

5.4.3 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.

5.4.4 DEVIATION FROM TEST STANDARD

No deviation

5.4.5 TEST SETUP



5.4.6 EUT OPERATING CONDITIONS

Same as Item 5.3.6

5.4.7 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)	PEAK POWER OUTPUT (mW)		PEAK POWER OUTPUT (dBm)		TOTAL PEAK POWER (mW)	TOTAL PEAK POWER (dBm)	PEAK POWER LIMIT (dBm)	PASS/FAIL
		CHAIN 0	CHAIN 1	CHAIN 0	CHAIN 1				
1	2412	31.623	32.434	15.00	15.11	64.057	18.07	30	PASS
6	2437	51.286	52.119	17.10	17.17	103.405	20.15	30	PASS
11	2462	25.235	25.645	14.02	14.09	50.880	17.07	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)		TOTAL PEAK POWER (mW)	TOTAL PEAK POWER (dBm)	PEAK POWER LIMIT (dBm)	PASS/FAIL
		CHAIN 0	CHAIN 1	CHAIN 0	CHAIN 1				
6	2437	39.994	40.179	16.02	16.04	80.173	19.04	30	PASS



5.5 POWER SPECTRAL DENSITY MEASUREMENT

5.5.1 LIMITS OF POWER SPECTRAL DENSITY MEASUREMENT

The Maximum of Power Spectral Density Measurement is 8dBm.

5.5.2 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.

5.5.3 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.

5.5.4 DEVIATION FROM TEST STANDARD

No deviation

5.5.5 TEST SETUP



5.5.6 EUT OPERATING CONDITIONS

Same as 4.3.6



5.5.7 TEST RESULTS

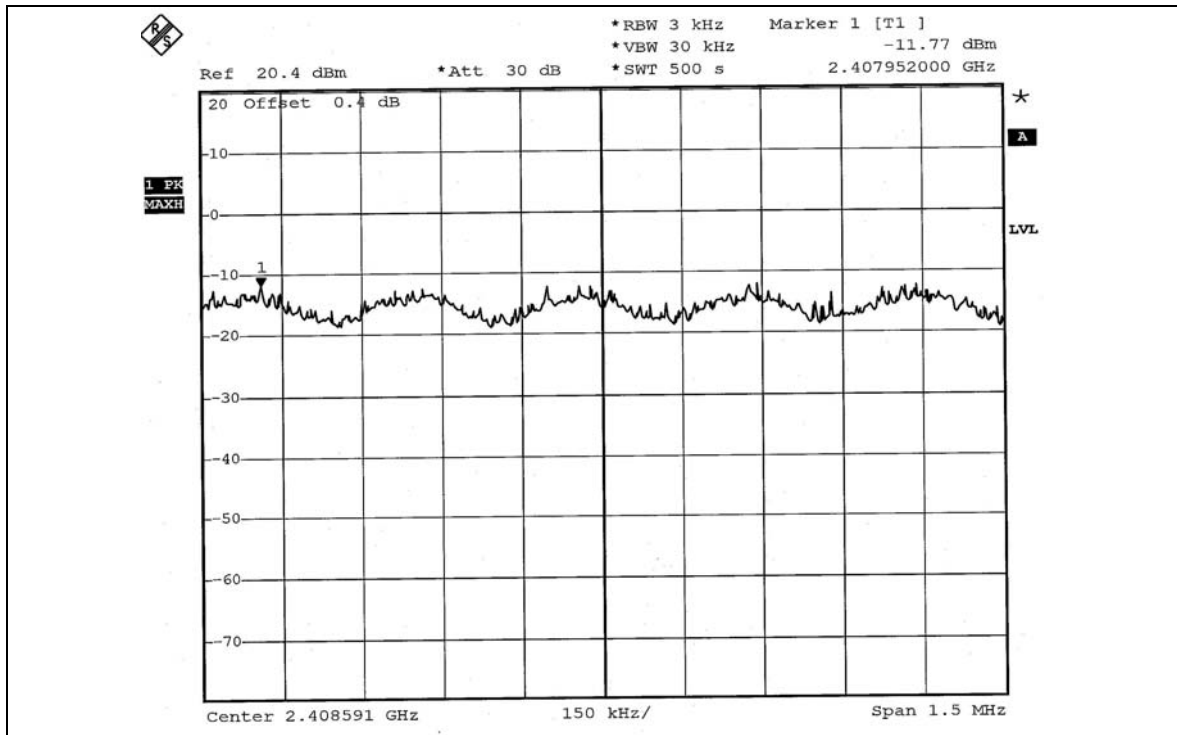
802.11g OFDM MODULATION

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		

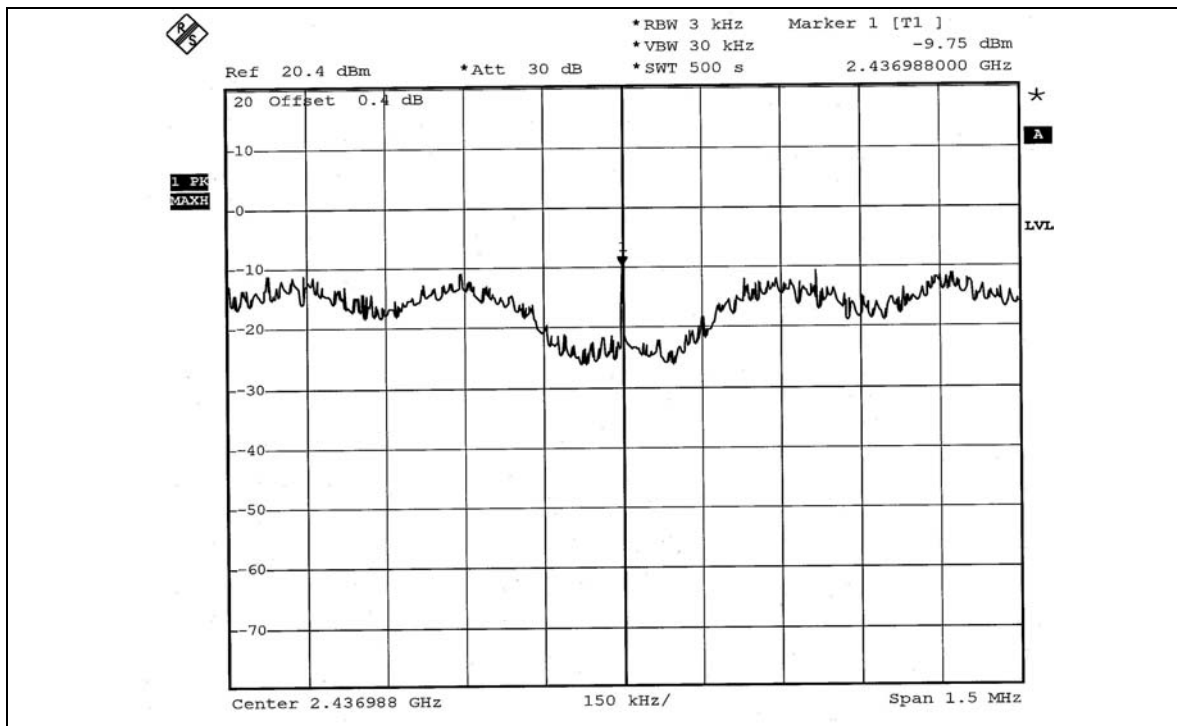
CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3 kHz BW (dBm)		MAXIMUM LIMIT (dBm)	PASS/FAIL
		CHAIN 0	CHAIN 1		
1	2412	-11.77	-11.12	8	PASS
6	2437	-9.75	-9.29	8	PASS
11	2462	-12.87	-12.77	8	PASS

FOR CHAIN 0:

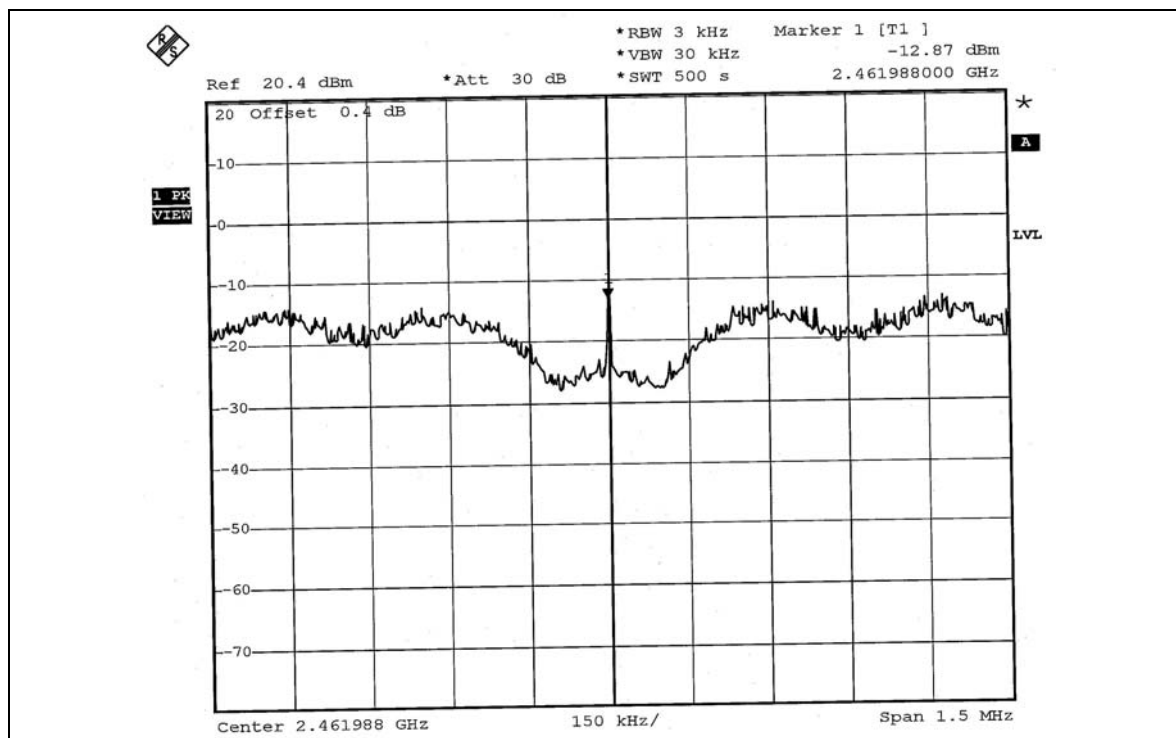
CH1



CH6

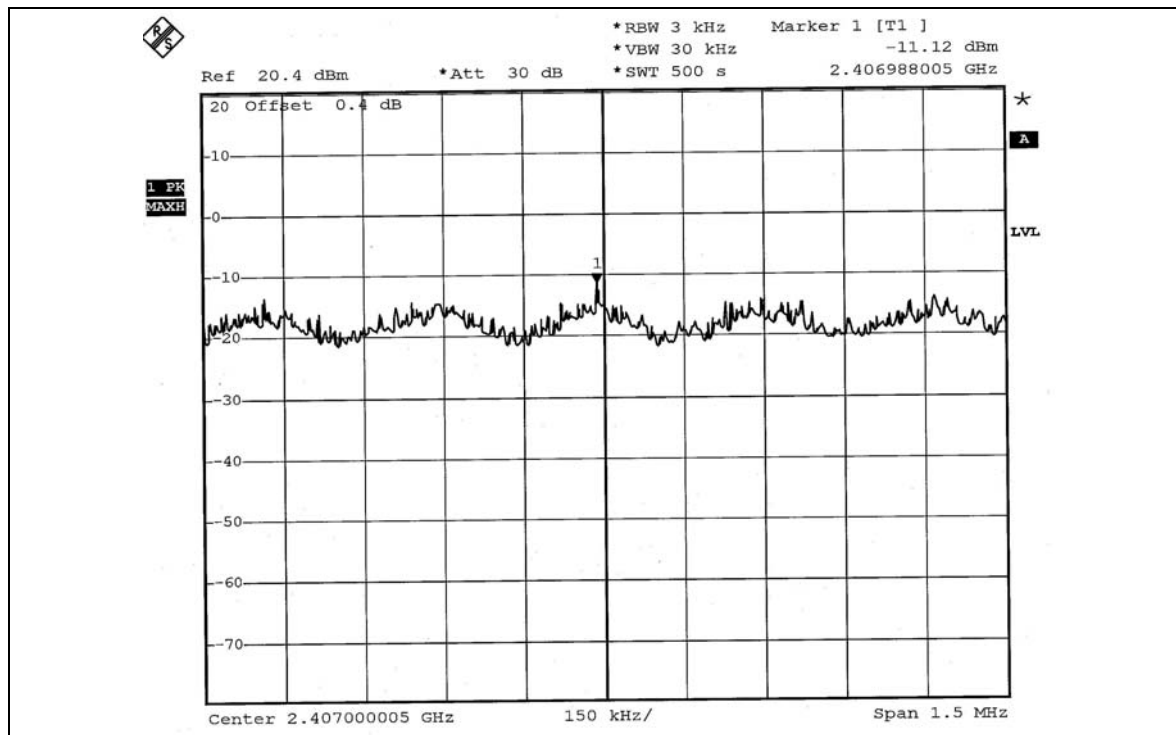


CH11

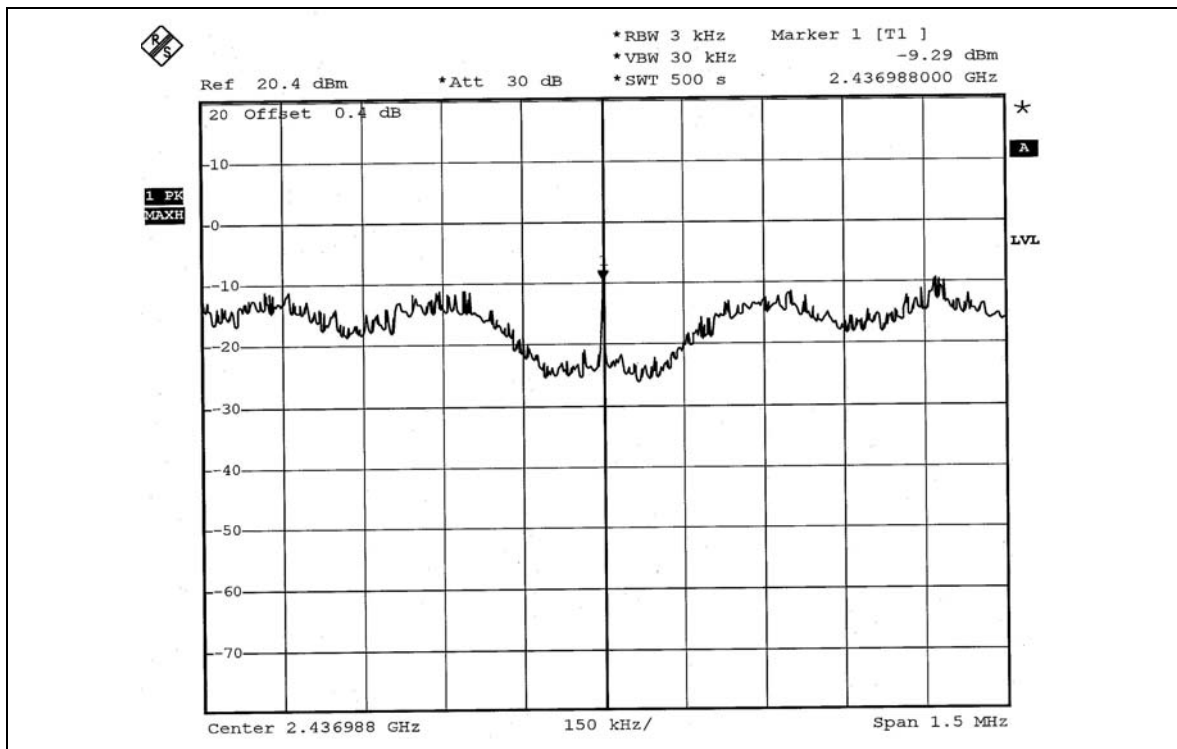


FOR CHAIN 1:

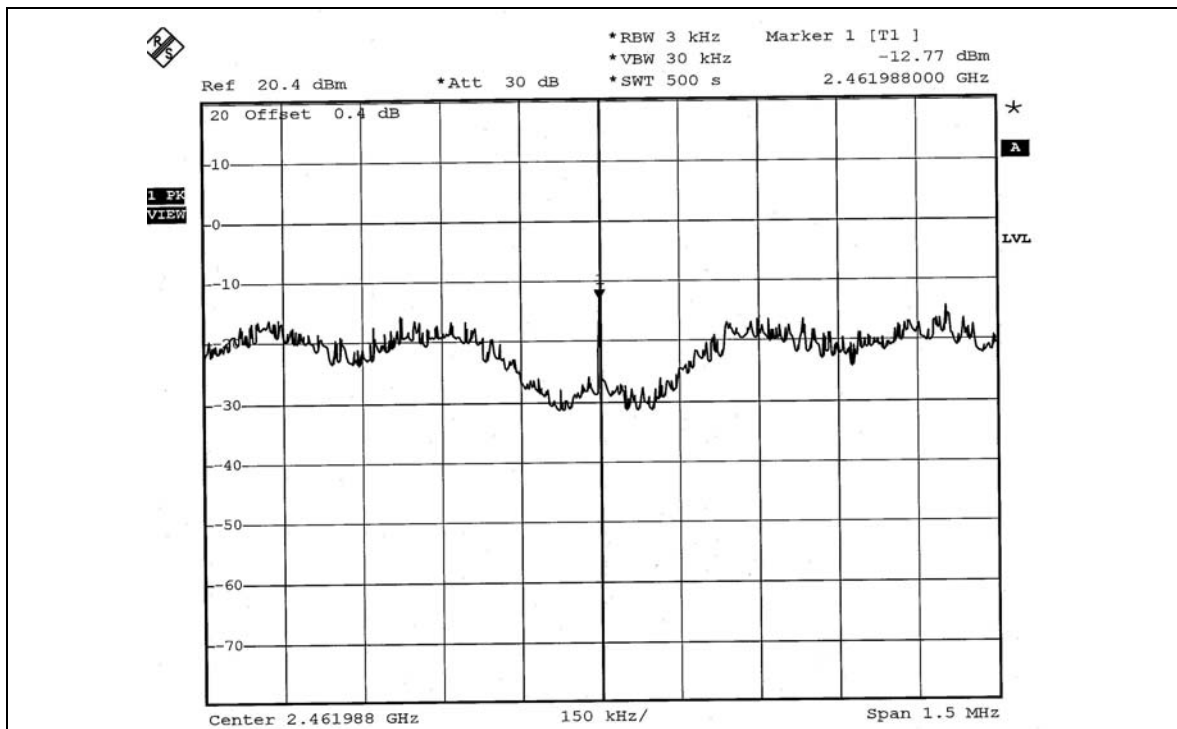
CH1



CH6



CH11





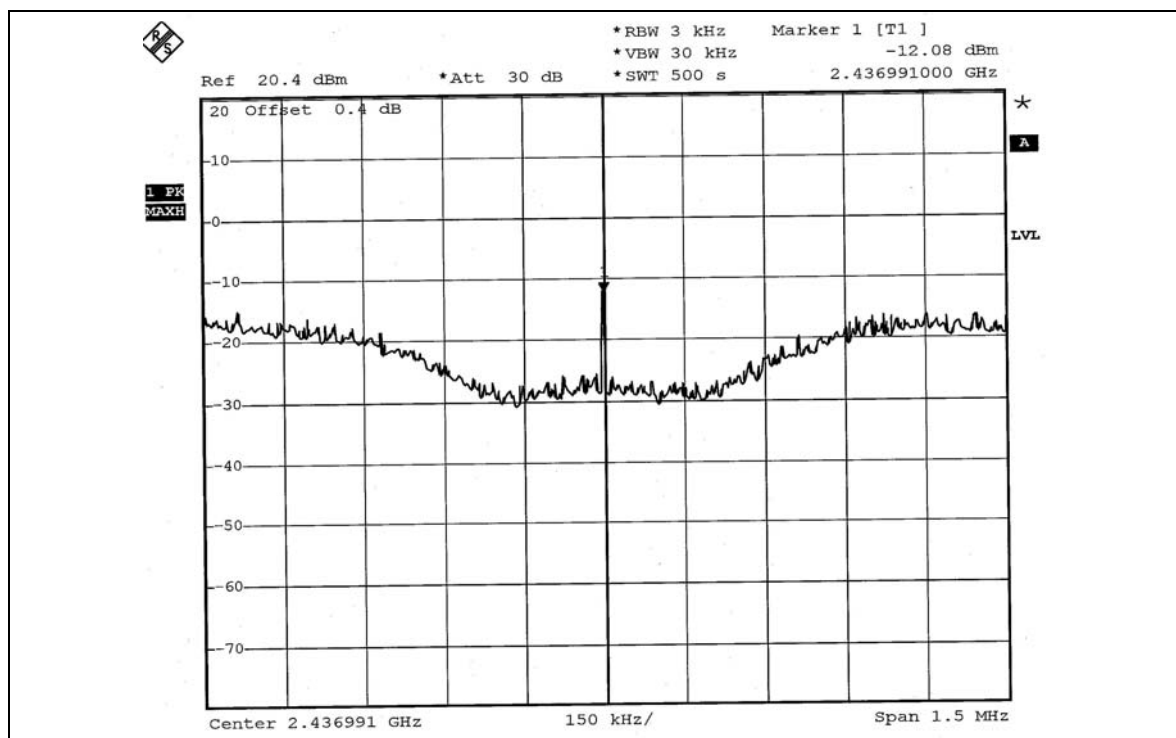
802.11g OFDM TURBO MODULATION

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)	RF POWER LEVEL IN 3 kHz BW (dBm)		MAXIMUM LIMIT (dBm)	PASS/FAIL
		CHAIN 0	CHAIN 1		
6	2437	-12.08	-12.08	8	PASS

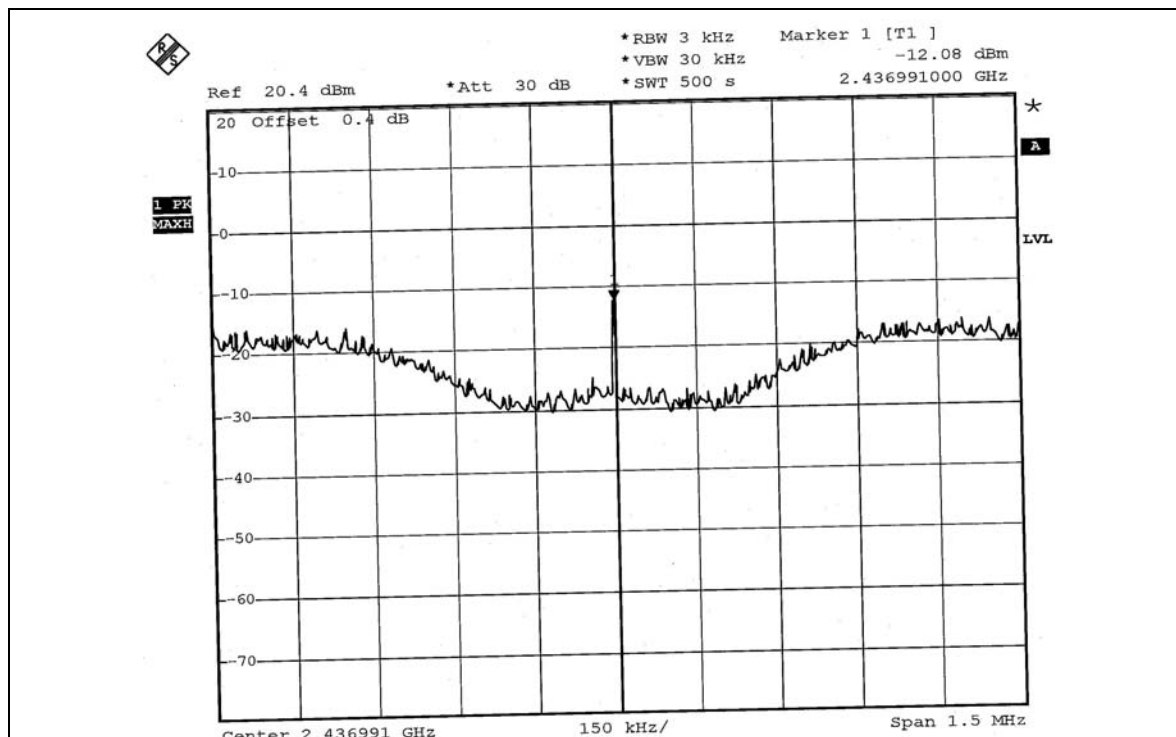
FOR CHAIN 0:

CH6



FOR CHAIN 1:

CH6



5.6 BAND EDGES MEASUREMENT

5.6.1 LIMITS OF BAND EDGES MEASUREMENT

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

5.6.2 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.



5.6.3 TEST PROCEDURE

- 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. 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)

NOTE: The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 1kHz for Average detection (AV) at frequency above 1GHz.

5.6.4 DEVIATION FROM TEST STANDARD

No deviation

5.6.5 EUT OPERATING CONDITION

Same as Item 4.3.6



5.6.6 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).

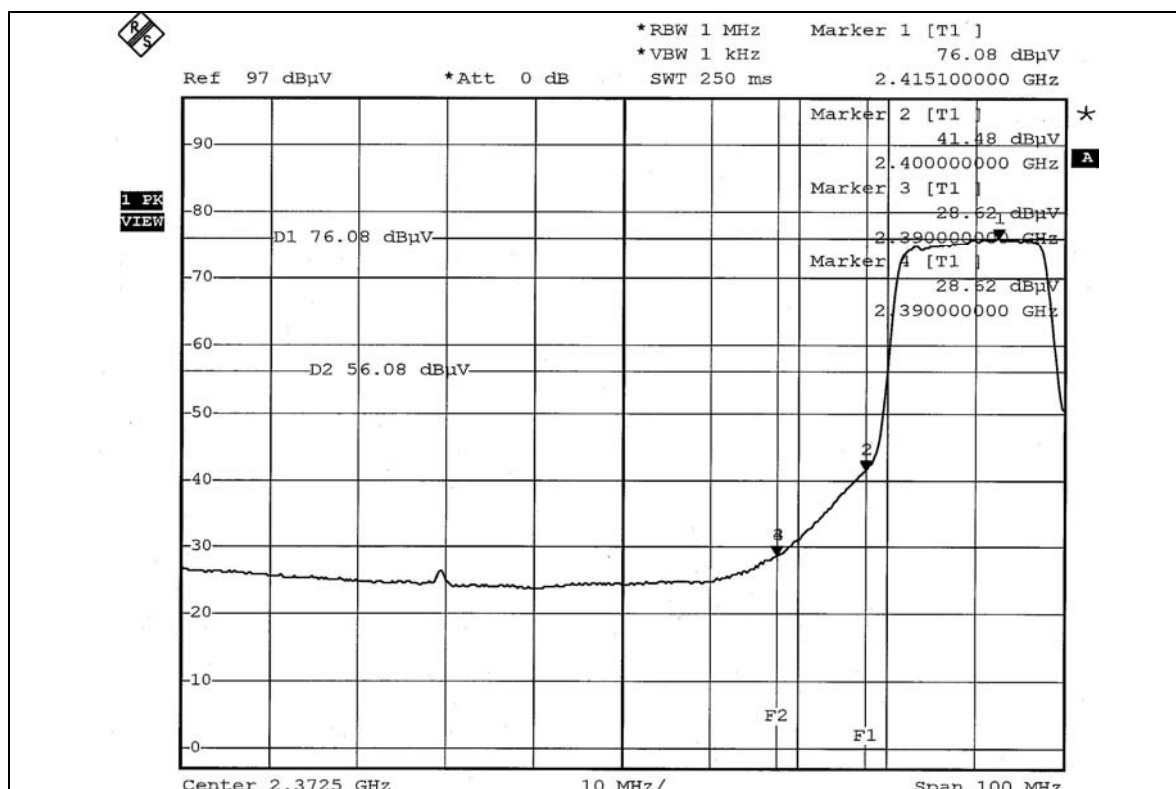
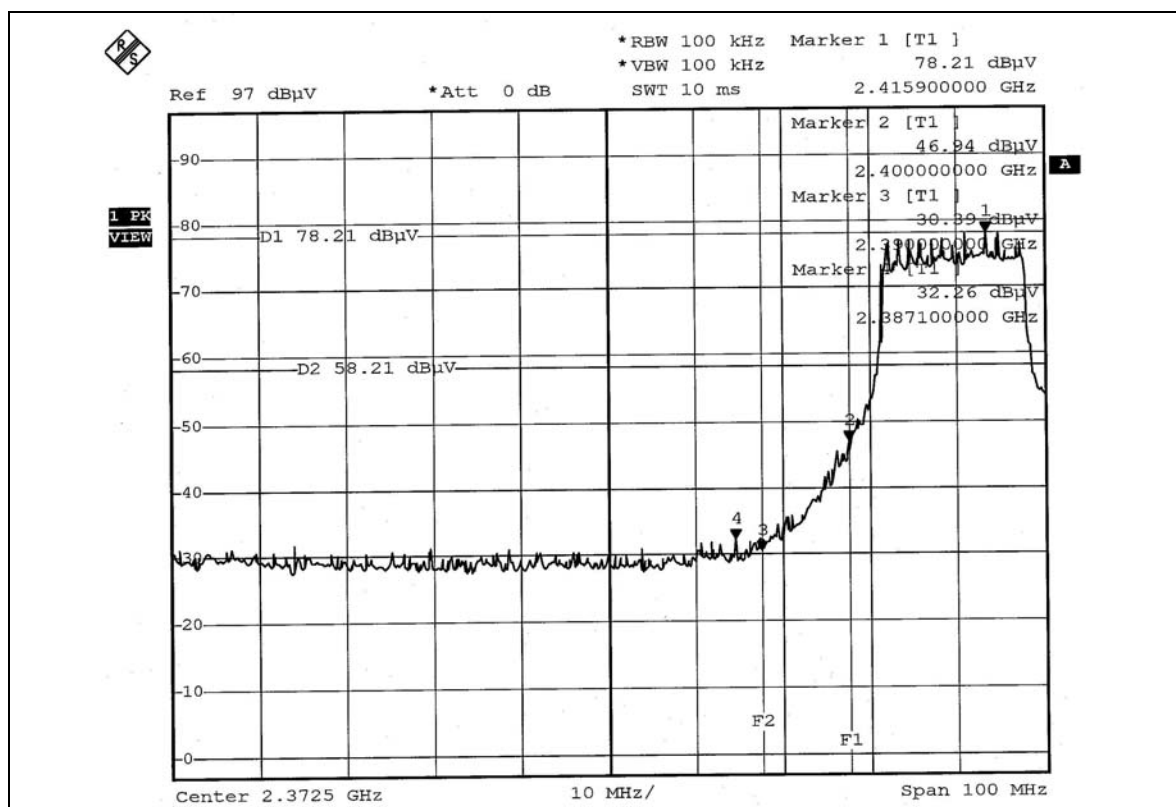
802.11g OFDM MODULATION

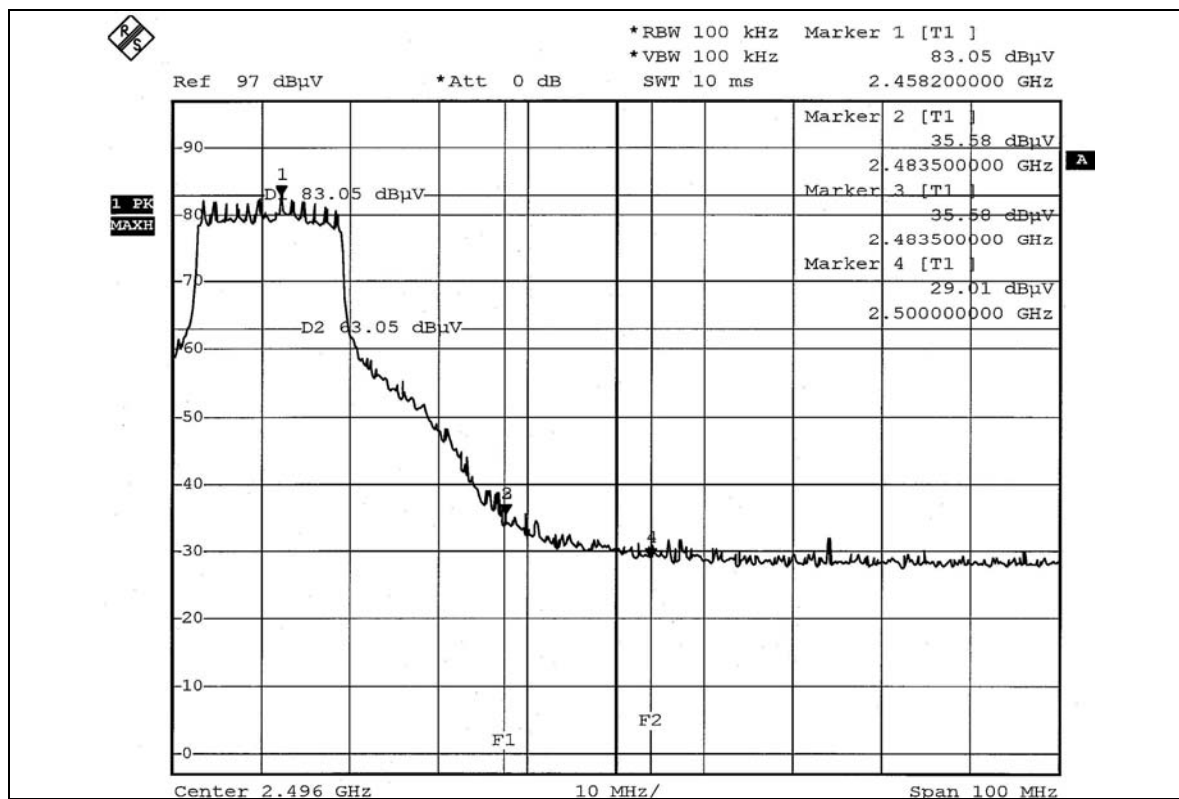
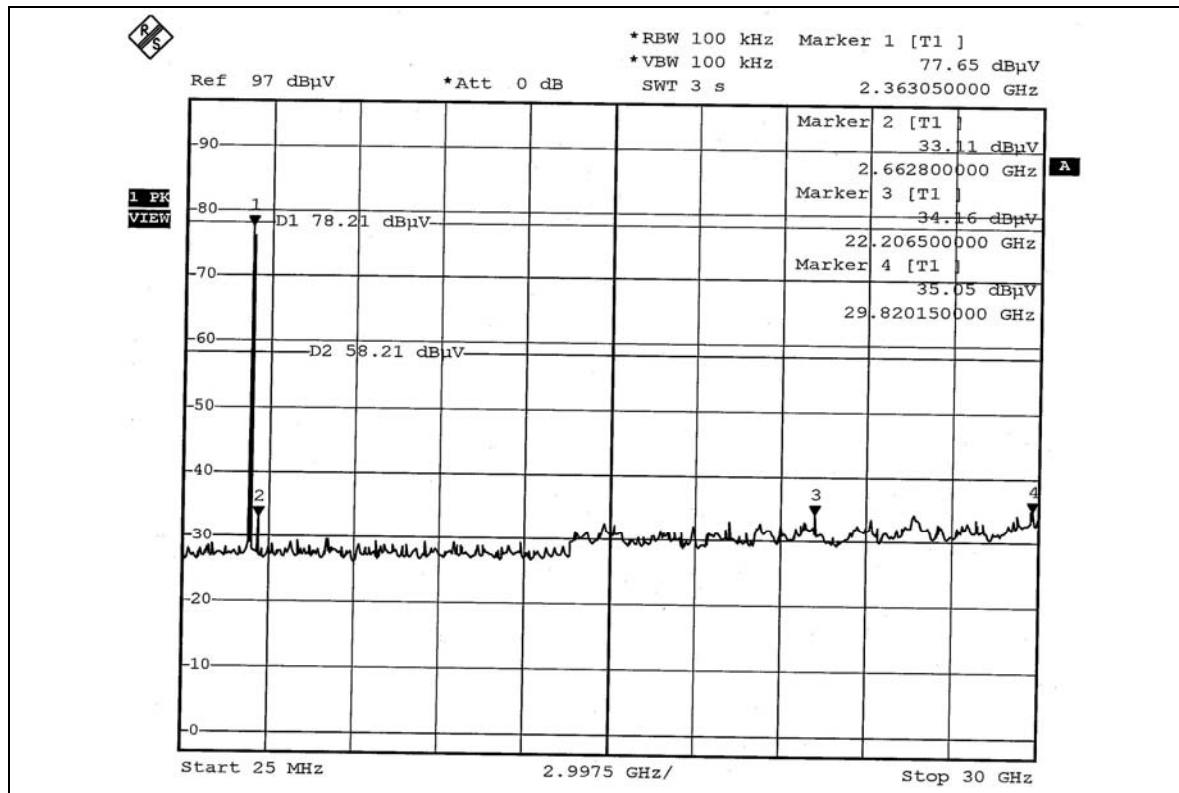
NOTE 1: The band edge emission plot on page 120 shows 45.95dBc between carrier maximum power and local maximum emission in restrict band (2.3871GHz). The emission of carrier strength list in the test result of channel 1 at the item 5.2.7 is 109.51dBuV/m (Peak), so the maximum field strength in restrict band is $109.51 - 45.95 = 63.56$ dBuV/m, which is under 74dBuV/m limit.

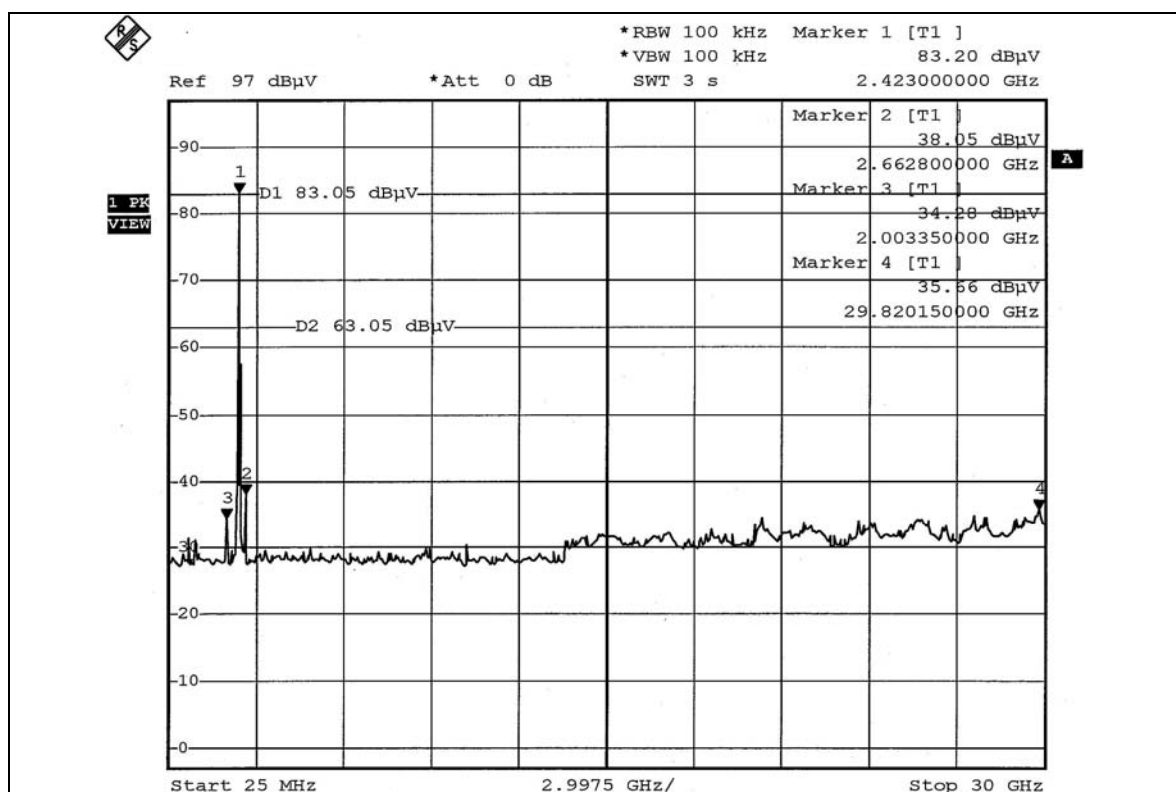
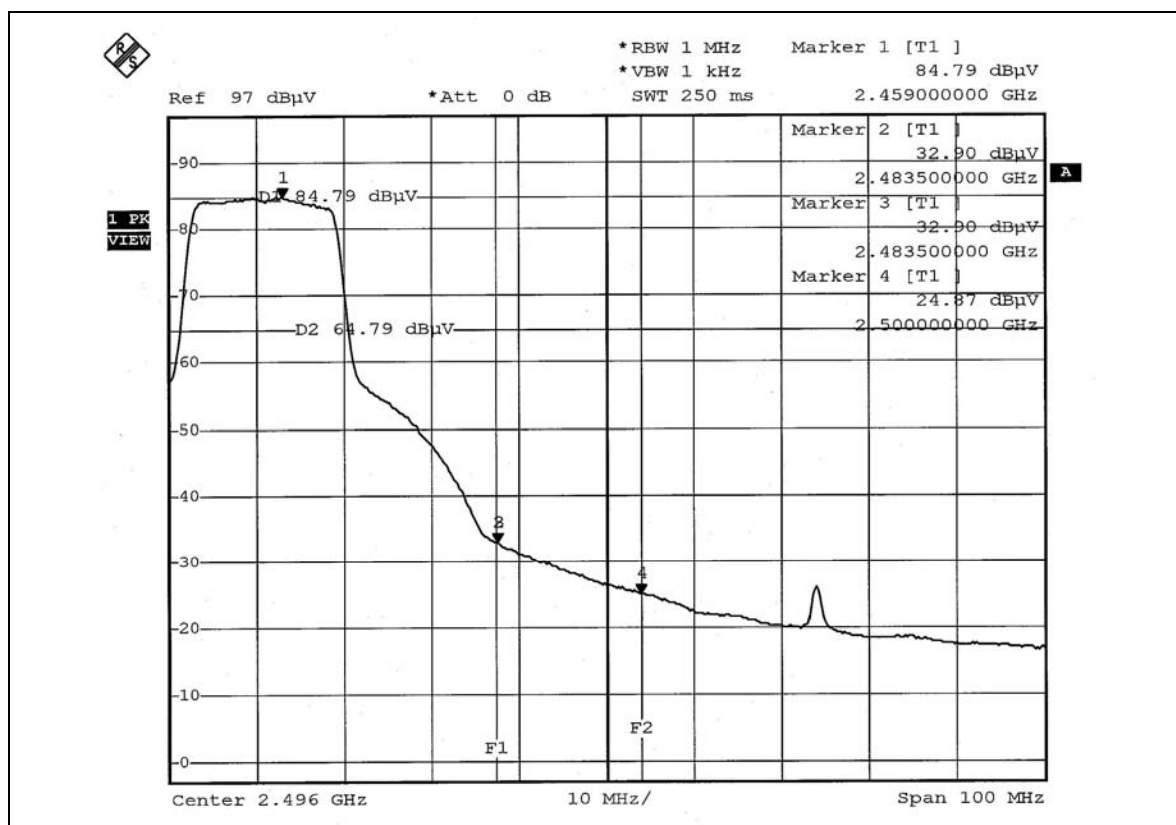
The band edge emission plot on page 120 shows 47.46dBc between carrier maximum power and local maximum emission in restrict band (2.3900GHz). The emission of carrier strength list in the test result of channel 1 at the item 5.2.7 is 99.79dBuV/m (Average), so the maximum field strength in restrict band is $99.79 - 47.46 = 52.33$ dBuV/m, which is under 54dBuV/m limit.

NOTE 2: The band edge emission plot on page 121 shows 54.04dBc 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 5.2.7 is 108.60dBuV/m (Peak), so the maximum field strength in restrict band is $108.60 - 54.04 = 54.56$ dBuV/m, which is under 74dBuV/m limit.

The band edge emission plot on page 122 shows 59.99dBc 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 5.2.7 is 98.38dBuV/m (Average), so the maximum field strength in restrict band is $98.38 - 59.99 = 38.39$ dBuV/m, which is under 54dBuV/m limit.









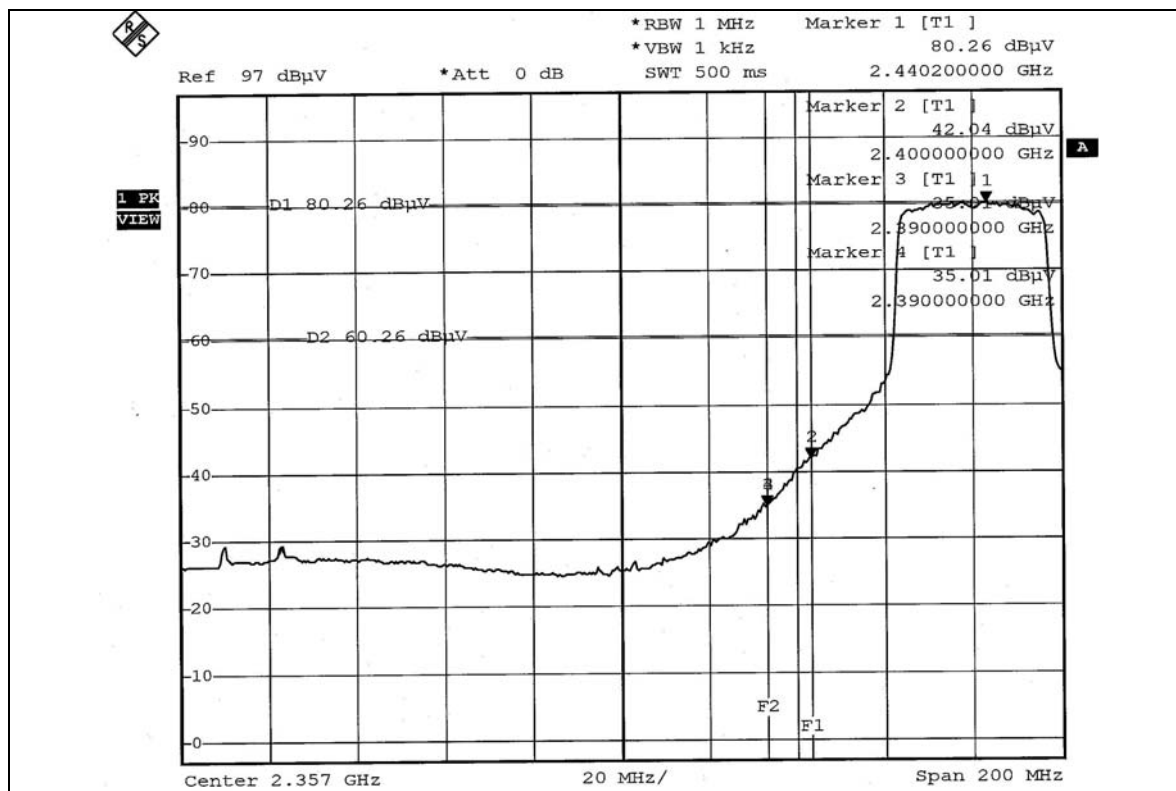
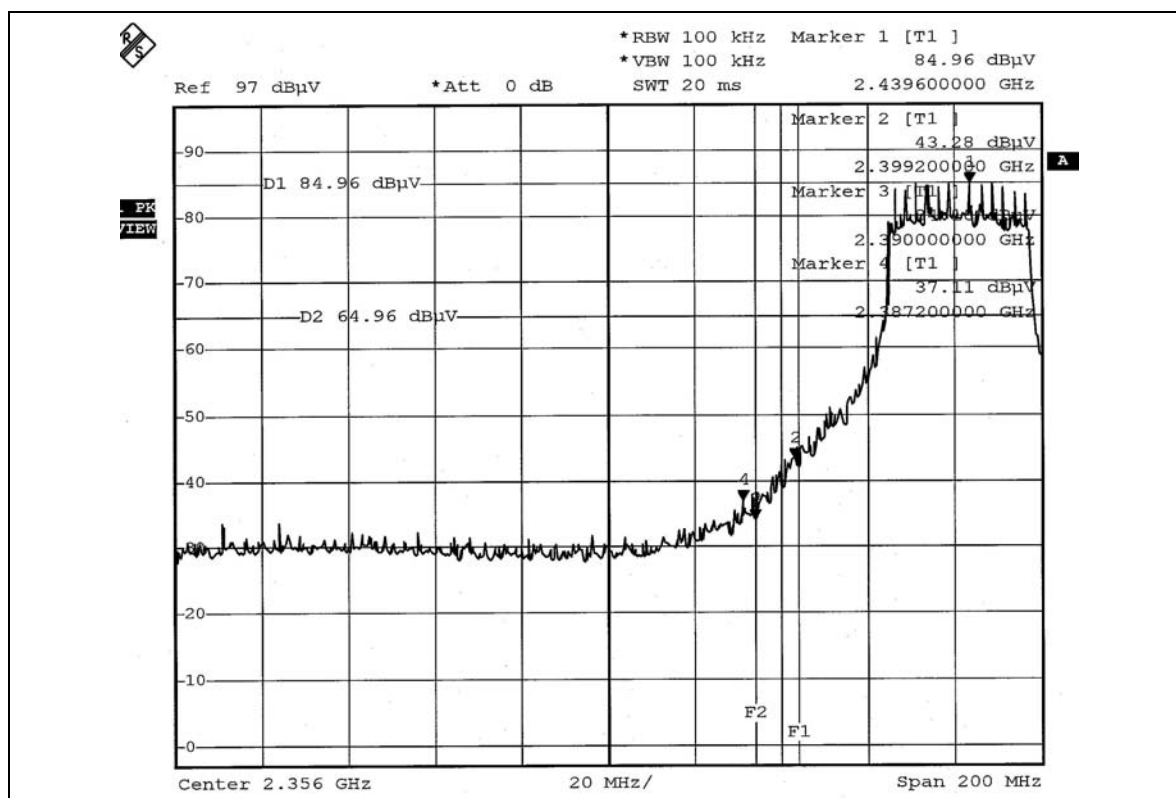
802.11g OFDM TURBO MODULATION

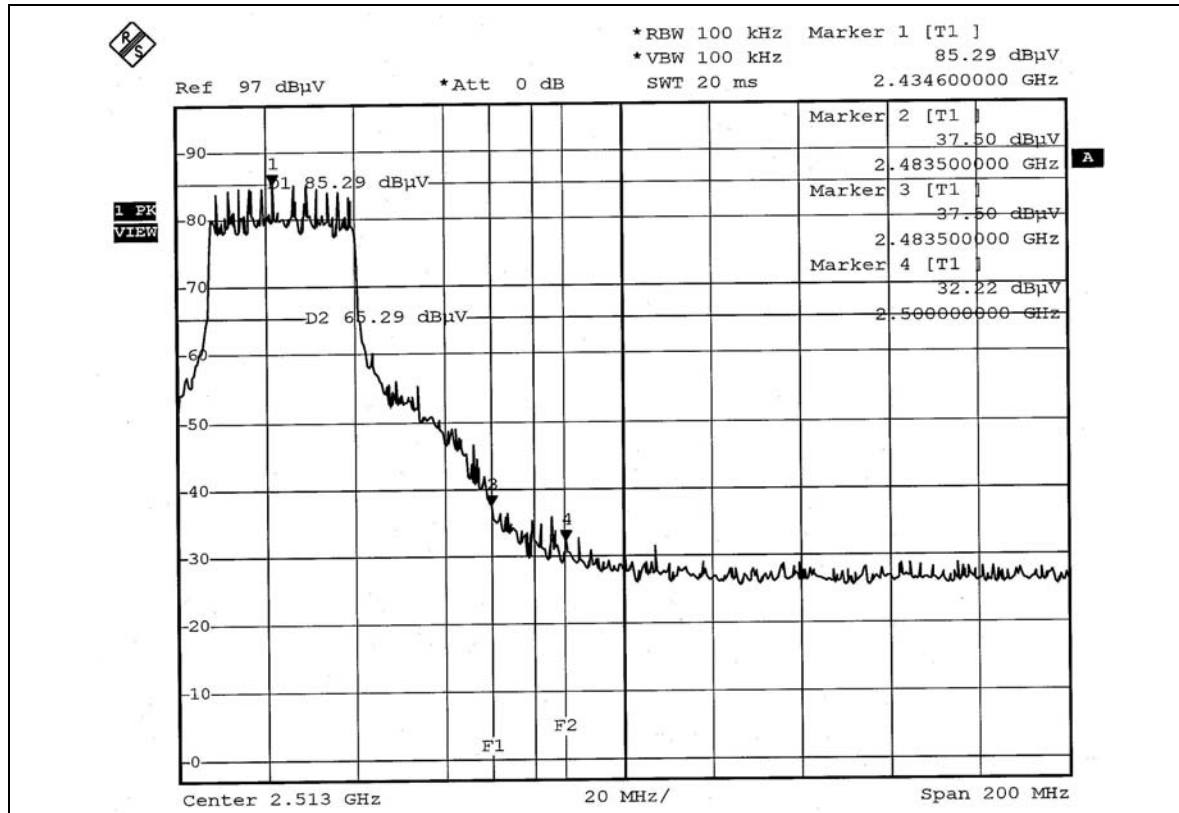
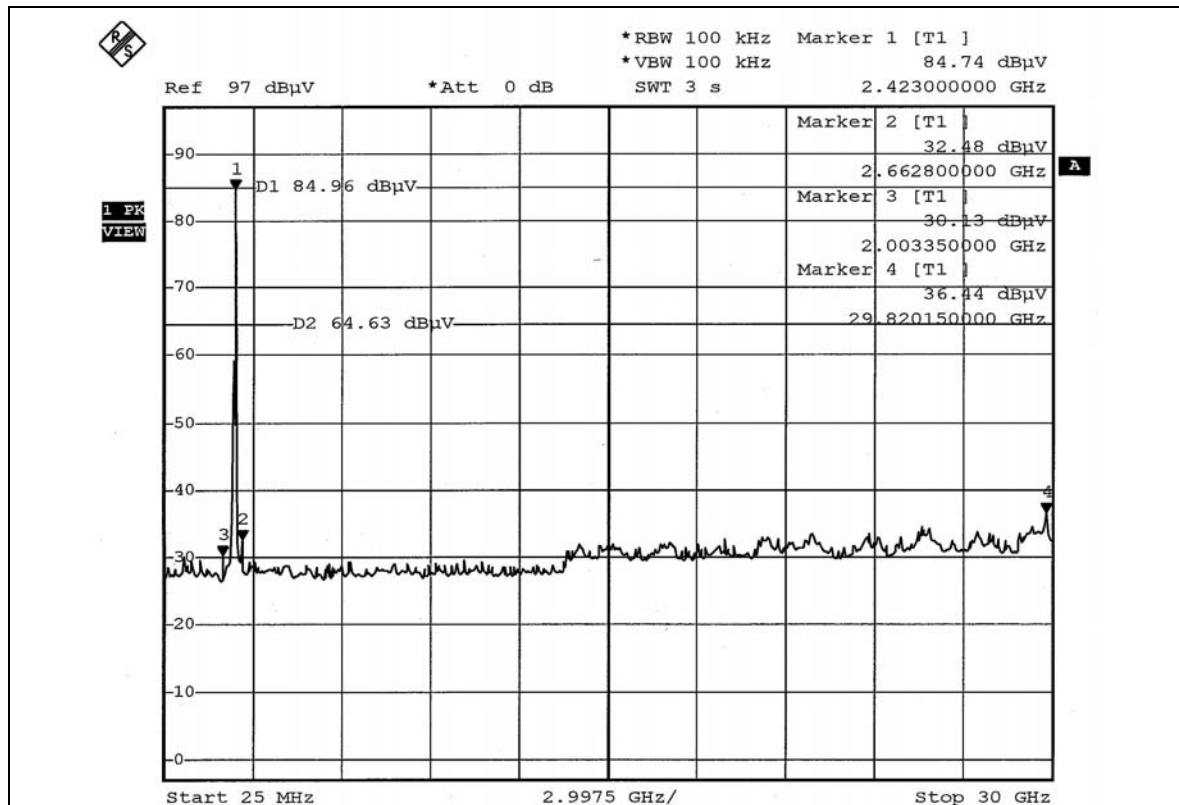
NOTE 1: The band edge emission plot on page 123 shows 47.85dBc between carrier maximum power and local maximum emission in restrict band (2.3872GHz). The emission of carrier strength list in the test result of channel 6 at the item 5.2.7 is 106.61dBuV/m (Peak), so the maximum field strength in restrict band is $106.61 - 47.85 = 58.76$ dBuV/m, which is under 74dBuV/m limit.

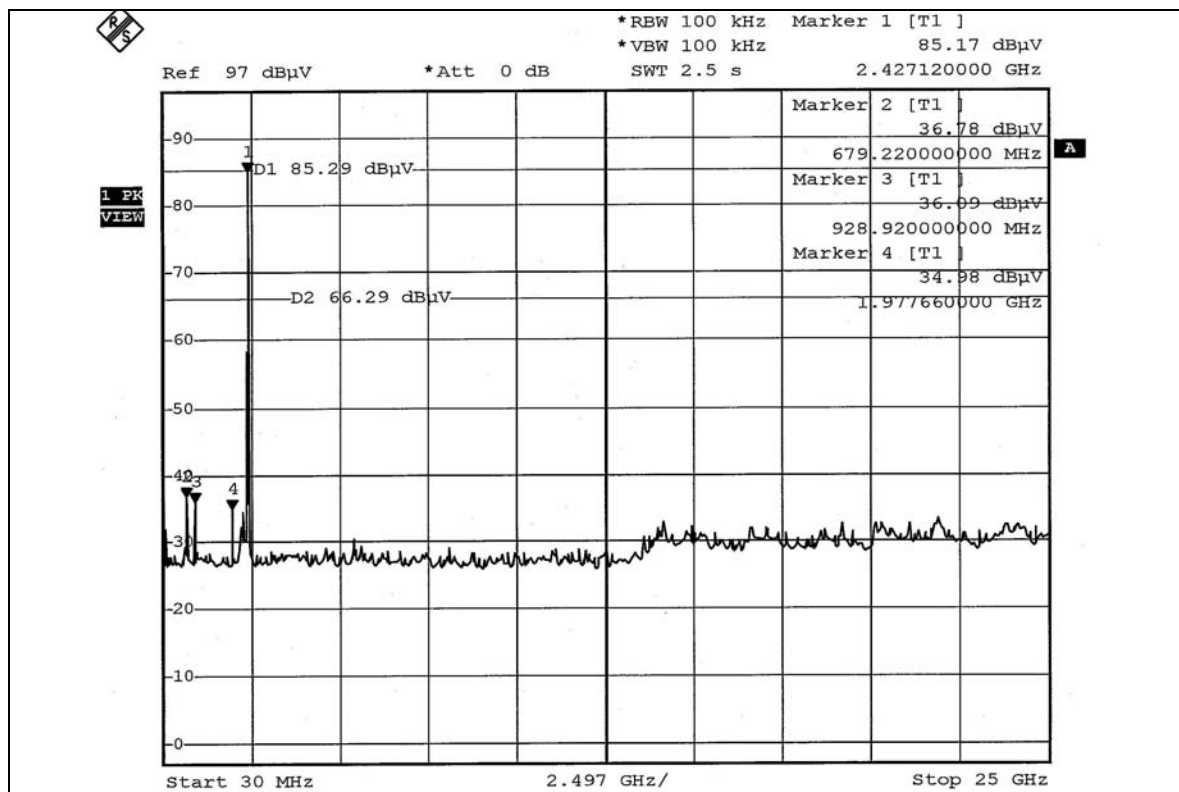
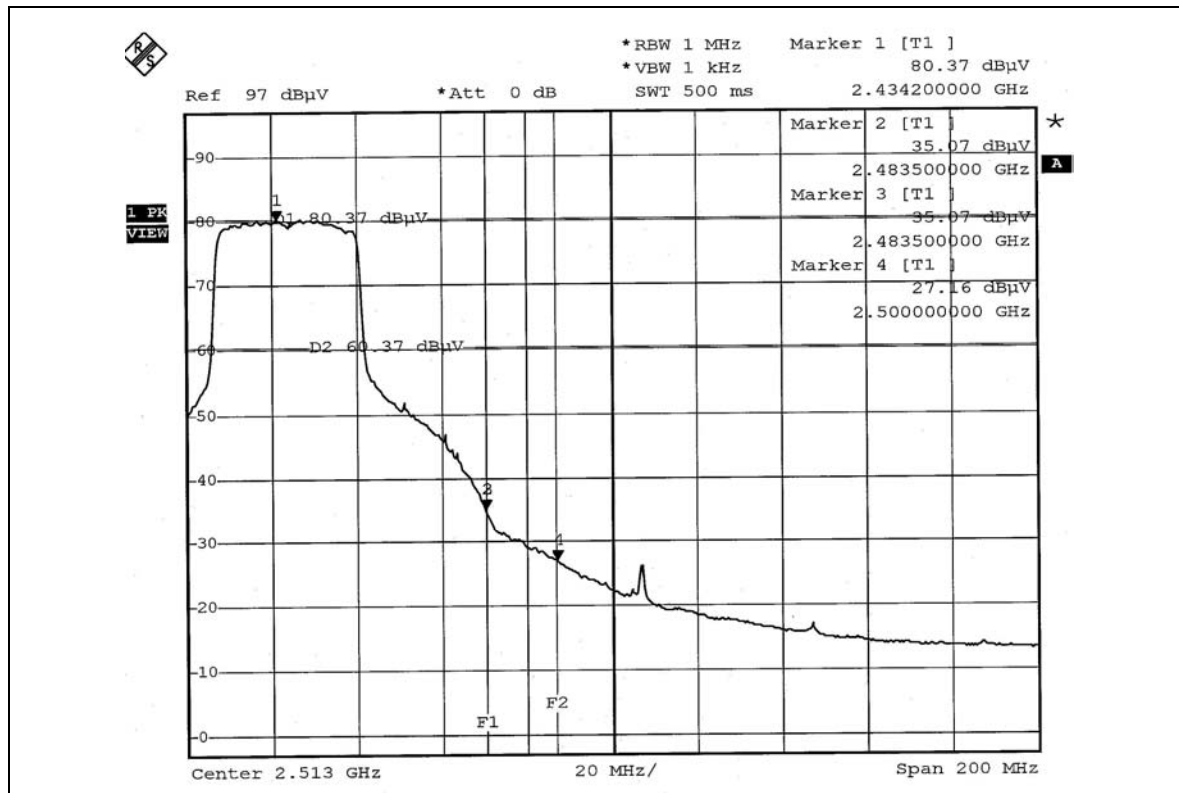
The band edge emission plot on page 123 shows 45.25dBc between carrier maximum power and local maximum emission in restrict band (2.3900GHz). The emission of carrier strength list in the test result of channel 6 at the item 5.2.7 is 97.24dBuV/m (Average), so the maximum field strength in restrict band is $97.24 - 45.25 = 51.99$ dBuV/m, which is under 54dBuV/m limit.

NOTE 2: The band edge emission plot on page 124 shows 53.07dBc 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 6 at the item 5.2.7 is 106.61dBuV/m (Peak), so the maximum field strength in restrict band is $106.61 - 53.07 = 53.54$ dBuV/m, which is under 74dBuV/m limit.

The band edge emission plot on page 125 shows 53.21dBc 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 6 at the item 5.2.7 is 94.24dBuV/m (Average), so the maximum field strength in restrict band is $94.24 - 53.21 = 41.03$ dBuV/m, which is under 54dBuV/m limit.









5.7 ANTENNA REQUIREMENT

5.7.1 STANDARD APPLICABLE

For intentional device, according to FCC 47 CFR Section 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.

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

5.7.2 ANTENNA CONNECTED CONSTRUCTION

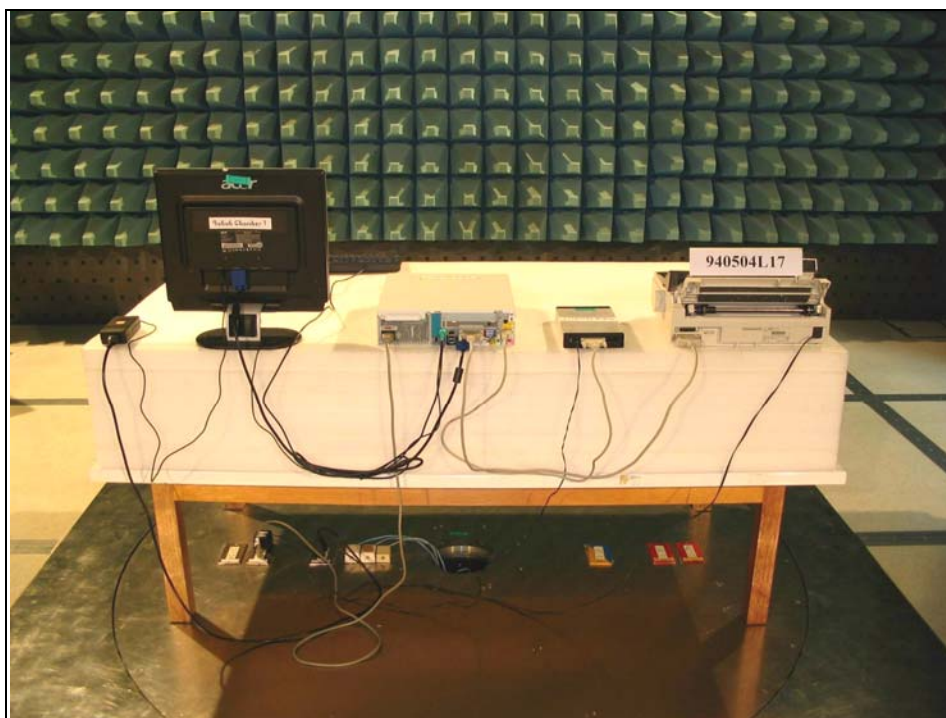
The antenna type used in this product is chip and printed antenna with no connector. The maximum Gain of this antenna is only 0dBi.

6. PHOTOGRAPHS OF THE TEST CONFIGURATION

CONDUCTED EMISSION TEST



RADIATED EMISSION TEST





7. INFORMATION ON THE TESTING LABORATORIES

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

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

Copies of accreditation certificates of our laboratories obtained from approval agencies can be downloaded from our web site:

www.adt.com.tw/index.5/phtml. If you have any comments, please feel free to contact us at the following:

Linko EMC/RF Lab:

Tel: 886-2-26052180

Fax: 886-2-26052943

Hsin Chu EMC/RF Lab:

Tel: 886-3-5935343

Fax: 886-3-5935342

Hwa Ya EMC/RF/Safety/Telecom Lab: Linko RF Lab.

Tel: 886-3-3183232

Fax: 886-3-3185050

Tel: 886-3-3270910

Fax: 886-3-3270892

Web Site: www.adt.com.tw

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