

**EMC TEST REPORT For FCC**

Test Report No. : CTK02-F023

Date of Issue : February 5, 2002

Model/Type No: : IW-PD01

Kind of Product : Audio / Video Digital Recording System

Applicant : Infraworks Co., Ltd.

Applicant Address : #805, 17-3 Yido-Dong Youngdeung po-gu Seoul, 150-874  
Korea

Manufacturer : Infraworks Co., Ltd.

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Korea

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Received Date : February 1, 2002

Test period : Start: Feb 1, 2002 End: Feb. 4, 2002

Test Results :  **In Compliance**  **Not in Compliance**

The test results presented in this report relate only to the object tested.

CERTiTEK Standards Laboratory Co., Ltd. is accredited by Korea Laboratory Accreditation Scheme (KOLAS) which signed the International Laboratory Accreditation Cooperation (ILAC) Mutual Recognition Arrangement (MRA) for the above test item(s) and test method(s).

*Tested by*

Michael Jang  
EMC Test Engineer  
Date: February 5, 2002

*Reviewed by*

James Hong  
EMC Technical Manager  
Date: February 5, 2002



## REPORT REVISION HISTORY

Date	Revision	Page No
Feb. 5, 2002	(CTK02-F023) Issued	All

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## 1.0 General Product Description

The product is a "Digital Multimedia Converter System" that enables you to convert analog signals to digital signals from such devices as video player, camcorder, and TV.

### 1.0.1 Tested Equipment

Unless otherwise indicated, all tests were conducted on Model IW-PD01.

Tests performed on Model \_\_\_\_\_ were considered to be representative of Model(s) \_\_\_\_\_.

### 1.0.2 Equipment Size, Mobility and Identification

Dimensions: 8.5 by 6.5 by 2.5  cm  in  
Mobility:  Hand-Held  Table-top  Floor-standing  
Serial No.: -

### 1.0.3 Electrical Ratings

Input: Supplied by the desktop PC.  
Output: Not applicable

### 1.0.4 Test Voltage & Frequency

Unless indicated otherwise on the individual data sheet or test results, the test voltage and frequency was as indicated below.

Voltage: Not applicable  
Frequency: Not applicable

### 1.0.5 Clock & Other Frequencies Utilized

14.31818 MHz, 24.576 MHz

## 1.1 Model Differences

Not applicable

## 1.2 Device Modifications

The following modifications were necessary for compliance:

Not applicable



## 1.3 EUT Configuration(s)

See Appendix A for individual test set-up configuration(s). The following peripheral devices and/or interface cables were connected during the measurement:

Peripheral Devices

Device	Manufacturer	Model No.	Serial No.	FCC ID or DoC
PC	Hewlett Packard	DTPC-17	SG01501776	DOC
Monitor	SamSung	PG17HS	P013H1DN301661	DOC
DVD	SamSung	DVD-709	61KN400749	DOC
MOUSE (Serial type)	Microsoft	BASM1	4475951-20000	DOC
MOUSE (USB type)	PANWEST	Cyber Beetle	PM1F154000055	DOC
KEYBOARD	World Com Mart	KB120	-	D840902 MIC

Cable Description

#	Description	Ferrited	Length (m)	Other Details
1	PC Power cable, Unshielded	No	1.8	Connect to AC Power
2	Monitor Power cable, Unshielded	No	1.8	Connect to AC Power
3	DVD Player Power cable, Unshielded	No	1.8	Connect to AC Power
4	Monitor cable, Shielded	Yes	1.8	Connect to PC
5	USB cable, Shielded	Yes	1.8	Between PC USB port and EUT
6	Audio Out cable, Unshielded	No	1.0	Between PC Line-In port and EUT
7	Video in / Audio in(L) / Audio in(R) cables, Unshielded	No	1.5	Between DVD output ports and EUT
8	Keyboard cable, Shielded	No	2.0	PS/2 Type
9	Mouse cable, Shielded	No	2.0	USB Type
10	Mouse cable, Shielded	No	2.0	Serial Type

n/a = not available

## 1.4 Test Software

Pinging  
 Name / Manufacturer / Serial No.  
 Pideo / Infraworks / 130e201-4ce7130d

## 1.5 EUT Operating Mode(s)

Equipment under test was operated during the measurement under the following conditions:

Test program (H-Pattern)  Test program (color bar)  
 Standby  Test program (customer specific)  
 Practice operation - A/V signal of DVD recording to PC through EUT.



## 1.6 Calibration Details of Equipment Used for Measurement

Test equipment and test accessories are calibrated on regular basis. The maximum time between calibrations is one year or what is recommended by the manufacturer, whichever is less. All test equipment calibrations are traceable to the Korea Research Institute of Standards and Science (KRISS), therefore, all test data recorded in this report is traceable to KRISS.

## 1.7 Test Facility

The measurement facility is located at 386-1, Ho-Dong, Yongin-City, Kyungki-Do, Korea 449-100. The sites are constructed in conformance with the requirements of ANSI C63.7, ANSI C63.4 and CISPR Publication 22.

## 1.8 Measurement Procedure

Preliminary AC power line conducted emissions tests were performed shielded room. To find worst mode, several typical mode and typical cable position were tested.

Final AC power line conducted emissions test was performed shielded room. (location is same as Preliminary test)

Based on the preliminary tests of the EUT, final test was proceeded worst case test mode and cable configuration.

Preliminary radiated emissions test were performed anechoic chamber (Distance of antenna and EUT was 3 m). To find worst mode, several typical mode and typical cable position were tested and peak level and frequency were recorded.

Final radiated emissions test was performed Open Area Test Site. Based on the preliminary tests of the EUT, final test was proceeded worst case test mode and cable configuration.

\* Measurement procedures was In accordance with ANSI C63.4-1992 7.2.3, 7.2.4, 8.3.1.1, 8.3.1.2



## 1.9 Laboratory Accreditations and Listings

Country	Agency	Scope of Accreditation	Logo
USA	FCC	3 and 10 meter Open Area Test Sites to perform FCC Part 15/18 measurements.	 93250
JAPAN	VCCI	10 meter Open Area Test Site and one conducted site.	 R-948, C-986
KOREA	MIC	EMI (CE, RE) EMS (ESD, Burst, RS, Surge, CS, Power-Frequency Susceptibility, Voltage Dips and Short Interruptions)	 No. 51, KR0025
International	KOLAS	EMC	



## 2.0 Emissions Test Regulations

The emissions tests were performed according to following regulations:

<input type="checkbox"/> EN 50081-1 /1992		
<input type="checkbox"/> EN 55011 /1998	<input type="checkbox"/> Group 1 <input type="checkbox"/> Class A	<input type="checkbox"/> Group 2 <input type="checkbox"/> Class B
<input type="checkbox"/> EN 55013 /A12:1994		
<input type="checkbox"/> EN 55014 /1987	<input type="checkbox"/> Household appliances and similar <input type="checkbox"/> Portable tools <input type="checkbox"/> Semiconductor devices	
<input type="checkbox"/> EN 55014 /A2:1990		
<input type="checkbox"/> EN 55014 /1993	<input type="checkbox"/> Household appliances and similar <input type="checkbox"/> Portable tools <input type="checkbox"/> Semiconductor devices	
<input type="checkbox"/> EN 55015 /1987 <input type="checkbox"/> EN 55015 /A1:1990 <input type="checkbox"/> EN 55015 /1993		
<input type="checkbox"/> EN 55022 /A1:1995	<input type="checkbox"/> Class A	<input type="checkbox"/> Class B
<input type="checkbox"/> EN 55022 /1998	<input type="checkbox"/> Class A	<input type="checkbox"/> Class B
<input type="checkbox"/> EN 61000-3-2 /1995 (EN 60555 Part 2 /4.87) <input type="checkbox"/> EN 61000-3-3 /1995 (EN 60555 Part 3 /4.87)		
<input type="checkbox"/> BS		
<input type="checkbox"/> VCCI V-3/99.05 : 1999	<input type="checkbox"/> Class A	<input type="checkbox"/> Class B
<input checked="" type="checkbox"/> FCC Part 15 SUBPART B	<input type="checkbox"/> Class A	<input checked="" type="checkbox"/> Class B
<input type="checkbox"/> AS 3548 (1992)	<input type="checkbox"/> Class A	<input type="checkbox"/> Class B
<input type="checkbox"/> CISPR 11 (1990)	<input type="checkbox"/> Group 1 <input type="checkbox"/> Class A	<input type="checkbox"/> Group 2 <input type="checkbox"/> Class B
<input checked="" type="checkbox"/> CISPR 22 (1993)	<input type="checkbox"/> Class A	<input checked="" type="checkbox"/> Class B



## 2.1 Conducted Voltage Emissions

**Test Date**

February 2, 2002

**Test Location**

EMI-CE: Shielded Room

**Test Instruments**

<input checked="" type="checkbox"/> Field Strength Meter	Rohde Schwarz	ESHS30	828144/002
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**Test Accessories**

<input type="checkbox"/> LISN	EMCO	3825/2	9206-1971
<input checked="" type="checkbox"/> LISN	EMCO	3825/2	9409-2246
<input checked="" type="checkbox"/> LISN	EMCO	3825/2	9607-2574
<input checked="" type="checkbox"/> Control PC	HP	Vectra 500	SG72000192

**Frequency Range of Measurement**

<input checked="" type="checkbox"/> 150 kHz to 30 MHz
<input type="checkbox"/> 450 kHz to 30 MHz
<input type="checkbox"/> _____

**Instrument Settings**

IF Band Width: 9 kHz

**Test Results**

The requirements are:

<input checked="" type="checkbox"/> MET	minimum margin is 8.5 dB $\mu$ V at 2.71 MHz
<input type="checkbox"/> NOT MET	limit exceeded by maximum of _____ dB $\mu$ V at _____ MHz
<input type="checkbox"/> NOT APPLICABLE	

**Remarks**See Appendix A for test data.



## 2.2 Radiated Electric Field Emissions

**Test Date**

February 1, 2002

**Test Location**

EMI-OATS: Testing was performed at a test distance of 10 m  
 EMI-OATS: Testing was performed at a test distance of 3 m

**Test Instruments**

Field Strength Meter      Rohde Schwarz      ESVS30      826638/008

**Test Accessories**

<input checked="" type="checkbox"/> ULTRA Broadband Antenna	R & S	HL562	361324/014
<input type="checkbox"/> Biconical Antenna	Schwarzbeck	BBA9106	41-00201
<input type="checkbox"/> Biconical Antenna	EMCO	3110B	9607-2564
<input type="checkbox"/> Log-periodic Antenna	EMCO	3146	9607-4567

**Frequency Range of Measurement**

30 MHz to 1 GHz

**Instrument Settings**

IF Band Width: 120 KHz

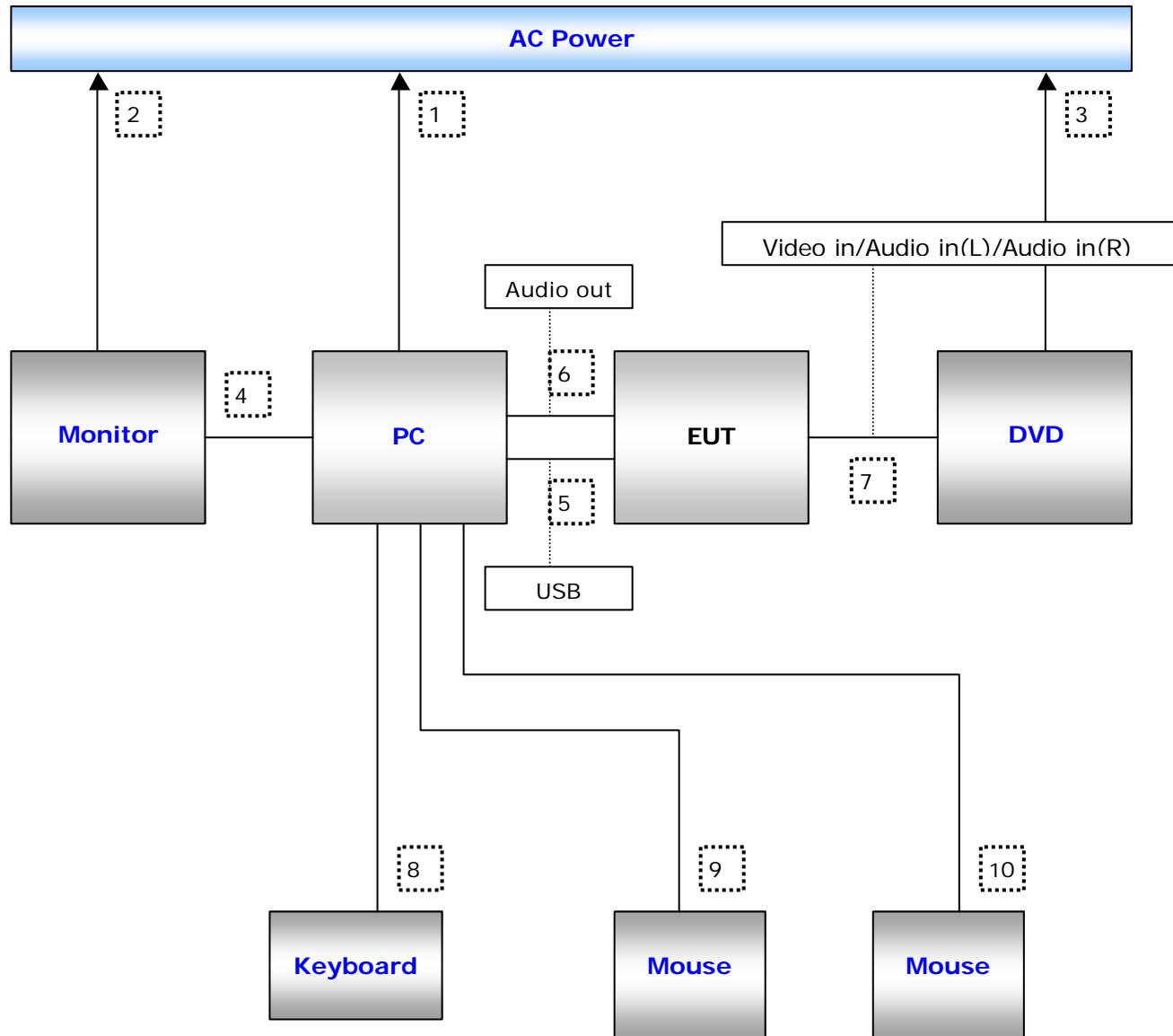
**Test Results**

The requirements are:

MET      minimum margin is 3.15 dB ( $\mu$ V/m) at 135.30 MHz  
 NOT MET      limit exceeded by maximum of \_\_\_\_\_ dB( $\mu$ V/m) at \_\_\_\_\_ MHz  
 NOT APPLICABLE

**Remarks**See Appendix A for test data

## Configuration





## APPENDIX A - TEST DATA

### Conducted Voltage Emissions (Quasi-Peak reading)

Frequency [MHz]	Correction Factor		Line	Quasi-peak				Average			
	LISN	Cable		Limit [dBuV]	Reading [dBuV]	Result [dBuV]	Margin [dB]	Limit [dBuV]	Reading [dBuV]	Result [dBuV]	Margin [dB]
0.21	2.3	0.1	N	63.2	50.0	52.4	10.8	53.2	40.2	42.6	10.6
2.50	0.3	0.1	H	56.0	42.4	42.8	13.2	46.0	35.5	35.9	10.1
2.71	0.3	0.1	H	56.0	43.1	43.5	12.5	46.0	37.1	37.5	8.5
12.00	0.3	0.3	N	60.0	47.0	47.6	12.4	50.0	40.1	40.7	9.3
14.40	0.4	0.2	N	60.0	44.3	44.9	15.1	50.0	18.4	19.0	31.0
15.15	0.4	0.2	H	60.0	45.1	45.7	14.3	50.0	20.1	20.7	29.3
20.80	0.6	0.4	H	60.0	42.8	43.8	16.2	50.0	13.5	14.5	35.5

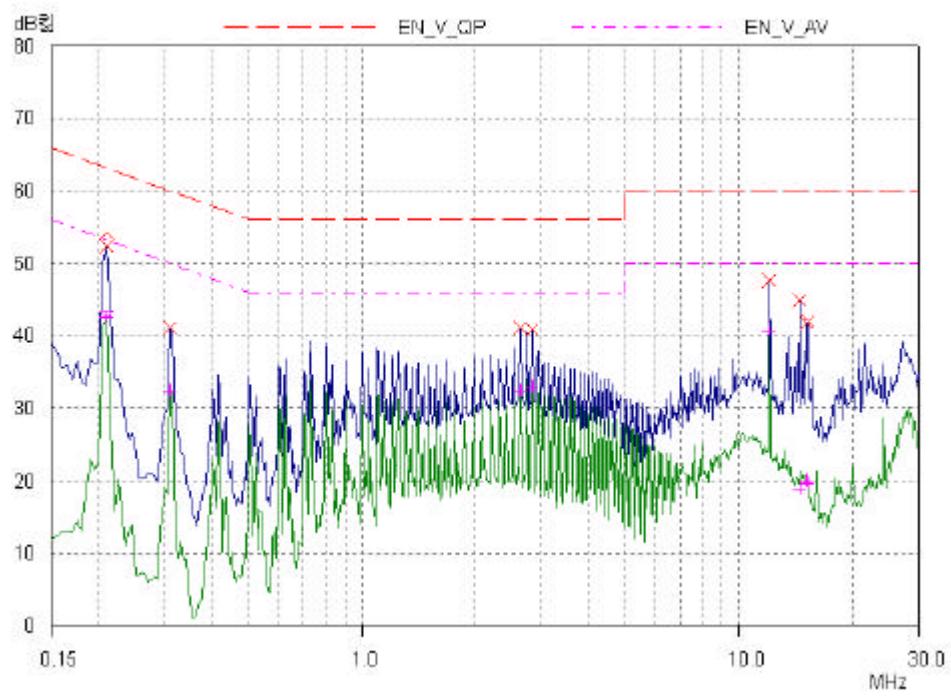
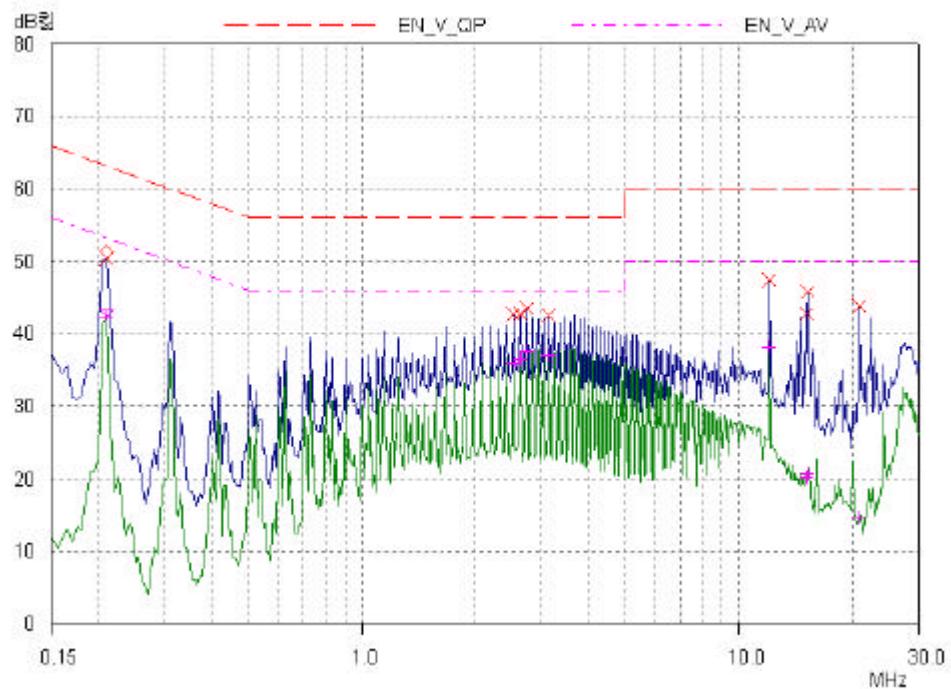


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### Radiated Electric Field Emissions (Quasi-Peak reading)

Frequency [MHz]	Reading [dBuV/m]	Pol.	Height [m]	Correction Factor		Limits [dBuV/m]	Result [dBuV/m]	Margin [dB]
				Antenna	Cable			
99.50	14.6	V	1.2	9.30	1.90	30.0	25.77	4.23
135.30	16.2	V	1.0	8.40	2.30	30.0	26.85	3.15
144.10	13.8	V	1.1	7.80	2.40	30.0	23.97	6.03
189.30	14.2	V	1.0	7.00	2.70	30.0	23.93	6.07
195.40	14.5	H	3.5	7.00	2.70	30.0	24.22	5.78
276.40	12.4	H	3.8	10.30	3.40	37.0	26.07	10.93
299.30	14.6	V	1.0	11.00	3.60	37.0	29.19	7.81
540.00	9.7	H	3.5	16.10	4.80	37.0	30.64	6.36
629.00	6.6	H	3.8	17.40	5.30	37.0	29.27	7.73
864.00	3.8	V	1.3	20.10	6.60	37.0	30.50	6.50