Certification of Compliance

CFR 47 Part 15 Subpart B

Test Report File No.	04-IST-0249	**Date of Issue**	October 14, 2004
Model(s)	DVR-S04 (DAEWOO)		○ Basic ● Alternated
	DF-L71N (DAEWOO)		○ Basic ● Alternated

Kind of Product	DVD Recorder + VCR
Applicant	Daewoo Electronics Corporation.
	543, Dangjung-Dong, Kunpo-City, Kyounggi-DO, Korea
Manufacturer	Daewoo Electronics Corporation.
	295, Gondan-dong, Kumi-city, Kyungsangbuk-do, Korea.

Test Result ☒ **Positive** ☐ **Negative**

Reviewed By

J.H.LEE / EMC Group Manager

Approved By

G. Chung / Chief

- Investigations requested : Measurement to the relevant clauses of F.C.C rules and regulations Part 15 Subpart B – Unintentional Radiatiors
- The test report with appendix consists of 10 pages.
- The test result only responds to the tested sample.
- It is not allowed to copy this report even partly without the allowance of IST EMC Laboratory.
- This equipment as for has been shown to be capable of continued compliance with the applicable technical standards as indicated in the measurement report and was tested in accordance with the measurement procedures specified in ANSI C63.4 2001.

TABLE OF CONTENTS

Information of TUNERS

Manufacture	**Manufacture Name**
Korea ALPS	TMZH2-030A

Information of Loader

Manufacture	**Manufacture Name**
LITE-ON IT CORP.	DDW-451S

INFORMATIONS OF TEST LABORATORY

EMC LABORATORY of IST Co., Ltd. ***(FCC Filing Lab)***
San 21-8, Goan-Ri, Baekam-Myun, Yongin-City
Kyonggi-Do, 449-860, Korea
TEL : +82 31 333 4093 FAX : +82 31 333 4094

ENVIRONMENTAL CONDITIONS

Temperature	22 ℃
Humidity	49 %
Atmospheric pressure	1002 mbar

POWER SUPPLY SYSTEM USED

Power supply system	120Vac , 60Hz

PRODUCT INFORMATIONS

Power requirements	120Vac , 60Hz
Power consumption	34W
Operating conditions	41°F to 95°F(5°C to 35°C) , 5% to 90%(humidity)
Mass(approx.)	13.5lbs(6.18kg)
Dimensions(approx.)	16.9X3.54X14.0 inches(430X91X354mm) (wXhXd)
Signal system	NTSC
Antenna IN / RF OUT	Antenna or CATV input,75Ω / Channel 3 or 4 (Switchable)
Signal-to-noise ratio	43dB(VCR) , More than 95dB(DVD)
Head system	4 Head Video, 2 Head Hi-Fi helical scan azimuth system
Laser system	Semiconductor laser, wavelength 650mm
Inputs	Video/Audio(RCA jack)
Outputs	Video/Audio(RCA jack), S-video, component(RCA jack)

- EMC suppression device is not used during the test.
- Please refer to user's manual.

INFORMATIONS OF MODEL NAMES

Model Name	Model description	TCB Issued Date	Applied Loader	Applied Tuner
RV4000 SV294 DF-S04 VR2940 VR2945	Permissive Ⅱ Change (Loader change)	09/02/2004	LITE-ON	LG, Alps
DVR-S04 DF-L71N	Permissive Ⅱ Change (Front change)		LITE-ON	Alps

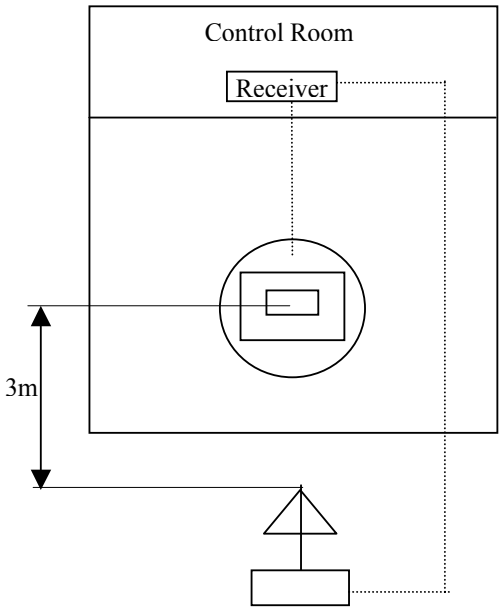
DESCRIPTION OF TEST

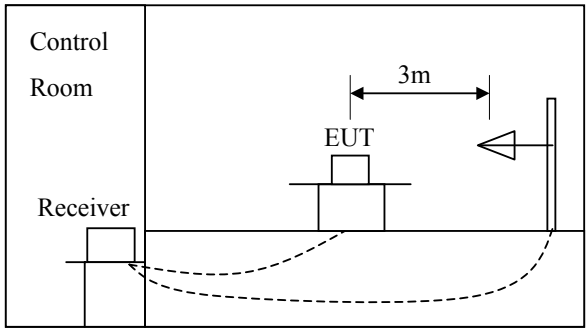
Radiated Emissions:

The measurement was performed over the frequency range of 30MHz to 1GHz using antenna as the input transducer to a Spectrum analyzer or a Field Intensity Meter. The measurement was made with the detector set for "quasi-peak" within a bandwidth of 120KHz.

- Procedure of Test

Preliminary measurements were made at 3 meter using bi-conical and log-periodic antennas, and spectrum analyzer to determine the frequency producing the max. emission in anechoic chamber. Appropriate precaution was taken to ensure that all emission from the EUT were maximized and investigated. The system configuration, mode of operation, turn table azimuth and height with respect to the antenna were noted for each frequency found. The spectrum was scanned from 40MHz to 300MHz using S/B bi-conical antenna and 300 to 1000MHz using S/B log-periodic antenna. Above 1GHz, linearly polarized double ridge horn antennas were used. Final measurements were made at open site with 3-meters test distance using S/B bi-log antenna or horn antenna. The OATS have been verified in regular for its normalized site attenuations. The test equipment was placed on a wooden table. Sufficient time for the EUT, peripheral equipment, and test equipment was allowed in order for them to warm up to their normal operating condition. Each frequency found during pre-scan measurements was re-examined by manual. The detector function was set to CISPR quasi-peak mode and the bandwidth of the receiver was set to 120kHz or 1MHz depending on the frequency of type of signal. The EUT, peripheral equipment and interconnecting cables were re-configured to the set-up producing the max. emission for the frequency and were placed on top of a 0.8-meter high nonmetallic 1 x 1.5 meter table. The EUT, peripheral equipment, and interconnecting cables were re-arranged and manipulated to maximize each emission. The turntable containing the system was rotated; the antenna height was varied 1 to 4 meters and stopped at the azimuth or height producing the maximum emission. Each emission was maximized by: varying the mode of operation to the EUT and/or peripheral equipment and changing the polarity of the antenna, whichever determined the worst-case emission.





SUMMARY

☐ Conducted Emission

The requirements are	○ MET	○ Not MET
Minimum limit margin		
Maximum limit exceeding		

Remarks :

■ Radiated Emission

The requirements are	● MET	○ Not MET
Minimum limit margin	3.1 dB at 300.0 MHz	
Maximum limit exceeding		

Remarks : At RF Receiving + DVD REC mode.

☐ Output Signal Level Measurements

The requirements are	○ MET	○ Not MET
Minimum limit margin		
Maximum limit exceeding		

Remarks :

☐ Output Terminal Conducted Spurious Emission

The requirements are	○ MET	○ Not MET
Minimum limit margin		
Maximum limit exceeding		

Remarks :

☐ Transfer Switch Isolation Measurements

The requirements are	○ MET	○ Not MET
Minimum limit margin		
Maximum limit exceeding		

Remarks :

Note :

Prepared By

I.Y.Lee / EMC Engineer

- ■ means the test is applicable, ☐ is not applicable.

TEST CONDITIONS AND DATA

Radiated Emissions

[Applicable]

◆ Test Equipment Used

The test equipment used is calibrated in regular for every year.

Model Name	Manufacturer	Descriptions
ESVP	Rohde & Schwarz	Test Receiver
VULB9160	Schwarzbeck	Antenna
EZM	Rohde & Schwarz	Spectrum Monitor
PM5418	FLUKE	Pattern Generator

◆ Auxiliary Equipment Used

Model Name	Manufacturer	Descriptions
14C5T BLU	Daewoo Electronics.	Color TV Receiver

◆ Accessories including cables

Name	Length	Port and Descriptions
RCA	1.5m	Audio/Video Out

◆ Environmental Conditions

Temperature	21℃
Humidity	50 %
Atmosphere pressure	1014mbar

◆ Test Program DVD Playback + VCR REC, VCR Playback + DVD REC, RF Receiving + VCR REC, RF Receiving + DVD REC

◆ Test Area Open Area Test Site #2

Note :

Radiated Emissions

(Disturbance Radiation)

[Applicable]

System	CH	Freq. (MHz)	Pol. (H/V)	Limits (dBuV/m)	Result (dBuV/m)	Margin (dB)
DVD Playback		159.8	H	43.5	30.5	13.0
+		258.1	H	46.0	32.1	13.9
VCR record		294.9	H	46.0	35.6	10.4
		300.0	H	46.0	37.9	8.1
		594.2	H	46.0	37.7	8.3
VCR Playback		159.8	H	43.5	30.8	12.7
+		258.1	H	46.0	31.9	14.1
DVD record		294.9	V	46.0	31.9	14.1
		300.0	H	46.0	35.9	10.1
		474.5	V	46.0	33.7	12.3
		594.5	H	46.0	37.8	8.2
		745.7	V	46.0	37.6	8.4
RF Receiving		159.8	V	43.5	30.5	13.0
+		258.1	V	46.0	32.2	13.8
VCR record		294.9	H	46.0	35.7	10.3
		300.0	H	46.0	38.5	7.5
		474.5	V	46.0	35.6	10.4
		575.2	V	46.0	35.4	10.6
		745.5	V	46.0	40.4	5.6
RF Receiving		159.8	V	43.5	32.1	11.4
+		258.0	V	46.0	32.1	13.9
DVD record		294.9	H	46.0	35.4	10.6
		300.0	H	46.0	42.9	3.1
		474.6	V	46.0	35.4	10.6
		594.5	H	46.0	38.3	7.7

Note :

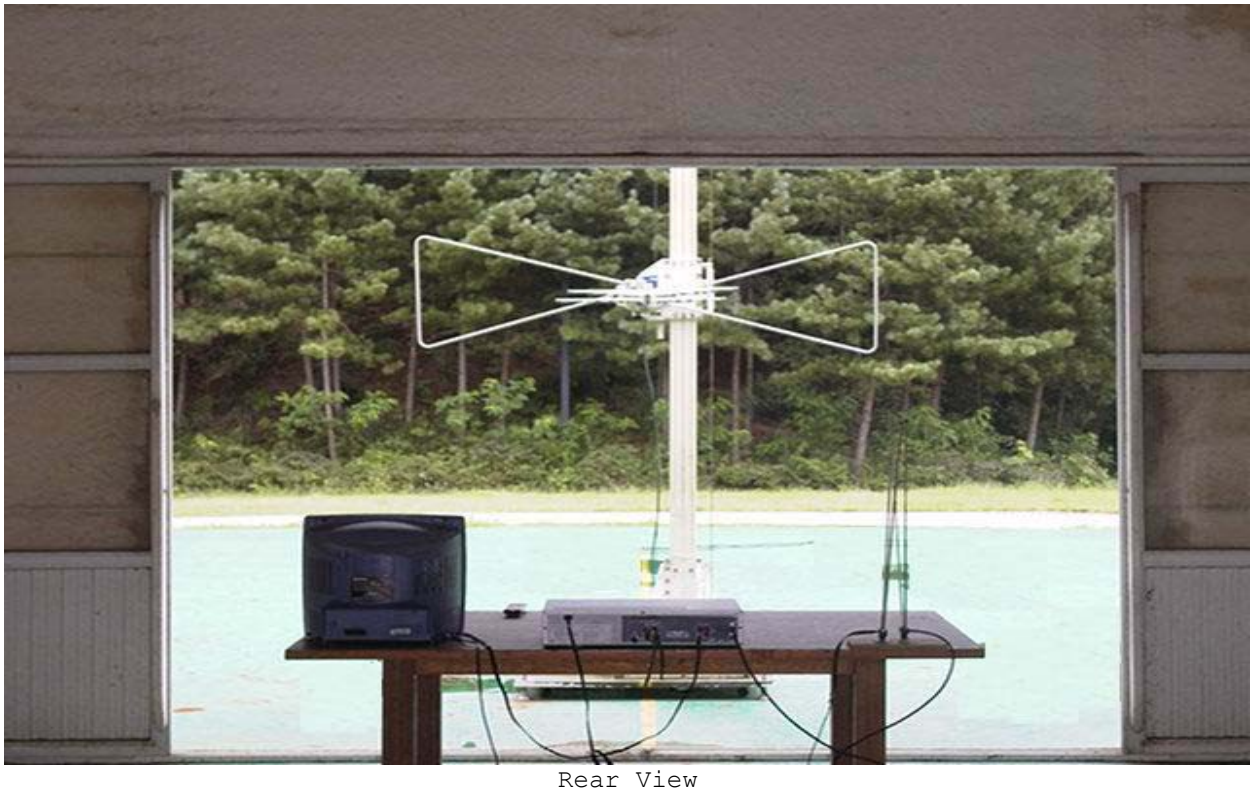
The DUT photos

Front View

Rear View

Test Setup Photos – Radiated Emissions

Front View



Rear View