Elliott Laboratories
www.elliottlabs.com
684 West Maude Avenue
Sunnyvale, CA 94085-3518
408-245-7800 Phone
408-245-3499 Fax

Electromagnetic Emissions Test Report
Application for Grant of Equipment Authorization
pursuant to
Industry Canada RSS-Gen Issue 2 / RSS 210 Issue 7
FCC Part 15 Subpart C
on the
Ruckus Wireless
Transmitter
Model: 7962

UPN:	5912A-7962
FCC ID:	S9G7962
GRANTEE:	Ruckus Wireless 880 West Maude Ave. Suite 101 Sunnyvale, CA 94085
TEST SITE(S):	Elliott Laboratories 684 W. Maude Ave Sunnyvale, CA 94086 IC Site Registration #: IC 2845-1; IC 2845-2
REPORT DATE:	March 2, 2009
FINAL TEST DATE:	November 13 and November 23, 2008, February 4, February 11, February 12 and February 17, 2009
AUTHORIZED SIGNATORY:	Mark E. Hill Staff Engineer

ACCREDITED

Testing Cert #2016-01

REVISION HISTORY

Rev #	Date	Comments	Modified By
1			

TABLE OF CONTENTS

TABLE OF CONTENTS (Continued)

SCOPE

An electromagnetic emissions test has been performed on the Ruckus Wireless model 7962 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.

The test results recorded herein are based on a single type test of the Ruckus Wireless model 7962 and therefore apply only to the tested sample. The sample was selected and prepared by Craig Owens of Ruckus Wireless.

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 Ruckus Wireless model 7962 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 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.).

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	Systems uses OFDM/DSSS techniques	-	Complies
15.247 (a) (2)	RSS 210 A8.2 (1)	6dB Bandwidth	802.11b – 10.3 MHz 802.11g – 16.4 MHz 802.11 HT20 – 17.8 MHz 802.11 HT40 – 34.3 MHz	>500kHz	Complies
	RSP100	99% Bandwidth	802.11b – 17.3 MHz 802.11g – 18.3 MHz 802.11 HT20 – 19.3 MHz 802.11 HT40 – 37.4 MHz	Information only	Complies
15.247 (b) (3)	RSS 210 A8.2 (4)	Output Power (multipoint systems)	802.11b: 27.7 dBm (0.591 Watts) EIRP = 1.179 W 802.11g: 25.8 dBm (0.381 Watts) EIRP = 0.761 W 802.11 HT20 25.8 dBm (0.382 Watts) EIRP = 0.763 W 802.11 HT40 25.7 dBm (0.374 Watts) EIRP = 0.747 W Note 1	1Watt, EIRP limited to 4 Watts.	Complies
15.247(d)	RSS 210 A8.2 (2)	Power Spectral Density	802.11b 6.7 dBm/3kHz 802.11g 5.7 dBm/3kHz 802.11 HT20 7.7 dBm/3kHz 802.11 HT40 5.8 dBm/3kHz	8dBm/3kHz	Complies
15.247(c)	RSS 210 A8.5	Antenna Port Spurious Emissions 30MHz – 25 GHz	All spurious emissions < -30dBc	< -30dBc Note 3	Complies
15.247(c) / 15.209	RSS 210 A8.5	Radiated Spurious Emissions 30MHz – 25 GHz	73.9dBµV/m @ 2388.5MHz (-0.1dB)	15.207 in restricted bands, all others <-30dBc Note 3	Complies

Note 1: EIRP calculated using an effective antenna gain of 3 dBi for the highest EIRP.
Note 3: 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	Systems uses OFDM/DSSS techniques	System must utilize a digital transmission technology	Complies
15.247 (a) (2)	RSS 210 A8.2 (1)	6dB Bandwidth	802.11a – 16.3 MHz 802.11 HT20 – 17.7 MHz 802.11 HT40 – 36.2 MHz	>500kHz	Complies
	RSP100	99% Bandwidth	802.11a – 18.4 MHz 802.11 HT20 – 18.6 MHz 802.11 HT40 – 37.2 MHz	Information only	Complies
15.247 (b)	RSS 210 A8.2 (4)	Output Power (multipoint systems)	802.11a 24.4 dBm (0.279 Watts) EIRP = 0.556 W 802.11 HT20 24.4 dBm (0.276 Watts) EIRP = 0.550 W 802.11 HT40 23.6 dBm (0.228 Watts) EIRP = 0.456 W Note 1	1Watt, EIRP limited to 4 Watts.	Complies
15.247(d)	RSS 210 A8.2 (2)	Power Spectral Density	802.11a 5.3 dBm/3KHz 802.11 HT20 4.3 dBm/3kHz 802.11 HT40 –	Maximum permitted is 8dBm/3kHz	Complies
15.247(c)	RSS 210 A8.5	Antenna Port Spurious Emissions – 30MHz – 40 GHz	All spurious emissions < -30dBc	< -30dBc Note 3	Complies
15.247(c) / 15.209	RSS 210 A8.5 Table 2, 3	Radiated Spurious Emissions 30MHz – 40 GHz	53.9dBµV/m @ 11489.2MHz (-0.1dB)	15.207 in restricted bands, all others <-30dBc Note 2	Complies

Note 1: EIRP calculated using an effective antenna gain of 3 dBi for the highest EIRP.
Note 3: Limit of -30dBc used because the power was measured using the UNII test procedure (maximum power averaged over a transmission burst).
Note 4: The device is operating under the smart antenna rules as detailed in FCC 15.247/RSS 210 A8.4 (6). Refer to the operational description for additional justification.

GENERAL REQUIREMENTS APPLICABLE TO ALL BANDS

FCC Rule Part	RSS Rule part	Description	Measured Value / Comments	Limit / Requirement	Result (margin)
15.203	-	RF Connector	All antennas are internal	-	Complies
15.109	RSS GEN 7.2.3 Table 1	Receiver spurious emissions	47.5dBµV/m @ 7713.4MHz (-6.5dB)	Refer to standard	Complies
15.207	RSS GEN Table 2	AC Conducted Emissions	52.6dBµV @ 13.853MHz (-7.4dB)	Refer to standard	Complies
15.247 (b) (5) 15.407 (f)	RSS 102	RF Exposure Requirements	Refer to MPE calculations in Exhibit 11, RSS 102 declaration and User Manual statements.	Refer to OET 65, FCC Part 1 and RSS 102	Complies
	RSP 100 RSS GEN 7.1.5	User Manual		Statement required regarding non-interference	

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 Ruckus Wireless model 7962 is an Access Point that is designed to distribute WiFi. Since the EUT would be placed on a table top during operation, the EUT was treated as table-top equipment during testing to simulate the end-user environment. The electrical rating of the EUT is 120/230 Volts, 50/60 Hz, 0.5 Amps. The EUT can also be powered over the POE port.

The sample was received on November 13, 2008 and tested on November 13 and November 23, 2008, February 4, February 11, February 12 and February 17, 2009. The EUT consisted of the following component(s):

Manufacturer	Model	Description	Serial Number	FCC ID
Ruckus Wireless, Inc.	7962	802.11a/b/g/n Access Point	0901000003	S9G7962

OTHER EUT DETAILS

The following power supplies are supported in addition to any PoE injector or switch. Ruckus does not supply the PoE supply.

DVE	S024EU1200150	Power Supply	-	-

ANTENNA SYSTEM

The four antennas used in the system are internal to the device.

ENCLOSURE

The EUT enclosure is primarily constructed of plastic. It measures approximately 19 cm wide by 15 cm deep by 10 cm high.

MODIFICATIONS

The EUT did not require modifications during testing in order to comply with emissions specifications.

SUPPORT EQUIPMENT

No equipment was used as local support equipment for emissions testing.

The following equipment was used as remote support equipment for emissions testing:

Manufacturer	Model	Description	Serial Number	FCC ID
Dell	-	Laptop Computer	-	DoC

EUT INTERFACE PORTS

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

Port	Connected To	Cable(s)		
		Description	Shielded or Unshielded	Length(m)
Ethernet	Laptop	CAT5	Unshielded	3m
DC Power	AC/DC Adapter	Multiconductor	Shielded	1.5

EUT OPERATION

During transmit mode testing, the EUT was set to continuously transmit at the desired channel, power, and mode. For receive mode testing, the EUT was configured in a receive only mode.

TEST SITE

GENERAL INFORMATION

Final test measurements were taken on November 13 and November 23, 2008, February 4, February 11, February 12 and February 17, 2009 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	
SVOATS #1	90592	IC 2845A-1	684 West Maude Ave, Sunnyvale CA 94085-3518
SVOATS #2	90593	IC 2845A-2	

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 with the exception, on OATS sites, of predictable local TV, radio, and mobile communications traffic. 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 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.

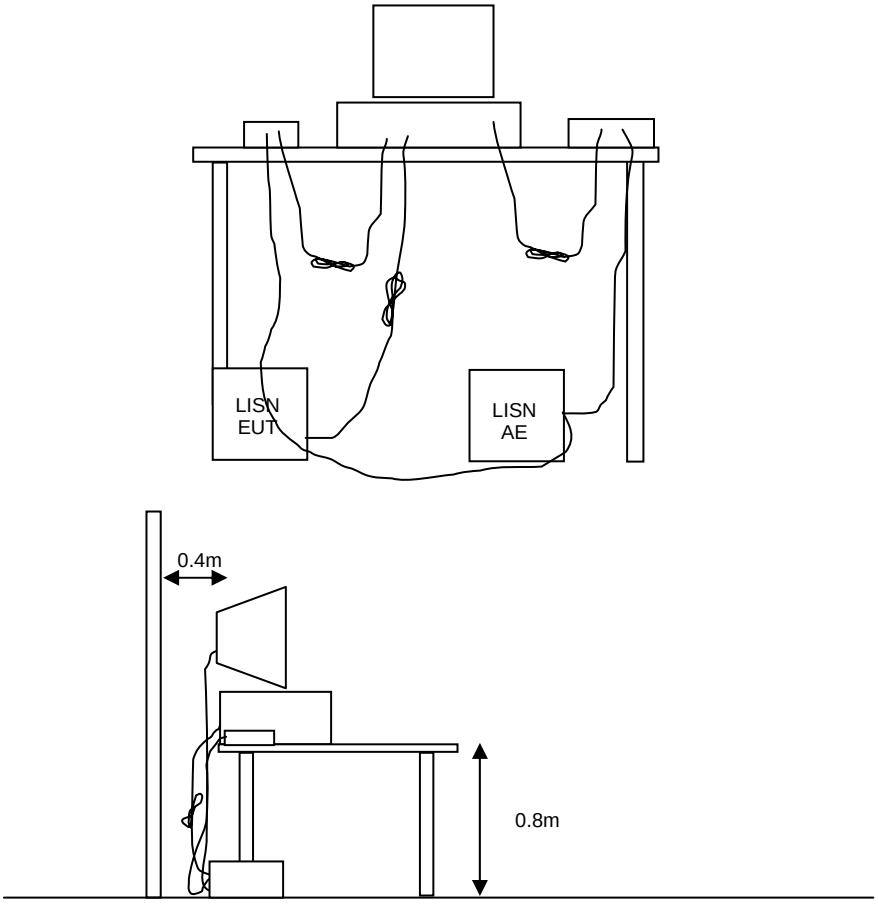
TEST PROCEDURES

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.

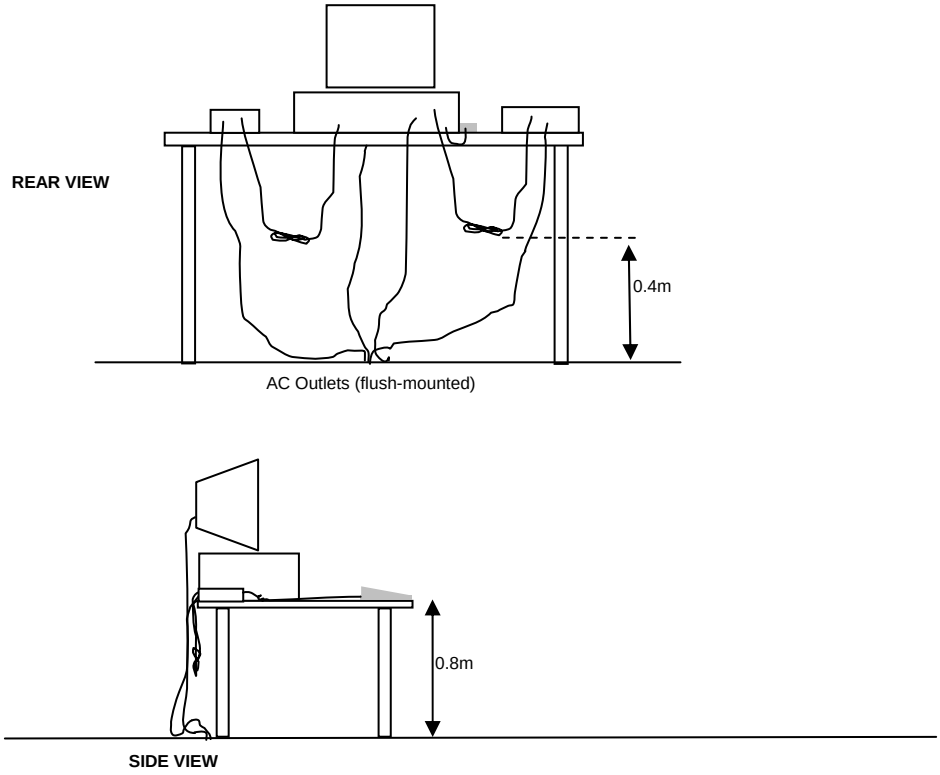


A preliminary scan of the radiated emissions is performed in which all significant EUT frequencies are identified with the system in a nominal configuration. At least two scans are performed, one scan for each antenna polarization (horizontal and vertical; loop parallel and perpendicular to the EUT). 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.

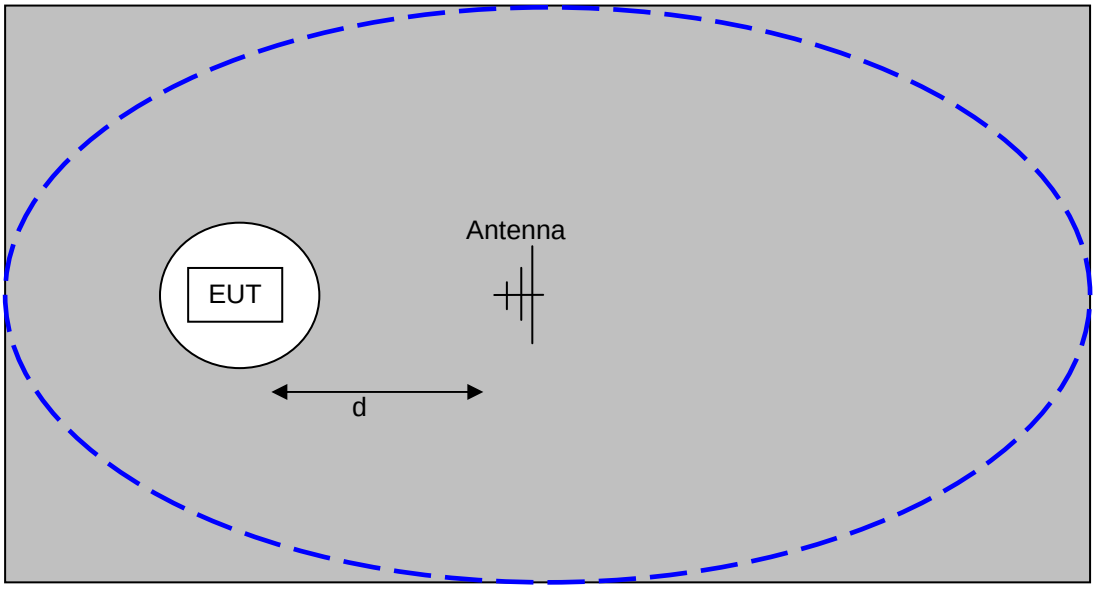
A speaker is provided in the receiver to aid in discriminating between EUT and ambient emissions. Other methods used during the preliminary scan for EUT emissions involve scanning with near field magnetic loops, monitoring I/O cables with RF current clamps, and cycling power to the EUT.

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.

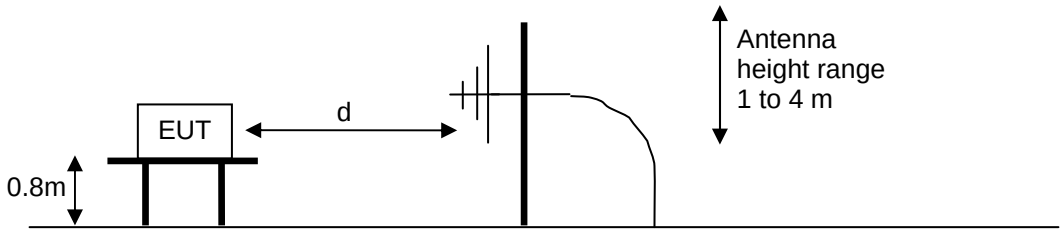
When testing above 18 GHz, the receive antenna is located at 1meter from the EUT and the antenna height is restricted to a maximum of 2.5 meters.



Typical Test Configuration for Radiated Field Strength Measurements



The ground plane extends beyond the ellipse defined in CISPR 16 / CISPR 22 / ANSI C63.4 and is large enough to accommodate test distances (d) of 3m and 10m. Refer to the test data tables for the actual measurement distance.



Test Configuration for Radiated Field Strength Measurements
OATS- 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:

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

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

SAMPLE CALCULATIONS - FIELD STRENGTH TO EIRP CONVERSION

Where the radiated electric field strength is expressed in terms of the equivalent isotropic radiated power (eirp), or where a field strength measurement of output power is made in lieu of a direct measurement, the following formula is used to convert between eirp and field strength at a distance of 3m from the equipment under test:

$$E = \frac{1000000 \sqrt{30 P}}{3} \quad \text{microvolts per meter}$$

where P is the eirp (Watts)

EXHIBIT 1: Test Equipment Calibration Data

3 Pages

Radiated Emissions, 30 - 26,500 MHz, 13-Nov-08
Engineer: Rafael Varelas

Manufacturer	Description	Model #	Asset #	Cal Due
EMCO	Antenna, Horn, 1-18 GHz	3115	487	15-Jul-10
Hewlett Packard	SpecAn 30 Hz -40 GHz, SV (SA40) Red	8564E (84125C)	1148	24-Nov-08

Radiated Emissions, 30 - 26,500 MHz, 23-Nov-08
Engineer: Rafael Varelas

Manufacturer	Description	Model #	Asset #	Cal Due
Hewlett Packard	Microwave Preamplifier, 1-26.5GHz	8449B	785	06-Jun-09
Hewlett Packard	SpecAn 30 Hz -40 GHz, SV (SA40) Red	8564E (84125C)	1148	24-Nov-08
Micro-Tronics	Band Reject Filter, 2400-2500 MHz	BRM50702-02	1683	05-Aug-09
EMCO	Antenna, Horn, 1-18 GHz	3115	487	15-Jul-10

Radiated Emissions, 30 - 26,500 MHz, 18-Dec-08
Engineer: Rafael Varelas

Manufacturer	Description	Model #	Asset #	Cal Due
Hewlett Packard	Microwave Preamplifier, 1-26.5GHz	8449B	870	09-Oct-09
Hewlett Packard	SpecAn 30 Hz -40 GHz, SV (SA40) Red	8564E (84125C)	1148	24-Dec-08
Hewlett Packard	High Pass filter, 8.2 GHz (Red System)	P/N 84300-80039 (84125C)	1152	13-Oct-09
EMCO	Antenna, Horn, 1-18 GHz	3115	1561	10-Jun-10

Radiated Emissions, 1000 - 18,000 MHz, 04-Feb-09
Engineer: Rafael Varelas

Manufacturer	Description	Model #	Asset #	Cal Due
Hewlett Packard	Microwave Preamplifier, 1-26.5GHz	8449B	785	06-Jun-09
Hewlett Packard	SpecAn 30 Hz -40 GHz, SV (SA40) Red	8564E (84125C)	1148	24-Mar-09
Hewlett Packard	High Pass filter, 8.2 GHz (Red System)	P/N 84300-80039 (84125C)	1152	13-Oct-09
EMCO	Antenna, Horn, 1-18 GHz	3115	1561	10-Jun-10

Radiated Emissions, 1000 - 18,000 MHz, 12-Feb-09
Engineer: Rafael Varelas

Manufacturer	Description	Model #	Asset #	Cal Due
Hewlett Packard	SpecAn 9 KHz-26.5 GHz, Non-Program	8563E	284	29-Dec-09
Hewlett Packard	Microwave Preamplifier, 1-26.5GHz	8449B	870	09-Oct-09
EMCO	Antenna, Horn, 1-18 GHz	3115	1561	10-Jun-10

Radio Antenna Port (Power and Spurious Emissions), 13-Feb-09
Engineer: Joseph Cadigal

Manufacturer	Description	Model #	Asset #	Cal Due
Hewlett Packard	SpecAn 30 Hz -40 GHz, SV (SA40) Red	8564E (84125C)	1148	24-Feb-09
Rohde & Schwarz	Power Meter, Single Channel	NRVS	1422	06-Nov-09
Rohde & Schwarz	Pwr Sensor 300 uW - 30 Watts (+ 25dB pad)	NRV-Z54	1788	01-Jul-09

Radio Antenna Port (Power and Spurious Emissions), 18-Feb-09
Engineer: Rafael Varelas

Manufacturer	Description	Model #	Asset #	Cal Due
Hewlett Packard	SpecAn 30 Hz -40 GHz, SV (SA40) Red	8564E (84125C)	1148	24-Mar-09

Radiated Emissions, 30 - 1,000 MHz, 13-Nov-08
Engineer: Peter Sales

Manufacturer	Description	Model #	Asset #	Cal Due
Sunol Sciences	Biconilog, 30-3000 MHz	JB3	1549	23-May-09
Rohde & Schwarz	EMI Test Receiver, 20 Hz-7 GHz	ESIB7	1630	22-Feb-09
Com-Power Corp.	Preamplifier, 30-1000 MHz	PA-103	1632	22-May-09

Radiated Emissions, 30 - 1,000 MHz, 26-Nov-08
Engineer: Chris Groat

Manufacturer	Description	Model #	Asset #	Cal Due
Com-Power Corp.	Preamplifier, 30-1000 MHz	PA-103	1543	14-Nov-09
Sunol Sciences	Biconilog, 30-3000 MHz	JB3	1657	23-May-10
Rohde & Schwarz	EMI Test Receiver, 20 Hz-7 GHz	ESIB7	1756	04-Dec-08

Radiated Emissions, 30 - 1,000 MHz, 17-Jan-09
Engineer: rvarelas

Manufacturer	Description	Model #	Asset #	Cal Due
Rohde & Schwarz	EMI Test Receiver, 20 Hz-7 GHz	ESIB7	1538	19-Sep-09
Sunol Sciences	Biconilog, 30-3000 MHz	JB3	1548	13-Jun-10
Hewlett Packard	Preamplifier, 100 kHz - 1.3 GHz	8447E	1606	29-May-09

Conducted Emissions - AC Power Ports, 22-Jan-09
Engineer: Riaz Momand

Manufacturer	Description	Model #	Asset #	Cal Due
Hewlett Packard	SpecAn 9 KHz-26.5 GHz, Non-Program	8563E	284	29-Dec-09
Elliott Laboratories	LISN, FCC / CISPR	LISN-3, OATS	304	31-Jul-09
Solar Electronics	LISN	8028-50-TS-24-BNC support	904	15-Feb-09
Rohde & Schwarz	Test Receiver, 9 kHz-2750 MHz	ESCS 30	1337	02-Oct-09
Rohde& Schwarz	Pulse Limiter	ESH3 Z2	1398	12-Feb-09

Conducted Emissions - I-O Ports, 22-Jan-09
Engineer: Riaz Momand

Manufacturer	Description	Model #	Asset #	Cal Due
Hewlett Packard	SpecAn 9 KHz-26.5 GHz, Non-Program	8563E	284	29-Dec-09
Elliott Laboratories	LISN, FCC / CISPR	LISN-3, OATS	304	31-Jul-09
Solar Electronics	LISN	8028-50-TS-24-BNC support	904	15-Feb-09
Rohde & Schwarz	Test Receiver, 9 kHz-2750 MHz	ESCS 30	1337	02-Oct-09
Rohde& Schwarz	Pulse Limiter	ESH3 Z2	1398	12-Feb-09
Fischer Custom Comm.	FCC-TLISN-T8-02 (Includes 1907)	FCC-TLISN-T8-02	1906	05-Jul-09

Conducted Emissions - AC Power and Telecommunications Ports, 29-Jan-09
Engineer: Chris Groat

Manufacturer	Description	Model #	Asset #	Cal Due
Elliott Laboratories	LISN, FCC / CISPR	LISN-4, OATS	362	31-Jul-09
Hewlett Packard	EMC Spectrum Analyzer, 9 kHz - 6.5 GHz	8595EM	787	19-Feb-09
Rohde& Schwarz	Pulse Limiter	ESH3 Z2	812	12-Feb-09
Solar Electronics	LISN	8028-50-TS-24-BNC support	904	15-Feb-09
Fischer Custom Comm.	Non-Contact Voltage Probe	F-CVP-1	1296	09-Sep-09
Rohde & Schwarz	Test Receiver, 0.009-2750 MHz	ESN	1332	30-Jan-09
Fischer Custom Comm.	Current Probe, RF	F-16M	1820	26-Mar-10
Fischer Custom Comm.	FCC-TLISN-T8-02 (Includes 1907)	FCC-TLISN-T8-02	1906	05-Jul-09

Radiated Emissions, 30 - 2,000 MHz, 21-Feb-09
Engineer: Joseph Cadigal

Manufacturer	Description	Model #	Asset #	Cal Due
Hewlett Packard	Microwave Preamplifier, 1-26.5GHz	8449B	263	09-Oct-09
EMCO	Antenna, Horn, 1-18 GHz (SA40-Blu)	3115	1386	02-Sep-10
Sunol Sciences	Biconilog, 30-3000 MHz	JB3	1548	13-Jun-10
Rohde & Schwarz	EMI Test Receiver, 20 Hz-7 GHz	ESIB7	1756	10-Feb-10
Hewlett Packard	SpecAn 9 kHz - 40 GHz, (SA40) Purple	8564E (84125C)	1771	20-Oct-09
Hewlett Packard	Preamplifier, 100 kHz - 1.3 GHz	8447D OPT	2115	19-Nov-09

Conducted Emissions - Telecommunications Ports, 21-Feb-09
Engineer: Joseph Cadigal

Manufacturer	Description	Model #	Asset #	Cal Due
EMCO	LISN, 10 kHz-100 MHz	3825/2	1292	22-Feb-09
Rohde& Schwarz	Pulse Limiter	ESH3 Z2	1401	17-Apr-09
Rohde & Schwarz	EMI Test Receiver, 20 Hz-7 GHz	ESIB7	1756	10-Feb-10
Fischer Custom Comm.	Current Probe, RF	F-16M	1820	26-Mar-10
Fischer Custom Comm.	Non-Contact Voltage Probe	F-CVP-1	1958	11-Dec-09

Conducted Emissions - Telecommunications Ports, 05-Mar-09
Engineer: Mark Hill

Manufacturer	Description	Model #	Asset #	Cal Due
Elliott Laboratories	LISN, FCC / CISPR	LISN-3, OATS	304	31-Jul-09
Rohde & Schwarz	Test Receiver, 9 kHz-2750 MHz	ESCS 30	1337	02-Oct-09
Fischer Custom Comm.	Current Probe, RF	F-16M	1820	26-Mar-10
Fischer Custom Comm.	Non-Contact Voltage Probe	F-CVP-1	1958	11-Dec-09

EXHIBIT 2: Test Measurement Data

86 Pages

Client:	Ruckus Wireless	Job Number:	J73710
Model:	Dalmatian (7962)	T-Log Number:	T73745
		Account Manager:	Dean Eriksen
Contact:	Craig Owens		-
Emissions Standard(s):	FCC Part 15.247/RSS-210	Class:	B
Immunity Standard(s):	-	Environment:	-

EMC Test Data

For The

Ruckus Wireless

Model

Dalmatian (7962)

Date of Last Test: 2/21/2009

Client:	Ruckus Wireless	Job Number:	J73710
Model:	Dalmatian (7962)	T-Log Number:	T73745
		Account Manger:	Dean Eriksen
Contact:	Craig Owens		
Emissions Standard(s):	FCC Part 15.247/RSS-210	Class:	B
Immunity Standard(s):	-	Environment:	-

EUT INFORMATION

General Description

The EUT is an Access Point that is designed to distribute WiFi. Since the EUT would be placed on a table top during operation, the EUT was treated as table-top equipment during testing to simulate the end-user environment. The electrical rating of the EUT is 120/230 Volts, 50/60 Hz, 0.5 Amps using an external AC/DC adapter. The EUT can also be powered over the POE port.

Equipment Under Test

Manufacturer	Model	Description	Serial Number	FCC ID
Ruckus Wireless, Inc.	7962	802.11a/b/g/n Access	0901000003	S9G7962

Other EUT Details

The following power supplies are supported in addition to any PoE injector or switch. Ruckus does not supply the PoE supply.

DVE	S024EU1200150	Power Supply	-	-

EUT Antenna (Intentional Radiators Only)

The six antennas (3 for each band) used in the system are internal to the device.

EUT Enclosure

The EUT enclosure is primarily constructed of plastic. It measures approximately 19 cm wide by 15 cm deep by 10 cm high.

Modification History

Mod. #	Test	Date	Modification
1	-	-	No modifications were made to the EUT during testing.

Modifications applied are assumed to be used on subsequent tests unless otherwise stated as a further modification.

Client:	Ruckus Wireless	Job Number:	J73710
Model:	Dalmatian (7962)	T-Log Number:	T73745
		Account Manger:	Dean Eriksen
Contact:	Craig Owens		
Emissions Standard(s):	FCC Part 15.247/RSS-210	Class:	B
Immunity Standard(s):	-	Environment:	-

Test Configuration #1

The following information was collected during the test session(s).

Local Support Equipment

Manufacturer	Model	Description	Serial Number	FCC ID
-	-	-	-	-

Remote Support Equipment

Manufacturer	Model	Description	Serial Number	FCC ID
Dell	-	Laptop Computer	-	DoC

Cabling and Ports

Port	Connected To	Cable(s)		
		Description	Shielded or Unshielded	Length(m)
Ethernet	Laptop	CAT5	Unshielded	3m
DC Power	AC/DC Adapter	Multiconductor	Shielded	1.5

EUT Operation During Emissions Tests

During transmit mode testing, the EUT was set to continuously transmit at the desired channel, power, and mode. For receive mode testing, the EUT was configured in a receive only mode.

Client:	Ruckus Wireless	Job Number:	J73710
Model:	Dalmatian (7962)	T-Log Number:	T73745
		Account Manager:	Dean Eriksen
Contact:	Craig Owens		
Standard:	FCC Part 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 or routed in overhead in the GR-1089 test configuration.

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

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

Run #	Mode	Channel	Power Setting	Measured Power	Test Performed	Limit	Result / Margin
1a	b mode	low	22	-	Restricted Band Edge (2390 MHz)	FCC Part 15.209 / 15.247(c)	49.9dBµV/m @ 2386.1MHz (-4.1dB)
1c	b mode	high	22	-	Restricted Band Edge (2483.5 MHz)	FCC Part 15.209 / 15.247(c)	46.5dBµV/m @ 2486.4MHz (-7.5dB)
2a	g mode	low	22	-	Restricted Band Edge (2390 MHz)	FCC Part 15.209 / 15.247(c)	52.6dBµV/m @ 2384.2MHz (-1.4dB)
2c	g mode	high	22	-	Restricted Band Edge (2483.5 MHz)	FCC Part 15.209 / 15.247(c)	47.1dBµV/m @ 2483.5MHz (-6.9dB)
3a	MSC0 HT20	low	22	-	Restricted Band Edge (2390 MHz)	FCC Part 15.209 / 15.247(c)	73.9dBµV/m @ 2388.5MHz (-0.1dB)
3c	MSC0 HT20	high	22	-	Restricted Band Edge (2483.5 MHz)	FCC Part 15.209 / 15.247(c)	47.5dBµV/m @ 2485.3MHz (-6.5dB)
4a	MSC0 HT40	low	21	-	Restricted Band Edge (2390 MHz)	FCC Part 15.209 / 15.247(c)	53.6dBµV/m @ 2380.6MHz (-0.4dB)
4c	MSC0 HT40	high	21	-	Restricted Band Edge (2483.5 MHz)	FCC Part 15.209 / 15.247(c)	48.1dBµV/m @ 2485.8MHz (-5.9dB)

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:	Ruckus Wireless	Job Number:	J73710
Model:	Dalmatian (7962)	T-Log Number:	T73745
		Account Manager:	Dean Eriksen
Contact:	Craig Owens		
Standard:	FCC Part 15.247/RSS-210	Class:	N/A

Run #1: Radiated Spurious Emissions, Bandedges, Operating Mode: 802.11b

Date of Test: 11/13/2008
Test Engineer: Rafael Varelas
Test Location: SVOATS #1

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

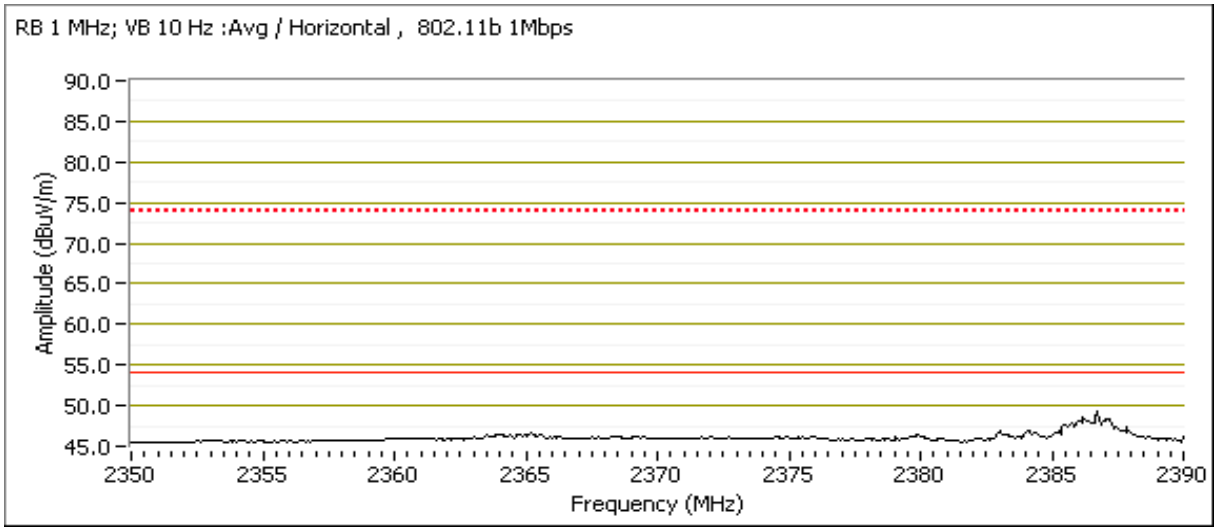
Ambient Conditions:

Temperature: 18 °C
Rel. Humidity: 80 %

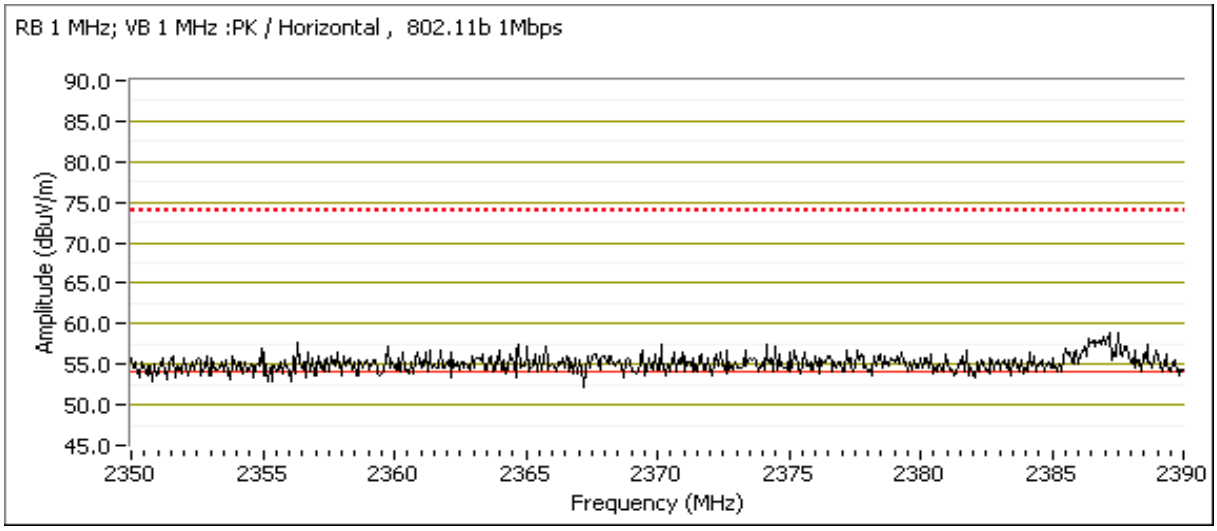
Run #1a: Low Channel @ 2412 MHz

Fundamental Signal Field Strength: Peak and average values measured in 1 MHz, and 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	
2413.270	113.0	H	-	-	AVG	360	1.8	RB 1 MHz; VB: 10 Hz
2413.240	116.2	H	-	-	PK	360	1.8	RB 1 MHz; VB: 1 MHz
2412.970	109.4	V	-	-	AVG	280	1.4	RB 1 MHz; VB: 10 Hz
2413.870	112.8	V	-	-	PK	280	1.4	RB 1 MHz; VB: 1 MHz



Client:	Ruckus Wireless	Job Number:	J73710
Model:	Dalmatian (7962)	T-Log Number:	T73745
		Account Manager:	Dean Eriksen
Contact:	Craig Owens		
Standard:	FCC Part 15.247/RSS-210	Class:	N/A



Band Edge Signal Field Strength

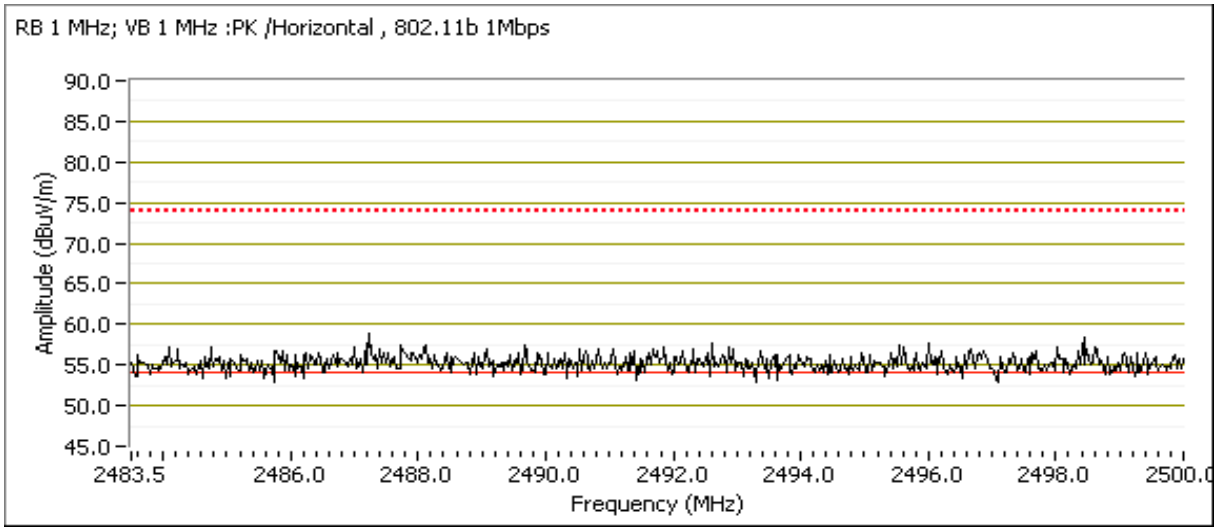
Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
2386.070	49.9	V	54.0	-4.1	Avg	280	1.4	RB 1 MHz; VB: 10 Hz
2385.980	49.5	H	54.0	-4.5	Avg	359	1.8	RB 1 MHz; VB: 10 Hz
2385.830	60.3	H	74.0	-13.7	PK	359	1.8	RB 1 MHz; VB: 1 MHz
2386.910	59.6	V	74.0	-14.4	PK	280	1.4	RB 1 MHz; VB: 1 MHz

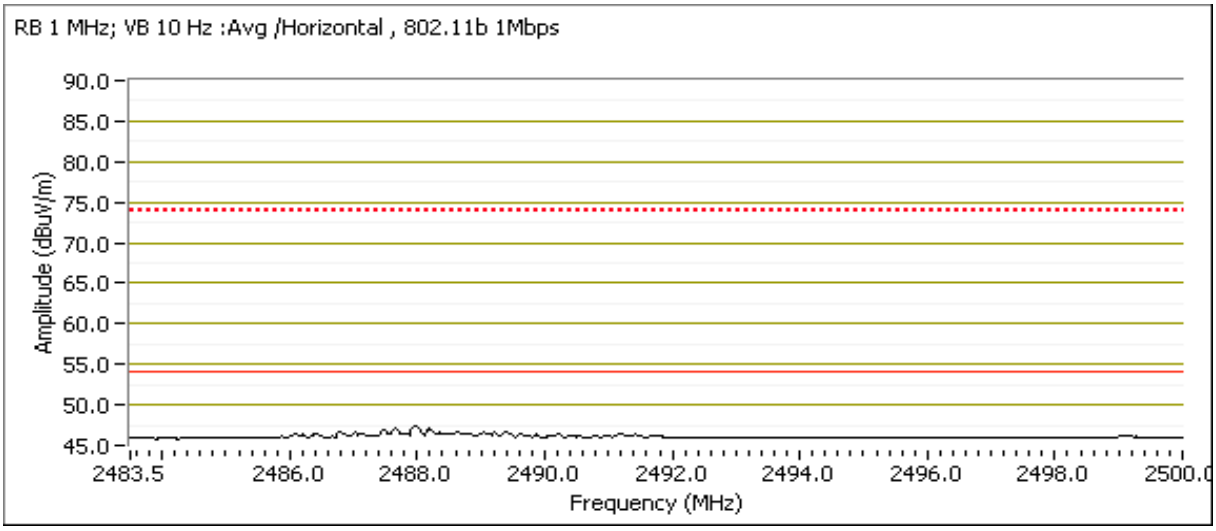
Run #1c: High Channel @ 2462 MHz

Fundamental Signal Field Strength: Peak and average values measured in 1 MHz, and 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	
2459.600	109.3	H	-	-	AVG	360	1.6	RB 1 MHz; VB: 10 Hz
2460.630	112.0	H	-	-	PK	360	1.6	RB 1 MHz; VB: 1 MHz
2460.500	104.8	V	-	-	AVG	351	1.3	RB 1 MHz; VB: 10 Hz
2460.620	109.3	V	-	-	PK	351	1.3	RB 1 MHz; VB: 1 MHz

Client:	Ruckus Wireless	Job Number:	J73710
Model:	Dalmatian (7962)	T-Log Number:	T73745
		Account Manager:	Dean Eriksen
Contact:	Craig Owens		
Standard:	FCC Part 15.247/RSS-210	Class:	N/A





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	
2486.350	46.5	H	54.0	-7.5	Avg	360	1.6	RB 1 MHz; VB: 10 Hz
2484.370	58.4	H	74.0	-15.6	PK	360	1.6	RB 1 MHz; VB: 1 MHz
2486.420	46.1	V	54.0	-7.9	Avg	351	1.3	RB 1 MHz; VB: 10 Hz
2486.140	57.9	V	74.0	-16.1	PK	351	1.3	RB 1 MHz; VB: 1 MHz

Client:	Ruckus Wireless	Job Number:	J73710
Model:	Dalmatian (7962)	T-Log Number:	T73745
		Account Manager:	Dean Eriksen
Contact:	Craig Owens		
Standard:	FCC Part 15.247/RSS-210	Class:	N/A

Run #2: Radiated Spurious Emissions, Bandedges, Operating Mode: 802.11g

Date of Test: 11/13/2008
Test Engineer: Rafael Varelas
Test Location: SVOATS #1

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

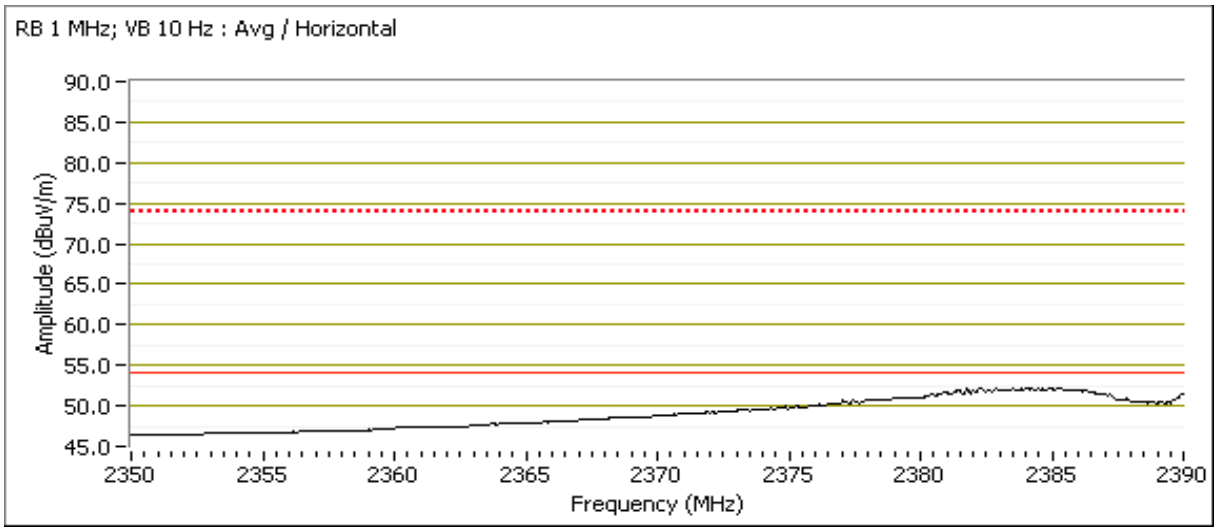
Ambient Conditions:

Temperature: 18 °C
Rel. Humidity: 80 %

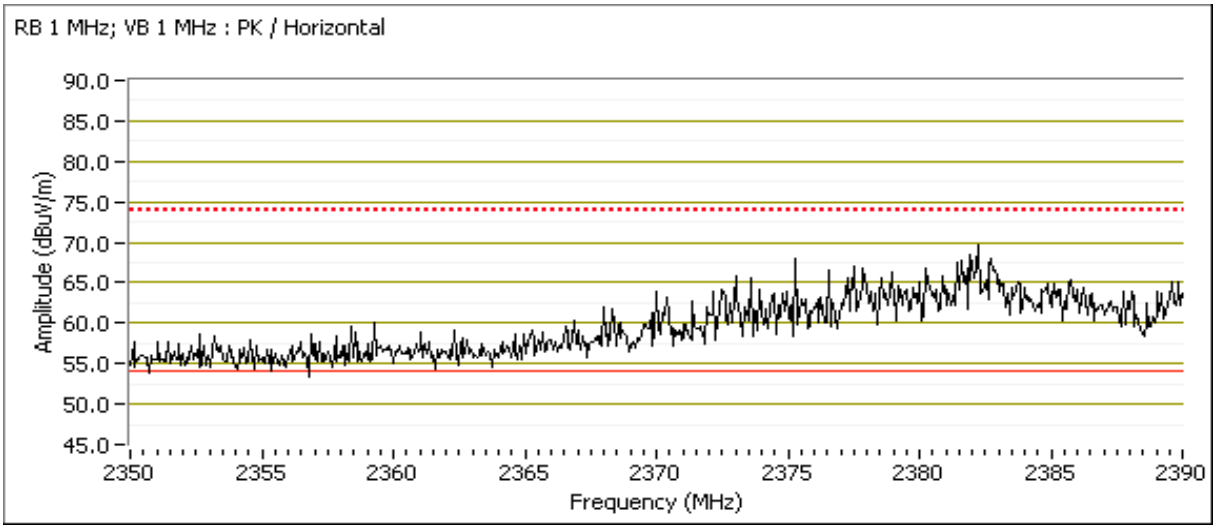
Run #2a: Low Channel @ 2412 MHz

Fundamental Signal Field Strength: Peak and average values measured in 1 MHz, and 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	
2413.430	109.3	H	-	-	AVG	0	1.8	RB 1 MHz; VB: 10 Hz
2411.220	118.1	H	-	-	PK	0	1.8	RB 1 MHz; VB: 1 MHz
2416.220	106.5	V	-	-	AVG	284	1.4	RB 1 MHz; VB: 10 Hz
2419.560	115.8	V	-	-	PK	284	1.4	RB 1 MHz; VB: 1 MHz



Client:	Ruckus Wireless	Job Number:	J73710
Model:	Dalmatian (7962)	T-Log Number:	T73745
		Account Manager:	Dean Eriksen
Contact:	Craig Owens		
Standard:	FCC Part 15.247/RSS-210	Class:	N/A



Band Edge Signal Field Strength

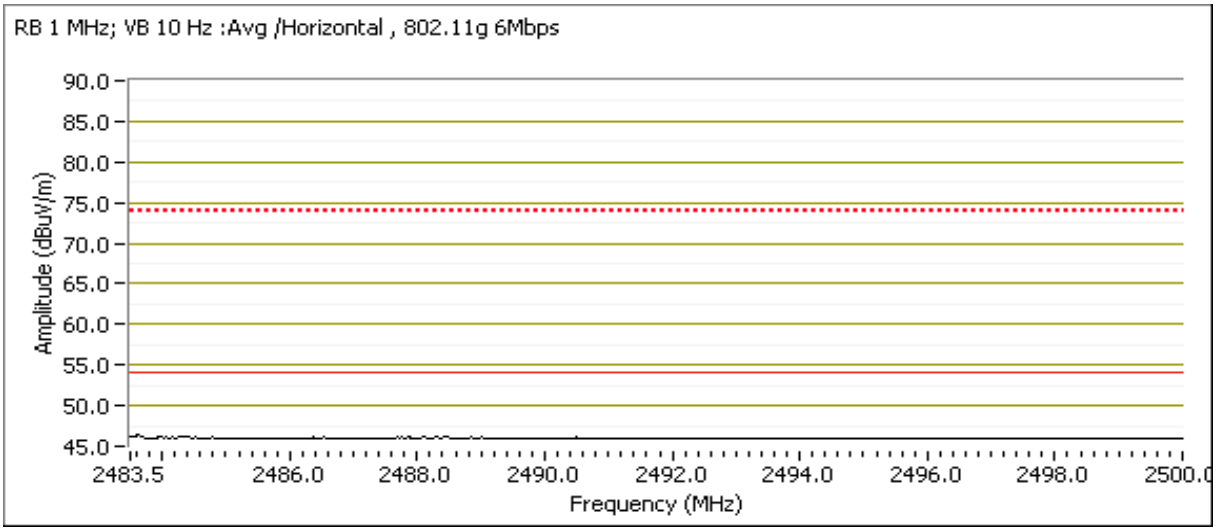
Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
2384.190	52.6	H	54.0	-1.4	Avg	0	1.8	RB 1 MHz; VB: 10 Hz
2384.420	70.3	H	74.0	-3.7	PK	0	1.8	RB 1 MHz; VB: 1 MHz
2389.990	52.2	V	54.0	-1.8	Avg	284	1.4	RB 1 MHz; VB: 10 Hz
2389.770	70.2	V	74.0	-3.8	PK	284	1.4	RB 1 MHz; VB: 1 MHz

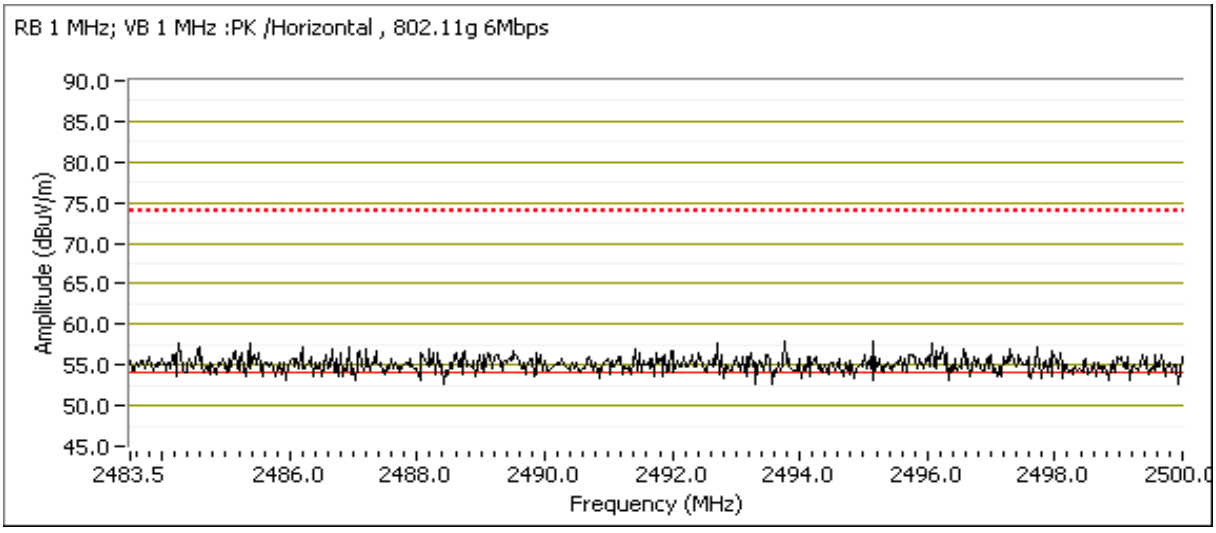
Run #2c: High Channel @ 2462 MHz

Fundamental Signal Field Strength: Peak and average values measured in 1 MHz, and 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	
2459.580	107.1	H	-	-	AVG	360	1.6	RB 1 MHz; VB: 10 Hz
2464.540	116.2	H	-	-	PK	360	1.6	RB 1 MHz; VB: 1 MHz
2458.870	99.7	V	-	-	AVG	353	1.8	RB 1 MHz; VB: 10 Hz
2455.170	109.4	V	-	-	PK	353	1.8	RB 1 MHz; VB: 1 MHz

Client:	Ruckus Wireless	Job Number:	J73710
Model:	Dalmatian (7962)	T-Log Number:	T73745
		Account Manager:	Dean Eriksen
Contact:	Craig Owens		
Standard:	FCC Part 15.247/RSS-210	Class:	N/A





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	47.1	H	54.0	-6.9	Avg	360	1.6	RB 1 MHz; VB: 10 Hz
2484.040	59.5	H	74.0	-14.5	PK	360	1.6	RB 1 MHz; VB: 1 MHz
2483.500	46.4	V	54.0	-7.6	Avg	352	1.8	RB 1 MHz; VB: 10 Hz
2485.210	58.1	V	74.0	-15.9	PK	352	1.8	RB 1 MHz; VB: 1 MHz

Client:	Ruckus Wireless	Job Number:	J73710
Model:	Dalmatian (7962)	T-Log Number:	T73745
		Account Manager:	Dean Eriksen
Contact:	Craig Owens		
Standard:	FCC Part 15.247/RSS-210	Class:	N/A

Run #3: Radiated Spurious Emissions, Bandedges, Operating Mode: MSC0 HT20

Date of Test: 11/13/2008
Test Engineer: Rafael Varelas
Test Location: SVOATS #1

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

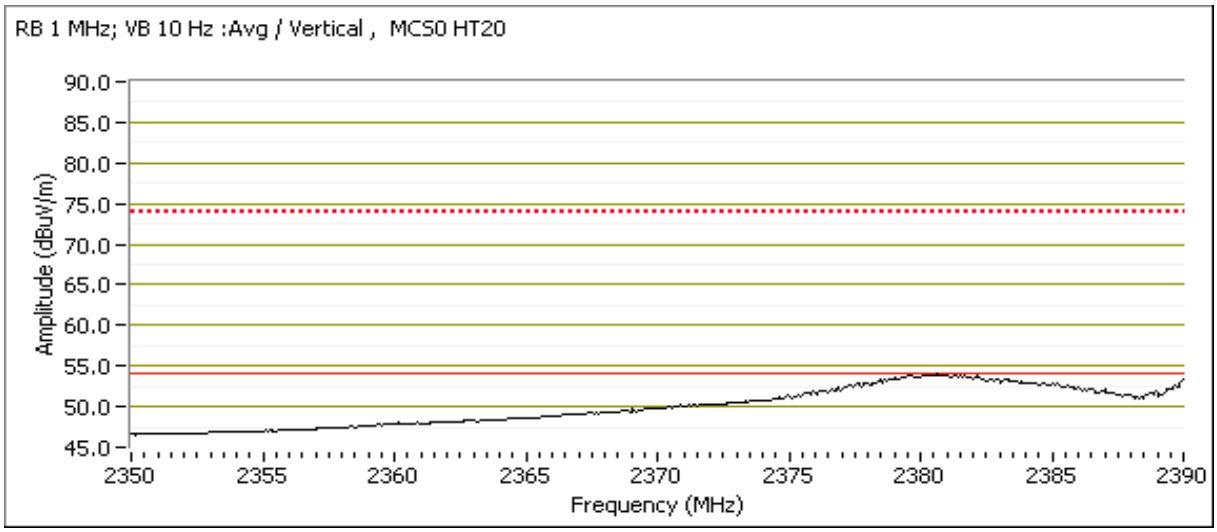
Ambient Conditions:

Temperature: 18 °C
Rel. Humidity: 80 %

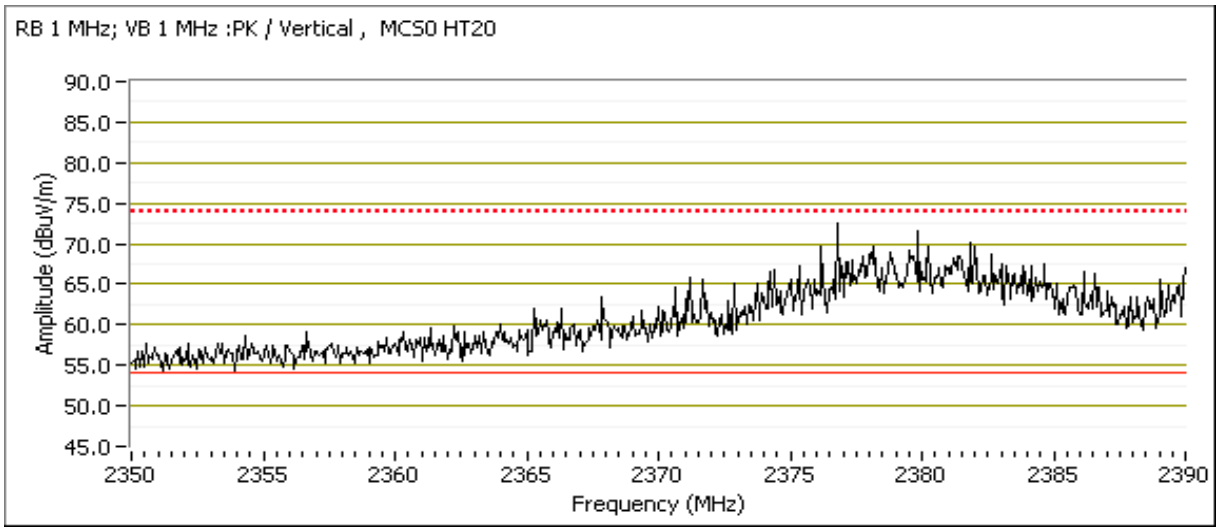
Run #3a: Low Channel @ 2412 MHz

Fundamental Signal Field Strength: Peak and average values measured in 1 MHz, and 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	
2418.710	105.7	V	-	-	AVG	284	1.4	RB 1 MHz; VB: 10 Hz
2417.950	116.3	V	-	-	PK	284	1.4	RB 1 MHz; VB: 1 MHz
2416.700	109.7	H	-	-	AVG	0	1.8	RB 1 MHz; VB: 10 Hz
2416.370	118.3	H	-	-	PK	0	1.8	RB 1 MHz; VB: 1 MHz



Client:	Ruckus Wireless	Job Number:	J73710
Model:	Dalmatian (7962)	T-Log Number:	T73745
		Account Manager:	Dean Eriksen
Contact:	Craig Owens		
Standard:	FCC Part 15.247/RSS-210	Class:	N/A



Band Edge Signal Field Strength

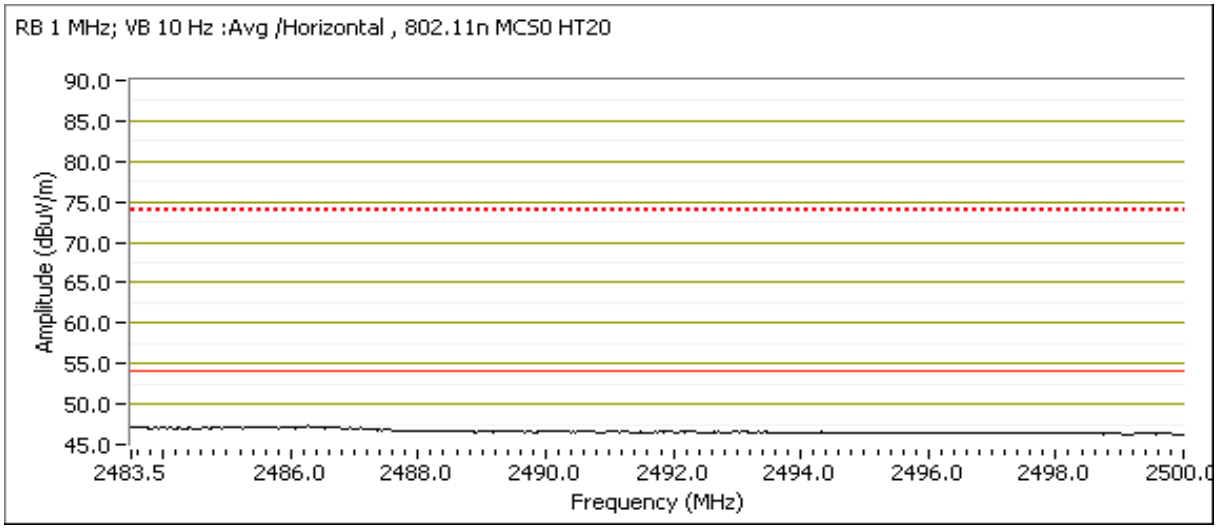
Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
2388.510	73.9	V	74.0	-0.1	PK	284	1.4	RB 1 MHz; VB: 1 MHz
2389.770	53.5	V	54.0	-0.5	Avg	284	1.4	RB 1 MHz; VB: 10 Hz
2389.730	53.1	H	54.0	-0.9	Avg	1	1.8	RB 1 MHz; VB: 10 Hz
2389.030	73.0	H	74.0	-1.0	PK	1	1.8	RB 1 MHz; VB: 1 MHz

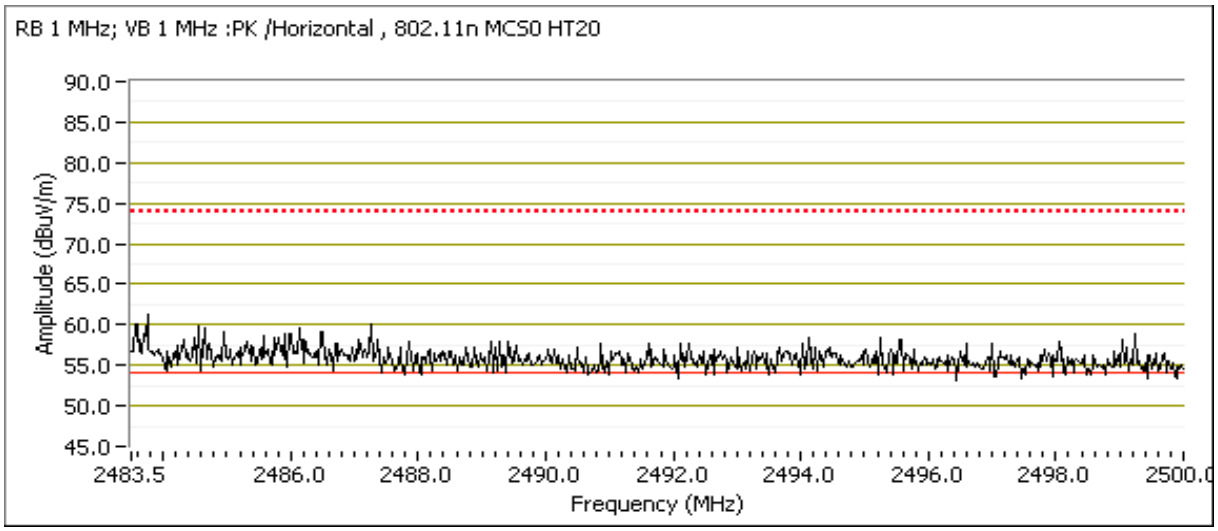
Run #3c: High Channel @ 2462 MHz

Fundamental Signal Field Strength: Peak and average values measured in 1 MHz, and 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	
2462.370	99.4	V	-	-	AVG	352	1.8	RB 1 MHz; VB: 10 Hz
2463.080	108.9	V	-	-	PK	352	1.8	RB 1 MHz; VB: 1 MHz
2462.290	108.4	H	-	-	AVG	360	1.6	RB 1 MHz; VB: 10 Hz
2457.580	116.4	H	-	-	PK	360	1.6	RB 1 MHz; VB: 1 MHz

Client:	Ruckus Wireless	Job Number:	J73710
Model:	Dalmatian (7962)	T-Log Number:	T73745
		Account Manager:	Dean Eriksen
Contact:	Craig Owens		
Standard:	FCC Part 15.247/RSS-210	Class:	N/A





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	
2485.340	47.5	H	54.0	-6.5	Avg	360	1.6	RB 1 MHz; VB: 10 Hz
2484.810	46.6	V	54.0	-7.4	Avg	352	1.8	RB 1 MHz; VB: 10 Hz
2484.850	63.7	H	74.0	-10.3	PK	360	1.6	RB 1 MHz; VB: 1 MHz
2486.270	60.0	V	74.0	-14.0	PK	352	1.8	RB 1 MHz; VB: 1 MHz

Client:	Ruckus Wireless	Job Number:	J73710
Model:	Dalmatian (7962)	T-Log Number:	T73745
		Account Manager:	Dean Eriksen
Contact:	Craig Owens		
Standard:	FCC Part 15.247/RSS-210	Class:	N/A

Run #4: Radiated Spurious Emissions, Bandedges, Operating Mode: MSC0 HT40

Date of Test: 11/13/2008
Test Engineer: Rafael Varelas
Test Location: SVOATS #1

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

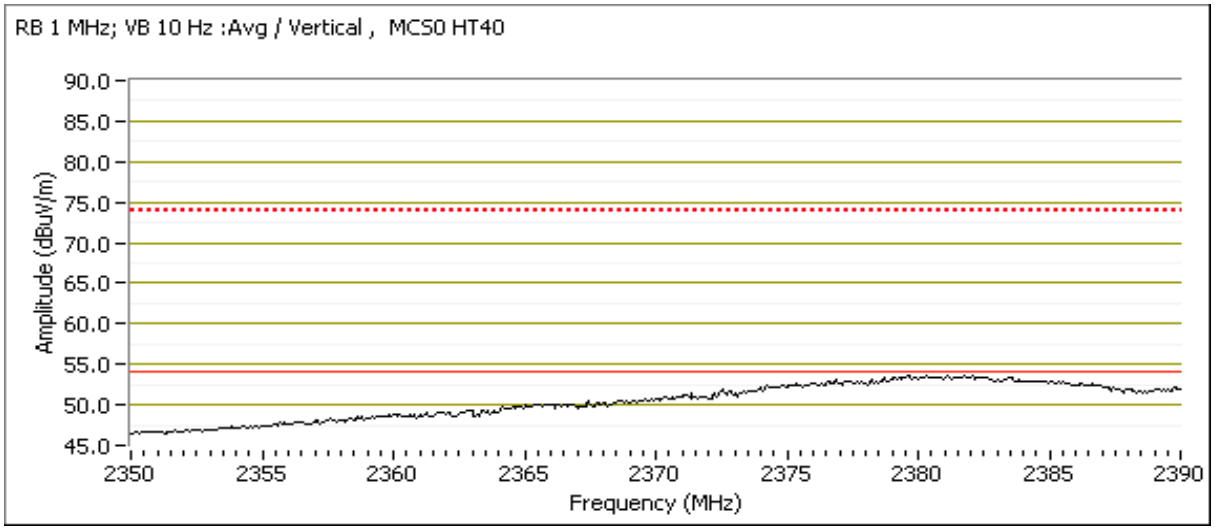
Ambient Conditions:

Temperature: 18 °C
Rel. Humidity: 80 %

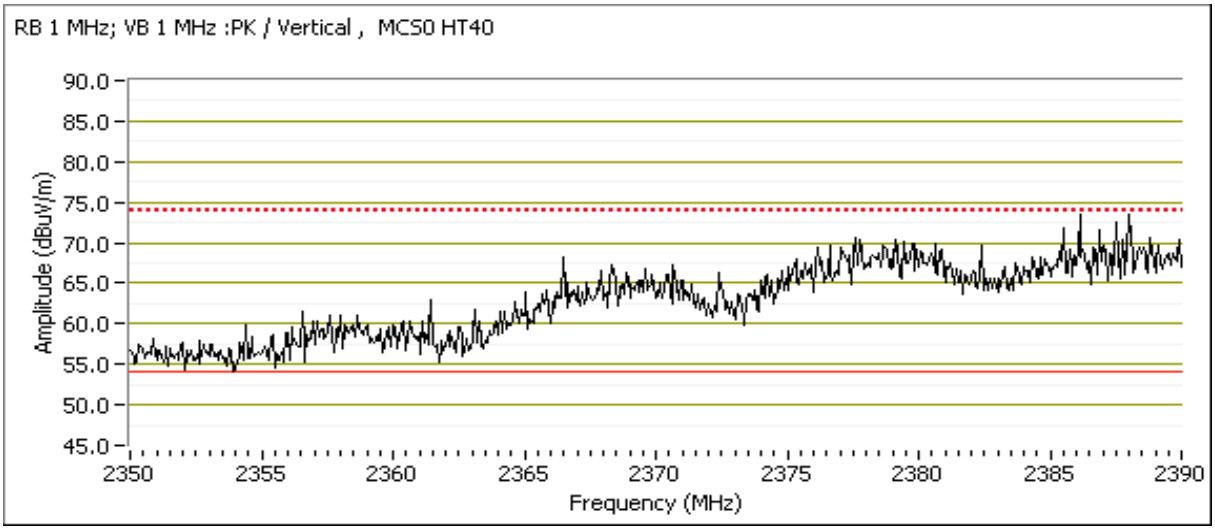
Run #1a: Low Channel @ 2422 MHz

Fundamental Signal Field Strength: Peak and average values measured in 1 MHz, and 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	
2428.730	103.8	V	-	-	AVG	283	1.3	RB 1 MHz; VB: 10 Hz
2428.120	114.4	V	-	-	PK	283	1.3	RB 1 MHz; VB: 1 MHz
2431.730	105.5	H	-	-	AVG	360	1.8	RB 1 MHz; VB: 10 Hz
2430.900	113.8	H	-	-	PK	360	1.8	RB 1 MHz; VB: 1 MHz



Client:	Ruckus Wireless	Job Number:	J73710
Model:	Dalmatian (7962)	T-Log Number:	T73745
		Account Manager:	Dean Eriksen
Contact:	Craig Owens		
Standard:	FCC Part 15.247/RSS-210	Class:	N/A



Band Edge Signal Field Strength

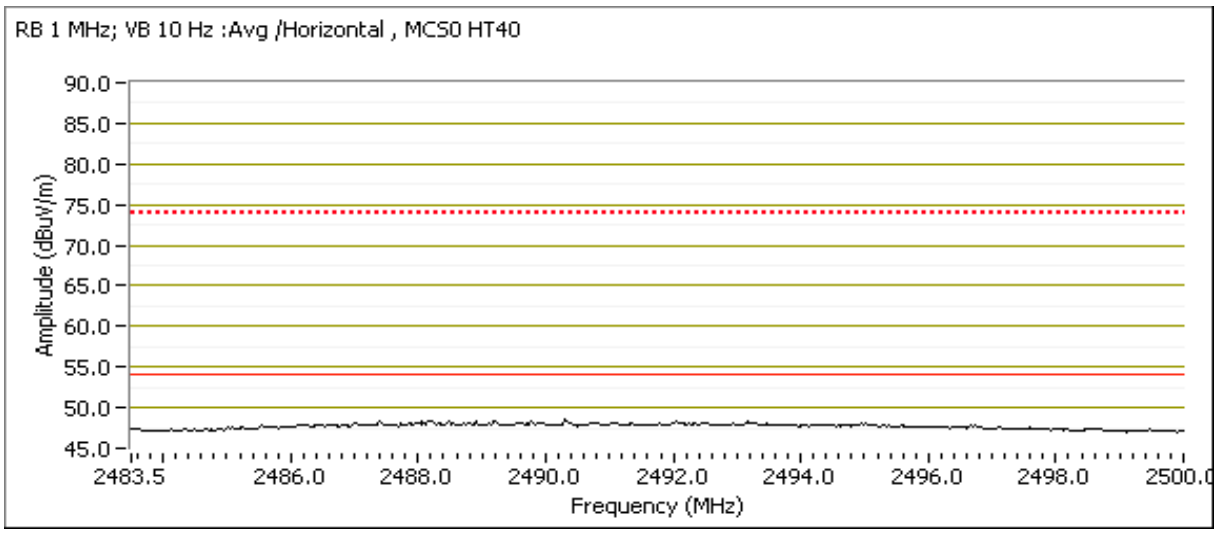
Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
2380.560	53.6	V	54.0	-0.4	Avg	283	1.3	RB 1 MHz; VB: 10 Hz
2380.360	53.5	H	54.0	-0.5	Avg	360	1.8	RB 1 MHz; VB: 10 Hz
2387.900	73.4	V	74.0	-0.6	PK	283	1.3	RB 1 MHz; VB: 1 MHz
2380.330	73.4	V	74.0	-0.6	PK	360	1.8	RB 1 MHz; VB: 1 MHz

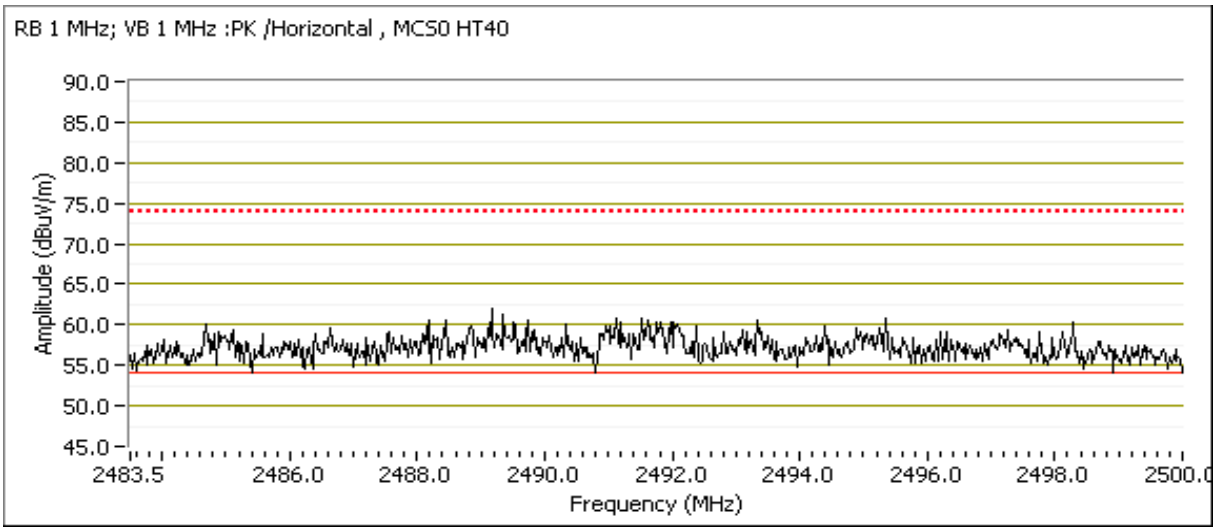
Run #1c: High Channel @ 2452 MHz

Fundamental Signal Field Strength: Peak and average values measured in 1 MHz, and 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	
2435.920	97.8	V	-	-	AVG	351	1.6	RB 1 MHz; VB: 10 Hz
2434.580	108.7	V	-	-	PK	351	1.6	RB 1 MHz; VB: 1 MHz
2452.350	105.4	H	-	-	AVG	360	1.6	RB 1 MHz; VB: 10 Hz
2435.700	112.2	H	-	-	PK	360	1.6	RB 1 MHz; VB: 1 MHz

Client:	Ruckus Wireless	Job Number:	J73710
Model:	Dalmatian (7962)	T-Log Number:	T73745
		Account Manager:	Dean Eriksen
Contact:	Craig Owens		
Standard:	FCC Part 15.247/RSS-210	Class:	N/A





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	
2485.780	48.1	H	54.0	-5.9	Avg	360	1.6	RB 1 MHz; VB: 10 Hz
2484.680	47.5	V	54.0	-6.5	Avg	351	1.6	RB 1 MHz; VB: 10 Hz
2486.470	62.2	H	74.0	-11.8	PK	360	1.6	RB 1 MHz; VB: 1 MHz
2484.860	59.5	V	74.0	-14.5	PK	351	1.6	RB 1 MHz; VB: 1 MHz

Client:	Ruckus Wireless	Job Number:	J73710
Model:	Dalmatian (7962)	T-Log Number:	T73745
		Account Manager:	Dean Eriksen
Contact:	Craig Owens		
Standard:	FCC Part 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.

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

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

Run #	Mode	Channel	Power Setting	Measured Power	Test Performed	Limit	Result / Margin
1a	b mode	low	22	-	Radiated Emissions, 1 - 26 GHz	FCC Part 15.209 / 15.247(c)	53.1dBµV/m @ 4823.9MHz (-0.9dB)
1b	b mode	center	22	-	Radiated Emissions, 1 - 26 GHz	FCC Part 15.209 / 15.247(c)	53.9dBµV/m @ 4874.1MHz (-0.1dB)
1c	b mode	high	22	-	Radiated Emissions, 1 - 26 GHz	FCC Part 15.209 / 15.247(c)	53.3dBµV/m @ 4924.0MHz (-0.7dB)
2a	g mode	low	22	-	Radiated Emissions, 1 - 26 GHz	FCC Part 15.209 / 15.247(c)	52.6dBµV/m @ 7237.2MHz (-1.4dB)
2b	g mode	center	22	-	Radiated Emissions, 1 - 26 GHz	FCC Part 15.209 / 15.247(c)	53.5dBµV/m @ 7311.7MHz (-0.5dB)
2c	g mode	high	22	-	Radiated Emissions, 1 - 26 GHz	FCC Part 15.209 / 15.247(c)	52.6dBµV/m @ 7385.3MHz (-1.4dB)
3a	802.11n 20MHz	low	22	-	Radiated Emissions, 1 - 26 GHz	FCC Part 15.209 / 15.247(c)	51.1dBµV/m @ 7237.1MHz (-2.9dB)
3b	802.11n 20MHz	center	22	-	Radiated Emissions, 1 - 26 GHz	FCC Part 15.209 / 15.247(c)	53.2dBµV/m @ 7311.1MHz (-0.8dB)
3c	802.11n 20MHz	high	22	-	Radiated Emissions, 1 - 26 GHz	FCC Part 15.209 / 15.247(c)	52.7dBµV/m @ 7386.3MHz (-1.3dB)
4a	802.11n 40MHz	low	21	-	Radiated Emissions, 1 - 26 GHz	FCC Part 15.209 / 15.247(c)	37.9dBµV/m @ 7266.8MHz (-16.1dB)
4b	802.11n 40MHz	center	21	-	Radiated Emissions, 1 - 26 GHz	FCC Part 15.209 / 15.247(c)	40.2dBµV/m @ 7311.5MHz (-13.8dB)
4c	802.11n 40MHz	high	21	-	Radiated Emissions, 1 - 26 GHz	FCC Part 15.209 / 15.247(c)	42.4dBµV/m @ 7357.4MHz (-11.6dB)

Modifications Made During Testing

No modifications were made to the EUT during testing

Client:	Ruckus Wireless	Job Number:	J73710
Model:	Dalmatian (7962)	T-Log Number:	T73745
		Account Manager:	Dean Eriksen
Contact:	Craig Owens		
Standard:	FCC Part 15.247/RSS-210	Class:	N/A

Deviations From The Standard

No deviations were made from the requirements of the standard.

Run #1: Radiated Spurious Emissions, 30 - 26000 MHz. Operating Mode: 802.11b

Date of Test: 11/23/2008
Test Engineer: Rafael Varelas
Test Location: SVOATS #2

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

Ambient Conditions:

Temperature: 11 °C
Rel. Humidity: 82 %

Run #1a: Low Channel @ 2412 MHz

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
4823.850	53.1	V	54.0	-0.9	AVG	223	1.3	RB 1 MHz; VB: 10 Hz
4824.020	49.9	H	54.0	-4.1	AVG	35	2.0	RB 1 MHz; VB: 10 Hz
9648.040	44.3	H	54.0	-9.7	AVG	226	1.3	RB 1 MHz; VB: 10 Hz
12061.190	40.5	H	54.0	-13.5	AVG	51	1.8	RB 1 MHz; VB: 10 Hz
7236.980	36.0	H	54.0	-18.0	AVG	257	2.0	RB 1 MHz; VB: 10 Hz
4824.060	55.0	V	74.0	-19.0	PK	223	1.3	RB 1 MHz; VB: 1 MHz
4823.940	53.2	H	74.0	-20.8	PK	35	2.0	RB 1 MHz; VB: 1 MHz
9648.440	52.0	H	74.0	-22.0	PK	226	1.3	RB 1 MHz; VB: 1 MHz
12059.070	51.4	H	74.0	-22.6	PK	51	1.8	RB 1 MHz; VB: 1 MHz
7234.520	47.5	H	74.0	-26.5	PK	257	2.0	RB 1 MHz; VB: 1 MHz

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:	Ruckus Wireless	Job Number:	J73710
Model:	Dalmatian (7962)	T-Log Number:	T73745
		Account Manager:	Dean Eriksen
Contact:	Craig Owens		
Standard:	FCC Part 15.247/RSS-210	Class:	N/A

Run #1b: Center Channel @ 2437 MHz

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
4874.070	53.9	H	54.0	-0.1	AVG	305	1.7	RB 1 MHz; VB: 10 Hz
4874.040	53.6	V	54.0	-0.4	AVG	227	1.3	RB 1 MHz; VB: 10 Hz
7312.080	42.2	V	54.0	-11.8	AVG	185	1.3	RB 1 MHz; VB: 10 Hz
7311.910	38.4	H	54.0	-15.6	AVG	189	1.7	RB 1 MHz; VB: 10 Hz
4874.290	56.7	V	74.0	-17.3	PK	227	1.3	RB 1 MHz; VB: 1 MHz
4874.060	55.4	H	74.0	-18.6	PK	305	1.7	RB 1 MHz; VB: 1 MHz
7309.720	50.3	V	74.0	-23.7	PK	185	1.3	RB 1 MHz; VB: 1 MHz
7311.610	48.2	H	74.0	-25.8	PK	189	1.7	RB 1 MHz; VB: 1 MHz

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.

Run #1c: High Channel @ 2462 MHz

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
4924.020	53.3	V	54.0	-0.7	AVG	231	1.3	RB 1 MHz; VB: 10 Hz
4924.040	53.0	H	54.0	-1.0	AVG	177	1.8	RB 1 MHz; VB: 10 Hz
7386.910	45.2	V	54.0	-8.8	AVG	185	1.0	RB 1 MHz; VB: 10 Hz
7386.850	39.5	H	54.0	-14.5	AVG	29	1.4	RB 1 MHz; VB: 10 Hz
4924.040	55.2	V	74.0	-18.8	PK	231	1.3	RB 1 MHz; VB: 1 MHz
4924.060	54.9	H	74.0	-19.1	PK	177	1.8	RB 1 MHz; VB: 1 MHz
7387.180	52.5	V	74.0	-21.5	PK	185	1.0	RB 1 MHz; VB: 1 MHz
7386.930	49.0	H	74.0	-25.0	PK	29	1.4	RB 1 MHz; VB: 1 MHz

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:	Ruckus Wireless	Job Number:	J73710
Model:	Dalmatian (7962)	T-Log Number:	T73745
		Account Manager:	Dean Eriksen
Contact:	Craig Owens		
Standard:	FCC Part 15.247/RSS-210	Class:	N/A

Run #2: Radiated Spurious Emissions, 30 - 26000 MHz. Operating Mode: 802.11g

Date of Test: 11/23/2008
Test Engineer: Rafael Varelas
Test Location: SVOATS #2

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

Ambient Conditions:

Temperature: 11 °C
Rel. Humidity: 82 %

Run #2a: Low Channel @ 2412 MHz

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
7237.230	52.6	V	54.0	-1.4	AVG	190	1.0	. MHz; VB: 10 Hz
7236.290	49.5	H	54.0	-4.5	AVG	245	1.4	. MHz; VB: 10 Hz
7237.150	66.5	V	74.0	-7.5	PK	190	1.0	MHz; VB: 1 MHz
7236.870	64.8	H	74.0	-9.2	PK	245	1.4	MHz; VB: 1 MHz
4823.630	42.6	V	54.0	-11.4	AVG	223	1.2	. MHz; VB: 10 Hz
4824.620	42.2	H	54.0	-11.8	AVG	36	2.0	. MHz; VB: 10 Hz
4825.100	56.0	H	74.0	-18.0	PK	36	2.0	MHz; VB: 1 MHz
4825.030	55.6	V	74.0	-18.4	PK	223	1.2	MHz; VB: 1 MHz

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.

Run #2b: Center Channel @ 2437 MHz

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
7311.670	53.5	V	54.0	-0.5	AVG	187	1.3	RB 1 MHz; VB: 10 Hz
7312.300	50.0	H	54.0	-4.0	AVG	252	1.5	RB 1 MHz; VB: 10 Hz
7311.890	69.3	V	74.0	-4.7	PK	187	1.3	RB 1 MHz; VB: 1 MHz
7311.310	64.7	H	74.0	-9.3	PK	252	1.5	RB 1 MHz; VB: 1 MHz
4874.000	42.4	V	54.0	-11.6	AVG	225	1.3	RB 1 MHz; VB: 10 Hz
4875.010	40.3	H	54.0	-13.7	AVG	319	2.0	RB 1 MHz; VB: 10 Hz
4873.730	54.7	V	74.0	-19.3	PK	225	1.3	RB 1 MHz; VB: 1 MHz
4875.120	51.8	H	74.0	-22.2	PK	319	2.0	RB 1 MHz; VB: 1 MHz

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:	Ruckus Wireless	Job Number:	J73710
Model:	Dalmatian (7962)	T-Log Number:	T73745
		Account Manager:	Dean Eriksen
Contact:	Craig Owens		
Standard:	FCC Part 15.247/RSS-210	Class:	N/A

Run #2c: High Channel @ 2462 MHz

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
7385.250	52.6	V	54.0	-1.4	AVG	185	1.1	RB 1 MHz; VB: 10 Hz
7386.900	71.7	V	74.0	-2.3	PK	185	1.1	RB 1 MHz; VB: 1 MHz
7386.580	46.1	H	54.0	-7.9	AVG	30	1.4	RB 1 MHz; VB: 10 Hz
7386.790	65.1	H	74.0	-8.9	PK	30	1.4	RB 1 MHz; VB: 1 MHz
4923.030	40.2	V	54.0	-13.8	AVG	234	1.5	RB 1 MHz; VB: 10 Hz
4922.830	39.1	H	54.0	-14.9	AVG	180	1.8	RB 1 MHz; VB: 10 Hz
4924.690	53.1	H	74.0	-20.9	PK	180	1.8	RB 1 MHz; VB: 1 MHz
4922.900	52.6	V	74.0	-21.4	PK	234	1.5	RB 1 MHz; VB: 1 MHz

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.

Run #3: Radiated Spurious Emissions, 30 - 26000 MHz. Operating Mode: 802.11n 20MHz, MCS0 HT20

Date of Test:	11/23/2008	Config. Used:	1
Test Engineer:	Rafael Varelas	Config Change:	None
Test Location:	SVOATS #2	EUT Voltage:	120V/60Hz

Ambient Conditions:

Temperature:	11 °C
Rel. Humidity:	82 %

Run #3a: Low Channel @ 2412 MHz

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
7237.060	51.1	V	54.0	-2.9	AVG	221	1.4	RB 1 MHz; VB: 10 Hz
7236.960	50.1	H	54.0	-3.9	AVG	248	1.4	RB 1 MHz; VB: 10 Hz
7237.420	66.2	V	74.0	-7.8	PK	221	1.4	RB 1 MHz; VB: 1 MHz
7235.600	64.1	H	74.0	-9.9	PK	248	1.4	RB 1 MHz; VB: 1 MHz
4823.330	42.4	V	54.0	-11.6	AVG	106	1.0	RB 1 MHz; VB: 10 Hz
4824.870	38.2	H	54.0	-15.8	AVG	222	1.4	RB 1 MHz; VB: 10 Hz
4824.230	54.6	V	74.0	-19.4	PK	106	1.0	RB 1 MHz; VB: 1 MHz
4823.150	49.8	H	74.0	-24.2	PK	222	1.4	RB 1 MHz; VB: 1 MHz

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:	Ruckus Wireless	Job Number:	J73710
Model:	Dalmatian (7962)	T-Log Number:	T73745
		Account Manager:	Dean Eriksen
Contact:	Craig Owens		
Standard:	FCC Part 15.247/RSS-210	Class:	N/A

Run #3b: Center Channel @ 2437 MHz

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
7311.060	53.2	V	54.0	-0.8	AVG	190	1.0	RB 1 MHz; VB: 10 Hz
7311.430	49.7	H	54.0	-4.3	AVG	253	1.5	RB 1 MHz; VB: 10 Hz
7309.510	68.9	V	74.0	-5.1	PK	190	1.0	RB 1 MHz; VB: 1 MHz
7312.420	64.7	H	74.0	-9.3	PK	253	1.5	RB 1 MHz; VB: 1 MHz
4872.770	39.4	H	54.0	-14.6	AVG	311	1.5	RB 1 MHz; VB: 10 Hz
4872.880	38.5	V	54.0	-15.5	AVG	231	1.2	RB 1 MHz; VB: 10 Hz
4873.680	51.1	H	74.0	-22.9	PK	311	1.5	RB 1 MHz; VB: 1 MHz
4872.810	51.0	V	74.0	-23.0	PK	231	1.2	RB 1 MHz; VB: 1 MHz

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.

Run #3c: High Channel @ 2462 MHz

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
7386.270	52.7	V	54.0	-1.3	AVG	181	1.4	RB 1 MHz; VB: 10 Hz
7385.730	49.3	H	54.0	-4.7	AVG	112	1.4	RB 1 MHz; VB: 10 Hz
7384.670	68.5	V	74.0	-5.5	PK	181	1.4	RB 1 MHz; VB: 1 MHz
7386.100	64.5	H	74.0	-9.5	PK	112	1.4	RB 1 MHz; VB: 1 MHz
4922.540	39.0	V	54.0	-15.0	AVG	357	1.0	RB 1 MHz; VB: 10 Hz
4924.900	38.5	H	54.0	-15.5	AVG	188	1.3	RB 1 MHz; VB: 10 Hz
4923.770	51.0	V	74.0	-23.0	PK	357	1.0	RB 1 MHz; VB: 1 MHz
4923.520	49.4	H	74.0	-24.6	PK	188	1.3	RB 1 MHz; VB: 1 MHz

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:	Ruckus Wireless	Job Number:	J73710
Model:	Dalmatian (7962)	T-Log Number:	T73745
		Account Manager:	Dean Eriksen
Contact:	Craig Owens		
Standard:	FCC Part 15.247/RSS-210	Class:	N/A

Run #4: Radiated Spurious Emissions, 30 - 26000 MHz. Operating Mode: 802.11n 40MHz, MCS0 HT40

Date of Test: 11/23/2008
Test Engineer: Rafael Varelas
Test Location: SVOATS #2

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

Ambient Conditions:

Temperature: 11 °C
Rel. Humidity: 82 %

Run #4a: Low Channel @ 2422 MHz

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
7266.770	37.9	V	54.0	-16.1	AVG	191	1.0	RB 1 MHz; VB: 10 Hz
7266.830	37.2	H	54.0	-16.8	AVG	260	1.4	RB 1 MHz; VB: 10 Hz
4845.350	34.0	V	54.0	-20.0	AVG	265	1.7	RB 1 MHz; VB: 10 Hz
4845.310	32.5	H	54.0	-21.5	AVG	340	1.0	RB 1 MHz; VB: 10 Hz
7265.480	51.9	V	74.0	-22.1	PK	191	1.0	RB 1 MHz; VB: 1 MHz
4845.450	50.3	V	74.0	-23.7	PK	265	1.7	RB 1 MHz; VB: 1 MHz
7267.250	50.1	H	74.0	-23.9	PK	260	1.4	RB 1 MHz; VB: 1 MHz
4844.650	43.6	H	74.0	-30.4	PK	340	1.0	RB 1 MHz; VB: 1 MHz

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.

Run #4b: Center Channel @ 2437 MHz

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
7311.530	40.2	H	54.0	-13.8	AVG	200	1.3	RB 1 MHz; VB: 10 Hz
7311.710	39.2	V	54.0	-14.8	AVG	44	1.0	RB 1 MHz; VB: 10 Hz
4875.500	33.4	V	54.0	-20.6	AVG	117	1.7	RB 1 MHz; VB: 10 Hz
4875.450	33.2	H	54.0	-20.8	AVG	238	1.0	RB 1 MHz; VB: 10 Hz
7311.790	53.1	H	74.0	-20.9	PK	200	1.3	RB 1 MHz; VB: 1 MHz
7311.290	48.7	V	74.0	-25.3	PK	44	1.0	RB 1 MHz; VB: 1 MHz
4874.900	44.2	V	74.0	-29.8	PK	117	1.7	RB 1 MHz; VB: 1 MHz
4874.730	44.1	H	74.0	-29.9	PK	238	1.0	RB 1 MHz; VB: 1 MHz

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:	Ruckus Wireless	Job Number:	J73710
Model:	Dalmatian (7962)	T-Log Number:	T73745
		Account Manager:	Dean Eriksen
Contact:	Craig Owens		
Standard:	FCC Part 15.247/RSS-210	Class:	N/A

Run #4c: High Channel @ 2452 MHz

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
7357.370	42.4	V	54.0	-11.6	AVG	192	1.4	RB 1 MHz; VB: 10 Hz
7355.530	36.7	H	54.0	-17.3	AVG	0	1.0	RB 1 MHz; VB: 10 Hz
7357.260	55.6	V	74.0	-18.4	PK	192	1.4	RB 1 MHz; VB: 1 MHz
4905.450	33.4	V	54.0	-20.6	AVG	230	1.0	RB 1 MHz; VB: 10 Hz
4905.020	32.3	H	54.0	-21.7	AVG	360	1.7	RB 1 MHz; VB: 10 Hz
7357.480	47.7	H	74.0	-26.3	PK	0	1.0	RB 1 MHz; VB: 1 MHz
4904.210	44.8	V	74.0	-29.2	PK	230	1.0	RB 1 MHz; VB: 1 MHz
4903.540	43.7	H	74.0	-30.3	PK	360	1.7	RB 1 MHz; VB: 1 MHz

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:	Ruckus Wireless	Job Number:	J73710
Model:	Dalmatian (7962)	T-Log Number:	T73745
		Account Manager:	Dean Eriksen
Contact:	Craig Owens		
Standard:	FCC Part 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.

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

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

Run #	Mode	Channel	Power Setting	Measured Power	Test Performed	Limit	Result / Margin
1a	a mode	low	21.5	-	Radiated Emissions, 1 - 40GHz	FCC Part 15.209 / 15.247(c)	53.9dBµV/m @ 11489.2MHz (-0.1dB)
1b	a mode	center	21.5	-	Radiated Emissions, 1 - 40GHz	FCC Part 15.209 / 15.247(c)	51.8dBµV/m @ 11569.3MHz (-2.2dB)
1c	a mode	high	21.5	-	Radiated Emissions, 1 - 40GHz	FCC Part 15.209 / 15.247(c)	51.8dBµV/m @ 11648.9MHz (-2.2dB)
2a	802.11n 20MHz	low	21.5	-	Radiated Emissions, 1 - 40GHz	FCC Part 15.209 / 15.247(c)	53.9dBµV/m @ 11489.2MHz (-0.1dB)
2b	802.11n 20MHz	center	21.5	-	Radiated Emissions, 1 - 40GHz	FCC Part 15.209 / 15.247(c)	52.6dBµV/m @ 11568.6MHz (-1.4dB)
2c	802.11n 20MHz	high	21.5	-	Radiated Emissions, 1 - 40GHz	FCC Part 15.209 / 15.247(c)	51.4dBµV/m @ 11648.7MHz (-2.6dB)
3a	802.11n 40MHz	low	20.5	-	Radiated Emissions, 1 - 40GHz	FCC Part 15.209 / 15.247(c)	50.3dBµV/m @ 11509.7MHz (-3.7dB)
3b	802.11n 40MHz	center	20.5	-	Radiated Emissions, 1 - 40GHz	FCC Part 15.209 / 15.247(c)	49.1dBµV/m @ 11569.4MHz (-4.9dB)
3c	802.11n 40MHz	high	20.5	-	Radiated Emissions, 1 - 40GHz	FCC Part 15.209 / 15.247(c)	49.2dBµV/m @ 11609.9MHz (-4.8dB)

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:	Ruckus Wireless	Job Number:	J73710
Model:	Dalmatian (7962)	T-Log Number:	T73745
		Account Manager:	Dean Eriksen
Contact:	Craig Owens		
Standard:	FCC Part 15.247/RSS-210	Class:	N/A

Run #1: Radiated Spurious Emissions, 30 - 40000 MHz. Operating Mode: 802.11a

Date of Test: 2/4/2009
Test Engineer: Rafael Varelas
Test Location: SVOATS #1

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

Ambient Conditions:

Temperature: 11 °C
Rel. Humidity: 56 %

Run #1a: Low Channel @ 5745 MHz
Power Setting = 21.5dbm

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
11489.180	53.9	H	54.0	-0.1	Avg	60	1.2	RB 1 MHz; VB: 10 Hz
11489.230	51.6	V	54.0	-2.4	Avg	20	1.6	RB 1 MHz; VB: 10 Hz
11489.970	67.8	H	74.0	-6.2	PK	60	1.2	RB 1 MHz; VB: 1 MHz
11490.590	66.0	V	74.0	-8.0	PK	20	1.6	RB 1 MHz; VB: 1 MHz
17233.500	45.9	H	54.0	-8.1	AVG	9	1.0	RB 1 MHz; VB: 10 Hz
17233.500	45.6	V	54.0	-8.4	AVG	66	1.0	RB 1 MHz; VB: 10 Hz
17235.220	57.7	H	74.0	-16.3	PK	9	1.0	RB 1 MHz; VB: 1 MHz
17233.740	56.7	V	74.0	-17.3	PK	66	1.0	RB 1 MHz; VB: 1 MHz

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:	Ruckus Wireless	Job Number:	J73710
Model:	Dalmatian (7962)	T-Log Number:	T73745
		Account Manager:	Dean Eriksen
Contact:	Craig Owens		
Standard:	FCC Part 15.247/RSS-210	Class:	N/A

Run #1b: Center Channel @ 5785 MHz
Power Setting = 21.5dbm

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
11569.340	51.8	H	54.0	-2.2	AVG	53	1.1	RB 1 MHz; VB: 10 Hz
11568.940	50.7	V	54.0	-3.3	Avg	12	1.6	RB 1 MHz; VB: 10 Hz
17353.500	47.1	V	54.0	-6.9	AVG	329	1.0	RB 1 MHz; VB: 10 Hz
17353.500	46.5	H	54.0	-7.5	AVG	93	1.0	RB 1 MHz; VB: 10 Hz
11570.120	64.2	V	74.0	-9.8	PK	12	1.6	RB 1 MHz; VB: 1 MHz
11568.910	64.0	H	74.0	-10.0	PK	53	1.1	RB 1 MHz; VB: 1 MHz
17355.240	58.2	V	74.0	-15.8	PK	329	1.0	RB 1 MHz; VB: 1 MHz
17353.880	57.5	H	74.0	-16.5	PK	93	1.0	RB 1 MHz; VB: 1 MHz

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.

Run #1c: High Channel @ 5825 MHz
Power Setting = 21.5dbm

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
11648.890	51.8	H	54.0	-2.2	AVG	47	1.2	RB 1 MHz; VB: 10 Hz
11648.960	51.6	V	54.0	-2.4	AVG	3	1.0	RB 1 MHz; VB: 10 Hz
17473.510	49.9	H	54.0	-4.1	AVG	123	1.4	RB 1 MHz; VB: 10 Hz
17473.510	49.3	V	54.0	-4.7	AVG	122	1.0	RB 1 MHz; VB: 10 Hz
11651.130	64.6	V	74.0	-9.4	PK	3	1.0	RB 1 MHz; VB: 1 MHz
17474.220	64.3	H	74.0	-9.7	PK	123	1.4	RB 1 MHz; VB: 1 MHz
11650.770	64.0	H	74.0	-10.0	PK	47	1.2	RB 1 MHz; VB: 1 MHz
17474.460	61.4	V	74.0	-12.6	PK	122	1.0	RB 1 MHz; VB: 1 MHz

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:	Ruckus Wireless	Job Number:	J73710
Model:	Dalmatian (7962)	T-Log Number:	T73745
		Account Manager:	Dean Eriksen
Contact:	Craig Owens		
Standard:	FCC Part 15.247/RSS-210	Class:	N/A

Run #2: Radiated Spurious Emissions, 30 - 40000 MHz. Operating Mode: 802.11n 20MHz, MCS0 HT20

Date of Test: 2/4/2009
Test Engineer: Rafael Varelas
Test Location: SVOATS #1

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

Ambient Conditions:

Temperature: 11 °C
Rel. Humidity: 56 %

Run #2a: Low Channel @ 5745 MHz
Power Setting = 21.5dbm

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
11489.230	53.9	H	54.0	-0.1	Avg	60	1.2	RB 1 MHz; VB: 10 Hz
11489.250	52.0	V	54.0	-2.0	Avg	20	1.6	RB 1 MHz; VB: 10 Hz
11489.580	67.3	H	74.0	-6.7	PK	60	1.2	RB 1 MHz; VB: 1 MHz
17233.550	46.0	H	54.0	-8.0	AVG	9	1.0	RB 1 MHz; VB: 10 Hz
11489.550	65.8	V	74.0	-8.2	PK	20	1.6	RB 1 MHz; VB: 1 MHz
17233.500	45.8	V	54.0	-8.2	AVG	66	1.0	RB 1 MHz; VB: 10 Hz
17234.720	57.5	H	74.0	-16.5	PK	9	1.0	RB 1 MHz; VB: 1 MHz
17233.830	56.8	V	74.0	-17.2	PK	66	1.0	RB 1 MHz; VB: 1 MHz

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:	Ruckus Wireless	Job Number:	J73710
Model:	Dalmatian (7962)	T-Log Number:	T73745
		Account Manager:	Dean Eriksen
Contact:	Craig Owens		
Standard:	FCC Part 15.247/RSS-210	Class:	N/A

Run #2b: Center Channel @ 5785 MHz
Power Setting = 21.5dbm

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
11568.590	52.6	H	54.0	-1.4	AVG	53	1.1	RB 1 MHz; VB: 10 Hz
11569.040	52.6	V	54.0	-1.4	AVG	12	1.6	RB 1 MHz; VB: 10 Hz
17353.500	47.2	V	54.0	-6.8	AVG	329	1.0	RB 1 MHz; VB: 10 Hz
17353.500	46.8	H	54.0	-7.2	AVG	93	1.0	RB 1 MHz; VB: 10 Hz
11569.080	64.8	H	74.0	-9.2	PK	53	1.1	RB 1 MHz; VB: 1 MHz
11569.500	64.6	V	74.0	-9.4	PK	12	1.6	RB 1 MHz; VB: 1 MHz
17353.820	59.1	V	74.0	-14.9	PK	329	1.0	RB 1 MHz; VB: 1 MHz
17353.550	58.0	H	74.0	-16.0	PK	93	1.0	RB 1 MHz; VB: 1 MHz

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.

Run #2c: High Channel @ 5825 MHz
Power Setting = 21.5dbm

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
11648.650	51.4	H	54.0	-2.6	AVG	47	1.2	RB 1 MHz; VB: 10 Hz
11648.540	50.6	V	54.0	-3.4	AVG	3	1.0	RB 1 MHz; VB: 10 Hz
17473.500	49.7	H	54.0	-4.3	AVG	123	1.4	RB 1 MHz; VB: 10 Hz
17473.500	48.5	V	54.0	-5.5	AVG	122	1.0	RB 1 MHz; VB: 10 Hz
11649.620	63.3	H	74.0	-10.7	PK	47	1.2	RB 1 MHz; VB: 1 MHz
11649.300	63.0	V	74.0	-11.0	PK	3	1.0	RB 1 MHz; VB: 1 MHz
17475.800	63.0	H	74.0	-11.0	PK	123	1.4	RB 1 MHz; VB: 1 MHz
17473.630	60.4	V	74.0	-13.6	PK	122	1.0	RB 1 MHz; VB: 1 MHz

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:	Ruckus Wireless	Job Number:	J73710
Model:	Dalmatian (7962)	T-Log Number:	T73745
		Account Manager:	Dean Eriksen
Contact:	Craig Owens		
Standard:	FCC Part 15.247/RSS-210	Class:	N/A

Run #3: Radiated Spurious Emissions, 30 - 40000 MHz. Operating Mode: 802.11n 40MHz, MCS0 HT40

Date of Test: 2/4/2009
Test Engineer: Rafael Varelas
Test Location: SVOATS #1

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

Ambient Conditions:

Temperature: 11 °C
Rel. Humidity: 56 %

Run #3a: Low Channel @ 5755 MHz

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
11509.690	50.3	V	54.0	-3.7	AVG	0	1.6	RB 1 MHz; VB: 10 Hz
11509.830	48.0	H	54.0	-6.0	AVG	34	1.2	RB 1 MHz; VB: 10 Hz
17263.510	46.0	V	54.0	-8.0	AVG	179	1.2	RB 1 MHz; VB: 10 Hz
17263.500	45.8	H	54.0	-8.2	AVG	205	1.0	RB 1 MHz; VB: 10 Hz
11509.650	62.3	V	74.0	-11.7	PK	0	1.6	RB 1 MHz; VB: 1 MHz
11507.970	58.9	H	74.0	-15.1	PK	34	1.2	RB 1 MHz; VB: 1 MHz
17264.370	57.3	V	74.0	-16.7	PK	179	1.2	RB 1 MHz; VB: 1 MHz
17264.850	56.8	H	74.0	-17.2	PK	205	1.0	RB 1 MHz; VB: 1 MHz

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.

Run #3b: Center Channel @ 5785 MHz

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
11569.410	49.1	H	54.0	-4.9	AVG	34	1.2	RB 1 MHz; VB: 10 Hz
11569.270	47.4	V	54.0	-6.6	AVG	292	1.1	RB 1 MHz; VB: 10 Hz
17353.500	46.4	V	54.0	-7.6	AVG	85	1.0	RB 1 MHz; VB: 10 Hz
17353.500	46.2	H	54.0	-7.8	AVG	61	2.0	RB 1 MHz; VB: 10 Hz
11569.680	61.2	H	74.0	-12.8	PK	34	1.2	RB 1 MHz; VB: 1 MHz
11569.350	58.4	V	74.0	-15.6	PK	292	1.1	RB 1 MHz; VB: 1 MHz
17354.710	57.6	V	74.0	-16.4	PK	85	1.0	RB 1 MHz; VB: 1 MHz
17354.370	57.2	H	74.0	-16.8	PK	61	2.0	RB 1 MHz; VB: 1 MHz

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:	Ruckus Wireless	Job Number:	J73710
Model:	Dalmatian (7962)	T-Log Number:	T73745
		Account Manager:	Dean Eriksen
Contact:	Craig Owens		
Standard:	FCC Part 15.247/RSS-210	Class:	N/A

Run #3c: High Channel @ 5805 MHz

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
11609.870	49.2	H	54.0	-4.8	AVG	32	1.2	RB 1 MHz; VB: 10 Hz
11609.770	47.6	V	54.0	-6.4	AVG	352	1.0	RB 1 MHz; VB: 10 Hz
17413.500	47.1	H	54.0	-6.9	AVG	105	1.1	RB 1 MHz; VB: 10 Hz
17413.500	46.8	V	54.0	-7.2	AVG	306	1.0	RB 1 MHz; VB: 10 Hz
11609.760	60.3	H	74.0	-13.7	PK	32	1.2	RB 1 MHz; VB: 1 MHz
11608.740	59.4	V	74.0	-14.6	PK	352	1.0	RB 1 MHz; VB: 1 MHz
17415.780	58.6	H	74.0	-15.4	PK	105	1.1	RB 1 MHz; VB: 1 MHz
17413.960	58.6	V	74.0	-15.4	PK	306	1.0	RB 1 MHz; VB: 1 MHz

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:	Ruckus Wireless	Job Number:	J73710
Model:	Dalmatian (7962)	T-Log Number:	T73745
		Account Manager:	Dean Eriksen
Contact:	Craig Owens		
Standard:	FCC Part 15.247/RSS-210	Class:	B

Radiated Emissions - Receive Mode

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: 2/11/2009
Test Engineer: Rafael varelas
Test Location: SVOATS #2

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

General Test Configuration

The EUT and all local support equipment were located on the turntable for radiated emissions testing.

The test distance and extrapolation factor (if applicable) are detailed under each run description.

Note, **preliminary** testing indicates that the emissions were maximized by orientation of the EUT and elevation of the measurement antenna. **Maximized** testing indicated that the emissions were maximized by orientation of the EUT, elevation of the measurement antenna, and manipulation of the EUT's interface cables.

Ambient Conditions:

Temperature: 15 °C
Rel. Humidity: 38 %

Summary of Results

Run #	Test Performed	Limit	Result	Margin
3 - RX on 2437 MHz 802.11g Mode	RE, 1000 - 10000 MHz, Maximized Emissions	RSS GEN	Pass	35.6dBµV/m @ 7311.8MHz (-18.4dB)
4 - RX on 2437 MHz HT-40 Mode	RE, 1000 - 10000 MHz, Maximized Emissions	RSS GEN	Pass	35.4dBµV/m @ 7310.5MHz (-18.6dB)
7 - RX on 5785 MHz Legacy Mode	RE, 1000 - 18000 MHz, Maximized Emissions	RSS GEN	Pass	47.5dBµV/m @ 7713.4MHz (-6.5dB)
8 - RX on 5785 MHz HT-40 Mode	RE, 1000 - 18000 MHz, Maximized Emissions	RSS GEN	Pass	47.1dBµV/m @ 7713.4MHz (-6.9dB)

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.

Note: Preliminary testing showed no emissions below 1 GHz related to the radio.

Client:	Ruckus Wireless	Job Number:	J73710
Model:	Dalmatian (7962)	T-Log Number:	T73745
		Account Manager:	Dean Eriksen
Contact:	Craig Owens		
Standard:	FCC Part 15.247/RSS-210	Class:	B

Run #3: Maximized readings, 1000 - 10000 MHz
EUT set to Receive mode at 2437 MHz, 802.11g Mode

Frequency Range	Test Distance	Limit Distance	Extrapolation Factor
1000 - 10000 MHz	3	3	0.0

Frequency	Level	Pol	RSS Gen		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
7311.830	35.6	H	54.0	-18.4	AVG	122	1.0	RB 1 MHz; VB: 10 Hz
1625.060	34.8	V	54.0	-19.2	AVG	184	1.0	RB 1 MHz; VB: 10 Hz
3249.360	32.0	V	54.0	-22.0	AVG	349	1.0	RB 1 MHz; VB: 10 Hz
4874.550	31.3	H	54.0	-22.7	AVG	156	1.0	RB 1 MHz; VB: 10 Hz
4875.150	31.2	V	54.0	-22.8	AVG	125	1.0	RB 1 MHz; VB: 10 Hz
3249.420	29.3	H	54.0	-24.7	AVG	214	1.5	RB 1 MHz; VB: 10 Hz
1625.070	27.8	H	54.0	-26.2	AVG	0	1.6	RB 1 MHz; VB: 10 Hz
7311.800	47.2	H	74.0	-26.8	PK	122	1.0	RB 1 MHz; VB: 1 MHz
4874.550	42.6	H	74.0	-31.4	PK	156	1.0	RB 1 MHz; VB: 1 MHz
4872.710	42.1	V	74.0	-31.9	PK	125	1.0	RB 1 MHz; VB: 1 MHz
3249.280	41.8	V	74.0	-32.2	PK	349	1.0	RB 1 MHz; VB: 1 MHz
3249.310	41.5	H	74.0	-32.5	PK	214	1.5	RB 1 MHz; VB: 1 MHz
1625.210	41.3	V	74.0	-32.7	PK	184	1.0	RB 1 MHz; VB: 1 MHz
1625.150	38.0	H	74.0	-36.0	PK	0	1.6	RB 1 MHz; VB: 1 MHz

Note 1:	Above 1 GHz, the FCC specifies the limit as an average measurement. In addition, the FCC states that the peak reading of any emission above 1 GHz, can not exceed the average limit by more than 20 dB.

Client:	Ruckus Wireless	Job Number:	J73710
Model:	Dalmatian (7962)	T-Log Number:	T73745
		Account Manager:	Dean Eriksen
Contact:	Craig Owens		
Standard:	FCC Part 15.247/RSS-210	Class:	B

Run #4: Maximized readings, 1000 - 10000 MHz
EUT set to Receive mode at 2437 MHz, HT-40 Mode

Frequency Range	Test Distance	Limit Distance	Extrapolation Factor
1000 - 10000 MHz	3	3	0.0

Frequency	Level	Pol	RSS Gen		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
7310.500	35.4	V	54.0	-18.6	AVG	143	1.0	RB 1 MHz; VB: 10 Hz
1625.090	34.9	V	54.0	-19.1	AVG	183	1.0	RB 1 MHz; VB: 10 Hz
1623.630	32.3	H	54.0	-21.7	AVG	170	1.0	RB 1 MHz; VB: 10 Hz
4872.500	32.0	H	54.0	-22.0	AVG	360	1.0	RB 1 MHz; VB: 10 Hz
3249.390	31.3	V	54.0	-22.7	AVG	350	1.0	RB 1 MHz; VB: 10 Hz
4874.960	31.1	V	54.0	-22.9	AVG	222	1.0	RB 1 MHz; VB: 10 Hz
3249.140	29.4	H	54.0	-24.6	AVG	224	1.0	RB 1 MHz; VB: 10 Hz
7311.770	46.7	V	74.0	-27.3	PK	143	1.0	RB 1 MHz; VB: 1 MHz
1624.940	46.5	V	74.0	-27.5	PK	183	1.0	RB 1 MHz; VB: 1 MHz
4873.350	42.4	H	74.0	-31.6	PK	360	1.0	RB 1 MHz; VB: 1 MHz
4873.310	42.2	V	74.0	-31.8	PK	222	1.0	RB 1 MHz; VB: 1 MHz
3249.350	41.0	V	74.0	-33.0	PK	350	1.0	RB 1 MHz; VB: 1 MHz
3248.810	40.5	H	74.0	-33.5	PK	224	1.0	RB 1 MHz; VB: 1 MHz
1625.340	36.9	H	74.0	-37.1	PK	170	1.0	RB 1 MHz; VB: 1 MHz

Note 1:	Above 1 GHz, the FCC specifies the limit as an average measurement. In addition, the FCC states that the peak reading of any emission above 1 GHz, can not exceed the average limit by more than 20 dB.

Client:	Ruckus Wireless	Job Number:	J73710
Model:	Dalmatian (7962)	T-Log Number:	T73745
		Account Manager:	Dean Eriksen
Contact:	Craig Owens		
Standard:	FCC Part 15.247/RSS-210	Class:	B

Run #7: Maximized readings, 1000 - 18000 MHz
EUT set to Receive mode at 5785 MHz, Legacy Mode

Frequency Range	Test Distance	Limit Distance	Extrapolation Factor
1000 - 18000 MHz	3	3	0.0

Frequency	Level	Pol	RSS Gen		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
7713.410	47.5	V	54.0	-6.5	AVG	296	1.7	RB 1 MHz; VB: 10 Hz
3856.750	43.8	V	54.0	-10.2	AVG	333	1.4	RB 1 MHz; VB: 10 Hz
7713.410	40.2	H	54.0	-13.8	AVG	154	1.6	RB 1 MHz; VB: 10 Hz
11570.950	39.8	V	54.0	-14.2	AVG	360	1.0	RB 1 MHz; VB: 10 Hz
11571.390	39.7	H	54.0	-14.3	AVG	307	1.0	RB 1 MHz; VB: 10 Hz
3856.750	35.2	H	54.0	-18.8	AVG	117	1.0	RB 1 MHz; VB: 10 Hz
7713.330	52.1	V	74.0	-21.9	PK	296	1.7	RB 1 MHz; VB: 1 MHz
11570.090	51.3	H	74.0	-22.7	PK	307	1.0	RB 1 MHz; VB: 1 MHz
11569.020	50.8	V	74.0	-23.2	PK	360	1.0	RB 1 MHz; VB: 1 MHz
7713.460	48.6	H	74.0	-25.4	PK	154	1.6	RB 1 MHz; VB: 1 MHz
3856.720	48.2	V	74.0	-25.8	PK	333	1.4	RB 1 MHz; VB: 1 MHz
3856.510	44.4	H	74.0	-29.6	PK	117	1.0	RB 1 MHz; VB: 1 MHz

Note 1:	Above 1 GHz, the FCC specifies the limit as an average measurement. In addition, the FCC states that the peak reading of any emission above 1 GHz, can not exceed the average limit by more than 20 dB.

Client:	Ruckus Wireless	Job Number:	J73710
Model:	Dalmatian (7962)	T-Log Number:	T73745
		Account Manager:	Dean Eriksen
Contact:	Craig Owens		
Standard:	FCC Part 15.247/RSS-210	Class:	B

Run #8: Maximized readings, 1000 - 18000 MHz
EUT set to Receive mode at 5785 MHz, HT-40 Mode

Frequency Range	Test Distance	Limit Distance	Extrapolation Factor
1000 - 18000 MHz	3	3	0.0

Frequency	Level	Pol	RSS Gen		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
7713.420	47.1	V	54.0	-6.9	AVG	291	1.8	RB 1 MHz; VB: 10 Hz
3856.740	44.0	V	54.0	-10.0	AVG	327	1.5	RB 1 MHz; VB: 10 Hz
7713.420	40.7	H	54.0	-13.3	AVG	149	1.7	RB 1 MHz; VB: 10 Hz
11570.950	39.8	H	54.0	-14.2	AVG	338	1.0	RB 1 MHz; VB: 10 Hz
11571.220	39.7	V	54.0	-14.3	AVG	175	1.0	RB 1 MHz; VB: 10 Hz
3856.690	35.0	H	54.0	-19.0	AVG	110	1.8	RB 1 MHz; VB: 10 Hz
7713.310	51.9	V	74.0	-22.1	PK	291	1.8	RB 1 MHz; VB: 1 MHz
11570.430	50.8	H	74.0	-23.2	PK	338	1.0	RB 1 MHz; VB: 1 MHz
11569.130	50.5	V	74.0	-23.5	PK	175	1.0	RB 1 MHz; VB: 1 MHz
3856.680	48.5	V	74.0	-25.5	PK	327	1.5	RB 1 MHz; VB: 1 MHz
7713.440	48.5	H	74.0	-25.5	PK	149	1.7	RB 1 MHz; VB: 1 MHz
3856.700	44.0	H	74.0	-30.0	PK	110	1.8	RB 1 MHz; VB: 1 MHz

Note 1:	Above 1 GHz, the FCC specifies the limit as an average measurement. In addition, the FCC states that the peak reading of any emission above 1 GHz, can not exceed the average limit by more than 20 dB.

Client:	Ruckus Wireless	Job Number:	J73710
Model:	Dalmatian	T-Log Number:	T73801
		Account Manager:	Dean Eriksen
Contact:	Craig Owens		
Emissions Standard(s):	FCC 15.247/RSS-210	Class:	-
Immunity Standard(s):	-	Environment:	-

EMC Test Data

For The

Ruckus Wireless

Model

Dalmatian

Date of Last Test: 3/10/2009

Client:	Ruckus Wireless	Job Number:	J73710
Model:	Dalmatian	T-Log Number:	T73801
		Account Manager:	Dean Eriksen
Contact:	Craig Owens		
Standard:	FCC 15.247/RSS-210	Class:	N/A

RSS 210 and FCC 15.247 (DTS) Antenna Port Measurements
MIMO and Smart Antenna Systems
Power, PSD, Bandwidth and 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.

Date of Test: 2/12/2009 & 2/17/2009
Test Engineer: Rafael Varelas
Test Location: SVOATS #1

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

General Test Configuration

The EUT was connected to the spectrum analyzer or power meter via a suitable attenuator. All measurements were made on a single chain.

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

Ambient Conditions:

Temperature: 18.9 °C
Rel. Humidity: 36 %

Summary of Results

Run #	Test Performed	Limit	Pass / Fail	Result / Margin
1	Output Power Chain A+B+C	15.247(b)	Pass	35.5 dBm (EIRP)
2	PSD Chain A+B+C	15.247(d)	Pass	6.7 dBm/3kHz
3	6dB Bandwidth	15.247(a)	Pass	10.3 MHz
4	99% Bandwidth	RSS GEN	Pass	17.3 MHz
5	Spurious emissions	15.247(b)	Pass	All Emissions Below -30dBc

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.

Note: EUT transmits on all chains in all modes and does not support a reduced number of transmit chains.

Client:	Ruckus Wireless	Job Number:	J73710
Model:	Dalmatian	T-Log Number:	T73801
		Account Manager:	Dean Eriksen
Contact:	Craig Owens		
Standard:	FCC 15.247/RSS-210	Class:	N/A

Run #1: Output Power - Chain A + B + C

Operating Mode: 802.11b

Transmitted signal on chain is coherent ? yes

2412 MHz	Chain 1	Chain 2	Chain 3	Chain 4	Total Across All Chains		Limit	
Power Setting Note 3	22.0	22.0	22.0					
Output Power (dBm) Note 1	22.45	23.3	22.76		27.6 dBm	0.578 W	30.0 dBm	1.000 W
Antenna Gain (dBi) Note 2	3	3	3		3.0 dBi		Pass	
eirp (dBm) Note 2	25.45	26.3	25.76		30.6 dBm	1.154 W		

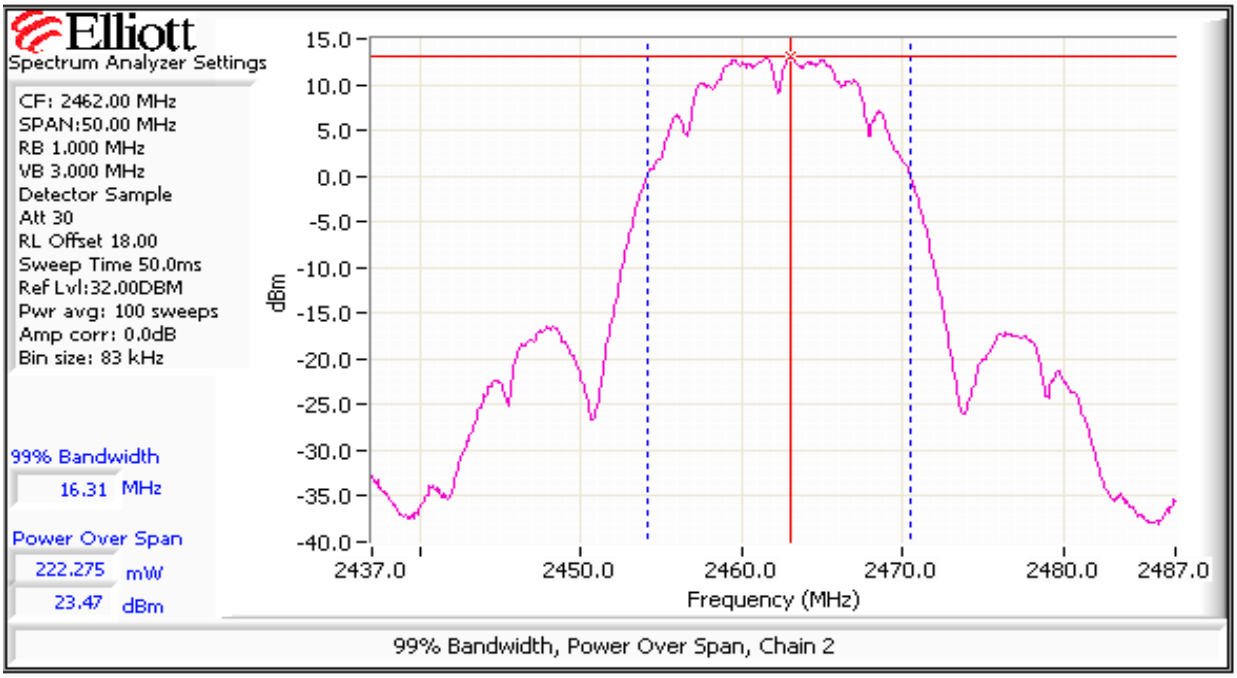
2437 MHz	Chain 1	Chain 2	Chain 3	Chain 4	Total Across All Chains		Limit	
Power Setting Note 3	22.0	22.0	22.0					
Output Power (dBm) Note 1	22.67	23.3	22.84		27.7 dBm	0.591 W	30.0 dBm	1.000 W
Antenna Gain (dBi) Note 2	3	3	3		3.0 dBi		Pass	
eirp (dBm) Note 2	25.67	26.3	25.84		30.7 dBm	1.179 W		

2462 MHz	Chain 1	Chain 2	Chain 3	Chain 4	Total Across All Chains		Limit	
Power Setting Note 3	22.0	22.0	22.0					
Output Power (dBm) Note 1	22.37	23.5	22.7		27.7 dBm	0.583 W	30.0 dBm	1.000 W
Antenna Gain (dBi) Note 2	3	3	3		3.0 dBi		Pass	
eirp (dBm) Note 2	25.37	26.5	25.7		30.7 dBm	1.163 W		

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 50 MHz (reference method 1 of FCC DA 02-2138 for U-NII devices, August 30, 2002). Spurious limit becomes -30dBc.
Note 2:	As the antennas are sectorized, the effective antenna gain is the gain of any one antenna.
Note 3:	Power setting - if a single number the same power setting was used for each chain. If multiple numbers the power setting for each chain is separated by a comma (e.g. x,y would indicate power setting x for chain 1, power setting y for chain 2.

Client:	Ruckus Wireless	Job Number:	J73710
Model:	Dalmatian	T-Log Number:	T73801
		Account Manager:	Dean Eriksen
Contact:	Craig Owens		
Standard:	FCC 15.247/RSS-210	Class:	N/A

Run #1: Continued

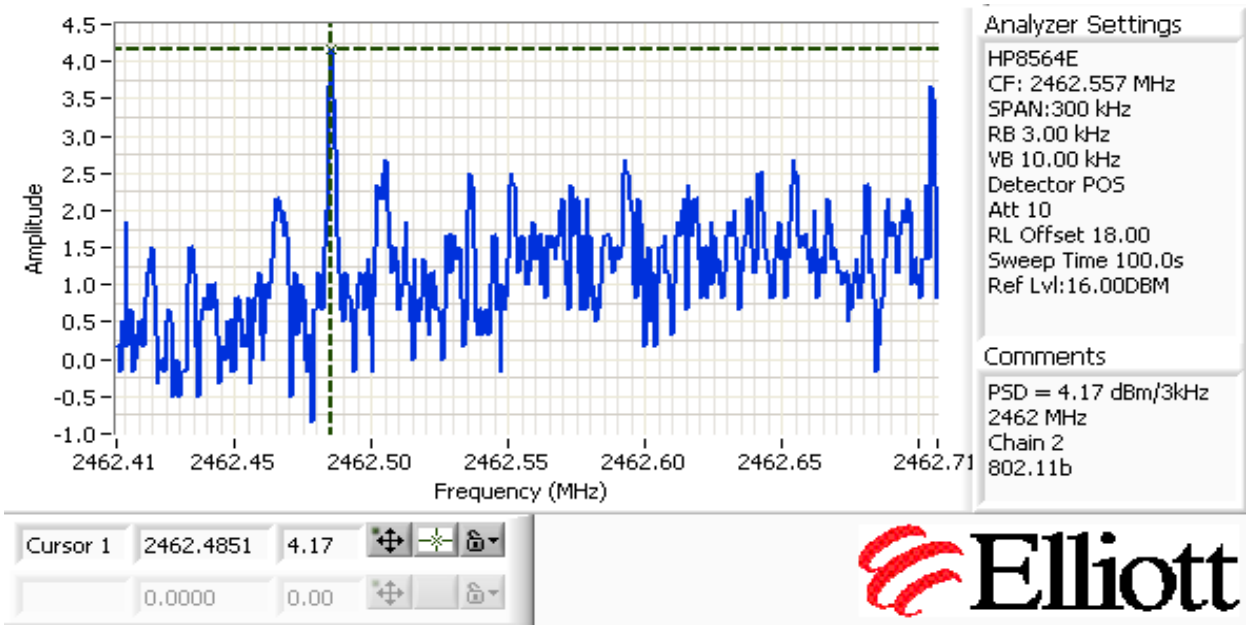


Client:	Ruckus Wireless	Job Number:	J73710
Model:	Dalmatian	T-Log Number:	T73801
		Account Manager:	Dean Eriksen
Contact:	Craig Owens		
Standard:	FCC 15.247/RSS-210	Class:	N/A

Run #2: Power spectral Density

Power Setting	Frequency (MHz)	PSD (dBm/3kHz) Note 1 Chain 1	Chain 2	Chain 3	Chain 4	Total	Limit dBm/3kHz	Result
22	2412	-0.2	0.8	-1.3		4.6	8.0	Pass
22	2437	2.3	-0.8	1.0		5.8	8.0	Pass
22	2462	0.3	4.2	-0.2		6.7	8.0	Pass

Note 1:	Power spectral density measured using RB=3 kHz, VB=10kHz, analyzer with peak detector and with a sweep time set to ensure a dwell time of at least 1 second per 3kHz. The measurement is made at the frequency of PPSD determined from preliminary scans using RB=3kHz using multiple sweeps at a faster rate over the 6dB bandwidth of the signal.

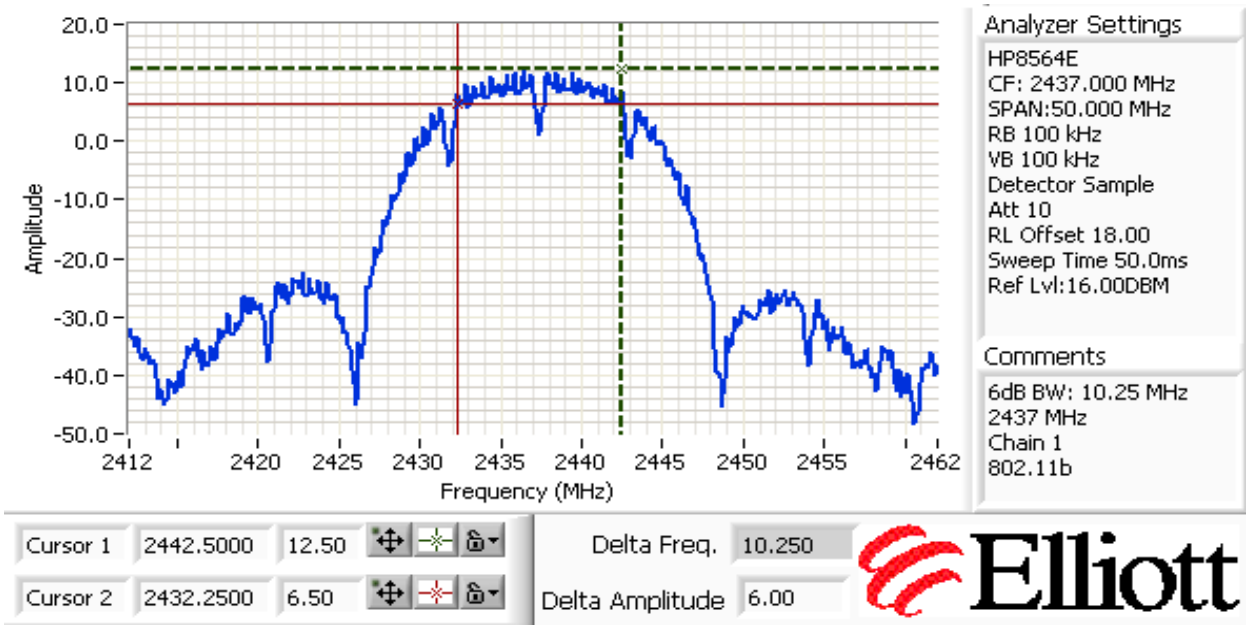


Client:	Ruckus Wireless	Job Number:	J73710
Model:	Dalmatian	T-Log Number:	T73801
		Account Manager:	Dean Eriksen
Contact:	Craig Owens		
Standard:	FCC 15.247/RSS-210	Class:	N/A

Run #3: Signal Bandwidth

Power Setting	Frequency (MHz)	Resolution Bandwidth	Bandwidth (MHz) 6dB	99%
22	2412	100kHz	11.3	16.4
22	2437	100kHz	10.3	16.4
22	2462	100kHz	11.2	17.3

Note 1:	Measured on a single chain
Note 2:	99% bandwidth measured in accordance with RSS GEN, with RB > 1% of the span and VB > 3xRB



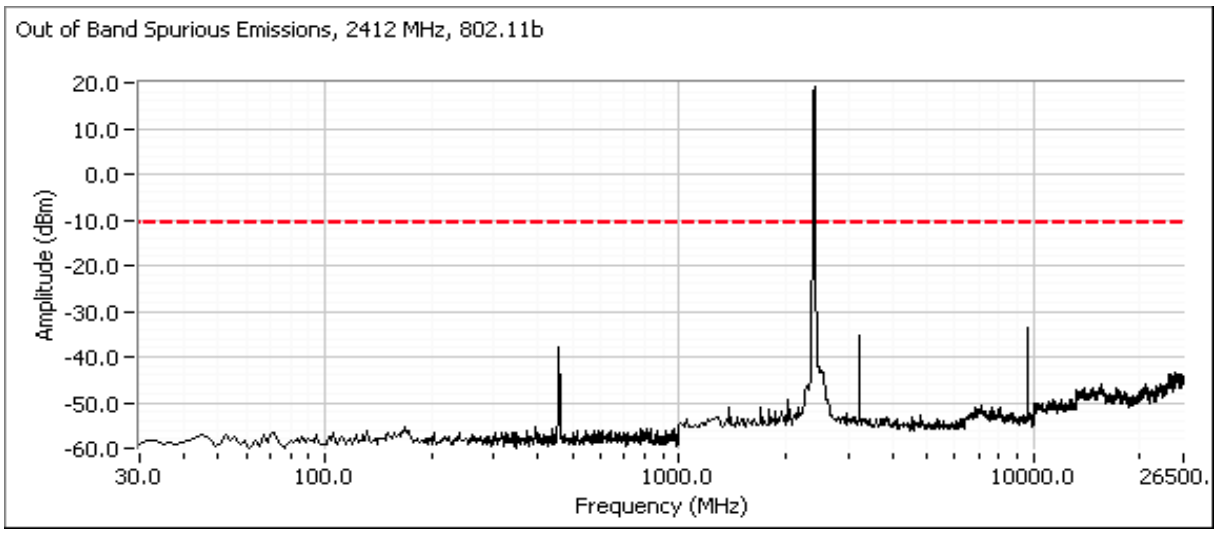
Client:	Ruckus Wireless	Job Number:	J73710
Model:	Dalmatian	T-Log Number:	T73801
		Account Manager:	Dean Eriksen
Contact:	Craig Owens		
Standard:	FCC 15.247/RSS-210	Class:	N/A

Run #4: Out of Band Spurious Emissions

Power Setting Per Chain				Frequency (MHz)	Limit	Result
#1	#2	#3	#4			
22	22	22		2412	-30dbc	Pass
22	22	22		2437	-30dbc	Pass
22	22	22		2462	-30dbc	Pass

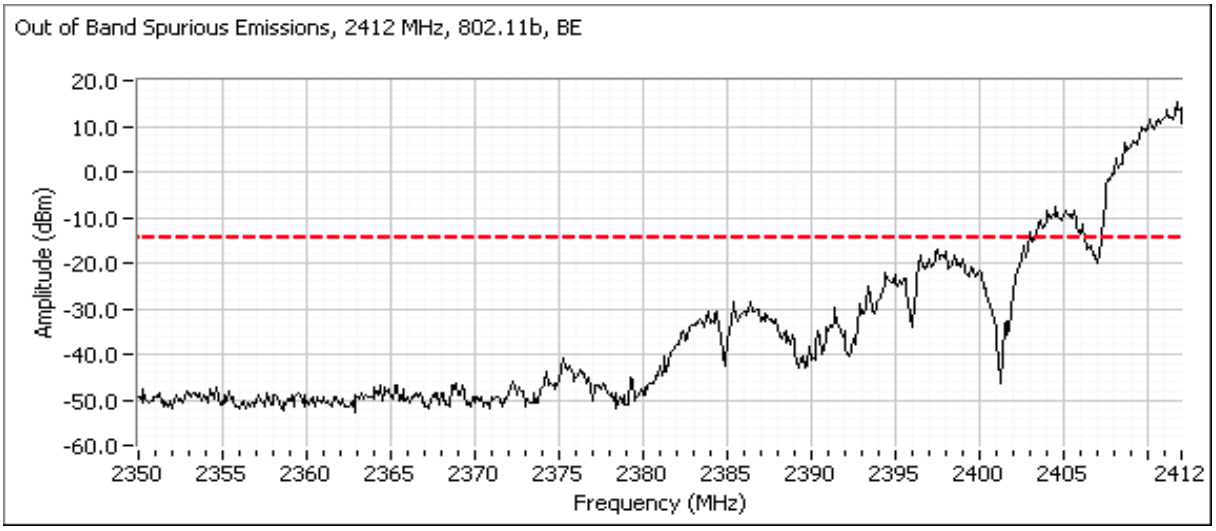
Note 1:	Measured with all chains connected together through a combiner, unused ports on the combiner terminated in 50ohms.
Note 2:	All plots taken with RBW=VBW=100kHz

Plots for low channel, power setting(s) = 22

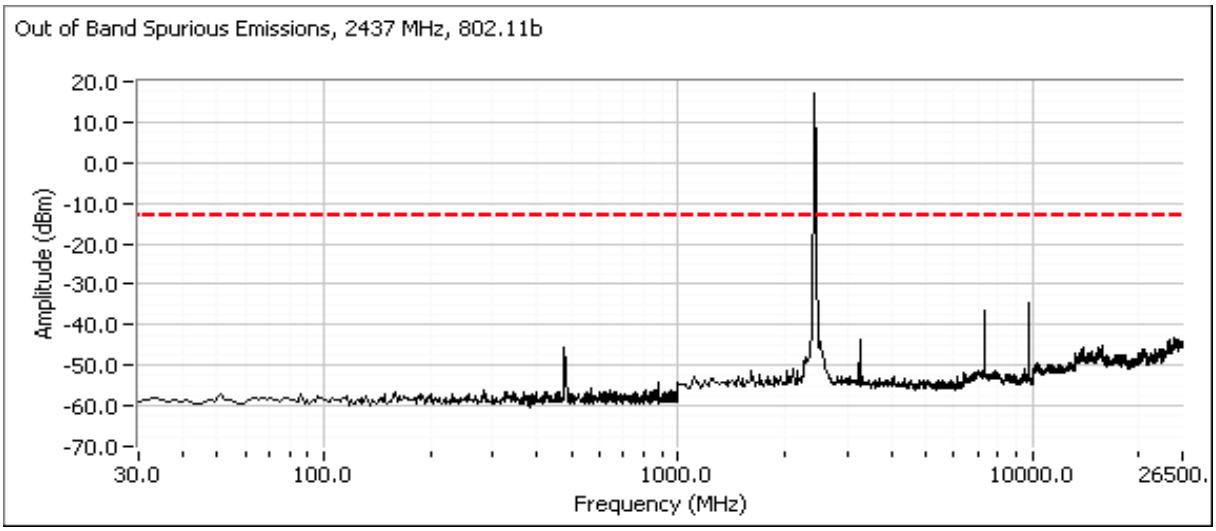


Additional plot showing compliance with -30dBc limit from 2390 MHz to 2400 MHz. Radiated measurements used to show compliance with the limits in the restricted band below 2390 MHz.

Client:	Ruckus Wireless	Job Number:	J73710
Model:	Dalmatian	T-Log Number:	T73801
		Account Manager:	Dean Eriksen
Contact:	Craig Owens		
Standard:	FCC 15.247/RSS-210	Class:	N/A

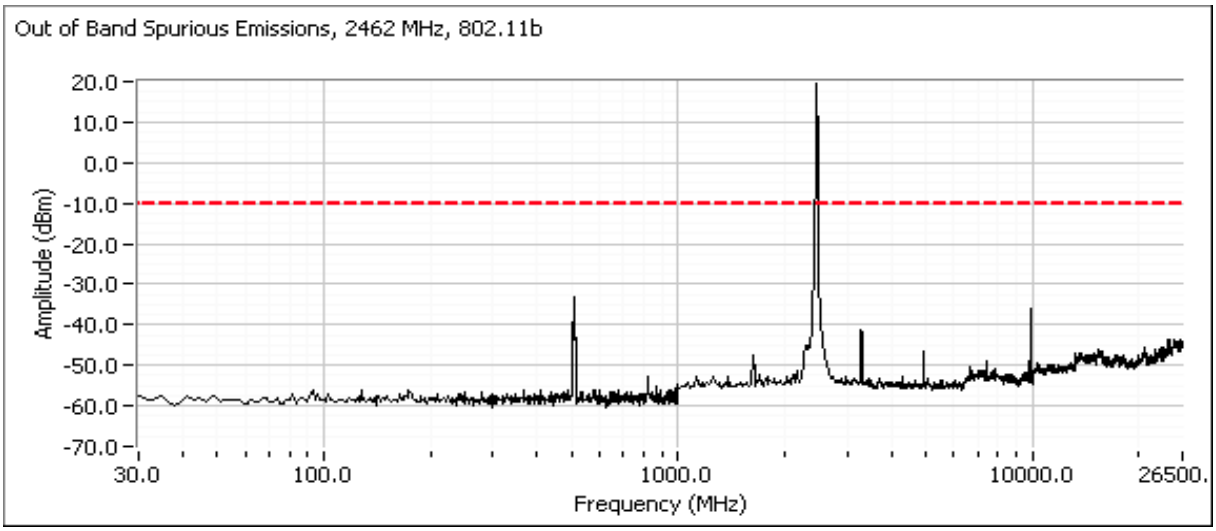


Plots for center channel, power setting(s) = 22



Client:	Ruckus Wireless	Job Number:	J73710
Model:	Dalmatian	T-Log Number:	T73801
		Account Manager:	Dean Eriksen
Contact:	Craig Owens		
Standard:	FCC 15.247/RSS-210	Class:	N/A

Plots for high channel, power setting(s) = 22



Client:	Ruckus Wireless	Job Number:	J73710
Model:	Dalmatian	T-Log Number:	T73801
		Account Manager:	Dean Eriksen
Contact:	Craig Owens		
Standard:	FCC 15.247/RSS-210	Class:	N/A

RSS 210 and FCC 15.247 (DTS) Antenna Port Measurements
MIMO and Smart Antenna Systems
Power, PSD, Bandwidth and 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.

Date of Test: 2/12/2009 & 2/17/2009
Test Engineer: Rafael Varelas
Test Location: SVOATS #1

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

General Test Configuration

The EUT was connected to the spectrum analyzer or power meter via a suitable attenuator. All measurements were made on a single chain.

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

Ambient Conditions:

Temperature: 18.9 °C
Rel. Humidity: 36 %

Summary of Results

Run #	Test Performed	Limit	Pass / Fail	Result / Margin
1	Output Power Chain A+B+C	15.247(b)	Pass	33.6 dBm (EIRP)
2	PSD Chain A+B+C	15.247(d)	Pass	5.7 dBm/3kHz
3	6dB Bandwidth	15.247(a)	Pass	16.3 MHz
4	99% Bandwidth	RSS GEN	Pass	18.4 MHz
5	Spurious emissions	15.247(b)	Pass	All Emissions Below -30dBc

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.

Note: EUT transmits on all chains in all modes and does not support a reduced number of transmit chains.

Client:	Ruckus Wireless	Job Number:	J73710
Model:	Dalmatian	T-Log Number:	T73801
		Account Manager:	Dean Eriksen
Contact:	Craig Owens		
Standard:	FCC 15.247/RSS-210	Class:	N/A

Run #1: Output Power - Chain A + B + C

Operating Mode: 802.11g

Transmitted signal on chain is coherent ? yes

2412 MHz	Chain 1	Chain 2	Chain 3	Chain 4	Total Across All Chains		Limit	
Power Setting Note 3	22.0	22.0	22.0					
Output Power (dBm) Note 1	20.67	21.09	20.71		25.6 dBm	0.363 W	30.0 dBm	1.000 W
Antenna Gain (dBi) Note 2	3	3	3		3.0 dBi		Pass	
eirp (dBm) Note 2	23.67	24.09	23.71		28.6 dBm	0.724 W		

2437 MHz	Chain 1	Chain 2	Chain 3	Chain 4	Total Across All Chains		Limit	
Power Setting Note 3	22.0	22.0	22.0					
Output Power (dBm) Note 1	20.81	21.51	20.77		25.8 dBm	0.381 W	30.0 dBm	1.000 W
Antenna Gain (dBi) Note 2	3	3	3		3.0 dBi		Pass	
eirp (dBm) Note 2	23.81	24.51	23.77		28.8 dBm	0.761 W		

2462 MHz	Chain 1	Chain 2	Chain 3	Chain 4	Total Across All Chains		Limit	
Power Setting Note 3	22.0	22.0	22.0					
Output Power (dBm) Note 1	20.4	21.52	20.71		25.7 dBm	0.369 W	30.0 dBm	1.000 W
Antenna Gain (dBi) Note 2	3	3	3		3.0 dBi		Pass	
eirp (dBm) Note 2	23.4	24.52	23.71		28.7 dBm	0.737 W		

5745 MHz	Chain 1	Chain 2	Chain 3	Chain 4	Total Across All Chains		Limit	
Power Setting Note 3	21.5	21.5	21.5					
Output Power (dBm) Note 1	18.3	18.88	21.26		24.4 dBm	0.279 W	30.0 dBm	1.000 W
Antenna Gain (dBi) Note 2	3	3	3		3.0 dBi		Pass	
eirp (dBm) Note 2	21.3	21.88	24.26		27.4 dBm	0.556 W		

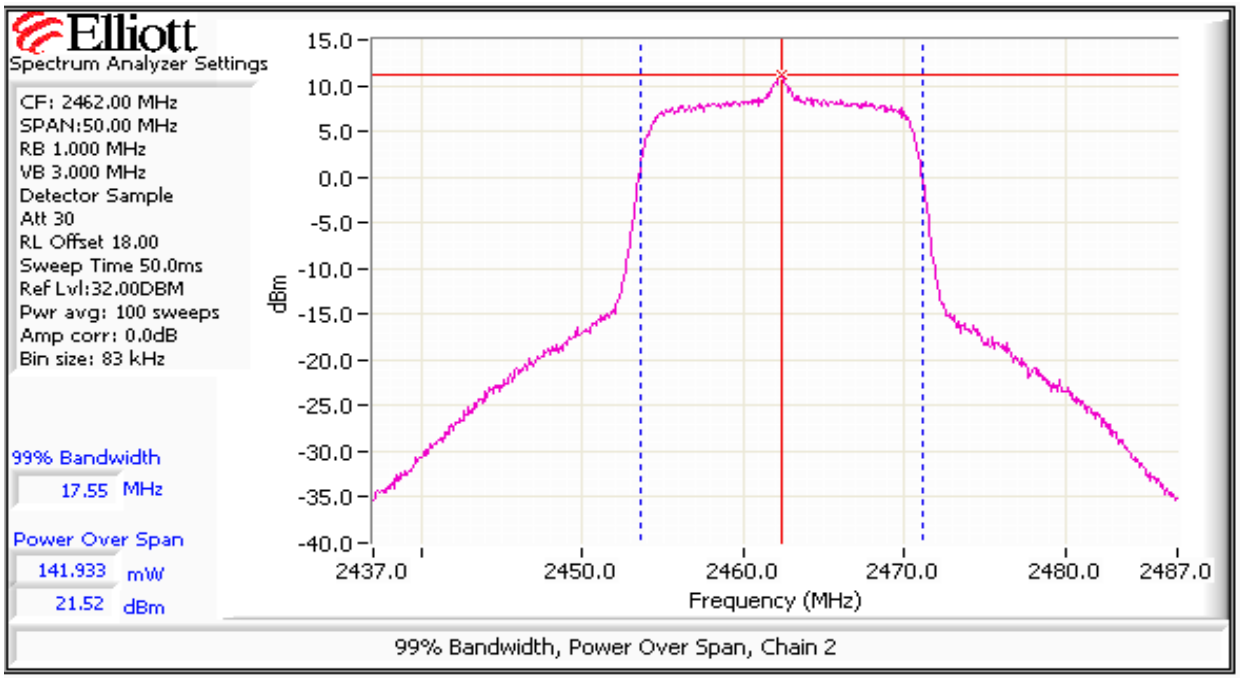
5785 MHz	Chain 1	Chain 2	Chain 3	Chain 4	Total Across All Chains		Limit	
Power Setting Note 3	21.5	21.5	21.5					
Output Power (dBm) Note 1	18.3	18.55	20.34		23.9 dBm	0.247 W	30.0 dBm	1.000 W
Antenna Gain (dBi) Note 2	3	3	3		3.0 dBi		Pass	
eirp (dBm) Note 2	21.3	21.55	23.34		26.9 dBm	0.494 W		

5825 MHz	Chain 1	Chain 2	Chain 3	Chain 4	Total Across All Chains		Limit	
Power Setting Note 3	21.5	21.5	21.5					
Output Power (dBm) Note 1	20.04	18.92	18.48		24.0 dBm	0.249 W	30.0 dBm	1.000 W
Antenna Gain (dBi) Note 2	3	3	3		3.0 dBi		Pass	
eirp (dBm) Note 2	23.04	21.92	21.48		27.0 dBm	0.498 W		

Client:	Ruckus Wireless	Job Number:	J73710
Model:	Dalmatian	T-Log Number:	T73801
		Account Manager:	Dean Eriksen
Contact:	Craig Owens		
Standard:	FCC 15.247/RSS-210	Class:	N/A

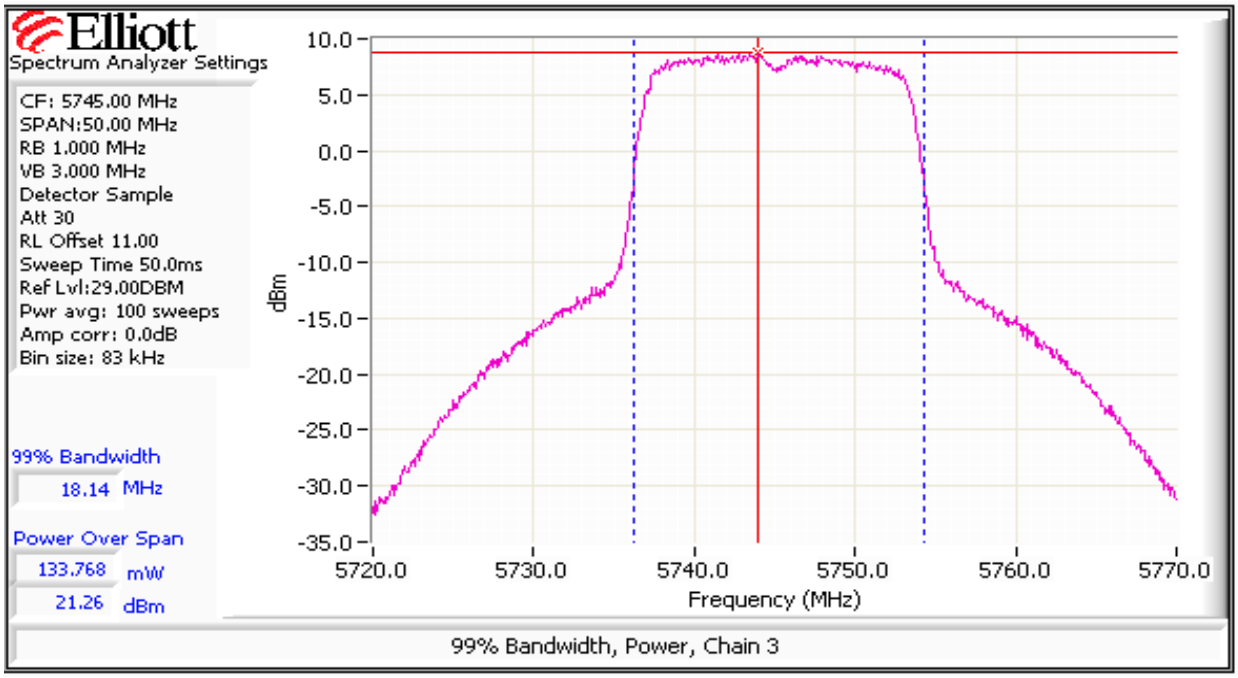
Run #1: Continued

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 50 MHz (reference method 1 of FCC DA 02-2138 for U-NII devices, August 30, 2002). Spurious limit becomes -30dBc.
Note 2:	As the antennas are sectorized, the effective antenna gain is the gain of any one antenna.
Note 3:	Power setting - if a single number the same power setting was used for each chain. If multiple numbers the power setting for each chain is separated by a comma (e.g. x,y would indicate power setting x for chain 1, power setting y for chain 2.



Client:	Ruckus Wireless	Job Number:	J73710
Model:	Dalmatian	T-Log Number:	T73801
		Account Manager:	Dean Eriksen
Contact:	Craig Owens		
Standard:	FCC 15.247/RSS-210	Class:	N/A

Run #1: Continued

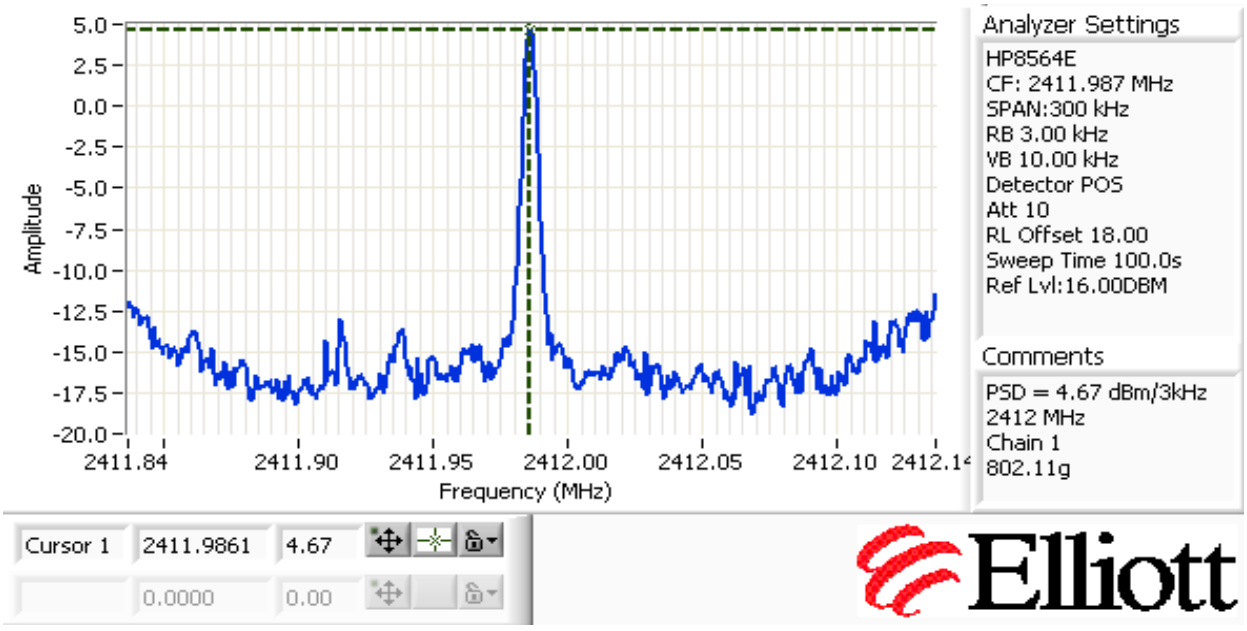


Client:	Ruckus Wireless	Job Number:	J73710
Model:	Dalmatian	T-Log Number:	T73801
		Account Manager:	Dean Eriksen
Contact:	Craig Owens		
Standard:	FCC 15.247/RSS-210	Class:	N/A

Run #2: Power spectral Density

Power Setting	Frequency (MHz)	PSD (dBm/3kHz) Note 1 Chain 1	Chain 2	Chain 3	Chain 4	Total	Limit dBm/3kHz	Result
22	2412	4.7	-4.8	-3.2		5.7	8.0	Pass
22	2437	-1.5	-4.0	-7.0		1.2	8.0	Pass
22	2462	2.5	-2.2	-4.7		4.4	8.0	Pass
21.5	5745	0.6	-5.4	2.9		5.3	8.0	Pass
21.5	5785	1.2	-1.8	-0.1		4.7	8.0	Pass
21.5	5825	0.6	-4.8	0.1		4.0	8.0	Pass

Note 1:	Power spectral density measured using RB=3 kHz, VB=10kHz, analyzer with peak detector and with a sweep time set to ensure a dwell time of at least 1 second per 3kHz. The measurement is made at the frequency of PPSD determined from preliminary scans using RB=3kHz using multiple sweeps at a faster rate over the 6dB bandwidth of the signal.

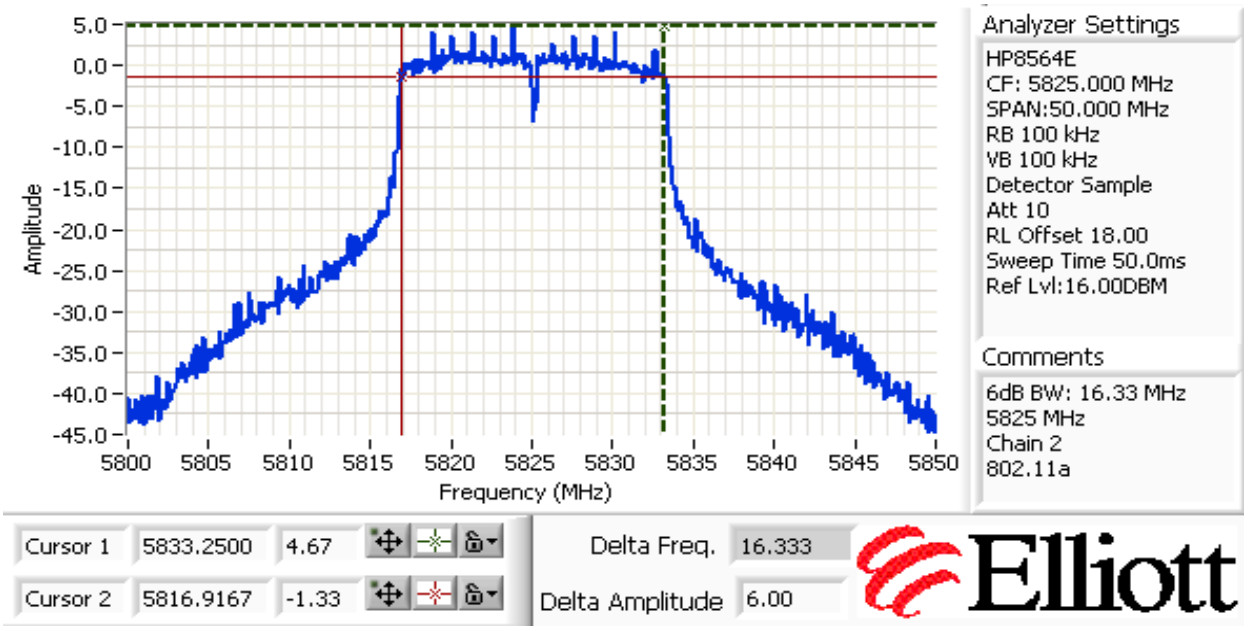


Client:	Ruckus Wireless	Job Number:	J73710
Model:	Dalmatian	T-Log Number:	T73801
		Account Manager:	Dean Eriksen
Contact:	Craig Owens		
Standard:	FCC 15.247/RSS-210	Class:	N/A

Run #3: Signal Bandwidth

Power Setting	Frequency (MHz)	Resolution Bandwidth	Bandwidth (MHz) 6dB	99%
22	2412	100kHz	16.5	17.6
22	2437	100kHz	16.4	17.7
22	2462	100kHz	16.4	18.3
21.5	5745	100kHz	16.4	18.1
21.5	5785	100kHz	16.4	18.1
21.5	5825	100kHz	16.3	18.4

Note 1:	Measured on a single chain
Note 2:	99% bandwidth measured in accordance with RSS GEN, with RB > 1% of the span and VB > 3xRB



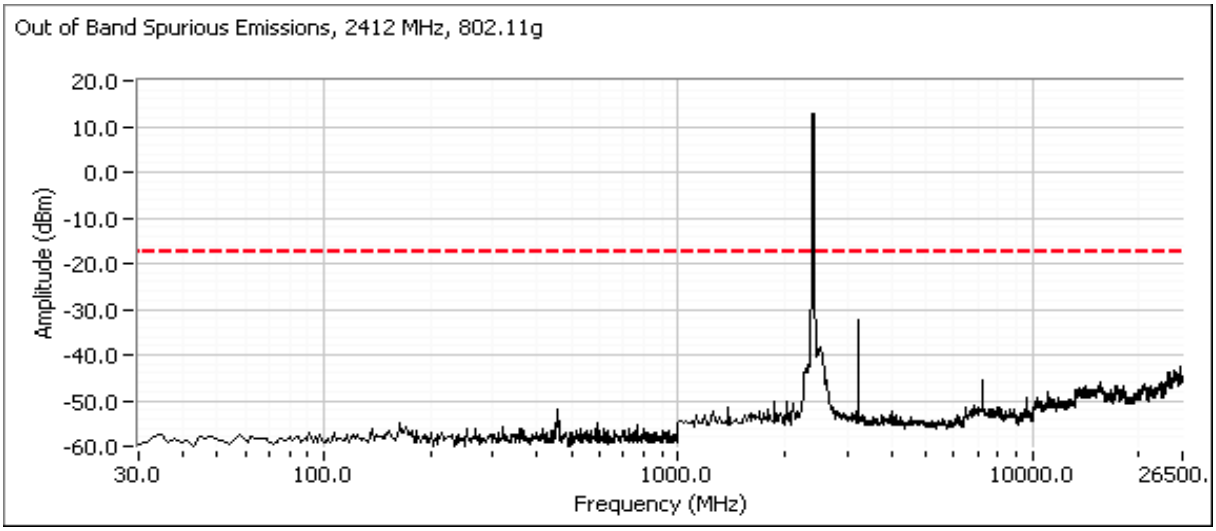
Client:	Ruckus Wireless	Job Number:	J73710
Model:	Dalmatian	T-Log Number:	T73801
		Account Manager:	Dean Eriksen
Contact:	Craig Owens		
Standard:	FCC 15.247/RSS-210	Class:	N/A

Run #4: Out of Band Spurious Emissions

Power Setting Per Chain				Frequency (MHz)	Limit	Result
#1	#2	#3	#4			
22	22	22		2412	-30dBc	Pass
22	22	22		2437	-30dBc	Pass
22	22	22		2462	-30dBc	Pass
21.5	21.5	21.5		5745	-30dBc	Pass
21.5	21.5	21.5		5785	-30dBc	Pass
21.5	21.5	21.5		5825	-30dBc	Pass

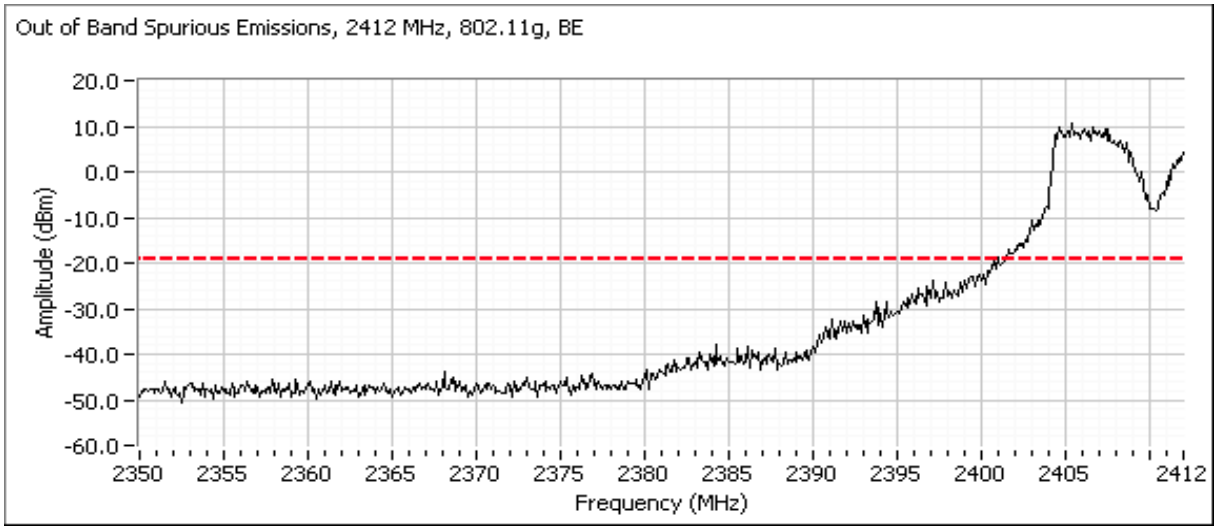
Note 1:	Measured with all chains connected together through a combiner, unused ports on the combiner terminated in 50ohms.
Note 2:	All plots taken with RBW=VBW=100kHz

Plots for low channel, power setting(s) = 22

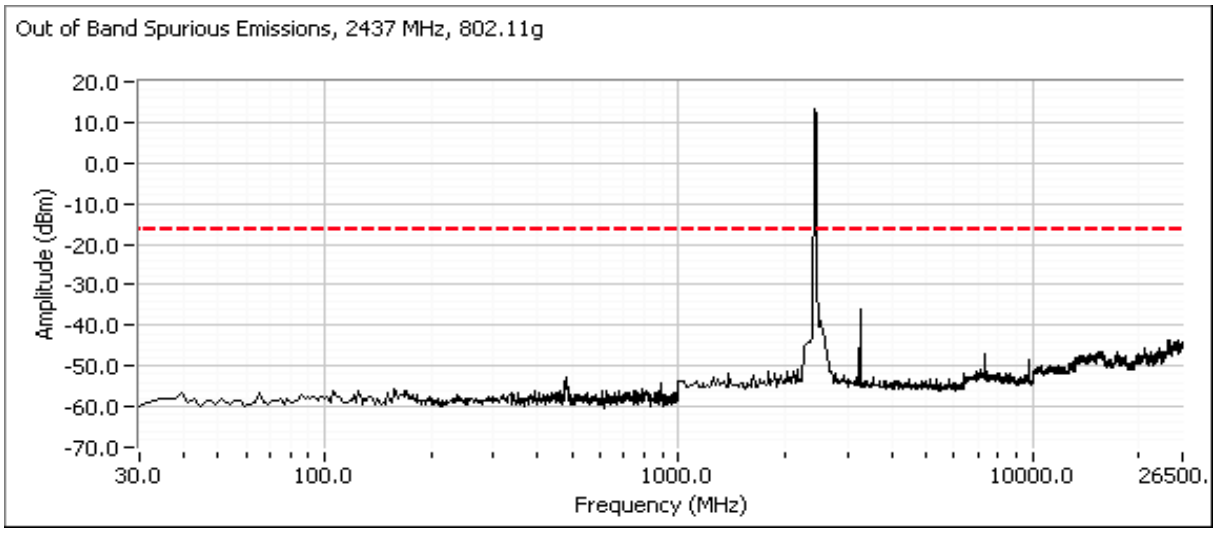


Client:	Ruckus Wireless	Job Number:	J73710
Model:	Dalmatian	T-Log Number:	T73801
		Account Manager:	Dean Eriksen
Contact:	Craig Owens		
Standard:	FCC 15.247/RSS-210	Class:	N/A

Additional plot showing compliance with -30dBc limit from 2390 MHz to 2400 MHz. Radiated measurements used to show compliance with the limits in the restricted band below 2390 MHz.

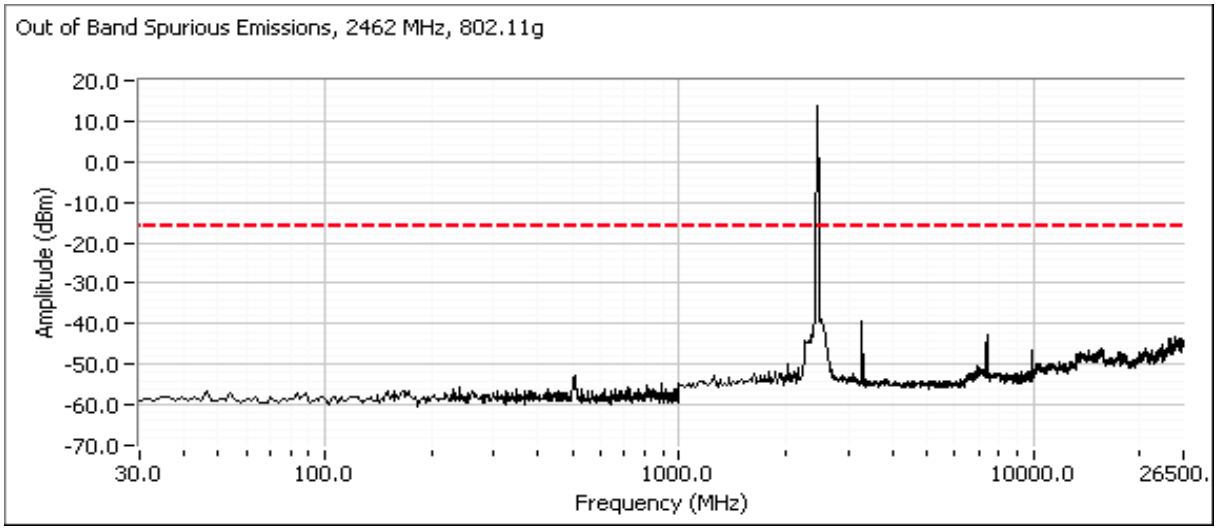


Plots for center channel, power setting(s) = 22

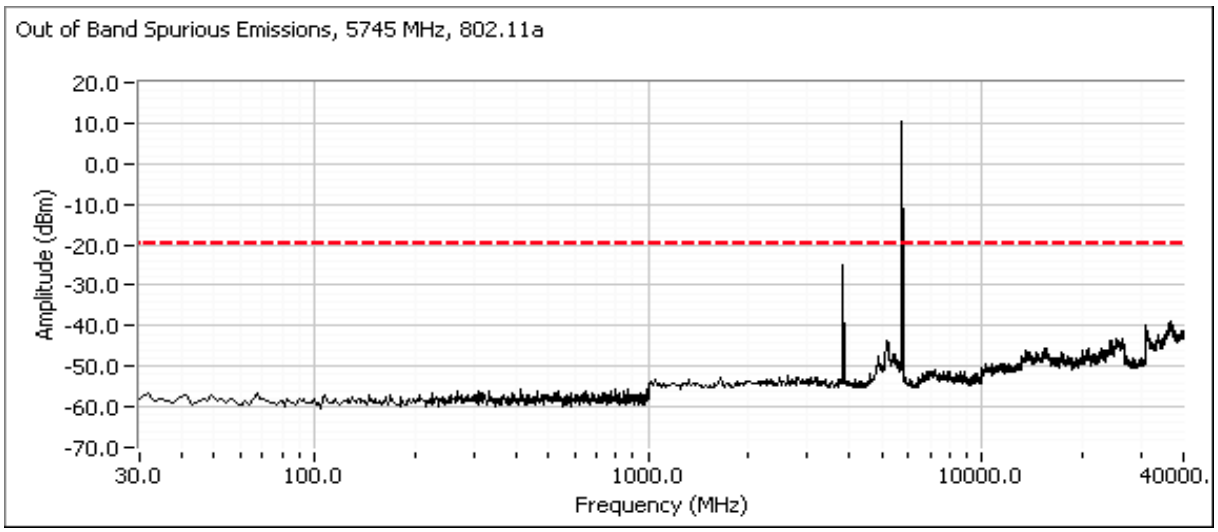


Client:	Ruckus Wireless	Job Number:	J73710
Model:	Dalmatian	T-Log Number:	T73801
		Account Manager:	Dean Eriksen
Contact:	Craig Owens		
Standard:	FCC 15.247/RSS-210	Class:	N/A

Plots for high channel, power setting(s) = 22

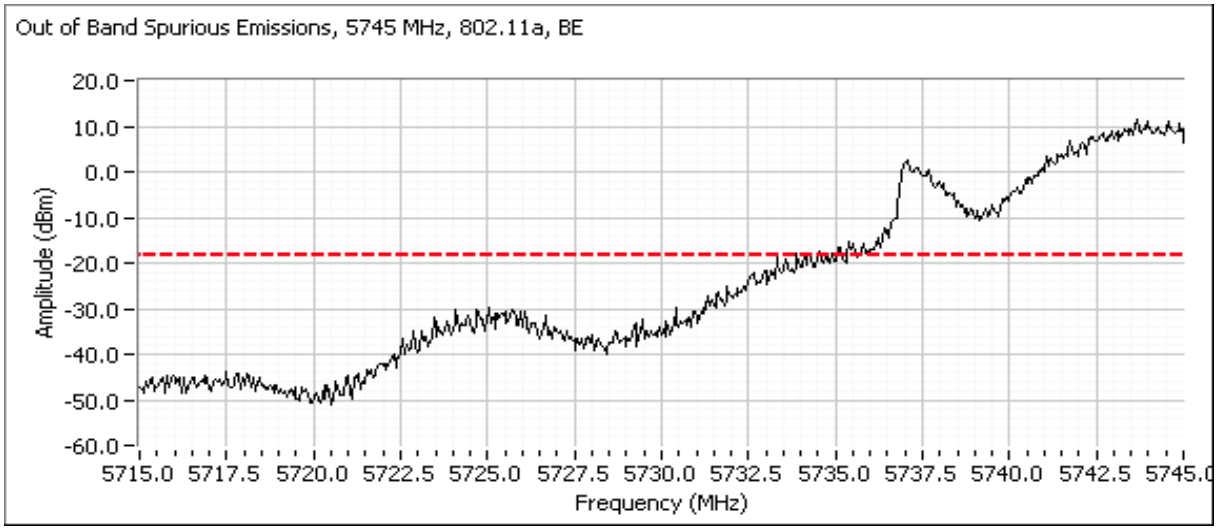


Plots for low channel, power setting(s) = 21.5

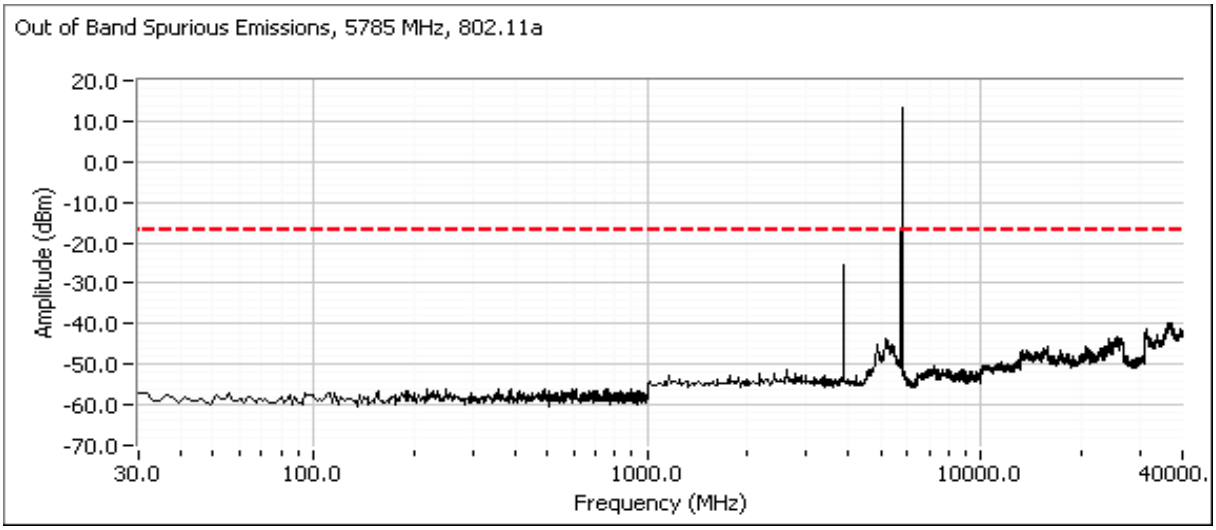


Client:	Ruckus Wireless	Job Number:	J73710
Model:	Dalmatian	T-Log Number:	T73801
		Account Manager:	Dean Eriksen
Contact:	Craig Owens		
Standard:	FCC 15.247/RSS-210	Class:	N/A

Additional plot from 5715 - 5755 MHz showing compliance with -30dBc at the band edge.

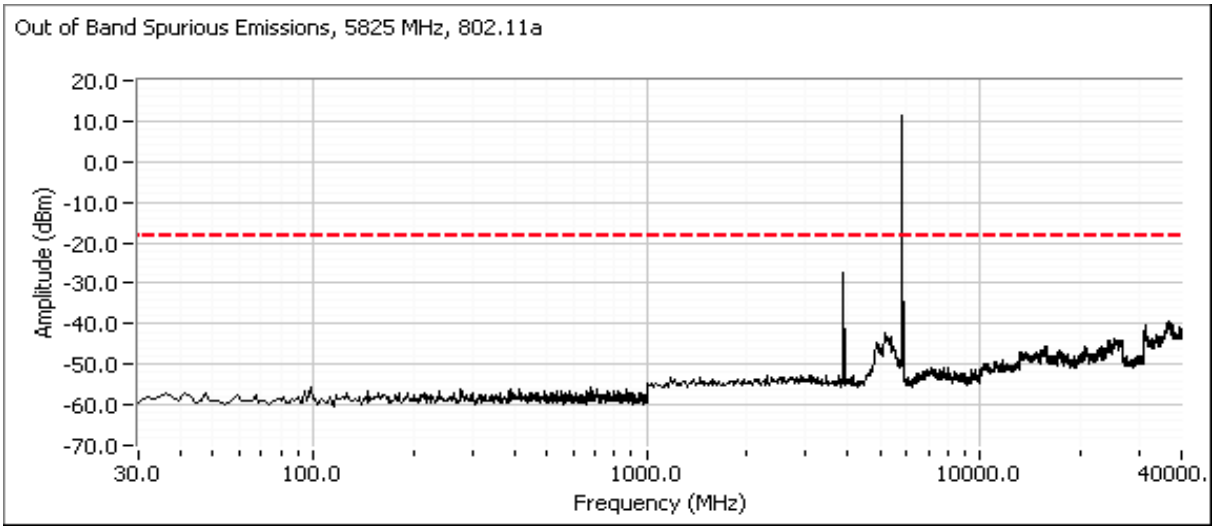


Plots for center channel, power setting(s) = 21.5

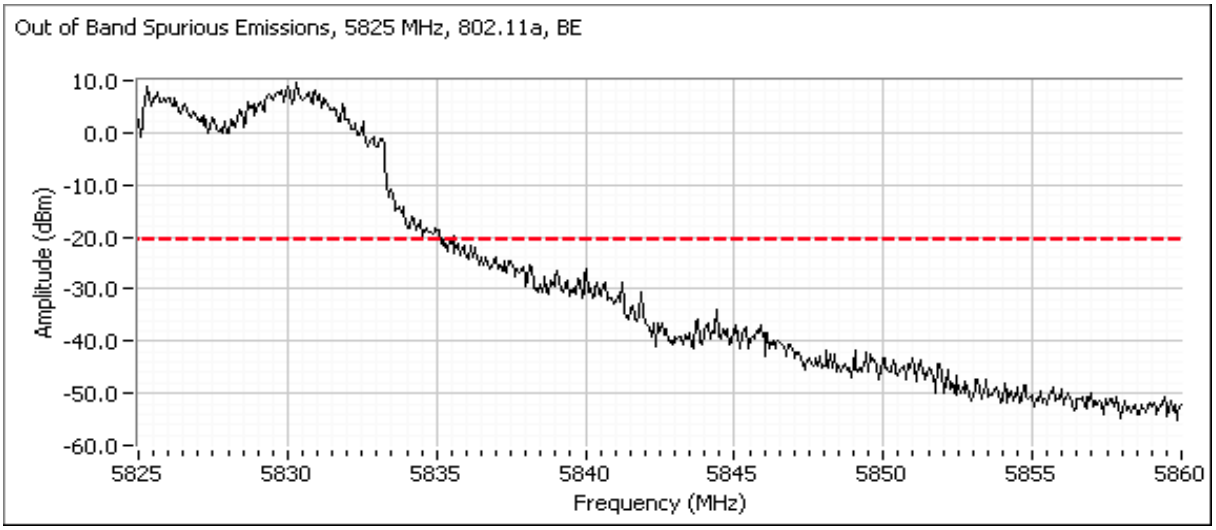


Client:	Ruckus Wireless	Job Number:	J73710
Model:	Dalmatian	T-Log Number:	T73801
		Account Manager:	Dean Eriksen
Contact:	Craig Owens		
Standard:	FCC 15.247/RSS-210	Class:	N/A

Plots for high channel, power setting(s) = 21.5



Additional plot from 5820 - 5860 MHz showing compliance with -30dBc at the band edge.



Client:	Ruckus Wireless	Job Number:	J73710
Model:	Dalmatian	T-Log Number:	T73801
		Account Manager:	Dean Eriksen
Contact:	Craig Owens		
Standard:	FCC 15.247/RSS-210	Class:	N/A

RSS 210 and FCC 15.247 (DTS) Antenna Port Measurements
MIMO and Smart Antenna Systems
Power, PSD, Bandwidth and 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.

Date of Test: 2/11/2009
Test Engineer: Joseph Cadigal
Test Location: SV OATS #1

Config. Used: 1
Config Change: none
EUT Voltage: 120V/60Hz

General Test Configuration

The EUT was connected to the spectrum analyzer or power meter via a suitable attenuator. All measurements were made on a single chain.

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

Ambient Conditions:

Temperature: 20 °C
Rel. Humidity: 38 %

Summary of Results

Run #	Test Performed	Limit	Pass / Fail	Result / Margin
1	Output Power Chain A+B+C	15.247(b)	Pass	28.8 dBm (EIRP)
2	PSD Chain A+B+C	15.247(d)	Pass	7.7 dBm/3kHz
-	6dB Bandwidth	15.247(a)	Pass	16.3 MHz
-	99% Bandwidth	RSS GEN	Pass	19.3 MHz
-	Spurious emissions	15.247(b)	Pass	All Emissions Below -30dBc

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.

Note: EUT transmits on all chains in all modes and does not support a reduced number of transmit chains.

Client:	Ruckus Wireless	Job Number:	J73710
Model:	Dalmatian	T-Log Number:	T73801
		Account Manager:	Dean Eriksen
Contact:	Craig Owens		
Standard:	FCC 15.247/RSS-210	Class:	N/A

Run #1: Output Power - Chain A + B + C

Operating Mode: MCS0 HT20

Transmitted signal on chain is coherent ? no

2412 MHz	Chain 1	Chain 2	Chain 3	Chain 4	Total Across All Chains		Limit	
Power Setting Note 3	22.0	22.0	22.0					
Output Power (dBm) Note 1	19.55	19.13	18.65		23.9 dBm	0.245 W	30.0 dBm	1.000 W
Antenna Gain (dBi) Note 2	3	3	3			3.0 dBi	Pass	
eirp (dBm) Note 2	22.55	22.13	21.65		26.9 dBm	0.489 W		

2437 MHz	Chain 1	Chain 2	Chain 3	Chain 4	Total Across All Chains		Limit	
Power Setting Note 3	22.0	22.0	22.0					
Output Power (dBm) Note 1	20.9	20.6	21.6		25.8 dBm	0.382 W	30.0 dBm	1.000 W
Antenna Gain (dBi) Note 2	3	3	3			3.0 dBi	Pass	
eirp (dBm) Note 2	23.9	23.6	24.6		28.8 dBm	0.763 W		

2462 MHz	Chain 1	Chain 2	Chain 3	Chain 4	Total Across All Chains		Limit	
Power Setting Note 3	22.0	22.0	22.0					
Output Power (dBm) Note 1	20.15	20.15	20.22		24.9 dBm	0.312 W	30.0 dBm	1.000 W
Antenna Gain (dBi) Note 2	3	3	3			3.0 dBi	Pass	
eirp (dBm) Note 2	23.15	23.15	23.22		27.9 dBm	0.623 W		

5745 MHz	Chain 1	Chain 2	Chain 3	Chain 4	Total Across All Chains		Limit	
Power Setting Note 3	21.5	21.5	21.5					
Output Power (dBm) Note 1	18.39	18.86	21.13		24.4 dBm	0.276 W	30.0 dBm	1.000 W
Antenna Gain (dBi) Note 2	3	3	3			3.0 dBi	Pass	
eirp (dBm) Note 2	21.39	21.86	24.13		27.4 dBm	0.550 W		

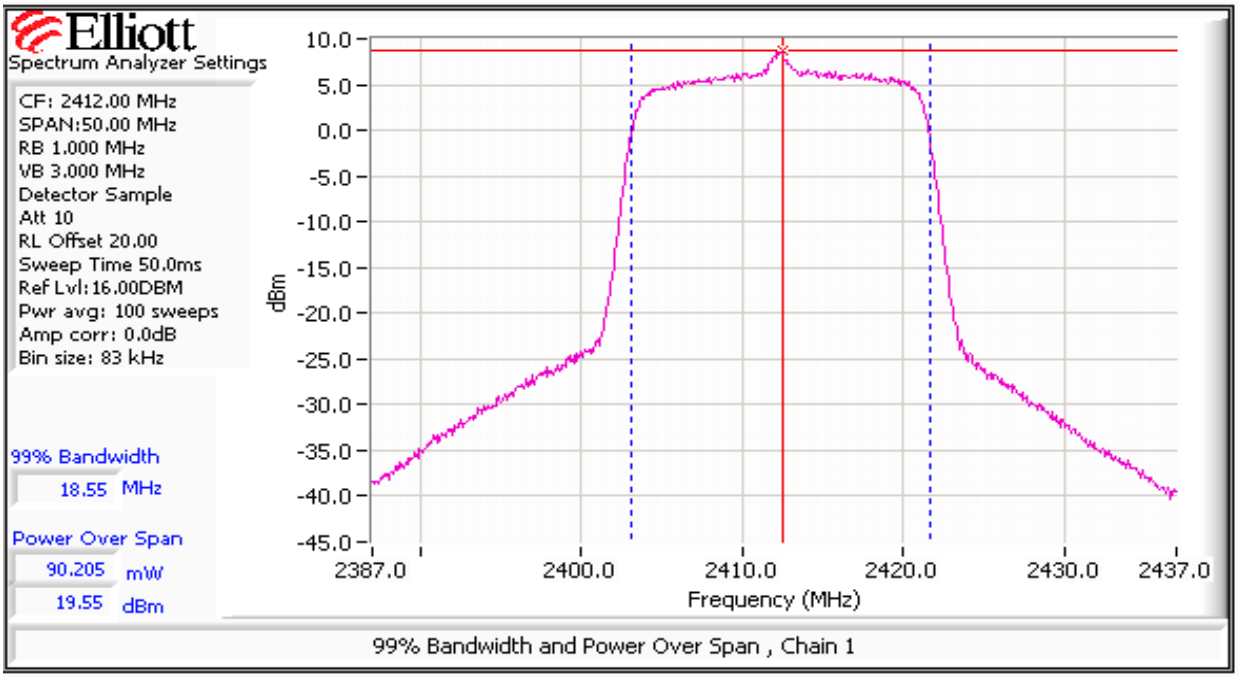
5785 MHz	Chain 1	Chain 2	Chain 3	Chain 4	Total Across All Chains		Limit	
Power Setting Note 3	21.5	21.5	21.5					
Output Power (dBm) Note 1	18.7	19.03	20.5		24.3 dBm	0.266 W	30.0 dBm	1.000 W
Antenna Gain (dBi) Note 2	3	3	3			3.0 dBi	Pass	
eirp (dBm) Note 2	21.7	22.03	23.5		27.3 dBm	0.531 W		

5825 MHz	Chain 1	Chain 2	Chain 3	Chain 4	Total Across All Chains		Limit	
Power Setting Note 3	21.5	21.5	21.5					
Output Power (dBm) Note 1	18.78	18.34	20.26		24.0 dBm	0.250 W	30.0 dBm	1.000 W
Antenna Gain (dBi) Note 2	3	3	3			3.0 dBi	Pass	
eirp (dBm) Note 2	21.78	21.34	23.26		27.0 dBm	0.499 W		

Client:	Ruckus Wireless	Job Number:	J73710
Model:	Dalmatian	T-Log Number:	T73801
		Account Manager:	Dean Eriksen
Contact:	Craig Owens		
Standard:	FCC 15.247/RSS-210	Class:	N/A

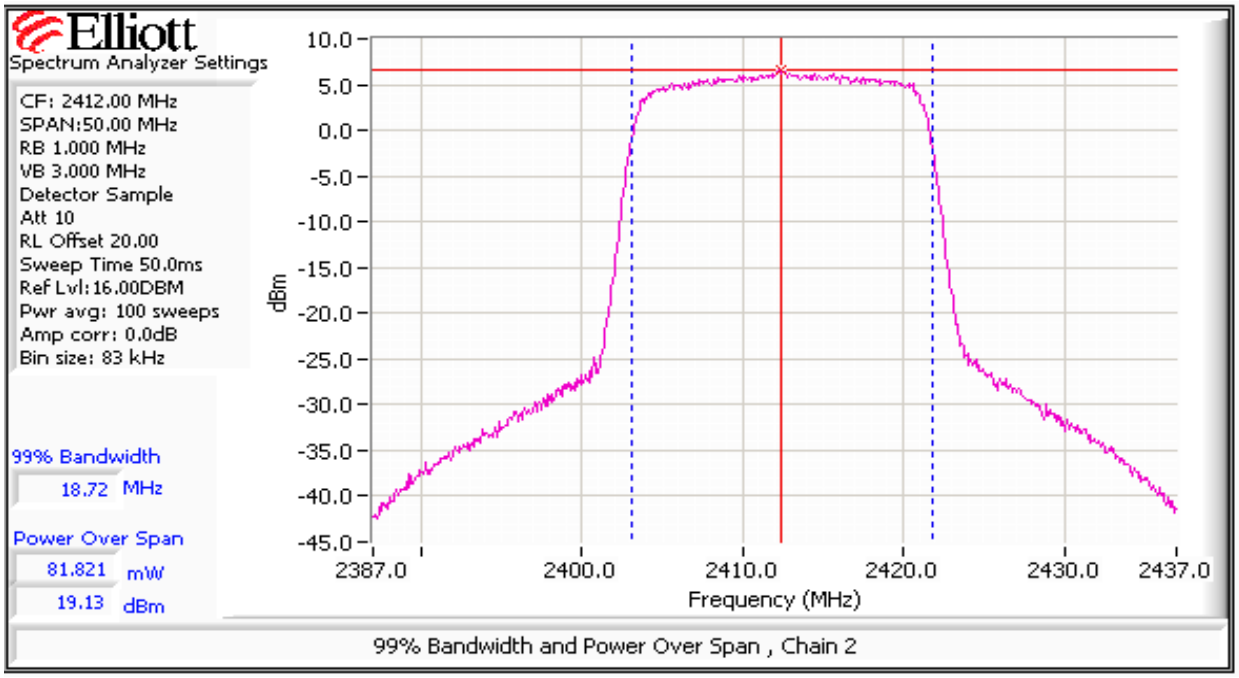
Run #1: Continued

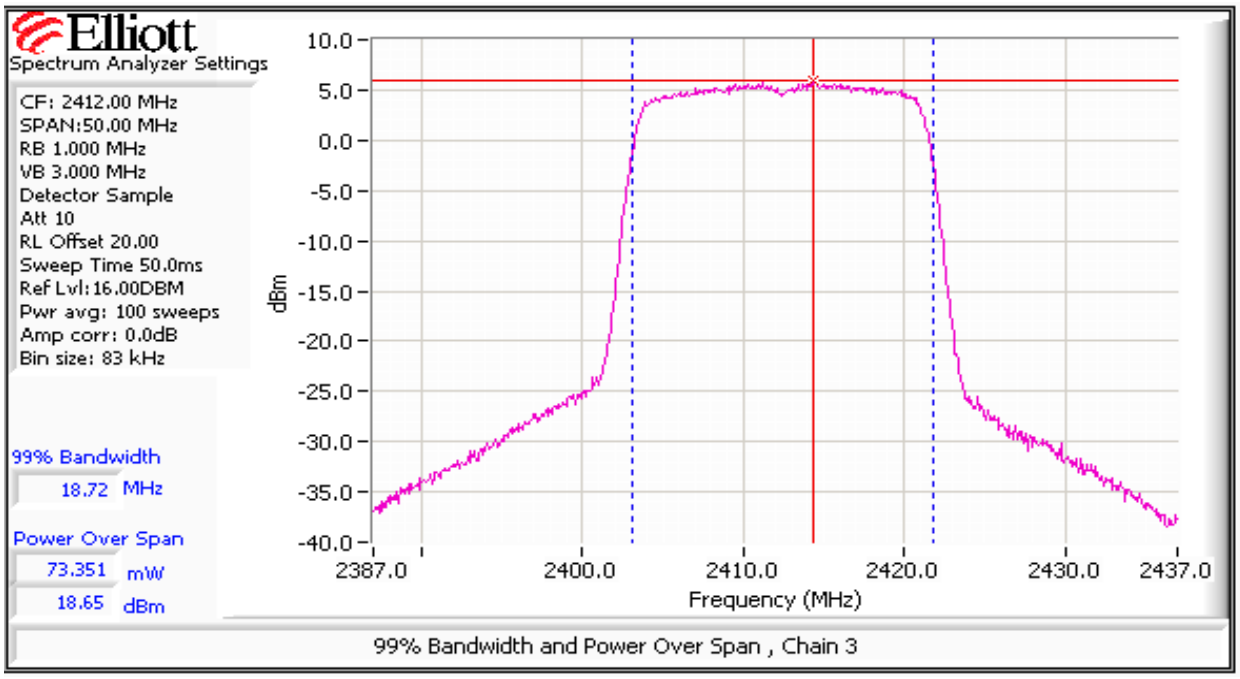
Note 1:	Output power measured using a spectrum analyzer (see plots below) with RBW=1MHz, VB=3 MHz, sample detector, power averaging on (transmitted signal was continuous) and power integration over 50 MHz (reference method 1 of FCC DA 02-2138 for U-NII devices, August 30, 2002). Spurious limit becomes -30dBc.
Note 2:	As the antennas are sectorized, the effective antenna gain is the gain of any one antenna.
Note 3:	Power setting - if a single number the same power setting was used for each chain. If multiple numbers the power setting for each chain is separated by a comma (e.g. x,y would indicate power setting x for chain 1, power setting y for chain 2.



Client:	Ruckus Wireless	Job Number:	J73710
Model:	Dalmatian	T-Log Number:	T73801
		Account Manager:	Dean Eriksen
Contact:	Craig Owens		
Standard:	FCC 15.247/RSS-210	Class:	N/A

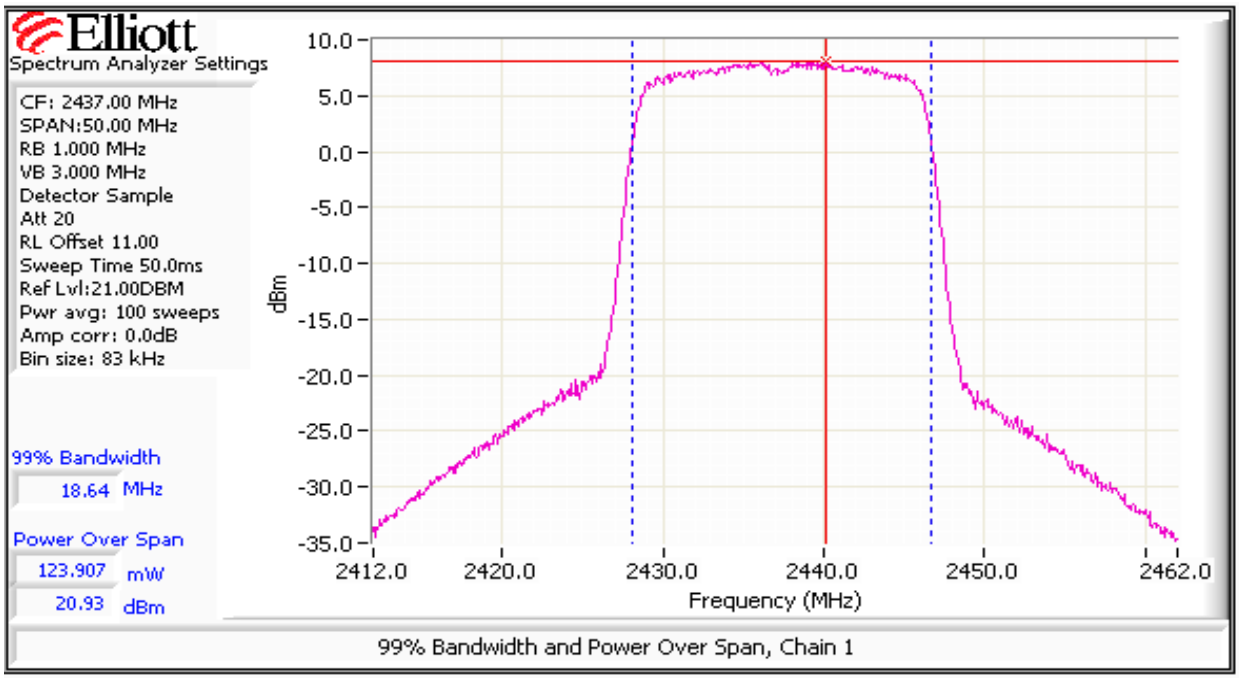
Run #1: Continued

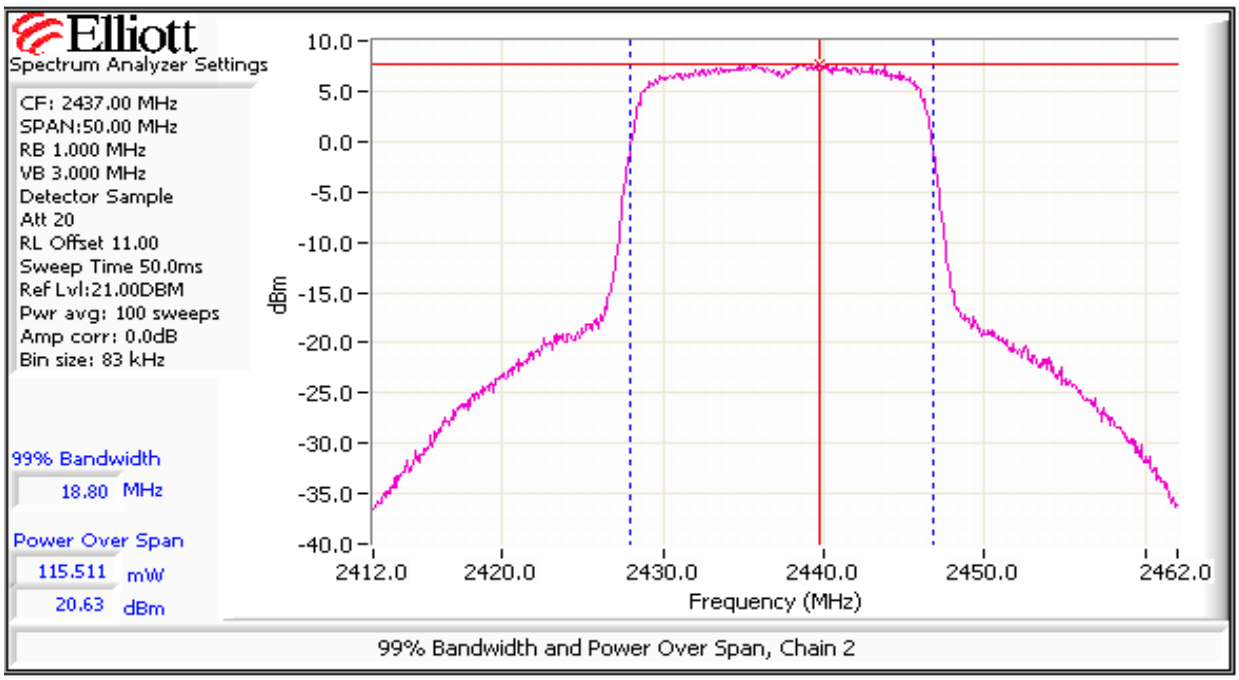




Client:	Ruckus Wireless	Job Number:	J73710
Model:	Dalmatian	T-Log Number:	T73801
		Account Manager:	Dean Eriksen
Contact:	Craig Owens		
Standard:	FCC 15.247/RSS-210	Class:	N/A

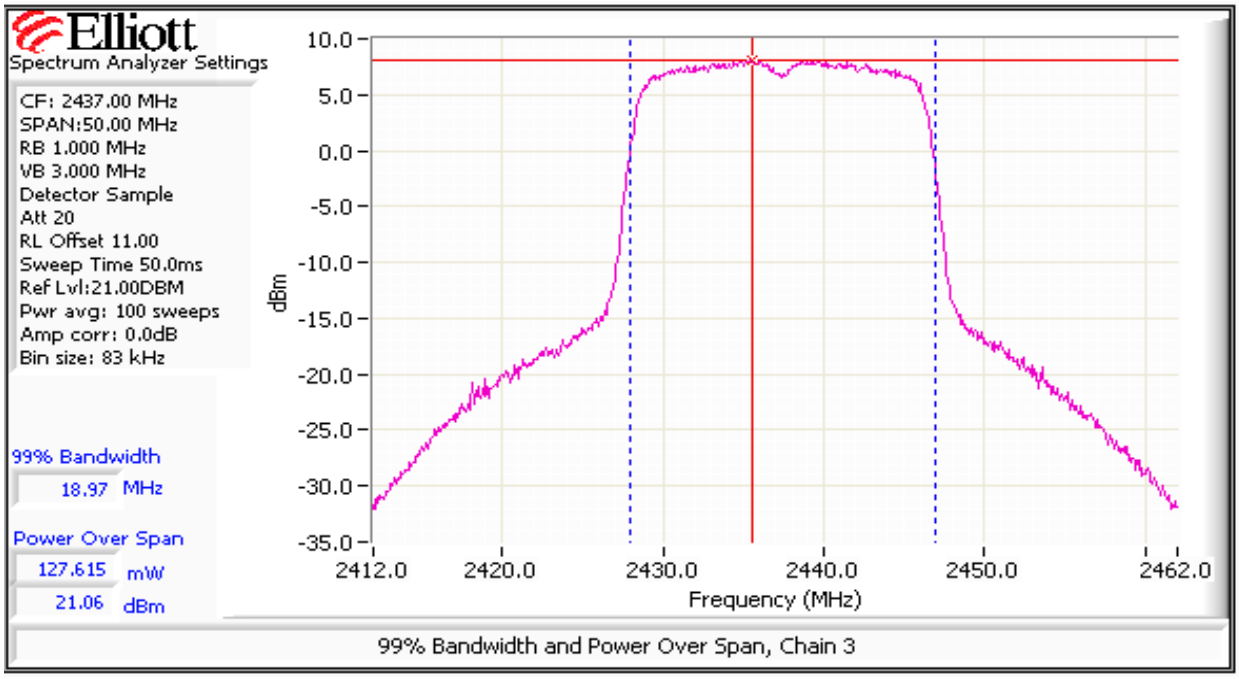
Run #1: Output Power - Chain A + B + C

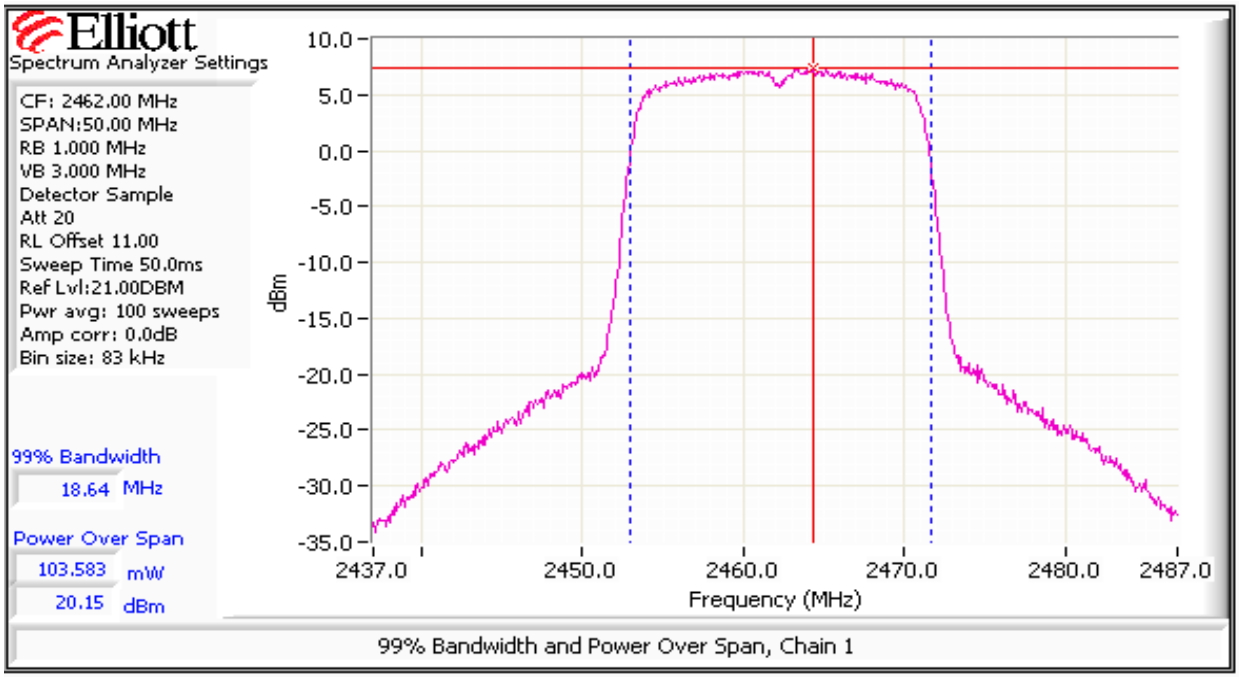




Client:	Ruckus Wireless	Job Number:	J73710
Model:	Dalmatian	T-Log Number:	T73801
		Account Manager:	Dean Eriksen
Contact:	Craig Owens		
Standard:	FCC 15.247/RSS-210	Class:	N/A

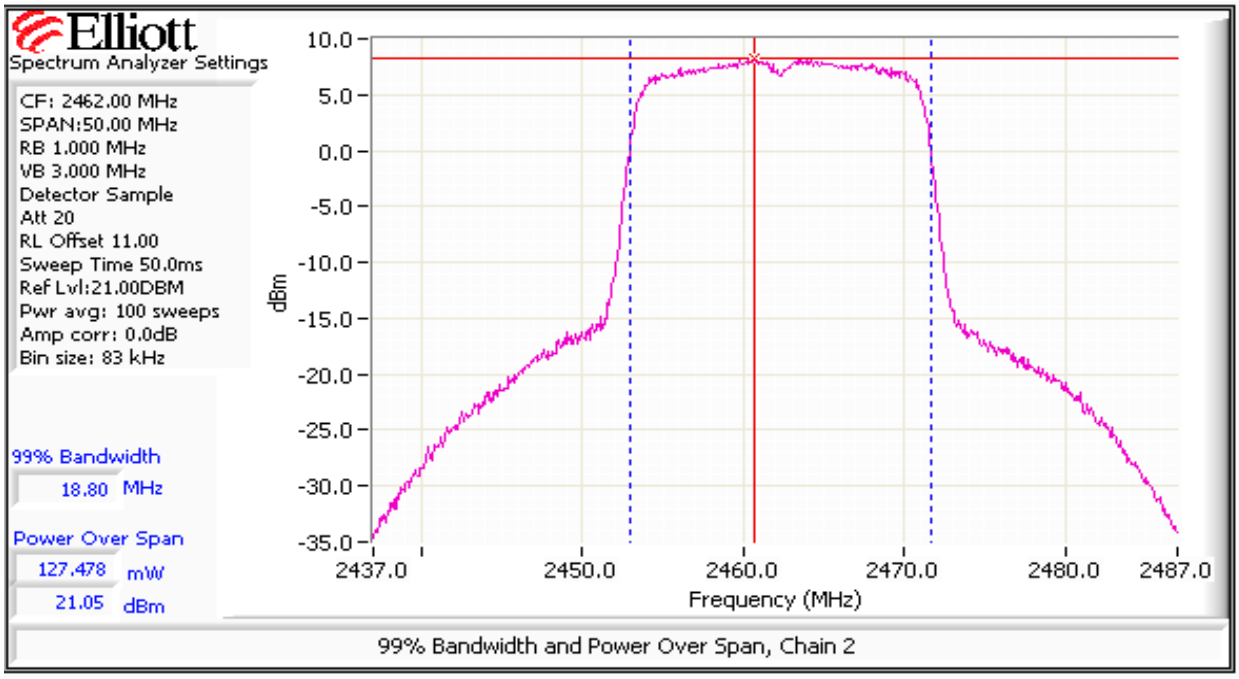
Run #1: Output Power - Chain A + B + C

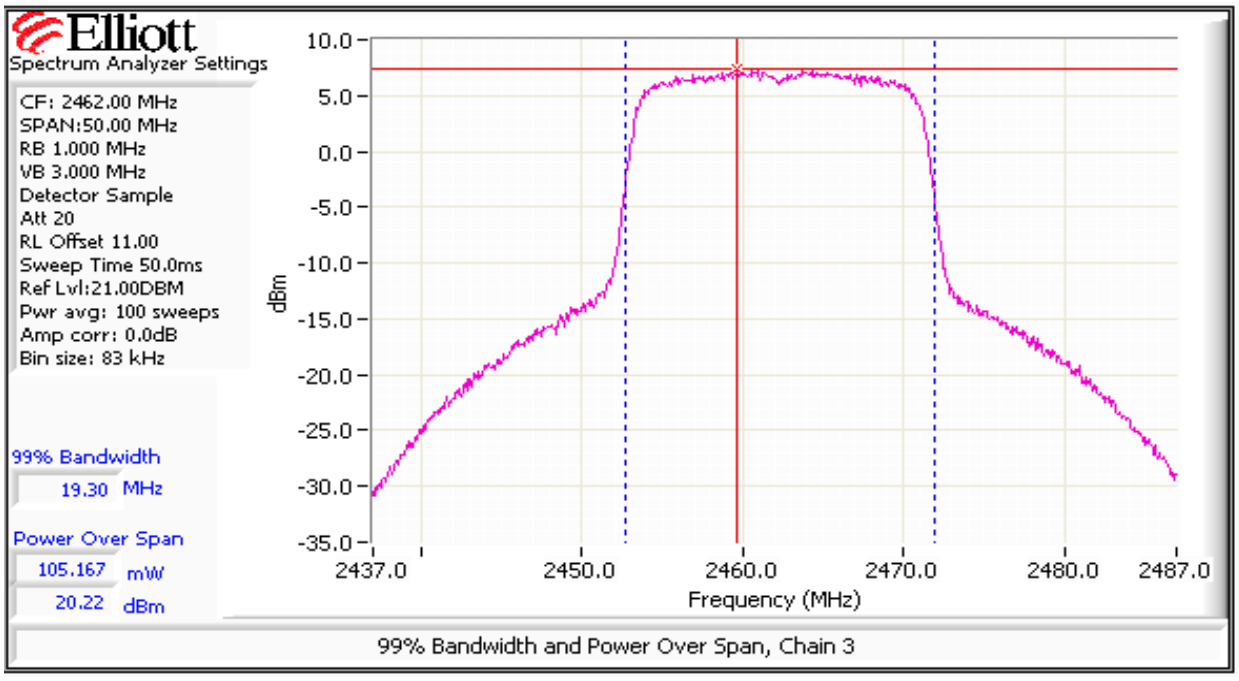




Client:	Ruckus Wireless	Job Number:	J73710
Model:	Dalmatian	T-Log Number:	T73801
		Account Manager:	Dean Eriksen
Contact:	Craig Owens		
Standard:	FCC 15.247/RSS-210	Class:	N/A

Run #1: Output Power - Chain A + B + C



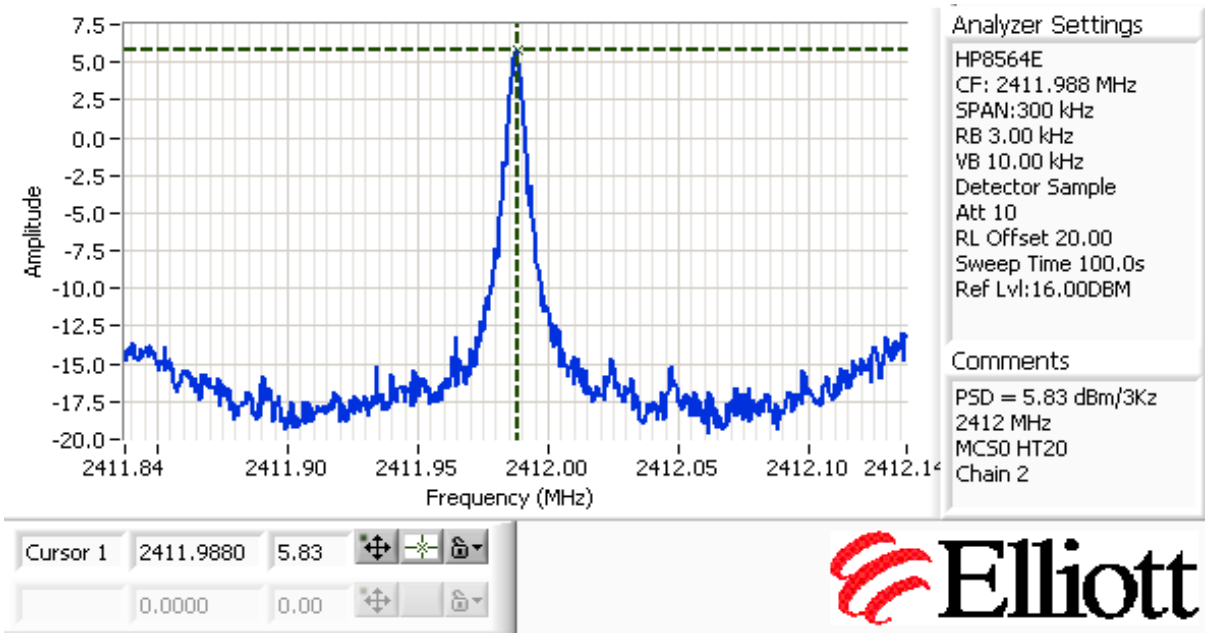


Client:	Ruckus Wireless	Job Number:	J73710
Model:	Dalmatian	T-Log Number:	T73801
		Account Manager:	Dean Eriksen
Contact:	Craig Owens		
Standard:	FCC 15.247/RSS-210	Class:	N/A

Run #2: Power spectral Density

Power Setting	Frequency (MHz)	PSD (dBm/3kHz) Note 1 Chain 1	Chain 2	Chain 3	Chain 4	Total	Limit dBm/3kHz	Result
22	2412	2.7	5.8	-7.0		7.7	8.0	Pass
22	2437	6.5	-4.3	-7.7		7.0	8.0	Pass
22	2462	3.2	-3.0	-0.8		5.3	8.0	Pass
21.5	5745	-0.1	-9.3	2.1		4.3	8.0	Pass
21.5	5785	-7.6	-6.9	-2.3		-0.1	8.0	Pass
21.5	5825	-0.4	-7.6	-0.1		3.1	8.0	Pass

Note 1:	Power spectral density measured using RB=3 kHz, VB=10kHz, analyzer with peak detector and with a sweep time set to ensure a dwell time of at least 1 second per 3kHz. The measurement is made at the frequency of PPSD determined from preliminary scans using RB=3kHz using multiple sweeps at a faster rate over the 6dB bandwidth of the signal.

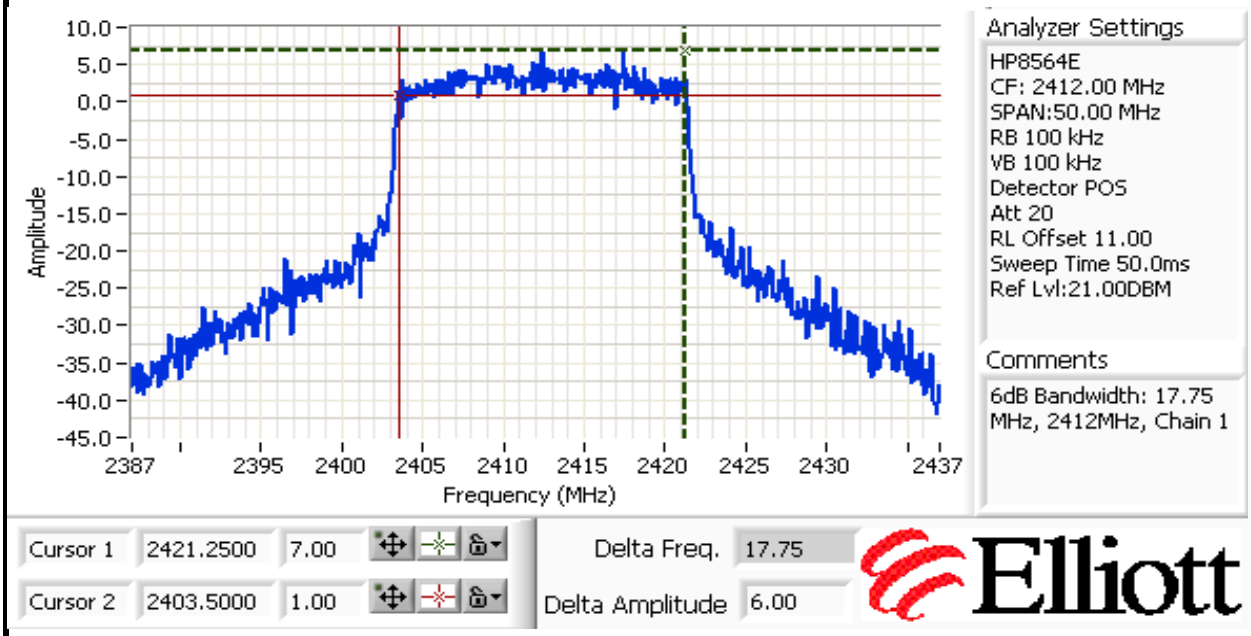


Client:	Ruckus Wireless	Job Number:	J73710
Model:	Dalmatian	T-Log Number:	T73801
		Account Manager:	Dean Eriksen
Contact:	Craig Owens		
Standard:	FCC 15.247/RSS-210	Class:	N/A

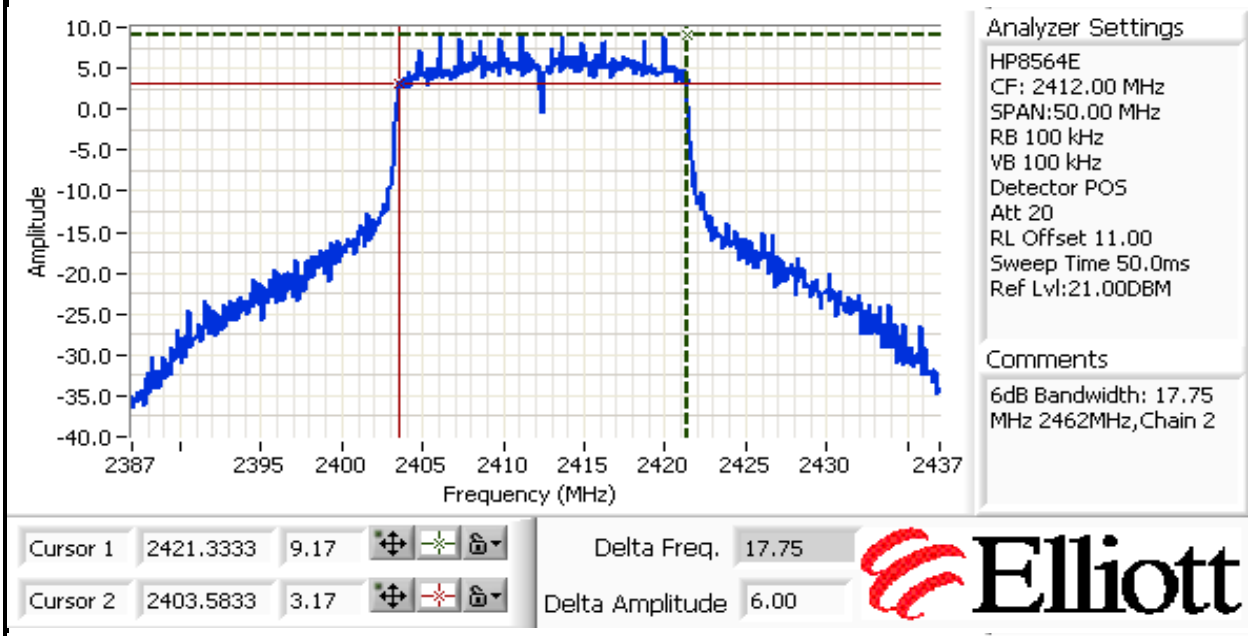
Run #3: Signal Bandwidth

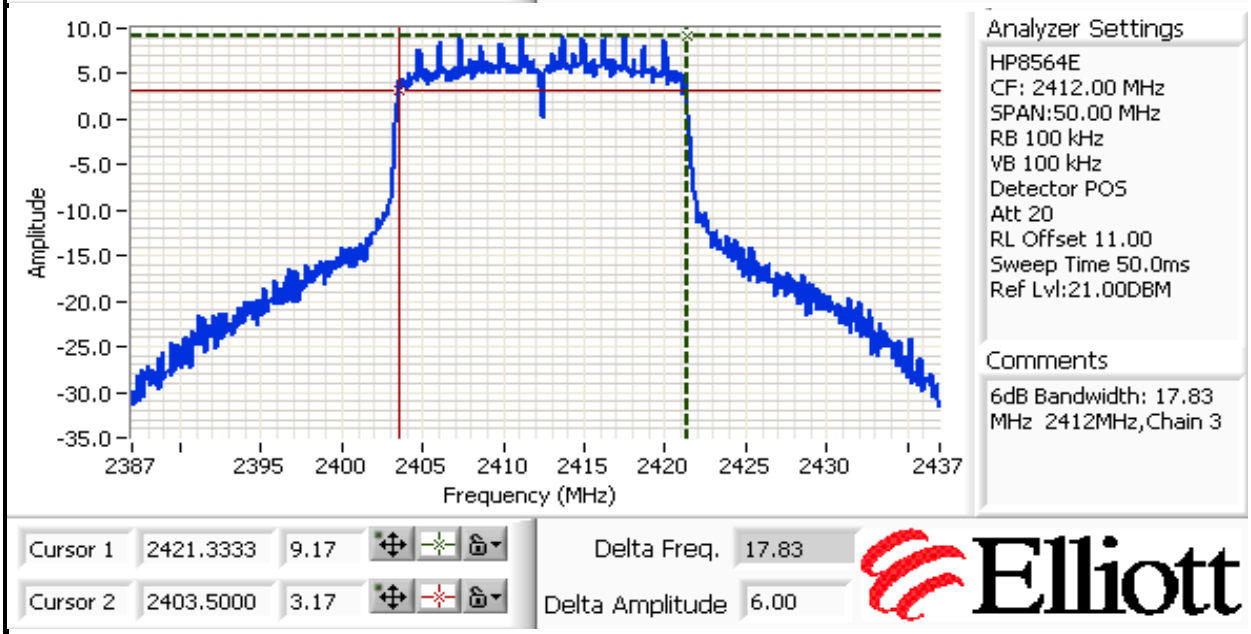
Power Setting	Frequency (MHz)	Resolution Bandwidth	Bandwidth (MHz)	
			6dB	99%
22	2412	100kHz	17.8	18.7
22	2437	100kHz	17.8	19.0
22	2462	100kHz	17.8	19.3
21.5	5745	100kHz	17.7	18.6
21.5	5785	100kHz	17.4	18.6
21.5	5825	100kHz	16.3	18.5

Note 1:	Measured on a single chain
Note 2:	99% bandwidth measured in accordance with RSS GEN, with RB > 1% of the span and VB > 3xRB

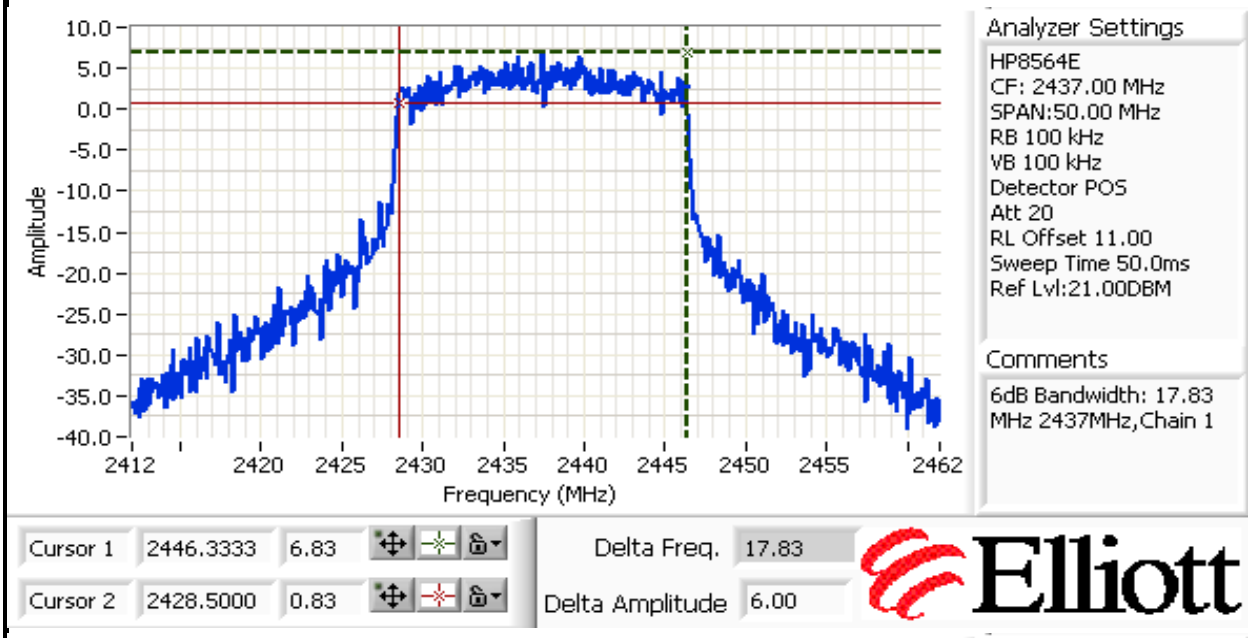


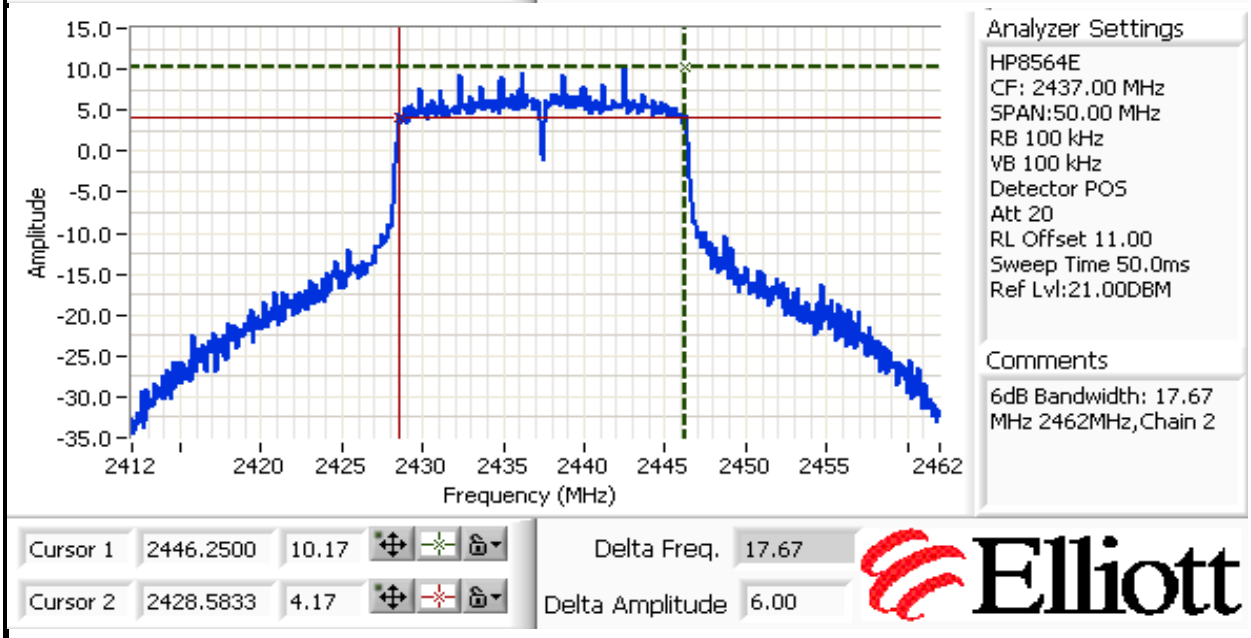
Client:	Ruckus Wireless	Job Number:	J73710
Model:	Dalmatian	T-Log Number:	T73801
		Account Manager:	Dean Eriksen
Contact:	Craig Owens		
Standard:	FCC 15.247/RSS-210	Class:	N/A



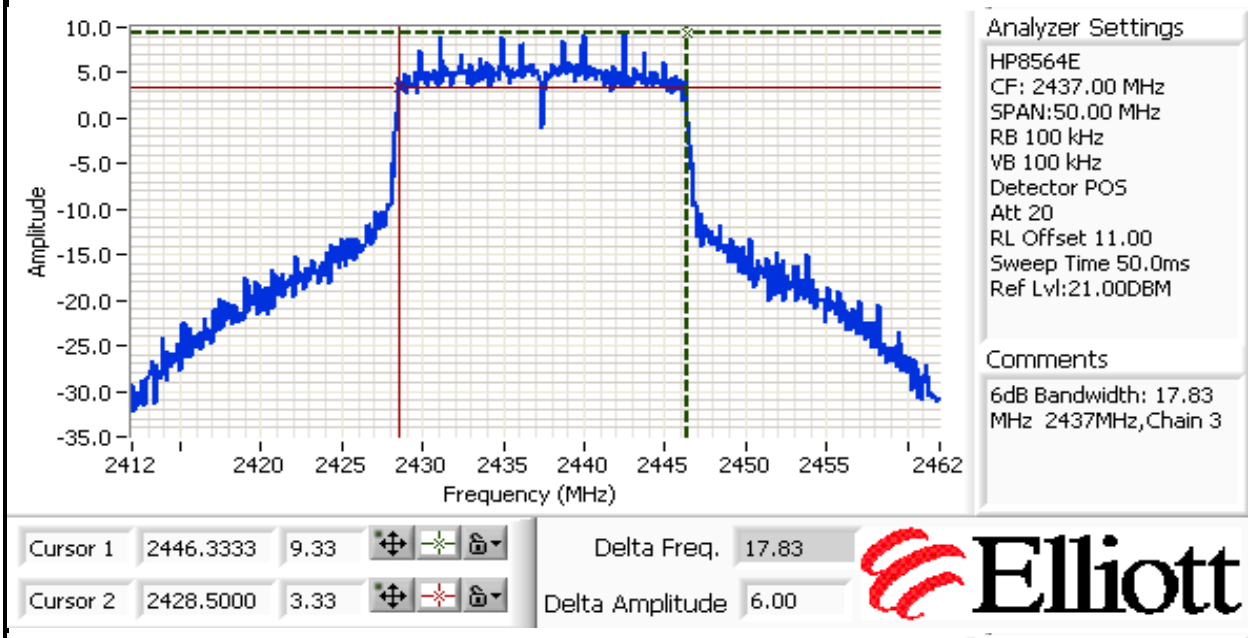


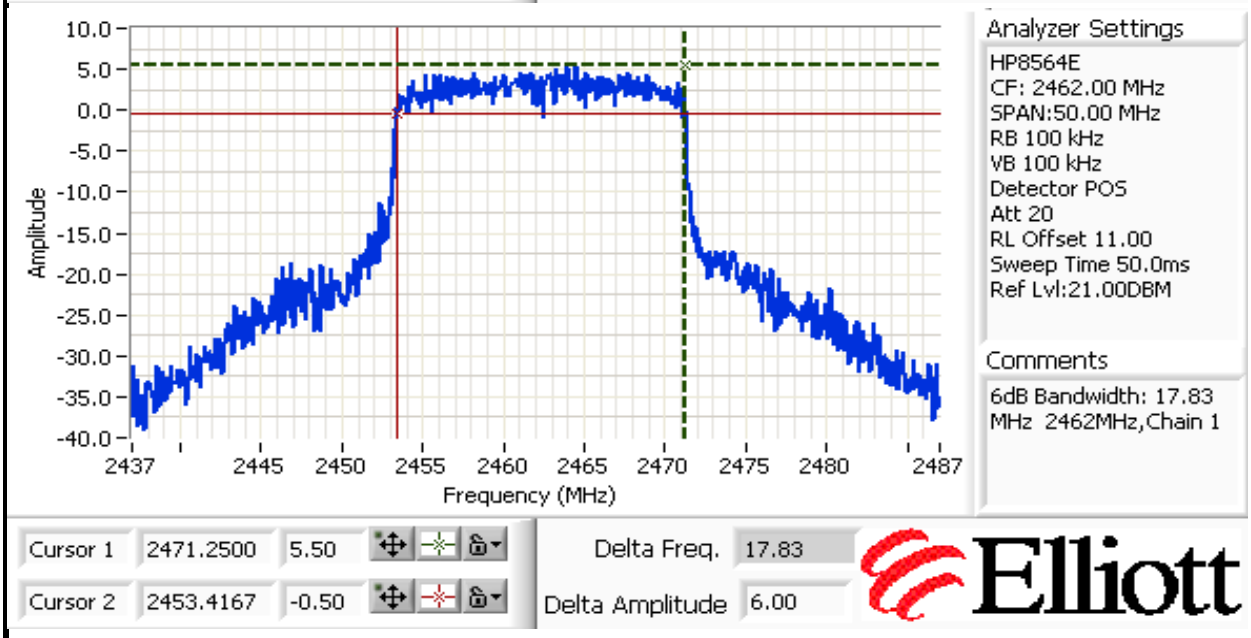
Client:	Ruckus Wireless	Job Number:	J73710
Model:	Dalmatian	T-Log Number:	T73801
		Account Manager:	Dean Eriksen
Contact:	Craig Owens		
Standard:	FCC 15.247/RSS-210	Class:	N/A



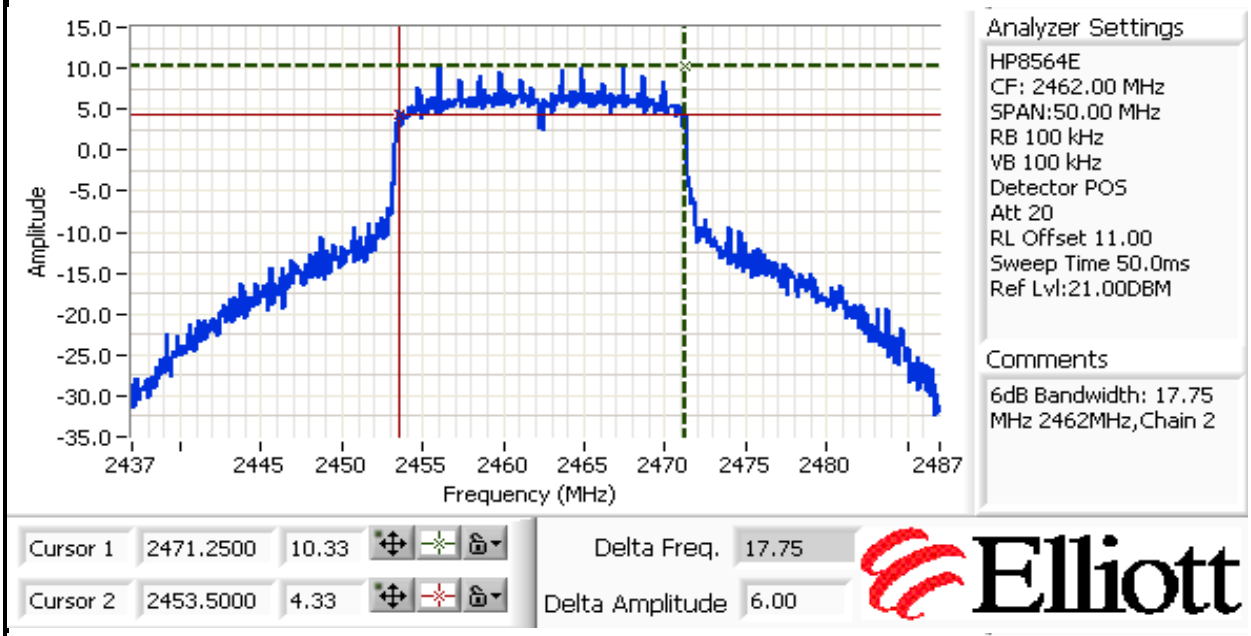


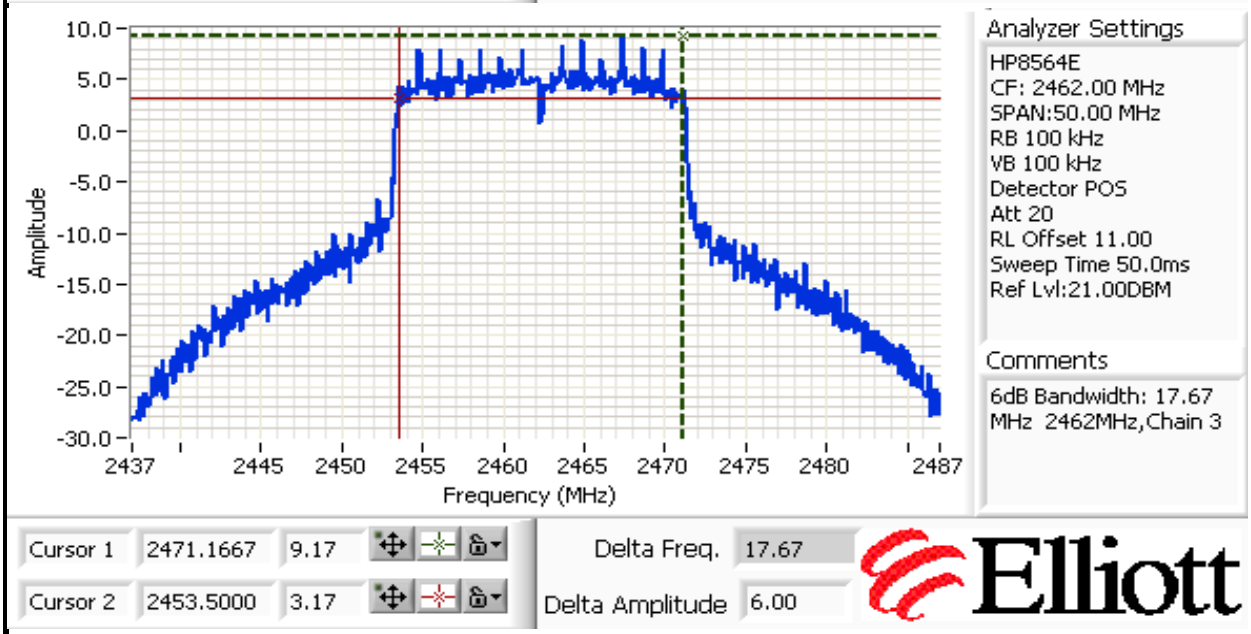
Client:	Ruckus Wireless	Job Number:	J73710
Model:	Dalmatian	T-Log Number:	T73801
		Account Manager:	Dean Eriksen
Contact:	Craig Owens		
Standard:	FCC 15.247/RSS-210	Class:	N/A





Client:	Ruckus Wireless	Job Number:	J73710
Model:	Dalmatian	T-Log Number:	T73801
		Account Manager:	Dean Eriksen
Contact:	Craig Owens		
Standard:	FCC 15.247/RSS-210	Class:	N/A





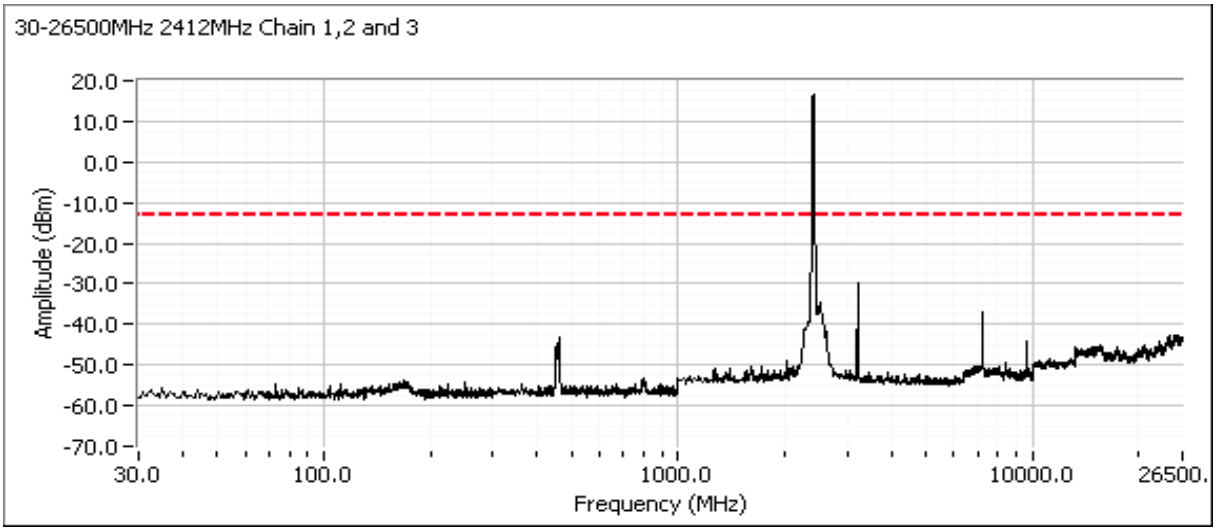
Client:	Ruckus Wireless	Job Number:	J73710
Model:	Dalmatian	T-Log Number:	T73801
		Account Manager:	Dean Eriksen
Contact:	Craig Owens		
Standard:	FCC 15.247/RSS-210	Class:	N/A

Run #4: Out of Band Spurious Emissions

Power Setting Per Chain				Frequency (MHz)	Limit	Result
#1	#2	#3	#4			
22	22	22		2412	-30dBc	Pass
22	22	22		2437	-30dBc	Pass
22	22	22		2462	-30dBc	Pass
21.5	21.5	21.5		5745	-30dBc	Pass
21.5	21.5	21.5		5785	-30dBc	Pass
21.5	21.5	21.5		5825	-30dBc	Pass

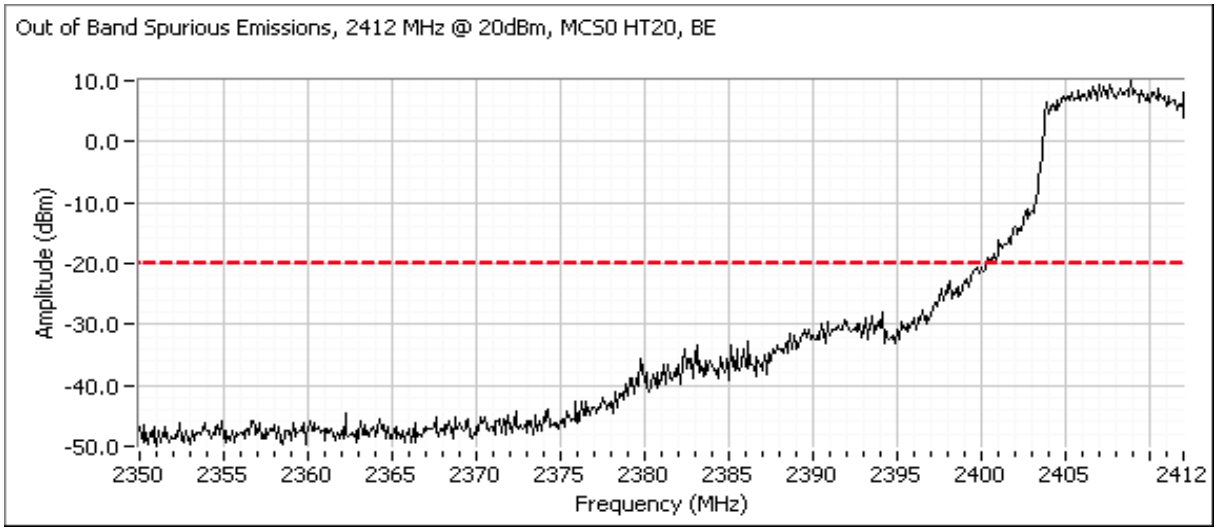
Note 1:	Measured with all chains connected together through a combiner, unused ports on the combiner terminated in 50ohms.
Note 2:	All plots taken with RBW=VBW=100kHz

Plots for low channel, power setting(s) = 22

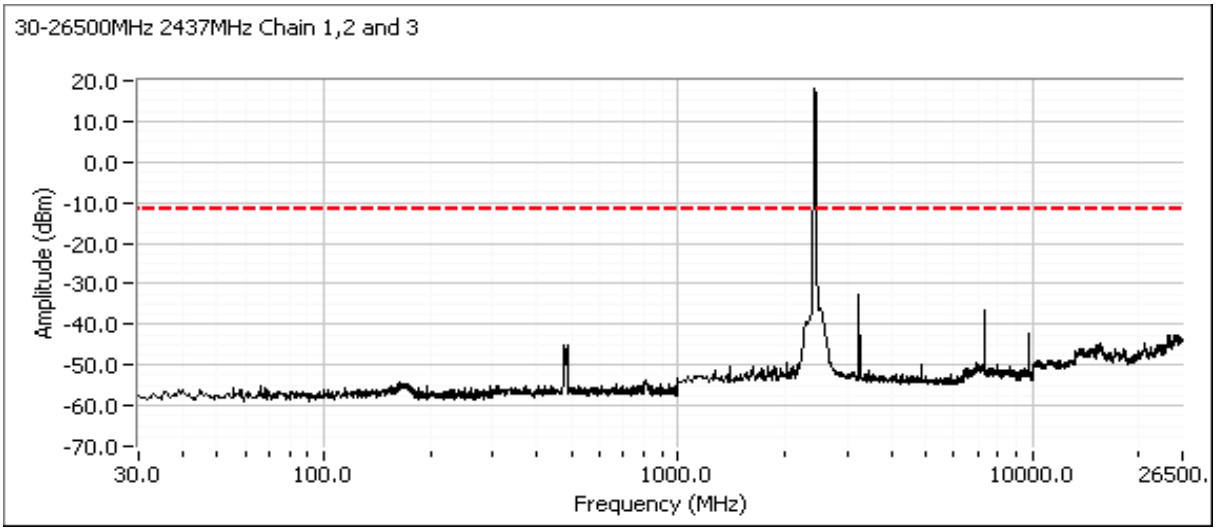


Client:	Ruckus Wireless	Job Number:	J73710
Model:	Dalmatian	T-Log Number:	T73801
		Account Manager:	Dean Eriksen
Contact:	Craig Owens		
Standard:	FCC 15.247/RSS-210	Class:	N/A

Additional plot showing compliance with -30dBc limit from 2390 MHz to 2400 MHz. Radiated measurements used to show compliance with the limits in the restricted band below 2390 MHz.

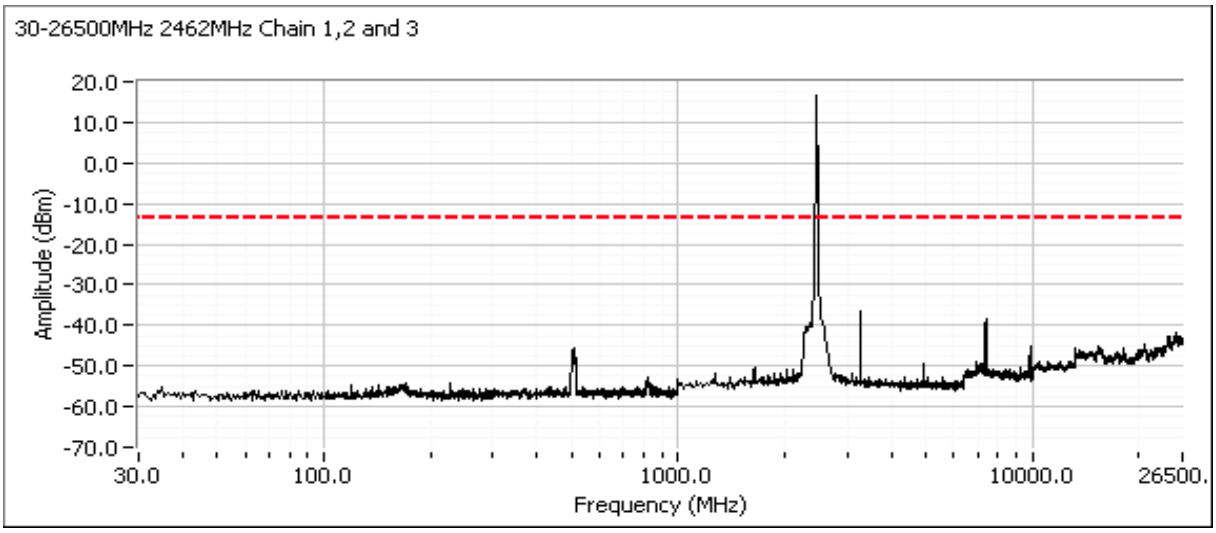


Plots for center channel, power setting(s) = 22

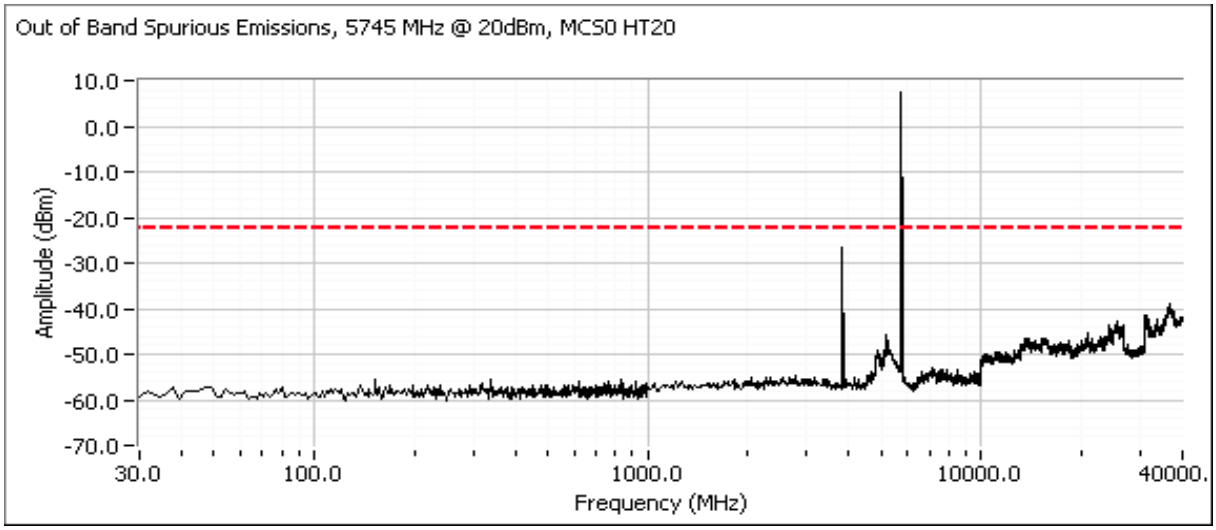


Client:	Ruckus Wireless	Job Number:	J73710
Model:	Dalmatian	T-Log Number:	T73801
		Account Manager:	Dean Eriksen
Contact:	Craig Owens		
Standard:	FCC 15.247/RSS-210	Class:	N/A

Plots for high channel, power setting(s) = 22

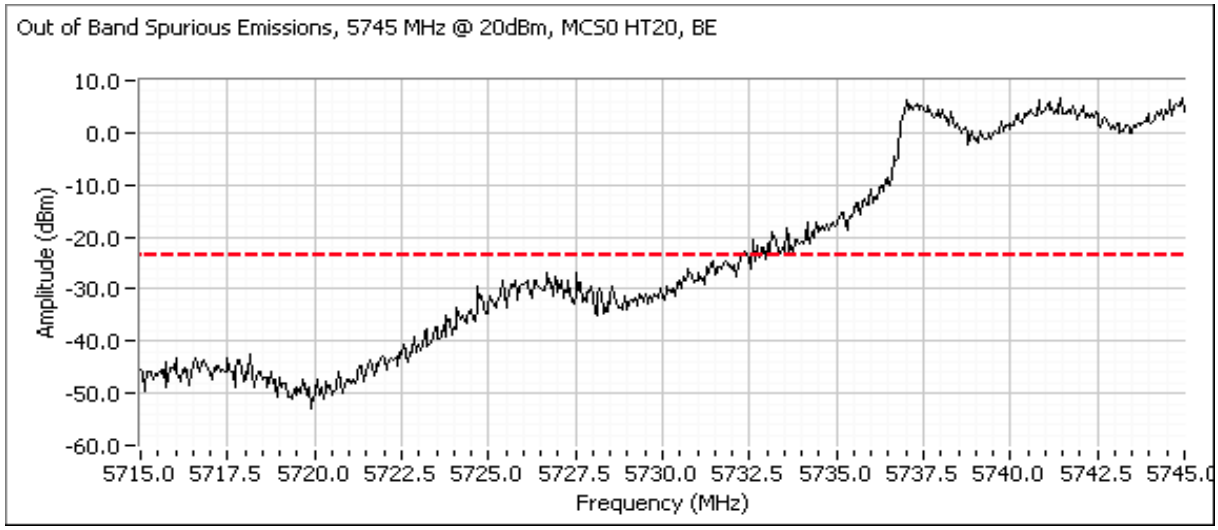


Plots for low channel, power setting(s) = 21.5

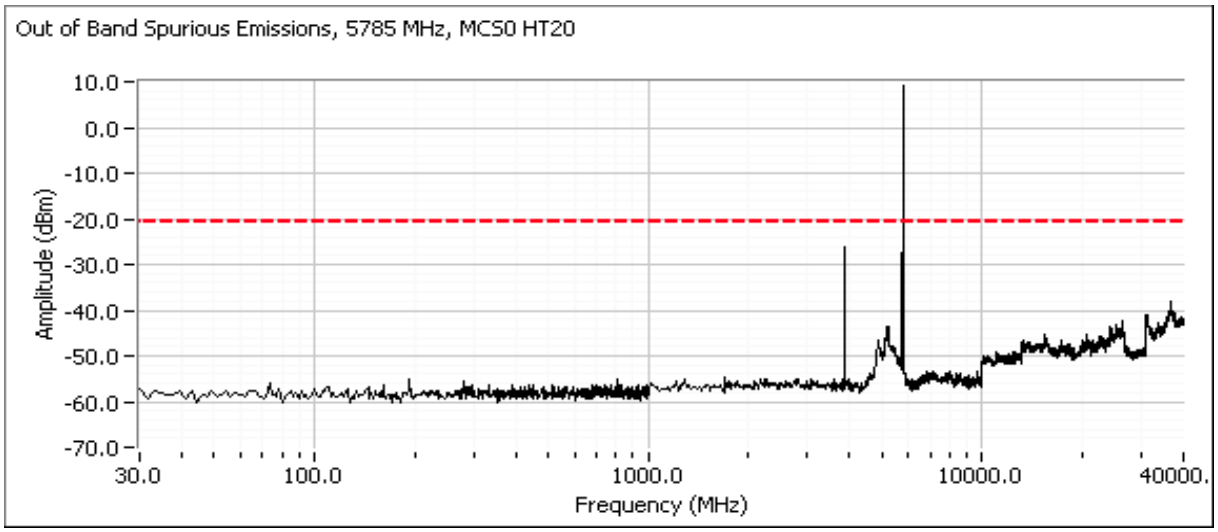


Client:	Ruckus Wireless	Job Number:	J73710
Model:	Dalmatian	T-Log Number:	T73801
		Account Manager:	Dean Eriksen
Contact:	Craig Owens		
Standard:	FCC 15.247/RSS-210	Class:	N/A

Additional plot from 5715 - 5755 MHz showing compliance with -30dBc at the band edge.

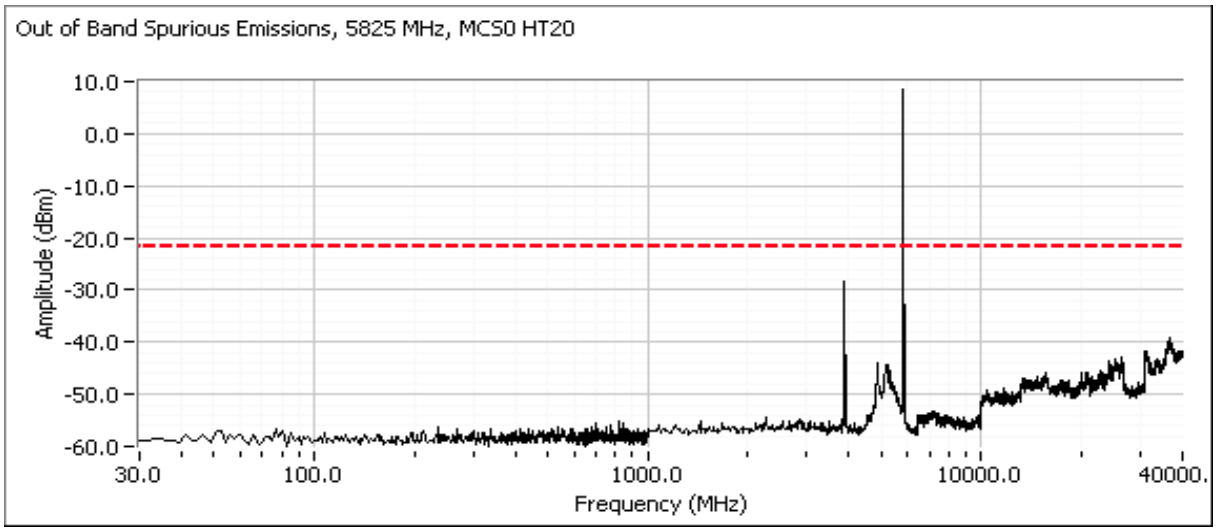


Plots for center channel, power setting(s) = 21.5

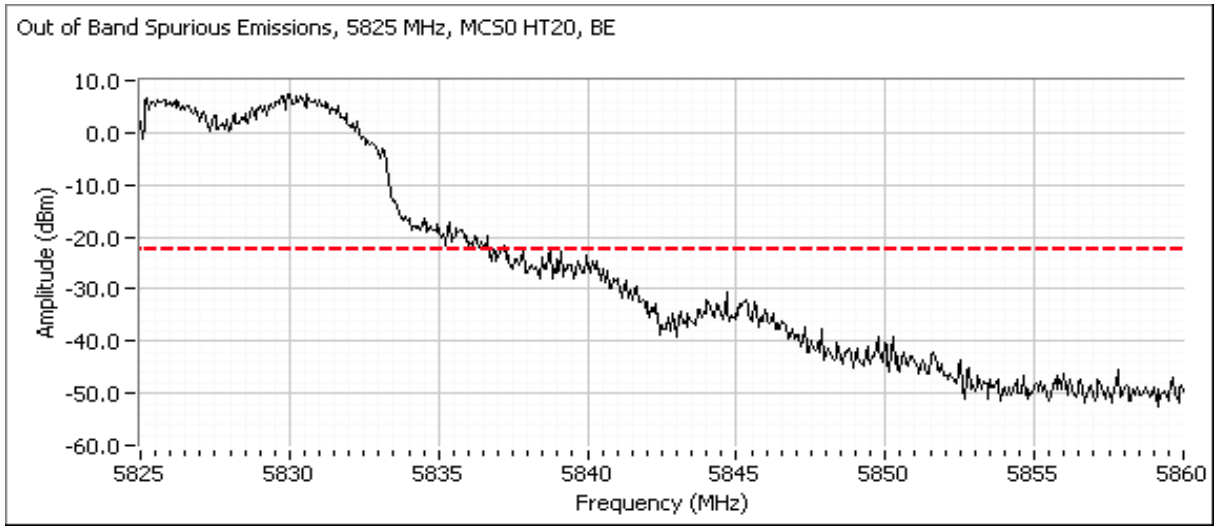


Client:	Ruckus Wireless	Job Number:	J73710
Model:	Dalmatian	T-Log Number:	T73801
		Account Manager:	Dean Eriksen
Contact:	Craig Owens		
Standard:	FCC 15.247/RSS-210	Class:	N/A

Plots for high channel, power setting(s) = 21.5



Additional plot from 5820 - 5860 MHz showing compliance with -30dBc at the band edge.



Client:	Ruckus Wireless	Job Number:	J73710
Model:	Dalmatian	T-Log Number:	T73801
		Account Manager:	Dean Eriksen
Contact:	Craig Owens		
Standard:	FCC 15.247/RSS-210	Class:	N/A

RSS 210 and FCC 15.247 (DTS) Antenna Port Measurements
MIMO and Smart Antenna Systems
Power, PSD, Bandwidth and 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.

Date of Test: 2/12/2009 & 2/17/2009
Test Engineer: Rafael Varelas
Test Location: SVOATS #1

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

General Test Configuration

The EUT was connected to the spectrum analyzer or power meter via a suitable attenuator. All measurements were made on a single chain.

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

Ambient Conditions:

Temperature: 18.9 °C
Rel. Humidity: 36 %

Summary of Results

Run #	Test Performed	Limit	Pass / Fail	Result / Margin
1	Output Power Chain A+B+C	15.247(b)	Pass	28.7 dBm (EIRP)
2	PSD Chain A+B+C	15.247(d)	Pass	7.7 dBm/3kHz
3	6dB Bandwidth	15.247(a)	Pass	34.3 MHz
4	99% Bandwidth	RSS GEN	Pass	37.4 MHz
5	Spurious emissions	15.247(b)	Pass	All Emissions Below -30dBc

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.

Note: EUT transmits on all chains in all modes and does not support a reduced number of transmit chains.

Client:	Ruckus Wireless	Job Number:	J73710
Model:	Dalmatian	T-Log Number:	T73801
		Account Manager:	Dean Eriksen
Contact:	Craig Owens		
Standard:	FCC 15.247/RSS-210	Class:	N/A

Run #1: Output Power - Chain A + B + C

Operating Mode: MCS0 HT40

Transmitted signal on chain is coherent ? no

2422 MHz	Chain 1	Chain 2	Chain 3	Chain 4	Total Across All Chains		Limit	
Power Setting Note 3	19.0	19.0	19.0					
Output Power (dBm) Note 1	18.54	19	18.6		23.5 dBm	0.223 W	30.0 dBm	1.000 W
Antenna Gain (dBi) Note 2	3	3	3			3.0 dBi	Pass	
eirp (dBm) Note 2	21.54	22	21.6		26.5 dBm	0.446 W		

2437 MHz	Chain 1	Chain 2	Chain 3	Chain 4	Total Across All Chains		Limit	
Power Setting Note 3	21.0	21.0	21.0					
Output Power (dBm) Note 1	20.33	21.83	20.36		25.7 dBm	0.369 W	30.0 dBm	1.000 W
Antenna Gain (dBi) Note 2	3	3	3			3.0 dBi	Pass	
eirp (dBm) Note 2	23.33	24.83	23.36		28.7 dBm	0.736 W		

2452 MHz	Chain 1	Chain 2	Chain 3	Chain 4	Total Across All Chains		Limit	
Power Setting Note 3	21.0	21.0	21.0					
Output Power (dBm) Note 1	20.6	21.94	20.14		25.7 dBm	0.374 W	30.0 dBm	1.000 W
Antenna Gain (dBi) Note 2	3	3	3			3.0 dBi	Pass	
eirp (dBm) Note 2	23.6	24.94	23.14		28.7 dBm	0.747 W		

5755 MHz	Chain 1	Chain 2	Chain 3	Chain 4	Total Across All Chains		Limit	
Power Setting Note 3	20.5	20.5	20.5					
Output Power (dBm) Note 1	17.72	17.95	20.29		23.6 dBm	0.228 W	30.0 dBm	1.000 W
Antenna Gain (dBi) Note 2	3	3	3			3.0 dBi	Pass	
eirp (dBm) Note 2	20.72	20.95	23.29		26.6 dBm	0.456 W		

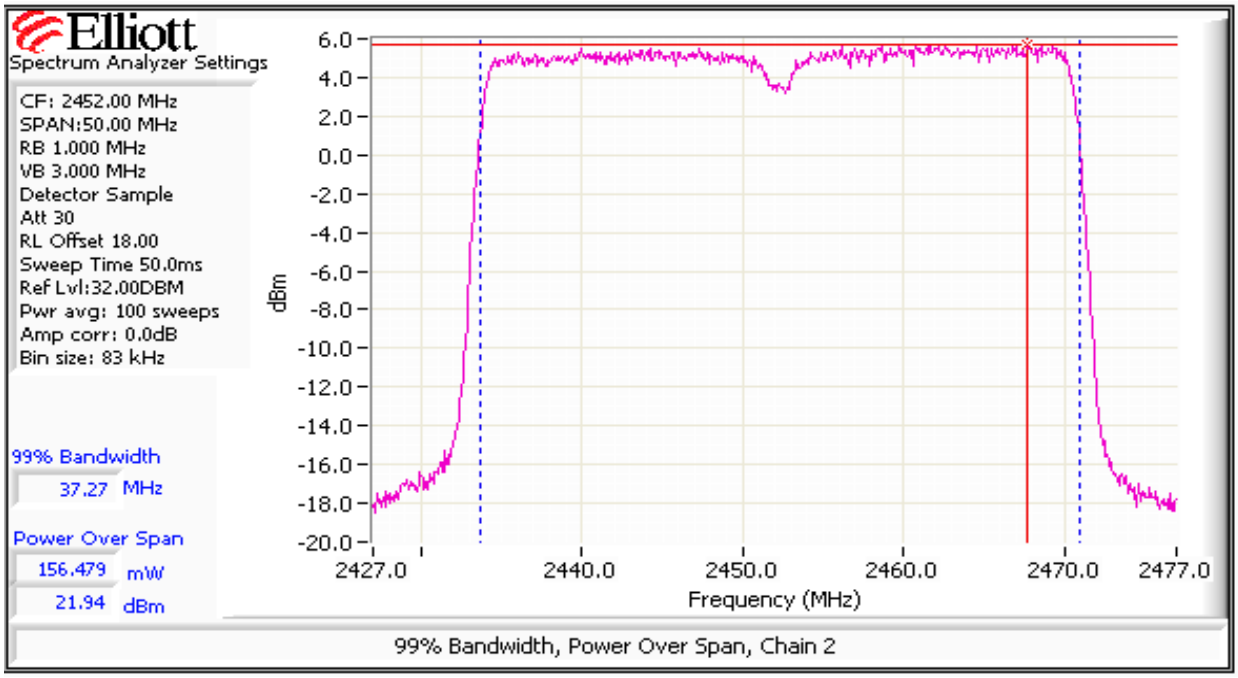
5785 MHz	Chain 1	Chain 2	Chain 3	Chain 4	Total Across All Chains		Limit	
Power Setting Note 3	20.5	20.5	20.5					
Output Power (dBm) Note 1	17.64	17.93	19.94		23.4 dBm	0.219 W	30.0 dBm	1.000 W
Antenna Gain (dBi) Note 2	3	3	3			3.0 dBi	Pass	
eirp (dBm) Note 2	20.64	20.93	22.94		26.4 dBm	0.437 W		

5805 MHz	Chain 1	Chain 2	Chain 3	Chain 4	Total Across All Chains		Limit	
Power Setting Note 3	20.5	20.5	20.5					
Output Power (dBm) Note 1	18.35	18.19	19.51		23.5 dBm	0.224 W	30.0 dBm	1.000 W
Antenna Gain (dBi) Note 2	3	3	3			3.0 dBi	Pass	
eirp (dBm) Note 2	21.35	21.19	22.51		26.5 dBm	0.446 W		

Client:	Ruckus Wireless	Job Number:	J73710
Model:	Dalmatian	T-Log Number:	T73801
		Account Manager:	Dean Eriksen
Contact:	Craig Owens		
Standard:	FCC 15.247/RSS-210	Class:	N/A

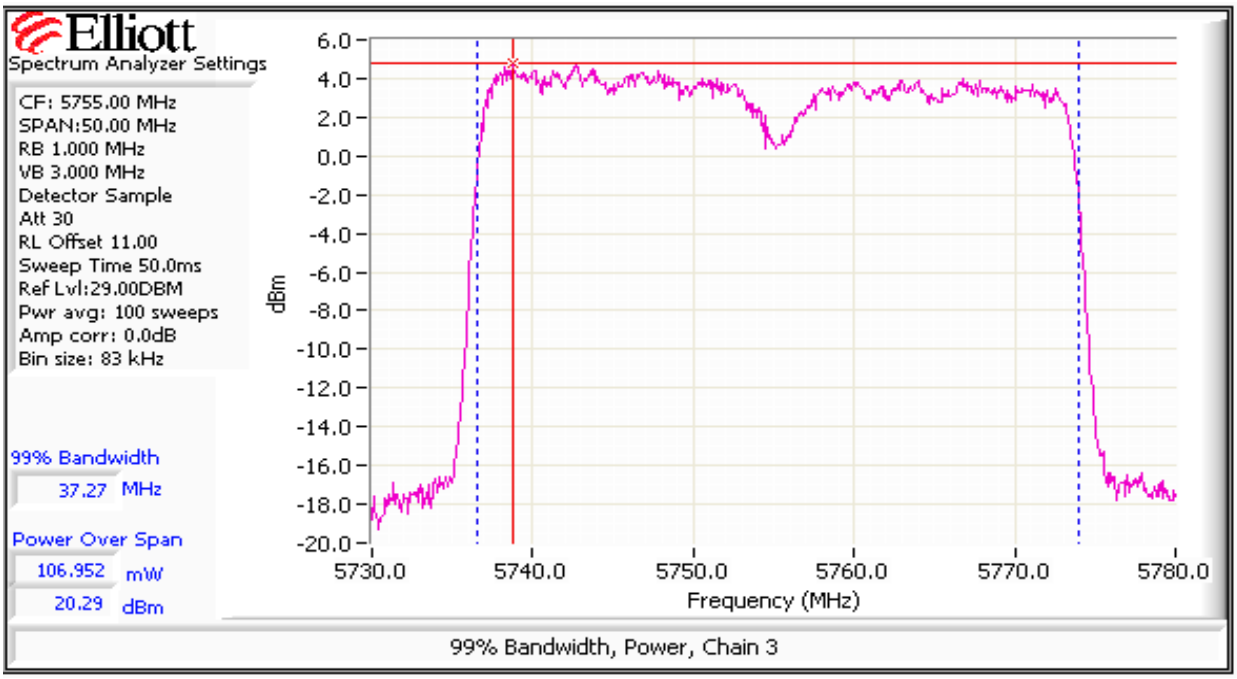
Run #1: Continued

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 50 MHz (reference method 1 of FCC DA 02-2138 for U-NII devices, August 30, 2002). Spurious limit becomes -30dBc.
Note 2:	As the antennas are sectorized, the effective antenna gain is the gain of any one antenna.
Note 3:	Power setting - if a single number the same power setting was used for each chain. If multiple numbers the power setting for each chain is separated by a comma (e.g. x,y would indicate power setting x for chain 1, power setting y for chain 2.



Client:	Ruckus Wireless	Job Number:	J73710
Model:	Dalmatian	T-Log Number:	T73801
		Account Manager:	Dean Eriksen
Contact:	Craig Owens		
Standard:	FCC 15.247/RSS-210	Class:	N/A

Run #1: Continued

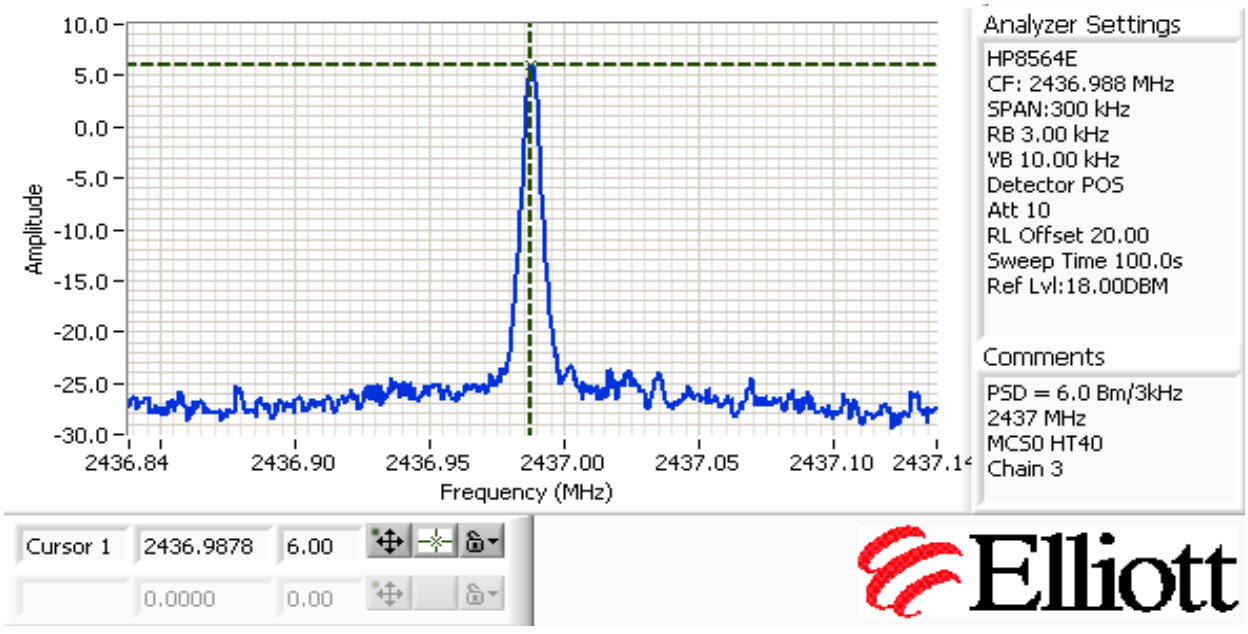


Client:	Ruckus Wireless	Job Number:	J73710
Model:	Dalmatian	T-Log Number:	T73801
		Account Manager:	Dean Eriksen
Contact:	Craig Owens		
Standard:	FCC 15.247/RSS-210	Class:	N/A

Run #2: Power spectral Density

Power Setting	Frequency (MHz)	PSD (dBm/3kHz) Note 1 Chain 1	Chain 2	Chain 3	Chain 4	Total	Limit dBm/3kHz	Result
19	2422	-3.2	-0.5	-6.3		2.1	8.0	Pass
21	2437	-0.7	0.0	6.0		7.7	8.0	Pass
21	2452	3.8	0.2	1.2		6.8	8.0	Pass
20.5	5755	-9.8	-1.8	1.1		3.1	8.0	Pass
20.5	5785	-5.6	3.4	1.2		5.8	8.0	Pass
20.5	5805	3.2	-11.4	0.3		5.1	8.0	Pass

Note 1:	Power spectral density measured using RB=3 kHz, VB=10kHz, analyzer with peak detector and with a sweep time set to ensure a dwell time of at least 1 second per 3kHz. The measurement is made at the frequency of PPSD determined from preliminary scans using RB=3kHz using multiple sweeps at a faster rate over the 6dB bandwidth of the signal.

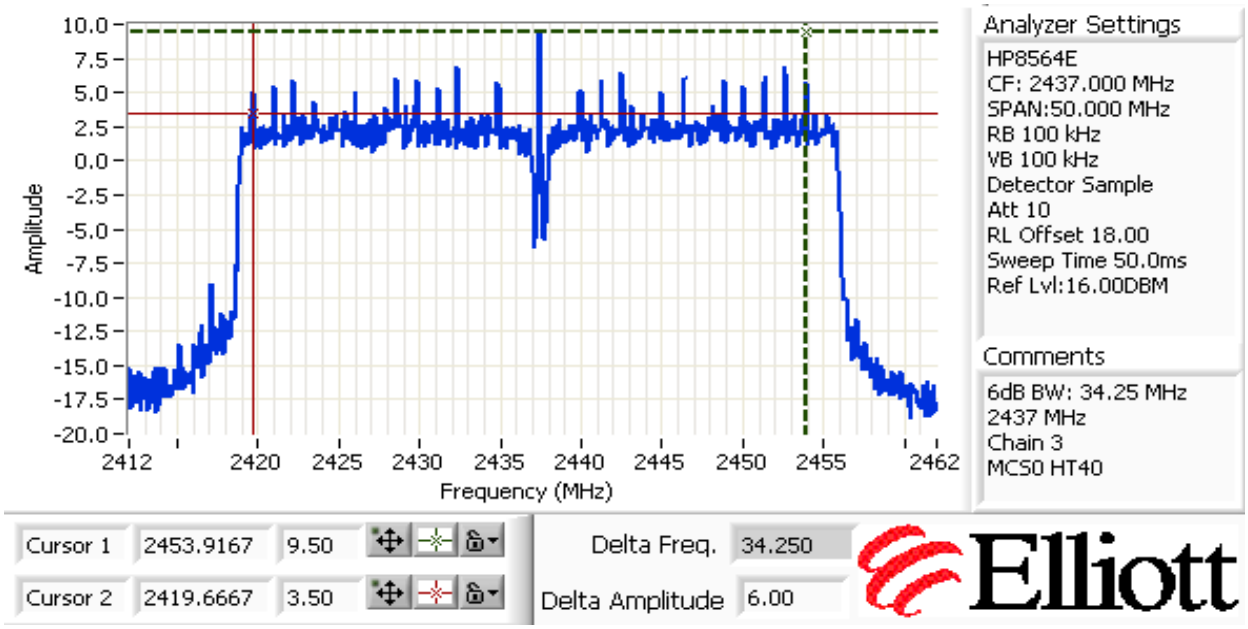


Client:	Ruckus Wireless	Job Number:	J73710
Model:	Dalmatian	T-Log Number:	T73801
		Account Manager:	Dean Eriksen
Contact:	Craig Owens		
Standard:	FCC 15.247/RSS-210	Class:	N/A

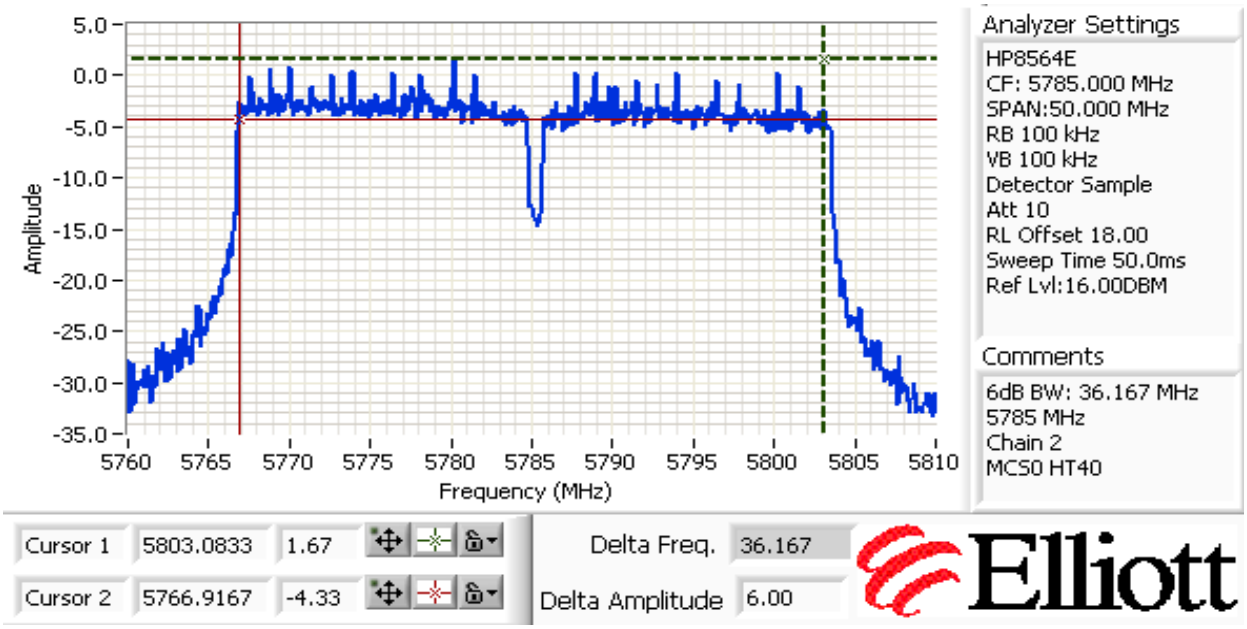
Run #3: Signal Bandwidth

Power Setting	Frequency (MHz)	Resolution Bandwidth	Bandwidth (MHz) 6dB	99%
19	2422	100kHz	35.5	37.4
21	2437	100kHz	34.3	37.4
21	2452	100kHz	36.8	37.3
20.5	5755	100kHz	36.6	37.3
20.5	5785	100kHz	36.2	37.3
20.5	5805	100kHz	36.5	37.2

Note 1:	Measured on a single chain
Note 2:	99% bandwidth measured in accordance with RSS GEN, with RB > 1% of the span and VB > 3xRB



Client:	Ruckus Wireless	Job Number:	J73710
Model:	Dalmatian	T-Log Number:	T73801
		Account Manager:	Dean Eriksen
Contact:	Craig Owens		
Standard:	FCC 15.247/RSS-210	Class:	N/A



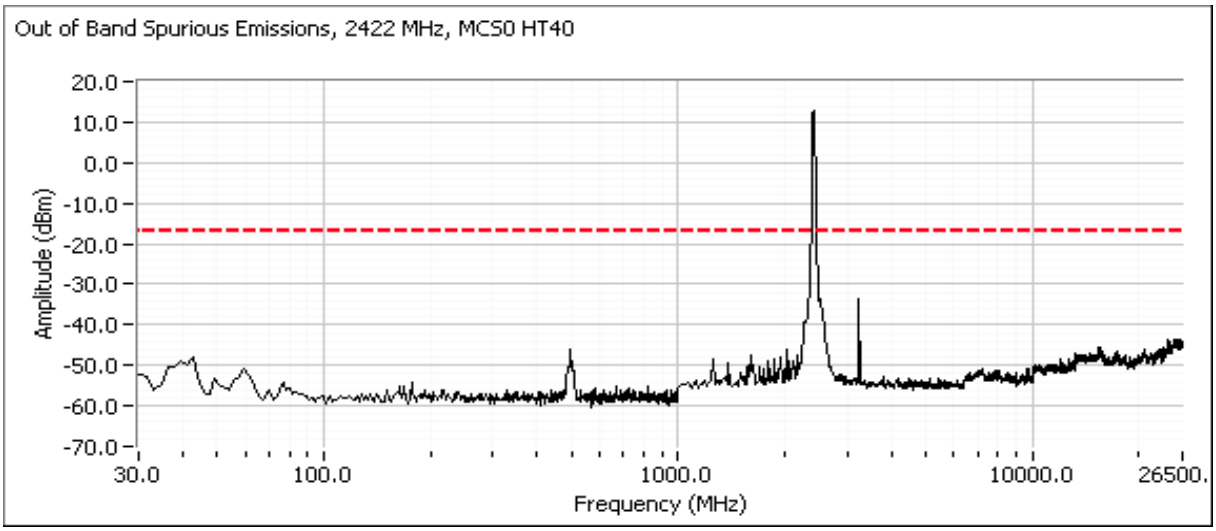
Run #4: Out of Band Spurious Emissions

Power Setting Per Chain				Frequency (MHz)	Limit	Result
#1	#2	#3	#4			
19	19	19		2422	-30dBc	Pass
21	21	21		2437	-30dBc	Pass
21	21	21		2452	-30dBc	Pass
18.5	18.5	18.5		5755	-30dBc	Pass
18.5	18.5	18.5		5785	-30dBc	Pass
18	18	18		5805	-30dBc	Pass

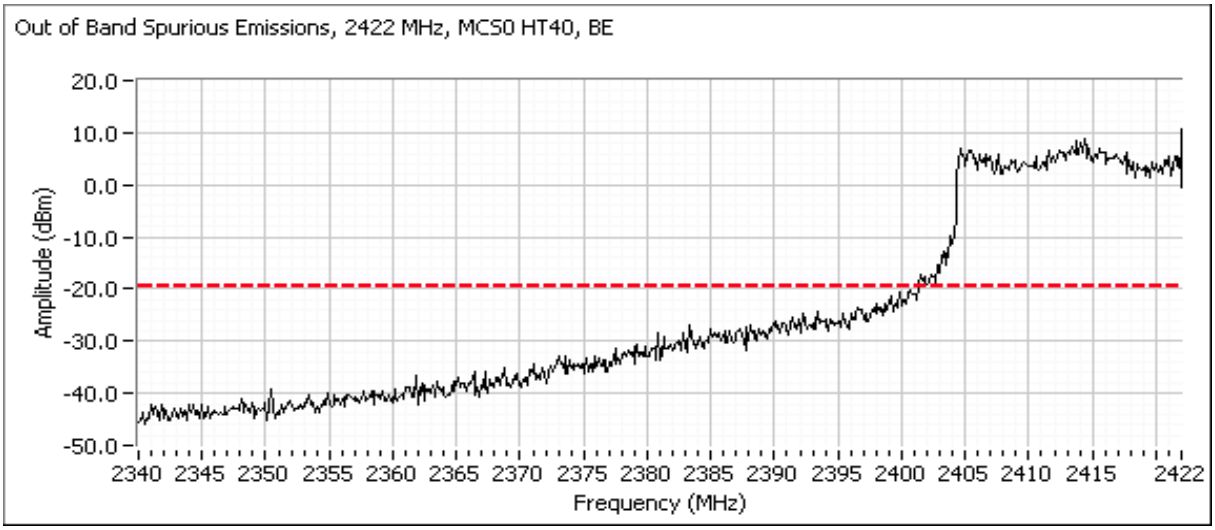
Note 1:	Measured with all chains connected together through a combiner, unused ports on the combiner terminated in 50ohms.
Note 1:	Measured on each chain individually

Client:	Ruckus Wireless	Job Number:	J73710
Model:	Dalmatian	T-Log Number:	T73801
		Account Manager:	Dean Eriksen
Contact:	Craig Owens		
Standard:	FCC 15.247/RSS-210	Class:	N/A

Plots for low channel, power setting(s) = 19

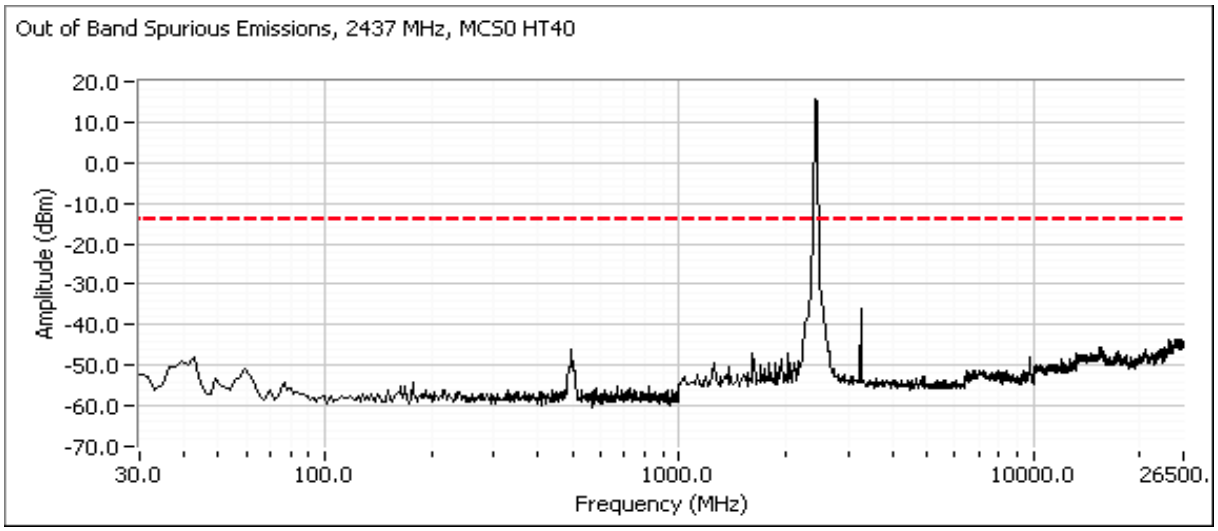


Additional plot showing compliance with -30dBc limit from 2390 MHz to 2400 MHz. Radiated measurements used to show compliance with the limits in the restricted band below 2390 MHz.

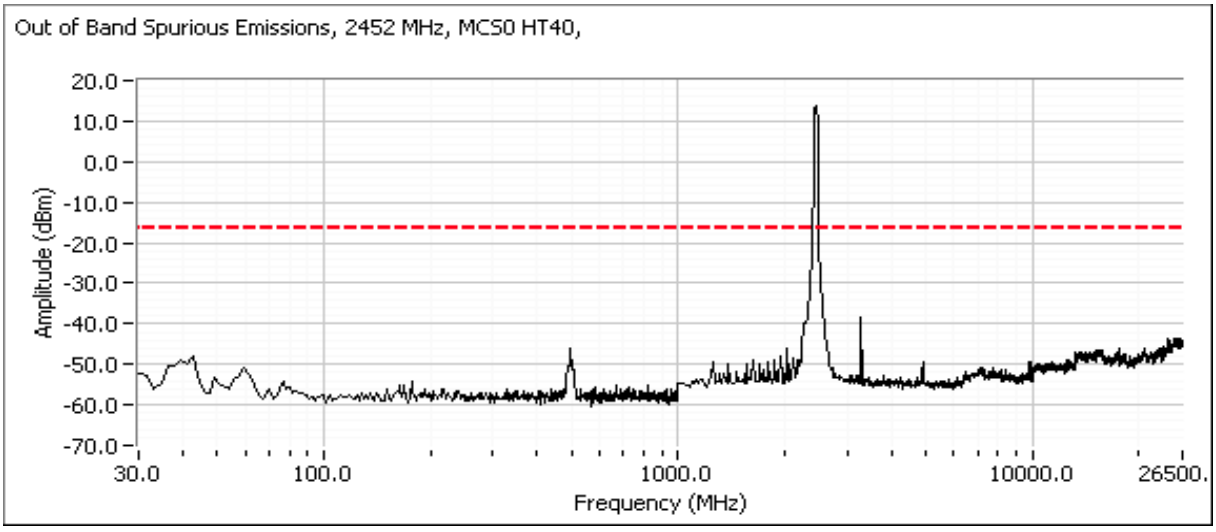


Client:	Ruckus Wireless	Job Number:	J73710
Model:	Dalmatian	T-Log Number:	T73801
		Account Manager:	Dean Eriksen
Contact:	Craig Owens		
Standard:	FCC 15.247/RSS-210	Class:	N/A

Plots for center channel, power setting(s) = 21

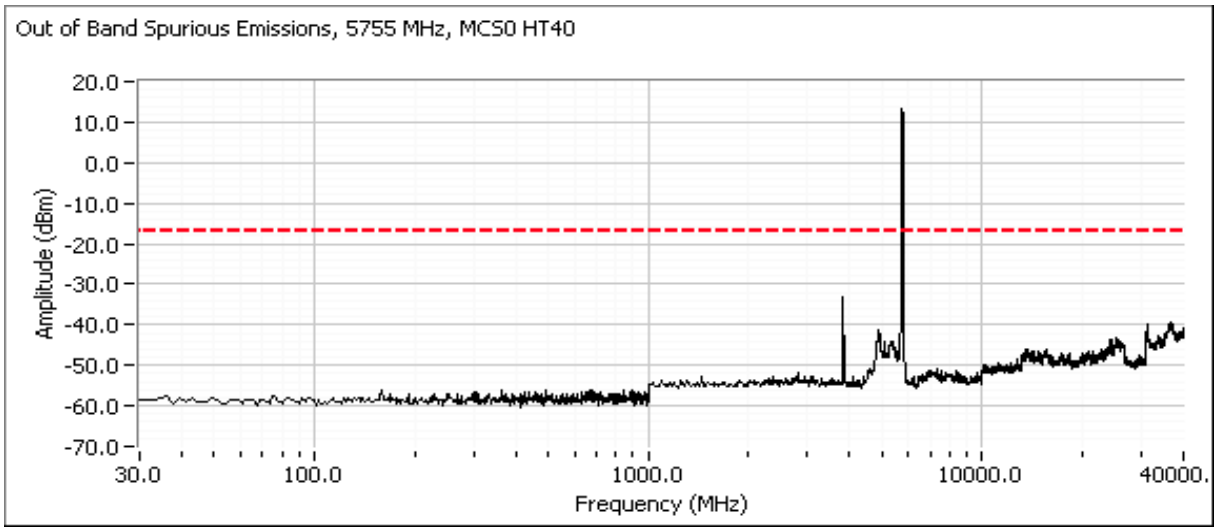


Plots for high channel, power setting(s) = 21

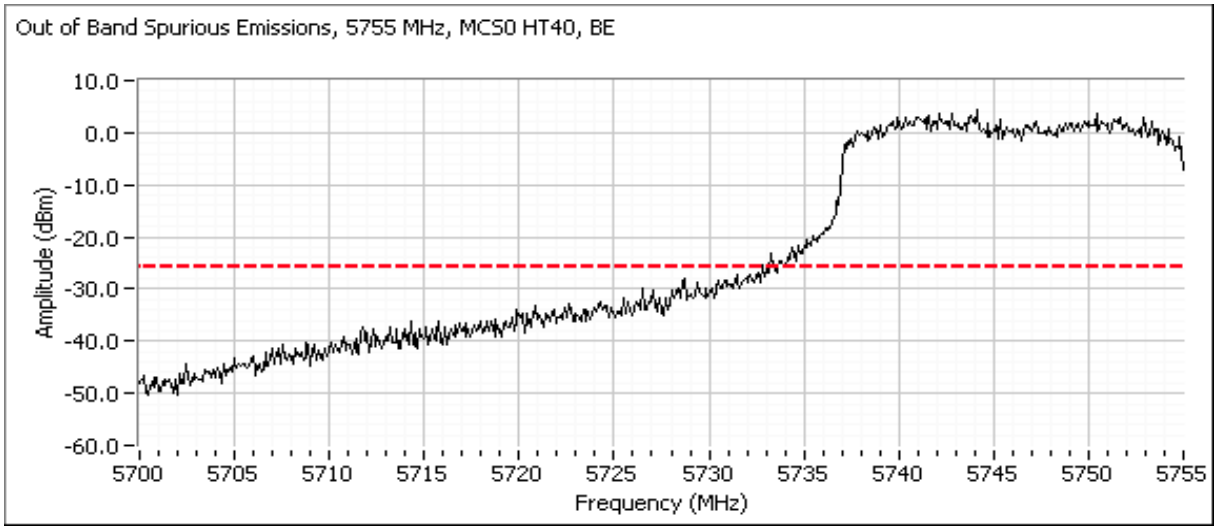


Client:	Ruckus Wireless	Job Number:	J73710
Model:	Dalmatian	T-Log Number:	T73801
		Account Manager:	Dean Eriksen
Contact:	Craig Owens		
Standard:	FCC 15.247/RSS-210	Class:	N/A

Plots for low channel, power setting(s) = 20.5

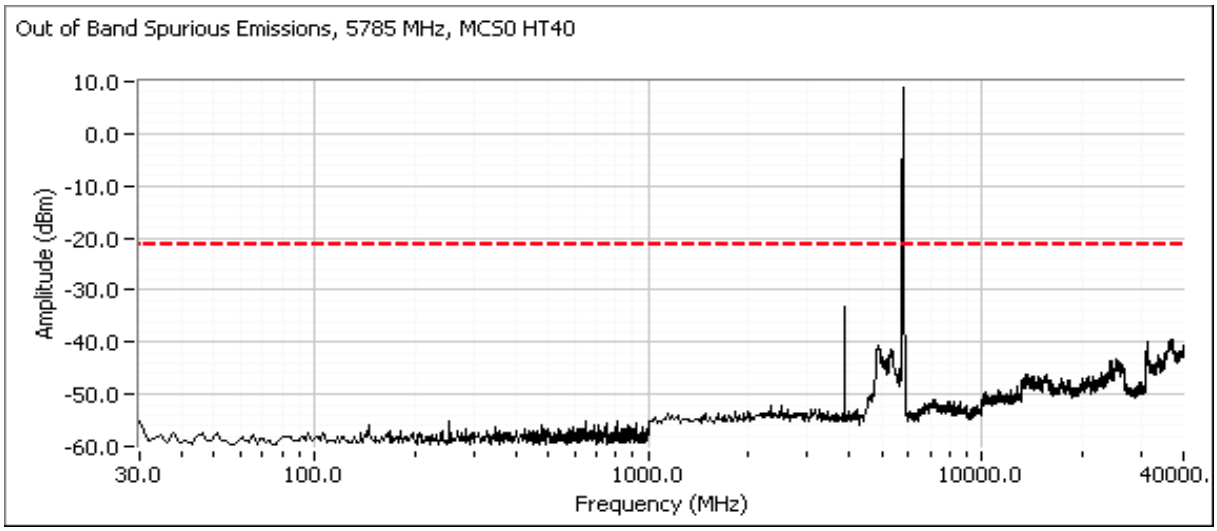


Additional plot from 5715 - 5755 MHz showing compliance with -30dBc at the band edge.

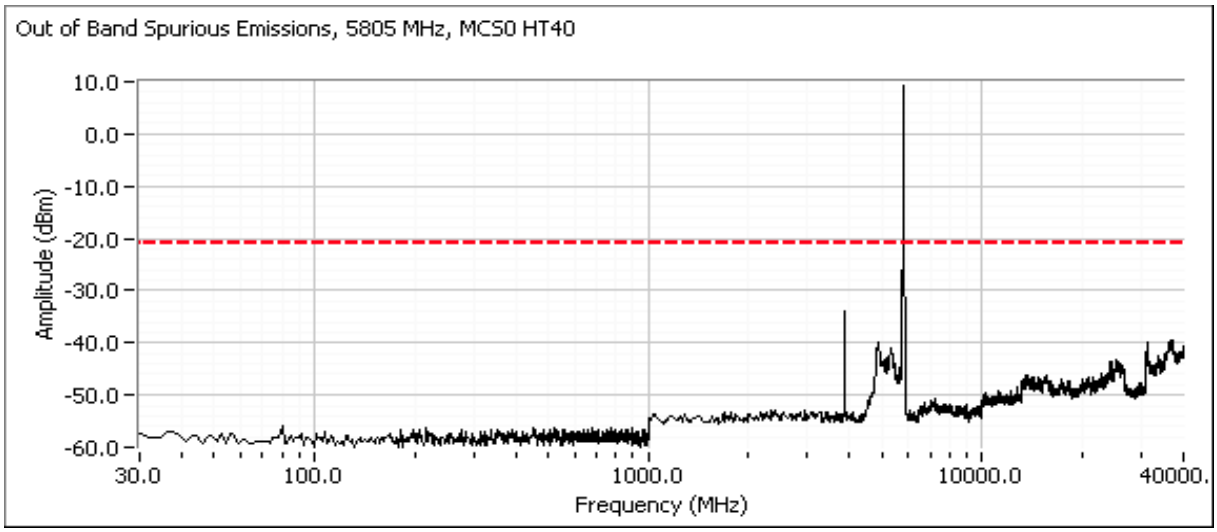


Client:	Ruckus Wireless	Job Number:	J73710
Model:	Dalmatian	T-Log Number:	T73801
		Account Manager:	Dean Eriksen
Contact:	Craig Owens		
Standard:	FCC 15.247/RSS-210	Class:	N/A

Plots for center channel, power setting(s) = 20.5



Plots for high channel, power setting(s) = 20.5



Client:	Ruckus Wireless	Job Number:	J73710
Model:	Dalmatian	T-Log Number:	T73801
		Account Manager:	Dean Eriksen
Contact:	Craig Owens		
Standard:	FCC 15.247/RSS-210	Class:	N/A

Additional plot from 5820 - 5860 MHz showing compliance with -30dBc at the band edge.

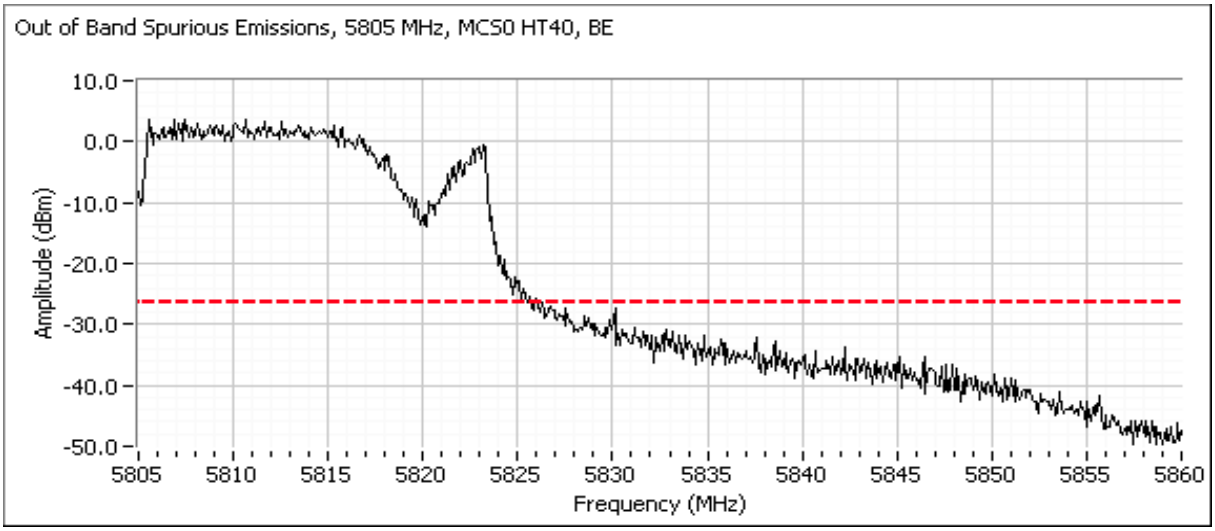


EXHIBIT 3: Photographs of Test Configurations

EXHIBIT 4: Proposed FCC ID Label & Label Location

EXHIBIT 5: Detailed Photographs of Ruckus Wireless Model 7962Construction

EXHIBIT 6: Operator's Manual for Ruckus Wireless Model 7962

Pages

EXHIBIT 7: Block Diagram of Ruckus Wireless Model 7962

EXHIBIT 8: Schematic Diagrams for Ruckus Wireless Model 7962

Pages

EXHIBIT 9: Theory of Operation for Ruckus Wireless Model 7962

EXHIBIT 10: RF Exposure Information