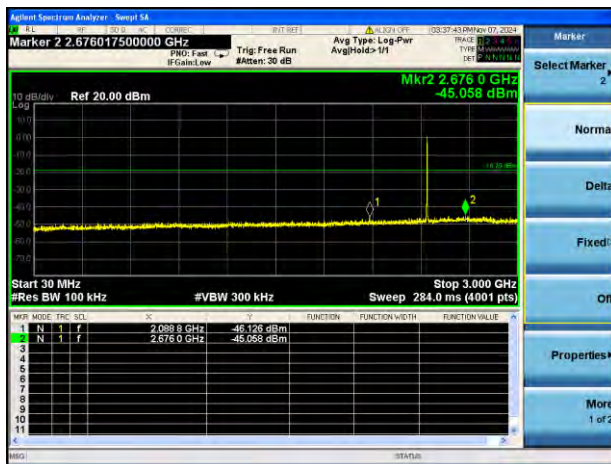
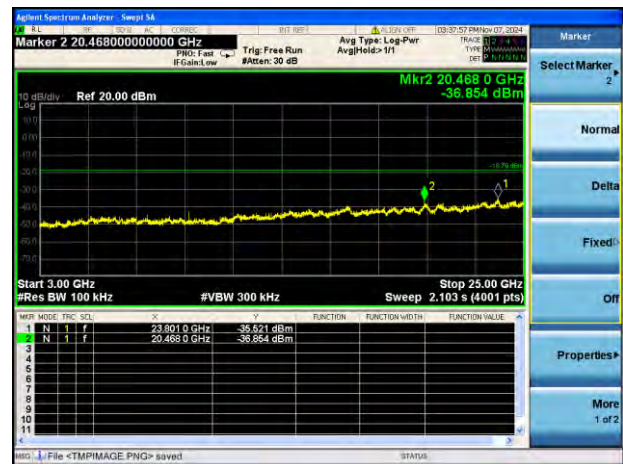


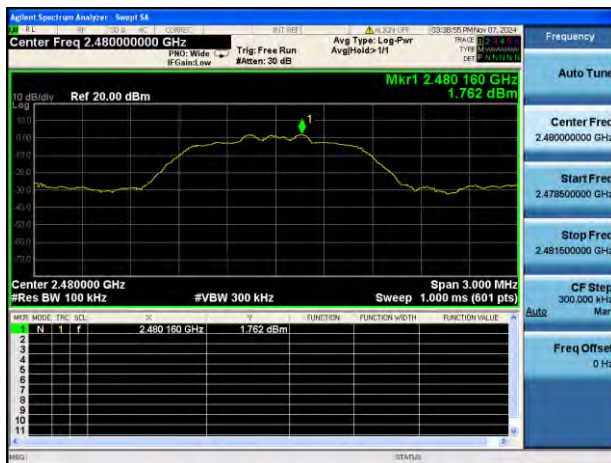
$\pi/4$ -DQPSK MIDDLE CHANNEL, SPURIOUS
30 MHz ~ 3 GHz



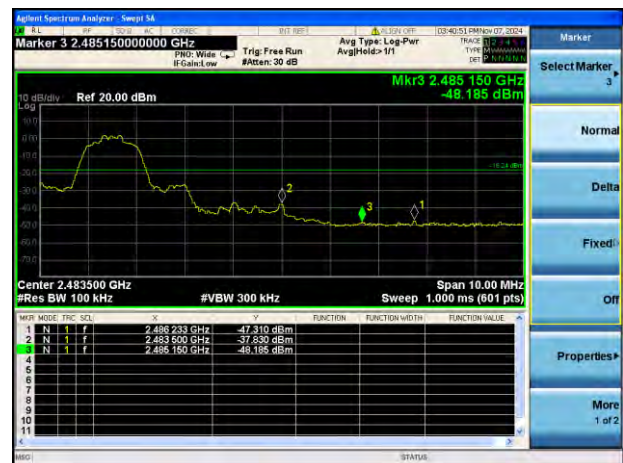
$\pi/4$ -DQPSK MIDDLE CHANNEL, SPURIOUS
3 GHz ~ 25 GHz



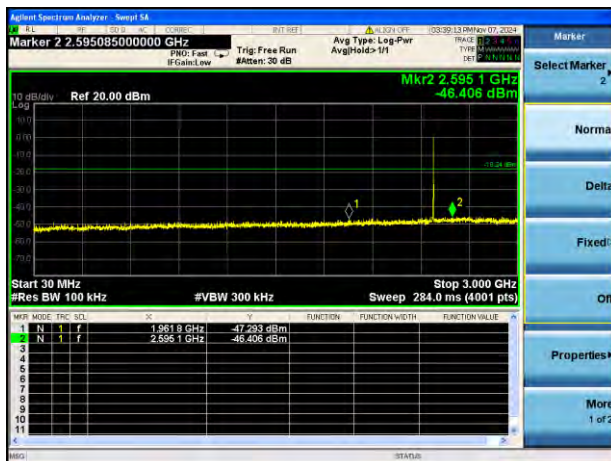
$\pi/4$ -DQPSK HIGH CHANNEL, CARRIER LEVEL



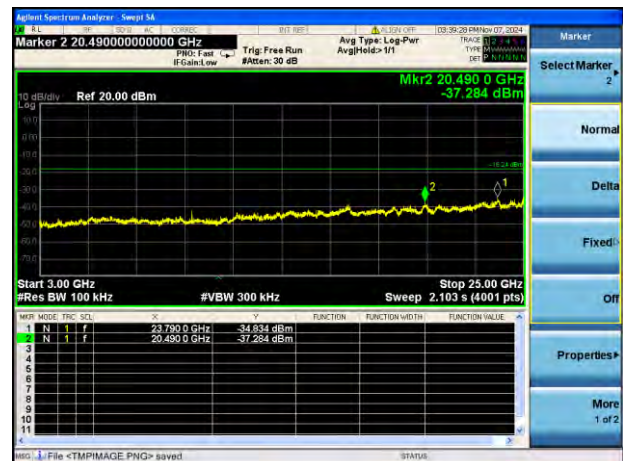
$\pi/4$ -DQPSK HIGH CHANNEL, BAND EDGE



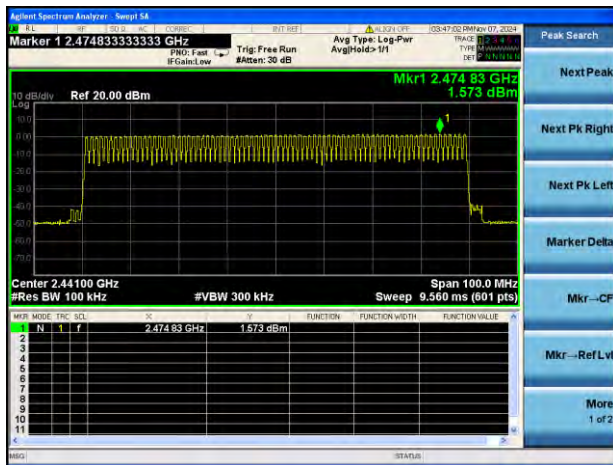
$\pi/4$ -DQPSK HIGH CHANNEL, SPURIOUS
30 MHz ~ 3 GHz



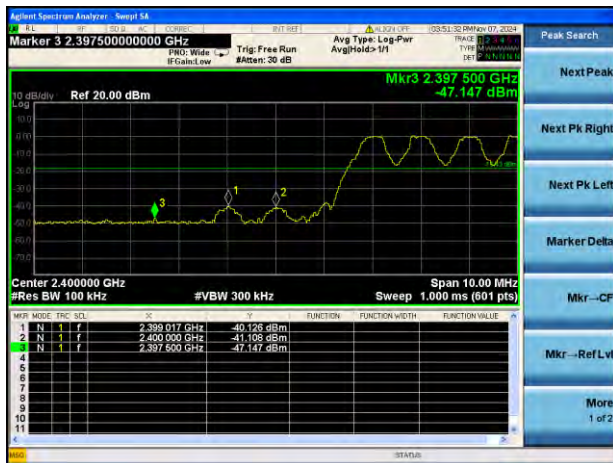
$\pi/4$ -DQPSK HIGH CHANNEL, SPURIOUS
3 GHz ~ 25 GHz



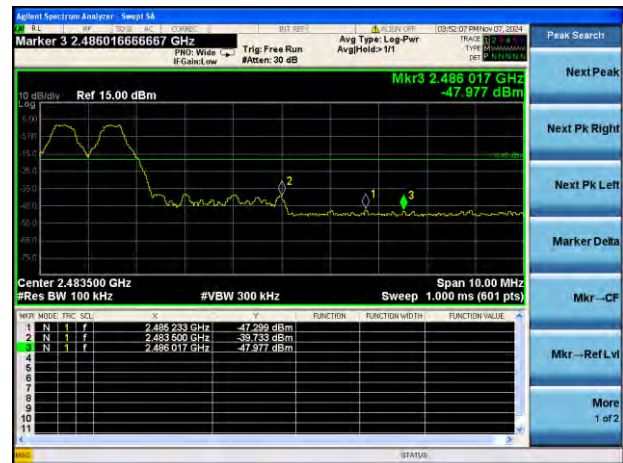
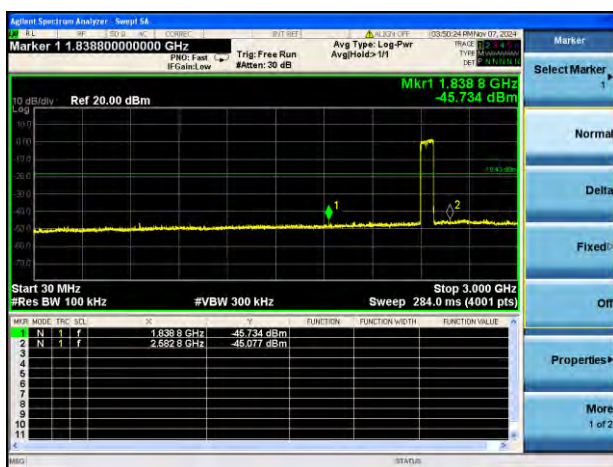
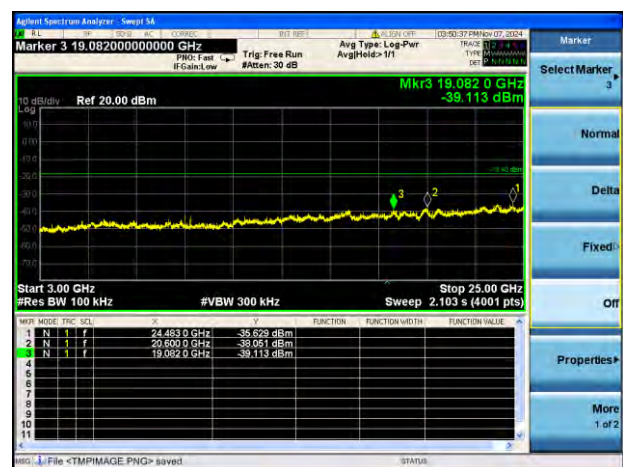
GFSK HOPPING, CARRIER LEVEL

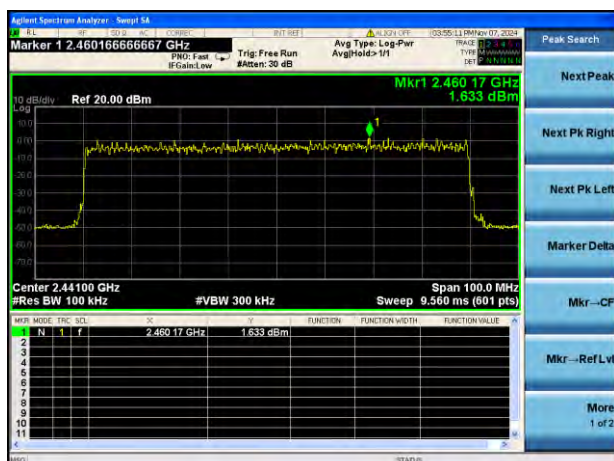
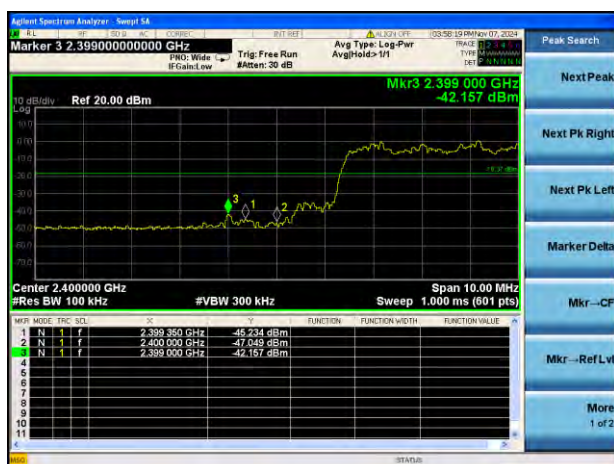
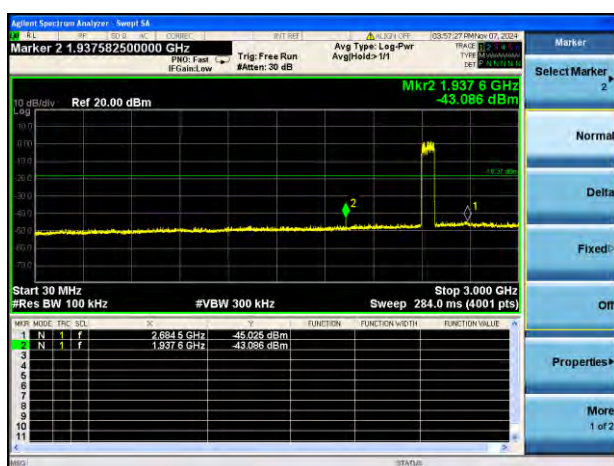
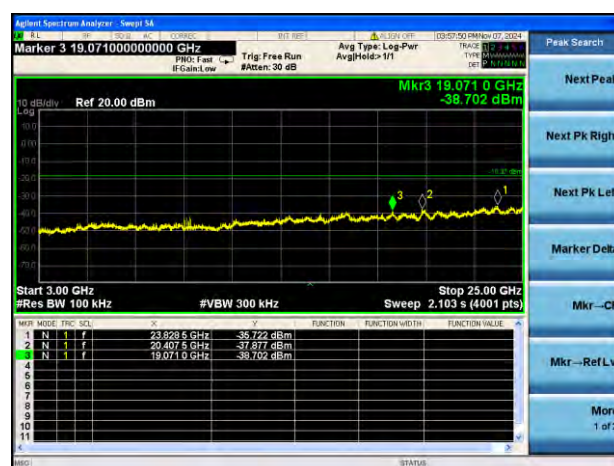


GFSK HOPPING BAND EDGE (LOW)



GFSK HOPPING BAND EDGE (HIGH)

GFSK Hopping Mode, SPURIOUS
30 MHz ~ 3 GHzGFSK Hopping Mode, SPURIOUS
3GHz ~ 25 GHz

$\pi/4$ -DQPSK HOPPING, CARRIER LEVEL $\pi/4$ -DQPSK Hopping BAND EDGE (LOW) $\pi/4$ -DQPSK Hopping BAND EDGE (HIGH) $\pi/4$ -DQPSK Hopping Mode, SPURIOUS
30 MHz ~ 3 GHz $\pi/4$ -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 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.

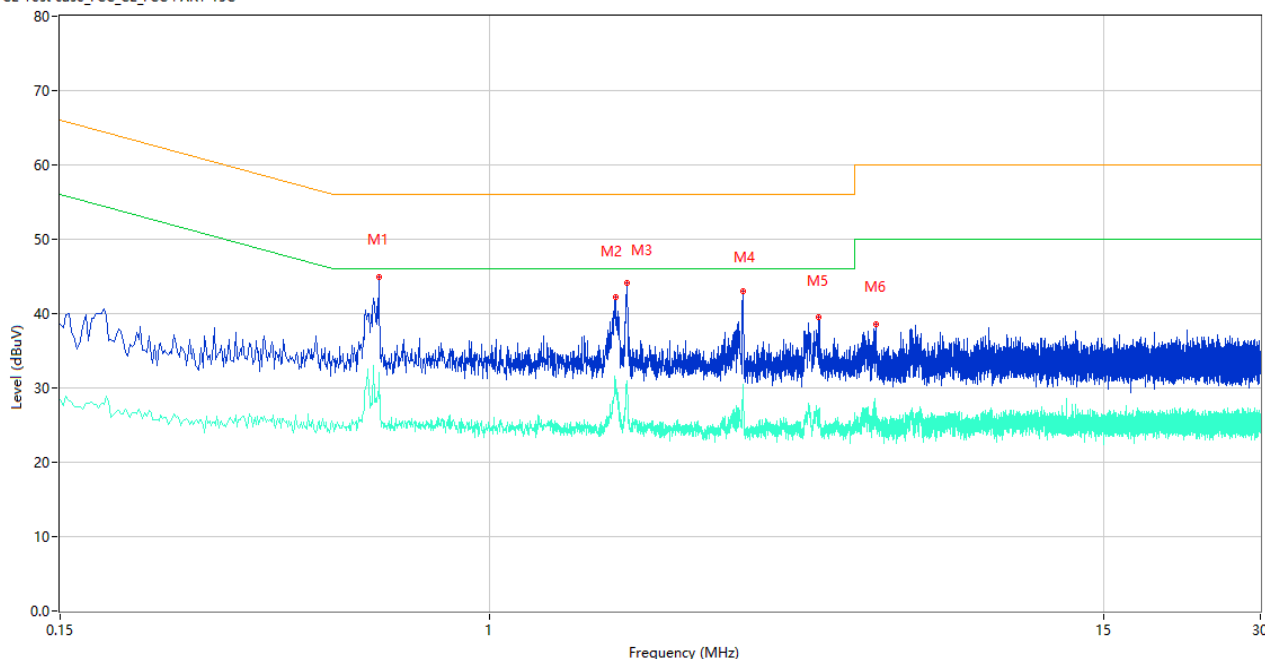
Note ³: Results (dBuV) = Original reading level of Spectrum Analyzer (dBuV) + Factor (dB)

Test Data and Plots

RX Mode

PHASE L

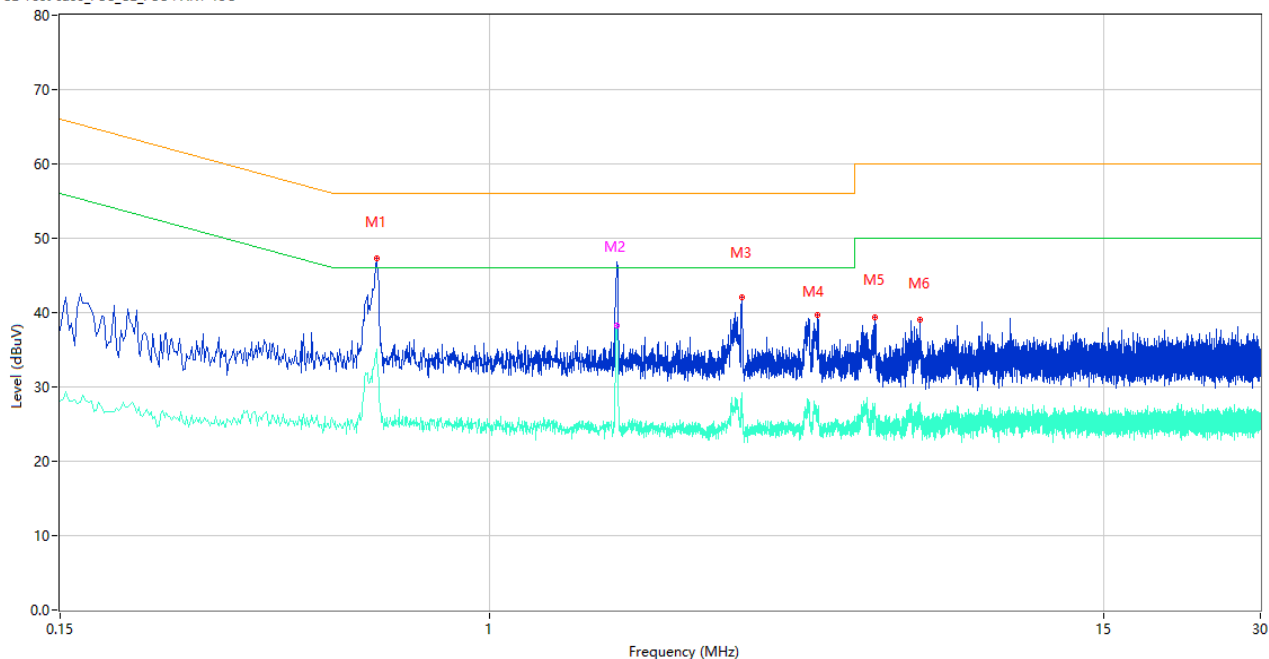
CE Test case_FCC_CE_FCC PART 15C



No.	Frequency (MHz)	Results (dBuV)	Factor (dB)	Limit (dBuV)	Margin (dB)	Detector	Line	Verdict
1	0.612	44.92	10.17	56.00	11.08	Peak	L	Pass
1**	0.612	28.61	10.17	46.00	17.39	AV	L	Pass
2	1.740	42.27	10.15	56.00	13.73	Peak	L	Pass
2**	1.740	30.87	10.15	46.00	15.13	AV	L	Pass
3	1.834	44.19	10.11	56.00	11.81	Peak	L	Pass
3**	1.834	30.26	10.11	46.00	15.74	AV	L	Pass
4	3.052	42.94	10.07	56.00	13.06	Peak	L	Pass
4**	3.052	28.44	10.07	46.00	17.56	AV	L	Pass
5	4.278	39.50	10.25	56.00	16.50	Peak	L	Pass
5**	4.278	27.17	10.25	46.00	18.83	AV	L	Pass
6	5.492	38.57	10.34	60.00	21.43	Peak	L	Pass
6**	5.492	26.54	10.34	50.00	23.46	AV	L	Pass

PHASE N

CE Test case_FCC_CE_FCC PART 15C

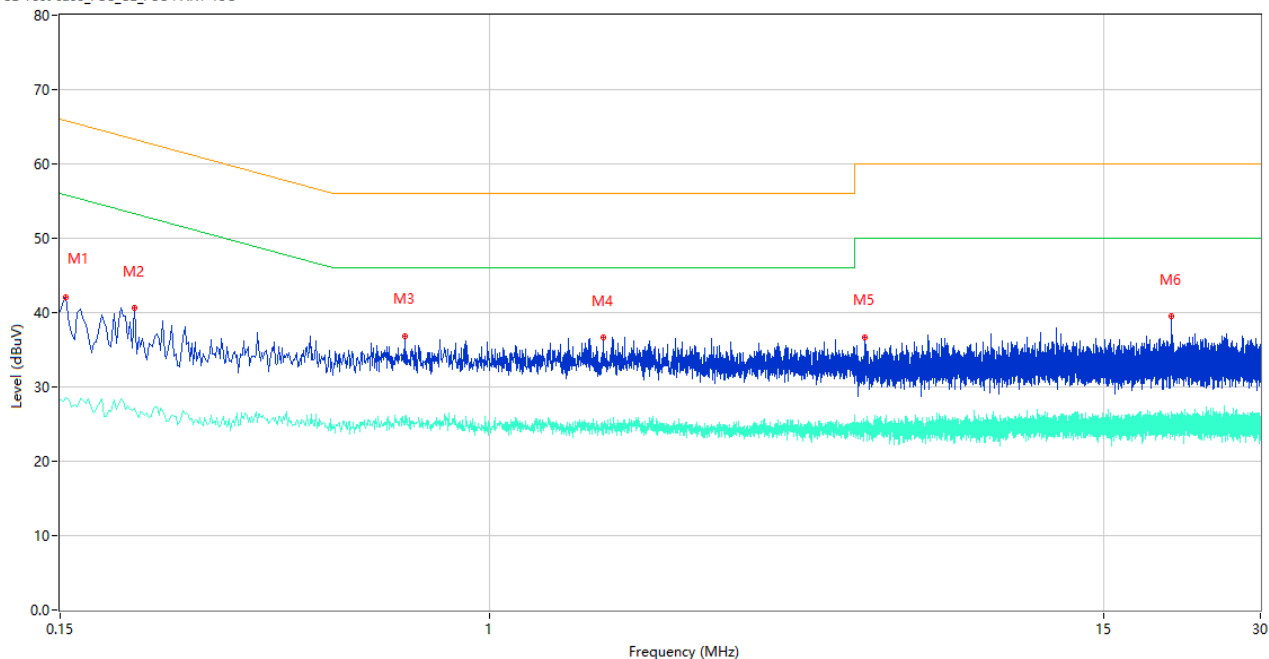


No.	Frequency (MHz)	Results (dBuV)	Factor (dB)	Limit (dBuV)	Margin (dB)	Detector	Line	Verdict
1	0.606	47.23	10.17	56.00	8.77	Peak	N	Pass
1**	0.606	35.14	10.17	46.00	10.86	AV	N	Pass
2	1.748	45.09	10.15	56.00	10.91	Peak	N	Pass
2**	1.748	38.32	10.15	46.00	7.68	AV	N	Pass
3	3.040	41.99	10.12	56.00	14.01	Peak	N	Pass
3**	3.040	28.83	10.12	46.00	17.17	AV	N	Pass
4	4.254	39.68	9.96	56.00	16.32	Peak	N	Pass
4**	4.254	26.55	9.96	46.00	19.45	AV	N	Pass
5	5.482	39.38	10.29	60.00	20.62	Peak	N	Pass
5**	5.482	26.65	10.29	50.00	23.35	AV	N	Pass
6	6.672	39.00	10.54	60.00	21.00	Peak	N	Pass
6**	6.672	27.19	10.54	50.00	22.81	AV	N	Pass

TX Mode

PHASE L

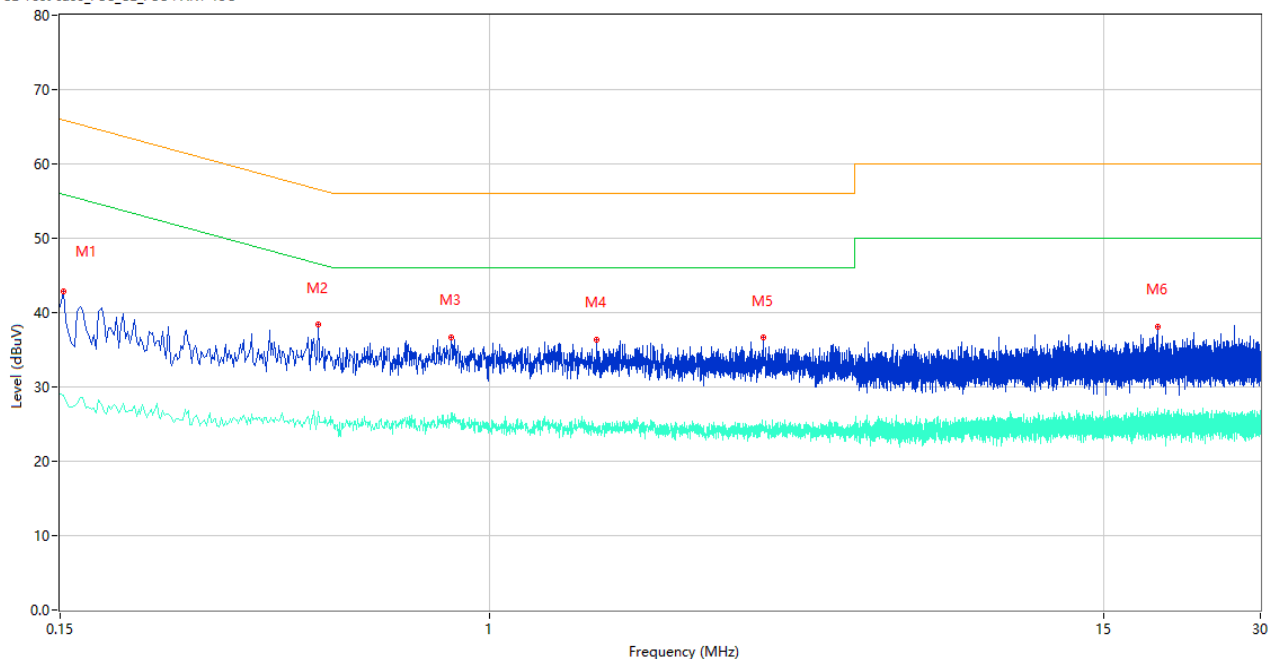
CE Test case_FCC_CE_FCC PART 15C



No.	Frequency (MHz)	Results (dBuV)	Factor (dB)	Limit (dBuV)	Margin (dB)	Detector	Line	Verdict
1	0.154	42.13	9.78	65.78	23.65	Peak	L	Pass
1**	0.154	28.62	9.78	55.78	27.16	AV	L	Pass
2	0.208	40.61	9.77	63.28	22.67	Peak	L	Pass
2**	0.208	27.11	9.77	53.28	26.17	AV	L	Pass
3	0.686	36.88	10.54	56.00	19.12	Peak	L	Pass
3**	0.686	25.99	10.54	46.00	20.01	AV	L	Pass
4	1.646	36.64	9.92	56.00	19.36	Peak	L	Pass
4**	1.646	24.80	9.92	46.00	21.20	AV	L	Pass
5	5.246	36.69	10.57	60.00	23.31	Peak	L	Pass
5**	5.246	24.43	10.57	50.00	25.57	AV	L	Pass
6	20.218	39.48	10.93	60.00	20.52	Peak	L	Pass
6**	20.218	25.15	10.93	50.00	24.85	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	0.152	42.88	9.78	65.89	23.01	Peak	N	Pass
1**	0.152	28.94	9.78	55.89	26.95	AV	N	Pass
2	0.468	38.34	10.01	56.55	18.21	Peak	N	Pass
2**	0.468	26.69	10.01	46.55	19.86	AV	N	Pass
3	0.842	36.71	10.61	56.00	19.29	Peak	N	Pass
3**	0.842	26.56	10.61	46.00	19.44	AV	N	Pass
4	1.602	36.36	9.87	56.00	19.64	Peak	N	Pass
4**	1.602	24.49	9.87	46.00	21.51	AV	N	Pass
5	3.342	36.62	10.43	56.00	19.38	Peak	N	Pass
5**	3.342	24.78	10.43	46.00	21.22	AV	N	Pass
6	19.086	38.12	10.94	60.00	21.88	Peak	N	Pass
6**	19.086	27.12	10.94	50.00	22.88	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 (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 $f \geq 1$ 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)

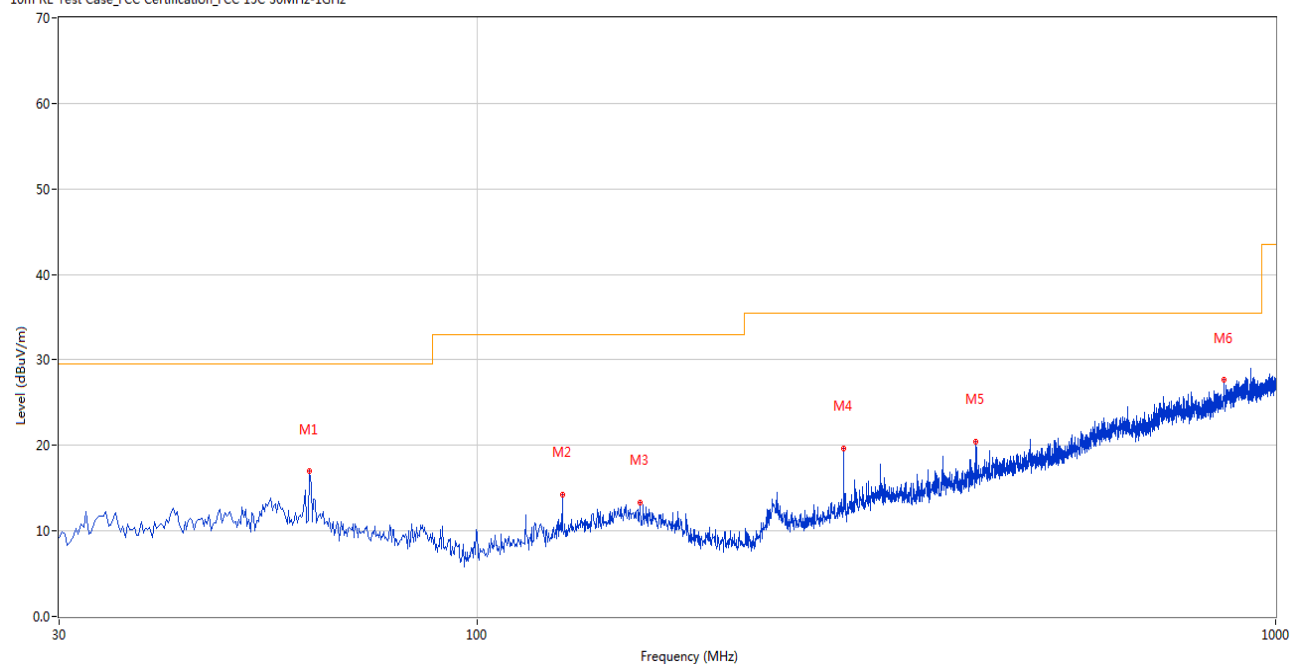
The low frequency, which started from 9 kHz to 30 MHz, was pre-scanned and the result which was 20 dB lower than the limit line per 15.31(o) was not reported.

Test Data and Plots

RX Mode

30 MHz to 1 GHz, ANT H

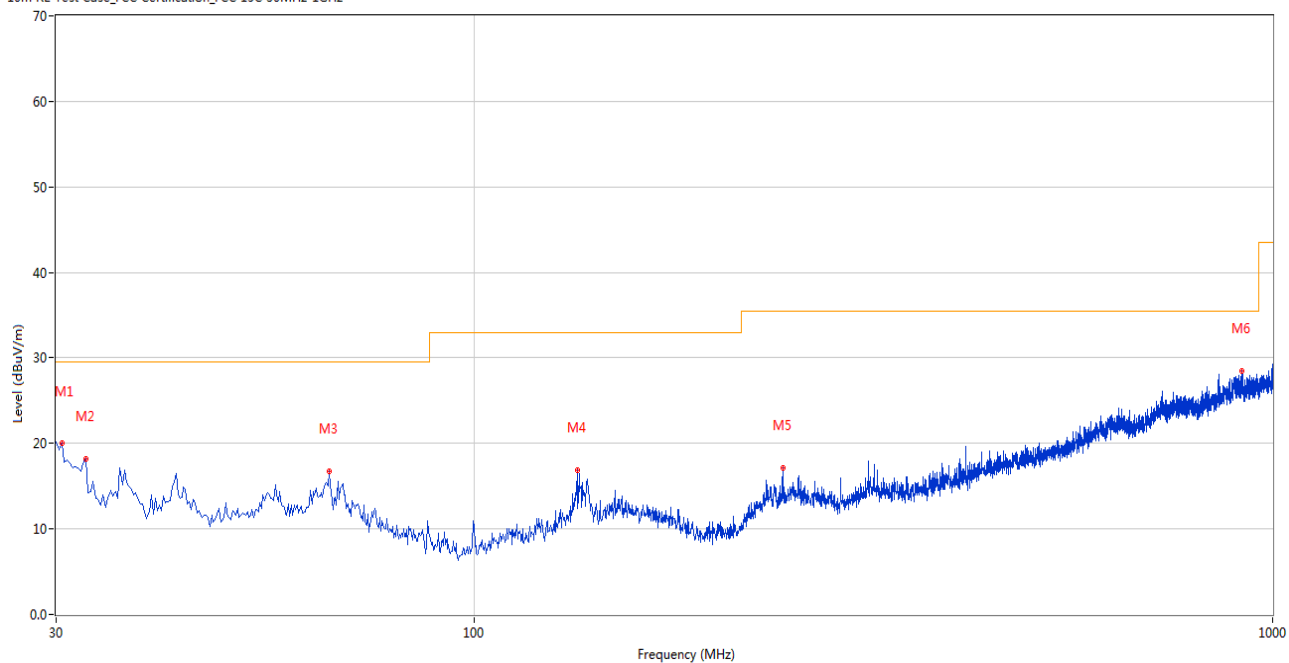
10m RE Test Case_FCC Certification_FCC 15C 30MHz-1GHz



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	61.760	16.94	-26.86	29.5	12.56	Peak	322.00	100	Horizontal	Pass
2	127.946	14.29	-27.27	33.0	18.71	Peak	0.00	200	Horizontal	Pass
3	159.948	13.37	-25.69	33.0	19.63	Peak	75.00	200	Horizontal	Pass
4	287.956	19.66	-25.18	35.5	15.84	Peak	318.00	200	Horizontal	Pass
5	421.782	20.38	-21.60	35.5	15.12	Peak	299.00	200	Horizontal	Pass
6	861.082	27.69	-11.72	35.5	7.81	Peak	357.00	200	Horizontal	Pass

30 MHz to 1 GHz, ANT V

10m RE Test Case_FCC Certification_FCC 15C 30MHz-1GHz

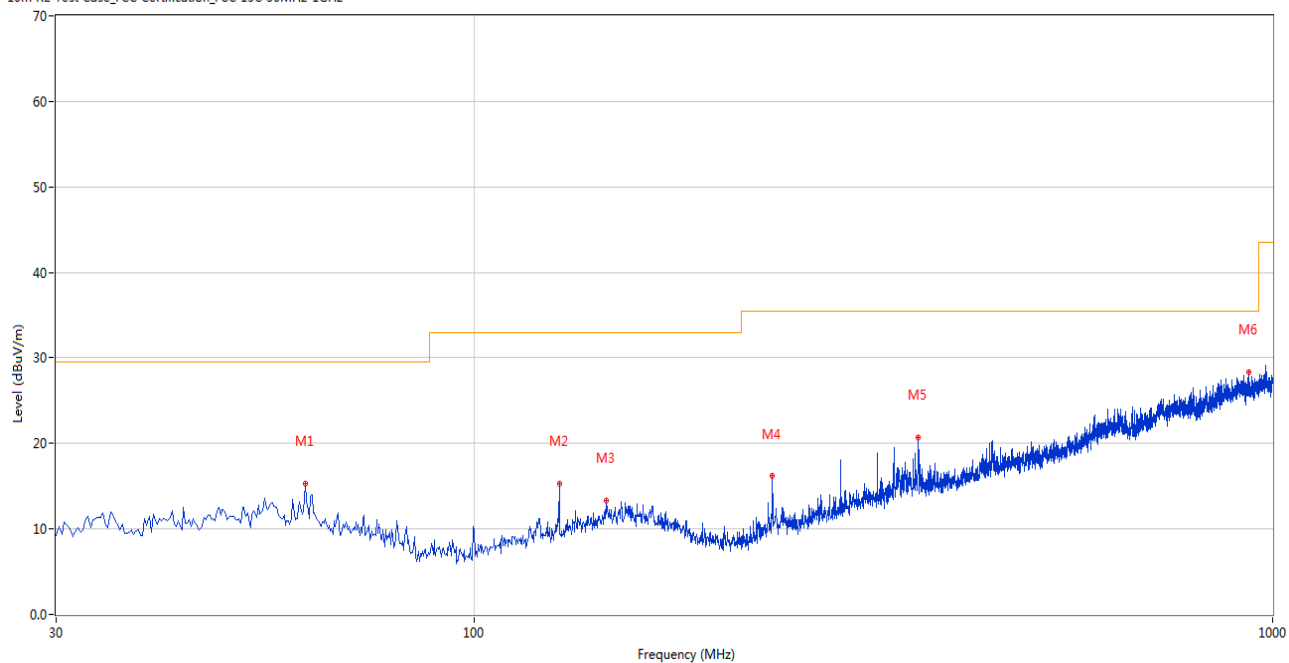


No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	30.485	20.05	-27.76	29.5	9.45	Peak	0.00	200	Vertical	Pass
2	32.667	18.22	-27.50	29.5	11.28	Peak	193.00	200	Vertical	Pass
3	65.881	16.79	-27.76	29.5	12.71	Peak	142.00	100	Vertical	Pass
4	134.734	16.91	-26.65	33.0	16.09	Peak	0.00	200	Vertical	Pass
5	243.589	17.13	-26.97	35.5	18.37	Peak	223.00	100	Vertical	Pass
6	915.146	28.53	-10.43	35.5	6.97	Peak	170.00	100	Vertical	Pass

TX Mode

30 MHz to 1 GHz, ANT H

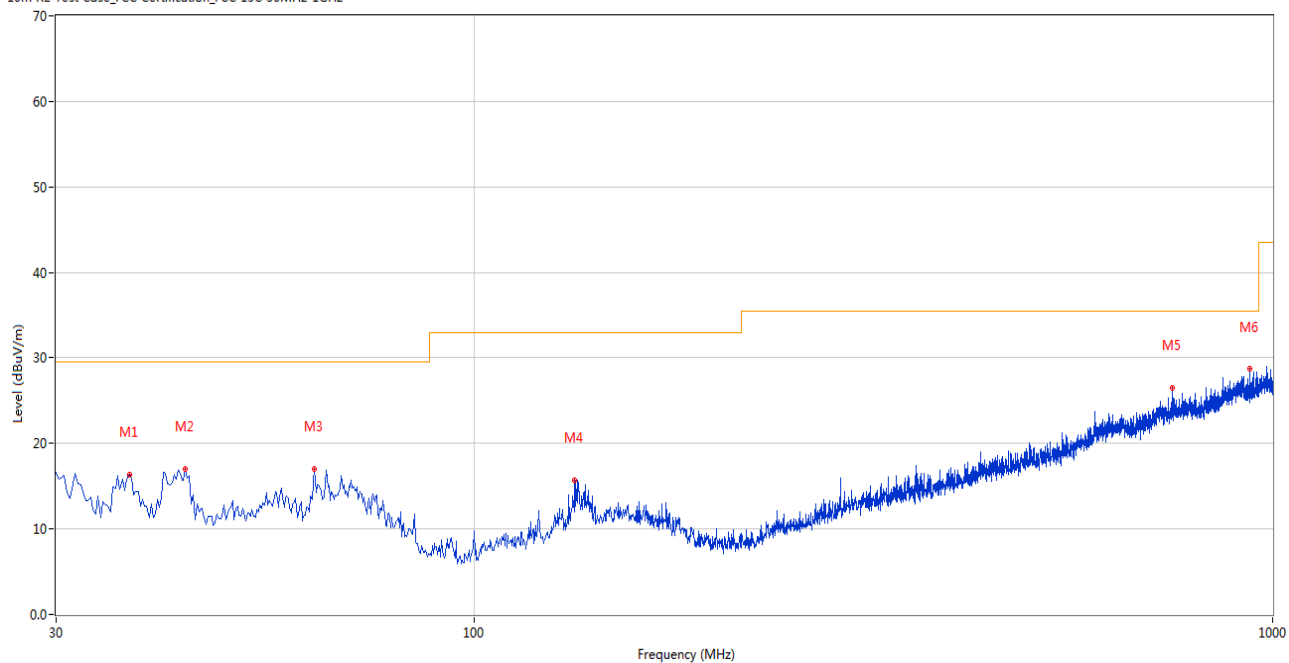
10m RE Test Case_FCC Certification_FCC 15C 30MHz-1GHz



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	61.517	15.34	-26.81	29.5	14.16	Peak	244.00	100	Horizontal	Pass
2	127.946	15.28	-27.27	33.0	17.72	Peak	37.00	100	Horizontal	Pass
3	146.613	13.29	-25.59	33.0	19.71	Peak	285.00	100	Horizontal	Pass
4	236.558	16.15	-27.64	35.5	19.35	Peak	22.00	200	Horizontal	Pass
5	359.960	20.70	-23.29	35.5	14.80	Peak	212.00	200	Horizontal	Pass
6	933.329	28.36	-10.56	35.5	7.14	Peak	344.00	100	Horizontal	Pass

30 MHz to 1 GHz, ANT V

10m RE Test Case_FCC Certification_FCC 15C 30MHz-1GHz



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	37.031	16.38	-27.14	29.5	13.12	Peak	206.00	100	Vertical	Pass
2	43.577	16.97	-26.25	29.5	12.53	Peak	320.00	100	Vertical	Pass
3	63.214	17.02	-26.99	29.5	12.48	Peak	240.00	100	Vertical	Pass
4	133.764	15.74	-26.77	33.0	17.26	Peak	283.00	100	Vertical	Pass
5	748.590	26.46	-13.16	35.5	9.04	Peak	199.00	200	Vertical	Pass
6	937.208	28.67	-10.47	35.5	6.83	Peak	280.00	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)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1599.800	43.67	74.0	30.33	Peak	0.00	100	Horizontal	Pass
1**	1599.800	33.04	54.0	20.96	AV	0.00	100	Horizontal	Pass
2	2401.900	93.60	74.0	-19.60	Peak	208.00	200	Horizontal	N/A
2**	2401.900	93.38	54.0	-39.38	AV	208.00	200	Horizontal	N/A
3	4804.500	52.34	74.0	21.66	Peak	307.00	100	Horizontal	Pass
3**	4804.500	49.88	54.0	4.12	AV	307.00	100	Horizontal	Pass
4	7200.250	53.99	74.0	20.01	Peak	48.00	400	Horizontal	Pass
4**	7200.250	49.85	54.0	4.15	AV	48.00	400	Horizontal	Pass
5	12474.974	52.81	74.0	21.19	Peak	283.00	400	Horizontal	Pass
5**	12474.974	44.56	54.0	9.44	AV	283.00	400	Horizontal	Pass
6	17003.551	55.08	74.0	18.92	Peak	349.00	300	Horizontal	Pass
6**	17003.551	45.74	54.0	8.26	AV	349.00	300	Horizontal	Pass

GFSK LOW CHANNEL 1 GHz to 18 GHz, ANT V

No.	Frequency (MHz)	Results (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1998.700	55.25	74.0	18.75	Peak	94.00	100	Vertical	Pass
1**	1998.700	40.86	54.0	13.14	AV	94.00	100	Vertical	Pass
2	2401.900	90.28	74.0	-16.28	Peak	302.00	100	Vertical	N/A
2**	2401.900	89.79	54.0	-35.79	AV	302.00	100	Vertical	N/A
3	4500.000	48.25	74.0	25.75	Peak	225.00	100	Vertical	Pass
3**	4500.000	45.37	54.0	8.63	AV	225.00	100	Vertical	Pass
4	4804.250	51.30	74.0	22.70	Peak	205.00	100	Vertical	Pass
4**	4804.250	47.28	54.0	6.72	AV	205.00	100	Vertical	Pass
5	12490.174	53.32	74.0	20.68	Peak	302.00	200	Vertical	Pass
5**	12490.174	43.90	54.0	10.10	AV	302.00	200	Vertical	Pass
6	14442.599	55.28	74.0	18.72	Peak	147.00	400	Vertical	Pass
6**	14442.599	45.66	54.0	8.34	AV	147.00	400	Vertical	Pass

GFSK MIDDLE CHANNEL 1 GHz to 18 GHz, ANT H

No.	Frequency (MHz)	Results (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1332.900	42.79	74.0	31.21	Peak	110.00	200	Horizontal	Pass
1**	1332.900	33.81	54.0	20.19	AV	110.00	200	Horizontal	Pass
2	2440.800	95.73	74.0	-21.73	Peak	209.00	100	Horizontal	N/A
2**	2440.800	94.71	54.0	-40.71	AV	209.00	100	Horizontal	N/A
3	4882.500	51.51	74.0	22.49	Peak	208.00	100	Horizontal	Pass
3**	4882.500	47.96	54.0	6.04	AV	208.00	100	Horizontal	Pass
4	7317.500	52.95	74.0	21.05	Peak	50.00	100	Horizontal	Pass
4**	7317.500	49.89	54.0	4.11	AV	50.00	100	Horizontal	Pass
5	12470.938	53.89	74.0	20.11	Peak	360.00	300	Horizontal	Pass
5**	12470.938	44.47	54.0	9.53	AV	360.00	300	Horizontal	Pass
6	17128.238	54.95	74.0	19.05	Peak	171.00	300	Horizontal	Pass
6**	17128.238	45.42	54.0	8.58	AV	171.00	300	Horizontal	Pass

GFSK MIDDLE CHANNEL 1 GHz to 18 GHz, ANT V

No.	Frequency (MHz)	Results (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1500.200	43.08	74.0	30.92	Peak	129.00	100	Vertical	Pass
1**	1500.200	36.10	54.0	17.90	AV	129.00	100	Vertical	Pass
2	2440.800	90.95	74.0	-16.95	Peak	129.00	100	Vertical	N/A
2**	2440.800	89.59	54.0	-35.59	AV	129.00	100	Vertical	N/A
3	4882.250	51.31	74.0	22.69	Peak	127.00	100	Vertical	Pass
3**	4882.250	46.11	54.0	7.89	AV	127.00	100	Vertical	Pass
4	6914.500	53.78	74.0	20.22	Peak	46.00	100	Vertical	Pass
4**	6914.500	44.46	54.0	9.54	AV	46.00	100	Vertical	Pass
5	12506.563	54.50	74.0	19.50	Peak	18.00	400	Vertical	Pass
5**	12506.563	44.57	54.0	9.43	AV	18.00	400	Vertical	Pass
6	17005.387	54.87	74.0	19.13	Peak	132.00	300	Vertical	Pass
6**	17005.387	45.69	54.0	8.31	AV	132.00	300	Vertical	Pass

GFSK HIGH CHANNEL 1 GHz to 18 GHz, ANT H

No.	Frequency (MHz)	Results (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1599.100	42.40	74.0	31.60	Peak	307.00	200	Horizontal	Pass
1**	1599.100	32.28	54.0	21.72	AV	307.00	200	Horizontal	Pass
2	2479.900	96.12	74.0	-22.12	Peak	210.00	100	Horizontal	N/A
2**	2479.900	95.61	54.0	-41.61	AV	210.00	100	Horizontal	N/A
3	4960.500	50.84	74.0	23.16	Peak	81.00	100	Horizontal	Pass
3**	4960.500	47.59	54.0	6.41	AV	81.00	100	Horizontal	Pass
4	6964.000	53.29	74.0	20.71	Peak	1.00	100	Horizontal	Pass
4**	6964.000	44.43	54.0	9.57	AV	1.00	100	Horizontal	Pass
5	12466.187	53.83	74.0	20.17	Peak	226.00	100	Horizontal	Pass
5**	12466.187	44.15	54.0	9.85	AV	226.00	100	Horizontal	Pass
6	14701.688	54.71	74.0	19.29	Peak	177.00	300	Horizontal	Pass
6**	14701.688	44.86	54.0	9.14	AV	177.00	300	Horizontal	Pass

GFSK HIGH CHANNEL 1 GHz to 18 GHz, ANT V

No.	Frequency (MHz)	Results (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1500.100	43.57	74.0	30.43	Peak	93.00	100	Vertical	Pass
1**	1500.100	36.95	54.0	17.05	AV	93.00	100	Vertical	Pass
2	2479.900	91.41	74.0	-17.41	Peak	129.00	150	Vertical	N/A
2**	2479.900	90.68	54.0	-36.68	AV	129.00	150	Vertical	N/A
3	4500.000	48.79	74.0	25.21	Peak	247.00	100	Vertical	Pass
3**	4500.000	46.15	54.0	7.85	AV	247.00	100	Vertical	Pass
4	6893.750	54.07	74.0	19.93	Peak	52.00	400	Vertical	Pass
4**	6893.750	45.08	54.0	8.92	AV	52.00	400	Vertical	Pass
5	12492.075	53.05	74.0	20.95	Peak	140.00	400	Vertical	Pass
5**	12492.075	43.91	54.0	10.09	AV	140.00	400	Vertical	Pass
6	16850.512	55.67	74.0	18.33	Peak	342.00	200	Vertical	Pass
6**	16850.512	45.37	54.0	8.63	AV	342.00	200	Vertical	Pass

$\pi/4$ -DQPSK LOW CHANNEL 1 GHz to 18 GHz, ANT H

No.	Frequency (MHz)	Results (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1305.200	42.45	74.0	31.55	Peak	314.00	100	Horizontal	Pass
1**	1305.200	31.89	54.0	22.11	AV	314.00	100	Horizontal	Pass
2	2402.000	93.63	74.0	-19.63	Peak	217.00	150	Horizontal	N/A
2**	2402.000	90.66	54.0	-36.66	AV	217.00	150	Horizontal	N/A
3	4804.500	51.86	74.0	22.14	Peak	305.00	100	Horizontal	Pass
3**	4804.500	48.53	54.0	5.47	AV	305.00	100	Horizontal	Pass
4	7200.500	53.98	74.0	20.02	Peak	50.00	100	Horizontal	Pass
4**	7200.500	50.63	54.0	3.37	AV	50.00	100	Horizontal	Pass
5	12510.125	53.87	74.0	20.13	Peak	132.00	200	Horizontal	Pass
5**	12510.125	44.35	54.0	9.65	AV	132.00	200	Horizontal	Pass
6	17145.301	54.63	74.0	19.37	Peak	242.00	400	Horizontal	Pass
6**	17145.301	45.35	54.0	8.65	AV	242.00	400	Horizontal	Pass

 $\pi/4$ -DQPSK LOW CHANNEL 1 GHz to 18 GHz, ANT V

No.	Frequency (MHz)	Results (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1598.700	43.83	74.0	30.17	Peak	319.00	200	Vertical	Pass
1**	1598.700	34.49	54.0	19.51	AV	319.00	200	Vertical	Pass
2	2402.000	90.93	74.0	-16.93	Peak	319.00	100	Vertical	N/A
2**	2402.000	89.86	54.0	-35.86	AV	319.00	100	Vertical	N/A
3	4804.500	50.58	74.0	23.42	Peak	208.00	100	Vertical	Pass
3**	4804.500	45.36	54.0	8.64	AV	208.00	100	Vertical	Pass
4	7996.500	53.21	74.0	20.79	Peak	70.00	300	Vertical	Pass
4**	7996.500	43.81	54.0	10.19	AV	70.00	300	Vertical	Pass
5	12520.337	53.50	74.0	20.50	Peak	297.00	100	Vertical	Pass
5**	12520.337	44.08	54.0	9.92	AV	297.00	100	Vertical	Pass
6	17106.449	55.38	74.0	18.62	Peak	50.00	400	Vertical	Pass
6**	17106.449	46.19	54.0	7.81	AV	50.00	400	Vertical	Pass

$\pi/4$ -DQPSK MIDDLE CHANNEL 1 GHz to 18 GHz, ANT H

No.	Frequency (MHz)	Results (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1593.000	45.32	74.0	28.68	Peak	13.00	300	Horizontal	Pass
1**	1593.000	32.94	54.0	21.06	AV	13.00	300	Horizontal	Pass
2	2441.100	96.38	74.0	-22.38	Peak	210.00	100	Horizontal	N/A
2**	2441.100	93.67	54.0	-39.67	AV	210.00	100	Horizontal	N/A
3	4882.250	51.27	74.0	22.73	Peak	45.00	100	Horizontal	Pass
3**	4882.250	46.75	54.0	7.25	AV	45.00	100	Horizontal	Pass
4	6887.250	54.03	74.0	19.97	Peak	144.00	300	Horizontal	Pass
4**	6887.250	44.45	54.0	9.55	AV	144.00	300	Horizontal	Pass
5	12515.350	53.59	74.0	20.41	Peak	185.00	300	Horizontal	Pass
5**	12515.350	45.49	54.0	8.51	AV	185.00	300	Horizontal	Pass
6	14437.875	55.11	74.0	18.89	Peak	213.00	200	Horizontal	Pass
6**	14437.875	45.23	54.0	8.77	AV	213.00	200	Horizontal	Pass

 $\pi/4$ -DQPSK MIDDLE CHANNEL 1 GHz to 18 GHz, ANT V

No.	Frequency (MHz)	Results (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1598.600	43.76	74.0	30.24	Peak	144.00	200	Vertical	Pass
1**	1598.600	33.42	54.0	20.58	AV	144.00	200	Vertical	Pass
2	2441.000	91.51	74.0	-17.51	Peak	134.00	100	Vertical	N/A
2**	2441.000	88.97	54.0	-34.97	AV	134.00	100	Vertical	N/A
3	4882.250	49.84	74.0	24.16	Peak	144.00	150	Vertical	Pass
3**	4882.250	44.14	54.0	9.86	AV	144.00	150	Vertical	Pass
4	6882.500	53.53	74.0	20.47	Peak	285.00	400	Vertical	Pass
4**	6882.500	44.82	54.0	9.18	AV	285.00	400	Vertical	Pass
5	12497.537	53.29	74.0	20.71	Peak	0.00	300	Vertical	Pass
5**	12497.537	44.71	54.0	9.29	AV	0.00	300	Vertical	Pass
6	17114.324	55.46	74.0	18.54	Peak	72.00	300	Vertical	Pass
6**	17114.324	45.36	54.0	8.64	AV	72.00	300	Vertical	Pass

$\pi/4$ -DQPSK HIGH CHANNEL 1 GHz to 18 GHz, ANT H

No.	Frequency (MHz)	Results (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1311.000	42.65	74.0	31.35	Peak	170.00	300	Horizontal	Pass
1**	1311.000	32.49	54.0	21.51	AV	170.00	300	Horizontal	Pass
2	2480.000	96.72	74.0	-22.72	Peak	109.00	100	Horizontal	N/A
2**	2480.000	94.29	54.0	-40.29	AV	109.00	100	Horizontal	N/A
3	4959.750	51.39	74.0	22.61	Peak	96.00	100	Horizontal	Pass
3**	4959.750	48.04	54.0	5.96	AV	96.00	100	Horizontal	Pass
4	4960.250	52.60	74.0	21.40	Peak	96.00	100	Horizontal	Pass
4**	4960.250	46.68	54.0	7.32	AV	96.00	100	Horizontal	Pass
5	7434.250	52.64	74.0	21.36	Peak	36.00	100	Horizontal	Pass
5**	7434.250	48.56	54.0	5.44	AV	36.00	100	Horizontal	Pass
6	7434.500	54.79	74.0	19.21	Peak	360.00	100	Horizontal	Pass
6**	7434.500	47.97	54.0	6.03	AV	360.00	100	Horizontal	Pass

 $\pi/4$ -DQPSK HIGH CHANNEL 1 GHz to 18 GHz, ANT V

No.	Frequency (MHz)	Results (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1161.000	47.95	74.0	26.05	Peak	275.00	300	Vertical	Pass
1**	1161.000	34.63	54.0	19.37	AV	275.00	300	Vertical	Pass
2	2480.000	91.40	74.0	-17.40	Peak	203.00	150	Vertical	N/A
2**	2480.000	89.81	54.0	-35.81	AV	203.00	150	Vertical	N/A
3	4827.000	49.59	74.0	24.41	Peak	0.00	200	Vertical	Pass
3**	4827.000	39.97	54.0	14.03	AV	0.00	200	Vertical	Pass
4	7967.250	53.41	74.0	20.59	Peak	237.00	200	Vertical	Pass
4**	7967.250	45.40	54.0	8.60	AV	237.00	200	Vertical	Pass
5	12966.300	53.21	74.0	20.79	Peak	213.00	200	Vertical	Pass
5**	12966.300	43.84	54.0	10.16	AV	213.00	200	Vertical	Pass
6	17016.412	55.01	74.0	18.99	Peak	11.00	300	Vertical	Pass
6**	17016.412	47.13	54.0	6.87	AV	11.00	300	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

GFSK LOW CHANNEL

No.	Frequency (MHz)	Results (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	2357.600	55.76	74.0	18.24	Peak	117.00	100	Horizontal	Pass
1**	2357.600	43.52	54.0	10.48	AV	117.00	100	Horizontal	Pass
2	2389.950	52.23	74.0	21.77	Peak	113.00	150	Horizontal	Pass
2**	2389.950	43.32	54.0	10.68	AV	113.00	150	Horizontal	Pass

GFSK HIGH CHANNEL

No.	Frequency (MHz)	Results (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	2483.575	57.98	74.0	16.02	Peak	100.00	200	Horizontal	Pass
1**	2483.575	50.80	54.0	3.20	AV	100.00	200	Horizontal	Pass
2	2483.740	57.77	74.0	16.23	Peak	270.00	150	Horizontal	Pass
2**	2483.740	49.48	54.0	4.52	AV	270.00	150	Horizontal	Pass

$\pi/4$ -DQPSK LOW CHANNEL

No.	Frequency (MHz)	Results (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	2357.450	56.02	74.0	17.98	Peak	160.00	100	Horizontal	Pass
1**	2357.450	43.43	54.0	10.57	AV	160.00	100	Horizontal	Pass
2	2389.950	53.76	74.0	20.24	Peak	242.00	200	Horizontal	Pass
2**	2389.950	43.58	54.0	10.42	AV	242.00	200	Horizontal	Pass

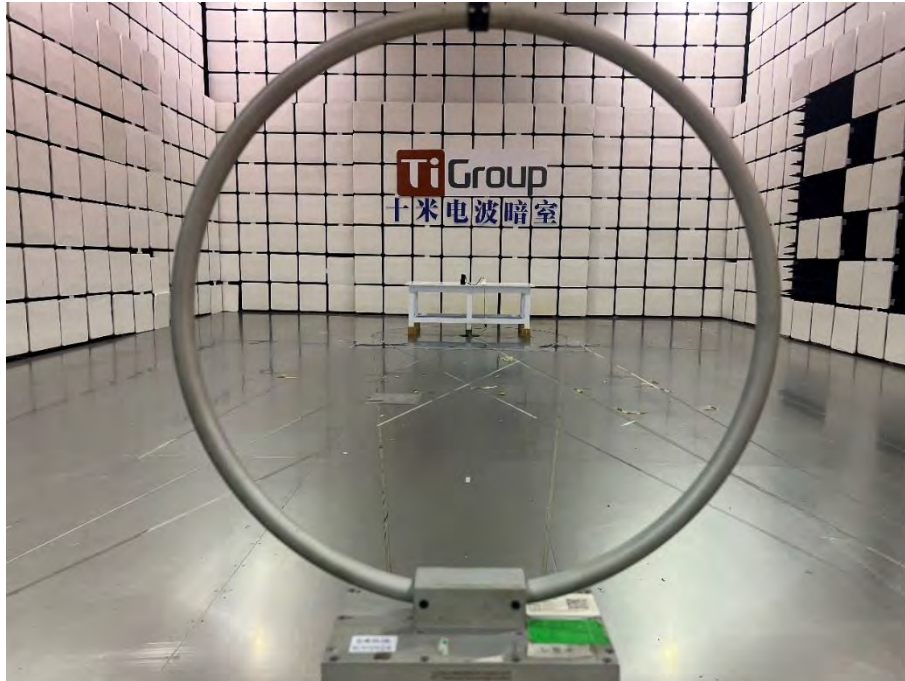
$\pi/4$ -DQPSK HIGH CHANNEL

No.	Frequency (MHz)	Results (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	2483.515	57.79	74.0	16.21	Peak	116.00	200	Horizontal	Pass
1**	2483.515	48.73	54.0	5.27	AV	116.00	200	Horizontal	Pass
2	2483.725	57.61	74.0	16.39	Peak	108.00	150	Horizontal	Pass
2**	2483.725	47.85	54.0	6.15	AV	108.00	150	Horizontal	Pass

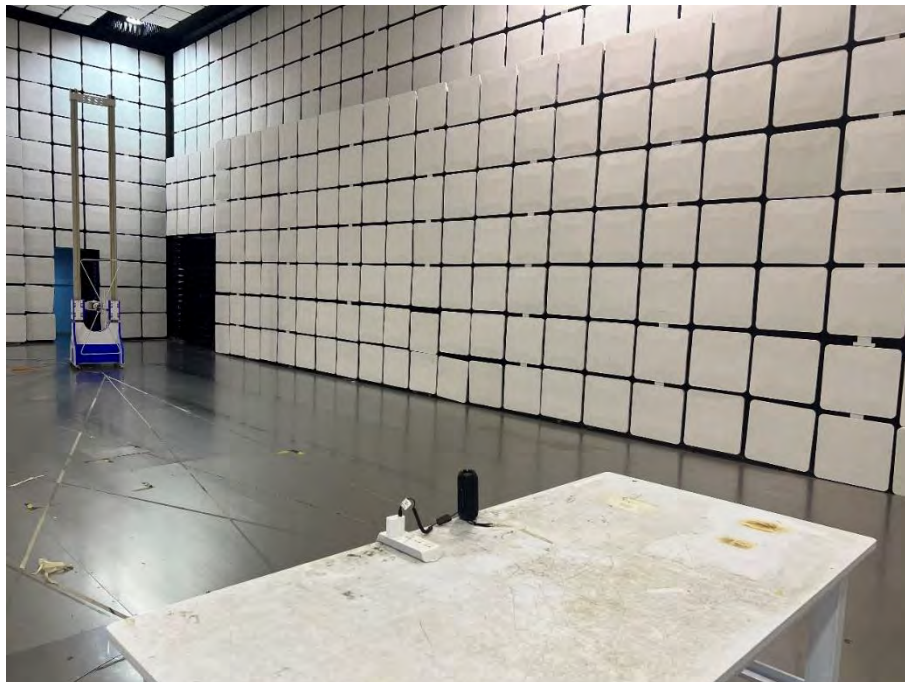
ANNEX A TEST SETUP PHOTOS

1 Radiated Test Photo

Below 30MHz-RX Mode



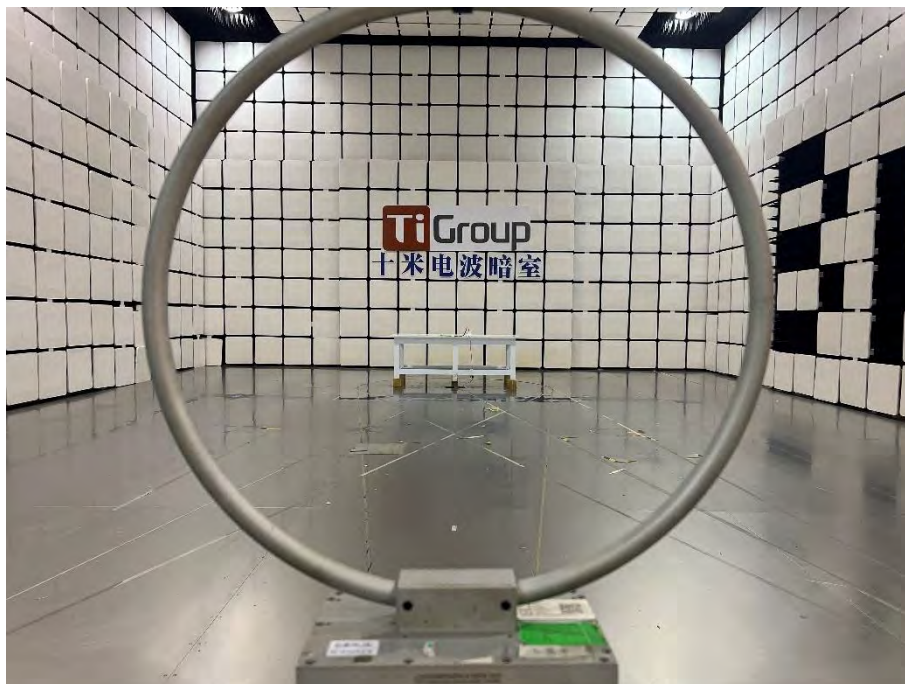
30MHz-1GHz-RX Mode



Close-up-RX Mode



Below 30MHz-TX Mode



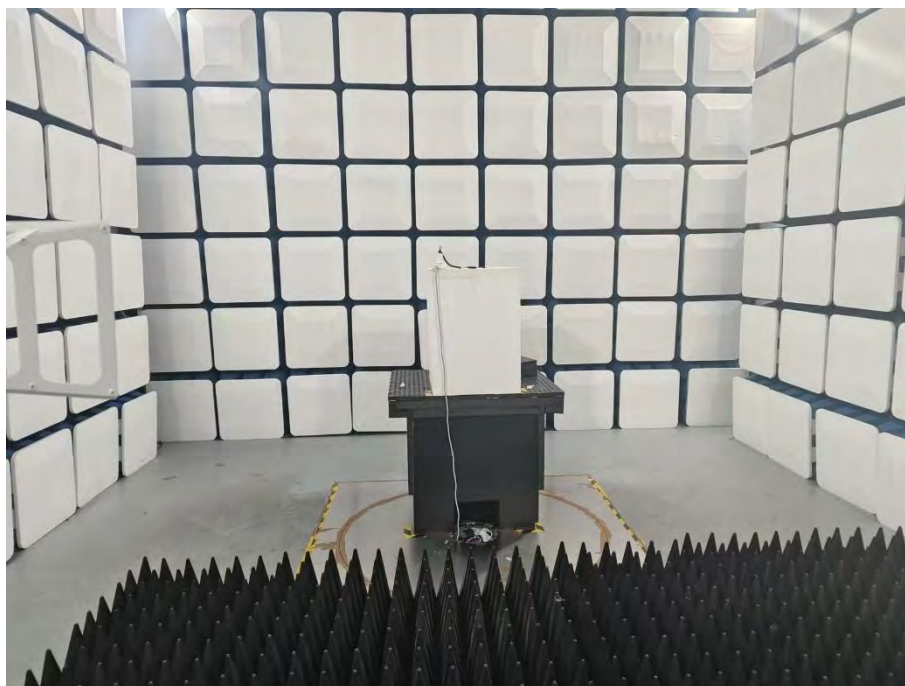
30MHz-1GHz-TX Mode



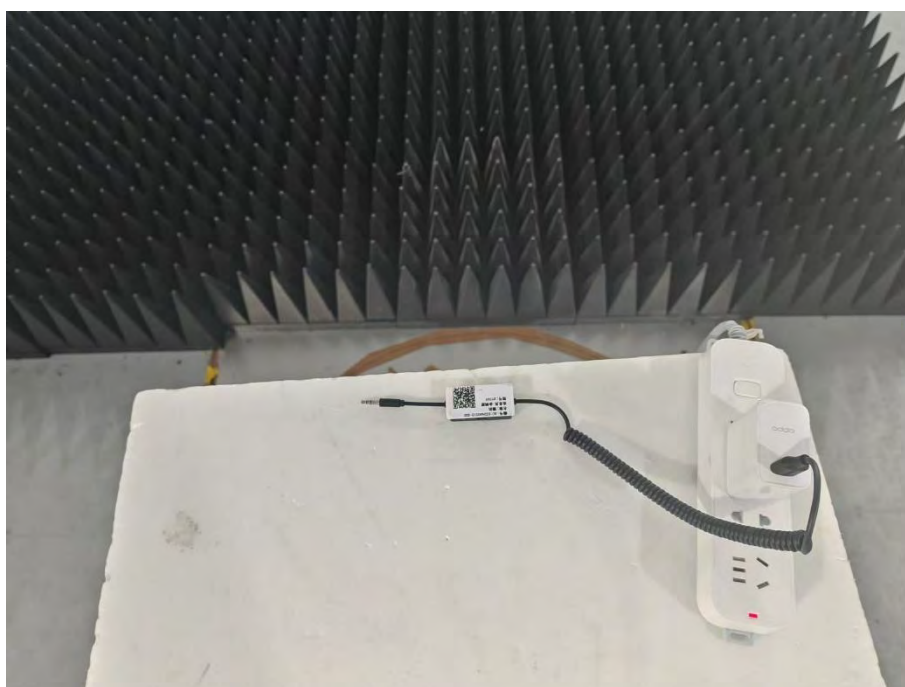
Close-up-TX Mode



Above 1GHz



Close-up



2 Conducted Test Photo

Conducted Test



3 Conducted Emission

Photo 1-RX Mode

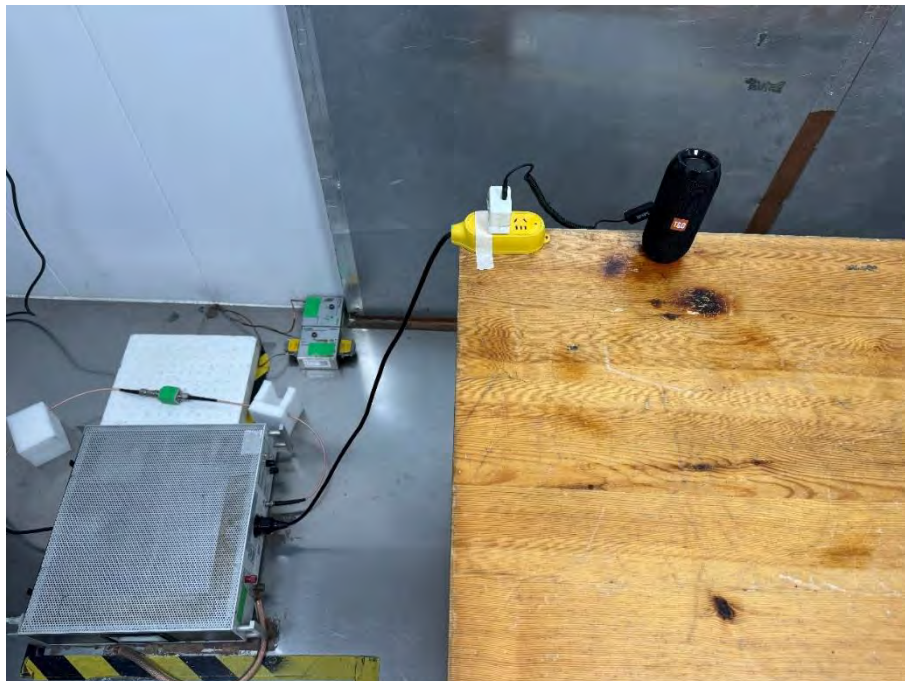


Photo 2-RX Mode



Photo 3-TX Mode

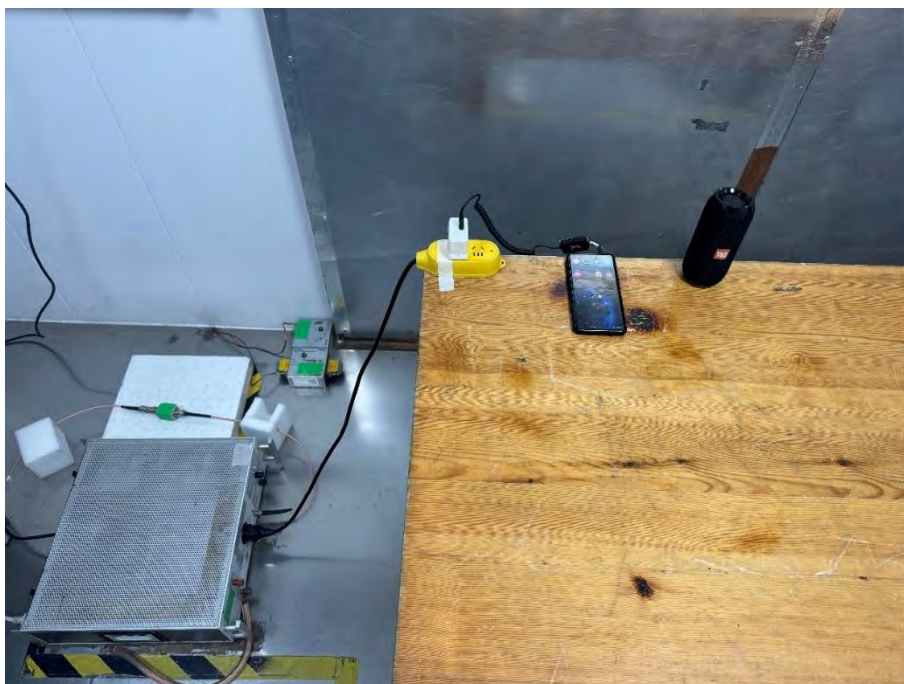
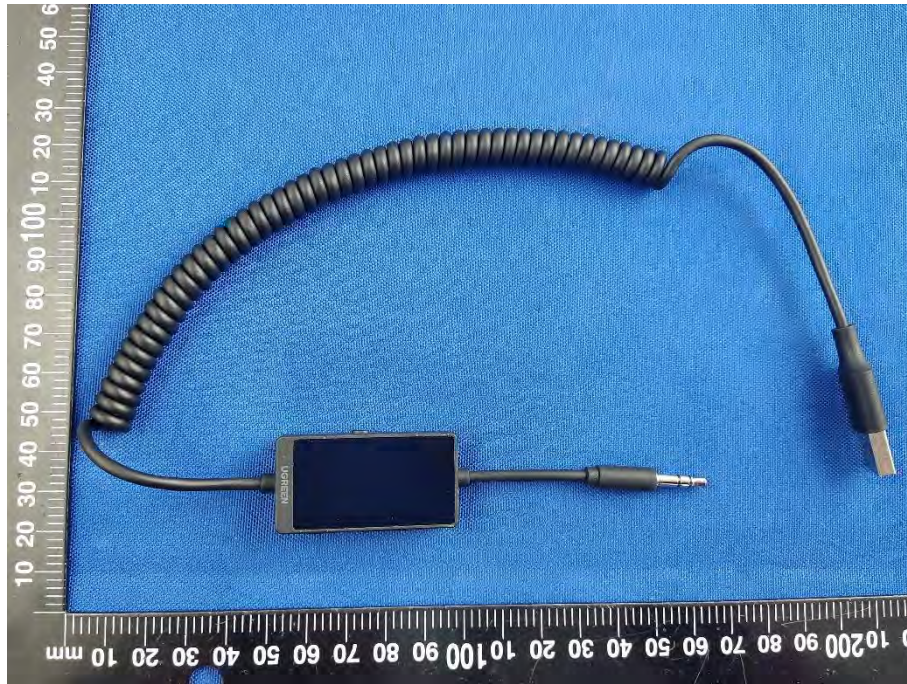


Photo 4-TX Mode



ANNEX B EUT EXTERNAL PHOTOS

FRONT VIEW OF EUT



REAR VIEW OF EUT



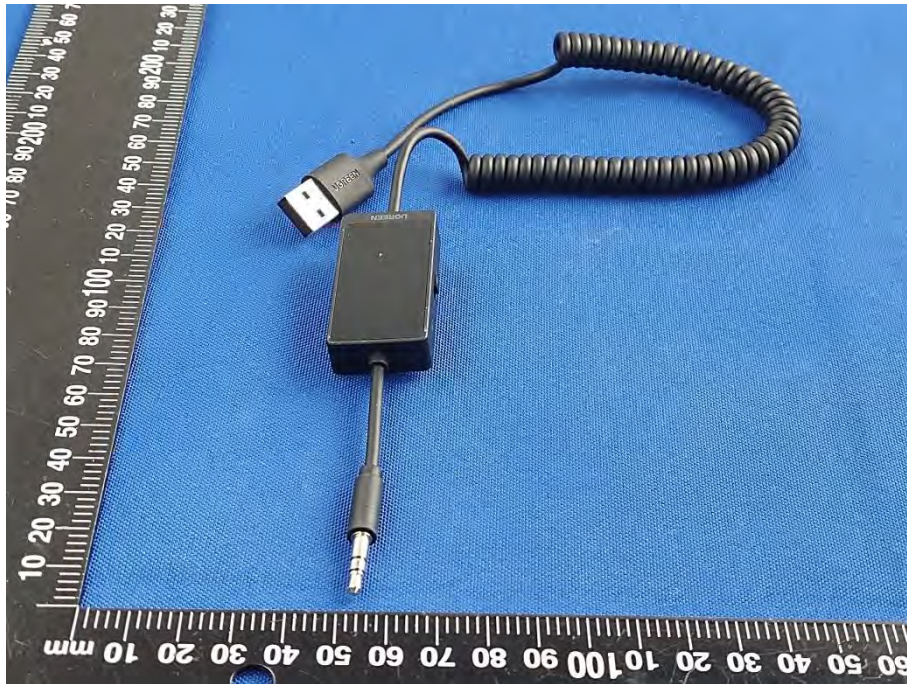
LEFT VIEW OF EUT



RIGHT VIEW OF EUT



TOP VIEW OF EUT

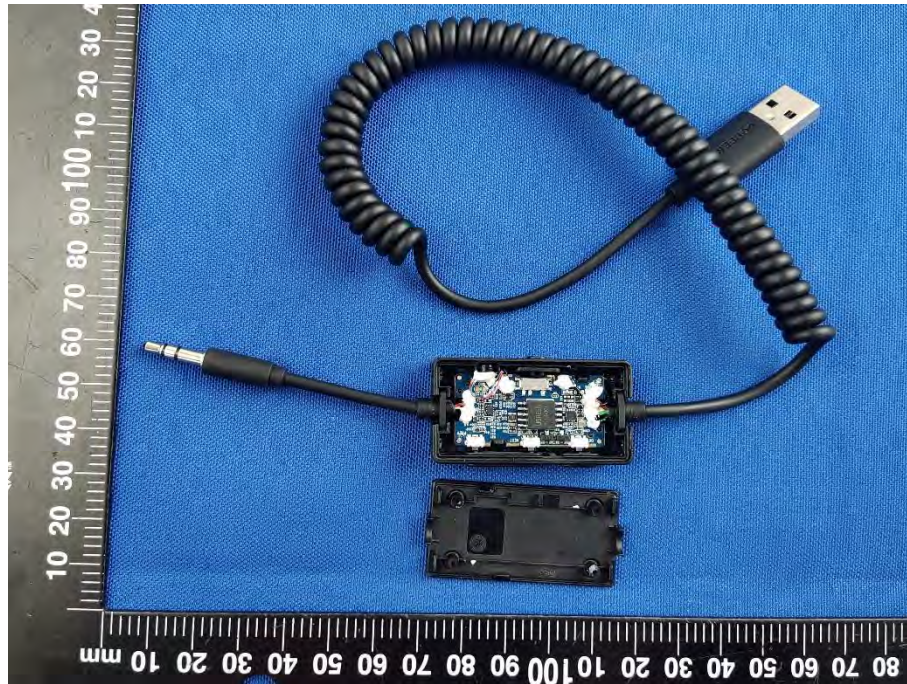


BOTTOM VIEW OF EUT

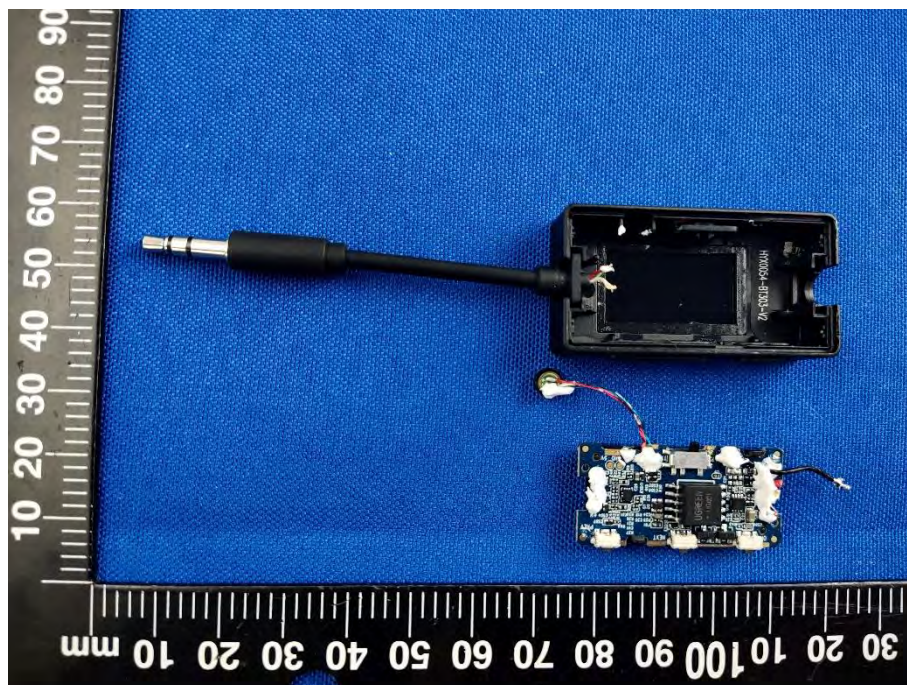


ANNEX C EUT INTERNAL PHOTOS

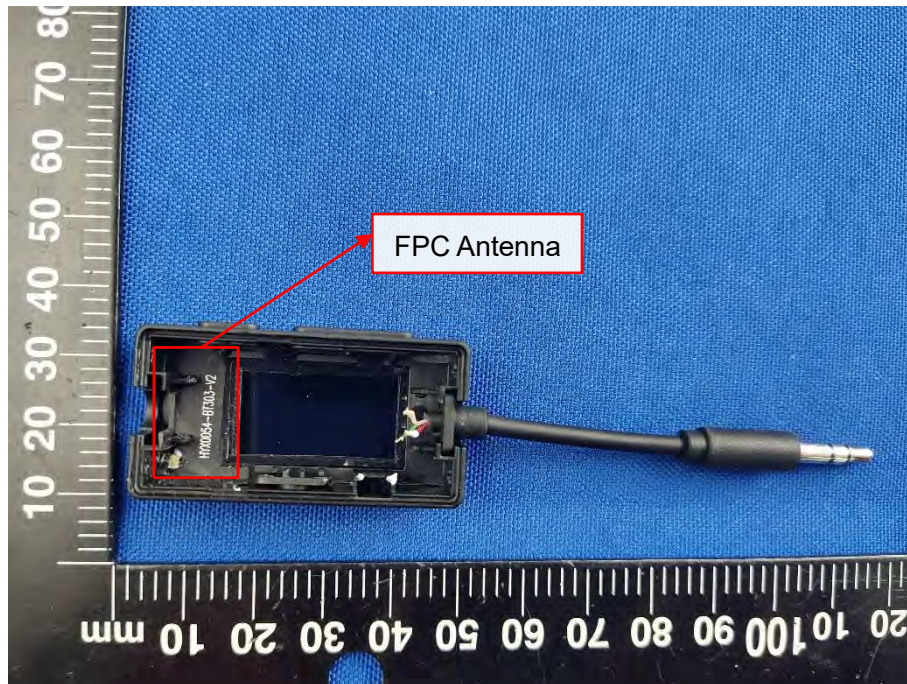
EUT UNCOVER VIEW 1



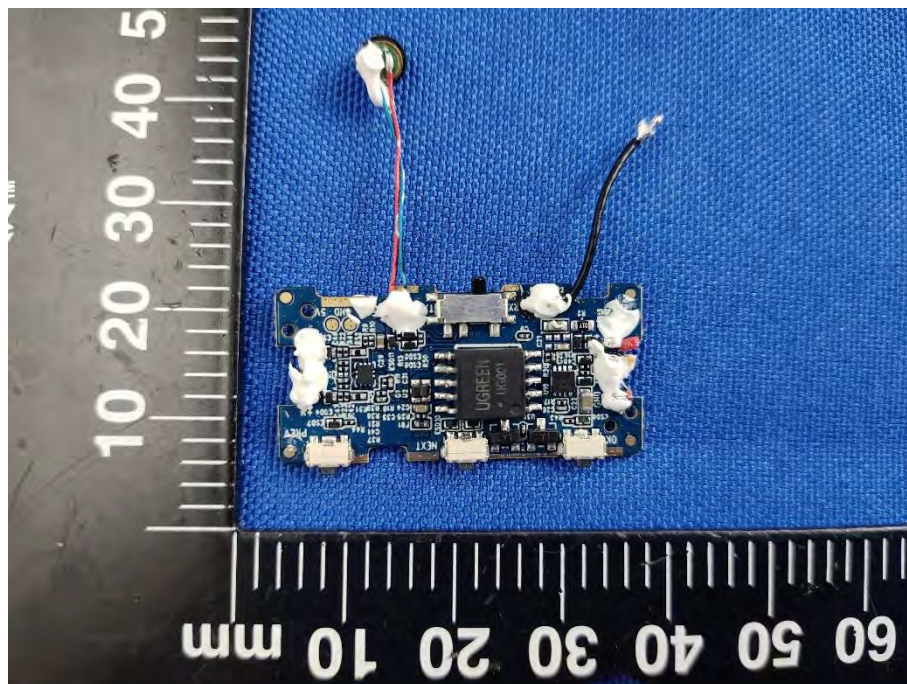
EUT UNCOVER VIEW 2



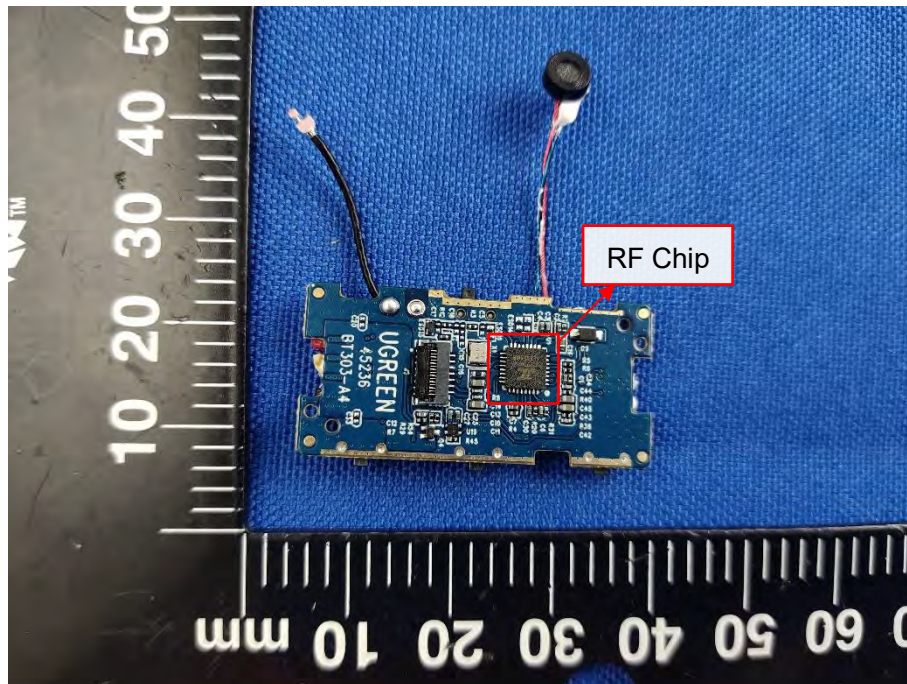
EUT UNCOVER VIEW 3



MAIN BOARD TOP VIEW



MAIN BOARD REAR VIEW



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--END OF REPORT--