

ELECTROMAGNETIC EMISSION COMPLIANCE REPORT FOR FCC CLASS B CERTIFICATION

Test Report No. : E05DR-054

AGR No. : A05DA-032

Applicant : CARPOINT CO., LTD.

Address : 1340-6, Namgang Bldg., 7F, Seocho-Dong, Seocho-Ku, Seoul, Korea

Manufacturer : CARPOINT CO., LTD.

Address : 1340-6, Namgang Bldg., 7F, Seocho-Dong, Seocho-Ku, Seoul, Korea

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

FCC ID : S3BX380

Model Name : X380

Serial number : N/A

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

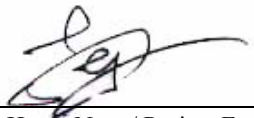
Date of Incoming : December 19, 2005

Date of Issuing : January 16, 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.

Prepared by: 
Seung-Hyun, Nam / Project Engineer
EMC Div.
ONETECH Corp.

Reviewed by: 
Gea Won, 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.....	4
2.6 TEST FACILITY.....	4
3. SYSTEM TEST CONFIGURATION.....	5
3.1 JUSTIFICATION.....	5
3.2 EUT EXERCISE SOFTWARE.....	5
3.3 CABLE DESCRIPTION.....	5
3.4 NOISE SUPPRESSION PARTS ON CABLE.....	6
3.5 EQUIPMENT MODIFICATIONS.....	6
3.6 CONFIGURATION OF TEST SYSTEM.....	6
4. PRELIMINARY TEST.....	6
4.1 AC POWER LINE CONDUCTED EMISSION TEST.....	6
4.2 RADIATED EMISSION TEST.....	6
5. FINAL RESULT OF MEASUREMENT.....	7
5.1 CONDUCTED EMISSION TEST.....	7
5.2 RADIATED EMISSION TEST.....	9
6. FIELD STRENGTH CALCULATION.....	10
7. LIST OF TEST EQUIPMENT.....	11

1. VERIFICATION OF COMPLIANCE

- APPLICANT : CARPOINT CO., LTD.
 - ADDRESS : 1340-6, Namgang Bldg., 7F, Seocho-Dong, Seocho-Ku, Seoul, Korea
 - CONTACT PERSON : Mr. Byung-Kwan, Kang / Assistant Manager
 - TELEPHONE NO : +82-2-6201-6734
 - FCC ID : S3BX380
 - MODEL NAME : X380
 - SERIAL NUMBER : N/A
 - DATE : January 16, 2006

EQUIPMENT CLASS	JBP - Peripheral Device for Class B Computing Device
E.U.T. DESCRIPTION	Navigation - Unintentional Radiator
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 CARPOINT CO., LTD., Model X380 (referred to as the EUT in this report) is a Navigation. 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 on the Main Board
ELECTRICAL RATING	DC 12V from a car battery
NUMBER OF LAYERS	8 Layers
EXTERNAL CONNECTOR	DC Input, USB, Audio Out

2.2 Model Differences

-. 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
X380	CARPOINT CO., LTD.	S3BX380	Navigation (EUT)	Notebook PC
N/A	N/A	N/A	Car Battery	EUT
PP05LC	Dell Computer	DoC	Notebook PC	-
MO56UOA	Dell Computer	DoC	Mouse	Notebook PC
SMS-015N	Sungil Precision	N/A	Speaker	Notebook PC
2225C	HP	DSI6XU2225	Printer	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: 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 April 04, 2003. (Registration Number: 340658)

It should not be reproduced except in full, without the written approval of ONETECH.

EMC-002 (Rev.0)

HEAD OFFICE : #505 SK APT. Factory 223-28, Sangdaewon 1 Dong, Jungwon-Gu, Seongnam-City, Kyunggi-Do, 462-705, Korea
(TEL: +82-31-746-8500, FAX: +82-31-746-8700)

EMC Testing Dept : 307-51 Daessangryung-Ri, Chowol-Eup, Kwangju-City, Kyunggi-Do, 464-860, Korea. (TEL: +82-31-765-8289, FAX: +82-31-766-2904)

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	CARPOINT CO., LTD.	CPX371	N/A
Function Switch Board	N/A	N/A	N/A
GPS Board	SAMSUNG	GPS16B03-005	N/A
LCD Panel	N/A	LTV350QV-F04-0AS	N/A
Battery	N/A	103448S	N/A

3.2 EUT exercise Software

- After connecting the EUT to the PC, data were continuously read and written from the HDD of the PC to the EUT.

3.3 Cable Description

	Power Cord Shielded (Y/N)	I/O cable Shielded (Y/N)	Length (M)
Navigation (EUT)	N	Y	1.2(P), 3.0(D)
Car Battery	N	N/A	1.5(P)
Notebook PC	N	-	1.5(P)
Mouse	N/A	N	1.5(D)
Speaker	N/A	N	1.5(D)
Printer	N	Y	1.5(P), 1.5(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
Navigation (EUT)	Y	EUT END	Y	BOTH END
Car Battery	N	N/A	Y	EUT END
Notebook PC	-	-	-	-
Mouse	N	N/A	Y	Notebook PC END
Speaker	N	N/A	Y	Notebook PC END
Printer	N	N/A	Y	BOTH END
Modem	N	N/A	Y	BOTH END

3.5 Equipment Modifications

- None

3.6 Configuration of Test System

Line Conducted Test : The EUT was connected to USB port of Notebook PC and the power line 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: 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 Worse operating condition (Please check one only)
Data were continuously read and written from the HDD of the PC to the EUT.	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)
Data were continuously read and written from the HDD of the PC to the EUT.	X

It should not be reproduced except in full, without the written approval of ONETECH.

EMC-002 (Rev.0)

HEAD OFFICE : #505 SK APT. Factory 223-28, Sangdaewon 1 Dong, Jungwon-Gu, Seongnam-City, Kyunggi-Do, 462-705, Korea
(TEL: +82-31-746-8500, FAX: +82-31-746-8700)

EMC Testing Dept : 307-51 Daessangryung-Ri, Chowol-Eup, Kwangju-City, Kyunggi-Do, 464-860, Korea. (TEL: +82-31-765-8289, FAX: +82-31-766-2904)

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 : 42 % Temperature : 22°C
 Limits apply to : FCC CFR 47, PART 15, SUBPART B, SECTION 15.107(a)
 Type of Test : CLASS B
 Result : PASSED BY -8.30 dB at 12.00 MHz under average mode

EUT : Navigation Date: January 09, 2006
 Detector : CISPR Quasi-Peak (6 dB Bandwidth: 9 kHz)
 Operating Condition : Data were continuously read and written from the HDD of the PC to the EUT.

Frequency (MHz)	Line	Peak (dBuV)		Margin (dB)
		Emission level	Q.P Limits	
0.18	H	52.41	64.26	-11.85
0.24	H	45.55	61.92	-16.37
3.51	H	45.92	56.00	-10.08
3.54	N	47.05	56.00	-8.95
12.00	H	45.72	60.00	-14.28
13.39	N	40.56	60.00	-19.44
Frequency (MHz)	Line	Average (dBuV)		Margin (dB)
		Emission level	Limits	
0.18	H	42.09	54.26	-12.17
3.51	H	32.54	46.00	-13.46
3.54	N	32.17	46.00	-13.83
12.00	H	41.70	50.00	-8.30

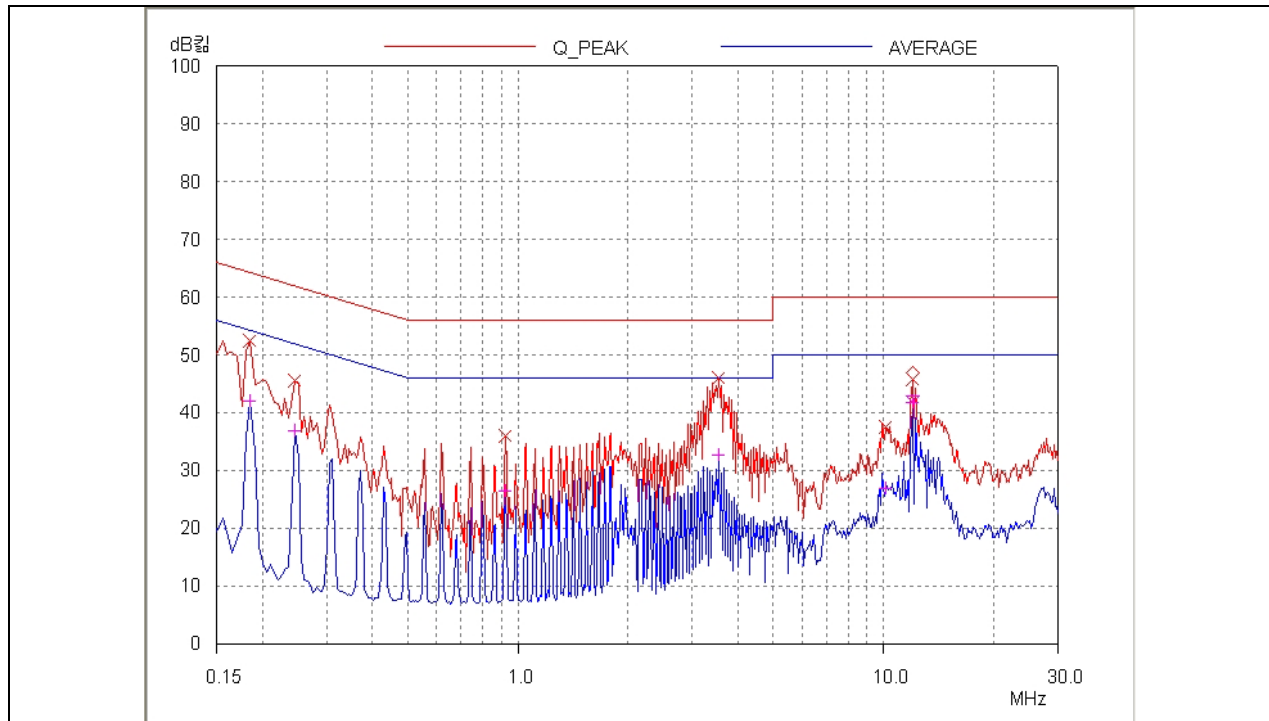
Line Conducted Emissions Tabulated Data

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

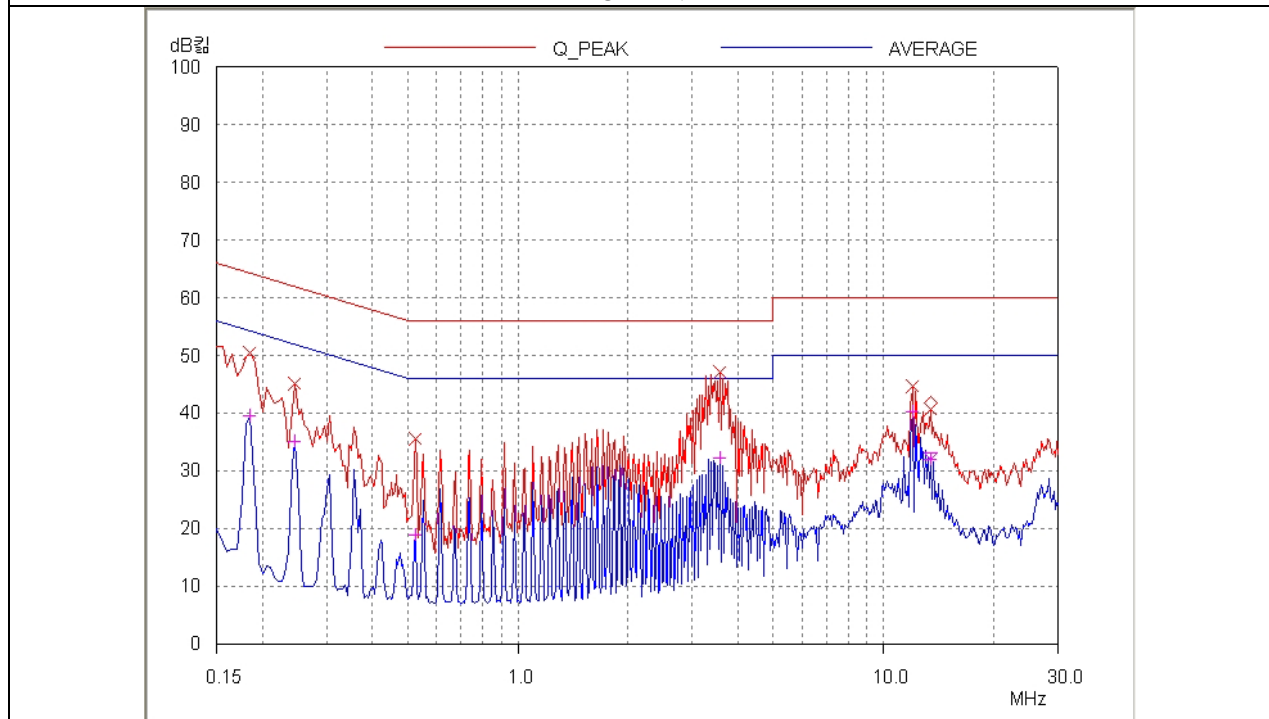
See next page for an overview sweep performed with peak and average detector.



Tested by: Dong-Yub, Lee / Test Engineer



HOT LINE



NEUTRAL LINE

It should not be reproduced except in full, without the written approval of ONETECH.

EMC-002 (Rev.0)

HEAD OFFICE : #505 SK APT. Factory 223-28, Sangdaewon 1 Dong, Jungwon-Gu, Seongnam-City, Kyunggi-Do, 462-705, Korea
(TEL: +82-31-746-8500, FAX: +82-31-746-8700)

EMC Testing Dept : 307-51 Daessangryung-Ri, Chowol-Eup, Kwangju-City, Kyunggi-Do, 464-860, Korea. (TEL: +82-31-765-8289, FAX: +82-31-766-2904)

5.2 Radiated Emission Test

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

Humidity Level : 43 %
 Temperature: 17 °C
 Limits apply to : FCC CFR 47, PART 15, SUBPART B, SECTION 15.109 (a)
 Type of Test : CLASS B
 Result : PASSED BY -4.45 dB at 202.65 MHz

EUT : Navigation Date: January
 12, 2005
 Frequency Range : 30MHz – 1000MHz
 Operating Condition : Data were continuously read and written from the HDD of the PC to the EUT.
 Detector : CISPR Quasi-Peak (6 dB Bandwidth: 120 kHz)
 Distance : 3 Meter

Radiated Emission		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)
178.72	17.20	V	15.93	2.75	35.88	43.52	-7.64
202.65	20.30	H	15.95	2.82	39.07	43.52	-4.45
266.70	18.50	H	17.62	3.47	39.59	46.02	-6.43
303.60	23.50	H	13.79	3.83	41.12	46.02	-4.90
354.30	20.10	H	14.44	4.22	38.76	46.02	-7.26
400.00	20.10	H	15.46	4.40	39.96	46.02	-6.06
430.20	20.40	H	16.25	4.46	41.11	46.02	-4.91

Radiated Emissions Tabulated Data



Tested by: Dong-Yub, 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/05	12MONTH	■
3.	Spectrum analyzer	HP	8566B	3407A08547	JUL/05	12MONTH	
4.	Spectrum analyzer	HP	8568B	3109A05456	APR/05	12MONTH	■
5.	RF preselector	HP	85685A	3107A01264	APR/05	12MONTH	■
6.	Quasi-Peak Adapter	HP	8574B	2811A01432	APR/05	12MONTH	■
7.	TRILOG Broadband Antenna	Schwarzbeck	VULB9163	VULB9163 166	APR/05	12MONTH	
8.	Biconical antenna	EMCO	3110	9003-1121	FEB/05	12MONTH	
		Schwarzbeck	VHA9103	91031852	JAN/05		■
9.	Log Periodic antenna	EMCO	3146	9001-2614	FEB/05	12MONTH	
		Schwarzbeck	9108-A(494)	62281001	FEB/05		■
10.	LISN	EMCO	3825/2	9109-1867	JUL/05	12MONTH	■
				9109-1869	JUL/05		
		Schwarzbeck	NSLK 8126	8126-404	AUG/05		■
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	■