EMC Test Report
Application for Grant of Equipment Authorization
Class II Permissive Change/Reassessment
Industry Canada RSS-Gen Issue 2 / RSS 210 Issue 7
FCC Part 15 Subpart C

Model: PROXMB82

IC CERTIFICATION #:	1856A-PROXMB82
FCC ID:	HZB-PROXMB82
APPLICANT:	Proxim Wireless Corporation 1561 Buckeye Dr. Milpitas, CA 95035
TEST SITE(S):	Elliott Laboratories 41039 Boyce Road. Fremont, CA. 94538-2435
IC SITE REGISTRATION #:	2845B-3; 2845B-4, 2845B-5
REPORT DATE:	September 21, 2009
FINAL TEST DATES:	August 3, August 4, August 5, August 6, August 21, August 28, August 31, September 1, September 2 and September 3, 2009

AUTHORIZED SIGNATORY:

Mark Briggs

Mark Briggs
Staff Engineer
Elliott Laboratories.

ACCREDITED

Testing Cert #2016-01

REVISION HISTORY

Rev#	Date	Comments	Modified By
-	October 29, 2009	First Release	

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SCOPE

An electromagnetic emissions test has been performed on the Proxim Wireless Corporation model PROXMB82, pursuant to the following rules:

Industry Canada RSS-Gen Issue 2
RSS 210 Issue 7 "Low-power Licence-exempt Radiocommunication Devices (All Frequency Bands): Category I Equipment"
FCC Part 15 Subpart C

Conducted and radiated emissions data has been collected, reduced, and analyzed within this report in accordance with measurement guidelines set forth in the following reference standards and as outlined in Elliott Laboratories test procedures:

ANSI C63.4:2003
FCC DTS Measurement Procedure KDB558074, March 2005

The intentional radiator above has been tested in a simulated typical installation to demonstrate compliance with the relevant Industry Canada performance and procedural standards.

Final system data was gathered in a mode that tended to maximize emissions by varying orientation of EUT, orientation of power and I/O cabling, antenna search height, and antenna polarization.

Every practical effort was made to perform an impartial test using appropriate test equipment of known calibration. All pertinent factors have been applied to reach the determination of compliance.

OBJECTIVE

The primary objective of the manufacturer is compliance with the regulations outlined in the previous section.

Prior to marketing in the USA, all unlicensed transmitters and transceivers require certification. Receive-only devices operating between 30 MHz and 960 MHz are subject to either certification or a manufacturer's declaration of conformity, with all other receive-only devices exempt from the technical requirements.

Prior to marketing in Canada, Class I transmitters, receivers and transceivers require certification. Class II devices are required to meet the appropriate technical requirements but are exempt from certification requirements.

Certification is a procedure where the manufacturer submits test data and technical information to a certification body and receives a certificate or grant of equipment authorization upon successful completion of the certification body's review of the submitted documents. Once the equipment authorization has been obtained, the label indicating compliance must be attached to all identical units, which are subsequently manufactured.

Maintenance of compliance is the responsibility of the manufacturer. Any modification of the product which may result in increased emissions should be checked to ensure compliance has been maintained (i.e., printed circuit board layout changes, different line filter, different power supply, harnessing or I/O cable changes, etc.).

STATEMENT OF COMPLIANCE

The tested sample of Proxim Wireless Corporation model PROXMB82 complied with the requirements of the following regulations:

Industry Canada RSS-Gen Issue 2
RSS 210 Issue 7 "Low-power Licence-exempt Radiocommunication Devices (All Frequency Bands): Category I Equipment"
FCC Part 15 Subpart C

Maintenance of compliance is the responsibility of the manufacturer. Any modifications to the product should be assessed to determine their potential impact on the compliance status of the device with respect to the standards detailed in this test report.

The test results recorded herein are based on a single type test of Proxim Wireless Corporation model PROXMB82 and therefore apply only to the tested sample. The sample was selected and prepared by Ivaylo Tankov of Proxim Wireless Corporation.

DEVIATIONS FROM THE STANDARDS

No deviations were made from the published requirements listed in the scope of this report.

TEST RESULTS SUMMARY

DIGITAL TRANSMISSION SYSTEMS (2400 – 2483.5MHz)

FCC Rule Part	RSS Rule Part	Description	Measured Value / Comments	Limit / Requirement	Result
15.247(a)	RSS 210 A8.2	Digital Modulation	Note 1	-	Complies
15.247 (a) (2)	RSS 210 A8.2 (1)	6dB Bandwidth		>500kHz	Complies
15.247 (b) (3)	RSS 210 A8.2 (4)	Output Power (multipoint systems)	**Sector Antenna** 802.11b:-1.9 dBm 802.11g: -2.3dBm HT20: 1.9 dBm HT40: 2.8 dBm EIRP: 0.096 W **Panel Antenna** 802.11b: 8.2 dBm 802.11g: 7.4 dBm HT20: 12.4 dBm HT40: 12.8 dBm EIRP: 1.9 W	1Watt, EIRP limited to 4 Watts.	Complies
15.247(d)	RSS 210 A8.2 (2)	Power Spectral Density	Note 1	-	Complies
15.247(c)	RSS 210 A8.5	Antenna Port Spurious Emissions 30MHz – 25 GHz		-	Complies
15.247(c) / 15.209	RSS 210 A8.5	Radiated Spurious Emissions 30MHz – 25 GHz	53.4dBµV/m @ 2386.5MHz (-0.6dB)	15.207 in restricted bands, all others < -30dBc Note 4	Complies

Note 1: Bandwidth, maximum output power and psd, antenna port spurious emissions were not evaluated as these characteristics are not affected by the proposed changes which are to add high gain panel and sector antennas.
Note 2: The maximum output power from the module is taken from the original module certification reports and included for reference only. This maximum power rating is not affected by the proposed change (see note 1), however when using the high gain antennas the output power has to be reduced to the values noted (note 3).
Note 3: This is the maximum output power to be used with sector and panel antennas. Professional installation is required for host systems that use these high gain antennas to ensure the output power setting does not exceed the values listed in this table. The EIRP was calculated using antenna gain of 17 dBi for the sector and 20dBi for the panel.
Note 4: Limit of -30dBc used because the power was measured using the UNII test procedure (maximum power averaged over a transmission burst) / RMS averaging over a time interval, as permitted under RSS 210 section A8.4(4).

DIGITAL TRANSMISSION SYSTEMS (5725 –5850 MHz)

FCC Rule Part	RSS Rule Part	Description	Measured Value / Comments	Limit / Requirement	Result
15.247(a)	RSS 210 A8.2	Digital Modulation	Note 1		
15.247 (a) (2)	RSS 210 A8.2 (1)	6dB Bandwidth			
15.247 (b)	RSS 210 A8.2 (4)	Output Power (multipoint systems)	**Sector Antenna** 802.11a: -0.7 dBm HT20: 3.5 dBm HT40:4.3 dBm EIRP: 0.271 W **Panel Antenna** 802.11a:-0.6 dBm HT20: 2.6 dBm HT40: 4.3 dBm EIRP: 2.712 W	1Watt, EIRP limited to 4 Watts	Complies
15.247(d)	RSS 210 A8.2 (2)	Power Spectral Density	Note 1		
15.247(c)	RSS 210 A8.5	Antenna Port Spurious Emissions – 30MHz – 40 GHz			
15.247(c) / 15.209	RSS 210 A8.5 Table 2, 3	Radiated Spurious Emissions 30MHz – 40 GHz	53.7dBµV/m @ 7713.3MHz (-0.3dB)	15.207 in restricted bands, all others < -30dBc Note 4	Complies

Note 1: Bandwidth, maximum output power and psd, antenna port spurious emissions were not evaluated as these characteristics are not affected by the proposed changes which are to add high gain panel and sector antennas.
Note 2: The maximum output power from the module is taken from the original module certification reports and included for reference only. This maximum power rating is not affected by the proposed change, however when using the high gain antennas the output power has to be reduced to the values noted (note 3).
Note 3: This is the maximum output power to be used with sector and panel antennas. Professional installation is required for host systems that use these high gain antennas to ensure the output power setting does not exceed the values listed in this table. The EIRP calculated using antenna gain of 20 dBi for the sector and 30dBi for the panel antennas.
Note 4: Limit of -30dBc used because the power was measured using the UNII test procedure (maximum power averaged over a transmission burst) / RMS averaging over a time interval, as permitted under RSS 210 section A8.4(4).

GENERAL REQUIREMENTS APPLICABLE TO ALL BANDS

FCC Rule Part	RSS Rule part	Description	Measured Value / Comments	Limit / Requirement	Result (margin)
15.203	-	RF Connector	High gain panel and sector antennas use standard N-type connectors. Host systems using these antennas must require professional installation.	Unique connector or professional installation	Complies
-	RSS GEN 6 (b) Note 3	Receiver spurious emissions	-63.3dBm @ 7713.74MHz (-5.5dB)	30-1000MHz 2nW (-57dBm) > 1GHz 5nW (-53dBm)	Complies (Note 2)
15.207	RSS GEN Table 2	AC Conducted Emissions	Note 1		
15.247 (b) (5) 15.407 (f)	RSS 102	RF Exposure Requirements	Refer to MPE calculations, original RSS 102 declaration remains valid.	Refer to OET 65, FCC Part 1 and RSS 102	Complies
-	RSP 100 RSS GEN 7.1.5	User Manual	Refer to example host system manual	Statement required regarding non-interference	Complies
-	RSP 100 RSS GEN 7.1.5	User Manual	Refer to example host system manual	Statement for products with detachable antenna	Complies
-	RSP 100 RSS GEN 4.4.1	99% Bandwidth	Note 1		

Note 1: Bandwidth and AC conducted emissions were not evaluated as these characteristics are not affected by the proposed changes which are to add high gain panel and sector antennas.
Note 2: As the radiated spurious emissions from the module had been measured previously, and the scope of changes was to add new antennas, antenna port measurements were made in lieu of radiated measurements.
Note 3: Radiated emissions from the receiver had already been evaluated during the original product evaluation and certification. As the scope of the permissive changes was to add new antennas the receiver spurious measurements were limited to direct measurements at the antenna port.

MEASUREMENT UNCERTAINTIES

ISO/IEC 17025 requires that an estimate of the measurement uncertainties associated with the emissions test results be included in the report. The measurement uncertainties given below are based on a 95% confidence level and were calculated in accordance with UKAS document LAB 34.

Measurement Type	Frequency Range (MHz)	Calculated Uncertainty (dB)
Conducted Emissions	0.15 to 30	± 2.4
Radiated Emissions	0.015 to 30	± 3.0
Radiated Emissions	30 to 1000	± 3.6
Radiated Emissions	1000 to 40000	± 6.0

EQUIPMENT UNDER TEST (EUT) DETAILS

GENERAL

The Proxim Wireless Corporation model PROXMB82 is an 802.11abgn module that is designed to operate in the 2400-2483.5MHz, 5150-5250 MHz, 5250-5350 MHz, 5470 - 5725 MHz and 5725-5850 MHz bands. The scope of testing was to add some new, high gain antennas for use with outdoor Access Points.

For testing purposes the module was installed into the mini PCI slot of a host system. The enclosure of the host system was removed to expose the module on all sides as required for modular testing.

The sample was received on July 2, 2009 and tested on August 3, August 4, August 5, August 6, August 21, August 28, August 31, September 1, September 2 and September 3, 2009. The EUT consisted of the following component(s):

Company	Model	Description	Serial Number	FCC ID
Proxim Corporation	PROXMB82	802.11abgn Module	none	HZB-PROXMB82

ANTENNA SYSTEM

The antenna connects to the EUT via a standard coaxial N-connector. The antennas evaluated were a high gain panel and a high gain sector antenna for 2.4GHz operation and a high gain panel and a high gain sector antenna for 5GHz operation. Host systems using these antennas will require professional installation; therefore the use of standard connectors is permitted.

ENCLOSURE

The EUT does not have an enclosure as it is designed to be installed within the enclosure of a host computer or system.

MODIFICATIONS

No modifications were made to the EUT during the time the product was at Elliott.

SUPPORT EQUIPMENT

The following equipment was used as support equipment for testing:

Company	Model	Description	Serial Number	FCC ID
Proxim	-	Access Point	-	-
Sony	VAIO	Laptpop	-	DoC

EUT INTERFACE PORTS

The I/O cabling configuration during testing was as follows:

Port	Connected To	Cable(s)		
		Description	Shielded or Unshielded	Length(m)
AP ethernet	Laptop	Cat 5	Unshielded	3
AP mini PCI	EUT	-	Direct connection	-
EUT port A	Antenna 1	Coaxial	-	3
EUT Port B	Antenna 2	Coaxial	-	3
EUT Port C	Antenna 3	Coaxial	-	3

EUT OPERATION

During testing, the EUT was configured in a continuous transmit or receive mode using the ART software utility to control the radio.

When the module is used with high gain antennas the operating firmware will allow the selection of output power levels below 0dBm As the ART utility used during testing does not have the dynamic range to allow out put power to be set below 0dBm, an external 10dB or 20dB attenuator was used between antenna port and antenna to simulate the lower power levels that can be achieved by the operating software. Proxim justified the use of the approach based on the fact that the signal spectrum at the higher output powers from the module under ART software control would be more distorted (wider skirts and higher spurious emissions) than if the output power were at the lower rf signal level.

All power measurements were made at the far end of the attenuator.

TEST SITE

GENERAL INFORMATION

Final test measurements were taken at the test sites listed below. Pursuant to section 2.948 of the FCC's Rules and section 3.3 of RSP-100, construction, calibration, and equipment data has been filed with the Commission and with industry Canada.

Site	Registration Numbers		Location
	FCC	Canada	
Chamber 3	769238	2845B-3	41039 Boyce Road Fremont, CA 94538-2435
Chamber 4	211948	2845B-4	
Chamber 5	211948	2845B-5	

ANSI C63.4:2003 recommends that ambient noise at the test site be at least 6 dB below the allowable limits. Ambient levels are below this requirement. The test site(s) contain separate areas for radiated and conducted emissions testing. Considerable engineering effort has been expended to ensure that the facilities conform to all pertinent requirements of ANSI C63.4:2003.

CONDUCTED EMISSIONS CONSIDERATIONS

Conducted emissions testing is performed in conformance with ANSI C63.4:2003. Measurements are made with the EUT connected to the public power network through a nominal, standardized RF impedance, which is provided by a line impedance stabilization network, known as a LISN. A LISN is inserted in series with each current-carrying conductor in the EUT power cord.

RADIATED EMISSIONS CONSIDERATIONS

The FCC has determined that radiation measurements made in a shielded enclosure are not suitable for determining levels of radiated emissions. Radiated measurements are performed in an open field environment or in a semi-anechoic chamber. The test sites are maintained free of conductive objects within the CISPR defined elliptical area incorporated in ANSI C63.4:2003 guidelines and meet the Normalized Site Attenuation (NSA) requirements of ANSI C63.4:2003.

MEASUREMENT INSTRUMENTATION

RECEIVER SYSTEM

An EMI receiver as specified in CISPR 16-1-1 is used for emissions measurements. The receivers used can measure over the frequency range of 9 kHz up to 2000 MHz. These receivers allow both ease of measurement and high accuracy to be achieved. The receivers have Peak, Average, and CISPR (Quasi-peak) detectors built into their design so no external adapters are necessary. The receiver automatically sets the required bandwidth for the CISPR detector used during measurements. If the repetition frequency of the signal being measured is below 20Hz, peak measurements are made in lieu of Quasi-Peak measurements.

For measurements above the frequency range of the receivers, a spectrum analyzer is utilized because it provides visibility of the entire spectrum along with the precision and versatility required to support engineering analysis. Average measurements above 1000MHz are performed on the spectrum analyzer using the linear-average method with a resolution bandwidth of 1 MHz and a video bandwidth of 10 Hz, unless the signal is pulsed in which case the average (or video) bandwidth of the measuring instrument is reduced to onset of pulse desensitization and then increased.

INSTRUMENT CONTROL COMPUTER

The receivers utilize either a Rohde & Schwarz EZM Spectrum Monitor/Controller or contain an internal Spectrum Monitor/Controller to view and convert the receiver measurements to the field strength at an antenna or voltage developed at the LISN measurement port, which is then compared directly with the appropriate specification limit. This provides faster, more accurate readings by performing the conversions described under Sample Calculations within the Test Procedures section of this report. Results are printed in a graphic and/or tabular format, as appropriate. A personal computer is used to record all measurements made with the receivers.

The Spectrum Monitor provides a visual display of the signal being measured. In addition, the controller or a personal computer run automated data collection programs which control the receivers. This provides added accuracy since all site correction factors, such as cable loss and antenna factors are added automatically.

LINE IMPEDANCE STABILIZATION NETWORK (LISN)

Line conducted measurements utilize a fifty microhenry Line Impedance Stabilization Network as the monitoring point. The LISN used also contains a 250 uH CISPR adapter. This network provides for calibrated radio frequency noise measurements by the design of the internal low pass and high pass filters on the EUT and measurement ports, respectively.

FILTERS/ATTENUATORS

External filters and precision attenuators are often connected between the receiving antenna or LISN and the receiver. This eliminates saturation effects and non-linear operation due to high amplitude transient events.

ANTENNAS

A loop antenna is used below 30 MHz. For the measurement range 30 MHz to 1000 MHz either a combination of a biconical antenna and a log periodic or a bi-log antenna is used. Above 1000 MHz, horn antennas are used. The antenna calibration factors to convert the received voltage to an electric field strength are included with appropriate cable loss and amplifier gain factors to determine an overall site factor, which is then programmed into the test receivers or incorporated into the test software.

ANTENNA MAST AND EQUIPMENT TURNTABLE

The antennas used to measure the radiated electric field strength are mounted on a non-conductive antenna mast equipped with a motor-drive to vary the antenna height. Measurements below 30 MHz are made with the loop antenna at a fixed height of 1m above the ground plane.

ANSI C63.4:2003 specifies that the test height above ground for table mounted devices shall be 80 centimeters. Floor mounted equipment shall be placed on the ground plane if the device is normally used on a conductive floor or separated from the ground plane by insulating material from 3 to 12 mm if the device is normally used on a non-conductive floor. During radiated measurements, the EUT is positioned on a motorized turntable in conformance with this requirement.

INSTRUMENT CALIBRATION

All test equipment is regularly checked to ensure that performance is maintained in accordance with the manufacturer's specifications. All antennas are calibrated at regular intervals with respect to tuned half-wave dipoles. An exhibit of this report contains the list of test equipment used and calibration information.

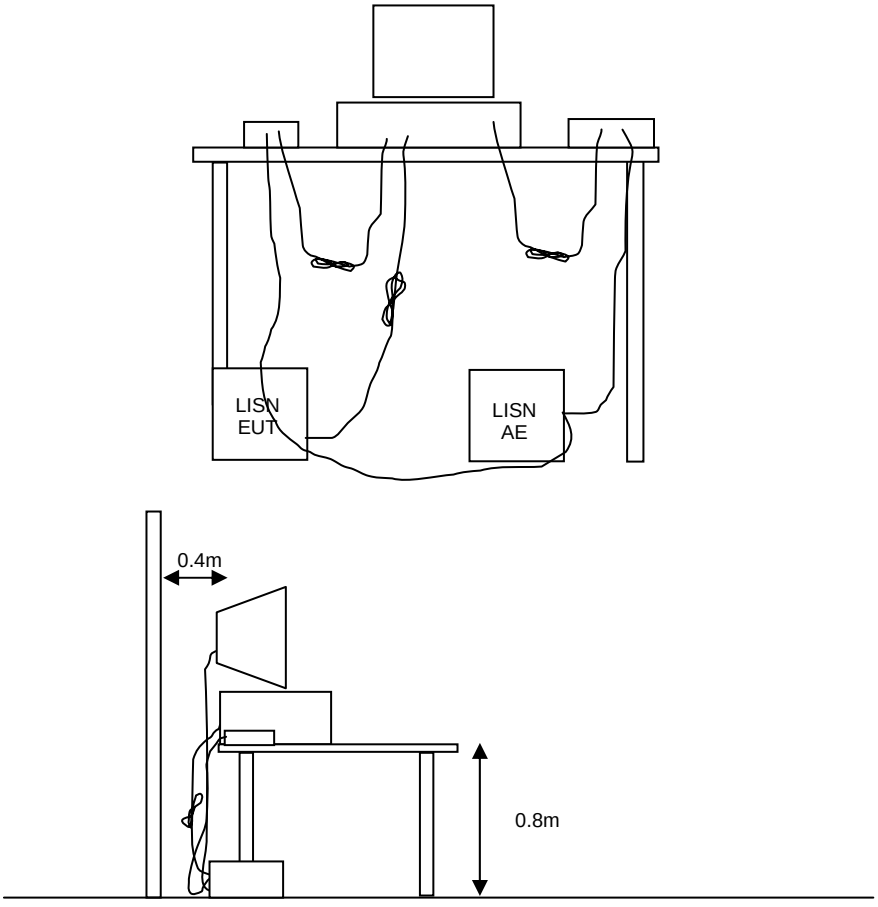
TEST PROCEDURES

EUT AND CABLE PLACEMENT

The regulations require that interconnecting cables be connected to the available ports of the unit and that the placement of the unit and the attached cables simulate the worst case orientation that can be expected from a typical installation, so far as practicable. To this end, the position of the unit and associated cabling is varied within the guidelines of ANSI C63.4:2003, and the worst-case orientation is used for final measurements.

CONDUCTED EMISSIONS

Conducted emissions are measured at the plug end of the power cord supplied with the EUT. Excess power cord length is wrapped in a bundle between 30 and 40 centimeters in length near the center of the cord. Preliminary measurements are made to determine the highest amplitude emission relative to the specification limit for all the modes of operation. Placement of system components and varying of cable positions are performed in each mode. A final peak mode scan is then performed in the position and mode for which the highest emission was noted on all current carrying conductors of the power cord.



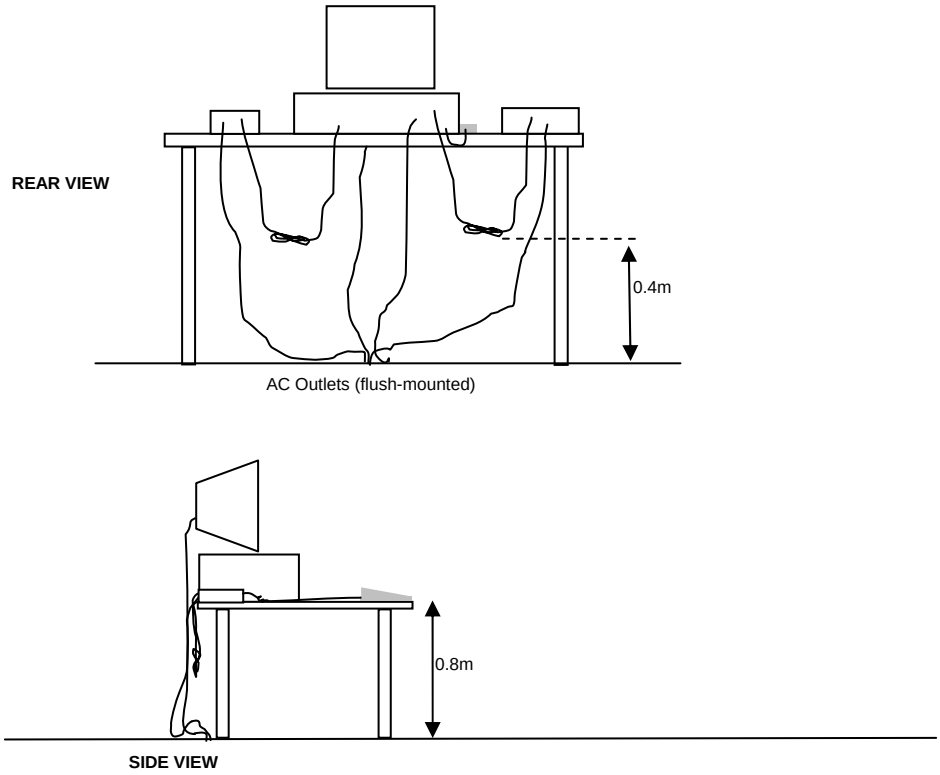
RADIATED EMISSIONS

A preliminary scan of the radiated emissions is performed in which all significant EUT frequencies are identified with the system in a nominal configuration. At least two scans are performed, one scan for each antenna polarization (horizontal and vertical; loop parallel and perpendicular to the EUT). During the preliminary scans, the EUT is rotated through 360˚, the antenna height is varied (for measurements above 30 MHz) and cable positions are varied to determine the highest emission relative to the limit. Preliminary scans may be performed in a fully anechoic chamber for the purposes of identifying the frequencies of the highest emissions from the EUT.

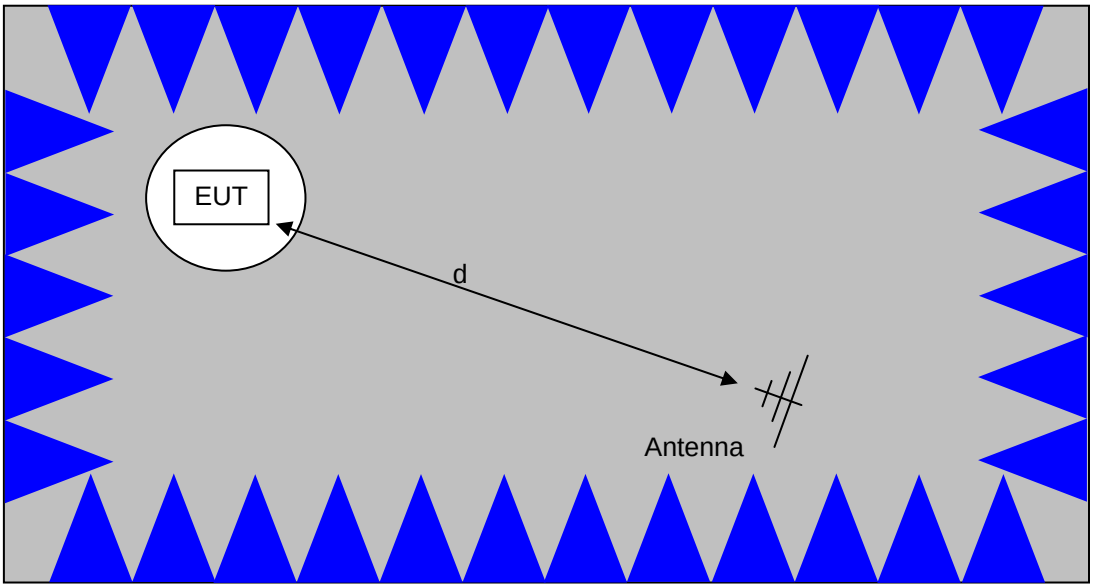
A speaker is provided in the receiver to aid in discriminating between EUT and ambient emissions. Other methods used during the preliminary scan for EUT emissions involve scanning with near field magnetic loops, monitoring I/O cables with RF current clamps, and cycling power to the EUT.

Final maximization is a phase in which the highest amplitude emissions identified in the spectral search are viewed while the EUT azimuth angle is varied from 0 to 360 degrees relative to the receiving antenna. The azimuth, which results in the highest emission is then maintained while varying the antenna height from one to four meters (for measurements above 30 MHz, measurements below 30 MHz are made with the loop antenna at a fixed height of 1m). The result is the identification of the highest amplitude for each of the highest peaks. Each recorded level is corrected in the receiver using appropriate factors for cables, connectors, antennas, and preamplifier gain.

When testing above 18 GHz, the receive antenna is located at 1meter from the EUT and the antenna height is restricted to a maximum of 2.5 meters.

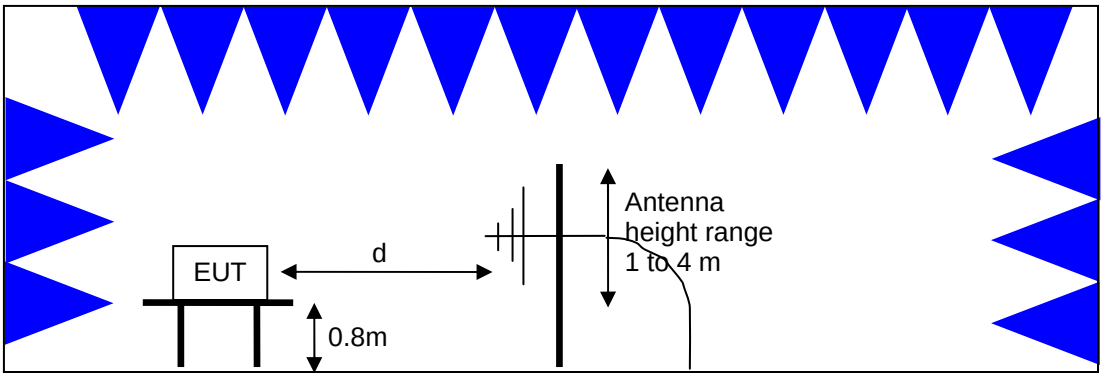


Typical Test Configuration for Radiated Field Strength Measurements



The anechoic materials on the walls and ceiling ensure compliance with the normalized site attenuation requirements of CISPR 16 / CISPR 22 / ANSI C63.4 for an alternate test site at the measurement distances used.

Floor-standing equipment is placed on the floor with insulating supports between the unit and the ground plane.



Test Configuration for Radiated Field Strength Measurements
Semi-Anechoic Chamber, Plan and Side Views

BANDWIDTH MEASUREMENTS

The 6dB, 20dB and/or 26dB signal bandwidth is measured in using the bandwidths recommended by ANSI C63.4. When required, the 99% bandwidth is measured using the methods detailed in RSS GEN.

SPECIFICATION LIMITS AND SAMPLE CALCULATIONS

The limits for conducted emissions are given in units of microvolts, and the limits for radiated emissions are given in units of microvolts per meter at a specified test distance. Data is measured in the logarithmic form of decibels relative to one microvolt, or dB microvolts (dBuV). For radiated emissions, the measured data is converted to the field strength at the antenna in dB microvolts per meter (dBuV/m). The results are then converted to the linear forms of uV and uV/m for comparison to published specifications.

For reference, converting the specification limits from linear to decibel form is accomplished by taking the base ten logarithm, then multiplying by 20. These limits in both linear and logarithmic form are as follows:

CONDUCTED EMISSIONS SPECIFICATION LIMITS: FCC 15.207; FCC 15.107(a), RSS GEN

The table below shows the limits for the emissions on the AC power line from an intentional radiator and a receiver.

Frequency (MHz)	Average Limit (dBuV)	Quasi Peak Limit (dBuV)
0.150 to 0.500	Linear decrease on logarithmic frequency axis between 56.0 and 46.0	Linear decrease on logarithmic frequency axis between 66.0 and 56.0
0.500 to 5.000	46.0	56.0
5.000 to 30.000	50.0	60.0

GENERAL TRANSMITTER RADIATED EMISSIONS SPECIFICATION LIMITS

The table below shows the limits for the spurious emissions from transmitters that fall in restricted bands[1] (with the exception of transmitters operating under FCC Part 15 Subpart D and RSS 210 Annex 9), the limits for all emissions from a low power device operating under the general rules of RSS 310 (tables 3 and 4), RSS 210 (table 2) and FCC Part 15 Subpart C section 15.209.

Frequency Range (MHz)	Limit (uV/m)	Limit (dBuV/m @ 3m)
0.009-0.490	$2400/F_{KHz}$ @ 300m	$67.6-20*\log_{10}(F_{KHz})$ @ 300m
0.490-1.705	$24000/F_{KHz}$ @ 30m	$87.6-20*\log_{10}(F_{KHz})$ @ 30m
1.705 to 30	30 @ 30m	29.5 @ 30m
30 to 88	100 @ 3m	40 @ 3m
88 to 216	150 @ 3m	43.5 @ 3m
216 to 960	200 @ 3m	46.0 @ 3m
Above 960	500 @ 3m	54.0 @ 3m

RECEIVER RADIATED SPURIOUS EMISSIONS SPECIFICATION LIMITS

The table below shows the limits for the spurious emissions from receivers as detailed in FCC Part 15.109, RSS 210 Table 2, RSS GEN Table 1 and RSS 310 Table 3. Note that receivers operating outside of the frequency range 30 MHz – 960 MHz are exempt from the requirements of 15.109.

Frequency Range (MHz)	Limit (uV/m @ 3m)	Limit (dBuV/m @ 3m)
30 to 88	100	40
88 to 216	150	43.5
216 to 960	200	46.0
Above 960	500	54.0

[1] The restricted bands are detailed in FCC 15.203, RSS 210 Table 1 and RSS 310 Table 2

OUTPUT POWER LIMITS – DIGITAL TRANSMISSION SYSTEMS

The table below shows the limits for output power and output power density. Where the signal bandwidth is less than 20 MHz the maximum output power is reduced to the power spectral density limit plus 10 times the log of the bandwidth (in MHz).

Operating Frequency (MHz)	Output Power	Power Spectral Density
902 – 928	1 Watt (30 dBm)	8 dBm/3kHz
2400 – 2483.5	1 Watt (30 dBm)	8 dBm/3kHz
5725 – 5850	1 Watt (30 dBm)	8 dBm/3kHz

The maximum permitted output power is reduced by 1dB for every dB the antenna gain exceeds 6dBi. Fixed point-to-point applications using the 5725 – 5850 MHz band are not subject to this restriction.

TRANSMIT MODE SPURIOUS RADIATED EMISSIONS LIMITS – FHSS and DTS SYSTEMS

The limits for unwanted (spurious) emissions from the transmitter falling in the restricted bands are those specified in the general limits sections of FCC Part 15 and RSS 210. All other unwanted (spurious) emissions shall be at least 20dB below the level of the highest in-band signal level (30dB if the power is measured using the sample detector/power averaging method).

SAMPLE CALCULATIONS - CONDUCTED EMISSIONS

Receiver readings are compared directly to the conducted emissions specification limit (decibel form) as follows:

$$R_r - S = M$$

where:

R_r = Receiver Reading in dBuV

S = Specification Limit in dBuV

M = Margin to Specification in +/- dB

SAMPLE CALCULATIONS - RADIATED EMISSIONS

Receiver readings are compared directly to the specification limit (decibel form). The receiver internally corrects for cable loss, preamplifier gain, and antenna factor. The calculations are in the reverse direction of the actual signal flow, thus cable loss is added and the amplifier gain is subtracted. The Antenna Factor converts the voltage at the antenna coaxial connector to the field strength at the antenna elements.

A distance factor, when used for electric field measurements above 30MHz, is calculated by using the following formula:

$$F_d = 20*LOG_{10} (D_m/D_s)$$

where:

F_d = Distance Factor in dB

D_m = Measurement Distance in meters

D_s = Specification Distance in meters

For electric field measurements below 30MHz the extrapolation factor is either determined by making measurements at multiple distances or a theoretical value is calculated using the formula:

$$F_d = 40*LOG_{10} (D_m/D_s)$$

Measurement Distance is the distance at which the measurements were taken and Specification Distance is the distance at which the specification limits are based. The antenna factor converts the voltage at the antenna coaxial connector to the field strength at the antenna elements.

The margin of a given emission peak relative to the limit is calculated as follows:

$$R_c = R_r + F_d$$

and

$$M = R_c - L_s$$

where:

R_r = Receiver Reading in dBuV/m

F_d = Distance Factor in dB

R_c = Corrected Reading in dBuV/m

L_s = Specification Limit in dBuV/m

M = Margin in dB Relative to Spec

Appendix A Test Equipment Calibration Data

Manufacturer	Description	Model #	Asset #	Cal Due
Hewlett Packard	Microwave Preamplifier, 1-26.5GHz	8449B	263	09-Oct-09
EMCO	Antenna, Horn, 1-18 GHz	3115	786	06-Dec-09
EMCO	Antenna, Horn, 1-18 GHz (SA40-Blu)	3115	1386	02-Sep-10
Hewlett Packard	SpectAn 9 kHz - 40 GHz, FT (SA40) Blue	8564E (84125C)	1393	10-Apr-10
Micro-Tronics	Band Reject Filter, 5725-5875 MHz	BRC50705-02	1728	07-Oct-09
Micro-Tronics	Band Reject Filter, 2400-2500 MHz	BRM50702-02	1731	02-Dec-09
Hewlett Packard	SpecAn 9 kHz - 40 GHz, (SA40) Purple	8564E (84125C)	1771	20-Oct-09
Hewlett Packard	Microwave Preamplifier, 1-26.5GHz	8449B	1780	05-Mar-10
A.H. Systems	Blue System Horn, 18-40GHz	SAS-574, p/n: 2581	2159	17-Mar-10
A.H. Systems	Purple System Horn, 18-40GHz	SAS-574, p/n: 2581	2160	17-Mar-10

Appendix B Test Data

T75950 (Transmitter measurements) 60 Pages
T75951 (receiver spurious) 6 Pages

Client:	Proxim Corporation	Job Number:	J75847
Model:	PROXMB82 802.11abgn miniPCI module (3x3)	T-Log Number:	T75950
		Account Manager:	-
Contact:	Ivaylo Tankov		-
Emissions Standard(s):	FCC Part 15 Subpart C (15.247), RSS 210	Class:	N/A
Immunity Standard(s):	N/A	Environment:	N/A

EMC Test Data

For The

Proxim Corporation

Model

PROXMB82 802.11abgn miniPCI module (3x3)

Date of Last Test: 9/23/2009

Client:	Proxim Corporation	Job Number:	J75847
Model:	PROXMB82 802.11abgn miniPCI module (3x3)	T-Log Number:	T75950
		Account Manager:	-
Contact:	Ivaylo Tankov		
Standard:	FCC Part 15 Subpart C (15.247), RSS 210	Class:	N/A

RSS 210 and FCC 15.247 (DTS) Output Power
MIMO and Smart Antenna Systems - 2.4GHz

Test Specific Details

Objective: The objective of this test session is to perform final qualification testing of the EUT with respect to the specification listed above.

Date of Test: 9/2/2009
Test Engineer: Mehran Birgani/Rafael Varelas
Test Location: FT Chamber #4

Config. Used: 1
Config Change: None
Host Unit Voltage 120V/60Hz

Summary of Results

Note: All other conducted measurements are covered by the original test report/data as those measurements were made at a power setting equal to, or higher, than those power levels used with the high gain antennas to be covered by this permissive change / reassessment.

Run #	Test Performed	Limit	Pass / Fail	Result / Margin
Sector Antenna (max Gain of 17dBi)				
1 (802.11b)	Output Power Chain A	15.247(b)	Pass	Power:-1.9 dBm / 0.001 W EIRP: 0.032 W
2 (802.11g)	Output Power Chain A	15.247(b)	Pass	Power: -2.3dBm / 0.0006 W EIRP: 0.029 W
3 (802.11n HT20)	Output Power Chain A+B+C	15.247(b)	Pass	Power: 1.9 dBm / 0.0027 W EIRP: 0.077 W
4 (802.11n HT40)	Output Power Chain A+B+C	15.247(b)	Pass	Power: 2.8 dBm / 0.002 W EIRP: 0.096 W
Panel Antenna (Max gain of 20dBi)				
1 (802.11b)	Output Power Chain A	15.247(b)	Pass	Power:8.2 dBm / 0.007 W EIRP: 0.653 W
2 (802.11g)	Output Power Chain A	15.247(b)	Pass	Power: 7.4 dBm / 0.005 W EIRP: 0.545 W
3 (802.11n HT20)	Output Power Chain A+B+C	15.247(b)	Pass	Power: 12.4 dBm / 0.017 W EIRP: 1.7 W
4 (802.11n HT40)	Output Power Chain A+B+C	15.247(b)	Pass	Power: 12.8 dBm / 0.019 W EIRP: 1.92 W

Client:	Proxim Corporation	Job Number:	J75847
Model:	PROXMB82 802.11abgn miniPCI module (3x3)	T-Log Number:	T75950
		Account Manager:	-
Contact:	Ivaylo Tankov		
Standard:	FCC Part 15 Subpart C (15.247), RSS 210	Class:	N/A

General Test Configuration

The EUT was connected to the spectrum analyzer or power meter via a suitable attenuator. All measurements were made on each chain separately. Plots are provided for the channel with the highest output power for MIMO modes and for the channels with the highest power for each antenna type for legacy (MISO) modes.

All measurements have been corrected to allow for the external attenuators used.

Ambient Conditions:

Temperature:	22.4 °C
Rel. Humidity:	43 %

Modifications Made During Testing

No modifications were made to the EUT during testing

Deviations From The Standard

No deviations were made from the requirements of the standard.

Measurement Notes

All measurements made with a 20dB or 10dB pad between analyzer and rf port. No correction made for the attenuator as it simulates the cables losses. The pad is also used because the rf control utility for testing cannot set the power below 0dBm so the attenuator adjusts for this fact. The actual drivers used in normal operation can set power below 0dBm.

Note 1:	Output power measured using a spectrum analyzer (see plots below) with RBW=1MHz, VB=3 MHz, sample detector, **power averaging** on (transmitted signal was continuous) and power integration over **40MHz for 20MHz channel bandwidths and 75MHz for 40MHz channel spacings** (reference method 1 of FCC DA 02-2138 for U-NII devices, August 30, 2002). Spurious limit becomes **-30dBc.**
Note 2:	As there is no coherency between chains in the MIMO modes the total EIRP is the sum of the individual EIRPs and effective antenna gain equals the eirp divide by the sum of the power on each chain. The total power is the sum of the individual chain powers.
Note 3:	Power setting is the software power setting. The attenuator was placed between the rf port and antenna. The maximum power level
Note 4:	The power limit is based on point-point use with the high gain antennas. The power limit is 30dBm minus 1dB for every 3dB the antenna gain exceeds 6dBi.

Client:	Proxim Corporation	Job Number:	J75847
Model:	PROXMB82 802.11abgn miniPCI module (3x3)	T-Log Number:	T75950
		Account Manager:	-
Contact:	Ivaylo Tankov		
Standard:	FCC Part 15 Subpart C (15.247), RSS 210	Class:	N/A

Run #1: Output Power - 802.11b

Transmitted signal on chain is coherent ? N/A

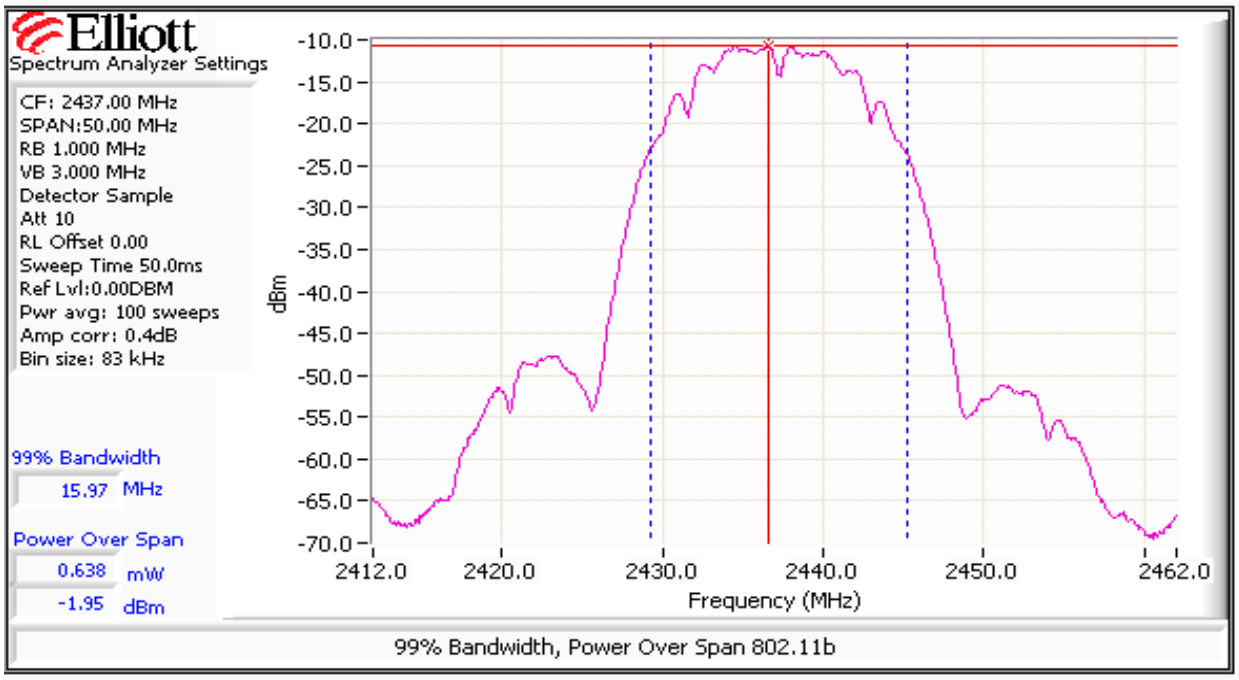
Power levels for the highest power tested - sector antenna

With 17dBi antenna the maximum output power for point-to-point is 26dBm and for point-to-multipoint the maximum is 19dBm.

2412 MHz Sector	Chain 1	Chain 2	Chain 3	Chain 4	Total Across All Chains		Limit	
Power Setting (+20dB pad) Note 3	18.0							
Output Power (dBm) Note 1	-3.3				-3.3 dBm	0.000 W	19.0 dBm	0.079 W
Antenna Gain (dBi) Note 2	17					17.0 dBi	Pass	
eirp (dBm) Note 2	13.7				13.7 dBm	0.023 W		

2437 MHz Sector	Chain 1	Chain 2	Chain 3	Chain 4	Total Across All Chains		Limit	
Power Setting (+20dB pad) Note 3	19.0							
Output Power (dBm) Note 1	-2.0				-1.9 dBm	0.001 W	19.0 dBm	0.079 W
Antenna Gain (dBi) Note 2	17					17.0 dBi	Pass	
eirp (dBm) Note 2	15.05				15.1 dBm	0.032 W		

2462 MHz Sector	Chain 1	Chain 2	Chain 3	Chain 4	Total Across All Chains		Limit	
Power Setting (+20dB pad) Note 3	18.5							
Output Power (dBm) Note 1	-3.0				-3.0 dBm	0.000 W	19.0 dBm	0.079 W
Antenna Gain (dBi) Note 2	17					17.0 dBi	Pass	
eirp (dBm) Note 2	13.98				14.0 dBm	0.025 W		



Client:	Proxim Corporation	Job Number:	J75847
Model:	PROXMB82 802.11abgn miniPCI module (3x3)	T-Log Number:	T75950
		Account Manager:	-
Contact:	Ivaylo Tankov		
Standard:	FCC Part 15 Subpart C (15.247), RSS 210	Class:	N/A

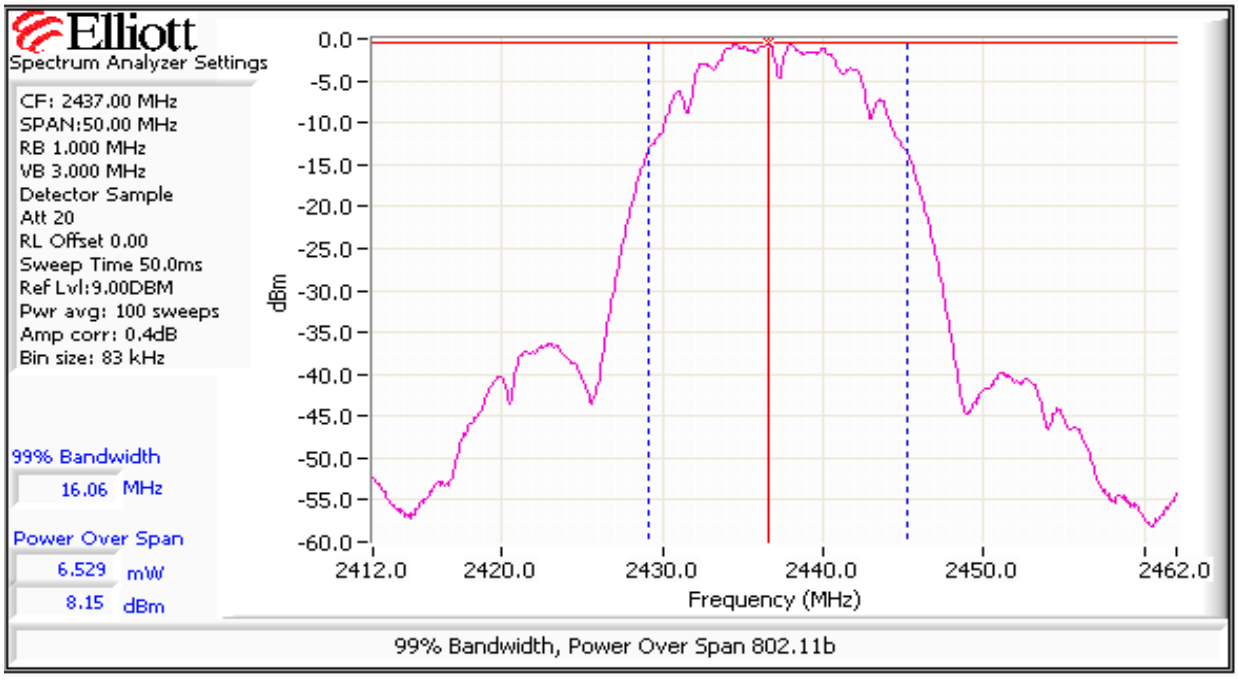
Power levels for the highest power tested - panel antenna

With 20dBi antenna the maximum output power for point-to-point is 25dBm and for point-to-multipoint the maximum is 16dBm.

2412 MHz Panel	Chain 1	Chain 2	Chain 3	Chain 4	Total Across All Chains		Limit	
Power Setting (+10dB pad) Note 3	15.5							
Output Power (dBm) Note 1	3.7				3.7 dBm	0.002 W	16.0 dBm	0.040 W
Antenna Gain (dBi) Note 2	20					20.0 dBi	Pass	
eirp (dBm) Note 2	23.7				23.7 dBm	0.234 W		

2437 MHz Panel	Chain 1	Chain 2	Chain 3	Chain 4	Total Across All Chains		Limit	
Power Setting (+10dB pad) Note 3	19.0							
Output Power (dBm) Note 1	8.2				8.2 dBm	0.007 W	16.0 dBm	0.040 W
Antenna Gain (dBi) Note 2	20					20.0 dBi	Pass	
eirp (dBm) Note 2	28.2				28.2 dBm	0.653 W		

2462 MHz Panel	Chain 1	Chain 2	Chain 3	Chain 4	Total Across All Chains		Limit	
Power Setting (+10dB pad) Note 3	17.5							
Output Power (dBm) Note 1	5.7				5.7 dBm	0.004 W	16.0 dBm	0.040 W
Antenna Gain (dBi) Note 2	20					20.0 dBi	Pass	
eirp (dBm) Note 2	25.7				25.7 dBm	0.375 W		



Client:	Proxim Corporation	Job Number:	J75847
Model:	PROXMB82 802.11abgn miniPCI module (3x3)	T-Log Number:	T75950
		Account Manager:	-
Contact:	Ivaylo Tankov		
Standard:	FCC Part 15 Subpart C (15.247), RSS 210	Class:	N/A

Run #2: Output Power - 802.11g

Transmitted signal on chain is coherent ? N/A

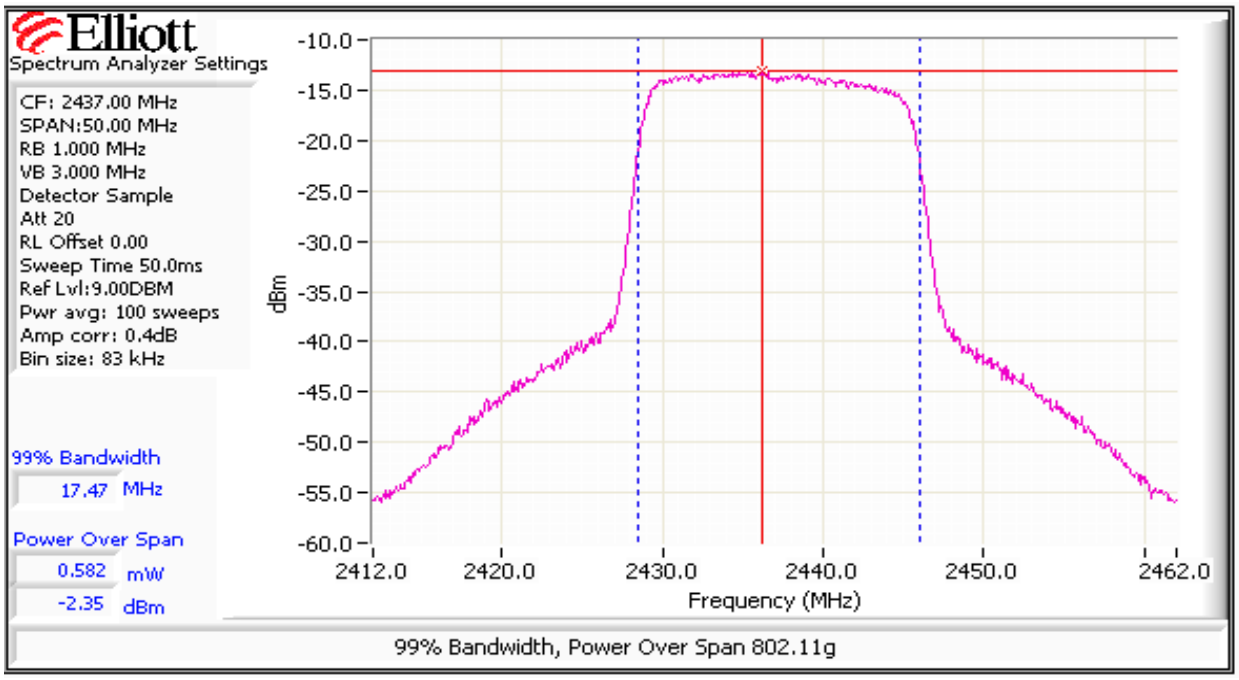
Power levels for the highest power tested - sector antenna

With 17dBi antenna the maximum output power for point-to-point is 26dBm and for point-to-multipoint the maximum is 19dBm.

2412 MHz Sector	Chain 1	Chain 2	Chain 3	Chain 4	Total Across All Chains		Limit	
Power Setting (+20dB pad) Note 3	17.5							
Output Power (dBm) Note 1	-4.2				-4.2 dBm	0.000 W	19.0 dBm	0.079 W
Antenna Gain (dBi) Note 2	17					17.0 dBi	Pass	
eirp (dBm) Note 2	12.8				12.8 dBm	0.019 W		

2437 MHz Sector	Chain 1	Chain 2	Chain 3	Chain 4	Total Across All Chains		Limit	
Power Setting (+20dB pad) Note 3	19.0							
Output Power (dBm) Note 1	-2.4				-2.4 dBm	0.0006 W	19.0 dBm	0.079 W
Antenna Gain (dBi) Note 2	17					17.0 dBi	Pass	
eirp (dBm) Note 2	14.64	-100	-100	-100	14.6 dBm	0.029 W		

2462 MHz Sector	Chain 1	Chain 2	Chain 3	Chain 4	Total Across All Chains		Limit	
Power Setting (+20dB pad) Note 3	17.5							
Output Power (dBm) Note 1	-4.3				-4.3 dBm	0.000 W	19.0 dBm	0.079 W
Antenna Gain (dBi) Note 2	17					17.0 dBi	Pass	
eirp (dBm) Note 2	12.74				12.7 dBm	0.019 W		



Client:	Proxim Corporation	Job Number:	J75847
Model:	PROXMB82 802.11abgn miniPCI module (3x3)	T-Log Number:	T75950
		Account Manager:	-
Contact:	Ivaylo Tankov		
Standard:	FCC Part 15 Subpart C (15.247), RSS 210	Class:	N/A

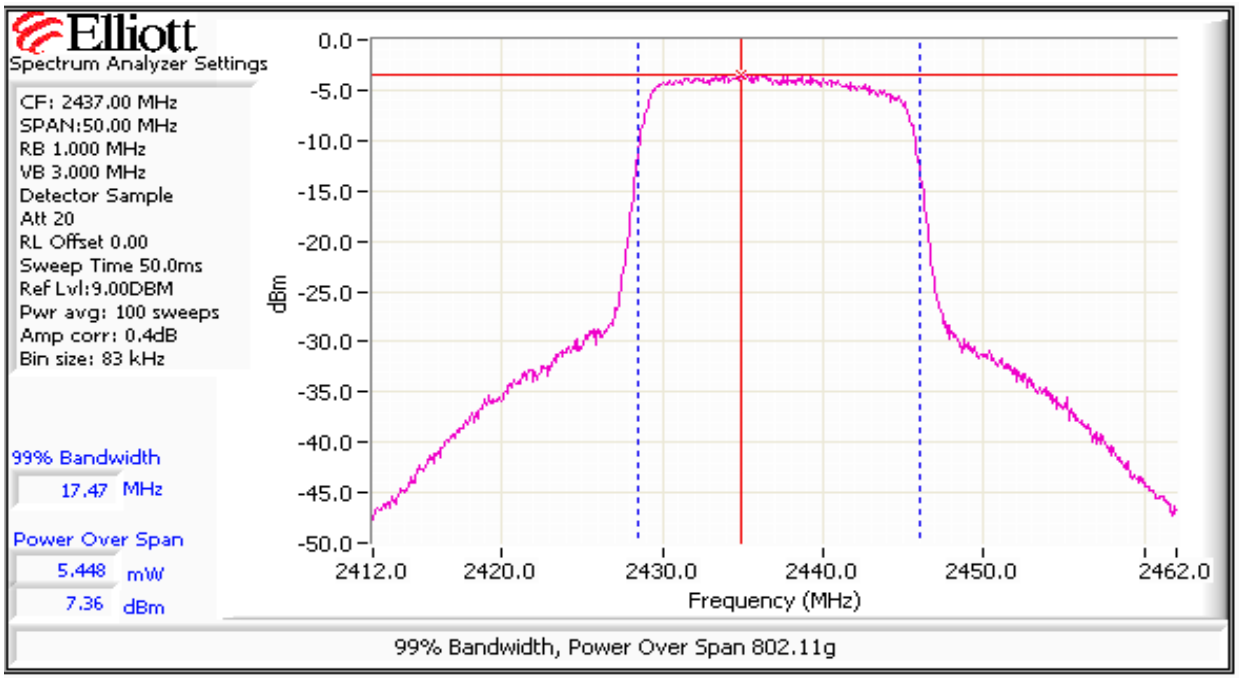
Power levels for the highest power tested - panel antenna

With 20dBi antenna the maximum output power for point-to-point is 25dBm and for point-to-multipoint the maximum is 16dBm.

2412 MHz Panel	Chain 1	Chain 2	Chain 3	Chain 4	Total Across All Chains		Limit	
Power Setting (+10dB pad) Note 3	14.5							
Output Power (dBm) Note 1	2.3				2.3 dBm	0.002 W	16.0 dBm	0.040 W
Antenna Gain (dBi) Note 2	20					20.0 dBi	Pass	
eirp (dBm) Note 2	22.31				22.3 dBm	0.170 W		

2437 MHz Panel	Chain 1	Chain 2	Chain 3	Chain 4	Total Across All Chains		Limit	
Power Setting (+10dB pad) Note 3	19.0							
Output Power (dBm) Note 1	7.4				7.4 dBm	0.005 W	16.0 dBm	0.040 W
Antenna Gain (dBi) Note 2	20					20.0 dBi	Pass	
eirp (dBm) Note 2	27.36				27.4 dBm	0.545 W		

2462 MHz Panel	Chain 1	Chain 2	Chain 3	Chain 4	Total Across All Chains		Limit	
Power Setting (+10dB pad) Note 3	14.5							
Output Power (dBm) Note 1	2.2				2.2 dBm	0.002 W	16.0 dBm	0.040 W
Antenna Gain (dBi) Note 2	20					20.0 dBi	Pass	
eirp (dBm) Note 2	22.16				22.2 dBm	0.164 W		



Client:	Proxim Corporation	Job Number:	J75847
Model:	PROXMB82 802.11abgn miniPCI module (3x3)	T-Log Number:	T75950
		Account Manager:	-
Contact:	Ivaylo Tankov		
Standard:	FCC Part 15 Subpart C (15.247), RSS 210	Class:	N/A

Run #3: Output Power - 802.11n HT20

Transmitted signal on chain is coherent ? No

Power levels for the highest power tested - sector antenna

With 17dBi antenna the maximum output power for point-to-point is 24dBm and for point-to-multipoint the maximum is 19dBm.

2412 MHz Sector	Chain 1	Chain 2	Chain 3	Chain 4	Total Across All Chains		Limit	
Power Setting (+20dB pad) Note 3		17.0						
Output Power (dBm) Note 1	-5.0	-5.6	-6.58		-0.9 dBm	0.001 W	19.0 dBm	0.079 W
Antenna Gain (dBi) Note 2	17.0	17.0	17.0			17.0 dBi	Pass	
eirp (dBm) Note 2	12	11.4	10.42		16.1 dBm	0.041 W		

2437 MHz Sector	Chain 1	Chain 2	Chain 3	Chain 4	Total Across All Chains		Limit	
Power Setting (+20dB pad) Note 3		19.0						
Output Power (dBm) Note 1	-2.3	-2.7	-3.9		1.9 dBm	0.002 W	19.0 dBm	0.079 W
Antenna Gain (dBi) Note 2	17.0	17.0	17.0			17.0 dBi	Pass	
eirp (dBm) Note 2	14.7	14.3	13.1		18.9 dBm	0.077 W		

2462 MHz Sector	Chain 1	Chain 2	Chain 3	Chain 4	Total Across All Chains		Limit	
Power Setting (+20dB pad) Note 3		17.0						
Output Power (dBm) Note 1	-4.7	-5.8	-6.3		-0.8 dBm	0.001 W	19.0 dBm	0.079 W
Antenna Gain (dBi) Note 2	17.0	17.0	17.0			17.0 dBi	Pass	
eirp (dBm) Note 2	12.3	11.2	10.7		16.2 dBm	0.042 W		

Power levels for the highest power tested - panel antenna

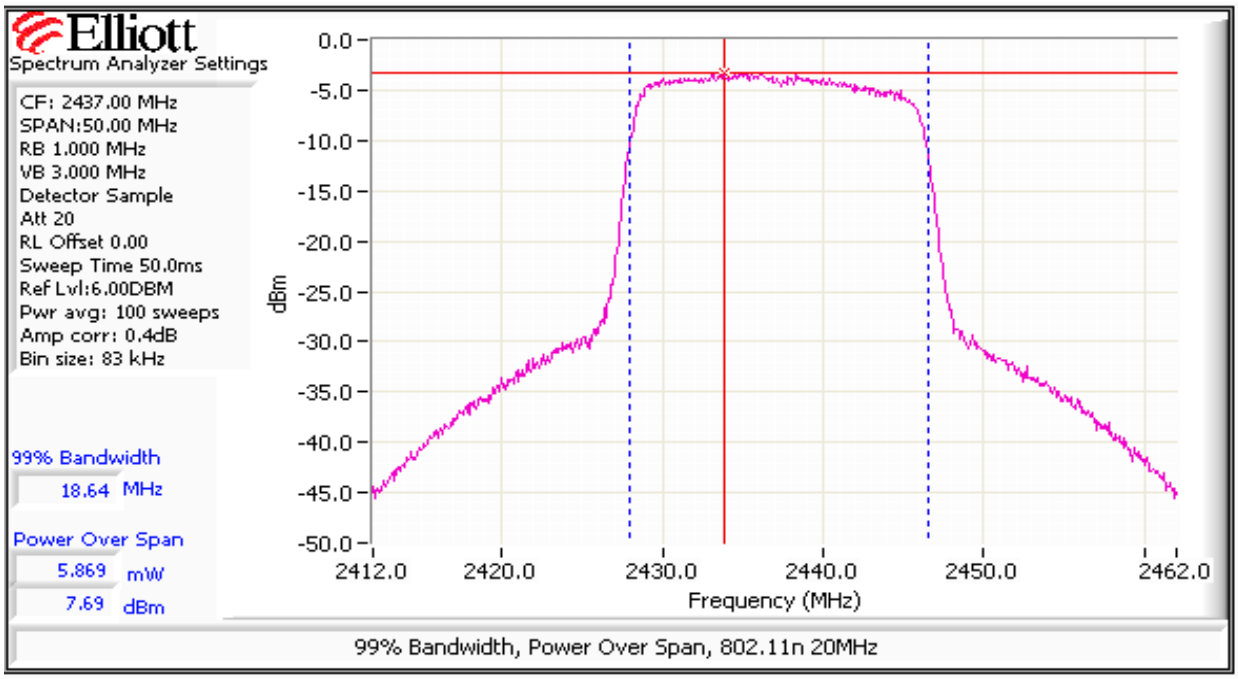
With 20dBi antenna the maximum output power for point-to-point is 25dBm and for point-to-multipoint the maximum is 16dBm.

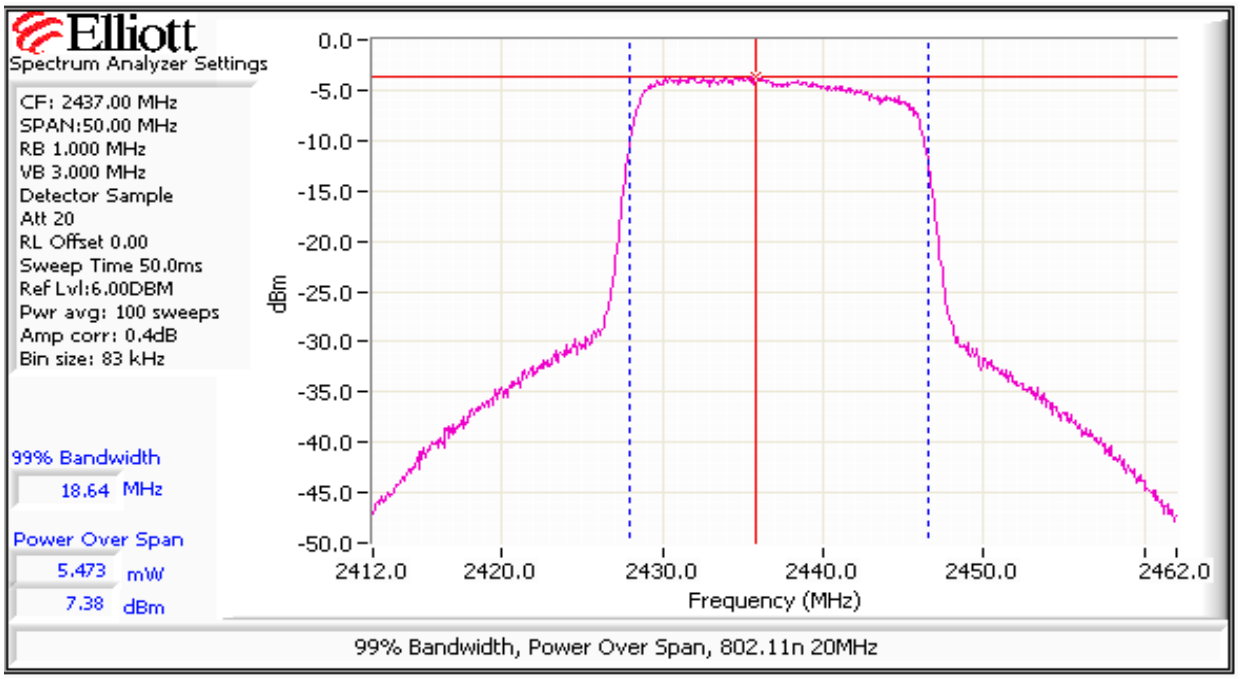
2412 MHz Panel	Chain 1	Chain 2	Chain 3	Chain 4	Total Across All Chains		Limit	
Power Setting (+10dB pad) Note 3		14.0						
Output Power (dBm) Note 1	1.9	1.8	0.74		6.3 dBm	0.004 W	16.0 dBm	0.040 W
Antenna Gain (dBi) Note 2	20.0	20.0	20.0			20.0 dBi	Pass	
eirp (dBm) Note 2	21.9	21.8	20.74		26.3 dBm	0.425 W		

2437 MHz Panel	Chain 1	Chain 2	Chain 3	Chain 4	Total Across All Chains		Limit	
Power Setting (+10dB pad) Note 3		19.0						
Output Power (dBm) Note 1	7.7	7.4	7.7		12.4 dBm	0.017 W	16.0 dBm	0.040 W
Antenna Gain (dBi) Note 2	20.0	20.0	20.0			20.0 dBi	Pass	
eirp (dBm) Note 2	27.7	27.4	27.7		32.4 dBm	1.727 W		

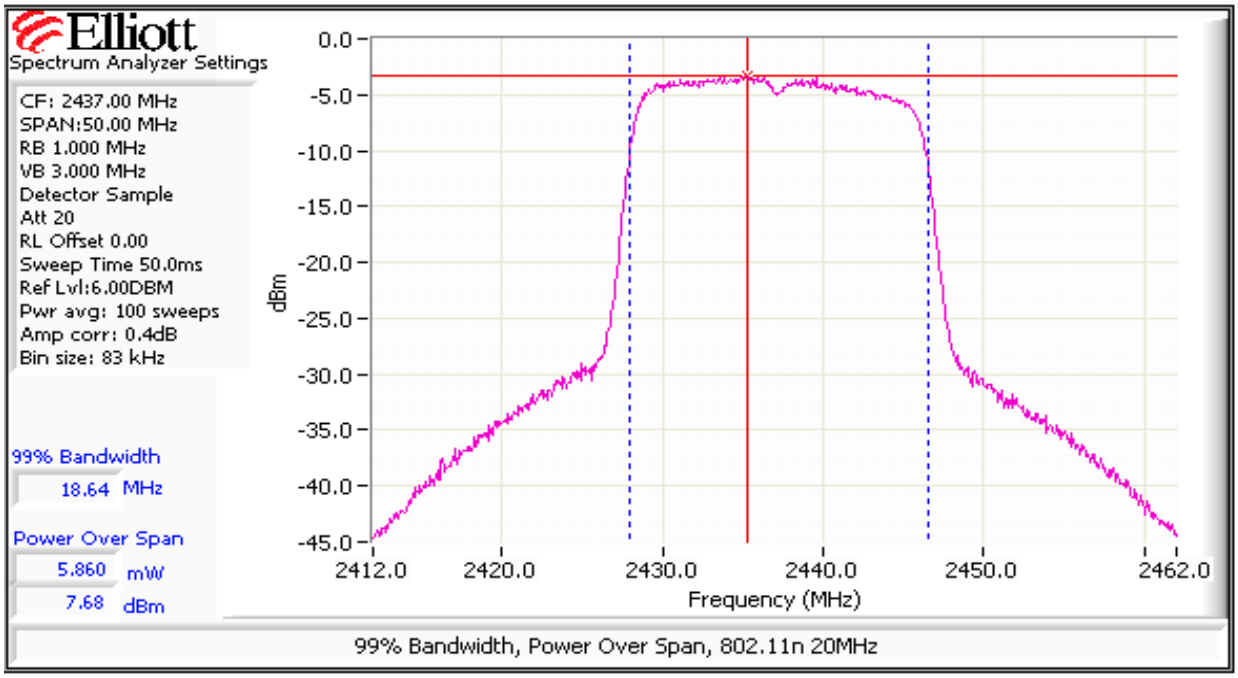
2462 MHz Panel	Chain 1	Chain 2	Chain 3	Chain 4	Total Across All Chains		Limit	
Power Setting (+10dB pad) Note 3		14.0						
Output Power (dBm) Note 1	2.0	0.7	0.4		5.9 dBm	0.004 W	16.0 dBm	0.040 W
Antenna Gain (dBi) Note 2	20.0	20.0	20.0			20.0 dBi	Pass	
eirp (dBm) Note 2	22	20.7	20.4		25.9 dBm	0.386 W		

Client:	Proxim Corporation	Job Number:	J75847
Model:	PROXMB82 802.11abgn miniPCI module (3x3)	T-Log Number:	T75950
		Account Manager:	-
Contact:	Ivaylo Tankov		
Standard:	FCC Part 15 Subpart C (15.247), RSS 210	Class:	N/A





Client:	Proxim Corporation	Job Number:	J75847
Model:	PROXMB82 802.11abgn miniPCI module (3x3)	T-Log Number:	T75950
		Account Manager:	-
Contact:	Ivaylo Tankov		
Standard:	FCC Part 15 Subpart C (15.247), RSS 210	Class:	N/A



Client:	Proxim Corporation	Job Number:	J75847
Model:	PROXMB82 802.11abgn miniPCI module (3x3)	T-Log Number:	T75950
		Account Manager:	-
Contact:	Ivaylo Tankov		
Standard:	FCC Part 15 Subpart C (15.247), RSS 210	Class:	N/A

Run #4: Output Power - 802.11n HT40

Transmitted signal on chain is coherent ? No

Power levels for the highest power tested - sector antenna

With 17dBi antenna the maximum output power for point-to-point is 24dBm and for point-to-multipoint the maximum is 19dBm.

2422 MHz Sector	Chain 1	Chain 2	Chain 3	Chain 4	Total Across All Chains		Limit	
Power Setting (+20dB pad) Note 3		15.0						
Output Power (dBm) Note 1	-6.7	-6.7	-6.7		-1.9 dBm	0.001 W	19.0 dBm	0.079 W
Antenna Gain (dBi) Note 2	17.0	17.0	17.0			17.0 dBi	Pass	
eirp (dBm) Note 2	10.3	10.3	10.3		15.1 dBm	0.032 W		

2437 MHz Sector	Chain 1	Chain 2	Chain 3	Chain 4	Total Across All Chains		Limit	
Power Setting (+20dB pad) Note 3		19.0						
Output Power (dBm) Note 1	-2.4	-1.3	-2.2		2.8 dBm	0.002 W	19.0 dBm	0.079 W
Antenna Gain (dBi) Note 2	17.0	17.0	17.0			17.0 dBi	Pass	
eirp (dBm) Note 2	14.6	15.7	14.8		19.8 dBm	0.096 W		

2452 MHz Sector	Chain 1	Chain 2	Chain 3	Chain 4	Total Across All Chains		Limit	
Power Setting (+20dB pad) Note 3		10.0						
Output Power (dBm) Note 1	-11.97	-12.3	-12.1		-7.3 dBm	0.000 W	19.0 dBm	0.079 W
Antenna Gain (dBi) Note 2	17.0	17.0	17.0			17.0 dBi	Pass	
eirp (dBm) Note 2	5.03	4.7	4.9		9.6 dBm	0.009 W		

Power levels for the highest power tested - panel antenna

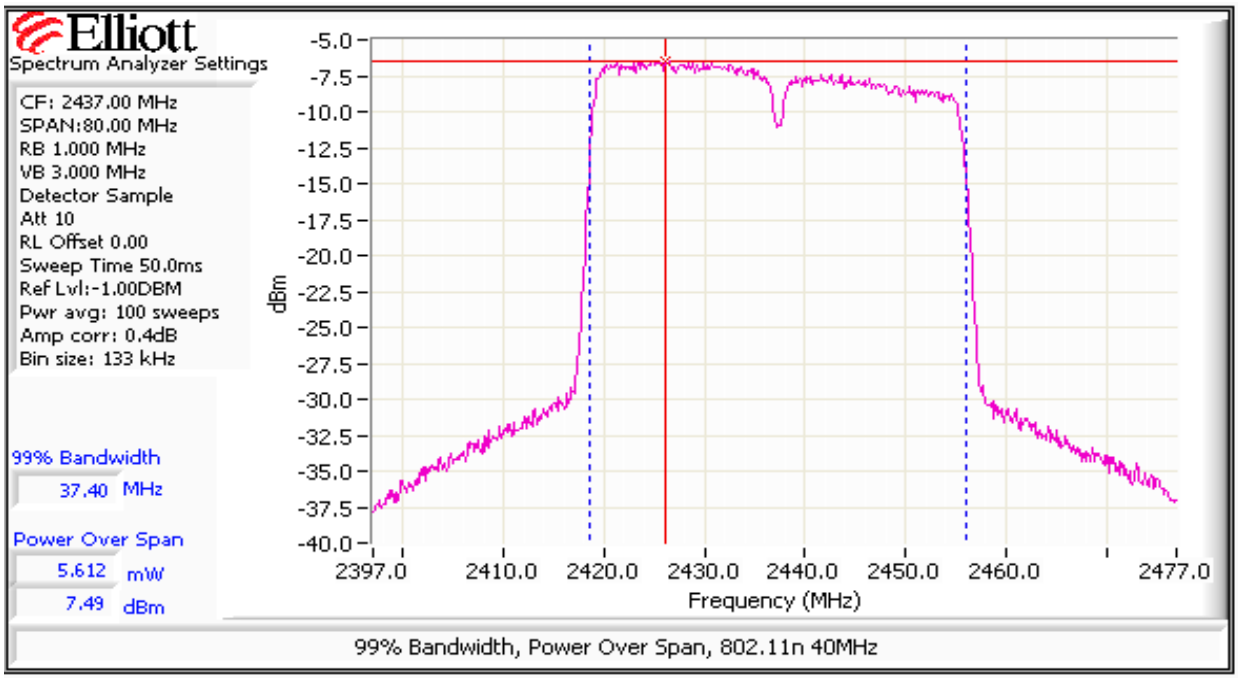
With 20dBi antenna the maximum output power for point-to-point is 25dBm and for point-to-multipoint the maximum is 16dBm.

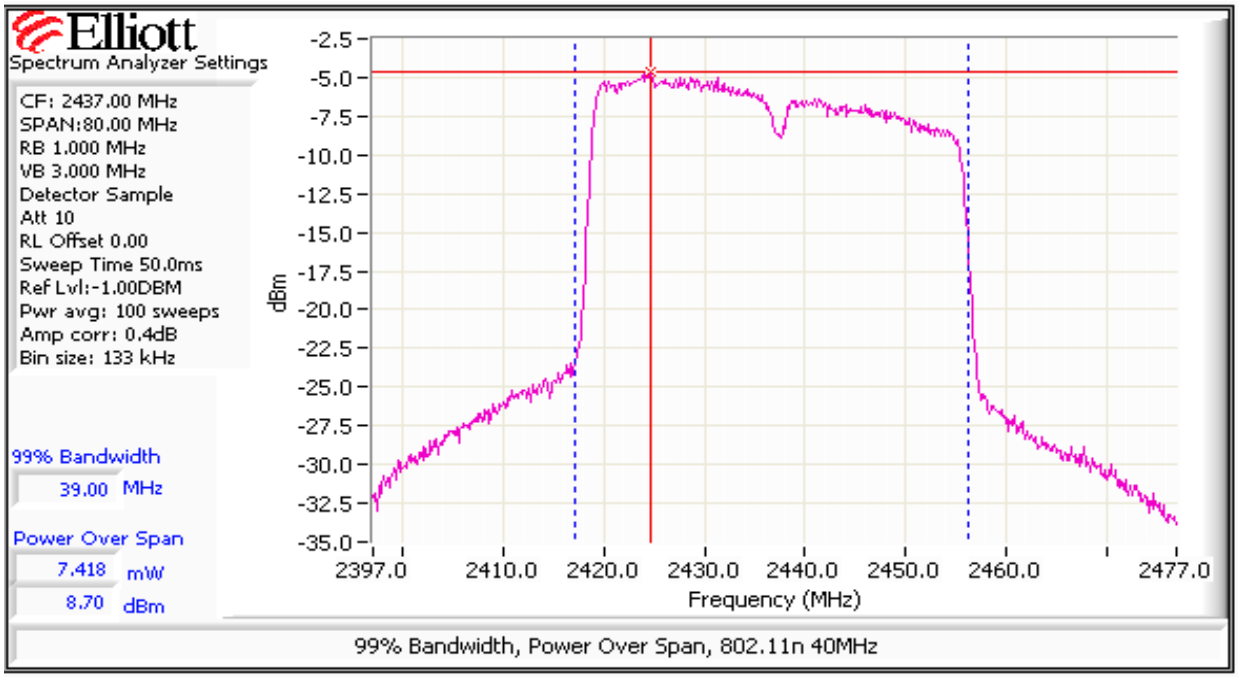
2422 MHz Panel	Chain 1	Chain 2	Chain 3	Chain 4	Total Across All Chains		Limit	
Power Setting (+10dB pad) Note 3		11.5						
Output Power (dBm) Note 1	-0.8	-1.0	-0.4		4.0 dBm	0.003 W	16.0 dBm	0.040 W
Antenna Gain (dBi) Note 2	20.0	20.0	20.0			20.0 dBi	Pass	
eirp (dBm) Note 2	19.2	19	19.6		24.0 dBm	0.254 W		

2437 MHz Panel	Chain 1	Chain 2	Chain 3	Chain 4	Total Across All Chains		Limit	
Power Setting (+10dB pad) Note 3		19.0						
Output Power (dBm) Note 1	7.5	8.7	7.9		12.8 dBm	0.019 W	16.0 dBm	0.040 W
Antenna Gain (dBi) Note 2	20.0	20.0	20.0			20.0 dBi	Pass	
eirp (dBm) Note 2	27.5	28.7	27.9		32.8 dBm	1.920 W		

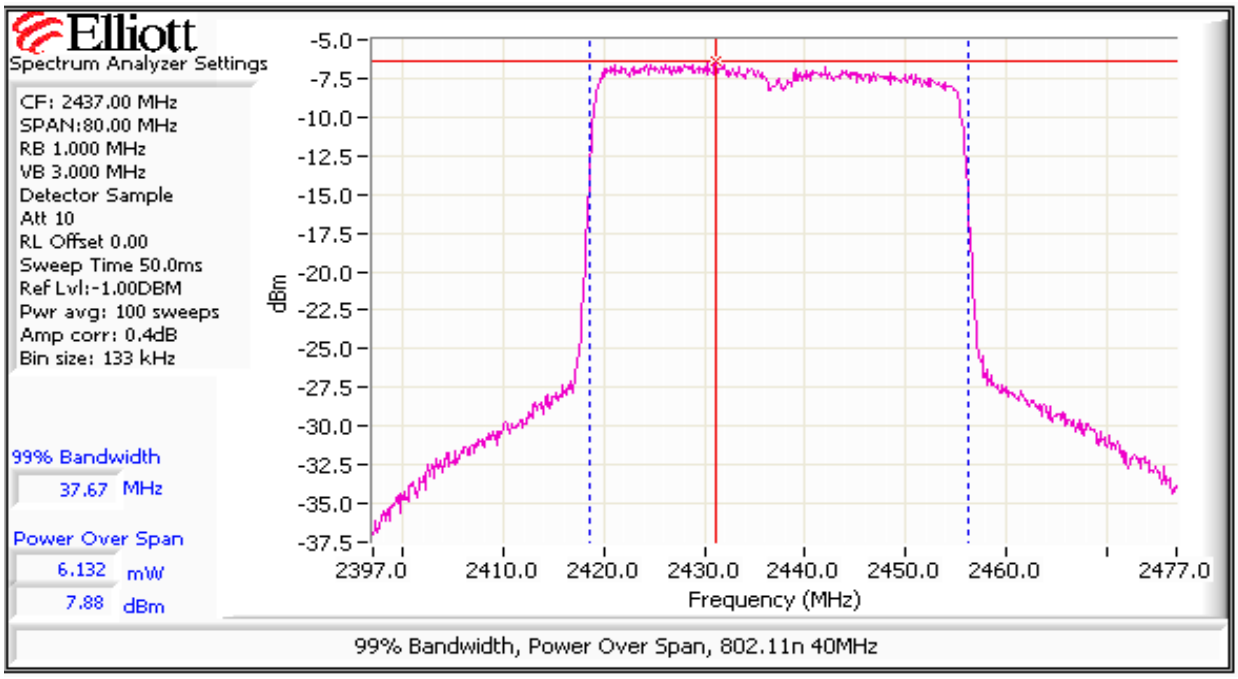
2452 MHz Panel	Chain 1	Chain 2	Chain 3	Chain 4	Total Across All Chains		Limit	
Power Setting (+10dB pad) Note 3		12.0						
Output Power (dBm) Note 1	0.22	-0.3	-0.03		4.7 dBm	0.003 W	16.0 dBm	0.040 W
Antenna Gain (dBi) Note 2	20.0	20.0	20.0			20.0 dBi	Pass	
eirp (dBm) Note 2	20.22	19.7	19.97		24.7 dBm	0.298 W		

Client:	Proxim Corporation	Job Number:	J75847
Model:	PROXMB82 802.11abgn miniPCI module (3x3)	T-Log Number:	T75950
		Account Manager:	-
Contact:	Ivaylo Tankov		
Standard:	FCC Part 15 Subpart C (15.247), RSS 210	Class:	N/A





Client:	Proxim Corporation	Job Number:	J75847
Model:	PROXMB82 802.11abgn miniPCI module (3x3)	T-Log Number:	T75950
		Account Manager:	-
Contact:	Ivaylo Tankov		
Standard:	FCC Part 15 Subpart C (15.247), RSS 210	Class:	N/A



Client:	Proxim Corporation	Job Number:	J75847
Model:	PROXMB82 802.11abgn miniPCI module (3x3)	T-Log Number:	T75950
		Account Manager:	-
Contact:	Ivaylo Tankov		
Standard:	FCC Part 15 Subpart C (15.247), RSS 210	Class:	N/A

RSS 210 and FCC 15.247 (DTS) Radiated Emissions
Band Edge - Sector Antenna

Test Specific Details

Objective: The objective of this test session is to perform final qualification testing of the EUT with respect to the specification listed above.

Date of Test:	Refer to each run	Config. Used:	1
Test Engineer:	Refer to each run	Config Change:	-
Test Location:	Refer to each run	Host Unit Voltage	120V/60Hz

General Test Configuration

The EUT was installed into a host system with the host system covers removed to exposure the module.

For radiated emissions testing the measurement antenna was located 3 meters from the EUT.

Test Specific Details

Objective: The objective of this test session is to perform engineering evaluation testing of the EUT with respect to the specification listed above.

General Test Configuration

The EUT ws installed into a test fixture such that the EUT was exposed (i.e. outside of a host PC).
For radiated emissions testing the measurement antenna was located 3 meters from the EUT.

Ambient Conditions:

Rel. Humidity:	15-65 %
Temperature:	15-25 °C

Modifications Made During Testing

No modifications were made to the EUT during testing

Deviations From The Standard

No deviations were made from the requirements of the standard.

Client:	Proxim Corporation	Job Number:	J75847
Model:	PROXMB82 802.11abgn miniPCI module (3x3)	T-Log Number:	T75950
		Account Manager:	-
Contact:	Ivaylo Tankov		
Standard:	FCC Part 15 Subpart C (15.247), RSS 210	Class:	N/A

Summary of Results

All measurements made with an additional 20dB attenuator between rf port and antenna.

Run #	Mode	Channel	Attenuator (dB)	Power Setting	Test Performed	Limit	Result / Margin
Run # 1	802.11n HT40 Chain A+B+C	#3 2422MHz	20.0	15.0	Restricted Band Edge at 2400 MHz	15.209	72.0dBµV/m @ 2385.8MHz (-2.0dB)
		#9 2452MHz	20.0	10.0	Restricted Band Edge at 2483.5 MHz	15.209	72.2dBµV/m @ 2483.7MHz (-1.8dB)
Run # 2	802.11n HT20 Chain A+B+C	#1 2412MHz	20.0	17.0	Restricted Band Edge at 2400 MHz	15.209	52.0dBµV/m @ 2389.7MHz (-2.0dB)
		#11 2462MHz	20.0	17.0	Restricted Band Edge at 2483.5 MHz	15.209	51.9dBµV/m @ 2483.7MHz (-2.1dB)
Run # 3	802.11g Chain A	#1 2412MHz	20.0	17.5	Restricted Band Edge at 2400 MHz	15.209	52.6dBµV/m @ 2390.0MHz (-1.4dB)
		#11 2462MHz	20.0	17.5	Restricted Band Edge at 2483.5 MHz	15.209	53.1dBµV/m @ 2483.5MHz (-0.9dB)
Run # 4	802.11b Chain A	#1 2412MHz	20.0	18.0	Restricted Band Edge at 2400 MHz	15.209	**53.4dBµV/m @ 2386.5MHz (-0.6dB)**
		#11 2462MHz	20.0	18.5	Restricted Band Edge at 2483.5 MHz	15.209	51.7dBµV/m @ 2488.0MHz (-2.3dB)

Client:	Proxim Corporation	Job Number:	J75847
Model:	PROXMB82 802.11abgn miniPCI module (3x3)	T-Log Number:	T75950
		Account Manager:	-
Contact:	Ivaylo Tankov		
Standard:	FCC Part 15 Subpart C (15.247), RSS 210	Class:	N/A

Run # 1, Band Edge Field Strength - 802.11n HT40

Date of Test: 8/3/2009 Test Location: FT Chamber #5

Test Engineer: Mehran Birgani Config Change: None

Run # 1a, EUT on Channel #3 (2422MHz) - 802.11n HT40

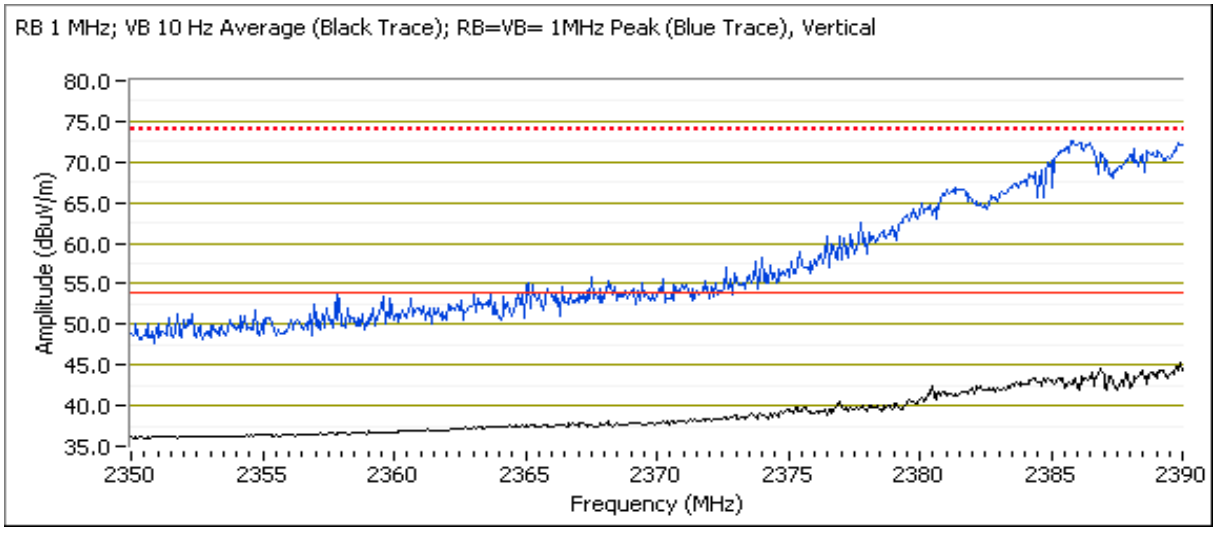
Chain	Power Settings		
	Target (dBm)	Attenuator (dB)	Software Setting
A+B+C		20.0	15.0

Fundamental Signal Field Strength

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	V/H	Limit	Margin	Pk/QP/Avg	degrees	meters	
2422.330	89.4	V	-	-	AVG	359	1.4	
2432.730	99.7	V	-	-	PK	359	1.4	
2422.270	71.6	H	-	-	AVG	54	1.0	
2431.330	81.2	H	-	-	PK	54	1.0	
2410.270	93.5	V	-	-	-	359	1.4	RB 100 kHz; VB: 100 kHz

2390 MHz Band Edge Signal Field Strength

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	V/H	Limit	Margin	Pk/QP/Avg	degrees	meters	
2389.870	47.8	V	54.0	-6.2	AVG	359	1.4	
2385.800	**72.0**	**V**	**74.0**	**-2.0**	PK	359	1.4	



Client:	Proxim Corporation	Job Number:	J75847
Model:	PROXMB82 802.11abgn miniPCI module (3x3)	T-Log Number:	T75950
		Account Manager:	-
Contact:	Ivaylo Tankov		
Standard:	FCC Part 15 Subpart C (15.247), RSS 210	Class:	N/A

Run # 1b, EUT on Channel #9 (2452MHz) - 802.11n HT40

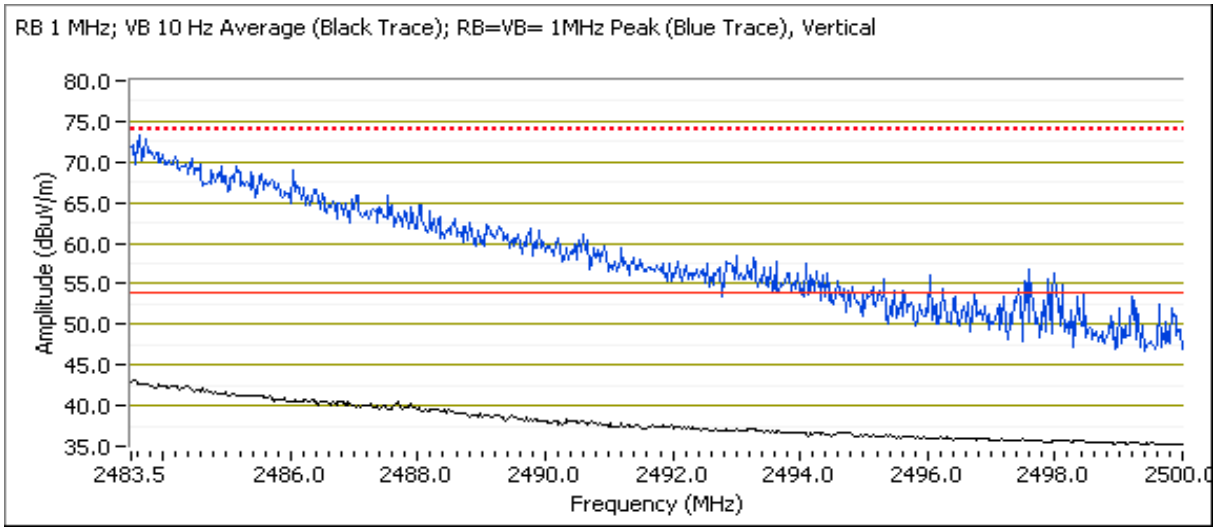
Chain	Power Settings		
	Target (dBm)	Attenuator (dB)	Software Setting
A+B+C		20.0	10.0

Fundamental Signal Field Strength

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	V/H	Limit	Margin	Pk/QP/Avg	degrees	meters	
2447.670	85.1	V	-	-	AVG	350	1.2	
2457.800	96.8	V	-	-	PK	350	1.2	
2447.930	67.2	H	-	-	AVG	216	1.1	
2449.070	78.1	H	-	-	PK	216	1.1	
2447.270	86.2	V	-	-	-	350	1.2	RB 100 kHz; VB: 100 kHz

2483.5 MHz Band Edge Signal Field Strength

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	V/H	Limit	Margin	Pk/QP/Avg	degrees	meters	
2483.500	50.4	V	54.0	-3.6	AVG	350	1.2	
2483.720	**72.2**	**V**	**74.0**	**-1.8**	PK	350	1.2	



Client:	Proxim Corporation	Job Number:	J75847
Model:	PROXMB82 802.11abgn miniPCI module (3x3)	T-Log Number:	T75950
		Account Manager:	-
Contact:	Ivaylo Tankov		
Standard:	FCC Part 15 Subpart C (15.247), RSS 210	Class:	N/A

Run # 2, Band Edge Field Strength - 802.11n HT20

Date of Test: 8/4/2009 Test Location: FT Chamber #4

Test Engineer: Mehran Birgani Config Change: None

Run # 2a, EUT on Channel #1 (2412MHz) - 802.11n HT20

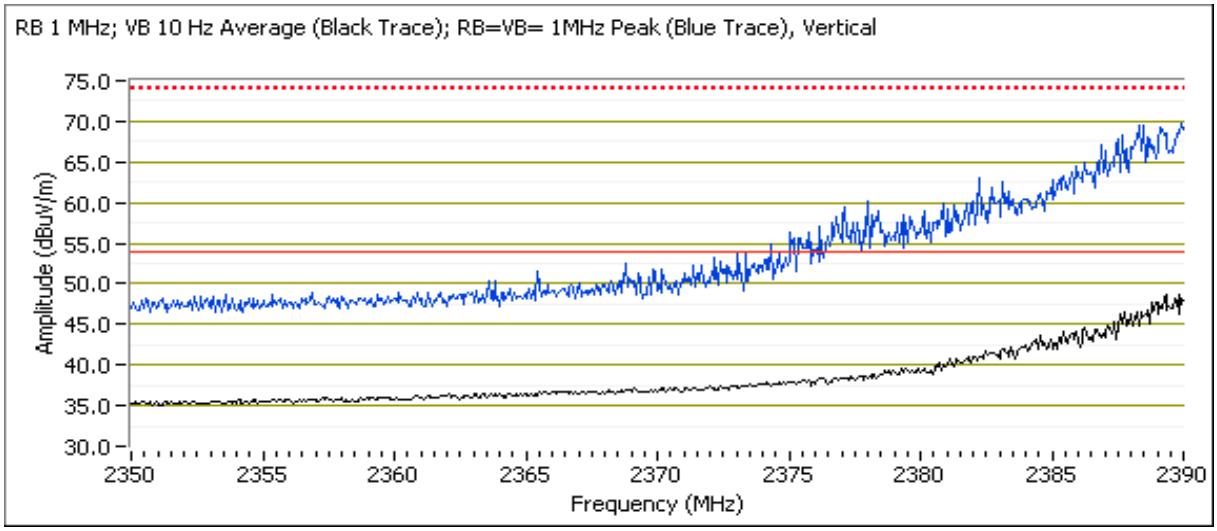
Chain	Power Settings		
	Target (dBm)	Attenuator (dB)	Software Setting
A+B+C		20.0	17.0

Fundamental Signal Field Strength

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	V/H	Limit	Margin	Pk/QP/Avg	degrees	meters	
2413.200	95.6	V	-	-	AVG	1	1.4	
2416.970	105.3	V	-	-	PK	1	1.4	
2409.600	79.4	H	-	-	AVG	311	1.0	
2409.130	88.8	H	-	-	PK	311	1.0	
2416.200	98.2	V	-	-	-	1	1.4	RB 100 kHz; VB: 100 kHz

2390 MHz Band Edge Signal Field Strength

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	V/H	Limit	Margin	Pk/QP/Avg	degrees	meters	
2389.670	**52.0**	**V**	**54.0**	**-2.0**	AVG	1	1.4	
2389.730	67.2	V	74.0	-6.8	PK	1	1.4	



Client:	Proxim Corporation	Job Number:	J75847
Model:	PROXMB82 802.11abgn miniPCI module (3x3)	T-Log Number:	T75950
		Account Manager:	-
Contact:	Ivaylo Tankov		
Standard:	FCC Part 15 Subpart C (15.247), RSS 210	Class:	N/A

Run # 2b, EUT on Channel #11 (2462MHz) - 802.11n HT20

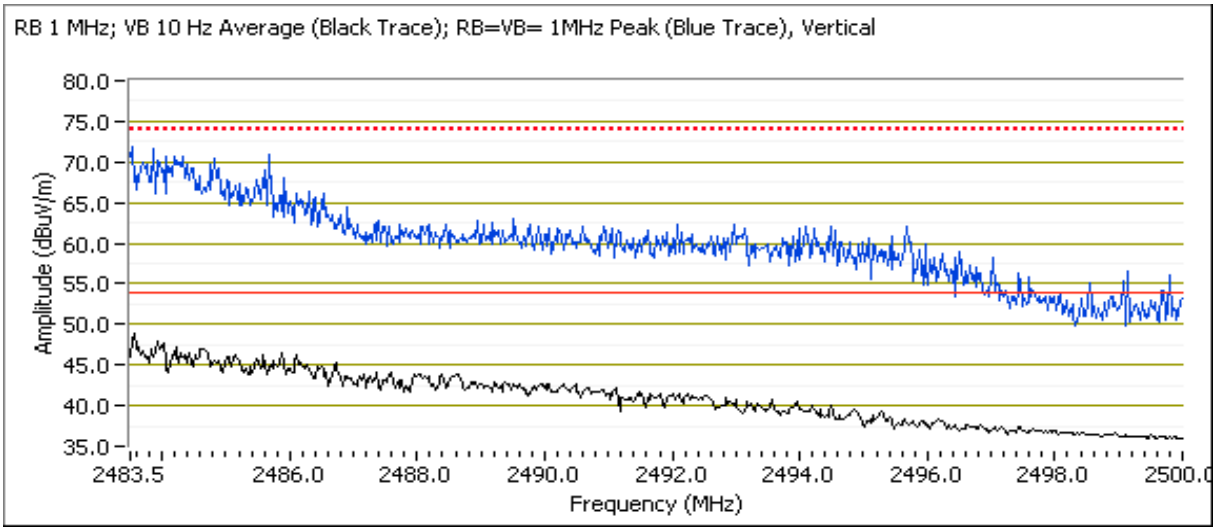
Chain	Power Settings		
	Target (dBm)	Attenuator (dB)	Software Setting
A+B+C		20.0	17.0

Fundamental Signal Field Strength

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	V/H	Limit	Margin	Pk/QP/Avg	degrees	meters	
2461.130	94.4	V	-	-	AVG	356	1.4	
2463.230	104.8	V	-	-	PK	356	1.4	
2464.100	82.6	H	-	-	AVG	22	1.0	
2462.200	92.4	H	-	-	PK	22	1.0	
2461.530	96.9	V	-	-	-	356	1.4	RB 100 kHz; VB: 100 kHz

2483.5 MHz Band Edge Signal Field Strength

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	V/H	Limit	Margin	Pk/QP/Avg	degrees	meters	
2483.660	**51.9**	**V**	**54.0**	**-2.1**	AVG	356	1.4	
2485.230	69.5	V	74.0	-4.5	PK	356	1.4	



Client:	Proxim Corporation	Job Number:	J75847
Model:	PROXMB82 802.11abgn miniPCI module (3x3)	T-Log Number:	T75950
		Account Manager:	-
Contact:	Ivaylo Tankov		
Standard:	FCC Part 15 Subpart C (15.247), RSS 210	Class:	N/A

Run # 3, Band Edge Field Strength - 802.11g

Date of Test: 8/4/2009 Test Location: FT Chamber #4

Test Engineer: Mehran Birgani Config Change: None

Run # 3a, EUT on Channel #1 (2412MHz) - 802.11g

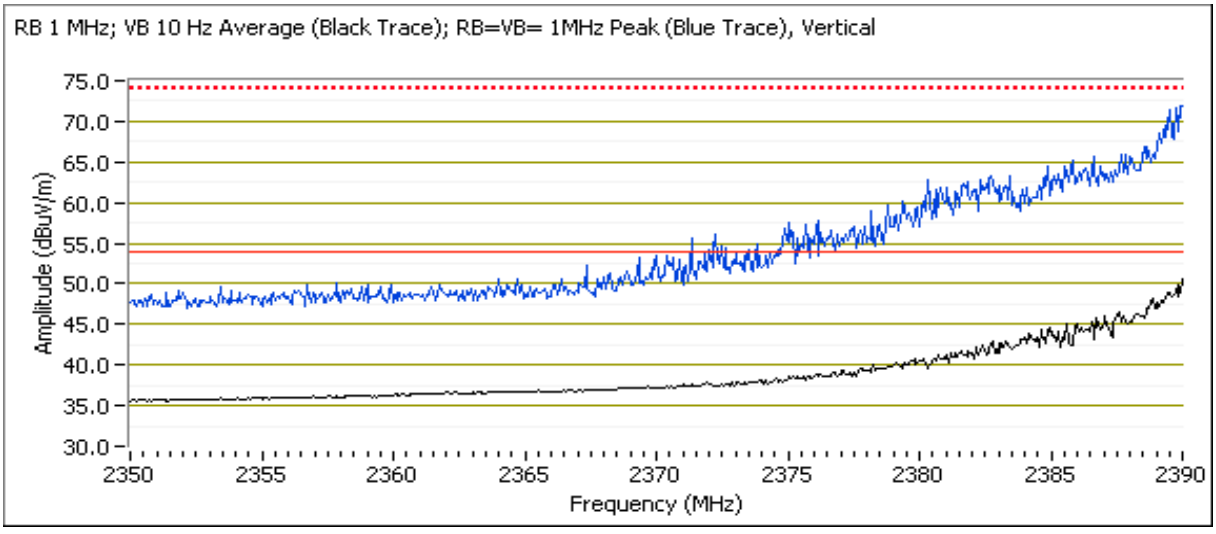
Chain	Power Settings		
	Target (dBm)	Attenuator (dB)	Software Setting
A		20.0	17.5

Fundamental Signal Field Strength

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	V/H	Limit	Margin	Pk/QP/Avg	degrees	meters	
2410.500	96.7	V	-	-	AVG	0	1.3	
2405.230	105.6	V	-	-	PK	0	1.3	
2409.700	80.6	H	-	-	AVG	309	1.0	
2409.500	90.7	H	-	-	PK	309	1.0	
2409.570	95.8	V	-	-	-	0	1.3	RB 100 kHz; VB: 100 kHz

2390 MHz Band Edge Signal Field Strength

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	V/H	Limit	Margin	Pk/QP/Avg	degrees	meters	
2390.000	**52.6**	**V**	**54.0**	**-1.4**	AVG	0	1.3	
2389.530	66.6	V	74.0	-7.4	PK	0	1.3	



Client:	Proxim Corporation	Job Number:	J75847
Model:	PROXMB82 802.11abgn miniPCI module (3x3)	T-Log Number:	T75950
		Account Manager:	-
Contact:	Ivaylo Tankov		
Standard:	FCC Part 15 Subpart C (15.247), RSS 210	Class:	N/A

Run # 3b, EUT on Channel #11 (2462MHz) - 802.11g

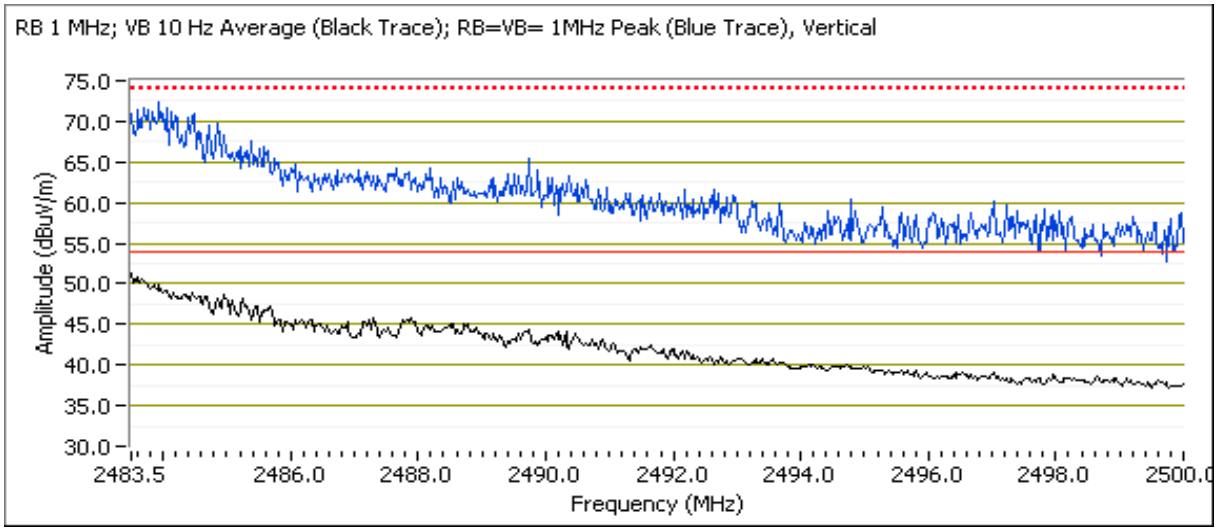
Chain	Power Settings		
	Target (dBm)	Attenuator (dB)	Software Setting
A		20.0	17.5

Fundamental Signal Field Strength

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	V/H	Limit	Margin	Pk/QP/Avg	degrees	meters	
2462.200	97.9	V	-	-	AVG	354	1.3	
2462.470	107.0	V	-	-	PK	354	1.3	
2462.170	83.2	H	-	-	AVG	27	1.0	
2462.430	91.4	H	-	-	PK	27	1.0	
2460.900	97.9	V	-	-	-	354	1.3	RB 100 kHz; VB: 100 kHz

2483.5 MHz Band Edge Signal Field Strength

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	V/H	Limit	Margin	Pk/QP/Avg	degrees	meters	
2483.500	**53.1**	**V**	**54.0**	**-0.9**	AVG	354	1.3	
2483.830	70.1	V	74.0	-3.9	PK	354	1.3	



Client:	Proxim Corporation	Job Number:	J75847
Model:	PROXMB82 802.11abgn miniPCI module (3x3)	T-Log Number:	T75950
		Account Manager:	-
Contact:	Ivaylo Tankov		
Standard:	FCC Part 15 Subpart C (15.247), RSS 210	Class:	N/A

Run # 4, Band Edge Field Strength - 802.11b

Date of Test: 8/4/2009 Test Location: FT Chamber #4

Test Engineer: Mehran Birgani Config Change: None

Run # 4a, EUT on Channel #1 (2412MHz) - 802.11b

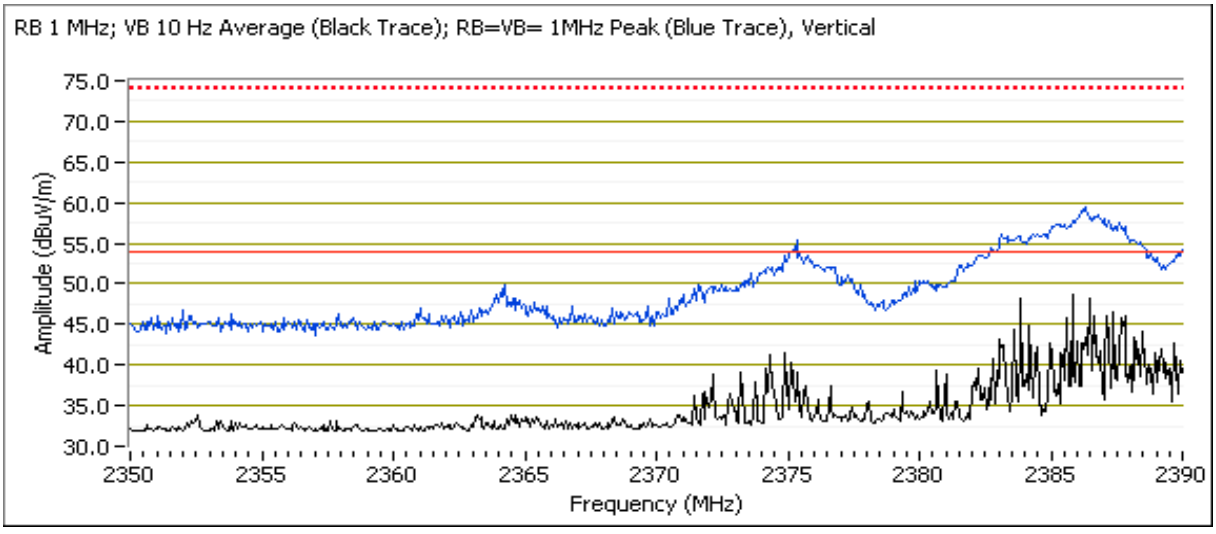
Chain	Power Settings		
	Target (dBm)	Attenuator (dB)	Software Setting
A		20.0	18.0

Fundamental Signal Field Strength

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	V/H	Limit	Margin	Pk/QP/Avg	degrees	meters	
2415.300	101.9	V	-	-	AVG	344	1.2	
2408.100	104.8	V	-	-	PK	344	1.2	
2410.270	84.7	H	-	-	AVG	21	1.0	
2411.200	87.8	H	-	-	PK	21	1.0	
2408.530	99.5	V	-	-	-	344	1.2	RB 100 kHz; VB: 100 kHz

2390 MHz Band Edge Signal Field Strength

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	V/H	Limit	Margin	Pk/QP/Avg	degrees	meters	
2386.530	**53.4**	**V**	**54.0**	**-0.6**	AVG	344	1.2	
2386.330	58.8	V	74.0	-15.2	PK	344	1.2	



Client:	Proxim Corporation	Job Number:	J75847
Model:	PROXMB82 802.11abgn miniPCI module (3x3)	T-Log Number:	T75950
		Account Manager:	-
Contact:	Ivaylo Tankov		
Standard:	FCC Part 15 Subpart C (15.247), RSS 210	Class:	N/A

Run # 4b, EUT on Channel #11 (2462MHz) - 802.11b

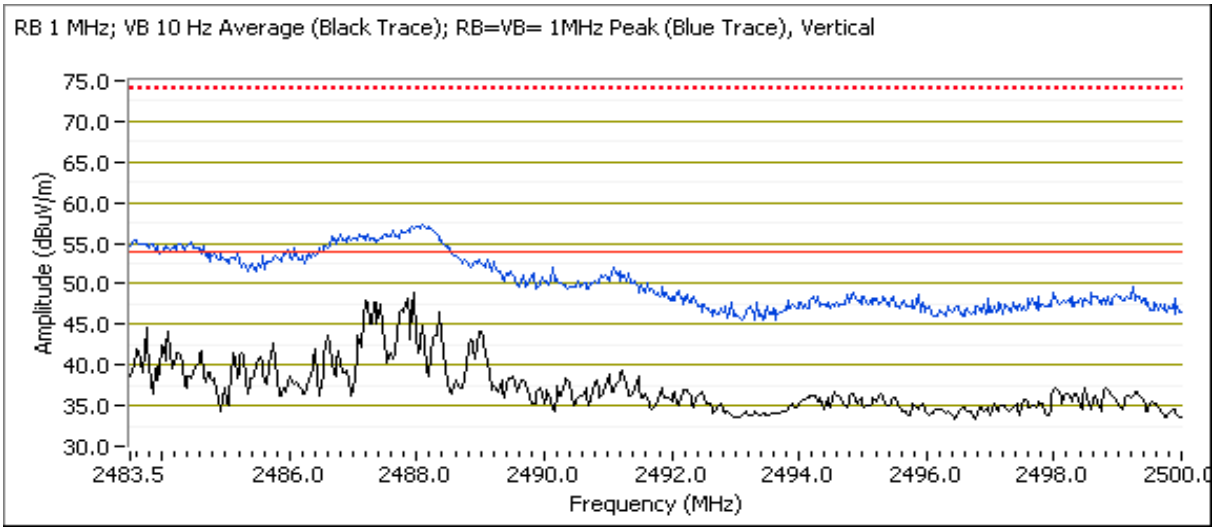
Chain	Power Settings		
	Target (dBm)	Attenuator (dB)	Software Setting
A		20.0	18.5

Fundamental Signal Field Strength

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	V/H	Limit	Margin	Pk/QP/Avg	degrees	meters	
2460.870	101.0	V	-	-	AVG	360	1.2	
2461.230	104.4	V	-	-	PK	360	1.2	
2461.400	89.0	H	-	-	AVG	21	1.0	
2461.230	92.4	H	-	-	PK	21	1.0	
2461.200	99.4	V	-	-	-	360	1.2	RB 100 kHz; VB: 100 kHz

2483.5 MHz Band Edge Signal Field Strength

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	V/H	Limit	Margin	Pk/QP/Avg	degrees	meters	
2487.980	**51.7**	**V**	**54.0**	**-2.3**	AVG	360	1.2	
2483.860	56.1	V	74.0	-17.9	PK	360	1.2	



Client:	Proxim Corporation	Job Number:	J75847
Model:	PROXMB82 802.11abgn miniPCI module (3x3)	T-Log Number:	T75950
		Account Manager:	-
Contact:	Ivaylo Tankov		
Standard:	FCC Part 15 Subpart C (15.247), RSS 210	Class:	N/A

RSS 210 and FCC 15.247 (DTS) Radiated Emissions
Band Edge - Panel Antenna

Test Specific Details

Objective: The objective of this test session is to perform final qualification testing of the EUT with respect to the specification listed above.

Test Date:	Refer to each run	Config. Used:	1
Test Engineer:	Refer to each run	Config Change:	None
Test Location:	Refer to each run	Host Unit Voltage	120V/60Hz

General Test Configuration

The EUT was installed into a host system with the host system covers removed to exposure the module.

For radiated emissions testing the measurement antenna was located 3 meters from the EUT.

Test Specific Details

Objective: The objective of this test session is to perform engineering evaluation testing of the EUT with respect to the specification listed above.

General Test Configuration

The EUT ws installed into a test fixture such that the EUT was exposed (i.e. outside of a host PC).
For radiated emissions testing the measurement antenna was located 3 meters from the EUT.

Ambient Conditions:

Rel. Humidity:	15-65 %
Temperature:	15-25 °C

Modifications Made During Testing

No modifications were made to the EUT during testing

Deviations From The Standard

No deviations were made from the requirements of the standard.

Client:	Proxim Corporation	Job Number:	J75847
Model:	PROXMB82 802.11abgn miniPCI module (3x3)	T-Log Number:	T75950
		Account Manager:	-
Contact:	Ivaylo Tankov		
Standard:	FCC Part 15 Subpart C (15.247), RSS 210	Class:	N/A

Summary of Results

All measurements made with an additional 10dB attenuator between rf port and antenna.

Run #	Mode	Channel	Attenuator (dB)	Power Setting	Test Performed	Limit	Result / Margin
Run # 1	802.11n HT40 Chain A+B+C	#3 2422MHz	10.0	11.5	Restricted Band Edge at 2400 MHz	15.209	52.4dBµV/m @ 2389.6MHz (-1.6dB)
		#9 2452MHz	10.0	12.0	Restricted Band Edge at 2483.5 MHz	15.209	51.9dBµV/m @ 2483.5MHz (-2.1dB)
Run # 2	802.11n HT20 Chain A+B+C	#1 2412MHz	10.0	14.0	Restricted Band Edge at 2400 MHz	15.209	**53.1dBµV/m @ 2390.0MHz (-0.9dB)**
		#11 2462MHz	10.0	14.0	Restricted Band Edge at 2483.5 MHz	15.209	52.2dBµV/m @ 2483.5MHz (-1.8dB)
Run # 3	802.11g Chain A	#1 2412MHz	10.0	14.5	Restricted Band Edge at 2400 MHz	15.209	52.9dBµV/m @ 2390.0MHz (-1.1dB)
		#11 2462MHz	10.0	14.5	Restricted Band Edge at 2483.5 MHz	15.209	52.6dBµV/m @ 2483.5MHz (-1.4dB)
Run # 4	802.11b Chain A	#1 2412MHz	10.0	15.5	Restricted Band Edge at 2400 MHz	15.209	52.2dBµV/m @ 2385.5MHz (-1.8dB)
		#11 2462MHz	10.0	17.5	Restricted Band Edge at 2483.5 MHz	15.209	49.6dBµV/m @ 2488.5MHz (-4.4dB)

Client:	Proxim Corporation	Job Number:	J75847
Model:	PROXMB82 802.11abgn miniPCI module (3x3)	T-Log Number:	T75950
		Account Manager:	-
Contact:	Ivaylo Tankov		
Standard:	FCC Part 15 Subpart C (15.247), RSS 210	Class:	N/A

Run # 1, Band Edge Field Strength - 802.11n HT40

Date of Test: 8/21/2009 Test Location: FT Chamber #3

Test Engineer: Mehran Birgani Config Change: None

Run # 1a, EUT on Channel #3 (2422MHz) - 802.11n HT40

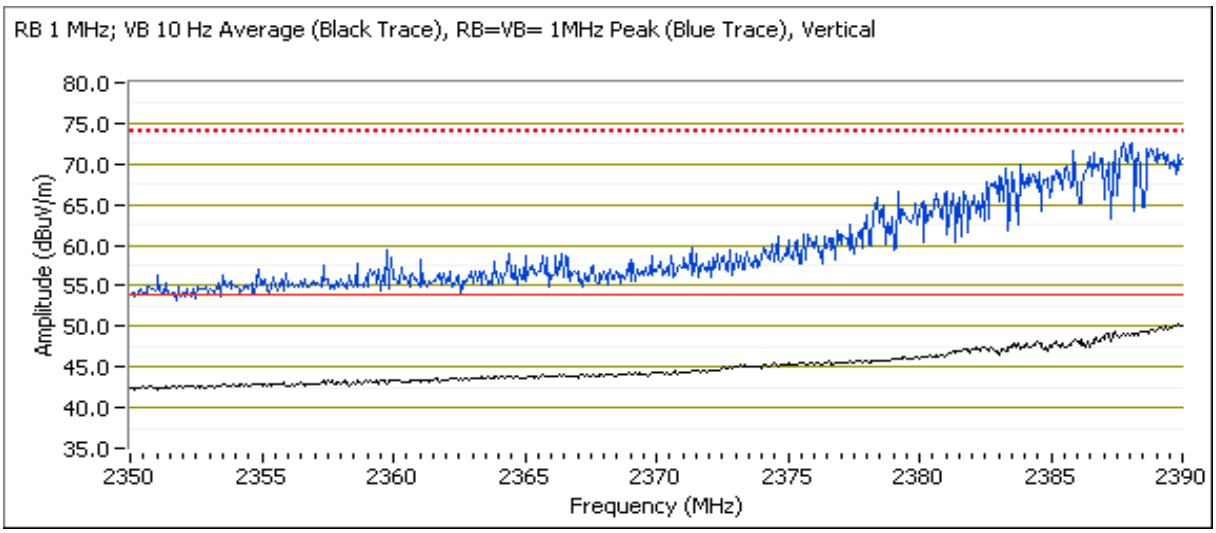
Chain	Power Settings		
	Target (dBm)	Attenuator (dB)	Software Setting
A+B+C		10.0	11.5

Fundamental Signal Field Strength

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	V/H	Limit	Margin	Pk/QP/Avg	degrees	meters	
2422.270	97.0	V	-	-	AVG	0	1.2	
2415.200	107.2	V	-	-	PK	0	1.2	
2422.200	78.4	H	-	-	AVG	294	1.0	
2420.000	87.8	H	-	-	PK	294	1.0	
2437.470	99.0	V	-	-	-	0	1.2	RB 100 kHz; VB: 100 kHz

2390 MHz Band Edge Signal Field Strength

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	V/H	Limit	Margin	Pk/QP/Avg	degrees	meters	
2389.600	**52.4**	**V**	**54.0**	**-1.6**	AVG	0	1.2	
2389.870	37.6	H	54.0	-16.4	AVG	294	1.0	
2386.070	52.2	H	74.0	-21.8	PK	294	1.0	
2389.200	70.6	V	74.0	-3.4	PK	0	1.2	



Client:	Proxim Corporation	Job Number:	J75847
Model:	PROXMB82 802.11abgn miniPCI module (3x3)	T-Log Number:	T75950
		Account Manager:	-
Contact:	Ivaylo Tankov		
Standard:	FCC Part 15 Subpart C (15.247), RSS 210	Class:	N/A

Run # 1b, EUT on Channel #9 (2452MHz) - 802.11n HT40

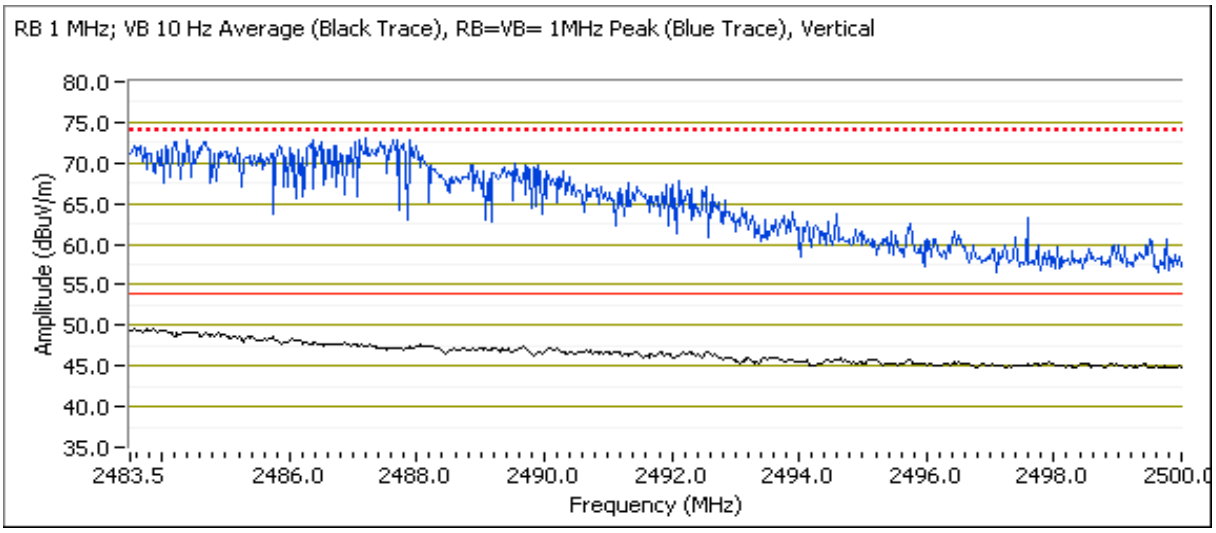
Chain	Power Settings		
	Target (dBm)	Attenuator (dB)	Software Setting
A+B+C		10.0	12.0

Fundamental Signal Field Strength

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	V/H	Limit	Margin	Pk/QP/Avg	degrees	meters	
2452.330	102.1	V	-	-	AVG	0	1.2	
2434.470	108.7	V	-	-	PK	0	1.2	
2452.270	82.3	H	-	-	AVG	293	1.0	
2441.800	87.8	H	-	-	PK	293	1.0	
2452.330	104.5	V	-	-	-	0	1.2	RB 100 kHz; VB: 100 kHz

2483.5 MHz Band Edge Signal Field Strength

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	V/H	Limit	Margin	Pk/QP/Avg	degrees	meters	
2483.500	**51.9**	**V**	**54.0**	**-2.1**	AVG	0	1.2	
2483.530	37.6	H	54.0	-16.4	AVG	293	1.0	
2485.120	56.1	H	74.0	-17.9	PK	293	1.0	
2486.580	71.7	V	74.0	-2.3	PK	0	1.2	



Client:	Proxim Corporation	Job Number:	J75847
Model:	PROXMB82 802.11abgn miniPCI module (3x3)	T-Log Number:	T75950
		Account Manager:	-
Contact:	Ivaylo Tankov		
Standard:	FCC Part 15 Subpart C (15.247), RSS 210	Class:	N/A

Run # 2, Band Edge Field Strength - 802.11n HT20

Date of Test: 8/21/2009 Test Location: FT Chamber #3

Test Engineer: Mehran Birgani Config Change: None

Run # 2a, EUT on Channel #1 (2412MHz) - 802.11n HT20

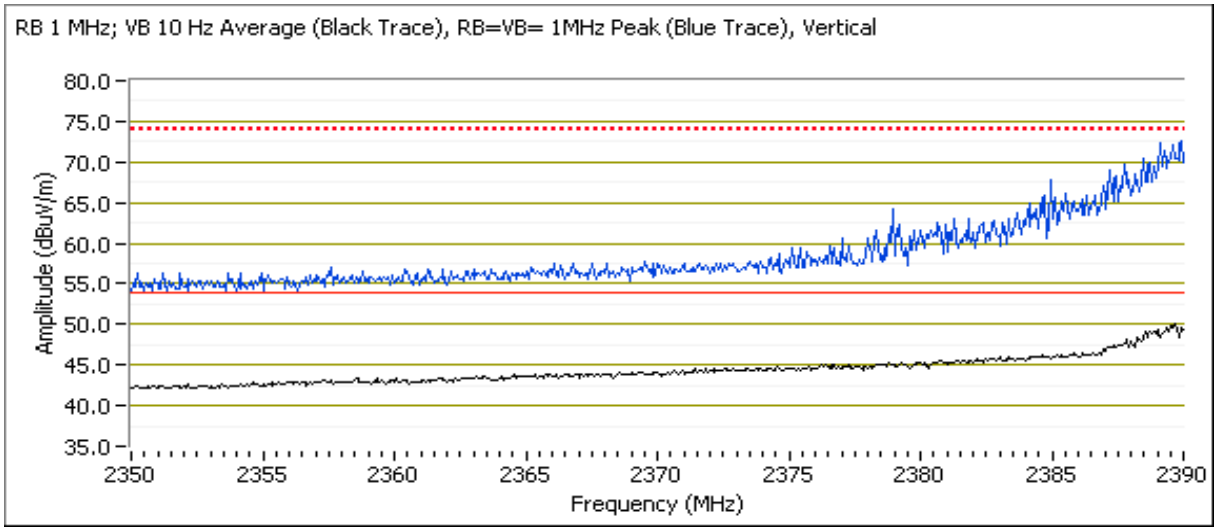
Chain	Power Settings		
	Target (dBm)	Attenuator (dB)	Software Setting
A+B+C		10.0	14.0

Fundamental Signal Field Strength

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	V/H	Limit	Margin	Pk/QP/Avg	degrees	meters	
2409.630	103.1	V	-	-	AVG	350	1.2	
2409.330	113.1	V	-	-	PK	350	1.2	
2413.700	82.2	H	-	-	AVG	300	1.0	
2410.200	91.5	H	-	-	PK	300	1.0	
2409.600	104.8	V	-	-	-	350	1.2	RB 100 kHz; VB: 100 kHz

2390 MHz Band Edge Signal Field Strength

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	V/H	Limit	Margin	Pk/QP/Avg	degrees	meters	
2389.870	37.0	H	54.0	-17.0	AVG	300	1.0	
2390.000	**53.1**	**V**	**54.0**	**-0.9**	AVG	350	1.2	
2389.330	67.8	V	74.0	-6.2	PK	350	1.2	
2389.730	49.5	H	74.0	-24.5	PK	300	1.0	



Client:	Proxim Corporation	Job Number:	J75847
Model:	PROXMB82 802.11abgn miniPCI module (3x3)	T-Log Number:	T75950
		Account Manager:	-
Contact:	Ivaylo Tankov		
Standard:	FCC Part 15 Subpart C (15.247), RSS 210	Class:	N/A

Run # 2b, EUT on Channel #11 (2462MHz) - 802.11n HT20

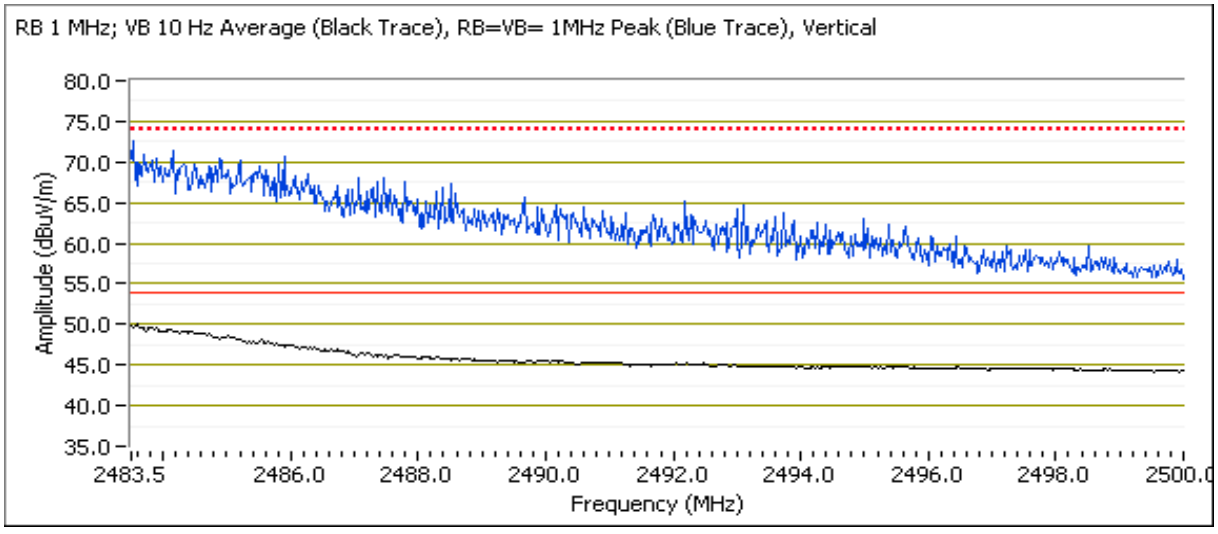
Chain	Power Settings		
	Target (dBm)	Attenuator (dB)	Software Setting
A+B+C		10.0	14.0

Fundamental Signal Field Strength

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	V/H	Limit	Margin	Pk/QP/Avg	degrees	meters	
2458.000	103.3	V	-	-	AVG	346	1.2	
2460.870	112.8	V	-	-	PK	346	1.2	
2460.600	86.0	H	-	-	AVG	295	1.0	
2457.600	94.4	H	-	-	PK	295	1.0	
2461.530	103.9	V	-	-	-	346	1.2	RB 100 kHz; VB: 100 kHz

2483.5 MHz Band Edge Signal Field Strength

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	V/H	Limit	Margin	Pk/QP/Avg	degrees	meters	
2483.530	**52.2**	**V**	**54.0**	**-1.8**	AVG	347	1.2	
2483.530	38.2	H	54.0	-15.8	AVG	295	1.0	
2483.580	52.3	H	74.0	-21.7	PK	295	1.0	
2485.640	68.8	V	74.0	-5.2	PK	347	1.2	



Client:	Proxim Corporation	Job Number:	J75847
Model:	PROXMB82 802.11abgn miniPCI module (3x3)	T-Log Number:	T75950
		Account Manager:	-
Contact:	Ivaylo Tankov		
Standard:	FCC Part 15 Subpart C (15.247), RSS 210	Class:	N/A

Run # 3, Band Edge Field Strength - 802.11g

Date of Test: 8/21/2009 Test Location: FT Chamber #3

Test Engineer: Joseph Cadigal Config Change: None

Run # 3a, EUT on Channel #1 (2412MHz) - 802.11g

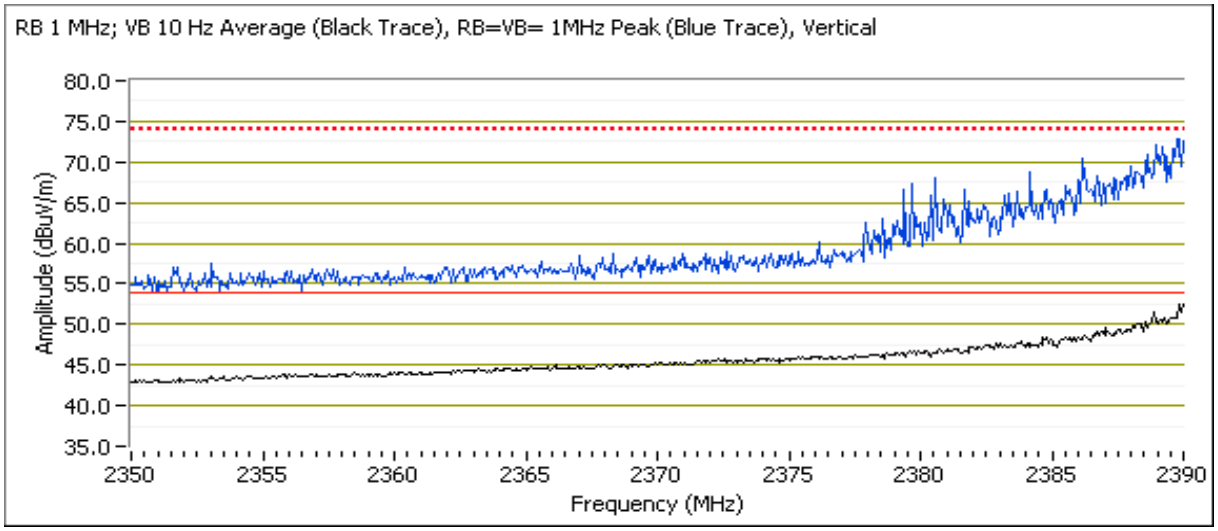
Chain	Power Settings		
	Target (dBm)	Attenuator (dB)	Software Setting
A		10.0	14.5

Fundamental Signal Field Strength

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	V/H	Limit	Margin	Pk/QP/Avg	degrees	meters	
2411.070	103.8	V	-	-	AVG	349	1.2	
2410.230	114.7	V	-	-	PK	349	1.2	
2415.630	83.2	H	-	-	AVG	298	1.0	
2418.970	93.2	H	-	-	PK	298	1.0	
2407.470	103.7	V	-	-	-	349	1.2	RB 100 kHz; VB: 100 kHz

2390 MHz Band Edge Signal Field Strength

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	V/H	Limit	Margin	Pk/QP/Avg	degrees	meters	
2390.000	**52.9**	**V**	**54.0**	**-1.1**	AVG	349	1.2	
2390.000	37.0	H	54.0	-17.0	AVG	298	1.0	
2389.470	49.4	H	74.0	-24.6	PK	298	1.0	
2389.870	70.9	V	74.0	-3.1	PK	349	1.2	



Client:	Proxim Corporation	Job Number:	J75847
Model:	PROXMB82 802.11abgn miniPCI module (3x3)	T-Log Number:	T75950
		Account Manager:	-
Contact:	Ivaylo Tankov		
Standard:	FCC Part 15 Subpart C (15.247), RSS 210	Class:	N/A

Run # 3b, EUT on Channel #11 (2462MHz) - 802.11g

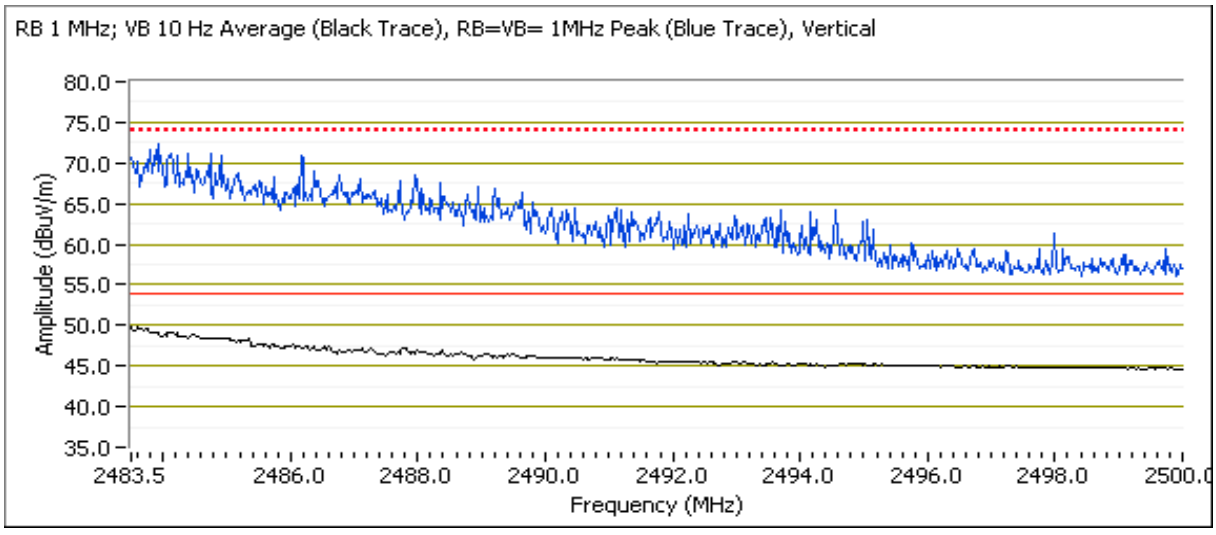
Chain	Power Settings		
	Target (dBm)	Attenuator (dB)	Software Setting
A		10.0	14.5

Fundamental Signal Field Strength

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	V/H	Limit	Margin	Pk/QP/Avg	degrees	meters	
2461.330	104.4	V	-	-	AVG	347	1.2	
2457.100	113.9	V	-	-	PK	347	1.2	
2460.510	85.7	H	-	-	AVG	295	1.0	
2460.560	95.2	H	-	-	PK	295	1.0	
2460.900	104.5	V	-	-	-	347	1.2	RB 100 kHz; VB: 100 kHz

2483.5 MHz Band Edge Signal Field Strength

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	V/H	Limit	Margin	Pk/QP/Avg	degrees	meters	
2483.530	**52.6**	**V**	**54.0**	**-1.4**	AVG	347	1.2	
2483.530	38.0	H	54.0	-16.0	AVG	295	1.0	
2483.800	52.4	H	74.0	-21.6	PK	295	1.0	
2483.990	70.9	V	74.0	-3.1	PK	347	1.2	



Client:	Proxim Corporation	Job Number:	J75847
Model:	PROXMB82 802.11abgn miniPCI module (3x3)	T-Log Number:	T75950
		Account Manager:	-
Contact:	Ivaylo Tankov		
Standard:	FCC Part 15 Subpart C (15.247), RSS 210	Class:	N/A

Run # 4, Band Edge Field Strength - 802.11b

Date of Test: 8/21/2009 Test Location: FT Chamber #3

Test Engineer: Joseph Cadigal Config Change: None

Run # 4a, EUT on Channel #1 (2412MHz) - 802.11b

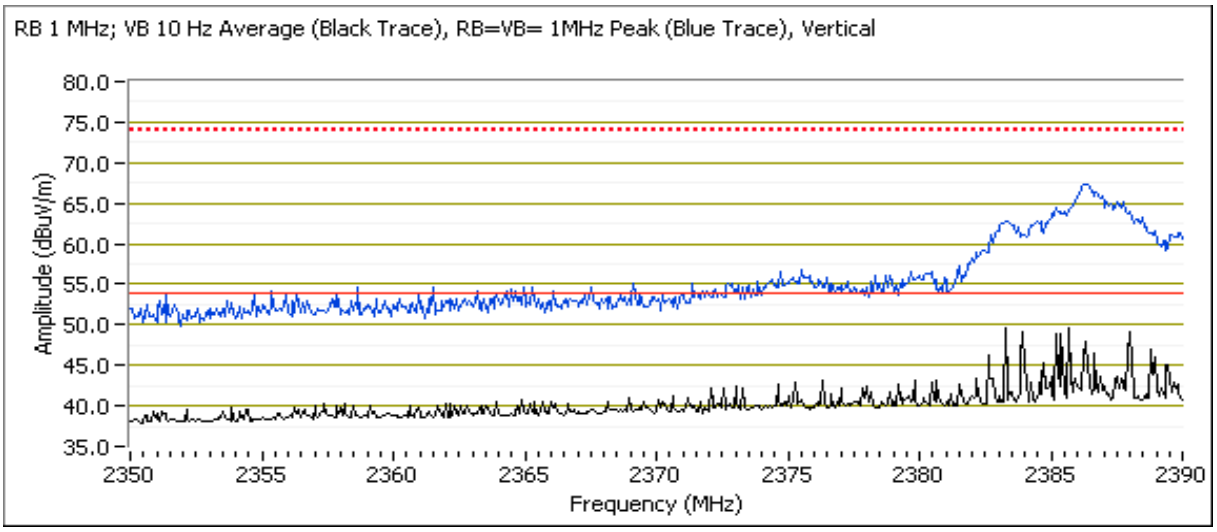
Chain	Power Settings		
	Target (dBm)	Attenuator (dB)	Software Setting
A		10.0	15.5

Fundamental Signal Field Strength

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	V/H	Limit	Margin	Pk/QP/Avg	degrees	meters	
2410.400	108.9	V	-	-	AVG	347	1.2	
2411.170	114.2	V	-	-	PK	347	1.2	
2413.030	88.7	H	-	-	AVG	296	1.0	
2414.700	92.4	H	-	-	PK	296	1.0	
2413.630	110.1	V	-	-	-	347	1.2	RB 100 kHz; VB: 100 kHz

2390 MHz Band Edge Signal Field Strength

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	V/H	Limit	Margin	Pk/QP/Avg	degrees	meters	
2385.530	**52.2**	**V**	**54.0**	**-1.8**	AVG	347	1.2	
2388.270	36.6	H	54.0	-17.4	AVG	296	1.0	
2379.600	47.3	H	74.0	-26.7	PK	296	1.0	
2389.670	53.9	V	74.0	-20.1	PK	347	1.2	



Client:	Proxim Corporation	Job Number:	J75847
Model:	PROXMB82 802.11abgn miniPCI module (3x3)	T-Log Number:	T75950
		Account Manager:	-
Contact:	Ivaylo Tankov		
Standard:	FCC Part 15 Subpart C (15.247), RSS 210	Class:	N/A

Run # 4b, EUT on Channel #11 (2462MHz) - 802.11b

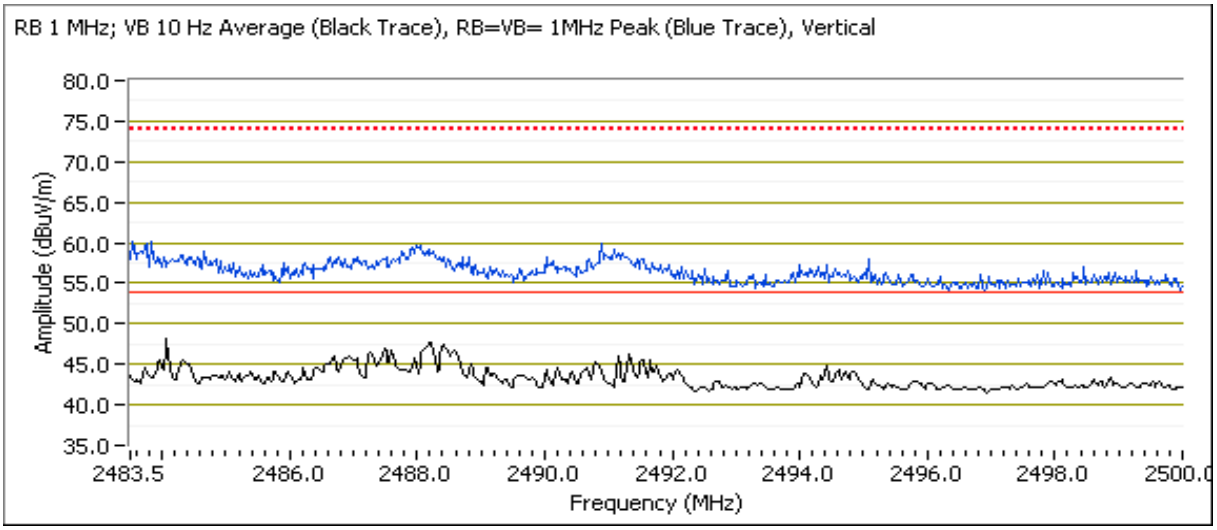
Chain	Power Settings		
	Target (dBm)	Attenuator (dB)	Software Setting
A		10.0	17.5

Fundamental Signal Field Strength

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	V/H	Limit	Margin	Pk/QP/Avg	degrees	meters	
2463.370	110.6	V	-	-	AVG	347	1.1	
2459.530	113.0	V	-	-	PK	347	1.1	
2463.000	93.4	H	-	-	AVG	297	1.0	
2461.230	97.4	H	-	-	PK	297	1.0	
2461.670	110.5	V	-	-	-	347	1.1	RB 100 kHz; VB: 100 kHz

2483.5 MHz Band Edge Signal Field Strength

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	V/H	Limit	Margin	Pk/QP/Avg	degrees	meters	
2487.650	37.9	H	54.0	-16.1	AVG	297	1.0	
2488.500	**49.6**	**V**	**54.0**	**-4.4**	AVG	347	1.1	
2483.690	47.5	H	74.0	-26.5	PK	297	1.0	
2491.010	58.0	V	74.0	-16.0	PK	347	1.1	



Client:	Proxim Corporation	Job Number:	J75847
Model:	PROXMB82 802.11abgn miniPCI module (3x3)	T-Log Number:	T75950
		Account Manager:	-
Contact:	Ivaylo Tankov		
Standard:	FCC Part 15 Subpart C (15.247), RSS 210	Class:	N/A

RSS 210 and FCC 15.247 (DTS) Radiated Spurious Emissions

Test Specific Details

Objective: The objective of this test session is to perform final qualification testing of the EUT with respect to the specification listed above.

General Test Configuration

The EUT and all local support equipment were located on the turntable for radiated spurious emissions testing. All remote support equipment was located approximately 30 meters from the EUT with all I/O connections running on top of the groundplane.
For radiated emissions testing the measurement antenna was located 3 meters from the EUT.

Modifications Made During Testing

No modifications were made to the EUT during testing

Deviations From The Standard

No deviations were made from the requirements of the standard.

Summary of Results - Device Operating in the 2400-2483.5 MHz Band

Spurious measurements made at the highest output power setting to cover use of lower gain antennas at those power settings. A 20dB attenuator was used in series with each sector antenna and a 10dB attenuator was used in series with each panel antenna.

Run #	Mode	Channel	Attenuator (dB)	Power Setting	Test Performed	Limit	Result / Margin
1a	802.11b Sector Antenna	low	20.0	18.0	Radiated Emissions, 1 - 26 GHz	FCC Part 15.209 / 15.247(c)	**52.7dBµV/m @ 4924.0MHz (-1.3dB)**
1b		center	20.0	19.0	Radiated Emissions, 1 - 26 GHz	FCC Part 15.209 / 15.247(c)	48.6dBµV/m @ 4873.9MHz (-5.4dB)
1c		high	20.0	18.5	Radiated Emissions, 1 - 26 GHz	FCC Part 15.209 / 15.247(c)	49.7dBµV/m @ 4924.1MHz (-4.3dB)
2a	HT20 A+B+C Sector Antenna	low	Not tested - 802.11b mode tested as worst case based on results for center channel				
2b		center	20.0	19.0	Radiated Emissions, 1 - 26 GHz	FCC Part 15.209 / 15.247(c)	38.5dBµV/m @ 4875.0MHz (-15.5dB)
2c		high	Not tested - 802.11b mode tested as worst case based on results for center channel				
3a	802.11b Panel Antenna	low	10.0	19	Radiated Emissions, 1 - 26 GHz	FCC Part 15.209 / 15.247(c)	50.3dBµV/m @ 1412.5MHz (-3.7dB)
3b		center	10.0	20	Radiated Emissions, 1 - 26 GHz	FCC Part 15.209 / 15.247(c)	49.4dBµV/m @ 1375.8MHz (-4.6dB)
3c		high	10.0	19	Radiated Emissions, 1 - 26 GHz	FCC Part 15.209 / 15.247(c)	48.8dBµV/m @ 1366.7MHz (-5.2dB)
4a	HT20 A+B+C Panel	center	10.0	19	Radiated Emissions, 1 - 26 GHz	FCC Part 15.209 / 15.247(c)	49.0dBµV/m @ 1394.2MHz (-5.0dB)
4b		Low high	Not tested - 802.11b mode tested as worst case based on results for center channel				

Client:	Proxim Corporation	Job Number:	J75847
Model:	PROXMB82 802.11abgn miniPCI module (3x3)	T-Log Number:	T75950
		Account Manager:	-
Contact:	Ivaylo Tankov		
Standard:	FCC Part 15 Subpart C (15.247), RSS 210	Class:	N/A

Ambient Conditions: Temperature: 20-30 °C; Rel. Humidity: 32-50 %

Run #1: Radiated Spurious Emissions, 1000 - 26000 MHz. Operating Mode: 802.11b Sector Antenna

Date of Test: 8/4/2009, 8/5/09 — Test Location: FT Chamber #4, FT Chamber #3

Test Engineer: Mehran Birgani, John Caizzi — Config Change: None

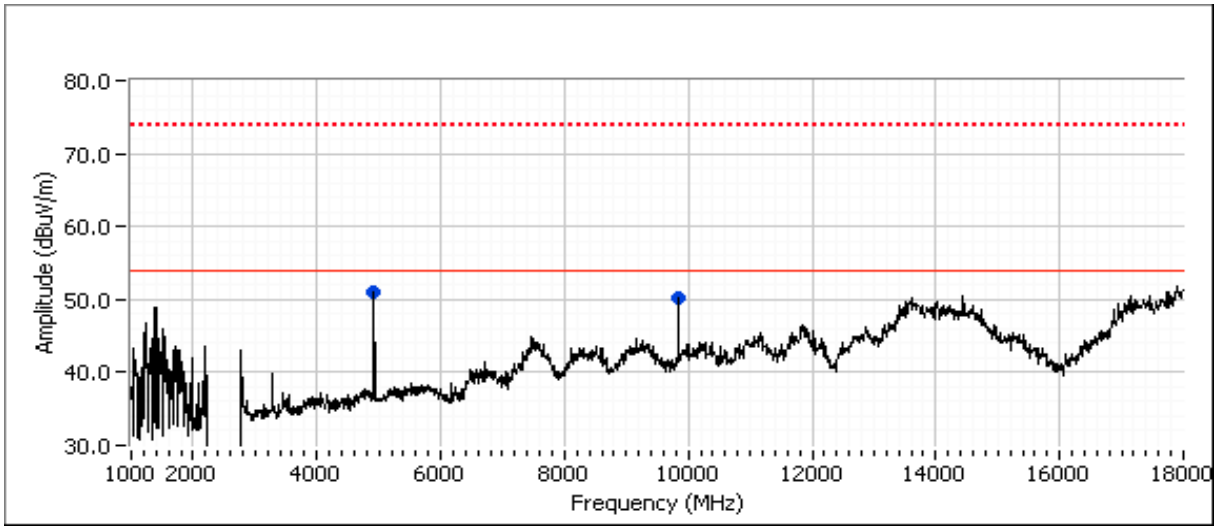
Run #1a: Low Channel @ 2412 MHz - Sector Antenna with software setting of 18.0 dBm

Fundamental emission level @ 3m in **100kHz RBW**:	99.5 dBµV/m	
Limit for emissions outside of restricted bands:	69.5 dBµV/m	Limit is -30dBc (UNII power measurement)

Spurious Emissions

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	V/H	Limit	Margin	Pk/QP/Avg	degrees	meters	
4923.980	**52.7**	**V**	**54.0**	**-1.3**	AVG	133	1.0	
9848.060	44.9	V	54.0	-9.1	AVG	169	1.2	
4924.020	54.5	V	74.0	-19.5	PK	133	1.0	
9847.830	50.9	V	74.0	-23.1	PK	169	1.2	

Note 1:	For emissions in restricted bands, the limit of 15.209 was used. For all other emissions, the limit was set 30dB below the level of the fundamental and measured in 100kHz.
Note 2:	Signal is not in a restricted band but the more stringent restricted band limit was used.
Note 3:	No signal was found above 10GHz, it was searched manually for harmonics.



Client:	Proxim Corporation	Job Number:	J75847
Model:	PROXMB82 802.11abgn miniPCI module (3x3)	T-Log Number:	T75950
		Account Manager:	-
Contact:	Ivaylo Tankov		
Standard:	FCC Part 15 Subpart C (15.247), RSS 210	Class:	N/A

Run #1b: Center Channel @ 2437 MHz - Sector Antenna with software setting = 19.0 dBm

Fundamental Signal Field Strength: Peak value measured in 100kHz

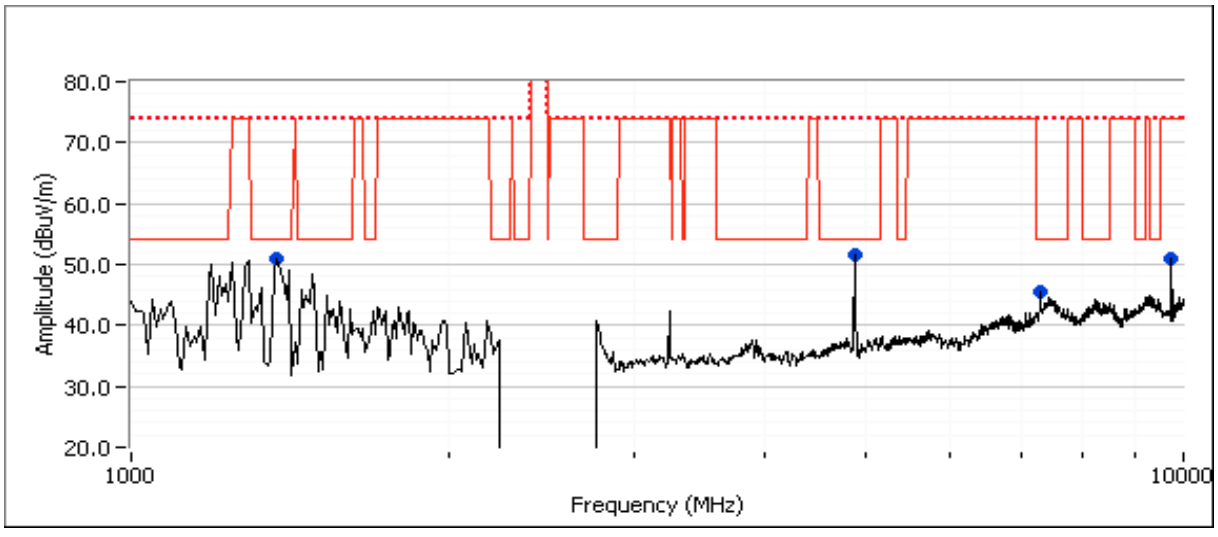
Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	V/H	Limit	Margin	Pk/QP/Avg	degrees	meters	
2436.270	103.1	V	120.0	-16.9	PK	0	1.15	RB = VB = 100kHz

Fundamental emission level @ 3m in **100kHz RBW**:	103.1 dBµV/m	
Limit for emissions outside of restricted bands:	73.1 dBµV/m	Limit is -30dBc (UNII power measurement)

Spurious Emissions

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	V/H	Limit	Margin	Pk/QP/Avg	degrees	meters	
1375.830	51.0	V	54.0	-3.0	Peak	270	2.5	
7310.830	45.6	V	54.0	-8.4	Peak	169	1.3	
9749.170	51.0	V	73.1	-22.1	Peak	308	1.6	
4873.900	48.6	V	54.0	-5.4	AVG	226	1.00	
7309.560	40.9	V	54.0	-13.1	AVG	189	1.29	
1391.500	37.5	V	54.0	-16.5	AVG	313	2.41	
1392.360	56.4	V	74.0	-17.6	PK	313	2.41	
4874.180	51.7	V	74.0	-22.3	PK	226	1.00	
7312.260	49.8	V	74.0	-24.2	PK	189	1.29	

Note 1:	For emissions in restricted bands, the limit of 15.209 was used. For all other emissions, the limit was set 30dB below the level of the fundamental and measured in 100kHz.
Note 2:	No signal was found above 10GHz, it was searched manually for harmonics.



Client:	Proxim Corporation	Job Number:	J75847
Model:	PROXMB82 802.11abgn miniPCI module (3x3)	T-Log Number:	T75950
		Account Manager:	-
Contact:	Ivaylo Tankov		
Standard:	FCC Part 15 Subpart C (15.247), RSS 210	Class:	N/A

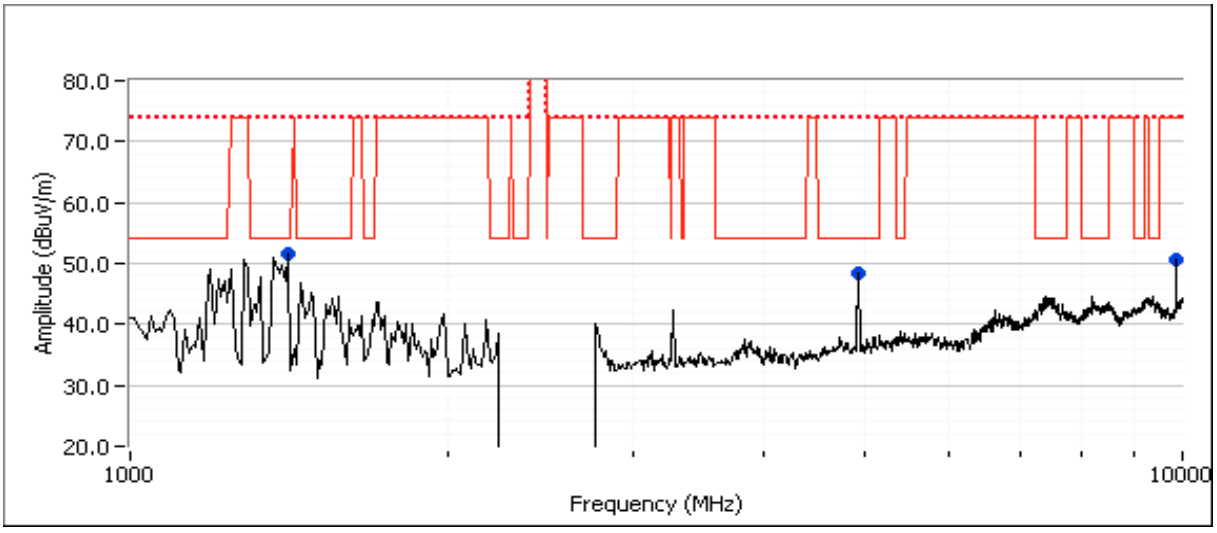
Run #1c: High Channel @ 2462 MHz - Sector Antenna with software setting = 18.5 dBm.

Fundamental emission level @ 3m in **100kHz RBW**:	99.4 dBµV/m	
Limit for emissions outside of restricted bands:	69.4 dBµV/m	Limit is -30dBc (UNII power measurement)

Spurious Emissions

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	V/H	Limit	Margin	Pk/QP/Avg	degrees	meters	
1412.500	51.5	H	54.0	-2.5	Peak	46	1.00	
4914.170	48.3	V	54.0	-5.7	Peak	292	0.99	
9848.330	50.7	V	69.4	-18.7	Peak	285	1.29	
4924.050	49.7	V	54.0	-4.3	AVG	291	1.66	
1391.170	36.7	H	54.0	-17.3	AVG	67	1.00	
1396.830	55.2	H	74.0	-18.8	PK	67	1.00	
4924.070	51.9	V	74.0	-22.1	PK	291	1.66	

Note 1	For emissions in restricted bands, the limit of 15.209 was used. For all other emissions, the limit was set 30dB below the level of the fundamental and measured in 100kHz.
Note 2:	No signal was found above 10GHz, it was searched manually for harmonics.



Client:	Proxim Corporation	Job Number:	J75847
Model:	PROXMB82 802.11abgn miniPCI module (3x3)	T-Log Number:	T75950
		Account Manager:	-
Contact:	Ivaylo Tankov		
Standard:	FCC Part 15 Subpart C (15.247), RSS 210	Class:	N/A

Run #2: Radiated Spurious Emissions, 1000 - 26000 MHz. Operating Mode: 802.11n HT20 Sector Antenna

Date of Test: 8/6/2009 Test Location: FT Chamber #3

Test Engineer: John Caizzi Config Change: none

Run #2b: Center Channel @ 2437 MHz - Sector Antenna with software setting = 19.0 dBm.

Fundamental Signal Field Strength: Peak value measured in 100kHz

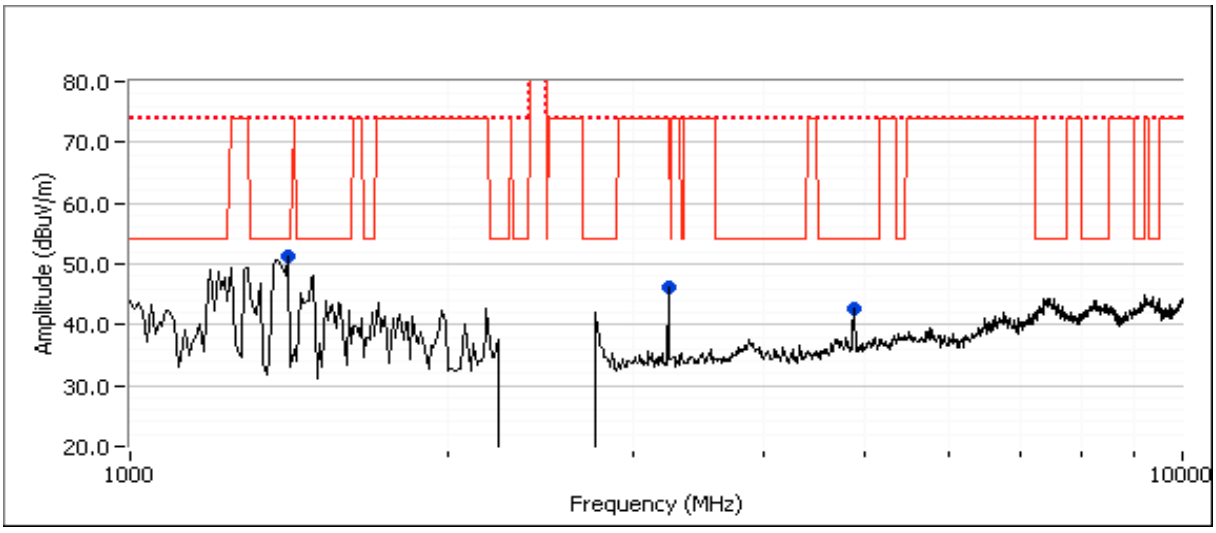
Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	V/H	Limit	Margin	Pk/QP/Avg	degrees	meters	
2435.070	100.6	V	120.0	-19.4	PK	354	1.2	RB = VB = 100kHz

Fundamental emission level @ 3m in **100kHz RBW**:	100.6 dBµV/m	
Limit for emissions outside of restricted bands:	70.6 dBµV/m	Limit is -30dBc (UNII power measurement)

Spurious Emissions

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	V/H	Limit	Margin	Pk/QP/Avg	degrees	meters	
1412.500	51.3	H	54.0	-2.7	Peak	42	1.0	
4868.330	42.8	H	54.0	-11.2	Peak	318	1.3	
3245.830	46.3	V	70.6	-24.3	Peak	351	1.0	
4875.030	38.5	V	54.0	-15.5	AVG	165	1.11	
4875.500	37.2	H	54.0	-16.8	AVG	314	1.27	
1391.430	36.4	H	54.0	-17.6	AVG	66	1.00	
1397.170	56.0	H	74.0	-18.0	PK	66	1.00	
4874.160	51.5	V	74.0	-22.5	PK	165	1.11	
4873.700	49.1	H	74.0	-24.9	PK	314	1.27	

Note 1:	For emissions in restricted bands, the limit of 15.209 was used. For all other emissions, the limit was set 30dB below the level of the fundamental and measured in 100kHz.
Note 2:	No signal was found above 10GHz, it was searched manually for harmonics.



Client:	Proxim Corporation	Job Number:	J75847
Model:	PROXMB82 802.11abgn miniPCI module (3x3)	T-Log Number:	T75950
		Account Manager:	-
Contact:	Ivaylo Tankov		
Standard:	FCC Part 15 Subpart C (15.247), RSS 210	Class:	N/A

Run #3: Radiated Spurious Emissions, 1000 - 26000 MHz. Operating Mode: 802.11b Panel Antenna

Date of Test: 9/1/2009 Test Location: FT Chamber #3

Test Engineer: Mehran Birgani Config Change: None

Run #3a: Low Channel @ 2412 MHz - Panel Antenna

Fundamental Signal Field Strength: Peak value measured in 100kHz

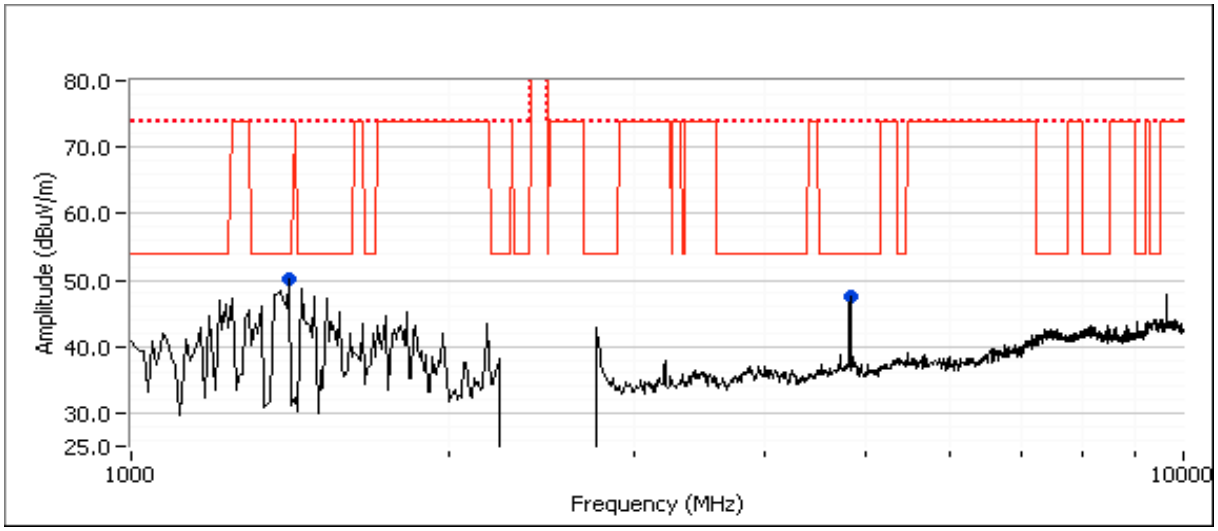
Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	V/H	Limit	Margin	Pk/QP/Avg	degrees	meters	
2411.130	112.7	V	-	-	Pk	0	1.2	RB 100 kHz; VB: 100 kHz
2415.670	88.5	H	-	-	Pk	301	1.0	RB 100 kHz; VB: 100 kHz

Fundamental emission level @ 3m in **100kHz RBW**:	112.7 dBµV/m	
Limit for emissions outside of restricted bands:	82.7 dBµV/m	Limit is -30dBc (UNII power measurement)

Spurious Emissions

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	V/H	Limit	Margin	Pk/QP/Avg	degrees	meters	
1412.500	**50.3**	**H**	**54.0**	**-3.7**	Peak	148	1.2	Peak reading w/ average limit
4822.500	47.6	V	54.0	-6.4	Peak	259	1.0	

Note 1:	For emissions in restricted bands, the limit of 15.209 was used. For all other emissions, the limit was set 30dB below the level of the fundamental and measured in 100kHz.
Note 2:	Signal is not in a restricted band but the more stringent restricted band limit was used.
Note 3:	No signal was found above 10GHz, it was searched manually for harmonics.



Client:	Proxim Corporation	Job Number:	J75847
Model:	PROXMB82 802.11abgn miniPCI module (3x3)	T-Log Number:	T75950
		Account Manager:	-
Contact:	Ivaylo Tankov		
Standard:	FCC Part 15 Subpart C (15.247), RSS 210	Class:	N/A

Run #3b: Center Channel @ 2437 MHz - Panel Antenna
Fundamental Signal Field Strength: Peak value measured in 100kHz

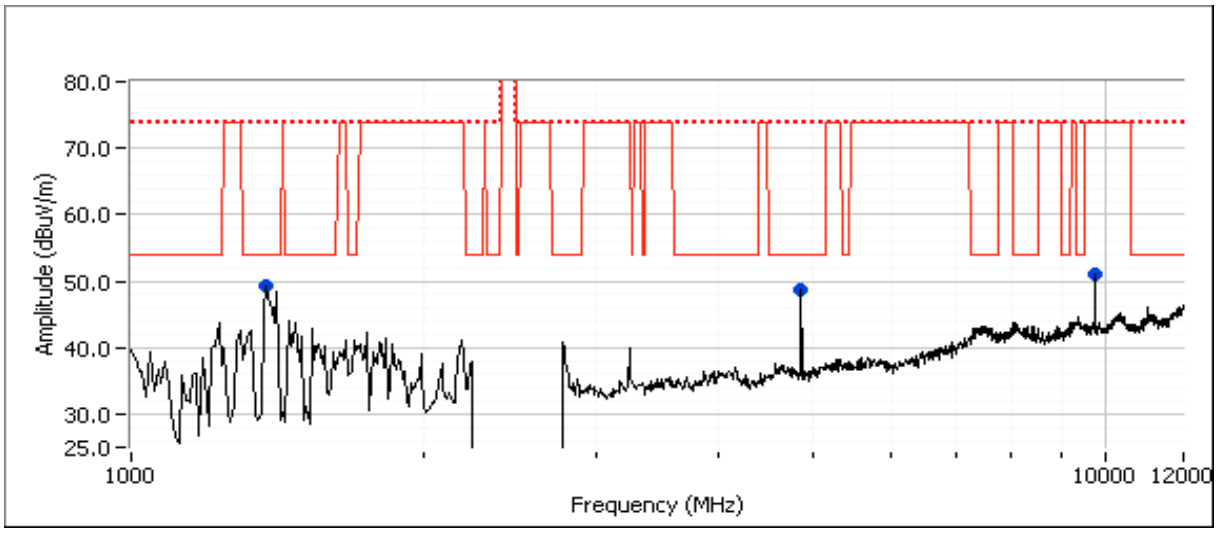
Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	V/H	Limit	Margin	Pk/QP/Avg	degrees	meters	
		V	-	-	Pk			RB 100 kHz; VB: 100 kHz
		H	-	-	Pk			RB 100 kHz; VB: 100 kHz

Fundamental emission level @ 3m in **100kHz RBW**:	dBµV/m	
Limit for emissions outside of restricted bands:	-30.0 dBµV/m	Limit is -30dBc (UNII power measurement)

Spurious Emissions

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	V/H	Limit	Margin	Pk/QP/Avg	degrees	meters	
1375.830	**49.4**	**H**	**54.0**	**-4.6**	Peak	210	1.2	Peak reading w/ average limit
4868.330	48.8	V	54.0	-5.2	Peak	167	1.3	
9745.000	51.0	V	74.0	-23.0	Peak	120	1.3	

Note 1:	For emissions in restricted bands, the limit of 15.209 was used. For all other emissions, the limit was set 30dB below the level of the fundamental and measured in 100kHz.
Note 2:	Signal is not in a restricted band but the more stringent restricted band limit was used.
Note 3:	No signal was found above 10GHz, it was searched manually for harmonics.



Client:	Proxim Corporation	Job Number:	J75847
Model:	PROXMB82 802.11abgn miniPCI module (3x3)	T-Log Number:	T75950
		Account Manager:	-
Contact:	Ivaylo Tankov		
Standard:	FCC Part 15 Subpart C (15.247), RSS 210	Class:	N/A

Run #3c: High Channel @ 2462 MHz - Panel Antenna
Fundamental Signal Field Strength: Peak value measured in 100kHz

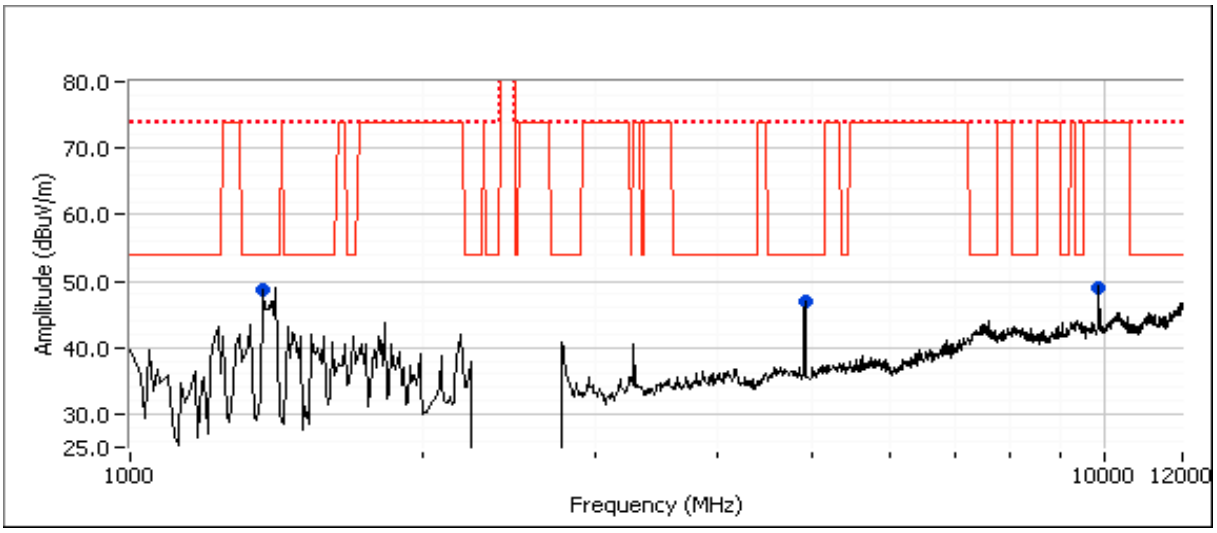
Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	V/H	Limit	Margin	Pk/QP/Avg	degrees	meters	
2461.670	110.5	V	-	-	Pk	346	1.0	RB 100 kHz; VB: 100 kHz
2467.230	94.6	H	-	-	Pk	346	1.4	RB 100 kHz; VB: 100 kHz

Fundamental emission level @ 3m in **100kHz RBW**:	110.5 dBµV/m	
Limit for emissions outside of restricted bands:	80.5 dBµV/m	Limit is -30dBc (UNII power measurement)

Spurious Emissions

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	V/H	Limit	Margin	Pk/QP/Avg	degrees	meters	
1366.670	**48.8**	**H**	**54.0**	**-5.2**	Peak	209	1.2	Peak reading w/ average limit
4923.330	47.0	H	54.0	-7.0	Peak	256	1.0	
9845.830	49.1	V	74.0	-24.9	Peak	118	1.0	

Note 1:	For emissions in restricted bands, the limit of 15.209 was used. For all other emissions, the limit was set 30dB below the level of the fundamental and measured in 100kHz.
Note 2:	Signal is not in a restricted band but the more stringent restricted band limit was used.
Note 3:	No signal was found above 10GHz, it was searched manually for harmonics.



Client:	Proxim Corporation	Job Number:	J75847
Model:	PROXMB82 802.11abgn miniPCI module (3x3)	T-Log Number:	T75950
		Account Manager:	-
Contact:	Ivaylo Tankov		
Standard:	FCC Part 15 Subpart C (15.247), RSS 210	Class:	N/A

Run #4: Radiated Spurious Emissions, 1000 - 26000 MHz. Operating Mode: 802.11n HT20 Panel Antenna

Date of Test: 9/2/2009 Test Location: FT Chamber #3

Test Engineer: Mehran Birgani Config Change: None

Run #4a: Center Channel @ 2437 MHz - Panel Antenna

Fundamental Signal Field Strength: Peak value measured in 100kHz

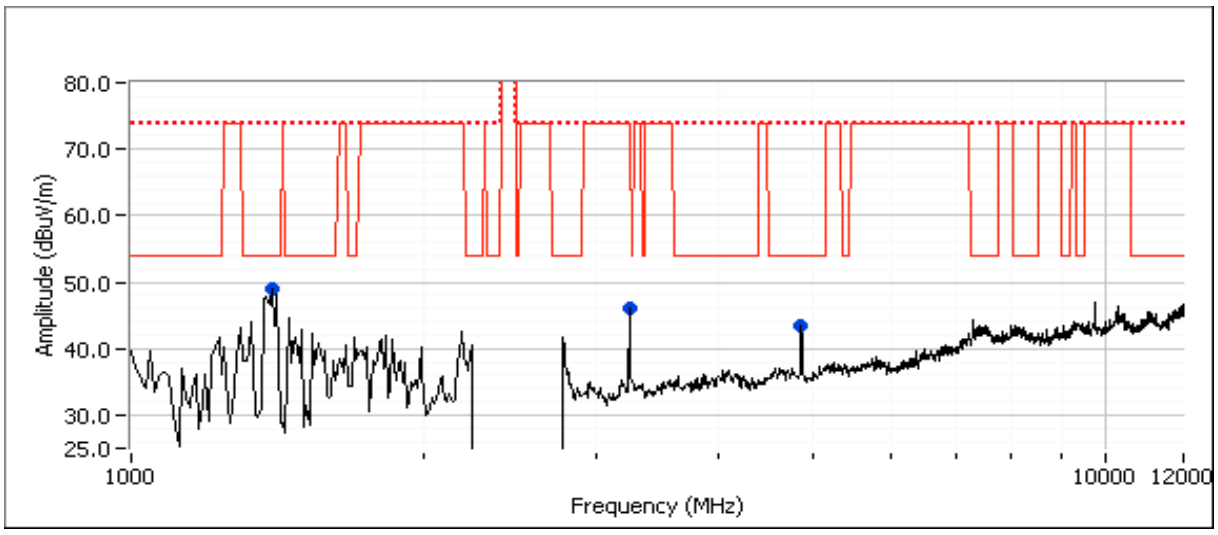
Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	V/H	Limit	Margin	Pk/QP/Avg	degrees	meters	
		V	-	-	Pk			RB 100 kHz; VB: 100 kHz
		H	-	-	Pk			RB 100 kHz; VB: 100 kHz

Fundamental emission level @ 3m in **100kHz RBW**:	109.1 dBµV/m	
Limit for emissions outside of restricted bands:	79.1 dBµV/m	Limit is -30dBc (UNII power measurement)

Spurious Emissions

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	V/H	Limit	Margin	Pk/QP/Avg	degrees	meters	
1394.170	**49.0**	**H**	**54.0**	**-5.0**	Peak	211	1.2	Peak reading w/ average limit
3245.830	46.2	V	74.0	-27.8	Peak	346	1.0	
4868.330	43.3	V	54.0	-10.7	Peak	105	1.0	

Note 1:	For emissions in restricted bands, the limit of 15.209 was used. For all other emissions, the limit was set 30dB below the level of the fundamental and measured in 100kHz.
Note 2:	Signal is not in a restricted band but the more stringent restricted band limit was used.
Note 3:	No signal was found above 10GHz, it was searched manually for harmonics.



Client:	Proxim Corporation	Job Number:	J75847
Model:	PROXMB82 802.11abgn miniPCI module (3x3)	T-Log Number:	T75950
		Account Manager:	-
Contact:	Ivaylo Tankov		
Standard:	FCC Part 15 Subpart C (15.247), RSS 210	Class:	N/A

RSS 210 and FCC 15.247 (DTS) Antenna Port Measurements
MIMO and Smart Antenna Systems - Output Power (5GHz Band)

Test Specific Details

Objective: The objective of this test session is to perform final qualification testing of the EUT with respect to the specification listed above.

Date of Test: 9/3/2009
Test Engineer: Mehran Birgani
Test Location: Radio Lab

Config. Used: -
Config Change: None
Host Unit Voltage 120V/60Hz

Summary of Results

Note: All other conducted measurements are covered by the original test report/data as those measurements were made at a power setting equal to, or higher, than those power levels used with the high gain antennas to be covered by this permissive change / reassessment.

Run #	Test Performed	Limit	Pass / Fail	Result / Margin
Sector Antenna (max Gain of 20dBi)				
1 (802.11a)	Output Power Chain A	15.247(b)	Pass	Power: -0.7 dBm / 0.001 W EIRP: 0.09 W
2 (802.11n HT20)	Output Power Chain A+B+C	15.247(b)	Pass	Power: 3.5 dBm / 0.002 W EIRP: 0.22 W
3 (802.11n HT40)	Output Power Chain A+B+C	15.247(b)	Pass	Power:4.3 dBm / 0.003 W EIRP: 0.271 W
Panel Antenna (Max gain of 30dBi)				
1 (802.11a)	Output Power Chain A	15.247(b)	Pass	Power:-0.6 dBm / 0.001 W EIRP: 0.88 W
2 (802.11n HT20)	Output Power Chain A+B+C	15.247(b)	Pass	Power: 2.6 dBm / 0.002 W EIRP: 1.825 W
3 (802.11n HT40)	Output Power Chain A+B+C	15.247(b)	Pass	Power: 4.3 dBm / 0.003 W EIRP: 2.712 W

Client:	Proxim Corporation	Job Number:	J75847
Model:	PROXMB82 802.11abgn miniPCI module (3x3)	T-Log Number:	T75950
		Account Manager:	-
Contact:	Ivaylo Tankov		
Standard:	FCC Part 15 Subpart C (15.247), RSS 210	Class:	N/A

General Test Configuration

The EUT was connected to the spectrum analyzer or power meter via a suitable attenuator. All measurements were made on each chain separately. Plots are provided for the channel with the highest output power for MIMO modes and for the channels with the highest power for each antenna type for legacy (MISO) modes.

All measurements have been corrected to allow for the external attenuators used.

Ambient Conditions:

Temperature: 20-30 °C
Rel. Humidity: 32-50 %

Modifications Made During Testing

No modifications were made to the EUT during testing

Deviations From The Standard

No deviations were made from the requirements of the standard.

Measurement Notes

All measurements made with a 20dB or 10dB pad between analyzer and rf port. No correction made for the attenuator as it simulates the cables losses. The pad is also used because the rf control utility for testing cannot set the power below 0dBm so the attenuator adjusts for this fact. The actual drivers used in normal operation can set power below 0dBm.

Note 1:	Output power measured using a spectrum analyzer (see plots below) with RBW=1MHz, VB=3 MHz, sample detector, **power averaging on** (transmitted signal was continuous) and power integration over **40MHz for 20MHz channel bandwidths and 75MHz for 40MHz channel spacings** (reference method 1 of FCC DA 02-2138 for U-NII devices, August 30, 2002). Spurious limit becomes **-30dBc.**
Note 2:	As there is no coherency between chains in the MIMO modes the total EIRP is the sum of the individual EIRPs and effective antenna gain equals the eirp divide by the sum of the power on each chain. The total power is the sum of the individual chain powers.
Note 3:	Power setting is the software power setting. The attenuator was placed between the rf port and antenna. The maximum power level
Note 4:	The power limit is based on point-point use with the high gain antennas. The power limit is 30dBm minus 1dB for every 3dB the antenna gain exceeds 6dBi.

Client:	Proxim Corporation	Job Number:	J75847
Model:	PROXMB82 802.11abgn miniPCI module (3x3)	T-Log Number:	T75950
		Account Manager:	-
Contact:	Ivaylo Tankov		
Standard:	FCC Part 15 Subpart C (15.247), RSS 210	Class:	N/A

Run #1: Output Power - 802.11a

Transmitted signal on chain is coherent ? N/A

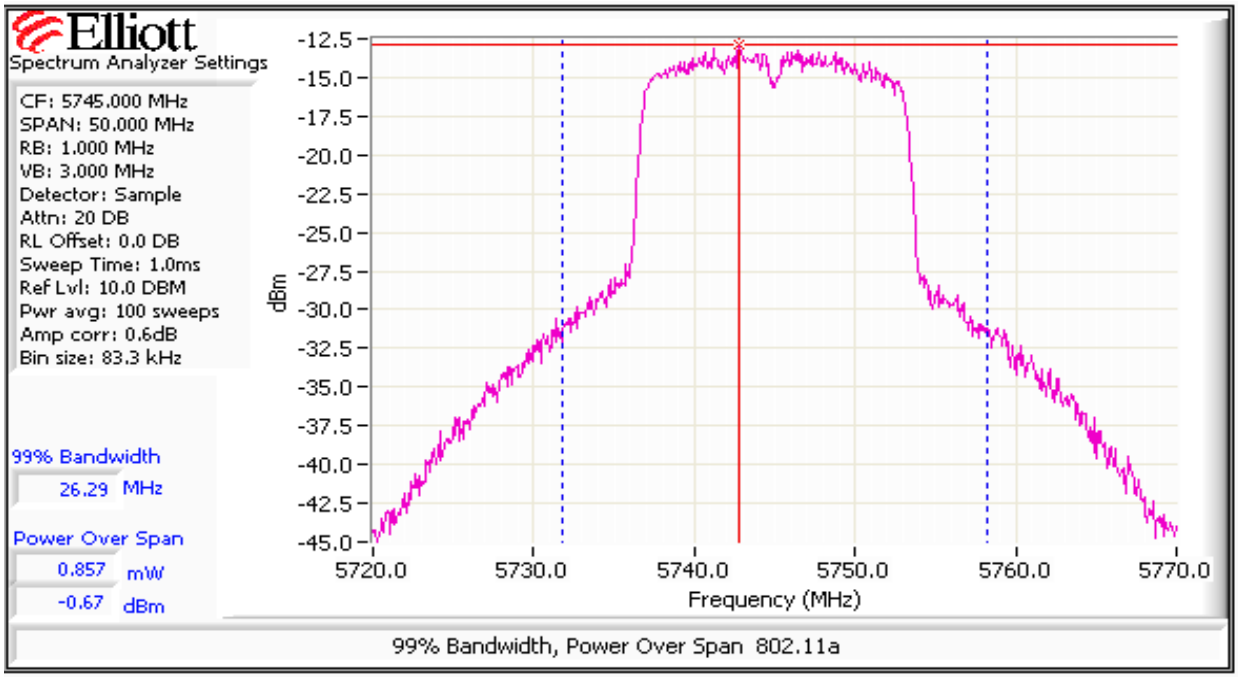
Power levels for the highest power tested - sector antenna

With 20dBi antenna the maximum output power for point-to-point is 30dBm and for point-to-multipoint the maximum is 16dBm.

5745 MHz	Chain 1	Chain 2	Chain 3	Chain 4	Total Across All Chains		Limit	
Power Setting (with 20dB Pad) Note 3	20.5							
Output Power (dBm) Note 1	-0.7				-0.7 dBm	0.001 W	16.0 dBm	0.040 W
Antenna Gain (dBi) Note 2	20					20.0 dBi	Pass	
eirp (dBm) Note 2	19.33				19.3 dBm	0.086 W		

5785 MHz	Chain 1	Chain 2	Chain 3	Chain 4	Total Across All Chains		Limit	
Power Setting (with 20dB Pad) Note 3	20.5							
Output Power (dBm) Note 1	-2.0				-2.0 dBm	0.001 W	16.0 dBm	0.040 W
Antenna Gain (dBi) Note 2	20					20.0 dBi	Pass	
eirp (dBm) Note 2	17.98				18.0 dBm	0.063 W		

5825 MHz	Chain 1	Chain 2	Chain 3	Chain 4	Total Across All Chains		Limit	
Power Setting (with 20dB Pad) Note 3	20.5							
Output Power (dBm) Note 1	-2.5				-2.5 dBm	0.001 W	16.0 dBm	0.040 W
Antenna Gain (dBi) Note 2	20					20.0 dBi	Pass	
eirp (dBm) Note 2	17.5				17.5 dBm	0.056 W		



Client:	Proxim Corporation	Job Number:	J75847
Model:	PROXMB82 802.11abgn miniPCI module (3x3)	T-Log Number:	T75950
		Account Manager:	-
Contact:	Ivaylo Tankov		
Standard:	FCC Part 15 Subpart C (15.247), RSS 210	Class:	N/A

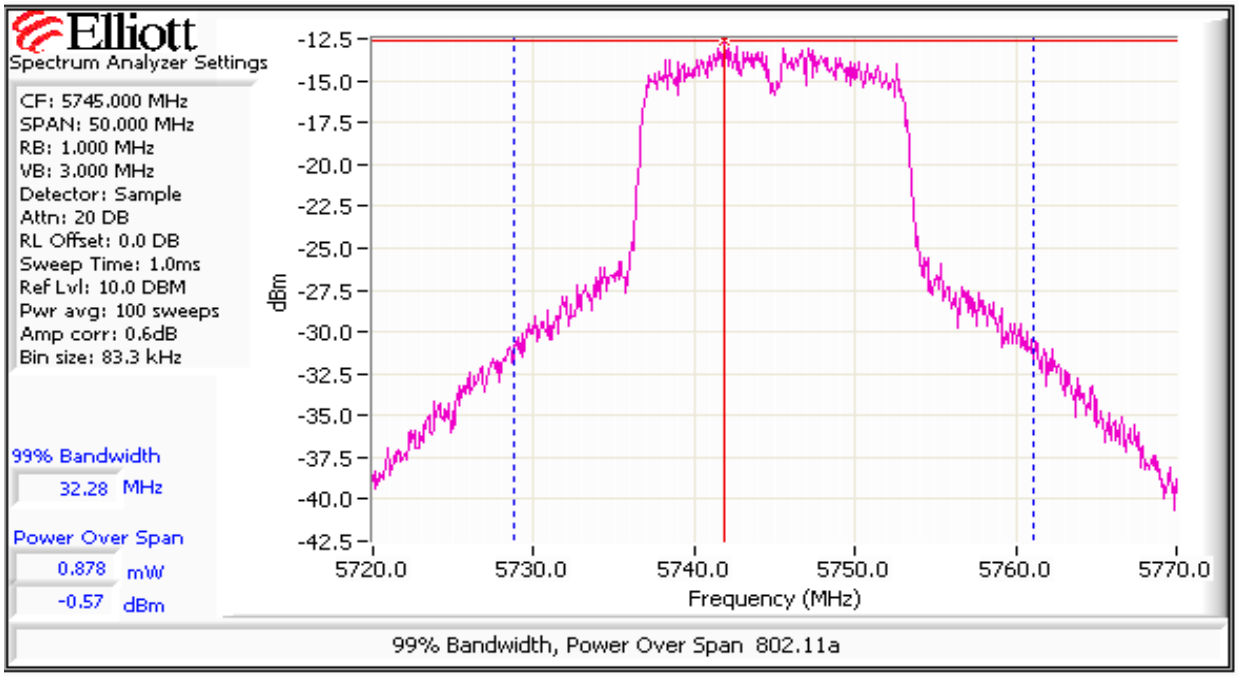
Power levels for the highest power tested - Panel antenna

With 30dBi antenna the maximum output power for point-to-point is 30dBm and for point-to-multipoint the maximum is 6dBm.

5745 MHz	Chain 1	Chain 2	Chain 3	Chain 4	Total Across All Chains		Limit	
Power Setting (with 20dB Pad) Note 3	19.0							
Output Power (dBm) Note 1	-0.6				-0.6 dBm	0.001 W	6.0 dBm	0.004 W
Antenna Gain (dBi) Note 2	30				30.0 dBi	30.0 dBi	Pass	
eirp (dBm) Note 2	29.43				29.4 dBm	0.877 W		

5785 MHz	Chain 1	Chain 2	Chain 3	Chain 4	Total Across All Chains		Limit	
Power Setting (with 20dB Pad) Note 3	17.5							
Output Power (dBm) Note 1	-4.3				-4.3 dBm	0.000 W	6.0 dBm	0.004 W
Antenna Gain (dBi) Note 2	30				30.0 dBi	30.0 dBi	Pass	
eirp (dBm) Note 2	25.67				25.7 dBm	0.369 W		

5825 MHz	Chain 1	Chain 2	Chain 3	Chain 4	Total Across All Chains		Limit	
Power Setting (with 20dB Pad) Note 3	20.5							
Output Power (dBm) Note 1	-2.5				-2.5 dBm	0.001 W	6.0 dBm	0.004 W
Antenna Gain (dBi) Note 2	30				30.0 dBi	30.0 dBi	Pass	
eirp (dBm) Note 2	27.5				27.5 dBm	0.562 W		



Client:	Proxim Corporation	Job Number:	J75847
Model:	PROXMB82 802.11abgn miniPCI module (3x3)	T-Log Number:	T75950
		Account Manager:	-
Contact:	Ivaylo Tankov		
Standard:	FCC Part 15 Subpart C (15.247), RSS 210	Class:	N/A

Run #2: Output Power - 802.11n HT20

Transmitted signal on chain is coherent ? No

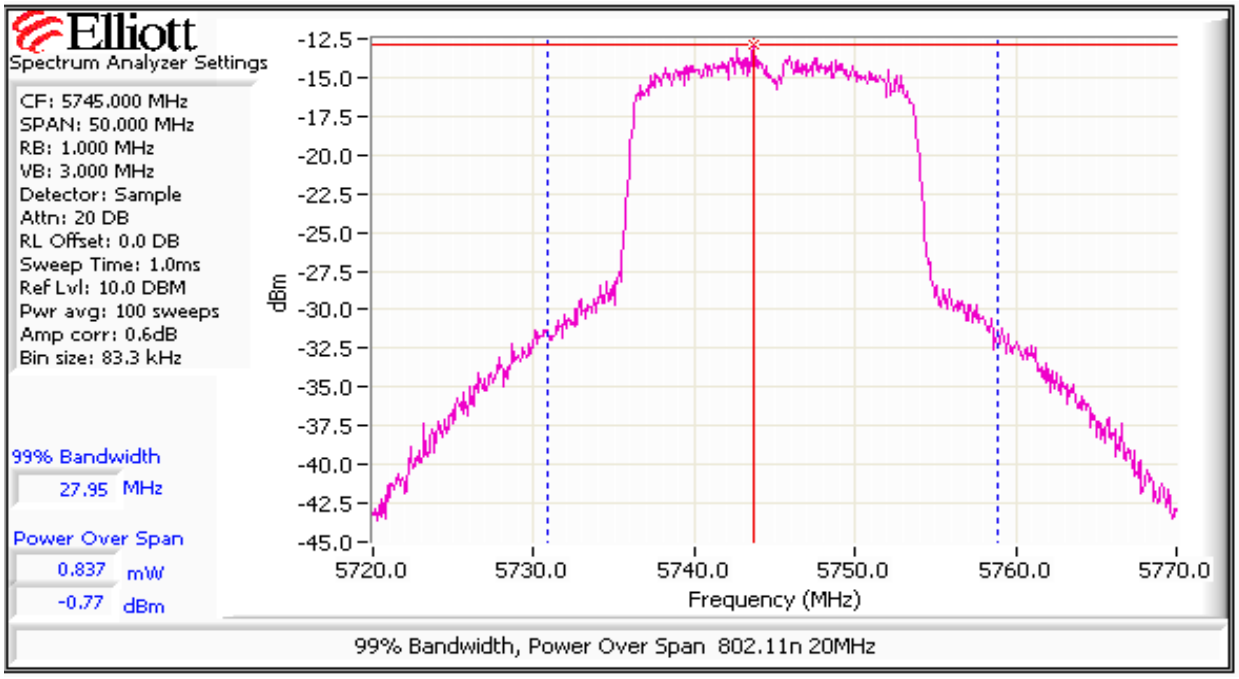
Power levels for the highest power tested - sector antenna

With 20dBi antenna the maximum output power for point-to-point is 30dBm and for point-to-multipoint the maximum is 16dBm.

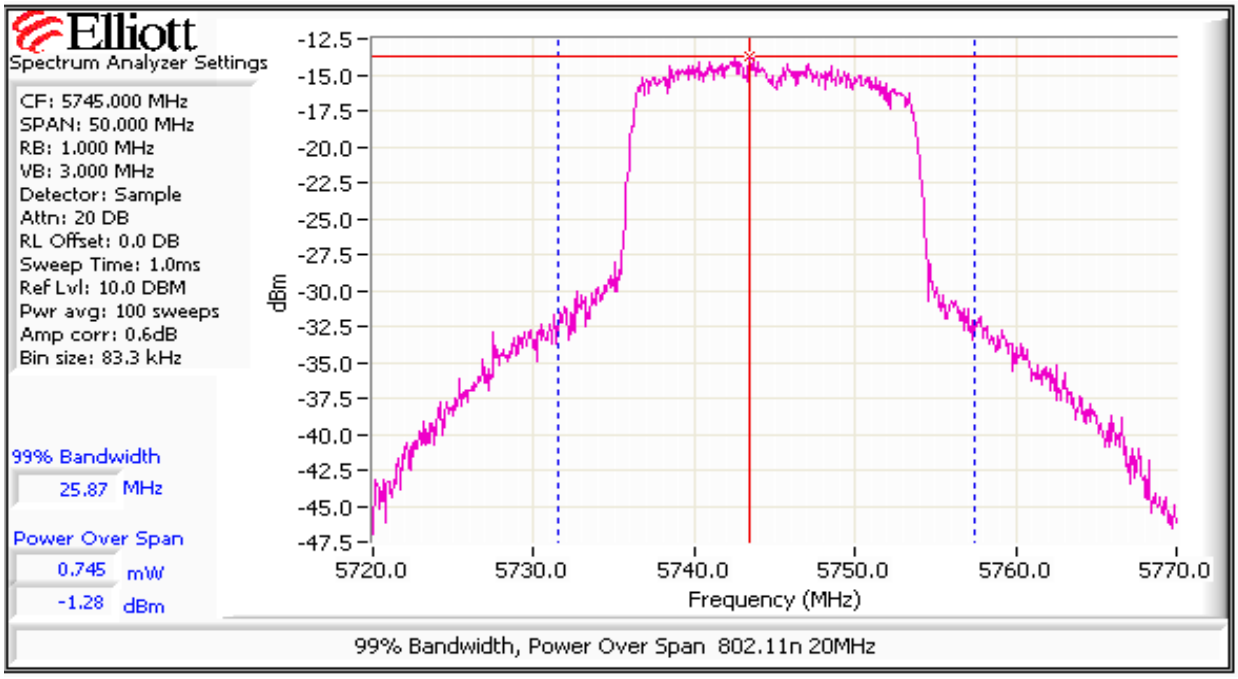
5745 MHz	Chain 1	Chain 2	Chain 3	Chain 4	Total Across All Chains		Limit	
Power Setting (with 20dB Pad) Note 3	20.5							
Output Power (dBm) Note 1	-0.8	-1.3	-1.9		3.5 dBm	0.002 W	16.0 dBm	0.040 W
Antenna Gain (dBi) Note 2	20	20	20			20.0 dBi	Pass	
eirp (dBm) Note 2	19.23	18.72	18.07		23.5 dBm	0.222 W		

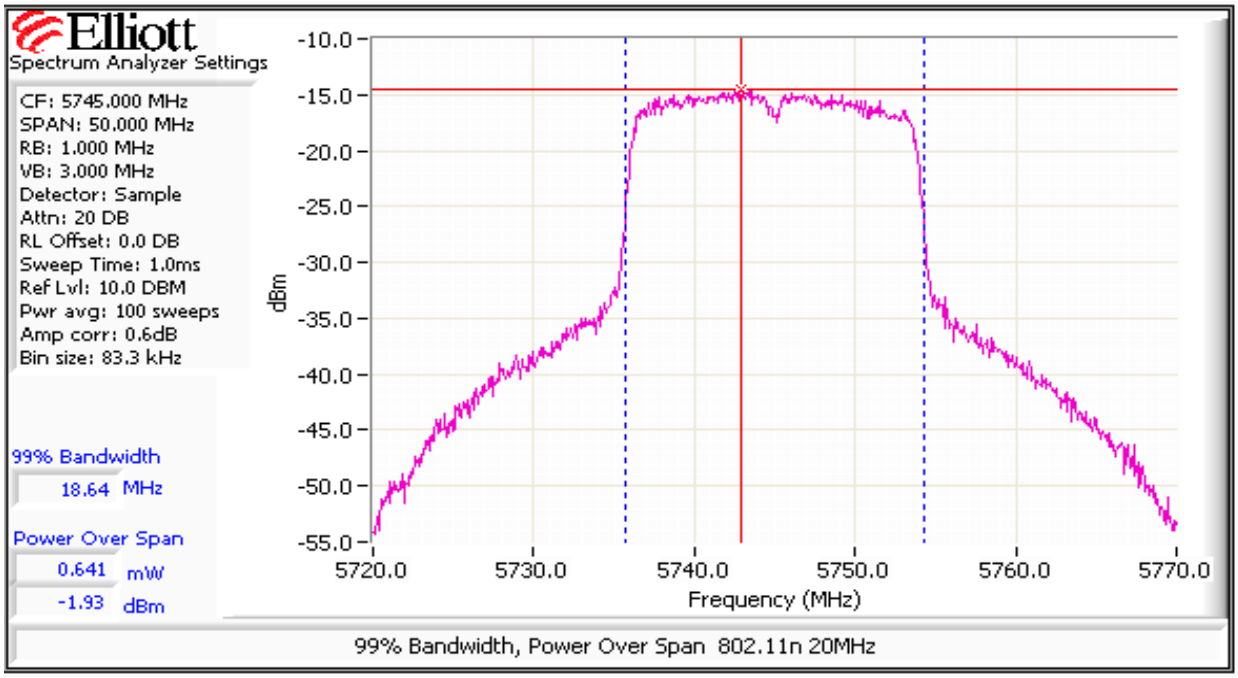
5785 MHz	Chain 1	Chain 2	Chain 3	Chain 4	Total Across All Chains		Limit	
Power Setting (with 20dB Pad) Note 3	20.5							
Output Power (dBm) Note 1	-2.0	-3.5	-2.3		2.2 dBm	0.002 W	16.0 dBm	0.040 W
Antenna Gain (dBi) Note 2	20	20	20			20.0 dBi	Pass	
eirp (dBm) Note 2	18.03	16.5	17.68		22.2 dBm	0.167 W		

5825 MHz	Chain 1	Chain 2	Chain 3	Chain 4	Total Across All Chains		Limit	
Power Setting (with 20dB Pad) Note 3	20.5							
Output Power (dBm) Note 1	-2.6	-5.1	-0.2		2.6 dBm	0.002 W	16.0 dBm	0.040 W
Antenna Gain (dBi) Note 2	20	20	20			20.0 dBi	Pass	
eirp (dBm) Note 2	17.45	14.88	19.83		22.6 dBm	0.183 W		



Client:	Proxim Corporation	Job Number:	J75847
Model:	PROXMB82 802.11abgn miniPCI module (3x3)	T-Log Number:	T75950
		Account Manager:	-
Contact:	Ivaylo Tankov		
Standard:	FCC Part 15 Subpart C (15.247), RSS 210	Class:	N/A





Client:	Proxim Corporation	Job Number:	J75847
Model:	PROXMB82 802.11abgn miniPCI module (3x3)	T-Log Number:	T75950
		Account Manager:	-
Contact:	Ivaylo Tankov		
Standard:	FCC Part 15 Subpart C (15.247), RSS 210	Class:	N/A

Power levels for the highest power tested - Panel antenna

With 30dBi antenna the maximum output power for point-to-point is 30dBm and for point-to-multipoint the maximum is 6dBm.

5745 MHz	Chain 1	Chain 2	Chain 3	Chain 4	Total Across All Chains		Limit	
Power Setting (with 20dB Pad) Note 3	19.0							
Output Power (dBm) Note 1	-2.4	-3.5	-3.3		1.8 dBm	0.002 W	6.0 dBm	0.004 W
Antenna Gain (dBi) Note 2	30	30	30			30.0 dBi	Pass	
eirp (dBm) Note 2	27.61	26.55	26.75		31.8 dBm	1.502 W		

5785 MHz	Chain 1	Chain 2	Chain 3	Chain 4	Total Across All Chains		Limit	
Power Setting (with 20dB Pad) Note 3	17.5							
Output Power (dBm) Note 1	-4.5	-6.3	-4.7		-0.3 dBm	0.001 W	6.0 dBm	0.004 W
Antenna Gain (dBi) Note 2	30	30	30			30.0 dBi	Pass	
eirp (dBm) Note 2	25.52	23.66	25.31		29.7 dBm	0.928 W		

5825 MHz	Chain 1	Chain 2	Chain 3	Chain 4	Total Across All Chains		Limit	
Power Setting (with 20dB Pad) Note 3	20.5							
Output Power (dBm) Note 1	-2.6	-5.1	-0.2		2.6 dBm	0.002 W	6.0 dBm	0.004 W
Antenna Gain (dBi) Note 2	30	30	30			30.0 dBi	Pass	
eirp (dBm) Note 2	27.45	24.88	29.83		32.6 dBm	1.825 W		

Client:	Proxim Corporation	Job Number:	J75847
Model:	PROXMB82 802.11abgn miniPCI module (3x3)	T-Log Number:	T75950
		Account Manager:	-
Contact:	Ivaylo Tankov		
Standard:	FCC Part 15 Subpart C (15.247), RSS 210	Class:	N/A

Run #4: Output Power - 802.11n HT40

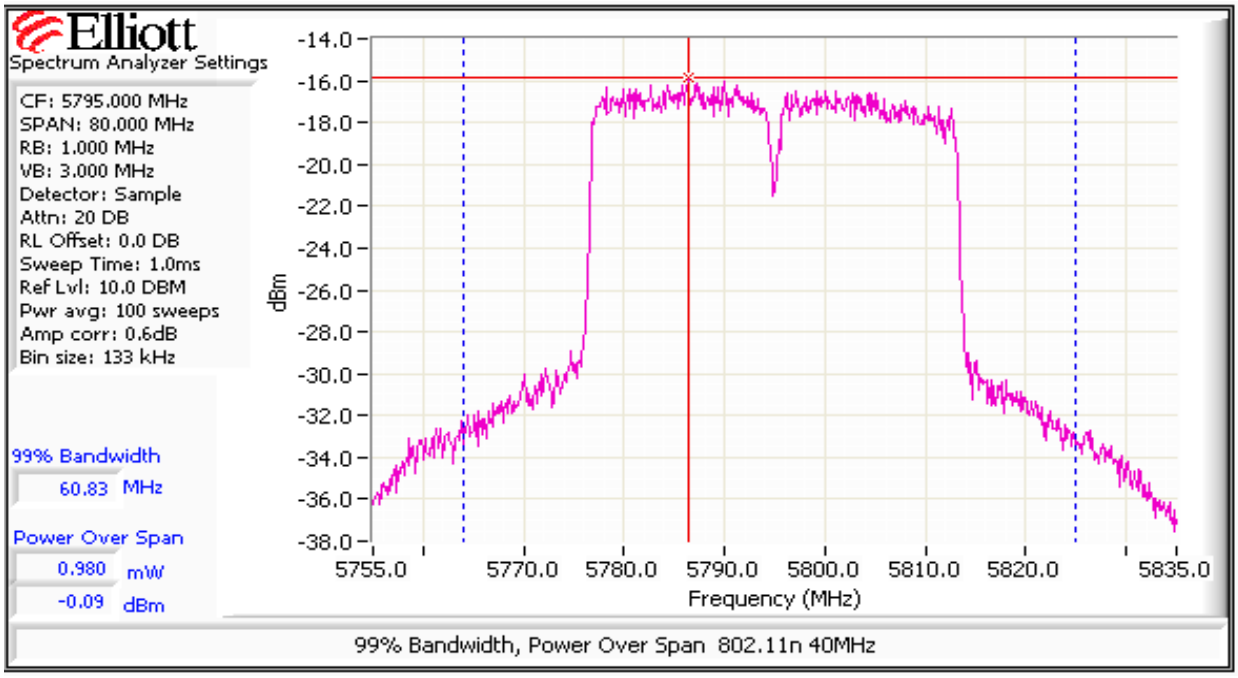
Transmitted signal on chain is coherent ? No

Power levels for the highest power tested - sector antenna

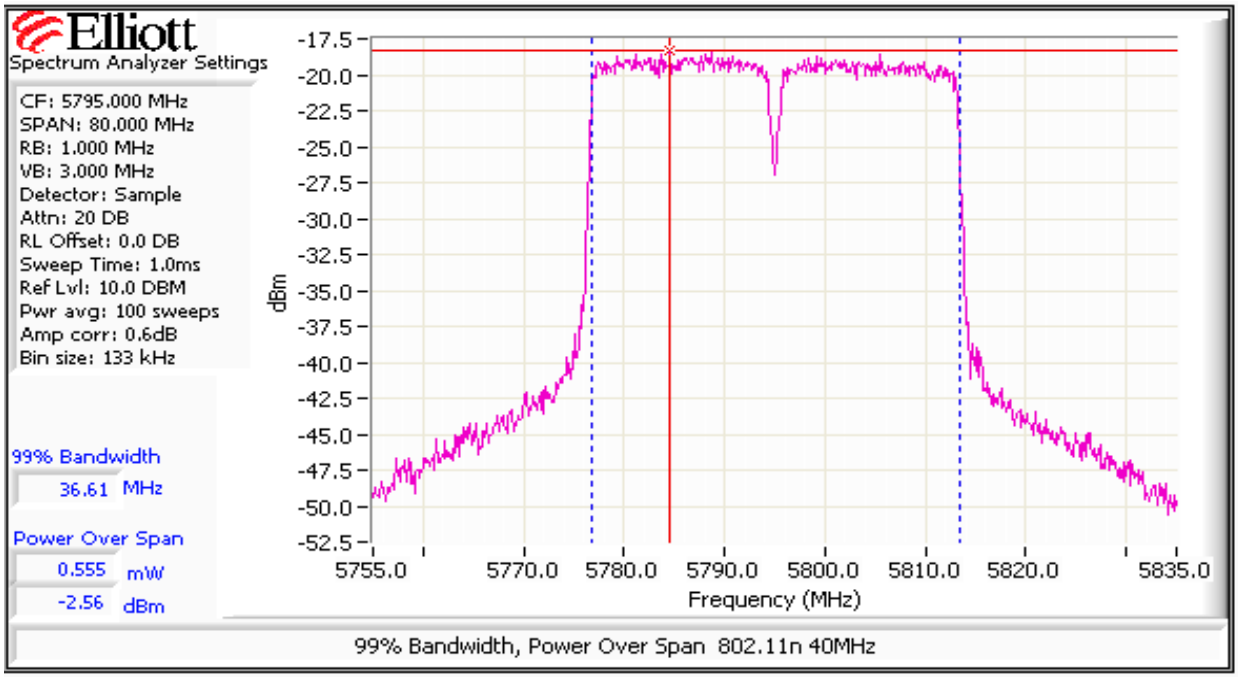
With 20dBi antenna the maximum output power for point-to-point is 30dBm and for point-to-multipoint the maximum is 16dBm.

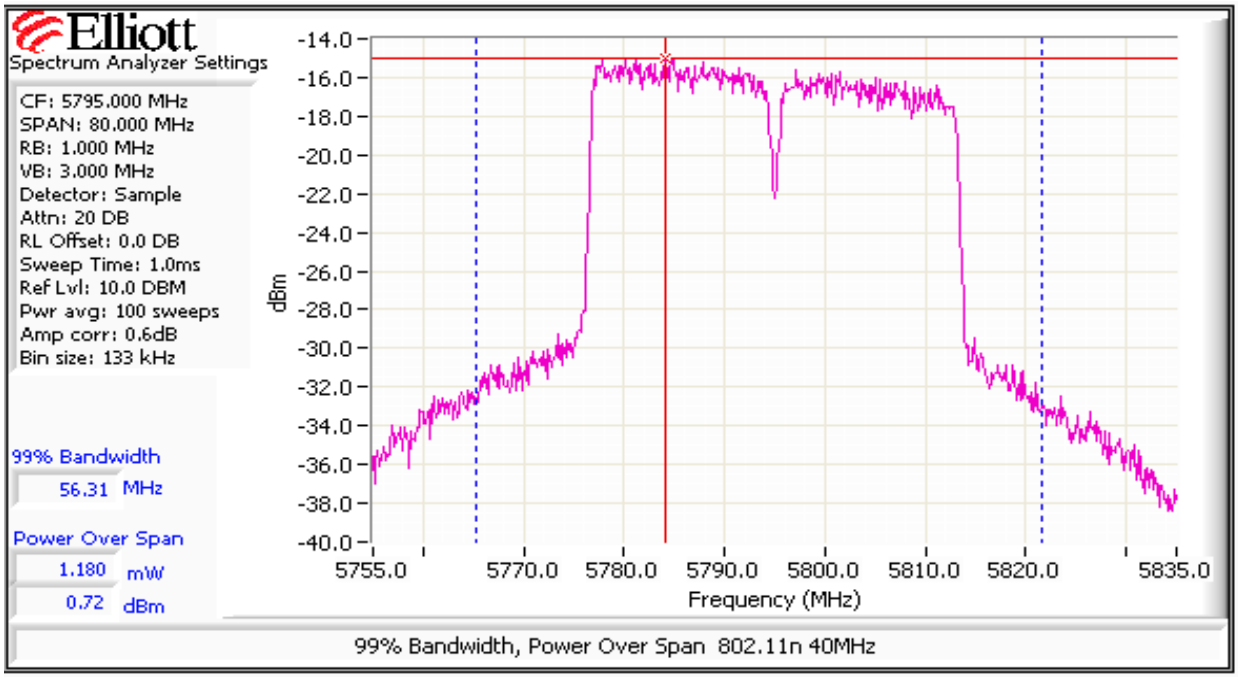
5755 MHz	Chain 1	Chain 2	Chain 3	Chain 4	Total Across All Chains		Limit	
Power Setting (with 20dB Pad) Note 3	19.0							
Output Power (dBm) Note 1	-1.5	-2.3	-3.2		2.5 dBm	0.002 W	16.0 dBm	0.040 W
Antenna Gain (dBi) Note 2	20	20	20			20.0 dBi	Pass	
eirp (dBm) Note 2	18.51	17.72	16.85		22.5 dBm	0.179 W		

5795 MHz	Chain 1	Chain 2	Chain 3	Chain 4	Total Across All Chains		Limit	
Power Setting (with 20dB Pad) Note 3	20.5							
Output Power (dBm) Note 1	-0.1	-2.6	0.7		4.3 dBm	0.003 W	16.0 dBm	0.040 W
Antenna Gain (dBi) Note 2	20	20	20			20.0 dBi	Pass	
eirp (dBm) Note 2	19.9	17.44	20.72		24.3 dBm	0.271 W		



Client:	Proxim Corporation	Job Number:	J75847
Model:	PROXMB82 802.11abgn miniPCI module (3x3)	T-Log Number:	T75950
		Account Manager:	-
Contact:	Ivaylo Tankov		
Standard:	FCC Part 15 Subpart C (15.247), RSS 210	Class:	N/A





Client:	Proxim Corporation	Job Number:	J75847
Model:	PROXMB82 802.11abgn miniPCI module (3x3)	T-Log Number:	T75950
		Account Manager:	-
Contact:	Ivaylo Tankov		
Standard:	FCC Part 15 Subpart C (15.247), RSS 210	Class:	N/A

Power levels for the highest power tested - Panel antenna

With 30dBi antenna the maximum output power for point-to-point is 30dBm and for point-to-multipoint the maximum is 6dBm.

5755 MHz	Chain 1	Chain 2	Chain 3	Chain 4	Total Across All Chains		Limit	
Power Setting (with 20dB Pad) Note 3	19.0							
Output Power (dBm) Note 1	-1.5	-2.3	-3.2		2.5 dBm	0.002 W	6.0 dBm	0.004 W
Antenna Gain (dBi) Note 2	30	30	30			30.0 dBi	Pass	
eirp (dBm) Note 2	28.51	27.72	26.85		32.5 dBm	1.785 W		

5795 MHz	Chain 1	Chain 2	Chain 3	Chain 4	Total Across All Chains		Limit	
Power Setting (with 20dB Pad) Note 3	20.5							
Output Power (dBm) Note 1	-0.1	-2.6	0.7		4.3 dBm	0.003 W	6.0 dBm	0.004 W
Antenna Gain (dBi) Note 2	30	30	30			30.0 dBi	Pass	
eirp (dBm) Note 2	29.9	27.44	30.72		34.3 dBm	2.712 W		

Client:	Proxim Corporation	Job Number:	J75847
Model:	PROXMB82 802.11abgn miniPCI module (3x3)	T-Log Number:	T75950
		Account Manager:	-
Contact:	Ivaylo Tankov		
Standard:	FCC Part 15 Subpart C (15.247), RSS 210	Class:	N/A

RSS 210 and FCC 15.247 (DTS) Radiated Spurious Emissions

Test Specific Details

Objective: The objective of this test session is to perform final qualification testing of the EUT with respect to the specification listed above.

General Test Configuration

The EUT and all local support equipment were located on the turntable for radiated spurious emissions testing. All remote support equipment was located approximately 30 meters from the EUT with all I/O connections running on top of the groundplane.

For radiated emissions testing the measurement antenna was located 3 meters from the EUT.

Ambient Conditions:

Temperature: 15-25 °C

Rel. Humidity: 25-65 %

Modifications Made During Testing

No modifications were made to the EUT during testing

Deviations From The Standard

No deviations were made from the requirements of the standard.

Summary of Results - Device Operating in the 5725 - 5850 MHz Band

Target power is a total of 300mW (approximately 25dBm) peak - approximately 20dBm per chain. Refer to original DTS report.

Sector Antennas

Run #	Mode	Channel	Attenuator (dB)	Power Setting	Test Performed	Limit	Result / Margin
1a	HT20	Center	20.0	20.5	Radiated Emissions 1 - 40GHz	FCC Part 15.209 / 15.247(c)	49.2dBµV/m @ 1390.0MHz (-4.8dB)
1b	802.11a	Center	20.0	20.5	Radiated Emissions 1 - 40GHz	FCC Part 15.209 / 15.247(c)	48.7dBµV/m @ 11575.0MHz (-5.3dB)
1c	worst case from 1a and 1b	Low	20.0	20.5	Radiated Emissions 1 - 40GHz	FCC Part 15.209 / 15.247(c)	48.7dBµV/m @ 1410.0MHz (-5.3dB)
1d		High	20.0	20.5	Radiated Emissions 1 - 40GHz	FCC Part 15.209 / 15.247(c)	49.0dBµV/m @ 1390.0MHz (-5.0dB)
Panel Antennas							
2a	worst case from 1a and 1b	Center	20.0	17.5	Radiated Emissions 1 - 40GHz	FCC Part 15.209 / 15.247(c)	**53.7dBµV/m @ 7713.3MHz (-0.3dB)**
2b		Low	20.0	19.0	Radiated Emissions 1 - 40GHz	FCC Part 15.209 / 15.247(c)	49.9dBµV/m @ 11490.0MHz (-4.1dB)
2c		High	20.0	20.5	Radiated Emissions 1 - 40GHz	FCC Part 15.209 / 15.247(c)	52.9dBµV/m @ 5087.7MHz (-1.1dB)

Client:	Proxim Corporation	Job Number:	J75847
Model:	PROXMB82 802.11abgn miniPCI module (3x3)	T-Log Number:	T75950
		Account Manager:	-
Contact:	Ivaylo Tankov		
Standard:	FCC Part 15 Subpart C (15.247), RSS 210	Class:	N/A

Run #1: Radiated Spurious Emissions, 1000 - 40,000 MHz, Sector Antenna

Date of Test: 8/28/2009 Test Location: FT Chamber #3
Test Engineer: Mehran Birgani

Run #1a: HT20 Mode, 5785 MHz
Fundamental Signal Field Strength: Peak value measured in 100kHz

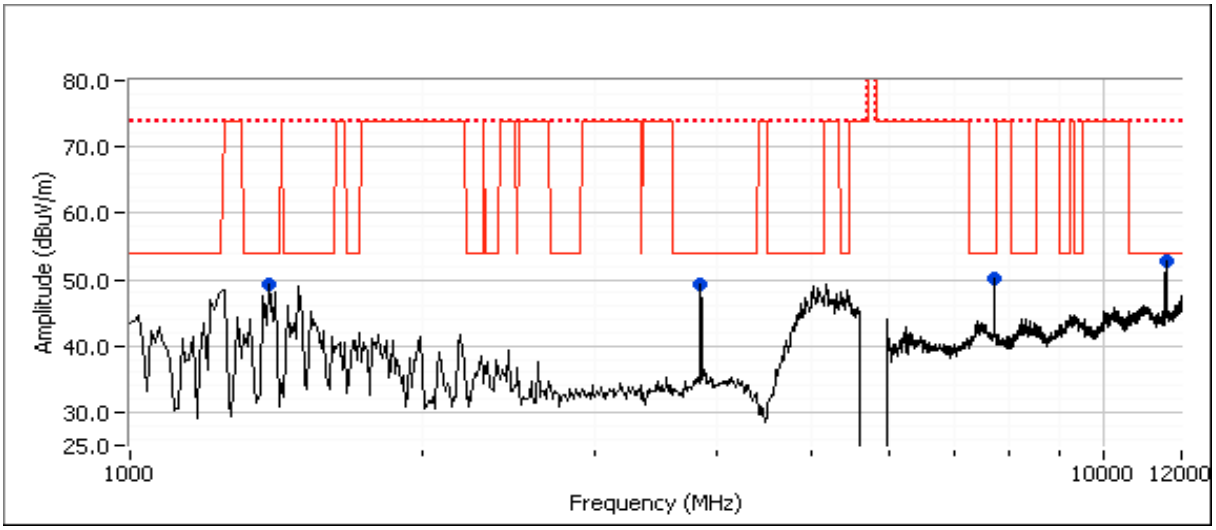
Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	V/H	Limit	Margin	Pk/QP/Avg	degrees	meters	
5783.800	103.2	V	-	-	-	352	1.1	RB = VB = 100kHz
5782.600	93.9	H	-	-	-	46	1.0	RB = VB = 100kHz

Fundamental emission level @ 3m in **100kHz RBW**:	103.2 dBµV/m	
Limit for emissions outside of restricted bands:	73.2 dBµV/m	Limit is -30dBc (UNII power measurement)

Spurious Emissions

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	V/H	Limit	Margin	Pk/QP/Avg	degrees	meters	
7713.380	48.2	V	54.0	-5.8	AVG	144	1.0	
11568.660	45.7	V	54.0	-8.3	AVG	66	1.7	
1390.000	**49.2**	**V**	**54.0**	**-4.8**	Peak	75	1.3	Peak reading w/ average limit
3850.000	49.2	H	54.0	-4.8	Peak	34	1.0	
7713.480	52.7	V	74.0	-21.3	PK	144	1.0	
11569.320	58.9	V	74.0	-15.1	PK	66	1.7	

Note 1:	For emissions in restricted bands, the limit of 15.209 was used. For all other emissions, the limit was set 30dB below the level of the fundamental and measured in 100kHz.
Note 2:	Signal is not in a restricted band but the more stringent restricted band limit was used.
Note 3:	No signal was found abouve 12GHz.



Client:	Proxim Corporation	Job Number:	J75847
Model:	PROXMB82 802.11abgn miniPCI module (3x3)	T-Log Number:	T75950
		Account Manager:	-
Contact:	Ivaylo Tankov		
Standard:	FCC Part 15 Subpart C (15.247), RSS 210	Class:	N/A

Run #1b: 802.11a Mode, 5785 MHz

Fundamental Signal Field Strength: Peak value measured in 100kHz

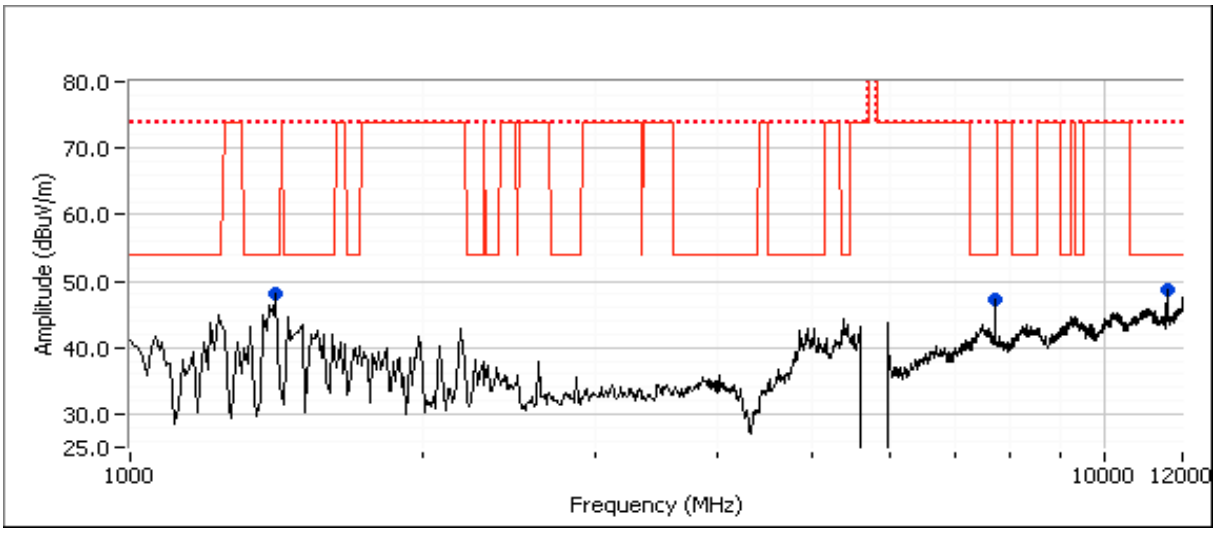
Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	V/H	Limit	Margin	Pk/QP/Avg	degrees	meters	
5786.430	99.4	V	-	-	-	360	1.4	RB = VB = 100kHz
5778.800	84.0	H	-	-	-	349	1.0	RB = VB = 100kHz

Fundamental emission level @ 3m in **100kHz RBW**:	99.4 dBµV/m	
Limit for emissions outside of restricted bands:	69.4 dBµV/m	Limit is -30dBc (UNII power measurement)

Spurious Emissions

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	V/H	Limit	Margin	Pk/QP/Avg	degrees	meters	
1410.000	48.2	V	54.0	-5.8	Peak	76	1.8	
7716.670	47.2	V	54.0	-6.8	Peak	148	1.0	
11575.000	**48.7**	**V**	**54.0**	**-5.3**	Peak	292	1.8	Peak reading w/ average limit

Note 1:	For emissions in restricted bands, the limit of 15.209 was used. For all other emissions, the limit was set 30dB below the level of the fundamental and measured in 100kHz.
Note 2:	Signal is not in a restricted band but the more stringent restricted band limit was used.
Note 3:	No signal was found abouve 12GHz.



Client:	Proxim Corporation	Job Number:	J75847
Model:	PROXMB82 802.11abgn miniPCI module (3x3)	T-Log Number:	T75950
		Account Manager:	-
Contact:	Ivaylo Tankov		
Standard:	FCC Part 15 Subpart C (15.247), RSS 210	Class:	N/A

Run #1c: HT20 Mode, 5745 MHz

Fundamental Signal Field Strength: Peak value measured in 100kHz

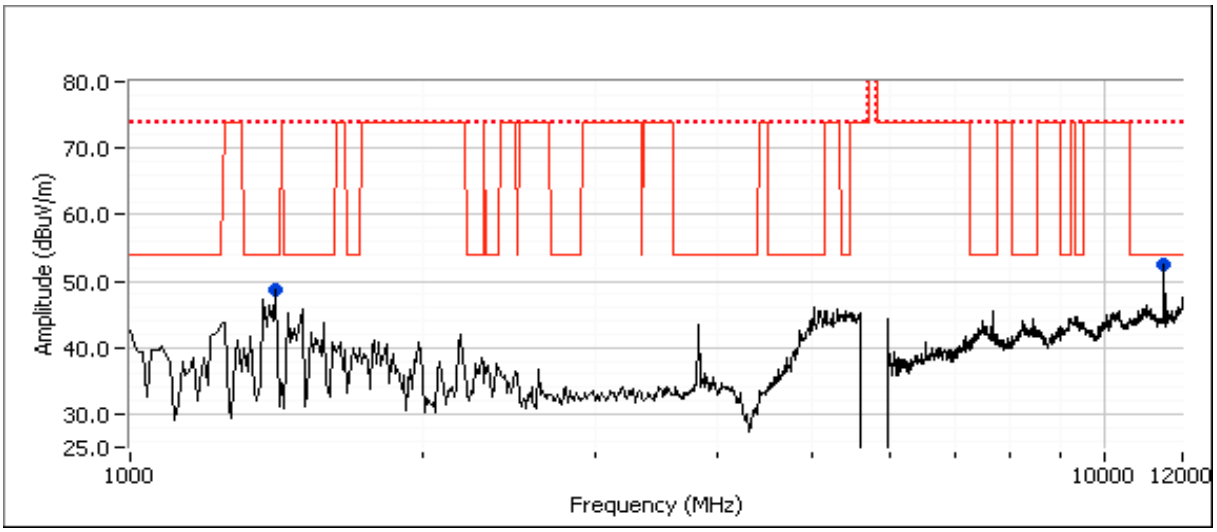
Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	V/H	Limit	Margin	Pk/QP/Avg	degrees	meters	
5747.300	100.7	V	-	-	-	350	1.1	RB = VB = 100kHz
5740.700	91.6	H	-	-	-	46	1.0	RB = VB = 100kHz

Fundamental emission level @ 3m in **100kHz RBW**:	100.7 dBµV/m	
Limit for emissions outside of restricted bands:	70.7 dBµV/m	Limit is -30dBc (UNII power measurement)

Spurious Emissions

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	V/H	Limit	Margin	Pk/QP/Avg	degrees	meters	
11493.080	46.1	V	54.0	-7.9	AVG	306	1.4	
1410.000	**48.7**	**V**	**54.0**	**-5.3**	Peak	285	1.3	Peak reading w/ average limit
11501.580	59.8	V	74.0	-14.2	PK	306	1.4	

Note 1:	For emissions in restricted bands, the limit of 15.209 was used. For all other emissions, the limit was set 30dB below the level of the fundamental and measured in 100kHz.
Note 2:	Signal is not in a restricted band but the more stringent restricted band limit was used.



Client:	Proxim Corporation	Job Number:	J75847
Model:	PROXMB82 802.11abgn miniPCI module (3x3)	T-Log Number:	T75950
		Account Manager:	-
Contact:	Ivaylo Tankov		
Standard:	FCC Part 15 Subpart C (15.247), RSS 210	Class:	N/A

Run #1d: H20 Mode, 5825 MHz

Fundamental Signal Field Strength: Peak value measured in 100kHz

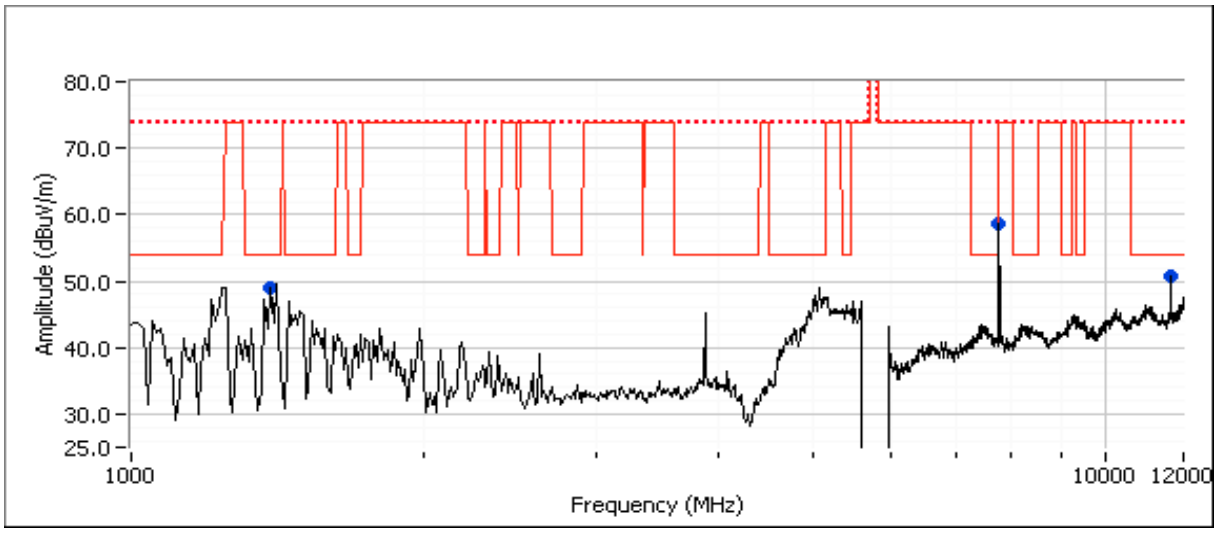
Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	V/H	Limit	Margin	Pk/QP/Avg	degrees	meters	
5830.170	104.5	V	-	-	-	352	1.1	RB = VB = 100kHz
5828.230	91.5	H	-	-	-	46	1.0	RB = VB = 100kHz

Fundamental emission level @ 3m in **100kHz RBW**:	104.5 dBµV/m	
Limit for emissions outside of restricted bands:	74.5 dBµV/m	Limit is -30dBc (UNII power measurement)

Spurious Emissions

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	V/H	Limit	Margin	Pk/QP/Avg	degrees	meters	
11645.600	43.8	V	54.0	-10.2	AVG	73	1.2	
1390.000	**49.0**	**H**	**54.0**	**-5.0**	Peak	51	1.2	Peak reading w/ average limit
7766.670	58.7	V	74.5	-15.8	Peak	144	1.0	Not in restricted band
11647.130	56.8	V	74.0	-17.2	PK	73	1.2	

Note 1:	For emissions in restricted bands, the limit of 15.209 was used. For all other emissions, the limit was set 30dB below the level of the fundamental and measured in 100kHz.
Note 2:	Signal is not in a restricted band but the more stringent restricted band limit was used.



Client:	Proxim Corporation	Job Number:	J75847
Model:	PROXMB82 802.11abgn miniPCI module (3x3)	T-Log Number:	T75950
		Account Manager:	-
Contact:	Ivaylo Tankov		
Standard:	FCC Part 15 Subpart C (15.247), RSS 210	Class:	N/A

Run #2: Radiated Spurious Emissions, 1000 - 40,000 MHz, Panel Antenna

Date of Test: 8/31/2009 Test Location: FT Chamber #5
Test Engineer: Rafael Varelas

Run #2a: HT20 Mode, 5785 MHz
Fundamental Signal Field Strength: Peak value measured in 100kHz

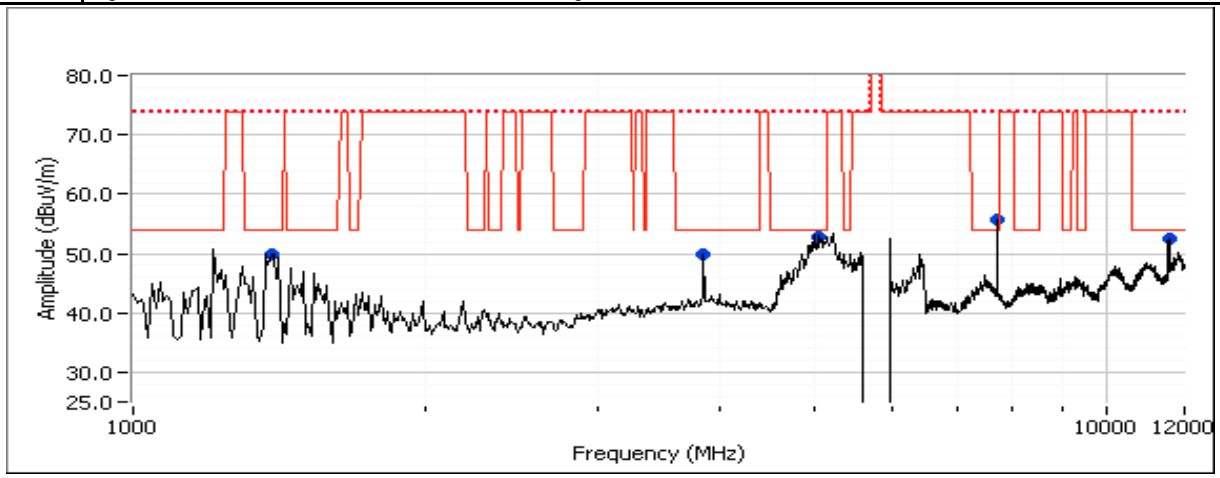
Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	V/H	Limit	Margin	Pk/QP/Avg	degrees	meters	
5786.400	109.1	V	-	-	PK	346	1.1	RB 100 kHz; VB: 100 kHz
5788.300	94.9	H	-	-	PK	258	1.4	RB 100 kHz; VB: 100 kHz

Fundamental emission level @ 3m in **100kHz RBW**:	109.1 dBµV/m	
Limit for emissions outside of restricted bands:	79.1 dBµV/m	Limit is -30dBc (UNII power measurement)

Spurious Emissions

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	V/H	Limit	Margin	Pk/QP/Avg	degrees	meters	
7713.330	53.7	V	54.0	-0.3	AVG	143	1.3	
7713.400	58.2	V	74.0	-15.8	PK	143	1.3	
5076.900	49.8	V	54.0	-4.2	AVG	4	1.1	
5079.370	62.3	V	74.0	-11.7	PK	4	1.1	
3856.690	45.5	V	54.0	-8.5	AVG	219	1.0	
1391.170	38.3	V	54.0	-15.7	AVG	227	1.1	
1389.560	56.4	V	74.0	-17.6	PK	227	1.1	
11573.420	49.3	V	54.0	-4.7	AVG	259	1.0	
11575.150	60.0	V	74.0	-14.0	PK	259	1.0	

Note 1:	For emissions in restricted bands, the limit of 15.209 was used. For all other emissions, the limit was set 30dB below the level of the fundamental and measured in 100kHz.
Note 2:	Signal is not in a restricted band but the more stringent restricted band limit was used.



Client:	Proxim Corporation	Job Number:	J75847
Model:	PROXMB82 802.11abgn miniPCI module (3x3)	T-Log Number:	T75950
		Account Manager:	-
Contact:	Ivaylo Tankov		
Standard:	FCC Part 15 Subpart C (15.247), RSS 210	Class:	N/A

Run #2b: HT20 Mode, 5745 MHz

Fundamental Signal Field Strength: Peak value measured in 100kHz

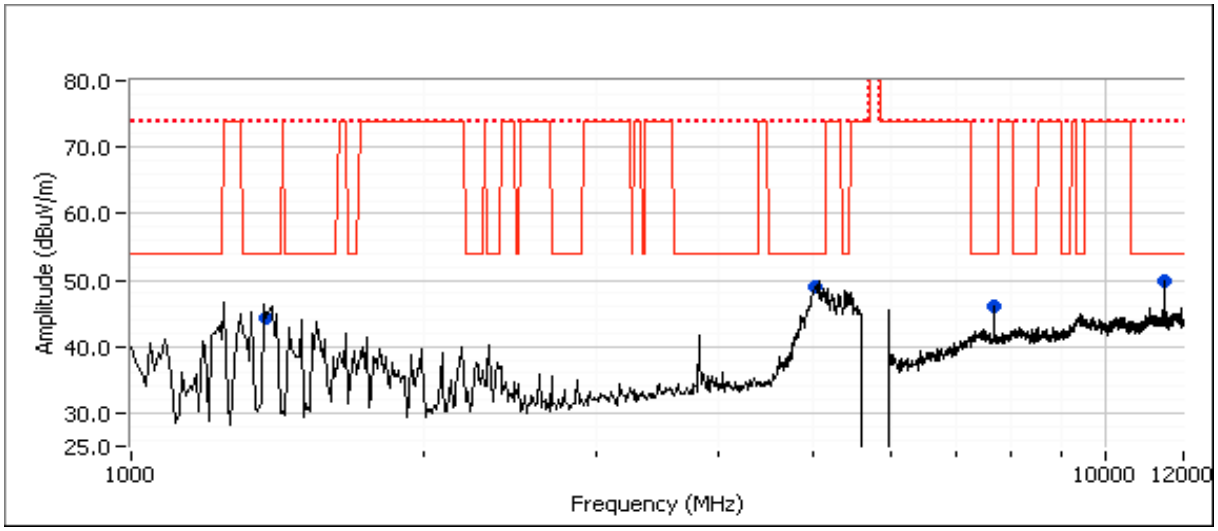
Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	V/H	Limit	Margin	Pk/QP/Avg	degrees	meters	
5749.000	107.1	V	-	-	-	0	1.1	RB 100 kHz; VB: 100 kHz
5747.100	87.5	H	-	-	-	33	1.0	RB 100 kHz; VB: 100 kHz

Fundamental emission level @ 3m in **100kHz RBW**:	107.1 dBµV/m	
Limit for emissions outside of restricted bands:	77.1 dBµV/m	Limit is -30dBc (UNII power measurement)

Spurious Emissions

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	V/H	Limit	Margin	Pk/QP/Avg	degrees	meters	
1375.830	44.4	V	54.0	-9.6	Peak	89	1.6	
5033.330	49.0	V	54.0	-5.0	Peak	345	1.0	
7660.830	46.1	V	54.0	-7.9	Peak	100	1.9	
11490.000	**49.9**	**V**	**54.0**	**-4.1**	Peak	159	1.0	Peak reading w/ average limit

Note 1:	For emissions in restricted bands, the limit of 15.209 was used. For all other emissions, the limit was set 30dB below the level of the fundamental and measured in 100kHz.
Note 2:	Signal is not in a restricted band but the more stringent restricted band limit was used.
Note 3:	Power was reduced but the emission did not get any lower. It appears that the emission is radiating from the board.



Client:	Proxim Corporation	Job Number:	J75847
Model:	PROXMB82 802.11abgn miniPCI module (3x3)	T-Log Number:	T75950
		Account Manager:	-
Contact:	Ivaylo Tankov		
Standard:	FCC Part 15 Subpart C (15.247), RSS 210	Class:	N/A

Run #2c: HT20 Mode, 5825 MHz

Fundamental Signal Field Strength: Peak value measured in 100kHz

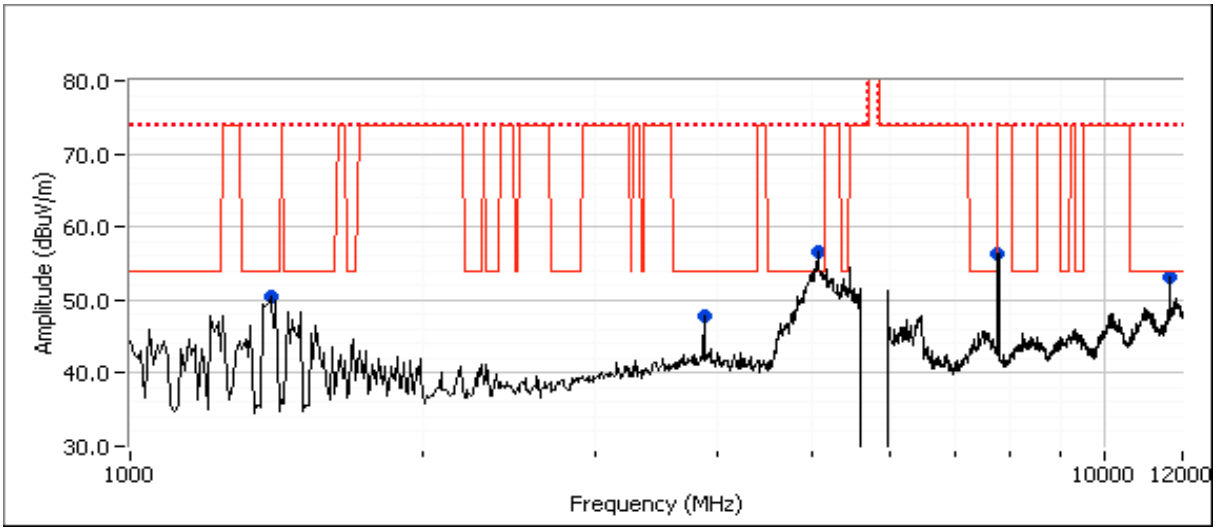
Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	V/H	Limit	Margin	Pk/QP/Avg	degrees	meters	
5825.700	105.9	V	-	-	PK	338	1.0	RB 100 kHz; VB: 100 kHz
5824.430	93.8	H	-	-	PK	41	1.0	RB 100 kHz; VB: 100 kHz

Fundamental emission level @ 3m in **100kHz RBW**:	105.9 dBµV/m	
Limit for emissions outside of restricted bands:	75.9 dBµV/m	Limit is -30dBc (UNII power measurement)

Spurious Emissions

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	V/H	Limit	Margin	Pk/QP/Avg	degrees	meters	
1413.990	37.4	H	54.0	-16.6	AVG	126	1.0	
3883.330	44.2	H	54.0	-9.8	AVG	335	1.0	
5087.730	**52.9**	**V**	**54.0**	**-1.1**	AVG	346	1.1	
11653.810	52.6	V	54.0	-1.4	AVG	318	1.7	
7766.390	56.2	V	74.0	-17.8	Peak	124	1.6	
1415.150	58.6	H	74.0	-15.4	PK	126	1.0	
3883.440	51.2	H	74.0	-22.8	PK	335	1.0	
5089.490	64.4	V	74.0	-9.6	PK	346	1.1	
11652.840	65.2	V	74.0	-8.8	PK	318	1.7	

Note 1:	For emissions in restricted bands, the limit of 15.209 was used. For all other emissions, the limit was set 30dB below the level of the fundamental and measured in 100kHz.
Note 2:	Signal is not in a restricted band but the more stringent restricted band limit was used.



Client:	Proxim Corporation	Job Number:	J75847
Model:	PROXMB82 802.11abgn miniPCI module (3x3)	T-Log Number:	T75950
		Account Manager:	-
Contact:	Ivaylo Tankov		-
Emissions Standard(s):	FCC Part 15 Subpart E, RSS 210	Class:	N/A
Immunity Standard(s):	N/A	Environment:	N/A

EMC Test Data

For The

Proxim Corporation

Model

PROXMB82 802.11abgn miniPCI module (3x3)

Date of Last Test: 9/23/2009

Client:	Proxim Corporation	Job Number:	J75847
Model:	PROXMB82 802.11abgn miniPCI module (3x3)	T-Log Number:	T75950
		Account Manager:	-
Contact:	Ivaylo Tankov		
Standard:	FCC Part 15 Subpart E, RSS 210	Class:	N/A

RSS 210 Receiver Radiated Spurious Emissions

Test Specific Details

Objective: The objective of this test session is to perform final qualification testing of the EUT with respect to the specification listed above.

General Test Configuration

The EUT was installed into a test fixture such that the EUT was exposed (i.e. outside of a host system).

When measuring the conducted emissions from the EUT's antenna port, the antenna port of the EUT was connected to the spectrum analyzer or power meter via a suitable attenuator to prevent overloading the measurement system. All measurements are corrected to allow for the external attenuators and cables used.

For radiated emissions testing the measurement antenna was located 3 meters from the EUT.

Ambient Conditions:

Temperature: 18-26 °C
Rel. Humidity: 25-35 %

Modifications Made During Testing

No modifications were made to the EUT during testing

Deviations From The Standard

No deviations were made from the requirements of the standard.

Summary of Results

Run #	Mode	Channel	Attenuator (dB)	Power Setting	Test Performed	Limit	Result / Margin
1	Receive	2437MHz (#7)	10		Antenna port conducted	30-1000 MHz: 2nW (-57dBm) Above 1GHz 5nW (-53dBm) [*Adjusted to -61.8dBm / -57.8dBm per chain to account for 3x3 MIMO operation*]	-73.1dBm @ 6821.9MHz (-15.3dB)
	Receive	5300 MHz (#60)	10		Antenna port conducted		-79.8dBm @ 13953.3MHz (-12.0dB)
	Receive	5600 MHz (#120)	10		Antenna port conducted		-70.6dBm @ 13945.3MHz (-12.8dB)
	Receive	5785 MHz	-		Antenna port conducted		-63.3dBm @ 7713.74MHz (-5.5dB)

Note - conducted measurements were made using the limit detailed in RSS GEN section 6(b). Radiated emissions form the module in receive mode had already been evaluated during the oringal product evaluation and certification. As the scope of the permissive changes was to add new antennas the receiver spurious measuremetns were limited to direct measurements at the antenna port.

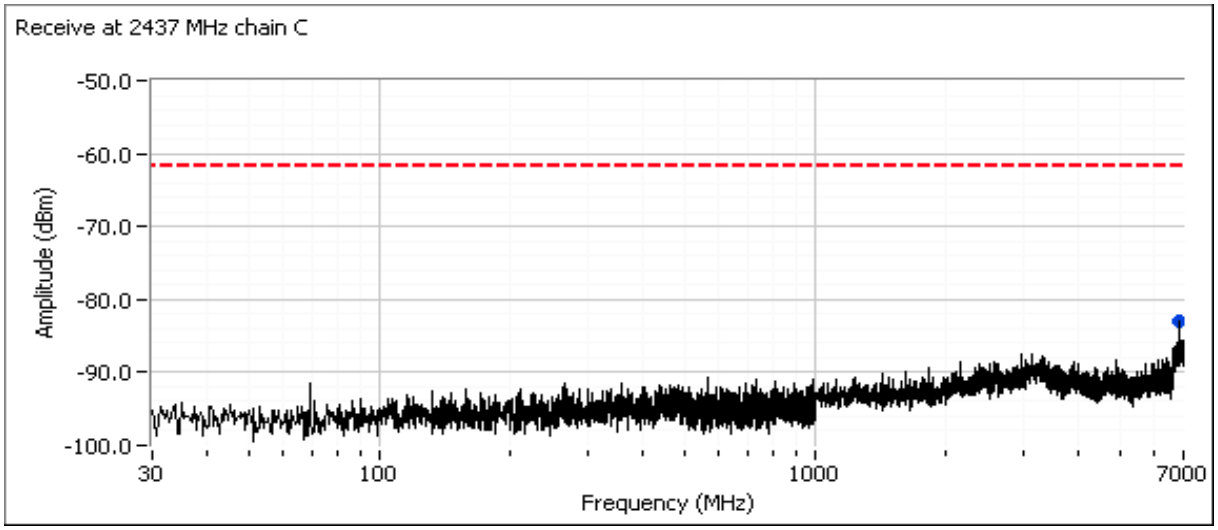
Client:	Proxim Corporation	Job Number:	J75847
Model:	PROXMB82 802.11abgn miniPCI module (3x3)	T-Log Number:	T75950
		Account Manager:	-
Contact:	Ivaylo Tankov		
Standard:	FCC Part 15 Subpart E, RSS 210	Class:	N/A

Run #1, Antena Port Receiver Spurious Emissions

Date of Test: 09/08/09
Test Engineer: Mehran Birgani
Test Location: Radio Lab

Config. Used: 1
Config Change: -
Host Unit Voltage 120V/60Hz

Run #1a: Receiver spurious emissions, 30MHz - 7GHz, Center channel, 2400-2483.5 MHz band (Channel 7, 2437 MHz)

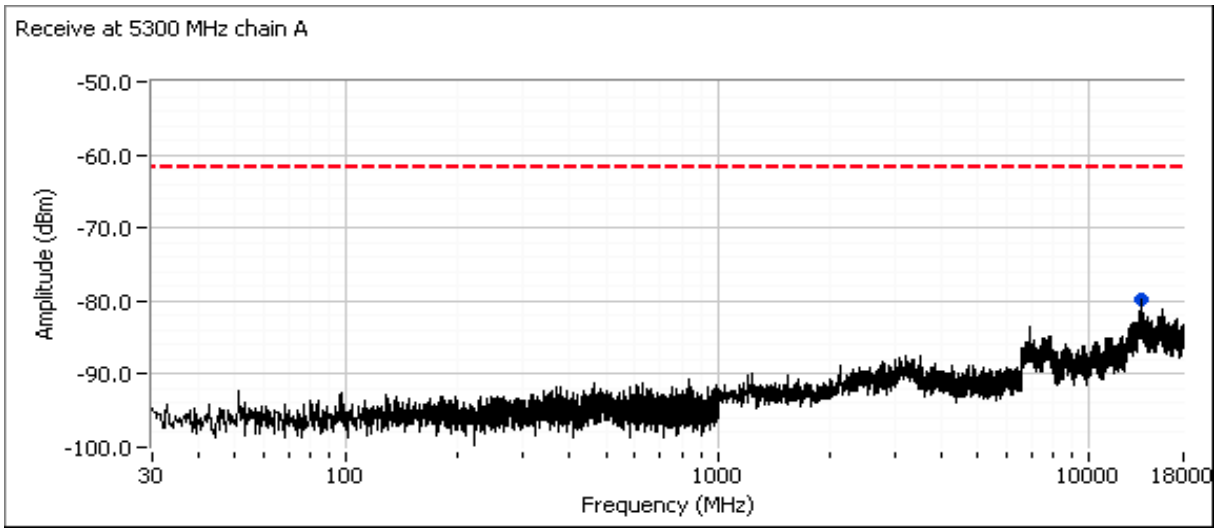


Frequency MHz	Level dBm	Corrected dBm	Port	RSS GEN Limit	RSS GEN Margin	Detector	Channel	Mode	Comments
6753.920	-85.3	-75.3	Chain A	-57.8	-17.5	Peak	6	Rx	
6959.990	-83.7	-73.7	Chain B	-57.8	-15.9	Peak	6	Rx	
6821.940	**-83.1**	**-73.1**	**Chain C**	**-57.8**	**-15.3**	Peak	6	Rx	

Note 1:	RSS 210 / RSS GEN state that if the spurious emissions measured at the antenna port are below 2nW (-57dBm) from 30 - 1000 MHz and below 5nW (-53dBm) above 1GHz then the radiated spurious emissions need not be measured. To ensure there The limits in the graphs and in the table use a corrected limit of -61.8dBm / -57.8dBm to account for multiple receive chains (the correction factor is 10Log(n), where n is the number of receive chains).
Note 2:	Corrected level adds 10dB to the measured values to account for the 10dB attenuator used between rf port and spectrum analyzer.
Note 2:	Measurement bandwidth was 100kHz for the entire frequency range. The RSS GEN limit is specified in a 4kHz measurement bandwidth. The measurement bandwidth is acceptable as it is wider than the required bandwidth.

Client:	Proxim Corporation	Job Number:	J75847
Model:	PROXMB82 802.11abgn miniPCI module (3x3)	T-Log Number:	T75950
		Account Manager:	-
Contact:	Ivaylo Tankov		
Standard:	FCC Part 15 Subpart E, RSS 210	Class:	N/A

Run #1b: Receiver spurious emissions, 30MHz - 18GHz, Center channel, 5250-5350 MHz band (Channel 60, 5300 MHz)

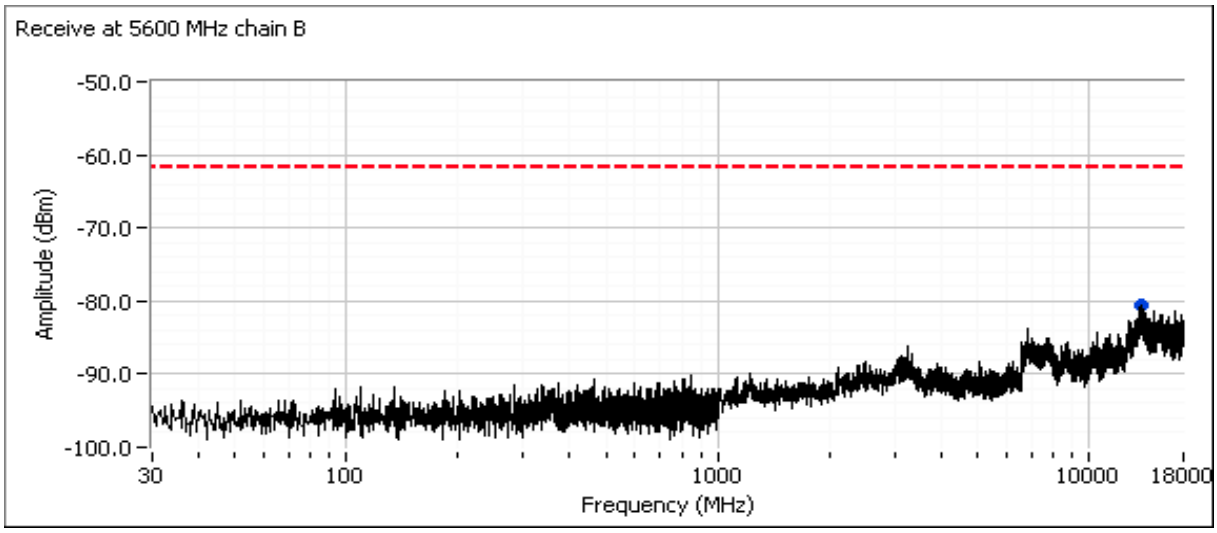


Frequency MHz	Level dBm	Corrected dBm	Port	RSS GEN Limit	RSS GEN Margin	Detector	Channel	Mode	Comments
13953.320	**-79.8**	**-69.8**	**Chain A**	**-57.8**	**-12.0**	Peak	60.0	Rx	
13873.290	-80.9	-70.9	Chain B	-57.8	-13.1	Peak	60.0	Rx	
14076.030	-80.7	-70.7	Chain C	-57.8	-12.9	Peak	60.0	Rx	

Note 1:	RSS 210 / RSS GEN state that if the spurious emissions measured at the antenna port are below 2nW (-57dBm) from 30 - 1000 MHz and below 5nW (-53dBm) above 1GHz then the radiated spurious emissions need not be measured. To ensure there The limits in the graphs and in the table use a corrected limit of -61.8dBm / -57.8dBm to account for multiple receive chains (the correction factor is 10Log(n), where n is the number of receive chains).
Note 2:	Corrected level adds 10dB to the measured values to account for the 10dB attenuator used between rf port and spectrum analyzer.
Note 3:	Measurement bandwidth was 100kHz for the entire frequency range. The RSS GEN limit is specified in a 4kHz measurement bandwidth. The measurement bandwidth is acceptable as it is wider than the required bandwidth.

Client:	Proxim Corporation	Job Number:	J75847
Model:	PROXMB82 802.11abgn miniPCI module (3x3)	T-Log Number:	T75950
		Account Manager:	-
Contact:	Ivaylo Tankov		
Standard:	FCC Part 15 Subpart E, RSS 210	Class:	N/A

Run #1c: Receiver spurious emissions, 30MHz - 18GHz, Center channel, 5470-5725 MHz band (Channel 120, 5600 MHz)

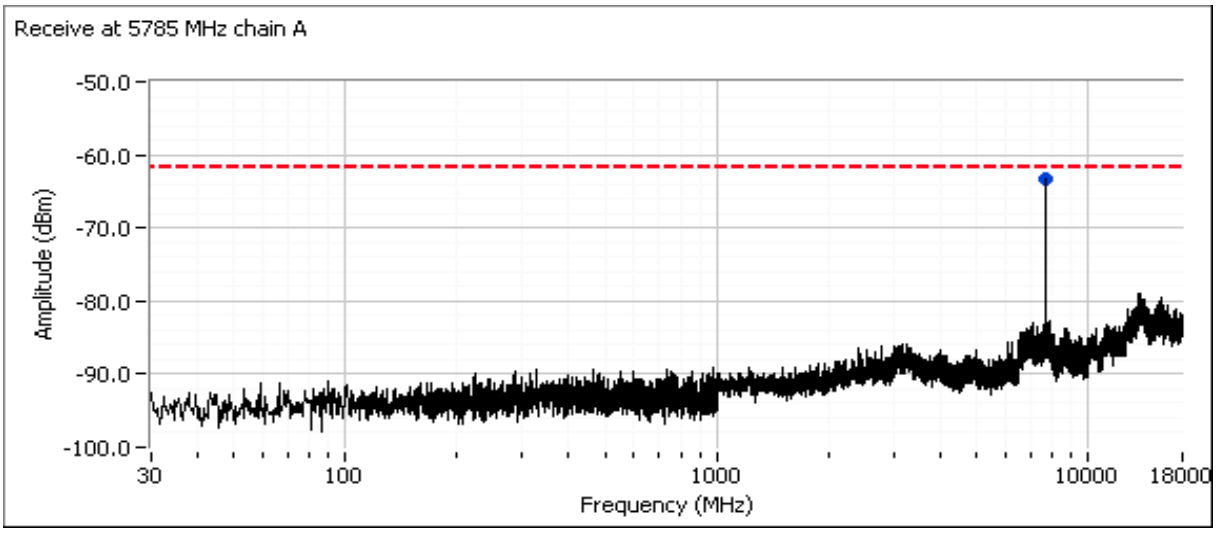


Frequency MHz	Level dBm	Corrected dBm	Port	RSS GEN Limit	RSS GEN Margin	Detector	Channel	Mode	Comments
13222.410	-81.1	-71.1	Chain A	-57.8	-13.3	Peak	120	Rx	
13945.320	**-80.6**	**-70.6**	**Chain B**	**-57.8**	**-12.8**	Peak	120	Rx	
13854.620	-81.7	-71.7	Chain C	-57.8	-13.9	Peak	120	Rx	

Note 1:	RSS 210 / RSS GEN state that if the spurious emissions measured at the antenna port are below 2nW (-57dBm) from 30 - 1000 MHz and below 5nW (-53dBm) above 1GHz then the radiated spurious emissions need not be measured. To ensure there The limits in the graphs and in the table use a corrected limit of -61.8dBm / -57.8dBm to account for multiple receive chains (the correction factor is 10Log(n), where n is the number of receive chains).
Note 2:	Corrected level adds 10dB to the measured values to account for the 10dB attenuator used between rf port and spectrum analyzer.
Note 3:	Measurement bandwidth was 100kHz for the entire frequency range. The RSS GEN limit is specified in a 4kHz measurement bandwidth. The measurement bandwidth is acceptable as it is wider than the required bandwidth.

Client:	Proxim Corporation	Job Number:	J75847
Model:	PROXMB82 802.11abgn miniPCI module (3x3)	T-Log Number:	T75950
		Account Manager:	-
Contact:	Ivaylo Tankov		
Standard:	FCC Part 15 Subpart E, RSS 210	Class:	N/A

Run #1d: Receiver spurious emissions, 30MHz - 18GHz, Center channel, 5725-5850 MHz band (5785 MHz)



Frequency MHz	Level dBm	Corrected dBm	Port	RSS GEN Limit	RSS GEN Margin	Detector	Channel	Mode	Comments
7713.740	-63.3	-	A	-57.8	-5.5	Peak	157	Rx	
1951.820	-81.7	-	B	-57.8	-23.9	Peak	157	Rx	
7713.740	-74.5	-	C	-57.8	-16.7	Peak	157	Rx	

Note 1:	RSS 210 / RSS GEN state that if the spurious emissions measured at the antenna port are below 2nW (-57dBm) from 30 - 1000 MHz and below 5nW (-53dBm) above 1GHz then the radiated spurious emissions need not be measured. To ensure there The limits in the graphs and in the table use a corrected limit of -61.8dBm / -57.8dBm to account for multiple receive chains (the correction factor is 10Log(n), where n is the number of receive chains).
Note 2:	Corrected level adds 10dB to the measured values to account for the 10dB attenuator used between rf port and spectrum analyzer.
Note 3:	Measurement bandwidth was 100kHz for the entire frequency range. The RSS GEN limit is specified in a 4kHz measurement bandwidth. The measurement bandwidth is acceptable as it is wider than the required bandwidth.