



243 Jubug-Ri, Yangji-Myeon, Yongin-Si, Gyeonggi-Do, Korea 449-822  
Tel: +82-31-323-6008 Fax: +82-31-323-6010  
<http://www.ltalab.com>



Dates of Tests: August 08 ~ 11, 2006  
Test Report S/N: LR500110608J  
Test Site : LTA CO., LTD.

## CERTIFICATION OF COMPLIANCE

FCC ID.

**QWGD1000**

APPLICANT

**HASSNET Inc.**

|                                  |          |                                                    |
|----------------------------------|----------|----------------------------------------------------|
| <b>FCC Classification</b>        | <b>:</b> | <b>FHSS Sequence Spread Spectrum (FHSS)</b>        |
| <b>Manufacturing Description</b> | <b>:</b> | <b>Bluetooth Audio Dongle</b>                      |
| <b>Manufacturer</b>              | <b>:</b> | <b>HASSNET Inc.</b>                                |
| <b>Model name</b>                | <b>:</b> | <b>D1000, D1000M, D1000V</b>                       |
| <b>Test Device Serial No.:</b>   | <b>:</b> | <b>Identification</b>                              |
| <b>Rule Part(s)</b>              | <b>:</b> | <b>FCC Part 15.247 Subpart C; ANSI C-63.4-2003</b> |
| <b>Frequency Range</b>           | <b>:</b> | <b>2402 ~ 2480MHz</b>                              |
| <b>RF power</b>                  | <b>:</b> | <b>4.17dBm - Conducted</b>                         |
| <b>Data of issue</b>             | <b>:</b> | <b>August 11, 2006</b>                             |

This test report is issued under the authority of:

The test was supervised by:

Dong -Min JUNG, Technical Manager

Kyung-Taek LEE, Test Engineer

This test result only responds to the tested sample. It is not allowed to copy this report even partly without the allowance of the test laboratory. This report must not be used by the applicant to claim product endorsement by any agency.



NVLAP LAB Code.: 200723-0

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## 1. General information's

### 1-1 Test Performed

Company name : LTA Co., Ltd.  
Address : 243, Jubug-ri, Yangji-Myeon, Youngin-Si, Kyunggi-Do, Korea. 449-822  
Web site : <http://www.ltalab.com>  
E-mail : [chahn@ltalab.com](mailto:chahn@ltalab.com)  
Telephone : +82-31-323-6008  
Facsimile : +82-31-323-6010

Quality control in the testing laboratory is implemented as per ISO/IEC 17025 which is the “General requirements for the competents of calibration and testing laboratory”.

### 1-2 Accredited agencies

LTA Co., Ltd. is approved to perform EMC testing by the following agencies:

| Agency | Country | Accreditation No. | Validity   | Reference           |
|--------|---------|-------------------|------------|---------------------|
| NVLAP  | U.S.A   | 200723-0          | 2006-09-30 | ECT accredited Lab. |
| RRL    | KOREA   | KR0049            | 2007-07-13 | EMC accredited Lab. |
| FCC    | U.S.A   | 610755            | 2008-03-28 | FCC filing          |
| VCCI   | JAPAN   | R2133, C2307      | 2008-06-22 | VCCI registration   |
| IC     | CANADA  | IC5799            | 2008-04-23 | IC filing           |

## 2. Information's about test item

### 2-1 Client

Company name : HASSNET Inc.  
 Address : 6th floor, TechnoComplex Bldg, #126-16, Anam-Dong 5ga,  
 Sungbuk-Gu, Seoul, Korea  
 TEL / FAX : +82-2-927-2682/ +82-2-927-6523

### 2-2 Manufacturer

Company name : HASSNET Inc.  
 Address : 6th floor, TechnoComplex Bldg, #126-16, Anam-Dong 5ga,  
 Sungbuk-Gu, Seoul, Korea

### 2-3 Equipment Under Test (EUT)

Trade name : Bluetooth Audio Dongle  
 FCC ID : QWGD1000  
 Model name : D1000, D1000M, D1000V  
 -> The model 'D1000', 'D1000M' and 'D1000V' are all the same except the plug type.  
 -> D1000 : 3.5pi plug 1EA / D1000M : 2.5pi plug 1EA / D1000V : 3.5pi plug 2EA  
 Serial number : Identification  
 Date of receipt : August 07, 2006  
 EUT condition : Pre-production, not damaged  
 Antenna type : Chip antenna Av Gain -0.61 dBi  
 Frequency Range : 2402 ~ 2480MHz  
 RF output power Range : -6dBm~+4dBm (Class 2)  
 Number of channels : 79  
 Channel spacing : 1MHz  
 Channel Access Protocol : Frequency Hopping  
 Type of Modulation : GFSK  
 Power Source : 3.7V (Rechargeable Lithium Polymer)  
 AC/DC Adaptor : Model name: MCW4401-US  
 Input: 100 ~ 240Vac 50/60Hz 0.3A  
 Output: 5.2Vdc 650mA

### 2-4 Tested frequency

|                 | LOW  | MID  | HIGH |
|-----------------|------|------|------|
| Frequency (MHz) | 2402 | 2441 | 2480 |

**2-5 Ancillary Equipment – Bluetooth mode**

| Equipment | Model No. | Serial No. | Manufacturer |
|-----------|-----------|------------|--------------|
| -         | -         | -          | -            |
| -         | -         | -          | -            |

**2-6 Ancillary Equipment – Charging mode**

| Equipment | Model No.         | Serial No. | Manufacturer |
|-----------|-------------------|------------|--------------|
| PC        | Dimension TM 3000 | 8D2SF1S    | DELL         |
| Monitor   | VS11353           | N/A        | ViewSonic    |
| Keyboard  | SK-8110           | 1030       | DELL         |
| Mouse     | MO56UO            | 510022473  | DELL         |
| Print     | Deskjet 600K      | SG7631B1XX | HP           |

### 3. Test Report

#### 3.1 Summary of tests

| FCC Part Section(s) | Parameter                     | Limit             | Test Condition | Status (note 1) |
|---------------------|-------------------------------|-------------------|----------------|-----------------|
| 15.247(a)           | Carrier Frequency Separation  | > 25 kHz          | Conducted      | C               |
| 15.247(a)           | Number of Hopping Frequencies | > 75 hops         |                | C               |
| 15.247(a)           | 20 dB Bandwidth               | < 1 MHz           |                | C               |
| 15.247              | Dwell Time                    | < 0.4 seconds     |                | C               |
| 15.247(b)           | Transmitter Output Power      | < 1Watt           |                | C               |
| 15.247(d)           | Conducted Spurious emission   | > 20 dBc          |                | C               |
| 15.247(d)           | Band Edge                     | > 20 dBc          |                | C               |
| 15.249 / 15.209     | Field Strength of Harmonics   | < 54 dBuV (at 3m) | Radiated       | C               |
| 15.207 / 15.107     | AC Conducted Emissions        | EN 55022          | Line Conducted | C               |

Note 1: C=Complies    NC=Not Complies    NT=Not Tested    NA=Not Applicable

Note 2: The data in this test report are traceable to the national or international standards.

The sample was tested according to the following specification:

FCC Parts 15.247; ANSI C-63.4-2003

## 3.2 Transmitter requirements

### 3.2.1 Carrier Frequency Separation

#### Procedure:

The carrier frequency separation was measured with a spectrum analyzer connected to the antenna terminal, while EUT had its hopping function enabled.

After the trace being stable, the reading value between the peaks of the adjacent channels using the marker-delta function was recorded as the measurement results.

The spectrum analyzer is set to:

Span = 3 MHz (wide enough to capture the peaks of two adjacent channels)

RBW = 30 kHz (1% of the span or more)      Sweep = auto

VBW = 30 kHz      Detector function = peak

Trace = max hold

#### Measurement Data:

| Test Results                       |          |
|------------------------------------|----------|
| Carrier Frequency Separation (MHz) | Result   |
| 1.013                              | Complies |

- See next pages for actual measured spectrum plots.

#### Minimum Standard:

The EUT shall have hopping channel carrier frequencies separated by a minimum of 25kHz or the 20dB bandwidth of the hopping channel, whichever is greater.

#### Measurement Setup

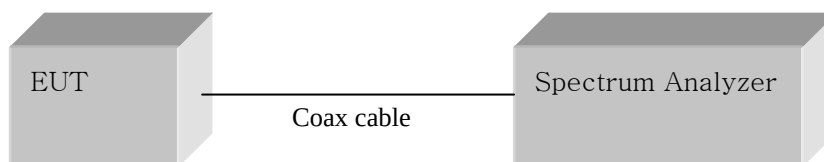
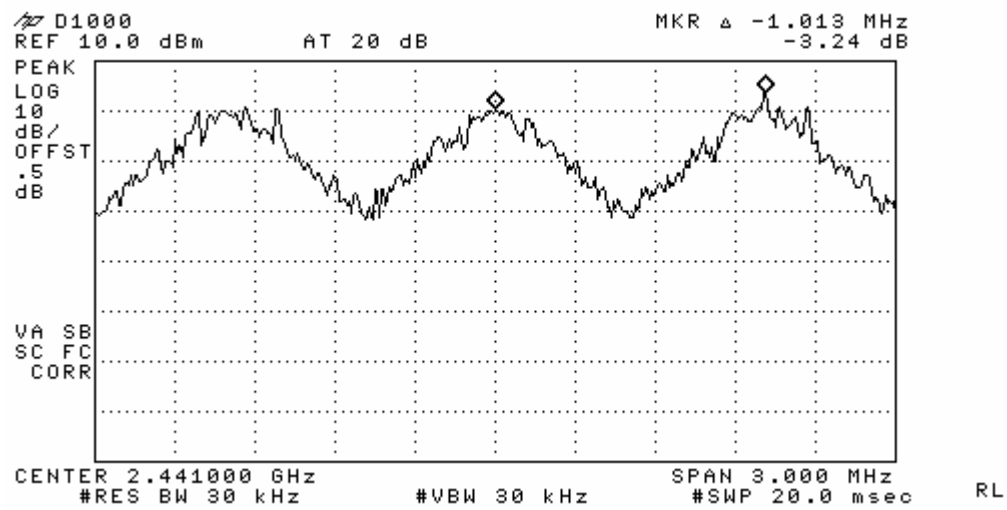


Figure 1: Measurement setup for the carrier frequency separation

## Carrier Frequency Separation



### 3.2.2 Number of Hopping Frequencies

#### Procedure:

The number of hopping frequencies was measured with a spectrum analyzer connected to the antenna terminal, while EUT had its hopping function enabled.

To get higher resolution, four frequency ranges within the 2400 ~ 2483.5 MHz FH band were examined.

The spectrum analyzer is set to:

Frequency range    1: Start = 2389.5MHz,    Stop = 2414.5 MHz

2: Start = 2414.5MHz,    Stop = 2439.5 MHz

3: Start = 2439.5MHz,    Stop = 2464.5 MHz

4: Start = 2464.5MHz,    Stop = 2489.5 MHz

RBW = 300 kHz (1% of the span or more)    Sweep = auto

VBW = 300 kHz (VBW  $\geq$  RBW)    Detector function = peak

Trace = max hold    Span = 25MHz

#### Measurement Data:    Complies

|                                         |    |
|-----------------------------------------|----|
| <b>Total number of Hopping Channels</b> | 79 |
|-----------------------------------------|----|

- See next pages for actual measured spectrum plots.

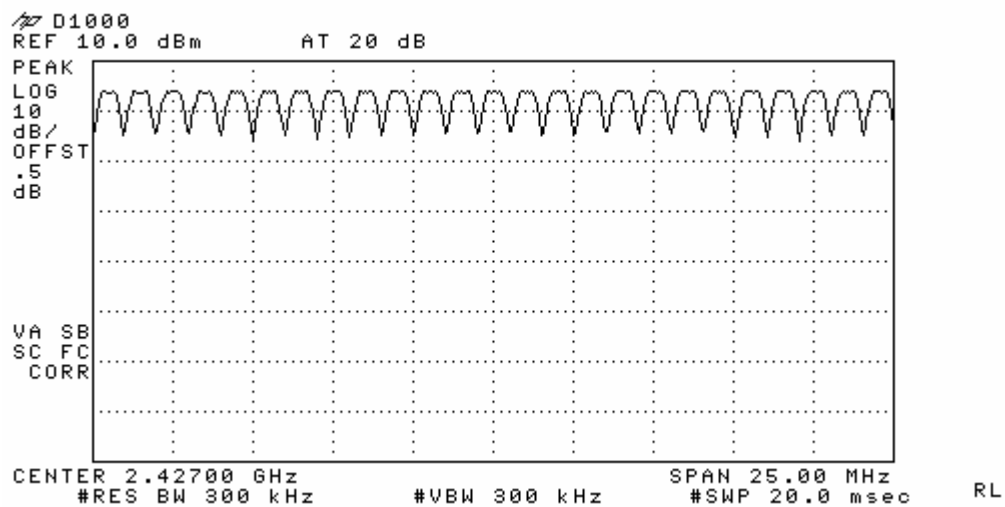
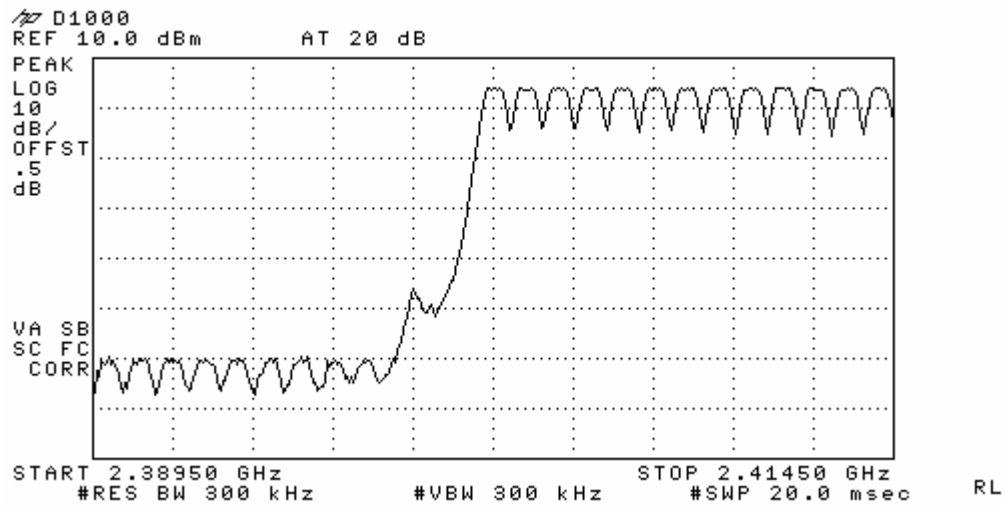
#### Minimum Standard:

At least 75 hops

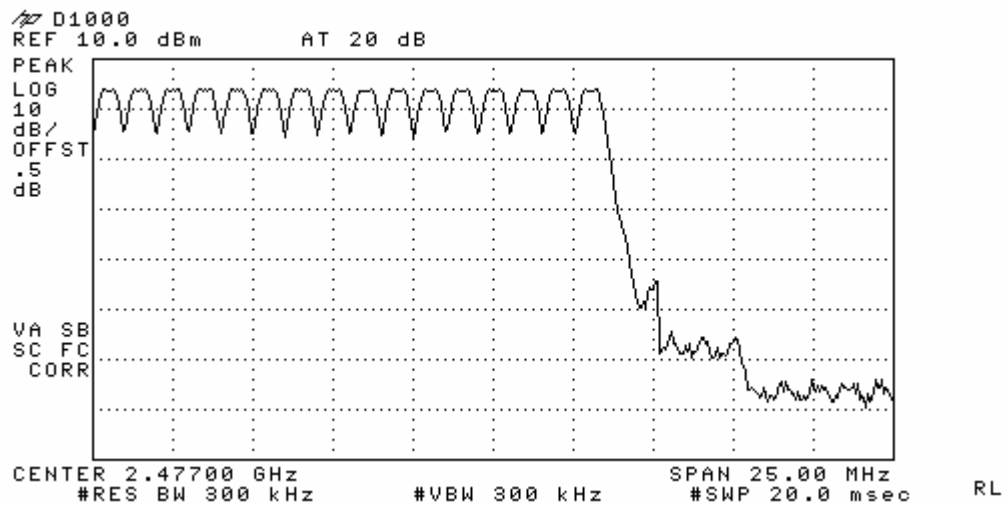
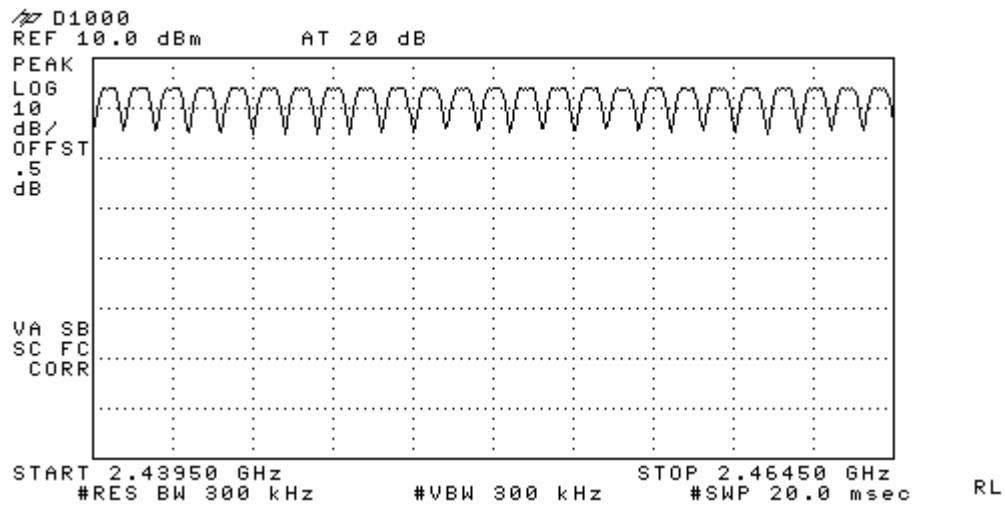
#### Measurement Setup

Same as the Chapter 3.2.1 (Figure 1)

## Number of Hopping Frequencies



## Number of Hopping Frequencies



### 3.2.3 20 dB Bandwidth

#### Procedure:

The bandwidth at 20 dB below the highest inband spectral density was measured with a spectrum analyzer connected to the antenna terminal, while EUT had its hopping function disabled at the highest, middle and the lowest available channels..

After the trace being stable, Use the marker-to-peak function to set the marker to the peak of the emission. Use the marker-delta function to measure 20dB down one side of the emission. Reset the marker-delta function, and move the marker to the other side of the emission, until it is ( as close as possible to ) even with the reference marker level. The marker-delta reading at this point is the 20 dB bandwidth of the emission.

The spectrum analyzer is set to:

Center frequency = the highest, middle and the lowest channels

Span = 2 MHz (approximately 2 or 3 times of the 20 dB bandwidth)

RBW = 30 kHz

Sweep = auto

VBW = 30 kHz (VBW  $\geq$  RBW)

Detector function = peak

Trace = max hold

#### Measurement Data:

| Frequency<br>(MHz) | Channel No. | Test Results             |          |
|--------------------|-------------|--------------------------|----------|
|                    |             | Measured Bandwidth (MHz) | Result   |
| 2441               | 39          | 0.925                    | Complies |

- See next pages for actual measured spectrum plots.

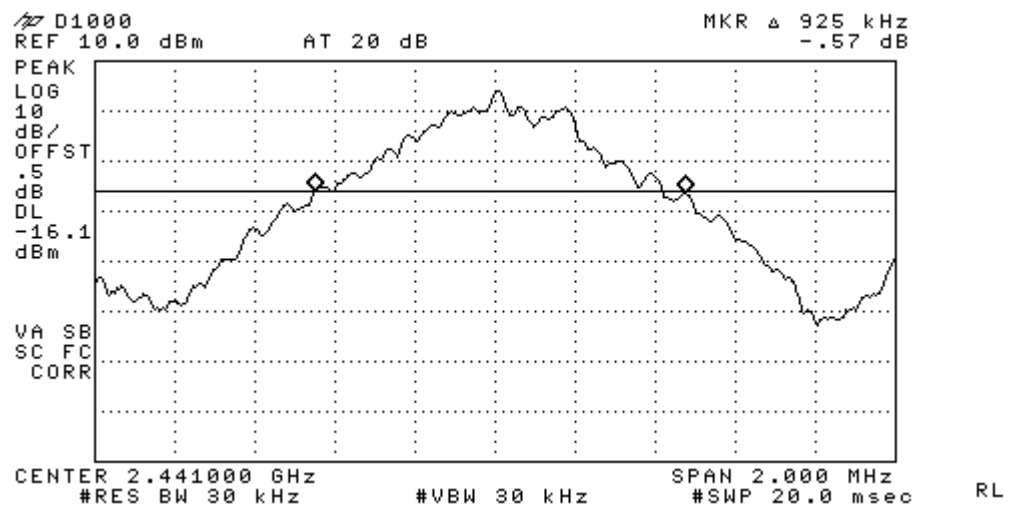
#### Minimum Standard:

The transmitter shall have a maximum 20dB bandwidth of 1 MHz.

#### Measurement Setup

Same as the Chapter 3.2.1 (Figure 1)

## 20 dB Bandwidth



### 3.2.4 Time of Occupancy (Dwell Time)

#### Procedure:

The dwell time was measured with a spectrum analyzer connected to the antenna terminal, while EUT had its hopping function enabled.

The spectrum analyzer is set to:

Center frequency = 2441 MHz

Span = zero

RBW = 1 MHz

VBW = 1 MHz (VBW  $\geq$  RBW)

Trace = max hold

Detector function = peak

#### Measurement Data:

| Channel Number | Channel Frequency (MHz) | Packet Type | Test Results    |          |
|----------------|-------------------------|-------------|-----------------|----------|
|                |                         |             | Dwell Time (ms) | Result   |
| 39             | 2441                    | DH 1        | 131.12          | Complies |
|                |                         | DH 3        | 270.23          | Complies |
|                |                         | DH 5        | 312.14          | Complies |

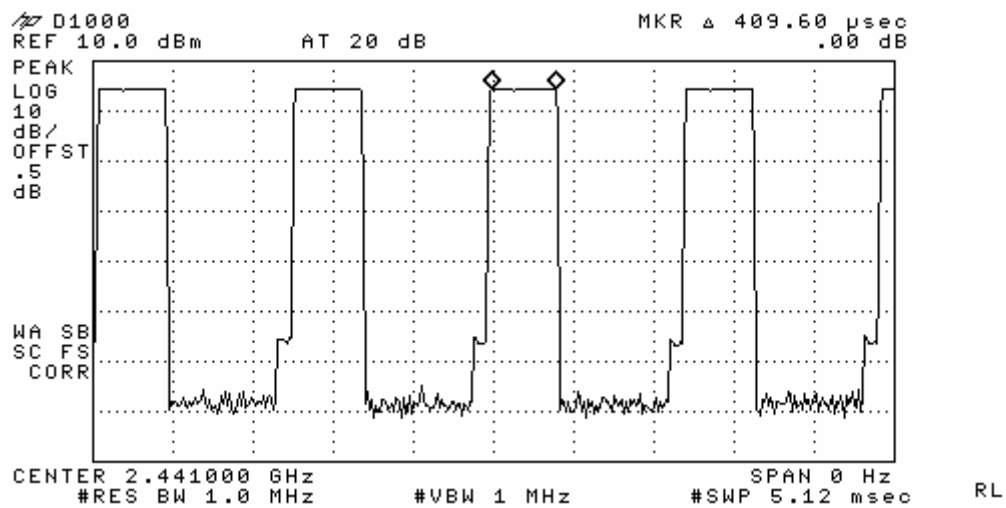
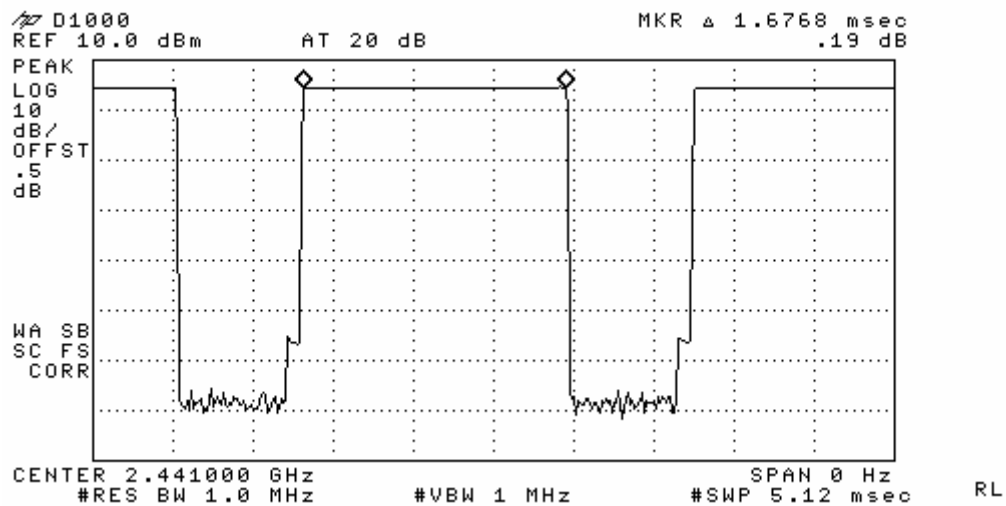
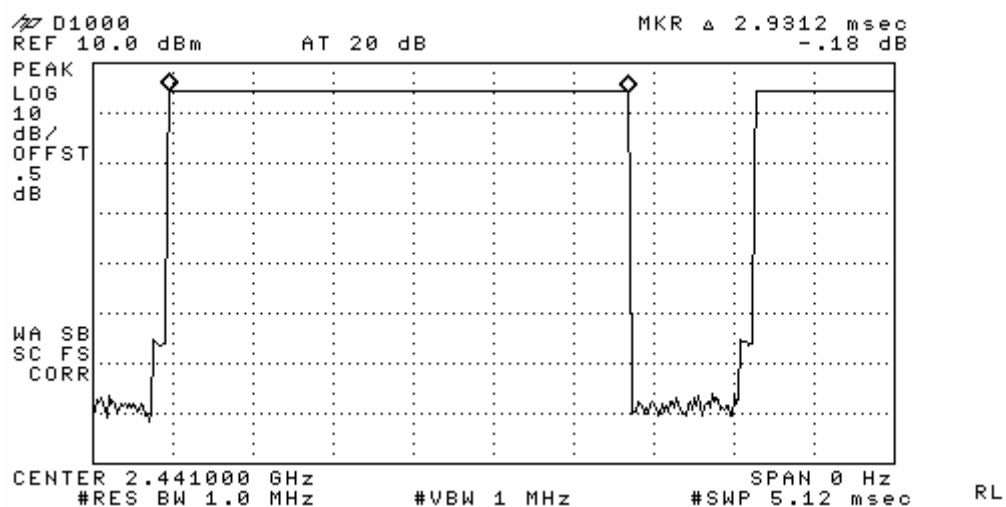
- See next pages for actual measured spectrum plots.

#### Minimum Standard:

0.4 seconds within a 30 second period per any frequency

#### Measurement Setup

Same as the Chapter 3.2.1 (Figure 1)

DH 1DH 3DH 5

### 3.2.5 Transmitter Output Power

#### Procedure:

The peak output power was measured with a spectrum analyzer connected to the antenna terminal, while EUT had its hopping function disabled at the highest, middle and the lowest available channels..

After the trace being stable, Use the marker-to-peak function to set the marker to the peak of the emission. The indicated level is the peak output power.

The spectrum analyzer is set to:

Center frequency = the highest, middle and the lowest channels

Span = 5 MHz (approximately 5 times of the 20 dB bandwidth)

RBW = 1 MHz (greater than the 20dB bandwidth of the emission being measured)

VBW = 1 MHz (VBW  $\geq$  RBW)

Detector function = peak

Trace = max hold

Sweep = auto

#### Measurement Data:

| Frequency<br>(MHz) | Ch. | Test Results |              |          |
|--------------------|-----|--------------|--------------|----------|
|                    |     | dBm          | mW           | Result   |
| 2402               | 0   | <b>4.12</b>  | <b>2.582</b> | Complies |
| 2441               | 39  | <b>4.17</b>  | <b>2.612</b> | Complies |
| 2480               | 78  | <b>4.13</b>  | <b>2.588</b> | Complies |

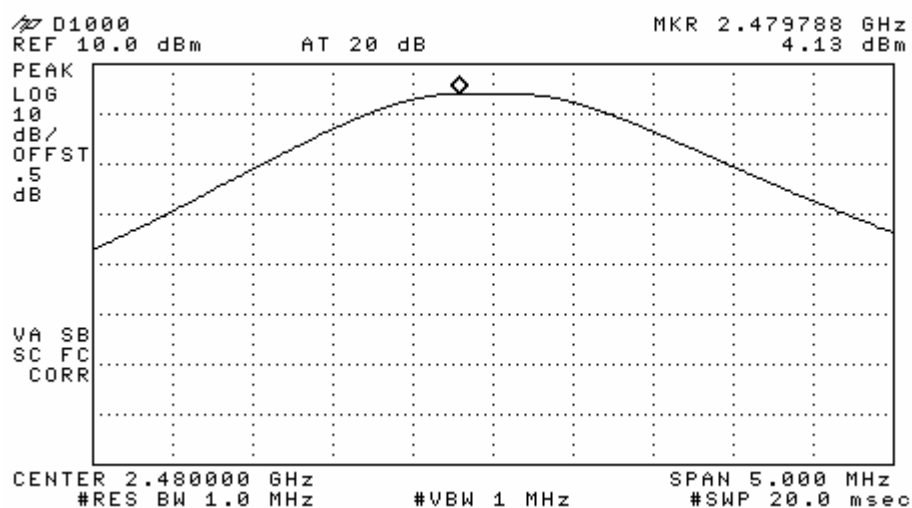
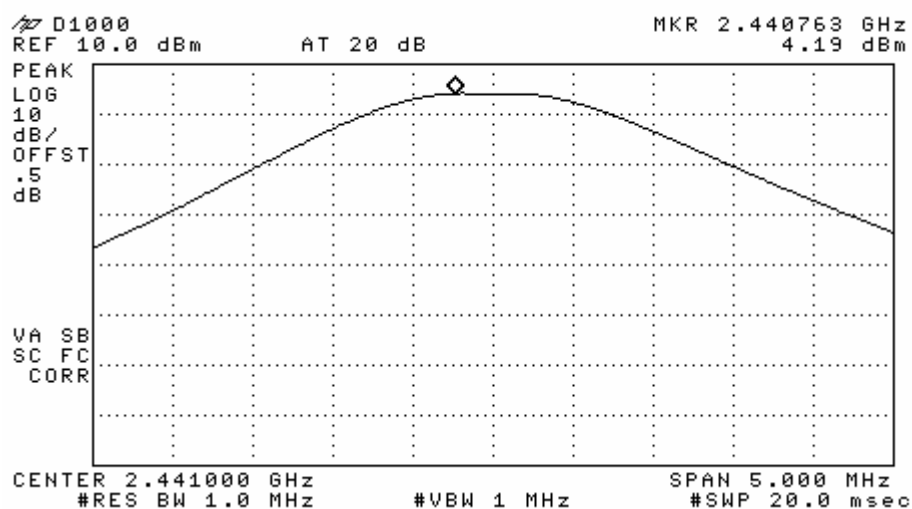
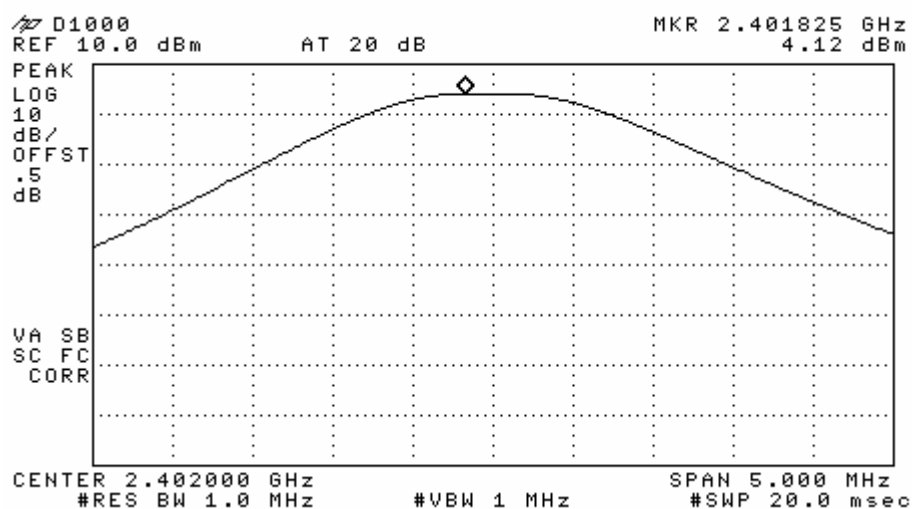
- See next pages for actual measured spectrum plots.

|                          |      |
|--------------------------|------|
| <b>Minimum Standard:</b> | < 1W |
|--------------------------|------|

#### Measurement Setup

Same as the Chapter 3.2.1 (Figure 1)

## Peak Output Power



### 3.2.6 Band - edge

#### Procedure:

The bandwidth at 20dB down from the highest inband spectral density is measured with a spectrum analyzer connected to the antenna terminal, while EUT had its hopping function disabled at the highest, middle and the lowest available channels.

After the trace being stable, Use the marker-to-peak function to measure 20 dB down both sides of the intentional emission.

The spectrum analyzer is set to:

Center frequency = the highest, middle and the lowest channels

RBW = 100 kHz

VBW = 100 kHz

Span = 10 MHz

Detector function = peak

Trace = max hold

Sweep = auto

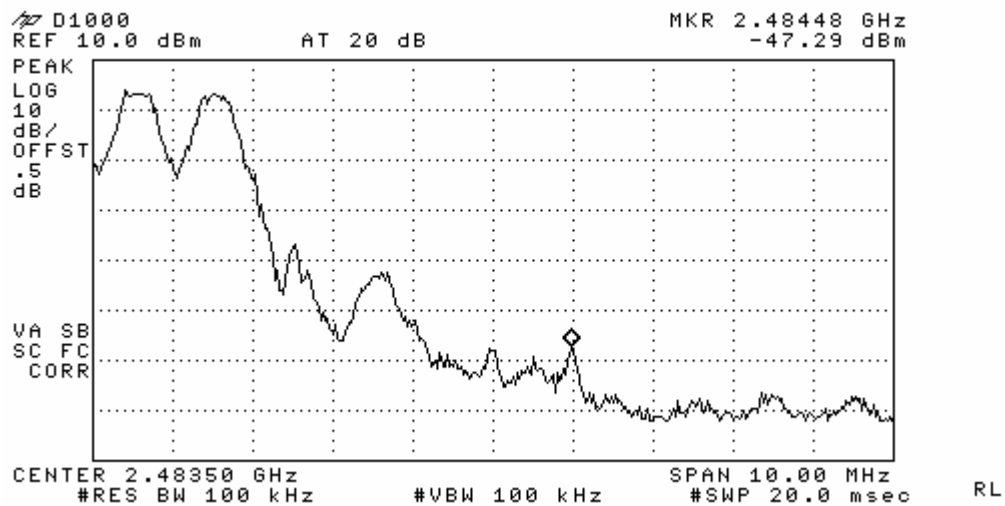
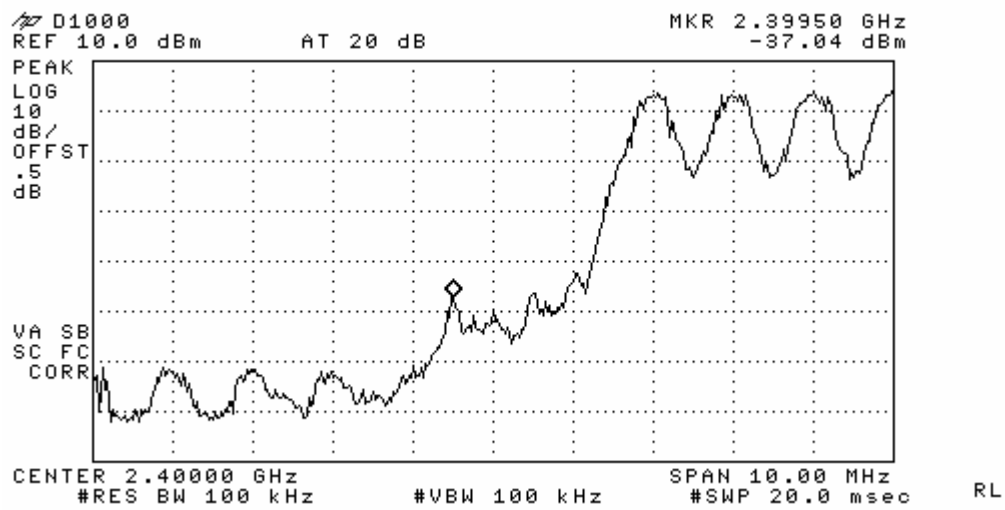
#### Measurement Data: Complies

- All conducted emission in any 100kHz bandwidth outside of the spread spectrum band was at least 20dB lower than the highest inband spectral density. Therefore the applying equipment meets the requirement.
- See next pages for actual measured spectrum plots.

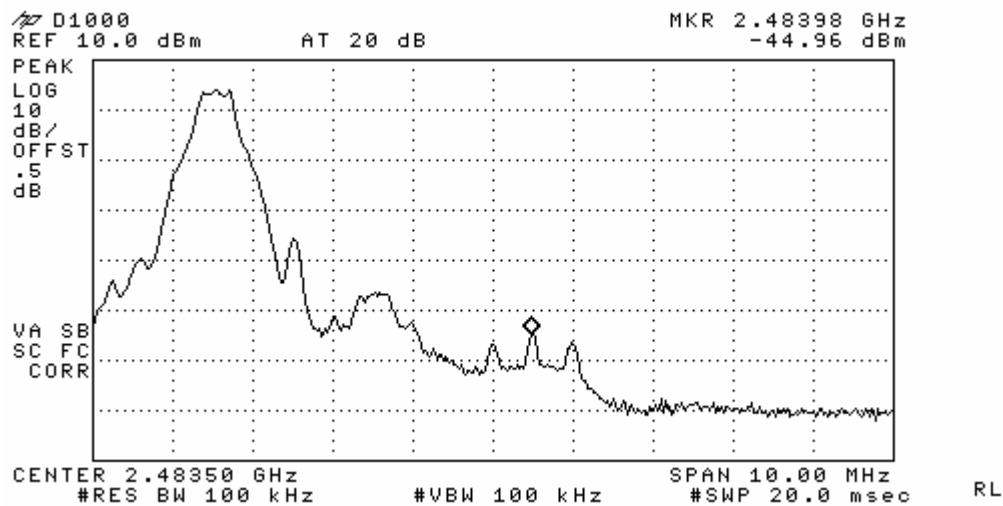
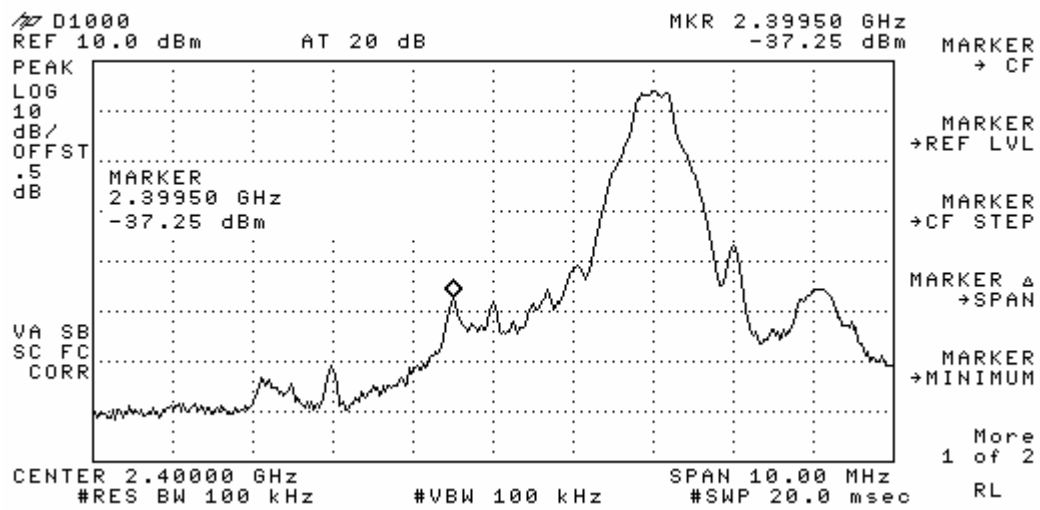
|                          |          |
|--------------------------|----------|
| <b>Minimum Standard:</b> | > 20 dBc |
|--------------------------|----------|

#### Measurement Setup

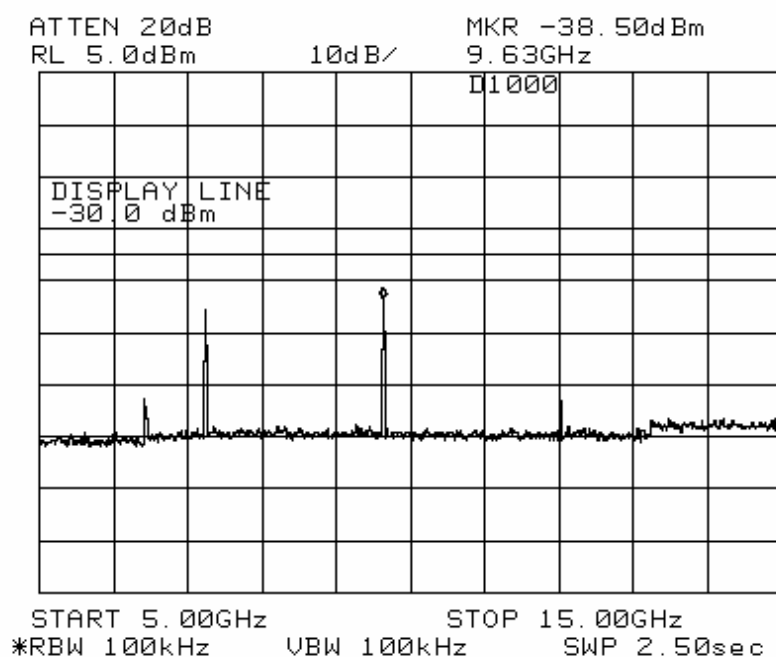
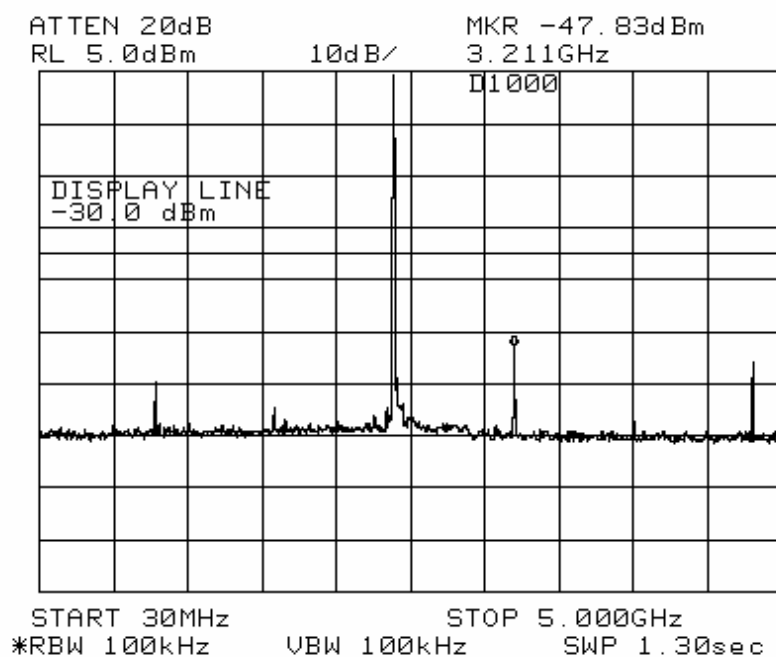
Same as the Chapter 3.2.1 (Figure 1)

**Band - edge (with Hopping)**

# Band - edge (without Hopping)

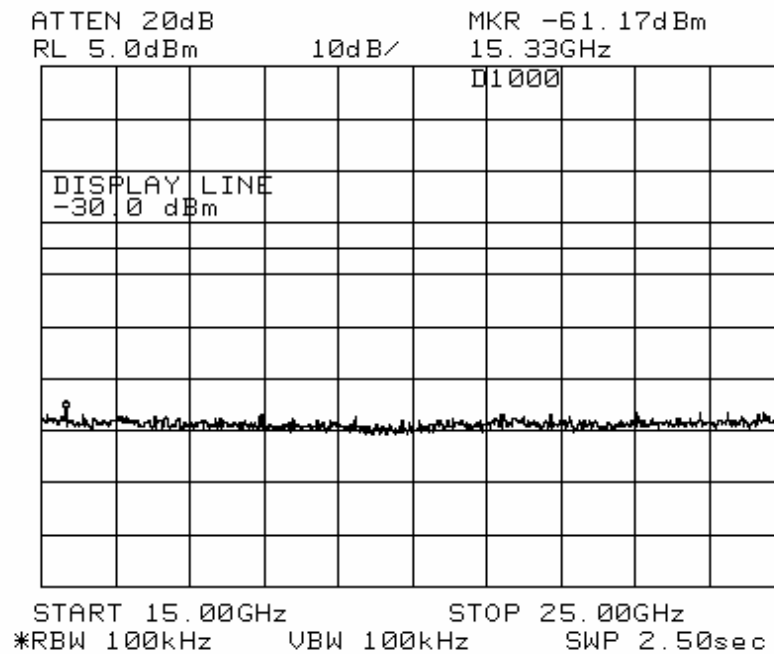


**Band - edge (at 20 dB blow) – Low channel**  
**Frequency Range = 30 MHz ~ 10<sup>th</sup> harmonic.**

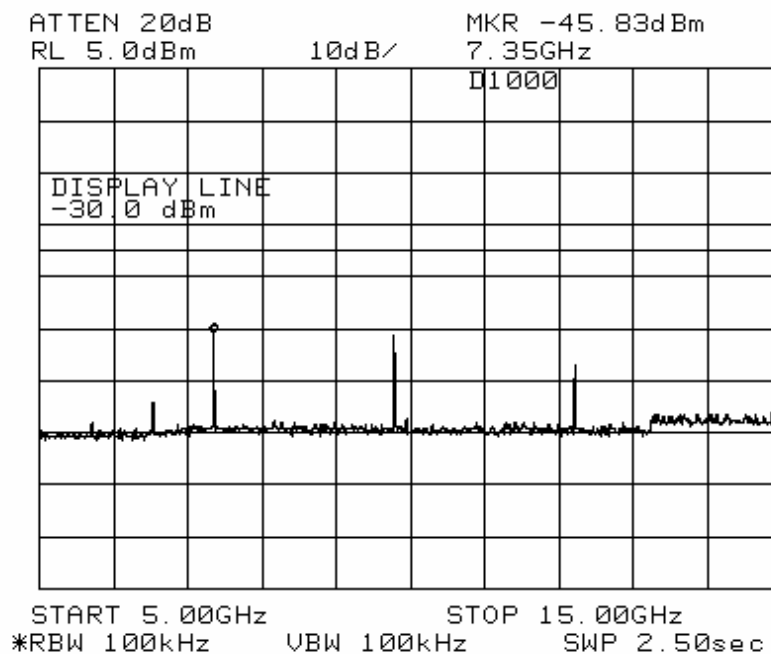
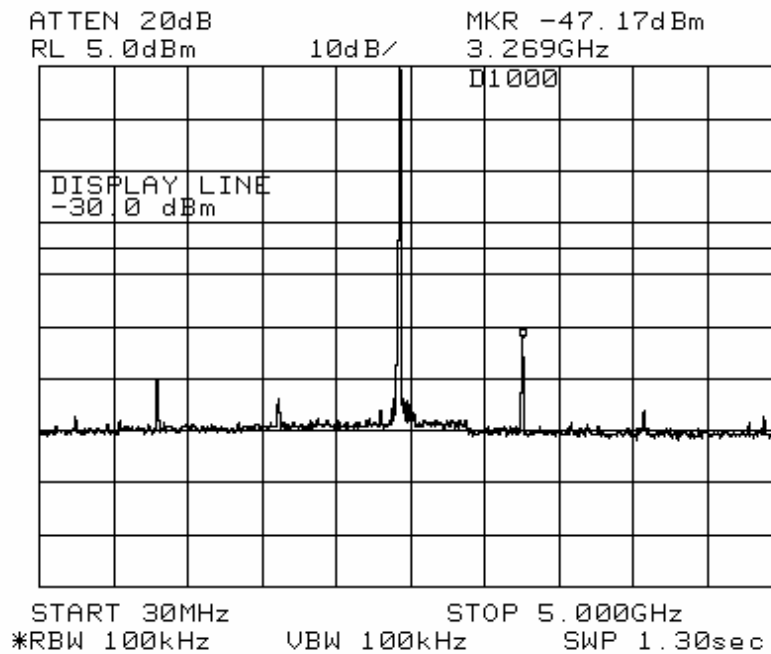


**Band - edge (at 20 dB blow) – Low channel**  
**Frequency Range = 30 MHz ~ 10<sup>th</sup> harmonics.**

**- Continues**

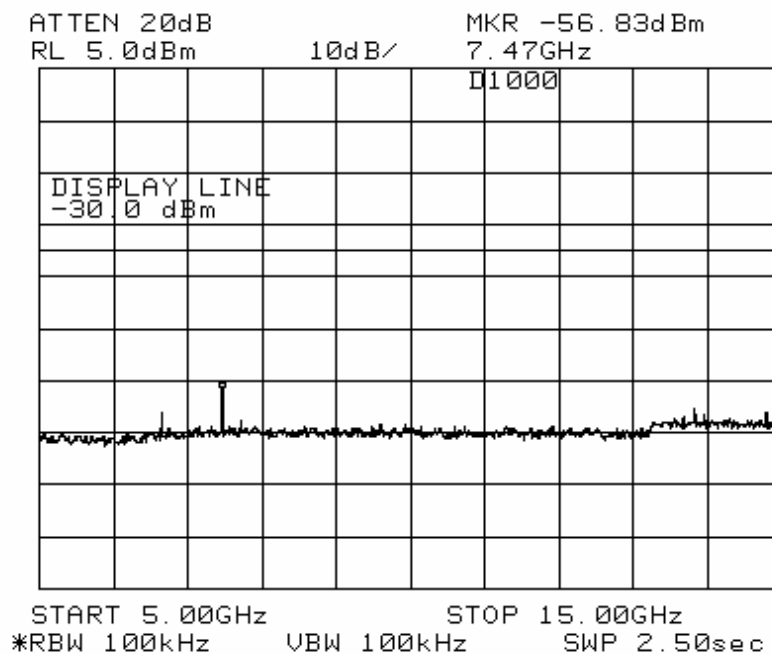
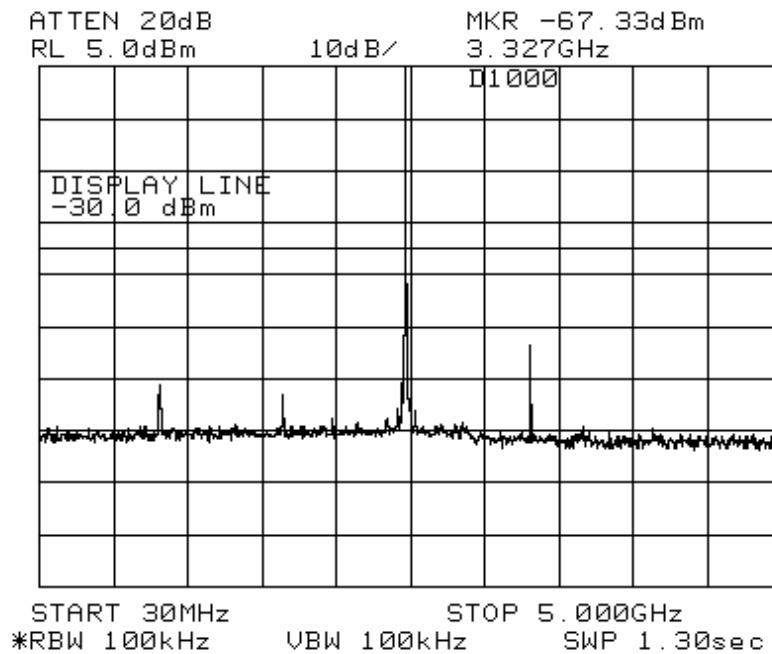


**Band - edge (at 20 dB blow) – Mid channel**  
**Frequency Range = 30 MHz ~ 10<sup>th</sup> harmonic.**



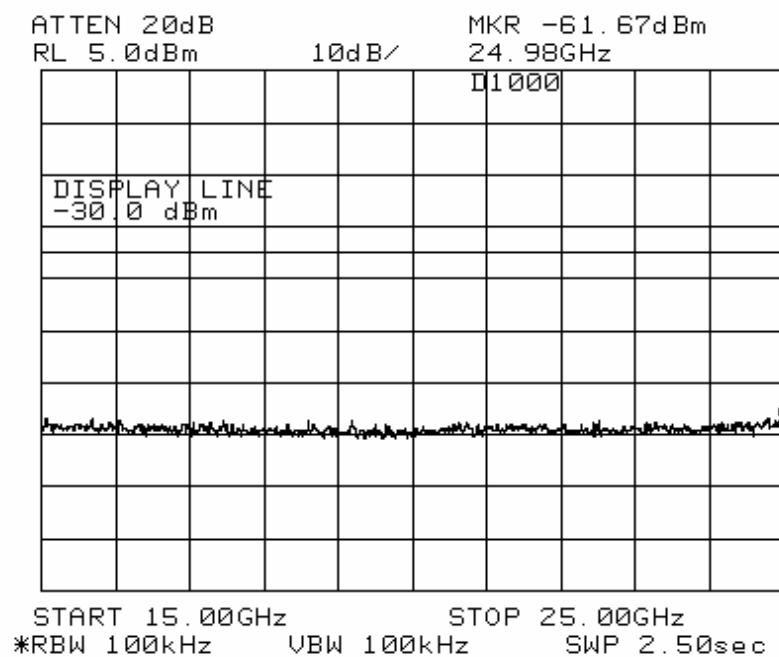
**- Continues**

**Band - edge (at 20 dB blow) – High channel**  
**Frequency Range = 30 MHz ~ 10<sup>th</sup> harmonic.**



Band - edge (at 20 dB blow) – High channel  
Frequency Range = 30 MHz ~ 10<sup>th</sup> harmonics.

- Continues



### 3.2.7 Field Strength of Harmonics

#### Procedure:

The EUT was placed on a 0.8m high wooden table inside a shielded enclosure. An antenna was placed near the EUT and measurements of frequencies and amplitudes of field strengths were recorded for reference during final measurements. For final radiated testing, measurements were performed in OATS. Measurements were performed with the EUT oriented in 3 orthogonal axis and rotated 360 degrees to determine worst-case orientation for maximum emissions.

The spectrum analyzer is set to:

Center frequency = the worst channel

Frequency Range = 30 MHz ~ 10<sup>th</sup> harmonic.

RBW = 100 kHz ( 30MHz ~ 1 GHz)

VBW  $\geq$  RBW

= 1 MHz (1 GHz ~ 10<sup>th</sup> harmonic )

Span = 100 MHz

Detector function = peak

Trace = max hold

Sweep = auto

#### Spurious Measurement Data: Complies

| Low channel                                                          |              | Mid channel     |              | High channel    |              |
|----------------------------------------------------------------------|--------------|-----------------|--------------|-----------------|--------------|
| Frequency (MHz)                                                      | Level (dBuV) | Frequency (MHz) | Level (dBuV) | Frequency (MHz) | Level (dBuV) |
| 4804                                                                 | 39.1         | 7323            | 33.7         | -               | -            |
| 7206                                                                 | 44.9         | 9764            | 35.3         | -               | -            |
| 9608                                                                 | 47.3         | -               | -            | -               | -            |
| No emissions were detected at a level greater than 10dB below limit. |              |                 |              |                 |              |
| -                                                                    | -            | -               | -            | -               | -            |
| Measurement uncertainty                                              |              | $\pm 6$ dB      |              |                 |              |

#### Minimum Standard: FCC Part 15.209(a)

| Frequency (MHz) | Limit (uV/m) @ 3m |
|-----------------|-------------------|
| 30 ~ 88         | 100 **            |
| 88 ~ 216        | 150 **            |
| 216 ~ 960       | 200 **            |
| Above 960       | 500               |

\*\* Except as provided in 15.209(g), fundamental emissions from intentional radiators operating under this Section shall not be located in the frequency bands 54-72 MHz, 76-88MHz, 174-216MHz or 470-806MHz. However, operation within these frequency bands is permitted under other sections of this Part, e.g. 15.231 and 15.241.

## Charging mode Measurement Data: Complies



243 Jubug-ni, yangji-Myeon, Youngin-si,  
Gyeonggi-do 449-822 Korea  
Tel :+82-31-3236008,9  
Fax:+82-31-3236010

EUT/Model No.: D1000

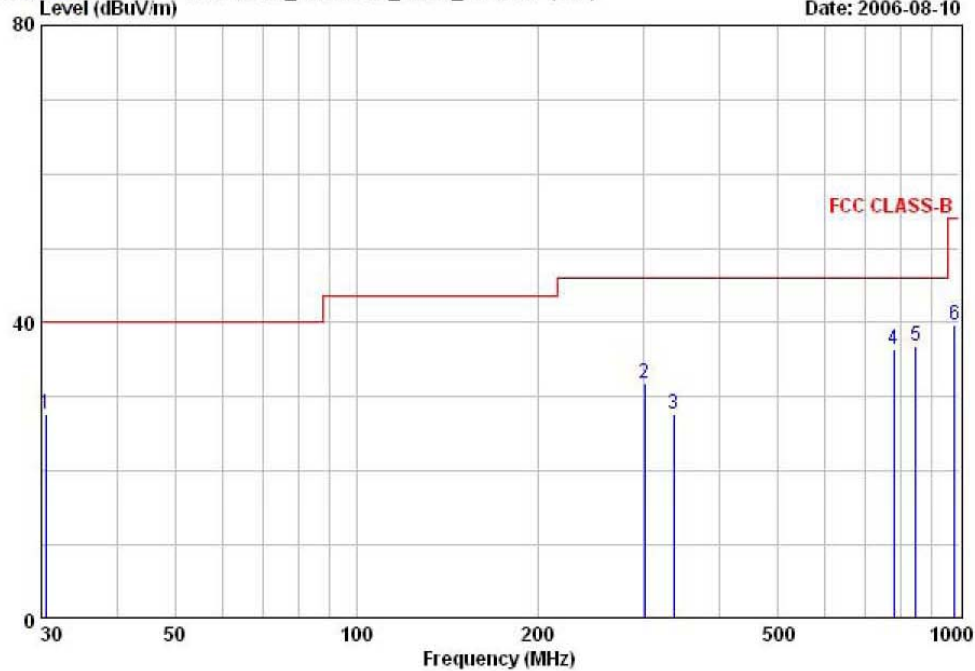
Temp/Humi: 20 / 68

Test Mode : USB Charging mode

Tested by: K. T. LEE

Data: 289 File: E:\LTA\_OATS\LTA\_OATS\_06-1.EMI (290)

Date: 2006-08-10



|   | Freq   | Reading(QP) | C.F    | Result (QP) | Limit  | Margin | Height | Polarity   |
|---|--------|-------------|--------|-------------|--------|--------|--------|------------|
|   | MHz    | dBuV        | dB     | dBuV/m      | dBuV/m | dB     | cm     |            |
| 1 | 30.51  | 35.19       | -7.43  | 27.76       | 40.00  | 12.24  | 100    | VERTICAL   |
| 2 | 300.54 | 42.69       | -10.95 | 31.74       | 46.00  | 14.26  | 100    | VERTICAL   |
| 3 | 336.22 | 38.00       | -10.22 | 27.78       | 46.00  | 18.22  | 200    | HORIZONTAL |
| 4 | 779.35 | 38.22       | -1.82  | 36.40       | 46.00  | 9.60   | 200    | HORIZONTAL |
| 5 | 848.04 | 37.66       | -0.79  | 36.87       | 46.00  | 9.13   | 120    | VERTICAL   |
| 6 | 983.07 | 38.28       | 1.33   | 39.61       | 54.00  | 14.39  | 100    | VERTICAL   |

Remarks: C.F (Correction Factor) = Antenna factor + Cable loss - Preamp gain

### 3.2.8 AC Conducted Emissions

#### Procedure:

The conducted emissions are measured in the shielded room with a spectrum analyzer in peak hold. While the measurement, EUT had its hopping function disabled at the middle channels in line with Section 15.31(m). Emissions closest to the limit are measured in the quasi-peak mode (QP) with the tuned receiver using a bandwidth of 9 kHz. The emissions are maximized further by cable manipulation and Exerciser operation. The highest emissions relative to the limit are listed.

#### Measurement Data: Complies

- See next pages for actual measured spectrum plots.
- No emissions were detected at a level greater than 10dB below limit.

#### Minimum Standard: FCC Part 15.207(a)/EN 55022

| Frequency Range<br>(MHz) | Conducted Limit (dBuV) |            |
|--------------------------|------------------------|------------|
|                          | Quasi-Peak             | Average    |
| 0.15 ~ 0.5               | 66 to 56 *             | 56 to 46 * |
| 0.5 ~ 5                  | 56                     | 46         |
| 5 ~ 30                   | 60                     | 50         |

\* Decreases with the logarithm of the frequency

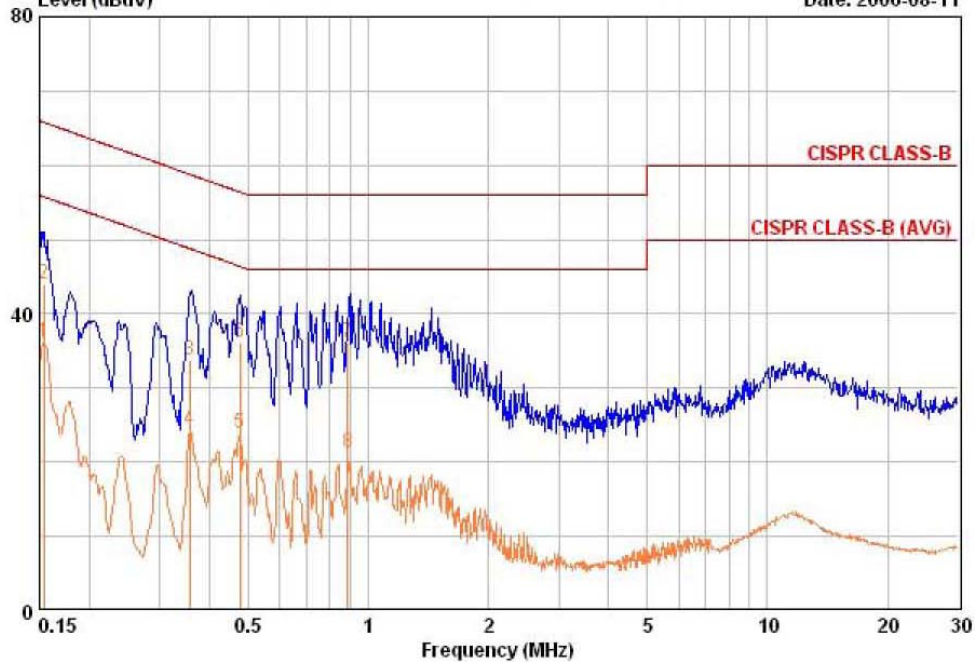
## AC Conducted Emissions – AC Adaptor - Line



243 Jubug-ni, yangji-Myeon, Youngin-si,  
Gyeonggi-do 449-822 Korea  
Tel :+82-31-323-6008  
Fax:+82-31-323-6010

|                                   |                          |
|-----------------------------------|--------------------------|
| EUT / Model No. : D1000           | Phase : LINE             |
| Test Mode : Adaptor Charging mode | Test Power : 120 / 60    |
| Temp./Humi. : 24 / 50             | Test Engineer : K.T. LEE |

Data: 694 File: E:\00\_e3 EMI DATA\LTA\_Conduction\_0604-2.EMI (720) Date: 2006-08-11



| Freq  | RD    | RD    | C.F  | Result | Result | Limit | Limit | Margin | Margin |
|-------|-------|-------|------|--------|--------|-------|-------|--------|--------|
| MHz   | QP    | AV    | dB   | QP     | AV     | QP    | AV    | QP     | AV     |
| 0.154 | 43.50 | 35.67 | 0.55 | 44.05  | 36.22  | 65.78 | 55.78 | 21.73  | 19.56  |
| 0.358 | 33.40 | 24.10 | 0.34 | 33.74  | 24.44  | 58.78 | 48.78 | 25.04  | 24.34  |
| 0.476 | 35.80 | 23.71 | 0.31 | 36.11  | 24.02  | 56.41 | 46.41 | 20.29  | 22.38  |
| 0.889 | 35.70 | 20.90 | 0.41 | 36.11  | 21.31  | 56.00 | 46.00 | 19.89  | 24.69  |

Remarks: C.F (Correction Factor) = Insertion loss + Cable loss

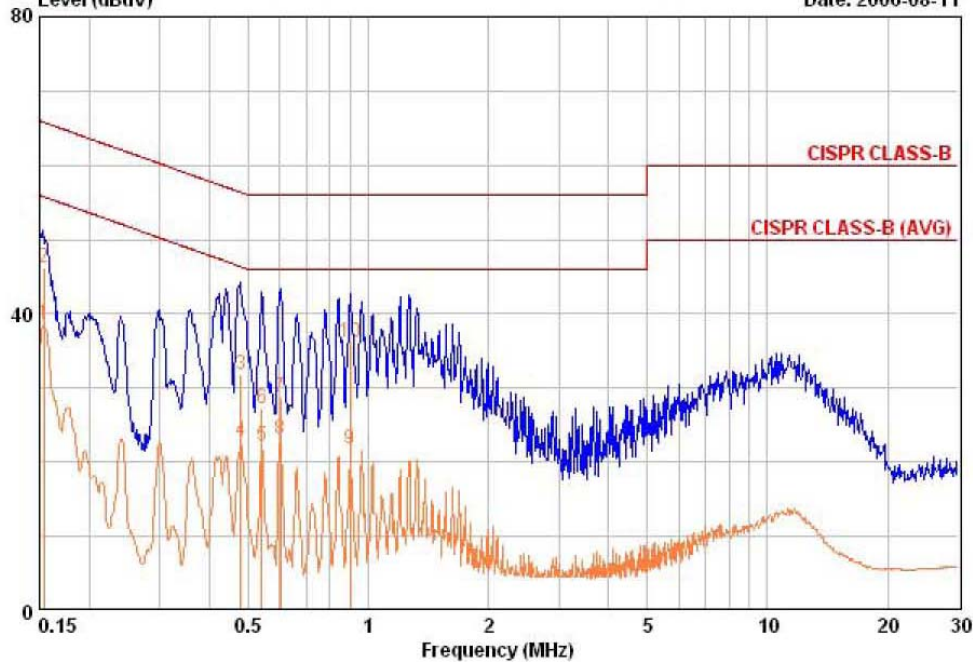
## AC Conducted Emissions - AC Adaptor - Neutral



243 Jubug-ni, yangji-Myeon, Youngin-si,  
Gyeonggi-do 449-822 Korea  
Tel :+82-31-323-6008  
Fax:+82-31-323-6010

|                                   |                          |
|-----------------------------------|--------------------------|
| EUT / Model No. : D1000           | Phase : NEUTRAL          |
| Test Mode : Adaptor Charging mode | Test Power : 120 / 60    |
| Temp./Humi. : 24 / 50             | Test Engineer : K.T. LEE |

Data: 696 File: E:\00\_e3 EMI DATA\LTA\_Conduction\_0604-2.EMI (720) Date: 2006-08-11



| Freq  | RD    | RD    | C.F  | Result | Result | Limit | Limit | Margin | Margin |
|-------|-------|-------|------|--------|--------|-------|-------|--------|--------|
| MHz   | QP    | AV    |      | QP     | AV     | QP    | AV    | QP     | AV     |
|       | dBuV  | dBuV  | dB   | dBuV   | dBuV   | dBuV  | dBuV  | dB     | dB     |
| 0.154 | 45.60 | 37.98 | 0.54 | 46.14  | 38.52  | 65.78 | 55.78 | 19.64  | 17.26  |
| 0.479 | 31.60 | 22.51 | 0.30 | 31.90  | 22.81  | 56.36 | 46.36 | 24.46  | 23.55  |
| 0.541 | 27.00 | 21.89 | 0.28 | 27.28  | 22.17  | 56.00 | 46.00 | 28.72  | 23.83  |
| 0.601 | 28.50 | 22.78 | 0.29 | 28.79  | 23.07  | 56.00 | 46.00 | 27.21  | 22.93  |
| 0.899 | 35.80 | 21.41 | 0.40 | 36.20  | 21.81  | 56.00 | 46.00 | 19.80  | 24.19  |

Remarks: C.F (Correction Factor) = Insertion loss + Cable loss

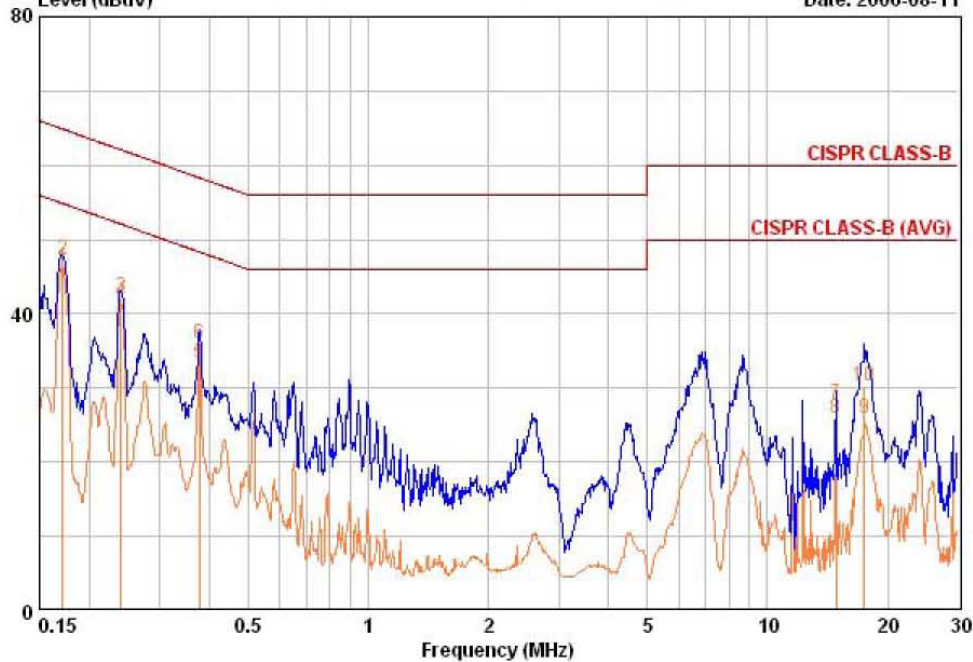
## AC Conducted Emissions – USB Charging - Line



243 Jubug-ni, yangji-Myeon, Youngin-si,  
Gyeonggi-do 449-822 Korea  
Tel :+82-31-323-6008  
Fax:+82-31-323-6010

|                               |                          |
|-------------------------------|--------------------------|
| EUT / Model No. : D1000       | Phase : LINE             |
| Test Mode : USB Charging mode | Test Power : 120 / 60    |
| Temp./Humi. : 24 / 50         | Test Engineer : K.T. LEE |

Data: 710 File: E:\00\_e3 EMI DATA\LTA\_Conduction\_0604-2.EMI (720) Date: 2006-08-11



| Freq   | RD    | RD    | C.F  | Result | Result | Limit | Limit | Margin | Margin |
|--------|-------|-------|------|--------|--------|-------|-------|--------|--------|
| MHz    | QP    | AV    | dB   | QP     | AV     | QP    | AV    | QP     | AV     |
|        | dBuV  | dBuV  |      | dBuV   | dBuV   | dBuV  | dBuV  | dB     | dB     |
| 0.171  | 46.80 | 45.83 | 0.41 | 47.21  | 46.24  | 64.90 | 54.90 | 17.69  | 8.66   |
| 0.240  | 42.00 | 41.35 | 0.22 | 42.22  | 41.57  | 62.08 | 52.08 | 19.86  | 10.51  |
| 0.377  | 35.70 | 32.96 | 0.36 | 36.06  | 33.32  | 58.34 | 48.34 | 22.28  | 15.02  |
| 14.828 | 26.80 | 24.78 | 1.16 | 27.96  | 25.94  | 60.00 | 50.00 | 32.04  | 24.06  |
| 17.475 | 28.90 | 24.53 | 1.35 | 30.25  | 25.88  | 60.00 | 50.00 | 29.75  | 24.12  |

Remarks: C.F (Correction Factor) = Insertion loss + Cable loss

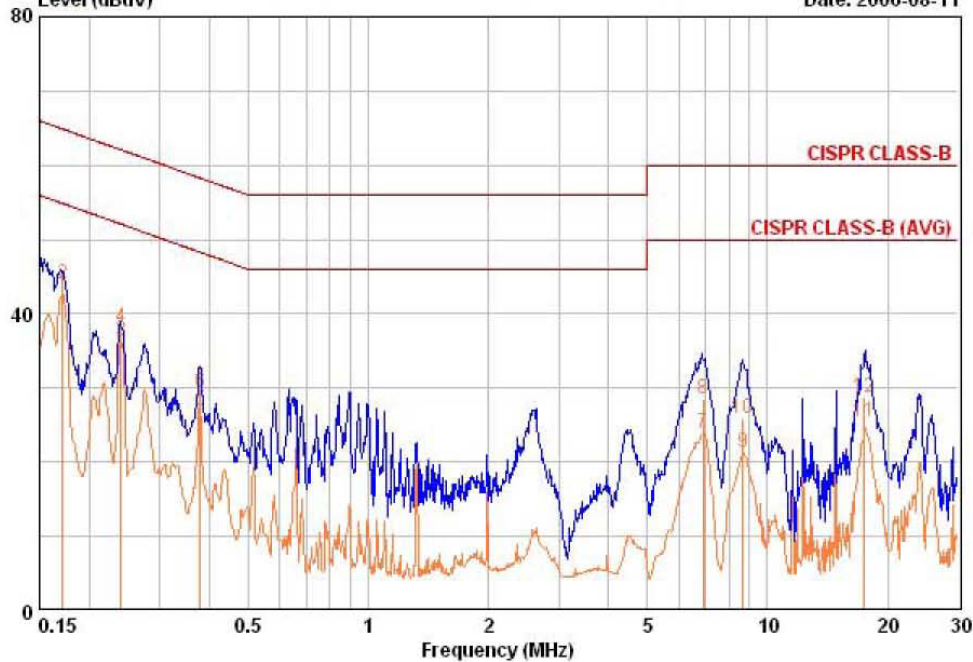
## AC Conducted Emissions – USB Charging - Neutral



243 Jubug-ni, yangji-Myeon, Youngin-si,  
Gyeonggi-do 449-822 Korea  
Tel :+82-31-323-6008  
Fax:+82-31-323-6010

|                               |                          |
|-------------------------------|--------------------------|
| EUT / Model No. : D1000       | Phase : NEUTRAL          |
| Test Mode : USB Charging mode | Test Power : 120 / 60    |
| Temp./Humi. : 24 / 50         | Test Engineer : K.T. LEE |

Data: 712 File: E:\00\_e3 EMI DATA\LTA\_Conduction\_0604-2.EMI (720) Date: 2006-08-11



| Freq   | RD    | RD    | C.F  | Result | Result | Limit | Limit | Margin | Margin |
|--------|-------|-------|------|--------|--------|-------|-------|--------|--------|
| MHz    | QP    | AV    |      | QP     | AV     | QP    | AV    | QP     | AV     |
|        | dBuV  | dBuV  | dB   | dBuV   | dBuV   | dBuV  | dBuV  | dB     | dB     |
| 0.171  | 43.65 | 42.24 | 0.41 | 44.06  | 42.65  | 64.90 | 54.90 | 20.84  | 12.25  |
| 0.240  | 38.01 | 36.16 | 0.22 | 38.23  | 36.38  | 62.08 | 52.08 | 23.85  | 15.70  |
| 0.379  | 29.06 | 26.66 | 0.36 | 29.42  | 27.02  | 58.30 | 48.30 | 28.88  | 21.28  |
| 6.914  | 27.98 | 23.41 | 0.51 | 28.49  | 23.92  | 60.00 | 50.00 | 31.51  | 26.08  |
| 8.683  | 25.31 | 20.71 | 0.58 | 25.89  | 21.29  | 60.00 | 50.00 | 34.11  | 28.71  |
| 17.475 | 27.66 | 24.37 | 1.22 | 28.88  | 25.59  | 60.00 | 50.00 | 31.12  | 24.41  |

Remarks: C.F (Correction Factor) = Insertion loss + Cable loss

APPENDIX

**TEST EQUIPMENT USED FOR TESTS**

|    | Description             | Model No.   | Serial No.    | Manufacturer  | Next Cal. Date |
|----|-------------------------|-------------|---------------|---------------|----------------|
| 1  | Spectrum Analyzer       | 8594E       | 3649A03649    | HP            | Dec-06         |
| 2  | Signal Generator        | 8657A       | 3430U02049    | HP            | Dec-06         |
| 3  | Attenuator (3dB)        | 8491A       | 37822         | HP            | Dec-06         |
| 4  | Attenuator (3dB)        | 8491A       | 28881         | HP            | Dec-06         |
| 5  | EMI Test Receiver       | ESVD        | 843748/001    | R&S           | Dec-06         |
| 6  | Spectrum Analyzer       | 8591E       | 3649A05888    | HP            | Jan-07         |
| 7  | Spectrum Analyzer       | 8563E       | 3425A02505    | HP            | Jan-07         |
| 8  | RF Amplifier            | 8447D       | 2949A02670    | HP            | Jan-07         |
| 9  | RF Amplifier            | 8447D       | 2439A09058    | HP            | Jan-07         |
| 10 | RF Amplifier            | 8449B       | 3008A02126    | HP            | Jun-07         |
| 11 | TRILOG Antenna          | VULB 9160   | 9160-3172     | SCHWARZBECK   | Feb-07         |
| 12 | Log.-Per. Antenna       | VULP 9118   | 9118 A 401    | SCHWARZBECK   | Feb-07         |
| 13 | Biconical Antenna       | BBA 9106    | VHA 9103-2315 | SCHWARZBECK   | Feb-07         |
| 14 | Horn Antenna            | 3115        | 00055005      | ETS LINDGREN  | Jun-07         |
| 15 | Horn Antenna            | BBHA 9120D  | 0499          | Schwarzbeck   | Jun-07         |
| 16 | Hygro-Thermograph       | THB-36      | 0041557-01    | ISUZU         | Feb-07         |
| 17 | Splitter (BNC)          | ZFM-150     | 15542         | Mini-Circuits | -              |
| 18 | Splitter (SMA)          | ZFSC-2-2500 | SF617800326   | Mini-Circuits | -              |
| 19 | Power Divider           | 11636A      | 6243          | HP            | Apr-07         |
| 20 | DC Power Supply         | 6622A       | 3448A03079    | HP            | Apr-07         |
| 21 | Attenuator (30dB)       | 8498A       | 1801A06689    | HP            | Apr-07         |
| 22 | Attenuator (10dB)       | 8491A       | 63196         | HP            | Apr-07         |
| 23 | Power Meter             | EPM-441A    | GB32481702    | HP            | Apr-07         |
| 24 | Power Sensor            | 8481A       | 2702A64048    | HP            | Apr-07         |
| 25 | Audio Analyzer          | 8903B       | 3729A18901    | HP            | May-07         |
| 26 | Modulation Analyzer     | 8901B       | 3749A05878    | HP            | May-07         |
| 27 | Dipole Antenna          | VHA9103     | 2116          | Schwarzbeck   | Oct-06         |
| 28 | Dipole Antenna          | VHA9103     | 2117          | Schwarzbeck   | Oct-06         |
| 29 | Dipole Antenna          | UHA9105     | 2261          | Schwarzbeck   | Oct-06         |
| 30 | Dipole Antenna          | UHA9105     | 2262          | Schwarzbeck   | Oct-06         |
| 31 | Digital Multimeter      | 34401A      | US36062141    | HP            | Apr-07         |
| 32 | LISN                    | KNW-407     | 8-1430-1      | Kyoritsu      | Jan-07         |
| 33 | Two-Line V-Network      | ESH3-Z5     | 893045/017    | R&S           | Jan-07         |
| 34 | Test Receiver           | ESHS10      | 828404009     | R&S           | Jan-07         |
| 35 | TEMP & HUMIDITY Chamber | YJ-500      | L05022        | JinYoung Tech | -              |