

FCC TEST REPORT

REPORT NO.: 071102FIA01

MODEL NO.: GEK1080HD-160GW

RECEIVED: Nov. 5, 2007

TESTED: Nov. 5 ~ Nov. 15, 2007

ISSUED: Nov. 16, 2007

APPLICANT: DINASTech (HK) Limited

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ADT (Shanghai) Corporation



V 2.1.0

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1. CERTIFICATION

PRODUCT: GEKTV WiFi IPTV RECEIVER
BRAND NAME: N/A
MODEL NO.: GEK1080HD-160GW
TEST SAMPLE: Engineering Sample
TESTED: Nov. 5 ~ Nov. 15, 2007
APPLICANT: DINASTech (HK) Limited
STANDARDS: FCC Part 15, Subpart C (Section 15.247),
ANSI C63.4-2003

We, **ADT (Shanghai) Corporation**, declare that the equipment above has been tested in our facility and found compliance with the requirement limits of applicable standards. The test record, data evaluation and Equipment Under Test (EUT) configurations represented herein are true and accurate under the standards herein specified.

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Director of Operations

2. SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

APPLIED STANDARD: FCC Part 15, Subpart C (Section 15.247)			
Standard Section	Test Type and Limit	Result	Remark
15.207	AC Power Conducted Emission (802.11g)	PASS	Meet the requirement of limit. Minimum passing margin is -10.17 dB at 4.328MHz
15.247(a)(2)	Spectrum Bandwidth of a Direct Sequence Spread Spectrum System Limit: min. 500kHz	PASS	Meet the requirement of limit.
15.247(b)	Maximum Peak Output Power Limit: max. 30dBm	PASS	Meet the requirement of limit.
15.247(d)	Radiated Emissions Limit: Table 15.209 (802.11g, below 1GHz)	PASS	Meet the requirement of limit. Minimum passing margin is -2.55 dB at 396.010MHz
	Radiated Emissions Limit: Table 15.209 (802.11b, above 1GHz)	PASS	Meet the requirement of limit. Minimum passing margin is -2.95dB at 2483.5AVMHz
	Radiated Emissions Limit: Table 15.209 (802.11g, above 1GHz)	PASS	Meet the requirement of limit. Minimum passing margin is -0.91dB at 2483.5PKMHz
15.247(e)	Power Spectral Density Limit: max. 8dBm	PASS	Meet the requirement of limit.
15.247(d)	Band Edge Measurement Limit: 20dB less than the peak value of fundamental frequency	PASS	Meet the requirement of limit.

NOTE: The EUT was operating in 2.412 ~ 2.462GHz frequency band.

2.1 MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2:

This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of $k=2$.

MEASUREMENT	FREQUENCY	UNCERTAINTY
Conducted emissions	9kHz ~ 30MHz	3.04 dB
Radiated emissions	30MHz ~ 200MHz (Horizontal)	4.42 dB
	30MHz ~ 200MHz (Vertical)	4.62 dB
	200MHz ~ 1000MHz (Horizontal)	4.06 dB
	200MHz ~ 1000MHz (Vertical)	4.16 dB

Note: The measurement uncertainty is factored into the compliance determination. The additional information is listed on APPENDIX B of this report.

3. GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

EUT	GEKTV WiFi IPTV RECEIVER
MODEL NO.	GEK1080HD-160GW
POWER SUPPLY	120Vac, 60Hz
MODULATION TYPE	DSSS:bpsk,qpsk,16qam,64qam,CCK OFDM:bpsk,qpsk,16qam,64qam
MODULATION TECHNOLOGY	DSSS,OFDM
TRANSFER RATE	802.11b:11 Mbps 802.11g: 54 Mbps
FREQUENCY RANGE	802.11b & 802.11g: 2.412 ~ 2.462GHz
NUMBER OF CHANNEL	11
CHANNEL SPACING	5MHz
OUTPUT POWER	802.11b: 11.62dBm 802.11g: 13.57dBm
DATA CABLE	1m shielded AV line
ANTENNA TYPE	Dipole antenna
ANTENNA GAIN	3dBi
I/O PORTS	AV, S-Video, Y.Cr.Cb, USB & RJ45
ASSOCIATED DEVICES	Remote controller

NOTE:

1. The above EUT information was declared by the manufacturer and for more detailed features description, please refer to the manufacturer's specifications or User's Manual.

3.2 DESCRIPTION OF TEST MODES

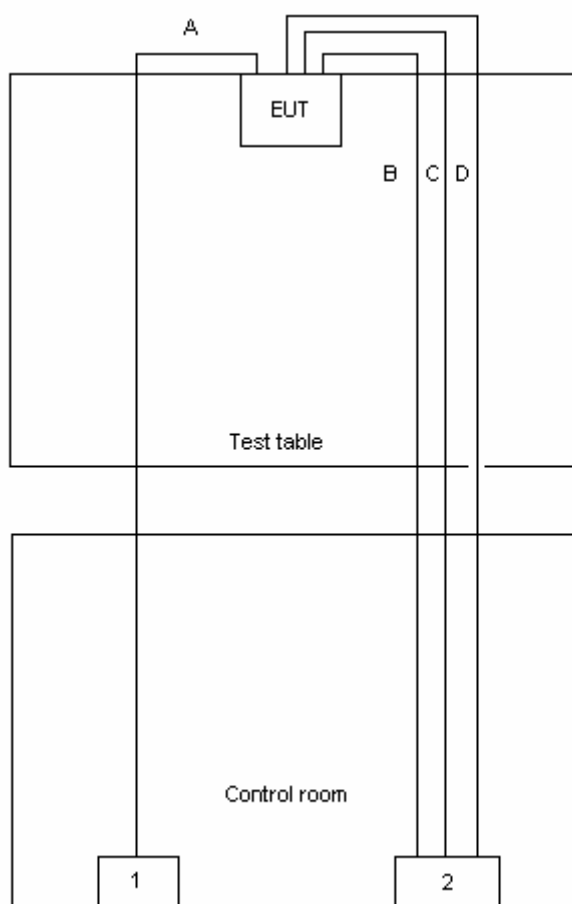
Operated in 2.412 ~ 2.462GHz band:

For 802.11b/g: Eleven channels are provided to this EUT.

Channel	Frequency	Channel	Frequency
1	2.412 GHz	7	2.442 GHz
2	2.417 GHz	8	2.447 GHz
3	2.422 GHz	9	2.452 GHz
4	2.427 GHz	10	2.457 GHz
5	2.432 GHz	11	2.462 GHz
6	2.437 GHz		

3.2.1 CONFIGURATION OF SYSTEM UNDER TEST

TEST SETUP CHART



3.2.2 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL:

EUT configure mode	Applicable to				Description
	PLC	RE<1G	RE≥1G	APCM	
-	X	X	X	X	N/A

Where PLC: Power Line Conducted Emission

RE<1G RE: Radiated Emission below 1GHz

RE≥1G: Radiated Emission above 1GHz

APCM: Antenna Port Conducted Measurement

Power Line Conducted Emission Test:

- ☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
- ☒ Following channel(s) was (were) selected for the final test as listed below.

Mode	Available Channel	Tested Channel	Modulation Technology	Data Rate (Mbps)
802.11g	1 to 11	1, 6, 11	OFDM	54

Radiated Emission Test (Below 1 GHz):

- ☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
- ☒ Following channel(s) was (were) selected for the final test as listed below.

Mode	Available Channel	Tested Channel	Modulation Technology	Data Rate (Mbps)
802.11g	1 to 11	11	OFDM	54

Radiated Emission Test (Above 1 GHz):

- ☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
- ☒ Following channel(s) was (were) selected for the final test as listed below.

Mode	Available Channel	Tested Channel	Modulation Technology	Data Rate (Mbps)
802.11b	1 to 11	1, 6, 11	DSSS	11
802.11g	1 to 11	1, 6, 11	OFDM	54

Bandage Measurement:

- ☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
- ☒ Following channel(s) was (were) selected for the final test as listed below.

Mode	Available Channel	Tested Channel	Modulation Technology	Data Rate (Mbps)
802.11b	1 to 11	1, 11	DSSS	11
802.11g	1 to 11	1, 11	OFDM	54

Antenna Port Conducted Measurement:

- ☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
- ☒ Following channel(s) was (were) selected for the final test as listed below.

Mode	Available Channel	Tested Channel	Modulation Technology	Data Rate (Mbps)
802.11b	1 to 11	1, 6, 11	DSSS	11
802.11g	1 to 11	1, 6, 11	OFDM	54

3.3 GENERAL DESCRIPTION OF APPLIED STANDARDS

The EUT is a WiFi IPTV Transceiver. According to the specifications of the manufacturer, it must comply with the requirements of the following standards:

FCC Part 15, Subpart C. (15.247)

ANSI C63.4-2003

All test items have been performed and recorded as per the above standards.

NOTE: The EUT is also considered as a kind of computer peripheral, because the connection to computer is necessary for typical use. It has been verified to comply with the requirements of FCC Part 15, Subpart B, Class B (DoC). The test report has been issued separately.

3.4 DESCRIPTION OF SUPPORT UNITS

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

NO.	PRODUCT	BRAND	MODEL NO.	SERIAL NO.	FCC ID
1	Notebook	IBM	2682-CVD	KN-00989	FCC DoC approved
2	TV	SVA	LT3268	JCS612190018	N/A

NO.	SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS
A	2m UTP RJ45 cable.
B	1m shielded AV line.
C	1m shielded S-Video line.
D	1m shielded Y.Cr.Cb line.

4. TEST TYPES AND RESULTS

4.1 CONDUCTED EMISSION MEASUREMENT

4.1.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT

FREQUENCY OF EMISSION (MHz)	CONDUCTED LIMIT (dB μ V)	
	Quasi-peak	Average
0.15-0.5	66 to 56	56 to 46
0.5-5	56	46
5-30	60	50

- NOTE:**
1. The lower limit shall apply at the transition frequencies.
 2. The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50 MHz.
 3. All emanations from a class A/B digital device or system, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strengths specified above.

4.1.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED UNTIL
Receiver R&S	ESCS30	E1R1002	Jun. 12, 2008
LISN Schwarzbeck	NSLK8127	E1L1001	Jan. 31, 2008
LISN ROHDE & SCHWARZ	NSLK8126	E1L1002	Jul. 12, 2008
RF signal cable Woken	RG-58	E1CBL09	May. 30, 2008
Software ADT	ADT_Conc_ V7.3.0	N/A	N/A

NOTE: The calibration interval of the above test instruments is 12 months.

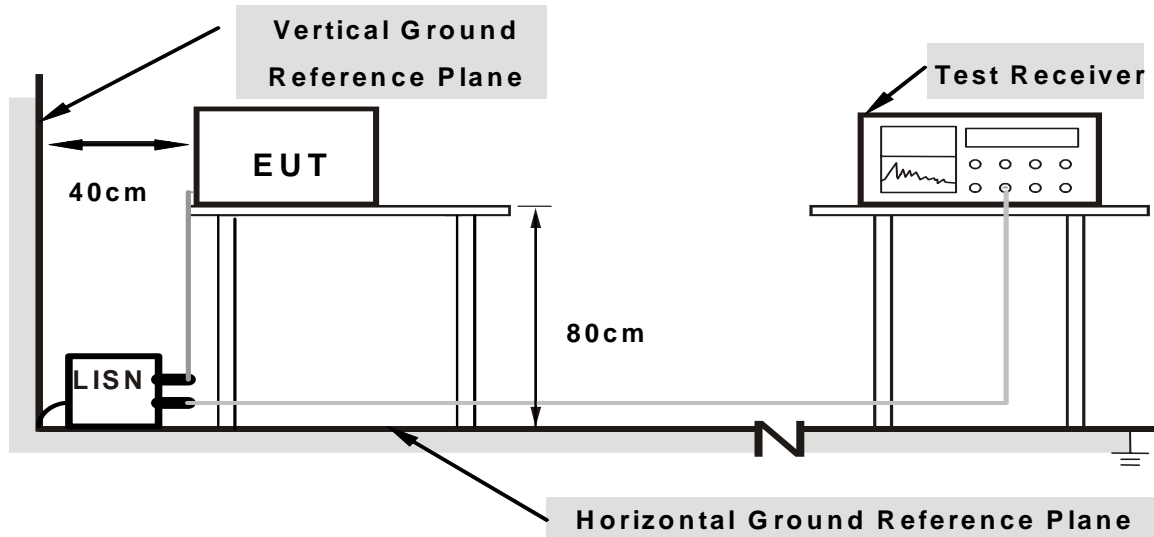
4.1.3 TEST PROCEDURES

- a. The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling impedance for the measuring instrument.
- b. Both lines of the power mains connected to the EUT were checked for maximum conducted interference.
- c. The frequency range from 150 kHz to 30MHz was searched. Emission levels under (Limit - 20dB) were not recorded.

4.1.4 DEVIATION FROM TEST STANDARD

No deviation

4.1.5 TEST SETUP



Note: 1. Support units were connected to second LISN.

2. Both of LISNs (AMN) are 80 cm from EUT and at least 80 from other units and other metal planes

For the actual test configuration, please refer to the related item – Photographs of the Test Configuration.

4.1.6 EUT OPERATING CONDITIONS

- Connected the EUT with notebook computer via RJ45.
- Connected EUT to the TV via S-Video, AV, & Y.Cr.Cb line.
- Make sure the EUT transmitting normally.
- Start testing under the above condition.

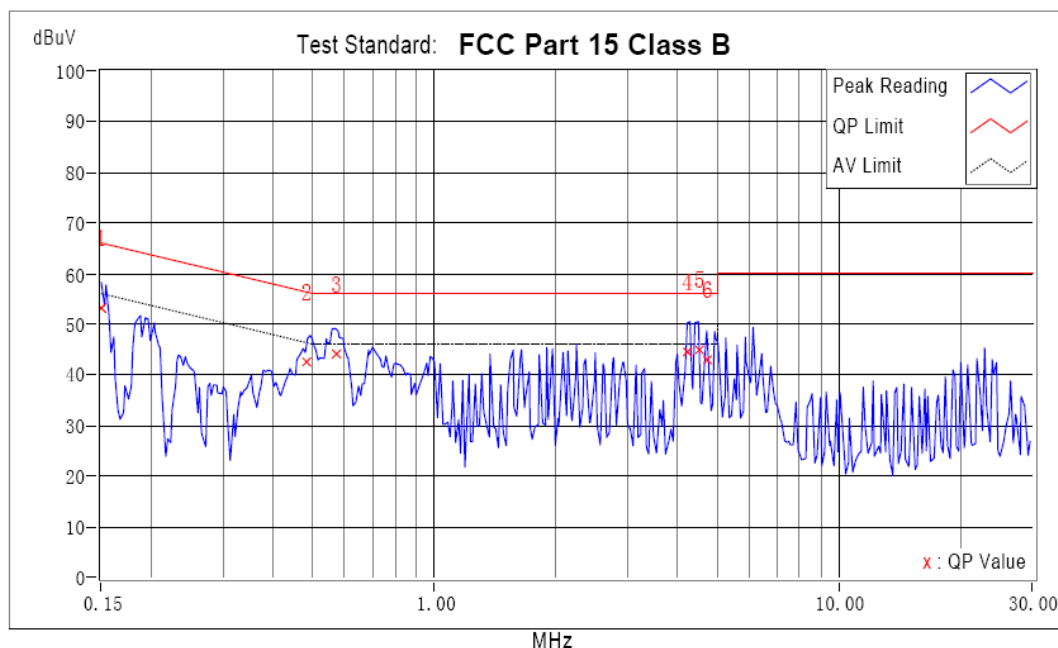
4.1.7 TEST RESULTS

Conducted Worst-Case Data

MODE	802.11g, Channel 1	6dB BANDWIDTH	9 kHz
MODULATION TECHNOLOGY	OFDM	ENVIRONMENTAL CONDITIONS	20deg. C, 50%RH, 100KPa
INPUT POWER (SYSTEM)	120Vac, 60Hz	PHASE	Line (L)
TESTED BY	REBECCA		

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.150	1.80	52.60	33.59	54.40	35.39	66.00	56.00	-11.60	-20.61
2	0.485	0.45	41.82	27.78	42.27	28.23	56.25	46.25	-13.98	-18.02
3	0.569	0.43	43.58	28.74	44.01	29.17	56.00	46.00	-11.99	-16.83
4	4.209	0.54	43.89	32.20	44.43	32.74	56.00	46.00	-11.57	-13.26
5	4.486	0.55	44.18	32.14	44.73	32.69	56.00	46.00	-11.27	-13.31
6	4.706	0.56	42.33	30.11	42.89	30.67	56.00	46.00	-13.11	-15.33

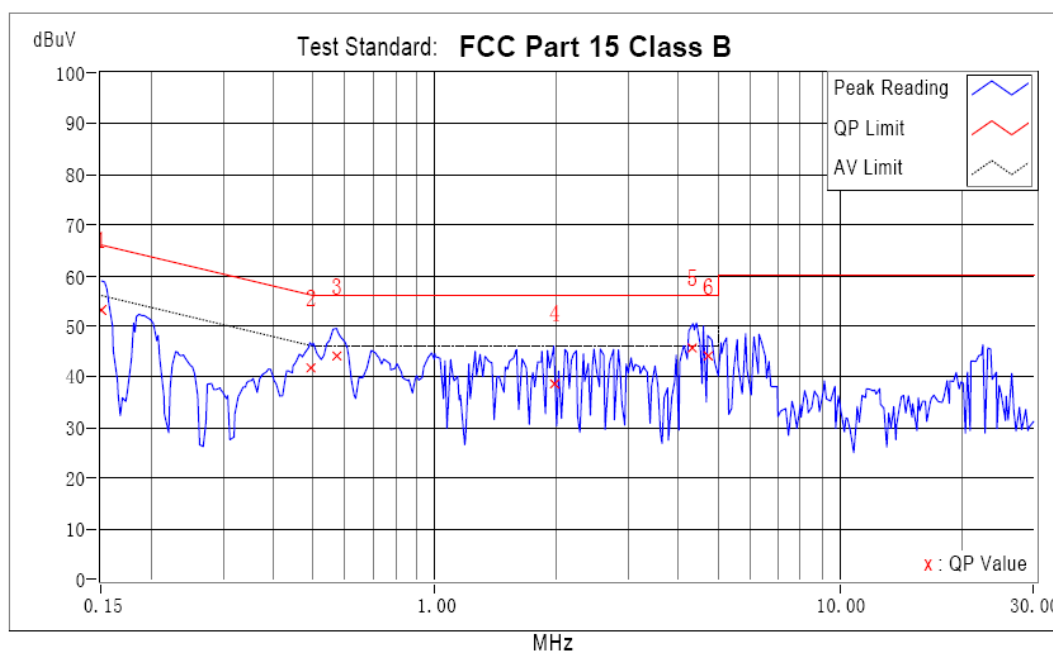
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value = Emission level - Limit value
 5. Correction factor = Insertion loss + Cable loss
 6. Emission Level = Correction Factor + Reading Value.]



MODE	802.11g, Channel 1	6dB BANDWIDTH	9 kHz
MODULATION TECHNOLOGY	OFDM	ENVIRONMENTAL CONDITIONS	20deg. C, 50%RH, 100KPa
INPUT POWER (SYSTEM)	120Vac, 60Hz	PHASE	Neutral (N)
TESTED BY	REBECCA		

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.150	1.79	52.56	32.85	54.35	34.64	66.00	56.00	-11.65	-21.36
2	0.491	0.47	41.34	26.30	41.81	26.77	56.15	46.15	-14.34	-19.38
3	0.571	0.48	43.52	29.30	44.00	29.78	56.00	46.00	-12.00	-16.22
4	1.963	0.52	38.09	24.08	38.61	24.60	56.00	46.00	-17.39	-21.40
5	4.328	0.46	45.37	33.90	45.83	34.36	56.00	46.00	-10.17	-11.64
6	4.706	0.45	43.75	32.18	44.20	32.63	56.00	46.00	-11.80	-13.37

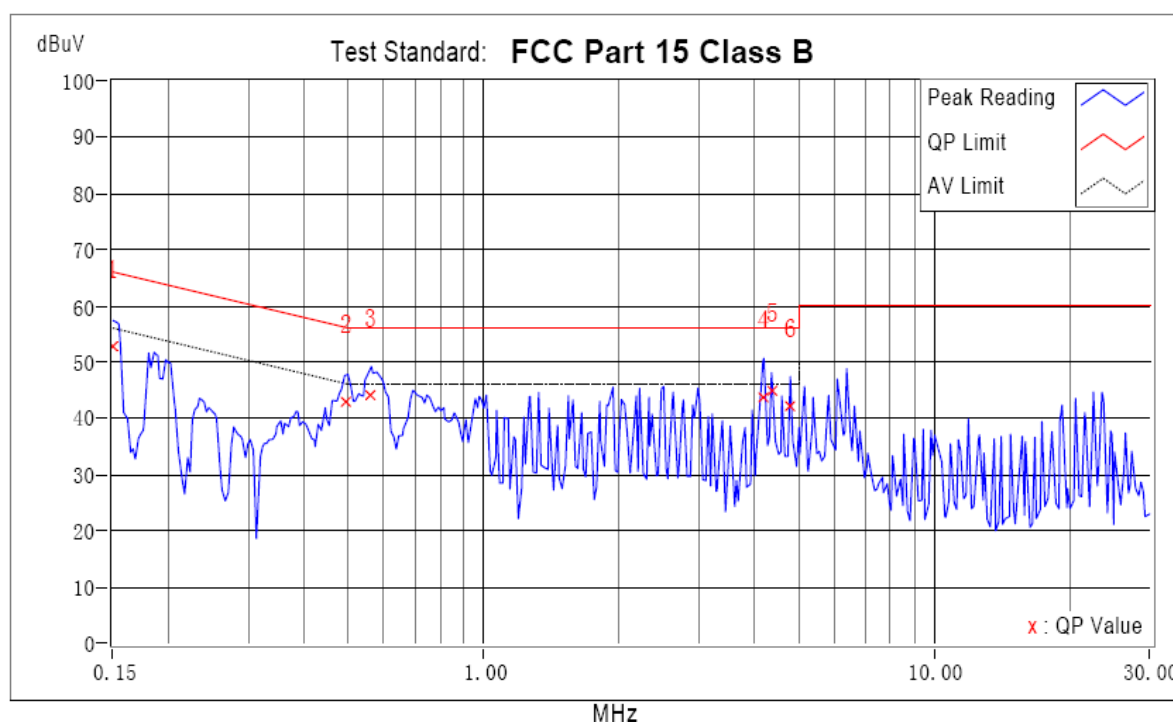
- REMARKS:** 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. The emission levels of other frequencies were very low against the limit.
4. Margin value = Emission level - Limit value
5. Correction factor = Insertion loss + Cable loss
6. Emission Level = Correction Factor + Reading Value.



CHANNEL	802.11g, Channel 6	6dB BANDWIDTH	9 kHz
MODULATION TECHNOLOGY	OFDM	ENVIRONMENTAL CONDITIONS	20deg. C, 50%RH, 100KPa
INPUT POWER (SYSTEM)	120Vac, 60Hz	PHASE	Line (L)
TESTED BY	REBECCA		

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.150	1.80	52.06	33.59	53.86	35.39	66.00	56.00	-12.14	-20.61
2	0.491	0.44	42.16	27.03	42.60	27.47	56.15	46.15	-13.55	-18.68
3	0.562	0.43	43.45	28.52	43.88	28.95	56.00	46.00	-12.12	-17.05
4	4.175	0.54	43.23	31.41	43.77	31.95	56.00	46.00	-12.23	-14.05
5	4.345	0.55	44.40	32.68	44.95	33.23	56.00	46.00	-11.05	-12.77
6	4.782	0.56	41.69	29.49	42.25	30.05	56.00	46.00	-13.75	-15.95

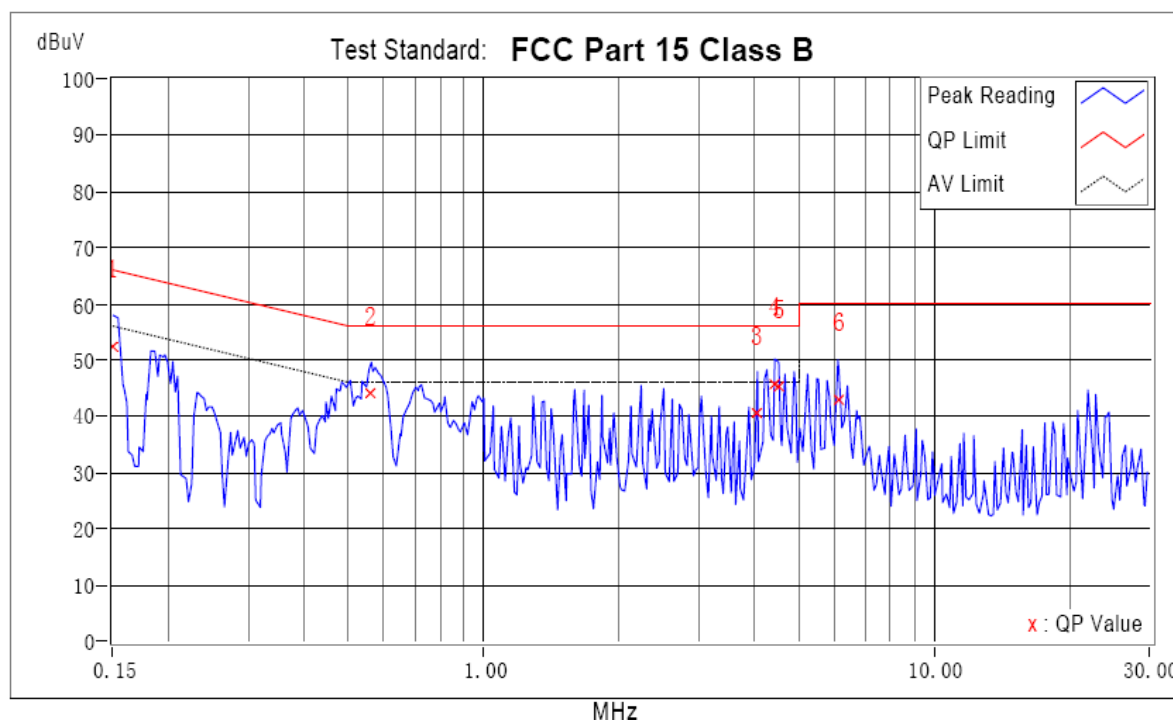
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value = Emission level - Limit value
 5. Correction factor = Insertion loss + Cable loss
 6. Emission Level = Correction Factor + Reading Value.



CHANNEL	802.11g, Channel 6	6dB BANDWIDTH	9 kHz
MODULATION TECHNOLOGY	OFDM	ENVIRONMENTAL CONDITIONS	20deg. C, 50%RH, 100KPa
INPUT POWER (SYSTEM)	120Vac, 60Hz	PHASE	Neutral (N)
TESTED BY	REBECCA		

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.150	1.79	51.94	33.67	53.73	35.46	66.00	56.00	-12.27	-20.54
2	0.562	0.48	43.62	28.23	44.10	28.71	56.00	46.00	-11.90	-17.29
3	4.044	0.47	40.16	28.01	40.63	28.48	56.00	46.00	-15.37	-17.52
4	4.415	0.46	45.37	33.96	45.83	34.42	56.00	46.00	-10.17	-11.58
5	4.504	0.45	44.83	33.41	45.28	33.86	56.00	46.00	-10.72	-12.14
6	6.101	0.48	42.54	30.94	43.02	31.42	60.00	50.00	-16.98	-18.58

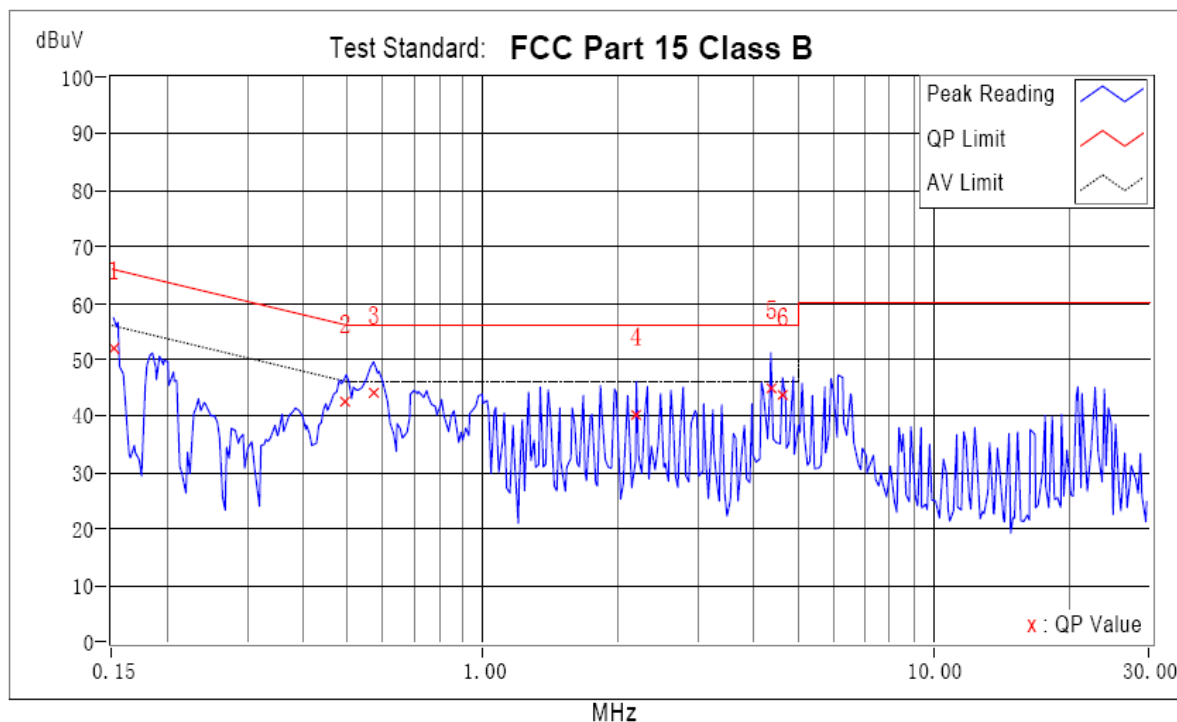
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value = Emission level - Limit value
 5. Correction factor = Insertion loss + Cable loss
 6. Emission Level = Correction Factor + Reading Value.



CHANNEL	802.11g, Channel 11	6dB BANDWIDTH	9 kHz
MODULATION TECHNOLOGY	OFDM	ENVIRONMENTAL CONDITIONS	20deg. C, 50%RH, 100KPa
INPUT POWER (SYSTEM)	120Vac, 60Hz	PHASE	Line (L)
TESTED BY	REBECCA		

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.151	1.78	51.22	31.72	53.00	33.50	65.93	55.93	-12.94	-22.44
2	0.491	0.44	42.10	27.93	42.54	28.37	56.15	46.15	-13.61	-17.78
3	0.571	0.43	43.62	29.03	44.05	29.46	56.00	46.00	-11.95	-16.54
4	2.187	0.47	39.51	27.03	39.98	27.50	56.00	46.00	-16.02	-18.50
5	4.345	0.55	44.50	32.78	45.05	33.33	56.00	46.00	-10.95	-12.67
6	4.613	0.56	42.96	30.46	43.52	31.02	56.00	46.00	-12.48	-14.98

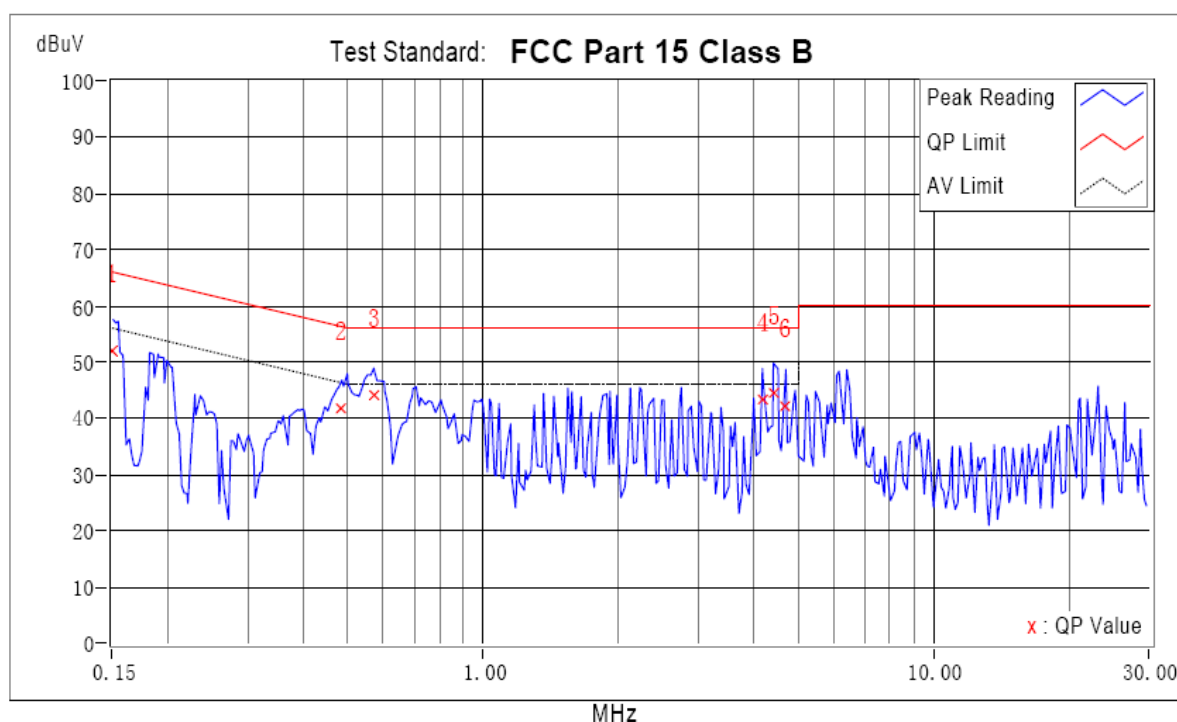
- REMARKS:** 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. The emission levels of other frequencies were very low against the limit.
4. Margin value = Emission level - Limit value
5. Correction factor = Insertion loss + Cable loss
6. Emission Level = Correction Factor + Reading Value.



CHANNEL	802.11g, Channel 11	6dB BANDWIDTH	9 kHz
MODULATION TECHNOLOGY	OFDM	ENVIRONMENTAL CONDITIONS	20deg. C, 50%RH, 100KPa
INPUT POWER (SYSTEM)	120Vac, 60Hz	PHASE	Neutral (N)
TESTED BY	REBECCA		

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.151	1.77	51.56	32.22	53.33	33.99	65.97	55.97	-12.63	-21.97
2	0.485	0.48	41.46	27.78	41.94	28.26	56.25	46.25	-14.31	-17.99
3	0.571	0.48	43.78	29.63	44.26	30.11	56.00	46.00	-11.74	-15.89
4	4.158	0.46	42.82	31.19	43.28	31.65	56.00	46.00	-12.72	-14.35
5	4.398	0.46	44.12	32.65	44.58	33.11	56.00	46.00	-11.42	-12.89
6	4.688	0.45	41.85	30.36	42.30	30.81	56.00	46.00	-13.70	-15.19

- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value = Emission level - Limit value
 5. Correction factor = Insertion loss + Cable loss
 6. Emission Level = Correction Factor + Reading Value.



4.2 RADIATED EMISSION MEASUREMENT

4.2.1 LIMITS OF RADIATED EMISSION MEASUREMENT

Emissions radiated outside of the specified bands, shall be according to the general radiated limits in 15.209 as following:

Frequencies (MHz)	Field strength (microvolts/meter)	Measurement distance (meters)
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30.0	30	30
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

NOTE:

1. The lower limit shall apply at the transition frequencies.
2. Emission level (dBuV/m) = 20 log Emission level (uV/m).
3. As shown in 15.35(b), for frequencies above 1000MHz, the field strength limits are based on average detector, however, the peak field strength of any emission shall not exceed the maximum permitted average limits, specified above by more than 20dB under any condition of modulation.

4.2.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED UNTIL
Spectrum Agilent	E4403B	E1S1001	Mar. 19, 2008
Receiver R&S	ESCS30	E1R1001	Jun. 19, 2008
Trilog Broadband Antenna Schwarzbeck	VULB 9168	E1A1001	Mar. 22, 2008
Double Ridged Broadband Horn Antenna Schwarzbeck	BBHA 9120D	E1A1002	Feb. 14, 2008
Preamplifier Agilent	HP 8447D-CFG001	E1A2001	Jan. 27, 2008
Signal Analyzer ROHDE & SCHWARZ	FSP30	E1S1002	May. 15, 2008
RF signal cable Woken	RG-402	E1CBH01	May. 30, 2008
RF signal cable Woken	RG-412	E1CBL02	May. 30, 2008
RF signal cable Woken	RG-412	E1CBL03	May. 30, 2008
RF signal cable Woken	RG-412	E1CBL04	May. 30, 2008
Software ADT	ADT_Radiated_V7.5	N/A	N/A

NOTE:

- 1) The calibration interval of the above test instruments is 12 months.
- 2) The horn antenna and HP preamplifier (model: 8449B) are used only for the measurement of emission frequency above 1GHz if tested.

4.2.3 TEST PROCEDURES

- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi- anechoic. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. The antenna is a broadband antenna, and its height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- f. If the emission level of the EUT in peak mode was 10 dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10 dB margin would be re-tested one by one using the quasi-peak method or average method as specified and then reported in Data sheet peak mode and QP mode.

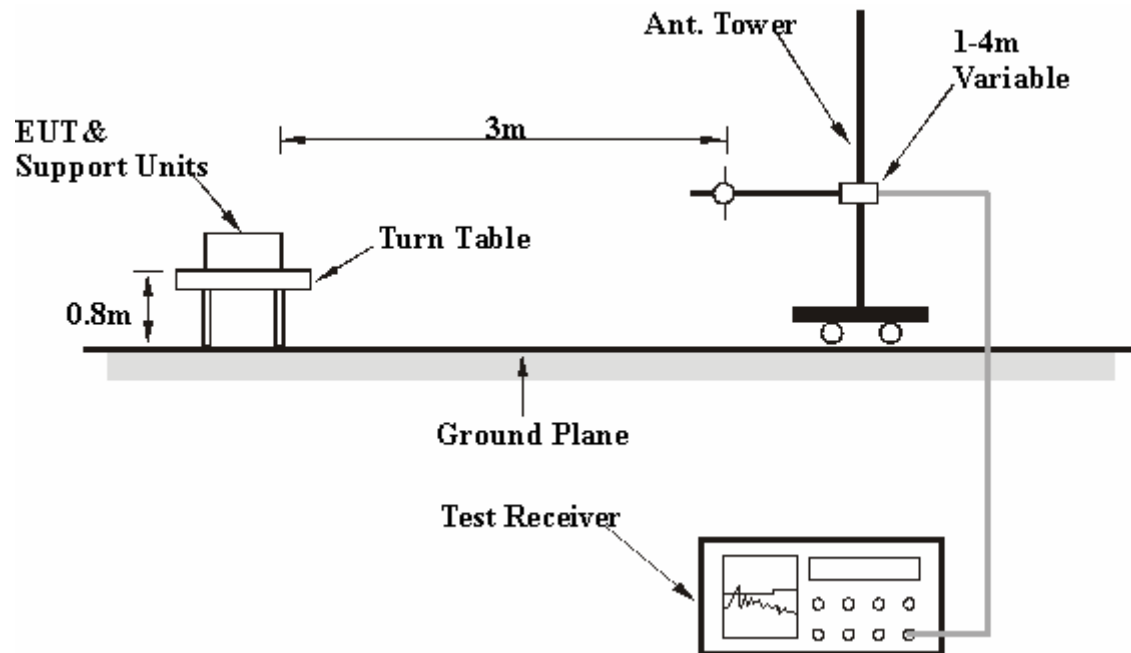
NOTE:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120 kHz for Quasi-peak detection at frequency below 1GHz.
2. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 1 MHz for Peak detection (PK) at frequency above 1GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 10 Hz for Average detection (AV) at frequency above 1GHz.

4.2.4 DEVIATION FROM TEST STANDARD

No deviation

4.2.5 TEST SETUP



For the actual test configuration, please refer to the related item – Photographs of the Test Configuration.

4.2.6 EUT OPERATING CONDITIONS

Same as 4.1.6

4.2.7 TEST RESULTS

Below 1GHz Worst-Case Data

MODE	802.11g, Channel 11	FREQUENCY RANGE	Below 1000MHz
MODULATION TECHNOLOGY	OFDM	ENVIRONMENTAL CONDITIONS	20deg. C, 50%RH, 100KPa
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Quasi-Peak
TESTED BY	Rebecca		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
No.	Freq. (MHz)	Factor (dB/M)	Reading (dBuV/M)	Emission (dBuV/M)	Limit (dBuV/M)	Margin (dB)	Ant. Height (cm)	Table Angle (Deg.)
1	59.250	14.83	14.08	28.91	40.00	-11.09	100.00	259.00
2	330.000	17.21	11.06	28.27	46.00	-17.73	100.00	236.00
3	396.010	18.56	24.88	43.45	46.00	-2.55	184.00	206.00
4	462.000	20.31	9.06	29.37	46.00	-16.63	101.00	246.00
5	594.010	23.01	8.27	31.27	46.00	-14.73	100.00	171.00
6	715.450	24.90	13.96	38.86	46.00	-7.14	100.00	271.00

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
No.	Freq. (MHz)	Factor (dB/M)	Reading (dBuV/M)	Emission (dBuV/M)	Limit (dBuV/M)	Margin (dB)	Ant. Height (cm)	Table Angle (Deg.)
1	143.970	16.52	9.46	25.98	43.50	-17.52	100.00	20.00
2	231.000	14.55	11.14	25.69	46.00	-20.31	100.00	249.00
3	363.000	17.83	14.07	31.90	46.00	-14.10	100.00	241.00
4	396.010	18.56	18.74	37.30	46.00	-8.70	100.00	175.00
5	461.990	20.31	8.43	28.74	46.00	-17.26	100.00	40.00
6	594.010	23.01	6.26	29.27	46.00	-16.73	100.00	147.00

- REMARKS:**
1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m)
 2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level – Limit value

ABOVE 1G Worst-Case

MODE	802.11g, Channel 1	FREQUENCY RANGE	1 ~ 26.5GHz
MODULATION TECHNOLOGY	OFDM	ENVIRONMENTAL CONDITIONS	20deg. C, 50%RH, 100KPa
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak(PK) Average (AV)
TESTED BY	REBECCA		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

No.	Freq. (MHz)	Factor (dB/M)	Reading (dBuV/M)	Emission (dBuV/M)	Limit (dBuV/M)	Margin (dB)	Ant. Height (cm)	Table Angle (Deg.)
1	2390PK	32.59	33.85	66.43	74	-7.57	100	19
1	2390AV	32.59	13.97	46.56	54	-7.44	100	19
2	2412PK	32.61	68.19	100.79				
2	2412AV	32.61	65.24	97.85				
3	4824PK	38.12	13.6	51.72	74	-22.28	100	19
3	4824AV	38.12	1.38	39.5	54	-14.5	100	19
4	7236PK	45.24	13.3	58.54	74	-15.46	100	19
4	7236AV	45.24	0.37	45.6	54	-8.40	100	19
5	9648PK	48.01	11.96	59.97	74	-14.03	100	19
5	9648AV	48.01	-1.23	46.79	54	-7.21	100	19
6	12060PK	49.07	12.8	61.88	74	-12.12	100	19
6	12060AV	49.07	-0.13	48.95	54	-5.05	100	19

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

No.	Freq. (MHz)	Factor (dB/M)	Reading (dBuV/M)	Emission (dBuV/M)	Limit (dBuV/M)	Margin (dB)	Ant. Height (cm)	Table Angle (Deg.)
1	2390PK	32.59	39	71.58	74	-2.42	100	19
1	2390AV	32.59	16.92	49.5	54	-4.5	100	19
2	2412PK	32.61	78.07	110.67				
2	2412AV	32.61	75.68	108.29				
3	4824PK	38.12	18.88	57	74	-17	100	19
3	4824AV	38.12	1.98	40.1	54	-13.9	100	19
4	7236PK	45.24	12.89	58.12	74	-15.88	100	19
4	7236AV	45.24	0.38	45.62	54	-8.38	100	19
5	9648PK	48.01	11.69	59.7	74	-14.3	100	19
5	9648AV	48.01	-0.92	47.09	54	-6.91	100	19
6	12060PK	49.07	12.18	61.26	74	-12.74	100	19
6	12060AV	49.07	-0.02	49.05	54	-4.95	100	19

REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m)
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. The limit value is defined as per 15.247
6. “ * ” : Fundamental frequency

MODE	802.11g, Channel 6	FREQUENCY RANGE	1 ~ 26.5GHz
MODULATION TECHNOLOGY	OFDM	ENVIRONMENTAL CONDITIONS	20deg. C, 50%RH, 100kPa
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak(PK) Average (AV)
TESTED BY	REBECCA		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
No.	Freq. (MHz)	Factor (dB/M)	Reading (dBuV/M)	Emission (dBuV/M)	Limit (dBuV/M)	Margin (dB)	Ant. Height (cm)	Table Angle (Deg.)
1	2437PK	32.66	66.02	98.68				
1	2437AV	32.66	64.13	96.79				
2	4874PK	38.31	12.62	50.93	74	-23.07	100	19
2	4874AV	38.31	1.62	39.94	54	-14.06	100	19
3	7311PK	45.26	12.51	57.77	74	-16.23	100	19
3	7311AV	45.26	0.89	46.15	54	-7.85	100	19
4	9748PK	48.28	10.15	58.42	74	-15.58	100	19
4	9748AV	48.28	-1.57	46.71	54	-7.29	100	19
5	12185PK	49.15	11.14	60.29	74	-13.71	100	19
5	12185AV	49.15	0.11	49.26	54	-4.74	100	19

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
No.	Freq. (MHz)	Factor (dB/M)	Reading (dBuV/M)	Emission (dBuV/M)	Limit (dBuV/M)	Margin (dB)	Ant. Height (cm)	Table Angle (Deg.)
1	2437PK	32.66	77.83	110.49				
1	2437AV	32.66	74.98	107.64				
2	4874PK	38.31	13.48	51.79	74	-22.21	100	19
2	4874AV	38.31	1.83	40.14	54	-13.86	100	19
3	7311PK	45.26	12.28	57.54	74	-16.46	100	19
3	7311AV	45.26	0.95	46.21	54	-7.79	100	19
4	9748PK	48.28	9.57	57.84	74	-16.16	100	19
4	9748AV	48.28	-1.55	46.72	54	-7.28	100	19
5	12185PK	49.15	12.23	61.37	74	-12.63	100	19
5	12185AV	49.15	0.23	49.38	54	-4.62	100	19

- REMARKS:**
1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m)
 2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level – Limit value.
 5. The limit value is defined as per 15.247
 6. “ * ” : Fundamental frequency

MODE	802.11g, Channel 11	FREQUENCY RANGE	1 ~ 26.5GHz
MODULATION TECHNOLOGY	OFDM	ENVIRONMENTAL CONDITIONS	20deg. C, 50%RH, 100kPa
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak(PK) Average (AV)
TESTED BY	REBECCA		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
No.	Freq. (MHz)	Factor (dB/M)	Reading (dBuV/M)	Emission (dBuV/M)	Limit (dBuV/M)	Margin (dB)	Ant. Height (cm)	Table Angle (Deg.)
1	2462PK	32.72	65.9	98.62				
1	2462AV	32.72	62.57	95.29				
2	2483.5PK	32.76	34.6	67.36	74	-6.64	100	19
2	2483.5AV	32.76	13.58	46.33	54	-7.67	100	19
3	4924PK	38.5	12.25	50.75	74	-23.25	100	19
3	4924AV	38.5	1.61	40.11	54	-13.89	100	19
4	7386PK	45.26	11.83	57.09	74	-16.91	100	19
4	7386AV	45.26	-0.19	45.06	54	-8.94	100	19
5	9848PK	48.46	9.81	58.27	74	-15.73	100	19
5	9848AV	48.46	-1.08	47.38	54	-6.62	100	19
6	12310PK	49.22	10.64	59.86	74	-14.14	100	19
6	12310AV	49.22	0.19	49.4	54	-4.6	100	19

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
No.	Freq. (MHz)	Factor (dB/M)	Reading (dBuV/M)	Emission (dBuV/M)	Limit (dBuV/M)	Margin (dB)	Ant. Height (cm)	Table Angle (Deg.)
1	2462PK	32.72	78.3	111.02				
1	2462AV	32.72	75.15	107.87				
2	2483.5PK	32.76	40.33	73.09	74	-0.91	100	19
2	2483.5AV	32.76	16.93	49.69	54	-4.31	100	19
3	4924PK	38.5	12.46	50.97	74	-23.03	100	19
3	4924AV	38.5	1.47	39.98	54	-14.02	100	19
4	7386PK	45.26	11.62	56.87	74	-17.13	100	19
4	7386AV	45.26	-0.23	45.03	54	-8.97	100	19
5	9848PK	48.46	9.85	58.31	74	-15.69	100	19
5	9848AV	48.46	-1.25	47.21	54	-6.79	100	19
6	12310PK	49.22	10.82	60.04	74	-13.96	100	19
6	12310AV	49.22	0.03	49.25	54	-4.75	100	19

- REMARKS:**
1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m)
 2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level – Limit value.
 5. The limit value is defined as per 15.247
 6. “ * ” : Fundamental frequency

MODE	802.11b, Channel 1	FREQUENCY RANGE	1 ~ 26.5GHz
MODULATION TECHNOLOGY	DSSS	ENVIRONMENTAL CONDITIONS	20deg. C, 50%RH, 100KPa
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak(PK) Average (AV)
TESTED BY	REBECCA		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
No.	Freq. (MHz)	Factor (dB/M)	Reading (dBuV/M)	Emission (dBuV/M)	Limit (dBuV/M)	Margin (dB)	Ant. Height (cm)	Table Angle (Deg.)
1	2390PK	32.59	34.13	66.71	74	-7.29	100	19
1	2390AV	32.59	13.39	45.97	54	-8.03	100	19
2	2412PK	32.61	66.12	98.73				
2	2412AV	32.61	63.04	95.65				
3	4824PK	38.12	13.12	51.25	74	-22.75	100	19
3	4824AV	38.12	1.43	39.55	54	-14.45	100	19
4	7236PK	45.24	11.8	57.04	74	-16.96	100	19
4	7236AV	45.24	0.39	45.63	54	-8.37	100	19
5	9648PK	48.01	11.43	59.44	74	-14.56	100	19
5	9648AV	48.01	-1.15	46.87	54	-7.13	100	19
6	12060PK	49.07	11.54	60.62	74	-13.38	100	19
6	12060AV	49.07	-0.19	48.88	54	-5.12	100	19

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
No.	Freq. (MHz)	Factor (dB/M)	Reading (dBuV/M)	Emission (dBuV/M)	Limit (dBuV/M)	Margin (dB)	Ant. Height (cm)	Table Angle (Deg.)
1	2390PK	32.59	34.52	67.11	74	-6.89	100	19
1	2390AV	32.59	16.29	48.87	54	-5.13	100	19
2	2412PK	32.61	76.49	109.09				
2	2412AV	32.61	73.22	105.83				
3	4824PK	38.12	17.38	55.51	74	-18.49	100	19
3	4824AV	38.12	2.49	40.61	54	-13.39	100	19
4	7236PK	45.24	11.24	56.48	74	-17.52	100	19
4	7236AV	45.24	0.44	45.68	54	-8.32	100	19
5	9648PK	48.01	11.17	59.18	74	-14.82	100	19
5	9648AV	48.01	-1.1	46.91	54	-7.09	100	19
6	12060PK	49.07	11.42	60.49	74	-13.51	100	19
6	12060AV	49.07	0	49.07	54	-4.93	100	19

- REMARKS:**
1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m)
 2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level – Limit value.
 5. The limit value is defined as per 15.247
 6. “ * “ : Fundamental frequency

MODE	802.11b, Channel 6	FREQUENCY RANGE	1 ~ 26.5GHz
MODULATION TECHNOLOGY	DSSS	ENVIRONMENTAL CONDITIONS	20deg. C, 50%RH, 100KPa
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak(PK) Average (AV)
TESTED BY	REBECCA		

ANTENNA POLARITY & test distance: HORIZONTAL at 3 m								
No.	Freq. (MHz)	Factor (dB/M)	Reading (dBuV/M)	Emission (dBuV/M)	Limit (dBuV/M)	Margin (dB)	Ant. Height (cm)	Table Angle (Deg.)
1	2437PK	32.66	63.81	96.47				
1	2437AV	32.66	60.17	92.83				
2	4874PK	38.31	12.06	50.37	74	-23.63	100	19
2	4874AV	38.31	1.74	40.06	54	-13.94	100	19
3	7311PK	45.26	11.49	56.76	74	-17.24	100	19
3	7311AV	45.26	0.86	46.12	54	-7.88	100	19
4	9748PK	48.28	8.59	56.87	74	-17.13	100	19
4	9748AV	48.28	-1.76	46.52	54	-7.48	100	19
5	12185PK	49.15	11.46	60.61	74	-13.39	100	19
5	12185AV	49.15	-0.03	49.12	54	-4.88	100	19

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
No.	Freq. (MHz)	Factor (dB/M)	Reading (dBuV/M)	Emission (dBuV/M)	Limit (dBuV/M)	Margin (dB)	Ant. Height (cm)	Table Angle (Deg.)
1	2437PK	32.66	75.74	108.4				
1	2437AV	32.66	72.49	105.15				
2	4874PK	38.31	17.09	55.41	74	-18.59	100	19
2	4874AV	38.31	1.6	39.92	54	-14.08	100	19
3	7311PK	45.26	11.6	56.86	74	-17.14	100	19
3	7311AV	45.26	0.74	46	54	-8	100	19
4	9748PK	48.28	10.15	58.43	74	-15.57	100	19
4	9748AV	48.28	-1.73	46.55	54	-7.45	100	19
5	12185PK	49.15	11.55	60.69	74	-13.31	100	19
5	12185AV	49.15	-0.09	49.06	54	-4.94	100	19

- REMARKS:**
1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m)
 2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level – Limit value.
 5. The limit value is defined as per 15.247
 6. “ * “ : Fundamental frequency.

MODE	802.11b, Channel 11	FREQUENCY RANGE	1 ~ 26.5GHz
MODULATION TECHNOLOGY	DSSS	ENVIRONMENTAL CONDITIONS	20deg. C, 50%RH, 100KPa
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak(PK) Average (AV)
TESTED BY	REBECCA		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
No.	Freq. (MHz)	Factor (dB/M)	Reading (dBuV/M)	Emission (dBuV/M)	Limit (dBuV/M)	Margin (dB)	Ant. Height (cm)	Table Angle (Deg.)
1	2462PK	32.72	63.6	96.31				
1	2462AV	32.72	60.29	93.01				
2	2483.5PK	32.76	33.98	66.73	74	-7.27	100	19
2	2483.5AV	32.76	12.89	45.65	54	-8.35	100	19
3	4924PK	38.5	13.03	51.54	74	-22.46	100	19
3	4924AV	38.5	1.35	39.86	54	-14.14	100	19
4	7386PK	45.26	10.68	55.94	74	-18.06	100	19
4	7386AV	45.26	-0.32	44.94	54	-9.06	100	19
5	9848PK	48.46	9.98	58.44	74	-15.56	100	19
5	9848AV	48.46	-1.2	47.26	54	-6.74	100	19
6	12310PK	49.22	10.68	59.9	74	-14.1	100	19
6	12310AV	49.22	-0.01	49.2	54	-4.8	100	19

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
No.	Freq. (MHz)	Factor (dB/M)	Reading (dBuV/M)	Emission (dBuV/M)	Limit (dBuV/M)	Margin (dB)	Ant. Height (cm)	Table Angle (Deg.)
1	2462PK	32.72	75.97	108.68				
1	2462AV	32.72	72.15	104.87				
2	2483.5PK	32.76	34.45	67.21	74	-6.79	100	19
2	2483.5AV	32.76	18.3	51.05	54	-2.95	100	19
3	4924PK	38.5	16.17	54.67	74	-19.33	100	19
3	4924AV	38.5	2.39	40.89	54	-13.11	100	19
4	7386PK	45.26	11	56.26	74	-17.74	100	19
4	7386AV	45.26	-0.21	45.05	54	-8.95	100	19
5	9848PK	48.46	9.55	58.01	74	-15.99	100	19
5	9848AV	48.46	-1.18	47.28	54	-6.72	100	19
6	12310PK	49.22	11.42	60.64	74	-13.36	100	19
6	12310AV	49.22	0.11	49.32	54	-4.68	100	19

- REMARKS:**
1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m)
 2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level – Limit value.
 5. The limit value is defined as per 15.247
 6. “ * ” : Fundamental frequency

4.3 6dB BANDWIDTH MEASUREMENT

4.3.1 LIMITS OF 6dB BANDWIDTH MEASUREMENT

The minimum of 6dB Bandwidth Measurement is 0.5 MHz.

4.3.2 TEST INSTRUMENTS

Description & Manufacturer	Model No.	Serial No.	Calibrated Until
Signal Analyzer ROHDE & SCHWARZ	FSP30	E1S1002	May. 15, 2008

NOTE: The calibration interval of the above test instruments is 12 months.

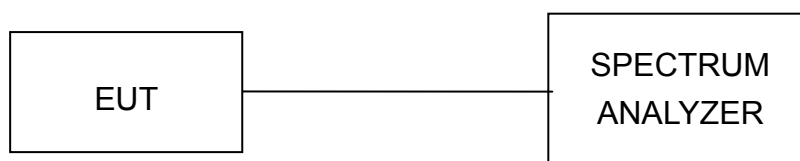
4.3.3 TEST PROCEDURE

The transmitter output was connected to the spectrum analyzer through an attenuator. The bandwidth of the fundamental frequency was measured by spectrum analyzer with 10 kHz RBW and 30 kHz VBW. The 6dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 6dB.

4.3.4 DEVIATION FROM TEST STANDARD

No deviation

4.3.5 TEST SETUP



4.3.6 EUT OPERATING CONDITIONS

The software provided by client to enable the EUT under transmission condition continuously at lowest, middle and highest channel frequencies individually.

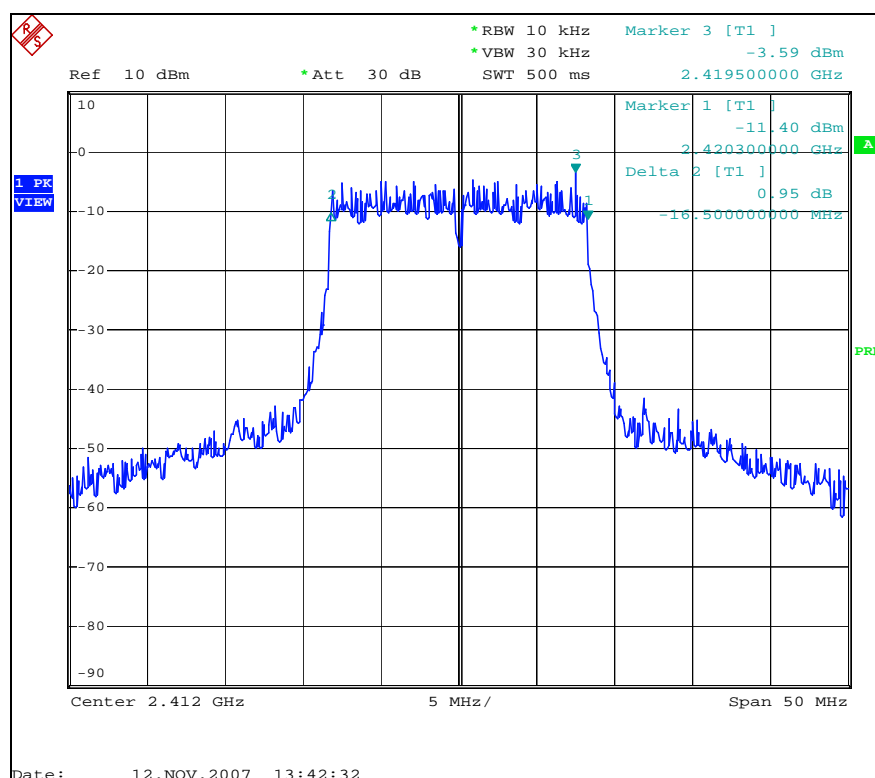
4.3.7 TEST RESULTS

802.11g OFDM modulation

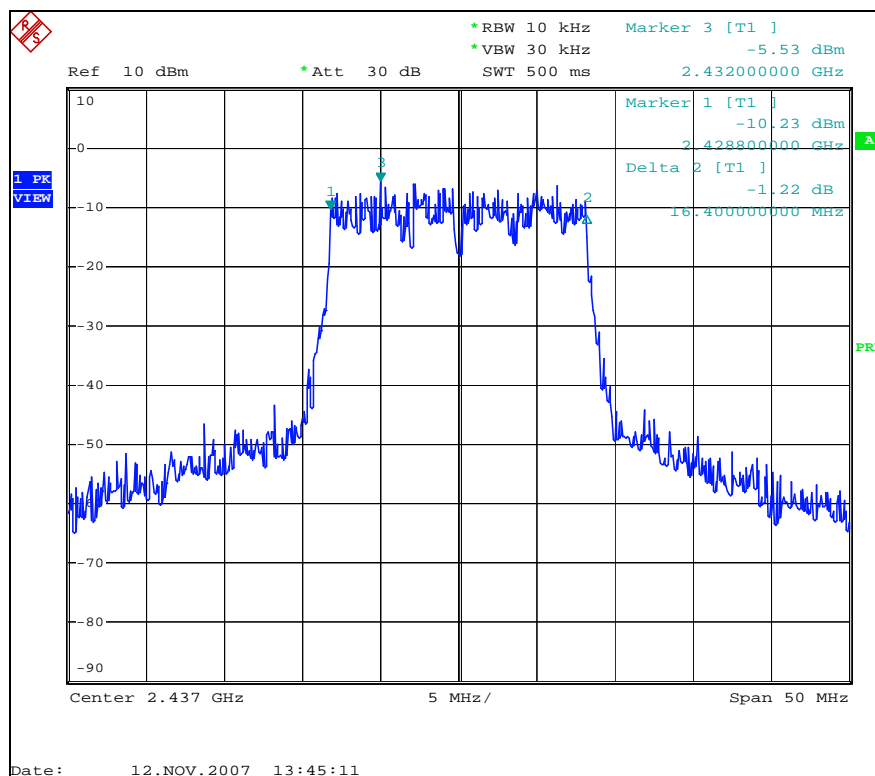
MODULATION TECHNOLOGY	OFDM	TRANSFER RATE	54Mbps
INPUT POWER (SYSTEM)	120Vac, 60Hz	ENVIRONMENTAL CONDITIONS	20deg. C, 50%RH, 100KPa
TESTED BY	REBECCA		

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS/FAIL
1	2412	16.5	0.5	PASS
6	2437	16.4	0.5	PASS
11	2462	16.4	0.5	PASS

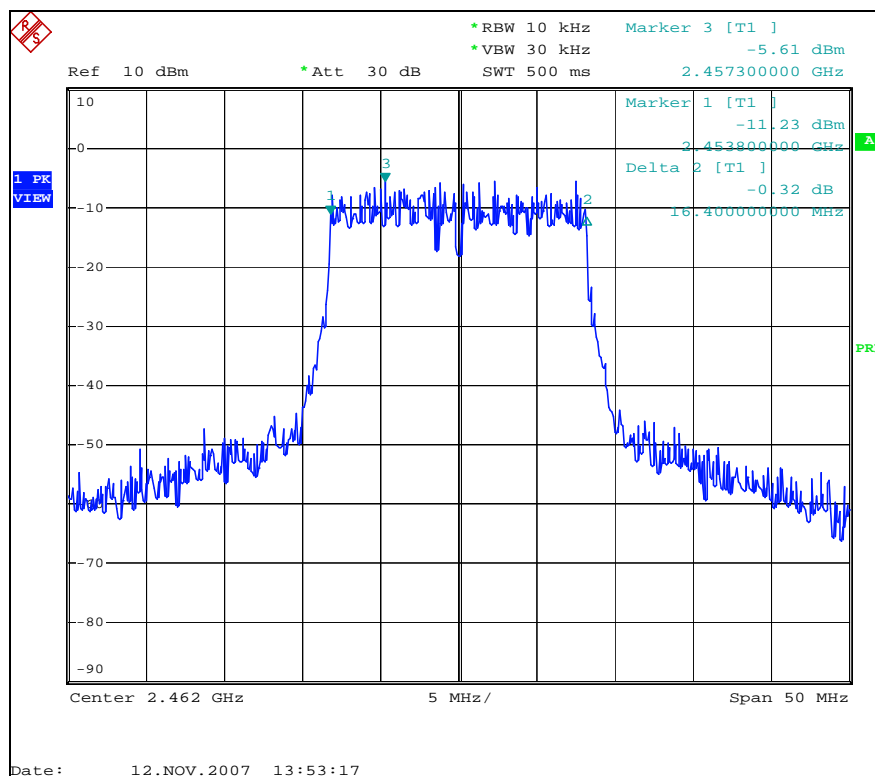
CH1



CH6



CH11

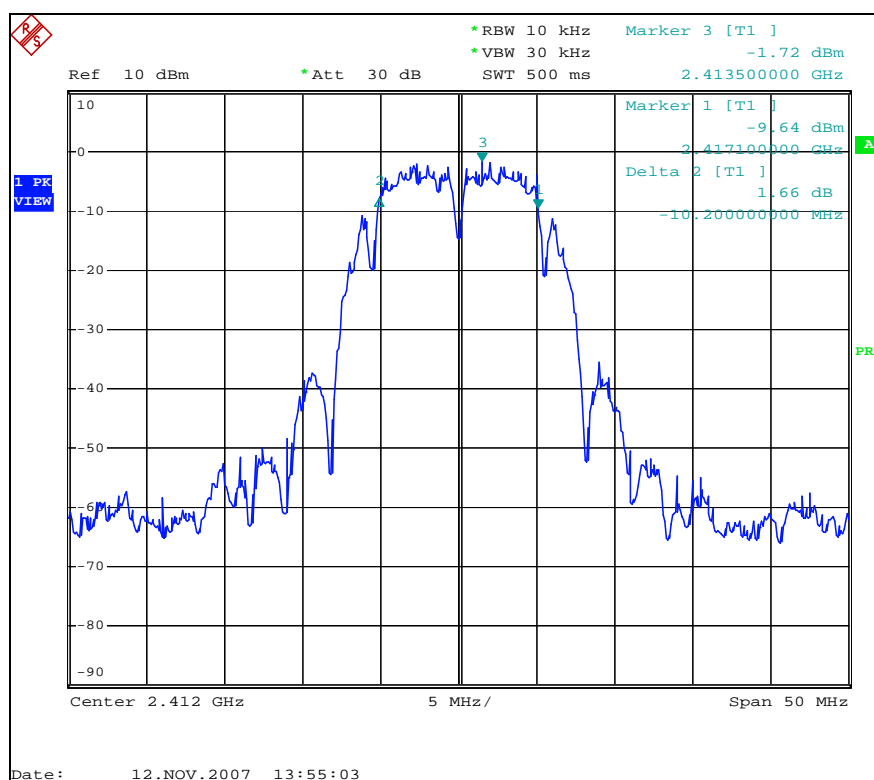


802.11b DSSS modulation

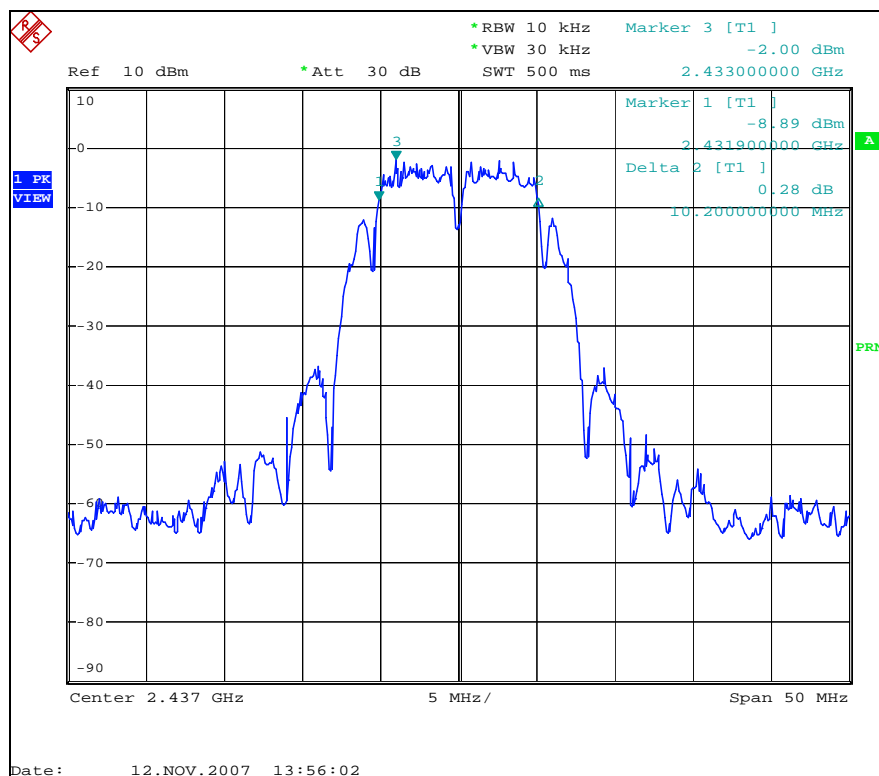
MODULATION TECHNOLOGY	DSSS	TRANSFER RATE	11Mbps
INPUT POWER (SYSTEM)	120Vac, 60Hz	ENVIRONMENTAL CONDITIONS	20deg. C, 50%RH, 100kPa
TESTED BY	REBECCA		

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS/FAIL
1	2412	10.2	0.5	PASS
6	2437	10.2	0.5	PASS
11	2462	10.1	0.5	PASS

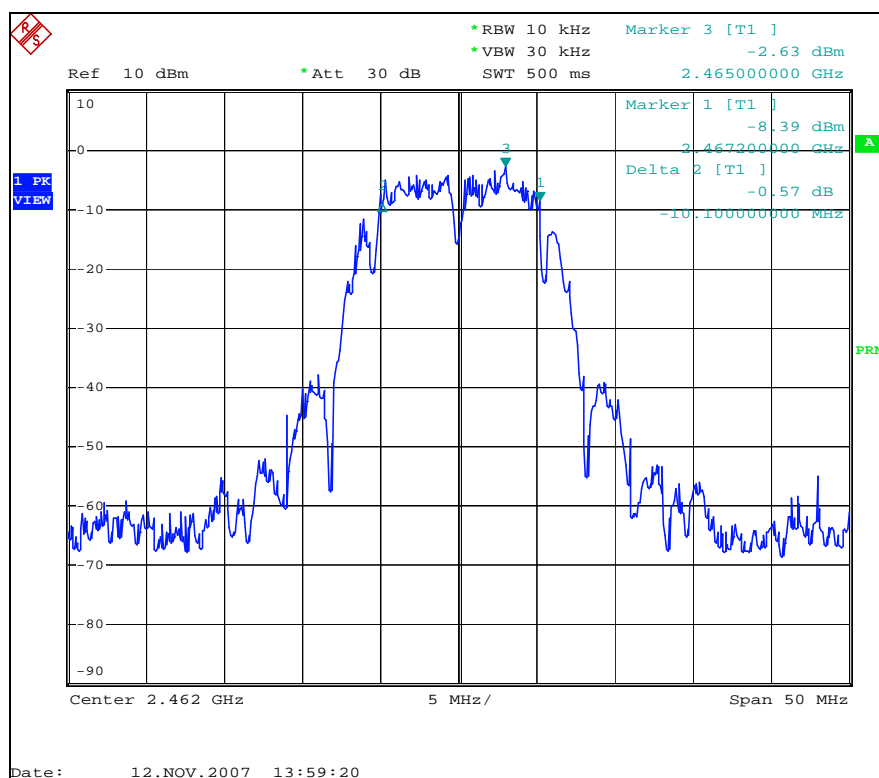
CH1



CH6



CH11



4.4 MAXIMUM PEAK OUTPUT POWER

4.4.1 LIMITS OF MAXIMUM PEAK OUTPUT POWER MEASUREMENT

The Maximum Peak Output Power Measurement is 30dBm.

4.4.2 INSTRUMENTS

Description & Manufacturer	Model No.	Serial No.	Calibrated Until
Signal Analyzer ROHDE & SCHWARZ	FSP30	E1S1002	May. 15, 2008

NOTE: The calibration interval of the above test instruments is 12 months.

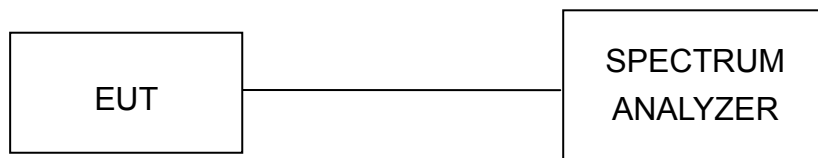
4.4.3 TEST PROCEDURES

1. The transmitter output was connected to the spectrum analyzer.
2. Set span to encompass the entire emission bandwidth (EBW) of the signal.
3. Set RBW = 1 MHz; VBW = 3 MHz.
4. Use sample detector mode if bin width (i.e., span/number of points in spectrum) < 0.5 RBW. Otherwise use peak detector mode.
5. Use a video trigger with the trigger level set to enable triggering only on full power pulses. Transmitter must operate at full control power for entire sweep of every sweep. If the device transmits continuously, with no off intervals or reduced power intervals, the trigger may be set to "free run".
6. Trace average 100 traces in power averaging mode.
7. Compute power by integrating the spectrum across the 26 dB EBW of the signal. The integration can be performed using the spectrum analyzer's band power measurement function with band limits set equal to the EBW band edges or by summing power levels in each 1 MHz band in linear power terms. The 1 MHz band power levels to be summed can be obtained by averaging, in linear power terms, power levels in each frequency bin across the 1 MHz.

4.4.4 DEVIATION FROM TEST STANDARD

No deviation

4.4.5 TEST SETUP



4.4.6 EUT OPERATING CONDITIONS

Same as Item 4.1.6

4.4.7 TEST RESULTS

802.11g OFDM modulation

MODULATION TECHNOLOGY	OFDM	TRANSFER RATE	54Mbps
INPUT POWER (SYSTEM)	120Vac, 60Hz	ENVIRONMENTAL CONDITIONS	20deg. C, 50%RH, 100KPa
TESTED BY	REBECCA		

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (dBm)	PEAK POWER LIMIT (dBm)	PASS/FAIL
1	2412	13.5	30	PASS
6	2437	13.43	30	PASS
11	2462	13.57	30	PASS

802.11b DSSS modulation

MODULATION TECHNOLOGY	DSSS	TRANSFER RATE	11Mbps
INPUT POWER (SYSTEM)	120Vac, 60Hz	ENVIRONMENTAL CONDITIONS	20deg. C, 50%RH, 100kPa
TESTED BY	REBECCA		

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (dBm)	PEAK POWER LIMIT (dBm)	PASS/FAIL
1	2412	11.54	30	PASS
6	2437	11.34	30	PASS
11	2462	11.62	30	PASS

4.5 POWER SPECTRAL DENSITY MEASUREMENT

4.5.1 LIMITS OF POWER SPECTRAL DENSITY MEASUREMENT

The Maximum of Power Spectral Density Measurement is 8dBm.

4.5.2 TEST INSTRUMENTS

Description & Manufacturer	Model No.	Serial No.	Calibrated Until
Signal Analyzer ROHDE & SCHWARZ	FSP30	E1S1002	May. 15, 2008

NOTE: The calibration interval of the above test instruments is 12 months.

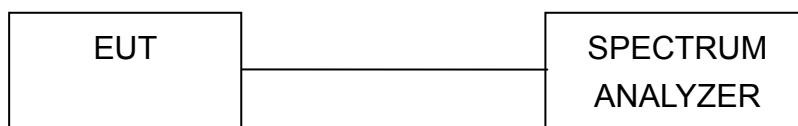
4.5.3 TEST PROCEDURE

The transmitter output was connected to the spectrum analyzer through an attenuator, the bandwidth of the fundamental frequency was measured with the spectrum analyzer using 3kHz RBW and 10kHz VBW, set sweep time = span/3kHz. The power spectral density was measured and recorded. The sweep time is allowed to be longer than span/3kHz for a full response of the mixer in the spectrum analyzer.

4.5.4 DEVIATION FROM TEST STANDARD

No deviation

4.5.5 TEST SETUP



4.5.6 EUT OPERATING CONDITION

Same as Item 4.1.6

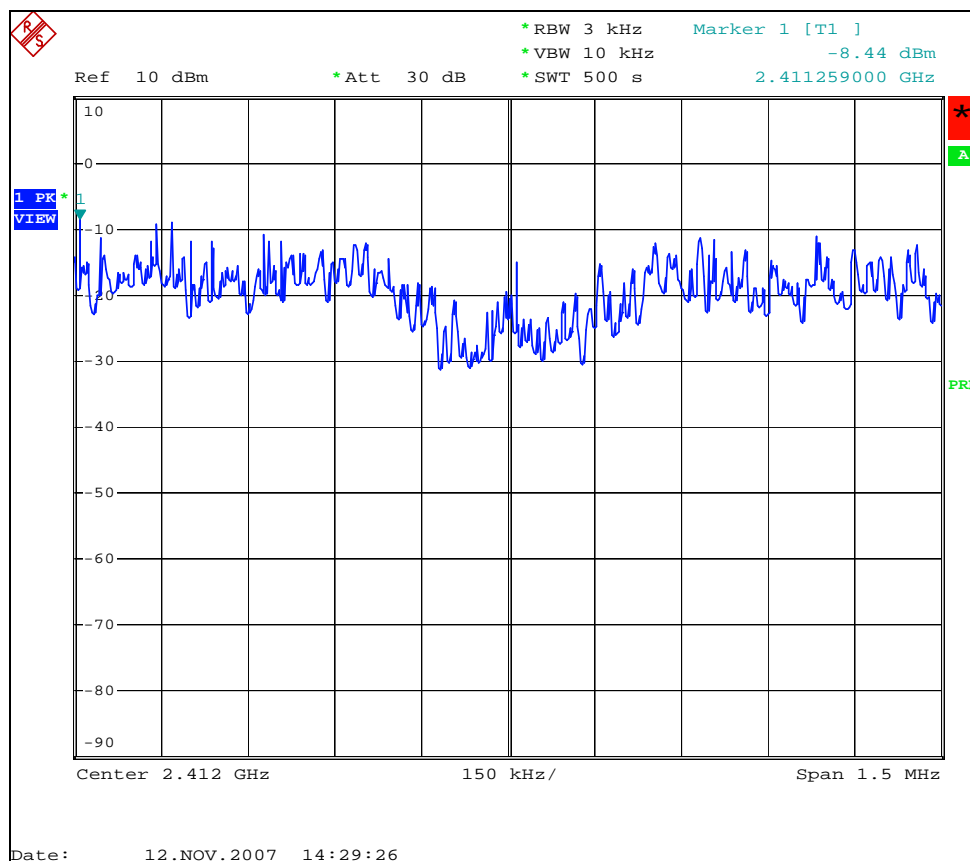
4.5.7 TEST RESULTS

802.11g OFDM modulation

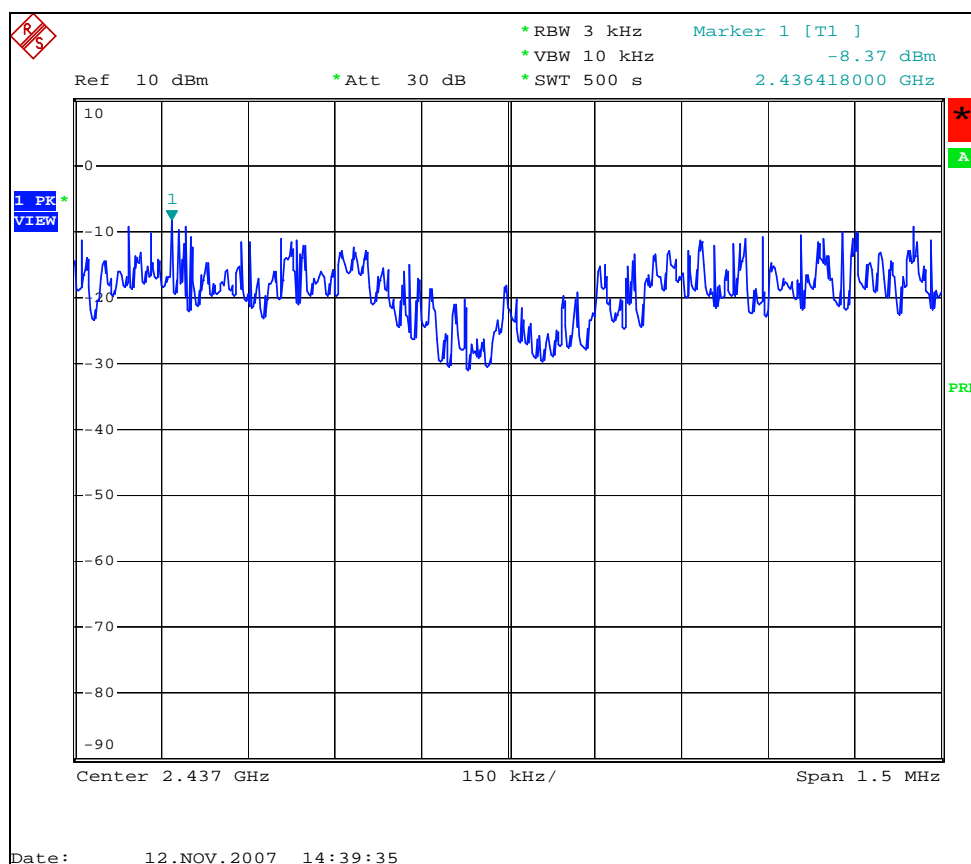
MODULATION TECHNOLOGY	OFDM	TRANSFER RATE	54Mbps
INPUT POWER (SYSTEM)	120Vac, 60Hz	ENVIRONMENTAL CONDITIONS	20deg.C, 50%RH, 100KPa
TESTED BY	REBECCA		

CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3kHz BW (dBm)	MAXIMUM LIMIT (dBm)	PASS/FAIL
1	2412	-8.44	8	PASS
6	2437	-8.37	8	PASS
11	2462	-9.35	8	PASS

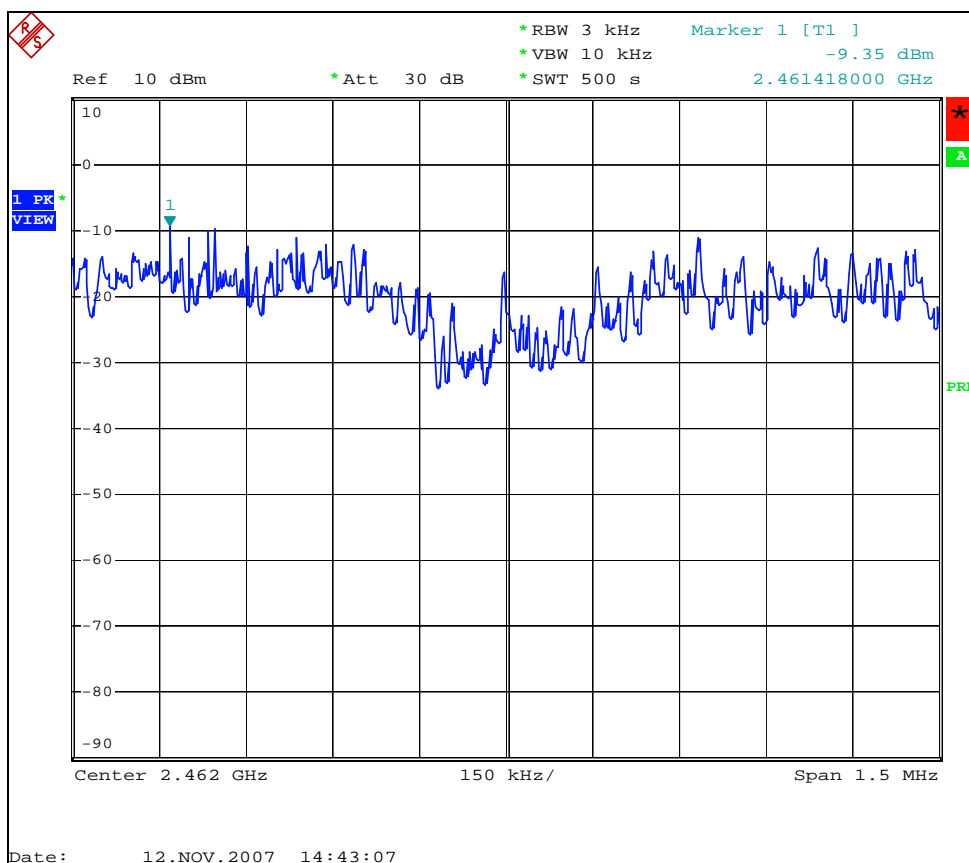
CH1



CH6



CH11

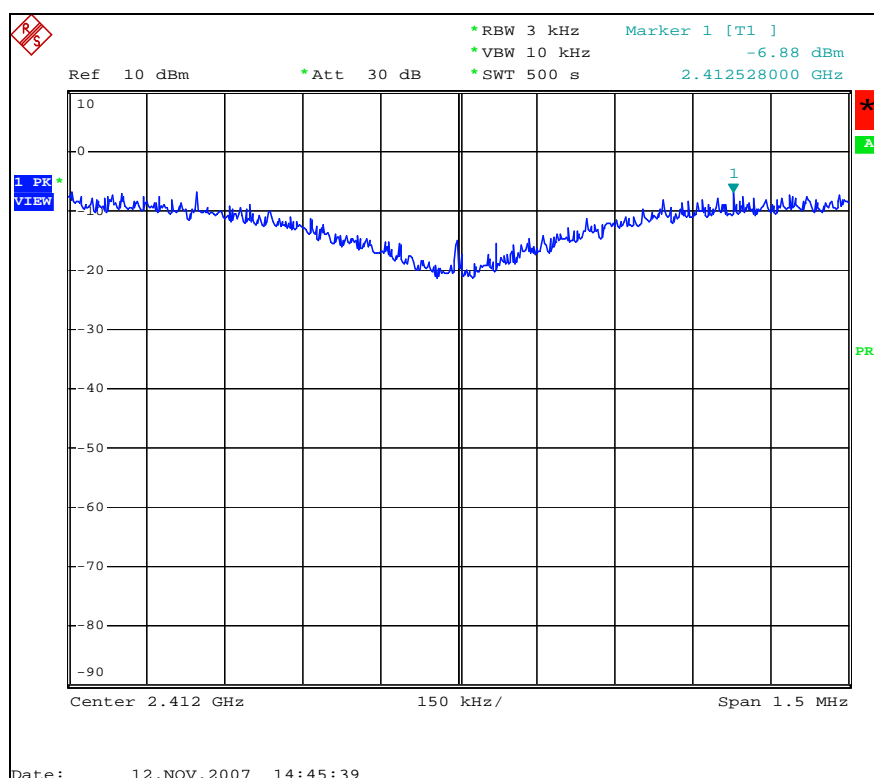


802.11b DSSS modulation

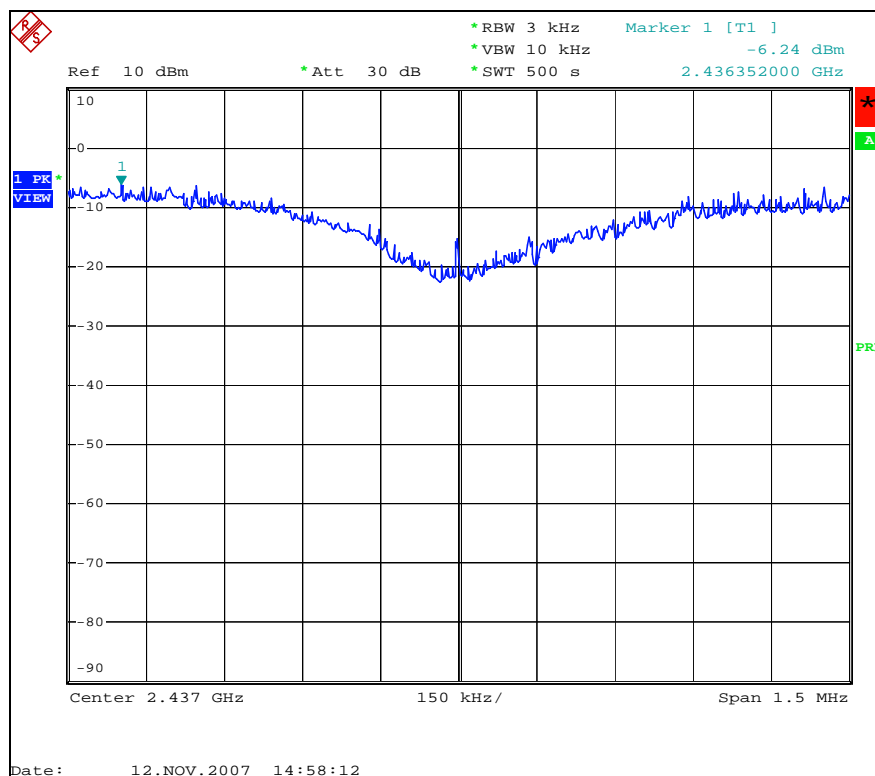
MODULATION TECHNOLOGY	DSSS	TRANSFER RATE	11Mbps
INPUT POWER (SYSTEM)	120Vac, 60Hz	ENVIRONMENTAL CONDITIONS	20deg.C, 50%RH, 100KPa
TESTED BY	REBECCA		

CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3kHz BW (dBm)	MAXIMUM LIMIT (dBm)	PASS/FAIL
1	2412	-6.88	8	PASS
6	2437	-6.24	8	PASS
11	2462	-6.2	8	PASS

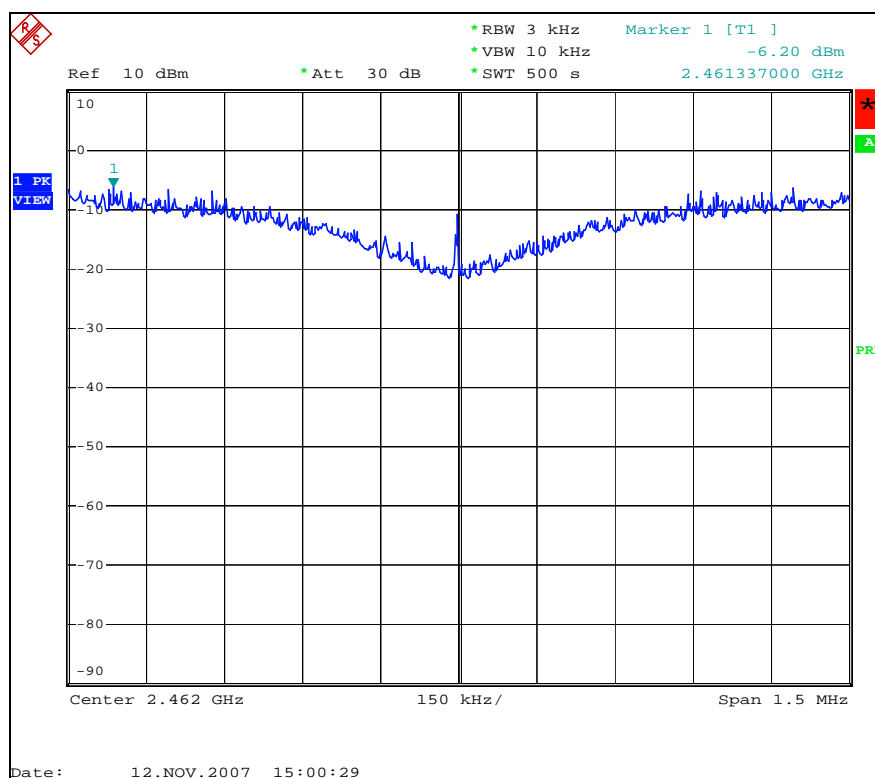
CH1



CH6



CH11



4.6 BAND EDGES MEASUREMENT

4.6.1 LIMITS OF BAND EDGES MEASUREMENT

Below -20dB of the highest emission level of operating band (in 100kHz Resolution Bandwidth).

4.6.2 TEST INSTRUMENTS

Description & Manufacturer	Model No.	Serial No.	Calibrated Until
Signal Analyzer ROHDE & SCHWARZ	FSP30	E1S1002	May. 15, 2008

NOTE: The calibration interval of the above test instruments is 12 months.

4.6.3 TEST PROCEDURE

The transmitter output was connected to the spectrum analyzer via a low loss cable. Set the RBW of spectrum analyzer to 100 kHz and the VBW to 300 kHz with suitable frequency span including 100 MHz bandwidth from band edge. The band edges was measured and recorded.

The spectrum plots (Peak RBW= 100kHz,VBW=300Hz, ; Average RBW=100kHz, VBW=300kHz) are attached on the following pages.

4.6.4 DEVIATION FROM TEST STANDARD

No deviation

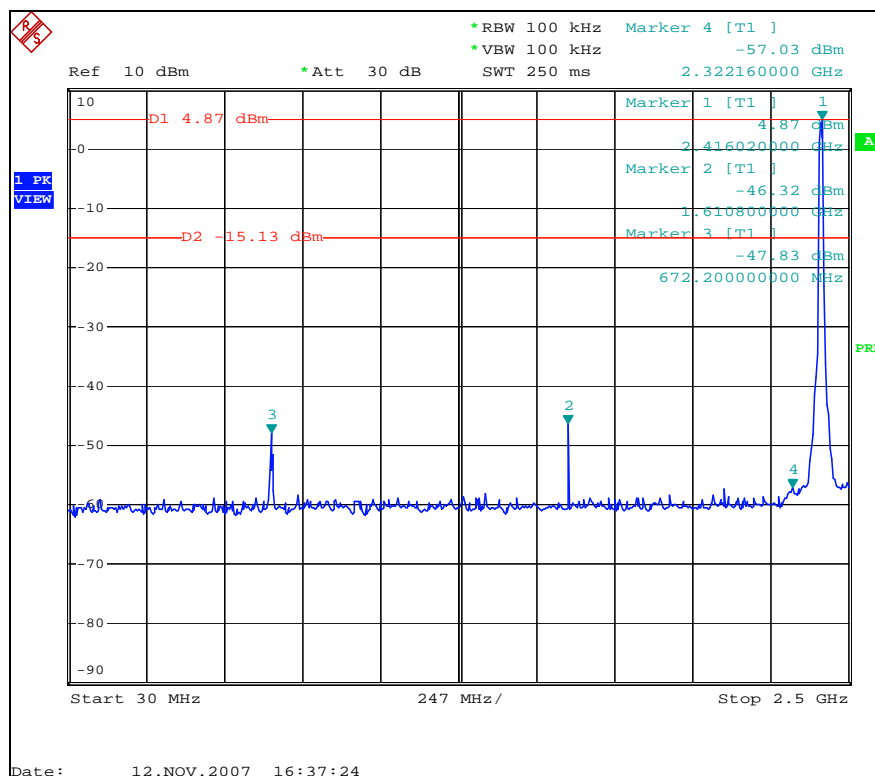
4.6.5 EUT OPERATING CONDITION

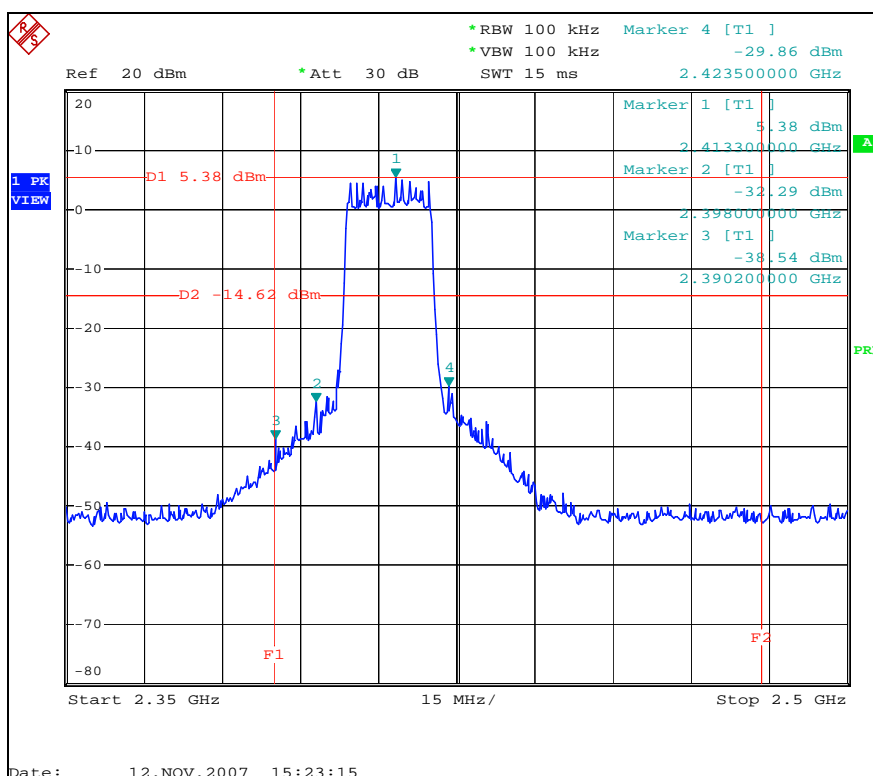
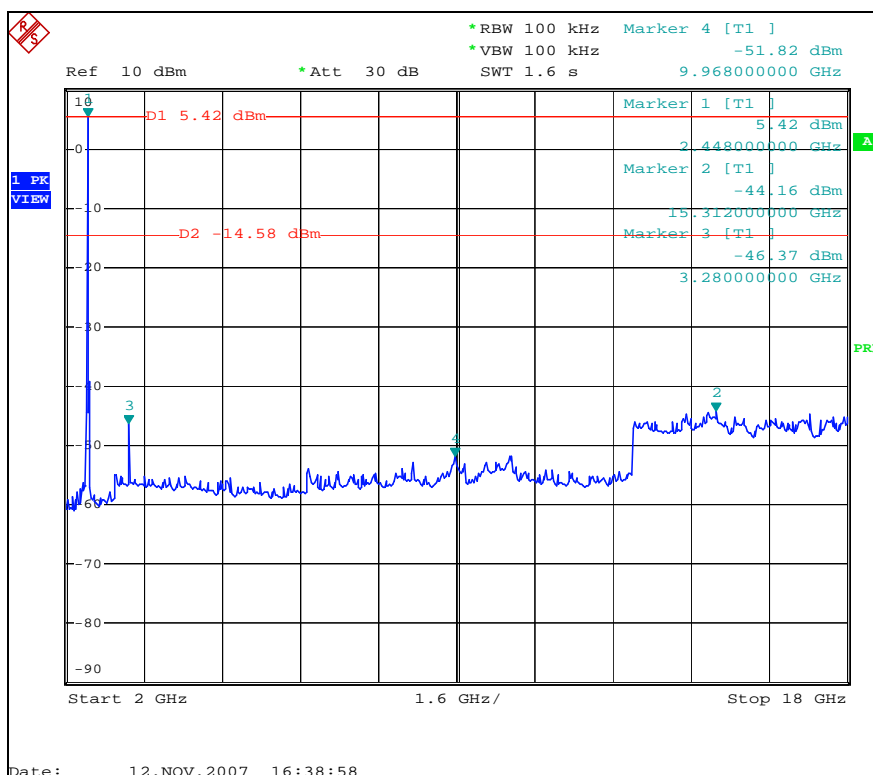
Same as Item 4.1.6

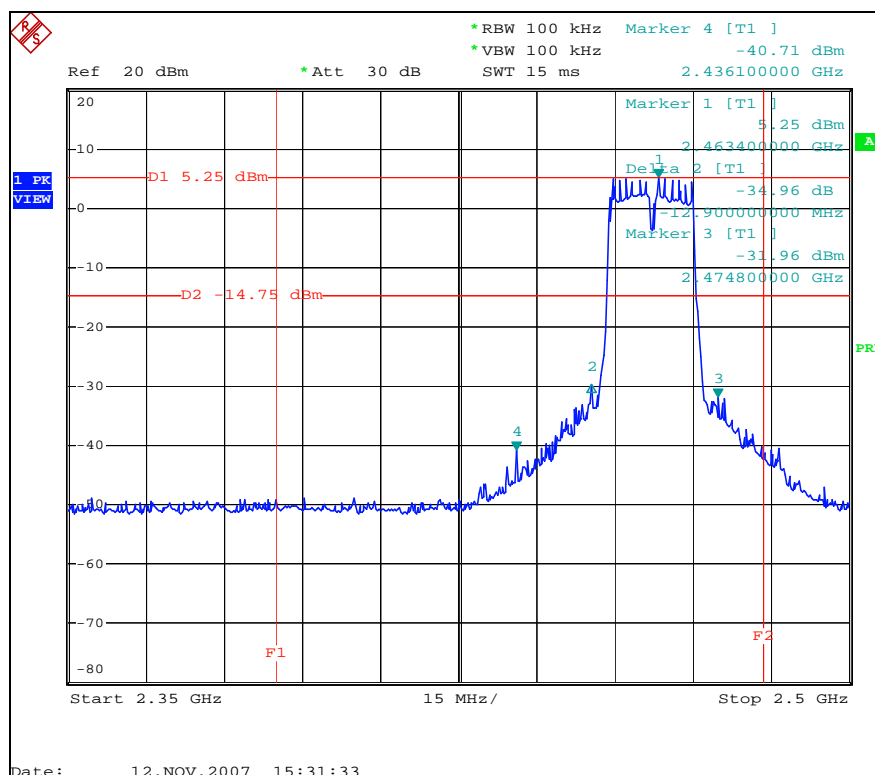
4.6.6 TEST RESULTS

The spectrum plots are attached on the following 12 images. D2 line indicates the highest level, and D1 line indicates the 20dB offset below D2. It shows compliance with the requirement in part 15.247(d).

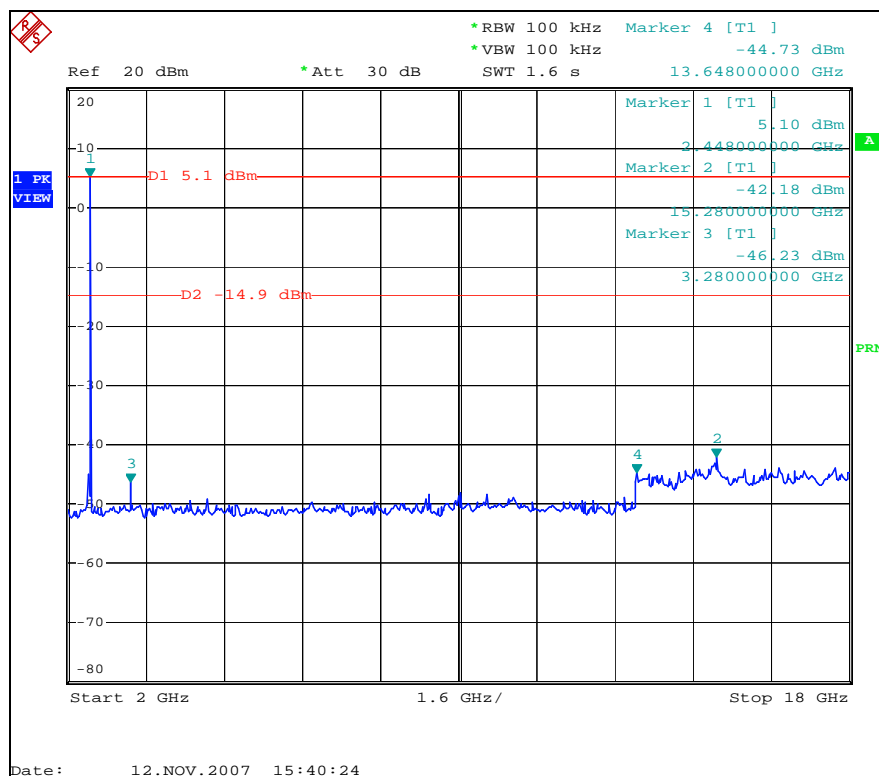
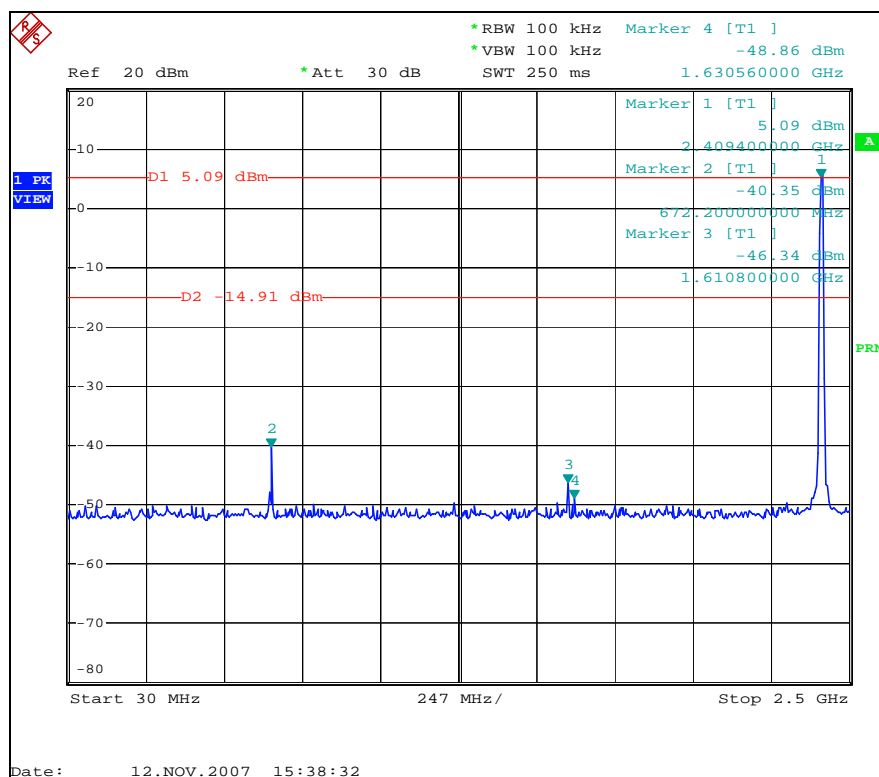
802.11g OFDM modulation

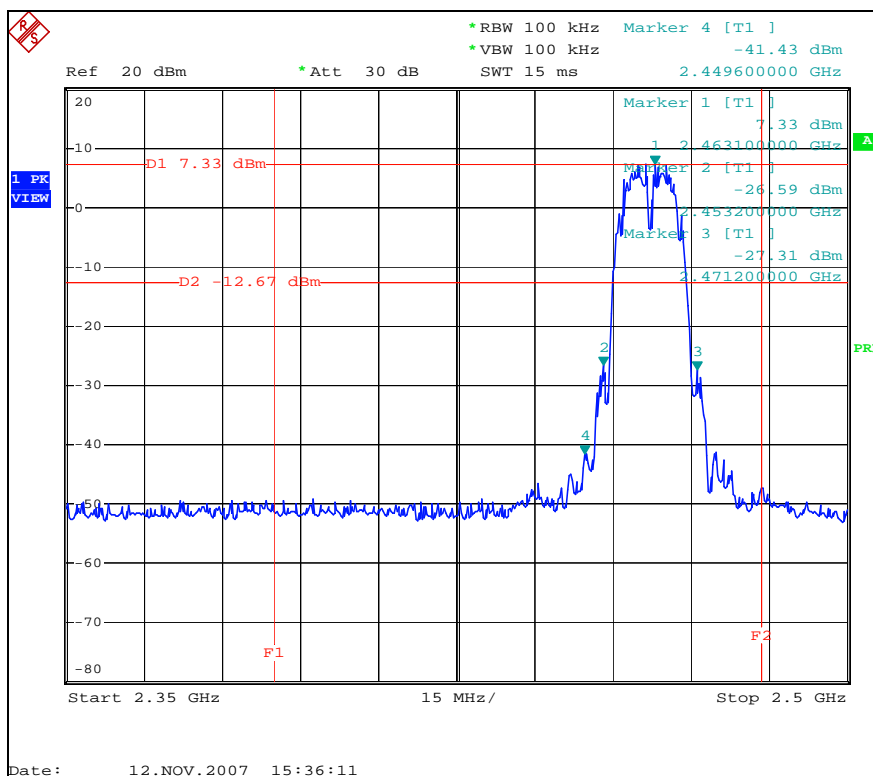
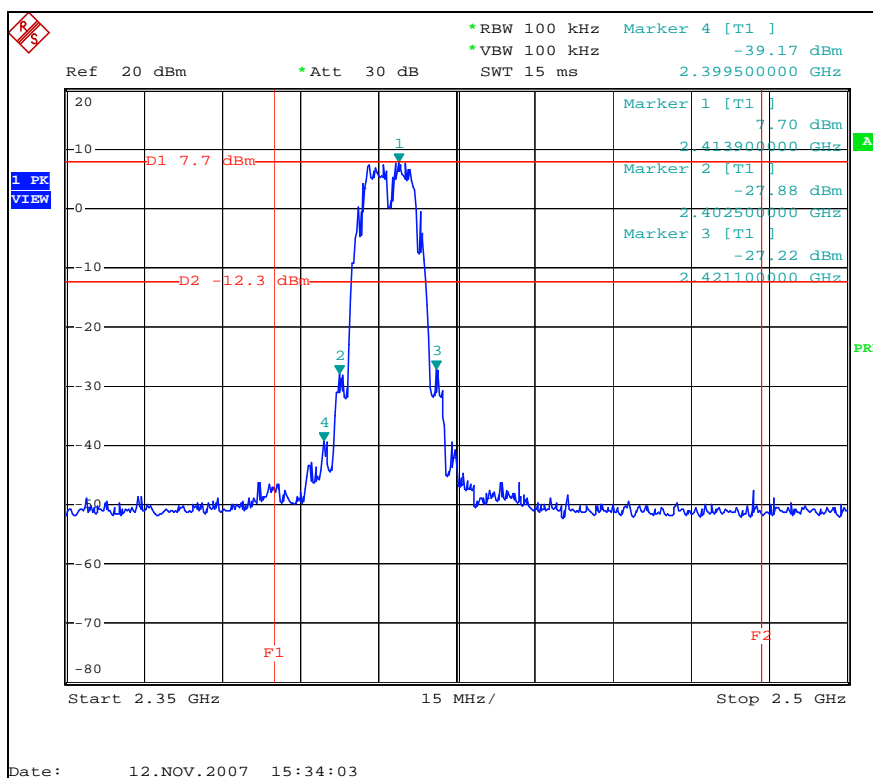






802.11b DSSS modulation





4.7 ANTENNA REQUIREMENT

4.7.1 STANDARD APPLICABLE

For intentional device, according to FCC 47 CFR Section 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. And according to FCC 47 CFR Section 15.247 (b), if transmitting antennas of directional gain greater than 6dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

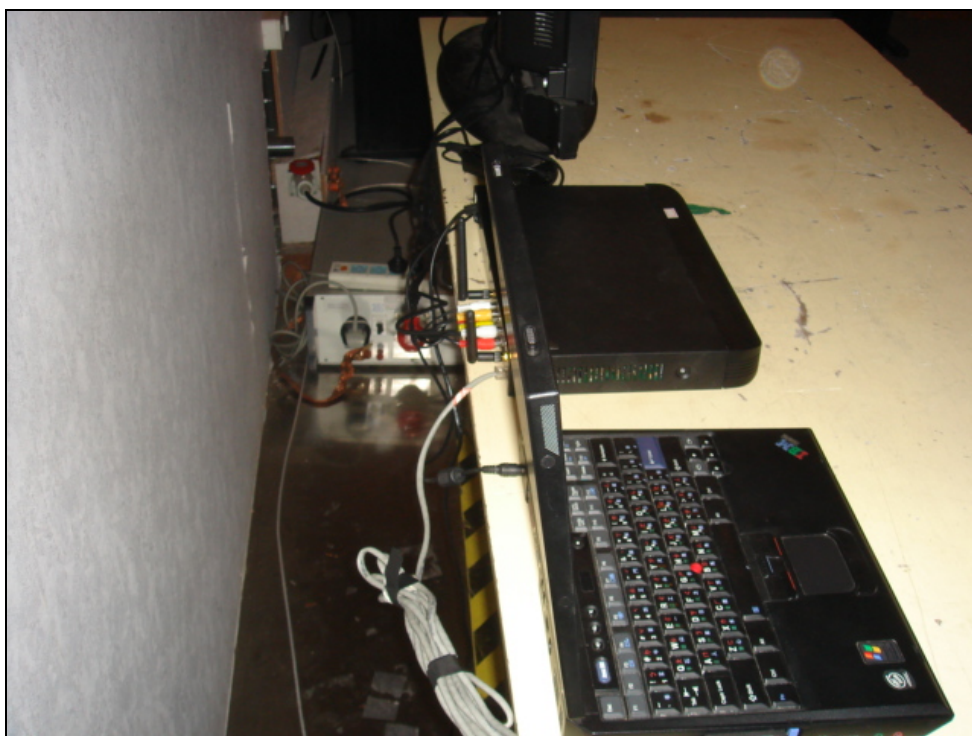
4.7.2 ANTENNA CONNECTED CONSTRUCTION

The antenna used in this product is Dipole antenna. The device has UFL antenna connectors on its board and also has reverse SMA antenna connector on the outside of the box for 3dBi dipole antenna connection. UFL connector and the reverse SMA ports are connected with wiring internal to the device. The EUT has two antennas. One is used for receiving; the other is used for transmitting and receiving. The maximum Gain of the external antenna that has the transmittable function is 3dBi.

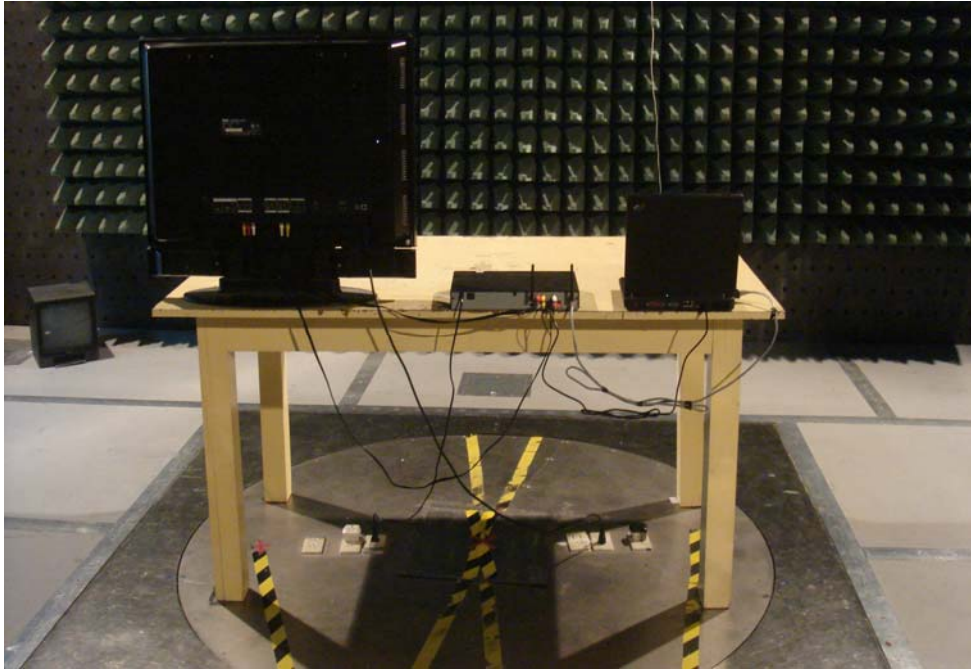
5. PHOTOGRAPHS OF THE TEST CONFIGURATION

CONDUCTED EMISSION TEST



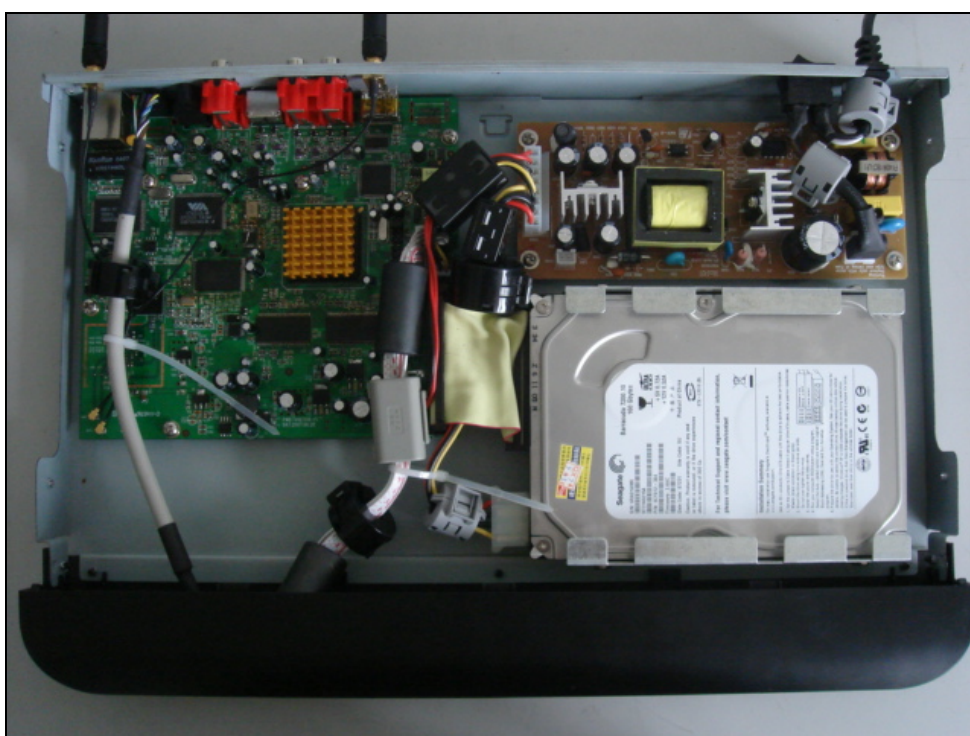


RADIATED EMISSION TEST



6. PHOTOGRAPHS OF THE EUT

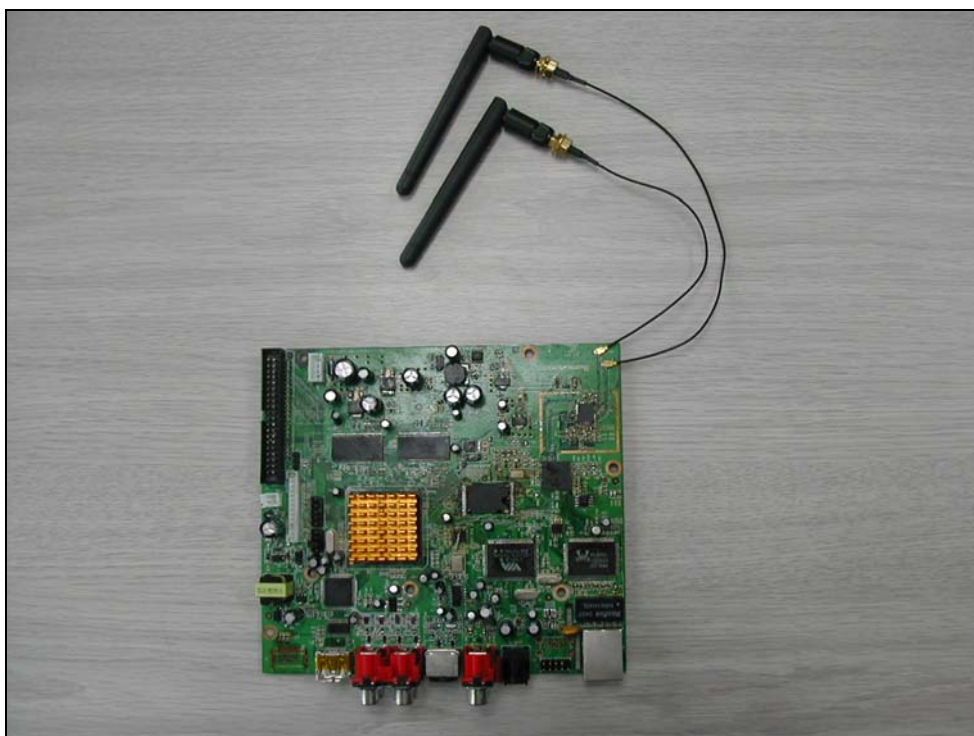


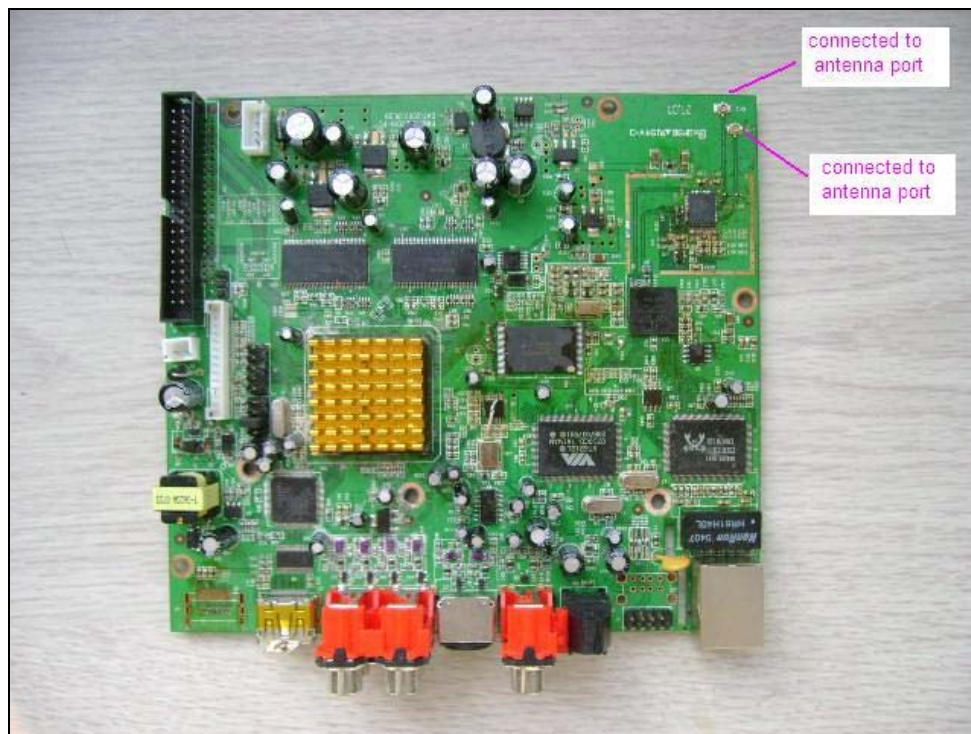


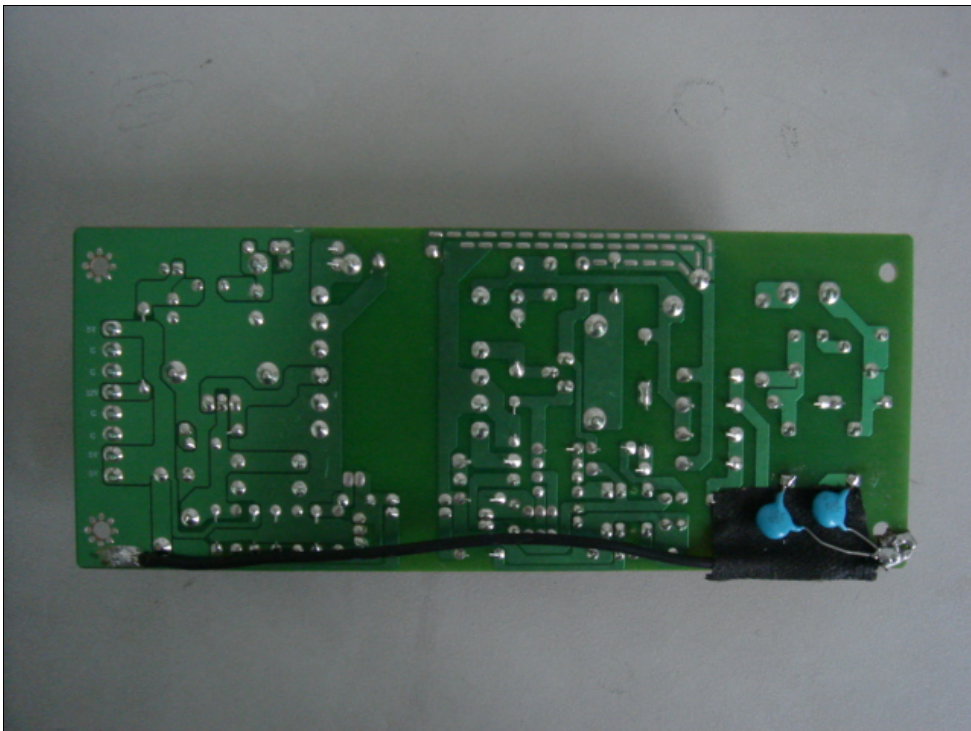
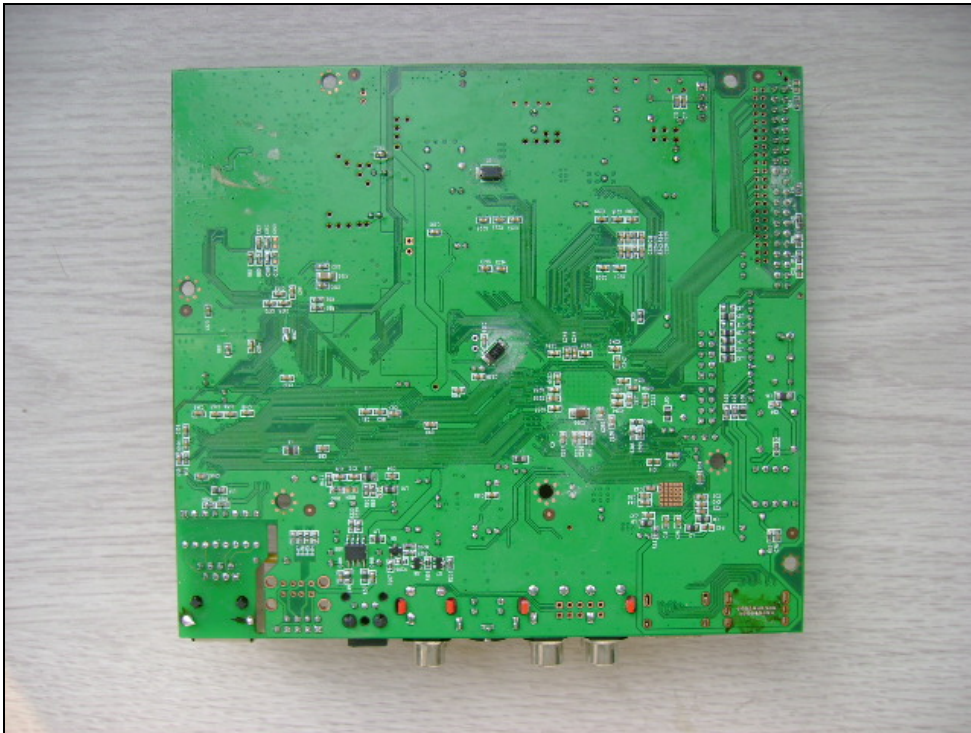
Note: It can be seen from the above photo that the many ferrites are clamped to the internal cable. It is used for decrease radiated emission from 30MHz and 1000 MHz during the test.

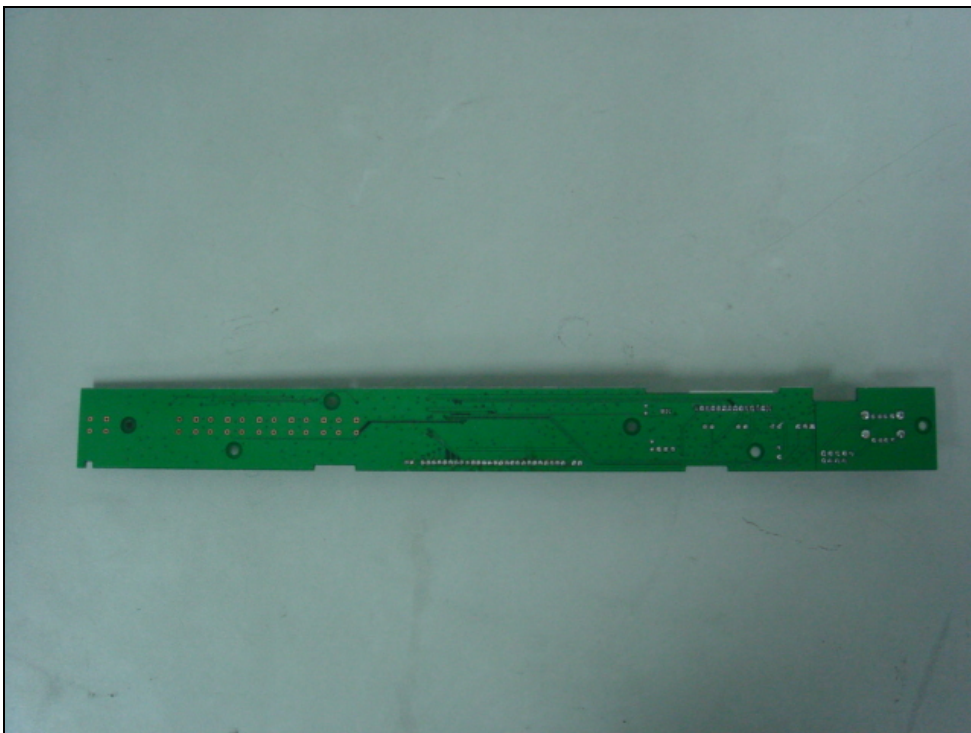
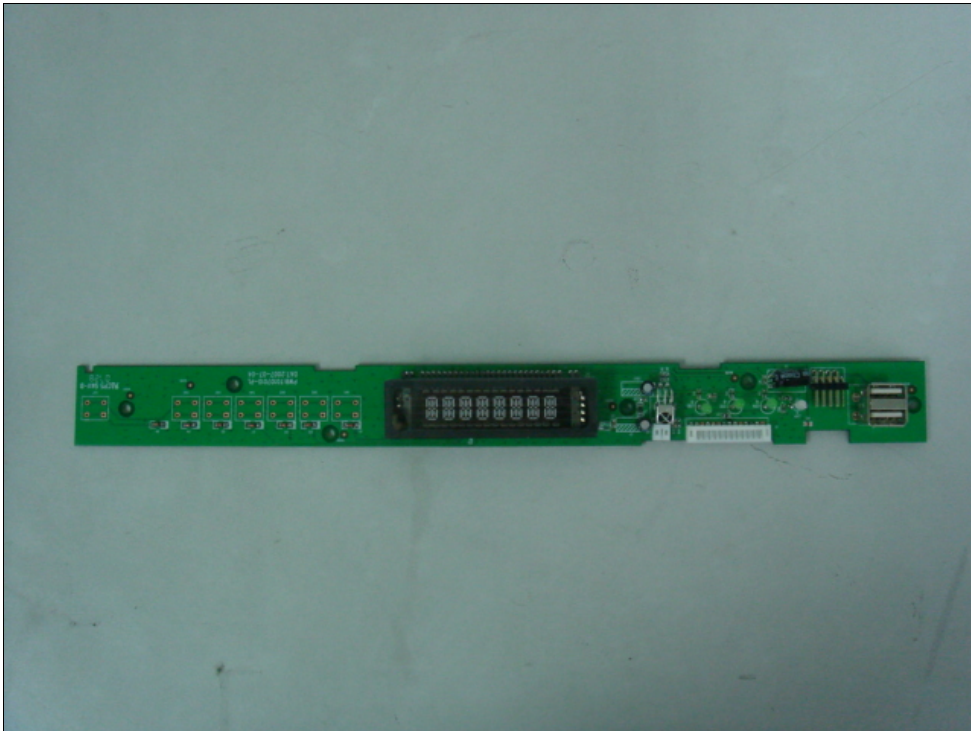












7. INFORMATION ON THE TESTING LABORATORIES

We, ADT (Shanghai) Corp., was founded in 2003 to provide our best service in EMC, Radio, Telecom and Safety consultation. Our laboratory is accredited and approved by the following approval agencies according to ISO / IEC 17025 (2005).

The client should not use it to claim product endorsement by CNAS, A2LA, or any government agency.

Japan	VCCI
USA	FCC, A2LA
Norway	DNV
China	CNAS



Copies of accreditation certificates of our laboratory obtained from approval agencies can be downloaded from our web site: www.cnadt.com

If you have any comments, please feel free to contact us at the following:

ADT (Shanghai) Corporation

TEL :86-21-6465-9091

Fax : 86-21-6465-9092

Email: service@adt-sh.com

Web Site: www.cnadt.com

8. APPENDIX-A

MODIFICATIONS RECORDERS FOR ENGINEERING CHANGES TO THE EUT BY THE LAB

No any modifications are made to the EUT by the lab during the test.

9. APPENDIX B – UNCERTAINTY IN EMC MEASUREMENT

As specified in CISPR 16-4-2, measurement instrumentation uncertainty shall be taken into account when determining compliance or non-compliance with a disturbance limit. A disturbance limit shall be determined in the following manner:

If U_{lab} is less than or equal to U_{cispr} in table 1, then:

- ※ Compliance is deemed to occur if no measured disturbance exceeds the disturbance limit;
- ※ Non-compliance is deemed to occur if any measured disturbance exceeds the disturbance limit.

If U_{lab} is greater than or equal to U_{cispr} in table 1, then:

- ※ Compliance is deemed to occur if no measured disturbance, increased by $(U_{lab} - U_{cispr})$, exceeds the disturbance limit;
- ※ Non-compliance is deemed to occur if any measured disturbance, increased by $(U_{lab} - U_{cispr})$, exceeds the disturbance limit.

Table 1 – Values of U_{cispr}

Measurement		U_{cispr}
Conducted disturbance (mains port)	(9kHz – 150kHz) (150kHz – 30MHz)	4,0 dB 3,6 dB
Disturbance power	(30MHz – 300MHz)	4,5 dB
Radiated disturbance (electric field strength on an open area test site or alternative test site)	(30MHz – 1000MHz)	5,2 dB
Other		Under consideration

ADT Shanghai hereby declare the U_{lab} value are as the following:

Conducted test performed at SR1 shielded room with U_{lab} values: +/- 3.04 dB

Radiated test performed at SAC Chamber with U_{lab} values: +/- 4.62 dB

Based on the above specification, the U_{lab} values of our sites are less than U_{cispr} in table 1 and compliance is deemed to occur if no measured disturbance exceeds the disturbance limit.