



ELECTROMAGNETIC RESEARCH INSTITUTE



# EMI TEST REPORT

## Emission of electromagnetic disturbance

**Test Report No.** : ERI-FCC03-0049

**Equipment** : MP3 Player

**Name of basic model** : iFP-599T

**Family model** : iFP-595T, iFP-590T

**Manufacturer** : AV CHASEWAY MFG.FTY.

**Applicant** : iRiver CO., LTD.

**Tested date** : 2003. 7. 16 – 7. 18

**Issued date** : 2003. 7. 21

**Test results** : PASS

**Test Standards** : FCC Part 15 Subpart B (Class B) / Verification  
/digital devices & peripherals

### Test Procedure and Items:

- AC Power line Conducted emissions measurement : ANSI C63.4-1992
- Radiated emissions measurement : ANSI C63.4-1992

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**Tested by: YOUNG-SIK, KIM**

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**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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## APPENDIX

(N/A)

## 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 : MP3 Player  
Model name : iFP-599T  
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 | Remark |
|-------------------|---------------|--------------------|--------|
| iFP-599T<br>(1GB) | iFP-595T      | Flash memory       | 512MB  |
|                   | iFP-590T      | Flash memory       | 256MB  |

### 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    | PT SANKEN<br>INDONESIA |
| Note PC            | P5010        | 464307211682 | FUJITSU                |
| Printer            | C6427A       | CN13V1B1SZ   | HP                     |
| AC/DC power supply | SA41-521K    | -            | -                      |
| Earphone           | -            | -            | -                      |
|                    |              |              |                        |
|                    |              |              |                        |
|                    |              |              |                        |
|                    |              |              |                        |

#### 4. CONTINUOUS DISTURBANCE VOLTAGE, MAIN TERMINAL

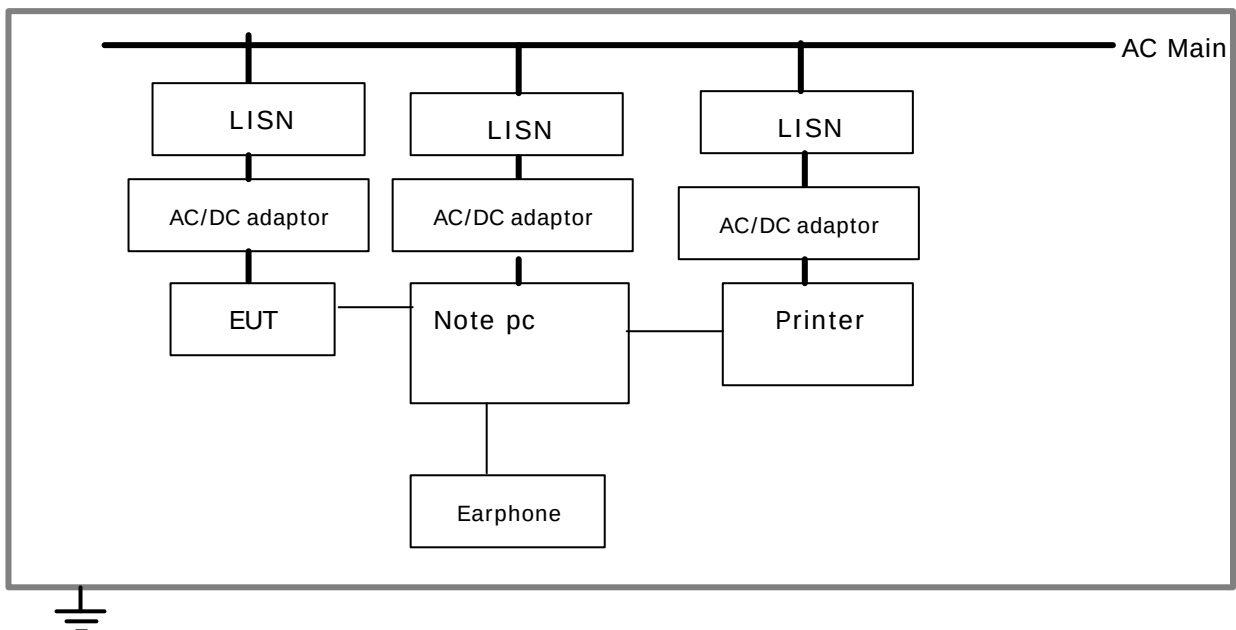
: Frequency range 0.15 MHz to 30 MHz

##### 4.1 Operating environment

Temperature : 22.0 °C

Relative Humidity : 52.0 %

##### 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.

Operation condition: During the test, we played on the record file.

##### 4.3 Test instrument

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

#### 4.4 Test results

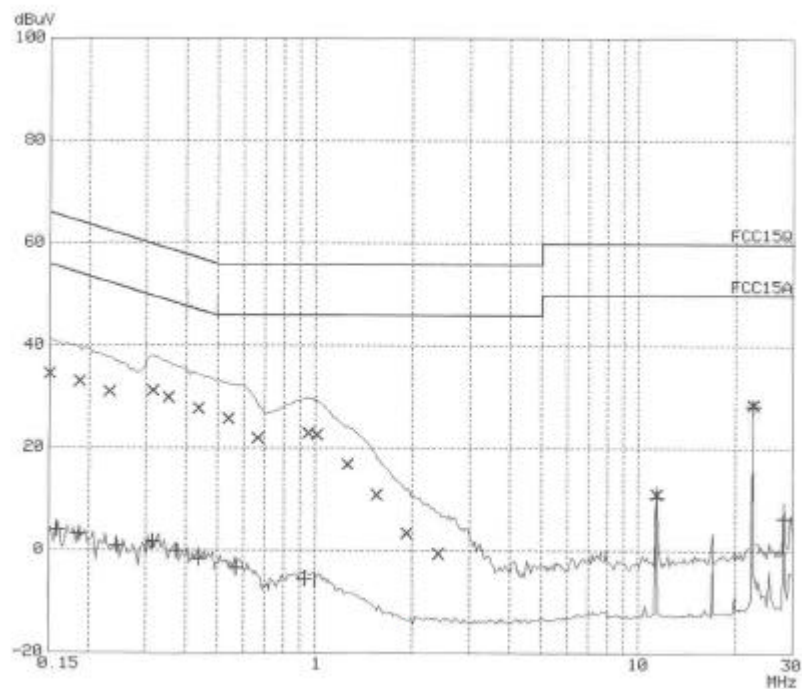
Date of test: Jul 18, 2003.

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

| Frequency Range<br>[MHz] | Tested Freq.<br>[MHz] | LISN | Meter Reading |      | Limits |      | Margin |      |
|--------------------------|-----------------------|------|---------------|------|--------|------|--------|------|
|                          |                       |      | QP            | AV   | QP     | AV   | QP     | AV   |
|                          |                       |      | [dBuV]        |      | [dBuV] |      | [dBuV] |      |
| <b>0.15-30</b>           | 0.156                 | H    | 43.9          | 30.5 | 65.7   | 55.7 | 21.8   | 25.2 |
|                          | 0.189                 | H    | 55.5          | 44.2 | 63.7   | 53.7 | 8.2    | 9.5  |
|                          | 0.252                 | H    | 47.4          | 36.8 | 61.1   | 51.1 | 13.7   | 14.3 |
|                          | 0.315                 | H    | 42.2          | 30.9 | 59.3   | 49.3 | 17.1   | 18.4 |
|                          | 0.504                 | H    | 41.8          | 34.1 | 56.0   | 46.0 | 14.2   | 11.9 |
|                          | 5.180                 | H    | 38.3          | 26.0 | 60.0   | 50.0 | 21.7   | 24   |
|                          | 5.560                 | H    | 40.6          | 28.0 | 60.0   | 50.0 | 19.4   | 22   |
|                          | 12.360                | H    | 43.1          | 34.4 | 60.0   | 50.0 | 16.9   | 15.6 |
|                          | 12.960                | H    | 43.4          | 35.1 | 60.0   | 50.0 | 16.6   | 14.9 |
|                          |                       |      |               |      |        |      |        |      |

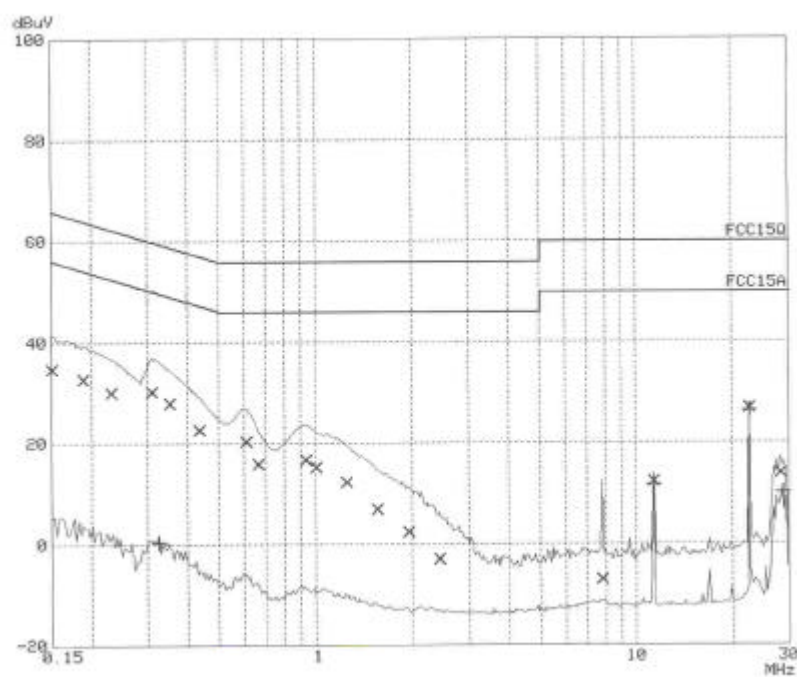
\* <5 : mean less than 5dB

\* Other frequency keep over 20dB margin.



PAGE 1

[Hot line]



PAGE 1

[Neutral line]

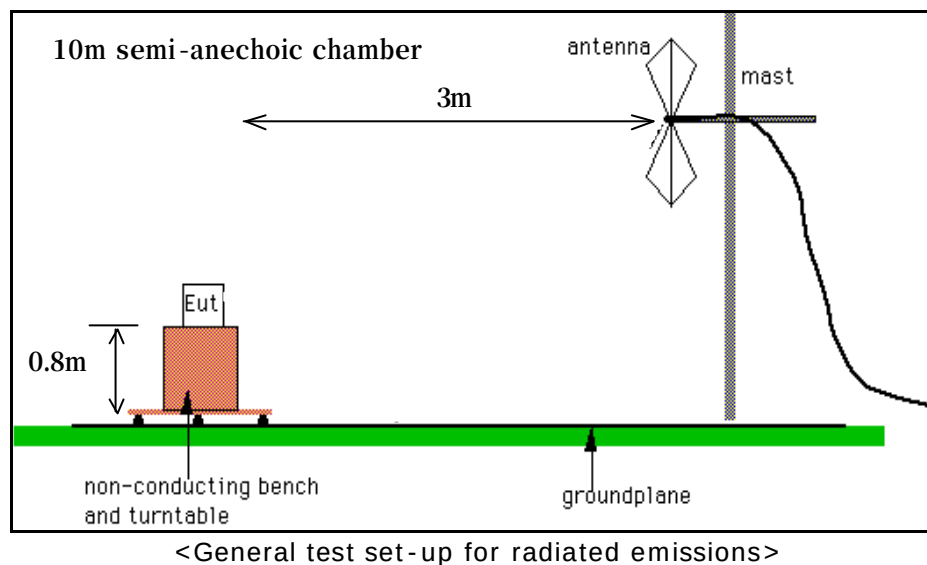
## 5. RADIATED DISTURBANCE : 30MHz – 1000MHz

### 5.1 Operating environment

Temperature : 22.0 °C  
Relative Humidity : 55.0 %

### 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.



### 5.3 Operation Conditions

During the test, we played on the record file.

### 5.4 Test instrument

| Instrument    | Model No. | Serial No. | Makers | Next cal.date | Used |
|---------------|-----------|------------|--------|---------------|------|
| Test receiver | ESCS30    | 100021     | R&S    | 2004. 1. 24   | X    |
| L.I.S.N.      | ESH3-Z5   | 827246/008 | R&S    | 2004. 3. 19   | X    |
|               | ESH3-Z5   | 831887/018 | R&S    | 2004. 3. 19   | X    |

### 5.5 Test results(Test mode: Play mode)

Date of test: Jul 18, 2003.

| Freq<br>(MHz) | Reading<br>(dBuV) | Ant | AF<br>(dB) | CL<br>(dB) | Result<br>(dBuV / m) | Limit<br>(dB) | Margin<br>(dB) |
|---------------|-------------------|-----|------------|------------|----------------------|---------------|----------------|
| 94.80         | 14.15             | H   | 8.62       | 2.20       | 24.97                | 46.00         | 21.0           |
| 97.50         | 11.78             | H   | 9.22       | 2.30       | 23.30                | 46.00         | 22.7           |
| 158.30        | 6.58              | V   | 15.30      | 2.90       | 24.78                | 46.00         | 21.2           |
| 159.60        | 8.80              | V   | 15.30      | 2.90       | 27.00                | 46.00         | 19.0           |
| 161.60        | 5.55              | H   | 15.59      | 2.90       | 24.04                | 46.00         | 22.0           |
| 225.10        | 5.80              | H   | 16.70      | 3.50       | 26.00                | 46.00         | 20.0           |
| 262.90        | 2.80              | H   | 17.70      | 3.50       | 24.00                | 46.00         | 22.0           |
| 266.30        | 1.18              | V   | 17.70      | 3.50       | 22.38                | 46.00         | 23.6           |
| 271.00        | 1.54              | V   | 18.00      | 3.60       | 23.14                | 46.00         | 22.9           |
| 288.50        | 0.10              | V   | 18.45      | 3.70       | 22.25                | 46.00         | 23.8           |
| 330.00        | 9.87              | V   | 13.85      | 0.90       | 24.62                | 46.00         | 21.4           |
| 435.00        | 10.31             | V   | 16.27      | 4.30       | 30.88                | 46.00         | 15.1           |

\* 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.

## 5.6 Test results (Test mode: FM Tuner)

Date of test: Jul 18, 2003.

| 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      | -                          | -        | 43.5   | -        | -        |
|           | 196.4     | -                          | -        | 43.5   | -        | -        |
|           | 294.6     | -                          | -        | 46.0   | -        | -        |
|           | 392.8     | -                          | -        | 46.0   | -        | -        |
|           | 491.0     | -                          | -        | 46.0   | -        | -        |
|           | 589.2     | -                          | 0.5      | 46.0   | -        | 45.5     |
|           | 687.4     | -                          | -        | 46.0   | -        | -        |
|           | 785.6     | -                          | -        | 46.0   | -        | -        |
|           | 883.8     | -                          | -        | 46.0   | -        | -        |
|           | 982.0     | -                          | -        | 54.0   | -        | -        |
| 98.0      | 108.7     | -                          | -        | 43.5   | -        | -        |
|           | 217.4     | -                          | -        | 46.0   | -        | -        |
|           | 326.1     | -                          | -        | 46.0   | -        | -        |
|           | 434.8     | -                          | -        | 46.0   | -        | -        |
|           | 543.5     | 0.5                        | -        | 46.0   | 45.5     | -        |
|           | 652.2     | -                          | -        | 46.0   | -        | -        |
|           | 760.9     | -                          | -        | 46.0   | -        | -        |
|           | 869.6     | -                          | -        | 46.0   | -        | -        |
|           | 978.3     | -                          | -        | 54.0   | -        | -        |
| 108.0     | 118.7     | -                          | -        | 43.5   | -        | -        |
|           | 237.4     | -                          | -        | 46.0   | -        | -        |
|           | 356.1     | -                          | -        | 46.0   | -        | -        |
|           | 474.8     | -                          | -        | 46.0   | -        | -        |
|           | 593.5     | -                          | -        | 46.0   | -        | -        |
|           | 712.2     | -                          | -        | 46.0   | -        | -        |
|           | 830.9     | -                          | -        | 46.0   | -        | -        |
|           | 949.6     | -                          | -        | 46.0   | -        | -        |

\* Meter reading: **Loss include**  
\* Margins : **[Limits] - [meter reading]**  
\* 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.