



EMC RESEARCH INSTITUTE

EMI TEST REPORT

Emission of electromagnetic disturbance

Test Report No. : ERI-FCC04-0016
Equipment : MP3 PLAYER/FM TUNER
Name of basic model : iFP-899
Family model : iFP-880, iFP-890, iFP-895
Manufacturer : AV CHASEWAY MFG.FTY.
Applicant : ReignCom Limited.
Tested date : 2004. 3. 9 – 3. 12
Issued date : 2004. 3. 19
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

A handwritten signature in black ink, appearing to be 'G. Hur', written over a horizontal line.

Tested by: GWEON, HUR

A handwritten signature in black ink, appearing to be 'S. K. Lee', written over a horizontal line.

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**.

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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 : MP3 PLAYER/FM TUNER
Model name : iFP-899
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 |
|------------------|---------------|-------------------------------|-------------|
| iFP-899 (1GB) | iFP-880 | Model name and Memory size | 128MB |
| | iFP-890 | Model name and Memory size | 256MB |
| | iFP-895 | Model name and Memory size | 512MB |

3.3 Peripheral equipment

Defined as equipment needed for correct operation of the EUT.

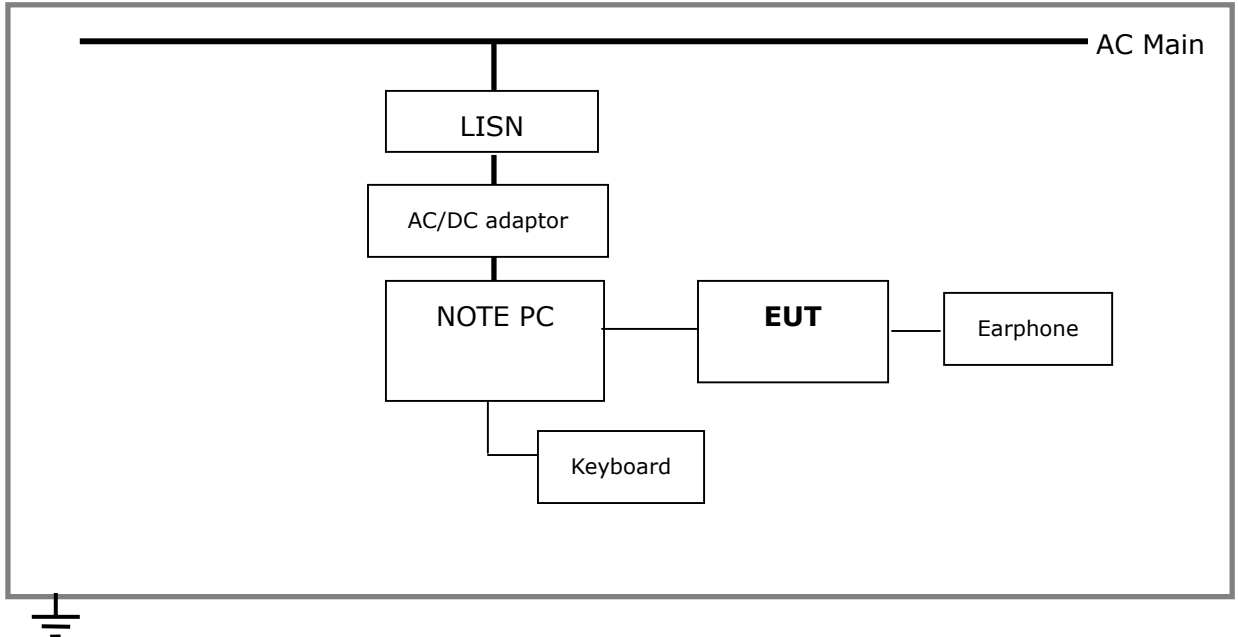
| Description | Model No. | Serial No. | Manufacture |
|---------------|--------------|--------------|------------------------------|
| AC/DC adaptor | SEA60N2-16.0 | 03502395C | SANKEN ELECTRIC CO., LTD. |
| Note PC | P5010 | 464307211682 | FUJITSU LIMITED |
| Keyboard | SDM4510UH | 4M030902 | - |
| Earphone | - | - | - |

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

4.1 Operating environment

Temperature : 20.0 °C
 Relative Humidity : 36.0 %

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, recording mode, tuner mode

4.4 Test instrument

| Instrument | Model No | Serial No. | Makers | Next cal.date | Used |
|---------------|----------------|------------|--------|---------------|------|
| Test receiver | ESCS30 | 100020 | R&S | 2004. 3. 25 | x |
| L.I.S.N. | ESH3-Z5 | 827246/008 | R&S | 2004. 3. 19 | x |
| | ESH3-Z5 | 831887/018 | R&S | 2004. 3. 19 | |
| Shield room | 8 × 6 × 3.3m/H | - | - | - | x |

4.5 Test results(Up & download mode)

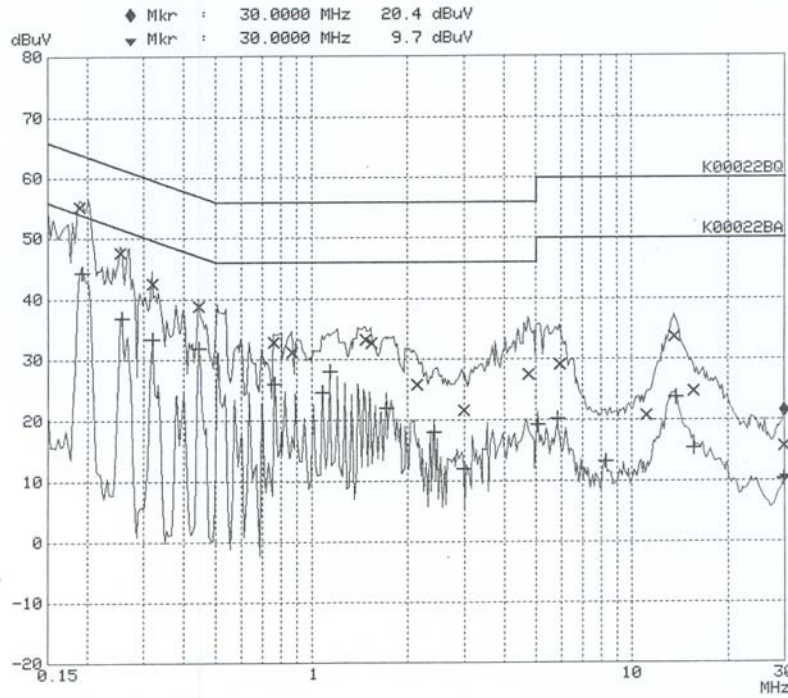
Date of test: Mar 12, 2004.

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 | 0.189 | N | 55.2 | 44.3 | 64.0 | 54.0 | 8.8 | 9.7 |
| | 0.252 | N | 47.6 | 36.9 | 61.6 | 51.6 | 14.0 | 14.7 |
| | 0.318 | N | 42.5 | 33.4 | 59.8 | 49.8 | 17.3 | 16.4 |
| | 0.444 | N | 38.8 | 31.9 | 57.0 | 47.0 | 18.2 | 15.1 |
| | 0.759 | N | 32.8 | 25.9 | 56.0 | 46.0 | 23.2 | 20.1 |
| | 0.864 | N | 31.2 | 24.6 | 56.0 | 46.0 | 24.8 | 21.4 |
| | 1.473 | N | 33.2 | 28.0 | 56.0 | 46.0 | 22.8 | 18.0 |
| | 1.539 | N | 32.7 | 22.0 | 56.0 | 46.0 | 23.3 | 24.0 |
| | 5.930 | N | 29.1 | 20.2 | 60.0 | 50.0 | 30.9 | 29.8 |
| 13.560 | N | 33.7 | 23.7 | 60.0 | 50.0 | 26.3 | 26.3 | |

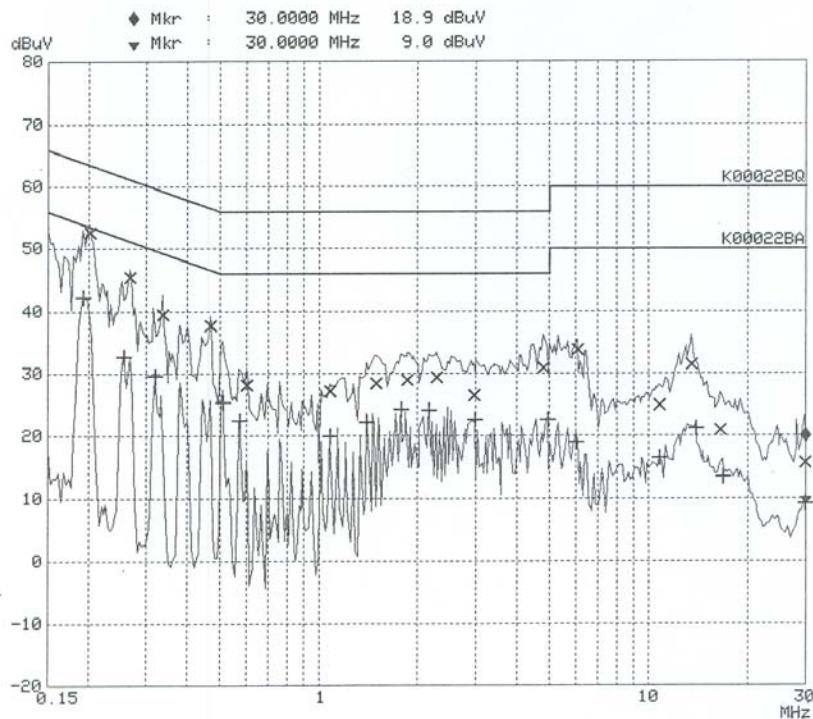
* <5 : mean less than 5dB

* 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 °C
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.

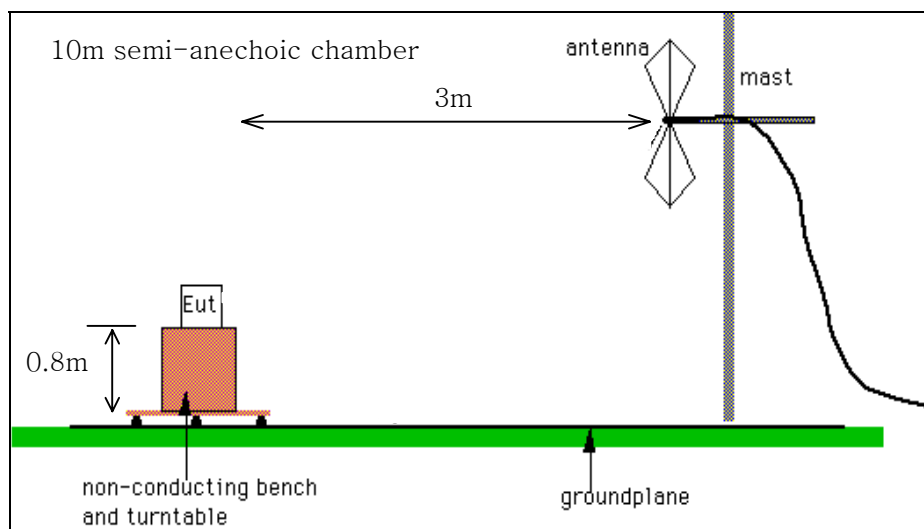
The half-wave dipole antenna was tuned to the frequency found during Preliminary radiated measurements. The EUT, support equipment and Interconnecting cables were re-configured to the set-up to the producing the Maximum emission for the frequency and were placed on top of a 0.8 meter High non-metallic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

5.4 Test instrument

| Instrument | Model No. | Serial No. | Makers | Next cal.date | Used |
|----------------------|------------|------------|-------------|---------------|------|
| Test receiver | ESCS30 | 100021 | R&S | 2005. 1. 24 | x |
| 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 | 2005.01.24 | x |
| Log-Periodic Antenna | UHALP9108A | 0392 | Schwarzbeck | 2005.01.23 | 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: Mar 09, 2004.

| Freq (MHz) | Reading (dBuV/m) | Ant | AF (dB) | CL (dB) | Result (dBuV/m) | Limit (dB) | Margin (dB) |
|------------|------------------|-----|---------|---------|-----------------|------------|-------------|
| 293.90 | 15.37 | H | 19.13 | 3.40 | 37.90 | 46.00 | 8.10 |
| 299.17 | 20.37 | H | 19.13 | 3.40 | 42.90 | 46.00 | 3.10 |
| 305.12 | 22.68 | H | 13.69 | 3.60 | 39.97 | 46.00 | 6.03 |
| 312.10 | 18.81 | H | 13.69 | 3.60 | 36.10 | 46.00 | 9.90 |
| 316.25 | 22.21 | H | 13.69 | 3.60 | 39.50 | 46.00 | 6.50 |
| 328.70 | 21.65 | H | 13.85 | 3.70 | 39.20 | 46.00 | 6.80 |
| 339.50 | 22.68 | H | 13.85 | 3.70 | 37.05 | 46.00 | 8.95 |
| 402.10 | 16.35 | H | 15.87 | 4.20 | 36.42 | 46.00 | 9.58 |
| 816.01 | 10.19 | H | 20.84 | 6.10 | 37.13 | 46.00 | 8.87 |

* 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: Mar 09, 2004.

| Freq (MHz) | Reading (dBuV/m) | Ant | AF (dB) | CL (dB) | Result (dBuV/m) | Limit (dB) | Margin (dB) |
|------------|------------------|-----|---------|---------|-----------------|------------|-------------|
| 287.20 | 9.94 | H | 18.45 | 3.50 | 31.89 | 46.00 | 14.11 |
| 295.30 | 10.51 | H | 19.13 | 3.40 | 33.04 | 46.00 | 12.96 |
| 300.00 | 10.94 | H | 19.82 | 3.50 | 34.26 | 46.00 | 11.74 |
| 307.00 | 16.67 | H | 13.80 | 3.60 | 34.07 | 46.00 | 11.93 |
| 662.00 | 9.56 | H | 19.50 | 5.20 | 34.26 | 46.00 | 11.74 |

* 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: Mar 09, 2004.

| Freq (MHz) | Reading (dBuV/m) | Ant | AF (dB) | CL (dB) | Result (dBuV/m) | Limit (dB) | Margin (dB) |
|------------|------------------|-----|---------|---------|-----------------|------------|-------------|
| 262.20 | 10.73 | H | 17.70 | 3.30 | 31.73 | 46.00 | 14.27 |
| 278.00 | 11.74 | H | 18.00 | 3.30 | 33.04 | 46.00 | 12.96 |
| 295.00 | 11.73 | H | 19.13 | 3.40 | 34.26 | 46.00 | 11.74 |
| 312.00 | 15.90 | H | 13.80 | 3.70 | 33.40 | 46.00 | 12.60 |
| 326.00 | 15.75 | H | 13.80 | 3.70 | 33.25 | 46.00 | 12.75 |
| 332.00 | 6.75 | V | 13.80 | 3.70 | 24.25 | 46.00 | 21.75 |
| 622.21 | 11.00 | H | 18.80 | 5.20 | 35.00 | 46.00 | 11.00 |

* 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 >

Date of test: Mar 09, 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 | 97.52 | - | 14.91 | 43.5 | - | 28.59 |
| | 195.35 | 23.70 | - | 43.5 | 19.80 | - |
| | 287.90 | 23.50 | - | 46.0 | 22.50 | - |
| | 384.02 | 26.30 | - | 46.0 | 19.70 | - |
| | 479.84 | - | 29.11 | 46.0 | - | 16.89 |
| | 575.79 | - | 28.35 | 46.0 | - | 17.65 |
| | 671.76 | - | 28.51 | 46.0 | - | 17.49 |
| | 767.76 | - | 29.00 | 46.0 | - | 17.00 |
| | 863.69 | - | 33.70 | 46.0 | - | 12.30 |
| | 959.67 | 29.70 | - | 54.0 | 16.30 | - |
| 98.0 | 105.65 | - | 26.80 | 43.5 | - | 16.70 |
| | 210.62 | - | 22.50 | 43.5 | - | 23.50 |
| | 320.60 | 31.70 | - | 46.0 | 14.30 | - |
| | 422.38 | 30.50 | - | 46.0 | 15.50 | - |
| | 532.08 | - | 30.00 | 46.0 | - | 16.00 |
| | 641.04 | - | 30.50 | 46.0 | - | 15.50 |
| | 760.48 | - | 31.20 | 46.0 | - | 14.80 |
| | 850.86 | 36.50 | - | 46.0 | 9.50 | - |
| | 955.31 | 30.20 | - | 54.0 | 15.80 | - |
| 108.0 | 118.00 | - | 19.40 | 43.5 | - | 24.10 |
| | 237.58 | 30.50 | - | 46.0 | 15.50 | - |
| | 355.67 | 33.87 | - | 46.0 | 12.13 | - |
| | 475.18 | 24.77 | - | 46.0 | 21.23 | - |
| | 593.33 | 26.50 | - | 46.0 | 19.50 | - |
| | 711.59 | 29.60 | - | 46.0 | 16.40 | - |
| | 830.03 | 35.28 | - | 46.0 | 10.72 | - |
| | 949.22 | 33.78 | - | 46.0 | 12.22 | - |
| Others | 196.15 | 30.20 | - | 43.5 | 13.30 | - |
| | 239.20 | 34.00 | - | 46.0 | 12.00 | - |
| | 393.25 | 37.56 | - | 46.0 | 8.44 | - |
| | 847.85 | - | 33.18 | 46.0 | - | 12.82 |
| | 870.00 | 34.59 | - | 46.0 | 11.41 | - |
| | 881.13 | - | 33.58 | 46.0 | - | 12.42 |

* 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.