FCC TEST REPORT

According to

FCC Part 15 Class A

EQUIPMENT	:	H.264 4CH DVR
MODEL NO.	:	HDR-04RD, HDR-04RJ, YSD-04RA, YDS-04RA-V, CV500-4CH, SN500-4CH
APPLICANT	:	HUNT ELECTRONIC CO., LTD.
ADDRESS	:	9F., No. 171, Sec. 2, Datong Rd., Sijhih City, Taipei 22183, Taiwan, R. O. C.

CHECKED BY : NICK LEE

ISSUED DATE : SEP. 16, 2009

- The test result refers exclusively to the test presented test model / sample.
- Without the written authorization of the test lab., the Test Report may not be copied.

PEP TESTING LABORATORY

NO. 9-6, Huzi, Hubei Village, Linkou Shiang, Taipei Hsien, Taiwan 244, R. O. C.

TEL : 886-2-26021042 FAX : 886-2-26021045

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1. General

1.1 General Information:

Applicant :	HUNT ELECTRONIC CO., LTD.
Address :	9F., No. 171, Sec. 2, Datong Rd., Sijhih City, Taipei 22183, Taiwan, R. O. C.

Manufacturer :	HUNT ELECTRONIC CO., LTD.
Address :	6F., No. 57、59, Jiun Hsien Rd., Chi Tu District, Keelung 20653, Taiwan, R. O. C.

MEASUREMENT PROCEDURE: CISPR 22

1.2 Place of Measurement

※ PEP TESTING LABORATORY ※

NO. 9-6, Huzi, Hubei Village, Linkou Shiang, Taipei Hsien, Taiwan 244, R. O. C.
E-Mail : peplab@ms32.hinet.net
TEL : 886-2-26021042 FAX : 886-2-26021045
Accreditation ---
FCC Registration No. : 97129 (U. S. A.)

2. Product Information

a. EUT Name:	H.264 4CH DVR
b. Model No. :	HDR-04RD
c. CPU Type :	N/A
d. CPU Frequency :	N/A
e. Crystal/Oscillator(s) :	12MHz, 12.888MHz, 25MHz, 27MHz, 30MHz
f. Chassis Used :	ABS
g. Port/Connector(s) :	Video Input Port *4, Audio Input Port *1, Audio Output Port *1, Ethernet Port *1, USB Port *2, RS-232 Port *1, VGA Output Port *1, Monitor Output Port *1
h. Power Rating :	AC Adapter--- Manufacturer: Wearnes Model Number: WDS050120 Input: AC 100-240V 50-60Hz Output: DC 12V 4.16A
i. Condition of the EUT :	☐ Prototype Sample ☑ Engineering Sample ☐ Production Sample
j. Test Item Receipt Date :	SEP. 01, 2008
k. Date(s) of performance of test:	SEP. 01, 2008 – OCT. 16, 2008

3. EUT Description And Test Methods/ Test Software Used/ Modification(s)

Description about EUT

The EUT is H.264 4CH DVR, which main function shall be digital recording supervisory system and monitoring at remote network system, and bearing model under test is HDR-04RD. The series model is HDR-04RJ, YSD-04RA, YDS-04RA-V, CV500-4CH, SN500-4CH. Those models have identical electrical design and construction except that they are different in model number for marketing purpose. EUT used adapter which is AC 100-240V, 50-60Hz. For the more details specification about EUT, please refer to the user' s manual.

About I/O Ports description as follow

I/O Port Name	Quantity	Connect peripheral Name
Video Input Port	4	DVD Player / Free-ended data Cable
Monitor Output Port	1	TV / Free-ended data Cable
Audio Input Port	1	DVD Player
Audio Output Port	1	TV
VGA Output Port	1	LCD Displayer
Ethernet Port	1	PC
USB Port	2	Mouse / HDD
RS-232 Port	1	Free-ended data Cable

Test Operation Mode and Step

According to the major function designed, operation modes of conducted and radiated preliminary test are both Player mode. The detail as follow: To test EUT in the status of play video via DVD Player. After preliminary test, the worst-case test result was recorded and provided in the report.

Test step

1. EUT should conform to I/O connect peripheral specification to link, and set up on the table according to regulation.
2. Turning on the EUT and peripheral power. Then execute EUT' s main function and enable peripheral which is EUT connection.
3. Execute EMCTEST program and show H letter continuously to drive peripheral of PC.
4. Move EUT/ peripheral/ data cable to find the worst emission.
5. Starting to test.

Test Software(s) Used

N/A

Modifications

1. VGA out connector add gasket to connector traces ground.
2. USB1 connector and Ethernet port add gasket to connector traces ground.
3. Video port, RCA1 port' s ground add spring to connector traces ground.
4. C68、C69 add 330pf cap.
5. F11 add 104pf cap.
6. J23 pin1 、pin4 add 104pf cap.
7. Video port' s ground adds spring to connector traces ground.
8. Video port、Monitor out、Audio port's signal line add 1000pf cap.
9. USB2 port 5V Vcc add 104pf cap.
10. CRG5D110 board' s ground need connector traces ground.

4. Support Equipment Used

TV (TV1)	**CPU :** N/A **FCC ID :** N/A **Manufacturer :** SONY **Model Number :** PVM-14N2E **Power Supply :** Switching **Power Cord :** Non-Shielded , Detachable,1.8m **Data Cable : 1 >** Shielded , Detachable,1.2m **2 >** Back Shell : N/A
DVD Player	**Manufacturer :** Pioneer **Model Number :** DV-490V-S **Power Supply :** AC110~127V, 220~240v 50-60Hz **Power Cord :** Non-Shielded, Detachable, 1.8m **Data Cable :** N/A
LCD (LCD1 17")	**FCC ID :** Declaration of Conformity(DoC) **Manufacturer :** SAMSUNG **Model Number :** 740B **Power Supply :** Switch, 12Vdac **Power Cord :** Non-Shielded, Detachable, 1.8m **Data Cable : 1 >** Shielded , Detachable,1.7m **2 >** Back Shell : Metal
External Hard Disk (USB 2.0 HD)	**FCC ID :** N/A **Manufacturer :** TeraSys **Model Number :** F12-U **Power Supply :** DC +12V/1.25A, **Power Cord :** Non-Shielded , 1.5m (Core) **Data Cable : 1 >** Shielded, detachable, 1.7m **2 >** Back Shell: N/A

5. Conducted Disturbance Test

5.1 Conducted Disturbance Emission Limit

Frequency	Maximum RF Line Voltage dB(μV)
	Class A
MHz	QUASI- PEAK
0.15 – 0.5	79
0.5 – 30.0	73

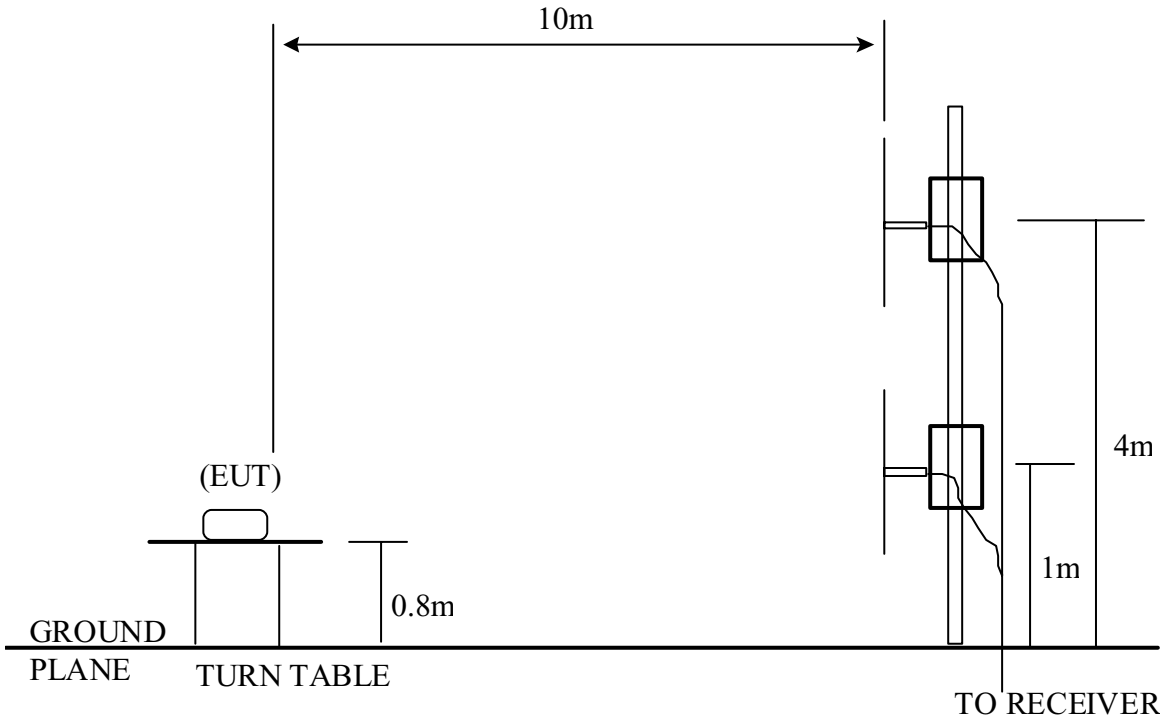
Remarks: In the above table, the tighter limit applies at the band edges.

6. Radiated Disturbance Test

6.1 Setup of the Test Facilities

The equipment under test was setup on the non-conductive table in the open field site. The table was placed on a remote turntable constructed of a wooden material. The top of the table is located 1m above the ground plane. The turntable was rotated to obtain the maximum level of radiated emissions from the system containing the EUT for each emissions level investigated.

6.2 Open Test Site Setup Diagram



6.3 Radiated Disturbance Emission Limit

Limits for radiated disturbance of Class A ITE at
a measuring distance of 10 m

Frequency MHz	Field Strength dB(μV/m)
30 – 88	39.0
88 – 216	43.5
216 – 960	46.4
960 above	49.5

NOTES
1 The lower limit shall apply at the transition frequency.
2 Additional provisions may be required for cases where interference occurs.

7. Conducted Test Configuration Photo

*** FRONT VIEW ***

8. Conducted Emissions Test Data

Model No.	:	**HDR-04RD**
Frequency range	:	**150kHz to 30MHz**
Detector	:	**Peak Value**
Temperature	:	**29 ℃**
Humidity	:	**48 %**

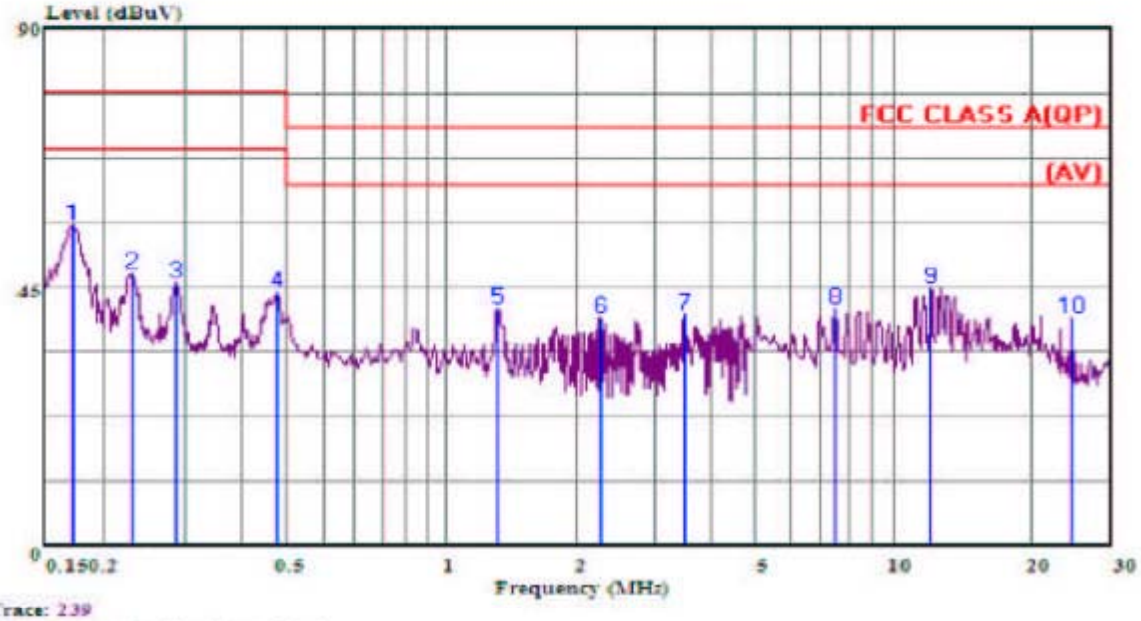
Test Data : # **240** **<** LINE **>**

241 **<** NEUTRAL **>**

Note 1. Level = Read Level + Cable Loss + Probe (LISN)

2. Over Limit = Level – Limit = Margin

Data#: 240 File#: FCC CLASS B(QP).EMI Date: 2008-09-01 Time: 16:15:10



Trace: 239

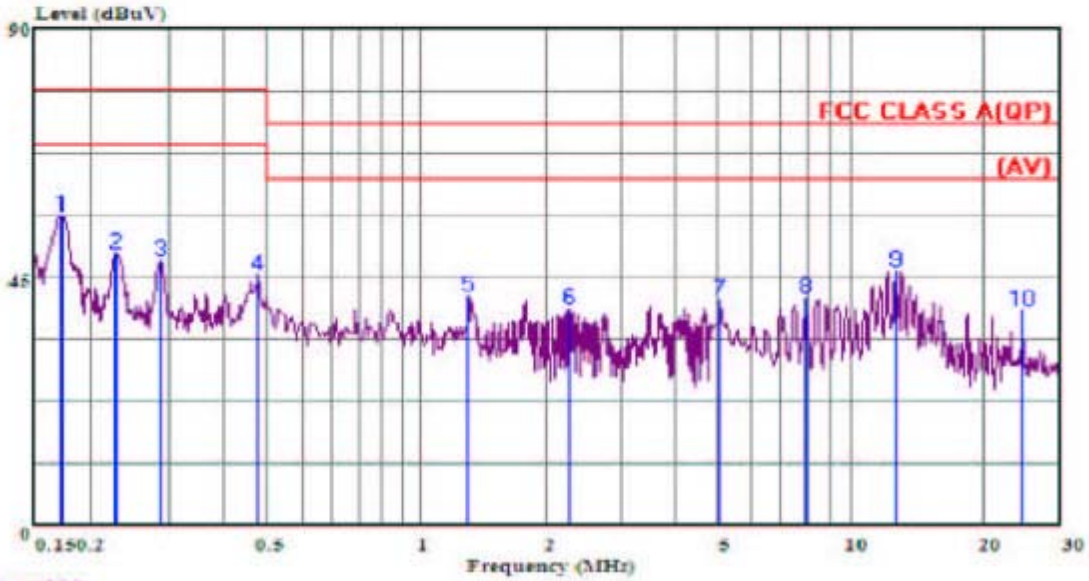
Site : Conduction No.1
Condition: FCC CLASS A(QP) LISN.L(16A) 2007 LINE
EUT : E970256
Power : AC 120V 60Hz
Detect : Peak Value
Curve : Peak Value Curve

Memo : Final test

Page: 1

	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.173	55.68	-23.32	79.00	55.49	0.09	0.10	
2	0.230	47.40	-31.60	79.00	47.15	0.09	0.16	
3	0.288	45.96	-33.04	79.00	45.75	0.09	0.12	
4	0.474	44.24	-34.76	79.00	44.00	0.09	0.15	
5	1.418	41.40	-31.60	73.00	41.08	0.12	0.20	
6	2.371	39.79	-33.21	73.00	39.45	0.14	0.20	
7	3.584	40.23	-32.77	73.00	39.79	0.18	0.26	
8	7.566	41.36	-31.64	73.00	40.72	0.34	0.30	
9	12.253	44.93	-28.07	73.00	43.96	0.57	0.40	
10	24.659	39.79	-33.21	73.00	38.30	1.09	0.40	

Data#: 241 File#: FCC CLASS B(QP).EMI Date: 2008-09-01 Time: 16:13:14



Trace: 234
Site : Conduction No.1
Condition: FCC CLASS A(QP) LISN.N(16A) 2007 NEUTRAL
EUT : E970256
Power : AC 120V 60Hz
Detect : Peak Value
Curve : Peak Value Curve

Memo : Final test

Page: 1

	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.172	56.28	-22.72	79.00	56.10	0.08	0.10	
2	0.229	49.26	-29.74	79.00	49.02	0.08	0.16	
3	0.288	47.92	-31.08	79.00	47.72	0.08	0.12	
4	0.476	45.53	-33.47	79.00	45.29	0.09	0.16	
5	1.411	41.51	-31.49	73.00	41.21	0.10	0.20	
6	2.371	39.33	-33.67	73.00	39.00	0.13	0.20	
7	5.194	40.92	-32.08	73.00	40.44	0.20	0.28	
8	8.020	41.33	-31.67	73.00	40.77	0.26	0.30	
9	12.784	46.03	-26.97	73.00	45.22	0.41	0.40	
10	24.659	39.00	-34.00	73.00	37.93	0.67	0.40	

9. Radiated Test Configuration Photos

*** FRONT VIEW ***

*** REAR VIEW ***

10. Radiated Emissions Test Data

Model No.	**: HDR-04RD**		
Frequency range	**: 30MHz to 1GHz**	**Detector**	**: Quasi-Peak Value**
Frequency range	**: above 1GHz**	**Detector**	**: Quasi-Peak/Average Value**
Temperature	**: 26 ℃**	**Humidity**	**: 42 %**

Antenna polarization : HORIZONTAL ; Test distance : 10m ;

Freq. (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Azimuth (°angle)	Antenna High(m)
63.600	28.52	-10.48	39.00	35.42	11.03	2.77	20.70	240	4.0
127.140	31.90	-11.60	43.50	37.63	11.52	3.37	20.62	86	4.0
250.010	38.44	- 7.96	46.40	43.94	10.55	4.05	20.10	134	4.0
350.010	38.01	- 8.39	46.40	39.81	13.69	4.51	20.00	352	4.0
500.010	31.05	-15.35	46.40	28.75	16.75	5.36	19.81	260	4.0
811.050	24.66	-21.74	46.40	15.94	21.63	6.41	19.32	300	4.0

Antenna polarization : VERTICAL ; Test distance : 10m ;

Freq. (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Azimuth (°angle)	Antenna High(m)
127.190	27.19	-16.31	43.50	32.92	11.52	3.37	20.62	136	1.0
202.510	35.04	- 8.46	43.50	40.91	10.68	3.75	20.30	62	1.0
250.000	38.63	- 7.77	46.40	44.13	10.55	4.05	20.10	180	1.0
378.010	36.51	- 9.89	46.40	37.47	14.51	4.64	20.11	49	1.0
621.010	28.20	-18.20	46.40	23.06	19.27	5.71	19.84	273	1.0
811.480	24.63	-21.77	46.40	15.91	21.63	6.41	19.32	294	1.0

Note:
1. Level = Read Level + Antenna Factor + Cable Loss – Preamp Factor
2. Over Limit = Level – Limit Line

11. List of Test Equipment

Test Site	Instrument	Manufacturer	Model No.	S/N	Next Cal. Date	Cal. Interval
Conduction (No.1)	Receiver	R&S	ESHS10	830223/008	Nov. 23, 2009	1 Year
	Spectrum Analyzer	R&S	FSP	833387/001	Nov. 16, 2009	1 Year
	RF cable	N/A	N/A	N/A	Jan. 18, 2010	1 Year
	L.I.S.N	R&S	ESH2-Z5	831886/004	Apr. 22, 2010	1 Year
	DC LISN	Mess Tec	LN-KFZ/100	2001/019	Apr. 22, 2010	1 Year
OP (No.1)	Receiver	R&S	ESVS30	863342/012	Jul. 29, 2010	1 Year
	Antenna	Schwarzbeck	VULB 9161 SE	4051	Jan. 22, 2010	1 Year
	RF cable	N/A	N/A	N/A	Jan. 18, 2010	1 Year
	Pre - Amp	Schaffner	CPA- 9232	1012	Jan. 20, 2010	1 Year

12. Labeling Requirement

A warning label with the following statement shall be permanently attached and conspicuously located on the equipment:

> This device complies with Part 15 of the FCC Rules . Operation is subject to the following two conditions : (1) This device may not cause harmful interference , and (2) this devices must accept any interference received , including interference that may cause undesired operation.

13. Information to The User

The following FCC statement should be declared in a conspicuous location in the user' s manual.

Federal Communications Commission (FCC) Statement

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

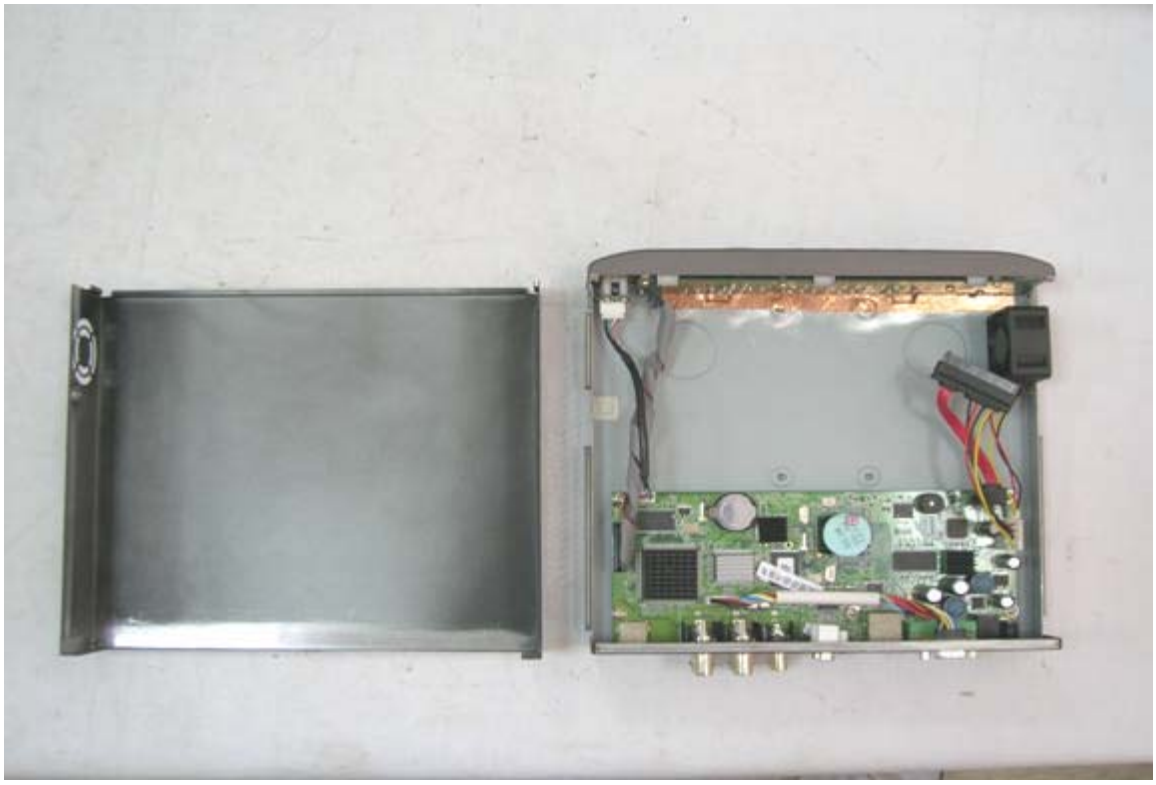
14. EUT Photographs

MODEL NO. : HDR-04RD

EUT FRONT VIEW

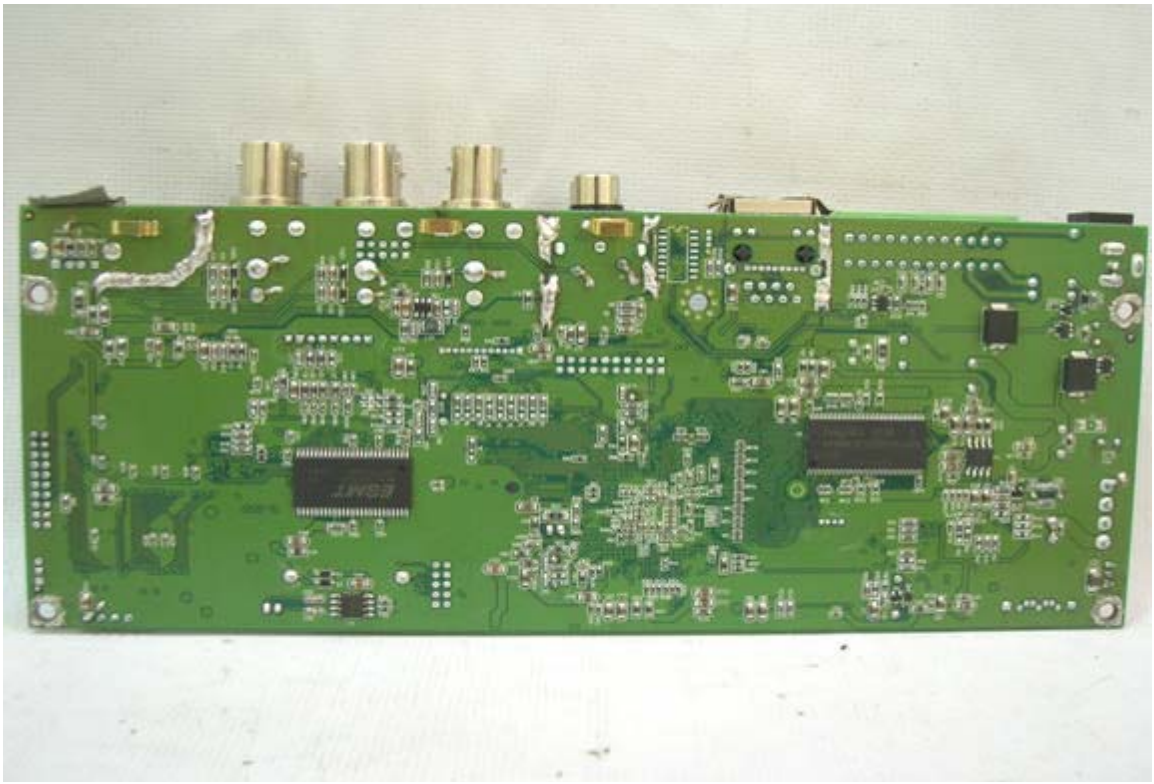
EUT REAR VIEW

EUT INSIDE VIEW



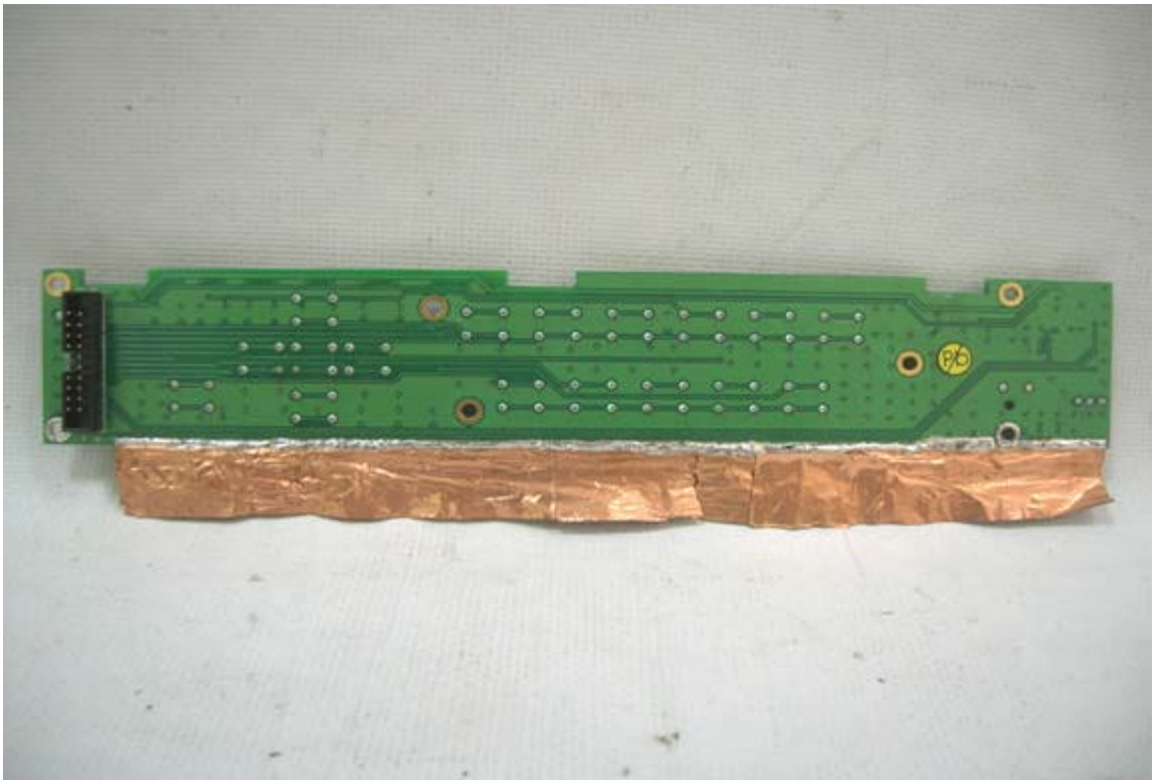
EUT COMPONENT VIEW

EUT SOLDERING VIEW



EUT COMPONENT VIEW

EUT SOLDERING VIEW



VERIFICATION

WE HEREBY VERIFY THAT:

The Equipment Under Test (EUT) listed below has completed RFI testing by PEP Testing Laboratory and the interference emissions can pass FCC Class A limitations.

The test report shall not be reproduced except in full, without the written approval of the laboratory.

The estimate uncertainty of the test result is about ±3dB. The test result is only effect for the sample as below.

APPLICANT	:	**HUNT ELECTRONIC CO., LTD.**
EQUIPMENT	:	**H.264 4CH DVR**
MODEL NO.	:	**HDR-04RD, HDR-04RJ, YSD-04RA,**
	:	**YDS-04RA-V, CV500-4CH, SN500-4CH**
REPORT NO.	:	**E970256-4**

M. J. Tsui

M. Y. TSUI / Manager

Testing Laboratory PEP Testing Laboratory

Date : SEP. 16, 2009