



FCC TEST REPORT (15.407)

REPORT NO.: RF950525L06B
MODEL NO.: BW1251, BW1252
RECEIVED: Mar. 22, 2007
TESTED: Mar. 27 ~ Apr. 10, 2007
ISSUED: Apr. 12, 2007

APPLICANT: Gemtek Technology Co., Ltd.

ADDRESS: No.1, Jen Ai Road, Hsinchu Industrial Park,
Hukou Hsinchu, Taiwan, R.O.C. 303

ISSUED BY: Advance Data Technology Corporation

LAB ADDRESS: No. 47, 14th Ling, Chia Pau Tsuen, Lin Kou
Hsiang 244, Taipei Hsien, Taiwan, R.O.C.

TEST LOCATION: No. 19, Hwa Ya 2nd Rd., Wen Hwa Tsuen, Kwei
Shan Hsiang, Taoyuan Hsien 333, Taiwan,
R.O.C.

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1. CERTIFICATION

PRODUCT: Dual Radio 2.4GHz/5GHz Access Point

MODEL: BW1251, BW1252

BRAND: BROWAN

APPLICANT: Gemtek Technology Co., Ltd.

TEST SAMPLE: ENGINEERING SAMPLE

TESTED: Mar. 27 ~ Apr. 10, 2007

STANDARDS: **FCC Part 15, Subpart E (Section 15.407)**
ANSI C63.4-2003

The above equipment (model: BW1251, BW1252) 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 : Rennie Wang , **DATE:** Apr. 12, 2007
Rennie Wang

TECHNICAL ACCEPTANCE : Long Chen , **DATE:** Apr. 12, 2007
Responsible for RF Long Chen

APPROVED BY : Gary Chang , **DATE:** Apr. 12, 2007
Gary Chang / Supervisor

2. SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

APPLIED STANDARD: FCC Part 15, Subpart E (Section 15.407)			
Standard Section	Test Type	Result	Remark
15.407(b)(5)	AC Power Conducted Emission	PASS	Meet the requirement of limit. Minimum passing margin is -1.23dB at 18.414MHz
15.407(b/1/2/3) (b)(5)	Electric Field Strength Spurious Emissions, 30MHz ~ 40000MHz	PASS	Meet the requirement of limit. Minimum passing margin is -1.11dB at 667.63MHz

2.1 MEASUREMENT UNCERTAINTY

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

MEASUREMENT	FREQUENCY	UNCERTAINTY
Conducted emissions	9kHz~30MHz	2.44 dB
Radiated emissions	30MHz ~ 200MHz	3.62 dB
	200MHz ~1000MHz	3.64 dB
	1GHz ~ 18GHz	2.26 dB
	18GHz ~ 40GHz	1.94 dB

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

3. GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

EUT	Dual Radio 2.4GHz/5GHz Access Point
MODEL NO.	BW1251, BW1252
FCC ID	MXF-A950806AG
POWER SUPPLY	48Vdc from POE 12Vdc from AC adapter
MODULATION TYPE	CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM
MODULATION TECHNOLOGY	DSSS, OFDM
TRANSFER RATE	802.11b:11/5.5/2/1Mbps 802.11g: 54/48/36/24/18/12/9/6Mbps 802.11a: 54/48/36/24/18/12/9/6Mbps
FREQUENCY RANGE	802.11b & 802.11g: 2.412 ~ 2.462GHz 802.11a: 5.150 ~ 5.250GHz , 5.725 ~ 5.850GHz
NUMBER OF CHANNEL	802.11b & 802.11g: 11 802.11a: 8
CHANNEL SPACING	802.11b & 802.11g: 5MHz 802.11a: 20MHz
OUTPUT POWER	226.223mW for 2.4GHz (NOTE 7) 30.200mW for 5.150 ~ 5.250GHz 79.799mW for 5.725 ~ 5.850GHz
ANTENNA TYPE	External antenna: Dipole antenna with 2dBi gain (for 2.4 & 5.0GHz) Internal antenna: Dualband Built-in directional antenna with 6dBi gain (for 2.4GHz) Dualband Built-in directional antenna with 8dBi gain (for 5.0GHz)
DATA CABLE	1.6m shielded RJ45 cable without core
I/O PORTS	RJ45, RS232
ASSOCIATED DEVICES	Adapter

NOTE:

1. This report is issued as a supplementary report to the original ADT report no.: RF950525L06.
2. This report is prepared for FCC class II permissive change. The main change is adding external antenna to this EUT for the test. In this report, conducted, radiated emission and bandedge tests had been re-evaluated.



3. Two models are provided to this EUT. Please refer to following table for more details.

Model Name	Description
BW1251	External antenna
BW1252	External & Internal antenna

**model BW1252 was chosen for final test.

4. The EUT was operated with following adapter & POEs:

Adapter	
Brand	JET UNIFIVE CO., LTD.
Model	UIT312-1210
Input Power	100-240Vac, 50-60Hz, 0.3A
Output Power	12Vdc, 1A
Power Line	1.8m non-shielded cable with one core

POE 1	
Brand	PowerDsine™ 3001
Model	PD-3001/AC
Input Power	100-250Vac, 50/60Hz, 0.5A
Output Power	48Vdc, 0.35A

POE 2	
Brand	BROWAN
Model	BE3011
Input Power	100-250Vac, 50/60Hz, 0.5A
Output Power	48Vdc, 0.35A

**Two POEs are totally same and only for support unit use.

5. Internal & external antennas could not be selected separately for different Tx.

	Transmitter 1	Transmitter 2	Remark
Tx Path	Internal Antenna	Internal Antenna	Support
Tx Path	External Antenna	External Antenna	Support
Tx Path	Internal Antenna	External Antenna	not Support
Tx Path	External Antenna	Internal Antenna	not Support

6. Emission of Inter-modulation has been evaluated and is compliance with related rule.

7. Two radios are under firmware controlled not to use the same channel or a channel which are separated less than 4 channels.

8. The sum of the two biggest power value = 113.763mW (channel 4) + 112.460mW (channel 6) = 226.223mW.

9. The EUT operates in both the 5GHz and 2.4GHz Bands and compatibility with 802.11a and 802.11b, 802.11g technology.

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

3.2 DESCRIPTION OF TEST MODES

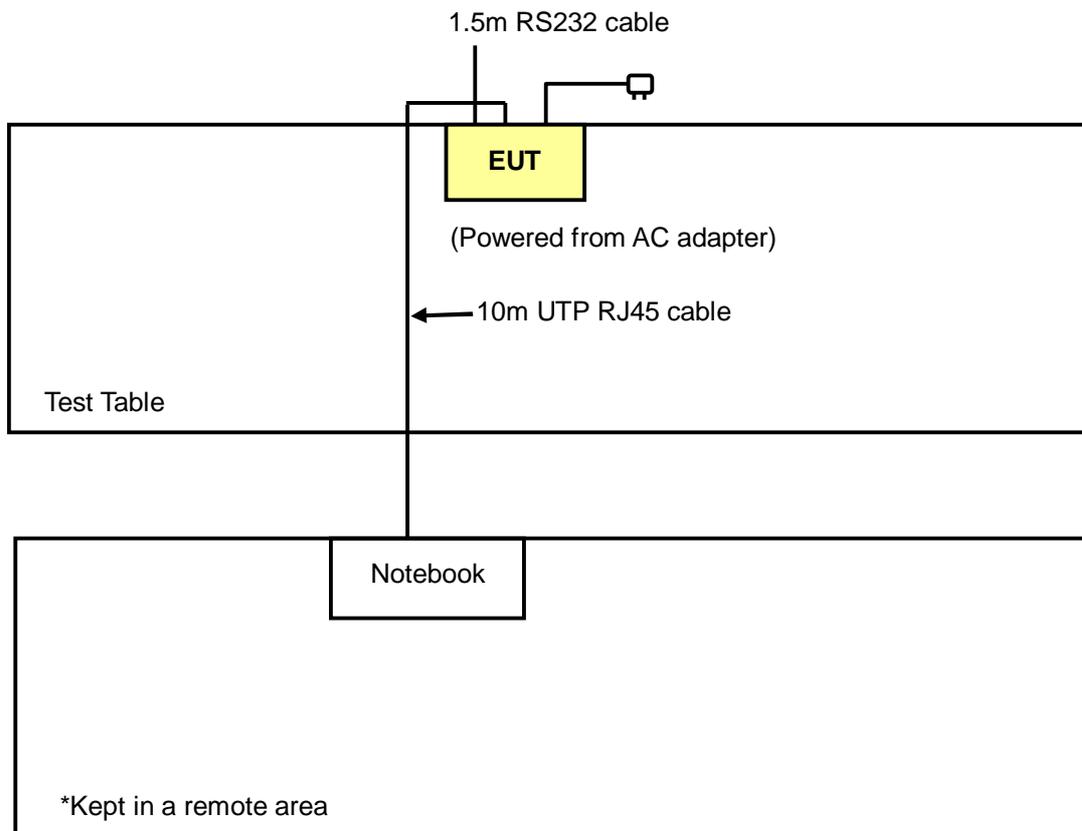
Operated in 5150 ~ 5250MHz

4 channels are provided to this EUT.

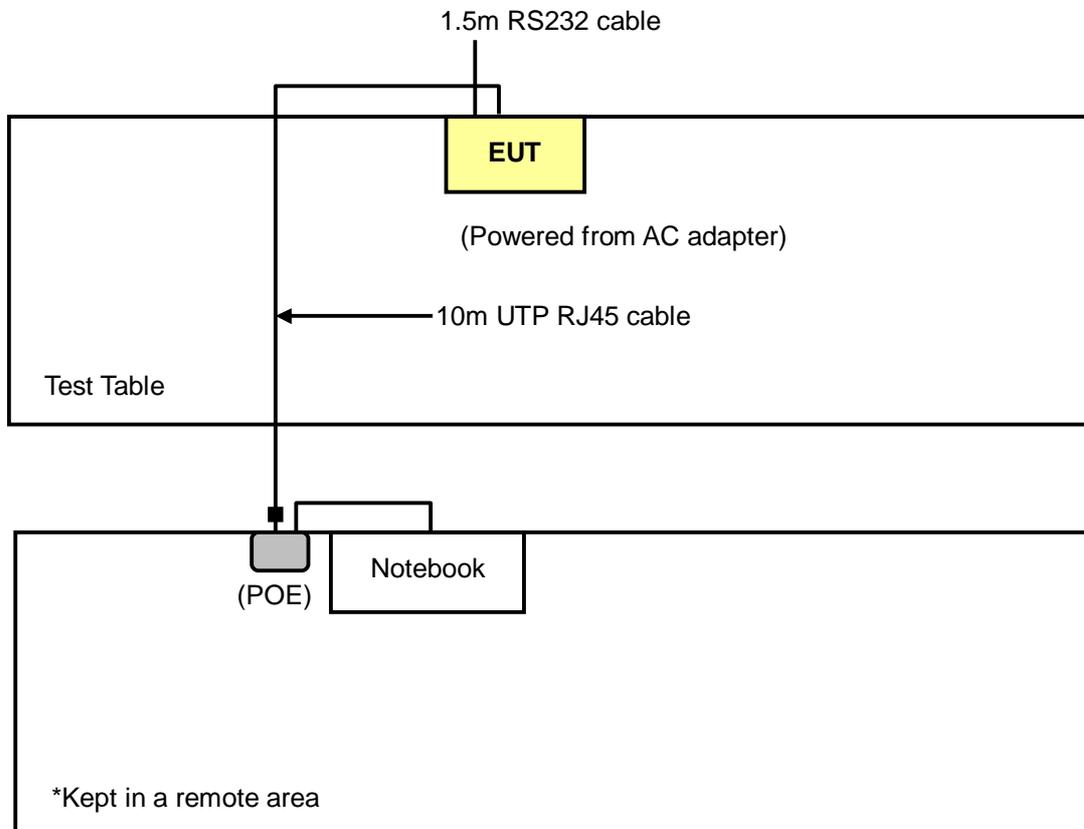
CHANNEL	FREQUENCY
1	5180 MHz
2	5200 MHz
3	5220 MHz
4	5240 MHz

3.2.1 CONFIGURATION OF SYSTEM UNDER TEST

Test mode A (adapter mode):



Test mode B (POE mode):



3.2.2 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL

EUT CONFIGURE MODE	APPLICABLE TO				DESCRIPTION
	PLC	RE<1G	RE ^{>} 1G	BM	
A	√	√	-	-	Adapter mode with external antenna
B	√	√	√	√	POE mode with external antenna
C	-	-	√	√	POE mode with internal antenna

Where **PLC**: Power Line Conducted Emission
RE[>]1G: Radiated Emission above 1GHz

RE<1G: Radiated Emission below 1GHz
BM: Bandedge 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.

EUT CONFIGURE MODE	MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
A	802.11a	1 to 4	1	OFDM	BPSK	6
B	802.11a	1 to 4	1	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, X, Y, Z axis and antenna ports (if EUT with antenna diversity architecture).
- Following channel(s) was (were) selected for the final test as listed below.

EUT CONFIGURE MODE	MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)	AXIS
A	802.11a	1 to 4	1	OFDM	BPSK	6	Z
B	802.11a	1 to 4	1	OFDM	BPSK	6	Z



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, X, Y, Z axis and antenna ports (if EUT with antenna diversity architecture).
- Following channel(s) was (were) selected for the final test as listed below.

EUT CONFIGURE MODE	MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)	AXIS
B	802.11a	1 to 4	1, 2, 4	OFDM	BPSK	6	Z
C	802.11a	1 to 4	1, 4	OFDM	BPSK	6	Z

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.

EUT CONFIGURE MODE	MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
B	802.11a	1 to 4	1, 4	OFDM	BPSK	6
C	802.11a	1 to 4	1, 4	OFDM	BPSK	6



3.3 GENERAL DESCRIPTION OF APPLIED STANDARDS

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

FCC Part 15, Subpart E (15.407)

ANSI C63.4-2003

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

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

3.4 DESCRIPTION OF SUPPORT UNITS

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

NO.	PRODUCT	BRAND	MODEL NO.	SERIAL NO.	FCC ID
1	NOTEBOOK COMPUTER	DELL	PP05L	16484462992	E2K24CLNS
2	POE	PowerDsine™ 3001	PD-3001/AC	NA	NA

NO.	SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	NA
2	NA

NOTE 1: All power cords of the above support units are non shielded (1.8m).

2: Item 1 is acted as a communication partner to transfer data.



4. TEST TYPES AND RESULTS

4.1 CONDUCTED EMISSION MEASUREMENT

4.1.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT

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

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

4.1.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED UNTIL
Test Receiver ROHDE & SCHWARZ	ESCS30	100289	Dec. 07, 2007
RF signal cable Woken	5D-FB	Cable-HYC01-01	Jan. 06, 2008
LISN ROHDE & SCHWARZ	ESH3-Z5	100312	Feb. 13, 2008
LISN ROHDE & SCHWARZ	ESH2-Z5	100104	Sep. 14, 2007
Software ADT	ADT_Cond_V3	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 HwaYa Shielded Room 1.
 3. The VCCI Site Registration No. is C-2040.



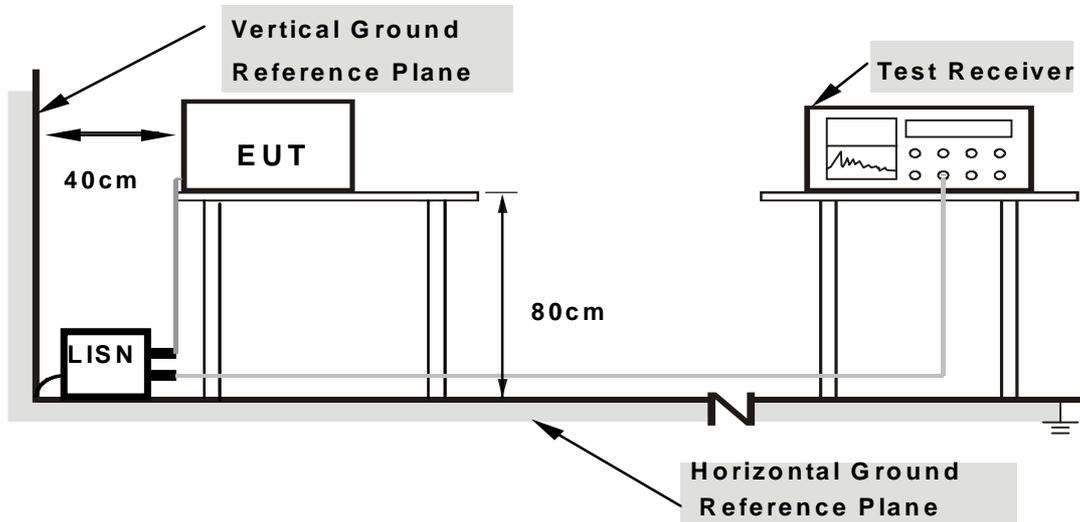
4.1.3 TEST PROCEDURES

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

4.1.4 DEVIATION FROM TEST STANDARD

No deviation

4.1.5 TEST SETUP



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

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

For the actual test configuration, please refer to the attached file (Test Setup Photo).

4.1.6 EUT OPERATING CONDITIONS

- a. Placed the EUT on the testing table.
- b. Prepared another notebook system to act as a communication partner and placed it outside of testing area.
- c. The communication partner connected with EUT via a UTP cable and run a test program (provided by manufacturer) to enable EUT under transmission/receiving condition continuously at specific channel frequency.
- d. The communication partner sent data to EUT by command "PING".

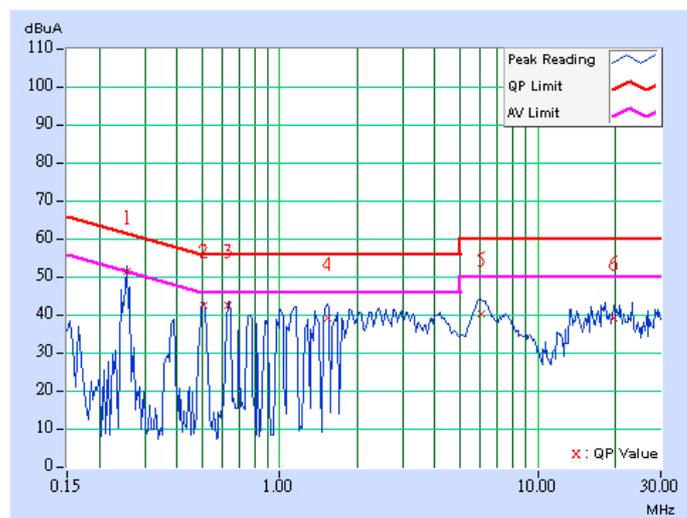
4.1.7 TEST RESULTS

CONDUCTED WORST-CASE DATA FOR TEST MODE A (ADAPTER MODE):

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	PHASE	Line 1
MODULATION TYPE	BPSK	6dB BANDWIDTH	9 kHz
TRANSFER RATE	6Mbps	ENVIRONMENTAL CONDITIONS	20deg. C, 60%RH, 991hPa
INPUT POWER (SYSTEM)	120Vac, 60 Hz	TESTED BY	Match Tsui

No	Freq. [MHz]	Corr.	Reading Value		Emission Level		Limit		Margin	
		Factor	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
		(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.255	0.21	50.46	-	50.67	-	61.58	51.58	-10.91	-
2	0.507	0.22	41.61	-	41.83	-	56.00	46.00	-14.17	-
3	0.627	0.22	41.61	-	41.83	-	56.00	46.00	-14.17	-
4	1.535	0.25	38.11	-	38.36	-	56.00	46.00	-17.64	-
5	6.082	0.44	39.19	-	39.63	-	60.00	50.00	-20.37	-
6	19.711	1.01	38.35	-	39.36	-	60.00	50.00	-20.64	-

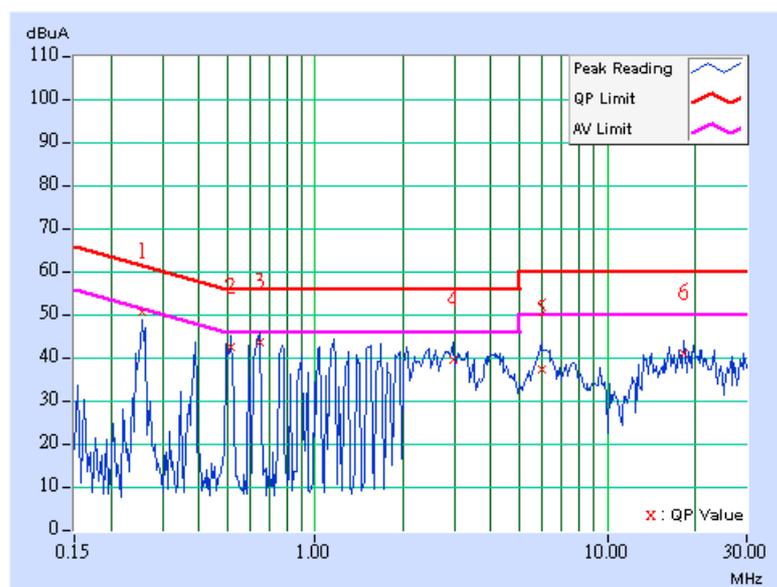
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value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



EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	PHASE	Line 2
MODULATION TYPE	BPSK	6dB BANDWIDTH	9 kHz
TRANSFER RATE	6Mbps	ENVIRONMENTAL CONDITIONS	20deg. C, 60%RH, 991hPa
INPUT POWER (SYSTEM)	120Vac, 60 Hz	TESTED BY	Match Tsui

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	0.255	0.21	50.09	-	50.30	-	61.58	51.58	-11.28	-
2	0.517	0.22	42.04	-	42.26	-	56.00	46.00	-13.74	-
3	0.646	0.22	43.13	-	43.35	-	56.00	46.00	-12.65	-
4	2.973	0.32	39.16	-	39.48	-	56.00	46.00	-16.52	-
5	5.941	0.44	36.78	-	37.22	-	60.00	50.00	-22.78	-
6	18.242	0.50	40.56	-	41.06	-	60.00	50.00	-18.94	-

- 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.

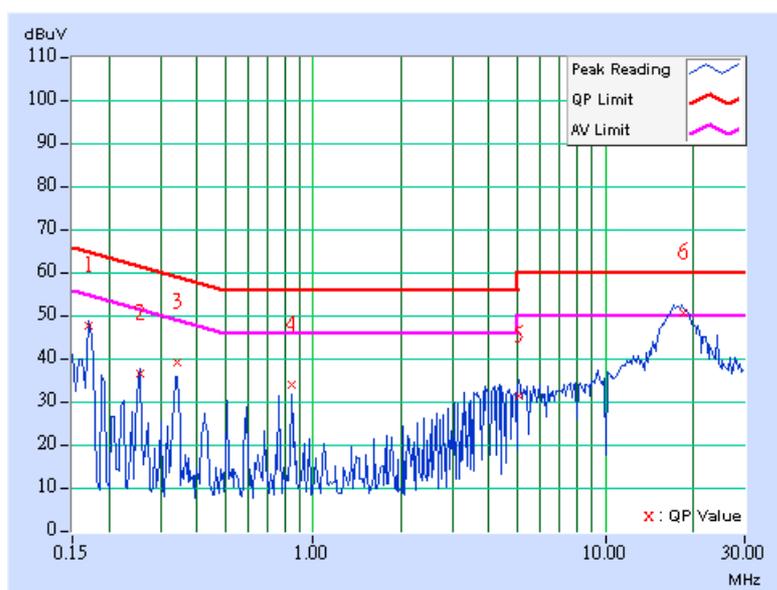


FOR TEST MODE B (POE MODE):

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	PHASE	Line 1
MODULATION TYPE	BPSK	6dB BANDWIDTH	9 kHz
TRANSFER RATE	6Mbps	ENVIRONMENTAL CONDITIONS	20deg. C, 60%RH, 991hPa
INPUT POWER (SYSTEM)	120Vac, 60 Hz	TESTED BY	Match Tsui

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.170	0.21	46.78	-	46.99	-	64.96	54.96	-17.97	-
2	0.255	0.21	35.57	-	35.78	-	61.58	51.58	-25.80	-
3	0.342	0.21	38.30	-	38.51	-	59.16	49.16	-20.65	-
4	0.849	0.23	32.96	-	33.19	-	56.00	46.00	-22.81	-
5	5.095	0.42	30.64	-	31.06	-	60.00	50.00	-28.94	-
6	18.414	0.94	49.74	47.83	50.68	48.77	60.00	50.00	-9.32	-1.23

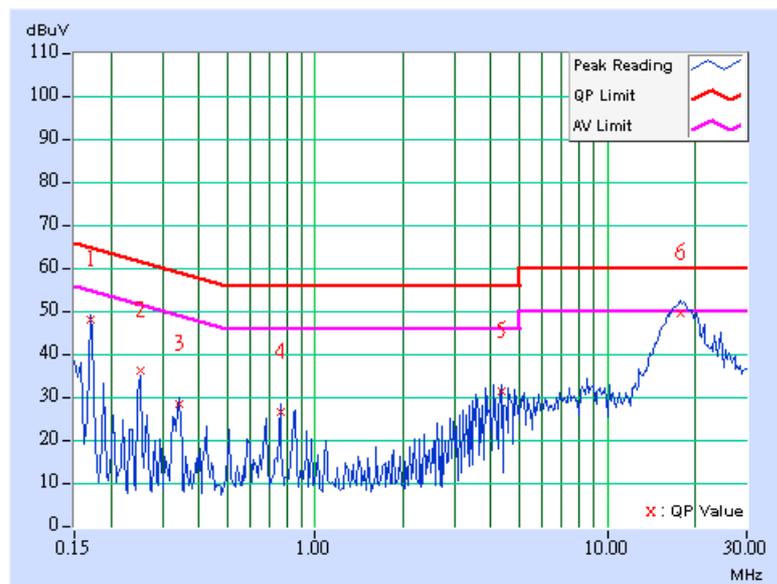
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value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



EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	PHASE	Line 2
MODULATION TYPE	BPSK	6dB BANDWIDTH	9 kHz
TRANSFER RATE	6Mbps	ENVIRONMENTAL CONDITIONS	20deg. C, 60%RH, 991hPa
INPUT POWER (SYSTEM)	120Vac, 60 Hz	TESTED BY	Match Tsui

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	0.170	0.21	47.50	-	47.71	-	64.98	54.98	-17.28	-
2	0.253	0.21	35.63	-	35.84	-	61.66	51.66	-25.82	-
3	0.342	0.21	28.15	-	28.36	-	59.16	49.16	-30.80	-
4	0.763	0.23	26.16	-	26.39	-	56.00	46.00	-29.61	-
5	4.324	0.40	31.03	-	31.43	-	56.00	46.00	-24.57	-
6	17.870	0.50	49.22	-	49.72	-	60.00	50.00	-10.28	-

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



4.2 RADIATED EMISSION MEASUREMENT

4.2.1 LIMITS OF RADIATED EMISSION MEASUREMENT

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

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

NOTE:

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

4.2.2 LIMITS OF UNWANTED EMISSION OUT OF THE RESTRICTED BANDS

Frequencies (MHz)	EIRP Limit (dBm)	Equivalent Field Strength at 3m (dBμV/m) *note 3
5150~5250	-27	68.3
5250~5350	-27	68.3
5725~5825	-27 *note 1	68.3
	-17 *note 2	78.3

NOTE:

1. For frequencies 10MHz or greater above or below the band edge.
2. All emissions within the frequency range from the band edge to 10MHz above or below the band edge.
3. The following formula is used to convert the equipment isotropic radiated power (eirp) to field strength

$$E = \frac{1000000\sqrt{30P}}{3} \mu\text{V/m, where P is the eirp (Watts)}$$



4.2.3 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED UNTIL
Test Receiver ROHDE & SCHWARZ	ESI7	838496/016	Dec. 29, 2007
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100039	Dec. 01, 2007
BILOG Antenna SCHWARZBECK	VULB9168	9168-155	Jan. 04, 2008
HORN Antenna SCHWARZBECK	BBHA 9120D	9120D-405	Dec. 18, 2007
HORN Antenna SCHWARZBECK	BBHA 9170	BBHA9170242	Jan. 16, 2008
Preamplifier Agilent	8449B	3008A1960	Oct. 30, 2007
Preamplifier Agilent	8447D	2944A10631	Oct. 30, 2007
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	230128/4	Nov. 14, 2007
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	233233/4	Nov. 14, 2007
Software ADT.	ADT_Radiated_V7.6	NA	NA
Antenna Tower inn-co GmbH	MA 4000	010303	NA
Antenna Tower Controller inn-co GmbH	CO2000	019303	NA
Turn Table ADT.	TT100.	TT93021704	NA
Turn Table Controller ADT.	SC100.	SC93021704	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 HwaYa Chamber 4.
 3. The horn antenna and HP preamplifier (model: 8449B) are used only for the measurement of emission frequency above 1GHz if tested.
 4. The IC Site Registration No. is IC3789B-4.

4.2.4 TEST PROCEDURES

- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic chamber. 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 10dB 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 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

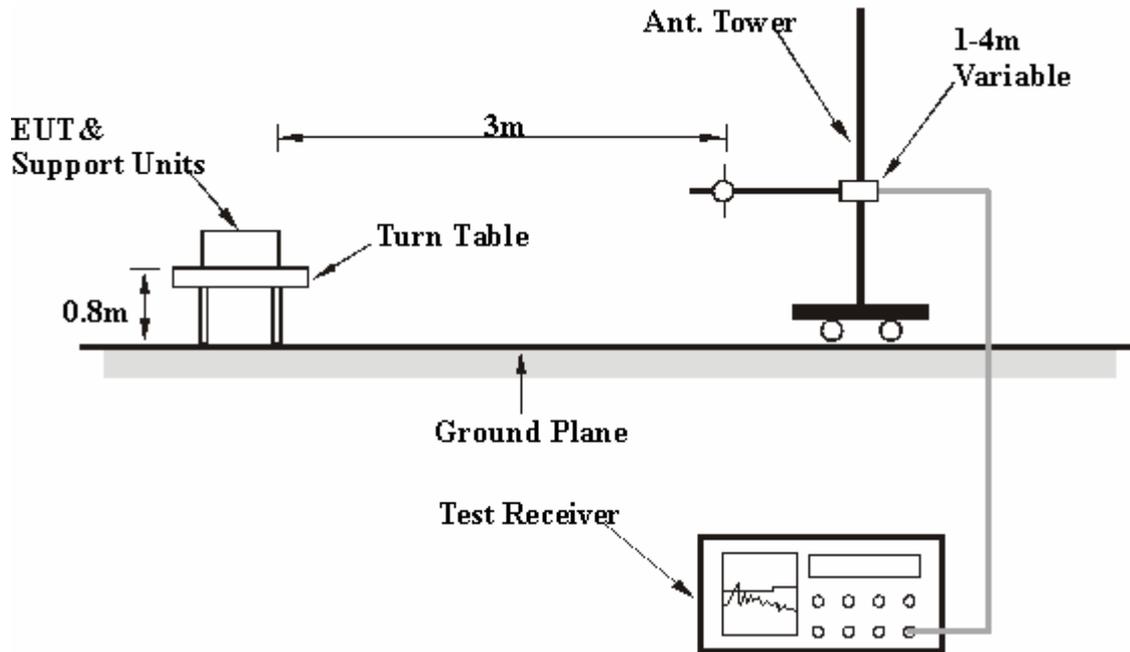
NOTE:

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 of test receiver/spectrum analyzer is 1 MHz and video bandwidth 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 10Hz for Average detection (AV) at frequency above 1GHz.

4.2.5 DEVIATION FROM TEST STANDARD

No deviation

4.2.6 TEST SETUP



For the actual test configuration, please refer to the attached file (Test Setup Photo).

4.2.7 EUT OPERATING CONDITION

Same as 4.1.6



4.2.8 TEST RESULTS

BELOW 1GHz WORST-CASE DATA

FOR TEST MODE A (ADAPTER MODE):

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	Below 1000MHz
MODULATION TYPE	BPSK	DETECTOR FUNCTION	Quasi-Peak
TRANSFER RATE	6Mbps	ENVIRONMENTAL CONDITIONS	24deg. C, 64%RH, 991hPa
INPUT POWER (SYSTEM)	120Vac, 60 Hz	TESTED BY	Match Tsui

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	249.60	40.43 QP	46.00	-5.57	1.00 H	82	26.74	13.69
2	366.26	41.09 QP	46.00	-4.91	1.00 H	298	24.62	16.47
3	500.42	40.23 QP	46.00	-5.77	2.00 H	10	19.69	20.54
4	667.63	40.95 QP	46.00	-5.05	2.00 H	220	16.34	24.61
5	714.29	38.07 QP	46.00	-7.93	1.00 H	10	12.65	25.41
6	731.79	41.49 QP	46.00	-4.51	1.50 H	52	15.87	25.62
7	799.84	38.03 QP	46.00	-7.97	1.00 H	172	11.60	26.43
8	865.94	38.57 QP	46.00	-7.43	2.50 H	10	11.16	27.41

- 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.



EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	Below 1000MHz
MODULATION TYPE	BPSK	DETECTOR FUNCTION	Quasi-Peak
TRANSFER RATE	6Mbps	ENVIRONMENTAL CONDITIONS	24deg. C, 64%RH, 991hPa
INPUT POWER (SYSTEM)	120Vac, 60 Hz	TESTED BY	Match Tsui

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	31.84	38.38 QP	40.00	-1.62	1.50 V	10	25.85	12.53
2	119.34	37.58 QP	43.50	-5.92	1.50 V	10	25.43	12.15
3	166.00	35.68 QP	43.50	-7.82	1.00 V	175	21.67	14.01
4	249.60	42.87 QP	46.00	-3.13	1.00 V	109	29.18	13.69
5	366.26	41.28 QP	46.00	-4.72	1.50 V	55	24.81	16.47
6	465.42	38.74 QP	46.00	-7.26	1.00 V	10	19.34	19.40
7	500.42	39.51 QP	46.00	-6.49	1.00 V	55	18.97	20.54
8	667.63	44.89 QP	46.00	-1.11	1.00 V	121	20.27	24.61
9	731.79	41.44 QP	46.00	-4.56	1.00 V	337	15.82	25.62
10	799.84	38.49 QP	46.00	-7.51	1.50 V	196	12.07	26.43
11	864.00	40.83 QP	46.00	-5.17	1.50 V	10	13.45	27.38

- 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.



FOR TEST MODE B (POE MODE):

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	Below 1000MHz
MODULATION TYPE	BPSK	DETECTOR FUNCTION	Quasi-Peak
TRANSFER RATE	6Mbps	ENVIRONMENTAL CONDITIONS	24deg. C, 64%RH, 991hPa
INPUT POWER (SYSTEM)	120Vac, 60 Hz	TESTED BY	Match Tsui

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	199.05	34.03 QP	43.50	-9.47	1.00 H	187	22.63	11.40
2	232.11	39.73 QP	46.00	-6.27	1.00 H	187	26.87	12.86
3	366.26	38.34 QP	46.00	-7.66	1.00 H	316	21.87	16.47
4	399.31	41.59 QP	46.00	-4.41	2.00 H	178	24.28	17.31
5	432.37	35.99 QP	46.00	-10.01	2.00 H	184	17.64	18.35
6	667.63	43.51 QP	46.00	-2.49	1.00 H	169	18.90	24.61
7	700.68	35.66 QP	46.00	-10.34	1.00 H	289	10.40	25.26
8	733.73	36.05 QP	46.00	-9.95	1.00 H	34	10.41	25.64
9	799.84	44.16 QP	46.00	-1.84	1.00 H	10	17.73	26.43
10	900.94	39.49 QP	46.00	-6.51	1.50 H	184	11.53	27.97
11	933.99	44.24 QP	46.00	-1.76	1.50 H	355	15.90	28.34

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	53.23	36.42 QP	40.00	-3.58	1.00 V	28	22.26	14.17
2	366.26	38.82 QP	46.00	-7.18	1.50 V	304	22.35	16.47
3	399.31	38.35 QP	46.00	-7.65	1.00 V	235	21.04	17.31
4	667.63	40.23 QP	46.00	-5.77	1.00 V	112	15.62	24.61
5	700.68	35.23 QP	46.00	-10.77	1.50 V	241	9.98	25.26
6	799.84	37.75 QP	46.00	-8.25	1.50 V	112	11.33	26.43
7	867.89	35.24 QP	46.00	-10.76	1.00 V	298	7.80	27.44
8	933.99	43.76 QP	46.00	-2.24	1.00 V	268	15.42	28.34

- 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.



**802.11a OFDM MODULATION
FOR TEST MODE B (POE MODE):**

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	1 ~ 40 GHz
MODULATION TYPE	BPSK	DETECTOR FUNCTION	Peak(PK) Average (AV)
TRANSFER RATE	6Mbps	ENVIRONMENTAL CONDITIONS	23deg. C, 63%RH, 991hPa
INPUT POWER (SYSTEM)	120Vac, 60 Hz	TESTED BY	Brad Wu

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	#1066.00	47.06 PK	74.00	-26.94	1.19 H	145	18.33	28.73
2	#1066.00	44.23 AV	54.00	-9.77	1.19 H	145	15.50	28.73
3	#5150.00	51.41 PK	74.00	-22.59	1.25 H	110	12.20	39.21
3	#5150.00	39.08 AV	54.00	-14.92	1.25 H	110	-0.13	39.21
5	*5180.00	95.29 PK			1.51 H	79	56.06	39.23
6	*5180.00	83.95 AV			1.51 H	79	44.72	39.23
7	10360.00	60.63 PK	68.30	-7.67	1.10 H	6	11.02	49.61

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	#1066.00	49.11 PK	74.00	-24.89	1.06 V	300	20.38	28.73
2	#1066.00	44.11 AV	54.00	-9.89	1.06 V	300	15.38	28.73
3	#5150.00	55.57 PK	74.00	-18.43	1.02 V	115	16.36	39.21
3	#5150.00	45.69 AV	54.00	-8.31	1.02 V	115	6.48	39.21
5	*5180.00	106.11 PK			1.04 V	125	66.88	39.23
6	*5180.00	95.38 AV			1.04 V	125	56.15	39.23
7	10360.00	58.92 PK	68.30	-9.38	1.00 V	130	9.28	49.64

- NOTE:**
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. "*" : Fundamental frequency
 6. "#"The radiated frequency falling in the restricted band.



EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 2	FREQUENCY RANGE	1 ~ 40 GHz
MODULATION TYPE	BPSK	DETECTOR FUNCTION	Peak(PK) Average (AV)
TRANSFER RATE	6Mbps	ENVIRONMENTAL CONDITIONS	23deg. C, 63%RH, 991hPa
INPUT POWER (SYSTEM)	120Vac, 60 Hz	TESTED BY	Brad Wu

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	#1066.00	47.59 PK	74.00	-26.41	1.22 H	331	18.86	28.73
2	#1066.00	44.87 AV	54.00	-9.13	1.22 H	331	16.14	28.73
3	*5200.00	95.51 PK			1.12 H	137	56.26	39.25
4	*5200.00	85.56 AV			1.12 H	137	46.31	39.25
5	10400.00	60.15 PK	68.30	-8.15	1.02 H	123	10.41	49.74

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	#1066.00	50.21 PK	74.00	-23.79	1.35 V	110	21.48	28.73
2	#1066.00	45.29 AV	54.00	-8.71	1.35 V	110	16.56	28.73
3	*5200.00	108.19 PK			1.47 V	171	68.94	39.25
4	*5200.00	96.22 AV			1.47 V	171	56.97	39.25
5	10400.00	59.32 PK	68.30	-8.98	1.02 V	321	9.58	49.74

- NOTE:**
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. "*" : Fundamental frequency
 6. "#"The radiated frequency falling in the restricted band.



EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 4	FREQUENCY RANGE	1 ~ 40 GHz
MODULATION TYPE	BPSK	DETECTOR FUNCTION	Peak(PK) Average (AV)
TRANSFER RATE	6Mbps	ENVIRONMENTAL CONDITIONS	23deg. C, 63%RH, 991hPa
INPUT POWER (SYSTEM)	120Vac, 60 Hz	TESTED BY	Brad Wu

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	#1066.00	47.82 PK	74.00	-26.18	1.06 H	98	19.09	28.73
2	#1066.00	44.69 AV	54.00	-9.31	1.06 H	98	15.96	28.73
3	*5240.00	96.45 PK			1.06 H	229	57.16	39.29
4	*5240.00	85.23 AV			1.06 H	229	45.94	39.29
5	10480.00	60.97 PK	68.30	-7.33	1.00 H	25	10.93	50.04

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	#1066.00	50.12 PK	74.00	-23.88	1.05 V	221	21.39	28.73
2	#1066.00	44.67 AV	54.00	-9.33	1.05 V	221	15.94	28.73
3	*5240.00	107.95 PK			1.43 V	182	68.66	39.29
4	*5240.00	97.17 AV			1.43 V	182	57.88	39.29
5	10480.00	59.38 PK	68.30	-8.92	1.00 V	215	9.34	50.04

- NOTE:**
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. "*" : Fundamental frequency
 6. "#"The radiated frequency falling in the restricted band.



FOR TEST MODE C (POE MODE):

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	1 ~ 40 GHz
MODULATION TYPE	BPSK	DETECTOR FUNCTION	Peak(PK) Average (AV)
TRANSFER RATE	6Mbps	ENVIRONMENTAL CONDITIONS	23deg. C, 63%RH, 991hPa
INPUT POWER (SYSTEM)	120Vac, 60 Hz	TESTED BY	Brad Wu

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	#1066.00	49.21 PK	74.00	-24.79	1.02 H	54	20.48	28.73
2	#1066.00	43.10 AV	54.00	-10.90	1.02 H	54	14.37	28.73
3	#5150.00	49.23 PK	74.00	-24.77	1.25 H	51	10.02	39.21
4	#5150.00	39.06 AV	54.00	-14.94	1.25 H	51	-0.15	39.21
5	*5180.00	99.40 PK			1.25 H	51	60.17	39.23
6	*5180.00	88.92 AV			1.25 H	51	49.69	39.23
7	10360.00	59.84 PK	68.30	-8.46	1.02 H	224	10.20	49.64

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	#1066.00	50.24 PK	74.00	-23.76	1.09 V	281	21.51	28.73
2	#1066.00	47.19 AV	54.00	-6.81	1.09 V	281	18.46	28.73
3	#5150.00	63.96 PK	74.00	-10.04	1.00 V	8	24.75	39.21
3	#5150.00	51.96 AV	54.00	-2.04	1.00 V	8	12.75	39.21
5	*5180.00	112.38 PK			1.00 V	8	73.15	39.23
6	*5180.00	101.41 AV			1.00 V	8	62.18	39.23
7	10360.00	60.23 PK	68.30	-8.07	1.02 V	213	10.59	49.64

- NOTE:**
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. "*" : Fundamental frequency
 6. "#"The radiated frequency falling in the restricted band.



EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 4	FREQUENCY RANGE	1 ~ 40 GHz
MODULATION TYPE	BPSK	DETECTOR FUNCTION	Peak(PK) Average (AV)
TRANSFER RATE	6Mbps	ENVIRONMENTAL CONDITIONS	23deg. C, 63%RH, 991hPa
INPUT POWER (SYSTEM)	120Vac, 60 Hz	TESTED BY	Brad Wu

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	#1066.00	49.58 PK	74.00	-24.42	1.11 H	92	20.85	28.73
2	#1066.00	43.46 AV	54.00	-10.54	1.11 H	92	14.73	28.73
3	*5240.00	100.92 PK			1.26 H	60	61.63	39.29
4	*5240.00	90.46 AV			1.26 H	60	51.17	39.29
5	10480.00	60.32 PK	68.30	-7.98	1.13 H	291	10.28	50.04

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	#1066.00	49.36 PK	74.00	-24.64	1.05 V	73	20.63	28.73
2	#1066.00	43.21 AV	54.00	-10.79	1.05 V	73	14.48	28.73
3	*5240.00	114.39 PK			1.00 V	8	75.10	39.29
4	*5240.00	103.12 AV			1.00 V	8	63.83	39.29
5	10480.00	59.65 PK	68.30	-8.65	1.02 V	84	9.61	50.04

- NOTE:**
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. "*" : Fundamental frequency
 6. "#"The radiated frequency falling in the restricted band.



4.3 BAND EDGES MEASUREMENT

4.3.1 TEST INSTRUMENTS

Description & Manufacturer	Model No.	Serial No.	Calibrated Until
SPECTRUM ANALYZER	FSP 40	100040	Jun. 07, 2007

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

4.3.2 TEST PROCEDURE

The transmitter output was connected to the spectrum analyzer via a low lose cable. Set both RBW and VBW of spectrum analyzer to 1MHz with suitable frequency span including 100 MHz bandwidth from band edge. The band edges was measured and recorded.

4.3.3 EUT OPERATING CONDITION

The software provided by client to enable the EUT under transmission condition continuously at specific channel frequencies individually.

4.3.4 TEST RESULTS

For signals in the restricted bands above and below the 5.15 to 5.25GHz allocated band a measurement was made of the amplitude of the spurious emissions with respect to the intentional signals. The relative amplitude, in dBc, was applied to the average and peak filed strength of the intentional signal made on the OATS to calculate the field strength of the unintentional signals.

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



802.11a OFDM MODULATION (TEST MODE B)

Channel 1 (5180MHz)

The band edge emission plot on the next second page shows 39.92dBc between carrier maximum power and local maximum emission in restrict band. The emission of carrier strength list in the test result of channel 1 is 106.11dBuV/m (Peak), so the maximum field strength in restrict band is $106.11 - 39.92 = 66.19$ dBuV/m which is under 74dBuV/m limit.

The band edge emission plot on the next second page shows 49.24dBc between carrier maximum power and local maximum emission in restrict band. The emission of carrier strength list in the test result of channel 1 is 95.38dBuV/m (Average), so the maximum field strength in restrict band is $95.38 - 49.24 = 46.14$ dBuV/m which is under 54dBuV/m limit.

Channel 4 (5240MHz)

The band edge emission plot on the next third page shows 57.12dBc between carrier maximum power and local maximum emission in restrict band. The emission of carrier strength list in the test result of channel 4 is 107.95dBuV/m (Peak), so the maximum field strength in restrict band is $107.95 - 57.12 = 50.83$ dBuV/m which is under 74dBuV/m limit.

The band edge emission plot on the next fourth page shows 56.13dBc between carrier maximum power and local maximum emission in restrict band. The emission of carrier strength list in the test result of channel 4 is 97.17dBuV/m (Average), so the maximum field strength in restrict band is $97.17 - 56.13 = 41.04$ dBuV/m which is under 54dBuV/m limit.

802.11a OFDM MODULATION (TEST MODE C)

Channel 1 (5180MHz)

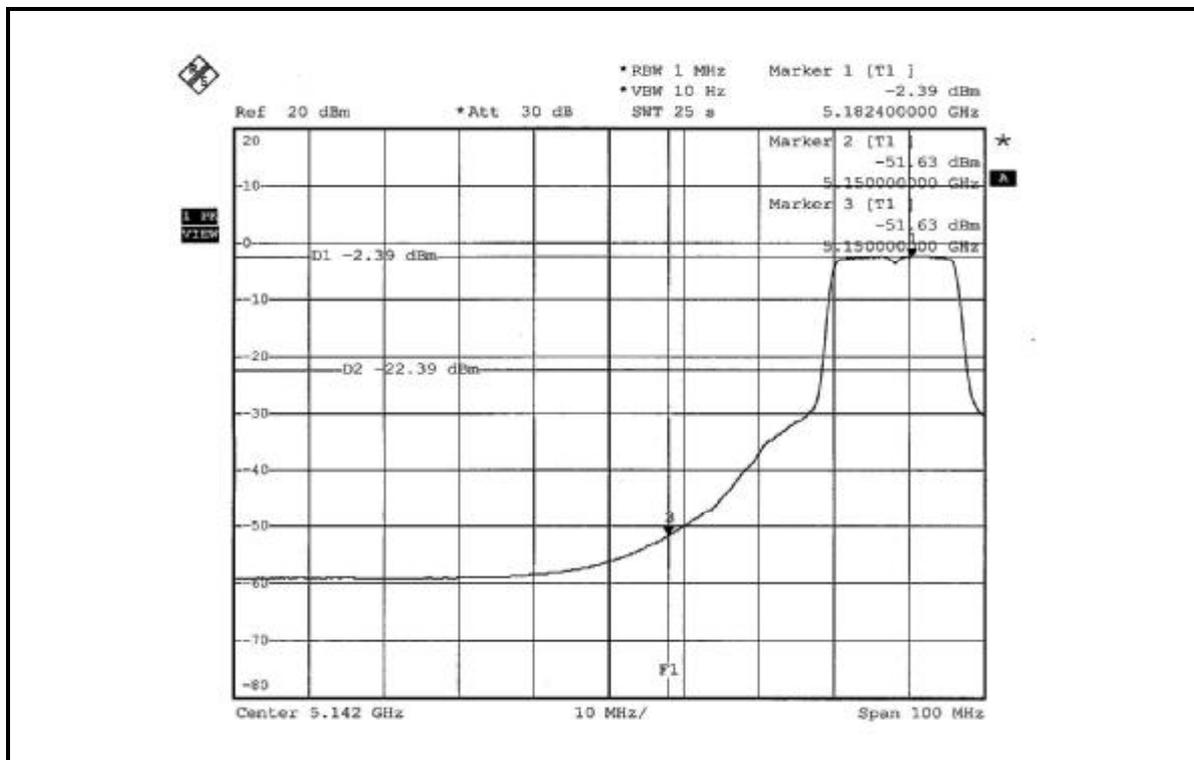
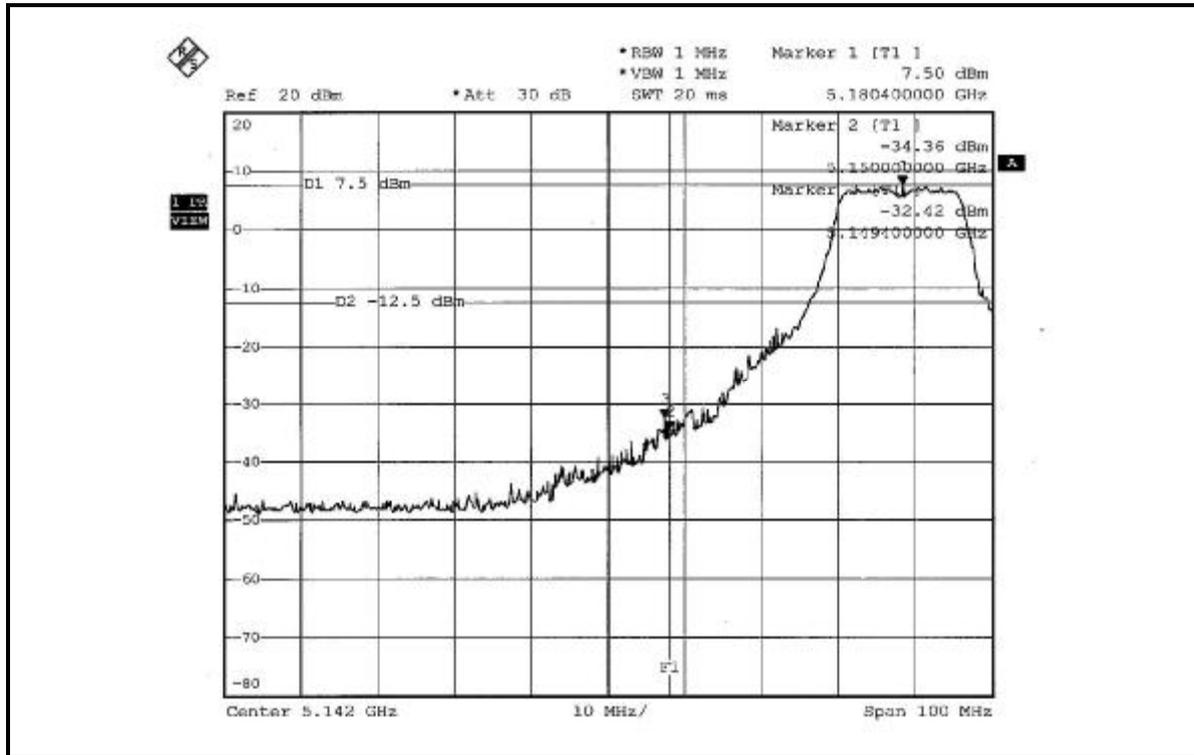
The band edge emission plot on the next page shows 39.92dBc between carrier maximum power and local maximum emission in restrict band. The emission of carrier strength list in the test result of channel 1 is 112.38dBuV/m (Peak), so the maximum field strength in restrict band is $112.38 - 39.92 = 72.46$ dBuV/m which is under 74dBuV/m limit.

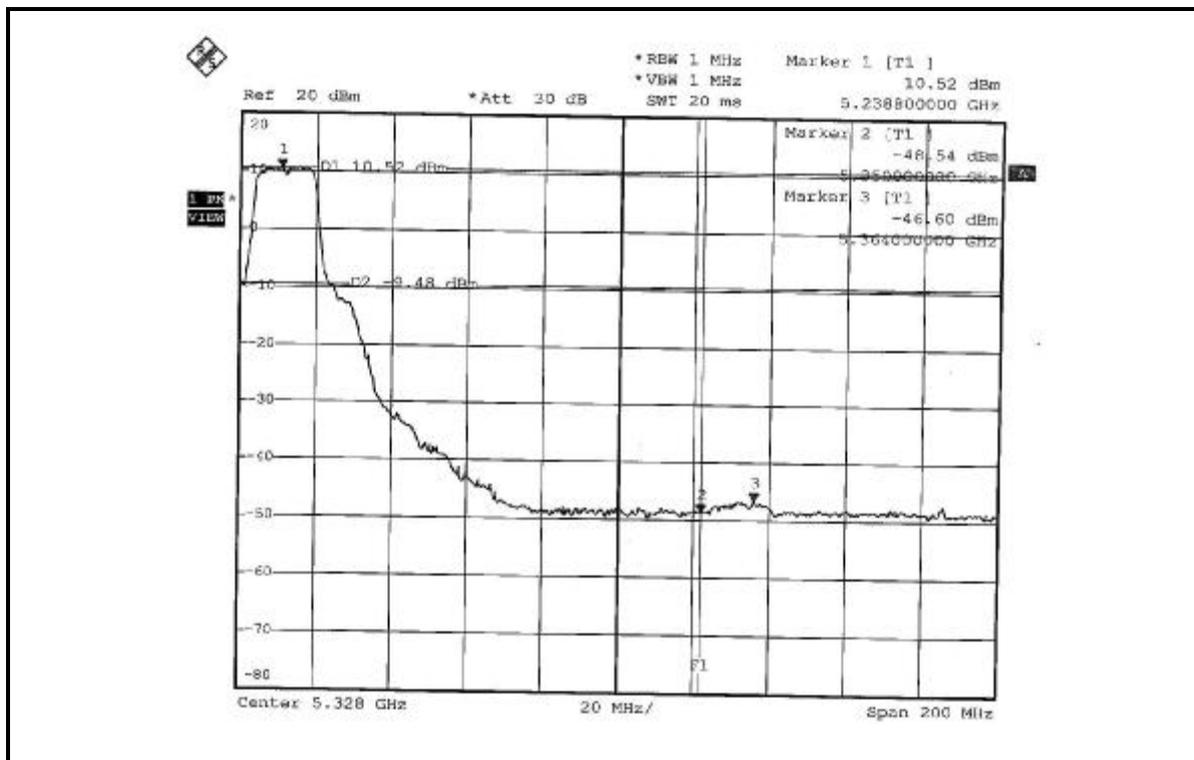
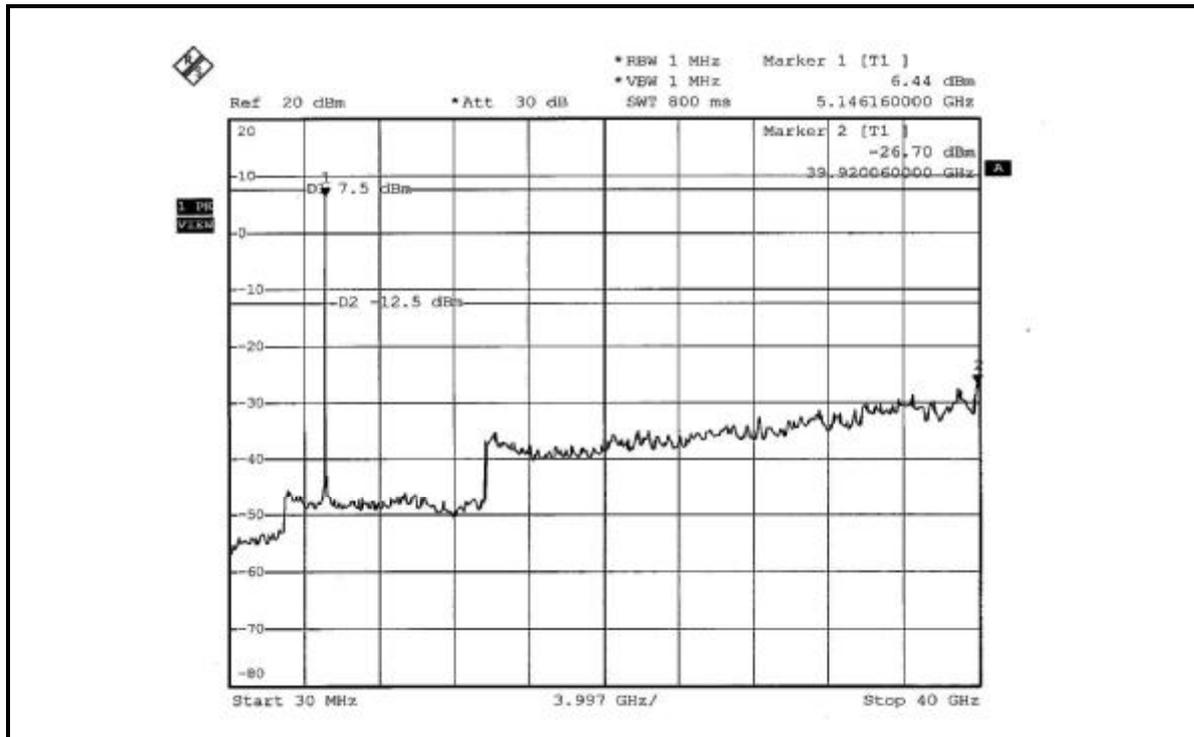
The band edge emission plot on the next page shows 49.24dBc between carrier maximum power and local maximum emission in restrict band. The emission of carrier strength list in the test result of channel 1 is 101.41dBuV/m (Average), so the maximum field strength in restrict band is $101.41 - 49.24 = 52.17$ dBuV/m which is under 54dBuV/m limit.

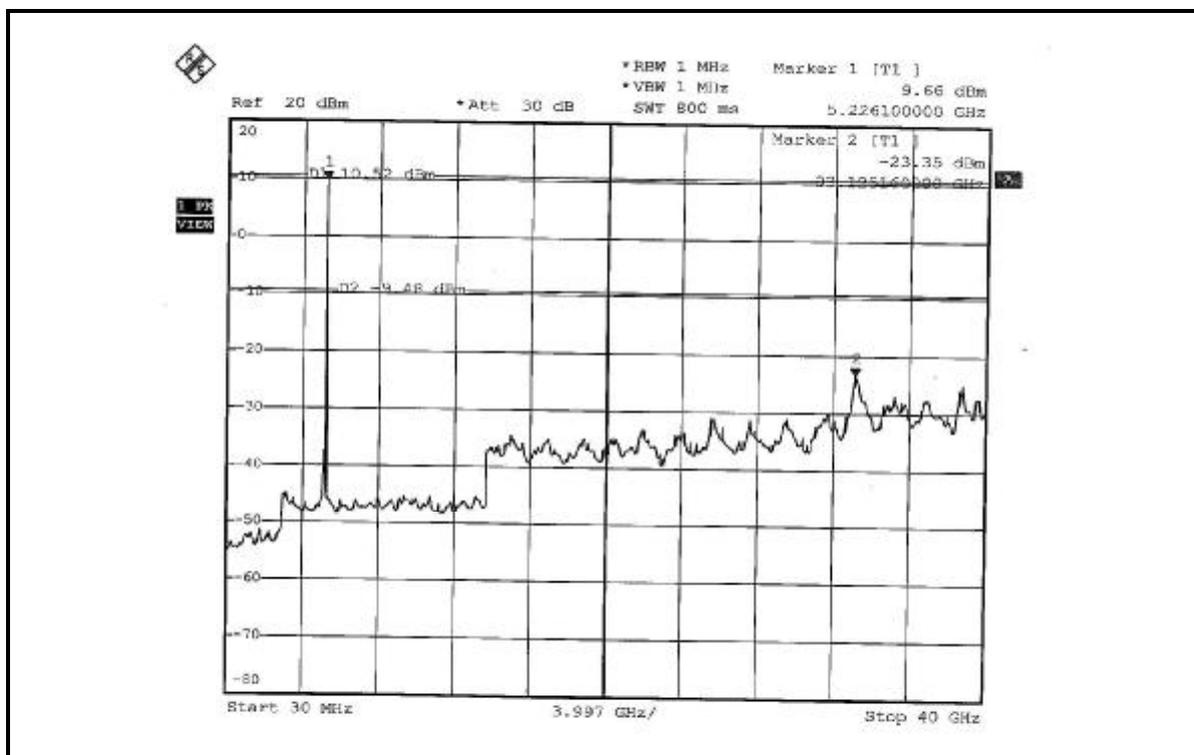
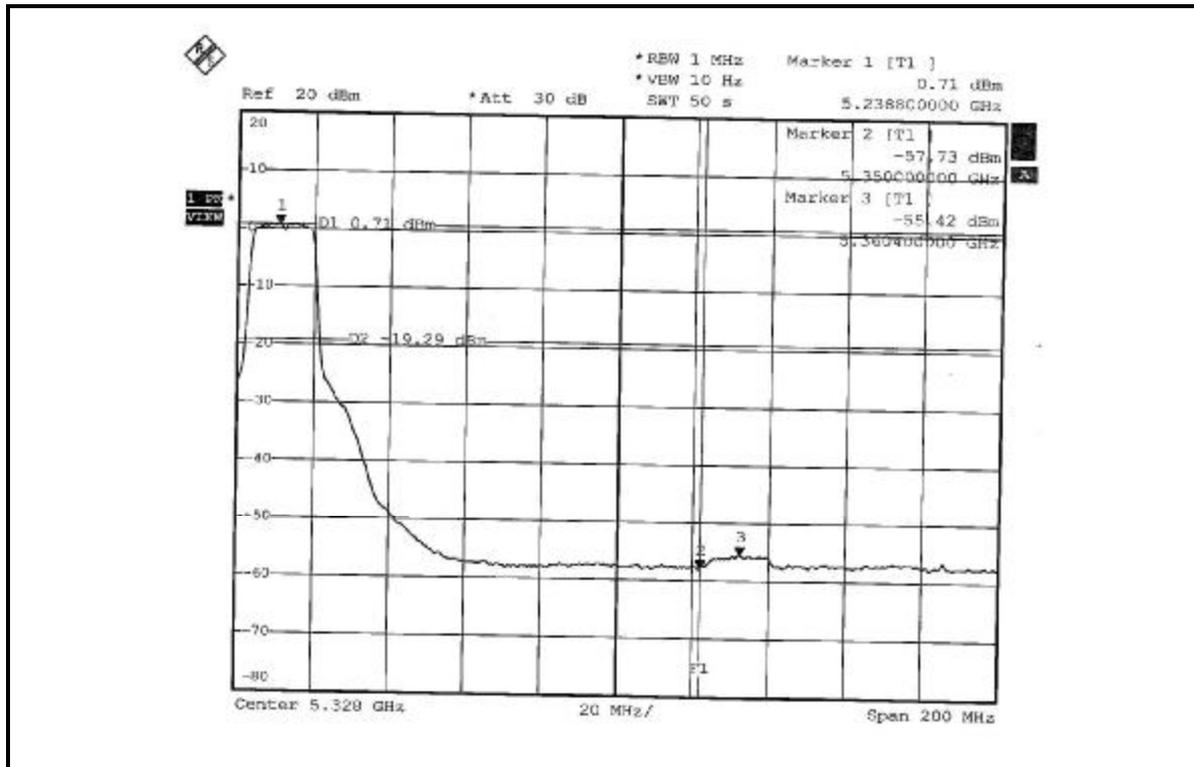
Channel 4 (5240MHz)

The band edge emission plot on the next second page shows 57.12dBc between carrier maximum power and local maximum emission in restrict band. The emission of carrier strength list in the test result of channel 4 is 114.39dBuV/m (Peak), so the maximum field strength in restrict band is $114.39 - 57.12 = 57.27$ dBuV/m which is under 74dBuV/m limit.

The band edge emission plot on the next third page shows 56.13dBc between carrier maximum power and local maximum emission in restrict band. The emission of carrier strength list in the test result of channel 4 is 103.12dBuV/m (Average), so the maximum field strength in restrict band is $103.12 - 56.13 = 46.99$ dBuV/m which is under 54dBuV/m limit.









4.4 ANTENNA REQUIREMENT

4.4.1 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 15.407(a), 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.

4.4.2 ANTENNA CONNECTED CONSTRUCTION

The antennas used in this product are Dipole with R-TNC connector and Dualband Built-in directional antenna with UFL connector. The maximum Gain of the antenna is 8dBi.



5. PHOTOGRAPHS OF THE TEST CONFIGURATION

Please refer to the attached file (Test Setup Photo).



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: 886-2-26051924

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

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.