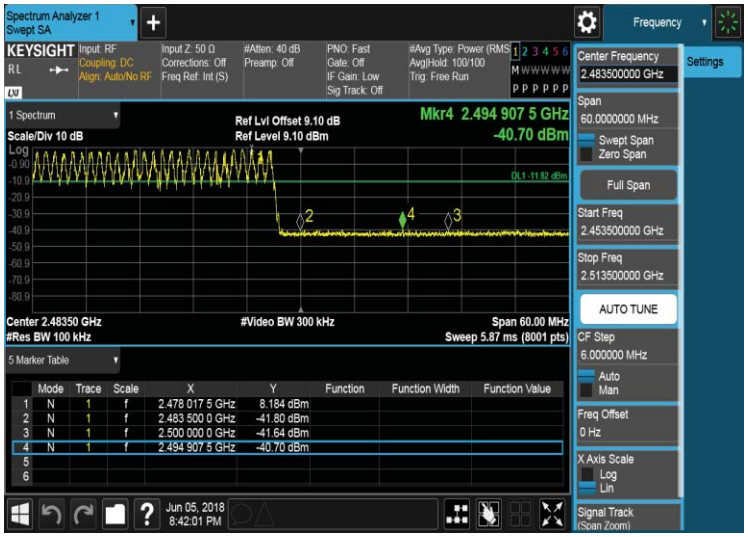
SPURIOUS BANDEDGE EMISSIONS WITH HOPPING ON

LOW CH BANDEDGE WITH HOPPING ON

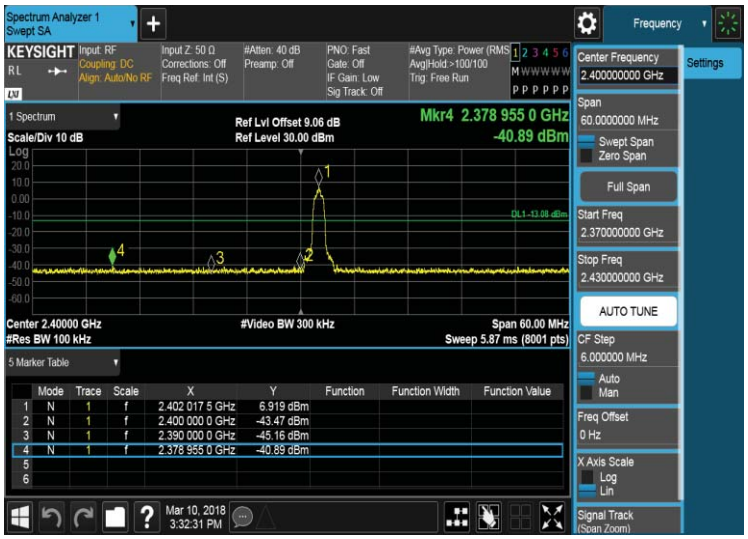
HIGH CH SPURIOUS WITH HOPPING ON



6.7.2. 8DPSK MODE

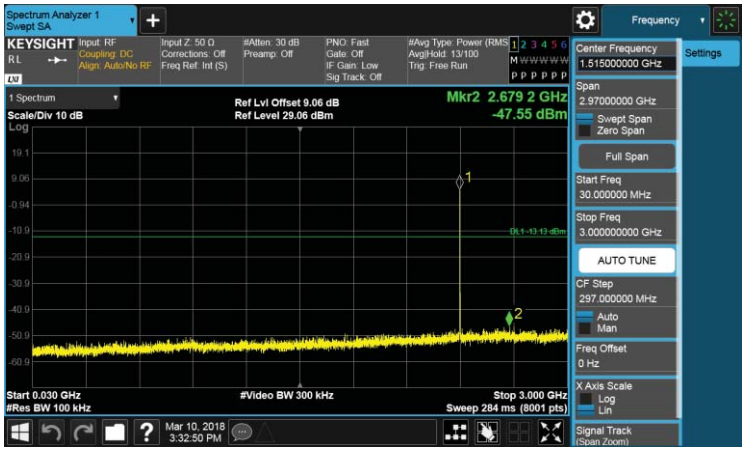
SPURIOUS EMISSIONS, LOW CHANNEL

LOW CH BANDEDGE

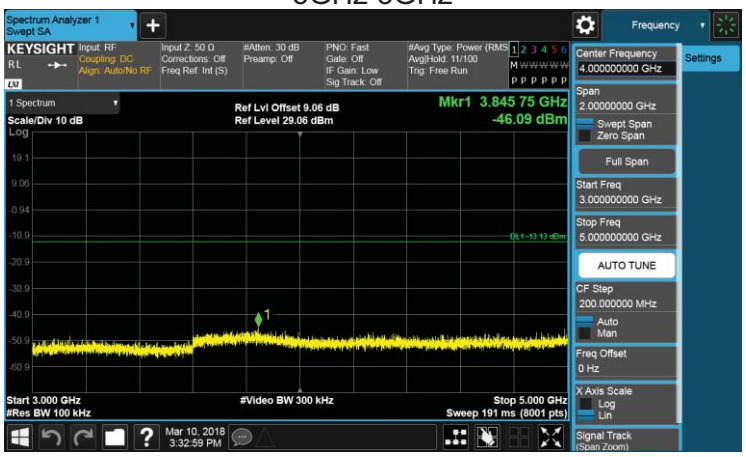


LOW CH SPURIOUS

30MHz-3GHz

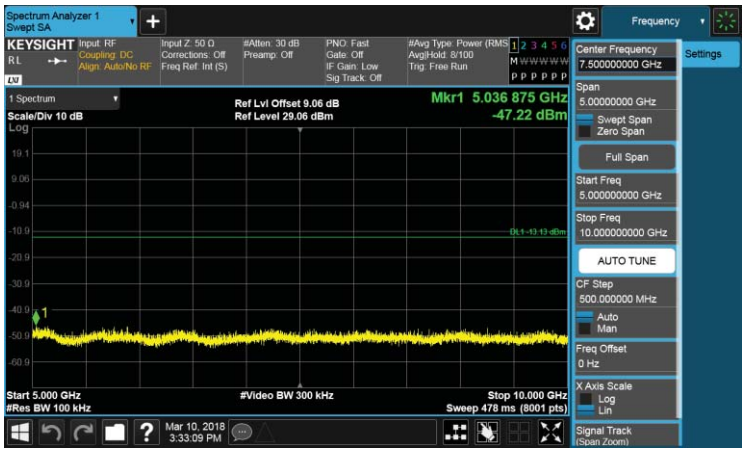


3GHz-5GHz

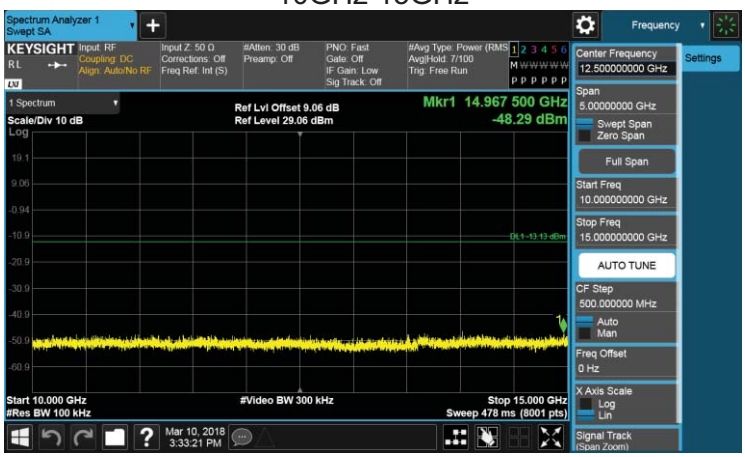


LOW CH SPURIOUS

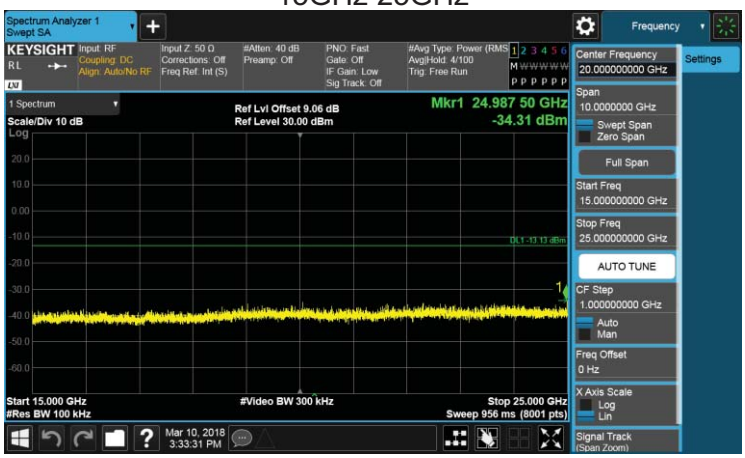
5GHz-10GHz



10GHz-15GHz

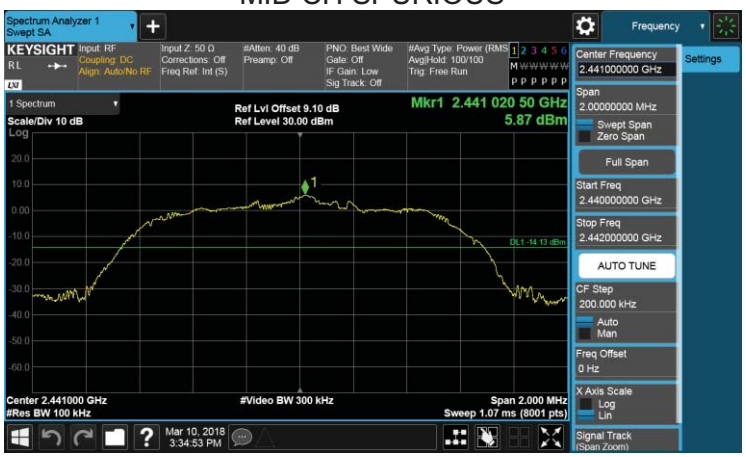


15GHz-25GHz

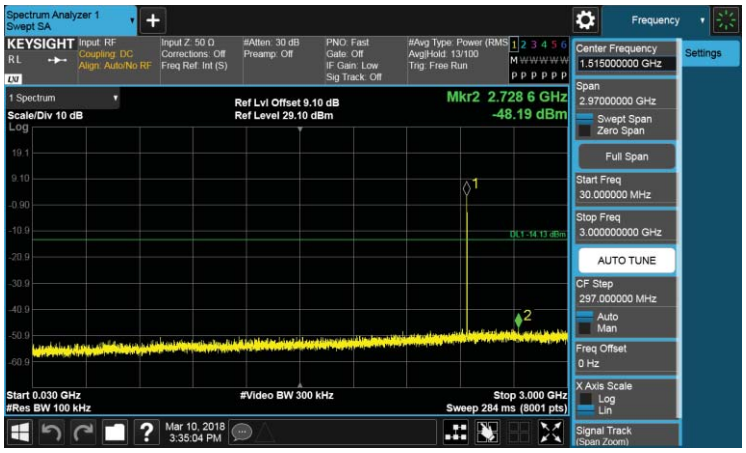


SPURIOUS EMISSIONS, MID CHANNEL

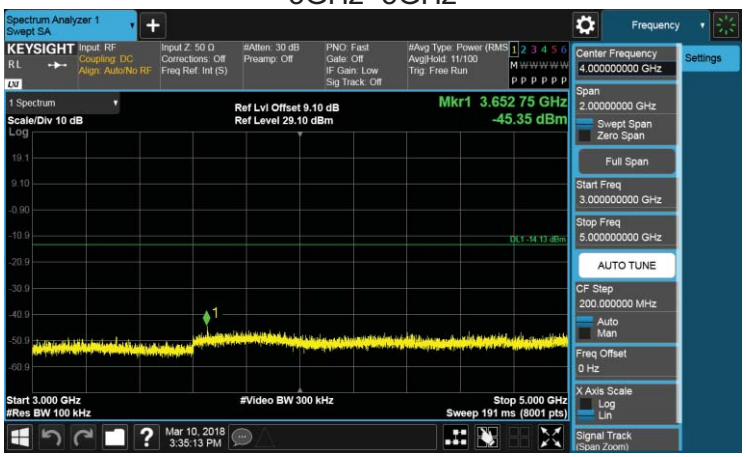
MID CH SPURIOUS



30MHz-3GHz



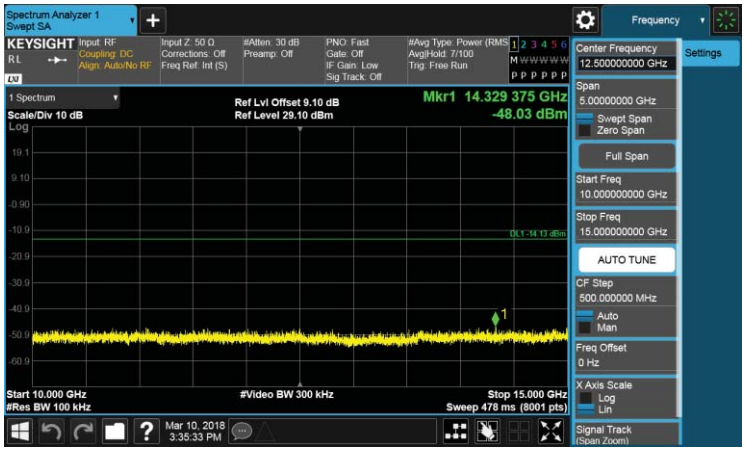
3GHz -5GHz



MID CH SPURIOUS

5GHz -10GHz

10GHz - 15GHz

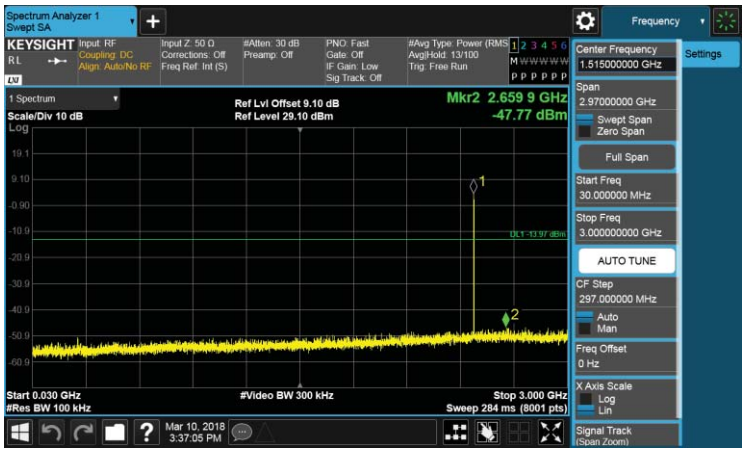


15GHz - 25GHz

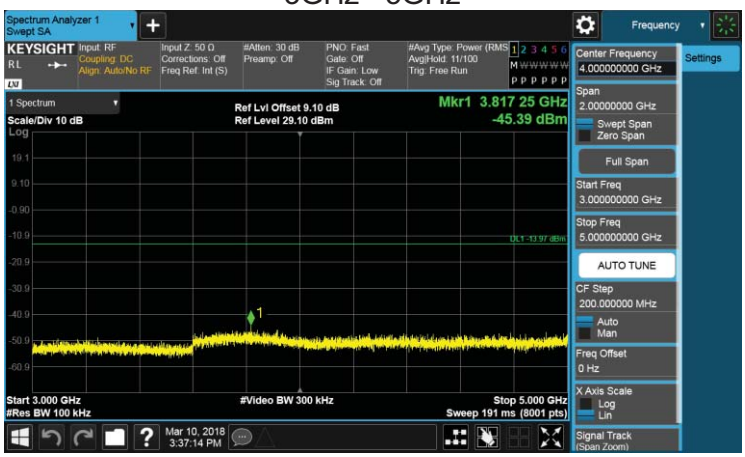
SPURIOUS EMISSIONS, HIGH CHANNEL

HIGH CH BANDEDGE

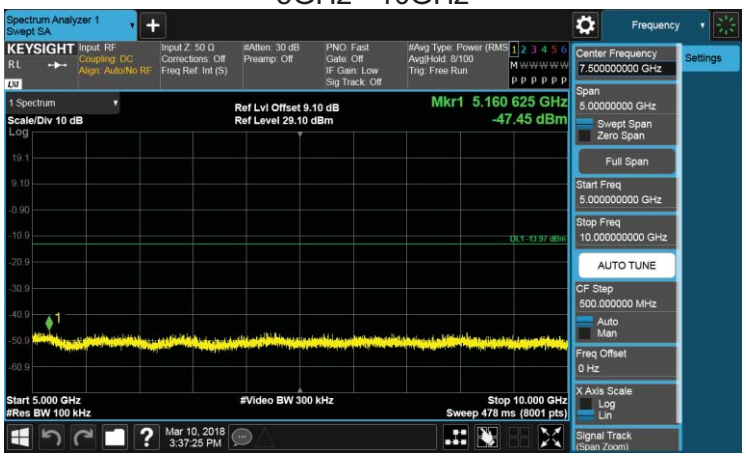
HIGH CH SPURIOUS
30MHz - 3GHz



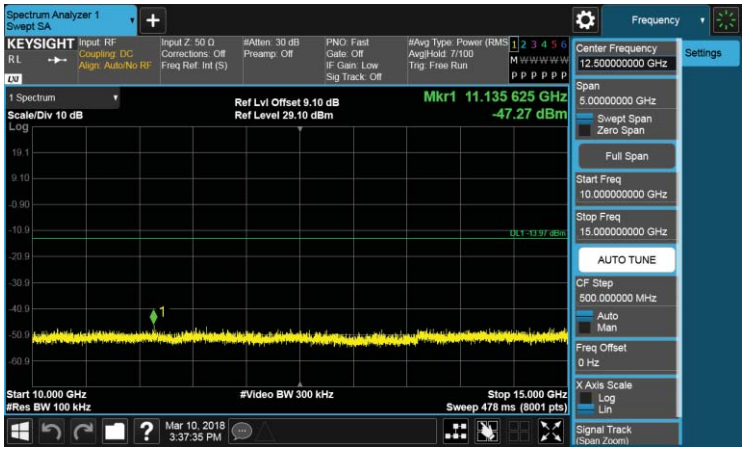
3GHz - 5GHz



HIGH CH SPURIOUS
5GHz - 10GHz



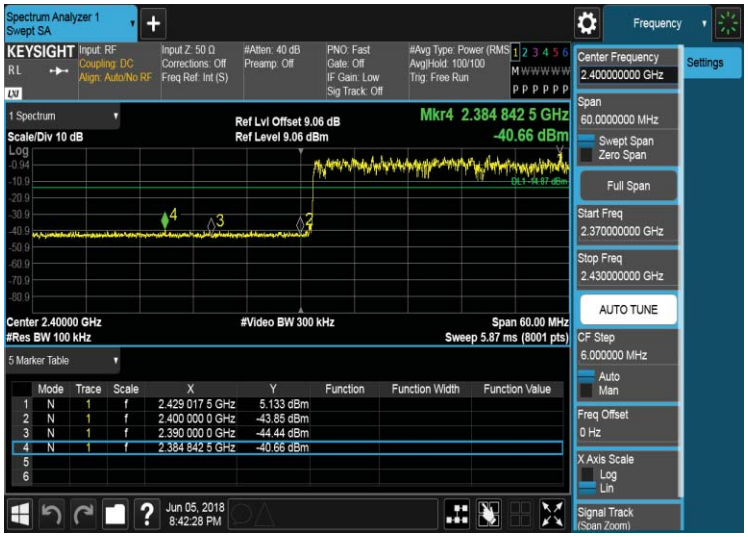
10GHz - 15GHz



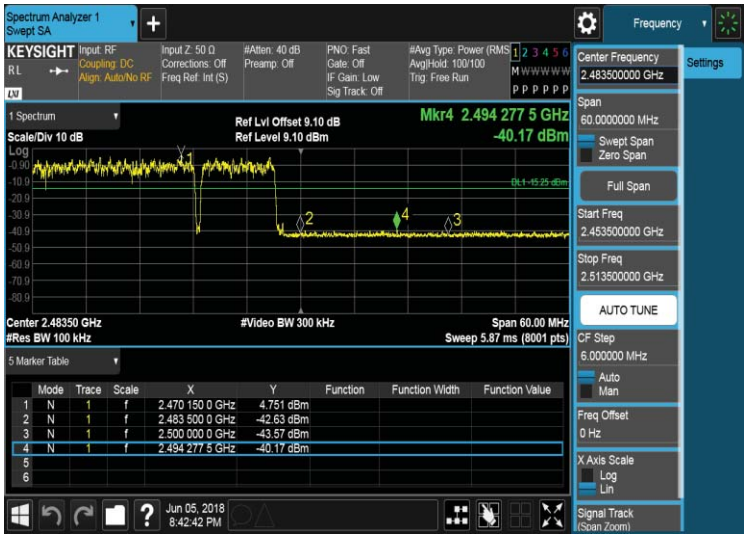
15GHz - 25GHz

SPURIOUS BANDEDGE EMISSIONS WITH HOPPING ON

HIGH CH BANDEDGE WITH HOPPING ON



HIGH CH SPURIOUS WITH HOPPING ON



7. RADIATED TEST RESULTS

7.1. LIMITS AND PROCEDURE

LIMITS

Please refer to FCC §15.205 and §15.209

Please refer to SS-GEN Clause 8.9 and Clause 8.10

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)	
	Peak	Average
Above 1000	74	54

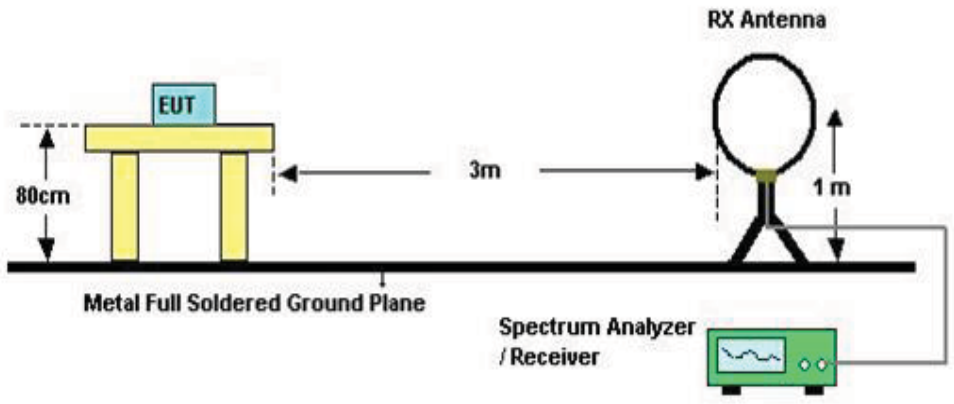
Restricted bands of operation

MHz	MHz	MHz	GHz
0.090-0.110	16.42-16.423	399.9-410	4.5-5.15
[1]0.495-0.505	16.69475-16.69525	608-614	5.35-5.46
2.1735-2.1905	16.80425-16.80475	960-1240	7.25-7.75
4.125-4.128	25.5-25.67	1300-1427	8.025-8.5
4.17725-4.17775	37.5-38.25	1435-1626.5	9.0-9.2
4.20725-4.20775	73-74.6	1645.5-1646.5	9.3-9.5
6.215-6.218	74.8-75.2	1660-1710	10.6-12.7
6.26775-6.26825	108-121.94	1718.8-1722.2	13.25-13.4
6.31175-6.31225	123-138	2200-2300	14.47-14.5
8.291-8.294	149.9-150.05	2310-2390	15.35-16.2
8.362-8.366	156.52475-156.52525	2483.5-2500	17.7-21.4
8.37625-8.38675	156.7-156.9	2690-2900	22.01-23.12
8.41425-8.41475	162.0125-167.17	3260-3267	23.6-24.0
12.29-12.293	167.72-173.2	3332-3339	31.2-31.8
12.51975-12.52025	240-285	3345.8-3358	36.43-36.5
12.57675-12.57725	322-335.4	3600-4400	([2])
13.36-13.41			

Note: [1]Until February 1, 1999, this restricted band shall be 0.490-0.510 MHz.
[2]Above 38.6c

TEST SETUP AND PROCEDURE

Below 30MHz



The setting of the spectrum Analyzer

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
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 80cm meter above ground.

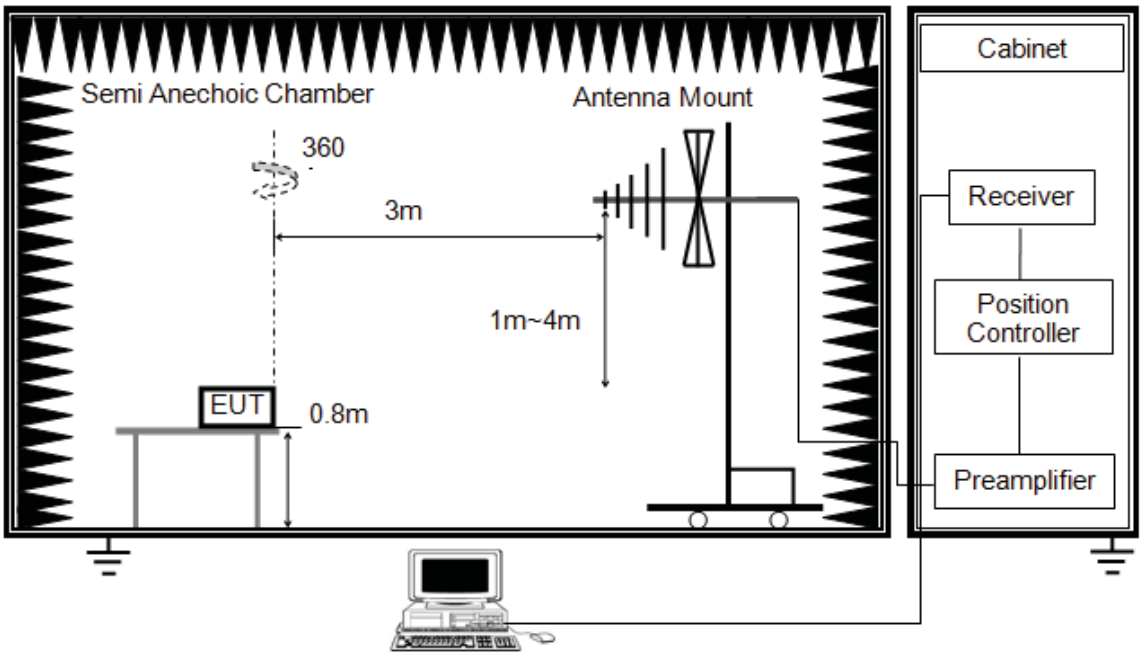
4. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.

5. The radiated emission limits are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9-90 kHz, 110-490 kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector.

6. 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.

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

Below 1G and above 30MHz



The setting of the spectrum Analyzer

RBW	120K
VBW	300K
Sweep	Auto
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 80cm above ground.

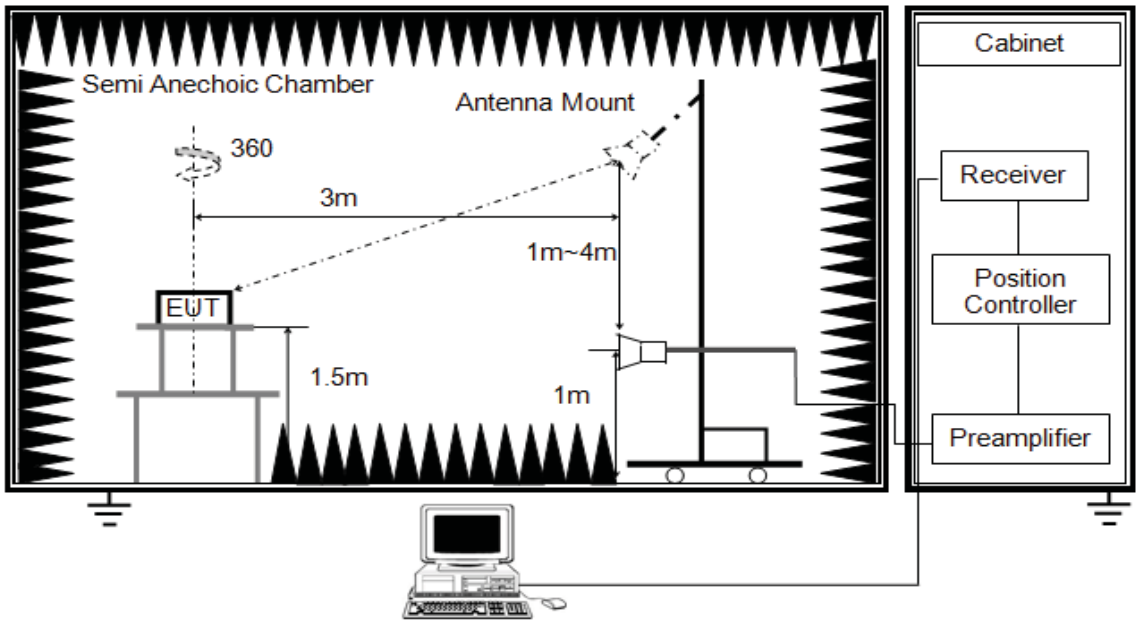
4. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.

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.

7. For the relationship between the measurement and correct factor, please refer to the formula: Measurement = Reading Level + Correct Factor, Correct Factor= Antenna factor + Cable loss + Attenuator – Pre-Amplifier Gain.

Above 1G



RBW	1M
VBW	PEAK: 3M AVG: see note 5
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.

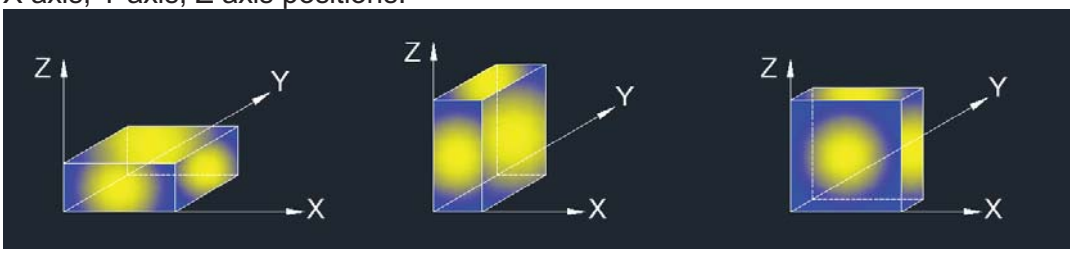
4. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.

5. For 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, max hold to be run for at least 50 x (1/duty cycle) traces for average measurements. For the Duty Cycle please refer to clause 6.1.ON TIME AND DUTY CYCLE.

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

7. For the relationship between the measurement and correct factor, please refer to the formula: Measurement = Reading Level + Correct Factor, Correct Factor = Antenna factor + Cable loss + Attenuator – Pre-Amplifier Gain.

X axis, Y axis, Z axis positions:

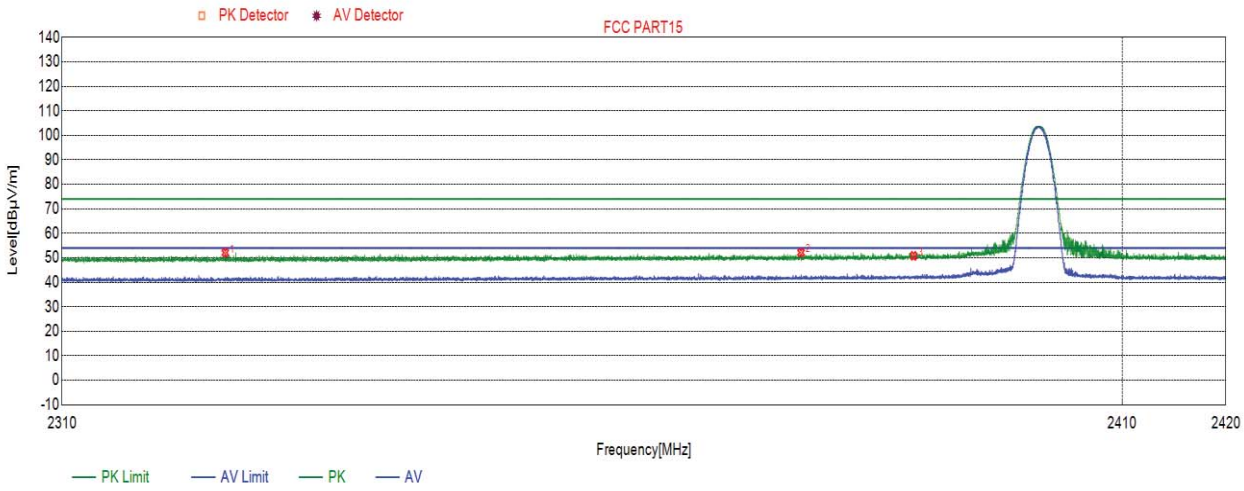


Note: For all radiated test, EUT in each of three orthogonal axis emissions had been tested, but only the worst case (X axis) data recorded in the report.

7.2. RESTRICTED BANDEDGE

7.2.1. GFSK MODE

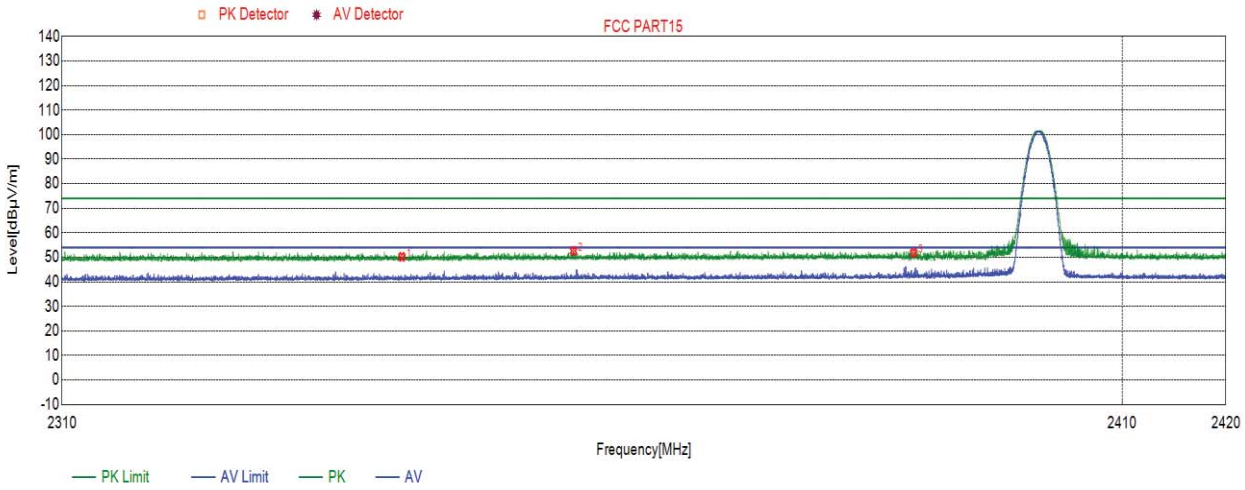
RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)



No.	Frequency (MHz)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2325.1265	52.08	74.00	-21.92	Peak
2	2379.2629	52.15	74.00	-21.85	Peak
3	2390.000	50.80	74.00	-23.20	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. AVG: VBW=1/T where: T is transmit duration.
5. For transmit duration, please refer to clause 6.1.

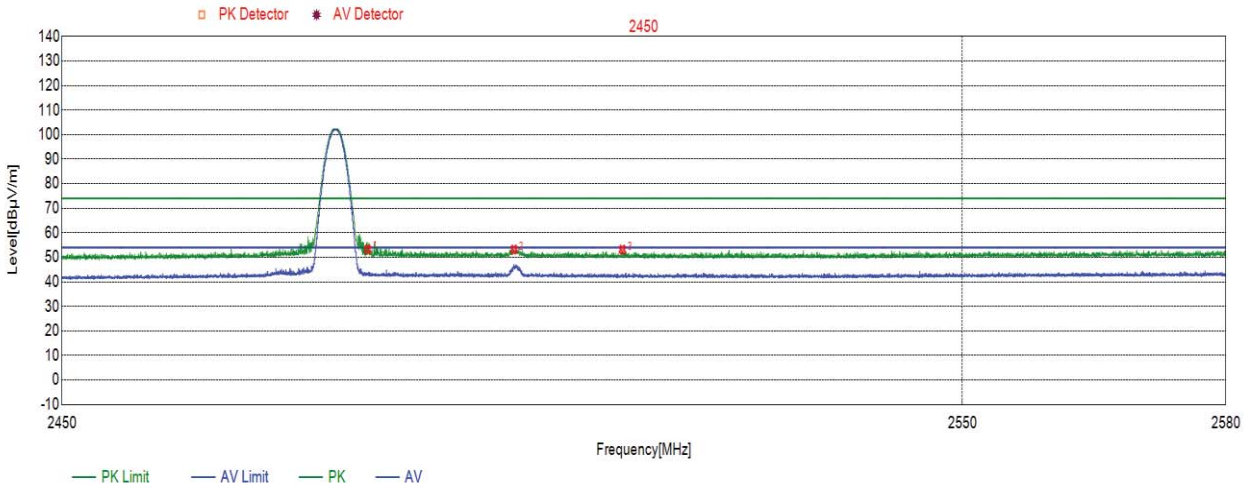
RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)



No.	Frequency (MHz)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2341.6062	50.19	74.00	-23.81	Peak
2	2357.7228	52.60	74.00	-21.40	Peak
3	2390.000	51.92	74.00	-22.08	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. AVG: VBW=1/T where: T is transmit duration.
5. For transmit duration, please refer to clause 6.1.

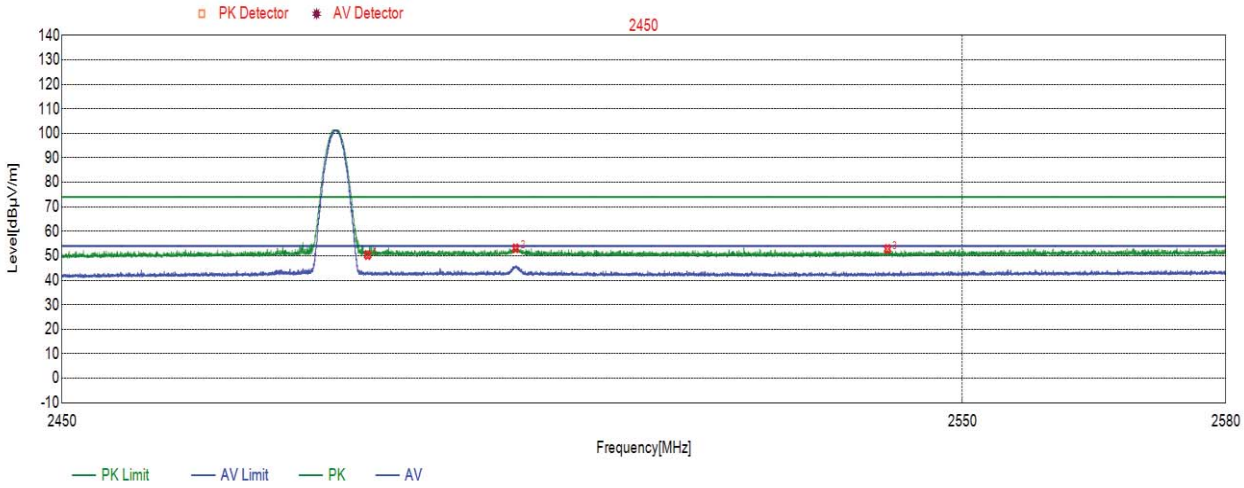
RESTRICTED BANDEDGE (HIGH CHANNEL, HORIZONTAL)



No.	Frequency (MHz)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2483.500	53.25	74.00	-20.75	Peak
2	2499.7040	53.19	74.00	-20.81	Peak
3	2511.7692	53.13	74.00	-20.87	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. AVG: VBW=1/T where: T is transmit duration.
5. For transmit duration, please refer to clause 6.1.

RESTRICTED BANDEDGE (HIGH CHANNEL, VERTICAL)

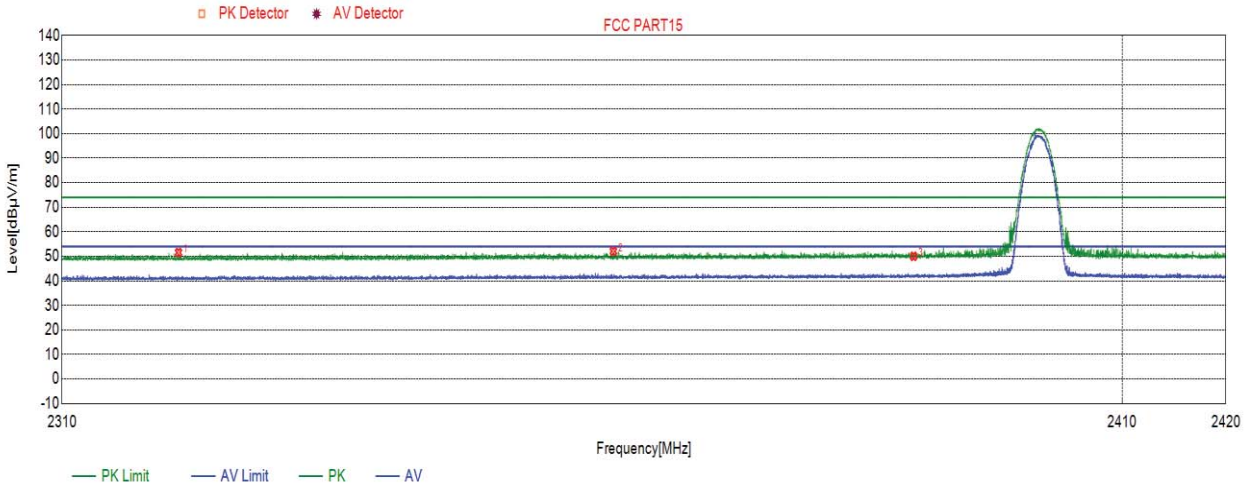


No.	Frequency (MHz)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2483.500	50.28	74.00	-23.72	Peak
2	2499.8860	53.08	74.00	-20.92	Peak
3	2541.5292	52.79	74.00	-21.21	Peak

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. AVG: VBW=1/T where: T is transmit duration.
5. For transmit duration, please refer to clause 6.1.

7.2.2. 8DPSK MODE

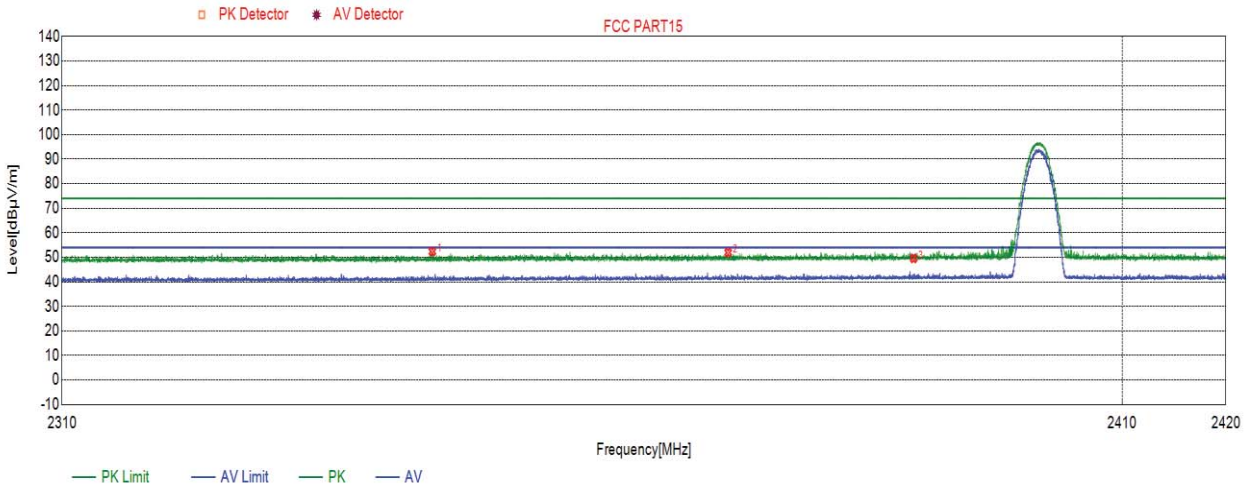
RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)



No.	Frequency (MHz)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2320.7921	51.56	74.00	-22.44	Peak
2	2361.4851	52.06	74.00	-21.94	Peak
3	2390.000	50.01	74.00	-23.99	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. AVG: VBW=1/T where: T is transmit duration.
5. For transmit duration, please refer to clause 6.1.

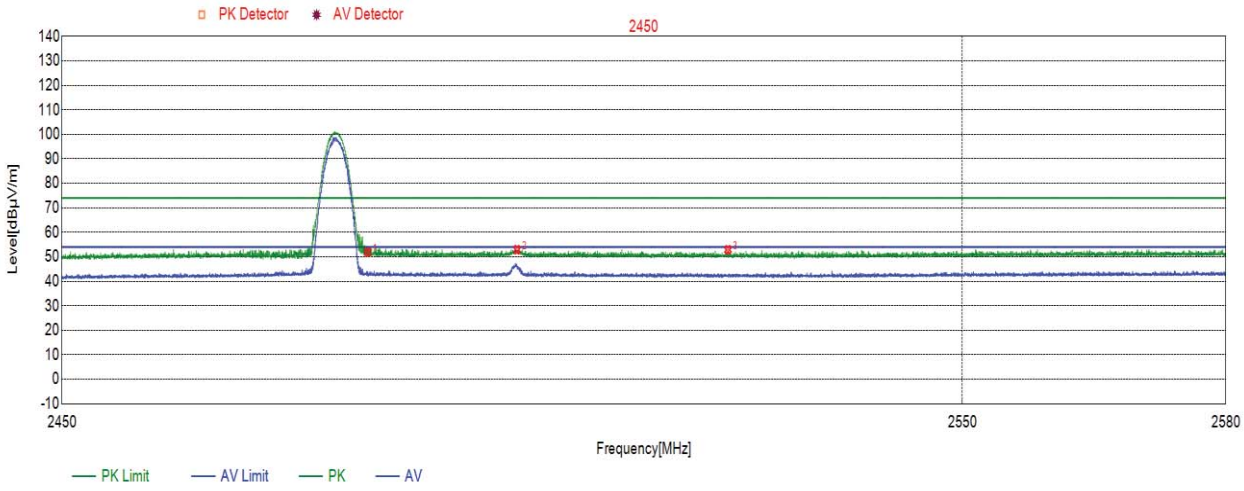
RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)



No.	Frequency (MHz)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2344.4554	52.35	74.00	-21.65	Peak
2	2372.3432	51.96	74.00	-22.04	Peak
3	2390.000	49.58	74.00	-24.42	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. AVG: VBW=1/T where: T is transmit duration.
5. For transmit duration, please refer to clause 6.1.

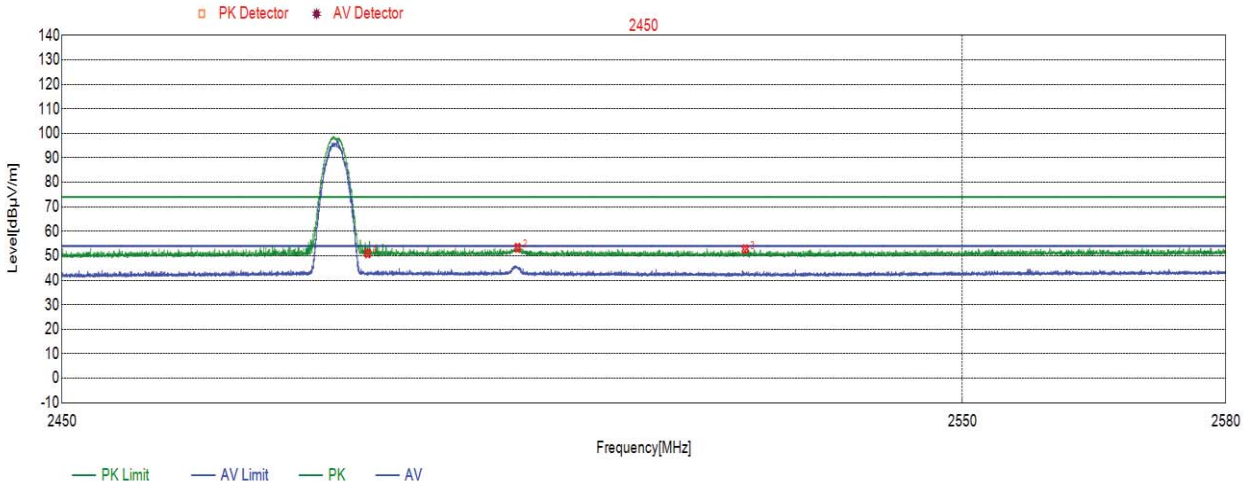
RESTRICTED BANDEDGE (HIGH CHANNEL, HORIZONTAL)



No.	Frequency (MHz)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2483.500	51.92	74.00	-22.08	Peak
2	2500.0420	52.91	74.00	-21.09	Peak
3	2523.5744	52.86	74.00	-21.14	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. AVG: VBW=1/T where: T is transmit duration.
5. For transmit duration, please refer to clause 6.1.

RESTRICTED BANDEDGE (HIGH CHANNEL, VERTICAL)



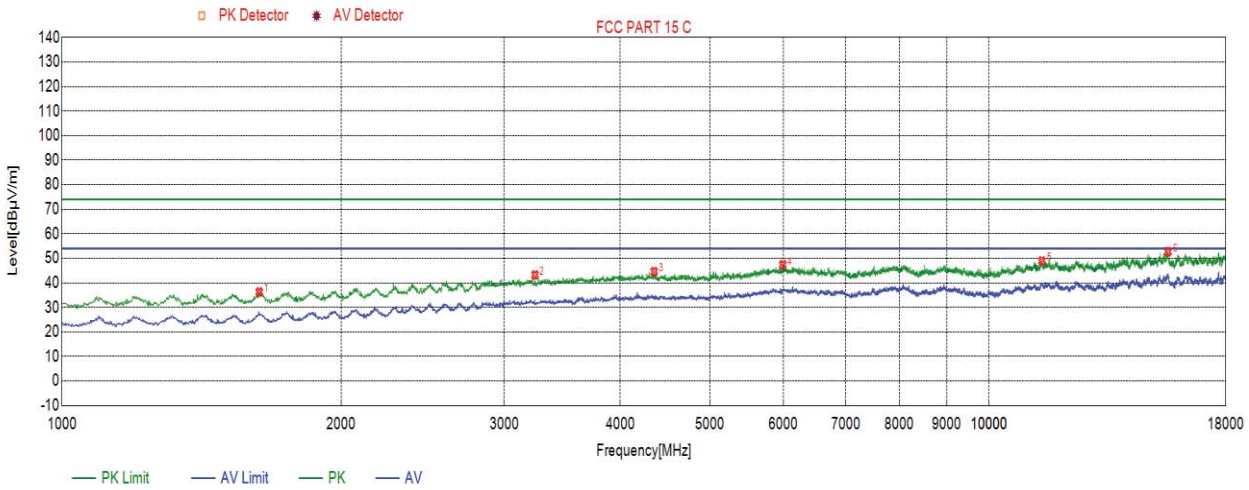
No.	Frequency (MHz)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2483.500	50.99	74.00	-23.01	Peak
2	2500.1070	53.31	74.00	-20.69	Peak
3	2525.5116	52.75	74.00	-21.25	Peak

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. AVG: VBW=1/T where: T is transmit duration.
5. For transmit duration, please refer to clause 6.1.

7.3. SPURIOUS EMISSIONS (1~18GHz)

7.3.1. GFSK MODE

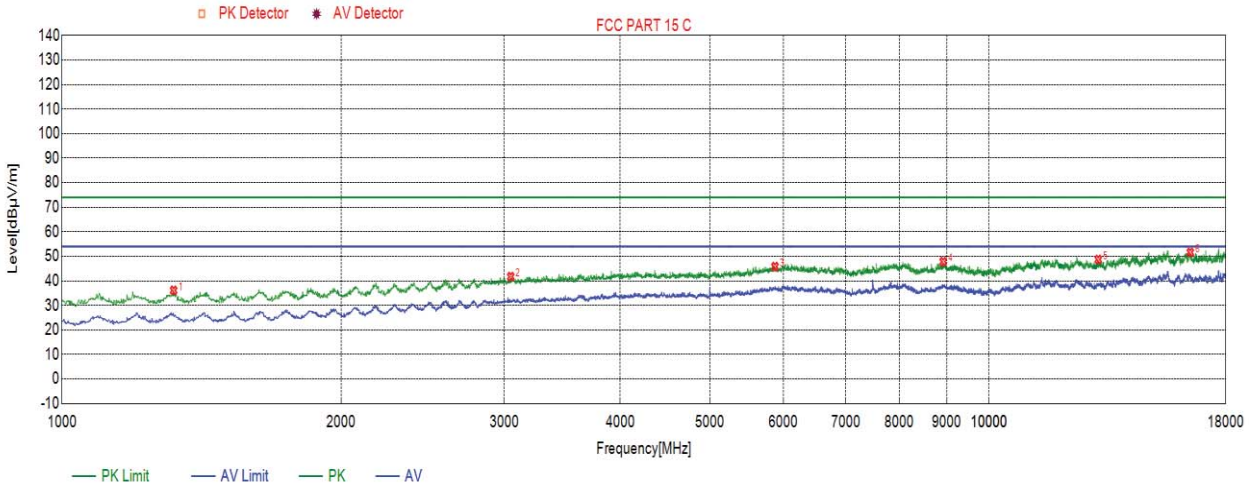
HARMONICS AND SPURIOUS EMISSIONS (LOW CHANNEL, HORIZONTAL)



No.	Frequency (MHz)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1632.4632	36.27	74.00	-37.73	Peak
2	3237.4237	43.19	74.00	-30.81	Peak
3	4352.7353	44.54	74.00	-29.46	Peak
4	5991.6992	47.37	74.00	-26.63	Peak
5	11403.3403	48.88	74.00	-25.12	Peak
6	15595.9596	52.69	74.00	-21.31	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. AVG: VBW=1/T where: T is transmit duration.
5. For transmit duration, please refer to clause 6.1.

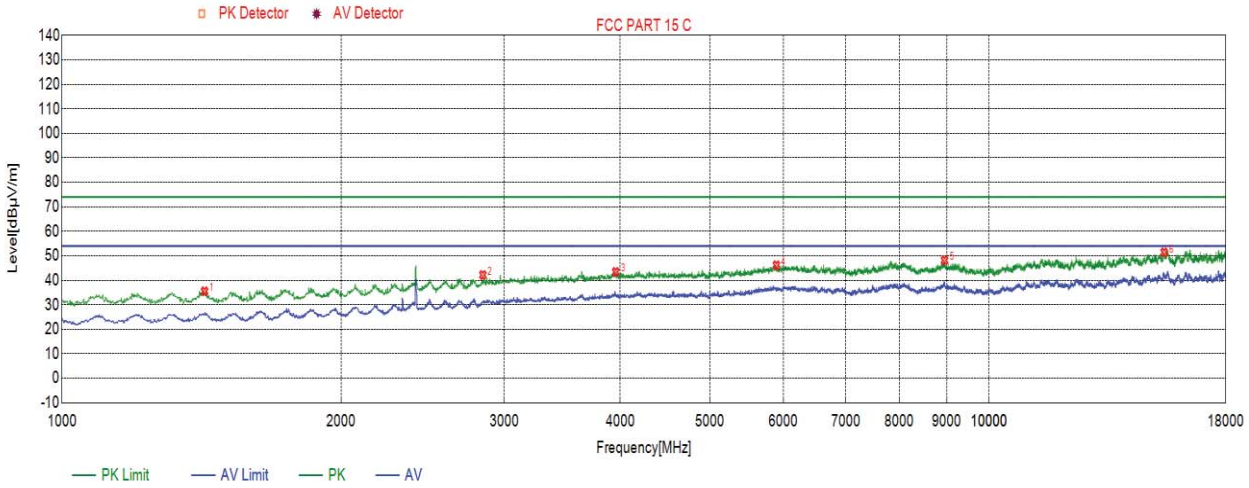
HARMONICS AND SPURIOUS EMISSIONS (LOW CHANNEL, VERTICAL)



No.	Frequency (MHz)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1319.6320	36.12	74.00	-37.88	Peak
2	3048.7049	41.71	74.00	-32.29	Peak
3	5876.0876	45.81	74.00	-28.19	Peak
4	8924.4924	47.81	74.00	-26.19	Peak
5	13115.4115	48.70	74.00	-25.30	Peak
6	16483.4483	51.63	74.00	-22.37	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. AVG: VBW=1/T where: T is transmit duration.
5. For transmit duration, please refer to clause 6.1.

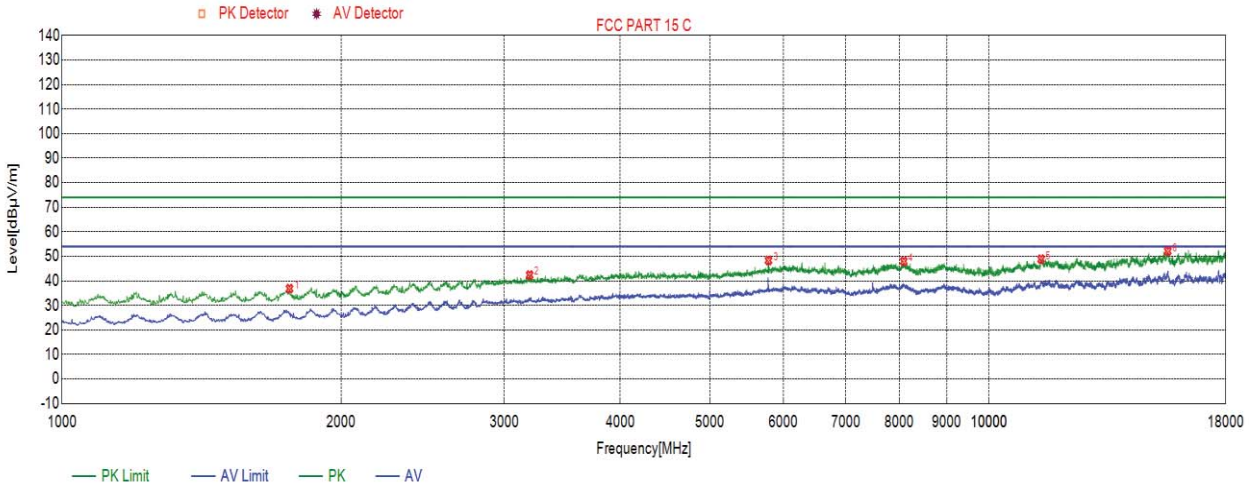
HARMONICS AND SPURIOUS EMISSIONS (MID CHANNEL, HORIZONTAL)



No.	Frequency (MHz)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1425.0425	35.52	74.00	-38.48	Peak
2	2844.6845	42.17	74.00	-31.83	Peak
3	3956.5957	43.45	74.00	-30.55	Peak
4	5896.4896	46.12	74.00	-27.88	Peak
5	8953.3953	48.19	74.00	-25.81	Peak
6	15449.7450	51.40	74.00	-22.60	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. AVG: VBW=1/T where: T is transmit duration.
5. For transmit duration, please refer to clause 6.1.

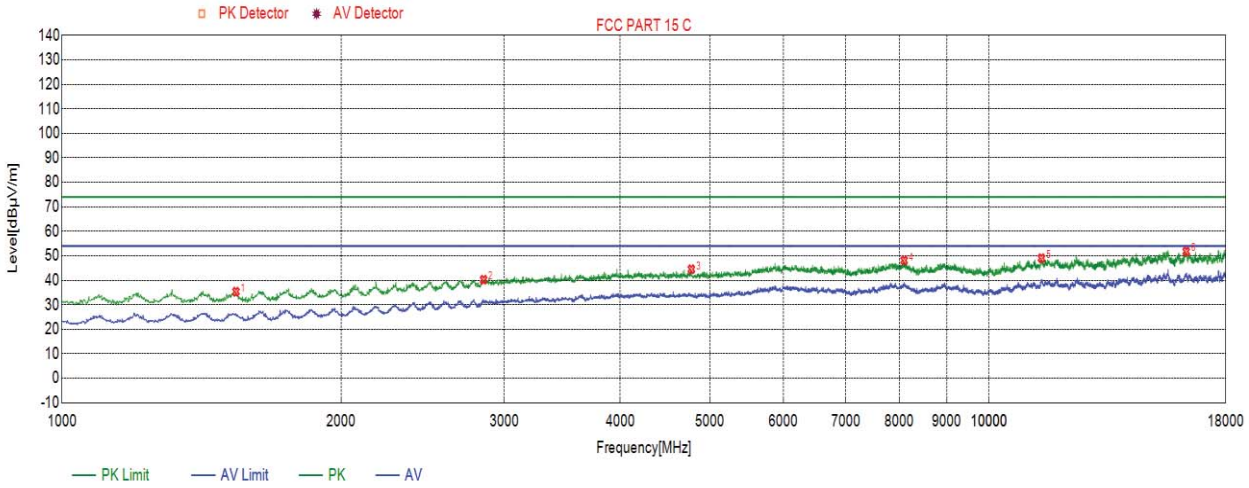
HARMONICS AND SPURIOUS EMISSIONS (MID CHANNEL, VERTICAL)



No.	Frequency	Result	Limit	Margin	Remark
	(MHz)	(dBuV/m)	(dBuV/m)	(dB)	
1	1759.9760	36.84	74.00	-37.16	Peak
2	3194.9195	42.37	74.00	-31.63	Peak
3	5782.5783	48.31	74.00	-25.69	Peak
4	8091.4091	47.96	74.00	-26.04	Peak
5	11381.2381	48.84	74.00	-25.16	Peak
6	15589.1589	52.12	74.00	-21.88	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. AVG: VBW=1/T where: T is transmit duration.
5. For transmit duration, please refer to clause 6.1.

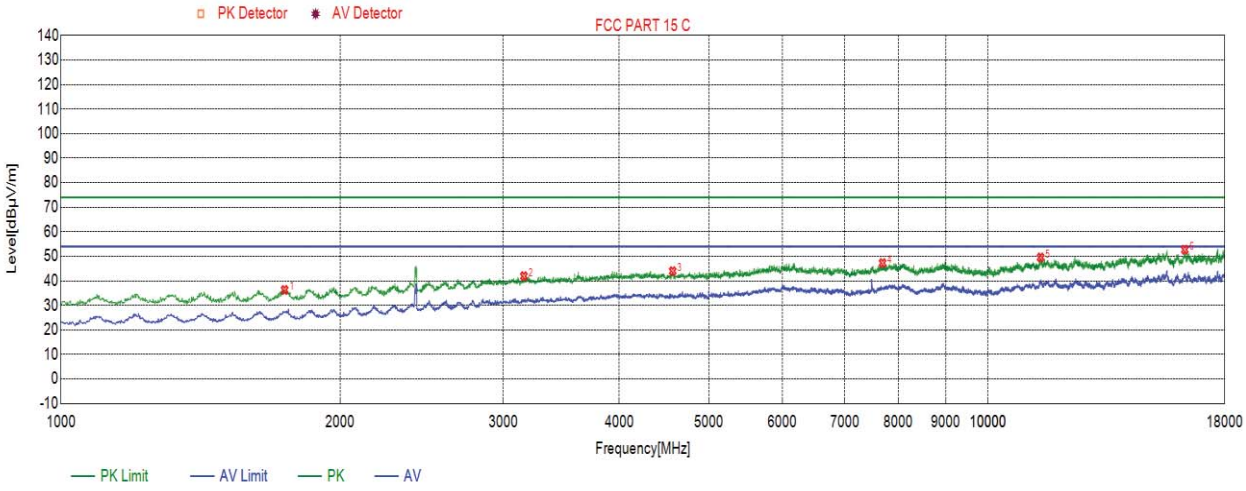
HARMONICS AND SPURIOUS EMISSIONS (HIGH CHANNEL, HORIZONTAL)



No.	Frequency (MHz)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1540.6541	35.38	74.00	-38.62	Peak
2	2849.7850	40.24	74.00	-33.76	Peak
3	4774.3774	44.52	74.00	-29.48	Peak
4	8098.2098	48.15	74.00	-25.85	Peak
5	11391.4391	49.04	74.00	-24.96	Peak
6	16318.5319	51.78	74.00	-22.22	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. AVG: VBW=1/T where: T is transmit duration.
5. For transmit duration, please refer to clause 6.1.

HARMONICS AND SPURIOUS EMISSIONS (HIGH CHANNEL, VERTICAL)

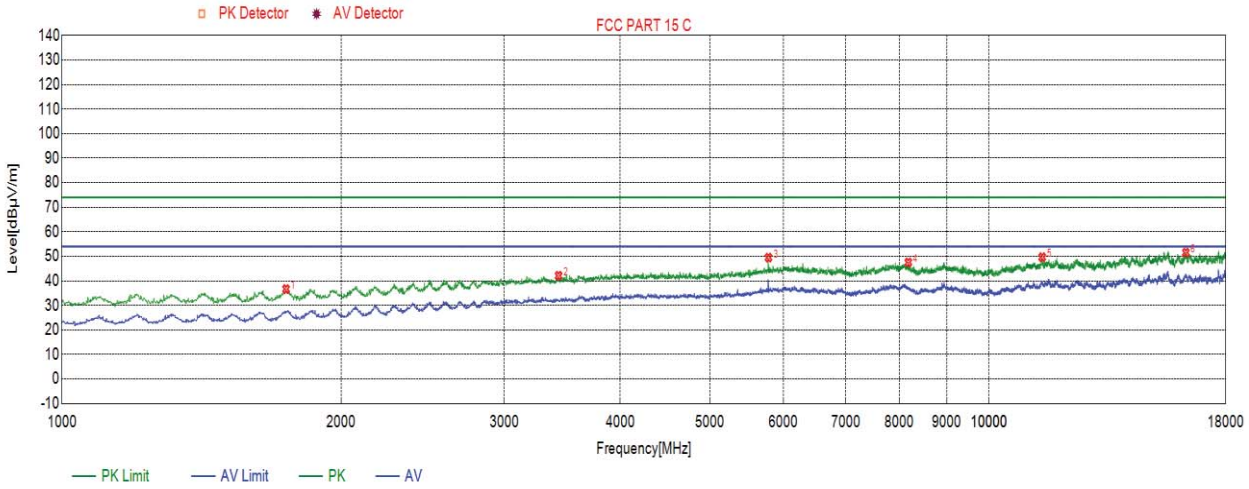


No.	Frequency (MHz)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1742.9743	36.30	74.00	-37.70	Peak
2	3157.5158	41.94	74.00	-32.06	Peak
3	4568.6569	43.96	74.00	-30.04	Peak
4	7695.2695	47.27	74.00	-26.73	Peak
5	11394.8395	49.55	74.00	-24.45	Peak
6	16301.5302	52.71	74.00	-21.29	Peak

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. AVG: VBW=1/T where: T is transmit duration.
5. For transmit duration, please refer to clause 6.1.

7.3.2. 8DPSK MODE

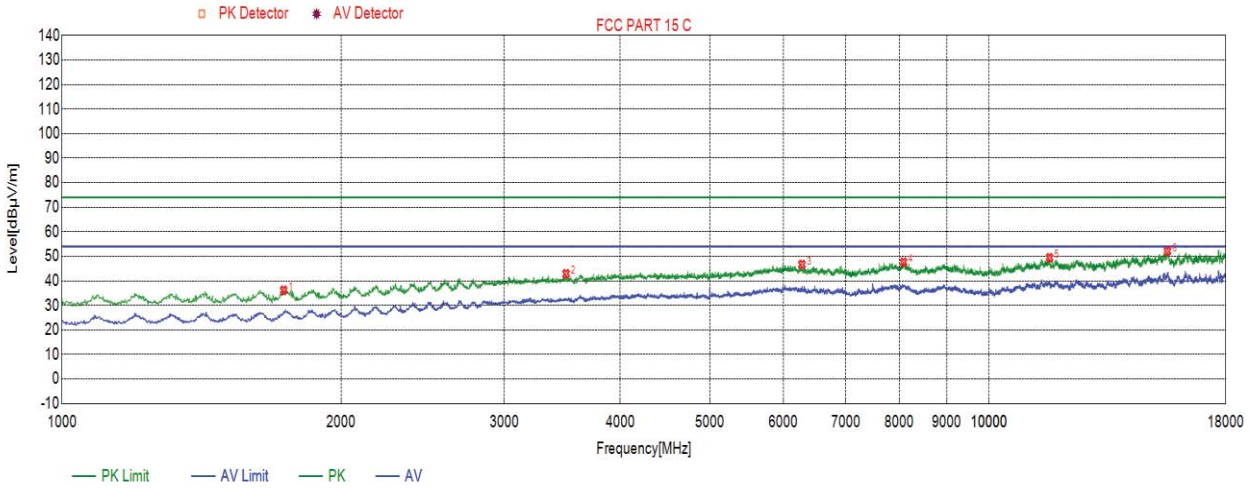
HARMONICS AND SPURIOUS EMISSIONS (LOW CHANNEL, HORIZONTAL)



No.	Frequency (MHz)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1744.6745	36.67	74.00	-37.33	Peak
2	3432.9433	42.10	74.00	-31.90	Peak
3	5782.5783	49.48	74.00	-24.52	Peak
4	8183.2183	47.51	74.00	-26.49	Peak
5	11411.8412	49.66	74.00	-24.34	Peak
6	16304.9305	51.51	74.00	-22.49	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. AVG: VBW=1/T where: T is transmit duration.
5. For transmit duration, please refer to clause 6.1.

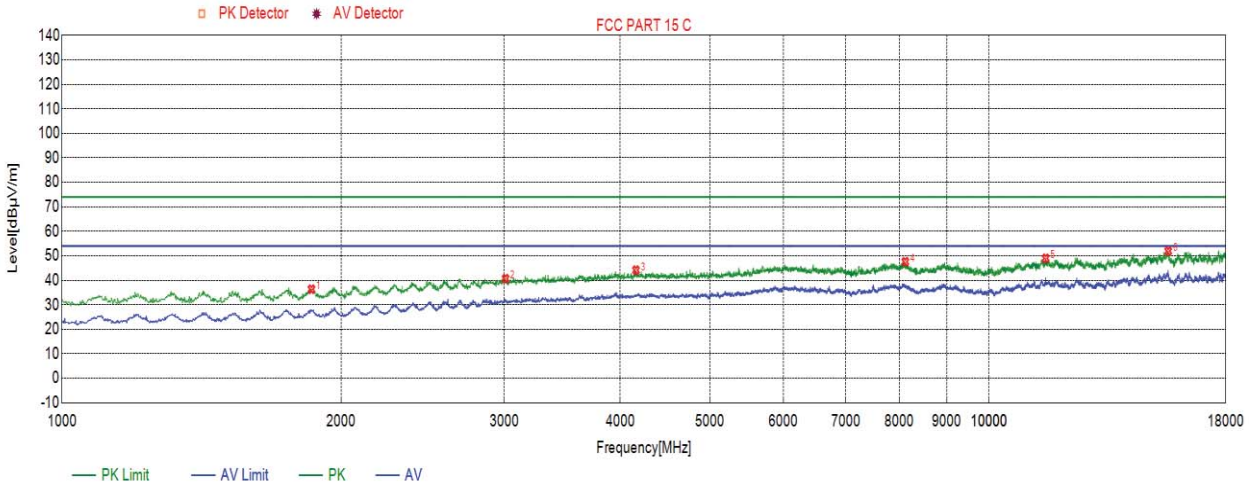
HARMONICS AND SPURIOUS EMISSIONS (LOW CHANNEL, VERTICAL)



No.	Frequency (MHz)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1734.4734	36.14	74.00	-37.86	Peak
2	3497.5498	42.89	74.00	-31.11	Peak
3	6282.4282	46.67	74.00	-27.33	Peak
4	8086.3086	47.58	74.00	-26.42	Peak
5	11620.9621	49.40	74.00	-24.60	Peak
6	15575.5576	52.12	74.00	-21.88	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. AVG: VBW=1/T where: T is transmit duration.
5. For transmit duration, please refer to clause 6.1.

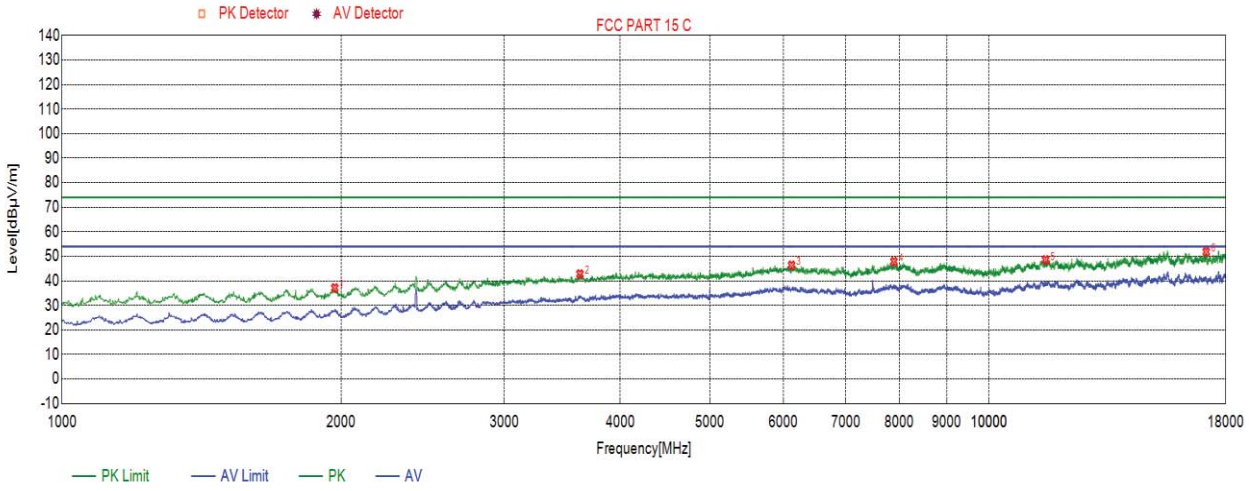
HARMONICS AND SPURIOUS EMISSIONS (MID CHANNEL, HORIZONTAL)



No.	Frequency (MHz)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1858.5859	36.35	74.00	-37.65	Peak
2	3009.6010	40.65	74.00	-33.35	Peak
3	4160.6161	44.14	74.00	-29.86	Peak
4	8122.0122	47.57	74.00	-26.43	Peak
5	11510.4510	48.98	74.00	-25.02	Peak
6	15606.1606	51.91	74.00	-22.09	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. AVG: VBW=1/T where: T is transmit duration.
5. For transmit duration, please refer to clause 6.1.

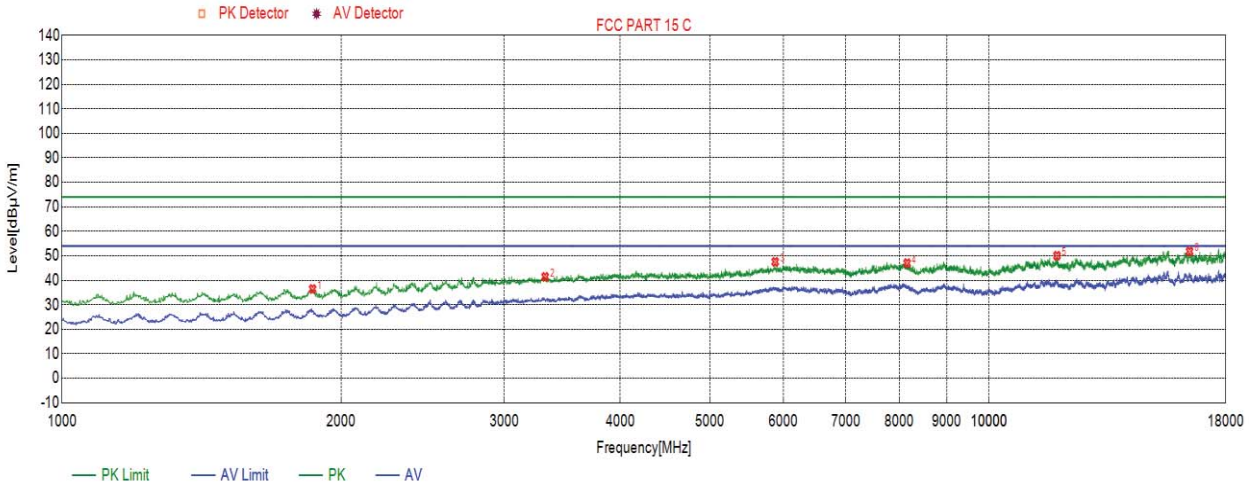
HARMONICS AND SPURIOUS EMISSIONS (MID CHANNEL, VERTICAL)



No.	Frequency (MHz)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1969.0969	37.12	74.00	-36.88	Peak
2	3619.9620	42.78	74.00	-31.22	Peak
3	6124.3124	46.34	74.00	-27.66	Peak
4	7895.8896	47.86	74.00	-26.14	Peak
5	11507.0507	48.51	74.00	-25.49	Peak
6	17148.2148	51.83	74.00	-22.17	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. AVG: VBW=1/T where: T is transmit duration.
5. For transmit duration, please refer to clause 6.1.

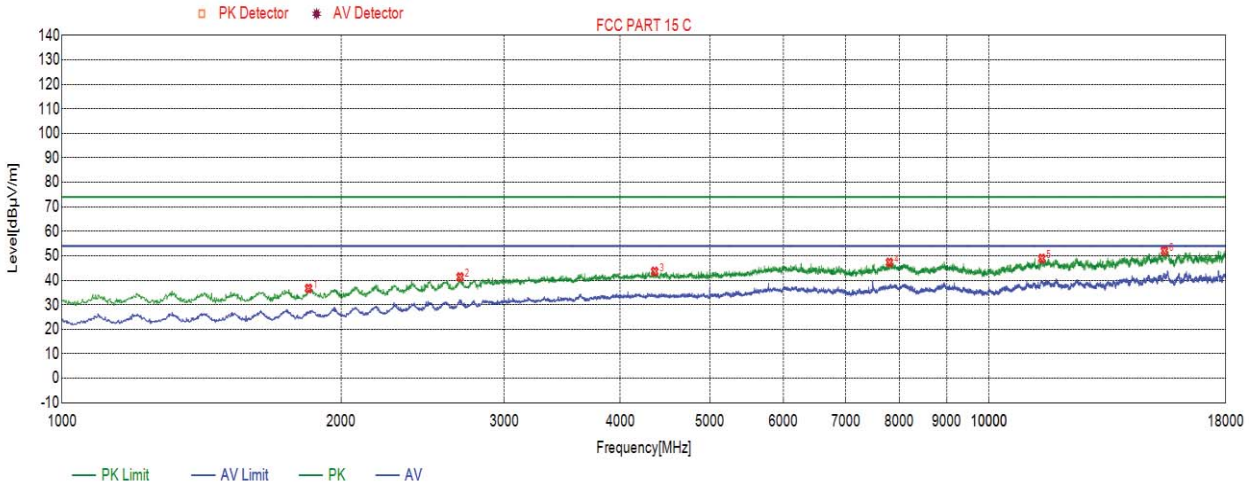
HARMONICS AND SPURIOUS EMISSIONS (HIGH CHANNEL, HORIZONTAL)



No.	Frequency (MHz)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1863.6864	36.44	74.00	-37.56	Peak
2	3320.7321	41.41	74.00	-32.59	Peak
3	5879.4879	47.53	74.00	-26.47	Peak
4	8157.7158	47.01	74.00	-26.99	Peak
5	11838.5839	50.04	74.00	-23.96	Peak
6	16454.5455	51.79	74.00	-22.21	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. AVG: VBW=1/T where: T is transmit duration.
5. For transmit duration, please refer to clause 6.1.

HARMONICS AND SPURIOUS EMISSIONS (HIGH CHANNEL, VERTICAL)



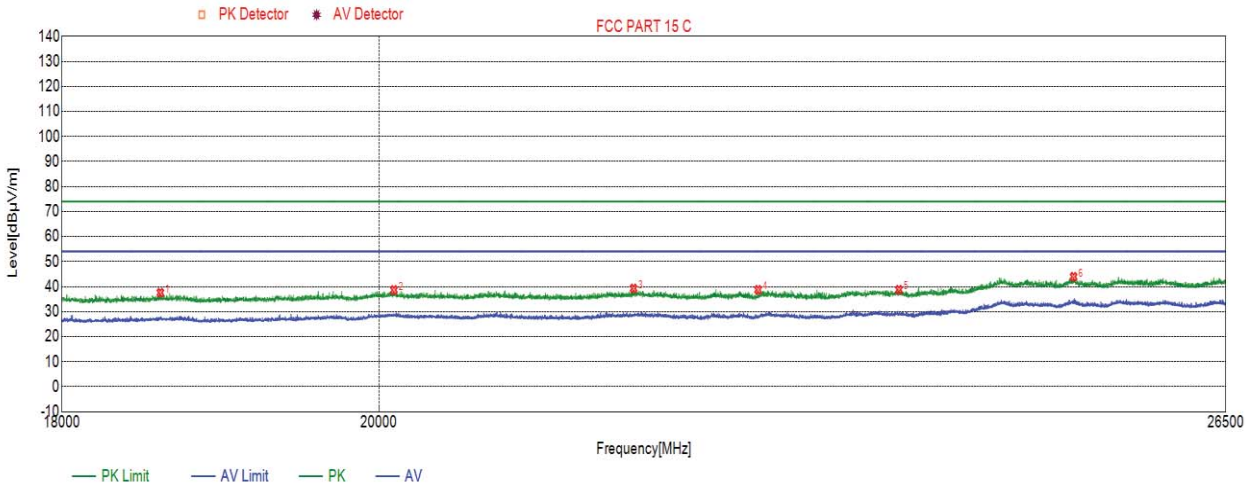
No.	Frequency (MHz)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1844.9845	36.68	74.00	-37.32	Peak
2	2688.2688	41.36	74.00	-32.64	Peak
3	4357.8358	43.63	74.00	-30.37	Peak
4	7809.1809	47.31	74.00	-26.69	Peak
5	11401.6402	48.92	74.00	-25.08	Peak
6	15458.2458	52.03	74.00	-21.97	Peak

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. AVG: VBW=1/T where: T is transmit duration.
5. For transmit duration, please refer to clause 6.1.

7.4. SPURIOUS EMISSIONS 18G ~ 26GHz

7.4.1. GFSK MODE

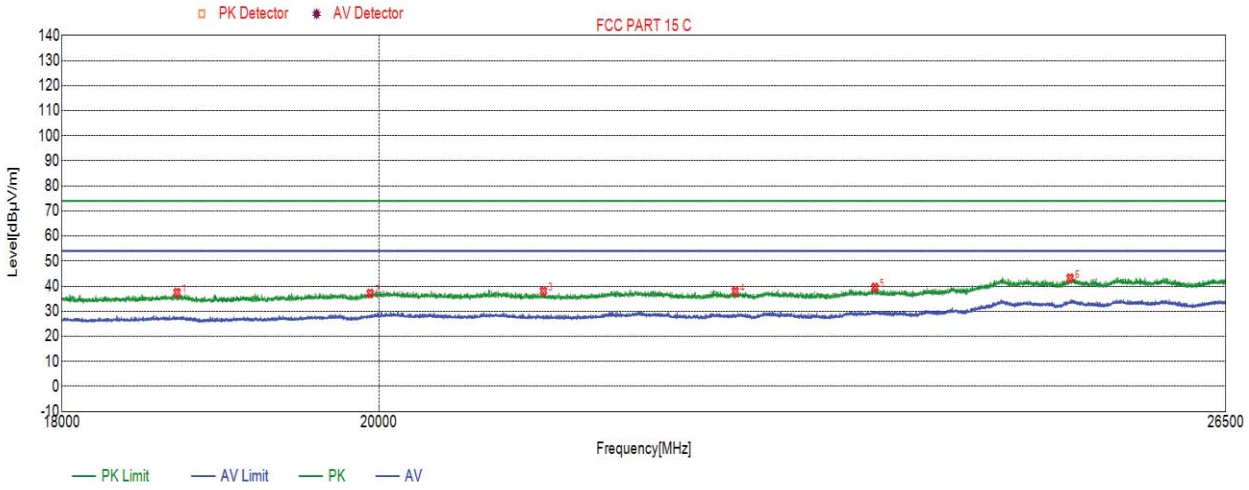
SPURIOUS EMISSIONS (MID CHANNEL, WORST-CASE CONFIGURATION, HORIZONTAL)



No.	Frequency	Result	Limit	Margin	Remark
	(MHz)	(dBuV/m)	(dBuV/m)	(dB)	
1	18598.4598	37.55	74.00	-36.45	Peak
2	20099.7100	38.64	74.00	-35.36	Peak
3	21765.8766	39.24	74.00	-34.76	Peak
4	22685.6686	38.71	74.00	-35.29	Peak
5	23772.9273	38.75	74.00	-35.25	Peak
6	25193.4193	43.93	74.00	-30.07	Peak

Note: 1. Peak Result= Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. All the modes had been tested, but only the worst data were recorded in the report.

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



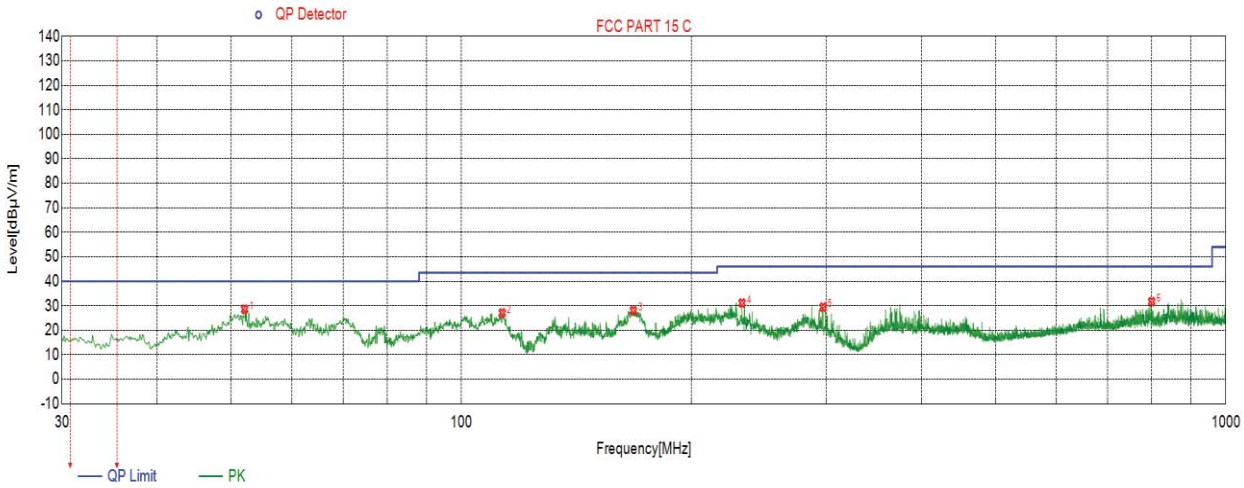
No.	Frequency (MHz)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	18702.1702	37.41	74.00	-36.59	Peak
2	19941.5942	37.06	74.00	-36.94	Peak
3	21124.0624	38.00	74.00	-36.00	Peak
4	22513.9514	37.89	74.00	-36.11	Peak
5	23583.3583	39.51	74.00	-34.49	Peak
6	25164.5165	43.20	74.00	-30.80	Peak

Note: 1. Peak Result = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. All the modes had been tested, but only the worst data were recorded in the report.

7.5. SPURIOUS EMISSIONS 30M ~ 1 GHz

7.5.1. GFSK MODE

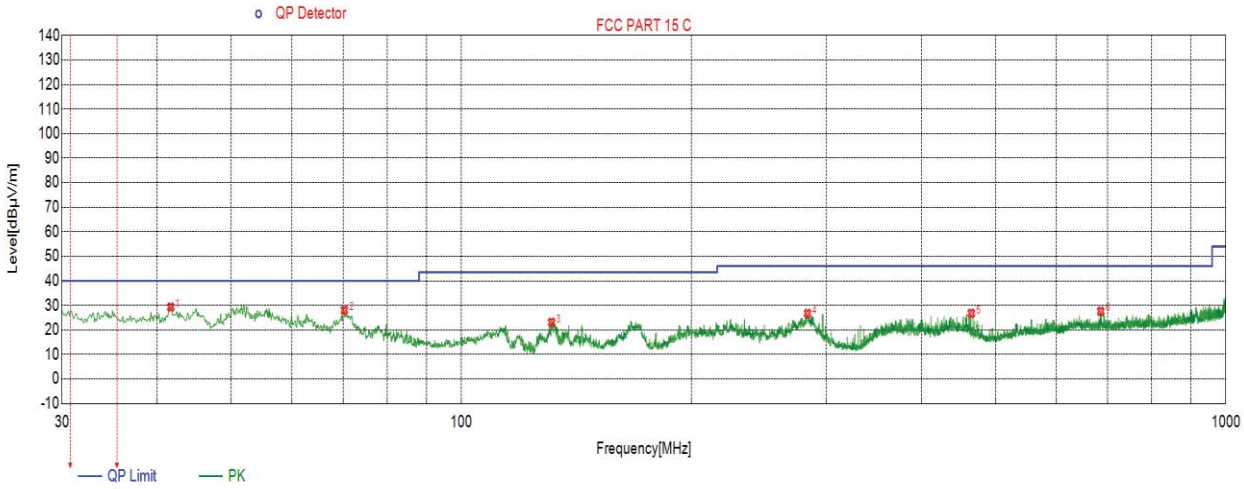
SPURIOUS EMISSIONS (MID CHANNEL, WORST-CASE CONFIGURATION, HORIZONTAL)



No.	Frequency (MHz)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	52.0212	28.59	40.00	-11.41	QP
2	113.0403	27.08	43.50	-16.42	QP
3	167.8508	28.04	43.50	-15.46	QP
4	232.8473	31.13	46.00	-14.87	QP
5	297.2617	29.45	46.00	-16.55	QP
6	799.9660	31.71	46.00	-14.29	QP

Note:
1. If Peak Result complies with QP limit, QP Result is deemed to comply with QP limit.
2. Test setup: RBW: 120 kHz, VBW: 300 kHz, Sweep time: auto.
3. All the modes had been tested, but only the worst data were recorded in the report.

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



No.	Frequency (MHz)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	41.6412	29.30	40.00	-10.70	QP
2	70.2590	28.01	40.00	-11.99	QP
3	131.1811	23.10	43.50	-20.40	QP
4	283.6804	26.70	46.00	-19.30	QP
5	464.6035	26.76	46.00	-19.24	QP
6	686.0766	27.59	46.00	-18.41	QP

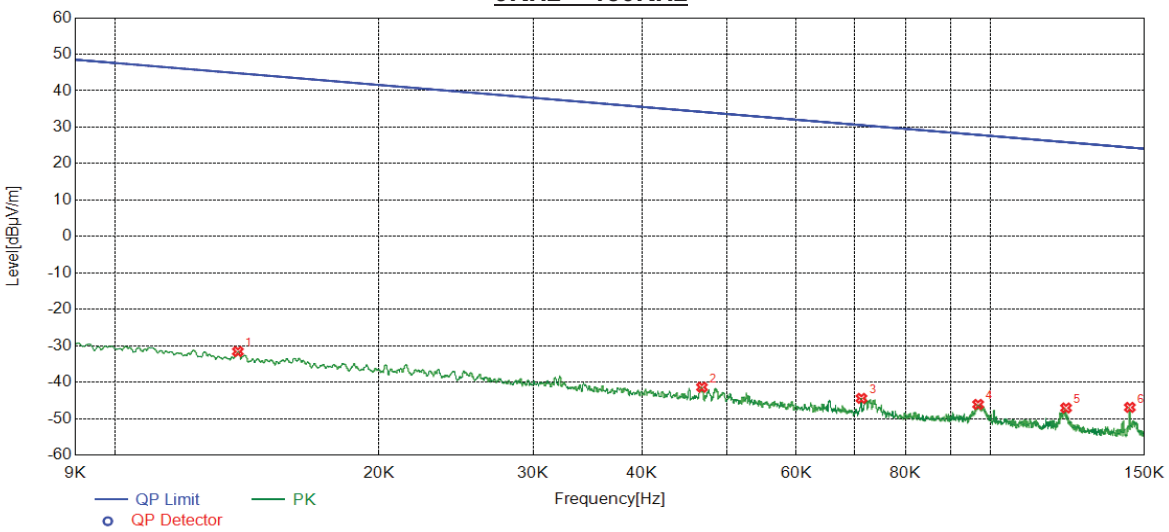
Note:
1. If Peak Result complies with QP limit, QP Result is deemed to comply with QP limit.
2. Test setup: RBW: 120 kHz, VBW: 300 kHz, Sweep time: auto
3. All the modes had been tested, but only the worst data were recorded in the report.

7.6. SPURIOUS EMISSIONS BELOW 30M

7.6.1. GFSK MODE

SPURIOUS EMISSIONS (MID CHANNEL, WORST-CASE CONFIGURATION)

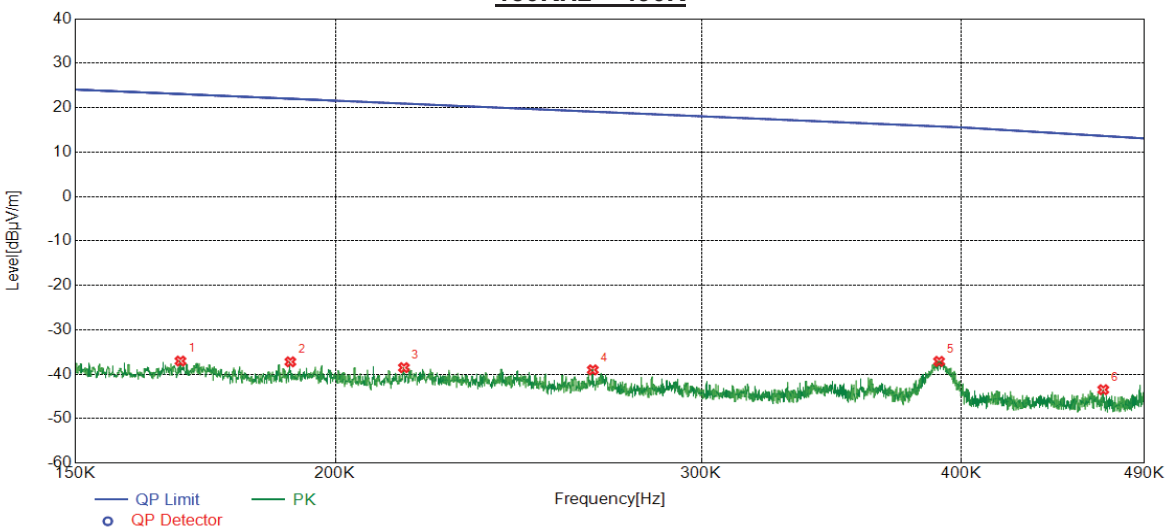
9KHz ~ 150KHz



No.	Frequency (MHz)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	0.0138	-31.59	44.78	-76.37	Peak
2	0.0468	-41.38	34.19	-75.57	Peak
3	0.0712	-44.44	30.55	-74.99	Peak
4	0.0968	-46.10	27.89	-73.99	Peak
5	0.1220	-47.09	25.88	-72.97	Peak
6	0.1443	-46.92	24.42	-71.34	Peak

Note: 1. Measurement = Reading Level + Correct Factor.
2. All the modes had been tested, but only the worst data were recorded in the report.
3. If Peak Result complies with AV and QP limit, AV and QP Result are deemed to comply with AV limit.

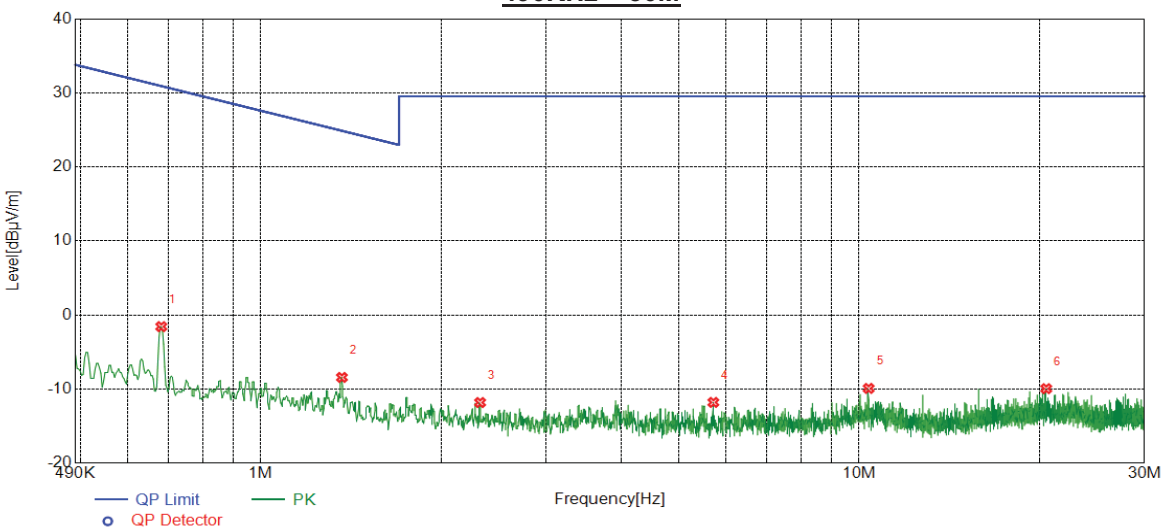
150KHz ~ 490K



No.	Frequency (MHz)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	0.1685	-37.03	23.08	-60.11	Peak
2	0.1903	-37.21	22.02	-59.23	Peak
3	0.2158	-38.52	20.92	-59.44	Peak
4	0.2660	-39.03	19.10	-58.13	Peak
5	0.3903	-37.11	15.77	-52.88	Peak
6	0.4681	-43.48	13.64	-57.12	Peak

Note: 1. Measurement = Reading Level + Correct Factor.
2. All the modes had been tested, but only the worst data were recorded in the report.
3. If Peak Result complies with AV and QP limit, AV and QP Result are deemed to comply with AV limit.

490KHz ~ 30M



No.	Frequency (MHz)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	0.6818	-1.57	30.93	-32.50	Peak
2	1.3665	-8.43	24.89	-33.32	Peak
3	2.3257	-11.82	29.54	-41.36	Peak
4	5.7079	-11.80	29.54	-41.34	Peak
5	10.3739	-9.91	29.54	-39.45	Peak
6	20.5500	-9.95	29.54	-39.49	Peak

Note: 1. Measurement = Reading Level + Correct Factor.
2. All the modes had been tested, but only the worst data were recorded in the report.
3. If Peak Result complies with AV and QP limit, AV and QP Result are deemed to comply with AV limit.

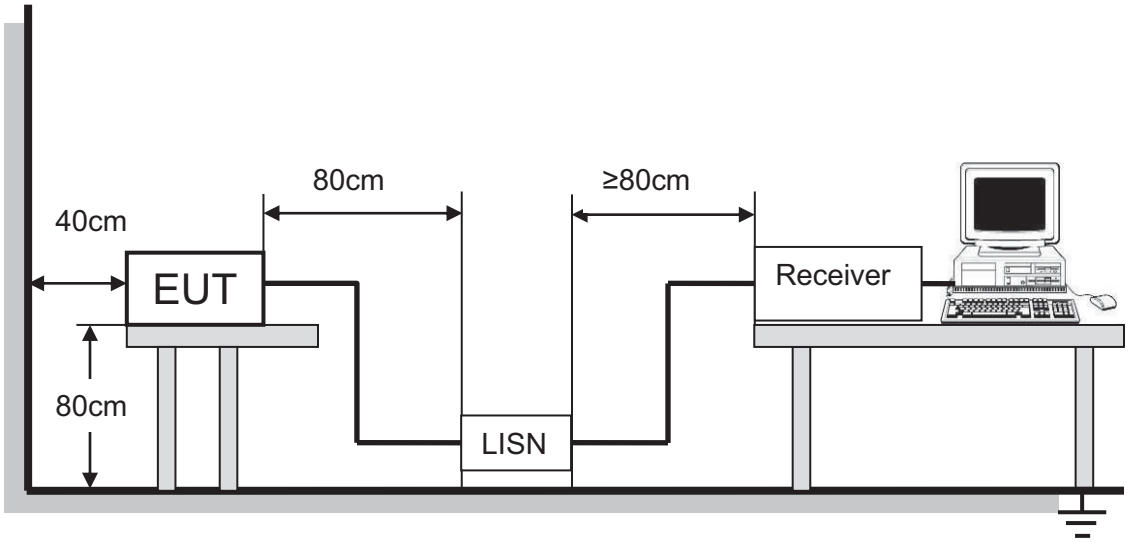
8. AC POWER LINE CONDUCTED EMISSIONS

LIMITS

Please refer to FCC §15.207 (a)

FREQUENCY (MHz)	Class A (dBuV)		Class B (dBuV)	
	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



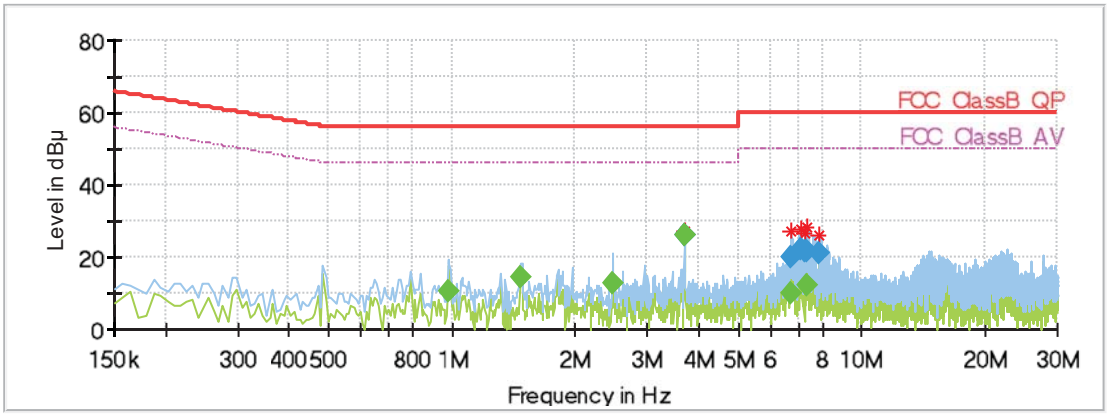
The EUT is put on a table of non-conducting material that is 80cm high. The vertical conducting wall of shielding is located 40cm to the rear of the EUT. The power line of the EUT is connected to the AC mains through a Artificial Mains Network (A.M.N.). A EMI Measurement Receiver (R&S Test Receiver ESR3) 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 Result Table:
For 9KHz-30MHz (worst case)

Test Mode	Test Antenna	Channel	Puw(dBm)	Verdict
DH5	Antenna 1	HCH	<Limit	PASS

TEST RESULTS (WORST-CASE CONFIGURATION)



Final_Result

Frequency (MHz)	QuasiPeak (dBµV)	Average (dBµV)	Limit (dBµV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Filter	Corr. (dB)
0.985800	---	10.34	46.00	35.66	1000.0	9.000	L1	OFF	9.6
1.478325	---	14.46	46.00	31.54	1000.0	9.000	L1	OFF	9.7
2.463375	---	12.96	46.00	33.04	1000.0	9.000	L1	OFF	9.7
3.694688	---	25.98	46.00	20.02	1000.0	9.000	L1	OFF	9.7
3.694688	25.89	---	56.00	30.11	1000.0	9.000	L1	OFF	9.7
6.739388	20.13	---	60.00	39.87	1000.0	9.000	N	OFF	9.8
6.739388	---	10.26	50.00	39.74	1000.0	9.000	N	OFF	9.8
7.090125	22.26	---	60.00	37.74	1000.0	9.000	N	OFF	9.8
7.306538	21.52	---	60.00	38.48	1000.0	9.000	N	OFF	9.8
7.388625	21.76	---	60.00	38.24	1000.0	9.000	N	OFF	9.8
7.388625	---	12.05	50.00	37.95	1000.0	9.000	N	OFF	9.8
7.888613	20.97	---	60.00	39.03	1000.0	9.000	N	OFF	9.8

(continuation of the "Final_Result" table from column 15 ...)

Note: 1. If QP Result complies with AV limit, AV Result is deemed to comply with AV limit.
2. Test setup: RBW: 200 Hz (9 kHz—150 kHz), 9 kHz (150 kHz—30 MHz).
3. Step size: 80Hz (0.009MHz-0.15MHz), 4 kHz (0.15MHz-30MHz), Scan time: auto.

9. 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 two Dipole Antennas with a PIFA PCB Antenna, only antenna 1 support BT mode.

ANTENNA GAIN

The antenna gain of EUT is less than 6 dBi.

END OF REPORT