



EMC RESEARCH INSTITUTE



EMI TEST REPORT

Emission of electromagnetic disturbance

Test Report No. : ERI-FCC04-0055
Equipment : Multi-Codec Jukebox(MP3 Player)
Name of basic model : H10
Family model : Refer to page 4
Family ID : QDMH10
Manufacturer : AV CHASEWAY MFG.FTY.
Applicant : ReignCom Limited.
Tested date : 2004. 11. 2
Issued date : 2004. 11. 15
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
2. LABORATORY INFORMATION
3. EQUIPMENT UNDER TEST INFORMATION(EUT)
 - 3.1 Identification of the EUT
 - 3.2 Additional information about the EUT
 - 3.3 Peripheral equipment
4. CONTINUOUS DISTURBANCE VOLTAGE, MAIN TERMINAL
 - 4.1 Operating environment
 - 4.2 Test set-up and test procedures
 - 4.3 Operation Conditions
 - 4.4 Test instrument
 - 4.5 Test results (Test mode: Up & download mode)
5. RADIATED DISTURBANCE: 30MHz – 1000MHz
 - 5.1 Operating environment
 - 5.2 Test set-up
 - 5.3 Test conditions
 - 5.4 Test instrument
 - 5.5 Test results (Test mode: Up & Download mode)
 - 5.6 Test results (Test mode: Play & Record mode)
 - 5.7 Test results (Test mode: FM Tuner mode)

APPENDIX

(None)

1. CLIENT INFORMATION

The EUT has been tested by request of :

Company : ReignCom Limited.
Address : 8F Posgen VentureTower, 1586-7 Seocho-dong,
Seocho-gu, Seoul, Korea
Name of contact : H.J. Mun
Telephone : +82-2-3019-1723
Facsimile : +82-2-3019-1746

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 : Multi-Codec Jukebox(MP3 Player)
Model name : H10
Brand name : -
Manufacturer : AV CHASEWAY MFG.FTY.
Address : Langang Village, Chongguang Town, Baoan District,
Shenzhen City, Guangdong, China
Telephone : +86-755-708-4671
Facsimile : +86-755-708-5490
Country of origin : CHINA
Rating : 120V, 60Hz

3.2 Additional information about the EUT

Class B,

Family Models List:

Basic Model	Variant Model	Differential point	Memory size, LCD
H10 (5GB)	H101	LCD, Memory size	4GB, Color LCD
	H101A	LCD, Memory size	4GB, Color LCD
	H103	LCD, Memory size	5GB, Color LCD
	H103A	LCD, Memory size	4GB, Color LCD
	H105	LCD, Memory size	6GB, Color LCD
	H105A	LCD, Memory size	6GB, Color LCD
	H107	LCD, Memory size	8GB, Color LCD
	H107A	LCD, Memory size	8GB, Color LCD
	H101B	LCD, Memory size	4GB, Mono LCD
	H101C	LCD, Memory size	4GB, Mono LCD
	H103B	LCD, Memory size	5GB, Mono LCD
	H103C	LCD, Memory size	5GB, Mono LCD
	H105B	LCD, Memory size	6GB, Mono LCD
	H105C	LCD, Memory size	6GB, Mono LCD
	H107B	LCD, Memory size	8GB, Mono LCD
	H107C	LCD, Memory size	8GB, Mono LCD

3.3 Peripheral equipment

Defined as equipment needed for correct operation of the EUT.

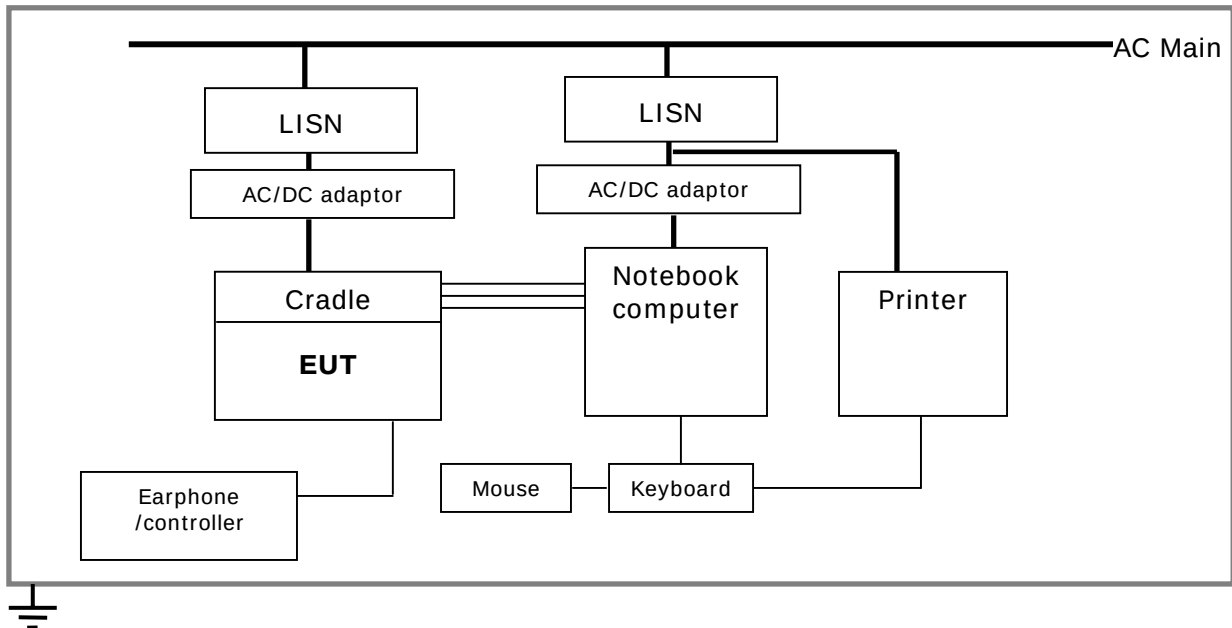
Description	Model No.	Serial No.	Manufacture
AC/DC adaptor	SEA60NZ-16.0X	03502395C	SANKEN ELECTRIC CO., LTD.
Notebook computer	P5010	464307211682	FUJITSU LIMITED
AC/DC adaptor	SW10-S050-10	-	Dongguan Qiaozi Santai Co., Ltd.
Mouse	-	-	-
Earphone /controller	-	-	-
Cradle	-	-	-
Printer	DeskJet 930C	CN13V1B1SZ	HP
Keyboard	SDM4510UH	4M1030902	Samsung

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

4.1 Operating environment

Temperature : 22.0 °C
Relative Humidity : 34.0 %

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 & Download 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	x
L.I.S.N.	ESH3-Z5	100029	R&S	2004. 11. 11	x
	ESH3-Z5	831887/018	R&S	2005. 03. 19	x
Shield room	8 × 6 × 3.3m/H	-	-	-	x

4.5 Test results (Up & Download mode)

Date of test: Nov 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]	
0.15-30	0.156	N	50.2	44.4	65.7	55.7	15.5	11.3
	0.276	N	41.5	40.1	60.9	50.9	19.4	10.8
	0.390	N	39.9	37.4	58.0	48.0	18.1	10.6
	0.507	N	40.6	38.2	56.0	46.0	15.4	7.8
	0.585	N	40.1	38.0	56.0	46.0	15.9	8.0
	1.398	N	41.7	39.5	56.0	46.0	14.3	6.5
	2.916	N	41.7	37.8	56.0	46.0	14.3	8.2
	2.991	N	42.9	37.5	56.0	46.0	13.1	8.5
	3.030	N	41.6	37.7	56.0	46.0	14.4	8.3
	7.800	N	26.6	12.8	60.0	46.0	33.4	33.2

* <5 : mean less than 5dB

* Other frequency keep over 20dB margin.

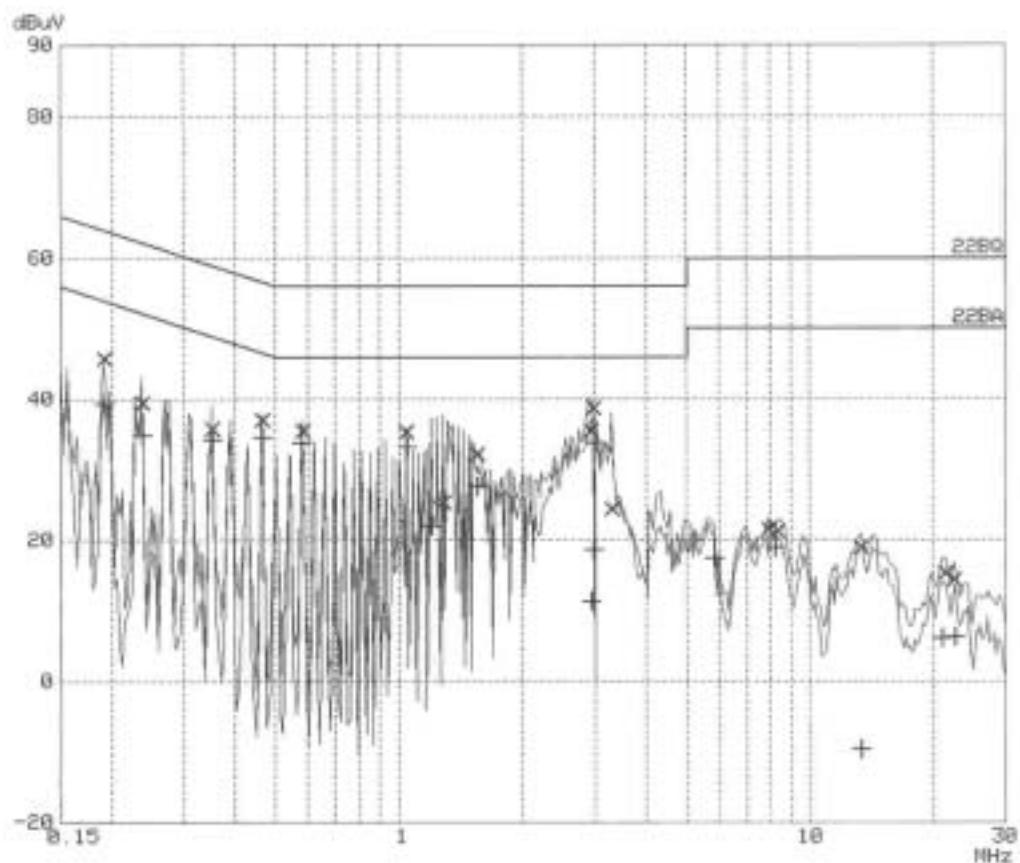
CONTINUOUS DISTURBANCE VOLTAGE

Op Cond: H
Date: 02. Nov 04 16:34

Scan Settings (2 Ranges)

Frequencies			Receiver Settings				
Start	Stop	Step	IF BW	Detector	M-Time	Atten	Preamp
150k	3M	3k	9k	PK+AV	1ms	AUTO	LN ON
3M	30M	10k	9k	PK+AV	1ms	AUTO	LN ON

Final Measurement: x QP / + AV
Meas Time: 1 s
Subranges: 16
Acc Margin: 50dB



PAGE 1

[Live line]

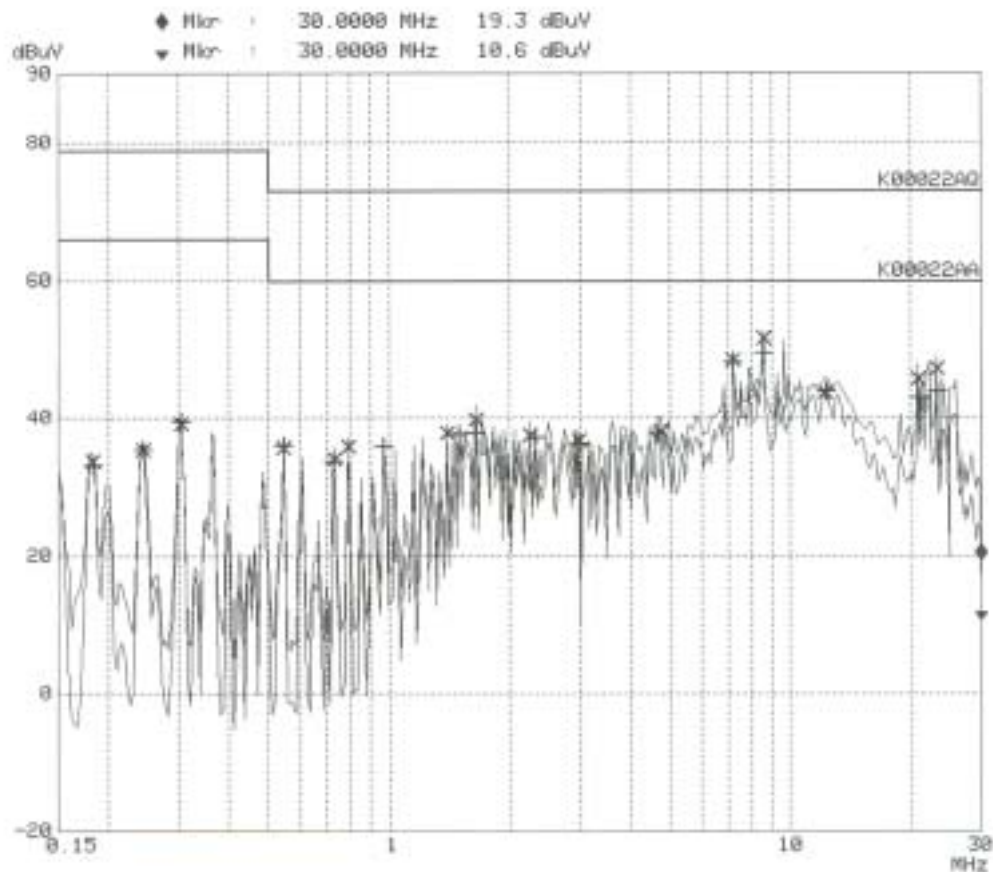
CONTINUOUS DISTURBANCE VOLTAGE

Op Cond: N
Operator: ERI
Date: 03. Nov 04 16:22

Scan Settings (2 Ranges)

Frequencies			Receiver Settings			
Start	Stop	Step	IF BW	Detector	M-Time	Atten Preamp
150k	3M	3k	9k	PK+AV	5ms AUTO LN	ON
3M	30M	10k	9k	PK+AV	5ms AUTO LN	ON

Final Measurement: x QP / + AV
Meas Time: 1 s
Subranges: 16
Acc Margin: 50dB



PAGE 1

[Neutral line]

5. RADIATED DISTURBANCE : 30MHz – 1000MHz

5.1 Operating environment

Temperature : 22.0 °C
Relative Humidity : 34.0 %

5.2 Test set-up

The frequency range investigated was 30 MHz to 1000 MHz.

All readings are quasi-peak unless stated otherwise.

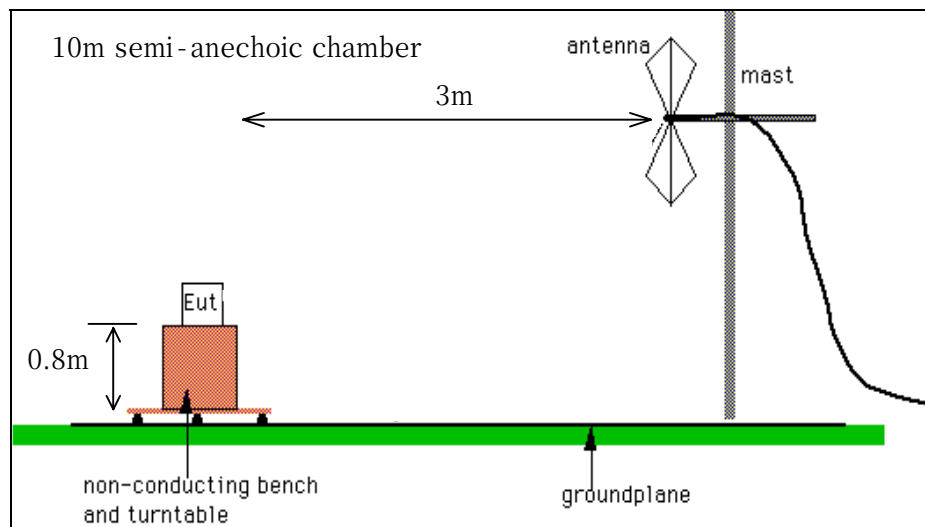
The half-wave dipole antenna was tuned to the frequency found during Preliminary radiated measurements. The EUT, support equipment and Interconnecting cables were re-configured to the set-up to the producing the Maximum emission for the frequency and were placed on top of a 0.8 meter High non-metallic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

Date of test: Nov 02, 2004.

Freq (MHz)	Reading (dBuV / m)	Ant	AF (dB)	CL (dB)	Result (dBuV / m)	Limit (dB)	Margin (dB)
120.04	23.15	H	13.55	2.10	38.80	43.50	4.70
155.55	20.00	V	15.70	2.40	38.10	43.50	5.40
160.28	21.25	H	15.81	2.50	39.56	43.50	3.94
216.98	21.03	H	17.50	2.80	41.33	46.00	4.67
239.93	21.26	H	17.92	3.10	42.28	46.00	3.72
287.85	18.90	H	19.70	3.50	42.10	46.00	3.90
300.00	23.46	H	15.24	3.50	42.20	46.00	3.80

* 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 & Record mode)

Date of test: Nov 02, 2004.

Freq (MHz)	Reading (dBuV / m)	Ant	AF (dB)	CL (dB)	Result (dBuV / m)	Limit (dB)	Margin (dB)
120.04	13.55	H	13.55	2.10	34.85	43.50	8.65
155.55	19.30	V	15.70	2.40	37.40	43.50	6.10
240.00	10.98	H	17.92	3.10	32.00	46.00	14.00
312.25	20.00	H	15.40	3.10	39.10	46.00	6.90
433.00	19.37	H	16.66	4.20	40.20	46.00	5.77
450.00	19.16	V	16.74	4.20	40.10	46.00	5.90

* 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 mode >

Date of test: Nov 02, 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	98.4	13.2	-	43.5	46.8	-
	196.6	17.9	-	43.5	34.1	-
	294.8	16.6	-	46.0	35.4	-
	393.0	-	-	46.0	56.0	-
	491.2	-	-	46.0	-	-
	589.4	-	20.2	46.0	-	35.8
	687.6	-	-	46.0	-	-
	785.8	-	-	46.0	-	-
	884.0	-	-	46.0	-	-
	982.0	-	-	54.0	56.0	-
98.0	108.9	15.44	-	43.5	44.56	-
	217.6	16.39	-	46.0	35.61	-
	326.3	-	-	46.0	-	-
	435.0	-	-	46.0	-	-
	543.7	-	-	46.0	-	-
	652.4	-	-	46.0	-	-
	761.1	-	-	46.0	-	-
	869.8	-	-	46.0	-	-
	978.5	-	-	54.0	-	-
108.0	118.9	-	18.89	43.5	-	41.11
	237.6	19.7	15.32	46.0	32.3	36.68
	356.3	-	-	46.0	-	-
	474.0	-	-	46.0	-	-
	593.7	-	-	46.0	-	-
	712.4	-	-	46.0	-	-
	831.1	-	-	46.0	-	-
	949.8	-	-	46.0	-	-
Others	-	-	-	-	-	-
	-	-	-	-	-	-
	-	-	-	-	-	-
	-	-	-	-	-	-

* 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.