



EMC RESEARCH INSTITUTE



# EMI TEST REPORT

## Emission of electromagnetic disturbance

**Test Report No.** : ERI-FCC04-0009

**Equipment** : AV PLAYER

**Name of basic model** : DM-AV10

**Family model** : None

**Manufacturer** : GUANGZHOU DEBAO YUCHANG ELECTRONICS CO.,Ltd

**Applicant** : D.M. Technology Co., Ltd.

**Tested date** : 2004. 2. 2 – 2. 3

**Issued date** : 2004. 2. 7

**Test results** : PASS

**Test Standards** : FCC Part 15 Subpart B (Class B)  
/digital devices & peripherals

### Test Procedure and Items:

- AC Power line Conducted emissions measurement : ANSI C63.4-1992
- Radiated emissions measurement : ANSI C63.4-1992

**Tested by: GWEON, HUR**

**Approved by: SANG-KYU, LEE**

The results in this report apply only to the sample tested.  
This test report shall not be reproduced except in full, without the written approval of **ERI Laboratory**.

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## APPENDIX

(None)

**1. CLIENT INFORMATION**

The EUT has been tested by request of :

Company : D.M. Technology Co., Ltd.  
Address : 5<sup>th</sup> F1., Mando Bldg. 730 Dang-dong, Gunpo, Kyunggi-do,  
Korea 435-010  
Name of contact : TONG-JIN, PARK  
Telephone : + 82-31-451-4526  
Facsimile : + 82-31-451-4520

**2. LABORATORY INFORMATION**

The 10m full-anechoic chamber and/or EMC facilities are used for these testing.  
These facilities were accredited by KOLAS, EK, MIC of Korea and FCC of USA.

**Address**

ELECTROMAGNETIC RESEARCH INSTITUTE.  
66-6, JEIL-RI, YANGJI-MYUN, YOUNGIN-CITY, KYUNGGI-DO, KOREA  
Telephone No. : +82-31-336-1186~7  
Facsimile No. : +82-31-336-1184

**Registered No.**

KOLAS : 111  
EK : J  
MIC : KR0030  
FCC Filing No. : 302567

**3. EQUIPMENT UNDER TEST INFORMATION(EUT)****3.1 Identification of the EUT**

Type of equipment : AV PLAYER  
Model name : DM-AV10  
Brand name : ALVA  
Manufacturer : GUANGZHOU DEBAO YUCHANG ELECTRONICS CO.,Ltd  
Address : DONGSI BUILDING, HONGTU, INDUSTRIAL ZONE,  
LICUN VILLAGE, DASHI TOWN, PANYU CITY, UANGDONG,  
CHINA  
Telephone : + 86-20-3456-1885  
Facsimile : + 86-20-3456-1811  
Country of origin : CHINA  
Rating : AC110V, 60Hz

### 3.2 Additional information about the EUT

Class B, Family model list; None

### 3.3 Peripheral equipment

Defined as equipment needed for correct operation of the EUT.

Description	Model No.	Serial No.	Manufacture
AC/DC adaptor	PW137KA500N53	-	AULT KOREA Corp.
Note pc	CM2080	5Y17JNZ9R892	LG
AC/DC adaptor	ADP-60DB	MJD0124008516	Delta electronics Co., Ltd.
Earphone	-	-	-
Keyboard	SDM4510UH	4M020619	-
Mouse	X05-53748	4600	IntelliMouse
Printer	CG4127A	CN13V1B1SZ	HP

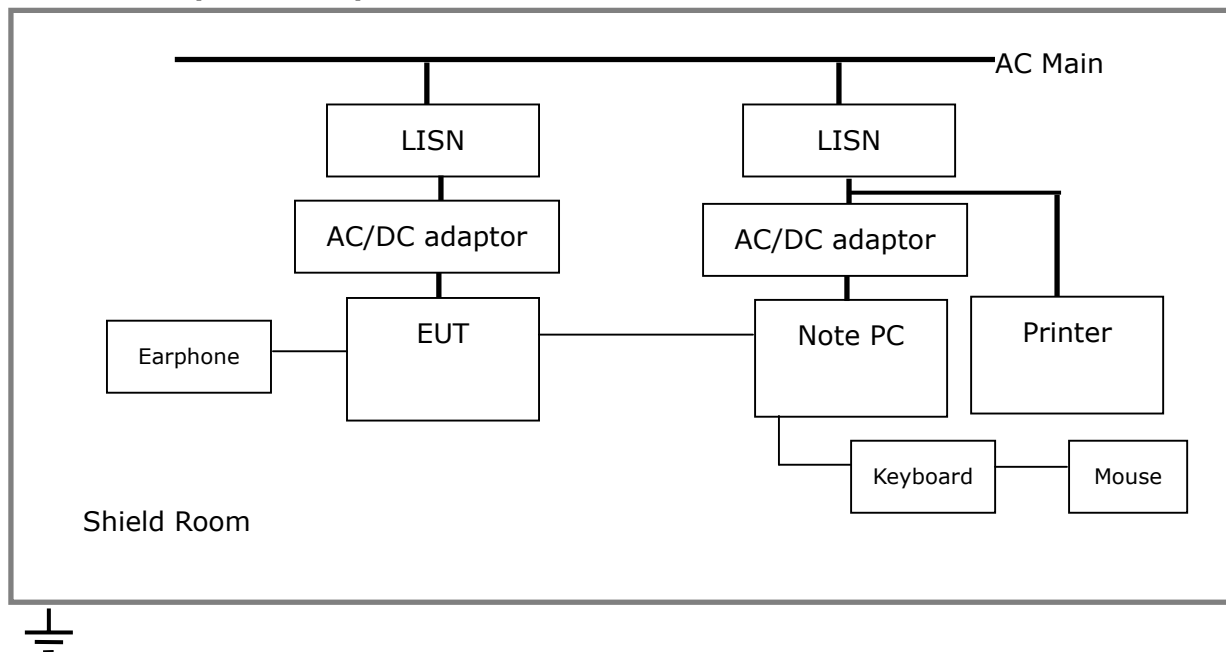
#### 4. CONTINUOUS DISTURBANCE VOLTAGE, MAIN TERMINAL : Frequency range 0.15 MHz to 30 MHz

##### 4.1 Operating environment

Temperature : 22.0 °C

Relative Humidity : 32.0 %

##### 4.2 Test set-up and test procedures



The mains terminal disturbance voltage was measured with the equipment under test(EUT) in a shield room. The EUT was connected to an artificial mains network(LISN) placed on the floor. The EUT was placed on non-metallic table 0.4m above the metallic, grounded floor. The distance to other metallic surface was at least 0.8m.

Amplitude measurements were performed with a quasi-peak detector and an average detector.

##### 4.3 Operation Conditions

Play, download, upload mode

##### 4.4 Test instrument

Instrument	Model No	Serial No.	Makers	Next cal.date	Used
Test receiver	ESCS30	100020	R&S	2004. 3. 25	x
L.I.S.N.	ESH3-Z5	827246/008	R&S	2004. 3. 19	x
	ESH3-Z5	831887/018	R&S	2004. 3. 19	
Shield room	8 × 6 × 3.3m/H	-	-	-	x

#### 4.4 Test results(Play mode)

Date of test: Feb 02, 2004.

An overview sweep performed with peak detector & average detector are included in the report **as test reports.**

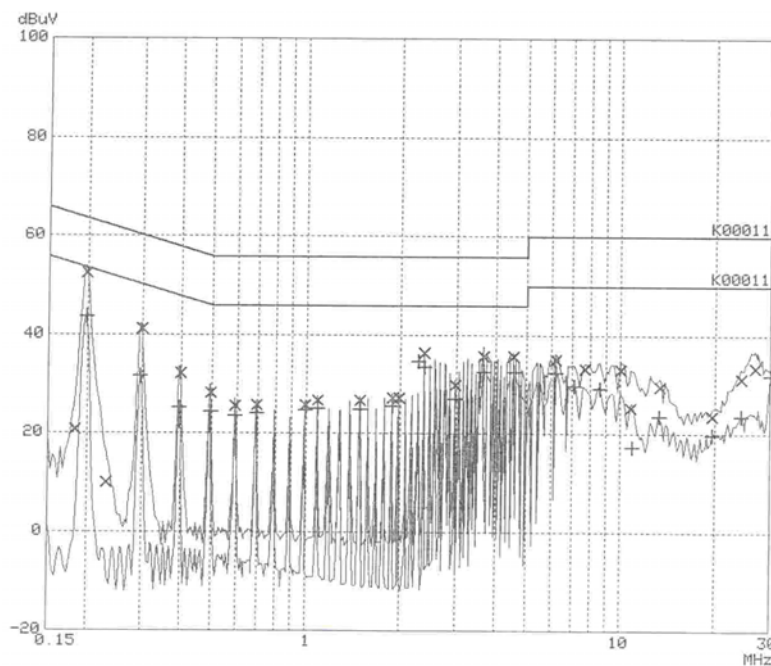
Frequency Range [MHz]	Tested Freq. [MHz]	LISN	Meter Reading		Limits		Margin	
			QP	AV	QP	AV	QP	AV
			[dBuV]		[dBuV]		[dBuV]	
<b>0.15-30</b>	0.198	H	52.6	43.8	63.7	53.7	11.1	9.9
	0.297	H	41.4	31.9	60.3	50.3	18.9	18.4
	2.370	H	36.5	33.6	56.0	46.0	19.5	12.4
	3.650	H	35.8	32.6	56.0	46.0	20.2	13.4
	4.540	H	35.7	32.6	56.0	46.0	20.3	13.4
	6.220	H	35.2	32.4	60.0	50.0	24.8	17.6
	7.700	H	33.4	29.8	60.0	50.0	26.6	20.2
	26.760	H	33.5	23.7	60.0	50.0	26.5	26.3

\* <5 : mean less than 5dB

\* Other frequency keep over 20dB margin.

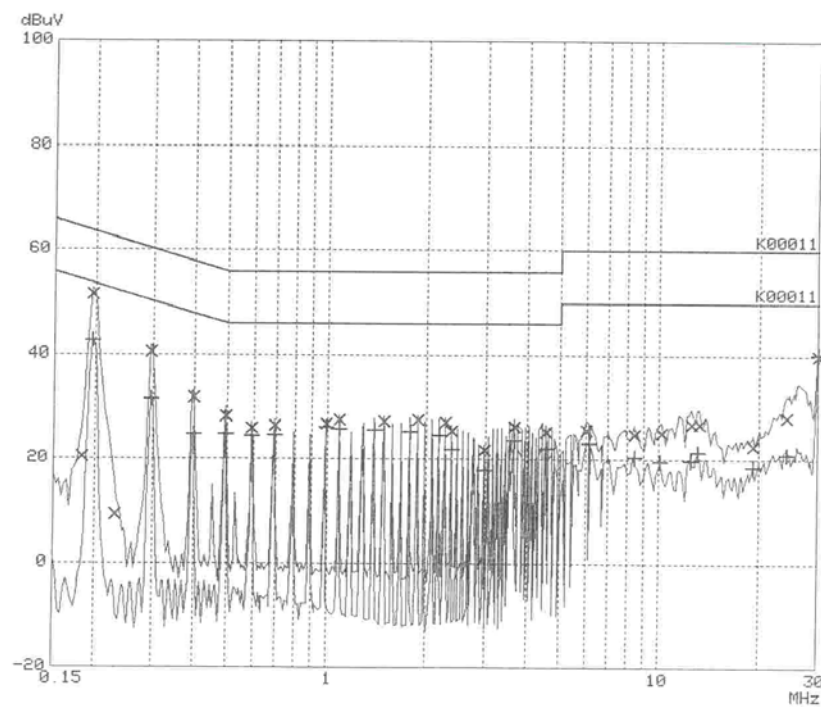
**Result: Pass**

The measured emissions level of the EUT have found the below of the specified limit.



PAGE 1

[Live line]



PAGE 1

[Neutral line]

#### 4.5 Test results(Upload mode)

Date of test: Feb 02, 2004.

An overview sweep performed with peak detector & average detector are included in the report **as test reports**.

Frequency Range	Tested Freq.	LISN	Meter Reading		Limits		Margin	
			QP	AV	QP	AV	QP	AV
			[dBuV]		[dBuV]		[dBuV]	
<b>0.15-30</b>	0.198	N	49.1	40.8	63.8	53.8	14.7	13.0
	0.297	N	42.7	17.4	60.3	50.3	17.6	32.9
	0.492	N	41.0	40.6	56.1	46.1	15.1	5.5
	0.789	N	41.7	41.6	56.0	46.0	14.3	4.4
	1.380	N	41.5	41.3	56.0	46.0	14.5	4.7
	1.974	N	41.3	41.1	56.0	46.0	14.7	4.9
	5.720	N	42.5	42.1	60.0	50.0	17.5	7.9
	5.820	N	42.7	42.1	60.0	50.0	17.3	7.9

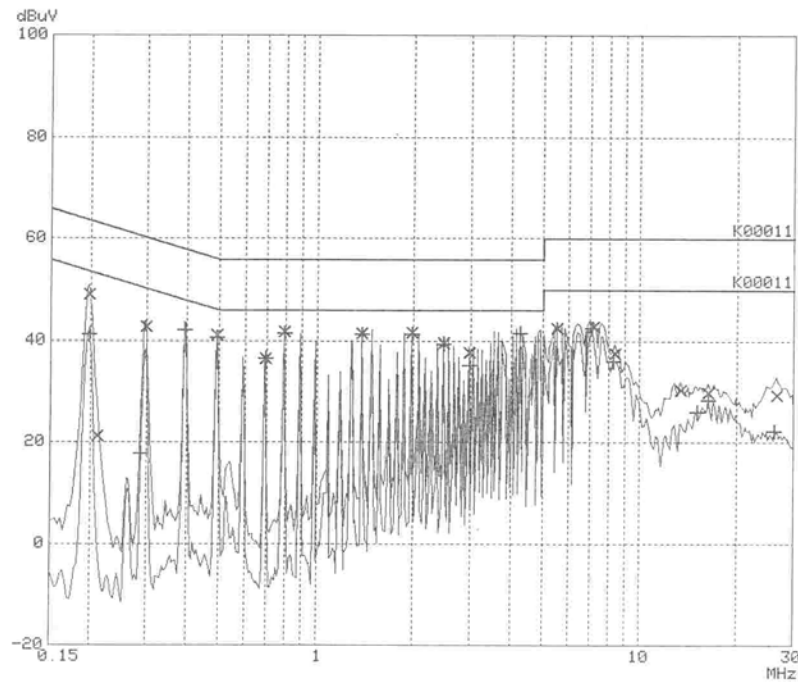
\* <5 : mean less than 5dB

\* Other frequency keep over 20dB margin.

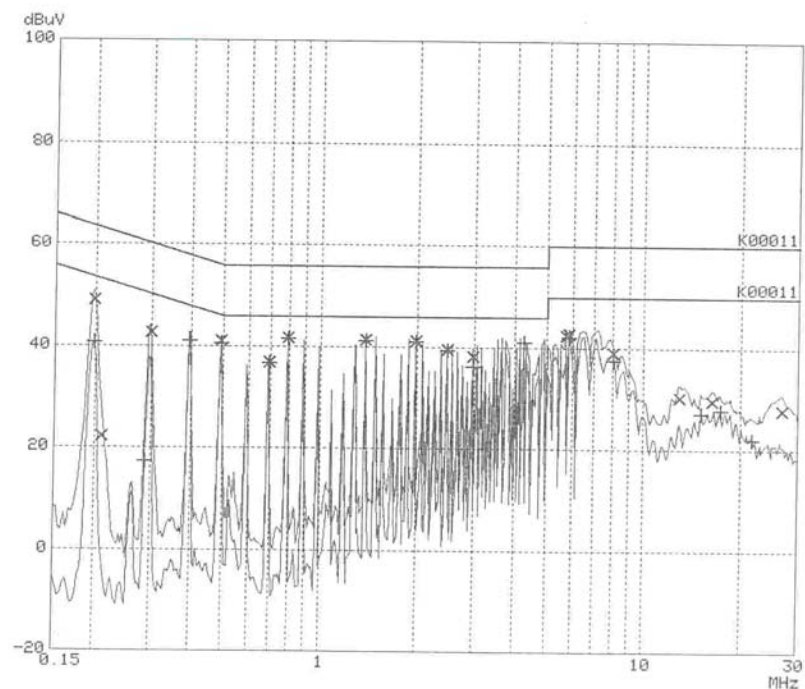
#### Result: Pass

The measured emissions level of the EUT have found the below of the specified limit.





[Live line]



PAGE 1

[Neutral line]

#### 4.6 Test results(Download mode)

Date of test: Feb 02, 2004.

An overview sweep performed with peak detector & average detector are included in the report **as test reports**.

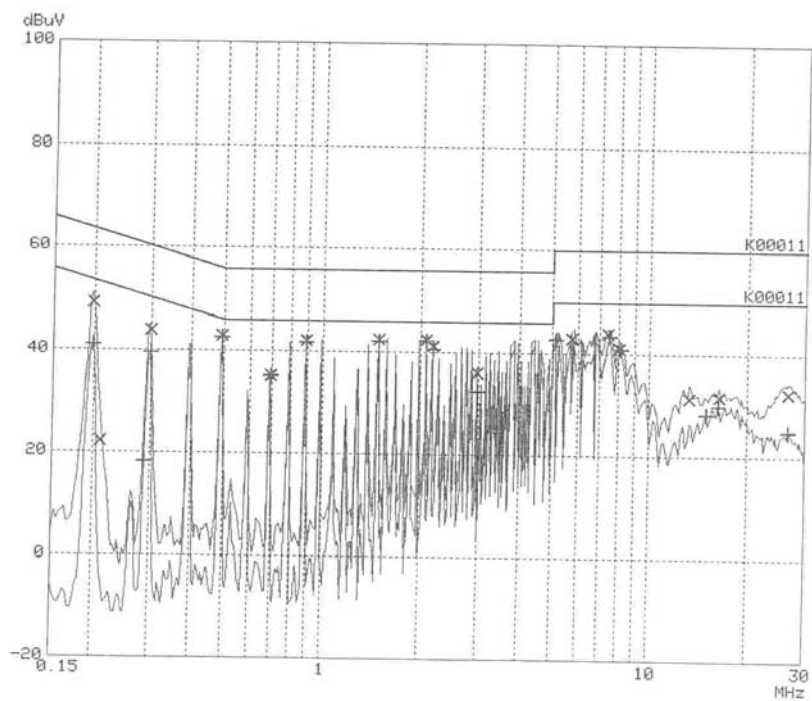
Frequency Range [MHz]	Tested Freq. [MHz]	LISN	Meter Reading		Limits		Margin	
			QP	AV	QP	AV	QP	AV
			[dBuV]		[dBuV]		[dBuV]	
<b>0.15-30</b>	0.198	H	49.3	41.1	63.7	53.7	14.4	12.6
	0.297	H	43.9	18.4	60.3	50.3	16.4	31.9
	0.492	H	43.0	42.6	56.2	46.2	13.2	3.6
	0.888	H	42.1	41.8	56.0	46.0	13.9	4.2
	1.479	H	42.4	42.1	56.0	46.0	13.6	3.9
	2.073	H	42.5	42.3	56.0	46.0	13.5	3.7
	2.172	H	41.4	40.7	56.0	46.0	14.6	5.3
	5.720	H	42.9	42.8	60.0	50.0	17.1	7.2
	7.400	H	43.9	43.5	60.0	50.0	16.1	6.5
	7.990	H	41.0	41.0	60.0	50.0	19.0	9.0

\* <5 : mean less than 5dB

\* Other frequency keep over 20dB margin.

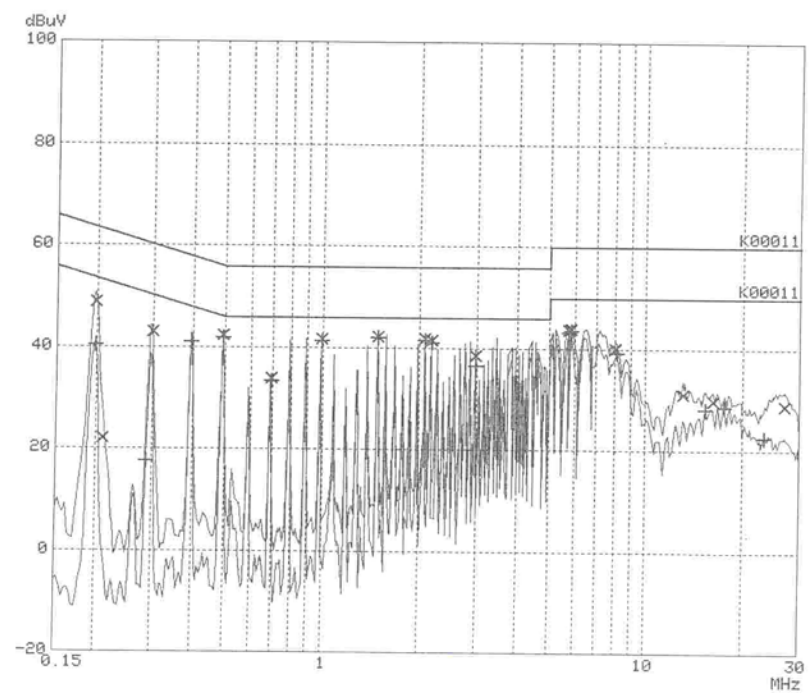
#### Result: Pass

The measured emissions level of the EUT have found the below of the specified limit.



PAGE 1

**[Live line]**



PAGE 1

**[Neutral line]**

## 5. RADIATED DISTURBANCE : 30MHz – 1000MHz

### 5.1 Operating environment

Temperature : 22.0 °C  
Relative Humidity : 33 %

### 5.2 Test set-up

The frequency range investigated was 30 MHz to 1000 MHz.

All readings are quasi-peak unless stated otherwise.

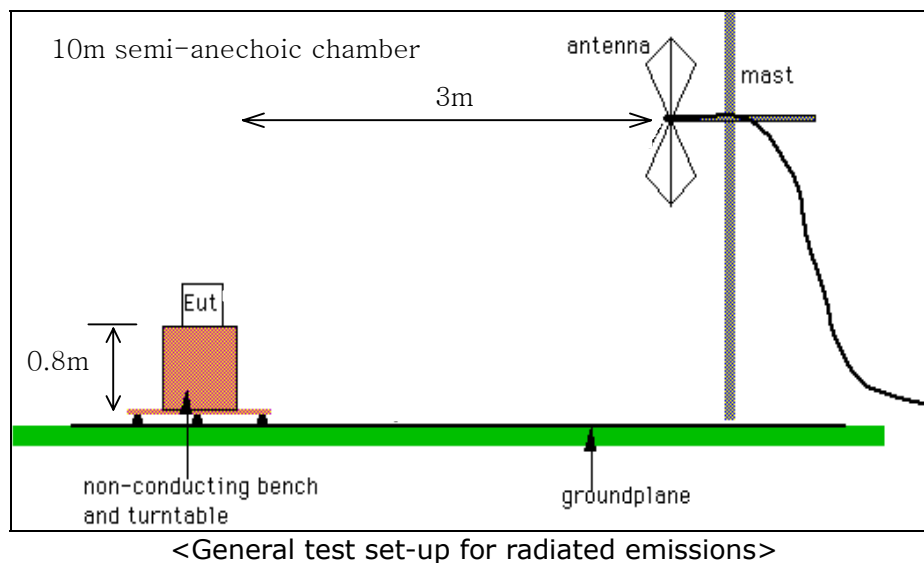
The half-wave dipole antenna was tuned to the frequency found during Preliminary radiated measurements. The EUT, support equipment and Interconnecting cables were re-configured to the set-up to the producing the Maximum emission for the frequency and were placed on top of a 0.8 meter High non-metallic 1 X 1.5 meter table. The EUT, support equipment, and interconnecting cables were re-arranged and manipulated to maximize each EME emission.

The turntable containing the system was rotated the antenna height was varied 1 to 4 meters

and stopped at the azimuth or height producing the maximum emission.

And this device(EUT) was tested in 3 orthogonal planes.

The antenna measured both horizontal and vertical polarization.



### 5.3 Operation Conditions

Play, Download, upload mode

#### 5.4 Test instrument

Instrument	Model No.	Serial No.	Makers	Next cal.date	Used
Test receiver	ESCS30	100021	R&S	2005. 1. 24	x
L.I.S.N.	ESH3-Z5	827246/008	R&S	2004. 3. 19	
	ESH3-Z5	831887/018	R&S	2004. 3. 19	
Biconical Antenna	VHA9103	91031950	Schwarzbeck	2005.01.24	x
Log-Periodic Antenna	UHALP9108A	0392	Schwarzbeck	2005.01.23	x
Antenna Mast	MA240	N/A	HD	-	x
Turn Table	DT430S	N/A	HD	-	x

#### 5.5 Test results (Test mode: Play mode)

Date of test: Feb 3, 2004.

Freq (MHz)	Reading (dBuV)	Ant	AF (dB)	CL (dB)	Result (dBuV/m)	Limit (dB)	Margin (dB)
76.60	25.60	H	6.48	2.10	34.18	40.00	5.82
121.00	19.72	V	12.44	2.50	34.66	43.50	8.84
180.00	15.78	H	16.22	3.00	35.00	43.50	8.50
405.03	22.33	H	15.87	4.10	42.30	46.00	3.70
426.00	21.33	H	15.87	4.10	41.30	46.00	4.70
468.00	12.96	H	16.64	4.40	34.00	46.00	12.00

\* Receiving Antenna Mode : **Horizontal, Vertical**

\* <5 : mean less than 5dB

Note : Reading = Test Receiver meter, P= Polarization → POL H = Horizontal POL V = Vertical A = Angle, AF = Antenna Factor CL = Cable Loss Result = Field Strength( AF + CL+ Reading)

## 5.6 Test results (Test mode: Upload mode)

Date of test: Feb 3, 2004.

Freq (MHz)	Reading (dBUV)	Ant	AF (dB)	CL (dB)	Result (dBUV/m)	Limit (dB)	Margin (dB)
82.70	24.95	H	7.60	1.90	34.45	40.00	5.55
101.60	18.59	V	10.31	2.00	30.90	43.50	12.60
108.30	21.60	H	11.00	2.00	34.60	43.50	8.90
133.30	18.55	V	13.86	2.20	34.61	43.50	8.89
219.00	13.30	V	16.50	2.80	32.60	46.00	13.40
356.00	24.82	H	14.31	3.80	42.93	46.00	3.07
396.00	21.97	H	14.31	3.80	40.08	46.00	5.92
421.00	17.04	V	15.87	4.20	37.11	46.00	8.89

\* Receiving Antenna Mode : **Horizontal, Vertical**

\* <5 : mean less than 5dB

Note : Reading = Test Receiver meter, P= Polarization → POL H = Horizontal POL V = Vertical A = Angle, AF = Antenna Factor CL = Cable Loss Result = Field Strength( AF + CL+ Reading)

## 5.7 Test results (Test mode: Download mode)

Date of test: Feb 3, 2004.

Freq (MHz)	Reading (dBUV)	Ant	AF (dB)	CL (dB)	Result (dBUV/m)	Limit (dB)	Margin (dB)
135.30	16.74	V	14.70	2.40	33.84	43.50	9.66
148.80	15.86	H	14.10	2.30	32.26	43.50	11.24
252.10	16.50	H	17.35	3.20	37.05	46.00	8.95
270.30	15.68	H	18.00	3.30	36.98	46.00	9.02
275.70	16.39	H	18.00	3.30	37.69	46.00	8.1
349.00	21.08	V	13.80	3.70	38.58	46.00	7.42
396.00	24.30	H	14.31	3.80	42.41	46.00	3.59
748.00	15.74	H	20.06	5.50	41.30	46.00	4.70
802.00	11.31	V	20.84	6.10	38.25	46.00	7.75

\* Receiving Antenna Mode : **Horizontal, Vertical**

\* <5 : mean less than 5dB

Note : Reading = Test Receiver meter, P= Polarization → POL H = Horizontal POL V = Vertical A = Angle, AF = Antenna Factor CL = Cable Loss Result = Field Strength( AF + CL+ Reading)