

# FCC TEST REPORT

For

Viaan Electronics

VELORA102

Model No.: VELORA102

Prepared For : Viaan Electronics

Address : 125 N Market St. Suite 1725, Wichita, Kansas 67202, United States

Prepared By : Shenzhen Anbotek Compliance Laboratory Limited

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Report Number : R0117020640W

Date of Test : Feb. 23~ Mar. 30, 2017

Date of Report : Mar. 30, 2017

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Anbotech

## TEST REPORT

Applicant : Viaan Electronics  
Manufacturer : Viaan Electronics  
Product Name : VELORA102  
Model No. : VELORA102  
Trade Mark : Wireless  
Rating(s) : DC 3.3V

**Test Standard(s) : FCC Part15 Subpart C 2016, Section 15.247**

**Test Method(s) : ANSI C63.10: 2013, KDB558074 D01 DTS Meas Guidance v03r05**

The device described above is tested by Shenzhen Anbotek 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 Anbotek 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 Anbotek Compliance Laboratory Limited.

Date of Test : Feb. 23~ Mar. 30, 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. Client Information

Applicant	:	Viaan Electronics
Address	:	125 N Market St. Suite 1725, Wichita, Kansas 67202, United States
Manufacturer	:	Viaan Electronics
Address	:	125 N Market St. Suite 1725, Wichita, Kansas 67202, United States

### 1.2. Description of Device (EUT)

Product Name	:	VELORA102	
Model No.	:	VELORA102	
Trade Mark	:	Wireless	
Test Power Supply	:	AC 120V, 60Hz for adapter/AC 240V, 60Hz for adapter/ DC 5V by developing PCB	
Product Description	:	Operation Frequency:	915MHz
		Transfer Rate:	1 Mbits/s
		Number of Channel:	1 Channels
		Modulation Type:	FSK
		Antenna Type:	Ceramic Antenna
		Antenna Gain(Peak):	2 dBi

**Remark:** 1)For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual.

### 1.3. Auxiliary Equipment Used During Test

Adapter	:	Manufacturer: ZTE M/N: STC-A2050I1000USBA-C S/N: 201202102100876 Input: 100-240V~50/60Hz 0.3A Output: DC 5V, 1000mA
USB Cable	:	Length: 9cm Shielded Type: No Shielded Ferrite Core: None (Provided by customer)

#### 1.4. Description of Test Modes

To investigate the maximum EMI emission characteristics generates from EUT, the test system was pre-scanning tested base on the consideration of following EUT operation mode or test configuration mode which possible have effect on EMI emission level. Each of these EUT operation mode(s) or test configuration mode(s) mentioned above was evaluated respectively.

Pretest Mode	Description
Mode 1	CH01
Mode 2	Keeping TX mode

For Conducted Emission	
Final Test Mode	Description
Mode 2	Keeping TX mode

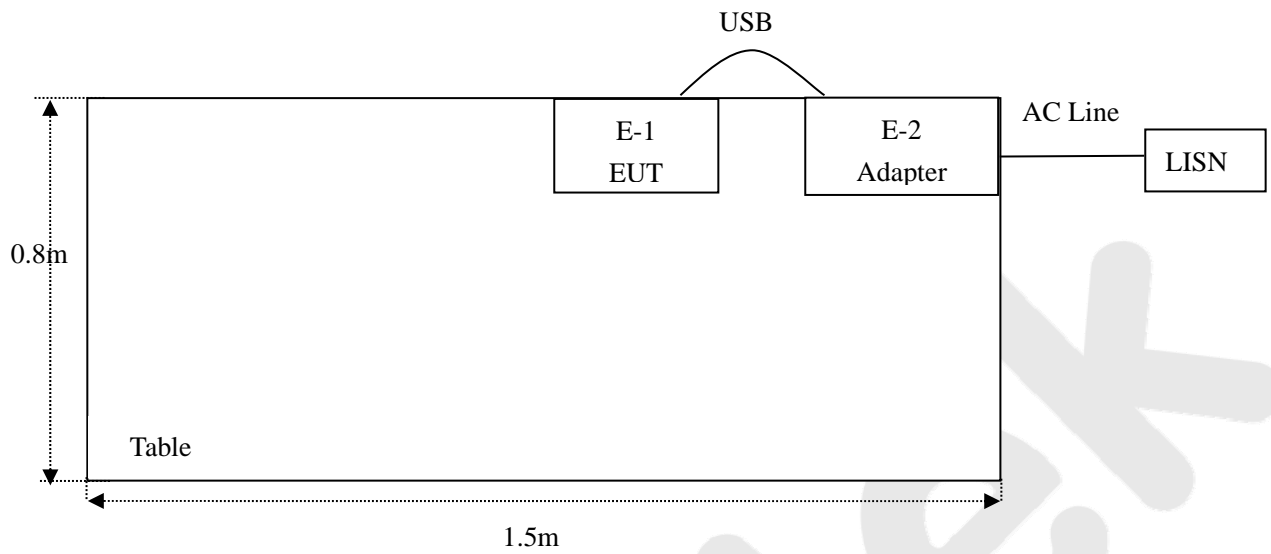
For Radiated Emission	
Final Test Mode	Description
Mode 1	CH01

#### 1.5. List of channels

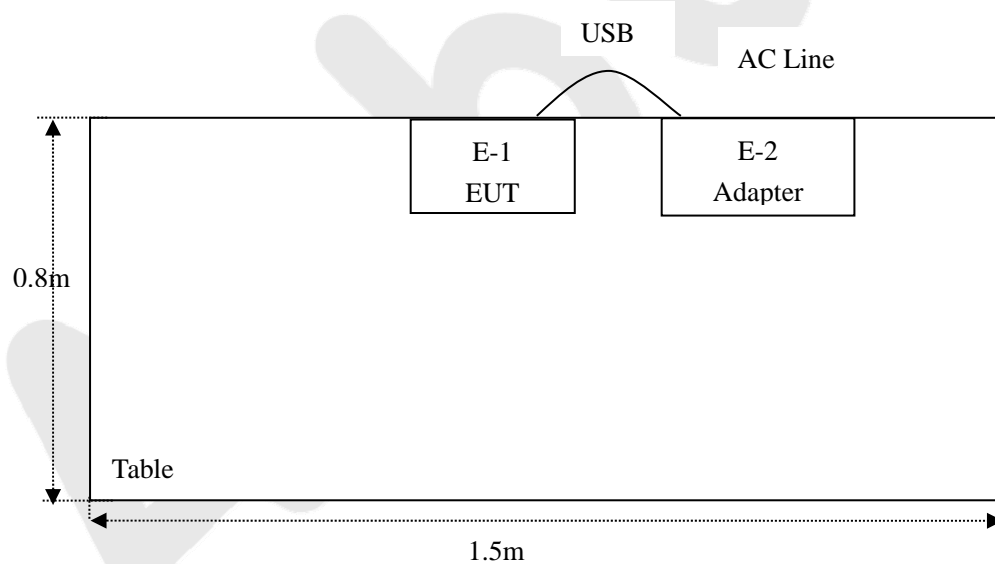
Channel	Freq. (MHz)
01	915

## 1.6. Description Of Test Setup

CE



RE



## 1.7. Test Equipment List

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	FMZB1519	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-150 M8	SE-0137	Jun. 17, 2016	1 Year

## 1.8. Measurement Uncertainty

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



## 1.9. 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

## 2. Summary of Test Results

Standard Section	Test Item	Result
15.203/15.247(c)	Antenna Requirement	PASS
15.207	Conducted Emission	PASS
15.205/15.209	Spurious Emission	PASS
15.247(b)(3)	Conducted Peak Output Power	PASS
15.247(a)(2)	6dB Occupied Bandwidth	PASS
15.247(e)	Power Spectral Density	PASS
15.247(d)	Band Edge	PASS
<b>Remark:</b> “N/A” is an abbreviation for Not Applicable.		

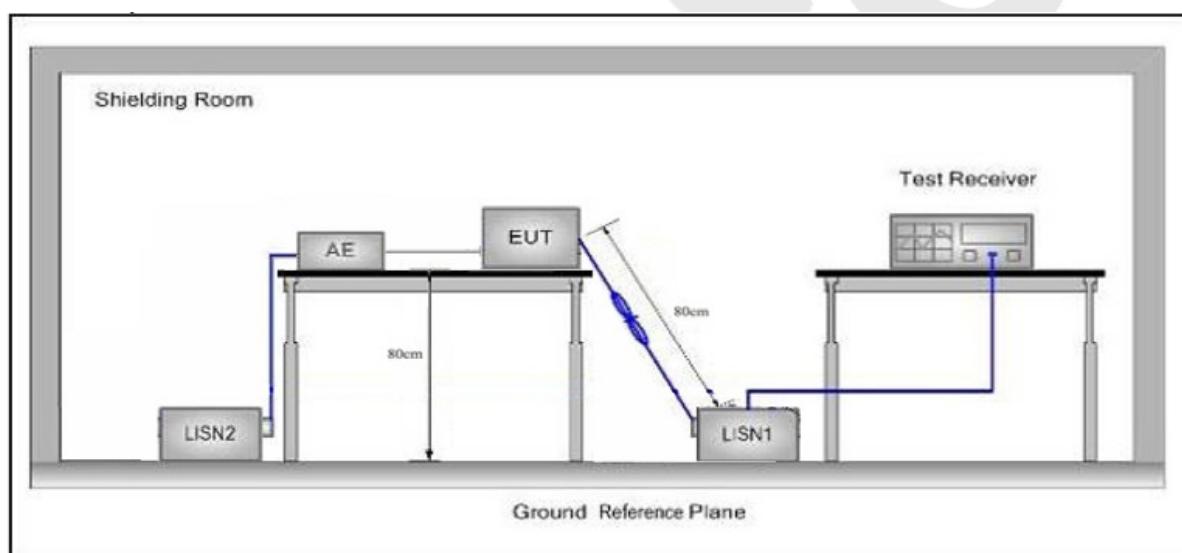
### 3. Conducted Emission Test

#### 3.1. Test Standard and Limit

Test Standard	FCC Part15 Section 15.207		
Test Limit	Frequency	Maximum RF Line Voltage (dBuV)	
		Quasi-peak Level	Average Level
	150kHz~500kHz	66 ~ 56 *	56 ~ 46 *
	500kHz~5MHz	56	46
	5MHz~30MHz	60	50

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

#### 3.2. Test Setup



#### 3.3. 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.

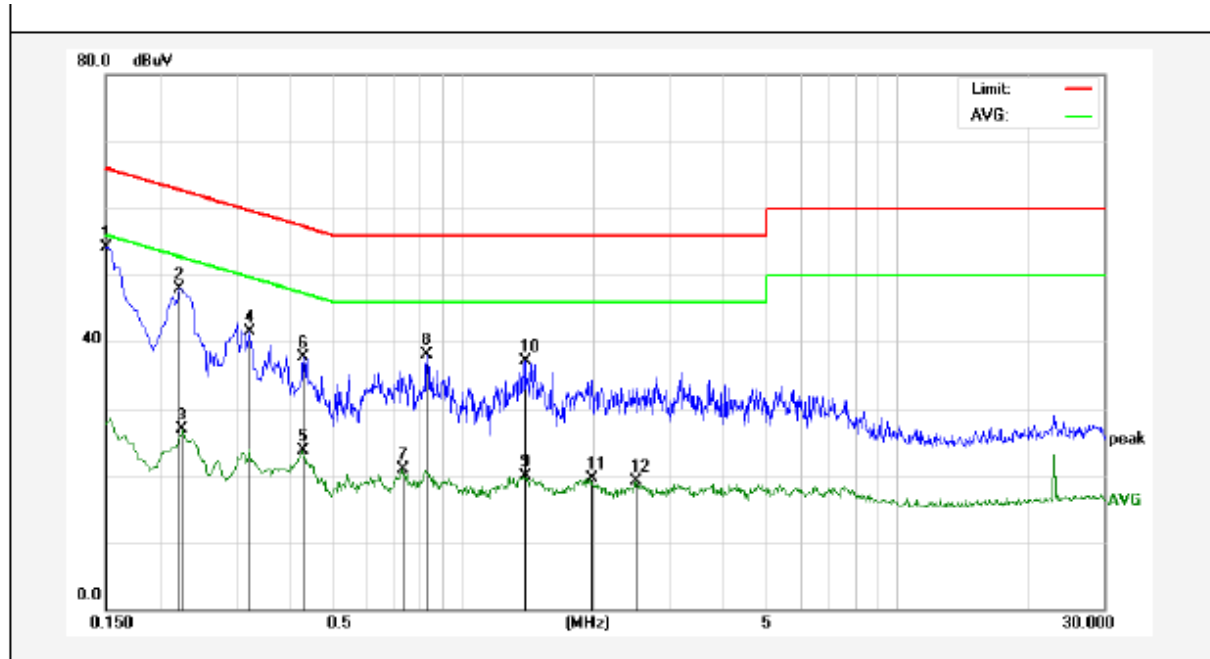
The frequency range from 150kHz to 30MHz is checked.

#### 3.4. Test Data

Please to see the following pages

### Conducted Emission Test Data

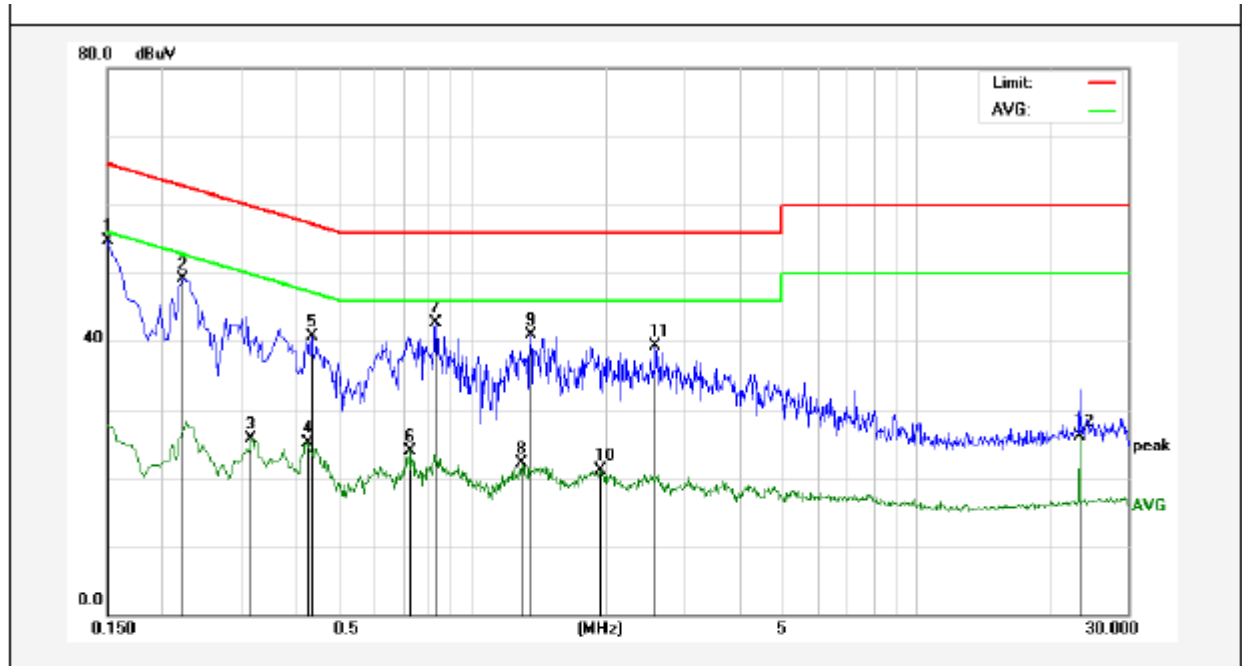
Test Site: 1# Shielded Room  
Operating Condition: Keeping TX mode  
Test Specification: AC 120V, 60Hz for adapter  
Comment: Live Line  
Tem.:25℃ Hum.:50%



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit dBuV	Over Limit (dB)	Detector	Remark
1	0.1500	34.23	19.90	54.13	65.99	-11.86	QP	
2	0.2220	27.97	19.90	47.87	62.74	-14.87	QP	
3	0.2260	6.96	19.89	26.85	52.59	-25.74	AVG	
4	0.3220	21.63	19.90	41.53	59.65	-18.12	QP	
5	0.4260	3.77	19.95	23.72	47.33	-23.61	AVG	
6	0.4300	17.74	19.95	37.69	57.25	-19.56	QP	
7	0.7260	0.80	20.05	20.85	46.00	-25.15	AVG	
8	0.8300	17.95	20.07	38.02	56.00	-17.98	QP	
9	1.3860	-0.22	20.13	19.91	46.00	-26.09	AVG	
10	1.3940	17.00	20.13	37.13	56.00	-18.87	QP	
11	1.9780	-0.63	20.14	19.51	46.00	-26.49	AVG	
12	2.5059	-1.03	20.15	19.12	46.00	-26.88	AVG	

### Conducted Emission Test Data

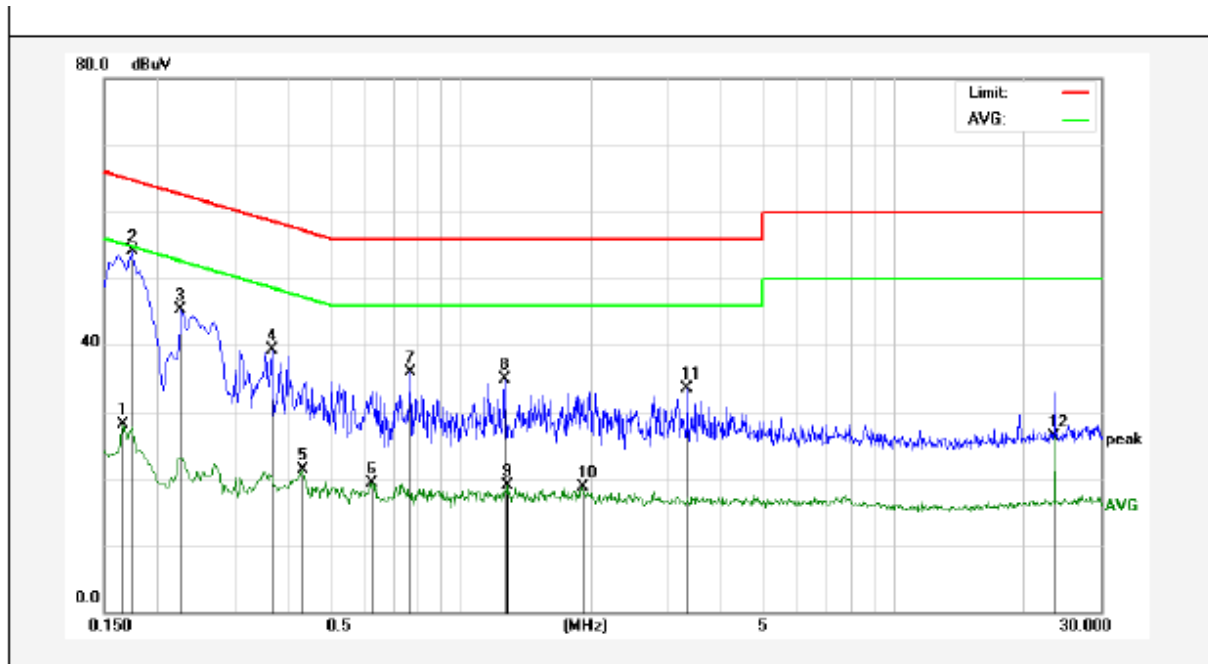
Test Site: 1# Shielded Room  
Operating Condition: Keeping TX mode  
Test Specification: AC 120V, 60Hz for adapter  
Comment: Neutral Line  
Tem.:25℃ Hum.:50%



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit dBuV	Over Limit (dB)	Detector	Remark
1	0.1500	34.86	19.90	54.76	65.99	-11.23	QP	
2	0.2220	29.26	19.90	49.16	62.74	-13.58	QP	
3	0.3180	5.86	19.90	25.76	49.76	-24.00	AVG	
4	0.4260	5.23	19.95	25.18	47.33	-22.15	AVG	
5	0.4340	20.74	19.95	40.69	57.18	-16.49	QP	
6	0.7260	3.93	20.05	23.98	46.00	-22.02	AVG	
7	0.8300	22.55	20.07	42.62	56.00	-13.38	QP	
8	1.2940	1.92	20.13	22.05	46.00	-23.95	AVG	
9	1.3540	20.87	20.13	41.00	56.00	-15.00	QP	
10	1.9420	0.92	20.14	21.06	46.00	-24.94	AVG	
11	2.5940	19.21	20.15	39.36	56.00	-16.64	QP	
12	23.3740	5.89	20.30	26.19	50.00	-23.81	AVG	

### Conducted Emission Test Data

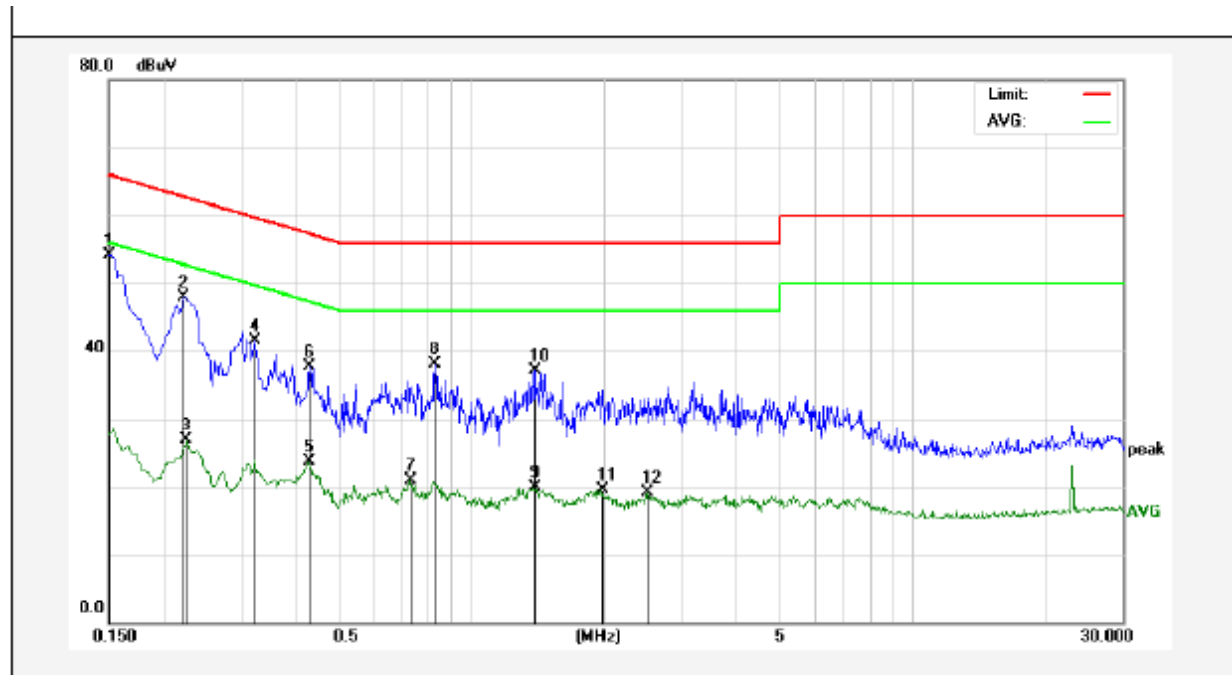
Test Site: 1# Shielded Room  
Operating Condition: Keeping TX mode  
Test Specification: AC 240V, 60Hz for adapter  
Comment: Live Line  
Tem.:25℃ Hum.:50%



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit dBuV	Over Limit (dB)	Detector	Remark
1	0.1660	8.30	19.90	28.20	55.15	-26.95	AVG	
2	0.1740	34.23	19.90	54.13	64.76	-10.63	QP	
3	0.2260	25.41	19.89	45.30	62.59	-17.29	QP	
4	0.3660	19.38	19.92	39.30	58.59	-19.29	QP	
5	0.4300	1.28	19.95	21.23	47.25	-26.02	AVG	
6	0.6180	-0.65	20.02	19.37	46.00	-26.63	AVG	
7	0.7660	15.88	20.06	35.94	56.00	-20.06	QP	
8	1.2660	14.71	20.13	34.84	56.00	-21.16	QP	
9	1.2860	-1.26	20.13	18.87	46.00	-27.13	AVG	
10	1.9020	-1.38	20.14	18.76	46.00	-27.24	AVG	
11	3.3420	13.39	20.17	33.56	56.00	-22.44	QP	
12	23.4260	6.00	20.30	26.30	50.00	-23.70	AVG	

## Conducted Emission Test Data

Test Site: 1# Shielded Room  
Operating Condition: Keeping TX mode  
Test Specification: AC 240V, 60Hz for adapter  
Comment: Neutral Line  
Tem.:25℃ Hum.:50%



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit dBuV	Over Limit (dB)	Detector	Remark
1	0.1500	34.23	19.90	54.13	65.99	-11.86	QP	
2	0.2220	27.97	19.90	47.87	62.74	-14.87	QP	
3	0.2260	6.96	19.89	26.85	52.59	-25.74	AVG	
4	0.3220	21.63	19.90	41.53	59.65	-18.12	QP	
5	0.4260	3.77	19.95	23.72	47.33	-23.61	AVG	
6	0.4300	17.74	19.95	37.69	57.25	-19.56	QP	
7	0.7260	0.80	20.05	20.85	46.00	-25.15	AVG	
8	0.8300	17.95	20.07	38.02	56.00	-17.98	QP	
9	1.3860	-0.22	20.13	19.91	46.00	-26.09	AVG	
10	1.3940	17.00	20.13	37.13	56.00	-18.87	QP	
11	1.9780	-0.63	20.14	19.51	46.00	-26.49	AVG	
12	2.5059	-1.03	20.15	19.12	46.00	-26.88	AVG	

## 4. Radiation Spurious Emission and Band Edge

### 4.1. Test Standard and Limit

Test Standard	FCC Part15 C Section 15.209 and 15.205				
Test Limit	Frequency (MHz)	Field strength (microvolt/meter)	Limit (dBuV/m)	Remark	Measurement distance (m)
	0.009MHz~0.490MHz	2400/F(kHz)	-	-	300
	0.490MHz-1.705MHz	24000/F(kHz)	-	-	30
	1.705MHz-30MHz	30	-	-	30
	30MHz~88MHz	100	40.0	Quasi-peak	3
	88MHz~216MHz	150	43.5	Quasi-peak	3
	216MHz~960MHz	200	46.0	Quasi-peak	3
	960MHz~1000MHz	500	54.0	Quasi-peak	3
	Above 1000MHz	500	54.0	Average	3
		-	74.0	Peak	3

**Remark:**

(1)The lower limit shall apply at the transition frequency.

(2) 15.35(b), Unless otherwise specified, the limit on peak radio frequency emissions is 20dB above the maximum permitted average emission limit applicable to the equipment under test. This peak limit applies to the total peak emission level radiated by the device.

### 4.2. Test Setup

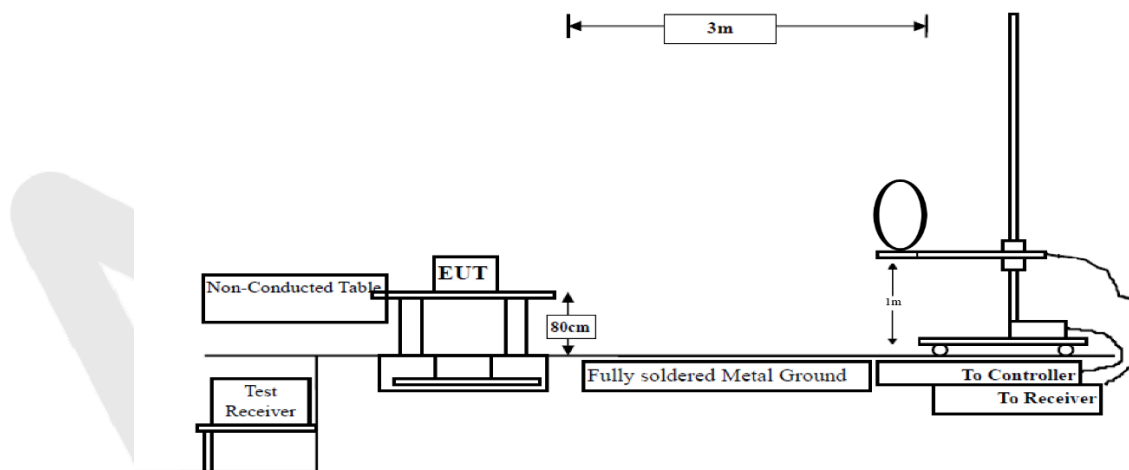


Figure 1. Below 30MHz



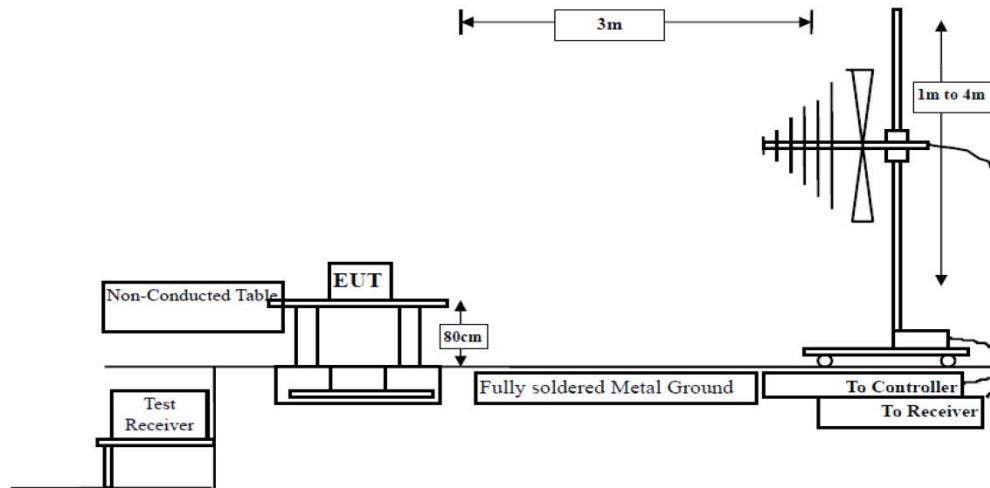


Figure 2. 30MHz to 1GHz



Figure 3. Above 1 GHz

### 4.3. Test Procedure

For below 1GHz: The EUT is placed on a turntable, which is 0.8m above the ground plane.

For above 1GHz: The EUT is placed on a turntable, which is 1.5m above the ground plane.

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. Rotated the EUT through three orthogonal axes to determine the maximum emissions, both horizontal and vertical polarization of the antenna are set on test. The EUT is tested in 9\*6\*6 Chamber. The device is evaluated in xyz orientation.

For 9kHz to 150kHz, Set the spectrum analyzer as:

RBW = 200Hz, VBW = 1kHz, Detector= Quasi-Peak, Trace mode= Max hold, Sweep- auto couple.

For 150kHz to 30MHz, Set the spectrum analyzer as:

RBW = 9KHz, VBW = 30kHz, Detector= Quasi-Peak, Trace mode= Max hold, Sweep- auto couple.

For 30MHz to 1000MHz, Set the spectrum analyzer as:

RBW = 100kHz, VBW = 300kHz, Detector = Quasi-Peak, Trace mode = Max hold, Sweep = auto couple.

For above 1GHz, Set the spectrum analyzer as:

RBW = 1MHz, VBW = 10Hz, Detector = Peak, Trace mode = Max hold, Sweep = auto couple.

#### 4.4. Test Data

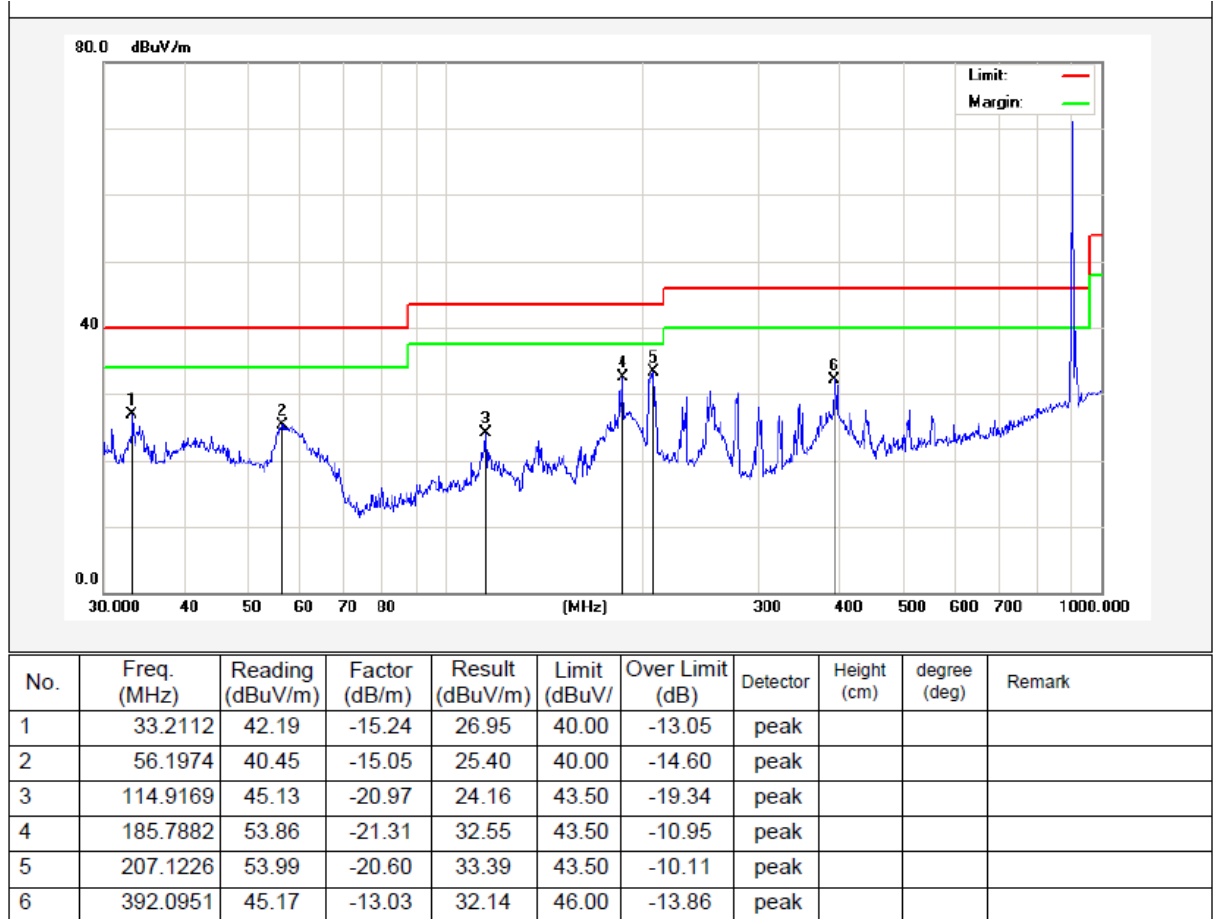
##### PASS

During the test, Pre-scan all kind of the place mode (X-axis, Y-axis, Z-axis), and found the X-axis is the worst case.

The test results of 9kHz-30MHz and above 18000MHz are attenuated more than 20dB below the permissible limits, so the results don't record in the report.

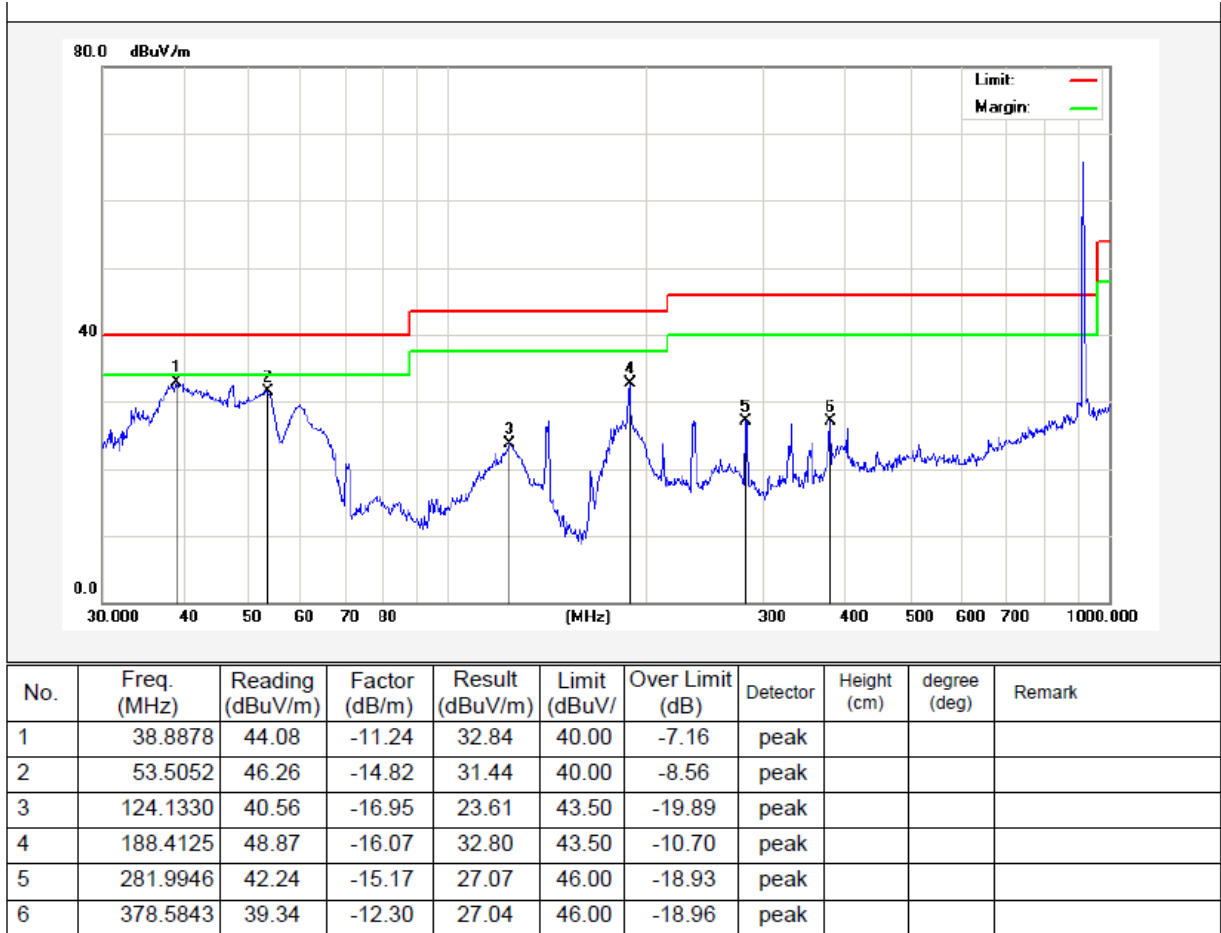
**Test Results (30~1000MHz)**

Job No.: 0117020640W Temp.(°C)/Hum.(%RH): 24.3°C/55%RH  
Standard: FCC PART 15C Power Source: AC 120V/60HZ from adapter  
Test Mode: TX Mode Polarization: Horizontal



**Test Results (30~1000MHz)**

Job No.: 0117020640W Temp.(°C)/Hum.(%RH): 24.3°C/55%RH  
Standard: FCC PART 15C Power Source: AC 120V/60HZ from adapter  
Test Mode: TX Mode Polarization: Vertical



**Test Results (Above 1GHz-10GHz)**

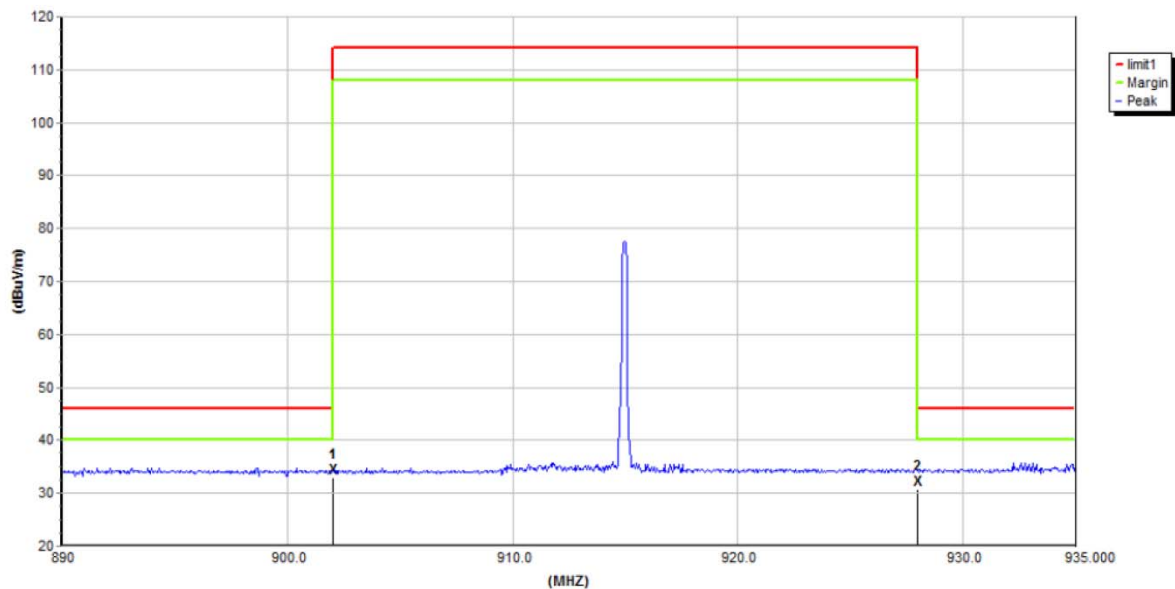
Test Mode: TX Mode									
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Det.	Pol.
1830.00	43.56	33.98	2.72	26.32	53.94	74.00	-20.06	PK	H
1830.00	30.21	33.98	2.72	26.32	40.59	54.00	-13.41	AV	H
2745.00	41.32	34.06	3.81	26.75	52.44	74.00	-21.56	PK	H
2745.00	29.35	34.06	3.81	26.75	40.47	54.00	-13.53	AV	H
3660.00	41.69	34.13	4.20	27.01	53.01	74.00	-20.99	PK	H
3660.00	30.81	34.13	4.20	27.01	42.13	54.00	-11.87	AV	H
4575.00	*								H
4575.00	*								H
1830.00	45.35	33.98	2.72	26.32	55.73	74.00	-18.27	PK	V
1830.00	30.55	33.98	2.72	26.32	40.93	54.00	-13.07	AV	V
2745.00	42.15	34.06	3.81	26.75	53.27	74.00	-20.73	PK	V
2745.00	30.07	34.06	3.81	26.75	41.19	54.00	-12.81	AV	V
3660.00	43.55	34.13	4.20	27.01	54.87	74.00	-19.13	PK	V
3660.00	31.52	34.13	4.20	27.01	42.84	54.00	-11.16	AV	V
4575.00	*								V
4575.00	*								V

Remark:

1. Level = Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor
2. “\*”, means this data is too weak instrument of signal is unable to test.

**Radiated Band Edge:**

Job No.: 0117020640W Temp.(°C)/Hum.(%RH): 24.3°C/55%RH  
Standard: FCC PART 15C Power Source: AC 120V/60HZ from adapter  
Test Mode: TX Mode Polarization: Horizontal

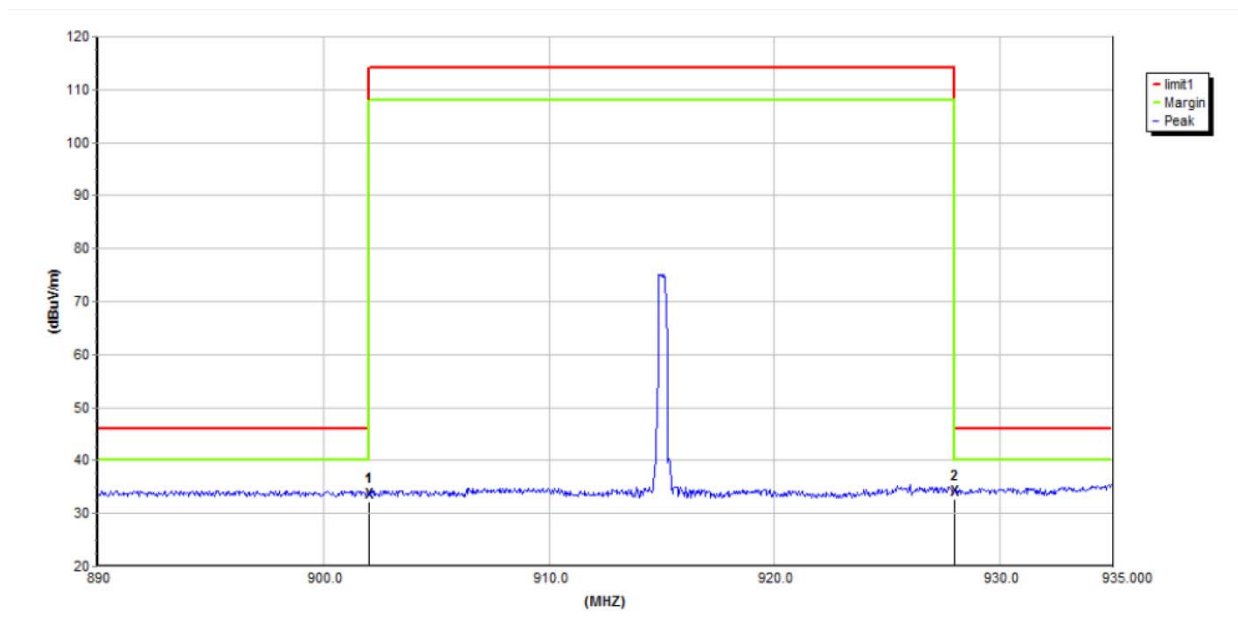


Frequency (MHz)	Read Level (dBuV/m)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Pol.	Det.
902.00	38.51	22.45	4.48	31.33	34.11	46.00	-11.89	H	QP
928.00	36.24	22.59	4.54	31.35	32.02	46.00	-13.98	H	QP

Remark:

1. Level = Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor

Job No.: 0117020640W Temp.(°C)/Hum.(%RH): 24.3°C/55%RH  
Standard: FCC PART 15C Power Source: AC 120V/60HZ from adapter  
Test Mode: TX Mode Polarization: Horizontal



Frequency (MHz)	Read Level (dBuV/m)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Pol.	Det.
902.00	37.75	22.45	4.48	31.33	33.35	46.00	-12.65	V	QP
928.00	40.06	22.59	4.54	31.35	35.84	46.00	-10.16	V	QP

Remark:

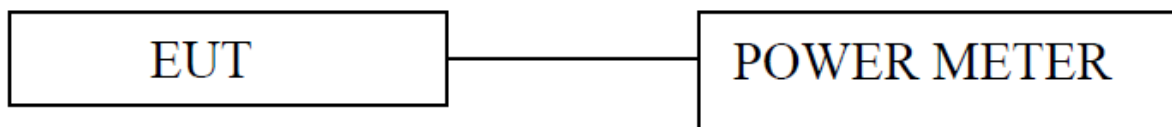
1. Level = Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor

## 5. Maximum Peak Output Power Test

### 5.1. Test Standard and Limit

Test Standard	FCC Part15 C Section 15.247 (b)(3)
Test Limit	30dBm

### 5.2. Test Setup



### 5.3. Test Procedure

1. The Transmitter output (antenna port) was connected to the power meter.
2. Turn on the EUT and power meter and then record the power value.
3. Repeat above procedures on all channels needed to be tested.

Note: The cable loss and attenuator loss were offset into measure device as an amplitude offset.



#### 5.4. Test Data

Test Item	:	Max. peak output power	Test Mode	:	CH 01
Test Voltage	:	AC120V/60HZ from adapter	Temperature	:	24°C
Test Result	:	PASS	Humidity	:	55%RH

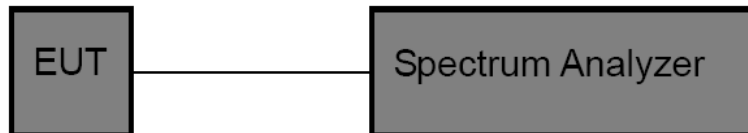
Channel Frequency (MHz)	Peak Power output (dBm)	Limit (dBm)	Results
915	11.98	30	PASS

## 6. 6DB Occupy Bandwidth Test

### 6.1. Test Standard and Limit

Test Standard	FCC Part15 C Section 15.247 (a)(2)
Test Limit	>500kHz

### 6.2. Test Setup



### 6.3. Test Procedure

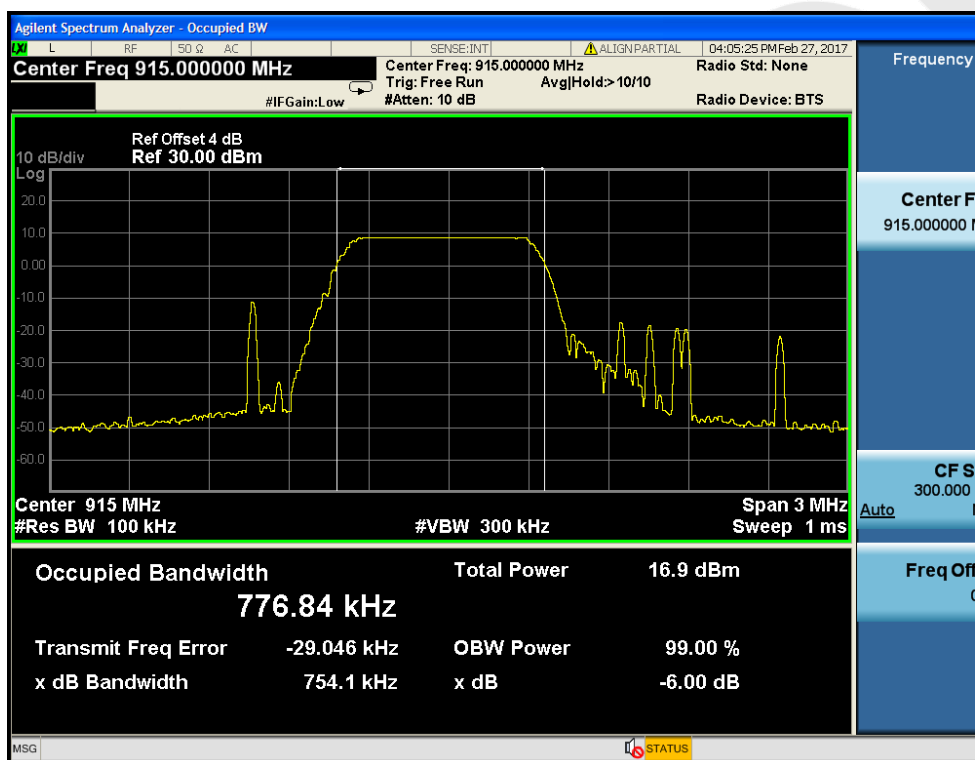
1. Place the EUT on the table and set it in the transmitting mode.
2. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.
3. Set the spectrum analyzer as:  
RBW = 100kHz, VBW  $\geq 3 \times$  RBW = 300kHz,  
Detector= Peak  
Trace mode= Max hold.  
Sweep- auto couple.
4. Mark the peak frequency and -6dB (upper and lower) frequency.
5. Repeat until all the rest channels are investigated.

### 6.4. Test Data

Test Item	: 6dB Bandwidth	Test Mode	: CH 01
Test Voltage	: AC120V/60HZ	Temperature	: 24°C
	adapter		
Test Result	: PASS	Humidity	: 55%RH

Channel	Frequency(MHz)	Bandwidth (kHz)	Limit (kHz)	Results
CH 01	915	754.1	>500	PASS

### CH01

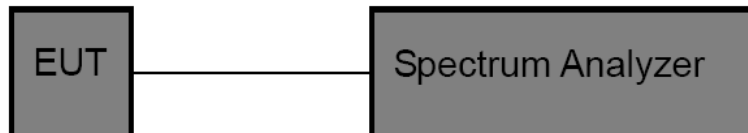


## 7. Power Spectral Density Test

### 7.1. Test Standard and Limit

Test Standard	FCC Part15 C Section 15.247 (e)
Test Limit	8dBm

### 7.2. Test Setup



### 7.3. Test Procedure

1. Place the EUT on the table and set it in transmitting mode. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.
2. Set the spectrum analyzer as RBW = 3kHz, VBW = 10kHz, Span = 1.5xDTS BW
3. Record the max. reading.
4. Repeat the above procedure until the measurements for all frequencies are completed.

### 7.4. Test Data

Test Item	: Power Spectral Density	Test Mode	: CH 01
Test Voltage	: AC120V/60HZ	Temperature	: 24°C
	from adapter		
Test Result	: PASS	Humidity	: 55%RH

Channel	Frequency (MHz)	PPSD (dBm/3KHz)	Limit (dBm/3KHz)	Results
CH01	915	6.986	8.00	PASS

CH01

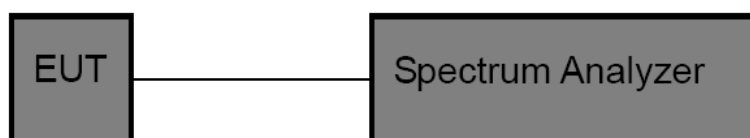


## 8. 100kHz Bandwidth of Frequency Band Edge Requirement

### 8.1. Test Standard and Limit

Test Standard	FCC Part15 C Section 15.247 (d)
Test Limit	in any 100 kHz bandwidth outside the frequency bands in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20dB below that in the 100kHz bandwidth within the band that contains the highest level of the desired power, In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in 15.209(a).

### 8.2. Test Setup



### 8.3. Test Procedure

Using the following spectrum analyzer setting:

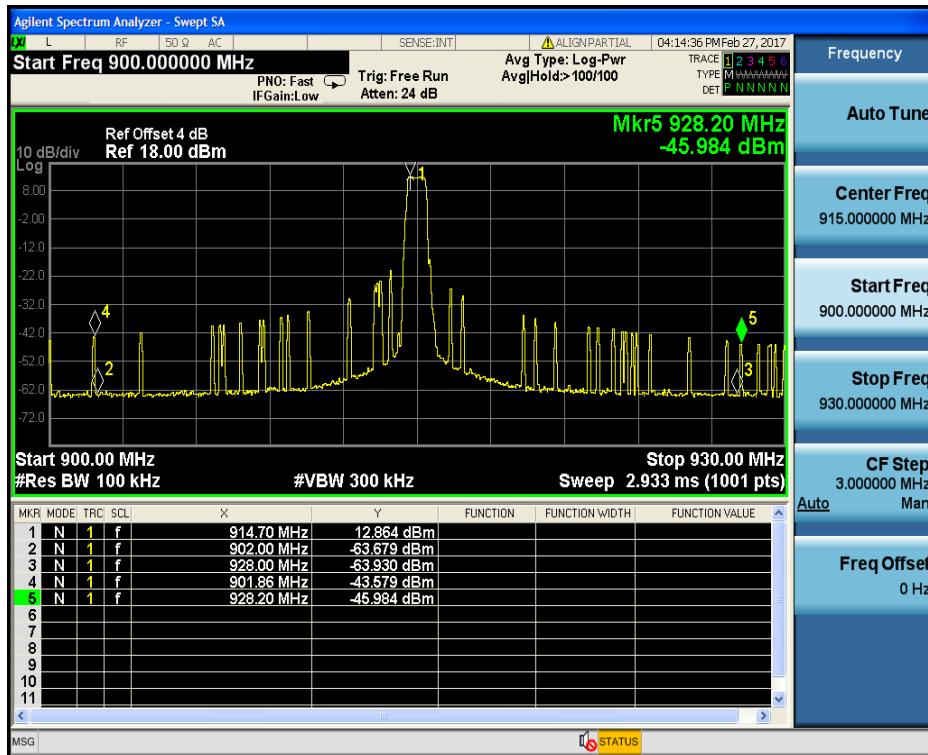
1. Set the RBW = 100KHz.
2. Set the VBW = 300KHz.
3. Sweep time = auto couple.
4. Detector function = peak.
5. Trace mode = max hold.
6. Allow trace to fully stabilize.

### 8.4. Test Data

Test Item	: Band edge	Test Mode	: CH Low ~ CH High
Test Voltage	: AC120V/60HZ adapter	Temperature	: 24°C
Test Result	: PASS	Humidity	: 55%RH

Frequency Band (MHz)	Delta Peak to Band Emission (dBc)	Limit (dBc)	Results
902	76.543	>20	PASS
928	76.794	>20	PASS

CH01



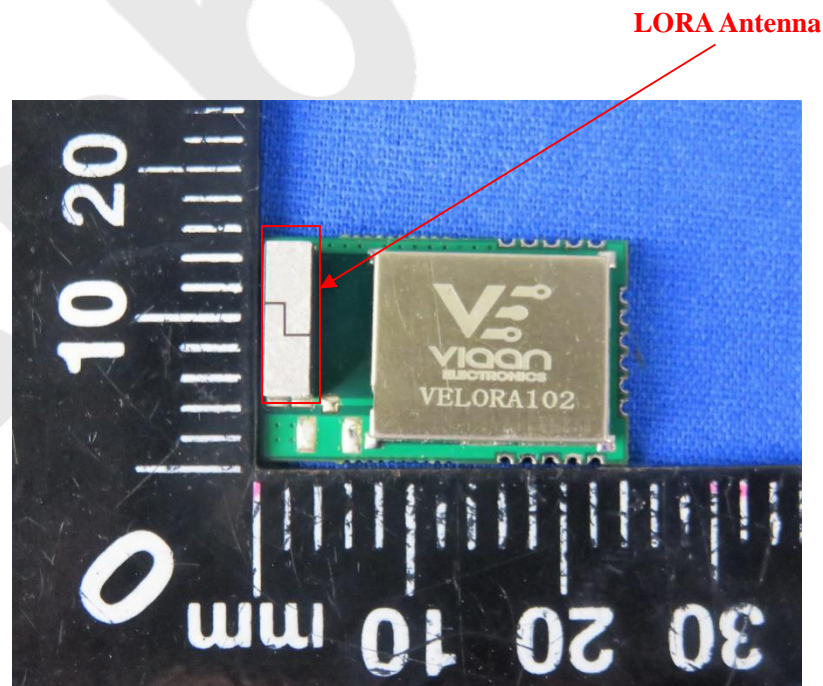
## 9. Antenna Requirement

### 9.1. Test Standard and Requirement

Test Standard	FCC Part15 Section 15.203 /247(c)
Requirement	<p>1) 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.</p> <p>2) 15.247(c) (1)(i) requirement: Systems operating in the 2400-2483.5 MHz band that is used exclusively for fixed. Point-to-point operations may employ transmitting antennas with directional gain greater than 6dBi provided the maximum conducted output power of the intentional radiator is reduced by 1 dB for every 3 dB that the directional gain of the antenna exceeds 6 dBi.</p>

### 9.2. Antenna Connected Construction

The antenna is a Ceramic antenna which permanently attached, and the best case gain of the antenna is 2dBi. It complies with the standard requirement.





## APPENDIX I -- TEST SETUP PHOTOGRAPH

Photo of Conducted Emission Measurement

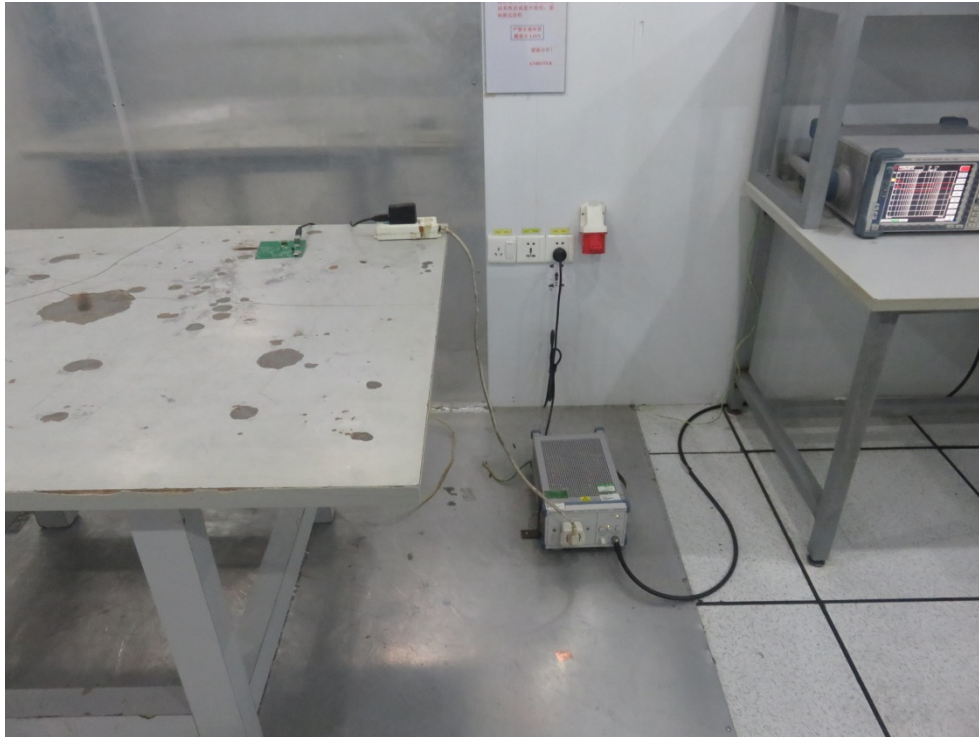
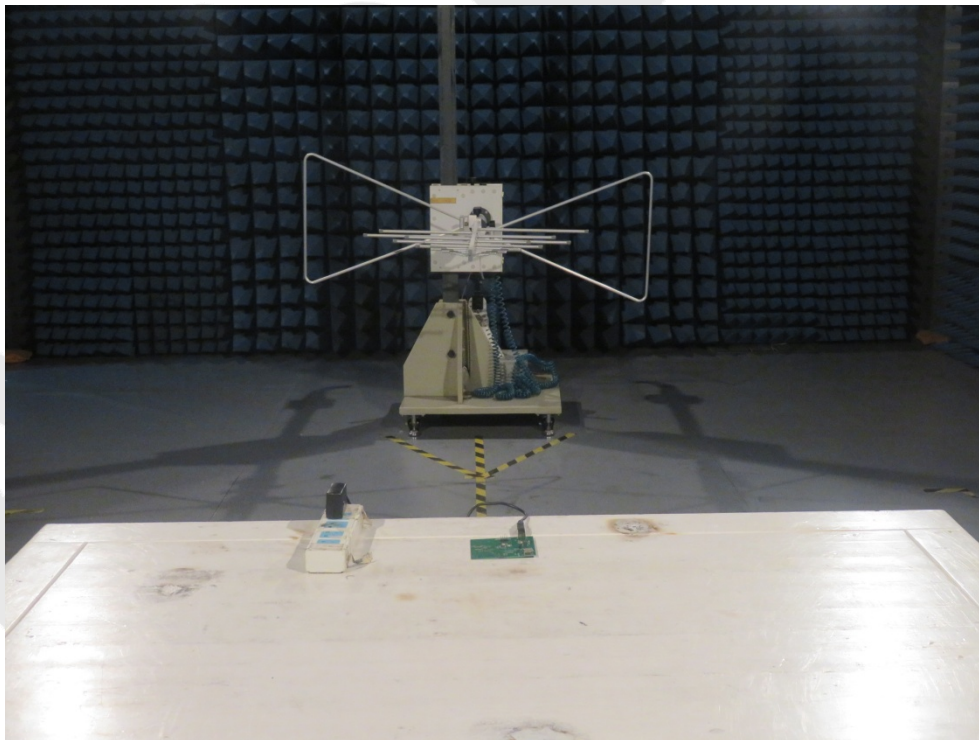
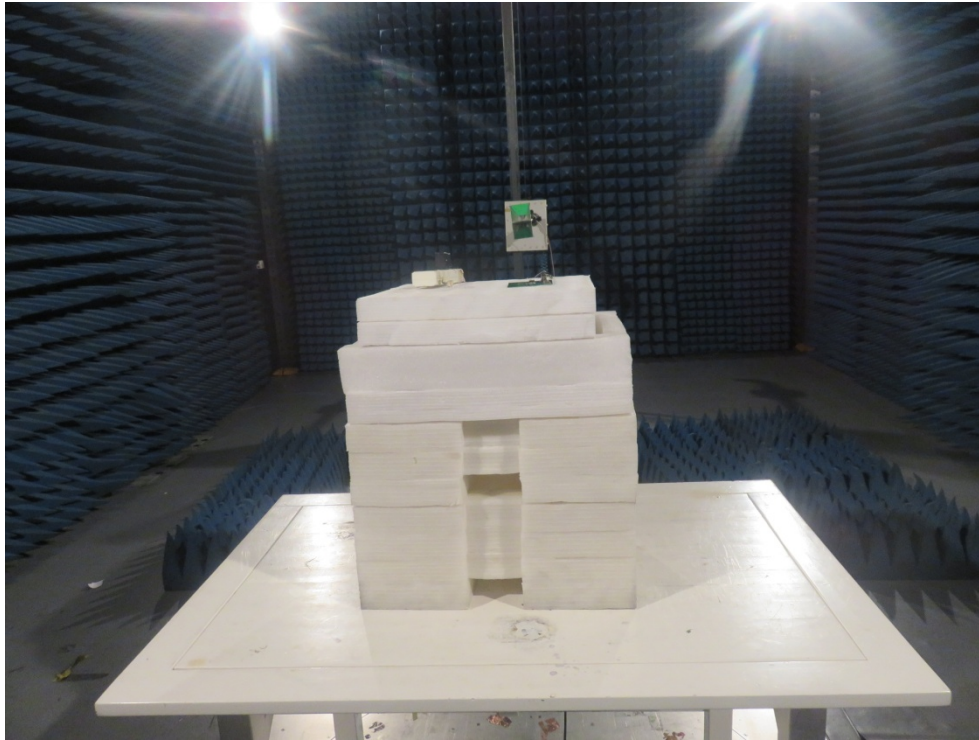


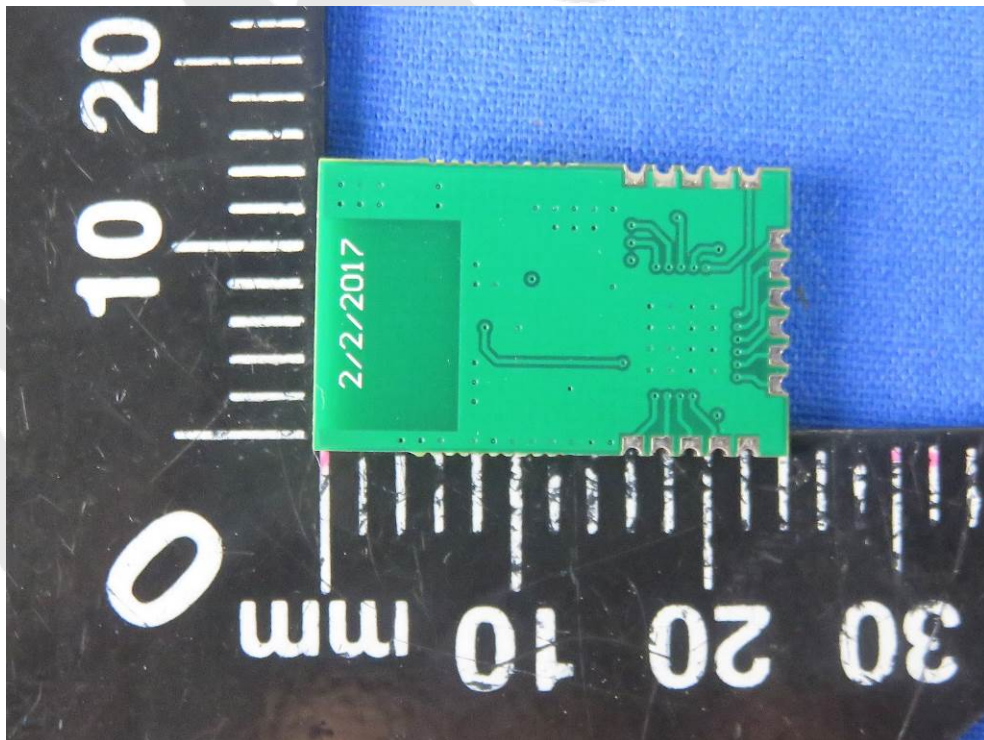
Photo of Radiation Emission Test







## APPENDIX II -- EXTERNAL PHOTOGRAPH





### APPENDIX III -- INTERNAL PHOTOGRAPH

