

ELECTROMAGNETIC EMISSION COMPLIANCE REPORT FOR PCS PRIVATE LAND MOBILE LICENSED DATA TRANSCEIVER MODULE

Test Report No. : E064R-060

AGR No. : A064A-095

Applicant : Hoseotelnet Co., Ltd.
Address : 680, Deungchon 3-Dong, Kangseo-Gu, Seoul, 157-033, Korea

Manufacturer : Hoseotelnet Co., Ltd.
Address : 680, Deungchon 3-Dong, Kangseo-Gu, Seoul, 157-033, Korea

Type of Equipment : RF Module

FCC ID. : R2SATM300

Model Name : ATM300

Serial number : None

Total page of Report : 30 pages (including this page)

Date of Incoming : April 05, 2006

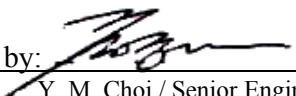
Date of issue : April 26, 2006

SUMMARY

The equipment complies with the regulation; **FCC Part 24D and 90.**

This test report only contains the result of a single test of the sample supplied for the examination.

It is not a generally valid assessment of the features of the respective products of the mass-production.

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CONTENTS

	PAGE
1. VERIFICATION OF COMPLIANCE	4
2. TEST SUMMARY	5
2.1 TEST ITEMS AND RESULTS	5
2.2 ADDITIONS, DEVIATIONS, EXCLUSIONS FROM STANDARDS	5
2.3 RELATED SUBMITTAL(S) / GRANT(S)	5
2.4 PURPOSE OF THE TEST	5
2.5 TEST METHODOLOGY	5
2.6 TEST FACILITY	5
3. GENERAL INFORMATION	6
3.1 PRODUCT DESCRIPTION	6
3.2 ALTERNATIVE TYPE(S)/MODEL(S); ALSO COVERED BY THIS TEST REPORT.	6
4. EUT MODIFICATIONS	6
5. SYSTEM TEST CONFIGURATION	7
5.1 JUSTIFICATION	7
5.3 PERIPHERAL EQUIPMENT	7
5.4 MODE OF OPERATION DURING THE TEST	7
6. RF POWER OUTPUT AT ANTENNA TERMINAL	8
6.1 OPERATING ENVIRONMENT	8
6.2 TEST SET-UP	8
6.3 TEST EQUIPMENT USED	8
6.4 TEST DATA	9
7. OCCUPIED BANDWIDTH, BANDWIDTH LIMITATION, EMISSION MASKS.....	11
7.1 OPERATING ENVIRONMENT	11
7.2 TEST SET-UP	11
7.3 TEST EQUIPMENT USED	11
7.4 TEST DATA	12
8. SPURIOUS EMISSION AT ANTENNA TERMINAL	15
8.1 OPERATING ENVIRONMENT	15
8.2 TEST SET-UP FOR CONDUCTED MEASUREMENT	15

8.3 TEST EQUIPMENT USED	15
8.4. TEST DATA	16
9. FIELD STRENGTH OF SPURIOUS RADIATION	19
9.1 OPERATING ENVIRONMENT	19
9.2 TEST SET-UP	19
9.3 TEST EQUIPMENT USED	19
9.4 TEST DATA FOR SPURIOUS & HARMONIC RADIATED EMISSION RADIATED EMISSION.....	20
10. MAXIMUM PERMISSIBLE EXPOSURE	21
10.1 RF EXPOSURE CALCULATION	21
10.2 CALCULATED POWER DENSITY AT 20CM	21
11. FREQUENCY STABILITY WITH TEMPERATURE VARIATION	22
11.1 OPERATING ENVIRONMENT	22
11.2 TEST SET-UP	22
11.3 TEST EQUIPMENT USED	22
11.4 TEST DATA	23
12. FREQUENCY STABILITY WITH VOLTAGE VARIATION	24
12.1 OPERATING ENVIRONMENT	24
12.2 TEST SET-UP	24
12.3 TEST EQUIPMENT USED	24
12.4 TEST DATA	25
13. FIELD STRENGTH OF SPURIOUS RADIATED EMISSION IN RECEIVING MODE	26
13.1 OPERATING ENVIRONMENT	26
13.2 TEST SET-UP	26
13.3 TEST EQUIPMENT USED	26
13.4 TEST DATA	27
14. CONDUCTED EMISSION TEST	28
14.1 OPERATING ENVIRONMENT	28
14.2 TEST SET-UP	28
14.3 TEST EQUIPMENT USED	28
14.4 TEST DATA	29

1. VERIFICATION OF COMPLIANCE

APPLICANT : Hoseotelnet Co., Ltd.
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CONTACT PERSON : Mr. J. Y. Shin / Manager
TELEPHONE NO : +82-2-2659-7345
FCC ID : R2SATM300
MODEL NO/NAME : ATM300
SERIAL NUMBER : N/A
DATE : April 26, 2006

DEVICE TYPE	PCS Private Land Mobile Data Transceiver RF Module
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)	PART 24D and 90
MODIFICATIONS ON THE EQUIPMENT TO ACHIEVE COMPLIANCE	No
FINAL TEST WAS CONDUCTED ON	3 METER(S) 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. TEST SUMMARY

2.1 Test items and results

SECTION	TEST ITEMS	RESULTS
2.1046, 24.132, 90.635	RF Power Output at Antenna Terminals	Met the Limit / PASS
2.1049, 24.131, 90.209(b), 90.210(j)	Occupied Bandwidth, Bandwidth Limitation, Emission Masks	Met the Limit / PASS
2.1051, 24.133, 90.210(j)	Spurious Emissions at Antenna Terminals	Met the Limit / PASS
2.1053, 24.133, 90.210(j)	Field strength of Spurious Radiation	Met the Limit / PASS
2.1055(a)(1), 24.135, 90.213	Frequency Stability with Temperature variation	Met the Limit / PASS
2.1055(d), 24.135, 90.213	Frequency stability with primary voltage variation	Met the Limit / PASS
15.109(b)	Field strength of Spurious Radiation in Receiving Mode	Met the Limit / PASS
15.207 and 15.107	Conducted Limits	Met the Limit / PASS

2.2 Additions, deviations, exclusions from standards

No additions, deviations or exclusions have been made from standard.

2.3 Related Submittal(s) / Grant(s)

Original submittal only

2.4 Purpose of the test

To determine whether the equipment under test fulfills the requirements of the regulation stated in section 2.1.

2.5 Test Methodology

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 Electromagnetic compatibility measurement facilities are located on at 307-51 Daessangryung-Ri, Chowol-Eup, Kwangju-City, Kyeonggi-Do, 464-080, Korea. Description details of test facilities were submitted to the Federal Communications Commission on April 04, 2003 (Registration Number: 340658), accredited by KOLAS (Korea Laboratory Accreditation Scheme, No: 85) and approved by TUV, DNV and MIC (Ministry of Information and Communications in Korea) according to the requirement of ISO17025.

3. GENERAL INFORMATION

3.1 Product Description

The Hoseoteln Co., Ltd., Model ATM300 (referred to as the EUT in this report) is a **RF Module**, which will be installed into ReFlex Device. The interface between the module and Host device will be done by 14 pin connector. The product specification described herein was obtained from product data sheet or user's manual.

DEVICE TYPE		PCS Private Land Mobile Data Transceiver
EMISSION DESIGNATOR		7K67F1D
OPERATING FREQUENCY	Transmitting Frequency	896 ~ 902 MHz
	Receiving Frequency.	929MHz ~ 932MHz, and 935 ~ 942MHz
APPLICABLE FREQUENCY	PART 24	901 ~ 902 MHz
	PART 90	896 ~ 901 MHz
RATED RF OUTPUT POWER		2W
MODULATION		4 Level FSK
DATA TRANSFER RATE	Transmitter	1600 ~ 9600 bps
	Receiver	1600 ~ 6400 bps
CHANNEL SPACING	Transmitter	12.5 kHz in 6.25kHz Steps
	Receiver	10 kHz and 12.5kHz
USED CPU		UPD70F3125HGC
USED MEMORY	Flash	32 Kbytes
ANTENNA	Transmitter	Fixed Helical Antenna, Model No: HW-899H-MSMA
	Receiver	Fixed Helical Antenna, Model No: HW-899H-MSMA
ANTENNA GAIN		0 dBi
LIST OF EACH OSC. ORCRY. FREQ.(FREQ.>=1MHz)		7.3728 MHz
NUMBER OF LAYER		4 Layers
POWER REQUIREMENT		DC 4.0V~10V
EXTERNAL CONNECTOR		14Pin (2 × 7) , 1.27mm Pitch (Female)

3.2 Alternative type(s)/model(s); also covered by this test report.

No other model differences have been mentioned.

4. EUT MODIFICATIONS

None

5. SYSTEM TEST CONFIGURATION

5.1 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	ATM300 VER 0.5	N/A
Antenna	Hanwool Technology	HW-899H-MSMA	N/A

5.3 Peripheral equipment

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

Model	Manufacturer	FCC ID	Description	Connected to
ATM300	Hoseotelnet Co., Ltd.	R2SATM300	RF Module (EUT)	Power Supply
DRP-305DN	Digital Electronics Co., Ltd.	N/A	DC Power Supply	EUT
PP10L	Dell Computer Corp.	DoC	Notebook PC	EUT

5.4 Mode of operation during the test

The EUT was continuously transmitted with max power at 800, 1600, 6800 and 9600 bps and the worst data was recorded in this test report.

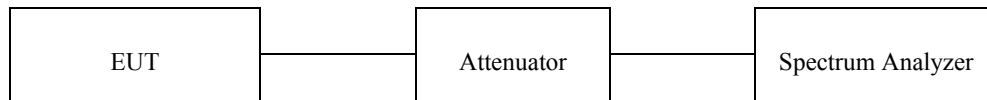
6. RF POWER OUTPUT at ANTENNA TERMINAL

6.1 Operating environment

Temperature : 19 °C
Relative humidity : 42 %

6.2 Test set-up

The RF output port of the EUT was connected to the input of the spectrum analyzer through sufficient attenuation. The resolution bandwidth was set to 2 MHz and video bandwidth of the spectrum analyzer was set at 3 MHz and the spectrum as recorded in the frequency band ± 5 MHz from the carrier frequency.



6.3 Test equipment used

	Model Number	Manufacturer	Description	Serial Number	Last Cal.
■ -	8564E	HP	Spectrum Analyzer	3650A00756	July 18, 2005
■ -	N/A	HP	30dB Attenuator Assembly	2350A3133	-
■ -	DRP-305DN	Digital Electronics	DC Power Supply	4030191	Sep. 07, 2005

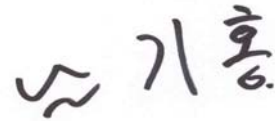
All test equipment used is calibrated on a regular basis.

6.4 Test data

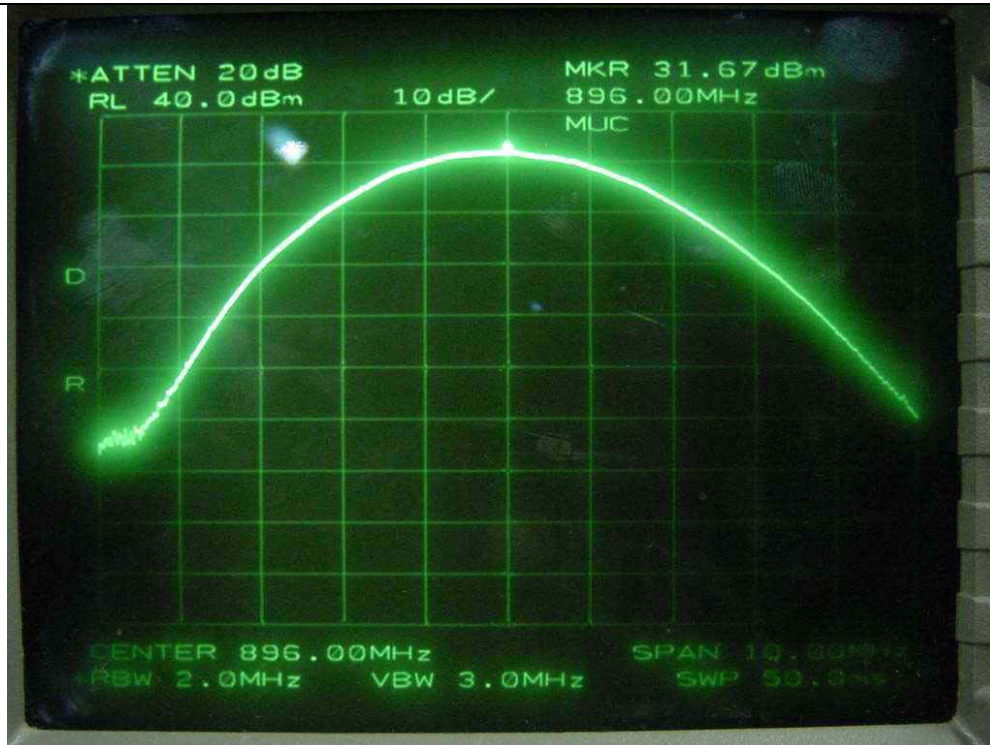
- Test Date : April 10, 2006
- Test Result : Pass

CHANNEL	FREQUENCY (MHz)	MEASURED VLAUE (dBm)	LOSS (dB)	TOTAL (dBm)	RESULT (W)
Low	896	31.67	0.67	32.34	1.71
High	902	31.67	0.67	32.34	1.71

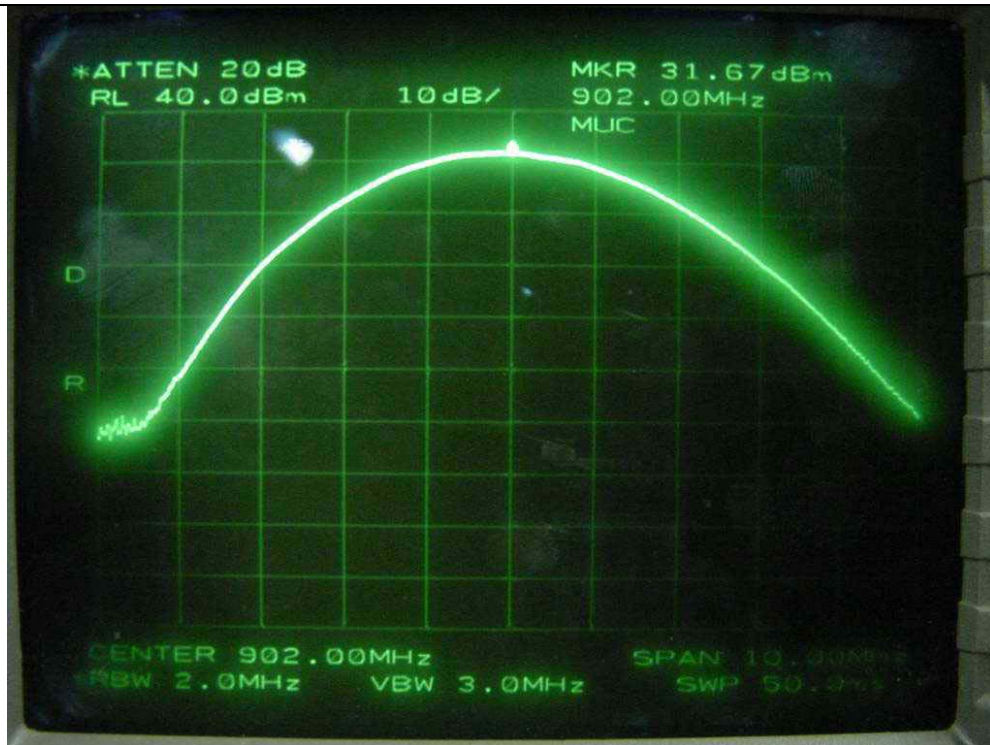
Remark: See next page for an overview sweep performed with peak detector and spectrum analyzer offset function was used for attenuator.



Tested by: Ki-Hong, Nam / Test Engineer



Low Channel



High Channel

7. OCCUPIED BANDWIDTH, BANDWIDTH LIMITATION, EMISSION MASKS

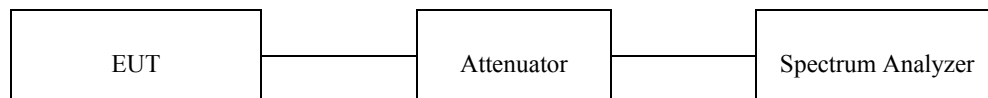
7.1 Operating environment

Temperature : 19 °C

Relative humidity : 42 %

7.2 Test set-up

The RF output port of the EUT was connected to the input of the spectrum analyzer through sufficient attenuation. The resolution bandwidth and video bandwidth of the spectrum analyzer was set at 300 Hz for emission mask, 1 kHz for 99% occupied bandwidth and the spectrum was recorded in the frequency band ± 25 kHz from the carrier frequency.



7.3 Test equipment used

Model Number	Manufacturer	Description	Serial Number	Last Cal.
■ - 8564E	HP	Spectrum Analyzer	3650A00756	July 18, 2005
■ - N/A	HP	30dB Attenuator Assembly	2350A3133	-
■ - DRP-305DN	Digital Electronics	DC Power Supply	4030191	Sep. 07, 2005

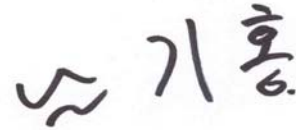
All test equipment used is calibrated on a regular basis.

7.4 Test data

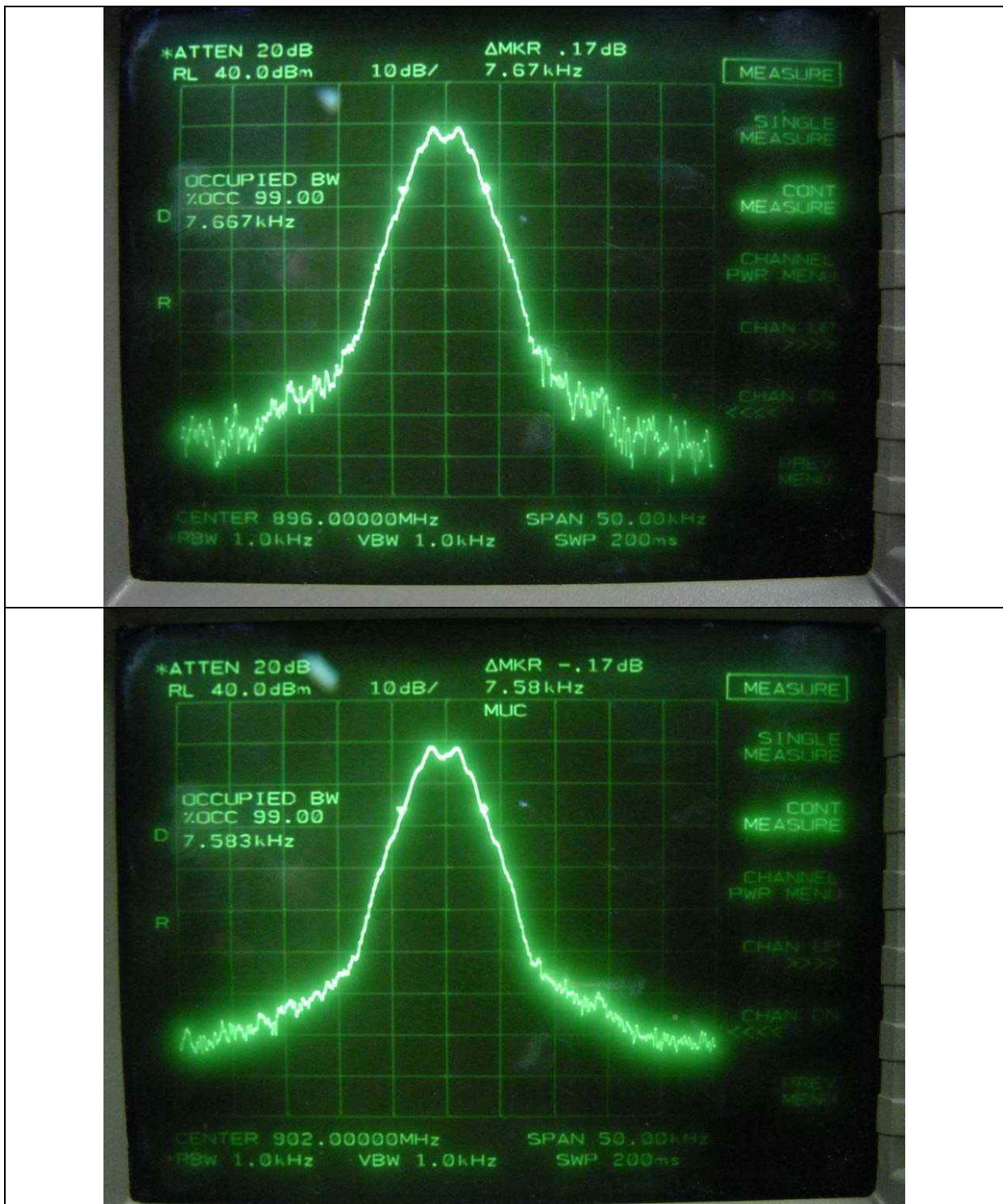
-. Test Date : April 10, 2006

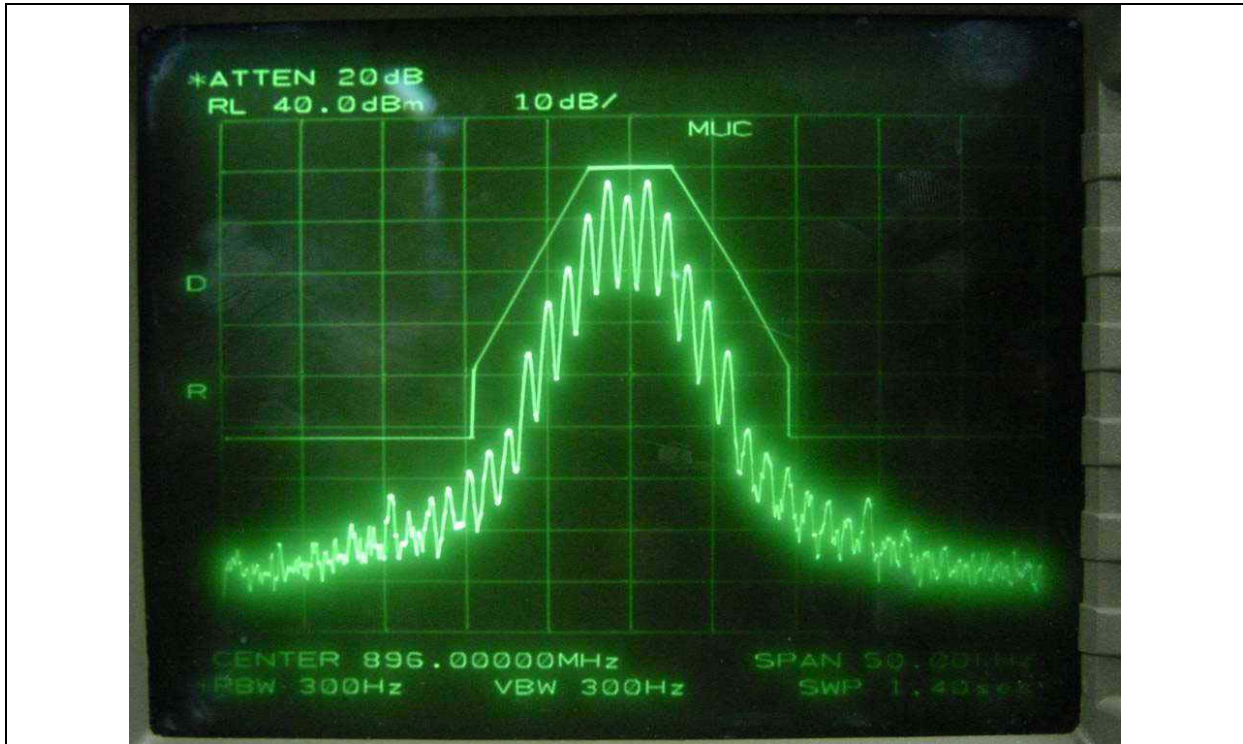
-. Test Result : Pass

CHANNEL	FREQUENCY(MHz)	MEASURED VLAUE (kHz)	LIMIT (kHz)	MARGIN (kHz)
Low	896	7.667	10.0 kHz for Part 24	-2.333
High	902	7.583	13.6 kHz for Part 90	

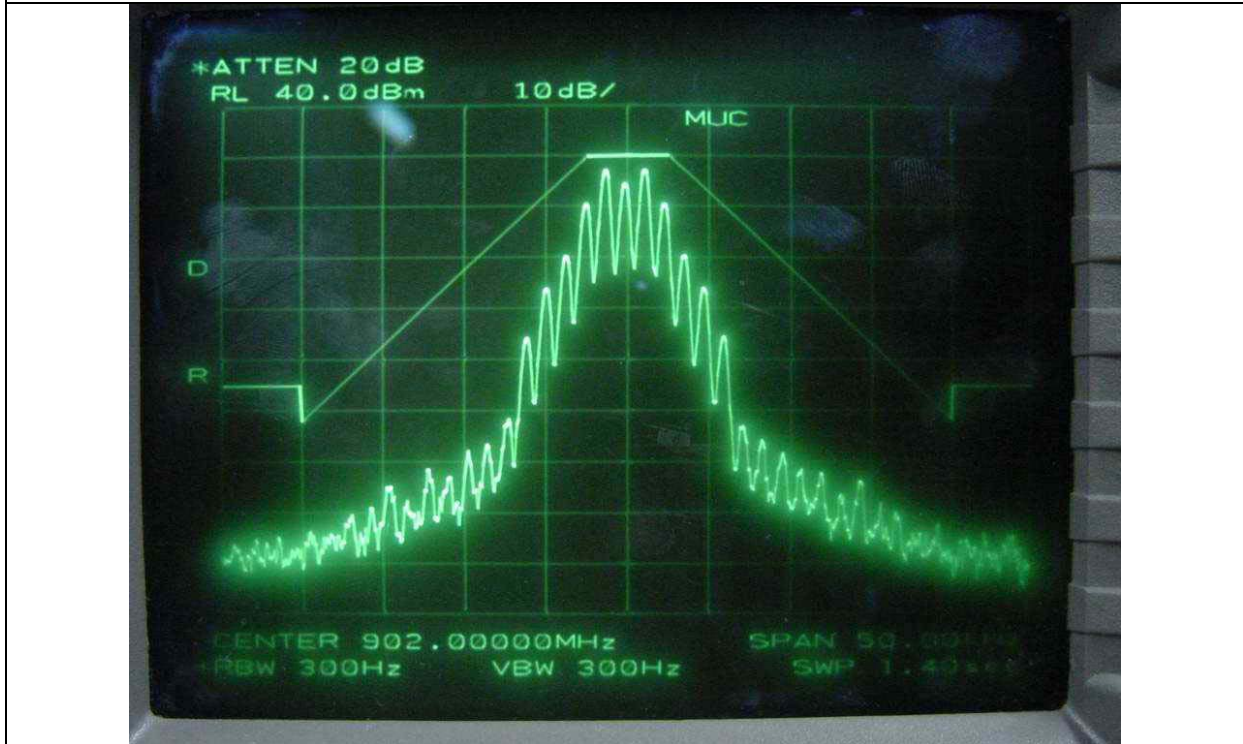


Tested by: Ki-Hong, Nam / Test Engineer





Low Channel according to Part 90



High Channel according to Part 24D

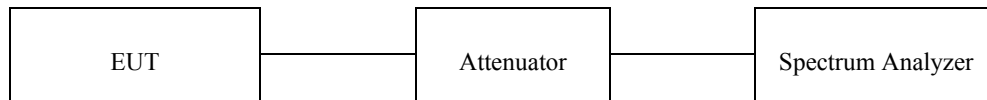
8. SPURIOUS EMISSION AT ANTENNA TERMINAL

8.1 Operating environment

Temperature : 19 °C
Relative humidity : 42 %

8.2 Test set-up for conducted measurement

The RF output port of the EUT was connected to the input of the spectrum analyzer through sufficient attenuation. The resolution bandwidth and video bandwidth of the spectrum analyzer was set at 100 kHz and sufficient scans were taken to show any out of band emissions up to 10 GHz.



8.3 Test equipment used

Model Number	Manufacturer	Description	Serial Number	Last Cal.
■ - 8564E	HP	Spectrum Analyzer	3650A00756	July 18, 2005
■ - N/A	HP	30dB Attenuator Assembly	2350A3133	-
■ - DRP-305DN	Digital Electronics	DC Power Supply	4030191	Sep. 07, 2005

All test equipment used is calibrated on a regular basis.

8.4. Test data

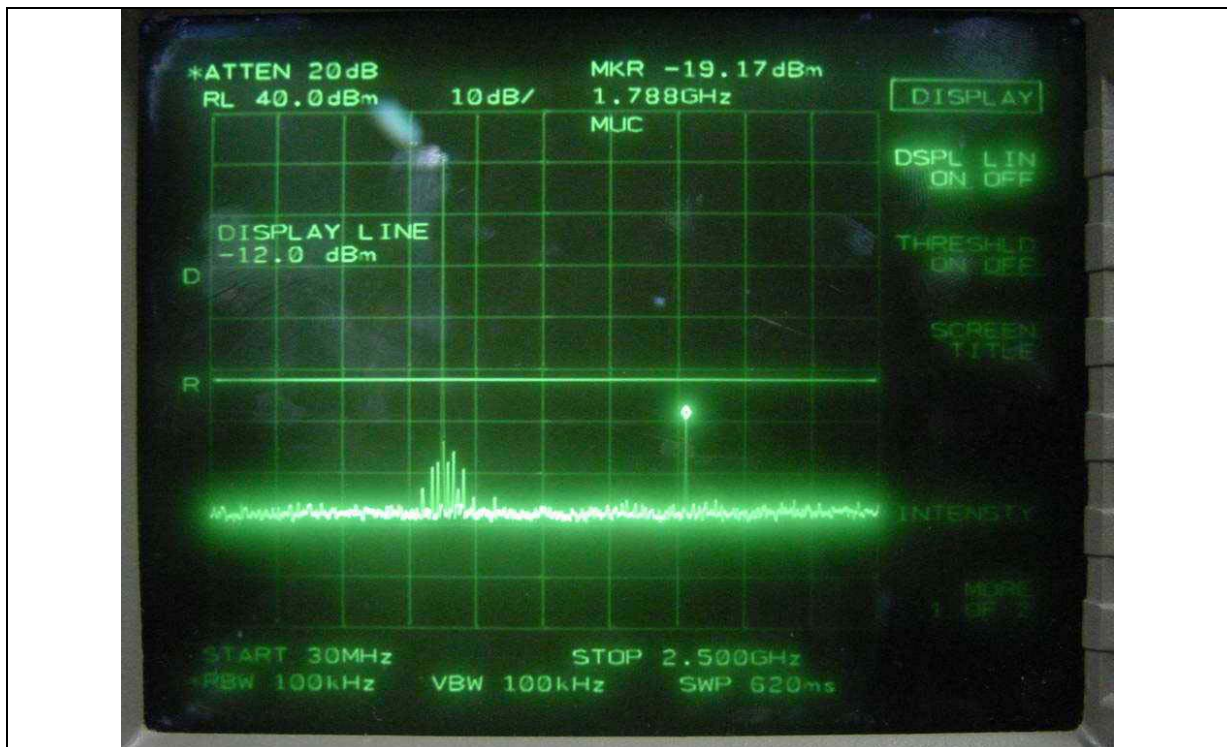
- Test Date : April 10, 2006
- Frequency range : 30 MHz ~ 10 GHz
- Result : PASSED BY -5.50 dB at Low Channel

Carrier Freq. (MHz)	Harmonic Freq. (MHz)	Measured Value (dBm)	Cable Loss (dB)	TOTAL (dBm)	Limit (dBm)	Margin (dB)
896.0	878	-27.83	0.50	-27.33	-13.00	-14.33
	936	-25.83	0.50	-25.33		-12.33
	1788	-19.17	0.67	-18.50		-5.50
	2675	-27.50	1.08	-26.42		-13.42
902.0	862	-22.17	0.50	-21.67	-13.00	-8.67
	940	-22.17	0.50	-21.67		-8.67
	1800	-19.33	0.67	-18.66		-5.66
	2700	-28.17	1.08	-27.09		-14.09

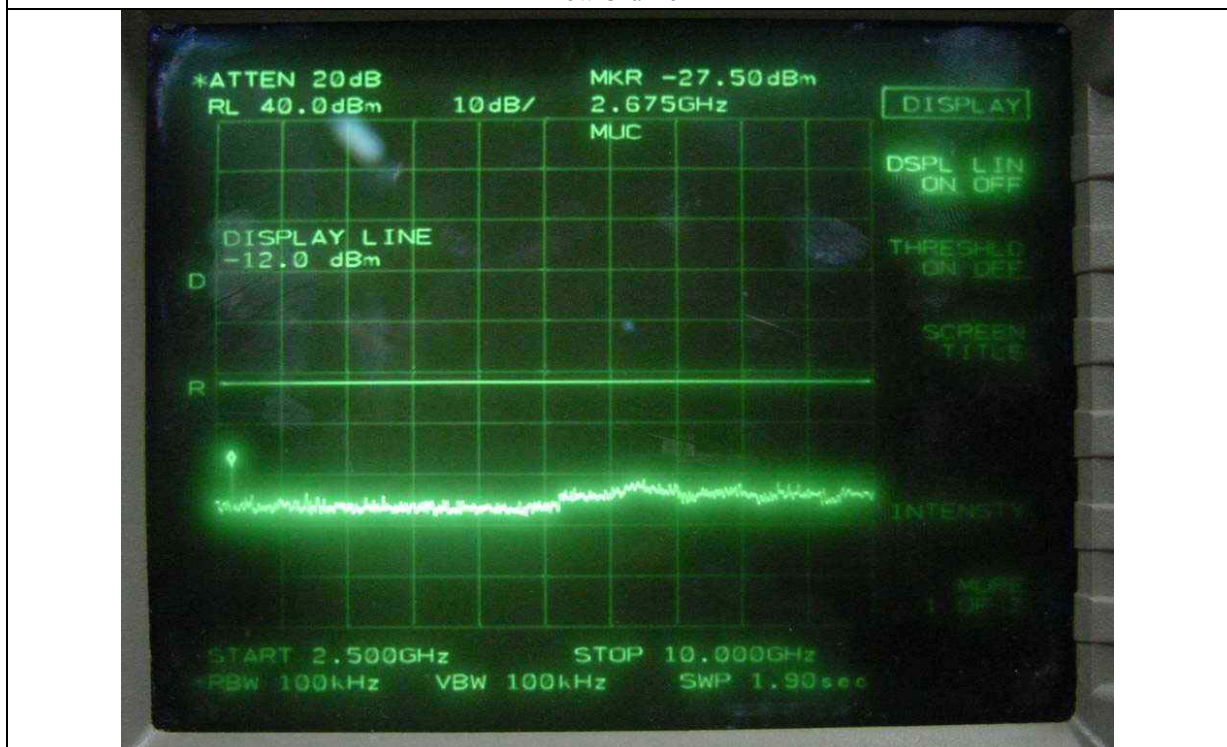
According to Part 24D, out of band emission shall be attenuated by $43 + 10 \log (P)$ dBc, equates to -13.0dBm.

기홍

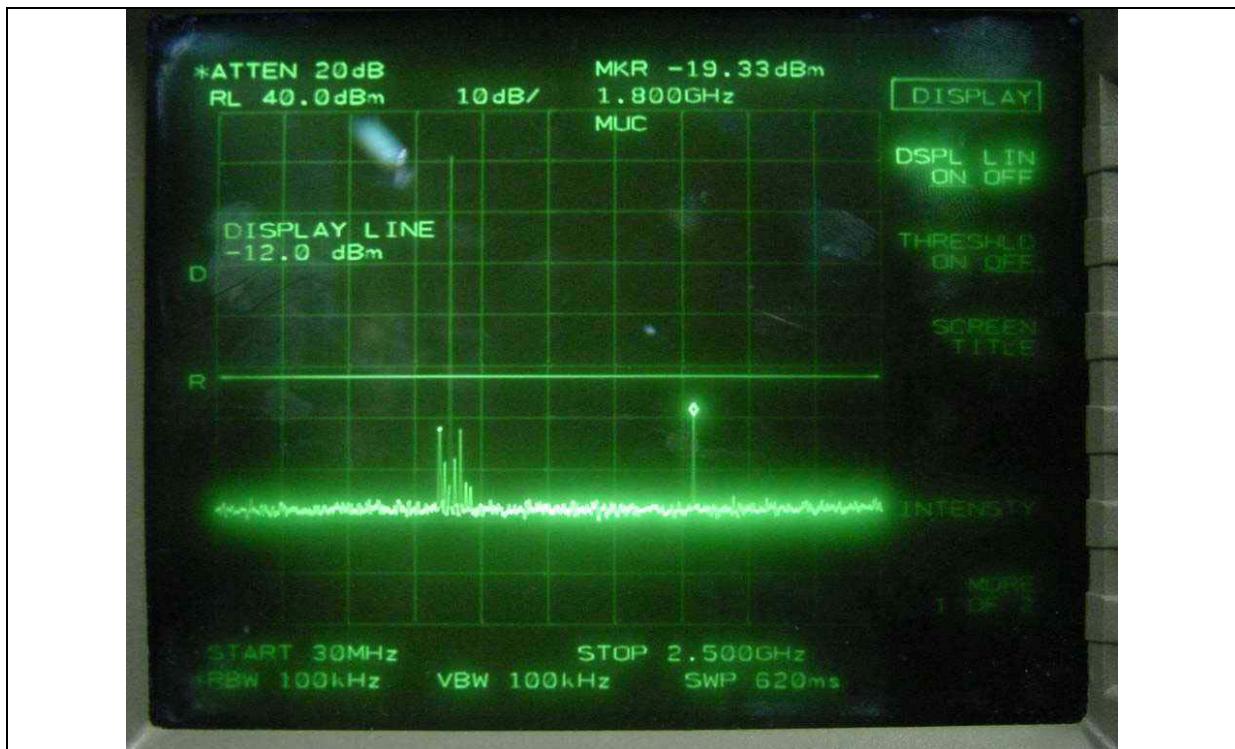
Tested by: Ki-Hong, Nam / Test Engineer



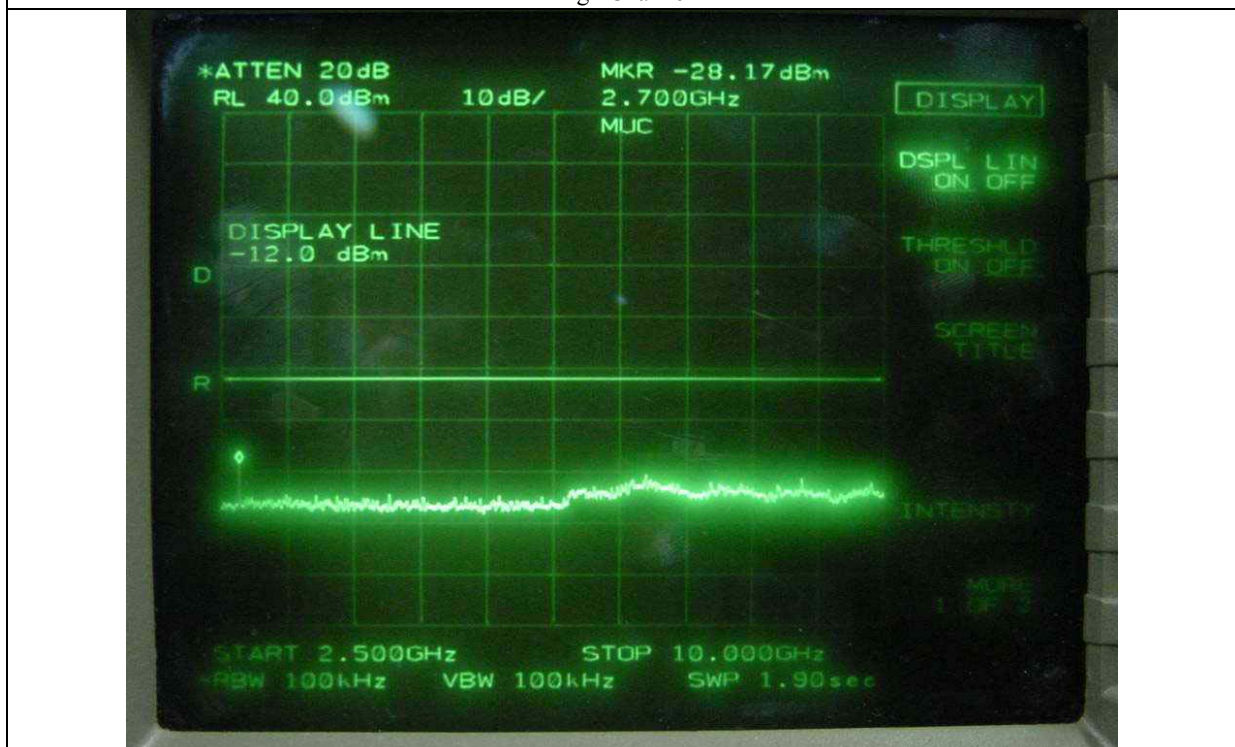
Low Channel



Low Channel



High Channel



High Channel

9. FIELD STRENGTH OF SPURIOUS RADIATION

9.1 Operating environment

Temperature : 14°C
Relative humidity : 48 %

9.2 Test set-up

The radiated emissions measurements were on the 3 meters, open-field test site. The EUT and other support equipment were placed on a non-conductive turntable above the ground plane. The interconnecting cables from outside test site were inserted into ferrite clamps at the point where the cables reach the turntable.

The frequency spectrum from 30MHz to up to 10th harmonic of the fundamental frequency was scanned and emission levels maximized at each frequency recorded. The system was rotated 360°, and the antenna was varied in height between 1.0 and 4.0 meters in order to determine the maximum emission levels. The test was performed by placing the EUT on 3-orthogonal axis. This procedure was performed for both horizontal and vertical polarization of the receiving antenna.

Remove the EUT and replace it with substitution antenna. A signal generator was connected to the substitution antenna by a non-radiating cable. The absolute levels of the spurious emissions were measured by the substitution.

9.3 Test equipment used

Model Number	Manufacturer	Description	Serial Number	Last Cal.
■ - ESVS10	Rohde & Schwarz	EMI Test Receiver	827864/005	Dec. 20, 2005
■ - 85650A	Hewlett Packard	Quasi-Peak Adapter	3107A01550	July 18, 2005
■ - 8568B	Hewlett-Packard	Spectrum Analyzer	2445A00947	July 18, 2005
■ - 85685A	Hewlett-Packard	RF Preselector	3107A01268	Apr. 13, 2005
■ - 8564E	Hewlett-Packard	Spectrum Analyzer	3650A00756	July 18, 2005
■ - 8449B	Hewlett-Packard	Preamplifier	3008A00833	-
□ - 83051A	Agilent	Preamplifier	3950M00201	-
■ - BBHA9170	Schwarzbeck	Horn Antenna	BBHA9170178	Jun. 06, 2002(4Y)
□ - 8449B	Hewlett-Packard	RF Amplifier	3008A00833	-
□ - 8347A	HP	RF Amplifier	3307A01354	Jun. 10, 2005
■ - VHA9103	Schwarzbeck	Biconical Antenna	91031852	Feb. 13, 2006
■ - 9108-A(494)	Schwarzbeck	Log Periodic Antenna	62281001	Feb. 13, 2006
■ - YSE 500B	YoungShin Eng.	Frequency Converter	950413001	-
■ - ETCR-10	DaeHa	Automatic Voltage Com.	N/A	-

All test equipment used is calibrated on a regular basis.

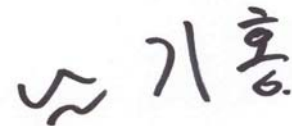
9.4 Test data for Spurious & Harmonic Radiated Emission radiated emission

- Test Date : April 10, 2006
- Resolution bandwidth : 1 MHz for Peak and Average Mode
- Video bandwidth : 1 MHz for Peak Mode, 10Hz for Average Mode
- Frequency range : 1 GHz ~ 10 GHz
- Measurement distance : 3m
- Result : PASSED BY -19.35 dB at High Channel

Frequency (MHz)	Spectrum Reading (dBuV)	Generator Reading (dBm)	Ant. Gain (dBi)	Ant. Pol. (H/V)	Dipole Gain (dB)	Cable Loss (dB)	Total (dBm)	Limit (dBm)	Margin (dB)
Test Data for Low Channel, 896.0 MHz									
896.00	105.80	29.20	0.00	H	0.00	0.66	29.86		29.86
896.00	102.30	26.98	0.00	V	0.00	0.66	27.64		27.64
1792.00	43.83	-36.50	10.33	H	8.18	1.00	-33.35	-13.00	-20.35
1792.00	44.50	-36.30	10.33	V	8.18	1.00	-33.15	-13.00	-20.15
2688.00	32.50	-45.60	10.95	H	8.80	1.16	-42.29	-13.00	-29.29
2688.00	31.33	-48.60	10.95	V	8.80	1.16	-45.29	-13.00	-32.29
Test Data for High Channel, 902.0 MHz									
902.00	104.50	28.85	0.00	H	0.00	0.67	29.52		29.52
902.00	101.50	25.70	0.00	V	0.00	0.67	26.37		26.37
1804.00	44.17	-34.95	10.35	H	8.20	1.00	-31.80	-13.00	-18.80
1804.00	44.83	-35.50	10.35	V	8.20	1.00	-32.35	-13.00	-19.35
2706.00	33.33	-46.23	10.99	H	8.84	1.17	-42.92	-13.00	-29.92
2706.00	32.50	-47.50	10.99	V	8.84	1.17	-44.19	-13.00	-31.19

Tabulated test data for Restricted Band

Remark: "H": Horizontal, "V": Vertical,



Tested by: Ki-Hong, Nam / Test Engineer

10. MAXIMUM PERMISSIBLE EXPOSURE

10.1 RF Exposure Calculation

According to the FCC rule 1.1310 table 1B, the limit for the maximum permissible RF exposure for an uncontrolled environment is 0.6mW/cm².

The electric field generated for a 1mW/cm² exposure is calculated as follows:

$$E = \sqrt{(30 * P * G) / d}, \text{ and } S = E^2 / Z = E^2 / 3770, \text{ because } 1\text{mW/cm}^2 = 10\text{W/m}^2$$

Where

S = Power density in mW/cm², Z = Impedance of free space, 377Ω

E = Electric field strength in Volts/m, G = Numeric antenna gain, and d = distance in meter

Combining equations and rearranging the terms to express the distance as a function of the remaining variable

$$S = (30 * P * G) / 3770d^2$$

Changing to units of mW and cm, using P (mW) = P (W) / 1000, d (cm) = d (m)/100,

$$S = 30 * (P/1000) * G / (3770 * (d/100)^2) = 0.0796 * P * G / d^2$$

Where

d = distance in cm, P = Power in mW, G = Numeric antenna gain, and S = Power density in mW/cm²

10.2 Calculated Power Density at 20cm

According to above equation, the following result was obtained and the limit for maximum value of power density,

Power density, S = 0.6mW/cm² according to the rule 1.1310 Table 1 B.

Operating Mode	Peak Output Power		Antenna Gain		Minimum Separation Distance (cm)	Power Density @ 20 cm (mW/cm ²)	Power Density Limit (mW/cm ²)
	(dBm)	(mW)	dBi	Numeric			
Tx Mode	32.33	1710	0	1	20	0.34	0.6

According to the User's guide, the separation between the EUT and a person shall be at least 20cm, so the EUT meets the MPE requirement.

Following Caution on the manual will be described.

“CAUTION: Exposure to Radio Frequency Radiation.

Antenna shall be mounted in such a manner to minimize the potential for human contact during normal operation. The antenna should not be contacted during operation to avoid the possibility of exceeding the FCC radio frequency exposure limit.”

11. FREQUENCY STABILITY WITH TEMPERATURE VARIATION

11.1 Operating environment

Temperature : 19 °C

Relative humidity : 42 %

11.2 Test set-up

The EUT was connected to an external DC power supply and the RF output port of the EUT was connected to a frequency counter via feed-through attenuators. The EUT was placed inside of the temperature chamber. The DC leads and RF output cable exited the chamber through an opening made for the purpose.

Turn EUT off and set chamber temperature to -30°C and then allow sufficient time (approximately 20 to 30 minutes after chamber reach the assigned temperature) for EUT to stabilize. Turn ON EUT and measure the EUT operating frequency and then turn off the EUT after the measurement.

Repeat above method emission measurements at +50°C and then record all measured frequencies on each temperature step.

11.3 Test equipment used

Model Number	Manufacturer	Description	Serial Number	Last Cal.
■ - 8564E	Hewlett-Packard	Spectrum Analyzer	3650A00756	July 18, 2005
■ - 53152A	HP	Frequency Counter	US39270295	Dec. 13, 2005
■ - N/A	HP	30 dB Attenuator Assembly	2350A03133	-
■ - DRP-305DN	Digital Electronics	DC Power Supply	4030191	Sep. 07, 2005
■ - EY-101	Tabai ESPEC Corp.	Chamber	5104390	-

All test equipment used is calibrated on a regular basis.

11.4 Test data

- Test Date : April 11, 2006
- Operating Condition : 800/1600/6400/9200 bps was transmitted.
- Result : PASSED BY -0.20PPM at 20°C on 896MHz

Temperature (°C)	Center Freq. (Hz)	Measured Freq.(Hz)	Result (PPM)	Limit
-30	896000000	895999912	-0.0982143	1 PPM
-20		895999973	-0.0301339	
-10		896000012	0.01339286	
0		896000041	0.04575893	
10		896000132	0.14732143	
20		896000175	0.1953125	
30		896000063	0.0703125	
40		895999845	-0.1729911	
50		895999713	-0.3203125	
-30	902000000	901999485	-0.5709534	1 PPM
-20		901999511	-0.5421286	
-10		901999549	-0.5	
0		901999585	-0.4600887	
10		901999613	-0.4290466	
20		901999667	-0.3691796	
30		901999611	-0.4312639	
40		901999583	-0.462306	
50		901999558	-0.4900222	

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12. FREQUENCY STABILITY WITH VOLTAGE VARIATION

12.1 Operating environment

Temperature : 19 °C

Relative humidity : 42 %

12.2 Test set-up

An external variable DC power supply was connected to the battery terminals of the EUT. The voltage of EUT set to 115% of the nominal value and was then decreased until the EUT light no longer illuminated; i.e., the battery end point. The output frequency was recorded for each battery voltage.

12.3 Test equipment used

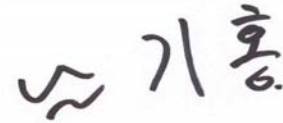
Model Number	Manufacturer	Description	Serial Number	Last Cal.
■ - 8564E	Hewlett-Packard	Spectrum Analyzer	3650A00756	July 18, 2005
■ - 53152A	HP	Frequency Counter	US39270295	Dec. 13, 2005
■ - N/A	HP	30 dB Attenuator Assembly	2350A03133	-
■ - DRP-305DN	Digital Electronics	DC Power Supply	4030191	Sep. 07, 2005

All test equipment used is calibrated on a regular basis.

12.4 Test data

- Test Date : April 11, 2006
- Rated Supply Voltage : 4 ~ 10 Vdc
- Result : PASSED BY 0.19 PPM at 3.40Vdc on 896 MHz

Voltage (Vdc)	Carrier Freq. (Hz)	Measured Freq. (Hz)	Result (PPM)	Limit
3.40	896000000	896000168	0.187500000	1 PPM
11.50		896000153	0.17075893	
3.40	902000000	901999689	-0.3447894	1 PPM
11.50		901999630	-0.4101996	



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13. FIELD STRENGTH OF SPURIOUS RADIATED EMISSION IN RECEIVING MODE

13.1 Operating environment

Temperature : 17 °C

Relative humidity : 39 %

13.2 Test set-up

The radiated emissions measurements were on the 3 meters, open-field test site. The EUT and other support equipment were placed on a non-conductive turntable above the ground plane. The interconnecting cables from outside test site were inserted into ferrite clamps at the point where the cables reach the turntable.

The frequency spectrum from 30MHz to 1000MHz was scanned and emission levels maximized at each frequency recorded. The system was rotated 360°, and the antenna was varied in height between 1.0 and 4.0 meters in order to determine the maximum emission levels. This procedure was performed for both horizontal and vertical polarization of the receiving antenna.

13.3 Test equipment used

Model Number	Manufacturer	Description	Serial Number	Last Cal.
■ - ESVS10	Rohde & Schwarz	EMI Test Receiver	827864/005	Dec. 20, 2005
■ - 8574B	Hewlett Packard	Quasi-Peak Adapter	2811A01432	Apr. 13, 2005
■ - 85680B	Hewlett-Packard	Spectrum Analyzer	3001A04955	Apr. 13, 2005
■ - 85685A	Hewlett-Packard	RF Preselector	3107A01268	Apr. 13, 2005
■ - MA240	HD GmbH	Antenna Master	N/A	N/A
■ - HD100	HD GmbH	Position Controller	N/A	N/A
■ - DS420S	HD GmbH	Turn Table	N/A	N/A
■ - VHA9103	Schwarzbeck	Biconical Antenna	91031852	Feb 13, 2006
■ - 9108-A(494)	Schwarzbeck	Log Periodic Antenna	62281001	Feb 13, 2006

All test equipment used is calibrated on a regular basis.

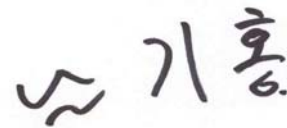
13.4 Test data

- Test Date : April 13, 2006
- Resolution bandwidth : 120 kHz
- Frequency range : 30MHz ~ 2.0GHz
- Measurement distance : 3m
- Operating Condition : Receiving mode at Low and High Channel

Frequency (MHz)	Reading (dBuV)	Ant. Pol. (H/V)	Ant. Factor (dB/m)	Cable Loss	Emission Level(dBuV/m)	Limits (dBuV/m)	Margin (dB)
127.87	13.10	V	13.29	2.16	28.55	43.52	-14.97
264.48	15.70	H	17.39	3.46	36.55	46.02	-9.47
440.86	12.82	H	17.95	4.48	35.25	46.02	-10.77
527.11	10.33	H	19.37	5.39	35.09	46.02	-10.93
799.00	11.50	H	21.91	7.19	40.60	46.02	-5.42
922.50	10.20	H	23.36	7.60	41.16	46.02	-4.86
It was not observed any emission from the EUT up to 2.0GHz.							

Tabulated test data for Radiated Electromagnetic Field

Remark: "H": Horizontal, "V": Vertical



Tested by: Ki-Hong, Nam / Test Engineer

14. CONDUCTED EMISSION TEST

14.1 Operating environment

Temperature : 20°C

Relative humidity : 41 %

14.2 Test set-up

The EUT was placed on a wooden table, 80 centimeters height above the floor. Power was fed to the EUT through a 50 ohm/ 50 micro Henry – Artificial Mains Network (AMN). The ground plane was electrically bonded to the reference ground system and all power lines were filtered from ambient.

14.3 Test equipment used

Model Number	Manufacturer	Description	Serial Number	Last Cal.
■ - ESHS10	Rohde & Schwarz	EMI Test Receiver	834467/007	May 19, 2005
■ - NSLK 8126	Schwarz beck	AMN	8126-404	Aug. 10, 2005
■ - N/A	KNORR-BREMSE	Artificial Hand	12844	N/A

All test equipment used is calibrated on a regular basis.

14.4 Test data

- Test Date : April 13, 2006
- Resolution bandwidth : 9 kHz
- Frequency range : 0.15MHz ~ 30MHz
- Result : PASSED BY -13.55 dB at 0.66 MHz with Peak Detector

Frequency (MHz)	Line	Peak (dBuV)		Margin (dB)
		Emission level	Q.P Limits	
0.16	H	48.12	65.46	-17.34
0.18	N	46.82	64.72	-17.90
0.66	H	42.45	56.00	-13.55
0.71	N	41.78	56.00	-14.22
1.16	H	37.54	56.00	-18.46
1.24	N	38.56	56.00	-17.44
Frequency (MHz)	Line	Average (dBuV)		Margin (dB)
		Emission level	Limits	
-				
-				

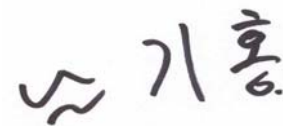
Tabulated test data for Mains Terminal Continuous Disturbance Voltage

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

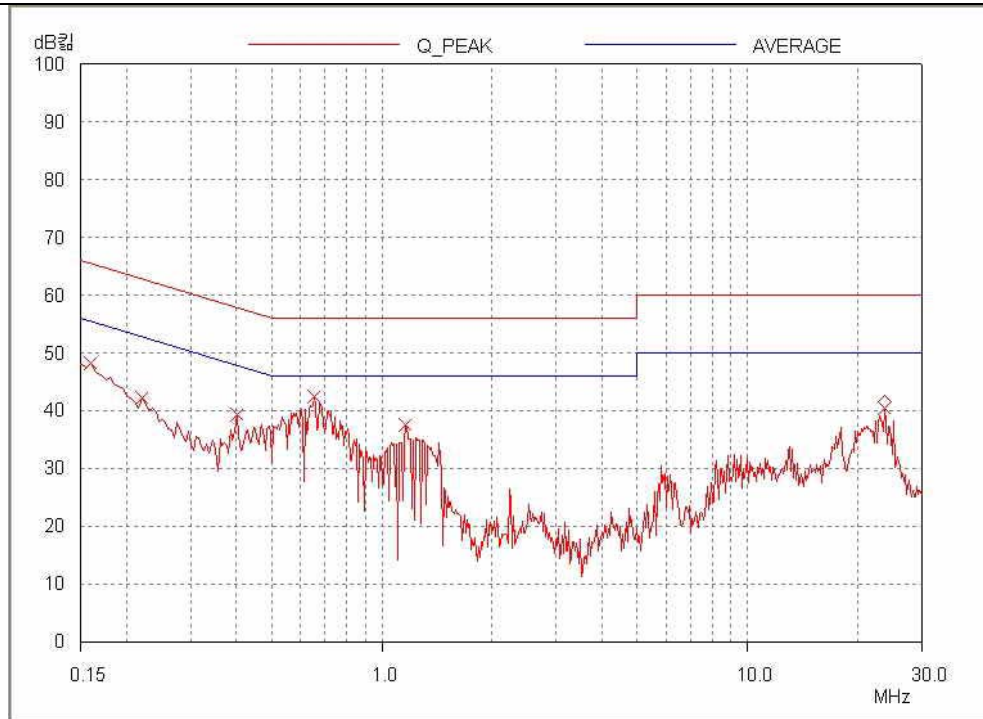
Average mode was not recorded, because peak values were under the average limit.

Receiving mode was tested, but the result has margin more than 35 dB, so the data was not recorded.

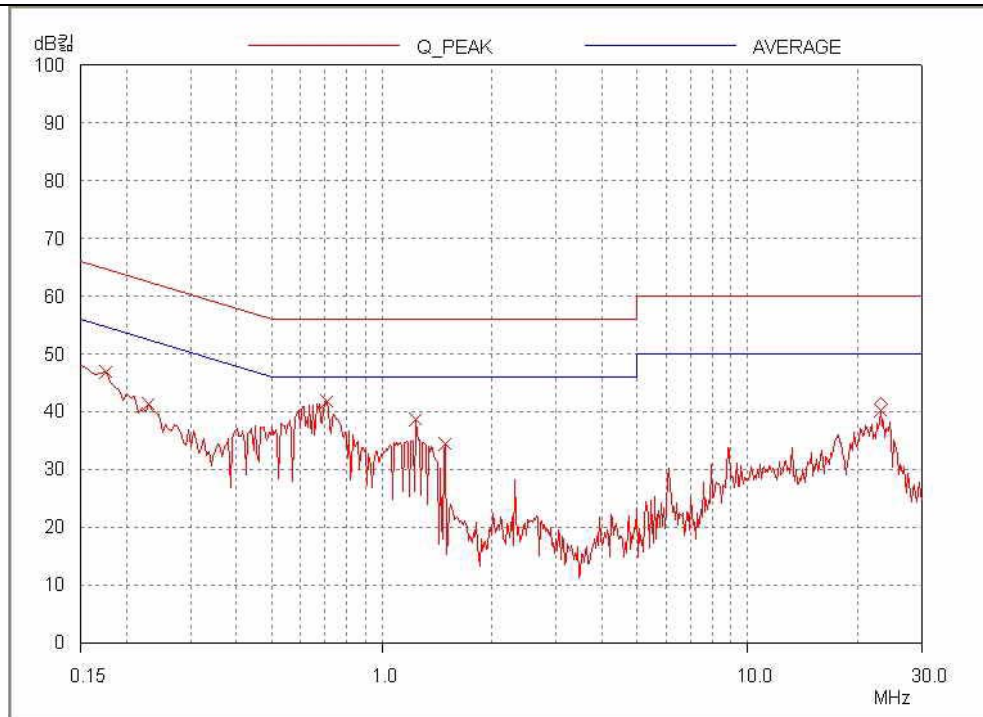
See next page for an overview sweep performed with peak detector.



Tested by: Ki-Hong, Nam / Test Engineer



HOT LINE



NEUTRAL LINE