EMC RESEARCH INSTITUTE

EMI TEST REPORT

Emission of electromagnetic disturbance

Test Report No. : ERI-FCC04-0054

Equipment : MP3 Player

Name of basic model : DM-FA60

Family model : Refer to the page 4

Manufacturer :GUANGZHOU DEBAO YUCHANG ELECTRONICS CO.,Ltd

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

Tested date : 2004. 9. 13 – 9. 14

Issued date : 2004. 10. 29

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.
This test report shall not be reproduced except in full, without the written approval of **ERI Laboratory**.

CONTENTS

1. CLIENT INFORMATION

The EUT has been tested by request of :

Company	: Frous electronics Co., Ltd.
Address	: 4th Fl. 419-5, DoGok-Dong, KangNam-Gu, Seoul, Korea
Name of contact	: Tae-Yeol, Kim
Telephone	: +82-2-3461-3793
Facsimile	: +82-2-3461-3796

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	: MP3 Player
Model name	: DM-FA60
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	Variant Model	Differential point	Memory size
DM-FA60 (512M)	DM-FA60	Memory size	256M
	DM-FA60		128M

3.3 Peripheral equipment

Defined as equipment needed for correct operation of the EUT.

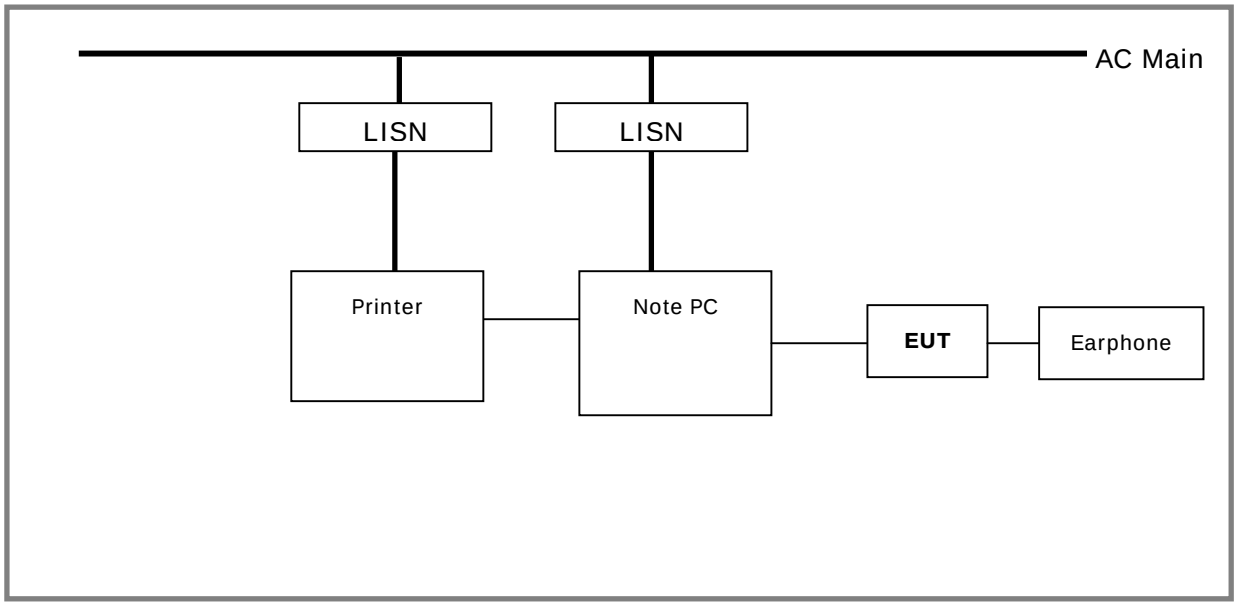
Description	Model No.	Serial No.	Manufacture
NOTE PC	CM2080	5Y17JNZ9R622	LG
Printer	C6247A	CN13V1B1RY	HP
Earphone	-	-	-

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

4.1 Operating environment

Temperature : 24.0 ℃
Relative Humidity : 48.0 %

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, play mode

4.4 Test instrument

Instrument	Model No	Serial No.	Makers	Next cal.date	Used
Test receiver	ESCS30	100022	R&S	2005. 06. 16	x
L.I.S.N.	ESH3-Z5	100029	R&S	2004. 11. 11	x
	ESH3-Z5	100031	R&S	2005. 01. 06	x
Shield room	8 × 6 × 3.3m/H	-	-	-	x

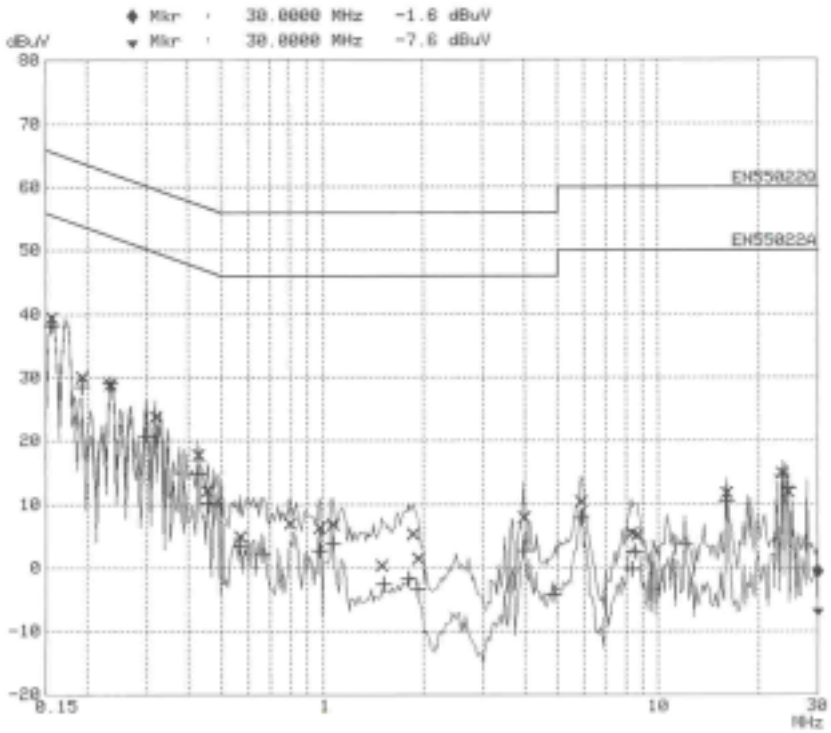
4.5 Test results

Date of test: Sep 14, 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
[MHz]	[MHz]		[dBuV]		[dBuV]		[dBuV]	
0.15-30	0.156	N	45.3	44.1	65.7	55.7	20.4	11.6
	0.219	N	32.1	31.5	62.8	52.8	30.7	21.3
	0.252	N	34.8	32.9	61.6	51.6	26.8	18.7
	0.315	N	32.9	32.3	59.8	49.8	26.9	17.5
	0.423	N	26.2	23.4	57.3	47.3	31.1	23.9
	0.438	N	24.1	22.3	57.2	47.2	33.1	24.9
	2.727	N	25.7	22.2	56.0	46.0	30.3	23.8
	5.770	N	20.9	15.3	60.0	50.0	39.1	34.7
	16.000	N	23.0	21.7	60.0	50.0	37.0	28.3
	24.000	N	21.3	19.5	60.0	50.0	38.7	30.5

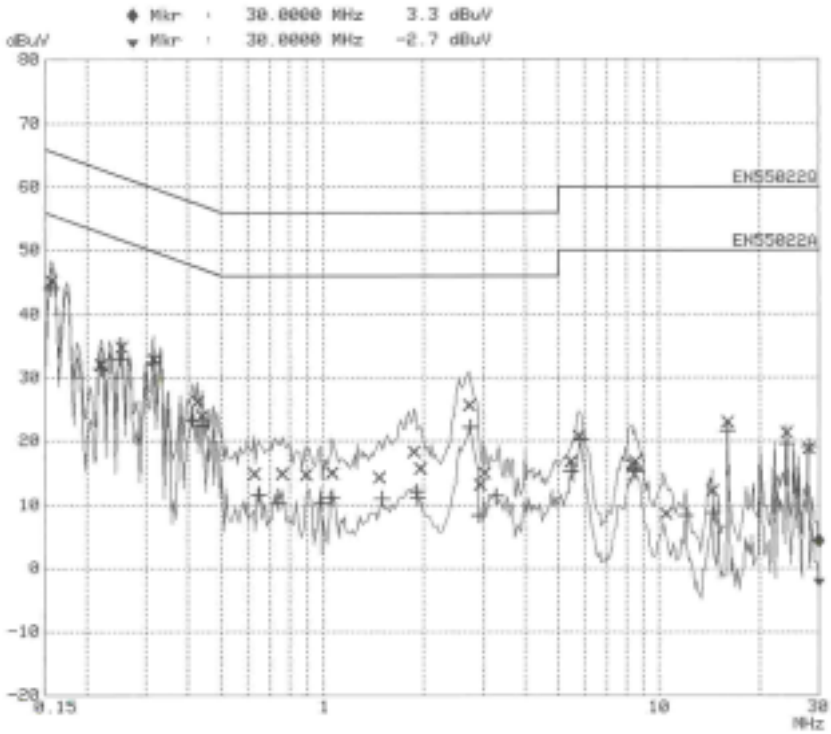
* <5 : mean less than 5dB

* Other frequency keep over 20dB margin.



PAGE 1

[Live line]



PAGE 1

[Neutral line]

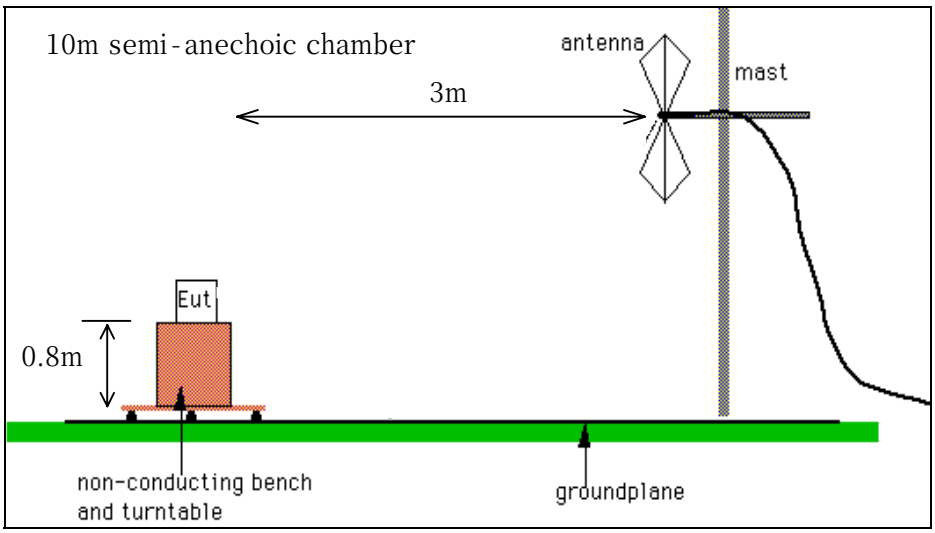
5. RADIATED DISTURBANCE
: 30MHz – 1000MHz

5.1 Operating environment

Temperature : 24.0 ℃
Relative Humidity : 49.0 %

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 load mode, play mode, 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	x
Biconical Antenna	VHA9103	91031950	Schwarzbeck	2005. 02.04	x
Log-Periodic Antenna	UHALP9108A	0392	Schwarzbeck	2005. 02.04	x
Antenna Mast	MA240	N/A	HD	-	x
Turn Table	DT430S	N/A	HD	-	x

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

Date of test: Sep 14, 2004.

Freq (MHz)	Reading (dBuV/m)	Ant	AF (dB)	CL (dB)	Result (dBuV/m)	Limit (dB)	Margin (dB)
149.50	8.70	H	14.70	2.70	34.90	43.50	8.60
199.40	11.35	H	16.35	3.10	36.80	43.50	6.70
245.30	5.30	H	17.10	3.50	38.00	46.00	8.00
249.40	11.50	H	17.10	3.50	41.50	46.00	4.50
299.30	11.57	H	19.13	3.80	38.10	46.00	7.90
384.00	22.33	H	15.17	4.00	38.40	46.00	7.60
746.00	12.80	V	20.19	5.40	40.60	46.00	5.40

* 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: Sep 14, 2004.

Freq (MHz)	Reading (dBuV/m)	Ant	AF (dB)	CL (dB)	Result (dBuV/m)	Limit (dB)	Margin (dB)
180.50	6.88	H	16.22	3.00	38.10	43.50	5.40
186.60	11.40	H	16.30	3.10	36.10	46.00	9.90
198.10	6.45	H	16.35	3.10	41.50	46.00	4.50
374.00	13.99	H	14.31	3.80	39.10	46.00	6.90
396.00	15.33	V	15.17	4.00	38.10	43.50	5.40

* 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: FM tuner >

Date of test: Sep 13, 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	15.11	-	43.5	28.39	-
	196.40	-	23.68	43.5	-	19.82
	294.60	-	-	46.0	-	-
	392.80	32.42	-	46.0	13.58	-
	491.00	-	-	46.0	-	-
	589.20	-	-	46.0	-	-
	687.40	-	-	46.0	-	-
	785.60	-	-	46.0	-	-
	883.80	-	-	46.0	-	-
	982.00	-	-	54.0	-	-
98.0	108.70	17.93	23.53	43.5	25.57	19.97
	217.40	-	-	46.0	-	-
	326.10	-	22.05	46.0	-	23.95
	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	-	-
	356.10	23.33	25.93	46.0	22.67	20.07
	474.80	-	-	46.0	-	-
	593.50	28.37	30.37	46.0	17.63	15.63
	712.20	-	-	46.0	-	-
	830.90	-	34.45	46.0	-	11.55
	949.60	-	-	46.0	-	-
Others	32.40	16.3	-	43.5	27.20	-
	384.00	-	20.23	46.0	-	25.77
	-	-	-	-	-	-
	-	-	-	-	-	-

* Meter reading: ***Loss include***
* Margins: ***[Limits] – [Meter reading]***
* Receiving Antenna Mode: ***Horizontal, Vertical***
* 10m chamber
* <5 : mean less than 5dB

Result: Pass

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