FCC PART 15

EMI Measurement and TEST REPORT

For

AMBIT Microsystems Corporation

4-1, Ming Shen Street, Tu Chen Industrial District.
Tu Chen, Taipei Hsien 236, Taiwan, R.O.C.

FCC ID: MCLT60H6773

2003-09-08

This Report Concerns:	**Equipment Type:**
☒ Original Report	MiniPCI 802.11a/b/g Combo Module

Test Engineer:	Ming Jing /
Report No.:	R0308076
Test Date:	2003-05-13 / 2003-08-13 / 2003-08-15
Reviewed By:	Ling Zhang /
Prepared By:	Bay Area Compliance Laboratory Corporation (BACL) 230 Commercial Street Sunnyvale, CA 94085 Tel: (408) 732-9162 Fax: (408) 732 9164

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1 - GENERAL INFORMATION

1.1 Product Description for Equipment Under Test (EUT)

The *Ambit Microsystems Corporation's*, model: *T60H677.03,* or the "EUT" as referred to in this report is an MiniPCI 802.11a/b/g Module which measures approximately2.4"L x 1.7"W x 0.1"H. The EUT is a dual band WLAN device that allows for acces to both 2.4GHz and 5GHz WLAN technologies. THE EUT Will operate at a maximum data rate of 11Mbps with 802.11b (2.4GHz), 54Mbps with 802.11g (2.4GHz) wireless networks and a minimum data rate of 54Mbps with 802.11a (5GHz) wireless networks. The EUT will automatically detect and seamlessly roam between both 802.11b (2.4GHz), 802.11g (2.4GHz) and 802.11a (5GHz) wireless networks.

** The test data gathered are from typical production samples provided by the manufacturer.*

1.2 Objective

This type approval report is prepared on behalf of *AMBIT Microsystems Corporation* in accordance with Part 2, Subpart J, Part 15, Subparts A , C, and E of the Federal Communication Commissions rules.

The objective of the manufacturer is to demonstrate compliance with FCC rules for Output Power, Antenna Requirements, 6 dB Bandwidth and 26 dB Bandwidth, power spectral density, 100 kHz Bandwidth of Band Edges Measurement, Out of Band Emission, Spurious Emission, Conducted and Spurious Radiated Emission, Discontinue Transmitting with Absence of Data or Operational Failure, Peak Excursion to Average Ratio and Frequency Stability.

1.3 Related Submittal(s)/Grant(s)

No Related Submittals.

1.4 Test Methodology

All measurements contained in this report were conducted with ANSI C63.4-2001, American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the range of 9 kHz to 40 GHz.

All radiated and conducted emissions measurement was performed at Bay Area Compliance Laboratory, Corp. The radiated testing was performed at an antenna-to-EUT distance of 3 meters.

1.5 Test Facility

The Open Area Test site used by BACL to collect radiated and conducted emission measurement data is located in the back parking lot of the building at 230 Commercial Street, Sunnyvale, California, USA.

Test site at BACL has been fully described in reports submitted to the Federal Communication Commission (FCC) and Voluntary Control Council for Interference (VCCI). The details of these reports has been found to be in compliance with the requirements of Section 2.948 of the FCC Rules on February 11 and December 10, 1997 and Article 8 of the VCCI regulations on
December 25, 1997. The facility also complies with the radiated and AC line conducted test site criteria set forth in ANSI C63.4-2001.

The Federal Communications Commission and Voluntary Control Council for Interference has the reports on file and is listed under FCC file 31040/SIT 1300F2 and VCCI Registration No.: C-1298 and R-1234. The test site has been approved by the FCC and VCCI for public use and is listed in the FCC Public Access Link (PAL) database.

Additionally, BACL is a National Institute of Standards and Technology (NIST) accredited laboratory, under the National Voluntary Laboratory Accredited Program (Lab Code 200167-0). The scope of the accreditation covers the FCC Method – 47 CFR Part – Digital Devices, CISPER 22: 1997: Electromagnetic Interference – Limits and Methods of Measurement of Information Technology Equipment test methods.

1.6 Test Equipment List

Manufacturer	Description	Model	Serial Number	Cal. Due Date
HP	Spectrum Analyzer	8568B	2517A01610	2003-10-30
HP	Amplifier	8447E	2944A07030	2004-06-28
HP	Quasi-Peak Adapter	85650A	2521A00718	2004-03-08
Rohde&Schwarz	EMI Test Receiver	ESC530	C00176	2003-12-03
Com-Power	Log Periodic Antenna	AL-100	16005	2004-08-23
Com-Power	Log Periodic Antenna	AB-900	15049	2004-05-01
Agilent	Spectrum Analyzer (9KHz – 40GHz)	8564E	3943A01781	2004-08-26
Agilent	Spectrum Analyzer (9KHz – 50GHz)	8565EC	3946A00131	2004-05-03
HP	Amplifier (1-26.5GHz)	8449B	3147A00400	2004-03-14
A.H.System	Horn Antenna (700MHz-18GHz)	SAS-200/571	261	2004-05-31

*** Statement of Traceability: Bay Area Compliance Laboratory Corp.** certifies that all calibration has been performed using suitable standards traceable to the NIST.

1.7 Support Equipment List and Details

Manufacturer	Description	Model	Serial Number	FCC ID
ACER	Notebook	Travelmate 650	N/A	DOC
HP	Printer	2225C	N/A	DOC

1.8 External I/O Cabling List and Details

Cable Description	Length (M)	Port/From	To
Shielded Printer Cable	2.0	Parallel Port/Notebook PC	Printer

1.9 Power Supply Information

Manufacturer	Description	Model	Serial Number	FCC ID
DELTA	AC Adapter	ADP-75FB	S4W0311012681	DOC

2 - SYSTEM TEST CONFIGURATION

2.1 Justification

The host system was configured for testing in a typical fashion (as normally used by a typical user).

The EUT was tested in the normal (native) operating mode to represent *worst*-case results during the final qualification test.

2.2 EUT Exercise Software

The EUT exercise program used during radiated and conducted testing was designed to exercise the system components in a manner similar to a typical use. The test software, provided by the customer, is started the Windows terminal program under the Windows 98/2000/ME/XP operating system.

Once loaded, set the Tx channel to low, mid and high for testing.

2.3 Special Accessories

As shown in section 2.7, all interface cables used for compliance testing are shielded. The host PC and the peripherals featured shielded metal connectors.

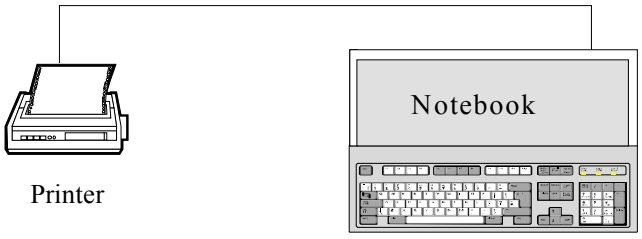
2.4 Schematics / Block Diagram

Please refer to Appendix A.

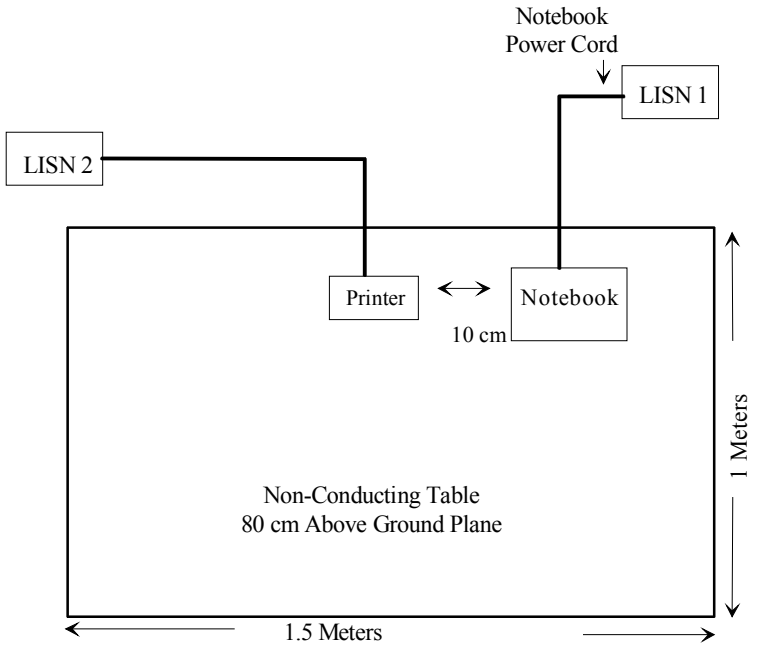
2.5 Equipment Modifications

No modifications were made by BACL to ensure the EUT to comply with the applicable limits and requirements.

2.6 Configuration of Test System



2.7 Test Setup Block Diagram



3 - SUMMARY OF TEST RESULTS

FCC RULES	DESCRIPTION OF TEST	RESULT	REFERENCE
§15.203	Antenna Requirement	Compliant	Section 11
§ 15.205, §15.407 (b)(6)	Restricted Bands	Compliant	Section 12
§15.209 (a), §15.407 (b)(5)	Radiated Emission	Compliant	Section 12
§15.209 (f)	Spurious Emission	Compliant	Section 10
§15.247 (a)(2)	6 dB Bandwidth	Compliant	Section 5
§15.247 (b)(1), §15.407(a)(2)	Maximum Peak Output Power	Compliant	Section 4
§15.247(b)(4), §15.407 (f)	RF Exposure Requirement	Compliant	Section 14
§ 15.247 (c)	100 kHz Bandwidth of Frequency Band Edge	Compliant	Section 7
§15.247 (d)	Peak Power Spectral Density	Compliant	Section 6
§ 15.207 (a)	For an intentional radiator which is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequency within the band 450 kHz to 30 MHz shall not exceed 250 micorvolts.	Compliant	Section 13
§ 15.407 (a)(2)	The peak power spectral density shall not exceed 11dBm in any 1 MHz band	Compliant	Section 6
§ 15.407 (a)(6)	The ratio of the peak excursion of the modulation envelope (measured using a peak hold function) to the peak transmit power (measured as specified in this paragraph0 shall not exceed 13 dB across any 1 MHz bandwidth or the emission bandwidth whichever is less.	Compliant	Section 8
§ 15.407 (c)	The device shall automatically discontinue transmission in case of either absence of information to transmit or operational failure. These provisions are not intended to preclude the transmission of control or signaling information or the user of repetitive codes used by certain digital technologies to complete frame or burst intervals. Applicants shall include in their application a description of how this requirement is met.	Compliant	See Provided Technical Manual
§ 15.407 (g)	The responsibility for manufacturer to ensure U-NII device frequency stability	Compliant	Section 16

4 - PEAK OUTPUT POWER MEASUREMENT

4.1 Standard Applicable

According to §15.247(b) (3), for systems using digital modulation in 2400-2483.5 MHz: 1 Watt

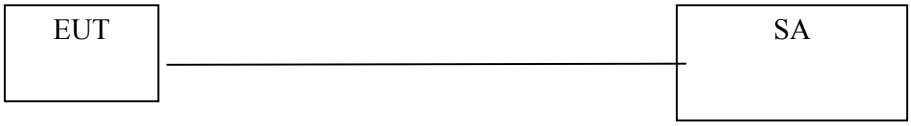
According to §15.407(a)(1), for the band 5.15-5.25 GHz, the peak transmit power over the frequency band of operation shall not exceed the lesser of 50 mW or 4 dBm + 10logB, where B is the 26-dB emission bandwidth in MHz.

According to §15.407(a)(2), for the band 5.25-5.35 GHz, the peak transmit power over the frequency band of operation shall not exceed the lesser of 250 mW or 11 dBm + 10logB, where B is the 26-dB emission bandwidth in MHz.

According to §15.407(a)(3), for the band 5.725-5.825 GHz, the peak transmit power over the frequency band of operation shall not exceed the lesser of 1 W or 17 dBm + 10logB, where B is the 26-dB emission bandwidth in MHz.

4.2 Measurement Procedure

1. Place the EUT on a bench and set it in transmitting mode.
2. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to a spectrum analyzer.
3. Add a correction factor to the display.



4.3 Equipment Lists

Manufacturer	Model No.	Descripton	Calibration Due Date
Agilent	8564E	Spectrum Analyzer	2004-08-26

4.4 Measurement Result

4.4.1 RF Output Power (15.247) for 802.11b

Port	Channel	Frequency (MHz)	Output Power (dBm)	Correction Factor (dB)	Corrected Output Power (dBm)	Output Power (W)	Standard (W)	Result
J1	Low	2412	9.5	7.2	16.7	0.0468	≤ 1W	Compliant
	Mid	2437	9.17	7.2	16.37	0.0434	≤ 1W	Compliant
	High	2462	8.67	7.2	15.87	0.0386	≤ 1W	Compliant

Note: Correction Factor = 10Log(BW6dB/RBW) = 10Log(10.5/2) = 7.2dB

4.4.2 RF Output Power (15.247) for 802.11g

	Channel	Frequency (MHz)	Peak Output Power (dBm)	Correction Factor (dBm)	Corrected Factor (dBm)	Output Power (W)	Standard (W)	Result
J1 Port	Low	2412	6.33	9.3	15.63	0.037	≤ 1 W	Compliant
	Mid	2442	6.50	9.3	15.80	0.038	≤ 1 W	Compliant
	High	2462	6.67	9.3	15.97	0.040	≤ 1 W	Compliant

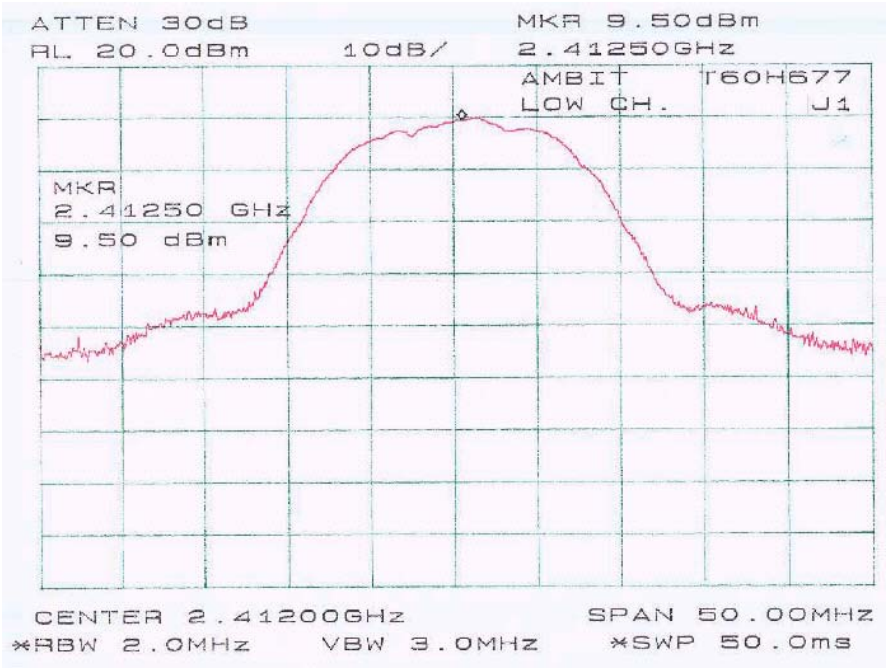
Note: Correction Factor = 10 log (BW6dB/RBW) = 10 log (17/2.0) = 9.3 dBm

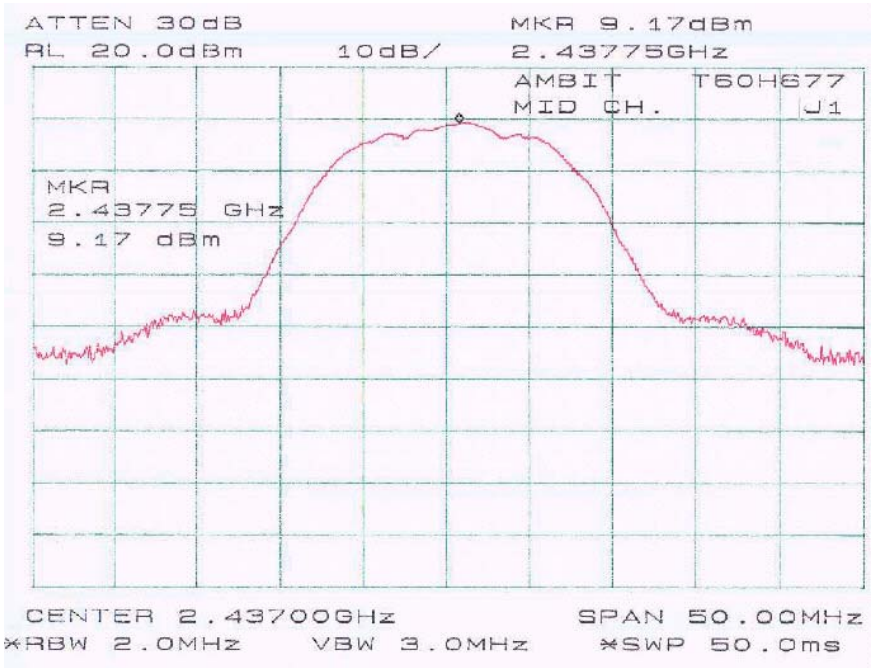
4.4.3 RF Output Power (15.407) for 802.11a

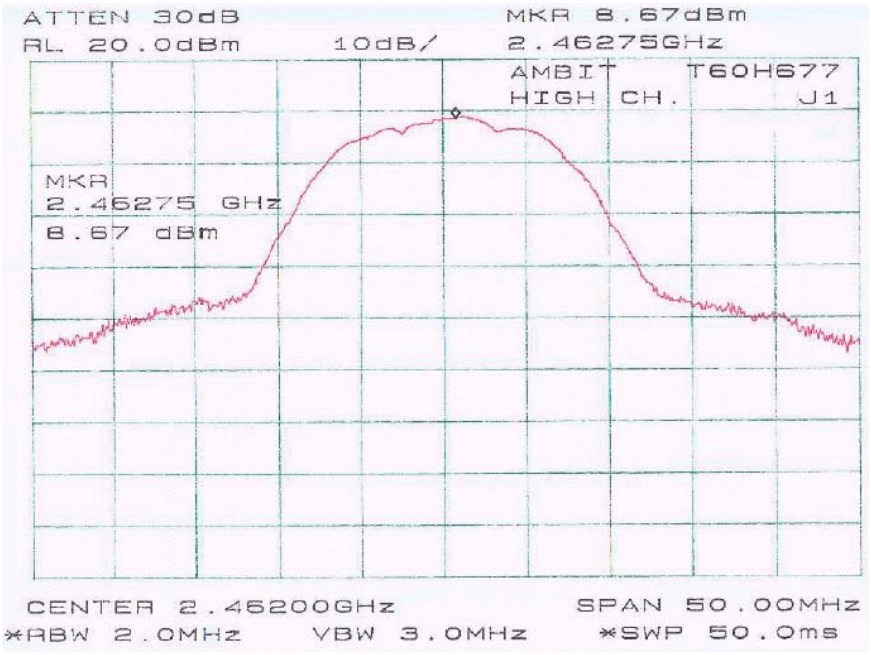
Band	Channel (MHz)	Frequency (MHz)	Output Power (dBm)	Correction Factor (dB)	Corrected Output Power (dBm)	Output Power (W)	Standard (mW)	Result
Low	Low	5150	5.83	10.7	16.53	0.0449	<50	Compliant
	Mid	5200	6	10.7	16.7	0.0468	<50	Compliant
	High	5250	5.5	10.7	16.2	0.0417	<50	Compliant
Mid	Low	5250	5.5	10.7	16.2	0.0417	<50	Compliant
	Mid	5300	5.33	10.7	16.03	0.0401	<50	Compliant
	High	5330	5.83	10.7	16.53	0.0449	<50	Compliant
High	Low	5745	5.33	10.7	16.03	0.0401	<50	Compliant
	Mid	5775	5.67	10.7	16.37	0.0434	<50	Compliant
	High	5810	5.83	10.7	16.53	0.0449	<50	Compliant

Note: Correction Factor = 10Log(BW26dB/RBW) = 10Log(23.83/2) = 10.7dB
Test mode: target power = 15.0, ext pw detector = 1, xpdgain = 6, ob = 1, db = 2, b-ob = 1

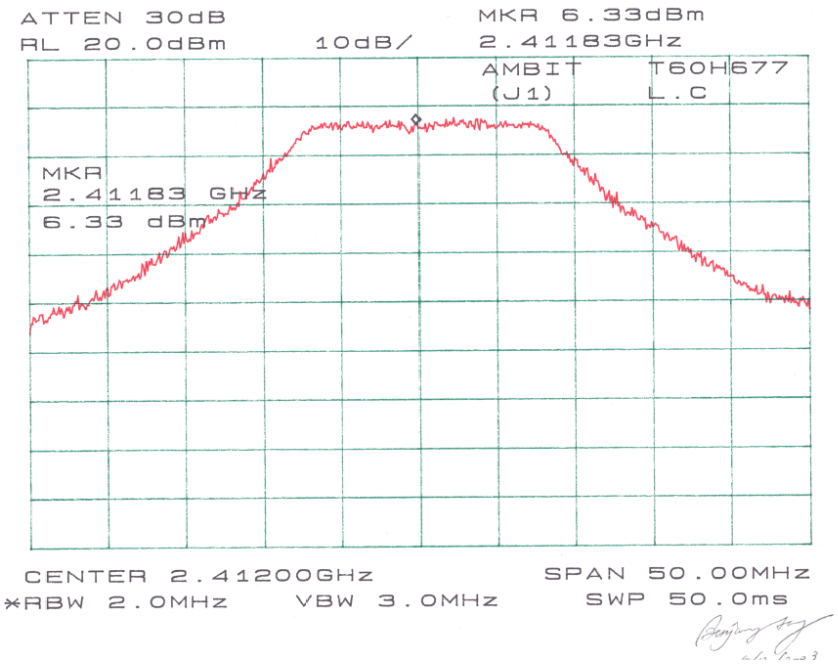
Plots of Peak Output Power for 802.11b (15.247)

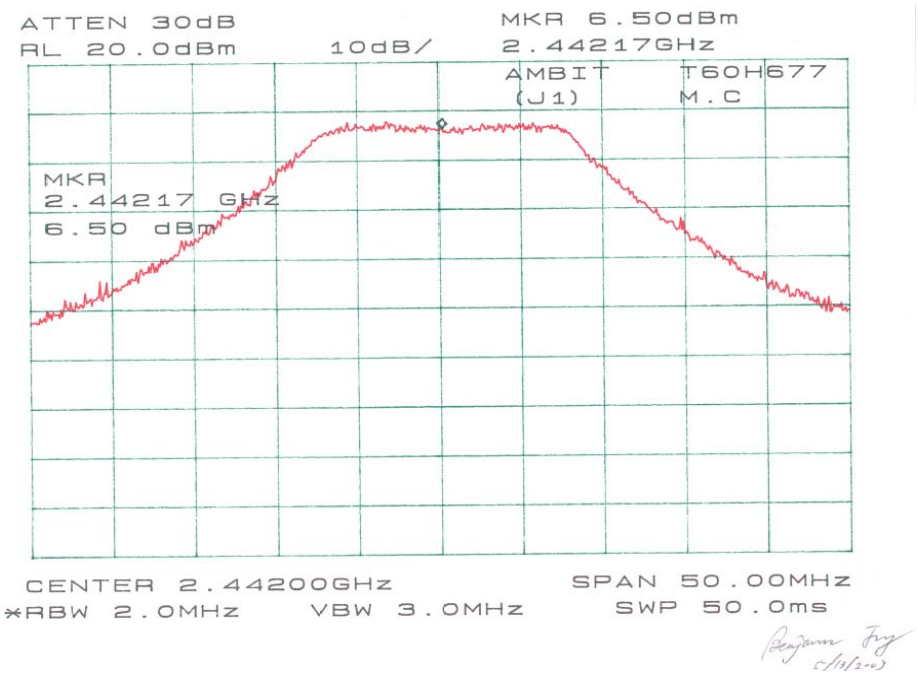


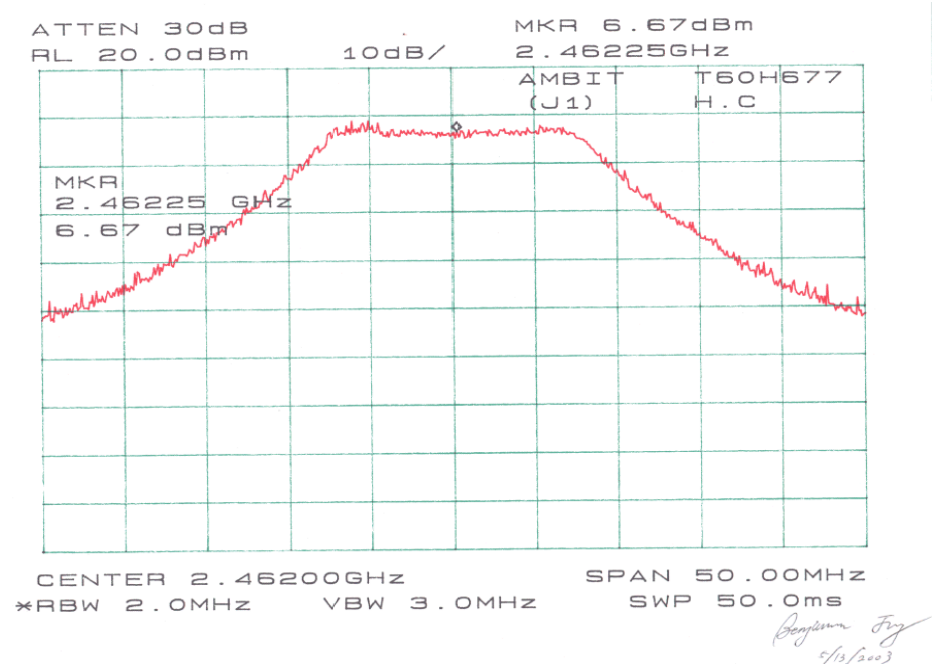




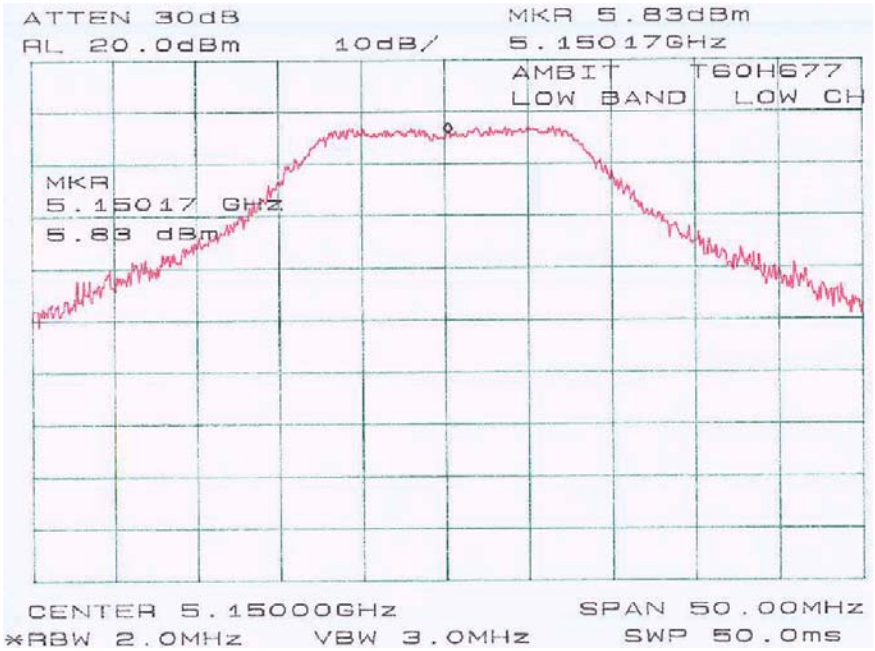
Plots of Peak Output Power for 802.11 g (15.247)

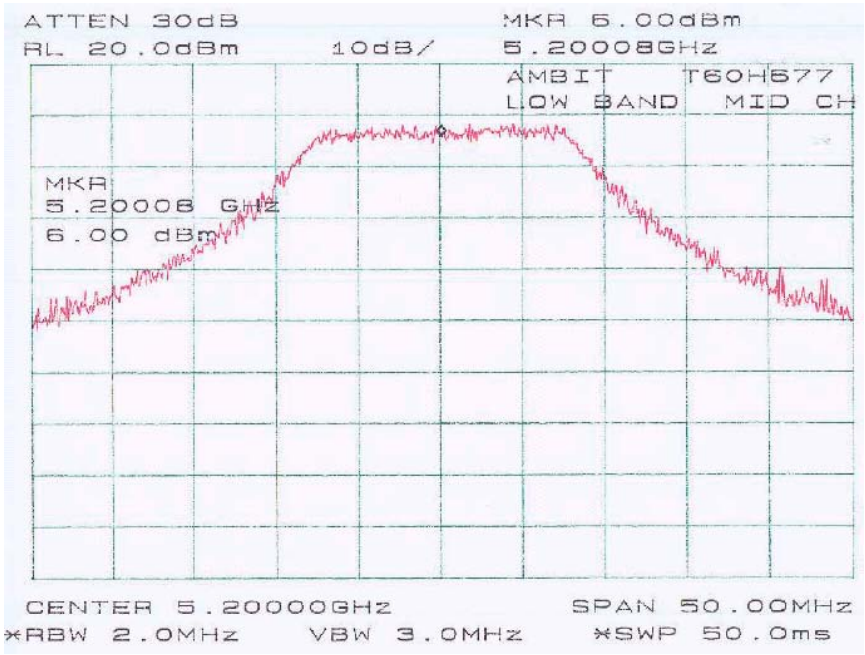


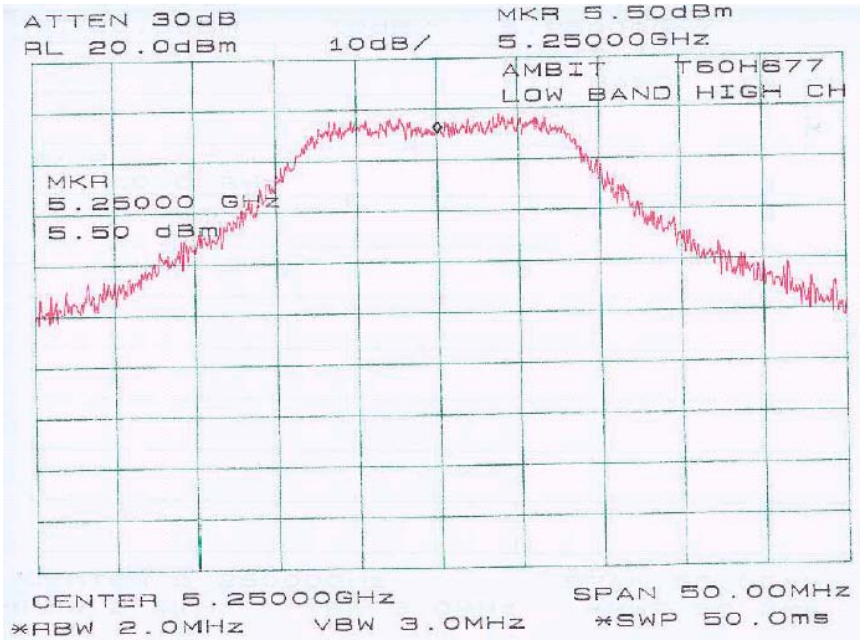

ATTEN 30dB
RL 20.0dBm
10dB/
MKR 6.50dBm
2.44217GHz
AMBIT
(J1)
T60H677
M.C
MKR
2.44217 GHz
6.50 dBm
CENTER 2.44200GHz
SPAN 50.00MHz
*RBW 2.0MHz
VBW 3.0MHz
SWP 50.0ms


ATTEN 30dB
RL 20.0dBm
10dB/
MKR 6.67dBm
2.46225GHz
AMBIT
(J1)
T60H677
H.C
MKR
2.46225 GHz
6.67 dBm
CENTER 2.46200GHz
SPAN 50.00MHz
*RBW 2.0MHz
VBW 3.0MHz
SWP 50.0ms

Plots of Peak Output Power for 802.11a (15.407)



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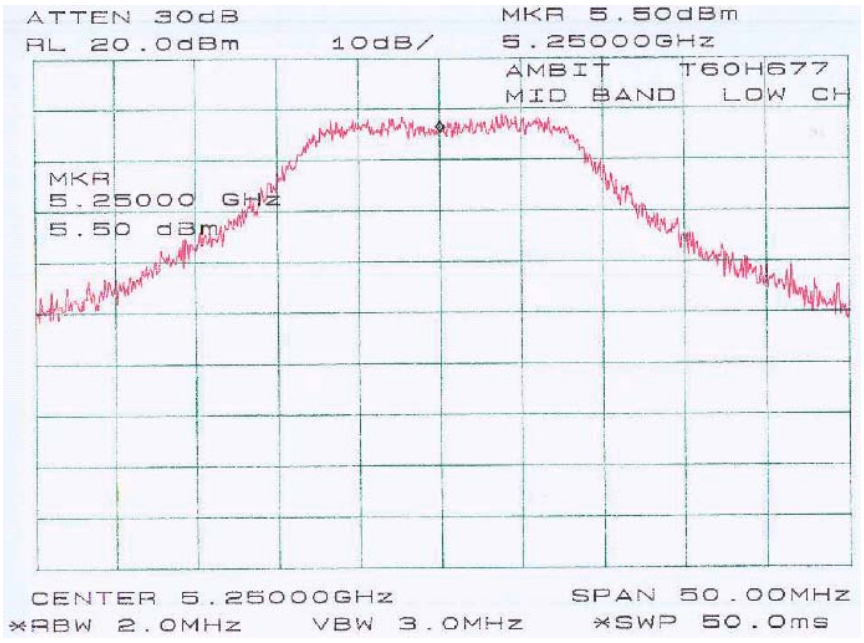
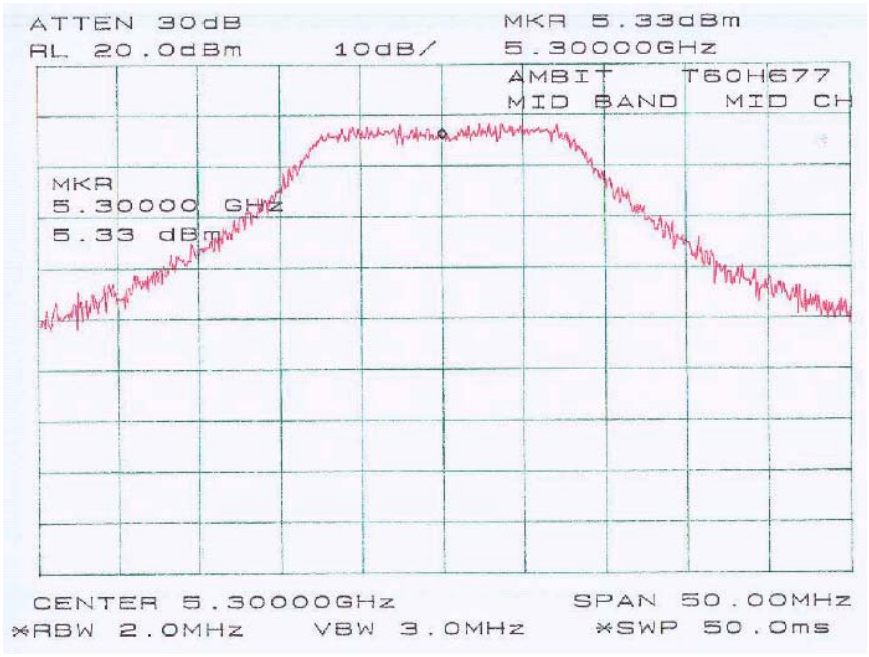
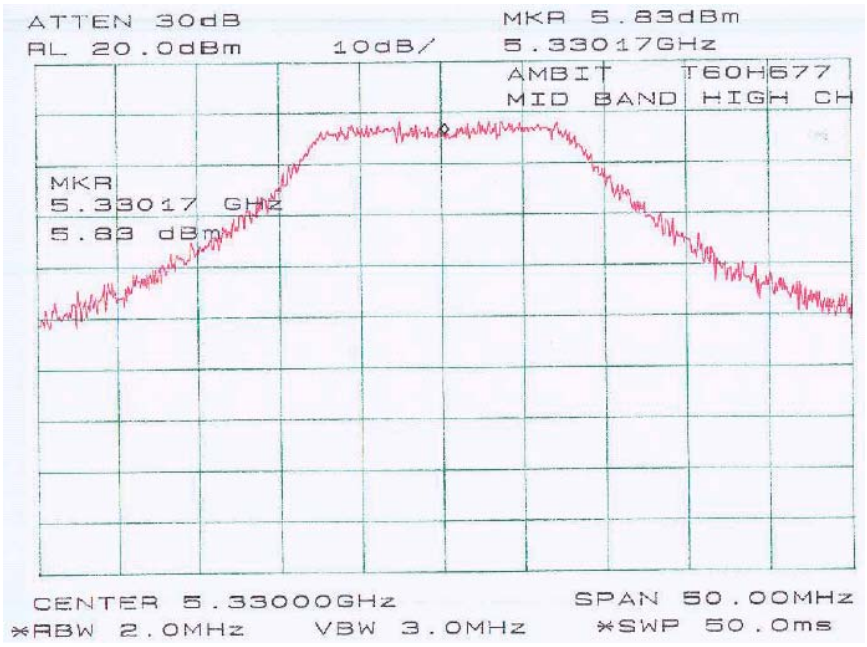
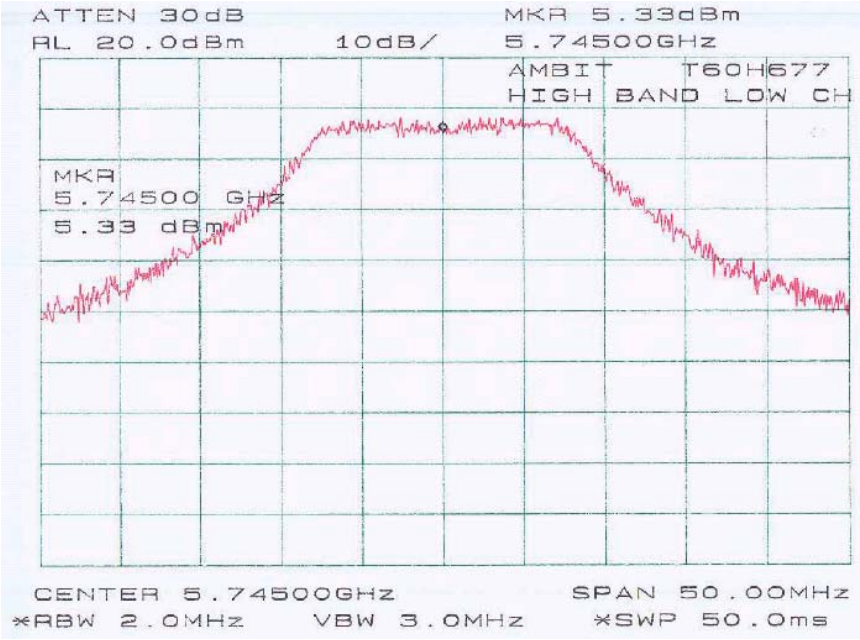
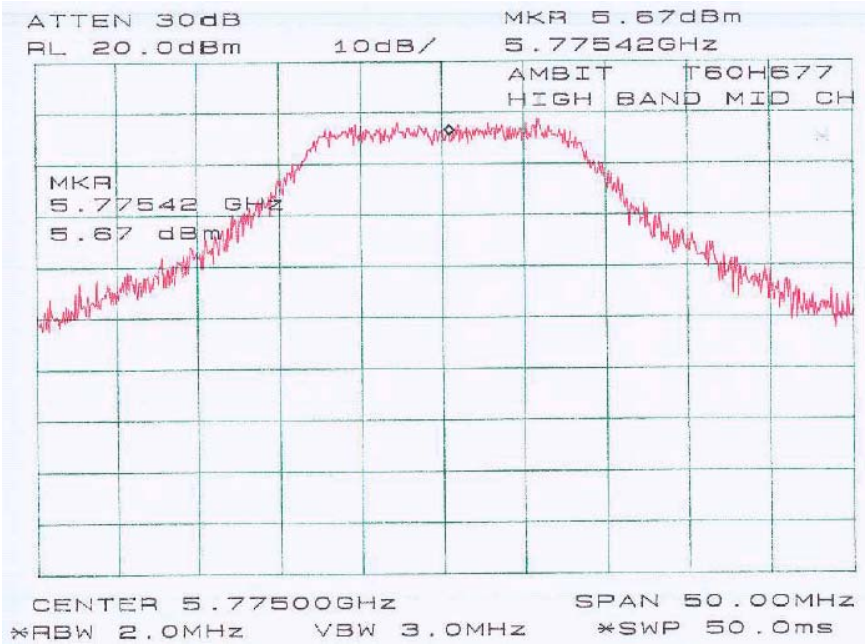
RL 20.0dBm
10dB/
MKR 5.50dBm
5.25000GHz
AMBIT T60H677
LOW BAND HIGH CH
MKR
5.25000 GHz
5.50 dBm
CENTER 5.25000GHz
SPAN 50.00MHz
*RBW 2.0MHz
VBW 3.0MHz
*SWP 50.0ms

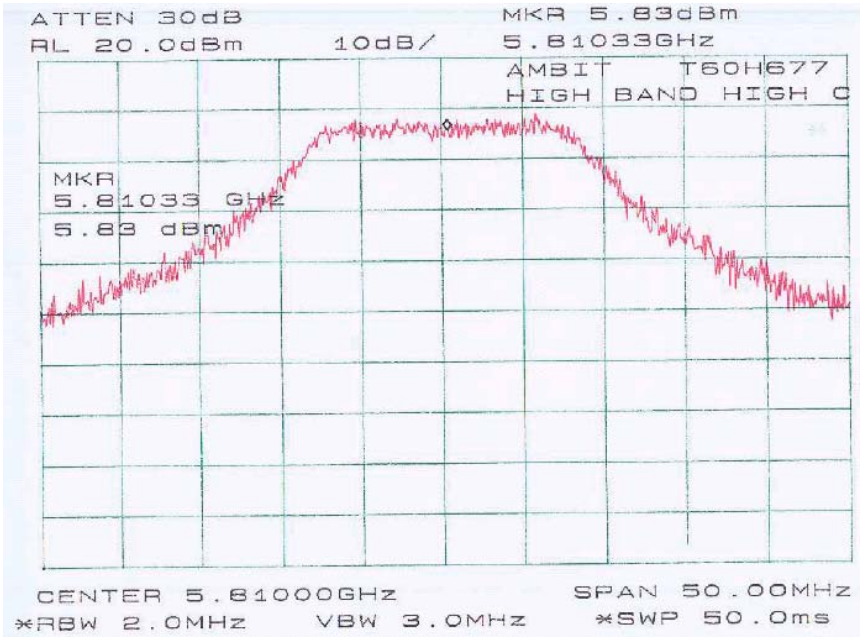

ATTEN 30dB
RL 20.0dBm
10dB/
MKR 5.50dBm
5.25000GHz
AMBIT T60H677
MID BAND LOW CH
MKR
5.25000 GHz
5.50 dBm
CENTER 5.25000GHz
SPAN 50.00MHz
*RBW 2.0MHz
VBW 3.0MHz
*SWP 50.0ms


ATTEN 30dB
RL 20.0dBm
10dB/
MKR 5.33dBm
5.30000GHz
AMBIT T60H677
MID BAND MID CH
MKR
5.30000 GHz
5.33 dBm
CENTER 5.30000GHz
SPAN 50.00MHz
*RBW 2.0MHz
VBW 3.0MHz
*SWP 50.0ms


ATTEN 30dB
RL 20.0dBm
10dB/
MKR 5.83dBm
5.33017GHz
AMBIT T60H677
MID BAND HIGH CH
MKR
5.33017 GHz
5.83 dBm
CENTER 5.33000GHz
SPAN 50.00MHz
*RBW 2.0MHz
VBW 3.0MHz
*SWP 50.0ms


ATTEN 30dB
RL 20.0dBm
10dB/
MKR 5.33dBm
5.74500GHz
AMBIT T60H677
HIGH BAND LOW CH
MKR
5.74500 GHz
5.33 dBm
CENTER 5.74500GHz
SPAN 50.00MHz
*RBW 2.0MHz
VBW 3.0MHz
*SWP 50.0ms


ATTEN 30dB
RL 20.0dBm
10dB/
MKR 5.67dBm
5.77542GHz
AMBIT T60H677
HIGH BAND MID CH
MKR
5.77542 GHz
5.67 dBm
CENTER 5.77500GHz
SPAN 50.00MHz
*RBW 2.0MHz
VBW 3.0MHz
*SWP 50.0ms


ATTEN 30dB
RL 20.0dBm
10dB/
MKR 5.83dBm
5.81033GHz
AMBIT T60H677
HIGH BAND HIGH C
MKR
5.81033 GHz
5.83 dBm
CENTER 5.81000GHz
SPAN 50.00MHz
*RBW 2.0MHz
VBW 3.0MHz
*SWP 50.0ms

5 – 6 DB BANDWIDTH and 26 DB BANDWIDTH

5.1 Standard Applicable

According to §15.247(a)(2), for direct sequence systems, the minimum 6dB bandwidth shall be at least 500 kHz. According to §15.407, 26dB Bandwidth should be shown.

5.2 Measurement Procedure

1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. Position the EUT without connection to measurement instrument. Turn on the EUT and connect it to measurement instrument. Then set it to any one convenient frequency within its operating range. Set a reference level on the measuring instrument equal to the highest peak value.
3. Measure the frequency difference of two frequencies that were attenuated 6 dB from the reference level. Record the frequency difference as the emission bandwidth. (6 dB bandwidth for DTS)
4. Same as (3) except 26 dB. (26dB bandwidth for UNII)
5. Repeat above procedures until all frequencies measured were complete.

5.3 Equipment Lists

Manufacturer	Model No.	Description	Calibration Due Date
Agilent	8564E	Spectrum Analyzer	2004-08-26

5.4 Measurement Result

5.4.1 Test Result for 802.11b (15.247)

Channel	Frequency (MHz)	Measured (MHz)	Standard (kHz)	Result
Low	2412	10.25 MHz	≥ 500	Compliant
Mid	2442	10.33 MHz	≥ 500	Compliant
High	2462	10.50 MHz	≥ 500	Compliant

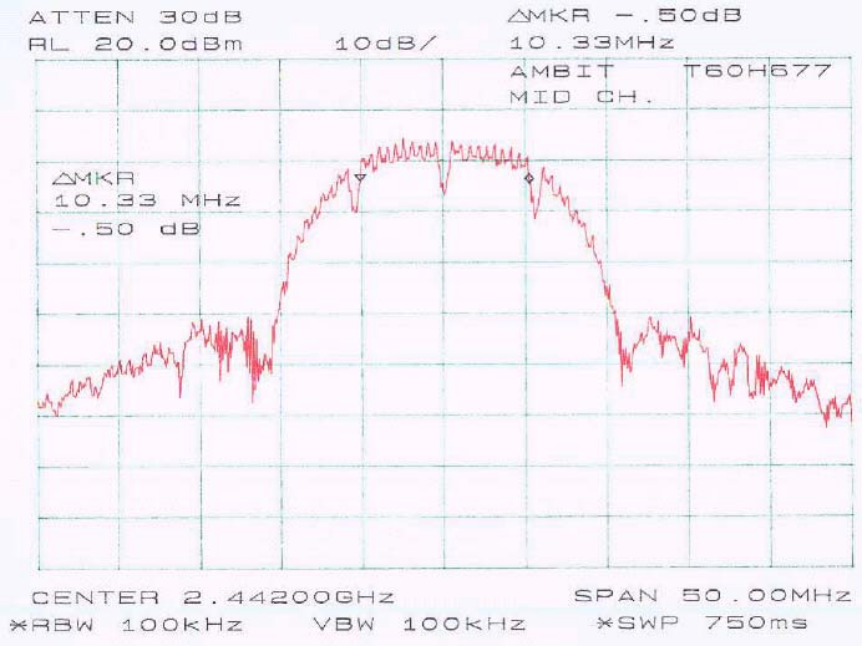
5.4.2 Test Result for 802.11g (15.247)

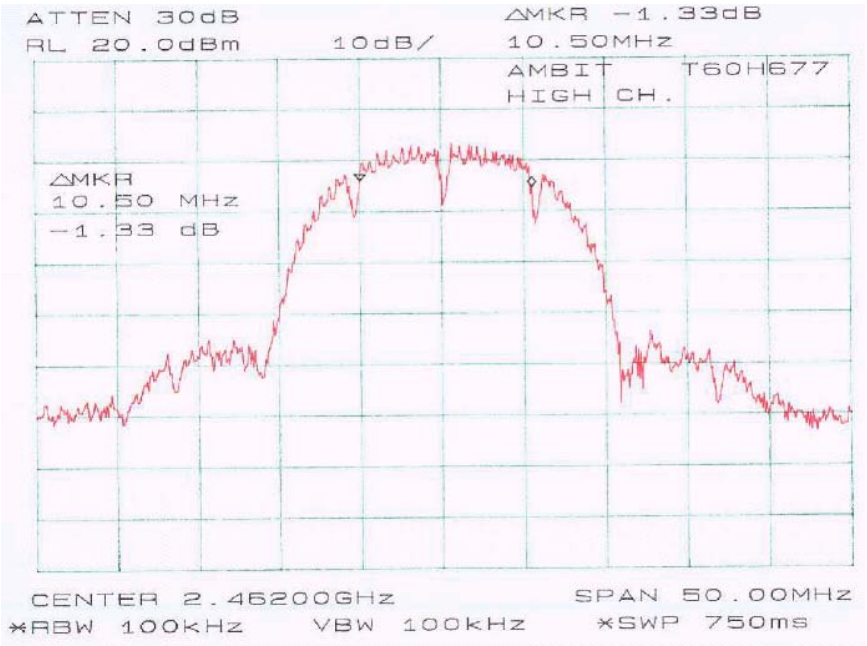
	Frequency (MHz)	Measured (MHz)	Standard (kHz)	Result
J1 Port	2412	16.83	≥ 500	Compliant
	2442	16.92	≥ 500	Compliant
	2462	16.83	≥ 500	Compliant

5.4.3 Test Result for 802.11a MHz Band (15.407)

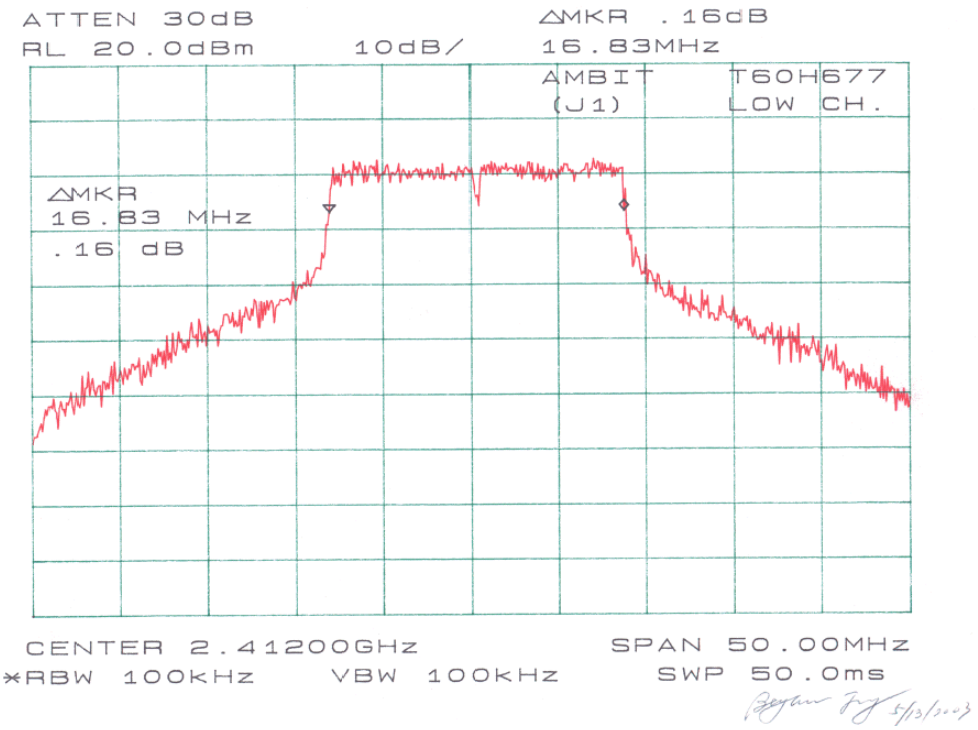
Band	Channel	Frequency (MHz)	Measured (MHz)
Low	Low	5150	23.33
	Mid	5200	23.25
	High	5250	23.58
Mid	Low	5250	23.83
	Mid	5300	23.08
	High	5330	23.83
High	Low	5745	23.00
	Mid	5775	23.75
	High	5810	23.50

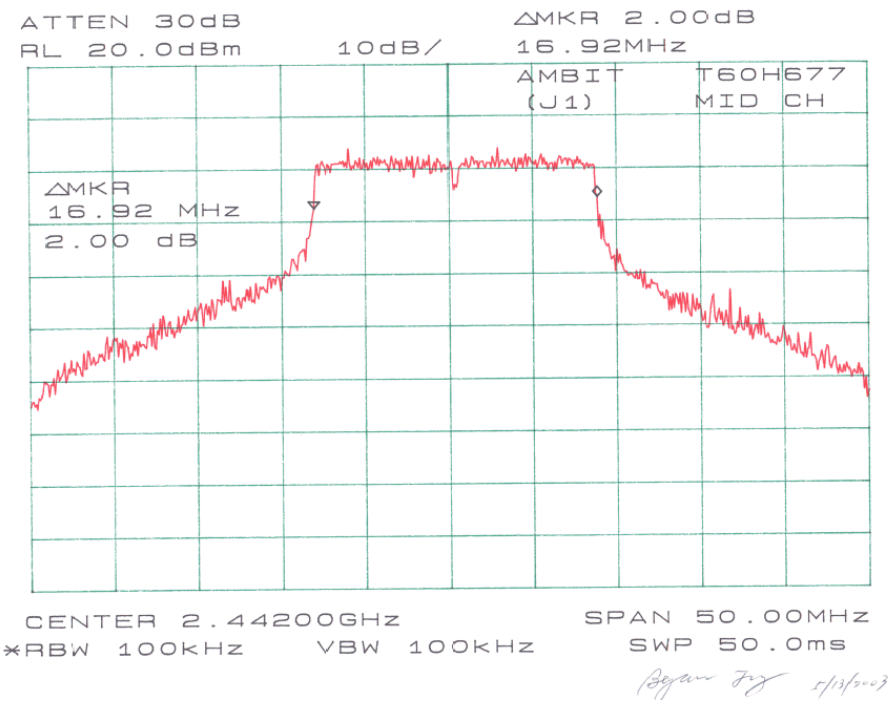
Plots of 6dB Bandwidth for 802.11b (15.247)

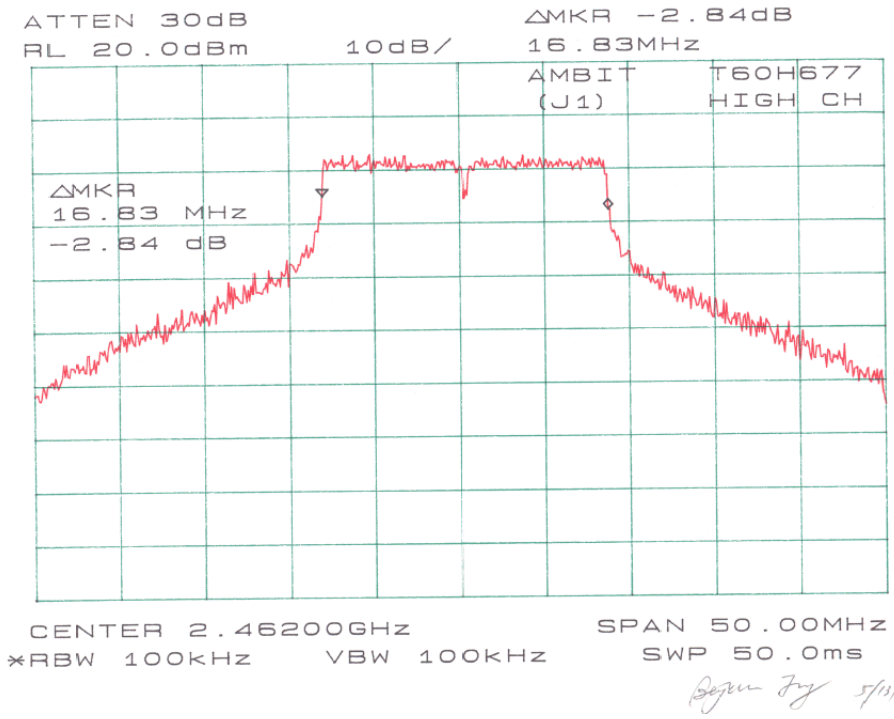




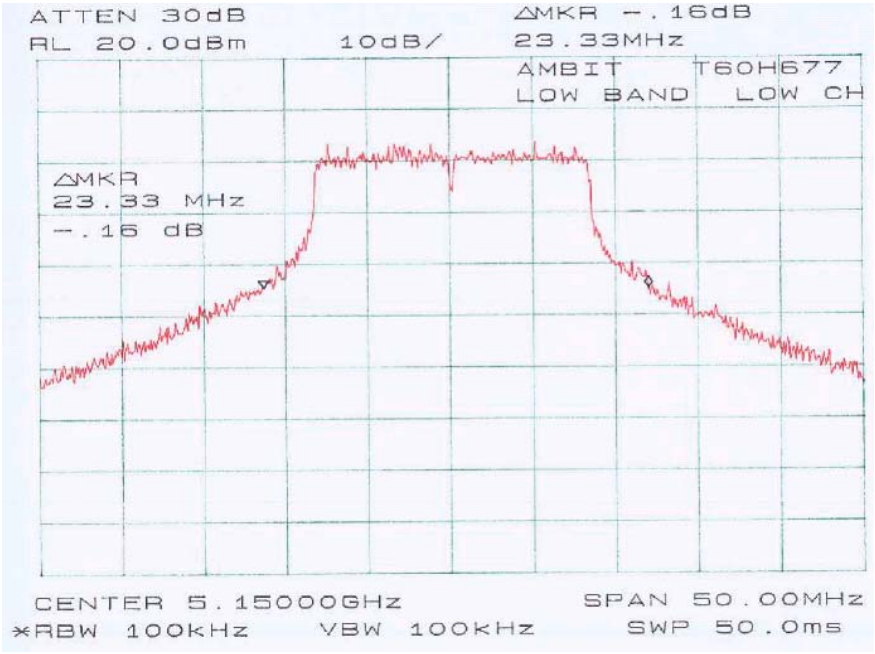
Plots of 6dB Bandwidth for 802.11g (15.247)

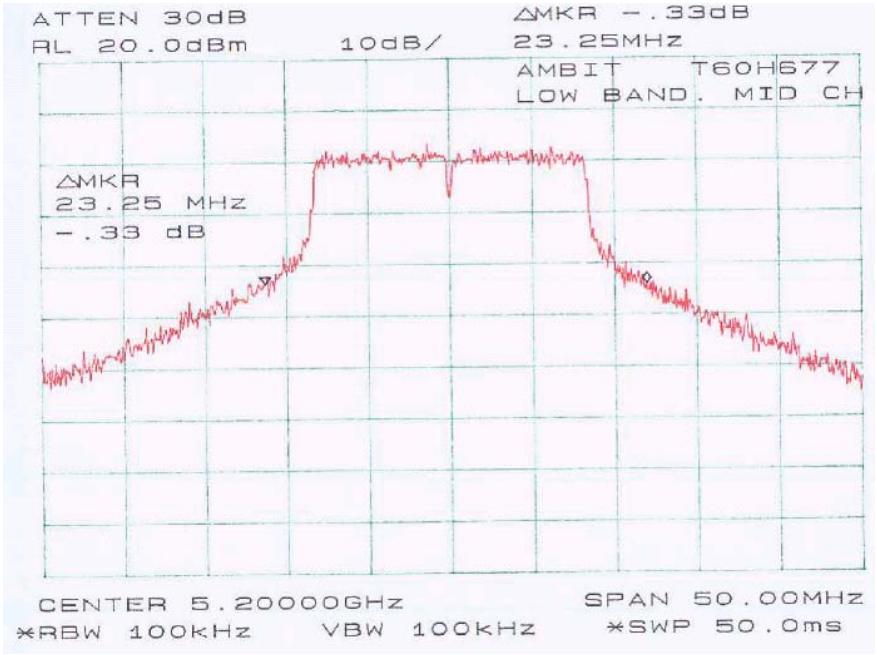


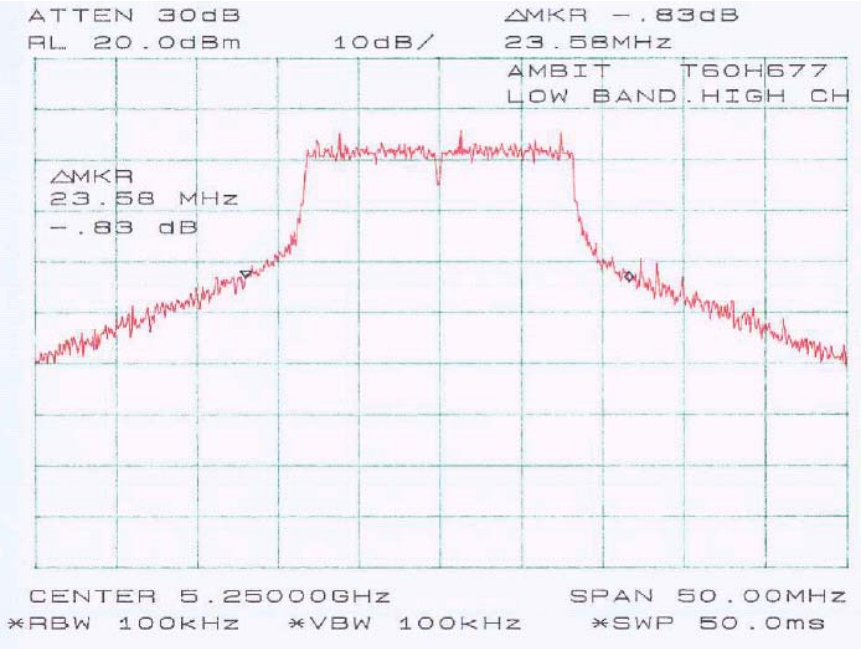

ATTEN 30dB
RL 20.0dBm
10dB/
ΔMKR 2.00dB
16.92MHz
AMBIT
(J1)
T60H677
MID CH
ΔMKR
16.92 MHz
2.00 dB
CENTER 2.44200GHz
SPAN 50.00MHz
*RBW 100kHz
VBW 100kHz
SWP 50.0ms

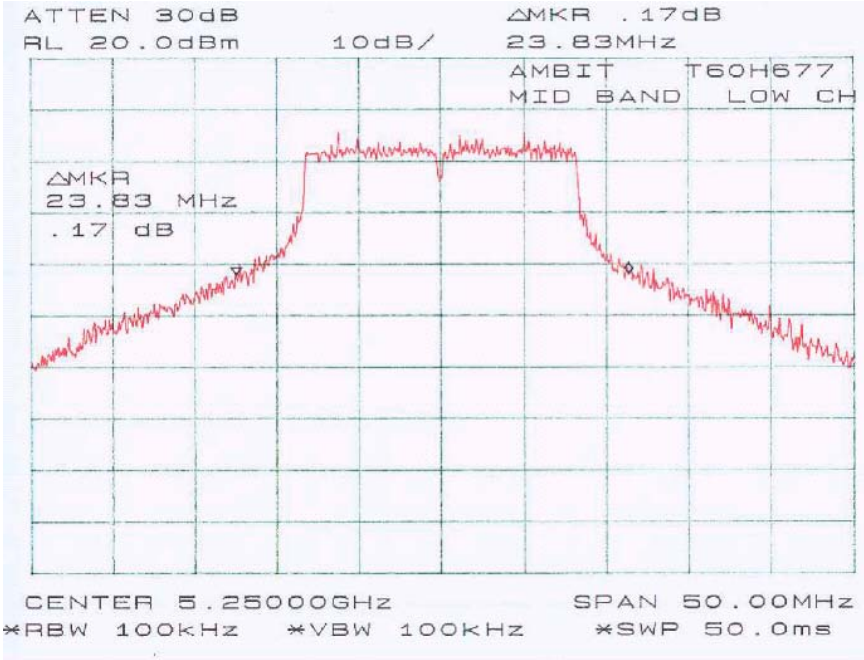

ATTEN 30dB
RL 20.0dBm
10dB/
ΔMKR −2.84dB
16.83MHz
AMBIT
(J1)
T60H677
HIGH CH
ΔMKR
16.83 MHz
−2.84 dB
CENTER 2.46200GHz
SPAN 50.00MHz
*RBW 100kHz
VBW 100kHz
SWP 50.0ms

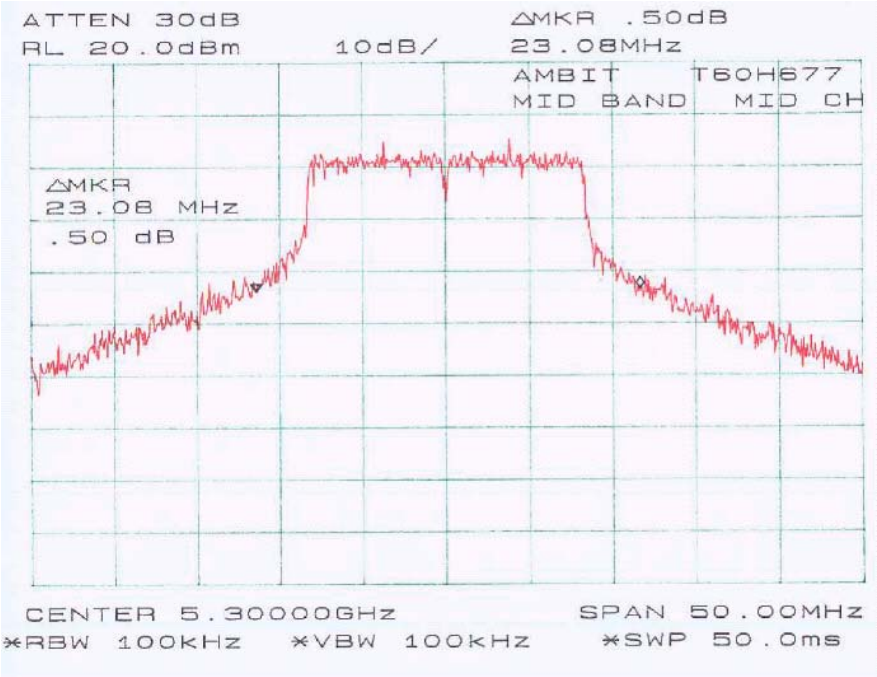
Plots of 26dB Bandwidth for 802.11a (15.407)

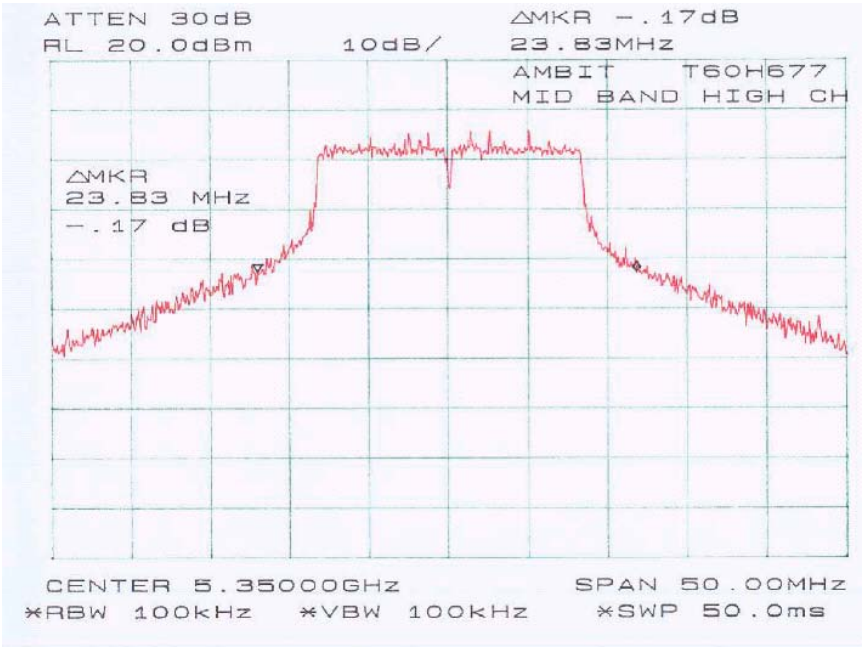


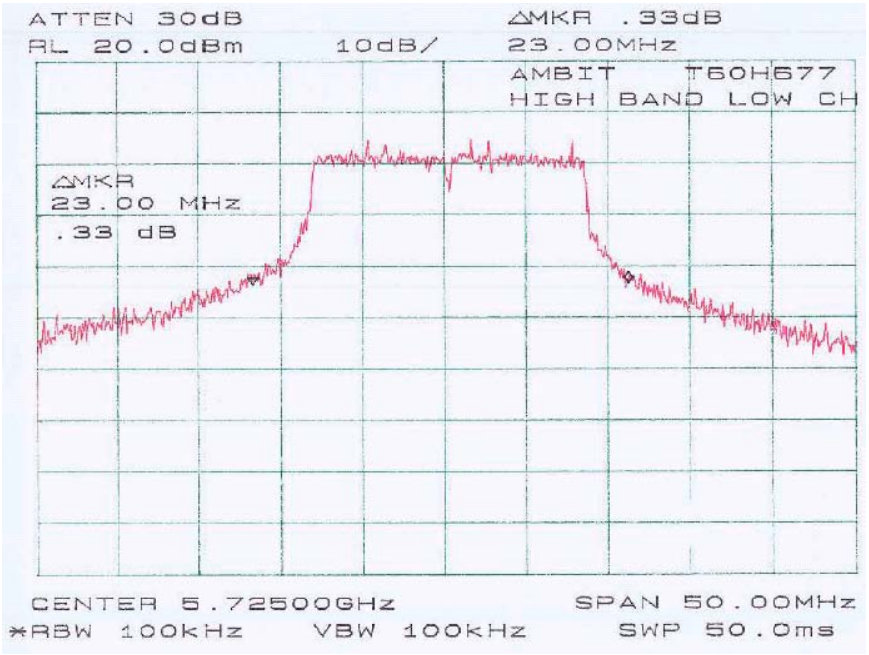


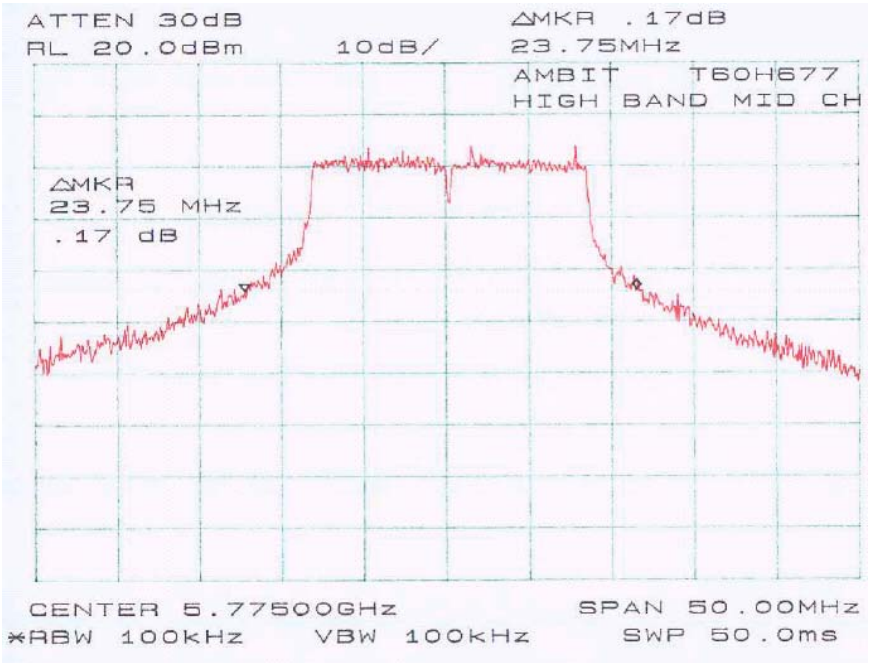

ATTEN 30dB
RL 20.0dBm
10dB/
ΔMKR -.83dB
23.58MHz
AMBIT T60H677
LOW BAND.HIGH CH
ΔMKR
23.58 MHz
-.83 dB
CENTER 5.25000GHz
SPAN 50.00MHz
*RBW 100kHz
*VBW 100kHz
*SWP 50.0ms

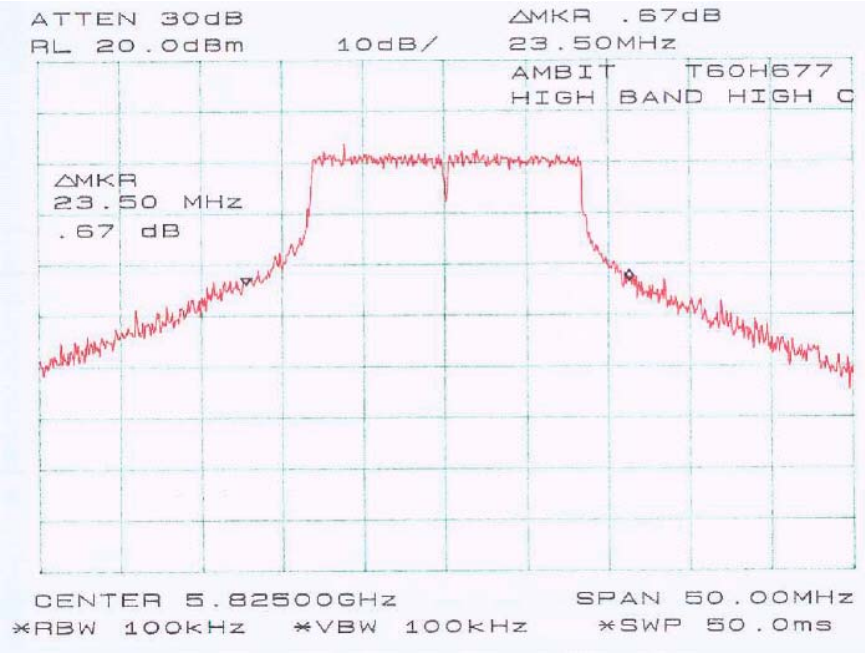

ATTEN 30dB
RL 20.0dBm
10dB/
ΔMKR .17dB
23.83MHz
AMBIT T60H677
MID BAND LOW CH
ΔMKR
23.83 MHz
.17 dB
CENTER 5.25000GHz
SPAN 50.00MHz
*RBW 100kHz
*VBW 100kHz
*SWP 50.0ms


ATTEN 30dB
RL 20.0dBm
10dB/
ΔMKR .50dB
23.08MHz
AMBIT T60H677
MID BAND MID CH
ΔMKR
23.08 MHz
.50 dB
CENTER 5.30000GHz
SPAN 50.00MHz
*RBW 100kHz
*VBW 100kHz
*SWP 50.0ms


ATTEN 30dB
RL 20.0dBm
10dB/
ΔMKR -.17dB
23.83MHz
AMBIT T60H677
MID BAND HIGH CH
ΔMKR
23.83 MHz
-.17 dB
CENTER 5.35000GHz
SPAN 50.00MHz
*RBW 100kHz
*VBW 100kHz
*SWP 50.0ms


ATTEN 30dB
RL 20.0dBm
10dB/
ΔMKR .33dB
23.00MHz
AMBIT T60H677
HIGH BAND LOW CH
ΔMKR
23.00 MHz
.33 dB
CENTER 5.72500GHz
SPAN 50.00MHz
*RBW 100kHz
VBW 100kHz
SWP 50.0ms


ATTEN 30dB
RL 20.0dBm
10dB/
ΔMKR .17dB
23.75MHz
AMBIT T60H677
HIGH BAND MID CH
ΔMKR
23.75 MHz
.17 dB
CENTER 5.77500GHz
SPAN 50.00MHz
*RBW 100kHz
VBW 100kHz
SWP 50.0ms


ATTEN 30dB
RL 20.0dBm
10dB/
ΔMKR .67dB
23.50MHz
AMBIT T60H677
HIGH BAND HIGH C
ΔMKR
23.50 MHz
.67 dB
CENTER 5.82500GHz
SPAN 50.00MHz
*RBW 100kHz
*VBW 100kHz
*SWP 50.0ms

6 - POWER SPECTRAL DENSITY

6.1 Standard Applicable

According to §15.247 (d), for direct sequence systems, the peak power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

According to §15.407(a) (1), for the band 5.15-5.25 GHz, the peak power spectral density shall not exceed 4 dBm in any 1-MHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the peak transmit power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

According to §15.407(a) (2), for the band 5.25-5.35 GHz, the peak power spectral density shall not exceed 11 dBm in any 1-MHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the peak transmit power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceed 6 dBi.

According to §15.407(a) (3), for the band 5.725-5.825 GHz, the peak power spectral density shall not exceed 17 dBm in any 1-MHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the peak transmit power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

6.2 Measurement Procedure

1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. Position the EUT was set without connection to measurement instrument. Turn on the EUT and connect its antenna terminal to measurement instrument via a low loss cable. Then set it to any one measured frequency within its operating range, and make sure the instrument is operated in its linear range.
3. Adjust the center frequency of SA on any frequency be measured and set SA to 6MHz span mode. And then, set RBW and VBW of spectrum analyzer to proper value. (DTS)
4. Adjust the center frequency of SA on any frequency be measured and set SA to 50MHz span mode. And then, set RBW and VBW of spectrum analyzer to proper value. (UNII)
5. Repeat above procedures until all frequencies measured were complete.

6.3 Equipment Lists

Manufacturer	Model No.	Description	Calibration Due Date
Agilent	8564E	Spectrum Analyzer	2004-08-26

6.4 Measurement Results

6.4.1Test Result for 802.11b (15.247)

Channel	Frequency (MHz)	Peak Power Spectral Density (dBm)	Standard (dBm)	Result
Low	2412	-10.67	≤ 8	Compliant
Mid	2437	-10.33	≤ 8	Compliant
High	2462	-12.00	≤ 8	Compliant

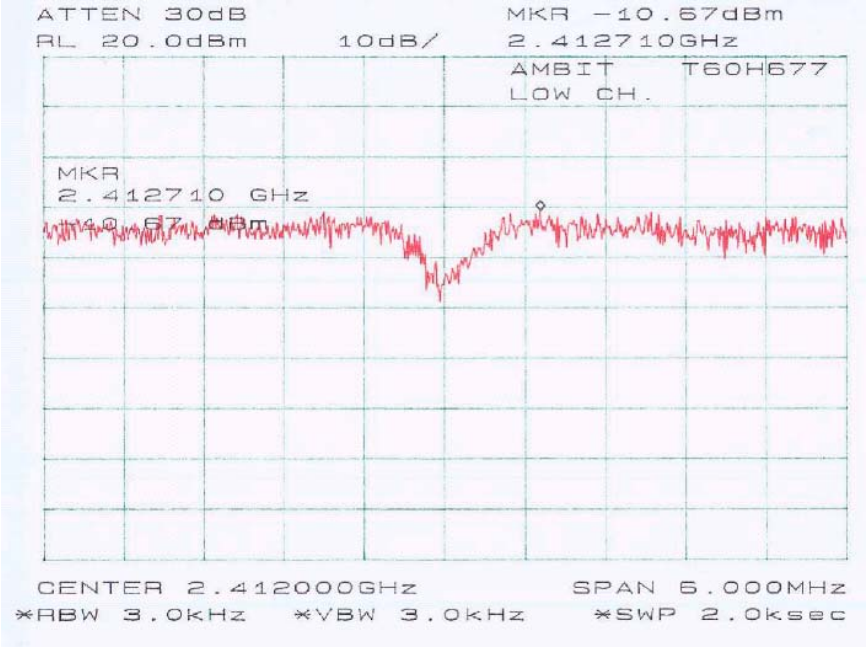
6.4.2Test Result for 802.11b (15.247)

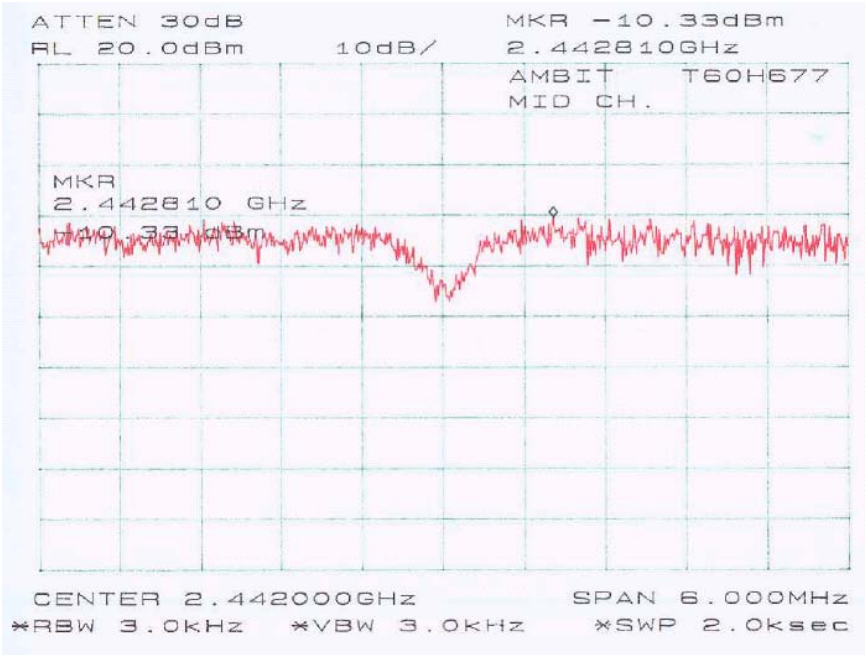
	Frequency (MHz)	Peak Power Spectral Density	Standard (dBm)	Result
J1 Port	2412	-6.17	≤ 8	Compliant
	2442	-8.67	≤ 8	Compliant
	2462	-9.17	≤ 8	Compliant

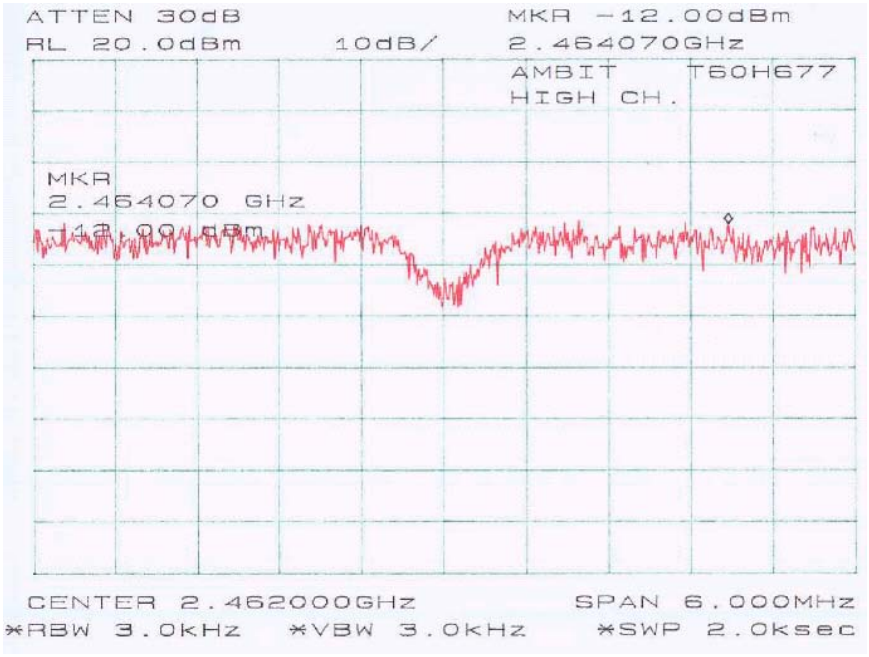
6.4.3 Test Result for 802.11a (15.407)

Band	Channel	Frequency (MHz)	Peak Power Spectral Density (dBm)	Standard (dBm)	Result
Low	Low	5150	-8.83	≤ 4	Compliant
	Mid	5200	-10.17	≤ 4	Compliant
	High	5250	-9.50	≤ 4	Compliant
Mid	Low	5250	-8.83	≤ 11	Compliant
	Mid	5300	-9.67	≤ 11	Compliant
	High	5330	-7.50	≤ 11	Compliant
High	Low	5745	-8.17	≤ 17	Compliant
	Mid	5775	-9.83	≤ 17	Compliant
	High	5810	-10.00	≤ 17	Compliant

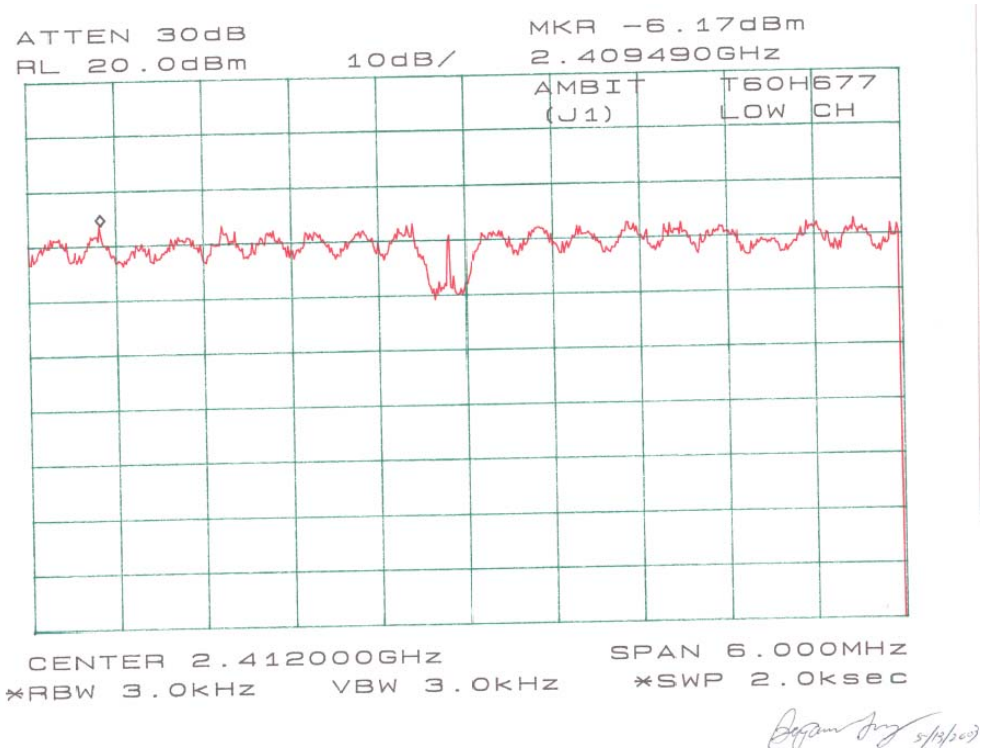
Plots of Power Spectral Density for 802.11b (15.247)

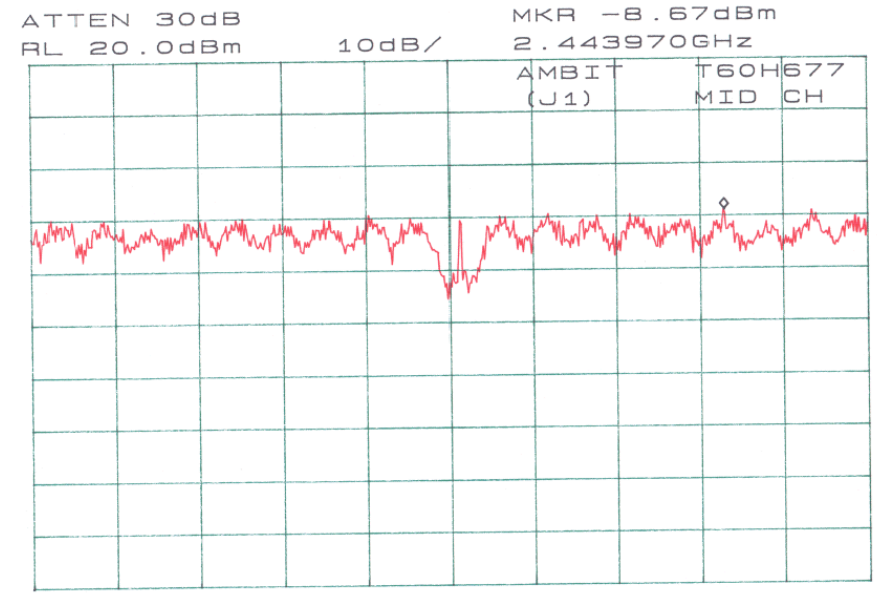


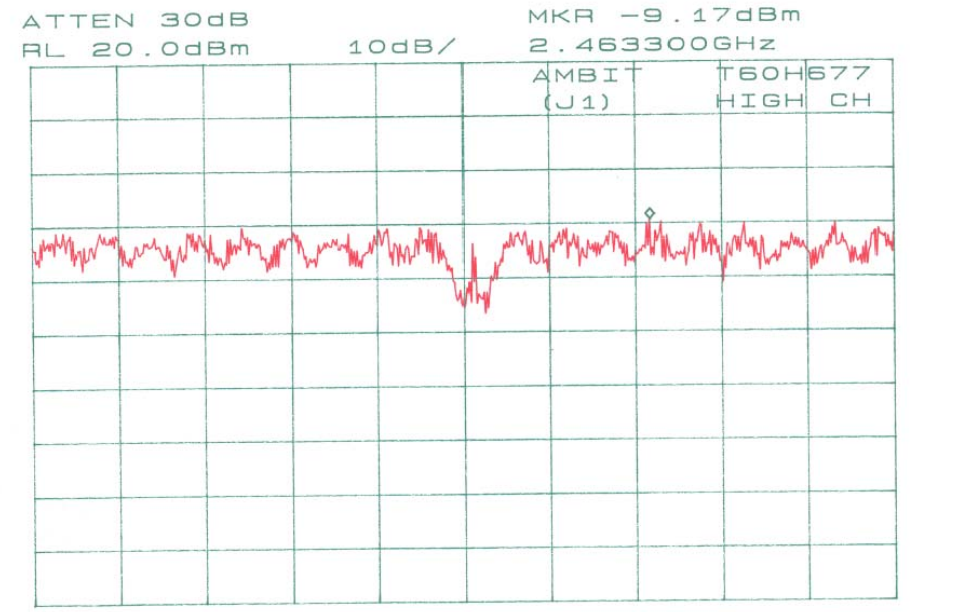




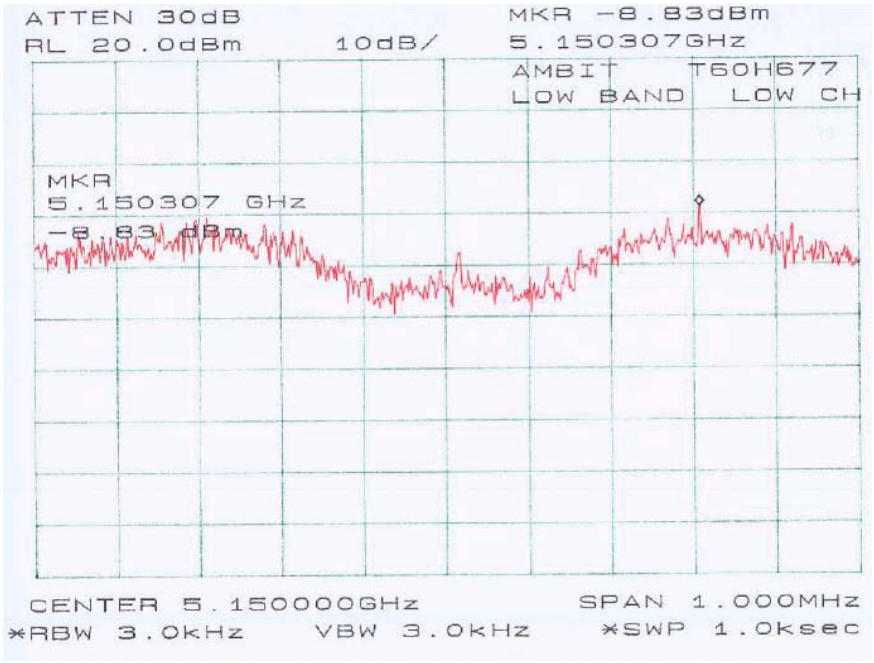
Plots of Power Spectral Density for 802.11g (15.247)

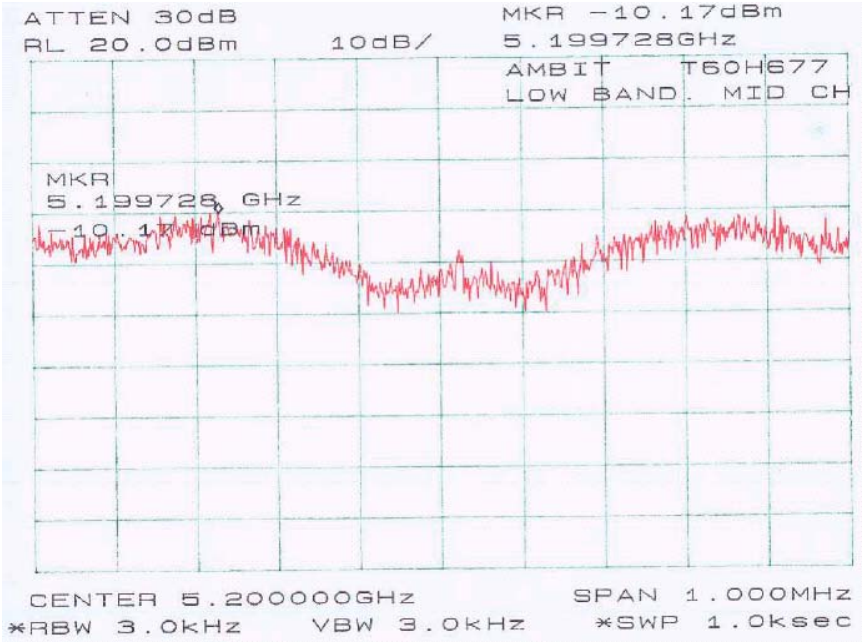


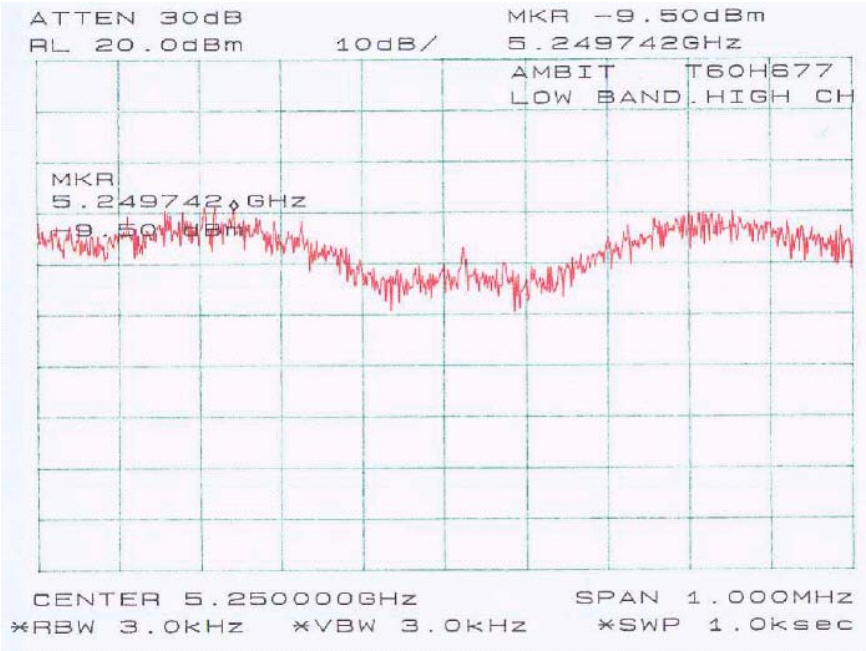

ATTEN 30dB
RL 20.0dBm
10dB/
MKR -8.67dBm
2.443970GHz
AMBIT
(J1)
T60H677
MID CH
CENTER 2.442000GHz
SPAN 6.000MHz
*RBW 3.0kHz
VBW 3.0kHz
*SWP 2.0ksec

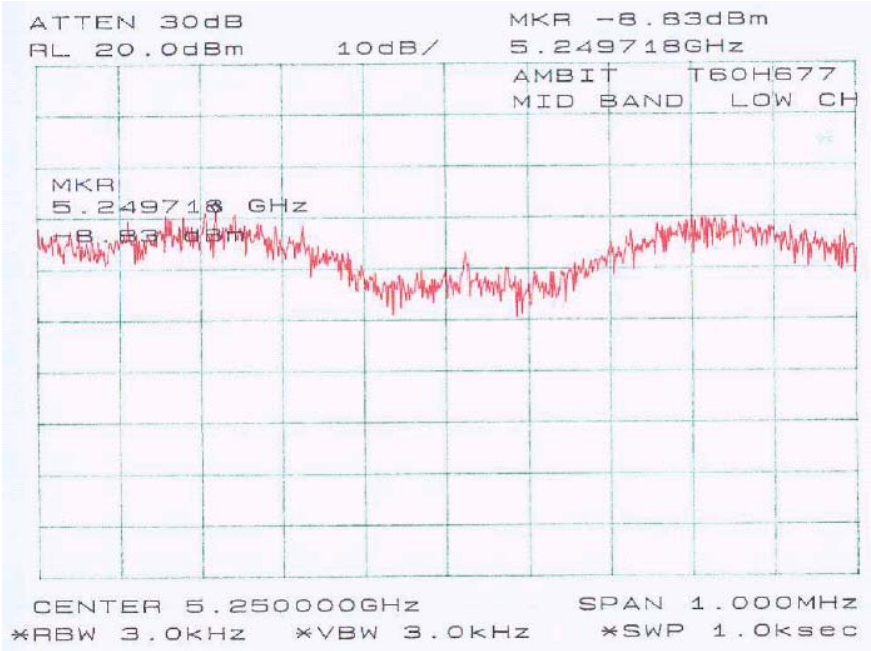

ATTEN 30dB
RL 20.0dBm
10dB/
MKR -9.17dBm
2.463300GHz
AMBIT
(J1)
T60H677
HIGH CH
CENTER 2.462000GHz
SPAN 6.000MHz
*RBW 3.0kHz
VBW 3.0kHz
*SWP 2.0ksec

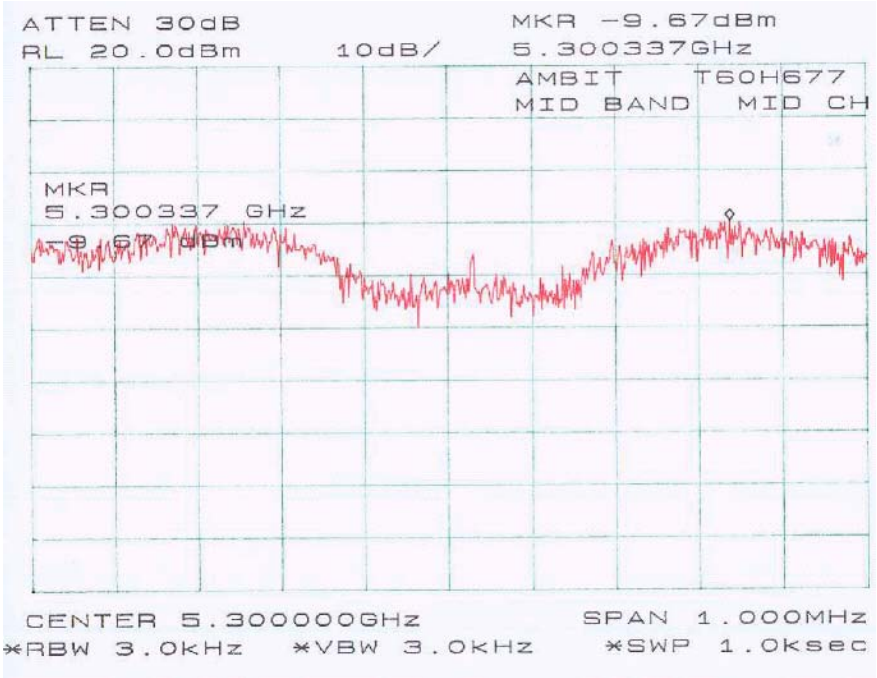
Plots of Spectral Density for 802.11a (15.407)

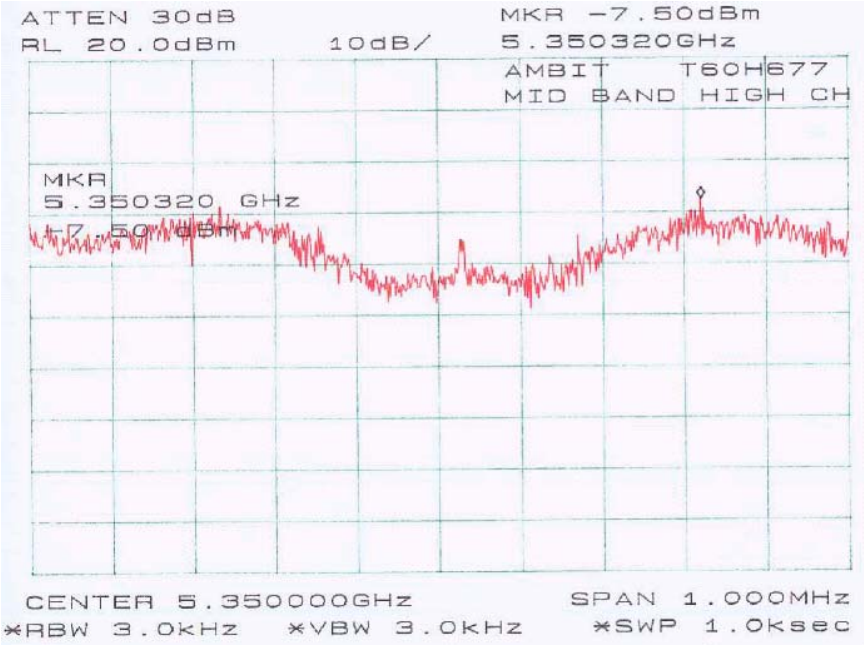


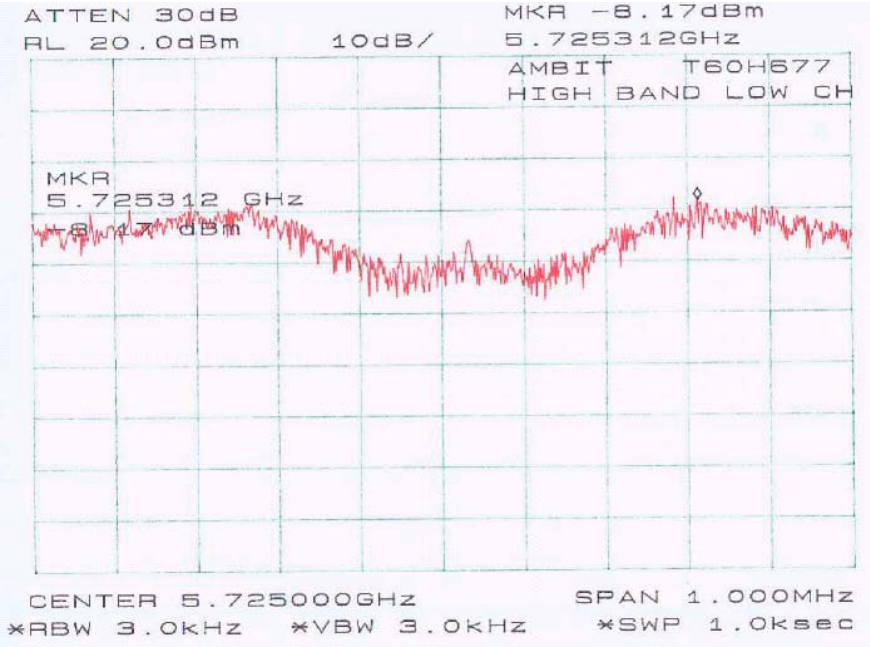


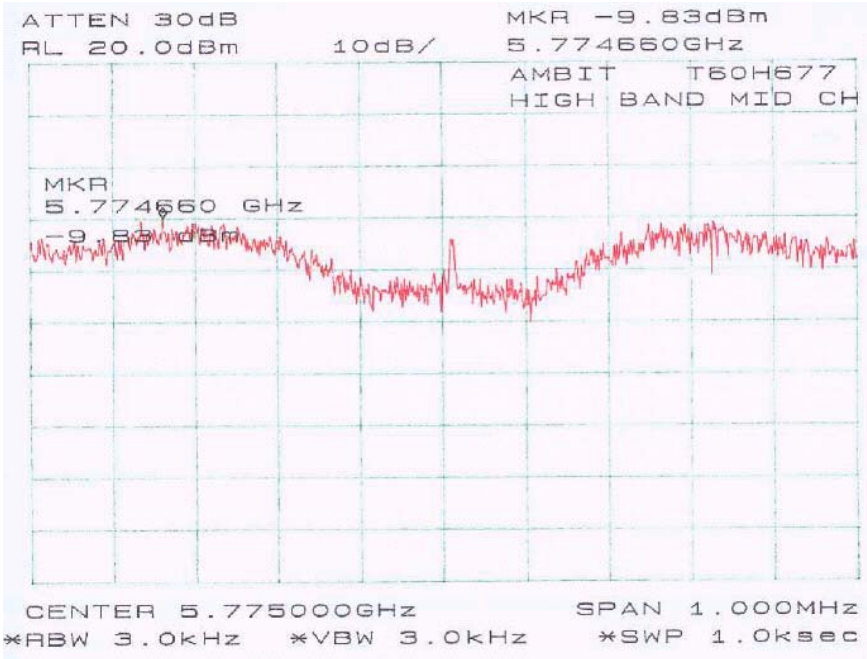

ATTEN 30dB
RL 20.0dBm
10dB/
MKR -9.50dBm
5.249742GHz
AMBIT T60H677
LOW BAND. HIGH CH
MKR
5.249742 GHz
-9.50 dBm
CENTER 5.250000GHz
SPAN 1.000MHz
*RBW 3.0kHz
*VBW 3.0kHz
*SWP 1.0ksec

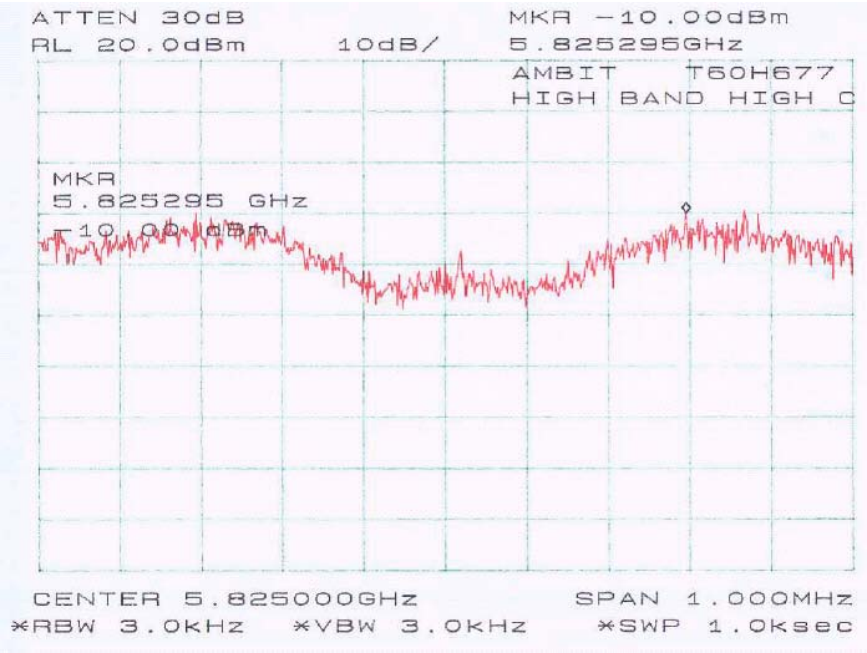

ATTEN 30dB
RL 20.0dBm
10dB/
MKR -8.83dBm
5.249718GHz
AMBIT T60H677
MID BAND LOW CH
MKR
5.249718 GHz
-8.83 dBm
CENTER 5.250000GHz
SPAN 1.000MHz
*RBW 3.0kHz
*VBW 3.0kHz
*SWP 1.0ksec


ATTEN 30dB
RL 20.0dBm
10dB/
MKR -9.67dBm
5.300337GHz
AMBIT T60H677
MID BAND MID CH
MKR
5.300337 GHz
-9.67 dBm
CENTER 5.300000GHz
SPAN 1.000MHz
*RBW 3.0kHz
*VBW 3.0kHz
*SWP 1.0ksec


ATTEN 30dB
RL 20.0dBm
10dB/
MKR -7.50dBm
5.350320GHz
AMBIT T60H677
MID BAND HIGH CH
MKR
5.350320 GHz
-7.50 dBm
CENTER 5.350000GHz
SPAN 1.000MHz
*RBW 3.0kHz
*VBW 3.0kHz
*SWP 1.0ksec


ATTEN 30dB
RL 20.0dBm
10dB/
MKR -8.17dBm
5.725312GHz
AMBIT T60H677
HIGH BAND LOW CH
MKR
5.725312 GHz
CENTER 5.725000GHz
SPAN 1.000MHz
*RBW 3.0kHz
*VBW 3.0kHz
*SWP 1.0ksec


ATTEN 30dB
RL 20.0dBm
10dB/
MKR -9.83dBm
5.774660GHz
AMBIT T60H677
HIGH BAND MID CH
MKR
5.774660 GHz
CENTER 5.775000GHz
SPAN 1.000MHz
*RBW 3.0kHz
*VBW 3.0kHz
*SWP 1.0ksec


ATTEN 30dB
RL 20.0dBm
10dB/
MKR -10.00dBm
5.825295GHz
AMBIT T60H677
HIGH BAND HIGH C
MKR
5.825295 GHz
-10.00 dBm
CENTER 5.825000GHz
SPAN 1.000MHz
*RBW 3.0KHz
*VBW 3.0KHz
*SWP 1.0ksec

7 - 100 KHZ BANDWIDTH OF BAND EDGES

7.1 Standard Applicable

According to §15.247(c), in *any* 100 kHz bandwidth outside the frequency bands in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) see §15.205(c)).

7.2 Measurement Procedure

1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. Position the EUT without connection to measurement instrument. Turn on the EUT and connect its antenna terminal to measurement instrument via a low loss cable. Then set it to any one measured frequency within its operating range, and make sure the instrument is operated in its linear range.
3. Set both RBW and VBW of spectrum analyzer to 100 kHz with a convenient frequency span including 100kHz bandwidth from band edge.
4. Measure the highest amplitude appearing on spectral display and set it as a reference level. Plot the graph with marking the highest point and edge frequency.
5. Repeat above procedures until all measured frequencies were complete.

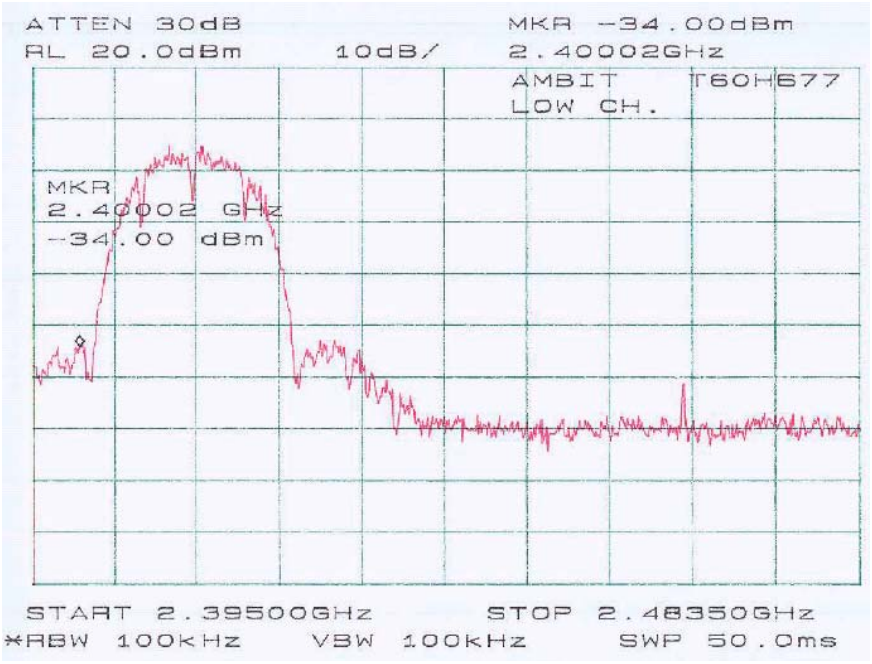
7.3 Equipment Lists

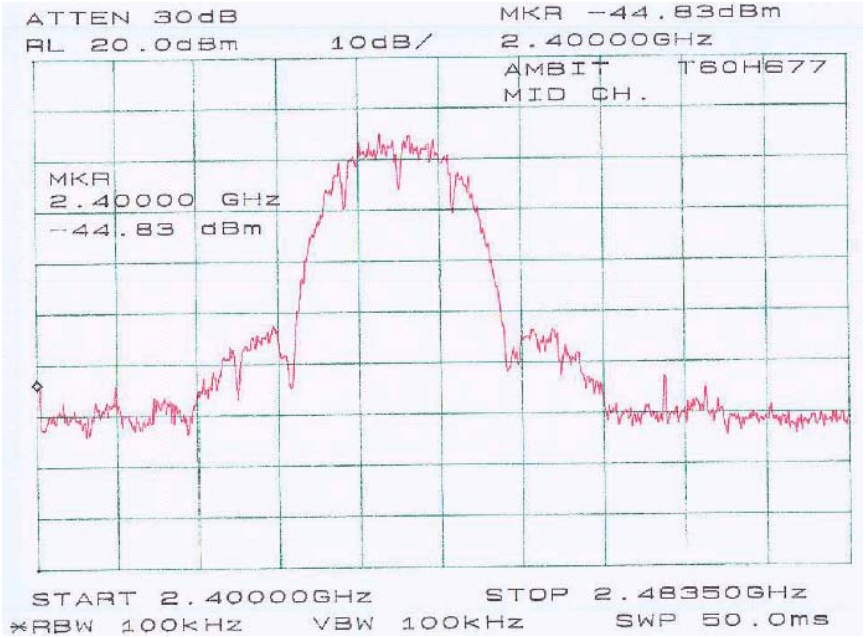
Manufacturer	Model No.	Description	Calibration Due Date
Agilent	8564E	Spectrum Analyzer	2004-08-26

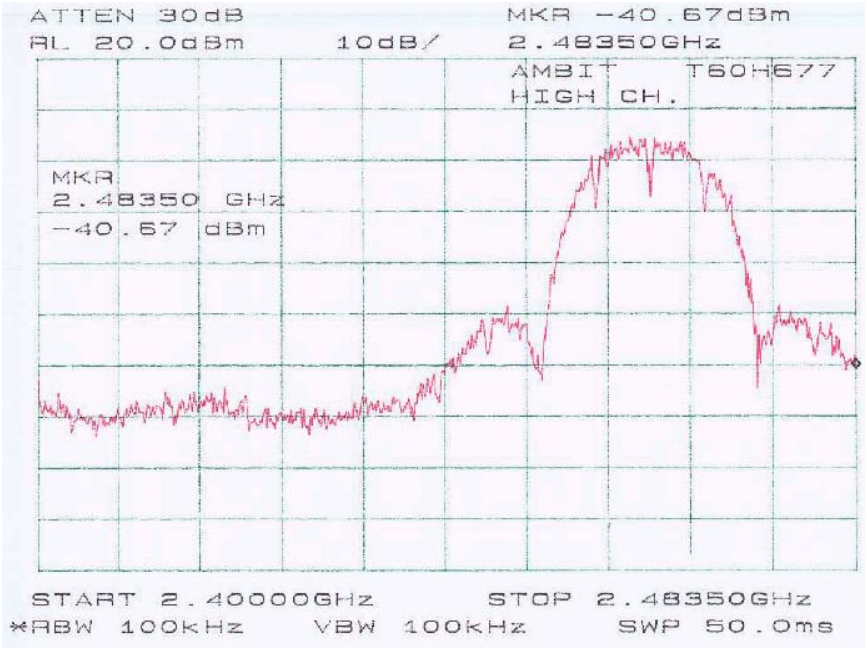
7.4 Measure Results

Please refer to following pages for plots of band edge.

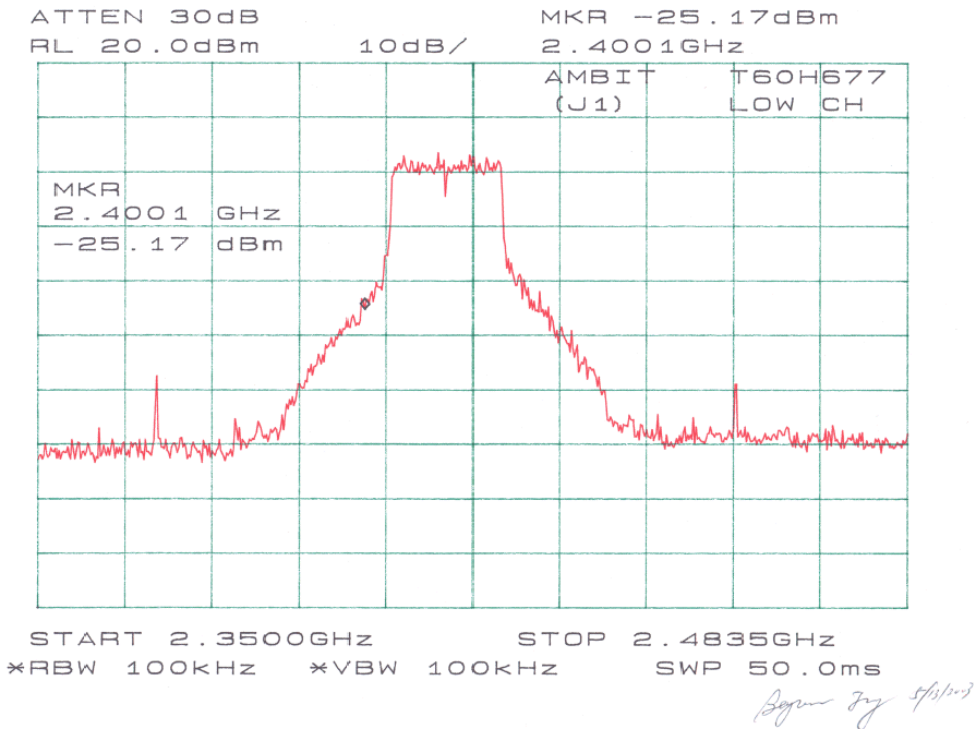
Plots of Band Edge for 802.11b (15.247)

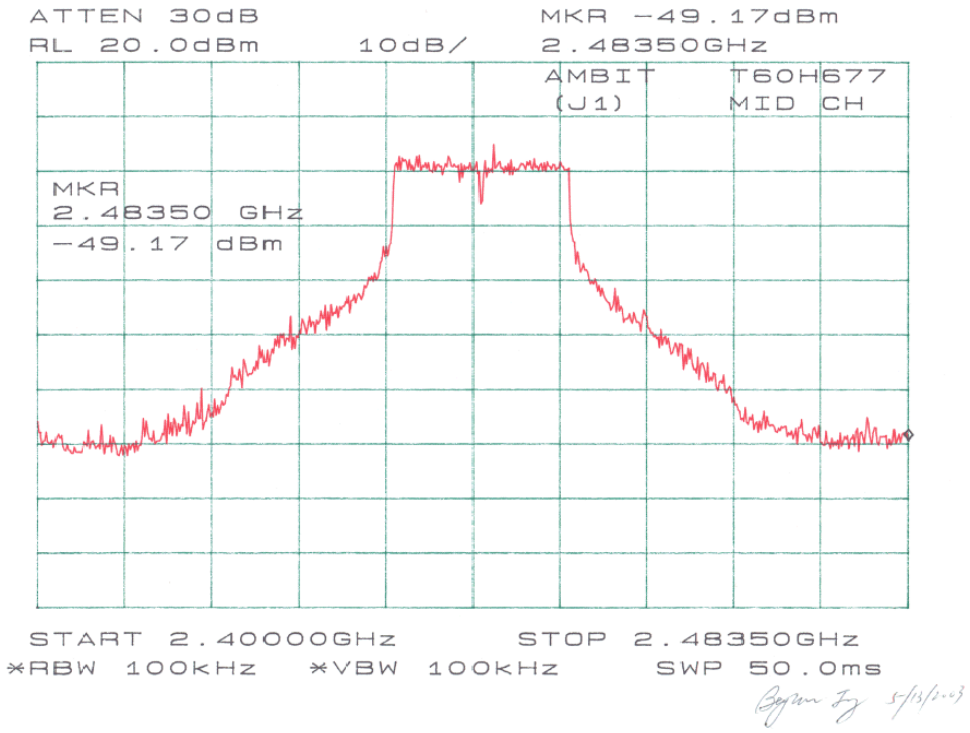


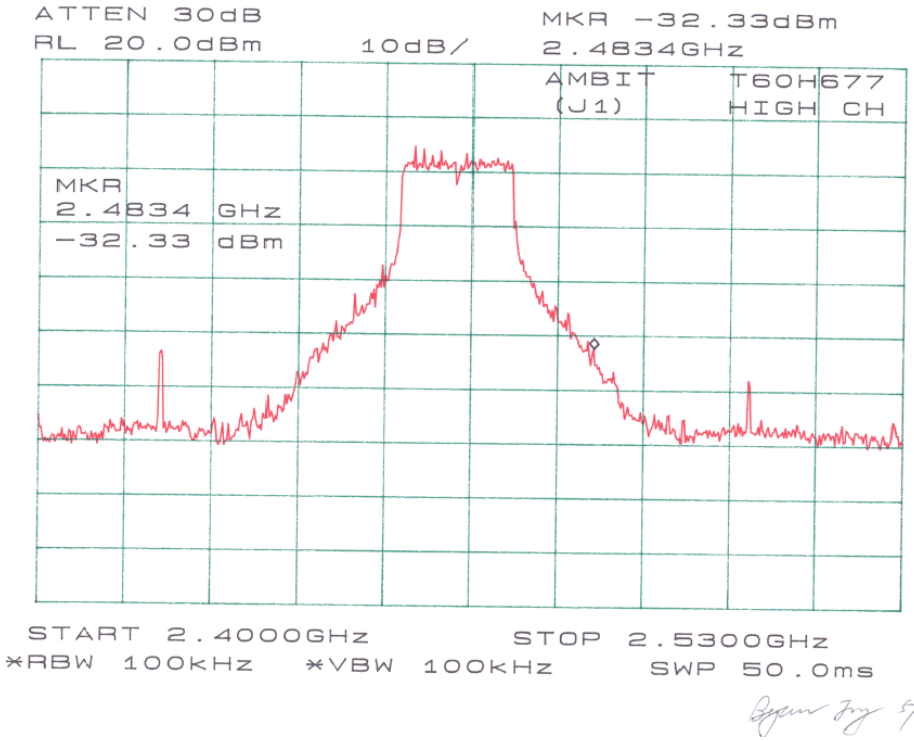




Plots of Band Edge for 802.11g (15.247)




ATTEN 30dB
RL 20.0dBm
10dB/
MKR -49.17dBm
2.48350GHz
AMBIT
(J1)
T60H677
MID CH
MKR
2.48350 GHz
-49.17 dBm
START 2.40000GHz
STOP 2.48350GHz
*RBW 100kHz
*VBW 100kHz
SWP 50.0ms


ATTEN 30dB
RL 20.0dBm
10dB/
MKR -32.33dBm
2.4834GHz
AMBIT
(J1)
T60H677
HIGH CH
MKR
2.4834 GHz
-32.33 dBm
START 2.4000GHz
STOP 2.5300GHz
*RBW 100kHz
*VBW 100kHz
SWP 50.0ms