Report No.: ET-22040188E

TEST REPORT

Applicant:	Clio Asia Limited
Address of Applicant:	Flat A, 16 Floor, Easy Tower, 609 Tai Nan W St, Cheung Sha Wan, Kowloon, Hong Kong
Manufacturer/Factory:	Foshan Nanhai Raytech Electrical Appliance Company Ltd.
Address of Manufacturer/Factory:	Seven Stars District XiQiao Section, Nanhai Foshan, Guangdong, P.R. China
Product Name:	Remote control
Model No.:	6715
Trade Mark:	plusOne
FCC ID:	2A2W7-6715R
Applicable standards:	FCC CFR Title 47 Part 15 Subpart C Section 15.249
Date of Test:	Apr.25,2022- Apr.28,2022
Date of report issued:	Apr.30,2022
Test Result :	PASS

Remark:

* In the configuration tested, the EUT complied with the standards specified above.

The results shown in this test report refer only to the sample(s) tested, this test report cannot be reproduced, except in full without prior written permission of the company.

The report would be invalid without specific stamp of test institute and the signatures of compiler and approver

Prepared By

Shenzhen ETR Standard Technology Co., Ltd.

Address: No.103, No.10, Phase I, Zone 3, Xinxing Industrial Park, Xinhe, Fuhai Street, Bao'an District, Shenzhen, Guangdong, China

Compiled by:	Reviewed by:	Approved by:
Carr kang	Smith chen	
Project Engineer	Project Manager	Authorized Signature

Report Revision History		
Report No.	Description	Issue Date
ET-22040188E	Original	Apr.30,2022

Contents

Page

1 Test Summary

Test Item	Section in CFR 47	Result	Test by
Antenna requirement	15.203	Pass	Yvan Fan
AC Power Line Conducted Emission	15.207	Pass	Qiao Li
Field strength of the fundamental signal	15.249 (a)	Pass	Yvan Fan
Spurious emissions	15.249 (a) (d)/15.209	Pass	Yvan Fan
Band edge	15.249 (d)/15.205	Pass	Yvan Fan
20dB Occupied Bandwidth 99% Occupied Bandwidth	15.215 (c)	Pass	Yvan Fan

Remarks:

1. Pass: The EUT complies with the essential requirements in the standard.

2. Test according to ANSI C63.10:2013

Measurement Uncertainty

Test Item	Frequency Range	Measurement Uncertainty	Notes
Radiated Emission	30MHz-1000MHz	±4.30 dB	(1)
Radiated Emission	1GHz-18GHz	±4.35 dB	(1)
Radiated Emission	18GHz-40GHz	±4.59 dB	(1)
AC Power Line Conducted Emission	0.15MHz ~ 30MHz	± 3.02 dB	(1)
Occupied Channel Bandwidth	/	±0.55%	(1)
Note (1): The measurement uncertainty is for coverage factor of k=2 and a level of confidence of 95%.			

2 General Information

2.1 General Description of EUT

Product Name:	Remote control
Model No.:	6715
Model of difference:	N/A
Test model:	6715
Sample(s) Status:	Engineer sample
Hardware Version:	N/A
Software Version:	N/A
Operation Frequency:	2479MHz
Channel numbers:	1
Channel separation:	N/A
Modulation type:	GFSK
Antenna Type:	Wire Antenna
Antenna gain:	0dBi Max (Declare by applicant)
Power supply:	DC 3.7V or DC 5V

Operation Frequency each of channel							
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
1	2479 MHz	5	/	9	/	13	/
2	/	6	/	10	/	14	/
3	/	7	/	11	/	15	/
4	/	8	/	12	/	16	/

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	2479 MHz
The middle channel	/
The Highest channel	/

2.2 Test mode

Transmitting mode	Keep the EUT in continuously transmitting mode.
Remark: During the test, the duty cycle >98%, the test voltage was tuned from 85% to 115% of the nominal rated supply voltage, and found that the worst case was under the nominal rated supply condition. So the report just shows that condition's data.	

2.3 Description of Support Units

None.

2.4 Deviation from Standards

None.

2.5 Abnormalities from Standard Conditions

None.

2.6 Test Facility

Test laboratory:	Shenzhen ETR Standard Technology Co., Ltd.
CNAS Registration Number:	L11864
A2LA Certificate Number:	6640.01
FCC Designation Number:	CN1326
FCC Test Firm Registration:	183064

2.7 Test Location

All tests were performed at:	
Laboratory location:	No.103, No.10, Phase I, Zone 3, Xinxing Industrial Park, Xinhe, Fuhai Street, Bao'an District, Shenzhen, Guangdong, China
Telephone:	+86 755 85259392
Fax:	+86 755 27219460

2.8 Additional Instructions

Test Software	N/A
Power level setup	Default

3 Test Instruments list

Item	Equipment name	Manufacturer	Model	Serial No.	Calibration date	Due date
1	EMI Test Receiver	Rohde&schwarz	ESPI7	100605	2022.3.09	2023.3.08
2	EMI Test Receiver	Rohde&schwarz	ESCI3	102696	2022.3.09	2023.3.08
3	Broadband antenna	schwarabeck	VULB9168	1064	2022.3.11	2024.3.10
4	Horn antenna	schwarabeck	BBHA9120D	9120D-1145	2022.3.09	2023.3.08
5	amplifier	EMtrace	RP01A	50117	2022.3.09	2023.3.08
6	Artificial power network	schwarabeck	NSLK8127	8127483	2022.3.09	2023.3.08
	Artificial power network	ETS	3186/2NM	1132	2022.3.09	2023.3.08
7	10dB attenuator	HUBER+SUHNER	10dB	/	2022.3.09	2023.3.08
8	amplifier	Space-Dtronics	EWLAN0118G-P40	19113001	2022.3.09	2023.3.08
9	Spectrum analyzer	KEYSIGHT	N9020A	MY55370280	2022.3.09	2023.3.08
10	Power detector box	MWRFtest	MW100-PSB	MW201020JYT	2021.11.19	2022.11.18

Note: the calibration interval of the above test instruments is 12 or 24 months and the calibrations are traceable to international system unit (SI).

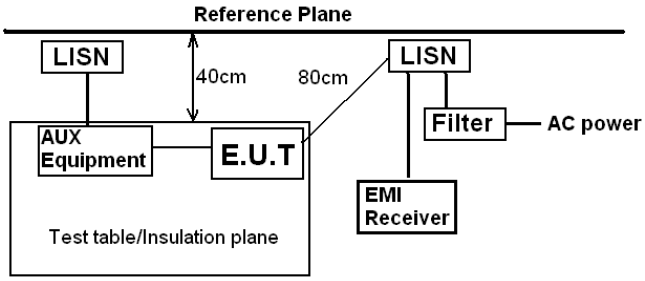
Software Name	Manufacturer	Model	Version
RF test software	MWRFtest	MTS 8310	V2.0.0.0
Conducted test software	EZ-EMC	Farad	Ver.EMC-CON 3A1.1
Radiated test software	EZ-EMC	Farad	Ver.FA-03A2 RE

4 Test results and Measurement Data

4.1 Antenna requirement

Standard requirement:
FCC part 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.
RSS-Gen 6.8: The applicant for equipment certification shall provide a list of all antenna types that may be used with the transmitter, where applicable (i.e. for transmitters with detachable antenna), indicating the maximum permissible antenna gain (in dBi) and the required impedance for each antenna. The test report shall demonstrate the compliance of the transmitter with the limit for maximum equivalent isotropically radiated power (e.i.r.p.) specified in the applicable RSS, when the transmitter is equipped with any antenna type, selected from this list. For expediting the testing, measurements may be performed using only the antenna with highest gain of each combination of transmitter and antenna type, with the transmitter output power set at the maximum level. However, the transmitter shall comply with the applicable requirements under all operational conditions and when in combination with any type of antenna from the list provided in the test report (and in the notice to be included in the user manual, provided below).
EUT Antenna:
The antenna is Wire antenna, the best case gain of the antenna is0dBi Max, reference to the appendix II for details.

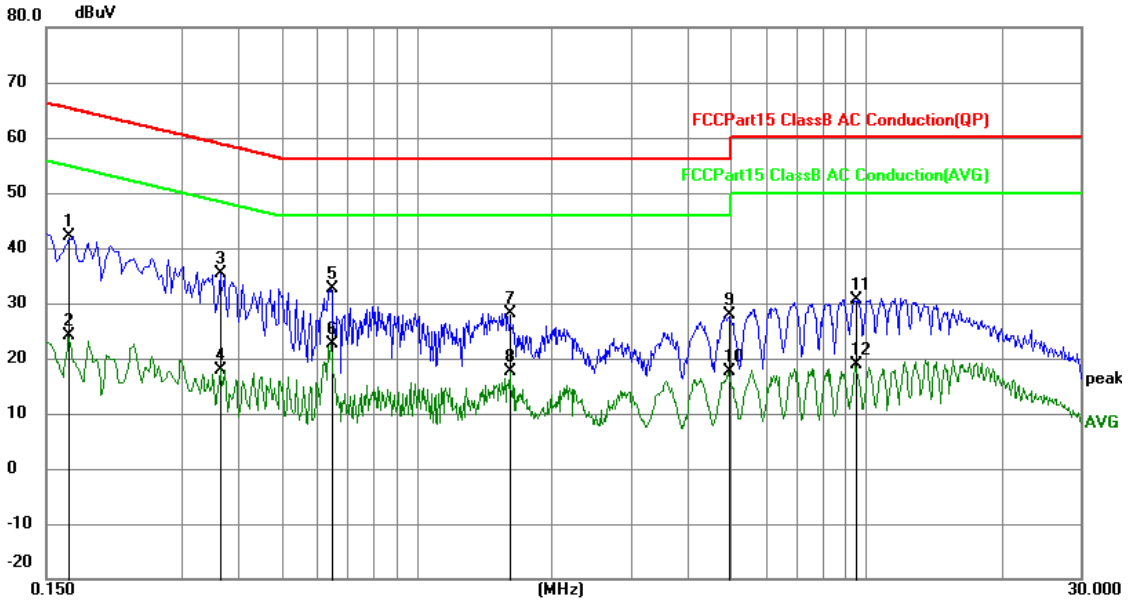
4.2 Conducted Emissions

<table>
<tr><td>Test Requirement:</td><td colspan="6">FCC Part15 C Section 15.207,</td></tr>
<tr><td>Test Method:</td><td colspan="6">ANSI C63.10:2013</td></tr>
<tr><td>Test Frequency Range:</td><td colspan="6">150KHz to 30MHz</td></tr>
<tr><td>Class / Severity:</td><td colspan="6">Class B</td></tr>
<tr><td>Receiver setup:</td><td colspan="6">RBW=9KHz, VBW=30KHz, Sweep time=auto</td></tr>
<tr><td>Limit:</td><td colspan="6">
<table>
<tr><td rowspan="2">Frequency range (MHz)</td><td colspan="2">Limit (dBuV)</td></tr>
<tr><td>Quasi-peak</td><td>Average</td></tr>
<tr><td>0.15-0.5</td><td>66 to 56*</td><td>56 to 46*</td></tr>
<tr><td>0.5-5</td><td>56</td><td>46</td></tr>
<tr><td>5-30</td><td>60</td><td>50</td></tr>
</table>
* Decreases with the logarithm of the frequency.
</td></tr>
<tr><td>Test setup:</td><td colspan="6"> 

Remark:
E.U.T: Equipment Under Test
LISN: Line Impedence Stabilization Network
Test table height=0.8m</td></tr>
<tr><td>Test procedure:</td><td colspan="6">1. The E.U.T and simulators are connected to the main power through a line impedance stabilization network (L.I.S.N.). This provides a 50ohm/50uH coupling impedance for the measuring equipment.
2. The peripheral devices are also connected to the main power through a LISN that provides a 50ohm/50uH coupling impedance with 50ohm termination. (Please refer to the block diagram of the test setup and photographs).
3. Both sides of A.C. line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.10:2013 on conducted measurement.</td></tr>
<tr><td>Test Instruments:</td><td colspan="6">Refer to section 6.0 for details</td></tr>
<tr><td>Test mode:</td><td colspan="6">Refer to section 5.2 for details</td></tr>
<tr><td>Test environment:</td><td>Temp.:</td><td>24.9 °C</td><td>Humid.:</td><td>55%</td><td>Press.:</td><td>1012mbar</td></tr>
<tr><td>Test voltage:</td><td colspan="6">AC 120V/60Hz</td></tr>
</table>

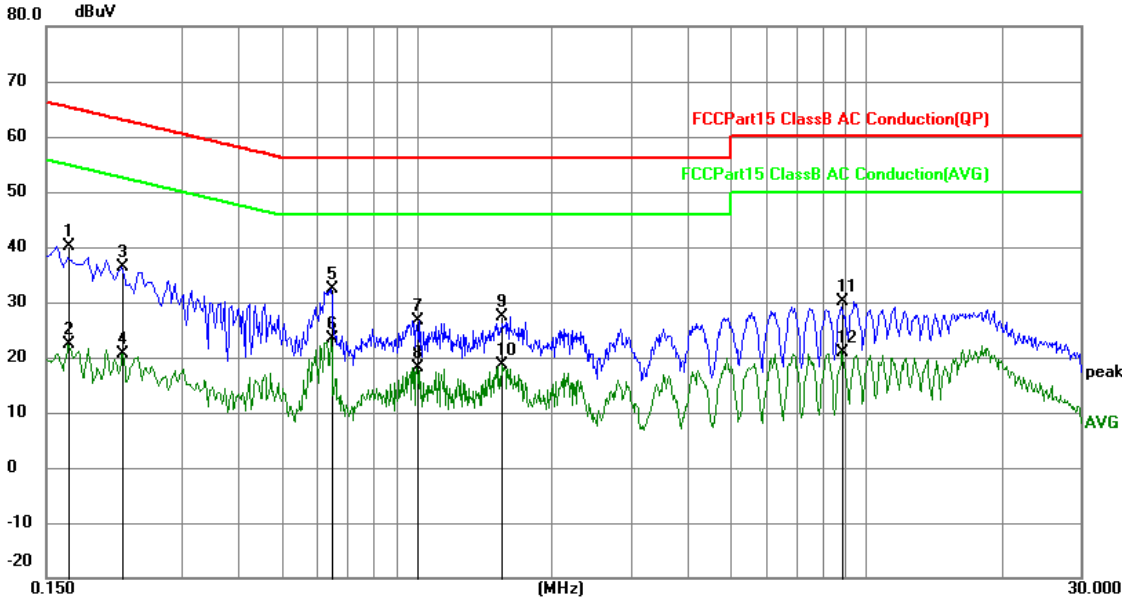
Measurement data

Line:



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1	0.1680	29.64	12.48	42.12	65.06	-22.94	QP
2	0.1680	11.53	12.48	24.01	55.06	-31.05	AVG
3	0.3660	22.99	12.38	35.37	58.59	-23.22	QP
4	0.3660	5.62	12.38	18.00	48.59	-30.59	AVG
5	0.6450	20.22	12.34	32.56	56.00	-23.44	QP
6	0.6450	10.30	12.34	22.64	46.00	-23.36	AVG
7	1.6169	15.93	12.30	28.23	56.00	-27.77	QP
8	1.6169	5.28	12.30	17.58	46.00	-28.42	AVG
9	4.9335	15.51	12.34	27.85	56.00	-28.15	QP
10	4.9335	5.29	12.34	17.63	46.00	-28.37	AVG
11	9.5010	18.32	12.39	30.71	60.00	-29.29	QP
12	9.5010	6.47	12.39	18.86	50.00	-31.14	AVG

Neutral:



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1	0.1680	27.64	12.48	40.12	65.06	-24.94	QP
2	0.1680	9.83	12.48	22.31	55.06	-32.75	AVG
3	0.2220	24.02	12.44	36.46	62.74	-26.28	QP
4	0.2220	8.19	12.44	20.63	52.74	-32.11	AVG
5	0.6450	20.07	12.34	32.41	56.00	-23.59	QP
6	0.6450	11.14	12.34	23.48	46.00	-22.52	AVG
7	1.0005	14.44	12.29	26.73	56.00	-29.27	QP
8	1.0005	5.89	12.29	18.18	46.00	-27.82	AVG
9	1.5450	15.17	12.30	27.47	56.00	-28.53	QP
10	1.5450	6.23	12.30	18.53	46.00	-27.47	AVG
11	8.8620	17.79	12.39	30.18	60.00	-29.82	QP
12	8.8620	8.61	12.39	21.00	50.00	-29.00	AVG

Notes:

1. *An initial pre-scan was performed on the line and neutral lines with peak detector.*
2. *Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission.*
3. *Final Level =Receiver Read level + LISN Factor + Cable Loss*
4. *If the average limit is met when using a quasi-peak detector receiver, the EUT shall be deemed to meet both limits and measurement with the average detector receiver is unnecessary.*

4.3 Radiated Emission measurement

Test Requirement:	FCC Part15 C Section 15.209 & 15.249 (a) &(d). RSS-210 B10(a)& RSS-210 B10(b)& RSS-Gen Clause 8.9&8.10
Test Method:	ANSI C63.10: 2013 & RSS-Gen
Test Frequency Range:	9kHz to 25GHz
Test site:	Measurement Distance: 3m

Receiver setup:

Frequency	Detector	RBW	VBW	Remark
9kHz-150kHz	Quasi-peak	200Hz	300Hz	Quasi-peak Value
150kHz-30MHz	Quasi-peak	9kHz	10kHz	Quasi-peak Value
30MHz-1GHz	Quasi-peak	120KHz	300KHz	Quasi-peak Value
Above 1GHz	Peak	1MHz	3MHz	Peak Value
	Peak	1MHz	10Hz	Average Value

Limit:
(Field strength of the fundamental signal)

Frequency	Limit (dBuV/m @3m)	Remark
2400MHz-2483.5MHz	94.00	Average Value
	114.00	Peak Value

Limit:
(Spurious Emissions)

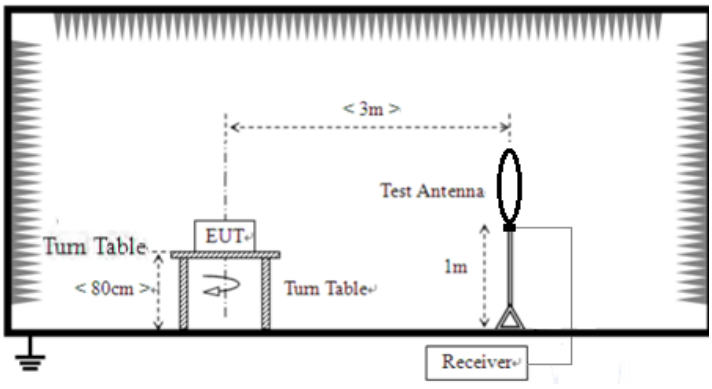
Frequency	Limit (uV/m)	Remark
0.009MHz-0.490MHz	2400/F(kHz) @300m	Quasi-peak Value
0.490MHz-1.705MHz	24000/F(kHz) @30m	Quasi-peak Value
1.705MHz-30.0MHz	30 @30m	Quasi-peak Value
30MHz-88MHz	100 @3m	Quasi-peak Value
88MHz-216MHz	150 @3m	Quasi-peak Value
216MHz-960MHz	200 @3m	Quasi-peak Value
960MHz-1GHz	500 @3m	Quasi-peak Value
Above 1GHz	500 @3m	Average Value
	5000 @3m	Peak Value

Limit:
(band edge)

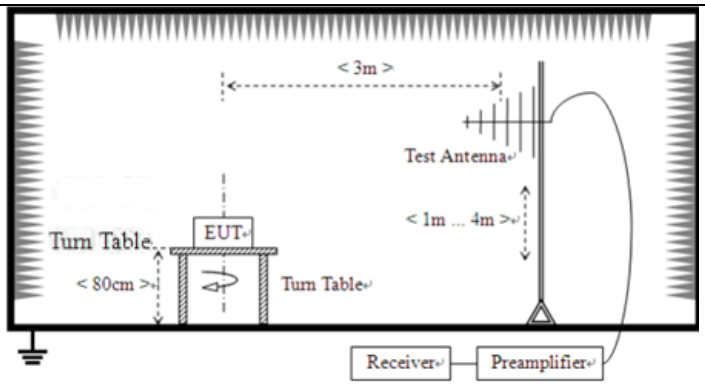
Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits in Section 15.209, whichever is the lesser attenuation.

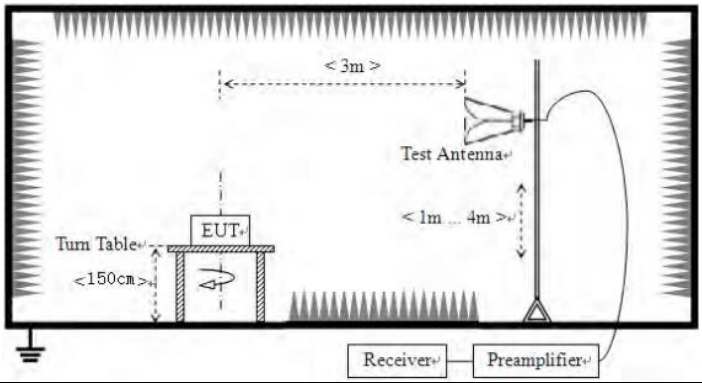
Test setup:

For radiated emissions from 9kHz to 30MHz



For radiated emissions from 30MHz to1GHz

<table>
<tr><td></td><td> 

For radiated emissions above 1GHz

</td></tr>
<tr><td>Test Procedure:</td><td>1. The EUT was placed on the top of a rotating table (0.8m for below 1GHz and 1.5 meters for above 1GHz) above the ground at a 3 meter camber. The table was rotated 360 degrees to determine the position of the highest radiation.
2. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
3. 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.
4. 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 and the rota table was turned from 0 degrees to 360 degrees to find the maximum reading.
5. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
6. 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.</td></tr>
<tr><td>Test Instruments:</td><td>Refer to section 6.0 for details</td></tr>
<tr><td>Test mode:</td><td>Refer to section 5.2 for details</td></tr>
<tr><td>Test environment:</td><td>Temp.: 25.6 °C Humid.: 55% Press.: 1012mbar</td></tr>
<tr><td>Test voltage:</td><td>DC3.7V</td></tr>
<tr><td>Test results:</td><td>Pass</td></tr>
</table>

4.3.1 Field Strength of The Fundamental Signal

Frequency (MHz)	Read Level (dBuV/m)	Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Detector	polarization
2479.00	112.92	-14.13	98.79	114	-15.21	Peak	Vertical
2479.00	105.17	-14.13	91.04	114	-22.96	Peak	Horizontal
2479.00	95.85	-14.13	81.72	94	-12.28	AV	Vertical
2479.00	88.02	-14.13	73.89	94	-20.11	AV	Horizontal

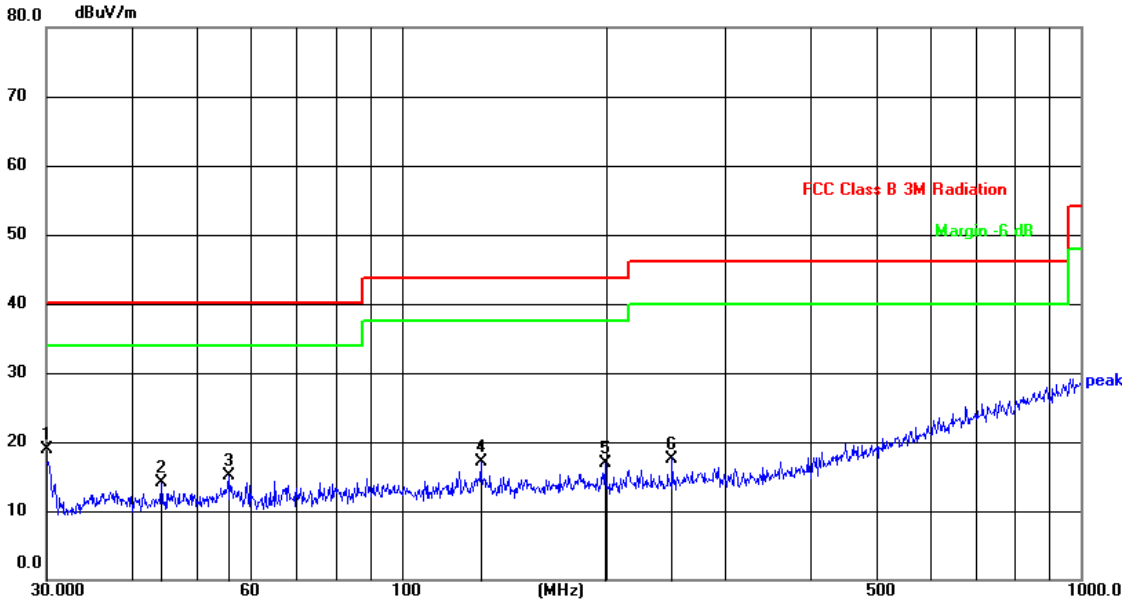
4.3.2 Spurious emissions

■ **Below 30MHz**

The emission from 9 kHz to 30MHz was pre-tested and found the result was 20dB lower than the limit, and according to 15.31(o) & RSS-Gen 6.13, the test result no need to reported.

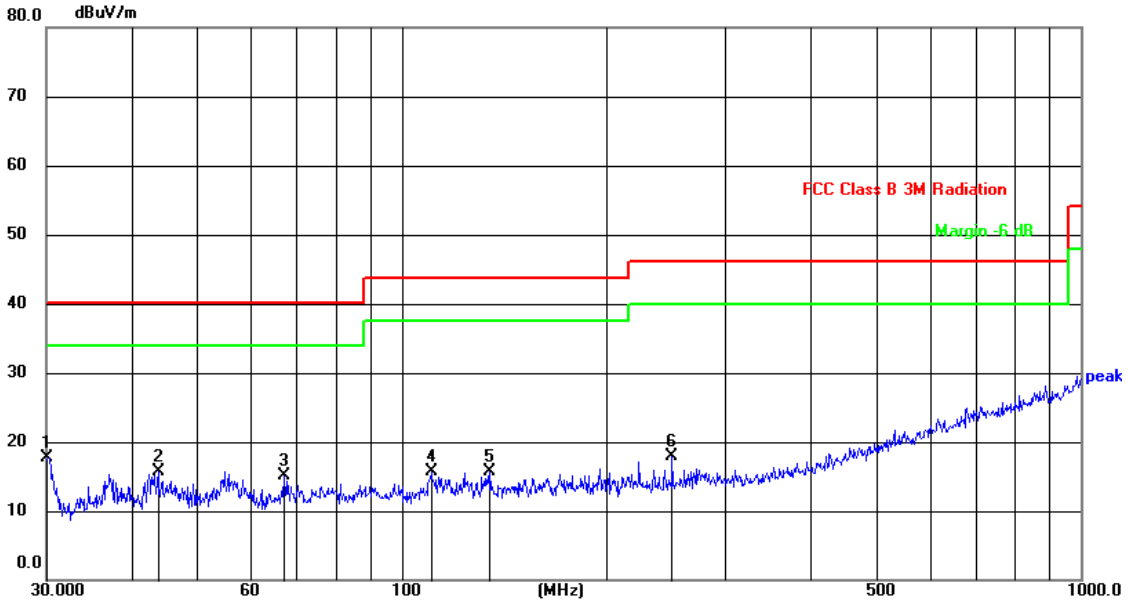
■ **Below 1GHz**

Horizontal:



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	30.0000	40.47	-21.52	18.95	40.00	-21.05	QP
2	44.2751	35.01	-20.90	14.11	40.00	-25.89	QP
3	55.6092	35.97	-20.88	15.09	40.00	-24.91	QP
4	130.8369	35.95	-18.93	17.02	43.50	-26.48	QP
5	199.2855	35.44	-18.52	16.92	43.50	-26.58	QP
6	250.3010	35.80	-18.20	17.60	46.00	-28.40	QP

Vertical:



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	30.0000	39.25	-21.52	17.73	40.00	-22.27	QP
2	43.8119	36.50	-20.86	15.64	40.00	-24.36	QP
3	67.2021	35.78	-20.60	15.18	40.00	-24.82	QP
4	110.5686	35.57	-19.79	15.78	43.50	-27.72	QP
5	135.0318	34.73	-18.96	15.77	43.50	-27.73	QP
6	250.3010	36.18	-18.20	17.98	46.00	-28.02	QP

■ **Above 1GHz**

Peak value:

Frequency (MHz)	Read Level (dBuV/m)	Correction Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
4958.00	61.44	-9.68	51.76	74	-22.24	Horizontal
7437.00	50.70	-3.50	47.20	74	-26.80	Horizontal
9916.00	47.46	-1.80	45.66	74	-28.34	Horizontal
12395.00	---	---	---	---	---	Horizontal
4958.00	57.97	-9.68	48.29	74	-25.71	Vertical
7437.00	50.28	-3.50	46.78	74	-27.22	Vertical
9916.00	49.53	-1.80	47.73	74	-26.27	Vertical
12395.00	---	---	---	---	---	Vertical

Average value:

Frequency (MHz)	Read Level (dBuV/m)	Correction Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
4958.00	52.39	-9.68	42.71	54	-11.29	Horizontal
7437.00	41.31	-3.50	37.81	54	-16.19	Horizontal
9916.00	43.74	-1.80	41.94	54	-12.06	Horizontal
12395.00	---	---	---	---	---	Horizontal
4958.00	45.47	-9.68	35.79	54	-18.21	Vertical
7437.00	45.72	-3.50	42.22	54	-11.78	Vertical
9916.00	46.94	-1.80	45.14	54	-8.86	Vertical
12395.00	---	---	---	---	---	Vertical

Remark:

1. *Final Level =Receiver Read level +Correction Factor(Antenna Factor + Cable Loss – Preamplifier Factor)*
2. *The emission levels of other frequencies are more than 20 dB below the limit and not show in test report.*
3. *"*", means this data is the too weak instrument of signal is unable to test.*

4.3.3 Bandedge emissions

All of the restriction bands were tested, and only the data of worst case was exhibited.

Test channel:	Lowest channel

Peak value:

Frequency (MHz)	Read Level (dBuV/m)	Correction Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
2390.00	57.56	-14.50	43.06	74	-30.94	Horizontal
2400.00	57.01	-14.45	42.56	74	-31.44	Horizontal
2390.00	56.64	-14.50	42.14	74	-31.86	Vertical
2400.00	58.16	-14.45	43.71	74	-30.29	Vertical

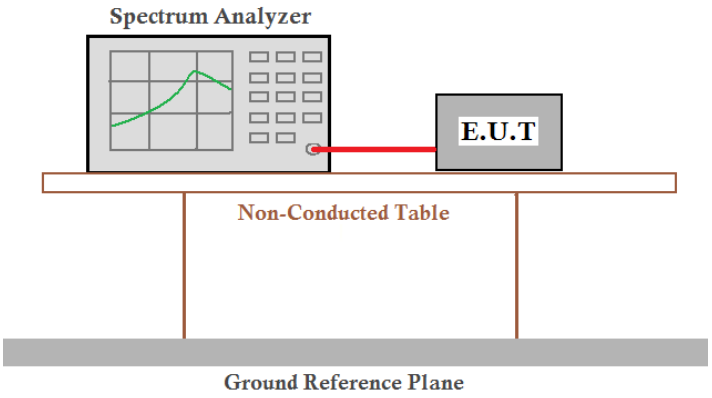
Average value:

Frequency (MHz)	Read Level (dBuV/m)	Correction Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
2390.00	47.01	-14.50	32.51	54	-21.49	Horizontal
2400.00	47.37	-14.45	32.92	54	-21.08	Horizontal
2390.00	47.53	-14.50	33.03	54	-20.97	Vertical
2400.00	47.30	-14.45	32.85	54	-21.15	Vertical

Remark:

1. *Final Level =Receiver Read level +Correction Factor(Antenna Factor + Cable Loss – Preamplifier Factor)*

4.4 20dB Bandwidth and 99% bandwidth

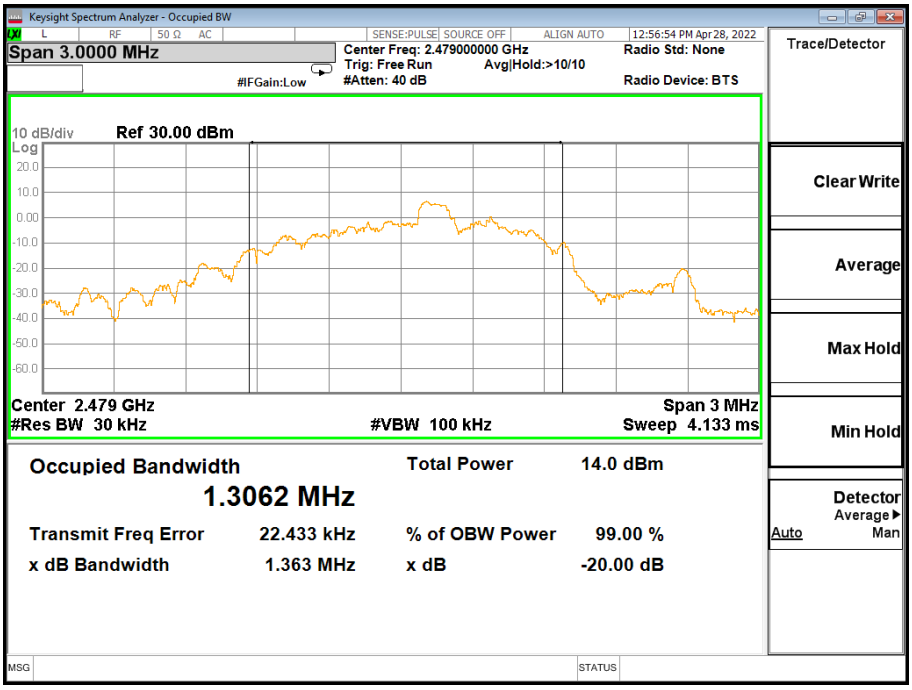
Test Requirement:	FCC Part15 C Section 15.215 RSS-Gen Section 6.7					
Test Method:	ANSI C63.10:2013 and RSS-Gen					
Limit:	Operation Frequency range 2400MHz~2483.5MHz					
Test setup:						
Test Instruments:	Refer to section 6.0 for details					
Test mode:	Refer to section 5.2 for details					
Test environment:	Temp.:	25.6 °C	Humid.:	55%	Press.:	1012mbar
Test voltage:	DC 3.7V					
Test Mode:	TX					

Measurement Data

Test channel	20dB bandwidth(MHz)	Result
2479MHz	1.363	Pass

Test channel	99% bandwidth(MHz)	Result
2479MHz	1.3062	Pass

Test plot as follows:


Keysight Spectrum Analyzer - Occupied BW
RF
50 Ω AC
SENSE:PULSE
SOURCE OFF
ALIGN AUTO
12:56:54 PM Apr 28, 2022
Span 3.0000 MHz
#IFGain:Low
Center Freq: 2.479000000 GHz
Trig: Free Run
Avg|Hold:>10/10
#Atten: 40 dB
Radio Std: None
Radio Device: BTS
Trace/Detector
10 dB/div
Log
Ref 30.00 dBm
20.0
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
Center 2.479 GHz
#Res BW 30 kHz
#VBW 100 kHz
Span 3 MHz
Sweep 4.133 ms
Occupied Bandwidth
1.3062 MHz
Total Power 14.0 dBm
Transmit Freq Error 22.433 kHz
% of OBW Power 99.00 %
x dB Bandwidth 1.363 MHz
x dB -20.00 dB
Clear Write
Average
Max Hold
Min Hold
Detector
Average
Auto
Man
MSG
STATUS

5 Test Setup Photo

Reference to the **appendix I** for details.

6 EUT Constructional Details

Reference to the **appendix II** for details.

------End------