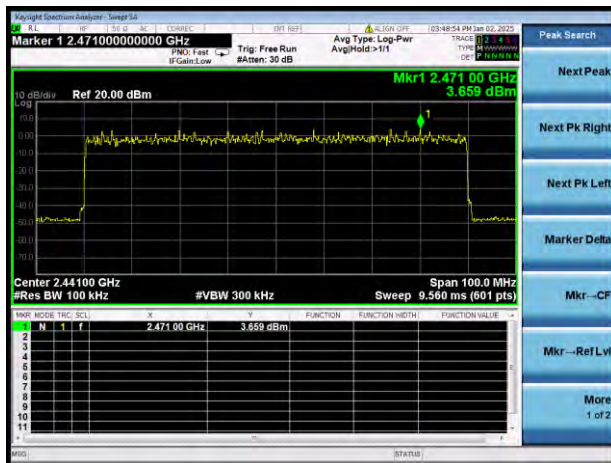


$\pi/4$ -DQPSK HOPPING, CARRIER LEVEL



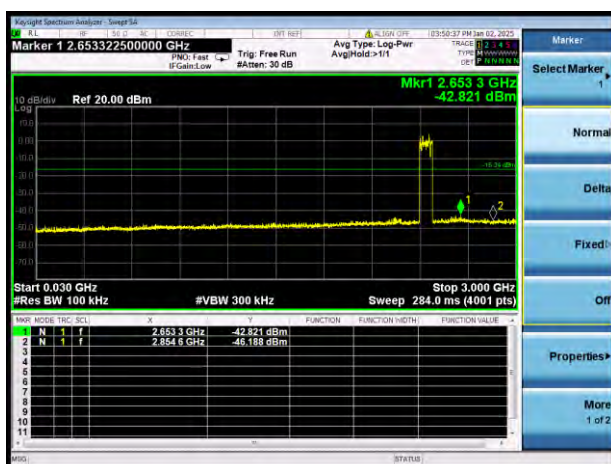
$\pi/4$ -DQPSK Hopping BAND EDGE (LOW)



$\pi/4$ -DQPSK Hopping BAND EDGE (HIGH)



$\pi/4$ -DQPSK Hopping Mode, SPURIOUS 30 MHz ~ 3 GHz



$\pi/4$ -DQPSK Hopping Mode, SPURIOUS 3 GHz ~ 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.

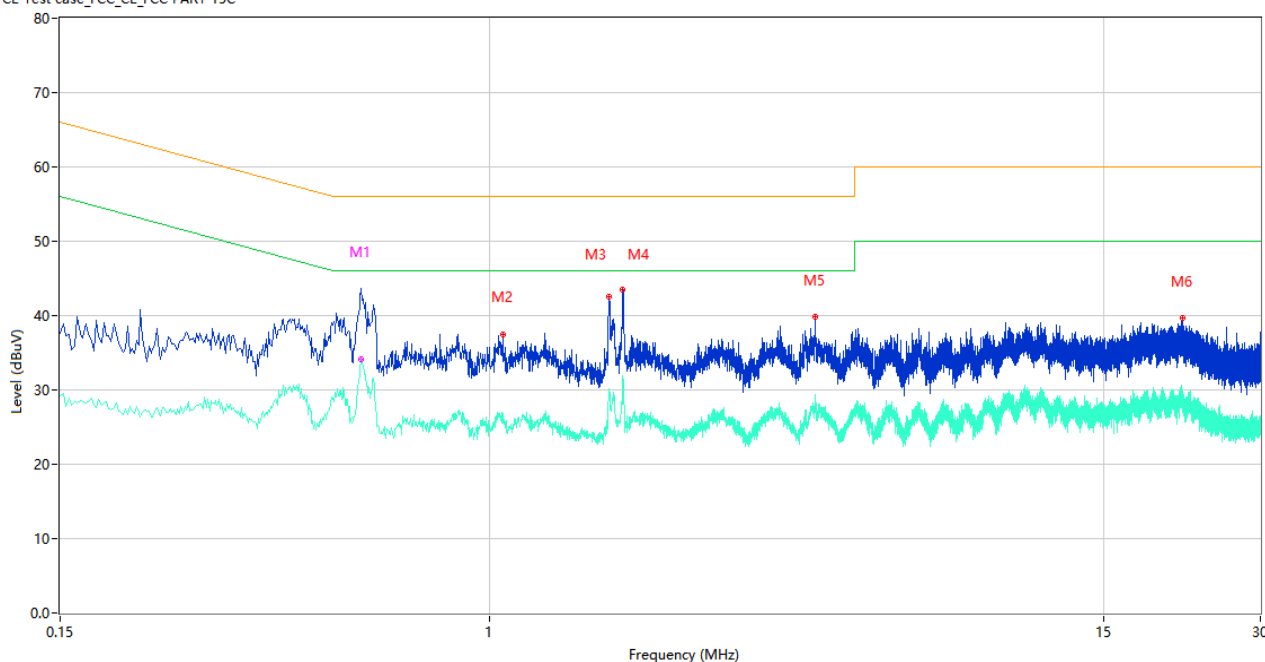
Note ³: Results (dBuV) = Original reading level of Spectrum Analyzer (dBuV) + Factor (dB)

Test Data and Plots

0.5m USB Cable

PHASE L

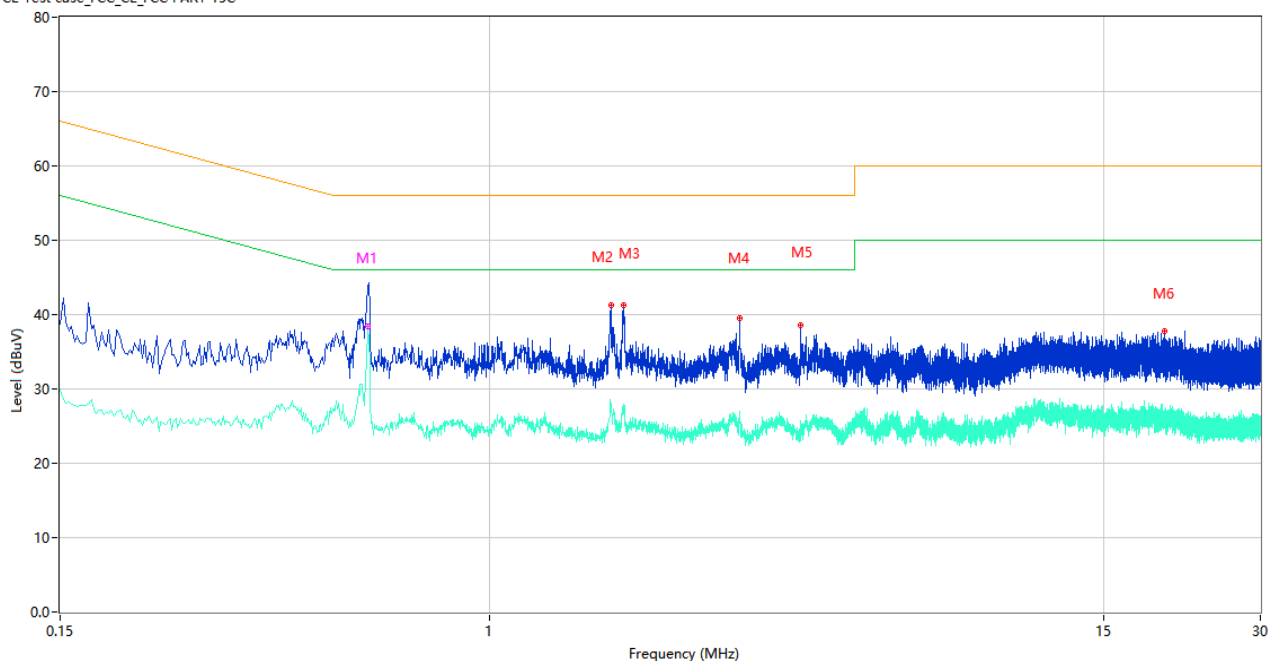
CE Test case_FCC_CE_FCC PART 15C



No.	Frequency (MHz)	Results (dBuV)	Factor (dB)	Limit (dBuV)	Margin (dB)	Detector	Line	Verdict
1	0.566	43.59	10.07	56.00	12.41	Peak	L	Pass
1**	0.566	34.07	10.07	46.00	11.93	AV	L	Pass
2	1.058	37.48	10.14	56.00	18.52	Peak	L	Pass
2**	1.058	26.63	10.14	46.00	19.37	AV	L	Pass
3	1.692	42.51	10.17	56.00	13.49	Peak	L	Pass
3**	1.692	29.85	10.17	46.00	16.15	AV	L	Pass
4	1.798	43.42	10.19	56.00	12.58	Peak	L	Pass
4**	1.798	31.96	10.19	46.00	14.04	AV	L	Pass
5	4.212	39.80	10.04	56.00	16.20	Peak	L	Pass
5**	4.212	27.87	10.04	46.00	18.13	AV	L	Pass
6	21.276	39.65	11.15	60.00	20.35	Peak	L	Pass
6**	21.276	29.16	11.15	50.00	20.84	AV	L	Pass

PHASE N

CE Test case_FCC_CE_FCC PART 15C

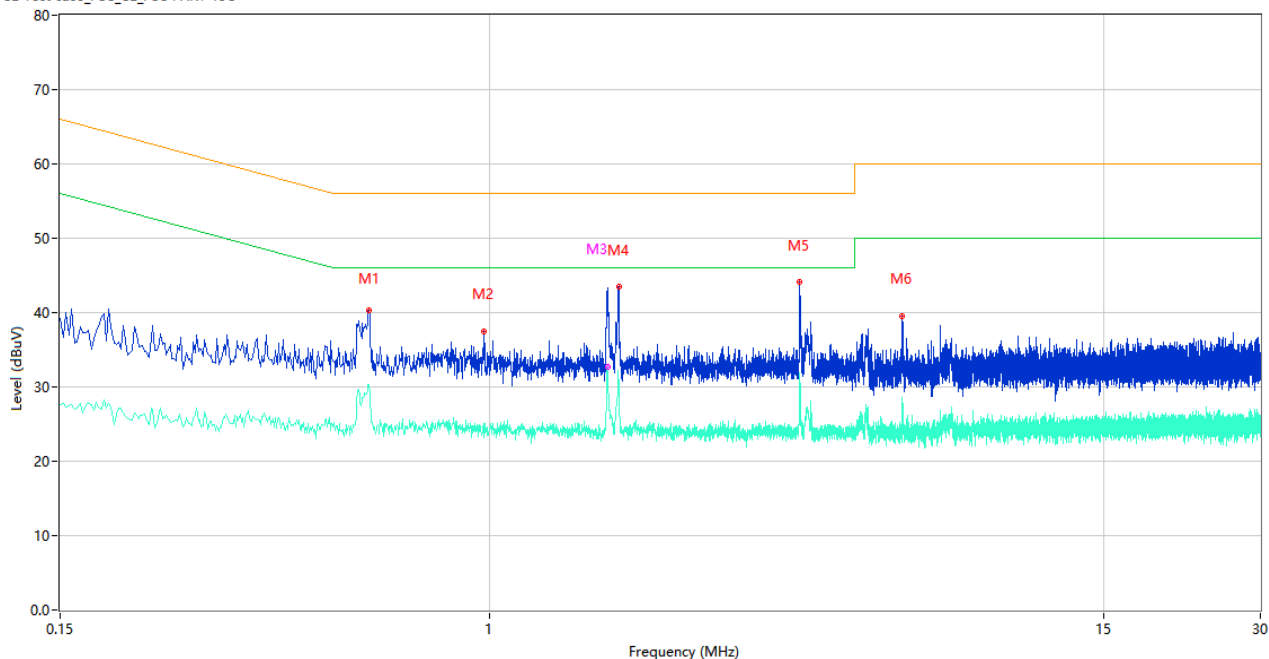


No.	Frequency (MHz)	Results (dBuV)	Factor (dB)	Limit (dBuV)	Margin (dB)	Detector	Line	Verdict
1	0.584	43.76	10.12	56.00	12.24	Peak	N	Pass
1**	0.584	38.38	10.12	46.00	7.62	AV	N	Pass
2	1.706	41.24	10.19	56.00	14.76	Peak	N	Pass
2**	1.706	27.84	10.19	46.00	18.16	AV	N	Pass
3	1.806	41.32	10.17	56.00	14.68	Peak	N	Pass
3**	1.806	27.77	10.17	46.00	18.23	AV	N	Pass
4	3.014	39.46	10.22	56.00	16.54	Peak	N	Pass
4**	3.014	26.84	10.22	46.00	19.16	AV	N	Pass
5	3.944	38.59	10.10	56.00	17.41	Peak	N	Pass
5**	3.944	24.73	10.10	46.00	21.27	AV	N	Pass
6	19.694	37.79	10.80	60.00	22.21	Peak	N	Pass
6**	19.694	25.85	10.80	50.00	24.15	AV	N	Pass

1.5m USB Cable

PHASE L

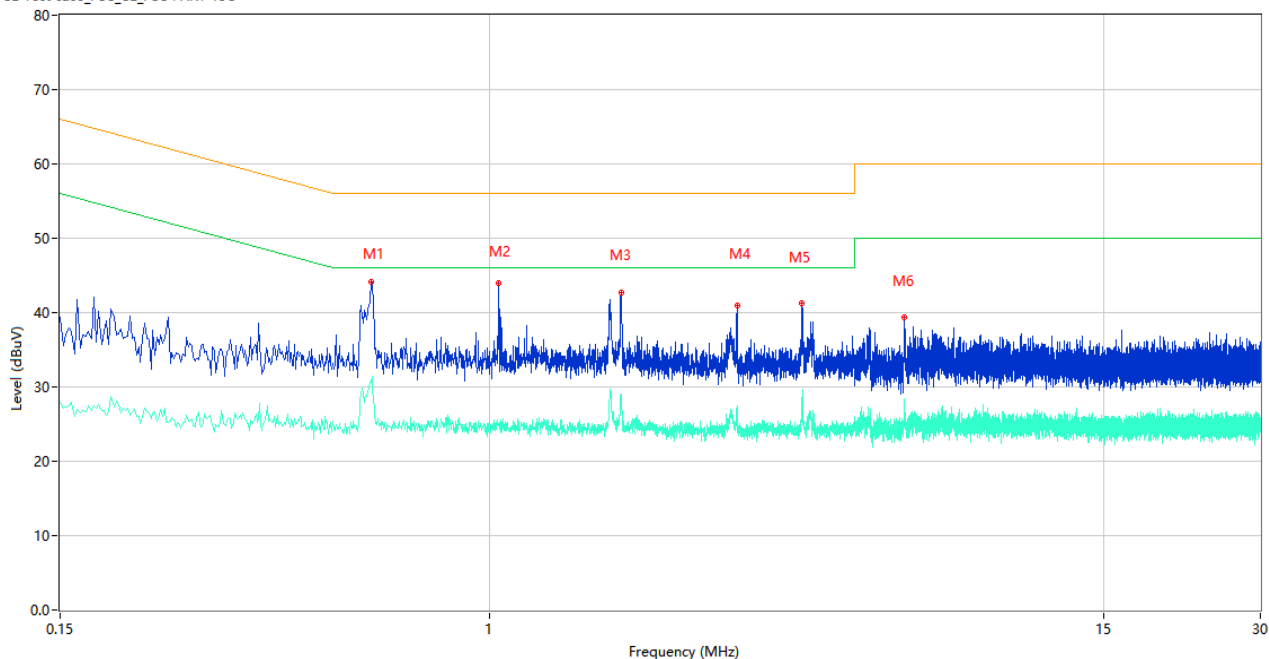
CE Test case_FCC_CE_FCC PART 15C



No.	Frequency (MHz)	Results (dBuV)	Factor (dB)	Limit (dBuV)	Margin (dB)	Detector	Line	Verdict
1	0.586	40.39	10.13	56.00	15.61	Peak	L	Pass
1**	0.586	30.35	10.13	46.00	15.65	AV	L	Pass
2	0.972	37.49	10.02	56.00	18.51	Peak	L	Pass
2**	0.972	25.07	10.02	46.00	20.93	AV	L	Pass
3	1.680	42.35	10.10	56.00	13.65	Peak	L	Pass
3**	1.680	32.70	10.10	46.00	13.30	AV	L	Pass
4	1.766	43.46	10.16	56.00	12.54	Peak	L	Pass
4**	1.766	30.94	10.16	46.00	15.06	AV	L	Pass
5	3.924	44.08	10.19	56.00	11.92	Peak	L	Pass
5**	3.924	31.79	10.19	46.00	14.21	AV	L	Pass
6	6.176	39.59	10.28	60.00	20.41	Peak	L	Pass
6**	6.176	25.87	10.28	50.00	24.13	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	0.592	44.10	10.14	56.00	11.90	Peak	N	Pass
1**	0.592	30.63	10.14	46.00	15.37	AV	N	Pass
2	1.040	44.02	10.14	56.00	11.98	Peak	N	Pass
2**	1.040	24.99	10.14	46.00	21.01	AV	N	Pass
3	1.784	42.77	10.18	56.00	13.23	Peak	N	Pass
3**	1.784	29.12	10.18	46.00	16.88	AV	N	Pass
4	2.978	40.90	10.25	56.00	15.10	Peak	N	Pass
4**	2.978	27.05	10.25	46.00	18.95	AV	N	Pass
5	3.964	41.32	10.03	56.00	14.68	Peak	N	Pass
5**	3.964	27.37	10.03	46.00	18.63	AV	N	Pass
6	6.234	39.35	9.92	60.00	20.65	Peak	N	Pass
6**	6.234	27.20	9.92	50.00	22.80	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)

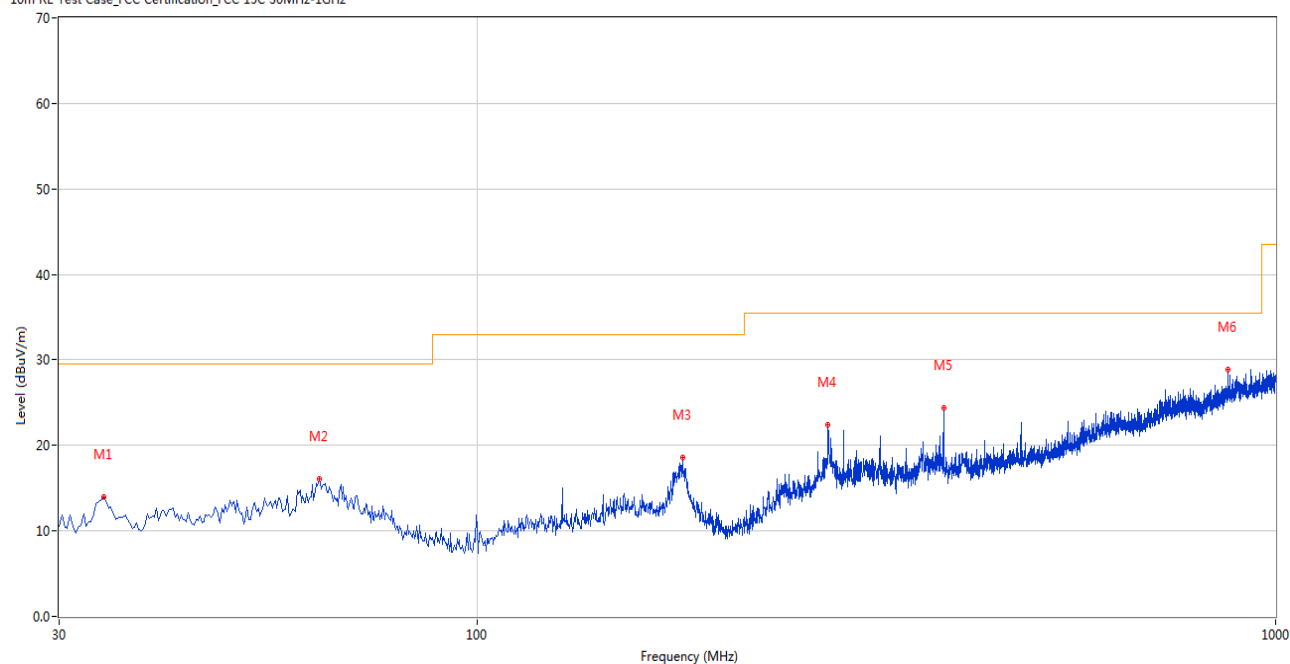
The low frequency, which started from 9 kHz to 30 MHz, was pre-scanned and the result which was 20 dB lower than the limit line per 15.31(o) was not reported.

Test Data and Plots

0.5m USB Cable

30 MHz to 1 GHz, ANT H

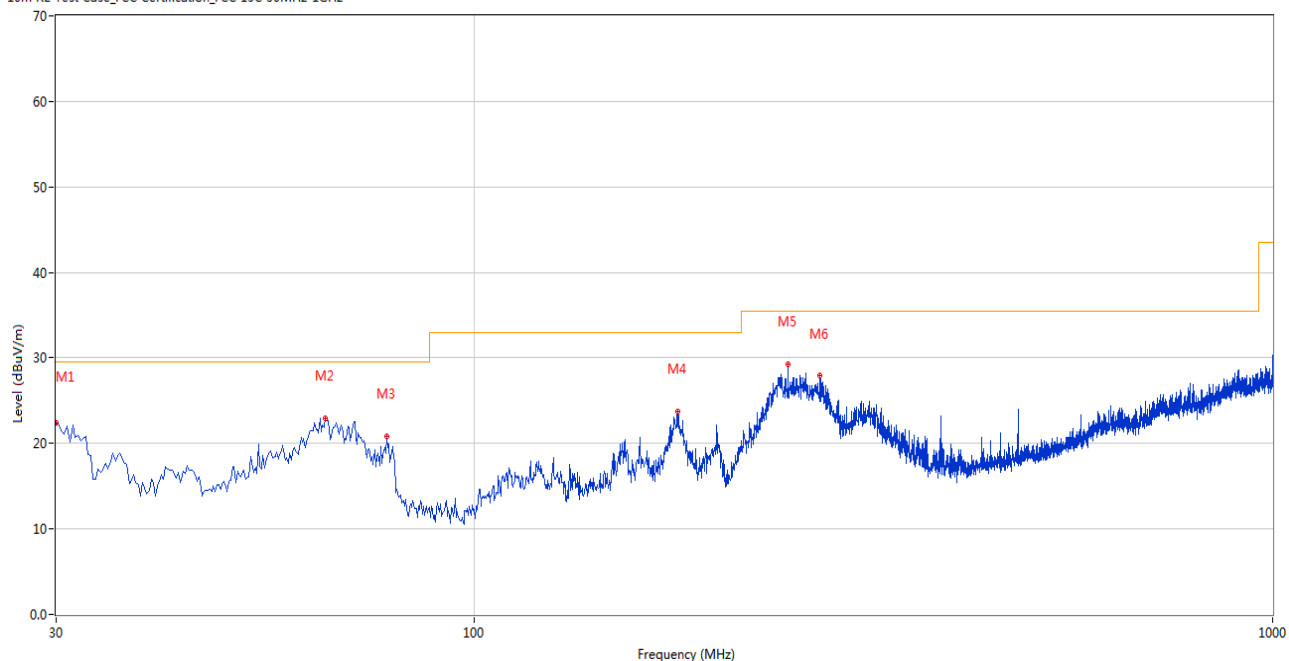
10m RE Test Case_FCC Certification_FCC 15C 30MHz-1GHz



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	34.121	13.92	-27.20	29.5	15.58	Peak	0.00	200	Horizontal	Pass
2	63.457	16.05	-27.01	29.5	13.45	Peak	360.00	200	Horizontal	Pass
3	181.040	18.60	-27.02	33.0	14.40	Peak	199.00	200	Horizontal	Pass
4	275.349	22.39	-25.65	35.5	13.11	Peak	32.00	200	Horizontal	Pass
5	383.962	24.33	-22.53	35.5	11.17	Peak	187.00	200	Horizontal	Pass
6	871.265	28.93	-11.20	35.5	6.57	Peak	261.00	200	Horizontal	Pass

30 MHz to 1 GHz, ANT V

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

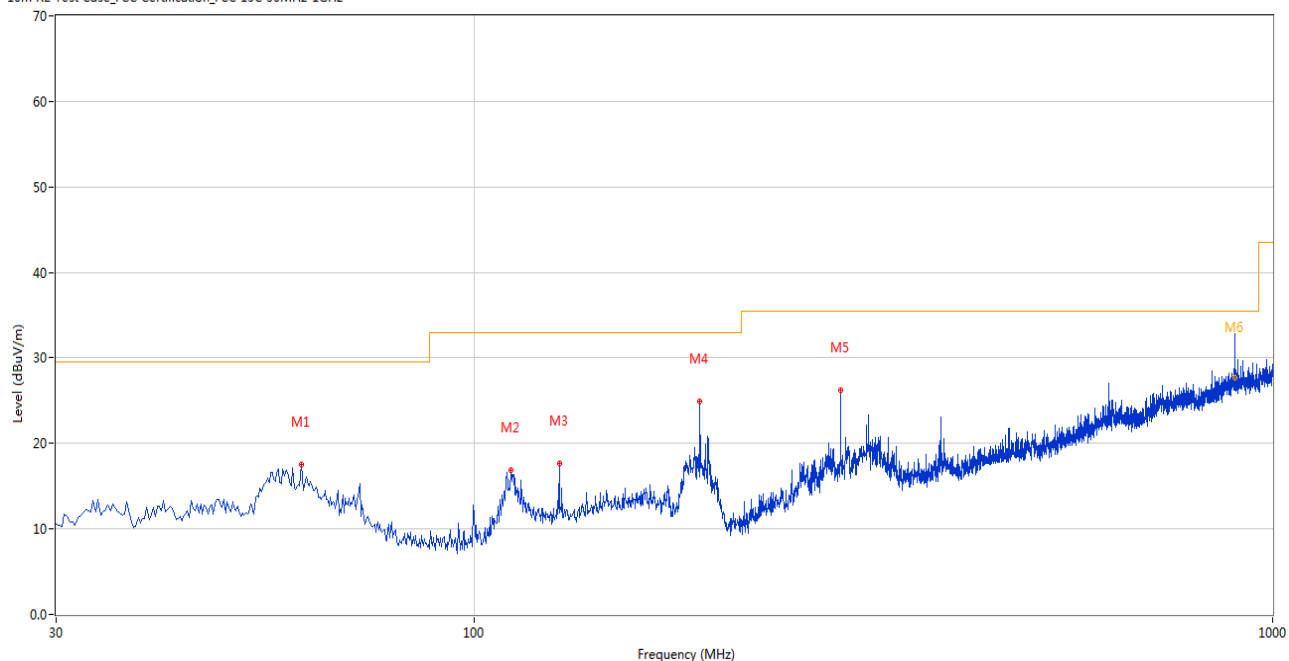


No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	30.000	22.41	-27.82	29.5	7.09	Peak	180.00	200	Vertical	Pass
2	65.154	22.95	-27.47	29.5	6.55	Peak	152.00	100	Vertical	Pass
3	77.761	20.81	-29.83	29.5	8.69	Peak	152.00	200	Vertical	Pass
4	179.828	23.70	-26.98	33.0	9.30	Peak	295.00	100	Vertical	Pass
5	247.468	29.23	-26.90	35.5	6.27	Peak	13.00	100	Vertical	Pass
6	271.470	27.89	-25.86	35.5	7.61	Peak	81.00	100	Vertical	Pass

1.5m USB Cable

30 MHz to 1 GHz, ANT H

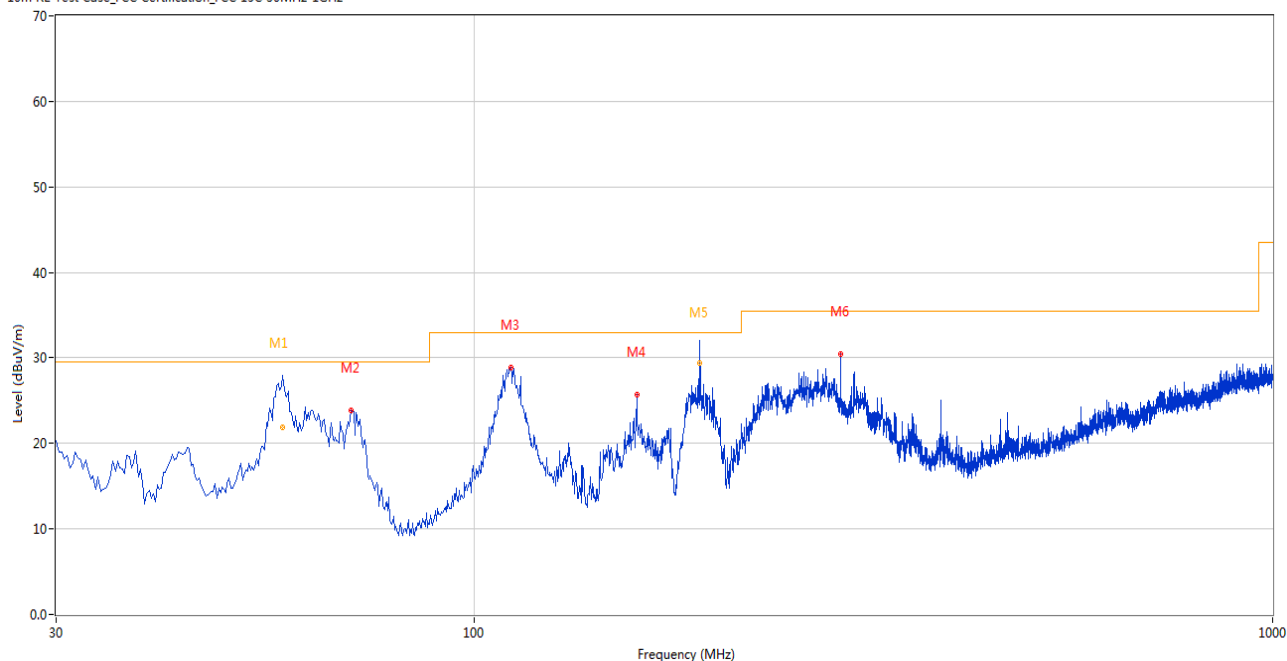
10m RE Test Case_FCC Certification_FCC 15C 30MHz-1GHz



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	60.790	17.48	-26.67	29.5	12.02	Peak	0.00	200	Horizontal	Pass
2	111.217	16.84	-28.98	33.0	16.16	Peak	248.00	200	Horizontal	Pass
3	127.946	17.61	-27.27	33.0	15.39	Peak	246.00	100	Horizontal	Pass
4	191.950	24.94	-28.58	33.0	8.06	Peak	264.00	200	Horizontal	Pass
5	287.956	26.20	-25.18	35.5	9.30	Peak	253.00	200	Horizontal	Pass
6	897.441	30.16	-10.52	35.5	5.34	Peak	116.00	112	Horizontal	N/A
6*	897.441	27.72	-10.52	35.5	7.78	QP	116.00	112	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	57.567	26.60	-26.39	29.5	2.90	Peak	281.00	141	Vertical	N/A
1*	57.567	21.90	-26.39	29.5	7.60	QP	281.00	141	Vertical	Pass
2	70.245	23.90	-28.24	29.5	5.60	Peak	75.00	200	Vertical	Pass
3	111.217	28.92	-28.98	33.0	4.08	Peak	178.00	100	Vertical	Pass
4	159.948	25.65	-25.69	33.0	7.35	Peak	292.00	100	Vertical	Pass
5	192.001	32.94	-28.58	33.0	0.06	Peak	330.00	117	Vertical	N/A
5*	192.001	29.86	-28.58	33.0	3.14	QP	330.00	117	Vertical	Pass
6	287.956	30.46	-25.18	35.5	5.04	Peak	194.00	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	1422.700	42.28	74.0	31.72	Peak	70.00	400	Horizontal	Pass
1**	1422.700	32.62	54.0	21.38	AV	70.00	400	Horizontal	Pass
2	2402.000	98.18	74.0	-24.18	Peak	17.00	200	Horizontal	N/A
2**	2402.000	97.69	54.0	-43.69	AV	17.00	200	Horizontal	N/A
3	4941.200	51.08	74.0	22.92	Peak	187.00	200	Horizontal	Pass
3**	4941.200	41.27	54.0	12.73	AV	187.00	200	Horizontal	Pass
4	6989.600	55.08	74.0	18.92	Peak	353.00	300	Horizontal	Pass
4**	6989.600	46.94	54.0	7.06	AV	353.00	300	Horizontal	Pass
5	10907.987	51.89	74.0	22.11	Peak	90.00	200	Horizontal	Pass
5**	10907.987	43.30	54.0	10.70	AV	90.00	200	Horizontal	Pass
6	17419.614	56.31	74.0	17.69	Peak	213.00	300	Horizontal	Pass
6**	17419.614	46.27	54.0	7.73	AV	213.00	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	1560.500	42.88	74.0	31.12	Peak	311.00	200	Vertical	Pass
1**	1560.500	32.53	54.0	21.47	AV	311.00	200	Vertical	Pass
2	2402.000	96.14	74.0	-22.14	Peak	342.00	200	Vertical	N/A
2**	2402.000	95.61	54.0	-41.61	AV	342.00	200	Vertical	N/A
3	4803.800	50.87	74.0	23.13	Peak	226.00	150	Vertical	Pass
3**	4803.800	44.80	54.0	9.20	AV	226.00	150	Vertical	Pass
4	6993.000	56.30	74.0	17.70	Peak	155.00	300	Vertical	Pass
4**	6993.000	46.26	54.0	7.74	AV	155.00	300	Vertical	Pass
5	11833.737	52.42	74.0	21.58	Peak	15.00	400	Vertical	Pass
5**	11833.737	43.18	54.0	10.82	AV	15.00	400	Vertical	Pass
6	17417.251	55.52	74.0	18.48	Peak	0.00	200	Vertical	Pass
6**	17417.251	46.47	54.0	7.53	AV	0.00	200	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	1400.100	42.41	74.0	31.59	Peak	235.00	400	Horizontal	Pass
1**	1400.100	31.71	54.0	22.29	AV	235.00	400	Horizontal	Pass
2	2441.000	99.48	74.0	-25.48	Peak	22.00	150	Horizontal	N/A
2**	2441.000	99.17	54.0	-45.17	AV	22.00	150	Horizontal	N/A
3	4820.200	51.22	74.0	22.78	Peak	92.00	100	Horizontal	Pass
3**	4820.200	41.90	54.0	12.10	AV	92.00	100	Horizontal	Pass
4	6988.600	54.61	74.0	19.39	Peak	186.00	400	Horizontal	Pass
4**	6988.600	45.63	54.0	8.37	AV	186.00	400	Horizontal	Pass
5	11336.362	52.40	74.0	21.60	Peak	34.00	400	Horizontal	Pass
5**	11336.362	43.72	54.0	10.28	AV	34.00	400	Horizontal	Pass
6	17408.588	55.97	74.0	18.03	Peak	0.00	100	Horizontal	Pass
6**	17408.588	45.73	54.0	8.27	AV	0.00	100	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	1598.500	42.52	74.0	31.48	Peak	185.00	300	Vertical	Pass
1**	1598.500	32.93	54.0	21.07	AV	185.00	300	Vertical	Pass
2	2441.000	96.77	74.0	-22.77	Peak	59.00	200	Vertical	N/A
2**	2441.000	96.19	54.0	-42.19	AV	59.00	200	Vertical	N/A
3	4857.400	51.47	74.0	22.53	Peak	247.00	100	Vertical	Pass
3**	4857.400	42.94	54.0	11.06	AV	247.00	100	Vertical	Pass
4	6806.800	54.69	74.0	19.31	Peak	236.00	300	Vertical	Pass
4**	6806.800	45.93	54.0	8.07	AV	236.00	300	Vertical	Pass
5	10637.162	52.00	74.0	22.00	Peak	269.00	400	Vertical	Pass
5**	10637.162	41.73	54.0	12.27	AV	269.00	400	Vertical	Pass
6	16737.901	55.09	74.0	18.91	Peak	216.00	100	Vertical	Pass
6**	16737.901	45.63	54.0	8.37	AV	216.00	100	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	1320.800	42.14	74.0	31.86	Peak	345.00	400	Horizontal	Pass
1**	1320.800	32.48	54.0	21.52	AV	345.00	400	Horizontal	Pass
2	2480.000	97.94	74.0	-23.94	Peak	23.00	200	Horizontal	N/A
2**	2480.000	97.32	54.0	-43.32	AV	23.00	200	Horizontal	N/A
3	4791.200	51.32	74.0	22.68	Peak	174.00	100	Horizontal	Pass
3**	4791.200	42.25	54.0	11.75	AV	174.00	100	Horizontal	Pass
4	5968.600	54.54	74.0	19.46	Peak	0.00	200	Horizontal	Pass
4**	5968.600	44.57	54.0	9.43	AV	0.00	200	Horizontal	Pass
5	11832.300	52.59	74.0	21.41	Peak	159.00	400	Horizontal	Pass
5**	11832.300	42.06	54.0	11.94	AV	159.00	400	Horizontal	Pass
6	17434.051	54.91	74.0	19.09	Peak	0.00	100	Horizontal	Pass
6**	17434.051	45.98	54.0	8.02	AV	0.00	100	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	1320.000	41.41	74.0	32.59	Peak	296.00	300	Vertical	Pass
1**	1320.000	32.29	54.0	21.71	AV	296.00	300	Vertical	Pass
2	2480.100	94.53	74.0	-20.53	Peak	56.00	200	Vertical	N/A
2**	2480.100	93.93	54.0	-39.93	AV	56.00	200	Vertical	N/A
3	4930.600	52.56	74.0	21.44	Peak	294.00	100	Vertical	Pass
3**	4930.600	42.81	54.0	11.19	AV	294.00	100	Vertical	Pass
4	6611.000	54.67	74.0	19.33	Peak	191.00	100	Vertical	Pass
4**	6611.000	45.41	54.0	8.59	AV	191.00	100	Vertical	Pass
5	11794.350	51.91	74.0	22.09	Peak	107.00	300	Vertical	Pass
5**	11794.350	42.98	54.0	11.02	AV	107.00	300	Vertical	Pass
6	17433.262	55.21	74.0	18.79	Peak	360.00	300	Vertical	Pass
6**	17433.262	46.13	54.0	7.87	AV	360.00	300	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	1389.100	41.77	74.0	32.23	Peak	353.00	100	Horizontal	Pass
1**	1389.100	33.01	54.0	20.99	AV	353.00	100	Horizontal	Pass
2	2401.900	95.41	74.0	-21.41	Peak	23.00	150	Horizontal	N/A
2**	2401.900	91.55	54.0	-37.55	AV	23.00	150	Horizontal	N/A
3	4808.200	51.46	74.0	22.54	Peak	177.00	200	Horizontal	Pass
3**	4808.200	42.66	54.0	11.34	AV	177.00	200	Horizontal	Pass
4	6972.800	56.11	74.0	17.89	Peak	132.00	100	Horizontal	Pass
4**	6972.800	45.63	54.0	8.37	AV	132.00	100	Horizontal	Pass
5	11767.900	51.96	74.0	22.04	Peak	233.00	200	Horizontal	Pass
5**	11767.900	43.12	54.0	10.88	AV	233.00	200	Horizontal	Pass
6	17418.562	55.82	74.0	18.18	Peak	144.00	100	Horizontal	Pass
6**	17418.562	46.53	54.0	7.47	AV	144.00	100	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	1452.900	41.96	74.0	32.04	Peak	134.00	100	Vertical	Pass
1**	1452.900	32.68	54.0	21.32	AV	134.00	100	Vertical	Pass
2	2402.200	93.99	74.0	-19.99	Peak	297.00	150	Vertical	N/A
2**	2402.200	93.67	54.0	-39.67	AV	297.00	150	Vertical	N/A
3	4796.000	51.51	74.0	22.49	Peak	164.00	200	Vertical	Pass
3**	4796.000	41.49	54.0	12.51	AV	164.00	200	Vertical	Pass
4	6975.600	55.00	74.0	19.00	Peak	48.00	100	Vertical	Pass
4**	6975.600	45.48	54.0	8.52	AV	48.00	100	Vertical	Pass
5	10928.113	52.12	74.0	21.88	Peak	16.00	100	Vertical	Pass
5**	10928.113	43.14	54.0	10.86	AV	16.00	100	Vertical	Pass
6	17407.011	55.92	74.0	18.08	Peak	6.00	200	Vertical	Pass
6**	17407.011	45.27	54.0	8.73	AV	6.00	200	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	1481.800	41.96	74.0	32.04	Peak	0.00	200	Horizontal	Pass
1**	1481.800	32.60	54.0	21.40	AV	0.00	200	Horizontal	Pass
2	2440.900	98.84	74.0	-24.84	Peak	23.00	150	Horizontal	N/A
2**	2440.900	97.86	54.0	-43.86	AV	23.00	150	Horizontal	N/A
3	4805.200	51.33	74.0	22.67	Peak	164.00	100	Horizontal	Pass
3**	4805.200	41.38	54.0	12.62	AV	164.00	100	Horizontal	Pass
4	6978.200	54.32	74.0	19.68	Peak	188.00	100	Horizontal	Pass
4**	6978.200	46.18	54.0	7.82	AV	188.00	100	Horizontal	Pass
5	12402.413	51.84	74.0	22.16	Peak	199.00	400	Horizontal	Pass
5**	12402.413	41.99	54.0	12.01	AV	199.00	400	Horizontal	Pass
6	16880.437	55.28	74.0	18.72	Peak	106.00	200	Horizontal	Pass
6**	16880.437	45.17	54.0	8.83	AV	106.00	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	1529.800	41.75	74.0	32.25	Peak	360.00	200	Vertical	Pass
1**	1529.800	31.99	54.0	22.01	AV	360.00	200	Vertical	Pass
2	2441.100	95.73	74.0	-21.73	Peak	61.00	100	Vertical	N/A
2**	2441.100	95.15	54.0	-41.15	AV	61.00	100	Vertical	N/A
3	4985.000	51.07	74.0	22.93	Peak	94.00	100	Vertical	Pass
3**	4985.000	41.94	54.0	12.06	AV	94.00	100	Vertical	Pass
4	6981.600	54.70	74.0	19.30	Peak	176.00	400	Vertical	Pass
4**	6981.600	45.85	54.0	8.15	AV	176.00	400	Vertical	Pass
5	11784.287	52.17	74.0	21.83	Peak	248.00	200	Vertical	Pass
5**	11784.287	42.36	54.0	11.64	AV	248.00	200	Vertical	Pass
6	17399.400	55.10	74.0	18.90	Peak	70.00	400	Vertical	Pass
6**	17399.400	46.28	54.0	7.72	AV	70.00	400	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	1365.000	41.67	74.0	32.33	Peak	16.00	400	Horizontal	Pass
1**	1365.000	32.63	54.0	21.37	AV	16.00	400	Horizontal	Pass
2	2480.000	96.18	74.0	-22.18	Peak	16.00	200	Horizontal	N/A
2**	2480.000	92.84	54.0	-38.84	AV	16.00	200	Horizontal	N/A
3	4810.200	51.15	74.0	22.85	Peak	0.00	200	Horizontal	Pass
3**	4810.200	42.69	54.0	11.31	AV	0.00	200	Horizontal	Pass
4	6978.600	54.93	74.0	19.07	Peak	246.00	200	Horizontal	Pass
4**	6978.600	47.88	54.0	6.12	AV	246.00	200	Horizontal	Pass
5	11775.375	51.70	74.0	22.30	Peak	0.00	100	Horizontal	Pass
5**	11775.375	43.21	54.0	10.79	AV	0.00	100	Horizontal	Pass
6	17407.801	54.91	74.0	19.09	Peak	196.00	200	Horizontal	Pass
6**	17407.801	45.52	54.0	8.48	AV	196.00	200	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	1562.200	41.92	74.0	32.08	Peak	207.00	100	Vertical	Pass
1**	1562.200	32.98	54.0	21.02	AV	207.00	100	Vertical	Pass
2	2480.200	93.23	74.0	-19.23	Peak	174.00	150	Vertical	N/A
2**	2480.200	92.72	54.0	-38.72	AV	174.00	150	Vertical	N/A
3	4898.800	51.54	74.0	22.46	Peak	165.00	150	Vertical	Pass
3**	4898.800	41.88	54.0	12.12	AV	165.00	150	Vertical	Pass
4	6805.600	55.32	74.0	18.68	Peak	352.00	200	Vertical	Pass
4**	6805.600	45.88	54.0	8.12	AV	352.00	200	Vertical	Pass
5	11770.200	52.01	74.0	21.99	Peak	180.00	300	Vertical	Pass
5**	11770.200	42.46	54.0	11.54	AV	180.00	300	Vertical	Pass
6	17425.650	54.67	74.0	19.33	Peak	66.00	400	Vertical	Pass
6**	17425.650	46.81	54.0	7.19	AV	66.00	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

GFSK LOW CHANNEL

No.	Frequency (MHz)	Results (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	2321.850	57.49	74.0	16.51	Peak	267.00	150	Horizontal	Pass
1**	2321.850	45.99	54.0	8.01	AV	267.00	150	Horizontal	Pass
2	2389.950	54.62	74.0	19.38	Peak	197.00	100	Horizontal	Pass
2**	2389.950	45.56	54.0	8.44	AV	197.00	100	Horizontal	Pass

GFSK HIGH CHANNEL

No.	Frequency (MHz)	Results (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	2483.515	55.83	74.0	18.17	Peak	226.00	150	Horizontal	Pass
1**	2483.515	45.84	54.0	8.16	AV	226.00	150	Horizontal	Pass
2	2496.715	57.51	74.0	16.49	Peak	148.00	200	Horizontal	Pass
2**	2496.715	45.12	54.0	8.88	AV	148.00	200	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	2387.650	57.10	74.0	16.90	Peak	189.00	200	Horizontal	Pass
1**	2387.650	45.55	54.0	8.45	AV	189.00	200	Horizontal	Pass
2	2389.950	54.40	74.0	19.60	Peak	197.00	100	Horizontal	Pass
2**	2389.950	45.31	54.0	8.69	AV	197.00	100	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	2483.530	55.69	74.0	18.31	Peak	199.00	200	Horizontal	Pass
1**	2483.530	45.59	54.0	8.41	AV	199.00	200	Horizontal	Pass
2	2493.775	57.06	74.0	16.94	Peak	146.00	100	Horizontal	Pass
2**	2493.775	45.55	54.0	8.45	AV	146.00	100	Horizontal	Pass

ANNEX A TEST SETUP PHOTOS

1 Radiated Test Photo

Below 30MHz-0.5m USB Cable



30MHz-1GHz-0.5m USB Cable



Close-up-0.5m USB Cable



Below 30MHz-1.5m USB Cable



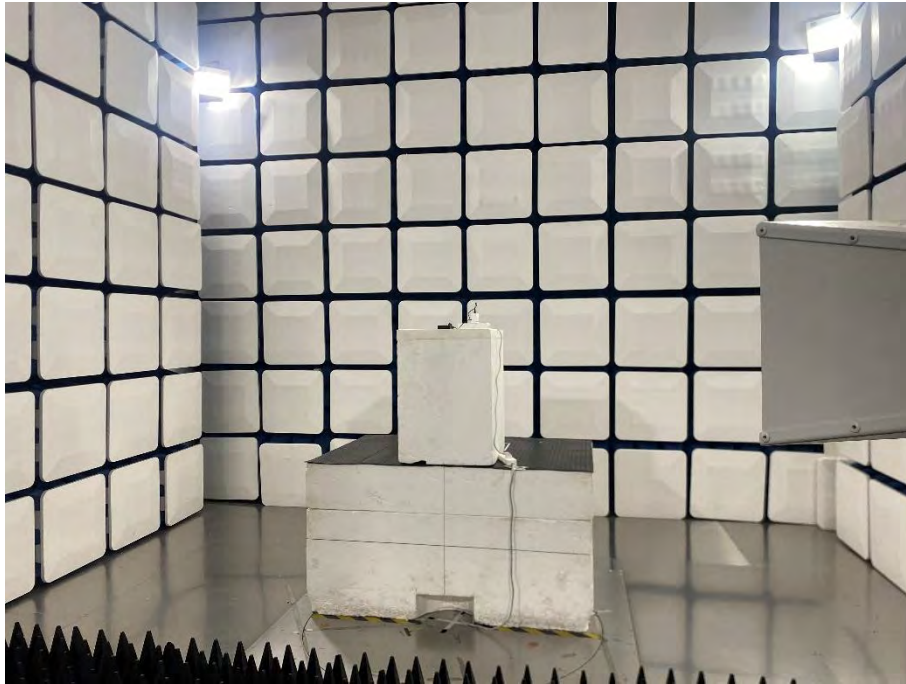
30MHz-1GHz-1.5m USB Cable



Close-up-1.5m USB Cable



Above 1GHz

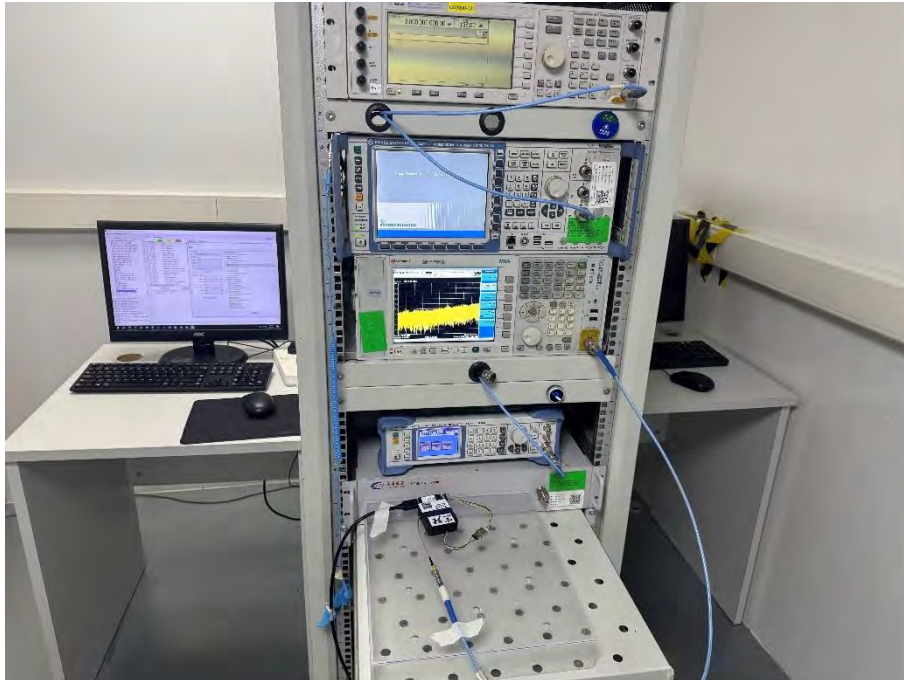


Close-up



2 Conducted Test Photo

Conducted Test



3 Conducted Emission

Photo 1-0.5m USB Cable

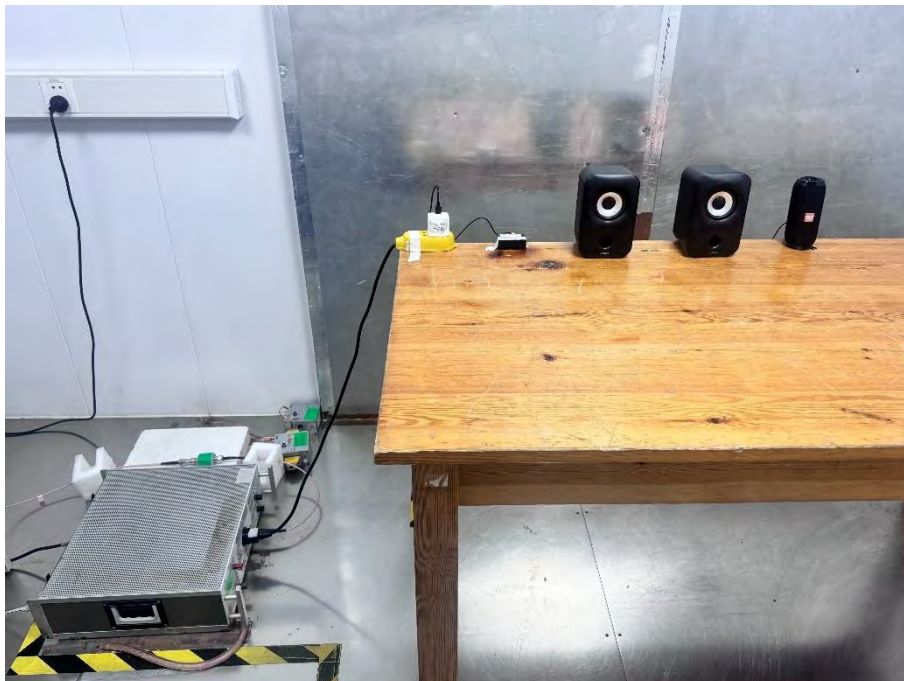


Photo 2-0.5m USB Cable



Photo 3-1.5m USB Cable

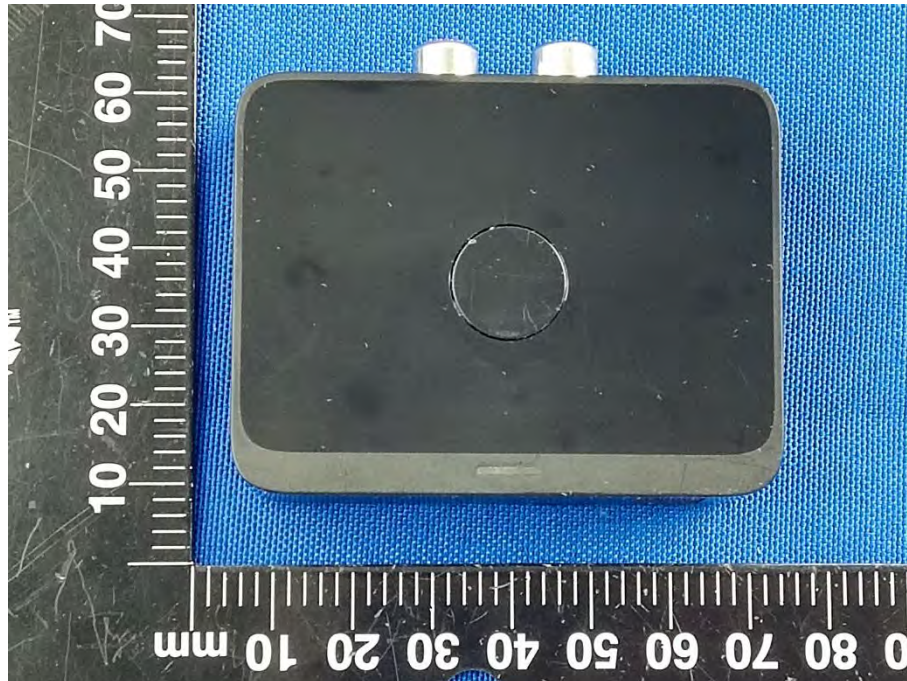


Photo 4-1.5m USB Cable

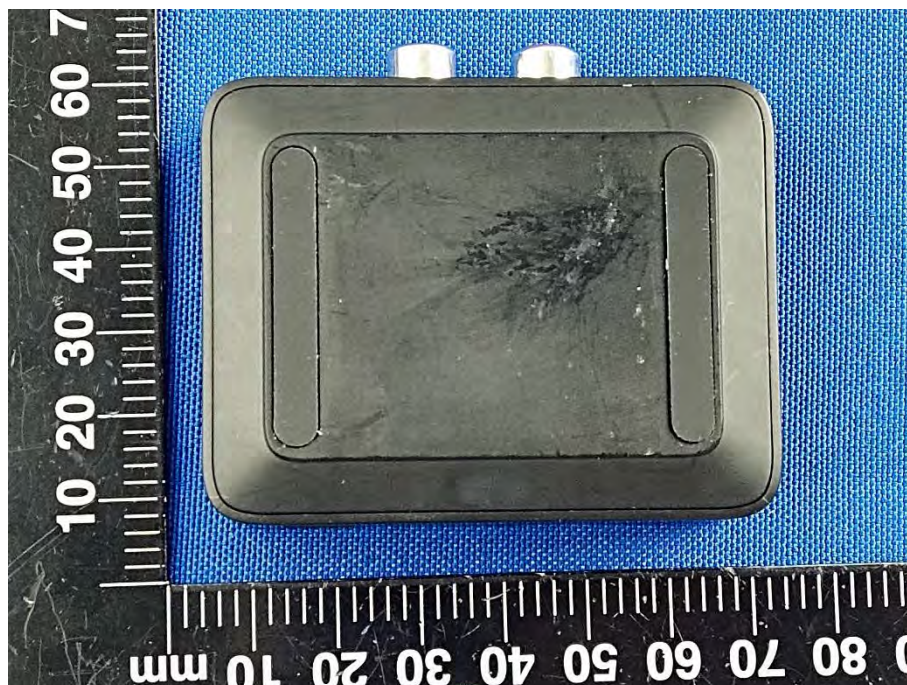


ANNEX B EUT EXTERNAL PHOTOS

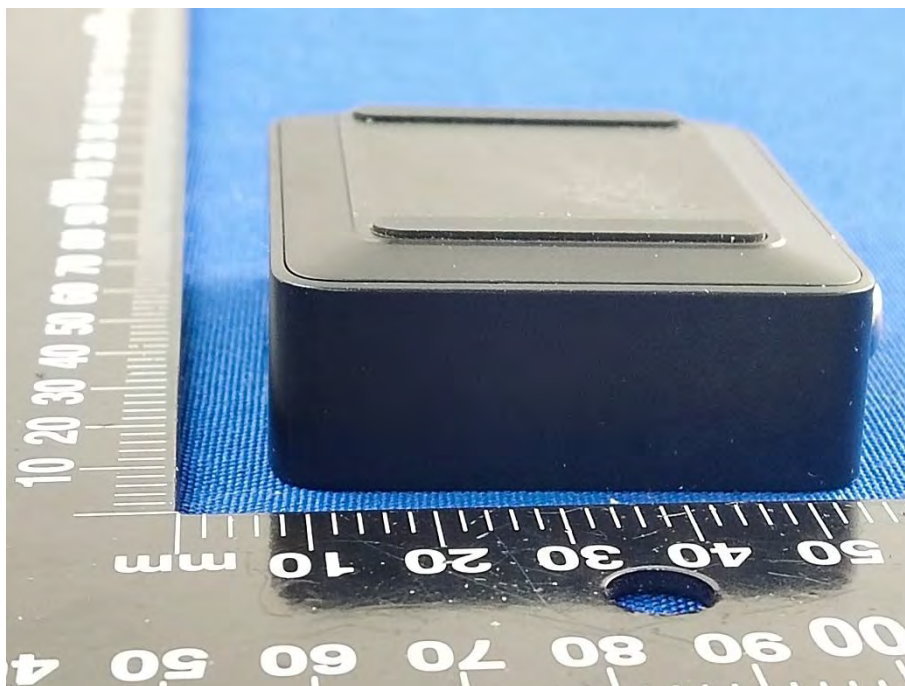
FRONT VIEW OF EUT



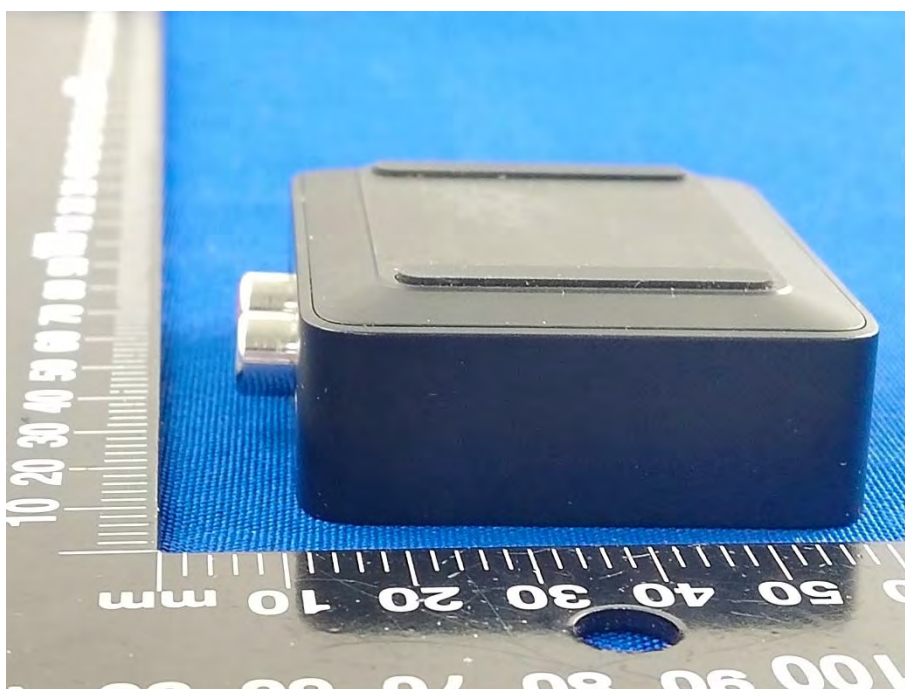
REAR VIEW OF EUT



LEFT VIEW OF EUT



RIGHT VIEW OF EUT



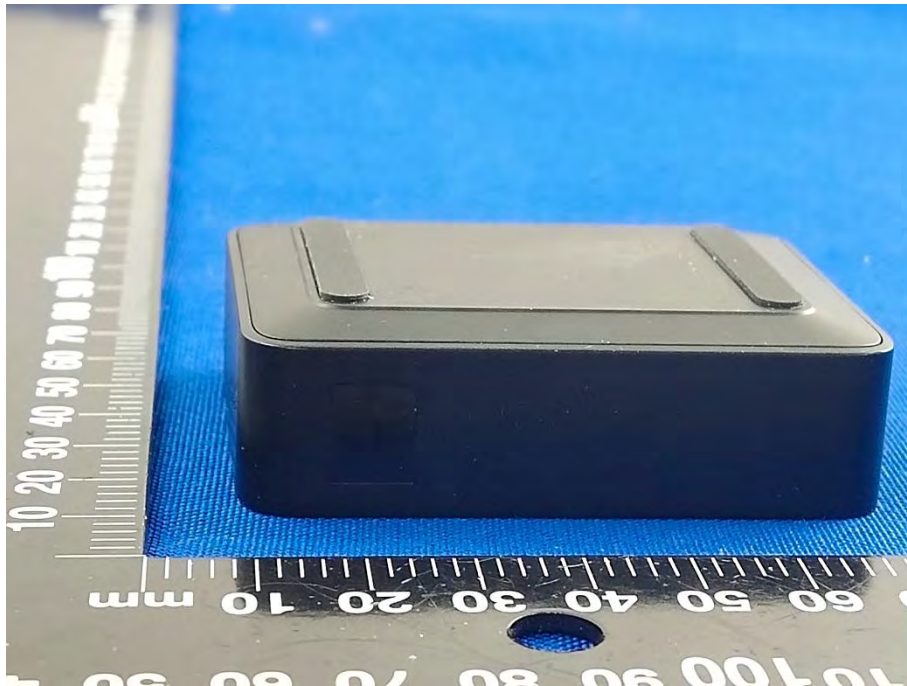
TOP VIEW OF EUT



CLOSE-UP



BOTTOM VIEW OF EUT



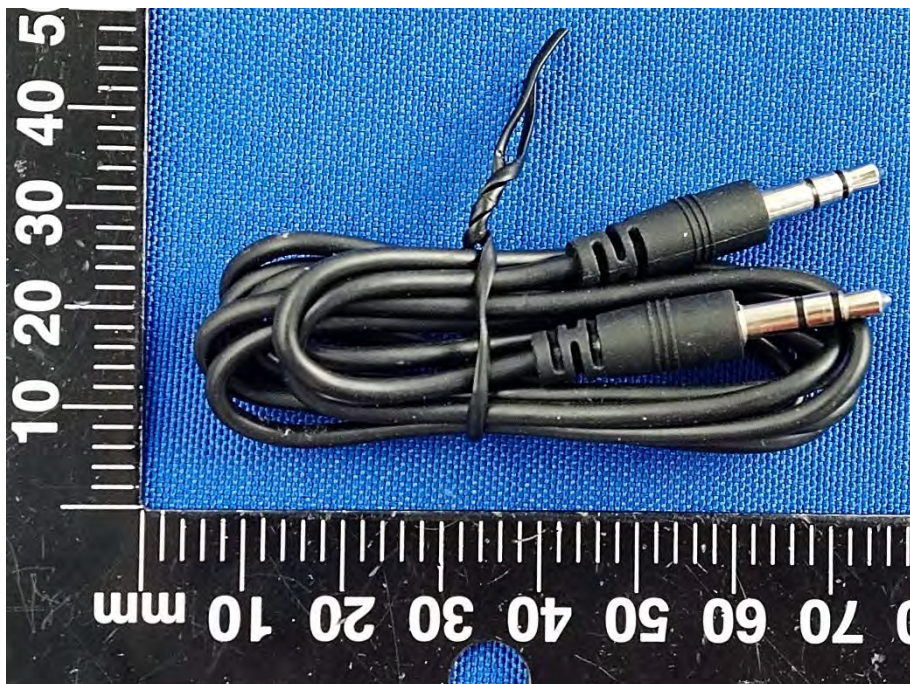
Accessory-USB Cable 1



Accessory-USB Cable 2

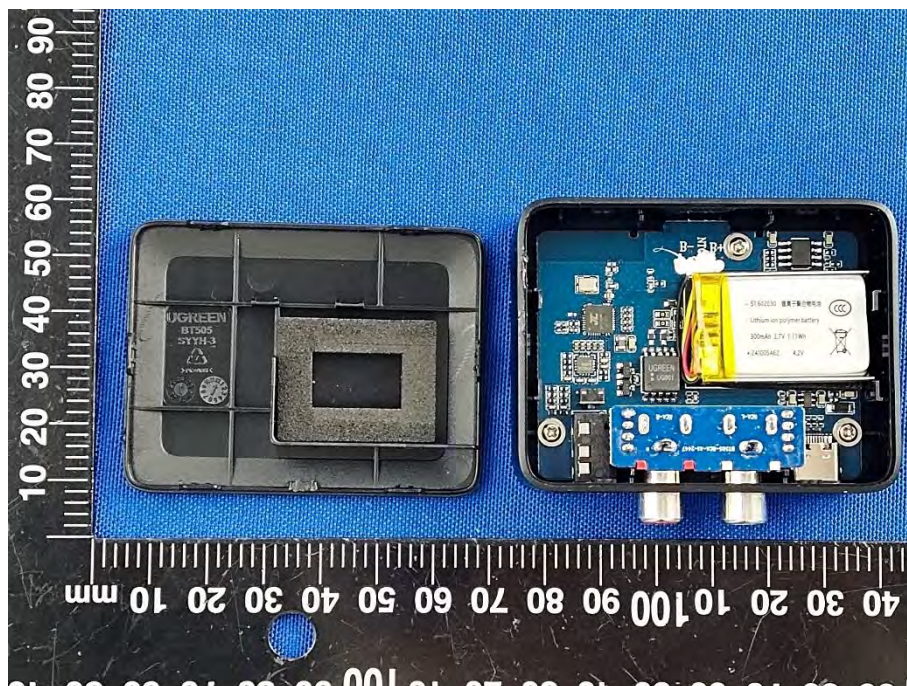


Accessory-Audio Cable

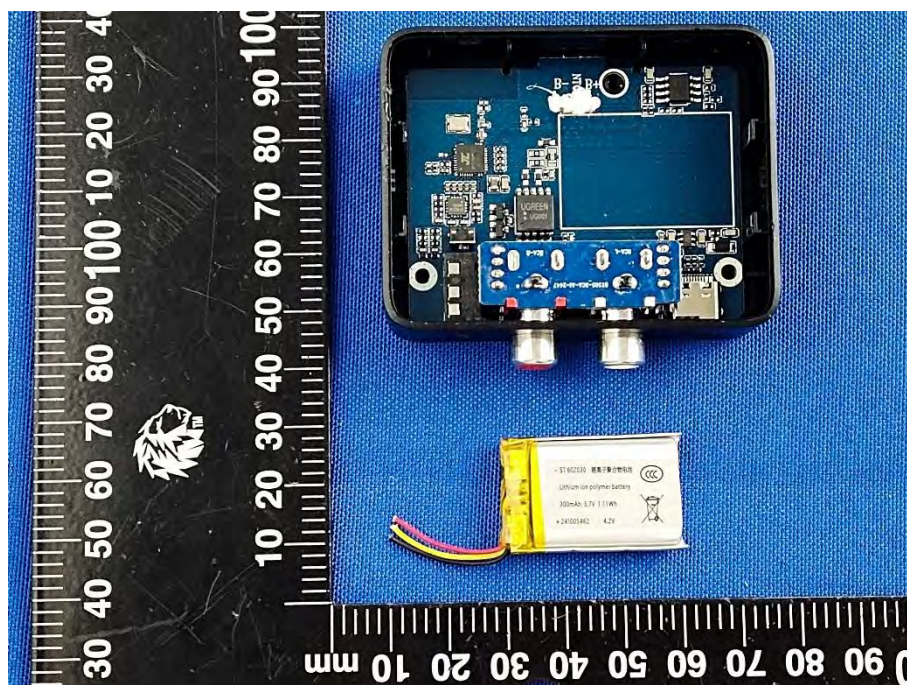


ANNEX C EUT INTERNAL PHOTOS

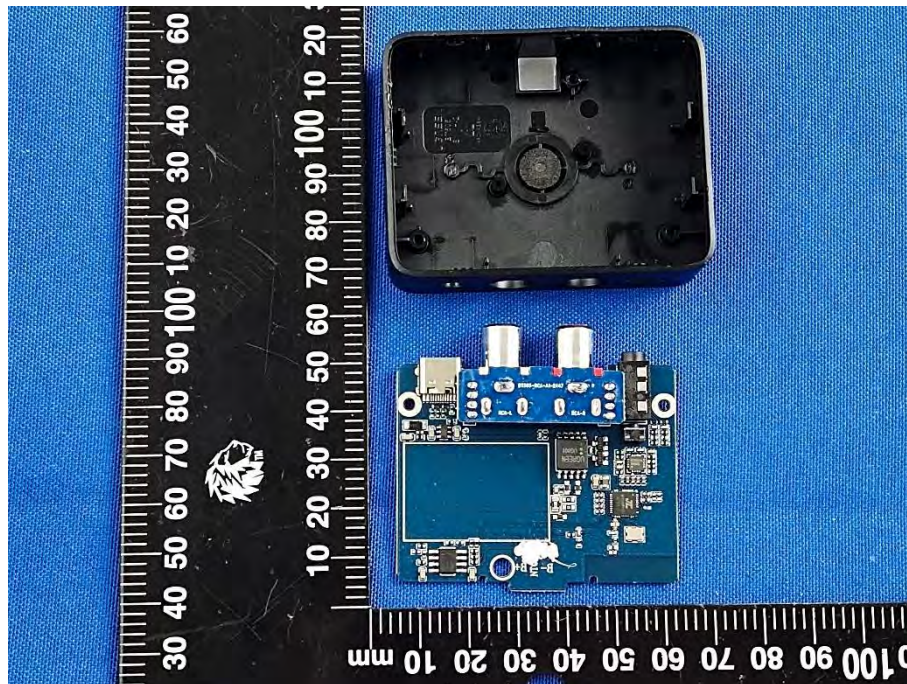
EUT UNCOVER VIEW 1



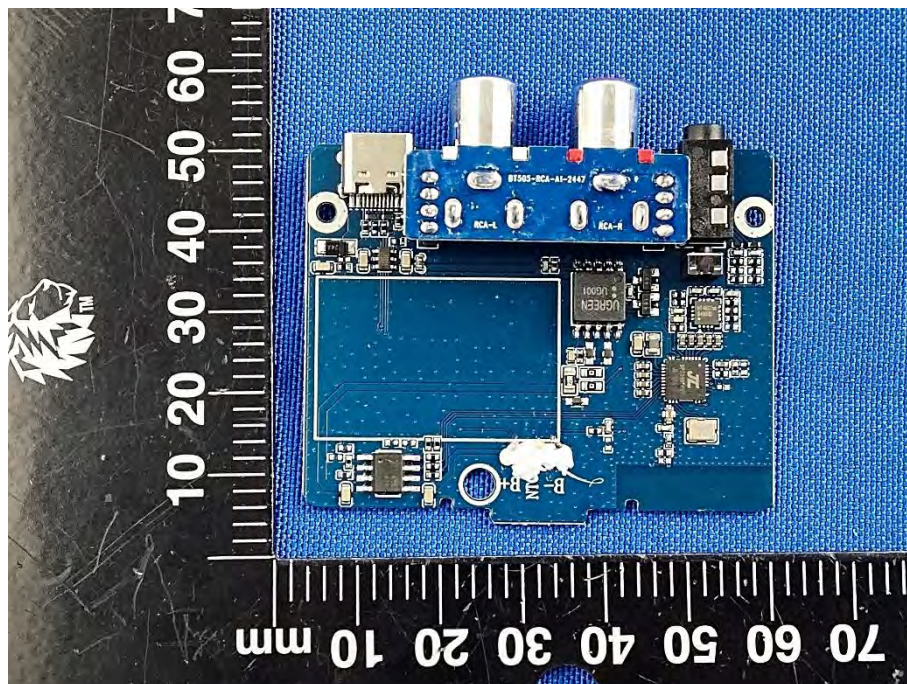
EUT UNCOVER VIEW 2



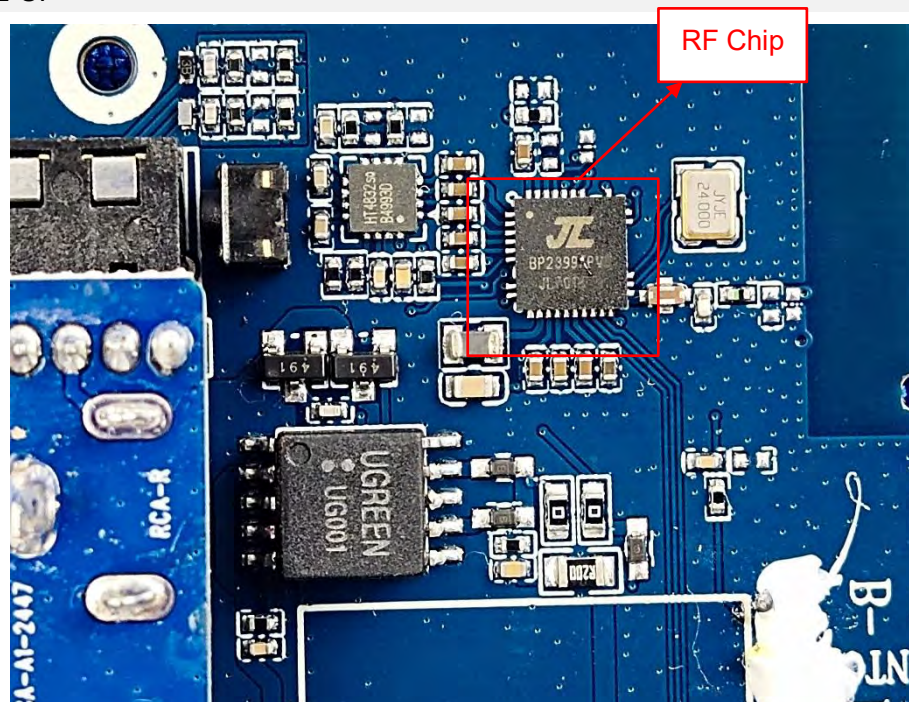
EUT UNCOVER VIEW 3



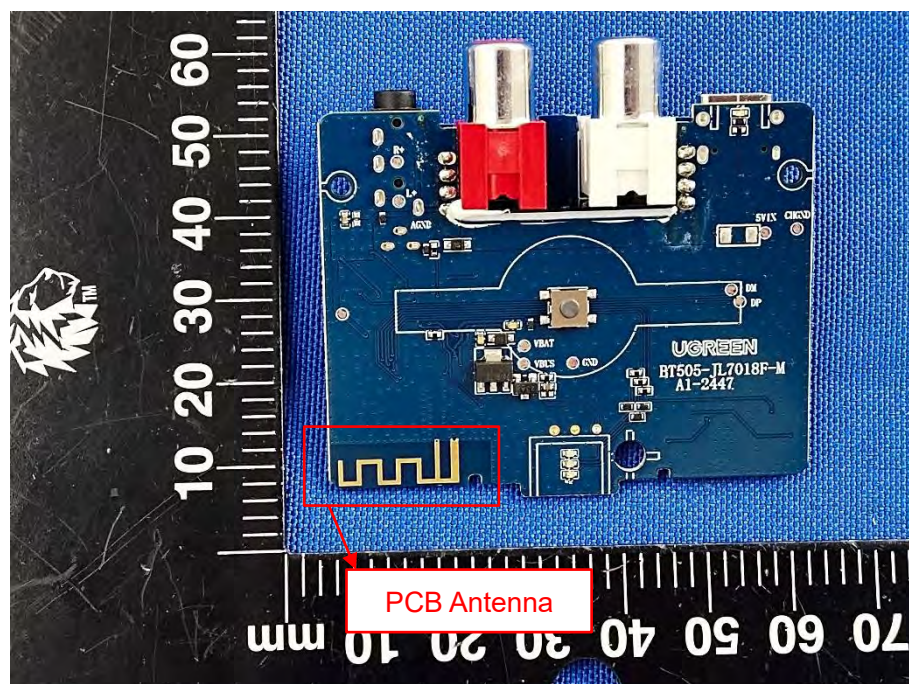
MAIN BOARD TOP VIEW



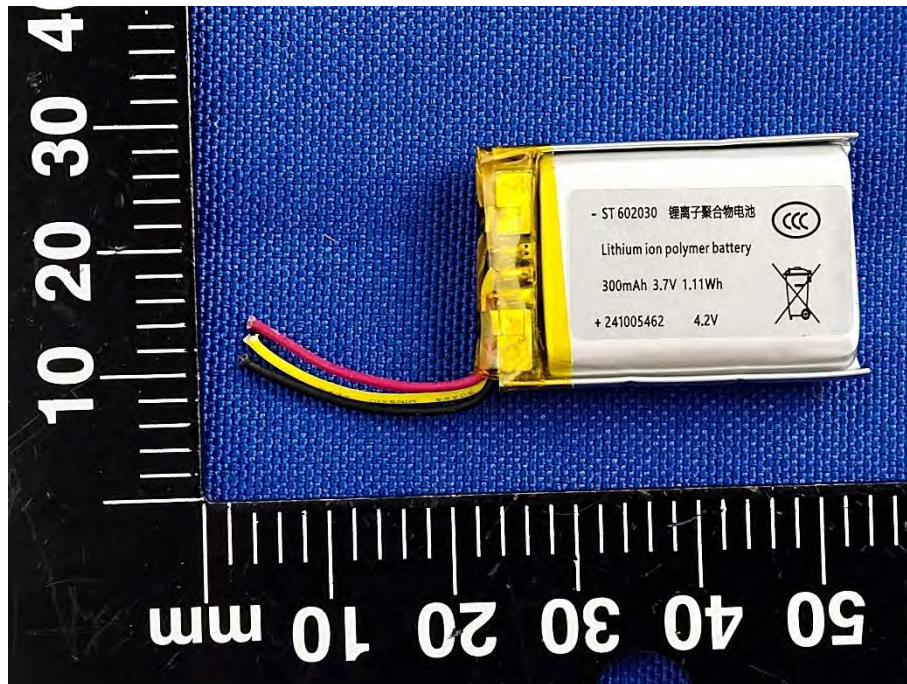
CLOSE-UP



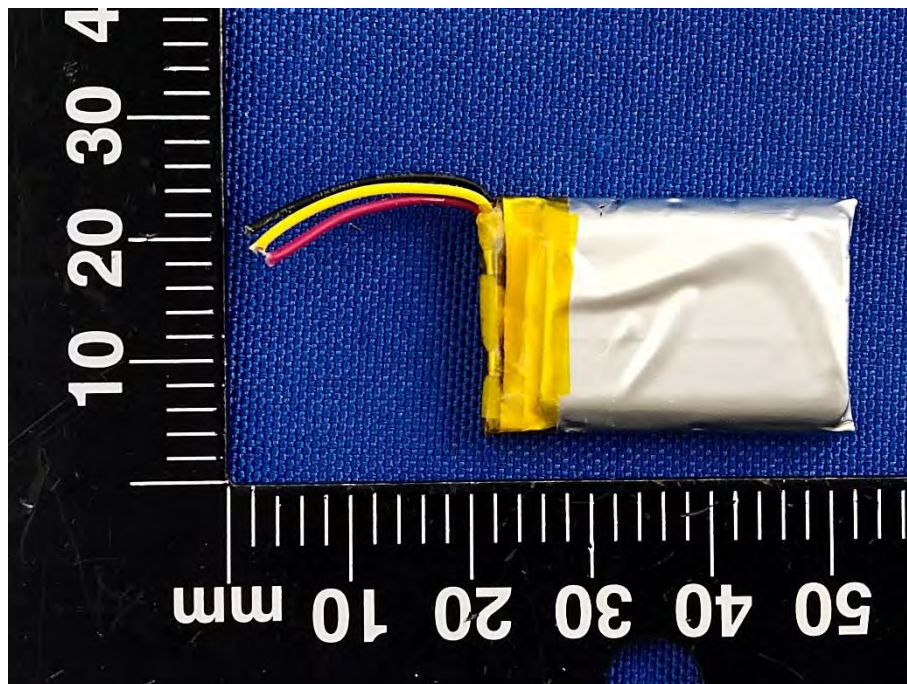
MAIN BOARD REAR VIEW



BATTERY (FRONT)



BATTERY (REAR)



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--END OF REPORT--