



SPORTON International Inc.

No. 52, Hwa Ya 1st Rd., Kwei-Shan Hsiang, TaoYuan Hsien, Taiwan, R.O.C.
Ph: 886-3-327-3456 / FAX: 886-3-327-0973 / www.sporton.com.tw

FCC RADIO TEST REPORT

| | |
|------------------------|--|
| Applicant's company | Universal Scientific Industrial Co., Ltd. |
| Applicant Address | 141, Lane 351, Taiping Road, Sec.1, Tsao Tuen, Nan-Tou, Taiwan |
| FCC ID | IXM-TP7500W |
| Manufacturer's company | Universal Scientific Industrial Co., Ltd. |
| Manufacturer Address | 141, Lane 351, Taiping Road, Sec.1, Tsao Tuen, Nan-Tou, Taiwan |

| | |
|------------------|---------------------------------------|
| Product Name | TeamPad7500W |
| Brand Name | FUJITSU FRONTECH LIMITED |
| Model Name | FHT681XXXR (X=A~Z, 0~9) |
| Test Rule | 47 CFR FCC Part 15 Subpart C § 15.247 |
| Test Freq. Range | 2400 ~ 2483.5MHz |
| Receive Date | Mar. 30, 2006 |
| Test Date | Apr. 6, 2006 |
| Submission Type | Class II Change |



Statement

The Submission of the device is class II change only the test results of spurious emission below 1 GHz are shown in this test report.

The test result in this report refers exclusively to the presented test model / sample.

Without written approval of SPORTON International Inc., the test report shall not be reproduced except in full.

The measurements and test results shown in this test report were made in accordance with the procedures and found in compliance with the limit given in **ANSI C63.4-2003** and **47 CFR FCC Part 15 Subpart C**.

The test equipment used to perform the test is calibrated and traceable to NML/ROC.



Lab Code: 200079-0



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History of This Test Report

Original Issue Date: Apr. 17, 2006

Report No.: FR411614-04

No additional attachment.

Additional attachment were issued as following record:

| Attachment No. | Issue Date | Description |
|----------------|------------|-------------|
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1. CERTIFICATE OF COMPLIANCE

Product Name : TeamPad7500W
Brand Name : FUJITSU FRONTECH LIMITED
Model Name : FHT681XXR (X=A~Z, 0~9)
Applicant : Universal Scientific Industrial Co., Ltd.
Test Rule Part(s) : 47 CFR FCC Part 15 Subpart C § 15.247

Sporton International as requested by the applicant to evaluate the EMC performance of the product sample received on Mar. 30, 2006 would like to declare that the tested sample has been evaluated and found to be in compliance with the tested rule parts. The data recorded as well as the test configuration specified is true and accurate for showing the sample's EMC nature.

Prepared By:
Tina Jao / Specialist

Technical Acceptance By:
Carl Lee / Engineer

Reviewed By:
Wayne Hsu / Supervisor

2. SUMMARY OF THE TEST RESULT

| Applied Standard: 47 CFR FCC Part 15 Subpart C | | | | |
|--|--------------|----------------------|----------|-------------|
| Part | Rule Section | Description of Test | Result | Under Limit |
| 3.11 | 15.247(d) | Radiated Emissions | Complies | 1.02 dB |
| 3.12 | 15.203 | Antenna Requirements | Complies | - |

| Test Items | Uncertainty | Remark |
|--|---------------------------|--------------------------|
| AC Power Line Conducted Emissions | $\pm 2.26\text{dB}$ | Confidence levels of 95% |
| Maximum Peak Conducted Output Power | $\pm 0.5\text{dB}$ | Confidence levels of 95% |
| Hopping Channel Separation / Dwell Time | $\pm 6.25 \times 10^{-7}$ | Confidence levels of 95% |
| Radiated Emissions / Band Edge Emissions | $\pm 3.72\text{dB}$ | Confidence levels of 95% |

3. GENERAL INFORMATION

3.1. Product Details

The EUT (model: FHT681XXXXR (X=A~Z, 0~9)), is a modified version of original device, TeamPad 7500W (model: FHTLA681, FCC ID No.: IXM-TP7500W). The difference is that the manufacture process of the EUT is changed to Lead-free manufacture process. The radio detail of Bluetooth and WLAN Radiation Emissions is shown in the table below. For more detailed features description, please refer to the manufacturer's specifications or user's manual.

| Items | Description |
|---------------------|---|
| Radio Type | Intentional Transceiver |
| Power Type | 12V DC from adapter; 3.3V DC from host |
| Interface Type | Headphone output jack / AC/DC power jack / Auxiliary AC/DC power input / 2 USB Host Ports / USB client for sync with desktop PC / Serial port |
| Modulation | DSSS for IEEE 802.11b ; OFDM for IEEE 802.11g ; FHSS (GFSK) |
| Frequency Range | 2400 ~ 2483.5MHz |
| Channel Number | Bluetooth: 79; WLAN: 11 |
| Carrier Frequencies | Please refer to section 3.4 |
| Antenna | Please refer to section 3.3 |

3.2. Accessories

| Power | Brand | Model | Rating |
|-----------------|--------|---------|--------------------------------------|
| Adapter 1 | SANKEN | 0342560 | INPUT: 100~240V AC OUTPUT: 12V DC |
| Charger Desktop | - | - | 12V DC |
| Others | | | |
| NA | | | |

3.3. Table for Filed Antenna

| Ant. | Antenna Type | Connector | Gain (dBi) | Remark |
|------|--------------|-----------|------------|-----------|
| 1 | Chip Antenna | FIX | -2.40 | Bluetooth |
| 2 | PCB Antenna | I-PEX | 1.50 | WLAN |

3.4. Table for Carrier Frequencies

Frequency Allocation for Bluetooth

| Frequency Band | Channel No. | Frequency |
|----------------|-------------|-----------|
| 2400~2483.5MHz | 0 | 2402 MHz |
| | 1 | 2403 MHz |
| | : | : |
| | 38 | 2440 MHz |
| | 39 | 2441 MHz |
| | 40 | 2442 MHz |
| | : | : |
| | 77 | 2479 MHz |
| | 78 | 2480 MHz |

Frequency Allocation for 802.11b/g

| Frequency Band | Channel No. | Frequency | Channel No. | Frequency |
|----------------|-------------|-----------|-------------|-----------|
| 2400~2483.5MHz | 1 | 2412 MHz | 7 | 2442 MHz |
| | 2 | 2417 MHz | 8 | 2447 MHz |
| | 3 | 2422 MHz | 9 | 2452 MHz |
| | 4 | 2427 MHz | 10 | 2457 MHz |
| | 5 | 2432 MHz | 11 | 2462 MHz |
| | 6 | 2437 MHz | | |

3.5. Table for Test Modes

Preliminary tests were performed in different data rate to find the worst radiated emission. The data rate shown in the table below is the worst-case rate with respect to the specific test item. Investigation has been done on all the possible configurations for searching the worst cases. The following table is a list of the test modes shown in this test report.

| Test Items | Mode | Data Rate | Channel | Antenna |
|-------------------------------|----------|-----------|---------|---------|
| Radiated Emissions Below 1GHz | GFSK | 1 Mbps | 39 | 1 |
| | 11g/BPSK | 6 Mbps | 6 | 2 |

3.6. Table for Testing Locations

| Test Site No. | Site Category | Location | FCC Reg. No. | IC File No. | VCCI Reg. No |
|---------------|---------------|----------|--------------|-------------|--------------|
| 03CH03-HY | SAC | Hwa Ya | 101377 | IC 4088 | - |

Open Area Test Site (OATS); Semi Anechoic Chamber (SAC); Fully Anechoic Chamber (FAC).

Please refer section 6 for Test Site Address.

3.7. Table for Supporting Units

| Support Unit | Brand | Model | FCC ID |
|--------------|--------|---------|------------|
| Notebook | DELL | D400 | DoC |
| Modem | ACEEX | DM-1414 | IFAXDM1414 |
| Flash | CREATE | - | - |

3.8. Table for Supporting Units

The EUT was tested alone.

3.9. Table for Parameters of Test Software Setting

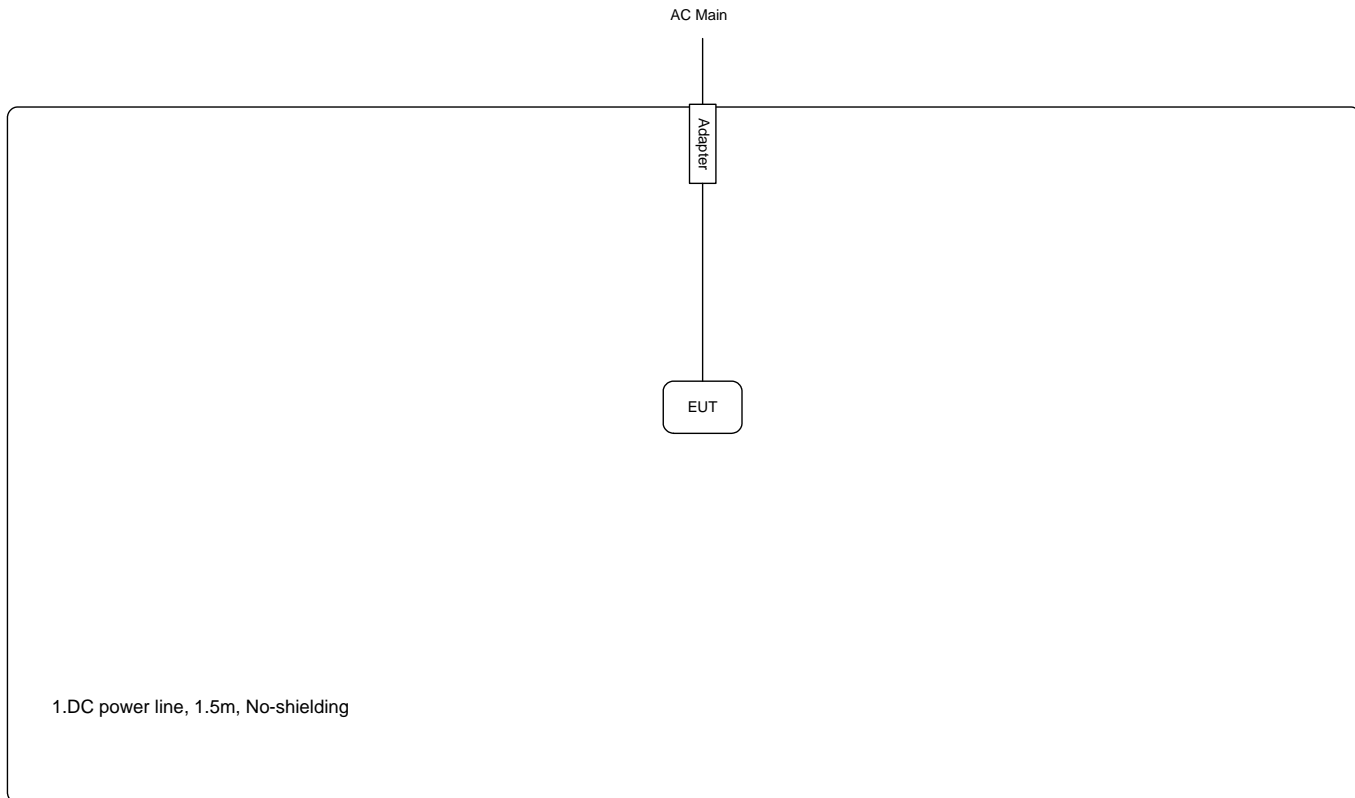
During testing, Channel & Power Controlling Software provided by the customer was used to control the operating channel as well as the output power level. The RF output power selection is for the setting of RF output power expected by the customer and is going to be fixed on the firmware of the final end product.

Power Parameters of Bluetooth

| Test Software Version | wm-bg-mr | | |
|-----------------------|----------|----------|----------|
| Frequency | 2402 MHz | 2441 MHz | 2480 MHz |
| Power Parameters | 63 | 63 | 63 |

3.10. Test Configurations

3.10.1. Radiation Emissions Test Configuration



3.11. Radiated Emissions Measurement

3.11.1. Limit

20dBc in any 100 kHz bandwidth outside the operating frequency band. In case the emission fall within the restricted band specified on 15.205(a), then the 15.209(a) limit in the table below has to be followed.

| Frequencies (MHz) | Field Strength (micorvolts/meter) | Measurement Distance (meters) |
|-------------------|-----------------------------------|-------------------------------|
| 0.009~0.490 | 2400/F(KHz) | 300 |
| 0.490~1.705 | 24000/F(KHz) | 30 |
| 1.705~30.0 | 30 | 30 |
| 30~88 | 100 | 3 |
| 88~216 | 150 | 3 |
| 216~960 | 200 | 3 |
| Above 960 | 500 | 3 |

3.11.2. Measuring Instruments and Setting

Please refer to section 5 in this report. The following table is the setting of spectrum analyzer and receiver.

| Spectrum Parameter | Setting |
|---------------------------------------|--|
| Attenuation | Auto |
| Start Frequency | 1000 MHz |
| Stop Frequency | 10th carrier harmonic |
| RB / VB (emission in restricted band) | 1MHz / 1MHz for Peak, 1 MHz / 10Hz for Average |
| RB / VB (other emission) | 100KHz / 100KHz for peak |

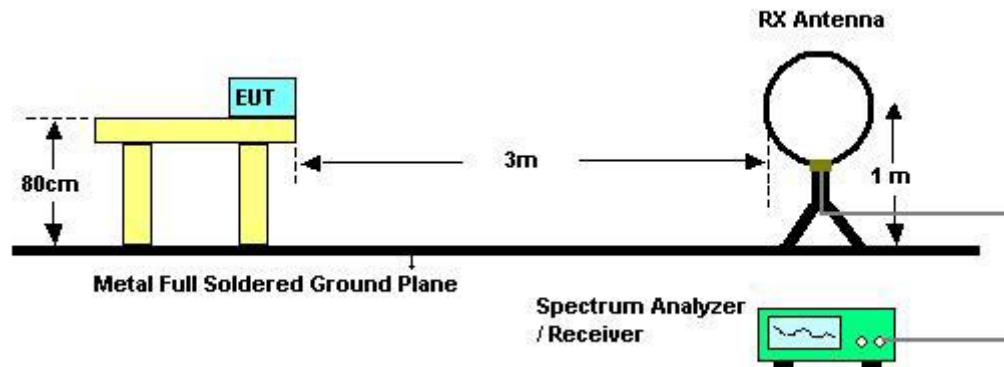
| Receiver Parameter | Setting |
|------------------------|----------------------------------|
| Attenuation | Auto |
| Start ~ Stop Frequency | 9kHz~150kHz / RB 200Hz for QP |
| Start ~ Stop Frequency | 150kHz~30MHz / RB 9kHz for QP |
| Start ~ Stop Frequency | 30MHz~1000MHz / RB 120kHz for QP |

3.11.3. Test Procedures

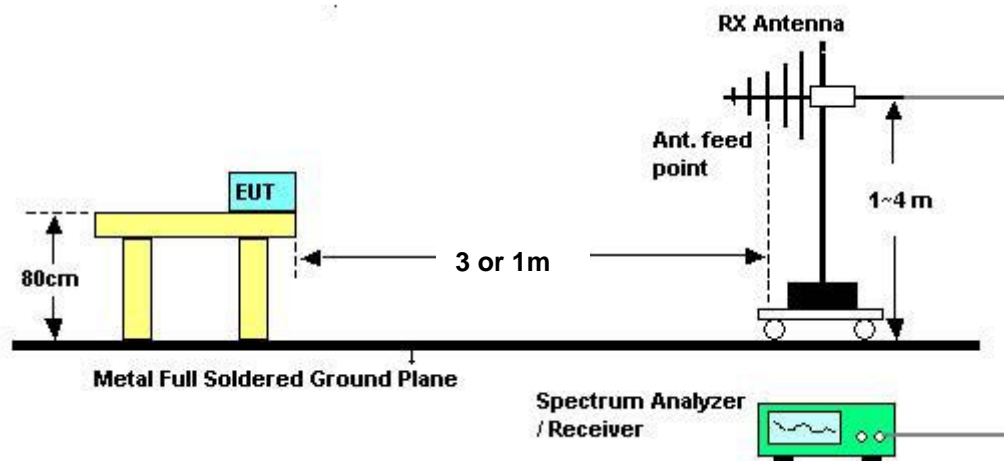
1. Configure the EUT according to ANSI C63.4. The EUT was placed on the top of the turntable 0.8 meter above ground. The phase center of the receiving antenna mounted on the top of a height-variable antenna tower was placed 3 meters far away from the turntable.
2. Power on the EUT and all the supporting units. The turntable was rotated by 360 degrees to determine the position of the highest radiation.
3. The height of the broadband receiving antenna was varied between one meter and four meters above ground to find the maximum emissions field strength of both horizontal and vertical polarization.
4. For each suspected emissions, the antenna tower was scan (from 1 M to 4 M) and then the turntable was rotated (from 0 degree to 360 degrees) to find the maximum reading.
5. Set the test-receiver system to Peak or CISPR quasi-peak Detect Function with specified bandwidth under Maximum Hold Mode.
6. For emissions above 1GHz, use 1MHz VBW and RBW for peak reading. Then 1MHz RBW and 10Hz VBW for average reading in spectrum analyzer.
7. When the radiated emissions limits are expressed in terms of the average value of the emissions, and pulsed operation is employed, the measurement field strength shall be determined by averaging over one complete pulse train, including blanking intervals, as long as the pulse train does not exceed 0.1 seconds. As an alternative (provided the transmitter operates for longer than 0.1 seconds) or in cases where the pulse train exceeds 0.1 seconds, the measured field strength shall be determined from the average absolute voltage during a 0.1 second interval during which the field strength is at its maximum value.
8. If the emissions level of the EUT in peak mode was 3 dB lower than the average limit specified, then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions which do not have 3 dB margin will be repeated one by one using the quasi-peak method for below 1GHz.
9. For testing above 1GHz, the emissions level of the EUT in peak mode was lower than average limit (that means the emissions level in peak mode also complies with the limit in average mode), then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions will be measured in average mode again and reported.
10. In case the emission is lower than 30MHz, loop antenna has to be used for measurement and the recorded data should be QP measured by receiver. High – Low scan is not required in this case.

3.11.4. Test Setup Layout

For radiated emissions below 30MHz



For radiated emissions above 30MHz



Above 10 GHz shall be extrapolated to the specified distance using an extrapolation factor of 20 dB/decade from 3m to 1m.

Distance extrapolation factor = $20 \log(\text{specific distance [3m]} / \text{test distance [1m]})$ (dB);

Limit line = specific limits (dBuV) + distance extrapolation factor [9.54 dB].

3.11.5. Test Deviation

There is no deviation with the original standard.

3.11.6. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

3.11.7. Results of Radiated Emissions (9kHz~30MHz)

| | | | |
|---------------|-----|----------------|--------------|
| Temperature | 24 | Humidity | 58% |
| Test Engineer | Vic | Configurations | Channel 39/6 |

| Freq. (MHz) | Level (dBuV) | Over Limit (dB) | Limit Line (dBuV) | Remark |
|-------------|--------------|-----------------|-------------------|----------|
| - | - | - | - | See Note |

Note:

The amplitude of spurious emissions which are attenuated by more than 20 dB below the permissible value has no need to be reported.

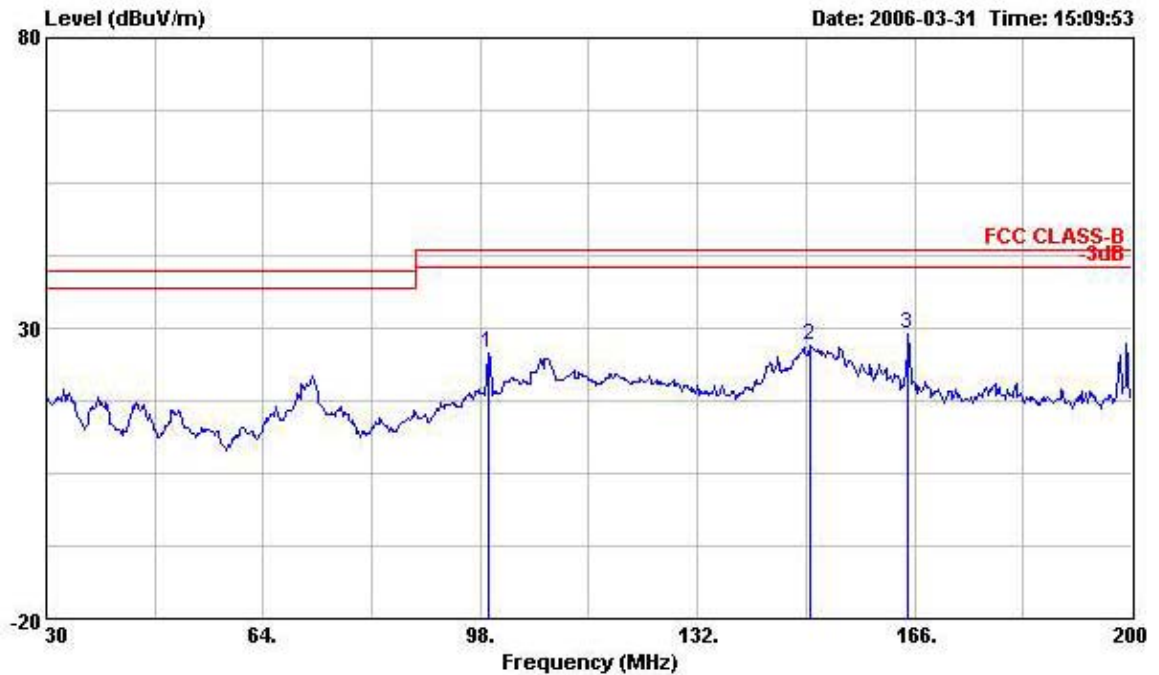
Distance extrapolation factor = $40 \log(\text{specific distance} / \text{test distance})$ (dB);

Limit line = specific limits (dBuV) + distance extrapolation factor.

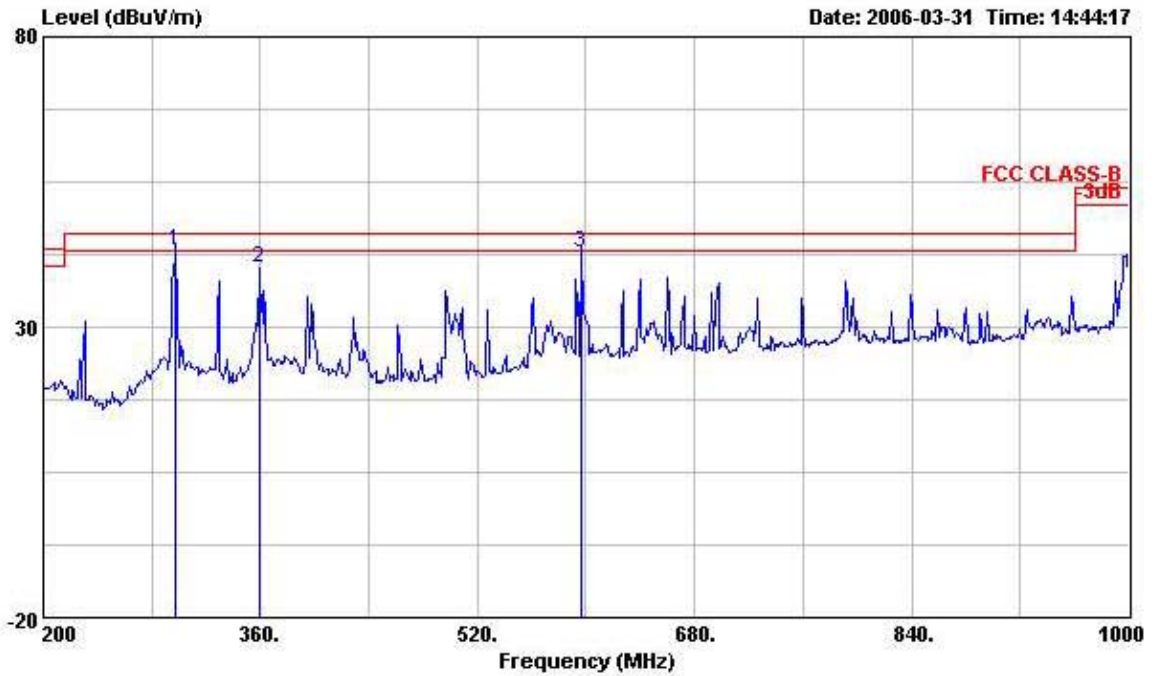
3.11.8. Results of Radiated Emissions (30MHz~1GHz)

| | | | |
|---------------|-----|----------------|----------------------|
| Temperature | 24 | Humidity | 58% |
| Test Engineer | Vic | Configurations | Bluetooth Channel 39 |

Horizontal

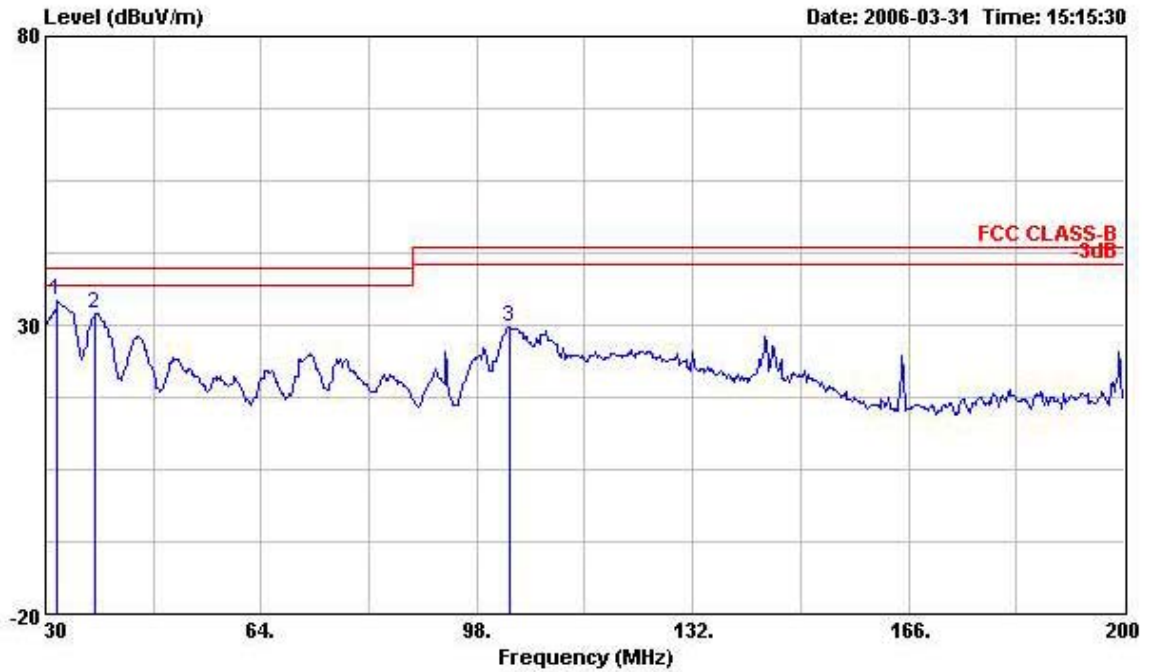


| | Freq | Level | Over | Read | Limit | Antenna | Cable | Preamp | Remark | Ant | Table |
|---|---------|--------|--------|-------|--------|---------|-------|--------|--------|-----|-------|
| | MHz | dBuV/m | Limit | Level | dBuV/m | dB/m | Loss | Factor | | Pos | Pos |
| | | | dB | dBuV | dBuV/m | dB/m | dB | dB | | cm | deg |
| 1 | 99.190 | 25.82 | -17.68 | 45.54 | 43.50 | 8.96 | 1.40 | 30.08 | Peak | --- | --- |
| 2 | 149.510 | 26.92 | -16.58 | 43.27 | 43.50 | 11.94 | 1.88 | 30.17 | Peak | --- | --- |
| 3 | 164.980 | 28.92 | -14.58 | 44.03 | 43.50 | 13.14 | 1.98 | 30.24 | Peak | --- | --- |

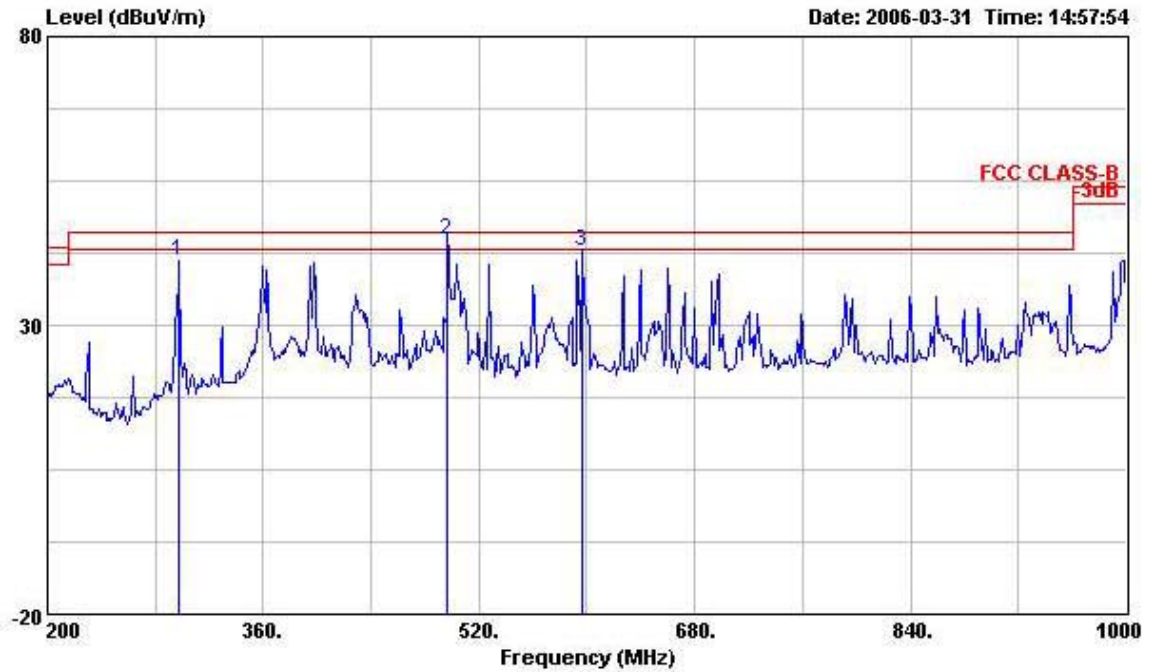


| | Freq | Level | Over | Read | Limit | Antenna | Cable | Preamp | Remark | Ant | Table |
|-----|---------|--------|-------|-------|--------|---------|-------|--------|--------|-----|-------|
| | MHz | dBuV/m | Limit | Level | Line | Factor | Loss | Factor | | Pos | Pos |
| | | | dB | dBuV | dBuV/m | dB/m | dB | dB | | cm | deg |
| 1 @ | 297.600 | 43.16 | -2.84 | 56.72 | 46.00 | 13.73 | 2.90 | 30.19 | QP | --- | --- |
| 2 | 359.200 | 40.29 | -5.71 | 51.48 | 46.00 | 15.60 | 3.39 | 30.17 | Peak | --- | --- |
| 3 | 596.000 | 42.85 | -3.15 | 48.10 | 46.00 | 20.22 | 4.49 | 29.95 | QP | --- | --- |

Vertical



| | Freq | Level | Over | Read | Limit | Antenna | Cable | Preamp | Remark | Ant | Table |
|---|---------|--------|--------|-------|--------|---------|-------|--------|--------|-----|-------|
| | MHz | dBuV/m | Limit | Level | Line | Factor | Loss | Factor | | Pos | Pos |
| | | | dB | dBuV | dBuV/m | dB/m | dB | dB | | cm | deg |
| 1 | 31.870 | 34.34 | -5.66 | 51.38 | 40.00 | 12.61 | 0.41 | 30.06 | Peak | --- | --- |
| 2 | 37.820 | 32.11 | -7.89 | 49.23 | 40.00 | 12.29 | 0.64 | 30.04 | Peak | --- | --- |
| 3 | 103.100 | 29.74 | -13.76 | 48.92 | 43.50 | 9.43 | 1.46 | 30.06 | Peak | --- | --- |



| | Freq | Level | Over Limit | Read Level | Limit | Antenna Line Factor | Cable Loss | Preamp Factor | Remark | Ant Pos | Table Pos |
|-----|---------|--------|------------|------------|--------|---------------------|------------|---------------|--------|---------|-----------|
| | MHz | dBuV/m | dB | dBuV | dBuV/m | dB/m | dB | dB | | cm | deg |
| 1 | 297.600 | 41.30 | -4.70 | 54.86 | 46.00 | 13.73 | 2.90 | 30.19 | Peak | --- | --- |
| 2 @ | 496.800 | 44.88 | -1.12 | 55.12 | 46.00 | 16.03 | 3.88 | 30.15 | QP | --- | --- |
| 3 | 596.000 | 42.78 | -3.22 | 48.03 | 46.00 | 20.22 | 4.49 | 29.95 | QP | --- | --- |

Note:

The amplitude of spurious emissions which are attenuated by more than 20 dB below the permissible value has no need to be reported.

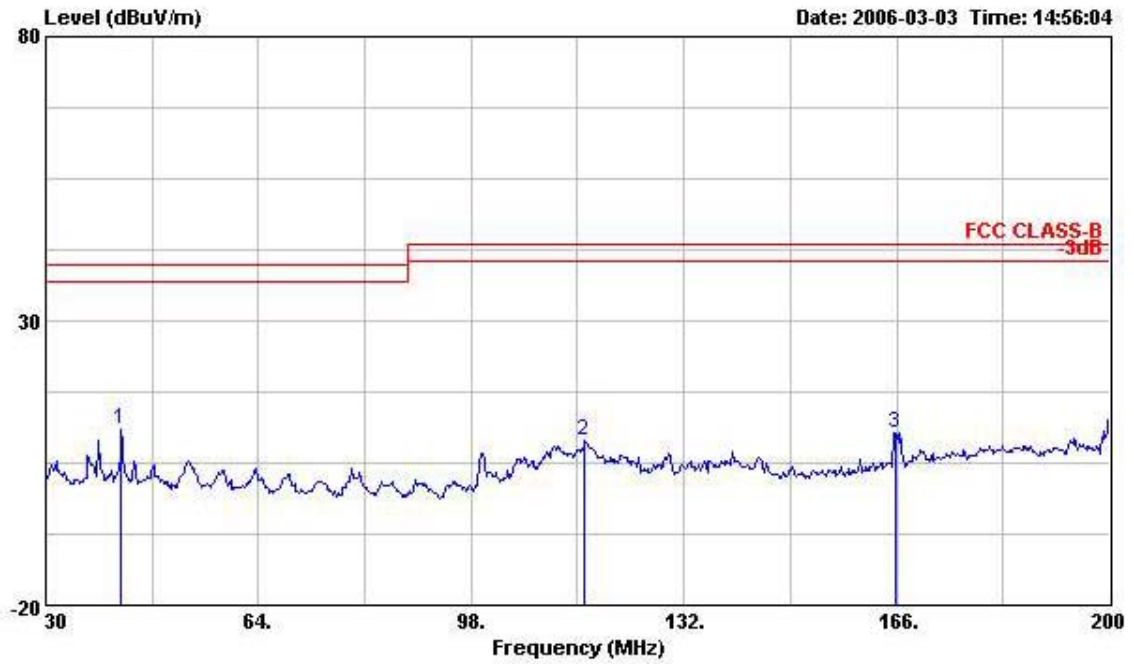
Emission level (dBuV/m) = 20 log Emission level (uV/m).

Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

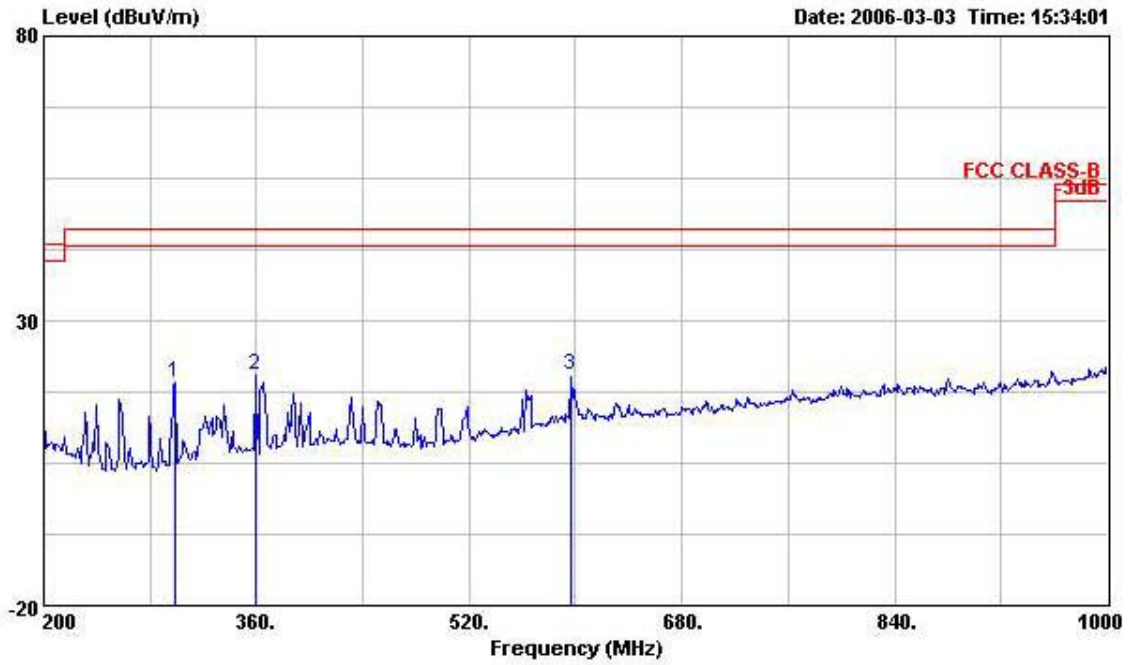
Pol. : V is Vertical Polarization ; H is Horizontal Polarization.

| | | | |
|---------------|-----|----------------|-------------------|
| Temperature | 24 | Humidity | 58% |
| Test Engineer | Vic | Configurations | 802.11g Channel 6 |

Horizontal

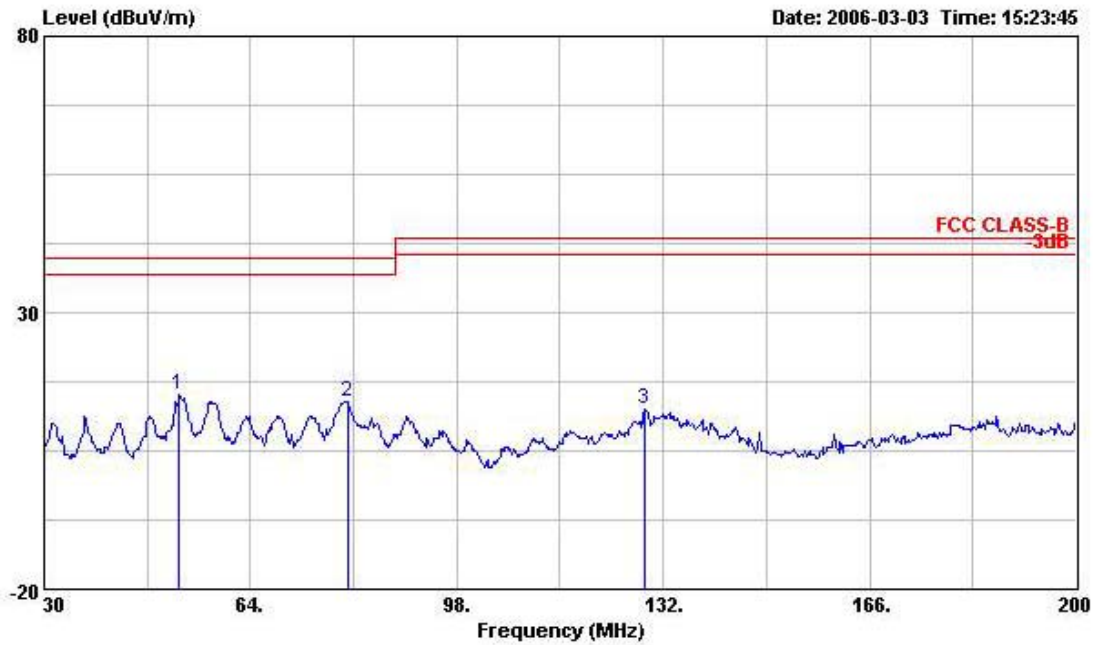


| | Freq | Level | Over | Read | Limit | Antenna | Cable | Preamp | Remark | Ant | Table |
|---|---------|--------|--------|-------|-------|---------|-------|--------|--------|-----|-------|
| | MHz | dBuV/m | Limit | Level | Line | Factor | Loss | Factor | | Pos | Pos |
| | | | dB | dBuV | dB/m | | dB | dB | | cm | deg |
| 1 | 42.070 | 10.86 | -29.14 | 27.65 | 40.00 | 12.51 | 0.77 | 30.08 | Peak | --- | --- |
| 2 | 116.190 | 9.08 | -34.42 | 26.14 | 43.50 | 11.34 | 1.69 | 30.09 | Peak | --- | --- |
| 3 | 165.830 | 10.40 | -33.10 | 25.30 | 43.50 | 13.23 | 1.98 | 30.12 | Peak | --- | --- |

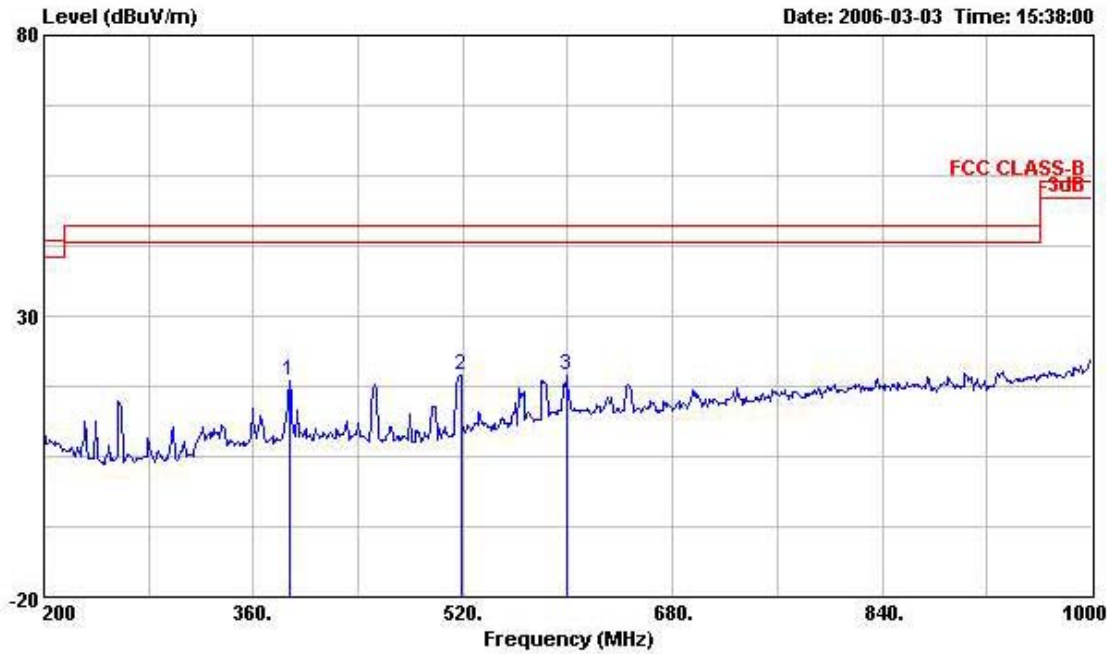


| | Freq | Level | Over | Read | Limit | Antenna | Cable | Preamp | Remark | Ant | Table |
|---|---------|--------|--------|-------|--------|---------|-------|--------|--------|-----|-------|
| | MHz | dBuV/m | Limit | Level | Line | Factor | Loss | Factor | | Pos | Pos |
| | | | dB | dBuV | dBuV/m | dB/m | dB | dB | | cm | deg |
| 1 | 298.400 | 19.10 | -26.90 | 32.92 | 46.00 | 13.75 | 2.90 | 30.48 | Peak | --- | --- |
| 2 | 359.200 | 20.52 | -25.48 | 32.02 | 46.00 | 15.60 | 3.39 | 30.49 | Peak | --- | --- |
| 3 | 596.000 | 20.30 | -25.70 | 26.24 | 46.00 | 20.22 | 4.49 | 30.65 | Peak | --- | --- |

Vertical



| | Freq | Level | Over | Read | Limit | Antenna | Cable | Preamp | Remark | Ant | Table |
|---|---------|--------|--------|-------|--------|---------|-------|--------|--------|-----|-------|
| | MHz | dBuV/m | Limit | Level | Line | Factor | Loss | Factor | | Pos | Pos |
| | | | dB | dBuV | dBuV/m | dB/m | dB | dB | | cm | deg |
| 1 | 52.270 | 15.18 | -24.82 | 32.97 | 40.00 | 11.20 | 1.09 | 30.07 | Peak | --- | --- |
| 2 | 79.980 | 13.99 | -26.01 | 33.05 | 40.00 | 9.50 | 1.44 | 30.00 | Peak | --- | --- |
| 3 | 128.940 | 12.50 | -31.00 | 28.48 | 43.50 | 12.30 | 1.84 | 30.13 | Peak | --- | --- |



| | Freq | Level | Over | Read | Limit | Antenna | Cable | Preamp | Remark | Ant | Table |
|---|---------|--------|--------|-------|--------|---------|-------|--------|--------|-----|-------|
| | MHz | dBuV/m | Limit | Level | Line | Factor | Loss | Factor | | Pos | Pos |
| | | | dB | dBuV | dBuV/m | dB/m | dB | dB | | cm | deg |
| 1 | 388.000 | 18.45 | -27.55 | 29.27 | 46.00 | 16.46 | 3.43 | 30.71 | Peak | --- | --- |
| 2 | 518.400 | 19.60 | -26.40 | 29.41 | 46.00 | 16.83 | 3.99 | 30.63 | Peak | --- | --- |
| 3 | 599.200 | 19.49 | -26.51 | 25.21 | 46.00 | 20.36 | 4.55 | 30.63 | Peak | --- | --- |

Note:

The amplitude of spurious emissions which are attenuated by more than 20 dB below the permissible value has no need to be reported.

Emission level (dBuV/m) = 20 log Emission level (uV/m).

Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

Pol. : V is Vertical Polarization ; H is Horizontal Polarization.

3.12. Antenna Requirements

3.12.1. Limit

Except for special regulations, the Low-power Radio-frequency Devices must not be equipped with any jacket for installing an antenna with extension cable. 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 the user can replace a broken antenna, but the use of a standard antenna jack or electrical connector is prohibited. Further, this requirement does not apply to intentional radiators that must be professionally installed.

3.12.2. Antenna Connector Construction

Please refer to section 3.3 in this test report, all antenna connectors comply with the requirements.

4. LIST OF MEASURING EQUIPMENTS

| Instrument | Manufacturer | Model No. | Serial No. | Characteristics | Calibration Date | Remark |
|--------------------------|----------------|--------------|------------|----------------------|------------------|--------------------------|
| 3m Semi Anechoic Chamber | SIDT FRANKONIA | SAC-3M | 03CH03-HY | 30 MHz - 1 GHz 3m | Jun. 16, 2005 | Radiation (03CH03-HY) |
| Amplifier | SCHAFFNER | CPA9231A | 3565 | 9 kHz - 2 GHz | Jan. 18, 2006 | Radiation (03CH03-HY) |
| Amplifier | Agilent | 8449B | 3008A02120 | 1 GHz - 26.5 GHz | May 31, 2005 | Radiation (03CH03-HY) |
| Spectrum Analyzer | R&S | FSP40 | 100004/040 | 9 kHz - 40 GHz | Sep. 30, 2005 | Radiation (03CH03-HY) |
| Biconical Antenna | SCHWARZBECK | VHBB 9124 | 301 | 30 MHz - 200 MHz | Jul. 22, 2005 | Radiation (03CH03-HY) |
| Log Antenna | SCHWARZBECK | VUSLP 9111 | 221 | 200 MHz - 1 GHz | Jul. 22, 2005 | Radiation (03CH03-HY) |
| Horn Antenna | EMCO | 3115 | 6741 | 1 GHz - 18 GHz | Apr. 22, 2005 | Radiation (03CH03-HY) |
| RF Cable-R03m | Jye Bao | RG142 | CB021 | 30 MHz - 1 GHz | Dec.02, 2005 | Radiation (03CH03-HY) |
| RF Cable-HIGH | SUHNER | SUCOFLEX 106 | 03CH03-HY | 1 GHz - 40 GHz | Dec.02, 2005 | Radiation (03CH03-HY) |
| Turn Table | HD | DS 420 | 420/650/00 | 0 - 360 degree | N/A | Radiation (03CH03-HY) |
| Antenna Mast | HD | MA 240 | 240/560/00 | 1 m - 4 m | N/A | Radiation (03CH03-HY) |

Note: Calibration Interval of instruments listed above is one year.

| Instrument | Manufacturer | Model No. | Serial No. | Characteristics | Calibration Date | Remark |
|--------------|--------------|---------------|-------------|-------------------|------------------|--------------------------|
| Amplifier | MITEQ | AMF-6F-260400 | 923364 | 26.5 GHz - 40 GHz | Jan. 24, 2006* | Radiation (03CH03-HY) |
| Loop Antenna | R&S | HFH2-Z2 | 860004/001 | 9 kHz - 30 MHz | May 24, 2004* | Radiation (03CH03-HY) |
| Horn Antenna | SCHWARZBECK | BBHA9170 | BBHA9170154 | 15 GHz - 40 GHz | Jun. 09, 2004* | Radiation (03CH03-HY) |

Note: Calibration Interval of instruments listed above is two year.

5. SPORTON COMPANY PROFILE

SPORTON Lab. was established in 1986 with one shielded room: the first private EMI test facility, offering local manufacturers an alternative EMI test facility apart from ERSO. In 1988, one 3M and 10M/3M open area test site were setup and also obtained official accreditation from FCC, VCCI and NEMKO. In 1993, a Safety laboratory was founded and obtained accreditation from UL of USA, CSA of Canada and TUV (Rhineland & PS) of Germany. In 1995, one EMC lab, including EMI and EMS test facilities was setup. In 1997, SPORTON Group has provided financial expense to relocate the headquarter to Orient Scientific Park in Taipei Hsien to offer more comprehensive, more qualified and better service to local suppliers and manufactures. In 1999, Safety Group and Component Group were setup. In 2001, SPORTON has established 3M/10M chamber in Hwa Ya Technology Park.

5.1. Test Location

| | |
|--------|--|
| SHIJR | ADD : 6Fl., No. 106, Sec. 1, Shintai 5th Rd., Shijr City, Taipei, Taiwan 221, R.O.C. TEL : 02-2696-2468 FAX : 02-2696-2255 |
| HWA YA | ADD : No. 52, Hwa Ya 1st Rd., Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C. TEL : 03-327-3456 FAX : 03-318-0055 |
| LINKOU | ADD : No. 30-2, Dingfu Tsuen, Linkou Shiang, Taipei, Taiwan 244, R.O.C TEL : 02-2601-1640 FAX : 02-2601-1695 |
| DUNGHU | ADD : No. 3, Lane 238, Kangle St., Neihsu Chiu, Taipei, Taiwan 114, R.O.C. TEL : 02-2631-4739 FAX : 02-2631-9740 |
| JUNGHE | ADD : 7Fl., No. 758, Jungjeng Rd., Junghe City, Taipei, Taiwan 235, R.O.C. TEL : 02-8227-2020 FAX : 02-8227-2626 |
| NEIHU | ADD : 4Fl., No. 339, Hsin Hu 2 nd Rd., Taipei 114, Taiwan, R.O.C. TEL : 02-2794-8886 FAX : 02-2794-9777 |
| JHUBEI | ADD : No.8, Lane 728, Bo-ai St., Jhubei City, Hsinchu County 302, Taiwan, R.O.C. TEL : 03-656-9065 FAX : 03-656-9085 |

6. NVLAP CERTIFICATE OF ACCREDITATION

United States Department of Commerce
National Institute of Standards and Technology

NVLAP[®]

Certificate of Accreditation to ISO/IEC 17025:1999

NVLAP LAB CODE: 200079-0

Sporton International, Inc. Hwa Ya EMC Laboratory
Tao Yuan Hsien 333
TAIWAN

*is recognized by the National Voluntary Laboratory Accreditation Program for conformance with criteria set forth in
NIST Handbook 150:2001 and all requirements of ISO/IEC 17025:1999.
Accreditation is granted for specific services, listed on the Scope of Accreditation, for:*

ELECTROMAGNETIC COMPATIBILITY AND TELECOMMUNICATIONS

2006-01-01 through 2006-12-31
Effective dates



[Signature]
For the National Institute of Standards and Technology

NVLAP-01C (REV. 2005-05-19)