



ELECTROMAGNETIC RESEARCH INSTITUTE

EMI COMPLIANCE REPORT

Emission of electromagnetic disturbance

Test Report No. : ERI-FCC03-0012
Equipment : MP3 PLAYER
Name of basic model : MMP-R630
FCC ID : QW6MMPR630
Family model : MMP-L330, MMP-L630, MMP-R330
Manufacturer : CENIX DIGICOM CO., LTD.
Applicant : Gi-Yeon, Lee
Tested date : 2003. 2. 20
Issued date : 2003. 2. 26
Test results : PASS
Test Standards : FCC Part 15 Subpart B (Class B)

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: UK-CHO, RIM

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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1. CLIENT INFORMATION

The EUT has been tested by request of :

Company : CENIX DIGICOM CO., LTD.
Address : #584-4 PAJANG- DONG, JANGAN- KU, SUWON-CITY,
KYUNGGI- DO, KOREA
Name of contact : Gi-Yeon, Lee
Telephone : +82-31-245-2900
Facsimile : +82-31-251-6425

2. LABORATORY INFORMATION

The 10m semi-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 : MMP-R630
Brand name : N/A
Manufacturer : CENIX DIGICOM CO., LTD.
Address : #584-4 PAJANG- DONG, JANGAN- KU, SUWON-CITY,
KYUNGGI- DO, KOREA
Telephone : +82-31-245-2900
Facsimile : +82-31-251-6425
Country of origin : KOREA
Rating : DC 1.5V



3.2 Additional information about the EUT

Class B

Family Models List:

Basic Model	Variant Model	Differential point	Memory size
MMP-R630	-	Memory size, Radio	128MB
	MMP-L630	Memory size	128MB
	MMP-L330	Memory size	64MB
	MMP-R330	Memory size, Radio	64MB

3.3 Peripheral equipment

Defined as equipment needed for correct operation of the EUT.

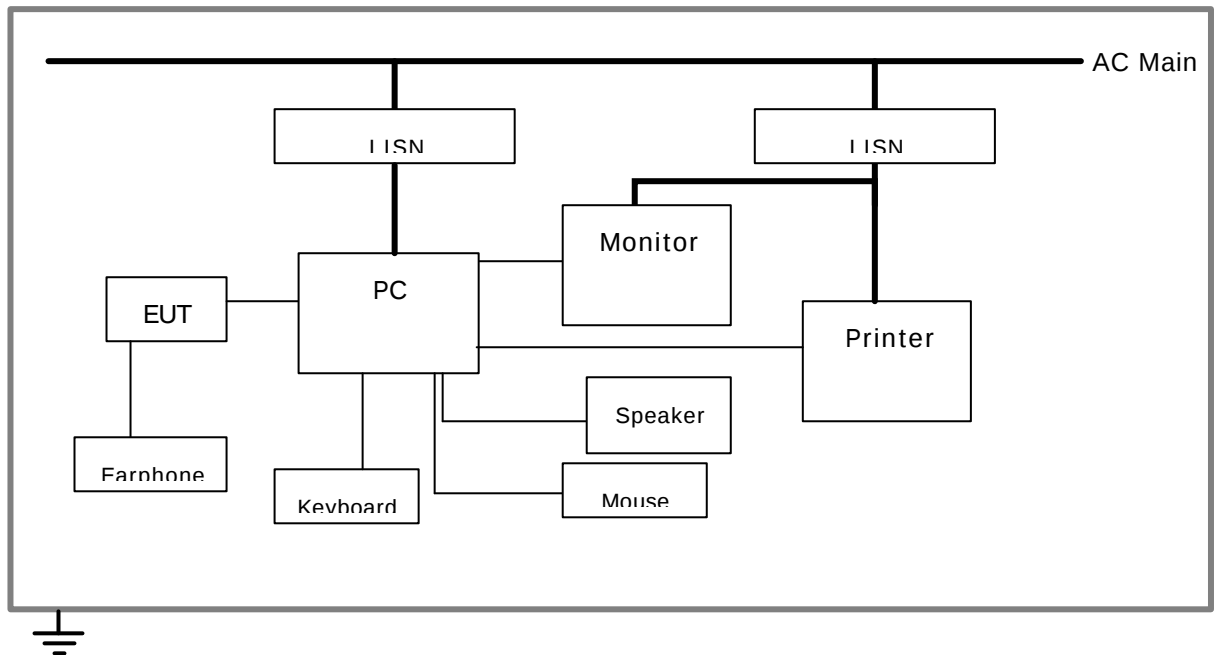
Description	Model No.	Serial No.	Manufacture
PC	Emaschincs/J	50010 804 00808	-
MONITOR	55E	N/A	Samsung electronics Co., Ltd.
KEYBOARD	SDM4510UH	4M020619	-
PRINTER	C6427A	CN13V1B1SZ	HP
EARPHONE	N/A	N/A	N/A
SPEAKER	CAMAC G7	N/A	FENGSHIN ELECTRONICS
MOUSE	MOSXUB	-	-

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

4.1 Operating environment

Temperature : 25.0
Relative Humidity : 65.0 %

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 0.8m 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.

Operation condition : Data download mode

4.3 Test instrument

Instrument	Model No	Serial No.	Makers	Next cal.date	Used
Test receiver	ESCS30	100022	R&S	2003. 3. 25	
L.I.S.N.	ESH3-Z5	827246/008	R&S	2003. 3. 12	
	ESH3-Z5	831887/018	R&S	2003. 3. 12	
Shield room	8 × 6 × 3.3m/H	-	-	-	

4.4 Test results

Date of test : Feb 20, 2003.

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

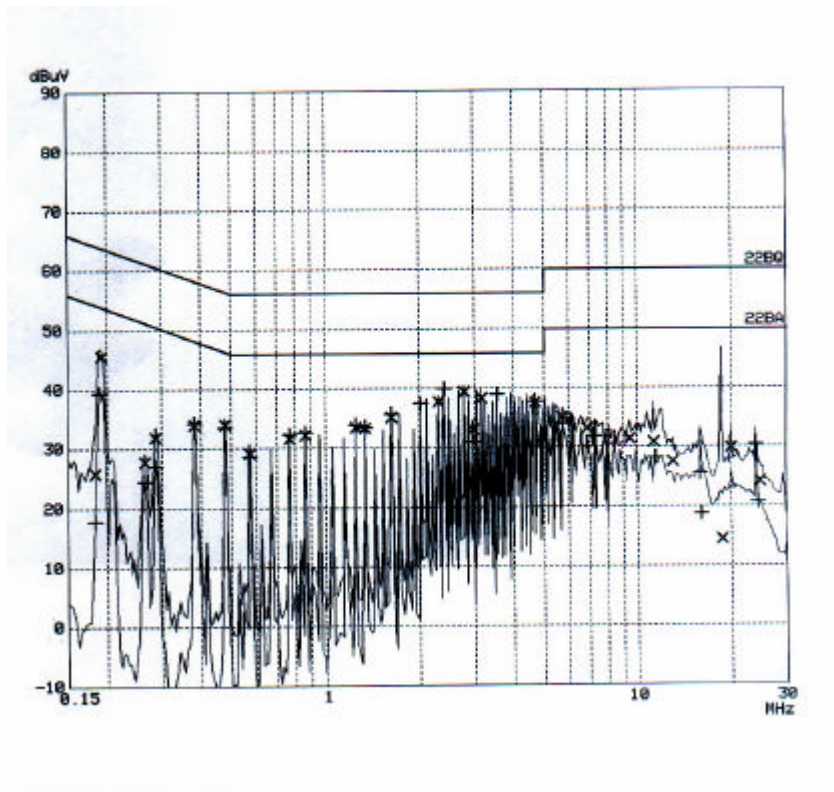
Frequency Range [MHz]	Tested Freq. [MHz]	LISN	Meter Reading		Limits		Margin	
			QP	AV	QP	AV	QP	AV
			[dBuV]		[dBuV]		[dBuV]	
0.15-0.5	0.192	N	45.6	39.4	63.9	53.9	18.3	14.5
	0.264	N	27.7	24.5	61.2	51.2	33.5	26.7
	0.285	N	31.9	27.1	60.6	50.6	28.7	23.5
	0.381	N	33.9	33.3	58.2	48.2	24.3	14.9
	0.477	N	34.0	33.6	56.4	46.4	22.4	12.8
0.5-30	1.245	N	33.5	33.3	56.0	46.0	22.5	12.7
	1.338	N	33.3	33.0	56.0	46.0	22.7	13.0
	1.626	N	35.1	35.0	56.0	46.0	20.9	11.0
	2.775	H	40.9	40.5	56.0	46.0	15.1	5.5
	3.160	H	40.2	28.7	56.0	46.0	15.8	17.3
	4.690	H	39.7	39.6	56.0	46.0	16.3	6.4
	5.550	H	37.4	36.5	60.0	50.0	22.6	13.5

* <5 : mean less than 5dB

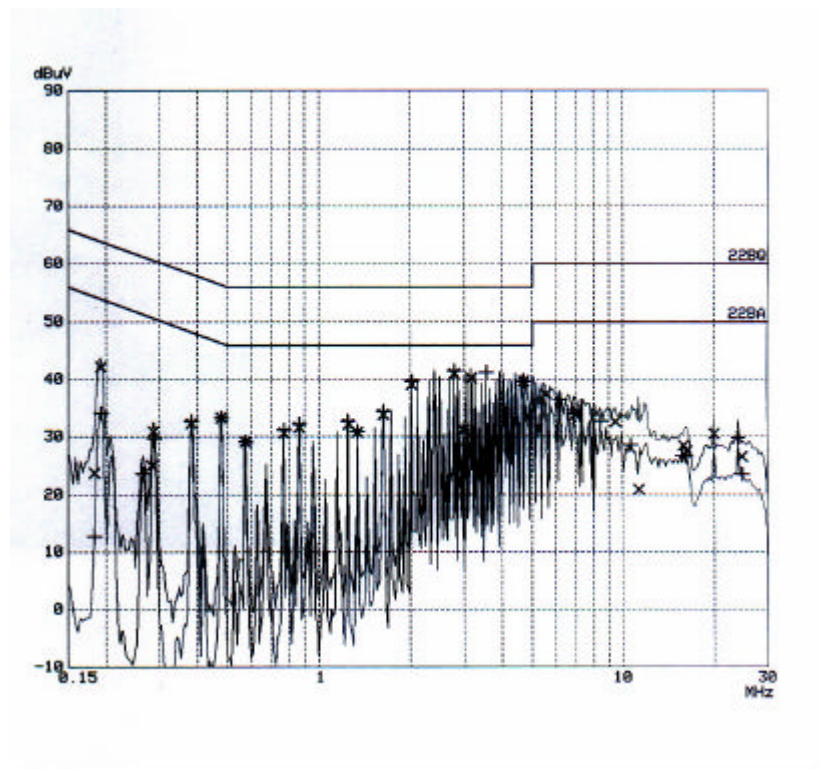
* other frequency keep over 20dB margin.

Result: Pass

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



[Neutral line]



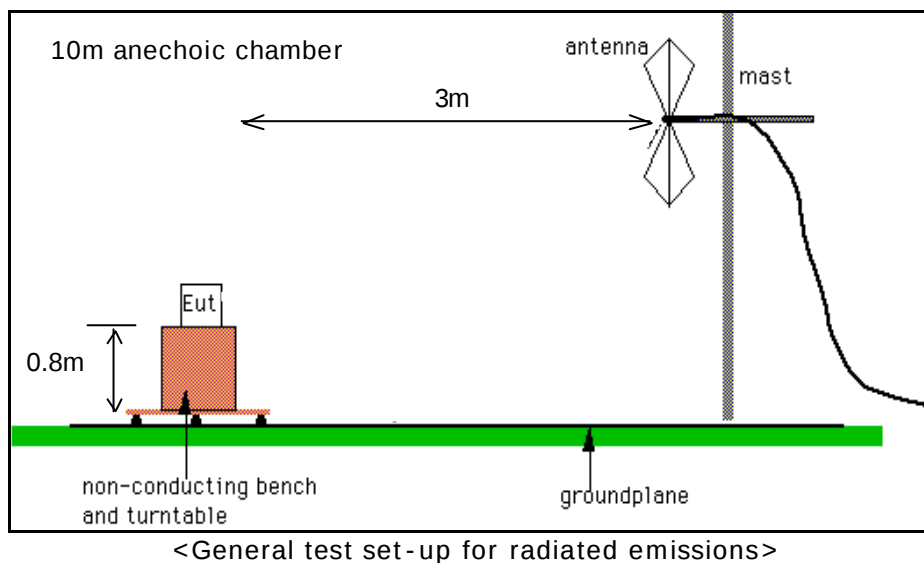
[Hot line]

5. RADIATED DISTURBANCE : 30MHz - 1000MHz

5.1 Operating environment

Temperature : 20.0
Relative Humidity : 30.0 %

5.2 Test set-up



5.3 Operation Conditions

Data download, play mode

5.4 Test instrument

Instrument	Model No.	Serial No.	Makers	Next cal.date	Used
Test receiver	ESCS30	100022	R&S	2003. 3. 25	
L.I.S.N.	ESH3-Z5	827246/008	R&S	2003. 3. 12	
	ESH3-Z5	831887/018	R&S	2003. 3. 12	
Anechoic chamber	8 × 6 × 3.3m/H	-	Daetong shield	-	

5.5 Test results(download mode)

Date of test: Feb 18, 2003.

Tested Frequency	ANT Pol.	Meter Reading <Quasi-Peak>	Antenna Factor	Cable Loss	Results	Limits
[MHz]		[A] [dBuV]	[B] [dB/m]	[C] [dB]	[A+B+C] [dBuV/m]	[dBuV/m]
38.33	H	20.00	15.39	1.20	36.59	40.0
84.01	H	22.30	7.60	1.90	31.80	
332.23	H	19.60	13.80	3.70	37.10	46.0
350.90	V	17.30	14.31	3.80	35.41	
432.25	H	18.90	15.87	4.20	38.97	
500.14	V	18.90	17.34	4.30	40.54	
515.12	V	19.80	17.34	4.30	41.44	
526.41	V	14.50	17.34	4.30	36.14	
622.32	V	14.70	18.80	5.20	38.70	

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

* <5 : mean less than 5dB

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

5.6 Test results(Play mode)

Date of test: Feb 18, 2003.

Tested Frequency	ANT Pol.	Meter Reading <Quasi-Peak>	Antenna Factor	Cable Loss	Results	Limits
[MHz]		[A] [dBuV]	[B] [dB/m]	[C] [dB]	[A+B+C] [dBuV/m]	[dBuV/m]
197.25	H	5.20	16.35	2.70	24.25	43.5
212.40	H	3.60	16.50	2.80	22.90	43.5
229.30	H	4.00	16.70	2.90	23.60	46.0
302.00	H	6.10	13.80	3.60	23.50	46.0

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

* <5 : mean less than 5dB

Note : Reading = Test Receiver meter, P= Polarization $\neq$ 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(FM tuner)

T.	Tested	Meter Reading <Quasi-Peak>	Total	Results	Margins	Limits
Frequency	Frequency	[dBuV/m]	Loss	[dBuV/m]	[dBuV/m]	
[MHz]	[MHz]	[A]	[B]	[A+B]	[C] - [A+B]	[C]
88.0	98.2	2.90	11.9	14.80	28.7	43.50
	196.4	7.30	17.8	25.10	18.4	43.50
	294.6	10.50	24.3	34.80	11.2	46.00
	392.8	4.80	21.4	26.20	19.8	46.00
	491.0	-	23.9	-	-	-
	589.2	-	26.2	-	-	-
	687.4	-	28.7	-	-	-
	785.6	-	30.0	-	-	-
	883.8	-	31.9	-	-	-
	982.0	-	33.1	-	-	-
98.0	108.7	1.10	12.7	13.80	29.7	43.50
	217.4	7.30	18.9	26.20	19.8	46.00
	326.1	6.20	18.9	21.10	24.9	46.00
	434.8	-	22.4	-	-	-
	543.5	-	25.2	-	-	-
	652.2	-	27.5	-	-	-
	760.9	-	29.7	-	-	-
	869.6	-	31.8	-	-	-
	978.3	-	33.0	-	-	-
108.0	118.7	-	13.7	-	-	-
	237.4	10.70	19.0	29.70	16.3	46.00
	356.1	9.30	20.1	29.40	16.6	46.00
	474.8	3.50	23.4	26.90	19.1	46.00
	593.5	-	26.3	-	-	-
	712.2	-	29.1	-	-	-
	830.9	-	30.6	-	-	-
	949.6	-	32.1	-	-	-
* Receiving Antenna Mode : Horizontal, Vertical * 10m chamber * <5 : mean less than 5dB * Measurement uncertainty (K=2) 30-300MHz : +3.96dB / -4.04dB 300-1000MHz : +3.04dB / -3.00dB						

Result : Pass

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