

ELECTROMAGNETIC EMISSION COMPLIANCE REPORT FOR FCC CLASS B CERTIFICATION

Test Report No. : E06NR-067

AGR No. : A06OA-014R

Applicant : MOBITRON CO., LTD.

Address : Rm601, Kayang Technotown, 1487, Kayang3-dong, Kangseo-gu, Seoul, Korea

Manufacturer : MOBITRON CO., LTD.

Address : Rm601, Kayang Technotown, 1487, Kayang3-dong, Kangseo-gu, Seoul, Korea

Type of Equipment : HAND HELD TERMINAL
(Peripheral Device for Class B Computing Device)

FCC ID : R6SMDT9600

Model Name : MDT-9600

Serial number : N/A

Total page of Report : 11 pages (including this page)

Date of Incoming : October 16, 2006

Date of Issuing : November 24, 2006

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.

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1. VERIFICATION OF COMPLIANCE

- APPLICANT : MOBITRON CO., LTD.
- ADDRESS : Rm601, Kayang Technotown, 1487, Kayang3-dong, Kangseo-gu, Seoul, Korea
- CONTACT PERSON : Mr. Jaeho, Shim / Manager
- TELEPHONE NO : +82-2-2668-6777
- FCC ID : R6SMDT9600
- MODEL NAME : MDT-9600
- SERIAL NUMBER : N/A
- DATE : November 24, 2006

DEVICE TYPE	Peripheral Device for Class B Computing Device - Unintentional Radiator
E.U.T. DESCRIPTION	HAND HELD TERMINAL
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	No
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 MOBITRON CO., LTD., Model MDT-9600 (referred to as the EUT in this report) is a HAND HELD TERMINAL, which has a function of data uploading/downloading by USB cable. The EUT includes a certified CDMA module, FCC ID: P4M-DTEVDUAL. 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)	3.6864 MHz and 8.0 MHz
POWER REQUIREMENT	DC 8.4V from a internal rechargeable battery
NUMBER OF LAYERS	6 Layers
EXTERNAL CONNECTOR	IO Connector, SMART Card Connector, USB

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
MDT-9600	MOBITRON CO., LTD.	R6SMDT9600	HAND HELD TERMINAL (EUT)	PC
PP05LC	DELL COMPUTER	DoC	PC	-
UP-DP10	Sony	DoC	Printer	PC
3453C	U.S.Robotics	CJE-0263	Modem	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	Mobitron	N/A	N/A
LCD Panel	N/A	LTP350QV-E06-C00	N/A
Magnetic Card Board	Zepe	MSR11-F	N/A
Print Driver	APS	ELM205-LV	N/A
SMD Card Board	N/A	DLM300	N/A
CDMA Modular	AnyDATA Corporation	DTEV-DUAL	P4M-DTEVDUAL
CDMA Modular Interface	N/A	N/A	N/A
Keypad Board	N/A	N/A	N/A
Battery	N/A	N/A	N/A

3.2 Mode of operation during the test

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

- The EUT was connected to the PC, and then the EUT continuously transferred data to the PC during the test.
- The EUT was operated with charging mode continuously during the test.

3.3 Cable Description

Ports Name	Shielded	Ferrite Bead	Metal Hood	Length (m)	Connected to
USB Port	-	-	-	Direct Inserted	USB Memory
IO Connector	N	Y (EUT END)	BOTH END	1.5	PC
Smart Card Connector	-	-	-	Direct Inserted	Smart Card

3.5 Equipment Modifications

- None

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 and ICES-003 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 Worse operating condition (Please check one only)
The EUT was operated with charging mode continuously during the test	X
The EUT transferred data to the PC continuously during the test.	-

4.2 Radiated Emission Test

During Preliminary Test, the following operating mode was investigated

Operation Mode	The Worse operating condition (Please check one only)
The EUT was operated with charging mode continuously during the test	-
The EUT transferred data to the PC continuously during the test.	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 Emission Test

Humidity Level : 45 % Temperature: 21 °C
 Limits apply to : FCC CFR 47, PART 15, SUBPART B, SECTION 15.107 (a)
 Type of Test : CLASS B
 Result : PASSED BY -11.56 dB at 0.17 MHz

EUT : HAND HELD TERMINAL Date: November 03, 2006
 Operating Condition : The EUT was operated with charging mode continuously during the test
 Detector : CISPR Quasi-Peak (6 dB Bandwidth: 9 kHz)

Frequency (MHz)	Line	Peak (dBuV)		Margin (dB)
		Emission level	Q.P Limits	
0.15	N	44.62	65.73	-21.11
0.17	H	47.16	64.72	-17.56
0.20	H	39.52	63.61	-24.09
0.23	N	37.64	62.45	-24.81
0.29	N	36.14	60.38	-24.24
0.36	N	31.32	58.73	-27.41
Frequency (MHz)	Line	Average (dBuV)		Margin (dB)
		Emission level	Limits	
-				
-				

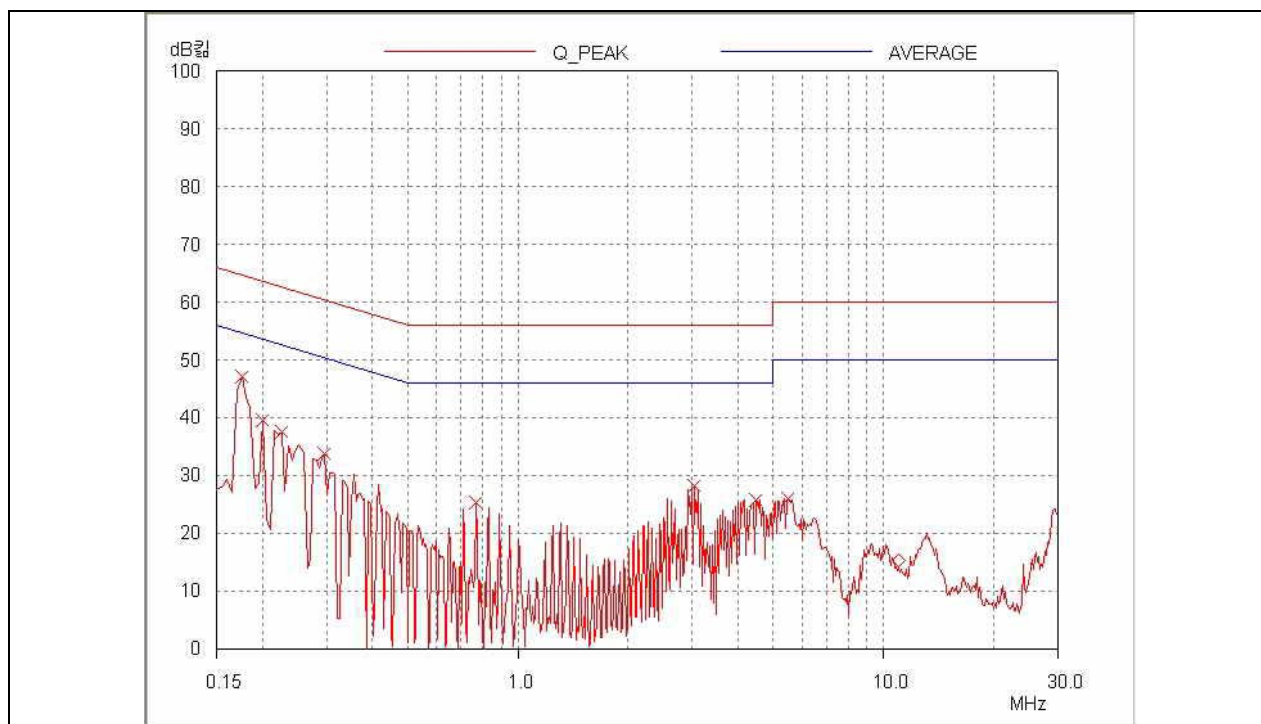
Line Conducted Emission Tabulated Data

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

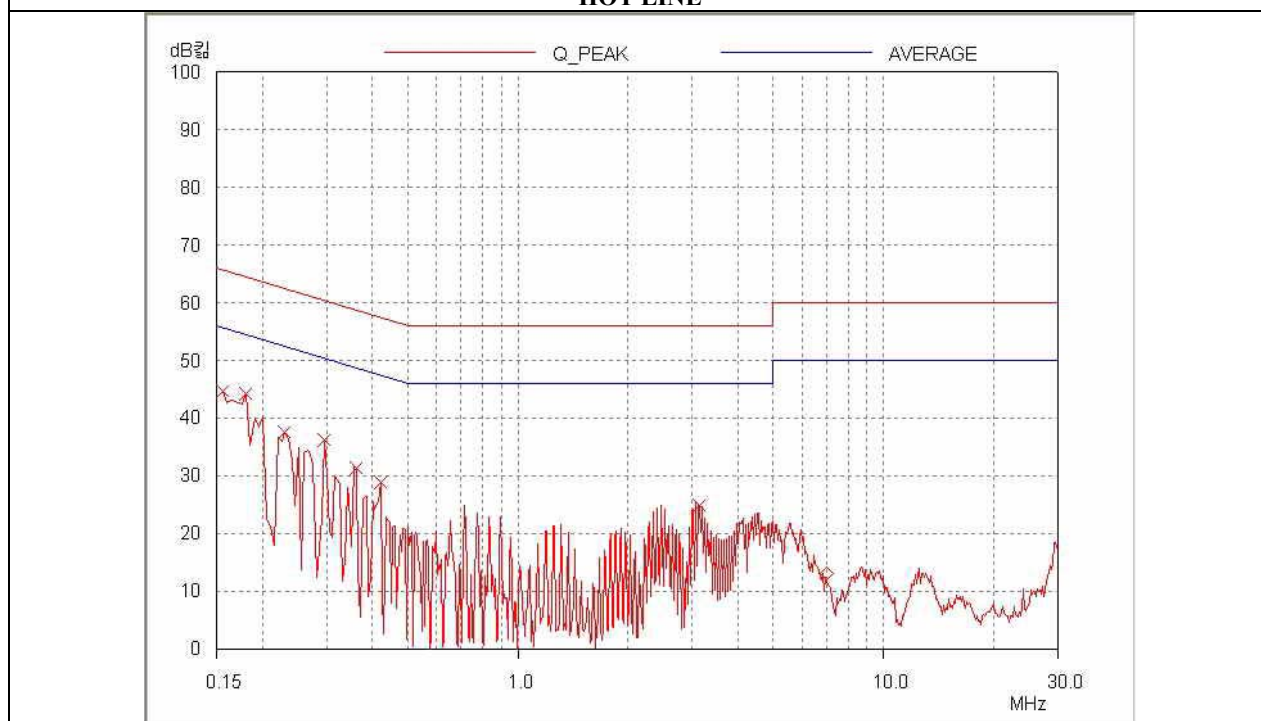
Average mode was not measured, because peak values were under the Average limit.



Tested by: Hyun-Suck, Lee / Test Engineer



HOT LINE



NEUTRAL LINE

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EMC-002 (Rev.0)

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5.2 Radiated Emission Test

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

Humidity Level : 41 % 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 -4.44 dB at 453.56 MHz

EUT : HAND HELD TERMINAL Date: November 03, 2006
 Operating Condition : The EUT continuously transferred data to the PC during the test.
 Detector : CISPR Quasi-Peak (6 dB Bandwidth: 120 kHz)
 Frequency Range : 30 MHz – 1000 MHz
 Distance : 3 Meter

Frequency (MHz)	Reading (dBuV)	Ant. Pol. (H/V)	Ant. Factor (dB/m)	Cable Loss	Emission Level(dBuV/m)	Limits (dBuV/m)	Margin (dB)
453.56	18.70	H	18.31	4.57	41.58	46.02	-4.44
466.87	13.80	H	18.55	4.84	37.19	46.02	-8.83
476.67	17.80	V	18.73	5.03	41.56	46.02	-4.46
501.28	14.80	V	19.17	5.49	39.46	46.02	-6.56
612.85	12.80	H	20.39	5.40	38.59	46.02	-7.43
956.48	8.90	H	23.55	8.21	40.66	46.02	-5.36

Radiated Emissions Tabulated Data



Tested by: Hyun-Suck, Lee / 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)

- 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	ESVS10	827864/005	DEC/05	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	■