ELECTROMAGNETIC EMISSION COMPLIANCE REPORT FOR FCC CERTIFICATION

Test Report No.	**: E06DR-027**
AGR No.	**: A06NA-036**
Applicant	**: DVS Korea Co., Ltd.**
Address	**: 196, Geumgok-Dong, Bundang-Gu, Seongnam-Si, Gyeonggi-Do, Korea**
Manufacturer	**: DVS Korea Co., Ltd.**
Address	**: 196, Geumgok-Dong, Bundang-Gu, Seongnam-Si, Gyeonggi-Do, Korea**
Type of Equipment	**: 7 INCH WIDE TOUCH SCREEN NAVIGATION (FM Transmitter)**
FCC ID.	**: PGJVXA-2100**
Model Name	**: VXA-2100**
Serial number	**: N/A**
Total page of Report	**: 14 pages (including this page)**
Date of Incoming	**: November 20, 2006**
Date of Issuing	**: December 13, 2006**

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 : DVS Korea Co., Ltd.

-. ADDRESS : 196, Geumgok-Dong, Bundang-Gu, Seongnam-Si, Gyeonggi-Do, Korea

-. CONTACT PERSON : Mr. Insang, Oh / Associate Engineer

-. TELEPHONE NO : +82-31-710-4929

-. FCC ID : PGJVXA-2100

-. MODEL NAME : VXA-2100

-. SERIAL NUMBER : N/A

-. DATE : December 13, 2006

EQUIPMENT CLASS	DXX – Part 15 Low Power Communication Device Transmitter
E.U.T. DESCRIPTION	7 INCH WIDE TOUCH SCREEN 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.

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2. GENERAL INFORMATION

2.1 Product Description

The DVS Korea Co., Ltd., Model VXA-2100 (referred to as the EUT in this report) is a 7 INCH WIDE TOUCH SCREEN NAVIGATION that has a function for transmitting of FM broadcasting frequency range. This report covers the FM transmitter from 88.1 MHz to 88.7 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
LIST OF EACH OSC. or CRY. FREQ.(FREQ.>=1MHz)	16.9344 MHz, 24.576 MHz, 27 MHz and 7.6 MHz on the main board
NUMBER OF LAYERS	6 Layers: Main Board, 2 Layers: Backlight Inverter Board
POWER REQUIREMENT	DC 12V, 1A from a car battery
EXTERNAL CONNECTOR	Video In/Out, SD Card In, Audio Out, Safety, DC In, USB(A/S use only), GPS

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 which were used in the tested system is:

Model	Manufacturer	FCC ID	Description	Connected to
VXA-2100	DVS Korea Co., Ltd.	PGJVXA-2100	7 INCH WIDE TOUCH SCREEN NAVIGATION (EUT)	-
SAM-015N	Sungil Precision	N/A	Speaker	EUT
DVD2000	Taeyoung Telstar	N/A	DVD Player	EUT

2.5 Test Methodology

The radiated testing was performed according to the procedures in chapter 13 of ANSI C63.4: 2003 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 31, 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	N/A	VXA2100 MAIN	N/A
LCD	N/A	A070FW03	N/A
Inverter	DMB Technology	B1L07D12	N/A
GPS Module	DVS Korea	GA-2000	N/A

3.2 EUT exercise Software

The Model, VXA-2100 is included a FM transmitter designed to operate on function in the 88.1 ~ 88.7 MHz. The EUT has audio input port, so the input port was connected to a DVD player and played a real movie, both AV signal comes from the DVD player. The volume control of DVD player and the EUT were set to maximum for the testing.

3.3 Cable Description for the EUT

Ports Name	Shielded	Ferrite Bead	Metal Hood	Length (m)	Connected to
Audio/Video In	N	N	BOTH END	1.5	DVD Player
SD Card In	-	-	-	Direct Inserted	SD Card
Audio Out	N	N	EUT END	1.5	Speaker
Safety	-	-	-	-	-
DC In	N	N	EUT END	1.2	Car Battery
USB	N	Y (BOTH)	EUT END	1.5	-
GPS	N	N	EUT END	1.5	GPS Antenna

3.4 Equipment Modifications

-. None

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3.5 Configuration of Test System

Line Conducted Test: This test is not performed because the EUT is operated by car battery and is not connected to public low-voltage distribution system.

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.

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)
This test is not performed because the EUT is operated by car battery and is not connected to public low-voltage distribution system.	

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

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5. FINAL RESULT OF MEASURMENT

Preliminary test was done in normal operation mode. And the final measurement was selected for the maximized emission level

5.1 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.

Humidity Level : 46 % Temperature: 18 °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 –3.90 dB at 88.30 MHz

EUT : 7 INCH WIDE TOUCH SCREEN NAVIGATION Date: November 20, 2006
Operating Condition : Transmit the RF signal.
Distance : 3 Meter

Radiated Emission			Ant	Correction Factors		Total	Limit	Margin
Freq. (MHz)	Amp. (dBuV)	Detect Mode	Pol.	Ant. (dBuV/m)	Cable (dB)	Amp. (dBuV/m)	(dBuV/m)	(dB)
88.30	33.80	Peak	H	7.97	2.37	44.10	48.00	-3.90
88.30	31.90	Peak	V	7.97	2.37	42.20	48.00	-5.80

Radiated Emission Tabulated Data

Remark: Per 15.31(m), one channel (middle) was tested because the EUT's frequency range is less than 1 MHz.
The average detect mode was not performed, because peak values were under the average limit.

Tested by: Kyou-Hyun, Lee / Test Engineer

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5.2 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.

Humidity Level : 46 % Temperature: 18 °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 –5.01 dB at 529.80 MHz

EUT : 7 INCH WIDE TOUCH SCREEN NAVIGATION Date: November 20, 2006
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)
176.60	16.40	V	15.45	2.90	34.75	43.52	-8.77
264.90	17.25	H	17.40	3.72	38.37	46.02	-7.65
353.20	16.10	H	16.09	4.42	36.61	46.02	-9.41
441.50	16.34	H	17.97	4.87	39.18	46.02	-6.84
529.80	16.20	H	19.39	5.42	41.01	46.02	-5.01

Tested by: Kyou-Hyun, Lee / Test Engineer

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5.3 Bandwidth of the operating frequency

Humidity Level : 46 % Temperature: 18 °C

Limits apply to : FCC CFR 47, PART 15, SUBPART C, SECTION 15.239 (a)

Result : PASSED

EUT : 7 INCH WIDE TOUCH SCREEN NAVIGATION Date: November 20, 2006

Operating Condition : Transmit the RF signal.

Minimum Resolution

Bandwidth : 10 kHz

Frequency (MHz)	Measured Value (kHz)	Limit (kHz)	Margin (kHz)
88.3	145.8	200	-54.2

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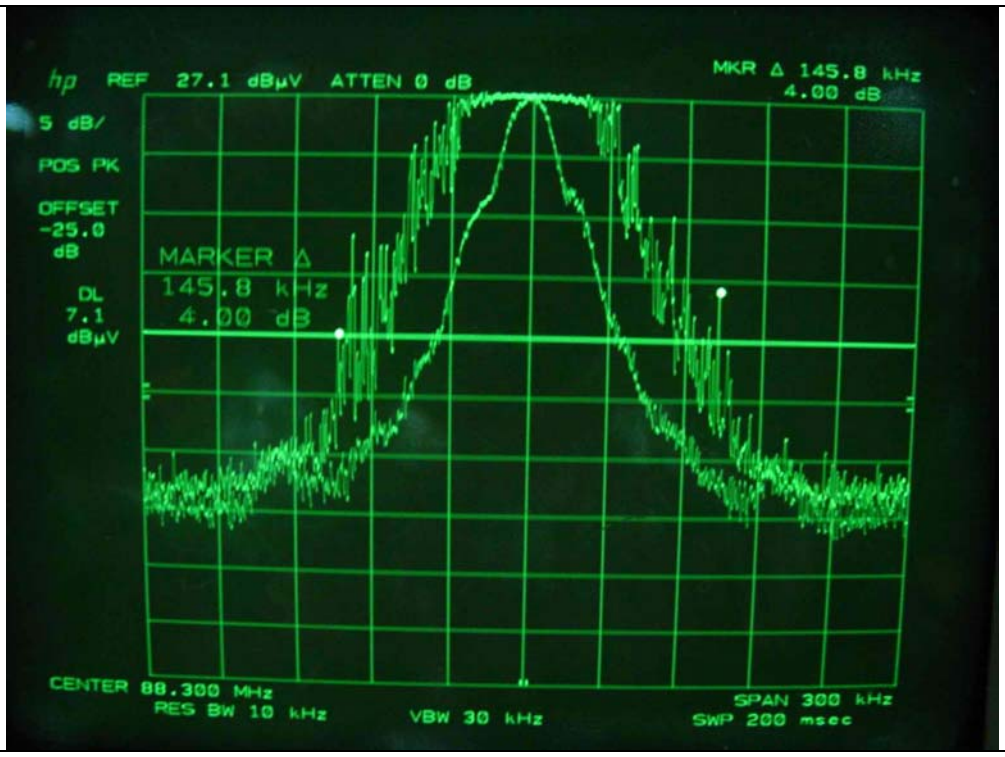

Middle Frequency (88.3 MHz)

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5.4 Tuning Range of the operating frequency

Humidity Level	: 46 %	Temperature: 18 °C
Limits apply to	: FCC CFR 47, PART 15, SUBPART C, SECTION 15.239 (a)	
Result	: PASSED	

EUT	: FM Transmitter	Date: November 20, 2006
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.	

Tested by: Kyou-Hyun, Lee / Test Engineer

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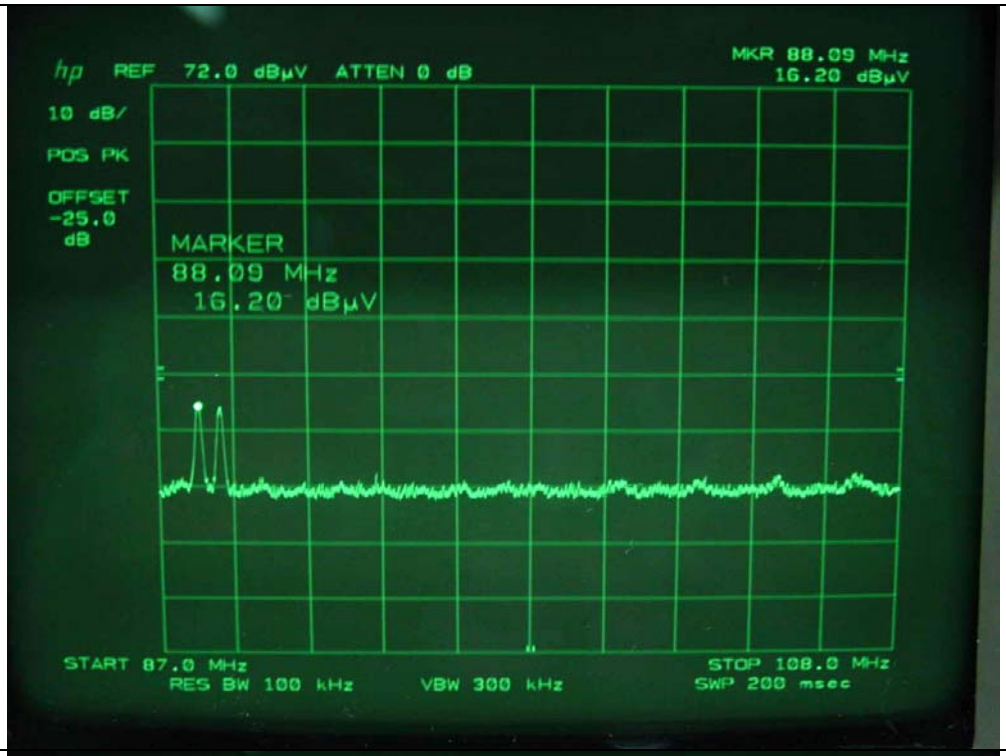

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6. FIELD STRENGTH CALCULATION

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)

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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	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	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	JUL/06	12MONTH	
				9109-1869	JUL/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	■

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