

# FCC TEST REPORT

For

Wahoo Fitness LLC

KICKR SNAP

Model No.: WFBKTR3

Prepared For : Wahoo Fitness LLC  
Address : 90 W. Wieuca Road #110 Atlanta, GA 30342, United States

Prepared By : Shenzhen Anbotek Compliance Laboratory Limited  
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Report Number : R0217030053W2  
Date of Test : Mar. 15~Apr. 19, 2017  
Date of Report : Apr. 19, 2017

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## TEST REPORT

Applicant : Wahoo Fitness LLC  
Manufacturer : Flextronics Electronics Technology (Suzhou) Co., Ltd.  
EUT : KICKR SNAP  
Model No. : WFBKTR3  
Serial No. : N.A.  
Trade Mark : N.A.  
Rating : Input DC 12V, 5A (Via adapter Input AC 100-240V, 50/60Hz, 1.5A,  
Output DC 12V, 5A)

Measurement Procedure Used:

FCC Part15 Subpart C, Paragraph 15.207, 15.249 & 15.209

The device described above is tested by Shenzhen Anbotech Compliance Laboratory Limited to determine the maximum emission levels emanating from the device and the severe levels of the device can endure and its performance criterion. The measurement results are contained in this test report and Shenzhen Anbotech Compliance Laboratory Limited is assumed full of responsibility for the accuracy and completeness of these measurements. Also, this report shows that the EUT (Equipment Under Test) is technically compliant with the FCC Part 15 Subpart C requirements.

This report applies to above tested sample only and shall not be reproduced in part without written approval of Shenzhen Anbotech Compliance Laboratory Limited.

Date of Test : Mar. 15~Apr. 19, 2017

Prepared by



*Winkey Wang*  
(Tested Engineer / Winkey Wang)

Reviewer :

*Brown Lu*  
(Project Manager / Brown Lu)

Approved & Authorized Signer :

*Tom Chen*  
(Manager / Tom Chen)

## 1. GENERAL INFORMATION

### 1.1. Description of Device (EUT)

EUT	: KICKR SNAP
Model Number	: WFBKTR3
Test Power Supply	: AC 120V, 60Hz for adapter / AC 240V, 60Hz for adapter
Frequency	: BT: 2402~2480MHz ANT+: 2457MHz
Modulation	: BT: GFSK ANT+: GFSK
Channel Spacing	: BT: 2MHz ANT+: 1MHz
Number of Channels	: BT: 40 ANT+: 1
Antenna Type	: Ceramic Chip Antenna (BT & ANT+)
Antenna Gain	: 0 dBi (BT & ANT+)
Applicant Address	: Wahoo Fitness LLC 90 W. Wieuca Road #110 Atlanta, GA 30342, United States
Manufacturer Address	: Flextronics Electronics Technology (Suzhou) Co., Ltd. No.268 Suhong Road, Suzhou Industrial Park, Suzhou City, Jiangsu Province, China
Date of receipt	: Mar. 15, 2017
Date of Test	: Mar. 15~Apr. 19, 2017
Note	: This report is for ANT+ module.

### 1.2. Auxiliary Equipment Used during Test

Adapter	M/N: SW60-12005000-W : Input: 100-240V~, 50/60Hz, 1.5A Output: DC 12V, 5A
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### 1.3. Description of Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

#### **FCC-Registration No.: 752021**

Shenzhen Anbotek Compliance Laboratory Limited, EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Registration 752021, July 06, 2016.

#### **IC-Registration No.: 8058A-1**

Shenzhen Anbotek Compliance Laboratory Limited., EMC Laboratory has been registered and fully described in a report filed with the (IC) Industry Canada. The acceptance letter from the IC is maintained in our files. Registration 8058A, June 13, 2016.

#### **Test Location**

All Emissions tests were performed at  
Shenzhen Anbotek Compliance Laboratory Limited. at 1/F., Building 1, SEC Industrial Park,  
No.0409 Qianhai Road, Nanshan District, Shenzhen, Guangdong, China

### 1.4. Measurement Uncertainty

Radiation Uncertainty	:	Ur = 4.1 dB (Horizontal) Ur = 4.3 dB (Vertical)
Conduction Uncertainty	:	Uc = 3.4dB

## 2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with ANSI C63.10: 2013 and FCC Part 15, Paragraph 15.249.

### 2.1. Summary of Test Results

The EUT has been tested according to the following specifications:

Standard	Test Type	Result	Notes
§15.207 (a)	Conducted Emission	PASS	Complies
§15.205	Restricted Band of Operation	PASS	Complies
§15.209 §15.249(a)	Radiated Emission	PASS	Complies
§15.215(c)	20dB Bandwidth Test	PASS	Complies
§15.203	Antenna Requirement	PASS	Complies

### 2.2. Description of Test Modes

The EUT has been tested under operating condition.

Manual control the EUT for staying in continuous transmitting mode.

### 3. Test Procedure

**GENERAL:** This report shall NOT be reproduced except in full without the written approval of Shenzhen Anbotek Compliance Laboratory Limited. The EUT was transmitting a test signal during the testing.

**RADIATION INTERFERENCE:** The test procedure used was ANSI STANDARD C63.10-2013 using a spectrum analyzer with a pre-selector. The analyzer was calibrated in dB above a microvolt at the output of the antenna. The resolution bandwidth was 100KHz and the video bandwidth was 300KHz up to 1.0GHz and 1.0MHz with a video BW of 3.0MHz above 1.0GHz. The ambient temperature of the EUT was 74.3oF with a humidity of 69%.

**FORMULA OF CONVERSION FACTORS:** The Field Strength at 3m was established by adding the meter reading of the spectrum analyzer (which is set to read in units of dBuV) to the antenna correction factor supplied by the antenna manufacturer. The antenna correction factors are stated in terms of dB. The gain of the Preselector was accounted for in the Spectrum Analyzer Meter Reading.

**Example:**

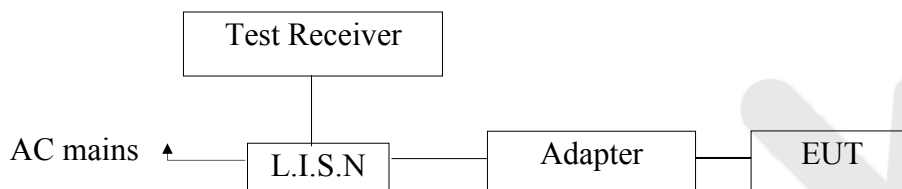
Freq (MHz) METER READING + ACF = FS  
20 dBuV + 10.36 dB = 30.36 dBuV/m @ 3m

**ANSI STANDARD C63.10-2013 10.1.7 MEASUREMENT PROCEDURES:** The EUT was placed on a table 80 cm high and with dimensions of 1m by 1.5m. The EUT was placed in the center of the table (1.5m side). The table used for radiated measurements is capable of continuous rotation. When an emission was found, the table was rotated to produce the maximum signal strength. At this point, the antenna was raised and lowered from 1m to 4m. The antenna was placed in both the horizontal and vertical planes.

## 4. Conducted Emission

### 4.1 Block Diagram of Test Setup

#### 4.1.1. Block diagram of connection between the EUT and simulators



### 4.2 Power Line Conducted Emission Measurement Limits (15.207)

Frequency MHz	Limits dB(μV)	
	Quasi-peak Level	Average Level
0.15 ~ 0.50	66 ~ 56*	56 ~ 46*
0.50 ~ 5.00	56	46
5.00 ~ 30.00	60	50

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

### 4.3 Configuration of EUT on Measurement

The following equipments are installed on Power Line Conducted Emission Measurement to meet the commission requirement and operating regulations in a manner which tends to maximize its emission characteristics in a normal application.

### 4.4 Operating Condition of EUT

- 4.4.1. Setup the EUT and simulator as shown as Section 4.1.
- 4.4.2. Turn on the power of all equipment.
- 4.4.3. Let the EUT work in test mode (BT Mode) and measure it.



## 4.5 Test Procedure

The EUT system is connected to the power mains through a line impedance stabilization network (L.I.S.N.). This provides a 50ohm coupling impedance for the EUT system. Please refer the block diagram of the test setup and photographs. Both sides of AC line are checked to find out the maximum conducted emission. In order to find the maximum emission levels, the relative positions of equipment and all of the interface cables shall be changed according to FCC ANSI C63.10-2013 on Conducted Emission Measurement.

The bandwidth of test receiver (ESCI) set at 9KHz.

The frequency range from 150KHz to 30MHz is checked.

The test results are reported on Section 4.6.

### Test Equipment

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Two-Line V-network	Rohde & Schwarz	ENV216	100055	Jul. 19, 2016	1 Year
2.	EMI Test Receiver	Rohde & Schwarz	ESCI	100627	Jun. 17, 2016	1 Year
3.	RF Switching Unit	Compliance Direction	RSU-M2	38303	Jun. 17, 2016	1 Year

## 4.6 Power Line Conducted Emission Measurement Results

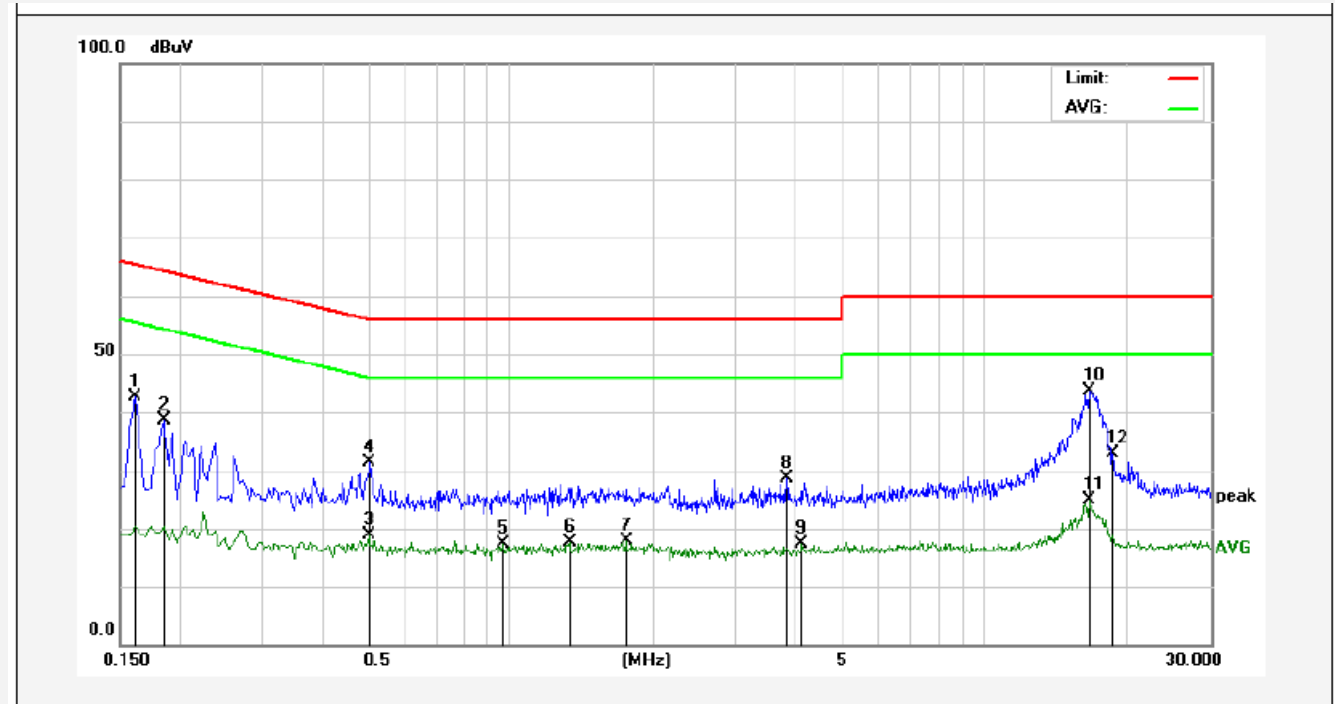
**PASS.**

The frequency range from 150KHz to 30 MHz is investigated.

Please to see the following pages

### CONDUCTED EMISSION TEST DATA

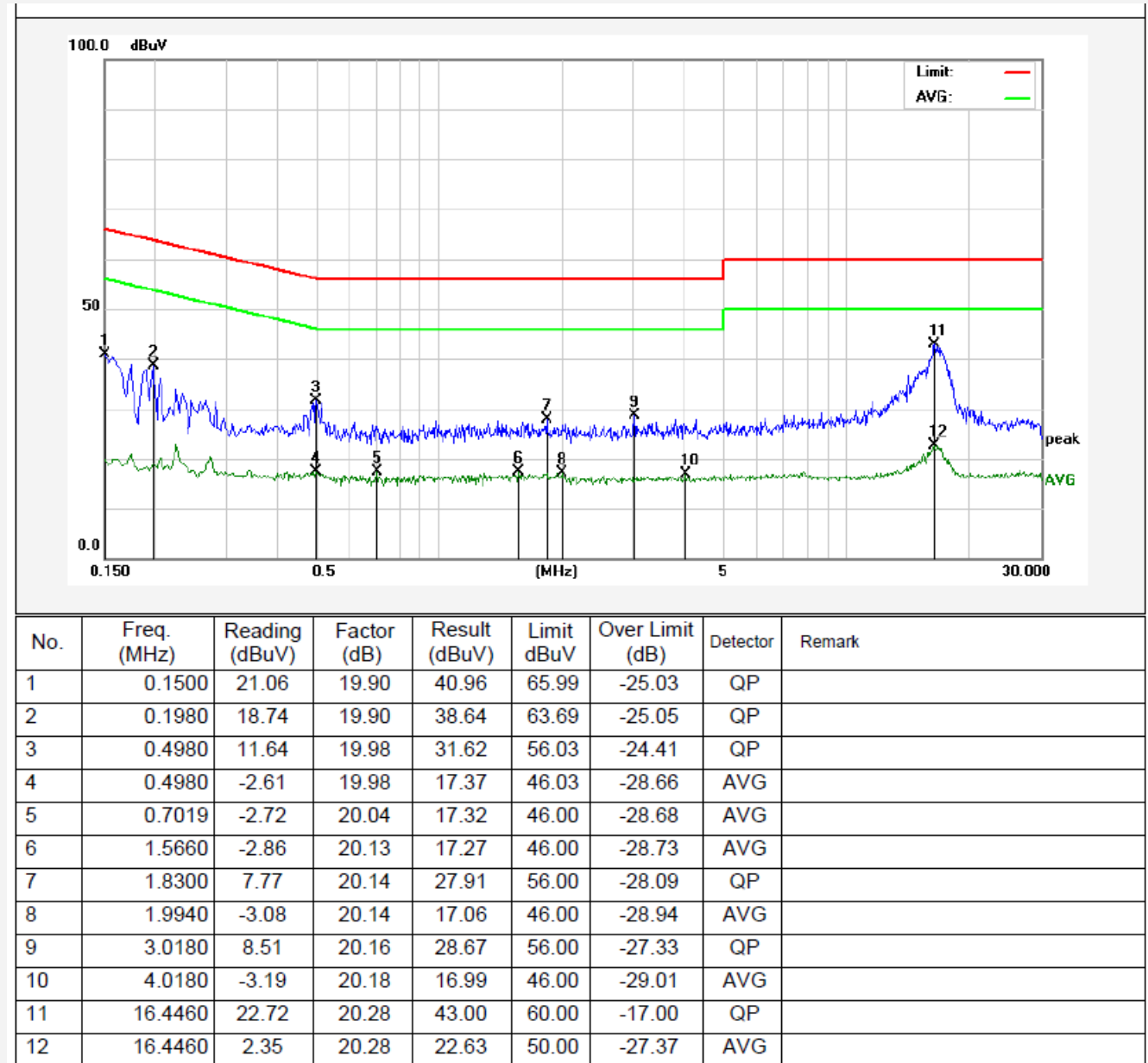
Test Site: 1# Shielded Room  
Operating Condition: Charge Mode  
Test Specification: AC 120V, 60Hz for adapter  
Comment: Live Line  
Tem.:25°C Hum.:50%



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit dBuV	Over Limit (dB)	Detector	Remark
1	0.1620	22.79	19.90	42.69	65.36	-22.67	QP	
2	0.1860	18.73	19.90	38.63	64.21	-25.58	QP	
3	0.5020	-1.11	19.98	18.87	46.00	-27.13	AVG	
4	0.5060	11.41	19.98	31.39	56.00	-24.61	QP	
5	0.9660	-2.62	20.11	17.49	46.00	-28.51	AVG	
6	1.3340	-2.56	20.13	17.57	46.00	-28.43	AVG	
7	1.7620	-2.31	20.14	17.83	46.00	-28.17	AVG	
8	3.8300	8.43	20.18	28.61	56.00	-27.39	QP	
9	4.1180	-2.75	20.18	17.43	46.00	-28.57	AVG	
10	16.6540	23.42	20.29	43.71	60.00	-16.29	QP	
11	16.6540	4.51	20.29	24.80	50.00	-25.20	AVG	
12	18.6540	12.65	20.32	32.97	60.00	-27.03	QP	

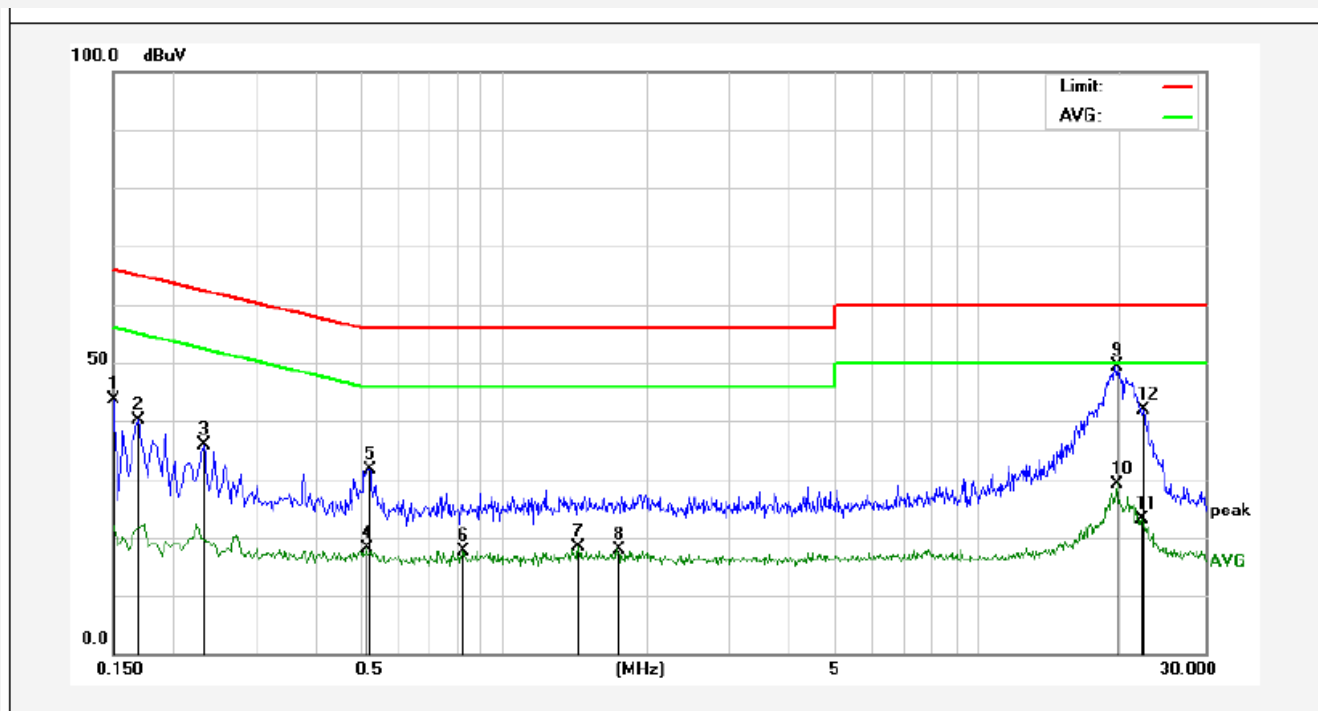
### CONDUCTED EMISSION TEST DATA

Test Site: 1# Shielded Room  
Operating Condition: Charge Mode  
Test Specification: AC 120V, 60Hz for adapter  
Comment: Neutral Line  
Tem.:25°C Hum.:50%



### CONDUCTED EMISSION TEST DATA

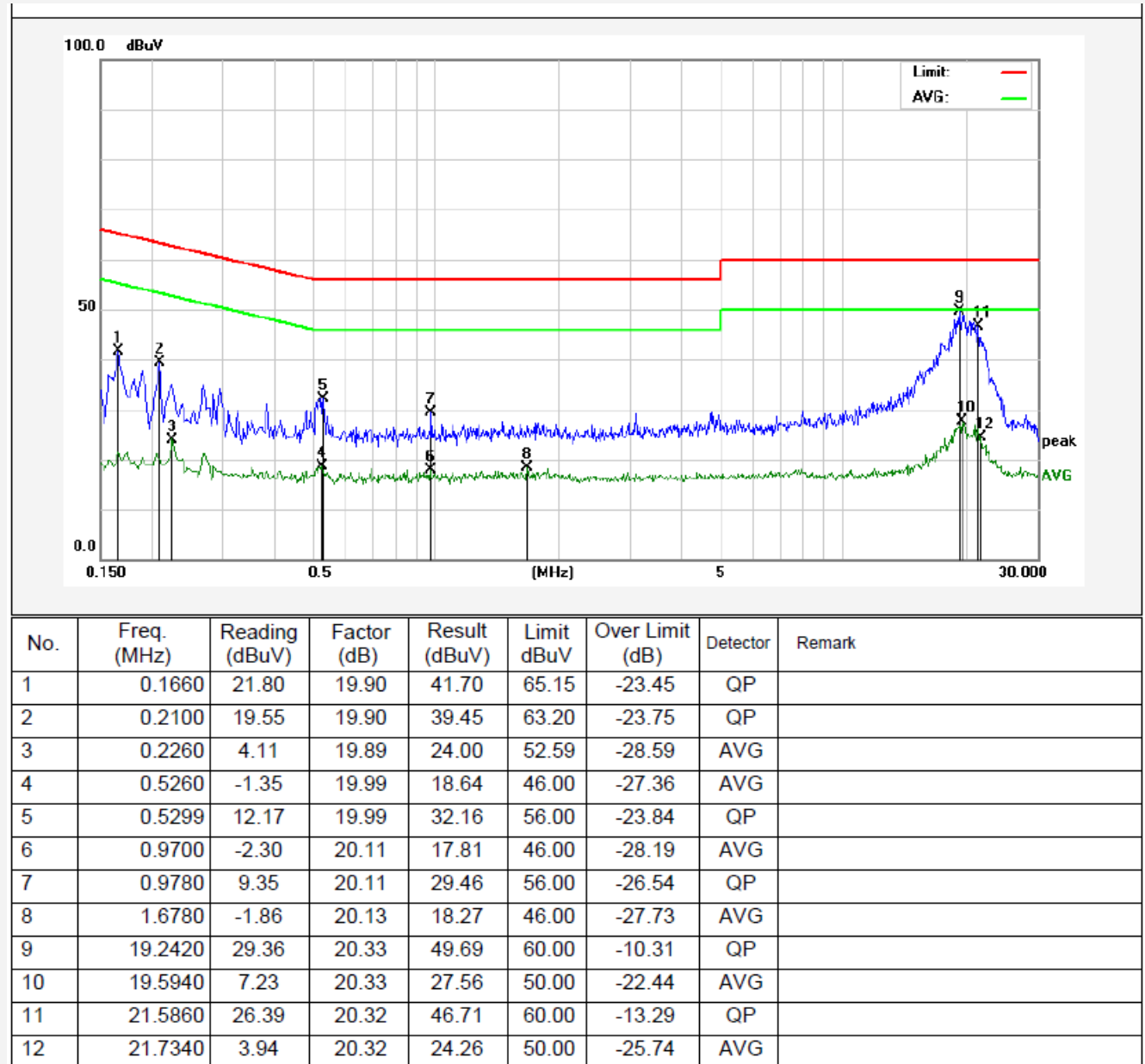
Test Site: 1# Shielded Room  
Operating Condition: Charge Mode  
Test Specification: AC 240V, 60Hz for adapter  
Comment: Live Line  
Tem.:25°C Hum.:50%



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit dBuV	Over Limit (dB)	Detector	Remark
1	0.1500	23.66	19.90	43.56	65.99	-22.43	QP	
2	0.1700	20.19	19.90	40.09	64.96	-24.87	QP	
3	0.2340	16.06	19.89	35.95	62.30	-26.35	QP	
4	0.5140	-1.96	19.98	18.02	46.00	-27.98	AVG	
5	0.5220	11.70	19.99	31.69	56.00	-24.31	QP	
6	0.8180	-2.36	20.07	17.71	46.00	-28.29	AVG	
7	1.4340	-1.73	20.13	18.40	46.00	-27.60	AVG	
8	1.7420	-2.34	20.13	17.79	46.00	-28.21	AVG	
9	19.6340	29.04	20.33	49.37	60.00	-10.63	QP	
10	19.6340	8.92	20.33	29.25	50.00	-20.75	AVG	
11	22.0940	2.90	20.31	23.21	50.00	-26.79	AVG	
12	22.2700	21.54	20.31	41.85	60.00	-18.15	QP	

### CONDUCTED EMISSION TEST DATA

Test Site: 1# Shielded Room  
Operating Condition: Charge Mode  
Test Specification: AC 240V, 60Hz for adapter  
Comment: Neutral Line  
Tem.:25°C Hum.:50%



## 5. Radiation Interference

### 5.1. Requirements (15.249, 15.209):

FIELD STRENGTH of Fundamental: @3M	FIELD STRENGTH of Harmonics	S15.209	
902-928 MHZ		30 - 88 MHz	40 dBuV/m
2.4-2.4835 GHz		88 - 216 MHz	43.5
94 dB $\mu$ V/m @3m	54 dB $\mu$ V/m @3m	216 - 960 MHz	46
		ABOVE 960 MHz	54dBuV/m

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 15.209, whichever is the lesser attenuation.

### 5.2. Test Procedure

For below 1GHz, the EUT is placed on a turn table which is 0.8 meter high above the ground. For above 1GHz, the EUT is placed on a turn table which is 1.5 meter high above the ground. The turn table can rotate 360 degrees to determine the position of the maximum emission level. The EUT is set 3 meters away from the receiving antenna which is mounted on a antenna tower. The antenna can be moved up and down from 1 to 4 meters to find out the maximum emission level. Both horizontal and vertical polarization of the antenna are set on test.

All readings from 30MHz to 1GHz are quasi-peak values with a resolution bandwidth of 120kHz. All reading are above 1GHz, peak & average values with a resolution bandwidth of 1MHz. The EUT is tested in 9\*6\*6 Chamber. The device is evaluated in xyz orientation. The test results are listed in Section 5.3.

### 5.3 Test Equipment

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Two-Line V-network	Rohde & Schwarz	ENV216	100055	Jul. 19, 2016	1 Year
2.	EMI Test Receiver	Rohde & Schwarz	ESCI	100627	Jun. 17, 2016	1 Year
3.	RF Switching Unit	Compliance Direction	RSU-M2	38303	Jun. 17, 2016	1 Year
4.	Spectrum Analysis	Agilent	E4407B	US39390582	Jul. 12, 2016	1 Year
5.	Preamplifier	Instruments corporation	EMC011830	980100	Jun. 17, 2016	1 Year
6.	EMI Test Receiver	Rohde & Schwarz	ESPI	101604	Jun. 17, 2016	1 Year
7.	Double Ridged Horn Antenna	Instruments corporation	GTH-0118	351600	May 06, 2016	1 Year
8.	Bilog Broadband Antenna	Schwarzbeck	VULB9163	VULB 9163-289	May 06, 2016	1 Year
9.	Loop Antenna	Schwarzbeck	FMZB 1519	012	May 11, 2016	1 Year
10.	Pre-amplifier	SONOMA	310N	186860	Jun. 17, 2016	1 Year
11.	EMI Test Software EZ-EMC	SHURPLE	N/A	N/A	N/A	N/A
12.	Power Sensor	Agilent	KFSW150502	15I00041SN045	Jun. 17, 2016	1 Year
13.	MXA Spectrum Analysis	Agilent	N9020A	MY51170037	Jun. 17, 2016	1 Year
14.	MXG RF Vector Signal Generator	Agilent	N5182A	MY48180656	Jun. 17, 2016	1 Year
15.	Signal Generator	Agilent	E4421B	MY41000743	Jun. 17, 2016	1 Year
16.	DC Power supply	IV	IV-8080	YQSB0096	Jun. 17, 2016	1 Year
17.	TEMP&HUMI PROGRAMMABLE CHAMBER	Bell Group	BE-THK-150M8	SE-0137	Jun. 17, 2016	1 Year

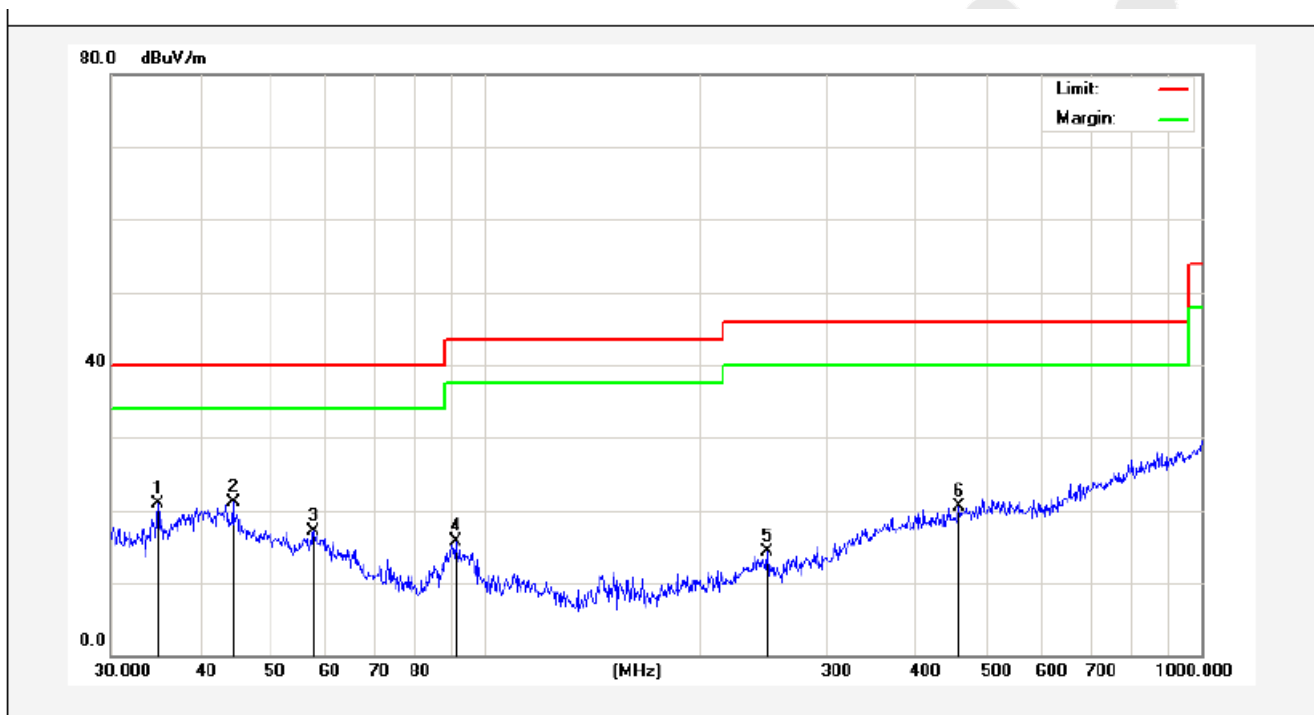
### 5.4. Test Results

PASS.

Please refer the following pages. Only the worst case (x orientation).

**Below 1GHz:**

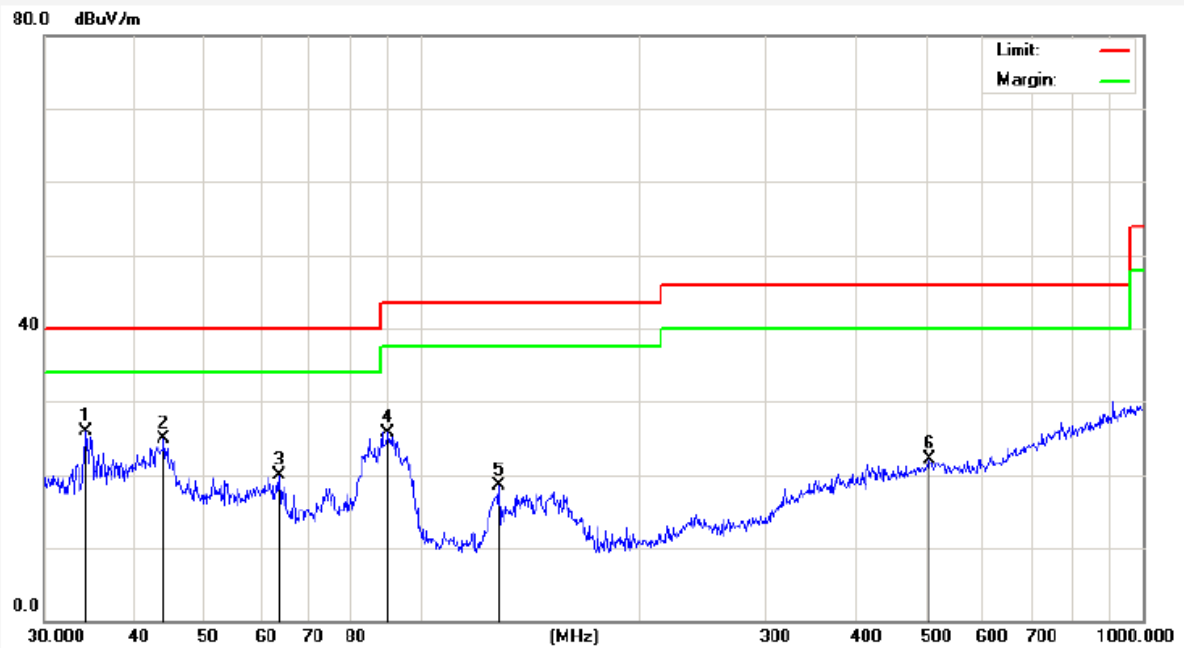
<b>Job No.:</b>	<b>0217030053W</b>	<b>Polarization:</b>	<b>Horizontal</b>
<b>Standard:</b>	<b>(RE)FCC PART15 C _3m</b>	<b>Power Source:</b>	<b>AC 120V, 60Hz for adapter</b>
<b>Test item:</b>	<b>Radiation Test</b>	<b>Temp.(C)/Hum.(%RH):</b>	<b>24.3( C)/55%RH</b>
<b>Mode:</b>	<b>ON</b>	<b>Distance:</b>	<b>3m</b>
<b>Note:</b>	<b>30-1000MHz</b>		



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/	Over Limit (dB)	Detector	Height (cm)	degree (deg)	Remark
1	34.8823	35.23	-14.35	20.88	40.00	-19.12	peak			
2	44.4307	33.23	-12.11	21.12	40.00	-18.88	peak			
3	57.5938	32.32	-15.17	17.15	40.00	-22.85	peak			
4	90.8554	38.21	-22.57	15.64	43.50	-27.86	peak			
5	247.6819	32.72	-18.44	14.28	46.00	-31.72	peak			
6	459.1143	32.62	-12.10	20.52	46.00	-25.48	peak			



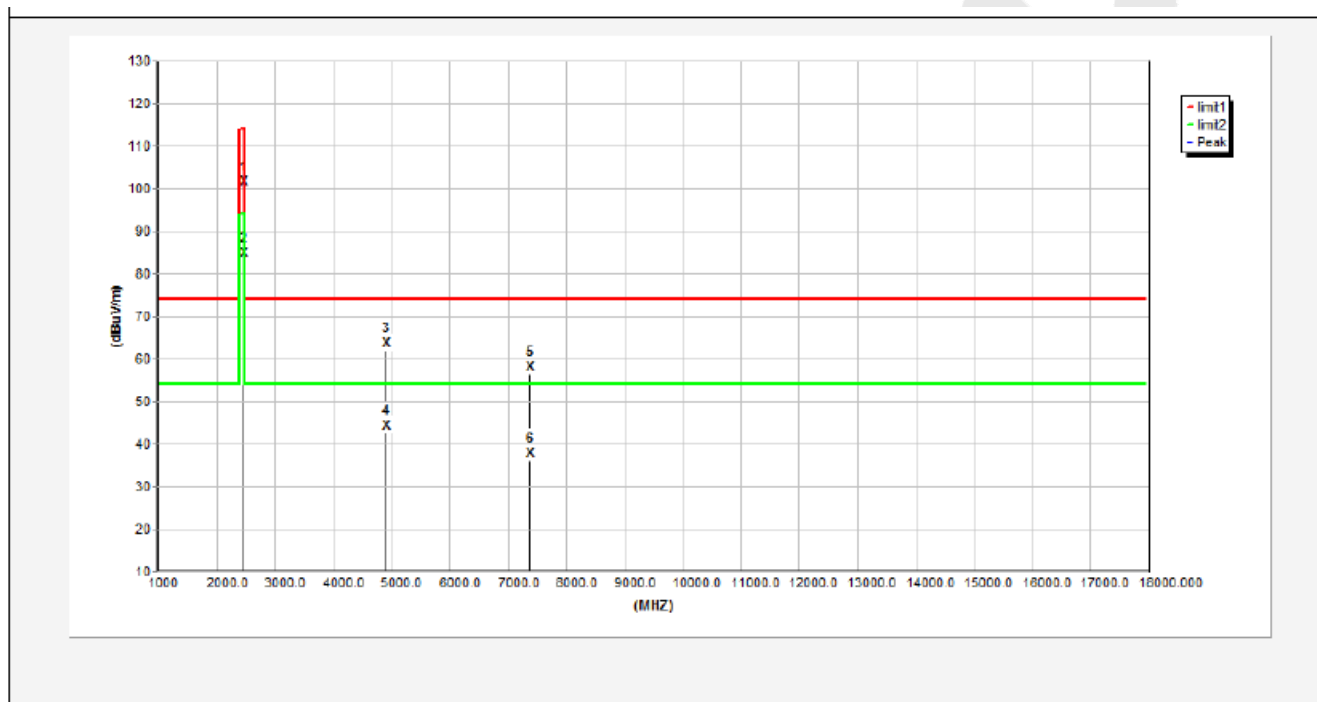
Job No.:	0217030053W	Polarization:	Vertical
Standard:	(RE)FCC PART15 C _3m	Power Source:	AC 120V, 60Hz for adapter
Test item:	Radiation Test	Temp.(C)/Hum.(%RH):	24.3( C)/55%RH
Mode:	ON	Distance:	3m
Note:	30-1000MHz		



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/)	Over Limit (dB)	Detector	Height (cm)	degree (deg)	Remark
1	34.2760	40.68	-14.68	26.00	40.00	-14.00	peak			
2	43.9658	36.73	-11.92	24.81	40.00	-15.19	peak			
3	63.5356	36.86	-16.86	20.00	40.00	-20.00	peak			
4	89.9047	43.57	-17.89	25.68	43.50	-17.82	peak			
5	128.1130	36.12	-17.54	18.58	43.50	-24.92	peak			
6	506.4791	33.03	-10.84	22.19	46.00	-23.81	peak			

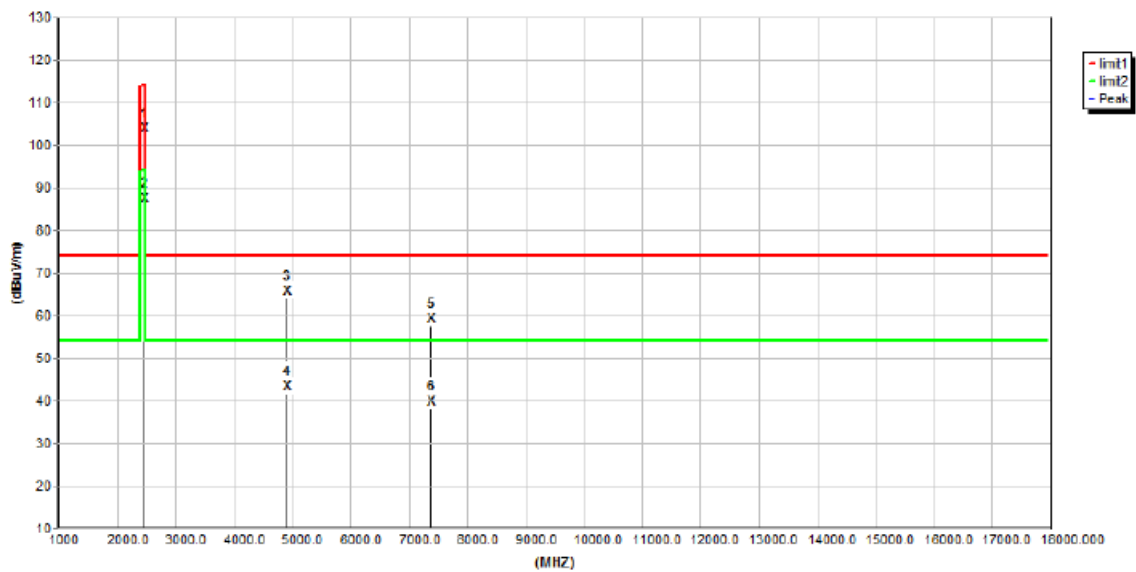
**Above 1 GHz:**

Job No.:	0217030053W	Polarization:	Horizontal
Standard:	(RE)FCC PART15 C _3m	Power Source:	AC 120V, 60Hz for adapter
Test item:	Radiation Test	Temp.(C)/Hum.(%RH):	24.3( C)/55%RH
Mode:	TX Mode	Distance:	3m
Note:	Above 1000MHz		



No.	Freq. (MHz)	Reading (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Amp. (dB)	Level (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detect or
1	2457.0000	95.91	31.21	3.56	29.30	101.38	114.00	-12.62	Peak
2	2457.0000	79.15	31.21	3.56	29.30	84.62	94.00	-9.38	AVG
3	4914.0000	56.96	34.01	6.68	34.14	63.51	74.00	-10.49	Peak
4	4914.0000	37.70	34.01	6.68	34.14	44.25	54.00	-9.75	AVG
5	7371.0000	48.43	36.16	7.75	34.48	57.86	74.00	-16.14	Peak
6	7371.0000	28.20	36.16	7.75	34.48	37.63	54.00	-16.37	AVG

Job No.: 0217030053W Polarization: Vertical  
Standard: (RE)FCC PART15 C \_3m Power Source: AC 120V, 60Hz for adapter  
Test item: Radiation Test Temp.(C)/Hum.(%RH): 24.3( C)/55%RH  
Mode: TX Mode Distance: 3m  
Note: Above 1000MHz



No.	Freq. (MHz)	Reading (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Amp. (dB)	Level (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detect or
1	2457.0000	98.25	31.21	3.56	29.30	103.72	114.00	-10.28	Peak
2	2457.0000	81.98	31.21	3.56	29.30	87.45	94.00	-6.55	AVG
3	4914.0000	58.96	34.01	6.68	34.14	65.51	74.00	-8.49	Peak
4	4914.0000	36.78	34.01	6.68	34.14	43.33	54.00	-10.67	AVG
5	7371.0000	49.82	36.16	7.75	34.48	59.25	74.00	-14.75	Peak
6	7371.0000	30.35	36.16	7.75	34.48	39.78	54.00	-14.22	AVG

## 6. Bandedge

### 6.1. Requirements (15.249):

The field strength of any emissions appearing outside the band edges and up to 10 kHz above and below the band edges shall be attenuated at least 50 dB below the level of the carrier or to the general limits of 15.249.

### 6.2. Test Procedure

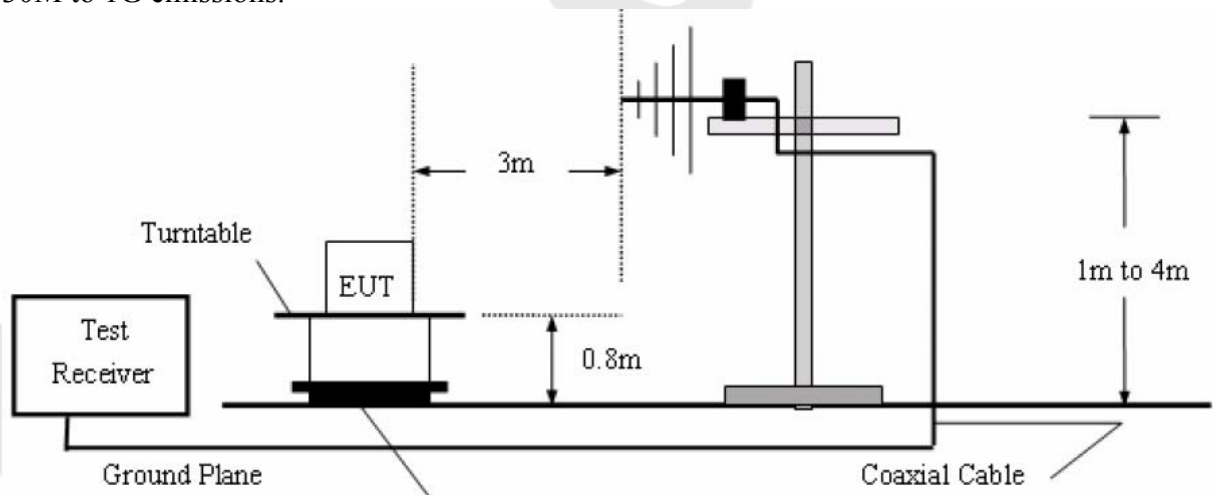
The EUT is placed on a turn table which is 1.5 meter high above the ground. The turn table can rotate 360 degrees to determine the position of the maximum emission level. The EUT is set 3 meters away from the receiving antenna which is mounted on a antenna tower. The antenna can be moved up and down from 1 to 4 meters to find out the maximum emission level. Both horizontal and vertical polarization of the antenna are set on test. The device is evaluated in xyz orientation.

#### Test Equipment

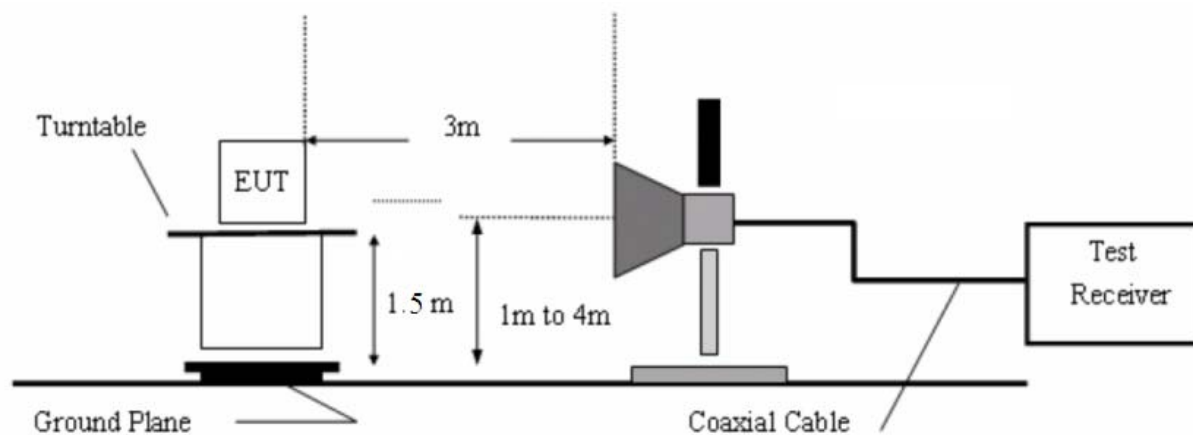
Same as the equipment listed in 6.3.

### 6.3. Test Configuration:

30M to 1G emissions:



1G to 40G emissions:

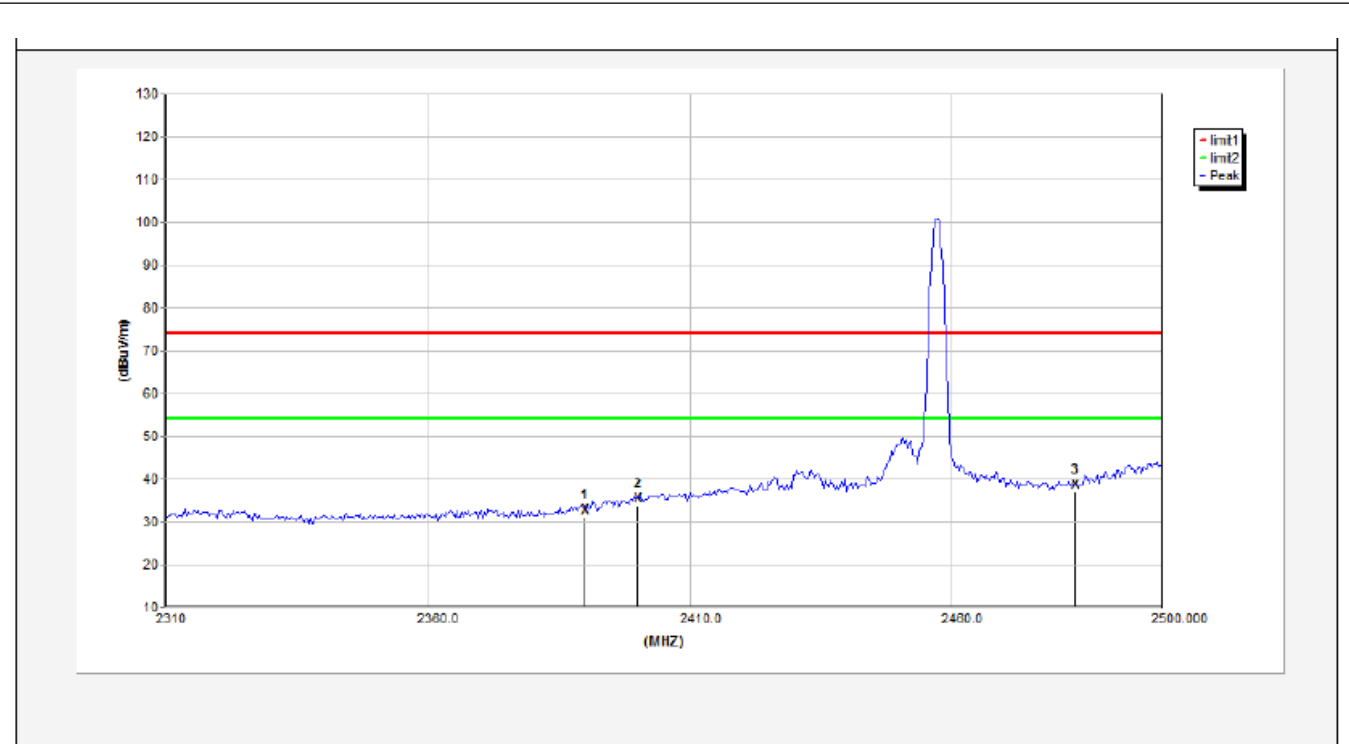


#### 6.4. Test Results

Pass.

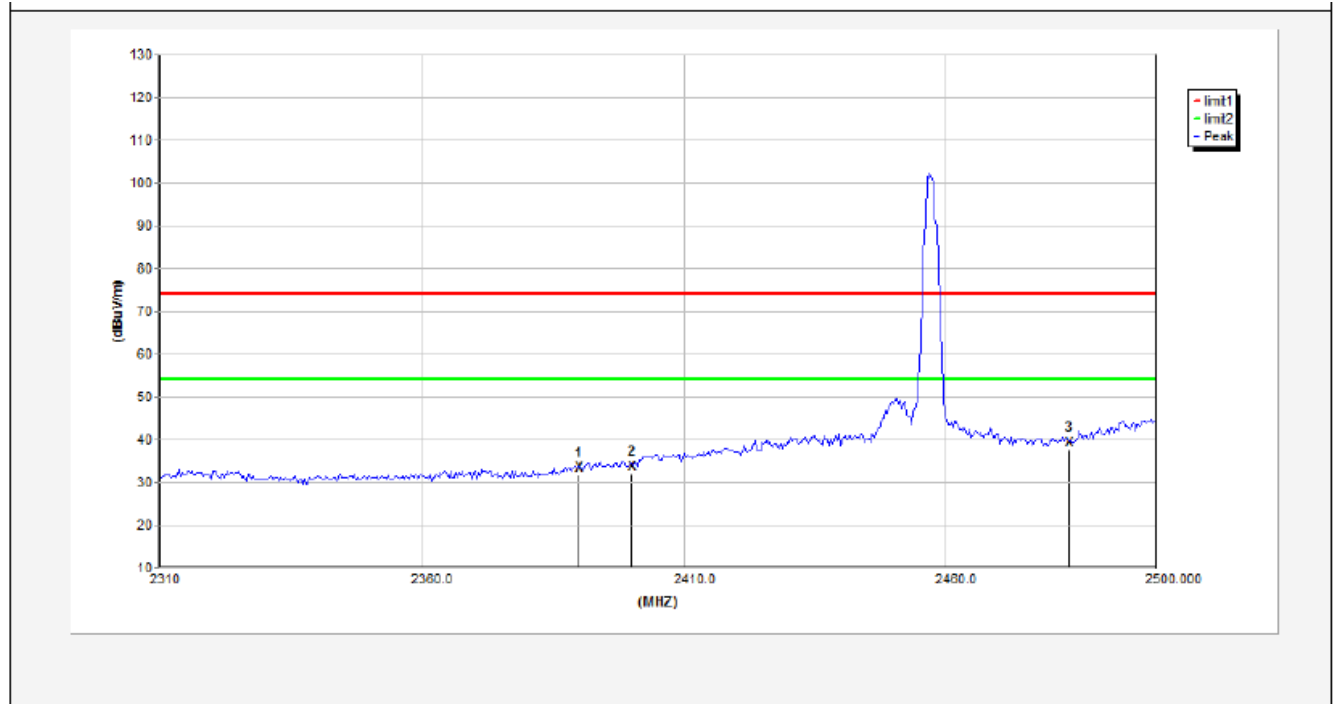
Please refer the following plot. Only the worst case (x orientation).

Job No.:	0217030053W	Polarization:	Horizontal
Standard:	(RE)FCC PART15 C _3m	Power Source:	AC 120V, 60Hz for adapter
Test item:	Radiation Test	Temp.(C)/Hum.(%RH):	24.3( C)/55%RH
Note:	PEAK	Distance:	3m



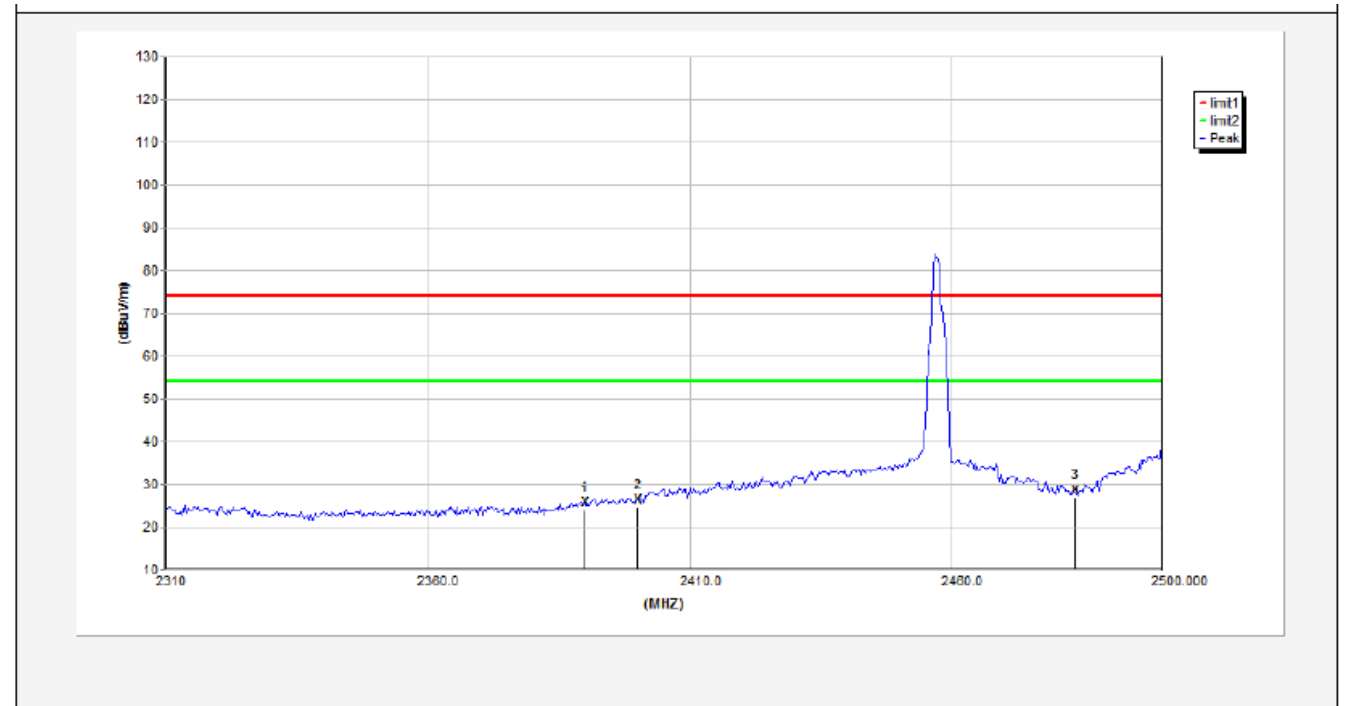
No.	Freq. (MHz)	Reading (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Amp. (dB)	Level (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detect or
1	2390.0000	34.12	29.15	3.41	34.01	32.67	74.00	-41.33	Peak
2	2400.0000	29.69	31.21	3.56	29.30	35.16	74.00	-38.84	Peak
3	2483.5000	31.99	34.01	6.68	34.14	38.54	74.00	-35.46	Peak

Job No.:	0217030053W	Polarization:	Vertical
Standard:	(RE)FCC PART15 C _3m	Power Source:	AC 120V, 60Hz for adapter
Test item:	Radiation Test	Temp.(C)/Hum.(%RH):	24.3( C)/55%RH
Note:	PEAK	Distance:	3m



No.	Freq. (MHz)	Reading (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Amp. (dB)	Level (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detect or
1	2390.0000	31.86	29.15	3.41	31.23	33.19	74.00	-40.81	Peak
2	2400.0000	28.18	31.21	3.56	29.30	33.65	74.00	-40.35	Peak
3	2483.5000	32.66	34.01	6.68	34.14	39.21	74.00	-34.79	Peak

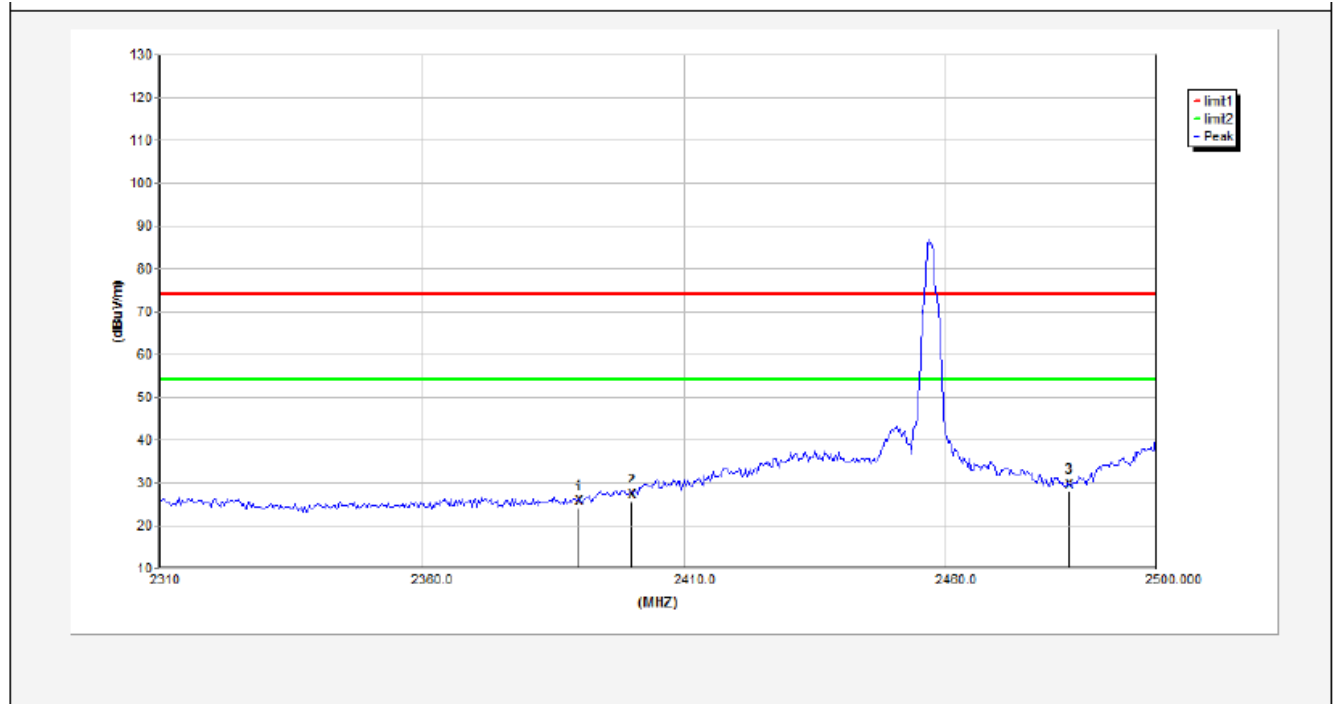
Job No.:	0217030053W	Polarization:	Horizontal
Standard:	(RE)FCC PART15 C _3m	Power Source:	AC 120V, 60Hz for adapter
Test item:	Radiation Test	Temp.(C)/Hum.(%RH):	24.3( C)/55%RH
Note:	AV	Distance:	3m



No.	Freq. (MHz)	Reading (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Amp. (dB)	Level (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detect or
1	2390.0000	24.13	29.15	3.41	31.23	25.46	54.00	-28.54	AVG
2	2400.0000	20.85	31.21	3.56	29.30	26.32	54.00	-27.68	AVG
3	2483.5000	21.87	34.01	6.68	34.14	28.42	54.00	-25.58	AVG



Job No.:	0217030053W	Polarization:	Vertical
Standard:	(RE)FCC PART15 C_3m	Power Source:	AC 120V, 60Hz for adapter
Test item:	Radiation Test	Temp.(C)/Hum.(%RH):	24.3( C)/55%RH
Note:	AV	Distance:	3m



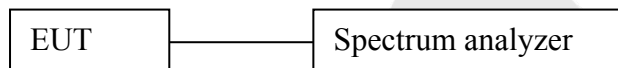
No.	Freq. (MHz)	Reading (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Amp. (dB)	Level (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector
1	2390.0000	24.40	29.15	3.41	31.23	25.73	54.00	-28.27	AVG
2	2400.0000	21.73	31.21	3.56	29.30	27.20	54.00	-26.80	AVG
3	2483.5000	22.95	34.01	6.68	34.14	29.50	54.00	-24.50	AVG

## 7. Occupied Bandwidth

### 7.1. Requirements :

According to 15.215 (c), intentional radiators operating under the alternative provisions to the general emission limits, as contained in §§15.217 through 15.257 and in Subpart E of this part, must be designed to ensure that the 20 dB bandwidth of the emission, or whatever bandwidth may otherwise be specified in the specific rule section under which the equipment operates, is contained within the frequency band designated in the rule section under which the equipment is operated. The requirement to contain the designated bandwidth of the emission within the specified frequency band includes the effects from frequency sweeping, frequency hopping and other modulation techniques that may be employed as well as the frequency stability of the transmitter over expected variations in temperature and supply voltage. If a frequency stability is not specified in the regulations, it is recommended that the fundamental emission be kept within at least the central 80% of the permitted band in order to minimize the possibility of out-of-band operation.

### 7.2. Test SET-UP



### 7.3 Test Equipment

Same as the equipment listed in 5.3.

### 7.4. Test Results

Pass.

Please refer the following plot.

20dB Down:



## 8. ANTENNA APPLICATION

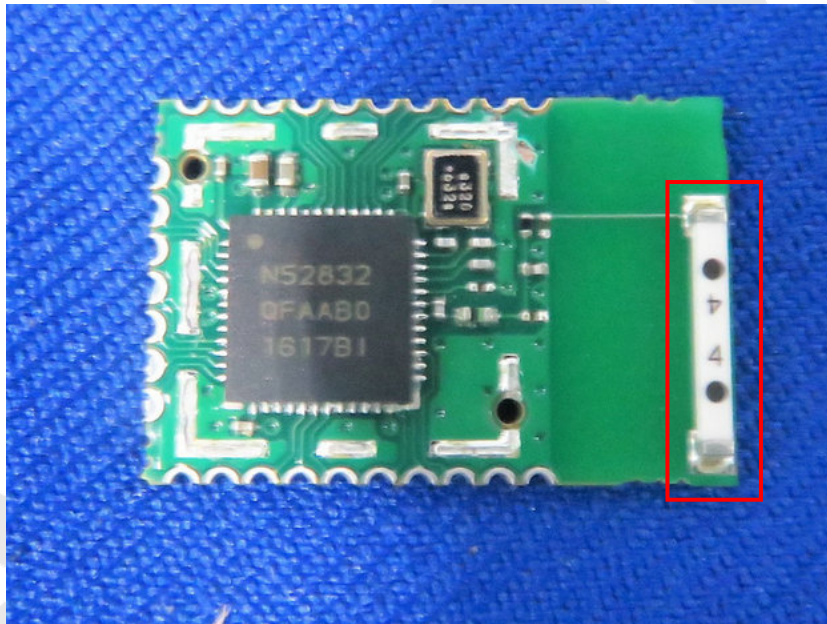
### 8.1. Antenna requirement

The EUT'S antenna is met the requirement of FCC part 15C 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. 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.

### 8.2. Result

The EUT's antenna used a ceramic chip antenna which is permanently attached, The antenna's gain is 0dBi and meets the requirement.



## 9. PHOTOGRAPH

Photo of Conducted Emission Measurement

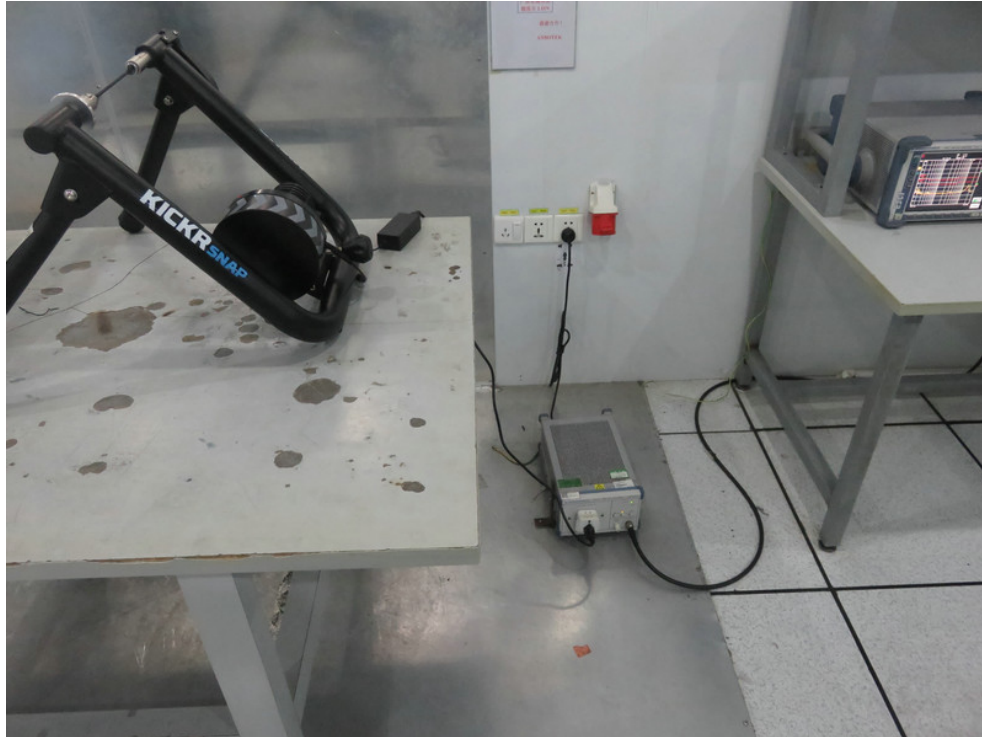
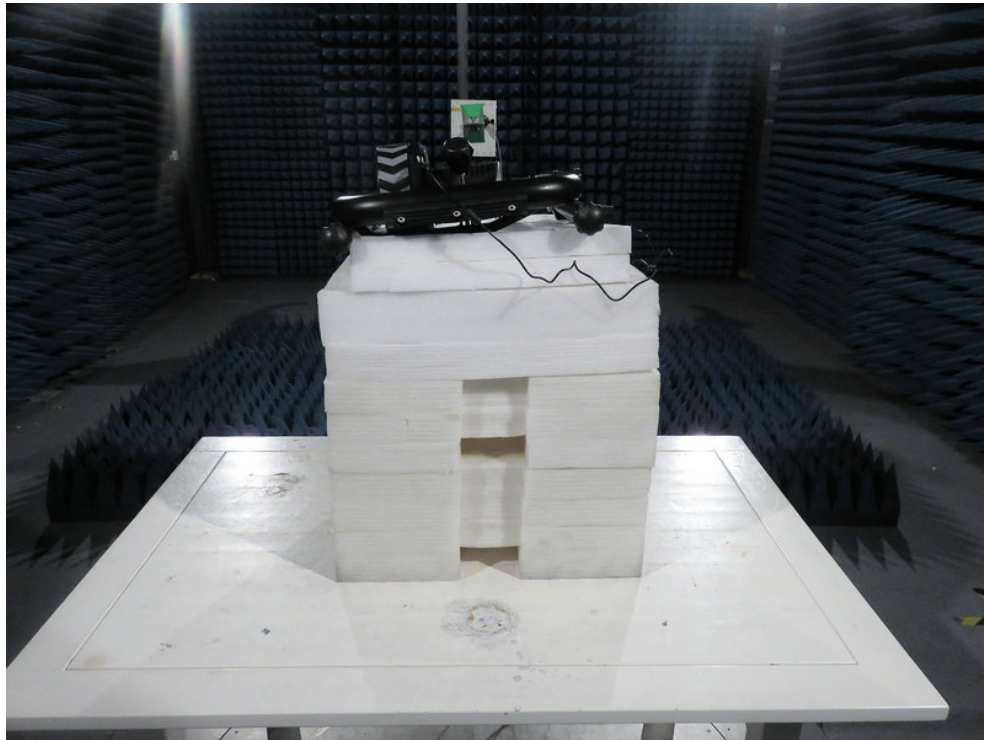


Photo of Radiation Emission Test







## APPENDIX II -- EXTERNAL PHOTOGRAPH













## APPENDIX III -- INTERNAL PHOTOGRAPH

