

# ELECTROMAGNETIC EMISSION COMPLIANCE REPORT FOR FCC CLASS II PERMISSIVE CHANGE

**Test Report No.** : E06NR-017  
**AGR No.** : A06OA-068  
**Applicant** : KI RYUNG ELECTRONICS CO., LTD.  
**Address** : 219-6, Gasan-Dong, Kumchun-Ku, Seoul, 153-023, Korea  
**Manufacturer** : KI RYUNG ELECTRONICS CO., LTD.  
**Address** : 219-6, Gasan-Dong, Kumchun-Ku, Seoul, 153-023, Korea  
**Type of Equipment** : Home CD Player  
**FCC ID** : P3HCDP-NW10  
**Model Name** : CDP-NW10  
**Serial number** : N/A  
**Total page of Report** : 16 pages (including this page)  
**Date of Incoming** : September 15, 2006  
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## SUMMARY

The equipment complies with the requirements of **FCC CFR 47 PART 15 SUBPART B, Class B**.

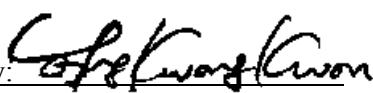
This test report contains only the results of a single test of the sample supplied for the examination. It is not a general valid assessment of the features of the respective products of the mass-production.

Prepared by:



Young-Min, Choi / Senior Engineer  
EMC Div.  
ONETECH Corp.

Reviewed by:

  
Y. K. Kwon / Director  
EMC Div.  
ONETECH Corp.

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## 1. VERIFICATION OF COMPLIANCE

-. APPLICANT : KI RYUNG ELECTRONICS CO., LTD.  
 -. ADDRESS : 219-6, Gasan-Dong, Kumchun-Ku, Seoul, 153-023, Korea  
 -. CONTACT PERSON : Mr. Won-Kyu, Choi / Q.C. Staff  
 -. TELEPHONE NO : +82-2-3282-2261  
 -. FCC ID : P3HCDP-NW10  
 -. MODEL NO/NAME : CDP-NW10  
 -. SERIAL NUMBER : N/A  
 -. DATE : November 08, 2006

EQUIPMENT CLASS	JBP - Peripheral Device for Class B Computing Device
E.U.T. DESCRIPTION	Home CD Player - Unintentional Radiator
THIS REPORT CONCERNS	CLASS II PERMISSIVE CHANGE
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 KI RYUNG ELECTRONICS CO., LTD., Model CDP-NW10 (referred to as the EUT in this report) is a Home CD Player that has a FM Broadcast Receiver and Peripheral Device for Class B Computing Device functions. Product specification described herein was obtained from product data sheet or user's manual.

CHASSIS TYPE	Plastic & Metal
LIST OF EACH OSC. or CRY. FREQ.(FREQ.>=1MHz)	11.2896 MHz, 7.3728 MHz, 13.5 MHz, 14.7456 MHz, 25 MHz and 16.9344 MHz
POWER REQUIREMENT	AC 120V, 60Hz, 3.6A
NUMBER OF LAYERS	Main Board : 6 Layers Other Board : 2 Layers
EXTERNAL CONNECTOR	Antenna(AM/FM), Line In, IR Remote, Speakers, DC In(12V, 29V), LAN(Ethernet)

### 2.2 Model Differences

- None

### 2.3 Related Submittal(s) / Grant(s)

- Class II Permissive Change

### 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
CDP-NW10	KI RYUNG ELECTRONICS CO., LTD.	P3HCDP-NW10	Home CD Player (EUT)	-
PP01L	Dell Computer Corp.	DoC	Notebook PC	EUT
2225C	HP	DSI6XU2225	Printer	Notebook PC
3453C	U.S. ROBOTICS, INC	CJE-0263	Modem	Notebook PC
LYNX2DT	N/A	N/A	Mouse	Notebook PC
N/A	N/A	N/A	Speaker Road	EUT
N/A	N/A	N/A	Resistance Road	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 the 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)

### 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	IWU-MAIN REV.4	N/A
Servo Board	N/A	JT-8040CDK Rev.D	N/A
AMP Board	N/A	SONY-CD AMP REV.4	N/A
AC Power Unit Board	N/A	ORTP-970-REV.0.1	N/A
AC Power Unit Sub Board	N/A	N/A	N/A
Tuner Board	N/A	N/A	N/A

#### 3.2 EUT exercise Software

- The video/audio files of the notebook PC were played through the EUT during the test.
- The EUT was operated with DVD playing mode during the test.

#### 3.3 Cable Description for the EUT

Ports Name	Shielded	Ferrite Bead	Metal Hood	Length (m)	Connected to
Antenna In	N	N	EUT END	2.5(FM)	-
				5.0(AM)	
Line In	N	N	EUT END	1.2	Terminator Resistor (50 ohm)
IR Remote	N	N	EUT END	-	-
Speaker	N	N	Speaker END	1.5	Speaker Road
DC In	N	EUT END	EUT END	1.2	Power
LAN	N	N	EUT END	1.2	Notebook PC

### 3.4 Equipment Modifications

To achieve compliance to CLASS B levels, the following change(s) was made by ONETECH Corp. during compliance testing:

“There were no Modified items during EMI test”

### 3.5 Configuration of Test System

**Line Conducted Test** : The EUT was connected to the power supply and power supply 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)
The audio/video files of the notebook PC were played through the EUT during the test	X
DVD Playing Mode	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)
The audio/video files of the notebook PC were played through the EUT during the test	X
DVD Playing Mode	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

#### 5.1.1 Operating Condition: PC Mode

Humidity Level	: <u>50 %</u>	Temperature: <u>21 °C</u>
Limits apply to	: <u>FCC CFR 47, PART 15, SUBPART B, SECTION 15.107 (a)</u>	
Type of Test	: <u>CLASS B</u>	
Result	: <u>PASSED BY -2.48 dB at 0.55 MHz under average mode</u>	

EUT	: Home CD Player	Date: September 28, 2006
Operating Condition	: The audio/video files of the notebook PC were played through the EUT during the test.	
Detector	: CISPR Quasi-Peak (6 dB Bandwidth: 9 kHz)	

Frequency (MHz)	Line	Peak (dBuV)		Margin (dB)
		Emission level	Q.P Limits	
0.30	H	45.82	60.38	-14.56
0.55	H	50.18	56.00	-5.82
1.04	N	41.96	56.00	-14.04
1.70	H	44.40	56.00	-11.60
1.75	N	42.33	56.00	-13.67
2.61	H	42.04	56.00	-13.96
Frequency (MHz)	Line	Average (dBuV)		Margin (dB)
		Emission level	Limits	
0.30	H	37.96	50.38	-12.42
0.55	H	43.52	46.00	-2.48
1.04	N	35.10	46.00	-10.90
1.70	H	32.89	46.00	-13.11

Line Conducted Emission Tabulated Data

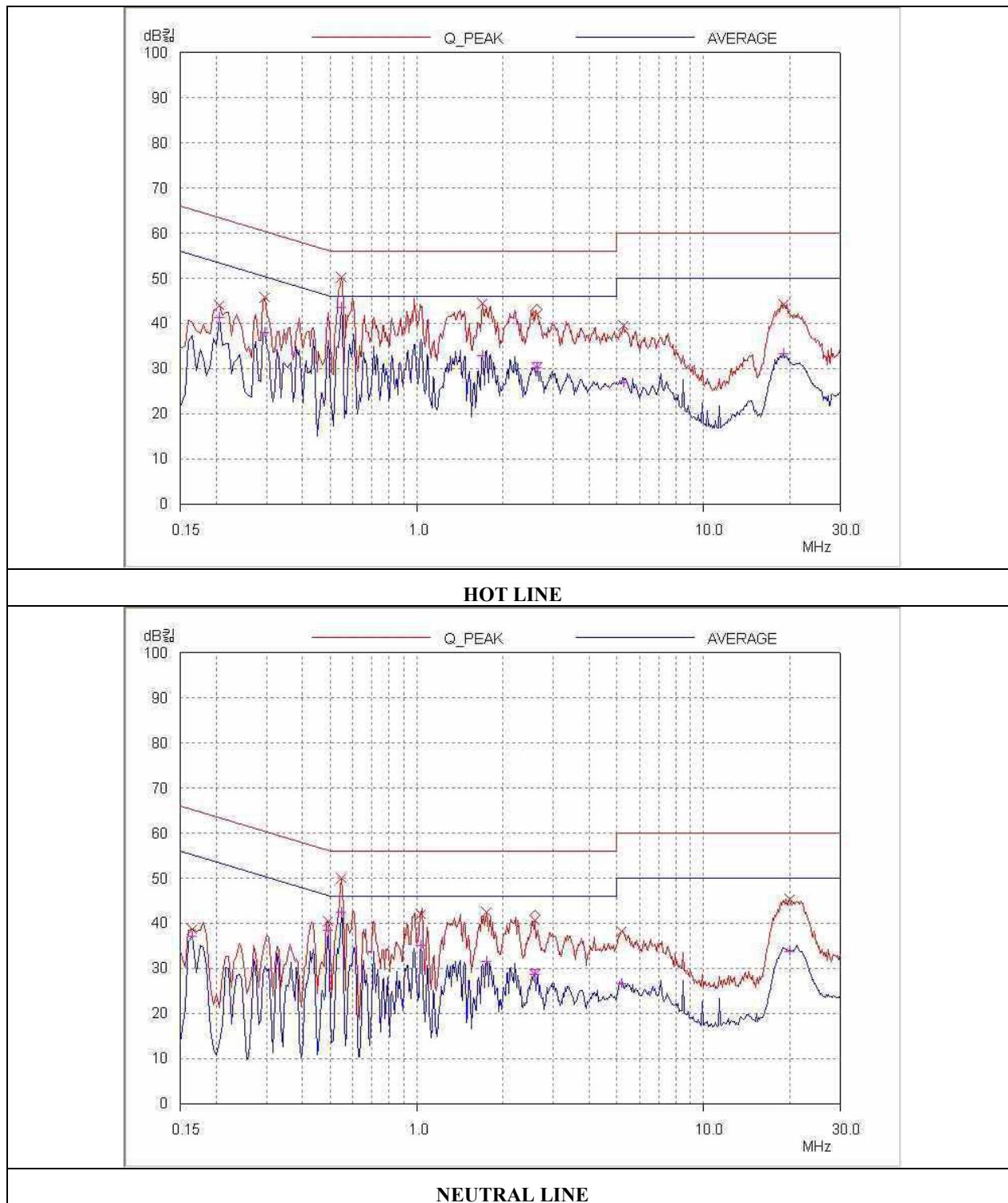
Remark : "H": Hot Line, "N": Neutral line

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

Both one of channel and all of channel modes were tested, but there was no difference between two modes, so the worst emission levels at each mode were recorded in the above table.



Tested by: Sue-Yong, Lee / Test Engineer



**5.1.2 Operating Condition: Play Mode**

Humidity Level : 50 % Temperature: 21 °C  
 Limits apply to : FCC CFR 47, PART 15, SUBPART B, SECTION 15.107 (a)  
 Type of Test : CLASS B  
 Result : PASSED BY -5.02 dB at 0.55 MHz under average mode

EUT : Home CD Player Date: September 28, 2006  
 Operating Condition : The EUT was operated with DVD playing mode during the test.  
 Detector : CISPR Quasi-Peak (6 dB Bandwidth: 9 kHz)

Frequency (MHz)	Line	Peak (dBuV)		Margin (dB)
		Emission level	Q.P Limits	
0.55	H	47.36	56.00	-8.64
0.97	N	43.38	56.00	-12.62
1.34	H	44.34	56.00	-11.66
1.45	N	42.28	56.00	-13.72
1.75	N	43.45	56.00	-12.55
2.06	H	43.63	56.00	-12.37
Frequency (MHz)	Line	Average (dBuV)		Margin (dB)
		Emission level	Limits	
0.55	H	40.98	46.00	-5.02
0.97	N	33.69	46.00	-12.31
1.34	H	34.00	46.00	-12.00
1.45	N	31.89	46.00	-14.11

## Line Conducted Emissions Tabulated Data

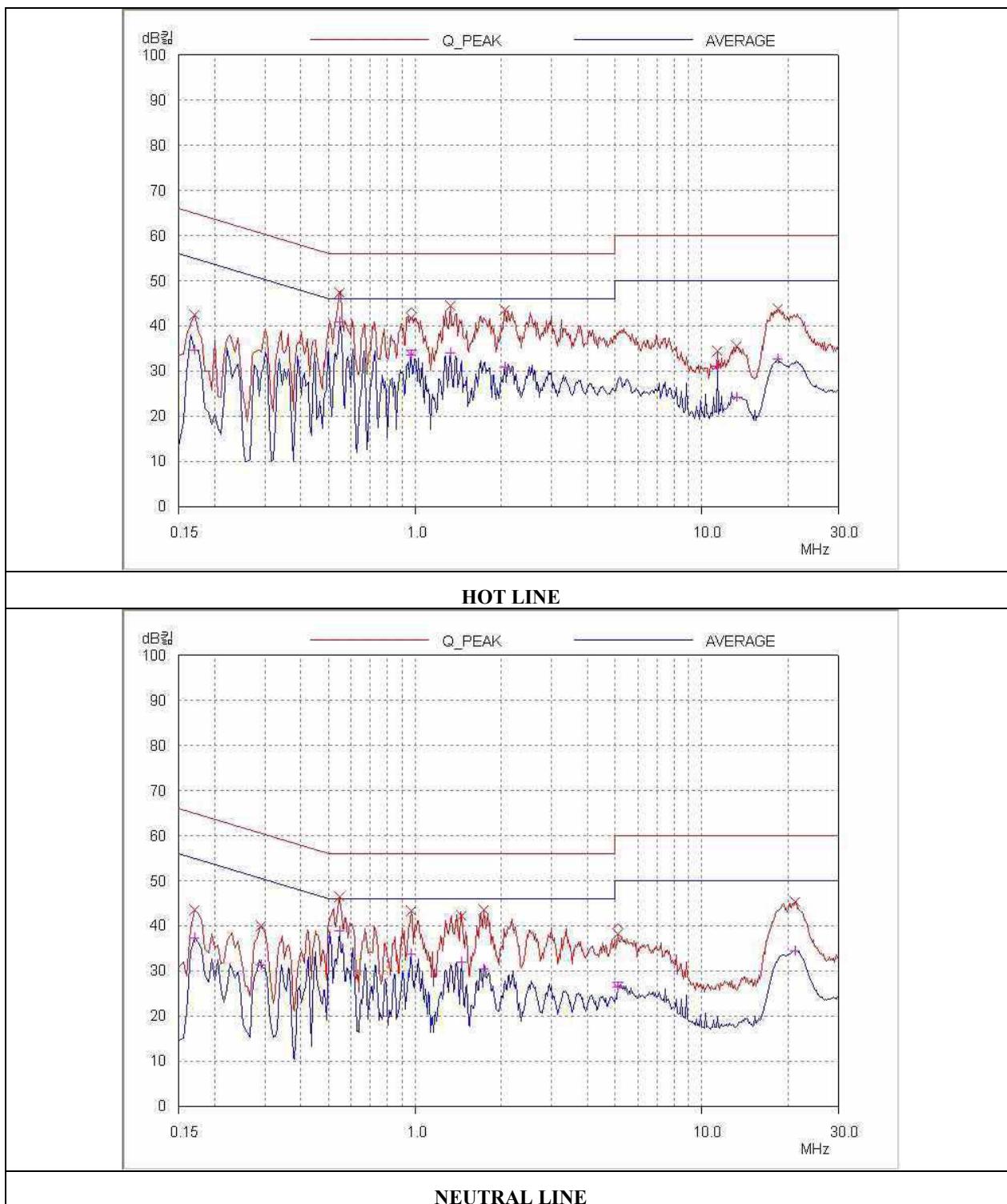
Remark: "H": Hot Line, "N": Neutral line.

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

Both one of channel and all of channel modes were tested, but there was no difference between two modes, so the worst emission levels at each mode were recorded in the above table.



Tested by: Sue-Yong, Lee / Test Engineer



## 5.2 Radiated Emission Test

### 5.2.1 Operating Condition: PC Mode

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

Humidity Level	: <u>51 %</u>	Temperature: <u>21 °C</u>
Limits apply to	: <u>FCC CFR 47, PART 15, SUBPART B, SECTION 15.109 (a)</u>	
Type of Test	: <u>CLASS B</u>	
Result	: <u>PASSED BY -7.94 dB at 124.20 MHz</u>	

EUT	: Home CD Player	Date: September 29, 2006
Operating Condition	: The music files of the notebook PC were played through the EUT during the test.	
Detector	: CISPR Quasi-Peak (6 dB Bandwidth: 120 kHz)	
Frequency Range	: 30 MHz – 1000 MHz	
Distance	: 3 Meter	

Radiated Emissions		Ant	Correction Factors		Total	FCC CLASS B	
Freq. (MHz)	Amp. (dBuV)		Ant. (dBuV/m)	Cable (dB)		Amp. (dBuV/m)	Limit (dBuV/m)
53.80	11.10	V	9.71	1.42	22.23	40.00	-17.77
60.66	14.00	V	7.23	1.41	22.64	40.00	-17.36
124.20	20.50	V	13.00	2.08	35.58	43.52	-7.94
133.40	15.20	V	13.73	2.27	31.20	43.52	-12.32
251.30	10.60	H	17.14	3.41	31.15	46.02	-14.87
360.60	17.60	H	16.18	4.24	38.02	46.02	-8.00
374.90	15.10	H	16.36	4.30	35.76	46.02	-10.26

Radiated Emissions Tabulated Data



Tested by: Sue-Yong, Lee / Test Engineer

### 5.2.2 Operating Condition: Play Mode

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

Humidity Level	: <u>51 %</u>	Temperature: <u>21 °C</u>
Limits apply to	: <u>FCC CFR 47, PART 15, SUBPART B, SECTION 15.109 (a)</u>	
Type of Test	: <u>CLASS B</u>	
Result	: <u>PASSED BY -8.48 dB at 361.28 MHz</u>	

EUT	: Home CD Player	Date: September 29, 2006
Operating Condition	: The EUT was operated with DVD playing mode during the test.	
Detector	: CISPR Quasi-Peak (6 dB Bandwidth: 120 kHz)	
Frequency Range	: 30 MHz – 1000 MHz	
Distance	: 3 Meter	

Radiated Emissions		Ant	Correction Factors		Total	FCC CLASS B	
Freq. (MHz)	Amp. (dBuV)		Ant.	Cable (dB)		Amp. (dBuV/m)	Limit (dBuV/m)
53.20	10.31	V	9.93	1.44	21.68	40.00	-18.32
61.88	15.34	V	7.02	1.44	23.80	40.00	-16.20
132.74	15.80	V	13.67	2.25	31.72	43.52	-11.80
250.00	9.30	H	17.12	3.40	29.82	46.02	-16.20
361.28	17.10	H	16.19	4.25	37.54	46.02	-8.48
375.04	11.80	H	16.37	4.30	32.47	46.02	-13.55

Radiated Emissions Tabulated Data



Tested by: Sue-Yong, Lee / Test Engineer

**5.2.3 Operating Condition: FM Mode**

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

Humidity Level : \_\_\_\_\_ 48 %  
 Temperature : 18°C  
 Limits apply to : FCC CFR 47, PART 15, SUBPART B, SECTION 15.109 (a) ICES-003 Section 5  
 Type of Test : CLASS B

EUT : Home CD Player Date: October 12, 2006  
 Frequency Range : 30 MHz – 1000 MHz  
 Detector : CISPR Quasi-Peak (6 dB Bandwidth: 120 kHz)  
 Distance : 3 Meter  
 Operating Condition : FM mode

Radiated Emissions			Ant	Correction Factors		Total	FCC Limit	
Freq. to which tuned(MHz)	OSC. Freq (MHz)	Ampl. (dBuV)	Pol.	Ant. (dBuV)	Cable (dB)	Ampl (dBuV/m)	Limit (dBuV/m)	Margin (dB)
76 – 88	98.2	-	-	-	-	-	43.52	-
88 – 98	108.4	-	-	-	-	-	43.52	-
98 – 108	118.7	-	-	-	-	-	43.52	-

(Harmonics RF Radiation)

Radiated Emissions				Ant	Correction Factors		Total	FCC Limit	
Freq. to which tuned(MHz)	Ham.	Freq. (MHz)	Ampl. (dBuV)	Pol.	Ant. (dBuV)	Cable (dB)	Ampl (dBuV/m)	Limit (dBuV/m)	Margin (dB)
76 – 88	5	589.2	13.60	V	19.96	5.74	39.30	46.02	-6.72
88 – 98	6	650.40	13.35	V	21.32	6.10	40.77	46.02	-5.25
98 – 108	5	593.50	14.32	V	20.00	5.76	40.08	46.02	-5.94

\* Less than 20dBuV/m



Tested by: Sue-Yong, 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/06	12MONTH	■
3.	Spectrum analyzer	HP	8566B	3407A08547	JUN/06	12MONTH	
		R/S	FSP	100017	JUN/06		■
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	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	■
11.	RF Amplifier	HP	8447D	2727A04987	JUN/06	12MONTH	■