

TEST REPORT

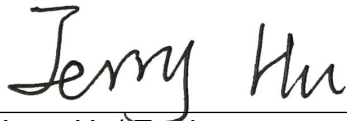

Applicant:	Power System Electronic Technology Co., Ltd.		
Address:	No.1 Shangbian Road, Puxin Industrial District, Shipai Town, Dongguan City, Guangdong, China		
Manufacturer:	Power System Electronic Technology Co., Ltd.		
Address:	No.1 Shangbian Road, Puxin Industrial District, Shipai Town, Dongguan City, Guangdong, China		
Factory:	Power System Electronic Technology Co., Ltd.		
Address:	No.1 Shangbian Road, Puxin Industrial District, Shipai Town, Dongguan City, Guangdong, China		
E.U.T.:	OUTRIDER 18 POWER BANK		
Model Number:	21110		
Trade mark:	GOAL ZERO		
FCC ID:	2AQTM-21110		
Date of Receipt:	Mar. 26, 2024	Date of Test:	Mar. 26 - April 2, 2024
Test Specification:	FCC 47 CFR Part 15, Subpart C		
Test Result:	The equipment under test was found to be compliance with the requirements of the standards applied.		
Prepared by:	Approved & Authorized Signer:		
			
Jerry Hu/ Engineer	Frank Shen/ Manager		
	Issue Date: August 13, 2024		
This test report is based on a single evaluation of one sample of above mentioned products. It is not permitted to be duplicated in extracts without written approval of Dongguan Lepont Service Co., Ltd.			

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1. GENERAL PRODUCT INFORMATION

1.1. PRODUCT FUNCTION

Refer to Technical Construction Form and User Manual.

1.2. EUT TECHNICAL DESCRIPTION

Product Name:	OUTRIDER 18 POWER BANK
Model No.:	21110
Test Model No:	21110
Difference:	N/A
Serial No.:	N/A
Test sample(s) ID:	LP24010026C01-S001
Sample(s) Status	Engineer sample
Hardware:	YX-PCB463C
Software:	RC589
Operation frequency:	115-205KHz
Modulation Type:	FSK
Antenna Type:	Inductive Loop Antenna with 10 Turns
Antenna Gain :	0dBi
Wireless Charging:	wireless output : 5W/7.5W/10W/15W
Rating:	Input: TYPE-C: 5V3A ; 9V2A; 12V1.5A Output: TYPE-C:5V3A ; 9V2.22A; 12V1.67A
Power Supply:	<input checked="" type="checkbox"/> DC 5-12V for ADAPTER <input checked="" type="checkbox"/> Adapter supply: Model: GP-209-WHT-NA-BULK Input:100-240VAC, 50/60Hz, 0.5A Max. Output: 5V3A, 9V2A, 12V1.5A
Note: for more details, please refer to the User' s manual of the EUT.	

1.3. DESCRIPTION OF TEST MODES

All the test modes were carried out with the EUT in normal operation, the final test mode of the EUT was the worst test mode for emission test, which was shown in this report and defined as:

Mode:	TEST MODE DESCRIPTION
1	Charging + Wireless Charging Output: 5W
2	Full Load + Wireless Output: Type-C:5V2A+5W
3	Wireless Output: 15W
4	Wireless Output: 10W
5	Wireless Output: 7.5W
6	Wireless Output: 5W

Note:

1. Product folding has been evaluated for use.
2. All test modes were pre - tested, but we only recorded the worst case in this report. The worst case is Mode 3
3. All voltage inputs have been tested, with only the worst voltage recorded.

2. TEST STANDARDS AND SITES

2.1. DESCRIPTION OF STANDARDS AND RESULTS

The EUT have been tested according to the applicable standards as referenced below.

FCC Part Clause	Test Parameter	Verdict	Remark
FCC Part 15, Subpart C- Section 15.207 ANSI C63.10-2013	Conducted Emission	PASS	
FCC Part 15, Subpart C- Section 15.209 ANSI C63.10-2013	Radiated Emission	PASS	
FCC Part 15, Subpart C- Section 15.215 ANSI C63.10-2013	20dB Bandwidth	PASS	
15.203	Antenna Application	PASS	
NOTE1: N/A (Not Applicable)			

2.2. LIST OF TEST AND MEASUREMENT INSTRUMENTS

For radiated(9K-30M) emission test(966 Chamber 1)							
Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal.Interval	Lab No.	Remark
EMI Test Receiver	Rohde & Schwarz	ESR 3	101849	Jan. 31, 2024	1 Year	LEP-E006	<input checked="" type="checkbox"/>
Active Loop Antenna	Schwarzbeck	FMZB 1519C	00008	Feb. 02, 2024	3 Year	LEP-E068	<input checked="" type="checkbox"/>
966 Chamber 1	MR	MR-L02	LEP-E051	Nov. 17, 2022	3 Year	LEP-E051	<input checked="" type="checkbox"/>
Test software	EZ-EMC	Fala	EMEC-3A1	N/A	N/A	N/A	<input checked="" type="checkbox"/>
For radiated(30M-1G) emission test(966 Chamber 1)							
Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal.Interval	Lab No.	Remark
EMI Test Receiver	Rohde & Schwarz	ESR 3	101849	Jan. 31, 2024	1 Year	LEP-E006	<input checked="" type="checkbox"/>
TRILOG Broadband Antenna	Schwarzbeck	VULB 9163	743	Nov. 20, 2022	3 Year	LEP-E005	<input checked="" type="checkbox"/>
Signal Amplifier	HP	8447D	1726A01222	Jan. 24, 2024	1 Year	LEP-E007	<input checked="" type="checkbox"/>
6dB Attenuator	RswTech	5W 6dB	LEP-E084	Jan. 24, 2024	1 Year	LEP-E084	<input checked="" type="checkbox"/>
966 Chamber 1	MR	MR-L02	LEP-E051	Nov. 17, 2022	3 Year	LEP-E051	<input checked="" type="checkbox"/>
Test software	EZ-EMC	Fala	EMEC-3A1	N/A	N/A	N/A	<input checked="" type="checkbox"/>
For radiated(1-18G) emission test(966 Chamber 1)							
Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal.Interval	Lab No.	Remark
Spectrum analyzer	Agilent	N9020A	MY49100060	Jan. 24, 2024	1 Year	LEP-E020	<input type="checkbox"/>
Horn antenna	Schwarzbeck	BBHA 9120D	01875	Nov. 20, 2022	3 Year	LEP-E024	<input type="checkbox"/>
Preamplifier	Schwarzbeck	BBN 9718B	00010	Jan. 24, 2024	1 Year	LEP-E025	<input type="checkbox"/>
966 Chamber 1	MR	MR-L02	LEP-E051	Nov. 17, 2022	3 Year	LEP-E051	<input type="checkbox"/>
Test software	EZ-EMC	Fala	EMEC-3A1	N/A	N/A	N/A	<input type="checkbox"/>
For radiated(18-40G) emission test(966 Chamber 1)							
Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal.Interval	Lab No.	Remark
Spectrum analyzer	Rohde & Schwarz	FSV40	101412	Jan. 24, 2024	1 Year	LEP-E076	<input type="checkbox"/>
Horn antenna+Preamplifier	COM-POWER	AH840	10100020	Sep. 05, 2022	3 Year	LEP-E075	<input type="checkbox"/>
966 Chamber 1	MR	MR-L02	LEP-E051	Nov. 17, 2022	3 Year	LEP-E051	<input type="checkbox"/>
Test software	EZ-EMC	Fala	EMEC-3A1	N/A	N/A	N/A	<input type="checkbox"/>
For conducted emission at the mains terminals test(Shielded Room 2)							
Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal.Interval	Lab No.	Remark
EMI Test Receiver	Rohde & Schwarz	ESCS30	1002.4500	Jan. 31, 2024	1 Year	LEP-E004	<input checked="" type="checkbox"/>
Artificial Mains Network	Rohde & Schwarz	ENV216	100873	Jan. 24, 2024	1 Year	LEP-E001	<input checked="" type="checkbox"/>
Artificial Mains Network	Schwarzbeck	NSLK 8128	NSLK 8128-249	Jan. 24, 2024	1 Year	LEP-E047	<input type="checkbox"/>
Pulse Limiter	Schwarzbeck	VYSD9561-F-N	00612	Jan. 24, 2024	1 Year	LEP-E047	<input type="checkbox"/>
RF Switching Unit	CD	RSU-M2	8830008	Jan. 31, 2024	1 Year	LEP-E045	<input checked="" type="checkbox"/>
Shielded Room 2	MR	MR-L01	LEP-E050	Nov. 17, 2022	3 Year	LEP-E050	<input checked="" type="checkbox"/>
Test software	EZ-EMC	Fala	EMC-CON 3A1.1+	N/A	N/A	N/A	<input checked="" type="checkbox"/>
For RF test							
Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal.Interval	Lab No.	Remark
Spectrum analyzer	Rohde & Schwarz	FSV40	101412	Jan. 24, 2024	1 Year	LEP-E076	<input checked="" type="checkbox"/>
Spectrum analyzer	Agilent	N9020A	MY49100060	Jan. 24, 2024	1 Year	LEP-E020	<input checked="" type="checkbox"/>
Vector source	Agilent	N5182A	MY47420382	Jan. 24, 2024	1 Year	LEP-E021	<input checked="" type="checkbox"/>
Analog signal source	Agilent	N5171B	MY51350292	Jan. 24, 2024	1 Year	LEP-E022	<input checked="" type="checkbox"/>
All instrument	Rohde & Schwarz	CMW 500	1201.002K50	Jan. 24, 2024	1 Year	LEP-E019	<input checked="" type="checkbox"/>
High and low temperature chamber	Math-mart	MT-1202-40	LEP-E041	Jan. 24, 2024	1 Year	LEP-E041	<input checked="" type="checkbox"/>
control unit	Tonscend	JS0806-2	10165	Jan. 24, 2024	1 Year	LEP-E034	<input checked="" type="checkbox"/>
Testing software	Tonscend	JSTS1120-3	Ver 2.6.77.0518	N/A	N/A	N/A	<input checked="" type="checkbox"/>

2.3. MEASUREMENT UNCERTAINTY

The following measurement uncertainty levels have been estimated for tests performed on the apparatus:

Parameter	Uncertainty
Conducted Emissions Test	±3.08dB
Radiated Emission Test	±4.60dB
Occupied Bandwidth Test	±2.3%
Antenna Port Emission	±3dB
Temperature	±3.2%
Humidity	±2.5%
Measurement Uncertainty for a level of Confidence of 95%	

2.4. TEST FACILITY

EMC Lab. : The Laboratory has been assessed and proved to be in compliance with CNAS/CL01
The Certificate Registration Number is L10100.
The Laboratory has been assessed and proved to be in compliance with A2LA
The Certificate Registration Number is 6901.01
FCC Designation No.: CN1351
Test Firm Registration No.: 397428
ISED CAB identifier: CN0151
Test Firm Registration No.: 20133

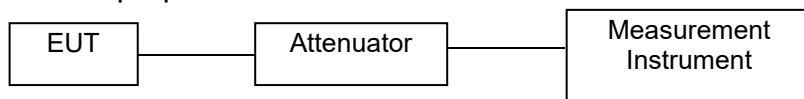
Test Location : Dongguan Lepont Testing Service Co., Ltd.

Address : Room 102, Building 11, No.7, Houjie Science And Technology Avenue, Houjie, Dongguan, Guangdong, China

3. SETUP OF EQUIPMENT UNDER TEST

3.1. RADIO FREQUENCY TEST SETUP 1

The component's antenna ports(s) of the EUT are connected to the measurement instrument per an appropriate attenuator. The EUT is controlled by PC/software to emit the specified signals for the purpose of measurements.



3.2. RADIO FREQUENCY TEST SETUP 2

The test site semi-anechoic chamber has met the requirement of NSA tolerance 4 dB according to the standards: ANSI C63.10. The test distance is 3m. The setup is according to the requirements in Section 13.1.4.1 of ANSI C63.10-2013 and CAN/CSA-CEI/IEC CISPR 32.

Below 30MHz:

The EUT is placed on a turntable 0.8meters above the ground in the chamber, 3 meter away from the antenna (loop antenna). The Antenna should be positioned with its plane vertical at the specified distance from the EUT and rotated about its vertical axis for maximum response at each azimuth about the EUT. The center of the loop shall be 1 m above the ground. For certain applications, the loop antenna plane may also need to be positioned horizontally at the specified distance from the EUT.

Above 30MHz:

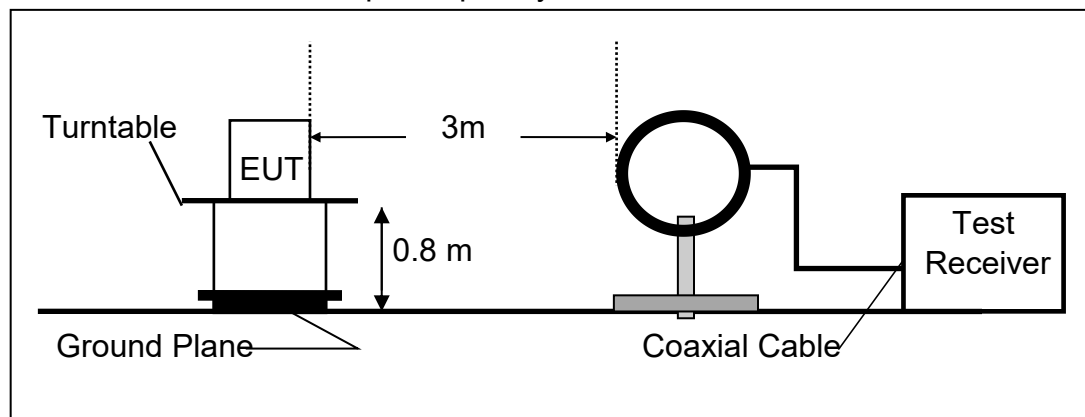
The EUT is placed on a turntable 0.8meters above the ground in the chamber, 3 meter away from the antenna. The maximal emission value is acquired by adjusting the antenna height, polarisation and turntable azimuth. Normally, the height range of antenna is 1 m to 4 m, the azimuth range of turntable is 0° to 360°, and the receive antenna has two polarizations Vertical (V) and Horizontal (H).

Above 1GHz:

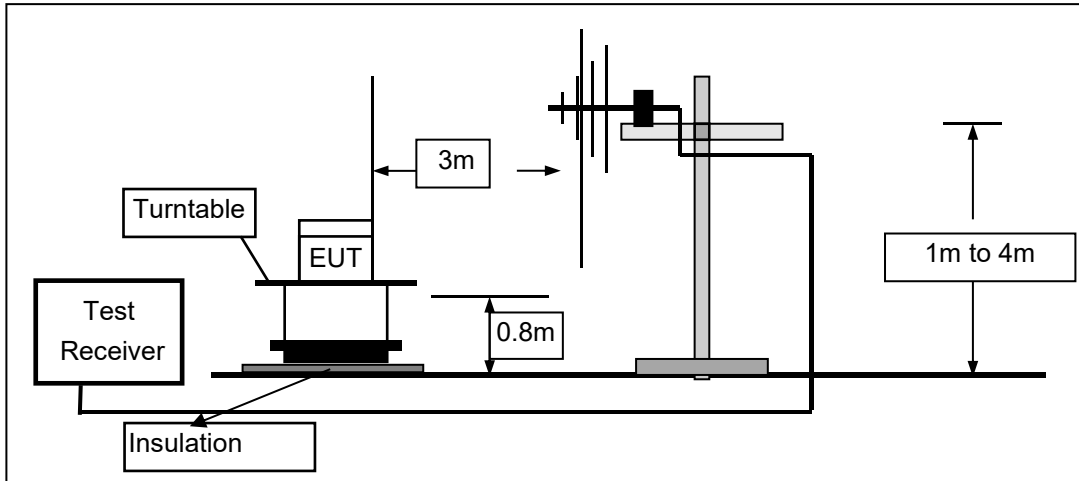
(Note: the FCC's permission to use 1.5m as an alternative per TCBC Conf call of Dec. 2, 2014.)

The EUT is placed on a turntable 1.5 meters above the ground in the chamber, 3 meter away from the antenna. The maximal emission value is acquired by adjusting the antenna height, polarisation and turntable azimuth. Normally, the height range of antenna is 1 m to 4 m, the azimuth range of turntable is 0° to 360°, and the receive antenna has two polarizations Vertical (V) and Horizontal (H).

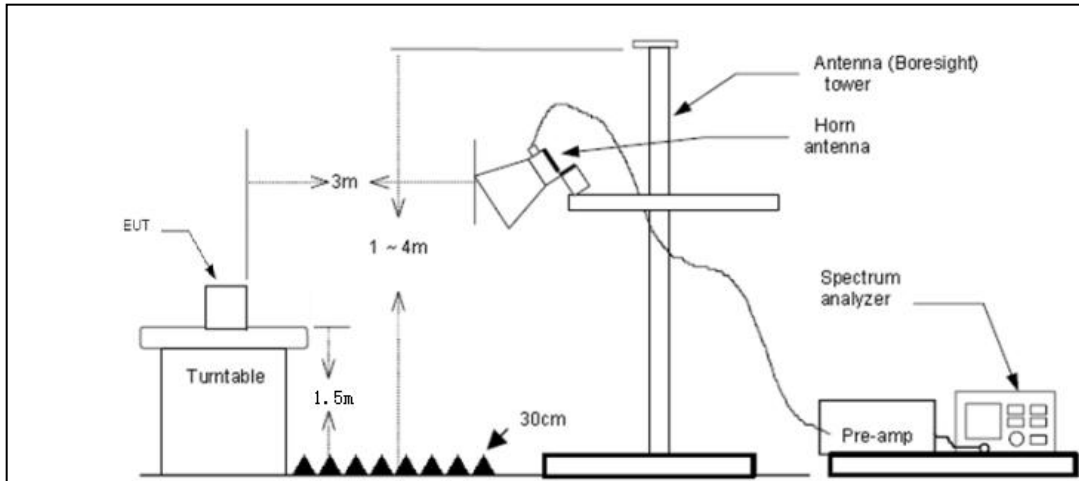
(a) Radiated Emission Test Set-Up, Frequency Below 30MHz



(b) Radiated Emission Test Set-Up, Frequency Below 1000MHz



(c) Radiated Emission Test Set-Up, Frequency above 1000MHz

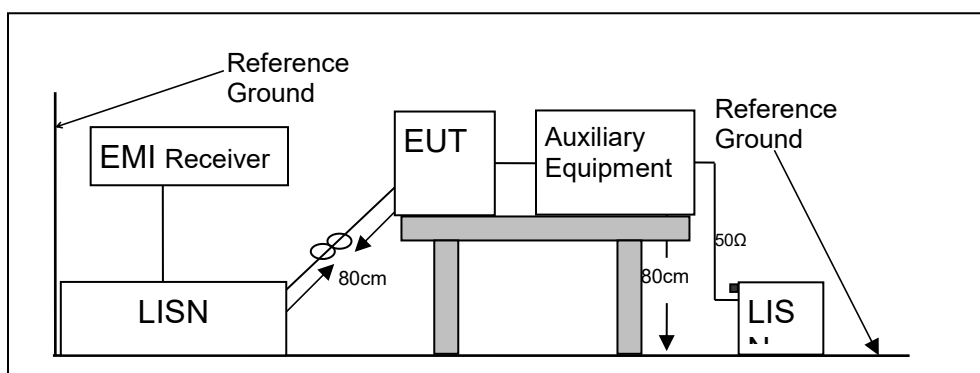


3.3. CONDUCTED EMISSION TEST SETUP

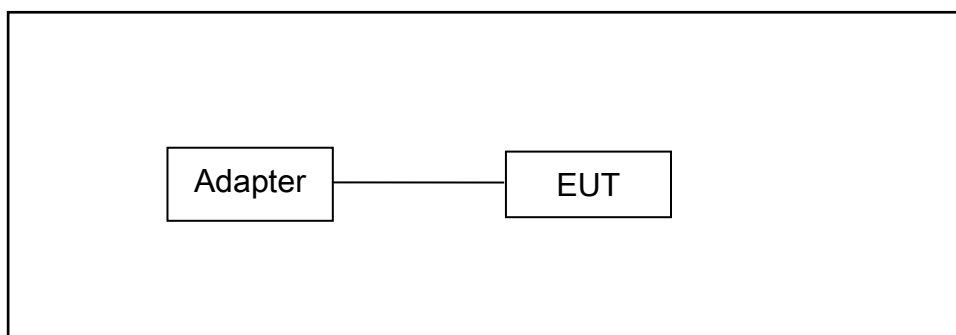
The mains cable of the EUT (Perfect Share Mini) must be connected to LISN. The LISN shall be placed 0.8m from the boundary of EUT and bonded to a ground reference plane for LISN mounted on top of the ground reference plane. This distance is between the closest points of the LISN and the EUT. All other units of the EUT and associated equipment shall be at least 0.8m from the LISN.

Ground connections, where required for safety purposes, shall be connected to the reference ground point of the LISN and, where not otherwise provided or specified by the manufacturer, shall be of same length as the mains cable and run parallel to the mains connection at a separation distance of not more than 0.8m.

According to the requirements in Section 13.1.4.1 of ANSI C63.10-2013 Conducted emissions from the EUT measured in the frequency range between 0.15 MHz and 30 MHz using CISPR Quasi-Peak and average detector mode.



3.4. BLOCK DIAGRAM CONFIGURATION OF TEST SYSTEM



3.5. SUPPORT EQUIPMENT

EUT Cable List and Details			
Cable Description	Length (m)	Shielded/Unshielded	With / Without Ferrite
USB cable	0.2m	Unshielded	Without Ferrite

Auxiliary Cable List and Details			
Cable Description	Length (m)	Shielded/Unshielded	With / Without Ferrite

Auxiliary Equipment List and Details				
Description	Manufacturer	Model	Serial Number	Input/ Output
Intelligent wireless charging full function test module	YZB	/	/	15W MAX
ADAPTER		GP-209-WHT-NA-BULK		Input:100-240VAC, 50/60Hz, 0.5A Max. Output: 5V3A, 9V2A, 12V1.5A

Notes:

- 1.All the equipment/cables were placed in the worst-case configuration to maximize the emission during the test.
- 2.Grounding was established in accordance with the manufacturer's requirements and conditions for the intended use.

4. TEST RESULTS AND MEASUREMENT DATA

4.1. 20DB BANDWIDTH

4.1.1. Applicable Standard

According to FCC Part 15.215

4.1.2. Test Procedure

Set to the maximum power setting and enable the EUT transmit continuously

a) The spectrum analyzer center frequency is set to the nominal EUT channel center frequency. The span range for the EMI receiver or spectrum analyzer shall be between two times and five times the OBW.

b) The nominal IF filter bandwidth (3 dB RBW) shall be in the range of 1% to 5% of the OBW and video bandwidth (VBW) shall be approximately three times RBW.

c) Set the reference level of the instrument as required, keeping the signal from exceeding the maximum input mixer level for linear operation.

d) The dynamic range of the instrument at the selected RBW shall be more than 10 dB below the target “-xx dB down” requirement

e) Set detection mode to peak and trace mode to max hold.

f) Determine the “-xx dB down amplitude” using [(reference value) - xx]. Alternatively, this calculation may be made by using the marker-delta function of the instrument.

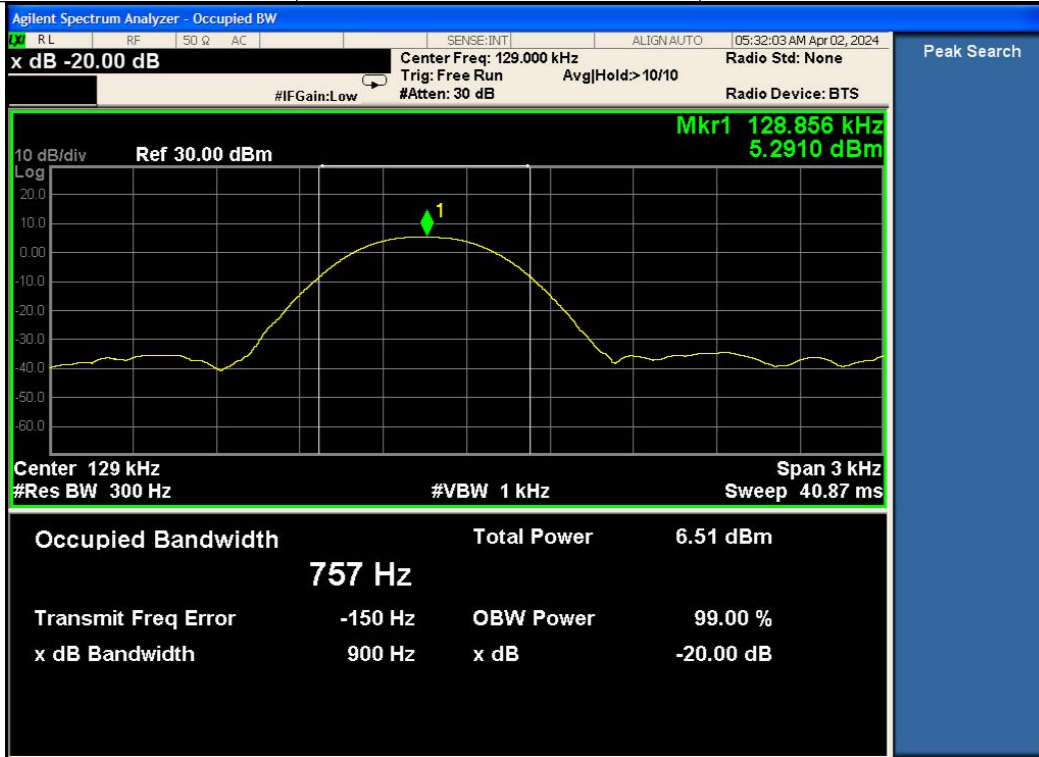
Measure and record the results in the test report.

4.1.3. Test Results:

Note: Because the measured signal is CW-like, adjusting the RBW per C63.10 would not be practical since measurement bandwidth will always follow the RBW. The RBW is set to 300 Hz to perform the occupied bandwidth test.

Frequency 115-205kHz 20dB Band

Temperature:	24.1 °C	Test By:	Jerry
Humidity:	55.2%	Test Mode:	Tx
Frequency(kHz)	20 dB occupied bandwidth(Hz)	99% occupied bandwidth(Hz)	
128.856	900	757	



4.2. RADIATED SPURIOUS EMISSION

4.2.1. Applicable Standard

According to FCC Part 15.209

4.2.2. Conformance Limit

The emissions from an intentional radiator shall not exceed the field strength levels specified in the following table 15.209(a):

FCC Part 15.209				
Frequency (MHz)	Field Strength Limitation		Field Strength Limitation Frequency tion at 3m Measurement Dist	
	(uV/m)	Dist	(uV/m)	(dBuV/m)
0.009 – 0.490	2400 / F(KHz)	300m	10000 * 2400/F(KHz)	20log 2400/F(KHz) + 80
0.490 – 1.705	24000 / F(KHz)	30m	100 * 24000/F(KHz)	20log 24000/F(KHz) + 40
1.705 – 30.00	30	30m	100* 30	20log 30 + 40
30.0 – 88.0	100	3m	100	20log 100
88.0 – 216.0	150	3m	150	20log 150
216.0 – 960.0	200	3m	200	20log 200
Above 960.0	500	3m	500	20log 500

15.205 RESTRICTED BANDS OF OPERATION

MHz	MHz	MHz	GHz
0.090 - 0.110	16.42 - 16.423	399.9 - 410	4.5 - 5.15
¹ 0.495 - 0.505	16.69475 - 16.69525	608 - 614	5.35 - 5.46
2.1735 - 2.1905	16.80425 - 16.80475	960 - 1240	7.25 - 7.75
4.125 - 4.128	25.5 - 25.67	1300 - 1427	8.025 - 8.5
4.17725 - 4.17775	37.5 - 38.25	1435 - 1626.5	9.0 - 9.2
4.20725 - 4.20775	73 - 74.6	1645.5 - 1646.5	9.3 - 9.5
6.215 - 6.218	74.8 - 75.2	1660 - 1710	10.6 - 12.7
6.26775 - 6.26825	108 - 121.94	1718.8 - 1722.2	13.25 - 13.4
6.31175 - 6.31225	123 - 138	2200 - 2300	14.47 - 14.5
8.291 - 8.294	149.9 - 150.05	2310 - 2390	15.35 - 16.2
8.362 - 8.366	156.52475 - 156.52525	2483.5 - 2500	17.7 - 21.4
8.37625 - 8.38675	156.7 - 156.9	2690 - 2900	22.01 - 23.12
8.41425 - 8.41475	162.0125 - 167.17	3260 - 3267	23.6 - 24.0
12.29 - 12.293	167.72 - 173.2	3332 - 3339	31.2 - 31.8
12.51975 - 12.52025	240 - 285	3345.8 - 3358	36.43 - 36.5
12.57675 - 12.57725	322 - 335.4	3600 - 4400	(²)

- Remark:
1. Emission level in dBuV/m=20 log (uV/m)
 2. Measurement was performed at an antenna to the closed point of EUT distance of meters.
 3. Only spurious frequency is permitted to locate within the Restricted Bands specified in provision of § 15.205, and the emissions located in restricted bands also comply with 15.209 limit.

4.2.3. Test Configuration

Test according to clause 3.2 radio frequency test setup 2

4.2.4. Test Procedure

1. The EUT was placed on a turn table which is 0.8m above ground plane.
2. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
3. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
4. Repeat above procedures until all frequency measured were complete.
5. Use the following receiver/spectrum analyzer settings:
 - Span = wide enough to fully capture the emission being measured
 - RBW=200Hz for 9KHz to 150KHz,
 - RBW=9kHz for 150KHz to 30MHz,
 - RBW=120KHz for 30MHz to 1GHz
 - VBW \geq 3*RBW
 - Sweep = auto
 - Detector function = QP
 - Trace = max hold

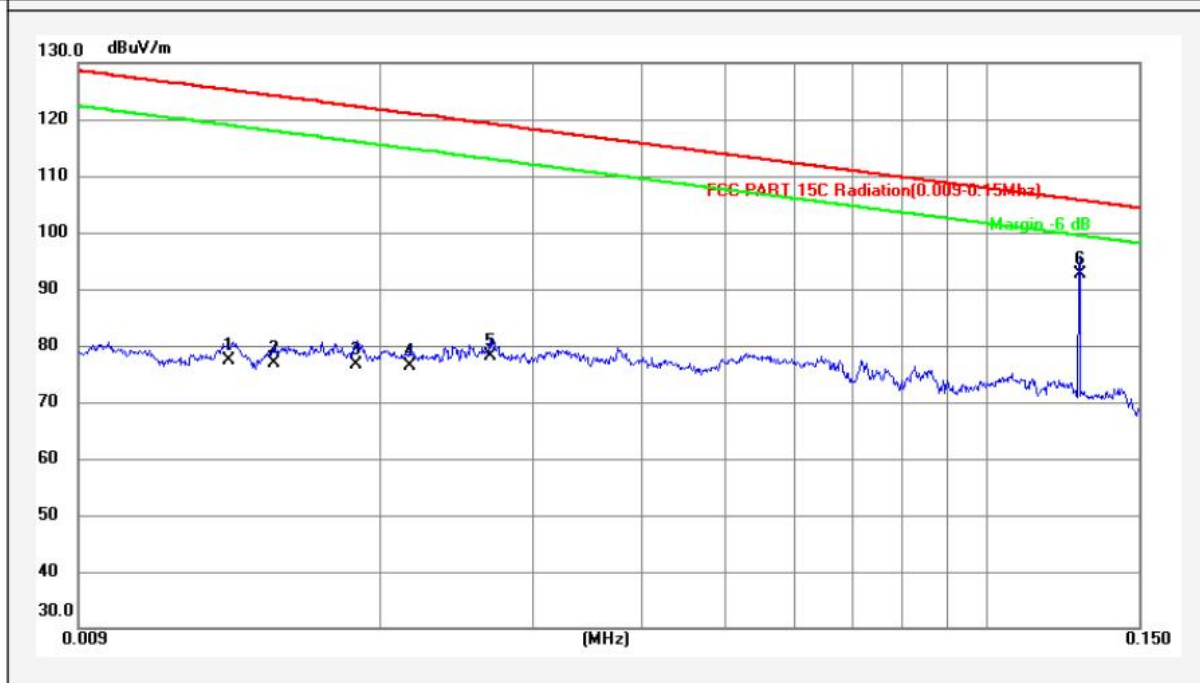
4.2.5. Test Results:

■ Spurious Emission below 30MHz (9KHz to 30MHz)

All modes were tested, and the worst (mode 3, mode 1) test data was as follows:

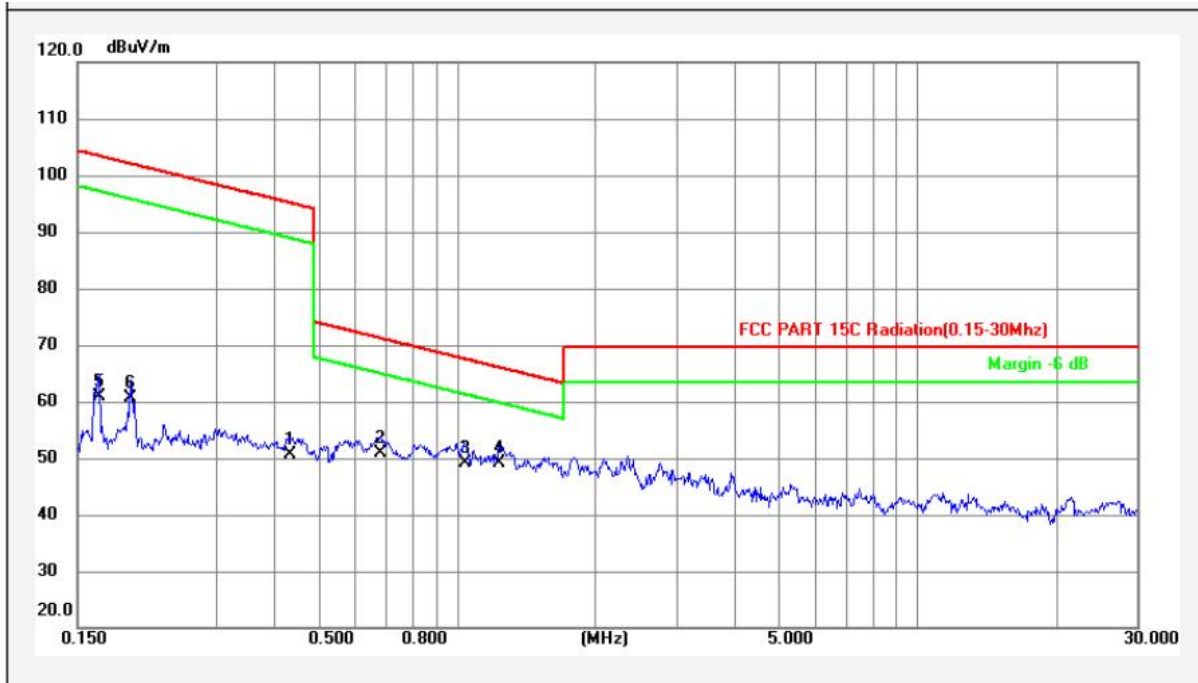
Mode 1:

Test Mode:	FSK	Test Voltage:	AC 120V/60Hz
Temperature:	23.7°C	Phase:	Vertical
Relative Humidity:	57%	Pressure:	98.3KPa



No.	Frequency (MHz)	Factor (dBuV/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	MK.	Remark
1	0.0134	0.28	77.02	77.30	124.88	-47.58	QP		
2	0.0151	0.28	76.62	76.90	123.85	-46.95	QP		
3	0.0188	0.29	76.41	76.70	121.96	-45.26	QP		
4	0.0217	0.29	76.21	76.50	120.73	-44.23	QP		
5	0.0268	0.29	77.81	78.10	118.91	-40.81	QP		
6	0.1280	0.36	92.24	92.60	105.45	-12.85	QP	*	

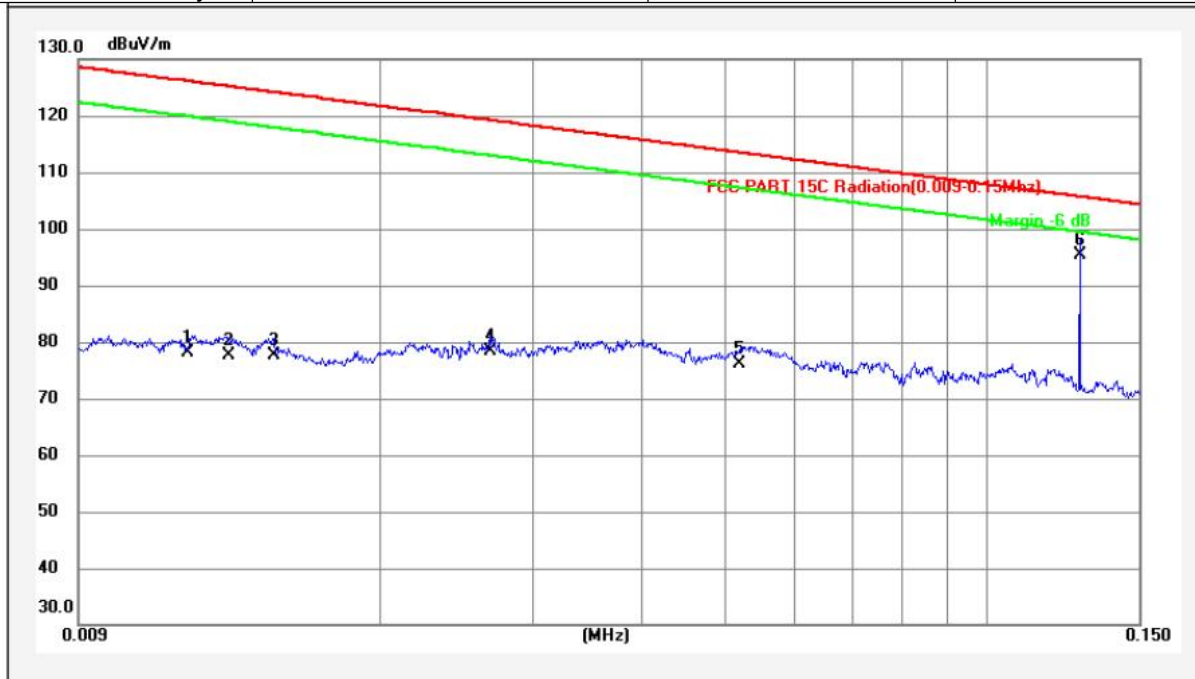
Test Mode:	FSK	Test Voltage:	AC 120V/60Hz
Temperature:	23.7°C	Phase:	Horizontal
Relative Humidity:	57%	Pressure:	98.3KPa



No.	Frequency (MHz)	Factor (dBuV/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	MK.	Remark
1	0.4349	0.53	50.17	50.70	94.84	-44.14	QP		
2	0.6824	0.60	50.30	50.90	70.92	-20.02	QP		
3	1.0423	0.68	48.52	49.20	67.24	-18.04	QP		
4	1.2356	0.68	48.52	49.20	65.76	-16.56	QP	*	
5	0.1665	0.38	60.42	60.80	103.17	-42.37	QP		
6	0.1952	0.40	60.30	60.70	101.79	-41.09	QP		

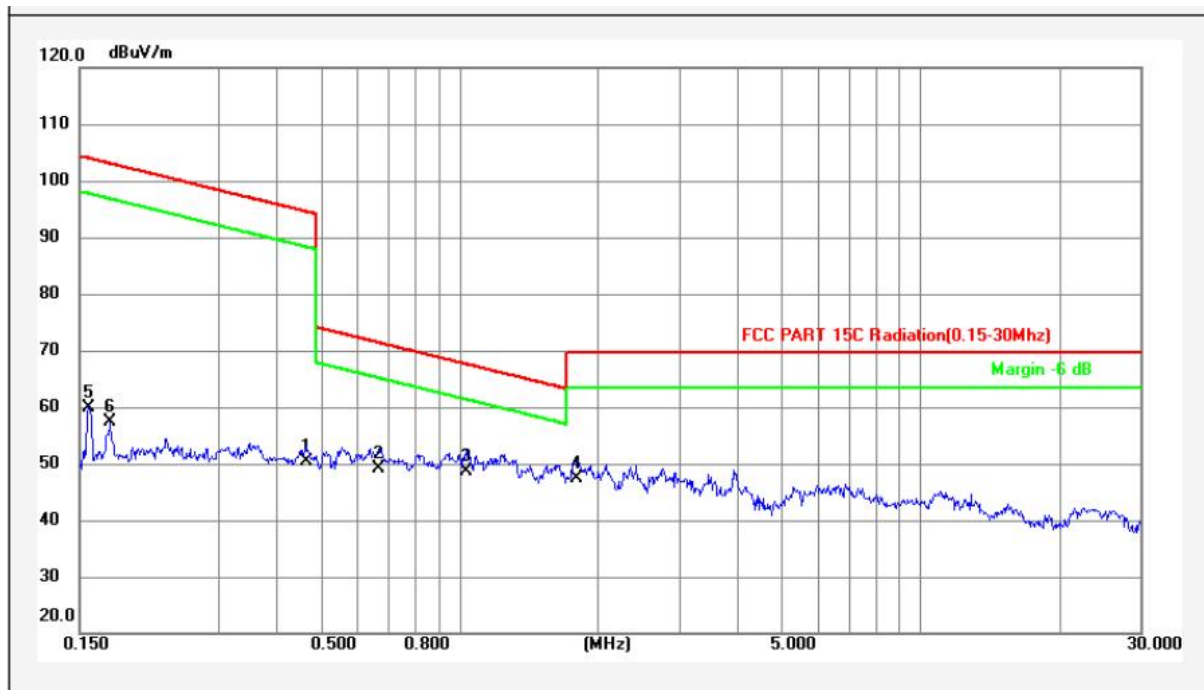
Model: 3

Test Mode:	FSK	Test Voltage:	DC 3.7V
Temperature:	23.7°C	Phase:	Vertical
Relative Humidity:	57%	Pressure:	98.3KPa



No.	Frequency (MHz)	Factor (dBuV/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	MK.	Remark
1	0.0120	0.28	77.82	78.10	125.83	-47.73	QP		
2	0.0134	0.28	77.42	77.70	124.88	-47.18	QP		
3	0.0151	0.28	77.32	77.60	123.85	-46.25	QP		
4	0.0268	0.29	78.21	78.50	118.91	-40.41	QP		
5	0.0519	0.31	75.89	76.20	113.22	-37.02	QP		
6	0.1280	0.36	95.04	95.40	105.45	-10.05	QP	*	

Test Mode:	FSK	Test Voltage:	DC 3.7V
Temperature:	23.7°C	Phase:	Horizontal
Relative Humidity:	57%	Pressure:	98.3KPa



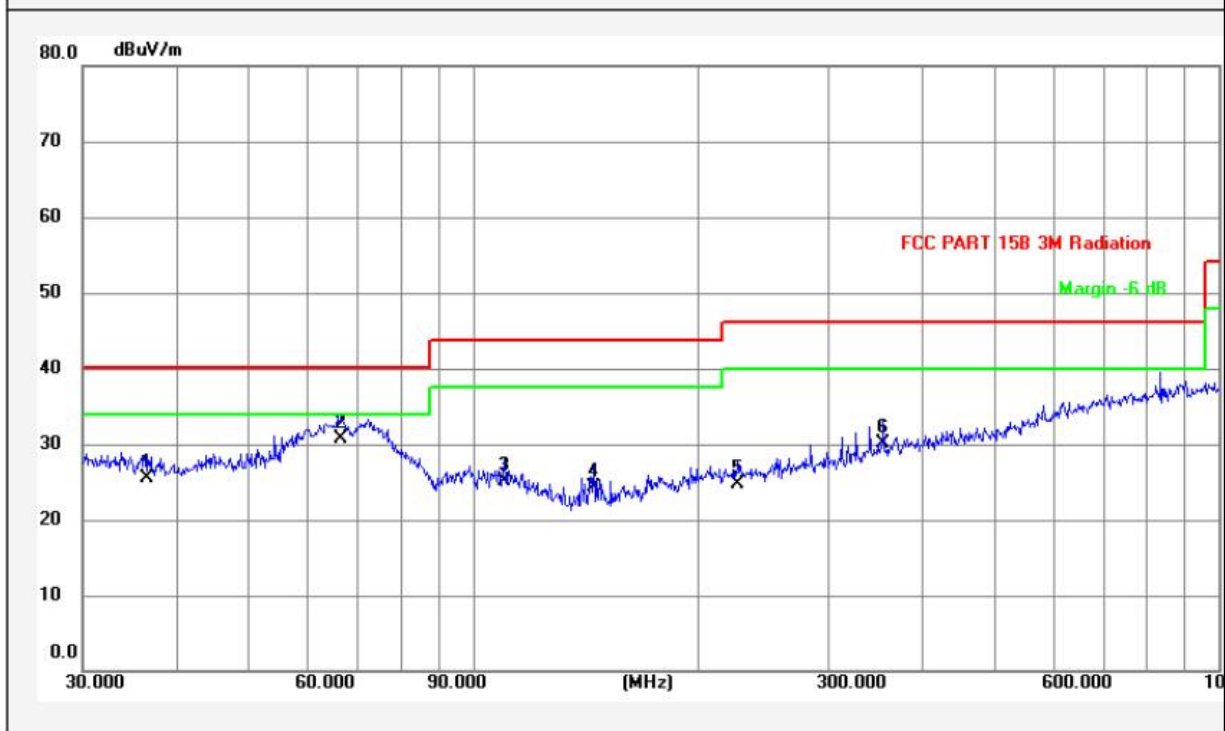
No.	Frequency (MHz)	Factor (dBuV/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	MK.	Remark
1	0.4661	0.54	49.76	50.30	94.23	-43.93	QP		
2	0.6683	0.60	48.60	49.20	71.10	-21.90	QP		
3	1.0319	0.68	48.02	48.70	67.33	-18.63	QP	*	
4	1.7903	0.69	46.81	47.50	69.50	-22.00	QP		
5	0.1564	0.38	59.60	59.98	103.72	-43.74	peak		
6	0.1748	0.39	57.09	57.48	102.75	-45.27	peak		

■ Spurious Emission below 1GHz (30MHz to 1GHz)

All modes were tested, and the worst (mode 3) test data was as follows:

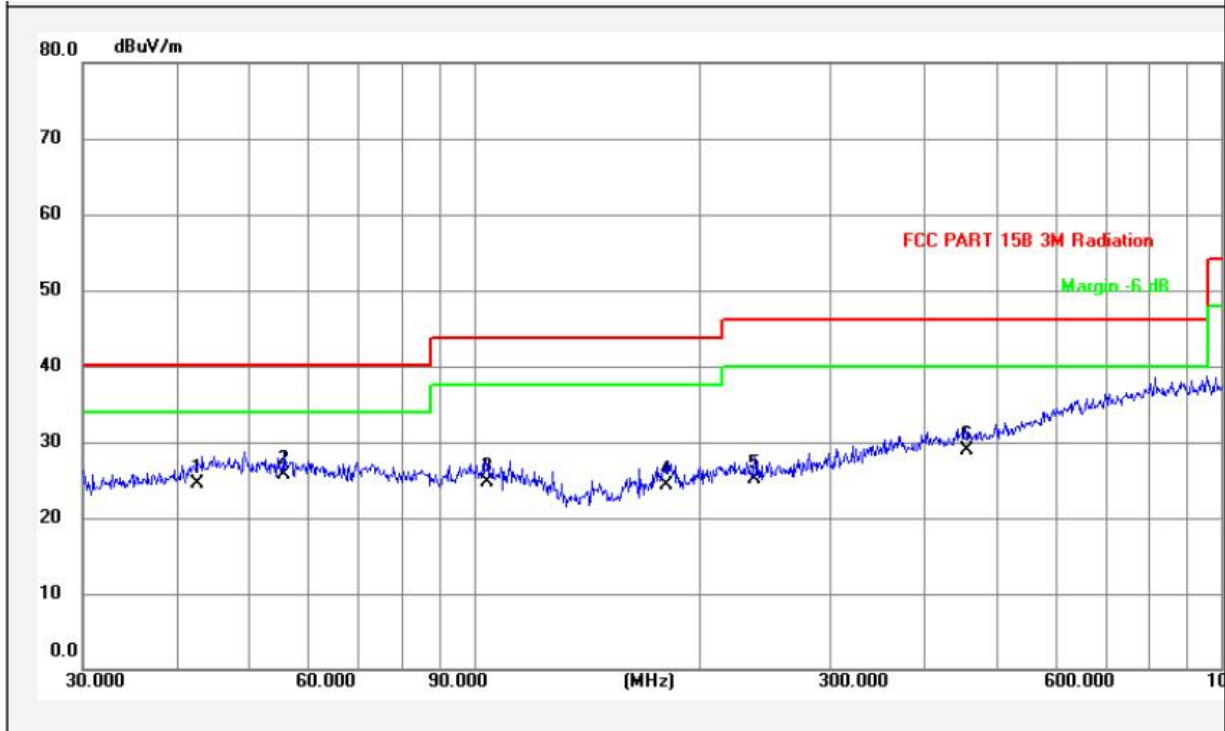
Mode 1:

Test Mode:	FSK	Test Voltage:	AC 120V/60Hz
Temperature:	24.5°C	Phase:	Vertical
Relative Humidity:	52%	Pressure:	101.5KPa



No.	Frequency (MHz)	Factor (dBuV/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	MK.	Remark
1	36.6372	12.32	13.28	25.60	40.00	-14.40	QP		
2	66.4989	12.08	18.61	30.69	40.00	-9.31	QP	*	
3	110.1816	12.09	12.95	25.04	43.50	-18.46	QP		
4	145.3505	9.14	15.16	24.30	43.50	-19.20	QP		
5	226.8934	13.45	11.27	24.72	46.00	-21.28	QP		
6	355.4272	16.06	13.97	30.03	46.00	-15.97	QP		

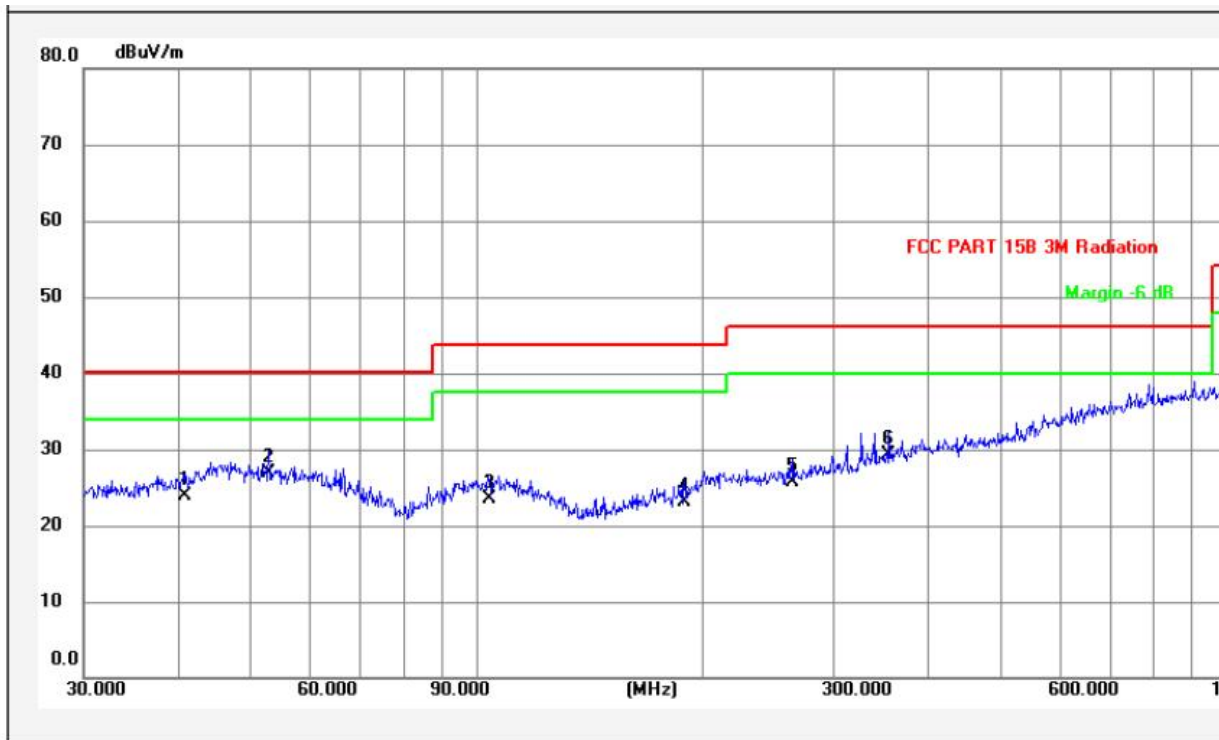
Test Mode:	FSK	Test Voltage:	AC 120V/60Hz
Temperature:	24.5°C	Phase:	Horizontal
Relative Humidity:	52%	Pressure:	101.5KPa



No.	Frequency (MHz)	Factor (dBuV/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	MK.	Remark
1	42.7494	13.76	10.74	24.50	40.00	-15.50	QP		
2	55.8047	13.81	11.98	25.79	40.00	-14.21	QP	*	
3	103.8055	12.37	12.36	24.73	43.50	-18.77	QP		
4	180.6488	11.12	13.11	24.23	43.50	-19.27	QP		
5	237.4758	13.38	11.80	25.18	46.00	-20.82	QP		
6	454.3100	17.68	11.19	28.87	46.00	-17.13	QP		

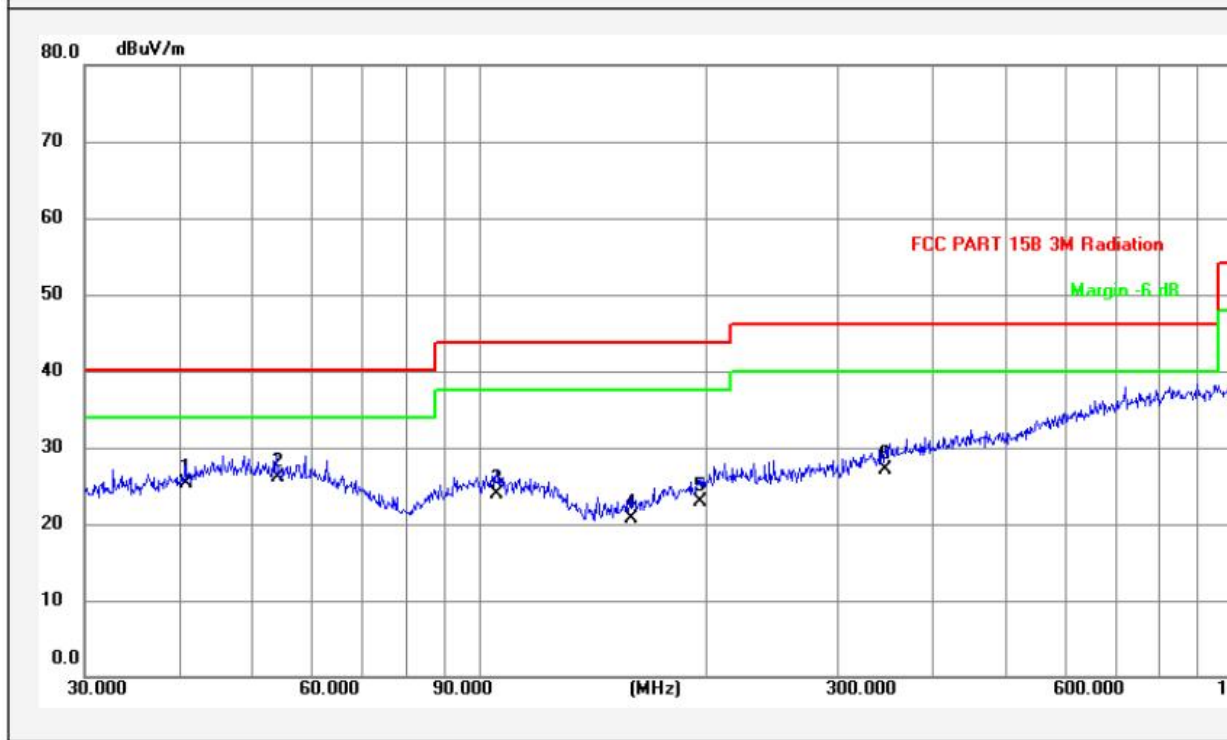
Mode 3:

Test Mode:	FSK	Test Voltage:	DC 3.7V
Temperature:	24.5°C	Phase:	Vertical
Relative Humidity:	52%	Pressure:	101.5KPa



No.	Frequency (MHz)	Factor (dBuV/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	MK.	Remark
1	40.8444	13.14	10.70	23.84	40.00	-16.16	QP		
2	52.9453	14.00	12.87	26.87	40.00	-13.13	QP	*	
3	103.8055	12.37	11.13	23.50	43.50	-20.00	QP		
4	189.7385	11.32	11.86	23.18	43.50	-20.32	QP		
5	264.7456	13.62	12.13	25.75	46.00	-20.25	QP		
6	355.4272	16.06	13.31	29.37	46.00	-16.63	QP		

Test Mode:	FSK	Test Voltage:	DC 3.7V
Temperature:	24.5°C	Phase:	Horizontal
Relative Humidity:	52%	Pressure:	101.5KPa



No.	Frequency (MHz)	Factor (dBuV/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	MK.	Remark
1	40.8444	13.14	12.24	25.38	40.00	-14.62	QP		
2	53.8818	13.94	12.15	26.09	40.00	-13.91	QP	*	
3	105.6415	12.29	11.59	23.88	43.50	-19.62	QP		
4	159.2249	9.91	10.82	20.73	43.50	-22.77	QP		
5	196.5098	12.25	10.75	23.00	43.50	-20.50	QP		
6	346.8091	15.87	11.15	27.02	46.00	-18.98	QP		

4.3. CONDUCTED EMISSION TEST

4.3.1. Applicable Standard

According to FCC Part 15.207

4.3.2. Conformance Limit

Conducted Emission Limit		
Frequency(MHz)	Quasi-peak	Average
0.15-0.5	66-56	56-46
0.5-5.0	56	46
5.0-30.0	60	50

Note: 1. The lower limit shall apply at the transition frequencies
2. The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50MHz.

Remark: Test results were obtained from the following equation:

Measurement (dB μ V) = LISN Factor (dB) + Cable Loss (dB) + Reading (dB μ V)

Margin (dB) = Measurement (dB μ V) - Limit (dB μ V)

4.3.3. Test Configuration

Test according to clause 3.3 conducted emission test setup

4.3.4. Test Procedure

The EUT was placed on a table which is 0.8m above ground plane.

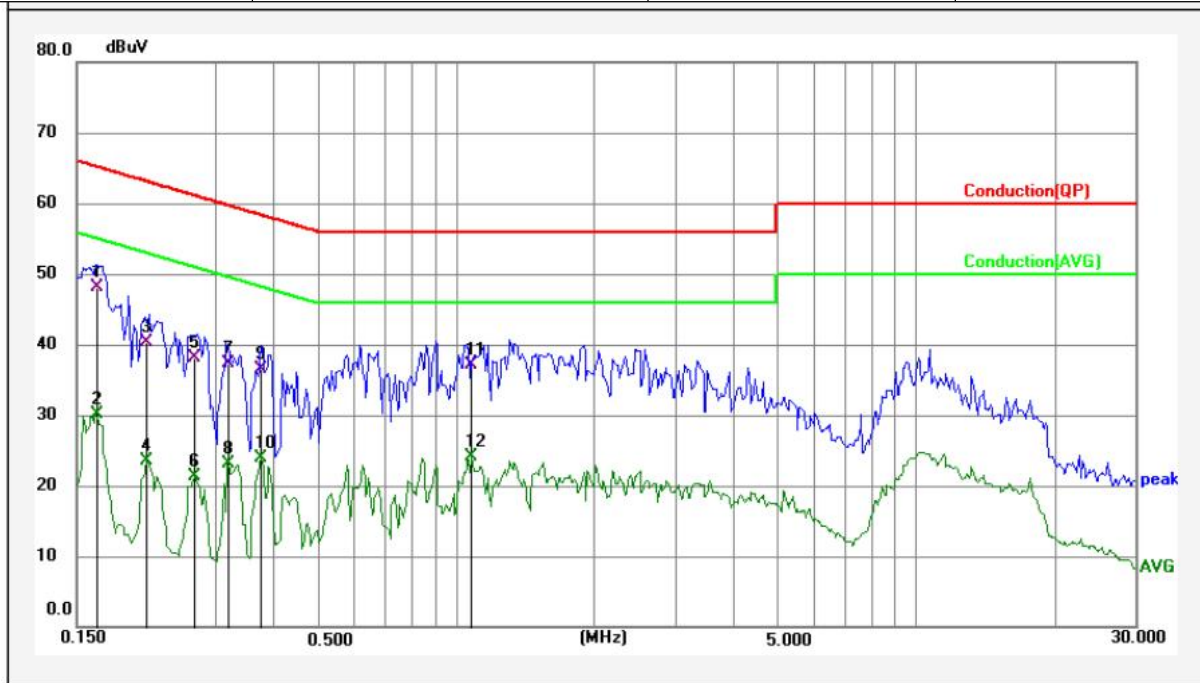
Maximum procedure was performed on the highest emissions to ensure EUT compliance.

Repeat above procedures until all frequency measured were complete.

4.3.5. Test Results :

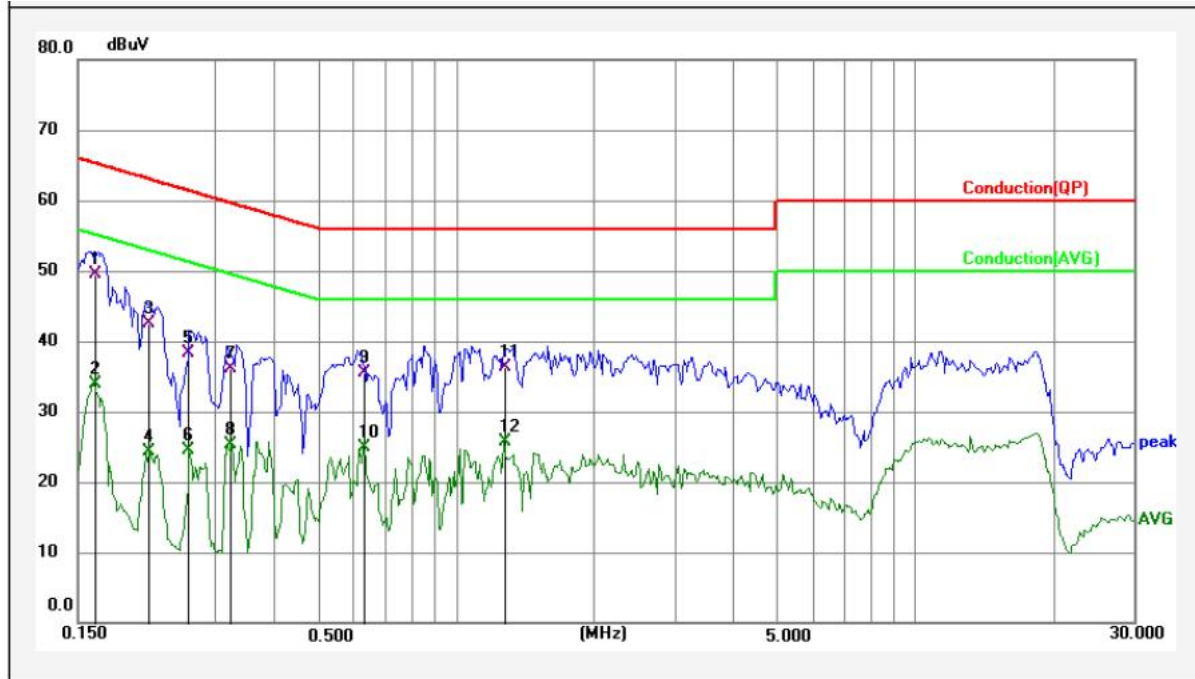
Mode 1:

Test Mode:	FSK	Test Voltage:	AC 120V/60Hz
Temperature:	24.6°C	Phase:	L1
Relative Humidity:	55%	Pressure:	101.3KPa



No.	Frequency (MHz)	Factor (dBuV)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	MK	Remark
1	0.1651	10.70	37.40	48.10	65.20	-17.10	QP	*	
2	0.1651	10.70	19.45	30.15	55.20	-25.05	AVG		
3	0.2129	10.73	29.57	40.30	63.09	-22.79	QP		
4	0.2129	10.73	12.68	23.41	53.09	-29.68	AVG		
5	0.2705	10.76	27.44	38.20	61.10	-22.90	QP		
6	0.2705	10.76	10.54	21.30	51.10	-29.80	AVG		
7	0.3197	10.78	26.52	37.30	59.71	-22.41	QP		
8	0.3197	10.78	12.28	23.06	49.71	-26.65	AVG		
9	0.3780	10.82	25.68	36.50	58.32	-21.82	QP		
10	0.3780	10.82	13.12	23.94	48.32	-24.38	AVG		
11	1.0821	11.20	26.00	37.20	56.00	-18.80	QP		
12	1.0821	11.20	12.87	24.07	46.00	-21.93	AVG		

Test Mode:	FSK	Test Voltage:	AC 120V/60Hz
Temperature:	22.9°C	Phase:	N
Relative Humidity:	57%	Pressure:	101.3KPa



No.	Frequency (MHz)	Factor (dBuV)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	MK.	Remark
1	0.1624	10.84	38.66	49.50	65.34	-15.84	QP	*	
2	0.1624	10.84	23.07	33.91	55.34	-21.43	AVG		
3	0.2146	10.90	31.60	42.50	63.03	-20.53	QP		
4	0.2146	10.90	13.49	24.39	53.03	-28.64	AVG		
5	0.2620	10.93	27.37	38.30	61.37	-23.07	QP		
6	0.2620	10.93	13.61	24.54	51.37	-26.83	AVG		
7	0.3249	10.96	25.24	36.20	59.58	-23.38	QP		
8	0.3249	10.96	14.39	25.35	49.58	-24.23	AVG		
9	0.6293	10.97	24.63	35.60	56.00	-20.40	QP		
10	0.6293	10.97	13.89	24.86	46.00	-21.14	AVG		
11	1.2692	11.00	25.30	36.30	56.00	-19.70	QP		
12	1.2692	11.00	14.71	25.71	46.00	-20.29	AVG		

4.4. ANTENNA APPLICATION

4.4.1. Antenna Requirement

Standard	Requirement
FCC CRF Part 15.203	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 shall be considered sufficient to comply with the provisions of this section. 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. This requirement does not apply to carrier current devices or to devices operated under the provisions of §15.211, §15.213, §15.217, §15.219, or §15.221. Further, this requirement does not apply to intentional radiators that must be professionally installed, such as perimeter protection systems and some field disturbance sensors, or to other intentional radiators which, in accordance with §15.31(d), must be measured at the installation site. However, the installer shall be responsible for ensuring that the proper antenna is employed so that the limits in this part are not exceeded.

For intentional device, according to FCC 47 CFR Section 15.203, 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. And according to FCC 47 CFR Section 15.247 (b), if transmitting antennas of directional gain greater than 6dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

4.4.2. Result

PASS.

- Antenna use a permanently attached antenna which is not replaceable.
- Not using a standard antenna jack or electrical connector for antenna replacement
- The antenna has to be professionally installed (please provide method of installation)

Note:which in accordance to section 15.203, please refer to the internal photos.

----- **END OF REPORT** -----