



SPORTON International Inc.

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FCC RADIO TEST REPORT

| | |
|------------------------|--|
| Applicant's company | Wistron NeWeb Corporation |
| Applicant Address | No. 10-1, Li-Hsin Rd. 1, Science-Based Industrial Park, Hsinchu 300, Taiwan R.O.C |
| FCC ID | NKRUPASV5 |
| Manufacturer's company | Wistron Neweb Corporation WNC (Kunshan) Corp. |
| Manufacturer Address | No. 10-1, Li-Hsin Rd. 1, Science-Based Industrial Park, Hsinchu 300, Taiwan R.O.C No. 88 Central Avenue, Area B, Kunshan Export Processing Zone, Kunshan City, Jiangsu, China |

| | |
|-------------------|--|
| Product Name | Satellite Radio PnP Receiver |
| Brand Name | SIRIUS |
| Model Name | SV5, SV5TK1, SV5TK1R, SV5TK1C, SV5TK1B |
| Test Rule Part(s) | 47 CFR FCC Part 15 Subpart C § 15.239 |
| Test Freq. Range | 88 ~ 108MHz |
| Received Date | Apr. 21, 2008 |
| Final Test Date | Apr. 24, 2008 |
| Submission Type | Original Equipment |
| Multiple Listing | Please refer to section 3.7 |



Statement

The device is only possible within the range 88.1-107.9MHz.

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.



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History of This Test Report

Original Issue Date: May 02, 2008

Report No.: FR842105

No additional attachment.

Additional attachment were issued as following record:

| Attachment No. | Issue Date | Description |
|----------------|------------|-------------|
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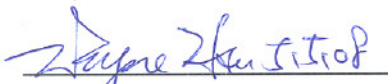


1. CERTIFICATE OF COMPLIANCE

Certificate No.: CB9704092

Product Name : Satellite Radio PnP Receiver
Brand Name : SIRIUS
Model Name : SV5, SV5TK1, SV5TK1R, SV5TK1C, SV5TK1B
Applicant : Wistron NeWeb Corporation
Test Rule Part(s) : 47 CFR FCC Part 15 Subpart C § 15.239

Sporton International as requested by the applicant to evaluate the EMC performance of the product sample received on Apr. 21, 2008 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.


Wayne Hsu
SPORTON INTERNATIONAL INC.

2. SUMMARY OF THE TEST RESULT

| Applied Standard: 47 CFR FCC Part 15 Subpart C | | | | |
|--|--------------|---|----------|-------------|
| Part | Rule Section | Description of Test | Result | Under Limit |
| - | 15.207 | AC Power Line Conducted Emissions | - | - |
| 4.2 | 15.239(b) | Field Strength of Fundamental Emissions | Complies | 1.31 dB |
| 4.3 | 15.239(a) | 20dB Spectrum Bandwidth | Complies | - |
| 4.4 | 15.239(c) | Radiated Emissions | Complies | 7.08 dB |
| 4.5 | 15.239(c) | Band Edge Emissions | Complies | 12.14 dB |
| 4.6 | 15.203 | Antenna Requirements | Complies | - |

| Test Items | Uncertainty | Remark |
|--|-----------------------|--------------------------|
| AC Power Line Conducted Emissions | ±2.3dB | Confidence levels of 95% |
| Field Strength of Fundamental Emissions | ±1.9dB | Confidence levels of 95% |
| 20dB Spectrum Bandwidth | ±8.5×10 ⁻⁸ | Confidence levels of 95% |
| Radiated Emissions (9kHz~30MHz) | ±0.8dB | Confidence levels of 95% |
| Radiated / Band Edge Emissions (30MHz~1000MHz) | ±1.9dB | Confidence levels of 95% |
| Radiated Emissions (1GHz~18GHz) | ±1.9dB | Confidence levels of 95% |
| Temperature | ±0.7°C | Confidence levels of 95% |
| Humidity | ±3.2% | Confidence levels of 95% |
| DC / AC Power Source | ±1.4% | Confidence levels of 95% |

3. GENERAL INFORMATION

3.1. Product Details

| Items | Description |
|--------------------------|---|
| Product Type | Low Power Communication Device (FM Transmitter) |
| Power Type | Cigarette Lighter Adapter |
| Interface Type | Antenna connect / Line OUT / Power / FM |
| Modulation | FM |
| Frequency Range | 88 ~ 108MHz / GPS: 2.3200GHz~2.3325GHz |
| Channel Number | 100 |
| Channel Band Width (99%) | 137.01 kHz |
| Max. Field Strength | 46.69 dBuV/m at 3m (Average) |
| Carrier Frequencies | Please refer to section 3.4 |
| Antenna | Please refer to section 3.3 |

3.2. Accessories

| Power | Brand | Model | Rating |
|---------------------------|--------|------------|---|
| Cigarette Lighter Adapter | DVE | DDA-10W-05 | Input: 9-16VDC, 1.35A Output: 5VDC, 2A |
| Others | | | |
| Accessories | Brand | Model | |
| Docking Station | SIRIUS | UC8 | |

3.3. Table for Filed Antenna

| Ant. | Description |
|------|---|
| 1 | Internal antenna (for FM transmitter) |
| 2 | External antenna (for Satellite receiver) |

Note: The EUT has two transmitting antennas. But there is only one will be used at the same time.

3.4. Table for Carrier Frequencies

| Frequency Band | Channel No. | Frequency |
|----------------|-------------|-----------|
| 88 ~ 108MHz | 1 | 88.1 MHz |
| | 2 | 88.3 MHz |
| | : | : |
| | 50 | 97.9 MHz |
| | 51 | 98.1 MHz |
| | 52 | 98.3 MHz |
| | : | : |
| | 99 | 107.7 MHz |
| | 100 | 107.9 MHz |

3.5. Table for Test Modes

Audio input adjusted to maximize emission for test. 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 | Channel | Antenna |
|--|-------------|----------|---------|
| AC Power Line Conducted Emissions | Normal Link | 51 | 1 |
| Field Strength of Fundamental Emissions 20dB Spectrum Bandwidth | CTX1 | 1/51/100 | 1 |
| Radiated Emissions 9kHz~30MHz | CTX1 | 51 | 1 |
| Radiated Emissions 30MHz~10 th Harmonic | CTX1 | 1/51/100 | 1 |
| Band Edge Emissions | CTX1 | 1/100 | 1 |

Note:

CTX1 = Continuously transmitting and audio modulating content a range of 100 to 5000 Hz.

Test Mode:

MODE 1: TX Ant, RX Ant without bundle of cable (cable is placed as S type)

MODE 2: TX Ant, RX Ant with bundle of cable

MODE 3: TX Ant. without bundle of cable (cable is placed as S type), RX Ant without bundle of cable (cable is placed as S type)

MODE 4: TX Ant. without bundle of cable (cable is placed as S type), RX Ant with bundle of cable

MODE 5: TX Ant. without bundle of cable (cable is placed as Circuit type), RX Ant without bundle of cable (cable is placed as S type)

MODE 6: TX Ant. without bundle of cable (cable is placed as Circuit type), RX Ant with bundle of cable

Due to Mode 4 generated the worst test result, so it was recorded in this report.

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 | - |
| TH01-HY | OVEN Room | Hwa Ya | - | - | - |

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 Multiple Listing & Class II Change

The brand/model names in the following table are all refer to the identical product.

| Brand Name | Model Name | Manufacturer |
|------------|------------|--|
| SIRIUS | SV5 | All the models are identical, the difference model for difference business establishment served as marketing strategy. |
| | SV5TK1 | |
| | SV5TK1R | |
| | SV5TK1C | |
| | SV5TK1B | |

3.8. Table for Supporting Units

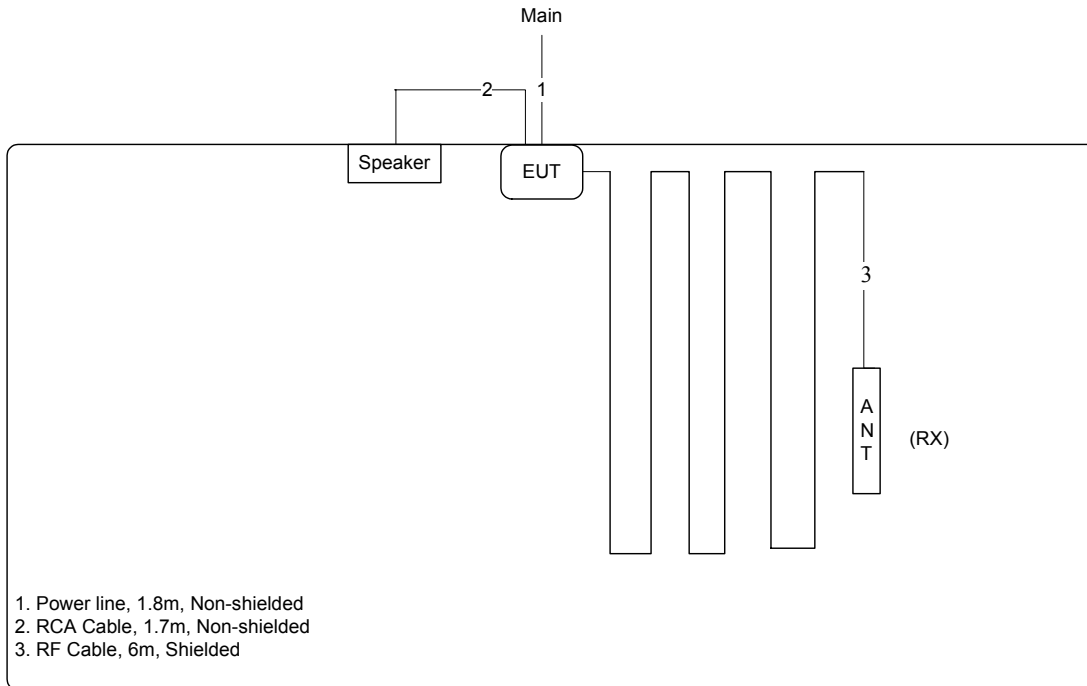
| Support Unit | Brand | Model | FCC ID |
|------------------------|---------------|---------|--------|
| Satellite base station | Rohde&schearz | SMIQ06B | DoC |

3.9. Test Configurations

3.9.1. Radiation Emissions Test Configuration

Test Configuration: 88~108MHz

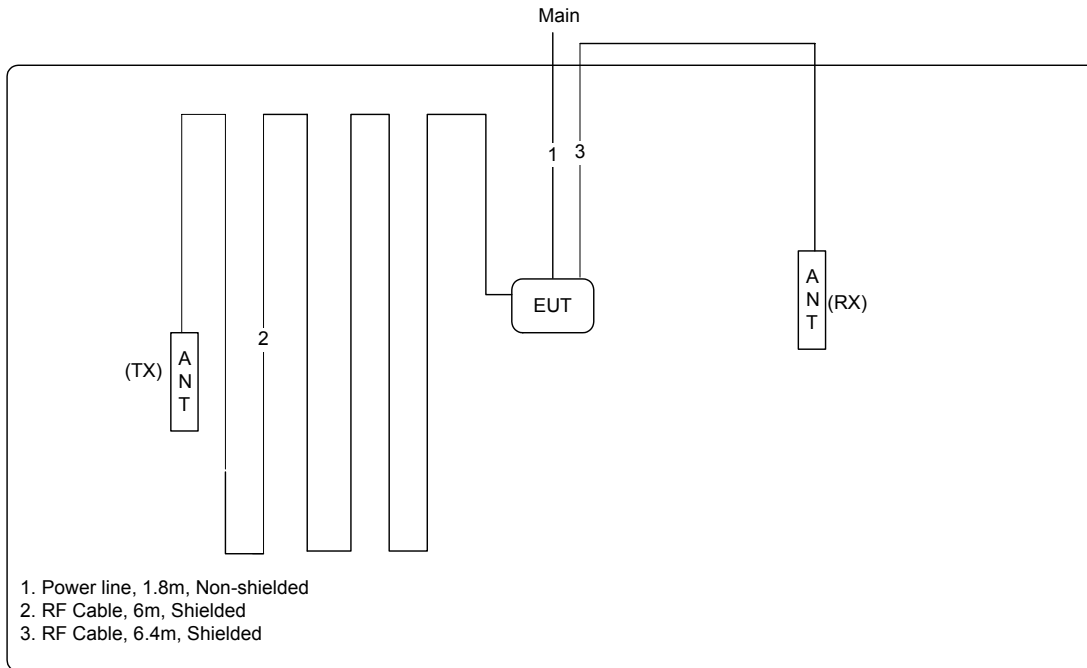
Test Mode: Mode 4



Satellite Base Station

Above 1GHz

Test Mode: Mode 4



Satellite Base Station

4. TEST RESULT

4.1. Field Strength of Fundamental Emissions Measurement

4.1.1. Limit

The field strength of fundamental emissions shall comply with the following table.

| Frequency Band (MHz) | Fundamental Emissions Limit (dBuV/m) at 3m |
|----------------------|--|
| 88~108 | 48 (Average) |
| 88~108 | 68 (Peak) |

4.1.2. Measuring Instruments and Setting

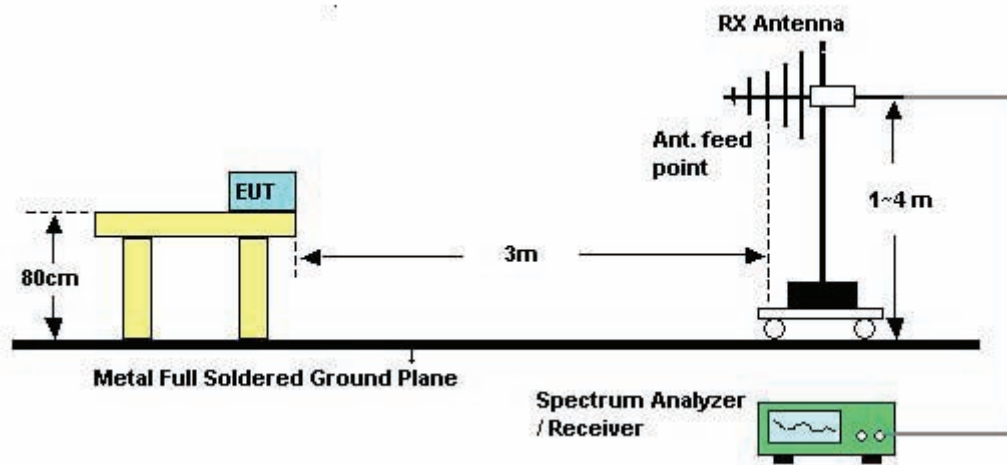
Please refer to section 5 of equipments list in this report. The following table is the setting of the receiver.

| Receiver Parameter | Setting |
|--------------------|-----------------------|
| Attenuation | Auto |
| Center Frequency | Fundamental Frequency |
| RB | 120 KHz |
| Detector | Peak / Average |

4.1.3. 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. For Fundamental emissions, use the receiver to measure peak and average reading.
6. 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.

4.1.4. Test Setup Layout



4.1.5. Test Deviation

There is no deviation with the original standard.

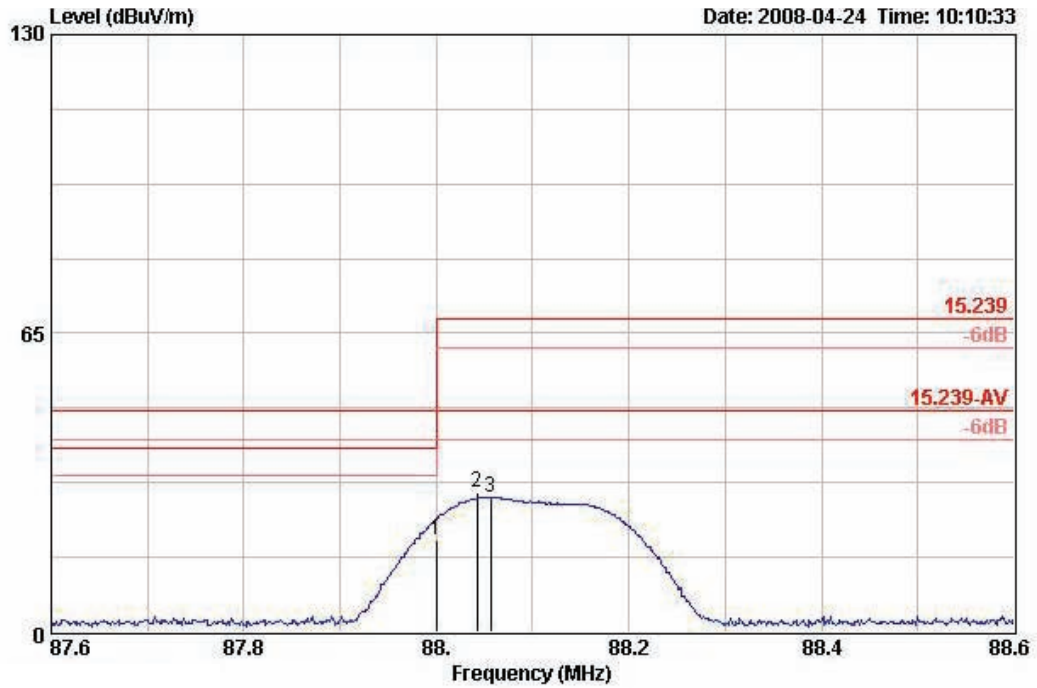
4.1.6. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

4.1.7. Test Result of Field Strength of Fundamental Emissions

| | | | |
|---------------|------------|----------------|--------------------|
| Temperature | 25.6°C | Humidity | 56% |
| Test Engineer | Barry Chen | Configurations | Channel 1 / Mode 4 |

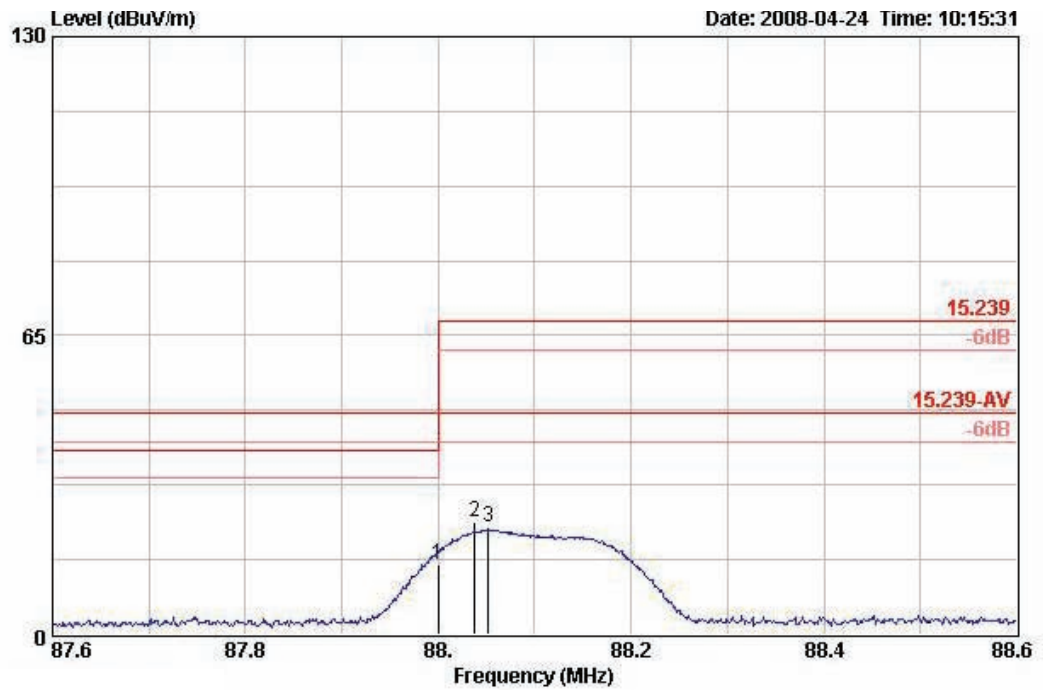
Horizontal



| | Freq | Level | Over Limit | Limit Line | Read Level | Antenna Factor | Preamp Factor | Cable Loss | Remark | Table Pos | Ant Pos | Pol/Phase |
|---|--------|--------|------------|------------|------------|----------------|---------------|------------|---------|-----------|---------|------------|
| | MHz | dBuV/m | dB | dBuV/m | dBuV | dB/m | dB | dB | | deg | cm | |
| 2 | 88.042 | 30.21 | -37.79 | 68.00 | 48.76 | 8.00 | 27.65 | 1.10 | PEAK | 266 | 380 | HORIZONTAL |
| 3 | 88.056 | 29.43 | -18.57 | 48.00 | 47.98 | 8.00 | 27.65 | 1.10 | AVERAGE | 266 | 380 | HORIZONTAL |

Item 2, 3 are fundamental frequency at 88.1 MHz.

Vertical



| | Freq | Level | Over Limit | Limit Line | Read Level | Antenna Factor | Preamp Factor | Cable Loss | Remark | Table Pos | Ant Pos | Pol/Phase |
|---|--------|--------|------------|------------|------------|----------------|---------------|------------|---------|-----------|---------|-----------|
| | MHz | dBuV/m | dB | dBuV/m | dBuV | dB/m | dB | dB | | deg | cm | |
| 2 | 88.038 | 24.48 | -43.52 | 68.00 | 43.03 | 8.00 | 27.65 | 1.10 | PEAK | 200 | 181 | VERTICAL |
| 3 | 88.052 | 23.16 | -24.84 | 48.00 | 41.71 | 8.00 | 27.65 | 1.10 | AVERAGE | 200 | 181 | VERTICAL |

Item 2, 3 are fundamental frequency at 88.1 MHz.

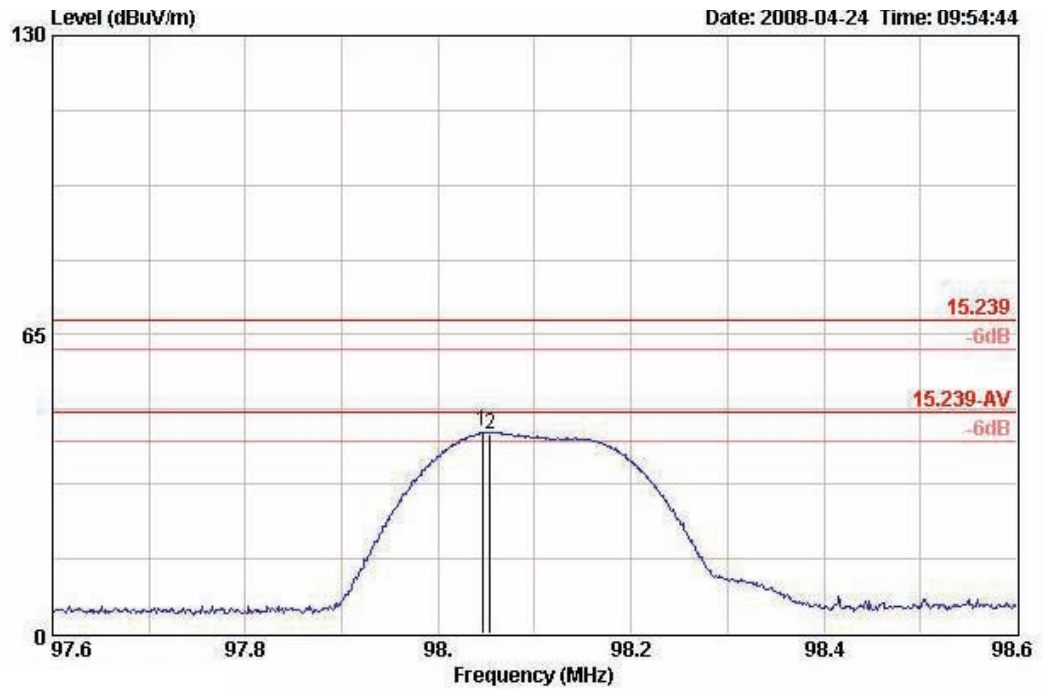
Note:

Emission level (dBUV/m) = 20 log Emission level (uV/m)

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

| | | | |
|---------------|------------|----------------|---------------------|
| Temperature | 25.6°C | Humidity | 56% |
| Test Engineer | Barry Chen | Configurations | Channel 51 / Mode 4 |

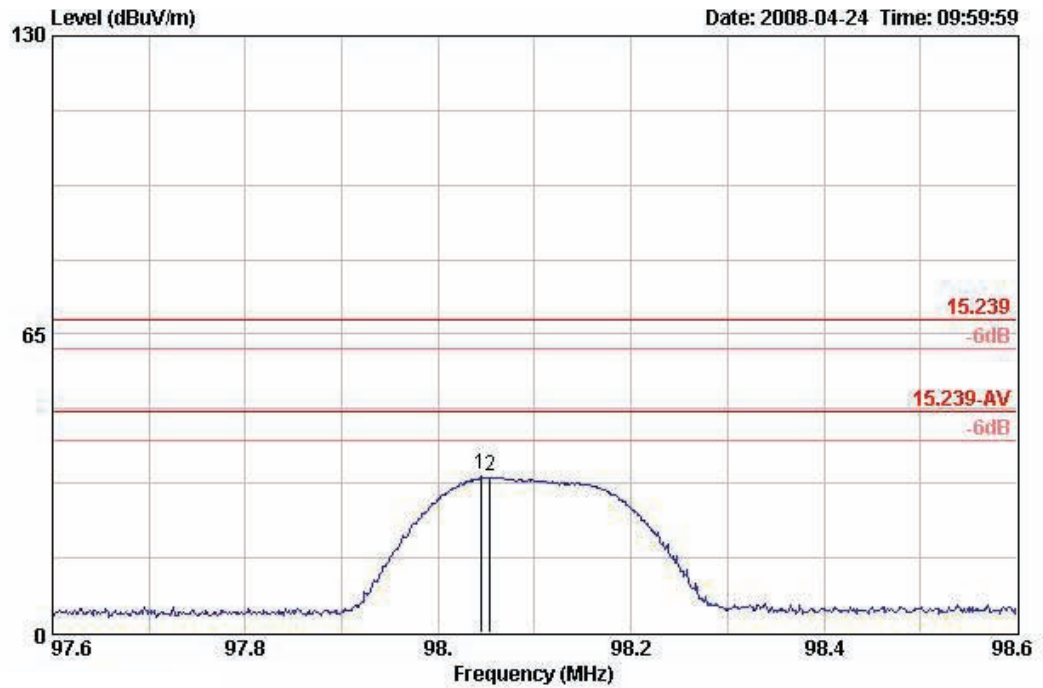
Horizontal



| | Freq | Level | Over Limit | Limit Line | Read Level | Antenna Factor | Preamp Factor | Cable Loss | Remark | Table Pos | Ant Pos | Pol/Phase |
|---|--------|--------|------------|------------|------------|----------------|---------------|------------|---------|-----------|---------|------------|
| | MHz | dBUV/m | dB | dBUV/m | dBuV | dB/m | dB | dB | | deg | cm | |
| 1 | 98.046 | 44.00 | -24.00 | 68.00 | 60.50 | 9.95 | 27.61 | 1.16 | PEAK | 81 | 400 | HORIZONTAL |
| 2 | 98.054 | 43.46 | -4.54 | 48.00 | 59.96 | 9.95 | 27.61 | 1.16 | AVERAGE | 81 | 400 | HORIZONTAL |

Item 1, 2 are fundamental frequency at 98.1 MHz.

Vertical



| | Freq | Level | Over Limit | Limit Line | Read Level | Antenna Factor | Preamp Factor | Cable Loss | Remark | Table Pos | Ant Pos | Pol/Phase |
|---|--------|--------|------------|------------|------------|----------------|---------------|------------|---------|-----------|---------|-----------|
| | MHz | dBuV/m | dB | dBuV/m | dBuV | dB/m | dB | dB | | deg | cm | |
| 1 | 98.044 | 34.38 | -33.62 | 68.00 | 50.88 | 9.95 | 27.61 | 1.16 | PEAK | 235 | 128 | VERTICAL |
| 2 | 98.054 | 33.99 | -14.01 | 48.00 | 50.49 | 9.95 | 27.61 | 1.16 | AVERAGE | 235 | 128 | VERTICAL |

Item 1, 2 are fundamental frequency at 98.1 MHz.

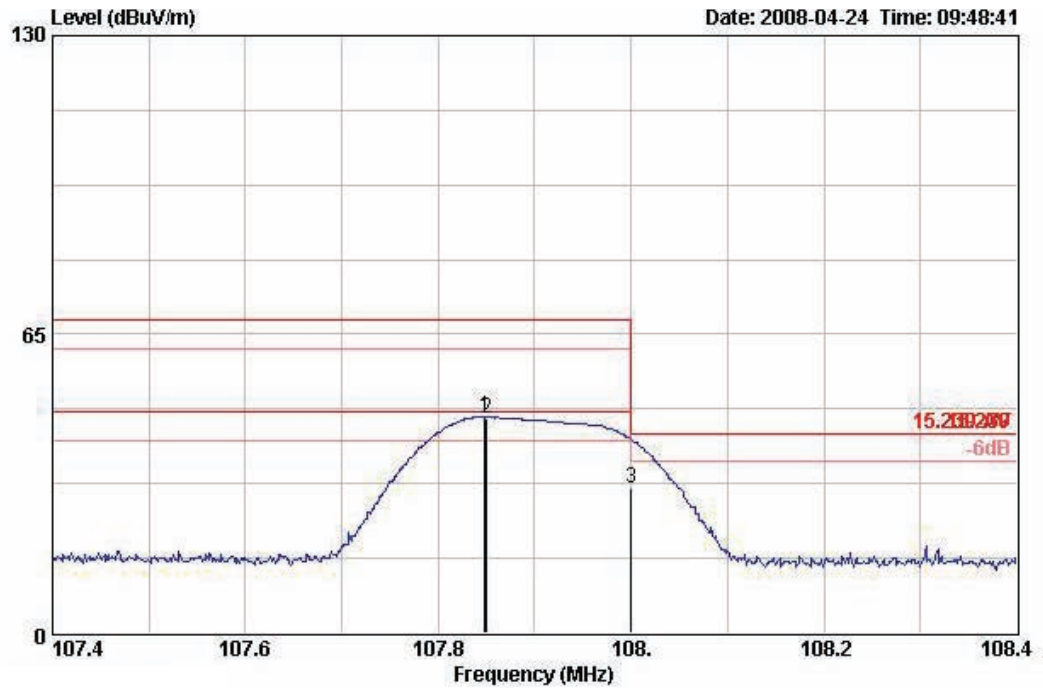
Note:

Emission level (dBUV/m) = 20 log Emission level (uV/m)

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

| | | | |
|---------------|------------|----------------|----------------------|
| Temperature | 25.6°C | Humidity | 56% |
| Test Engineer | Barry Chen | Configurations | Channel 100 / Mode 4 |

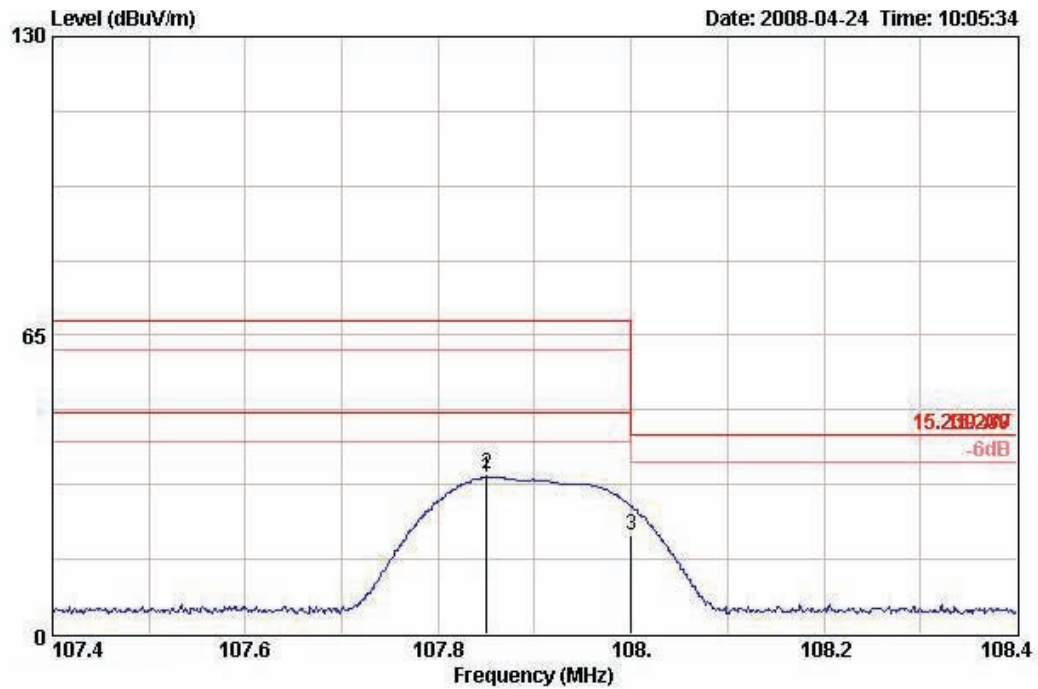
Horizontal



| | Freq | Level | Over Limit | Limit Line | Read Level | Antenna Factor | Preamp Factor | Cable Loss | Remark | Table Pos | Ant Pos | Pol/Phase |
|---|---------|--------|------------|------------|------------|----------------|---------------|------------|---------|-----------|---------|------------|
| | MHz | dBuV/m | dB | dBuV/m | dBuV | dB/m | dB | dB | | deg | cm | |
| 1 | 107.848 | 47.03 | -20.97 | 68.00 | 62.27 | 11.12 | 27.56 | 1.20 | PEAK | 279 | 272 | HORIZONTAL |
| 2 | 107.850 | 46.69 | -1.31 | 48.00 | 61.93 | 11.12 | 27.56 | 1.20 | AVERAGE | 279 | 272 | HORIZONTAL |

Item 1, 2 are fundamental frequency at 107.9 MHz.

Vertical



| | Freq | Level | Over | Limit | Read | Antenna | Preamp | Cable | Table | Ant |
|---|---------|--------|--------|--------|-------|---------|--------|-------|-------|-----|
| | MHz | dBuV/m | Limit | Line | Level | Factor | Factor | Loss | Pos | Pos |
| | | | dB | dBuV/m | dBuV | dB/m | dB | dB | deg | cm |
| 1 | 107.850 | 34.10 | -13.90 | 48.00 | 49.35 | 11.12 | 27.56 | 1.20 | 343 | 400 |
| 2 | 107.850 | 34.88 | -33.12 | 68.00 | 50.12 | 11.12 | 27.56 | 1.20 | 343 | 400 |

Item 1, 2 are fundamental frequency at 107.9 MHz.

Note:

Emission level (dBUV/m) = 20 log Emission level (uV/m)

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

4.2. 20dB Spectrum Bandwidth Measurement

4.2.1. Limit

Emissions from the intentional radiator shall be confined within a band 200 kHz wide centered on the operating frequency.

4.2.2. Measuring Instruments and Setting

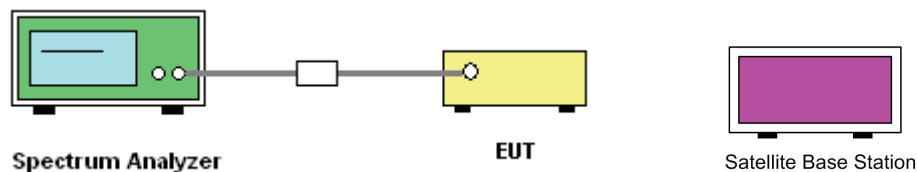
Please refer to section 5 of equipments list in this report. The following table is the setting of the spectrum analyzer.

| Spectrum Parameters | Setting |
|---------------------|------------------|
| Attenuation | Auto |
| Span Frequency | > 20dB Bandwidth |
| RB | 10 kHz |
| VB | 10 kHz |
| Detector | Peak |
| Trace | Max Hold |
| Sweep Time | Auto |

4.2.3. Test Procedures

1. The transmitter output (antenna port) was connected to the spectrum analyser in peak hold mode.
2. Check for a Bandwidth test with audio input CTX1 (100Hz~5kHz) at maximum.
3. The resolution bandwidth of 10 kHz and the video bandwidth of 10 kHz were used.
4. Measured the spectrum width with power higher than 20dB below carrier.

4.2.4. Test Setup Layout



4.2.5. Test Deviation

There is no deviation with the original standard.

4.2.6. EUT Operation during Test

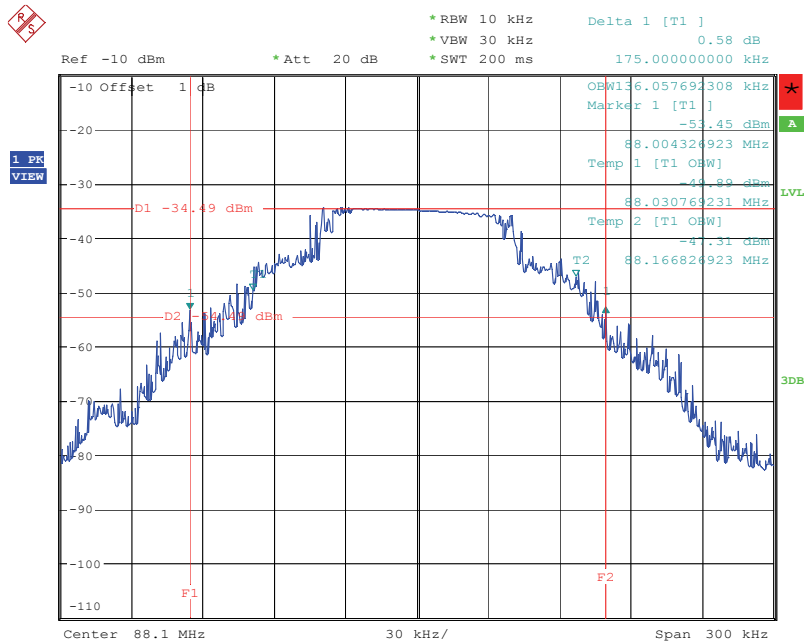
Input source through the Satellite Base Station continuously transmitter maximum audio input to EUT.

4.2.7. Test Result of 20dB Spectrum Bandwidth

| | | | |
|---------------|------------|----------------|------------------|
| Temperature | 25.6°C | Humidity | 56% |
| Test Engineer | Barry Chen | Configurations | Channel 1/51/100 |

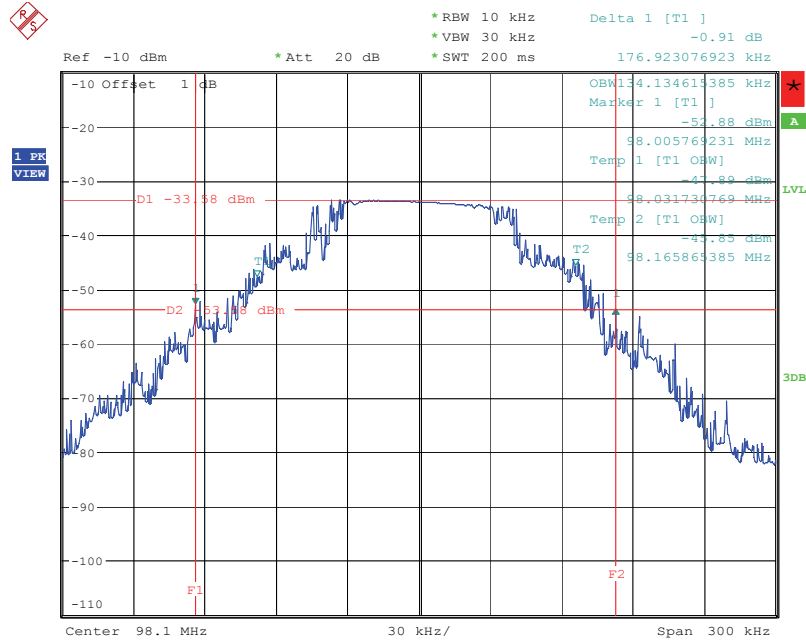
| Frequency | 20dB BW (kHz) | 99% OBW (kHz) | Frequency range (MHz) $f_L > 88\text{MHz}$ | Frequency range (MHz) $f_H < 108\text{MHz}$ | Test Result |
|-----------|---------------|---------------|---|--|-------------|
| 88.1 MHz | 175.00 | 136.05 | 88.0043 | - | Complies |
| 98.1 MHz | 176.92 | 134.13 | - | - | Complies |
| 107.9 MHz | 183.65 | 137.01 | - | 107.8000 | Complies |

20 dB/99% Bandwidth Plot on 88.1 MHz



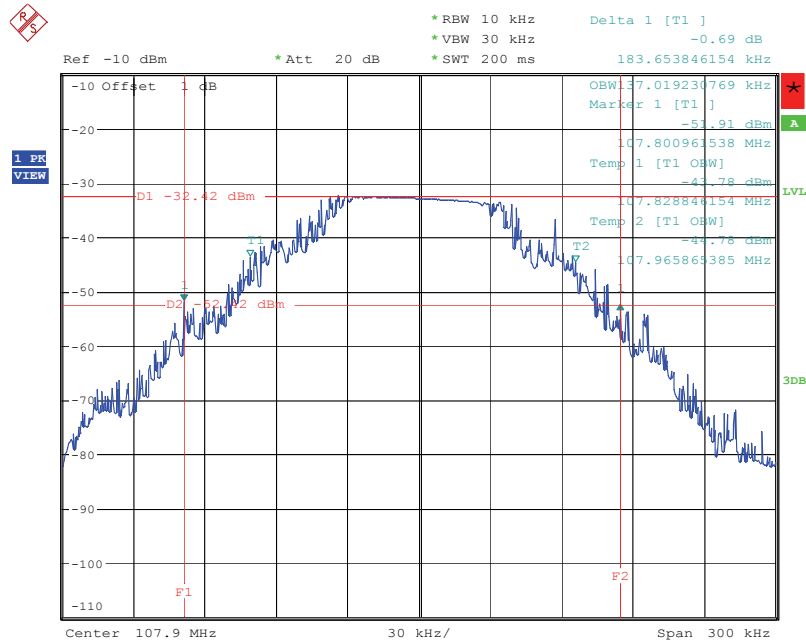
Date: 24.APR.2008 15:35:08

20 dB/99% Bandwidth Plot on 98.1 MHz



Date: 24.APR.2008 15:39:10

20 dB/99% Bandwidth Plot on 107.9 MHz



Date: 24.APR.2008 15:41:36

4.3. Radiated Emissions Measurement

4.3.1. Limit

The field strength of any emissions which appear outside of this band shall not exceed the general radiated emissions limits in Section 15.209(a)

| 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 |

4.3.2. Measuring Instruments and Setting

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

| Spectrum Parameter | Setting |
|--------------------|--|
| Attenuation | Auto |
| Start Frequency | 1000 MHz |
| Stop Frequency | 10th carrier harmonic |
| RB / VB | 1MHz / 1MHz for Peak, 1 MHz / 10Hz for Average |

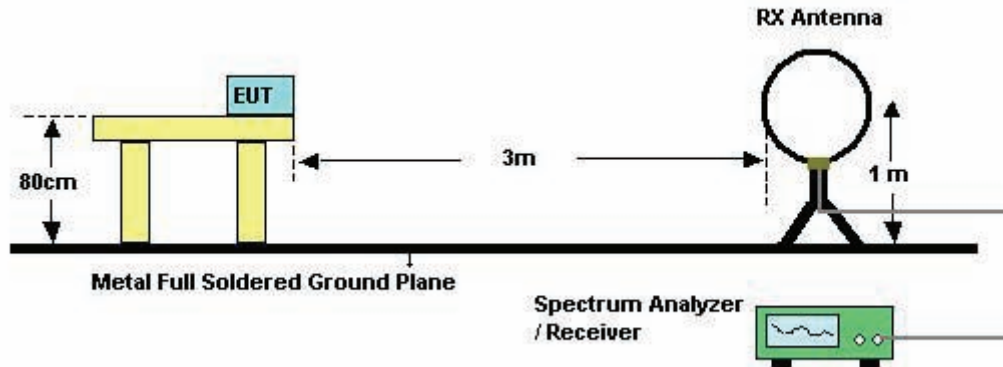
| Receiver Parameter | Setting |
|------------------------|----------------------------------|
| Attenuation | Auto |
| Start ~ Stop Frequency | 9kHz~150kHz / RB 200Hz for QP |
| Start ~ Stop Frequency | 150kHz~30MHz / RB 9kHz for QP |
| Start ~ Stop Frequency | 30MHz~1000MHz / RB 120kHz for QP |

4.3.3. Test Procedures

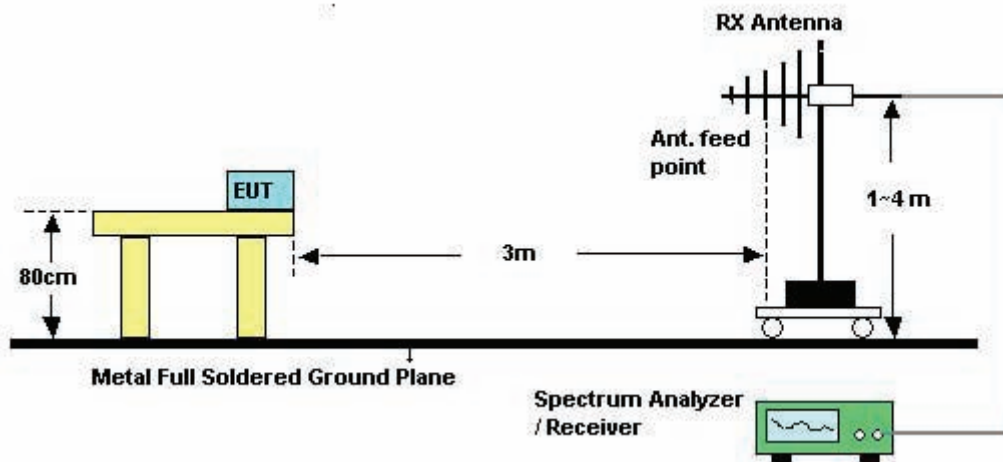
1. Configure the EUT according to ANSI C63.4. The EUT was placed on the top of the turntable 0.8 meter above ground. The phase center of the receiving antenna mounted on the top of a height-variable antenna tower was placed 3 meters far away from the turntable.
2. Power on the EUT and all the supporting units. Then audio input adjusted to maximize emission for test. 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.

4.3.4. Test Setup Layout

For radiated emissions below 30MHz



For radiated emissions above 30MHz



4.3.5. Test Deviation

There is no deviation with the original standard.

4.3.6. EUT Operation during Test

Input source through the Satellite Base Station continuously transmitter maximum audio input to EUT.

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

| | | | |
|----------------------|------------|-----------------------|---------------------|
| Temperature | 25.6°C | Humidity | 56% |
| Test Engineer | Barry Chen | Configurations | X axis / Channel 51 |

| 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 20dB below the permissible value has no need to be reported.

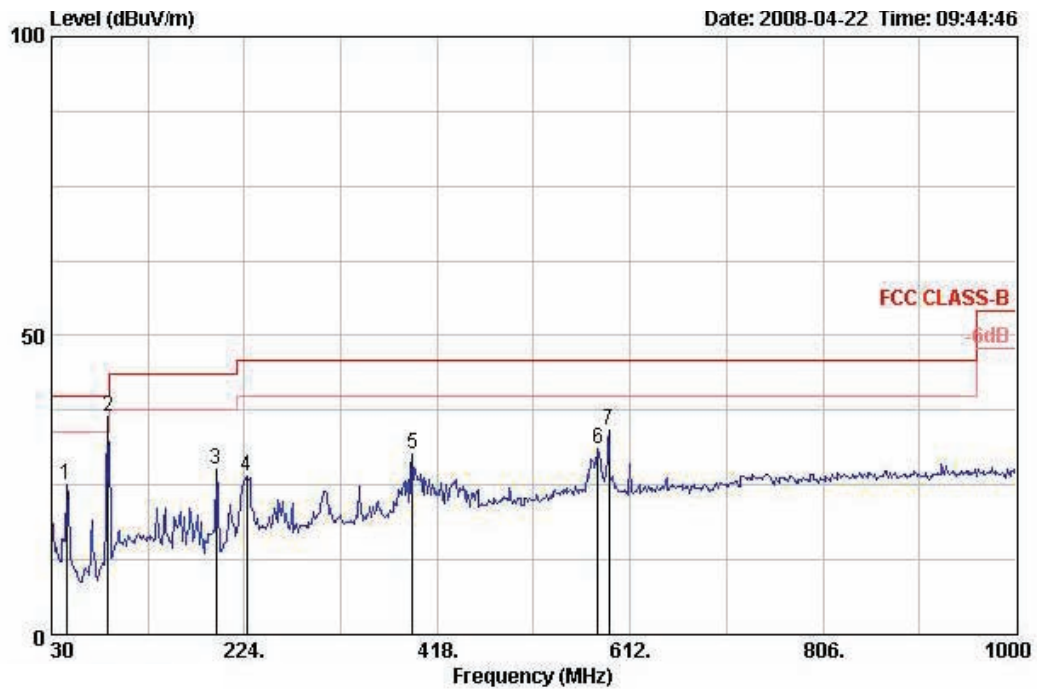
Distance extrapolation factor = $40 \log(\text{specific distance} / \text{test distance})$ (dB);

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

4.3.8. Results for Radiated Emissions (30MHz~10th Harmonic)

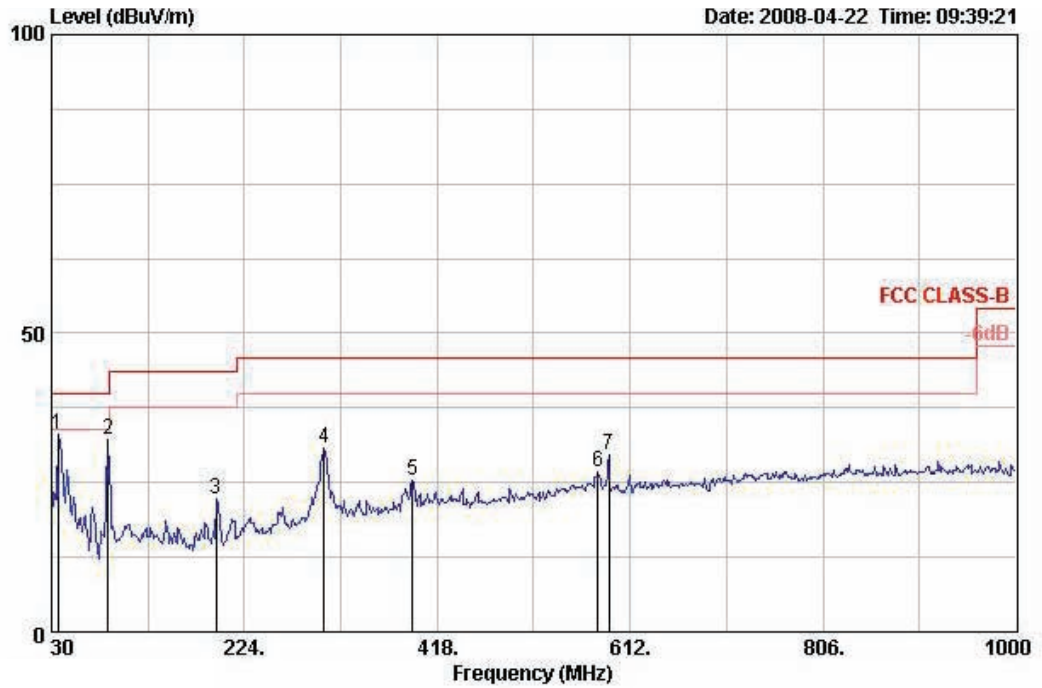
| | | | |
|---------------|------------|----------------|--------------------|
| Temperature | 25.6°C | Humidity | 56% |
| Test Engineer | Barry Chen | Configurations | Channel 1 / Mode 1 |

Horizontal



| | Freq | Level | Over Limit | Limit Line | ReadAntenna | Preamp | Cable | Table | Ant |
|---|---------|--------|------------|------------|-------------|--------|-------|-------|-----|
| | MHz | dBuV/m | dB | dBuV/m | Level | Factor | Loss | Pos | Pos |
| | | | | | dBuV | dB/m | dB | deg | cm |
| 1 | 44.550 | 25.01 | -14.99 | 40.00 | 42.46 | 9.65 | 27.80 | 0 | 100 |
| 3 | 195.870 | 27.60 | -15.90 | 43.50 | 44.14 | 8.90 | 27.12 | 0 | 100 |
| 4 | 225.940 | 26.49 | -19.51 | 46.00 | 42.57 | 9.16 | 27.05 | 0 | 100 |
| 5 | 392.780 | 30.12 | -15.88 | 46.00 | 39.86 | 15.52 | 27.55 | 0 | 100 |
| 6 | 579.990 | 31.00 | -15.00 | 46.00 | 37.55 | 18.70 | 28.10 | 0 | 100 |
| 7 | 590.660 | 34.24 | -11.76 | 46.00 | 40.89 | 18.57 | 28.10 | 0 | 100 |

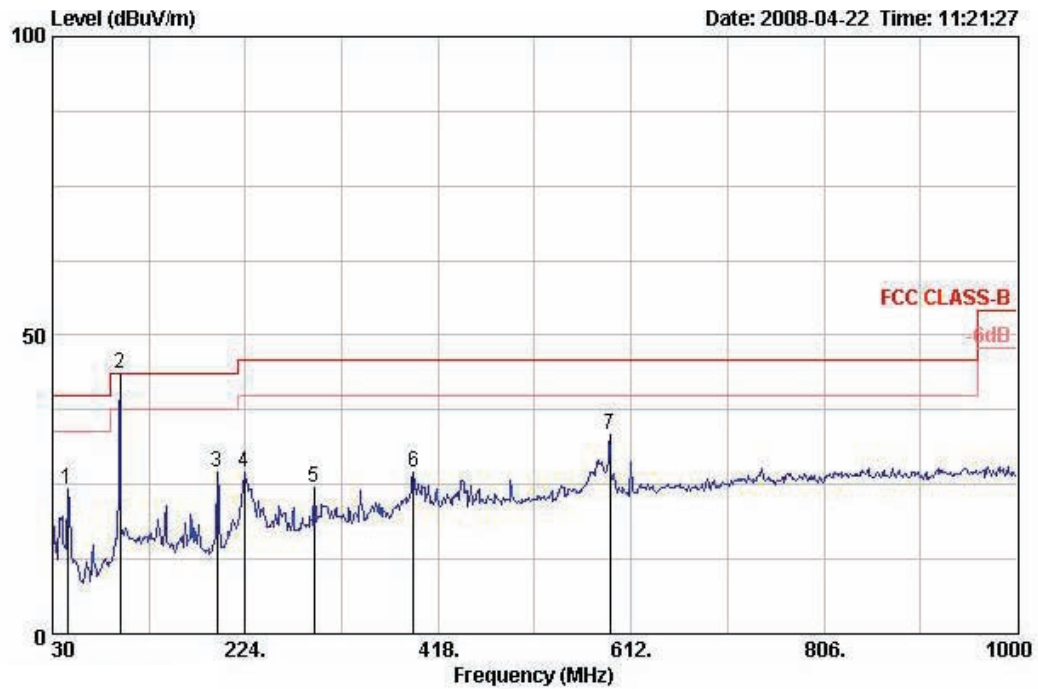
Vertical



| | Freq MHz | Level dBUV/m | Over Limit dB | Limit Line dBUV/m | Read Level dBUV | Antenna Factor dB/m | Preamp Factor dB | Cable Loss dB | Remark | Table Pos deg | Ant Pos cm | Pol/Phase |
|---|-------------|-----------------|---------------------|-------------------------|-----------------------|---------------------------|------------------------|---------------------|--------|---------------------|------------------|-----------|
| 1 | 36.790 | 32.92 | -7.08 | 40.00 | 46.54 | 13.60 | 27.80 | 0.58 | Peak | 0 | 400 | VERTICAL |
| 3 | 195.870 | 22.20 | -21.30 | 43.50 | 38.74 | 8.90 | 27.12 | 1.68 | Peak | 0 | 400 | VERTICAL |
| 4 | 304.510 | 30.87 | -15.13 | 46.00 | 42.61 | 13.08 | 26.93 | 2.11 | Peak | 0 | 400 | VERTICAL |
| 5 | 392.780 | 25.39 | -20.61 | 46.00 | 35.13 | 15.52 | 27.55 | 2.29 | Peak | 0 | 400 | VERTICAL |
| 6 | 579.990 | 26.88 | -19.12 | 46.00 | 33.42 | 18.70 | 28.10 | 2.86 | Peak | 0 | 400 | VERTICAL |
| 7 | 590.660 | 29.71 | -16.29 | 46.00 | 36.36 | 18.57 | 28.10 | 2.88 | Peak | 0 | 400 | VERTICAL |

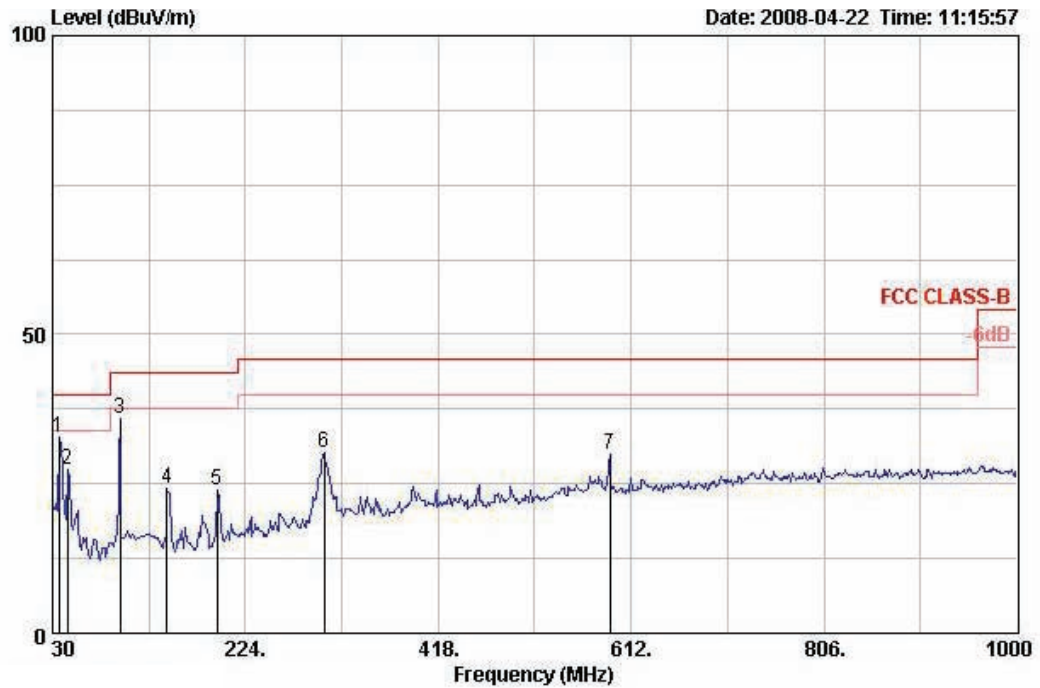
| | | | |
|---------------|------------|----------------|---------------------|
| Temperature | 25.6°C | Humidity | 56% |
| Test Engineer | Barry Chen | Configurations | Channel 51 / Mode 1 |

Horizontal



| | Freq | Level | Over Limit | Limit Line | Read Level | Antenna Factor | Preamp Factor | Cable Loss | Remark | Table Pos | Ant Pos | Pol/Phase |
|---|---------|--------|------------|------------|------------|----------------|---------------|------------|--------|-----------|---------|------------|
| | MHz | dBuV/m | dB | dBuV/m | dBuV | dB/m | dB | dB | | deg | cm | |
| 1 | 44.550 | 24.15 | -15.85 | 40.00 | 41.60 | 9.65 | 27.80 | 0.70 | Peak | 0 | 100 | HORIZONTAL |
| 3 | 195.870 | 27.11 | -16.39 | 43.50 | 43.65 | 8.90 | 27.12 | 1.68 | Peak | 0 | 100 | HORIZONTAL |
| 4 | 223.030 | 27.20 | -18.80 | 46.00 | 43.55 | 8.91 | 27.05 | 1.79 | Peak | 0 | 100 | HORIZONTAL |
| 5 | 292.870 | 24.43 | -21.57 | 46.00 | 36.55 | 12.72 | 26.92 | 2.07 | Peak | 0 | 100 | HORIZONTAL |
| 6 | 392.780 | 26.96 | -19.04 | 46.00 | 36.70 | 15.52 | 27.55 | 2.29 | Peak | 0 | 100 | HORIZONTAL |
| 7 | 590.660 | 33.33 | -12.67 | 46.00 | 39.97 | 18.57 | 28.10 | 2.88 | Peak | 0 | 100 | HORIZONTAL |

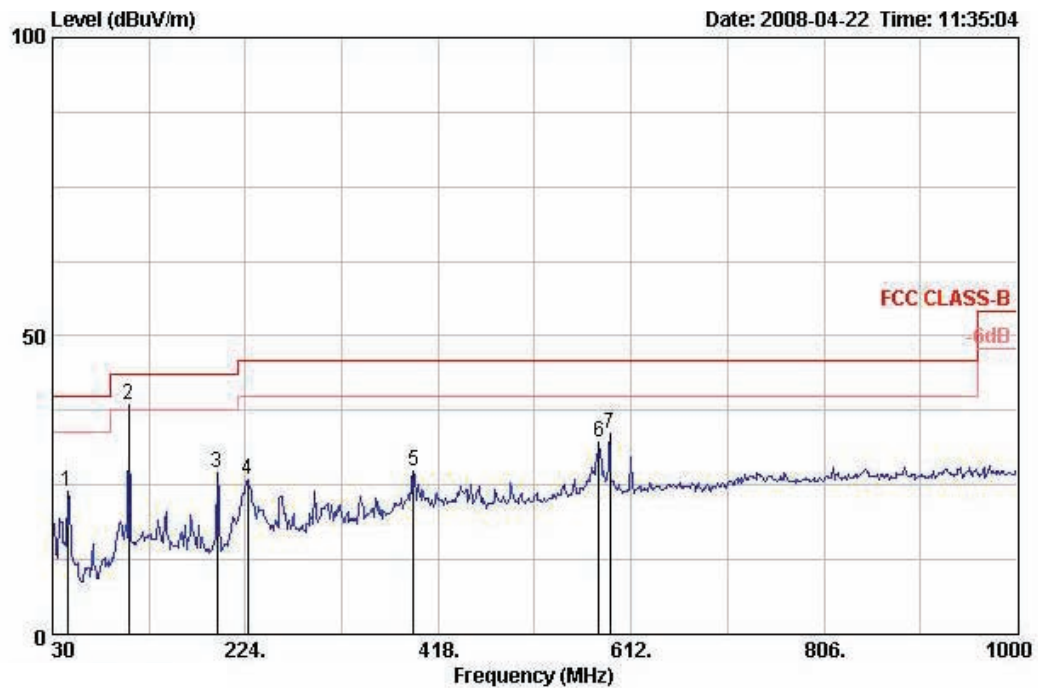
Vertical



| | Freq | Level | Over | Limit | Read | Antenna | Preamp | Cable | Remark | Table | Ant |
|---|---------|--------|--------|--------|-------|---------|--------|-------|--------|-------|---------------|
| | MHz | dBUV/m | Limit | Line | Level | Factor | Factor | Loss | | Pos | Pos Pol/Phase |
| | | | dB | dBUV/m | dBuV | dB/m | dB | dB | | deg | cm |
| 1 | 36.790 | 32.86 | -7.14 | 40.00 | 46.48 | 13.60 | 27.80 | 0.58 | Peak | 0 | 400 VERTICAL |
| 2 | 44.550 | 27.44 | -12.56 | 40.00 | 44.89 | 9.65 | 27.80 | 0.70 | Peak | 0 | 400 VERTICAL |
| 4 | 145.430 | 24.20 | -19.30 | 43.50 | 40.19 | 9.95 | 27.38 | 1.43 | Peak | 0 | 400 VERTICAL |
| 5 | 195.870 | 24.03 | -19.47 | 43.50 | 40.57 | 8.90 | 27.12 | 1.68 | Peak | 0 | 400 VERTICAL |
| 6 | 303.540 | 30.22 | -15.78 | 46.00 | 41.98 | 13.05 | 26.92 | 2.11 | Peak | 0 | 400 VERTICAL |
| 7 | 590.660 | 29.97 | -16.03 | 46.00 | 36.61 | 18.57 | 28.10 | 2.88 | Peak | 0 | 400 VERTICAL |

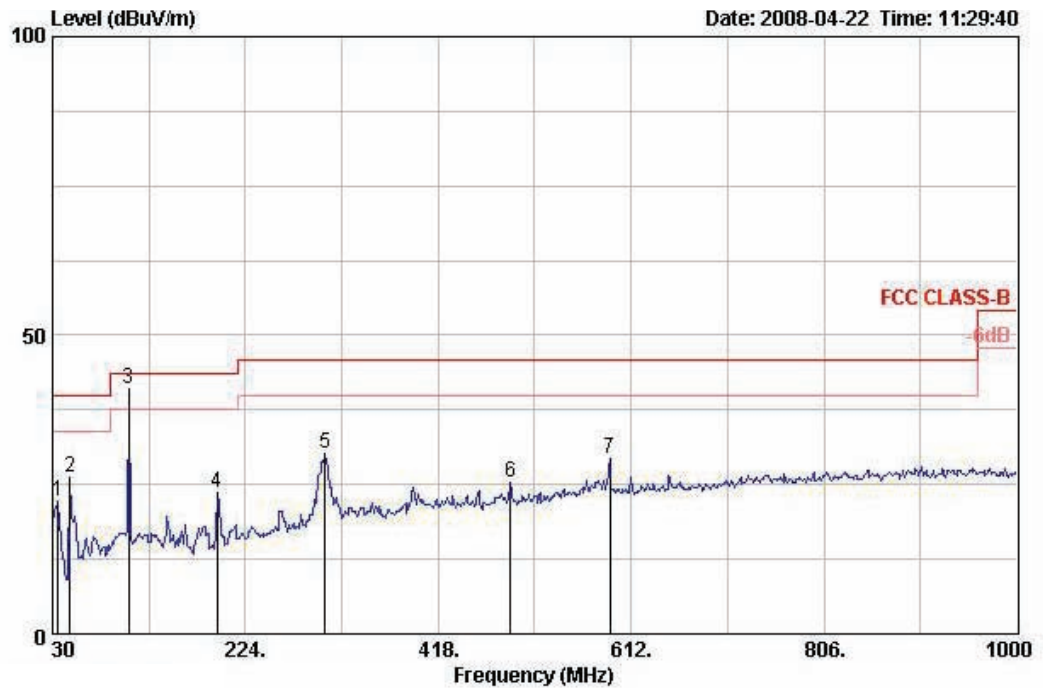
| | | | |
|---------------|------------|----------------|----------------------|
| Temperature | 25.6°C | Humidity | 56% |
| Test Engineer | Barry Chen | Configurations | Channel 100 / Mode 1 |

Horizontal



| | Freq | Level | Over Limit | Limit Line | Read Level | Antenna Factor | Preamp Factor | Cable Loss | Remark | Table Pos | Ant Pos | Pol/Phase |
|---|---------|--------|------------|------------|------------|----------------|---------------|------------|--------|-----------|---------|------------|
| | MHz | dBuV/m | dB | dBuV/m | dBuV | dB/m | dB | dB | | deg | cm | |
| 1 | 44.550 | 23.86 | -16.14 | 40.00 | 41.31 | 9.65 | 27.80 | 0.70 | Peak | 0 | 100 | HORIZONTAL |
| 3 | 195.870 | 27.00 | -16.50 | 43.50 | 43.54 | 8.90 | 27.12 | 1.68 | Peak | 0 | 100 | HORIZONTAL |
| 4 | 225.940 | 25.99 | -20.01 | 46.00 | 42.07 | 9.16 | 27.05 | 1.80 | Peak | 0 | 100 | HORIZONTAL |
| 5 | 392.780 | 27.32 | -18.68 | 46.00 | 37.07 | 15.52 | 27.55 | 2.29 | Peak | 0 | 100 | HORIZONTAL |
| 6 | 579.990 | 32.26 | -13.74 | 46.00 | 38.80 | 18.70 | 28.10 | 2.86 | Peak | 0 | 100 | HORIZONTAL |
| 7 | 590.660 | 33.51 | -12.49 | 46.00 | 40.15 | 18.57 | 28.10 | 2.88 | Peak | 0 | 100 | HORIZONTAL |

Vertical



| | Freq | Level | Over | Limit | Read | Antenna | Preamp | Cable | Table | Ant |
|---|---------|--------|--------|--------|-------|---------|--------|-------|-------|-----|
| | MHz | dBuV/m | Limit | Line | Level | Factor | Factor | Loss | Pos | Pos |
| | | | dB | dBuV/m | dBuV | dB/m | dB | dB | deg | cm |
| 1 | 35.820 | 22.25 | -17.75 | 40.00 | 35.01 | 14.50 | 27.80 | 0.54 | 0 | 400 |
| 2 | 47.460 | 26.33 | -13.67 | 40.00 | 44.45 | 8.98 | 27.80 | 0.70 | 0 | 400 |
| 4 | 195.870 | 23.69 | -19.81 | 43.50 | 40.23 | 8.90 | 27.12 | 1.68 | 0 | 400 |
| 5 | 304.510 | 30.06 | -15.94 | 46.00 | 41.80 | 13.08 | 26.93 | 2.11 | 0 | 400 |
| 6 | 490.750 | 25.37 | -20.63 | 46.00 | 33.54 | 17.20 | 28.05 | 2.68 | 0 | 400 |
| 7 | 590.660 | 29.22 | -16.78 | 46.00 | 35.87 | 18.57 | 28.10 | 2.88 | 0 | 400 |

Note:

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

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

4.4. Band Edge Emissions and Tuning Range of FM transmitter Measurement

4.4.1. Limit

Band edge emissions outside of the frequency bands shown in below table. Check the tuning range of FM transmitter.

| Outside Frequency Band Edge | Limit (dBuV/m) at 3m |
|-----------------------------|----------------------|
| Below 88MHz | 40.0 (QP) |
| Above 108MHz | 43.5 (QP) |

4.4.2. Measuring Instruments and Setting

Please refer to section 5 of equipments list in this report. The following table is the setting of the receiver.

| Receiver Parameter | Setting |
|--------------------|-----------------------|
| Center Frequency | Fundamental Frequency |
| RB | 120 KHz |
| Detector | QP or Peak |

4.4.3. Test Procedures

1. The test procedure is the same as section 4.2.3; only the frequency range investigated is limited to 2MHz around band Edges.
2. In case the emission is fail due to the used RB/VB is too wide, marker-delta method of FCC Public Notice DA00-705 will be followed.

4.4.4. Test Setup Layout

This test setup layout is the same as that shown in section 4.2.4

4.4.5. Test Deviation

There is no deviation with the original standard.

4.4.6. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.



4.4.7. Test Result of Band Edge and Fundamental Emissions

| | | | |
|---------------|------------|----------------|----------------|
| Temperature | 24.3°C | Humidity | 56% |
| Test Engineer | Barry Chen | Configurations | Channel 1, 100 |
| Test data | | | |

Channel 1

| | Freq | Level | Over Limit | Limit Line | Read Level | Antenna Factor | Preamp Factor | Cable Loss | Remark | Table Pos | Ant Pos | Pol/Phase |
|---|--------|--------|------------|------------|------------|----------------|---------------|------------|--------|-----------|---------|------------|
| | MHz | dBuV/m | dB | dBuV/m | dBuV | dB/m | dB | dB | | deg | cm | |
| 1 | 88.000 | 20.12 | -19.89 | 40.00 | 38.67 | 8.00 | 27.65 | 1.10 | QP | 266 | 380 | HORIZONTAL |

Item 1 is Band Edge.

Channel 100

| | Freq | Level | Over Limit | Limit Line | Read Level | Antenna Factor | Preamp Factor | Cable Loss | Remark | Table Pos | Ant Pos | Pol/Phase |
|---|---------|--------|------------|------------|------------|----------------|---------------|------------|--------|-----------|---------|------------|
| | MHz | dBuV/m | dB | dBuV/m | dBuV | dB/m | dB | dB | | deg | cm | |
| 3 | 108.000 | 31.36 | -12.14 | 43.50 | 46.60 | 11.12 | 27.56 | 1.20 | QP | 279 | 272 | HORIZONTAL |

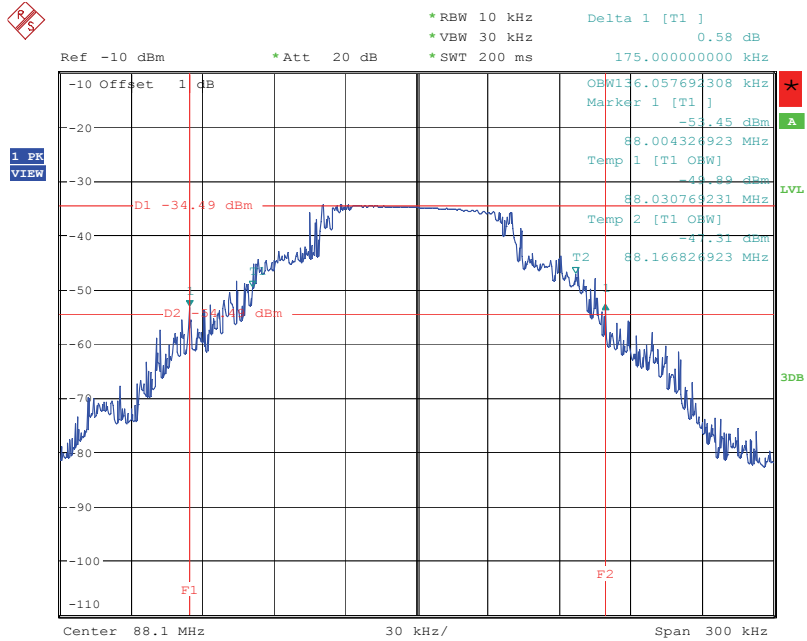
Item 3 is Band Edge.

Note:

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

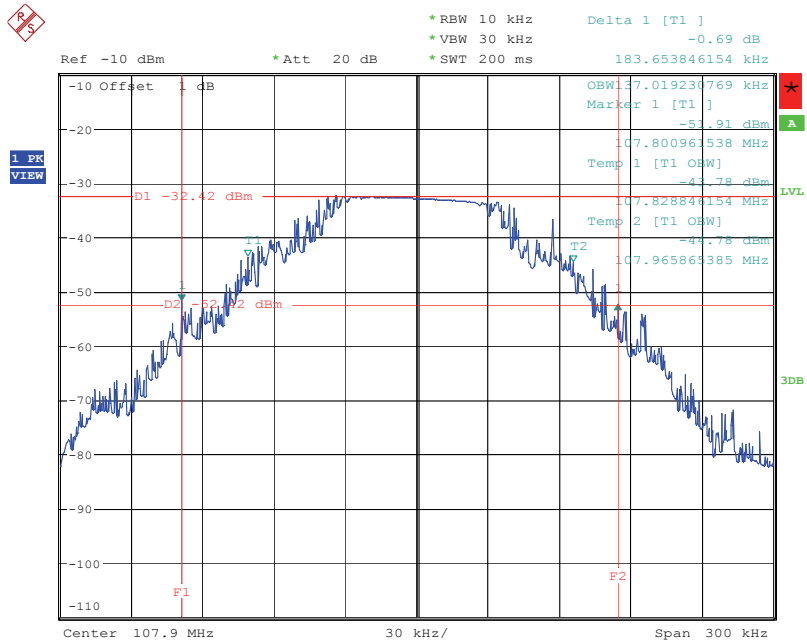
Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

Low Band Edge Plot on 88.1 MHz



Date: 24.APR.2008 15:35:08

High Band Edge Plot on 107.9 MHz



Date: 24.APR.2008 15:41:36

4.5. Antenna Requirements

4.5.1. 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.

4.5.2. Antenna Connector Construction

Please refer to section 3.3 in this test report; antenna connector complied with the requirements.

5. 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. 14, 2007 | Radiation (03CH03-HY) |
| Amplifier | SCHAFFNER | COA9231A | 18667 | 9 kHz - 2 GHz | Jan. 14, 2008 | Radiation (03CH03-HY) |
| Amplifier | Agilent | 8449B | 3008A02120 | 1 GHz - 26.5 GHz | Jun. 07, 2007 | Radiation (03CH03-HY) |
| Amplifier | MITEQ | AMF-6F-260400 | 9121372 | 26.5 GHz - 40 GHz | Jan. 22, 2007* | Radiation (03CH03-HY) |
| Spectrum Analyzer | R&S | FSP40 | 100305 | 9 kHz - 40 GHz | Sep. 27, 2007 | Radiation (03CH03-HY) |
| Loop Antenna | R&S | HFH2-Z2 | 860004/001 | 9 kHz - 30 MHz | May 23, 2006* | Radiation (03CH03-HY) |
| Bilog Antenna | SCHAFFNER | CBL 6112D | 22237 | 30 MHz – 1 GHz | Jul. 21, 2007 | Radiation (03CH03-HY) |
| Horn Antenna | EMCO | 3115 | 6741 | 1GHz ~ 18GHz | May 04, 2007 | Radiation (03CH03-HY) |
| Horn Antenna | SCHWARZBECK | BBHA9170 | BBHA9170154 | 15 GHz - 40 GHz | Jan.18, 2008 | Radiation (03CH03-HY) |
| RF Cable-R03m | Jye Bao | RG142 | CB021 | 30 MHz - 1 GHz | Dec. 03, 2007 | Radiation (03CH03-HY) |
| RF Cable-HIGH | SUHNER | SUCOFLEX 106 | 03CH03-HY | 1 GHz - 40 GHz | Dec. 03, 2007 | 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) |
| Spectrum Analyzer | R&S | FSP30 | 100023 | 9kHz ~ 30GHz | Jan. 10, 2008 | Conducted (TH01-HY) |
| Power Meter | R&S | NRVS | 100444 | DC ~ 40GHz | Jun. 27, 2007 | Conducted (TH01-HY) |
| Power Sensor | R&S | NRV-Z51 | 100458 | DC ~ 30GHz | Jun. 27, 2007 | Conducted (TH01-HY) |
| Power Sensor | R&S | NRV-Z32 | 100057 | 30MHz ~ 6GHz | Jun. 27, 2007 | Conducted (TH01-HY) |
| AC Power Source | HPC | HPA-500W | HPA-9100024 | AC 0 ~ 300V | May 04, 2007* | Conducted (TH01-HY) |
| DC Power Source | G.W. | GPC-6030D | C671845 | DC 1V ~ 60V | Mar. 13, 2008 | Conducted (TH01-HY) |
| Temp. and Humidity Chamber | KSON | THS-C3L | 612 | N/A | Oct. 01, 2007 | Conducted (TH01-HY) |
| RF CABLE-1m | Jye Bao | RG142 | CB034-1m | 20MHz ~ 7GHz | Dec. 01, 2007 | Conducted (TH01-HY) |
| RF CABLE-2m | Jye Bao | RG142 | CB035-2m | 20MHz ~ 1GHz | Dec. 01, 2007 | Conducted (TH01-HY) |
| Vector Signal Generator | R&S | SMU200A | 102098 | 100kHz ~ 6GHz | Nov. 14, 2007 | Conducted (TH01-HY) |
| Signal Generator | R&S | SMR40 | 100116 | 10MHz ~ 40GHz | Mar. 10, 2008 | Conducted (TH01-HY) |

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

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

6. TEST LOCATION

| | |
|--------|--|
| SHIJR | ADD : 6Fl., No. 106, Sec. 1, Shintai 5th Rd., Shijr City, Taipei, Taiwan 221, R.O.C. TEL : 886-2-2696-2468 FAX : 886-2-2696-2255 |
| HWA YA | ADD : No. 52, Hwa Ya 1st Rd., Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C. TEL : 886-3-327-3456 FAX : 886-3-318-0055 |
| LINKOU | ADD : No. 30-2, Dingfu Tsuen, Linkou Shiang, Taipei, Taiwan 244, R.O.C TEL : 886-2-2601-1640 FAX : 886-2-2601-1695 |
| DUNGHU | ADD : No. 3, Lane 238, Kangle St., Neihu Chiu, Taipei, Taiwan 114, R.O.C. TEL : 886-2-2631-4739 FAX : 886-2-2631-9740 |
| JUNGHE | ADD : 7Fl., No. 758, Jungjeng Rd., Junghe City, Taipei, Taiwan 235, R.O.C. TEL : 886-2-8227-2020 FAX : 886-2-8227-2626 |
| NEIHU | ADD : 4Fl., No. 339, Hsin Hu 2 nd Rd., Taipei 114, Taiwan, R.O.C. TEL : 886-2-2794-8886 FAX : 886-2-2794-9777 |
| JHUBEI | ADD : No.8, Lane 724, Bo-ai St., Jhubei City, HsinChu County 302, Taiwan, R.O.C. TEL : 886-3-656-9065 FAX : 886-3-656-9085 |

7. TAF CERTIFICATE OF ACCREDITATION



Certificate No. : L1190-070110

財團法人全國認證基金會
Taiwan Accreditation Foundation

Certificate of Accreditation

This is to certify that

Sporton International Inc.

EMC & Wireless Communications Laboratory

No.52, Hwa Ya 1st Rd., Hwa Ya Technology Park, Kwei-Shan Hsiang, Tao Yuan Hsien,
Taiwan, R.O.C.

is accredited in respect of laboratory

| | |
|--------------------------------|--|
| Accreditation Criteria | : ISO/IEC 17025:2005 |
| Accreditation Number | : 1190 |
| Originally Accredited | : December 15, 2003 |
| Effective Period | : January 10, 2007 to January 09, 2010 |
| Accredited Scope | : Testing Field, see described in the Appendix |
| Specific Accreditation Program | : Accreditation Program for Designated Testing Laboratory for Commodities Inspection Accreditation Program for Telecommunication Equipment Testing Laboratory |



Jay-San Chen
President, Taiwan Accreditation Foundation
Date : January 10, 2007

P1, total 9 pages

The Appendix forms an integral part of this Certificate, which shall be invalid when used without the Appendix.