

5.9 Conducted Emission

5.9.1 Limit

FCC §15.207

For an intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency within the band 150 kHz to 30 MHz shall not exceed the limits in the following table, as measured using a 50 μ H/50 Ω line impedance stabilization network (LISN).

Frequency range (MHz)	Conducted Limit (dB μ V)	
	Quai-peak	Average
0.15 - 0.50	66 to 56	56 to 46
0.50 - 5	56	46
0.50 - 30	60	50

5.9.2 Test Setup

See section 4.5.2 for test setup description for the AC power supply port. The photo of test setup please refer to ANNEX A.

5.9.3 Test Procedure

The maximum conducted interference is searched using Peak (PK), if the emission levels more than the AV and QP limits, and that have narrow margins from the AV and QP limits will be re-measured with AV and QP detectors. Tests for both L phase and N phase lines of the power mains connected to the EUT are performed. Refer to recorded points and plots below.

Devices subject to Part 15 must be tested for all available U.S. voltages and frequencies (such as a nominal 120 VAC, 50/60 Hz and 240 VAC, 50/60 Hz) for which the device is capable of operation. A device rated for 50/60 Hz operation need not be tested at both frequencies provided the radiated and line conducted emissions are the same at both frequencies.

5.9.4 Test Result

Note ¹: The EUT was tested in charging mode.

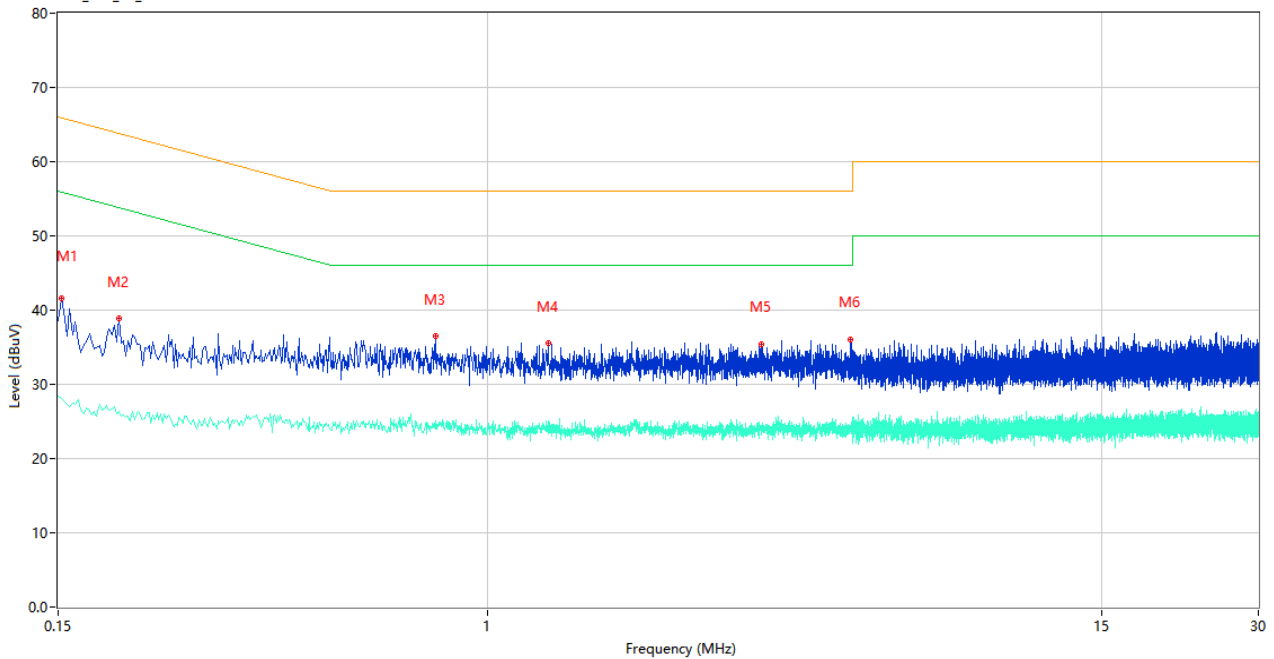
Note ²: Devices subject to Part 15 must be tested for all available U.S. voltages and frequencies (such as a nominal 120 VAC, 60 Hz and 240 VAC, 50 Hz) for which the device is capable of operation. So, The configuration 120 VAC, 60 Hz and 240 VAC, 50 Hz were tested respectively, but only the worst configuration (120 VAC, 60 Hz) shown here.

Note ³: Results (dBuV) = Original reading level of Spectrum Analyzer (dBuV) + Factor (dB)

Test Data and Plots

PHASE L

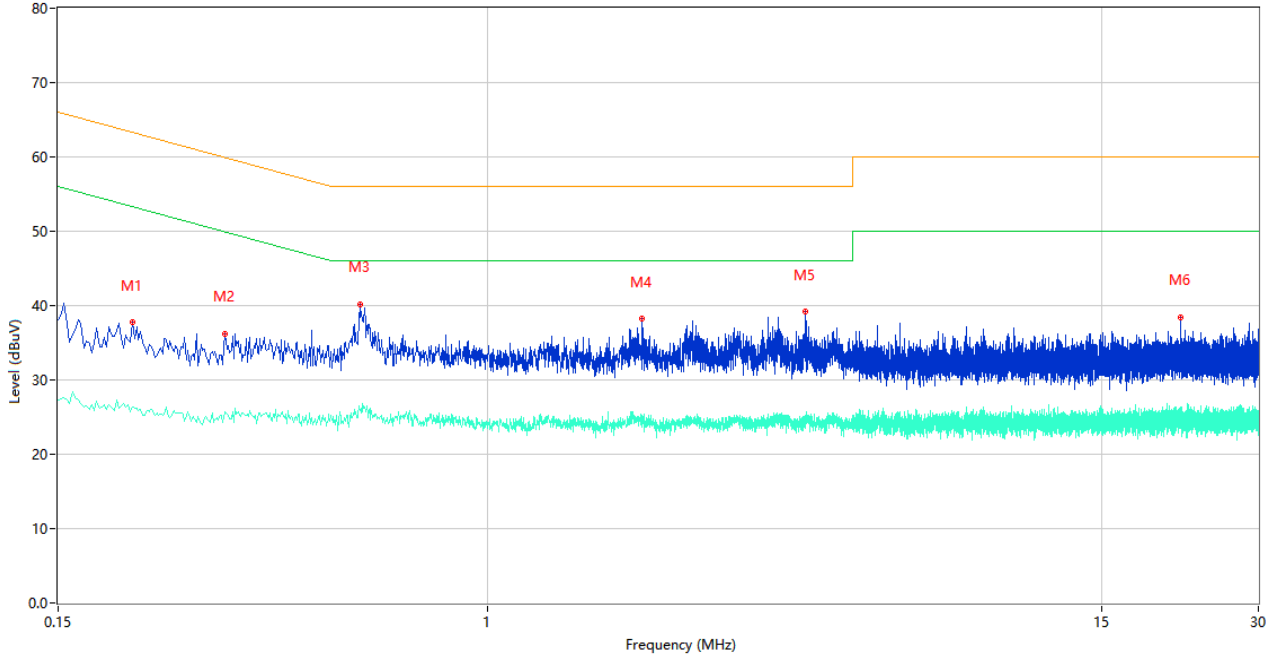
CE Test case_FCC_CE_FCC PART 15C



No.	Frequency (MHz)	Results (dBuV)	Factor (dB)	Limit (dBuV)	Margin (dB)	Detector	Line	Verdict
1	0.152	41.56	9.78	65.89	24.33	Peak	L	Pass
1**	0.152	28.05	9.78	55.89	27.84	AV	L	Pass
2	0.196	38.83	9.77	63.78	24.95	Peak	L	Pass
2**	0.196	26.35	9.77	53.78	27.43	AV	L	Pass
3	0.796	36.44	10.50	56.00	19.56	Peak	L	Pass
3**	0.796	25.13	10.50	46.00	20.87	AV	L	Pass
4	1.304	35.53	10.46	56.00	20.47	Peak	L	Pass
4**	1.304	25.04	10.46	46.00	20.96	AV	L	Pass
5	3.352	35.45	10.41	56.00	20.55	Peak	L	Pass
5**	3.352	24.04	10.41	46.00	21.96	AV	L	Pass
6	4.952	36.04	10.26	56.00	19.96	Peak	L	Pass
6**	4.952	24.39	10.26	46.00	21.61	AV	L	Pass

PHASE N

CE Test case_FCC_CE_FCC PART 15C



No.	Frequency (MHz)	Results (dBuV)	Factor (dB)	Limit (dBuV)	Margin (dB)	Detector	Line	Verdict
1	0.208	37.73	9.77	63.28	25.55	Peak	N	Pass
1**	0.208	26.33	9.77	53.28	26.95	AV	N	Pass
2	0.314	36.24	10.04	59.86	23.62	Peak	N	Pass
2**	0.314	25.77	10.04	49.86	24.09	AV	N	Pass
3	0.568	40.19	10.08	56.00	15.81	Peak	N	Pass
3**	0.568	25.90	10.08	46.00	20.10	AV	N	Pass
4	1.978	38.25	10.20	56.00	17.75	Peak	N	Pass
4**	1.978	25.19	10.20	46.00	20.81	AV	N	Pass
5	4.070	39.13	10.39	56.00	16.87	Peak	N	Pass
5**	4.070	25.20	10.39	46.00	20.80	AV	N	Pass
6	21.256	38.47	11.10	60.00	21.53	Peak	N	Pass
6**	21.256	25.53	11.10	50.00	24.47	AV	N	Pass

5.10 Radiated Spurious Emission

5.10.1 Limit

FCC §15.209&15.247(d)

Radiated emission outside the frequency band attenuation below the general limits specified in FCC section 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in FCC section 15.205(a), must also comply with the radiated emission limits specified in FCC section 15.209(a).

According to FCC section 15.209 (a), except as provided elsewhere in this subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table:

Frequency (MHz)	Field Strength ($\mu\text{V}/\text{m}$)	Measurement Distance (m)
0.009 - 0.490	2400/F(kHz)	300
0.490 - 1.705	24000/F(kHz)	30
1.705 - 30.0	30	30
30 - 88	100	3
88 - 216	150	3
216 - 960	200	3
Above 960	500	3

Note:

1. Field Strength (dB $\mu\text{V}/\text{m}$) = 20*log[Field Strength ($\mu\text{V}/\text{m}$)].
2. In the emission tables above, the tighter limit applies at the band edges.
3. For Above 1000 MHz, the emission limit in this paragraph is based on measurement instrumentation employing an average detector, measurement using instrumentation with a peak detector function, corresponding to 20dB above the maximum permitted average limit.
4. For above 1000 MHz, limit field strength of harmonics: 54dBuV/m@3m (AV) and 74dBuV/m@3m (PK).

5.10.2 Test Setup

See section 4.5.3 to 4.5.5 for test setup description for the antenna port. The photo of test setup please refer to ANNEX A.

5.10.3 Test Procedure

The measurement frequency range is from 9 kHz to the 10th harmonic of the fundamental frequency. The Turn Table is actuated to turn from 0° to 360°, and both horizontal and vertical polarizations of the Test Antenna are used to find the maximum radiated power. Mid channels on all channel bandwidth verified. Only the worst RB size/offset presented.

The power of the EUT transmitting frequency should be ignored.

All Spurious Emission tests were performed in X, Y, Z axis direction. And only the worst axis test condition was recorded in this test report.

Use the following spectrum analyzer settings:

Span = wide enough to fully capture the emission being measured

RBW = 1 MHz for $f \geq 1$ GHz, 100 kHz for $f < 1$ GHz

VBW \geq RBW

Sweep = auto

Detector function = peak

Trace = max hold

For measurement below 1GHz, 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.

5.10.4 Test Result

Note ¹: The symbol of "--" in the table which means not application.

Note ²: For the test data above 1 GHz, according the ANSI C63.10-2013, where limits are specified for both average and peak (or quasi-peak) detector functions, if the peak (or quasi-peak) measured value complies with the average limit, it is unnecessary to perform an average measurement.

Note ³: The EUT was tested in Link mode and the charging.

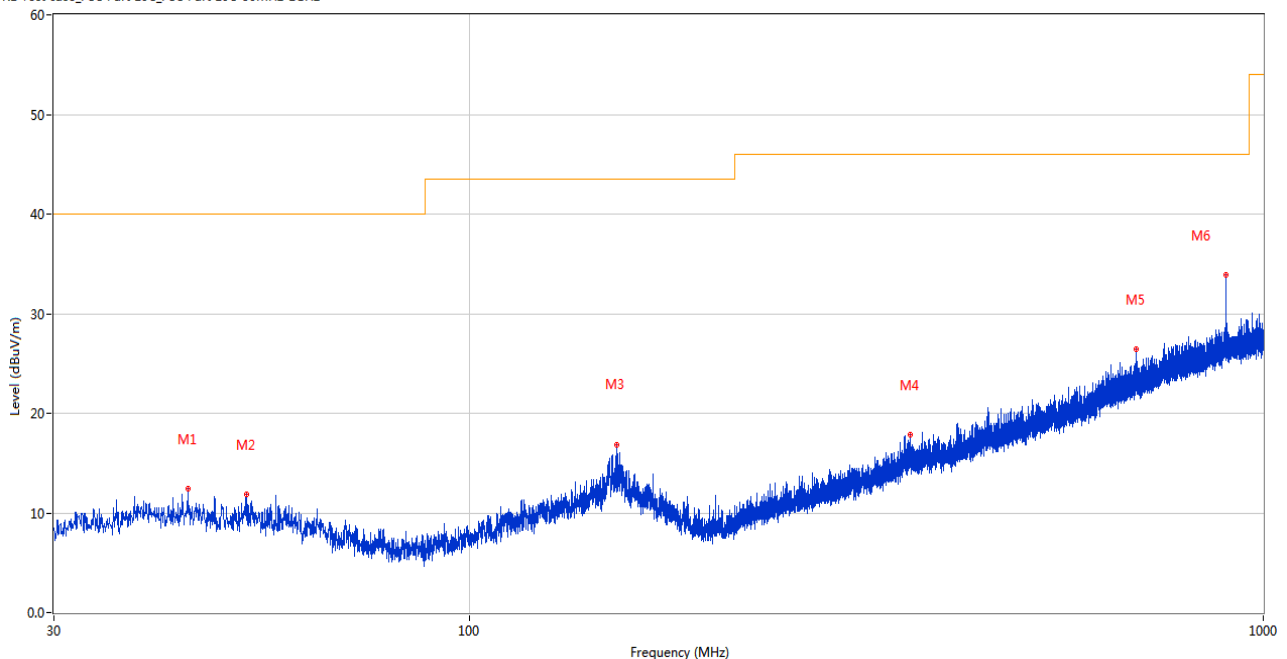
Note ⁴: Results (dBuV/m) = Original reading level of Spectrum Analyzer (dBuV/m) + Factor (dB)

The low frequency, which started from 9 kHz to 30 MHz, was pre-scanned and the result which was 20 dB lower than the limit line per 15.31(o) was not reported.

Test Data and Plots

30 MHz to 1 GHz, ANT H

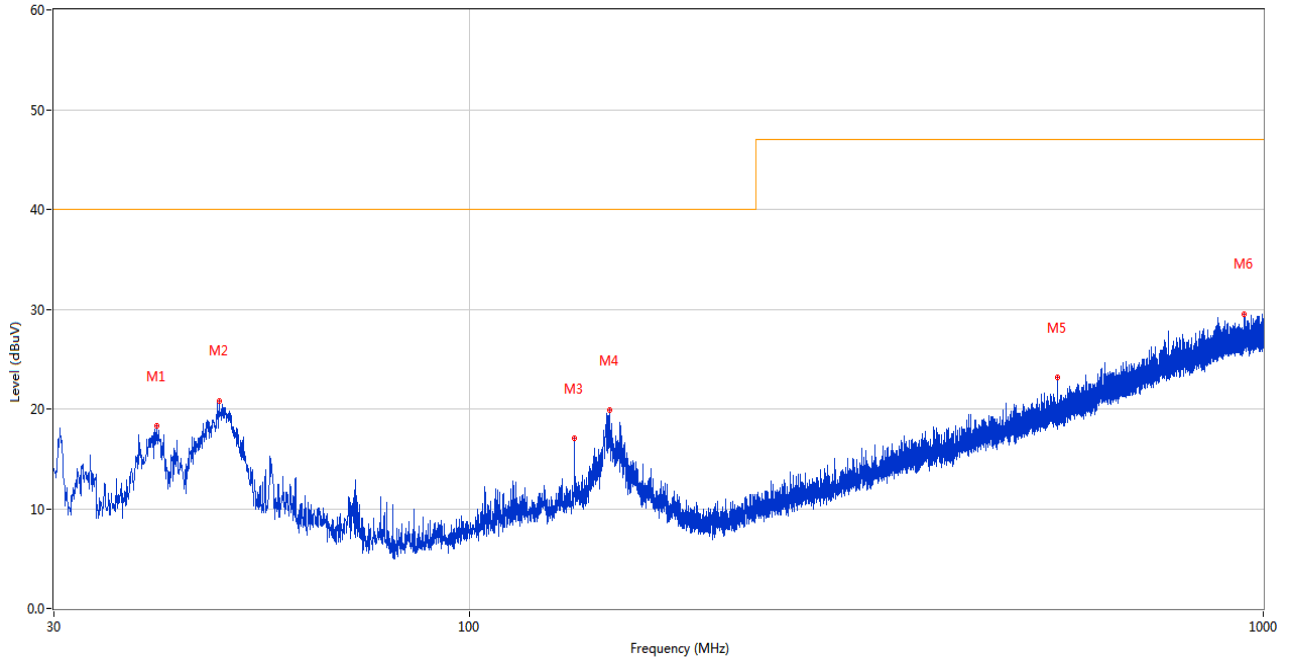
RE Test case_FCC Part 15C_FCC Part 15C:30MHz-1GHz



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	44.259	12.45	-26.50	40.0	27.55	Peak	24.00	100	Horizontal	Pass
2	52.407	11.84	-26.66	40.0	28.16	Peak	146.00	100	Horizontal	Pass
3	153.578	16.89	-24.50	43.5	26.61	Peak	13.00	200	Horizontal	Pass
4	359.800	17.82	-22.16	46.0	28.18	Peak	308.00	100	Horizontal	Pass
5	691.201	26.43	-14.25	46.0	19.57	Peak	251.00	100	Horizontal	Pass
6	897.422	33.92	-10.98	46.0	12.08	Peak	275.00	100	Horizontal	Pass

30 MHz to 1 GHz, ANT V

RE Test case_EN 55032_EN 55032 Class B 30MHz-1GHz



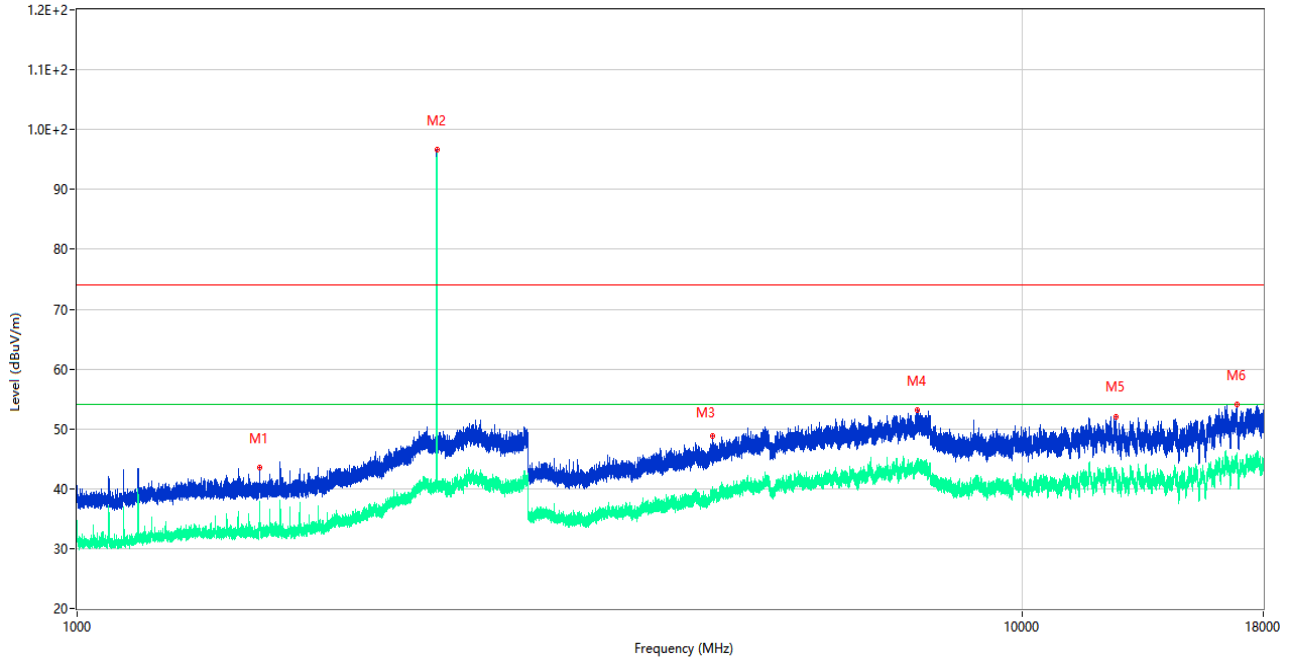
No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	40.476	18.25	-26.23	40.0	21.75	Peak	84.00	100	Vertical	Pass
2	48.430	20.83	-26.42	40.0	19.17	Peak	0.00	100	Vertical	Pass
3	135.584	17.03	-26.02	40.0	22.97	Peak	360.00	100	Vertical	Pass
4	150.183	19.90	-24.65	40.0	20.10	Peak	313.00	100	Vertical	Pass
5	550.017	23.17	-17.21	47.0	23.83	Peak	325.00	100	Vertical	Pass
6	945.777	29.54	-10.22	47.0	17.46	Peak	49.00	200	Vertical	Pass

Note 1: The marked spikes near 2400 MHz with circle should be ignored because they are Fundamental signal.

Note 2: The spurious from 18GHz-25GHz is noise only, do not show on the report.

GFSK LOW CHANNEL 1 GHz to 18 GHz, ANT H

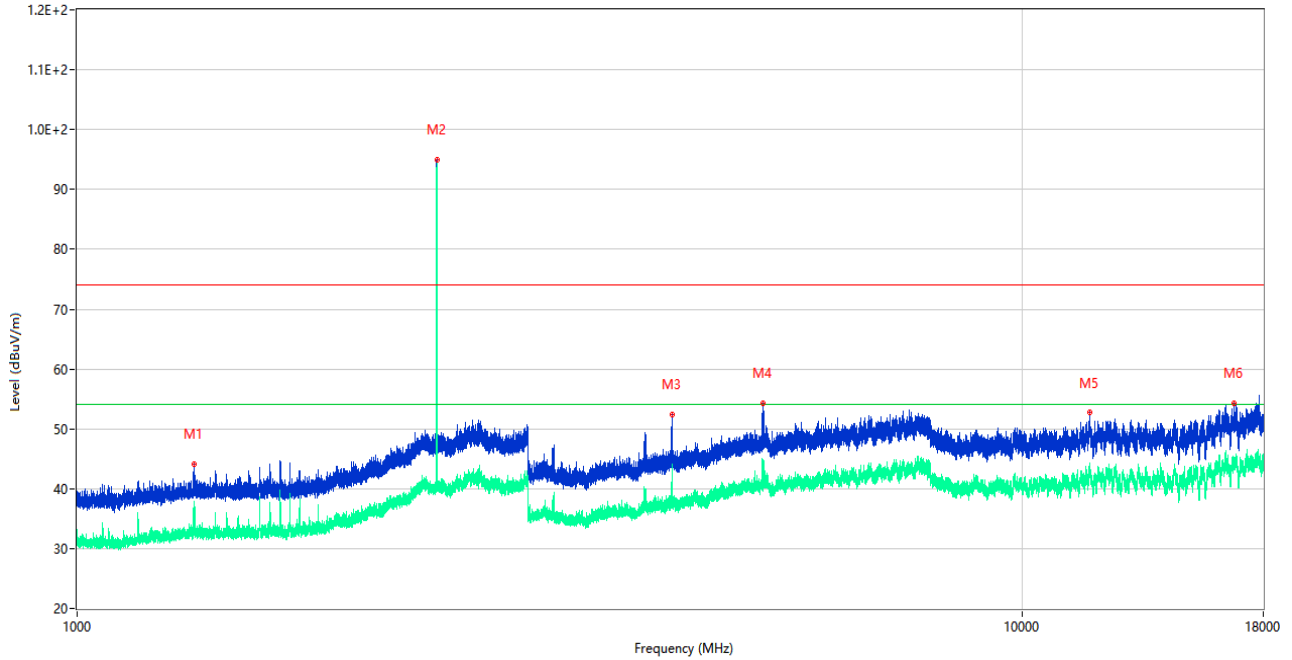
RE Test case_FCC Part 15C_FCC 15.247(2.4G)_1GHz-18GHz



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1560.000	43.49	-17.04	74.0	30.51	Peak	32.00	300	Horizontal	Pass
1**	1560.000	37.65	-17.04	54.0	16.35	AV	32.00	300	Horizontal	Pass
2	2402.200	96.59	-10.59	74.0	-22.59	Peak	23.00	200	Horizontal	N/A
2**	2402.200	95.99	-10.59	54.0	-41.99	AV	23.00	200	Horizontal	N/A
3	4709.500	48.85	-3.65	74.0	25.15	Peak	217.00	150	Horizontal	Pass
3**	4709.500	38.86	-3.65	54.0	15.14	AV	217.00	150	Horizontal	Pass
4	7756.750	53.10	1.48	74.0	20.90	Peak	260.00	100	Horizontal	Pass
4**	7756.750	44.35	1.48	54.0	9.65	AV	260.00	100	Horizontal	Pass
5	12582.799	52.07	0.57	74.0	21.93	Peak	344.00	200	Horizontal	Pass
5**	12582.799	41.87	0.57	54.0	12.13	AV	344.00	200	Horizontal	Pass
6	16884.901	54.07	2.97	74.0	19.93	Peak	46.00	400	Horizontal	Pass
6**	16884.901	45.04	2.97	54.0	8.96	AV	46.00	400	Horizontal	Pass

GFSK LOW CHANNEL 1 GHz to 18 GHz, ANT V

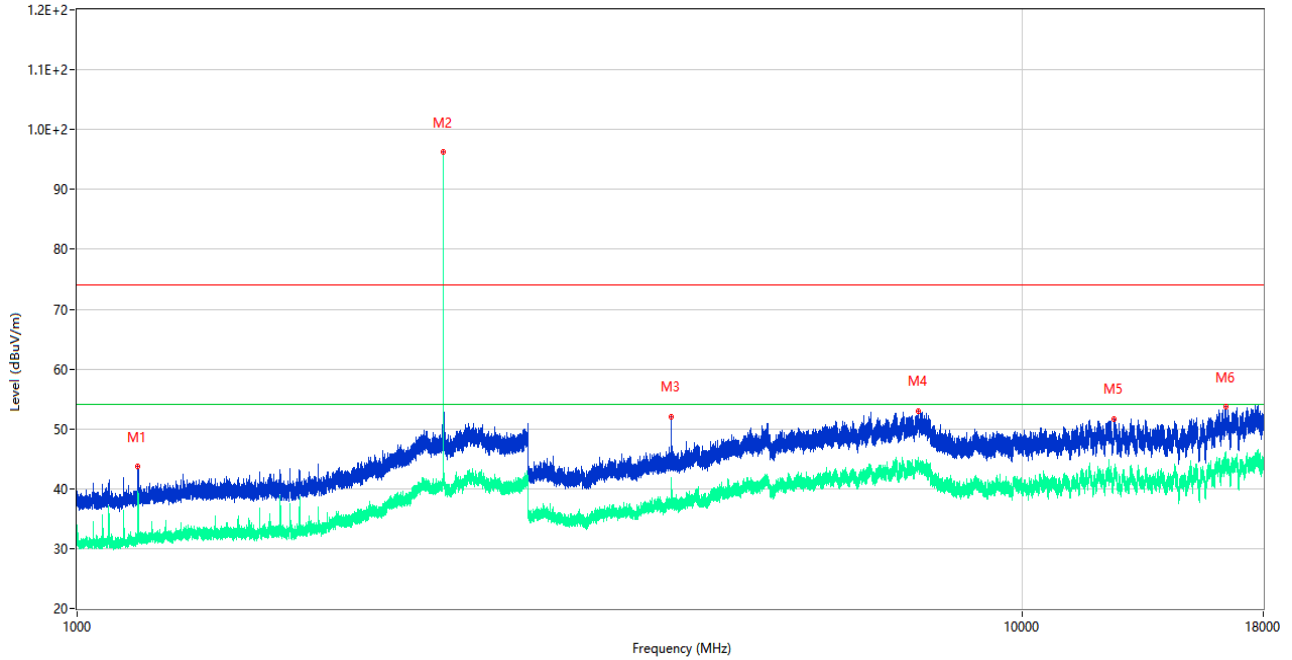
RE Test case_FCC Part 15C_FCC 15.247(2.4G)_1GHz-18GHz



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1328.700	44.17	-16.98	74.0	29.83	Peak	252.00	400	Vertical	Pass
1**	1328.700	35.70	-16.98	54.0	18.30	AV	252.00	400	Vertical	Pass
2	2401.800	95.01	-10.63	74.0	-21.01	Peak	142.00	200	Vertical	N/A
2**	2401.800	93.69	-10.63	54.0	-39.69	AV	142.00	200	Vertical	N/A
3	4264.500	52.48	-5.00	74.0	21.52	Peak	244.00	100	Vertical	Pass
3**	4264.500	38.53	-5.00	54.0	15.47	AV	244.00	100	Vertical	Pass
4	5322.250	54.36	-3.03	74.0	19.64	Peak	216.00	300	Vertical	Pass
4**	5322.250	44.25	-3.03	54.0	9.75	AV	216.00	300	Vertical	Pass
5	11801.900	52.72	-0.17	74.0	21.28	Peak	223.00	200	Vertical	Pass
5**	11801.900	42.93	-0.17	54.0	11.07	AV	223.00	200	Vertical	Pass
6	16778.063	54.28	1.54	74.0	19.72	Peak	54.00	300	Vertical	Pass
6**	16778.063	43.79	1.54	54.0	10.21	AV	54.00	300	Vertical	Pass

GFSK MIDDLE CHANNEL 1 GHz to 18 GHz, ANT H

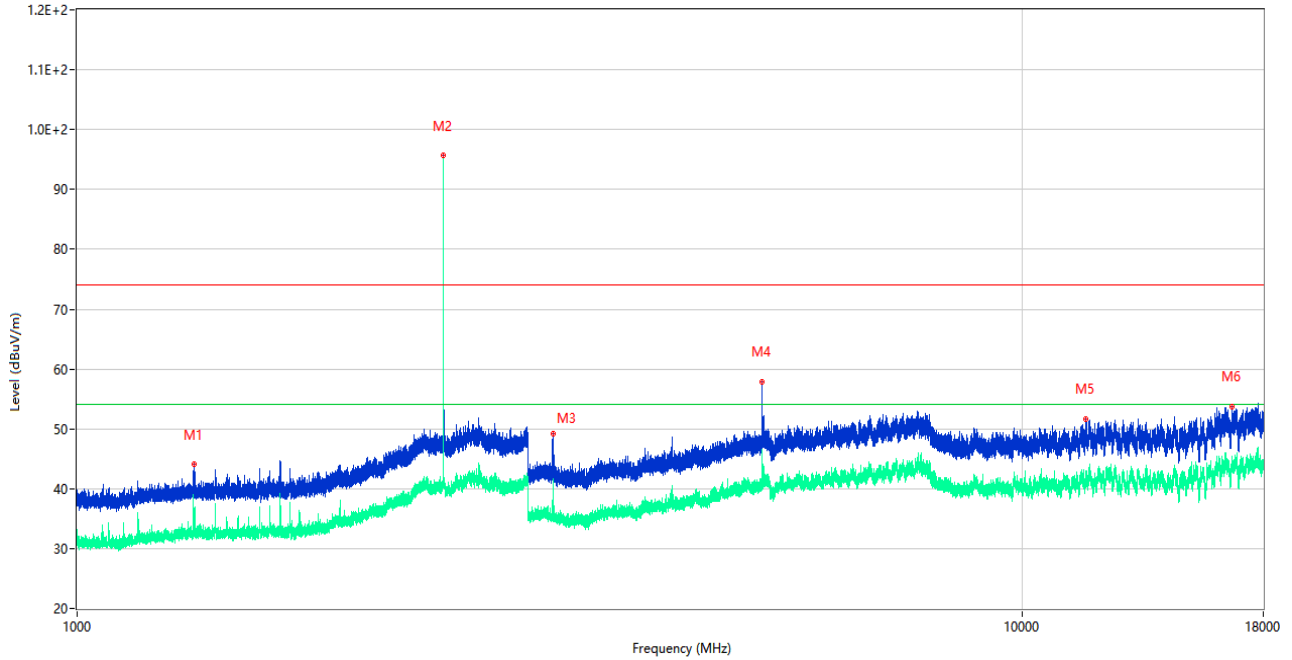
RE Test case_FCC Part 15C_FCC 15.247(2.4G)_1GHz-18GHz



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1159.600	43.64	-17.59	74.0	30.36	Peak	69.00	100	Horizontal	Pass
1**	1159.600	38.27	-17.59	54.0	15.73	AV	69.00	100	Horizontal	Pass
2	2440.800	96.23	-9.79	74.0	-22.23	Peak	15.00	150	Horizontal	N/A
2**	2440.800	95.44	-9.79	54.0	-41.44	AV	15.00	150	Horizontal	N/A
3	4258.000	52.01	-4.28	74.0	21.99	Peak	187.00	200	Horizontal	Pass
3**	4258.000	37.74	-4.28	54.0	16.26	AV	187.00	200	Horizontal	Pass
4	7765.750	52.96	1.51	74.0	21.04	Peak	345.00	400	Horizontal	Pass
4**	7765.750	44.28	1.51	54.0	9.72	AV	345.00	400	Horizontal	Pass
5	12520.575	51.72	1.32	74.0	22.28	Peak	7.00	400	Horizontal	Pass
5**	12520.575	42.71	1.32	54.0	11.29	AV	7.00	400	Horizontal	Pass
6	16435.762	53.67	2.69	74.0	20.33	Peak	174.00	100	Horizontal	Pass
6**	16435.762	44.30	2.69	54.0	9.70	AV	174.00	100	Horizontal	Pass

GFSK MIDDLE CHANNEL 1 GHz to 18 GHz, ANT V

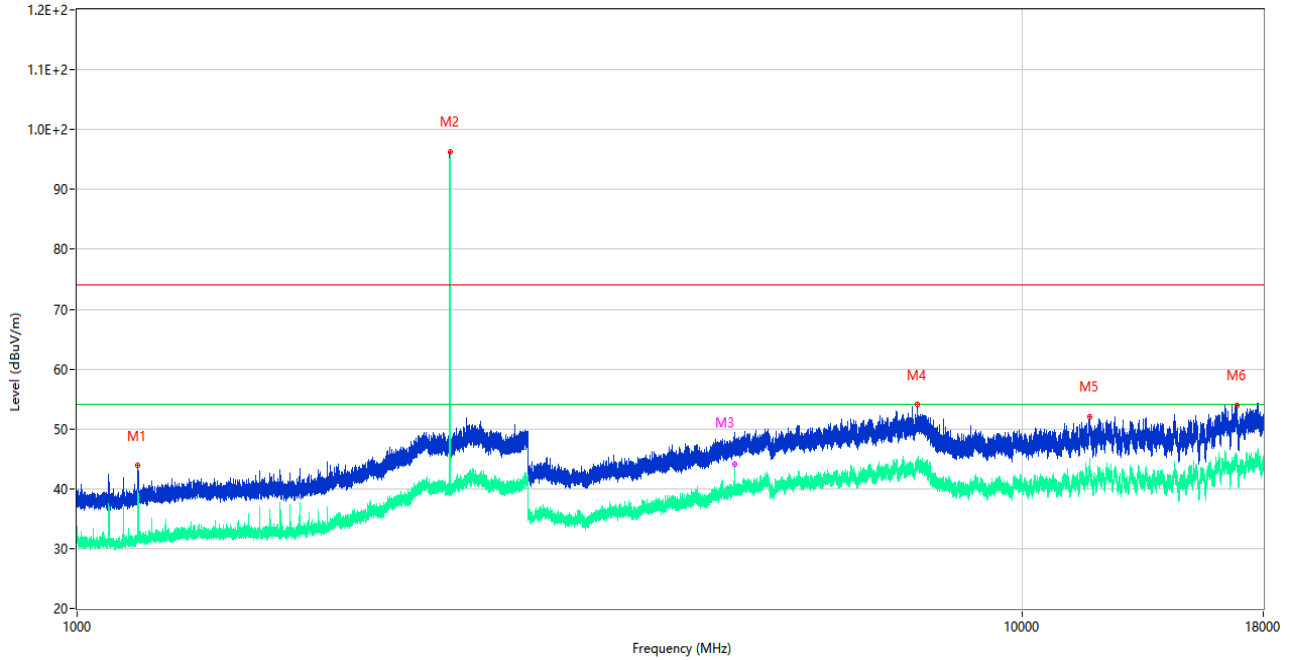
RE Test case_FCC Part 15C_FCC 15.247(2.4G)_1GHz-18GHz



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1329.700	44.03	-16.79	74.0	29.97	Peak	241.00	200	Vertical	Pass
1**	1329.700	35.59	-16.79	54.0	18.41	AV	241.00	200	Vertical	Pass
2	2440.800	95.63	-9.79	74.0	-21.63	Peak	59.00	150	Vertical	N/A
2**	2440.800	94.67	-9.79	54.0	-40.67	AV	59.00	150	Vertical	N/A
3	3187.750	49.13	-7.73	74.0	24.87	Peak	247.00	100	Vertical	Pass
3**	3187.750	38.85	-7.73	54.0	15.15	AV	247.00	100	Vertical	Pass
4	5310.750	57.86	-3.32	74.0	16.14	Peak	223.00	300	Vertical	Pass
4**	5310.750	46.47	-3.32	54.0	7.53	AV	223.00	300	Vertical	Pass
5	11680.300	51.64	-0.84	74.0	22.36	Peak	237.00	300	Vertical	Pass
5**	11680.300	41.66	-0.84	54.0	12.34	AV	237.00	300	Vertical	Pass
6	16697.213	53.71	3.00	74.0	20.29	Peak	86.00	300	Vertical	Pass
6**	16697.213	44.19	3.00	54.0	9.81	AV	86.00	300	Vertical	Pass

GFSK HIGH CHANNEL 1 GHz to 18 GHz, ANT H

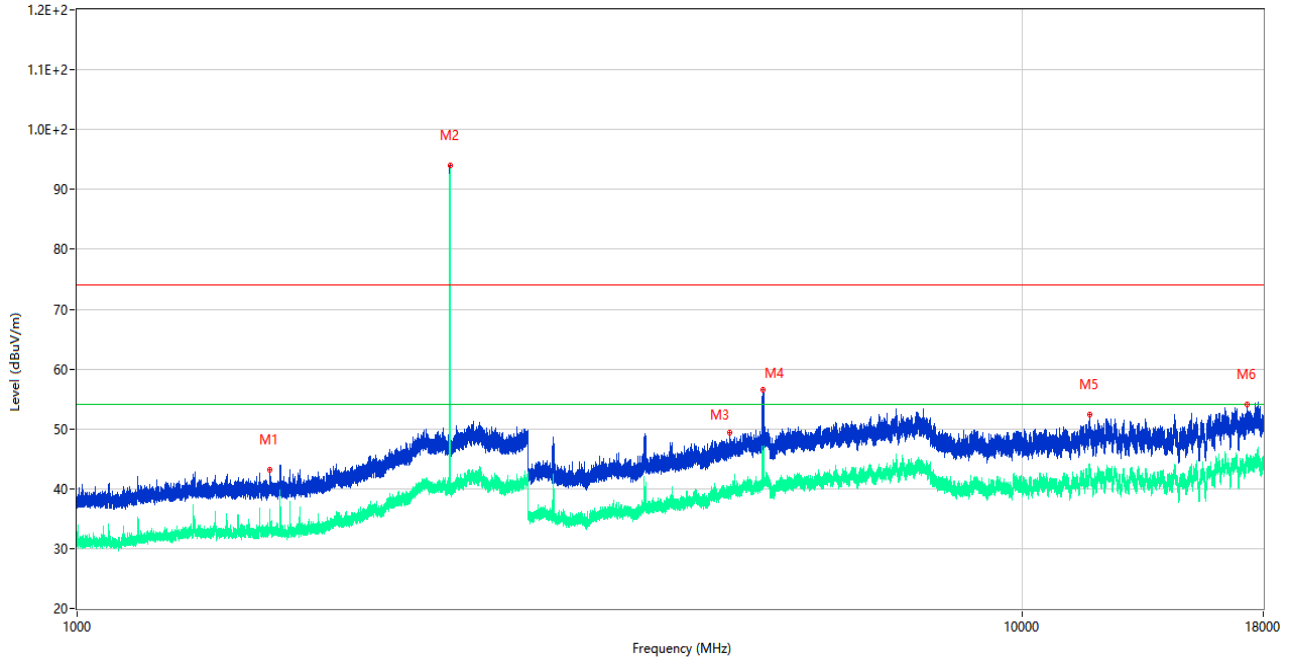
RE Test case_FCC Part 15C_FCC 15.247(2.4G)_1GHz-18GHz



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1159.800	43.83	-17.67	74.0	30.17	Peak	69.00	300	Horizontal	Pass
1**	1159.800	39.08	-17.67	54.0	14.92	AV	69.00	300	Horizontal	Pass
2	2480.100	96.33	-11.10	74.0	-22.33	Peak	40.00	150	Horizontal	N/A
2**	2480.100	96.12	-11.10	54.0	-42.12	AV	40.00	150	Horizontal	N/A
3	4960.000	47.73	-3.53	74.0	26.27	Peak	360.00	150	Horizontal	Pass
3**	4960.000	44.10	-3.53	54.0	9.90	AV	360.00	150	Horizontal	Pass
4	7754.500	54.00	1.18	74.0	20.00	Peak	150.00	100	Horizontal	Pass
4**	7754.500	43.86	1.18	54.0	10.14	AV	150.00	100	Horizontal	Pass
5	11794.062	52.07	-0.15	74.0	21.93	Peak	127.00	200	Horizontal	Pass
5**	11794.062	43.91	-0.15	54.0	10.09	AV	127.00	200	Horizontal	Pass
6	16869.412	53.97	3.24	74.0	20.03	Peak	254.00	100	Horizontal	Pass
6**	16869.412	44.32	3.24	54.0	9.68	AV	254.00	100	Horizontal	Pass

GFSK HIGH CHANNEL 1 GHz to 18 GHz, ANT V

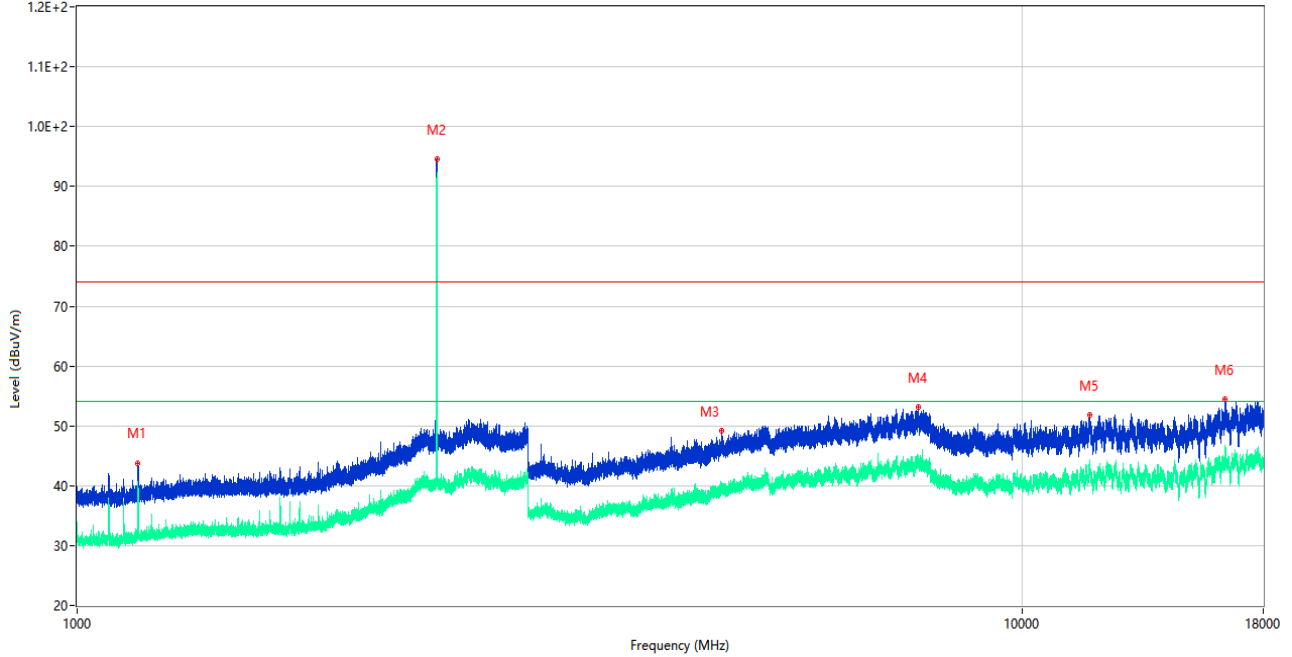
RE Test case_FCC Part 15C_FCC 15.247(2.4G)_1GHz-18GHz



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1599.900	43.20	-16.70	74.0	30.80	Peak	33.00	100	Vertical	Pass
1**	1599.900	36.05	-16.70	54.0	17.95	AV	33.00	100	Vertical	Pass
2	2480.100	94.01	-11.10	74.0	-20.01	Peak	62.00	100	Vertical	N/A
2**	2480.100	93.79	-11.10	54.0	-39.79	AV	62.00	100	Vertical	N/A
3	4899.500	49.44	-3.28	74.0	24.56	Peak	290.00	150	Vertical	Pass
3**	4899.500	39.29	-3.28	54.0	14.71	AV	290.00	150	Vertical	Pass
4	5320.000	56.57	-3.19	74.0	17.43	Peak	222.00	200	Vertical	Pass
4**	5320.000	41.19	-3.19	54.0	12.81	AV	222.00	200	Vertical	Pass
5	11797.625	52.49	-0.15	74.0	21.51	Peak	2.00	100	Vertical	Pass
5**	11797.625	43.06	-0.15	54.0	10.94	AV	2.00	100	Vertical	Pass
6	17292.825	54.10	2.61	74.0	19.90	Peak	14.00	200	Vertical	Pass
6**	17292.825	44.93	2.61	54.0	9.07	AV	14.00	200	Vertical	Pass

8-DPSK LOW CHANNEL 1 GHz to 18 GHz, ANT H

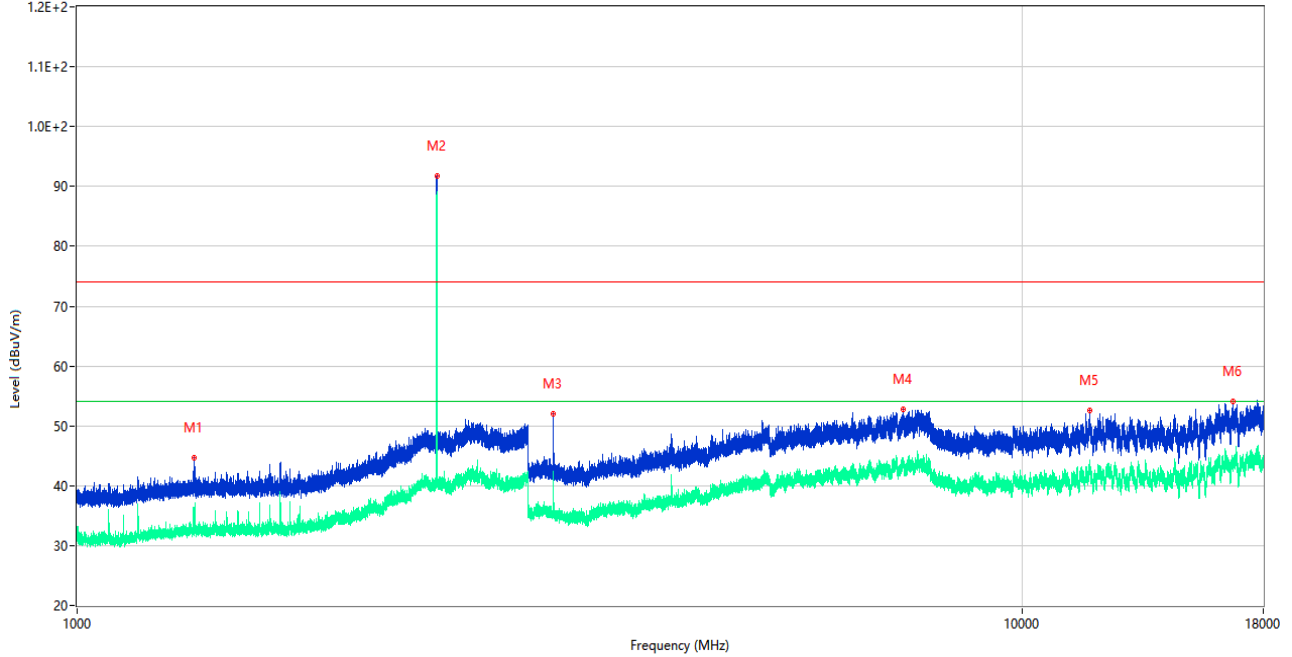
RE Test case_FCC Part 15C_FCC 15.247(2.4G)_1GHz-18GHz



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1160.200	43.80	-17.80	74.0	30.20	Peak	67.00	300	Horizontal	Pass
1**	1160.200	40.23	-17.80	54.0	13.77	AV	67.00	300	Horizontal	Pass
2	2402.100	94.49	-10.60	74.0	-20.49	Peak	35.00	100	Horizontal	N/A
2**	2402.100	92.31	-10.60	54.0	-38.31	AV	35.00	100	Horizontal	N/A
3	4811.750	49.14	-2.91	74.0	24.86	Peak	223.00	150	Horizontal	Pass
3**	4811.750	40.25	-2.91	54.0	13.75	AV	223.00	150	Horizontal	Pass
4	7766.000	53.12	1.67	74.0	20.88	Peak	201.00	300	Horizontal	Pass
4**	7766.000	44.24	1.67	54.0	9.76	AV	201.00	300	Horizontal	Pass
5	11781.238	51.81	-0.16	74.0	22.19	Peak	308.00	300	Horizontal	Pass
5**	11781.238	43.17	-0.16	54.0	10.83	AV	308.00	300	Horizontal	Pass
6	16405.313	54.44	3.10	74.0	19.56	Peak	171.00	100	Horizontal	Pass
6**	16405.313	44.64	3.10	54.0	9.36	AV	171.00	100	Horizontal	Pass

8-DPSK LOW CHANNEL 1 GHz to 18 GHz, ANT V

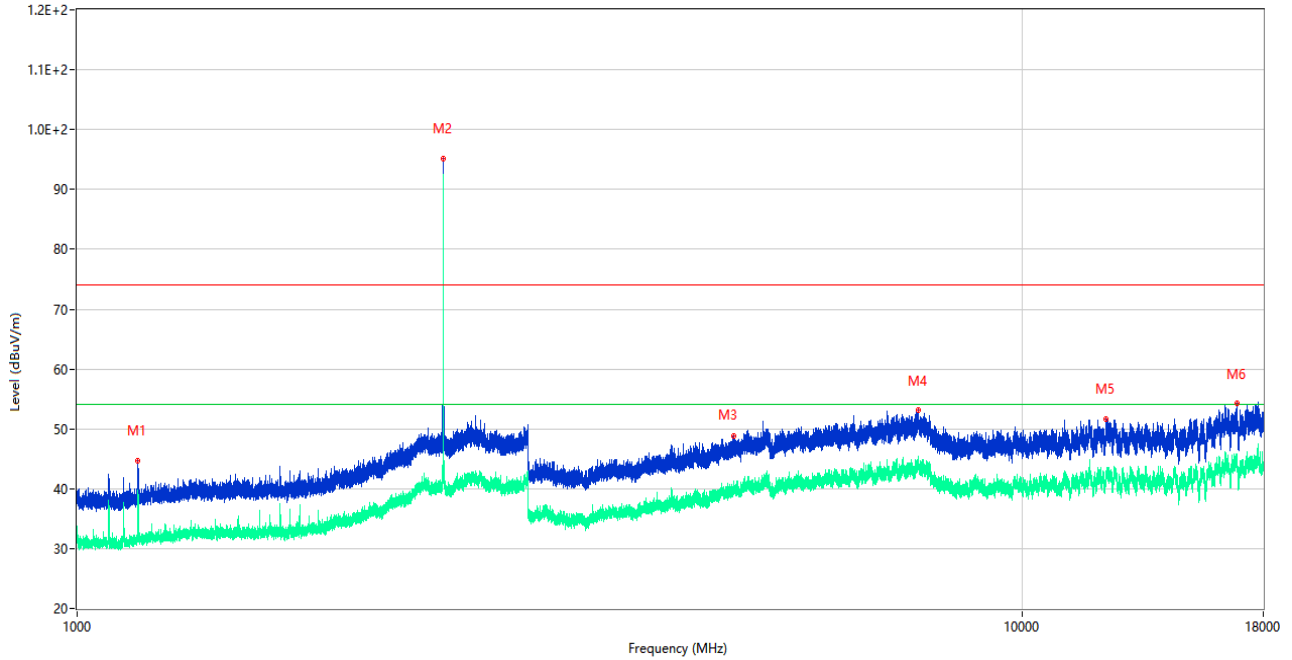
RE Test case_FCC Part 15C_FCC 15.247(2.4G)_1GHz-18GHz



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1331.300	44.67	-16.96	74.0	29.33	Peak	227.00	100	Vertical	Pass
1**	1331.300	32.51	-16.96	54.0	21.49	AV	227.00	100	Vertical	Pass
2	2401.900	91.79	-10.62	74.0	-17.79	Peak	76.00	100	Vertical	N/A
2**	2401.900	88.81	-10.62	54.0	-34.81	AV	76.00	100	Vertical	N/A
3	3189.000	52.06	-8.03	74.0	21.94	Peak	235.00	150	Vertical	Pass
3**	3189.000	42.48	-8.03	54.0	11.52	AV	235.00	150	Vertical	Pass
4	7485.750	52.78	1.39	74.0	21.22	Peak	84.00	300	Vertical	Pass
4**	7485.750	43.95	1.39	54.0	10.05	AV	84.00	300	Vertical	Pass
5	11803.800	52.63	-0.19	74.0	21.37	Peak	292.00	400	Vertical	Pass
5**	11803.800	42.48	-0.19	54.0	11.52	AV	292.00	400	Vertical	Pass
6	16701.676	54.14	2.99	74.0	19.86	Peak	0.00	100	Vertical	Pass
6**	16701.676	44.46	2.99	54.0	9.54	AV	0.00	100	Vertical	Pass

8-DPSK MIDDLE CHANNEL 1 GHz to 18 GHz, ANT H

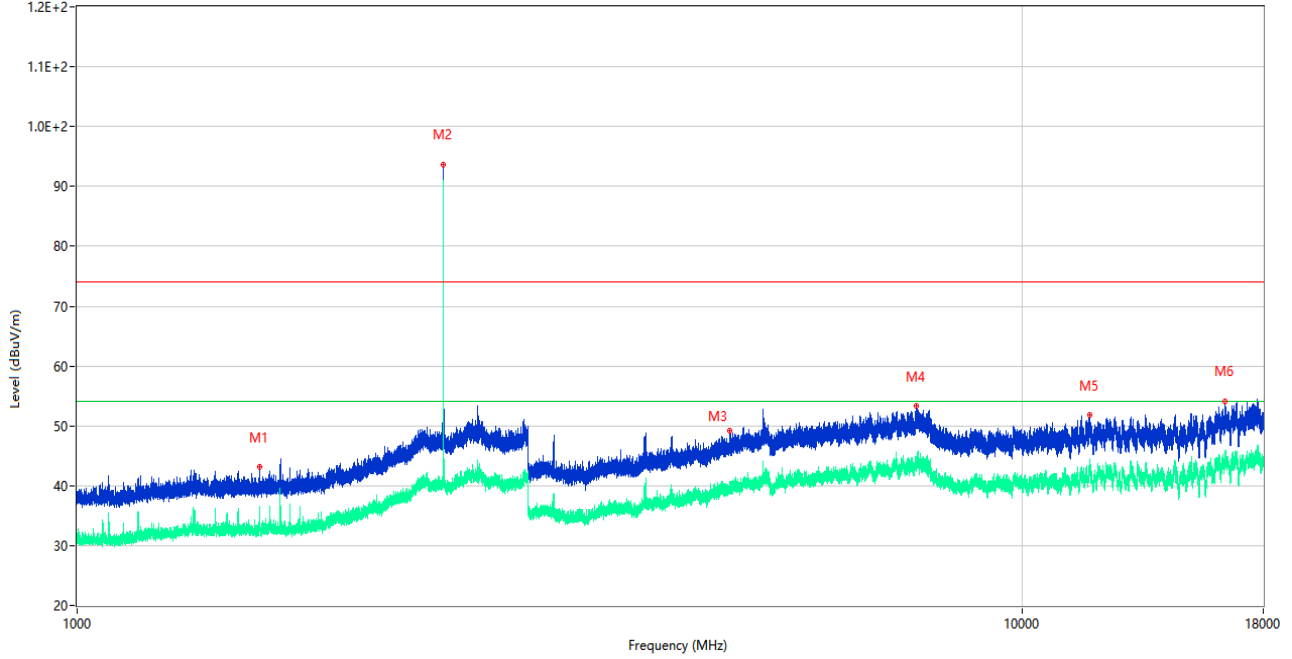
RE Test case_FCC Part 15C_FCC 15.247(2.4G)_1GHz-18GHz



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1159.700	44.69	-17.60	74.0	29.31	Peak	73.00	100	Horizontal	Pass
1**	1159.700	38.96	-17.60	54.0	15.04	AV	73.00	100	Horizontal	Pass
2	2440.900	95.15	-9.79	74.0	-21.15	Peak	0.00	200	Horizontal	N/A
2**	2440.900	92.14	-9.79	54.0	-38.14	AV	0.00	200	Horizontal	N/A
3	4958.000	48.76	-3.57	74.0	25.24	Peak	18.00	100	Horizontal	Pass
3**	4958.000	39.48	-3.57	54.0	14.52	AV	18.00	100	Horizontal	Pass
4	7757.250	53.07	1.46	74.0	20.93	Peak	298.00	300	Horizontal	Pass
4**	7757.250	44.23	1.46	54.0	9.77	AV	298.00	300	Horizontal	Pass
5	12278.088	51.67	0.80	74.0	22.33	Peak	34.00	100	Horizontal	Pass
5**	12278.088	41.86	0.80	54.0	12.14	AV	34.00	100	Horizontal	Pass
6	16872.037	54.27	3.19	74.0	19.73	Peak	324.00	200	Horizontal	Pass
6**	16872.037	44.22	3.19	54.0	9.78	AV	324.00	200	Horizontal	Pass

8-DPSK MIDDLE CHANNEL 1 GHz to 18 GHz, ANT V

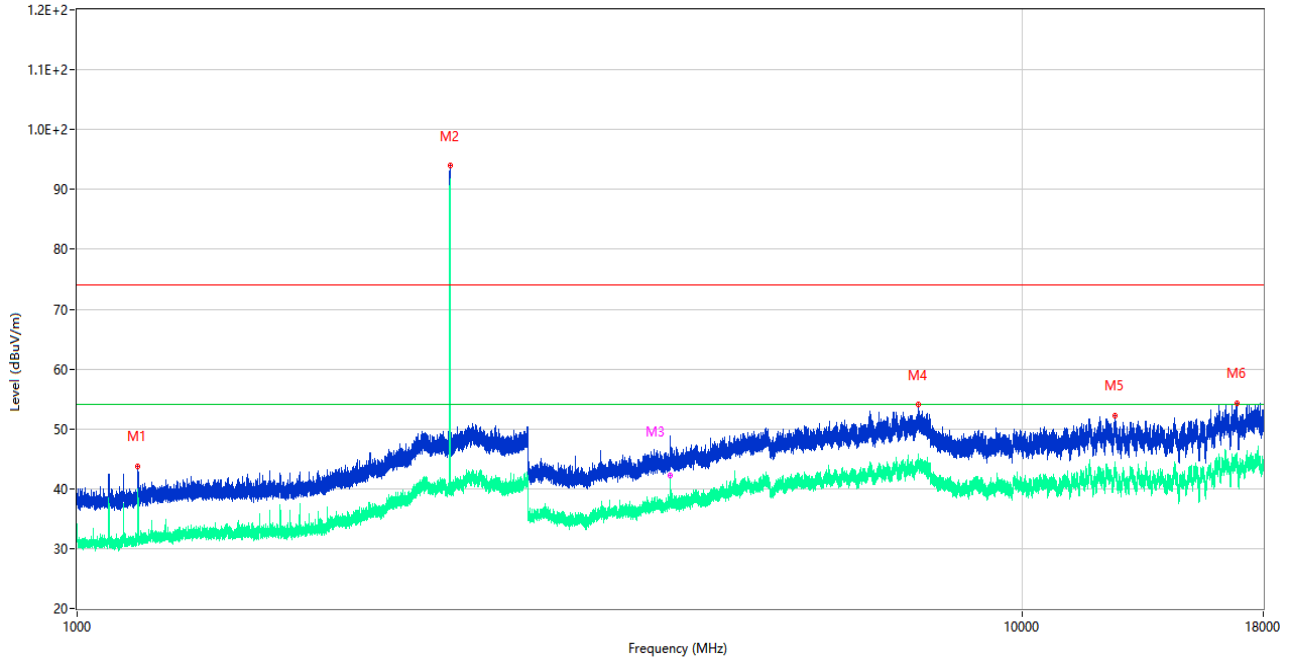
RE Test case_FCC Part 15C_FCC 15.247(2.4G)_1GHz-18GHz



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1559.300	43.11	-17.21	74.0	30.89	Peak	54.00	200	Vertical	Pass
1**	1559.300	34.92	-17.21	54.0	19.08	AV	54.00	200	Vertical	Pass
2	2441.100	93.72	-9.79	74.0	-19.72	Peak	54.00	100	Vertical	N/A
2**	2441.100	90.46	-9.79	54.0	-36.46	AV	54.00	100	Vertical	N/A
3	4907.000	49.14	-3.34	74.0	24.86	Peak	103.00	200	Vertical	Pass
3**	4907.000	39.43	-3.34	54.0	14.57	AV	103.00	200	Vertical	Pass
4	7732.500	53.29	0.25	74.0	20.71	Peak	16.00	300	Vertical	Pass
4**	7732.500	43.65	0.25	54.0	10.35	AV	16.00	300	Vertical	Pass
5	11799.525	51.77	-0.15	74.0	22.23	Peak	290.00	300	Vertical	Pass
5**	11799.525	43.00	-0.15	54.0	11.00	AV	290.00	300	Vertical	Pass
6	16404.000	54.13	3.11	74.0	19.87	Peak	152.00	300	Vertical	Pass
6**	16404.000	45.22	3.11	54.0	8.78	AV	152.00	300	Vertical	Pass

8-DPSK HIGH CHANNEL 1 GHz to 18 GHz, ANT H

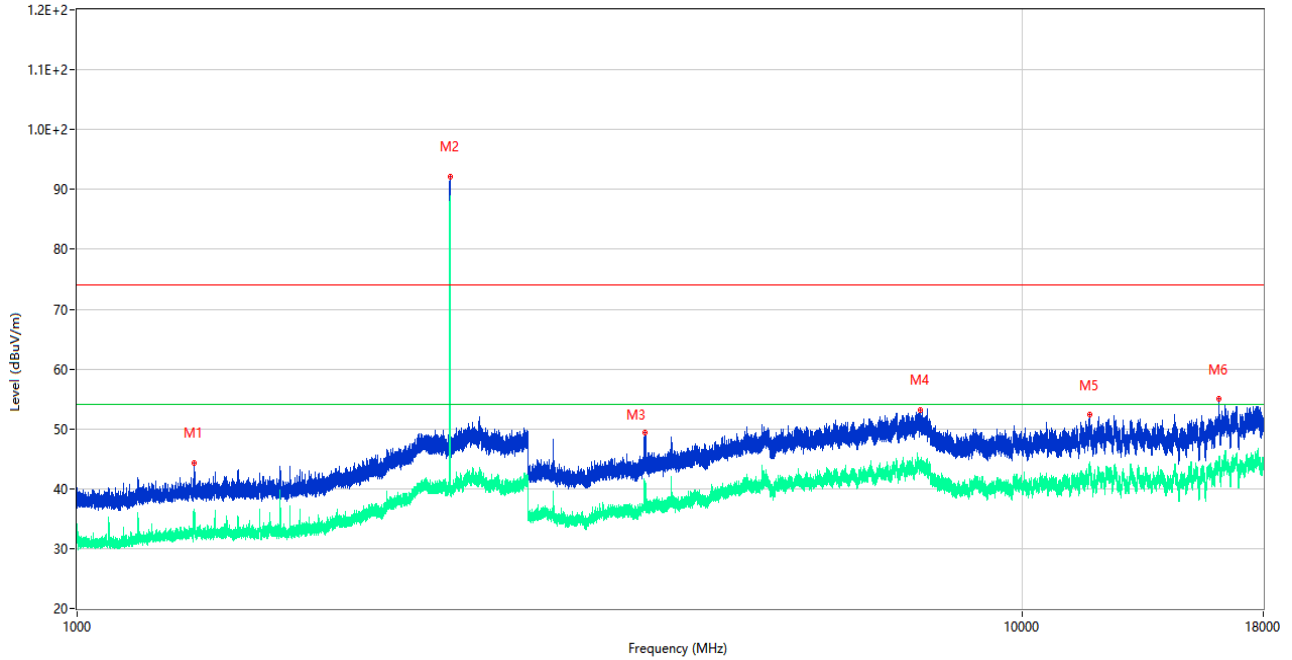
RE Test case_FCC Part 15C_FCC 15.247(2.4G)_1GHz-18GHz



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1160.000	43.77	-17.81	74.0	30.23	Peak	57.00	300	Horizontal	Pass
1**	1160.000	39.47	-17.81	54.0	14.53	AV	57.00	300	Horizontal	Pass
2	2480.000	93.92	-11.11	74.0	-19.92	Peak	67.00	150	Horizontal	N/A
2**	2480.000	91.59	-11.11	54.0	-37.59	AV	67.00	150	Horizontal	N/A
3	4247.750	45.13	-4.60	74.0	28.87	Peak	332.00	150	Horizontal	Pass
3**	4247.750	42.13	-4.60	54.0	11.87	AV	332.00	150	Horizontal	Pass
4	7757.250	54.00	1.46	74.0	20.00	Peak	196.00	200	Horizontal	Pass
4**	7757.250	44.71	1.46	54.0	9.29	AV	196.00	200	Horizontal	Pass
5	12536.250	52.25	1.23	74.0	21.75	Peak	212.00	400	Horizontal	Pass
5**	12536.250	42.74	1.23	54.0	11.26	AV	212.00	400	Horizontal	Pass
6	16874.137	54.31	3.16	74.0	19.69	Peak	190.00	400	Horizontal	Pass
6**	16874.137	45.69	3.16	54.0	8.31	AV	190.00	400	Horizontal	Pass

8-DPSK HIGH CHANNEL 1 GHz to 18 GHz, ANT V

RE Test case_FCC Part 15C_FCC 15.247(2.4G)_1GHz-18GHz



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1328.800	44.31	-16.94	74.0	29.69	Peak	223.00	300	Vertical	Pass
1**	1328.800	33.47	-16.94	54.0	20.53	AV	223.00	300	Vertical	Pass
2	2480.000	92.14	-11.11	74.0	-18.14	Peak	57.00	100	Vertical	N/A
2**	2480.000	88.89	-11.11	54.0	-34.89	AV	57.00	100	Vertical	N/A
3	3988.500	49.46	-5.79	74.0	24.54	Peak	164.00	200	Vertical	Pass
3**	3988.500	37.72	-5.79	54.0	16.28	AV	164.00	200	Vertical	Pass
4	7803.500	53.09	0.81	74.0	20.91	Peak	293.00	200	Vertical	Pass
4**	7803.500	44.78	0.81	54.0	9.22	AV	293.00	200	Vertical	Pass
5	11789.075	52.31	-0.16	74.0	21.69	Peak	96.00	300	Vertical	Pass
5**	11789.075	43.93	-0.16	54.0	10.07	AV	96.00	300	Vertical	Pass
6	16163.025	55.00	2.06	74.0	19.00	Peak	212.00	400	Vertical	Pass
6**	16163.025	44.64	2.06	54.0	9.36	AV	212.00	400	Vertical	Pass

5.11 Band Edge (Restricted-band band-edge)

5.11.1 Limit

FCC §15.209&15.247(d)

Radiated emission outside the frequency band attenuation below the general limits specified in FCC section 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in FCC section 15.205(a), must also comply with the radiated emission limits specified in FCC section 15.209(a).

5.11.2 Test Setup

See section 4.5.3 to 4.5.5 for test setup description for the antenna port. The photo of test setup please refer to ANNEX A.

5.11.3 Test Procedure

The measurement frequency range is from 9 kHz to the 10th harmonic of the fundamental frequency. The Turn Table is actuated to turn from 0° to 360°, and both horizontal and vertical polarizations of the Test Antenna are used to find the maximum radiated power. Mid channels on all channel bandwidth verified. Only the worst RB size/offset presented.

The power of the EUT transmitting frequency should be ignored.

All Spurious Emission tests were performed in X, Y, Z axis direction. And only the worst axis test condition was recorded in this test report.

Use the following spectrum analyzer settings:

Span = wide enough to fully capture the emission being measured

RBW = 1 MHz for $f \geq 1$ GHz, 100 kHz for $f < 1$ GHz

VBW \geq RBW

Sweep = auto

Detector function = peak

Trace = max hold

For measurement below 1GHz, 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.

5.11.4 Test Result

Note ¹: The lowest and highest channels are tested to verify the band edge emissions. Please refer to the following the plots for emissions values.

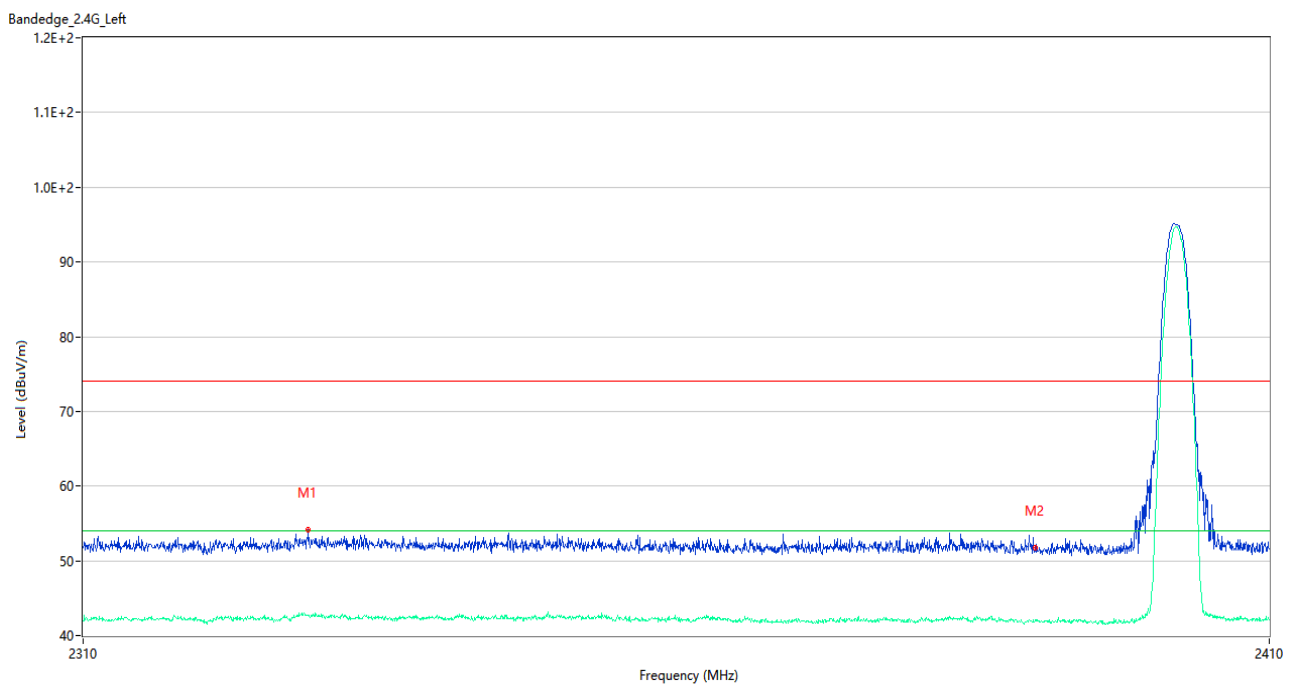
Note ²: The test data all are tested in the vertical and horizontal antenna which the trace is max hold. So these plots have shown the worst case.

Note ³: According the ANSI C63.10-2013, where limits are specified for both average and peak (or quasi-peak) detector functions, if the peak (or quasi-peak) measured value complies with the average limit, it is unnecessary to perform an average measurement.

Note ⁴: The Level (dBuV/m) has been corrected by factor.

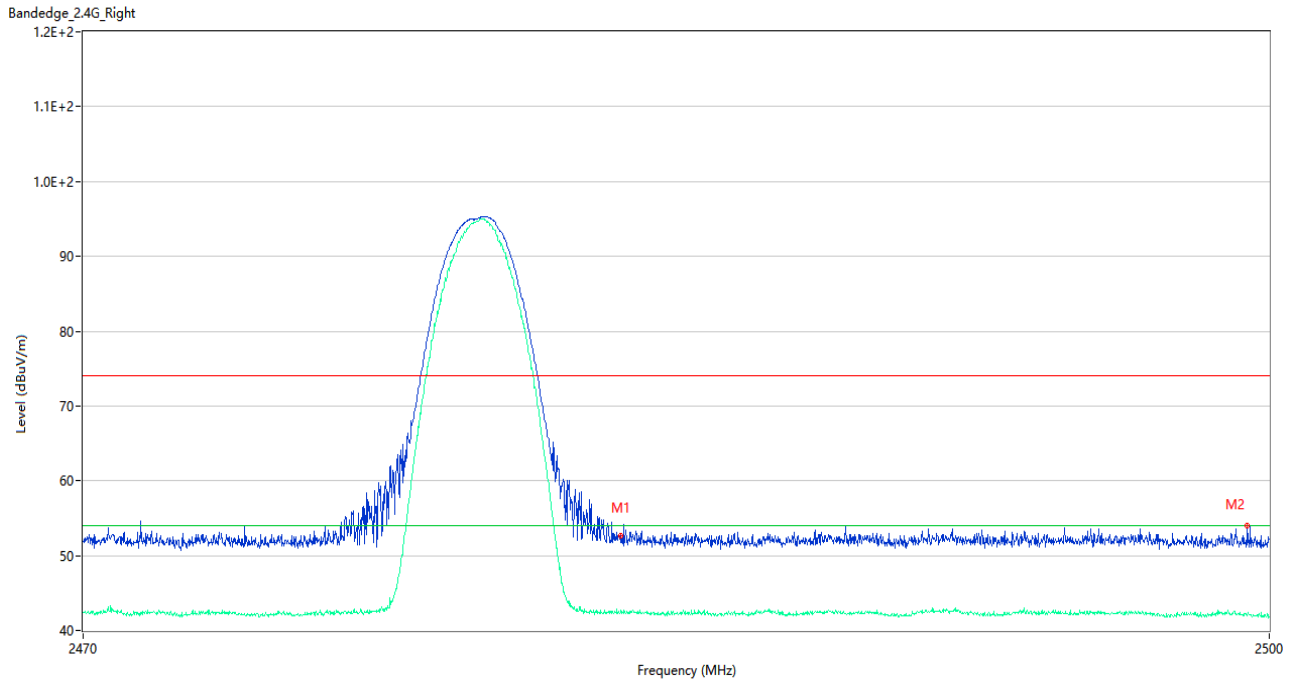
Test Data and Plots

GFSK LOW CHANNEL



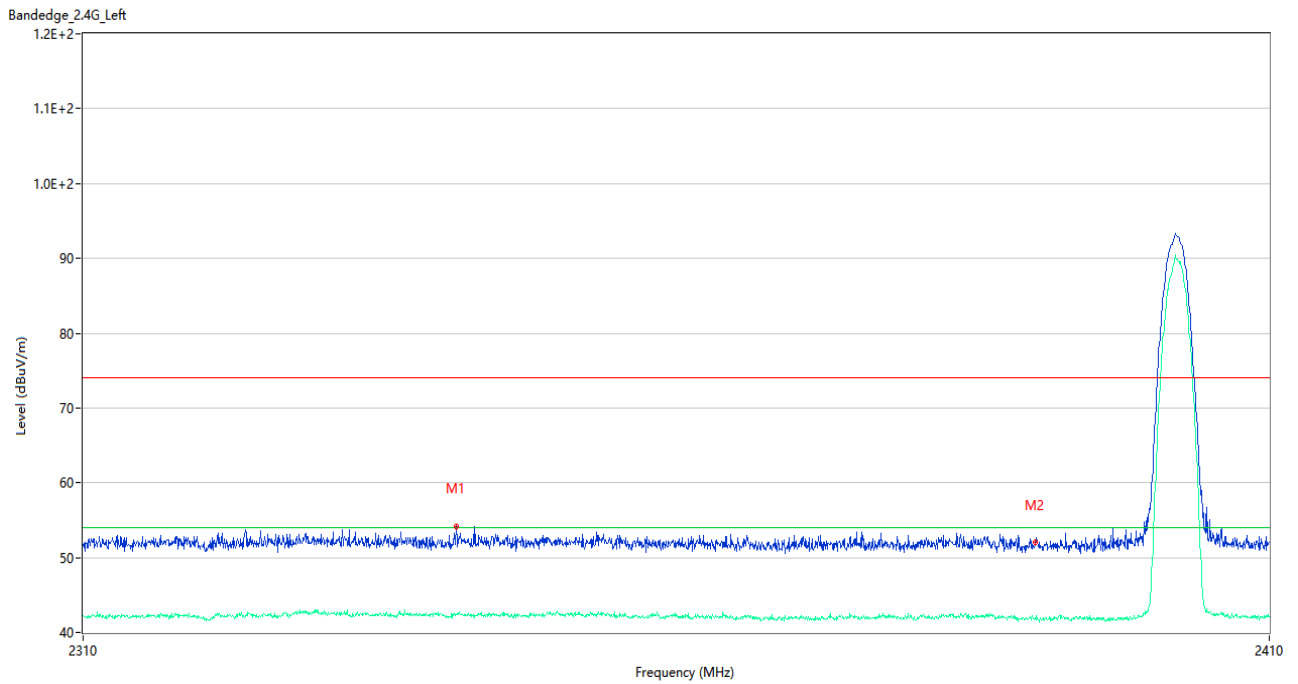
No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	2328.650	54.13	-0.82	74.0	19.87	Peak	348.00	100	Horizontal	Pass
1**	2328.650	42.78	-0.82	54.0	11.22	AV	348.00	100	Horizontal	Pass
2	2389.950	51.73	-1.82	74.0	22.27	Peak	295.00	100	Horizontal	Pass
2**	2389.950	42.09	-1.82	54.0	11.91	AV	295.00	100	Horizontal	Pass

GFSK HIGH CHANNEL



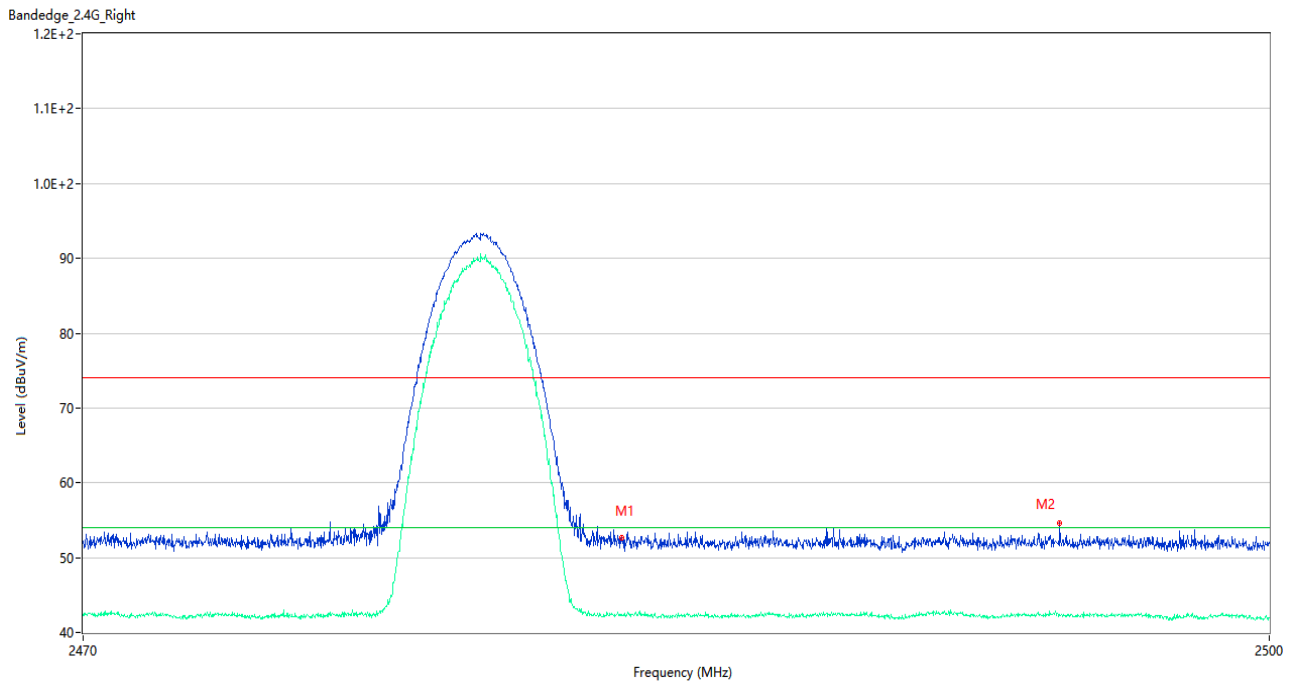
No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	2483.560	52.61	-1.09	74.0	21.39	Peak	360.00	100	Horizontal	Pass
1**	2483.560	42.74	-1.09	54.0	11.26	AV	360.00	100	Horizontal	Pass
2	2499.445	54.00	-1.09	74.0	20.00	Peak	69.00	200	Horizontal	Pass
2**	2499.445	41.93	-1.09	54.0	12.07	AV	69.00	200	Horizontal	Pass

8-DPSK LOW CHANNEL



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	2341.000	54.24	-0.85	74.0	19.76	Peak	285.00	150	Horizontal	Pass
1**	2341.000	42.46	-0.85	54.0	11.54	AV	285.00	150	Horizontal	Pass
2	2389.950	52.07	-1.82	74.0	21.93	Peak	23.00	200	Horizontal	Pass
2**	2389.950	41.92	-1.82	54.0	12.08	AV	23.00	200	Horizontal	Pass

8-DPSK HIGH CHANNEL

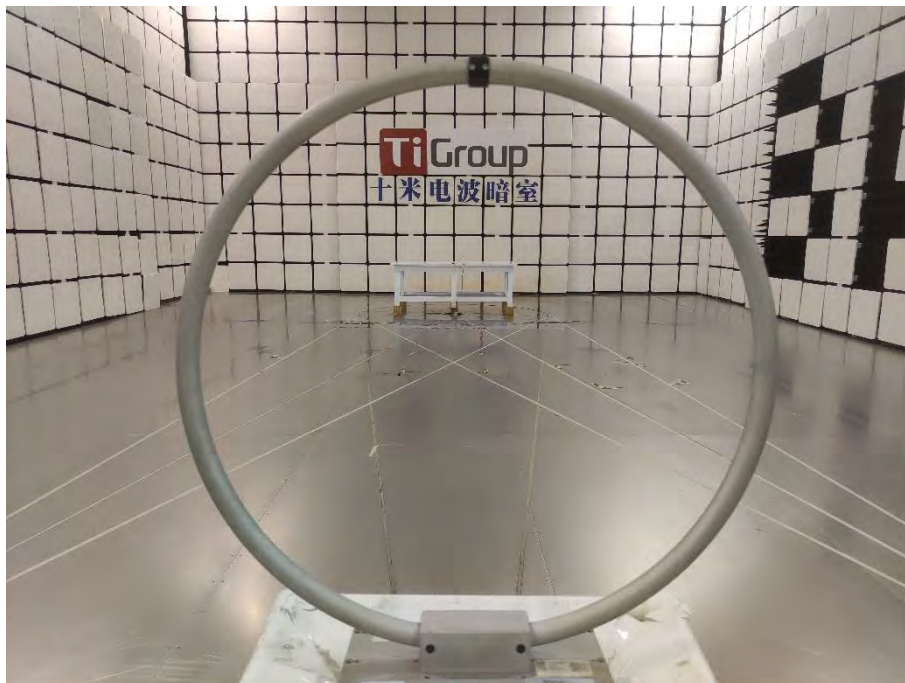


No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	2483.590	52.66	-1.09	74.0	21.34	Peak	44.00	100	Horizontal	Pass
1**	2483.590	42.34	-1.09	54.0	11.66	AV	44.00	100	Horizontal	Pass
2	2494.675	54.58	-0.86	74.0	19.42	Peak	18.00	200	Horizontal	Pass
2**	2494.675	42.31	-0.86	54.0	11.69	AV	18.00	200	Horizontal	Pass

ANNEX A TEST SETUP PHOTOS

1 Radiated Test Photo

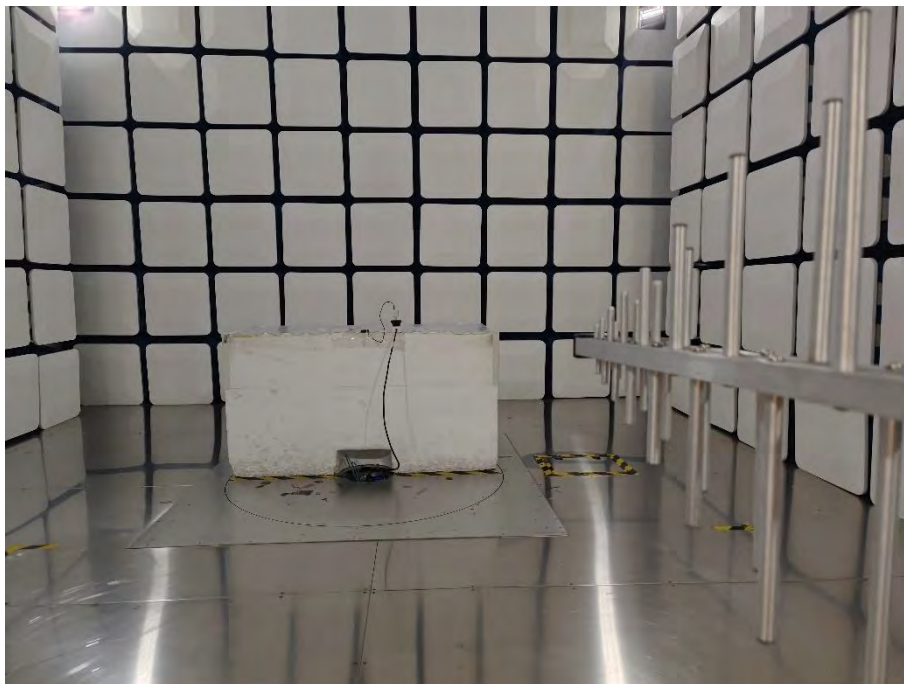
Below 30MHz



Close-up



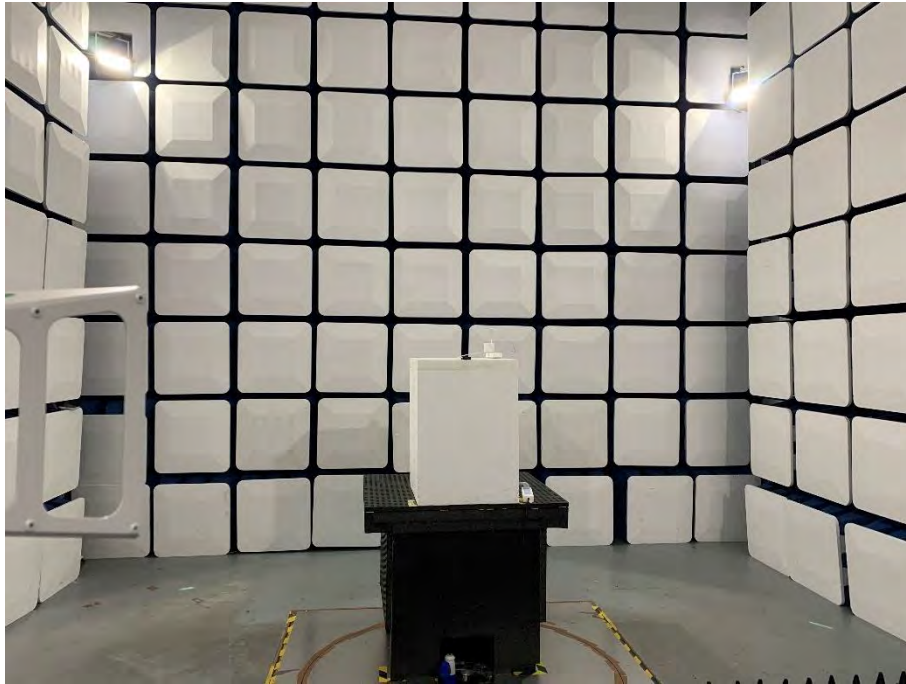
30MHz-1GHz



Close-up



Above 1GHz



Close-up



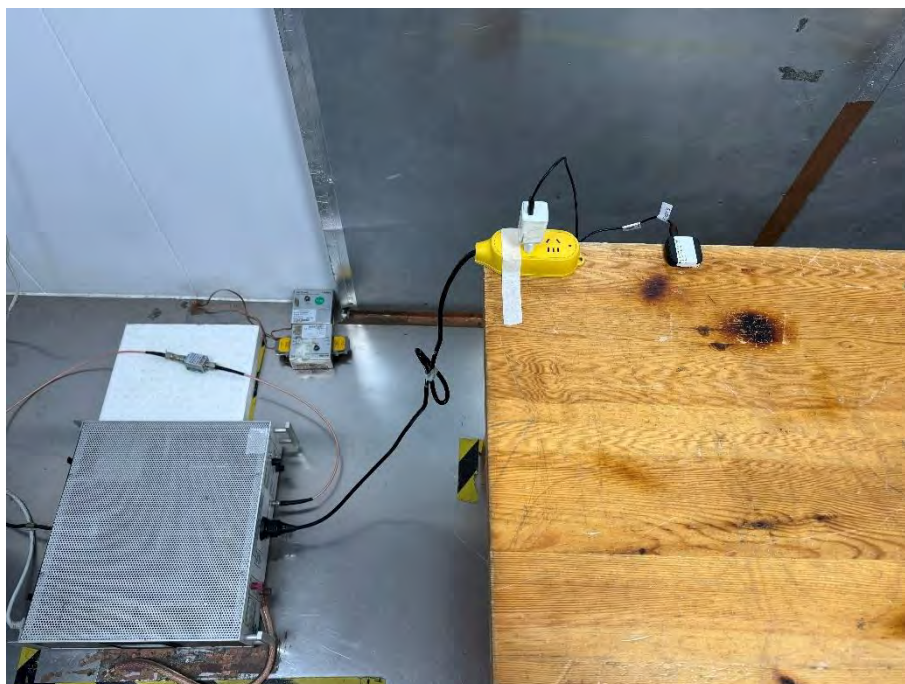
2 Conducted Test Photo

Conducted Test



3 Conducted Emissions

Test Photo 1

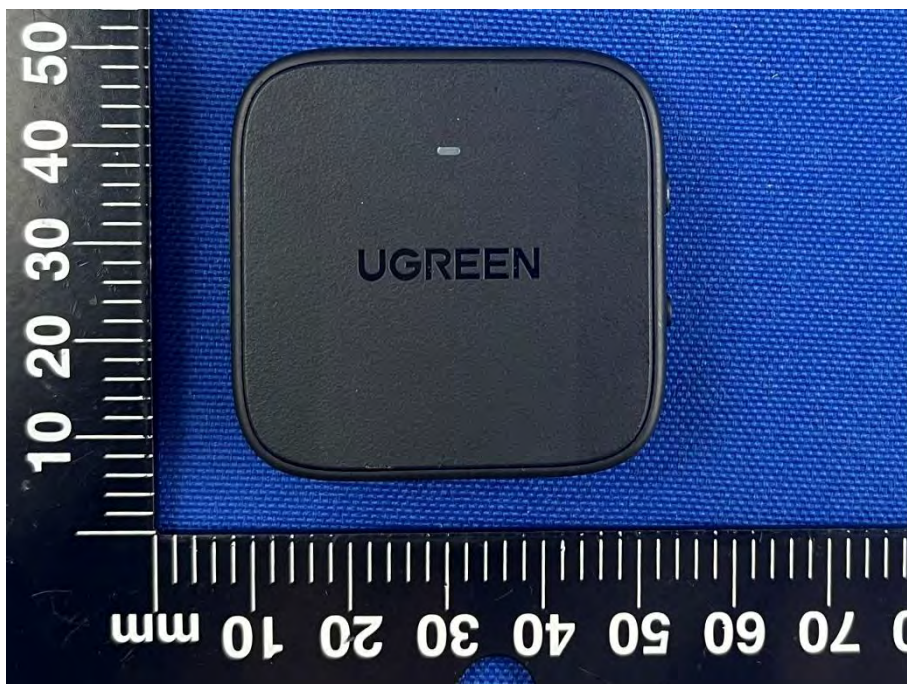


Test Photo 2

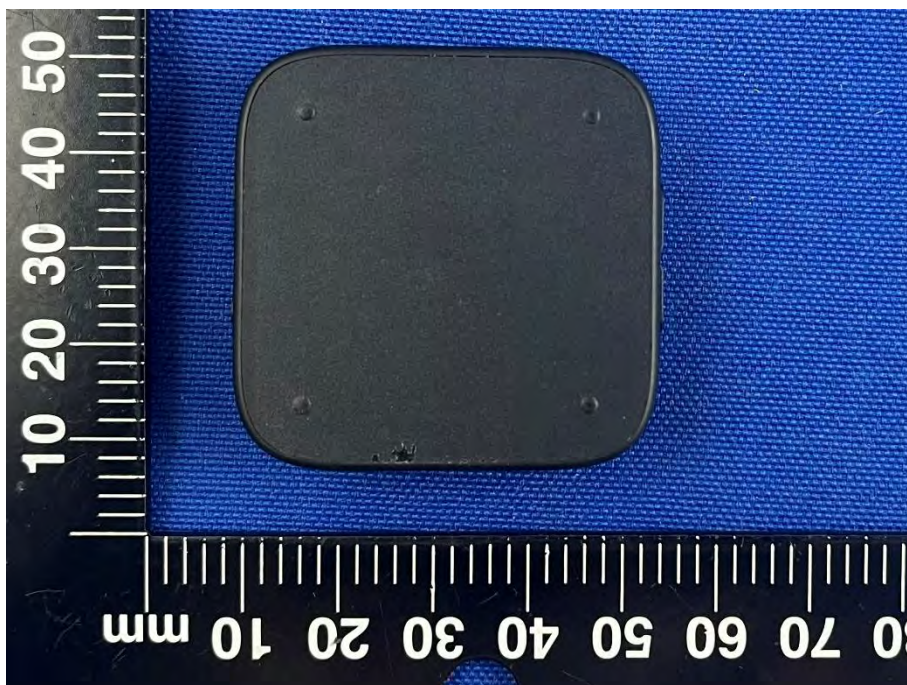


ANNEX B EUT EXTERNAL PHOTOS

FRONT VIEW OF EUT



REAR VIEW OF EUT



LEFT VIEW OF EUT



RIGHT VIEW OF EUT



TOP VIEW OF EUT



CLOSE-UP



BOTTOM VIEW OF EUT



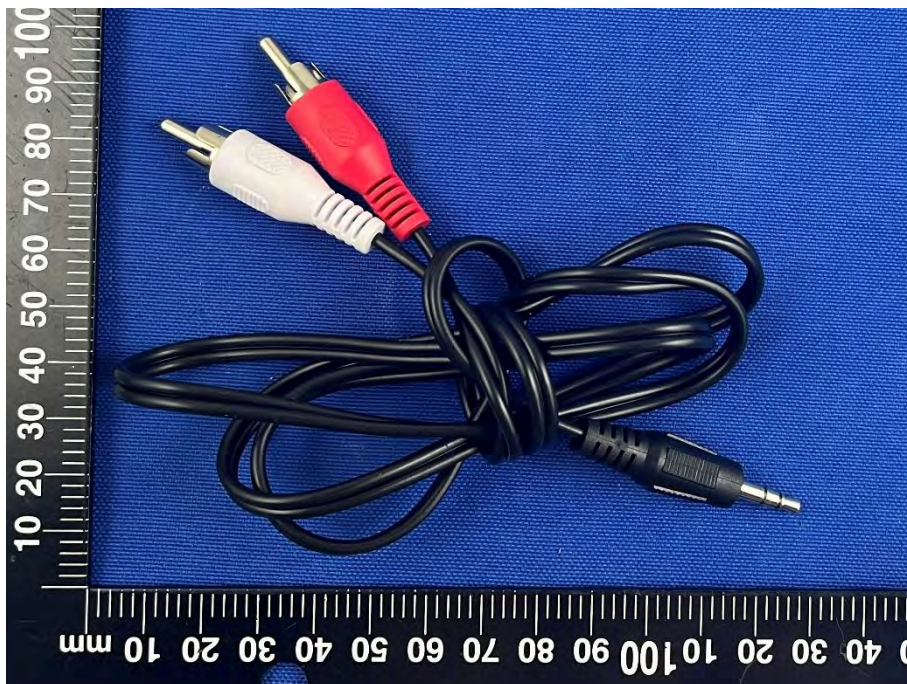
Accessory-Type-C Cable



Accessory-3.5mm Audio Cable



Accessory-3.5mm to Double Lotus Audio Cable

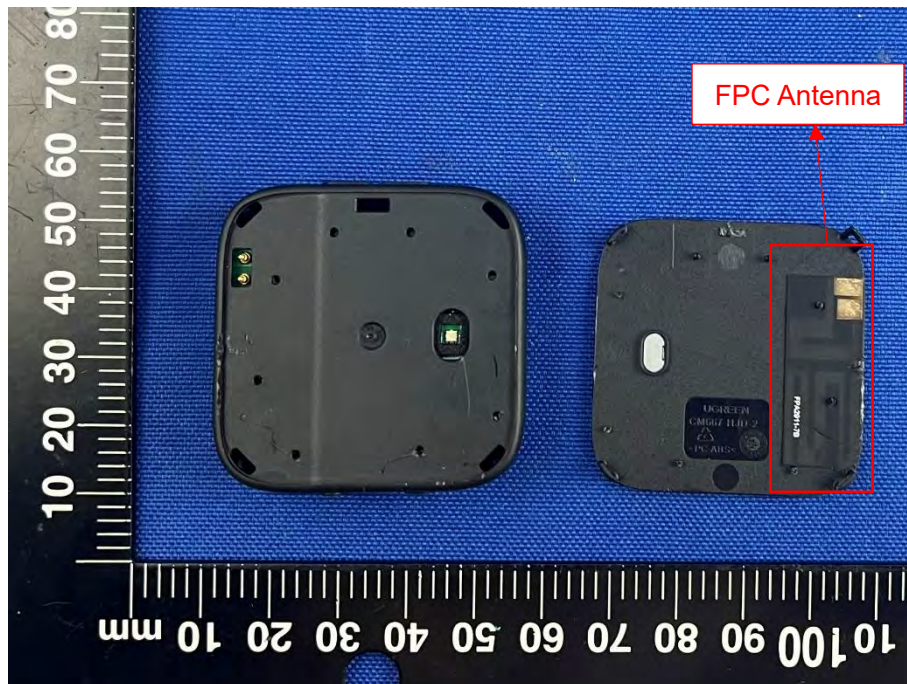


Accessory-3.5mm Audio Connector

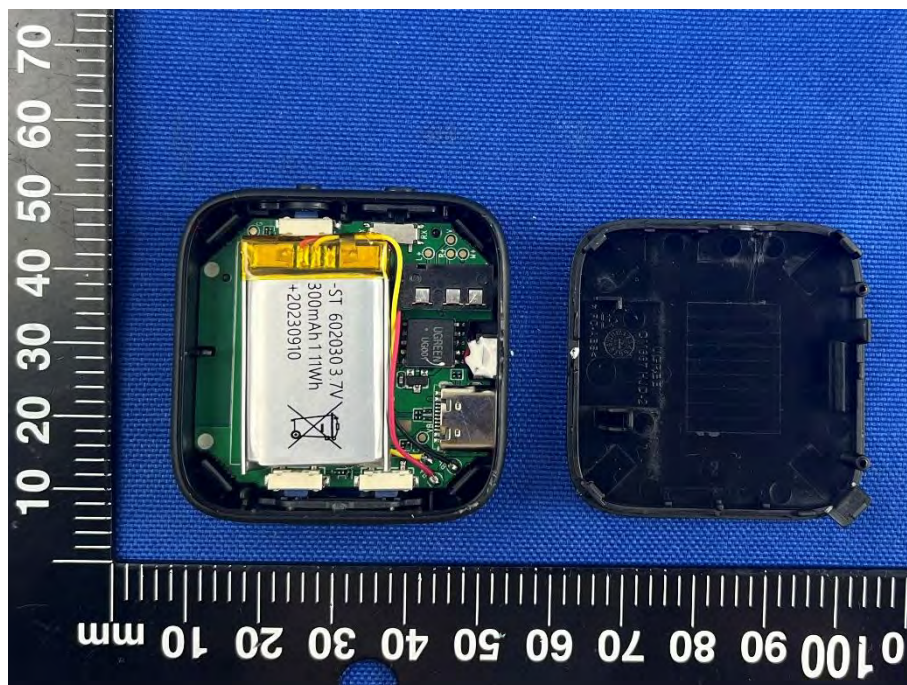


ANNEX C EUT INTERNAL PHOTOS

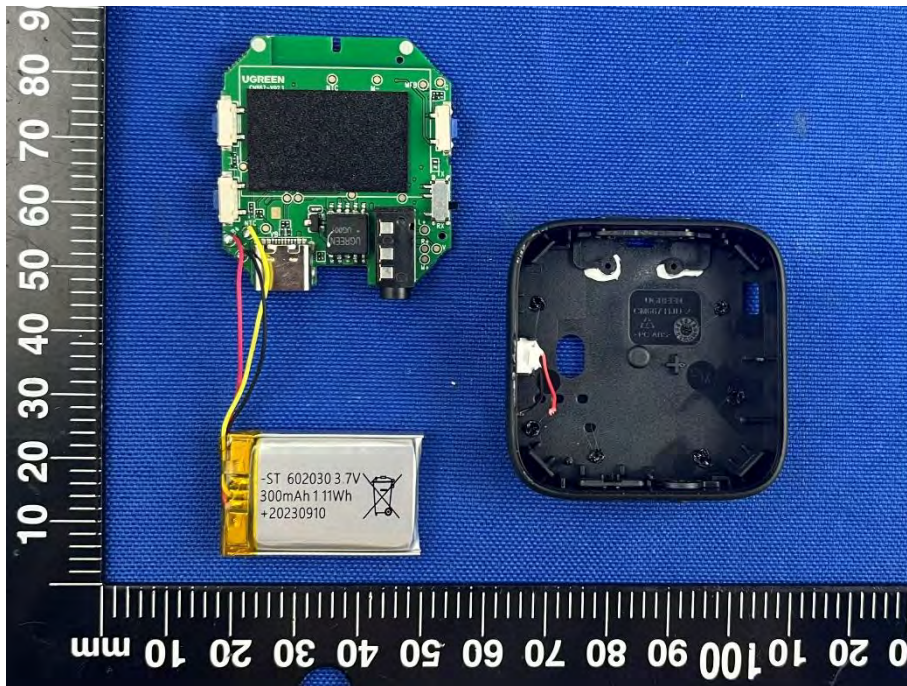
EUT UNCOVER VIEW 1



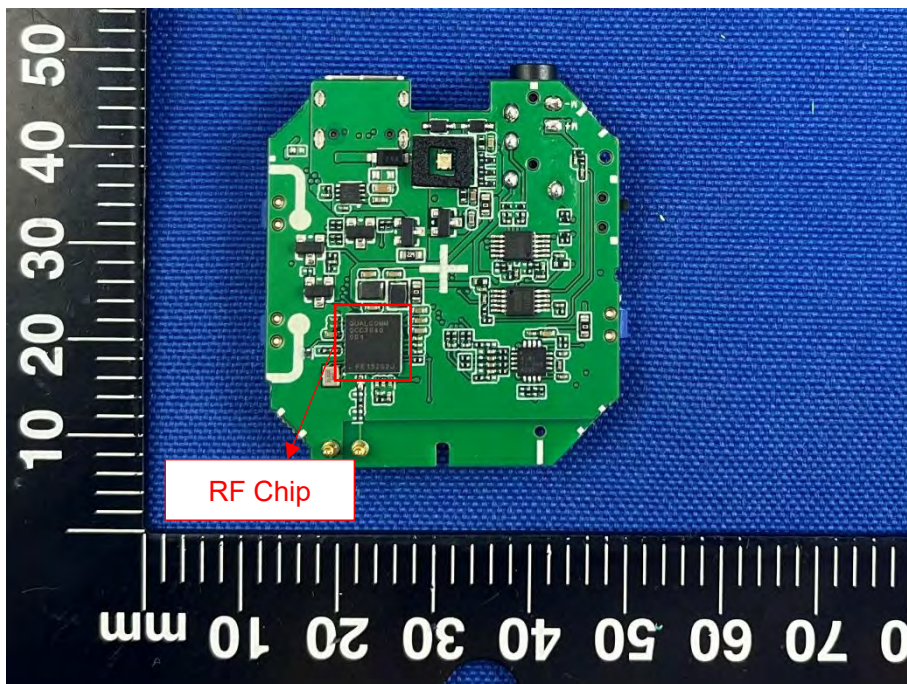
EUT UNCOVER VIEW 2



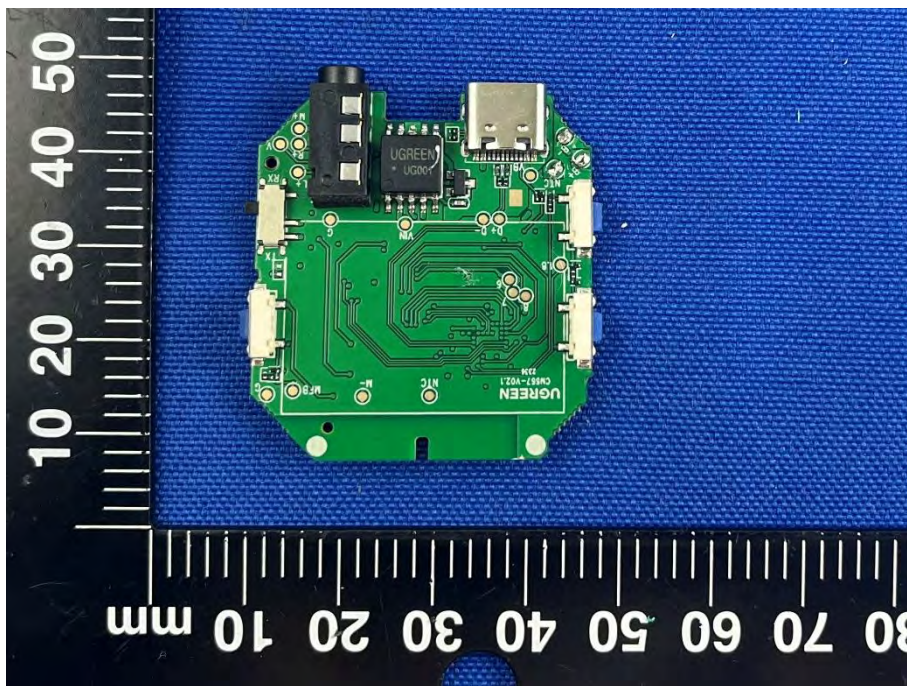
EUT UNCOVER VIEW 3



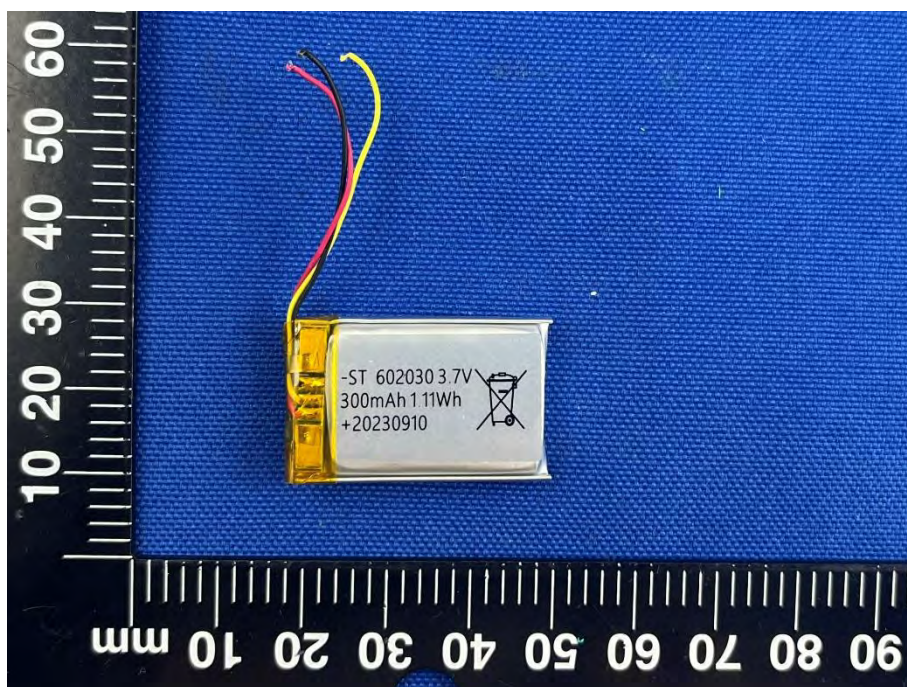
MAIN BOARD TOP VIEW



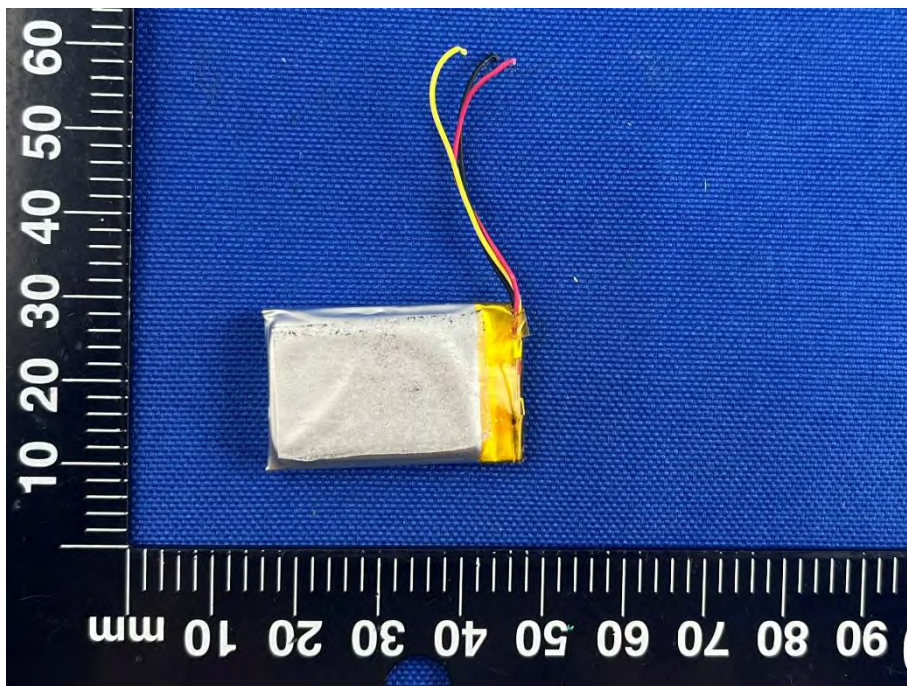
MAIN BOARD REAR VIEW



BATTERY (FRONT)



BATTERY (REAR)



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--END OF REPORT--