



EMI TEST REPORT

Emission of electromagnetic disturbance

Test Report No. : ERI-FCC04-0001
Equipment : Portable Storage Device & Multi-Codec Juke Box
Name of basic model : iHP-140
Family model : iHP-140D
Manufacturer : AV CHASEWAY MFG.FTY.
Applicant : iRiver CO., LTD.
Tested date : 2004. 1. 3 – 1. 6
Issued date : 2004. 1. 6
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: UK-CHO, RIM

The results in this report apply only to the sample tested.
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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(Upload mode)
 - 4.6 Test results(Download mode)
 - 4.7 Test results(Play 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: Upload mode)
 - 5.6 Test results(Test mode: Download mode)
 - 5.7 Test results(Test mode: Play mode)
 - 5.8 Test results(Test mode: Recode mode)
 - 5.9 Test results(Test mode : FM Tuner)

APPENDIX

(None)

1. CLIENT INFORMATION

The EUT has been tested by request of :

Company : iRiver CO., LTD.
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 : Portable Storage Device & Multi-Codec Juke Box
Model name : iHP-140
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
iHP-140	iHP-140D	Model name

3.3 Peripheral equipment

Defined as equipment needed for correct operation of the EUT.

Description	Model No.	Serial No.	Manufacture
AC/DC adaptor	SEA60N2-16.0	03502395C	SANKEN ELECTRIC CO., LTD.
Note PC	P5010	464307211682	FUJITSU LIMITED
AC/DC adaptor	SWI0-S050-I0	0343	Dongguan Qiaozi Santai Electrical Appliances Co., Ltd.
Printer	CG6427A	CN13V1B1SZ	HP

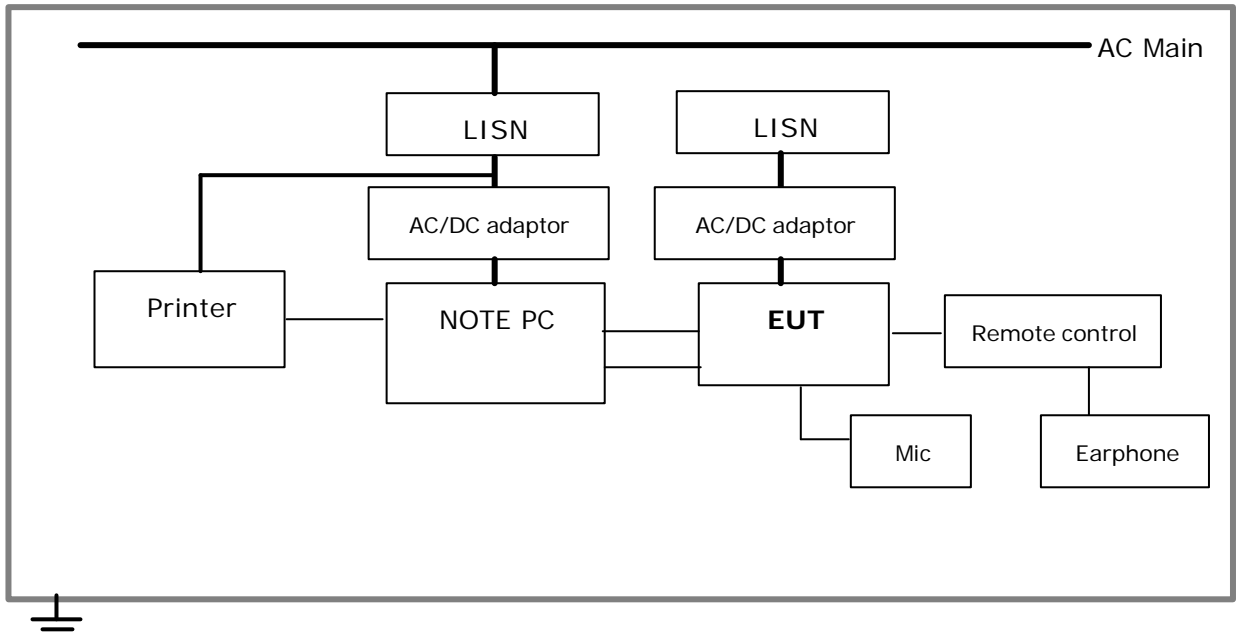
4. CONTINUOUS DISTURBANCE VOLTAGE, MAIN TERMINAL

: Frequency range 0.15 MHz to 30 MHz

4.1 Operating environment

Temperature : 22.0
 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

Up & download mode, play mode

4.4 Test instrument

Instrument	Model No	Serial No.	Makers	Next cal.date	Used
Test receiver	ESCS30	100021	R&S	2004. 1. 24	
L.I.S.N.	ESH3-Z5	827246/008	R&S	2004. 3. 19	
	ESH3-Z5	831887/018	R&S	2004. 3. 19	
Shield room	8 × 6 × 3.3m/H	-	-	-	

4.5 Test results(Upload mode)

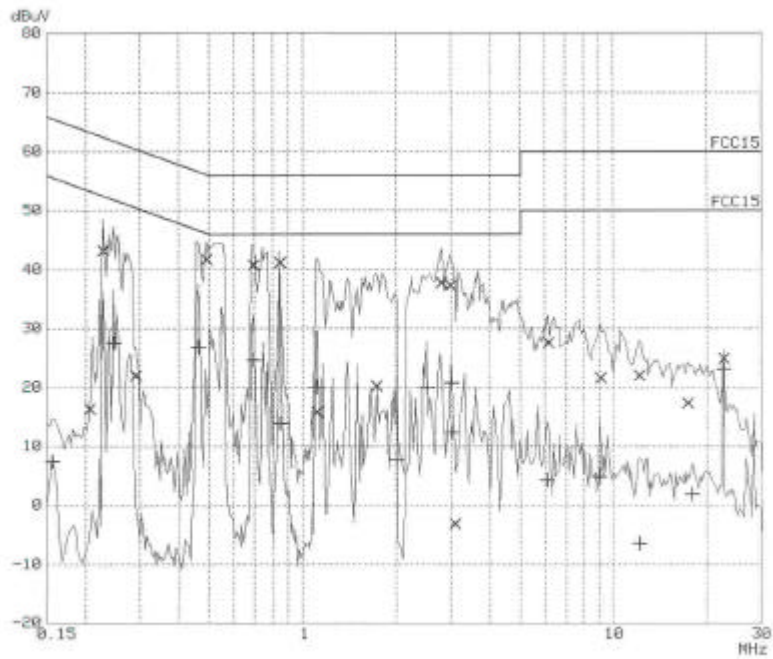
Date of test: Jan 06, 2004.

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	0.282	N	45.9	35.2	64.7	54.7	18.8	19.5
	0.492	H	41.7	26.9	56.1	46.1	14.4	19.2
	0.693	H	40.7	24.7	56.0	46.0	15.3	21.3
	0.843	H	41.1	13.9	56.0	46.0	14.9	32.1
	1.038	N	37.0	23.1	56.0	46.0	19.0	22.9
	1.116	N	40.2	11.0	56.0	46.0	15.8	35.0
	2.796	H	37.7	20.0	56.0	46.0	18.3	26.0
	2.976	H	37.3	20.8	56.0	46.0	18.7	25.2
	9.110	N	28.0	2.4	60.0	50.0	32.0	47.6
	22.580	N	25.6	23.5	60.0	50.0	34.4	26.5

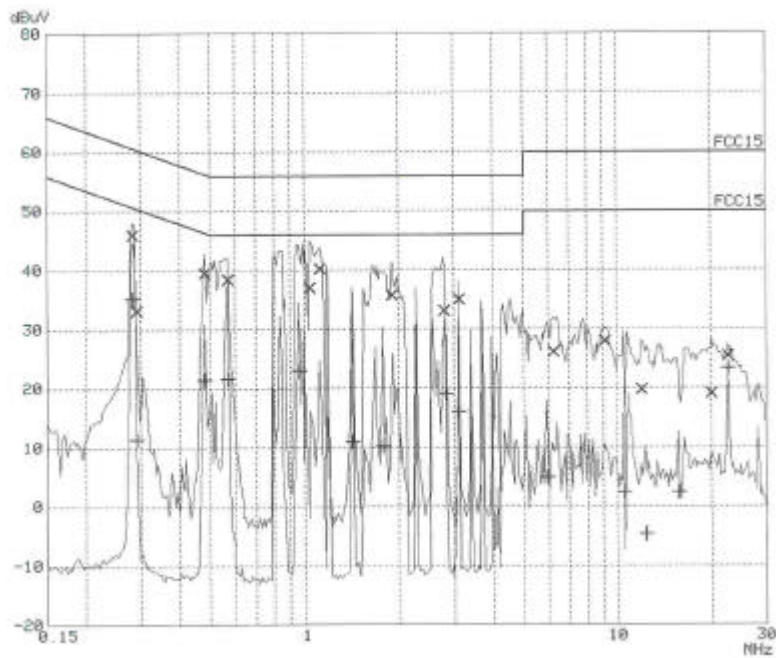
* <5 : mean less than 5dB

* Other frequency keep over 20dB margin.



PAGE 1

[Live line]



PAGE 1

[Neutral line]

4.6 Test results(Download mode)

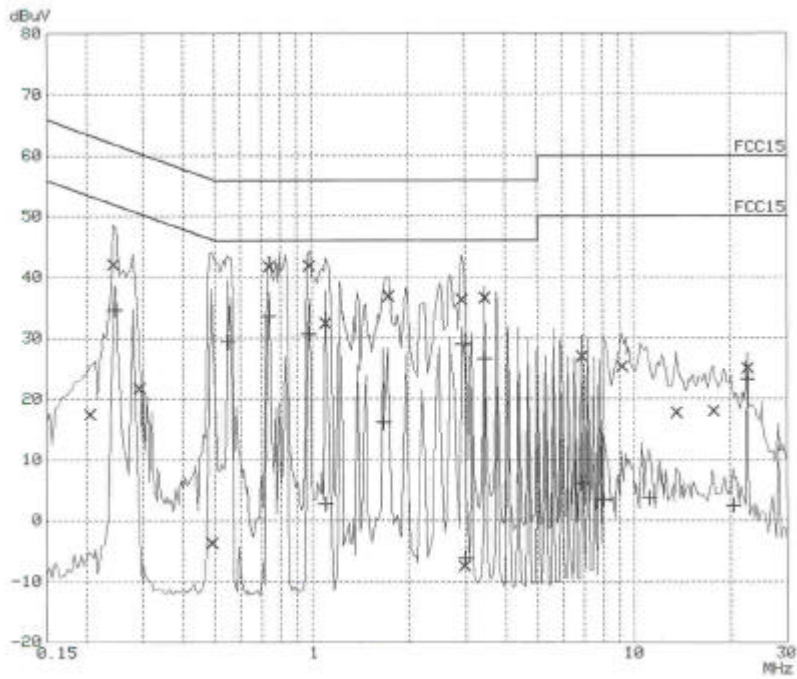
Date of test: Jan 06, 2004.

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	0.270	N	45.4	37.6	61.1	51.1	15.7	13.5
	0.735	H	41.7	33.6	56.0	46.0	14.3	12.4
	0.978	H	41.9	30.7	56.0	46.0	14.1	15.3
	1.182	N	36.3	2.4	56.0	46.0	19.7	43.6
	1.719	H	36.9	16.1	56.0	46.0	19.1	29.9
	2.913	N	38.5	13.7	56.0	46.0	17.5	32.3
	3.440	H	36.6	26.6	56.0	46.0	19.4	19.4
	6.880	H	27.0	6.2	60.0	50.0	33.0	43.8
	9.180	H	25.3	3.4	60.0	50.0	34.7	46.6
22.580	N	25.9	23.8	60.0	50.0	34.1	26.2	

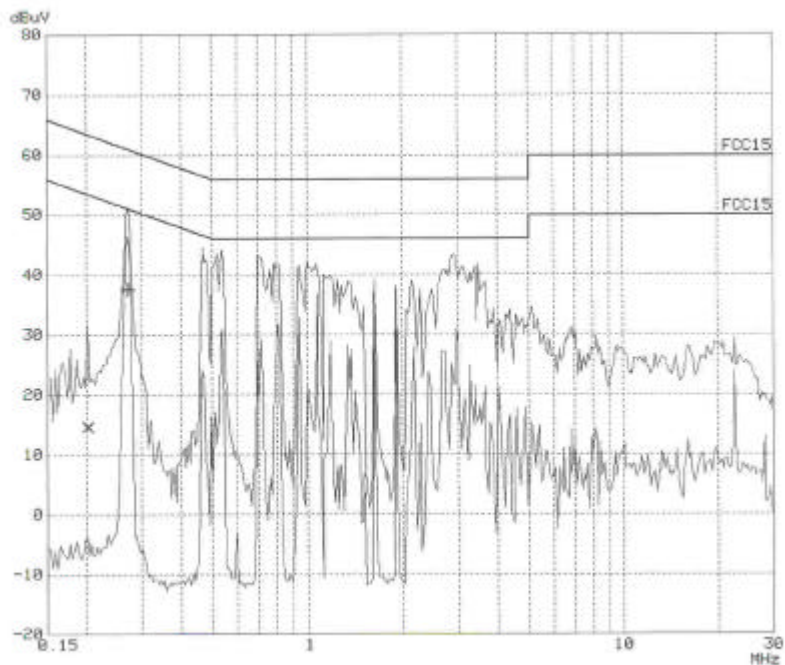
* <5 : mean less than 5dB

* Other frequency keep over 20dB margin.



PAGE 1

[Live line]



PAGE 1

[Neutral line]

4.7 Test results(Play mode)

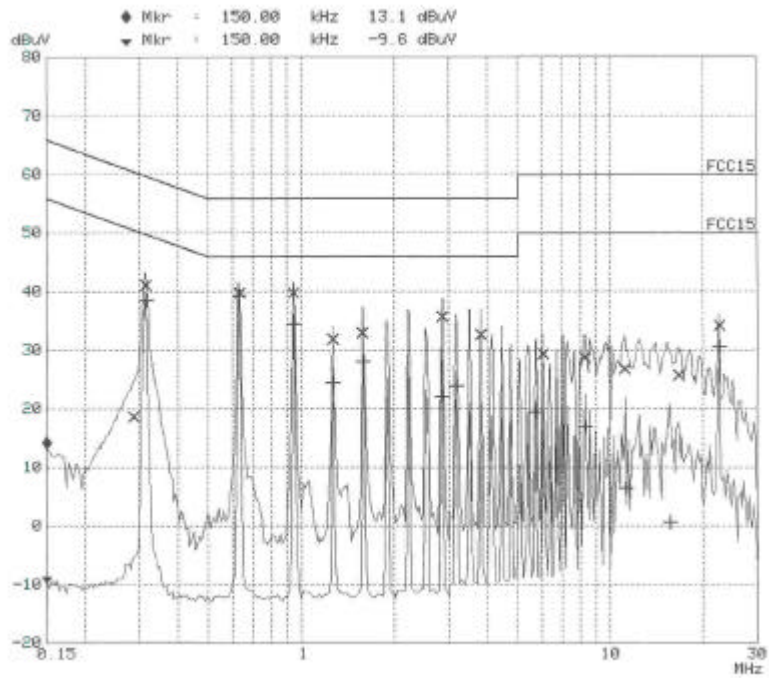
Date of test: Jan 06, 2004.

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

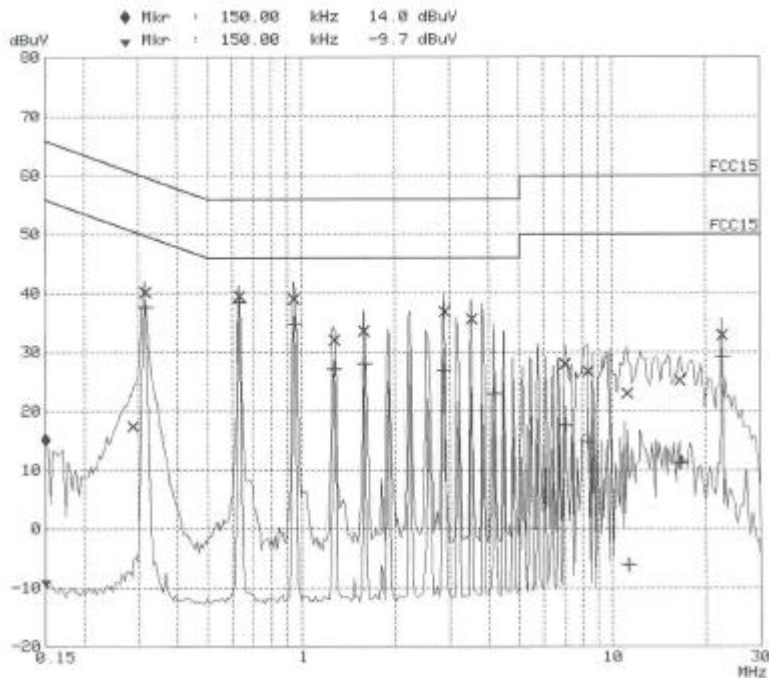
Frequency Range [MHz]	Tested Freq. [MHz]	LISN	Meter Reading		Limits		Margin	
			QP	AV	QP	AV	QP	AV
			[dBuV]		[dBuV]		[dBuV]	
0.15-30	0.315	H	41.1	38.5	59.8	49.8	18.7	11.3
	0.630	H	39.8	39.3	56.0	46.0	16.2	6.7
	0.945	H	39.8	34.6	56.0	46.0	16.2	11.4
	1.269	N	32.0	27.2	56.0	46.0	24.0	18.8
	1.581	N	33.5	28.1	56.0	46.0	22.5	17.9
	2.862	H	35.7	22.2	56.0	46.0	20.3	23.8
	3.520	N	35.7	26.9	56.0	46.0	20.3	19.1
	6.050	H	29.3	19.6	60.0	50.0	30.7	30.4
	8.280	H	28.9	17.0	60.0	50.0	31.1	33.0
22.580	H	34.3	30.6	60.0	50.0	25.7	19.4	

* <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 : 23.0
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.

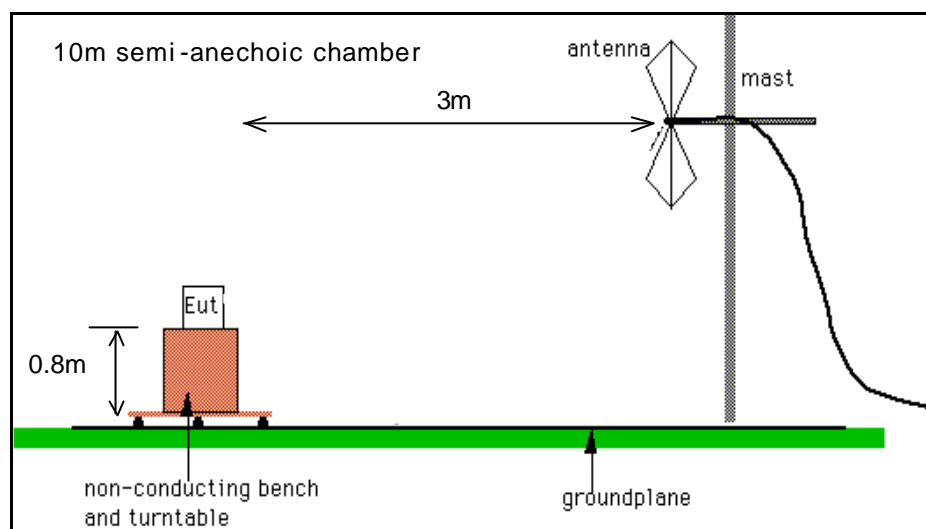
The half-wave dipole antenna was tuned to the frequency found during Preliminary radiated measurements. The EUT, support equipment and Interconnecting cables were re-configured to the set-up to the producing the Maximum emission for the frequency and were placed on top of a 0.8 meter High non-metallic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

5.4 Test instrument

Instrument	Model No.	Serial No.	Makers	Next cal.date	Used
Test receiver	ESCS30	100021	R&S	2004. 1. 24	
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	2004.01.24	
Log-Periodic Antenna	UHALP9108A	0392	Schwarzbeck	2004.01.23	
Antenna Mast	MA240	N/A	HD	-	
Turn Table	DT430S	N/A	HD	-	

5.5 Test results (Test mode: Upload mode)

Date of test: Jan 04, 2004.

Freq (MHz)	Reading (dBuV/m)	Ant	AF (dB)	CL (dB)	Result (dBuV/m)	Limit (dB)	Margin (dB)
111.70	16.83	V	11.69	2.50	31.02	43.50	12.48
158.90	17.05	H	15.30	2.90	35.25	43.50	8.25
207.50	17.57	H	16.29	3.20	37.06	46.00	8.94
480.00	20.34	H	17.06	4.60	42.00	46.00	4.00
720.00	16.16	H	20.06	5.20	41.42	46.00	4.58
960.06	13.80	H	22.00	6.50	42.30	54.00	11.70

* 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.

5.6 Test results (Test mode: Download mode)

Date of test: Jan 04, 2004.

Freq (MHz)	Reading (dBuV/m)	Ant	AF (dB)	CL (dB)	Result (dBuV/m)	Limit (dB)	Margin (dB)
125.20	22.30	H	13.10	2.60	38.00	43.50	5.50
150.20	18.15	H	14.99	2.80	35.94	43.50	7.56
159.60	17.20	H	15.30	2.90	35.40	43.50	8.10
209.07	16.91	H	16.29	3.20	36.40	43.50	7.10
225.10	19.17	H	16.70	3.50	39.37	46.00	6.63
307.00	15.45	H	13.69	3.90	33.04	46.00	12.96
402.00	11.90	V	15.87	4.10	31.87	46.00	14.13
736.00	9.95	H	20.19	5.40	35.54	46.00	10.46

* 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: Play mode)

Date of test: Jan 04, 2004.

Freq (MHz)	Reading (dBuV/m)	Ant	AF (dB)	CL (dB)	Result (dBuV/m)	Limit (dB)	Margin (dB)
171.80	6.76	H	15.76	3.00	25.52	43.50	17.98
219.70	12.17	H	16.50	3.20	31.87	46.00	14.13
239.30	5.29	H	16.90	3.50	25.69	46.00	20.31
298.70	5.98	H	19.13	3.80	28.91	46.00	17.09
354.00	13.74	H	14.31	3.80	31.85	46.00	14.15

* 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: Recode mode)

Date of test: Jan 04, 2004.

Freq (MHz)	Reading (dBuV/m)	Ant	AF (dB)	CL (dB)	Result (dBuV/m)	Limit (dB)	Margin (dB)
150.20	19.51	H	14.99	2.80	37.30	43.50	6.20
152.90	18.40	H	14.99	2.80	36.19	43.50	7.31
212.90	13.92	H	16.50	3.20	33.62	43.50	9.88
250.10	20.05	H	17.35	3.50	40.90	46.00	5.10
269.30	6.56	V	17.70	3.50	27.76	46.00	18.24
330.00	21.93	H	13.85	3.90	39.68	46.00	6.32
360.00	19.42	H	14.31	3.80	37.53	46.00	8.47
925.60	13.74	H	21.86	6.50	42.10	46.00	3.90

* 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.

5.9 Test results < Test mode: FM tuner >

Date of test: Jan 04, 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	98.2	-	1.1	43.5	-	42.4		
	196.4	0.6	-	43.5	42.9	-		
	294.6	0.5	-	46.0	45.5	-		
	392.8	-	-	46.0	-	-		
	491.0	-	-	46.0	-	-		
	589.2	-	-	46.0	-	-		
	687.4	-	-	46.0	-	-		
	785.6	-	-	46.0	-	-		
	883.8	-	-	46.0	-	-		
	982.0	-	-	54.0	-	-		
98.0	108.7	0.7	-	43.5	42.8	-		
	217.4	0.6	-	46.0	45.4	-		
	326.1	-	-	46.0	-	-		
	434.8	-	-	46.0	-	-		
	543.5	-	-	46.0	-	-		
	652.2	-	-	46.0	-	-		
	760.9	-	-	46.0	-	-		
	869.6	-	-	46.0	-	-		
978.3	1.2	-	54.0	52.8	-			
108.0	118.7	0.6	-	43.5	42.9	-		
	237.4	-	0.5	46.0	-	45.5		
	356.1	-	-	46.0	-	-		
	474.8	-	-	46.0	-	-		
	593.5	-	-	46.0	-	-		
	712.2	-	-	46.0	-	-		
	830.9	-	-	46.0	-	-		
	949.6	-	-	46.0	-	-		
Others	62.0	27.92	-	40.0	12.08	-		
	149.0	-	26.98	43.5	-	16.52		

* 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.