



198 Kezhu Road, Sciencetech Park, Guangzhou Economic & Technological  
Development District, Guangzhou, China 510663  
Telephone: +86 (0) 20 82155555  
Fax: +86 (0) 20 82075059  
Email: ee.guangzhou@sgs.com

Report No.: GZEM120900372103  
Page: 1 of 33  
FCC ID: VS9FR1PS31EPD

## TEST REPORT

|                      |  |
|----------------------|--|
| Application No.:     | GZEM1209003721RF                                     |
| Applicant:           | Goodbetterbest Limited                               |
| FCC ID:              | VS9FR1PS31EPD  |
| Product Name:        | FR-1 Freedom Wheel For PS3                           |
| Product Description: | Radio controller and dongle with 2.4 GHz as carrier. |
| Model No.:           | FR1PS3-11  |
| Standards:           | 47 CFR PART 15 Subpart C: 2011 section 15.249        |
| Date of Receipt:     | 2012-09-22   |
| Date of Test:        | 2012-09-22 to 2012-10-30                             |
| Date of Issue:       | 2012-11-07   |
| Test Result :        | Pass*  |

\* In the configuration tested, the EUT complied with the standards specified above.



Strong Yao  
Manager\*

The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report. If the product in this report is used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant standards.


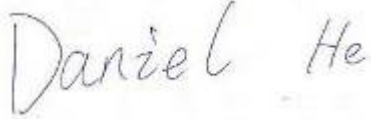

The report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the federal government. All test results in this report can be traceable to National or International Standards.

This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at [www.sgs.com/terms\\_and\\_conditions.htm](http://www.sgs.com/terms_and_conditions.htm) and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at [www.sgs.com/terms\\_e-document.htm](http://www.sgs.com/terms_e-document.htm). Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.



## 2 Version

| Revision Record |         |            |          |          |
|-----------------|---------|------------|----------|----------|
| Version         | Chapter | Date       | Modifier | Remark   |
| 00              |         | 2012-11-07 |          | Original |
|                 |         |            |          |          |
|                 |         |            |          |          |
|                 |         |            |          |          |
|                 |         |            |          |          |

|                                 |   |                                       |   |
|---------------------------------|---|---------------------------------------|---|
| <b>Authorized for issue by:</b> |   |                                       |   |
| <b>Tested By</b>                |  | <b>(Daniel He) / Project Engineer</b> | 2012-09-22 to 2012-10-30<br><b>Date</b> |
| <b>Prepared By</b>              |  | <b>(Daniel He) / Project Engineer</b> | 2012-11-02<br><b>Date</b>               |
| <b>Checked By</b>               |  | <b>Strong Yao/ Reviewer</b>           | 2012-11-07<br><b>Date</b>               |



### 3 Test Summary

| TEST                                   | TEST REQUIREMENT                                    | TEST METHOD                          | RESULT |
|--|---|--------------------------------------|--------|
| Field Strength of Fundamental          | FCC PART 15 C section 15.249 (a)                    | ANSI C63.10: Clause 6.6              | PASS   |
| Field Strength of Unwanted Emissions   | FCC PART 15 C section 15.249 (a) section 15.249 (d) | ANSI C63.10: Clause 6.4, 6.6 and 6.7 | PASS** |
| Band Edges                             | FCC PART 15 C section 15.249 (d)                    | ANSI C63.10: Clause 6.9.2            | PASS   |
| Occupied Bandwidth                     | FCC PART 15 C section 15.215(c)                     | ANSI C63.10: Clause 6.9.1            | PASS   |
| Conducted Emissions at Mains Terminals | FCC PART 15 C section 15.207                        | ANSI C63.10: Clause 6.2              | PASS   |

**Remark:**

EUT: In this whole report EUT means Equipment Under Test.

Tx: In this whole report Tx (or tx) means Transmitter.

Rx: In this whole report Rx (or rx) means Receiver.

RF: In this whole report RF means Radio Frequency.

ANSI C63.10: the detail version is ANSI C63.10:2009 in the whole report.

**Remark:** this report only record the dongle test data, about the controller test date can refer to the report GZEM120900372101.

\*\* The EUT passed Spurious Emissions test after retest.



## 4 Contents

|          |  |           |
|----------|--|-----------|
| <b>1</b> | <b>COVER PAGE .....</b>  | <b>1</b>  |
| <b>2</b> | <b>VERSION.....</b>  | <b>2</b>  |
| <b>3</b> | <b>TEST SUMMARY .....</b>  | <b>3</b>  |
| <b>4</b> | <b>CONTENTS.....</b>   | <b>4</b>  |
| <b>5</b> | <b>GENERAL INFORMATION .....</b>   | <b>5</b>  |
| 5.1      | Client Information .....   | 5         |
| 5.2      | General Description of E.U.T. ....   | 5         |
| 5.3      | Details of E.U.T. ....   | 5         |
| 5.4      | Description of Support Units .....   | 6         |
| 5.5      | Other Information Requested by the Customer .....                                    | 6         |
| 5.6      | Deviation from Standards .....   | 6         |
| 5.7      | Test Location .....  | 6         |
| <b>6</b> | <b>EQUIPMENT USED DURING TEST .....</b>  | <b>8</b>  |
| <b>7</b> | <b>TEST RESULTS .....</b>  | <b>10</b> |
| 7.1      | E.U.T. Operation.....  | 10        |
| 7.2      | Antenna Requirement .....  | 12        |
| 7.3      | Field Strength of Fundamental& Field Strength of Unwanted Emissions& Band Edge ..... | 13        |
| 7.4      | Occupied Bandwidth .....   | 28        |
| 7.5      | Conducted Emissions at Mains Terminals 150 kHz to 30 MHz .....                       | 30        |
| 7.5.1    | Measurement Data .....   | 32        |



## 5 General Information

### 5.1 Client Information

Applicant: Goodbetterbest Limited  
Address of Applicant: Suites 103-107 Oevonshire Business Centre Works Road, Letchworth  
Herts SG8 1GJ United Kingdom

### 5.2 General Description of E.U.T.

Product Name: FR-1 Freedom Wheel For PS3  
Model No.: FR1PS3-11

### 5.3 Details of E.U.T.

Operating Frequency: 2406MHz to 2476MHz  
Type of Modulation: GFSK  
Number of Channels: 71  
Channel Separation: 1 MHz  
Antenna Type: PCB Layout  
Antenna gain: 2dBi  
Power Supply: DC 5.0V supply by PS3 from USB for dongle



#### 5.4 Description of Support Units

Associated equipment provided by the test lab:

| Description   | Manufacturer | Model No.  | SN/Certificate NO |
|---------------|--------------|------------|-------------------|
| NoteBook      | IBM          | T60        | L3-F3755          |
| Monitor       | SAMSUNG      | 225MS      | CR22HVMP900646W   |
| Playstation 3 | Sony         | CECH-3012A | 4-295-267-01      |

Remark: the Notebook only use for fix frequency.

#### 5.5 Other Information Requested by the Customer

None.

#### 5.6 Deviation from Standards

Biconical and log periodic antennas were used instead of dipole antennas.

#### 5.7 Test Location

All tests were performed at:

SGS-CSTC Standards Technical Services Co., Ltd., Guangzhou EMC Laboratory,  
198 Kezhu Road, Sciencetech Park, Guangzhou Economic & Technology Development District,  
Guangzhou, China 510663

Tel: +86 20 82155555 Fax: +86 20 82075059

No tests were sub-contracted.

## 5.6 Test Facility

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

- **NVLAP (Lab Code: 200611-0)**  
SGS-CSTC Standards Technical Services Co., Ltd., Guangzhou EMC Laboratory is recognized under the National Voluntary Laboratory Accreditation Program (NVLAP/NIST). NVLAP Code: 200611-0.
- **ACMA**  
SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory can also perform testing for the Australian C-Tick mark as a result of our NVLAP accreditation.
- **SGS UK(Certificate No.: 32), SGS-TUV SAARLAND and SGS-FIMKO**  
Have approved SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory as a supplier of EMC TESTING SERVICES and SAFETY TESTING SERVICES.
- **CNAS (Lab Code: L0167)**  
SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory has been assessed and in compliance with CNAS-CL01:2006 accreditation criteria for testing laboratories (identical to ISO/IEC 17025:2005 General Requirements) for the Competence of Testing Laboratories.
- **FCC (Registration No.: 282399)**  
SGS-CSTC Standards Technical Services Co., Ltd., 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 282399, May 31, 2002.
- **Industry Canada (Registration No.: 4620B-1)**  
The 3m/10m Alternate Semi-anechoic chamber of SGS-CSTC Standards Technical Services Co., Ltd. has been registered by Certification and Engineering of Industry Canada for radio equipment testing with Registration No. 4620B-1.
- **VCCI (Registration No.: R-2460, C-2584, G-449 and T-1179)**  
The 10m Semi-anechoic chamber and Shielded Room of SGS-CSTC Standards Technical Services Co., Ltd. have been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: R-2460, C-2584, G-449 and T-1179 respectively.
- **CBTL (Lab Code: TL129)**  
SGS-CSTC Standards Technical Services Co., Ltd., E&E Laboratory has been assessed and fully comply with the requirements of ISO/IEC 17025:2005, the Basic Rules, IECEE 01:2006-10 and Rules of procedure IECEE 02:2006-10, and the relevant IECEE CB-Scheme Operational documents.



## 6 Equipment Used during Test

| RE in Chamber |  |                             |            |            |              |                      |
|---------------|--|-----------------------------|------------|------------|--------------|----------------------|
| No.           | Test Equipment                             | Manufacturer                | Model No.  | Serial No. | Cal.Due date | Calibration Interval |
|               |  |                             |            |            | (YYYY-MM-DD) |                      |
| EMC0525       | Compact Semi-Anechoic Chamber              | ChangZhou ZhongYu           | N/A        | N/A        | 2014-08-30   | 2Y                   |
| EMC0522       | EMI Test Receiver                          | Rohde & Schwarz             | ESIB26     | 100283     | 2012-11-11   | 1Y                   |
| EMC0056       | EMI Test Receiver                          | Rohde & Schwarz             | ESCI       | 100236     | 2013-03-12   | 1Y                   |
| EMC0528       | RI High frequency Cable                    | SGS                         | 20 m       | N/A        | 2013-06-01   | 1Y                   |
| EMC2025       | Trilog Broadband Antenna 30-3000MHz        | SCHWARZBECK MESS-ELEKTRONIK | VULB 9163  | 9163-450   | 2013-12-17   | 2Y                   |
| EMC0524       | Bi-log Type Antenna                        | Schaffner -Chase            | CBL6112B   | 2966       | 2012-11-28   | 1Y                   |
| EMC0519       | Bilog Type Antenna                         | Schaffner -Chase            | CBL6143    | 5070       | 2012-11-28   | 1Y                   |
| EMC2026       | Horn Antenna 1-18GHz                       | R&S                         | BBHA 9120D | 9120D-841  | 2013-11-28   | 2Y                   |
| EMC0518       | Horn Antenna                               | Rohde & Schwarz             | HF906      | 100096     | 2014-07-01   | 2Y                   |
| EMC0521       | 1-26.5 GHz Pre-Amplifier                   | Agilent                     | 8449B      | 3008A01649 | 2013-03-12   | 1Y                   |
| EMC0049       | Amplifier                                  | Agilent                     | 8447D      | 2944A10862 | 2013-03-12   | 1Y                   |
| EMC0075       | 310N Amplifier                             | Sonoma                      | 310N       | 272683     | 2013-03-12   | 1Y                   |
| EMC0523       | Active Loop Antenna                        | EMCO                        | 6502       | 42963      | 2012-11-17   | 1Y                   |
| EMC2041       | Broad-Band Horn Antenna (14)15-26.5(40)GHz | SCHWARZBECK MESS-ELEKTRONI  | BBHA 9170  | 9170-375   | 2014-06-01   | 3Y                   |
| EMC0530       | 10m Semi-Anechoic Chamber                  | ETS                         | N/A        | N/A        | 2014-04-27   | 2Y                   |



| Conducted Emission |                                    |                                       |                            |                     |              |                          |
|--------------------|------------------------------------|---------------------------------------|----------------------------|---------------------|--------------|--------------------------|
| No.                | Test Equipment                     | Manufacturer                          | Model No.                  | Serial No.          | Cal.Due date | Calibratio<br>n Interval |
|                    |                                    |                                       |                            |                     | (YYYY-MM-DD) |                          |
| EMC0306            | Shielding Room                     | Zhong Yu                              | 8 x 3 x 3.8 m <sup>3</sup> | N/A                 | N/A          | N/A                      |
| EMC0118            | Two-line v-netwok                  | R&S                                   | ENV216                     | 100359              | 2013-03-12   | 1Y                       |
| EMC0102            | LISN                               | SCHAFFNER<br>CHASE                    | MN2050D/1                  | 1421                | 2012-11-23   | 1Y                       |
| EMC2046            | Artificial Mains Network<br>(LISN) | AFJ Instruments                       | LT32C                      | S.N.320311201<br>50 | 2013-03-12   | 1Y                       |
| EMC0506            | EMI Test Receiver                  | Rohde & Schwarz                       | ESCS30                     | 100085              | 2013-03-12   | 1Y                       |
| EMC0107            | Coaxial Cable                      | SGS                                   | 2m                         | N/A                 | 2013-07-10   | 1Y                       |
| EMC0106            | Voltage Probe                      | SGS                                   | N/A                        | N/A                 | N/A          | 1Y                       |
| EMC0120            | 8 Line ISN                         | Fischer Custom<br>Communications Inc. | FCC-TLISN-T8-02            | 20550               | 2012-11-11   | 1Y                       |
| EMC0121            | 4 Line ISN                         | Fischer Custom<br>Communications Inc. | FCC-TLISN-T4-02            | 20549               | 2012-11-11   | 1Y                       |
| EMC0122            | 2 Line ISN                         | Fischer Custom<br>Communications Inc. | FCC-TLISN-T2-02            | 20548               | 2012-11-11   | 1Y                       |
| EMC2047            | CDN                                | Elektronik-<br>Feinmechanik           | L-801:AF2                  | 2793                | 2014-11-11   | 3Y                       |
| EMC2048            | CDN                                | Elektronik-<br>Feinmechanik           | L-801:M2/M3                | 2738                | 2014-11-11   | 3Y                       |
| EMC2062            | 6dB Attenuator                     | HP                                    | 8491A                      | 24487               | 2013-01-11   | 1Y                       |
| EMC167             | Conical metal housing              | SGS-EMC                               | N/A                        | N/A                 | 2013-02-16   | 1Y                       |

| General used equipment |                |              |           |            |              |                          |
|------------------------|----------------|--------------|-----------|------------|--------------|--------------------------|
| No.                    | Test Equipment | Manufacturer | Model No. | Serial No. | Cal.Due date | Calibratio<br>n Interval |
|                        |                |              |           |            | (YYYY-MM-DD) |                          |
| EMC0006                | DMM            | Fluke        | 73        | 70681569   | 2012-11-14   | 1Y                       |
| EMC0007                | DMM            | Fluke        | 73        | 70671122   | 2012-11-14   | 1Y                       |

## 7 Test Results

### 7.1 E.U.T. Operation

**Test Voltage:** DC 5.0V  
**Temperature:** 20.0 -25.0 °C  
**Humidity:** 38-50 % RH  
**Atmospheric Pressure:** 1000 -1010 mbar

**Test frequencies and frequency range:** According to the 15.31(m) Measurements on intentional radiators or receivers, other than TV broadcast receivers, shall be performed and, if required, reported for each band in which the device can be operated with the device operating at the number of frequencies in each band specified in the following table:

According to the 15.33 (a) For an intentional radiator, the spectrum shall be investigated from the lowest radio frequency signal generated in the device, without going below 9 kHz, up to at least the frequency shown in the following table:

#### Number of fundamental frequencies to be tested in EUT transmit band

| Frequency range in which device operates | Number of frequencies | Location in frequency range of operation    |
|--|-----------------------|---|
| 1 MHz or less                            | 1                     | Middle                                      |
| 1 MHz to 10 MHz                          | 2                     | 1 near top and 1 near bottom                |
| More than 10 MHz                         | 3                     | 1 near top, 1 near middle and 1 near bottom |

#### Frequency range of radiated emission measurements

| Lowest frequency generated in the device | Upper frequency range of measurement  |
|--|---|
| 9 kHz to below 10 GHz                    | 10th harmonic of highest fundamental frequency or to 40 GHz, whichever is lower                             |
| At or above 10 GHz to below 30 GHz       | 5th harmonic of highest fundamental frequency or to 100 GHz, whichever is lower                             |
| At or above 30 GHz                       | 5th harmonic of highest fundamental frequency or to 200 GHz, whichever is lower, unless otherwise specified |



EUT channels and frequencies list:

| Channel | Frequency (MHz) | Channel | Frequency (MHz) | Channel | Frequency (MHz) |
|---------|-----------------|---------|-----------------|---------|-----------------|
| 0       | 2406            | 27      | 2433            | 54      | 2460            |
| 1       | 2407            | 28      | 2434            | 55      | 2461            |
| 2       | 2408            | 29      | 2435            | 56      | 2462            |
| 3       | 2409            | 30      | 2436            | 57      | 2463            |
| 4       | 2410            | 31      | 2437            | 58      | 2464            |
| 5       | 2411            | 32      | 2438            | 59      | 2465            |
| 6       | 2412            | 33      | 2439            | 60      | 2466            |
| 7       | 2413            | 34      | 2440            | 61      | 2467            |
| 8       | 2414            | 35      | 2441            | 62      | 2468            |
| 9       | 2415            | 36      | 2442            | 63      | 2469            |
| 10      | 2416            | 37      | 2443            | 64      | 2470            |
| 11      | 2417            | 38      | 2444            | 65      | 2471            |
| 12      | 2418            | 39      | 2445            | 66      | 2472            |
| 13      | 2419            | 40      | 2446            | 67      | 2473            |
| 14      | 2420            | 41      | 2447            | 68      | 2474            |
| 15      | 2421            | 42      | 2448            | 69      | 2475            |
| 16      | 2422            | 43      | 2449            | 70      | 2476            |
| 17      | 2423            | 44      | 2450            |         |                 |
| 18      | 2424            | 45      | 2451            |         |                 |
| 19      | 2425            | 46      | 2452            |         |                 |
| 20      | 2426            | 47      | 2453            |         |                 |
| 21      | 2427            | 48      | 2454            |         |                 |
| 22      | 2428            | 49      | 2455            |         |                 |
| 23      | 2429            | 50      | 2456            |         |                 |
| 24      | 2430            | 51      | 2457            |         |                 |
| 25      | 2431            | 52      | 2458            |         |                 |
| 26      | 2432            | 53      | 2459            |         |                 |

Test frequencies are the lowest channel: 0 channel(2406 MHz), middle channel: 34 channel(2440 MHz) and highest channel: 70 channel(2476MHz)

## 7.2 Antenna Requirement

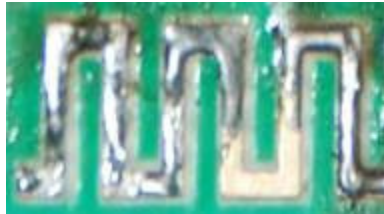
### Standard requirement

15.203 requirement:

For intentional device. 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.

### EUT Antenna

The antenna is integrated on the main PCB and no consideration of replacement. The best case gain of the antenna is 2 dBi.



**Test result: The unit does meet the FCC requirements.**



### 7.3 Field Strength of Fundamental & Field Strength of Unwanted Emissions & Band Edge

Test Requirement: FCC Part 15 C section 15.249

(a) Except as provided in paragraph (b) of this section, the field strength of emissions from intentional radiators operated within these frequency bands shall comply with the following:

| Fundamental Frequency (MHz) | Field Strength of Fundamental (dBµV/m @ 3m) | Field Strength of Harmonics (dBµV/m @ 3m) |
|-----------------------------|---|---|
| 902 to 928                  | 94.0  | 54.0                                      |
| 2400 to 2483.5              | 94.0  | 54.0                                      |
| 5725 to 5875                | 94.0  | 54.0                                      |
| 24000 to 24250              | 108.0                                       | 68.0                                      |

(d) 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.

Limits: The fundamental frequency range is in the frequency band of the EUT is 2406MHz ~ 2476MHz.

The limit for Average field strength dBµV/m for the fundamental frequency = 94.0 dBµV/m.

The limit for Peak field strength dBµV/m for the fundamental frequency = 114.0 dBµV/m.

No fundamental is allowed in the restricted bands.

The limit for average field strength dBµV/m for the harmonics = 54.0 dBµV/m.

The limit for peak field strength dBµV/m for the harmonics = 74.0 dBµV/m.

Emission radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50dB below the level of the fundamental or 54.0 dBµV/m in 15.209. Here the limit for the other emission is 54.0 dBµV/m.

Test Method: ANSI C63.10: Clause 6.4, 6.6 and 6.7 for Field Strength of Fundamental & Field Strength of Unwanted Emissions

ANSI C63.10: Clause 6.9.2 for Band Edge

Status: Pre-test the EUT in continuous transmitting mode with setup as stand-alone in X, Y, Z three axes, found the worst case is X axes and report the data.

Measurement Distance: 3m (Semi-Anechoic Chamber)

Frequency range: 9 kHz – 25 GHz for transmitting mode.

Test instrumentation resolution bandwidth

9 kHz (9 kHz - 30 MHz), 120 kHz (30 MHz - 1000 MHz), 1 MHz (1000 MHz – 25 GHz)

**Test Procedure:**

1) 9 kHz to 30 MHz emissions:

For testing performed with the loop antenna, testing was performed in accordance to ANSI C63.10. The centre of the loop was positioned 1 m above the ground and positioned with its plane vertical at the specified distance from the EUT, During testing the loop was rotated about its vertical axis for maximum response at each azimuth and also investigated with the loop positioned in the horizontal plane.

2) 30 MHz to 1 GHz emissions:

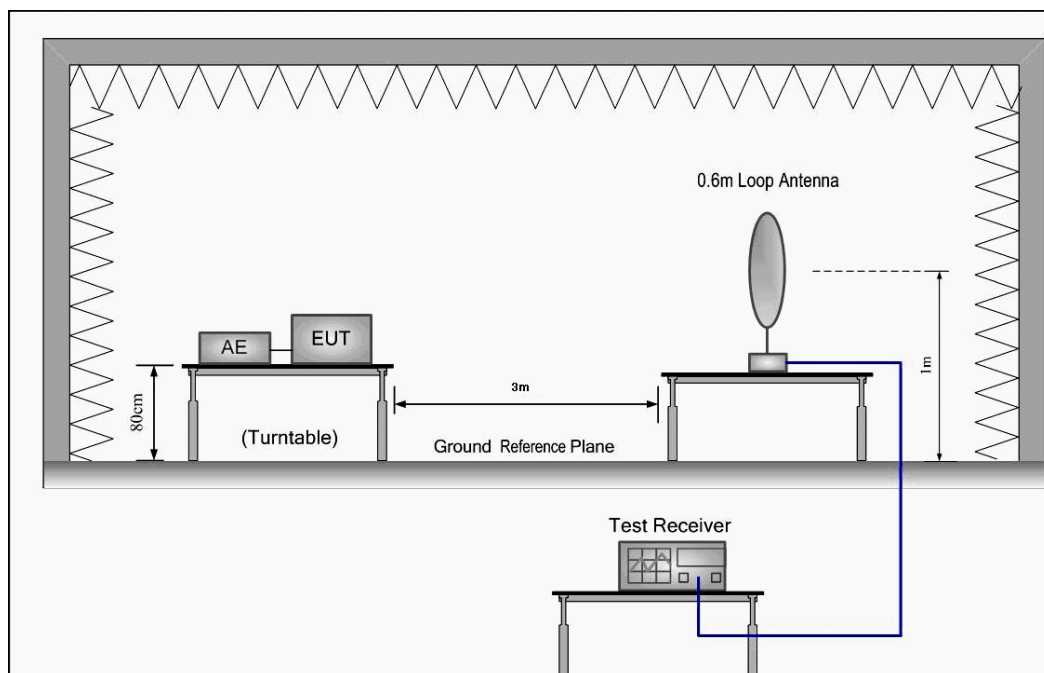
For testing performed with the bi-log type antenna, testing was performed in accordance to ANSI C63.10. The measurement is performed with the EUT rotated 360°, the antenna height scanned between 1m and 4m, and the antenna rotated to repeat the measurement for both the horizontal and vertical antenna polarizations.

3) 1 GHz to 25 GHz emissions:

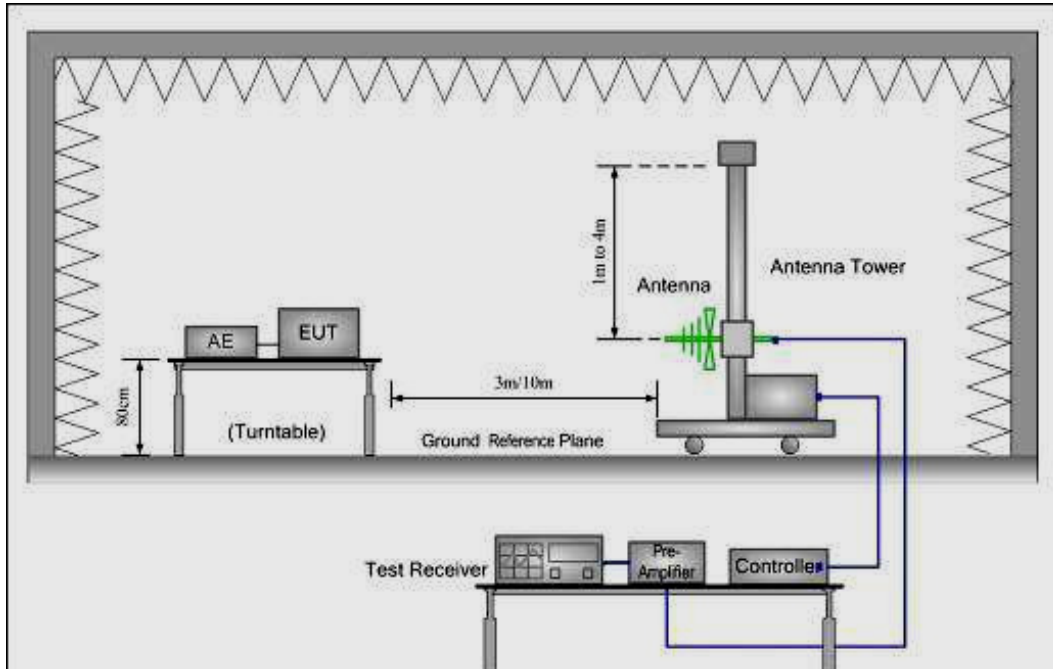
For testing performed with the horn antenna, testing was performed in accordance to ANSI C63.10. The measurement is performed with the EUT rotated 360°, the antenna height scan between 1m and 4m, and the antenna rotated to repeat the measurement for both the horizontal and vertical antenna polarizations.

**Test Configuration:**

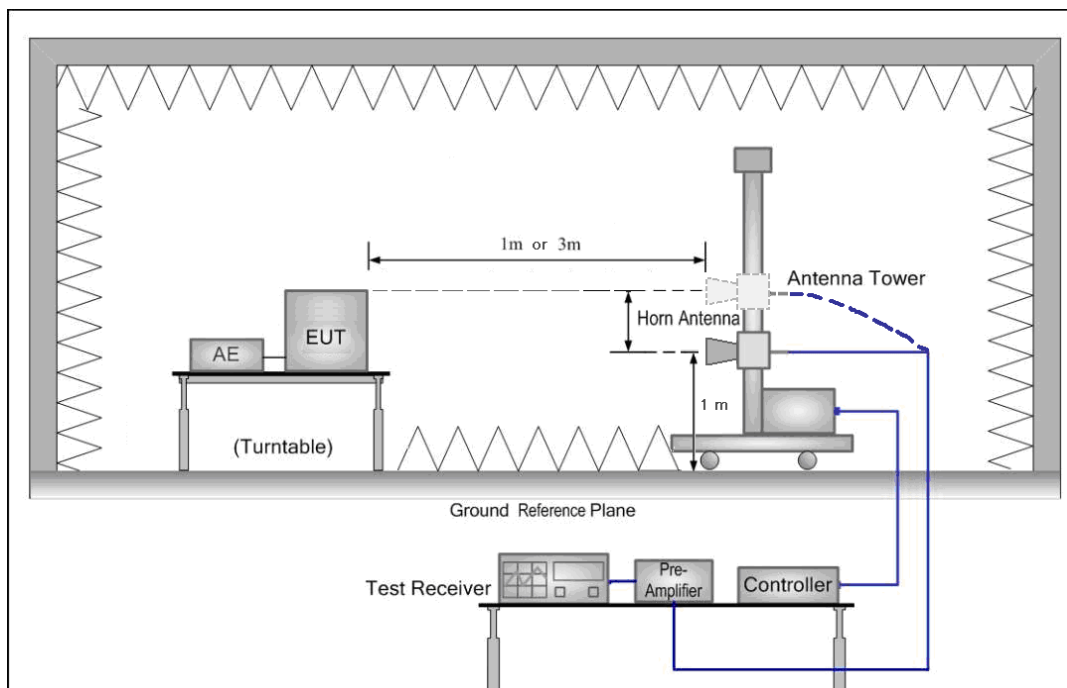
1) 9 kHz to 30 MHz emissions:



2) 30 MHz to 1 GHz emissions:



3) 1 GHz to 25 GHz emissions:



The field strength is calculated by adding the Antenna Factor, Cable Loss & Pre-amplifier. The basic equation with a sample calculation is as follows:

$$\text{Final Test Level} = \text{Receiver Reading} + \text{Antenna Factor} + \text{Cable Loss} - \text{Preamplifier Factor}$$

**1. Test at low Channel in transmitting status**

9 kHz~30 MHz Field Strength of Unwanted Emissions. Quasi-Peak Measurement

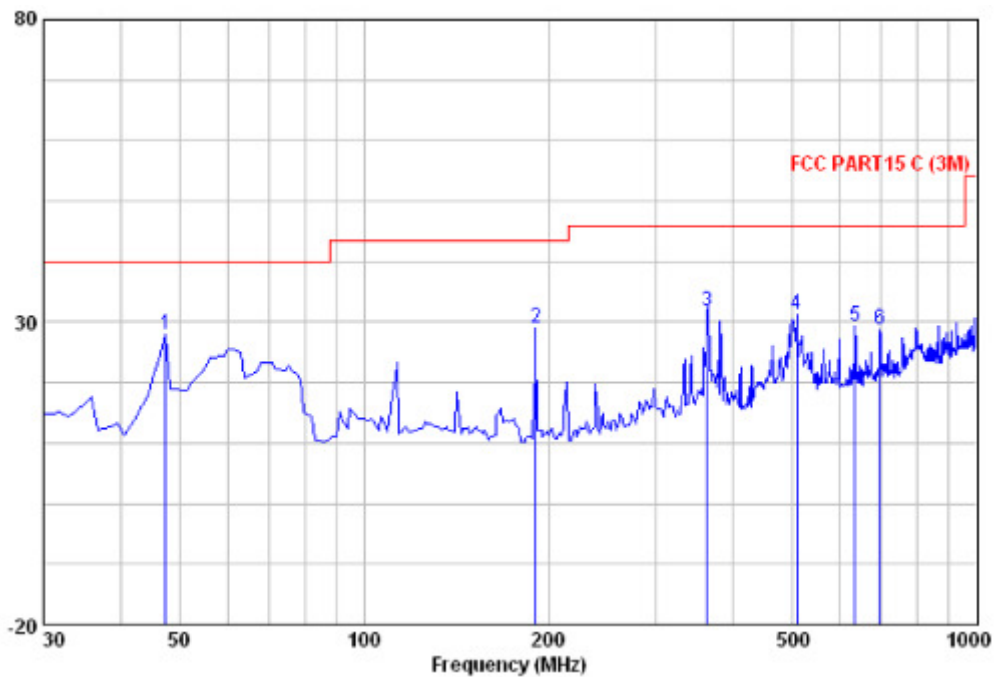
The measurements with active loop antenna were greater than 20dB below the limit, so the test data were not recorded in the test report.

30 MHz~1 GHz Field Strength of Unwanted Emissions. Quasi-Peak Measurement

Vertical:

Peak scan

Level (dB $\mu$ V/m)



Quasi-peak measurement

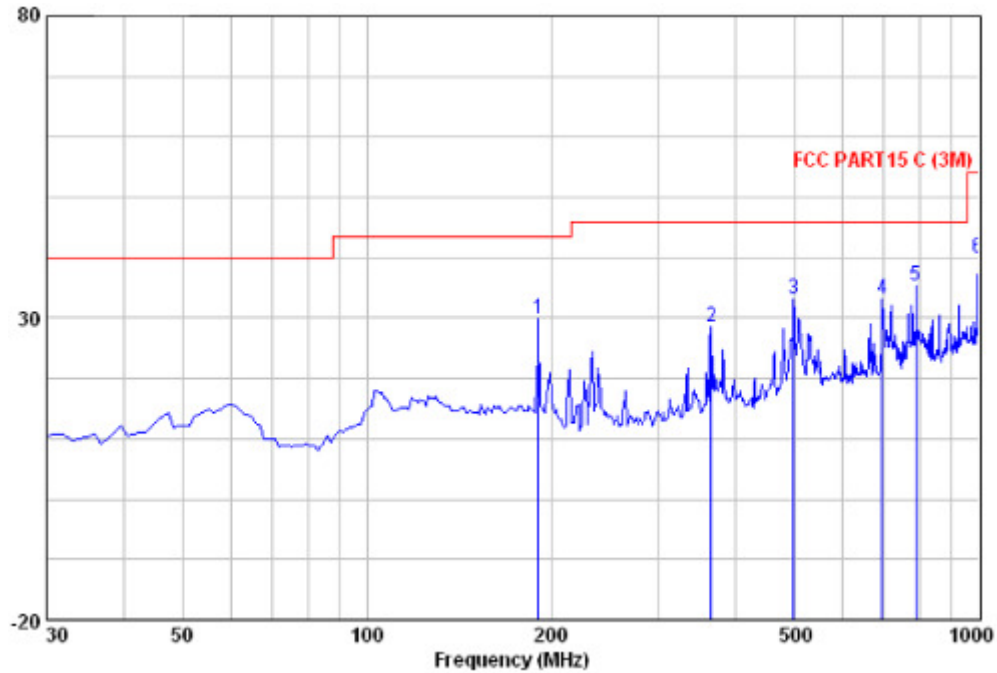
| Freq<br>MHz | ReadAntenna<br>Level<br>dB $\mu$ V | Antenna<br>Factor<br>dB/m | Cable<br>Loss<br>dB | Preamp<br>Factor<br>dB | Level<br>dB $\mu$ V/m | Limit<br>Line<br>dB $\mu$ V/m | Over<br>Limit<br>dB | Remark |
|-------------|------------------------------------|---------------------------|---------------------|------------------------|-----------------------|-------------------------------|---------------------|--------|
| 47.460      | 44.01                              | 13.41                     | 0.00                | 29.50                  | 27.92                 | 40.00                         | -12.08              | QP     |
| 191.020     | 47.89                              | 10.56                     | 0.00                | 29.53                  | 28.92                 | 43.50                         | -14.58              | QP     |
| 363.680     | 46.98                              | 14.46                     | 0.00                | 29.60                  | 31.84                 | 46.00                         | -14.16              | QP     |
| 509.180     | 43.93                              | 16.79                     | 0.00                | 29.49                  | 31.23                 | 46.00                         | -14.77              | QP     |
| 634.310     | 40.06                              | 18.58                     | 0.00                | 29.36                  | 29.28                 | 46.00                         | -16.72              | QP     |
| 695.420     | 39.41                              | 18.79                     | 0.00                | 29.30                  | 28.89                 | 46.00                         | -17.11              | QP     |





**Horizontal:**

Peak scan  
 Level (dB $\mu$ V/m)



Quasi-peak measurement

| Freq    | ReadAntenna | Cable Preamp | Limit | Over   | Remark       |              |        |    |
|---------|-------------|--------------|-------|--------|--------------|--------------|--------|----|
| MHz     | Level       | Factor       | Loss  | Factor | Line         | Limit        | dB     |    |
|         | dB $\mu$ V  | dB/m         | dB    | dB     | dB $\mu$ V/m | dB $\mu$ V/m |        |    |
| 191.020 | 48.88       | 10.56        | 0.00  | 29.53  | 29.91        | 43.50        | -13.59 | QP |
| 365.620 | 43.67       | 14.48        | 0.00  | 29.60  | 28.55        | 46.00        | -17.45 | QP |
| 498.510 | 46.14       | 16.58        | 0.00  | 29.50  | 33.22        | 46.00        | -12.78 | QP |
| 695.420 | 43.79       | 18.79        | 0.00  | 29.30  | 33.27        | 46.00        | -12.73 | QP |
| 789.510 | 44.54       | 19.92        | 0.00  | 29.21  | 35.25        | 46.00        | -10.75 | QP |
| 999.030 | 45.57       | 21.74        | 0.00  | 27.50  | 39.81        | 54.00        | -14.19 | QP |



1~25 GHz Field Strength of Fundamental & Field Strength of Unwanted Emissions.

Peak & Average Measurement

**Peak Measurement:**

| Frequency (MHz) | Antenna factors (dB/m) | Cable loss (dB) | Preamp factor (dB) | Reading Level (dBμV) | Emission Level (dBμV/m) | Limit (dBμV/m) | Antenna polarization |
|-----------------|------------------------|-----------------|--------------------|----------------------|-------------------------|----------------|----------------------|
| 2406.000        | 27.58                  | 6.60            | 49.44              | 93.60                | 78.34                   | 114.00         | V                    |
| 4812.000        | 31.54                  | 11.14           | 49.30              | 62.91                | 56.29                   | 74.00          | V                    |
| 7218.000        | 36.47                  | 13.09           | 32.71              | 41.06                | 57.91                   | 74.00          | V                    |
| 2406.000        | 27.58                  | 6.60            | 49.44              | 86.83                | 71.57                   | 114.00         | H                    |
| 4812.000        | 31.54                  | 11.14           | 49.30              | 64.11                | 57.49                   | 74.00          | H                    |
| 7218.000        | 36.47                  | 13.09           | 32.71              | 40.26                | 57.11                   | 74.00          | H                    |

**Average Measurement:**

| Frequency (MHz) | Antenna factors (dB/m) | Cable loss (dB) | Preamp factor (dB) | Reading Level (dBμV) | Emission Level (dBμV/m) | Limit (dBμV/m) | Antenna polarization |
|-----------------|------------------------|-----------------|--------------------|----------------------|-------------------------|----------------|----------------------|
| 2406.000        | 27.58                  | 6.60            | 49.44              | 81.60                | 66.34                   | 94.00          | V                    |
| 4812.000        | 31.54                  | 11.14           | 49.30              | 56.91                | 50.29                   | 54.00          | V                    |
| 7218.000        | 36.47                  | 13.09           | 32.71              | 32.13                | 48.98                   | 54.00          | V                    |
| 2406.000        | 27.58                  | 6.60            | 49.44              | 74.83                | 59.57                   | 94.00          | H                    |
| 4812.000        | 31.54                  | 11.14           | 49.30              | 57.11                | 50.49                   | 54.00          | H                    |
| 7218.000        | 36.47                  | 13.09           | 32.71              | 31.09                | 47.94                   | 54.00          | H                    |



Band Edge:

**Peak Measurement:**

| Frequency (MHz) | Antenna factors (dB/m) | Cable loss (dB) | Preamp factor (dB) | Reading Level (dB $\mu$ V) | Emission Level (dB $\mu$ V/m) | Limit (dB $\mu$ V/m) | Antenna polarization |
|-----------------|------------------------|-----------------|--------------------|----------------------------|-------------------------------|----------------------|----------------------|
| 2400.000        | 27.58                  | 6.56            | 49.44              | 52.96                      | 37.66                         | 74.00                | V                    |
| 2483.500        | 27.55                  | 6.99            | 49.42              | 53.88                      | 39.00                         | 74.00                | V                    |
| 2400.000        | 27.58                  | 6.56            | 49.44              | 53.59                      | 38.29                         | 74.00                | H                    |
| 2483.500        | 27.55                  | 6.99            | 49.42              | 54.09                      | 39.21                         | 74.00                | H                    |

**Average Measurement:**

| Frequency (MHz) | Antenna factors (dB/m) | Cable loss (dB) | Preamp factor (dB) | Reading Level (dB $\mu$ V) | Emission Level (dB $\mu$ V/m) | Limit (dB $\mu$ V/m) | Antenna polarization |
|-----------------|------------------------|-----------------|--------------------|----------------------------|-------------------------------|----------------------|----------------------|
| 2400.000        | 27.58                  | 6.56            | 49.44              | 42.84                      | 27.54                         | 54.00                | V                    |
| 2483.500        | 27.55                  | 6.99            | 49.42              | 42.76                      | 27.88                         | 54.00                | V                    |
| 2400.000        | 27.58                  | 6.56            | 49.44              | 43.35                      | 28.05                         | 54.00                | H                    |
| 2483.500        | 27.55                  | 6.99            | 49.42              | 43.19                      | 28.31                         | 54.00                | H                    |

**2. Test at middle Channel in transmitting status**

9 kHz~30 MHz Field Strength of Unwanted Emissions. Quasi-Peak Measurement

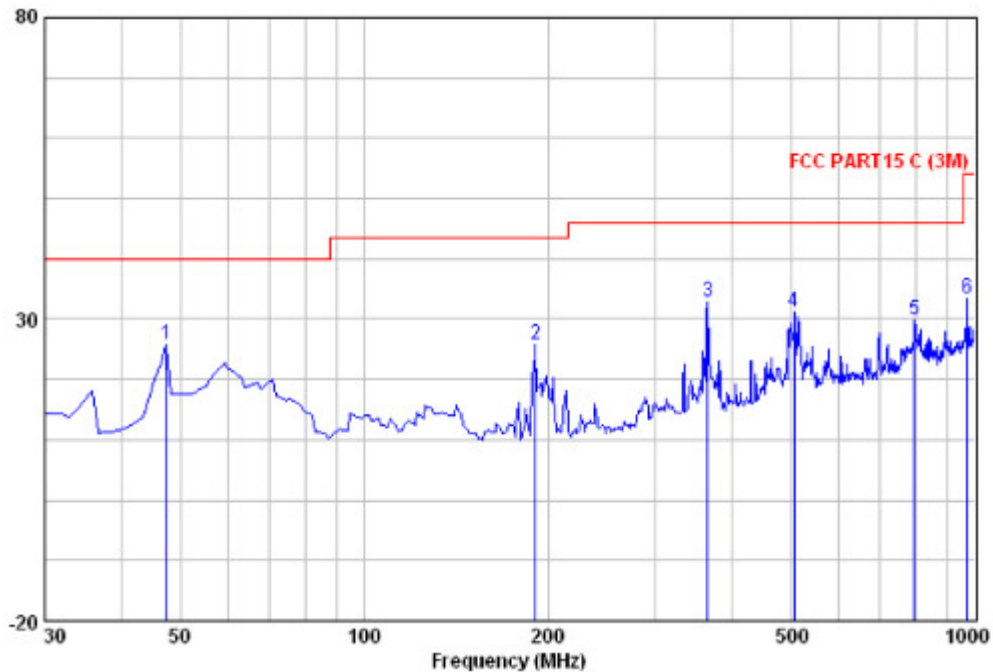
The measurements with active loop antenna were greater than 20dB below the limit, so the test data were not recorded in the test report.

30 MHz~1 GHz Field Strength of Unwanted Emissions. Quasi-Peak Measurement

Vertical:

Peak scan

Level (dB $\mu$ V/m)



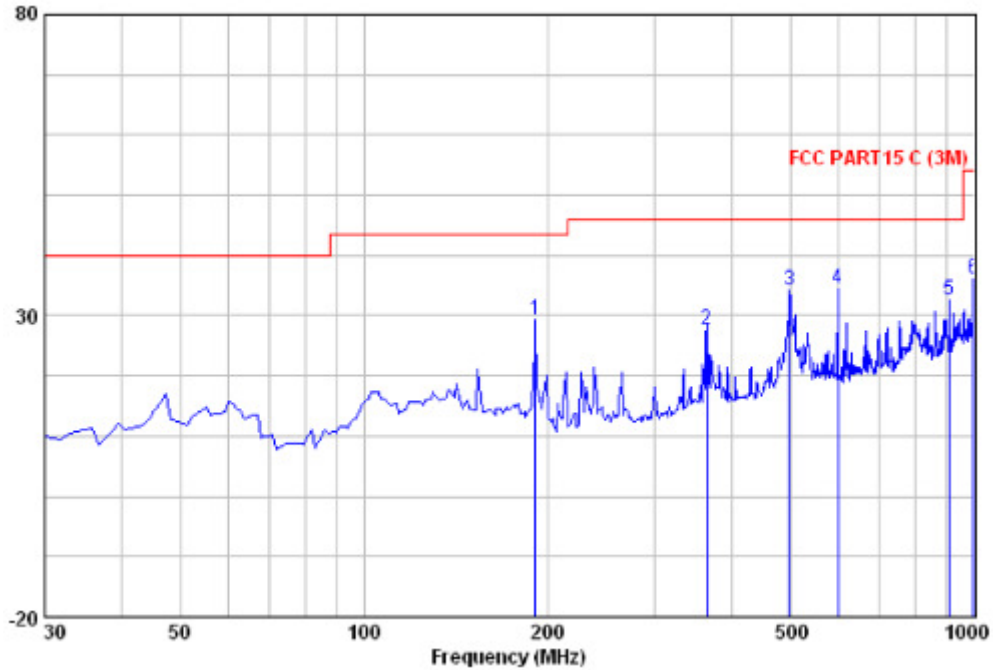
Quasi-peak measurement

| Freq    | ReadAntenna | Cable  | Preamp | Limit | Over         | Remark          |
|---------|-------------|--------|--------|-------|--------------|-----------------|
| MHz     | Level       | Factor | Loss   | Line  | Limit        |                 |
|         | dB $\mu$ V  | dB/m   | dB     | dB    | dB $\mu$ V/m | dB $\mu$ V/m    |
| 47.460  | 41.79       | 13.41  | 0.00   | 29.50 | 25.70        | 40.00 -14.30 QP |
| 191.020 | 44.80       | 10.56  | 0.00   | 29.53 | 25.83        | 43.50 -17.67 QP |
| 365.620 | 48.09       | 14.48  | 0.00   | 29.60 | 32.97        | 46.00 -13.03 QP |
| 506.270 | 44.12       | 16.74  | 0.00   | 29.49 | 31.36        | 46.00 -14.64 QP |
| 797.270 | 39.04       | 20.01  | 0.00   | 29.20 | 29.85        | 46.00 -16.15 QP |
| 970.900 | 39.53       | 21.55  | 0.00   | 27.71 | 33.37        | 54.00 -20.63 QP |

**Horizontal:**

Peak scan

Level (dB $\mu$ V/m)



Quasi-peak measurement

| Freq    | Read Level | Antenna Factor | Cable Loss | Preamp Factor | Level        | Limit Line   | Over Limit | Remark |
|---------|------------|----------------|------------|---------------|--------------|--------------|------------|--------|
| MHz     | dB $\mu$ V | dB/m           | dB         | dB            | dB $\mu$ V/m | dB $\mu$ V/m | dB         |        |
| 191.020 | 48.31      | 10.56          | 0.00       | 29.53         | 29.34        | 43.50        | -14.16     | QP     |
| 364.650 | 42.91      | 14.46          | 0.00       | 29.60         | 27.77        | 46.00        | -18.23     | QP     |
| 498.510 | 47.03      | 16.58          | 0.00       | 29.50         | 34.11        | 46.00        | -11.89     | QP     |
| 598.420 | 45.48      | 18.45          | 0.00       | 29.40         | 34.53        | 46.00        | -11.47     | QP     |
| 909.790 | 39.67      | 21.15          | 0.00       | 28.22         | 32.61        | 46.00        | -13.39     | QP     |
| 994.180 | 41.99      | 21.71          | 0.00       | 27.55         | 36.14        | 54.00        | -17.86     | QP     |



1~25 GHz Field Strength of Fundamental & Field Strength of Unwanted Emissions.

Peak & Average Measurement

**Peak Measurement:**

| Frequency (MHz) | Antenna factors (dB/m) | Cable loss (dB) | Preamp factor (dB) | Reading Level (dBμV) | Emission Level (dBμV/m) | Limit (dBμV/m) | Antenna polarization |
|-----------------|------------------------|-----------------|--------------------|----------------------|-------------------------|----------------|----------------------|
| 2440.000        | 27.57                  | 6.81            | 49.43              | 93.95                | 78.90                   | 114.00         | V                    |
| 4880.000        | 31.57                  | 11.24           | 49.30              | 62.71                | 56.22                   | 74.00          | V                    |
| 7320.000        | 36.50                  | 13.11           | 32.60              | 40.13                | 57.14                   | 74.00          | V                    |
| 2440.000        | 27.57                  | 6.81            | 49.43              | 85.82                | 70.77                   | 114.00         | H                    |
| 4880.000        | 31.57                  | 11.24           | 49.30              | 62.90                | 56.41                   | 74.00          | H                    |
| 7320.000        | 36.50                  | 13.11           | 32.60              | 40.79                | 57.80                   | 74.00          | H                    |

**Average Measurement:**

| Frequency (MHz) | Antenna factors (dB/m) | Cable loss (dB) | Preamp factor (dB) | Reading Level (dBμV) | Emission Level (dBμV/m) | Limit (dBμV/m) | Antenna polarization |
|-----------------|------------------------|-----------------|--------------------|----------------------|-------------------------|----------------|----------------------|
| 2440.000        | 27.57                  | 6.81            | 49.43              | 80.95                | 65.90                   | 94.00          | V                    |
| 4880.000        | 31.57                  | 11.24           | 49.30              | 56.71                | 50.22                   | 54.00          | V                    |
| 7320.000        | 36.50                  | 13.11           | 32.60              | 31.32                | 48.33                   | 54.00          | V                    |
| 2440.000        | 27.57                  | 6.81            | 49.43              | 74.82                | 59.77                   | 94.00          | H                    |
| 4880.000        | 31.57                  | 11.24           | 49.30              | 56.90                | 50.41                   | 54.00          | H                    |
| 7320.000        | 36.50                  | 13.11           | 32.60              | 30.89                | 47.90                   | 54.00          | H                    |



Band Edge:

**Peak Measurement:**

| Frequency (MHz) | Antenna factors (dB/m) | Cable loss (dB) | Preamp factor (dB) | Reading Level (dB $\mu$ V) | Emission Level (dB $\mu$ V/m) | Limit (dB $\mu$ V/m) | Antenna polarization |
|-----------------|------------------------|-----------------|--------------------|----------------------------|-------------------------------|----------------------|----------------------|
| 2400.000        | 27.58                  | 6.56            | 49.44              | 52.79                      | 37.49                         | 74.00                | V                    |
| 2483.500        | 27.55                  | 6.99            | 49.42              | 53.68                      | 38.80                         | 74.00                | V                    |
| 2400.000        | 27.58                  | 6.56            | 49.44              | 53.32                      | 38.02                         | 74.00                | H                    |
| 2483.500        | 27.55                  | 6.99            | 49.42              | 54.24                      | 39.36                         | 74.00                | H                    |

**Average Measurement:**

| Frequency (MHz) | Antenna factors (dB/m) | Cable loss (dB) | Preamp factor (dB) | Reading Level (dB $\mu$ V) | Emission Level (dB $\mu$ V/m) | Limit (dB $\mu$ V/m) | Antenna polarization |
|-----------------|------------------------|-----------------|--------------------|----------------------------|-------------------------------|----------------------|----------------------|
| 2400.000        | 27.58                  | 6.56            | 49.44              | 42.68                      | 27.38                         | 54.00                | V                    |
| 2483.500        | 27.55                  | 6.99            | 49.42              | 42.29                      | 27.41                         | 54.00                | V                    |
| 2400.000        | 27.58                  | 6.56            | 49.44              | 43.37                      | 28.07                         | 54.00                | H                    |
| 2483.500        | 27.55                  | 6.99            | 49.42              | 43.21                      | 28.33                         | 54.00                | H                    |

**3. Test at high Channel in transmitting status**

9 kHz~30 MHz Field Strength of Unwanted Emissions. Quasi-Peak Measurement

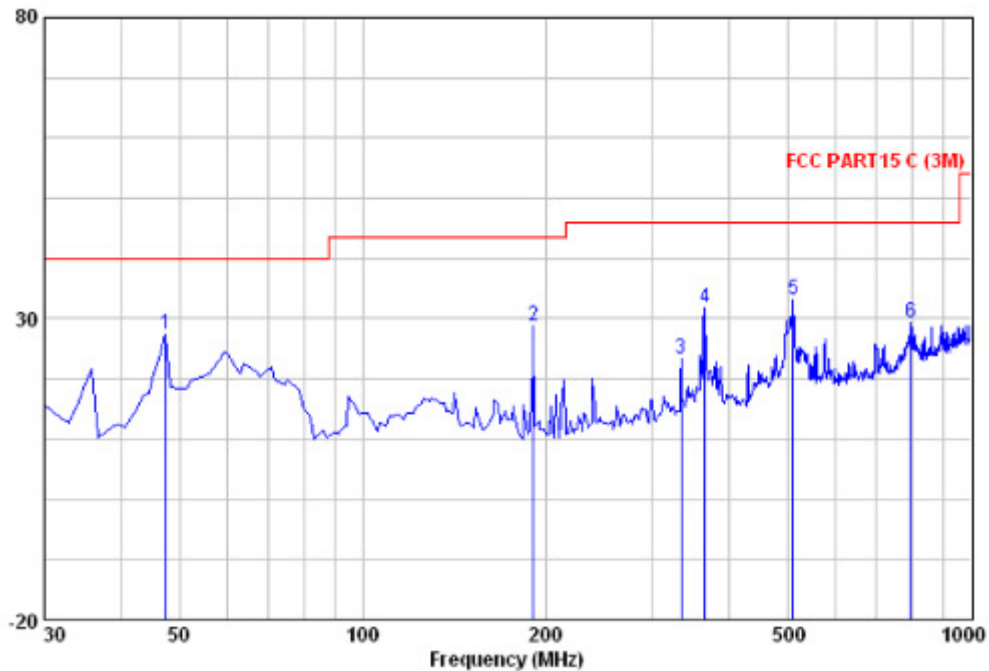
The measurements with active loop antenna were greater than 20dB below the limit, so the test data were not recorded in the test report.

30 MHz~1 GHz Field Strength of Unwanted Emissions. Quasi-Peak Measurement

Vertical:

Peak scan

Level (dBμV/m)



Quasi-peak measurement

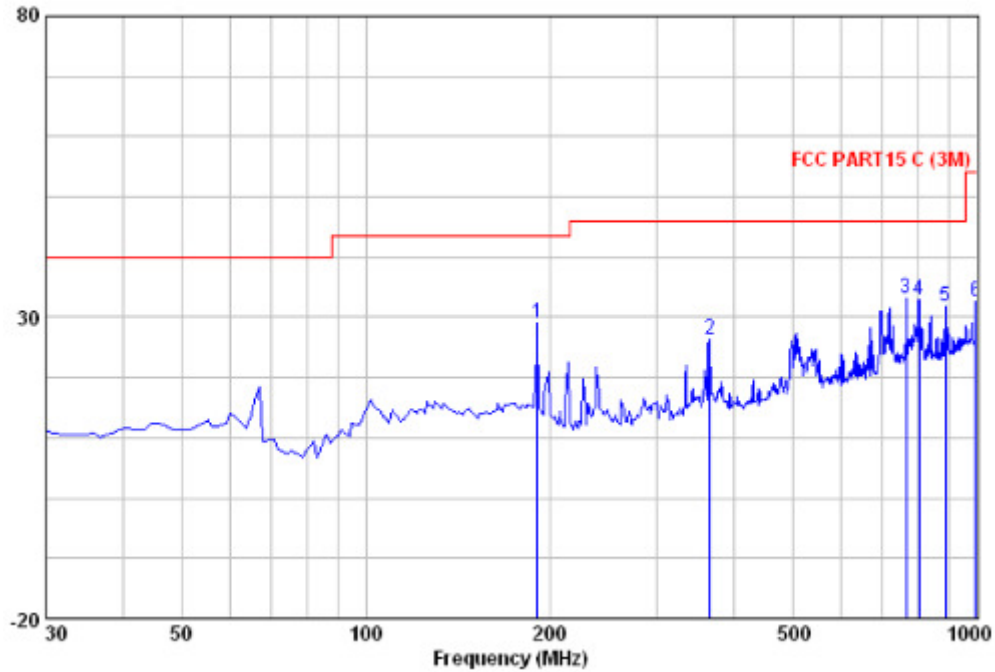
| Freq    | ReadAntenna | Cable  | Preamp | Limit  | Over   | Remark |           |
|---------|-------------|--------|--------|--------|--------|--------|-----------|
| MHz     | Level       | Factor | Loss   | Factor | Line   | Limit  |           |
|         | dBuV        | dB/m   | dB     | dB     | dBuV/m | dB     |           |
| 47.460  | 43.40       | 13.41  | 0.00   | 29.50  | 27.31  | 40.00  | -12.69 QP |
| 191.020 | 47.76       | 10.56  | 0.00   | 29.53  | 28.79  | 43.50  | -14.71 QP |
| 334.580 | 38.98       | 13.92  | 0.00   | 29.60  | 23.30  | 46.00  | -22.70 QP |
| 365.620 | 46.89       | 14.48  | 0.00   | 29.60  | 31.77  | 46.00  | -14.23 QP |
| 510.150 | 45.80       | 16.79  | 0.00   | 29.49  | 33.10  | 46.00  | -12.90 QP |
| 797.270 | 38.60       | 20.01  | 0.00   | 29.20  | 29.41  | 46.00  | -16.59 QP |



**Horizontal:**

Peak scan

Level (dB $\mu$ V/m)



Quasi-peak measurement

| Freq    | ReadAntenna | Cable Preamp | Limit | Over   | Remark       |              |        |    |
|---------|-------------|--------------|-------|--------|--------------|--------------|--------|----|
| MHz     | Level       | Factor       | Loss  | Factor | Line         | Limit        | dB     |    |
|         | dB $\mu$ V  | dB/m         | dB    | dB     | dB $\mu$ V/m | dB $\mu$ V/m |        |    |
| 191.020 | 48.05       | 10.56        | 0.00  | 29.53  | 29.08        | 43.50        | -14.42 | QP |
| 365.620 | 41.37       | 14.48        | 0.00  | 29.60  | 26.24        | 46.00        | -19.76 | QP |
| 766.230 | 42.68       | 19.63        | 0.00  | 29.23  | 33.08        | 46.00        | -12.92 | QP |
| 804.060 | 41.97       | 20.10        | 0.00  | 29.15  | 32.93        | 46.00        | -13.07 | QP |
| 886.510 | 39.10       | 20.96        | 0.00  | 28.40  | 31.65        | 46.00        | -14.35 | QP |
| 995.150 | 38.44       | 21.71        | 0.00  | 27.53  | 32.62        | 54.00        | -21.38 | QP |



1~25 GHz Field Strength of Fundamental & Field Strength of Unwanted Emissions.

Peak & Average Measurement

Peak Measurement:

| Frequency (MHz) | Antenna factors (dB/m) | Cable loss (dB) | Preamp factor (dB) | Reading Level (dBμV) | Emission Level (dBμV/m) | Limit (dBμV/m) | Antenna polarization |
|-----------------|------------------------|-----------------|--------------------|----------------------|-------------------------|----------------|----------------------|
| 2476.00         | 27.56                  | 6.98            | 49.42              | 95.78                | 80.87                   | 114.00         | V                    |
| 4952.00         | 31.68                  | 11.37           | 49.30              | 61.80                | 55.55                   | 74.00          | V                    |
| 7428.00         | 36.60                  | 13.60           | 49.72              | 40.26                | 40.74                   | 74.00          | V                    |
| 2476.00         | 27.56                  | 6.98            | 49.42              | 88.46                | 73.58                   | 114.00         | H                    |
| 4952.00         | 31.68                  | 11.37           | 49.30              | 61.43                | 55.18                   | 74.00          | H                    |
| 7428.00         | 36.60                  | 13.60           | 49.72              | 40.37                | 40.85                   | 74.00          | H                    |

Average Measurement:

| Frequency (MHz) | Antenna factors (dB/m) | Cable loss (dB) | Preamp factor (dB) | Reading Level (dBμV) | Emission Level (dBμV/m) | Limit (dBμV/m) | Antenna polarization |
|-----------------|------------------------|-----------------|--------------------|----------------------|-------------------------|----------------|----------------------|
| 2476.00         | 27.56                  | 6.98            | 49.42              | 82.78                | 67.87                   | 94.00          | V                    |
| 4952.00         | 31.68                  | 11.37           | 49.30              | 55.80                | 49.55                   | 54.00          | V                    |
| 7428.00         | 36.60                  | 13.60           | 49.72              | 31.26                | 31.74                   | 54.00          | V                    |
| 2476.00         | 27.56                  | 6.98            | 49.42              | 77.46                | 62.58                   | 94.00          | H                    |
| 4952.00         | 31.68                  | 11.37           | 49.30              | 56.43                | 50.18                   | 54.00          | H                    |
| 7428.00         | 36.60                  | 13.60           | 49.72              | 31.19                | 31.67                   | 54.00          | H                    |



Band Edge:

**Peak Measurement:**

| Frequency (MHz) | Antenna factors (dB/m) | Cable loss (dB) | Preamp factor (dB) | Reading Level (dBμV) | Emission Level (dBμV/m) | Limit (dBμV/m) | Antenna polarization |
|-----------------|------------------------|-----------------|--------------------|----------------------|-------------------------|----------------|----------------------|
| 2400.000        | 27.58                  | 6.56            | 49.44              | 52.74                | 37.44                   | 74.00          | V                    |
| 2483.500        | 27.55                  | 6.99            | 49.42              | 53.37                | 38.49                   | 74.00          | V                    |
| 2400.000        | 27.58                  | 6.56            | 49.44              | 53.21                | 37.91                   | 74.00          | H                    |
| 2483.500        | 27.55                  | 6.99            | 49.42              | 54.65                | 39.77                   | 74.00          | H                    |

**Average Measurement:**

| Frequency (MHz) | Antenna factors (dB/m) | Cable loss (dB) | Preamp factor (dB) | Reading Level (dBμV) | Emission Level (dBμV/m) | Limit (dBμV/m) | Antenna polarization |
|-----------------|------------------------|-----------------|--------------------|----------------------|-------------------------|----------------|----------------------|
| 2400.000        | 27.58                  | 6.56            | 49.44              | 42.71                | 27.41                   | 54.00          | V                    |
| 2483.500        | 27.55                  | 6.99            | 49.42              | 42.32                | 27.44                   | 54.00          | V                    |
| 2400.000        | 27.58                  | 6.56            | 49.44              | 43.29                | 27.99                   | 54.00          | H                    |
| 2483.500        | 27.55                  | 6.99            | 49.42              | 43.14                | 28.26                   | 54.00          | H                    |

Remark:

- 1). The field strength is calculated by adding the Antenna Factor. Cable Factor & Pre-amplifier. The basic equation with a sample calculation is as follows:  
Final Test Level = Receiver Reading + Antenna Factor + Cable Loss – Pre-amplifier Factor.
- 2). As shown in Section, for frequencies above 1000 MHz. the above field strength limits are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation.
- 3). The test only perform the EUT in transmitting status since the test frequencies were over 1GHz only required transmitting status.

**Test result: The unit does meet the FCC requirements.**

## 7.4 Occupied Bandwidth

Test Requirement: FCC Part 15 C section 15.249

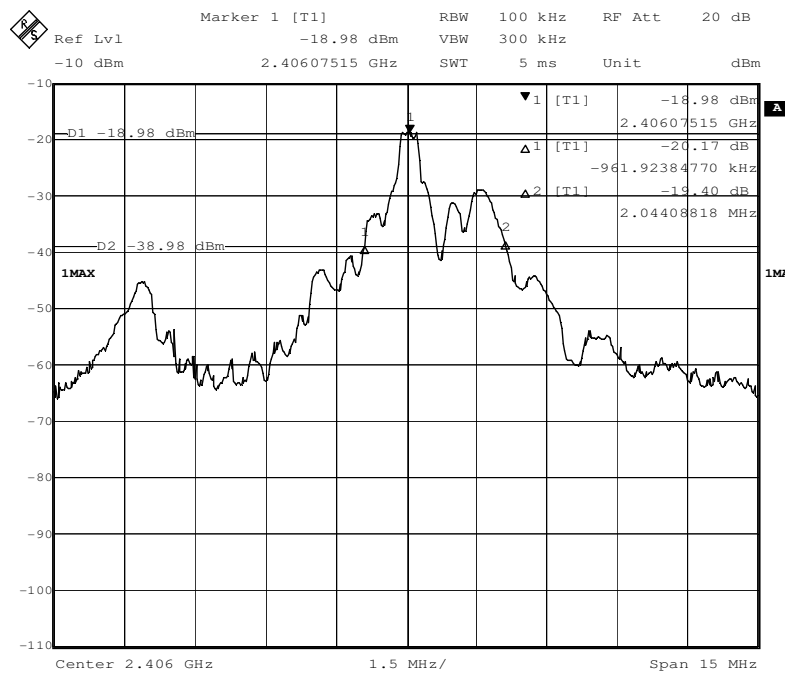
(d) Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits in Section 15.209, whichever is the lesser attenuation.

Test Method: ANSI C63.10: Clause 6.9.1

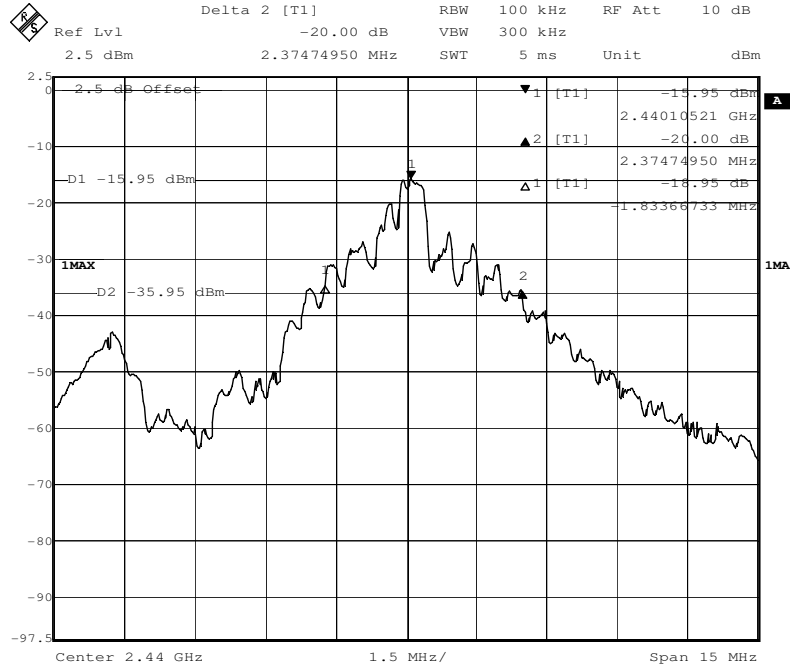
Operation within the band 2.400 to 2.4835 GHz

Method of measurement: A small sample of the transmitter output was fed into the Spectrum Analyzer and the attached plot was taken.

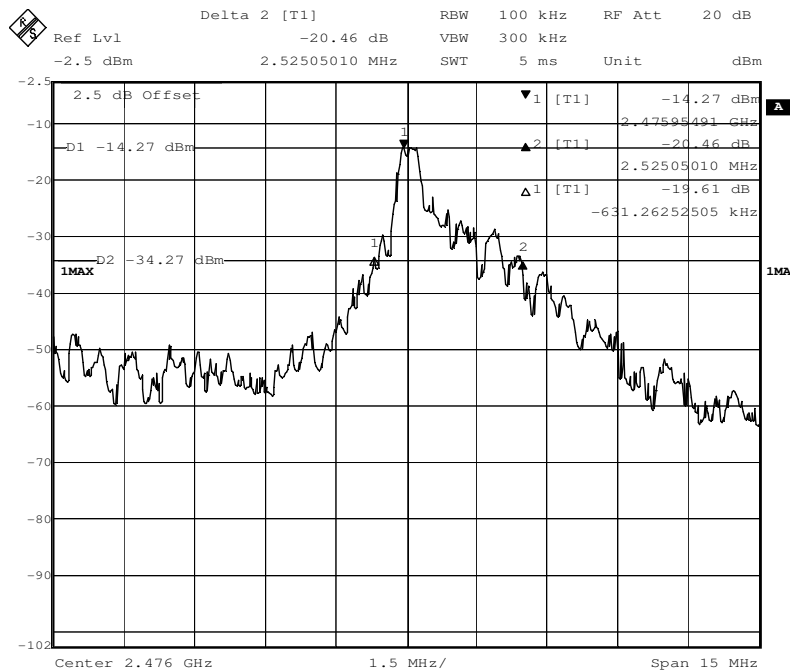
### 1. Test in the lowest frequency 2.406GHz



### 2. Test in the middle frequency 2.440GHz



### 3. Test in the highest frequency 2.476 GHz



The results: The unit does meet the FCC requirements.



**7.5 Conducted Emissions at Mains Terminals 150 kHz to 30 MHz**

**Test Requirement:** FCC Part 15 C section 15.207  
**Test Method:** ANSI C63.10: Clause 6.2  
**Frequency Range:** 150 kHz to 30 MHz  
**Detector:** Peak for pre-scan (9 kHz Resolution Bandwidth)  
**Test Limit**

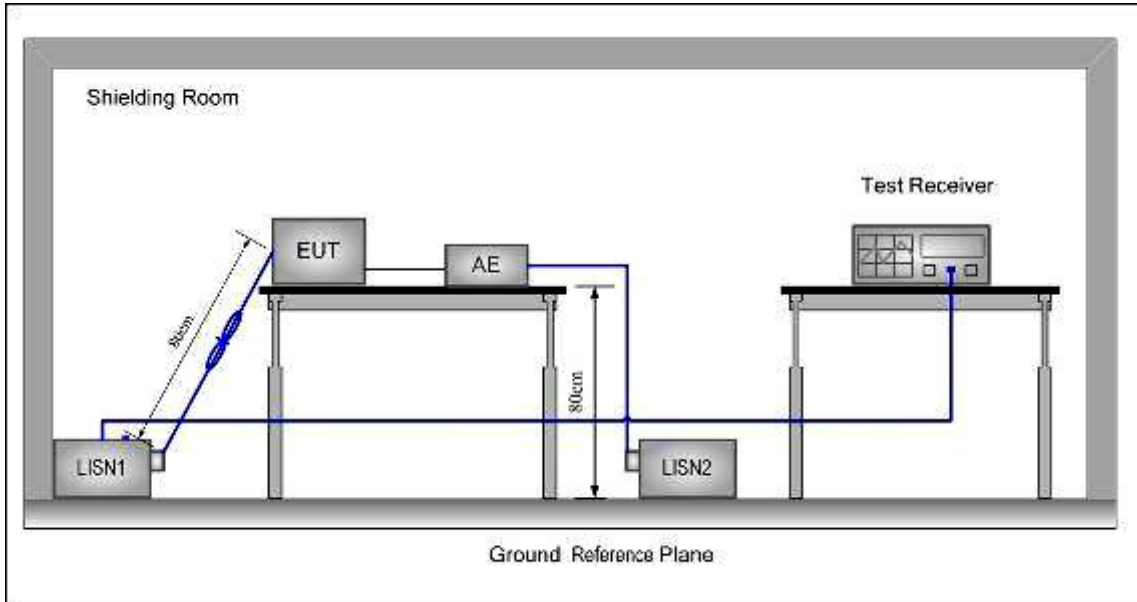
**Limits for conducted disturbance at the mains ports of class B**

| Frequency Range<br>(MHz) | Class B Limit 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       |

NOTE 1 The limit decreases linearly with the logarithm of the frequency in the range 0,15 MHz to 0,50 MHz.

**EUT Operation:** Test in normal operating mode. For intentional radiators, measurements of the variation of the input power or the radiated signal level of the fundamental frequency component of the emission, as appropriate, shall be performed with the supply voltage varied between 85% and 115% of the nominal rated supply voltage.  
Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).

**Test Configuration:**



**Test procedure:**

1. The mains terminal disturbance voltage test was conducted in a shielded room.
2. The EUT was connected to AC power source through a LISN 1 (Line Impedance Stabilization Network) which provides a  $50\Omega/50\mu\text{H} + 5\Omega$  linear impedance. The power cables of all other units of the EUT were connected to a second LISN 2, which was bonded to the ground reference plane in the same way as the LISN 1 for the unit being measured. A multiple socket outlet strip was used to connect multiple power cables to a single LISN provided the rating of the LISN was not exceeded.
3. The tabletop EUT was placed upon a non-metallic table 0.8m above the ground reference plane. And for floor-standing arrangement, the EUT was placed on the horizontal ground reference plane, but separated from metallic contact with the ground reference plane by 0.1m of insulation.
4. The test was performed with a vertical ground reference plane. The rear of the EUT shall be 0,4 m from the vertical ground reference plane. The vertical ground reference plane was bonded to the horizontal ground reference plane. The LISN 1 was placed 0,8 m from the boundary of the unit under test and bonded to a ground reference plane for LISNs mounted on top of the ground reference plane. This distance was between the closest points of the LISN 1 and the EUT. All other units of the EUT and associated equipment was at least 0,8 m from the LISN 2.

### 7.5.1 Measurement Data

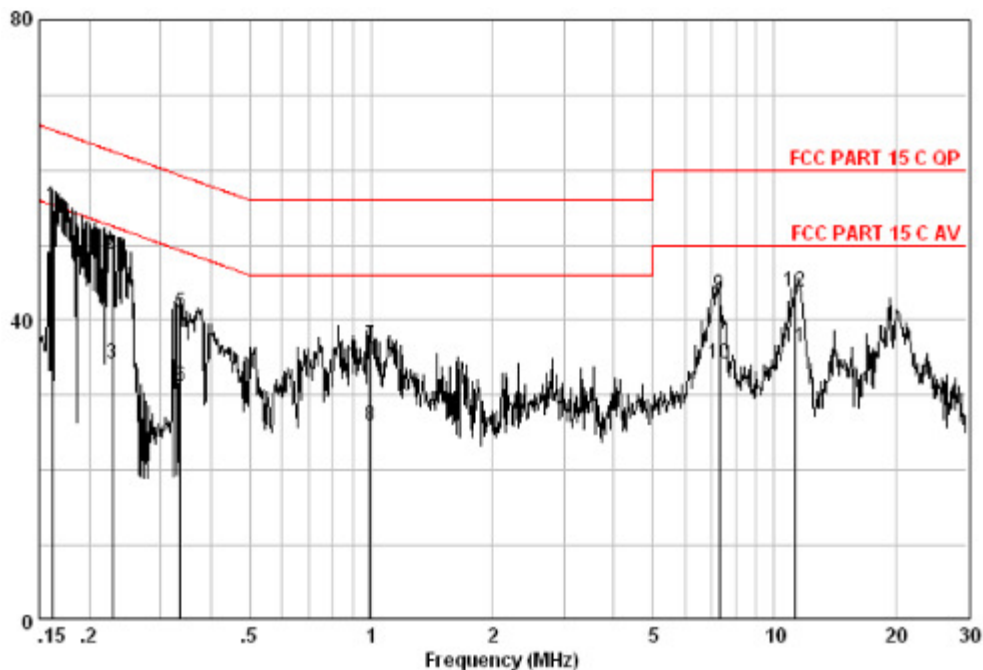
An initial pre-scan was performed on the live and neutral lines with peak detector.

Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission were detected. For EUT the communicating was worst case mode.

**The following Quasi-Peak and Average measurements were performed on the EUT:**

Neutral Line

Level (dB $\mu$ V)

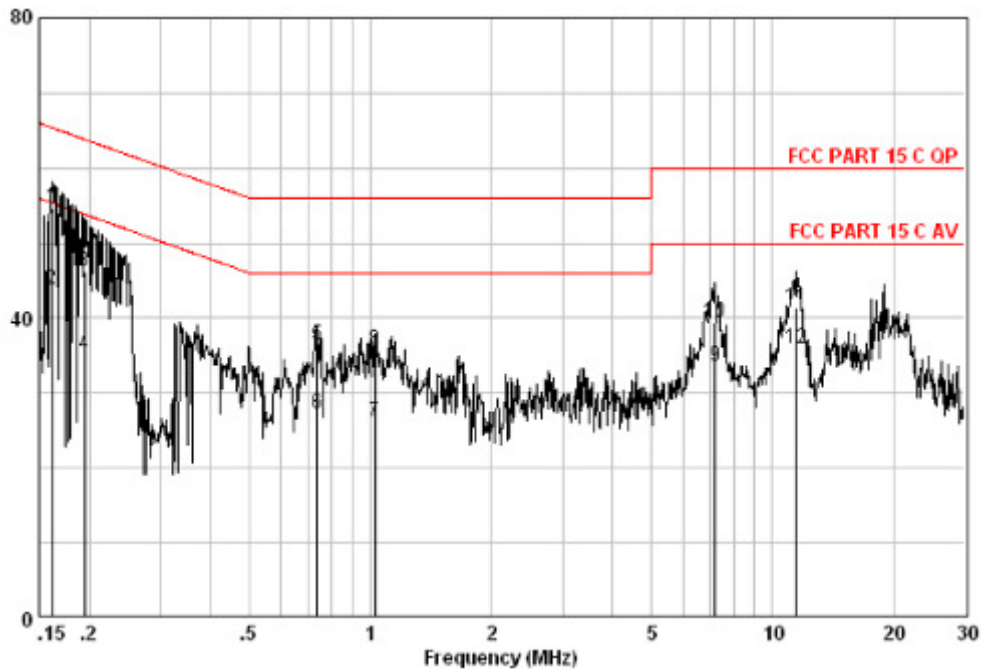


Measure data:

| Freq<br>MHz | Read<br>Level<br>dB $\mu$ V | Cable<br>Loss<br>dB | LISN<br>Factor<br>dB | Level<br>dB $\mu$ V | Limit<br>Line<br>dB $\mu$ V | Over<br>Limit<br>dB | Remark  |
|-------------|-----------------------------|---------------------|----------------------|---------------------|-----------------------------|---------------------|---------|
| 0.162       | 45.38                       | 0.08                | 9.65                 | 55.11               | 65.38                       | -10.28              | QP      |
| 0.162       | 33.77                       | 0.08                | 9.65                 | 43.50               | 55.38                       | -11.89              | AVERAGE |
| 0.228       | 24.49                       | 0.11                | 9.64                 | 34.24               | 52.52                       | -18.28              | AVERAGE |
| 0.228       | 38.74                       | 0.11                | 9.64                 | 48.49               | 62.52                       | -14.03              | QP      |
| 0.336       | 31.28                       | 0.06                | 9.63                 | 40.97               | 59.31                       | -18.34              | QP      |
| 0.336       | 21.58                       | 0.06                | 9.63                 | 31.27               | 49.31                       | -18.04              | AVERAGE |
| 0.994       | 27.01                       | 0.02                | 9.68                 | 36.71               | 56.00                       | -19.29              | QP      |
| 0.994       | 16.15                       | 0.02                | 9.68                 | 25.85               | 46.00                       | -20.15              | AVERAGE |
| 7.290       | 33.28                       | 0.15                | 9.85                 | 43.28               | 60.00                       | -16.72              | QP      |
| 7.290       | 24.27                       | 0.15                | 9.85                 | 34.27               | 50.00                       | -15.73              | AVERAGE |
| 11.257      | 26.16                       | 0.19                | 10.06                | 36.41               | 50.00                       | -13.59              | AVERAGE |
| 11.257      | 33.57                       | 0.19                | 10.06                | 43.82               | 60.00                       | -16.18              | QP      |



Live Line  
Level (dBμV)



Measure result:

| Freq   | Read Level | Cable Loss | LISN Factor | Level | Limit Line | Over Limit | Remark  |
|--------|------------|------------|-------------|-------|------------|------------|---------|
| MHz    | dBμV       | dB         | dB          | dBμV  | dBμV       | dB         |         |
| 0.162  | 44.95      | 0.08       | 9.63        | 54.66 | 65.38      | -10.73     | QP      |
| 0.162  | 34.21      | 0.08       | 9.63        | 43.92 | 55.38      | -11.47     | AVERAGE |
| 0.194  | 36.45      | 0.12       | 9.62        | 46.20 | 63.84      | -17.65     | QP      |
| 0.194  | 25.32      | 0.12       | 9.62        | 35.07 | 53.84      | -18.78     | AVERAGE |
| 0.735  | 26.64      | 0.04       | 9.64        | 36.32 | 56.00      | -19.68     | QP      |
| 0.735  | 17.61      | 0.04       | 9.64        | 27.29 | 46.00      | -18.71     | AVERAGE |
| 1.027  | 16.44      | 0.02       | 9.64        | 26.10 | 46.00      | -19.90     | AVERAGE |
| 1.027  | 26.16      | 0.02       | 9.64        | 35.82 | 56.00      | -20.18     | QP      |
| 7.213  | 23.68      | 0.14       | 9.82        | 33.64 | 50.00      | -16.36     | AVERAGE |
| 7.213  | 29.58      | 0.14       | 9.82        | 39.54 | 60.00      | -20.46     | QP      |
| 11.498 | 31.10      | 0.19       | 10.06       | 41.35 | 60.00      | -18.65     | QP      |
| 11.498 | 25.82      | 0.19       | 10.06       | 36.07 | 50.00      | -13.93     | AVERAGE |

End of the report