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Dates of Tests: November 1 ~ 2, 2005

Test Report S/N: LR500110511C

Test Site : LTA CO., LTD.

FCC ID

**P7KDDR4200**

APPLICANT

**DIASONIC TECHNOLOGY CO.,LTD.**

## TEST REPORT

### FCC Part 15B Certification

**Manufacturing Description** : DAB Receiver & Voice Recorder  
**Manufacturer** : DIASONIC TECHNOLOGY CO.,LTD.  
**Model name** : DDR-4200  
**Test Device Serial No.:** : Identification  
**FCC Rule Part(s)** : ANSI C-63.4-2003  
FCC Part 15 Subpart B  
**Data of issue** : November 11, 2005

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 NVLAP or any agency of the U.S. Government.**

**TABLE OF CONTENTS**

1. GENERAL INFORMATION’S ----- 3

2. INFORMATION’S ABOUT TEST ITEM ----- 4

3. TEST REPORT

    3.1 SUMMARY OF TESTS ----- 5

    3.2 EMISSION REQUIREMENTS

        3.2.1 CONDUCTED EMISSION ----- 6

        3.2.2 RADIATED EMISSION ----- 11

**APPENDIX**

APPENDIX 1 TEST EQUIPMENT USED FOR TESTS ----- 16

APPENDIX 2 MEASUREMENT UNCERTAINTY ----- 18

APPENDIX 3 LABEL AND USER'S MANUAL INFORMATION ----- 20

## 1. General information's

### **1-1 Test Performed**

Company name : LTA Co., Ltd.  
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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          | After Assessment | 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           |



### 3. Test Report

#### 3.1 Summary of tests

| Parameter                    | Applied Standard | Status |
|------------------------------|------------------|--------|
| <b>EMISSION Requirements</b> |                  |        |
| Radiated Emission            | FCC Part 15.109  | C      |
| Conducted Emission           | FCC Part 15.107  | 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.

## 3.2 EMISSION Requirements

### 3.2.1 Conducted Emission

#### Definition:

The test assesses the ability of the EUT to limit its internal noise from being present on the AC mains Power In/Output ports.

|                             |                                                                                            |
|-----------------------------|--------------------------------------------------------------------------------------------|
| Equipment under test        | : <b>DDR-4200</b>                                                                          |
| Test method                 | : ANSI C-63.4-2003                                                                         |
| Measurement Frequency range | : 150 kHz ~ 30MHz                                                                          |
| Measurement RBW             | : 10 kHz                                                                                   |
| Test mode                   | : 1. USB File up/down and USB Charging mode without Cradle<br>2. Charging mode with Cradle |
| Result                      | : <b>Complies</b>                                                                          |

#### Measurement Data:

- No other emissions were detected at a level greater than 10dB below limit.
- Refer to the next page

#### A sample calculation:

COR. F (correction factor)= LISN Insertion loss + Cable loss

Emission Level= meter reading + COR.F

#### LIMIT: FCC Part 15.107

| Frequency Range | Near-peak    | Average      |
|-----------------|--------------|--------------|
| 0.15 ~ 0.5 MHz  | 66 ~ 56 dBuV | 56 ~ 46 dBuV |
| 0.5 ~ 5 MHz     | 56 dBuV      | 46 dBuV      |
| 5 ~ 30 MHz      | 60 dBuV      | 50 dBuV      |

Note: The limits will decrease with the frequency logarithmically within 0.15MHz to 0.5MHz

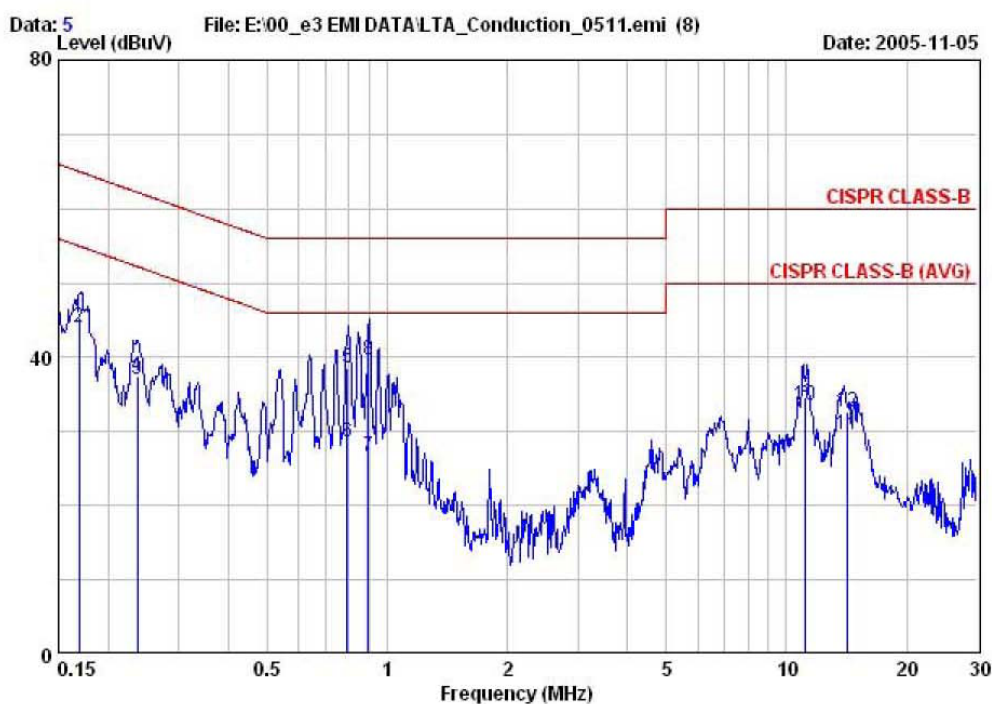
TEST EQUIPMENT USED: 03.06.07.11.17.....

## Conducted emissions (L1)



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|                                                        |                          |
|--------------------------------------------------------|--------------------------|
| EUT / Model No. : DDR-4200                             | Phase : LINE             |
| Test Mode : File up/down mode (without Credle)st Power | : 120 / 60               |
| Temp./Humi. : 17 / 57                                  | Test Engineer : K.T. LEE |



| 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     |
| 0.17  | 44.90 | 43.70 | 0.43 | 45.33  | 44.13  | 65.01 | 55.01 | 19.68  | 10.88  |
| 0.24  | 37.30 | 36.90 | 0.22 | 37.52  | 37.12  | 62.20 | 52.20 | 24.68  | 15.08  |
| 0.79  | 38.20 | 28.10 | 0.40 | 38.60  | 28.50  | 56.00 | 46.00 | 17.40  | 17.50  |
| 0.90  | 39.20 | 26.10 | 0.41 | 39.61  | 26.51  | 56.00 | 46.00 | 16.39  | 19.49  |
| 11.18 | 33.70 | 32.60 | 0.96 | 34.66  | 33.56  | 60.00 | 50.00 | 25.34  | 16.44  |
| 14.16 | 31.50 | 28.50 | 1.13 | 32.63  | 29.63  | 60.00 | 50.00 | 27.37  | 20.37  |

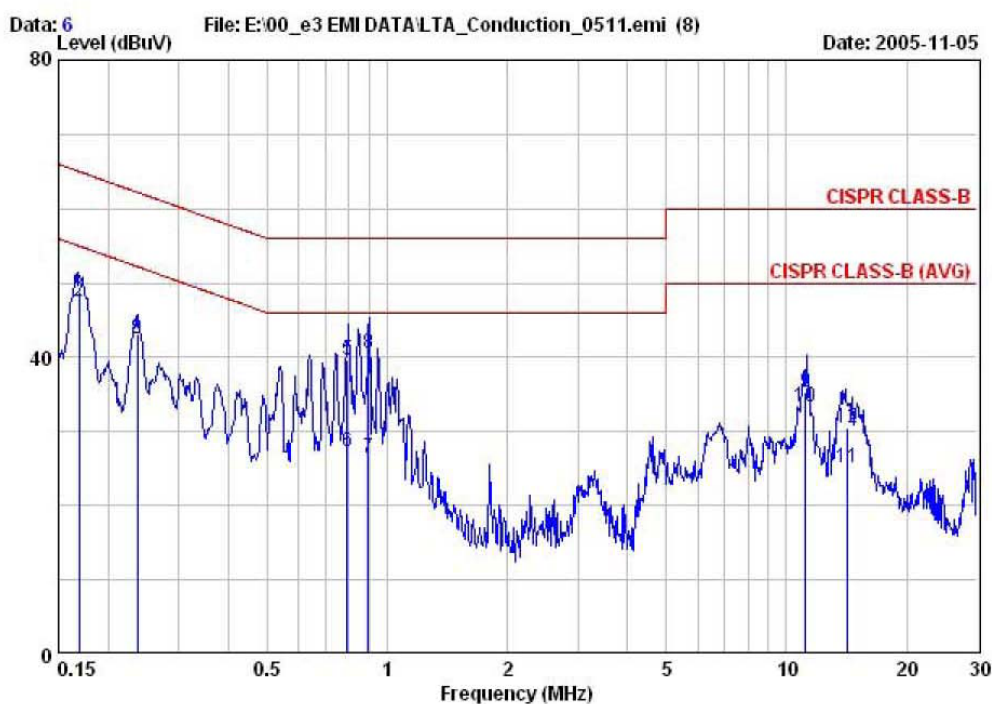
Remarks: C.F (Correction Factor) = Insertion loss + Cable loss

## Conducted emissions (N)



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|                   |                                            |                 |          |
|-------------------|--------------------------------------------|-----------------|----------|
| EUT / Model No. : | DDR-4200                                   | Phase :         | NEUTRAL  |
| Test Mode :       | File up/down mode (without Credle)st Power | :               | 120 / 60 |
| Temp./Humi. :     | 17 / 57                                    | Test Engineer : | K.T. LEE |



| 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     |
| 0.17  | 48.30 | 47.10 | 0.42 | 48.72  | 47.52  | 65.01 | 55.01 | 16.28  | 7.48   |
| 0.24  | 43.00 | 42.30 | 0.22 | 43.22  | 42.52  | 62.20 | 52.20 | 18.98  | 9.68   |
| 0.79  | 39.30 | 26.90 | 0.39 | 39.69  | 27.29  | 56.00 | 46.00 | 16.31  | 18.71  |
| 0.90  | 40.10 | 26.00 | 0.40 | 40.50  | 26.40  | 56.00 | 46.00 | 15.50  | 19.60  |
| 11.18 | 34.30 | 32.50 | 0.93 | 35.23  | 33.43  | 60.00 | 50.00 | 24.77  | 16.57  |
| 14.16 | 29.50 | 23.90 | 1.06 | 30.56  | 24.96  | 60.00 | 50.00 | 29.44  | 25.04  |

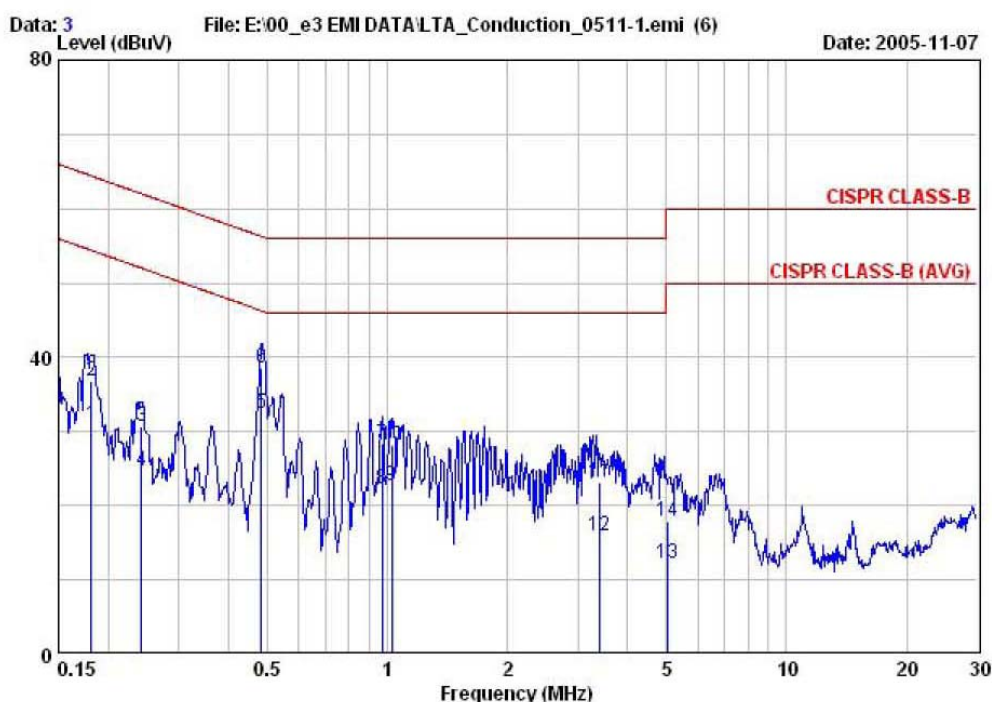
Remarks: C.F (Correction Factor) = Insertion loss + Cable loss

## Conducted emissions (L1)



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|                                       |                          |
|---------------------------------------|--------------------------|
| EUT / Model No. : DDR-4200            | Phase : LINE             |
| Test Mode : Charging mode with Credle | Test Power : 120 / 60    |
| Temp./Humi. : 21 / 35                 | Test Engineer : K.T. LEE |



| 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     |
| 0.18 | 36.60 | 30.70 | 0.33 | 36.93  | 31.03  | 64.44 | 54.44 | 27.51  | 23.41  |
| 0.24 | 30.60 | 24.30 | 0.22 | 30.82  | 24.52  | 62.03 | 52.03 | 31.20  | 27.50  |
| 0.48 | 38.20 | 32.10 | 0.31 | 38.51  | 32.41  | 56.27 | 46.27 | 17.76  | 13.86  |
| 0.97 | 28.10 | 21.80 | 0.34 | 28.44  | 22.14  | 56.00 | 46.00 | 27.56  | 23.86  |
| 1.03 | 27.90 | 22.30 | 0.31 | 28.21  | 22.61  | 56.00 | 46.00 | 27.79  | 23.39  |
| 3.39 | 22.50 | 15.30 | 0.57 | 23.07  | 15.87  | 56.00 | 46.00 | 32.93  | 30.13  |
| 5.01 | 17.30 | 11.60 | 0.55 | 17.85  | 12.15  | 60.00 | 50.00 | 42.15  | 37.85  |

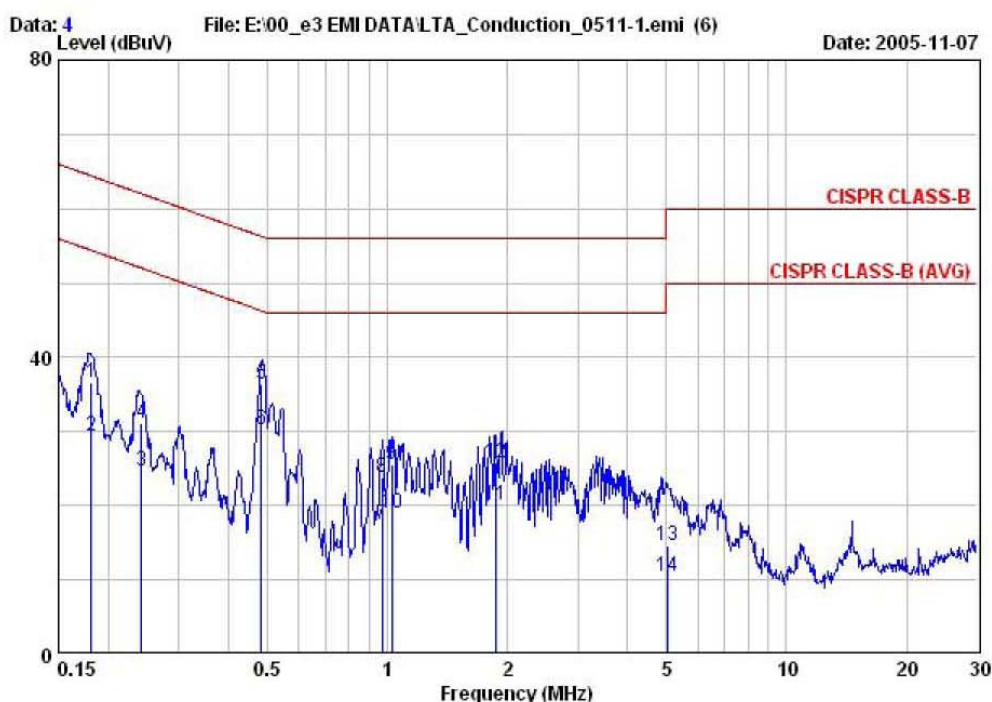
Remarks: C.F (Correction Factor) = Insertion loss + Cable loss

## Conducted emissions (N)



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|                                       |                          |
|---------------------------------------|--------------------------|
| EUT / Model No. : DDR-4200            | Phase : NEUTRAL          |
| Test Mode : Charging mode with Credle | Test Power : 120 / 60    |
| Temp./Humi. : 21 / 35                 | Test Engineer : K.T. LEE |



| 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     |
| 0.18 | 36.20 | 29.20 | 0.33 | 36.53  | 29.53  | 64.44 | 54.44 | 27.91  | 24.91  |
| 0.24 | 30.90 | 24.40 | 0.22 | 31.12  | 24.62  | 62.03 | 52.03 | 30.91  | 27.41  |
| 0.48 | 36.10 | 30.00 | 0.30 | 36.40  | 30.30  | 56.27 | 46.27 | 19.87  | 15.97  |
| 0.97 | 23.40 | 17.10 | 0.33 | 23.73  | 17.43  | 56.00 | 46.00 | 32.27  | 28.57  |
| 1.03 | 25.10 | 18.70 | 0.30 | 25.40  | 19.00  | 56.00 | 46.00 | 30.60  | 27.00  |
| 1.88 | 25.30 | 19.70 | 0.40 | 25.70  | 20.10  | 56.00 | 46.00 | 30.30  | 25.90  |
| 5.03 | 14.10 | 10.00 | 0.50 | 14.60  | 10.50  | 60.00 | 50.00 | 45.40  | 39.50  |

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

### 3.3.2 Radiated Emission

#### Definition:

The test assesses the ability of ancillary equipment to limit their internal noise from being radiated from the enclosure.

|                      |                                                                                                    |
|----------------------|----------------------------------------------------------------------------------------------------|
| Equipment under test | : <b>DDR-4200</b>                                                                                  |
| Test method          | : ANSI C-63.4-2003                                                                                 |
| Frequency Range      | : 30 MHz ~ 10 <sup>th</sup> harmonic.                                                              |
| Bandwidth            | : 120 kHz (F < 1GHz)<br>1 MHz (F > 1GHz)                                                           |
| Distance of antenna  | : 3 meters                                                                                         |
| Test mode            | : 1. USB File up/down mode    2. MP3 Play mode<br>3. DAB REC mode                4. Voice REC mode |
| Result               | : <b>Complies</b>                                                                                  |

#### Measurement Data:

- No other emissions were detected at a level greater than 20dB below limit.
- Refer to the next page

#### A sample calculation:

COR. F (correction factor)= Antenna factor + Cable loss- Amp.gain- Distance correction

Emission Level= meter reading + COR.F

#### LIMIT: FCC Part 15.109

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

TEST EQUIPMENT USED: 01,05,08,09,10,12,13,14,15,16,18,22,24,25

## Radiated emission data - USB File up/down mode



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EUT/Model No.: DDR-4200

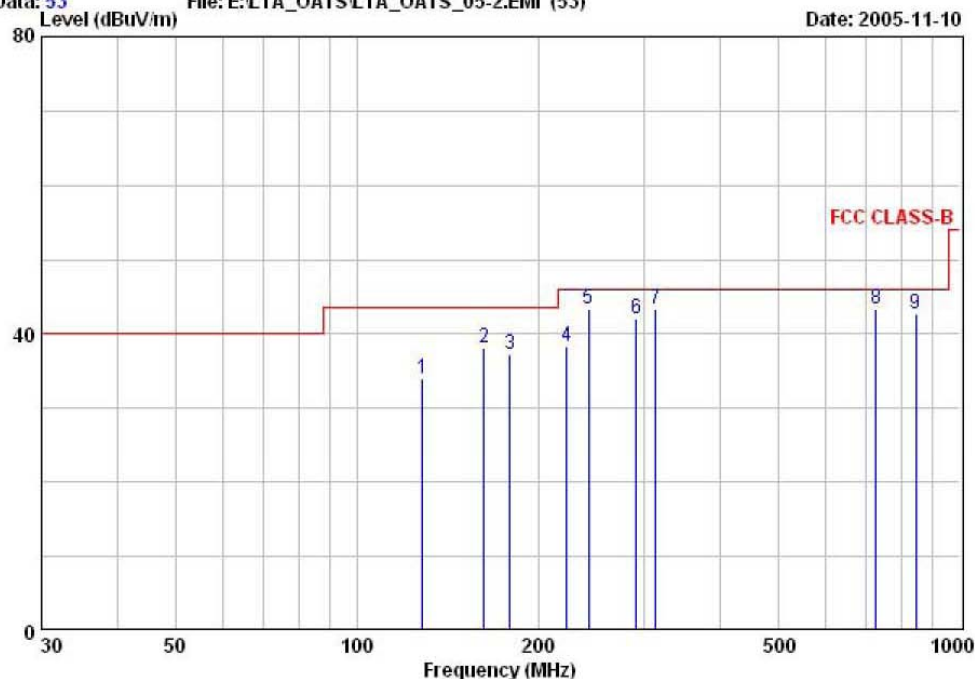
Temp/Humi: 20 / 53

Test Mode : USB Up/down mode

Tested by: K. T. LEE

Data: 53 File: E:\LTA\_OATS\LTA\_OATS\_05-2.EMI (53)

Date: 2005-11-10



|   | Freq<br>MHz | Reading(QP)<br>dBuV | C.F<br>dB | Result(QP)<br>dBuV/m | Limit<br>dBuV/m | Margin<br>dB | Height<br>cm | Angle<br>deg | Polarity   |
|---|-------------|---------------------|-----------|----------------------|-----------------|--------------|--------------|--------------|------------|
| 1 | 128.56      | 46.10               | -12.02    | 34.08                | 43.50           | 9.42         | 100          | 0            | VERTICAL   |
| 2 | 162.61      | 48.00               | -9.79     | 38.21                | 43.50           | 5.29         | 227          | 0            | HORIZONTAL |
| 3 | 179.39      | 46.60               | -9.33     | 37.27                | 43.50           | 6.23         | 219          | 0            | HORIZONTAL |
| 4 | 222.95      | 46.40               | -7.93     | 38.47                | 46.00           | 7.53         | 241          | 0            | HORIZONTAL |
| 5 | 242.53      | 50.60               | -7.25     | 43.36                | 46.00           | 2.65         | 193          | 0            | HORIZONTAL |
| 6 | 291.04      | 47.00               | -4.92     | 42.08                | 46.00           | 3.92         | 260          | 0            | HORIZONTAL |
| 7 | 313.28      | 54.80               | -11.36    | 43.44                | 46.00           | 2.56         | 103          | 0            | VERTICAL   |
| 8 | 726.81      | 45.00               | -1.62     | 43.38                | 46.00           | 2.62         | 100          | 0            | HORIZONTAL |
| 9 | 845.09      | 42.50               | 0.22      | 42.72                | 46.00           | 3.28         | 100          | 0            | HORIZONTAL |

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

## Radiated emission data - MP3 Play mode



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EUT/Model No.: DDR-4200

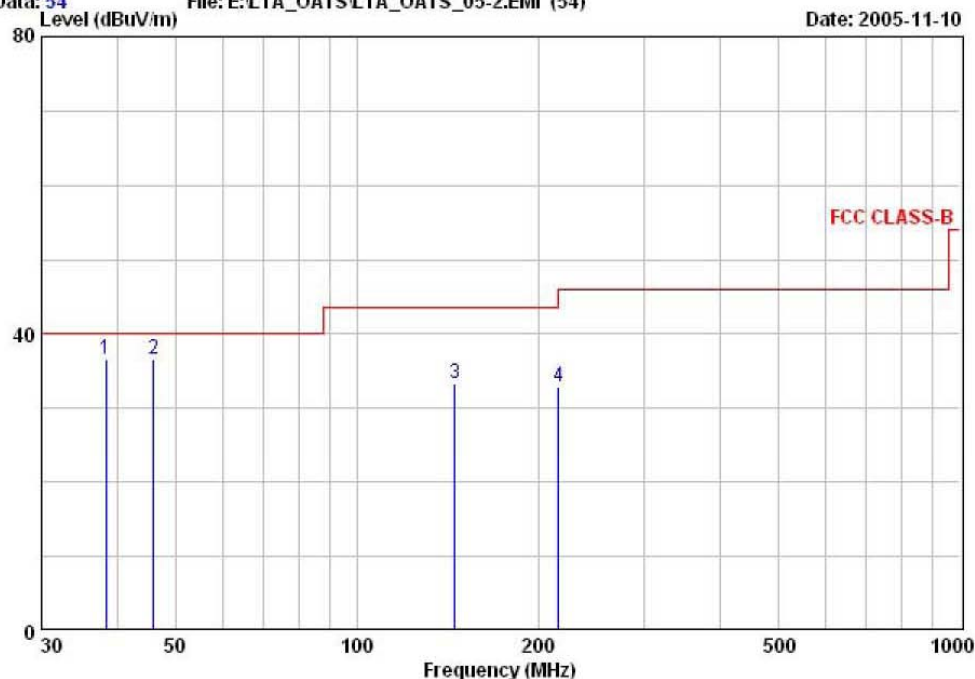
Temp/Humi: 20 / 53

Test Mode : MP3 Play mode(with Credle)

Tested by: K. T. LEE

Data: 54 File: E:\LTA\_OATS\LTA\_OATS\_05-2.EMI (54)

Date: 2005-11-10



|   | Freq<br>MHz | Reading(QP)<br>dBuV | C.F<br>dB | Result(QP)<br>dBuV/m | Limit<br>dBuV/m | Margin<br>dB | Height<br>cm | Angle<br>deg | Polarity   |
|---|-------------|---------------------|-----------|----------------------|-----------------|--------------|--------------|--------------|------------|
| 1 | 38.35       | 47.50               | -10.94    | 36.56                | 40.00           | 3.44         | 100          | 0            | VERTICAL   |
| 2 | 46.02       | 50.50               | -13.89    | 36.61                | 40.00           | 3.39         | 100          | 0            | VERTICAL   |
| 3 | 145.35      | 44.20               | -10.79    | 33.41                | 43.50           | 10.09        | 185          | 0            | HORIZONTAL |
| 4 | 216.02      | 41.00               | -8.10     | 32.90                | 46.00           | 13.10        | 189          | 0            | HORIZONTAL |

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

## Radiated emission data - DAB REC mode



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EUT/Model No.: DDR-4200

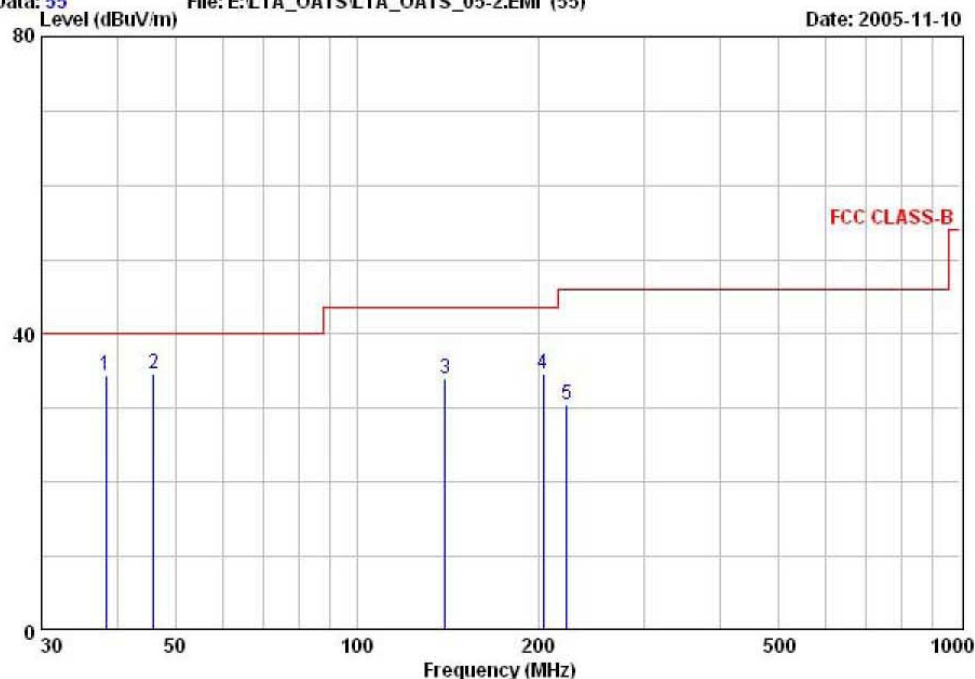
Temp/Humi: 19 / 53

Test Mode : DAB REC mode(with Credle)

Tested by: K. T. LEE

Data: 55 File: E:\LTA\_OATS\LTA\_OATS\_05-2.EMI (55)

Date: 2005-11-10



|   | Freq<br>MHz | Reading(QP)<br>dBuV | C.F<br>dB | Result(QP)<br>dBuV/m | Limit<br>dBuV/m | Margin<br>dB | Height<br>cm | Angle<br>deg | Polarity   |
|---|-------------|---------------------|-----------|----------------------|-----------------|--------------|--------------|--------------|------------|
| 1 | 38.35       | 45.40               | -10.94    | 34.46                | 40.00           | 5.54         | 100          | 0            | VERTICAL   |
| 2 | 46.02       | 48.50               | -13.89    | 34.61                | 40.00           | 5.39         | 100          | 0            | VERTICAL   |
| 3 | 140.34      | 45.10               | -11.09    | 34.01                | 43.50           | 9.49         | 210          | 0            | HORIZONTAL |
| 4 | 203.52      | 43.20               | -8.47     | 34.73                | 43.50           | 8.77         | 152          | 0            | HORIZONTAL |
| 5 | 222.95      | 38.50               | -7.93     | 30.57                | 46.00           | 15.43        | 209          | 0            | HORIZONTAL |

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

## Radiated emission data - VOICE REC mode



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EUT/Model No.: DDR-4200

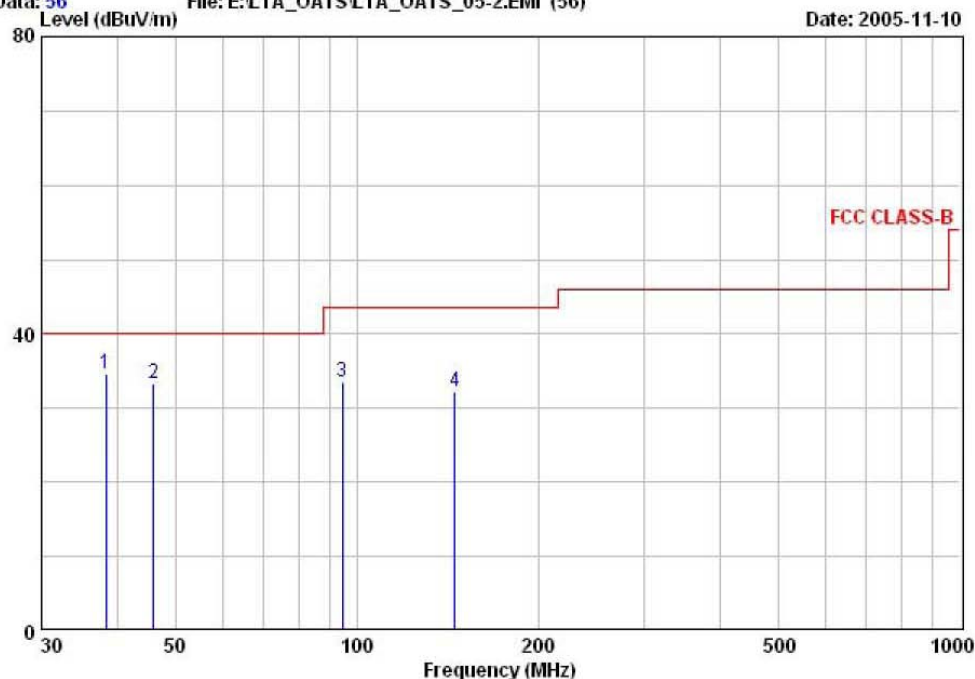
Temp/Humi: 20 / 53

Test Mode : VOICE REC mode(with Credle)

Tested by: K. T. LEE

Data: 56 File: E:\LTA\_OATS\LTA\_OATS\_05-2.EMI (56)

Date: 2005-11-10



|   | Freq<br>MHz | Reading(QP)<br>dBuV | C.F<br>dB | Result(QP)<br>dBuV/m | Limit<br>dBuV/m | Margin<br>dB | Height<br>cm | Angle<br>deg | Polarity   |
|---|-------------|---------------------|-----------|----------------------|-----------------|--------------|--------------|--------------|------------|
| 1 | 38.35       | 45.50               | -10.94    | 34.56                | 40.00           | 5.44         | 100          | 0            | VERTICAL   |
| 2 | 46.02       | 47.20               | -13.89    | 33.31                | 40.00           | 6.69         | 100          | 0            | VERTICAL   |
| 3 | 94.76       | 50.00               | -16.48    | 33.52                | 43.50           | 9.98         | 170          | 0            | HORIZONTAL |
| 4 | 145.35      | 43.10               | -10.79    | 32.31                | 43.50           | 11.19        | 203          | 0            | HORIZONTAL |

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

## APPENDIX 1

### TEST EQUIPMENT USED FOR TESTS

To facilitate inclusion on each page of the test equipment used for related tests, each item of test equipment are identified by the Test Laboratory.

|    | Description             | Model No.   | Serial No.          | Manufacturer  | Cal. Date |
|----|-------------------------|-------------|---------------------|---------------|-----------|
| 1  | Spectrum Analyzer       | 8594E       | 3649A03649          | HP            | Dec-05    |
| 2  | Signal Generater        | 8657A       | 3430U02049          | HP            | Dec-05    |
| 3  | Attenuator (3dB)        | 8491A       | 37822               | HP            | Dec-05    |
| 4  | Attenuator (3dB)        | 8491A       | 28881               | HP            | Dec-05    |
| 5  | EMI Test Receiver       | ESVD        | 843748/001          | R&S           | Dec-05    |
| 6  | LISN                    | KNW-407     | 8-1430-1            | Kyoritsu      | Dec-05    |
| 7  | Two-Line V-Network      | ESH3-Z5     | 893045/017          | R&S           | Jan-06    |
| 8  | RF Amplifier            | 8447D       | 2949A02670          | HP            | Jan-06    |
| 9  | RF Amplifier            | 8447D       | 2439A09058          | HP            | Jan-06    |
| 10 | RF Amplifier            | 8449B       | 3008A02126          | HP            | Jun-07    |
| 11 | Test Receiver           | ESH3        | 894718/017          | R&S           | Jan-06    |
| 12 | TRILOG Antenna          | VULB 9160   | 9160-3172           | SCHWARZBECK   | Feb-06    |
| 13 | Log.-Per. Antenna       | VULP 9118   | 9118 A 401          | SCHWARZBECK   | Feb-06    |
| 14 | Biconical Antenna       | BBA 9106    | VHA 9103-2315       | SCHWARZBECK   | Feb-06    |
| 15 | Horn Antenna            | 3115        | 00055005            | ETS LINDGREN  | Jun-07    |
| 16 | Horn Antenna            | BBHA 9120D  | 0499                | Schwarzbeck   | Jun-07    |
| 17 | Spectrum Analyzer       | 8591E       | 3649A05888          | HP            | Feb-06    |
| 18 | Spectrum Analyzer       | R3272       | 82420423            | ADVANTEST     | Feb-06    |
| 19 | Hygro-Thermograph       | THB-36      | 0041557-01          | ISUZU         | Feb-06    |
| 20 | Splitter (BNC)          | ZFM-150     | 15542               | Mini-Circuits | Jun-06    |
| 21 | Splitter (SMA)          | ZFSC-2-2500 | SF617800326         | Mini-Circuits | Jun-06    |
| 22 | RF Switch               | MP59B       | 6200414971          | ANRITSU       | Jun-06    |
| 23 | RF Switch               | MP59B       | 6200438565          | ANRITSU       | Jun-06    |
| 24 | Controller              | CO 2000     | CO2000174/8981104/L | Inn-Co        | -         |
| 25 | Controller              | L05021      | L05021/003          | DAE IL ENG.   | -         |
| 26 | Power Divider           | 11636A      | 6243                | HP            | Apr-06    |
| 27 | DC Power Supply         | 6622A       | 3448A03079          | HP            | Apr-06    |
| 28 | Attenuator (30dB)       | 11636A      | 6243                | HP            | Apr-06    |
| 29 | Attenuator (10dB)       | 8491A       | 63196               | HP            | Apr-06    |
| 30 | Power Meter             | EPM-441A    | GB32481702          | HP            | Apr-06    |
| 31 | Power Sensor            | 8481A       | 2702A64048          | HP            | Apr-06    |
| 32 | Audio Analyzer          | 8903B       | 3729A18901          | HP            | May-06    |
| 33 | Modulation Analyzer     | 8901B       | 3749A05878          | HP            | May-06    |
| 34 | TEMP & HUMIDITY Chamber | YJ-500      | L05022              | JinYoung Tech | -         |

## APPENDIX 2

### MEASUREMENT UNCERTAINTY

## 1. Conducted Emission

| Input Quantity                                                                                                                                                                      | Probability Distribution                                                               | Probability Distribution (dB)          | Standard                                                 |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------|----------------------------------------|----------------------------------------------------------|
|                                                                                                                                                                                     |                                                                                        | 9kHz~30MHz                             |                                                          |
| Cable loss(RG400)                                                                                                                                                                   | Standard Deviation(SD)                                                                 | $\pm 0.01$                             | 10 <sup>th</sup> measurement                             |
| Receiver corrections;<br>- Voltage accuracy<br>- Attenuation accuracy<br>- Absolute pulse response                                                                                  | Rectangular ( $\sqrt{3}$ )<br>Rectangular ( $\sqrt{3}$ )<br>Rectangular ( $\sqrt{3}$ ) | $\pm 0.26$<br>$\pm 0.26$<br>$\pm 0.26$ | Cal. Report<br>Cal. Report<br>Cal. Report<br>(CISPR16-3) |
| LISN corrections (ESH3-Z5) ;<br>- Voltage division factor                                                                                                                           | Normal (k=2)                                                                           | $\pm 0.43$                             | Cal. Report                                              |
| Mismatch ;<br>- Receiver VRC* : $\Gamma_i = 0.09$<br>- LISN VRC : $\Gamma_g = 0.14(150\text{kHz})$<br>= $0.05(30\text{MHz})$<br>- Uncertainty:<br>$20\log(1 \pm \Gamma_i \Gamma_g)$ | U-type<br>( $\sqrt{2}$ )                                                               | +0.11<br>-0.11                         | Cal. Report<br>Cal. Report                               |
| System Repeatability                                                                                                                                                                | Standard Deviation(SD)                                                                 | $\pm 0.34$                             | 10 <sup>th</sup> measurement                             |
| <b>Combined measurement uncertainty<br/>Uc(y)</b>                                                                                                                                   | Normal                                                                                 | + 0.97<br>- 0.97                       |                                                          |
| <b>Expended measurement uncertainty<br/>(95%,Confidence level,k=2)dB</b>                                                                                                            | Normal(k=2)                                                                            | + 1.94<br>- 1.94                       |                                                          |

Note:VRC(Voltage Reflection Coefficient)

## 2. Radiated Emission

| Input Quantity                                                                                                                             | Probability Distribution                                                            | Probability Distribution (dB)          |                                        | Standard                    |
|--------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|----------------------------------------|----------------------------------------|-----------------------------|
|                                                                                                                                            |                                                                                     | 3m                                     | 10m                                    |                             |
|                                                                                                                                            |                                                                                     | Bi & Log                               | Bi & Log                               |                             |
| Antenna Factor<br>(VHA9103B & VULP9118A)                                                                                                   | Normal (k=2)<br>(normal)                                                            | 30M~1G :<br>$\pm 0.7$                  | 30M~1G :<br>$\pm 0.7$                  | ANT Cal. uncertainty        |
| Cable loss<br>(HFB-5010/HFC12D)                                                                                                            | Standard Deviation(SD)                                                              | $\pm 0.03$                             | $\pm 0.03$                             | 5 <sup>th</sup> measurement |
| Receiver corrections;<br>- Sine Wave Voltage<br>- Pulse amplitude response<br>- Pulse repetition rate<br>response                          | Rectangular( $\sqrt{3}$ )<br>Rectangular( $\sqrt{3}$ )<br>Rectangular( $\sqrt{3}$ ) | $\pm 0.23$<br>$\pm 0.23$<br>$\pm 0.07$ | $\pm 0.23$<br>$\pm 0.23$<br>$\pm 0.07$ | Cal. Report                 |
| Antenna Directivity                                                                                                                        | Rectangular( $\sqrt{3}$ )                                                           | + 3.0 / -0                             | + 0.5/-0                               | NAMAS81                     |
| AF height deviations                                                                                                                       | Rectangular( $\sqrt{3}$ )                                                           | $\pm 2.0$                              | $\pm 2.0$                              | NAMAS81                     |
| Phase center location                                                                                                                      | Rectangular( $\sqrt{3}$ )                                                           | $\pm 1.0$                              | $\pm 0.2$                              | NAMAS81                     |
| Separation distance                                                                                                                        | Rectangular( $\sqrt{3}$ )                                                           | $\pm 0.6$                              | $\pm 0.4$                              | NAMAS81                     |
| Uncertainty of Site                                                                                                                        | Rectangular( $\sqrt{3}$ )                                                           | +2/-2.87                               | + 2.86/-<br>2.77                       | NSA                         |
| Mismatch ;<br>- Receiver VRC* : $\Gamma_i = 0.09$<br>- ANT. VRC : $\Gamma_g = 0.09$<br>- Uncertainty:<br>$20\log(1 \pm \Gamma_i \Gamma_g)$ | U-type $\sqrt{2}$                                                                   | +0.07<br>-0.07                         | +0.07<br>-0.07                         | Manual                      |
| Pre-amp.                                                                                                                                   | Normal (k=2)                                                                        | $\pm 0.36$                             | $\pm 0.36$                             | Cal. Report                 |
| System Repeatability                                                                                                                       | Standard Deviation(SD)                                                              | $\pm 0.3$                              | $\pm 0.34$                             | 5 <sup>th</sup> measurement |
| <b>Combined measurement uncertainty<br/>Uc(y)</b>                                                                                          | <b>Normal</b>                                                                       | + 2.61<br>- 2.32                       | + 1.67<br>- 2.08                       |                             |
| <b>Expended measurement uncertainty<br/>(95%,Confidence level,k=2)dB</b>                                                                   | <b>Normal<br/>(k=2)</b>                                                             | 30M~1GHz ;<br>+ 5.23<br>- 4.66         | 30M~1GHz ;<br>+ 3.35<br>- 4.17         |                             |

Note:VRC(Voltage Reflection Coefficient)

## APPENDIX 3

### **Label and User's Manual Information**

## Certification Labeling Requirements

### § 15.19 Labeling requirements.

(a) In addition to the requirements in part 2 of this chapter, a device subject to **certification, or verification** shall be labeled as follows:

(1) Receivers associated with the operation of a licensed radio service, e.g., FM broadcast under part 73 of this chapter, land mobile operation under part 90, etc., shall bear the following statement in a conspicuous location on the device:

*This device complies with part 15 of the FCC Rules. Operation is subject to the condition that this device does not cause harmful interference.*

(2) A stand-alone cable input selector switch, shall bear the following statement in a conspicuous location on the device:

*This device is verified to comply with part 15 of the FCC Rules for use with cable television service.*

(3) All other devices shall bear the following statement in a conspicuous location on the device:

*This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.*

(4) Where a device is constructed in two or more sections connected by wires and marketed together, the statement specified under paragraph (a) of this section is required to be affixed only to the main control unit.

(5) When the device is so small or for such use that it is not practicable to place the statement specified under paragraph (a) of this section on it, the information required by this paragraph shall be placed in a prominent location in the instruction manual or pamphlet supplied to the user or, alternatively, shall be placed on the container in which the device is marketed. However, the FCC identifier or the unique identifier, as appropriate, must be displayed on the device.

## **User's Manual Information**

### **§ 15.21 Information to user.**

*The users manual or instruction manual for an intentional or unintentional radiator shall caution the user that changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.*

The following is extracted from Title 47 of the Code of Federal Regulations, Part 15, Subpart B - Unintentional Radiators:

### **§ 15.105 Information to the user.**

(b) For a Class B digital device or peripheral, the instructions furnished the user shall include the following or similar statement, placed in a prominent location in the text of the manual:

***Note:** This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:*

- Reorient or relocate the receiving antenna.*
- Increase the separation between the equipment and receiver.*
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.*
- Consult the dealer or an experienced radio/TV technician for help.*