



ELECTROMAGNETIC EMISSION COMPLIANCE REPORT FOR FCC CLASS B CERTIFICATION

Test Report No. : E054R-009

Applicant : KMTEL Co., Ltd.

Address : 6F. Ara B/D 216-5, Sinsung-Dong, Yuseong-Gu, Daejeon 305-805 Korea

Manufacturer : KMTEL Co., Ltd.

Address : 6F. Ara B/D 216-5, Sinsung-Dong, Yuseong-Gu, Daejeon 305-805 Korea

Type of Equipment : Smart Pointer II

FCC ID : QMTSP-150R

Model Name : SP-150

Serial number : N/A

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


Date of Incoming : March 3, 2005


Date of Issuing : April 7, 2005

SUMMARY

The equipment complies with the requirements of **FCC CFR 47 PART 15 SUBPART B, SECTION 15.101**.

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 : KMTEL Co., Ltd.
- ADDRESS : 6F. Ara B/D 216-5, Sinsung-Dong, Yuseong-Gu, Daejeon 305-805 Korea
- CONTACT PERSON : Mr. S. M. Shin / Team Director
- TELEPHONE NO : +82-42-864-4991
- FCC ID : QMTSP-150R
- MODEL NO/NAME : SP-150
- SERIAL NUMBER : N/A
- DATE : April 7, 2005

DEVICE TYPE	Receiver and Peripheral Device for Class B Computing device - Unintentional Radiator
E.U.T. DESCRIPTION	Flash Memory Receiver
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

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 KMTEL Co., Ltd., Model SP-150 (referred to as the EUT in this report) is a peripheral device that is fixed USB port of PC and receives the signal from the transmitter, Model: SP-100T, FCC ID: QMTSP-100T, which was manufactured by above applicant. The receiving function does not change from the already approved product, Model: SP-100, FCC ID: QMTSP-100R, but memory function was added. The product specification described herein was obtained from product data sheet or user's manual.

CHASSIS TYPE	Non-Metal
RECEIVING FREQUENCY	315 MHz
LIST OF EACH OSC. OR CRY. FREQ. (FREQ.>=1MHz)	12.00 MHz, 6.00 MHz and 4.897 MHz
FLASH MEMORY SIZE	128MB
OPERATING VOLTAGE/CURRENT	USB Bus Powered
NUMBER OF LAYERS	4 Layers

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 EUT was tested with the following all equipment used in the tested systems are:

Model	Manufacturer	FCC ID	Description	Connected to
SP-150	KMTEL Co., Ltd.	QMTSP-150R	RECEIVER	Notebook PC
PP01L	DELL Computer Corp.	DoC	Notebook PC	-
2225C	HP	DSI6XU2225	Printer	Notebook PC
020-0470	Cardinal	GDE0196	Modem	Notebook PC

2.5 Test Methodology

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-Eup, 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	KMTEL Co., Ltd.	SP-200RX	N/A

3.2 EUT exercise Software

After connecting the EUT to USB port of PC, the signal was continuously received and data were continuously read and written from the HDD of the PC to the EUT, but the worst data was recorded in this test report..

3.3 Equipment Modifications

- None

3.4 Configuration of Test System

Line Conducted Test: The EUT was inserted to USB port of PC and the power line of 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 emissions test were conducted using the procedure in ANSI C63.4: 2001 8.3.1.1 and 13.1.4.1 to determine the worse operating conditions. Final radiated emission tests were conducted at 3meter open area test site.



4. PRELIMINARY TEST

4.1 AC Power line Conducted Emissions Tests

During Preliminary Tests, the following operating mode was investigated

Operation Mode	The Worse operating condition (Please check one only)
Data were continuously read and written via USB	X
RX mode	

4.2 Radiated Emissions Tests

During Preliminary Tests, the following operating modes were investigated

Operation Mode	The Worse operating condition (Please check one only)
Data were continuously read and written via USB	X
RX mode	



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 : 44 %

Temperature: 23 °C

Limits apply to : FCC CFR 47, PART 15, SUBPART B

Type of Test : Computing Device Peripheral

Result : PASSED BY -15.66 dB at 0.15 MHz under peak mode.

EUT : Smart Pointer II

Date: March 22, 2005

Operating Condition : Data were continuously read and written via USB.

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

Frequency (MHz)	Line	Quasi-Peak (dBuV)			Margin (dB)	Average (dBuV)		Margin (dB)
		Emission level	Detect Mode	Limits		Emission level	Limits	
0.15	N	50.34	P	66.00	-15.66	-	-	-
0.23	H	43.88	P	62.45	-18.57	-	-	-
0.30	H	36.23	P	60.24	-21.01	-	-	-
0.37	N	35.25	P	58.50	-23.25	-	-	-
8.41	H	37.29	P	56.00	-22.71	-	-	-
9.00	N	37.52	P	60.00	-22.48	-	-	-

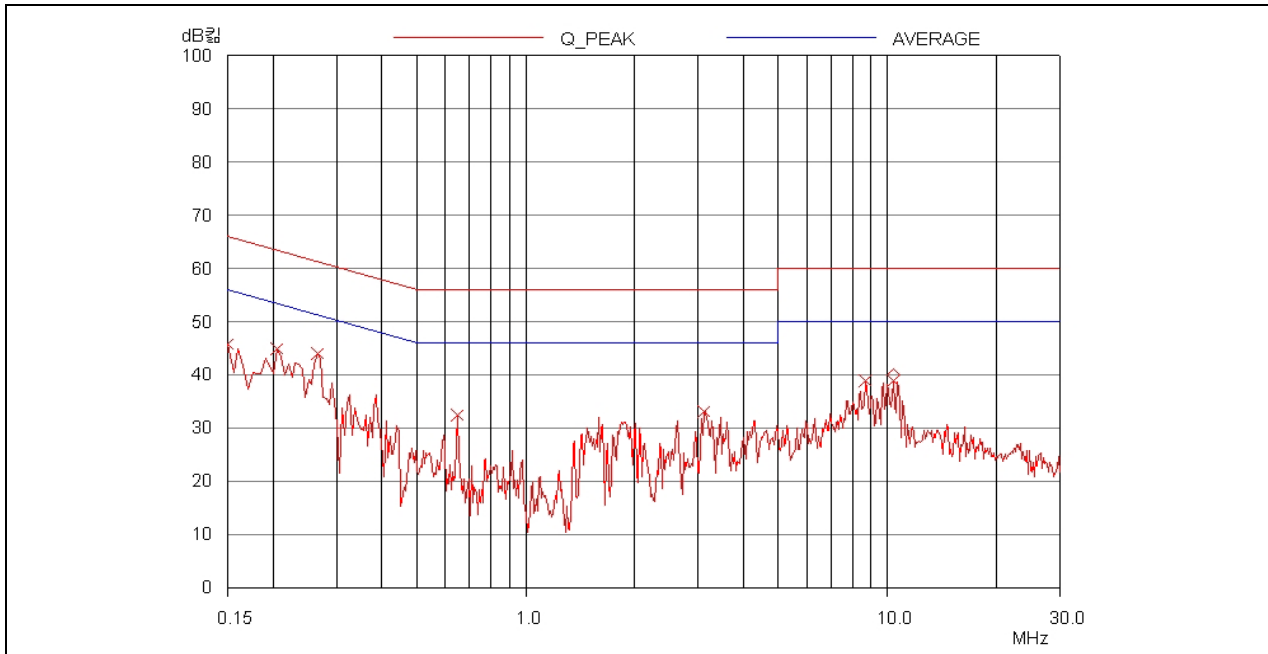
Line Conducted Emission Tabulated Data

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

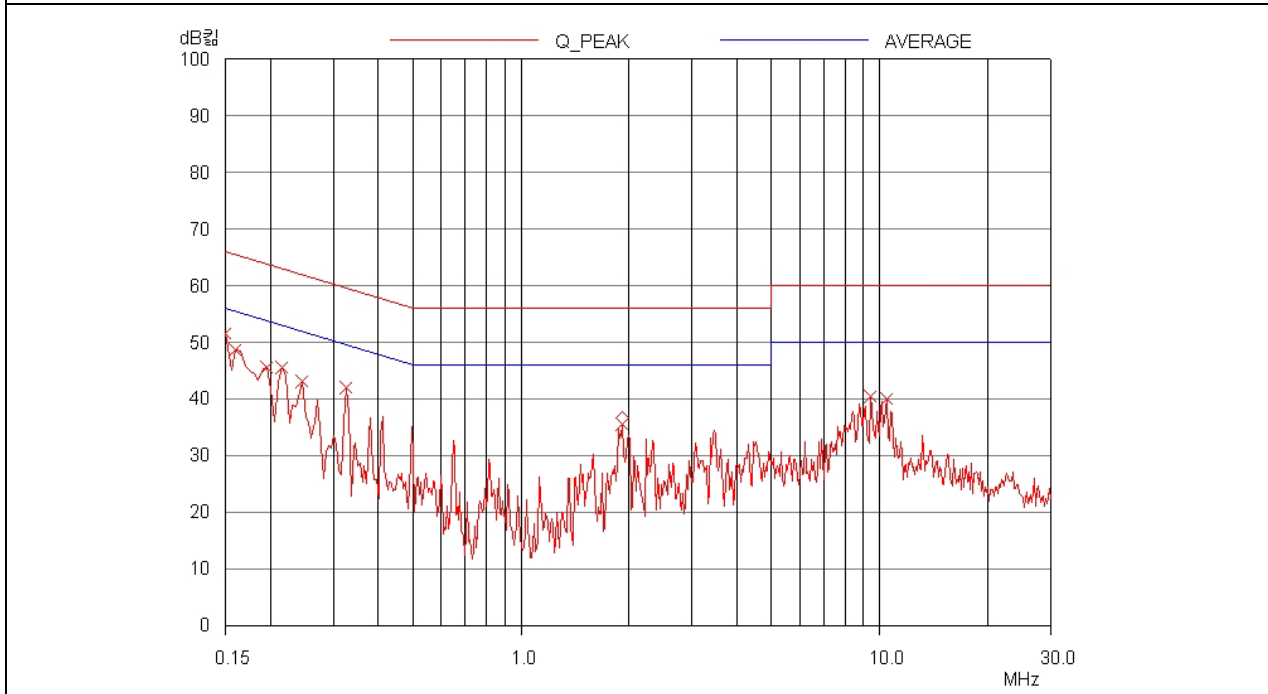
See next page for an overview sweep performed with peak and average detector.

Gi-Hong

Tested by: Gi-Hong, Nam / Test Engineer



HOT LINE



NEUTRAL LINE



5.1 Radiated Emission Test

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

Humidity Level : 48 % Temperature: 16 °C
 Limits apply to : FCC CFR 47, PART 15, SUBPART B
 Type of Test : Computing Device Peripheral
 Result : PASSED BY -4.58 dB at 300.0 MHz

EUT : Smart Pointer II Date: March 14, 2005
 Operating Condition : Data were continuously read and written via USB.
 Detector : CISPR Quasi-Peak (6 dB Bandwidth: 120 kHz)
 Frequency Range : 30 MHz ~ 2 GHz
 Distance : 3 Meter

Radiated Emission		Ant	Correction Factors		Total	FCC LIMIT	
Freq. (MHz)	Amp. (dBuV)	Pol.	Ant. (dBuV/m)	Cable (dB)	Amp. (dBuV/m)	Limit (dBuV/m)	Margin (dB)
120.00	17.40	H	12.96	2.20	32.56	43.52	-10.96
204.00	16.50	H	15.99	2.25	34.74	43.52	-8.78
216.00	16.10	H	16.35	2.39	34.84	43.52	-8.68
240.00	20.50	H	16.78	2.56	39.84	46.02	-6.18
300.00	18.50	H	20.04	2.90	41.44	46.02	-4.58
336.00	19.30	H	14.17	3.01	36.48	46.02	-9.54

Radiated Emission Tabulated Data

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Tested by: Gi-Hong, Nam / 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	ESVS 10	827864/005	DEC/04	12MONTH	■
2.	Test receiver	R/S	ESHS 10	834467/007	APR/04	12MONTH	■
3.	Spectrum analyzer	HP	8566B	3407A08547	MAY/04	12MONTH	■
4.	Spectrum analyzer	HP	8568B	3109A05456	MAY/04	12MONTH	■
5.	RF preselector	HP	85685A	3107A01264	MAY/04	12MONTH	■
6.	Quasi-Peak Adapter	HP	85650A	3107A01542	MAY/04	12MONTH	■
7.	TRILOG Broadband Antenna	Schwarzbeck	VULB9163	VULB9163 166	FEB/05	12MONTH	■
8.	Biconical antenna	EMCO	3104C	9109-4443	MAY/05	12MONTH	■
				9109-4444	JUL/04		
		Schwarzbeck	VHA9103	91031852	JAN/05		
9.	Log Periodic antenna	EMCO	3146	9109-3213	FEB/05	12MONTH	
				9109-3214	JUL/04		■
				9109-3217	MAY/04		
		Schwarzbeck	9108-A(494)	62281001	JAN/05		
10.	LISN	EMCO	3825/2	9109-1867	AUG/04	12MONTH	■
				9109-1869	OCT/04		■
11.	Position Controller	EMCO	1090	9107-1038	N/A	N/A	■
12.	Turn Table	EMCO	1080-1.21	9109-1576	N/A	N/A	■
13.	Antenna Master	EMCO	1070-1	9109-1624	N/A	N/A	■