



FCC TEST REPORT

REPORT NO.: RF960119H05

MODEL NO.: WRH54G

RECEIVED: Jan. 19, 2007

TESTED: Jan. 19 to Feb. 01, 2007

ISSUED: Feb. 02, 2007

APPLICANT: Cisco-Linksys LLC

ADDRESS: 121 Theory Drive Irvine, CA 92617(USA)

ISSUED BY: Advance Data Technology Corporation

LAB LOCATION: No. 81-1, Lu Liao Keng, 9 Ling, Wu Lung Tsuen,
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1 CERTIFICATION

PRODUCT : Wireless-G Home Router
BRAND NAME : Linksys
MODEL NO. : WRH54G
TESTED: Jan. 19 to Feb. 01, 2007
APPLICANT : Cisco-Linksys LLC
TEST ITEM: ENGINEERING SAMPLE
STANDARDS : 47 CFR Part 15, Subpart C (Section 15.247),
ANSI C63.4-2003

The above equipment (Model: WRH54G) has been tested by **Advance Data Technology Corporation**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's EMC characteristics under the conditions specified in this report.

PREPARED BY : Claire Kuan , **DATE:** Feb. 02, 2007
(Claire Kuan)

TECHNICAL ACCEPTANCE : Moris Lin , **DATE:** Feb. 02, 2007
Responsible for RF
(Moris Lin)

APPROVED BY : Hank Chung , **DATE:** Feb. 02, 2007
(Hank Chung)



2 SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

APPLIED STANDARD: 47 CFR Part 15, Subpart C			
Standard Section	Test Type and Limit	Result	REMARK
15.207	AC Power Conducted Emission	PASS	Meet the requirement of limit Minimum passing margin is -2.08 dB at 0.197 MHz
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(c)	Transmitter Radiated Emissions Limit: Table 15.209	PASS	Meet the requirement of limit Minimum passing margin is -0.8dB at 2390.00 MHz
15.247(d)	Power Spectral Density Limit: max. 8dBm	PASS	Meet the requirement of limit
15.247(c)	Band Edge Measurement Limit: 20 dB less than the peak value of fundamental frequency	PASS	Meet the requirement of limit

3 GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

PRODUCT	Wireless-G Home Router
MODEL NO.	WRH54G
FCC ID	Q87-WRH54G
POWER SUPPLY	DC 12V from power adapter
MODULATION TYPE	CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM
RADIO TECHNOLOGY	DSSS, OFDM
TRANSFER RATE	1/2/5.5/6/9/11/12/18/24/36/48/54Mbps
FREQUENCY RANGE	2412MHz ~ 2462MHz
NUMBER OF CHANNEL	11
OUTPUT POWER	11b: 95.499mW 11g: 81.283 mW
ANTENNA TYPE	Please see note 4
DATA CABLE SUPPLIED	NA
I/O PORTS	RJ-45 port *5
ASSOCIATED DEVICES	NA

NOTE:

1. The EUT was powered by following power adapter:

Adapter 1:	
Brand:	LINKSYS
Model No.:	D12-50-A
Input power :	120VAC 60Hz 100mA
Output power :	12VDC 500mA DC Cable:1.8m/unshielded/with one core
Adapter 2:	
Brand:	LINKSYS
Model No.:	AD12V/0.5A-SW
Input power :	100-240V 0.5A 50-60Hz
Output power :	12V 0.5A DC Cable:1.8m/unshielded/with one core

2. The EUT operates in the 2.4GHz frequency spectrum with throughput of up to 54Mbps.
3. The EUT complies with IEEE 802.11g standards, and backwards compatible with IEEE 802.11b products.



4. There are two antenna as provided to this EUT, please refer to the following table:

No.	Antenna Type	Antenna Connector	Gain (dBi)	Remark
1	External fixed antenna(Dipole)	NA	1.8 dBi	NA
2	Printed antenna	NA	4.0 dBi	For Rx only

5. 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

Eleven channels are provided in this EUT.

Channel	Frequency	Channel	Frequency
1	2412 MHz	7	2442 MHz
2	2417 MHz	8	2447 MHz
3	2422 MHz	9	2452 MHz
4	2427 MHz	10	2457 MHz
5	2432 MHz	11	2462 MHz
6	2437 MHz		

3.3 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL:

EUT configure mode	Applicable to				Description
	PLC	RE<1G	RE≥1G	APCM	
-	√	√	√	√	NA

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	Modulation Type	Data Rate (Mbps)
802.11g	1 to 11	11	OFDM	BPSK	6

- The EUT was tested under following test modes:

Test Mode	Power
Mode A	With Adapter 1
Mode B	With Adapter 2

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	Modulation Type	Data Rate (Mbps)
802.11g	1 to 11	11	OFDM	BPSK	6

- The EUT was pre-tested in chamber as the following test modes:

Test Mode	Power
Mode A	With Adapter 1
Mode B	With Adapter 2

The worst was found in **Mode B**, the worst cases, were chosen for final test.

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	Modulation Type	Data Rate (Mbps)
802.11b	1 to 11	1, 6, 11	DSSS	CCK	11
802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6

The EUT was pre-tested in chamber as the following test modes:

Test Mode	Power
Mode A	With Adapter 1
Mode B	With Adapter 2

The worst was found in **Mode B**, the worst cases, were chosen for final test.

Bandedge 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	Modulation Type	Data Rate (Mbps)
802.11b	1 to 11	1, 11	DSSS	CCK	11
802.11g	1 to 11	1, 11	OFDM	BPSK	6

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	Modulation Type	Data Rate (Mbps)
802.11b	1 to 11	1, 6, 11	DSSS	CCK	11
802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6



3.4 GENERAL DESCRIPTION OF APPLIED STANDARDS

The EUT is a Wireless-G Home Router. According to the specifications of the manufacturer, it must comply with the requirements of the following standards:

47 CFR Part 15, Subpart C. (15.247)
ANSI C63.4 : 2003

All tests 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 47 CFR Part 15, Subpart B, Class B (DoC). The test report has been issued separately.



3.5 DESCRIPTION OF SUPPORT UNITS

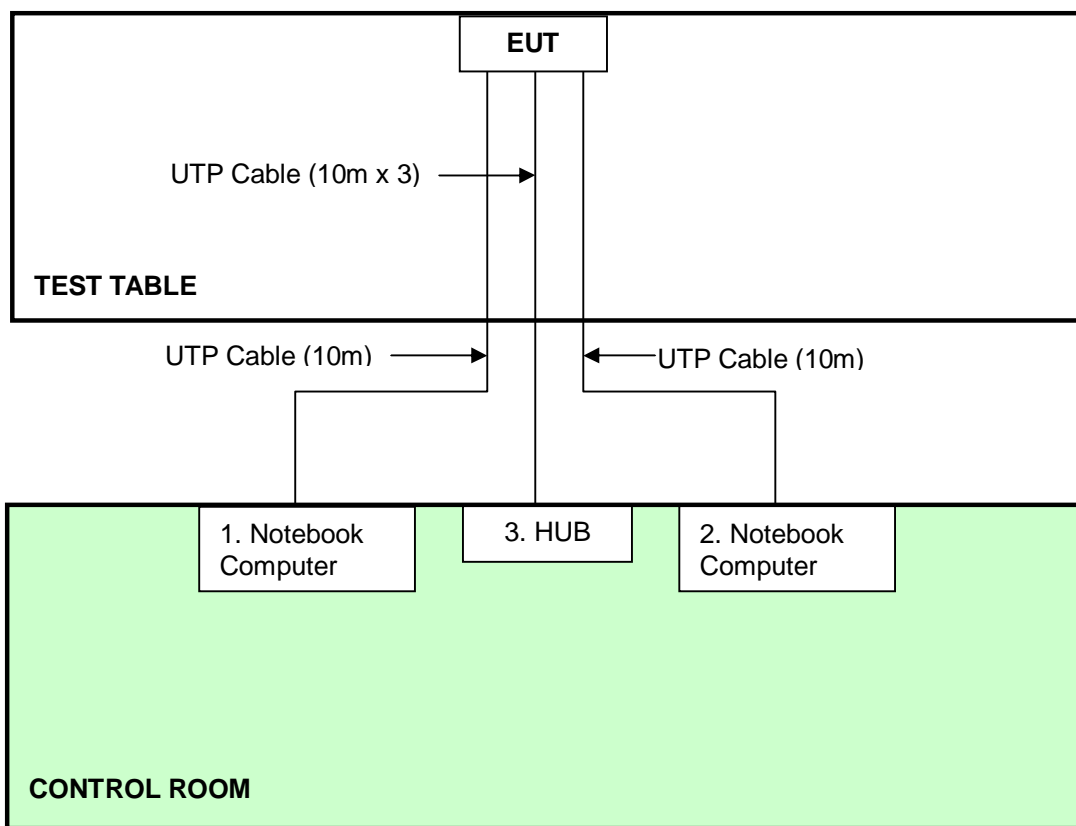
The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

No.	Product	Brand	Model No.	Serial No.	FCC ID
1	NOTEBOOK	ASUS	A2400H	49NG038481	DoC
2	NOTEBOOK	DELL	Latitude C600	TW-09c748-12800-165 -3171	E2K24CLNS
3	HUB	AVSYS	110H8	01-20E-000002	DoC

No.	Signal cable description
1	NA
2	NA
3	NA

Note: 1. All power cords of the above support units are unshielded (1.8m).

3.6 CONFIGURATION OF SYSTEM UNDER TEST



- NOTE:**
1. Support units 1-3 were kept in the control room during the test.
 2. Please refer to the photos of test configuration in Item 5 also.

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. All emanations from a class 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

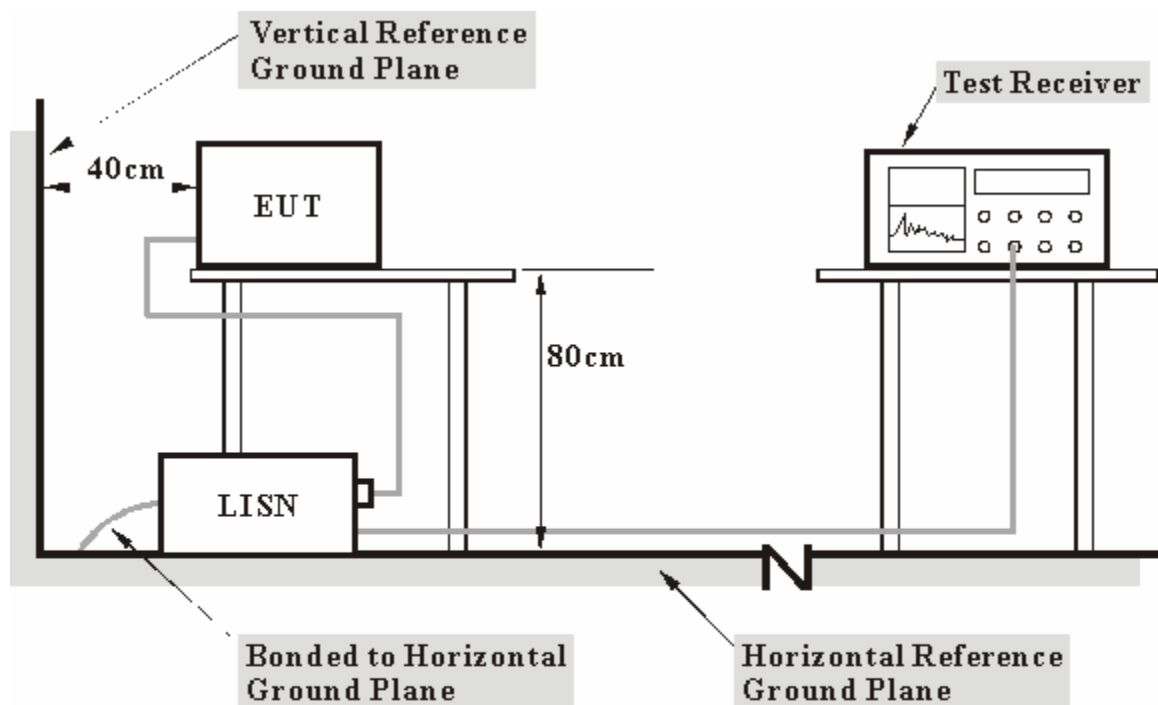
DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED UNTIL
ROHDE & SCHWARZ Test Receiver	ESCS 30	100287	Feb. 20, 2007
Line-Impedance Stabilization Network(for EUT)	ENV-216	100072	Oct. 26, 2007
Line-Impedance Stabilization Network(for Peripheral)	ESH3-Z5	848773/004	Oct. 26, 2007
RF Cable (JETBAO)	RG233/U	Cable_CA_01	Jul. 19, 2007
Terminator	50	1	Oct. 30, 2007
Software	ADT_Cond_V7.3.2	NA	NA

NOTE: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in ADT Shielded Room No. A.
3. The VCCI Con A Registration No. is C-817.

4.1.3 TEST PROCEDURES

- a. The EUT/HOST was placed 0.4 meters from the conducting wall of the shielded room with EUT/HOST 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/HOST were checked for maximum conducted interference.
- c. The frequency range from 150 kHz to 30 MHz was searched. Emission levels over 10dB under the prescribed limits could not be reported

4.1.4 TEST SETUP



- Note:**
1. Support units were connected to second LISN.
 2. Both of LISNs (AMIN) 80 cm from EUT and at the least 80 cm from other units and other metal planes support units.

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

4.1.5 EUT OPERATING CONDITIONS

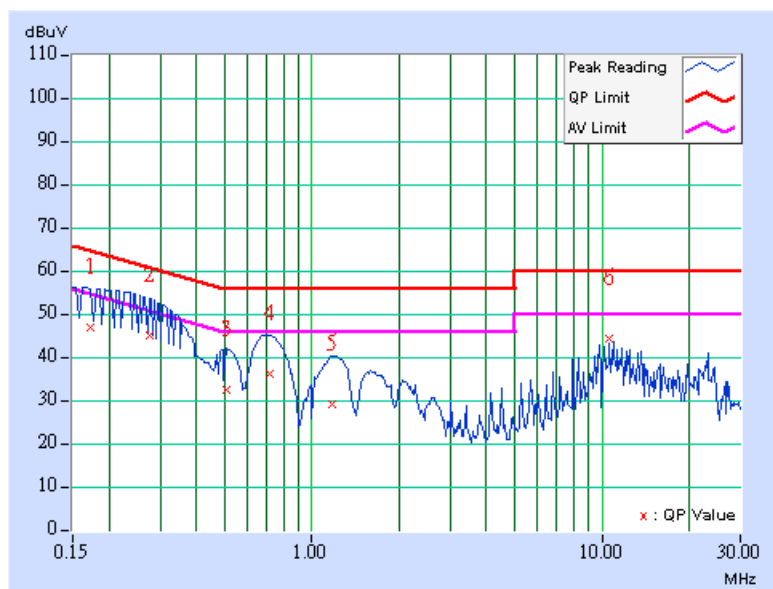
- a. Placed the EUT on testing table.
- b. Prepared other computer systems (support unit 1 ~ 2) to act as communication partners and placed them outside of testing area.
- c. The communication partners run test program “Ping Test & MFGTEST” to enable EUT under transmission/receiving condition continuously at specific channel frequency via UTP cable and wireless transmission.

4.1.6 TEST RESULTS (With Adapter 1)

MODE	Channel 11	6dB BANDWIDTH	9 kHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	PHASE	Line (L)
ENVIRONMENTAL CONDITIONS	22 deg. C, 52%RH, 970 hPa	TESTED BY	Wen Yu

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	0.173	9.77	36.94	-	46.71	-	64.79	54.79	-18.08	-
2	0.275	9.80	35.09	-	44.89	-	60.97	50.97	-16.08	-
3	0.505	9.82	22.73	-	32.55	-	56.00	46.00	-23.45	-
4	0.713	9.85	26.40	-	36.25	-	56.00	46.00	-19.75	-
5	1.176	9.90	19.42	-	29.32	-	56.00	46.00	-26.68	-
6	10.571	10.02	34.30	-	44.32	-	60.00	50.00	-15.68	-

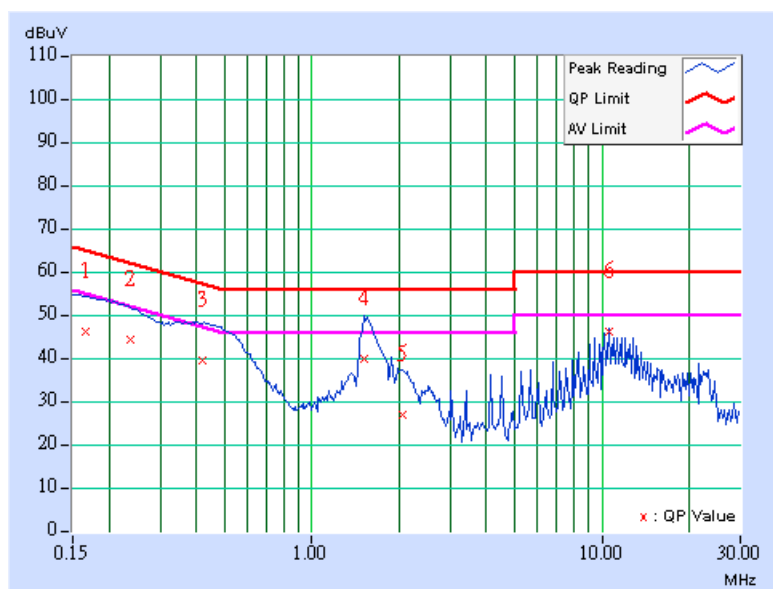
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value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



MODE	Channel 11	6dB BANDWIDTH	9 kHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	PHASE	Neutral (N)
ENVIRONMENTAL CONDITIONS	22 deg. C, 52%RH, 970 hPa	TESTED BY	Wen Yu

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	0.166	9.80	36.33	-	46.13	-	65.18	55.18	-19.05	-
2	0.236	9.80	34.46	-	44.26	-	62.24	52.24	-17.98	-
3	0.420	9.80	29.60	-	39.40	-	57.46	47.46	-18.05	-
4	1.509	9.95	29.94	-	39.89	-	56.00	46.00	-16.11	-
5	2.052	10.00	17.03	-	27.03	-	56.00	46.00	-28.97	-
6	10.562	10.12	36.34	-	46.46	-	60.00	50.00	-13.54	-

- 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.

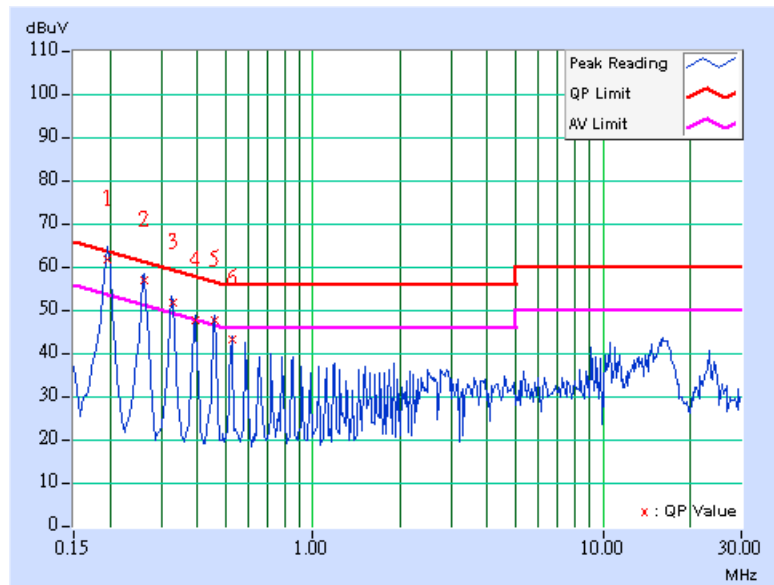


4.1.7 TEST RESULTS (With Adapter 2)

MODE	Channel 11	6dB BANDWIDTH	9 kHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	PHASE	Line (L)
ENVIRONMENTAL CONDITIONS	22 deg. C, 52%RH, 970 hPa	TESTED BY	Wen Yu

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	0.197	9.80	51.86	40.91	61.66	50.71	63.74	53.74	-2.08	-3.03
2	0.263	9.80	47.39	36.45	57.19	46.25	61.33	51.33	-4.14	-5.08
3	0.329	9.80	41.95	30.83	51.75	40.63	59.48	49.48	-7.73	-8.85
4	0.392	9.80	38.03	-	47.83	-	58.02	48.02	-10.19	-
5	0.459	9.81	38.01	31.90	47.82	41.71	56.72	46.72	-8.90	-5.01
6	0.525	9.82	33.44	-	43.26	-	56.00	46.00	-12.74	-

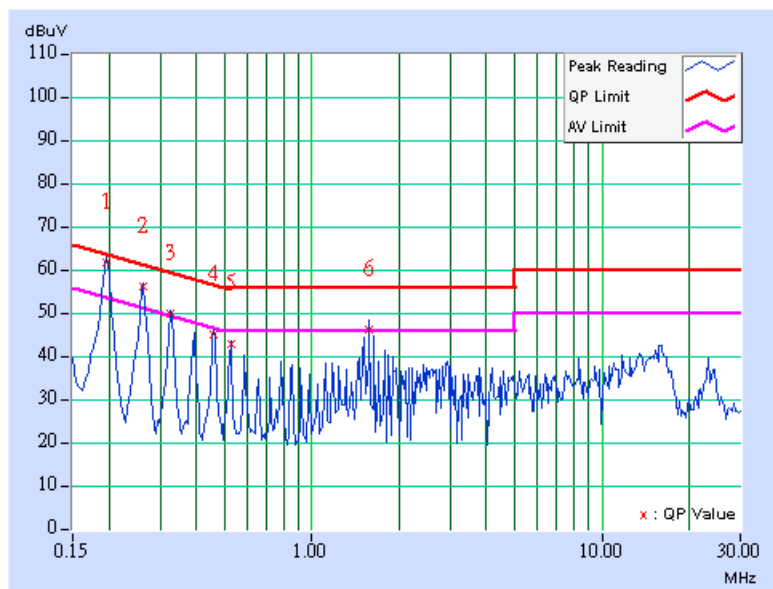
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value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



MODE	Channel 11	6dB BANDWIDTH	9 kHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	PHASE	Neutral (N)
ENVIRONMENTAL CONDITIONS	22 deg. C, 52%RH, 970 hPa	TESTED BY	Wen Yu

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	0.197	9.80	51.83	40.43	61.63	50.23	63.74	53.74	-2.11	-3.51
2	0.263	9.80	46.45	35.02	56.25	44.82	61.33	51.33	-5.08	-6.51
3	0.326	9.80	39.87	28.03	49.67	37.83	59.56	49.56	-9.89	-11.73
4	0.459	9.81	35.08	-	44.89	-	56.72	46.72	-11.83	-
5	0.525	9.82	33.19	-	43.01	-	56.00	46.00	-12.99	-
6	1.572	9.96	36.39	31.34	46.35	41.30	56.00	46.00	-9.65	-4.70

- 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

Field strength limits are at the distance of 3 meters, 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
*ADVANTEST Spectrum Analyzer	R3271A	85060311	July 03, 2007
*HP Pre_Amplifier	8449B	3008A01922	Sep. 18, 2007
*ROHDE & SCHWARZ Test Receiver	ESVS 30	841977/002	Oct. 30, 2007
*CHASE Broadband Antenna	CBL6111C	2730	Jun. 08, 2007
*Schwarzbeck Horn_Antenna	BBHA9120-D1	D123	Sep. 25, 2007
Schwarzbeck Horn_Antenna	BBHA 9170	BBHA9170153	Jan. 05, 2008
SCHWARZBECK Biconical Antenna	VHBA9123	459	Jun. 08, 2009
SCHWARZBECK Periodic Antenna	UPA6108	1148	Jun. 08, 2009
*RF Switches	MP59B	6100175593	Jul. 17, 2007
*RF Cable(CHASE)	9913-30M N-N Cable	STBCAB-30M-1 GHz	Jul. 17, 2007
*Software	ADT_Radiated_V 5.14	NA	NA
*CHANCE MOST Antenna Tower	AT-100	CM-A007	NA
*CHANCE MOST Turn Table	TC-008	CM-T007	NA
*CORCOM AC Filter	MRI2030	024/019	NA

- Note: 1. The calibration interval of the above test instruments is 12 months (36 months for Periodic Antenna) and the calibrations are traceable to NML/ROC and NIST/USA.
2. * = These equipment are used for the final measurement.
3. The horn antenna, HP preamplifier (model: 8449B) and Spectrum Analyzer (model: R3271A) are used only for the measurement of emission frequency above 1GHz if tested.
4. The test was performed in ADT Open Site No. B.
5. The VCCI Site Registration No. is R-847.
6. The FCC Site Registration No. is 92753.
7. The CANADA Site Registration No. is IC 4824A-2.
8. The following table is for the measurement uncertainty, which is calculated as per the document CISPR 16-4.

Measurement	Value
Radiated emissions (30MHz-1GHz)	3.46 dB
Radiated emissions (1GHz ~18GHz)	2.32 dB
Radiated emissions (18GHz ~20GHz)	1.90 dB

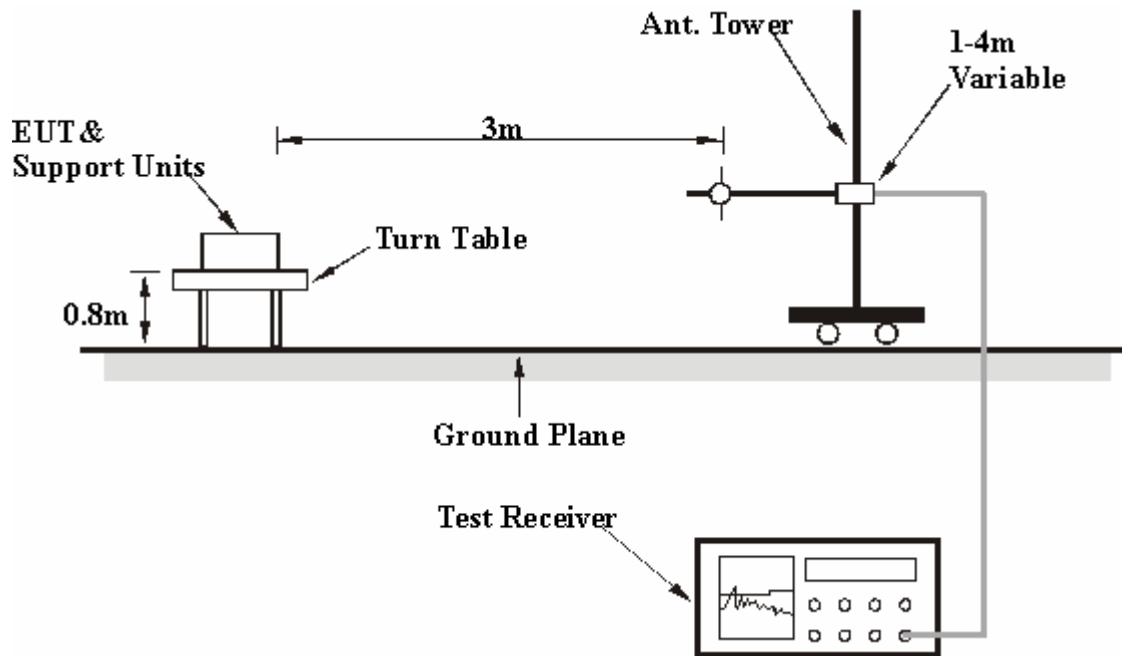
4.2.3 TEST PROCEDURES

- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 10 meter open area test site. 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 quasi-peak detect function and specified bandwidth with maximum hold mode when the test frequency is below 1 GHz.
- f. The test-receiver system was set to peak and average detect function and specified bandwidth with maximum hold mode when the test frequency is above 1 GHz. If the peak reading value also meets average limit, measurement with the average detector is unnecessary.

NOTE:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Peak detection (PK) and Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth is 1MHz and video bandwidth of test receiver/spectrum analyzer is 3MHz for Peak detection 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 TEST SETUP



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

4.2.5 EUT OPERATING CONDITIONS

Same as 4.1.5.

4.2.6 TEST RESULTS

MODE	Channel 11	FREQUENCY RANGE	30-1000 MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION & BANDWIDTH	Quasi-Peak, 120kHz
ENVIRONMENTAL CONDITIONS	21 deg. C, 69%RH, 970 hPa	TESTED BY	Tony Chen

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	120.00	35.80 QP	43.50	-7.70	1.79 H	224	23.10	12.70
2	240.00	40.30 QP	46.00	-5.70	1.22 H	285	26.90	13.40
3	250.00	37.60 QP	46.00	-8.40	1.08 H	137	23.30	14.40
4	360.00	40.40 QP	46.00	-5.60	1.05 H	345	22.50	17.90
5	375.02	35.90 QP	46.00	-10.10	1.27 H	87	17.50	18.40
6	550.00	33.90 QP	46.00	-12.10	1.00 H	227	9.80	24.20
7	839.99	34.90 QP	46.00	-11.10	1.00 H	149	7.50	27.40
8	959.99	38.80 QP	46.00	-7.20	1.00 H	53	9.50	29.20

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	120.00	39.20 QP	43.50	-4.30	1.00 V	4	26.50	12.70
2	240.00	36.80 QP	46.00	-9.20	1.56 V	231	23.40	13.40
3	250.00	32.30 QP	46.00	-13.70	1.56 V	155	17.90	14.40
4	360.00	37.80 QP	46.00	-8.20	1.19 V	208	19.90	17.90
5	480.00	35.70 QP	46.00	-10.30	1.00 V	201	14.20	21.40
6	599.99	31.70 QP	46.00	-14.30	1.38 V	0	8.30	23.40
7	660.00	35.10 QP	46.00	-10.90	1.28 V	2	10.70	24.30

- 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.

4.2.7 TEST RESULTS (DSSS)

MODE	Channel 1	FREQUENCY RANGE	1000~25000MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION & BANDWIDTH	Peak (PK) Average (AV) 1 MHz
ENVIRONMENTAL CONDITIONS	21 deg. C, 66 %RH, 970 hPa	TESTED BY	Tony Chen

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2390.00	57.20 PK	74.00	-16.80	1.28 H	326	26.90	30.30
1	2390.00	46.00 AV	54.00	-8.00	1.28 H	326	15.80	30.30
2	*2412.00	103.00 PK			1.28 H	326	72.60	30.40
2	*2412.00	98.30 AV			1.28 H	326	67.90	30.40
3	4824.00	53.70 PK	74.00	-20.30	1.29 H	330	18.00	35.70
3	4824.00	50.10 AV	54.00	-3.90	1.29 H	330	14.40	35.70
4	7236.00	58.30 PK	74.00	-15.70	1.75 H	2	17.00	41.30
4	7236.00	48.20 AV	54.00	-5.80	1.75 H	2	6.90	41.30
5	9648.00	60.30 PK	83.00	-22.7	1.15 H	353	15.50	44.80
5	9648.00	52.90 AV	78.30	-25.4	1.15 H	353	8.10	44.80

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2390.00	62.90 PK	74.00	-11.10	1.32 V	210	32.60	30.30
1	2390.00	51.90 AV	54.00	-2.10	1.32 V	210	21.60	30.30
2	*2412.00	112.80 PK			1.32 V	210	82.40	30.40
2	*2412.00	108.80 AV			1.32 V	210	78.50	30.40
3	4824.00	55.40 PK	74.00	-18.60	1.51 V	255	19.70	35.70
3	4824.00	52.60 AV	54.00	-1.40	1.51 V	255	16.90	35.70
4	7236.00	57.10 PK	74.00	-16.90	1.42 V	89	15.80	41.30
4	7236.00	47.00 AV	54.00	-7.00	1.42 V	89	5.70	41.30
5	9648.00	61.40 PK	92.80	-31.40	1.32 V	353	16.60	44.80
5	9648.00	56.30 AV	88.80	-32.50	1.32 V	353	11.50	44.80

- 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	Channel 6	FREQUENCY RANGE	1000~25000MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION & BANDWIDTH	Peak (PK) Average (AV) 1 MHz
ENVIRONMENTAL CONDITIONS	25 deg. C, 65%RH, 977 hPa	TESTED BY	Rex Huang

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2437.00	103.70 PK			1.37 H	326	73.10	30.60
1	*2437.00	99.10 AV			1.37 H	326	68.50	30.60
2	4874.00	52.50 PK	74.00	-21.50	1.36 H	85	16.80	35.70
2	4874.00	50.70 AV	54.00	-3.30	1.36 H	85	15.00	35.70
3	7311.00	56.10 PK	74.00	-17.90	1.47 H	284	13.90	42.20
3	7311.00	47.50 AV	54.00	-6.50	1.47 H	284	5.30	42.20
4	9748.00	59.20 PK	83.70	-24.50	1.31 H	78	14.20	45.00
4	9748.00	52.30 AV	79.10	-26.80	1.31 H	78	7.40	45.00

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2437.00	113.00 PK			1.30 V	6	82.40	30.60
1	*2437.00	109.00 AV			1.30 V	6	78.50	30.60
2	3249.00	44.30 PK	74.00	-29.70	1.48 V	249	12.10	32.30
2	3249.00	34.80 AV	54.00	-19.20	1.48 V	249	2.50	32.30
3	4874.00	55.90 PK	74.00	-18.10	1.02 V	0	20.20	35.70
3	4874.00	53.00 AV	54.00	-1.00	1.02 V	0	17.30	35.70
4	7311.00	56.70 PK	74.00	-17.30	1.49 V	293	14.50	42.20
4	7311.00	49.10 AV	54.00	-4.90	1.49 V	293	6.90	42.20
5	9748.00	62.80 PK	93.00	-30.20	1.48 V	262	17.80	45.00
5	9748.00	59.50 AV	89.00	-29.50	1.48 V	262	14.50	45.00

- 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.
 5. The limit value is defined as per 15.247
 6. " * " : Fundamental frequency



MODE	Channel 11	FREQUENCY RANGE	1000~25000MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION & BANDWIDTH	Peak (PK) Average (AV) 1 MHz
ENVIRONMENTAL CONDITIONS	25 deg. C, 65%RH, 977 hPa	TESTED BY	Rex Huang

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

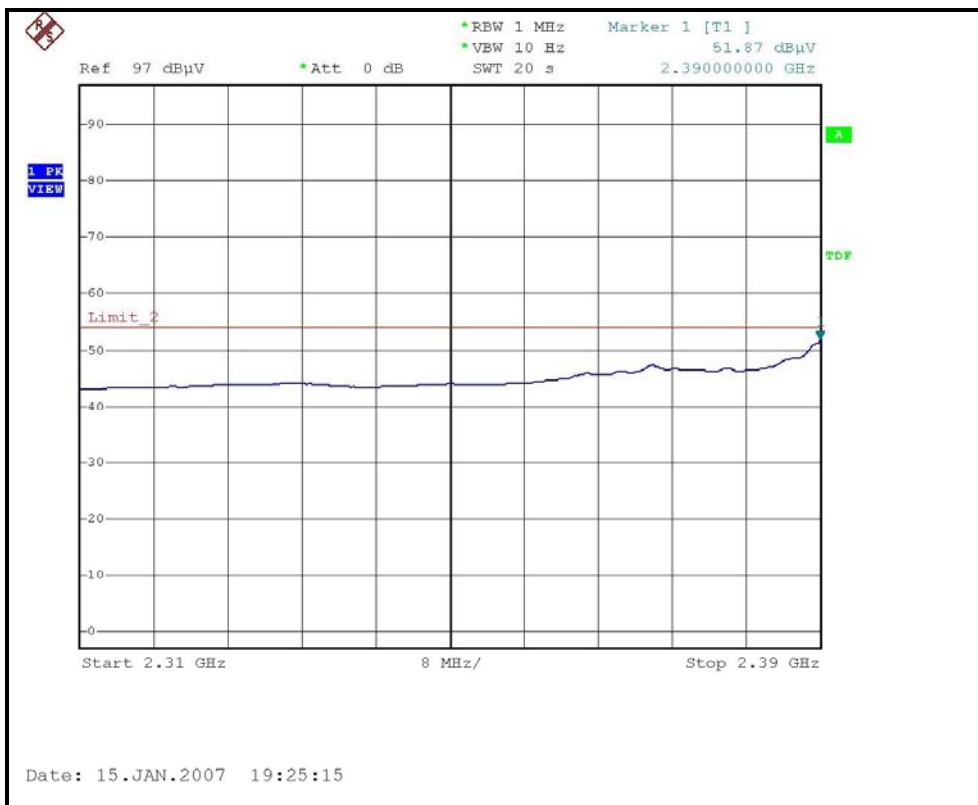
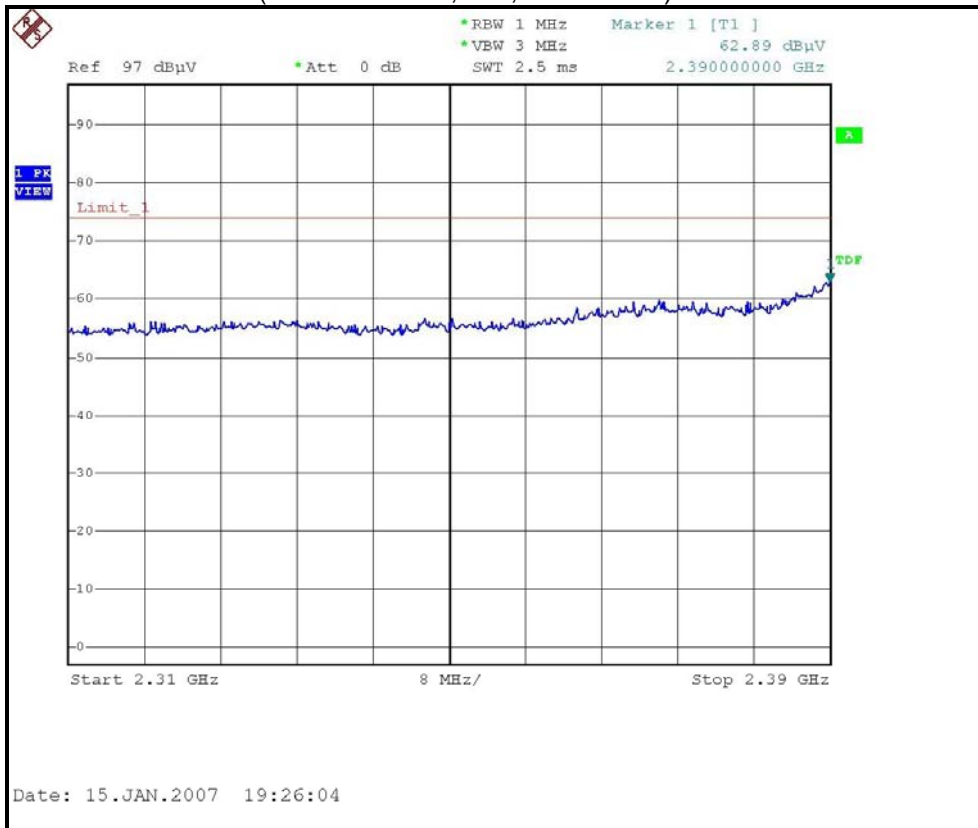
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2462.00	102.80 PK			1.08 H	91	72.20	30.70
1	*2462.00	98.80 AV			1.08 H	91	68.10	30.70
2	2483.50	60.90 PK	74.00	-13.10	1.08 H	91	30.10	30.80
2	2483.50	50.40 AV	54.00	-3.60	1.08 H	91	19.60	30.80
3	4924.00	54.30 PK	74.00	-19.70	1.10 H	193	18.50	35.90
3	4924.00	50.80 AV	54.00	-3.20	1.10 H	193	14.90	35.90
4	7386.00	58.20 PK	74.00	-15.80	1.38 H	102	15.80	42.40
4	7386.00	49.10 AV	54.00	-4.90	1.38 H	102	6.70	42.40
5	9848.00	59.50 PK	82.80	-23.3	1.52 H	101	14.40	45.00
5	9848.00	52.70 AV	78.80	-26.10	1.52 H	101	7.60	45.00

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

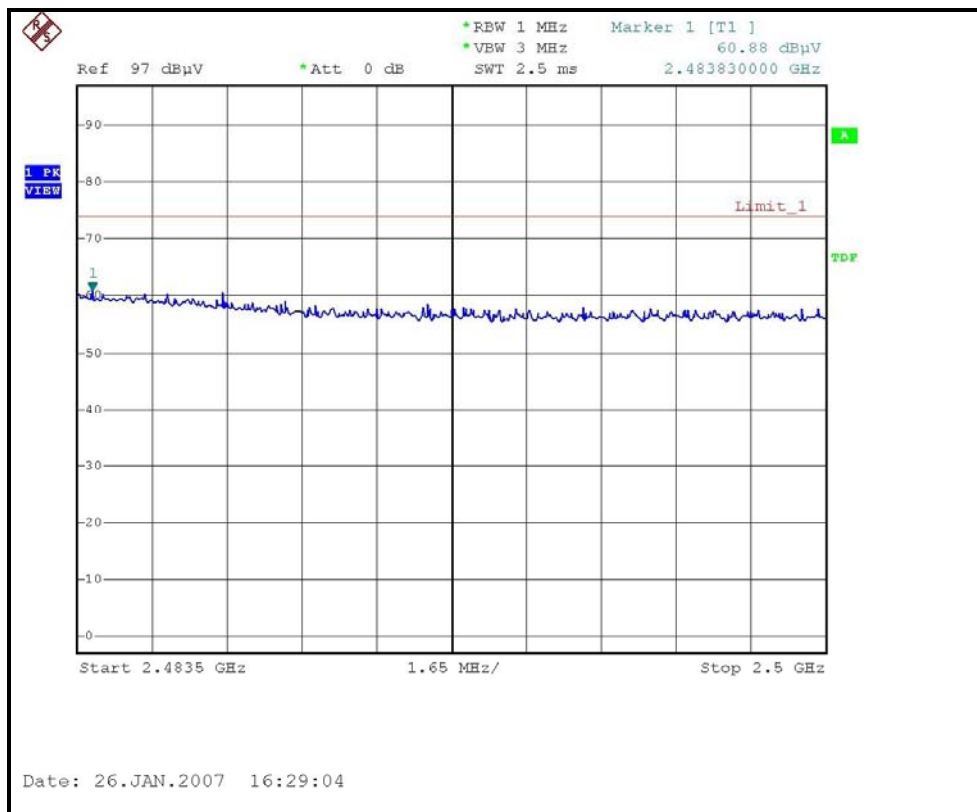
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2462.00	112.30 PK			1.29 V	8	81.70	30.60
1	*2462.00	108.50 AV			1.29 V	8	77.90	30.60
2	2483.50	64.90 PK	74.00	-9.10	1.37 V	255	34.20	30.70
2	2483.50	51.90 AV	54.00	-2.10	1.37 V	255	21.20	30.70
3	4924.00	55.80 PK	74.00	-18.20	1.15 V	19	19.80	36.00
3	4924.00	53.00 AV	54.00	-1.00	1.15 V	19	17.00	36.00
4	7386.00	59.00 PK	74.00	-15.00	1.06 V	292	17.40	41.60
4	7386.00	50.40 AV	54.00	-3.60	1.06 V	292	8.70	41.60
5	9848.00	60.30 PK	92.30	-32.00	1.40 V	85	15.40	44.90
5	9848.00	55.60 AV	88.50	-32.90	1.40 V	85	10.70	44.90

- 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

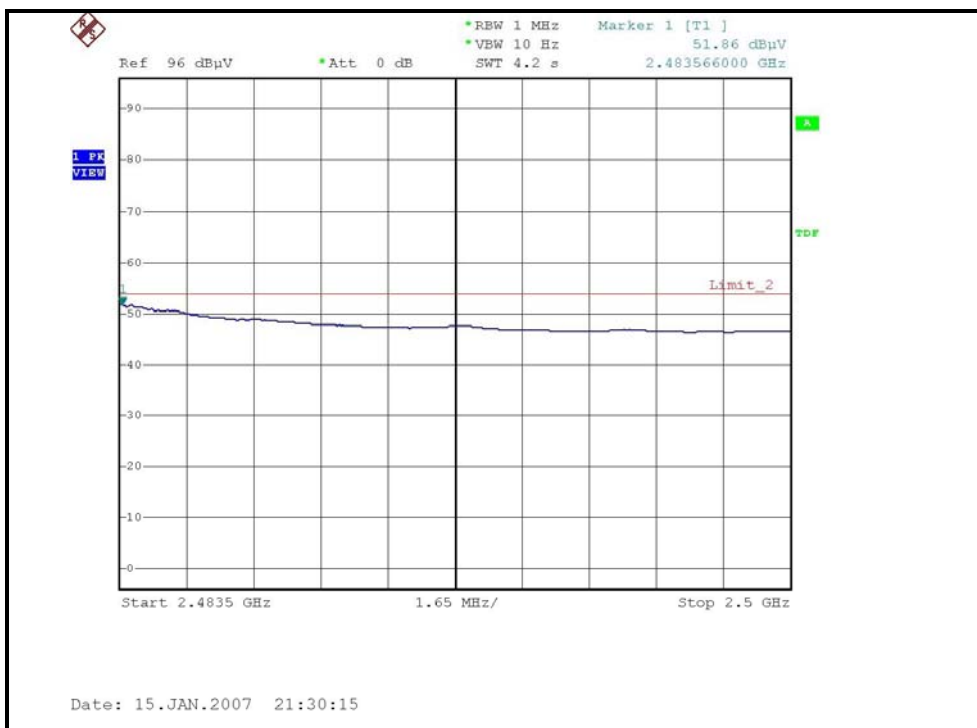
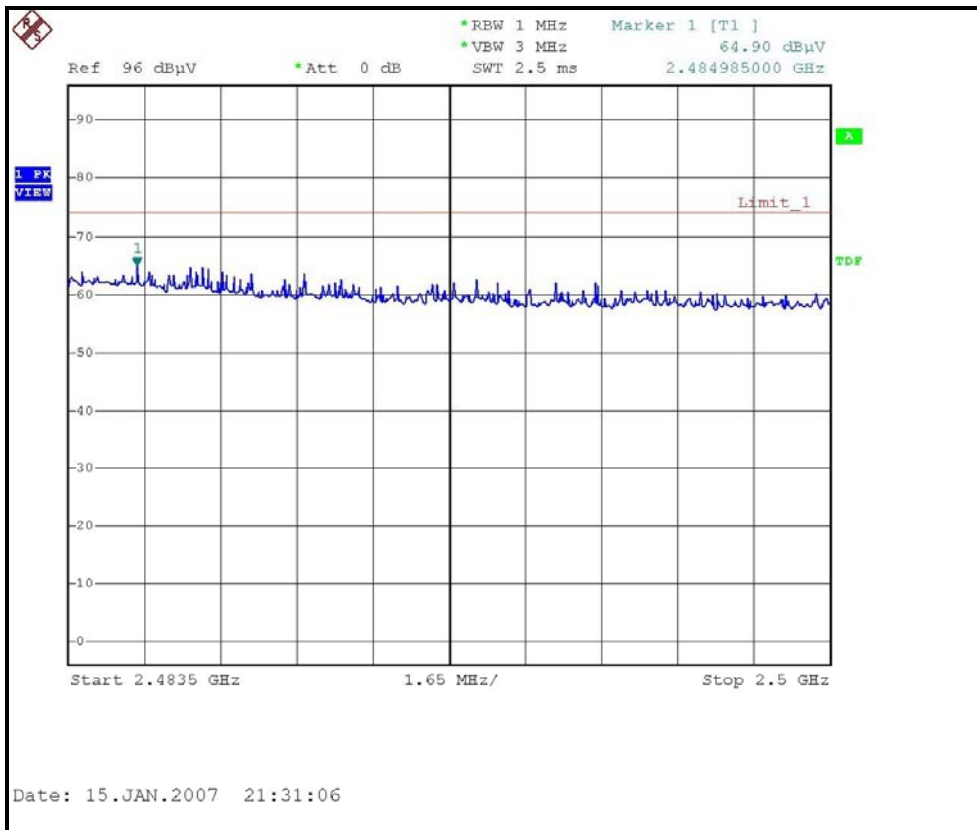
RESTRICTED BANDEDGE (802.11b MODE, CH1, VERTICAL)



RESTRICTED BANDEDGE (802.11b MODE,CH11, HORIZONTAL)



RESTRICTED BANDEDGE (802.11b MODE, CH11, VERTICAL)



4.2.8 TEST RESULTS (OFDM)

MODE	Channel 1	FREQUENCY RANGE	1000~25000MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION & BANDWIDTH	Peak (PK) Average (AV) 1 MHz
ENVIRONMENTAL CONDITIONS	25 deg. C, 65%RH, 977 hPa	TESTED BY	Rex Huang

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2390.00	63.00 PK	74.00	-11.00	1.52 H	36	32.80	30.30
1	2390.00	46.10 AV	54.00	-7.90	1.52 H	36	15.80	30.30
2	*2412.00	104.60 PK			1.52 H	36	74.30	30.40
2	*2412.00	93.40 AV			1.52 H	36	63.00	30.40
3	4824.00	51.30 PK	74.00	-22.70	1.11 H	112	15.60	35.70
3	4824.00	37.50 AV	54.00	-16.50	1.11 H	112	1.80	35.70
4	7236.00	53.30 PK	74.00	-20.70	1.06 H	147	12.00	41.30
4	7236.00	41.30 AV	54.00	-12.70	1.06 H	147	0.00	41.30
5	9648.00	56.80 PK	84.60	-27.80	1.23 H	118	12.00	44.80
5	9648.00	43.50 AV	73.40	-29.90	1.23 H	118	-1.30	44.80

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2390.00	73.20 PK	74.00	-0.80	1.47 V	102	42.90	30.30
1	2390.00	52.10 AV	54.00	-1.90	1.47 V	102	21.80	30.30
2	*2412.00	112.50 PK			1.47 V	102	82.10	30.40
2	*2412.00	101.50 AV			1.47 V	102	71.10	30.40
3	4824.00	53.50 PK	74.00	-20.50	1.04 V	112	17.80	35.70
3	4824.00	40.30 AV	54.00	-13.70	1.04 V	112	4.60	35.70
4	7236.00	59.60 PK	74.00	-14.40	4.00 V	258	18.30	41.30
4	7236.00	46.30 AV	54.00	-7.70	4.00 V	258	5.00	41.30
5	9648.00	61.30 PK	92.50	-31.20	1.04 V	236	16.50	44.80
5	9648.00	47.30 AV	81.50	-34.20	1.04 V	236	2.50	44.80

- 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	Channel 6	FREQUENCY RANGE	1000~25000MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION & BANDWIDTH	Peak (PK) Average (AV) 1 MHz
ENVIRONMENTAL CONDITIONS	25 deg. C, 65%RH, 977 hPa	TESTED BY	Rex Huang

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2437.00	103.80 PK			1.51 H	28	73.40	30.50
1	*2437.00	93.70 AV			1.51 H	28	63.30	30.50
2	4874.00	51.30 PK	74.00	-22.70	1.06 H	54	15.40	35.90
2	4874.00	36.80 AV	54.00	-17.20	1.06 H	54	0.90	35.90
3	7311.00	53.40 PK	74.00	-20.60	1.04 H	114	11.90	41.50
3	7311.00	41.20 AV	54.00	-12.80	1.04 H	114	-0.30	41.50
4	9748.00	56.60 PK	83.80	-27.20	1.20 H	360	11.70	44.90
4	9748.00	42.90 AV	73.70	-30.80	1.20 H	360	-2.00	44.90

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2437.00	112.80 PK			1.41 V	105	82.40	30.50
1	*2437.00	101.90 AV			1.41 V	105	71.40	30.50
2	4874.00	53.20 PK	74.00	-20.80	1.04 V	111	17.30	35.90
2	4874.00	39.80 AV	54.00	-14.20	1.04 V	111	3.90	35.90
3	7311.00	58.90 PK	74.00	-15.10	1.01 V	236	17.40	41.50
3	7311.00	46.30 AV	54.00	-7.70	1.01 V	236	4.80	41.50
4	9748.00	61.20 PK	92.80	-31.60	1.42 V	120	16.30	44.90
4	9748.00	47.30 AV	81.90	-34.60	1.42 V	120	2.40	44.90

- 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	Channel 11	FREQUENCY RANGE	1000~25000MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION & BANDWIDTH	Peak (PK) Average (AV) 1 MHz
ENVIRONMENTAL CONDITIONS	25 deg. C, 65%RH, 977 hPa	TESTED BY	Rex Huang

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

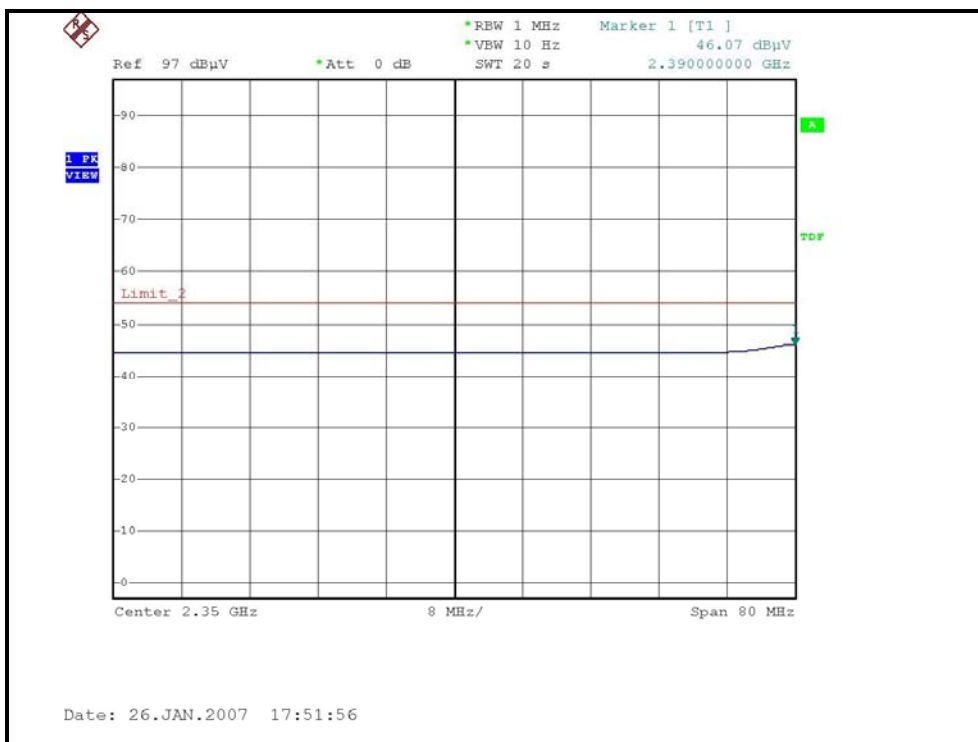
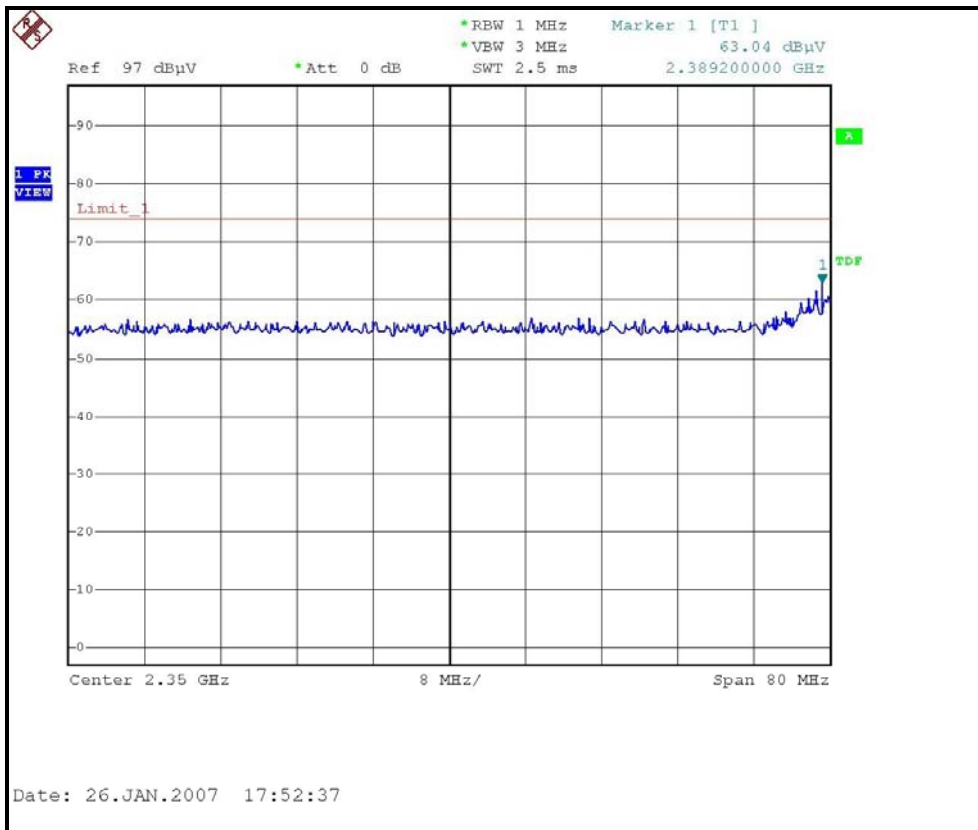
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2462.00	103.40 PK			1.22 H	212	72.80	30.60
1	*2462.00	93.20 AV			1.22 H	212	62.60	30.60
2	2483.50	67.10 PK	74.00	-6.90	1.22 H	212	36.40	30.70
2	2483.50	49.40 AV	54.00	-4.60	1.22 H	212	18.70	30.70
3	4924.00	50.00 PK	74.00	-24.00	1.33 H	45	13.90	36.00
3	4924.00	36.20 AV	54.00	-17.80	1.33 H	45	0.20	36.00
4	7386.00	52.90 PK	74.00	-21.10	1.24 H	241	11.30	41.60
4	7386.00	40.50 AV	54.00	-13.50	1.24 H	241	-1.10	41.60
5	9848.00	55.60 PK	83.40	-27.80	1.04 H	358	10.70	44.90
5	9848.00	42.80 AV	73.20	-30.40	1.04 H	358	-2.10	44.90

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

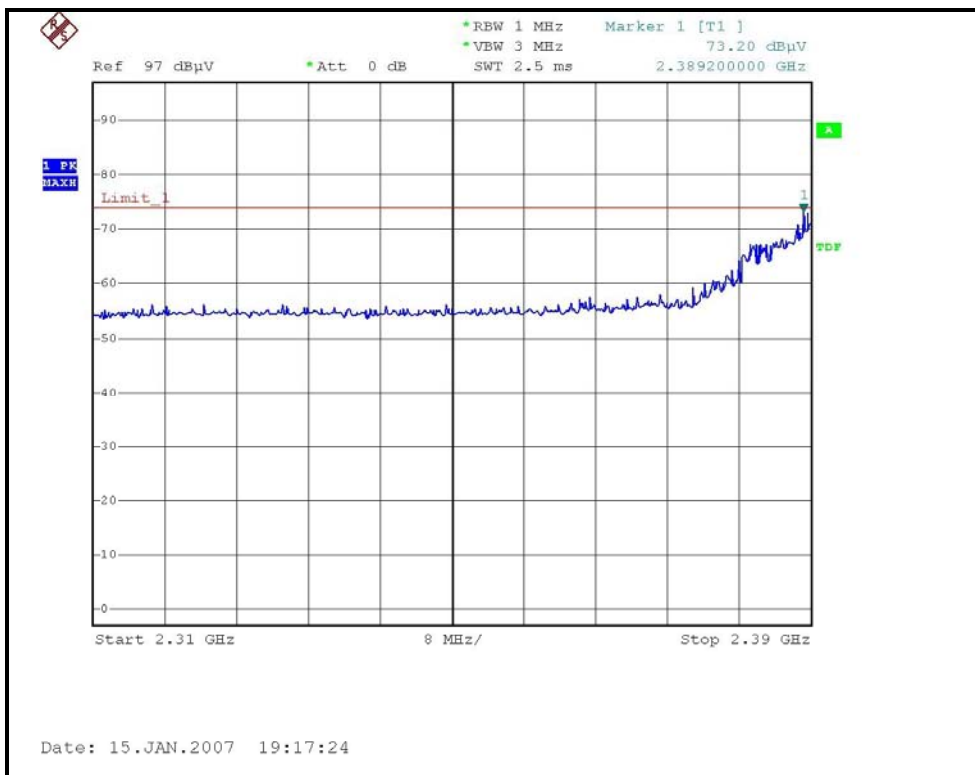
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2462.00	111.80 PK			1.43 V	102	81.20	30.60
1	*2462.00	100.90 AV			1.43 V	102	70.30	30.60
2	2483.50	72.70 PK	74.00	-1.30	1.43 V	102	42.00	30.70
2	2483.50	53.00 AV	54.00	-1.00	1.43 V	102	22.30	30.70
3	4924.00	52.80 PK	74.00	-21.20	1.22 V	249	16.70	36.00
3	4924.00	39.50 AV	54.00	-14.50	1.22 V	249	3.50	36.00
4	7386.00	58.40 PK	74.00	-15.60	1.39 V	64	16.80	41.60
4	7386.00	45.80 AV	54.00	-8.20	1.39 V	64	4.10	41.60
5	9848.00	60.20 PK	91.80	-31.60	1.39 V	105	15.20	44.90
5	9848.00	46.90 AV	80.90	-34.00	1.39 V	105	2.00	44.90

- 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

RESTRICTED BANDEDGE (802.11g MODE,CH1, HORIZONTAL)



RESTRICTED BANDEDGE (802.11g MODE, CH1, VERTICAL)





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
R&S SPECTRUM ANALYZER	FSP40	100036	Aug. 16, 2007

NOTE:

- 1.The measurement uncertainty is less than +/- 2.6dB, which is calculated as per the NAMAS document NIS81.
- 2.The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

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 100 kHz RBW and 100 kHz VBW. The 6 dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 6 dB.

4.3.4 TEST SETUP



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

4.3.5 EUT OPERATING CONDITIONS

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

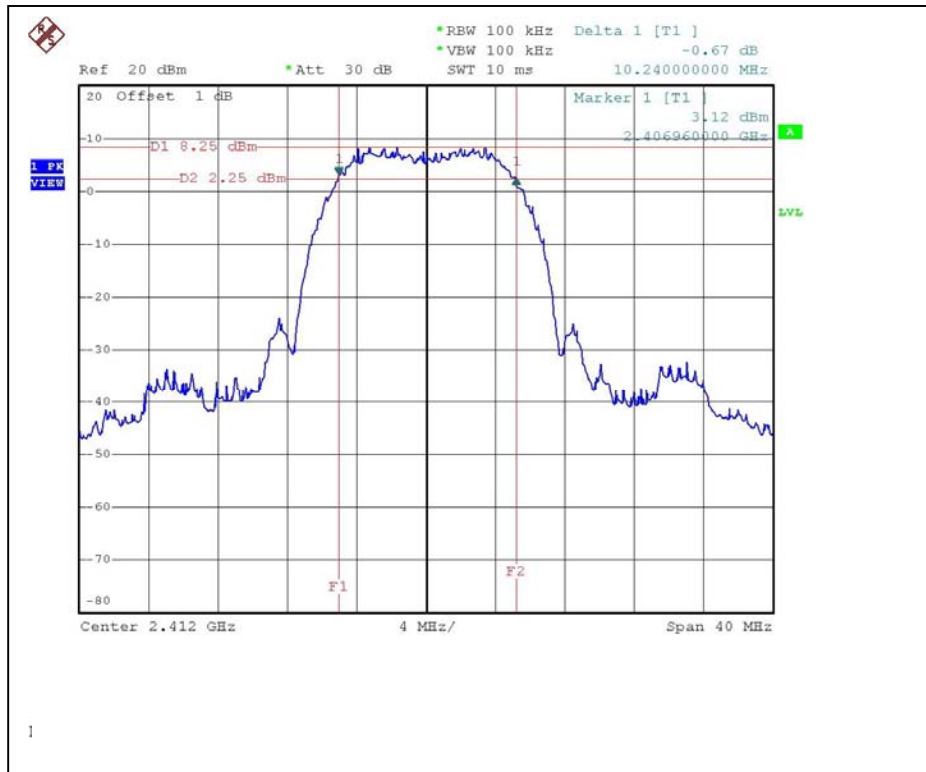


4.3.6 TEST RESULTS - DSSS

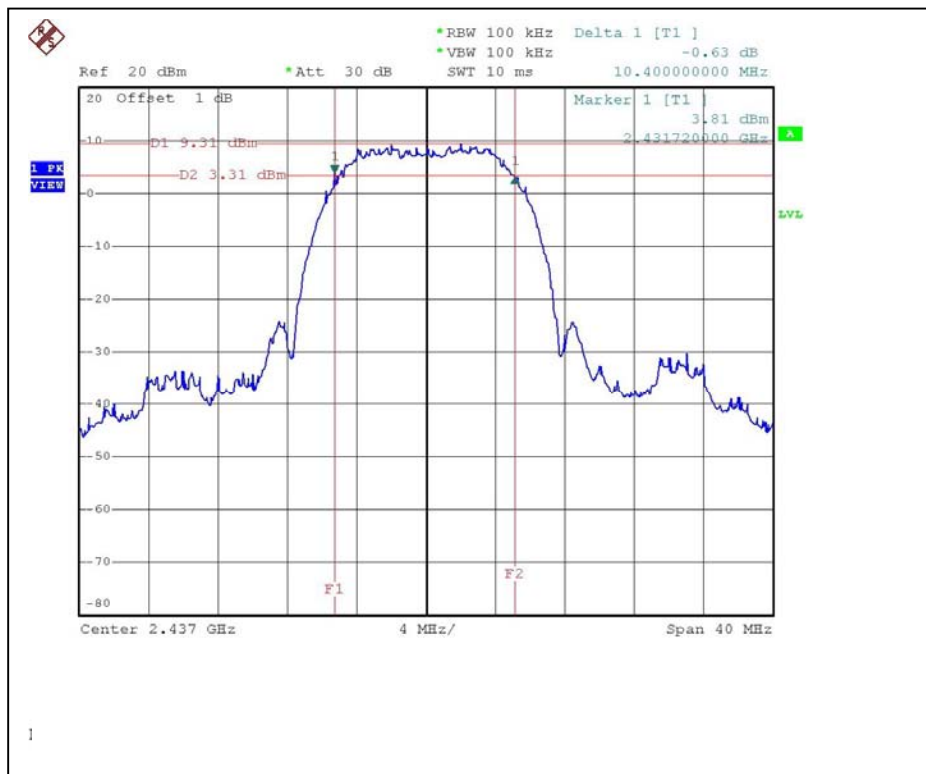
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	18 deg. C, 62 %RH, 970 hPa
TESTED BY	Sky Liao		

CHANNEL	CHANNEL FREQUENCY (MHz)	6 dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS/FAIL
1	2412	10.24	0.5	PASS
6	2437	10.40	0.5	PASS
11	2462	10.40	0.5	PASS

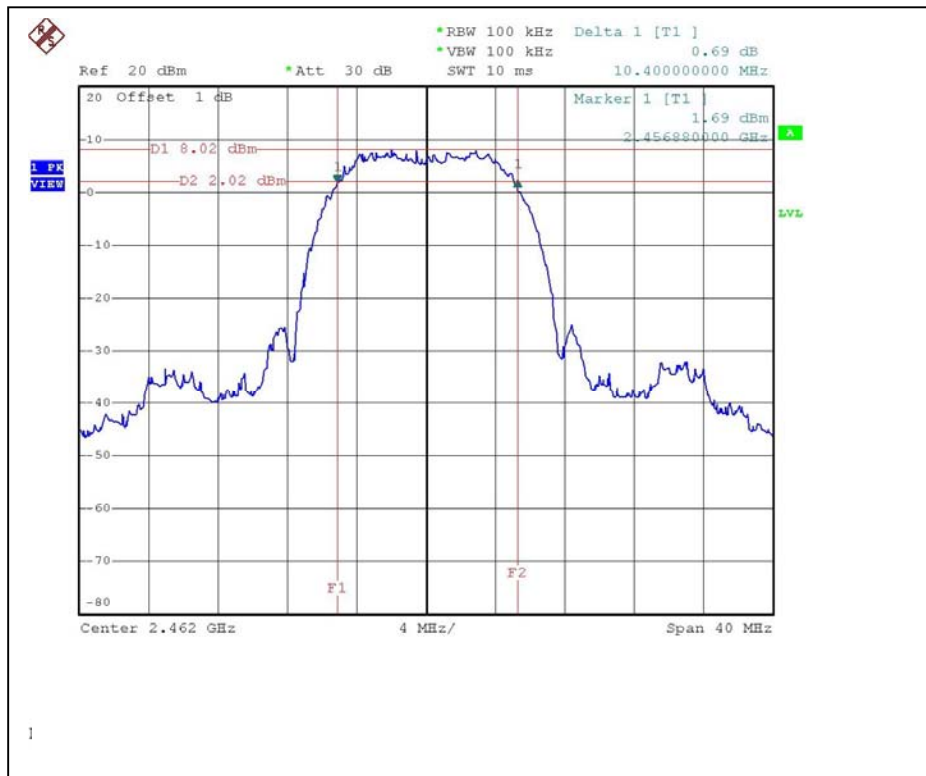
CH1



CH6



CH11



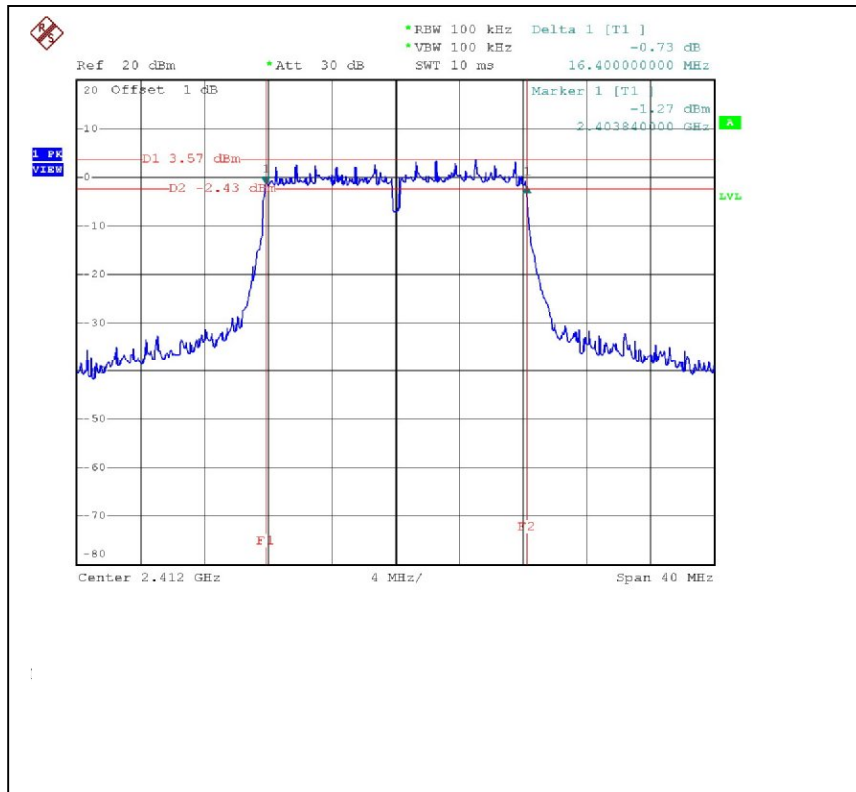


4.3.7 TEST RESULTS -OFDM

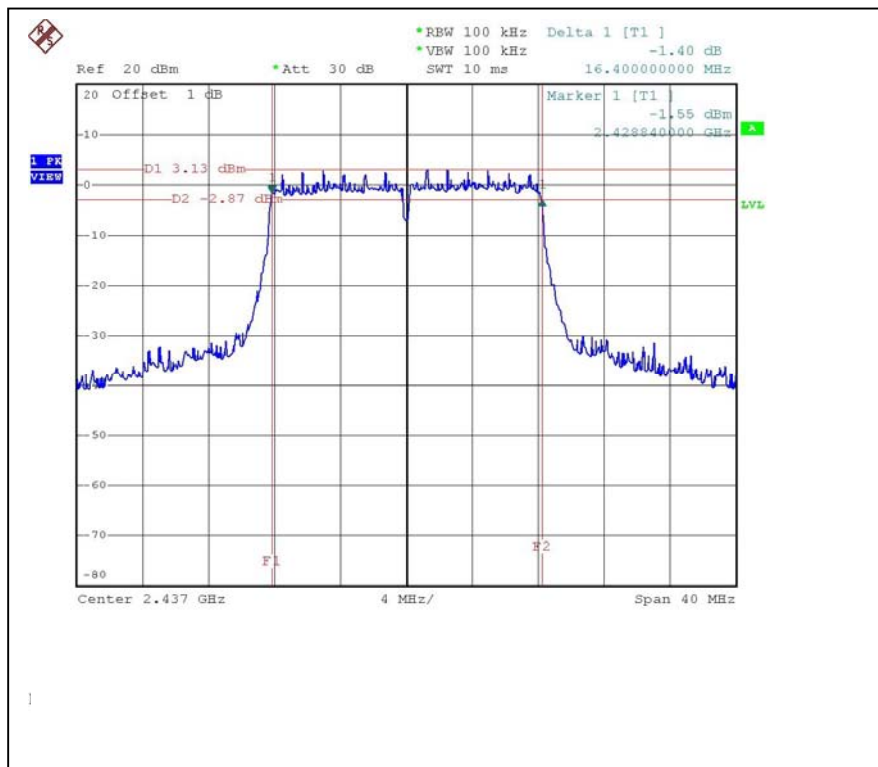
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	18 deg. C, 62 %RH, 970 hPa
TESTED BY	Sky Liao		

CHANNEL	CHANNEL FREQUENCY (MHz)	6 dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS/FAIL
1	2412	16.40	0.5	PASS
6	2437	16.40	0.5	PASS
11	2462	16.32	0.5	PASS

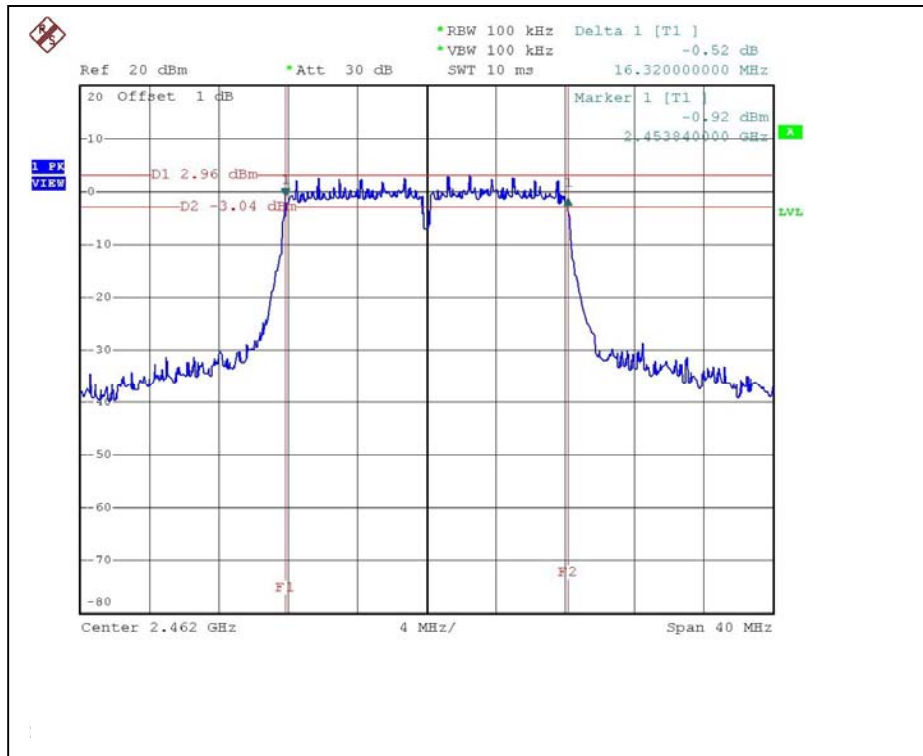
CH1



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 TEST INSTRUMENTS

Description & Manufacturer	Model No.	Serial No.	Calibrated Until
R&S SPECTRUM ANALYZER	FSP40	100036	Nov. 23, 2007
Agilent SIGNAL GENERATOR	E8257C	MY43320668	Dec. 07, 2007
TEKTRONIX OSCILLOSCOPE	TDS380	B016335	July 14, 2007
NARDA DETECTOR	4503A	FSCM99899	NA

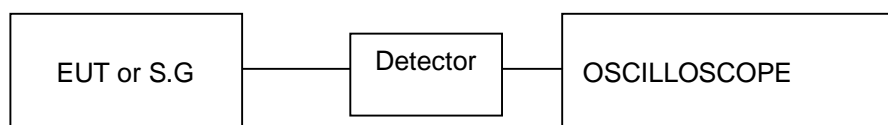
NOTE:

The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

4.4.3 TEST PROCEDURES

1. A detector was used on the output port of the EUT. An oscilloscope was used to read the peak response of the detector.
2. Replaced the EUT by the signal generator. The center frequency of the S.G was adjusted to the center frequency of the measured channel.
3. Adjusted the power to have the same peak reading on oscilloscope. Record the power level.

4.4.4 TEST SETUP



4.4.5 EUT OPERATING CONDITIONS

Same as Item 4.3.5



4.4.6 TEST RESULTS - DSSS

INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	18 deg. C, 62 %RH, 970 hPa
TESTED BY	Sky Liao		

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (mW)	PEAK POWER OUTPUT (dBm)	PEAK POWER LIMIT (dBm)	PASS/FAIL
1	2412	93.325	19.70	30	PASS
6	2437	95.499	19.80	30	PASS
11	2462	74.131	18.70	30	PASS



4.4.7 TEST RESULTS - OFDM

INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	18 deg. C, 62 %RH, 970 hPa
TESTED BY	Sky Liao		

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (mW)	PEAK POWER OUTPUT (dBm)	PEAK POWER LIMIT (dBm)	PASS/FAIL
1	2412	79.433	19.00	30	PASS
6	2437	81.283	19.10	30	PASS
11	2462	74.131	18.70	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
R&S SPECTRUM ANALYZER	FSP40	100036	Nov. 23, 2007

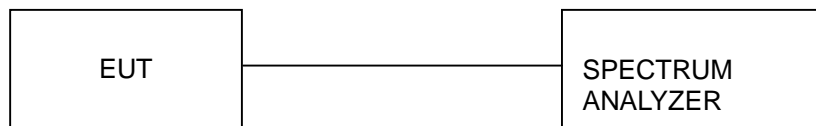
NOTE:

- 1.The measurement uncertainty is less than +/- 2.6dB, which is calculated as per the NAMAS document NIS81.
- 2.The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

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 3 kHz RBW and 30 kHz VBW, set sweep time= $\text{span}/3\text{kHz}$. The power spectral density was measured and recorded. The sweep time is allowed to be longer than $\text{span}/3\text{kHz}$ for a full response of the mixer in the spectrum analyzer.

4.5.4 TEST SETUP



4.5.5 EUT OPERATING CONDITIONS

Same as 4.3.5

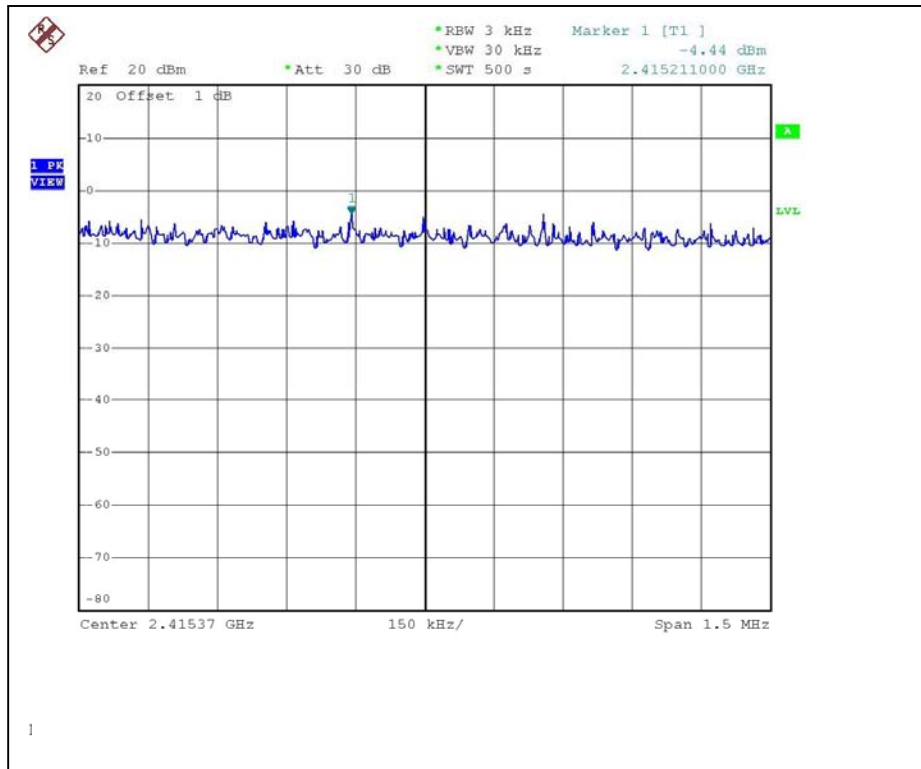


4.5.6 TEST RESULTS – DSSS

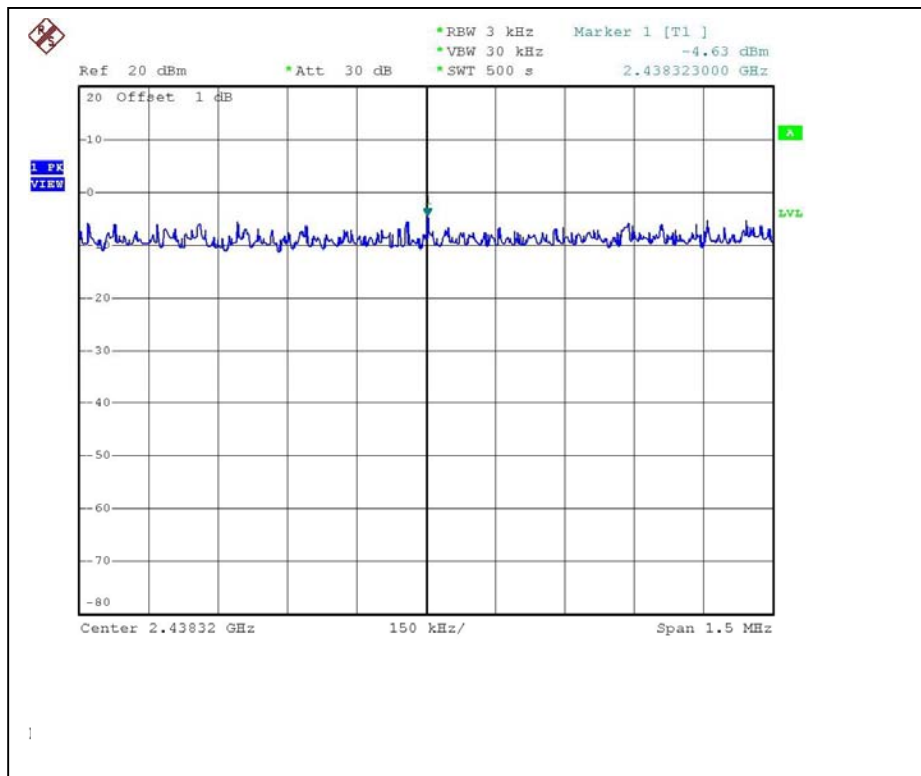
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	18 deg. C, 62 %RH, 970 hPa
TESTED BY	Sky Liao		

CHANNEL NUMBER	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3 KHz BW (dBm)	MAXIMUM LIMIT (dBm)	PASS/FAIL
1	2412	-4.44	8	PASS
6	2437	-4.63	8	PASS
11	2462	-6.42	8	PASS

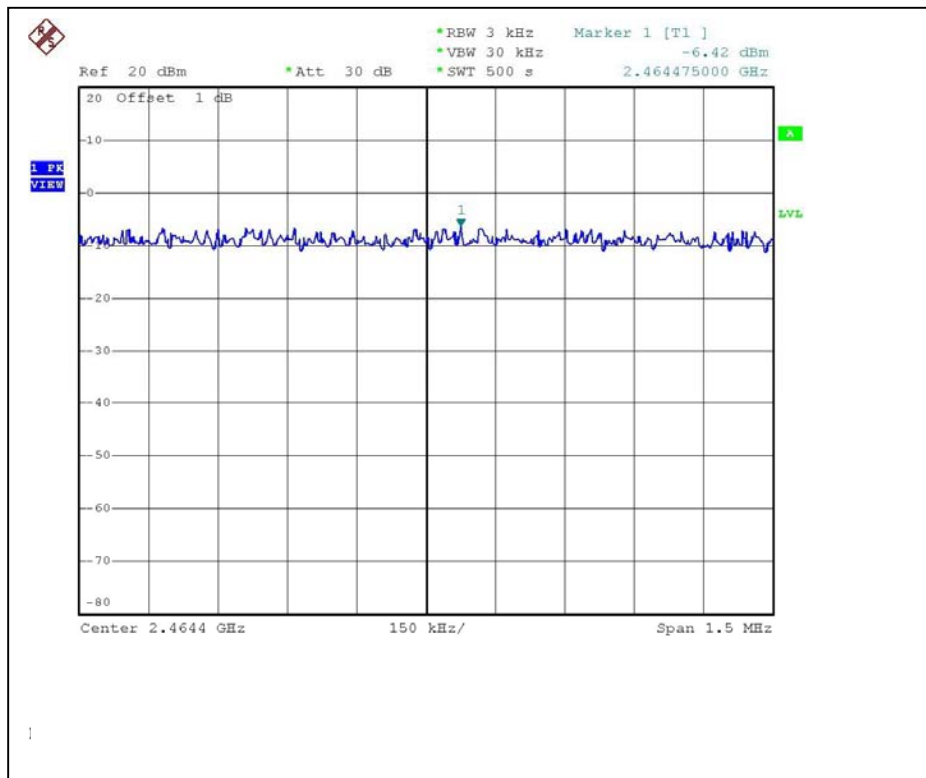
CH1



CH6



CH11



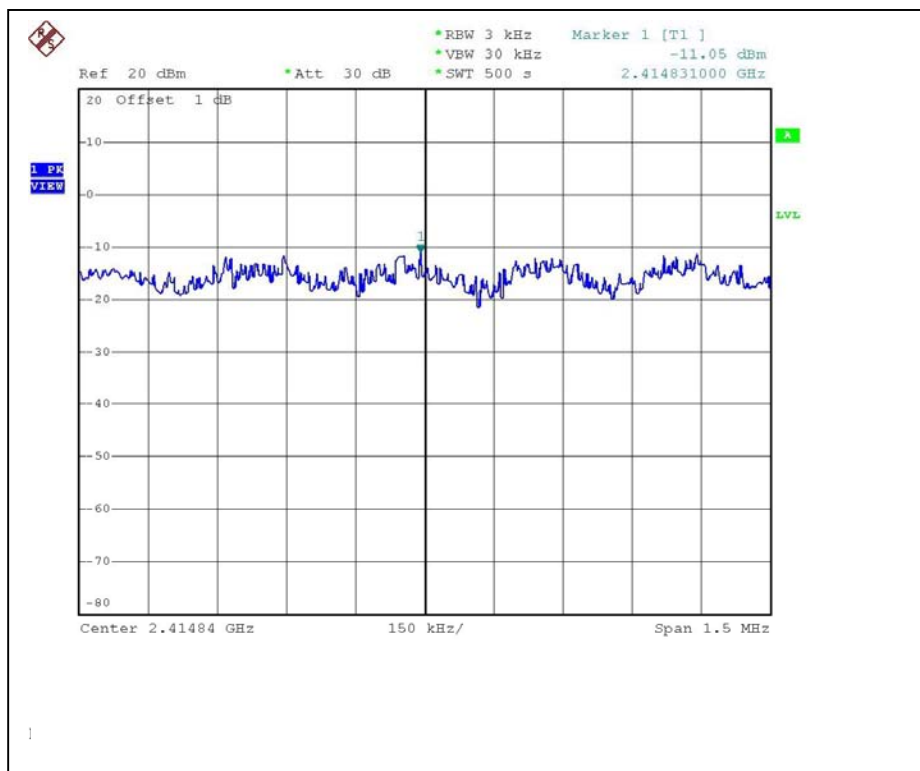


4.5.7 TEST RESULTS – OFDM

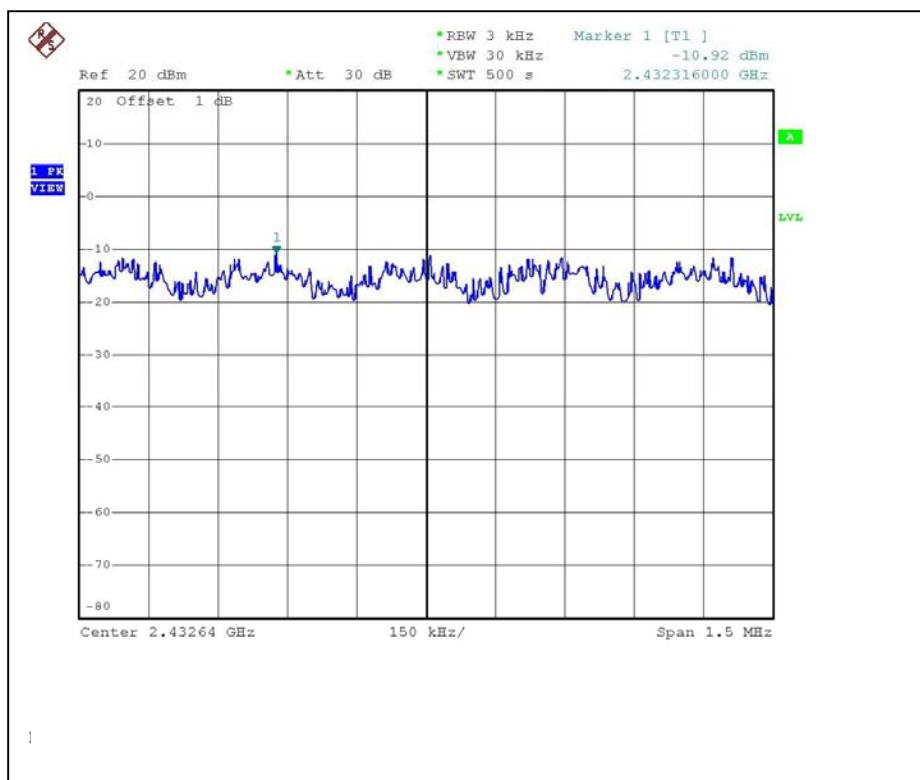
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	18 deg. C, 62%RH, 970 hPa
TESTED BY	Sky Liao		

CHANNEL NUMBER	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3 KHz BW (dBm)	MAXIMUM LIMIT (dBm)	PASS/FAIL
1	2412	-11.05	8	PASS
6	2437	-10.92	8	PASS
11	2462	-11.17	8	PASS

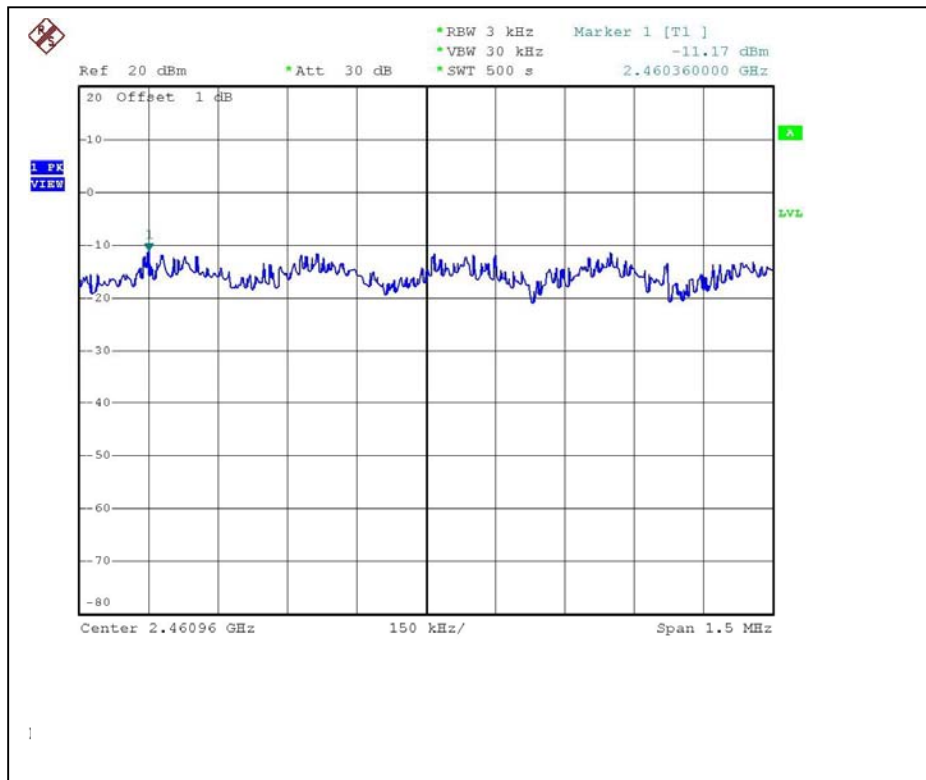
CH1



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
R&S SPECTRUM ANALYZER	FSP40	100036	Nov. 23, 2007

NOTE:

- 1.The measurement uncertainty is less than $\pm 2.6\text{dB}$, which is calculated as per the NAMAS document NIS81.
- 2.The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

4.6.3 TEST PROCEDURE

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

The spectrum plots (RBW = VBW = 100kHz) are attached on the following pages.

4.6.4 EUT OPERATING CONDITION

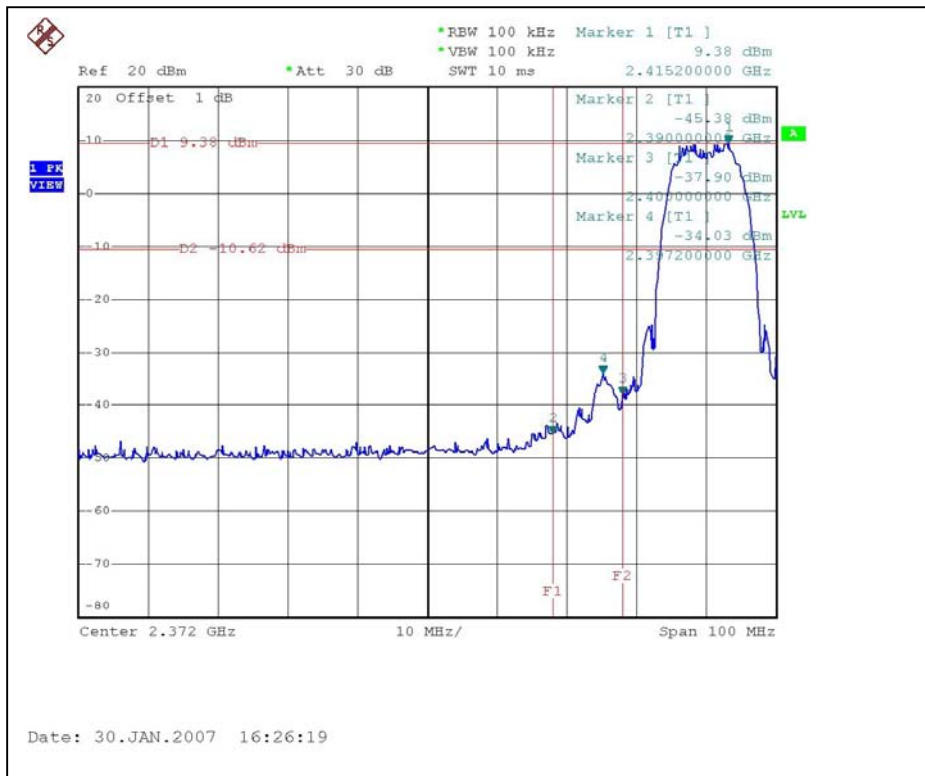
Same as Item 4.3.5



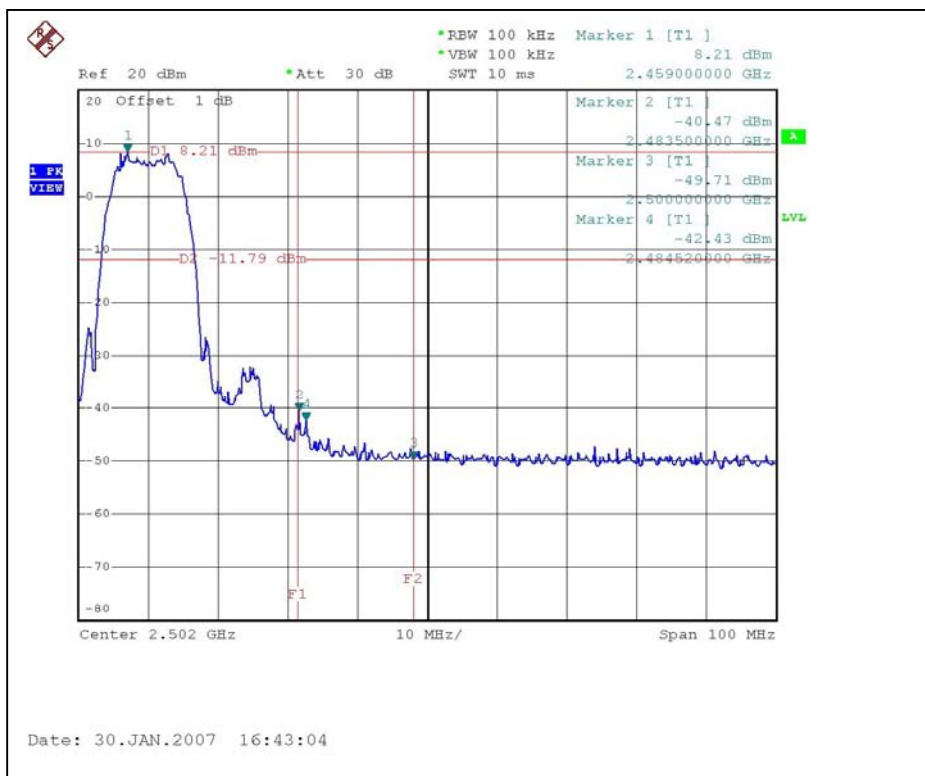
4.6.5 TEST RESULTS

The spectrum plots are attached on the following 8 images. D1 line indicates the highest level, and D2 line indicates the 20dB offset below D1. It shows compliance with the requirement in part 15.247(d).

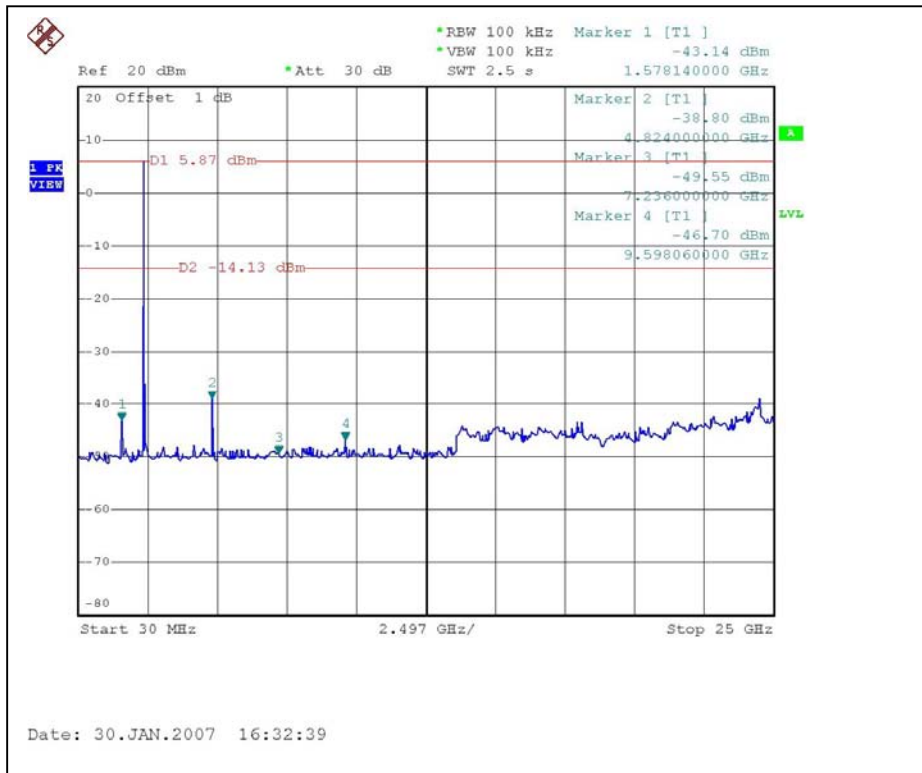
802.11b DSSS MODULATION: CH1



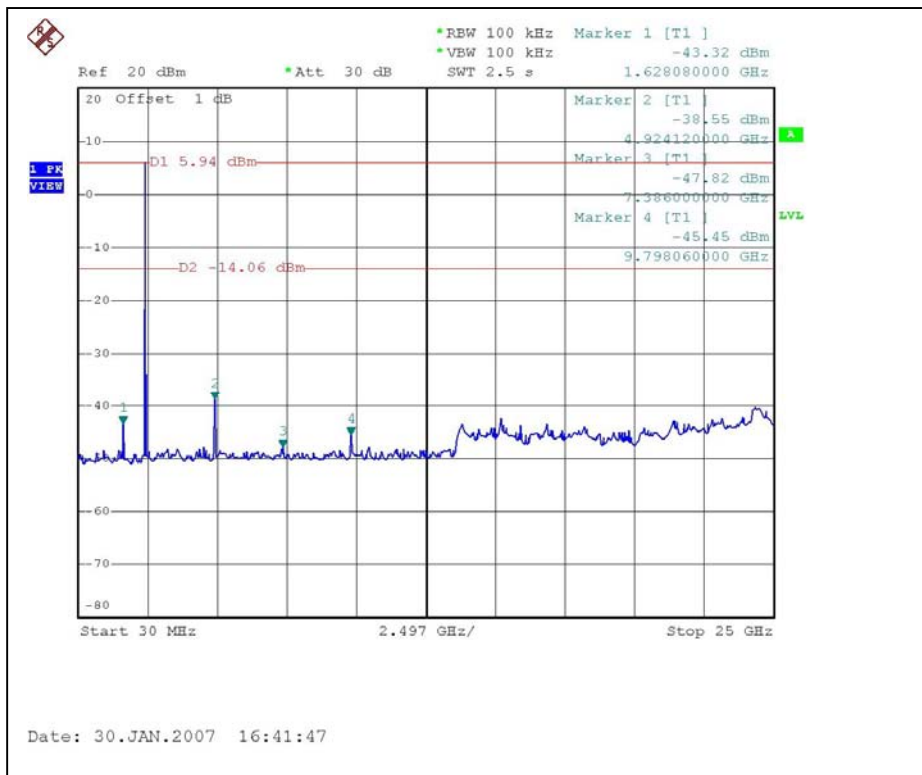
CH11



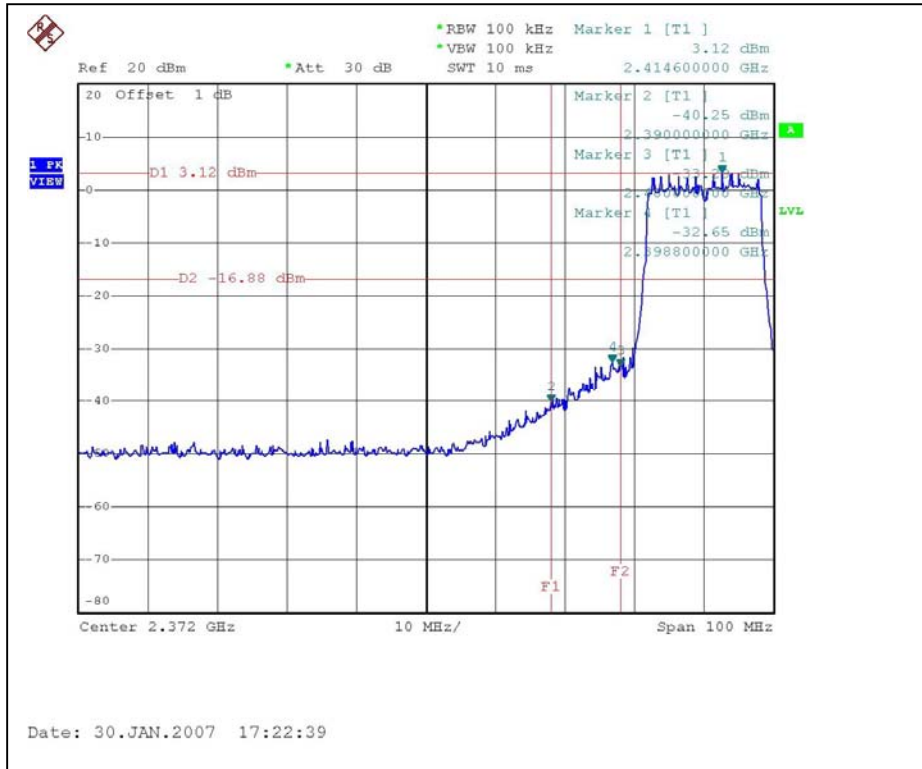
CH1



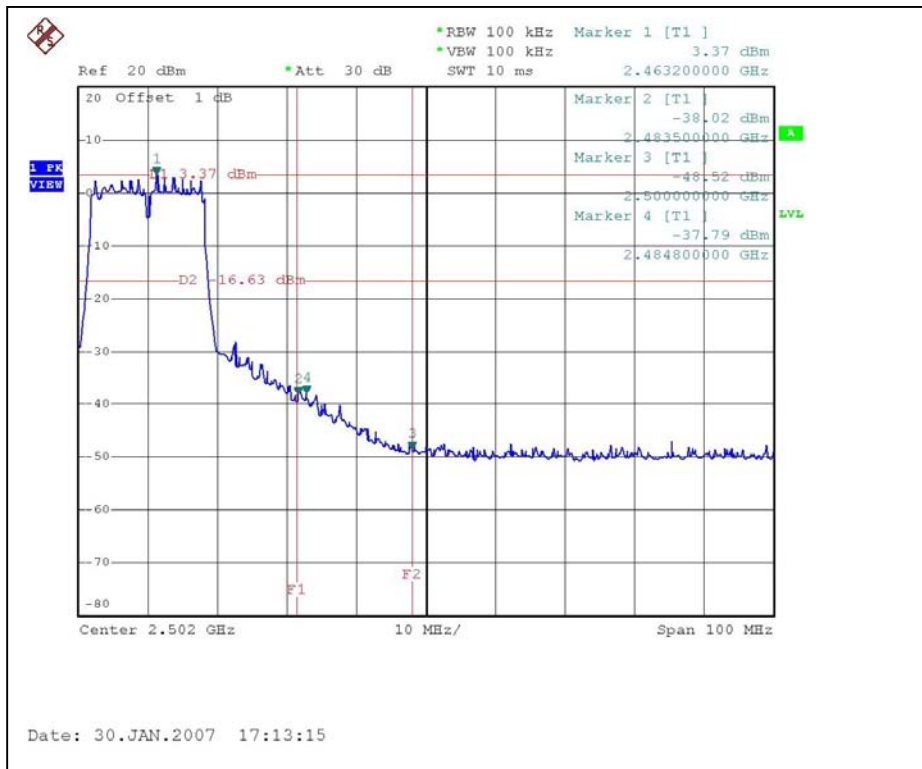
CH11



802.11g OFDM MODULATION: CH1



CH11



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.

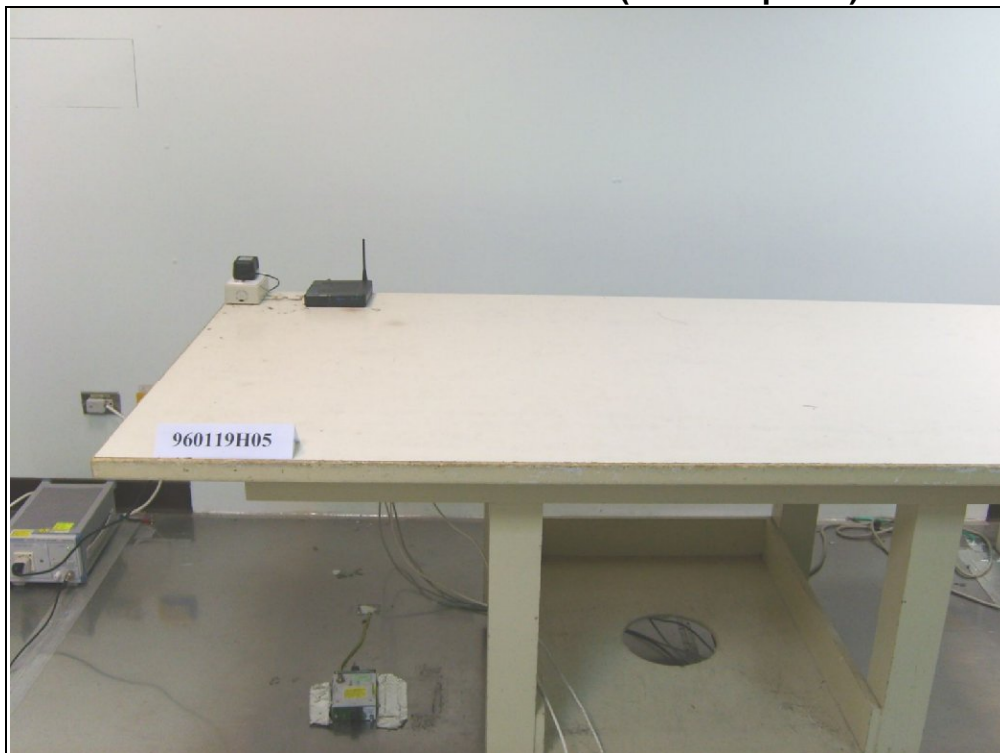
And according to FCC 47 CFR Section 15.247 (b), if transmitting antennas of directional gain greater than 6dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

4.7.2 ANTENNA CONNECTED CONSTRUCTION

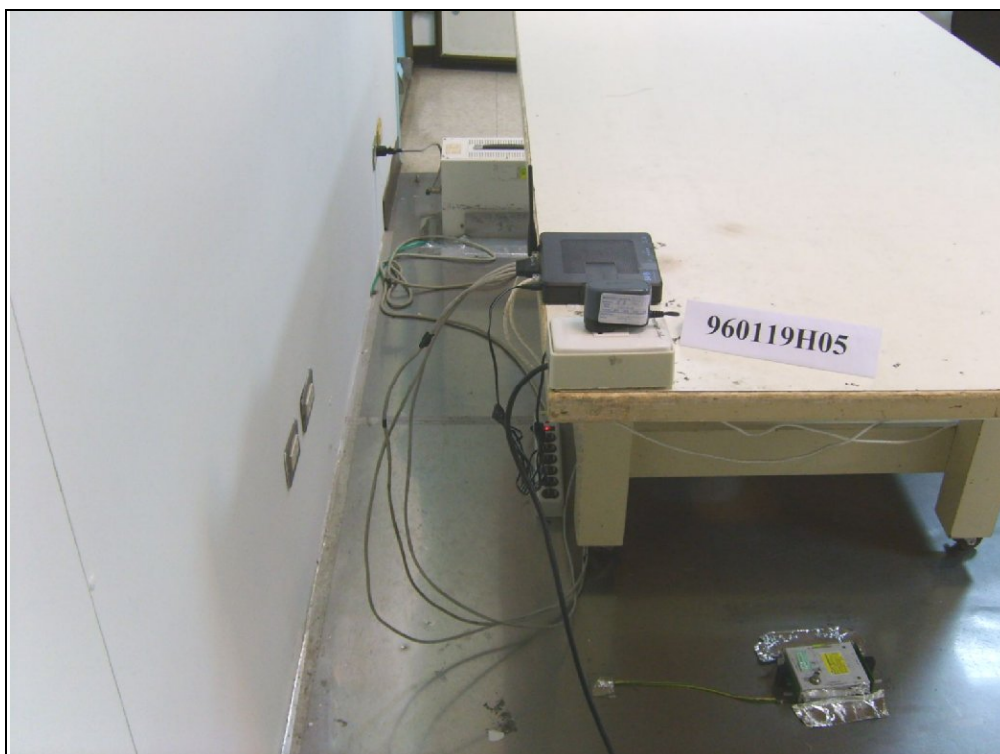
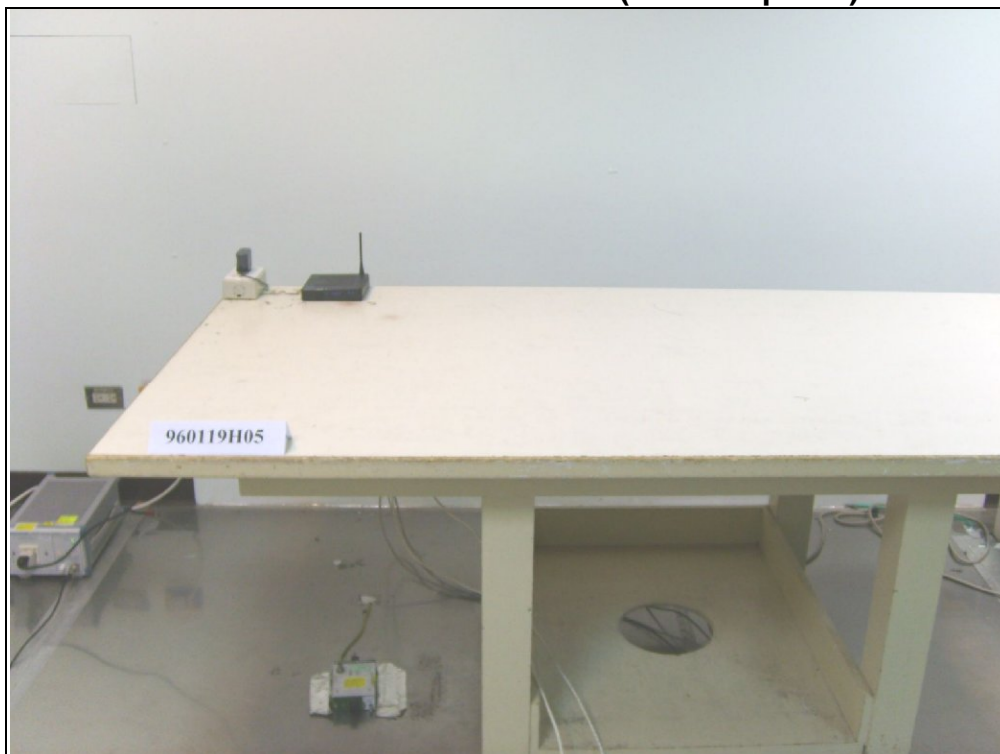
There are two antennas as provided to this EUT, please refer to the following table:

No.	Antenna Type	Antenna Connector	Gain (dBi)	Remark
1	External fixed antenna(Dipole)	NA	1.8 dBi	NA
2	Printed antenna	NA		For Rx only

5 PHOTOGRAPHS OF THE TEST CONFIGURATION CONDUCTED EMISSION TEST(With adapter 1)



CONDUCTED EMISSION TEST(With adapter 2)



RADIATED EMISSION TEST





6 INFORMATION ON THE TESTING LABORATORIES

We, ADT Corp., were founded in 1988 to provide our best service in EMC, Radio, Telecom and Safety consultation. Our laboratories are accredited and approved by the following approval agencies according to ISO/IEC 17025:

USA	FCC, UL, A2LA
Germany	TUV Rheinland
Japan	VCCI
Norway	NEMKO
Canada	INDUSTRY CANADA, CSA
R.O.C.	CNLA, BSMI, NCC
Netherlands	Telefication
Singapore	PSB, GOST-ASIA (MOU)
Russia	CERTIS (MOU)

Copies of accreditation certificates of our laboratories obtained from approval agencies can be downloaded from our web site: www.adt.com.tw/index.5/phtml.

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

Linko EMC/RF Lab:

Tel: 886-2-26052180
Fax: 886-2-26052943

Hsin Chu EMC/RF Lab:

Tel: 886-3-5935343
Fax: 886-3-5935342

Hwa Ya EMC/RF/Safety/Telecom Lab:

Tel: 886-3-3183232
Fax: 886-3-3185050

Email: service@adt.com.tw

Web Site: www.adt.com.tw

The address and road map of all our labs can be found in our web site also.



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.