

FCC PART 15.249
EMI MEASUREMENT AND TEST REPORT
For
ENJOY TECHNOLOGY CO., LIMITED

UNIT 04，7/F BRIGHT WAY TOWER NO.33 MONG KOK RD KL Hong Kong China

FCC ID: RJM-ENGAGE

January 29, 2013

| | |
|--|---|
| This Report Concerns: Original Report | Equipment Type: Audience response system |
| Test Engineer: | Anna Lv <i>Anna Lv</i> |
| Test Engineer of performing the tests: | Hans Hu <i>Hans.Hu</i> |
| Report No.: | BST120015722Y-1ER-3 |
| Receive EUT Date/Test Date: | January 02, 2013 / January 02, 2013- January 29, 2013 |
| Reviewed By: | Mike Moo <i>Mike Moo</i> |
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1. GENERAL INFORMATION

1.1. Report information

- 1.1.1. This report is not a certificate of quality; it only applies to the sample of the specific product/equipment given at the time of its testing. The results are not used to indicate or imply that they are application to the similar items. In addition, such results must not be used to indicate or imply that BST approves recommends or endorses the manufacture, supplier or use of such product/equipment, or that BST in any way guarantees the later performance of the product/equipment.
- 1.1.2. The sample/s mentioned in this report is/are supplied by Applicant, BST therefore assumes no responsibility for the accuracy of information on the brand name, model number, origin of manufacture or any information supplied.
- 1.1.3. Additional copies of the report are available to the Applicant at an additional fee. No third part can obtain a copy of this report through BST, unless the applicant has authorized BST in writing to do so.

Test Facility -

The test site used to collect the data is located on the address of
Global United Technology Service Co., Ltd
(FCC Registered Test Site Number: 600491) on
2nd Floor, Block No.2, Laodong Industrial Zone, Xixiang Road Baoan District,
Shenzhen, China 518102

The Test Site is constructed and calibrated to meet the FCC requirements.

1.2. Measurement Uncertainty

The reported uncertainty of measurement $y \pm U$, where expanded uncertainty U is based on a

standard uncertainty multiplied by a coverage factor of $k=2$, providing a level of confidence of approximately 95 %.

| No. | Item | Uncertainty |
|-----|-------------------------------|-------------------------|
| 1 | Conducted Emission Test | $\pm 1.38\text{dB}$ |
| 2 | RF power, conducted | $\pm 0.16\text{dB}$ |
| 3 | Spurious emissions, conducted | $\pm 0.21\text{dB}$ |
| 4 | All emissions, radiated (<1G) | $\pm 4.68\text{dB}$ |
| 5 | All emissions, radiated (>1G) | $\pm 4.89\text{dB}$ |
| 6 | Temperature | $\pm 0.5^\circ\text{C}$ |
| 7 | Humidity | $\pm 2\%$ |

2. PRODUCT DESCRIPTION

2.1. EUT Description

Applicant : ENJOY TECHNOLOGY CO., LIMITED
 Address : UNIT 04，7/F BRIGHT WAY TOWER NO.33 MONG
 KOK RD KL Hong Kong China
 Manufacturer : GUANGZHOU QILE TECHNOLOGY CO.,LTD
 Address : 3/F and 4/F, 29-1#, Dayuan Nan Road, Baiyun District,
 Guangzhou, Guangdong Province, China
 EUT Description : Audience response system
 Trade Name : ENJOY® VoteWorks®
 Model Number : ENJOY VoteWorks® Engage Receiver
 Receiver frequency : 2402-2480MHz
 modulation type : GFSK(1Mbps)
 Antenna gain : 0dBi
 Power Supply : DC 5V (Powered by PC)
 Use RJ45 port to USB port cable, connect to the USB port of PC
 Channel : 79

Note:

- 1,The Audience response system only one working mode is 4 modules simultaneously transmit and receive.
- 2,these 4 RF modules and 4 antennas own the exactly same specification and RF parameters.

| Channel List | | | | | |
|--------------|-----------------|---------|-----------------|---------|-----------------|
| Channel | Frequency (MHz) | Channel | Frequency (MHz) | Channel | Frequency (MHz) |
| 00 | 2402 | 27 | 2429 | 54 | 2456 |
| 01 | 2403 | 28 | 2430 | 55 | 2457 |
| 02 | 2404 | 29 | 2431 | 56 | 2458 |
| 03 | 2405 | 30 | 2432 | 57 | 2459 |
| 04 | 2406 | 31 | 2433 | 58 | 2460 |
| 05 | 2407 | 32 | 2434 | 59 | 2461 |
| 06 | 2408 | 33 | 2435 | 60 | 2462 |
| 07 | 2409 | 34 | 2436 | 61 | 2463 |
| 08 | 2410 | 35 | 2437 | 62 | 2464 |
| 09 | 2411 | 36 | 2438 | 63 | 2465 |
| 10 | 2412 | 37 | 2439 | 64 | 2466 |
| 11 | 2413 | 38 | 2440 | 65 | 2467 |
| 12 | 2414 | 39 | 2441 | 66 | 2468 |
| 13 | 2415 | 40 | 2442 | 67 | 2469 |
| 14 | 2416 | 41 | 2443 | 68 | 2470 |
| 15 | 2417 | 42 | 2444 | 69 | 2471 |
| 16 | 2418 | 43 | 2445 | 70 | 2472 |
| 17 | 2419 | 44 | 2446 | 71 | 2473 |
| 18 | 2420 | 45 | 2447 | 72 | 2474 |
| 19 | 2421 | 46 | 2448 | 73 | 2475 |
| 20 | 2422 | 47 | 2449 | 74 | 2476 |
| 21 | 2423 | 48 | 2450 | 75 | 2477 |
| 22 | 2424 | 49 | 2451 | 76 | 2478 |
| 23 | 2425 | 50 | 2452 | 77 | 2479 |
| 24 | 2426 | 51 | 2453 | 78 | 2480 |
| 25 | 2427 | 52 | 2454 | | |
| 26 | 2428 | 53 | 2455 | | |

2.2. Block Diagram of EUT Configuration

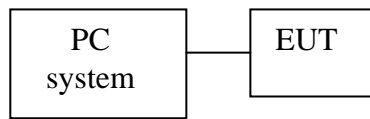


Figure 1 EUT Setup

2.3. Support Equipment List

| Name | Model No | S/N | Manufacturer | Used (Y/N) |
|-----------|----------|-----|--------------|------------|
| PC system | AM1830 | N/A | Acer | Y |
| | | | | |

2.4. Test Conditions

| Items | Required (IEC 68-1) | Actual |
|----------------------------|---------------------|----------|
| Temperature (°C) | 15-35 | 20-25 |
| Humidity (%RH) | 25-75 | 50-63 |
| Barometric pressure (mbar) | 860-1060 | 950-1000 |

2.5. Configuration of Test Setup

EUT Orthogonal Axis:

X - denotes Laid on Table; Y - denotes Vertical Stand; Z - denotes Side Stand

3. TEST RESULTS SUMMARY

FCC 15 Subpart C, Paragraph 15.249

| FCC Rules | Description of Test | Result |
|-------------------------------------|--|-----------|
| Section 15.207 | Conducted Emission | Compliant |
| Section 15.249(a) | The fundamental field strength and the harmonics | Compliant |
| Section 15.209 Section 15.249(d) | Radiated Emission | Compliant |
| Section 15.249(d) | Band Edge | Compliant |
| Section 15.203 | Antenna Requirement | Compliant |

Statement: All testing was performed using the test procedures found in ANSI C63.4-2003.

Modifications

No modification was made.

4. TEST EQUIPMENT USED

| EQUIPMENT/FACILITIES | MANUFACTURER | MODEL | SERIAL NO. | DATE OF CAL. | CAL. INTERVAL |
|-------------------------------|------------------------------------|-------------------------------------|------------|--------------|---------------|
| 3m Semi-Anechoic Chamber | ZhongYu Electron | 9.2(L)*6.2(W)* 6.4(H) | GTS250 | Mar. 30 2012 | 1 Year |
| Control Room | ZhongYu Electron | 6.2(L)*2.5(W)* 2.4(H) | GTS251 | N/A | N/A |
| EMI Test Receiver | Rohde & Schwarz | ESU26 | GTS203 | Jul. 04 2012 | 1 Year |
| BiConiLog Antenna | SCHWARZBECK MESS-ELEKTRO NIK | VULB9163 | GTS214 | Feb. 25 2012 | 1 Year |
| Double -ridged waveguide horn | SCHWARZBECK MESS-ELEKTRO NIK | 9120D-829 | GTS208 | June 30 2012 | 1 Year |
| Horn Antenna | ETS-LINDGREN | 3160 | GTS217 | Mar. 30 2012 | 1 Year |
| EMI Test Software | AUDIX | E3 | N/A | N/A | N/A |
| Cable | Resenberger | N/A | NO.1 | Apr. 6, 2012 | 1 Year |
| Cable | SCHWARZBECK | N/A | NO.2 | Apr. 6, 2012 | 1 Year |
| Cable | SCHWARZBECK | N/A | NO.3 | Apr. 6, 2012 | 1 Year |
| Amplifier(100kHz-3GHz) | HP | 8347A | GTS204 | Jul. 04 2012 | 1 Year |
| Amplifier(2GHz-20GHz) | HP | 8349B | GTS206 | Jul. 04 2012 | 1 Year |
| Amplifier (18-26GHz) | R&S | AFS33-1800 2 650-30-8P-4 4 | GTS218 | June 30 2012 | 1 Year |
| Band filter | Amindeon | 82346 | GTS219 | Mar. 31 2012 | 1 Year |
| Active Loop Antenna | Beijing Daze | ZN30900A | GTS215 | Mar. 31 2012 | 1 Year |
| Power Meter | R&S | NRVS | GTS216 | Apr. 6, 2012 | 1 Year |
| Shielding Room | ZhongYu Electron | 7.0(L)x3.0(W)x3.0(H) | GTS264 | Sep. 08 2012 | 1 Year |
| EMI Test Receiver | R&S | ESCS30 | GTS223 | Jul. 04 2012 | 1 Year |
| 10dB Pulse Limita | R&S | N/A | GTS224 | Jul. 04 2012 | 1 Year |
| Coaxial Switch | ANRITSU CORP | MP59B | GTS225 | Jul. 04 2012 | 1 Year |
| LISN | SCHWARZBECK MESS-ELEKTRO NIK | NSLK 8127 | GTS226 | Jul. 04 2012 | 1 Year |
| Coaxial Cable | SCHWARZBECK | N/A | NO.4 | Apr. 6, 2012 | 1 Year |
| EMI Test Software | AUDIX | E3 | N/A | N/A | N/A |
| Spectrum analyzer | agilent | E4440A | GTS251 | Jul. 04 2012 | N/A |

5. ANTENNA REQUIREMENT

5.1. Standard Applicable

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.

5.2. Antenna Connected Construction

According to § 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.

5.3. Result

Compliance

these 4 antennas own the exactly same specification and RF parameters.

The antenna used in this product is a short metal soldered wire. The antenna is permanently attached. Refer to the product photo.

6. CONDUCTED POWER LINE TEST

6.1. Test Equipment

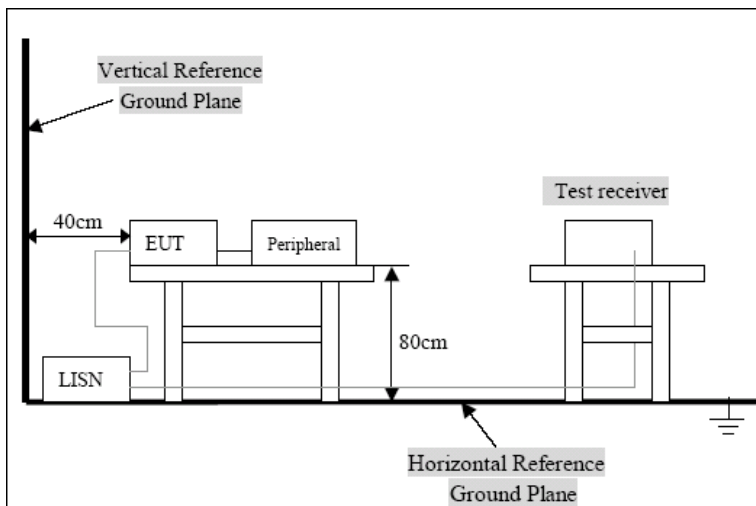
Please refer to section 4 this report.

6.2. Test Procedure

The EUT and simulators are connected to the main power through a line impedance stabilization network (L.I.S.N.). This provides a 50ohm/50uh coupling impedance for the measuring equipment. The peripheral devices are also connected to the main power through a LISN that provides a 50ohm/50uh coupling impedance with 50ohm termination.

Both sides of A.C. Line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ASIN C63.4:2003 on conducted measurement. Conducted emissions were measured over the frequency range from 0.15MHz to 30MHz using a receiver bandwidth of 9kHz.

6.3. Test Setup



For the actual test configuration, please refer to the related items-Photos of testing

6.4. Conducted Power line Emission Limits

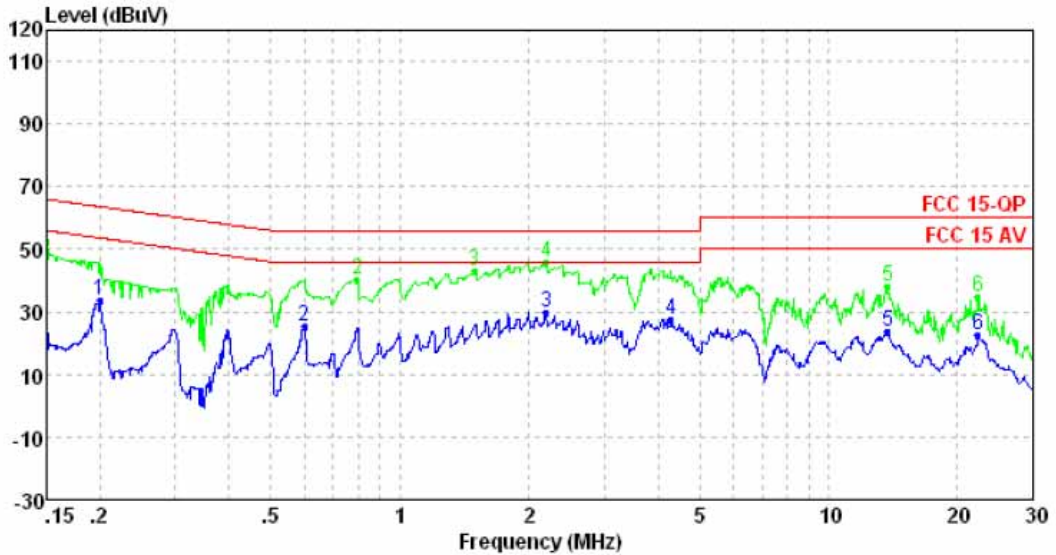
| FCC Part 15 Paragraph 15.207 (dBuV) | | |
|-------------------------------------|---------------|---------------|
| Frequency Range (MHZ) | Class A QP/AV | Class B QP/AV |
| 0.15-0.5 | 79/66 | 65-56/56-46 |
| 0.5-5.0 | 73/60 | 56-46 |
| 5.0-3.0 | 73/60 | 60-50 |

Note: In the above table, the tighter limit applies at the band edges.

6.5. Conducted Power Line Test Result

PASS

Test mode: 4 modules simultaneously transmit.



Condition:

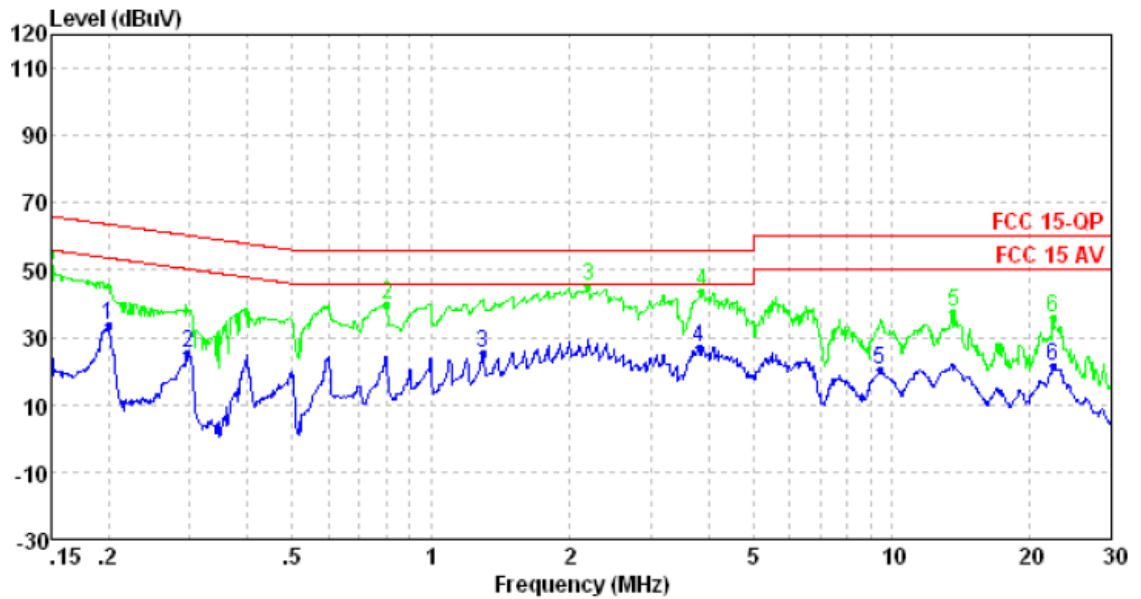
: RBW:9.000KHz VBW:30.000KHz

| | Freq | Level | Limit | Over | Remark | Pol/Phase |
|-------|-------|-------|-------|--------|---------|-----------|
| | MHz | dBuV | dBuV | dB | | |
| 1 | 0.20 | 33.42 | 53.62 | -20.20 | Average | LINE |
| 2 | 0.60 | 25.43 | 46.00 | -20.57 | Average | LINE |
| 3 | 2.20 | 29.92 | 46.00 | -16.08 | Average | LINE |
| 4 Max | 4.29 | 27.56 | 46.00 | -18.44 | Average | LINE |
| 5 | 13.77 | 23.48 | 50.00 | -26.52 | Average | LINE |
| 6 | 22.30 | 22.43 | 50.00 | -27.57 | Average | LINE |

Condition:

: RBW:9.000KHz VBW:30.000KHz

| | Freq | Level | Limit | Over | Remark | Pol/Phase |
|-------|-------|-------|-------|--------|--------|-----------|
| | MHz | dBuV | dBuV | dB | | |
| 1 | 0.15 | 52.40 | 66.00 | -13.60 | Peak | LINE |
| 2 | 0.80 | 40.32 | 56.00 | -15.68 | Peak | LINE |
| 3 | 1.50 | 42.87 | 56.00 | -13.13 | Peak | LINE |
| 4 Max | 2.20 | 45.84 | 56.00 | -10.16 | Peak | LINE |
| 5 | 13.77 | 37.91 | 60.00 | -22.09 | Peak | LINE |
| 6 | 22.30 | 34.59 | 60.00 | -25.41 | Peak | LINE |



Condition:

: RBW:9.000KHz VBW:30.000KHz

| | Freq | Level | Limit | Over | Remark | Pol/Phase |
|-------|-------|-------|-------|--------|---------|-----------|
| | MHz | dBuV | dBuV | dB | | |
| 1 | 0.20 | 33.72 | 53.62 | -19.90 | Average | NEUTRAL |
| 2 | 0.30 | 25.55 | 50.32 | -24.77 | Average | NEUTRAL |
| 3 Max | 1.30 | 25.18 | 46.00 | -20.82 | Average | NEUTRAL |
| 4 | 3.82 | 27.05 | 46.00 | -18.95 | Average | NEUTRAL |
| 5 | 9.45 | 20.19 | 50.00 | -29.81 | Average | NEUTRAL |
| 6 | 22.42 | 21.71 | 50.00 | -28.29 | Average | NEUTRAL |

Condition:

: RBW:9.000KHz VBW:30.000KHz

| | Freq | Level | Limit | Over | Remark | Pol/Phase |
|-------|-------|-------|-------|--------|--------|-----------|
| | MHz | dBuV | dBuV | dB | | |
| 1 | 0.15 | 54.77 | 66.00 | -11.23 | Peak | NEUTRAL |
| 2 | 0.80 | 39.82 | 56.00 | -16.18 | Peak | NEUTRAL |
| 3 Max | 2.20 | 45.10 | 56.00 | -10.90 | Peak | NEUTRAL |
| 4 | 3.88 | 43.58 | 56.00 | -12.42 | Peak | NEUTRAL |
| 5 | 13.62 | 37.47 | 60.00 | -22.53 | Peak | NEUTRAL |
| 6 | 22.42 | 35.89 | 60.00 | -24.11 | Peak | NEUTRAL |

7. RADIATED EMISSION TEST

7.1. Test Equipment

Please refer to section 4 this report.

7.2. Test Procedure

The EUT and its simulators are placed on a turntable, which is 0.8 meter high above ground. The turntable can rotate 360 degrees to determine the position of the maximum emission level. EUT is set 3.0 meters away from the receiving antenna, which is mounted on an antenna tower. The antenna can be moved up and down between 1.0 meter and 4 meters to find out the maximum emission level.

Calibrated Loop antenna is used as receiving antenna for frequencies below 30MHz, Calibrated Bilog antenna is used as receiving antenna for frequencies between 30 MHz and 1 GHz, Calibrated Horn antenna is used as receiving antenna for frequencies above 1000MHz. Both horizontal and vertical polarizations of the antenna are set on measurement. In order to find the maximum emission levels, all of the interface cables must be manipulated according to ANSI C63.4: 2003 on radiated emission measurement.

The bandwidth of test receiver is set at 9kHz in below 30MHz. and set at 120kHz in 30-1000MHz, and 1MHz in above 1000MHz.

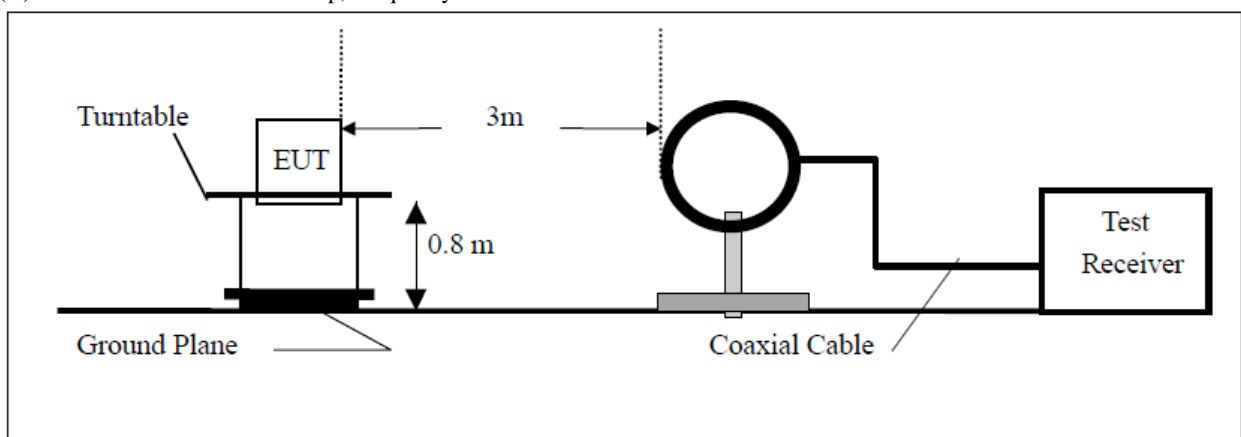
The frequency range from 9kHz to 25GHz is checked.

The final measurement in band 9-90kHz, 110-490kHz and above 1000MHz is performed with Peak detector and Average detector. Except those frequency bands mention above, the final measurement for frequencies below 1000MHz is performed with Quasi Peak detector.

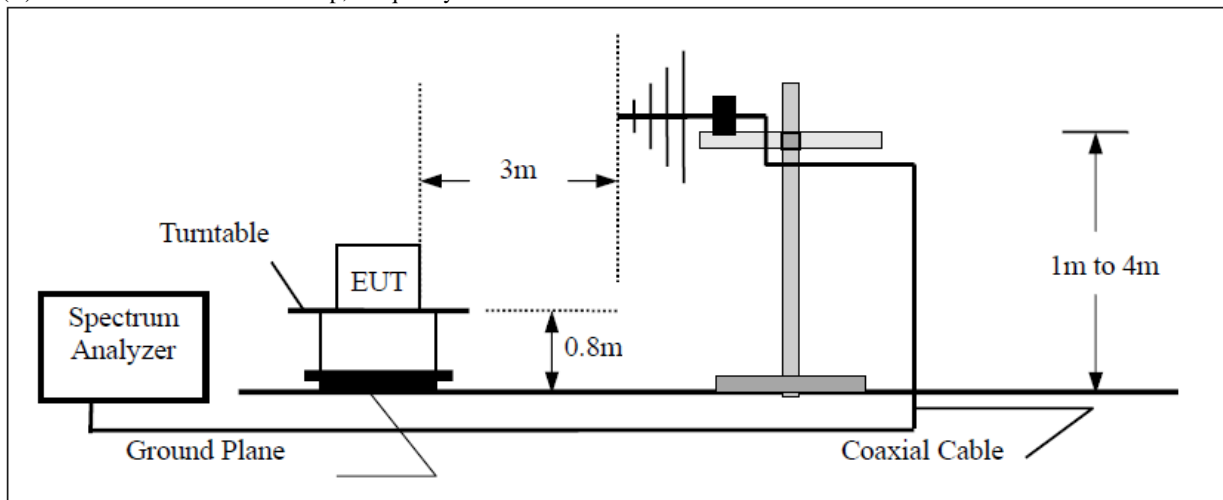
Through three orthogonal axes to determine which attitude and equipment arrangement produces the highest emission relative to the limit.

7.3. Radiated Test Setup

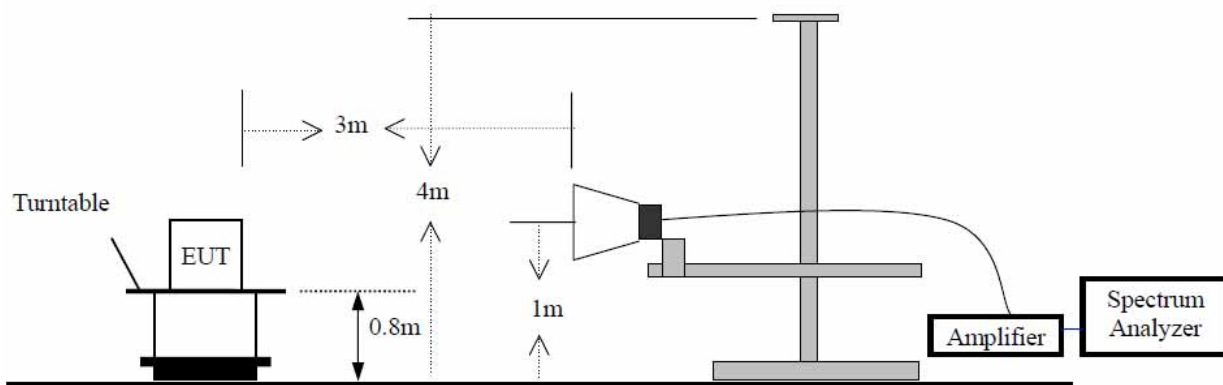
(A) Radiated Emission Test Set-Up, Frequency Below 30MHz



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



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



7.4. Radiated Emission Limit

All emission from a digital device, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strength specified below :

A. Fundamental and Harmonics Radiated Emissions 15.249(a) Limit

| Fundamental Frequency (MHZ) | Field as trength of Fundamental(3m) | | | Field as trength of Harmonics(3m) | | |
|-----------------------------|-------------------------------------|--------|-----------|-----------------------------------|--------|----------|
| | mV/m | dBuV/m | | uV/m | dBuV/m | |
| 902-928 | 50 | 94(AV) | 114(Peak) | 500 | 54(AV) | 74(Peak) |
| 2400-2483.5 | 50 | 94(AV) | 114(Peak) | 500 | 54(AV) | 74(Peak) |

Note: (1) RF Voltage (dBuV)=20 log Voltage(uV)

(2) Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system.

(3) The emission limit in this paragraph os based on measurement instrumentation employing an average detector.Measurement using instrumentation with a peak detector function,corresponding to 20dB above the maximum permitted average limit.

B. Spurious Radiated Emissions.

| Frequency (MHz) | Limit | | | The final measurement in band 9-90kHz, 110-490kHz and above 1000MHz is performed with Average detector. Except those frequency bands mention above, the final measurement for frequencies below 1000MHz is performed with Quasi Peak detector. |
|-----------------|---|---|--------------------------|--|
| | Field Strength of Quasi-peak Value (microvolts/m) | Field Strength of Quasi-peak Value (dB μ V/m) | Measurement distance (m) | |
| 0.009 - 0.490 | 2400/F(kHz) | / | 300 | |
| 0.490 - 1.705 | 24000/F(kHz) | / | 30 | |
| 1.705-30 | 30 | 29.5 | 30 | |
| 30 - 88 | 100 | 40 | 3 | |
| 88 - 216 | 150 | 43.5 | 3 | |
| 216 - 960 | 200 | 46 | 3 | |
| Above 960 | 500 | 54 | 3 | |

Note: (1) RF Voltage (dBuV)=20 log Voltage(uV)

(2) In the Above Table,the tighter limit applies at the band edges.

(3) Distaqnce refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system.

7.5. Radiated Emission Test Result

Pass

Test mode: 4 modules simultaneously transmit

A. Fundamental Radiated Emissions Data

CH Low

| Freq. (MHz) | Emission(dBuV/m) AV/PK | HORIZ/ VERT | Limits(dBuV/m) AV/PK | Margin (dB) |
|----------------|---------------------------|----------------|-------------------------|----------------|
| 2402 | 84.46/93.6 | VERT | 94/114 | -9.6/-20.4 |
| 2402 | 79.4/89.6 | HORIZ | 94/114 | -14.6/-24.4 |

CH Middle

| Freq. (MHz) | Emission(dBuV/m) AV/PK | HORIZ/ VERT | Limits(dBuV/m) AV/PK | Margin (dB) |
|----------------|---------------------------|----------------|-------------------------|----------------|
| 2441 | 84.09/93.07 | VERT | 94/114 | -9.91/-20.93 |
| 2441 | 78.08/88.18 | HORIZ | 94/114 | -15.92/-25.82 |

CH High

| Freq. (MHz) | Emission(dBuV/m) AV/PK | HORIZ/ VERT | Limits(dBuV/m) AV/PK | Margin (dB) |
|----------------|---------------------------|----------------|-------------------------|----------------|
| 2480 | 84.6/93.2 | VERT | 94/114 | -9.4/-20.8 |
| 2480 | 78.3/87.2 | HORIZ | 94/114 | -15.7/-26.8 |

B. General Radiated Emissions Data

Pass

Test mode: 4 modules simultaneously transmit

For below 9kHz-30MHz Spurious

| Freq. (MHz) | Emission(dBuV/m) AV/PK | HORIZ/ VERT | Limits(dBuV/m) AV/PK | Margin (dB) |
|----------------|---------------------------|----------------|-------------------------|----------------|
| - | - | HORIZ | - | - |
| - | - | VERT | - | - |

Note:

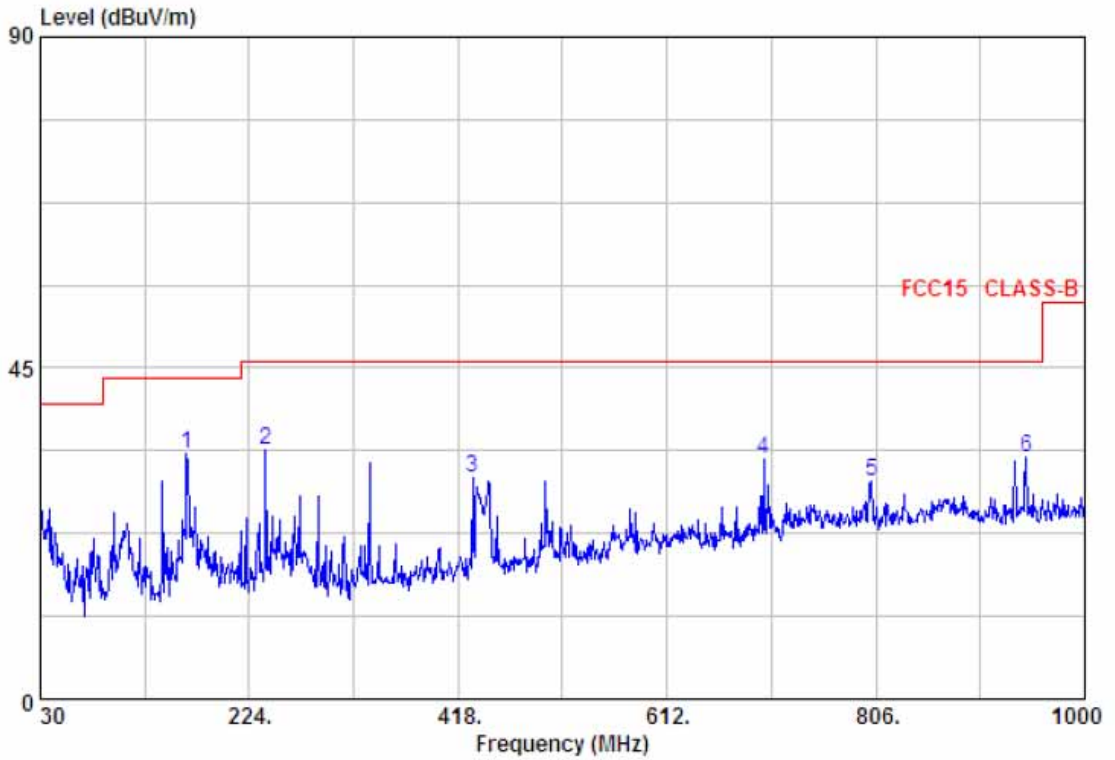
1. Emissions attenuated more than 20 dB below the permissible value are not reported.

Pass

Test mode: 4 modules simultaneously transmit

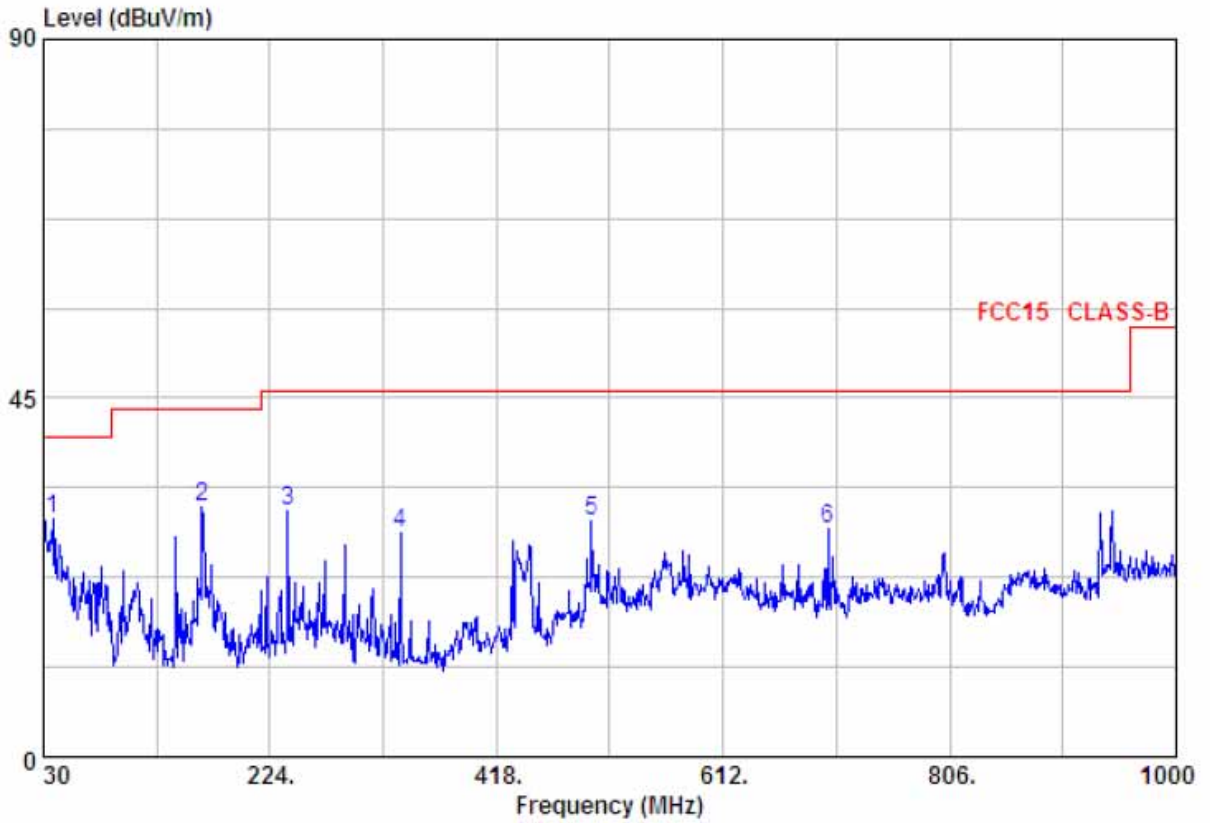
For 30M-1000MHz Spurious

$$\text{Corrected Factor} = \text{Antenna Factor} + \text{Cable Loss} - \text{Amplifier Gain}$$



Condition : FCC15 CLASS-B 3m HORIZONTAL
 : RBW:100.000KHz VBW:300.000KHz SWT:Auto

| | Freq | Level | Limit | Over | Remark | Pol/Phase |
|-------|--------|--------|--------|--------|--------|------------|
| | MHz | dBuV/m | dBuV/m | dB | | |
| 1 max | 165.80 | 33.38 | 43.50 | -10.12 | QP | HORIZONTAL |
| 2 | 239.52 | 33.81 | 46.00 | -12.19 | QP | HORIZONTAL |
| 3 | 431.58 | 30.08 | 46.00 | -15.92 | QP | HORIZONTAL |
| 4 | 702.21 | 32.49 | 46.00 | -13.51 | QP | HORIZONTAL |
| 5 | 802.12 | 29.64 | 46.00 | -16.36 | QP | HORIZONTAL |
| 6 | 945.68 | 32.81 | 46.00 | -13.19 | QP | HORIZONTAL |



Condition : FCC15 CLASS-B 3m VERTICAL
 : RBW:120.000KHz VBW:300.000KHz SWT:Auto

| | Freq | Level | Limit | Over | Remark | Pol/Phase |
|-------|--------|--------|--------|--------|--------|-----------|
| | MHz | dBuV/m | dBuV/m | dB | | |
| 1 max | 37.76 | 29.92 | 40.00 | -10.08 | QP | VERTICAL |
| 2 | 165.80 | 31.38 | 43.50 | -12.12 | QP | VERTICAL |
| 3 | 239.52 | 30.81 | 46.00 | -15.19 | QP | VERTICAL |
| 4 | 335.55 | 28.06 | 46.00 | -17.94 | QP | VERTICAL |
| 5 | 499.48 | 29.60 | 46.00 | -16.40 | QP | VERTICAL |
| 6 | 702.21 | 28.49 | 46.00 | -17.51 | QP | VERTICAL |

Pass

Test mode: 4 modules simultaneously transmit

For 1000MHz-25000MHz Spurious

CH Low

| Freq. (MHz) | Emission(dBuV/m) AV/PK | HORIZ/ VERT | Limits(dBuV/m) AV/PK | Margin (dB) |
|-------------|------------------------|-------------|----------------------|---------------|
| 4804.0 | 41.3/56.36 | VERT | 54.0/74.0 | -12.7/-17.64 |
| 7206.0 | 43/57.59 | | 54.0/74.0 | -11/-16.41 |
| 9608.0 | 44.06/61.6 | | 54.0/74.0 | -9.94/-12.4 |
| 4804.0 | 39.92/52.73 | HORIZ | 54.0/74.0 | -14.08/-21.27 |
| 7206.0 | 41.35/54.97 | | 54.0/74.0 | -12.65/-19.03 |
| 9608.0 | 42.88/57.55 | | 54.0/74.0 | -11.12/-16.45 |

CH Middle

| Freq. (MHz) | Emission(dBuV/m) AV/PK | HORIZ/ VERT | Limits(dBuV/m) AV/PK | Margin (dB) |
|-------------|------------------------|-------------|----------------------|---------------|
| 4882.0 | 44.27/55.64 | VERT | 54.0/74.0 | -9.73/-18.36 |
| 7323.0 | 46.31/57.88 | | 54.0/74.0 | -7.69/-16.12 |
| 9764.0 | 48.4/60.47 | | 54.0/74.0 | -5.6/-13.53 |
| 4882.0 | 42.02/58.31 | HORIZ | 54.0/74.0 | -11.98/-15.69 |
| 7323.0 | 43.33/55.66 | | 54.0/74.0 | -10.67/-18.34 |
| 9764.0 | 45.37/56.33 | | 54.0/74.0 | -8.63/-17.67 |

CH High

| Freq. (MHz) | Emission(dBuV/m) AV/PK | HORIZ/ VERT | Limits(dBuV/m) AV/PK | Margin (dB) |
|-------------|------------------------|-------------|----------------------|---------------|
| 4960.0 | 44.62/52.82 | VERT | 54.0/74.0 | -9.38/-21.88 |
| 7440.0 | 45.76/59.98 | | 54.0/74.0 | -8.24/-14.02 |
| 9920.0 | 49.73/62.67 | | 54.0/74.0 | -4.27/-11.33 |
| 4960.0 | 41.02/48.93 | HORIZ | 54.0/74.0 | -12.98/-25.07 |
| 7440.0 | 42.42/55.79 | | 54.0/74.0 | -11.58/-18.21 |
| 9920.0 | 46.97/54.75 | | 54.0/74.0 | -7.03/-19.25 |

Note:

1. The average measurement was not performed when the peak measured data under the limit of average detection.
2. Emissions attenuated more than 20 dB below the permissible value are not reported.

8. BAND EDGE

8.1. Test Equipment

Please refer to Section 4 this report.

8.2. Test Procedure

The EUT and its simulators are placed on a turn table which is 0.8 meter above ground. The turn table can rotate 360 degrees to determine the position of the maximum emission level. The EUT was positioned such that the distance from antenna to the EUT was 3 meters. The antenna can move up and down between 1 meter and 4 meters to find out the maximum emission level. Both horizontal and vertical polarization of the antenna are set on measurement. In order to find the maximum emission, all of the interface cables must be manipulated according to ANSI C63.4: 2003 on radiated measurement. The bandwidth setting below 1GHz and above 1GHz on the field strength meter is 120 kHz and 1MHz respectively.

8.3. Band Edge FCC 15.249(d) Limit

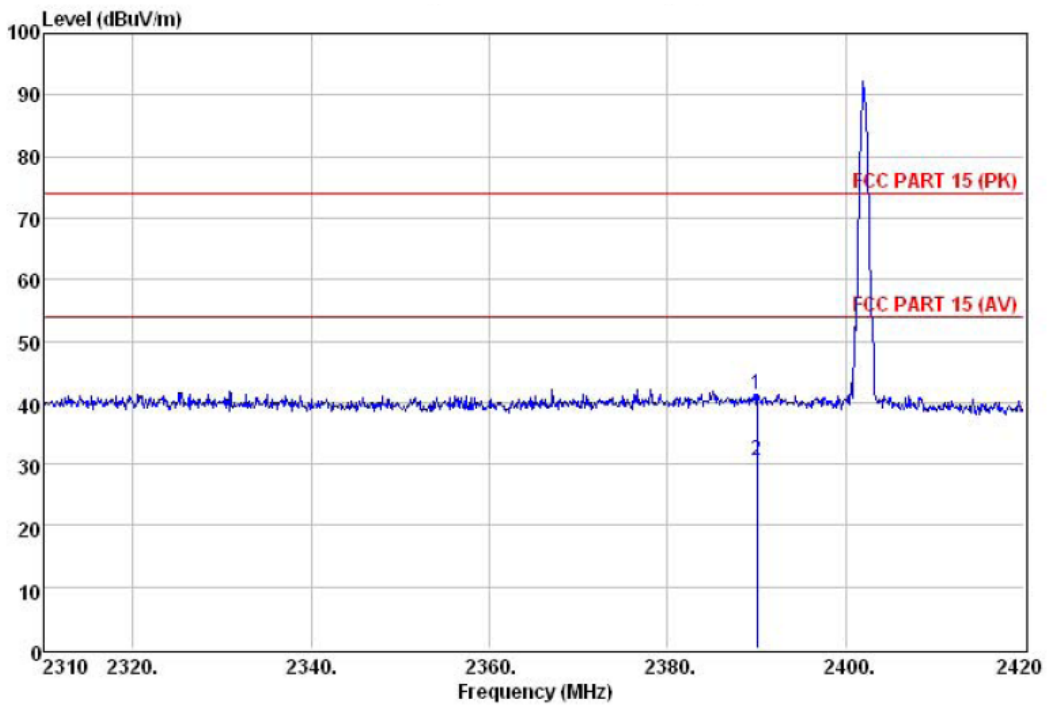
Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits in Section 15.209, whichever is the lesser attenuation.

8.4. Band Edge Test Result

Pass

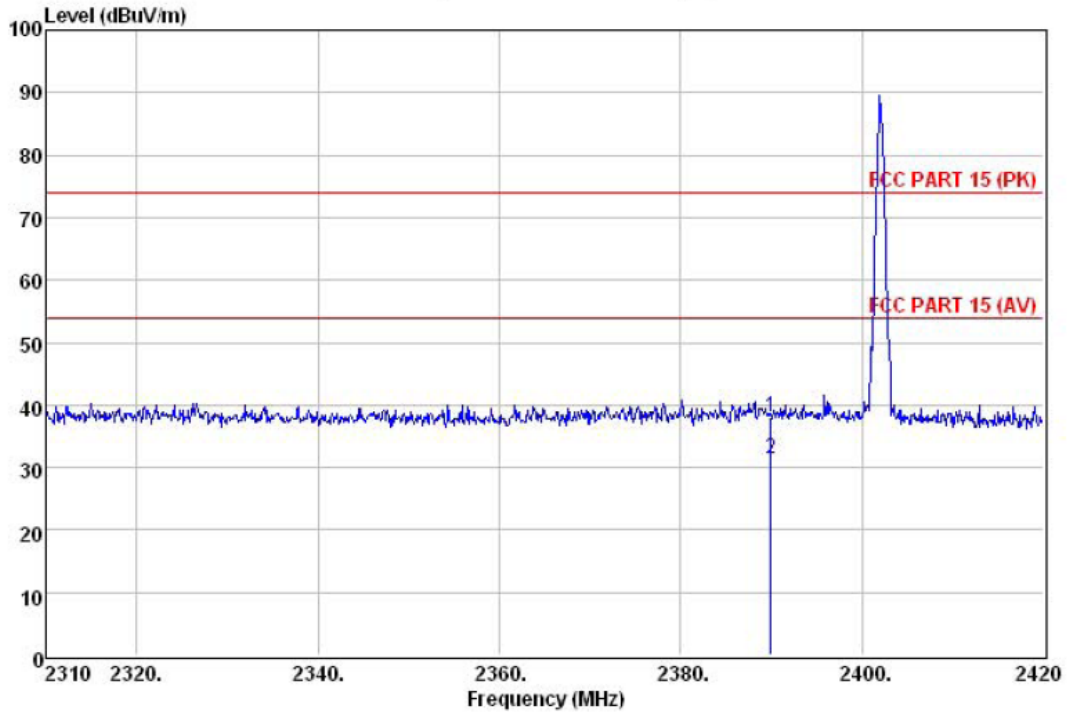
Test mode: 4 modules simultaneously transmit

TX:2402MHz



Site : 3m chamber
 Condition : FCC PART 15 (PK) 3m VERTICAL
 Remark : L ch

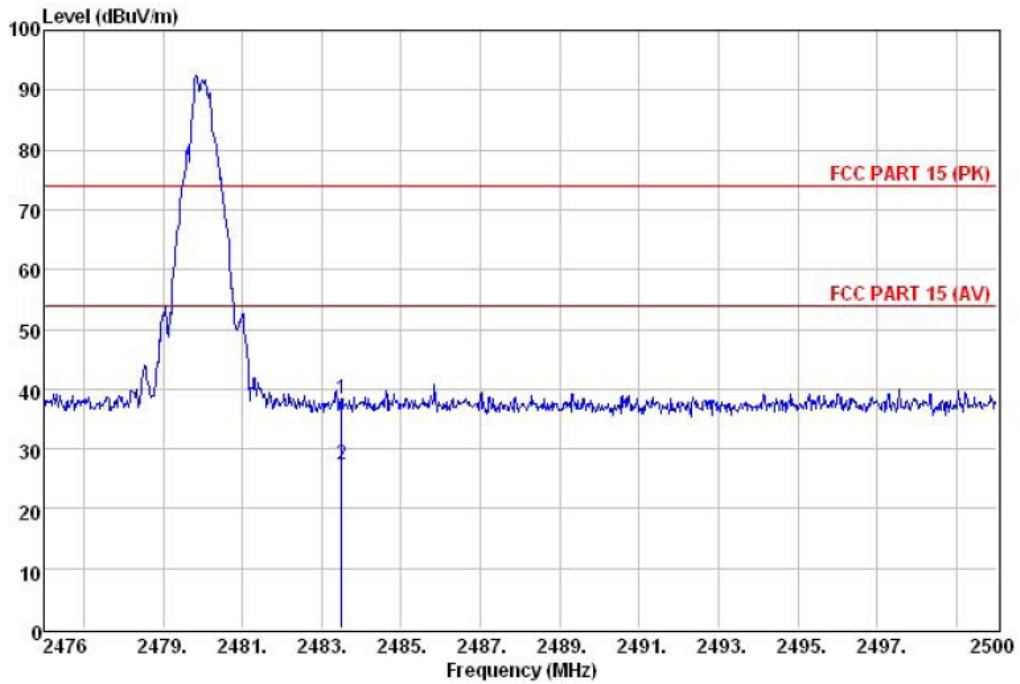
| | Read | Antenna | Cable | Preamp | Level | Limit | Over | |
|------|----------|---------|-------|--------|--------|--------|-------|----------------|
| Freq | Level | Factor | Loss | Factor | Level | Line | Limit | Remark |
| MHz | dBuV | dB/m | dB | dB | dBuV/m | dBuV/m | dB | |
| 1 | 2390.080 | 40.08 | 27.58 | 3.81 | 30.10 | 41.37 | 74.00 | -32.63 Peak |
| 2 | 2390.080 | 29.30 | 27.58 | 3.81 | 30.10 | 30.59 | 54.00 | -23.41 Average |



Site : 3m chamber
 Condition : FCC PART 15 (PK) 3m HORIZONTAL
 Remark : L ch

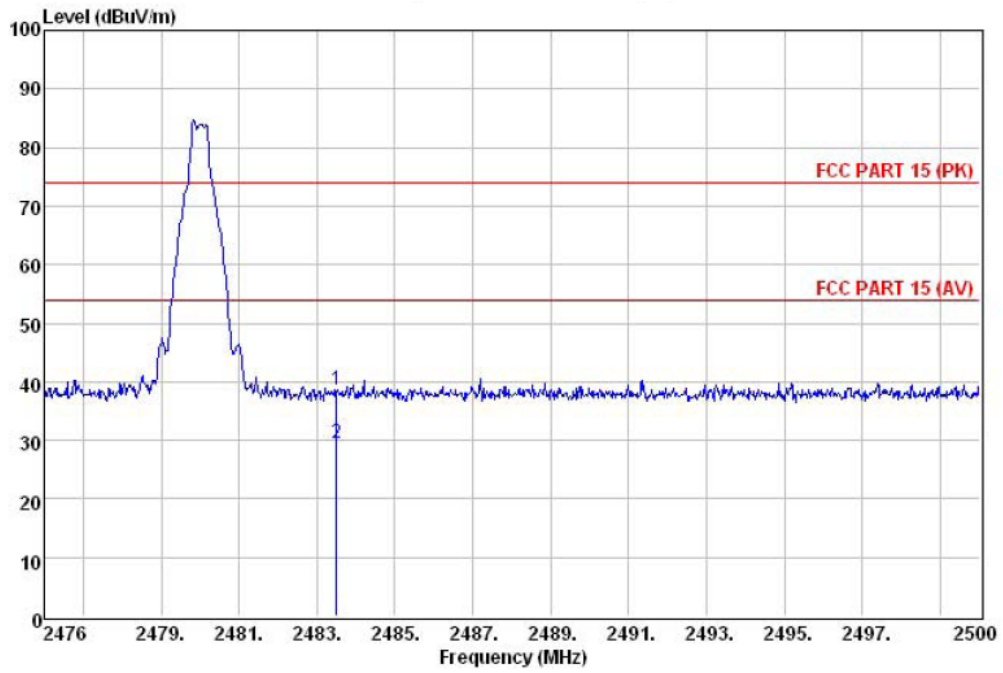
| | ReadAntenna | Cable Preamp | Limit | Over | | | | | |
|------|--------------|--------------|-------|-------|--------|-------|-------|--------|---------|
| Freq | Level Factor | Loss Factor | Line | Limit | Remark | | | | |
| MHz | dBuV | dB/m | dB | dB | dBuV/m | | | | |
| 1 | 2390.000 | 36.88 | 27.58 | 3.81 | 30.10 | 38.17 | 74.00 | -35.83 | Peak |
| 2 | 2390.000 | 30.20 | 27.58 | 3.81 | 30.10 | 31.49 | 54.00 | -22.51 | Average |

TX:2480MHz



Site : 3m chamber
 Condition : FCC PART 15 (PK) VERTICAL
 Remark : H ch

| | Freq | ReadAntenna | Cable Preamp | Level | Limit | Over | Remark | |
|---|----------|-------------|--------------|-------|--------|--------|--------|----------------|
| | MHz | Level | Factor | Loss | Factor | Line | Limit | |
| | | dBuV | dB/m | dB | dB | dBuV/m | dBuV/m | |
| 1 | 2483.500 | 37.62 | 27.52 | 3.89 | 30.60 | 38.43 | 74.00 | -35.57 Peak |
| 2 | 2483.500 | 26.50 | 27.52 | 3.89 | 30.60 | 27.31 | 54.00 | -26.69 Average |



Site : 3m chamber
 Condition : FCC PART 15 (PK) HORIZONTAL
 Remark : H ch

| | Freq | ReadAntenna | Cable Preamp | Limit | Over | | | | |
|---|----------|-------------|--------------|-------|-------|--------------|--------|--------|---------|
| | MHz | Level | Loss Factor | Level | Line | Limit Remark | | | |
| | | dBuV | dB/m | dB | dB | dBuV/m | dBuV/m | dB | |
| 1 | 2483.500 | 37.89 | 27.52 | 3.89 | 30.60 | 38.70 | 74.00 | -35.30 | Peak |
| 2 | 2483.500 | 28.60 | 27.52 | 3.89 | 30.60 | 29.41 | 54.00 | -24.59 | Average |