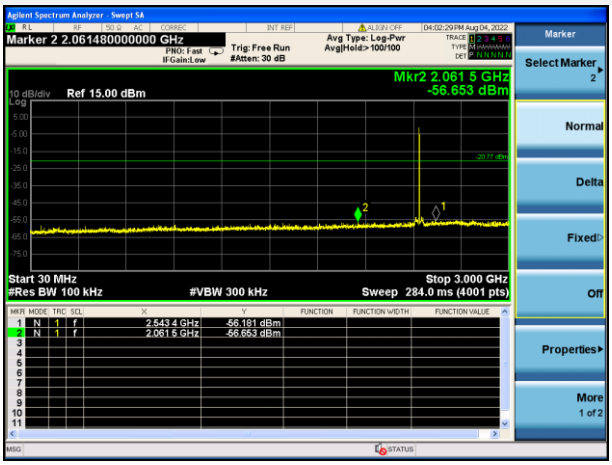
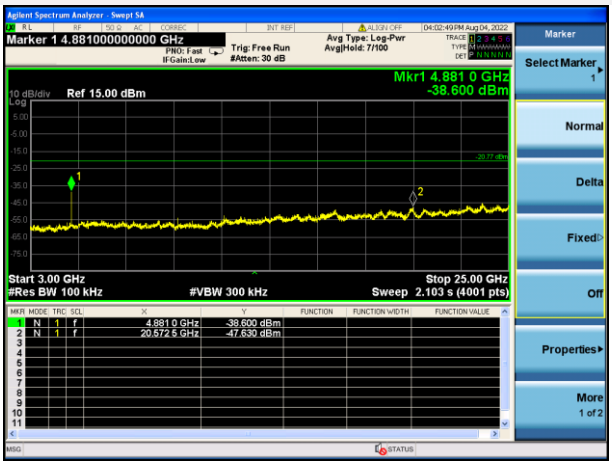
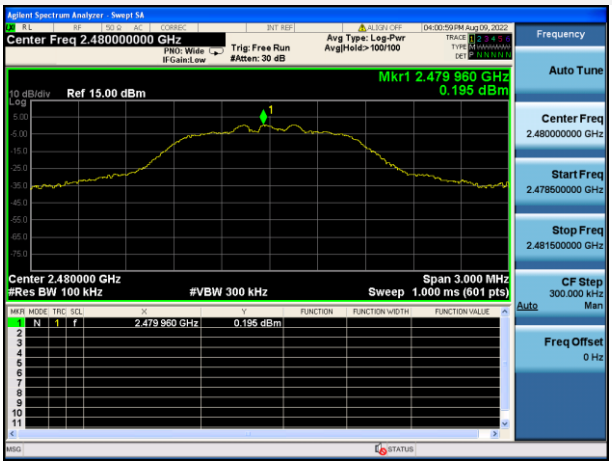
π/4-DQPSK MIDDLE CHANNEL, SPURIOUS 30 MHz ~ 3 GHz



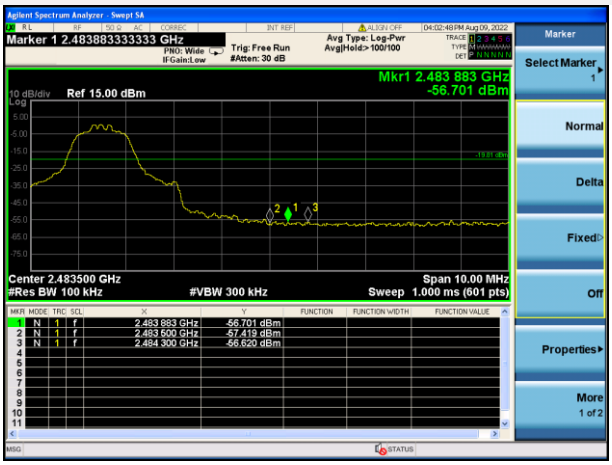
π/4-DQPSK MIDDLE CHANNEL, SPURIOUS 3 GHz ~ 25 GHz



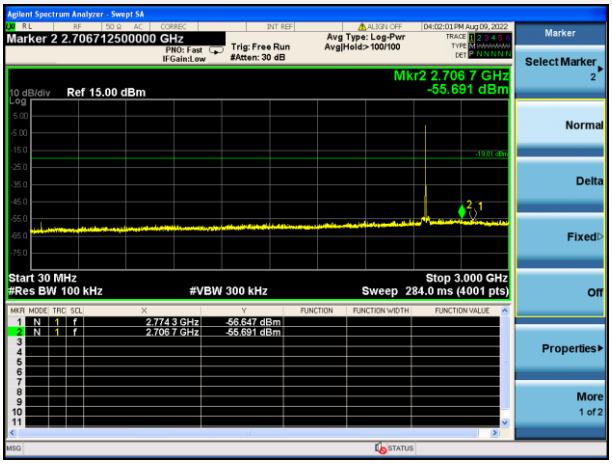
π/4-DQPSK HIGH CHANNEL, CARRIER LEVEL



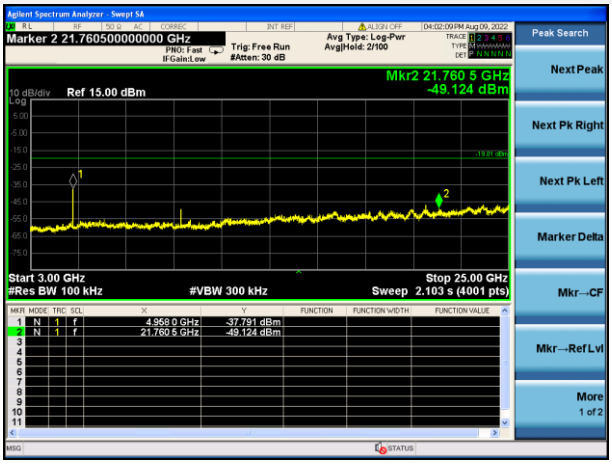
π/4-DQPSK HIGH CHANNEL, BAND EDGE



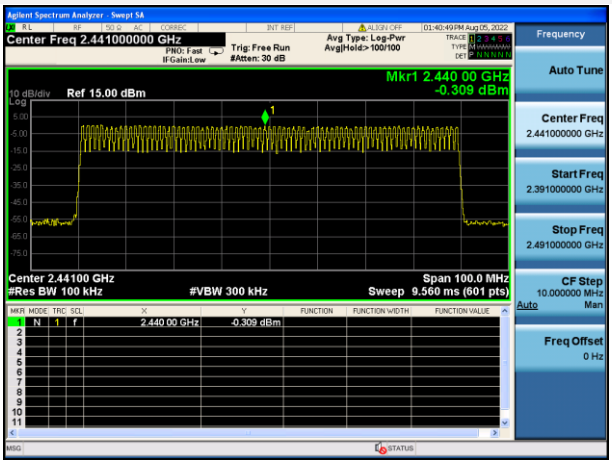
π/4-DQPSK HIGH CHANNEL, SPURIOUS 30 MHz ~ 3 GHz



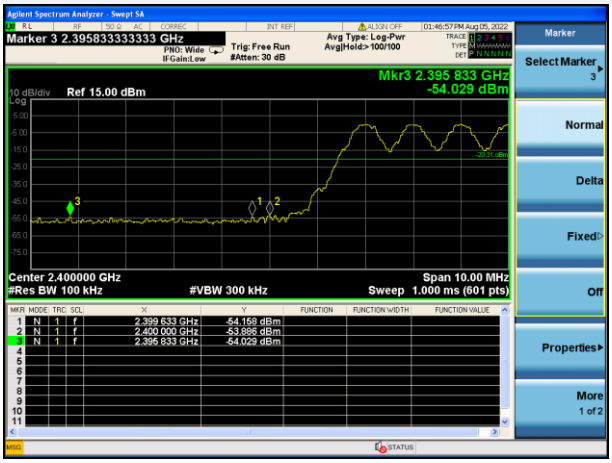
π/4-DQPSK HIGH CHANNEL, SPURIOUS 3 GHz ~ 25 GHz



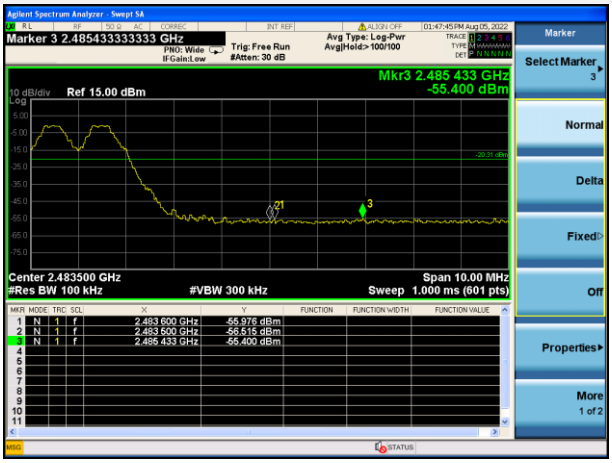
GFSK HOPPING, CARRIER LEVEL



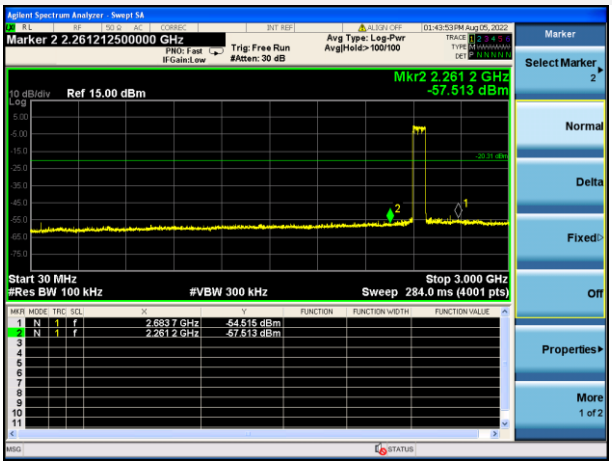
GFSK HOPPING BAND EDGE (LOW)



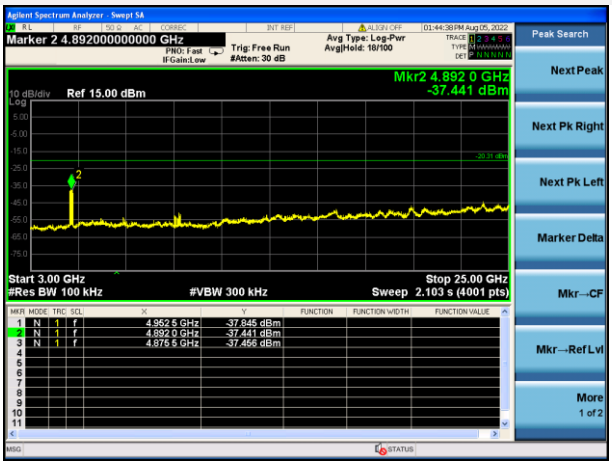
GFSK HOPPING BAND EDGE (HIGH)



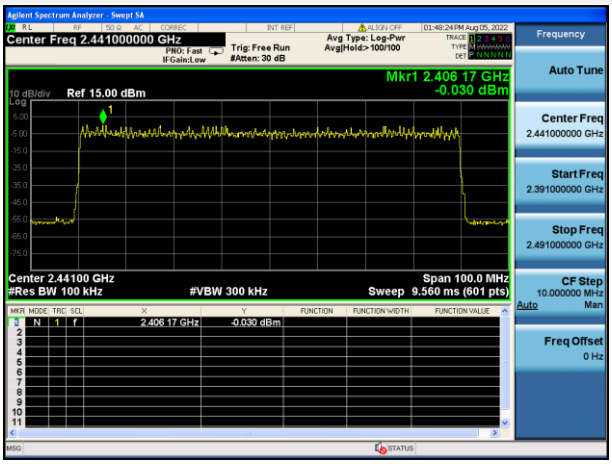
GFSK Hopping Mode, SPURIOUS
30 MHz ~ 3 GHz



GFSK Hopping Mode, SPURIOUS
3GHz ~ 25 GHz

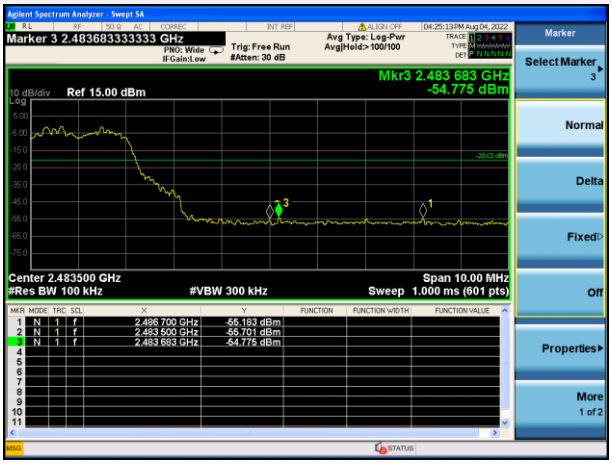


π/4-DQPSK HOPPING, CARRIER LEVEL

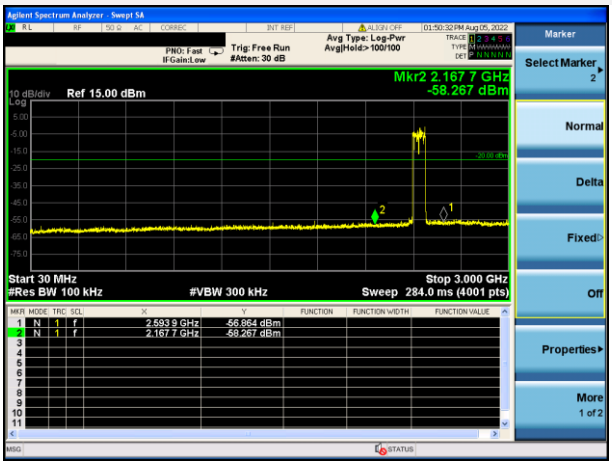


π/4-DQPSK Hopping BAND EDGE (LOW)

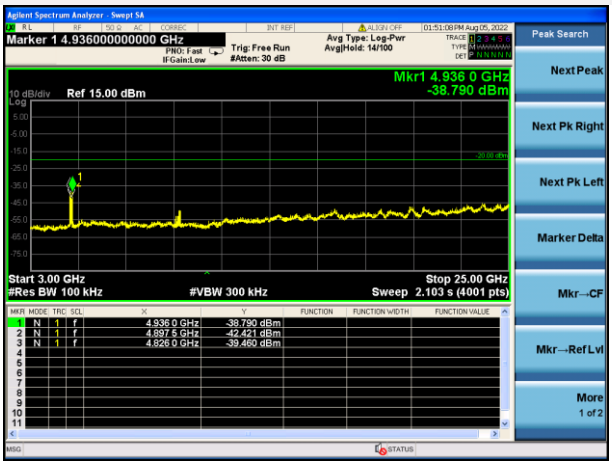
π/4-DQPSK Hopping BAND EDGE (HIGH)



π/4-DQPSK Hopping Mode, SPURIOUS 30 MHz ~ 3 GHz



π/4-DQPSK Hopping Mode, SPURIOUS 3GHz ~ 25 GHz



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 50μH/50Ω line impedance stabilization network (LISN).

Frequency range (MHz)	Conducted Limit (dBμV)	
	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: Not applicable.

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 (μV/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 (dBμV/m) = 20*log[Field Strength (μV/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 ≥ 1 GHz, 100 kHz for f < 1 GHz
VBW ≥ 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.

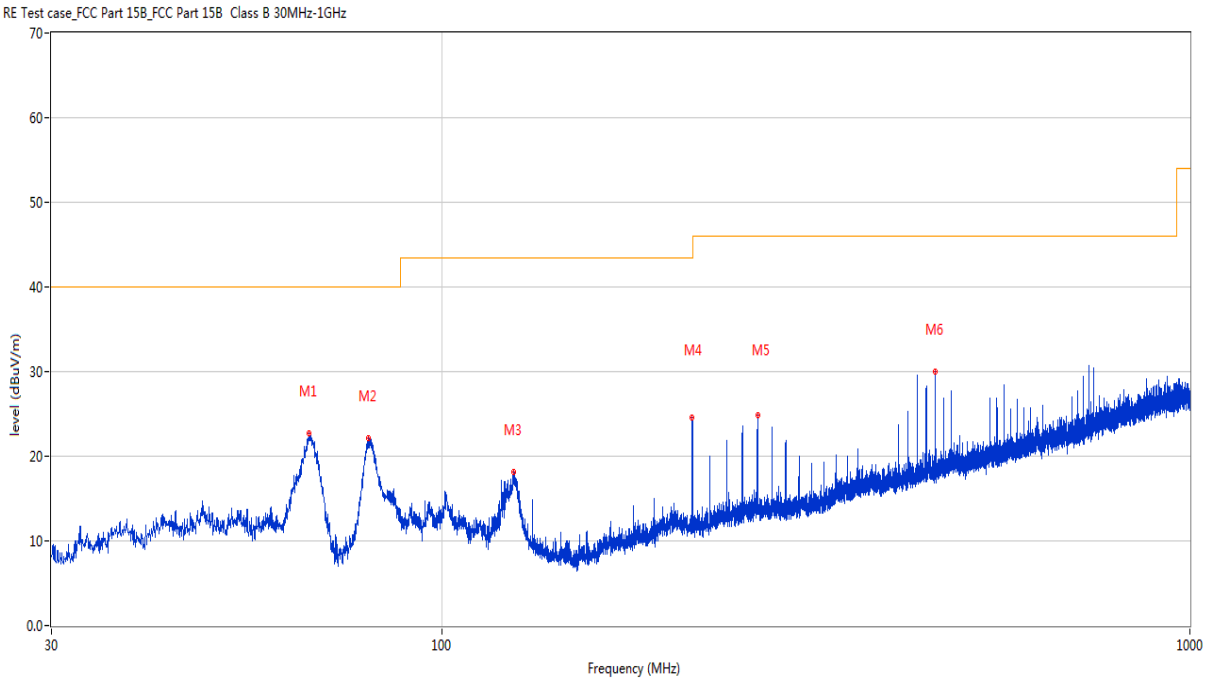
Note [3]: The EUT is working in the Normal link mode below 1 GHz. All modes have been tested and DH5-Hopping mode is the worst.

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.

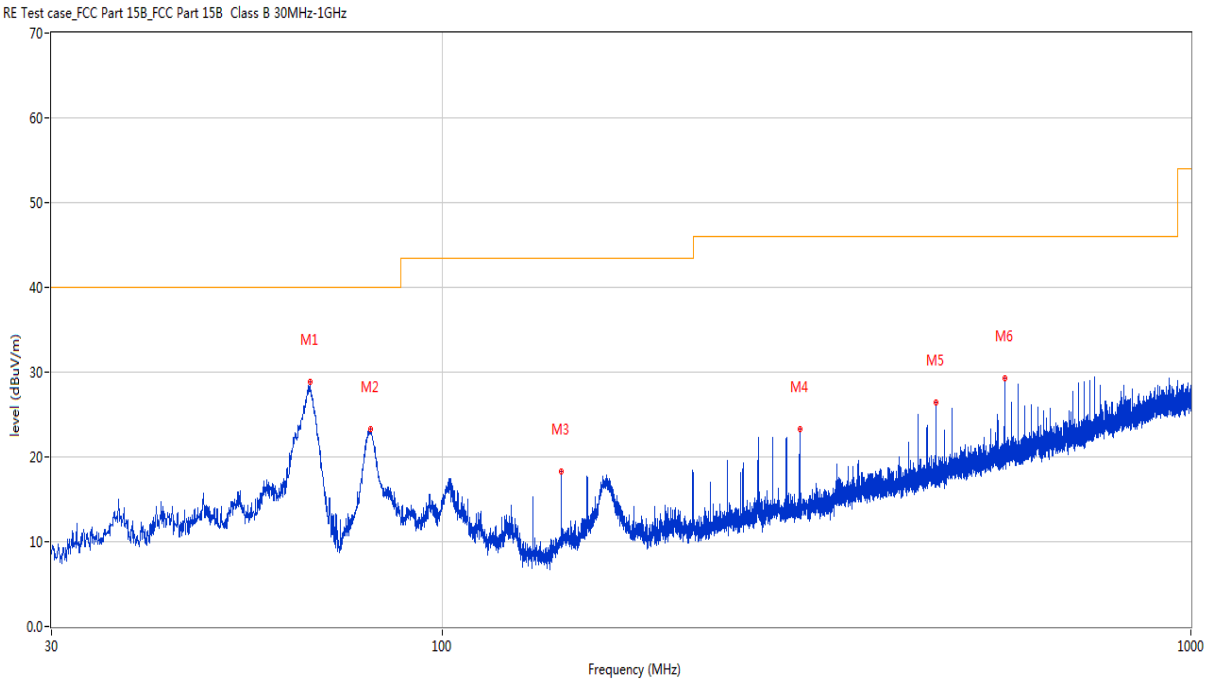
Test Data and Plots

30 MHz to 1 GHz, ANT H



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	66.375	22.66	-25.25	40.0	-17.34	Peak	44.60	200	Horizontal	Pass
2	79.664	22.09	-28.44	40.0	-17.91	Peak	44.60	200	Horizontal	Pass
3	124.575	18.20	-26.55	43.5	-25.30	Peak	105.20	200	Horizontal	Pass
4	215.998	24.52	-23.92	43.5	-18.98	Peak	134.00	100	Horizontal	Pass
5	264.013	24.87	-22.16	46.0	-21.13	Peak	360.00	200	Horizontal	Pass
6	455.975	30.02	-17.94	46.0	-15.98	Peak	36.10	100	Horizontal	Pass

30 MHz to 1 GHz, ANT V

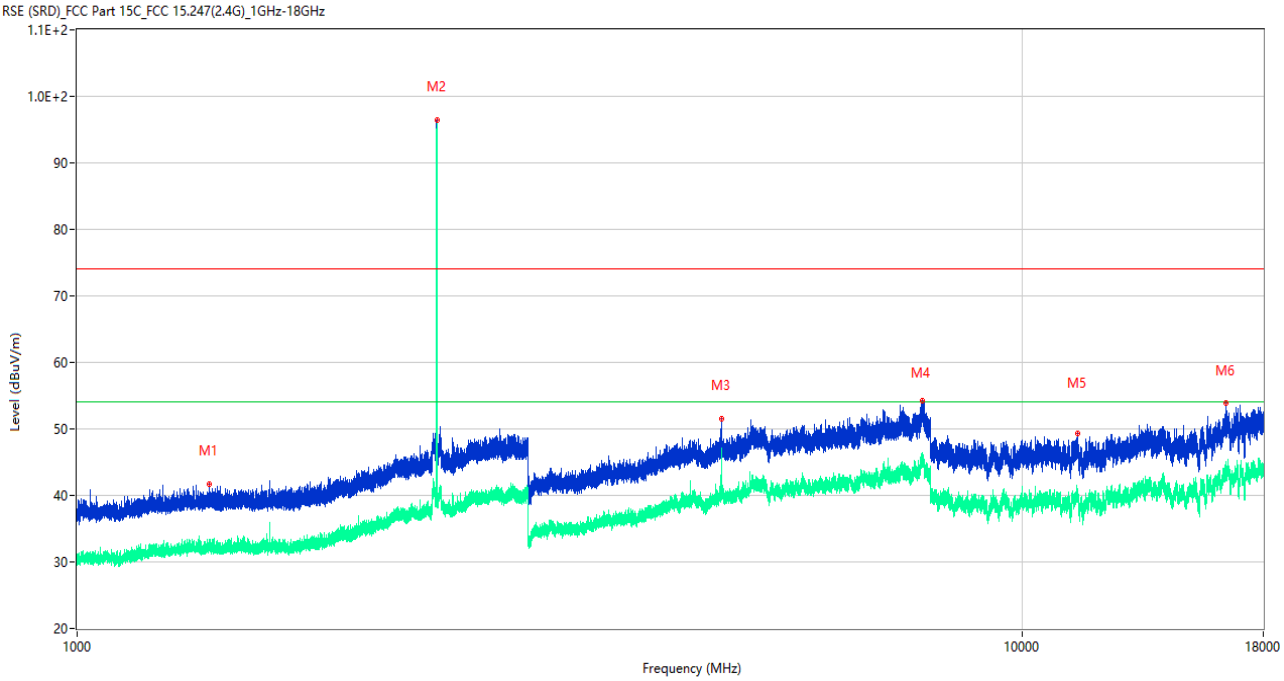


No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	66.472	28.84	-25.28	40.0	-11.16	Peak	110.50	100	Vertical	Pass
2	80.004	23.31	-28.47	40.0	-16.69	Peak	81.40	100	Vertical	Pass
3	144.024	18.29	-27.69	43.5	-25.21	Peak	1.10	100	Vertical	Pass
4	300.000	23.30	-21.96	46.0	-22.70	Peak	59.80	100	Vertical	Pass
5	455.975	26.39	-17.94	46.0	-19.61	Peak	38.10	100	Vertical	Pass
6	563.985	29.27	-15.33	46.0	-16.73	Peak	64.20	100	Vertical	Pass

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

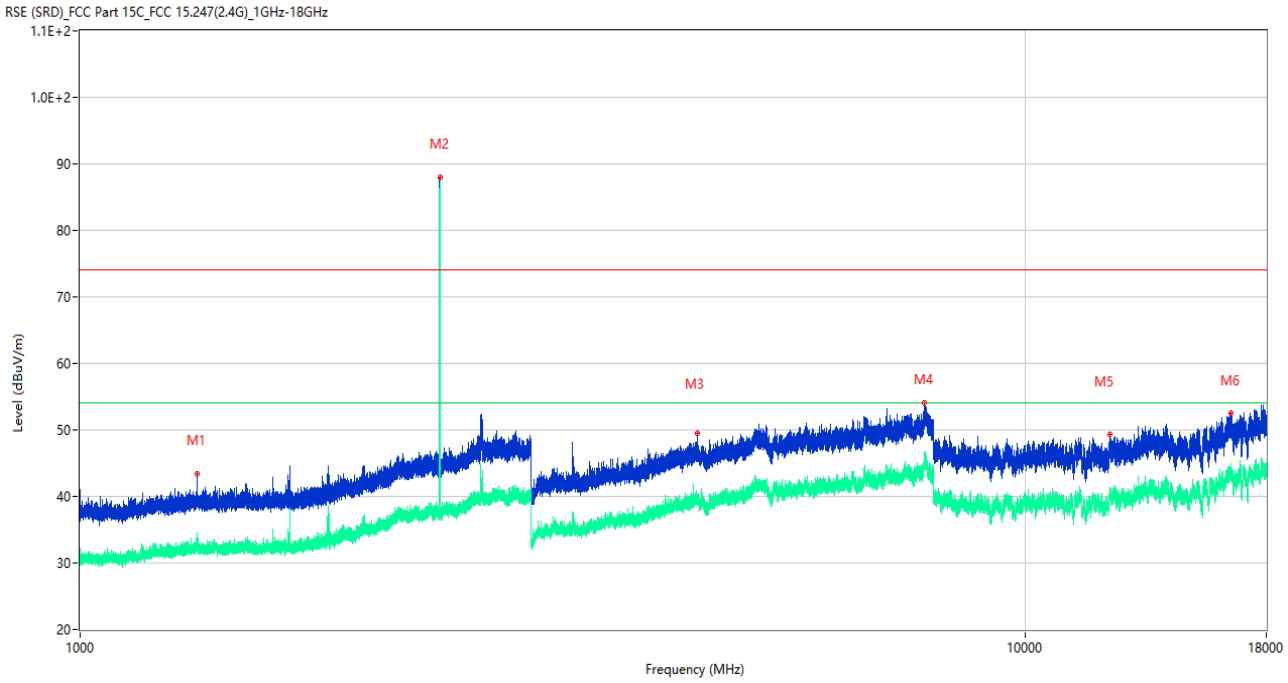
Note 2: The spurious from 18GHz-25GHz is noise only, do not show on the report.

GFSK LOW CHANNEL 1 GHz to 18 GHz, ANT H



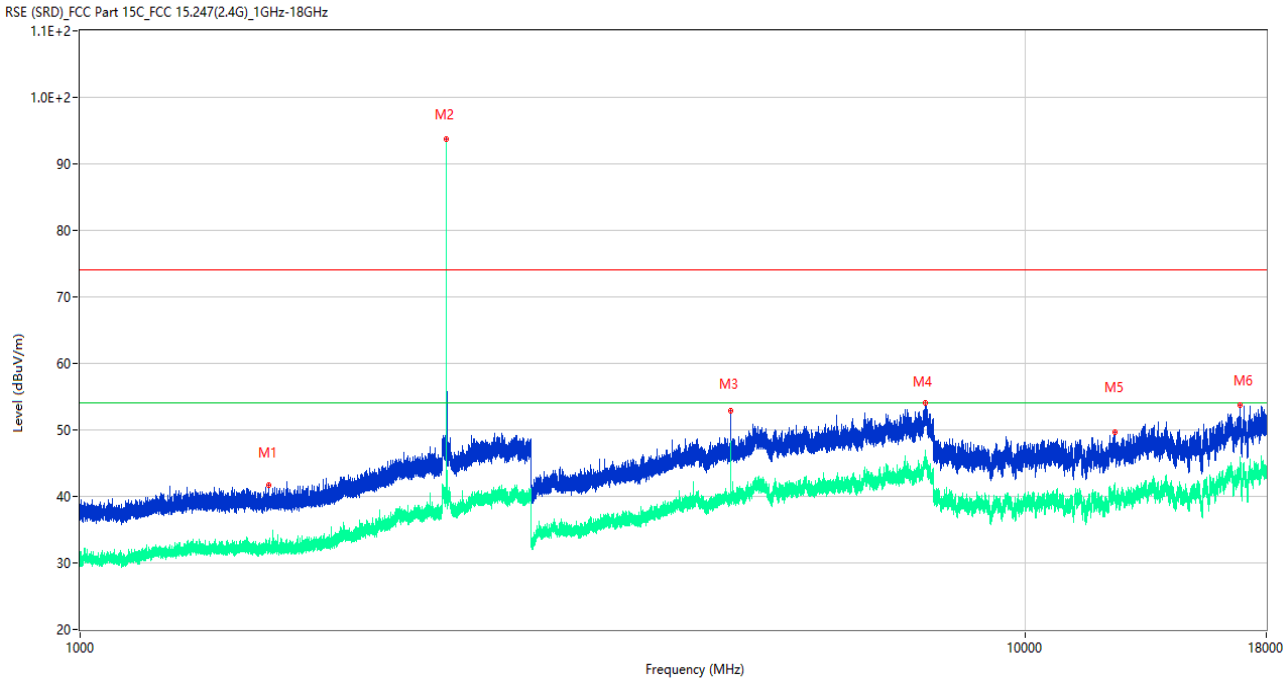
No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1379.800	41.77	-17.51	74.0	-32.23	Peak	322.00	200	Horizontal	Pass
1**	1379.800	32.51	-17.51	54.0	-21.49	AV	322.00	200	Horizontal	Pass
2	2401.900	96.49	-13.34	74.0	22.49	Peak	283.00	200	Horizontal	N/A
2**	2401.900	95.74	-13.34	54.0	41.74	AV	283.00	200	Horizontal	N/A
3	4804.750	51.60	-4.06	74.0	-22.40	Peak	29.00	150	Horizontal	Pass
3**	4804.750	47.08	-4.06	54.0	-6.92	AV	29.00	150	Horizontal	Pass
4	7835.750	54.28	2.15	74.0	-19.72	Peak	92.00	100	Horizontal	Pass
4**	7835.750	45.56	2.15	54.0	-8.44	AV	92.00	100	Horizontal	Pass
5	11454.437	49.26	-3.91	74.0	-24.74	Peak	7.00	100	Horizontal	Pass
5**	11454.437	39.83	-3.91	54.0	-14.17	AV	7.00	100	Horizontal	Pass
6	16415.813	53.82	0.22	74.0	-20.18	Peak	0.00	300	Horizontal	Pass
6**	16415.813	44.01	0.22	54.0	-9.99	AV	0.00	300	Horizontal	Pass

GFSK LOW CHANNEL 1 GHz to 18 GHz, ANT V



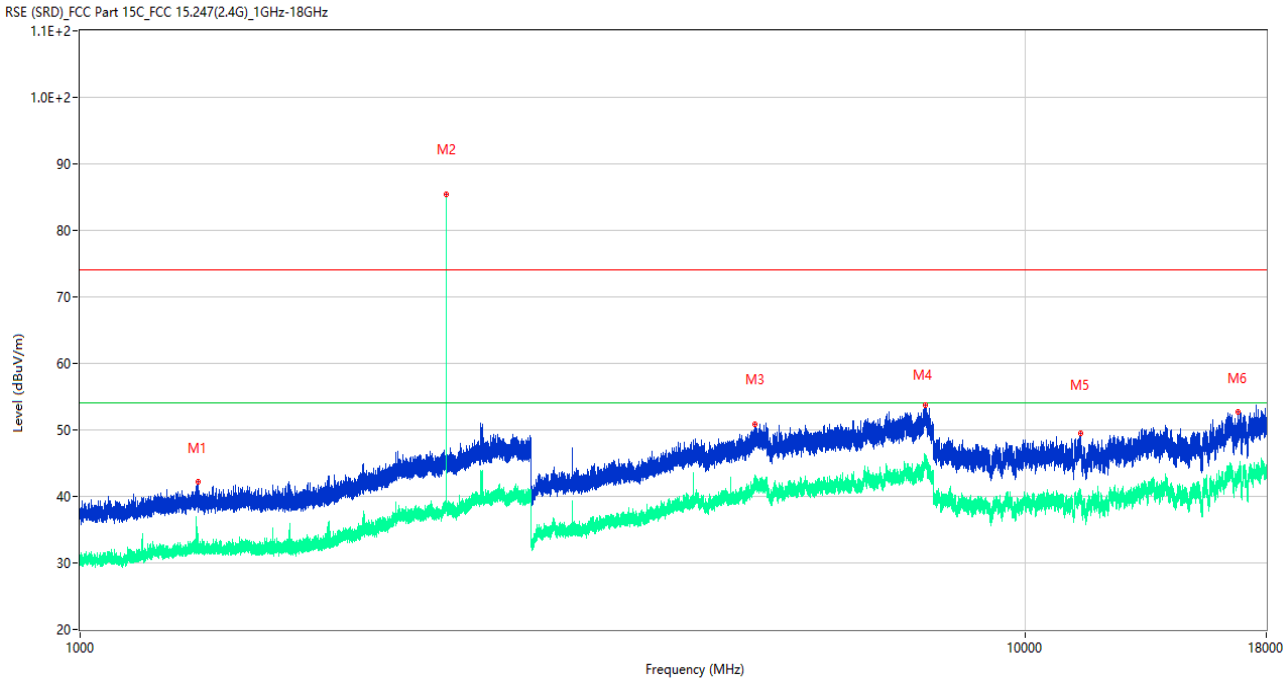
No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1328.600	43.39	-17.12	74.0	-30.61	Peak	251.00	200	Vertical	Pass
1**	1328.600	32.55	-17.12	54.0	-21.45	AV	251.00	200	Vertical	Pass
2	2402.200	88.03	-13.33	74.0	14.03	Peak	266.00	200	Vertical	N/A
2**	2402.200	87.60	-13.33	54.0	33.60	AV	266.00	200	Vertical	N/A
3	4500.250	49.42	-4.42	74.0	-24.58	Peak	63.00	100	Vertical	Pass
3**	4500.250	40.41	-4.42	54.0	-13.59	AV	63.00	100	Vertical	Pass
4	7831.000	54.04	2.03	74.0	-19.96	Peak	246.00	200	Vertical	Pass
4**	7831.000	44.99	2.03	54.0	-9.01	AV	246.00	200	Vertical	Pass
5	12295.900	49.40	-2.47	74.0	-24.60	Peak	138.00	300	Vertical	Pass
5**	12295.900	39.70	-2.47	54.0	-14.30	AV	138.00	300	Vertical	Pass
6	16527.901	52.49	0.02	74.0	-21.51	Peak	0.00	400	Vertical	Pass
6**	16527.901	42.51	0.02	54.0	-11.49	AV	0.00	400	Vertical	Pass

GFSK MIDDLE CHANNEL 1 GHz to 18 GHz, ANT H



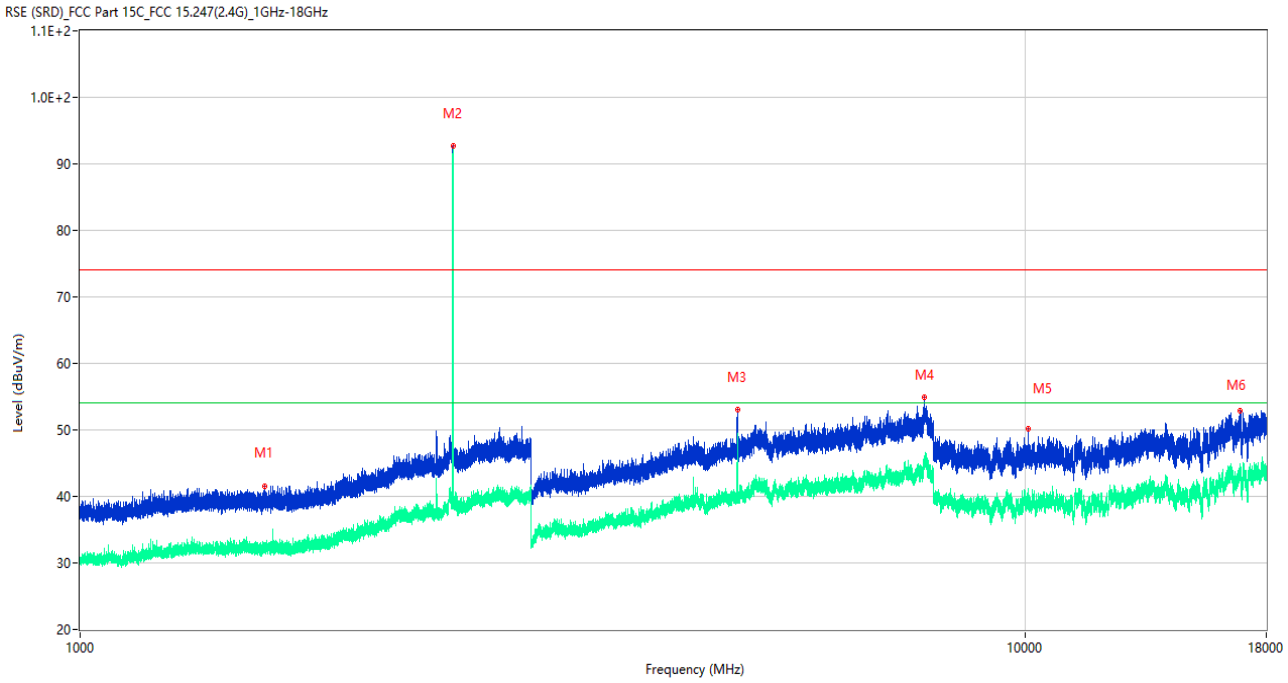
No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1583.700	41.67	-17.39	74.0	-32.33	Peak	96.00	300	Horizontal	Pass
1**	1583.700	32.13	-17.39	54.0	-21.87	AV	96.00	300	Horizontal	Pass
2	2440.900	93.81	-12.31	74.0	19.81	Peak	135.00	100	Horizontal	N/A
2**	2440.900	93.26	-12.31	54.0	39.26	AV	135.00	100	Horizontal	N/A
3	4881.750	52.83	-3.61	74.0	-21.17	Peak	360.00	200	Horizontal	Pass
3**	4881.750	46.74	-3.61	54.0	-7.26	AV	360.00	200	Horizontal	Pass
4	7838.750	54.15	2.00	74.0	-19.85	Peak	151.00	100	Horizontal	Pass
4**	7838.750	45.14	2.00	54.0	-8.86	AV	151.00	100	Horizontal	Pass
5	12448.137	49.73	-2.18	74.0	-24.27	Peak	194.00	400	Horizontal	Pass
5**	12448.137	41.27	-2.18	54.0	-12.73	AV	194.00	400	Horizontal	Pass
6	16888.051	53.66	1.41	74.0	-20.34	Peak	171.00	100	Horizontal	Pass
6**	16888.051	43.13	1.41	54.0	-10.87	AV	171.00	100	Horizontal	Pass

GFSK MIDDLE CHANNEL 1 GHz to 18 GHz, ANT V



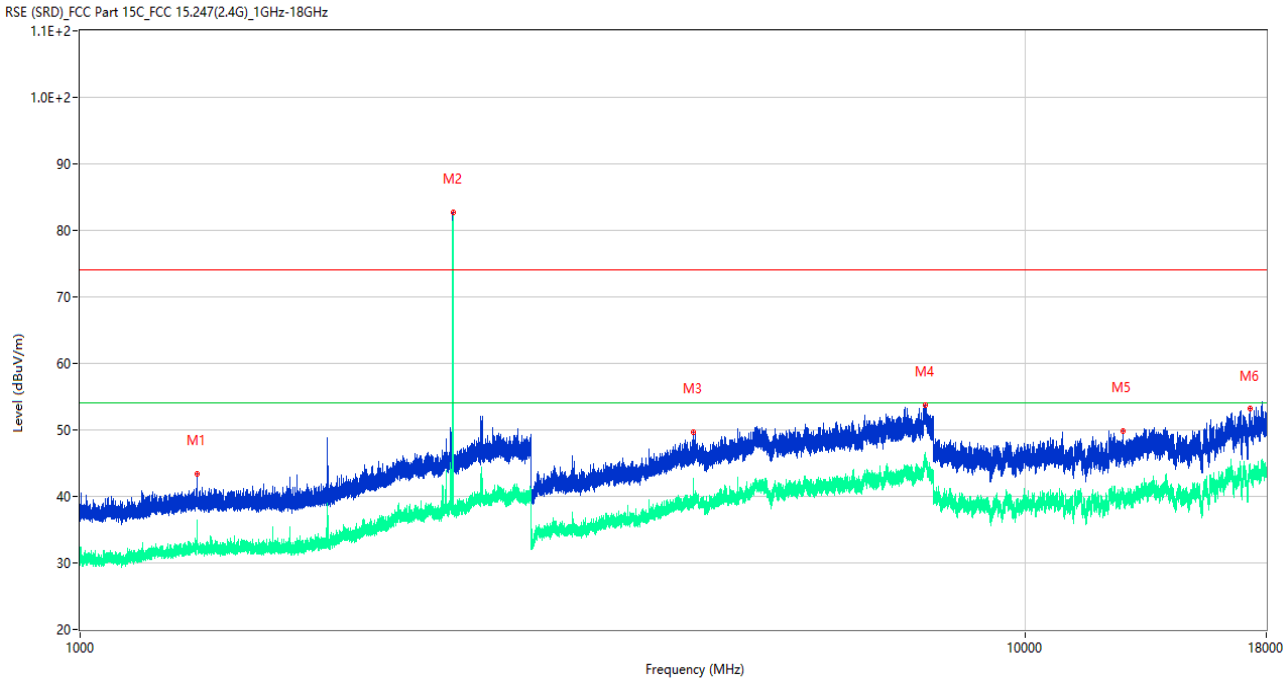
No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1331.600	42.28	-17.49	74.0	-31.72	Peak	360.00	300	Vertical	Pass
1**	1331.600	32.24	-17.49	54.0	-21.76	AV	360.00	300	Vertical	Pass
2	2441.200	85.48	-12.29	74.0	11.48	Peak	267.00	100	Vertical	N/A
2**	2441.200	84.94	-12.29	54.0	30.94	AV	267.00	100	Vertical	N/A
3	5174.250	50.90	-2.58	74.0	-23.10	Peak	169.00	200	Vertical	Pass
3**	5174.250	42.17	-2.58	54.0	-11.83	AV	169.00	200	Vertical	Pass
4	7834.000	53.73	2.24	74.0	-20.27	Peak	57.00	100	Vertical	Pass
4**	7834.000	45.28	2.24	54.0	-8.72	AV	57.00	100	Vertical	Pass
5	11442.562	49.42	-3.92	74.0	-24.58	Peak	219.00	300	Vertical	Pass
5**	11442.562	39.49	-3.92	54.0	-14.51	AV	219.00	300	Vertical	Pass
6	16794.599	52.79	0.43	74.0	-21.21	Peak	360.00	100	Vertical	Pass
6**	16794.599	42.85	0.43	54.0	-11.15	AV	360.00	100	Vertical	Pass

GFSK HIGH CHANNEL 1 GHz to 18 GHz, ANT H



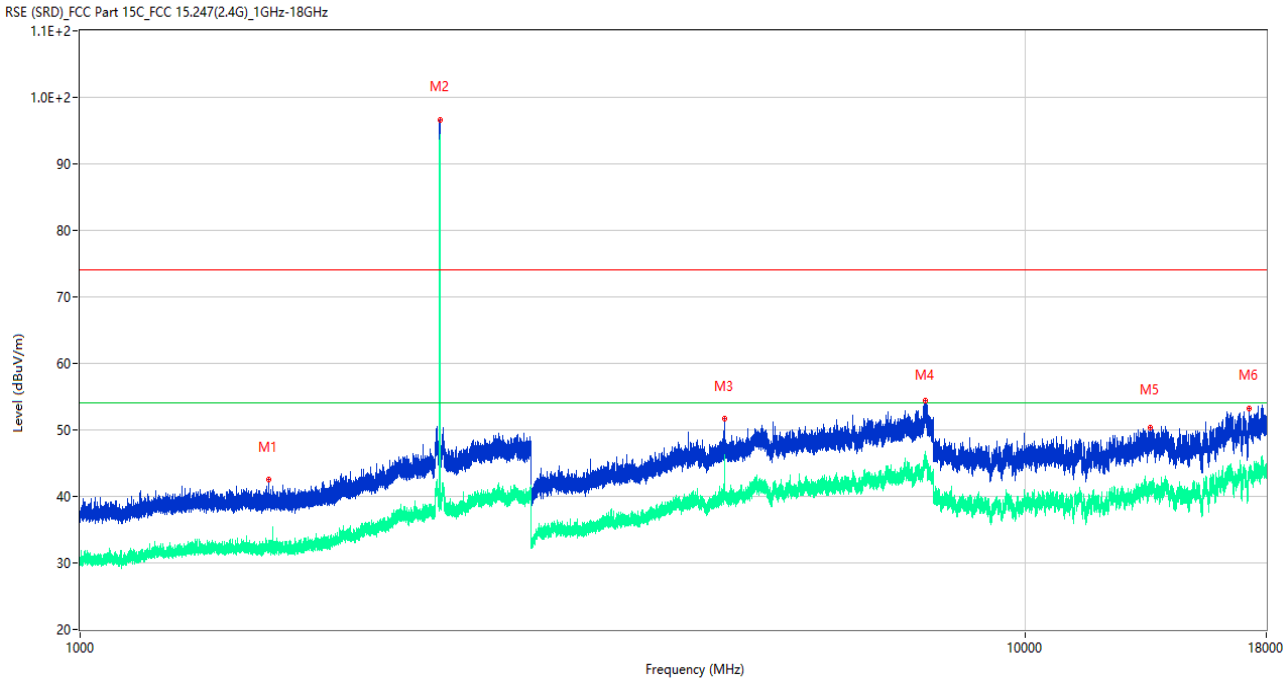
No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1568.800	41.53	-17.62	74.0	-32.47	Peak	198.00	100	Horizontal	Pass
1**	1568.800	31.46	-17.62	54.0	-22.54	AV	198.00	100	Horizontal	Pass
2	2479.900	92.69	-13.07	74.0	18.69	Peak	145.00	150	Horizontal	N/A
2**	2479.900	92.10	-13.07	54.0	38.10	AV	145.00	150	Horizontal	N/A
3	4960.000	52.98	-4.17	74.0	-21.02	Peak	12.00	200	Horizontal	Pass
3**	4960.000	49.12	-4.17	54.0	-4.88	AV	12.00	200	Horizontal	Pass
4	7833.000	54.88	2.28	74.0	-19.12	Peak	151.00	300	Horizontal	Pass
4**	7833.000	45.61	2.28	54.0	-8.39	AV	151.00	300	Horizontal	Pass
5	10074.325	50.09	-5.29	74.0	-23.91	Peak	268.00	100	Horizontal	Pass
5**	10074.325	39.73	-5.29	54.0	-14.27	AV	268.00	100	Horizontal	Pass
6	16894.614	52.92	1.47	74.0	-21.08	Peak	263.00	100	Horizontal	Pass
6**	16894.614	43.72	1.47	54.0	-10.28	AV	263.00	100	Horizontal	Pass

GFSK HIGH CHANNEL 1 GHz to 18 GHz, ANT V



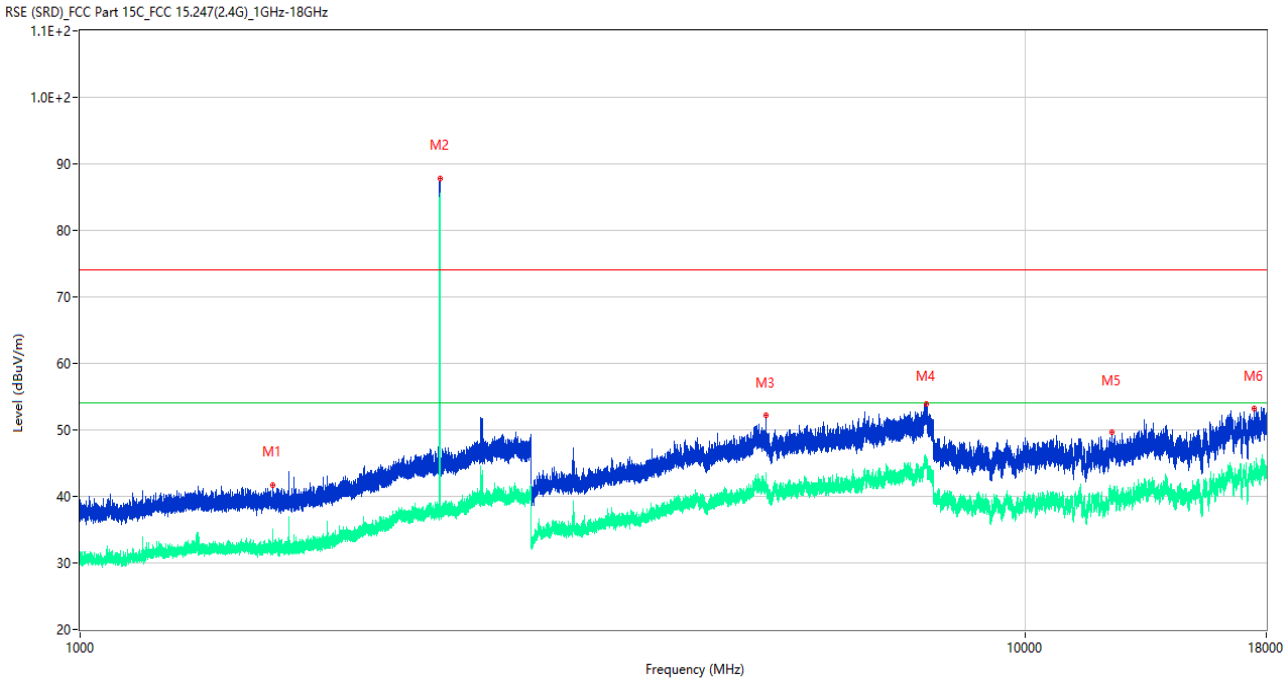
No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1328.600	43.46	-17.12	74.0	-30.54	Peak	267.00	100	Vertical	Pass
1**	1328.600	32.27	-17.12	54.0	-21.73	AV	267.00	100	Vertical	Pass
2	2479.900	82.76	-13.07	74.0	8.76	Peak	211.00	100	Vertical	N/A
2**	2479.900	82.13	-13.07	54.0	28.13	AV	211.00	100	Vertical	N/A
3	4455.000	49.62	-4.26	74.0	-24.38	Peak	151.00	300	Vertical	Pass
3**	4455.000	42.72	-4.26	54.0	-11.28	AV	151.00	300	Vertical	Pass
4	7835.750	53.77	2.15	74.0	-20.23	Peak	194.00	200	Vertical	Pass
4**	7835.750	45.47	2.15	54.0	-8.53	AV	194.00	200	Vertical	Pass
5	12689.675	49.79	-2.33	74.0	-24.21	Peak	172.00	400	Vertical	Pass
5**	12689.675	40.07	-2.33	54.0	-13.93	AV	172.00	400	Vertical	Pass
6	17303.849	53.14	2.00	74.0	-20.86	Peak	103.00	400	Vertical	Pass
6**	17303.849	43.75	2.00	54.0	-10.25	AV	103.00	400	Vertical	Pass

π/4-DQPSK LOW CHANNEL 1 GHz to 18 GHz, ANT H



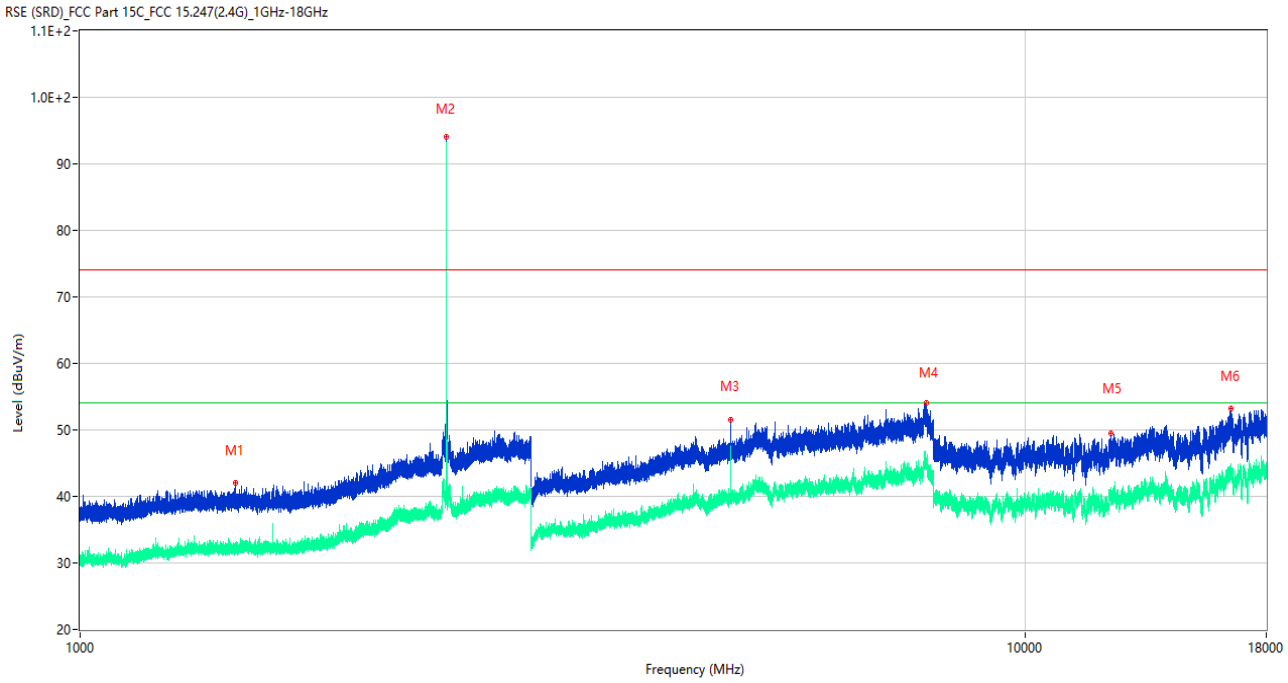
No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1583.100	42.48	-17.36	74.0	-31.52	Peak	159.00	300	Horizontal	Pass
1**	1583.100	32.26	-17.36	54.0	-21.74	AV	159.00	300	Horizontal	Pass
2	2401.900	96.64	-13.34	74.0	22.64	Peak	284.00	150	Horizontal	N/A
2**	2401.900	94.06	-13.34	54.0	40.06	AV	284.00	150	Horizontal	N/A
3	4804.250	51.65	-4.10	74.0	-22.35	Peak	31.00	100	Horizontal	Pass
3**	4804.250	46.16	-4.10	54.0	-7.84	AV	31.00	100	Horizontal	Pass
4	7849.750	54.38	1.22	74.0	-19.62	Peak	335.00	300	Horizontal	Pass
4**	7849.750	45.87	1.22	54.0	-8.13	AV	335.00	300	Horizontal	Pass
5	13560.337	50.35	0.53	74.0	-23.65	Peak	38.00	100	Horizontal	Pass
5**	13560.337	41.11	0.53	54.0	-12.89	AV	38.00	100	Horizontal	Pass
6	17277.338	53.23	1.97	74.0	-20.77	Peak	111.00	100	Horizontal	Pass
6**	17277.338	43.27	1.97	54.0	-10.73	AV	111.00	100	Horizontal	Pass

π/4-DQPSK LOW CHANNEL 1 GHz to 18 GHz, ANT V



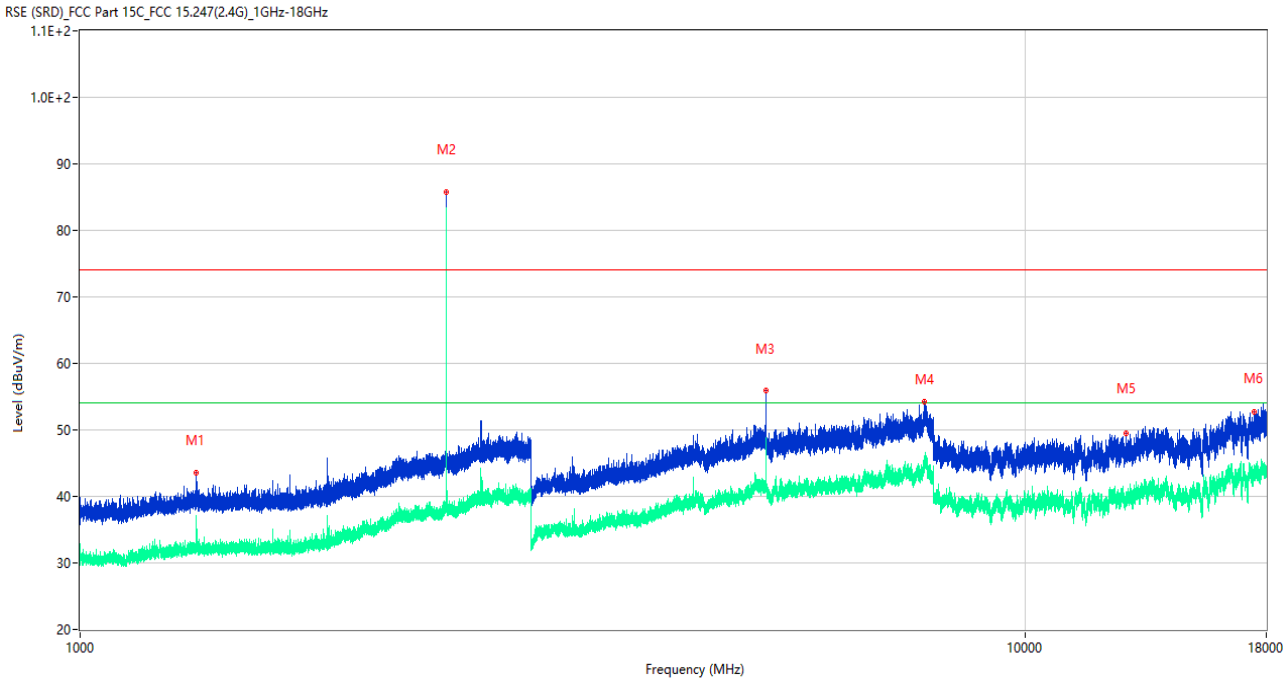
No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1599.800	41.70	-17.74	74.0	-32.30	Peak	217.00	200	Vertical	Pass
1**	1599.800	34.80	-17.74	54.0	-19.20	AV	217.00	200	Vertical	Pass
2	2402.000	87.87	-13.34	74.0	13.87	Peak	269.00	200	Vertical	N/A
2**	2402.000	85.64	-13.34	54.0	31.64	AV	269.00	200	Vertical	N/A
3	5322.250	52.29	-3.35	74.0	-21.71	Peak	160.00	100	Vertical	Pass
3**	5322.250	40.91	-3.35	54.0	-13.09	AV	160.00	100	Vertical	Pass
4	7867.750	53.96	1.64	74.0	-20.04	Peak	358.00	200	Vertical	Pass
4**	7867.750	44.72	1.64	54.0	-9.28	AV	358.00	200	Vertical	Pass
5	12357.175	49.59	-2.84	74.0	-24.41	Peak	195.00	300	Vertical	Pass
5**	12357.175	39.29	-2.84	54.0	-14.71	AV	195.00	300	Vertical	Pass
6	17482.613	53.20	3.09	74.0	-20.80	Peak	201.00	100	Vertical	Pass
6**	17482.613	44.36	3.09	54.0	-9.64	AV	201.00	100	Vertical	Pass

π/4-DQPSK MIDDLE CHANNEL 1 GHz to 18 GHz, ANT H



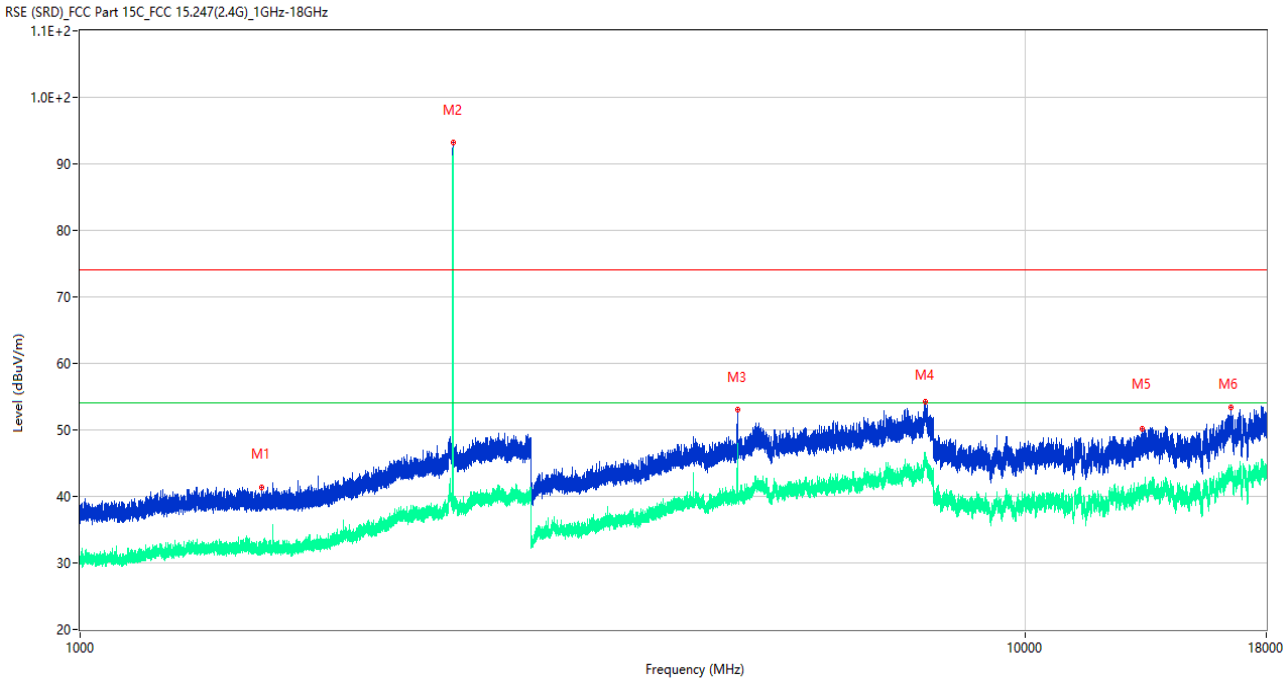
No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1459.500	41.98	-17.62	74.0	-32.02	Peak	275.00	200	Horizontal	Pass
1**	1459.500	32.55	-17.62	54.0	-21.45	AV	275.00	200	Horizontal	Pass
2	2441.000	94.06	-12.31	74.0	20.06	Peak	142.00	100	Horizontal	N/A
2**	2441.000	92.98	-12.31	54.0	38.98	AV	142.00	100	Horizontal	N/A
3	4882.500	51.60	-3.60	74.0	-22.40	Peak	360.00	150	Horizontal	Pass
3**	4882.500	47.61	-3.60	54.0	-6.39	AV	360.00	150	Horizontal	Pass
4	7865.000	54.09	1.60	74.0	-19.91	Peak	29.00	300	Horizontal	Pass
4**	7865.000	45.46	1.60	54.0	-8.54	AV	29.00	300	Horizontal	Pass
5	12320.600	49.50	-2.60	74.0	-24.50	Peak	256.00	100	Horizontal	Pass
5**	12320.600	39.52	-2.60	54.0	-14.48	AV	256.00	100	Horizontal	Pass
6	16517.136	53.15	0.01	74.0	-20.85	Peak	111.00	400	Horizontal	Pass
6**	16517.136	43.33	0.01	54.0	-10.67	AV	111.00	400	Horizontal	Pass

π/4-DQPSK MIDDLE CHANNEL 1 GHz to 18 GHz, ANT V



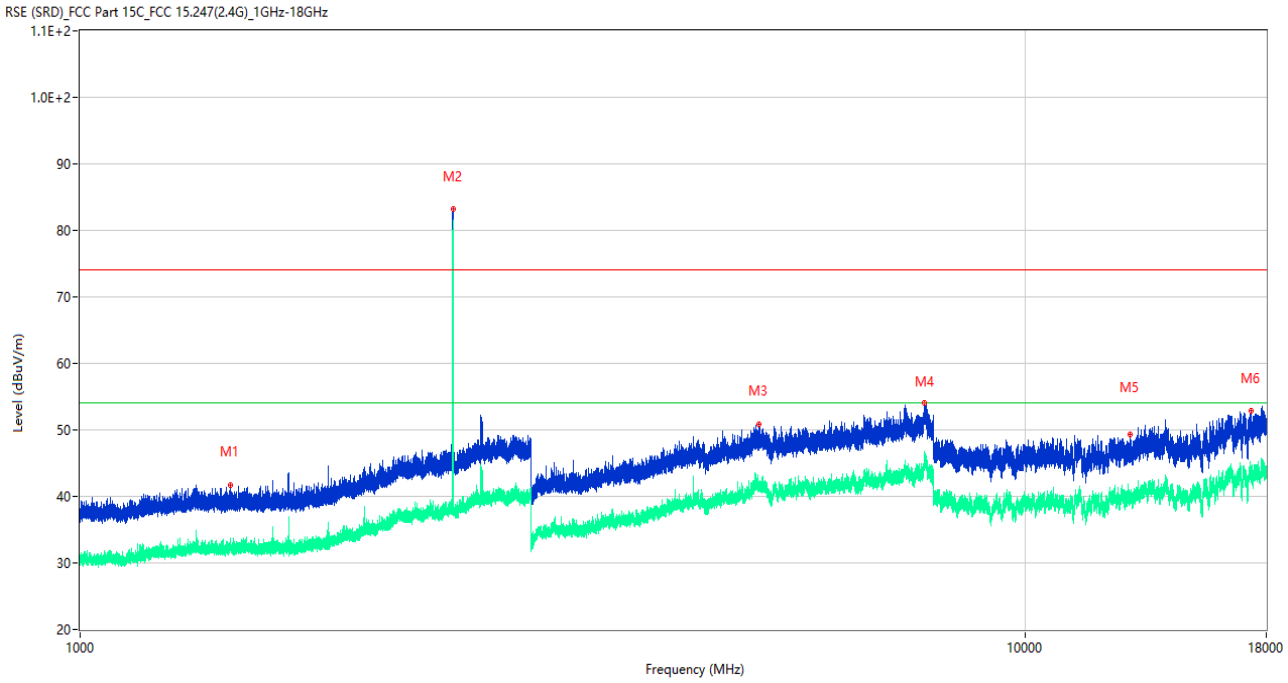
No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1327.800	43.55	-17.16	74.0	-30.45	Peak	259.00	300	Vertical	Pass
1**	1327.800	32.98	-17.16	54.0	-21.02	AV	259.00	300	Vertical	Pass
2	2441.100	85.84	-12.30	74.0	11.84	Peak	267.00	150	Vertical	N/A
2**	2441.100	83.30	-12.30	54.0	29.30	AV	267.00	150	Vertical	N/A
3	5313.250	55.99	-3.71	74.0	-18.01	Peak	352.00	400	Vertical	Pass
3**	5313.250	42.04	-3.71	54.0	-11.96	AV	352.00	400	Vertical	Pass
4	7819.500	54.17	1.92	74.0	-19.83	Peak	282.00	100	Vertical	Pass
4**	7819.500	45.69	1.92	54.0	-8.31	AV	282.00	100	Vertical	Pass
5	12803.550	49.55	-2.03	74.0	-24.45	Peak	85.00	100	Vertical	Pass
5**	12803.550	39.64	-2.03	54.0	-14.36	AV	85.00	100	Vertical	Pass
6	17482.613	52.75	3.09	74.0	-21.25	Peak	289.00	300	Vertical	Pass
6**	17482.613	44.12	3.09	54.0	-9.88	AV	289.00	300	Vertical	Pass

π/4-DQPSK HIGH CHANNEL 1 GHz to 18 GHz, ANT H



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1557.500	41.39	-17.84	74.0	-32.61	Peak	64.00	200	Horizontal	Pass
1**	1557.500	31.40	-17.84	54.0	-22.60	AV	64.00	200	Horizontal	Pass
2	2480.000	93.18	-13.08	74.0	19.18	Peak	145.00	200	Horizontal	N/A
2**	2480.000	92.31	-13.08	54.0	38.31	AV	145.00	200	Horizontal	N/A
3	4959.750	52.97	-4.17	74.0	-21.03	Peak	360.00	150	Horizontal	Pass
3**	4959.750	46.42	-4.17	54.0	-7.58	AV	360.00	150	Horizontal	Pass
4	7838.500	54.17	2.01	74.0	-19.83	Peak	296.00	200	Horizontal	Pass
4**	7838.500	44.82	2.01	54.0	-9.18	AV	296.00	200	Horizontal	Pass
5	13304.662	50.24	-0.03	74.0	-23.76	Peak	335.00	100	Horizontal	Pass
5**	13304.662	40.59	-0.03	54.0	-13.41	AV	335.00	100	Horizontal	Pass
6	16501.386	53.39	-0.00	74.0	-20.61	Peak	0.00	300	Horizontal	Pass
6**	16501.386	43.42	-0.00	54.0	-10.58	AV	0.00	300	Horizontal	Pass

π/4-DQPSK HIGH CHANNEL 1 GHz to 18 GHz, ANT V



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1443.100	41.70	-17.25	74.0	-32.30	Peak	349.00	400	Vertical	Pass
1**	1443.100	32.56	-17.25	54.0	-21.44	AV	349.00	400	Vertical	Pass
2	2479.900	83.17	-13.07	74.0	9.17	Peak	266.00	150	Vertical	N/A
2**	2479.900	81.32	-13.07	54.0	27.32	AV	266.00	150	Vertical	N/A
3	5233.000	50.93	-3.30	74.0	-23.07	Peak	196.00	100	Vertical	Pass
3**	5233.000	41.61	-3.30	54.0	-12.39	AV	196.00	100	Vertical	Pass
4	7829.500	54.10	1.95	74.0	-19.90	Peak	336.00	200	Vertical	Pass
4**	7829.500	44.87	1.95	54.0	-9.13	AV	336.00	200	Vertical	Pass
5	12909.075	49.26	-1.85	74.0	-24.74	Peak	73.00	300	Vertical	Pass
5**	12909.075	40.02	-1.85	54.0	-13.98	AV	73.00	300	Vertical	Pass
6	17362.911	52.86	2.11	74.0	-21.14	Peak	119.00	300	Vertical	Pass
6**	17362.911	42.66	2.11	54.0	-11.34	AV	119.00	300	Vertical	Pass

5.11Band 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 ≥ 1 GHz, 100 kHz for f < 1 GHz
VBW ≥ RBW
Sweep = auto
Detector function = peak
Trace = max hold

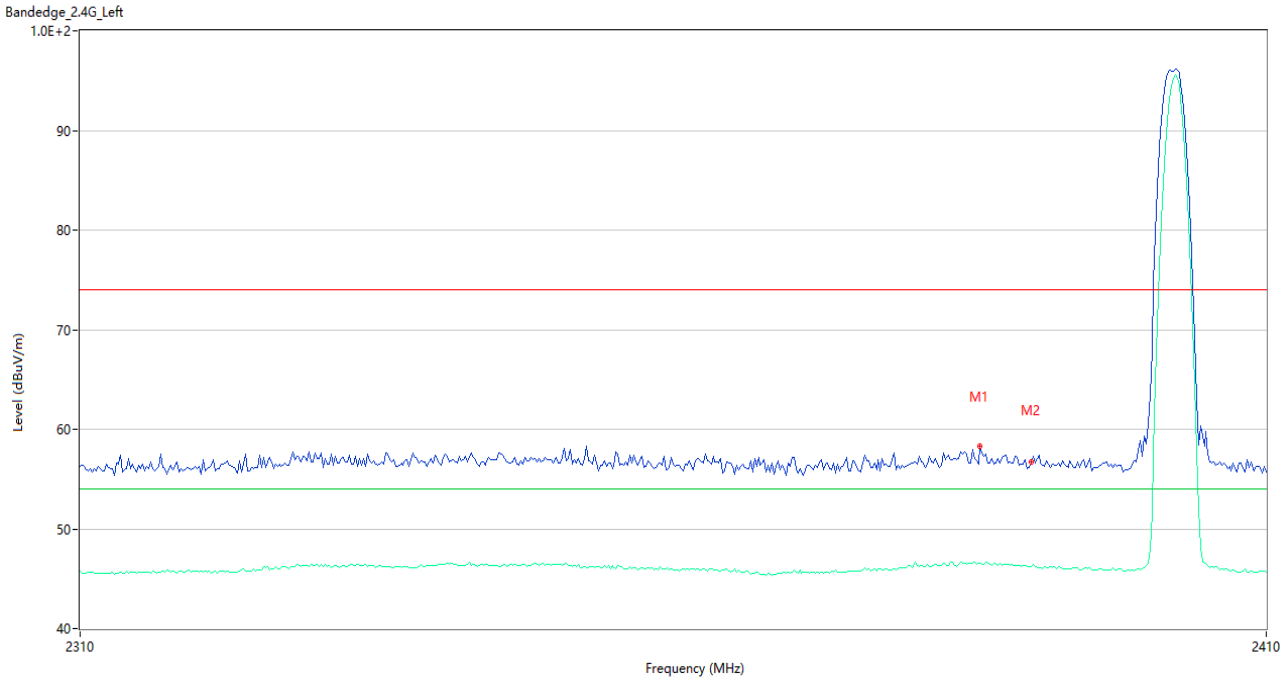
For measurement below 1GHz, If the emission level of the EUT measured by the peak detector is 3 dB lower than the applicable limit, the peak emission level will be reported, Otherwise, the emission measurement will be repeated using the quasi-peak detector and reported.

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.

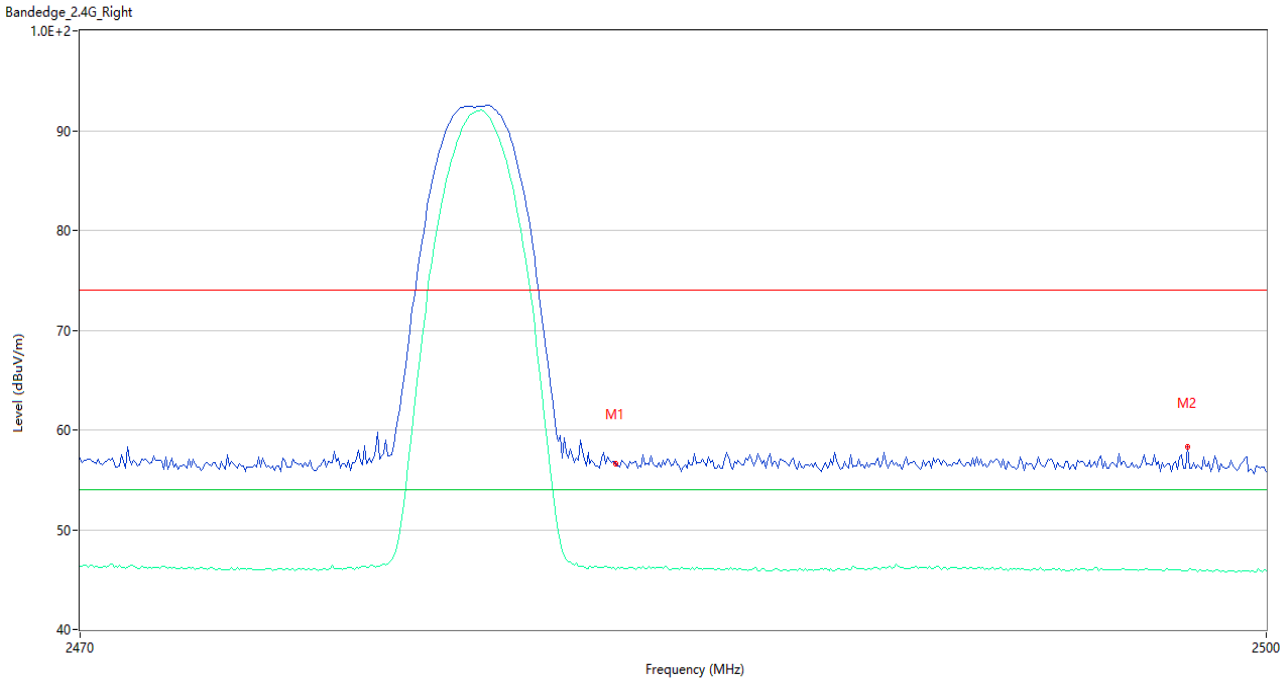
Test Data and Plots

GFSK LOW CHANNEL



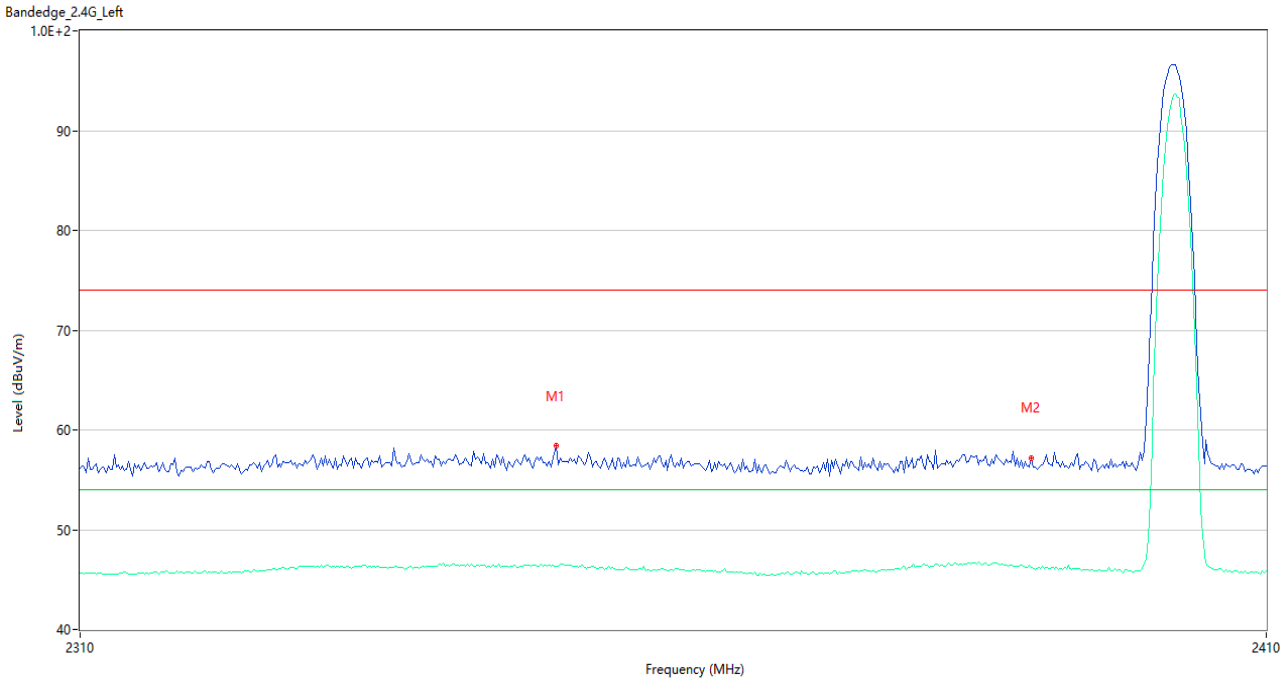
No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	2385.500	58.33	1.84	74.0	-15.67	Peak	263.00	150	Horizontal	Pass
1**	2385.500	46.59	1.84	54.0	-7.41	AV	263.00	150	Horizontal	Pass
2	2389.833	56.74	1.64	74.0	-17.26	Peak	347.00	100	Horizontal	Pass
2**	2389.833	46.20	1.64	54.0	-7.80	AV	347.00	100	Horizontal	Pass

GFSK HIGH CHANNEL



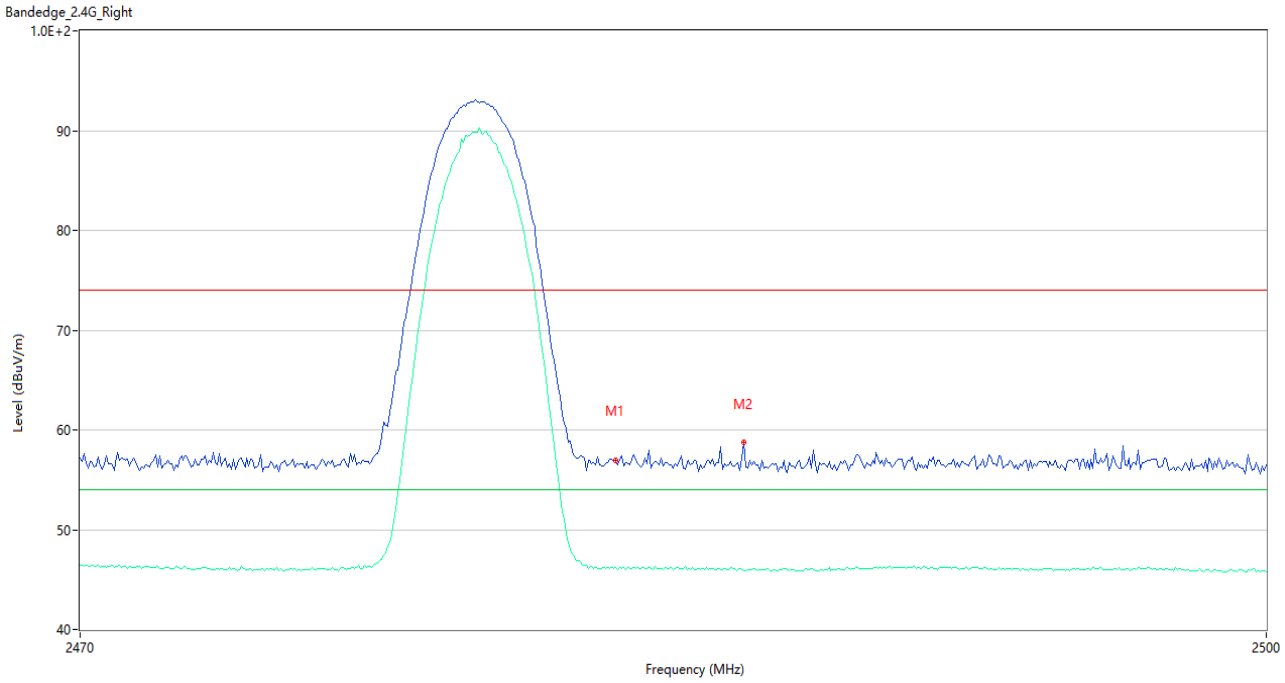
No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	2483.500	56.58	1.98	74.0	-17.42	Peak	53.00	100	Horizontal	Pass
1**	2483.500	46.03	1.98	54.0	-7.97	AV	53.00	100	Horizontal	Pass
2	2498.000	58.26	1.85	74.0	-15.74	Peak	113.00	150	Horizontal	Pass
2**	2498.000	45.87	1.85	54.0	-8.13	AV	113.00	150	Horizontal	Pass

π/4-DQPSK LOW CHANNEL



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	2349.667	58.42	2.57	74.0	-15.58	Peak	125.00	150	Horizontal	Pass
1**	2349.667	46.32	2.57	54.0	-7.68	AV	125.00	150	Horizontal	Pass
2	2389.833	57.21	1.64	74.0	-16.79	Peak	65.00	150	Horizontal	Pass
2**	2389.833	46.23	1.64	54.0	-7.77	AV	65.00	150	Horizontal	Pass

π/4-DQPSK HIGH CHANNEL

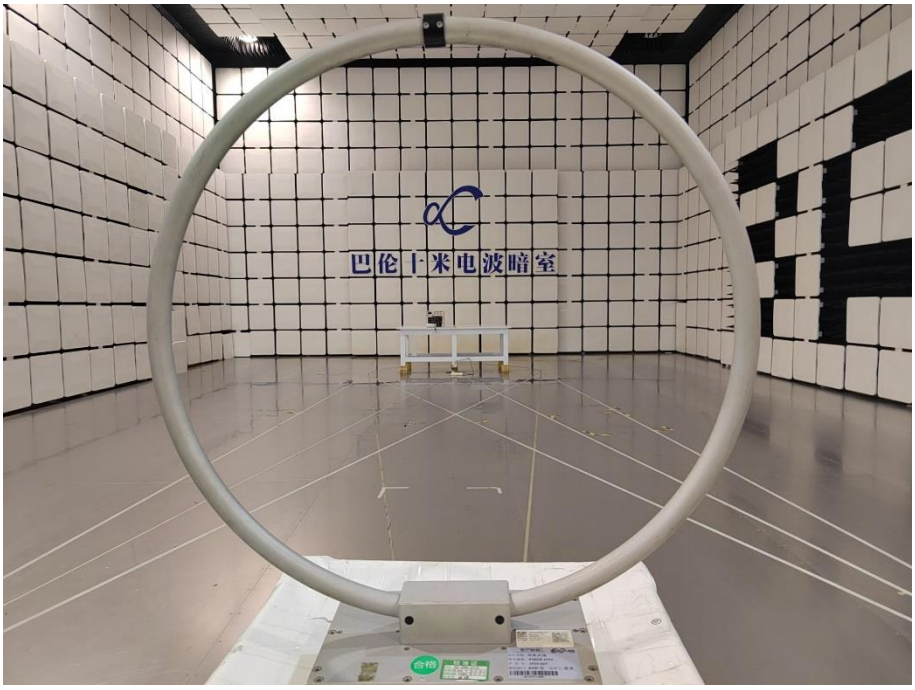


No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	2483.500	56.90	1.98	74.0	-17.10	Peak	337.00	200	Horizontal	Pass
1**	2483.500	46.18	1.98	54.0	-7.82	AV	337.00	200	Horizontal	Pass
2	2486.750	58.79	1.79	74.0	-15.21	Peak	298.00	150	Horizontal	Pass
2**	2486.750	45.90	1.79	54.0	-8.10	AV	298.00	150	Horizontal	Pass

ANNEX A TEST SETUP PHOTOS

1 Radiated Test Photo

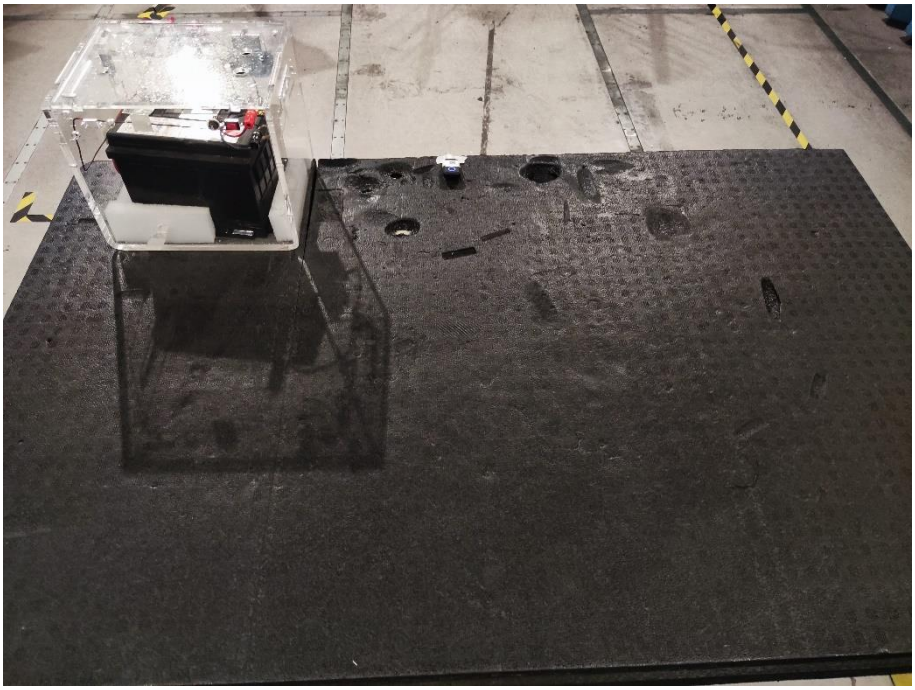
Below 30 MHz



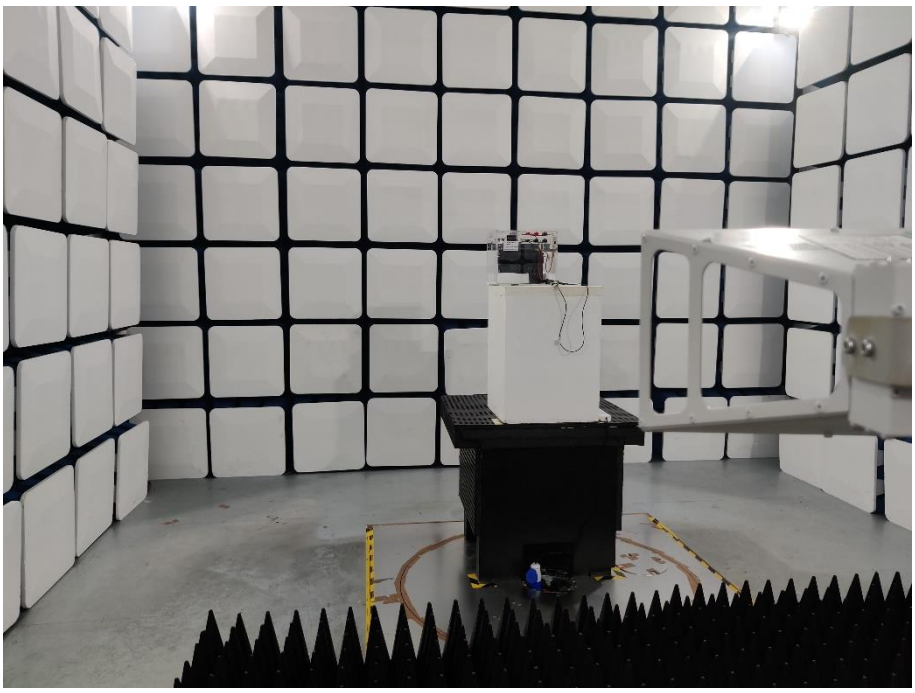
Close-Up

30 MHz-1 GHz

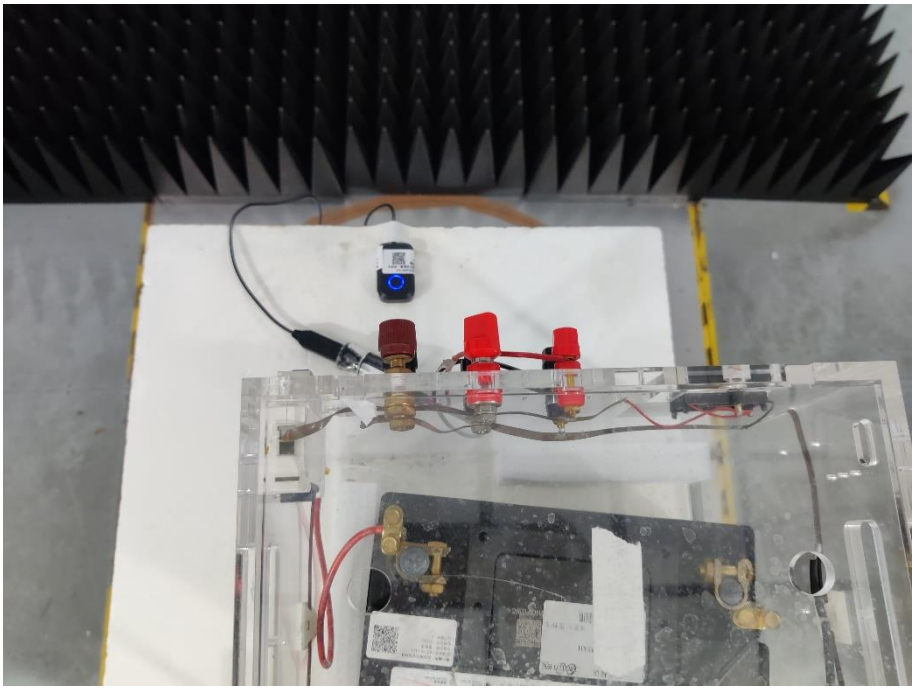
Close-Up



Above 1GHz

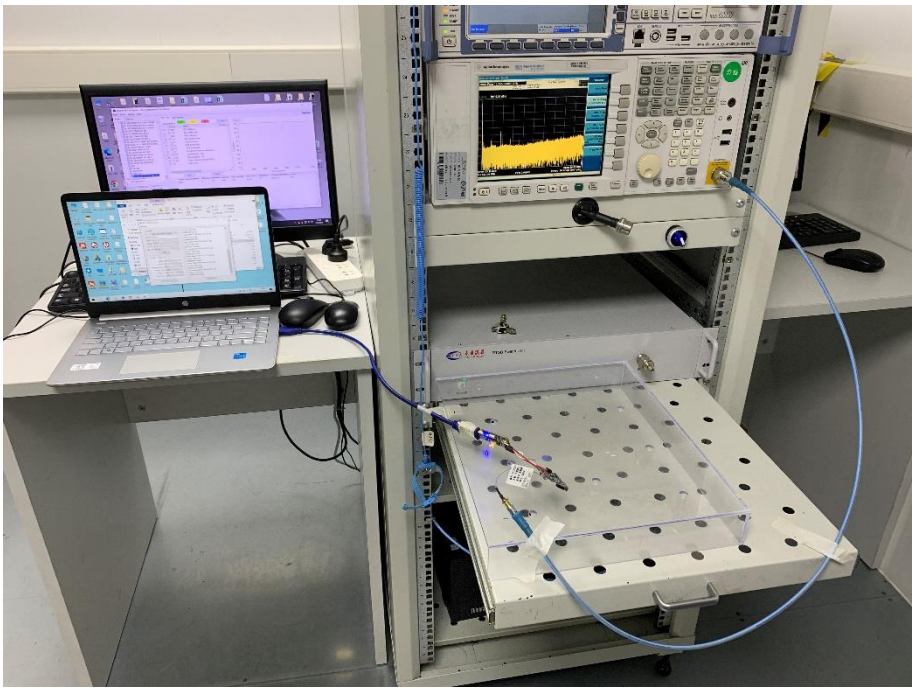


Close-Up



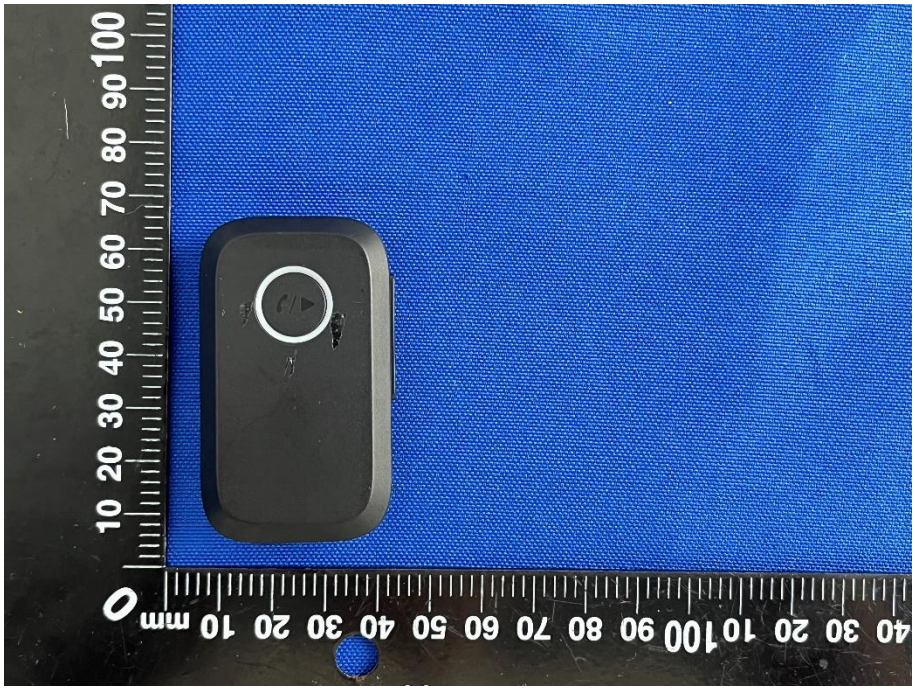
2 Conducted Test Photo

Conducted Test-BT



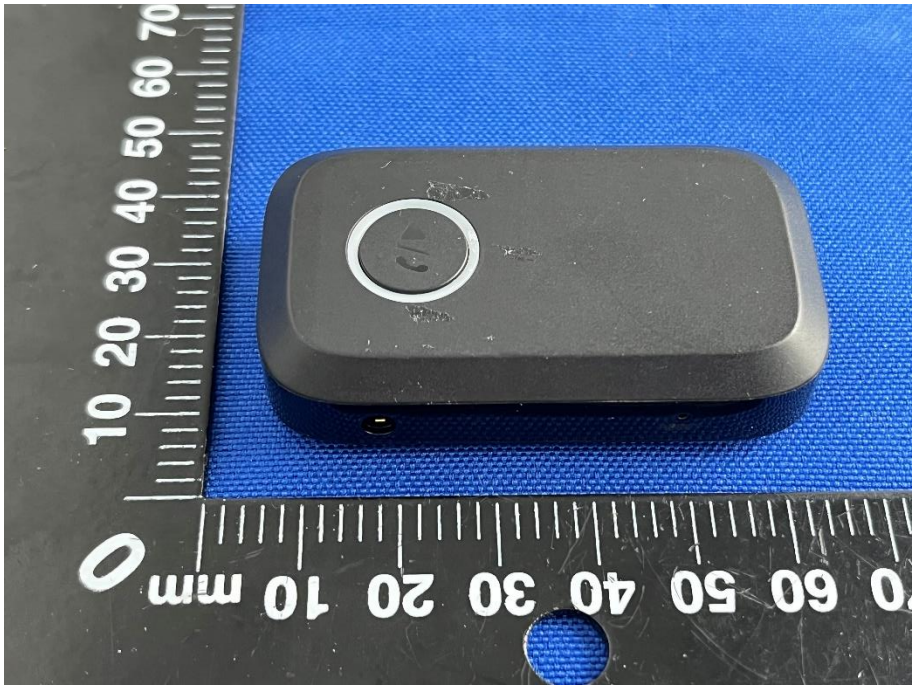
ANNEX B EUT EXTERNAL PHOTOS

FRONT VIEW OF EUT



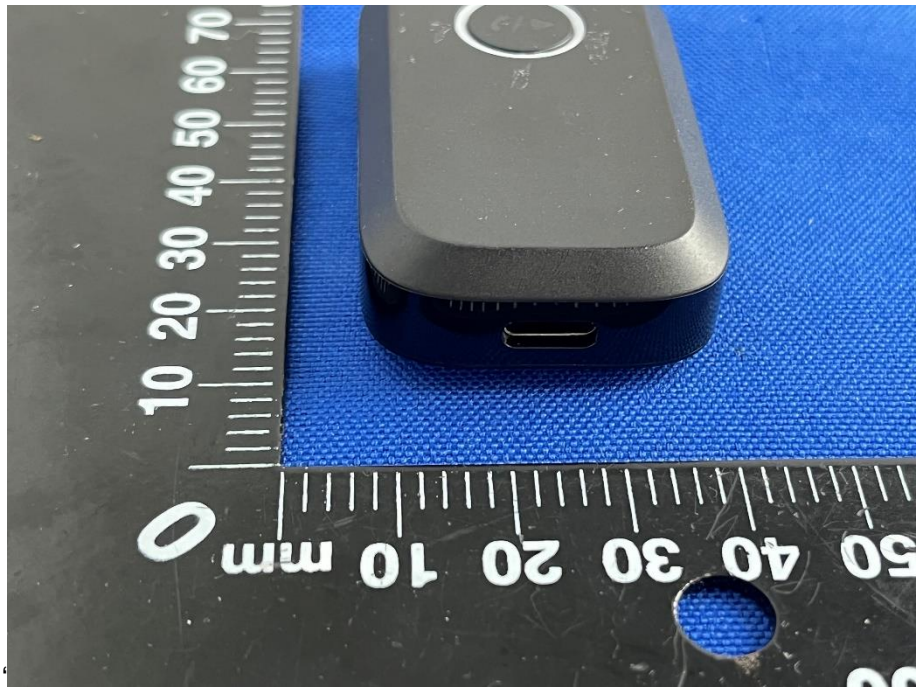
REAR VIEW OF EUT

LEFT VIEW OF EUT

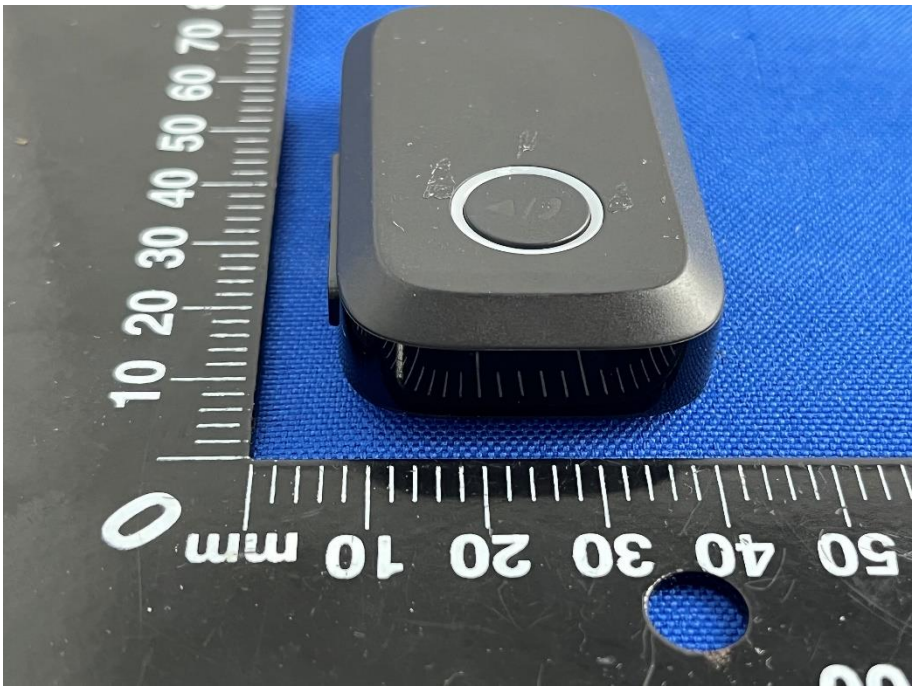


RIGHT VIEW OF EUT

TOP VIEW OF EUT



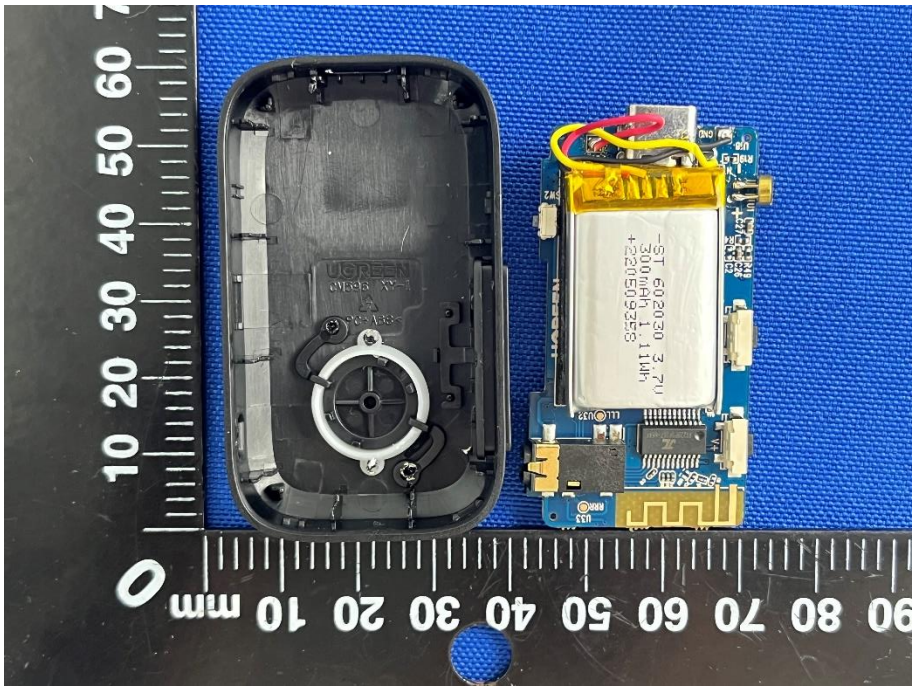
BOTTOM VIEW OF EUT



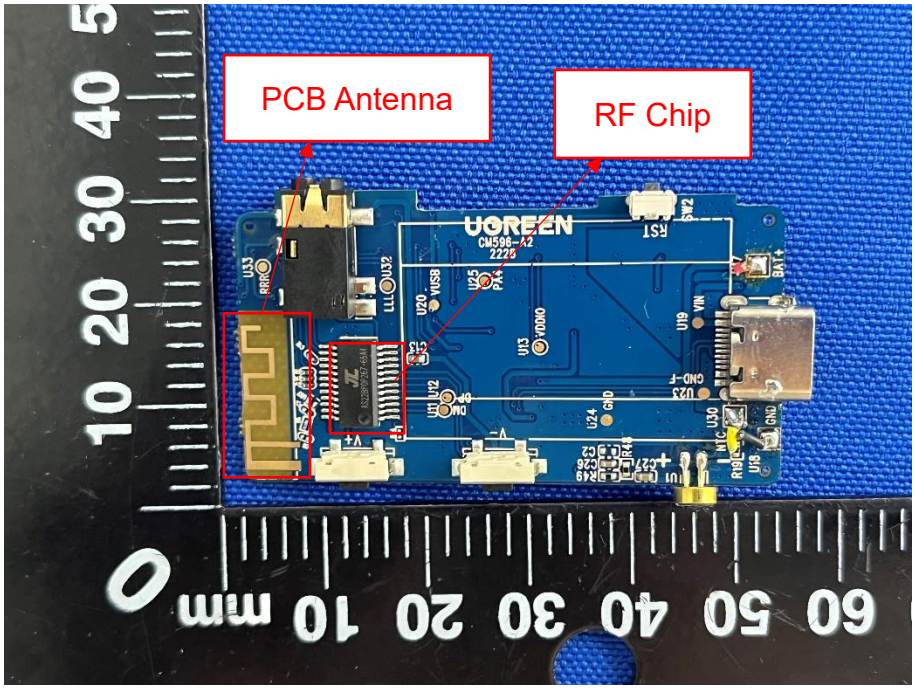
ANNEX C EUT INTERNAL PHOTOS

EUT UNCOVER VIEW 1

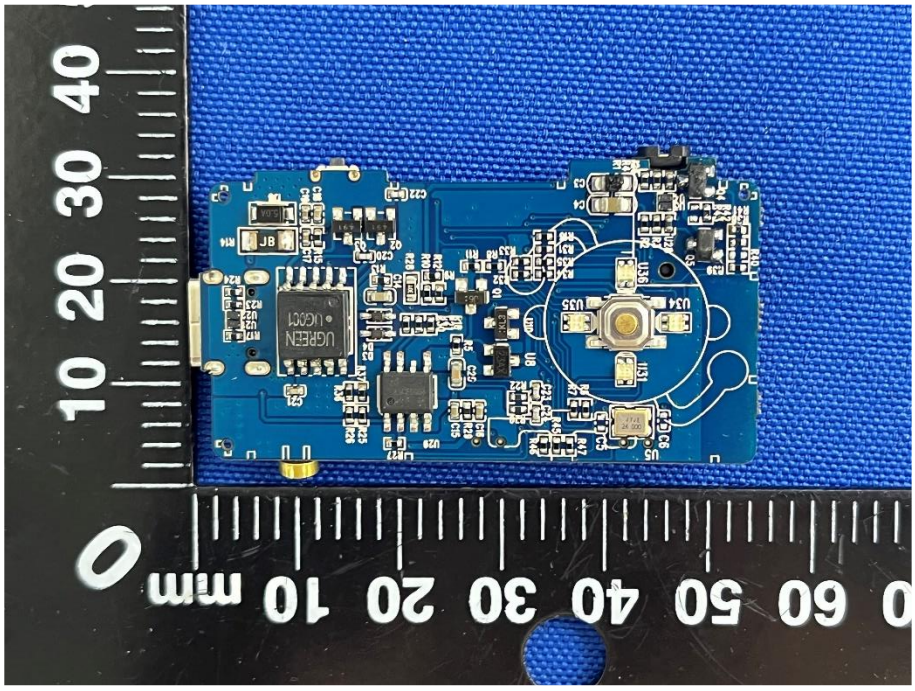
EUT UNCOVER VIEW 2



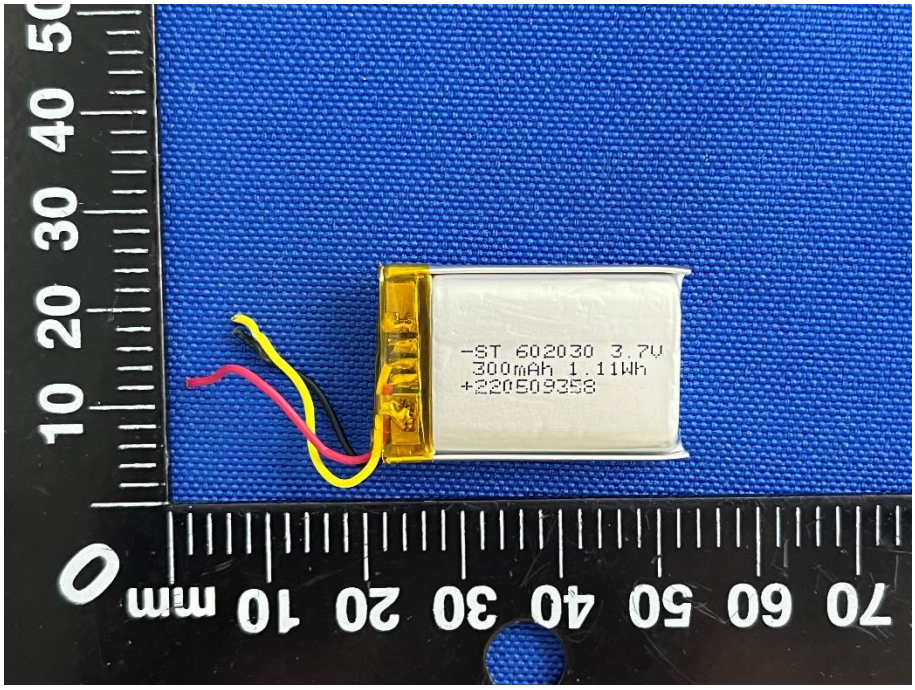
MAIN BOARD TOP VIEW



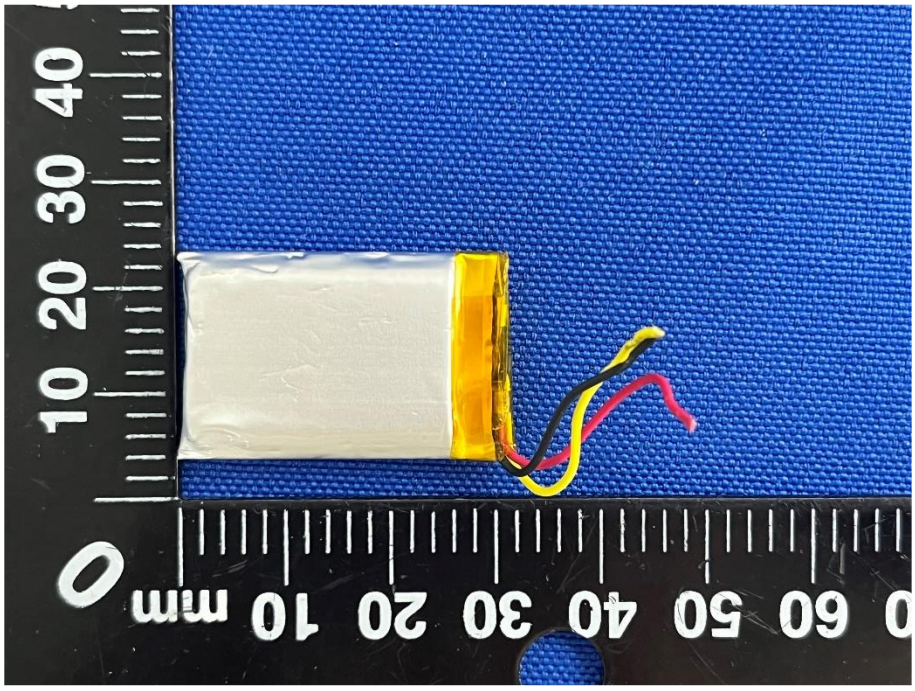
MAIN BOARD REAR VIEW



BATTERY (FRONT)



BATTERY (REAR)



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