FCC TEST REPORT

REPORT NO.: RF940527H03

MODEL NO.: Prestige 660HW-T1, Prestige 660HW-T3, Prestige 660HW-T7, 401445,Teledat Router 631, Arcor-DSL WLAN-Modem 100, Kit ADSL Router Inalambrico, P-660HW-T1, P-660HW-T3, P-660HW-T7

RECEIVED: May 27, 2005

TESTED: June 2 to 21, 2005

ISSUED: June 24, 2005

APPLICANT: ZyXEL Communications Corporation

ADDRESS: No. 6, Innovation Rd II, Science-Based Industrial Industrial Park, Hsinchu 300, Taiwan, R.O.C.

ISSUED BY: Advance Data Technology Corporation

LAB LOCATION: No. 81-1, Lu Liao Keng, 9 Ling, Wu Lung Tsuen, Chiung Lin Hsiang, Hsin Chu Hsien, Taiwan, R.O.C.

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No. 2177-01

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1 CERTIFICATION

PRODUCT : 802.11g Wireless ADSL2+ 4-port Gateway

BRAND NAME : ZyXEL, Teledat, Arcor, Telefonica

MODEL NO. : Prestige 660HW-T1, Prestige 660HW-T3, Prestige 660HW-T7, 401445,Teledat Router 631, Arcor-DSL WLAN-Modem 100, Kit ADSL Router Inalambrico, P-660HW-T1, P-660HW-T3, P-660HW-T7

TESTED: June 2 to 21, 2005

APPLICANT : ZyXEL Communications Corporation

TEST ITEM: ENGINEERING SAMPLE

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

The above equipment (Model: Prestige 660HW-T1) 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 : Carol Liao , **DATE:** June 24, 2005
(Carol Liao)

TECHNICAL ACCEPTANCE : Hank Chung , **DATE:** June 24, 2005
Responsible for RF
(Hank Chung)

APPROVED BY : May Chen , **DATE:** June 24, 2005
(May Chen, Deputy Manager)

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 –20.90 dB at 27.160 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 –0.5 dB at 2390.0 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	802.11g Wireless ADSL2+ 4-port Gateway
MODEL NO.	Prestige 660HW-T1, Prestige 660HW-T3, Prestige 660HW-T7, 401445,Teledat Router 631, Arcor-DSL WLAN-Modem 100, Kit ADSL Router Inalambrico, P-660HW-T1, P-660HW-T3, P-660HW-T7
POWER SUPPLY	AC 12V from power adapter
MODULATION TYPE	BPSK, QPSK, CCK, 16QAM, 64QAM
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
CHANNEL SPACING	5MHz
OUTPUT POWER	20.40 dBm
ANTENNA TYPE	Dipole Antenna
DATA CABLE	RJ45 cable x 1 (Unshielded 2m) RJ11 cable x 1 (Unshielded 2m)
I/O PORTS	DSL Port x 1; LAN Port x 4 (10/100Mbps)
ASSOCIATED DEVICES	NA

NOTE:

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

3. The EUT has ten model names which are identical to each other in all aspects except for the followings:

Brand Name	Model Name	Description
ZyXEL	Prestige 660HW-T1	For marketing requirement
	Prestige 660HW-T3	
	Prestige 660HW-T7	
	401445	
	P-660HW-T1	
	P-660HW-T3	
	P-660HW-T7	
Teledat	Teledat Router 631	
Arcor	Arcor-DSL WLAN-Modem 100	
Telefonica	Kit ADSL Router Inalambrico	

From the above models, model: **Prestige 660HW-T1** was selected as representative model for the test and its data were recorded in this report.

4. The EUT was powered by following power adapter:

Brand:	OEM
Model No.:	AA-121A
Input power :	120VAC 18W
Output power :	12VAC 1A Cable:1.8m/Non-shielded/without core

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

Operated in 2400 ~ 2483.5MHz band:

For 802.11b/g: Eleven channels are provided to 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 APPLICABLITY AND TESTED CHANNEL DETAIL:

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

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

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

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 an 802.11g Wireless ADSL2+ 4-port Gateway. 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

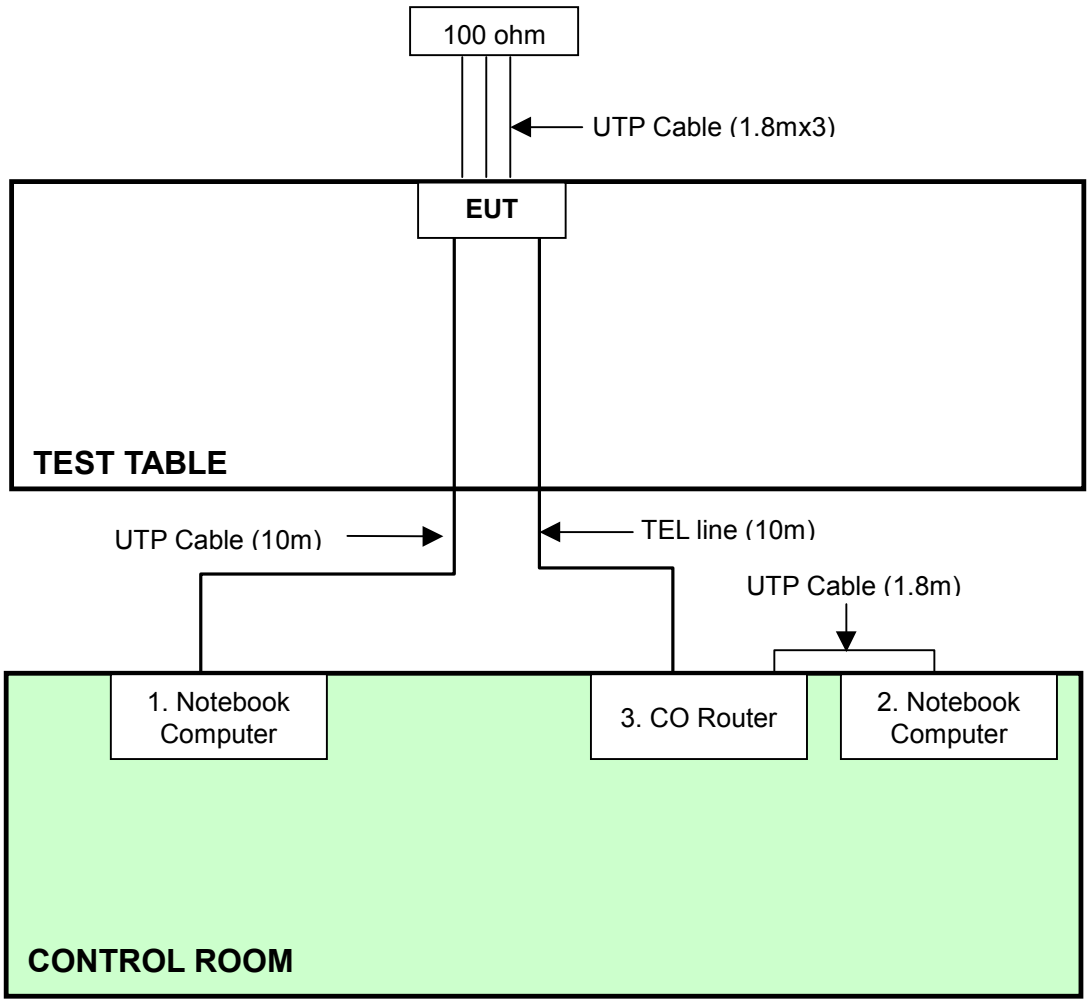
The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

No.	Product	Brand	Model No.	Serial No.	FCC ID
1	NOTEBOOK COMPUTER	DELL	PP01L	TW-09C748-12800-1A3-1999	FCC DoC
2	NOTEBOOK COMPUTER	DELL	PP01L	TW-09c748-12800-165-3171	FCC DoC
3	CO-Router	ZyXEL	IES-1000	S4Z3112558	NA

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 (dBμV)	
	Quasi-peak	Average
0.15-0.5 0.5-5 5-30	66 to 56 56 60	56 to 46 46 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	847124/029	Dec. 07, 2005
ROHDE & SCHWARZ LISN (for EUT)	ESHS-Z5	848773/004	Nov. 08, 2005
KYORITSU LISN (for peripheral)	KNW-407	8/1395/12	Jul. 23, 2005
RF Cable (JETBAO)	RG233/U	Cable_CA_01	Jul. 02, 2005
Terminator(for KYORITSU)	50	3	Oct. 12, 2005
Software	Cond-V2e	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 The measurement uncertainty is 2.53 dB, which is calculated as per the document CISPR 16-4

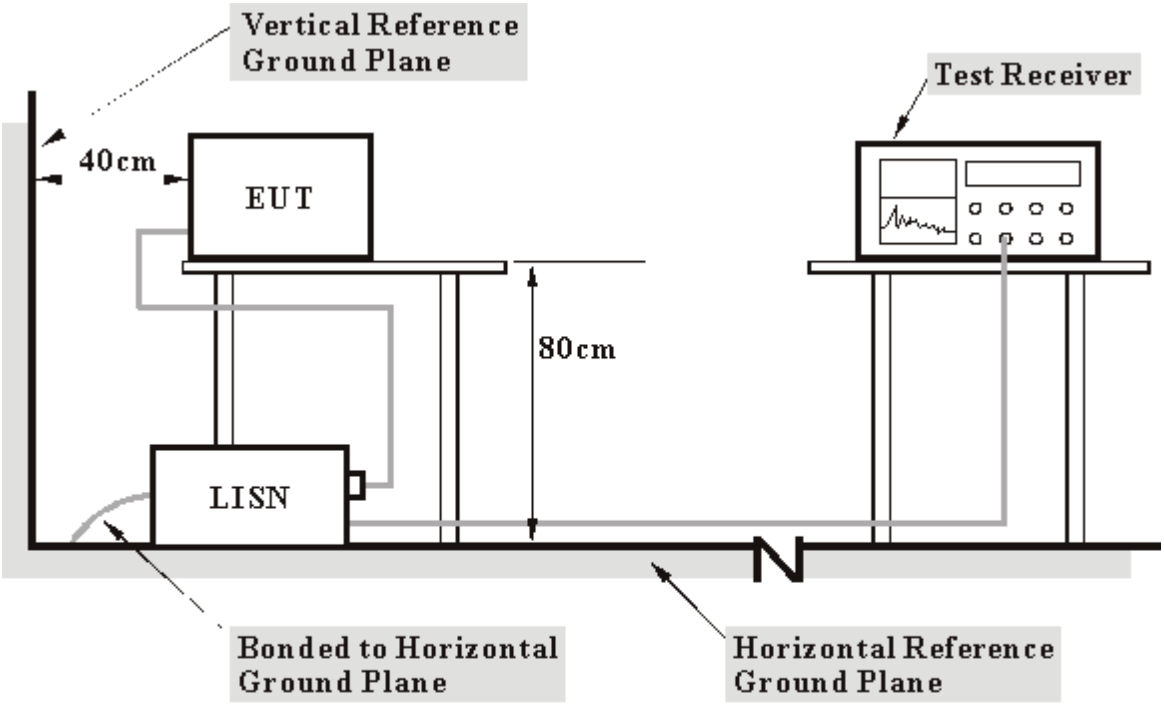
4.1.3 TEST PROCEDURES

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 (AMN) 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 the testing table.

b. Prepared other computer systems (support unit 1~3) to act as communication partners and placed them outside of testing area.

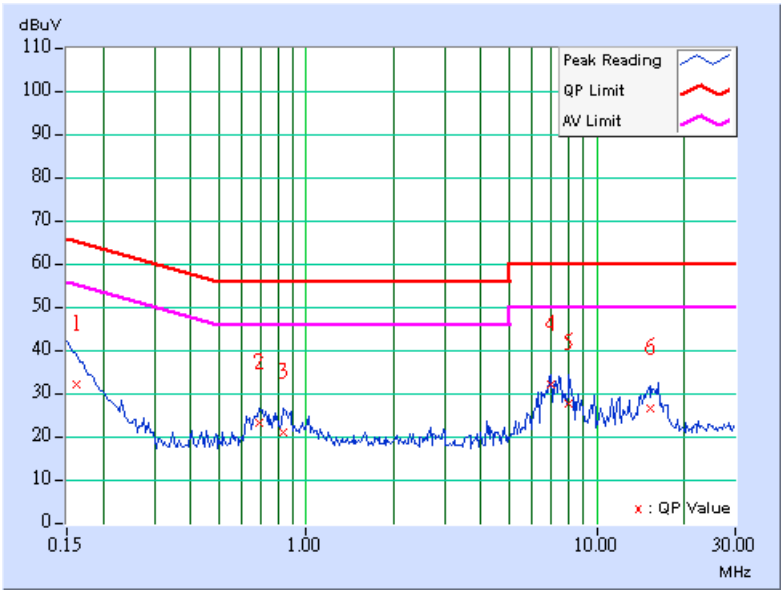
c. The communication partners run the test programs " ZyDAS ZD1211 " and " Ping.exe" to enable EUT under transmission/receiving condition continuously at specific channel frequency via one TEL line and one UTP cable.

4.1.6 TEST RESULTS

EUT	802.11g Wireless ADSL2+ 4-port Gateway		
MODE	Channel 11	**MODEL**	Prestige 660HW-T1
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**6dB BANDWIDTH**	9 kHz
ENVIRONMENTAL CONDITIONS	20 deg. C, 56 %RH, 966 hPa	**PHASE**	Line (L)
TESTED BY	Sky Liao		

No	Freq.	Corr. Factor	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.162	9.42	22.59	-	32.01	-	65.38	55.38	-33.36	-
2	0.685	9.20	13.54	-	22.74	-	56.00	46.00	-33.26	-
3	0.838	9.22	11.40	-	20.62	-	56.00	46.00	-35.38	-
4	6.965	9.47	22.70	-	32.17	-	60.00	50.00	-27.83	-
5	8.047	9.50	18.19	-	27.69	-	60.00	50.00	-32.31	-
6	15.250	9.62	17.04	-	26.66	-	60.00	50.00	-33.34	-

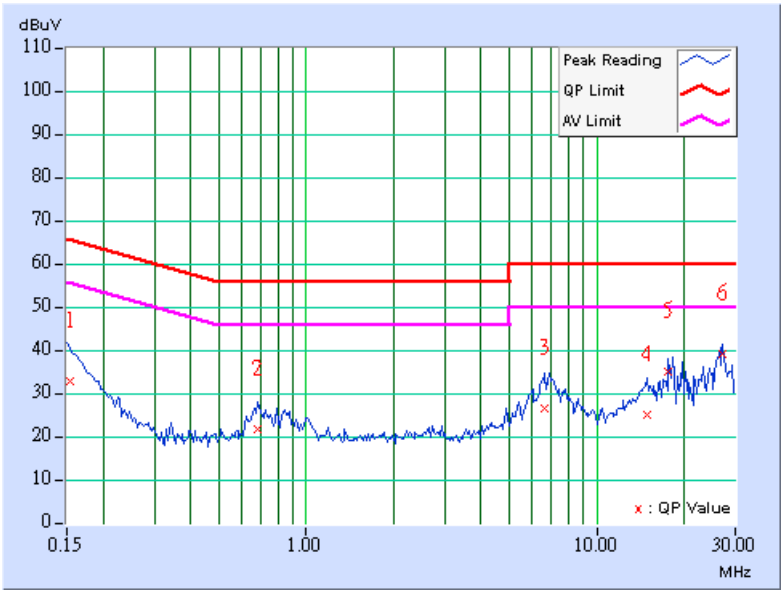
REMARKS: 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. The emission levels of other frequencies were very low against the limit.
4. Margin value = Emission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



EUT	802.11g Wireless ADSL2+ 4-port Gateway		
MODE	Channel 11	**MODEL**	Prestige 660HW-T1
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**6dB BANDWIDTH**	9 kHz
ENVIRONMENTAL CONDITIONS	20 deg. C, 56 %RH, 966 hPa	**PHASE**	Neutral (N)
TESTED BY	Sky Liao		

No	Freq.	Corr. Factor	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.154	9.19	22.97	-	32.16	-	65.79	55.79	-33.62	-
2	0.681	9.20	12.07	-	21.27	-	56.00	46.00	-34.73	-
3	6.641	9.47	16.90	-	26.37	-	60.00	50.00	-33.63	-
4	14.887	9.66	15.45	-	25.11	-	60.00	50.00	-34.89	-
5	17.695	9.71	25.20	-	34.91	-	60.00	50.00	-25.09	-
6	**27.160**	**9.91**	**29.19**	**-**	**39.10**	**-**	**60.00**	**50.00**	**-20.90**	**-**

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	Jun. 29, 2005
HP Pre_Amplifier	8449B	3008A01922	Oct. 13, 2005
ROHDE & SCHWARZ Test Receiver	ESCS30	100287	Dec. 08, 2005
CHASE Broadband Antenna	VULB9168	138	Dec. 21, 2005
Schwarzbeck Horn_Antenna	BBHA9120	D124	Dec. 11, 2005
Schwarzbeck Horn_Antenna	BBHA 9170	BBHA9170153	Jan. 30, 2006
SCHWARZBECK Biconical Antenna	VHBA9123	459	Jun. 26, 2006
SCHWARZBECK Periodic Antenna	UPA6108	1148	Jun. 26, 2006
RF Switches (ARNITSU)	CS-201	1565157	Jul. 15, 2005
RF CABLE (Chaintek) 1GHz-20GHz	SF102	22054-2	Nov. 15. 2005
RF Cable(RICHTEC)	9913-30M	STCCAB-30M-1GHz-021	Jul. 15, 2005
Software	ADT_Radiated_V 5.14	NA	NA
CHANCE MOST Antenna Tower	AT-100	0203	NA
CHANCE MOST Turn Table	TT-100	0203	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. The horn antenna and HP preamplifier (model: 8449B) are used only for the measurement of emission frequency above 1GHz if tested.
3. The test was performed in ADT Open Site No. C.
4. The FCC Site Registration No. is 656396.
5. The VCCI Site Registration No. is R-1626.
6. The CANADA Site Registration No. is IC 4824-3.
7. The following table is for the measurement uncertainty, which is calculated as per the document CISPR 16-4.

Measurement	Value
Radiated emissions (30MHz-1GHz)	2.98 dB
Radiated emissions (1GHz ~18GHz)	2.21 dB
Radiated emissions (18GHz ~20GHz)	1.88 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.

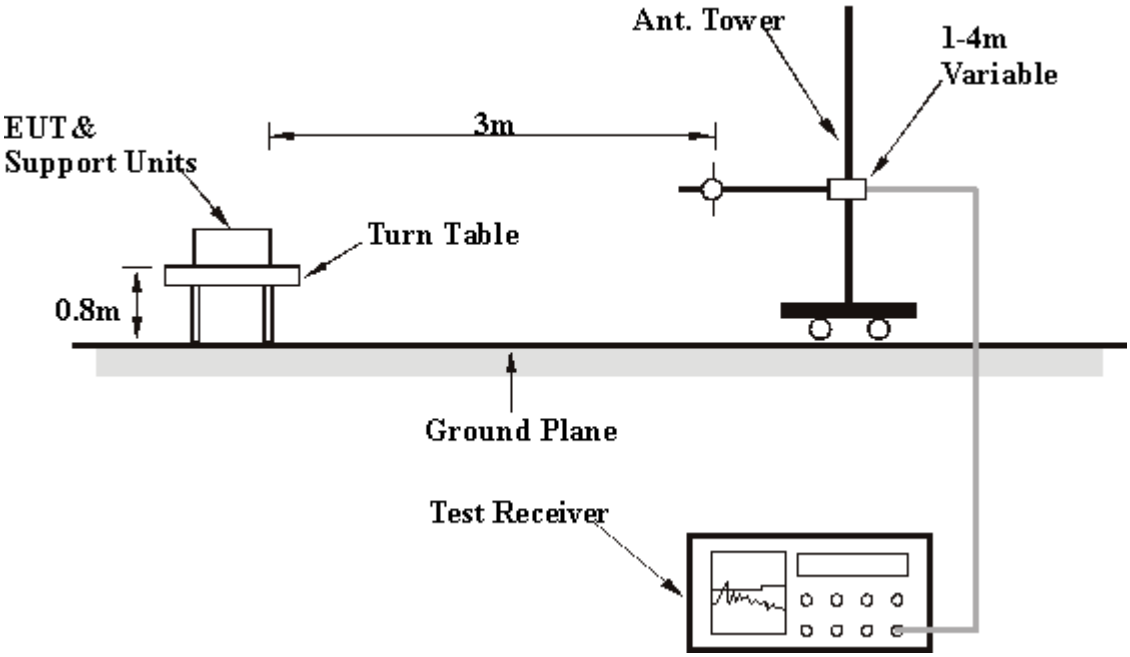
e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.

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 peak, quasi-peak or average method as specified and then reported in a data sheet.

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 and video bandwidth of test receiver/spectrum analyzer is 1 MHz 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

EUT	802.11g Wireless ADSL2+ 4-port Gateway	**MODEL**	Prestige 660HW-T1
MODE	Channel 11	**FREQUENCY RANGE**	30-1000 MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**DETECTOR FUNCTION & BANDWIDTH**	Quasi-Peak, 120kHz
ENVIRONMENTAL CONDITIONS	25 deg. C, 65%RH, 966 hPa	**TESTED BY**	Eric Lee

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	120.03	31.50 QP	43.50	-12.00	1.18 H	42	20.00	11.50
2	200.00	35.40 QP	43.50	-8.10	1.15 H	1	24.20	11.20
3	250.01	27.90 QP	46.00	-18.10	1.33 H	336	14.60	13.30
4	299.99	37.50 QP	46.00	-8.50	1.41 H	270	21.20	16.30
5	374.99	29.70 QP	46.00	-16.30	1.18 H	300	12.10	17.60
6	399.99	38.90 QP	46.00	-7.10	1.01 H	195	20.60	18.40
7	499.99	34.80 QP	46.00	-11.20	1.02 H	233	13.90	20.90
8	599.98	35.80 QP	46.00	-10.20	1.06 H	169	12.30	23.50
9	700.00	39.10 QP	46.00	-6.90	1.41 H	1	14.20	24.90
10	799.99	39.70 QP	46.00	-6.30	1.17 H	1	13.10	26.60

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	125.00	31.60 QP	43.50	-11.90	1.01 V	10	19.80	11.90
2	200.00	40.40 QP	43.50	-3.10	1.01 V	184	29.20	11.20
3	300.00	39.00 QP	46.00	-7.00	1.00 V	240	22.70	16.30
4	375.01	34.30 QP	46.00	-11.70	1.41 V	53	16.70	17.60
5	400.00	39.20 QP	46.00	-6.80	1.16 V	43	20.80	18.40
6	500.00	39.80 QP	46.00	-6.20	1.03 V	352	19.00	20.90
7	600.00	37.90 QP	46.00	-8.10	1.01 V	2	14.40	23.50
8	625.04	36.00 QP	46.00	-10.00	1.42 V	24	12.20	23.80
9	700.00	36.90 QP	46.00	-9.10	1.01 V	57	12.00	24.90
10	750.05	34.30 QP	46.00	-11.70	1.45 V	343	7.90	26.40
11	800.01	38.50 QP	46.00	-7.50	1.20 V	24	11.90	26.60
12	899.95	37.80 QP	46.00	-8.20	1.33 V	222	9.90	27.90
13	1000.00	40.80 QP	54.00	-13.20	1.53 V	186	11.90	28.90

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.

4.2.7 TEST RESULTS – DSSS

EUT	802.11g Wireless ADSL2+ 4-port Gateway	**MODEL**	Prestige 660HW-T1
MODE	Channel 1	**FREQUENCY RANGE**	1000~25000MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**DETECTOR FUNCTION & BANDWIDTH**	Peak (PK) Average (AV) 1 MHz
ENVIRONMENTAL CONDITIONS	24 deg. C, 54%RH, 966 hPa	**TESTED BY**	Sky Liao

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	2251.00	43.20 PK	74.00	-30.80	1.09 H	15	13.40	29.80
1	2251.00	35.40 AV	54.00	-18.60	1.09 H	15	5.60	29.80
2	2390.00	49.80 PK	74.00	-24.20	1.00 H	316	16.10	33.70
2	2390.00	43.10 AV	54.00	-10.90	1.00 H	316	9.40	33.70
3	*2412.00	102.40 PK			1.00 H	316	72.60	29.80
3	*2412.00	95.60 AV			1.00 H	316	65.80	29.80
4	2572.00	40.00 PK	74.00	-34.00	1.10 H	298	9.40	30.60
4	2572.00	31.80 AV	54.00	-22.20	1.10 H	298	1.10	30.60
5	4824.00	43.70 PK	74.00	-30.30	1.01 H	61	8.60	35.10
5	4824.00	36.30 AV	54.00	-17.70	1.01 H	61	1.20	35.10
6	7236.00	49.70 PK	74.00	-24.30	1.02 H	58	9.20	40.50
6	7236.00	39.90 AV	54.00	-14.10	1.02 H	58	-0.60	40.50

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	2251.00	52.20 PK	74.00	-21.80	1.00 V	358	22.40	29.80
1	2251.00	45.10 AV	54.00	-8.90	1.00 V	358	15.30	29.80
2	2390.00	60.90 PK	74.00	-13.10	1.47 V	130	27.20	33.70
2	**2390.00**	**53.50 AV**	**54.00**	**-0.50**	**1.47 V**	**130**	**19.80**	**33.70**
3	*2412.00	113.50 PK			1.47 V	130	83.70	29.80
3	*2412.00	106.00 AV			1.47 V	130	76.20	29.80
4	2572.00	48.90 PK	74.00	-25.10	1.01 V	238	18.20	30.60
4	2572.00	40.60 AV	54.00	-13.40	1.01 V	238	10.00	30.60
5	4824.00	55.10 PK	74.00	-18.90	1.00 V	47	20.00	35.10
5	4824.00	46.90 AV	54.00	-7.10	1.00 V	47	11.80	35.10
6	7236.00	52.00 PK	74.00	-22.00	1.00 V	105	11.50	40.50
6	7236.00	42.00 AV	54.00	-12.00	1.00 V	105	1.50	40.50

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

EUT	802.11g Wireless ADSL2+ 4-port Gateway	**MODEL**	Prestige 660HW-T1
MODE	Channel 6	**FREQUENCY RANGE**	1000~25000MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**DETECTOR FUNCTION & BANDWIDTH**	Peak (PK) Average (AV) 1 MHz
ENVIRONMENTAL CONDITIONS	24 deg. C, 54%RH, 966 hPa	**TESTED BY**	Sky Liao

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	2318.00	40.40 PK	74.00	-33.60	1.11 H	7	10.20	30.20
1	2318.00	31.30 AV	54.00	-22.70	1.11 H	7	1.10	30.20
2	*2437.00	101.70 PK			1.00 H	318	71.80	29.90
2	*2437.00	94.90 AV			1.00 H	318	65.00	29.90
3	2556.00	40.80 PK	74.00	-33.20	1.09 H	358	10.20	30.60
3	2556.00	33.10 AV	54.00	-20.90	1.09 H	358	2.50	30.60
4	4874.00	44.20 PK	74.00	-29.80	1.19 H	6	8.90	35.30
4	4874.00	36.90 AV	54.00	-17.10	1.19 H	6	1.60	35.30
5	7311.00	48.60 PK	74.00	-25.40	1.20 H	228	8.00	40.70
5	7311.00	41.50 AV	54.00	-12.50	1.20 H	228	0.80	40.70

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	2318.00	49.40 PK	74.00	-24.60	1.08 V	62	19.20	30.20
1	2318.00	40.90 AV	54.00	-13.10	1.08 V	62	10.70	30.20
2	*2437.00	111.90 PK			1.00 V	10	82.00	29.90
2	*2437.00	105.30 AV			1.00 V	10	75.40	29.90
3	2556.00	51.50 PK	74.00	-22.50	1.12 V	349	20.90	30.60
3	2556.00	44.10 AV	54.00	-9.90	1.12 V	349	13.50	30.60
4	4874.00	53.60 PK	74.00	-20.40	1.09 V	38	18.30	35.30
4	4874.00	46.00 AV	54.00	-8.00	1.09 V	38	10.60	35.30
5	7311.00	49.10 PK	74.00	-24.90	1.08 V	60	8.40	40.70
5	7311.00	42.70 AV	54.00	-11.30	1.08 V	60	2.10	40.70

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

EUT	802.11g Wireless ADSL2+ 4-port Gateway	**MODEL**	Prestige 660HW-T1
MODE	Channel 11	**FREQUENCY RANGE**	1000~25000MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**DETECTOR FUNCTION & BANDWIDTH**	Peak (PK) Average (AV) 1 MHz
ENVIRONMENTAL CONDITIONS	24 deg. C, 54%RH, 966 hPa	**TESTED BY**	Sky Liao

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	103.30 PK			1.18 H	316	73.30	30.00
1	*2462.00	96.60 AV			1.18 H	316	66.60	30.00
2	2483.50	46.20 PK	74.00	-27.80	1.18 H	316	16.10	30.10
2	2483.50	36.70 AV	54.00	-17.30	1.18 H	316	6.60	30.10
3	2582.00	39.20 PK	74.00	-34.80	1.01 H	60	8.60	30.70
3	2582.00	32.30 AV	54.00	-21.70	1.01 H	60	1.60	30.70
4	4924.00	45.60 PK	74.00	-28.40	1.02 H	70	10.10	35.50
4	4924.00	37.80 AV	54.00	-16.20	1.02 H	70	2.30	35.50
5	7386.00	49.20 PK	74.00	-24.80	1.02 H	333	8.40	40.80
5	7386.00	40.80 AV	54.00	-13.20	1.02 H	333	-0.10	40.80

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	*2462.00	112.20 PK			1.13 V	232	82.20	30.00
1	*2462.00	105.30 AV			1.13 V	232	75.30	30.00
2	2483.50	55.10 PK	74.00	-18.90	1.13 V	232	25.00	30.10
2	2483.50	45.40 AV	54.00	-8.60	1.13 V	232	15.30	30.10
3	2582.00	49.30 PK	74.00	-24.70	1.32 V	72	18.60	30.70
3	2582.00	42.30 AV	54.00	-11.70	1.32 V	72	11.60	30.70
4	4924.00	55.20 PK	74.00	-18.80	1.01 V	50	19.70	35.50
4	4924.00	49.10 AV	54.00	-4.90	1.01 V	50	13.50	35.50
5	7386.00	51.90 PK	74.00	-22.10	1.00 V	359	11.00	40.80
5	7386.00	43.10 AV	54.00	-10.90	1.00 V	359	2.30	40.80

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

4.2.8 TEST RESULTS – OFDM

EUT	802.11g Wireless ADSL2+ 4-port Gateway	**MODEL**	Prestige 660HW-T1
MODE	Channel 1	**FREQUENCY RANGE**	1000~25000MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**DETECTOR FUNCTION & BANDWIDTH**	Peak (PK) Average (AV) 1 MHz
ENVIRONMENTAL CONDITIONS	24 deg. C, 54%RH, 966 hPa	**TESTED BY**	Sky Liao

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	2251.00	43.40 PK	74.00	-30.60	1.40 H	69	13.60	29.80
1	2251.00	37.00 AV	54.00	-17.00	1.40 H	69	7.20	29.80
2	2384.00	54.00 PK	74.00	-20.00	1.39 H	182	22.20	31.80
2	2384.00	44.10 AV	54.00	-9.90	1.39 H	182	12.30	31.80
3	2390.00	54.20 PK	74.00	-19.80	1.46 H	322	20.50	33.70
3	2390.00	43.40 AV	54.00	-10.60	1.46 H	322	9.70	33.70
4	*2412.00	99.50 PK			1.46 H	322	69.70	29.80
4	*2412.00	91.60 AV			1.46 H	322	61.80	29.80
5	4824.00	44.70 PK	74.00	-29.30	1.01 H	20	9.60	35.10
5	4824.00	33.50 AV	54.00	-20.50	1.01 H	20	-1.60	35.10
6	7236.00	49.00 PK	74.00	-25.00	1.09 H	90	8.50	40.50
6	7236.00	38.70 AV	54.00	-15.30	1.09 H	90	-1.80	40.50

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	2251.00	51.30 PK	74.00	-22.70	1.20 V	286	21.50	29.80
1	2251.00	43.90 AV	54.00	-10.10	1.20 V	286	14.10	29.80
2	2384.00	64.70 PK	74.00	-9.30	1.28 V	324	32.80	31.80
2	2384.00	49.50 AV	54.00	-4.50	1.28 V	324	17.60	31.80
3	2390.00	63.00 PK	74.00	-11.00	1.23 V	19	29.30	33.70
3	2390.00	52.10 AV	54.00	-1.90	1.23 V	19	18.40	33.70
4	*2412.00	108.30 PK			1.23 V	19	78.40	29.80
4	*2412.00	100.30 AV			1.23 V	19	70.50	29.80
5	4824.00	52.50 PK	74.00	-21.50	1.09 V	301	17.40	35.10
5	4824.00	43.20 AV	54.00	-10.80	1.09 V	301	8.10	35.10
6	7236.00	52.40 PK	74.00	-21.60	1.50 V	73	11.90	40.50
6	7236.00	40.00 AV	54.00	-14.00	1.50 V	73	-0.50	40.50

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

EUT	802.11g Wireless ADSL2+ 4-port Gateway	**MODEL**	Prestige 660HW-T1
MODE	Channel 6	**FREQUENCY RANGE**	1000~25000MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**DETECTOR FUNCTION & BANDWIDTH**	Peak (PK) Average (AV) 1 MHz
ENVIRONMENTAL CONDITIONS	24 deg. C, 54%RH, 966 hPa	**TESTED BY**	Sky Liao

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	2275.00	40.40 PK	74.00	-33.60	1.00 H	359	10.50	30.00
1	2275.00	32.30 AV	54.00	-21.70	1.00 H	359	2.30	30.00
2	*2437.00	98.90 PK			1.18 H	312	69.00	29.90
2	*2437.00	91.20 AV			1.18 H	312	61.30	29.90
3	2552.00	39.20 PK	74.00	-34.80	1.08 H	263	8.60	30.60
3	2552.00	31.70 AV	54.00	-22.30	1.08 H	263	1.10	30.60
4	4874.00	44.20 PK	74.00	-29.80	1.00 H	16	8.90	35.30
4	4874.00	34.80 AV	54.00	-19.20	1.00 H	16	-0.50	35.30
5	7311.00	47.10 PK	74.00	-26.90	1.01 H	281	6.50	40.70
5	7311.00	38.80 AV	54.00	-15.20	1.01 H	281	-1.80	40.70

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	2275.00	49.30 PK	74.00	-24.70	1.21 V	318	19.40	30.00
1	2275.00	39.60 AV	54.00	-14.40	1.21 V	318	9.60	30.00
2	*2437.00	107.80 PK			1.20 V	24	77.90	29.90
2	*2437.00	100.20 AV			1.20 V	24	70.30	29.90
3	2552.00	46.30 PK	74.00	-27.70	1.19 V	17	15.70	30.60
3	2552.00	37.10 AV	54.00	-16.90	1.19 V	17	6.50	30.60
4	4874.00	53.20 PK	74.00	-20.80	1.05 V	320	17.90	35.30
4	4874.00	42.50 AV	54.00	-11.50	1.05 V	320	7.20	35.30
5	7311.00	53.50 PK	74.00	-20.50	1.43 V	352	12.80	40.70
5	7311.00	40.40 AV	54.00	-13.60	1.43 V	352	-0.30	40.70

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

EUT	802.11g Wireless ADSL2+ 4-port Gateway	**MODEL**	Prestige 660HW-T1
MODE	Channel 11	**FREQUENCY RANGE**	1000~25000MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**DETECTOR FUNCTION & BANDWIDTH**	Peak (PK) Average (AV) 1 MHz
ENVIRONMENTAL CONDITIONS	24 deg. C, 54%RH, 966 hPa	**TESTED BY**	Sky Liao

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	2338.00	40.70 PK	74.00	-33.30	1.12 H	69	10.40	30.30
1	2338.00	31.50 AV	54.00	-22.50	1.12 H	69	1.20	30.30
2	*2462.00	99.20 PK			1.19 H	315	69.20	30.00
2	*2462.00	91.70 AV			1.19 H	315	61.70	30.00
3	2483.50	52.70 PK	74.00	-21.30	1.19 H	315	22.60	30.10
3	2483.50	41.80 AV	54.00	-12.20	1.19 H	315	11.70	30.10
4	2583.00	42.30 PK	74.00	-31.70	1.30 H	78	11.60	30.70
4	2583.00	33.90 AV	54.00	-20.10	1.30 H	78	3.20	30.70
5	4924.00	43.20 PK	74.00	-30.80	1.01 H	20	7.70	35.50
5	4924.00	34.00 AV	54.00	-20.00	1.01 H	20	-1.50	35.50
6	7386.00	47.10 PK	74.00	-26.90	1.09 H	118	6.20	40.80
6	7386.00	37.90 AV	54.00	-16.10	1.09 H	118	-3.00	40.80

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	2338.00	48.00 PK	74.00	-26.00	1.28 V	309	17.70	30.30
1	2338.00	38.80 AV	54.00	-15.20	1.28 V	309	8.50	30.30
2	*2462.00	108.50 PK			1.17 V	18	78.50	30.00
2	*2462.00	100.80 AV			1.17 V	18	70.80	30.00
3	2483.50	61.90 PK	74.00	-12.10	1.17 V	18	31.80	30.10
3	2483.50	50.90 AV	54.00	-3.10	1.17 V	18	20.80	30.10
4	2583.00	50.90 PK	74.00	-23.10	1.30 V	6	20.20	30.70
4	2583.00	41.80 AV	54.00	-12.20	1.30 V	6	11.10	30.70
5	4924.00	52.80 PK	74.00	-21.20	1.10 V	333	17.30	35.50
5	4924.00	41.80 AV	54.00	-12.20	1.10 V	333	6.30	35.50
6	7386.00	52.80 PK	74.00	-21.20	1.01 V	48	12.00	40.80
6	7386.00	40.10 AV	54.00	-13.90	1.01 V	48	-0.70	40.80

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

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	Nov. 23, 2005

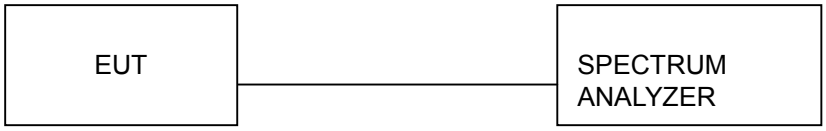
NOTE:

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

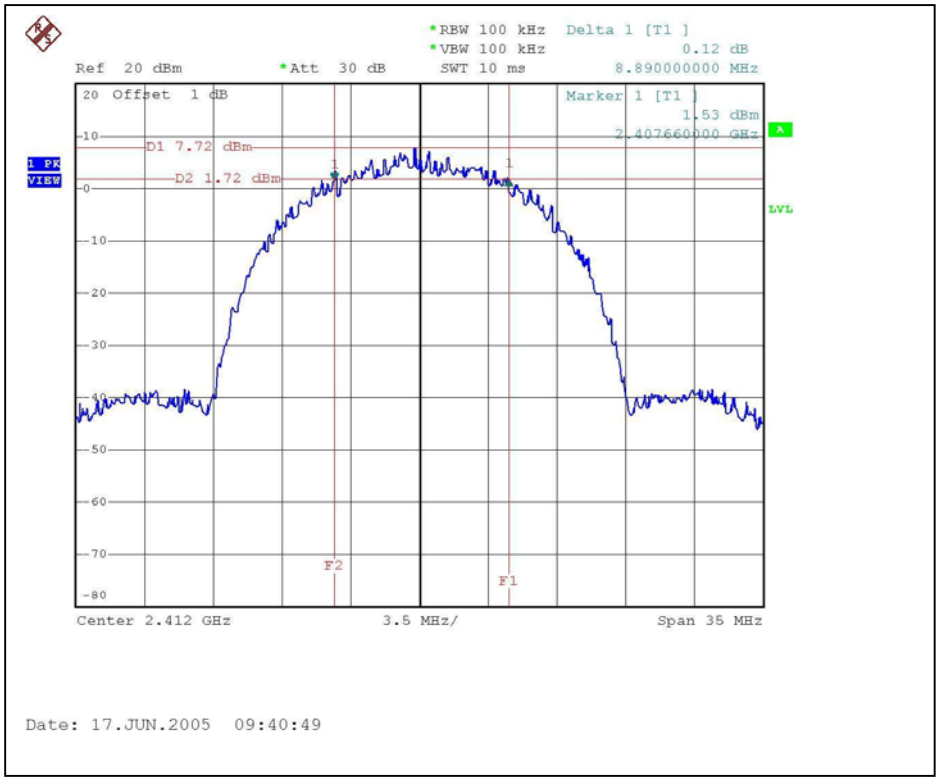
The software provided by client to enable the EUT under transmission condition continuously at lowest, middle and highest channel frequencies individually.

4.3.6 TEST RESULTS – DSSS

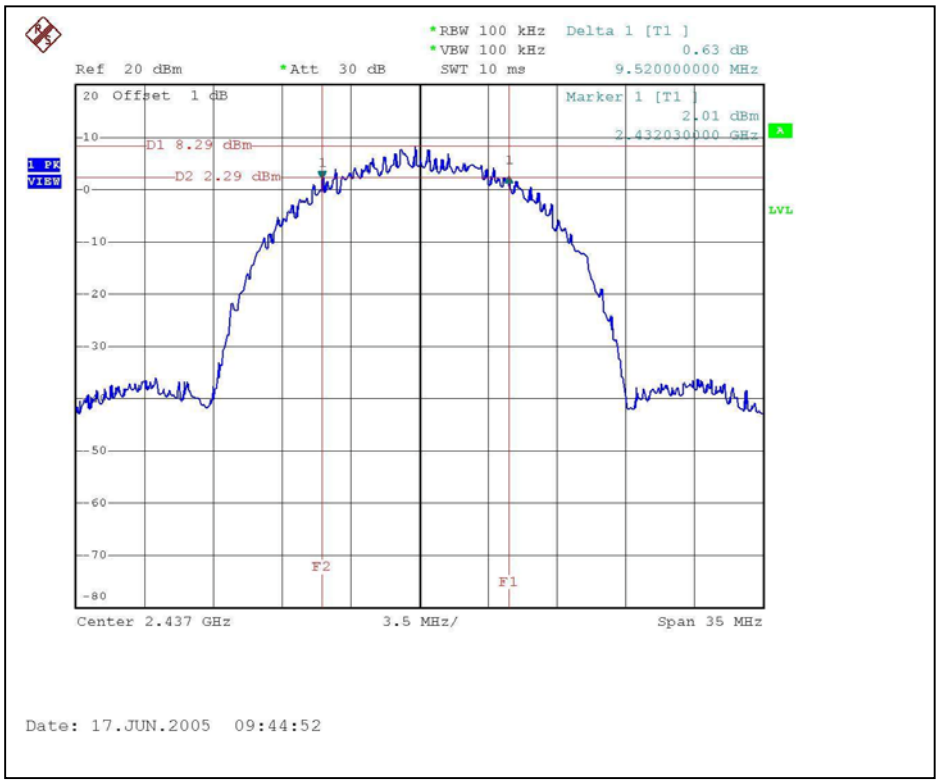
EUT	802.11g Wireless ADSL2+ 4-port Gateway		
MODEL	Prestige 660HW-T1	**ENVIRONMENTAL CONDITIONS**	24 deg. C, 54%RH, 966 hPa
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**TESTED BY**	Sky Liao

CHANNEL	CHANNEL FREQUENCY (MHz)	6 dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS/FAIL
1	2412	8.89	0.5	PASS
6	2437	9.52	0.5	PASS
11	2462	9.45	0.5	PASS

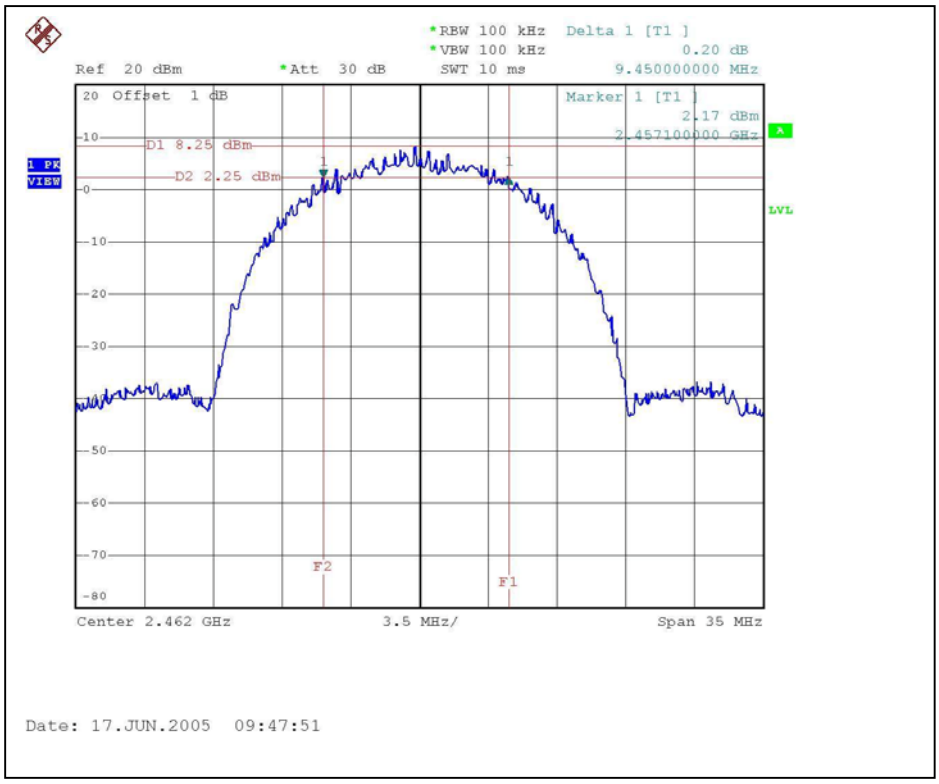
CH1


RBW 100 kHz
VBW 100 kHz
SWT 10 ms
Delta 1 [T1]
0.12 dB
8.890000000 MHz
Ref 20 dBm
Att 30 dB
20 Offset 1 dB
Marker 1 [T1]
1.53 dBm
2.407660000 GHz
D1 7.72 dBm
D2 1.72 dBm
1 PK
VIEW
A
LVL
F2
F1
Center 2.412 GHz
3.5 MHz/
Span 35 MHz
Date: 17.JUN.2005 09:40:49

CH6


RBW 100 kHz
VBW 100 kHz
SWT 10 ms
Delta 1 [T1]
0.63 dB
9.520000000 MHz
Ref 20 dBm
Att 30 dB
20 Offset 1 dB
Marker 1 [T1]
2.01 dBm
2.432030000 GHz
D1 8.29 dBm
D2 2.29 dBm
1 PK
VIEW
A
LVL
F2
F1
Center 2.437 GHz
3.5 MHz/
Span 35 MHz
Date: 17.JUN.2005 09:44:52

CH11

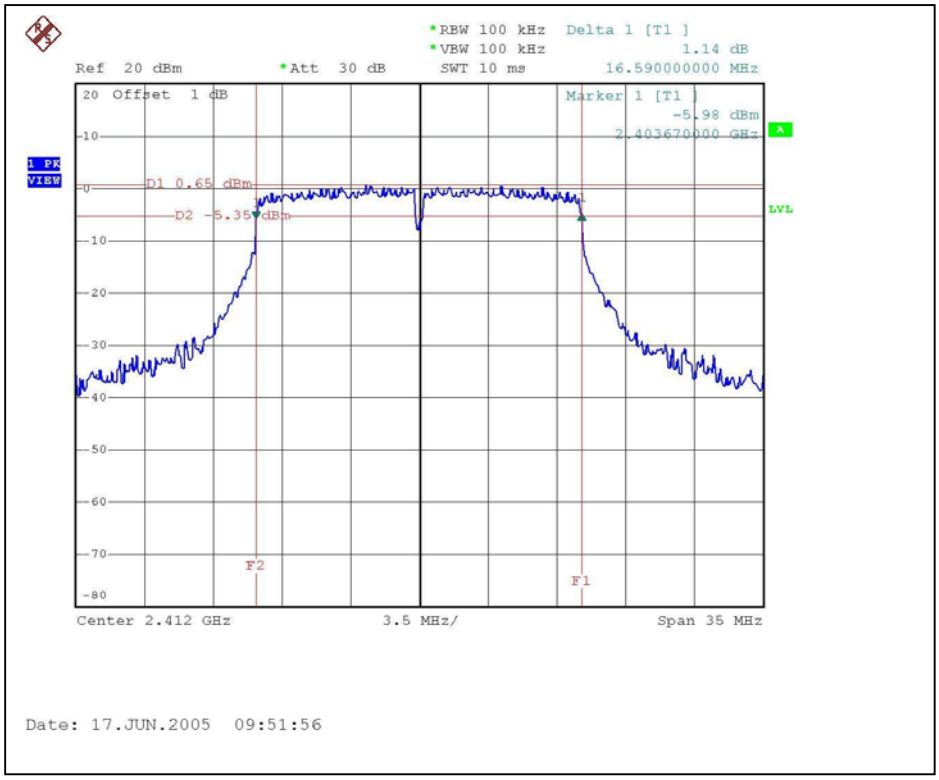

RBW 100 kHz
VBW 100 kHz
SWT 10 ms
Delta 1 [T1]
0.20 dB
9.450000000 MHz
Ref 20 dBm
Att 30 dB
20 Offset 1 dB
Marker 1 [T1]
2.17 dBm
2.457100000 GHz
D1 8.25 dBm
D2 2.25 dBm
1 PK
VIEW
LVL
F2
F1
Center 2.462 GHz
3.5 MHz/
Span 35 MHz
Date: 17.JUN.2005 09:47:51

4.3.7 TEST RESULTS – OFDM

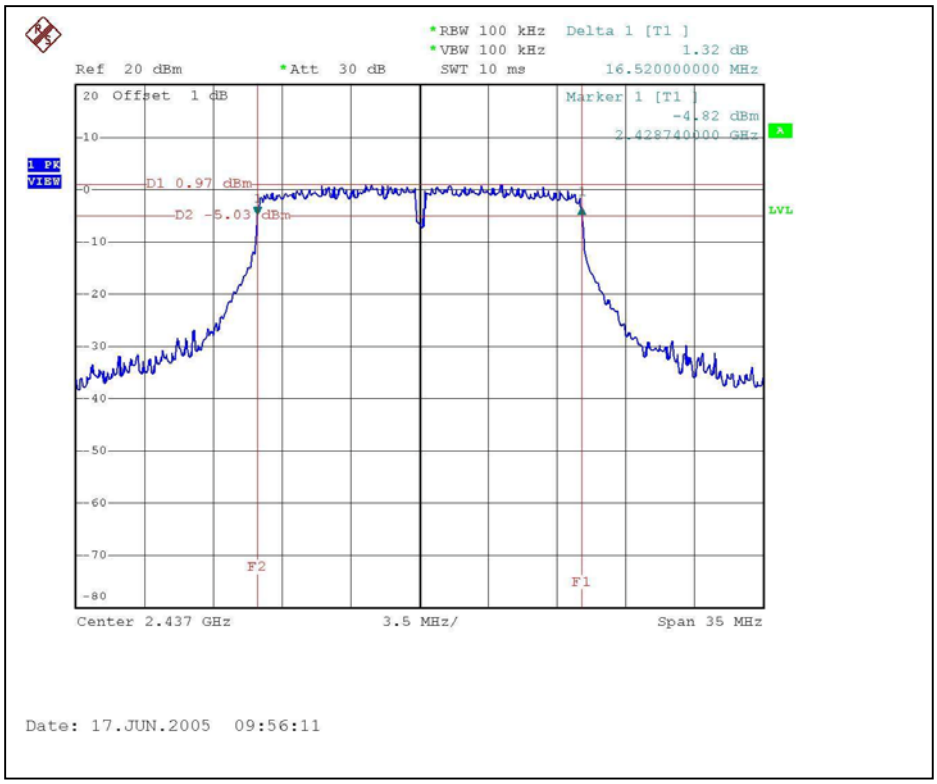
EUT	802.11g Wireless ADSL2+ 4-port Gateway		
MODEL	Prestige 660HW-T1	**ENVIRONMENTAL CONDITIONS**	24 deg. C, 54%RH, 966 hPa
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**TESTED BY**	Sky Liao

CHANNEL	CHANNEL FREQUENCY (MHz)	6 dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS/FAIL
1	2412	16.59	0.5	PASS
6	2437	16.52	0.5	PASS
11	2462	16.59	0.5	PASS

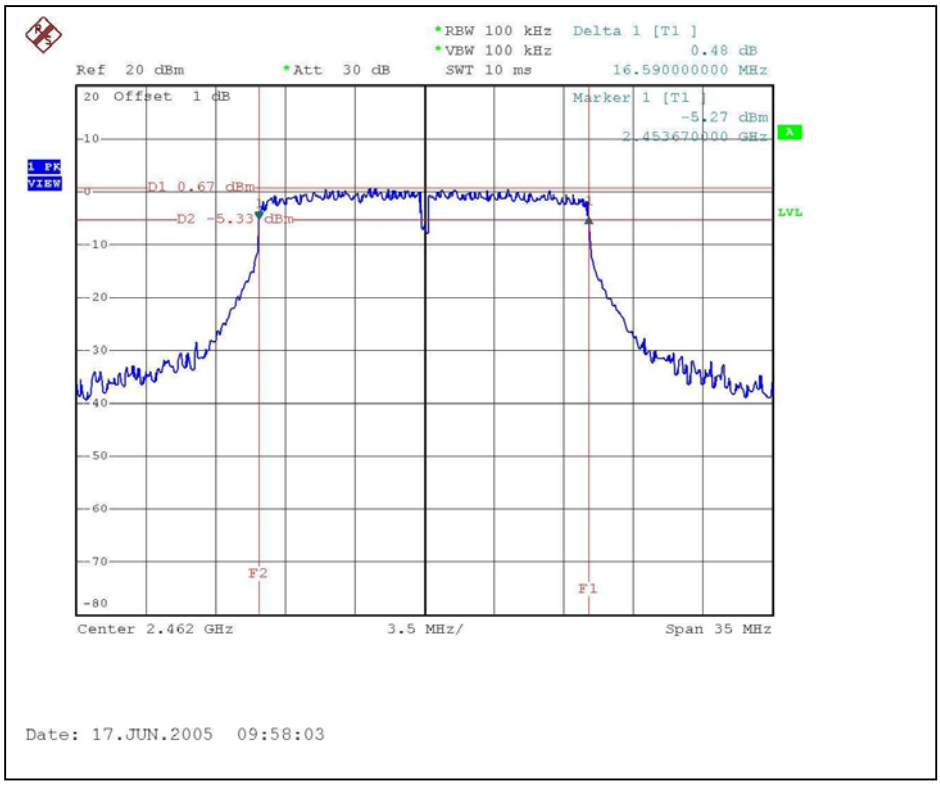
CH1


RBW 100 kHz
VBW 100 kHz
SWT 10 ms
Delta 1 [T1]
1.14 dB
16.590000000 MHz
Ref 20 dBm
Att 30 dB
20 Offset 1 dB
Marker 1 [T1]
-5.98 dBm
2.403670000 GHz
1 PK
VIEW
D1 0.65 dBm
D2 -5.35 dBm
LVL
F2
F1
Center 2.412 GHz
3.5 MHz/
Span 35 MHz
Date: 17.JUN.2005 09:51:56

CH6


RBW 100 kHz
VBW 100 kHz
SWT 10 ms
Delta 1 [T1]
1.32 dB
16.520000000 MHz
Ref 20 dBm
Att 30 dB
20 Offset 1 dB
Marker 1 [T1]
-4.82 dBm
2.428740000 GHz
1 PK
VIEW
D1 0.97 dBm
D2 -5.03 dBm
LVL
F2
F1
Center 2.437 GHz
3.5 MHz/
Span 35 MHz
Date: 17.JUN.2005 09:56:11

CH11


RBW 100 kHz
VBW 100 kHz
SWT 10 ms
Delta 1 [T1]
0.48 dB
16.590000000 MHz
Ref 20 dBm
Att 30 dB
20 Offset 1 dB
Marker 1 [T1]
-5.27 dBm
2.453670000 GHz
1 PK
VIEW
D1 0.67 dBm
D2 -5.33 dBm
LVL
F2
F1
Center 2.462 GHz
3.5 MHz/
Span 35 MHz
Date: 17.JUN.2005 09:58:03

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

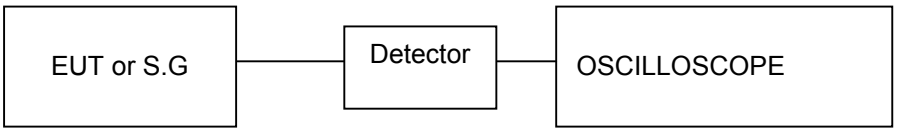
Description & Manufacturer	Model No.	Serial No.	Calibrated Until
R&S SPECTRUM ANALYZER	FSP40	100036	Nov. 23, 2005
Agilent SIGNAL GENERATOR	E8257C	MY43320668	Dec. 07, 2005
TEKTRONIX OSCILLOSCOPE	TDS 220	B027241	Jun. 30, 2005
NARDA DETECTOR	4503A	FSCM99899	NA

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

EUT	802.11g Wireless ADSL2+ 4-port Gateway		
MODEL	Prestige 660HW-T1	**ENVIRONMENTAL CONDITIONS**	24 deg. C, 54%RH, 966 hPa
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**TESTED BY**	Sky Liao

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (dBm)	PEAK POWER LIMIT (dBm)	PASS/FAIL
1	2412	18.40	30	PASS
6	2437	18.90	30	PASS
11	2462	18.90	30	PASS

4.4.7 TEST RESULTS – OFDM

EUT	802.11g Wireless ADSL2+ 4-port Gateway		
MODEL	Prestige 660HW-T1	**ENVIRONMENTAL CONDITIONS**	24 deg. C, 54%RH, 966 hPa
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**TESTED BY**	Sky Liao

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (dBm)	PEAK POWER LIMIT (dBm)	PASS/FAIL
1	2412	19.90	30	PASS
6	2437	20.40	30	PASS
11	2462	19.90	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, 2005

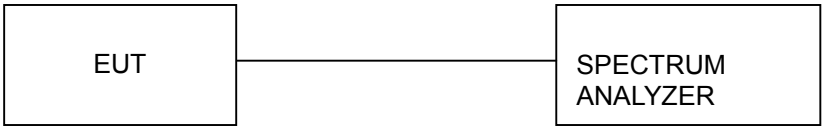
NOTE:

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=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 TEST SETUP



4.5.5 EUT OPERATING CONDITIONS

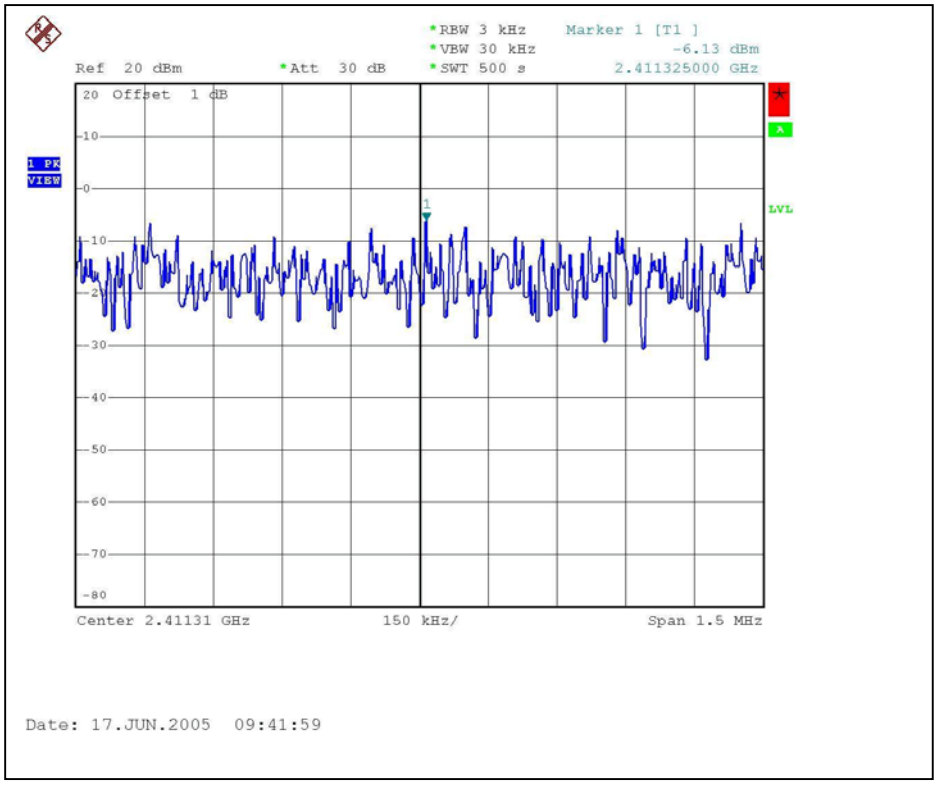
Same as 4.3.5

4.5.6 TEST RESULTS – DSSS

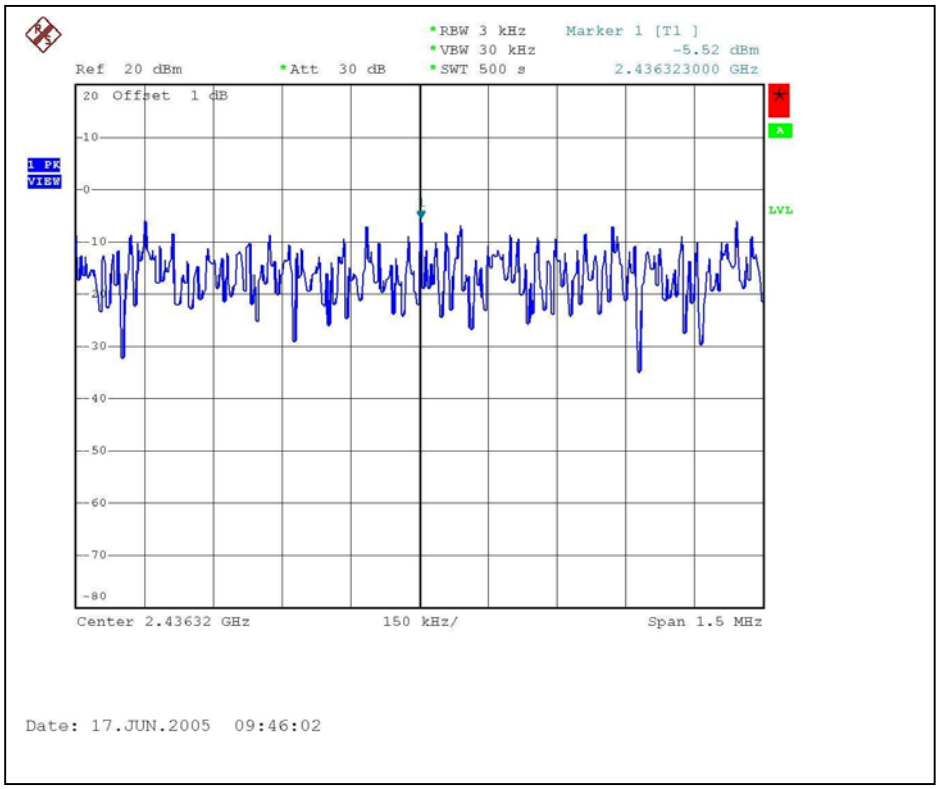
EUT	802.11g Wireless ADSL2+ 4-port Gateway		
MODEL	Prestige 660HW-T1	**ENVIRONMENTAL CONDITIONS**	24 deg. C, 54%RH, 966 hPa
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**TESTED BY**	Sky Liao

CHANNEL NUMBER	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3 KHz BW (dBm)	MAXIMUM LIMIT (dBm)	PASS/FAIL
1	2412	-6.13	8	PASS
6	2437	-5.52	8	PASS
11	2462	-5.59	8	PASS

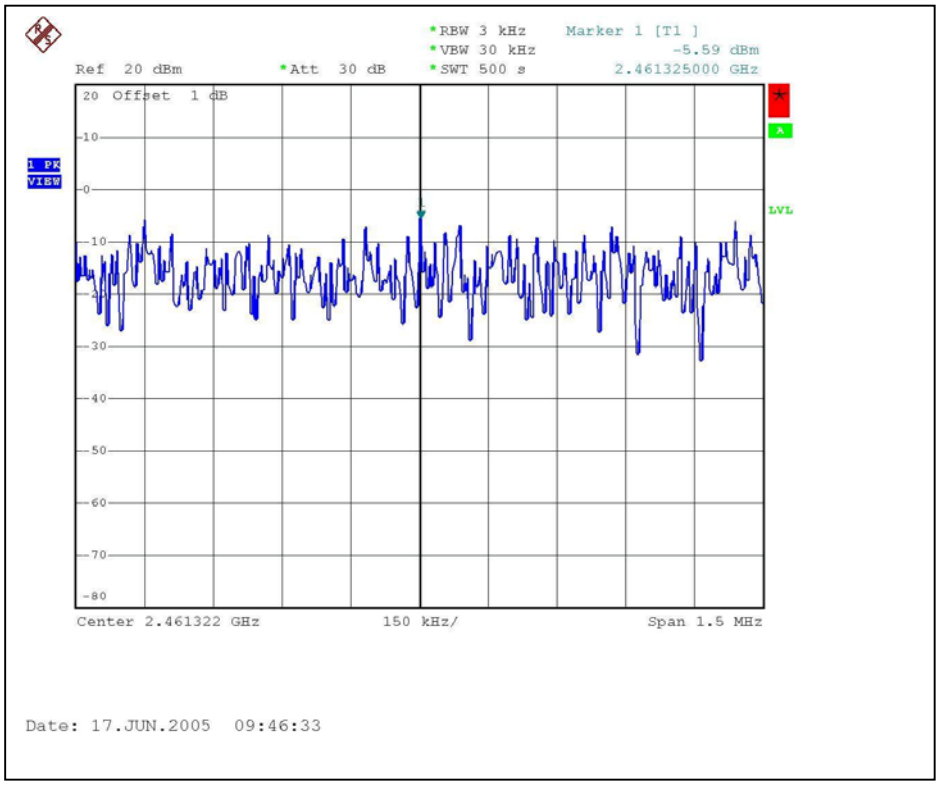
CH1


RBW 3 kHz
VBW 30 kHz
SWT 500 s
Marker 1 [T1]
-6.13 dBm
2.411325000 GHz
Ref 20 dBm
Att 30 dB
20 Offset 1 dB
1 PK VIEW
LVL
Center 2.41131 GHz
150 kHz/
Span 1.5 MHz
Date: 17.JUN.2005 09:41:59

CH6


RBW 3 kHz
VBW 30 kHz
SWT 500 s
Marker 1 [T1]
-5.52 dBm
2.436323000 GHz
Ref 20 dBm
Att 30 dB
20 Offset 1 dB
1 PK VIEW
LVL
Center 2.43632 GHz
150 kHz/
Span 1.5 MHz
Date: 17.JUN.2005 09:46:02

CH11

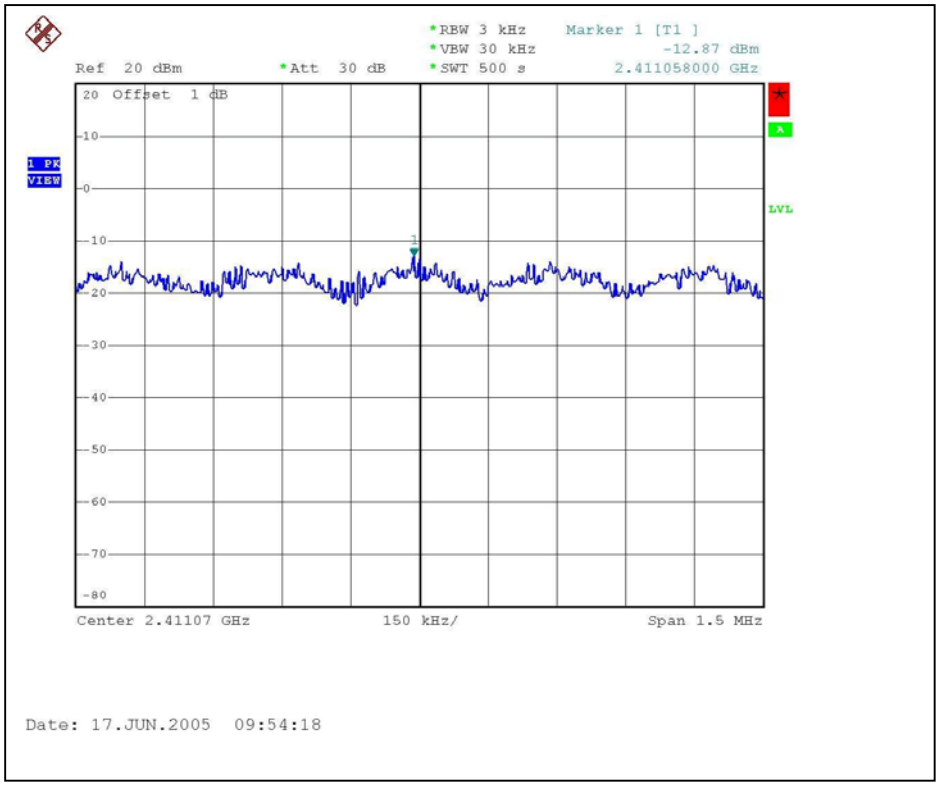

RBW 3 kHz
VBW 30 kHz
SWT 500 s
Marker 1 [T1]
-5.59 dBm
2.461325000 GHz
Ref 20 dBm
Att 30 dB
20 Offset 1 dB
1 PK
VIEW
LVL
Center 2.461322 GHz
150 kHz/
Span 1.5 MHz
Date: 17.JUN.2005 09:46:33

4.5.7 TEST RESULTS – OFDM

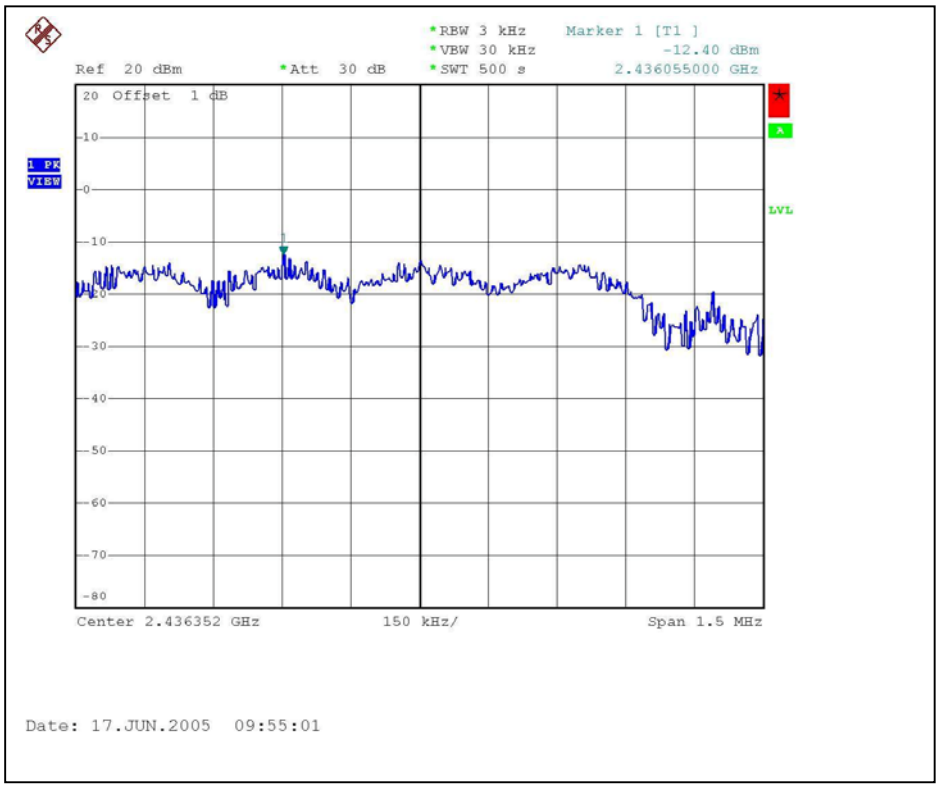
EUT	802.11g Wireless ADSL2+ 4-port Gateway		
MODEL	Prestige 660HW-T1	**ENVIRONMENTAL CONDITIONS**	24 deg. C, 54%RH, 966 hPa
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**TESTED BY**	Sky Liao

CHANNEL NUMBER	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3 KHz BW (dBm)	MAXIMUM LIMIT (dBm)	PASS/FAIL
1	2412	-12.87	8	PASS
6	2437	-12.40	8	PASS
11	2462	-12.82	8	PASS

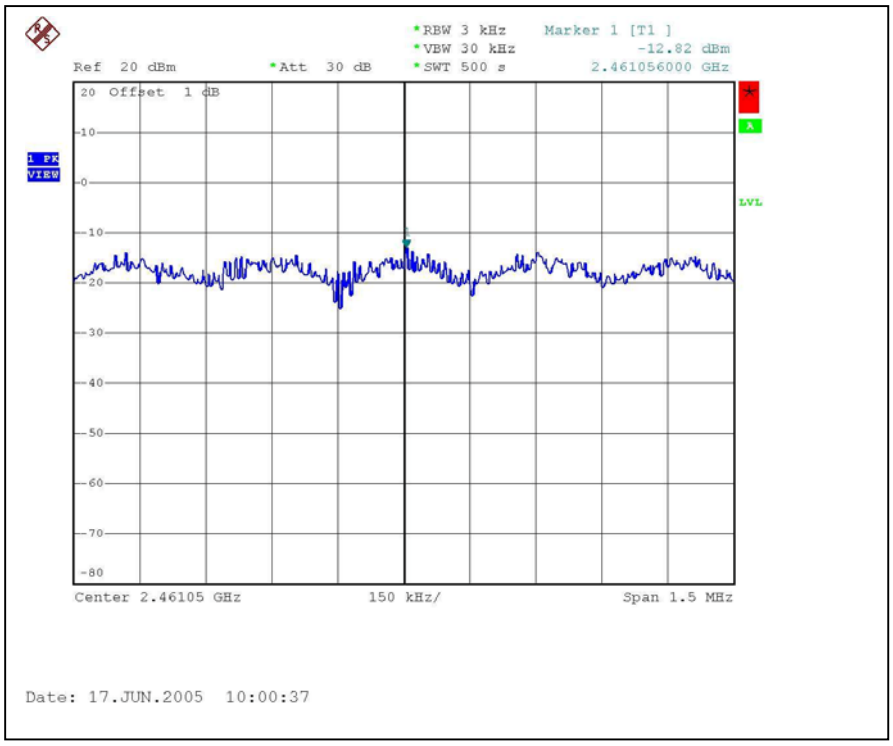
CH1


RBW 3 kHz
VBW 30 kHz
SWT 500 s
Marker 1 [T1]
-12.87 dBm
2.411058000 GHz
Ref 20 dBm
Att 30 dB
20 Offset 1 dB
1 PK
VIEW
LVL
Center 2.41107 GHz
150 kHz/
Span 1.5 MHz
Date: 17.JUN.2005 09:54:18

CH6


RBW 3 kHz
VBW 30 kHz
SWT 500 s
Marker 1 [T1]
-12.40 dBm
2.436055000 GHz
Ref 20 dBm
Att 30 dB
20 Offset 1 dB
1 PK
VIEW
LVL
Center 2.436352 GHz
150 kHz/
Span 1.5 MHz
Date: 17.JUN.2005 09:55:01

CH11


RBW 3 kHz
VBW 30 kHz
SWT 500 s
Marker 1 [T1]
-12.82 dBm
2.461056000 GHz
Ref 20 dBm
Att 30 dB
20 Offset 1 dB
1 PK VIEW
A
LVL
Center 2.46105 GHz
150 kHz/
Span 1.5 MHz
Date: 17.JUN.2005 10:00:37

4.6 BAND EDGES MEASUREMENT

4.6.1 LIMITS OF BAND EDGES MEASUREMENT

Below –20dB of the highest emission level of operating band (in 1MHz Resolution Bandwidth).

4.6.2 TEST INSTRUMENTS

Description & Manufacturer	Model No.	Serial No.	Calibrated Until
R&S SPECTRUM ANALYZER	FSP40	100036	Nov. 23, 2005

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.

4.6.3 TEST PROCEDURE

The transmitter output was connected to the spectrum analyzer via a low lose cable. Set RBW spectrum analyzer to 1 MHz and set VBW spectrum analyzer to 10 Hz with suitable frequency span including 1 MHz bandwidth from band edge. The band edges was measured and recorded.

The spectrum plots (Peak RBW=VBW=100kHz ; Average RBW=1MHz, VBW=10Hz) are attached on the following pages.

4.6.4 EUT OPERATING CONDITION

Same as Item 4.3.5

4.6.5 TEST RESULTS – DSSS

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

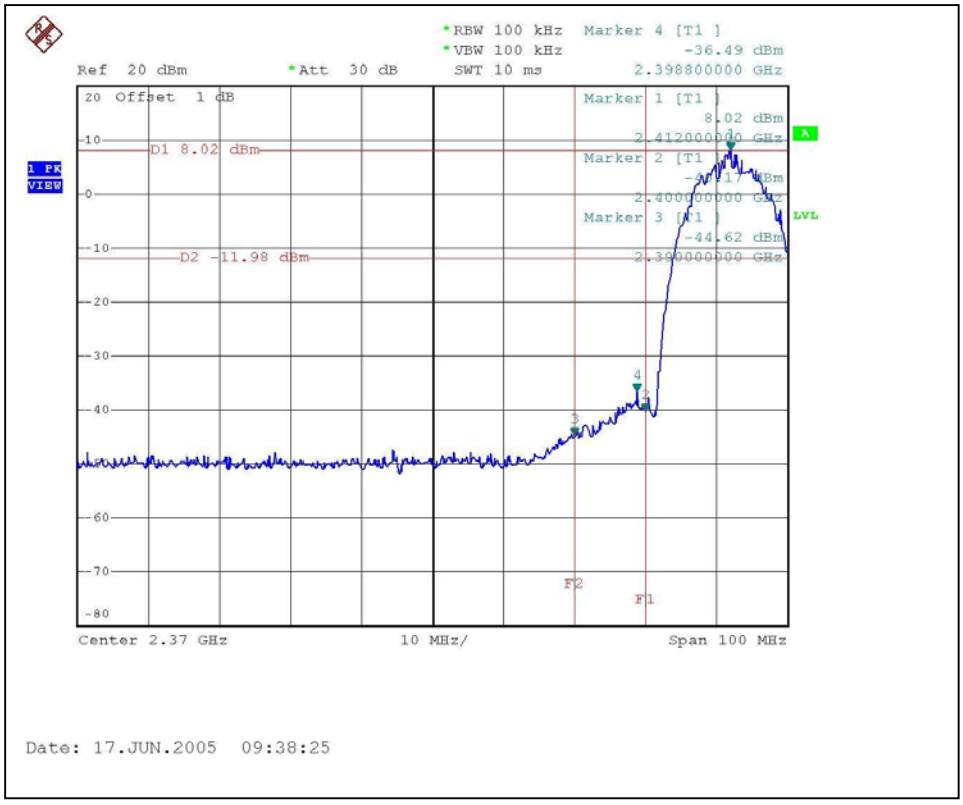
Note - The delta method is only used up to 2 MHz away from the restricted bandage, The radiated emissions which located in other restricted frequency band, the result, please refer to 4.2.

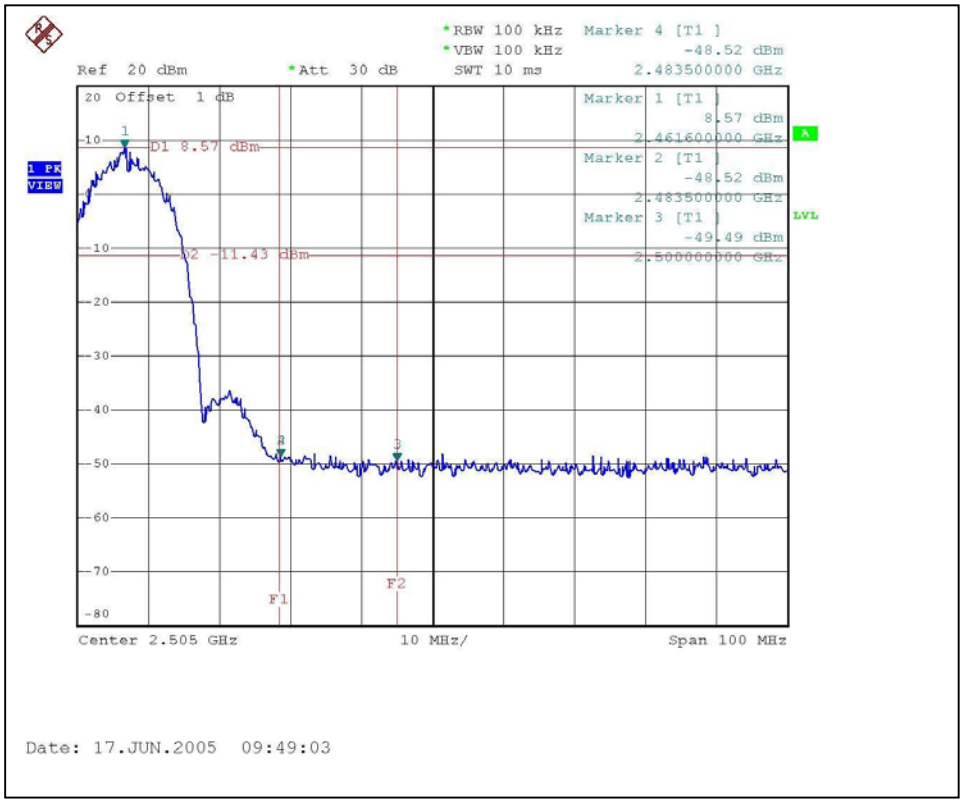
NOTE (Peak):
The band edge emission plot of DSSS technique on the following first page show 52.64dB delta between carrier maximum power and local maximum emission in restrict band (2.3900GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.2 is 113.5dBuV/m, so the maximum field strength in restrict band is 113.5-52.64=60.86dBuV/m which is under 74 dBuV/m limit.

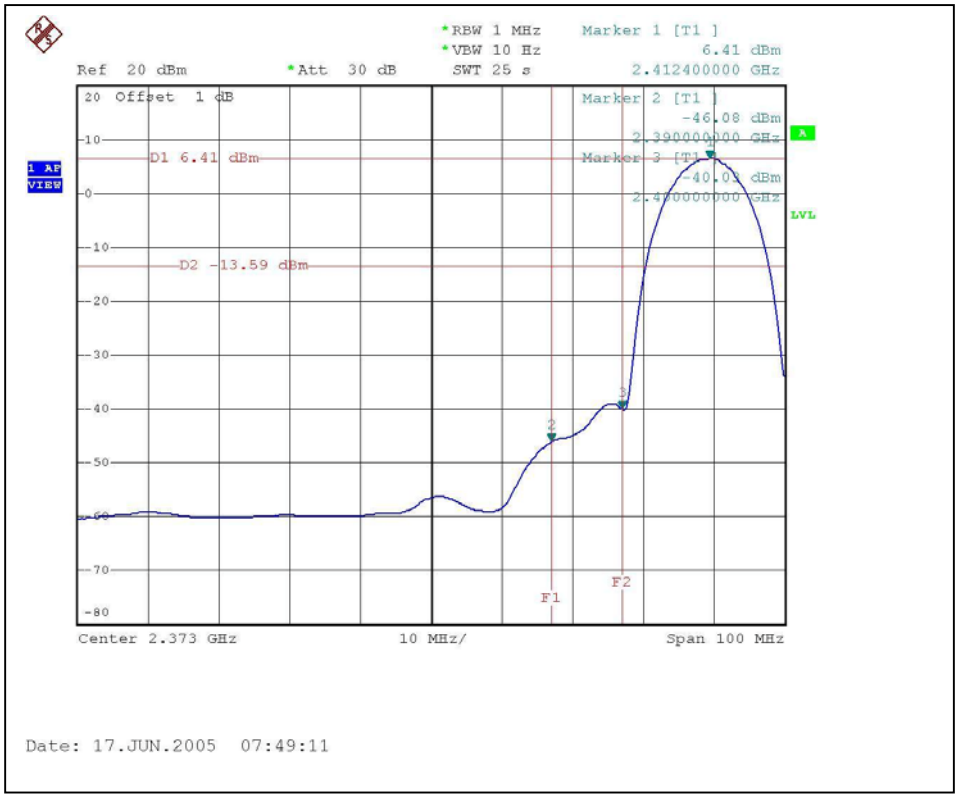
The band edge emission plot of DSSS technique on the following first page shows 57.09dB delta between carrier maximum power and local maximum emission in restrict band (2.4835GHz). The emission of carrier strength list in the test result of channel 11 at the item 4.2 is 112.2dBuV/m, so the maximum field strength in restrict band is 112.2-57.09=55.11dBuV/m which is under 74 dBuV/m limit.

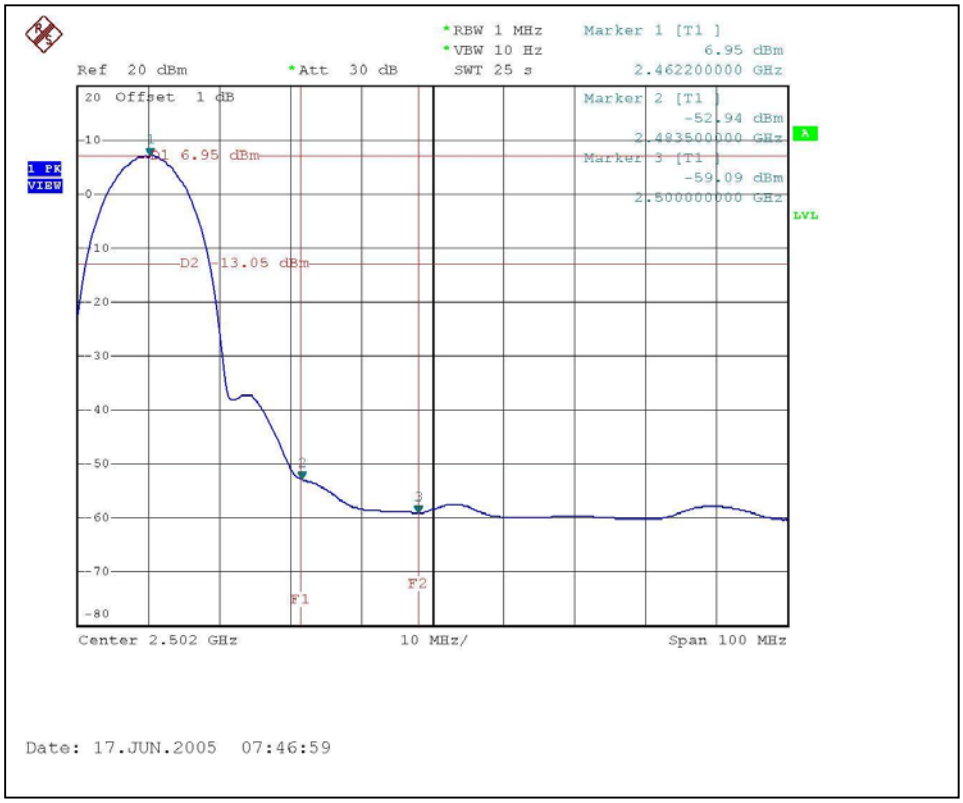
NOTE (Average):
The band edge emission plot of DSSS technique on the following second page shows 52.49strict band (2.3900GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.2 is 106.0dBuV/m, so the maximum field strength in restrict band is 106.0-52.49=53.51dBuV/m which is under 54 dBuV/m limit.

The band edge emission plot of DSSS technique on the following second page shows 59.89dB delta between carrier maximum power and local maximum emission in restrict band (2.4835GHz). The emission of carrier strength list in the test result of channel 11 at the item 4.2 is 105.3dBuV/m, so the maximum field strength in restrict band is 105.3-59.89=45.41dBuV/m which is under 54 dBuV/m limit.


*RBW 100 kHz
*VBW 100 kHz
SWT 10 ms
Marker 4 [T1]
-36.49 dBm
2.398800000 GHz
Ref 20 dBm
*Att 30 dB
20 Offset 1 dB
Marker 1 [T1]
8.02 dBm
2.412000000 GHz
Marker 2 [T1]
-47.17 dBm
2.400000000 GHz
Marker 3 [T1]
-44.62 dBm
2.390000000 GHz
D1 8.02 dBm
D2 -11.98 dBm
1 PK
VIEW
LVL
F2
F1
Center 2.37 GHz
10 MHz/
Span 100 MHz
Date: 17.JUN.2005 09:38:25


*RBW 100 kHz
*VBW 100 kHz
SWT 10 ms
Marker 4 [T1]
-48.52 dBm
2.483500000 GHz
Ref 20 dBm
*Att 30 dB
20 Offset 1 dB
Marker 1 [T1]
8.57 dBm
2.461600000 GHz
Marker 2 [T1]
-48.52 dBm
2.483500000 GHz
Marker 3 [T1]
-49.49 dBm
2.500000000 GHz
D1 8.57 dBm
D2 -11.43 dBm
1 PK
VIEW
LVL
F1
F2
Center 2.505 GHz
10 MHz/
Span 100 MHz
Date: 17.JUN.2005 09:49:03


*RBW 1 MHz
*VBW 10 Hz
SWT 25 s
Marker 1 [T1]
6.41 dBm
2.412400000 GHz
Ref 20 dBm
*Att 30 dB
20 Offset 1 dB
Marker 2 [T1]
-46.08 dBm
2.390000000 GHz
Marker 3 [T1]
-40.02 dBm
2.400000000 GHz
D1 6.41 dBm
D2 -13.59 dBm
1 AP
VIEW
F1
F2
Center 2.373 GHz
10 MHz/
Span 100 MHz
Date: 17.JUN.2005 07:49:11


*RBW 1 MHz
*VBW 10 Hz
SWT 25 s
Marker 1 [T1]
6.95 dBm
2.462200000 GHz
Ref 20 dBm
*Att 30 dB
20 Offset 1 dB
Marker 2 [T1]
-52.94 dBm
2.483500000 GHz
Marker 3 [T1]
-59.09 dBm
2.500000000 GHz
D1 6.95 dBm
D2 -13.05 dBm
1 PK
VIEW
F1
F2
Center 2.502 GHz
10 MHz/
Span 100 MHz
Date: 17.JUN.2005 07:46:59

4.6.6 TEST RESULTS – OFDM

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

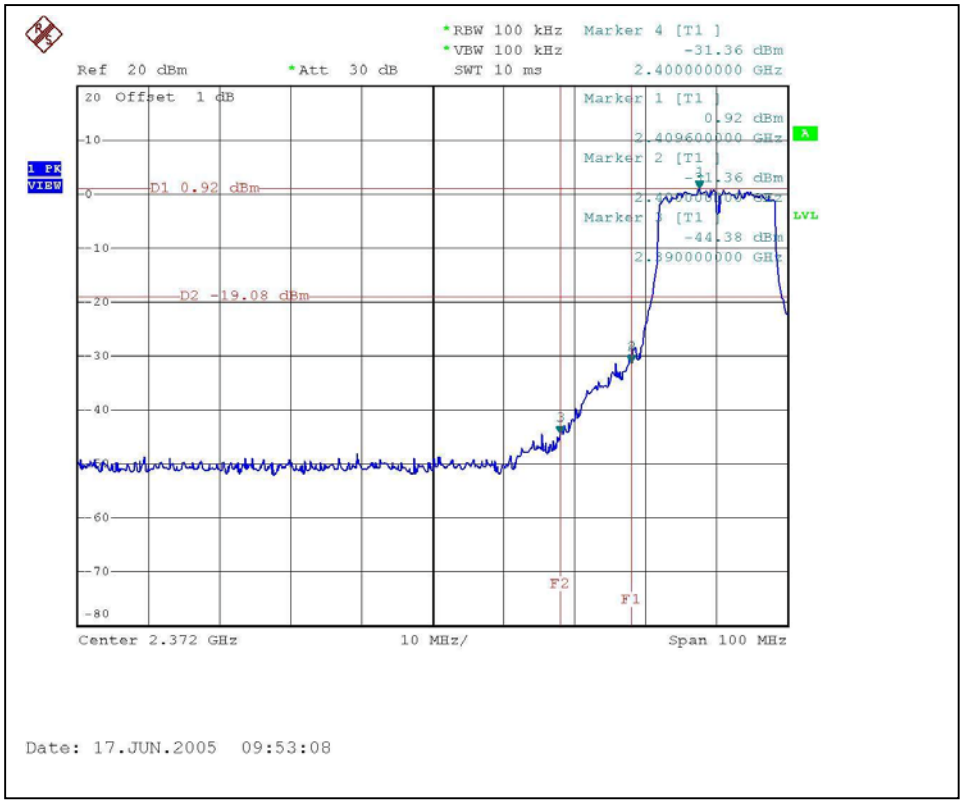
Note - The delta method is only used up to 2 MHz away from the restricted bandage, The radiated emissions which located in other restricted frequency band, the result, please refer to 4.2.

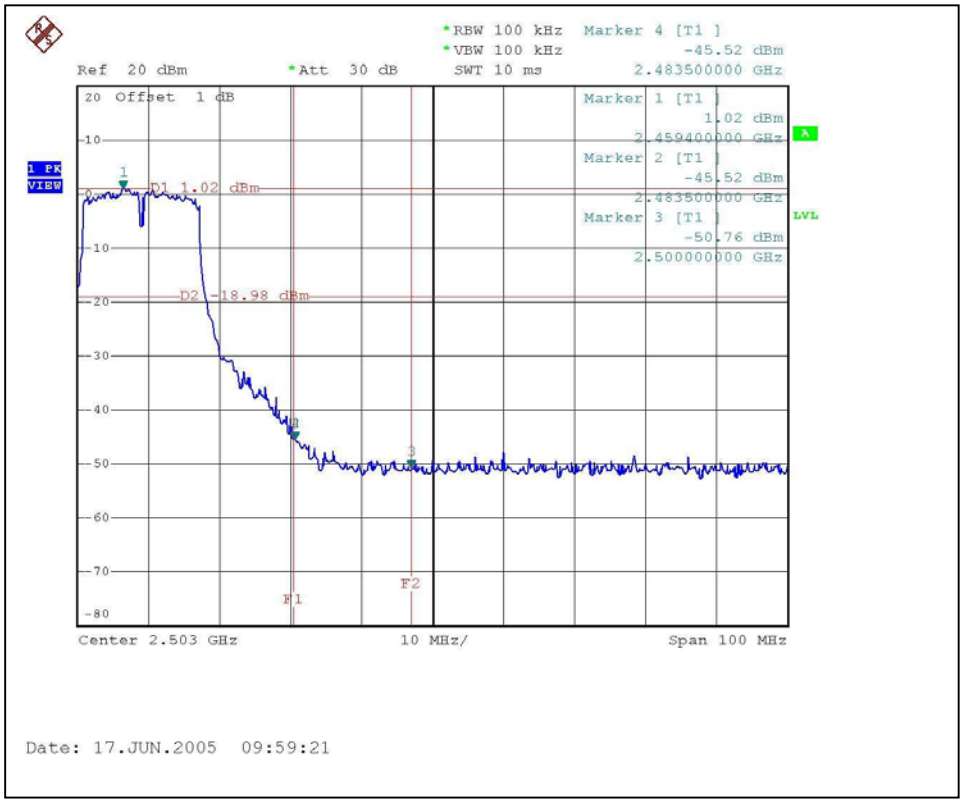
NOTE (Peak) :
The band edge emission plot of OFDM technique on the following first page show 45.3dB delta between carrier maximum power and local maximum emission in restrict band (2.3900GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.2 is 108.3dBuV/m, so the maximum field strength in restrict band is 108.3-45.3=63.0dBuV/m which is under 74 dBuV/m limit.

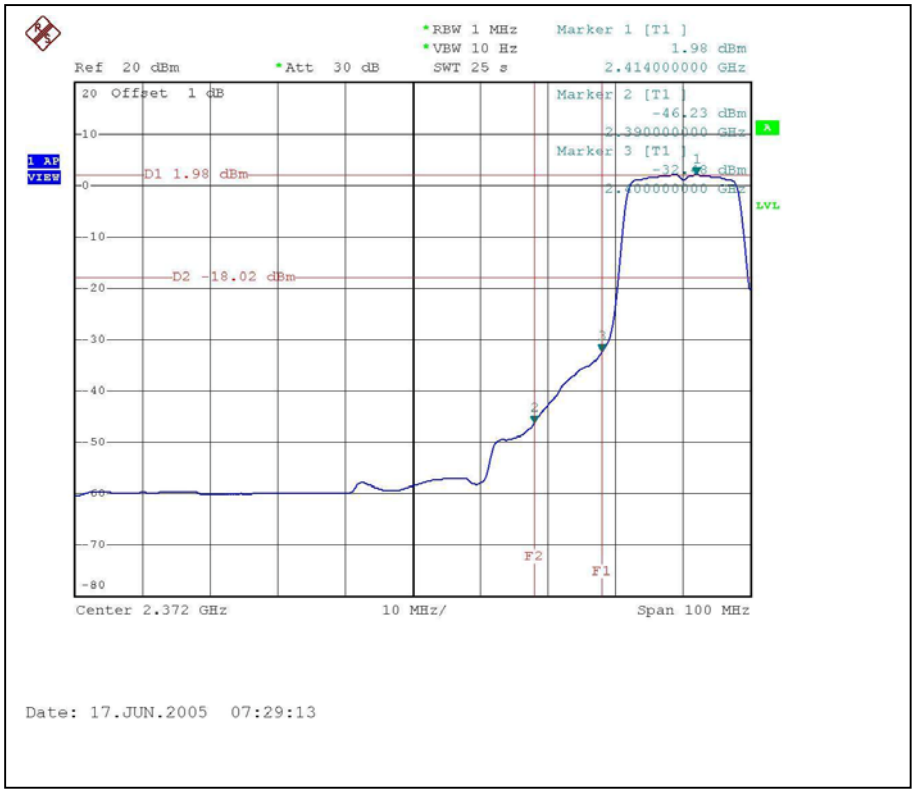
The band edge emission plot of OFDM technique on the following first page shows 46.54dB delta between carrier maximum power and local maximum emission in restrict band (2.4835GHz). The emission of carrier strength list in the test result of channel 11 at the item 4.2 is 108.50dBuV/m, so the maximum field strength in restrict band is 108.50-46.54=61.96dBuV/m which is under 74 dBuV/m limit.

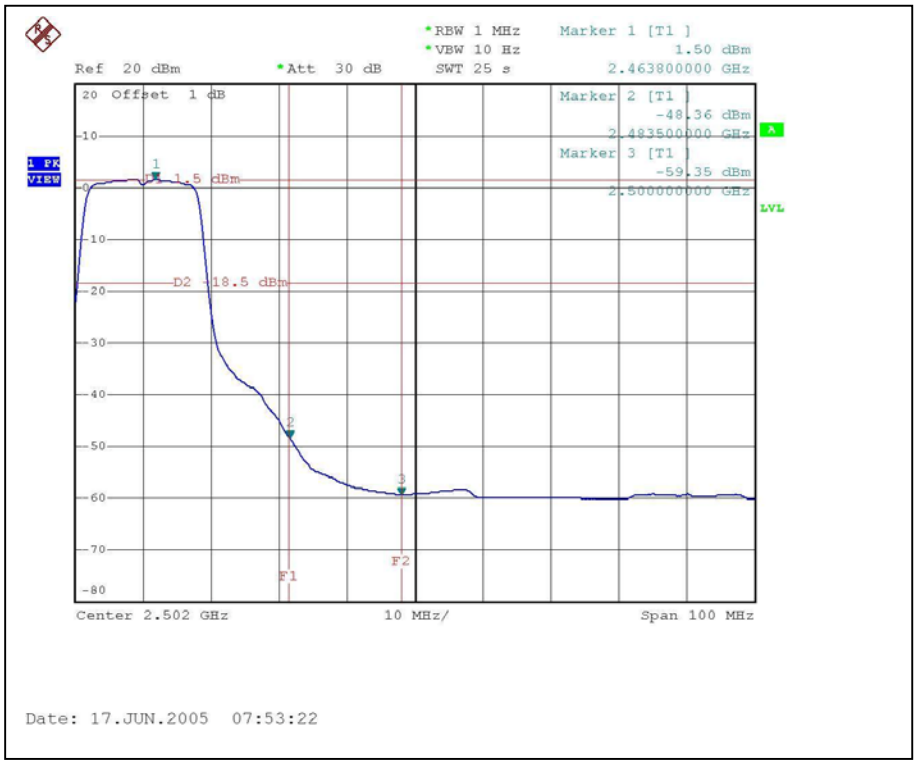
NOTE (Average):
The band edge emission plot of OFDM technique on the following second page shows 48.21dB delta between carrier maximum power and local maximum emission in restrict band (2.3900GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.2 is 100.30dBuV/m, so the maximum field strength in restrict band is 100.30-48.21=52.09dBuV/m which is under 54 dBuV/m limit.

The band edge emission plot of OFDM technique on the following second page shows 49.86dB delta between carrier maximum power and local maximum emission in restrict band (2.4835GHz). The emission of carrier strength list in the test result of channel 11 at the item 4.2 is 100.80dBuV/m, so the maximum field strength in restrict band is 100.80-49.86=50.94dBuV/m which is under 54 dBuV/m limit.


*RBW 100 kHz
*VBW 100 kHz
SWT 10 ms
Marker 4 [T1]
-31.36 dBm
2.400000000 GHz
Ref 20 dBm
*Att 30 dB
20 Offset 1 dB
Marker 1 [T1]
0.92 dBm
2.409600000 GHz
Marker 2 [T1]
-31.36 dBm
Marker 3 [T1]
-44.38 dBm
2.390000000 GHz
1 PK
VIEW
D1 0.92 dBm
D2 -19.08 dBm
F2
F1
Center 2.372 GHz
10 MHz/
Span 100 MHz
Date: 17.JUN.2005 09:53:08


*RBW 100 kHz
*VBW 100 kHz
SWT 10 ms
Marker 4 [T1]
-45.52 dBm
2.483500000 GHz
Ref 20 dBm
*Att 30 dB
20 Offset 1 dB
Marker 1 [T1]
1.02 dBm
2.459400000 GHz
Marker 2 [T1]
-45.52 dBm
2.483500000 GHz
Marker 3 [T1]
-50.76 dBm
2.500000000 GHz
1 PK
VIEW
D1 1.02 dBm
D2 -18.98 dBm
F1
F2
Center 2.503 GHz
10 MHz/
Span 100 MHz
Date: 17.JUN.2005 09:59:21


RBW 1 MHz
VBW 10 Hz
SWT 25 s
Marker 1 [T1]
1.98 dBm
2.414000000 GHz
Ref 20 dBm
Att 30 dB
20 Offset 1 dB
Marker 2 [T1]
-46.23 dBm
2.390000000 GHz
Marker 3 [T1]
-32.98 dBm
2.400000000 GHz
1 AP
VIEW
D1 1.98 dBm
D2 -18.02 dBm
F2
F1
Center 2.372 GHz
10 MHz/
Span 100 MHz
Date: 17.JUN.2005 07:29:13


RBW 1 MHz
VBW 10 Hz
SWT 25 s
Marker 1 [T1]
1.50 dBm
2.463800000 GHz
Ref 20 dBm
Att 30 dB
20 Offset 1 dB
Marker 2 [T1]
-48.36 dBm
2.483500000 GHz
Marker 3 [T1]
-59.35 dBm
2.500000000 GHz
1 PK
VIEW
D1 1.5 dBm
D2 -18.5 dBm
F1
F2
Center 2.502 GHz
10 MHz/
Span 100 MHz
Date: 17.JUN.2005 07:53:22

4.7 ANTENNA REQUIREMENT

4.7.1 STANDARD APPLICABLE

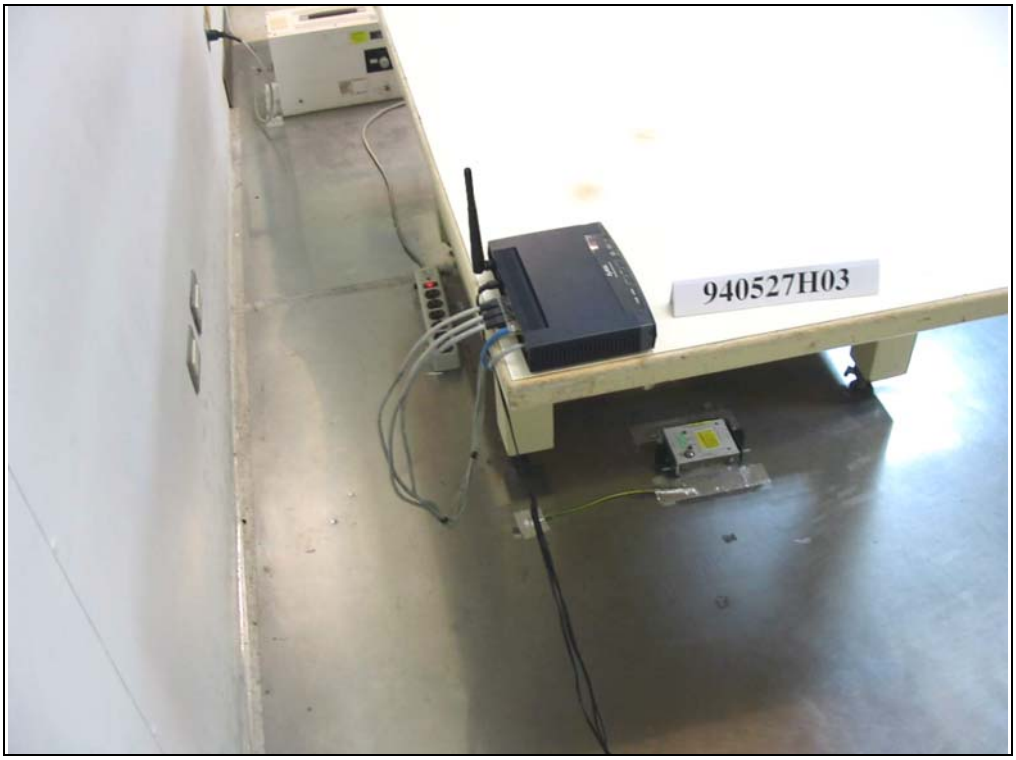
For intentional device, according to FCC 47 CFR Section 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.
And according to FCC 47 CFR Section 15.247 (b), if transmitting antennas of directional 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 without connector. The maximum Gain of the antenna is 2.0dBi.

5 PHOTOGRAPHS OF THE TEST CONFIGURATION

CONDUCTED EMISSION TEST



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, NVLAP, UL, A2LA
Germany	TUV Rheinland
Japan	VCCI
Norway	NEMKO
Canada	INDUSTRY CANADA, CSA
R.O.C.	CNLA, BSMI, DGT
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

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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.