



TEST REPORT

Applicant: Jingheng Tengwei (Huizhou) Electronic Technology Co., Ltd.
Address of Applicant: No. 8 Minying 1 Road, Yuanzhou Town, Boluo County, Huizhou City, Guangdong Province, China
Manufacturer/Factory: Jingheng Tengwei (Huizhou) Electronic Technology Co., Ltd.
Address of Manufacturer/Factory: No. 8 Minying 1 Road, Yuanzhou Town, Boluo County, Huizhou City, Guangdong Province, China
Product Name: Mechanical keyboard
Model No.: RK Round, RK838
Trade Mark: RK/KZZI/ilovbee
FCC ID: 2A4MQ-RKROUND
Applicable standards: FCC CFR Title 47 Part 15 Subpart C Section 15.249
Date of Test: Jul.03,2022-Jul.12,2022
Date of report issued: Jul.13,2022
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

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Report Revision History

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Contents

Page

1	TEST SUMMARY	4
2	GENERAL INFORMATION	5
2.1	GENERAL DESCRIPTION OF EUT	5
2.2	TEST MODE	7
2.3	DESCRIPTION OF SUPPORT UNITS	7
2.4	DEVIATION FROM STANDARDS	7
2.5	ABNORMALITIES FROM STANDARD CONDITIONS.....	7
2.6	TEST FACILITY	7
2.7	TEST LOCATION.....	7
2.8	ADDITIONAL INSTRUCTIONS	7
3	TEST INSTRUMENTS LIST	8
4	TEST RESULTS AND MEASUREMENT DATA.....	9
4.1	ANTENNA REQUIREMENT	9
4.2	CONDUCTED EMISSIONS	10
4.3	RADIATED EMISSION MEASUREMENT.....	13
4.3.1	<i>Field Strength of The Fundamental Signal</i>	<i>15</i>
4.3.2	<i>Spurious emissions.....</i>	<i>16</i>
4.3.3	<i>Bandedge emissions.....</i>	<i>21</i>
4.4	20dB BANDWIDTH AND 99% BANDWIDTH	23
5	TEST SETUP PHOTO	25
6	EUT CONSTRUCTIONAL DETAILS	25

1 Test Summary

Test Item	Section in CFR 47	Result	Test by
Antenna requirement	15.203	Pass	/
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:	Mechanical keyboard
Model No.:	RK838
Model of difference:	All models different of product names and Appearance color, other are same.
Test model:	RK Round
Sample(s) Status:	Engineer sample
Hardware Version:	V1.0
Software Version:	V2.1
Operation Frequency:	2402MHz~2480MHz
Channel numbers:	40
Channel separation:	2MHz
Modulation type:	GFSK
Antenna Type:	PCB Antenna
Antenna gain:	1.0dBi Max (Declare by applicant)
Power supply:	DC 3.7V or DC 5V from PC

Operation Frequency each of channel							
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
1	2402 MHz	11	2422 MHz	21	2442 MHz	31	2462 MHz
2	2404 MHz	12	2424 MHz	22	2444 MHz	32	2464 MHz
3	2406 MHz	13	2426 MHz	23	2446 MHz	33	2466 MHz
4	2408 MHz	14	2428 MHz	24	2448 MHz	34	2468 MHz
5	2410 MHz	15	2430 MHz	25	2450 MHz	35	2470 MHz
6	2412 MHz	16	2432 MHz	26	2452 MHz	36	2472 MHz
7	2414 MHz	17	2434 MHz	27	2454 MHz	37	2474 MHz
8	2416 MHz	18	2436 MHz	28	2456 MHz	38	2476 MHz
9	2418 MHz	19	2438 MHz	29	2458 MHz	39	2478 MHz
10	2420 MHz	20	2440 MHz	30	2460 MHz	40	2480 MHz

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	2402 MHz
The middle channel	2440 MHz
The Highest channel	2480 MHz

2.2 Test mode

Transmitting mode	Keep the EUT in continuously transmitting mode.
<i>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.</i>	

2.3 Description of Support Units

Equipment	Model	S/N	Manufacturer
Notebook	Thinkbook14G3	/	Thinkpad
/		/	/

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	Special test command provided by manufacturer
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	EWLAN0118 G-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).

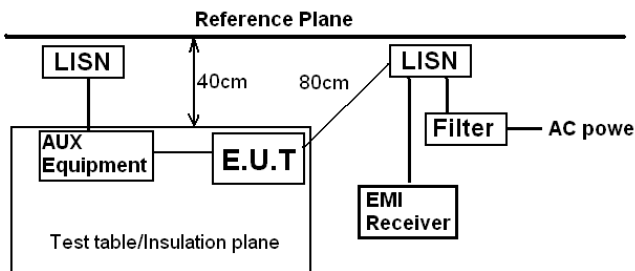
Software Name	Manufacturer	Model	Version
RF test software	MWRFTest	MTS 8310	V2.0.0.0
Conducted test software	EZ-EMC	Farad	Ver.EMC-CON 3A1.1
Radiated test software	EZ-EMC	Farad	Ver.FA-03A2 RE

4 Test results and Measurement Data

4.1 Antenna requirement

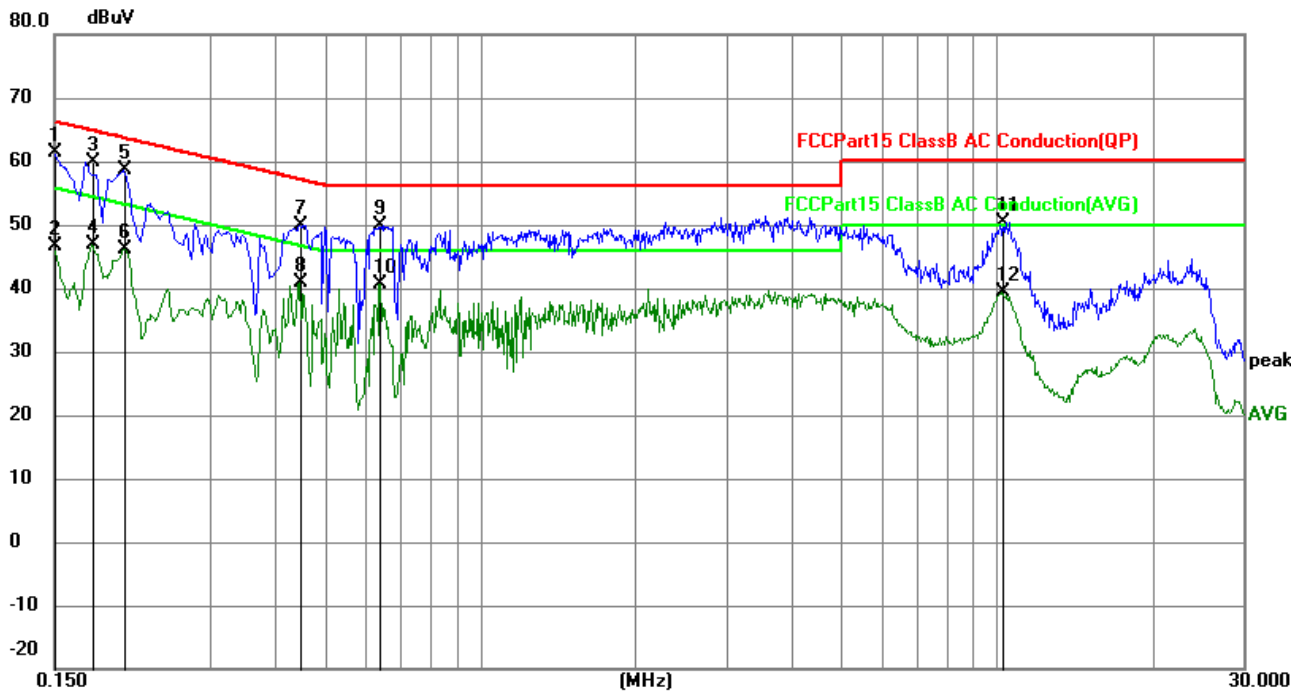
Standard requirement:
FCC part 15.203 requirement: An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional 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 PCB antenna, the best case gain of the antenna is 1.0dBi, reference to the appendix II for details.

4.2 Conducted Emissions

Test Requirement:	FCC Part15 C Section 15.207,					
Test Method:	ANSI C63.10:2013					
Test Frequency Range:	150KHz to 30MHz					
Class / Severity:	Class B					
Receiver setup:	RBW=9KHz, VBW=30KHz, Sweep time=auto					
Limit:	Frequency range (MHz)		Limit (dBuV)			
			Quasi-peak		Average	
	0.15-0.5		66 to 56*		56 to 46*	
	0.5-5		56		46	
5-30		60		50		
* Decreases with the logarithm of the frequency.						
Test setup:	 <p><i>Remark:</i> E.U.T: Equipment Under Test LISN: Line Impedance Stabilization Network Test table height=0.8m</p>					
Test procedure:	<ol style="list-style-type: none"> 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. 					
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 5V For PC with AC 120V/60Hz					

Measurement data

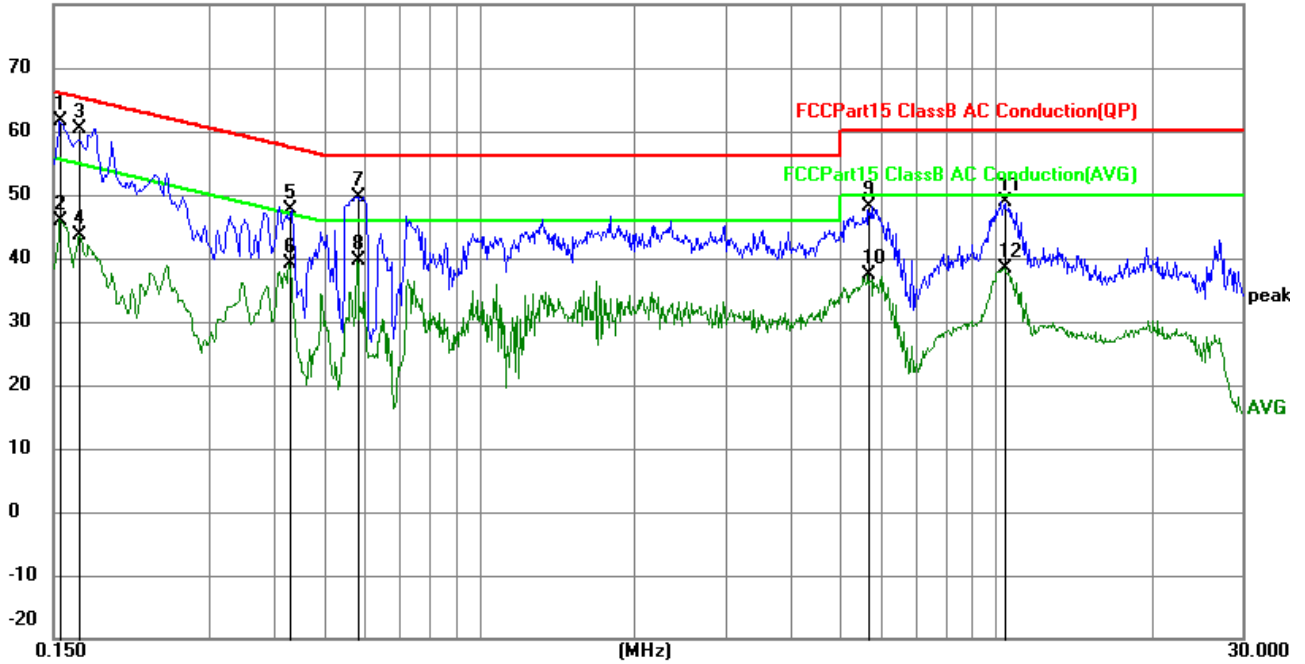
Line:



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1	0.1500	48.94	12.49	61.43	66.00	-4.57	QP
2	0.1500	34.21	12.49	46.70	56.00	-9.30	AVG
3	0.1770	47.33	12.47	59.80	64.63	-4.83	QP
4	0.1770	34.37	12.47	46.84	54.63	-7.79	AVG
5	0.2040	46.14	12.45	58.59	63.45	-4.86	QP
6	0.2040	33.80	12.45	46.25	53.45	-7.20	AVG
7	0.4470	37.53	12.37	49.90	56.93	-7.03	QP
8	0.4470	28.49	12.37	40.86	46.93	-6.07	AVG
9	0.6405	37.49	12.34	49.83	56.00	-6.17	QP
10	0.6405	28.35	12.34	40.69	46.00	-5.31	AVG
11	10.2750	37.97	12.40	50.37	60.00	-9.63	QP
12	10.2750	26.88	12.40	39.28	50.00	-10.72	AVG

Neutral:

80.0 dBuV

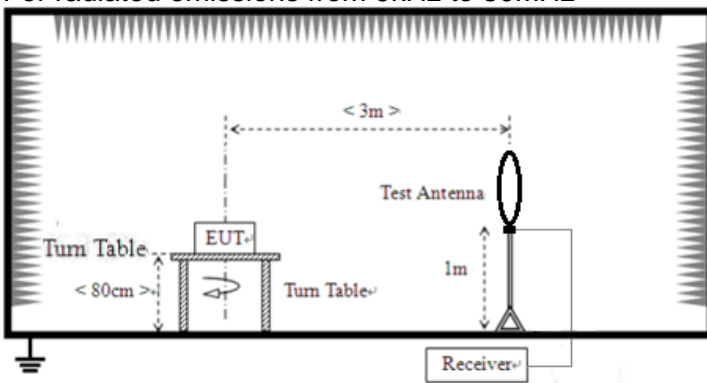


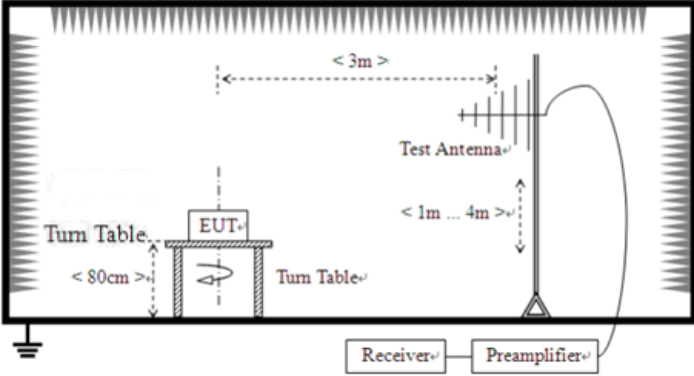
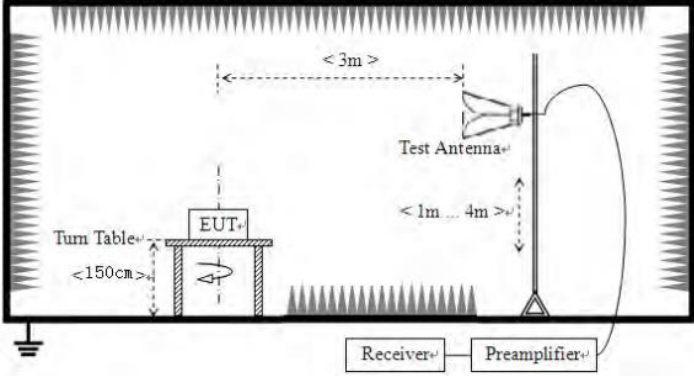
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1	0.1545	49.10	12.49	61.59	65.75	-4.16	QP
2	0.1545	33.51	12.49	46.00	55.75	-9.75	AVG
3	0.1685	48.01	12.48	60.49	65.03	-4.54	QP
4	0.1685	31.09	12.48	43.57	55.03	-11.46	AVG
5	0.4290	35.36	12.37	47.73	57.27	-9.54	QP
6	0.4290	26.80	12.37	39.17	47.27	-8.10	AVG
7	0.5820	37.35	12.35	49.70	56.00	-6.30	QP
8	0.5820	27.35	12.35	39.70	46.00	-6.30	AVG
9	5.6579	35.75	12.35	48.10	60.00	-11.90	QP
10	5.6579	25.02	12.35	37.37	50.00	-12.63	AVG
11	10.4325	36.39	12.40	48.79	60.00	-11.21	QP
12	10.4325	25.92	12.40	38.32	50.00	-11.68	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:	<p>For radiated emissions from 9kHz to 30MHz</p>  <p>For radiated emissions from 30MHz to 1GHz</p>				

	 <p>For radiated emissions above 1GHz</p> 						
<p>Test Procedure:</p>	<ol style="list-style-type: none"> 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. 						
<p>Test Instruments:</p>	<p>Refer to section 6.0 for details</p>						
<p>Test mode:</p>	<p>Refer to section 5.2 for details</p>						
<p>Test environment:</p>	<table border="1"> <tr> <td>Temp.:</td> <td>24.9 °C</td> <td>Humid.:</td> <td>56%</td> <td>Press.:</td> <td>1012mbar</td> </tr> </table>	Temp.:	24.9 °C	Humid.:	56%	Press.:	1012mbar
Temp.:	24.9 °C	Humid.:	56%	Press.:	1012mbar		
<p>Test voltage:</p>	<p>DC3.7V</p>						
<p>Test results:</p>	<p>Pass</p>						

4.3.1 Field Strength of The Fundamental Signal

Peak value:

Frequency (MHz)	Read Level (dBuV/m)	Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
2402	111.41	-14.43	96.98	114	-17.02	Vertical
2402	107.68	-14.43	93.25	114	-20.75	Horizontal
2440	107.57	-14.29	93.28	114	-20.72	Vertical
2440	101.22	-14.29	86.93	114	-27.07	Horizontal
2480	104.72	-14.13	90.59	114	-23.41	Vertical
2480	101.78	-14.13	87.65	114	-26.35	Horizontal

Average value:

Frequency (MHz)	Read Level (dBuV/m)	Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
2402	100.52	-14.43	86.09	94	-7.91	Vertical
2402	96.31	-14.43	81.88	94	-12.12	Horizontal
2440	99.17	-14.29	84.88	94	-9.12	Vertical
2440	92.02	-14.29	77.73	94	-16.27	Horizontal
2480	94.18	-14.13	80.05	94	-13.95	Vertical
2480	91.95	-14.13	77.82	94	-16.18	Horizontal

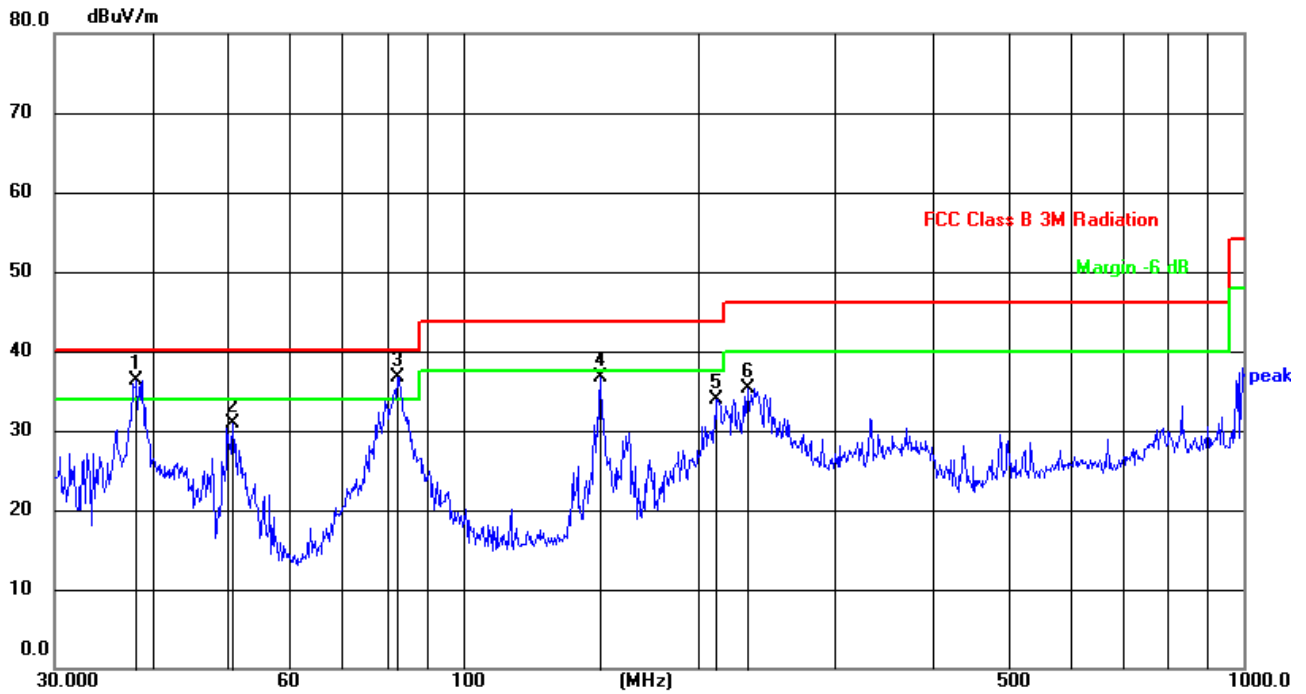
4.3.2 Spurious emissions

■ 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.

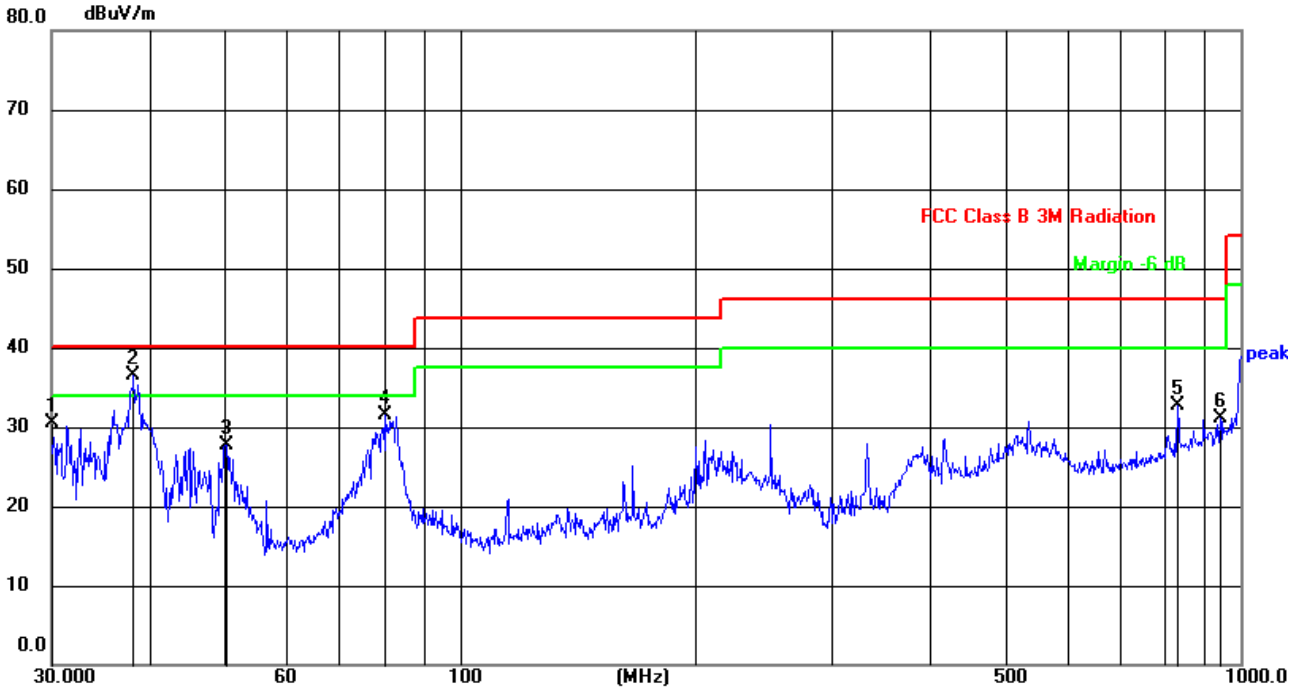
■ Below 1GHz

Horizontal:



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	38.2120	57.23	-20.84	36.39	40.00	-3.61	QP
2	50.7635	51.87	-21.00	30.87	40.00	-9.13	QP
3	82.3588	57.08	-20.44	36.64	40.00	-3.36	QP
4	150.0107	55.37	-18.65	36.72	43.50	-6.78	QP
5	211.5263	52.47	-18.50	33.97	43.50	-9.53	QP
6	231.7178	53.76	-18.40	35.36	46.00	-10.64	QP

Vertical:



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	30.0000	52.00	-21.52	30.48	40.00	-9.52	QP
2	38.2120	57.28	-20.84	36.44	40.00	-3.56	QP
3	50.2324	48.76	-21.01	27.75	40.00	-12.25	QP
4	80.3617	51.80	-20.28	31.52	40.00	-8.48	QP
5	830.4001	39.71	-6.98	32.73	46.00	-13.27	QP
6	942.1304	36.25	-5.12	31.13	46.00	-14.87	QP

■ Above 1GHz

Test channel:	Lowest channel
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Peak value:

Frequency (MHz)	Read Level (dBuV/m)	Correction Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
4804.00	64.12	-9.88	54.24	74	-19.76	Horizontal
7206.00	58.45	-4.17	54.28	74	-19.72	Horizontal
9608.00	---	---	---	---	---	Horizontal
12010.00	---	---	---	---	---	Horizontal
4804.00	61.6	-9.88	51.72	74	-22.28	Vertical
7206.00	56.3	-4.17	52.13	74	-21.87	Vertical
9608.00	---	---	---	---	---	Vertical
12010.00	---	---	---	---	---	Vertical

Average value:

Frequency (MHz)	Read Level (dBuV/m)	Correction Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
4804.00	53.15	-9.88	43.27	54	-10.73	Horizontal
7206.00	47.58	-4.17	43.41	54	-10.59	Horizontal
9608.00	---	---	---	---	---	Horizontal
12010.00	---	---	---	---	---	Horizontal
4804.00	49.81	-9.88	39.93	54	-14.07	Vertical
7206.00	44.48	-4.17	40.31	54	-13.69	Vertical
9608.00	---	---	---	---	---	Vertical
12010.00	---	---	---	---	---	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.*

Test channel:	Middle channel
---------------	----------------

Peak value:

Frequency (MHz)	Read Level (dBuV/m)	Correction Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
4880.00	61.60	-9.79	51.81	74	-22.19	Horizontal
7320.00	56.17	-3.83	52.34	74	-21.66	Horizontal
9760.00	---	---	---	---	---	Horizontal
12200.00	---	---	---	---	---	Horizontal
4880.00	59.17	-9.79	49.38	74	-24.62	Vertical
7320.00	53.53	-3.83	49.70	74	-24.30	Vertical
9760.00	---	---	---	---	---	Vertical
12200.00	---	---	---	---	---	Vertical

Average value:

Frequency (MHz)	Read Level (dBuV/m)	Correction Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
4880.00	51.31	-9.79	41.52	54	-12.48	Horizontal
7320.00	45.38	-3.83	41.55	54	-12.45	Horizontal
9760.00	---	---	---	---	---	Horizontal
12200.00	---	---	---	---	---	Horizontal
4880.00	50.77	-9.79	40.98	54	-13.02	Vertical
7320.00	44.25	-3.83	40.42	54	-13.58	Vertical
9760.00	---	---	---	---	---	Vertical
12200.00	---	---	---	---	---	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.*

Test channel:	Highest channel
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Peak value:

Frequency (MHz)	Read Level (dBuV/m)	Correction Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
4960.00	61.09	-9.68	51.41	74	-22.59	Horizontal
7440.00	54.49	-3.5	50.99	74	-23.01	Horizontal
9920.00	---	---	---	---	---	Horizontal
12400.00	---	---	---	---	---	Horizontal
4960.00	59	-9.68	49.32	74	-24.68	Vertical
7440.00	52.63	-3.5	49.13	74	-24.87	Vertical
9920.00	---	---	---	---	---	Vertical
12400.00	---	---	---	---	---	Vertical

Average value:

Frequency (MHz)	Read Level (dBuV/m)	Correction Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
4960.00	51.3	-9.68	41.62	54	-12.38	Horizontal
7440.00	45.26	-3.5	41.76	54	-12.24	Horizontal
9920.00	---	---	---	---	---	Horizontal
12400.00	---	---	---	---	---	Horizontal
4960.00	50.36	-9.68	40.68	54	-13.32	Vertical
7440.00	44.71	-3.5	41.21	54	-12.79	Vertical
9920.00	---	---	---	---	---	Vertical
12400.00	---	---	---	---	---	Vertical

Remark:

1. Final Level = Receiver Read level + Correction Factor (Antenna Factor + Cable Loss – Pre-amplifier 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 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	61.24	-14.5	46.74	74	-27.26	Horizontal
2400.00	70.87	-14.45	56.42	74	-17.58	Horizontal
2390.00	60.27	-14.5	45.77	74	-28.23	Vertical
2400.00	70.44	-14.45	55.99	74	-18.01	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	47.94	-14.5	33.44	54	-20.56	Horizontal
2400.00	54.77	-14.45	40.32	54	-13.68	Horizontal
2390.00	47.57	-14.5	33.07	54	-20.93	Vertical
2400.00	55.63	-14.45	41.18	54	-12.82	Vertical

Test channel:	Highest channel
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Peak value:

Frequency (MHz)	Read Level (dBuV/m)	Correction Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
2483.50	58.19	-14.13	44.06	74	-29.94	Horizontal
2500.00	55.24	-14.06	41.18	74	-32.82	Horizontal
2483.50	57.70	-14.13	43.57	74	-30.43	Vertical
2500.00	54.92	-14.06	40.86	74	-33.14	Vertical

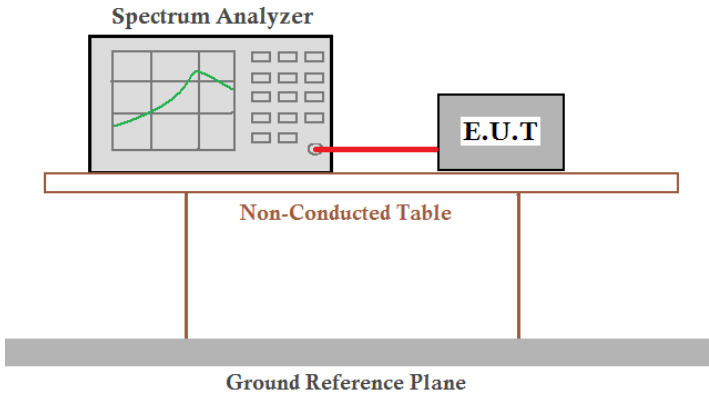
Average value:

Frequency (MHz)	Read Level (dBuV/m)	Correction Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
2483.50	53.00	-14.13	38.87	54	-15.13	Horizontal
2500.00	50.68	-14.06	36.62	54	-17.38	Horizontal
2483.50	53.07	-14.13	38.94	54	-15.06	Vertical
2500.00	51.14	-14.06	37.08	54	-16.92	Vertical

Remark:

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

4.4 20dB Bandwidth and 99% bandwidth

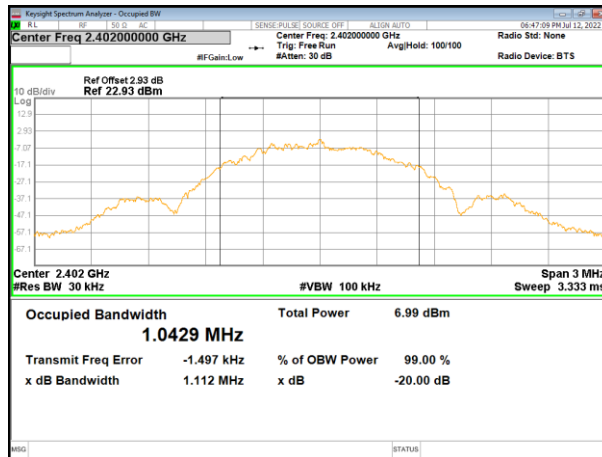
Test Requirement:	FCC Part15 C Section 15.215 RSS-Gen Section 6.7					
Test Method:	ANSI C63.10:2013 and RSS-Gen					
Limit:	Operation Frequency range 2400MHz~2483.5MHz					
Test setup:	 <p>The diagram illustrates the test setup. A Spectrum Analyzer is connected via a red cable to an E.U.T. (Equipment Under Test). Both are placed on a Non-Conducted Table. Below the table is a Ground Reference Plane.</p>					
Test Instruments:	Refer to section 6.0 for details					
Test mode:	Refer to section 5.2 for details					
Test environment:	Temp.:	25.2 °C	Humid.:	54%	Press.:	1012mbar
Test voltage:	DC 3.7V					
Test Mode:	TX					

Measurement Data

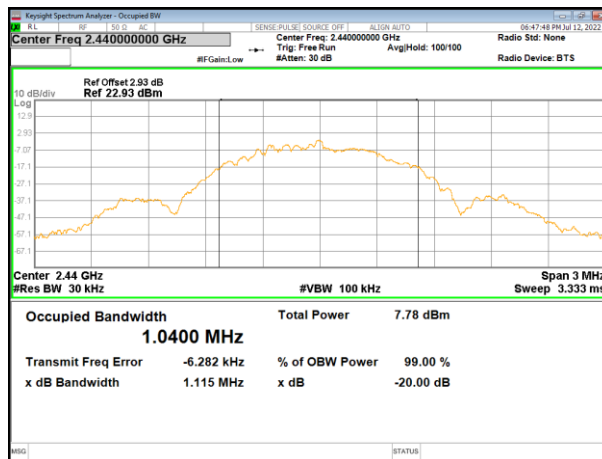
Test channel	20dB bandwidth(MHz)	Result
Lowest	1.112	Pass
Middle	1.115	
Highest	1.258	

Test channel	99% bandwidth(MHz)	Result
Lowest	1.0429	Pass
Middle	1.0400	
Highest	1.0418	

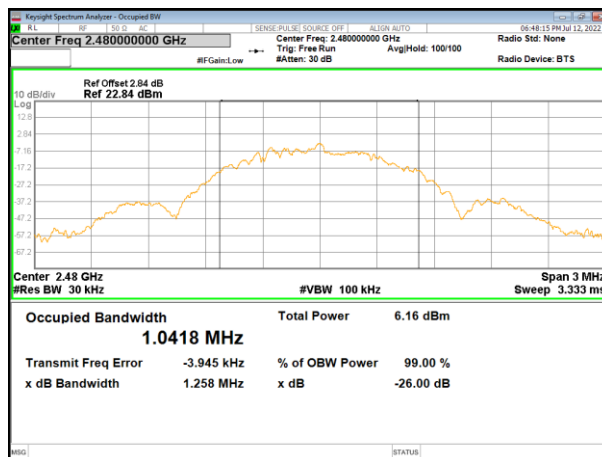
Test plot as follows:



Lowest channel



Middle channel



Highest channel

5 Test Setup Photo

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

6 EUT Constructional Details

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

-----End-----