



EMC RESEARCH INSTITUTE



EMI TEST REPORT

Emission of electromagnetic disturbance

Test Report No. : ERI-FCC04-0057
Equipment : Portable AV Player
Name of basic model : DM-AV7
Family model : Refer to the page 4
Manufacturer : GUANGZHOU DEBAO YUCHANG ELECTRONICS CO.,Ltd
Applicant : D.M. Technology Co., Ltd.
Tested date : 2004. 11. 17
Issued date : 2004. 11. 22
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: YOUNG-SIK, KIM

Approved by: SANG-KYU, LEE

The results in this report apply only to the sample tested.

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APPENDIX

(None)

1. CLIENT INFORMATION

The EUT has been tested by request of :

Address : 5th 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 : Portable AV Player
Model name : DM-AV7
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 Models List:

Basic Model	Memory size
DM-AV7	1G, 512M, 256M, 128M

3.3 Peripheral equipment

Defined as equipment needed for correct operation of the EUT.

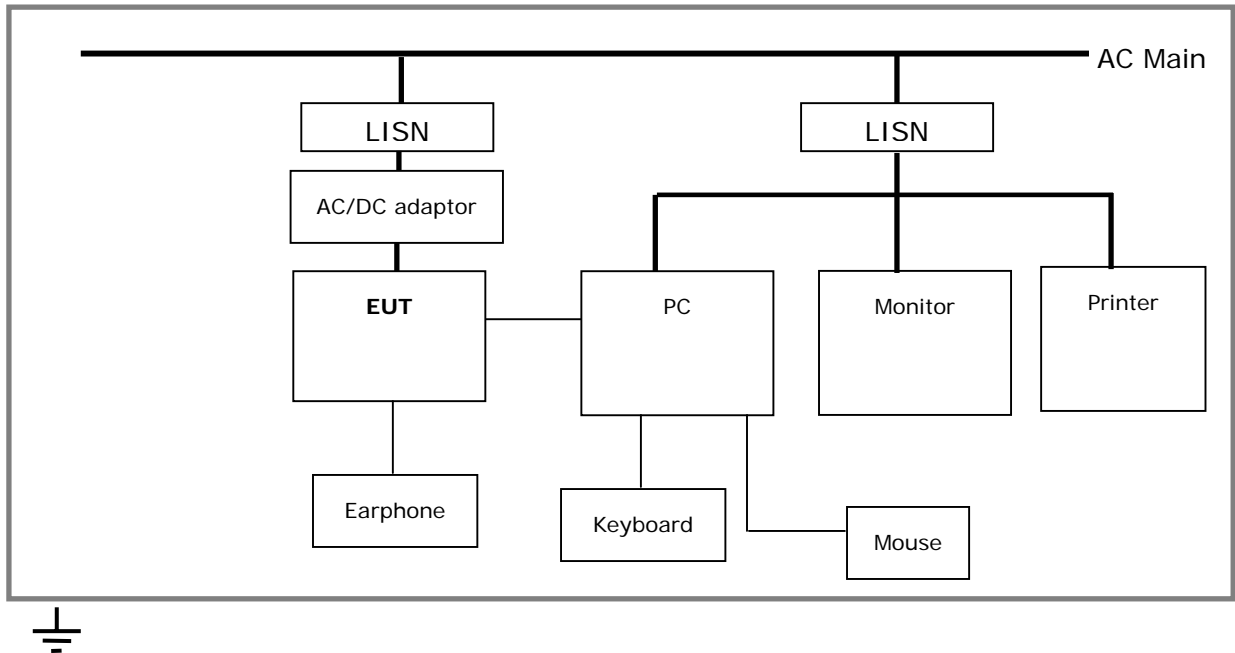
Description	Model No.	Serial No.	Manufacture
MOUSE	M-S48a	LZA95250340	Logitech
KEYBOARD	ACK-260	103063349	Solid Year Co., Ltd.
MONITOR	PN15VT	P181H80R807018	Chunghwa electronic
PC	MTC2	FSZS91S	DELL
PRINTER	DeskJet930C	CN13V1B1SZ	HP
ADAPTOR	STP032030E	-	D.M. Technology Co., Ltd.
EARPHONE	-	-	

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

4.1 Operating environment

Temperature : 22.0
Relative Humidity : 38.0 %

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

Up & Down load mode, FM tuner mode

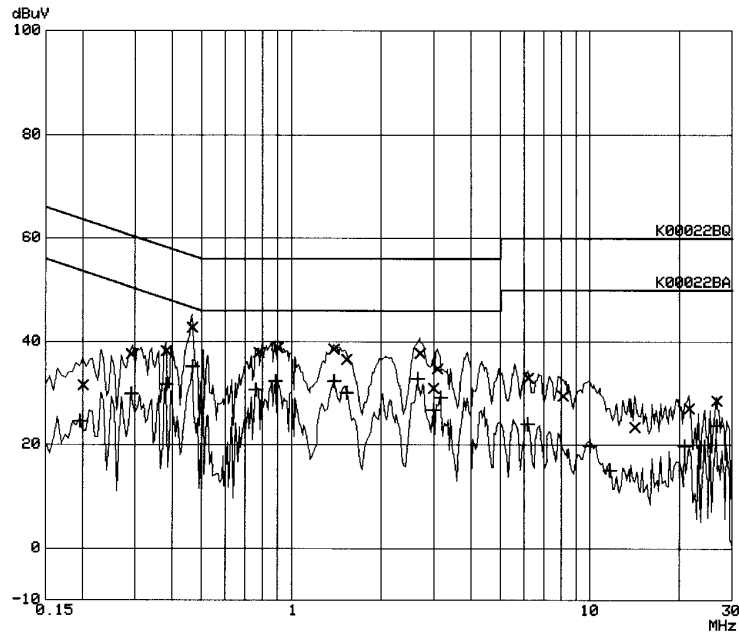
4.4 Test instrument

Instrument	Model No	Serial No.	Makers	Next cal.date	Used
Test receiver	ESCS30	830986-015	R&S	2005. 04. 08	
L.I.S.N.	ESH3-Z5	100029	R&S	2004. 11. 11	
	ESH3-Z5	831887/018	R&S	2005. 03. 19	
Shield room	8 x 6 x 3.3m/H	-	-	-	

4.5 Test results (Up & download mode)

Date of test: Nov 17, 2004.

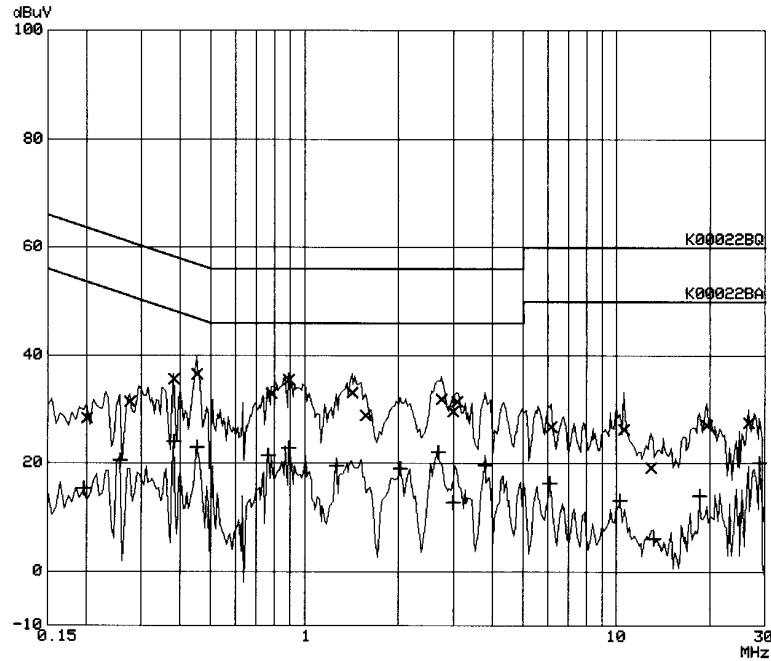
An overview sweep performed with peak detector & average detector are included in the report **as test reports**.



Frequency MHz	QP Level dBuV	QP Limit dBuV	Phase -	PE -
0.20000	31.7	63.6	N	gnd
0.29000	37.6	60.6	N	gnd
0.38000	38.3	58.3	L1	gnd
0.46500	42.8	56.6	N	gnd
0.77500	38.0	56.0	N	gnd
0.90000	39.0	56.0	N	gnd
1.38500	38.7	56.0	L1	gnd
1.53000	36.7	56.0	N	gnd
2.68500	37.8	56.0	L1	gnd
2.99000	31.1	56.0	N	gnd
3.07500	34.8	56.0	L1	gnd
6.21000	33.1	60.0	N	gnd
8.11500	29.5	60.0	L1	gnd
14.14500	23.5	60.0	L1	gnd
21.51000	27.1	60.0	N	gnd
26.56500	28.6	60.0	N	gnd

Frequency MHz	AV Level dBuV	AV Limit dBuV	Phase -	PE -
0.19500	24.7	53.9	L1	gnd
0.29000	30.0	50.6	N	gnd
0.38000	31.8	48.3	N	gnd
0.46500	35.3	46.6	N	gnd
0.75500	30.7	46.0	N	gnd
0.88000	32.4	46.0	N	gnd
1.38500	32.3	46.0	N	gnd
1.53000	30.1	46.0	N	gnd
2.64500	32.8	46.0	N	gnd
2.98500	26.8	46.0	L1	gnd
3.15000	29.2	46.0	L1	gnd
6.15000	24.0	50.0	N	gnd
9.97500	19.9	50.0	N	gnd
11.65500	15.1	50.0	N	gnd
20.79000	19.9	50.0	L1	gnd
26.56500	23.7	50.0	N	gnd

[Live line]



Frequency MHz	QP Level dBuV	QP Limit dBuV	Phase -	PE -
0.20000	28.5	63.6	L1	gnd
0.27500	31.5	61.0	N	gnd
0.38000	35.7	58.3	N	gnd
0.45000	36.6	56.9	N	gnd
0.78000	33.1	56.0	L1	gnd
0.88500	35.6	56.0	N	gnd
1.41500	33.2	56.0	L1	gnd
1.56000	29.0	56.0	L1	gnd
2.74000	32.0	56.0	L1	gnd
2.98000	29.7	56.0	N	gnd
3.07500	31.4	56.0	L1	gnd
6.15000	26.8	60.0	L1	gnd
10.57500	26.4	60.0	N	gnd
12.91500	19.3	60.0	N	gnd
19.56000	27.2	60.0	N	gnd
26.56500	27.5	60.0	L1	gnd

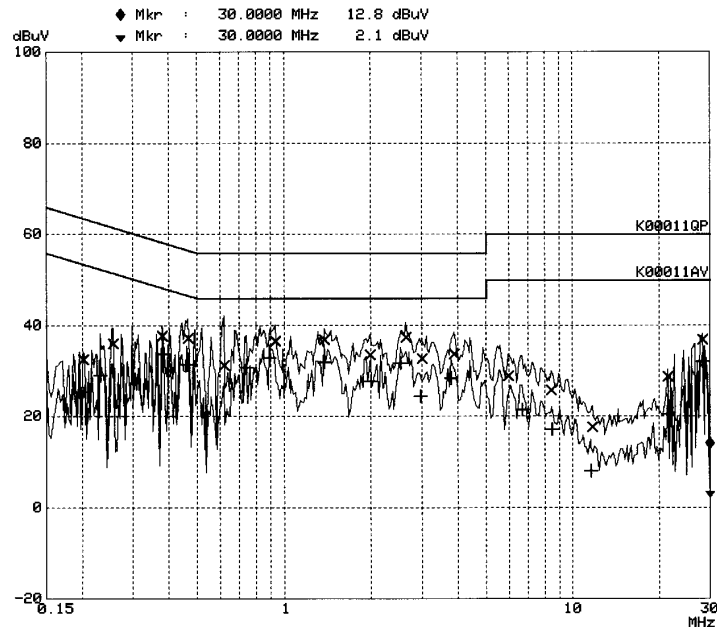
Frequency MHz	AV Level dBuV	AV Limit dBuV	Phase -	PE -
0.19500	15.5	53.9	L1	gnd
0.25500	20.6	51.6	N	gnd
0.38000	24.1	48.3	N	gnd
0.45000	23.0	46.9	L1	gnd
0.76000	21.6	46.0	N	gnd
0.88500	22.9	46.0	N	gnd
1.26500	19.5	46.0	N	gnd
2.02500	19.1	46.0	N	gnd
2.67500	22.1	46.0	N	gnd
2.99000	12.9	46.0	L1	gnd
3.79500	19.7	46.0	N	gnd
6.07500	16.3	50.0	N	gnd
10.20000	13.2	50.0	N	gnd
13.11000	6.3	50.0	L1	gnd
18.48000	14.1	50.0	N	gnd
28.87500	20.1	50.0	N	gnd

[Neutral line]

4.6 Test results (FM tuner mode)

Date of test: Nov 17, 2004.

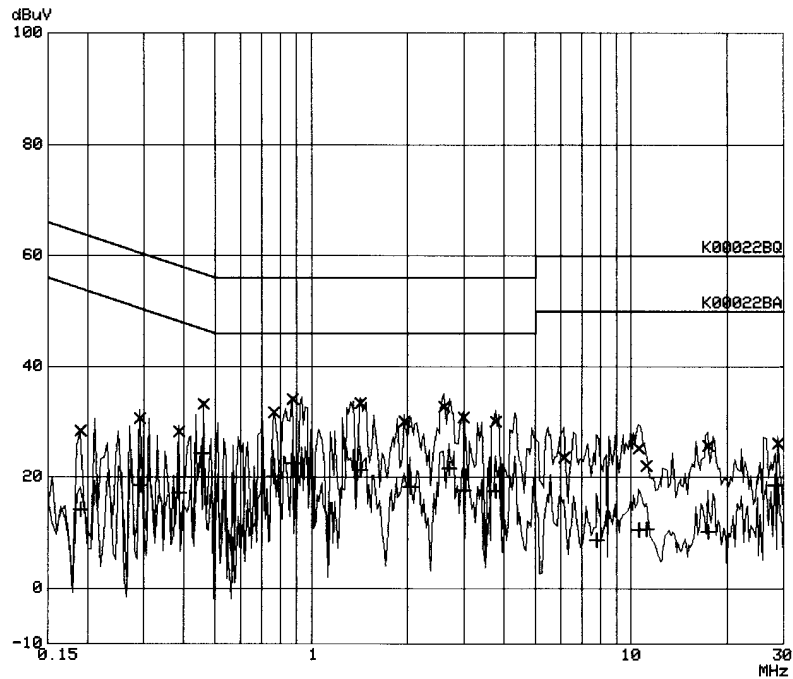
An overview sweep performed with peak detector & average detector are included in the report **as test reports**.



Frequency MHz	QP Level dBuV	Delta Limit dB	Phase -	PE -
0.20100	32.7	-30.8	N	gnd
0.25500	36.2	-25.3	L1	gnd
0.37800	37.8	-20.5	N	gnd
0.46500	37.3	-19.2	N	gnd
0.61800	31.4	-24.5	N	gnd
0.93000	36.7	-19.3	L1	gnd
1.37400	37.0	-18.9	L1	gnd
1.98600	33.6	-22.3	L1	gnd
2.64300	37.5	-18.4	L1	gnd
2.99700	32.7	-23.2	N	gnd
3.87000	33.8	-22.1	N	gnd
5.98000	29.0	-30.9	L1	gnd
8.43000	25.8	-34.1	N	gnd
11.71000	17.7	-42.2	L1	gnd
21.37000	28.8	-31.1	L1	gnd
28.30000	37.0	-22.9	N	gnd

Frequency MHz	AV Level dBuV	Delta Limit dB	Phase -	PE -
0.19500	25.4	-28.3	N	gnd
0.23100	29.2	-23.2	L1	gnd
0.38100	33.9	-14.3	N	gnd
0.45900	31.5	-15.2	L1	gnd
0.74100	30.8	-15.1	L1	gnd
0.88800	33.1	-12.8	N	gnd
1.37700	32.0	-13.9	N	gnd
1.99200	27.9	-18.0	L1	gnd
2.53800	31.8	-14.1	N	gnd
2.97300	24.5	-21.4	L1	gnd
3.79000	28.6	-17.4	L1	gnd
6.67000	21.6	-28.3	N	gnd
8.47000	17.2	-32.7	N	gnd
11.52000	8.0	-41.9	L1	gnd
21.37000	20.5	-29.4	N	gnd
28.30000	32.2	-17.7	L1	gnd

[Live line]



Frequency MHz	QP Level dBuV	QP Limit dBuV	Phase -	PE -
0.20000	28.5	63.6	L1	gnd
0.27500	31.5	61.0	N	gnd
0.38000	35.7	58.3	N	gnd
0.45000	36.6	56.9	N	gnd
0.78000	33.1	56.0	L1	gnd
0.88500	35.6	56.0	N	gnd
1.41500	33.2	56.0	L1	gnd
1.56000	29.0	56.0	L1	gnd
2.74000	32.0	56.0	L1	gnd
2.98000	29.7	56.0	N	gnd
3.07500	31.4	56.0	L1	gnd
6.15000	26.8	60.0	L1	gnd
10.57500	26.4	60.0	N	gnd
12.91500	19.3	60.0	N	gnd
19.56000	27.2	60.0	N	gnd
26.56500	27.5	60.0	L1	gnd

Frequency MHz	AV Level dBuV	AV Limit dBuV	Phase -	PE -
0.19500	15.5	53.9	L1	gnd
0.25500	20.6	51.6	N	gnd
0.38000	24.1	48.3	N	gnd
0.45000	23.0	46.9	L1	gnd
0.76000	21.6	46.0	N	gnd
0.88500	22.9	46.0	N	gnd
1.26500	19.5	46.0	N	gnd
2.02500	19.1	46.0	N	gnd
2.67500	22.1	46.0	N	gnd
2.99000	12.9	46.0	L1	gnd
3.79500	19.7	46.0	N	gnd
6.07500	16.3	50.0	N	gnd
10.20000	13.2	50.0	N	gnd
13.11000	6.3	50.0	L1	gnd
18.48000	14.1	50.0	N	gnd
28.87500	20.1	50.0	N	gnd

[Neutral line]

5. RADIATED DISTURBANCE : 30MHz – 1000MHz

5.1 Operating environment

Temperature : 22.0
Relative Humidity : 38.0 %

5.2 Test set-up

The frequency range investigated was 30 MHz to 1000 MHz.

All readings are quasi-peak unless stated otherwise.

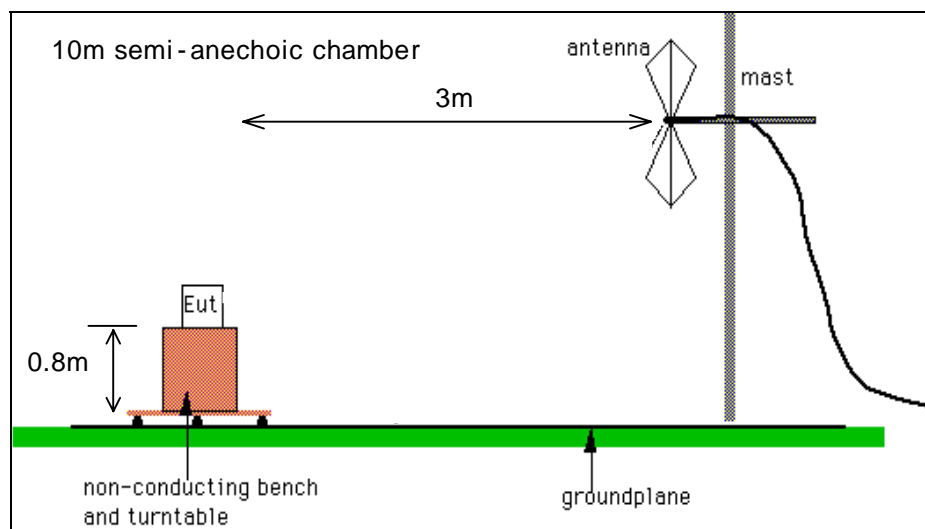
The half-wave dipole antenna was tuned to the frequency found during Preliminary radiated measurements. The EUT, support equipment and Interconnecting cables were re-configured to the set-up to the producing the Maximum emission for the frequency and were placed on top of a 0.8 meter High non-metallic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



<General test set-up for radiated emissions>

5.3 Operation Conditions

Up & download mode, play & record mode, FM tuner mode

5.4 Test instrument

Instrument	Model No.	Serial No.	Makers	Next cal.date	Used
Test receiver	ESCS30	100021	R&S	2005. 02.06	
Biconical Antenna	VHA9103	91031950	Schwarzbeck	2005. 02.04	
Log-Periodic Antenna	UHALP9108A	0392	Schwarzbeck	2005. 02.04	
Antenna Mast	MA240	N/A	HD	-	
Turn Table	DT430S	N/A	HD	-	

5.5 Test results (Test mode: Up & Down lode)

Date of test: Nov 17, 2004.

Freq (MHz)	Reading (dBuV/m)	Ant	AF (dB)	CL (dB)	Result (dBuV/m)	Limit (dB)	Margin (dB)
32.70	12.35	V	18.57	1.50	32.42	40.00	7.58
125.18	14.85	V	13.10	2.60	30.55	43.50	12.95
177.15	12.18	H	15.90	3.00	31.08	43.50	12.42
225.08	18.69	H	16.70	3.50	38.89	46.00	7.11
396.25	20.24	H	15.17	4.00	39.41	46.00	6.59
455.75	11.36	H	16.64	4.40	32.40	46.00	13.60

* 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)

Result: Pass

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

5.6 Test results (Test mode: Play mode)

Date of test: Nov 17, 2004.

Freq (MHz)	Reading (dBuV/m)	Ant	AF (dB)	CL (dB)	Result (dBuV/m)	Limit (dB)	Margin (dB)
202.80	9.18	H	16.29	3.20	28.67	43.50	14.83
232.50	13.22	V	16.90	3.50	33.62	46.00	12.38
270.30	11.49	H	18.00	3.60	33.09	46.00	12.91
350.75	13.21	V	14.31	3.80	31.32	46.00	14.68
405.00	18.95	V	15.87	4.10	38.92	46.00	7.08

* 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)

Result: Pass

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

5.7 Test results (Test mode: Record mode)

Date of test: Nov 17, 2004.

Freq (MHz)	Reading (dBuV/m)	Ant	AF (dB)	CL (dB)	Result (dBuV/m)	Limit (dB)	Margin (dB)
195.38	10.61	H	16.35	3.10	30.06	43.50	13.44
228.45	4.52	H	16.70	3.50	24.72	46.00	21.28
270.30	8.36	H	18.00	3.60	29.96	46.00	16.04
276.37	8.70	H	18.00	3.60	30.30	46.00	15.70

* 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)

Result: Pass

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

5.8 Test results < Test mode: FM tuner mode >

Date of test: Nov 17, 2004.

T.	Tested	Meter Reading (quasi-peak)		Limits	Margins	
Frequency	Frequency	H	V		H	V
[MHz]	[MHz]	[dBuV/m]	[dBuV/m]		[dBuV/m]	[dBuV/m]
87.5	98.20	-	-	43.5	-	-
	196.40	-	-	43.5	-	-
	294.60	-	-	46.0	-	-
	392.80	-	-	46.0	-	-
	473.25	-	26.47	46.0	-	19.53
	589.20	-	-	46.0	-	-
	687.40	-	-	46.0	-	-
	785.60	-	-	46.0	-	-
	883.80	-	-	46.0	-	-
	982.00	-	-	54.0	-	-
98.0	108.70	-	-	43.5	-	-
	216.30	24.72	-	46.0	21.28	-
	326.10	-	-	46.0	-	-
	434.80	-	-	46.0	-	-
	543.50	-	-	46.0	-	-
	652.20	-	-	46.0	-	-
	760.90	-	-	46.0	-	-
	869.60	-	-	46.0	-	-
	978.30	-	-	54.0	-	-
108.0	118.70	-	-	43.5	-	-
	237.40	-	-	46.0	-	-
	350.75	-	29.14	46.0	-	16.86
	473.25	-	25.72	46.0	-	20.28
	593.50	-	-	46.0	-	-
	712.20	-	-	46.0	-	-
	830.90	-	-	46.0	-	-
	949.60	-	-	46.0	-	-
Others	144.75	33.49	-	43.5	10.01	-
	215.63	27.30	-	43.5	16.20	-
	270.30	28.42	-	46.0	17.58	-
	297.30	32.32	-	46.0	13.68	-
	301.20	-	33.20	46.0	-	12.80
	402.10	-	34.40	46.0	-	11.60
* Meter reading: <i>Loss include</i> * Margins: [Limits] – [Meter reading] * Receiving Antenna Mode: <i>Horizontal, Vertical</i> * 10m chamber * <5 : mean less than 5dB						

Result: Pass

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