FCC ID TEST REPORT

According to

FCC Part 15 Subpart C, Intentional Radiators

EUT Type	:	**PAN-TILT IP Camera**
Transmitter (TX)	:	**1) FCC ID: UTBHLT86FW** **2) Model No.: HLT-86FW**
Applicant Name:	:	**HUNT ELECTRONIC CO., LTD.**
Address	:	**See the General Information for details.**

Test Date : JUNE 29, 2007 Issued Date : SEP. 03, 2007

Test Engineer : JASON KUNG NVLAP Signature : m. J. Tsui

M. Y. Tsui / Director

- The test report shall not be reproduced except in full, without the written approval of the "PEP"
- The report must not be used by the client to claim product endorsement by NVLAP or any agency of the United States government.
- This report is applicable only for EUT Model which described in page 4 .
- The testing result in this report are traceable to national or international standard .

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 Information

Measurement of electromagnetic emissions (EME) of radio frequency devices including intentional and/or unintentional radiators for compliance with the technical rules and regulations of the Federal Communications Commission under FCC Part 2 and 15.

Applicant Name/Address: **HUNT ELECTRONIC CO., LTD.**
6F., NO. 57-59, JIUN HSIEN RD., CHI TU DISTRICT,
KEELUNG 20653, TAIWAN, R. O. C.

Contact Person: **HANK WU / ENGINEER**

Phone No.: **886-2-86927999** **Fax No.:** **886-2-86926678**

Manufacturer Name/Address: **HUNT ELECTRONIC CO., LTD.**
6F., NO. 57-59, JIUN HSIEN RD., CHI TU DISTRICT,
KEELUNG 20653, TAIWAN, R. O. C.

- ✧ Regulation: FCC Part 2 and 15
- ✧ Limitation: Part 15, Section 15.249, 15.207 and 15.209
- ✧ Test Procedure: ANSI C63.4-2003
- ✧ Place of Test: 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

2. Product Information

a.	**EUT Type:**	**PAN-TILT IP Camera**
b.	**Transmitter Model:**	**HLT-86FW**
c.	**TX FCC ID:**	**UTBHLT86FW**
d.	**TX Channel No.：**	**1-11**
e.	**TX Working Freq.：**	**2.412 –2.462 GHz**
f.	**TX Modulation：**	**CCK, DSSS**
g.	**TX Crystal / Osc.：**	**32.768 kHz, 22.1184MHz, 24.576MHz, 25MHz, 27MHz, 30 MHz**
h.	**TX Port(s) ：**	**Video Out Port * 1, Lan (RJ45) Port * 1, Audio In Port * 1, Audio Out Port * 1, SD Card Port * 1, Power Jack * 1**
i.	**TX Transmitting Power：**	**Adapter ----- Manufacturer：MEAN WELL Model No: ES18E05-050 Input : AC 100-240V 50/60Hz 0.5A Output : DC 5V 3A**
j.	**Antenna Type:**	**External antenna**
k.	**TX Case：**	**ABS**

l. **EUT Condition :** ☐ **Prototype** ☑ **Engineering** ☐ **Production**

m. **EUT Received Date : MAY 18, 2007**

n. **Date(s) of performance of test: MAY 18, 2007 – JUNE 20, 2007**

3. EUT Description and Test Methods

(A) The Equipment under test (EUT) is PAN-TILT IP Camera model HLT-86FW. The EUT serves function of real-time video recording over Internet by wireless or Ethernet network connection. The EUT supports SD card as storage medium for local video recording. The working frequency for wireless connection is 2412-2462MHz. Power adaptor supplies EUT 5Vdc from ac mains. For more detail information about the EUT, please refer to the user's manual.

(B) Test Method: According to the major function designed, the EUT placement on test table was arranged alone to proceed with test. The test was carried out on EUT operational condition of Tx-On mode: continuous transmission state. The worst-case test result of each test mode was recorded and provided in this report.

(C) At the frequencies where the peak values of the emission exceeded the quasi-peak limit, the emissions were also measured with the quasi-peak detectors. The average detector also measured the emission either (A) quasi-peak values were under quasi-peak limit but exceeded average limit, or (B) peak values were under quasi-peak limit but exceeded average limit.

4. Modification(s):

The applicant has been notified and agrees to incorporate the following modification(s) into all production units, please refer to the attached pages in this report.

(A)

1. Sticking copper foil inside the plastic case of EUT, it is including the upper case. Plastic case suggests using conductive lacquer with higher density and lower impedance or changing it to the iron case.
2. Adding a core to the side of module of antenna cable. The model of core is KING CORE K5B RH9*16*5.
3. Changing the antenna cable to shielding cable.

Debugged countermeasures that is in the part of main IC board are as follows,

4. Adding conductive shielding gasket,

a. Adding conductive shielding gasket on the iron case of LAN port.

b. Adding conductive shielding gasket on the iron case of J1 (Video) port to touch iron slice.

5. Pulling wire with jumper from side of C11 GND to side of R23 GND.
6. Changing RS14 to 68-OHM resistance and connecting 120-ohm bead in series. The model of bead is KING CORE FBMA-11-160808-121.
7. Shorting R10, R11, R12, R13, and R17 of circuit board.
8. Changing the RS2 to RS9 of circuit board to 33-ohm resistances.
9. Changing the RS13 to 100-ohm resistance.
10. Connecting 150-ohm bead to 25 pin of J2 IC of circuit board in series. The model of bead is KING CORE FBM-10-100505-151.
11. Connecting an 82nH differential-mode inductance to VCC of POWER JACK in series. The model of differential-mode inductance is EROCORE MCS1008C-82NJ.
12. Capacitances in parallels.
    a. Respective connecting the 0.1uF capacitance in parallels from 47 and 49 pin of J2 to GND.
    b. Respective connecting the 10pF capacitance to C5 to C8 in parallels.
    c. Changing C11 and C12 of circuit board to 10pF capacitance.
    d. Respective connecting the 0.1uF capacitance in parallels from No.9 and 11 pins of U11 (LAN port) to GND.
    e. Respective connecting the 15pF capacitance in parallels from No.1, 3, 4 and 6 pins of U11 (LAN port) to GND.
    f. Respective connecting the 100pF capacitance in parallels from No.2 and 5 pin of A1 and No.2 and 3 pin of A2 to GND.
    g. Respective connecting 0.1uF capacitances in parallels from side of No.1, 3 and 14 pins of U2 IC (SDRAM) to GND.
    h. Respective connecting 0.1uF capacitances in parallels from side of No.1, 3, 43 and 49 pins of U5 IC (SDRAM) to GND.

In the part of Card Read Board

13. Connecting 120-ohm bead to No.25 pin of J1 in series. The model of bead is KING CORE FBMA-11-160808-121.
14. Connecting 0.1uF capacitance in parallels from No.49 pin of J1 to GND.
15. Connecting 33pF capacitance in parallels from No.5 pin of SD port to GND.

(B) Mount one suppression core on adaptor power cord.

5. Test Software Used

Web browser was used to monitor image recorded from EUT.

6. Support Equipment Used

Personal Computer (PC4)	**CPU :** Intel P4 3GHz **FCC ID :** Declaration of Conformity(DoC) **Manufacturer :** ACER **Model Number :** Aspire T650 **Power Supply :** Switching **Power Cord :** Non-Shielded, Detachable, 1.8m **Data Cable :** N/A
Keyboard (KBS1 PS/2)	**FCC ID :** E5XKB5121WTH0110 **Manufacturer :** BTC **Model Number :** 5121W **Power Supply :** +5Vdc from PS2 of PC **Power Cord :** N/A **Data Cable : 1 >** Shielded , Non-detachable,1.6m **2 >** Back Shell : Metal
LCD (LCD1 15")	**FCC ID :** Declaration of Conformity(DoC) **Manufacturer :** SAMSUNG **Model Number :** 740B **Power Supply :** Switching **Power Cord :** Non-Shielded, Detachable, 1.8m **Data Cable : 1 >** Shielded , Detachable,1.2m **2 >** Back Shell : Metal
Printer (PRN1)	**FCC ID :** B94C2642X **Manufacturer :** Hewlett-Packard **Model Number :** C2642E **Power Supply :** Linear, 30Vdc O/P **Power Cable :** Non-Shielded , Detachable,1.8m **Data Cable : 1 >** Shielded , Detachable,1.2m **2 >** Back Shell : Metal
Mouse (MOUS/1 PS/2)	**FCC ID :** DZL211106 **Manufacturer :** LOGITECH **Model Number :** M-S43 **Power Supply :** +5Vdc from PS2 of PC **Power Cord :** N/A **Data Cable : 1 >** Shielded , Non-detachable,1.8m **2 >** Back Shell : Metal

Modem (MOD1)	**FCC ID：**IFAXDM1414 **Manufacturer：**ACEEX **Model Number：**1414 **Power Supply：**Linear, 9Vac O/P **Power Cable：**Non-Shielded , Detachable,1.7m **Data Cable：1 >** Shielded , Detachable,1m **2 >** Back Shell : Metal
TV (TV1)	**FCC ID：**Declaration of Conformity(DoC) **Manufacturer：**SONY **Model Number：**PVM-14N6E **Power Supply：**Switching **Power Cable：**Non-Shielded , Detachable,1.8m **Data Cable：1 >** Shielded , Detachable,1.2m **2 >** Back Shell : N/A
Ear-phone	**FCC ID：**N/A **Manufacturer：**WHO SHENN CO., LTD. **Model Number：**HD-20 **Power Supply：**N/A **Power Cable：**N/A **Data Cable：1 >** Non-Shielded, Non-detachable,1m **2 >** Back Shell : N/A
Micro-phone	**FCC ID：**N/A **Manufacturer：**KOKA **Model Number：**DM-510 **Power Supply：**N/A **Power Cable：**N/A **Data Cable：1 >** Non-Shielded, Non-detachable,3m **2 >** Back Shell : N/A
SD Card	

7. Description Field Strength of Fundamental and Harmonics Test

7.1 Field Strength of Fundamental and Harmonics Test

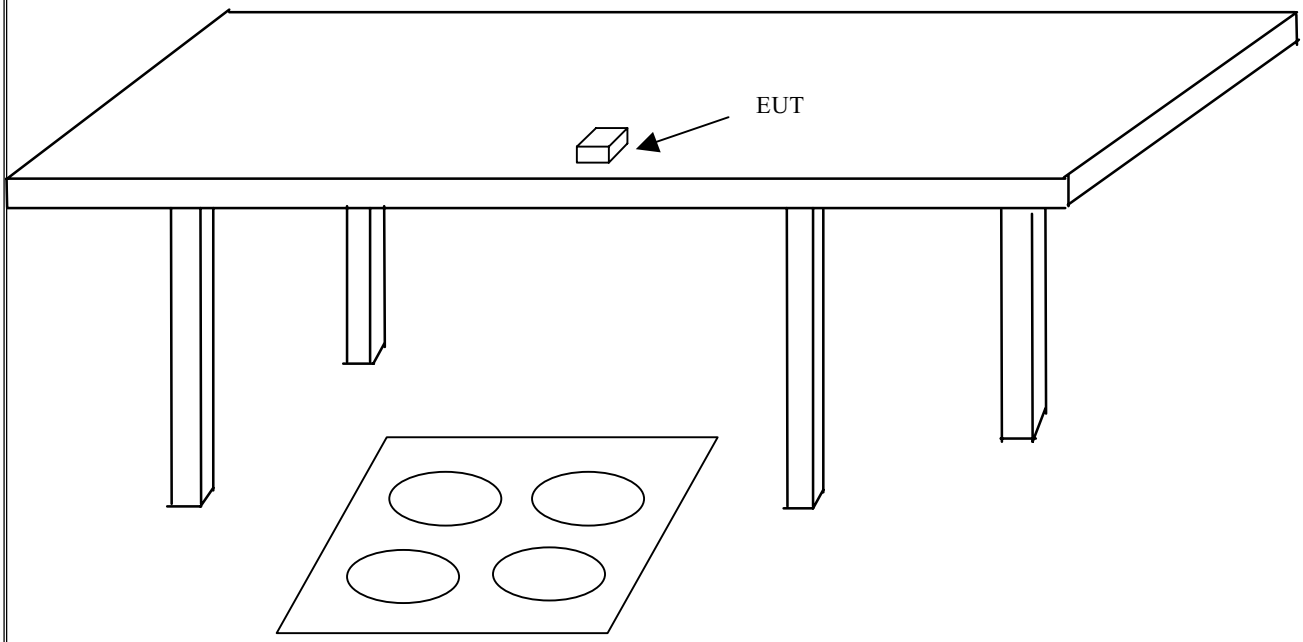
Field Strength of Fundamental and Harmonics Test were made outdoors at 3-meter test range using horn antenna. The test equipment was placed on a wooden bench situated on a 1.5x1 meter area adjacent to the measurement area. Sufficient time for the EUT, support equipment, and test equipment was allowed in order for them to warm up to their normal operating condition. The detector function was set to peak and average value, the bandwidth of the receiver was set to 1000MHz.

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.

7.2 Field Strength of Fundamental and Harmonics Limits

Fundamental Frequency	Fundamental		Harmonics	
	（mV/m）	（dB μV/m）	（μV/m）	（dB μV/m）
902-928MHz	50	94	500	54
2400-2483.5MHz	50	94	500	54
5725-5875MHz	50	94	500	54
24.0-24.25GHz	250	108	2500	68

7.3 Test Configuration



8. Description of Conducted Emissions Test

8.1 Conducted Emissions

A 1m x1.5m wooden table 80 cm high is placed 40cm away from the vertical wall. Two AMN are bonded to the grounding plane. The EUT is powered from the designated AMN and the support equipment is powered from another designated AMN. Powers to the AMN are filtered by a high-current high insertion loss power line filters. All electrical cables are shielded by braided tinned copper zipper tubing with inner diameter of 1/2". All interconnecting cables more than 1 meter were shortened by non-inductive bundling (serpentine fashion) to a 1-meter length.

Sufficient time for the EUT, support equipment, and test equipment was allowed in order for them to warm up to their normal operating condition. The RF output of the AMN was connected to the spectrum analyzer to determine the frequency producing the maximum EME from the EUT.

The spectrum was scanned from 150kHz to 30 MHz with1.5 sec sweep time. The frequency producing the maximum level was re-examined using Quasi-Peak adapter. The detector function was set to CISPR quasi-peak mode. The bandwidth of the receiver was set to 10kHz. The EUT, support equipment, and interconnecting cables were re-arranged and manipulated to maximize each EME emission. Each emission was maximized by: switching power lines; varying the mode of operation or resolution; clock or data exchange speed; scrolling H pattern to the EUT and/or support equipment, and powering the monitor from the floor mounted outlet box and the computer aux AC outlet, if applicable; whichever determined the worst-case emission.

8.2 Conducted Emissions Limits

Frequency	Maximum RF Line Voltage dB(uV)			
	Class A		Class B	
MHz	QUASI-PEAK	AVERAGE	QUASI-PEAK	AVERAGE
0.15 - 0.50	79	66	66-56	56-46
0.50 - 5.0	73	60	56	46
5.0 - 30	73	60	60	50

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

9. Description of Radiated Emissions Test

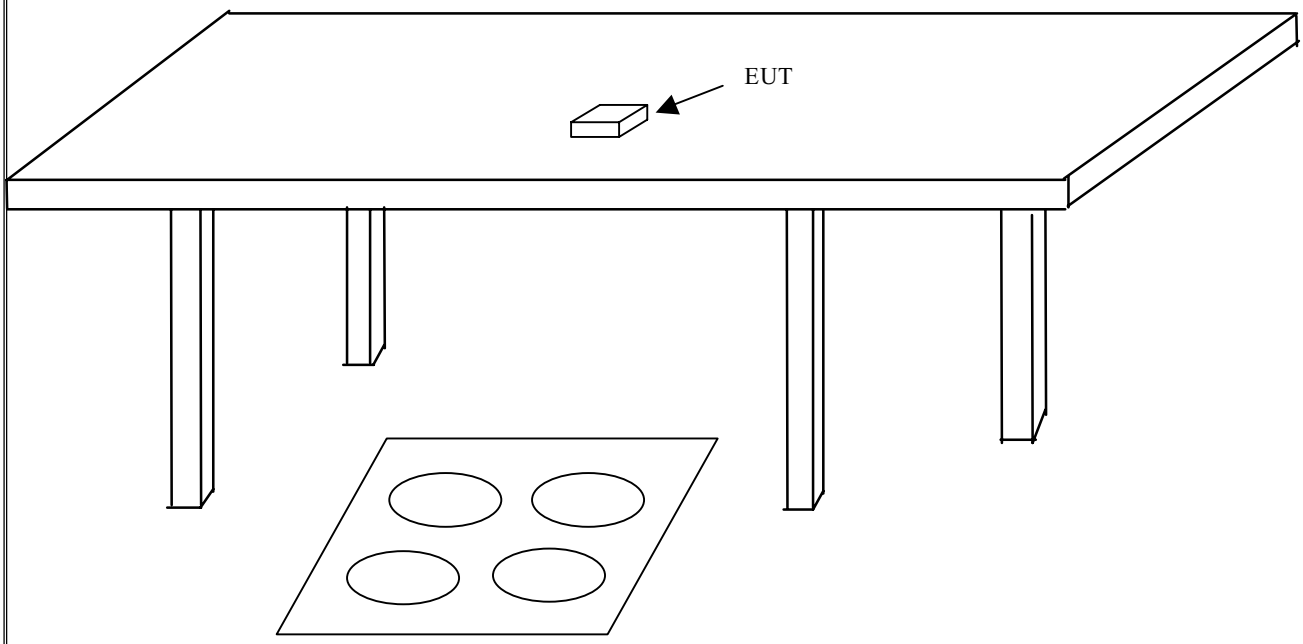
9.1 Radiated Emissions

Preliminary measurements were made indoors chamber at 3 meter using broadband antennas, broadband amplifier, and spectrum analyzer to determine the frequency producing the maximum EME. Appropriate precaution was taken to ensure that all EME from the EUT were maximized and investigated. The system configuration, clock speed, mode of operation or video resolution, turntable azimuth with respect to the antenna were noted for each frequency found. The spectrum was scanned from 30 to 1000 MHz using logbicon antenna. Above 1GHz, linearly polarized double ridge horn antenna was used.

Final measurements were made outdoors at 3-meter test range using logbicon antenna and horn antenna. The test equipment was placed on a wooden bench situated on a 1.5x1 meter area adjacent to the measurement area. Sufficient time for the EUT, support 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 and investigated using Quasi-Peak and Average Adapter. 30MHz-1GHz, the detector function was set to CISPR quasi-peak mode and the bandwidth of the receiver was set to 120kHz. Above 1GHz, the detector function was set to peak and average value, the bandwidth of the spectrum was set to 1MHz.

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 mode of operation or resolution; clock or data exchange speed; scrolling H pattern to the EUT and/or support equipment, and powering the monitor from the floor mounted outlet box and the computer aux AC outlet , if applicable; and changing the polarity of the antenna, whichever determined the worst-case emission. Photographs of the worst-case emission can be seen in radiated emission test photo.

9.2 Test Configuration



9.3 Radiated Emission Limits

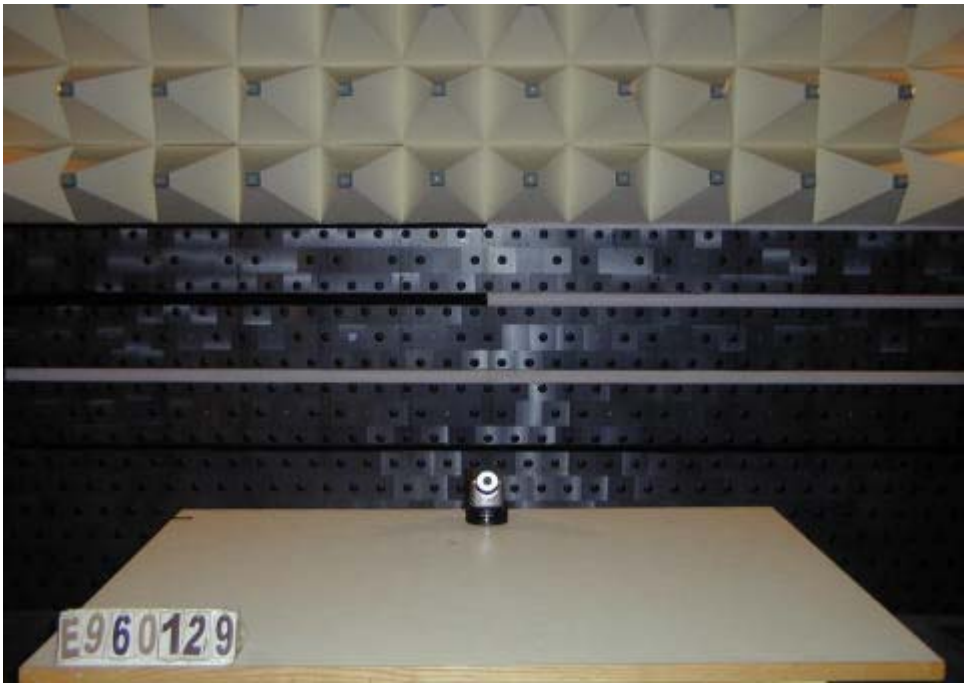
Limits for radiated disturbance of
Class B ITE or Intentional Radiator
At a measuring distance of 3 m

Frequency MHz	Field Strength dB μV/m or uV/m	
30 to 88	40	100
88 to 216	43.5	150
216 to 960	46	200
Above 960	56	500

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

10. Field Strength of Fundamental and Harmonics Test Setup Photos

< FRONT VIEW >



11. Field Strength of Fundamental and Harmonics Test Data

Model No. : HLT-86FW
Temperature : 27° C Humidity : 55 %
Memo : CH LOW MODE (2.412GHz)

Antenna polarization : HORIZONTAL ; Test distance : 3m ;

Freq. (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Detector	Remark
2411.950	113.49	- 0.51	114	Peak	Fundamental
2412.350	68.42	-25.58	94	Average	Fundamental
4824.000	60.14	-13.86	74	Peak	Harmonic
4824.000	37.48	-16.52	54	Average	Harmonic
7235.800	46.59	-27.41	74	Peak	Harmonic
9647.900	42.43	-31.57	74	Peak	Harmonic
9648.000	---				
12060.000	---				
14472.000	---				
16884.000	---				
19296.000	---				
21708.000	---				
24120.000	---				

Antenna polarization : VERTICAL ; Test distance : 3m ;

Freq. (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Detector	Remark
2411.750	104.95	- 9.05	114	Peak	Fundamental
2411.550	67.51	-26.49	94	Average	Fundamental
4823.800	54.37	-19.63	74	Peak	Harmonic
4824.900	34.12	-19.88	54	Average	Harmonic
7236.400	40.61	-33.39	74	Peak	Harmonic
9647.200	36.73	-37.27	74	Peak	Harmonic
9648.000	---				
12060.000	---				
14472.000	---				
16884.000	---				
19296.000	---				
21708.000	---				
24120.000	---				

(1) Over Limit = Level-Limit Line
(2) The above measurement of fundamental and harmonics testing data within the harmonics frequency level shown "---", it means that its harmonics frequency level is more than 20dB below the limit or its field strength is too small to be detected.

Model No. : HLT-86FW
Temperature : 24° C Humidity : 55 %
Memo : CH MID MODE (2.437GHz)

Antenna polarization : HORIZONTAL ; Test distance : 3m ;

Freq. (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Detector	Remark
2436.900	112.20	- 1.80	114	Peak	Fundamental
2437.150	66.77	-27.23	94	Average	Fundamental
4873.900	62.02	-13.38	74	Peak	Harmonic
4874.100	40.51	-13.49	54	Average	Harmonic
7310.900	47.64	-26.36	74	Peak	Harmonic
9747.900	46.02	-27.98	74	Peak	Harmonic
9748.000	---				
12185.000	---				
14622.000	---				
17059.000	---				
19496.000	---				
21933.000	---				
24370.000	---				

Antenna polarization : VERTICAL ; Test distance : 3m ;

Freq. (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Detector	Remark
2436.900	105.44	- 8.56	114	Peak	Fundamental
2436.750	65.48	-28.52	94	Average	Fundamental
4873.800	55.64	-18.36	74	Peak	Harmonic
4874.300	36.13	-17.87	54	Average	Harmonic
7310.800	42.52	-11.48	74	Peak	Harmonic
9748.000	41.16	-12.84	74	Peak	Harmonic
9748.000	---				
12185.000	---				
14622.000	---				
17059.000	---				
19496.000	---				
21933.000	---				
24370.000	---				

(1) Over Limit = Level-Limit Line
(2) The above measurement of fundamental and harmonics testing data within the harmonics frequency level shown "---", it means that its harmonics frequency level is more than 20dB below the limit or its field strength is too small to be detected.

Model No. : HLT-86FW
Temperature : 24° C Humidity : 55 %
Memo : CH HIGH MODE (2.462GHz)

Antenna polarization : HORIZONTAL ; Test distance : 3m ;

Freq. (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Detector	Remark
2461.950	112.69	- 1.31	114	Peak	Fundamental
2461.700	66.61	-27.39	94	Average	Fundamental
4924.000	54.48	-19.52	74	Peak	Harmonic
4923.700	36.77	-17.23	54	Average	Harmonic
7385.900	46.98	-27.02	74	Peak	Harmonic
9847.800	47.02	-26.98	74	Peak	Harmonic
9848.000	---				
12310.000	---				
14772.000	---				
17234.000	---				
19696.000	---				
22158.000	---				
24620.000	---				

Antenna polarization : VERTICAL ; Test distance : 3m ;

Freq. (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Detector	Remark
2461.950	106.25	- 7.75	114	Peak	Fundamental
2461.700	67.53	-26.47	94	Average	Fundamental
4924.400	48.80	-25.20	74	Peak	Harmonic
7386.100	40.12	-33.88	74	Peak	Harmonic
9847.900	39.83	-34.17	74	Peak	Harmonic
9848.000	---				
12310.000	---				
14772.000	---				
17234.000	---				
19696.000	---				
22158.000	---				
24620.000	---				

(1) Over Limit = Level-Limit Line
(2) The above measurement of fundamental and harmonics testing data within the harmonics frequency level shown "---", it means that its harmonics frequency level is more than 20dB below the limit or its field strength is too small to be detected.

12. Conducted Emissions Test Setup Photos

FRONT VIEW

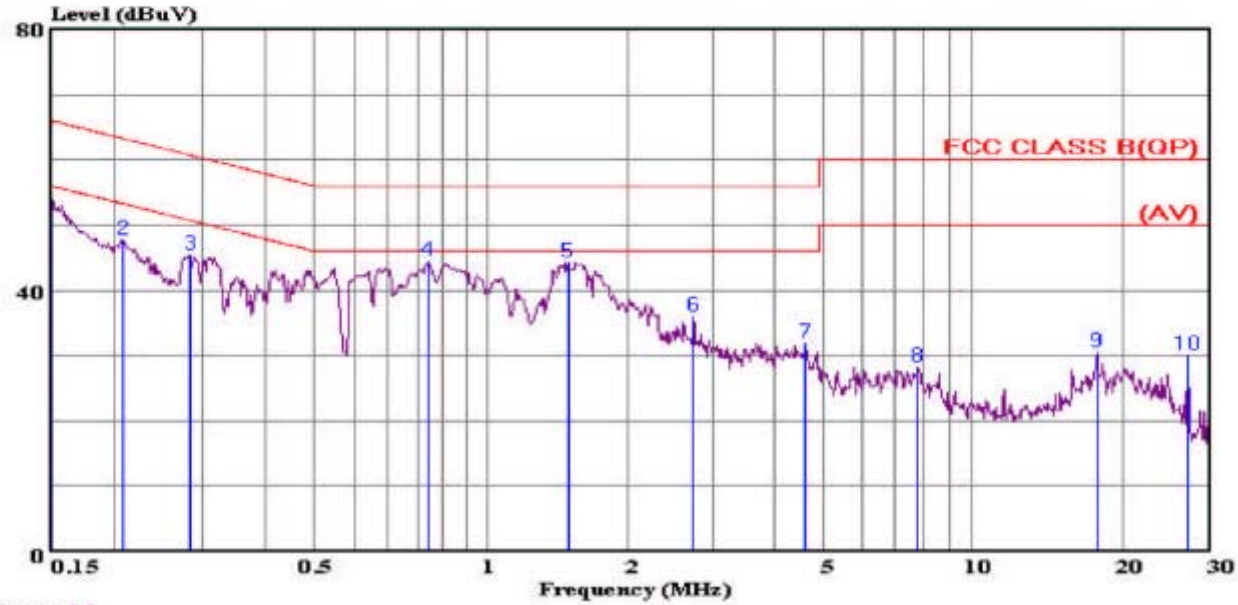
13. Conducted Emissions Test Data

Model No. : **HLT-86FW**
Frequency range : **150KHz to 30MHz**
Detector : **Quasi-peak Value**
Temperature : **27 ℃**
Humidity : **55 %**

Test Data : # **37** **<** LINE **>**
42 **<** NEUTRAL **>**

Note 1. Level = Read Level + Cable Loss + Probe (LISN)
2. Over Limit = Level – Limit = Margin

Data#: 37 File#: FCC CLASS B(QP).EMI Date: 2007-06-20 Time: 15:57:32

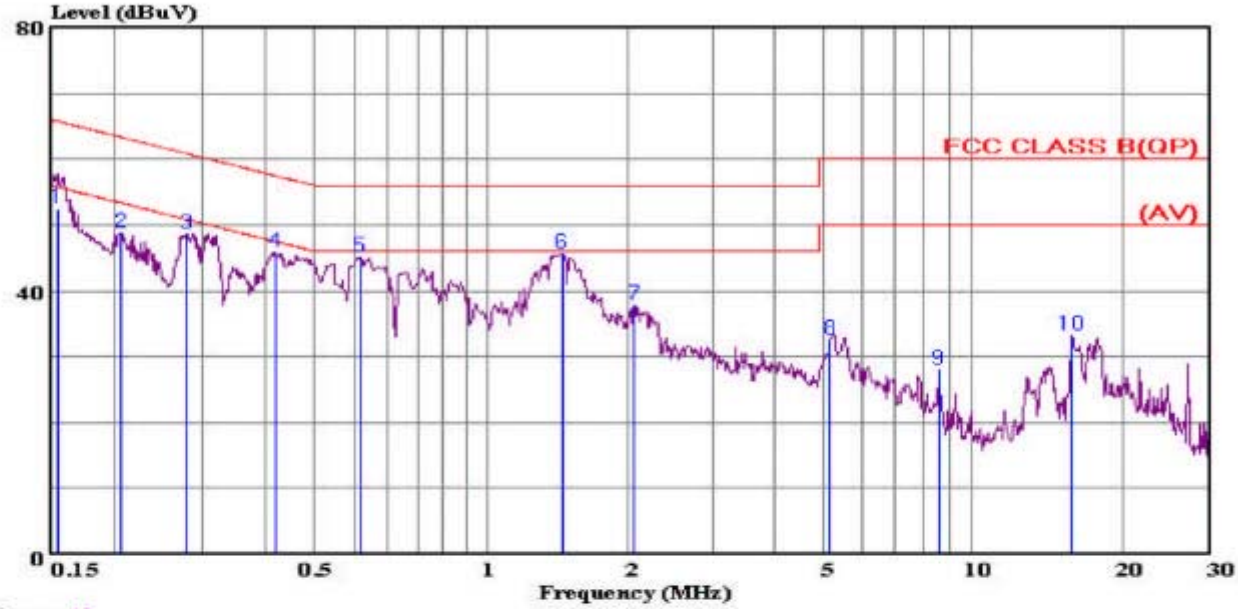


Trace: 36

Site : Shih-Chi : Conduction No.1
Condition: FCC CLASS B(QP) LISN.L(16A) 2006 LINE
EUT : E960129
Power : AC 120V 60Hz
Detect : Peak Value
Curve : Peak Value Curve
Mode : Wireless mode
Memo : Final test

	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.150	54.16	-11.84	66.00	53.96	0.10	0.10	
2	0.208	47.75	-15.52	63.27	47.53	0.10	0.12	
3	0.283	45.32	-15.40	60.72	45.09	0.10	0.13	
4	0.839	44.43	-11.57	56.00	44.19	0.10	0.14	
5	1.593	44.27	-11.73	56.00	43.90	0.17	0.20	
6	2.824	35.98	-20.02	56.00	35.58	0.20	0.20	
7	4.721	31.93	-24.07	56.00	31.40	0.23	0.30	
8	7.852	28.13	-31.87	60.00	27.48	0.35	0.30	
9	17.944	30.40	-29.60	60.00	29.40	0.70	0.30	
10	26.984	30.08	-29.92	60.00	28.78	0.80	0.50	

Data#: 42 File#: FCC CLASS B(QP).EMI Date: 2007-06-20 Time: 16:08:58



Trace: 41

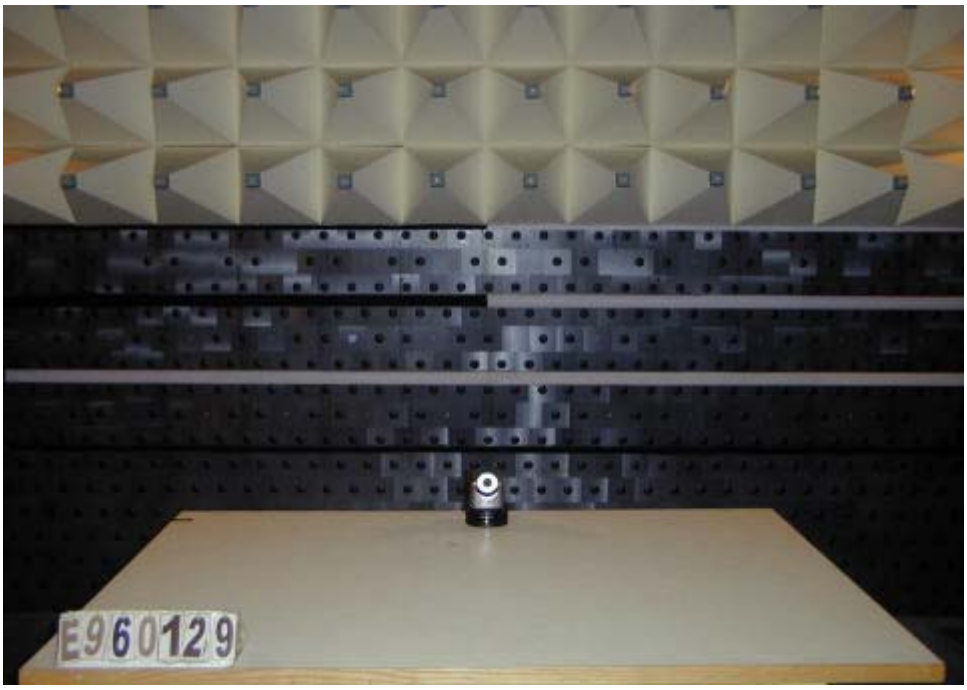
Site : Shih-Chi : Conduction No.1
Condition: FCC CLASS B(QP) LISN.N(16A) 2006 NEUTRAL
EUT : E960129
Power : AC 120V 60Hz
Detect : Quasi Peak Value
Curve : Peak Value Curve
Mode : Wireless mode
Memo : Final test

Page: 1

	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.154	52.58	-13.20	65.78	52.38	0.10	0.10	QP
2	0.206	48.83	-14.53	63.36	48.62	0.10	0.11	
3	0.277	48.70	-12.20	60.90	48.46	0.10	0.14	
4	0.417	45.82	-11.69	57.51	45.62	0.10	0.10	
5	0.617	45.17	-10.83	56.00	44.97	0.10	0.10	
6	1.552	45.61	-10.39	56.00	45.31	0.10	0.20	
7	2.155	37.73	-18.27	56.00	37.42	0.11	0.20	
8	5.277	32.57	-27.43	60.00	32.07	0.23	0.27	
9	8.683	28.06	-31.94	60.00	27.48	0.28	0.30	
10	15.970	33.23	-26.77	60.00	32.44	0.40	0.39	

14. Radiated Emissions Test Setup Photos

< FRONT VIEW >



< REAR VIEW >

15. Radiated Emissions Test Data

Model No.	**: HLT-86FW**		
Frequency range	**: 30MHz to 1GHz**	**Detector**	**: Quasi-Peak Value**
Temperature	**: 27° C**	**Humidity**	**: 55 %**

Antenna polarization : HORIZONTAL ; Test distance : 3m ;

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)
242.430	38.75	- 7.25	46.00	46.26	10.60	1.88	19.99	105.0	4.0
365.620	33.08	-12.92	46.00	36.23	14.15	2.52	19.82	185.0	4.0
485.900	30.08	-15.92	46.00	29.80	16.61	3.08	19.41	186.0	4.0
607.150	41.20	- 4.80	46.00	37.33	18.95	3.63	18.71	203.0	3.5
730.340	38.72	- 7.28	46.00	33.18	20.56	4.11	19.13	96.0	3.1
851.590	39.29	- 6.71	46.00	31.84	21.92	4.59	18.79	133.0	3.2

Note :

1. Level = Read Level + Probe Factor + Cable Loss – Preamp Factor
2. Over Limit = Level – Limit Line

Model No.	**: HLT-86FW**		
Frequency range	**: 30MHz to 1GHz**	**Detector**	**: Quasi-Peak Value**
Temperature	**: 28° C**	**Humidity**	**: 55 %**

Antenna polarization : VERTICAL ; Test distance : 3m ;

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)
242.430	40.07	- 5.93	46.00	47.58	10.60	1.06	19.99	125.0	1.5
544.100	39.28	- 6.72	46.00	37.55	17.66	3.29	19.22	136.0	1.5
552.830	39.34	- 6.66	46.00	37.43	17.84	3.33	19.26	123.0	1.0
607.150	41.22	- 4.78	46.00	37.35	18.95	3.63	19.71	110.0	1.1
730.340	38.36	- 7.64	46.00	32.82	20.56	4.11	19.13	95.0	1.3
851.590	40.58	- 5.42	46.00	33.13	21.92	4.32	18.79	175.0	1.2

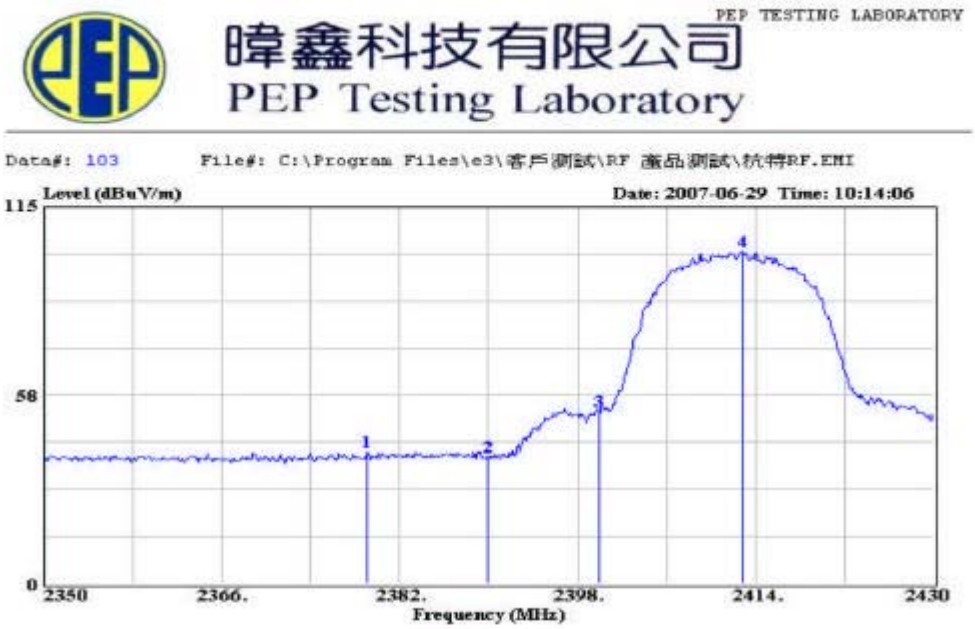
Note :

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

16. Band-edges Compliance

Channel : CH LOW

Polarity : Horizontal

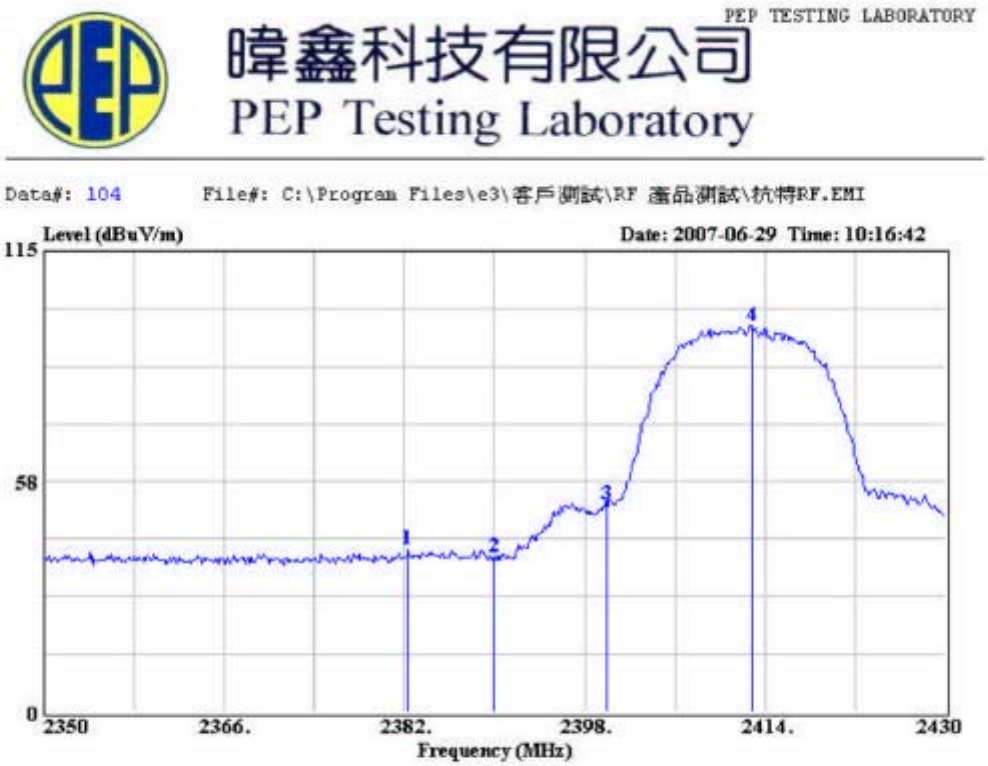



```
Site      : chamber_3 (JOE)
Condition : 3m HORN ANTENNA H.3 HORIZONTAL
EUT       : E960129
Power     : AC 120V 60Hz
Memo      : FCC ID
Memo      : Band-edges
```

	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Preamp Factor	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB	dB	
1	2379.040	40.18	------	------	39.19	28.36	5.42	32.79	
2	2390.000	38.65	------	------	37.65	28.36	5.44	32.80	
3	2400.000	52.57	------	------	51.56	28.36	5.46	32.81	
4	2412.880	101.26	------	------	100.23	28.37	5.48	32.82	

Test method : Public Notice DA 00-705
Detect : Peak Value
Marker-Delta method :
101.26dBuV/m-40.18 dBuV/m =61.08dBuV/m
113.49 dBuV/m-61.08 dBuV/m=52.41 dBuV/m
*52.41dBuV/m<Average Limit (54dBuV/m)

Channel : CH LOW
Polarity : Vertical

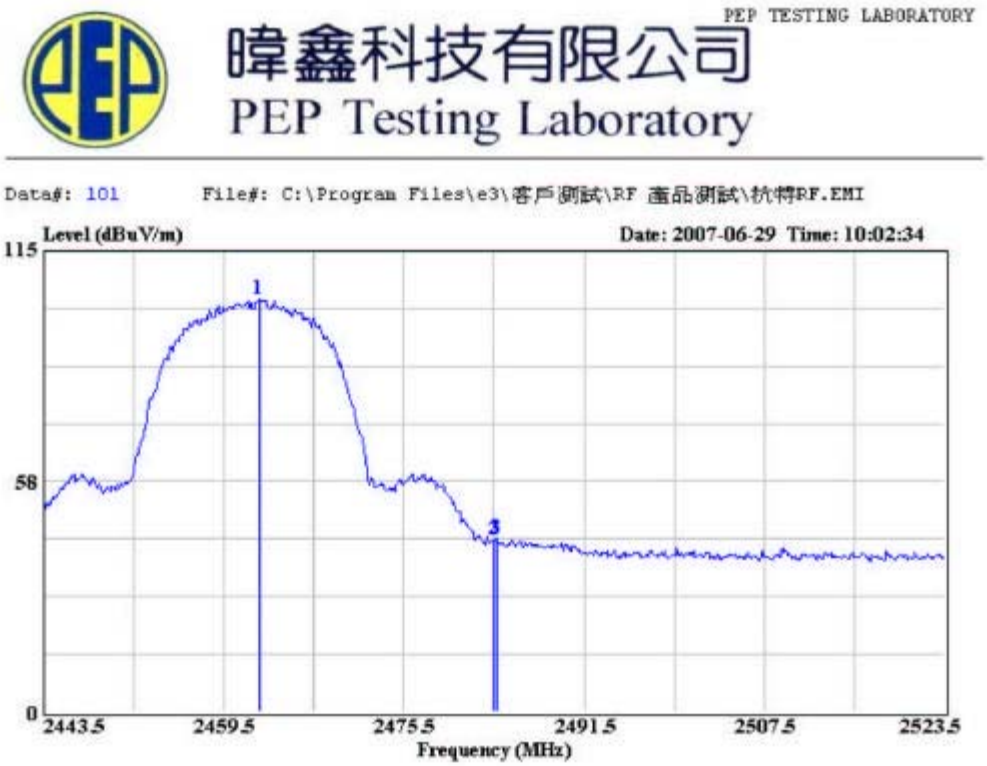


Site : chamber_3 (JOE)
Condition : 3m HORN ANTENNA V.3 VERTICAL
EUT : E960129
Power : AC 120V 60Hz
Memo : FCC ID
Memo : Band-edges

	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Preamp Factor	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB	dB	
1	2382.240	40.42	------	------	39.42	28.36	5.43	32.79	
2	2390.000	38.46	------	------	37.46	28.36	5.44	32.80	
3	2400.000	51.93	------	------	50.92	28.36	5.46	32.81	
4	2412.880	96.23	------	------	95.20	28.37	5.48	32.82	

Test method : Public Notice DA 00-705
Detect : Peak Value
Marker-Delta method :
96.23dBuV/m-40.42 dBuV/m =55.81dBuV/m
104.95 dBuV/m-55.81 dBuV/m=49.14 dBuV/m
*49.14dBuV/m<Average Limit (54dBuV/m)

Channel : CH HIGH
Polarity : Horizontal

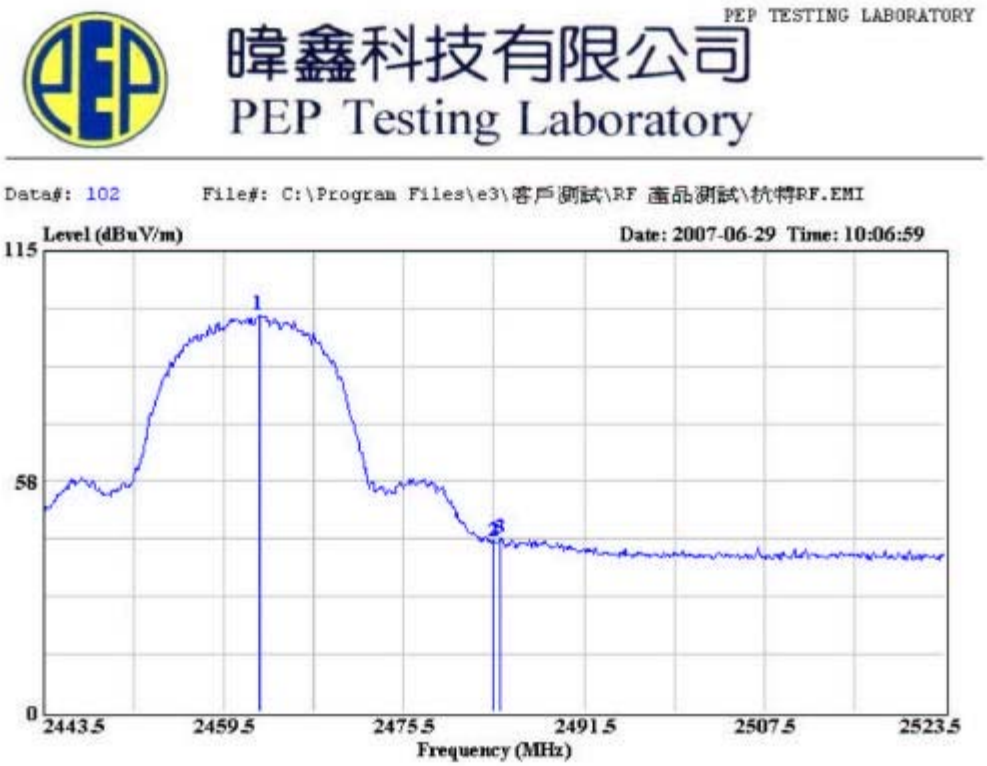


Site : chamber_3 (JOE)
Condition : 3m HORN ANTENNA H.3 HORIZONTAL
EUT : E960129
Power : AC 120V 60Hz
Memo : FCC ID
Memo : Band-edges

	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Preamp Factor	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB	dB	
1	2462.620	102.88	------	------	101.80	28.39	5.56	32.87	
2	2483.500	42.69	------	------	41.60	28.40	5.59	32.90	
3	2483.660	43.29	------	------	42.20	28.40	5.59	32.90	

Test method : Public Notice DA 00-705
Detect : Peak Value
Marker-Delta method :
102.88dBuV/m-43.29 dBuV/m =59.59dBuV/m
112.69 dBuV/m-59.59 dBuV/m=53.10 dBuV/m
*53.1 dBuV/m<Average Limit (54dBuV/m)

Channel : CH HIGH
Polarity : Vertical



Site : chamber_3 (JOE)
Condition : 3m HORN ANTENNA V.3 VERTICAL
EUT : E960129
Power : AC 120V 60Hz
Memo : FCC ID
Memo : Band-edges

	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Preamp Factor	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB	dB	
1	2462.620	98.89	------	------	97.81	28.39	5.56	32.87	
2	2483.500	42.51	------	------	41.42	28.40	5.59	32.90	
3	2484.060	43.25	------	------	42.16	28.40	5.59	32.90	

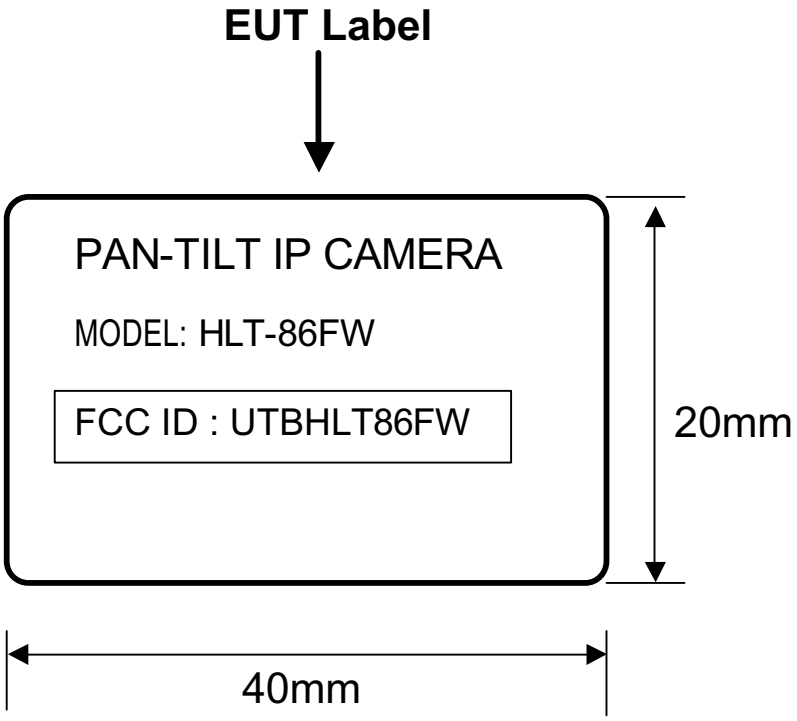
Test method : Public Notice DA 00-705
Detect : Peak Value
Marker-Delta method :
98.89dBuV/m-43.25 dBuV/m =55.64dBuV/m
106.25 dBuV/m-55.64 dBuV/m=50.61 dBuV/m
*50.61dBuV/m<Average Limit (54dBuV/m)

17. List of Measured Instruments

Test Site	Instrument	Model No.	S/N	Next Cal. Date	Cal. Interval
Conduction (No.1)	R & S Spectrum	FSP 3	833387/001	Aug. 13, 2008	1Year
	R & S Receiver	ESHS10	830223/008	Sep. 09, 2008	1Year
	R & S 16A LISN(EUT)	ESH3-Z5	100070	Sep. 14, 2007	1Year
	ROLF HEINE 63A LISN(EUT)	NNB-4/63TL	98008	Sep. 20, 2007	1Year
	RF Cable	No.4	N/A	Jan. 02, 2008	1Year
Chamber (No. 3)	R&S Spectrum Analyzer	FSP30	100157	Sep. 03, 2007	1Year
	Schaffner Pre-Amplifier	CPA-9232	1028	Jan. 02, 2008	1Year
	SCHWARZBECK Antenna	VULB9161	4078	July 22, 2008	1Year
	R & S Signal Generator	SMY02	830235/019	May 01, 2008	2Years
	30MHz~1GHz RF Cable	NO.3	N/A	Jan. 02, 2008	1Year
	COM POWER HORN ANTENNA	AH-118	10056	Oct. 01, 2008	2Years
	MITEQ Pre-Amplifier	JS4-00101800-28-5A	829013	Sep. 28, 2008	2Years
	1GHz~26.5GHz RF Cable	N/A	N/A	Sep. 28, 2008	2Years

18. FCC ID Label Sample

The sample label shown below shall be permanently affixed at a conspicuous location on the device, instruction manual or pamphlet supplied to the user and be readily visible to the purchaser at the time of purchase. However, when the device is so small wherein placement of the label with specified statement is not practicable, only the trade name, model number, and the FCC logo must be displayed on the device per Section §15.19 (b)(2).



19. Information To The User

For a Class B digital device or peripheral, the instructions furnished the user shall include the following or similar statement, placed in a prominent location in the text of the manual:

Federal Communications Commission (FCC) Statement

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures :

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver .
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected .
- Consult the dealer or an experienced radio / TV technician for help .

20. EUT External Photos

PHOTO. 1. **EUT FRONT VIEW**

PHOTO. 2. **EUT REAR VIEW**

21. EUT Internal Photos

PHOTO. 3. **EUT INSIDE VIEW**

PHOTO. 4. **EUT COMPONENT SIDE VIEW**

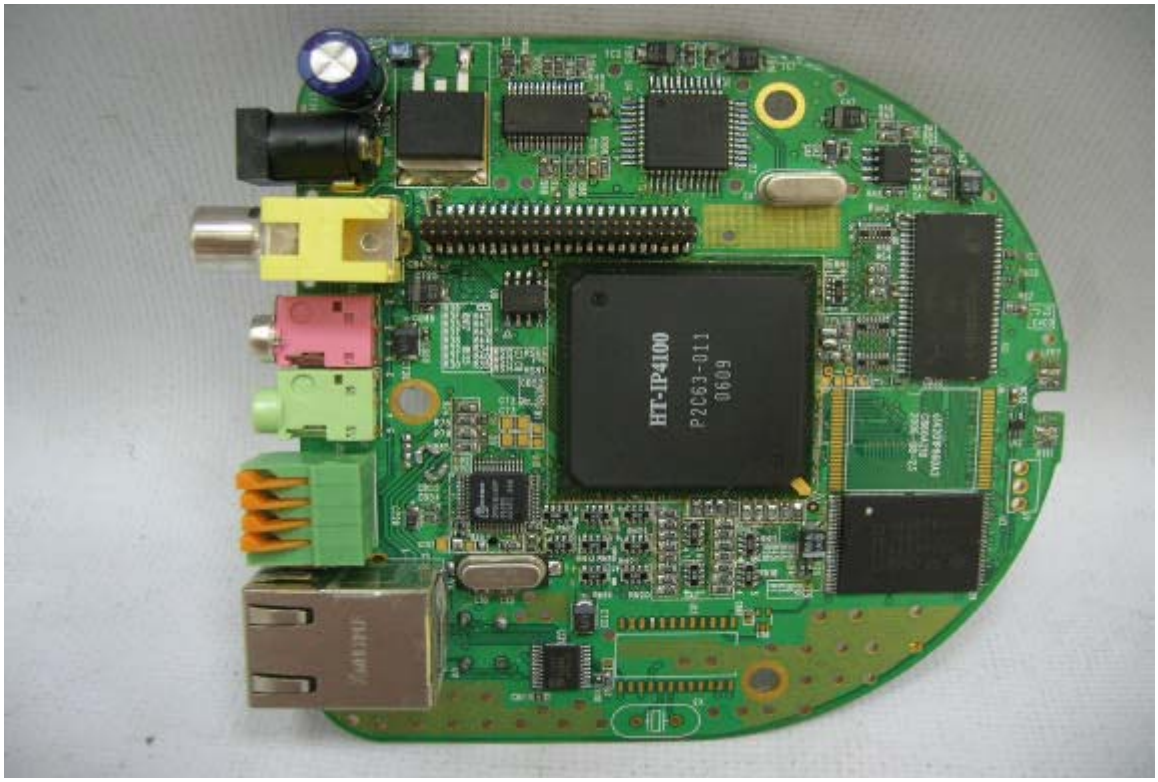


PHOTO. 5. **EUT COMPONENT SIDE VIEW**

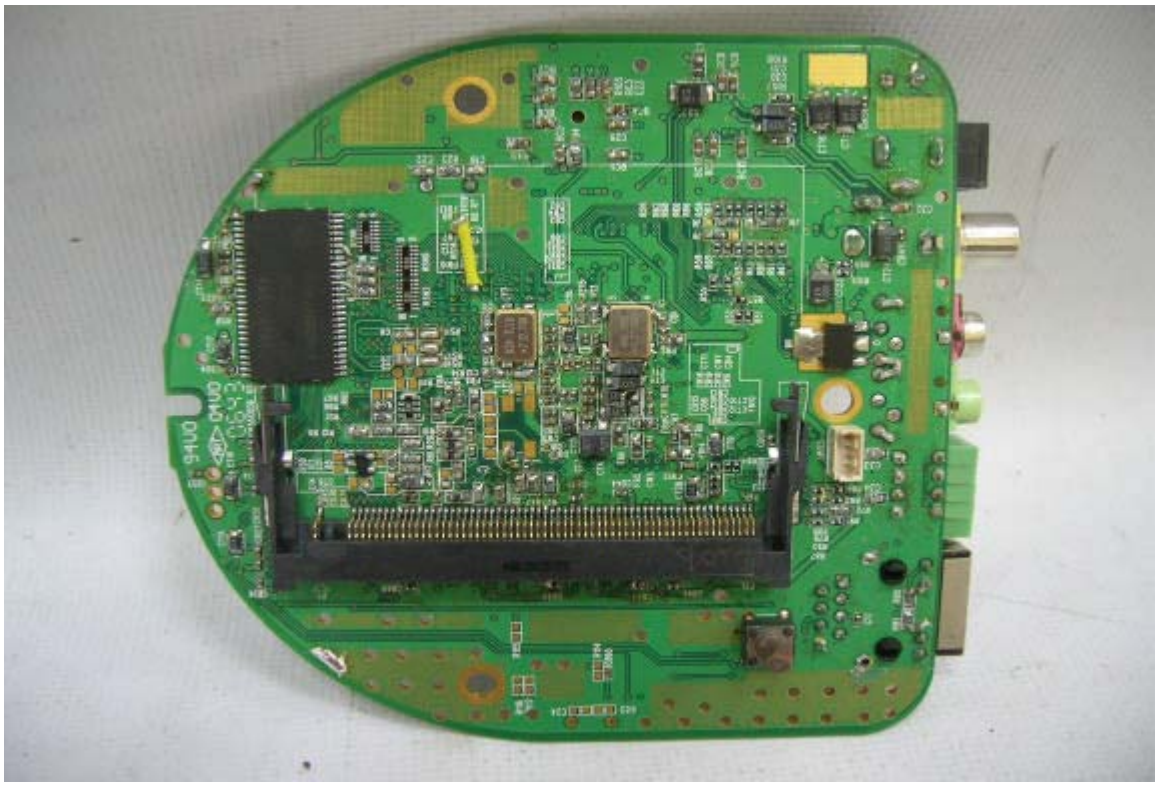


PHOTO. 6. **EUT COMPONENT SIDE VIEW**

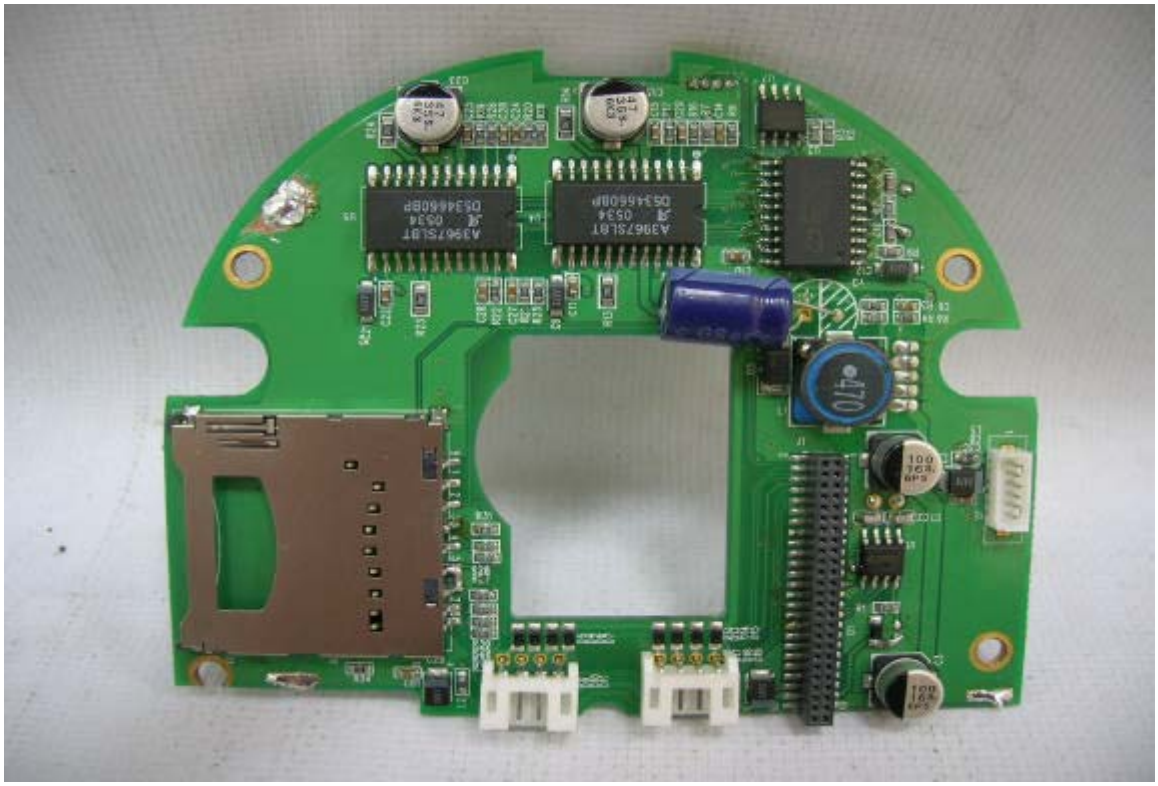


PHOTO. 7. **EUT SOLDERING SIDE VIEW**

PHOTO. 8. **EUT COMPONENT SIDE VIEW**

PHOTO. 9. **EUT COMPONENT SIDE VIEW**

PHOTO. 10. **EUT SOLDERING SIDE VIEW**