**Report No: CCIS12020001401**

# FCC REPORT

| | |
|---|---|
| **Applicant:** | NATIONAL ELECTRONICS & WATCH CO. LTD |
| **Address of Applicant:** | 15/F., SHING DAO IND. BLDG., 232 ABERDEEN MAIN ROAD, ABERDEEN, HONG KONG. |

**Equipment Under Test (EUT)**

| | |
|---|---|
| Product Name: | GPS Watch with 2.4G HRM; |
| Model No.: | M11-1908D. |
| Product Name: | GPS Watch; |
| Model No.: | M11-1655D; M11-270D. |
| FCC ID: | UH5M11-1908GPS |

| | |
|---|---|
| **Applicable standards:** | FCC CFR Title 47 Part 15 Subpart B: 2010 |
| **Date of sample receipt:** | Feb. 16, 2012 |
| **Date of Test:** | Feb. 17, 2012 |
| **Date of report issued:** | Feb. 17, 2012 |
| **Test Result :** | Pass * |

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

Authorized Signature:

Stephen Guo
Laboratory Manager

## 2 Version

| Version No. | Date | Description |
|---|---|---|
| *00* | Feb. 17, 2012 | *Original* |
| | | |
| | | |
| | | |
| | | |

***Prepared by:*** Collin.He ***Date:*** Feb. 16, 2012

***Project Engineer***

***Reviewed by:*** Hans.Hu ***Date:*** Feb. 17, 2012

***Reviewer***

# 3 Contents

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# 4 Test Summary

| Test Item | Section in CFR 47 | Result |
|---|---|---|
| Conducted Emission | Part15.107 | Pass |
| Readiated Emissions | Part15.109 | Pass |

Remark:

*Pass: The EUT complies with the essential requirements in the standard.*

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

* Remark: **Model No.: M11-1908D, M11-1655D; M11-270D.**

According to the confirmation from the applicant, the internal circuit design, PCB layout and internal wiring for above 3 models are identical. The only differences are the model name, software function and appearance color for commercial purpos. Here are relevant software functions for above models:

- M11-1908D RUN+2.4G HRM +Timer +GPS Altitude;
- M11-270D RUN;
- M11-1655D RUN +Timer.

**Model M11-1908D** has an additional function for HRM mode which will receive the heart rate signal from a 2.4GHz transmiter paired HRM belt. The circuit of receiving modular is independent unit for the modle M11-1908D.

**Model M11-1655D** and **M11-270D** don't have HRM mode since the both models don't have receiving modular.

Therefore only one model: **M11-1908D** was tested in this report.

*Remark: Test mode

This report only showed the test date for PC link mode for data download function.

Other modes, please refer the test report: CCIS12020001402.

# 5 General Information

## 5.1 Client Information

| | |
|---|---|
| Applicant: | NATIONAL ELECTRONICS & WATCH CO. LTD. |
| Address of Applicant: | 15/F., SHING DAO IND. BLDG., 232 ABERDEEN MAIN ROAD, ABERDEEN, HONG KONG. |

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

| | |
|---|---|
| Product Name:<br>Model No.: | GPS Watch with 2.4G HRM;<br>M11-1908D |
| Product Name:<br>Model No.: | GPS Watch;<br>M11-1655D; M11-270D. |
| Power Supply: | Li-ion 3.7VDC 300mAh (Internal rechargeable battery) for single unit;<br>Charging mode is suppied by USB port. |
| Other accessories | Charging cable (model no.: M10-635S): 2 lines, 0.5m length;<br>Charging & PC link cable (model no.: M09-381): 4 lines, 0.5m length. |

## 5.3 Operating Modes

| Operating mode | Detail description |
|---|---|
| PC Link mode | Keep the EUT in PC link mode which is conneted PC the cable (model no.: M09-381). |

## 5.4 Description of Support Units

| Manufacturer | Description | Model | Serial Number |
|---|---|---|---|
| Lenovo | Laptop | SL510 | N/A |
| HP | Printer | CB495A | 05257893 |

## 5.5 Deviation from Standards

Biconical, log.per. antenna and horn antenna were used instead of dipole antenna.
Semi-anechoic Chamber was used as alternation of open air test sites, and all test suites were performed with radiated method in it.

## 5.6 Abnormalities from Standard Conditions

None.

## 5.7 Other Information Requested by the Customer

None.

## 5.8 Test Facility

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

● **FCC —Registration No.: 600491**

Global United Technology Services Co., Ltd., Shenzhen EMC Laboratory has been registered and fuly described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in files. Registration 600491, July 20, 2010.

● **Industry Canada (IC)**

The 3m Semi-anechoic chamber of Global United Technology Services Co., Ltd. has been Registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 9079A-1.

## 5.9 Test Location

All tests were performed at:

Global United Technology Services Co., Ltd.
Address: 2nd Floor, Block No.2, Laodong Industrial Zone, Xixiang Road Baoan District, Shenzhen, China
Tel: 0755-27798480
Fax: 0755-27798960

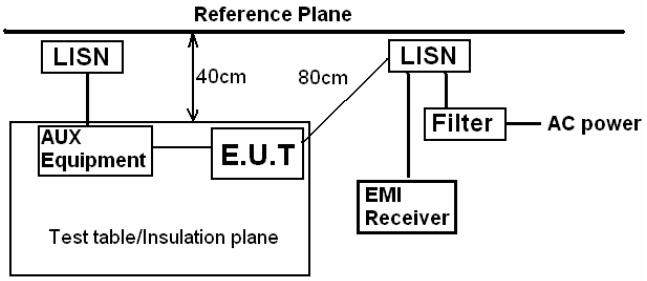
# 6 Test Instruments list

| Radiated Emission: | | | | | | |
|---|---|---|---|---|---|---|
| **Item** | **Test Equipment** | **Manufacturer** | **Model No.** | **Inventory No.** | **Cal.Date (mm-dd-yy)** | **Cal.Due date (mm-dd-yy)** |
| 1 | 3m Semi- Anechoic Chamber | ZhongYu Electron | 9.2(L)*6.2(W)* 6.4(H) | GTS250 | Mar. 30 2011 | Mar. 29 2012 |
| 2 | Control Room | ZhongYu Electron | 6.2(L)*2.5(W)* 2.4(H) | GTS251 | N/A | N/A |
| 3 | EMI Test Receiver | Rohde & Schwarz | ESU26 | GTS203 | Jul. 04 2011 | Jul. 03 2012 |
| 4 | BiConiLog Antenna | SCHWARZBECK MESS-ELEKTRONIK | VULB9163 | GTS214 | Feb. 26 2011 | Feb. 25 2012 |
| 5 | Double -ridged waveguide horn | SCHWARZBECK MESS-ELEKTRONIK | 9120D-829 | GTS208 | June 30 2011 | June 29 2012 |
| 6 | EMI Test Software | AUDIX | E3 | N/A | N/A | N/A |
| 7 | Coaxial Cable | GTS | N/A | GTS213 | Apr. 01 2011 | Mar. 31 2012 |
| 8 | Coaxial Cable | GTS | N/A | GTS211 | Apr. 01 2011 | Mar. 31 2012 |
| 9 | Coaxial cable | GTS | N/A | GTS210 | Apr. 01 2011 | Mar. 31 2012 |
| 9 | Coaxial Cable | GTS | N/A | GTS212 | Apr. 01 2011 | Mar. 31 2012 |
| 10 | Amplifier(100kHz-3GHz) | HP | 8347A | GTS204 | Jul. 04 2011 | Jul. 03 2012 |
| 11 | Amplifier(2GHz-20GHz) | HP | 8349B | GTS206 | Jul. 04 2011 | Jul. 03 2012 |
| 12 | Band filter | Amindeon | 82346 | GTS219 | Apr. 01 2011 | Mar. 31 2012 |
| 13 | Temp. Humidity/ Barometer | Oregon Scientific | BA-888 | GTS248 | May 11 2011 | May 10 2012 |

| Conducted Emission: | | | | | | |
|---|---|---|---|---|---|---|
| **Item** | **Test Equipment** | **Manufacturer** | **Model No.** | **Inventory No.** | **Cal.Date (mm-dd-yy)** | **Cal.Due date (mm-dd-yy)** |
| 1 | Shielding Room | ZhongYu Electron | 7.0(L)x3.0(W)x3.0(H) | GTS252 | Jul. 04 2011 | Jul. 03 2012 |
| 2 | EMI Test Receiver | Rohde & Schwarz | ESCS30 | GTS223 | Jul. 04 2011 | Jul. 03 2012 |
| 3 | 10dB Pulse Limit | Rohde & Schwarz | N/A | GTS224 | Jul. 04 2011 | Jul. 03 2012 |
| 4 | LISN | SCHWARZBECK MESS-ELEKTRONIK | NSLK 8127 | GTS226 | Jul. 04 2011 | Jul. 03 2012 |
| 5 | LISN | ETS-LINDGREN | 3816/2 | GTS232 | Jul. 04 2011 | Jul. 03 2012 |
| 6 | Coaxial Cable | GTS | N/A | GTS227 | Apr. 01 2011 | Mar. 31 2012 |
| 7 | EMI Test Software | AUDIX | E3 | N/A | N/A | N/A |

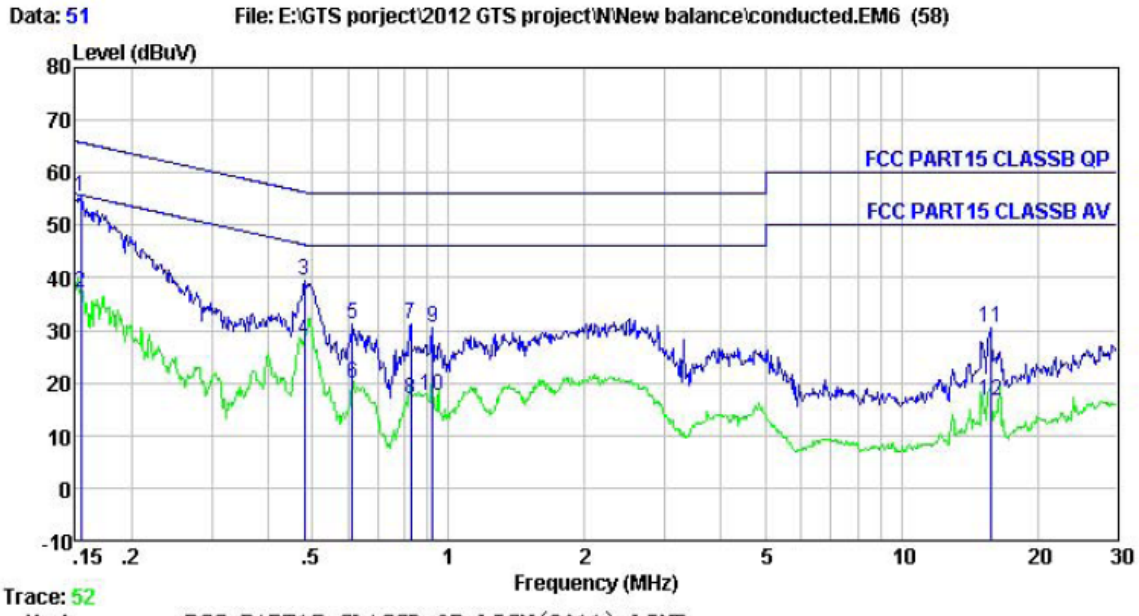
# 7 Test results and Measurement Data

## 7.1 Conducted Emissions

| | |
|---|---|
| Test Requirement: | FCC Part15 B Section 15.107 |
| Test Method: | ANSI C63.4:2003 |
| Test Frequency Range: | 150kHz to 30MHz |
| Class / Severity: | Class B |
| Receiver setup: | RBW=9kHz, VBW=30kHz |
| Limit: | Frequency range (MHz) / Limit (dBμV): Quasi-peak / Average<br>0.15-0.5: 66 to 56* / 56 to 46*<br>0.5-5: 56 / 46<br>0.5-30: 60 / 50 |
| Test setup: |  <br>*Remark:*<br>*E.U.T: Equipment Under Test*<br>*LISN: Line Impedence Stabilization Network*<br>*Test table height=0.8m* |
| Test procedure | 1. The E.U.T and simulators are connected to the main power through a line impedance stabilization network(L.I.S.N.). The provide a 50ohm/50uH coupling impedance for the measuring equipment.<br>2. The peripheral devices are also connected to the main power through a LISN that provides a 50ohm/50uH coupling impedance with 50ohm termination. (Please refers to the block diagram of the test setup and photographs).<br>3. 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 ANSI C63.4: 2003 on conducted measurement. |
| Test environment: | Temp.: 25 °C Humid.: 52% Press.: 1 012mbar |
| Measurement Record: | Uncertainty: ± 3.45dB |
| Test Instruments: | Refer to section 6 for details |
| Test mode: | Keep the EUT in PC link mode which is conneted PC by the cable (model no.: M09-381). |
| Test results: | Pass |

**Measurement data:**

Line:

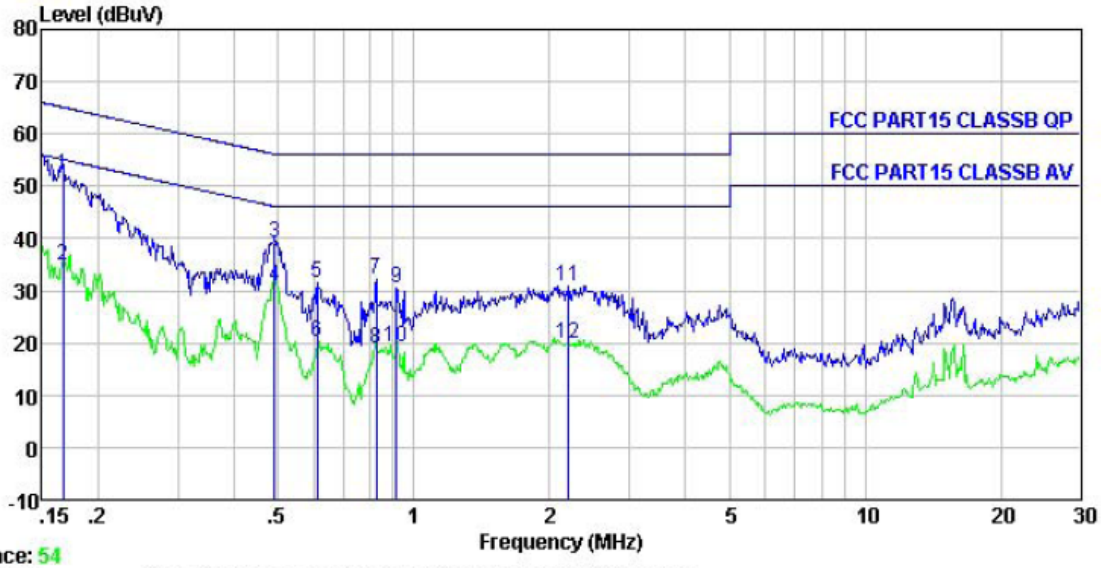



Trace: 52

Condition : FCC PART15 CLASSB QP LISN(2011) LINE
Job No. : 014RF
Test Mode : PC Download mode
Test Engineer: Gavin
Remark : M09-381

| | Freq | Read Level | LISN Factor | Cable Loss | Level | Limit Line | Over Limit | Remark |
|---|---|---|---|---|---|---|---|---|
| | MHz | dBuV | dB | dB | dBuV | dBuV | dB | |
| 1 | 0.154 | 54.52 | 0.69 | 0.10 | 55.31 | 65.78 | -10.47 | QP |
| 2 | 0.154 | 36.40 | 0.69 | 0.10 | 37.19 | 55.78 | -18.59 | Average |
| 3 | 0.481 | 38.71 | 0.56 | 0.10 | 39.37 | 56.32 | -16.95 | QP |
| 4 | 0.481 | 27.46 | 0.56 | 0.10 | 28.12 | 46.32 | -18.20 | Average |
| 5 | 0.614 | 30.57 | 0.53 | 0.10 | 31.20 | 56.00 | -24.80 | QP |
| 6 | 0.614 | 19.42 | 0.53 | 0.10 | 20.05 | 46.00 | -25.95 | Average |
| 7 | 0.826 | 30.64 | 0.50 | 0.10 | 31.24 | 56.00 | -24.76 | QP |
| 8 | 0.826 | 16.42 | 0.50 | 0.10 | 17.02 | 46.00 | -28.98 | Average |
| 9 | 0.923 | 29.99 | 0.49 | 0.10 | 30.58 | 56.00 | -25.42 | QP |
| 10 | 0.923 | 17.12 | 0.49 | 0.10 | 17.71 | 46.00 | -28.29 | Average |
| 11 | 15.718 | 30.20 | 0.17 | 0.20 | 30.57 | 60.00 | -29.43 | QP |
| 12 | 15.718 | 16.33 | 0.17 | 0.20 | 16.70 | 50.00 | -33.30 | Average |

Neutral:




Trace: 54

Condition : FCC PART15 CLASSB QP LISN(2011) NEUTRAL
Job No. : 014RF
Test Mode : PC Download mode
Test Engineer: Gavin
Remark : M09-381

| | Freq | Read Level | LISN Factor | Cable Loss | Level | Limit Line | Over Limit | Remark |
|---|---|---|---|---|---|---|---|---|
| | MHz | dBuV | dB | dB | dBuV | dBuV | dB | |
| 1 | 0.167 | 51.19 | 0.68 | 0.10 | 51.97 | 65.12 | -13.15 | QP |
| 2 | 0.167 | 34.12 | 0.68 | 0.10 | 34.90 | 55.12 | -20.22 | Average |
| 3 | 0.491 | 38.36 | 0.56 | 0.10 | 39.02 | 56.14 | -17.12 | QP |
| 4 | 0.491 | 30.26 | 0.56 | 0.10 | 30.92 | 46.14 | -15.22 | Average |
| 5 | 0.611 | 30.91 | 0.53 | 0.10 | 31.54 | 56.00 | -24.46 | QP |
| 6 | 0.611 | 19.57 | 0.53 | 0.10 | 20.20 | 46.00 | -25.80 | Average |
| 7 | 0.826 | 31.54 | 0.50 | 0.10 | 32.14 | 56.00 | -23.86 | QP |
| 8 | 0.826 | 18.34 | 0.50 | 0.10 | 18.94 | 46.00 | -27.06 | Average |
| 9 | 0.914 | 29.79 | 0.49 | 0.10 | 30.38 | 56.00 | -25.62 | QP |
| 10 | 0.914 | 18.72 | 0.49 | 0.10 | 19.31 | 46.00 | -26.69 | Average |
| 11 | 2.201 | 30.23 | 0.39 | 0.10 | 30.72 | 56.00 | -25.28 | QP |
| 12 | 2.201 | 19.34 | 0.39 | 0.10 | 19.83 | 46.00 | -26.17 | Average |

Notes:

1. The following Quasi-Peak and Average measurements were performed on the EUT

2. Final Test Level =Receiver Reading + LISN Factor + Cable Loss.

## 7.2 Radiated Emission

| | |
|---|---|
| Test Requirement: | FCC Part15 B Section 15.109 |
| Test Method: | ANSI C63.4:2003 |
| Test Frequency Range: | 30MHz to 1000MHz |
| Test site: | Measurement Distance: 3m (Semi-Anechoic Chamber) |

Receiver setup:

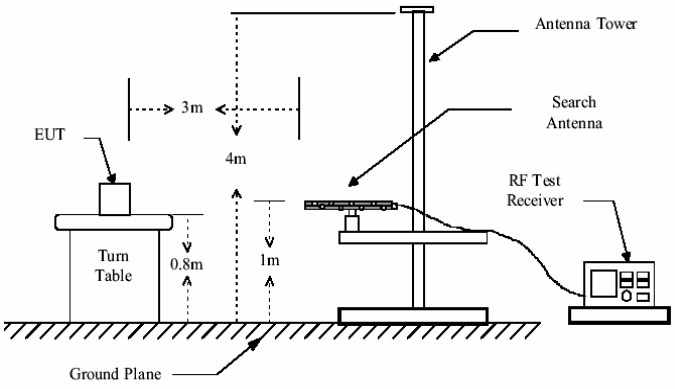
| Frequency | Detector | RBW | VBW | Remark |
|---|---|---|---|---|
| 30MHz-1GHz | Quasi-peak | 100KHz | 300KHz | Quasi-peak Value |

Limit:

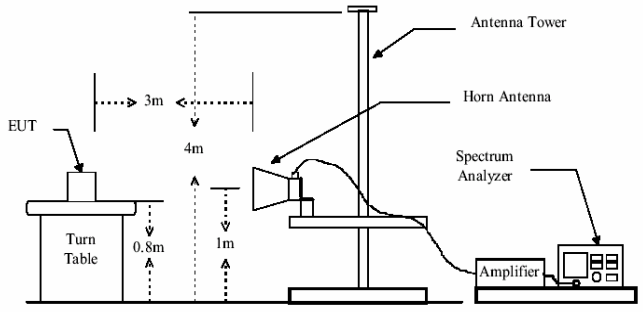
| Frequency | Limit (dBuV/m @3m) | Remark |
|---|---|---|
| 30MHz-88MHz | 40.0 | Quasi-peak Value |
| 88MHz-216MHz | 43.5 | Quasi-peak Value |
| 216MHz-960MHz | 46.0 | Quasi-peak Value |
| 960MHz-1GHz | 54.0 | Quasi-peak Value |

Test setup:

Below 1GHz



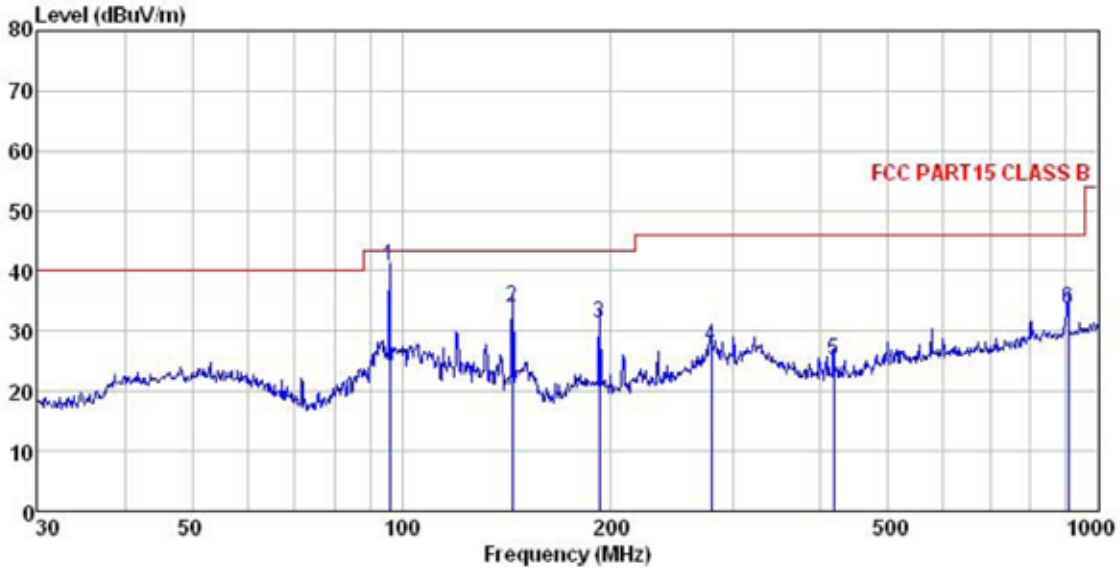

Above 1GHz



| | |
|---|---|
| Test Procedure: | 1. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic camber. The table was rotated 360 degrees to determine the position of the highest radiation.<br>2. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.<br>3. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.<br>4. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.<br>5. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.<br>6. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet. |
| Test environment: | Temp.: 25 °C Humid.: 52% Press.: 1 012mbar |
| Measurement Record: | Uncertainty: ± 4.5dB |
| Test Instruments: | Refer to section 6 for details |
| Test mode: | Keep the EUT in PC link mode which is conneted PC by the cable (model no.: M09-381). |
| Test results: | Passed |

**Measurement Data**

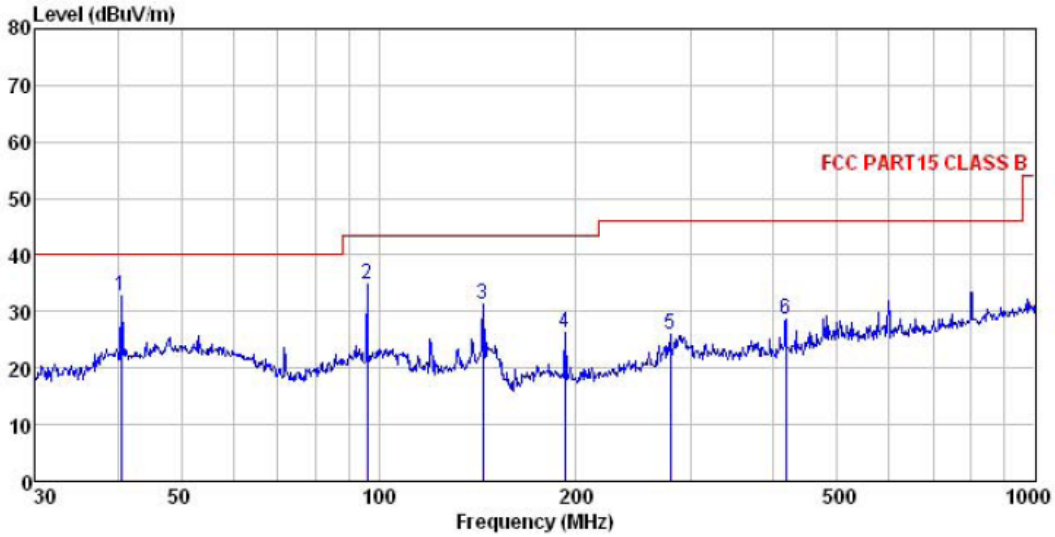
Horizontal:




Site : 3m chamber
Condition : FCC PART15 CLASS B 3m VULB9163 (2011-11) HORIZONTAL
EUT : GPS watch
Model : M11-1908D
Test Mode : PC Download mode
Power Rating : DC 5V
Test Engineer: Joe

| | Freq | ReadAntenna Level | Antenna Factor | Cable Loss | Preamp Factor | Level | Limit Line | Over Limit | Remark |
|---|---|---|---|---|---|---|---|---|---|
| | MHz | dBuV | dB/m | dB | dB | dBuV/m | dBuV/m | dB | |
| 1 | 96.0986 | 58.60 | 13.29 | 0.47 | 31.71 | 40.65 | 43.50 | -2.85 | QP |
| 2 | 144.3348 | 57.06 | 8.25 | 0.60 | 31.95 | 33.96 | 43.50 | -9.54 | QP |
| 3 | 192.4186 | 52.29 | 10.46 | 0.69 | 32.22 | 31.22 | 43.50 | -12.28 | QP |
| 4 | 278.0669 | 46.20 | 12.58 | 1.01 | 32.29 | 27.50 | 46.00 | -18.50 | QP |
| 5 | 417.6411 | 40.71 | 15.43 | 1.29 | 32.19 | 25.24 | 46.00 | -20.76 | QP |
| 6 | 906.4824 | 41.70 | 21.12 | 2.17 | 31.46 | 33.53 | 46.00 | -12.47 | QP |

Vertical:




Site : 3m chamber
Condition : FCC PART15 CLASS B 3m VULB9163 (2011-11) VERTICAL
Job NO. : 014RF
Test Mode : PC Download mode
Test Engineer: Joe

| | Freq | ReadLevel | Antenna Factor | Cable Loss | Preamp Factor | Level | Limit Line | Over Limit | Remark |
|---|---|---|---|---|---|---|---|---|---|
| | MHz | dBuV | dB/m | dB | dB | dBuV/m | dBuV/m | dB | |
| 1 | 40.5592 | 48.97 | 15.58 | 0.27 | 32.16 | 32.66 | 40.00 | -7.34 | QP |
| 2 | 96.0986 | 52.76 | 13.29 | 0.47 | 31.71 | 34.81 | 43.50 | -8.69 | QP |
| 3 | 144.3348 | 54.44 | 8.25 | 0.60 | 31.95 | 31.34 | 43.50 | -12.16 | QP |
| 4 | 192.4186 | 47.41 | 10.46 | 0.69 | 32.22 | 26.34 | 43.50 | -17.16 | QP |
| 5 | 278.0669 | 44.82 | 12.58 | 1.01 | 32.29 | 26.12 | 46.00 | -19.88 | QP |
| 6 | 417.6411 | 43.99 | 15.43 | 1.29 | 32.19 | 28.52 | 46.00 | -17.48 | QP |

*Remark:*

*The field strength is calculated by adding the Antenna Factor, Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows:*

*Final Test Level =Receiver Reading + Antenna Factor + Cable Factor – Preamplifier Factor*