

ELECTROMAGNETIC EMISSION COMPLIANCE REPORT FOR FCC CERTIFICATION

Test Report No. : E074R-025

AGR No. : A064A-068R

Applicant : Xdmb Inc.
Address : 805 8F Ssangyong IT-1, Sangdaewon-dong, Jungwon-gu, Seongnam-si,
Gyeonggi-do, Korea

Manufacturer : D.H ELECTRONICS CO., LTD.
Address : 501-13, Munhak-ri, Jeongnam-myun, Hwaseong-si, Kyunggi-do, Korea

Type of Equipment : 4" LCD Portable Navigation (FM Transmitter)

FCC ID. : SICNVXM1000

Model Name : NVXM1000

Multiple Model Name : ADV800XM

Serial number : N/A

Total page of Report : 20 pages (including this page)

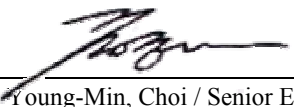
Date of Incoming : March 21, 2007

Date of Issuing : April 11, 2007

SUMMARY

The equipment complies with the regulation of *FCC CRF 47 PART 15, SUBPART C, SECTION 15.239*.

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 : Xdmb Inc.
- ADDRESS : 805 8F Ssangyong IT-1, Sangdaewon-dong, Jungwon-gu, Seongnam-si,
Gyeonggi-do, Korea
- CONTACT PERSON : Mr. D. S. Na / Senior Engineer
- TELEPHONE NO : +82-31-741-7007
- FCC ID : SICNVXM1000
- MODEL NAME : NVXM1000
- BRAND NAME : JENSEN
- SERIAL NUMBER : N/A
- DATE : April 11, 2007

EQUIPMENT CLASS	DXX – Part 15 Low Power Communication Device Transmitter
E.U.T. DESCRIPTION	4" LCD Portable Navigation (FM Transmitter)
THIS REPORT CONCERNS	ORIGINAL GRANT
MEASUREMENT PROCEDURES	Charter 13 of 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 15.239
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 Xdmb Inc., Model NVXM1000 (referred to as the EUT in this report) is a 4" LCD Portable Navigation that has a function for transmitting of FM broadcasting frequency range and PC peripheral. This report covers a FM transmitter from 96.1 MHz to 99.9 MHz for audio signal of FM radio receiver. Product specification described herein was obtained from product data sheet or user's manual.

CHASSIS TYPE	Plastic
TRANSMITTING FREQUENCY RANGE	96.1 ~ 99.9 MHz (20 Channels)
LIST OF EACH OSC. or CRY. FREQ.(FREQ.>=1MHz)	12 MHz, 24.576 MHz, 7.6 MHz, 7.3728 MHz and 45.1584 MHz
NUMBER OF LAYERS	8 Layers
POWER REQUIREMENT	DC 5V from a car battery or AC/DC adaptor
EXTERNAL CONNECTOR	Audio Out, USB2.0 Connector, DC In, XM Ant., GPS Ant., XM Mini-Tuner Slot, SD Card Slot

2.2 Model Differences

- The difference(s) compared to the EUT is as follows:

	Model Name	Model Differences
Basic Model	NVXM1000	-
Multiple Model	ADV800XM	This model is same to basic model, except for the color only.

2.3 Related Submittal(s) / Grant(s)

- Original submittal only

2.4 Test System Details

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

Model	Manufacturer	FCC ID	Description	Connected to
NVXM1000	Xdmb Inc.	SICNVXM1000	4" LCD Portable Navigation (EUT)	-
SP1013A	Seung Bo Elecom Co., Ltd.	N/A	AC/DC Adaptor	EUT
MDS510-5	SEENEED	N/A	Car Adaptor	EUT
N/A	N/A	N/A	Earphone	EUT
N/A	N/A	N/A	XM Antenna	EUT
N/A	N/A	N/A	GPS Antenna	EUT

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, Gwangju-si, Gyeonggi-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	Xdmb Inc.	NVXM1000 Rev_G	N/A
Sub Board	Xdmb Inc.	N/A	N/A
LCD Panel	CHUNGHWA PICTURE TUBES LTD	CLAA040JB02CT	N/A
Battery	E & P	EPB501	N/A
HDD	CORNICE	N/A	N/A

3.2 EUT exercise Software

The Model, NVXM1000 is included a FM transmitter designed to operate on function in the 96.1 ~ 99.9 MHz. This device does not have an audio input port, so the EUT played mp3 files that were stored in the EUT and than transmitted audio signal with the maximum output volume. The external XM antenna and GPS antenna were maximized for setting the worst emission level.

3.3 Cable Description for the EUT

Ports Name	Shielded	Ferrite Bead	Metal Hood	Length (m)	Connected to
DC In	N	N	EUT END	1.2	AC/DC Adaptor or Car Adaptor
Audio Out	N	N	BOTH END	1.5	Earphone
XM Ant. Connector	N	N	EUT END	1.5	XM Antenna
GPS Ant. Connector	N	N	EUT END	1.5	GPS Antenna

3.4 Equipment Modifications

-. None

3.5 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 emissions test were conducted using the procedure in ANSI C63.4: 2003 8.3.1.1 and 13.1.4.1 to determine the worse operating conditions. Final radiated emission tests were conducted at 3 meter open area test site.

Occupied Bandwidth Measurement:

This measurement is performed with the antenna located close enough to give a full-scale deflection of the modulated carrier on the spectrum analyzer.

Tuning Range Measurement:

This measurement is performed with the search coil located close to the EUT enough to get a full-scale of the modulated carrier on the spectrum analyzer.

3.6 Antenna Requirement

For intentional device, according to section 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.

Antenna Construction:

FM transmitter antenna of the EUT is fixed inside the EUT, no consideration of replacement by the user.

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)
Transmit the RF Signal continuously	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)
Transmit the RF Signal continuously	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 : 37 % Temperature: 20 °C
 Limits apply to : FCC CFR 47, PART 15, SUBPART C, SECTION 15.207 (a)
 Type of Test : Low Power Communication Device Transmitter
 Result : PASSED BY -9.89 dB at 2.01 MHz under average detector mode

EUT : 4" LCD Portable Navigation Date: April 02, 2007
 Operating Condition : Transmit the RF signal.
 Detector : CISPR Quasi-Peak (6 dB Bandwidth: 9 kHz)

Frequency (MHz)	Line	Peak (dBuV)		Margin (dB)
		Emission level	Q.P Limits	
0.19	H	51.18	63.82	-12.64
0.26	H	43.82	61.43	-17.61
2.01	N	44.00	56.00	-12.00
4.41	N	39.39	56.00	-16.61
4.67	H	38.88	56.00	-17.12
12.51	H	40.99	60.00	-19.01
Frequency (MHz)	Line	Average (dBuV)		Margin (dB)
		Emission level	Limits	
0.19	H	41.07	53.82	-12.75
2.01	N	36.11	46.00	-9.89
4.41	N	33.84	46.00	-12.16
4.67	H	32.87	46.00	-13.13

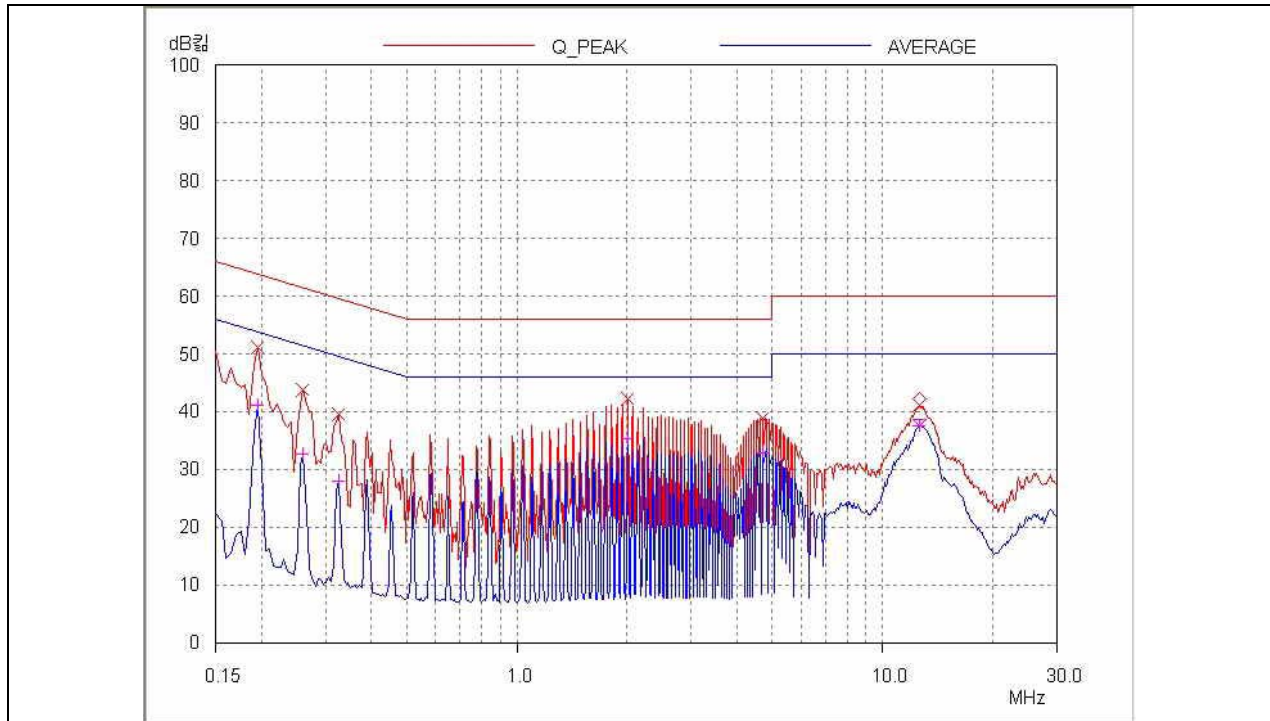
Line Conducted Emission Tabulated Data

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

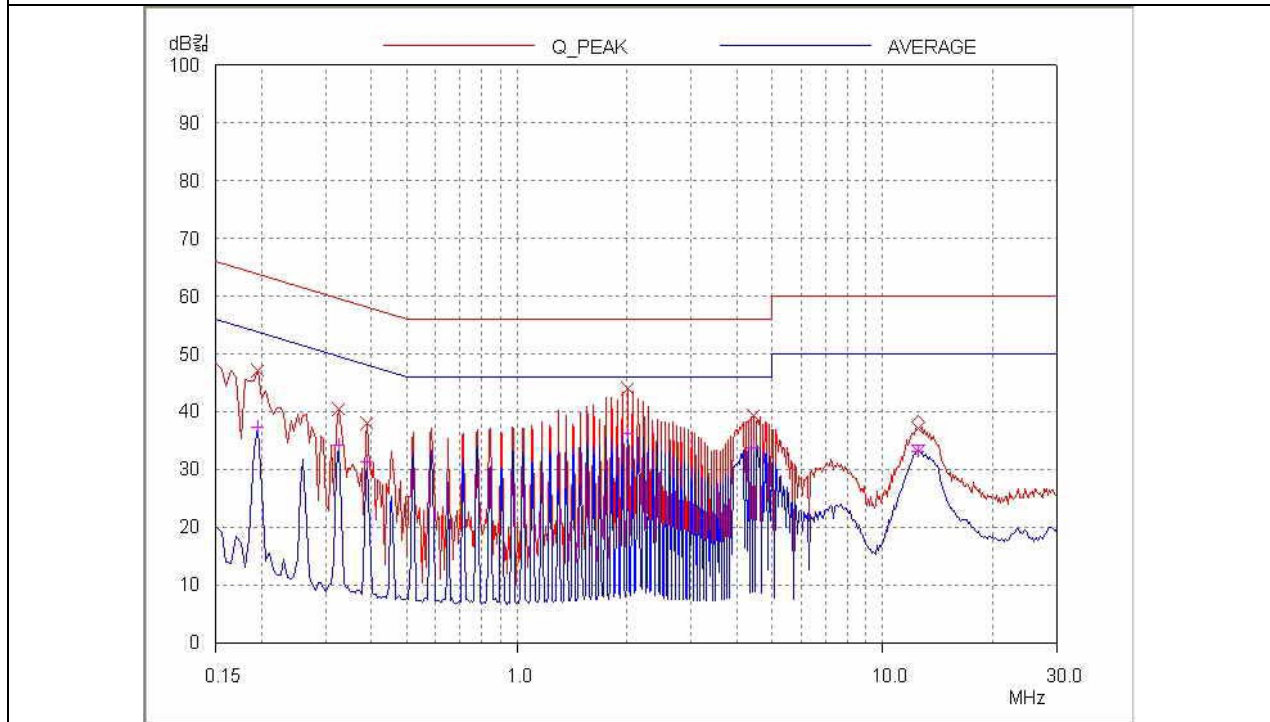
See next page for an overview sweep performed with peak and average detector.



Tested by: Hyun-Ho, Kim / Test Engineer



HOT LINE



NEUTRAL LINE

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EMC-002 (Rev.0)

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5.2 Radiated Emission Test (Within the permitted 200 kHz band)

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

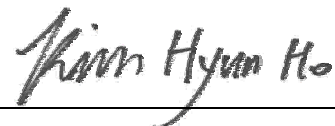
5.2.1 Operating Condition: Used Car Battery

Humidity Level : 44 % Temperature: 17 °C
 Limits apply to : FCC CFR 47, PART 15, SUBPART C, SECTION 15.239 (b)
 Type of Test : Low Power Communication Device Transmitter
 Result : PASSED BY -4.04 dB at 96.10 MHz under average detector mode

EUT : 4" LCD Portable Navigation Date: April 03, 2007
 Operating Condition : Transmit the RF signal.
 Distance : 3 Meter

Radiated Emission			Ant	Correction Factors		Total	Limit (dBuV/m)	Margin (dB)
Freq. (MHz)	Amp. (dBuV)	Detect Mode	Pol.	Ant. (dBuV/m)	Cable (dB)	Amp. (dBuV/m)		
96.10	36.90	Peak	H	9.66	2.40	48.96	68.00	-19.04
	35.00	Peak	V			47.06	68.00	-20.94
	31.60	Average	H			43.66	48.00	-4.34
	31.90	Average	V			43.96	48.00	-4.04
99.70	33.50	Peak	H	10.31	2.40	46.21	68.00	-21.79
	29.90	Peak	V			42.61	68.00	-25.39
	31.20	Average	H			43.91	48.00	-4.09
	26.80	Average	V			39.51	48.00	-8.49

Radiated Emission Tabulated Data



Tested by: Hyun-Ho, Kim / Test Engineer

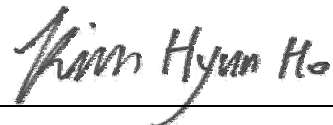
5.2.2 Operating Condition: Used AC/DC Adaptor

Humidity Level : 44 % Temperature: 17 °C
 Limits apply to : FCC CFR 47, PART 15, SUBPART C, SECTION 15.239 (b)
 Type of Test : Low Power Communication Device Transmitter
 Result : PASSED BY -4.14 dB at 96.10 MHz under average detector mode

EUT : 4" LCD Portable Navigation Date: April 03, 2007
 Operating Condition : Transmit the RF signal.
 Distance : 3 Meter

Radiated Emission			Ant	Correction Factors		Total	Limit (dBuV/m)	Margin (dB)
Freq. (MHz)	Amp. (dBuV)	Detect Mode	Pol.	Ant. (dBuV/m)	Cable (dB)	Amp. (dBuV/m)		
96.10	35.10	Peak	H	9.66	2.40	47.16	68.00	-20.84
	34.90	Peak	V			46.96	68.00	-21.04
	31.80	Average	H			43.86	48.00	-4.14
	31.50	Average	V			43.56	48.00	-4.44
99.70	33.40	Peak	H	10.31	2.40	46.11	68.00	-21.89
	32.10	Peak	V			44.81	68.00	-23.19
	30.70	Average	H			43.41	48.00	-4.59
	29.20	Average	V			41.91	48.00	-6.09

Radiated Emission Tabulated Data



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5.3 Radiated Emission Test (Outside of the specified 200 kHz band)

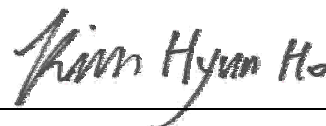
The following table shows the highest levels of radiated emission on both polarizations of horizontal and vertical.

5.3.1 Operating Condition: Used Car Battery

Humidity Level : 44 % Temperature: 17 °C
 Limits apply to : FCC CFR 47, PART 15, SUBPART C, SECTION 15.209 (a)
 Type of Test : Low Power Communication Device Transmitter
 Result : PASSED BY -11.69 dB at 200.30 MHz

EUT : 4" LCD Portable Navigation Date: April 03, 2007
 Operating Condition : Transmit the RF signal.
 Frequency range : 30MHz – 1000MHz
 Detector : CISPR Quasi-Peak (6 dB Bandwidth: 120 kHz)
 Distance : 3 Meter
 Remark : Other emissions

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)
50.30	13.20	H	11.07	1.60	25.87	40.00	-14.13
73.30	14.30	H	6.01	1.87	22.18	40.00	-17.82
128.30	15.00	V	13.59	2.62	31.21	43.52	-12.31
160.30	13.30	H	15.22	2.80	31.32	43.52	-12.20
200.30	12.00	H	16.43	3.40	31.83	43.52	-11.69
301.20	14.60	H	14.06	3.62	32.28	46.02	-13.74



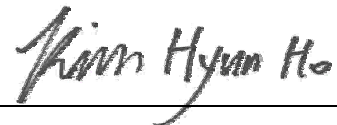
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5.3.2 Operating Condition: Used AC/DC Adaptor

Humidity Level : 44 % Temperature: 17 °C
Limits apply to : FCC CFR 47, PART 15, SUBPART C, SECTION 15.209 (a)
Type of Test : Low Power Communication Device Transmitter
Result : PASSED BY -10.04 dB at 210.20 MHz

EUT : 4" LCD Portable Navigation Date: April 03, 2007
Operating Condition : Transmit the RF signal.
Frequency range : 30MHz – 1000MHz
Detector : CISPR Quasi-Peak (6 dB Bandwidth: 120 kHz)
Distance : 3 Meter
Remark : Other emissions

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)
49.30	13.20	H	11.41	1.60	26.21	40.00	-13.79
70.30	12.20	H	5.72	1.81	19.73	40.00	-20.27
120.30	16.20	V	13.00	2.70	31.90	43.52	-11.62
162.30	10.30	H	15.27	2.82	28.39	43.52	-15.13
210.20	13.20	H	16.80	3.48	33.48	43.52	-10.04
306.30	16.30	H	14.27	3.70	34.27	46.02	-11.75



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5.4 Bandwidth of the operating frequency

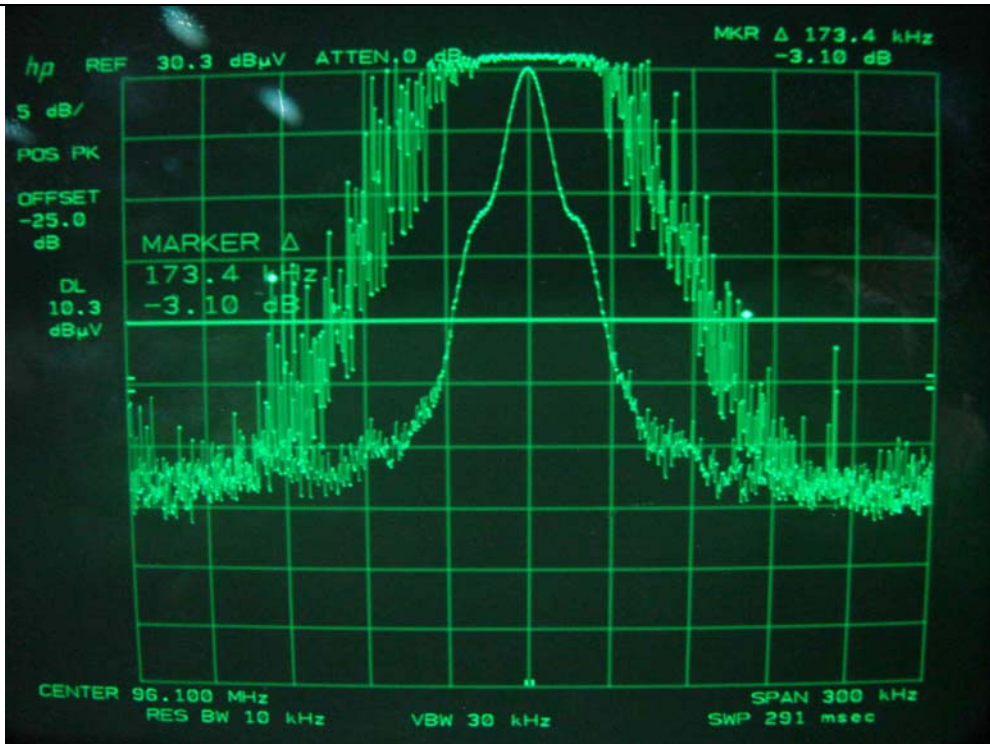
Humidity Level : 38 % Temperature: 20 °C
Limits apply to : FCC CFR 47, PART 15, SUBPART C, SECTION 15.239 (a)
Result : PASSED

EUT : 4" LCD Portable Navigation Date: April 03, 2007
Operating Condition : Transmit the RF signal.
Minimum Resolution
Bandwidth : 10 kHz

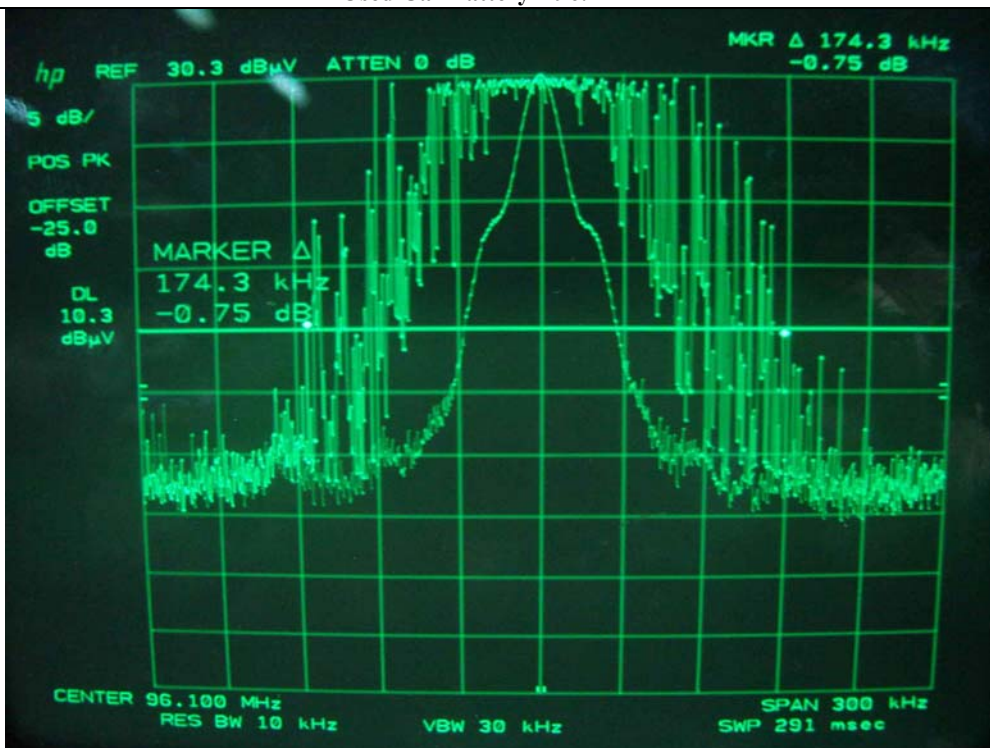
Operating Condition	Frequency (MHz)	Measured Value (kHz)	Limit (kHz)	Margin (kHz)
Used Car Battery	96.10	173.4	200	-26.6
	99.70	174.6		-25.4
Used AC/DC Adaptor	96.10	174.3		-25.7
	99.70	177.9		-22.1



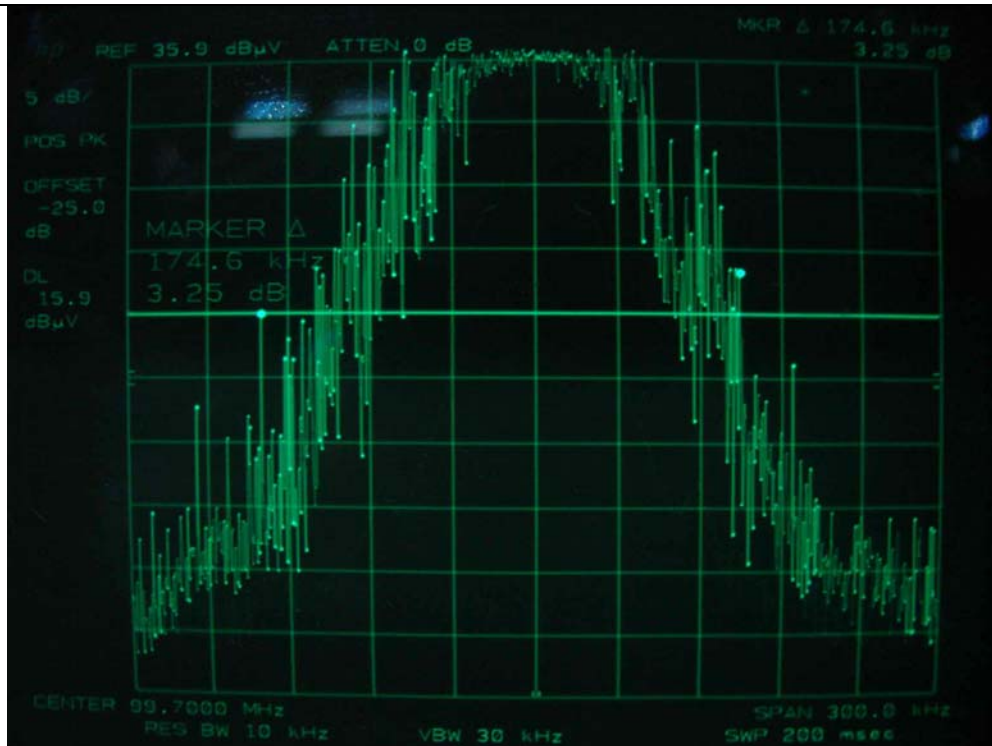
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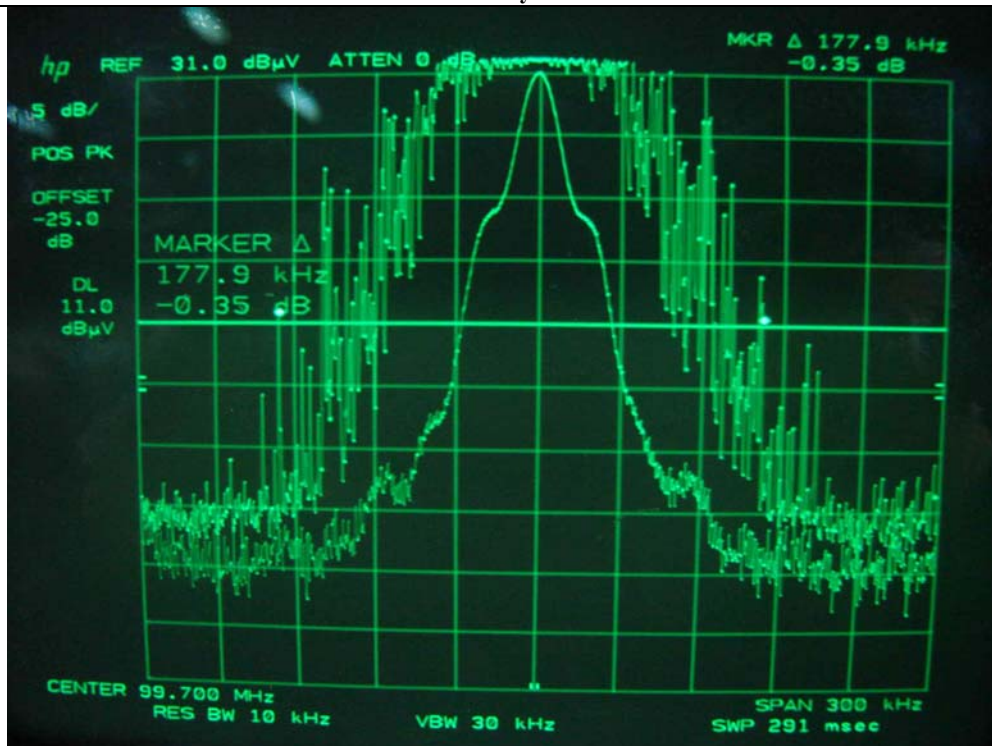
Used Car Battery – 96.1 MHz



Used AC/DC Adaptor – 96.1 MHz



Used Car Battery – 99.7 MHz



Used AC/DC Adaptor – 99.7 MHz

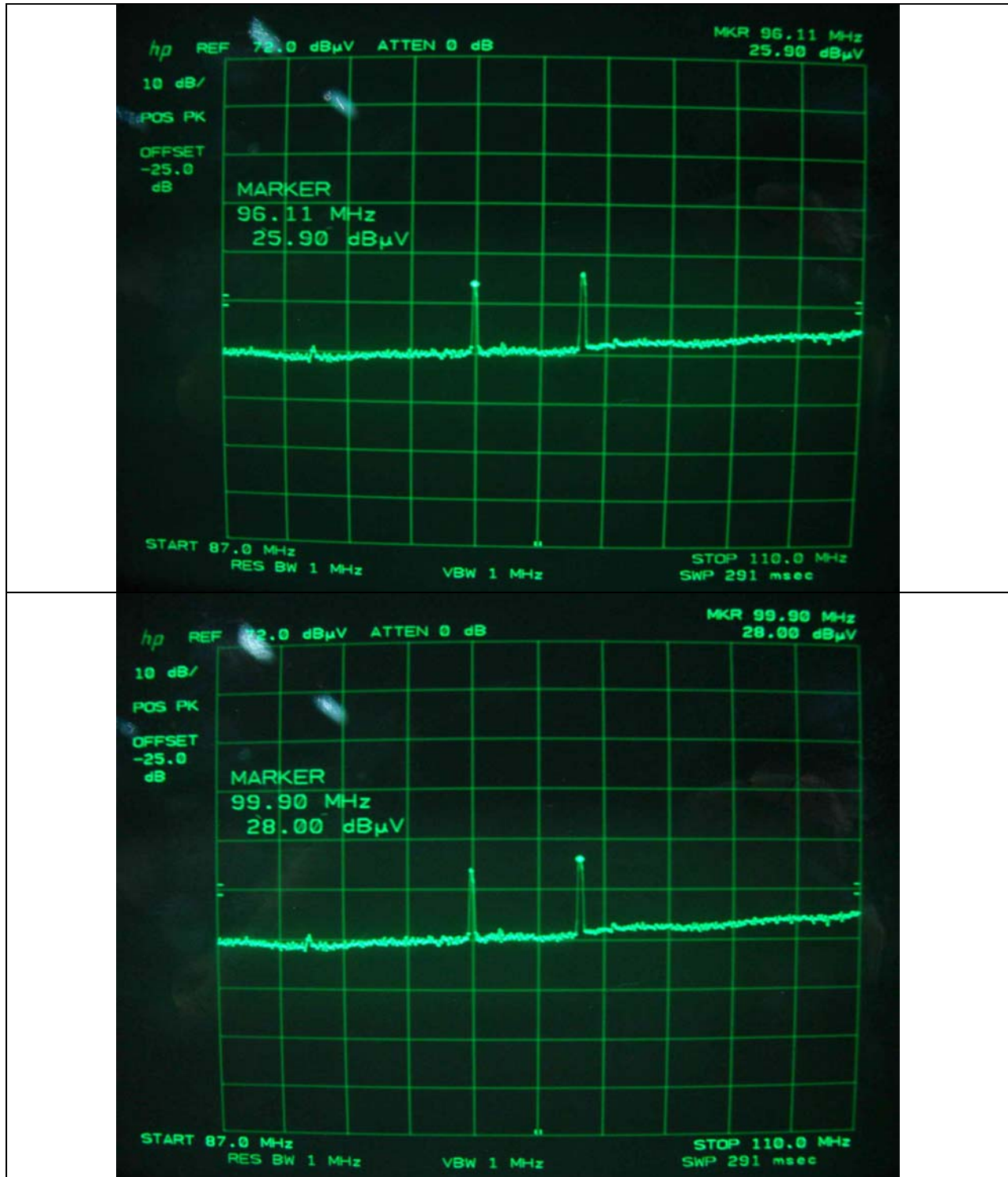
5.5 Tuning Range of the operating frequency

Humidity Level : 38 % Temperature: 20 °C
Limits apply to : FCC CFR 47, PART 15, SUBPART C, SECTION 15.239 (a)
Result : PASSED

EUT : 4" LCD Portable Navigation Date: April 03, 2007
Operating Condition : The lowest and highest frequency was adjusted by manual using up/down button on the side of the EUT and the spectrum was in max hold mode for capturing the spectrum.
Test Result : Met the requirement. Refer to test data in next page.



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EMC Testing Dept : 307-51 Daessangryung-ri, Chowol-eup, Gwangju-si, Gyeonggi-do, 464-860, Korea. (TEL: +82-31-765-8289, FAX: +82-31-766-2904)

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/06	12MONTH	■
2.	Test receiver	R/S	ESHS 10	834467/007	MAY/06	12MONTH	■
3.	Spectrum analyzer	R/S	FSP	100017	JUN/06	12MONTH	■
4.	TRILOG Broadband Antenna	Schwarzbeck	VULB9163	VULB9163 166	MAY/06	12MONTH	
5.	Biconical antenna	EMCO	3110	9003-1121	JUN/06	12MONTH	
		Schwarzbeck	VHA9103	91031852	FEB/07		■
6.	Log Periodic antenna	EMCO	3146	9001-2614	JUN/06	12MONTH	
		Schwarzbeck	9108-A(494)	62281001	FEB/07		■
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	■