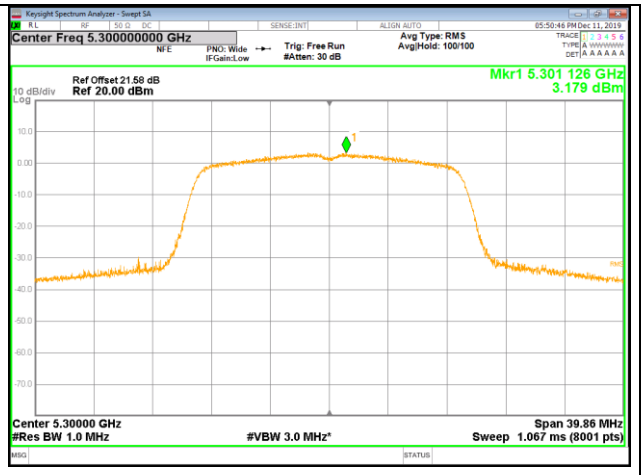
UNII-2A BAND

Test Channel	Frequency (MHz)	ANT	Meas. Level (dBm/MHz)		Limit (dBm/MHz)
			Single	Total	
Low	5260	0	3.943	6.971	11
		1	3.979		
Middle	5300	0	3.402	6.485	
		1	3.547		
High	5320	0	3.626	6.736	
		1	3.824		

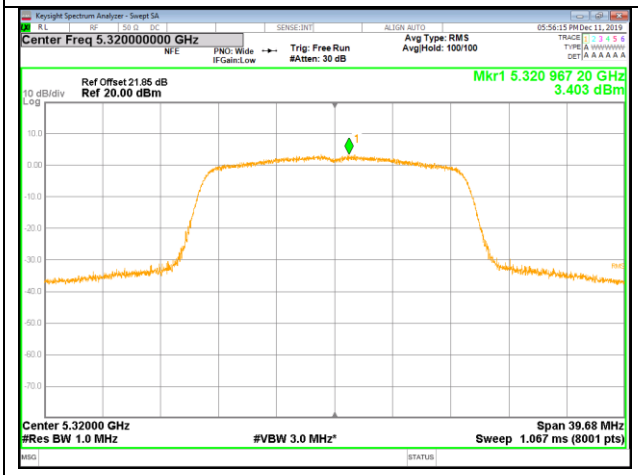
Note: 1.PSD=Meas. Level+ Correction Factor
2. About correction Factor please refer to section 7.1



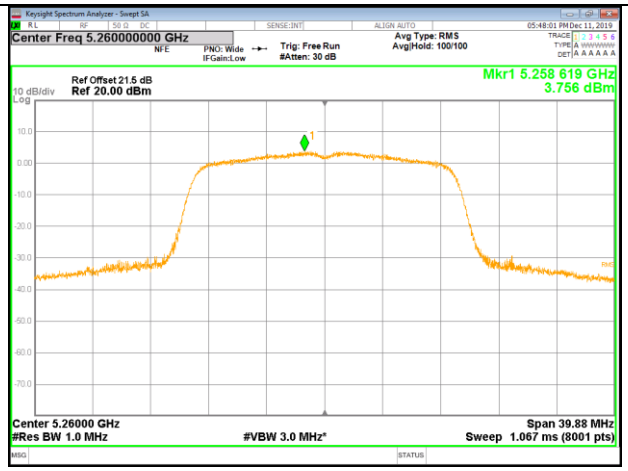
ANT 0, LOW CHANNEL



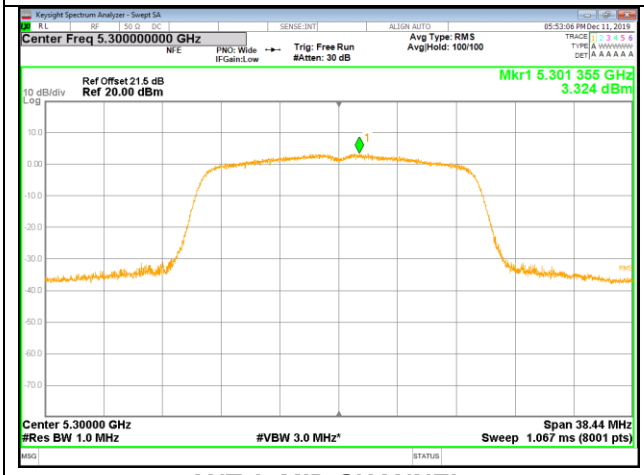
ANT 0, MID CHANNEL



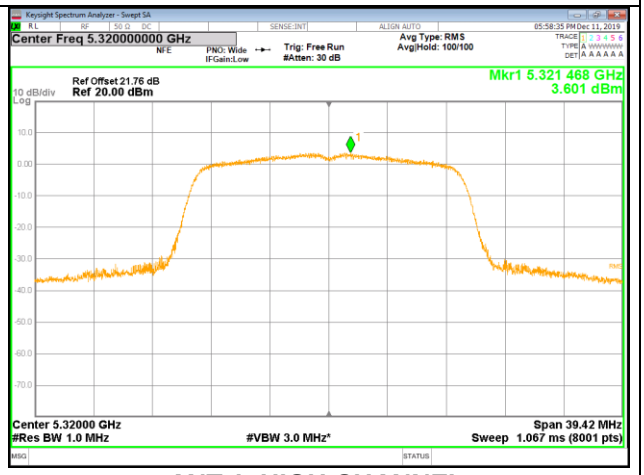
ANT 0, HIGH CHANNEL



ANT 1, LOW CHANNEL



ANT 1, MID CHANNEL

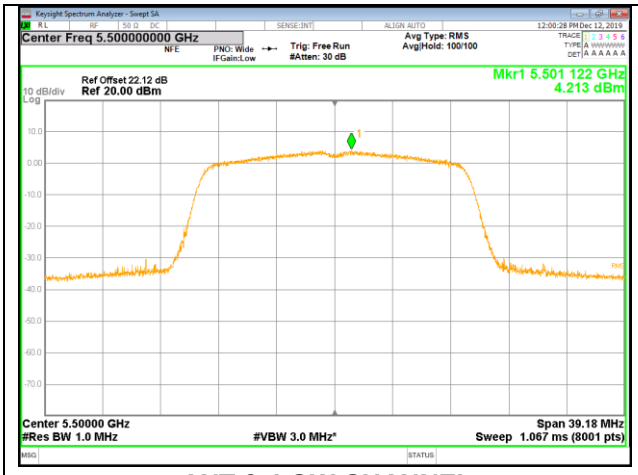


ANT 1, HIGH CHANNEL

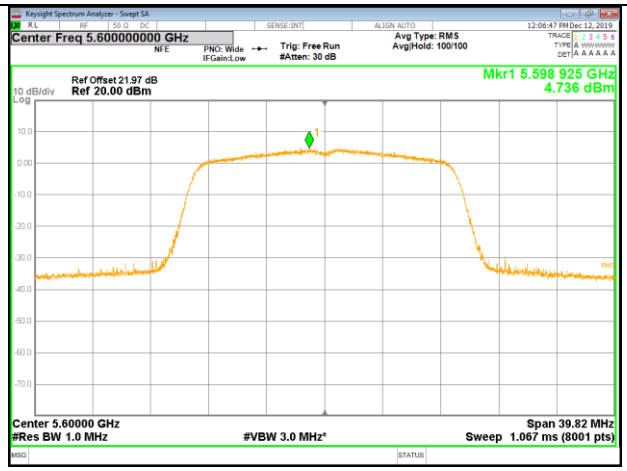
UNII-2C BAND

Test Channel	Frequency (MHz)	ANT	Meas. Level (dBm/MHz)		Limit (dBm/MHz)
			Single	Total	
Low	5500	0	4.436	6.559	11
		1	2.433		
Middle	5600	0	4.959	6.607	
		1	1.601		
High	5700	0	3.863	6.426	
		1	2.917		
Channel 144	5720	0	3.407	6.202	
		1	2.965		

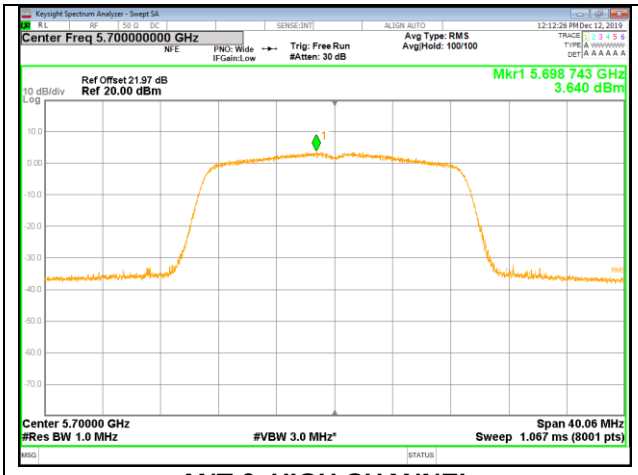
Note: 1.PSD=Meas. Level+ Correction Factor
2. About correction Factor please refer to section 7.1



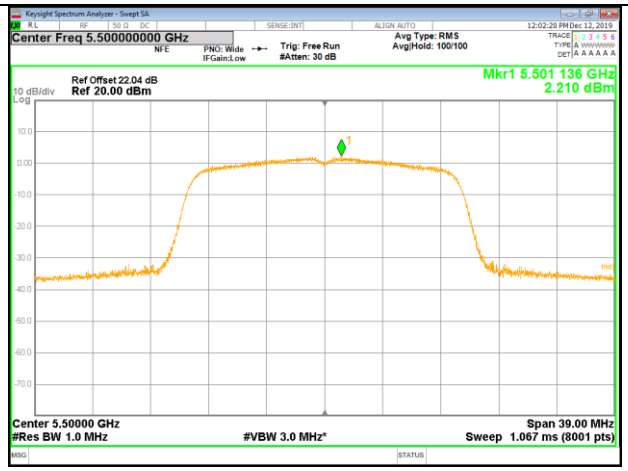
ANT 0, LOW CHANNEL



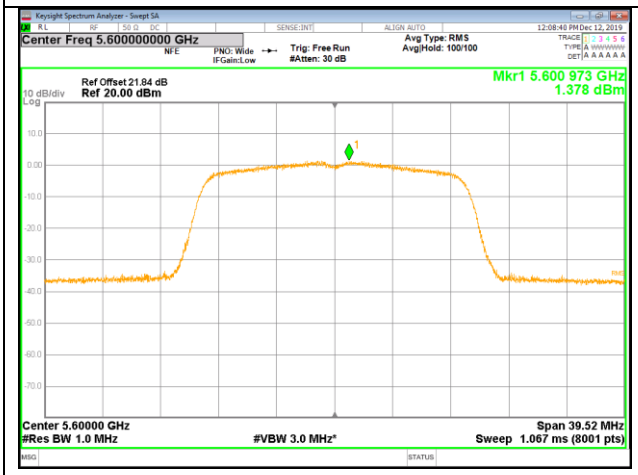
ANT 0, MID CHANNEL



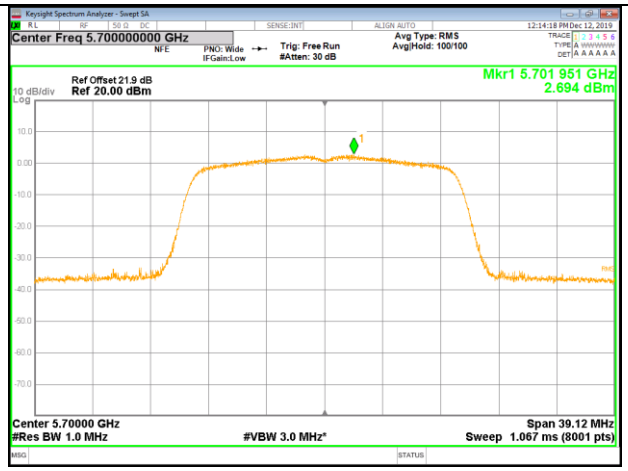
ANT 0, HIGH CHANNEL



ANT 1, LOW CHANNEL

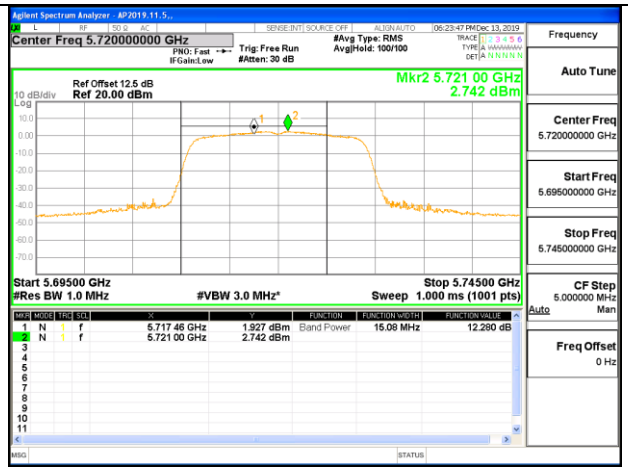


ANT 1, MID CHANNEL



ANT 1, HIGH CHANNEL

ANT 0, CHANNEL 144

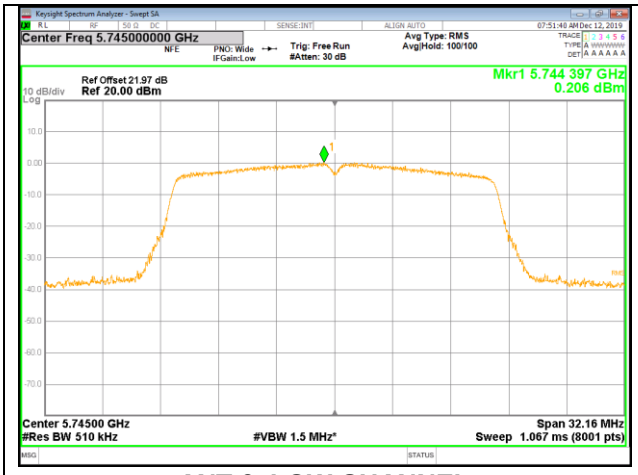


ANT 1, CHANNEL 144

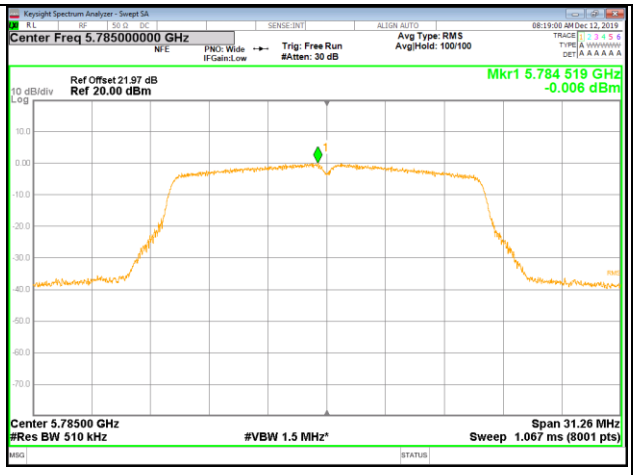
UNII-3 BAND

Test Channel	Frequency (MHz)	ANT	Meas. Level (dBm/500kHz)		Limit (dBm/500kHz)
			Single	Total	
Low	5745	0	0.429	3.274	30
		1	0.092		
Middle	5785	0	0.217	3.385	
		1	0.527		
High	5825	0	-0.259	3.085	
		1	0.384		
Channel 144	5720	0	-1.836	1.199	
		1	-1.787		

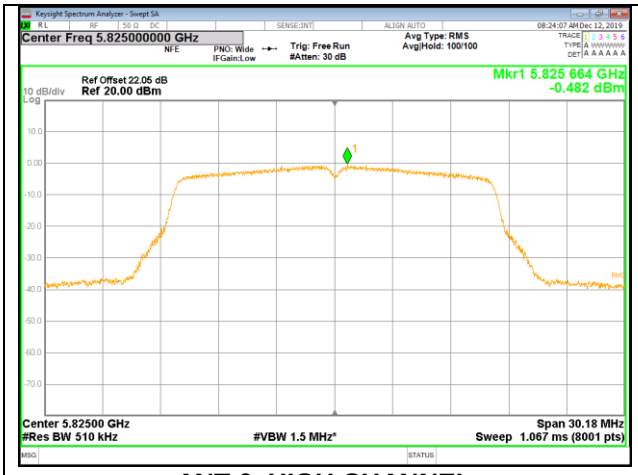
Note: 1.PSD=Meas. Level+ Correction Factor
2. About correction Factor please refer to section 7.1



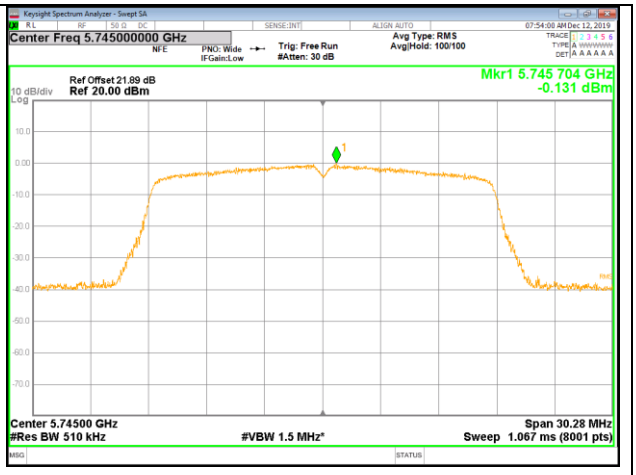
ANT 0, LOW CHANNEL



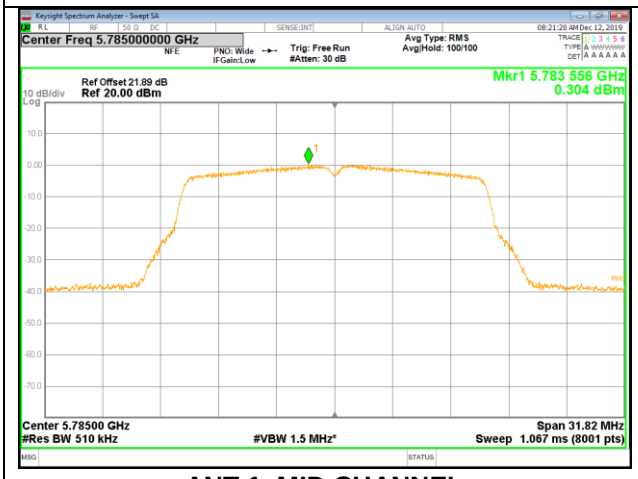
ANT 0, MID CHANNEL



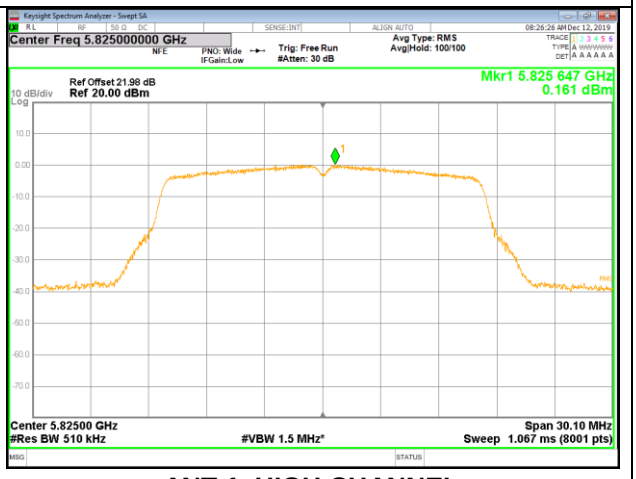
ANT 0, HIGH CHANNEL



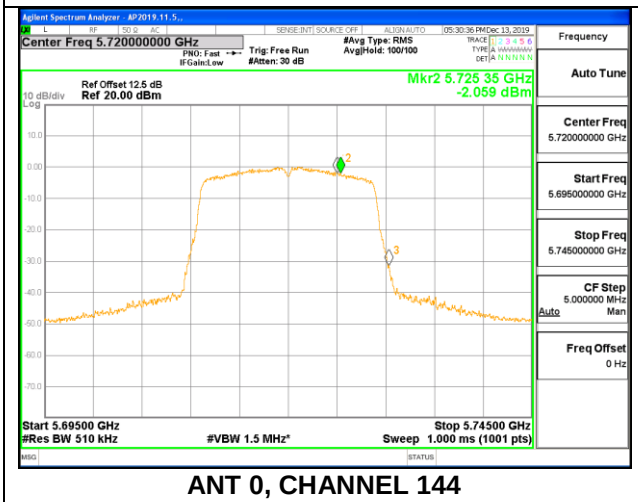
ANT 1, LOW CHANNEL



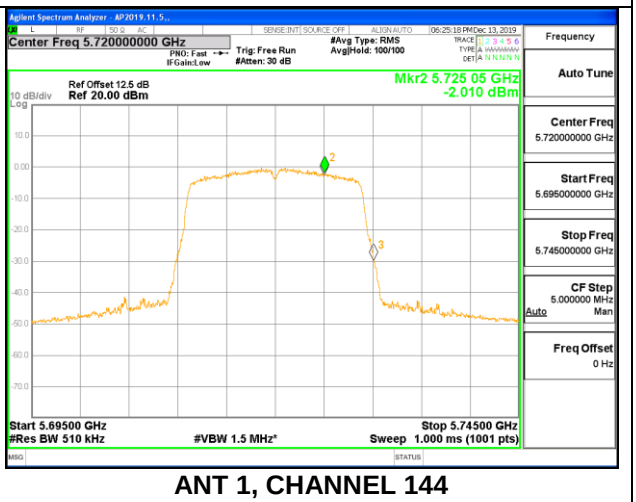
ANT 1, MID CHANNEL



ANT 1, HIGH CHANNEL



ANT 0, CHANNEL 144



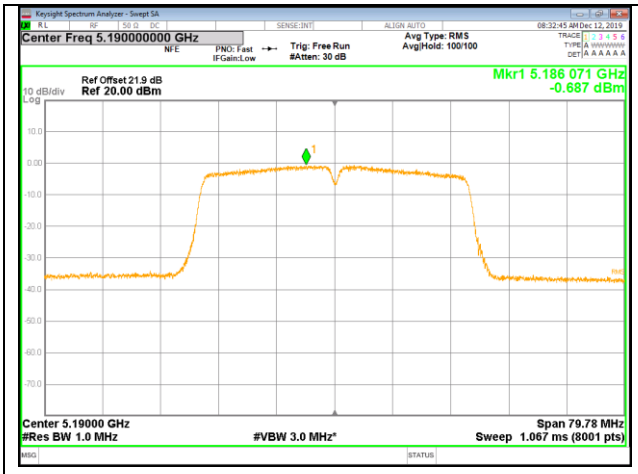
ANT 1, CHANNEL 144

7.4.3. 802.11ac VHT40 MIMO MODE

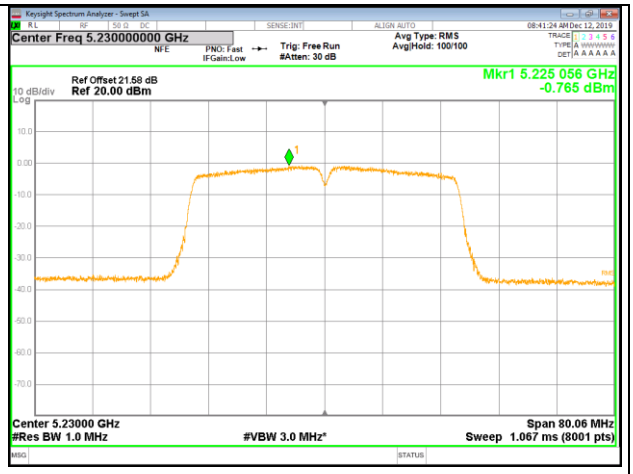
UNII-1 BAND

Test Channel	Frequency (MHz)	ANT	Meas. Level (dBm/MHz)		EIRP (dBm/MHz)	Limit (dBm/MHz)	ISED EIRP Limit (dBm/MHz)
			Single	Total			
Low	5190	0	-0.466	2.846	4.876	11	10
		1	0.118				
High	5230	0	-0.542	2.527	4.557		
		1	-0.425				

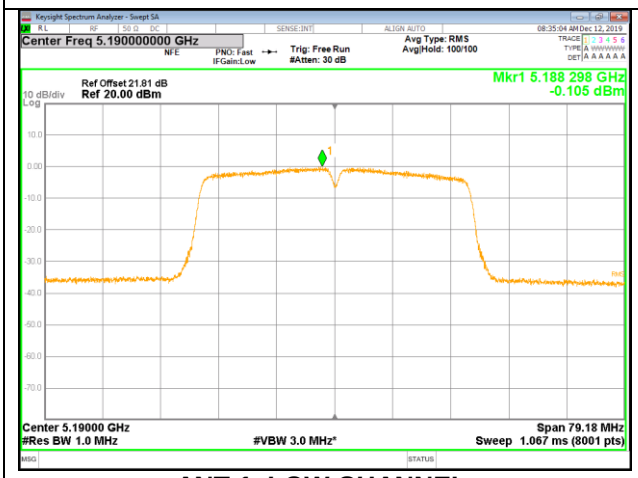
Note: 1.PSD= Test Plot Value + Correction Factor
2.EIRP= Meas. Level + Antenna Gain
3.About correction Factor please refer to section 7.1



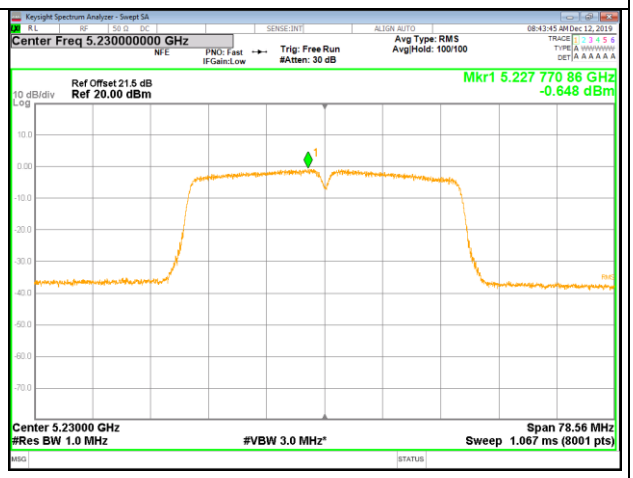
ANT 0, LOW CHANNEL



ANT 0, HIGH CHANNEL



ANT 1, LOW CHANNEL

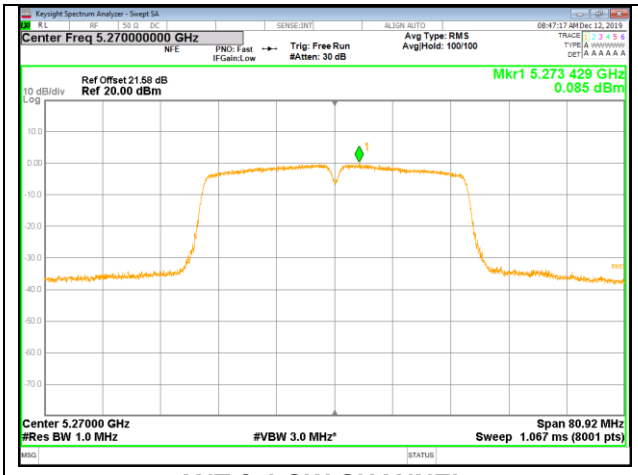


ANT 1, HIGH CHANNEL

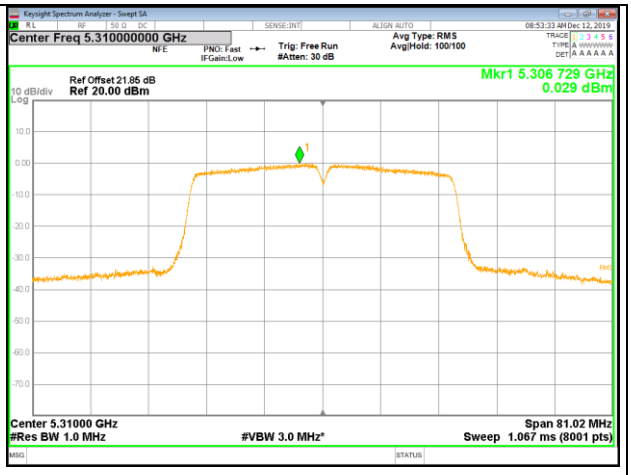
UNII-2A BAND

Test Channel	Frequency (MHz)	ANT	Meas. Level (dBm/MHz)		Limit (dBm/MHz)
			Single	Total	
Low	5270	1	0.308	3.381	11
		2	0.433		
High	5310	1	0.252	3.214	
		2	0.154		

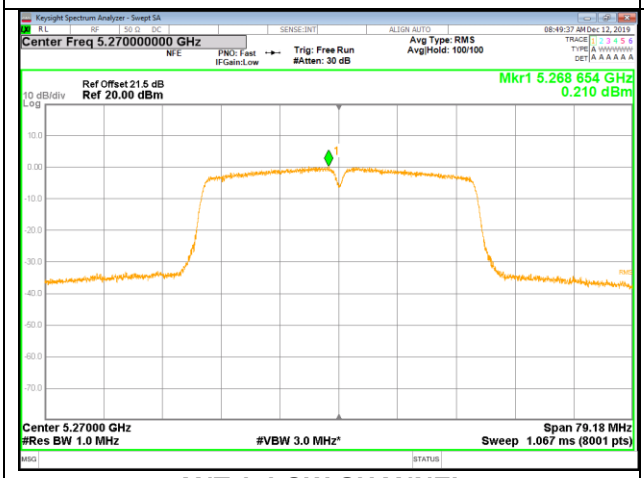
Note: 1.PSD=Meas. Level+ Correction Factor
2. About correction Factor please refer to section 7.1



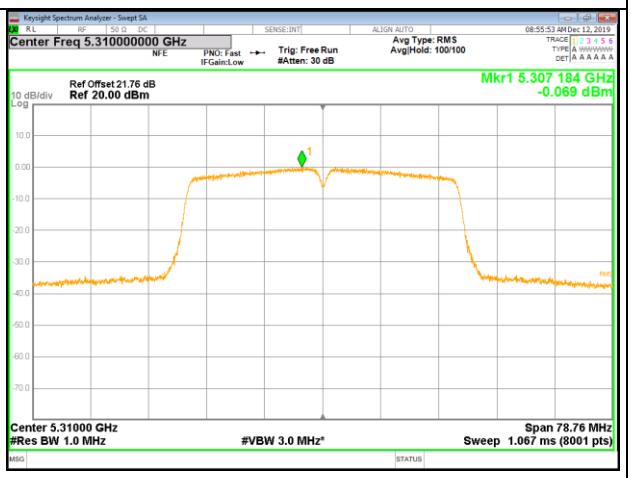
ANT 0, LOW CHANNEL



ANT 0, HIGH CHANNEL



ANT 1, LOW CHANNEL

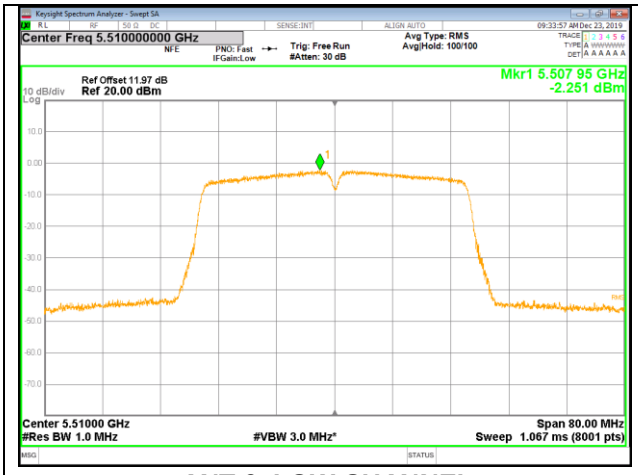


ANT 1, HIGH CHANNEL

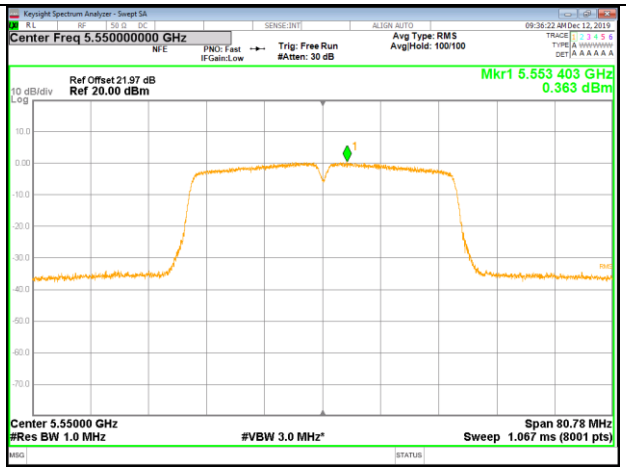
UNII-2C BAND

Test Channel	Frequency (MHz)	ANT	Meas. Level (dBm/MHz)		Limit (dBm/MHz)
			Single	Total	
Low	5510	1	-2.028	-0.081	11
		2	-4.502		
Middle	5550	1	0.586	2.451	
		2	-2.119		
High	5670	1	1.333	3.050	
		2	-1.81		
Channel 142	5710	1	0.663	3.351	
		2	-0.007		

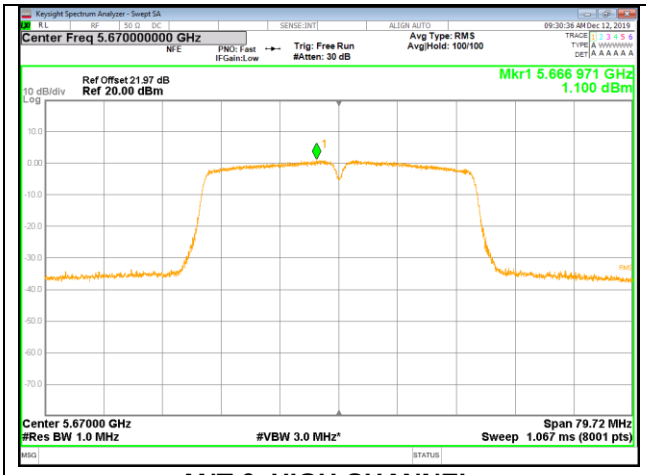
Note: 1.PSD=Meas. Level+ Correction Factor
2. About correction Factor please refer to section 7.1



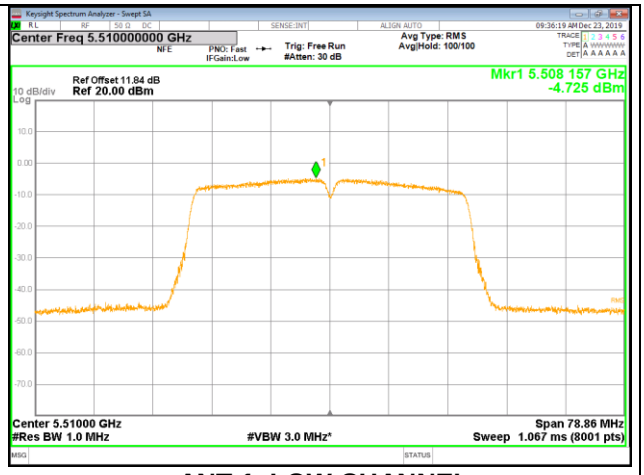
ANT 0, LOW CHANNEL



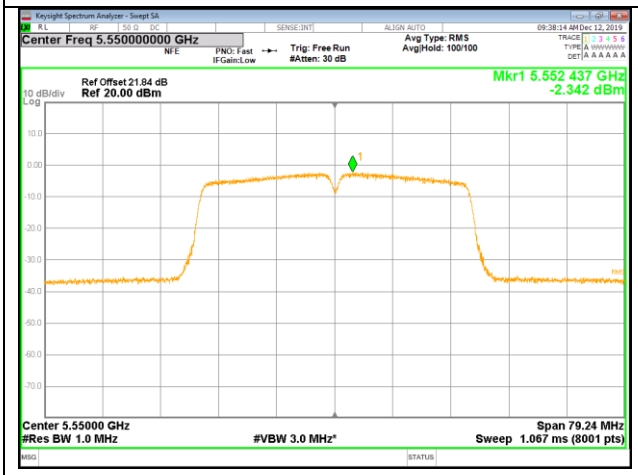
ANT 0, MID CHANNEL



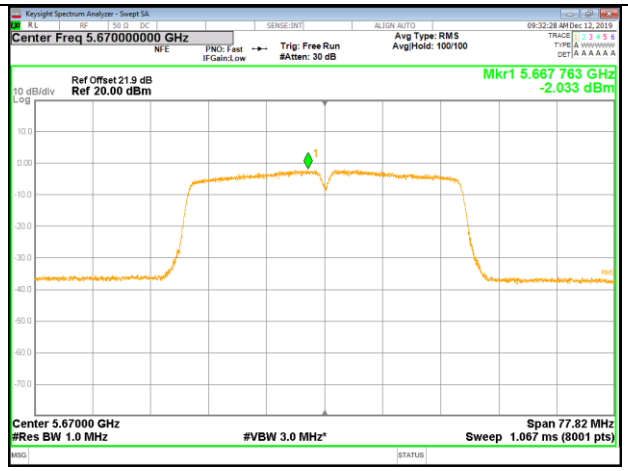
ANT 0, HIGH CHANNEL



ANT 1, LOW CHANNEL

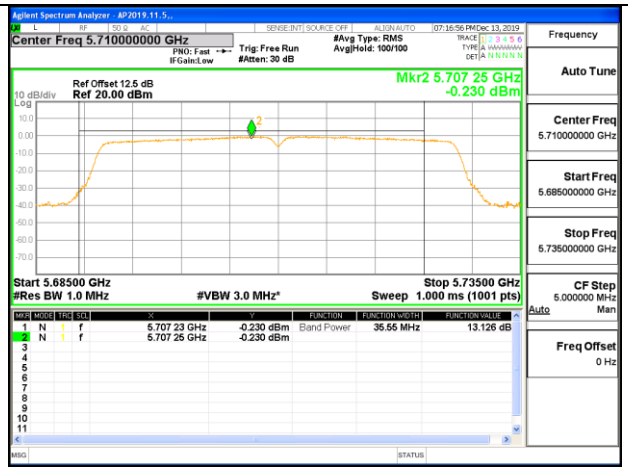


ANT 1, MID CHANNEL



ANT 1, HIGH CHANNEL

ANT 0, CHANNEL 142

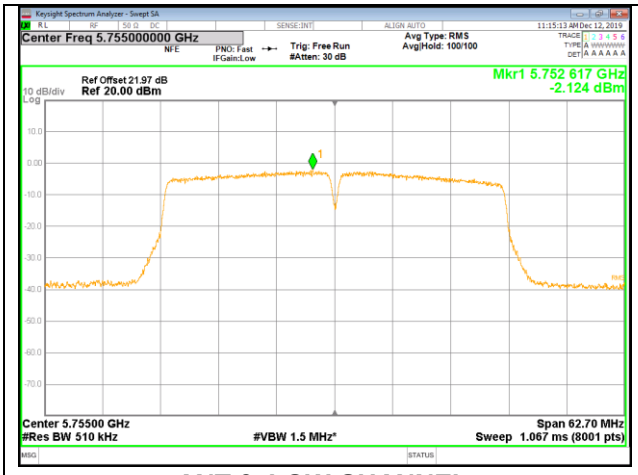


ANT 1, CHANNEL 142

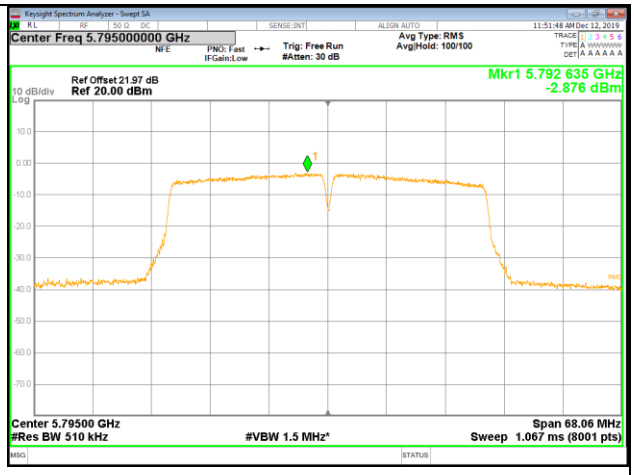
UNII-3 BAND

Test Channel	Frequency (MHz)	ANT	Meas. Level (dBm/500kHz)		Limit (dBm/500kHz)
			Single	Total	
Low	5755	0	-1.901	0.575	11
		1	-3.044		
High	5795	0	-2.653	0.488	
		1	-2.395		
Channel 142	5710	0	-4.89	-1.858	
		1	-4.846		

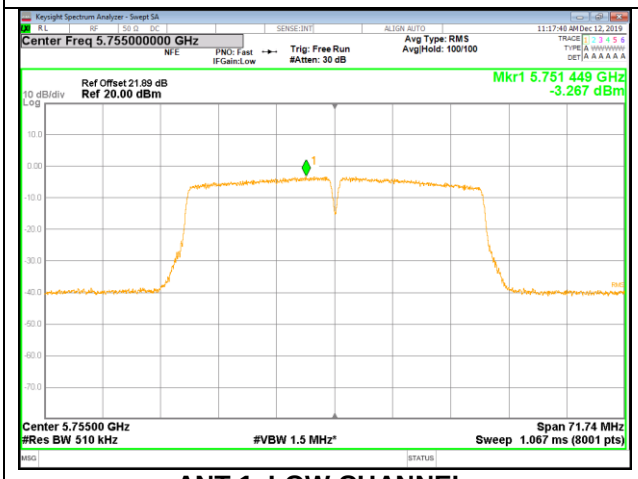
Note: 1.PSD=Meas. Level+ Correction Factor
2. About correction Factor please refer to section 7.1



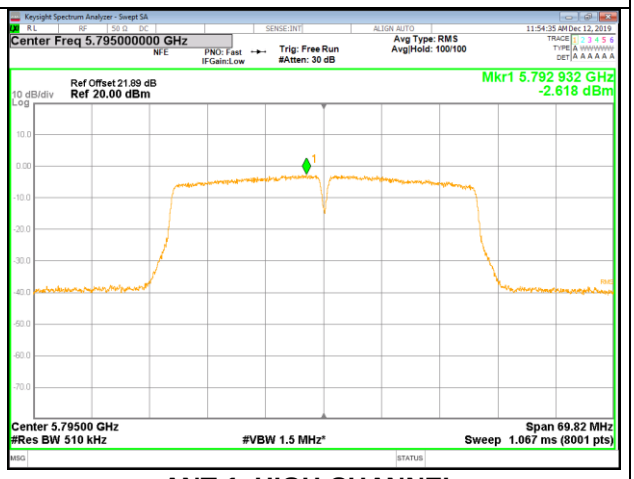
ANT 0, LOW CHANNEL



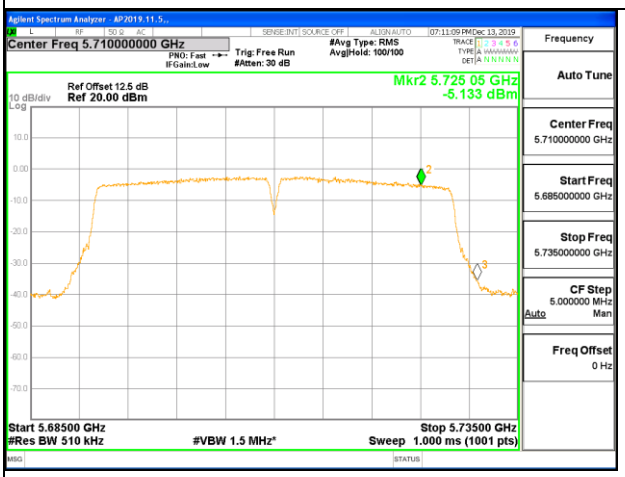
ANT 0, HIGH CHANNEL



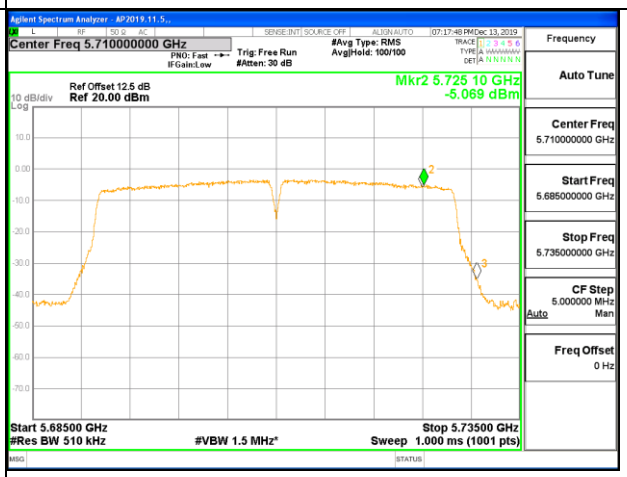
ANT 1, LOW CHANNEL



ANT 1, HIGH CHANNEL



ANT 0, CHANNEL 142



ANT 1, CHANNEL 142

8. RADIATED TEST RESULTS

LIMITS

Please refer to CFR 47 FCC §15.205, §15.209 and §15.407(b) (4)

Please refer to ISED 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.

IC Restricted bands please refer to ISED RSS-GEN Clause 8.10.
FCC Restricted bands please refer to CFR 47 FCC 15.209.

Radiated emissions which fall in the restricted bands must comply with the radiated emission limits specified as below table.

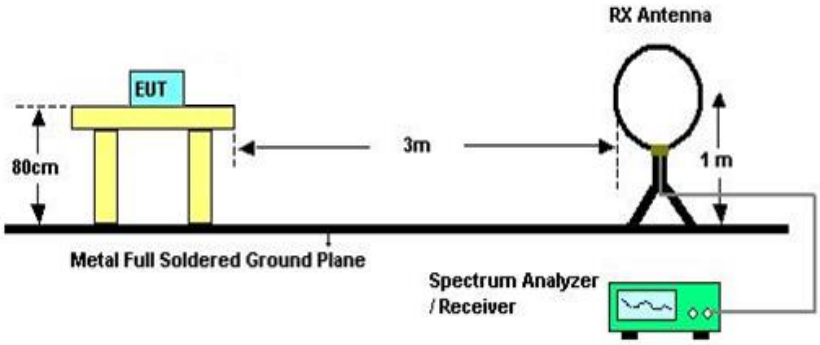
LIMITS OF RADIATED EMISSION MEASUREMENT (Below 1GHz)			
Frequency Range (MHz)	Field Strength Limit (uV/m) at 3 m	Field Strength Limit (dBuV/m) at 3 m	
		Quasi-Peak	
30 - 88	100	40	
88 - 216	150	43.5	
216 - 960	200	46	
Above 960	500	54	
Above 1000	500	Peak	Average
		74	54

Limits of unwanted emission out of the restricted bands

LIMITS OF RADIATED EMISSION MEASUREMENT (Above 1GHz)		
Frequency Range (MHz)	EIRP Limit	Field Strength Limit (dBuV/m) at 3 m
5150~5250 MHz	PK:-27 (dBm/MHz)	PK:68.2(dBμV/m)
5250~5350 MHz		
5470~5725 MHz		
5725~5850 MHz	PK:-27 (dBm/MHz) *1 PK:10 (dBm/MHz) *2 PK:15.6 (dBm/MHz) *3 PK:27 (dBm/MHz) *4	PK: 68.2(dBμV/m) *1 PK:105.2 (dBμV/m) *2 PK: 110.8(dBμV/m) *3 PK:122.2 (dBμV/m) *4
Note: *1 beyond 75 MHz or more above of the band edge. *2 below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above. *3 below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above. *4 from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.		

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.

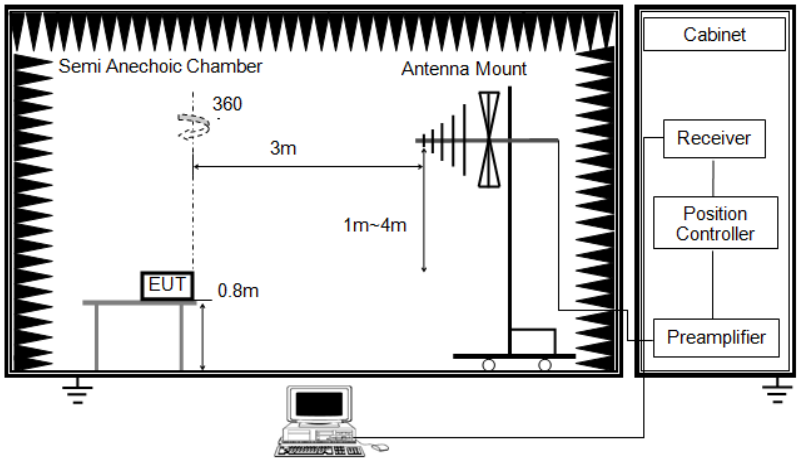
3. The EUT was placed on a turntable with 0.8 meter above ground.

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. Although these tests were performed other than open field site, adequate comparison measurements were confirmed against 30m open field 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 site based on KDB 414788.

Below 1G



The setting of the spectrum analyser

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

1. The testing follows the guidelines in ANSI C63.10-2013.

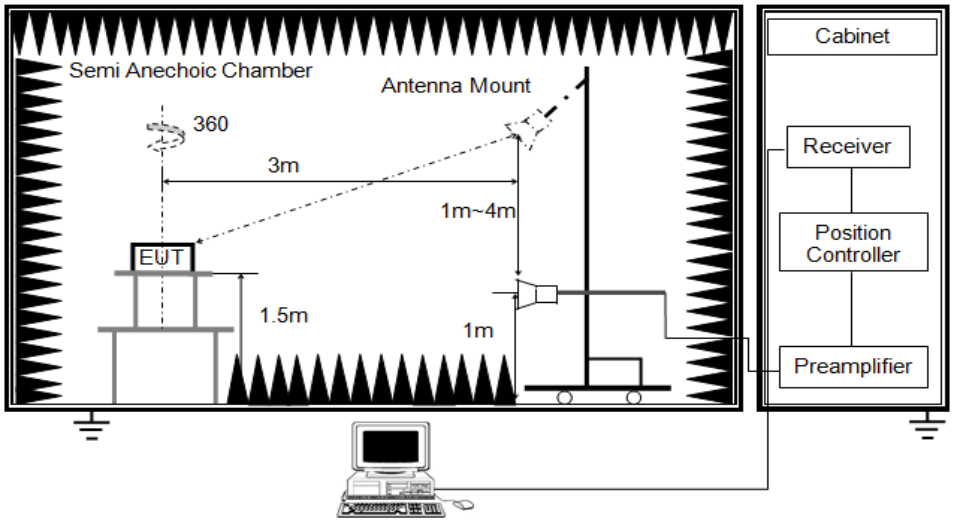
2. The EUT was arranged to its worst case and then tune the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better signal level. Both horizontal and vertical polarizations 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.

Above 1G



The setting of the spectrum analyser

RBW	1MHz
VBW	PEAK: 3MHz 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.

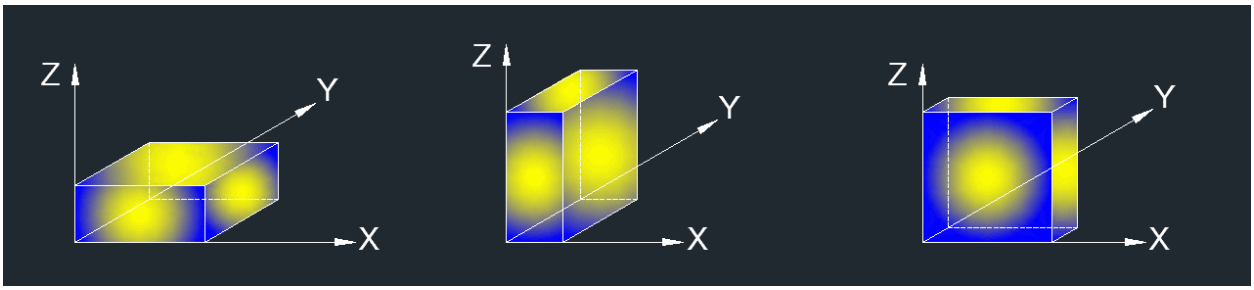
3. The EUT was placed on a turntable with 1.5m above ground.

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 for average measurements. For the Duty Cycle please refer to clause 7.1.ON TIME AND DUTY CYCLE.

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: The EUT was fully exercised with external accessories during the test. In the case of multiple accessory external ports, an external accessory shall be connected to one of each type of port.

TEST ENVIRONMENT

Temperature	23.5°C	Relative Humidity	60%
Atmosphere Pressure	101kPa	Test Voltage	DC 3.3V

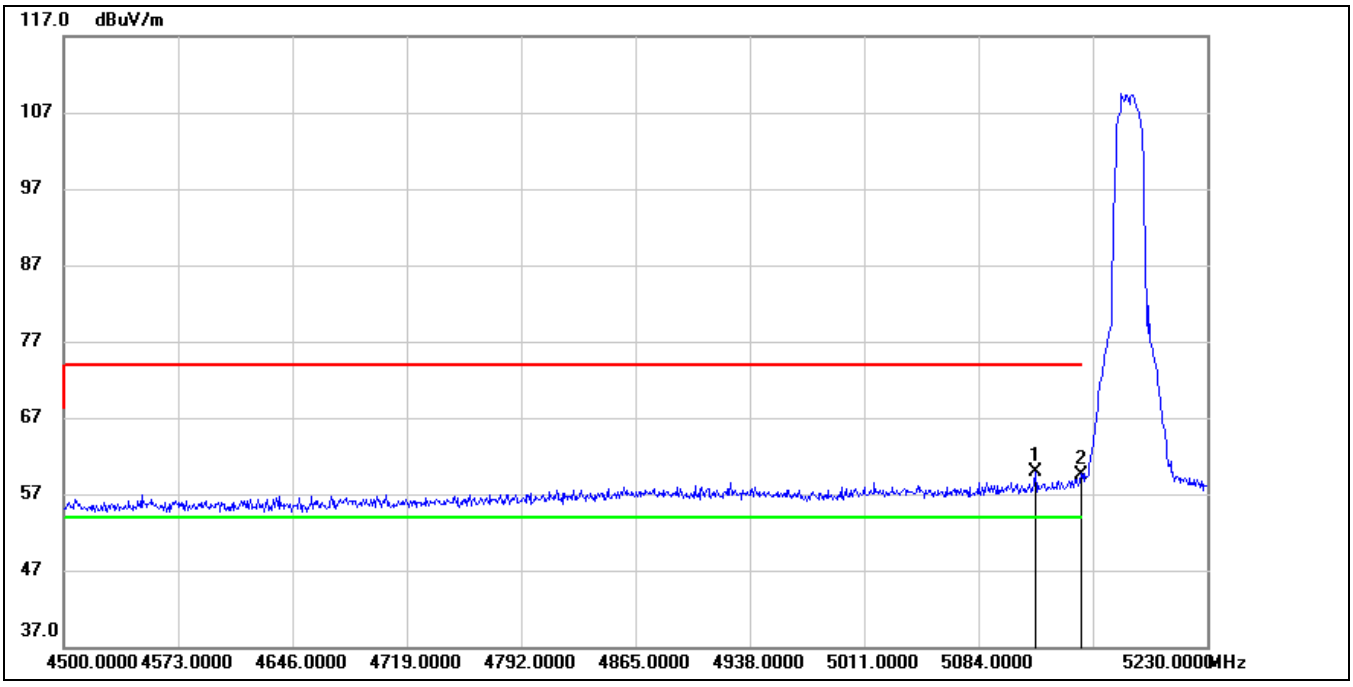
8.1. 802.11a SISO MODE

ANTENNA 0 (WORST-CASE CONFIGURATION)

8.1.1. UNII-1 BAND

RESTRICTED BANDEDGE LOW CHANNEL

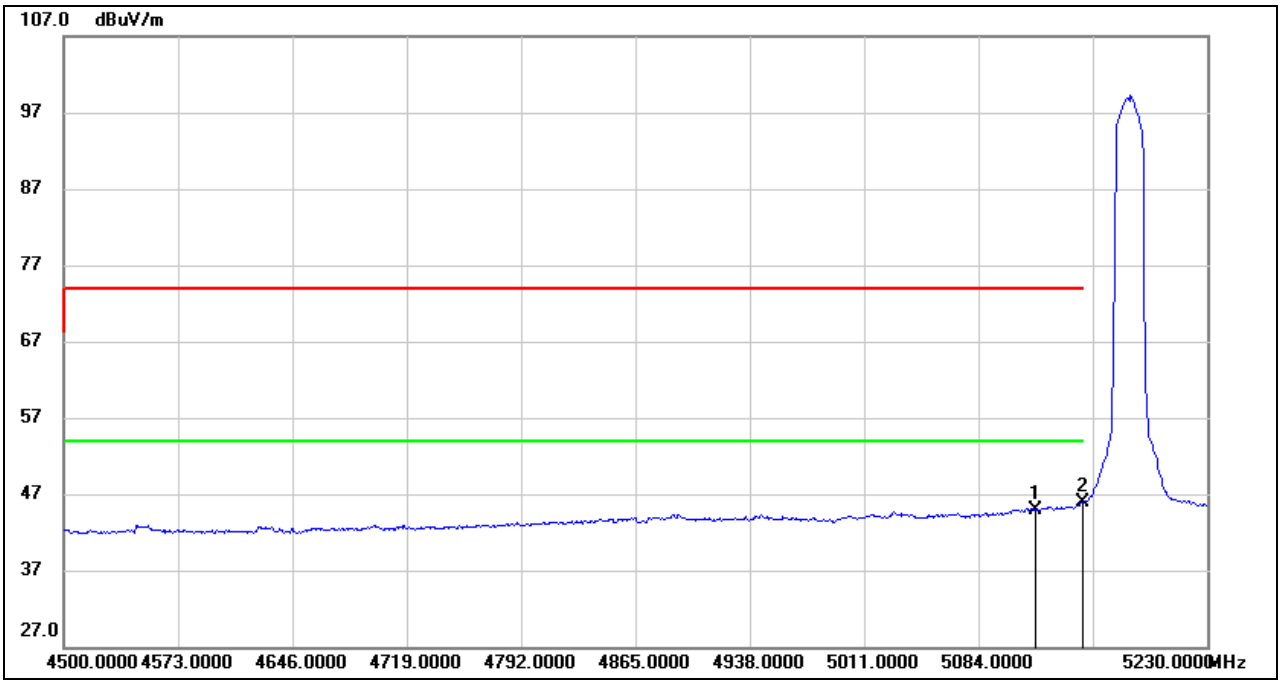
HORIZONTAL RESULTS
PEAK



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	5120.500	19.60	40.29	59.89	74.00	-14.11	peak
2	5150.000	19.04	40.46	59.50	74.00	-14.50	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.
4. Only the worst case emission will be recorder, if it complies with the limit, the other emissions deemed to comply with the limit.

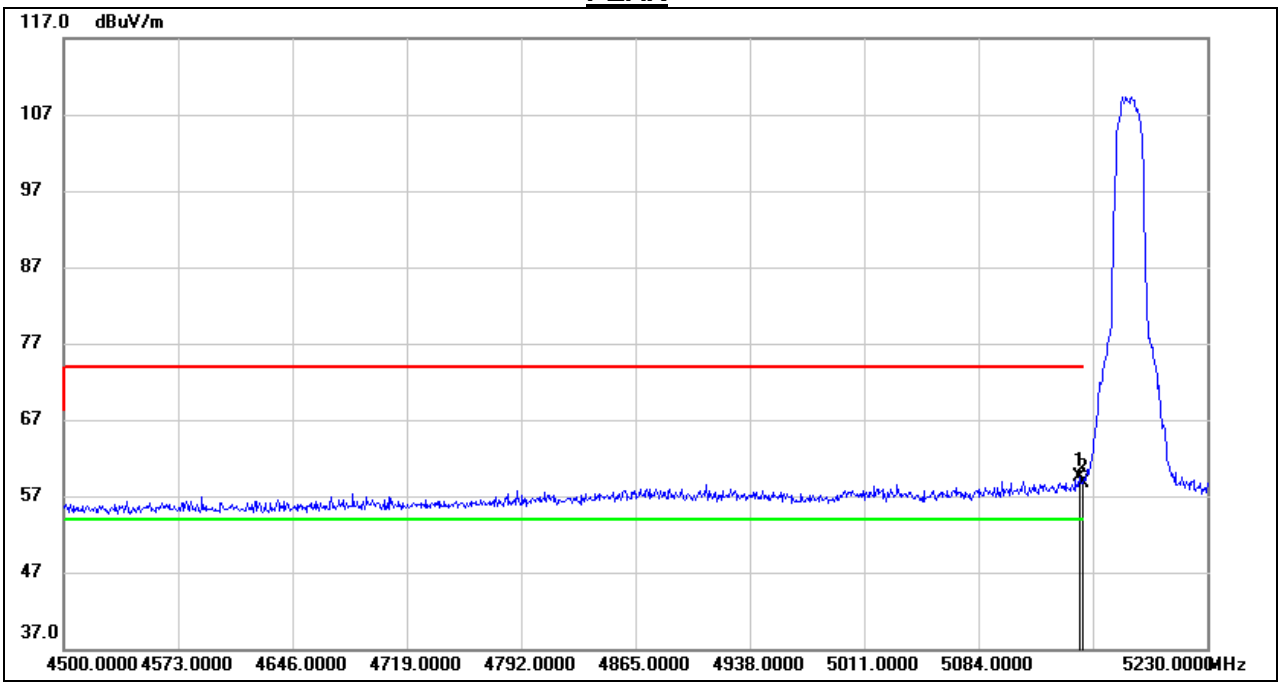
AVG



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5120.500	4.60	40.29	44.89	54.00	-9.11	AVG
2	5150.000	5.48	40.46	45.94	54.00	-8.06	AVG

Note: 1. Measurement = Reading Level + Correct Factor.
2. AVG: VBW=1/Ton where: ton is transmit duration.
3. For duty cycle, please refer to clause 7.1.
4. Only the worst case emission will be recorder, if it complies with the limit, the other emissions deemed to comply with the limit.

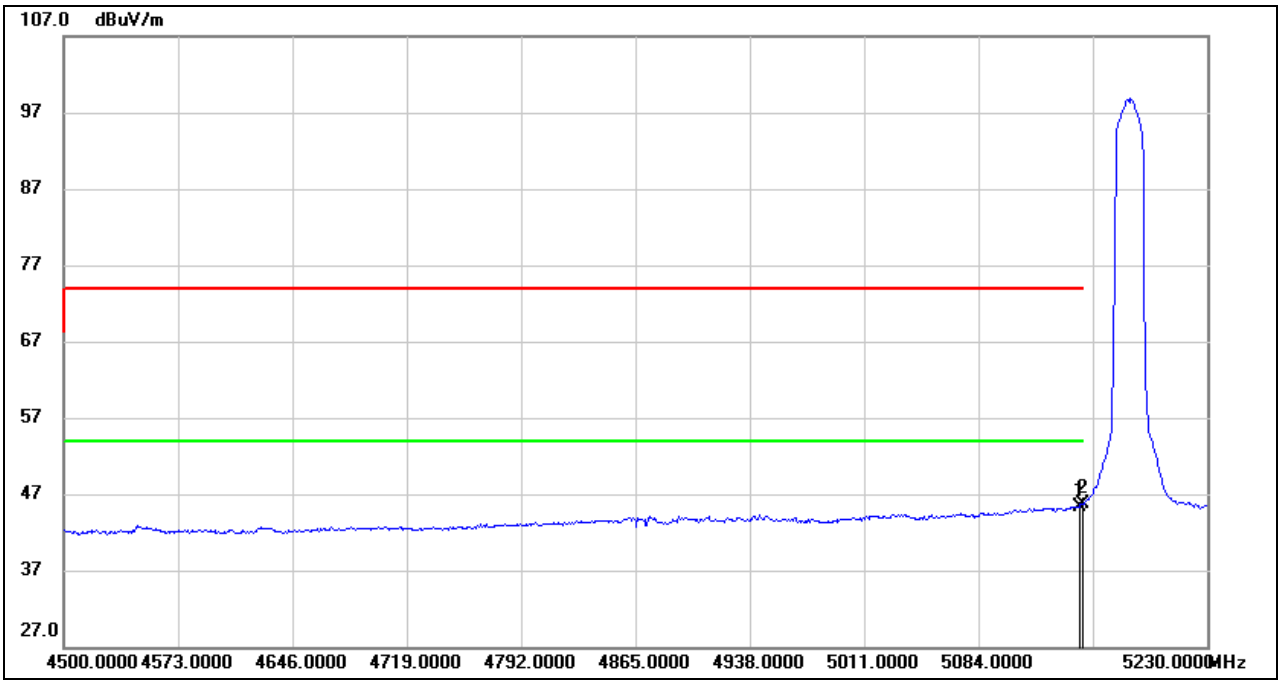
VERTICAL RESULTS
PEAK



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5148.240	19.04	40.46	59.50	74.00	-14.50	peak
2	5150.000	18.32	40.46	58.78	74.00	-15.22	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.
4. Only the worst case emission will be recorder, if it complies with the limit, the other emissions deemed to comply with the limit.

AVG

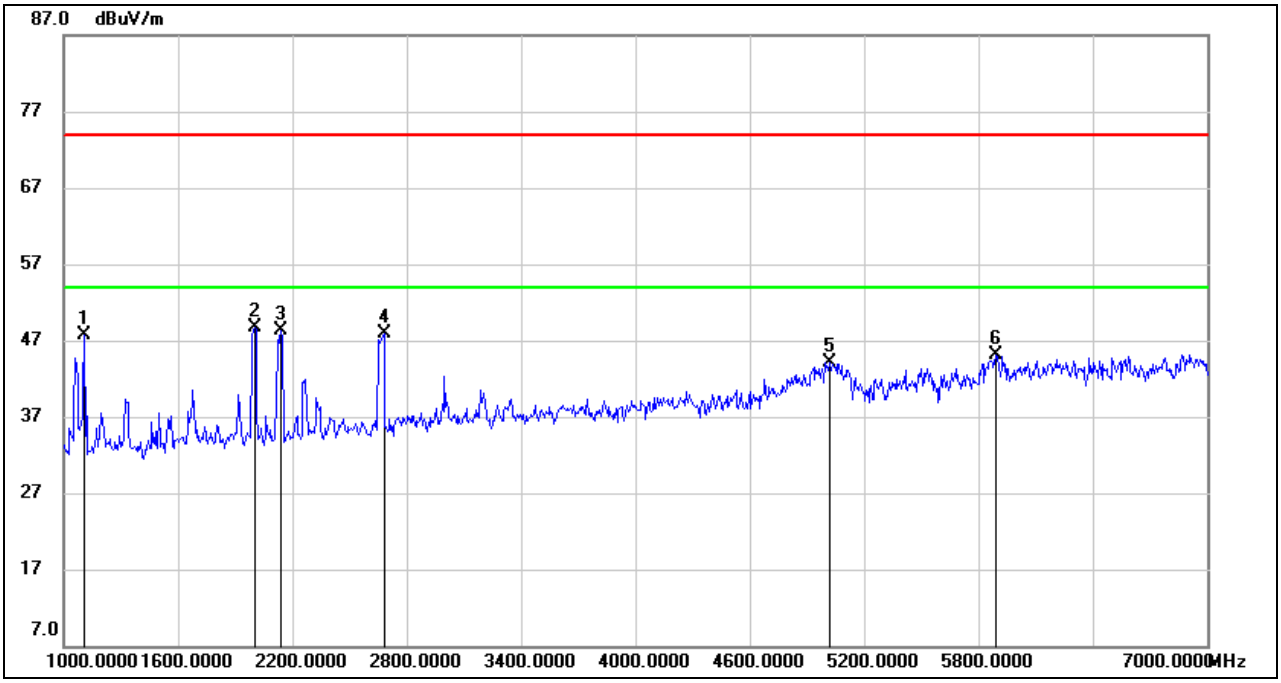


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5148.240	4.85	40.46	45.31	54.00	-8.69	AVG
2	5150.000	5.24	40.46	45.70	54.00	-8.30	AVG

Note: 1. Measurement = Reading Level + Correct Factor.
2. AVG: VBW=1/Ton where: ton is transmit duration.
3. For duty cycle, please refer to clause 7.1.
4. Only the worst case emission will be recorder, if it complies with the limit, the other emissions deemed to comply with the limit.

HARMONICS AND SPURIOUS EMISSIONS LOW CHANNEL

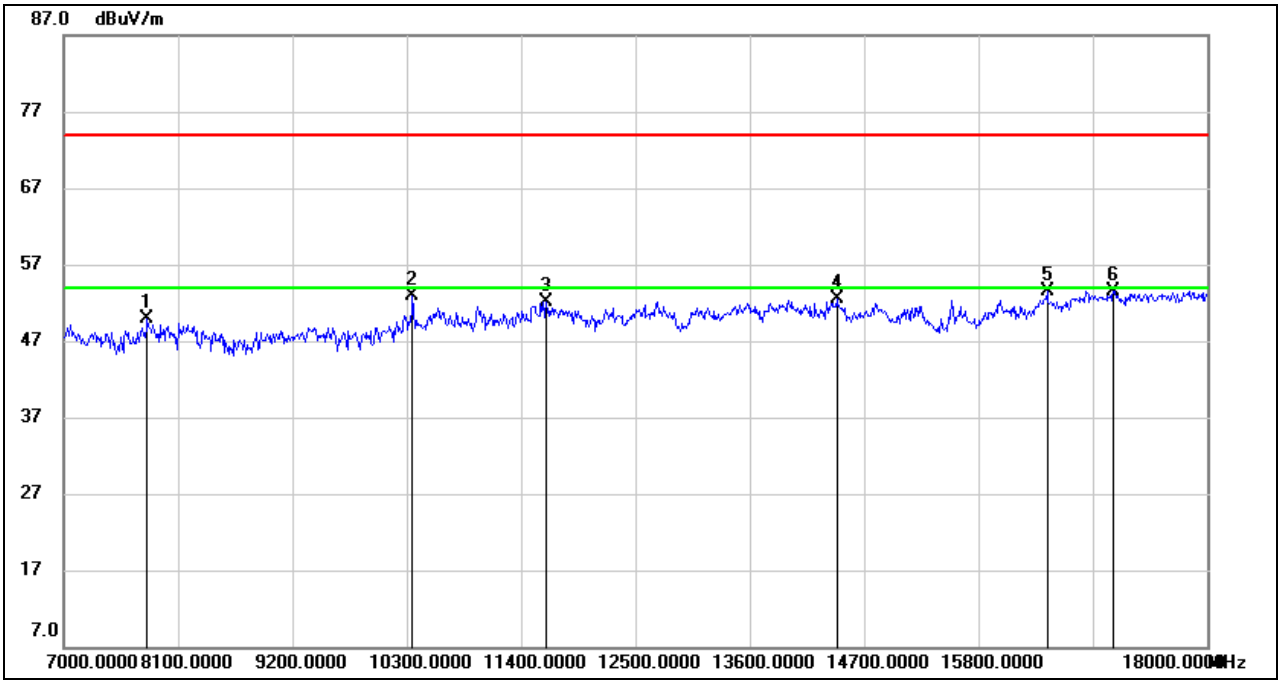
HORIZONTAL RESULTS
1-7GHz



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1108.000	62.05	-14.35	47.70	74.00	-26.30	peak
2	2002.000	59.51	-10.85	48.66	74.00	-25.34	peak
3	2140.000	58.29	-10.05	48.24	74.00	-25.76	peak
4	2680.000	55.93	-8.04	47.89	74.00	-26.11	peak
5	5020.000	44.19	-0.03	44.16	74.00	-29.84	peak
6	5890.000	40.47	4.68	45.15	74.00	-28.85	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.
4. Filter losses were only considered in then spurious frequency bands and the authorized band was not corrected for BRF losses.
5. Proper operation of the transmitter prior to adding the filter to the measurement chain.
6. Owing to the highest peak level of unwanted emission out of the restricted bands complies with the lowest limit(54dBuV/m), so all the test point were deemed to comply with the limits list in the standard.

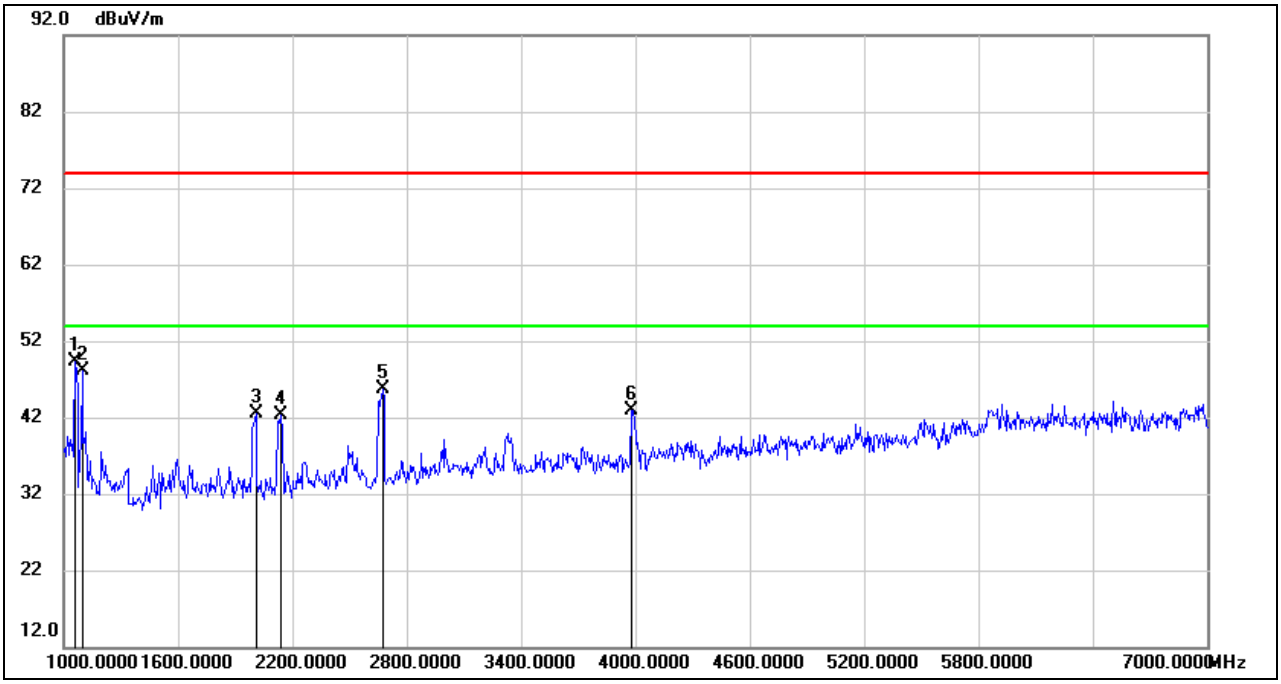
HORIZONTAL RESULTS
7-18GHz



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	7803.000	40.37	9.63	50.00	74.00	-24.00	peak
2	10355.000	40.69	12.14	52.83	74.00	-21.17	peak
3	11642.000	37.69	14.42	52.11	74.00	-21.89	peak
4	14436.000	35.51	16.95	52.46	74.00	-21.54	peak
5	16460.000	33.86	19.65	53.51	74.00	-20.49	peak
6	17098.000	32.23	21.28	53.51	74.00	-20.49	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.
4. The High Pass filter loss factor already add into the correct factor.
5. Proper operation of the transmitter prior to adding the filter to the measurement chain.
6. Owing to the highest peak level of unwanted emission out of the restricted bands complies with the lowest limit(54dBuV/m), so all the test point were deemed to comply with the limits list in the standard.

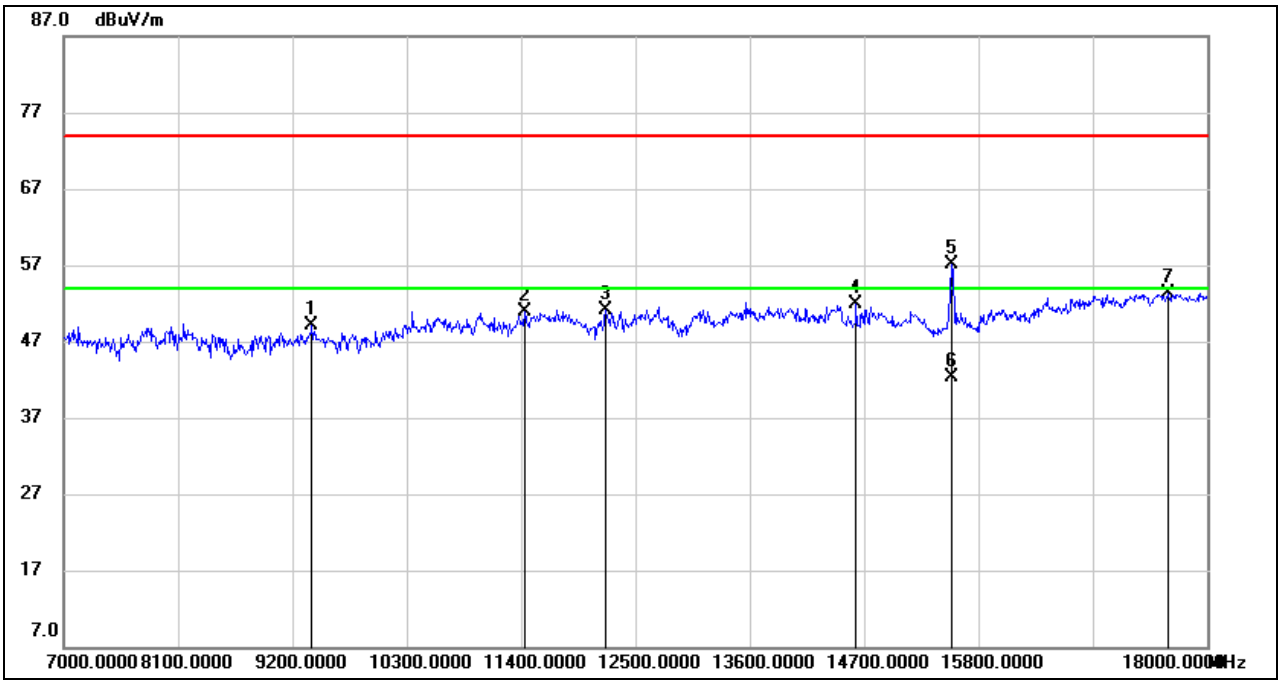
VERTICAL RESULTS
1-7GHz



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1060.000	63.90	-14.51	49.39	74.00	-24.61	peak
2	1096.000	62.50	-14.43	48.07	74.00	-25.93	peak
3	2008.000	53.27	-10.81	42.46	74.00	-31.54	peak
4	2140.000	52.35	-10.05	42.30	74.00	-31.70	peak
5	2674.000	53.79	-8.08	45.71	74.00	-28.29	peak
6	3976.000	46.93	-4.11	42.82	74.00	-31.18	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.
4. Filter losses were only considered in then spurious frequency bands and the authorized band was not corrected for BRF losses.
5. Proper operation of the transmitter prior to adding the filter to the measurement chain.
6. Owing to the highest peak level of unwanted emission out of the restricted bands complies with the lowest limit(54dBuV/m), so all the test point were deemed to comply with the limits list in the standard.

7-18GHz

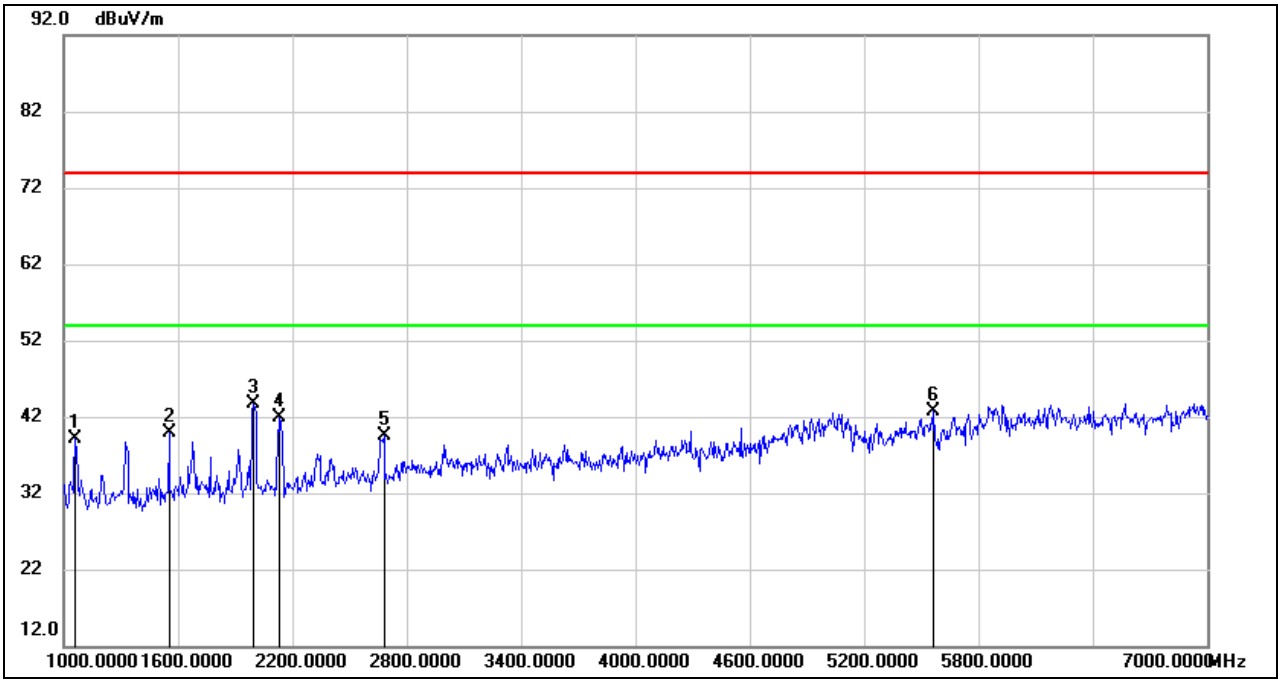


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	9387.000	38.19	10.89	49.08	74.00	-24.92	peak
2	11433.000	36.86	14.02	50.88	74.00	-23.12	peak
3	12214.000	36.12	15.03	51.15	74.00	-22.85	peak
4	14623.000	35.61	16.25	51.86	74.00	-22.14	peak
5	15547.000	40.42	16.74	57.16	74.00	-16.84	peak
6	15547.000	25.66	16.74	42.40	54.00	-11.60	AVG
7	17626.000	31.10	22.15	53.25	74.00	-20.75	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.
4. The High Pass filter loss factor already add into the correct factor.
5. Proper operation of the transmitter prior to adding the filter to the measurement chain.
6. Owing to the highest peak level of unwanted emission out of the restricted bands complies with the lowest limit(54dBuV/m), so all the test point were deemed to comply with the limits list in the standard.

HARMONICS AND SPURIOUS EMISSIONS MID CHANNEL

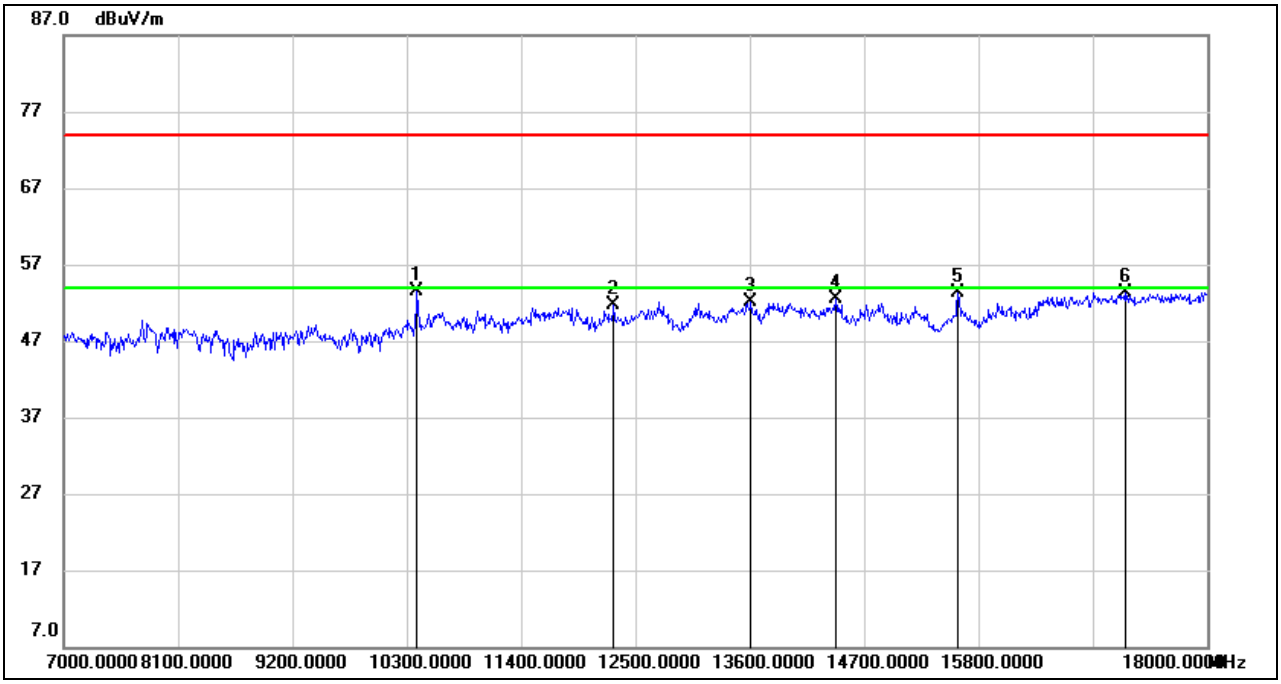
HORIZONTAL RESULTS
1-7GHz



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1060.000	53.68	-14.51	39.17	74.00	-34.83	peak
2	1552.000	52.55	-12.64	39.91	74.00	-34.09	peak
3	1996.000	54.53	-10.86	43.67	74.00	-30.33	peak
4	2134.000	51.90	-10.07	41.83	74.00	-32.17	peak
5	2680.000	47.52	-8.04	39.48	74.00	-34.52	peak
6	5566.000	40.49	2.19	42.68	74.00	-31.32	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.
4. Filter losses were only considered in then spurious frequency bands and the authorized band was not corrected for BRF losses.
5. Proper operation of the transmitter prior to adding the filter to the measurement chain.
6. Owing to the highest peak level of unwanted emission out of the restricted bands complies with the lowest limit(54dBuV/m), so all the test point were deemed to comply with the limits list in the standard.

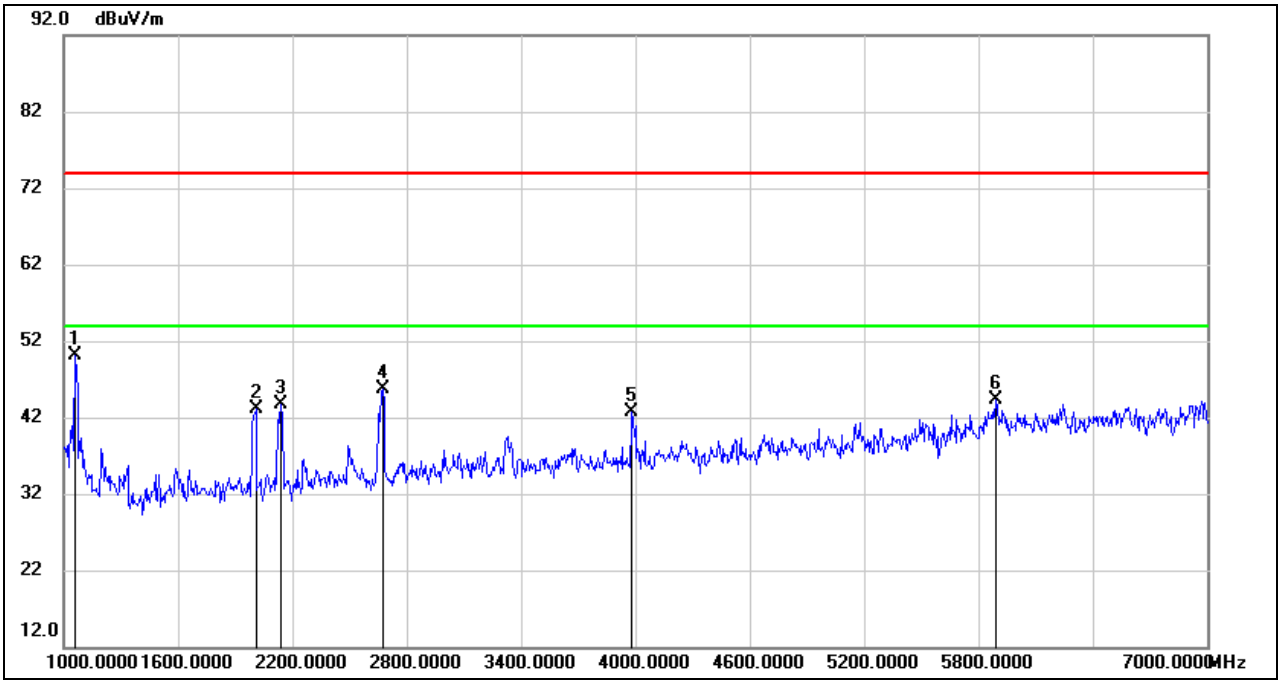
HORIZONTAL RESULTS
7-18GHz



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	10399.000	41.35	12.08	53.43	74.00	-20.57	peak
2	12291.000	36.74	14.98	51.72	74.00	-22.28	peak
3	13611.000	35.54	16.49	52.03	74.00	-21.97	peak
4	14425.000	35.47	16.97	52.44	74.00	-21.56	peak
5	15602.000	36.31	17.03	53.34	74.00	-20.66	peak
6	17208.000	31.75	21.61	53.36	74.00	-20.64	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.
4. The High Pass filter loss factor already add into the correct factor.
5. Proper operation of the transmitter prior to adding the filter to the measurement chain.
6. Owing to the highest peak level of unwanted emission out of the restricted bands complies with the lowest limit(54dBuV/m), so all the test point were deemed to comply with the limits list in the standard.

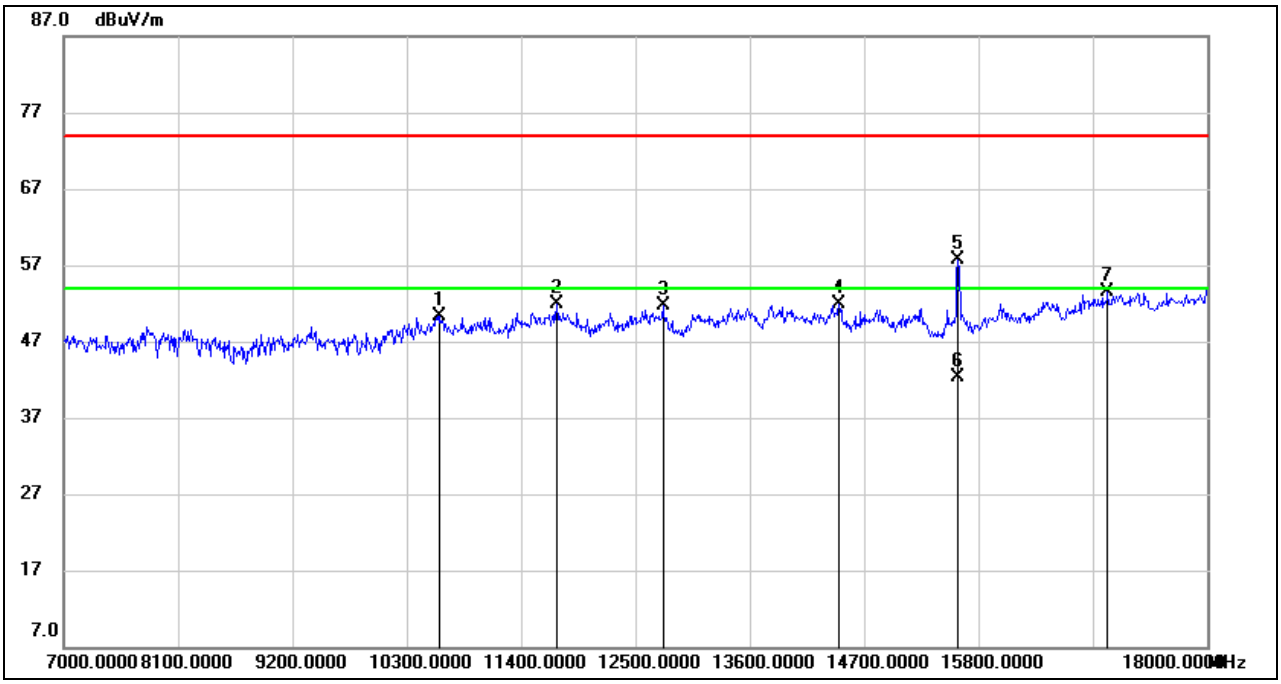
VERTICAL RESULTS
1-7GHz



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1060.000	64.53	-14.51	50.02	74.00	-23.98	peak
2	2008.000	53.93	-10.81	43.12	74.00	-30.88	peak
3	2140.000	53.69	-10.05	43.64	74.00	-30.36	peak
4	2674.000	53.87	-8.08	45.79	74.00	-28.21	peak
5	3982.000	46.85	-4.10	42.75	74.00	-31.25	peak
6	5890.000	39.53	4.68	44.21	74.00	-29.79	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.
4. Filter losses were only considered in then spurious frequency bands and the authorized band was not corrected for BRF losses.
5. Proper operation of the transmitter prior to adding the filter to the measurement chain.
6. Owing to the highest peak level of unwanted emission out of the restricted bands complies with the lowest limit(54dBuV/m), so all the test point were deemed to comply with the limits list in the standard.

7-18GHz

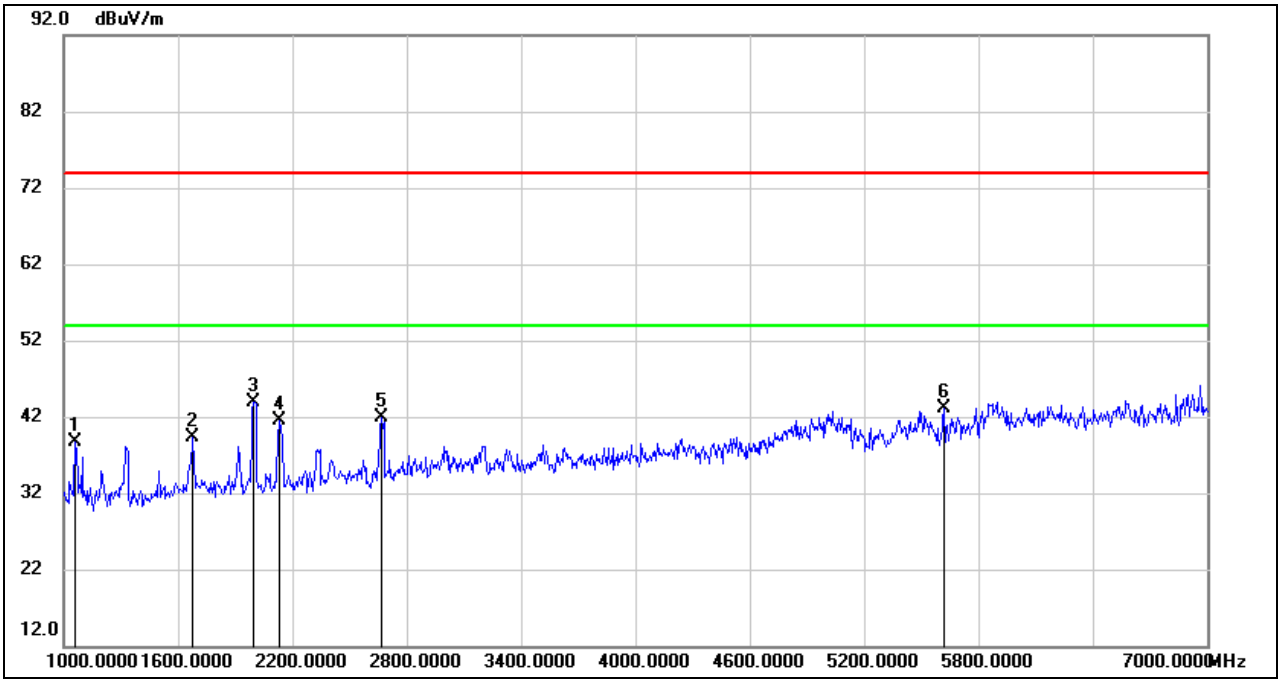


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	10619.000	37.11	13.27	50.38	74.00	-23.62	peak
2	11741.000	37.73	14.24	51.97	74.00	-22.03	peak
3	12764.000	35.91	15.84	51.75	74.00	-22.25	peak
4	14458.000	35.06	16.91	51.97	74.00	-22.03	peak
5	15602.000	40.59	17.03	57.62	74.00	-16.38	peak
6	15602.000	25.30	17.03	42.33	54.00	-11.67	AVG
7	17043.000	32.30	21.16	53.46	74.00	-20.54	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.
4. The High Pass filter loss factor already add into the correct factor.
5. Proper operation of the transmitter prior to adding the filter to the measurement chain.
6. Owing to the highest peak level of unwanted emission out of the restricted bands complies with the lowest limit(54dBuV/m), so all the test point were deemed to comply with the limits list in the standard.

HARMONICS AND SPURIOUS EMISSIONS HIGH CHANNEL

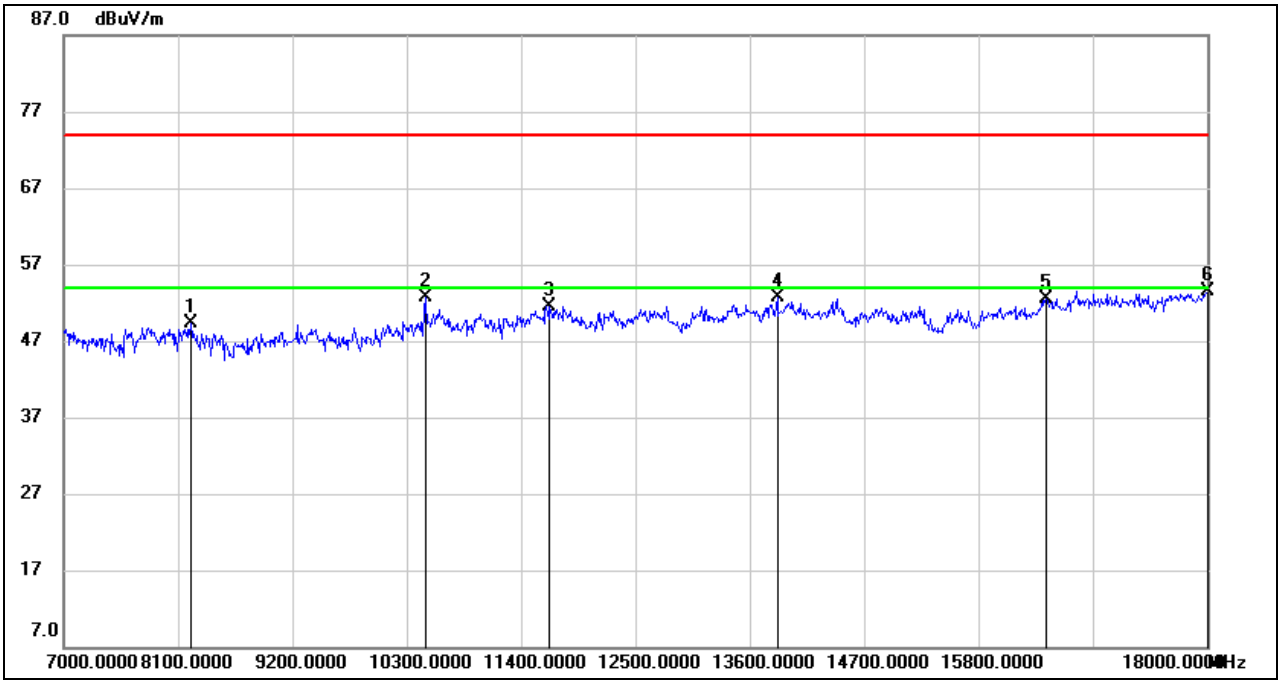
HORIZONTAL RESULTS
1-7GHz



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1060.000	53.29	-14.51	38.78	74.00	-35.22	peak
2	1678.000	51.30	-12.06	39.24	74.00	-34.76	peak
3	1996.000	54.79	-10.86	43.93	74.00	-30.07	peak
4	2134.000	51.50	-10.07	41.43	74.00	-32.57	peak
5	2668.000	50.09	-8.13	41.96	74.00	-32.04	peak
6	5620.000	40.88	2.13	43.01	74.00	-30.99	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.
4. Filter losses were only considered in then spurious frequency bands and the authorized band was not corrected for BRF losses.
5. Proper operation of the transmitter prior to adding the filter to the measurement chain.
6. Owing to the highest peak level of unwanted emission out of the restricted bands complies with the lowest limit(54dBuV/m), so all the test point were deemed to comply with the limits list in the standard.

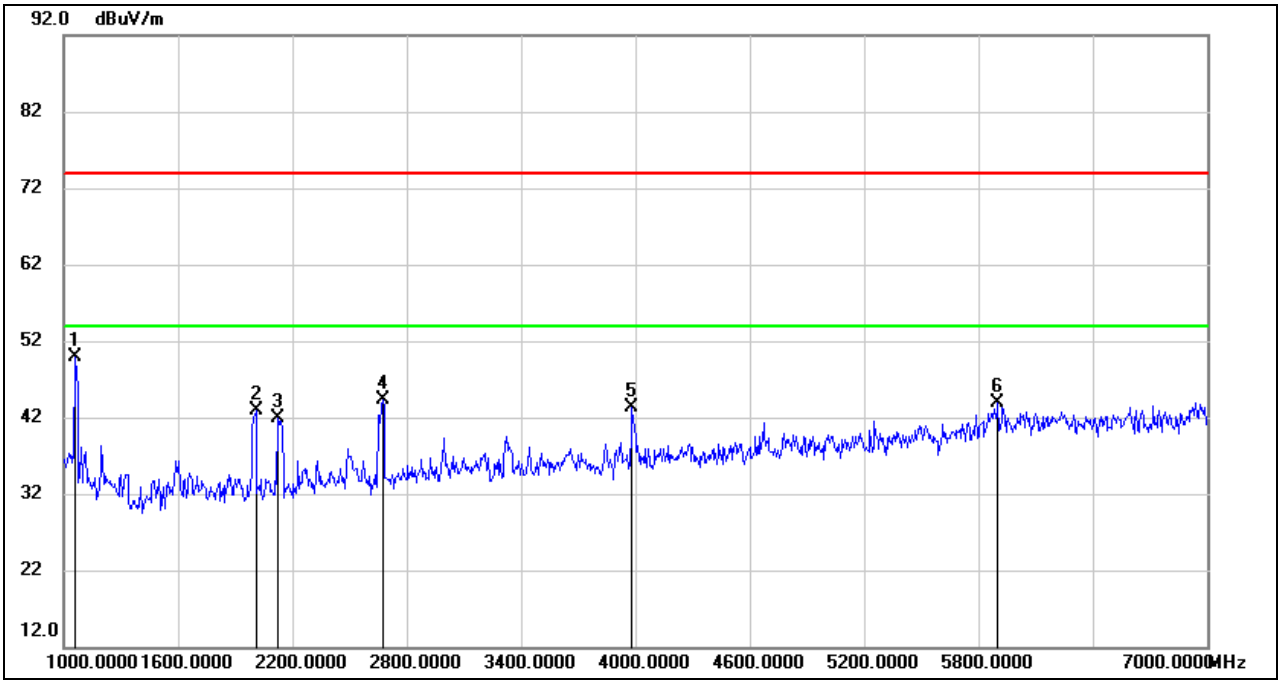
HORIZONTAL RESULTS
7-18GHz



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	8221.000	39.16	10.06	49.22	74.00	-24.78	peak
2	10476.000	40.51	12.23	52.74	74.00	-21.26	peak
3	11675.000	37.29	14.26	51.55	74.00	-22.45	peak
4	13864.000	35.64	17.02	52.66	74.00	-21.34	peak
5	16449.000	32.85	19.61	52.46	74.00	-21.54	peak
6	18000.000	30.07	23.48	53.55	74.00	-20.45	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.
4. The High Pass filter loss factor already add into the correct factor.
5. Proper operation of the transmitter prior to adding the filter to the measurement chain.
6. Owing to the highest peak level of unwanted emission out of the restricted bands complies with the lowest limit(54dBuV/m), so all the test point were deemed to comply with the limits list in the standard.

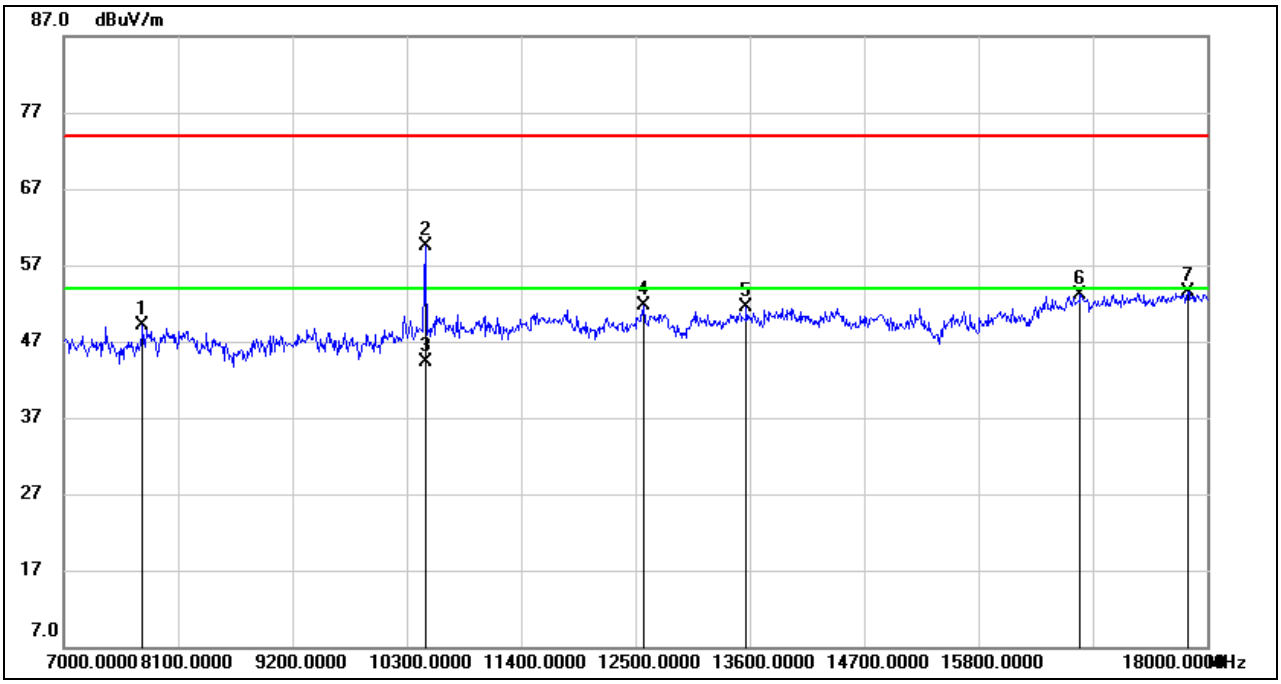
VERTICAL RESULTS
1-7GHz



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1060.000	64.43	-14.51	49.92	74.00	-24.08	peak
2	2008.000	53.81	-10.81	43.00	74.00	-31.00	peak
3	2122.000	51.97	-10.11	41.86	74.00	-32.14	peak
4	2674.000	52.44	-8.08	44.36	74.00	-29.64	peak
5	3982.000	47.49	-4.10	43.39	74.00	-30.61	peak
6	5902.000	39.00	4.83	43.83	74.00	-30.17	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.
4. Filter losses were only considered in then spurious frequency bands and the authorized band was not corrected for BRF losses.
5. Proper operation of the transmitter prior to adding the filter to the measurement chain.
6. Owing to the highest peak level of unwanted emission out of the restricted bands complies with the lowest limit(54dBuV/m), so all the test point were deemed to comply with the limits list in the standard.

7-18GHz



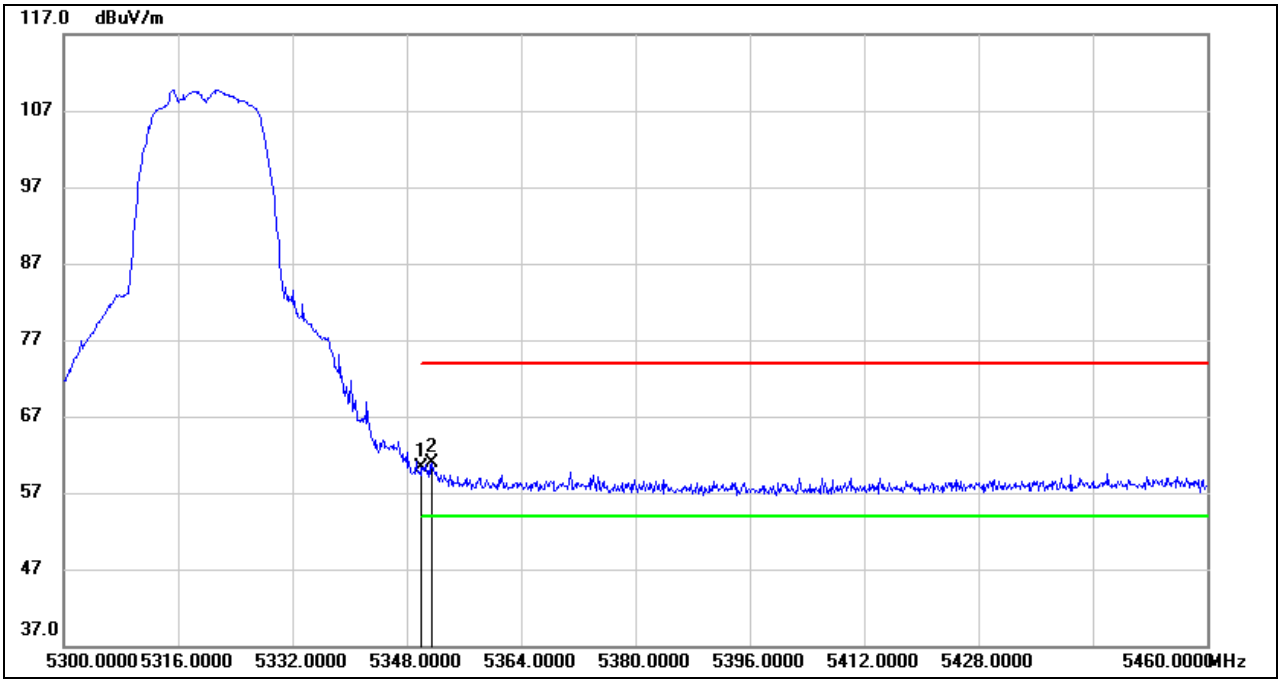
No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	7759.000	40.09	9.09	49.18	74.00	-24.82	peak
2	10476.000	47.30	12.23	59.53	74.00	-14.47	peak
3	10476.000	32.15	12.23	44.38	54.00	-9.62	AVG
4	12577.000	36.79	14.85	51.64	74.00	-22.36	peak
5	13567.000	35.12	16.39	51.51	74.00	-22.49	peak
6	16779.000	32.66	20.49	53.15	74.00	-20.85	peak
7	17813.000	30.00	23.45	53.45	74.00	-20.55	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.
4. The High Pass filter loss factor already add into the correct factor.
5. Proper operation of the transmitter prior to adding the filter to the measurement chain.
6. Owing to the highest peak level of unwanted emission out of the restricted bands complies with the lowest limit(54dBuV/m), so all the test point were deemed to comply with the limits list in the standard.

8.1.2. UNII-2A BAND

RESTRICTED BANDEDGE HIGH CHANNEL

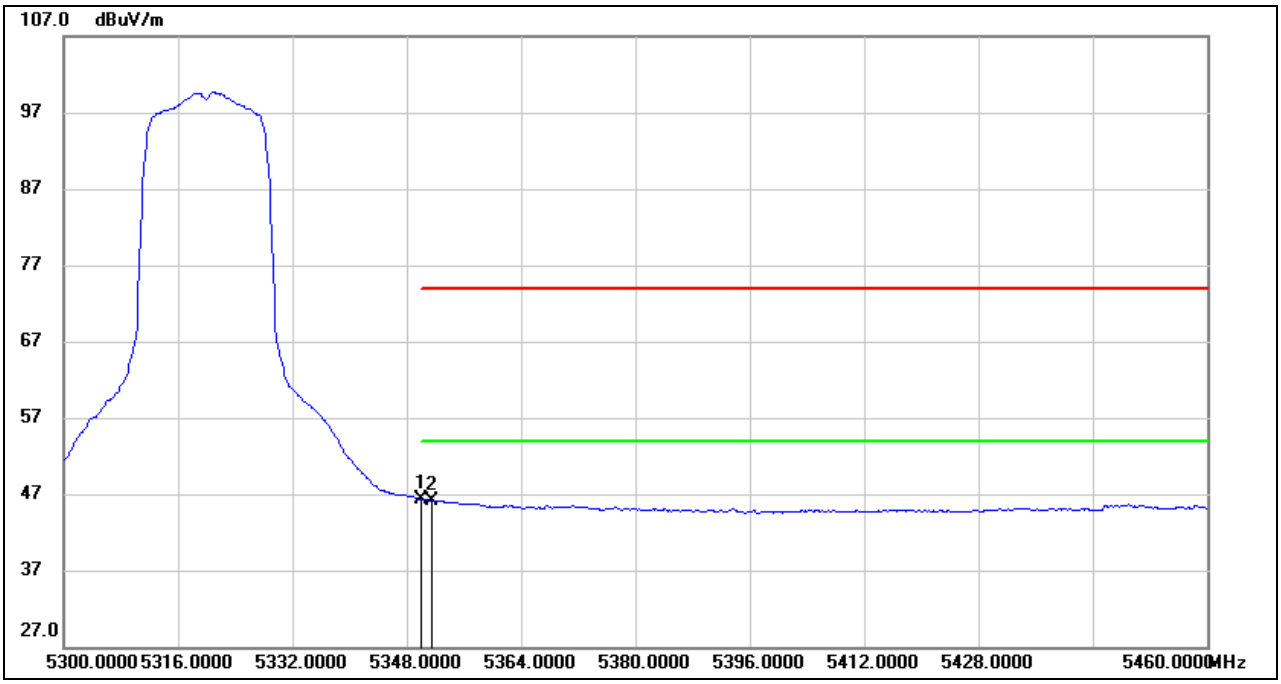
HORIZONTAL RESULTS
PEAK



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	5350.000	19.65	40.64	60.29	74.00	-13.71	peak
2	5351.520	20.20	40.63	60.83	74.00	-13.17	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.
4. Only the worst case emission will be recorder, if it complies with the limit, the other emissions deemed to comply with the limit.

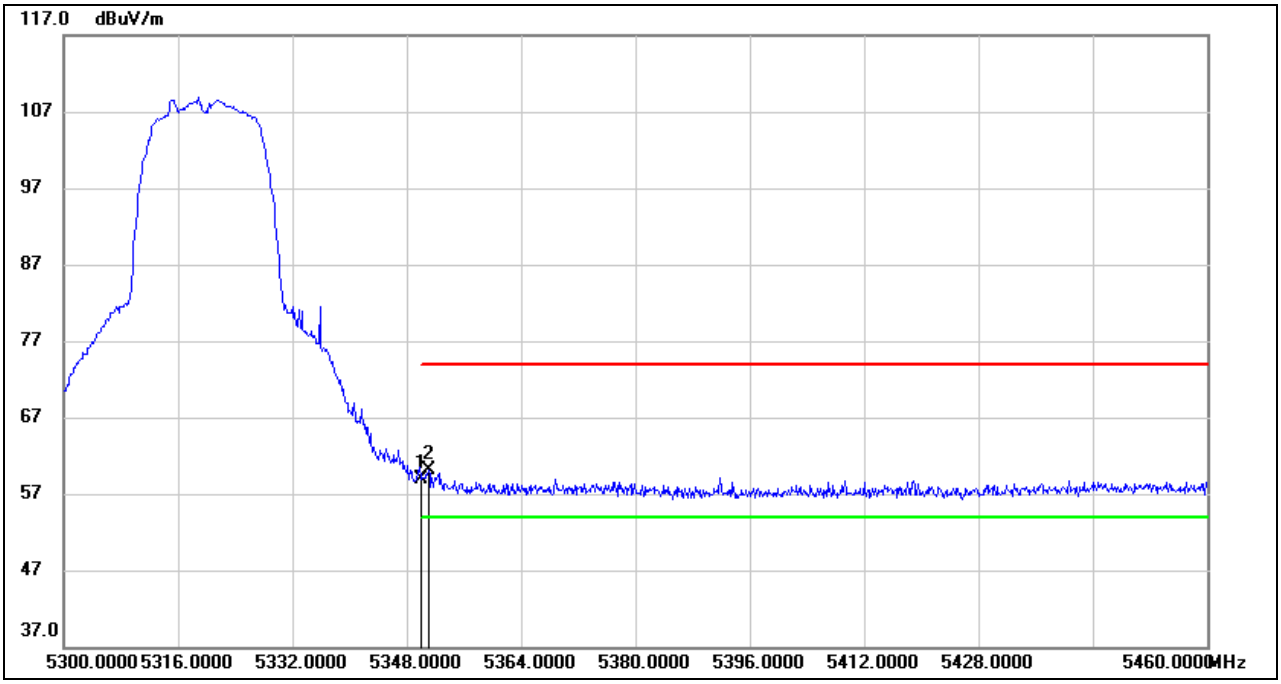
AVG



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5350.000	5.67	40.64	46.31	54.00	-7.69	AVG
2	5351.520	5.51	40.63	46.14	54.00	-7.86	AVG

Note: 1. Measurement = Reading Level + Correct Factor.
2. AVG: VBW=1/Ton where: ton is transmit duration.
3. For duty cycle, please refer to clause 7.1.
4. Only the worst case emission will be recorder, if it complies with the limit, the other emissions deemed to comply with the limit.

VERTICAL RESULTS
PEAK



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5350.000	18.33	40.64	58.97	74.00	-15.03	peak
2	5351.040	19.51	40.64	60.15	74.00	-13.85	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.
4. Only the worst case emission will be recorder, if it complies with the limit, the other emissions deemed to comply with the limit.