



ELECTROMAGNETIC EMISSION COMPLIANCE REPORT FOR FCC CLASS B CERTIFICATION

Test Report No. : E053R-001

Applicant : ISE Telecommunication Co., Ltd.

Address : 35-7, GUJANG-RI, PALTAN-MYEON, HWASEONG-SHI, KYONGGI-DO,
445-911, KOREA

Manufacturer : ISE Telecommunication CO., LTD.

Address : 35-7, GUJANG-RI, PALTAN-MYEON, HWASEONG-SHI, KYONGGI-DO,
445-911, KOREA

Type of Equipment : MP3 PLAYER (Peripheral Device for Class B Computing Device)

FCC ID. : O2MIFM-241

Model Name : IFM-241

Serial number : N/A

Total page of Report : 12 pages (including this page)

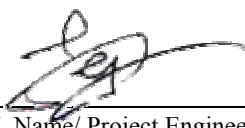
Date of Incoming : December 04, 2004

Date of Issuing : March 03, 2005

SUMMARY

The equipment complies with the requirements of **FCC CFR 47 PART 15 SUBPART B, Class B.**

This test report contains only the results of a single test of the sample supplied for the examination. It is not a general valid assessment of the features of the respective products of the mass-production.

Prepared by: 
S. H. Name/ Project Engineer
EMC Div.
ONETECH Corp.

Reviewed by: 
C. W. Lee/ Chief Engineer
EMC Div.
ONETECH Corp.



CONTENTS

	Page
1. VERIFICATION OF COMPLIANCE	3
2. GENERAL INFORMATION.....	4
2.1 PRODUCT DESCRIPTION.....	4
2.2 MODEL DIFFERENCES:	4
2.3 RELATED SUBMITTAL(S) / GRANT(S)	4
2.4 TEST SYSTEM DETAILS	4
2.5 TEST METHODOLOGY	5
2.6 TEST FACILITY	5
3. SYSTEM TEST CONFIGURATION.....	6
3.1 JUSTIFICATION	6
3.2 MODE OF OPERATION DURING THE TEST.....	6
3.3 CABLE DESCRIPTION	6
3.4 NOISE SUPPRESSION PARTS ON CABLE	6
3.5 EQUIPMENT MODIFICATIONS	7
3.6 CONFIGURATION OF TEST SYSTEM	7
4. PRELIMINARY TEST.....	7
4.1 AC POWER LINE CONDUCTED EMISSION TEST	7
4.2 RADIATED EMISSION TEST	7
5. FINAL RESULT OF MEASUREMENT	8
5.1 CONDUCTED EMISSIONS TESTS	8
5.2 RADIATED EMISSION TEST	10
6. FIELD STRENGTH CALCULATION	11
7. LIST OF TEST EQUIPMENT.....	12

**1. VERIFICATION OF COMPLIANCE**

- APPLICANT : ISE Telecommunication Co., Ltd.
- ADDRESS : 35-7, GUJANG-RI, PALTAN-MYEON, HWASEONG-SHI, KYONGGI-DO, 445-911,
KOREA
- CONTACT PERSON : Mr. Jang-Seo, Park / Manager
- TELEPHONE NO : +82-31-354-1748
- FCC ID : O2MIFM-241
- MODEL NAME : IFM-241
- SERIAL NUMBER : N/A
- DATE : March 03, 2005

DEVICE TYPE	Peripheral Device for Class B Computing Device - Unintentional Radiator
E.U.T. DESCRIPTION	MP3 PLAYER
THIS REPORT CONCERNS	ORIGINAL GRANT
MEASUREMENT PROCEDURES	ANSI C63.4: 2001
TYPE OF EQUIPMENT TESTED	PRE-PRODUCTION
KIND OF EQUIPMENT AUTHORIZATION REQUESTED	CERTIFICATION
EQUIPMENT WILL BE OPERATED UNDER FCC RULES PART(S)	FCC PART 15, SECTION 15.101
MODIFICATIONS ON THE EQUIPMENT TO ACHIEVE COMPLIANCE	No
FINAL TEST WAS CONDUCTED ON	3 METER OPEN AREA TEST SITE

- This device has shown compliance with the conducted emissions limits in 15.107 adopted under FCC 02-107 (ET Docket 98-80). The device may be marketed after July 11, 2005 affected by the 15.37(j) transition provisions.
- The above equipment was tested by ONETECH Corp. for compliance with the requirement set forth in the FCC Rules and Regulations. This said equipment in the configuration described in this report, shows the maximum emission levels emanating from equipment are within the compliance requirements.



2. GENERAL INFORMATION

2.1 Product Description

The ISE Telecommunication Co., Ltd., Model IFM-241 (referred to as the EUT in this report) is a MP3 PLAYER that is a personal computer peripheral with USB standard port. Product specification described herein was obtained from product data sheet or user's manual.

CHASSIS TYPE	Non-Metal
LIST OF EACH OSC. OR CRY. FREQ.(FREQ.>=1MHz)	12MHz : Main Board
ELECTRICAL RATING	AAA battery 1.5V(1EA)
FM TUNER MODULE MFR./MODEL NAME	SEOBONG ELECTRONICS CO., LTD. / FMSS1-278
NUMBER OF LAYERS	6 Layers : Main Board, 4Layers: LCD Board
EXTERNAL CONNECTOR	Audio Line Out, USB 1.0, Earphone

2.2 Model Differences

-. None

2.3 Related Submittal(s) / Grant(s)

Original submittal only

2.4 Test System Details

Defined as equipment needed for correct operation of the EUT, but not considered as tested:

Model	Manufacturer	FCC ID	Description	Connected to
IFM-241	ISE Telecommunication Co., Ltd.	O2MIFM-241	MP3 PLAYER(EUT)	NOTEBOOK PC
PP01L	Dell Computer Corp.	DOC	NOTEBOOK PC	-
2225C	HP	DSI6XU2225	PRINTER	NOTEBOOK PC
ADP-70EB	Delta Electronics	N/A	Adaptor	NOTEBOOK PC
020-0470	Cardinal	GDE0196	Modem	NOTEBOOK PC



2.5 Test Methodology

Both conducted and radiated testing was performed according to the procedures in ANSI C63.4: 2001. Radiated testing was performed at a distance of 3 meters from EUT to the antenna.

2.6 Test Facility

The open area test site and conducted measurement facilities are located on at 426-1 Daessangryung-Ri, Chowol-Myun, Kwangju-City, Kyunggi-Do 464-080 Korea. Description details of test facilities were submitted to the Commission on April 04, 2003. (Registration Number: 340658)



3. SYSTEM TEST CONFIGURATION

3.1 Justification

This device was configured for testing in a typical way as a normal customer is supposed to be used. During the test, the following components were installed inside of the EUT.

DEVICE TYPE	MANUFACTURER	MODEL/PART NUMBER	FCC ID
Main Board	N/A	-	N/A
LCD Board	N/A	-	N/A

3.2 Mode of operation during the test

- After connecting the EUT to USB port of a notebook PC, data were continuously uploading and downloading from HDD of the notebook PC to the EUT.

3.3 Cable Description

	Power Cord Shielded (Y/N)	I/O cable Shielded (Y/N)	Length (M)
MP3 PLAYER (EUT)	N/A	Y	1.2 (D)
NOTEBOOK PC	Y	-	1.0 (P)
PRINTER	N	Y	1.5(P), 1.5(D)
Adaptor	N	Y	1.2(P), 1.2 (D)
Modem	N	Y	1.5(P), 1.5(D)

* The marked "(P)" means the Power Cable and "D" means the I/O Cable.

3.4 Noise Suppression Parts on Cable

	Ferrite Bead (Y/N)	Location	Metal Hood (Y/N)	Location
MP3 PLAYER (EUT)	Y(USB)	EUT END	Y	BOTH END
NOTEBOOK PC	N	N/A	Y	EUT END
PRINTER	N	N/A	Y	BOTH END
Adaptor	Y	Notebook PC END	Y	Notebook PC END
Modem	N	N/A	Y	BOTH END



3.5 Equipment Modifications

To achieve compliance to CLASS B levels, the following change(s) was made by ONETECH Corp. during compliance testing:

“There were no Modified items during EMI test”

3.6 Configuration of Test System

Line Conducted Test : The EUT was inserted to USB port of Notebook PC and the AC/DC adaptor of Notebook PC was connected to LISN. All supporting equipments were connected to another LISN. Preliminary Power line Conducted Emission test was performed by using the procedure in ANSI C63.4: 2001 7.2.3 to determine the worse operating conditions.

Radiated Emission Test : Preliminary radiated emission test was conducted using the procedure in ANSI C63.4: 2001 8.3.1.1 to determine the worse operating conditions. Final radiated emission test was conducted at 3 meters open area test site.

4. PRELIMINARY TEST

4.1 AC Power line Conducted Emission Test

During Preliminary Test, the following operating mode was investigated

Operation Mode	The Worse operating condition (Please check one only)
Files Up/Downloading mode (On Notebook PC)	X

4.2 Radiated Emission Test

During Preliminary Test, the following operating mode was investigated

Operation Mode	The Worse operating condition (Please check one only)
Files Up/Downloading mode	X

**5. FINAL RESULT OF MEASUREMENT**

Preliminary test was done in normal operation mode. And the final measurement was selected for the maximized emission level

5.1 Conducted Emissions Tests

Humidity Level : 45 % Temperature: 23 °C
 Limits apply to : FCC CFR 47, PART 15, SUBPART B, SECTION 15.107 (a)
 Type of Test : Class B
 Result : PASSED BY -5.86 dB at 0.18 MHz under peak detector mode

EUT : MP3 PLAYER Date: December 04, 2004

Operating Condition : Files Up/Downloading mode

Detector : CISPR Quasi-Peak (6 dB Bandwidth: 9 kHz)

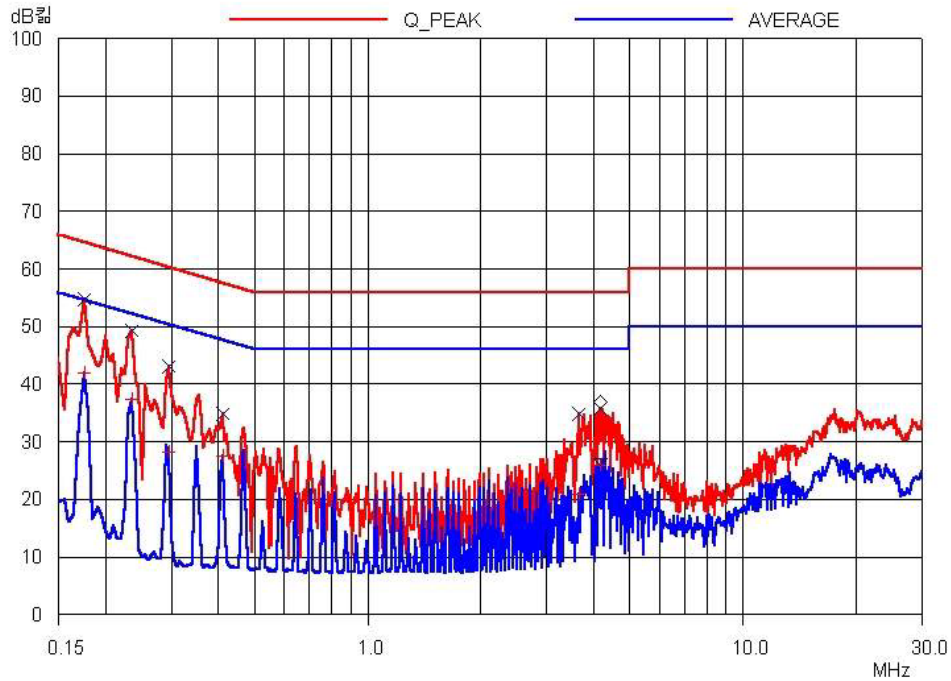
Frequency (MHz)	Line	Peak (dBuV)		Margin (dB)
		Emission level	Q.P Limits	
0.18	N	58.86	64.72	-5.86
0.23	N	49.06	62.45	-13.39
0.29	N	44.42	60.52	-16.10
0.47	N	34.62	56.60	-21.98
3.90	N	36.20	56.00	-19.80
5.82	N	31.32	60.00	-28.68
Frequency (MHz)	Line	Average (dBuV)		Margin (dB)
		Emission level	Limits	
0.18	N	46.50	54.72	-8.22
0.23	N	35.01	52.45	-17.44

Line Conducted Emissions Tabulated Data

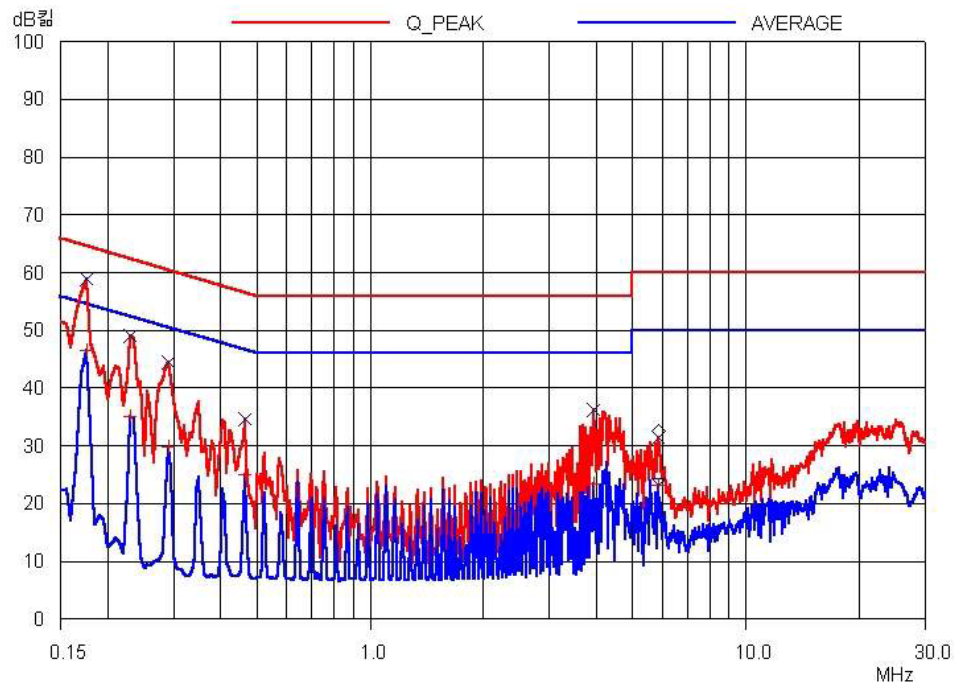
Remark : "H": Hot Line, "N": Neutral line, "Q.P": Quasi-Peak detect

See next page for an overview sweep performed with peak and average detector.

Tested by: Seung-Hyun, Nam / Project Engineer



HOT LINE



NEUTRAL LINE

**5.2 Radiated Emission Test**

The following table shows the highest levels of radiated emission on both polarizations of horizontal and vertical.

Humidity Level : 38 % Temperature: 19 °C
 Limits apply to : FCC CFR 47, PART 15, SUBPART B, SECTION 15.109 (a)
 Type of Test : CLASS B
 Result : PASSED BY -4.46 dB at 383.99 MHz

EUT : MP3 PLAYER Date: December 06, 2004
 Operating Condition : Files Up/Downloading mode
 Frequency range : 30MHz ~ 1000MHz
 Detector : CISPR Quasi-Peak (6 dB Bandwidth: 120 kHz)
 Distance : 3 Meter

Radiated Emissions		Ant	Correction Factors		Total	FCC CLASS B	
Freq. (MHz)	Amp. (dBuV)	Pol.	Ant. (dBuV/m)	Cable (dB)	Amp. (dBuV/m)	Limit (dBuV/m)	Margin (dB)
47.74	16.50	V	12.05	1.20	29.75	40.00	-10.25
60.00	18.60	V	6.70	1.40	26.70	40.00	-13.30
74.50	15.40	H	5.44	1.59	22.43	40.00	-17.57
249.80	9.70	V	17.17	2.60	29.47	46.02	-16.55
383.99	22.81	H	15.39	3.36	41.56	46.02	-4.46
648.59	16.30	V	19.65	4.20	40.15	46.02	-5.87

Radiated Emissions Tabulated Data

Tested by: Seung-Hyun, Nam / Project Engineer



6. FIELD STRENGTH CALCULATION

Meter readings are compared to the specification limit correcting for antenna and cable losses

+ Meter reading (dBuV)

+ Cable Loss (dB)

+ Antenna Factor (Loss) (dB/meter)

= Corrected Reading (dBuV/meter)

- Specification Limit (dBuV/meter)

= dB Relative to Spec (+/- dB)

**7. LIST OF TEST EQUIPMENT**

No.	EQUIPMENTS	MFR.	MODEL	SER. NO.	LAST CAL	DUE CAL	USE
1.	Test receiver	R/S	ESVS 10	827864/005	DEC/04	12MONTH	■
2.	Test receiver	R/S	ESHS 10	834467/007	MAY/04	12MONTH	■
3.	Spectrum analyzer	HP	8566B	3407A08547	JUL/04	12MONTH	
4.	Spectrum analyzer	HP	8568B	3109A05456	JUL/04	12MONTH	■
5.	RF preselector	HP	85685A	3107A01264	APR/04	12MONTH	■
6.	Quasi-Peak Adapter	HP	85650A	3107A01542	JUL/04	12MONTH	■
7.	TRILOG Broadband Antenna	Schwarzbeck	VULB9163	VULB9163 166	FEB/04	12MONTH	
8.	Biconical antenna	EMCO	3104C	9109-4443	MAY/04	12MONTH	
		Schwarzbeck	VHA9103	91031852	JAN/04		■
9.	Log Periodic antenna	EMCO	3146	9109-3213	FEB/04	12MONTH	
				9109-3217	MAY/04		
		Schwarzbeck	9108-A(494)	62281001	JAN/04		■
10.	LISN	EMCO	3825/2	9109-1867	JUL/04	12MONTH	■
				9109-1869	OCT/04		■
11.	Position Controller	HD GmbH	HD100	N/A	N/A	N/A	■
12.	Turn Table	HD GmbH	DS420S	N/A	N/A	N/A	■
13.	Antenna Master	HD GmbH	MA240	N/A	N/A	N/A	■