

FCC COMPLIANCE REPORT

Order No. : SKA-04-0091/E
Reference No. : F690501/LF-EMC000525
Applicant : Daesung Eltec Co., Ltd.
Address of Applicant : 371-6, Kasan-Dong, Kumchon-Gu, Seoul, Korea

Equipment Under Test (EUT) :

Product Name : Vehicle's DVD Player
Model No. : DA-180
FCC ID : QV3DA180

Standards : FCC Part 15, Subpart B, Subpart C
ANSI C63.4:2003

Date of Receipt : 24 June 2004

Date of Test : 25 June 2004

Date of Issue : 05 July 2004

Test Result :	PASS
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In the configuration tested, the EUT complied with the standards specified above.

Remarks :

This report details the results of the testing carried out on one sample, the results contained in this test report do not relate to other samples of the same product. The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report.

This report shall not be reproduced except in full, without the written approval of the laboratory. If the product in this report is used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant standards.



Kew-Seung, Lim
EMC DIV. Manager
SGS KES CO., LTD. EMC Laboratory

Contents

1. General Information

1.1 Manufacturer Information	3
1.2 General Description of EUT	3
1.3 Details of EUT	3
1.4 Description of Support Units	3
1.5 Cable List	4
1.6 System Configuration	4
1.7 Test Set-Up Configuration	5
1.8 Measurement Procedure	5
1.9 Standards Applicable for Testing	5
1.10 Summary of Results	6

2. Radio Disturbance

2.1 Test Results	7
2.2 Frequency Range	7
2.3 Limit Of Radiated Emission	7
2.3.1 Limit Of Radiated Emission Of FCC Part 15.109 Class B	7
2.3.2 Limit Of Radiated Emission Of FCC Part 15.209 Class B	7
2.4 Test of Conducted Emission	8
2.4.1 Test Instruments	8
2.4.2 Test Site	8
2.4.3 Operating Environment	8
2.4.4 Measurement Data	8
2.5 Test of Radiated Emission	9
2.5.1 Test Instruments	9
2.5.2 Test Site	9
2.5.3 Operating Environment	9
2.5.4 Measurement Data	9

3. Photographs of Test	11
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4. Measured Emission Bandwidth	13
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1. General Information

1.1 Manufacturer Information

Manufacturer : Daesung Eltec Co., Ltd.

Address : 371-6, Kasan-Dong, Kumchon-Gu, Seoul, Korea

1.2 General Description of EUT

Product Name : Vehicle's DVD Player

Model No. : DA-180

Serial No : NONE

FCC ID : QV3DA180

1.3 Details of EUT

Operating Frequency : 88.1 MHz, 88.3MHz, 88.5MHz, 88.7MHz, 88.9MHz

Tested Power Supply : DC 14V

Port of DVD Player : VIDEO IN, AUDIO (L/R) IN, AUDIO (L) OUT,
AUDIO (R) OUT, DC IN, DC OUT

Port of FM Modulator : L, R, DC IN, ANT IN, ANT OUT

Description of Operating : Play DVD-ROM and output audio signal through FM
Modulator

Modifications to the EUT : None

1.4 Description of Support Units

Product	Model No.	Serial No.	Manufacturer
DVD Player	DVD-5100	P0600200	SANYO ELECTRIC
DC Power Supply	M5P60-10A	864420	TET Electronics Corp.
Remote Controller	N/A	N/A	N/A
Car MP3 Player	N/A	N/A	N/A
Speaker	SP-Z	N/A	Logitech
Antenna	N/A	N/A	N/A

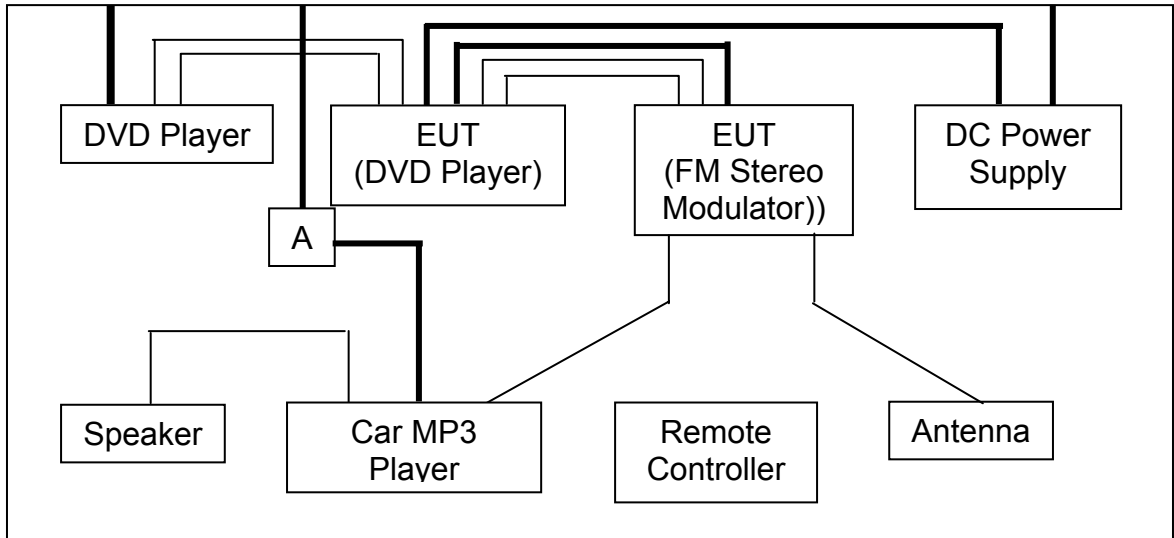
1.5 Cable List

Start		END		Cable Spec	
Name	I/O Port	Name	I/O Port	Length	Shield
EUT (DVD Player)	VIDEO IN	DVD Player	VIDEO OUT	1.8	Shielded
	AUDIO (L/R) IN	DVD Player	AUDIO(L/R) OUT	1.8	Shielded
	AUDIO(L) OUT	EUT(FM Stereo Modulator)	L	0.5	Unshielded
	AUDIO(R) OUT	EUT(FM Stereo Modulator)	R	0.5	Unshielded
	DC IN	DC Power Supply	DC OUT	1.0	Unshielded
	DC OUT	EUT(FM Stereo Modulator)	DC IN	0.5	Unshielded
EUT (FM Stereo Modulator)	L	EUT(DVD Player)	AUDIO(L) OUT	0.5	Unshielded
	R	EUT(DVD Player)	AUDIO(R) OUT	0.5	Unshielded
	DC IN	EUT(DVD Player)	DC OUT	0.5	Unshielded
	ANT IN	Antenna	-	2.5	Shielded
	ANT OUT	Car MP3 Player	ANT	1.0	Shielded
DC Power Supply	DC OUT	EUT(DVD Player)	DC IN	1.0	Unshielded
	AC IN	LISN	-	1.0	Unshielded
Car MP3 Player	AUDIO(L) OUT	Speaker	-	1.0	Unshielded
	ANT	EUT(FM Stereo Modulator)	ANT OUT	1.0	Shielded

1.6 System Configuration

Description	Model	Serial No.	Manufacturer
Main Board	DA-180	N/A	DSA R&D
DVD-ROM	DSV-810	N/A	DVS KOREA Co., Ltd.
LCD Board	DA-180	N/A	N/A
LCD Panel	A070FW03	06J423MI0F-51-G102001	N/A
Receiver Board	N/A	N/A	N/A
Remote controller	N/A	N/A	N/A
FM Modulator Board	N/A	N/A	N/A

1.7 Test Set-Up Configuration



1.8 Measurement Procedure

Conducted Emission Testing was performed according ANSI C63.4:2003 in a shielded room with peripherals placed on a table, 0.8m high over a metal floor. It was located more than required distance away from the shielded room wall.

Radiated Emission Testing was performed according to ANSI C63.4:2003 at the open field test site. The EUT was placed in a 0.8m high table along with the peripherals. The turn table was separated from the antenna distance 3 meters. Cables were placed in a position to produce maximum emissions as determined by experimentation, and operation mode was selected for maximum.

The frequencies and amplitudes of maximum emission were measured at varying azimuths, antenna heights and antenna polarities. Reported are maximized emission levels.

1.9 Standards Applicable for Testing

Table of tests to be carried out under FCC Part 15, Subpart C, Subpart B

Test Standards	Status
FCC Part 15.109 & 15.209 & 15.239	Applicable
Deviation from Standard	No Deviation

1.10 Summary of Results

The data collected shows that Model **DA-180** complies with Part 15.109, Part 15.209 and 15.239 of FCC Technical Rules. The highest emission level observed was at 463.17MHz radiated emission with a margin of 2.97dB.

The emission results of other frequencies(88.3MHz, 88.5MHz, 88.7MHz and 88.9MHz) are same as the results of the selected frequency of 88.1MHz. So, the only result of 88.1MHz is reported.

Emissions from the intentional radiator is confined within a band 200 kHz wide centered on the operating frequency. The 200kHz band lies wholly within the frequency range of 88-108 MHz

The field strength of any emissions within the permitted 200kHz band is not Exceed 250 μ V/m(48dBuV) at 3 meters with average detector and 68 dB μ V with peak detector.

Radio Disturbance

2.1 Test Results

	Results
Conducted Emission	N/A
Radiated Emission	PASS

Not applied because it is powered from an automobile DC 14V Battery.

2.2 Frequency Range

Conducted Emission : 450 kHz - 30 MHz

Radiated Emission : 30MHz – 1000 MHz

2.3 Limits Of Radiated Emission

2.3.1 Limit Of Radiated Emission Of FCC Part 15.109 Class B

FREQUENCY (MHz)	Class A (at 10m)*	Class B (at 3m)*
	uV/m(dBuV/m)	uV/m(dBuV/m)
30 - 88	90(39)	100(40)
88 - 216	150(43.5)	150(43.5)
216 - 960	210(46.5)	200(46)
Above 960	300(49.0)	500(54)

2.3.2 Limit Of Radiated Emission Of FCC Part 15.209

FREQUENCY (MHz)	Field Strength*	Measurement Distance
	Microvolts/Meter	Meters
0.009 – 0.490	2400/F(kHz)	300
0.490 – 1.705	2400/F(kHz)	30
1.705 – 30.0	30	30
30 – 88	100**	3
88 – 216	150**	3
216 - 960	200**	3
Above 960	500	3

Note : (1) The lower limit shall apply at the transition frequencies.

(2) Emission level (dBuV/m) = 20 log Emission level (uV/m).

(3) "F" Means Frequency

2.4. Test of Conducted Emission**2.4.1 Test Equipments**

Equipment	Manufacturer	Model No.	Date of Calibration
Test Receiver	R&S	ESPC	Nov. 2003
LISN	3825/2	EMCO	Nov. 2003
LISN	3825/2	EMCO	Dec. 2003
Pulse Limiter	PMM	PL-01	Jul. 2003
Shielded Room	Daeil	N/A	Aug 2003

2.4.2 Test Site

Name and address : SGS Testing Korea Co., Ltd.
705, Dongchun-Dong, Yongin, Korea 449-840

2.4.3 Operating Environment

Temperature : degree C

Humidity : %RH

Atmospheric Pressure : mBar

2.4.4 Measurement Data

Measurement Bandwidth : 9kHz

Date of Test :

FREQ. (MHz)	LEVEL(dB μ V)		LINE	LIMIT(dB μ V)		MARGIN(dB μ V)	
	Q-Peak	Average		Q-Peak	Average	Q-Peak	Average

Note : This test item is not applied because this product is supplied DC Power from a Battery.



See – Ho, Lee / Test Engineer

2.5 Test of Radiated Emission**2.5.1 Test Instruments**

Description	Manufacturer	Model No.	Date of Calibration
Test Receiver	R & S	ESVS30	Jan. 2004
Spectrum Analyzer	H.P	E4411A	Oct. 2003
RF Amplifier	H.P	8447F	Jun. 2004
Bilog Antenna	EMCO	CBL6111C	Jun. 2004
RF Select s/w	DAIWA	CS201	Apr. 2004

2.5.2 Test Site

Name and address : SGS Testing Korea Co., Ltd.

705, Dongchun-Dong, Yongin, Korea 449-840

2.5.3 Operating Environment

Temperature : 24.2 degree C

Humidity : 31.5 %RH

Atmospheric Pressure : 1005 mBar

2.5.4 Measurement Data

Measurment Bandwidth : 120kHz

Part 15.109 for DVD Play Mode

FREQ. (kHz)	LEVEL (dB μ V)	POL (H/V)	AF (dB)	CL (dB)	F/S (dB μ V/m)	LIMIT (dB)	MARGIN (dB)
88.10	24.2	H	9.09	2.38	35.67	43.5	7.83
202.75	21.6	V	9.05	3.72	34.37	43.5	9.13
216.00	23.2	H	10.02	3.80	37.02	43.5	6.48
233.33	16.3	H	11.29	3.90	31.49	46.0	14.51
280.08	17.3	V	12.85	4.36	34.51	46.0	11.49
463.17	20.3	H	17.09	5.64	43.03	46.0	2.97

Part 15.239 for FM Transmitting Mode

FREQ. (kHz)	LEVEL (dB μ V)	POL (H/V)	AF (dB)	CL (dB)	F/S (dB μ V/m)	LIMIT (dB)	MARGIN (dB)
88.10	31.0	V	9.09	2.38	42.47	48.0	5.49
188.96	17.8	H	8.94	3.53	30.27	43.5	13.23
202.60	26.3	H	9.04	3.72	39.06	43.5	4.44
216.00	25.9	H	10.02	3.80	39.72	43.5	3.78
434.22	20.3	H	16.48	5.44	42.22	46.0	3.78
521.08	17.1	H	18.42	6.07	41.59	46.0	4.41

* AF = Antenna Factor. ** CL = Cable Loss.

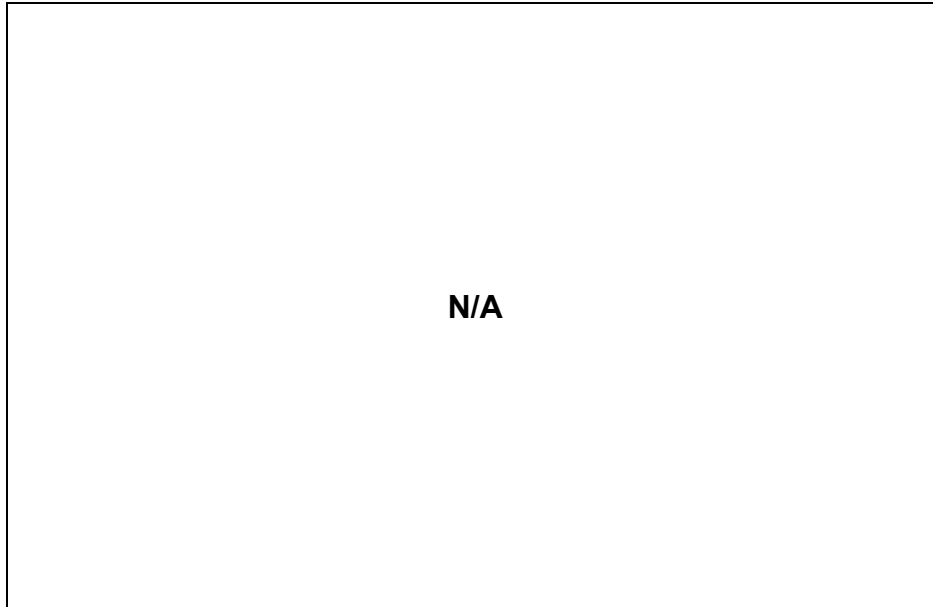
*** Margin=Each Frequency Limit Level(dBuV) - (Level+AF+CL)



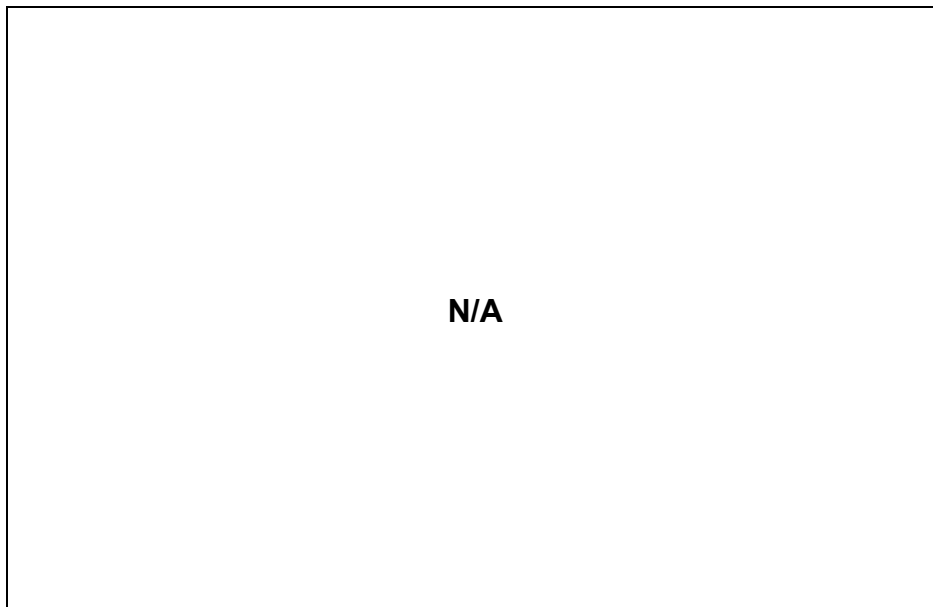
See – Ho, Lee / Test Engineer

3. Photographs of Test

- **Front View of Conducted Emission**



- **Rear View of Conducted Emission**



- **Front View of Radiated Emission**



- **Rear View of Radiated Emission**



4.Measured Emission Band

