



FCC Part 15B Test Report

FCC ID: 2ARTS-V3

Product Name:	Vibrathotics
Trademark:	Vibrathotics
Model Name :	Vibrathotics Left/Right V3 Vibrathotics Left/Right V4, Vibrathotics Left/Right V5
Prepared For :	Gooseberry Marketing
Address :	134 S Main Street Suite #230, Alpine, Utah 84004, United States
Prepared By :	Shenzhen BCTC Testing Co., Ltd.
Address :	BCTC Building & 1-2F, East of B Building, Pengzhou Industrial, Fuyuan 1st Road, Qiaotou Community, Fuyong Street, Bao'an District, Shenzhen, China
Test Date:	Nov. 07, 2018 – Nov. 12, 2018
Date of Report :	Nov. 12, 2018
Report No.:	BCTC-FY181106286E



TEST RESULT CERTIFICATION

Applicant's name : Gooseberry Marketing

Address : 134 S Main Street Suite #230, Alpine, Utah 84004, United States

Manufacture's Name : MOKO TECHNOLOGY LIMITED

Address : 4F, Building2,Guanghui Technology Park, MinQing Rd, Longhua, SZ, China

Product description

Product name : Vibrathotics

Trademark : Vibrathotics

Model and/or type reference Vibrathotics Left/Right V3

..... : Vibrathotics Left/Right V4, Vibrathotics Left/Right V5

Standards : 47 CFR FCC Part 15 Subpart B

This device described above has been tested by BCTC, and the test results show that the equipment under test (EUT) is in compliance with the FCC requirements. And it is applicable only to the tested sample identified in the report.

This report shall not be reproduced except in full, without the written approval of BCTC, this document may be altered or revised by BCTC, personal only, and shall be noted in the revision of the document.

Prepared by(Engineer): Leke Xie

Leke Xie

Reviewer(Supervisor): Eric Yang

Eric Yang

Approved(Manager): Carson Zhang

Carson Zhang





TABLE OF CONTENT

Test Report Declaration	Page
1. VERSION.....	4
2. TEST SUMMARY.....	5
3. MEASUREMENT UNCERTAINTY.....	6
4. PRODUCT INFORMATION AND TEST SETUP	7
5. TEST FACILITY AND TEST INSTRUMENT USED.....	8
6. CONDUCTED EMISSIONS AT THE MAINS TERMINALS TEST	10
6.1 Block Diagram Of Test Setup	10
6.2 Limit.....	10
6.3 Test procedure.....	10
6.4 Test Result	11
7. RADIATION EMISSION TEST	13
6.1 Block Diagram Of Test Setup	13
6.2 Limit.....	13
6.3 Test Procedure	14
6.4 Test Result	15
8. EUT PHOTOGRAPHS	19
9. EUT TEST SETUP PHOTOGRAPHS	20

(Note: N/A means not applicable)



1. VERSION

Report No.	Issue Date	Description	Approved
BCTC-FY181106286E	Nov. 12, 2018	Original	Invalid



2. TEST SUMMARY

The Product has been tested according to the following specifications:

Standard(s)	Test Item	Test result
FCC 15.107	Conducted Emissions	Pass
FCC 15.109	Radiated Emissions	Pass



3. MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the Product as specified in CISPR 16-4-2. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of $k=2$.

Test item	Value (dB)
Conducted Emission (150kHz-30MHz)	3.20
Radiated Emission(30MHz~1GHz)	4.80
Radiated Emission(1GHz~6GHz)	4.90



4. PRODUCT INFORMATION AND TEST SETUP

4.1 Product Information

Ratings: Battery DC3.7V, DC 5V form Adapter

The highest frequency of the internal sources of the EUT is 1.2 GHz:

- ☐ less than 108 MHz, the measurement shall only be made up to 1 GHz.
- ☐ between 108 MHz and 500 MHz, the measurement shall only be made up to 2 GHz.
- ☐ between 500 MHz and 1 GHz, the measurement shall only be made up to 5 GHz.
- ☒ above 1 GHz, the measurement shall be made up 5th harmonic of the highest frequency or 40 GHz, whichever is lower.

4.2 Test Setup Configuration

See test photographs attached in EUT TEST SETUP PHOTOGRAPHS for the actual connections between Product and support equipment.

4.3 Support Equipment

No .	Device Type	Brand	Model	Series No.	Data Cable	Power Cord
1.	Vibrathotics	Vibrathotics	Vibrathotics Left/Right V3	--	---	---
2.	Adapter	--	WRP2U-0 50100U	---	---	---
3	USB Cable Line	--	---	---	---	---

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.



4.4 Test Mode

Test item	Test Mode	Test Voltage
Conducted Emissions (150KHz-30MHz) Class B	Working	AC120V/60Hz
Radiated Emissions(30MHz-1GHz) Class B	Working	AC120V/60Hz
Radiated Emissions(1GHz-6GHz) Class B	Working	DC 3.7V

5. TEST FACILITY AND TEST INSTRUMENT USED

5.1 Test Facility

All measurement facilities used to collect the measurement data are located at BCTC Building & 1-2F, East of B Building, Pengzhou Industrial, Fuyuan 1st Road, Qiaotou Community, Fuyong Street, Bao'an District, Shenzhen, China. The site and apparatus are constructed in conformance with the requirements of ANSI C63.4 and CISPR 16-1-1 other equivalent standards.

5.2 Test Instrument Used

Conduction Test equipment

Item	Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until
1	Test Receiver	R&S	ESR3	102075	2018.06.20	2019.06.20
2	LISN	SCHWARZBECK	NSLK8127	8127739	2018.06.19	2019.06.19
3	LISN	R&S	ENV216	101375	2018.06.20	2019.06.20
4	RF cables	Huber+Suhnar	9kHz-30MHz	B1702988-0008	2018.02.12	2019.02.12
5	Software	Frad	EZ-EMC	EMC-CON 3A1	\	\



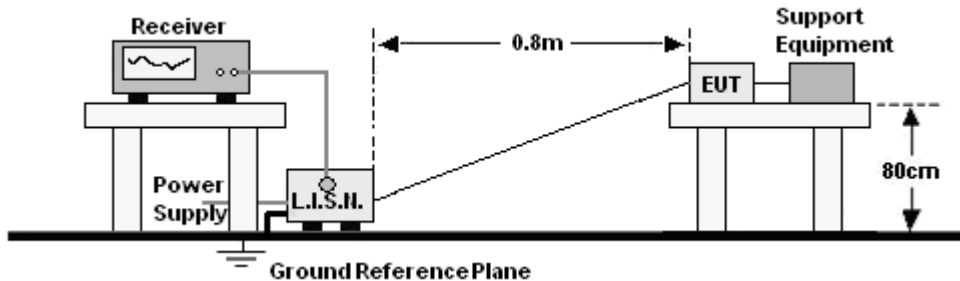
Radiation Test equipment

Item	Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until
1	Spectrum Analyzer (9kHz-26.5GHz)	Agilent	E4407B	MY45109572	2018.06.20	2019.06.20
2	Test Receiver (9kHz-7GHz)	R&S	ESR7	101154	2018.06.20	2019.06.20
3	Bilog Antenna (30MHz-3GHz)	SCHWARZBEC K	VULB9163	VULB9163-942	2018.06.23	2019.06.23
4	Horn Antenna (1GHz-18GHz)	SCHWARZBEC K	BBHA9120D	1541	2018.06.23	2019.06.22
5	Horn Antenna (18GHz-40GHz)	SCHWARZBEC K	BBHA9170	822	2018.08.06	2019.08.06
6	Amplifier (9KHz-6GHz)	SCHWARZBEC K	BBV9744	9744-0037	2018.06.20	2019.06.20
7	Amplifier (0.5GHz-18GHz)	SCHWARZBEC K	BBV9718	9718-309	2018.06.20	2019.06.20
8	Amplifier (18GHz-40GHz)	MITEQ	TTA1840-35-H G	2034381	2018.08.06	2019.08.06
9	Loop Antenna (9KHz-30MHz)	SCHWARZBEC K	FMZB1519B	014	2018.06.23	2019.06.23
10	RF cables1 (9kHz-30MHz)	Huber+Suhnar	9kHz-30MHz	B1702988-0008	2018.02.12	2019.02.12
11	RF cables2 (30MHz-1GHz)	Huber+Suhnar	30MHz-1GHz	1486150	2018.03.27	2019.03.27
12	RF cables3 (1GHz-40GHz)	Huber+Suhnar	1GHz-40GHz	1607106	2018.06.19	2019.06.19
13	Power Metter	Keysight	E4419	\	2018.04.15	2019.04.15
14	Power Sensor (AV)	Keysight	E9 300A	\	2018.04.15	2019.04.15
15	Signal Analyzer 20kHz-26.5GHz	KEYSIGHT	N9020A	MY49100060	2018.08.14	2019.08.13
16	Test Receiver 9kHz-40GHz	R&S	FSP40	100550	2018.06.13	2019.06.12
17	D.C. Power Supply	LongWei	TPR-6405D	\	\	\
18	Software	Frad	EZ-EMC	FA-03A2 RE	\	\

6. CONDUCTED EMISSIONS AT THE MAINS TERMINALS TEST

6.1 Block Diagram Of Test Setup

For mains ports:



6.2 Limit

Limits for Class B devices

(MHz)	Limits dB(μV)	
	Quasi-peak	Average
0,15 to 0,50	66 to 56*	56 to 46*
0,50 to 5	56	46
5 to 30	60	50

Notes: 1. *Decreasing linearly with logarithm of frequency.
2. The lower limit shall apply at the transition frequencies.

6.3 Test procedure

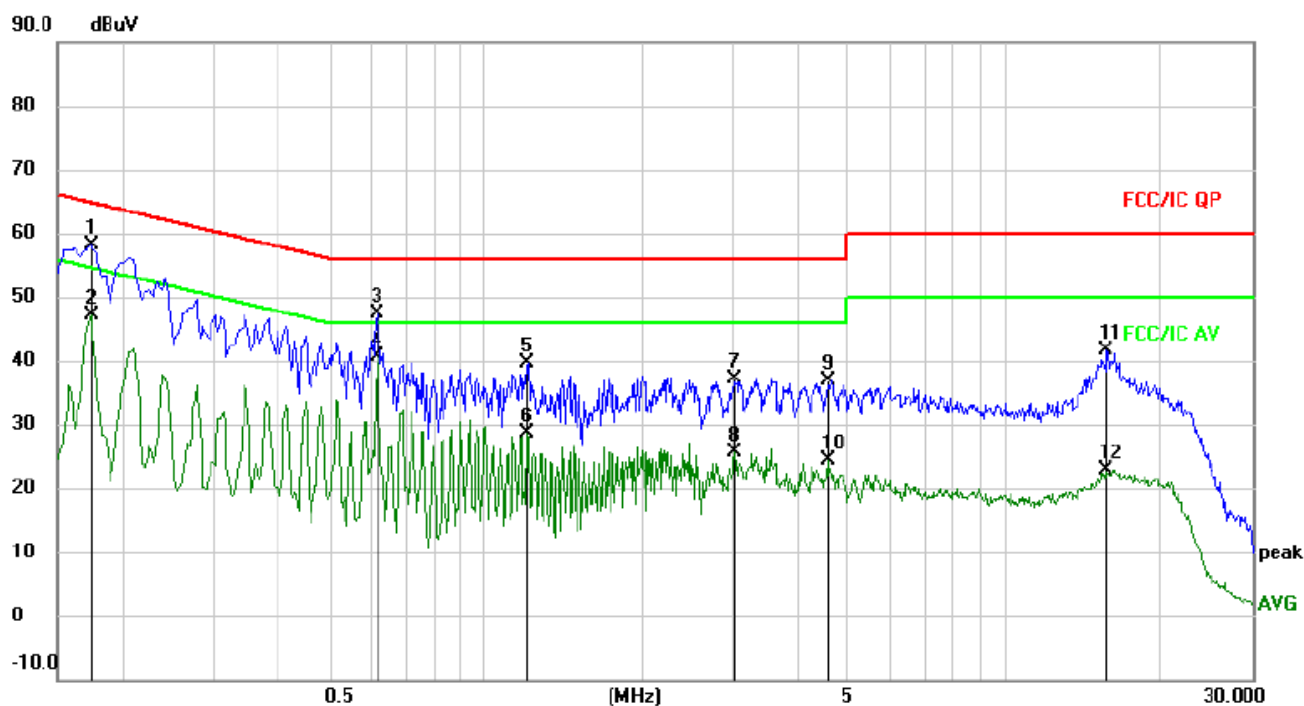
For mains ports:

- The Product was placed on a nonconductive table 0.8 m above the horizontal ground reference plane, and 0.4 m from the vertical ground reference plane, and connected to the main through Line Impedance Stability Network (L.I.S.N).
- The RBW of the receiver was set at 9 kHz in 150 kHz ~ 30MHz with Peak and AVG detector in Max Hold mode. Run the receiver's pre-scan to record the maximum disturbance generated from Product in all power lines in the full band.
- For each frequency whose maximum record was higher or close to limit, measure its QP and AVG values and record.



6.4 Test Result

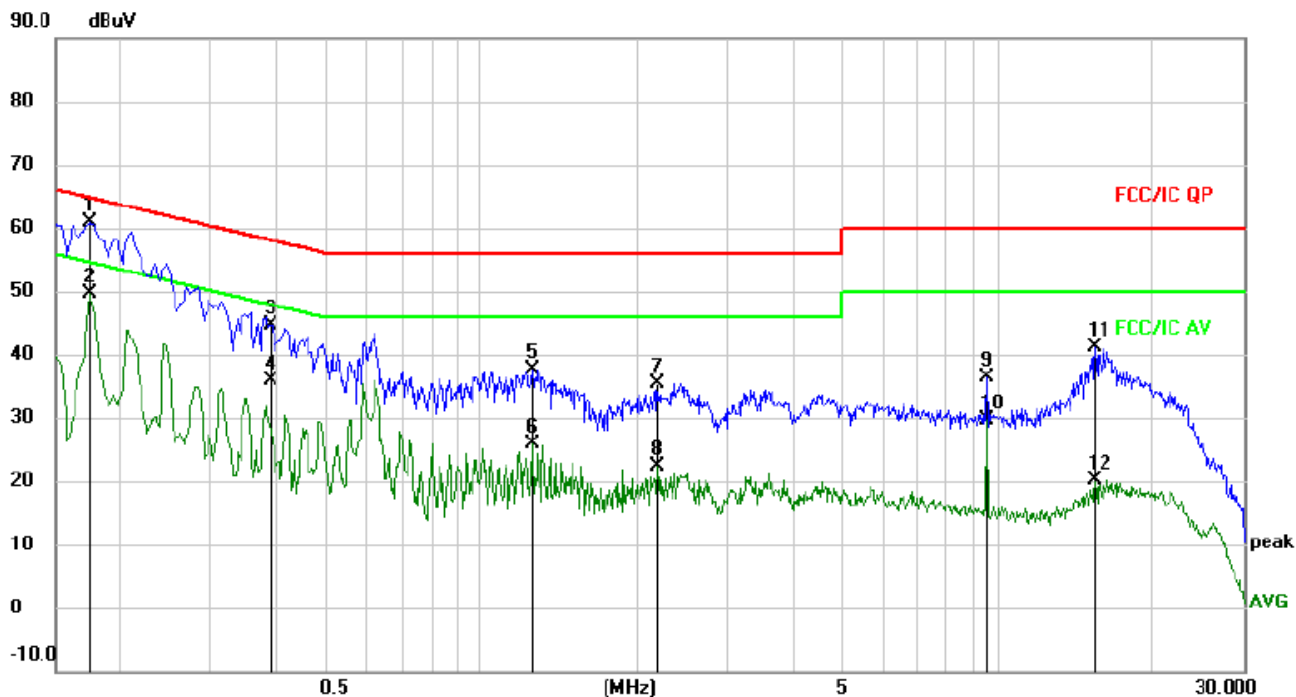
Conducted Emissions At The Mains Terminals Test Data			
Temperature:	26 °C	Relative Humidity:	54%
Pressure:	101kPa	Phase :	Line
Test Voltage :	AC120V/60Hz	Test Mode:	Working



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor	Measure- ment dBuV	Limit dBuV	Over dB	Detector	Comment
1		0.1740	48.69	9.49	58.18	64.77	-6.59	QP	
2		0.1740	37.61	9.49	47.10	54.77	-7.67	AVG	
3		0.6180	37.48	9.94	47.42	56.00	-8.58	QP	
4	*	0.6180	30.73	9.94	40.67	46.00	-5.33	AVG	
5		1.2020	30.00	9.57	39.57	56.00	-16.43	QP	
6		1.2020	18.96	9.57	28.53	46.00	-17.47	AVG	
7		3.0220	27.57	9.66	37.23	56.00	-18.77	QP	
8		3.0220	16.00	9.66	25.66	46.00	-20.34	AVG	
9		4.5660	27.03	9.77	36.80	56.00	-19.20	QP	
10		4.5660	14.54	9.77	24.31	46.00	-21.69	AVG	
11		15.7020	31.90	9.71	41.61	60.00	-18.39	QP	
12		15.7020	13.27	9.71	22.98	50.00	-27.02	AVG	



Conducted Emissions At The Mains Terminals Test Data			
Temperature:	26 °C	Relative Humidity:	54%
Pressure:	101kPa	Phase :	Neutral
Test Voltage :	AC120V/60Hz	Test Mode:	Working



No.	Mk.	Freq.	Reading	Correct	Measure-	Limit	Over		
		MHz	Level	Factor	ment			Detector	Comment
			dBuV		dBuV	dBuV	dB		
1	*	0.1740	51.35	9.49	60.84	64.77	-3.93	QP	
2		0.1740	40.17	9.49	49.66	54.77	-5.11	AVG	
3		0.3899	35.16	9.51	44.67	58.07	-13.40	QP	
4		0.3899	26.27	9.51	35.78	48.07	-12.29	AVG	
5		1.2540	28.13	9.58	37.71	56.00	-18.29	QP	
6		1.2540	16.35	9.58	25.93	46.00	-20.07	AVG	
7		2.1940	25.89	9.60	35.49	56.00	-20.51	QP	
8		2.1940	12.88	9.60	22.48	46.00	-23.52	AVG	
9		9.5100	26.80	9.69	36.49	60.00	-23.51	QP	
10		9.5100	19.82	9.69	29.51	50.00	-20.49	AVG	
11		15.4580	31.54	9.71	41.25	60.00	-18.75	QP	
12		15.4580	10.48	9.71	20.19	50.00	-29.81	AVG	

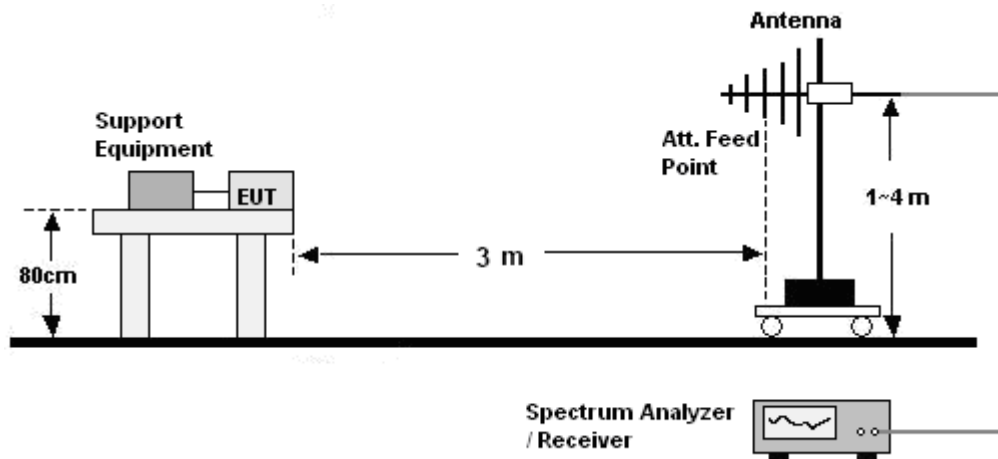
Remark:

1. All readings are Quasi-Peak and Average values.
2. Factor = Insertion Loss + Cable Loss.

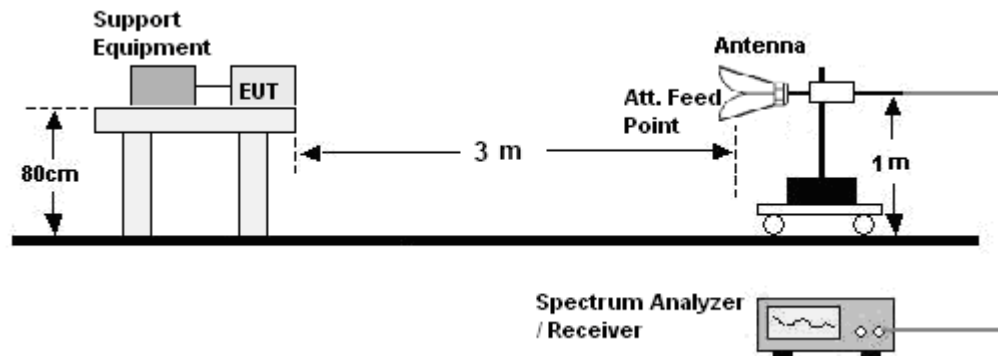
7. RADIATION EMISSION TEST

6.1 Block Diagram Of Test Setup

30MHz ~ 1GHz:



Above 1GHz:



6.2 Limit

Limits for Class B devices

Frequency (MHz)	limits at 3m dB(μ V/m)		
	QP Detector	PK Detector	AV Detector
30-88	40.0	--	--
88-216	43.5	--	--
216-960	46.0	--	--
960 to 1000	54.0	--	--
Above 1000	--	74.0	54.0

Note: The lower limit shall apply at the transition frequencies.



6.3 Test Procedure

30MHz ~ 1GHz:

- a. The Product was placed on the nonconductive turntable 0.8 m above the ground at a chamber.
- b. Set the spectrum analyzer/receiver in Peak detector, Max Hold mode, and 120 kHz RBW. Record the maximum field strength of all the pre-scan process in the full band when the antenna is varied between 1~4 m in both horizontal and vertical, and the turntable is rotated from 0 to 360 degrees.
- c. For each frequency whose maximum record was higher or close to limit, measure its QP value: vary the antenna's height and rotate the turntable from 0 to 360 degrees to find the height and degree where Product radiated the maximum emission, then set the test frequency analyzer/receiver to QP Detector and specified bandwidth with Maximum Hold Mode, and record the maximum value.

Above 1GHz:

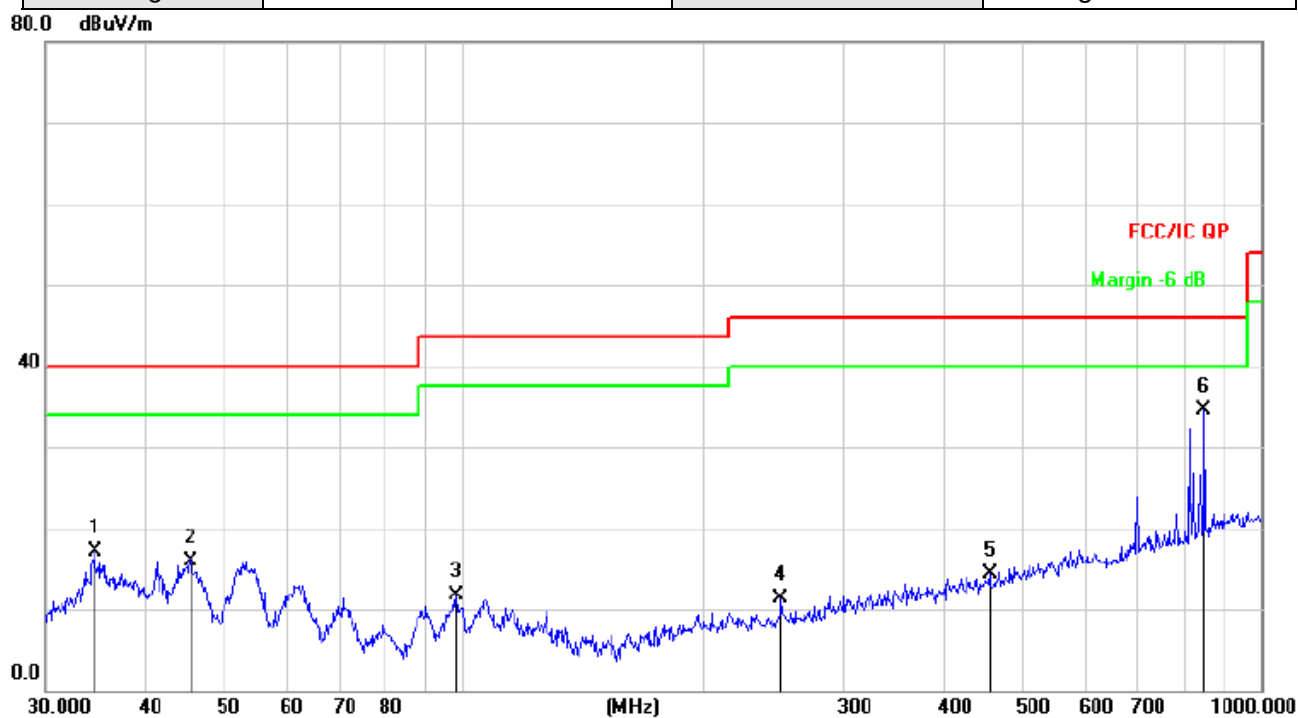
- a. The Product was placed on the non-conductive turntable 0.8 m above the ground at a chamber.
- b. Set the spectrum analyzer/receiver in Peak detector, Max Hold mode, and 1MHz RBW. Record the maximum field strength of all the pre-scan process in the full band when the antenna is varied in both horizontal and vertical, and the turntable is rotated from 0 to 360 degrees.
- c. For each frequency whose maximum record was higher or close to limit, measure its AV value: rotate the turntable from 0 to 360 degrees to find the degree where Product radiated the maximum emission, then set the test frequency analyzer/receiver to AV value and specified bandwidth with Maximum Hold Mode, and record the maximum value.



6.4 Test Result

Radiated Emissions Test Data

Temperature:	26 °C	Relative Humidity:	54%
Pressure:	101kPa	Phase :	Horizontal
Test Voltage :	AC120V/60Hz	Test Mode:	Working



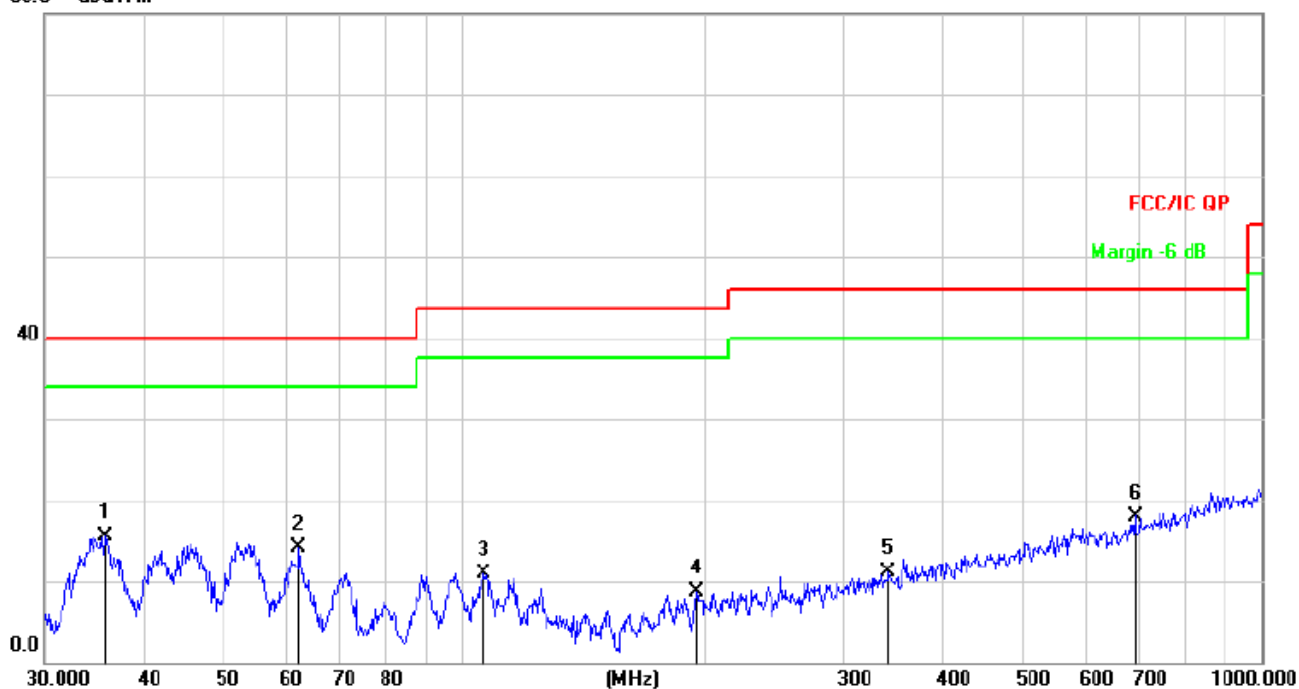
No.	Mk.	Freq.	Reading	Correct	Measure-	Limit	Over	
		MHz	Level	Factor	ment			Detector
			dBuV	dB	dBuV/m	dB/m	dB	
1		34.5173	33.49	-16.44	17.05	40.00	-22.95	QP
2		45.5348	31.09	-15.10	15.99	40.00	-24.01	QP
3		98.1419	28.28	-16.62	11.66	43.50	-31.84	QP
4		250.3012	26.50	-15.14	11.36	46.00	-34.64	QP
5		455.9058	24.23	-9.85	14.38	46.00	-31.62	QP
6	*	848.0563	37.08	-2.56	34.52	46.00	-11.48	QP



Radiated Emissions Test Data

Temperature:	26 °C	Relative Humidity:	54%
Pressure:	101kPa	Phase :	Vertical
Test Voltage :	AC120V/60Hz	Test Mode:	Working

80.0 dBuV/m



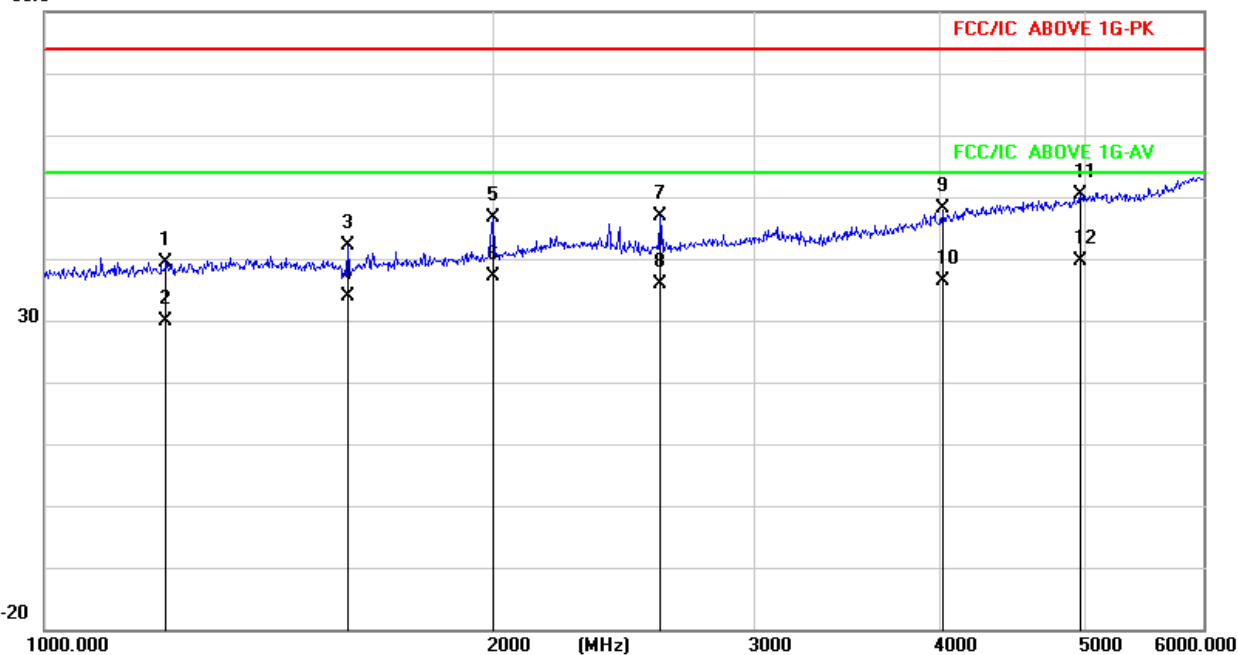
No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dB/m	dB	Detector
1	*	35.7490	31.62	-16.20	15.42	40.00	-24.58	QP
2		62.4314	30.55	-16.46	14.09	40.00	-25.91	QP
3		106.3850	27.50	-16.69	10.81	43.50	-32.69	QP
4		195.8220	25.18	-16.57	8.61	43.50	-34.89	QP
5		340.7817	23.55	-12.48	11.07	46.00	-34.93	QP
6		694.4174	23.33	-5.33	18.00	46.00	-28.00	QP



Radiated Emissions Test Data

Temperature:	26℃	Relative Humidity:	50%
Pressure:	101kPa	Phase :	Horizontal
Test Voltage :	DC 3.7V	Test Mode:	Working

80.0

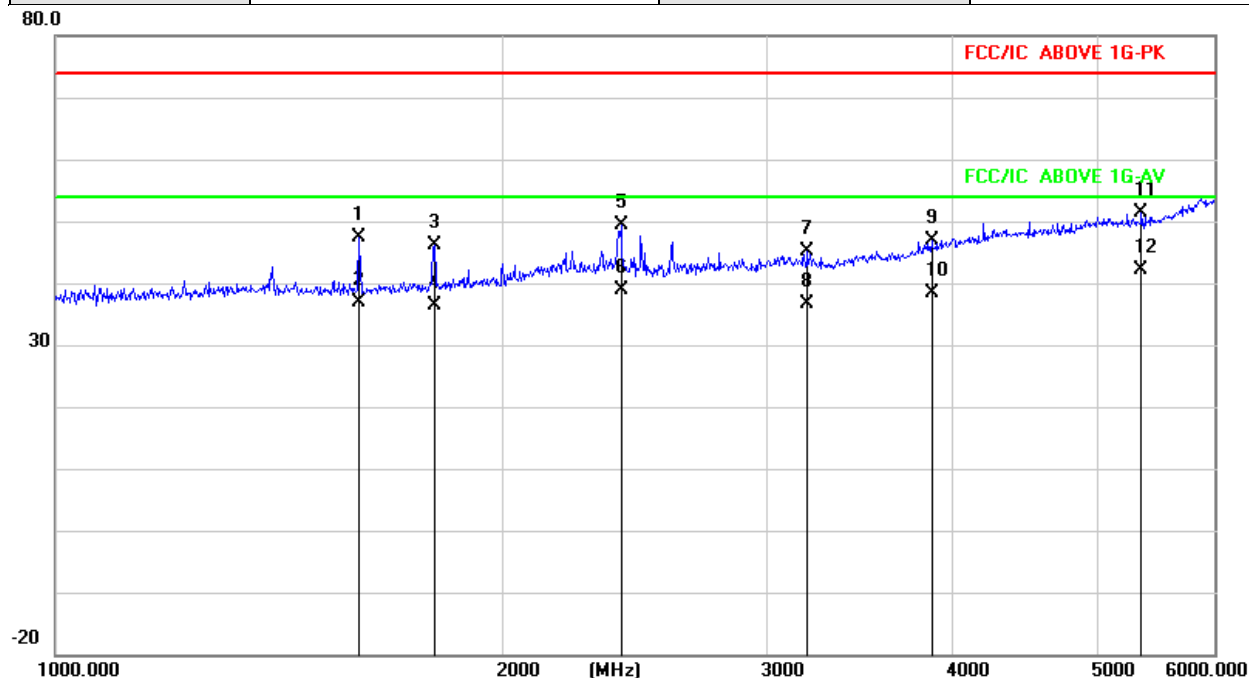


No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV/m)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	1206.996	47.69	-8.22	39.47	74.00	-34.53	peak
2	1206.996	38.20	-8.22	29.98	54.00	-24.02	AVG
3	1599.100	50.01	-7.92	42.09	74.00	-31.91	peak
4	1599.100	41.88	-7.92	33.96	54.00	-20.04	AVG
5	2000.527	52.77	-6.23	46.54	74.00	-27.46	peak
6	2000.527	43.46	-6.23	37.23	54.00	-16.77	AVG
7	2589.395	52.03	-5.12	46.91	74.00	-27.09	peak
8	2589.395	41.08	-5.12	35.96	54.00	-18.04	AVG
9	4009.288	50.51	-2.34	48.17	74.00	-25.83	peak
10	4009.288	38.79	-2.34	36.45	54.00	-17.55	AVG
11	4962.119	49.72	0.76	50.48	74.00	-23.52	peak
12	4962.119	38.92	0.76	39.68	54.00	-14.32	AVG



Radiated Emissions Test Data

Temperature:	26℃	Relative Humidity:	50%
Pressure:	101kPa	Phase :	Vertical
Test Voltage :	DC 3.7V	Test Mode:	Working



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV/m)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	1599.100	55.24	-7.92	47.32	74.00	-26.68	peak
2	1599.100	44.90	-7.92	36.98	54.00	-17.02	AVG
3	1796.617	53.33	-7.24	46.09	74.00	-27.91	peak
4	1796.617	43.52	-7.24	36.28	54.00	-17.72	AVG
5	2397.385	54.06	-4.75	49.31	74.00	-24.69	peak
6	2397.385	43.72	-4.75	38.97	54.00	-15.03	AVG
7	3199.044	49.65	-4.64	45.01	74.00	-28.99	peak
8	3199.044	41.33	-4.64	36.69	54.00	-17.31	AVG
9	3875.095	49.62	-2.71	46.91	74.00	-27.09	peak
10	3875.095	41.20	-2.71	38.49	54.00	-15.51	AVG
11	5359.542	50.75	0.74	51.49	74.00	-22.51	peak
12	5359.542	41.44	0.74	42.18	54.00	-11.82	AVG

Remark:

Factor = Antenna Factor + Cable Loss – Pre-amplifier.

8. EUT PHOTOGRAPHS

EUT Photo 1



9. EUT TEST SETUP PHOTOGRAPHS

Conducted emissions

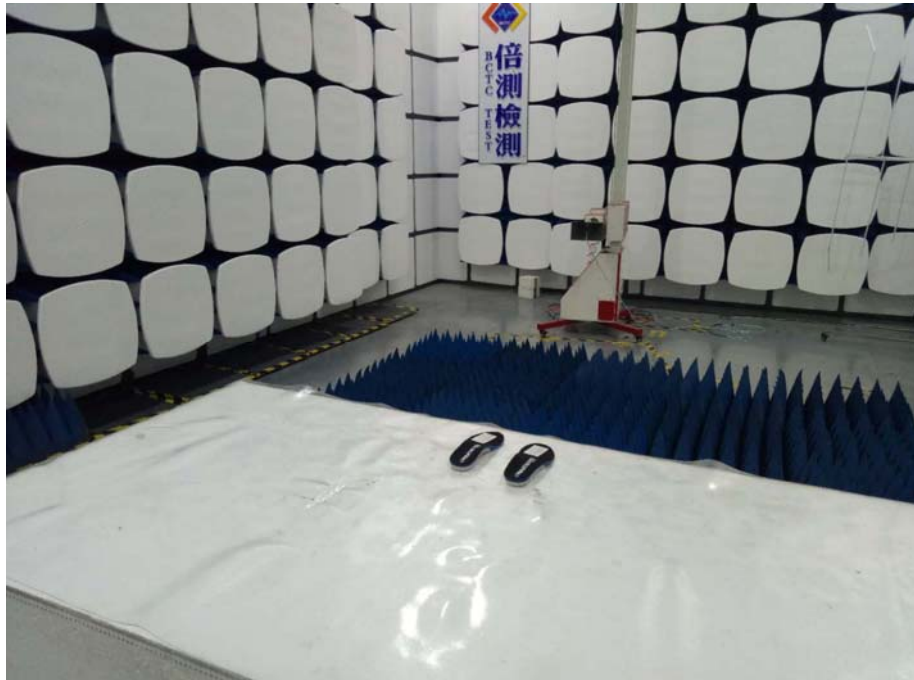


Radiated emission





Radiated emissions Above 1GHz



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