



FCC TEST REPORT

REPORT NO.: RF940504L17

MODEL NO.: DWL-G520M

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TESTED: Mar. 25 ~ May 10, 2005

ISSUED: May 25, 2005

APPLICANT: D-Link Corporation

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1. CERTIFICATION

PRODUCT : Wireless 108G MIMO PCI Adapter
MODEL NO.: DWL-G520M
BRAND: D-Link
APPLICANT : D-Link Corporation
TESTED: Mar. 25 ~ May 10, 2005
TEST SAMPLE: ENGINEERING SAMPLE
STANDARDS : FCC Part 15, Subpart C (Section 15.247),
ANSI C63.4-2003

The above equipment 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 : Wendy Liao, **DATE:** May 25, 2005
Wendy Liao

TECHNICAL
ACCEPTANCE : Gary Chang, **DATE:** May 25, 2005
Responsible for RF Gary Chang

APPROVED BY : Cody Chang, **DATE:** May 25, 2005
Cody Chang / Deputy Manager

2. SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

APPLIED STANDARD: FCC 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 -15.49dB at 0.634MHz.
15.247(a)(2)	Spectrum Bandwidth of a Direct Sequence Spread Spectrum System Limit : min. 500kHz	PASS	Meet the requirement of limit.
15.247(b)	Maximum Peak Output Power Limit: max. 30dBm	PASS	Meet the requirement of limit.
15.247(d)	Transmitter Radiated Emissions Limit: Table 15.209	PASS	Meet the requirement of limit. Minimum passing margin is -1.26dB at 2487.00MHz.
15.247(e)	Power Spectral Density Limit: max. 8dBm	PASS	Meet the requirement of limit.
15.247(d)	Band Edge Measurement Limit: 20 dB less than the peak value of fundamental frequency	PASS	Meet the requirement of limit.

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	3.73 dB
	200MHz ~ 1000MHz	3.74 dB
	1GHz ~ 18GHz	2.20 dB
	18GHz ~ 40GHz	1.88 dB

3. GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

PRODUCT	Wireless 108G MIMO PCI Adapter
MODEL NO.	DWL-G520M
POWER SUPPLY	3.3Vdc from host equipment
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 (Turbo mode: up to 108Mbps *see NOTE 7)
FREQUENCY RANGE	2412MHz ~ 2462MHz
NUMBER OF CHANNEL	11 for Normal mode / 1 for Turbo mode
MAXIMUM OUTPUT POWER (SINGAL CHAIN)	64.269mW
MAXIMUM OUTPUT POWER (DUAL CHAIN)	103.405mW
ANTENNA TYPE	Chip and printed antenna with 0dBi gain
DATA CABLE	NA
I/O PORTS	NA
ASSOCIATED DEVICES	NA

NOTE:

1. The EUT antenna board has two ways to connect.

ITEM	CONNECTED WAY
M1	By wiring
M2	By connector

Refer to EUT photo for the structure of M1 and M2. After pretesting, M2 has been found to be the worst case and recorded in this report.

2. The EUT incorporates a basic beam forming capability. Physically, the card provides two complete transmit and receive chains.
3. The EUT can operate in a single chain configuration (only the chain 0 transceiver is operational) or dual chain configuration (both chain 0 and chain 1 transceivers are operational).
4. When the EUT is in the 802.11b mode, it is always in the single chain configuration.
5. When the EUT is operating in the 802.11g mode, it can operate in either configuration. Switching between the single and dual chain configurations is accomplished electronically, with no hardware changes required.
6. The EUT complies with IEEE 802.11g standards and backwards compatible with IEEE 802.11b products.



7. The EUT operates in the 2.4GHz frequency spectrum with throughput of up to 54Mbps.
8. This EUT is capable of providing data rates of up to 108 Mbps in Turbo mode depending upon reception quality.
9. The above EUT information was declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications or User's Manual.

3.2 DESCRIPTION OF TEST MODES

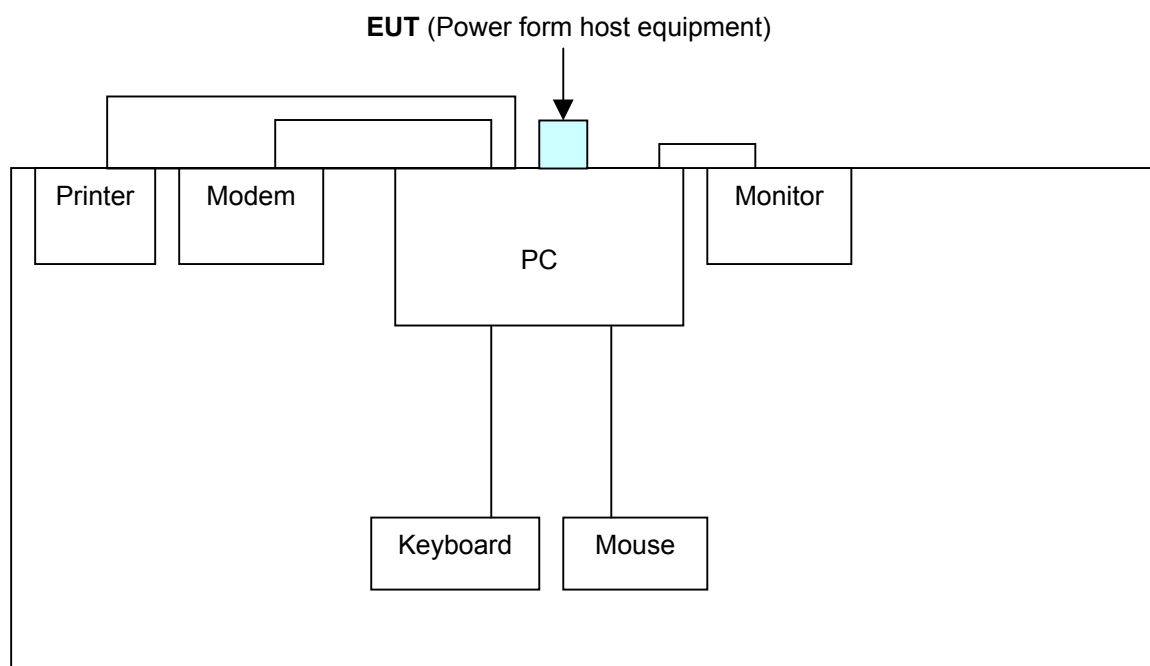
For 802.11b/g: Eleven channels are provided to this EUT for normal mode.

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		

For 802.11g: One channel is provided to this EUT for turbo mode.

CHANNEL	FREQUENCY
6	2437 MHz

3.2.1 CONFIGURATION OF SYSTEM UNDER TEST



3.2.2 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL

FOR SINGLE CHAIN (TX):

APPLICABLE TO				DESCRIPTION
PLC	RE<1G	RE≥1G	APCM	
V	V	V	V	NA

Where **PLC**: Power Line Conducted Emission
RE≥1G: Radiated Emission above 1GHz

RE<1G RE: Radiated Emission below 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	1, 6, 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)
802.11b	1 to 11	11	DSSS	BPSK	1
802.11g	1 to 11	11	OFDM	BPSK	6
802.11g turbo	6	6	OFDM	BPSK	12

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	BPSK	1
802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6
802.11g turbo	6	6	OFDM	BPSK	12

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	BPSK	1
802.11g	1 to 11	1, 11	OFDM	BPSK	6
802.11g turbo	6	6	OFDM	BPSK	12

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	BPSK	1
802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6
802.11g turbo	6	6	OFDM	BPSK	12

FOR DUAL CHAIN (TX):

APPLICABLE TO				DESCRIPTION
PLC	RE<1G	RE≥1G	APCM	
v	v	v	v	NA

Where **PLC**: Power Line Conducted Emission
RE≥1G: Radiated Emission above 1GHz

RE<1G: Radiated Emission below 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, chain 1 phase (0° ~ 360°) 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)	CHAIN 1 PHASE
802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6	0°

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, chain 1 phase (0° ~ 360°) 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)	CHAIN 1 PHASE
802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6	0°
802.11g turbo	6	6	OFDM	BPSK	12	0°

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, chain 1 phase (0° ~ 360°) 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)	CHAIN 1 PHASE
802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6	0°
802.11g turbo	6	6	OFDM	BPSK	12	0°

BANDEDGE MEASUREMENT:

- ☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates, chain 1 phase (0° ~ 360°) 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)	CHAIN 1 PHASE
802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6	0°
802.11g turbo	6	6	OFDM	BPSK	12	0°

ANTENNA PORT CONDUCTED MEASUREMENT:

- ☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates, chain 1 phase (0° ~ 360°) 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)	CHAIN 1 PHASE
802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6	0°
802.11g turbo	6	6	OFDM	BPSK	12	0°

3.3 GENERAL DESCRIPTION OF APPLIED STANDARDS

The EUT is a Wireless 108G MIMO PCI Adapter. According to the specifications of the manufacturer, it must comply with the requirements of the following standards:

FCC Part 15, Subpart C. (15.247)

ANSI C63.4-2003

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

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

3.4 DESCRIPTION OF SUPPORT UNITS

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

NO.	PRODUCT	BRAND	MODEL NO.	SERIAL NO.	FCC ID
1	PC	COMPAQ	D220M	SGH3330B9O	FCC DoC Approved
2	KEYBOARD	DELL	SK-8110	MY-05N456-71619-3C1-1898	FCC DoC Approved
3	MOUSE	HP	M-S69	M4-010565	INZ211443
4	LCD MONITOR	ACER	AL1721	ET.L0408.010404001E6PK00	FCC DoC Approved
5	PRINTER	EPSON	LQ-300+	DCGY054147	FCC DoC Approved
6	MODEM	ACEEX	1414V/3	0401008269	IFAXDM1414

NO.	SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	NA
2	2.0m shielded cable without core.
3	1.8m shielded cable without core.
4	1.8m shielded cable with 2 cores.
5	1.2m shielded cable without core.
6	1.2 m braid shielded wire, terminated with DB25 and DB9 connector via metallic frame, w/o core.

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

4. TEST TYPES AND RESULTS (FOR SINGLE CHAIN (TX))

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	100291	Nov. 16, 2005
RF signal cable Woken	5D-FB	Cable-HYC01-01	Jan. 09, 2006
LISN ROHDE & SCHWARZ	ESH3-Z5	100312	Feb. 15, 2006
LISN ROHDE & SCHWARZ	ESH2-Z5	100104	Feb. 15, 2006
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.



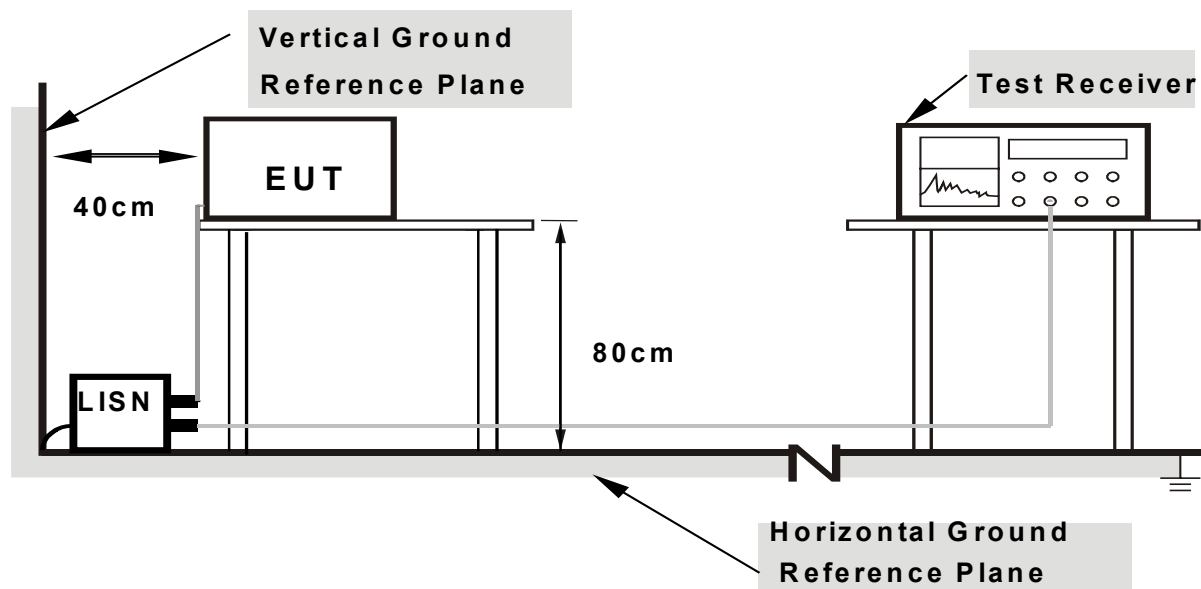
4.1.3 TEST PROCEDURES

- 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 related item – Photographs of the Test Configuration.

4.1.6 EUT OPERATING CONDITIONS

- Connected the EUT into the computer system and placed on a testing table.
- The computer system ran a test program (provided by manufacturer) to enable EUT under transmission/receiving condition continuously at specific channel frequency.
- The notebook system show "H" messages on its screen.
- The notebook system show "H" messages to modem.
- The notebook system sent "H" messages to printer and the printer prints them on paper.
- Repeated item c ~e.

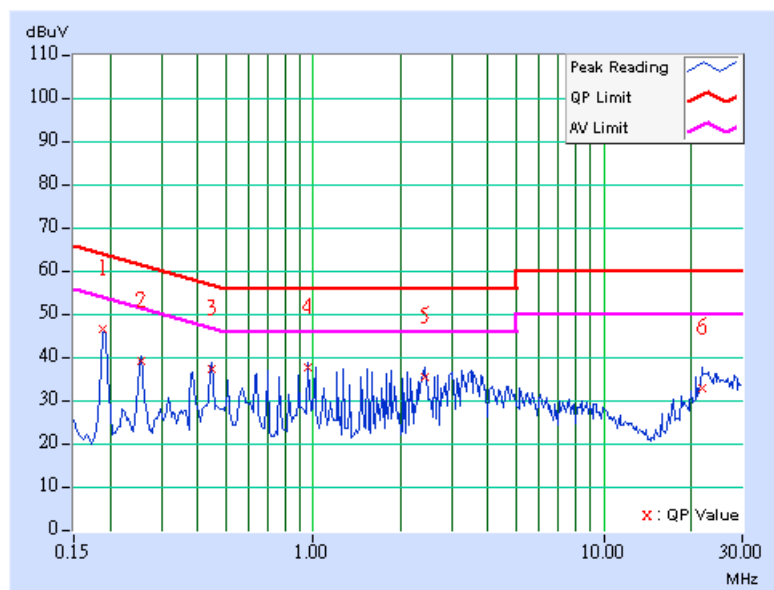
4.1.7 TEST RESULTS

CONDUCTED WORST CASE DATA

EUT	108G MIMO Wireless Desktop Adapter	MEASUREMENT DETAIL	
MODEL	DWL-G520M	PHASE	Line 1
CHANNEL	Channel 1	6dB BANDWIDTH	9 kHz
MODULATION TYPE	BPSK	ENVIRONMENTAL CONDITIONS	20deg. C, 60%RH, 991hPa
TRANSFER RATE	6Mbps	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	0.189	0.11	45.62	44.93	45.73	45.04	64.08	54.08	-18.35	-9.04
2	0.255	0.11	38.37	-	38.48	-	61.58	-	-23.10	-
3	0.447	0.12	36.55	-	36.67	-	56.93	-	-20.26	-
4	0.955	0.17	36.72	36.20	36.89	36.37	56.00	46.00	-19.11	-9.63
5	2.418	0.23	34.74	-	34.97	-	56.00	-	-21.03	-
6	21.786	1.00	32.11	-	33.11	-	60.00	-	-26.89	-

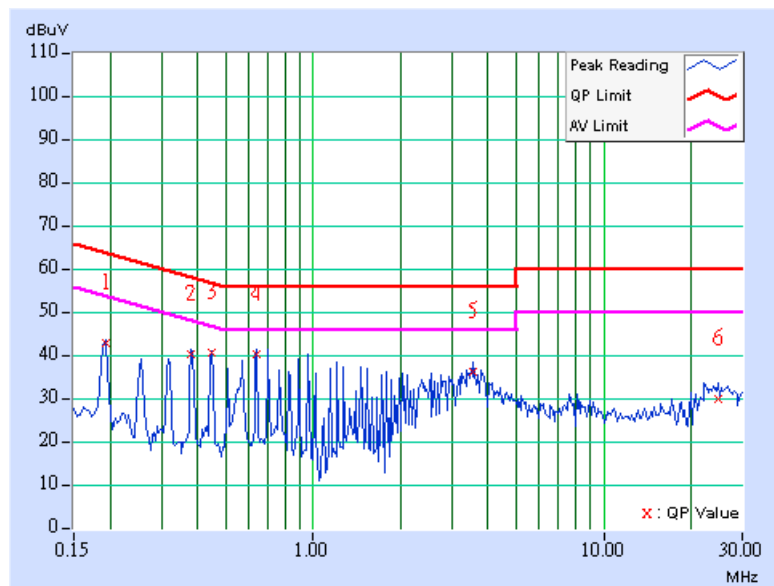
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value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



EUT	108G MIMO Wireless Desktop Adapter	MEASUREMENT DETAIL	
MODEL	DWL-G520M	PHASE	Line 2
CHANNEL	Channel 1	6dB BANDWIDTH	9 kHz
MODULATION TYPE	BPSK	ENVIRONMENTAL CONDITIONS	20deg. C, 60%RH, 991hPa
TRANSFER RATE	6Mbps	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	0.193	0.10	42.20	-	42.30	-	63.91	-	-21.61	-
2	0.380	0.11	39.86	39.34	39.97	39.45	58.27	48.27	-18.30	-8.82
3	0.447	0.11	40.01	39.15	40.12	39.26	56.93	46.93	-16.81	-7.67
4	0.638	0.13	39.86	39.24	39.99	39.37	56.00	46.00	-16.01	-6.63
5	3.566	0.26	35.63	-	35.89	-	56.00	-	-20.11	-
6	24.918	0.61	29.25	-	29.86	-	60.00	-	-30.14	-

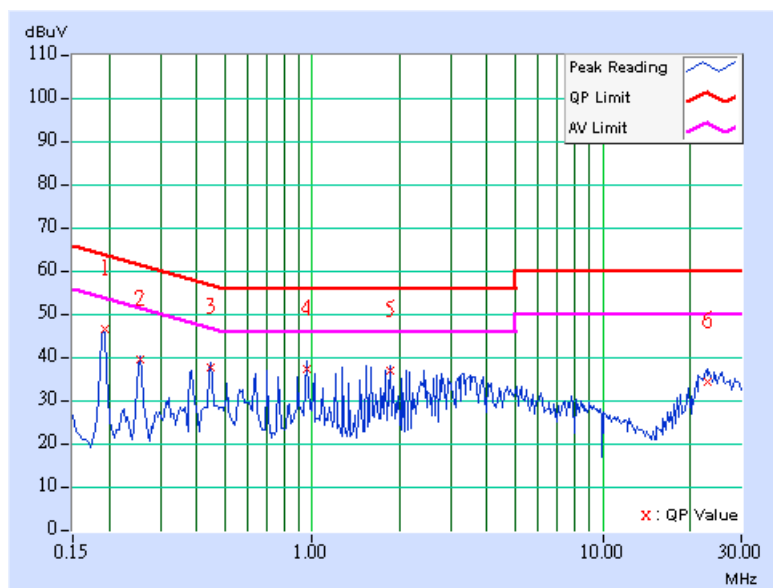
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value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



EUT	108G MIMO Wireless Desktop Adapter	MEASUREMENT DETAIL	
MODEL	DWL-G520M	PHASE	Line 1
CHANNEL	Channel 6	6dB BANDWIDTH	9 kHz
MODULATION TYPE	BPSK	ENVIRONMENTAL CONDITIONS	20deg. C, 60%RH, 991hPa
TRANSFER RATE	6Mbps	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	0.193	0.11	45.69	45.24	45.80	45.35	63.91	53.91	-18.11	-8.56
2	0.255	0.11	38.55	-	38.66	-	61.58	-	-22.92	-
3	0.447	0.12	36.76	-	36.88	-	56.93	-	-20.05	-
4	0.955	0.17	36.50	35.99	36.67	36.16	56.00	46.00	-19.33	-9.84
5	1.848	0.21	36.09	35.35	36.30	35.56	56.00	46.00	-19.70	-10.44
6	22.950	1.03	33.41	29.38	34.44	30.41	60.00	50.00	-25.56	-19.59

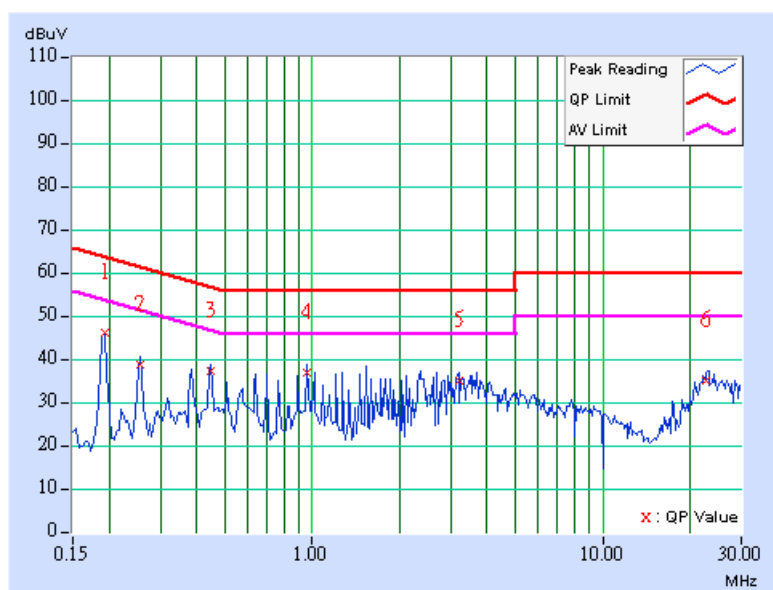
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value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



EUT	108G MIMO Wireless Desktop Adapter	MEASUREMENT DETAIL	
MODEL	DWL-G520M	PHASE	Line 2
CHANNEL	Channel 6	6dB BANDWIDTH	9 kHz
MODULATION TYPE	BPSK	ENVIRONMENTAL CONDITIONS	20deg. C, 60%RH, 991hPa
TRANSFER RATE	6Mbps	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	0.193	0.10	45.86	45.24	45.96	45.34	63.91	53.91	-17.95	-8.57
2	0.255	0.10	38.43	-	38.53	-	61.58	-	-23.05	-
3	0.447	0.11	36.67	-	36.78	-	56.93	-	-20.15	-
4	0.955	0.17	36.42	35.77	36.59	35.94	56.00	46.00	-19.41	-10.06
5	3.188	0.25	34.54	-	34.79	-	56.00	-	-21.21	-
6	22.827	0.62	34.59	-	35.21	-	60.00	-	-24.79	-

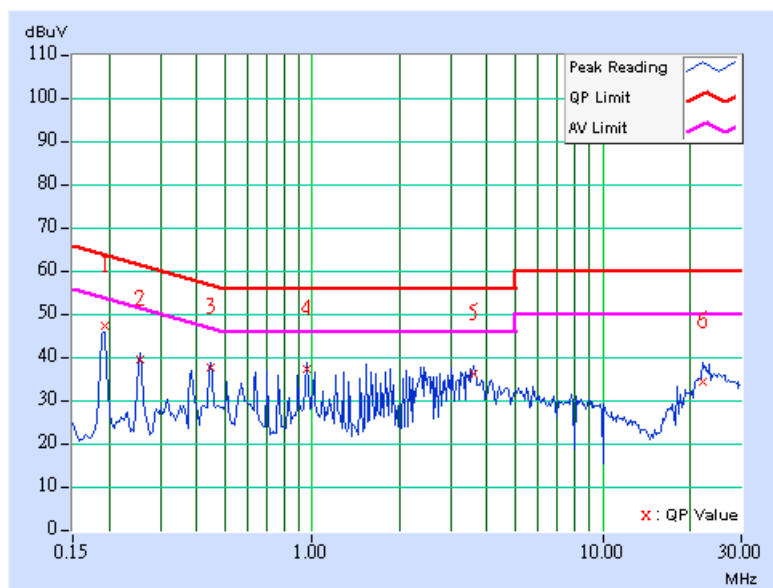
- REMARKS:** 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. The emission levels of other frequencies were very low against the limit.
4. Margin value =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



EUT	108G MIMO Wireless Desktop Adapter	MEASUREMENT DETAIL	
MODEL	DWL-G520M	PHASE	Line 1
CHANNEL	Channel 11	6dB BANDWIDTH	9 kHz
MODULATION TYPE	BPSK	ENVIRONMENTAL CONDITIONS	20deg. C, 60%RH, 991hPa
TRANSFER RATE	6Mbps	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	0.193	0.11	46.28	45.29	46.39	45.40	63.91	53.91	-17.52	-8.51
2	0.255	0.11	38.55	-	38.66	-	61.58	-	-22.92	-
3	0.447	0.12	36.76	-	36.88	-	56.93	-	-20.05	-
4	0.955	0.17	36.22	35.70	36.39	35.87	56.00	46.00	-19.61	-10.13
5	3.574	0.27	35.38	-	35.65	-	56.00	-	-20.35	-
6	22.133	1.01	33.27	-	34.28	-	60.00	-	-25.72	-

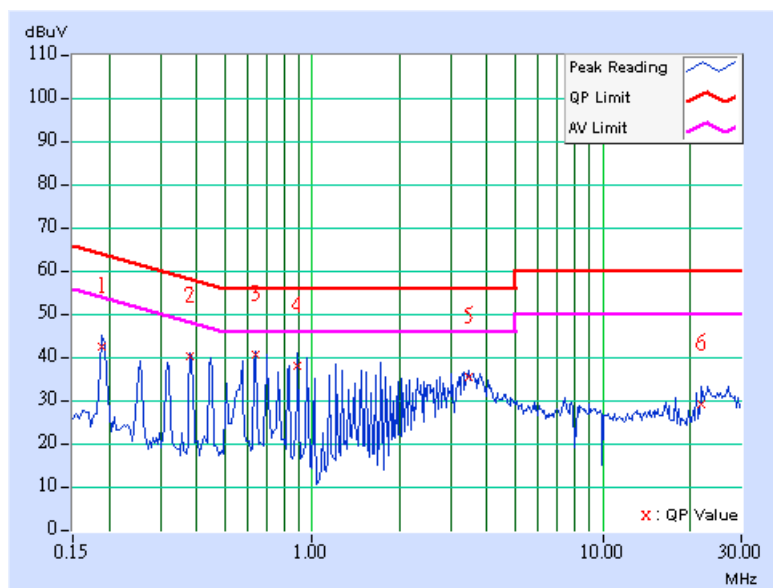
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value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



EUT	108G MIMO Wireless Desktop Adapter	MEASUREMENT DETAIL	
MODEL	DWL-G520M	PHASE	Line 2
CHANNEL	Channel 11	6dB BANDWIDTH	9 kHz
MODULATION TYPE	BPSK	ENVIRONMENTAL CONDITIONS	20deg. C, 60%RH, 991hPa
TRANSFER RATE	6Mbps	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	0.189	0.10	41.94	-	42.04	-	64.08	-	-22.04	-
2	0.380	0.11	39.86	39.04	39.97	39.15	58.27	48.27	-18.30	-9.12
3	0.638	0.13	40.26	39.38	40.39	39.51	56.00	46.00	-15.61	-6.49
4	0.892	0.16	37.50	36.54	37.66	36.70	56.00	46.00	-18.34	-9.30
5	3.445	0.26	35.01	-	35.27	-	56.00	-	-20.73	-
6	21.879	0.62	28.63	-	29.25	-	60.00	-	-30.75	-

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



4.2 RADIATED EMISSION MEASUREMENT

4.2.1 LIMITS OF RADIATED EMISSION MEASUREMENT

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

FREQUENCIES (MHz)	FIELD STRENGTH (microvolts/meter)	MEASUREMENT DISTANCE (meters)
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30.0	30	30
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

NOTE:

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



4.2.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED UNTIL
Test Receiver ROHDE & SCHWARZ	ESIB7	100188	Dec. 19, 2005
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100039	Nov. 21, 2005
BILOG Antenna SCHWARZBECK	VULB9168	9168-157	Jan. 22, 2006
HORN Antenna SCHWARZBECK	BBHA 9120 D	9120D-407	Jan. 16, 2006
HORN Antenna SCHWARZBECK	BBHA 9170	BBHA 9170241	Feb. 23, 2006
Preamplifier Agilent	8449B	3008A01961	Nov. 09, 2005
Preamplifier Agilent	8447D	2944A10629	Nov. 09, 2005
RF signal cable HUBER+SUHNER	SUCOFLEX 104	218182/4	Feb. 17, 2006
RF signal cable HUBER+SUHNER	SUCOFLEX 104	218194/4	Feb. 17, 2006
Software ADT.	ADT_Radiated_V5.14	NA	NA
Antenna Tower ADT.	AT100	AT93021702	NA
Turn Table ADT.	TT100.	TT93021702	NA
Controller ADT.	SC100.	SC93021702	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 1.
 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 IC4924-2.



4.2.3 TEST PROCEDURES

- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic 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 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.

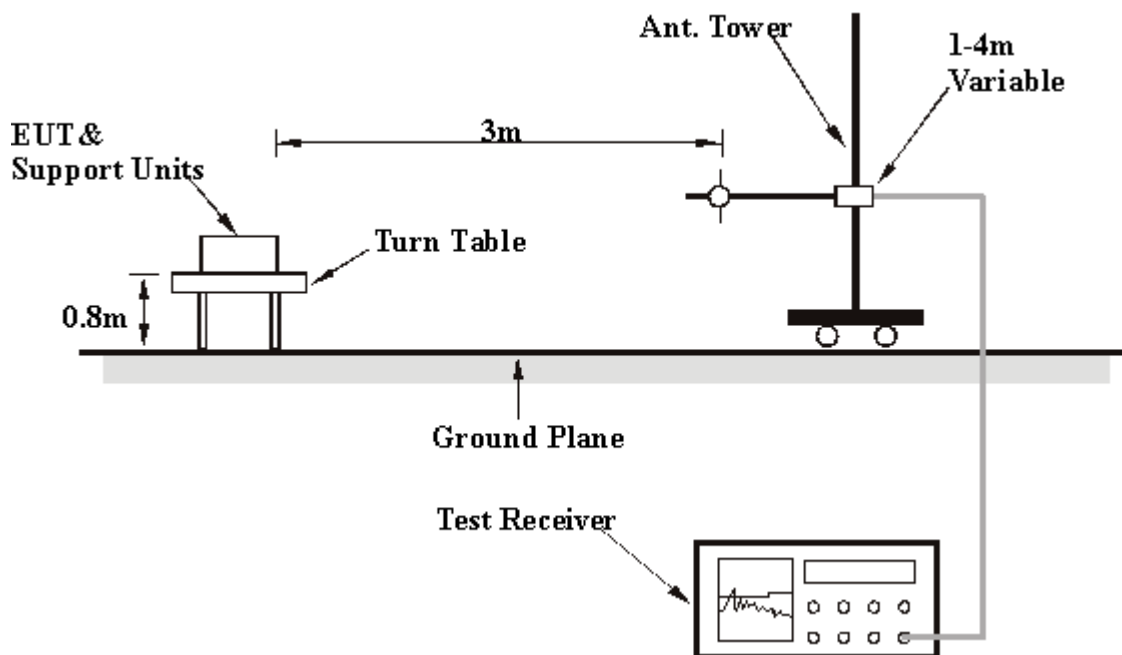
NOTE:

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 10Hz for Average detection (AV) at frequency above 1GHz.

4.2.4 DEVIATION FROM TEST STANDARD

No deviation

4.2.5 TEST SETUP



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

4.2.6 EUT OPERATING CONDITIONS

Same as 4.1.6

4.2.7 TEST RESULTS

RADIATED WORST CASE DATA: 802.11b DSSS MODULATION

EUT	108G MIMO Wireless Desktop Adapter	MEASUREMENT DETAIL	
MODEL	DWL-G520M	FREQUENCY RANGE	Below 1000MHz
CHANNEL	Channel 11	DETECTOR FUNCTION	Quasi-Peak
MODULATION TYPE	BPSK	ENVIRONMENTAL CONDITIONS	22deg. C, 53%RH, 991hPa
TRANSFER RATE	1Mbps	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	31.94	23.35 QP	40.00	-16.65	2.00 H	106	9.67	13.68
2	99.98	24.89 QP	43.50	-18.61	2.00 H	58	14.14	10.74
3	236.05	19.47 QP	46.00	-26.53	1.50 H	82	6.81	12.66
4	399.34	27.20 QP	46.00	-18.80	1.00 H	82	10.58	16.62
5	488.76	39.58 QP	46.00	-6.42	1.50 H	151	21.14	18.43
6	533.47	29.59 QP	46.00	-16.41	1.50 H	79	10.32	19.27
7	675.37	29.15 QP	46.00	-16.85	1.00 H	34	7.22	21.92
8	811.44	29.34 QP	46.00	-16.66	1.00 H	334	5.54	23.80
9	875.59	29.42 QP	46.00	-16.58	1.50 H	289	4.80	24.63
10	945.57	30.90 QP	46.00	-15.10	1.50 H	94	5.34	25.57

- 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	108G MIMO Wireless Desktop Adapter	MEASUREMENT DETAIL	
MODEL	DWL-G520M	FREQUENCY RANGE	Below 1000MHz
CHANNEL	Channel 11	DETECTOR FUNCTION	Quasi-Peak
MODULATION TYPE	BPSK	ENVIRONMENTAL CONDITIONS	22deg. C, 53%RH, 991hPa
TRANSFER RATE	1Mbps	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	31.94	25.31 QP	40.00	-14.69	1.00 V	358	11.63	13.68
2	99.98	26.71 QP	43.50	-16.79	1.00 V	184	15.96	10.74
3	302.14	21.92 QP	46.00	-24.08	2.00 V	214	7.54	14.38
4	399.34	25.74 QP	46.00	-20.26	1.50 V	184	9.11	16.62
5	453.77	27.20 QP	46.00	-18.80	2.00 V	100	9.24	17.96
6	488.76	39.01 QP	46.00	-6.99	1.00 V	34	20.57	18.43
7	512.08	30.79 QP	46.00	-15.21	1.50 V	40	11.96	18.83
8	607.33	31.21 QP	46.00	-14.79	1.00 V	352	10.21	21.00
9	846.43	29.37 QP	46.00	-16.63	2.00 V	355	5.28	24.09
10	879.48	29.68 QP	46.00	-16.32	1.00 V	340	4.98	24.70
11	933.91	31.19 QP	46.00	-14.81	1.00 V	346	5.74	25.45

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	108G MIMO Wireless Desktop Adapter	MEASUREMENT DETAIL	
MODEL	DWL-G520M	FREQUENCY RANGE	1 ~ 25GHz
CHANNEL	Channel 1	DETECTOR FUNCTION	Peak (PK) Average (AV)
MODULATION TYPE	BPSK	ENVIRONMENTAL CONDITIONS	22deg. C, 53%RH, 991hPa
TRANSFER RATE	1Mbps	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	2320.00	59.68 PK	74.00	-14.32	1.06 H	1	28.98	30.70
1	2320.00	47.87 AV	54.00	-6.13	1.06 H	1	17.17	30.70
2	2387.00	61.54 PK	74.00	-12.46	1.03 H	20	30.58	30.96
2	2387.00	49.99 AV	54.00	-4.01	1.03 H	20	19.03	30.96
3	*2412.00	112.24 PK			1.02 H	20	81.18	31.06
3	*2412.00	104.58 AV			1.02 H	20	73.52	31.06

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	2320.00	45.56 PK	74.00	-28.44	1.26 V	340	14.86	30.70
1	2320.00	34.83 AV	54.00	-19.17	1.26 V	340	4.13	30.70
2	2386.00	55.62 PK	74.00	-18.38	1.30 V	126	24.66	30.96
2	2386.00	45.48 AV	54.00	-8.52	1.30 V	126	14.52	30.96
3	*2412.00	102.93 PK			1.30 V	126	71.87	31.06
3	*2412.00	95.16 AV			1.30 V	126	64.10	31.06

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	108G MIMO Wireless Desktop Adapter	MEASUREMENT DETAIL	
MODEL	DWL-G520M	FREQUENCY RANGE	1 ~ 25GHz
CHANNEL	Channel 6	DETECTOR FUNCTION	Peak (PK) Average (AV)
MODULATION TYPE	BPSK	ENVIRONMENTAL CONDITIONS	22deg. C, 53%RH, 991hPa
TRANSFER RATE	1Mbps	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	2320.00	55.26 PK	74.00	-18.74	1.07 H	360	24.56	30.70
1	2320.00	47.16 AV	54.00	-6.84	1.07 H	360	16.46	30.70
2	*2437.00	112.36 PK			1.00 H	360	81.19	31.17
2	*2437.00	104.79 AV			1.00 H	360	73.62	31.17

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	2320.00	44.52 PK	74.00	-29.48	1.31 V	195	13.82	30.70
1	2320.00	36.05 AV	54.00	-17.95	1.31 V	195	5.35	30.70
2	*2437.00	99.83 PK			1.24 V	143	68.66	31.17
2	*2437.00	92.84 AV			1.24 V	143	61.67	31.17

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	108G MIMO Wireless Desktop Adapter	MEASUREMENT DETAIL	
MODEL	DWL-G520M	FREQUENCY RANGE	1 ~ 25GHz
CHANNEL	Channel 11	DETECTOR FUNCTION	Peak (PK) Average (AV)
MODULATION TYPE	BPSK	ENVIRONMENTAL CONDITIONS	22deg. C, 53%RH, 991hPa
TRANSFER RATE	1Mbps	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	2320.00	54.93 PK	74.00	-19.07	1.04 H	1	24.23	30.70
1	2320.00	47.54 AV	54.00	-6.46	1.04 H	1	16.84	30.70
2	*2462.00	112.05 PK			1.00 H	360	80.77	31.28
2	*2462.00	104.46 AV			1.00 H	360	73.18	31.28
3	2487.00	66.16 PK	74.00	-7.84	1.00 H	360	34.78	31.38
3	2487.00	52.74 AV	54.00	-1.26	1.00 H	360	21.36	31.38

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	2320.00	46.72 PK	74.00	-27.28	1.29 V	292	16.02	30.70
1	2320.00	36.50 AV	54.00	-17.50	1.29 V	292	5.80	30.70
2	*2462.00	99.36 PK			1.25 V	102	68.08	31.28
2	*2462.00	91.84 AV			1.25 V	102	60.56	31.28
3	2486.00	53.36 PK	74.00	-20.64	1.25 V	102	21.98	31.38
3	2486.00	43.97 AV	54.00	-10.03	1.25 V	102	12.59	31.38

- 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.

802.11g OFDM MODULATION

EUT	108G MIMO Wireless Desktop Adapter	MEASUREMENT DETAIL	
MODEL	DWL-G520M	FREQUENCY RANGE	Below 1000MHz
CHANNEL	Channel 11	DETECTOR FUNCTION	Quasi-Peak
MODULATION TYPE	BPSK	ENVIRONMENTAL CONDITIONS	22deg. C, 53%RH, 991hPa
TRANSFER RATE	6Mbps	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	31.94	23.82 QP	40.00	-16.18	2.50 H	10	10.14	13.68
2	99.98	26.35 QP	43.50	-17.15	2.00 H	241	15.61	10.74
3	99.98	26.35 QP	43.50	-17.15	2.00 H	241	15.61	10.74
4	236.05	20.90 QP	46.00	-25.10	1.50 H	88	8.23	12.66
5	298.26	23.07 QP	46.00	-22.93	1.00 H	100	8.77	14.30
6	399.34	29.88 QP	46.00	-16.12	2.00 H	85	13.25	16.62
7	480.98	38.40 QP	46.00	-7.60	1.00 H	82	20.07	18.33
8	533.47	29.48 QP	46.00	-16.52	1.50 H	85	10.21	19.27
9	607.33	28.05 QP	46.00	-17.95	1.50 H	67	7.06	21.00
10	675.37	30.52 QP	46.00	-15.48	1.00 H	31	8.60	21.92
11	875.59	32.87 QP	46.00	-13.13	1.50 H	292	8.25	24.63

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	108G MIMO Wireless Desktop Adapter	MEASUREMENT DETAIL	
MODEL	DWL-G520M	FREQUENCY RANGE	Below 1000MHz
CHANNEL	Channel 11	DETECTOR FUNCTION	Quasi-Peak
MODULATION TYPE	BPSK	ENVIRONMENTAL CONDITIONS	22deg. C, 53%RH, 991hPa
TRANSFER RATE	6Mbps	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	31.94	29.72 QP	40.00	-10.28	3.00 V	253	16.05	13.68
2	99.98	26.20 QP	43.50	-17.30	1.00 V	202	15.45	10.74
3	296.31	21.68 QP	46.00	-24.32	2.00 V	199	7.40	14.28
4	399.34	26.40 QP	46.00	-19.60	1.50 V	190	9.78	16.62
5	480.98	38.58 QP	46.00	-7.42	2.00 V	160	20.25	18.33
6	496.53	39.08 QP	46.00	-6.92	2.00 V	148	20.54	18.54
7	607.33	31.87 QP	46.00	-14.13	1.00 V	349	10.87	21.00
8	811.44	30.47 QP	46.00	-15.53	1.50 V	358	6.67	23.80
9	879.48	30.27 QP	46.00	-15.73	1.00 V	1	5.57	24.70
10	939.74	32.48 QP	46.00	-13.52	1.00 V	334	6.98	25.51

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	108G MIMO Wireless Desktop Adapter	MEASUREMENT DETAIL	
MODEL	DWL-G520M	FREQUENCY RANGE	1 ~ 25GHz
CHANNEL	Channel 1	DETECTOR FUNCTION	Peak (PK) Average (AV)
MODULATION TYPE	BPSK	ENVIRONMENTAL CONDITIONS	22deg. C, 53%RH, 991hPa
TRANSFER RATE	6Mbps	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	2320.00	55.50 PK	74.00	-18.50	1.06 H	360	24.80	30.70
1	2320.00	47.60 AV	54.00	-6.40	1.06 H	360	16.90	30.70
2	2390.00	67.78 PK	74.00	-6.22	1.26 H	29	36.81	30.97
2	2390.00	52.41 AV	54.00	-1.59	1.26 H	29	21.44	30.97
3	*2412.00	110.20 PK			1.26 H	29	79.14	31.06
3	*2412.00	100.32 AV			1.26 H	29	69.26	31.06

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	2320.00	45.76 PK	74.00	-28.24	1.09 V	252	15.06	30.70
1	2320.00	37.50 AV	54.00	-16.50	1.09 V	252	6.80	30.70
2	2390.00	58.24 PK	74.00	-15.76	1.00 V	123	27.27	30.97
2	2390.00	46.00 AV	54.00	-8.00	1.00 V	123	15.03	30.97
3	*2412.00	99.70 PK			1.00 V	123	68.64	31.06
3	*2412.00	89.38 AV			1.00 V	123	58.32	31.06

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	108G MIMO Wireless Desktop Adapter	MEASUREMENT DETAIL	
MODEL	DWL-G520M	FREQUENCY RANGE	1 ~ 25GHz
CHANNEL	Channel 6	DETECTOR FUNCTION	Peak (PK) Average (AV)
MODULATION TYPE	BPSK	ENVIRONMENTAL CONDITIONS	22deg. C, 53%RH, 991hPa
TRANSFER RATE	6Mbps	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	2320.00	55.13 PK	74.00	-18.87	1.05 H	8	24.43	30.70
1	2320.00	47.23 AV	54.00	-6.77	1.05 H	8	16.53	30.70
2	*2437.00	111.61 PK			1.00 H	360	80.44	31.17
2	*2437.00	101.39 AV			1.00 H	360	70.22	31.17

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	2320.00	45.73 PK	74.00	-28.27	1.32 V	204	15.03	30.70
1	2320.00	35.89 AV	54.00	-18.11	1.32 V	204	5.19	30.70
2	*2437.00	99.62 PK			1.02 V	117	68.45	31.17
2	*2437.00	89.60 AV			1.02 V	117	58.43	31.17

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	108G MIMO Wireless Desktop Adapter	MEASUREMENT DETAIL	
MODEL	DWL-G520M	FREQUENCY RANGE	1 ~ 25GHz
CHANNEL	Channel 11	DETECTOR FUNCTION	Peak (PK) Average (AV)
MODULATION TYPE	BPSK	ENVIRONMENTAL CONDITIONS	22deg. C, 53%RH, 991hPa
TRANSFER RATE	6Mbps	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	2320.00	57.14 PK	74.00	-16.86	1.05 H	3	26.44	30.70
1	2320.00	46.96 AV	54.00	-7.04	1.05 H	3	16.26	30.70
2	*2462.00	107.66 PK			1.00 H	360	76.38	31.28
2	*2462.00	97.28 AV			1.00 H	360	66.00	31.28
3	2483.50	68.41 PK	74.00	-5.59	1.00 H	360	37.04	31.37
3	2483.50	52.13 AV	54.00	-1.87	1.00 H	360	20.76	31.37

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	2320.00	46.32 PK	74.00	-27.68	1.08 V	251	15.62	30.70
1	2320.00	37.51 AV	54.00	-16.49	1.08 V	251	6.81	30.70
2	*2462.00	94.59 PK			1.05 V	25	63.31	31.28
2	*2462.00	85.45 AV			1.05 V	25	54.17	31.28
3	2483.50	56.02 PK	74.00	-17.98	1.05 V	25	24.65	31.37
3	2483.50	45.33 AV	54.00	-8.67	1.05 V	25	13.96	31.37

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.

802.11g OFDM TURBO MODULATION

EUT	108G MIMO Wireless Desktop Adapter	MEASUREMENT DETAIL	
MODEL	DWL-G520M	FREQUENCY RANGE	Below 1000MHz
CHANNEL	Channel 6	DETECTOR FUNCTION	Quasi-Peak
MODULATION TYPE	BPSK	ENVIRONMENTAL CONDITIONS	22deg. C, 53%RH, 991hPa
TRANSFER RATE	12Mbps	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	31.94	26.93 QP	40.00	-13.07	2.50 H	28	13.25	13.68
2	99.98	25.30 QP	43.50	-18.20	2.00 H	244	14.55	10.74
3	210.78	24.30 QP	43.50	-19.20	1.50 H	223	12.91	11.40
4	298.26	23.09 QP	46.00	-22.91	1.00 H	103	8.79	14.30
5	399.34	26.89 QP	46.00	-19.11	2.00 H	88	10.27	16.62
6	480.98	35.21 QP	46.00	-10.79	1.00 H	103	16.88	18.33
7	488.76	40.85 QP	46.00	-5.15	2.00 H	148	22.41	18.43
8	521.80	30.47 QP	46.00	-15.53	1.50 H	79	11.43	19.03
9	675.37	30.96 QP	46.00	-15.04	1.00 H	25	9.04	21.92
10	811.44	30.01 QP	46.00	-15.99	1.00 H	334	6.22	23.80
11	877.54	30.74 QP	46.00	-15.26	1.50 H	286	6.08	24.66
12	920.30	30.78 QP	46.00	-15.22	1.50 H	289	5.47	25.31

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	108G MIMO Wireless Desktop Adapter	MEASUREMENT DETAIL	
MODEL	DWL-G520M	FREQUENCY RANGE	Below 1000MHz
CHANNEL	Channel 6	DETECTOR FUNCTION	Quasi-Peak
MODULATION TYPE	BPSK	ENVIRONMENTAL CONDITIONS	22deg. C, 53%RH, 991hPa
TRANSFER RATE	12Mbps	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	31.94	25.55 QP	40.00	-14.45	1.00 V	349	11.87	13.68
2	99.98	26.75 QP	43.50	-16.75	1.00 V	217	16.01	10.74
3	138.86	23.83 QP	43.50	-19.67	1.00 V	73	9.69	14.13
4	302.14	22.85 QP	46.00	-23.15	1.50 V	196	8.47	14.38
5	399.34	24.30 QP	46.00	-21.70	1.50 V	184	7.68	16.62
6	480.98	36.98 QP	46.00	-9.02	1.00 V	175	18.65	18.33
7	488.76	40.30 QP	46.00	-5.70	1.00 V	34	21.86	18.43
8	603.45	31.42 QP	46.00	-14.58	1.50 V	328	10.48	20.94
9	805.61	31.31 QP	46.00	-14.69	1.00 V	7	7.56	23.75
10	900.86	32.76 QP	46.00	-13.24	1.00 V	10	7.64	25.11
11	939.74	33.01 QP	46.00	-12.99	1.00 V	343	7.50	25.51

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	108G MIMO Wireless Desktop Adapter	MEASUREMENT DETAIL	
MODEL	DWL-G520M	FREQUENCY RANGE	1 ~ 25GHz
CHANNEL	Channel 6	DETECTOR FUNCTION	Peak (PK) Average (AV)
MODULATION TYPE	BPSK	ENVIRONMENTAL CONDITIONS	22deg. C, 53%RH, 991hPa
TRANSFER RATE	12Mbps	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	2320.00	54.83 PK	74.00	-19.17	1.08 H	188	24.13	30.70
1	2320.00	45.30 AV	54.00	-8.70	1.08 H	188	14.60	30.70
2	2390.00	60.20 PK	74.00	-13.80	1.27 H	191	29.23	30.97
2	2390.00	48.35 AV	54.00	-5.65	1.27 H	191	17.38	30.97
3	*2437.00	106.02 PK			1.27 H	191	74.85	31.17
3	*2437.00	96.04 AV			1.27 H	191	64.87	31.17
4	2483.50	66.58 PK	74.00	-7.42	1.27 H	191	35.21	31.37
4	2483.50	51.79 AV	54.00	-2.21	1.27 H	191	20.42	31.37

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	2320.00	46.48 PK	74.00	-27.52	1.33 V	138	15.78	30.70
1	2320.00	36.87 AV	54.00	-17.13	1.33 V	138	6.17	30.70
2	2390.00	53.87 PK	74.00	-20.13	1.23 V	257	22.90	30.97
2	2390.00	44.50 AV	54.00	-9.50	1.23 V	257	13.53	30.97
3	*2437.00	95.81 PK			1.23 V	257	64.64	31.17
3	*2437.00	86.67 AV			1.23 V	257	55.50	31.17
4	2483.50	53.54 PK	74.00	-20.46	1.23 V	257	22.17	31.37
4	2483.50	44.46 AV	54.00	-9.54	1.23 V	257	13.09	31.37

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.

4.3 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
SPECTRUM ANALYZER	FSEK30	100049	Aug. 12, 2005

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

4.3.3 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 100kHz VBW. The 6dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 6dB.

4.3.4 DEVIATION FROM TEST STANDARD

No deviation

4.3.5 TEST SETUP



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

4.3.6 EUT OPERATING CONDITIONS

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



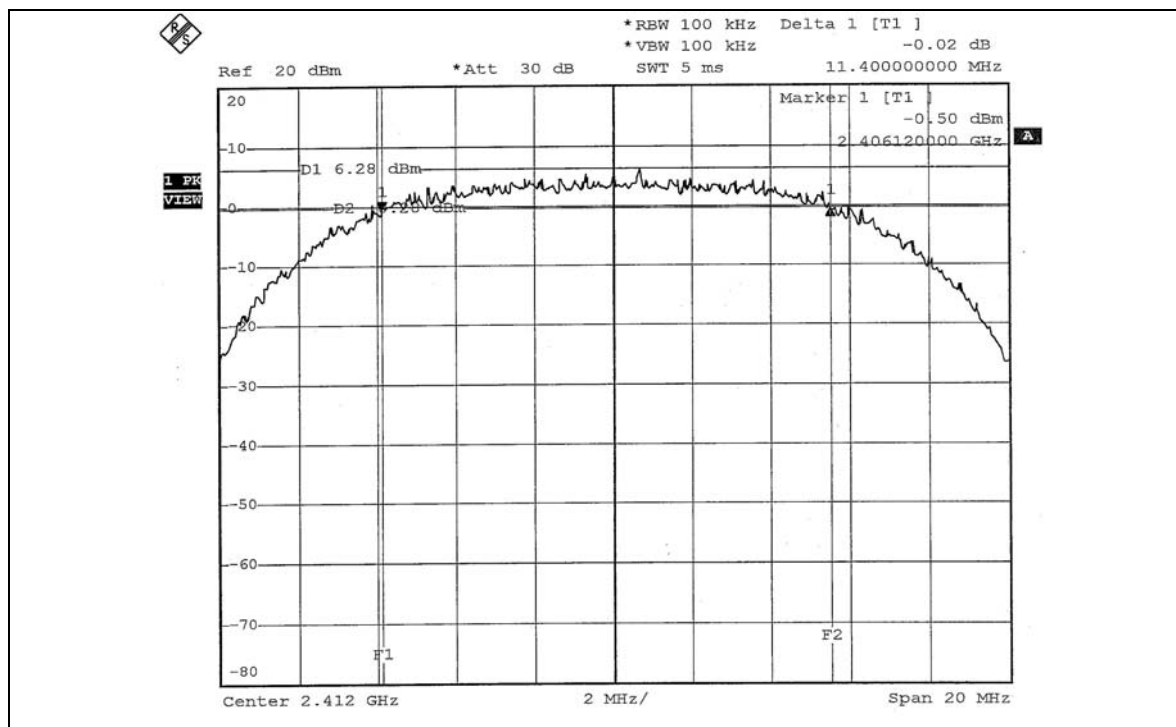
4.3.7 TEST RESULTS

802.11b DSSS MODULATION

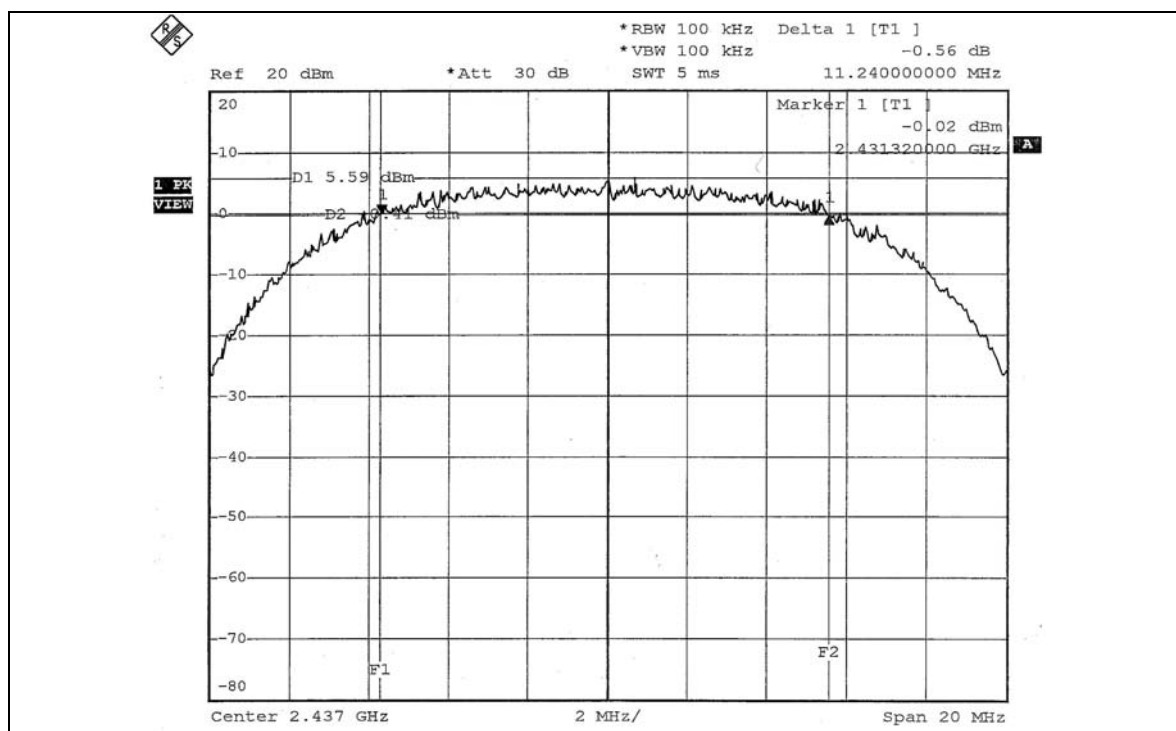
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MODULATION TYPE	BPSK	TRANSFER RATE	1Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	24deg. C, 53%RH, 991hPa
TESTED BY	Match Tsui		

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS/FAIL
1	2412	11.40	0.5	PASS
6	2437	11.24	0.5	PASS
11	2462	12.16	0.5	PASS

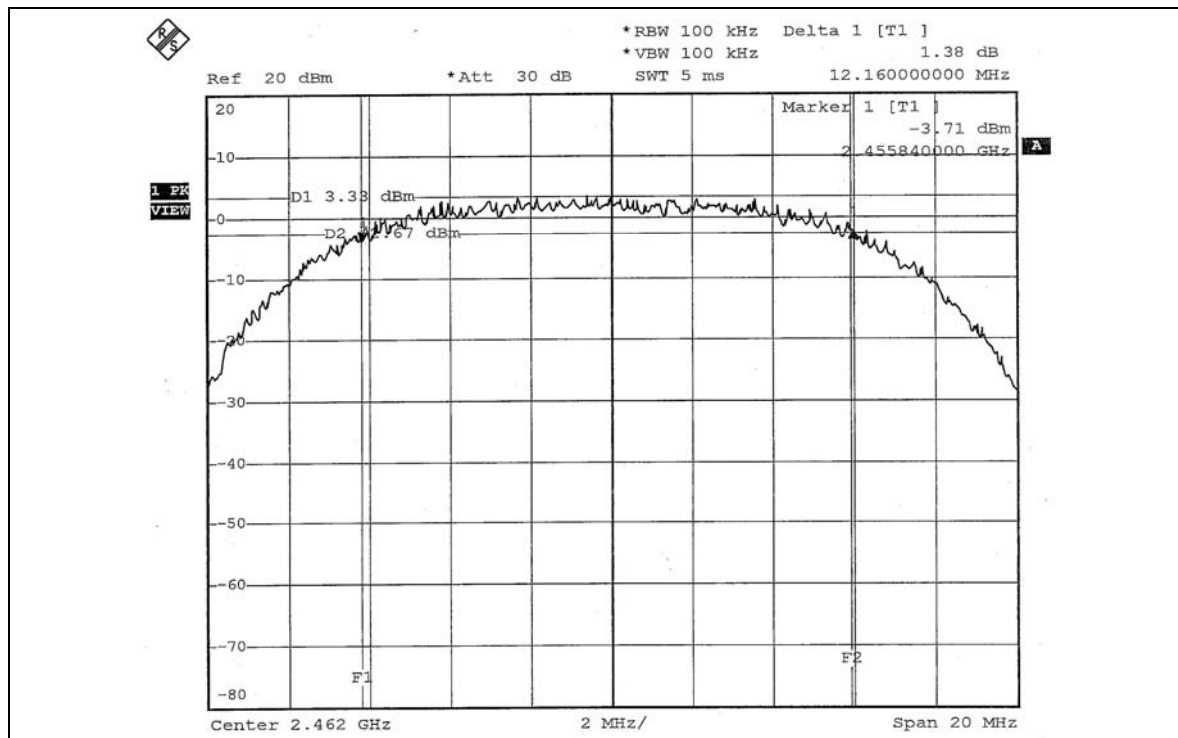
CH1



CH6



CH11

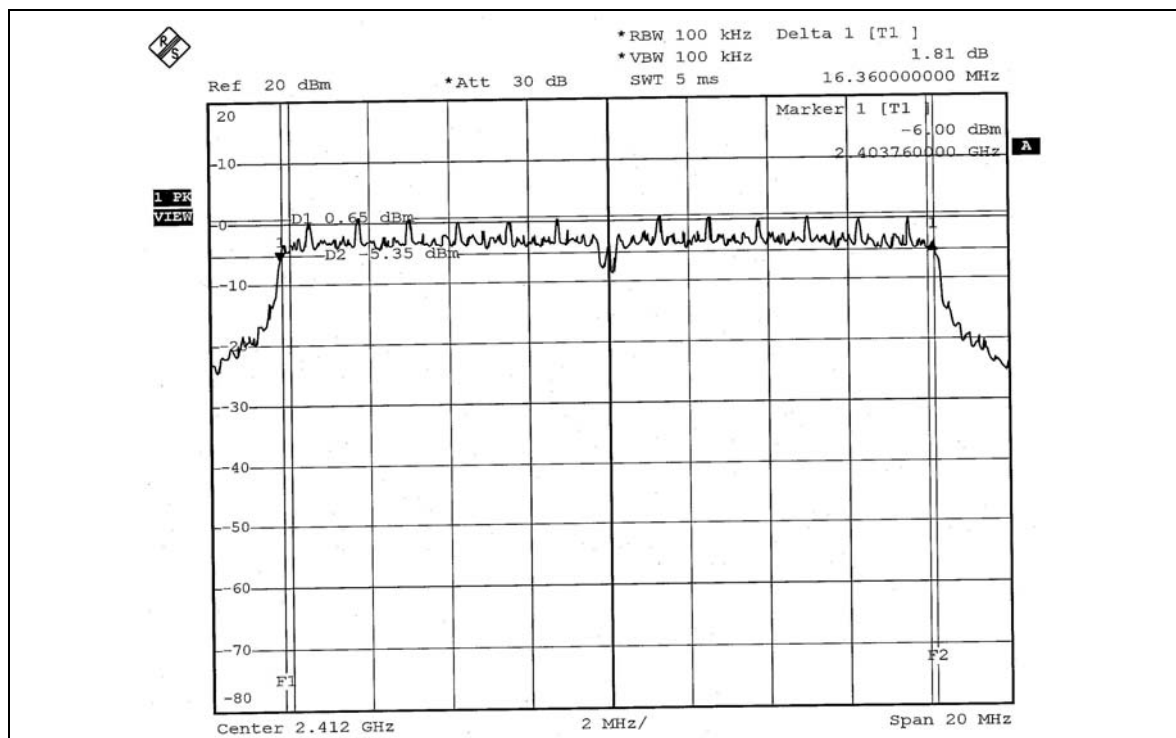


**802.11g OFDM MODULATION**

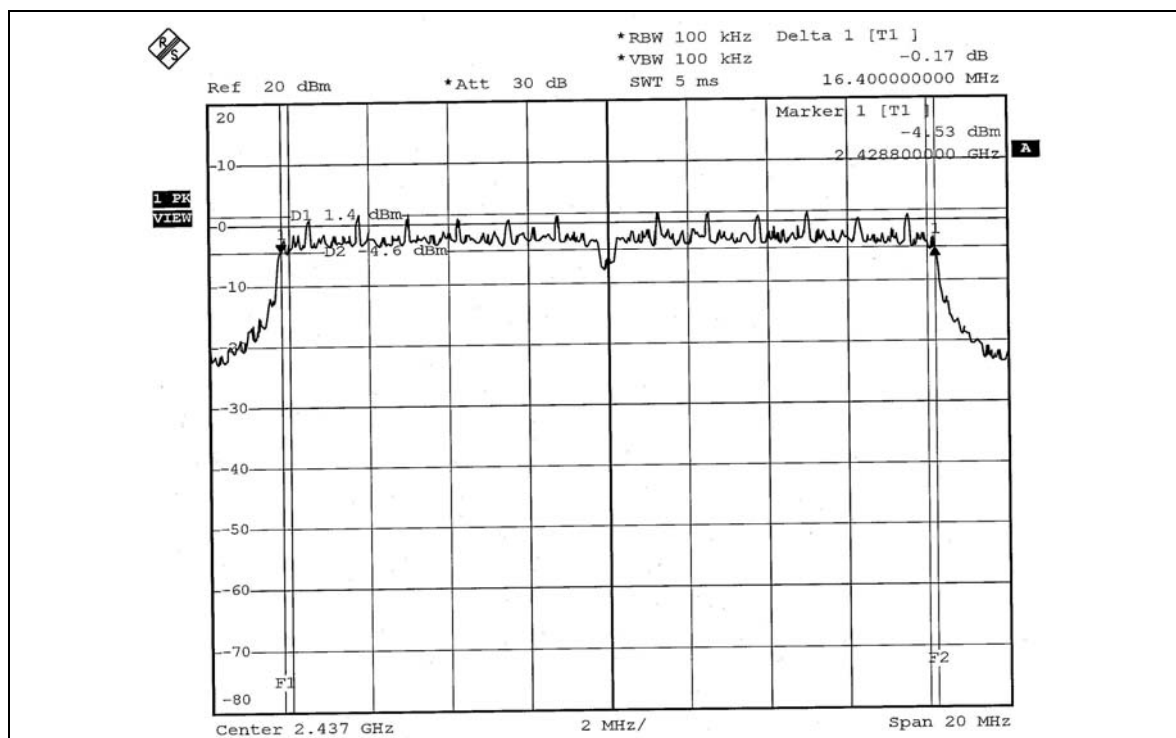
EUT	108G MIMO Wireless Desktop Adapter	MODEL	DWL-G520M
MODULATION TYPE	BPSK	TRANSFER RATE	6Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	24deg. C, 53%RH, 991hPa
TESTED BY	Match Tsui		

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS/FAIL
1	2412	16.36	0.5	PASS
6	2437	16.40	0.5	PASS
11	2462	16.40	0.5	PASS

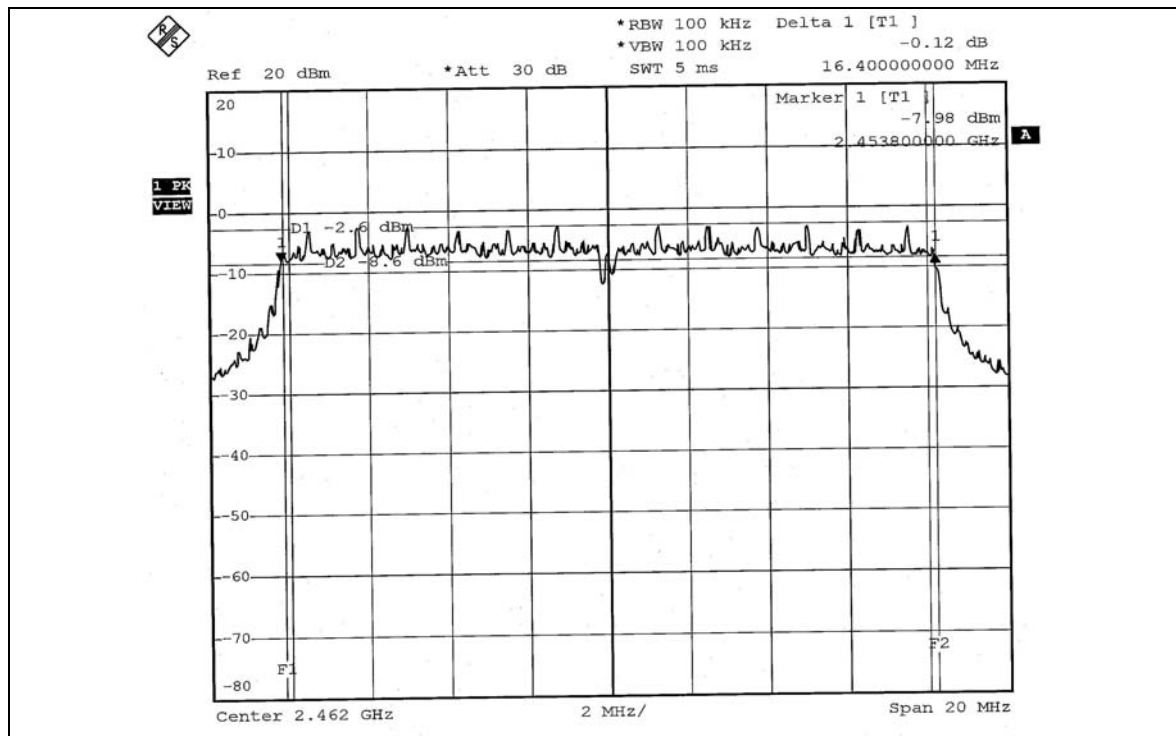
CH1



CH6



CH11



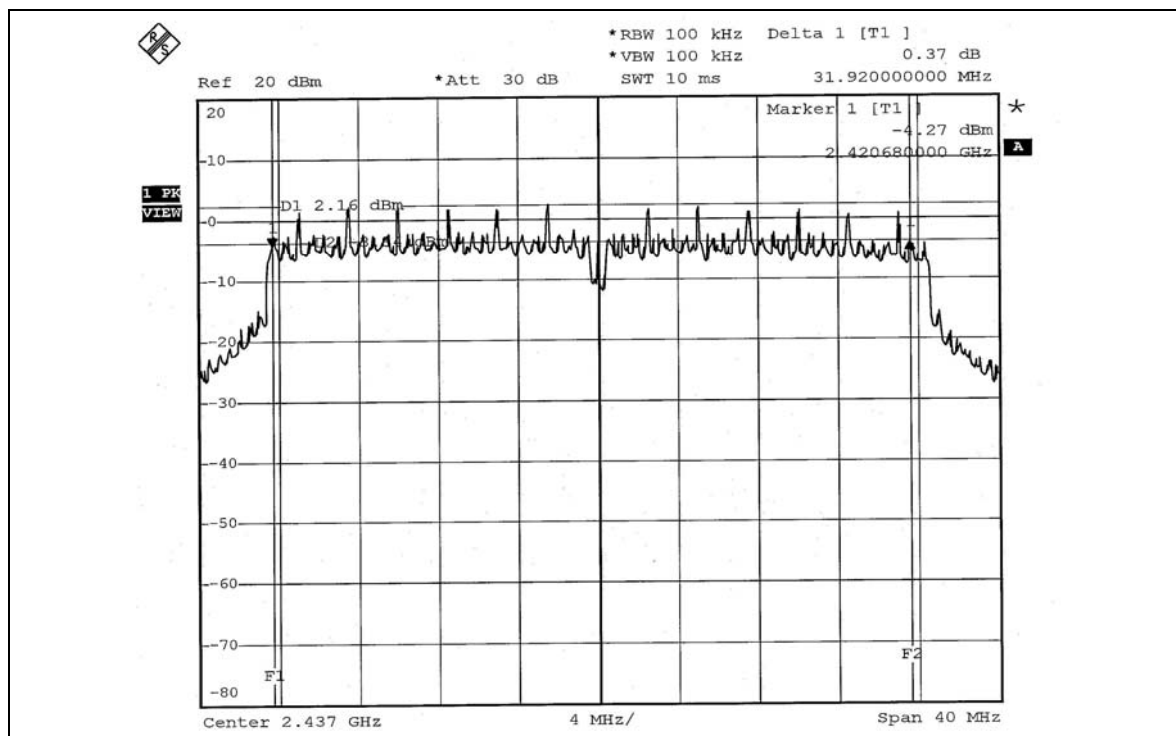


802.11g OFDM TURBO MODULATION

EUT	108G MIMO Wireless Desktop Adapter	MODEL	DWL-G520M
MODULATION TYPE	BPSK	TRANSFER RATE	12Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	24deg. C, 53%RH, 991hPa
TESTED BY	Match Tsui		

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS/FAIL
6	2437	31.92	0.5	PASS

CH6



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	FSEK30	100049	Aug. 12, 2005
AGILENT SIGNAL GENERATOR	E8257C	MY43320668	Dec. 06, 2005
TEKTRONIX OSCILLOSCOPE	TDS 220	C019167	Feb. 01, 2006
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 peak the 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 DEVIATION FROM TEST STANDARD

No deviation

4.4.5 TEST SETUP



4.4.6 EUT OPERATING CONDITIONS

Same as Item 4.3.6

4.4.7 TEST RESULTS

802.11b DSSS MODULATION

EUT	108G MIMO Wireless Desktop Adapter	MODEL	DWL-G520M
MODULATION TYPE	BPSK	TRANSFER RATE	1Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	24deg. C, 53%RH, 991hPa
TESTED BY	Match Tsui		

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (mW)	PEAK POWER OUTPUT (dBm)	PEAK POWER LIMIT (dBm)	PASS/FAIL
1	2412	57.677	17.61	30	PASS
6	2437	57.810	17.62	30	PASS
11	2462	40.179	16.04	30	PASS

802.11g OFDM MODULATION

EUT	108G MIMO Wireless Desktop Adapter	MODEL	DWL-G520M
MODULATION TYPE	BPSK	TRANSFER RATE	6Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	24deg. C, 53%RH, 991hPa
TESTED BY	Match Tsui		

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (mW)	PEAK POWER OUTPUT (dBm)	PEAK POWER LIMIT (dBm)	PASS/FAIL
1	2412	51.523	17.15	30	PASS
6	2437	64.269	18.08	30	PASS
11	2462	28.907	14.61	30	PASS



802.11g OFDM TURBO MODULATION

EUT	108G MIMO Wireless Desktop Adapter	MODEL	DWL-G520M
MODULATION TYPE	BPSK	TRANSFER RATE	12Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	24deg. C, 53%RH, 991hPa
TESTED BY	Match Tsui		

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (mW)	PEAK POWER OUTPUT (dBm)	PEAK POWER LIMIT (dBm)	PASS/FAIL
6	2437	44.875	16.52	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
SPECTRUM ANALYZER	FSEK30	100049	Aug. 12, 2005

NOTE: 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 3kHz RBW and 30kHz VBW, set sweep time=span/3kHz. The power spectral density was measured and recorded.

The sweep time is allowed to be longer than span/3kHz for a full response of the mixer in the spectrum analyzer.

4.5.4 DEVIATION FROM TEST STANDARD

No deviation

4.5.5 TEST SETUP



4.5.6 EUT OPERATING CONDITIONS

Same as 4.3.6



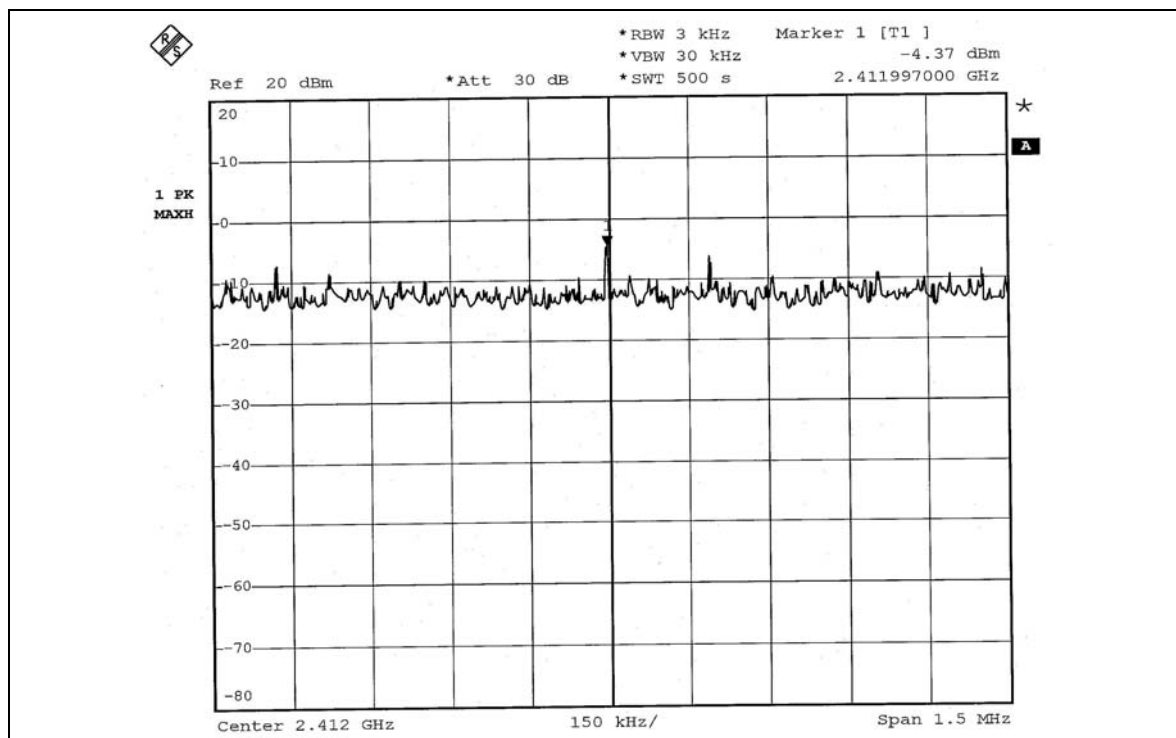
4.5.7 TEST RESULTS

802.11b DSSS MODULATION

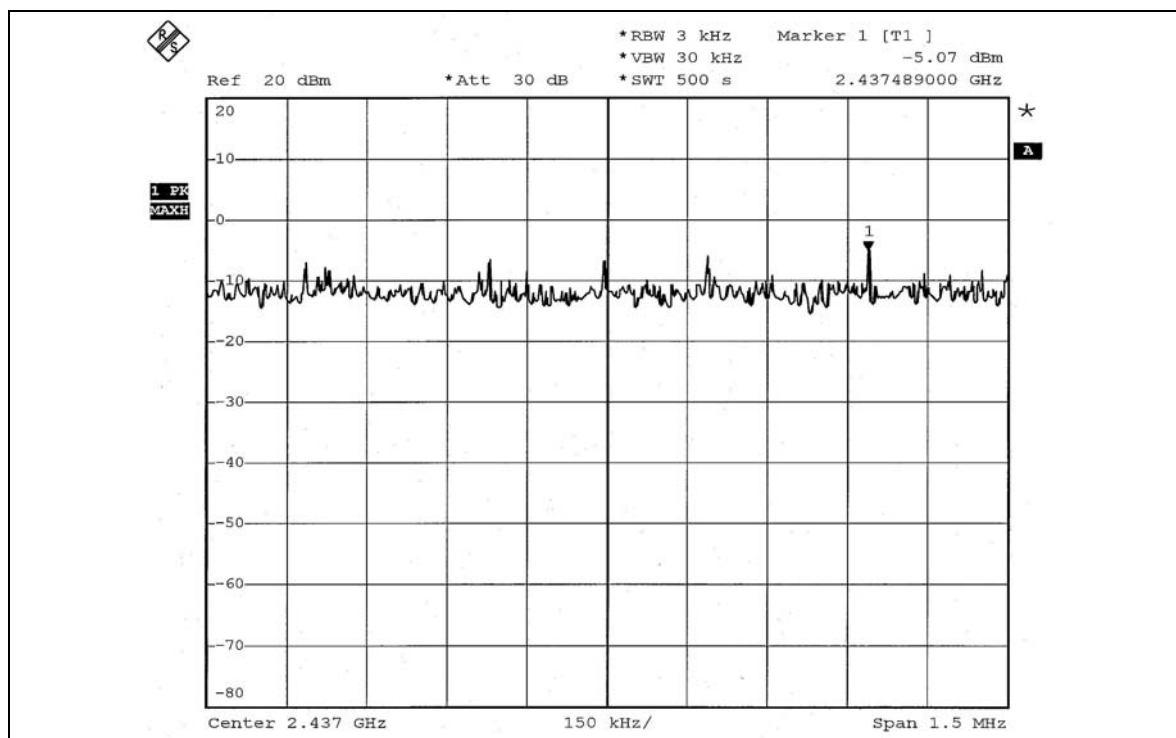
EUT	108G MIMO Wireless Desktop Adapter	MODEL	DWL-G520M
MODULATION TYPE	BPSK	TRANSFER RATE	1Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	24deg. C, 53%RH, 991hPa
TESTED BY	Match Tsui		

CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3 kHz BW (dBm)	MAXIMUM LIMIT (dBm)	PASS/FAIL
1	2412	-4.37	8	PASS
6	2437	-5.07	8	PASS
11	2462	-6.05	8	PASS

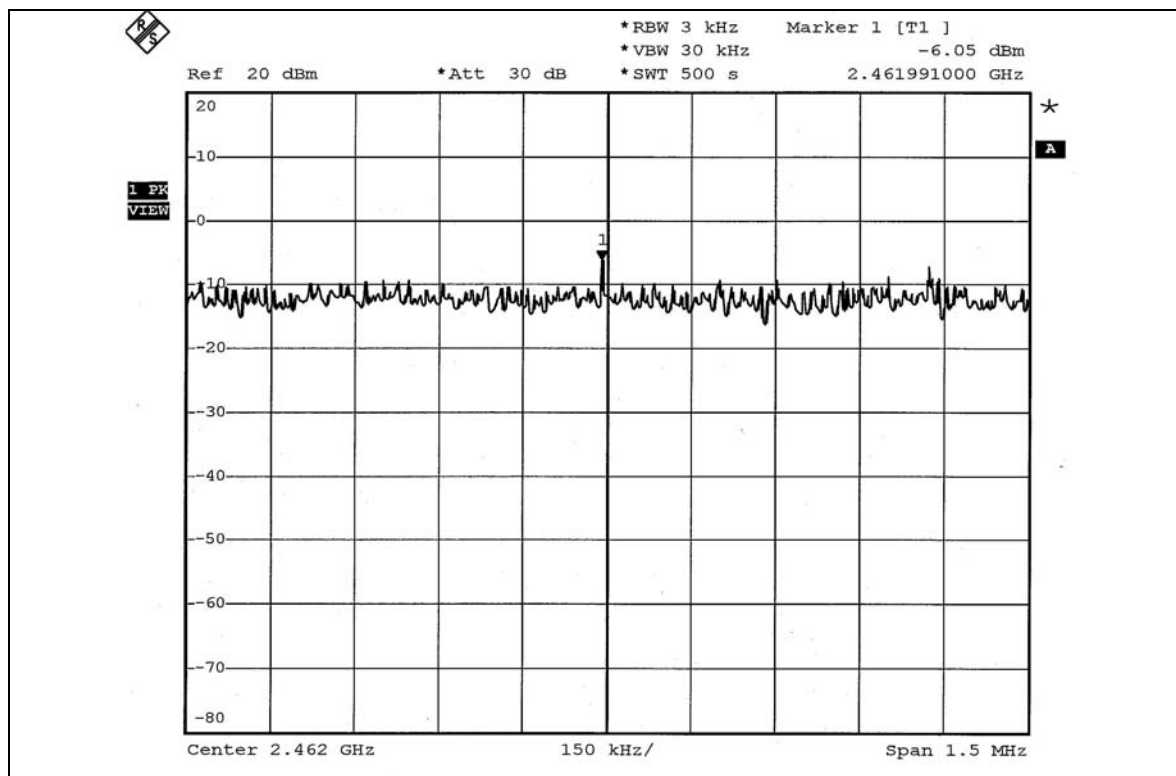
CH1



CH6



CH11



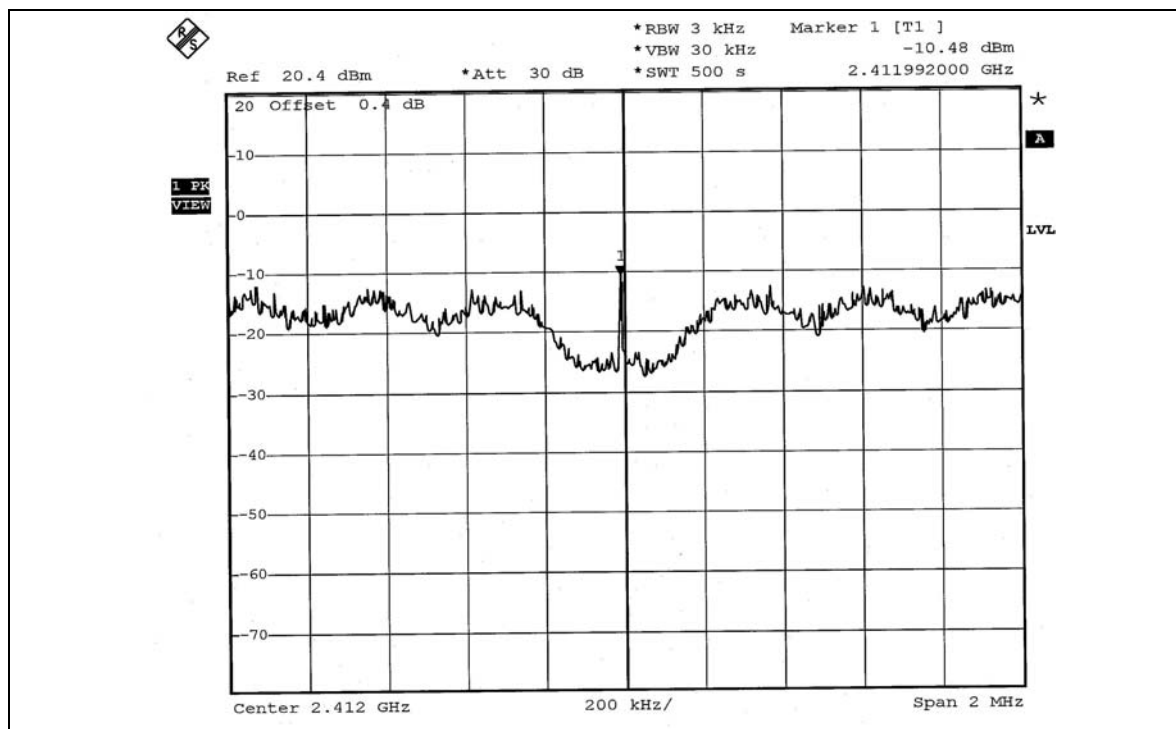


802.11g OFDM MODULATION

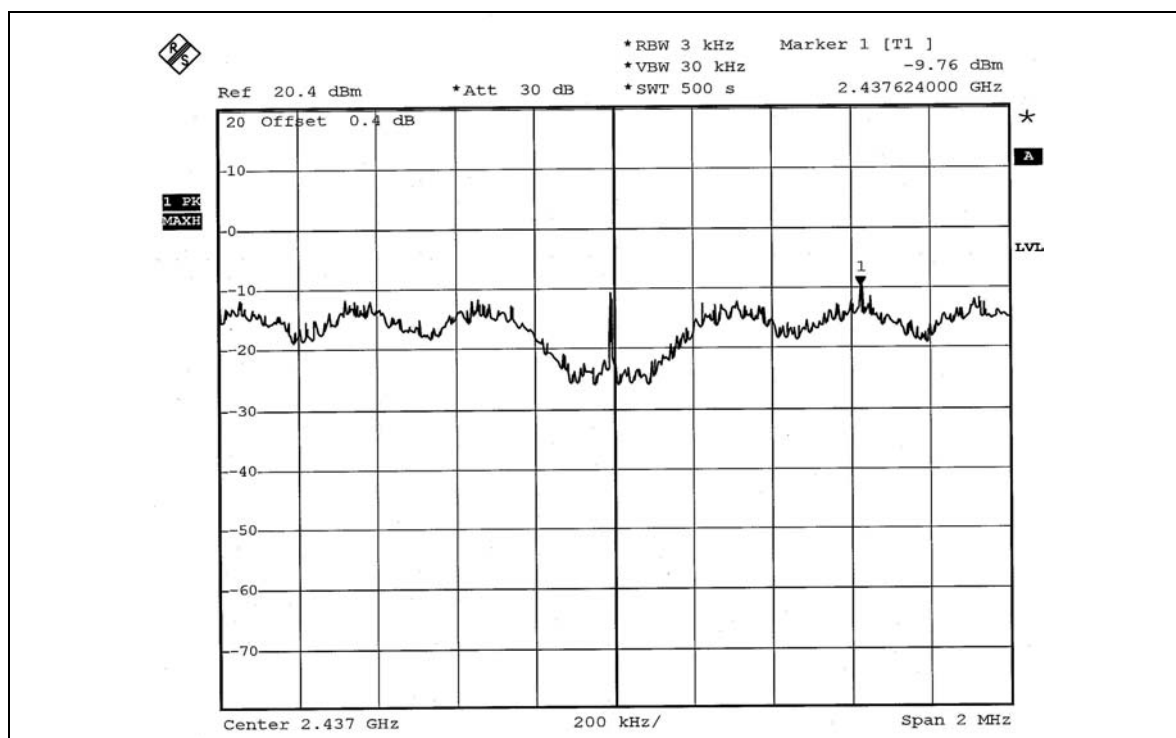
EUT	108G MIMO Wireless Desktop Adapter	MODEL	DWL-G520M
MODULATION TYPE	BPSK	TRANSFER RATE	6Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	24deg. C, 53%RH, 991hPa
TESTED BY	Match Tsui		

CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3 kHz BW (dBm)	MAXIMUM LIMIT (dBm)	PASS/FAIL
1	2412	-10.48	8	PASS
6	2437	-9.76	8	PASS
11	2462	-12.89	8	PASS

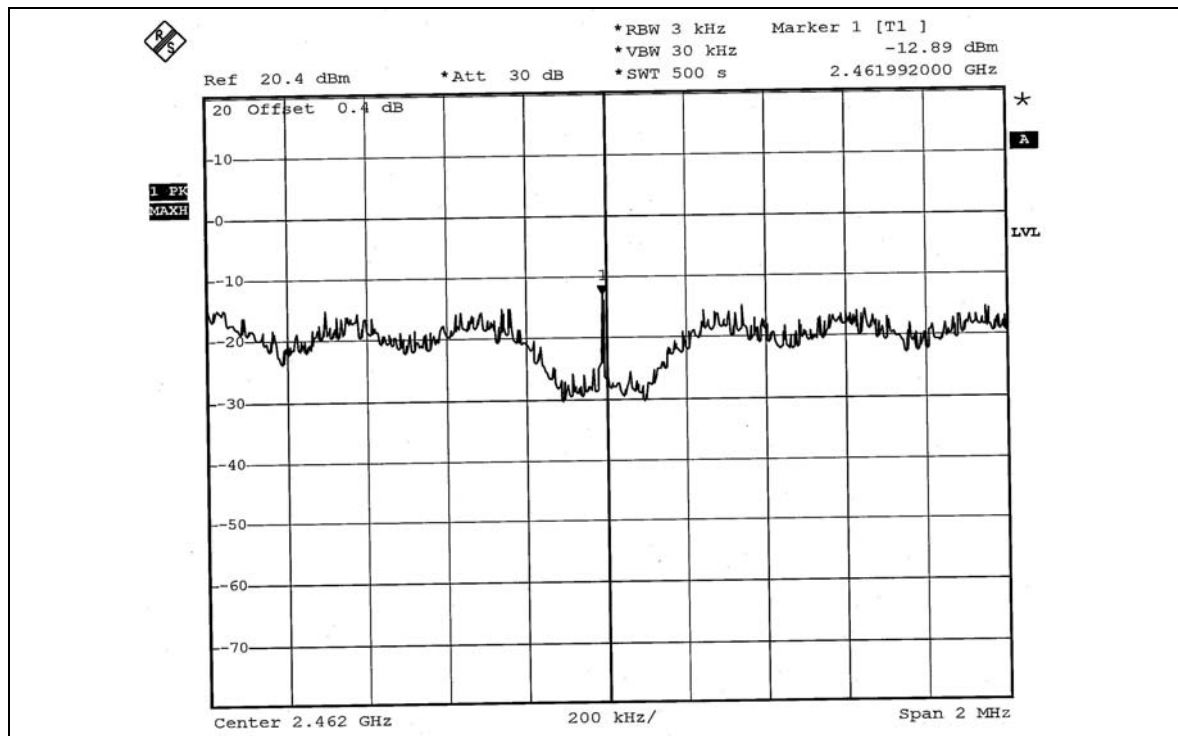
CH1



CH6



CH11



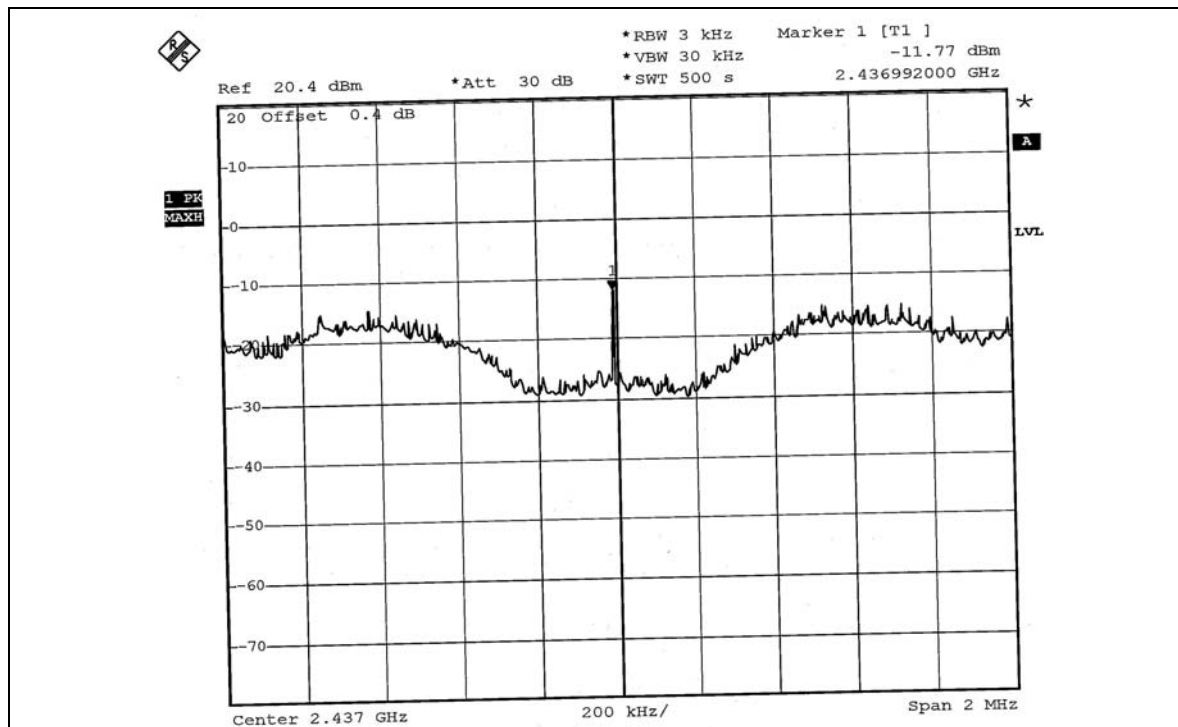


802.11g OFDM TURBO MODULATION

EUT	108G MIMO Wireless Desktop Adapter	MODEL	DWL-G520M
MODULATION TYPE	BPSK	TRANSFER RATE	12Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	24deg. C, 53%RH, 991hPa
TESTED BY	Match Tsui		

CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3 kHz BW (dBm)	MAXIMUM LIMIT (dBm)	PASS/FAIL
6	2437	-11.77	8	PASS

CH6





4.6 BAND EDGES MEASUREMENT

4.6.1 LIMITS OF BAND EDGES MEASUREMENT

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

4.6.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED UNTIL
SPECTRUM ANALYZER	FSEK30	100049	Aug. 12, 2005

NOTE: 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 both RBW and VBW of spectrum analyzer to 100kHz with suitable frequency span including 100MHz bandwidth from band edge. The band edges was measured and recorded.

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

4.6.4 DEVIATION FROM TEST STANDARD

No deviation

4.6.5 EUT OPERATING CONDITION

Same as Item 4.3.6



4.6.6 TEST RESULTS

The spectrum plots are attached on the following 18 images. D2 line indicates the highest level, and D1 line indicates the 20dB offset below D2. It shows compliance with the requirement in part 15.247(d).

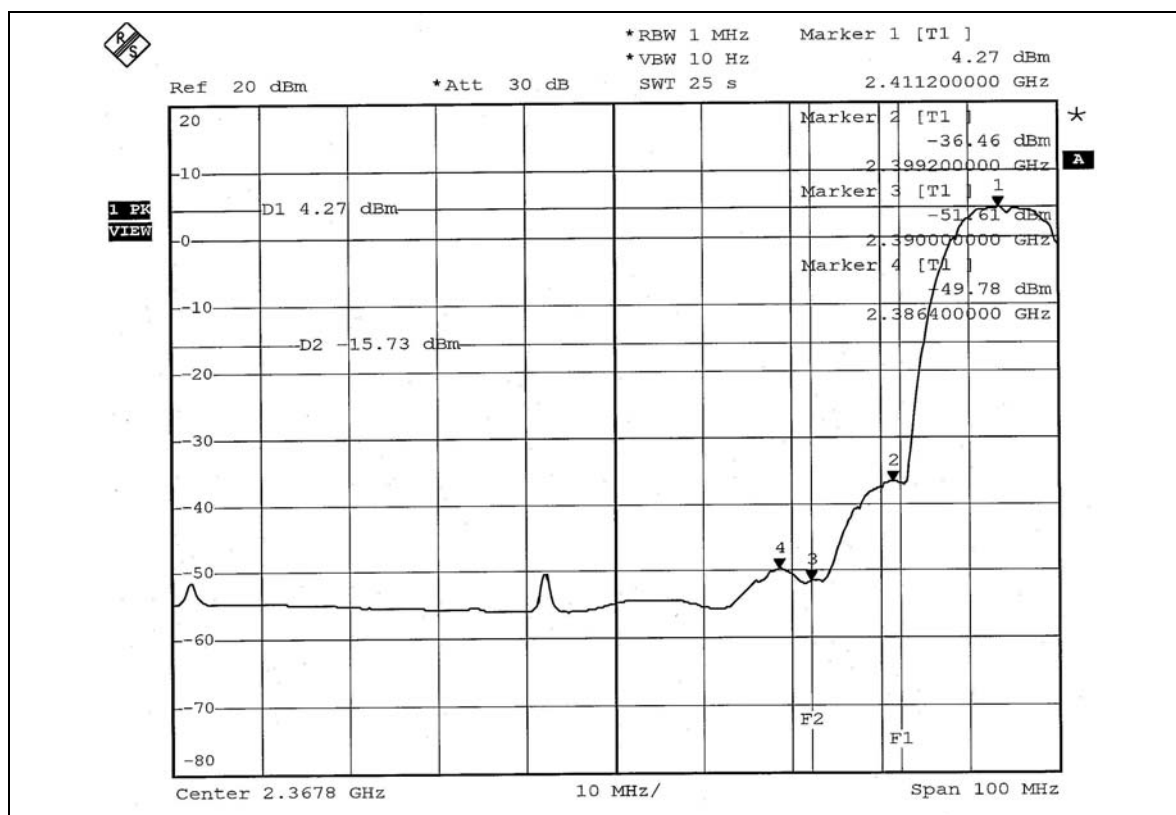
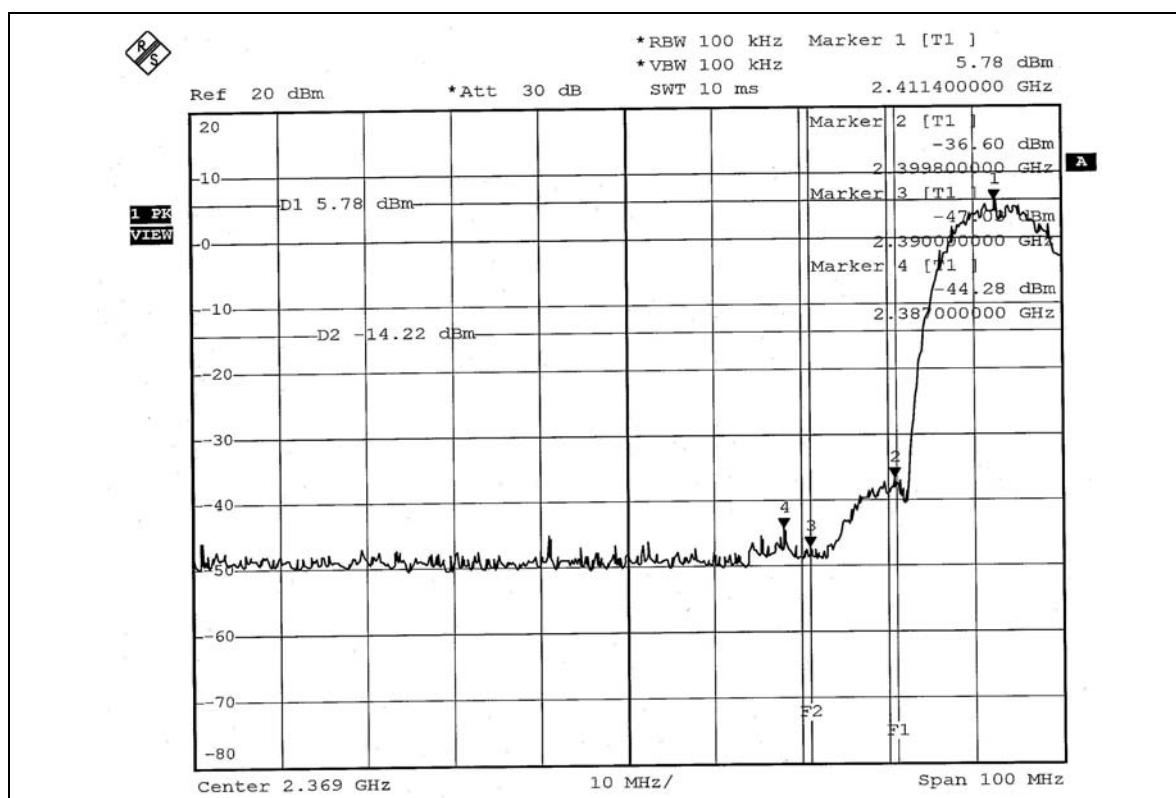
802.11b DSSS MODULATION

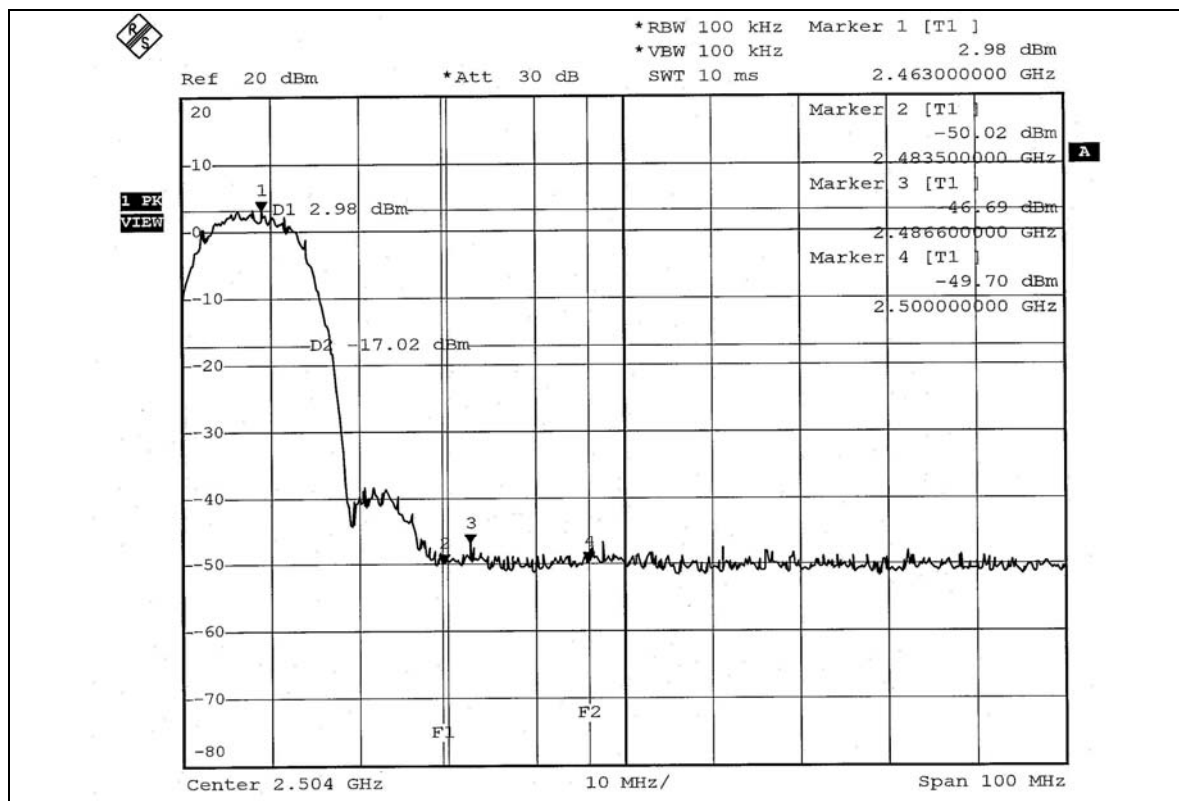
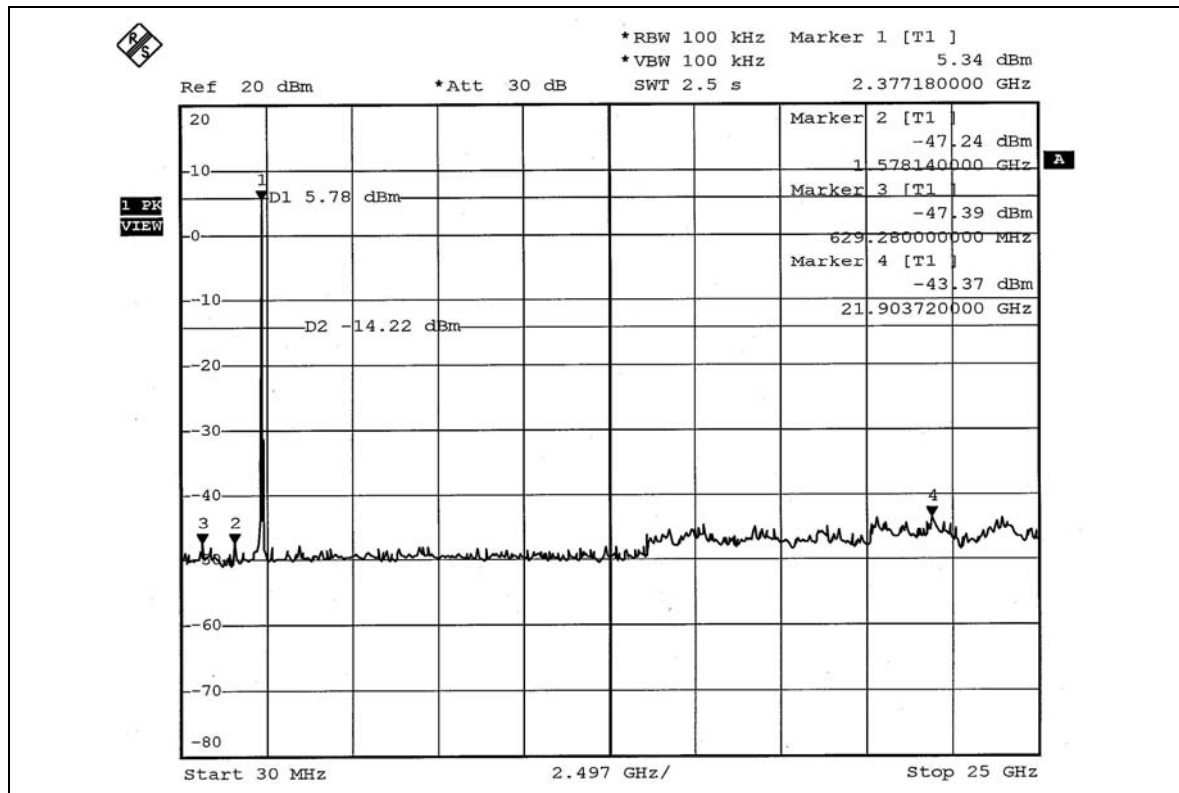
NOTE 1: The band edge emission plot on page 66 shows 50.06dBc between carrier maximum power and local maximum emission in restrict band (2.3870GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.2.7 is 112.24dBuV/m (Peak), so the maximum field strength in restrict band is $112.24 - 50.06 = 62.18\text{dBuV/m}$, which is under 74dBuV/m limit.

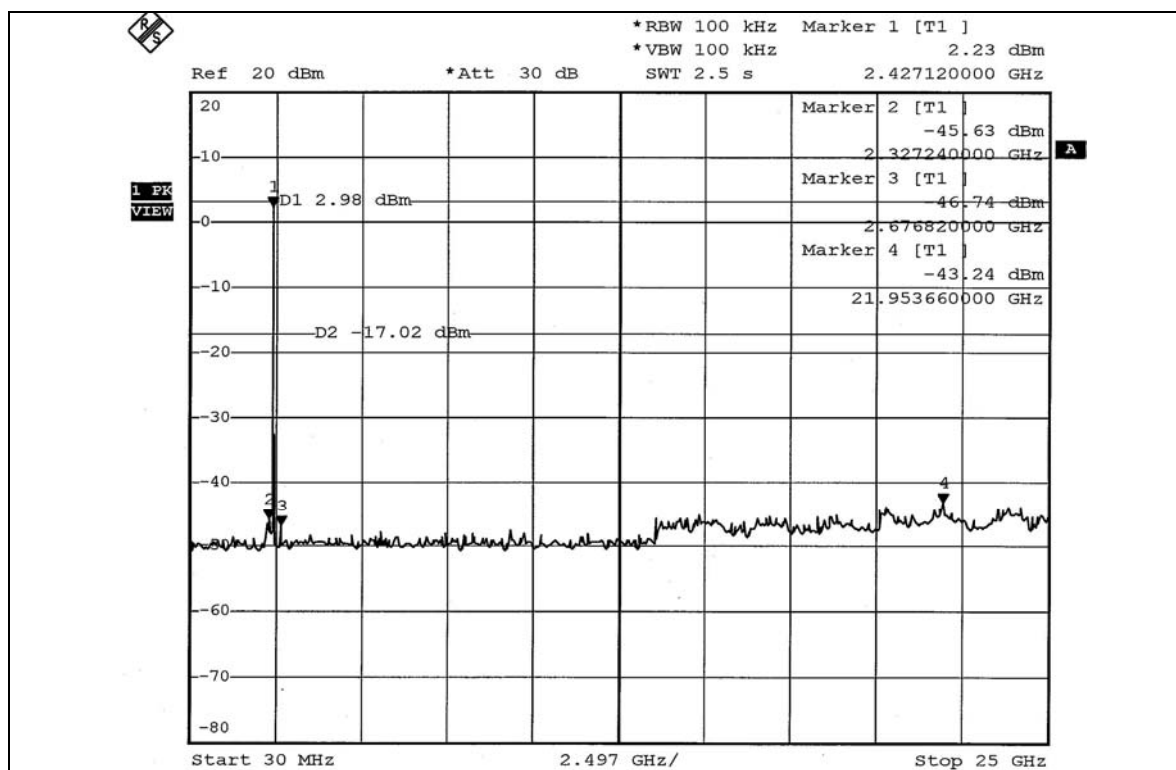
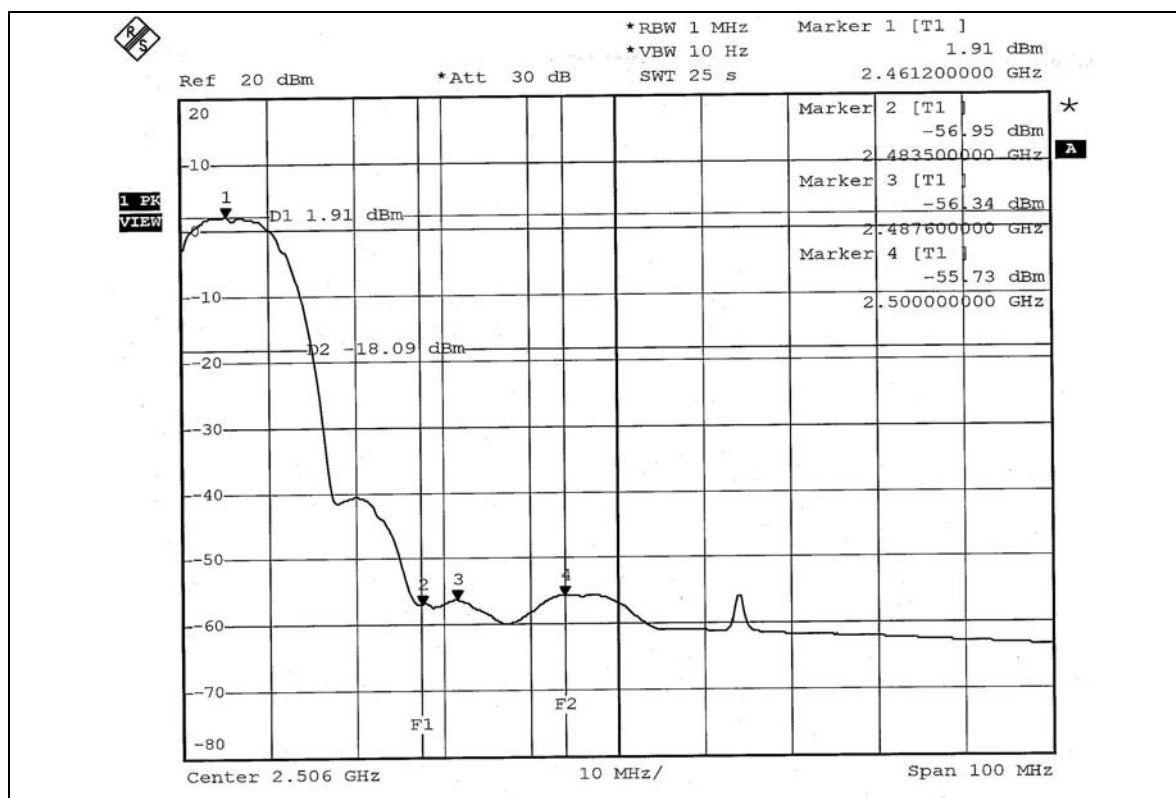
The band edge emission plot on page 66 shows 54.05dBc between carrier maximum power and local maximum emission in restrict band (2.3864GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.2.7 is 104.58dBuV/m (Average), so the maximum field strength in restrict band is $104.58 - 54.05 = 50.53\text{dBuV/m}$, which is under 54dBuV/m limit.

NOTE 2: The band edge emission plot on page 67 shows 49.67dBc between carrier maximum power and local maximum emission in restrict band (2.4866GHz). The emission of carrier strength list in the test result of channel 11 at the item 4.2.7 is 112.05dBuV/m (Peak), so the maximum field strength in restrict band is $112.05 - 49.67 = 62.37\text{dBuV/m}$, which is under 74dBuV/m limit.

The band edge emission plot on page 68 shows 57.64dBc between carrier maximum power and local maximum emission in restrict band (2.5000GHz). The emission of carrier strength list in the test result of channel 11 at the item 4.2.7 is 104.46dBuV/m (Average), so the maximum field strength in restrict band is $104.46 - 57.64 = 46.82\text{dBuV/m}$, which is under 54dBuV/m limit.









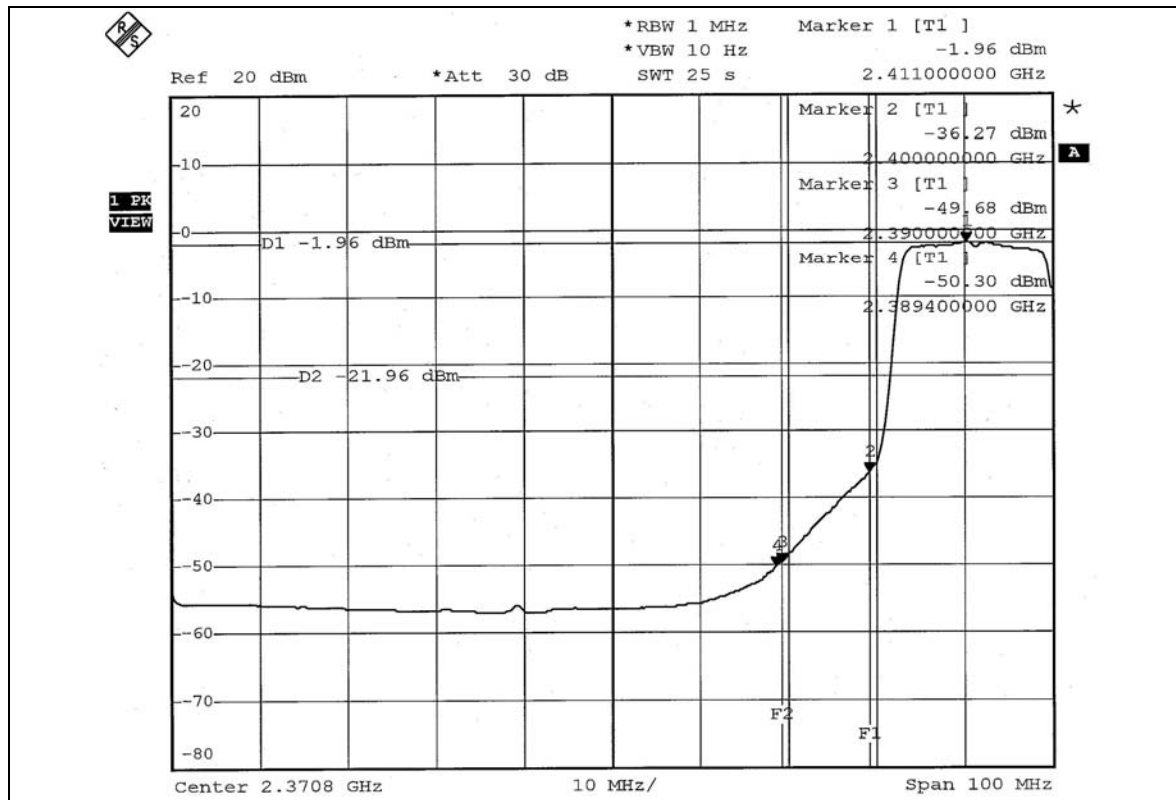
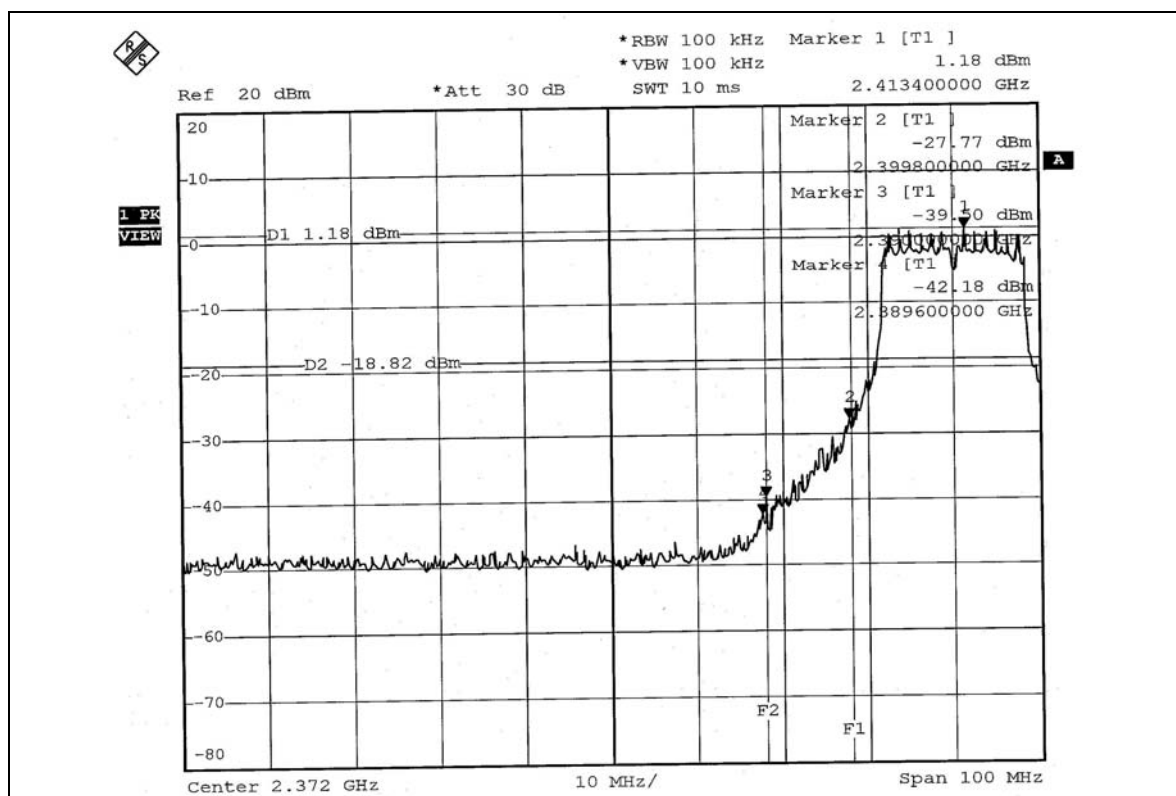
802.11g OFDM MODULATION

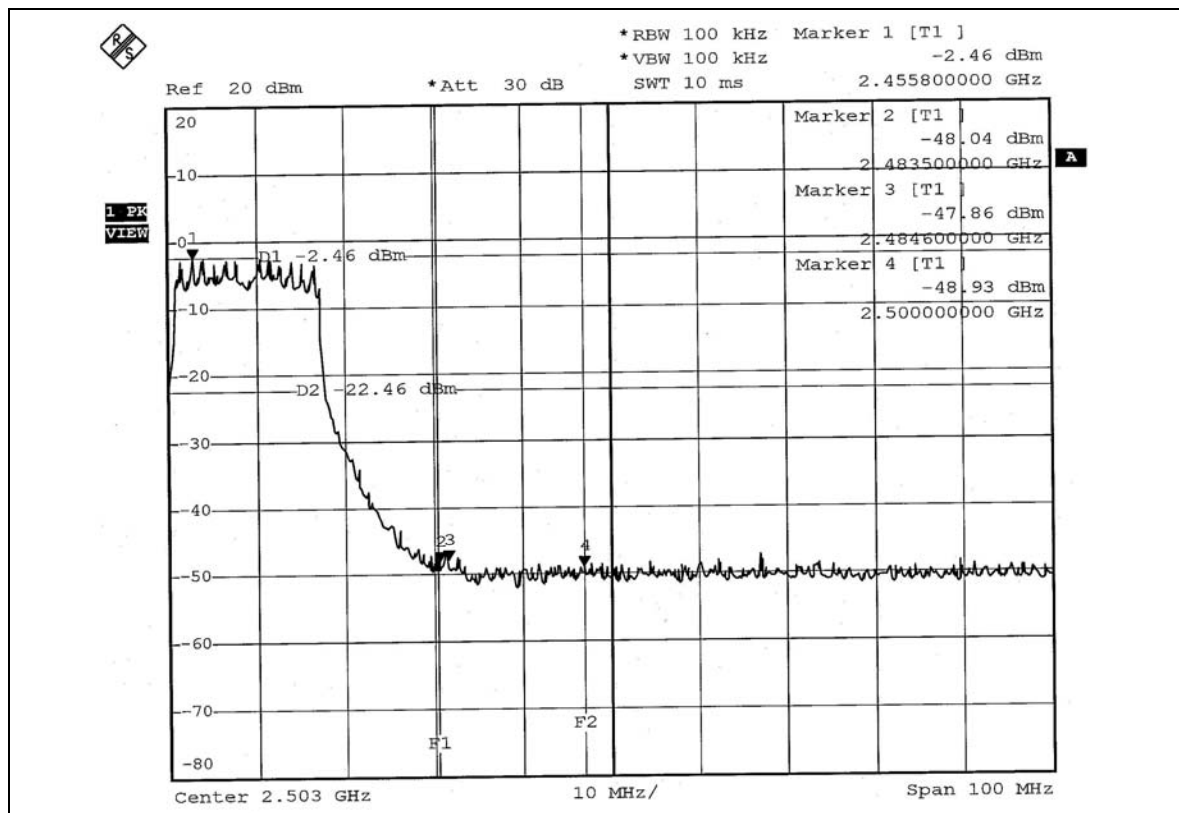
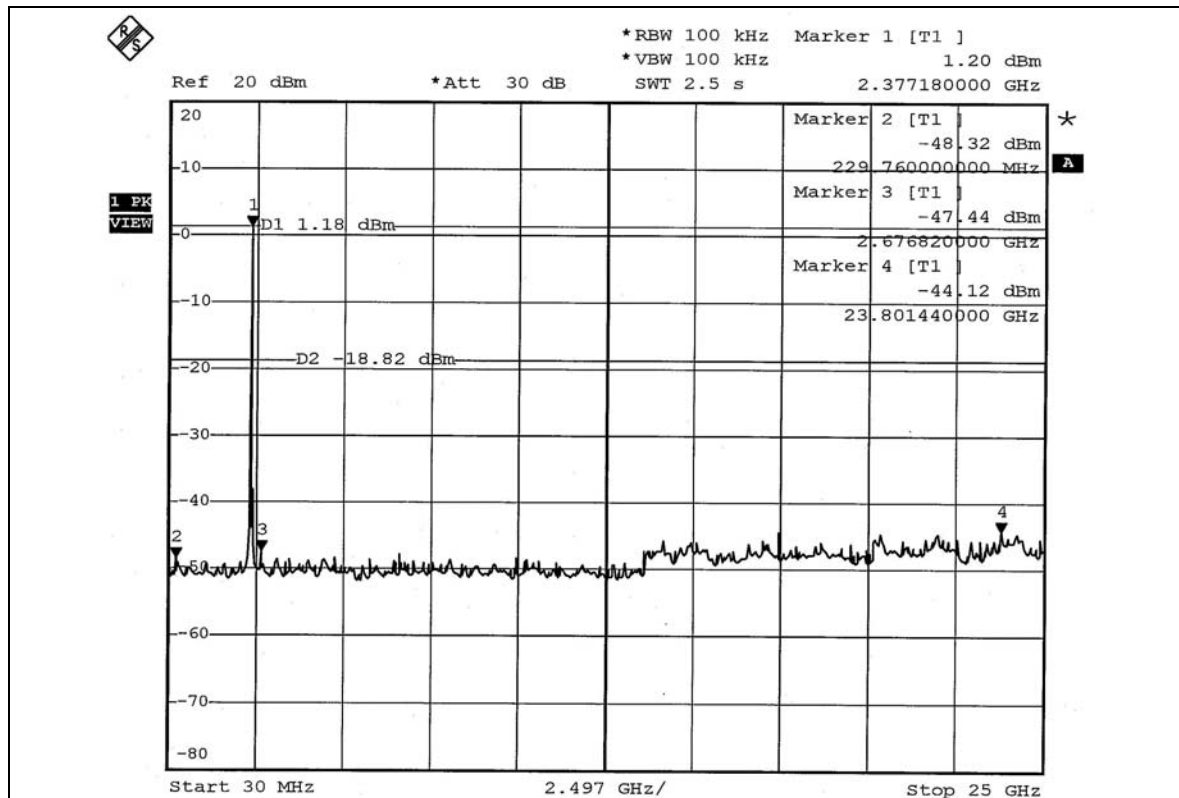
NOTE 1: The band edge emission plot on page 70 shows 40.68dBc between carrier maximum power and local maximum emission in restrict band (2.3900GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.2.7 is 110.20dBuV/m (Peak), so the maximum field strength in restrict band is $110.20 - 40.68 = 69.52\text{dBuV/m}$, which is under 74dBuV/m limit.

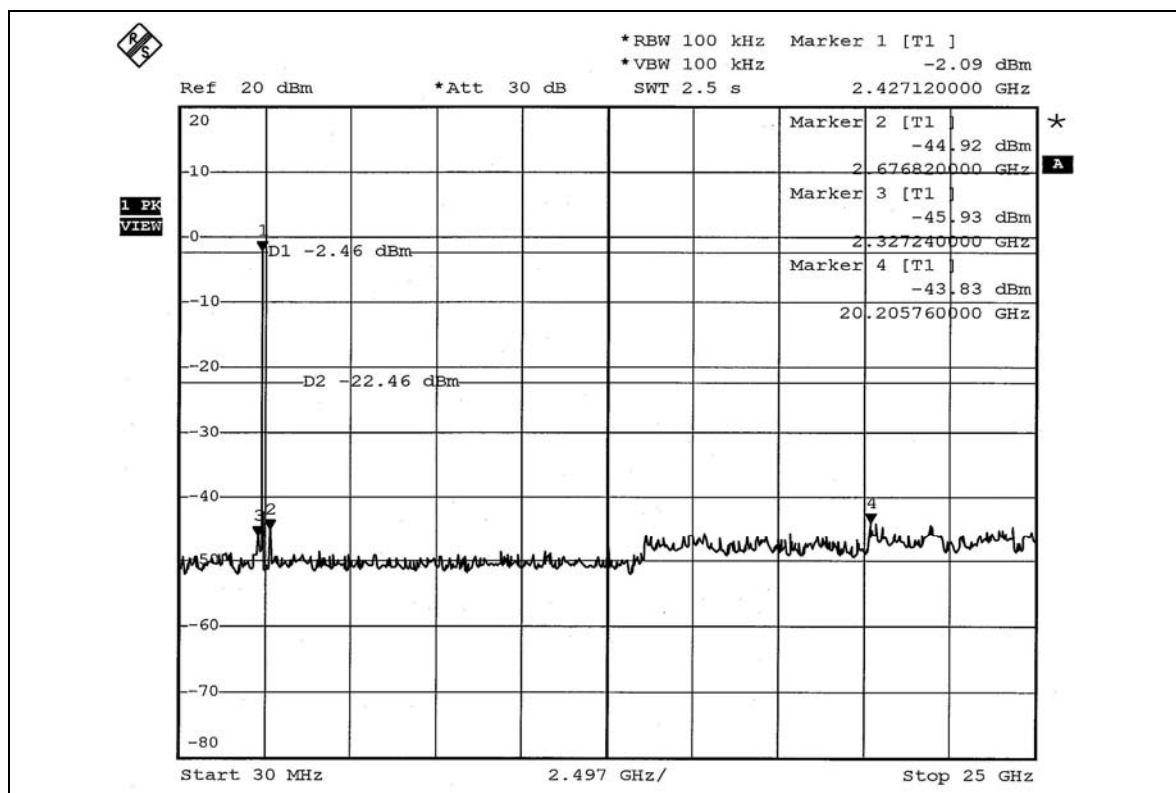
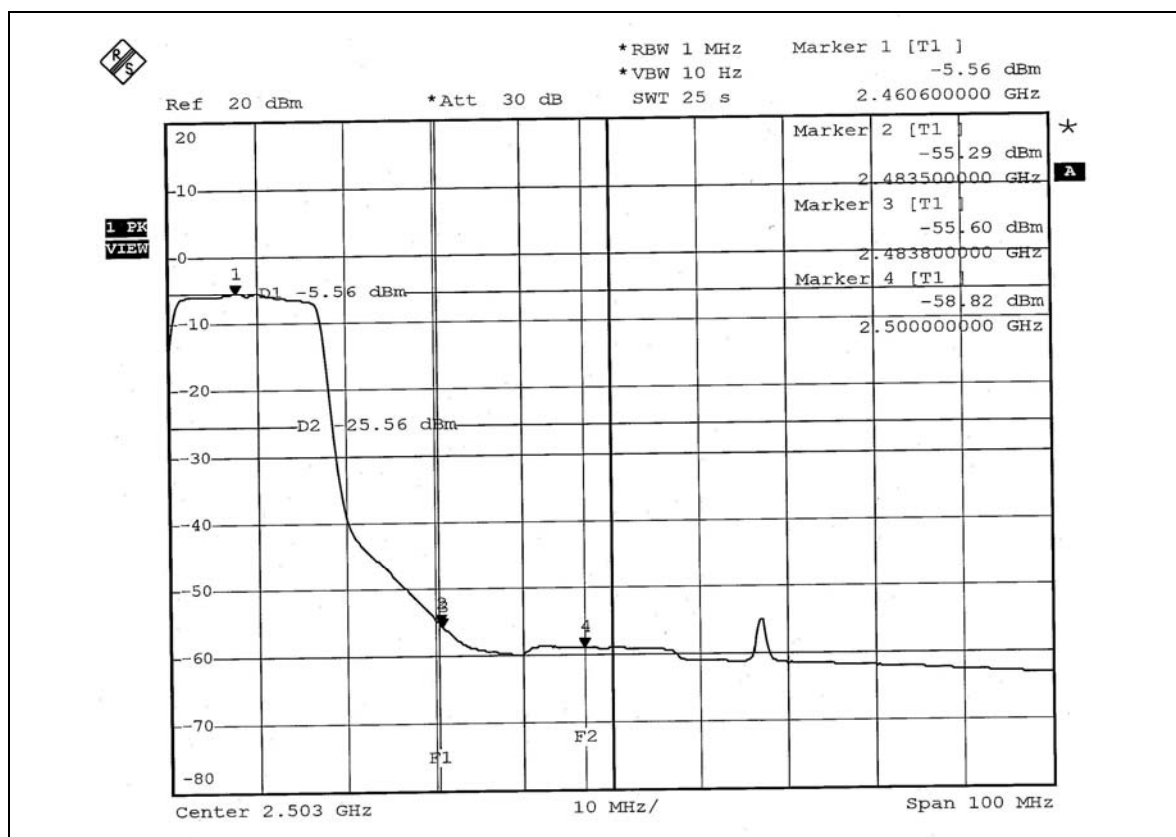
The band edge emission plot on page 70 shows 47.72dBc between carrier maximum power and local maximum emission in restrict band (2.3900GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.2.7 is 100.32dBuV/m (Average), so the maximum field strength in restrict band is $100.32 - 47.72 = 52.60\text{dBuV/m}$, which is under 54dBuV/m limit.

NOTE 2: The band edge emission plot on page 71 shows 45.40dBc between carrier maximum power and local maximum emission in restrict band (2.4846GHz). The emission of carrier strength list in the test result of channel 11 at the item 4.2.7 is 107.66dBuV/m (Peak), so the maximum field strength in restrict band is $107.66 - 45.40 = 62.26\text{dBuV/m}$, which is under 74dBuV/m limit.

The band edge emission plot on page 72 shows 49.73dBc 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 4.2.7 is 97.28dBuV/m (Average), so the maximum field strength in restrict band is $97.28 - 49.73 = 47.55\text{dBuV/m}$, which is under 54dBuV/m limit.









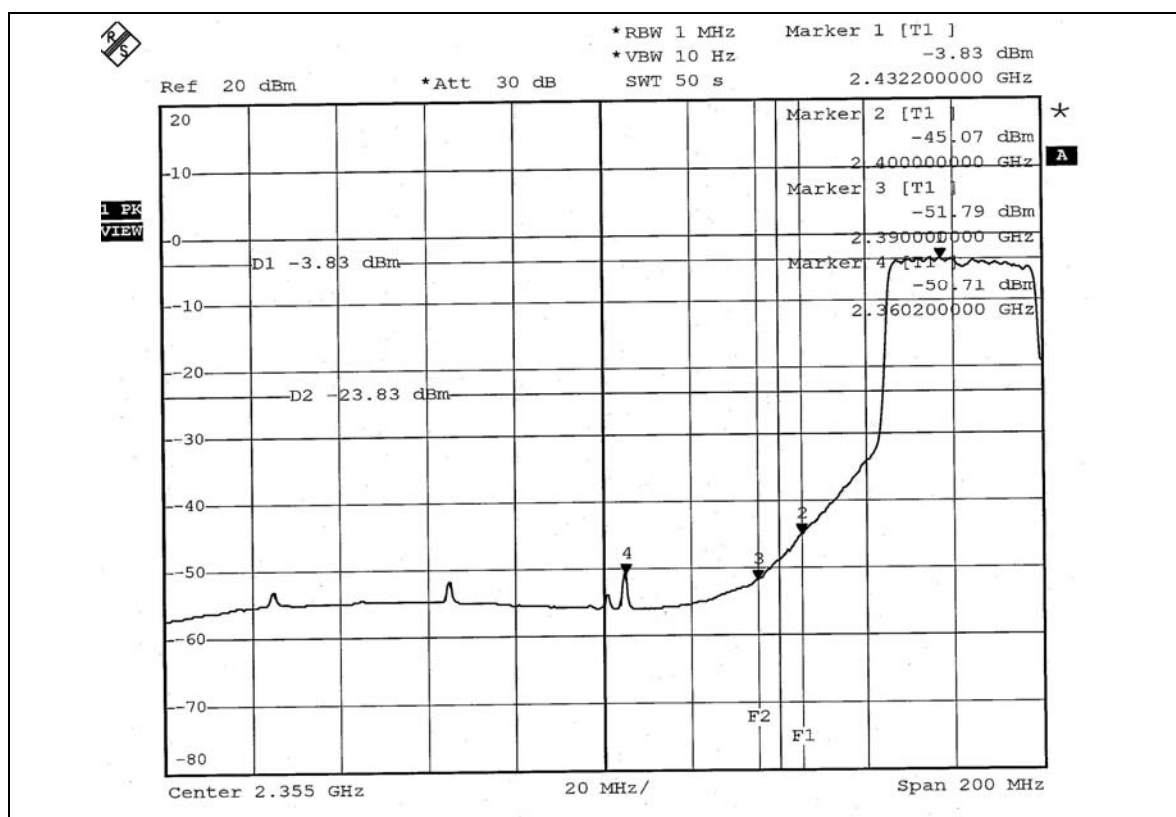
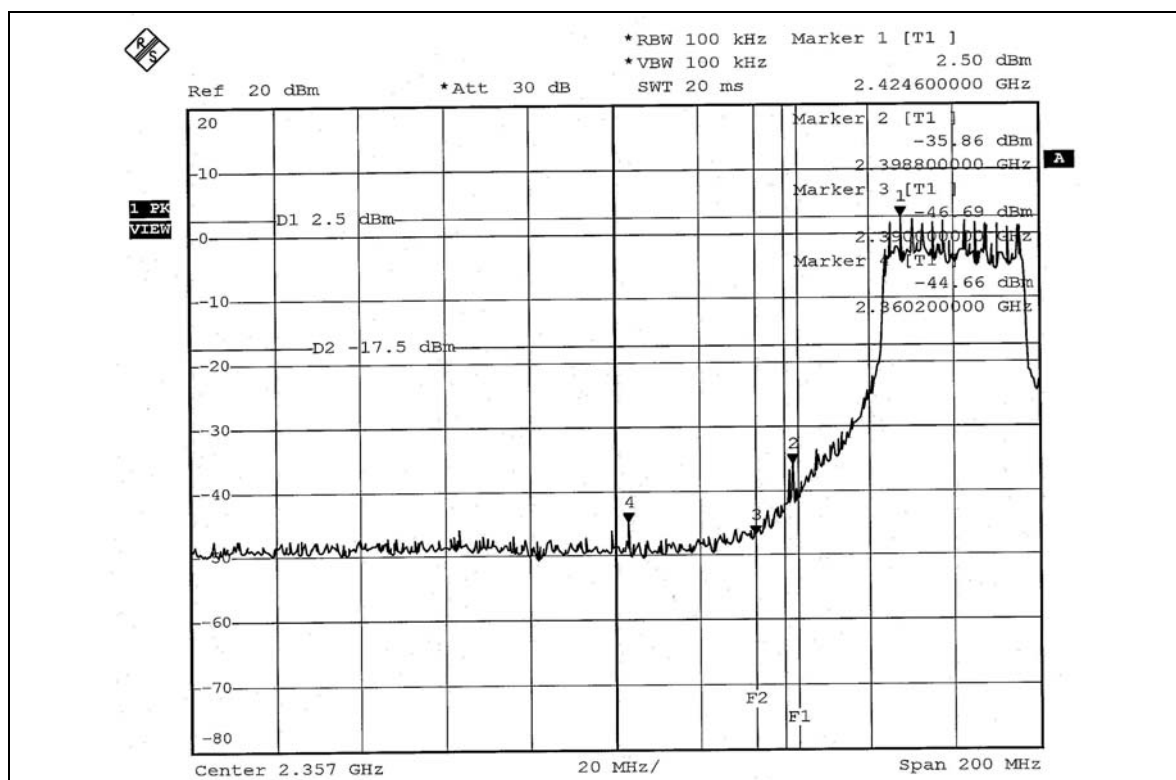
802.11g OFDM TURBO MODULATION

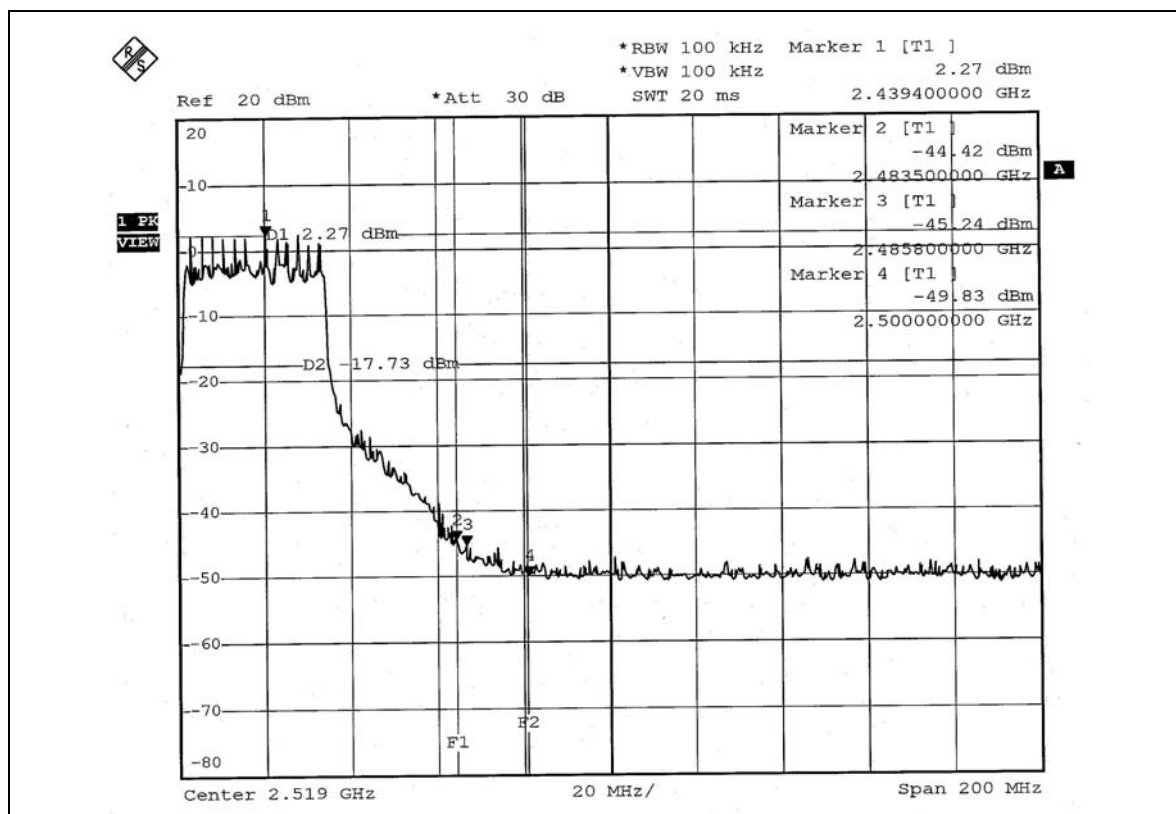
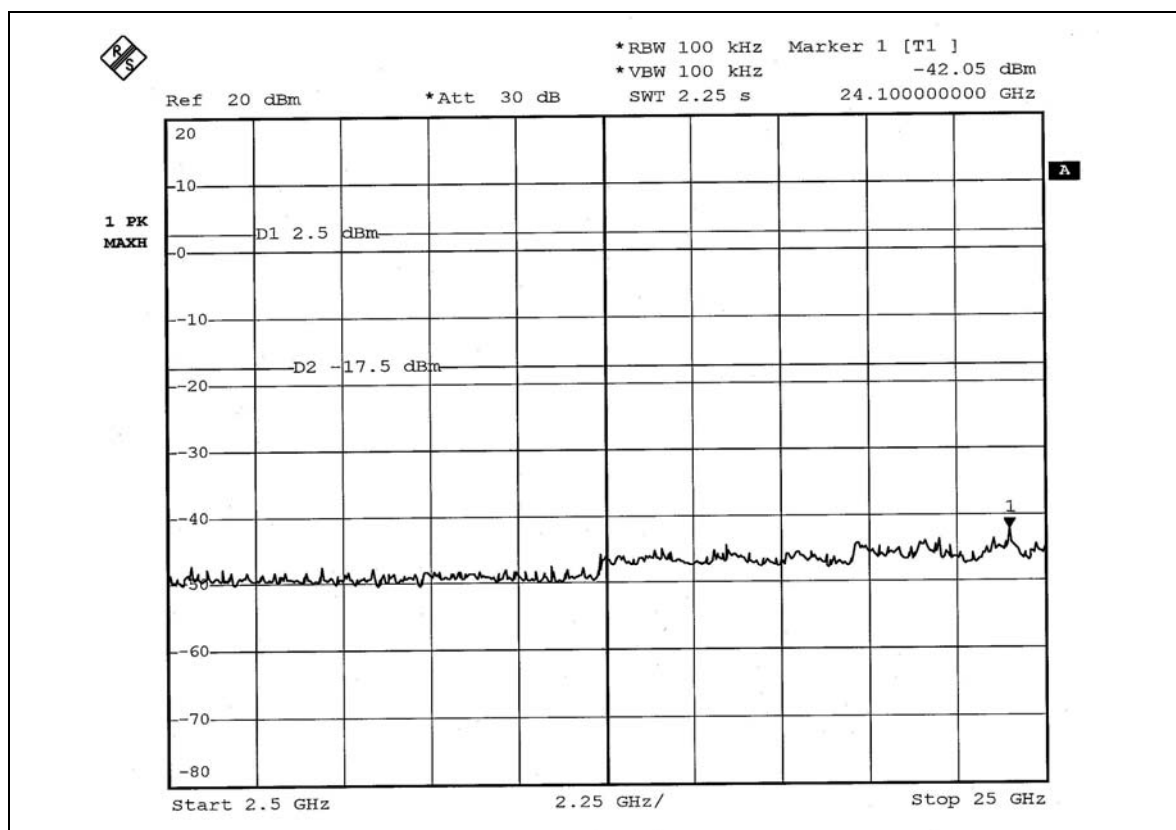
NOTE 1: The band edge emission plot on page 74 shows 47.16dBc between carrier maximum power and local maximum emission in restrict band (2.3602GHz). The emission of carrier strength list in the test result of channel 6 at the item 4.2.7 is 106.02dBuV/m (Peak), so the maximum field strength in restrict band is $106.02 - 47.16 = 58.86$ dBuV/m, which is under 74dBuV/m limit.

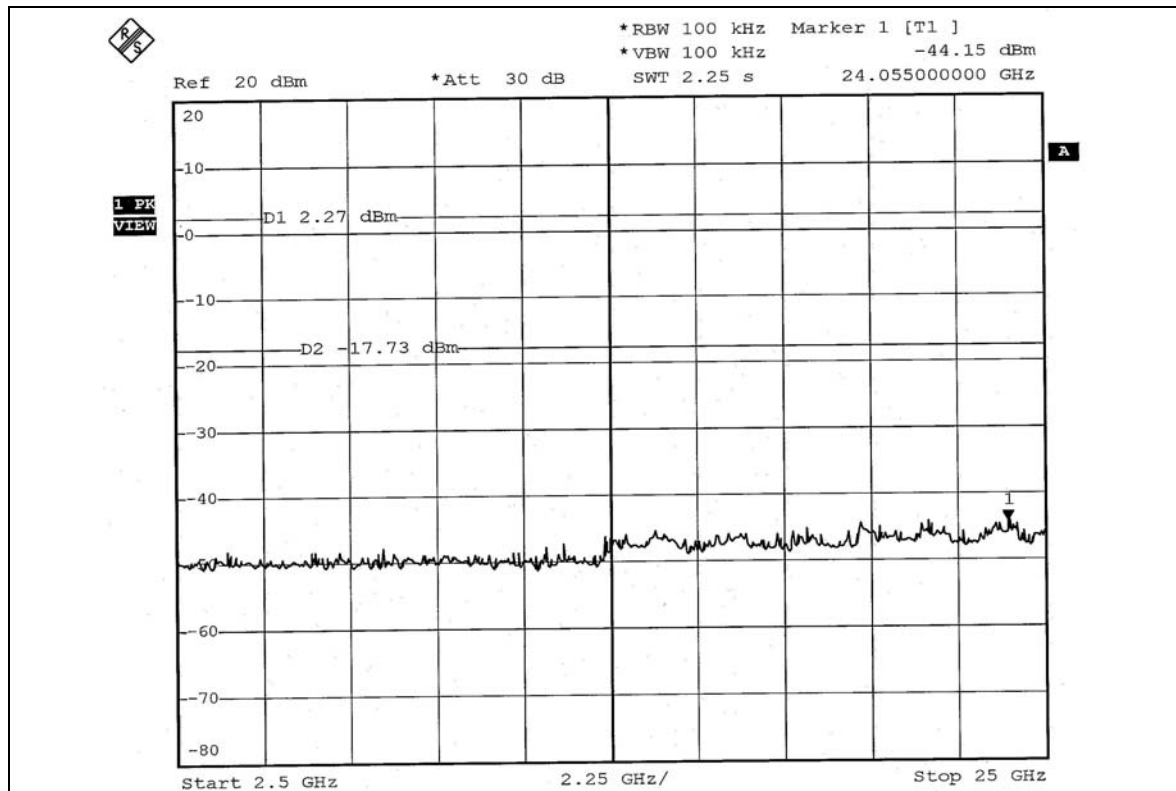
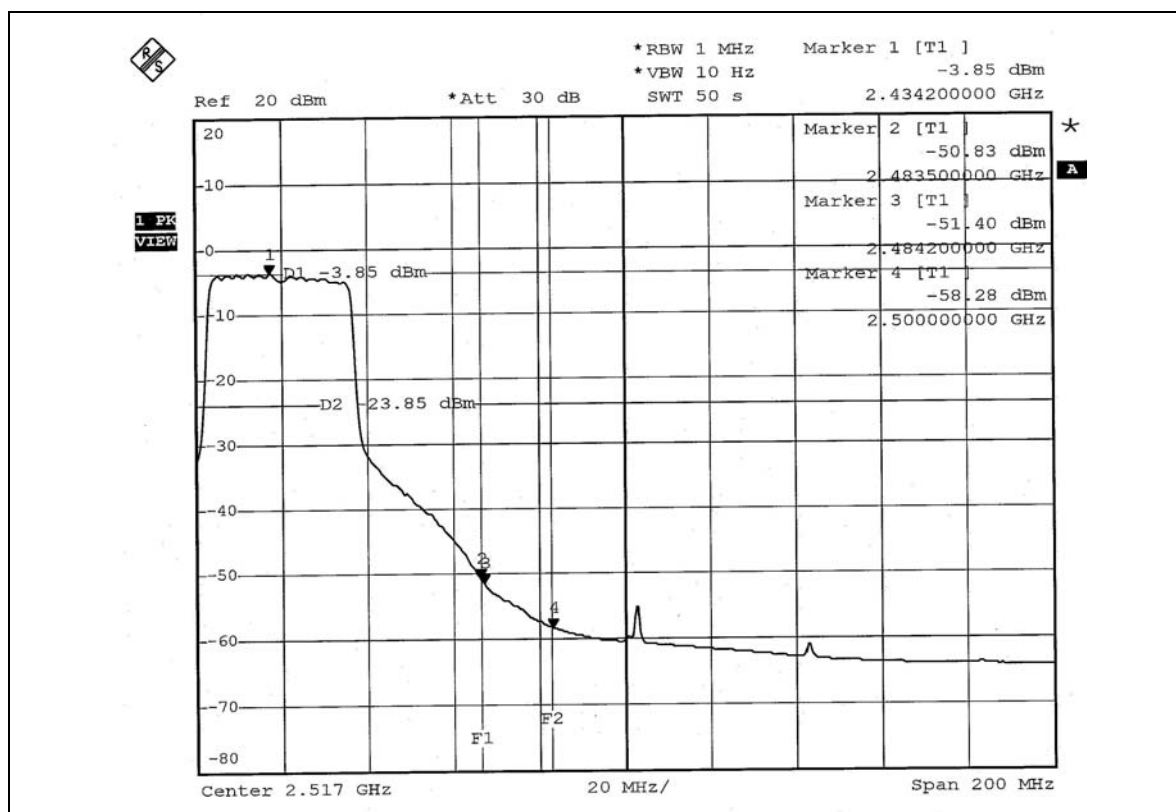
The band edge emission plot on page 74 shows 46.88dBc between carrier maximum power and local maximum emission in restrict band (2.3602GHz). The emission of carrier strength list in the test result of channel 6 at the item 4.2.7 is 96.04dBuV/m (Average), so the maximum field strength in restrict band is $96.04 - 46.88 = 49.16$ dBuV/m, which is under 54dBuV/m limit.

NOTE 2: The band edge emission plot on page 75 shows 46.69dBc 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 6 at the item 4.2.7 is 106.02dBuV/m (Peak), so the maximum field strength in restrict band is $106.02 - 46.69 = 59.33$ dBuV/m, which is under 74dBuV/m limit.

The band edge emission plot on page 74 shows 46.98dBc 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 6 at the item 4.2.7 is 96.04dBuV/m (Average), so the maximum field strength in restrict band is $96.04 - 46.98 = 49.06$ dBuV/m, which is under 54dBuV/m limit.







5. TEST TYPES AND RESULTS (For Dual CHAIN (TX))

5.1 CONDUCTED EMISSION MEASUREMENT

5.1.1 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.

5.1.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED UNTIL
Test Receiver ROHDE & SCHWARZ	ESCS30	100291	Nov. 16, 2005
RF signal cable Woken	5D-FB	Cable-HYC01-01	Jan. 09, 2006
LISN ROHDE & SCHWARZ	ESH3-Z5	100312	Feb. 15, 2006
LISN ROHDE & SCHWARZ	ESH2-Z5	100104	Feb. 15, 2006
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.



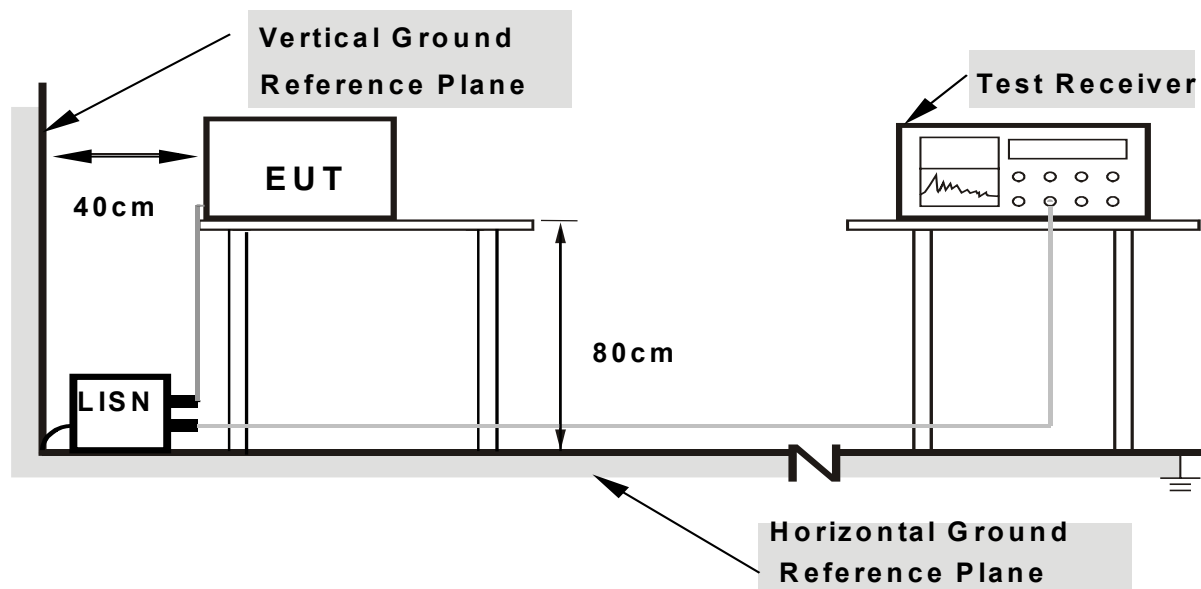
5.1.3 TEST PROCEDURES

- 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.

5.1.4 DEVIATION FROM TEST STANDARD

No deviation

5.1.5 TEST SETUP



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

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

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

5.1.6 EUT OPERATING CONDITIONS

- a. Connected the EUT into the computer system and placed on a testing table.
- b. The computer system ran a test program (provided by manufacturer) to enable EUT under transmission/receiving condition continuously at specific channel frequency.
- c. The notebook system show "H" messages on its screen.
- d. The notebook system show "H" messages to modem.
- e. The notebook system sent "H" messages to printer and the printer prints them on paper.
- f. Repeated item c ~e.

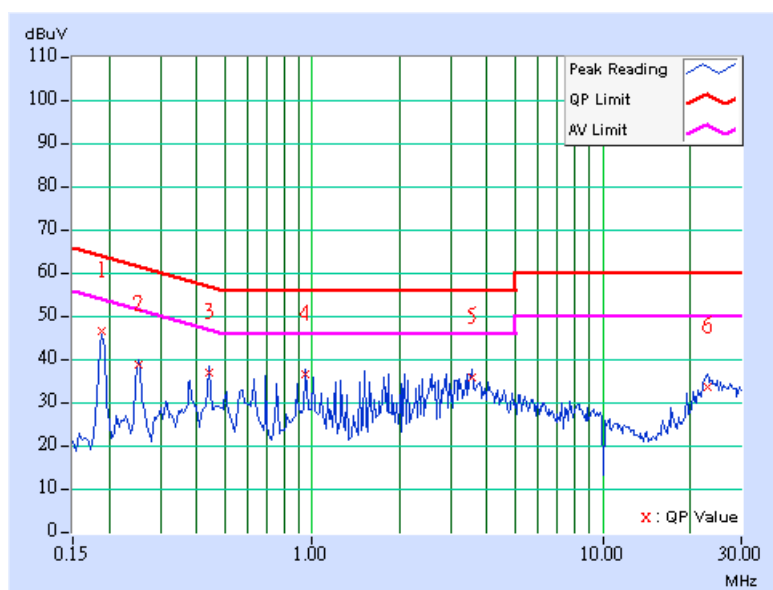
5.1.7 TEST RESULTS

CONDUCTED WORST CASE DATA

EUT	108G MIMO Wireless Desktop Adapter	MEASUREMENT DETAIL	
MODEL	DWL-G520M	PHASE	Line 1
CHANNEL	Channel 1	6dB BANDWIDTH	9 kHz
MODULATION TYPE	BPSK	ENVIRONMENTAL CONDITIONS	20deg. C, 60%RH, 991hPa
TRANSFER RATE	6Mbps	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	0.189	0.11	45.68	45.24	45.79	45.35	64.08	54.08	-18.29	-8.73
2	0.252	0.11	37.96	-	38.07	-	61.71	-	-23.63	-
3	0.443	0.12	35.97	-	36.09	-	57.01	-	-20.92	-
4	0.947	0.17	35.80	-	35.97	-	56.00	-	-20.03	-
5	3.536	0.27	34.92	-	35.19	-	56.00	-	-20.81	-
6	22.927	1.03	32.50	-	33.53	-	60.00	-	-26.47	-

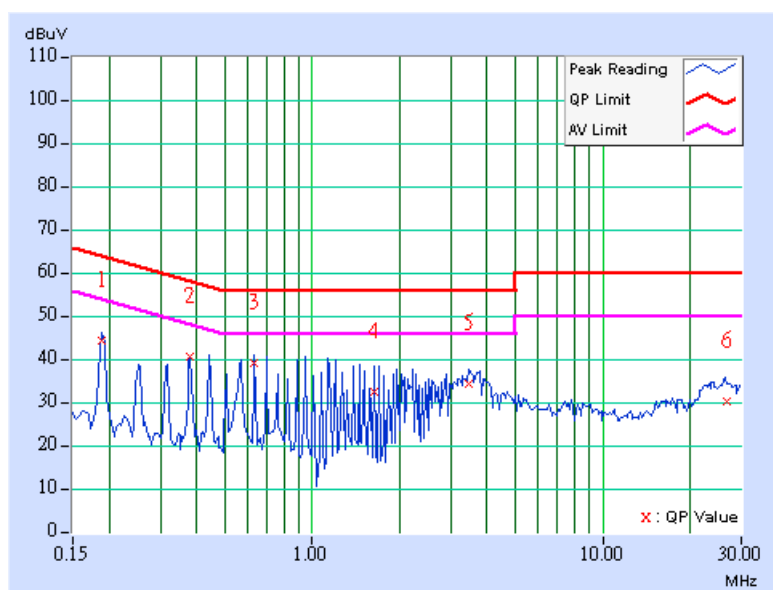
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value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



EUT	108G MIMO Wireless Desktop Adapter	MEASUREMENT DETAIL	
MODEL	DWL-G520M	PHASE	Line 2
CHANNEL	Channel 1	6dB BANDWIDTH	9 kHz
MODULATION TYPE	BPSK	ENVIRONMENTAL CONDITIONS	20deg. C, 60%RH, 991hPa
TRANSFER RATE	6Mbps	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	0.189	0.10	43.89	-	43.99	-	64.08	-	-20.09	-
2	0.380	0.11	40.12	39.76	40.23	39.87	58.27	48.27	-18.04	-8.40
3	0.630	0.13	38.87	38.43	39.00	38.56	56.00	46.00	-17.00	-7.44
4	1.645	0.20	32.07	-	32.27	-	56.00	-	-23.73	-
5	3.477	0.26	33.71	-	33.97	-	56.00	-	-22.03	-
6	26.589	0.56	29.86	-	30.42	-	60.00	-	-29.58	-

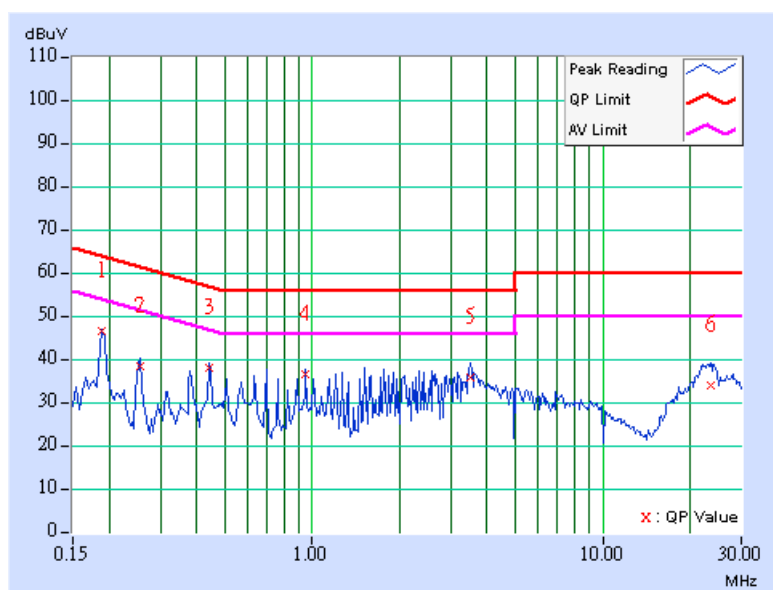
- REMARKS:** 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. The emission levels of other frequencies were very low against the limit.
4. Margin value =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



EUT	108G MIMO Wireless Desktop Adapter	MEASUREMENT DETAIL	
MODEL	DWL-G520M	PHASE	Line 1
CHANNEL	Channel 6	6dB BANDWIDTH	9 kHz
MODULATION TYPE	BPSK	ENVIRONMENTAL CONDITIONS	20deg. C, 60%RH, 991hPa
TRANSFER RATE	6Mbps	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	0.189	0.11	45.75	45.34	45.86	45.45	64.08	54.08	-18.22	-8.63
2	0.255	0.11	37.62	-	37.73	-	61.58	-	-23.85	-
3	0.443	0.12	36.92	36.27	37.04	36.39	57.01	47.01	-19.97	-10.62
4	0.951	0.17	35.52	-	35.69	-	56.00	-	-20.31	-
5	3.484	0.27	34.76	-	35.03	-	56.00	-	-20.97	-
6	23.524	1.05	33.09	-	34.14	-	60.00	-	-25.86	-

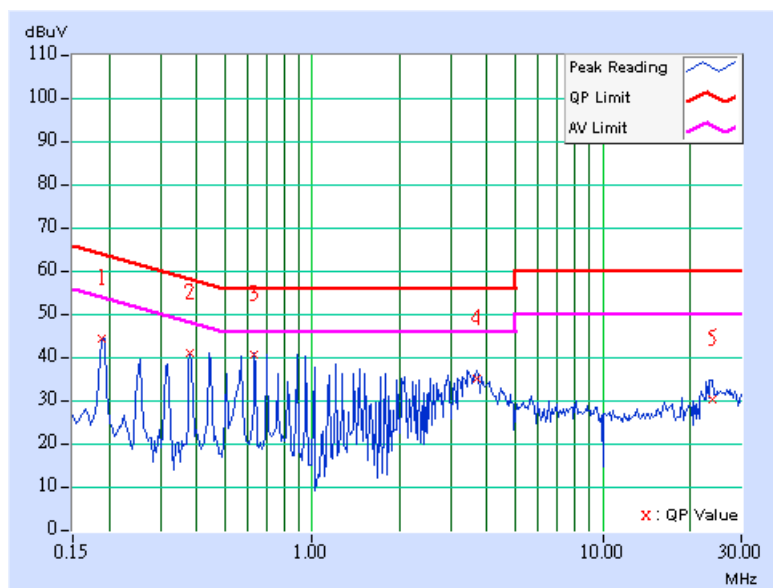
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value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



EUT	108G MIMO Wireless Desktop Adapter	MEASUREMENT DETAIL	
MODEL	DWL-G520M	PHASE	Line 2
CHANNEL	Channel 6	6dB BANDWIDTH	9 kHz
MODULATION TYPE	BPSK	ENVIRONMENTAL CONDITIONS	20deg. C, 60%RH, 991hPa
TRANSFER RATE	6Mbps	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	0.189	0.10	43.86	-	43.96	-	64.08	-	-20.12	-
2	0.380	0.11	40.35	40.07	40.46	40.18	58.27	48.27	-17.81	-8.09
3	0.634	0.13	40.12	39.62	40.25	39.75	56.00	46.00	-15.75	-6.25
4	3.680	0.27	34.69	-	34.96	-	56.00	-	-21.04	-
5	23.924	0.61	29.86	-	30.47	-	60.00	-	-29.53	-
6	22.927	1.03	32.50	-	33.53	-	60.00	-	-26.47	-

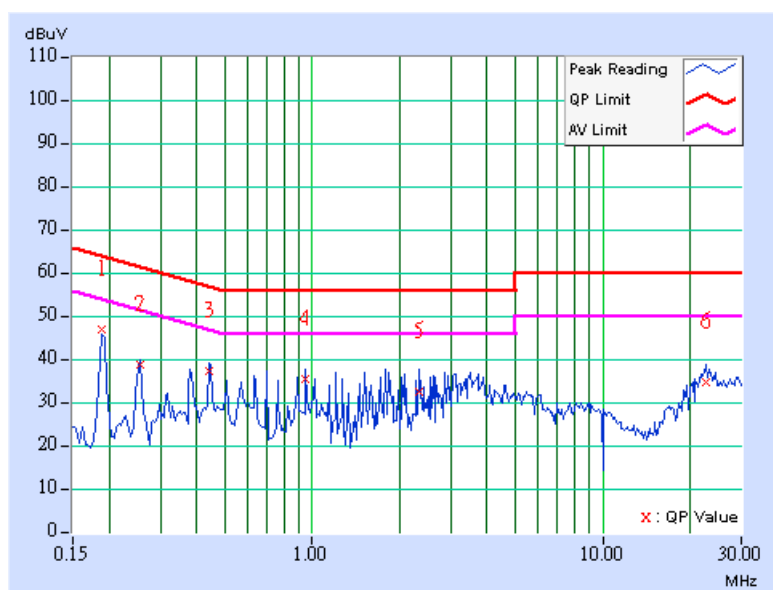
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value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



EUT	108G MIMO Wireless Desktop Adapter	MEASUREMENT DETAIL	
MODEL	DWL-G520M	PHASE	Line 1
CHANNEL	Channel 11	6dB BANDWIDTH	9 kHz
MODULATION TYPE	BPSK	ENVIRONMENTAL CONDITIONS	20deg. C, 60%RH, 991hPa
TRANSFER RATE	6Mbps	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	0.189	0.11	46.14	45.24	46.25	45.35	64.08	54.08	-17.83	-8.73
2	0.255	0.11	37.92	-	38.03	-	61.58	-	-23.55	-
3	0.443	0.12	36.57	-	36.69	-	57.01	-	-20.32	-
4	0.951	0.17	34.43	-	34.60	-	56.00	-	-21.40	-
5	2.348	0.22	31.45	-	31.67	-	56.00	-	-24.33	-
6	22.576	1.02	33.93	-	34.95	-	60.00	-	-25.05	-

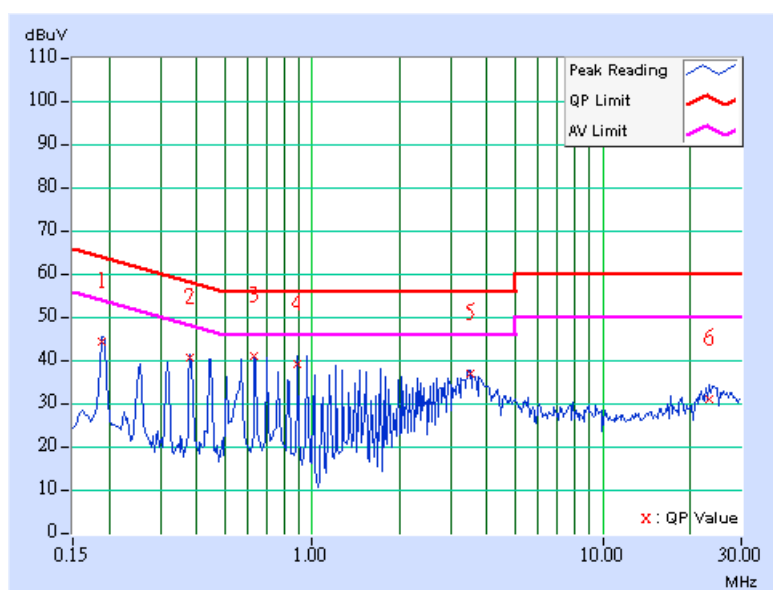
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value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



EUT	108G MIMO Wireless Desktop Adapter	MEASUREMENT DETAIL	
MODEL	DWL-G520M	PHASE	Line 2
CHANNEL	Channel 11	6dB BANDWIDTH	9 kHz
MODULATION TYPE	BPSK	ENVIRONMENTAL CONDITIONS	20deg. C, 60%RH, 991hPa
TRANSFER RATE	6Mbps	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	0.189	0.10	43.89	-	43.99	-	64.08	-	-20.09	-
2	0.380	0.11	40.26	39.94	40.37	40.05	58.27	48.27	-17.90	-8.22
3	0.634	0.13	40.38	39.14	40.51	39.27	56.00	46.00	-15.49	-6.73
4	0.892	0.16	38.49	38.39	38.65	38.55	56.00	46.00	-17.35	-7.45
5	3.500	0.26	36.34	33.39	36.60	33.65	56.00	46.00	-19.40	-12.35
6	23.295	0.62	30.47	-	31.09	-	60.00	-	-28.91	-

- 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.



5.2 RADIATED EMISSION MEASUREMENT

5.2.1 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.



5.2.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED UNTIL
Test Receiver ROHDE & SCHWARZ	ESIB7	100188	Dec. 19, 2005
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100039	Nov. 21, 2005
BILOG Antenna SCHWARZBECK	VULB9168	9168-157	Jan. 22, 2006
HORN Antenna SCHWARZBECK	BBHA 9120 D	9120D-407	Jan. 16, 2006
HORN Antenna SCHWARZBECK	BBHA 9170	BBHA 9170241	Feb. 23, 2006
Preamplifier Agilent	8449B	3008A01961	Nov. 09, 2005
Preamplifier Agilent	8447D	2944A10629	Nov. 09, 2005
RF signal cable HUBER+SUHNER	SUCOFLEX 104	218182/4	Feb. 17, 2006
RF signal cable HUBER+SUHNER	SUCOFLEX 104	218194/4	Feb. 17, 2006
Software ADT.	ADT_Radiated_V5.14	NA	NA
Antenna Tower ADT.	AT100	AT93021702	NA
Turn Table ADT.	TT100.	TT93021702	NA
Controller ADT.	SC100.	SC93021702	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 1.
 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 IC4924-2.



5.2.3 TEST PROCEDURES

- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic 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 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.

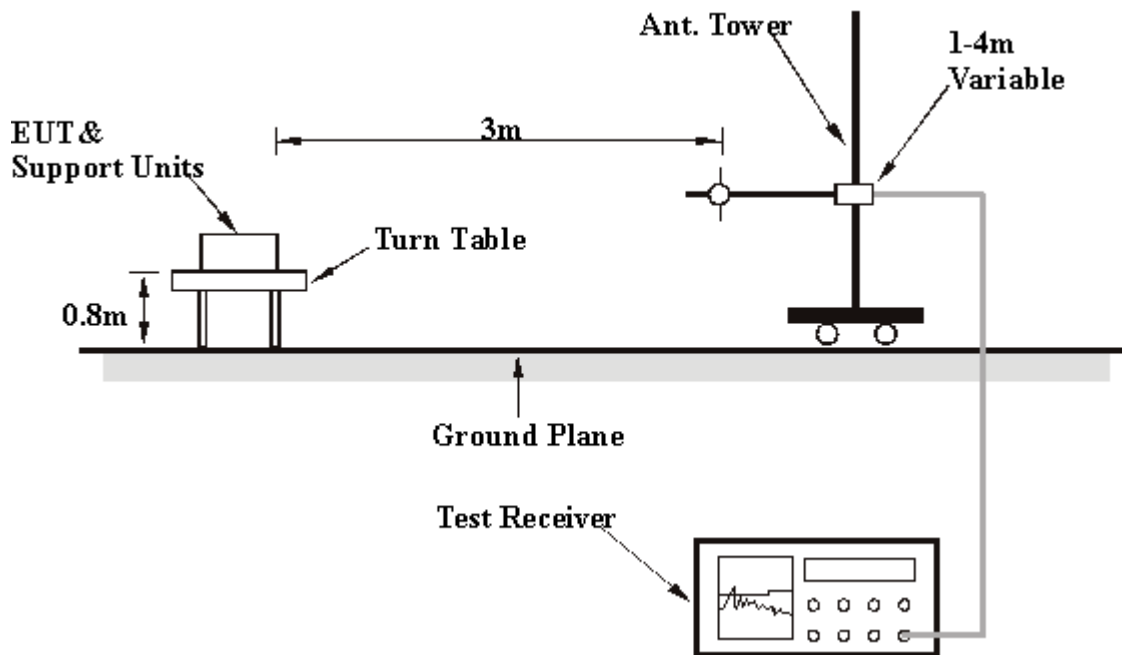
NOTE:

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 10Hz for Average detection (AV) at frequency above 1GHz.

5.2.4 DEVIATION FROM TEST STANDARD

No deviation

5.2.5 TEST SETUP



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

5.2.6 EUT OPERATING CONDITIONS

For finding the maximum radiated emission under this dual chain operation mode. The beam-forming coefficients has been adjusted to swing 30 degrees each step and pre-scans reveal that the maximum radiated emission is independent of the beam-forming coefficients, and hence the all dual chain operation is measured under the condition that both chains are output at same phase.

5.2.7 TEST RESULTS

RADIATED WORST CASE DATA: 802.11g OFDM MODULATION

EUT	108G MIMO Wireless Desktop Adapter	MEASUREMENT DETAIL	
MODEL	DWL-G520M	FREQUENCY RANGE	Below 1000MHz
CHANNEL	Channel 11	DETECTOR FUNCTION	Quasi-Peak
MODULATION TYPE	BPSK	ENVIRONMENTAL CONDITIONS	22deg. C, 53%RH, 991hPa
TRANSFER RATE	6Mbps	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	31.94	28.18 QP	40.00	-11.82	3.00 H	88	14.50	13.68
2	99.98	26.21 QP	43.50	-17.29	2.50 H	232	15.47	10.74
3	341.02	22.80 QP	46.00	-23.20	1.00 H	106	7.54	15.26
4	399.34	29.20 QP	46.00	-16.80	2.00 H	76	12.58	16.62
5	482.93	34.92 QP	46.00	-11.08	2.50 H	10	16.57	18.36
6	515.97	33.72 QP	46.00	-12.28	1.50 H	148	14.81	18.91
7	533.47	31.13 QP	46.00	-14.87	1.50 H	151	11.86	19.27
8	607.33	28.04 QP	46.00	-17.96	1.50 H	46	7.04	21.00
9	675.37	29.54 QP	46.00	-16.46	1.00 H	31	7.62	21.92
10	811.44	28.41 QP	46.00	-17.59	1.00 H	331	4.61	23.80
11	875.59	31.03 QP	46.00	-14.97	1.50 H	289	6.40	24.63
12	920.30	29.87 QP	46.00	-16.13	1.50 H	241	4.56	25.31

- 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	108G MIMO Wireless Desktop Adapter	MEASUREMENT DETAIL	
MODEL	DWL-G520M	FREQUENCY RANGE	Below 1000MHz
CHANNEL	Channel 11	DETECTOR FUNCTION	Quasi-Peak
MODULATION TYPE	BPSK	ENVIRONMENTAL CONDITIONS	22deg. C, 53%RH, 991hPa
TRANSFER RATE	6Mbps	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	31.94	29.26 QP	40.00	-10.74	3.00 V	253	15.59	13.68
2	82.48	26.08 QP	40.00	-13.92	1.00 V	277	16.28	9.80
3	99.98	24.54 QP	43.50	-18.96	1.00 V	181	13.79	10.74
4	302.14	21.91 QP	46.00	-24.09	1.50 V	211	7.54	14.38
5	399.34	27.56 QP	46.00	-18.44	1.00 V	202	10.93	16.62
6	482.93	42.05 QP	46.00	-3.95	1.00 V	31	23.70	18.36
7	496.53	42.00 QP	46.00	-4.00	2.00 V	160	23.46	18.54
8	521.80	30.05 QP	46.00	-15.95	2.00 V	181	11.02	19.03
9	607.33	30.88 QP	46.00	-15.12	1.50 V	334	9.89	21.00
10	811.44	29.49 QP	46.00	-16.51	1.50 V	355	5.69	23.80
11	945.57	31.44 QP	46.00	-14.56	1.00 V	349	5.87	25.57

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	108G MIMO Wireless Desktop Adapter	MEASUREMENT DETAIL	
MODEL	DWL-G520M	FREQUENCY RANGE	1 ~ 25GHz
CHANNEL	Channel 1	DETECTOR FUNCTION	Peak (PK) Average (AV)
MODULATION TYPE	BPSK	ENVIRONMENTAL CONDITIONS	22deg. C, 53%RH, 991hPa
TRANSFER RATE	6Mbps	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	2360.00	52.99 PK	74.00	-21.01	1.30 H	227	22.14	30.85
1	2360.00	47.07 AV	54.00	-6.93	1.30 H	227	16.22	30.85
2	2390.00	71.18 PK	74.00	-2.82	1.02 H	200	40.21	30.97
2	2390.00	52.36 AV	54.00	-1.64	1.02 H	200	21.39	30.97
3	*2412.00	109.51 PK			1.02 H	200	78.45	31.06
3	*2412.00	99.79 AV			1.02 H	200	68.73	31.06
4	2688.00	45.68 PK	74.00	-28.32	1.18 H	179	13.90	31.78
4	2688.00	40.97 AV	54.00	-13.03	1.18 H	179	9.19	31.78

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	2360.00	48.15 PK	74.00	-25.85	1.34 V	166	17.30	30.85
1	2360.00	41.04 AV	54.00	-12.96	1.34 V	166	10.19	30.85
2	2390.00	61.74 PK	74.00	-12.26	1.32 V	148	30.77	30.97
2	2390.00	47.25 AV	54.00	-6.75	1.32 V	148	16.28	30.97
3	*2412.00	104.15 PK			1.32 V	148	73.09	31.06
3	*2412.00	93.54 AV			1.32 V	148	62.48	31.06

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	108G MIMO Wireless Desktop Adapter	MEASUREMENT DETAIL	
MODEL	DWL-G520M	FREQUENCY RANGE	1 ~ 25GHz
CHANNEL	Channel 6	DETECTOR FUNCTION	Peak (PK) Average (AV)
MODULATION TYPE	BPSK	ENVIRONMENTAL CONDITIONS	22deg. C, 53%RH, 991hPa
TRANSFER RATE	6Mbps	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	2360.00	56.59 PK	74.00	-17.41	1.26 H	56	25.74	30.85
1	2360.00	50.14 AV	54.00	-3.86	1.26 H	56	19.29	30.85
2	2390.00	58.18 PK	74.00	-15.82	1.00 H	359	27.21	30.97
2	2390.00	45.66 AV	54.00	-8.34	1.00 H	359	14.69	30.97
3	*2437.00	114.57 PK			1.00 H	359	83.40	31.17
3	*2437.00	103.67 AV			1.00 H	359	72.50	31.17
4	2483.50	60.36 PK	74.00	-13.64	1.00 H	359	28.99	31.37
4	2483.50	47.98 AV	54.00	-6.02	1.00 H	359	16.61	31.37
5	2688.00	46.14 PK	74.00	-27.86	1.15 H	356	14.36	31.78
5	2688.00	42.33 AV	54.00	-11.67	1.15 H	356	10.55	31.78

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2390.00	51.77 PK	74.00	-22.23	1.33 V	1	20.80	30.97
1	2390.00	44.19 AV	54.00	-9.81	1.33 V	1	13.22	30.97
2	*2437.00	105.33 PK			1.33 V	1	74.16	31.17
2	*2437.00	94.88 AV			1.33 V	1	63.71	31.17
3	2483.50	54.15 PK	74.00	-19.85	1.33 V	1	22.78	31.37
3	2483.50	44.29 AV	54.00	-9.71	1.33 V	1	12.92	31.37
4	2688.00	51.46 PK	74.00	-22.54	1.28 V	358	19.68	31.78
4	2688.00	44.46 AV	54.00	-9.54	1.28 V	358	12.68	31.78

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	108G MIMO Wireless Desktop Adapter	MEASUREMENT DETAIL	
MODEL	DWL-G520M	FREQUENCY RANGE	1 ~ 25GHz
CHANNEL	Channel 11	DETECTOR FUNCTION	Peak (PK) Average (AV)
MODULATION TYPE	BPSK	ENVIRONMENTAL CONDITIONS	22deg. C, 53%RH, 991hPa
TRANSFER RATE	6Mbps	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	2360.00	53.78 PK	74.00	-20.22	1.31 H	226	22.93	30.85
1	2360.00	47.13 AV	54.00	-6.87	1.31 H	226	16.28	30.85
2	*2462.00	108.60 PK			1.01 H	179	77.32	31.28
2	*2462.00	98.38 AV			1.01 H	179	67.10	31.28
3	2483.50	66.66 PK	74.00	-7.34	1.01 H	179	35.29	31.37
3	2483.50	52.57 AV	54.00	-1.43	1.01 H	179	21.20	31.37
4	2688.00	46.21 PK	74.00	-27.79	1.42 H	175	14.43	31.78
4	2688.00	42.36 AV	54.00	-11.64	1.42 H	175	10.58	31.78

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	2360.00	46.96 PK	74.00	-27.04	1.29 V	16	16.11	30.85
1	2360.00	40.40 AV	54.00	-13.60	1.29 V	16	9.55	30.85
2	*2462.00	98.80 PK			1.35 V	167	67.52	31.28
2	*2462.00	89.76 AV			1.35 V	167	58.48	31.28
3	2483.50	59.78 PK	74.00	-14.22	1.35 V	167	28.41	31.37
3	2483.50	45.87 AV	54.00	-8.13	1.35 V	167	14.50	31.37

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.



802.11g OFDM TURBO MODULATION

EUT	108G MIMO Wireless Desktop Adapter	MEASUREMENT DETAIL	
MODEL	DWL-G520M	FREQUENCY RANGE	Below 1000MHz
CHANNEL	Channel 6	DETECTOR FUNCTION	Quasi-Peak
MODULATION TYPE	BPSK	ENVIRONMENTAL CONDITIONS	22deg. C, 53%RH, 991hPa
TRANSFER RATE	12Mbps	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	57.21	21.70 QP	40.00	-18.30	1.00 H	358	7.96	13.74
2	107.76	27.52 QP	43.50	-15.98	1.50 H	37	15.98	11.54
3	307.98	23.29 QP	46.00	-22.71	1.00 H	115	8.78	14.51
4	399.34	27.47 QP	46.00	-18.53	2.00 H	76	10.85	16.62
5	488.76	41.33 QP	46.00	-4.67	2.00 H	151	22.89	18.43
6	496.53	40.25 QP	46.00	-5.75	1.50 H	160	21.71	18.54
7	533.47	30.67 QP	46.00	-15.33	1.50 H	142	11.40	19.27
8	675.37	29.16 QP	46.00	-16.84	1.00 H	79	7.24	21.92
9	875.59	31.53 QP	46.00	-14.47	1.00 H	295	6.90	24.63
10	920.30	32.50 QP	46.00	-13.50	1.50 H	244	7.19	25.31

- 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	108G MIMO Wireless Desktop Adapter	MEASUREMENT DETAIL	
MODEL	DWL-G520M	FREQUENCY RANGE	Below 1000MHz
CHANNEL	Channel 6	DETECTOR FUNCTION	Quasi-Peak
MODULATION TYPE	BPSK	ENVIRONMENTAL CONDITIONS	22deg. C, 53%RH, 991hPa
TRANSFER RATE	12Mbps	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	31.94	24.20 QP	40.00	-15.80	1.00 V	337	10.52	13.68
2	99.98	27.05 QP	43.50	-16.45	1.00 V	193	16.31	10.74
3	298.26	22.21 QP	46.00	-23.79	2.00 V	199	7.91	14.30
4	399.34	23.68 QP	46.00	-22.32	1.50 V	184	7.05	16.62
5	482.93	41.44 QP	46.00	-4.56	1.00 V	31	23.09	18.36
6	496.53	39.51 QP	46.00	-6.49	1.00 V	175	20.97	18.54
7	603.45	30.75 QP	46.00	-15.25	1.00 V	352	9.81	20.94
8	875.59	31.52 QP	46.00	-14.48	1.50 V	169	6.90	24.63
9	914.47	30.43 QP	46.00	-15.57	1.00 V	355	5.18	25.25
10	945.57	33.04 QP	46.00	-12.96	1.00 V	337	7.48	25.57

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	108G MIMO Wireless Desktop Adapter	MEASUREMENT DETAIL	
MODEL	DWL-G520M	FREQUENCY RANGE	1 ~ 25GHz
CHANNEL	Channel 6	DETECTOR FUNCTION	Peak (PK) Average (AV)
MODULATION TYPE	BPSK	ENVIRONMENTAL CONDITIONS	22deg. C, 53%RH, 991hPa
TRANSFER RATE	12Mbps	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	2280.00	54.51 PK	74.00	-19.49	1.10 H	145	23.97	30.54
1	2280.00	44.93 AV	54.00	-9.07	1.10 H	145	14.39	30.54
2	2390.00	61.17 PK	74.00	-12.83	1.28 H	190	30.20	30.97
2	2390.00	49.54 AV	54.00	-4.46	1.28 H	190	18.57	30.97
3	*2437.00	106.61 PK			1.28 H	190	75.44	31.17
3	*2437.00	97.24 AV			1.28 H	190	66.07	31.17
4	2483.50	63.47 PK	74.00	-10.53	1.28 H	190	32.10	31.37
4	2483.50	51.36 AV	54.00	-2.64	1.28 H	190	19.99	31.37

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	2280.00	47.75 PK	74.00	-26.25	1.34 V	151	17.21	30.54
1	2280.00	38.36 AV	54.00	-15.64	1.34 V	151	7.82	30.54
2	2390.00	53.76 PK	74.00	-20.24	1.56 V	161	22.79	30.97
2	2390.00	44.80 AV	54.00	-9.20	1.56 V	161	13.83	30.97
3	*2437.00	98.46 PK			1.56 V	161	67.29	31.17
3	*2437.00	88.95 AV			1.56 V	161	57.78	31.17
4	2483.50	58.45 PK	74.00	-15.55	1.56 V	161	27.08	31.37
4	2483.50	47.25 AV	54.00	-6.75	1.56 V	161	15.88	31.37

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.

5.3 6dB BANDWIDTH MEASUREMENT

5.3.1 LIMITS OF 6dB BANDWIDTH MEASUREMENT

The minimum of 6dB Bandwidth Measurement is 0.5 MHz.

5.3.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED UNTIL
SPECTRUM ANALYZER	FSEK30	100049	Aug. 12, 2005

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

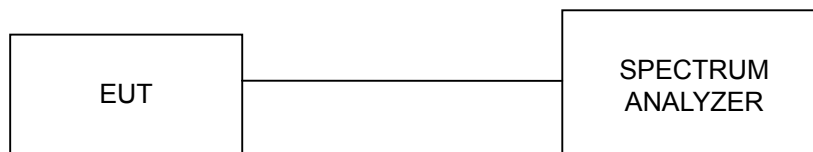
5.3.3 TEST PROCEDURE

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

5.3.4 DEVIATION FROM TEST STANDARD

No deviation

5.3.5 TEST SETUP



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

5.3.6 EUT OPERATING CONDITIONS

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

5. 3.7 TEST RESULTS

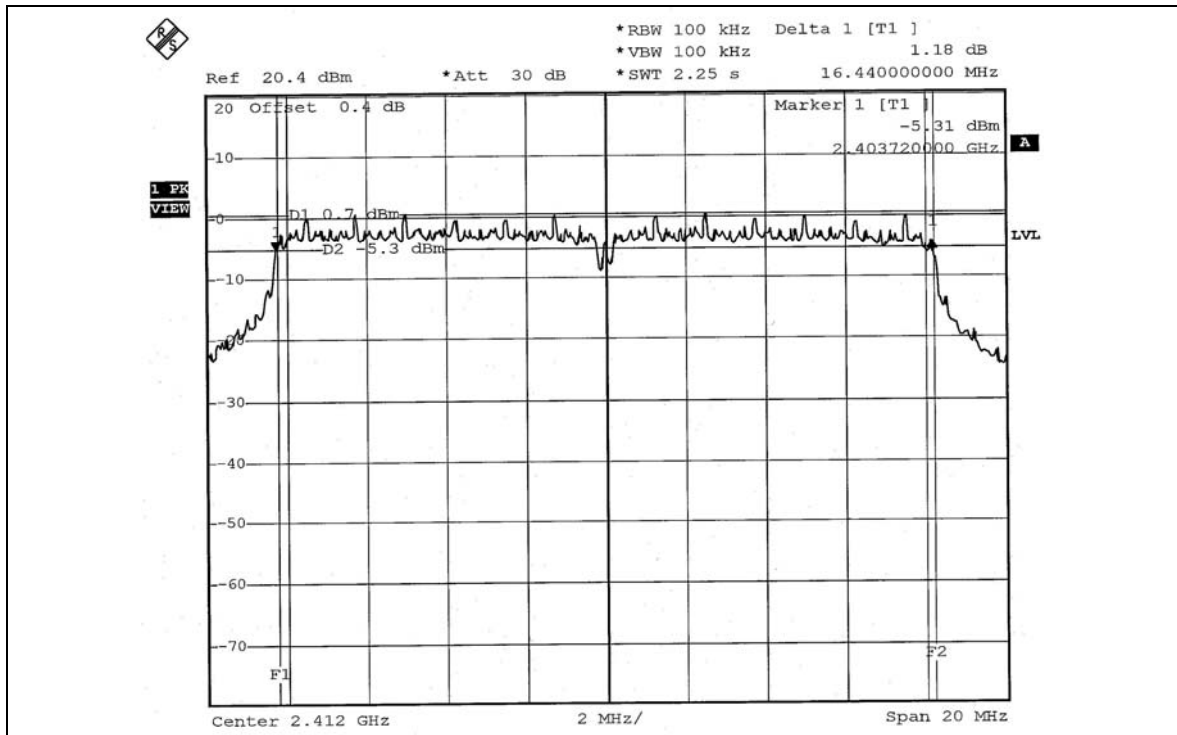
802.11g OFDM MODULATION

EUT	108G MIMO Wireless Desktop Adapter	MODEL	DWL-G520M
MODULATION TYPE	BPSK	TRANSFER RATE	6Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	24deg. C, 53%RH, 991hPa
TESTED BY	Match Tsui		

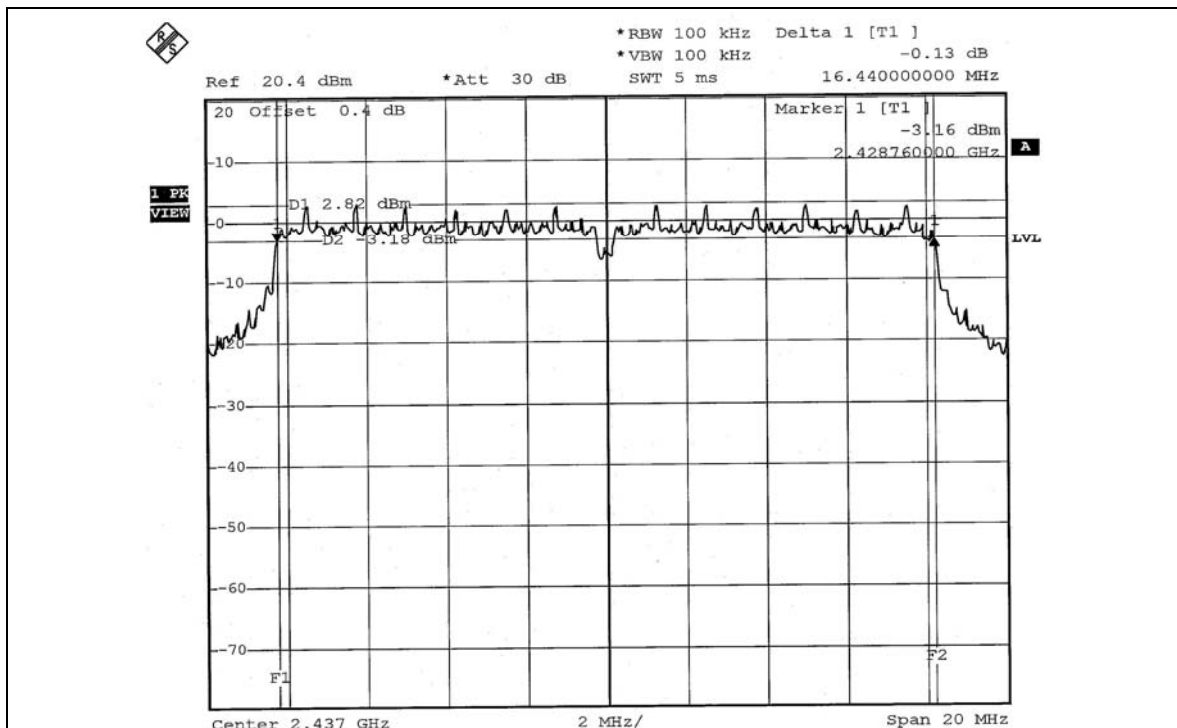
CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)		MINIMUM LIMIT (MHz)	PASS/FAIL
		CHAIN 0	CHAIN 1		
1	2412	16.44	16.44	0.5	PASS
6	2437	16.44	16.44	0.5	PASS
11	2462	16.44	16.44	0.5	PASS

FOR CHAIN 0:

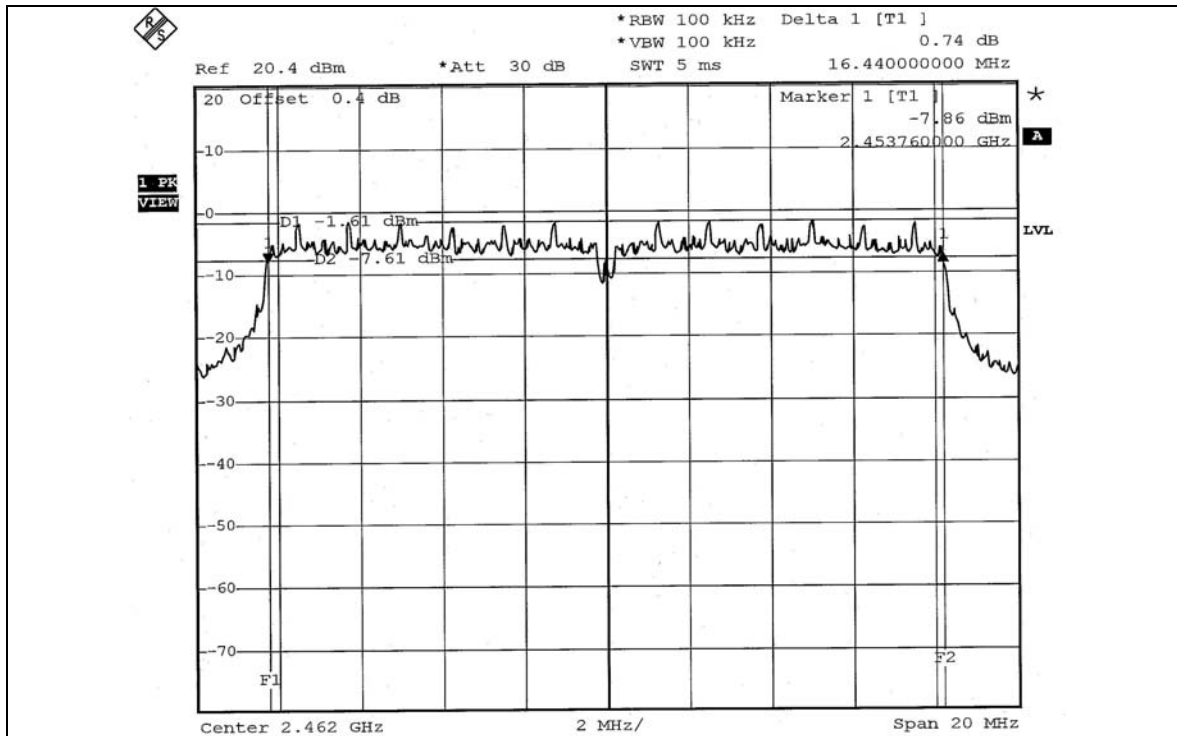
CH1



CH6

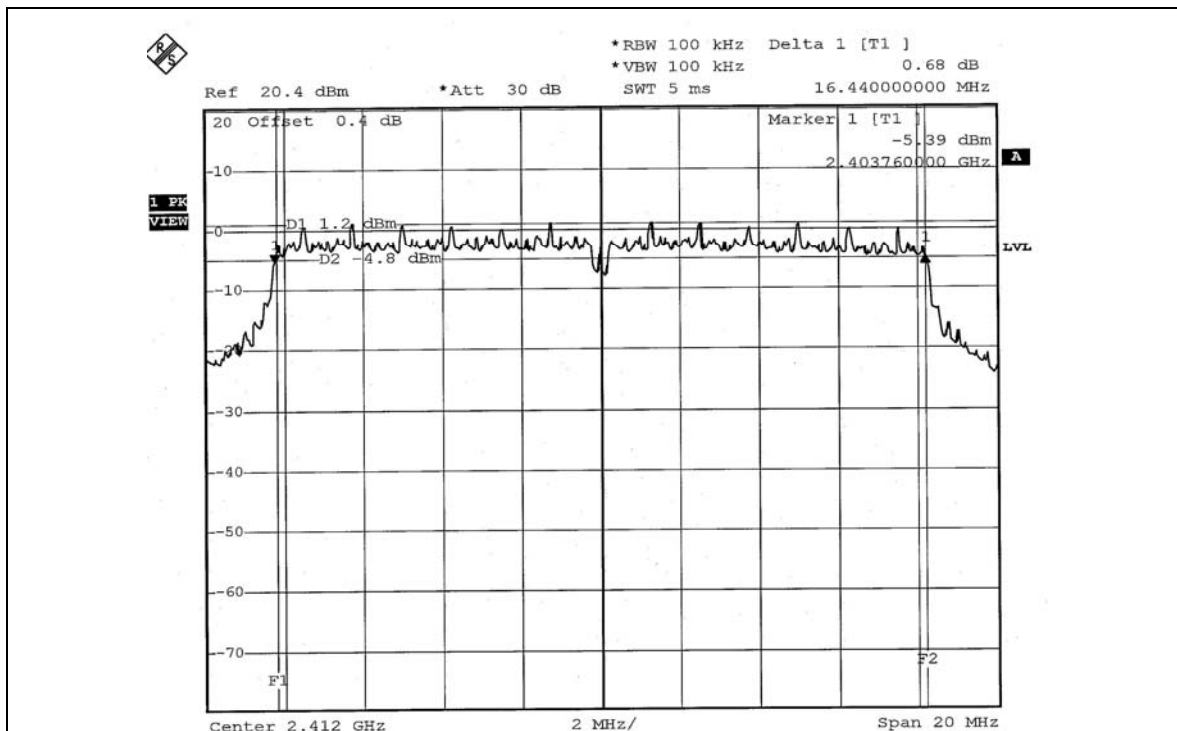


CH11

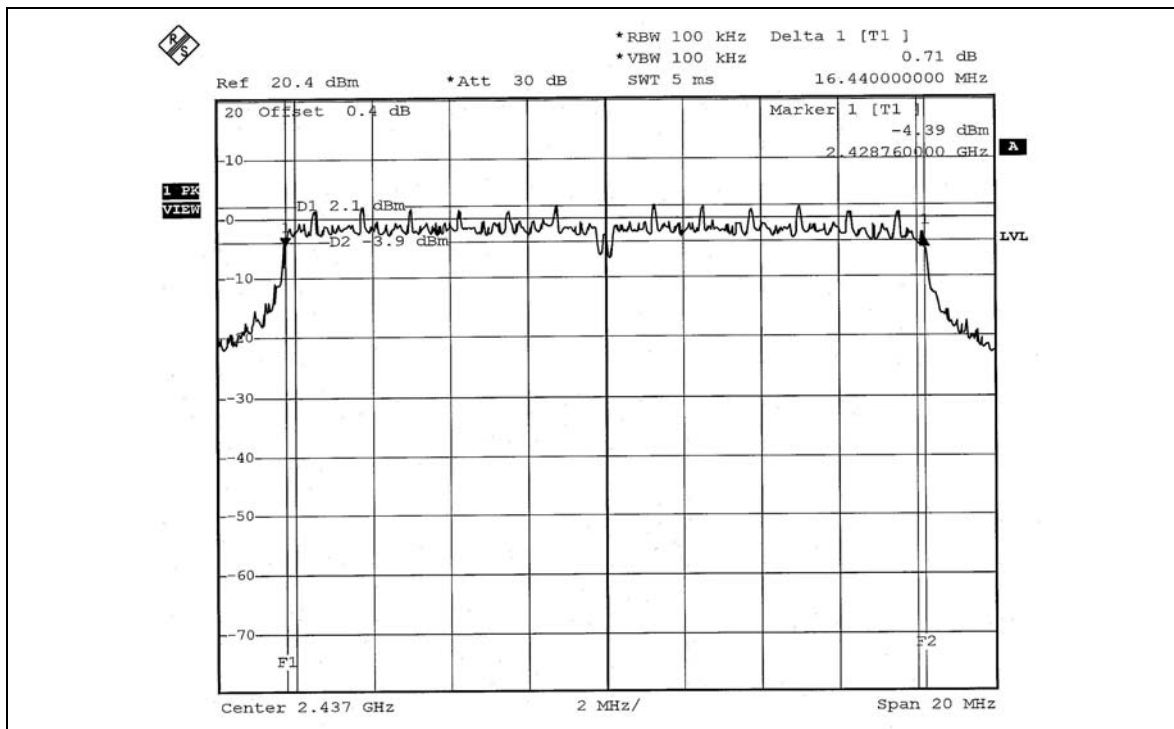


FOR CHAIN 1:

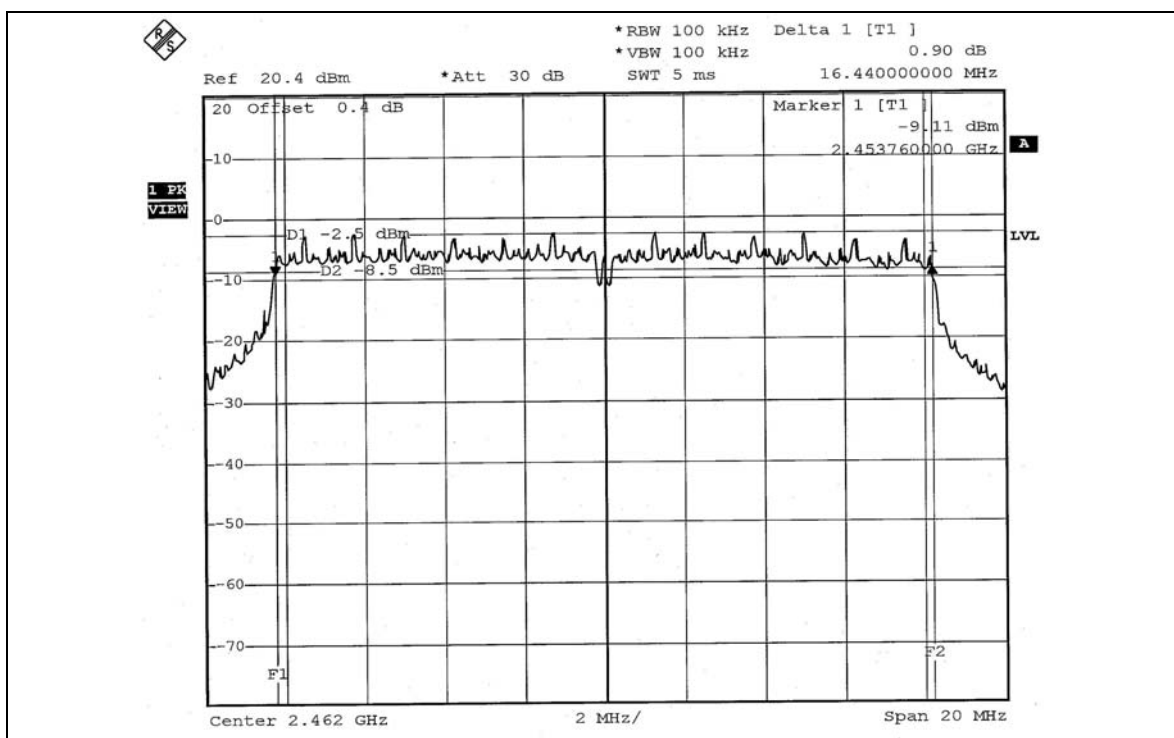
CH1



CH6



CH11





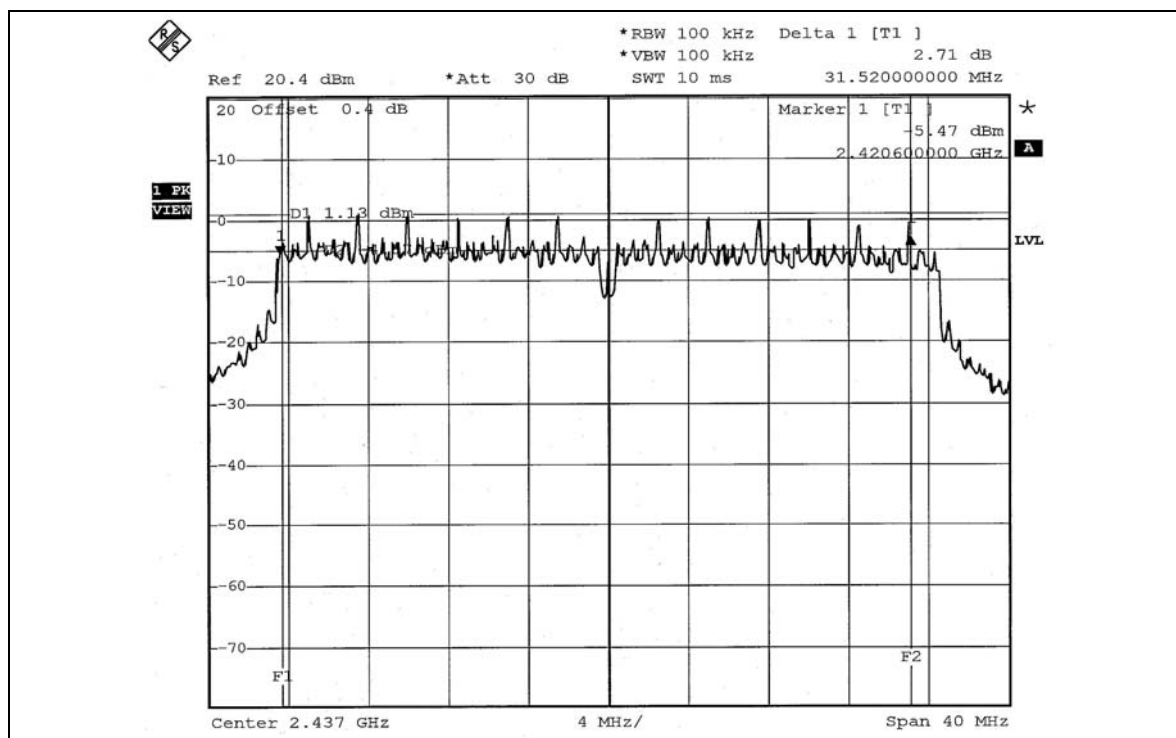
802.11g OFDM TURBO MODULATION

EUT	108G MIMO Wireless Desktop Adapter	MODEL	DWL-G520M
MODULATION TYPE	BPSK	TRANSFER RATE	12Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	24deg. C, 53%RH, 991hPa
TESTED BY	Match Tsui		

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)		MINIMUM LIMIT (MHz)	PASS/FAIL
		CHAIN 0	CHAIN 1		
6	2437	31.52	32.16	0.5	PASS

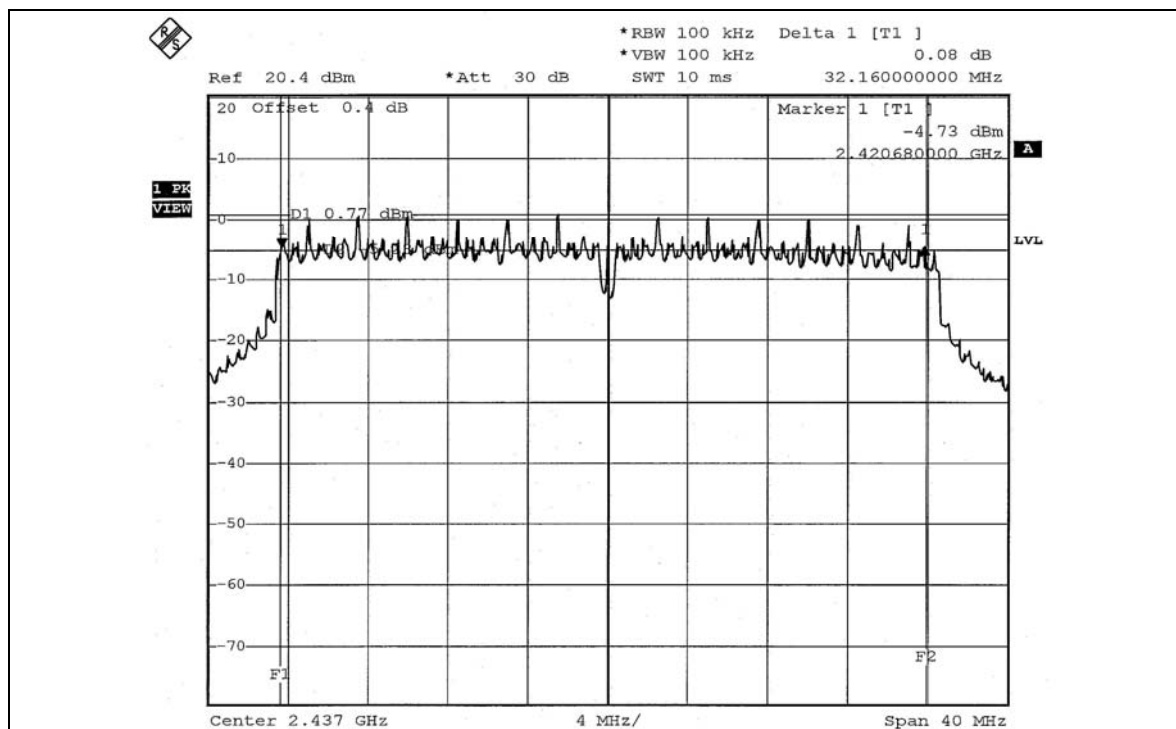
FOR CHAIN 0:

CH6



FOR CHAIN 1:

CH6





5.4 MAXIMUM PEAK OUTPUT POWER

5.4.1 LIMITS OF MAXIMUM PEAK OUTPUT POWER MEASUREMENT

The Maximum Peak Output Power Measurement is 30dBm.

5.4.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED UNTIL
R&S SPECTRUM ANALYZER	FSEK30	100049	Aug. 12, 2005
AGILENT SIGNAL GENERATOR	E8257C	MY43320668	Dec. 06, 2005
TEKTRONIX OSCILLOSCOPE	TDS 220	C019167	Feb. 01, 2006
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.