TEST REPORT

Product	:	RollerMouse mobile
Trade mark	:	CONTOUR
Model/Type reference	:	RM-Mobile
Series Model Number	:	RM-Mobile2, RM-Mobile-Mini, RM-Mobile-CN
Report Number	:	EED32M80145502
FCC ID	:	2AG6O-RMOB
Date of Issue	:	Jan. 26, 2021
Test Standards	:	47 CFR Part 15 Subpart C
Test result	:	PASS

Prepared for:

CONTOUR (GUANGZHOU) DESIGN, INC.
Building B21-2F, Huachuang Animation Park, Panyu, GZ, China

Prepared by:

Centre Testing International Group Co., Ltd.
Hongwei Industrial Zone, Bao'an 70 District,
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Compiled by:	Ken. cai	Reviewed by:	Aaron Ma
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Approved by:	David Wang	Date:	Jan. 26, 2021
	David Wang		

Check No.:7025241220

1 Version

Version No.	Date	Description
00	Jan. 26, 2021	Original

2 Test Summary

Test Item	Test Requirement	Test method	Result
Antenna Requirement	47 CFR Part 15 Subpart C Section 15.203	ANSI C63.10-2013	PASS
AC Power Line Conducted Emission	47 CFR Part 15 Subpart C Section 15.207	ANSI C63.10-2013	N/A
Field Strength of the Fundamental Signal	47 CFR Part 15 Subpart C Section 15.249 (a)	ANSI C63.10-2013	PASS
Spurious Emissions	47 CFR Part 15 Subpart C Section 15.249 (a)/15.209	ANSI C63.10-2013	PASS
Restricted bands around fundamental frequency (Radiated Emission)	47 CFR Part 15 Subpart C Section 15.249(a)/15.205	ANSI C63.10-2013	PASS
20dB Occupied Bandwidth	47 CFR Part 15 Subpart C Section 15.215 (c)	ANSI C63.10-2013	PASS

Remark:
Company Name and Address shown on Report, the sample(s) and sample Information was/ were provided by the applicant who should be responsible for the authenticity which CTI hasn't verified.
N/A: The wireless function does not work in charging(connect to a computer/an adapter) state performed on the EUT.

3 Contents

4 General Information

4.1 Client Information

Applicant:	CONTOUR (GUANGZHOU) DESIGN, INC.
Address of Applicant:	Building B21-2F, Huachuang Animation Park, Panyu, GZ, China
Manufacturer:	CONTOUR (GUANGZHOU) DESIGN, INC.
Address of Manufacturer:	Building B21-2F, Huachuang Animation Park, Panyu, GZ, China
Factory:	CONTOUR (GUANGZHOU) DESIGN, INC.
Address of Factory:	Building B21-2F, Huachuang Animation Park, Panyu, GZ, China

4.2 General Description of EUT

Product Name:	RollerMouse mobile
Model No.:	RM-Mobile
Series Model Number	RM-Mobile2, RM-Mobile-Mini, RM-Mobile-CN
Trade mark:	CONTOUR
Hardware Version:	PCB212.RM01.001
Software Version:	V1.0
Bluetooth Version:	5.1
Operation Frequency:	2402MHz~2480MHz
Modulation Type:	GFSK
Number of Channel:	79
Test Power Grade:	Default
Test Software of EUT:	Default
Antenna Type:	PCB antenna
Antenna Gain:	0dBi
Test voltage:	DC 3.7V
Sample Received Date:	Dec. 25, 2020
Sample tested Date:	Dec. 25, 2020 to Jan. 11, 2021

Operation Frequency each of channel							
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
1	2402MHz	21	2422MHz	41	2442MHz	61	2462MHz
2	2403MHz	22	2423MHz	42	2443MHz	62	2463MHz
3	2404MHz	23	2424MHz	43	2444MHz	63	2464MHz
4	2405MHz	24	2425MHz	44	2445MHz	64	2465MHz
5	2406MHz	25	2426MHz	45	2446MHz	65	2466MHz
6	2407MHz	26	2427MHz	46	2447MHz	66	2467MHz
7	2408MHz	27	2428MHz	47	2448MHz	67	2468MHz
8	2409MHz	28	2429MHz	48	2449MHz	68	2469MHz
9	2410MHz	29	2430MHz	49	2450MHz	69	2470MHz
10	2411MHz	30	2431MHz	50	2451MHz	70	2471MHz
11	2412MHz	31	2432MHz	51	2452MHz	71	2472MHz
12	2413MHz	32	2433MHz	52	2453MHz	72	2473MHz
13	2414MHz	33	2434MHz	53	2454MHz	73	2474MHz
14	2415MHz	34	2435MHz	54	2455MHz	74	2475MHz
15	2416MHz	35	2436MHz	55	2456MHz	75	2476MHz
16	2417MHz	36	2437MHz	56	2457MHz	76	2477MHz
17	2418MHz	37	2438MHz	57	2458MHz	77	2478MHz
18	2419MHz	38	2439MHz	58	2459MHz	78	2479MHz
19	2420MHz	39	2440MHz	59	2460MHz	79	2480MHz
20	2421MHz	40	2441MHz	60	2461MHz		

Note:

In section 15.31(m), regards to the operating frequency range over 10 MHz, the Lowest frequency, the middle frequency, and the highest frequency of channel were selected to perform the test, and the selected channel see below:

Channel	Frequency
The Lowest channel(CH1)	2402MHz
The Middle channel(CH40)	2441MHz
The Highest channel(CH79)	2480MHz

4.3 Test Environment and Mode

Operating Environment:	
Temperature:	24.0 °C
Humidity:	54 % RH
Atmospheric Pressure:	1010mbar
Test mode:	
Transmitting mode:	Keep the EUT in transmitting mode with modulation.

4.4 Description of Support Units

The EUT has been tested independently

4.5 Test Location

All tests were performed at:
Centre Testing International Group Co., Ltd
Building C, Hongwei Industrial Park Block 70, Bao'an District, Shenzhen, China
Telephone: +86 (0) 755 33683668 Fax:+86 (0) 755 33683385
No tests were sub-contracted.

FCC Designation No.: CN1164

4.6 Deviation from Standards

None.

4.7 Abnormalities from Standard Conditions

None.

4.8 Other Information Requested by the Customer

None.

4.9 Measurement Uncertainty (95% confidence levels, k=2)

No.	Item	Measurement Uncertainty
1	Radio Frequency	7.9×10^{-8}
2	RF power, conducted	0.46dB (30MHz-1GHz)
		0.55dB (1GHz-18GHz)
3	Radiated Spurious emission test	4.3dB (30MHz-1GHz)
		4.5dB (1GHz-12.75GHz)
4	Conduction emission	3.5dB (9kHz to 150kHz)
		3.1dB (150kHz to 30MHz)
5	Temperature test	0.64°C
6	Humidity test	3.8%
7	DC power voltages	0.026%

5 Equipment List

Conducted disturbance Test					
Equipment	**Manufacturer**	**Model No.**	**Serial Number**	**Cal. date (mm-dd-yyyy)**	**Cal. Due date (mm-dd-yyyy)**
Receiver	R&S	ESCI	100435	04-28-2020	04-27-2021
Temperature/ Humidity Indicator	Defu	TH128	/	---	---
LISN	R&S	ENV216	100098	03-05-2020	03-04-2021
Barometer	changchun	DYM3	1188	---	---

RF test system					
Equipment	**Manufacturer**	**Mode No.**	**Serial Number**	**Cal. Date (mm-dd-yyyy)**	**Cal. Due date (mm-dd-yyyy)**
Spectrum Analyzer	Keysight	N9010A	MY54510339	02-17-2020	02-16-2021
Signal Generator	Keysight	N5182B	MY53051549	02-17-2020	02-16-2021
Temperature/ Humidity Indicator	biaozhi	HM10	1804186	06-29-2020	06-28-2021
High-pass filter	Sinoscite	FL3CX03WG18 NM12-0398-002	---	---	---
High-pass filter	MICRO-TRONICS	SPA-F-63029-4	---	---	---
DC Power	Keysight	E3642A	MY56376072	02-17-2020	02-16-2021
PC-1	Lenovo	R4960d	---	---	---
Power unit	R&S	OSP120	101374	02-17-2020	02-16-2021
RF control unit	JS Tonscend	JS0806-2	158060006	02-17-2020	02-16-2021
BT&WI-FI Automatic test software	JS Tonscend	JS1120-3	---	---	---

3M Semi/full-anechoic Chamber					
Equipment	**Manufacturer**	**Model No.**	**Serial Number**	**Cal. date (mm-dd-yyyy)**	**Cal. Due date (mm-dd-yyyy)**
3M Chamber & Accessory Equipment	TDK	SAC-3	---	05-24-2019	05-23-2022
TRILOG Broadband Antenna	Schwarzbeck	VULB9163	9163-618	05-16-2020	05-15-2021
Loop Antenna	Schwarzbeck	FMZB 1519B	1519B-076	04-25-2018	04-24-2021
Receiver	R&S	ESCI7	100938-003	10-16-2020	10-15-2021
Multi device Controller	maturo	NCD/070/10711 112	---	---	---
Temperature/ Humidity Indicator	Shanghai qixiang	HM10	1804298	06-29-2020	06-28-2021
Cable line	Fulai(7M)	SF106	5219/6A	---	---
Cable line	Fulai(6M)	SF106	5220/6A	---	---
Cable line	Fulai(3M)	SF106	5216/6A	---	---
Cable line	Fulai(3M)	SF106	5217/6A	---	---

3M full-anechoic Chamber					
Equipment	**Manufacturer**	**Model No.**	**Serial Number**	**Cal. date (mm-dd-yyyy)**	**Cal. Due date (mm-dd-yyyy)**
RSE Automatic test software	JS Tonscend	JS36-RSE	10166	---	---
Receiver	Keysight	N9038A	MY57290136	03-05-2020	03-04-2021
Spectrum Analyzer	Keysight	N9020B	MY57111112	03-05-2020	03-04-2021
Spectrum Analyzer	Keysight	N9030B	MY57140871	03-05-2020	03-04-2021
TRILOG Broadband Antenna	Schwarzbeck	VULB 9163	9163-1148	04-25-2018	04-24-2021
Horn Antenna	Schwarzbeck	BBHA 9170	9170-832	04-25-2018	04-24-2021
Horn Antenna	ETS-LINDGREN	3117	00057407	07-10-2018	07-09-2021
Preamplifier	EMCI	EMC184055SE	980596	05-20-2020	05-19-2021
Preamplifier	EMCI	EMC001330	980563	04-22-2020	04-21-2021
Preamplifier	JS Tonscend	980380	EMC051845 SE	01-09-2020	01-08-2021
Temperature/ Humidity Indicator	biaozhi	GM1360	EE1186631	04-27-2020	04-26-2021
Fully Anechoic Chamber	TDK	FAC-3	---	01-17-2018	01-16-2021
Filter bank	JS Tonscend	JS0806-F	188060094	04-10-2018	04-09-2021
Cable line	Times	SFT205-NMSM-2.50M	394812-0001	---	---
Cable line	Times	SFT205-NMSM-2.50M	394812-0002	---	---
Cable line	Times	SFT205-NMSM-2.50M	394812-0003	---	---
Cable line	Times	SFT205-NMSM-2.50M	393495-0001	---	---
Cable line	Times	EMC104-NMNM-1000	SN160710	---	---
Cable line	Times	SFT205-NMSM-3.00M	394813-0001	---	---
Cable line	Times	SFT205-NMNM-1.50M	381964-0001	---	---
Cable line	Times	SFT205-NMSM-7.00M	394815-0001	---	---
Cable line	Times	HF160-KMKM-3.00M	393493-0001	---	---

6 Test results and Measurement Data

6.1 Antenna Requirement

Standard requirement:	47 CFR Part 15C Section 15.203
15.203 requirement: An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.	
EUT Antenna:	Please see Internal photos
The antenna is integrated on the main PCB and no consideration of replacement. The best case gain of the antenna is 0 dBi.	

6.2 Radiated Spurious Emissions

Test Requirement: 47 CFR Part 15C Section 15.249 and 15.209

Test Method: ANSI C63.10

Test Site: Measurement Distance: 3m (Semi-Anechoic Chamber)

Receiver Setup:

Frequency	Detector	RBW	VBW	Remark
0.009MHz-0.090MHz	Peak	10kHz	30kHz	Peak
0.009MHz-0.090MHz	Average	10kHz	30kHz	Average
0.090MHz-0.110MHz	Quasi-peak	10kHz	30kHz	Quasi-peak
0.110MHz-0.490MHz	Peak	10kHz	30kHz	Peak
0.110MHz-0.490MHz	Average	10kHz	30kHz	Average
0.490MHz -30MHz	Quasi-peak	10kHz	30kHz	Quasi-peak
30MHz-1GHz	Quasi-peak	120kHz	300kHz	Quasi-peak
Above 1GHz	Peak	1MHz	3MHz	Peak
	Peak	1MHz	10Hz	Average

Test Setup:

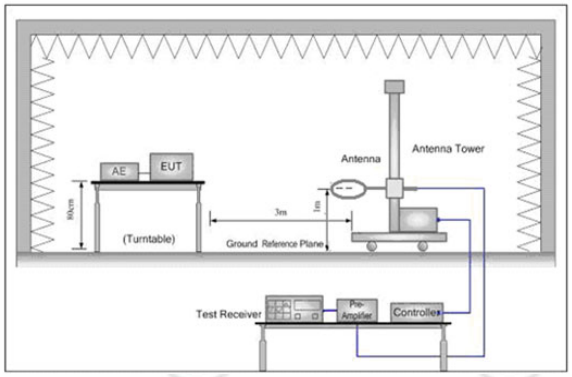


Figure 1. Below 30MHz

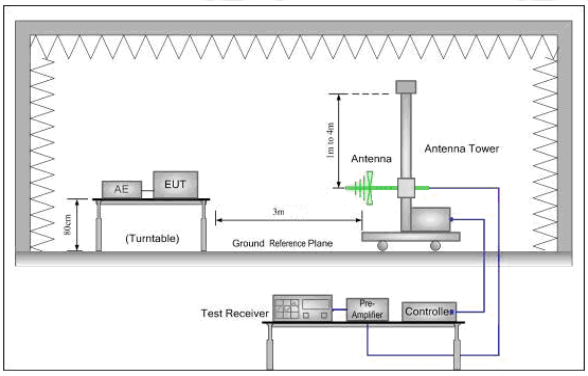


Figure 2. 30MHz to 1GHz

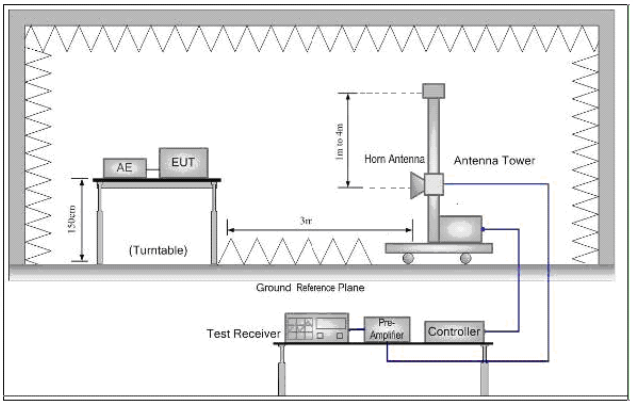


Figure 3. Above 1GHz

Test Procedure:

Below 1GHz test procedure as below:

The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic camber. The table was rotated 360 degrees to determine the position of the highest radiation.

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

The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.

For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rota table table was turned from 0 degrees to 360 degrees to find the maximum reading.

The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.

If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

Above 1GHz test procedure as below:

Different between above is the test site, change from Semi- Anechoic Chamber to fully Anechoic Chamber and change form table 0.8 metre to 1.5 metre(Above 18GHz the distance is 1 meter and table is 1.5 metre).

Test the EUT in the lowest channel ,middle channel, the Highest channel

The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, and found the X axis positioning which it is worse case.

Repeat above procedures until all frequencies measured was complete.

Limit:
(Spurious Emissions)

Frequency	Field strength (microvolt/meter)	Limit (dBμV/m)	Remark	Measurement distance (m)
0.009MHz-0.490MHz	2400/F(kHz)	-	-	300
0.490MHz-1.705MHz	24000/F(kHz)	-	-	30
1.705MHz-30MHz	30	-	-	30
30MHz-88MHz	100	40.0	Quasi-peak	3
88MHz-216MHz	150	43.5	Quasi-peak	3
216MHz-960MHz	200	46.0	Quasi-peak	3
960MHz-1GHz	500	54.0	Quasi-peak	3
Above 1GHz	500	54.0	Average	3

Note: 15.35(b), Unless otherwise specified, the limit on peak radio frequency emissions is 20dB above the maximum permitted average emission limit applicable to the equipment under test. This peak limit applies to the total peak emission level radiated by the device.

Limit:
(Field strength of the fundamental signal)

Frequency	Limit (dBμV/m @3m)	Remark
2400MHz-2483.5MHz	94.0	Average Value
	114.0	Peak Value

Test Setup:

Exploratory Test Mode: Transmitting mode

Final Test Mode: Transmitting mode

Instruments Used: Refer to section 6 for details

Test Results: Pass

Measurement Data

Field Strength Of The Fundamental Signal

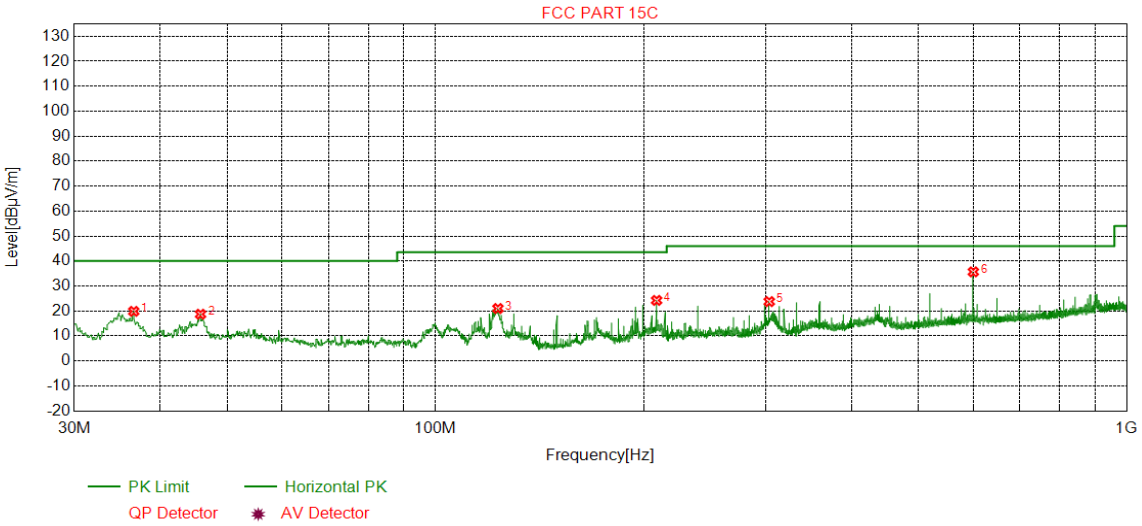
NO	Freq. [MHz]	Ant Factor [dB]	Cable loss [dB]	Pream gain [dB]	Reading [dBμV]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Result	Polarity	Remark
1	2402	32.26	3.46	-43.12	81.51	74.8	114	39.2	Pass	H	PK
2	2402	32.26	3.46	-43.11	96.91	90.2	114	23.8	Pass	V	PK
3	2441	32.32	3.35	-42.42	79.11	72.4	114	41.6	Pass	H	PK
4	2441	32.32	3.35	-42.42	95.21	88.5	114	25.5	Pass	V	PK
5	2480	32.37	3.44	-43.10	78.05	71.3	114	42.7	Pass	H	PK
6	2480	32.37	3.44	-43.10	93.95	87.3	114	26.7	Pass	V	PK
7	2402	32.26	3.46	-43.12	80.25	73.5	94	20.5	Pass	H	AV
8	2402	32.26	3.46	-43.11	96.15	89.5	94	4.5	Pass	V	AV
9	2441	32.32	3.35	-42.42	78.39	71.8	94	22.2	Pass	H	AV
10	2441	32.32	3.35	-42.42	93.9	87.3	94	6.7	Pass	V	AV
11	2480	32.37	3.44	-43.10	76.89	70.3	94	23.7	Pass	H	AV
12	2480	32.37	3.44	-43.10	93.09	86.5	94	7.5	Pass	V	AV

Radiated Spurious Emission below 1GHz:

During the test, the Radiated Spurious Emissions from 30MHz to 1GHz was performed in all modes with all channels, GFSK, Channel 2402MHz was selected as the worst condition. The test data of the worst-case condition was recorded in this report.

Mode:			GFSK Transmitting				Channel:		2402		
NO	Freq. [MHz]	Ant Factor [dB]	Cable loss [dB]	Pream gain [dB]	Reading [dBμV]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Result	Polarity	Remark
1	36.5967	11.21	0.67	-31.38	39.36	19.86	40.00	20.14	Pass	H	PK
2	45.7156	13.20	0.76	-31.77	36.53	18.72	40.00	21.28	Pass	H	PK
3	123.1293	8.73	1.31	-32.05	43.00	20.99	43.50	22.51	Pass	H	PK
4	208.8859	11.13	1.71	-31.94	43.34	24.24	43.50	19.26	Pass	H	PK
5	304.0524	13.29	2.07	-31.60	40.00	23.76	46.00	22.24	Pass	H	PK
6	600.0290	19.00	2.96	-31.50	45.21	35.67	46.00	10.33	Pass	H	PK
7	34.8505	10.69	0.65	-31.43	39.53	19.44	40.00	20.56	Pass	V	PK
8	52.9913	12.72	0.82	-32.02	37.10	18.62	40.00	21.38	Pass	V	PK
9	130.0170	7.70	1.33	-32.02	47.57	24.58	43.50	18.92	Pass	V	PK
10	208.8859	11.13	1.71	-31.94	43.66	24.56	43.50	18.94	Pass	V	PK
11	304.0524	13.29	2.07	-31.60	41.86	25.62	46.00	20.38	Pass	V	PK
12	600.0290	19.00	2.96	-31.50	44.89	35.35	46.00	10.65	Pass	V	PK

Test Graph


FCC PART 15C
Level[dBμV/m]
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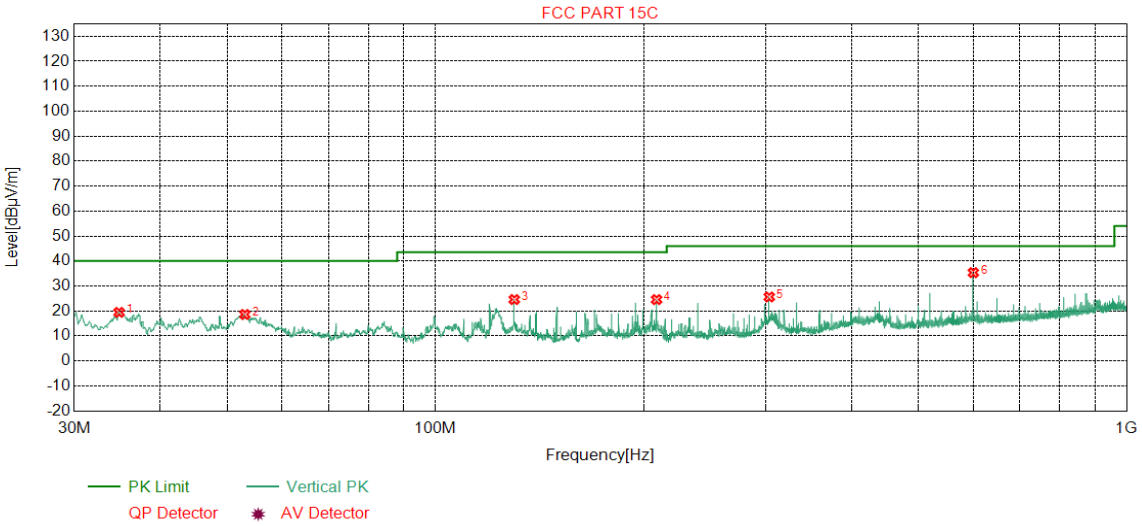
120
110
100
90
80
70
60
50
40
30
20
10
0
-10
-20
30M
100M
1G
Frequency[Hz]
PK Limit
Horizontal PK
QP Detector
AV Detector


FCC PART 15C
Level[dBμV/m]
130
120
110
100
90
80
70
60
50
40
30
20
10
0
-10
-20
30M
100M
1G
Frequency[Hz]
PK Limit
Vertical PK
QP Detector
AV Detector

Radiated Spurious Emission above 1GHz:

Mode:			GFSK Transmitting				Channel:		2402		
NO	Freq. [MHz]	Ant Factor [dB]	Cable loss [dB]	Pream gain [dB]	Reading [dBμV]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Result	Polarity	Remark
1	2434.3434	32.31	3.96	-43.12	51.47	44.62	74.00	29.38	Pass	H	PK
2	3395.0263	33.36	4.56	-43.11	48.47	43.28	74.00	30.72	Pass	H	PK
3	3971.0647	33.78	4.34	-43.01	49.20	44.31	74.00	29.69	Pass	H	PK
4	5526.1684	35.04	5.16	-42.60	48.70	46.30	74.00	27.70	Pass	H	PK
5	7600.3067	36.56	6.10	-42.12	48.70	49.24	74.00	24.76	Pass	H	PK
6	9826.4551	37.73	6.70	-42.10	49.61	51.94	74.00	22.06	Pass	H	PK
7	2417.3417	32.28	3.94	-43.12	50.72	43.82	74.00	30.18	Pass	V	PK
8	3596.0397	33.48	4.35	-43.09	49.08	43.82	74.00	30.18	Pass	V	PK
9	5013.1342	34.51	4.84	-42.80	50.79	47.34	74.00	26.66	Pass	V	PK
10	6380.2253	35.88	5.37	-42.53	49.39	48.11	74.00	25.89	Pass	V	PK
11	8502.3668	36.61	6.48	-42.00	48.72	49.81	74.00	24.19	Pass	V	PK
12	10232.4822	38.13	6.83	-42.05	49.40	52.31	74.00	21.69	Pass	V	PK

Mode:			GFSK Transmitting				Channel:		2441		
NO	Freq. [MHz]	Ant Factor [dB]	Cable loss [dB]	Pream gain [dB]	Reading [dBμV]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Result	Polarity	Remark
1	2290.9291	32.11	3.80	-43.15	50.55	43.31	74.00	30.69	Pass	H	PK
2	3522.0348	33.42	4.47	-43.10	49.13	43.92	74.00	30.08	Pass	H	PK
3	5007.1338	34.51	4.83	-42.80	50.52	47.06	74.00	26.94	Pass	H	PK
4	6380.2253	35.88	5.37	-42.53	49.80	48.52	74.00	25.48	Pass	H	PK
5	8442.3628	36.58	6.39	-42.03	49.14	50.08	74.00	23.92	Pass	H	PK
6	10416.4944	38.38	7.14	-42.01	48.36	51.87	74.00	22.13	Pass	H	PK
7	1281.8282	28.18	2.72	-42.80	50.73	38.83	74.00	35.17	Pass	V	PK
8	1820.6821	30.52	3.34	-42.76	49.23	40.33	74.00	33.67	Pass	V	PK
9	3490.0327	33.40	4.48	-43.11	48.89	43.66	74.00	30.34	Pass	V	PK
10	5033.1355	34.53	4.86	-42.78	50.32	46.93	74.00	27.07	Pass	V	PK
11	6957.2638	36.08	5.79	-42.22	48.42	48.07	74.00	25.93	Pass	V	PK
12	10256.4838	38.16	6.83	-42.05	49.30	52.24	74.00	21.76	Pass	V	PK

Mode:			GFSK Transmitting				Channel:		2480		
NO	Freq. [MHz]	Ant Factor [dB]	Cable loss [dB]	Pream gain [dB]	Reading [dBμV]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Result	Polarity	Remark
1	1825.0825	30.55	3.35	-42.78	49.33	40.45	74.00	33.55	Pass	H	PK
2	2814.7815	32.90	4.24	-43.10	49.75	43.79	74.00	30.21	Pass	H	PK
3	3900.0600	33.72	4.34	-43.02	49.07	44.11	74.00	29.89	Pass	H	PK
4	5013.1342	34.51	4.84	-42.80	50.66	47.21	74.00	26.79	Pass	H	PK
5	6484.2323	35.90	5.49	-42.51	49.24	48.12	74.00	25.88	Pass	H	PK
6	8918.3946	37.52	6.38	-42.00	49.10	51.00	74.00	23.00	Pass	H	PK
7	1825.0825	30.55	3.35	-42.78	49.33	40.45	74.00	33.55	Pass	H	AV
8	2564.5565	32.50	4.09	-43.09	50.59	44.09	74.00	29.91	Pass	V	PK
9	3720.0480	33.58	4.28	-43.06	49.42	44.22	74.00	29.78	Pass	V	PK
10	5022.1348	34.52	4.85	-42.79	50.13	46.71	74.00	27.29	Pass	V	PK
11	5946.1964	35.71	5.30	-42.60	48.79	47.20	74.00	26.80	Pass	V	PK
12	7611.3074	36.56	6.11	-42.13	48.63	49.17	74.00	24.83	Pass	V	PK
13	9658.4439	37.66	6.70	-42.10	49.29	51.55	74.00	22.45	Pass	V	PK

Remark:

1) The field strength is calculated by adding the Antenna Factor, Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows:
   Final Test Level =Receiver Reading - Correct Factor
   Correct Factor = Preamplifier Factor– Antenna Factor–Cable Factor
2) Scan from 9kHz to 25GHz,The disturbance above 13GHz and below 30MHz was very low, and the above harmonics were the highest point could be found when testing, so only the above harmonics had been displayed. The amplitude of spurious emissions from the radiator which are attenuated more than 20dB below the limit need not be reported .

6.3 Restricted bands around fundamental frequency

Test Requirement: 47 CFR Part 15C Section 15.209 and 15.205

Test Method: ANSI C63.10

Test Site: Measurement Distance: 3m (Semi-Anechoic Chamber)

Limit(band edge): Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits in Section 15.209, whichever is the lesser attenuation.

Frequency	Limit (dBμV/m @3m)	Remark
30MHz-88MHz	40.0	Quasi-peak Value
88MHz-216MHz	43.5	Quasi-peak Value
216MHz-960MHz	46.0	Quasi-peak Value
960MHz-1GHz	54.0	Quasi-peak Value
Above 1GHz	54.0	Average Value
	74.0	Peak Value

Test Setup:

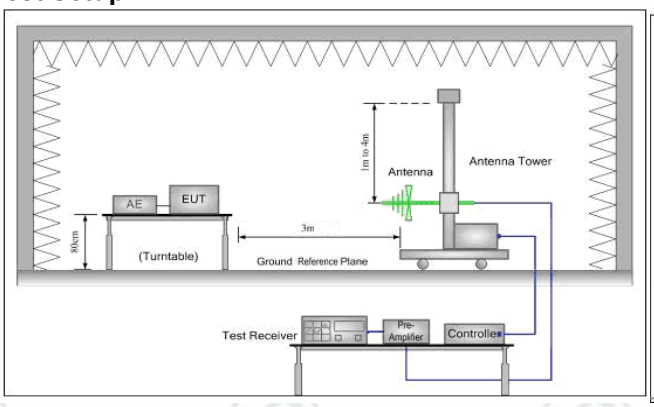


Figure 1. 30MHz to 1GHz

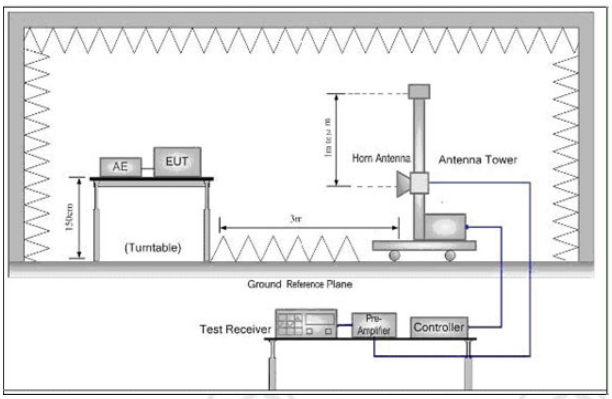


Figure 2. Above 1 GHz

Test Procedure:

Below 1GHz test procedure as below:

a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic camber. The table was rotated 360 degrees to determine the position of the highest radiation.
b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
c. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
f. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

Above 1GHz test procedure as below:

g. Different between above is the test site, change from Semi- Anechoic Chamber to fully Anechoic Chamber and change form table 0.8 meter to 1.5 meter(Above 18GHz the distance is 1 meter and table is 1.5 meter).
h. Test the EUT in the lowest channel,,the Highest channel
i. The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, and found the X axis positioning which it is worse case.
j. Repeat above procedures until all frequencies measured was complete.

Exploratory Test Mode: Transmitting mode,Charge +Transmitting mode

Final Test Mode: Pretest the EUT at Transmitting mode and Charge +Transmitting mode, found the Charge +Transmitting mode which it is worse case
Only the worst case is recorded in the report.

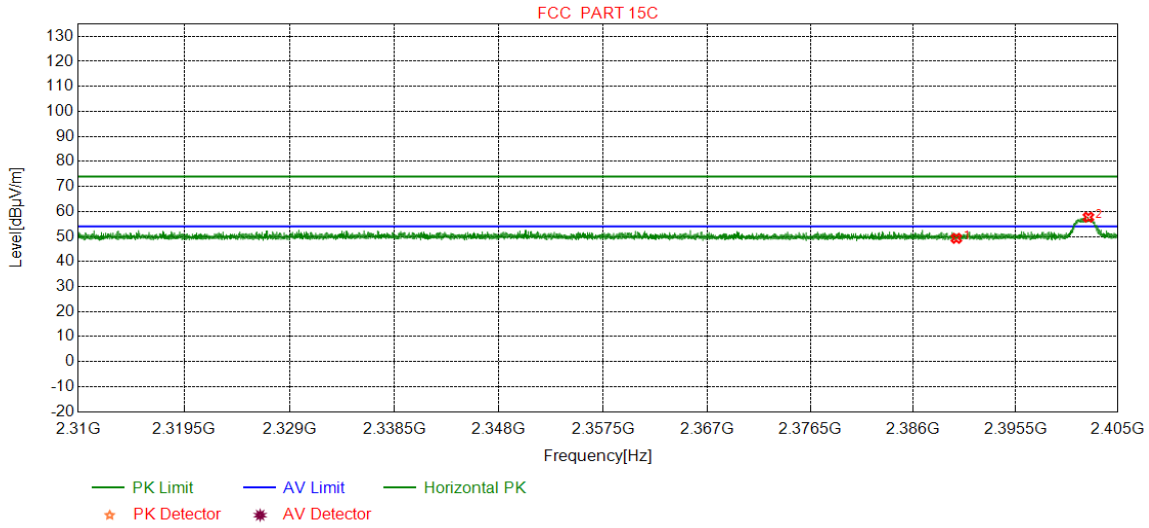
Instruments Used: Refer to section 6 for details

Test Results: Pass

Test plot as follows:

Mode:	GFSK Transmitting	Channel:	2402
Remark:	PK		

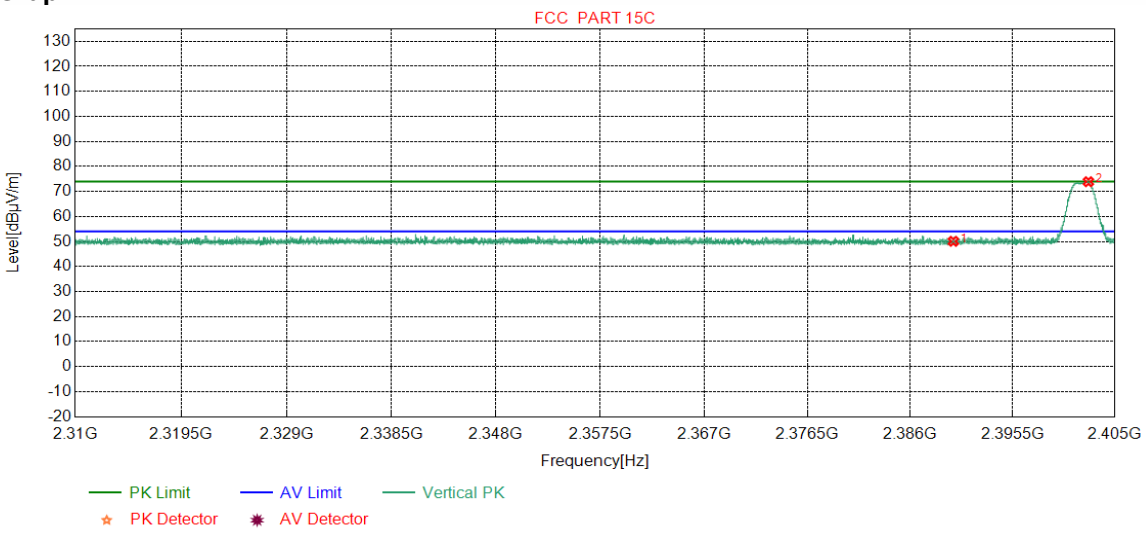
Test Graph



NO	Freq. [MHz]	Ant Factor [dB]	Cable loss [dB]	Pream gain [dB]	Reading [dBµV]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Result	Polarity
1	2390.0000	32.25	13.37	-43.12	46.77	49.27	74.00	24.73	Pass	Horizontal
2	2402.2638	32.26	13.31	-43.12	55.26	57.71	74.00	16.29	Pass	Horizontal

Mode:	GFSK Transmitting	Channel:	2402
Remark:	PK		

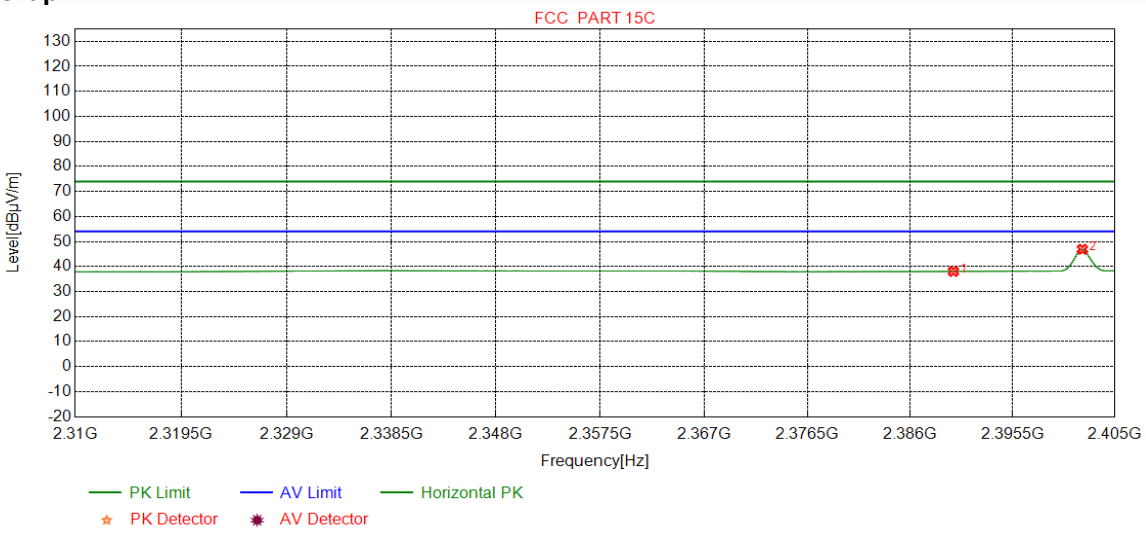
Test Graph



NO	Freq. [MHz]	Ant Factor [dB]	Cable loss [dB]	Preamp gain [dB]	Reading [dBµV]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Result	Polarity
1	2390.0000	32.25	13.37	-43.12	47.57	50.07	74.00	23.93	Pass	Vertical
2	2402.5425	32.26	13.31	-43.11	71.43	73.89	74.00	0.11	Pass	Vertical

Mode:	GFSK Transmitting	Channel:	2402
Remark:	AV		

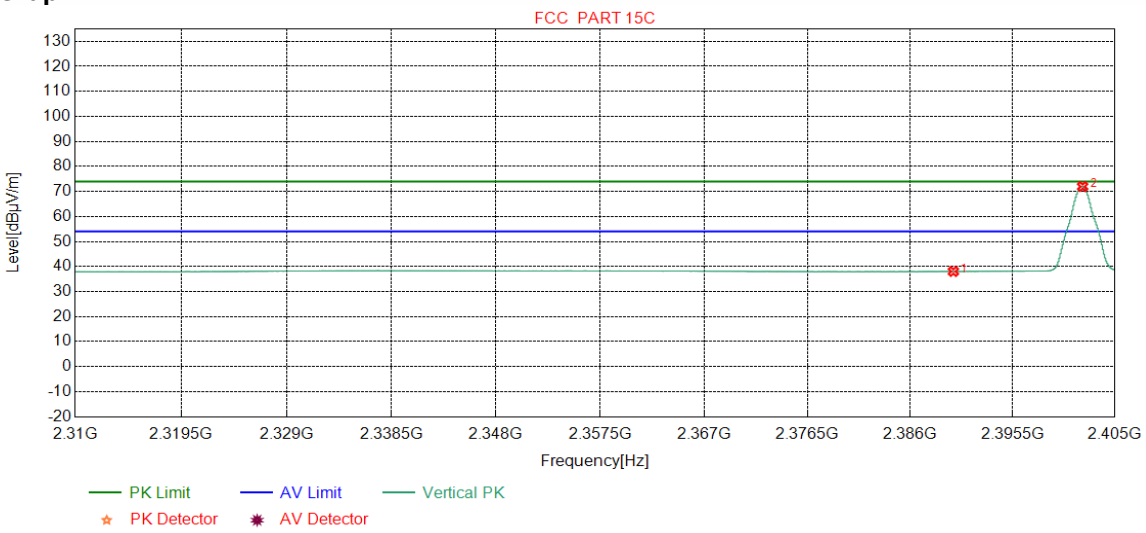
Test Graph



NO	Freq. [MHz]	Ant Factor [dB]	Cable loss [dB]	Pream gain [dB]	Reading [dBµV]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Result	Polarity
1	2390.0000	32.25	13.37	-43.12	35.53	38.03	54.00	15.97	Pass	Horizontal
2	2401.9851	32.26	13.31	-43.12	44.46	46.91	54.00	7.09	Pass	Horizontal

Mode:	GFSK Transmitting	Channel:	2402
Remark:	AV		

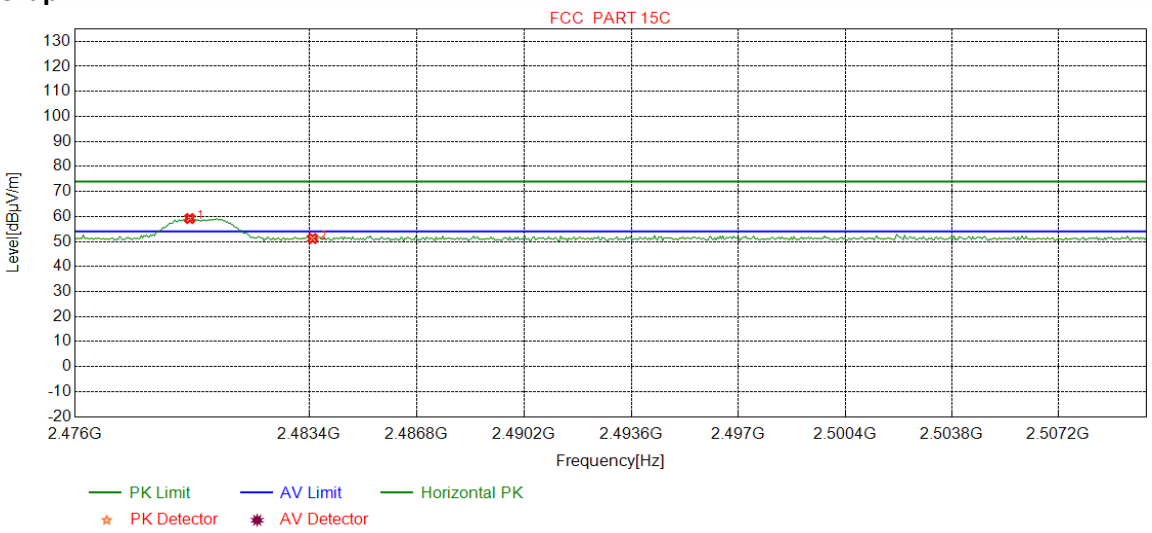
Test Graph



NO	Freq. [MHz]	Ant Factor [dB]	Cable loss [dB]	Pream gain [dB]	Reading [dBµV]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Result	Polarity
1	2390.0000	32.25	13.37	-43.12	35.52	38.02	54.00	15.98	Pass	Vertical
2	2402.0041	32.26	13.31	-43.12	69.51	71.96	54.00	-17.96	Pass	Vertical

Mode:	GFSK Transmitting	Channel:	2480
Remark:	PK		

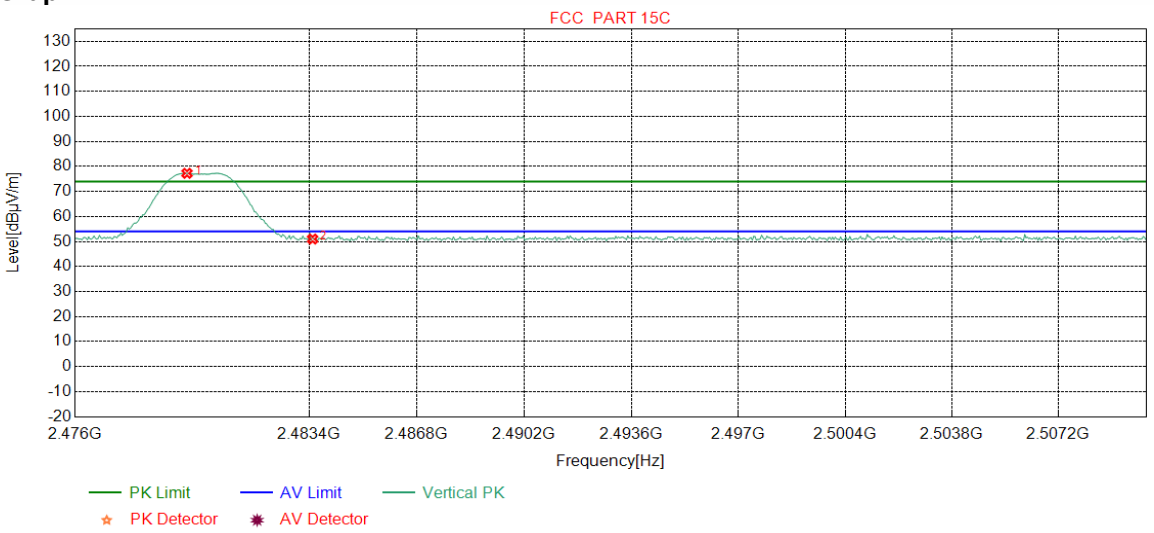
Test Graph



NO	Freq. [MHz]	Ant Factor [dB]	Cable loss [dB]	Pream gain [dB]	Reading [dBµV]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Result	Polarity
1	2479.6170	32.37	13.39	-43.10	56.51	59.17	74.00	14.83	Pass	Horizontal
2	2483.5000	32.38	13.38	-43.11	48.55	51.20	74.00	22.80	Pass	Horizontal

Mode:	GFSK Transmitting	Channel:	2480
Remark:	PK		

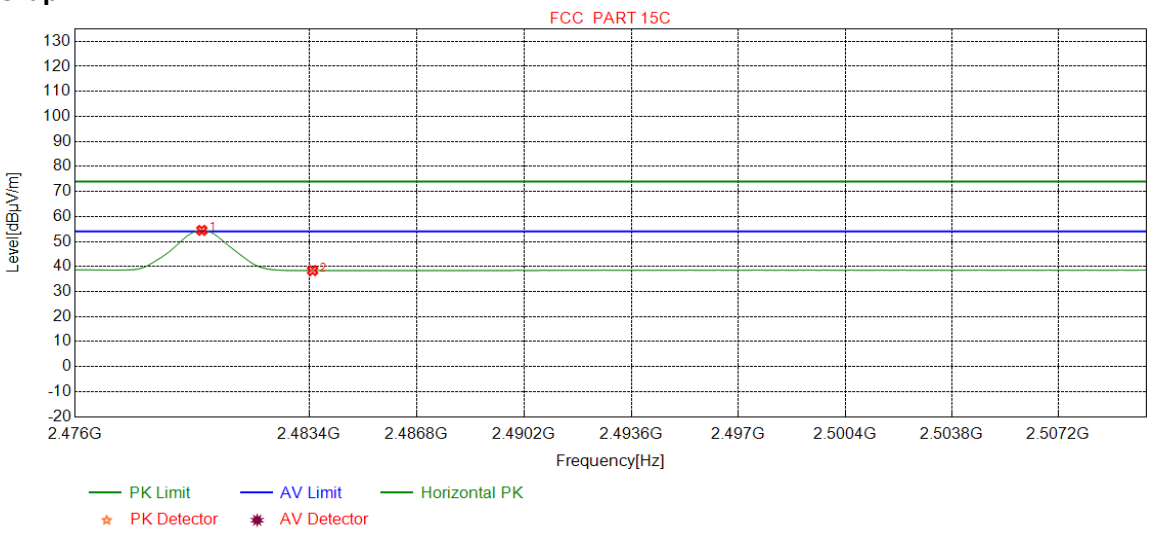
Test Graph



NO	Freq. [MHz]	Ant Factor [dB]	Cable loss [dB]	Pream gain [dB]	Reading [dBμV]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Result	Polarity
1	2479.5319	32.37	13.39	-43.10	74.60	77.26	74.00	-3.26	Pass	Vertical
2	2483.5000	32.38	13.38	-43.11	48.33	50.98	74.00	23.02	Pass	Vertical

Mode:	GFSK Transmitting	Channel:	2480
Remark:	AV		

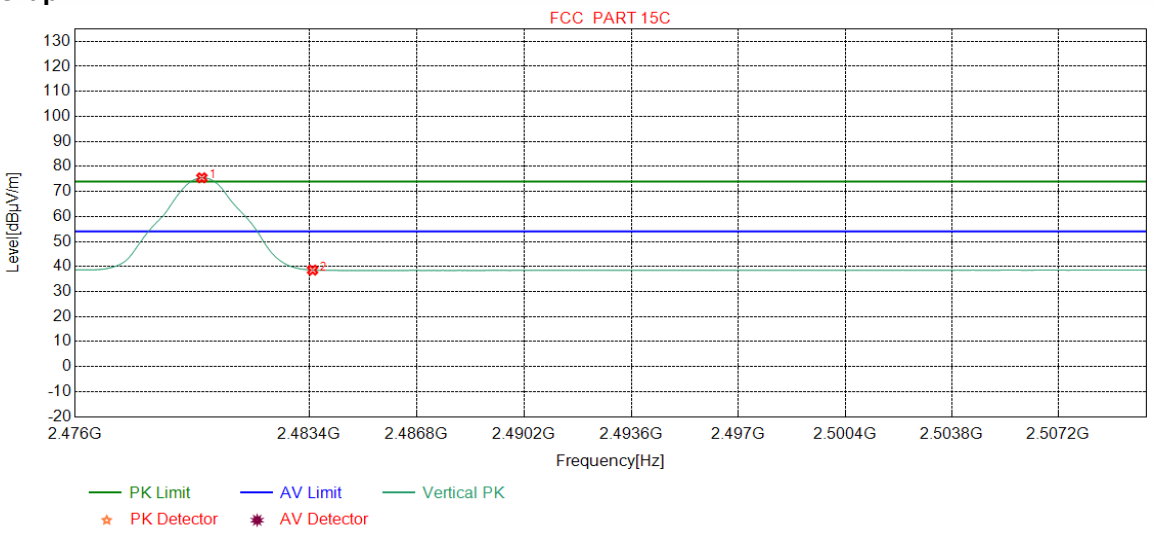
Test Graph



NO	Freq. [MHz]	Ant Factor [dB]	Cable loss [dB]	Pream gain [dB]	Reading [dBµV]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Result	Polarity
1	2480.0000	32.37	13.39	-43.10	51.80	54.46	54.00	-0.46	Pass	Horizontal
2	2483.5000	32.38	13.38	-43.11	35.74	38.39	54.00	15.61	Pass	Horizontal

Mode:	GFSK Transmitting	Channel:	2480
Remark:	AV		

Test Graph



NO	Freq. [MHz]	Ant Factor [dB]	Cable loss [dB]	Pream gain [dB]	Reading [dBμV]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Result	Polarity
1	2480.0000	32.37	13.39	-43.10	72.80	75.46	54.00	-21.46	Pass	Vertical
2	2483.5000	32.38	13.38	-43.11	35.93	38.58	54.00	15.42	Pass	Vertical

Note:

The field strength is calculated by adding the Antenna Factor, Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows:

Final Test Level =Receiver Reading - Correct Factor

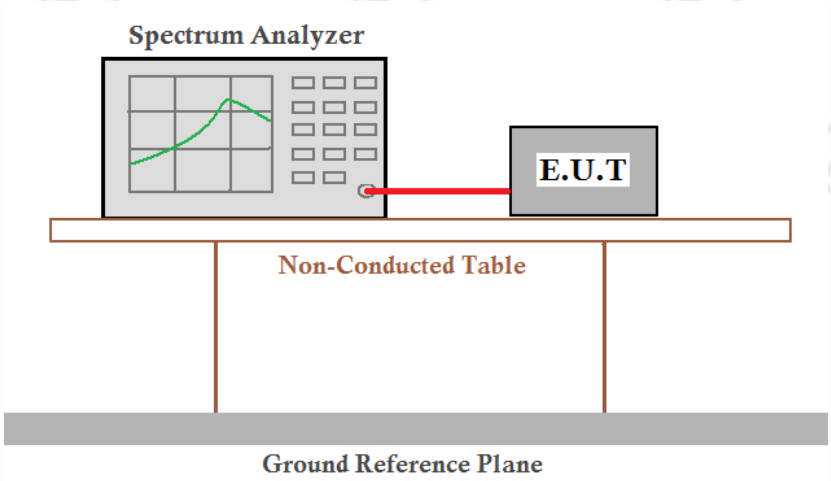
Correct Factor = Preamplifier Factor– Antenna Factor–Cable Factor

6.4 20dB Bandwidth

Test Requirement: 47 CFR Part 15C Section 15.215

Test Method: ANSI C63.10

Test Setup:



Limit: N/A

Exploratory Test Mode: Transmitter mode

Final Test Mode: Transmitter mode

Instruments Used: Refer to section 6 for details

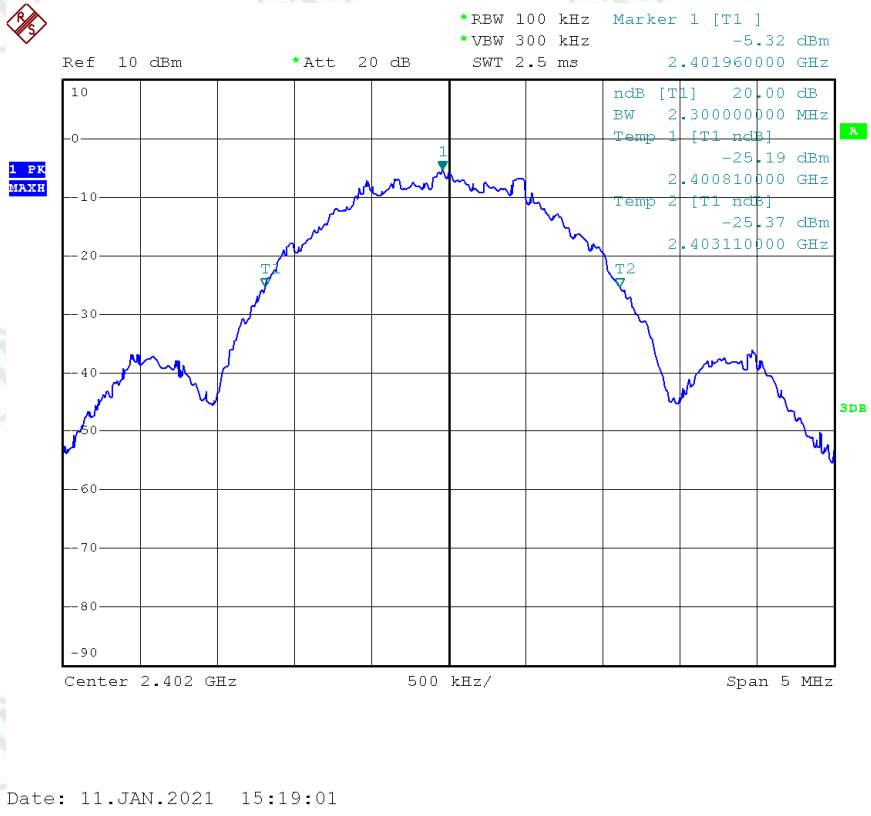
Test Results: Pass

Measurement Data

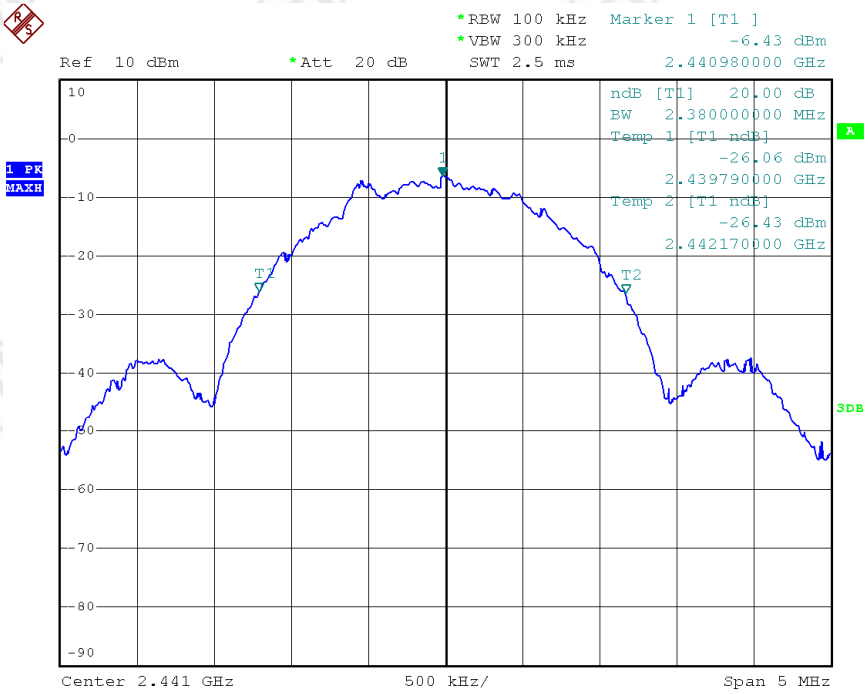
Test Channel	20dB bandwidth (MHz)	Results
Lowest	2.30	Pass
Middle	2.38	Pass
Highest	2.35	Pass

Test plot as follows:

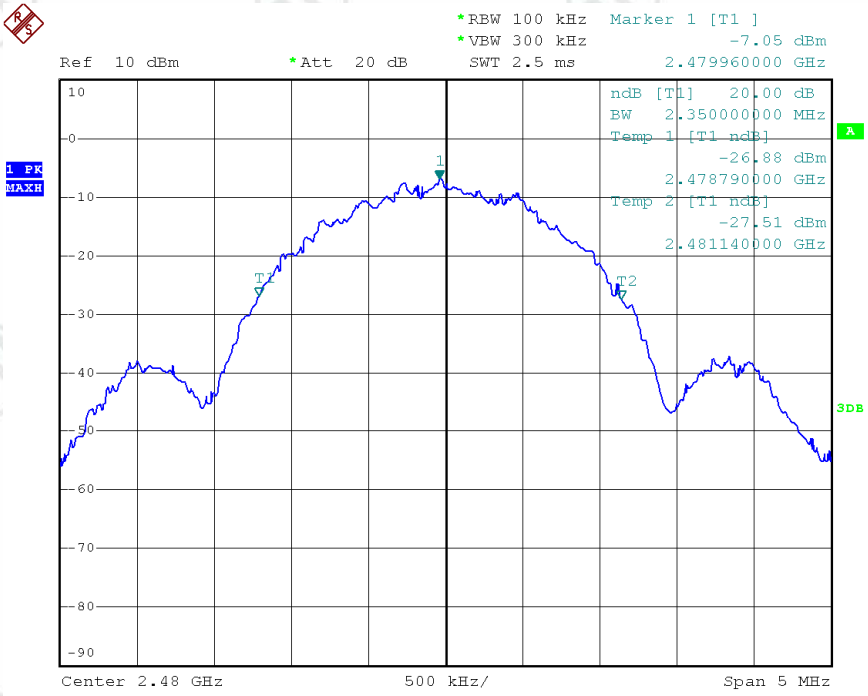
Test channel:2402MHz	Lowest



Test channel:2441MHz	Middle

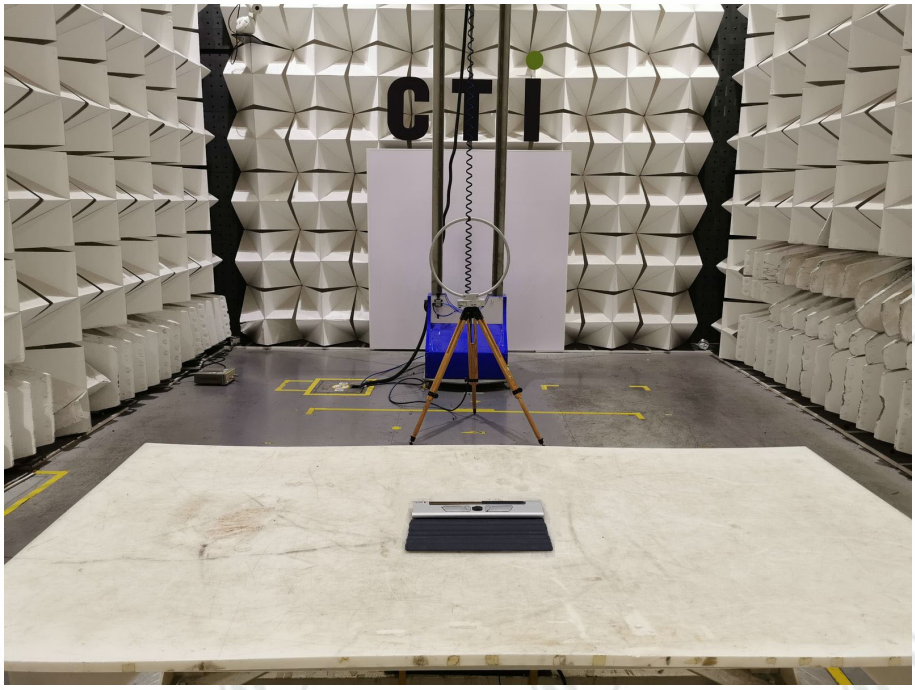


Test channel:2480MHz	Highest



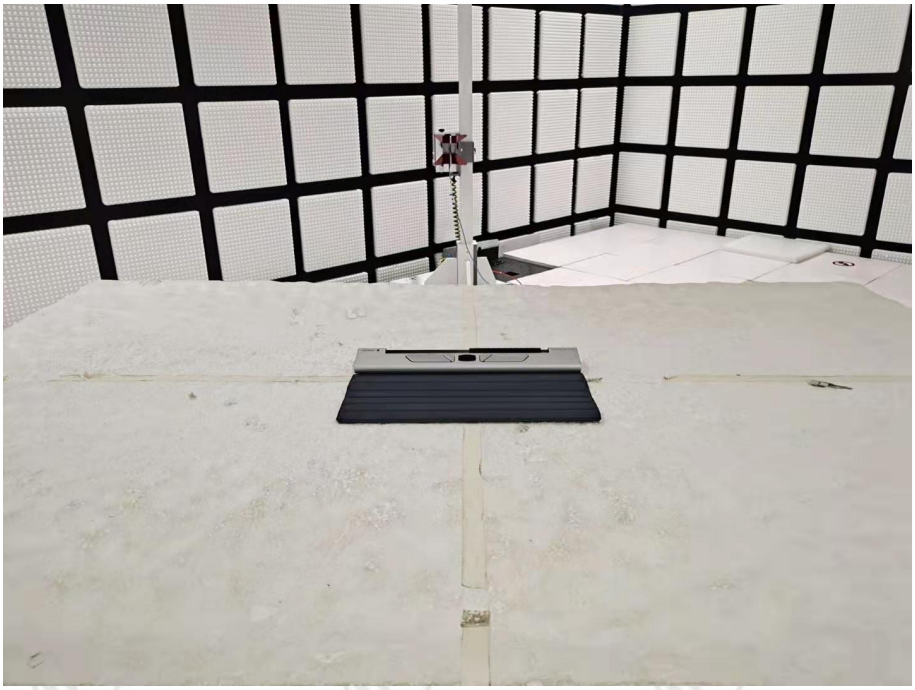
APPENDIX 1 PHOTOGRAPHS OF TEST SETUP

Test Model No.: RM-Mobile

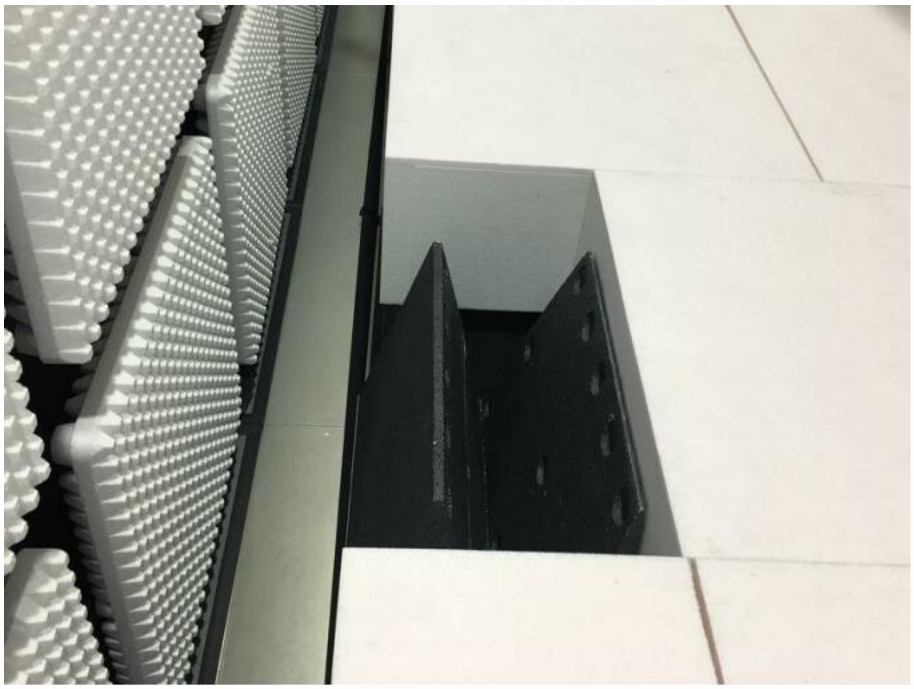


Radiated emission Test Setup-1(Below 30MHz)

Radiated emission Test Setup-2 (Below 1GHz)



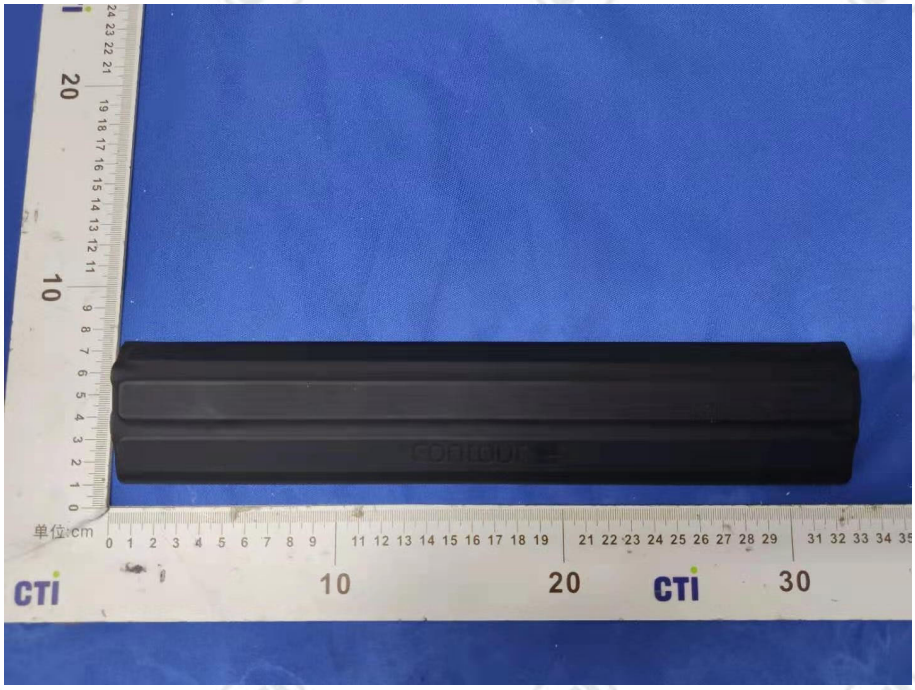
Radiated emission Test Setup-3 (above 1GHz)



Radiated emission Test Setup-4(above 1GHz)
There are absorbing materials under the ground.

APPENDIX 2 PHOTOGRAPHS OF EUT

Test mode No.RM-Mobile



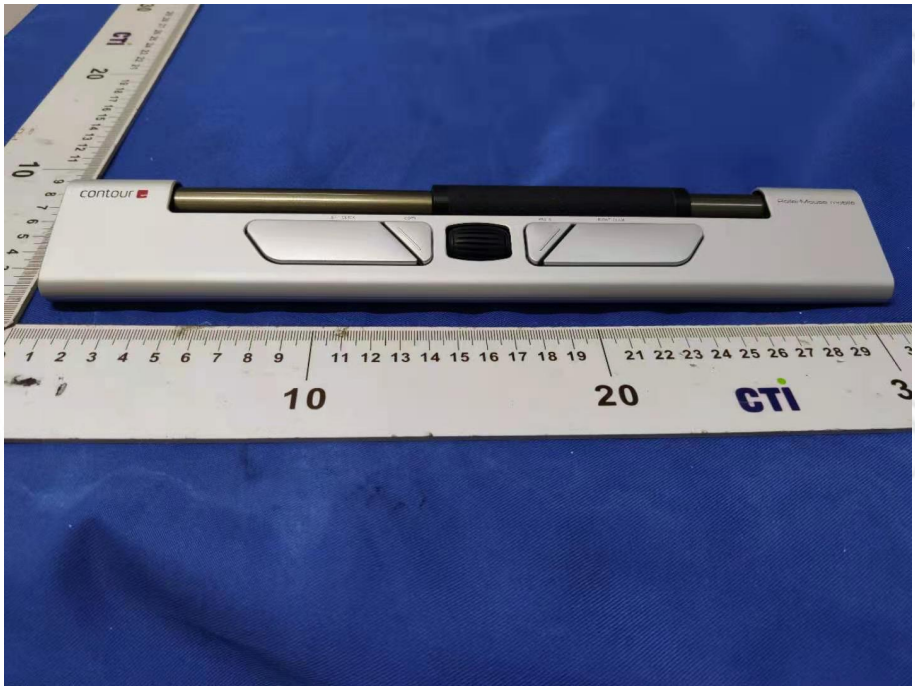
View of Product-1

View of Product-2

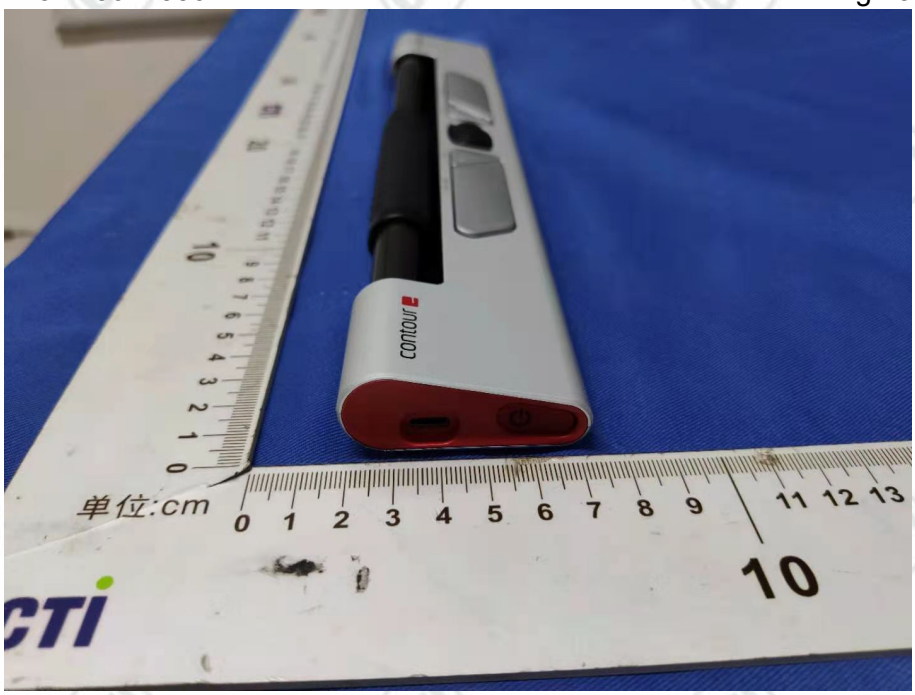
View of Product-3

View of Product-4

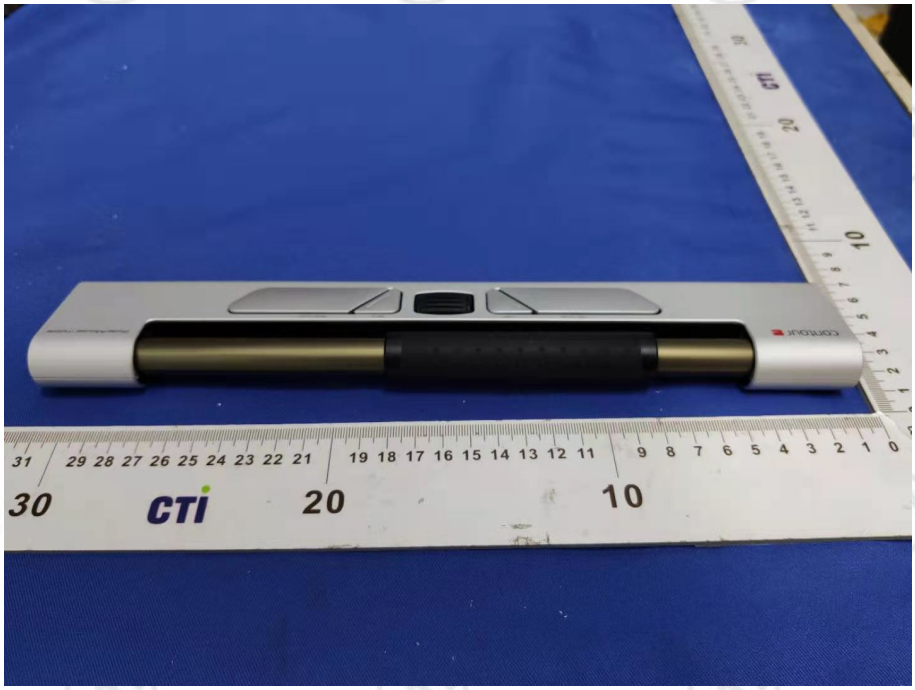
View of Product-5



View of Product-6



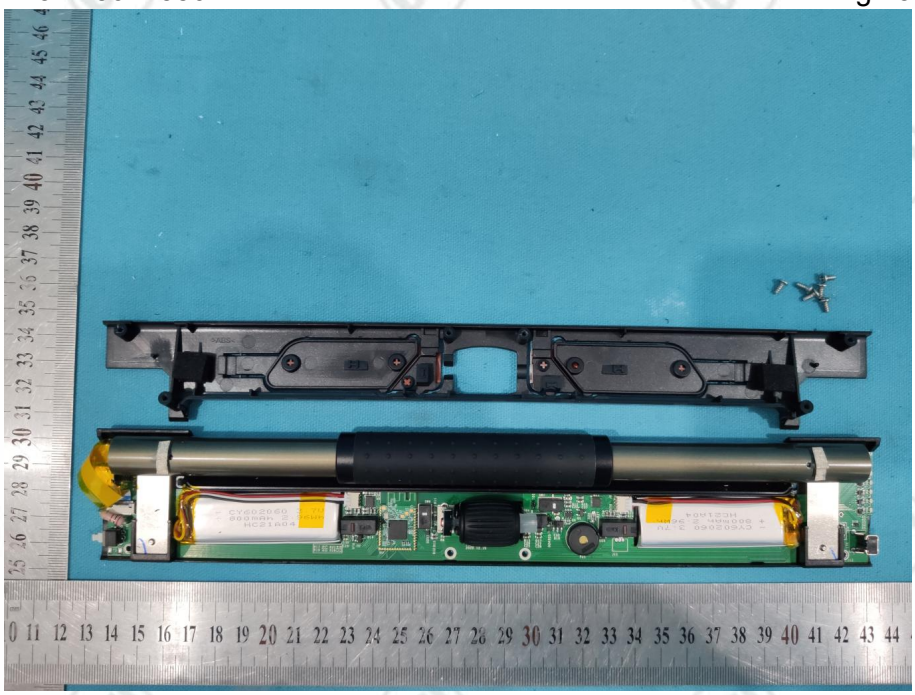
View of Product-7



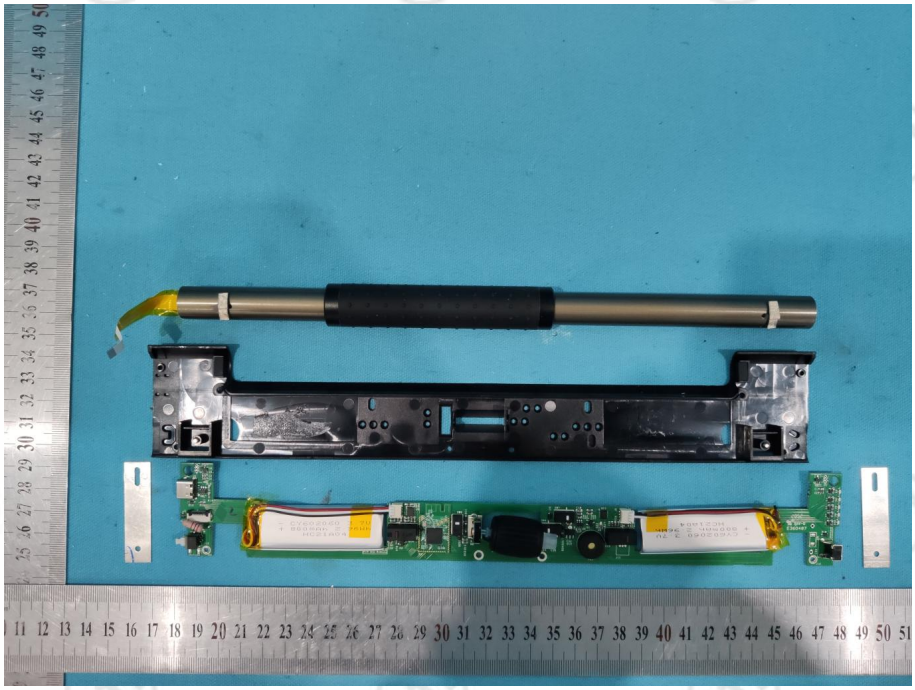
View of Product-8

View of Product-9

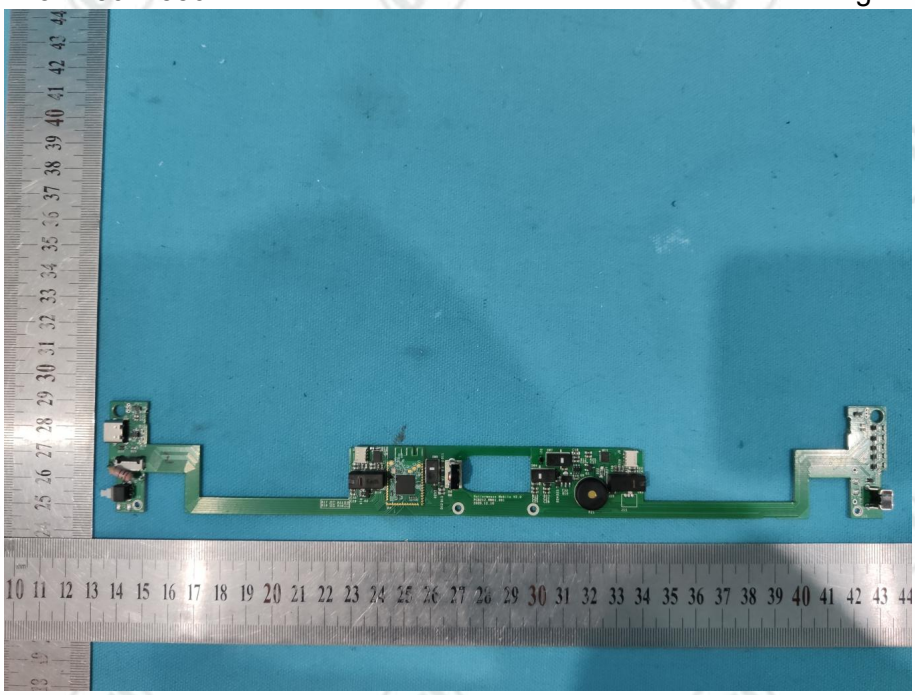
View of Product-10



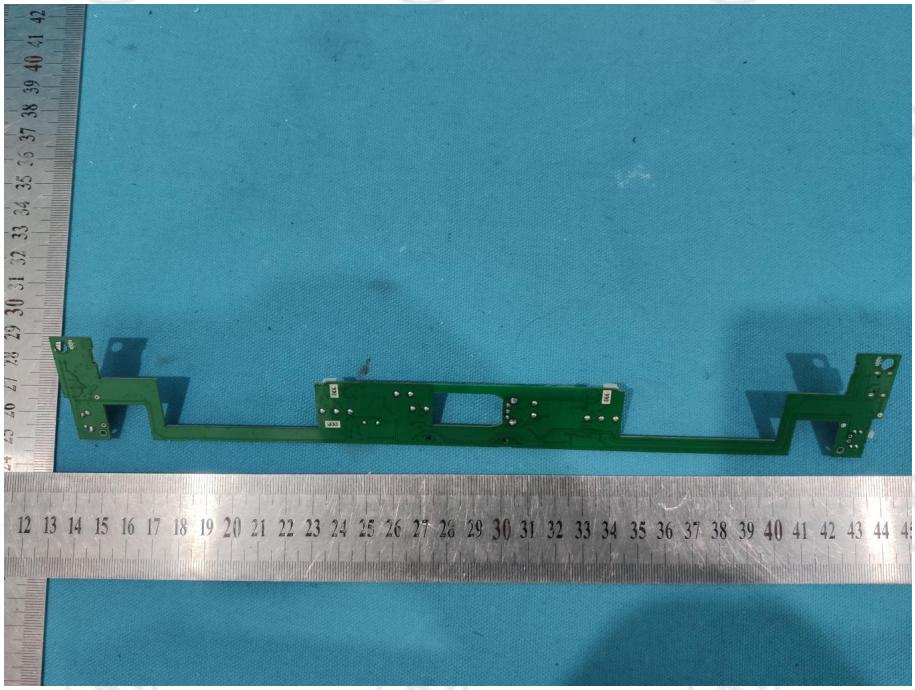
View of Product-11



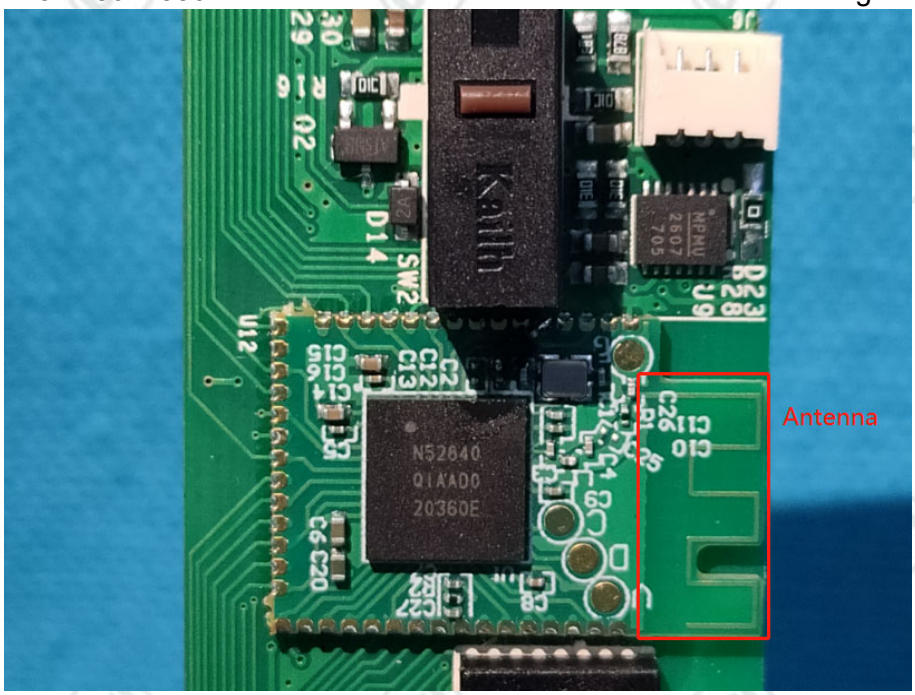
View of Product-12



View of Product-13



View of Product-14



View of Product-15

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*** End of Report ***