

ELECTROMAGNETIC EMISSION COMPLIANCE REPORT FOR FCC CLASS B CERTIFICATION

Test Report No. : E072R-034

AGR No. : A068A-106R

Applicant : SAROTECH CO., LTD.
Address : Sarotech Bldg. 320-15, Sungnae-Dong, Gangdong-Gu, Seoul, 134-851, Korea

Manufacturer : SAROTECH CO., LTD.
Address : Hanlim Venture Town #204, 689-6, Gumjeong-Dong, Gunpo-City, Kyungki-Do, Korea

Type of Equipment : Multi Media Player (Peripheral Device for Class B Computing Device)

FCC ID : PBCDVP-260

Model Name : DVP-260

Multiple Model Name : N/A

Serial number : N/A

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

Date of Incoming : October 09, 2006

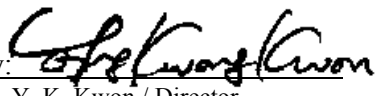
Date of Issuing : February 23, 2007

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: 
Young-Min, Choi / Project Engineer
EMC Div.
ONETECH Corp.

Reviewed by: 
Y. K. Kwon / Director
EMC Div.
ONETECH Corp.

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1. VERIFICATION OF COMPLIANCE

- APPLICANT : SAROTECH CO., LTD.
- ADDRESS : Sarotech Bldg. 320-15, Sungnae-Dong, Gangdong-Gu, Seoul, 134-851, Korea
- CONTACT PERSON : Mr. Yong-Woo, Lee / Manager
- TELEPHONE NO : +82-2-480-5140
- FCC ID : PBCDVP-260
- MODEL NAME : DVP-260
- BRAND NAME : abigs
- SERIAL NUMBER : N/A
- DATE : February 23, 2007

DEVICE TYPE	Peripheral Device for Class B Computing Device - Unintentional Radiator
E.U.T. DESCRIPTION	Multi Media Player
THIS REPORT CONCERNS	ORIGINAL GRANT
MEASUREMENT PROCEDURES	ANSI C63.4: 2003
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	Yes
FINAL TEST WAS CONDUCTED ON	3 METER OPEN AREA TEST SITE

- 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 SAROTECH CO., LTD., Model DVP-260 (referred to as the EUT in this report) is a Multi Media Player that has a function for transmitting of FM broadcasting frequency range and PC peripheral. This report covers a PC peripheral function and the report for FM transmitting shall be issued by another test report. Product specification described herein was obtained from product data sheet or user's manual.

CHASSIS TYPE	Plastic
LIST OF EACH OSC. OR CRY. FREQ.(FREQ.>=1MHz)	12 MHz and 27 MHz on the Main Board
POWER REQUIREMENT	DC 5V, 2.0A from an AC/DC Adaptor
TX FREQUENCY RANGE	88.1 MHz ~ 88.9 MHz (range into 400 kHz Step)
NUMBER OF LAYERS	4 Layers
EXTERNAL CONNECTOR	DC In, Composite Port, Component/ S-Video Port, Coaxial, USB Port, External IR In

2.2 Model Differences

-. The difference(s) compared to the EUT is as follows: None

2.3 Related Submittal(s) / Grant(s)

-. Original submittal only

2.4 Test System Details

The model numbers for all the equipments that were used in the tested system is:

Model	Manufacturer	FCC ID	Description	Connected to
DVP-260	SAROTECH CO., LTD.	PBCDVP-260	Multi Media Player(EUT)	Laptop PC
PP05LC	Dell Computer	DoC	Laptop PC	-
MO56UOA	Dell Computer	N/A	Mouse	Laptop PC
UP-DP10	Sony Corporation	DoC	Printer	Laptop PC
3453C	U.S. Robotics	CJE-0263	Modem	Laptop PC

2.5 Test Methodology

Both conducted and radiated testing was performed according to the procedures in ANSI C63.4: 2003. 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 307-51 Daessangryung-Ri, Chowol-Eup, Kwangju-City, Kyunggi-Do, 464-080, Korea. Description details of test facilities were submitted to the Commission on August 30, 2005. (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	SAROTECH CO., LTD.	DVP-370W	N/A
FM Module	N/A	TX-M201 Rev.0	N/A
HDD	SAMSUNG	MP402H/DOM	N/A

3.2 EUT exercise Software

The EUT has following 2 operating condition, so two modes were tested and worst case result was recorded in this report.

1. After connecting the EUT to a notebook PC using the USB cable, the data were continuously read and written from the personal computer to the EUT.
2. Movie file in the HDD of the EUT was played during the test.

3.3 Cable Description

Ports Name	Shielded	Ferrite Bead	Metal Hood	Length (m)	Connected to
DC In	N	Y(EUT END)	EUT END	1.5	LISN
USB	N	Y(BOTH END)	BOTH END	1.5	Laptop PC

3.5 Equipment Modifications

- The bypass Cap.(104) was added to the USB connector VCC line on the main board.
- The bypass Cap.(104) was added to the DC input connector VCC line on the main board.
- The gasket was added between inside of metal case and HDD.
- The ferrite core(E-Tech, CU0530G) was added to both side of USB connector cable.

3.6 Configuration of Test System

Line Conducted Test : The EUT was connected to adaptor and the power line of adaptor 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: 2003 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: 2003 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 operating condition
Data were continuously read and written by USB Port.	X
Movie file in the HDD of the EUT was played.	-

4.2 Radiated Emission Test

During Preliminary Test, the following operating mode was investigated

Operation Mode	The operating condition
Data were continuously read and written by USB Port.	X
Movie file in the HDD of the EUT was played.	-

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 Emission TestHumidity Level : 48 %Temperature: 18 °CLimits apply to : FCC CFR 47, PART 15, SUBPART B, SECTION 15.107 (a)Type of Test : CLASS BResult : PASSED BY -9.25 dB at 1.90 MHz under peak detector mode

EUT : Multi Media Player

Date: December 22, 2006

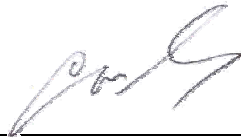
Operating Condition : Data were continuously read and written by USB Port

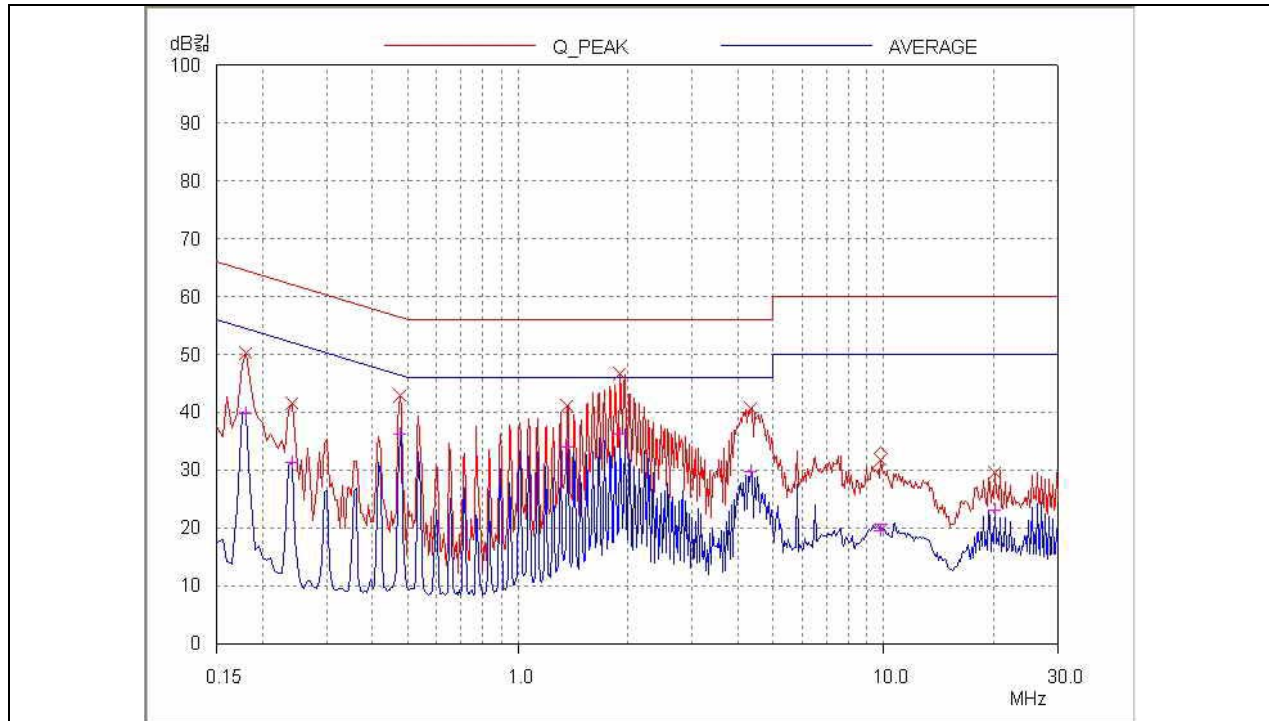
Detector : CISPR Quasi-Peak (6 dB Bandwidth: 9 kHz)

Frequency (MHz)	Line	Peak (dBuV)		Margin (dB)
		Emission level	Q.P Limits	
0.18	H	50.27	64.49	-14.22
0.47	H	42.90	56.43	-13.53
1.36	H	41.16	56.00	-14.84
1.85	N	43.68	56.00	-12.32
1.90	H	46.75	56.00	-9.25
4.30	H	40.70	56.00	-15.30
Frequency (MHz)	Line	Average (dBuV)		Margin (dB)
		Emission level	Limits	
0.18	H	39.72	54.49	-14.77
0.47	H	36.31	46.43	-10.12
1.85	N	30.79	46.00	-15.21
1.90	H	36.17	46.00	-9.83

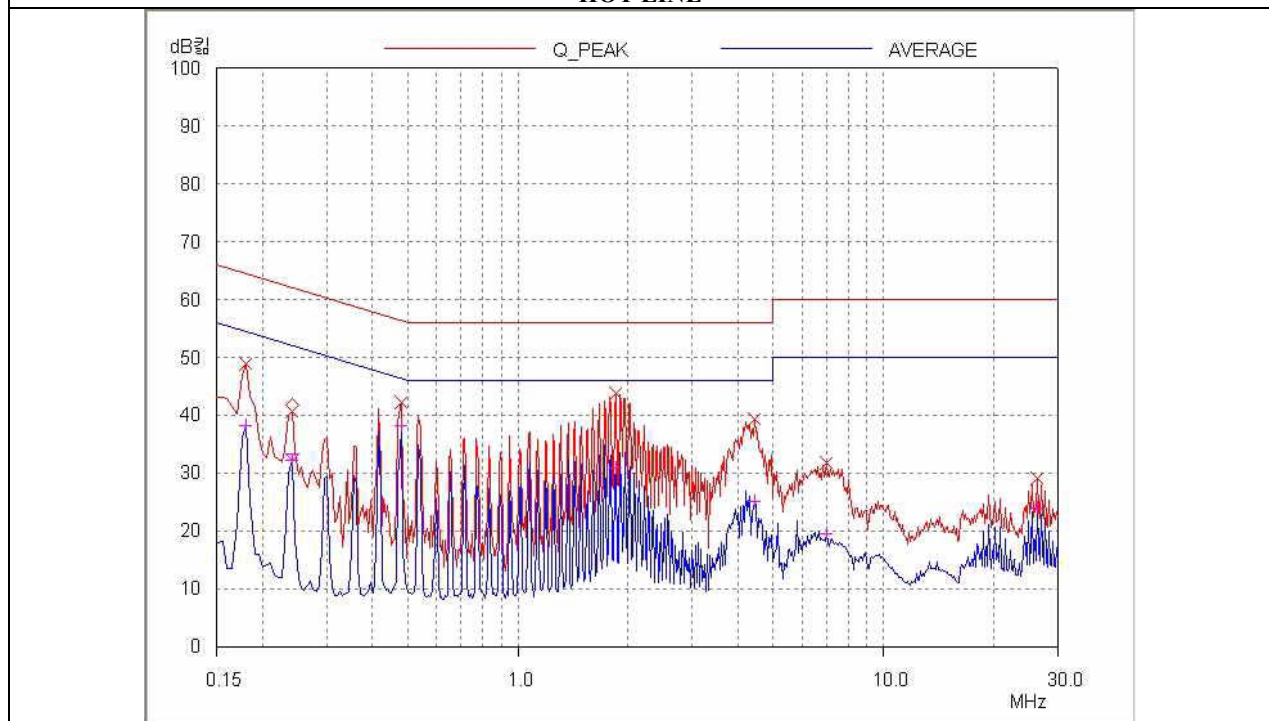
Line Conducted Emission Tabulated Data

Remark : "H": Hot Line, "N": Neutral line


 Tested by: In-Sub, Youn / Test Engineer



HOT LINE



NEUTRAL LINE

5.2 Radiated Emission Test

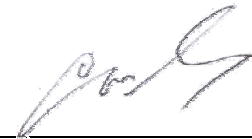
The following table shows the highest levels of radiated emission on both polarizations of horizontal and vertical.

Humidity Level : 49 % Temperature: 16 °C
 Limits apply to : FCC CFR 47, PART 15, SUBPART B, SECTION 15.109 (a)
 Type of Test : CLASS B
 Result : PASSED BY -4.05 dB at 164.70 MHz

EUT : Multi Media Player Date: December 19, 2006
 Detector : CISPR Quasi-Peak (6 dB Bandwidth: 120 kHz)
 Frequency Range : 30 MHz – 1000 MHz
 Operating Condition : Data were continuously read and written by USB Port
 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)
97.83	23.90	V	9.64	2.40	35.94	40.00	-4.06
118.21	20.30	V	12.43	2.66	35.39	40.00	-4.61
148.22	17.90	H	14.55	3.09	35.54	40.00	-4.46
164.70	17.97	H	15.13	2.85	35.95	40.00	-4.05
329.43	20.89	H	15.51	4.07	40.47	47.00	-6.53
359.48	21.10	H	16.17	4.46	41.73	47.00	-5.27
399.20	20.20	V	16.67	4.70	41.57	47.00	-5.43
418.50	19.80	H	17.26	4.77	41.83	47.00	-5.17

Radiated Emissions Tabulated Data



Tested by: In-Sub, Youn / Test 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)
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-	Specification Limit	(dBuV/meter)
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=	dB Relative to Spec	(+/- dB)
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7. LIST OF TEST EQUIPMENT

No.	EQUIPMENTS	MFR.	MODEL	SER. NO.	LAST CAL	DUE CAL	USE
1.	Test receiver	R/S	ESVS10	827864/005	DEC/06	12MONTH	■
2.	Test receiver	R/S	ESHS 10	834467/007	MAY/06	12MONTH	■
3.	Spectrum analyzer	HP	8566B	3407A08547	JUN/06	12MONTH	■
4.	TRILOG Broadband Antenna	Schwarzbeck	VULB9163	VULB9163 166	MAY/06	12MONTH	
5.	Biconical antenna	EMCO	3110	9003-1121	FEB/06	12MONTH	
		Schwarzbeck	VHA9103	91031852	FEB/06		■
6.	Log Periodic antenna	EMCO	3146	9001-2614	FEB/06	12MONTH	
		Schwarzbeck	9108-A(494)	62281001	FEB/06		■
7.	LISN	EMCO	3825/2	9109-1867	JUN/06	12MONTH	■
				9109-1869	JUN/06		
		Schwarzbeck	NSLK 8126	8126-404	JUL/06		■
8.	Position Controller	HD GmbH	HD100	N/A	N/A	N/A	■
9.	Turn Table	HD GmbH	DS420S	N/A	N/A	N/A	■
10.	Antenna Master	HD GmbH	MA240	N/A	N/A	N/A	■