EMC Test Report

Application for Grant of Equipment Authorization

Industry Canada RSS-Gen Issue 3 / RSS 210 Issue 8
FCC Part 15, Subpart E

Model: NanoBridgeM5

IC CERTIFICATION #:	6545A-M5D
FCC ID:	SWX-NBM5D
APPLICANT:	Ubiquiti Networks 91 E. Tasman Drive San Jose, CA 95134
TEST SITE(S):	Elliott Laboratories 41039 Boyce Road. Fremont, CA. 94538-2435
IC SITE REGISTRATION #:	2845B-3; 2845B-4, 2845B-5, 2845B-7
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REVISION HISTORY

Rev#	Date	Comments	Modified By
-	2-7-2012	First release	

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SCOPE

An electromagnetic emissions test has been performed on the Ubiquiti Networks model NanoBridgeM5, pursuant to the following rules:

Industry Canada RSS-Gen Issue 3
RSS 210 Issue 8 "Low-power Licence-exempt Radiocommunication Devices (All Frequency Bands): Category I Equipment"
FCC Part 15, Subpart E requirements for UNII Devices (using FCC DA 02-2138, August 30, 2002)

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 UNII test procedure 2002-08 DA-02-2138, August 2002

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

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

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

OBJECTIVE

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

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

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

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

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

STATEMENT OF COMPLIANCE

The tested sample of Ubiquiti Networks model NanoBridgeM5 complied with the requirements of the following regulations:

RSS 210 Issue 8 "Low-power Licence-exempt Radiocommunication Devices (All Frequency Bands): Category I Equipment"
FCC Part 15, Subpart E requirements for UNII Devices

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

The test results recorded herein are based on a single type test of Ubiquiti Networks model NanoBridgeM5 and therefore apply only to the tested sample. The sample was selected and prepared by Jennifer Sanchez of Ubiquiti Networks.

DEVIATIONS FROM THE STANDARDS

The following deviations were made from the published requirements listed in the scope of this report:

Per FCC KDB 194449, the non-restricted band emissions were measured using an averaging technique.

TEST RESULTS SUMMARY

UNII / LELAN DEVICES

Operation in the 5.25 – 5.35 GHz Band

Note: The device is intended for outdoor operation only, therefore the spectral density of spurious emissions in the 5.15 – 5.25 GHz band were limited to the -27dBm/MHz limit.

FCC Rule Part	RSS Rule Part	Description	Measured Value / Comments	Limit / Requirement	Result (margin)
15.407(a) (2)		26dB Bandwidth	HT5: 8.6MHz HT20: 26.6MHz HT40: 50.3MHz	N/A – limits output power if < 20MHz	N/A
15.407(a) (2)	A9.2(2)	Output Power	HT5: 0.4mW (-4.5dBm) HT20: 1.4mW (1.4dBm) HT40: 1.5mW (1.7dBm) (Max eirp: 0.942W)	17dBm (50mW)	Complies
15.407(a) (2)	-	Power Spectral Density	HT5:-11.7dBm/MHz HT20:-11.6dBm/MHz HT40:-14.2dBm/MHz	-11.0dBm/MHz	Complies
-	A9.2(2) / A9.5 (2)	Power Spectral Density		11.0dBm / MHz	Complies

Operation in the 5.47 – 5.725 GHz Band

FCC Rule Part	RSS Rule Part	Description	Measured Value / Comments	Limit / Requirement	Result (margin)
15.407(a) (2)		26dB Bandwidth	HT5: 8.8MHz HT20: 27.5MHz HT40:	N/A – limits output power if < 20MHz	N/A
15.407(a) (2)	A9.2(2)	Output Power	HT5: 0.3mW (-5.2dBm) HT20: 1.6mW (2.0dBm) HT40: 1.6mW (1.9dBm((Max eirp: 0.995W)	24 dBm / 250mW (eirp < 30dBm)	Complies
15.407(a) (2))		Power Spectral Density	HT5: -11.8dBm/MHz HT20:-11.1dBm/MHz HT40:-14.3dBm/MHz	-11.0dBm/MHz	Complies
	A9.2(2) / A9.5 (2)	Power Spectral Density		11.0dBm / MHz	Complies
KDB 443999	A9	Non-operation in 5600 – 5650 MHz sub band	Device cannot operate in the 5600 – 5650 MHz band –refer to Operational Description		Complies

Requirements for all U-NII/LELAN bands

FCC Rule Part	RSS Rule Part	Description	Measured Value / Comments	Limit / Requirement	Result
15.407	A9.5a	Modulation	Digital Modulation is used	Digital modulation is required	Complies
15.407(b) (5) / 15.209	A9.3	Spurious Emissions	53.9dBµV/m @ 5456.0MHz (-0.1dB)	Refer to page 21	Complies
15.407(a)(6)	-	Peak Excursion Ratio	HT5: 12.95dB HT20:1.89dB HT40:11.09dB	< 13dB	Complies
	A9.5 (3)	Channel Selection	Spurious emissions tested at outermost channels in each band	Device was tested on the top, bottom and center channels in each band	N/A
15			Measurements on three channels in each band		Complies
15.407 (c)	A9.5(4)	Operation in the absence of information to transmit	Operation is discontinued in the absence of information	Device shall automatically discontinue operation in the absence of information to transmit	Complies
15.407 (g)	A9.5 (5)	Frequency Stability	Frequency stability is better than 10ppm	Signal shall remain within the allocated band	Complies
15.407 (h1)	A9.4	Transmit Power Control	TCP mechanism is discussed in the Operational Description	The U-NII device shall have the capability to operate with a mean EIRP value lower than 24dBm (250mW)	Complies
15.407 (h2)	A9.4	Dynamic frequency Selection (device with radar detection)	Refer to separate test report, reference R86019	Threshold -62dBm (-64dBm if eirp > 200mW) Channel Availability Check > 60s Channel closing transmission time < 260ms Channel move time < 10s Non occupancy period > 30minutes	Complies
	A9.9g	User Manual information	Refer to Exhibit 6 for details	Warning regarding interference from Satellite Systems	Complies

GENERAL REQUIREMENTS APPLICABLE TO ALL BANDS

FCC Rule Part	RSS Rule part	Description	Measured Value / Comments	Limit / Requirement	Result (margin)
15.203	-	RF Connector	Uses an integral antenna with a passive reflector	Unique or integral antenna required	Complies
15.207	RSS GEN Table 2	AC Conducted Emissions	Results not included in this report		Complies
15.109	RSS GEN 7.2.3 Table 1	Receiver spurious emissions	53.3 dBµV/m @ 3120.1 MHz (-0.7 dB)	Refer to page 20	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	Refer to Manual	Statement required regarding non-interference	Complies
-	RSP 100 RSS GEN 7.1.5	User Manual	Refer to Manual	Statement for products with detachable antenna	Complies
-	RSP 100 RSS GEN 4.4.1	99% Bandwidth	HT5: 5.4MHz HT20: 18.2MHz HT40: 36.5MHz	Information only	N/A

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	Measurement Unit	Frequency Range	Expanded Uncertainty
RF power, conducted (power meter)	dBm	25 to 7000 MHz	± 0.52 dB
RF power, conducted (Spectrum analyzer)	dBm	25 to 7000 MHz	± 0.7 dB
Conducted emission of transmitter	dBm	25 to 26500 MHz	± 0.7 dB
Conducted emission of receiver	dBm	25 to 26500 MHz	± 0.7 dB
Radiated emission (substitution method)	dBm	25 to 26500 MHz	± 2.5 dB
Radiated emission (field strength)	dBµV/m	25 to 1000 MHz	± 3.6 dB
		1000 to 40000 MHz	± 6.0 dB
Conducted Emissions (AC Power)	dBµV	0.15 to 30 MHz	± 2.4 dB

EQUIPMENT UNDER TEST (EUT) DETAILS

GENERAL

The Ubiquiti Networks model NanoBridgeM5 is an outdoor, 2x2 wireless access point, operating in the 5 GHz band, powered by PoE. Since the EUT would be mounted on a pole or a wall during operation, the EUT was treated as floor standing equipment during testing to simulate the end-user environment. The electrical rating of the EUT is 24 VDC, 1 Amp.

The sample was received on December 20, 2011 and tested on December 20, 2011 to January 20, 2012. The EUT consisted of the following component(s):

Company	Model	Description	Serial Number	FCC ID
Ubiquiti Networks	NanoBridgeM5	Wireless AP	Prototype	SWX-NBM5D

OTHER EUT DETAILS

The EUT does not support single chain transmissions. Testing in HT20 was considered representative of legacy data rates.

ANTENNA SYSTEM

The antennas are internal and integral to the NanoBridgeM5 enclosure. The enclosure is mounted into a passive dish antenna, gain 25dBi.

ENCLOSURE

The EUT enclosure measures approximately 22 by 8.5 by 4.5 centimeters. It is primarily constructed of uncoated coated plastic.

MODIFICATIONS

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

SUPPORT EQUIPMENT

No local support equipment was used during testing.

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

Company	Model	Description	Serial Number	FCC ID
Dell	Vostro	Laptop	-	-

EUT INTERFACE PORTS

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

Port	Connected To	Cable(s)		
		Description	Shielded or Unshielded	Length(m)
Ethernet	PoE injector (PoE)	Cat 5	Shielded	10.0
Ethernet (laptop)	PoE injector (LAN)	Cat 5	Unshielded	1.0
Power (injector)	AC mains	3 wire	Unshielded	2.0

EUT OPERATION

During testing, the EUT configured to transmit continuously on the noted channel at the lowest data rate, as this resulted in the highest output power.

TEST SITE

GENERAL INFORMATION

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

Site	Registration Numbers		Location
	FCC	Canada	
Chamber 3	769238	2845B-3	41039 Boyce Road Fremont, CA 94538-2435
Chamber 4	211948	2845B-4	
Chamber 7	A2LA accreditation	2845B-7	

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

RADIATED EMISSIONS CONSIDERATIONS

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

MEASUREMENT INSTRUMENTATION

RECEIVER SYSTEM

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

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

INSTRUMENT CONTROL COMPUTER

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

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

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.

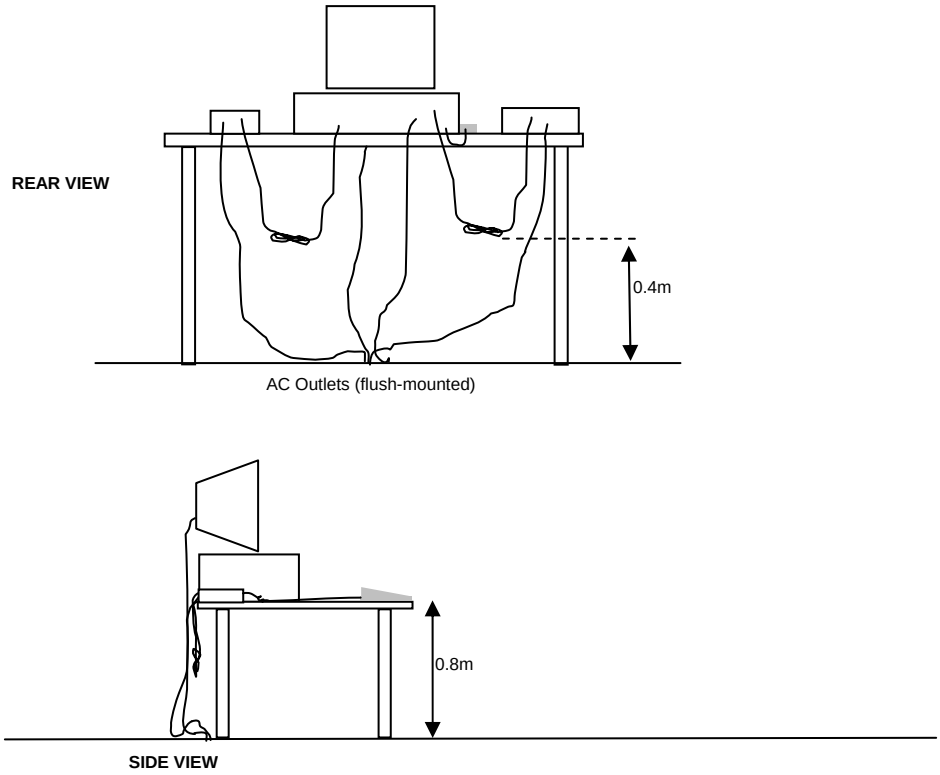
RADIATED EMISSIONS

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

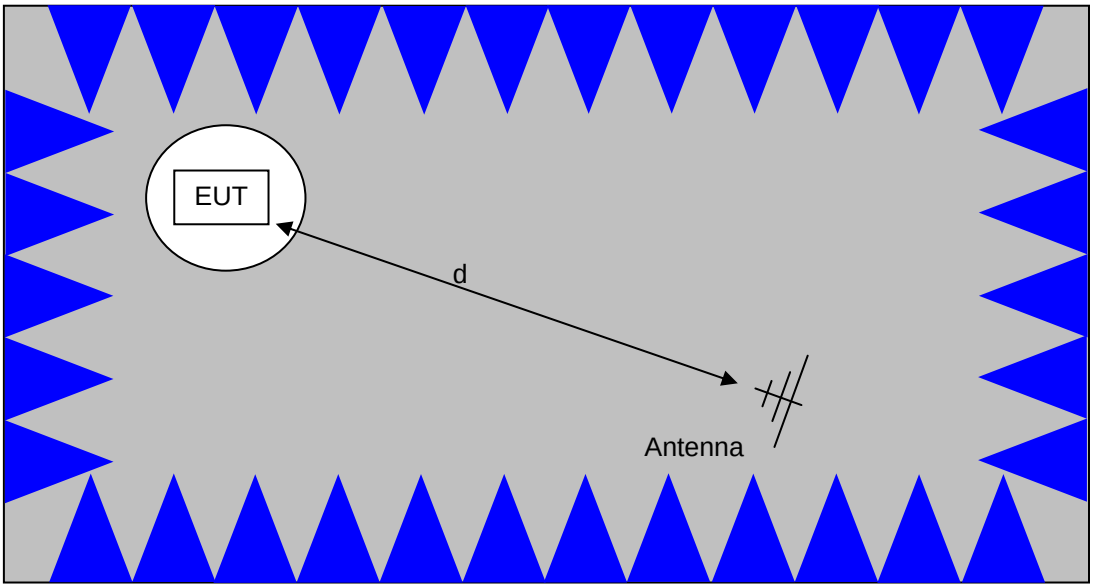
A speaker is provided in the receiver to aid in discriminating between EUT and ambient emissions. Other methods used during the preliminary scan for EUT emissions involve scanning with near field magnetic loops, monitoring I/O cables with RF current clamps, and cycling power to the EUT.

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

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

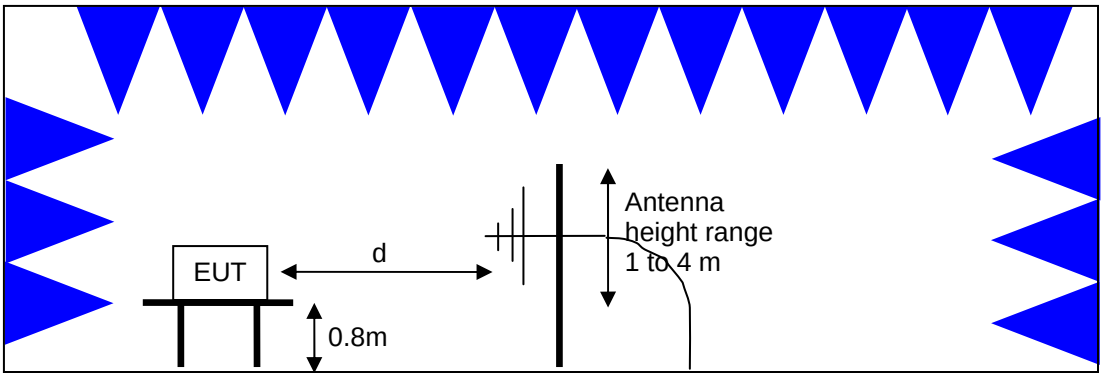


Typical Test Configuration for Radiated Field Strength Measurements



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

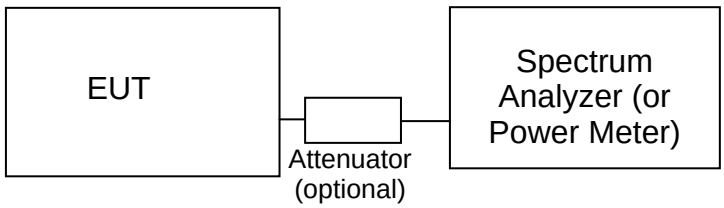
Floor-standing equipment is placed on the floor with insulating supports between the unit and the ground plane.



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

CONDUCTED EMISSIONS FROM ANTENNA PORT

Direct measurements of power, bandwidth and power spectral density are performed, where possible, with the antenna port of the EUT connected to either the power meter or spectrum analyzer via a suitable attenuator and/or filter. These are used to ensure that the front end of the measurement instrument is not overloaded by the fundamental transmission.



Test Configuration for Antenna Port Measurements

Measurement bandwidths (video and resolution) are set in accordance with the relevant standards and Elliott's test procedures for the type of radio being tested. When power measurements are made using a resolution bandwidth less than the signal bandwidth the power is calculated by summing the power across the signal bandwidth using either the analyzer channel power function or by capturing the trace data and calculating the power using software. In both cases the summed power is corrected to account for the equivalent noise bandwidth (ENBW) of the resolution bandwidth used.

If power averaging is used (typically for certain digital modulation techniques), the EUT is configured to transmit continuously. Power averaging is performed using either the built-in function of the analyzer or, if the analyzer does not feature power averaging, using external software. In both cases the average power is calculated over a number of sweeps (typically 100). When the EUT cannot be configured to continuously transmit then either the analyzer is configured to perform a gated sweep to ensure that the power is averaged over periods that the device is transmitting or power averaging is disabled and a max-hold feature is used.

If a power meter is used to make output power measurements the sensor head type (peak or average) is stated in the test data table.

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

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

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

FCC 15.407 (a) OUTPUT POWER LIMITS

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
5150 – 5250	50mW (17 dBm)	4 dBm/MHz
5250 – 5350	250 mW (24 dBm)	11 dBm/MHz
5725 – 5825	1 Watts (30 dBm)	17 dBm/MHz

For system using antennas with gains exceeding 6dBi, the output power and power spectral density limits are reduced by 1dB for every dB the antenna gain exceeds 6dBi. Fixed point-to-point applications using the 5725 – 5825 MHz band may use antennas with gains of up to 23dBi without this limitation. If the gain exceeds 23dBi then the output power limit of 1 Watt is reduced by 1dB for every dB the gain exceeds 23dBi.

The peak excursion envelope is limited to 13dB.

OUTPUT POWER LIMITS –LELAN DEVICES

The table below shows the limits for output power and output power density defined by RSS 210. 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
5150 – 5250	200mW (23 dBm) eirp	10 dBm/MHz eirp
5250 – 5350	250 mW (24 dBm)[2] 1W (30dBm) eirp	11 dBm/MHz
5470 – 5725	250 mW (24 dBm)[3] 1W (30dBm) eirp	11 dBm/MHz
5725 – 5825	1 Watts (30 dBm) 4W eirp	17 dBm/MHz

In addition, the power spectral density limit shall be reduced by 1dB for every dB the highest power spectral density exceeds the "average" power spectral density) by more than 3dB. The "average" power spectral density is determined by dividing the output power by 10log(EBW) where EBW is the 99% power bandwidth.

Fixed point-to-point applications using the 5725 – 5825 MHz band may use antennas with gains of up to 23dBi without this limitation. If the gain exceeds 23dBi then the output power limit of 1 Watt is reduced by 1dB for every dB the gain exceeds 23dBi.

SPURIOUS EMISSIONS LIMITS –UNII and LELAN DEVICES

The spurious emissions limits for signals below 1GHz are the FCC/RSS-GEN general limits. For emissions above 1GHz, signals in restricted bands are subject to the FCC/RSS GEN general limits. All other signals have a limit of –27dBm/MHz, which is a field strength of 68.3dBuV/m/MHz at a distance of 3m. This is an average limit so the peak value of the emission may not exceed –7dBm/MHz (88.3dBuV/m/MHz at a distance of 3m). For devices operating in the 5725-5850Mhz bands under the LELAN/UNII rules, the limit within 10Mhz of the allocated band is increased to –17dBm/MHz.

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

[2] If EIRP exceeds 500mW the device must employ TPC
[3] If EIRP exceeds 500mW the device must employ TPC

SAMPLE CALCULATIONS - RADIATED EMISSIONS

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

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

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

where:

F_d = Distance Factor in dB

D_m = Measurement Distance in meters

D_s = Specification Distance in meters

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

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

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

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

$$R_c = R_r + F_d$$

and

$$M = R_c - L_s$$

where:

R_r = Receiver Reading in dBuV/m

F_d = Distance Factor in dB

R_c = Corrected Reading in dBuV/m

L_s = Specification Limit in dBuV/m

M = Margin in dB Relative to Spec

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 d (meters) from the equipment under test:

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

where P is the eirp (Watts)

For a measurement at 3m the conversion from a logarithmic value for field strength (dBuV/m) to an eirp power (dBm) is -95.3dB.

Appendix A Test Equipment Calibration Data

Radio Antenna Port (Power and Spurious Emissions), 21-Dec-11

Manufacturer	Description	Model	Asset #	Cal Due
Hewlett Packard	SpecAn 30 Hz -40 GHz, SV (SA40) Red	8564E (84125C)	1148	8/15/2012

Radio Antenna Port (Power and Spurious Emissions), 27-Dec-11

Manufacturer	Description	Model	Asset #	Cal Due
Hewlett Packard	SpecAn 9 kHz - 40 GHz, FT (SA40) Blue	8564E (84125C)	1393	8/9/2012

Radio Antenna Port (Power and Spurious Emissions), 28-Dec-11

Manufacturer	Description	Model	Asset #	Cal Due
Hewlett Packard	SpecAn 9 kHz - 40 GHz, FT (SA40) Blue	8564E (84125C)	1393	8/9/2012

Radiated Emissions, 1000 - 10,000 MHz, 28-Dec-11

Manufacturer	Description	Model	Asset #	Cal Due
EMCO	Antenna, Horn, 1-18 GHz (SA40-Blu)	3115	1386	9/21/2012
Hewlett Packard	Microwave Preamplifier, 1-26.5GHz	8449B	2199	2/23/2012
Micro-Tronics	Band Reject Filter, 5470-5725 MHz	BRC50704-02	2240	10/4/2012
Hewlett Packard	SpecAn 9 kHz - 40 GHz, (SA40) Purple	8564E (84125C)	2415	7/28/2012

Radiated Emissions, 1000 - 40000 MHz, 30-Dec-11

Manufacturer	Description	Model	Asset #	Cal Due
EMCO	Antenna, Horn, 1-18 GHz (SA40-Blu)	3115	1386	9/21/2012
Hewlett Packard	9kHz-40GHz Analyzer	8564E	2190	8/26/2012
Hewlett Packard	Microwave Preamplifier, 1-26.5GHz	8449B	2199	2/23/2012
Micro-Tronics	Band Reject Filter, 5150-5350 MHz	BRC50703-02	2251	10/11/2012

Radiated Emissions, 1000 - 40,000 MHz, 30-Dec-11

Manufacturer	Description	Model	Asset #	Cal Due
Hewlett Packard	Microwave Preamplifier, 1-26.5GHz	8449B	263	12/9/2012
Hewlett Packard	Head (Inc flex cable, 1143, 2198) Red	84125C	1145	2/17/2012
Hewlett Packard	SpecAn 30 Hz -40 GHz, SV (SA40) Red	8564E (84125C)	1148	8/15/2012
Hewlett Packard	High Pass filter, 8.2 GHz (Red System)	P/N 84300-80039 (84125C)	1152	8/5/2012
EMCO	Antenna, Horn, 1-18 GHz	3115	1561	6/22/2012
Micro-Tronics	Band Reject Filter, 5470-5725 MHz	BRC50704-02	1681	9/8/2012
A.H. Systems	Purple System Horn, 18-40GHz	SAS-574, p/n: 2581	2160	2/9/2012

Radio Antenna Port (Power and Spurious Emissions), 05-Jan-12

Manufacturer	Description	Model	Asset #	Cal Due
Agilent	PSA, Spectrum Analyzer, (installed options, 111, 115, 123, 1DS, B7J, HYX,	E4446A	2139	1/26/2012

Radiated Emissions, 1,000 - 6,500 MHz, 20-Jan-12

Manufacturer	Description	Model	Asset #	Cal Due
EMCO	Antenna, Horn, 1-18 GHz (SA40-Blu)	3115	1386	9/21/2012
Hewlett Packard	Microwave Preamplifier, 1-26.5GHz	8449B	2199	2/23/2012
Hewlett Packard	SpecAn 9 kHz - 40 GHz, (SA40) Purple	8564E (84125C)	2415	7/28/2012

UNII Radiated Spurious Emissions, 24-Jan-12

Manufacturer	Description	Model	Asset #	Cal Due
Hewlett Packard	High Pass filter, 8.2 GHz	P/N 84300-80039	1156	6/24/2012
EMCO	Antenna, Horn, 1-18 GHz (SA40-Blu)	3115	1386	9/21/2012
Hewlett Packard	Microwave Preamplifier, 1-26.5GHz	8449B	2199	2/23/2012
Micro-Tronics	Band Reject Filter, 5150-5350 MHz	BRC50703-02	2251	10/11/2012
Hewlett Packard	SpecAn 9 kHz - 40 GHz, (SA40) Purple	8564E (84125C)	2415	7/28/2012

Appendix B Test Data

T85882 Pages 27 - 157

Client:	Ubiquiti Networks	Job Number:	J85880
Model:	NanoBridge M5	T-Log Number:	T85882
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		-
Emissions Standard(s):	FCC 15.407, RSS-210 Issue 8	Class:	-
Immunity Standard(s):	-	Environment:	-

EMC Test Data

For The

Ubiquiti Networks

Model

NanoBridge M5

Date of Last Test: 2/3/2012

Client:	Ubiquiti Networks	Job Number:	J85880
Model:	NanoBridge M5	T-Log Number:	T85882
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A

RSS-210 (LELAN) and FCC 15.407(UNII)
Antenna Port Measurements
Power, PSD, Peak Excursion, 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: 12/20/2011 22:12
Test Engineer: Rafael Varelas
Test Location: Fremont Chamber #3

Config. Used: 1
Config Change: None
EUT Voltage: POE

Summary of Results

Run #	Test Performed	Limit	Pass / Fail	Result / Margin
1	Power, 5250 - 5350MHz	15.407(a) (1), (2)	Pass	HT5: -4.5dBm
1	PSD, 5250 - 5350MHz	15.407(a) (1), (2)	Pass	HT5: -11.7dBm/MHz
1	Max EIRP 5250 - 5350MHz	TPC required if EIRP≥ 500mW (27dBm). EIRP ≥ 200mW (23dBm) DFS threshold = -64dBm	Pass	EIRP = 23.5dBm (225mW)
1	Power, 5470 - 5725MHz	15.407(a) (1), (2)	Pass	HT5: -5.2dBm
1	PSD, 5470 - 5725MHz	15.407(a) (1), (2)	Pass	HT5: -11.8dBm/MHz
1	Max EIRP 5470 - 5725MHz	TPC required if EIRP≥ 500mW (27dBm). EIRP ≥ 200mW (23dBm) DFS threshold = -64dBm.	Pass	EIRP = 22.8dBm (192mW)
1	26dB Bandwidth	15.407 (Information only)	-	8.6MHz
1	99% Bandwidth	RSS 210 (Information only)	N/A	HT5: 5.4 MHz
2	Peak Excursion Envelope	15.407(a) (6) 13dB	Pass	12.95dB
3	Antenna Conducted - Out of Band Spurious	15.407(b) -27dBm/MHz	Pass	All emissions below the -27dBm/MHz limit

Client:	Ubiquiti Networks	Job Number:	J85880
Model:	NanoBridge M5	T-Log Number:	T85882
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A

General Test Configuration

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

Ambient Conditions:

Temperature:	22.1 °C
Rel. Humidity:	35 %

Modifications Made During Testing

No modifications were made to the EUT during testing

Deviations From The Standard

No deviations were made from the requirements of the standard.

Run #1: Bandwidth, Output Power and Power Spectral Density - MIMO Systems

Note 1:	Output power measured using a spectrum analyzer (see plots below). RBW=1MHz, VB=3 MHz, # of points in sweep ≥ 2*span/RBW, sample detector, power averaging on (transmitted signal was continuous) and power integration over 50 MHz (method SA-1 of KDB 789033).
Note 2:	Measured using the same analyzer settings used for output power.
Note 3:	For RSS-210 the limit for the 5150 - 5250 MHz band accounts for the antenna gain as the maximum eirp allowed is 10dBm/MHz. The limits are also corrected for instances where the highest measured value of the PSD exceeds the average PSD (calculated from the measured power divided by the measured 99% bandwidth) by more than 3dB by the amount that the measured value exceeds the average by more than 3dB.
Note 4:	99% Bandwidth measured in accordance with RSS GEN - RB > 1% of span and VB >=3xRB
Note 5:	For MIMO systems the total output power and total PSD are calculated form the sum of the powers of the individual chains (in linear terms). The antenna gain used to determine the EIRP and limits for PSD/Output power depends on the operating mode of the MIMO device. If the signals on the non-coherent between the transmit chains then the gain used to determine the limits is the highest gain of the individual chains and the EIRP is the sum of the products of gain and power on each chain. If the signals are coherent then the effective antenna gain is the sum (in linear terms) of the gains for each chain and the EIRP is the product of the effective gain and total power.

Client:	Ubiquiti Networks	Job Number:	J85880
Model:	NanoBridge M5	T-Log Number:	T85882
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A

MIMO Device - 5250-5350 MHz Band

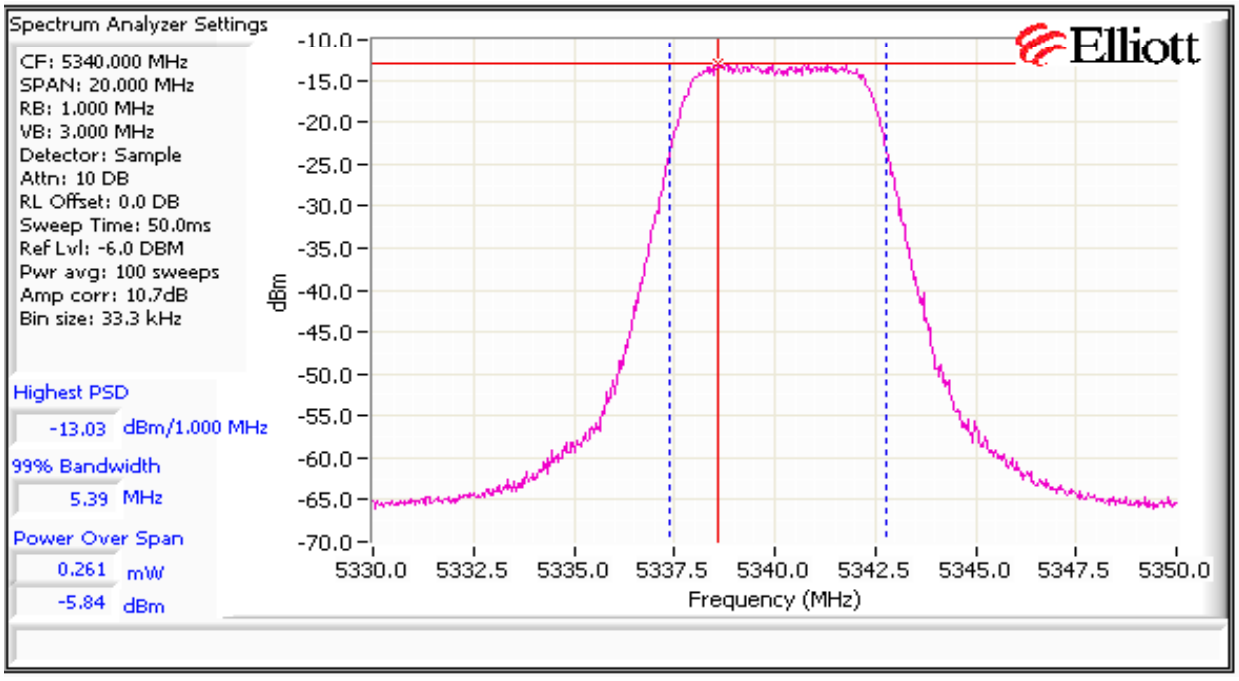
	Chain 1	Chain 2	Chain 3	Coherent	Effective[5]	EIRP (mW)	EIRP (dBm)
Antenna Gain (dBi):	25	25		Yes	28.0	225.2	23.5

Power

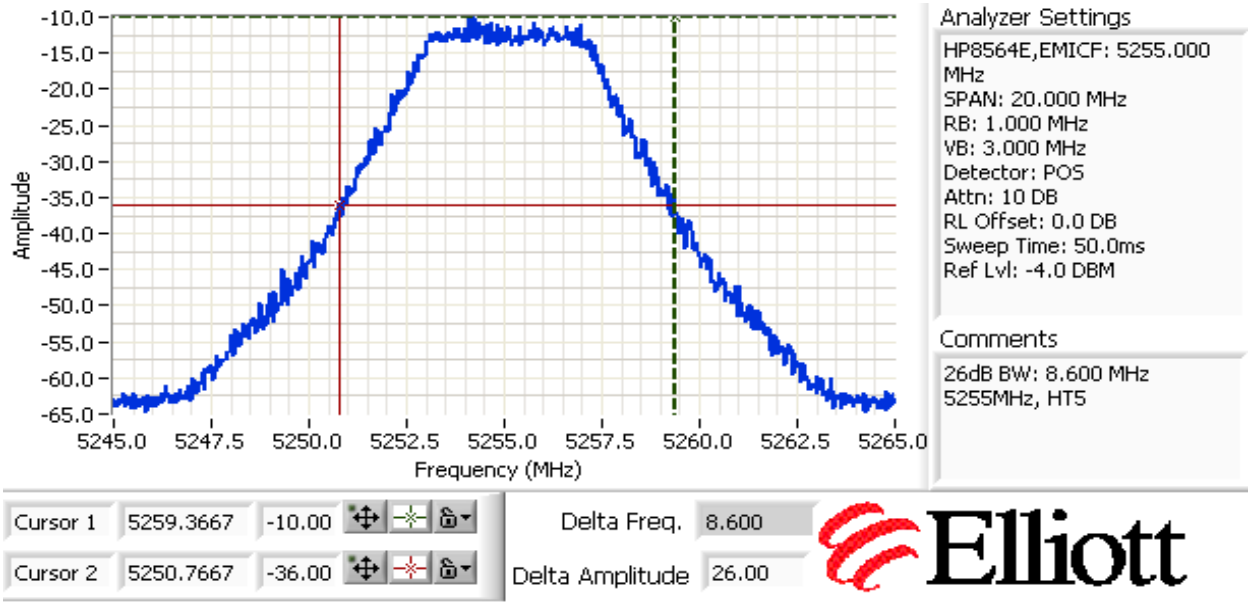
Frequency (MHz)	Software Setting	26dB BW (MHz)	Measured Output Power[1] dBm			Total		Limit (dBm)	Max Power (W)	Pass or Fail
			Chain 1	Chain 2	Chain 3	mW	dBm			
5MHz Mode										
5255	-	8.6	-7.4	-9.7		0.3	-5.4	-1.7	0.000	PASS
5300	-	8.9	-7.6	-10.3		0.3	-5.7	-1.5		PASS
5340	-	8.7	-5.8	-10.2		0.4	-4.5	-1.6		PASS

PSD

Frequency (MHz)	99%[4] BW	Total Power	PSD[2] dBm/MHz			Total PSD		Limit		Pass or Fail
			Chain 1	Chain 2	Chain 3	mW/MHz	dBm/MHz	FCC	RSS 210[3]	
5MHz Mode										
5255	5.4	-5.4	-14.5	-16.7		0.1	-12.4	-11.0	11.0	PASS
5300	5.4	-5.7	-14.8	-17.3		0.1	-12.8	-11.0	11.0	PASS
5340	5.4	-4.5	-13.0	-17.4		0.1	-11.7	-11.0	11.0	PASS



Client:	Ubiquiti Networks	Job Number:	J85880
Model:	NanoBridge M5	T-Log Number:	T85882
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A



Client:	Ubiquiti Networks	Job Number:	J85880
Model:	NanoBridge M5	T-Log Number:	T85882
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A

MIMO Device - 5470-5725 MHz Band

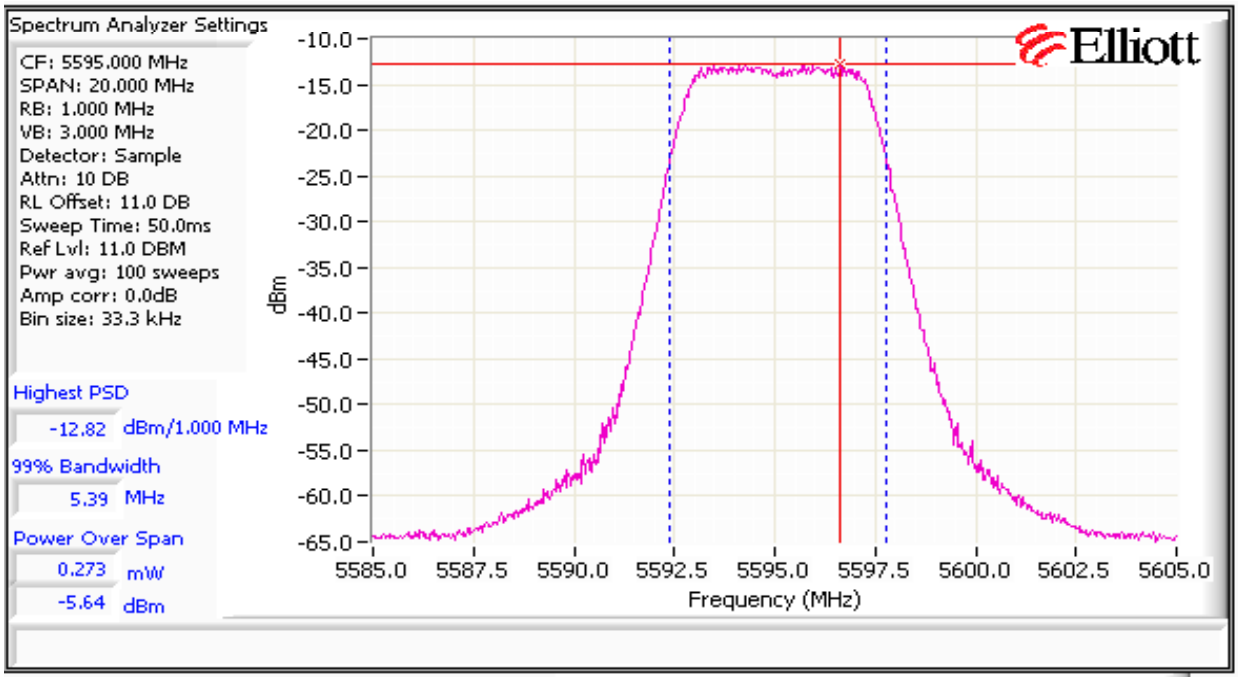
	Chain 1	Chain 2	Chain 3	Coherent	Effective[5]	EIRP (mW)	EIRP (dBm)
Antenna Gain (dBi):	25	25		Yes	28.0	192.0	22.8

Power

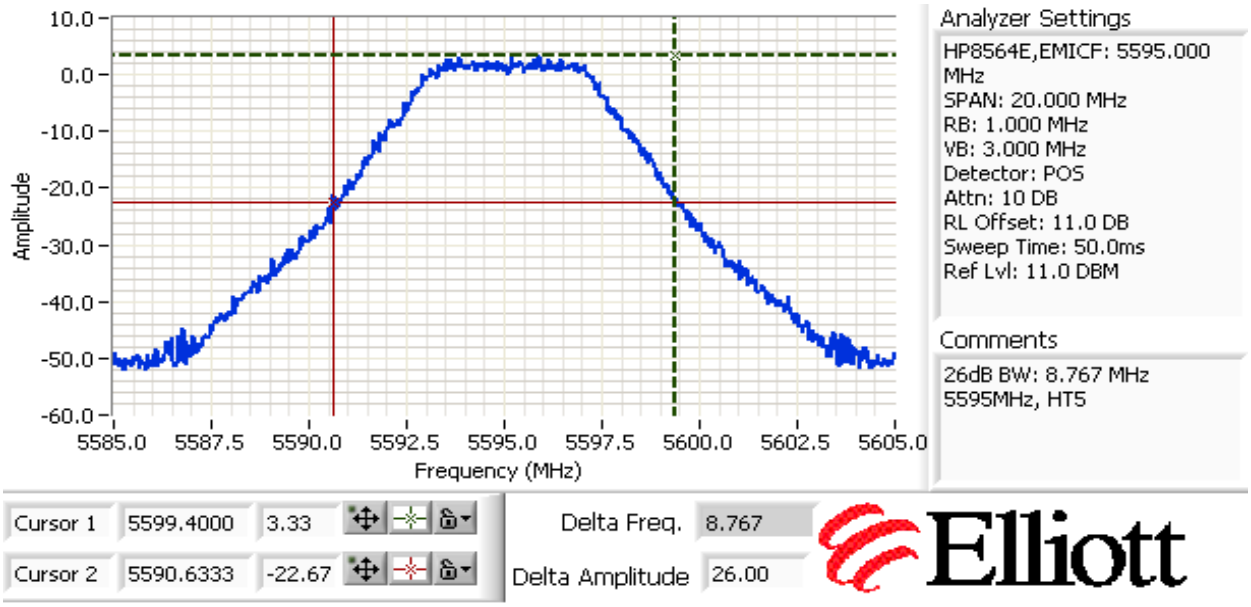
Frequency (MHz)	Software Setting	26dB BW (MHz)	Measured Output Power[1] dBm			Total		Limit (dBm)	Max Power (W)	Pass or Fail
			Chain 1	Chain 2	Chain 3	mW	dBm			
5MHz Mode										
5475	-	8.8	-7.5	-23.5		0.2	-7.4	-1.6	0.000	PASS
5595	-	8.8	-5.6	-15.5		0.3	-5.2	-1.6		PASS
5715	-	8.8	-8.6	-8.6		0.3	-5.6	-1.6		PASS

PSD

Frequency (MHz)	99%[4] BW	Total Power	PSD[2] dBm/MHz			Total PSD		Limit		Pass or Fail
			Chain 1	Chain 2	Chain 3	mW/MHz	dBm/MHz	FCC	RSS 210[3]	
5MHz Mode										
5475	5.4	-7.4	-13.1	-17.7		0.1	-11.8	-11.0	11.0	PASS
5595	5.4	-5.2	-12.8	-21.6		0.1	-12.3	-11.0	11.0	PASS
5715	5.4	-5.6	-15.7	-16.0		0.1	-12.8	-11.0	11.0	PASS



Client:	Ubiquiti Networks	Job Number:	J85880
Model:	NanoBridge M5	T-Log Number:	T85882
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A



Client:	Ubiquiti Networks	Job Number:	J85880
Model:	NanoBridge M5	T-Log Number:	T85882
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A

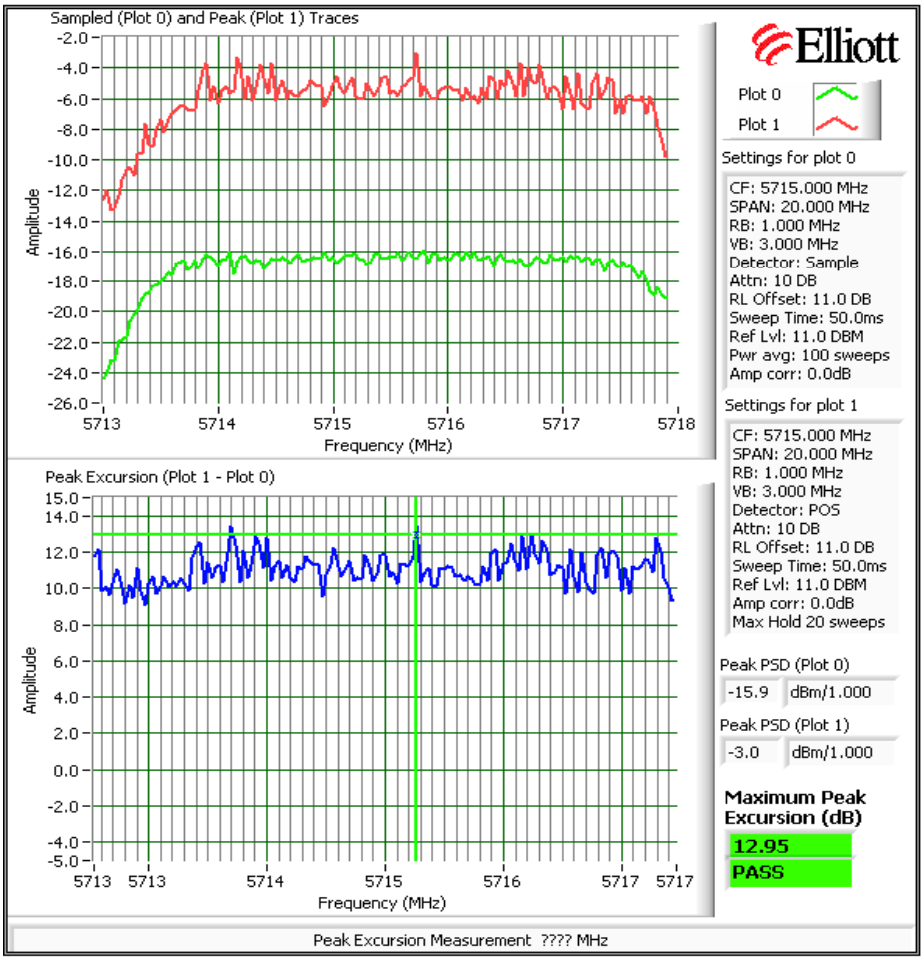
Run #2: Peak Excursion Measurement

Freq	Peak Excursion(dB)		Freq	Peak Excursion(dB)		Freq	Peak Excursion(dB)	
(MHz)	Value	Limit	(MHz)	Value	Limit	(MHz)	Value	Limit
5180		13.0	5255	12.73/12.50	13.0	5475	10/10.21	13.0
5200		13.0	5300	11.87/11.81	13.0	5595	11.49/10.58	13.0
5240		13.0	5340	12.94/12.56	13.0	5715	12.69/12.95	13.0

Plots Showing Peak Excursion

Trace A: RBW = 1MHz, VBW = 3MHz, Peak hold

Trace B: Same settings as used for power/PSD measurements (RBW = 1 MHz, VBW = 3MHz, Integrated average power)



Client:	Ubiquiti Networks	Job Number:	J85880
Model:	NanoBridge M5	T-Log Number:	T85882
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A

Run #3: Out Of Band Spurious Emissions - Antenna Conducted

MIMO Devices: Antenna gain used is the effective gain calculated in the power section of this data sheet. The plots were obtained for each chain individually and the limit was adjusted to account for all chains transmitting simultaneously

Number of transmit chains:	2	
Maximum Antenna Gain:	25.0	dBi
Spurious Limit:	-27.0	dBm/MHz eirp
Adjustment for 2 chains:	-3.0	dB adjustment for multiple chains.
Limit Used On Plots [Note 1]:	-55.0	dBm/MHz Peak Limit (RB=VB=1MHz)

Note 1:	The -27dBm/MHz limit is an eirp limit. The limit for antenna port conducted measurements is adjusted to take into consideration the maximum antenna gain (limit = -27dBm - antenna gain). Radiated field strength measurements for signals more than 50MHz from the bands and that are close to the limit are made to determine compliance as the antenna gain is not known at these frequencies.
Note 2:	All spurious signals below 1GHz are measured during digital device radiated emissions test.
Note 3:	Signals within 10MHz of the 5.725 or 5.825 Band edge are subject to a limit of -17dBm EIRP
Note 4:	If the device is for outdoor use then the -27dBm eirp limit also applies in the 5150 - 5250 MHz band.
Note 5:	Signals that fall in the restricted bands of 15.205 are subject to the limit of 15.209.

Plots Showing Out-Of-Band Emissions (RBW=VBW=1MHz)

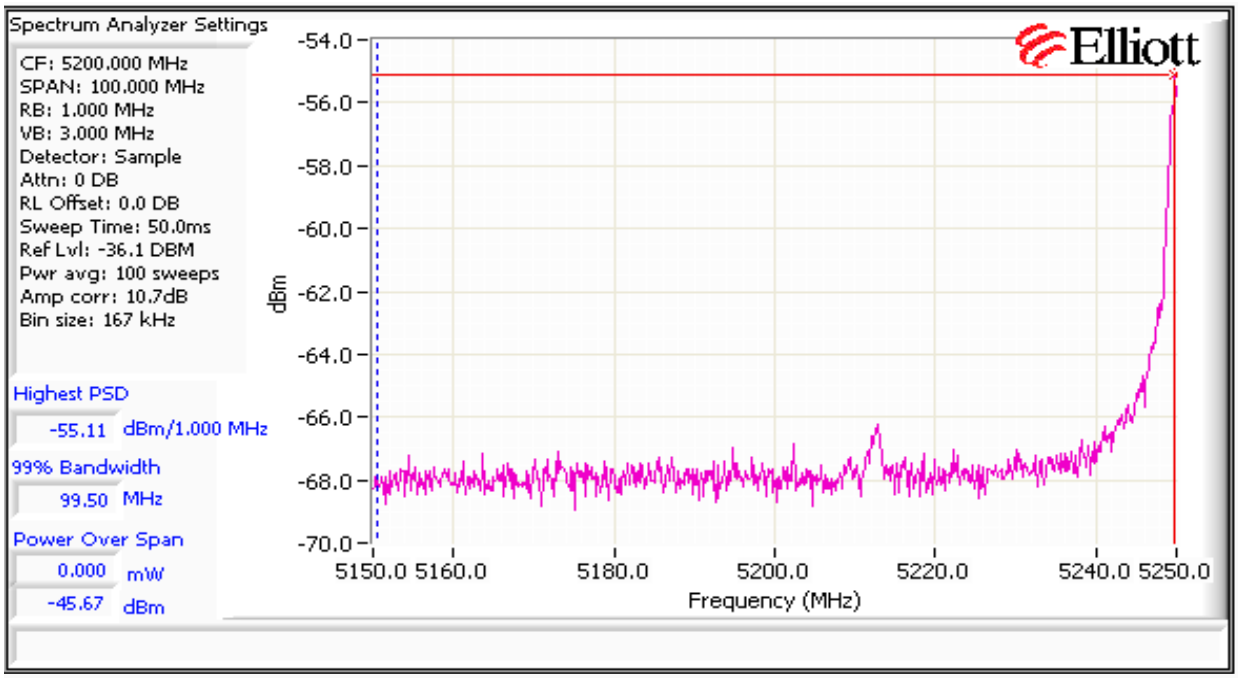
Low channel, 5250 - 5350 MHz Band - 5MHz

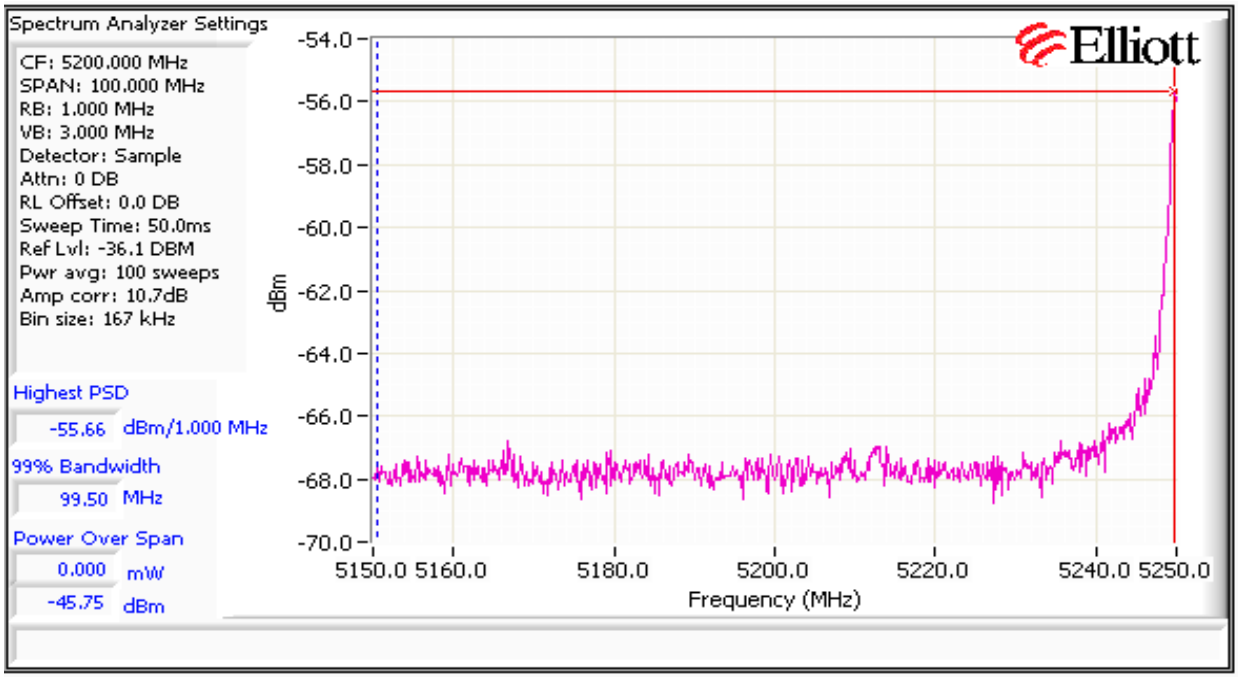
Plots for each chain showing compliance with the -27dBm/MHz limit in the 5150 - 5250 MHz band. Start and stop frequencies set to 5150-5250 MHz, RB=1MHz, VB=3MHz, power averaging enabled (100 traces):

Channel frequency: 5255 MHz - 25dBi antenna

	Power Setting	Band edge Level		Antenna Gain (dBi)	EIRP		Total EIRP dBm/MHz	Limit dBm/MHz	Result
		dBm/MHz	mW/MHz		mW/MHz	dBm/MHz			
Chain 1	-	-55.1	0.00000	25.0	0.0009772	-30.1	-27.4	-27	PASS
Chain 2		-55.7	0.00000	25.0	0.000859	-30.7			

Client:	Ubiquiti Networks	Job Number:	J85880
Model:	NanoBridge M5	T-Log Number:	T85882
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A



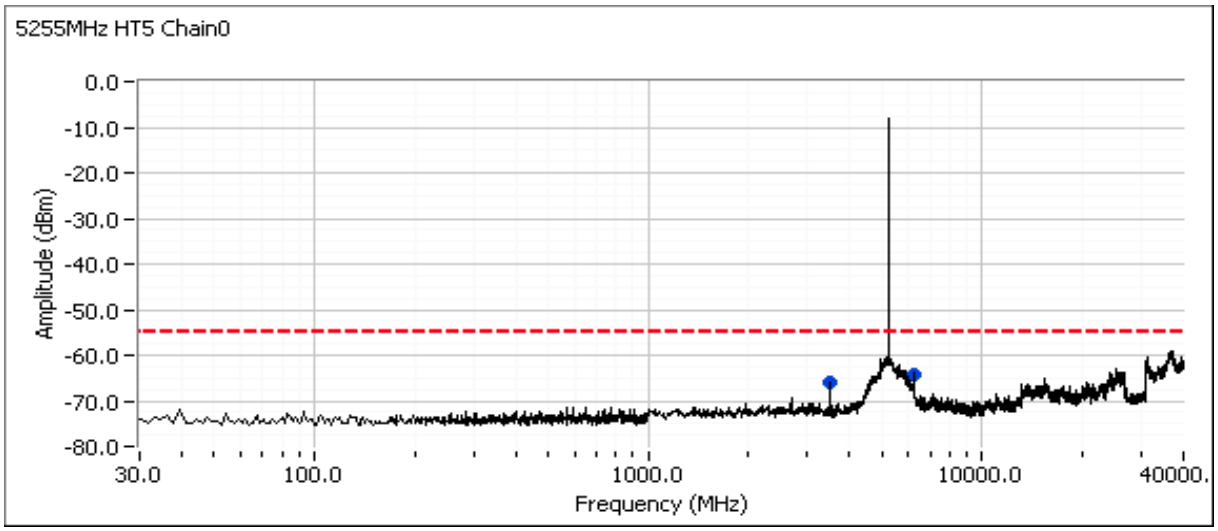


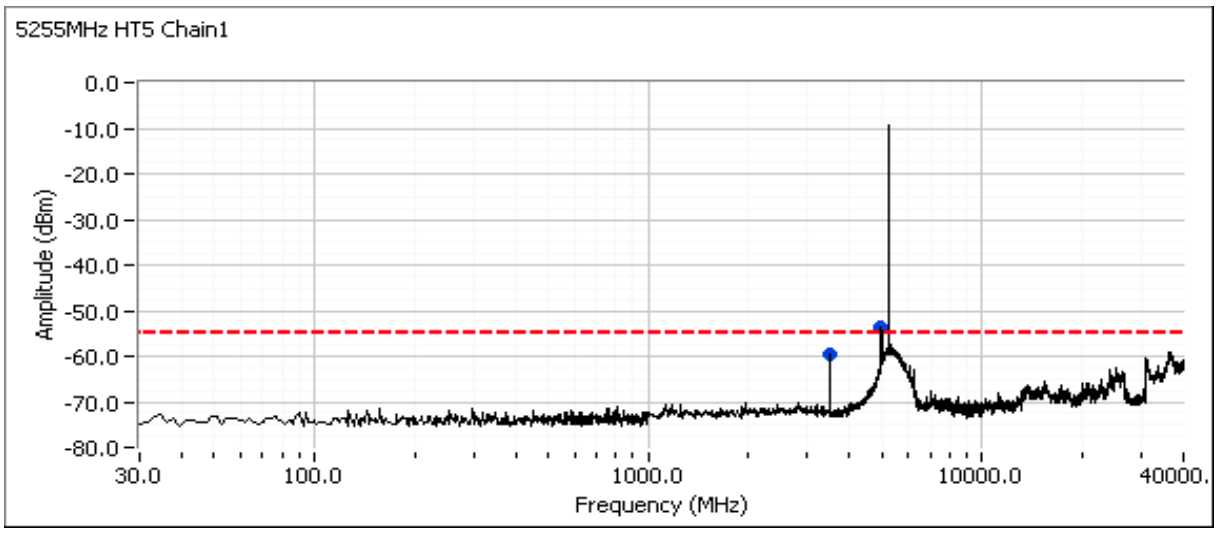
Client:	Ubiquiti Networks	Job Number:	J85880
Model:	NanoBridge M5	T-Log Number:	T85882
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A

Wide-band plot, RB=300kHz VB=100kHz (Peak measurements versus limit).

Date of Test: 12/21/2011 Test Location: FT Chamber#4

Test Engineer: Jack Liu Config Change: none





Client:	Ubiquiti Networks	Job Number:	J85880
Model:	NanoBridge M5	T-Log Number:	T85882
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A

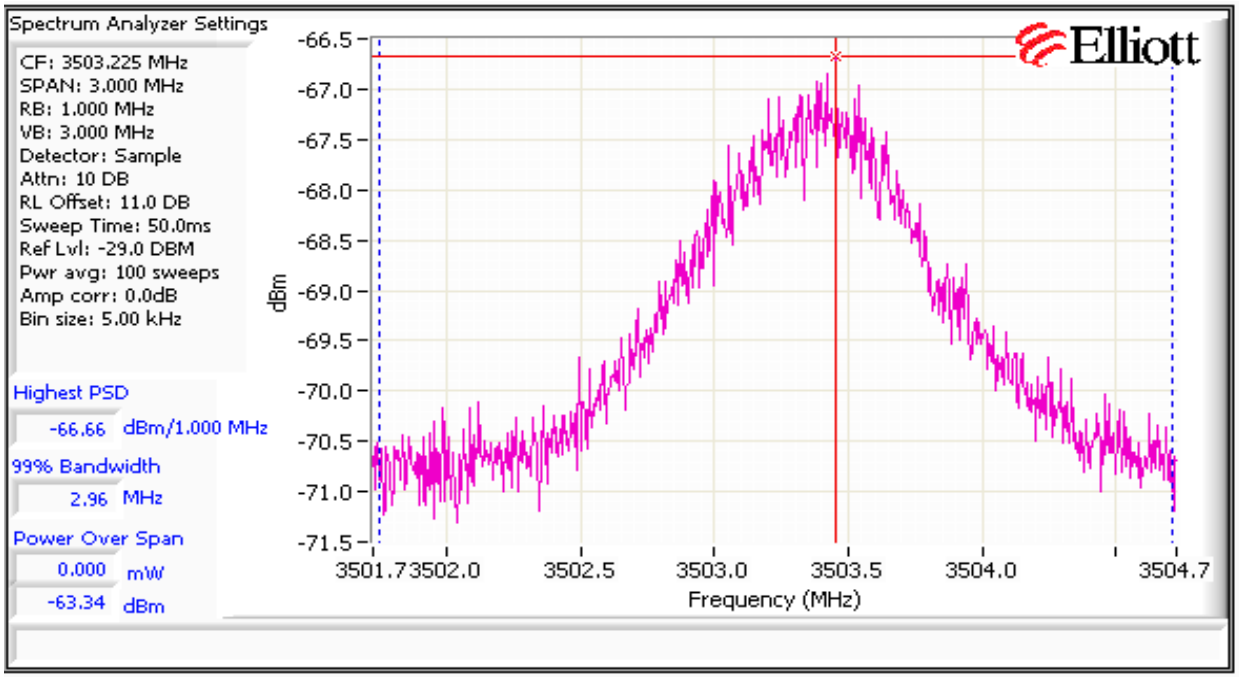
Wide-band result RB=1MHz VB=3MHz (Peak measurements versus limit).

Frequency	Level	Port	FCC 15 E / RSS 210		Detector	Comment				
MHz	dBm		Limit	Margin	Pk/QP/Avg	channel	mode/Chain	Ant. gain	Setting	Note
3502.800	-57.8	RF Port	-55.0	-2.8	PK	5255MHz	HT5/0	25	0.0	Note 1
6242.300	-58.2	RF Port	-55.0	-3.2	PK	5255MHz	HT5/0	25	0.0	Note 1
4983.500	-46.0	RF Port	-	-	PK	5255MHz	HT5/1	25	0.0	Note 2
3503.380	-	RF Port	-	-	PK	5255MHz	HT5/1	25	0.0	Note 3

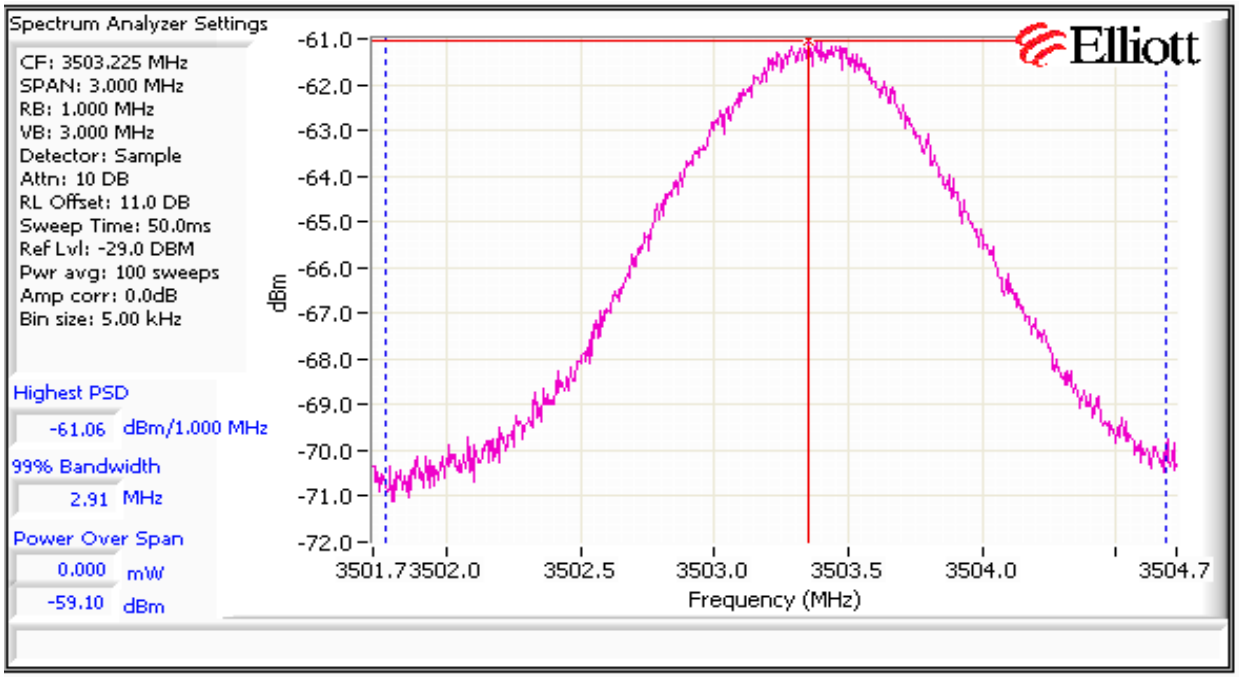
Note 1	Un-restricted signal.
Note 2	Restricted band signal. Refer to the radiated spurious emissions results.
Note 3	Final measurements performed using 100sweep sample detector method. See below for final results.

5255MHz HT5
Eval 3503MHz using 100Sweep tech

	Power Setting	Band edge Level		Antenna Gain (dBi)	EIRP		Total EIRP dBm/MHz	Limit dBm/MHz	Result
		dBm/MHz	mW/MHz		mW/MHz	dBm/MHz			
Chain 1	-	-66.7	0.00000	25.0	0.000068	-41.7	-35.0	-27	PASS
Chain 2		-61.1	0.00000	25.0	0.0002477	-36.1			



Client:	Ubiquiti Networks	Job Number:	J85880
Model:	NanoBridge M5	T-Log Number:	T85882
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A



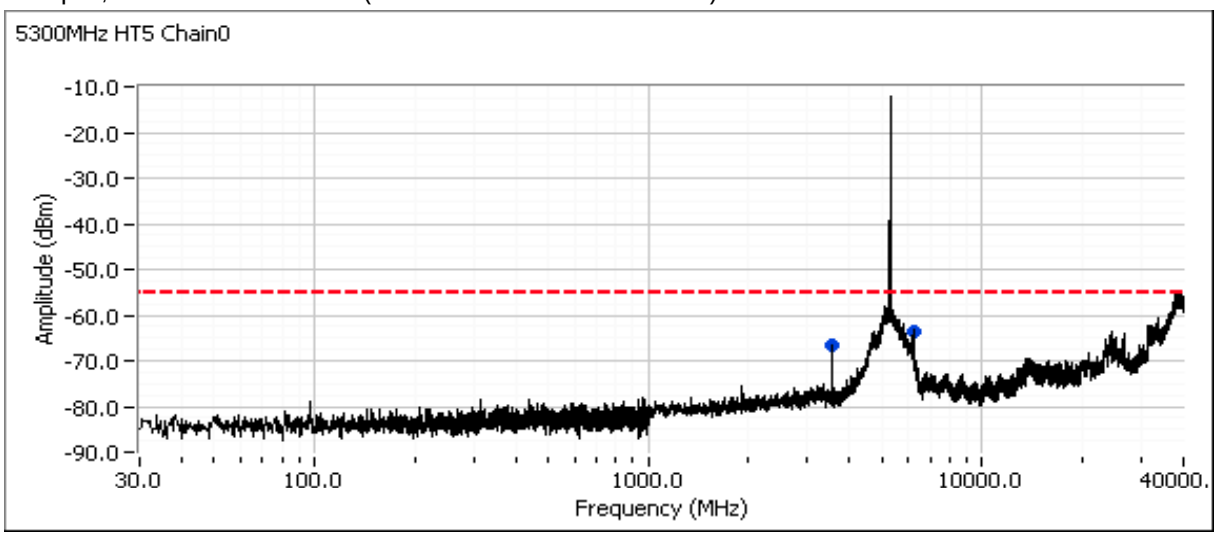
Client:	Ubiquiti Networks	Job Number:	J85880
Model:	NanoBridge M5	T-Log Number:	T85882
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A

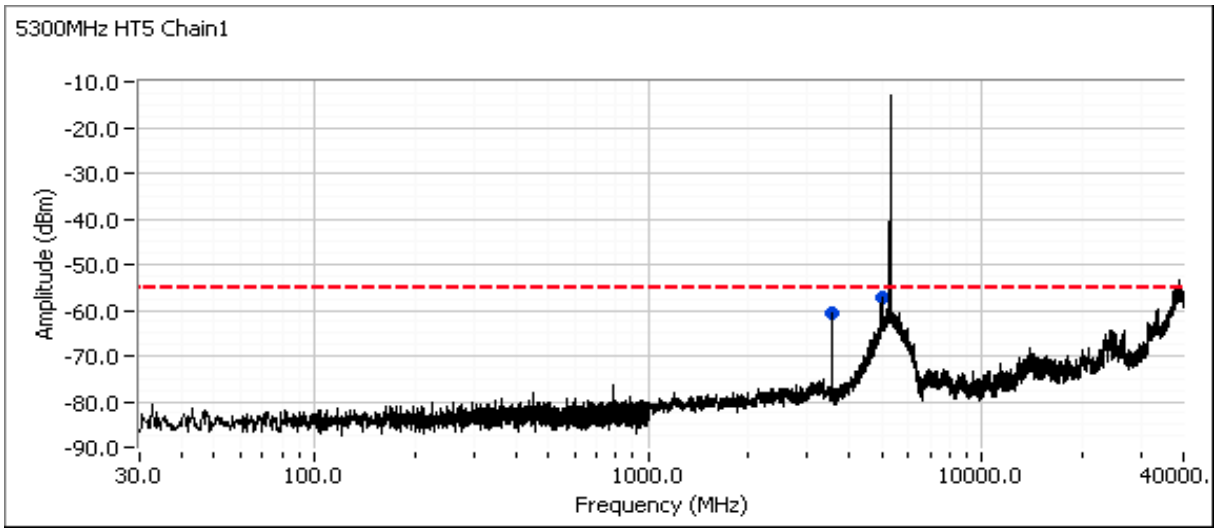
Center channel, 5250 - 5350 MHz Band

Date of Test: 12/22/2011 Test Location: FT Lab#4

Test Engineer: Jack Liu Config Change: none

Wide-band plot, RB=300kHz VB=100kHz (Peak measurements versus limit).





Client:	Ubiquiti Networks	Job Number:	J85880
Model:	NanoBridge M5	T-Log Number:	T85882
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A

Wide-band result RB=1MHz VB=3MHz (Peak measurements versus limit).

Frequency	Level	Port	FCC 15 E / RSS 210		Detector	Comment				
MHz	dBm		Limit	Margin	Pk/QP/Avg	channel	mode/Chain	Ant. gain	Setting	Note
3533.230	-64.9	RF Port	-55.0	-9.9	PK	5300MHz	HT5/0	25	0.0	Note 1
6231.880	-59.2	RF Port	-55.0	-4.2	PK	5300MHz	HT5/0	25	0.0	Note 1
3533.470	-59.1	RF Port	-54.0	-5.1	PK	5300MHz	HT5/1	25	0.0	Note 1
4991.460	-49.2	RF Port	-	-	PK	5300MHz	HT5/1	25	0.0	Note 2

Note 1	Un-restricted signal
Note 2	Restricted band signal. Refer to the radiated spurious emissions results.

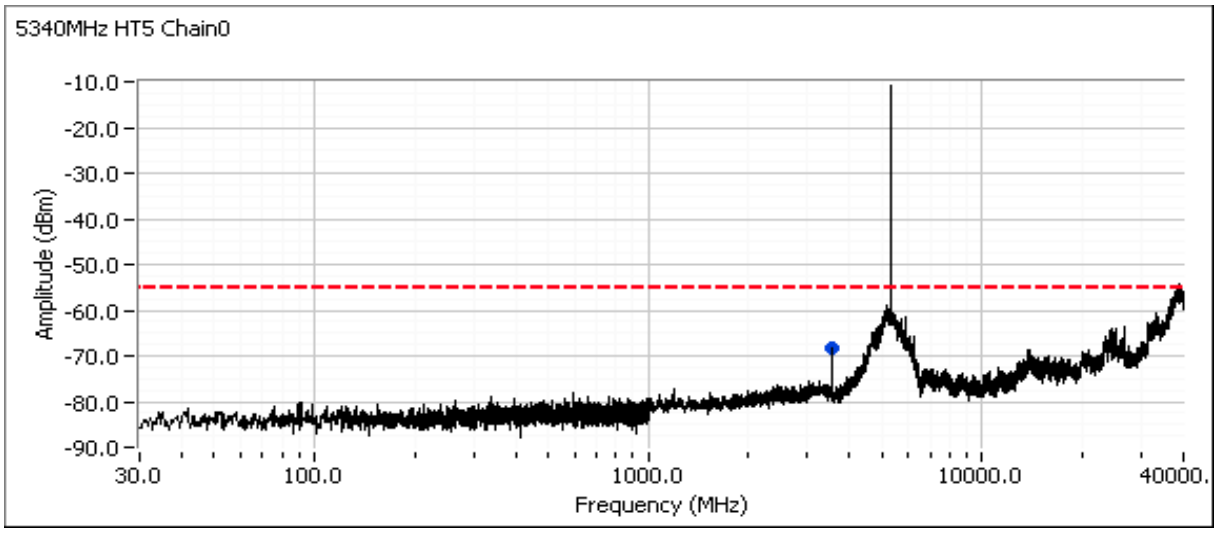
High channel, 5250 - 5350 MHz Band

Note - compliance with the radiated limits for the restricted band immediately above 5350MHz is demonstrated through the radiated emissions tests.

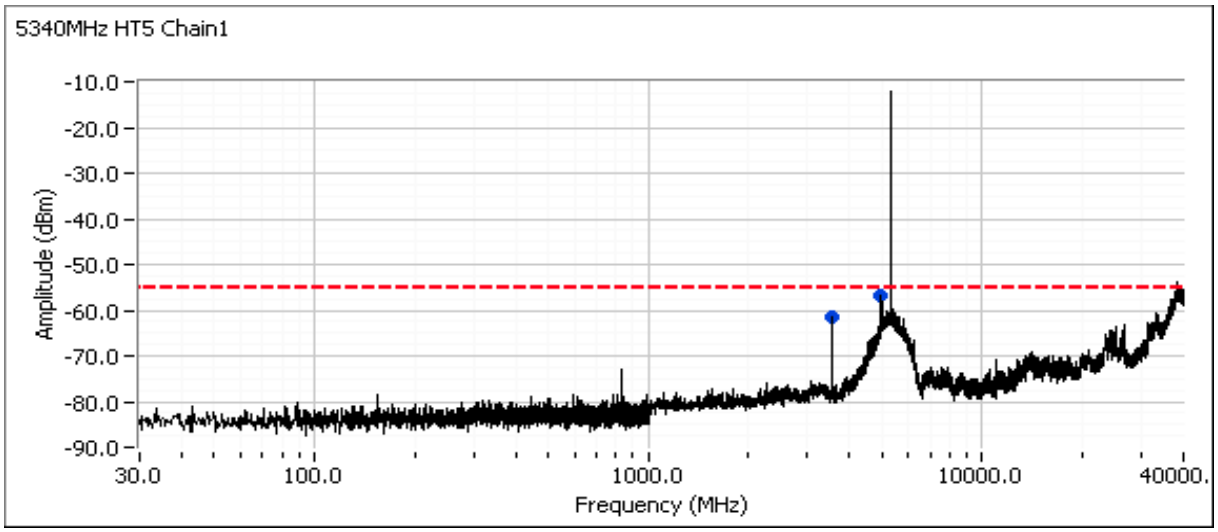
Wide-band plot, RB=300kHz VB=100kHz (Peak measurements versus limit).

Date of Test: 12/22/2011 Test Location: FT Lab#4

Test Engineer: Jack Liu Config Change: none



Client:	Ubiquiti Networks	Job Number:	J85880
Model:	NanoBridge M5	T-Log Number:	T85882
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A



Wide-band result RB=1MHz VB=3MHz (Peak measurements versus limit).

Frequency	Level	Port	FCC 15 E / RSS 210		Detector	Comment				
MHz	dBm		Limit	Margin	Pk/QP/Avg	channel	mode/Chain	Ant. gain	Setting	Note
3560.060	-64.4	RF Port	-55.0	-9.4	PK	5340MHz	HT5/0	25	0.0	Note 1
3560.120	-59.5	RF Port	-55.0	-4.5	PK	5340MHz	HT5/1	25	0.0	Note 1
4975.100	-50.1	RF Port	-	-	PK	5340MHz	HT5/1	25	0.0	Note 2

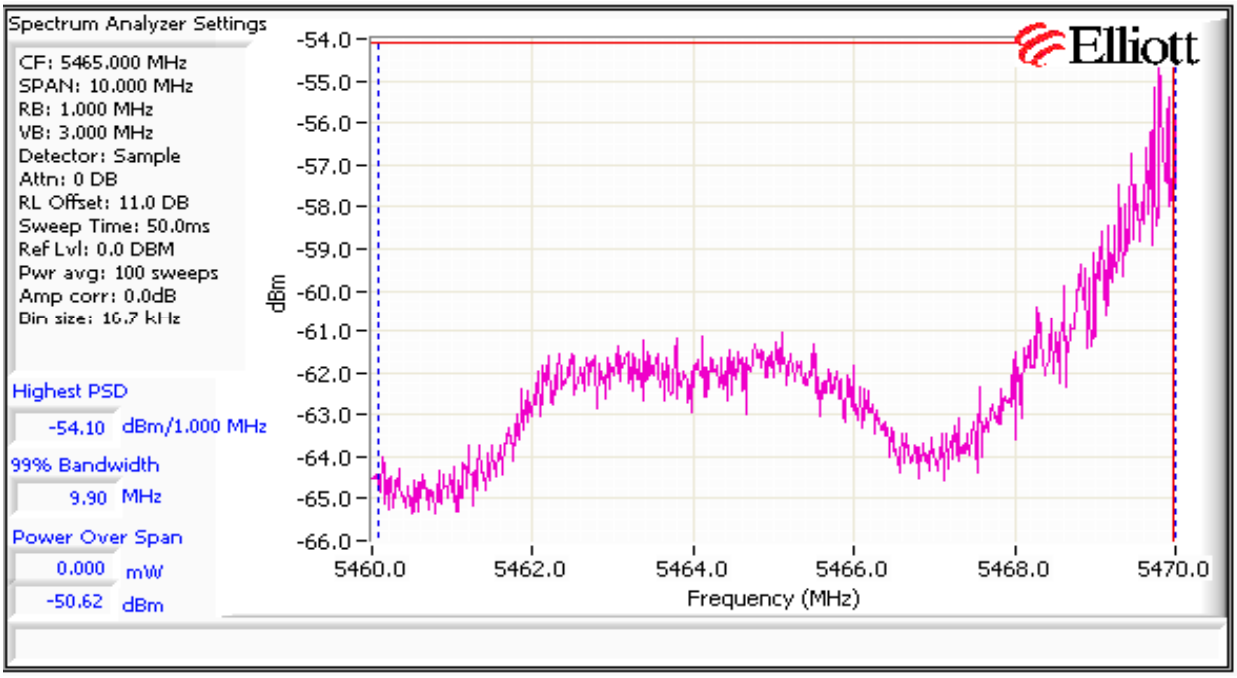
Note 1	Un-restricted signal
Note 2	Restricted band signal. Refer to the radiated spurious emissions results.

Client:	Ubiquiti Networks	Job Number:	J85880
Model:	NanoBridge M5	T-Log Number:	T85882
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A

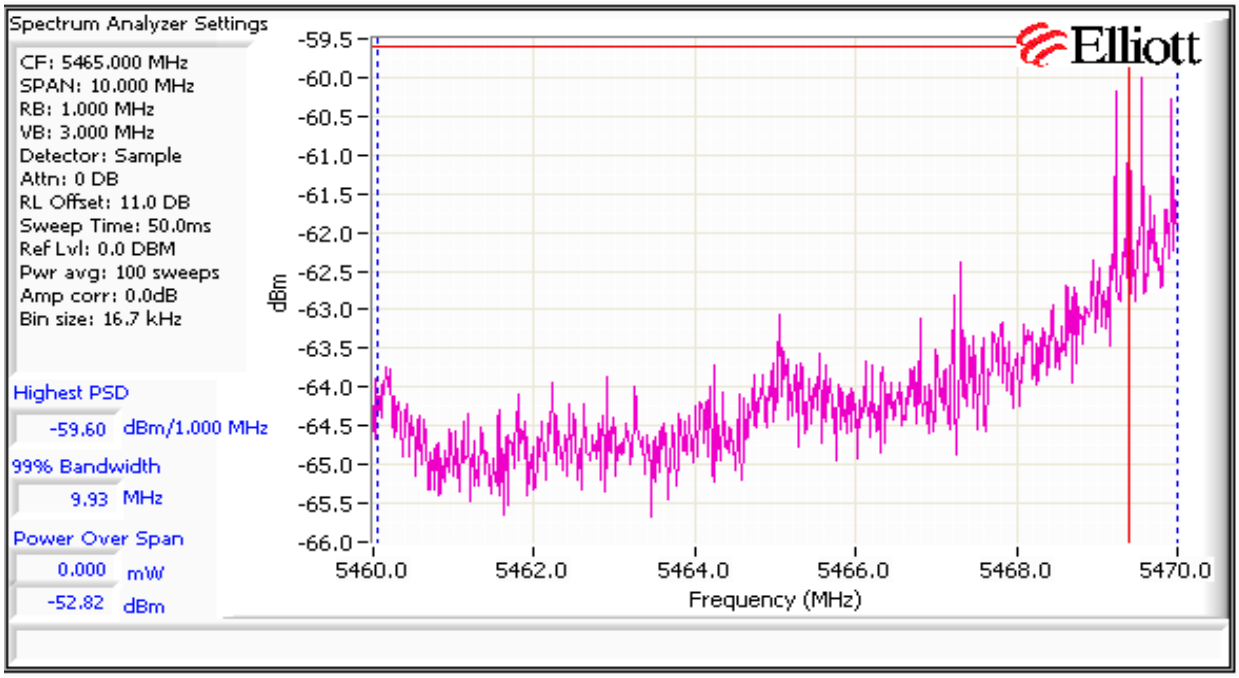
Low channel, 5470 - 5725 MHz Band

Compliance with the -27dBm/MHz limit in the 5460 - 5470 MHz band immediately below the allocated band. Start and stop frequencies set to 5460-5470 MHz, RB=1MHz, VB=3MHz, power averaging enabled (100 traces).

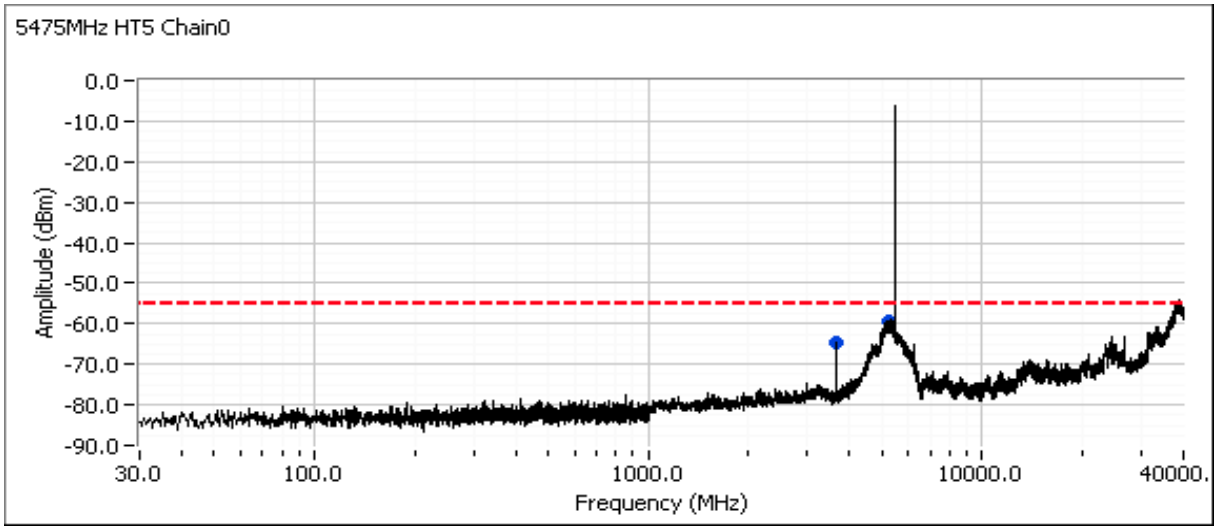
	Power Setting	Band edge Level		Antenna Gain (dBi)	EIRP		Total EIRP dBm/MHz	Limit dBm/MHz	Result
		dBm/MHz	mW/MHz		mW/MHz	dBm/MHz			
Chain 1	-	-54.1	0.00000	25.0	0.0012303	-29.1	-28.0	-27	PASS
Chain 2		-59.6	0.00000	25.0	0.0003467	-34.6			



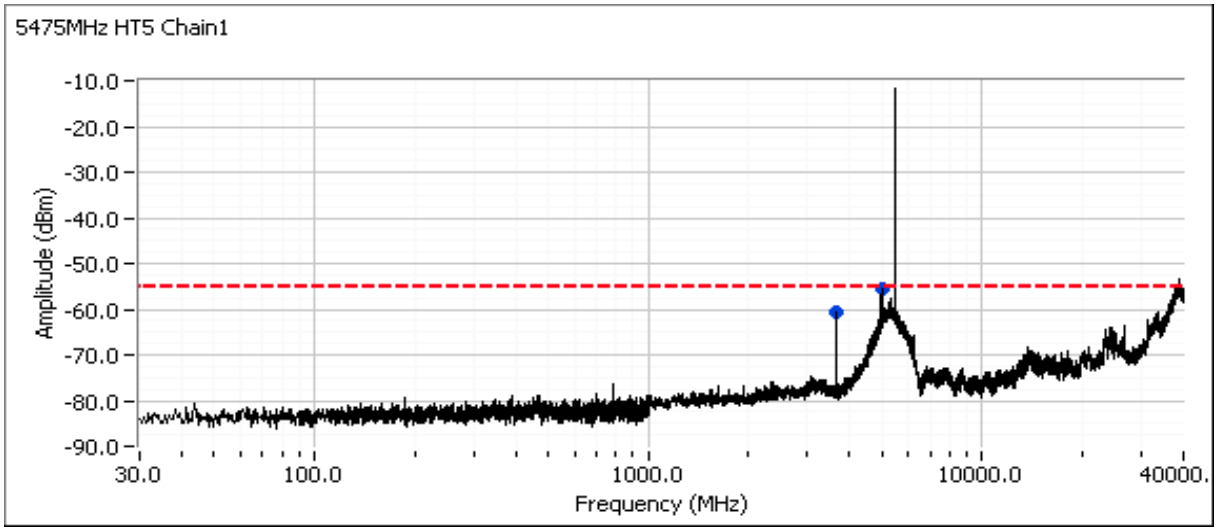
Client:	Ubiquiti Networks	Job Number:	J85880
Model:	NanoBridge M5	T-Log Number:	T85882
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A



Wide-band plot, RB=300kHz VB=100kHz (Peak measurements versus limit).



Client:	Ubiquiti Networks	Job Number:	J85880
Model:	NanoBridge M5	T-Log Number:	T85882
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A



Wide-band result RB=1MHz VB=3MHz (Peak measurements versus limit).

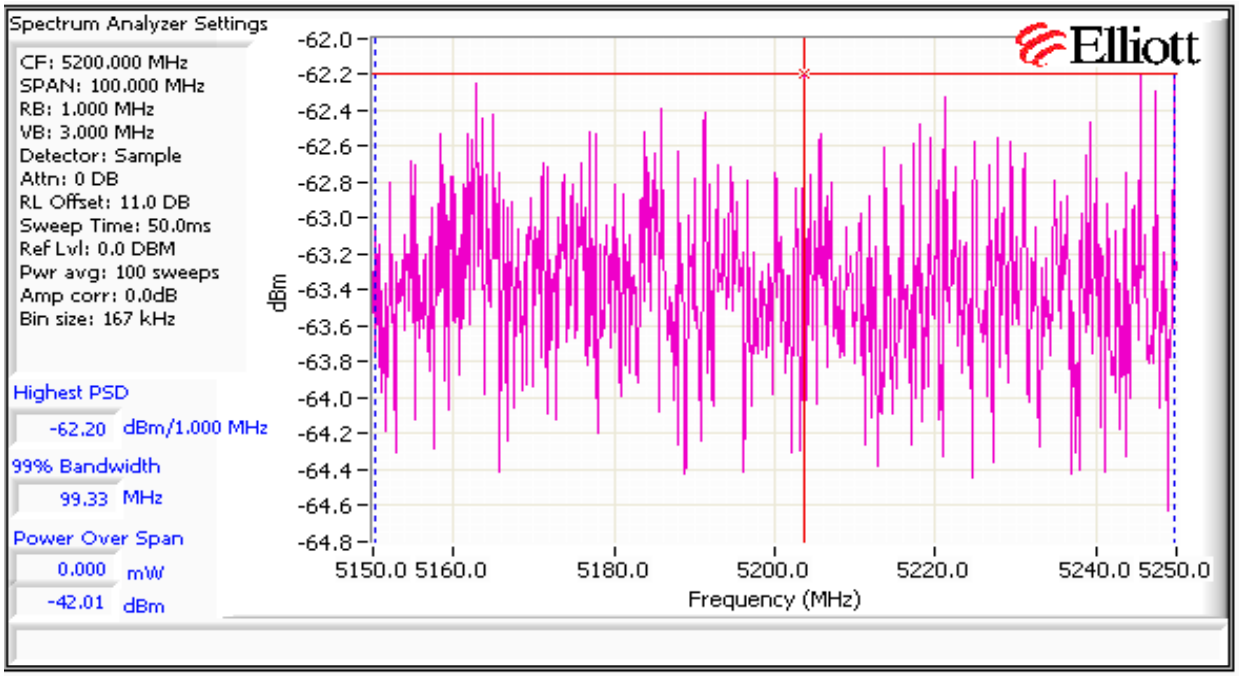
Frequency	Level	Port	FCC 15 E / RSS 210		Detector	Comment				
MHz	dBm		Limit	Margin	Pk/QP/Avg	channel	mode/Chain	Ant. gain	Setting	Note
3650.000	-62.9	RF Port	-	-	PK	5475	HT5/0	25	-1.5	Note2
5242.480	-54.8	RF Port	-55.0	0.2	PK	5475	HT5/0	25	-1.5	Note3
4987.800	-50.2	RF Port	-	-	PK	5475	HT5/1	25	-1.5	Note2
3650.070	-59.5	RF Port	-	-	PK	5475	HT5/1	25	-1.5	Note2

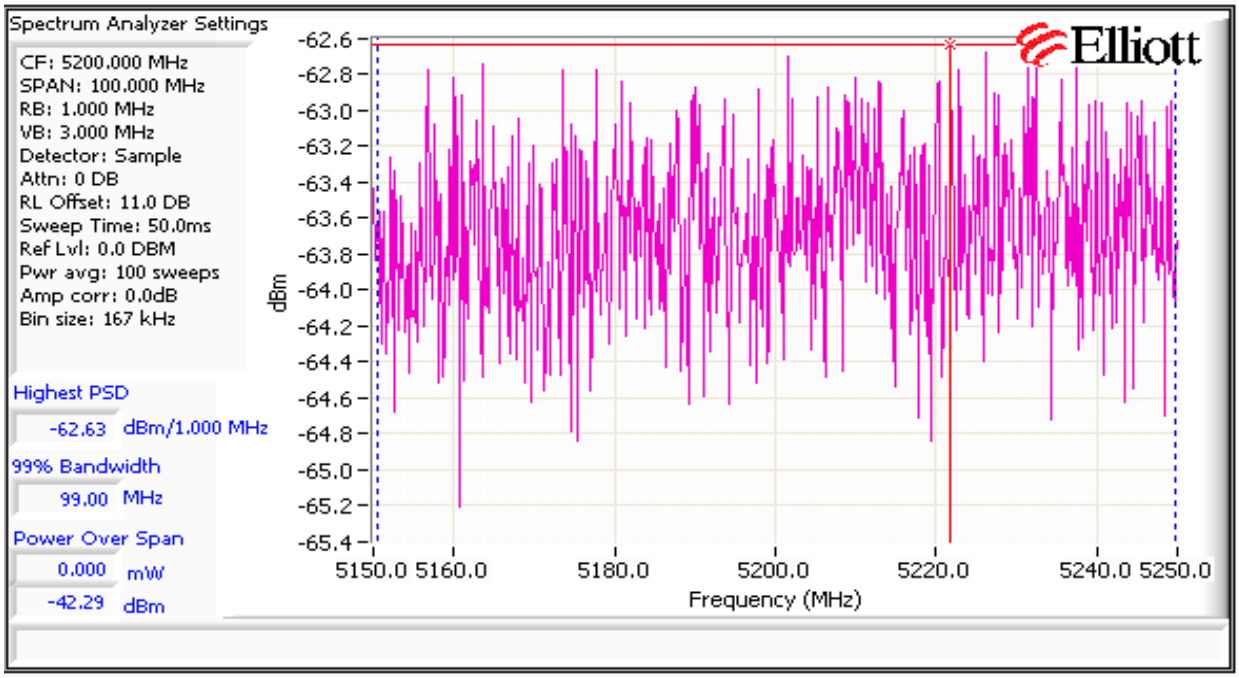
Note 1	Un-restricted signal
Note 2	Restricted band signal. Refer to the radiated spurious emissions results.
Note 3	Final measurements performed using 100sweep sample detector method. See below for final results.

5475MHz HT5
Eval 5242MHz using 100Sweep tech

	Power Setting	Band edge Level		Antenna Gain (dBi)	EIRP		Total EIRP dBm/MHz	Limit dBm/MHz	Result
		dBm/MHz	mW/MHz		mW/MHz	dBm/MHz			
Chain 1	-	-62.2	0.00000	25.0	0.0001905	-37.2	-34.4	-27	PASS
Chain 2		-62.6	0.00000	25.0	0.0001726	-37.6			

Client:	Ubiquiti Networks	Job Number:	J85880
Model:	NanoBridge M5	T-Log Number:	T85882
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A

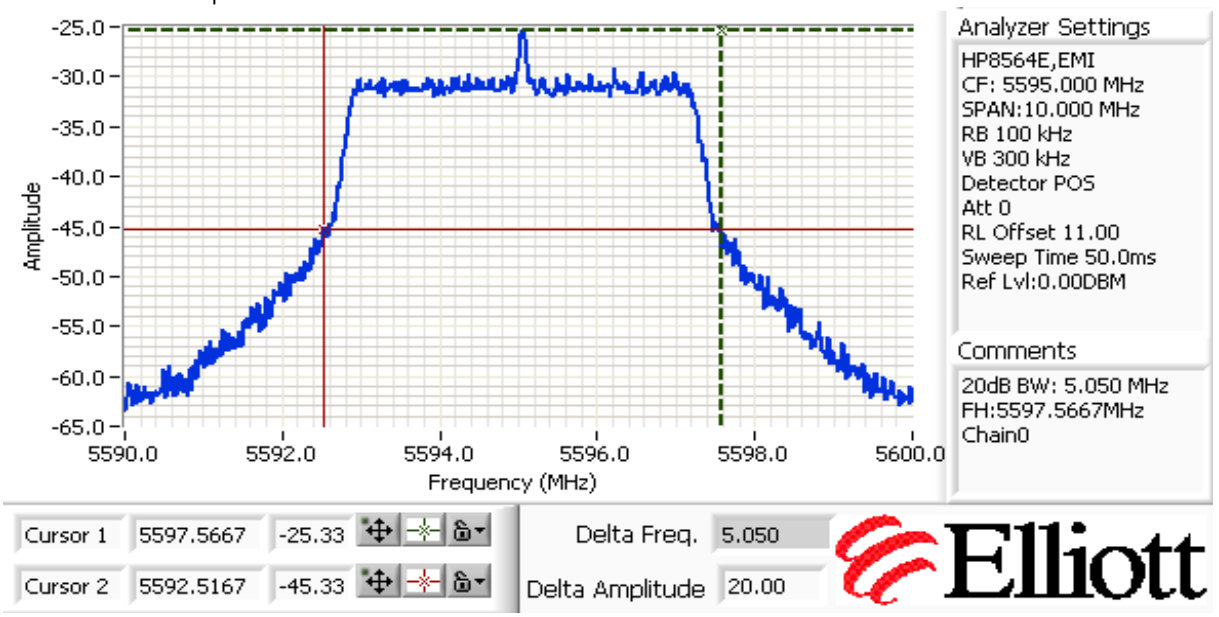


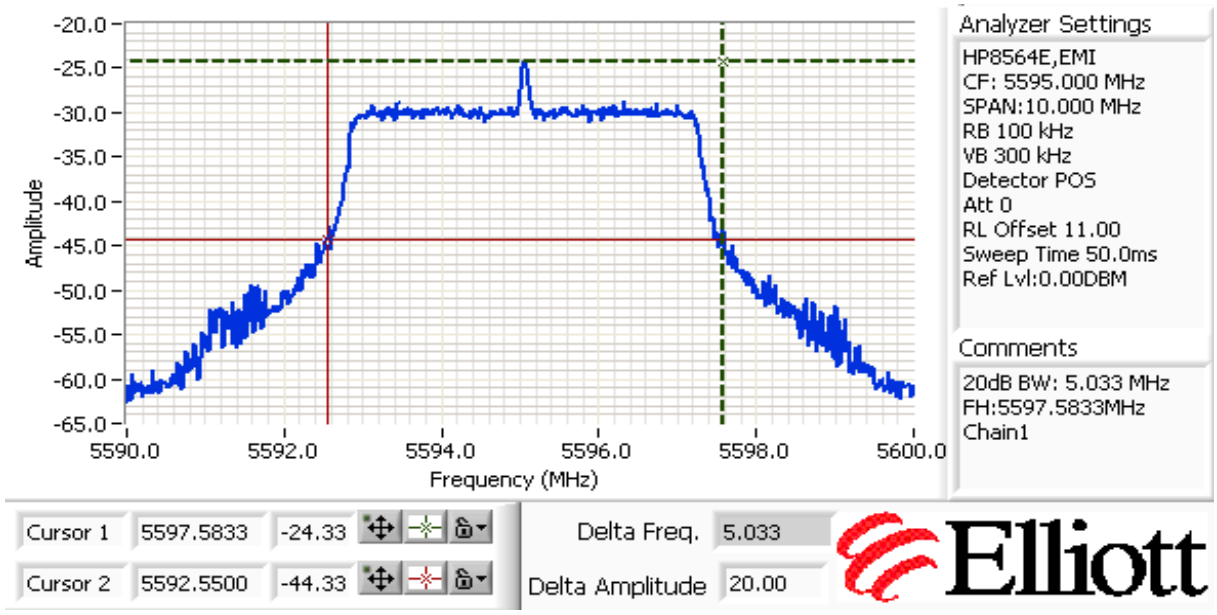


Client:	Ubiquiti Networks	Job Number:	J85880
Model:	NanoBridge M5	T-Log Number:	T85882
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A

Center channel, 5470 - 5725 MHz Band

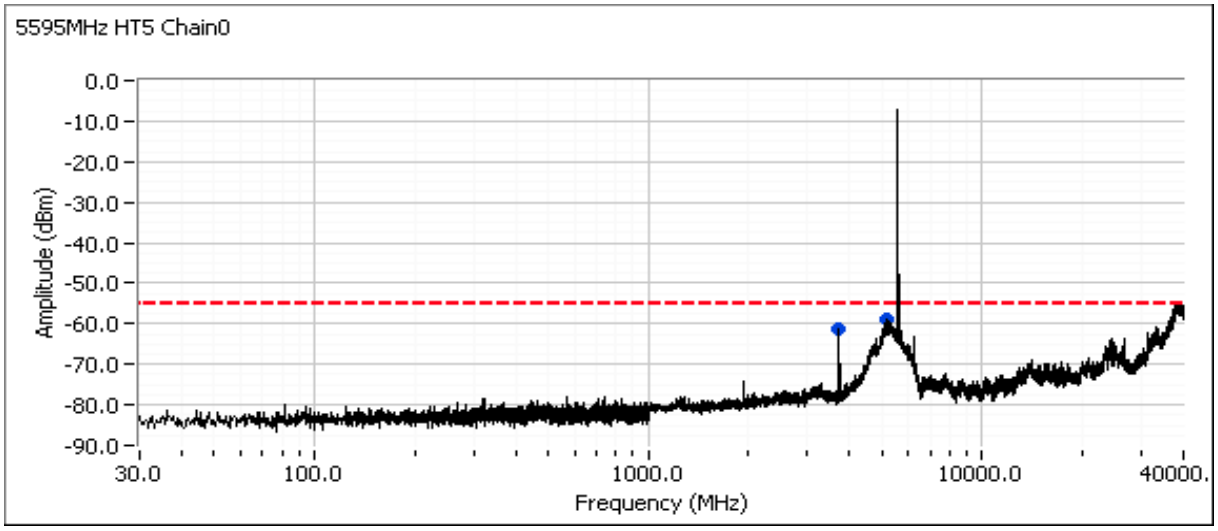
For master devices - This plot is showing hat the 20dB bandwidth of the channel closest to 5600 MHz does not spill into the 5600-5650 MHz band. RB > 1% of span.

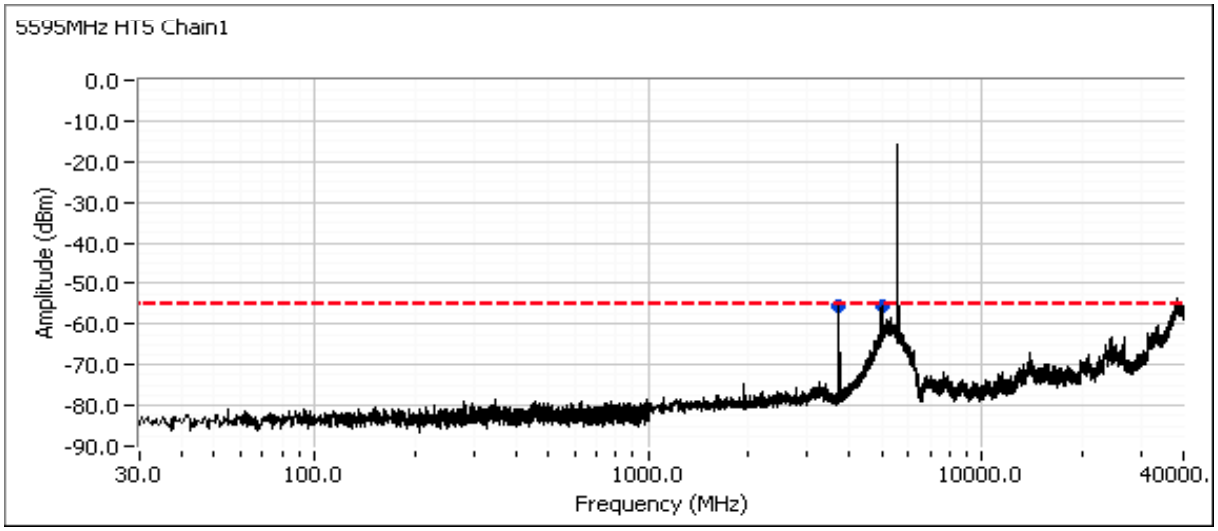




Client:	Ubiquiti Networks	Job Number:	J85880
Model:	NanoBridge M5	T-Log Number:	T85882
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A

Wide-band plot, RB=300kHz VB=100kHz (Peak measurements versus limit).





Client:	Ubiquiti Networks	Job Number:	J85880
Model:	NanoBridge M5	T-Log Number:	T85882
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A

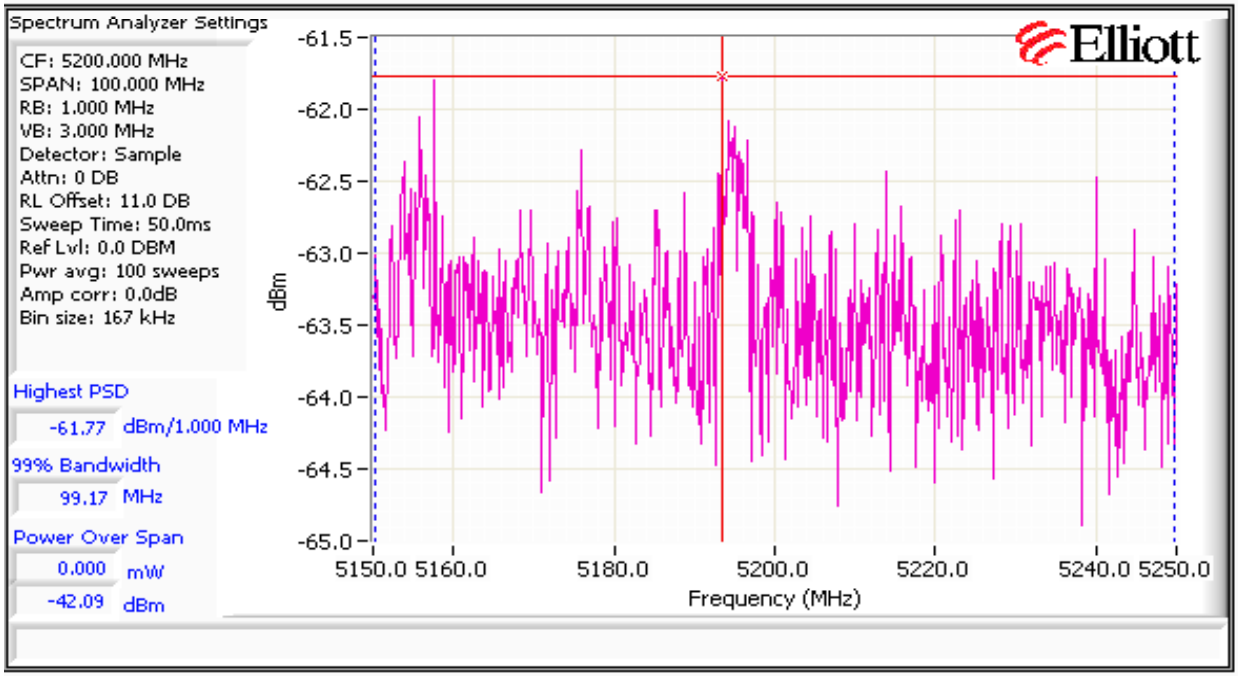
Wide-band result RB=1MHz VB=3MHz (Peak measurements versus limit).

Frequency	Level	Port	FCC 15 E / RSS 210		Detector	Comment				
MHz	dBm		Limit	Margin	Pk/QP/Avg	channel	mode/Chain	Ant. gain	Setting	Note
3730.040	-60.5	RF Port	-	-	PK	5595	HT5/0	25	-1.5	Note2
5227.130	-53.2	RF Port	-55.0	1.8	PK	5595	HT5/0	25	-1.5	Note3
3730.040	-54.7	RF Port	-	-	PK	5595	HT5/1	25	-1.5	Note2
4997.330	-49.0	RF Port	-	-	PK	5595	HT5/1	25	-1.5	Note2

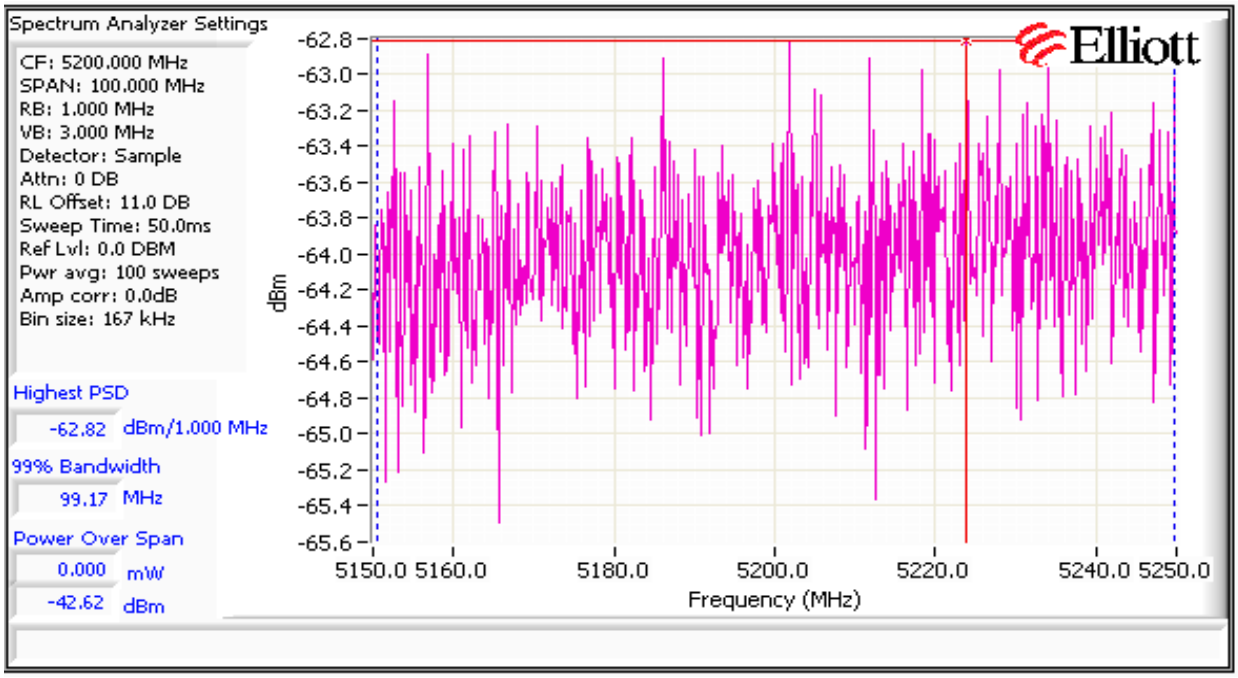
Note 1	Un-restricted signal
Note 2	Restricted band signal. Refer to the radiated spurious emissions results.
Note 3	Final measurements performed using 100sweep sample detector method. See below for final results.

5595MHz HT5
Eval 5227MHz using 100Sweep tech

	Power Setting	Band edge Level		Antenna Gain (dBi)	EIRP		Total EIRP dBm/MHz	Limit dBm/MHz	Result
		dBm/MHz	mW/MHz		mW/MHz	dBm/MHz			
Chain 1	-	-61.8	0.00000	25.0	0.0002104	-36.8	-34.3	-27	PASS
Chain 2		-62.8	0.00000	25.0	0.0001652	-37.8			



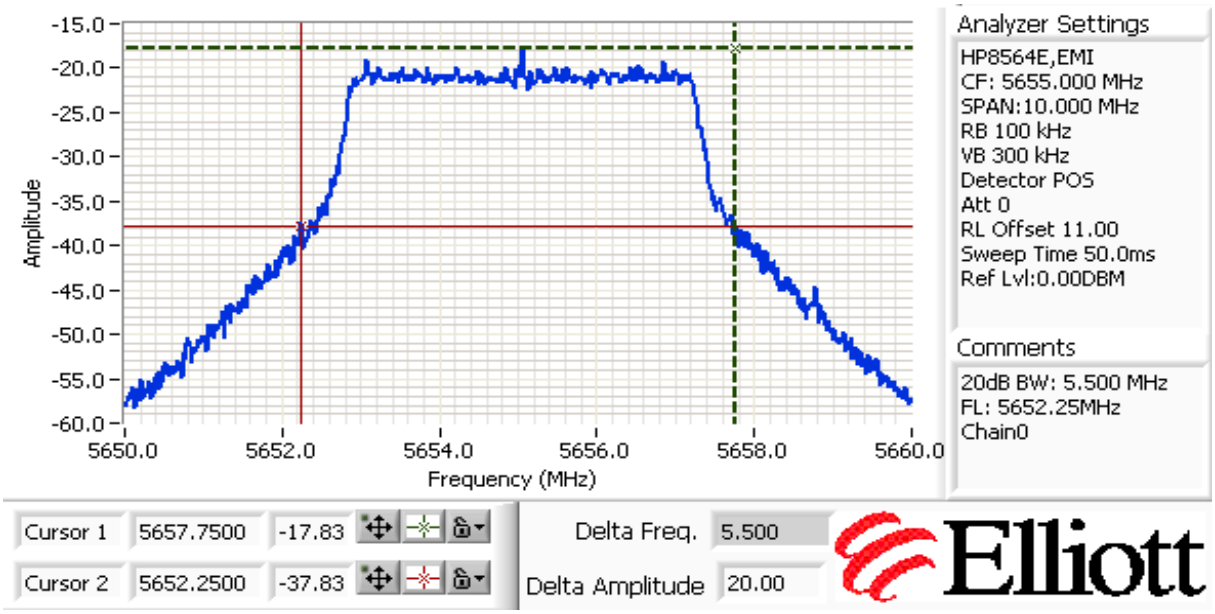
Client:	Ubiquiti Networks	Job Number:	J85880
Model:	NanoBridge M5	T-Log Number:	T85882
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A

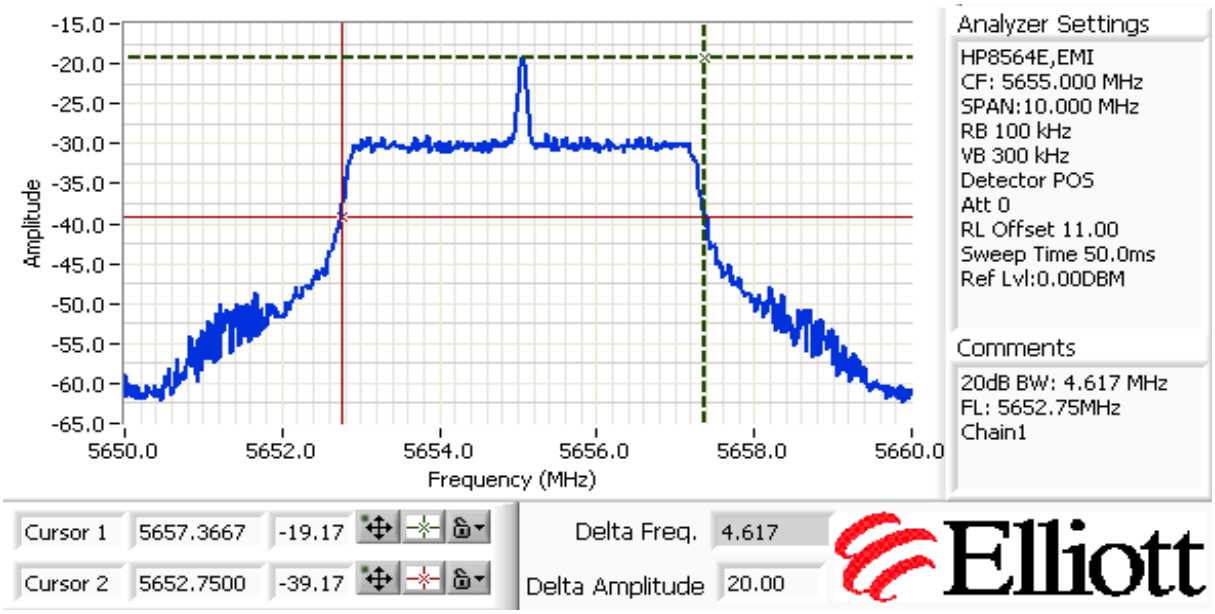


Client:	Ubiquiti Networks	Job Number:	J85880
Model:	NanoBridge M5	T-Log Number:	T85882
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A

Channel adjacent to 5650 MHz (Master Device)

Plots showing that the 20dB bandwidth of the channel closest to 5650 MHz does not spill into the 5600-5650 MHz band. RB > 1% of span.





Client:	Ubiquiti Networks	Job Number:	J85880
Model:	NanoBridge M5	T-Log Number:	T85882
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A

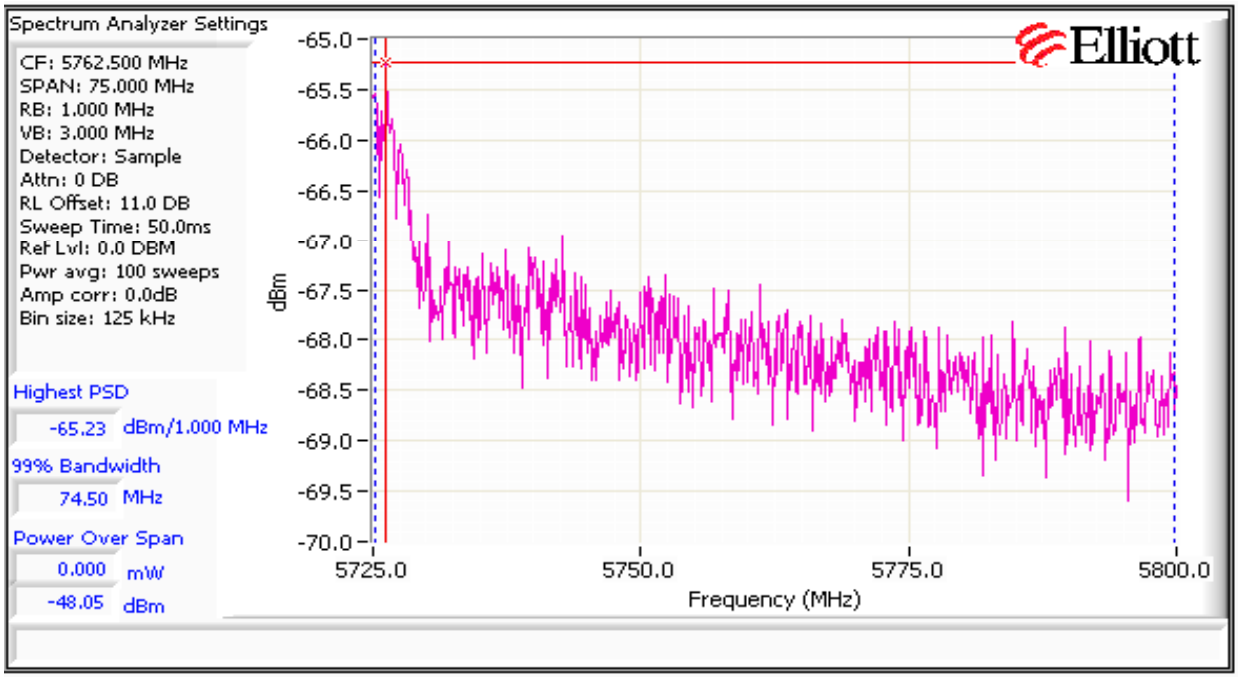
High channel, 5470 - 5725 MHz Band

Plots for each chain showing compliance with the -27dBm/MHz limit above the 5725MHz band edge. Start and stop frequencies set to 5725-5800 MHz, RB=1MHz, VB=3MHz, power averaging enabled (100 traces):

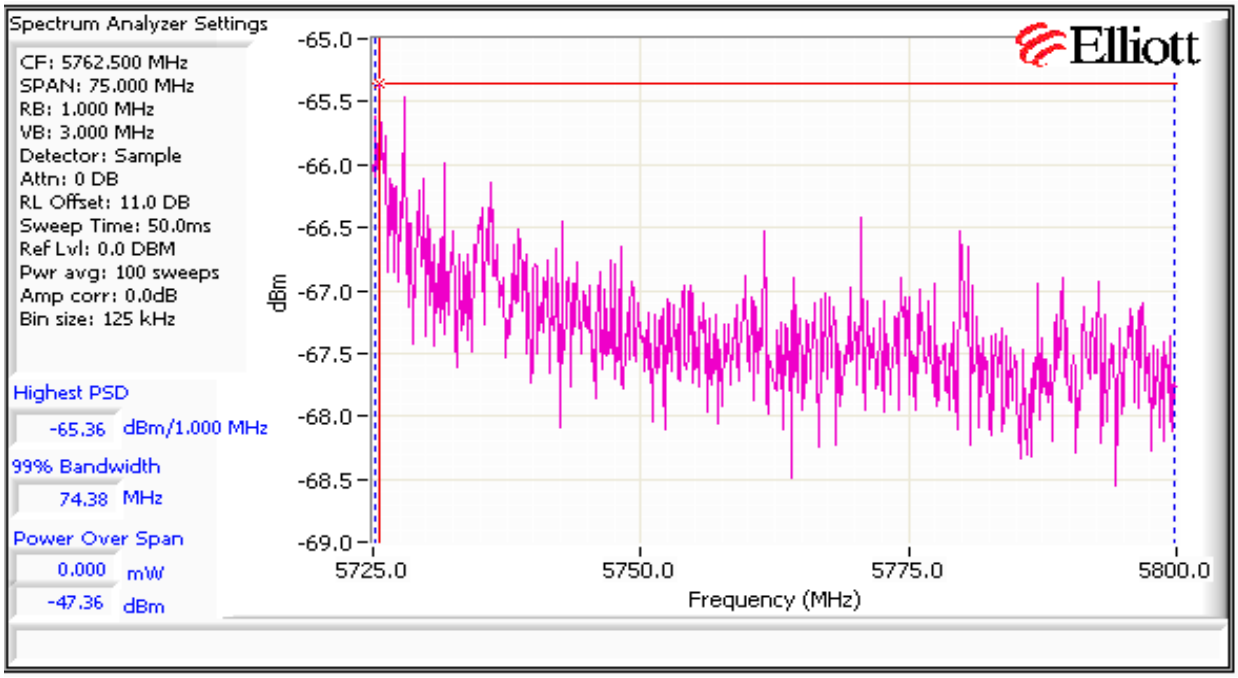
Compliance with the -27dBm/MHz limit immediately above the band. Start and stop frequencies set to 5725-5775 MHz, RB=1MHz, VB=3MHz, power averaging enabled (100 traces) [OR use power plot if it clearly shows level at/above 5725 MHz and that the level is dropping]. Plot for worst-case channel is provided below.

	Power Setting	Band edge Level dBm/MHz	Band edge Level mW/MHz	Antenna Gain (dBi)	EIRP mW/MHz	EIRP dBm/MHz	Total EIRP dBm/MHz	Limit dBm/MHz	Result
Chain 1	-	-65.2	0.00000	2.0	4.753E-07	-63.2	-60.3	-27	PASS
Chain 2		-65.4	0.00000	2.0	4.613E-07	-63.4			

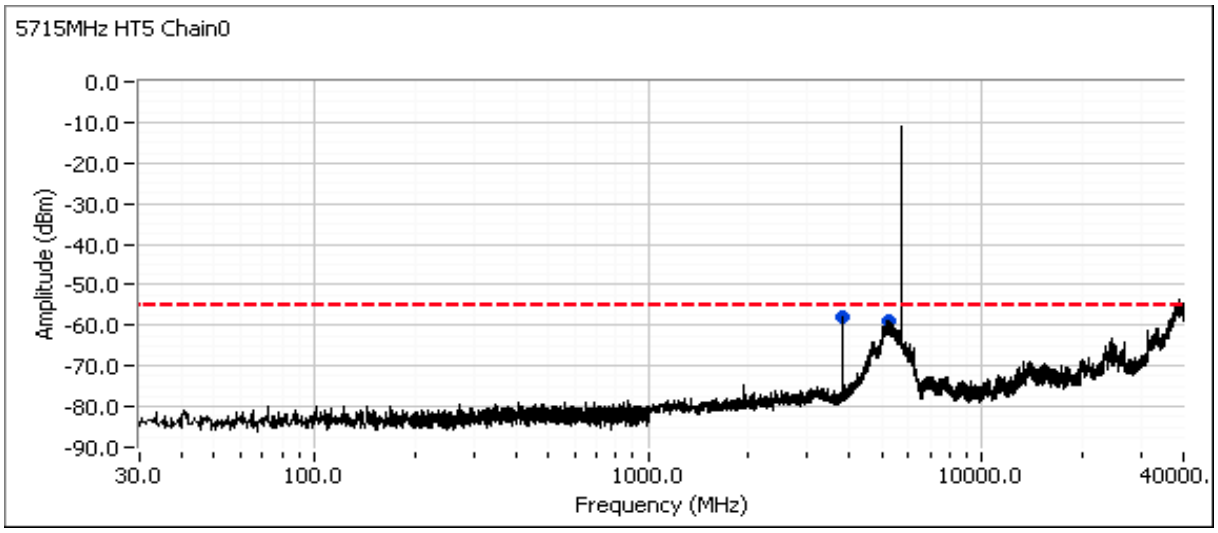
Antenna gains are not added - the spurious noise at the band edges is not considered coherent between chains.



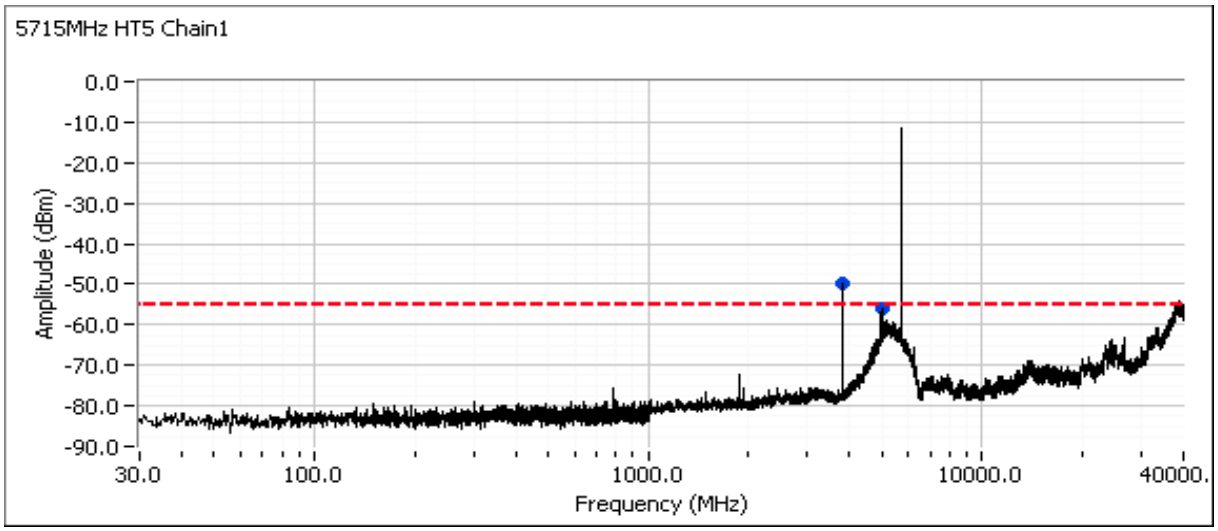
Client:	Ubiquiti Networks	Job Number:	J85880
Model:	NanoBridge M5	T-Log Number:	T85882
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A



Wide-band plot, RB=300kHz VB=100kHz (Peak measurements versus limit).



Client:	Ubiquiti Networks	Job Number:	J85880
Model:	NanoBridge M5	T-Log Number:	T85882
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A



Wide-band result RB=1MHz VB=3MHz (Peak measurements versus limit).

Frequency	Level	Port	FCC 15 E / RSS 210		Detector	Comment				
MHz	dBm		Limit	Margin	Pk/QP/Avg	channel	mode/Chain	Ant. gain	Setting	Note
3810.050	-57.0	RF Port	-	-	PK	5715	HT5/0	25	-2.5	Note2
5250.000	-54.9	RF Port	-55.0	0.1	PK	5715	HT5/0	25	-2.5	Note3
3810.140	-49.4	RF Port	-	-	PK	5715	Ht5/1	25	-2.5	Note2
4991.580	-49.3	RF Port	-	-	PK	5715	Ht5/1	25	-2.5	Note2

Note 1	Un-restricted signal
Note 2	Restricted band signal. Refer to the radiated spurious emissions results.
Note 3	Final measurements performed using 100sweep sample detector method. See below for final results.

5715MHz HT5
Eval 5250MHz using 100Sweep tech

	Power Setting	Band edge Level		Antenna Gain (dBi)	EIRP		Total EIRP dBm/MHz	Limit dBm/MHz	Result
		dBm/MHz	mW/MHz		mW/MHz	dBm/MHz			
Chain 1	-	-62.5	0.00000	25.0	0.0001774	-37.5	-34.5	-27	PASS
Chain 2		-62.6	0.00000	25.0	0.0001738	-37.6			

Client:	Ubiquiti Networks	Job Number:	J85880
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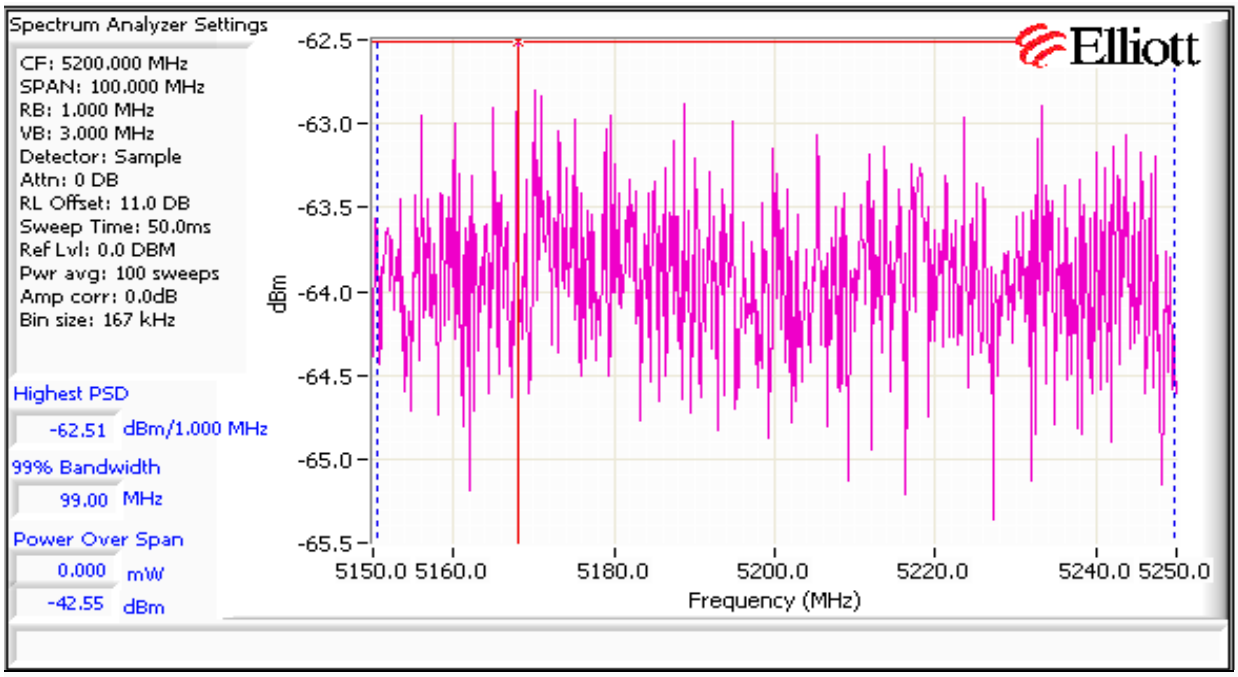
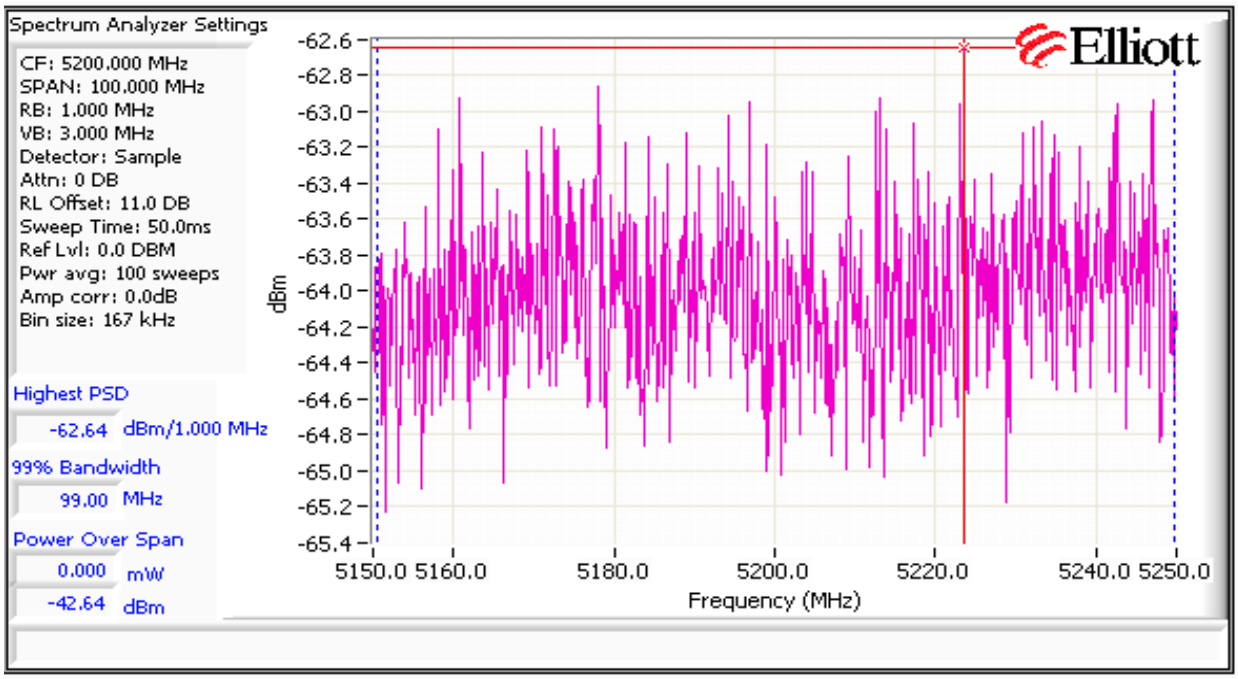
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A





Client:	Ubiquiti Networks	Job Number:	J85880
Model:	NanoBridge M5	T-Log Number:	T85882
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A

RSS-210 (LELAN) and FCC 15.407(UNII)
Antenna Port Measurements
Power, PSD, Peak Excursion, 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: 12/20/2011 22:12
Test Engineer: Rafael Varelas
Test Location: Fremont Chamber #3

Config. Used: 1
Config Change: None
EUT Voltage: POE

Summary of Results

Run #	Test Performed	Limit	Pass / Fail	Result / Margin
1	Power, 5250 - 5350MHz	15.407(a) (1), (2)	Pass	HT20: 1.4dBm
1	PSD, 5250 - 5350MHz	15.407(a) (1), (2)	Pass	HT20: -11.6dBm/MHz
1	Max EIRP 5250 - 5350MHz	TPC required if EIRP≥ 500mW (27dBm). EIRP ≥ 200mW (23dBm) DFS threshold = -64dBm	Pass	EIRP = 29.4dBm (869 mW)
1	Power, 5470 - 5725MHz	15.407(a) (1), (2)	Pass	HT20: 2dBm
1	PSD, 5470 - 5725MHz	15.407(a) (1), (2)	Pass	HT20: -11.4dBm/MHz
1	Max EIRP 5470 - 5725MHz	TPC required if EIRP≥ 500mW (27dBm). EIRP ≥ 200mW (23dBm) DFS threshold = -64dBm.	Pass	EIRP = 30dBm 994.7mW)
1	26dB Bandwidth	15.407 (Information only)	-	> 20MHz for all modes
1	99% Bandwidth	RSS 210 (Information only)	-	HT20: 18.2MHz
2	Peak Excursion Envelope	15.407(a) (6) 13dB	Pass	10.89dB
3	Antenna Conducted - Out of Band Spurious	15.407(b) -27dBm/MHz	Pass	All emissions below the -27dBm/MHz limit

Client:	Ubiquiti Networks	Job Number:	J85880
Model:	NanoBridge M5	T-Log Number:	T85882
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A

General Test Configuration

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

Ambient Conditions:

Temperature:	22.1 °C
Rel. Humidity:	35 %

Modifications Made During Testing

No modifications were made to the EUT during testing

Deviations From The Standard

No deviations were made from the requirements of the standard.

Run #1: Bandwidth, Output Power and Power Spectral Density - MIMO Systems

Note 1:	Output power measured using a spectrum analyzer (see plots below). RBW=1MHz, VB=3 MHz, # of points in sweep ≥ 2*span/RBW, sample detector, power averaging on (transmitted signal was continuous) and power integration over 50 MHz (method SA-1 of KDB 789033).
Note 2:	Measured using the same analyzer settings used for output power.
Note 3:	For RSS-210 the limit for the 5150 - 5250 MHz band accounts for the antenna gain as the maximum eirp allowed is 10dBm/MHz. The limits are also corrected for instances where the highest measured value of the PSD exceeds the average PSD (calculated from the measured power divided by the measured 99% bandwidth) by more than 3dB by the amount that the measured value exceeds the average by more than 3dB.
Note 4:	99% Bandwidth measured in accordance with RSS GEN - RB > 1% of span and VB >=3xRB
Note 5:	For MIMO systems the total output power and total PSD are calculated form the sum of the powers of the individual chains (in linear terms). The antenna gain used to determine the EIRP and limits for PSD/Output power depends on the operating mode of the MIMO device. If the signals on the non-coherent between the transmit chains then the gain used to determine the limits is the highest gain of the individual chains and the EIRP is the sum of the products of gain and power on each chain. If the signals are coherent then the effective antenna gain is the sum (in linear terms) of the gains for each chain and the EIRP is the product of the effective gain and total power.

Client:	Ubiquiti Networks	Job Number:	J85880
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MIMO Device - 5250-5350 MHz Band

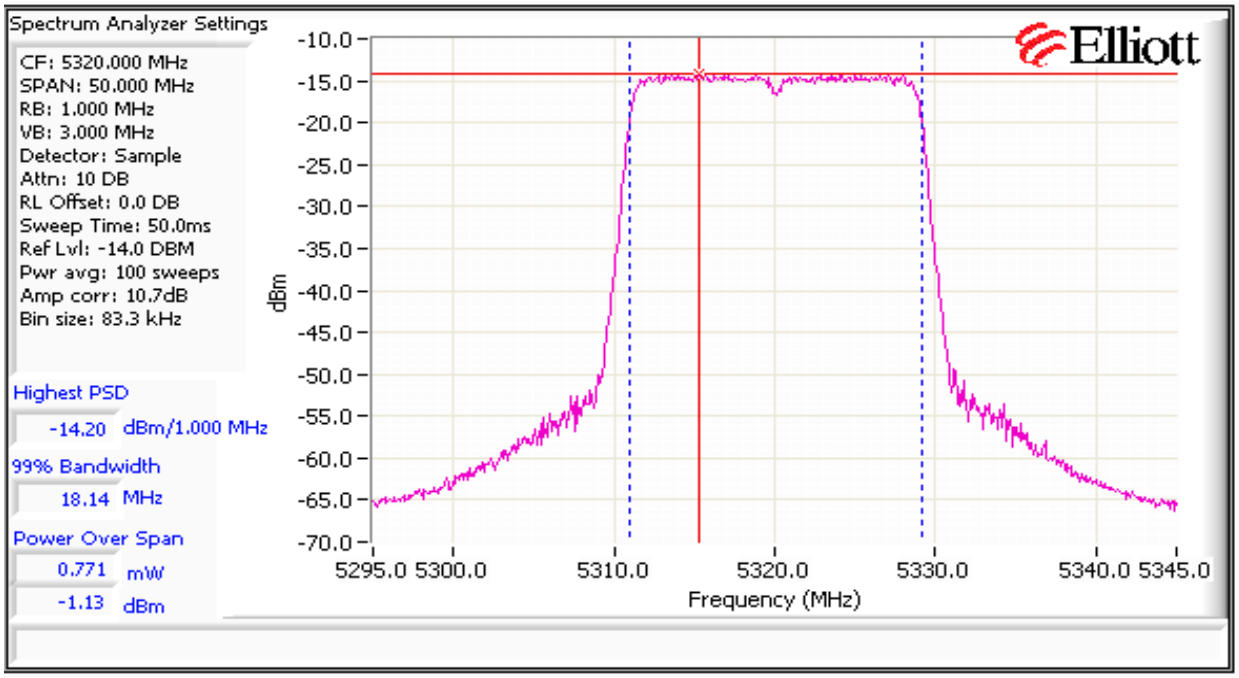
	Chain 1	Chain 2	Chain 3	Coherent	Effective[5]	EIRP (mW)	EIRP (dBm)
Antenna Gain (dBi):	25	25		Yes	28.0	868.7	29.4

Power

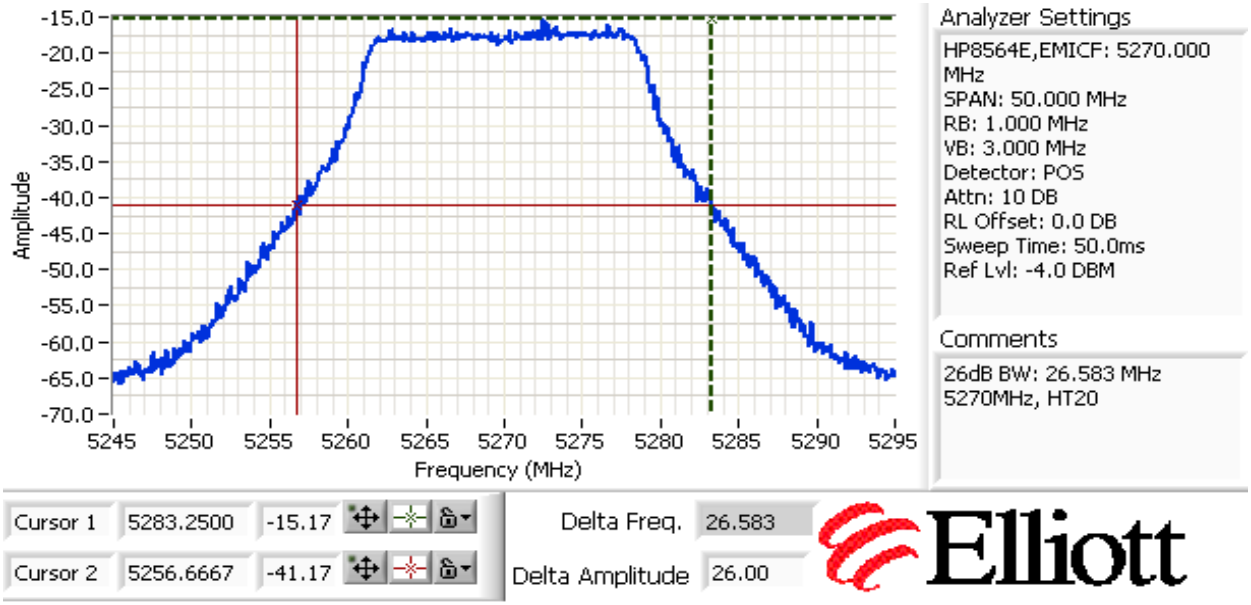
Frequency (MHz)	Software Setting	26dB BW (MHz)	Measured Output Power[1] dBm			Total		Limit (dBm)	Max Power (W)	Pass or Fail
			Chain 1	Chain 2	Chain 3	mW	dBm			
20MHz Mode										
5265	-	27.3	-4.0	-6.4		0.6	-2.0	2.0	0.001	PASS
5270	-	26.6	-1.3	-2.3		1.3	1.2	2.0		PASS
5300	-	27.5	-1.4	-2.0		1.4	1.3	2.0		PASS
5320	-	28.1	-1.1	-2.2		1.4	1.4	2.0		PASS

PSD

Frequency (MHz)	99%[4] BW	Total Power	PSD[2] dBm/MHz			Total PSD		Limit		Pass or Fail
			Chain 1	Chain 2	Chain 3	mW/MHz	dBm/MHz	FCC	RSS 210[3]	
20MHz Mode										
5265	18.2	-2.0	-16.9	-19.3		0.0	-14.9	-11.0	11.0	PASS
5270	18.1	1.2	-14.4	-15.3		0.1	-11.8	-11.0	11.0	PASS
5300	18.1	1.3	-14.5	-15.0		0.1	-11.7	-11.0	11.0	PASS
5320	18.1	1.4	-14.2	-15.2		0.1	-11.6	-11.0	11.0	PASS



Client:	Ubiquiti Networks	Job Number:	J85880
Model:	NanoBridge M5	T-Log Number:	T85882
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A



Client:	Ubiquiti Networks	Job Number:	J85880
Model:	NanoBridge M5	T-Log Number:	T85882
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A

MIMO Device - 5470-5725 MHz Band

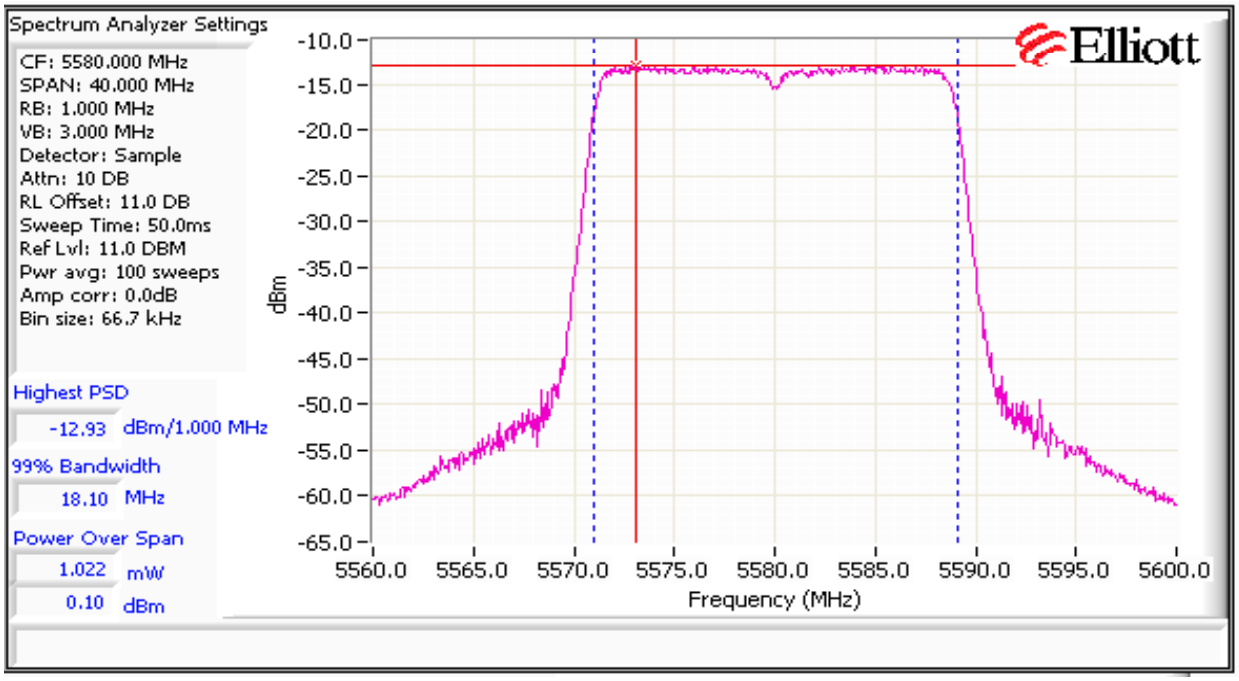
	Chain 1	Chain 2	Chain 3	Coherent	Effective[5]	EIRP (mW)	EIRP (dBm)
Antenna Gain (dBi):	25	25		Yes	28.0	994.7	30.0

Power

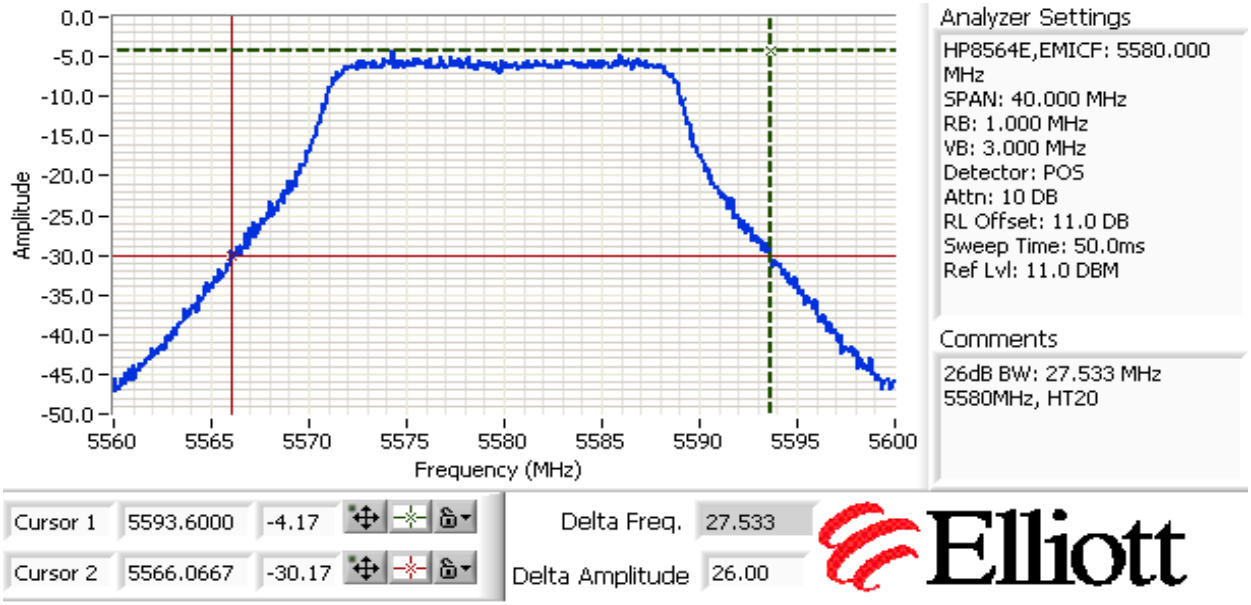
Frequency (MHz)	Software Setting	26dB BW (MHz)	Measured Output Power[1] dBm			Total		Limit (dBm)	Max Power (W)	Pass or Fail
			Chain 1	Chain 2	Chain 3	mW	dBm			
20MHz Mode										
5500	-	27.5	-0.9	-1.8		1.5	1.7	2.0	0.002	PASS
5580	-	27.5	0.1	-2.6		1.6	2.0	2.0		PASS
5700	-	27.7	-0.7	-2.1		1.5	1.7	2.0		PASS

PSD

Frequency (MHz)	99%[4] BW	Total Power	PSD[2] dBm/MHz			Total PSD		Limit		Pass or Fail
			Chain 1	Chain 2	Chain 3	mW/MHz	dBm/MHz	FCC	RSS 210[3]	
20MHz Mode										
5500	18.2	1.7	-13.8	-14.7		0.1	-11.2	-11.0	11.0	PASS
5580	18.2	2.0	-12.9	-15.7		0.1	-11.1	-11.0	11.0	PASS
5700	18.2	1.7	-13.7	-15.2		0.1	-11.4	-11.0	11.0	PASS



Client:	Ubiquiti Networks	Job Number:	J85880
Model:	NanoBridge M5	T-Log Number:	T85882
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A



Client:	Ubiquiti Networks	Job Number:	J85880
Model:	NanoBridge M5	T-Log Number:	T85882
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A

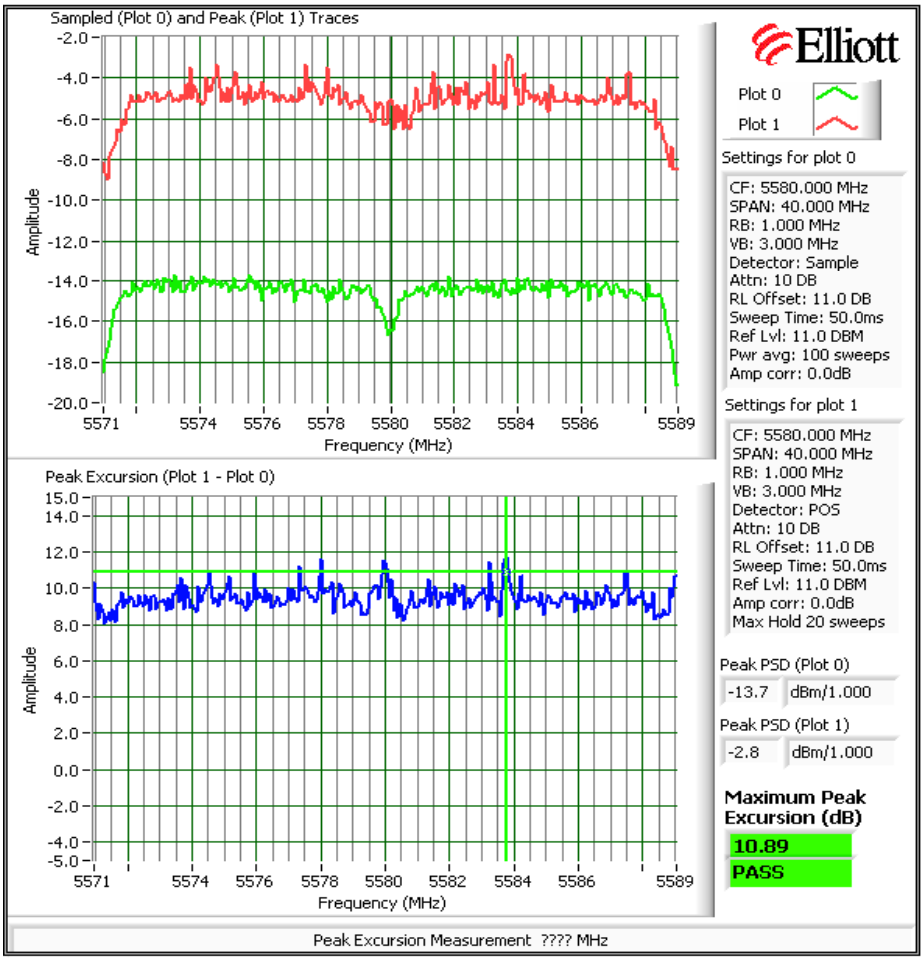
Run #2: Peak Excursion Measurement

Freq	Peak Excursion(dB)		Freq	Peak Excursion(dB)		Freq	Peak Excursion(dB)	
(MHz)	Value	Limit	(MHz)	Value	Limit	(MHz)	Value	Limit
5180		13.0	5265		13.0	5500	10.14/10.05	13.0
5200		13.0	5300	10.03/10.30	13.0	5580	10.89/10.18	13.0
5240		13.0	5320	10.03/9.72	13.0	5700	10.56/9.84	13.0

Plots Showing Peak Excursion

Trace A: RBW = 1MHz, VBW = 3MHz, Peak hold

Trace B: Same settings as used for power/PSD measurements (RBW = 1 MHz, VBW = 3MHz, Integrated average power)



Client:	Ubiquiti Networks	Job Number:	J85880
Model:	NanoBridge M5	T-Log Number:	T85882
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A

Run #3: Out Of Band Spurious Emissions - Antenna Conducted

MIMO Devices: Antenna gain used is the effective gain calculated in the power section of this data sheet. The plots were obtained for each chain individually and the limit was adjusted to account for all chains transmitting simultaneously

Number of transmit chains:	2	
Maximum Antenna Gain:	25.0	dBi
Spurious Limit:	-27.0	dBm/MHz eirp
Adjustment for 2 chains:	-3.0	dB adjustment for multiple chains.
Limit Used On Plots [Note 1]:	-55.0	dBm/MHz Peak Limit (RB=VB=1MHz)

Note 1:	The -27dBm/MHz limit is an eirp limit. The limit for antenna port conducted measurements is adjusted to take into consideration the maximum antenna gain (limit = -27dBm - antenna gain). Radiated field strength measurements for signals more than 50MHz from the bands and that are close to the limit are made to determine compliance as the antenna gain is not known at these frequencies.
Note 2:	All spurious signals below 1GHz are measured during digital device radiated emissions test.
Note 3:	Signals within 10MHz of the 5.725 or 5.825 Band edge are subject to a limit of -17dBm EIRP
Note 4:	If the device is for outdoor use then the -27dBm eirp limit also applies in the 5150 - 5250 MHz band.
Note 5:	Signals that fall in the restricted bands of 15.205 are subject to the limit of 15.209.

Plots Showing Out-Of-Band Emissions (RBW=VBW=1MHz)

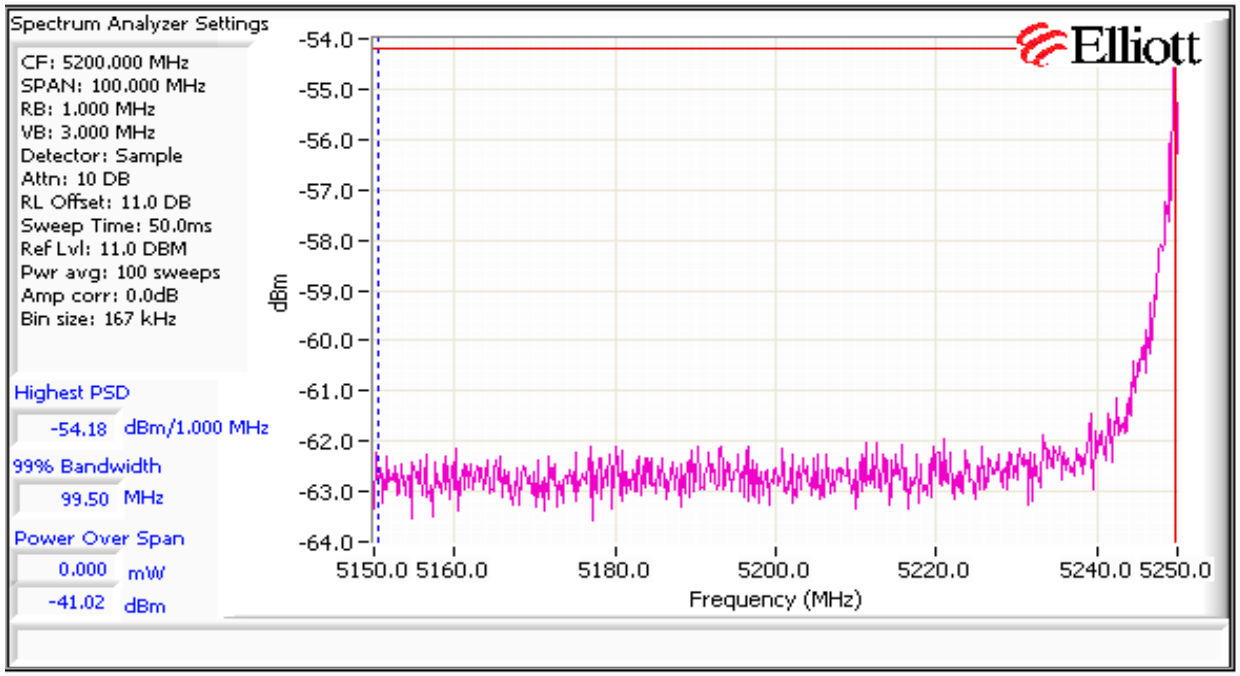
Low channel, 5250 - 5350 MHz Band - 20MHz

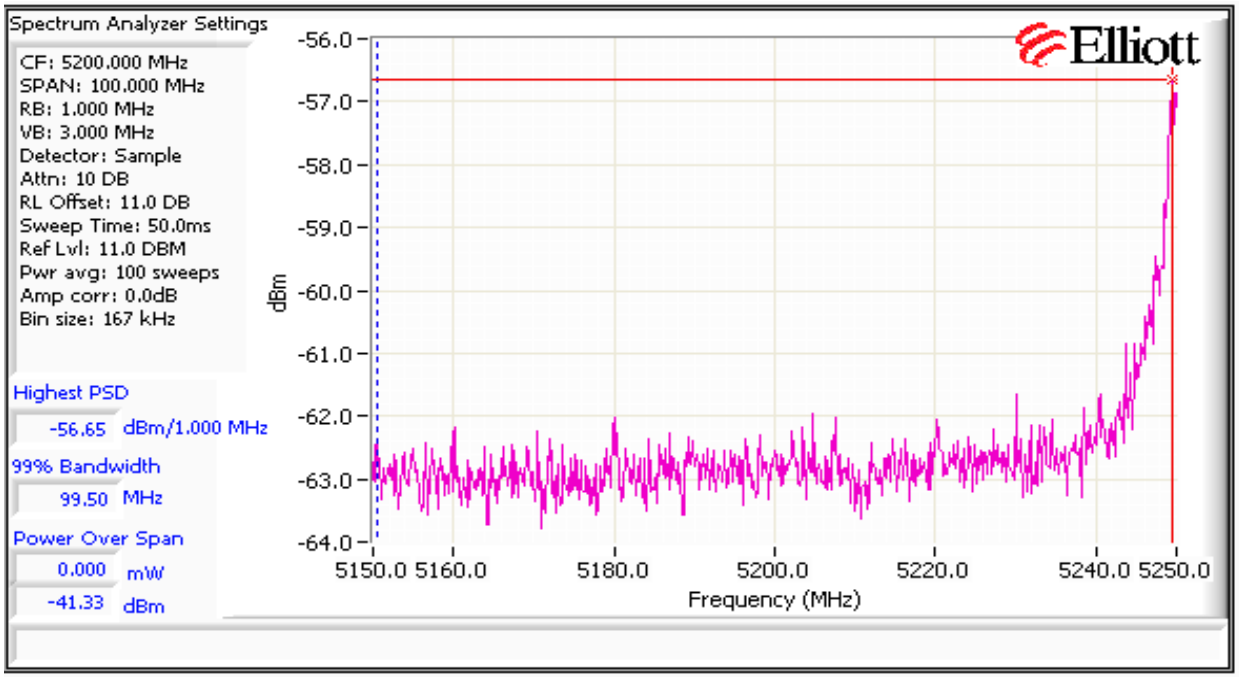
Plots for each chain showing compliance with the -27dBm/MHz limit in the 5150 - 5250 MHz band. Start and stop frequencies set to 5150-5250 MHz, RB=1MHz, VB=3MHz, power averaging enabled (100 traces):

Channel frequency: 5270 MHz - 25dBi antenna

	Power Setting	Band edge Level		Antenna Gain (dBi)	EIRP		Total EIRP dBm/MHz	Limit dBm/MHz	Result
		dBm/MHz	mW/MHz		mW/MHz	dBm/MHz			
Chain 1	-	-54.2	0.00000	25.0	0.0012078	-29.2	-27.2	-27	PASS
Chain 2		-56.7	0.00000	25.0	0.0006839	-31.7			

Client:	Ubiquiti Networks	Job Number:	J85880
Model:	NanoBridge M5	T-Log Number:	T85882
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A



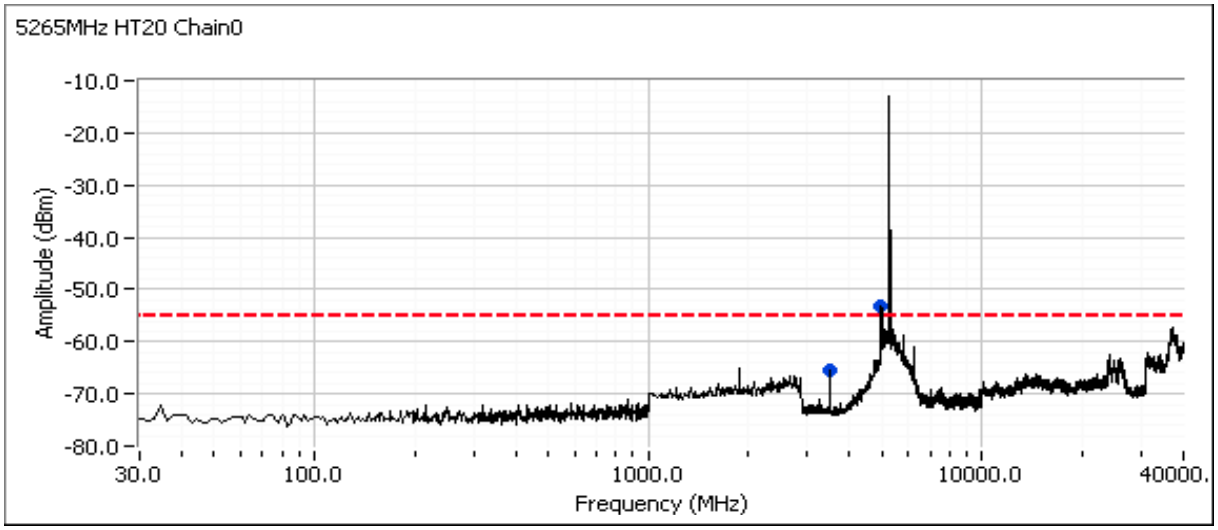


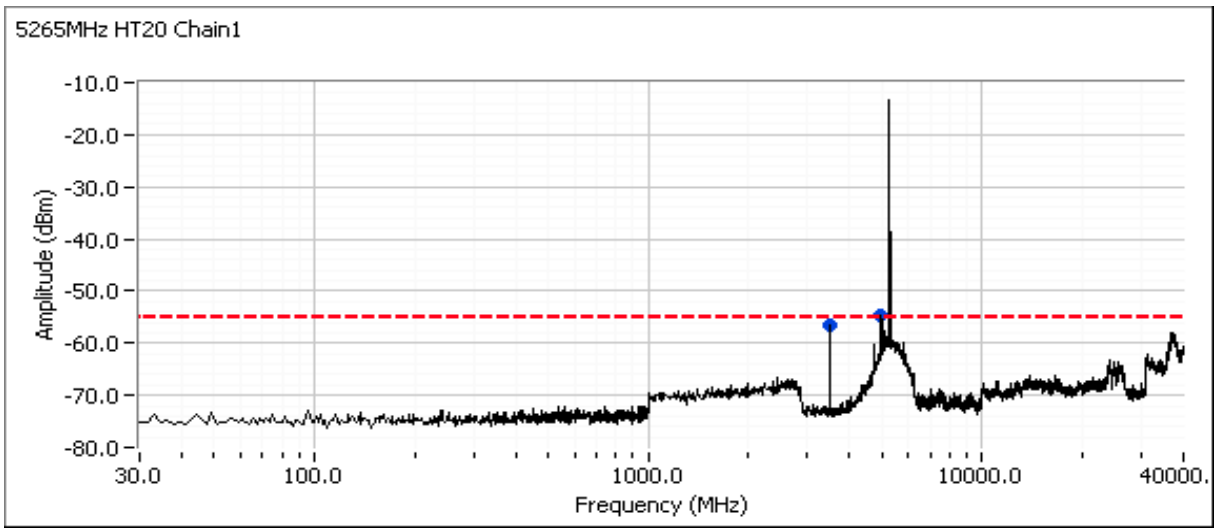
Client:	Ubiquiti Networks	Job Number:	J85880
Model:	NanoBridge M5	T-Log Number:	T85882
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A

Wide-band plot, RB=300kHz VB=100kHz (Peak measurements versus limit).

Date of Test: 1/9/2012 Test Location: FT Chamber#3

Test Engineer: Jack Liu Config Change: none





Client:	Ubiquiti Networks	Job Number:	J85880
Model:	NanoBridge M5	T-Log Number:	T85882
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A

Wide-band result RB=1MHz VB=3MHz (Peak measurements versus limit).

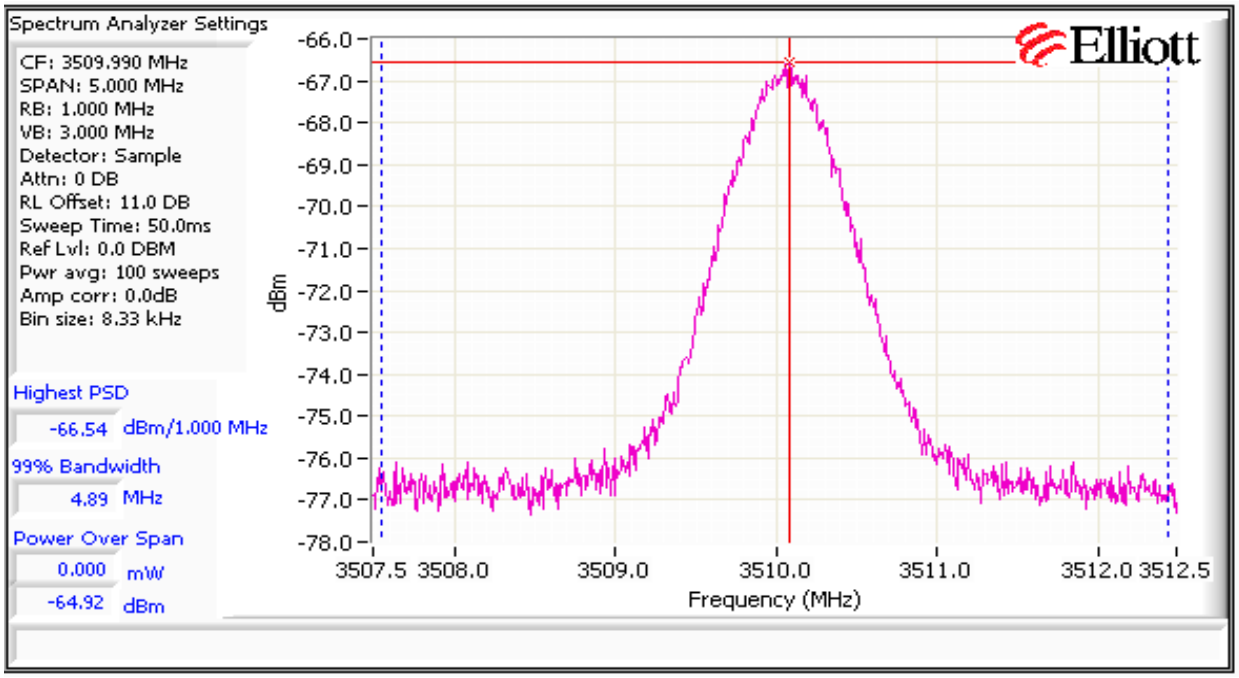
Frequency	Level	Port	FCC 15 E / RSS 210		Detector	Comment				
MHz	dBm		Limit	Margin	Pk/QP/Avg	channel	mode/Chain	Ant. gain	Setting	Note
3510.120	-63.3	RF Port	-55.0	-8.3	PK	5265MHz	HT/0	25	0.0	Note1
4988.260	-45.7	RF Port	-	-	PK	5265MHz	HT/0	25	0.0	Note2
3509.990	-52.6	RF Port	-55.0	2.4	PK	5265MHz	HT20/1	25	0.0	Note3
4974.460	-46.5	RF Port	-	-	PK	5265MHz	HT20/1	25	0.0	Note2

Note 1	Un-restricted signal
Note 2	Restricted band signal. Refer to the radiated spurious emissions results.
Note 3	Final measurements performed using 100sweep sample detector method. See below for final results.

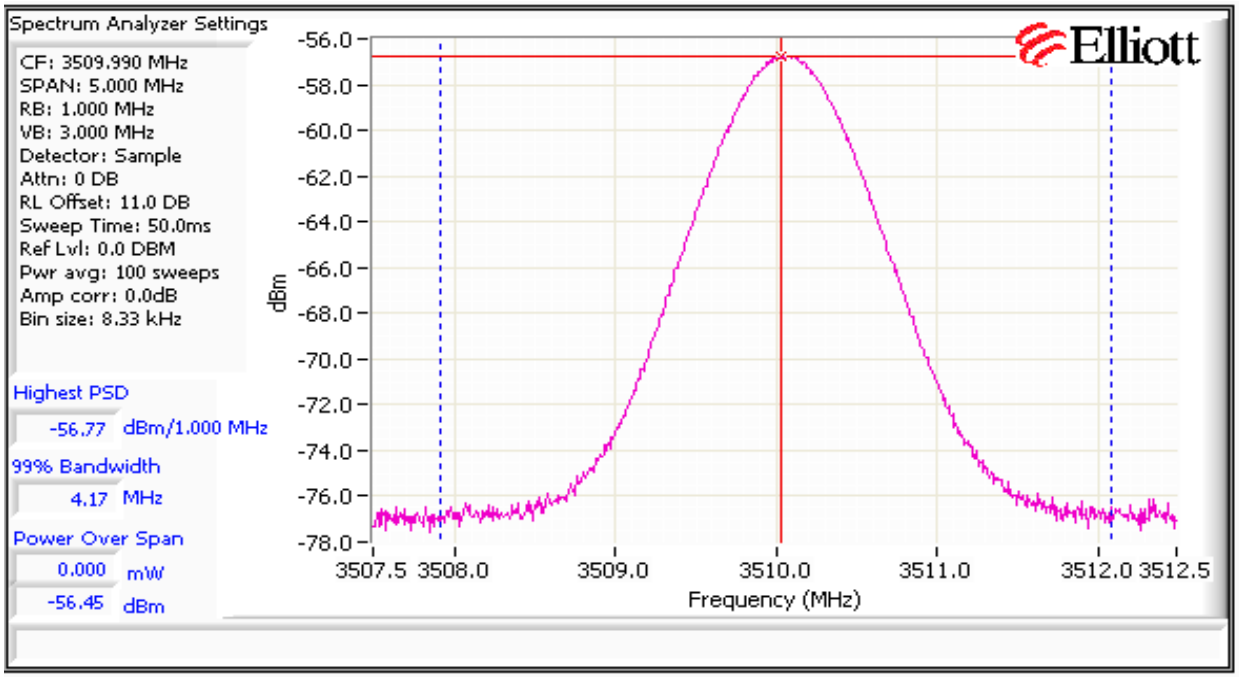
5265MHz HT20
Eval 3509MHz using 100Sweep tech

	Power Setting	Band edge Level		Antenna Gain (dBi)	EIRP		Total EIRP dBm/MHz	Limit dBm/MHz	Result
		dBm/MHz	mW/MHz		mW/MHz	dBm/MHz			
Chain 1	-	-66.5	0.00000	25.0	7.015E-05	-41.5	-31.3	-27	PASS
Chain 2		-56.8	0.00000	25.0	0.0006653	-31.8			

Antenna gains are not added - the spurious noise is not considered coherent between chains.



Client:	Ubiquiti Networks	Job Number:	J85880
Model:	NanoBridge M5	T-Log Number:	T85882
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A



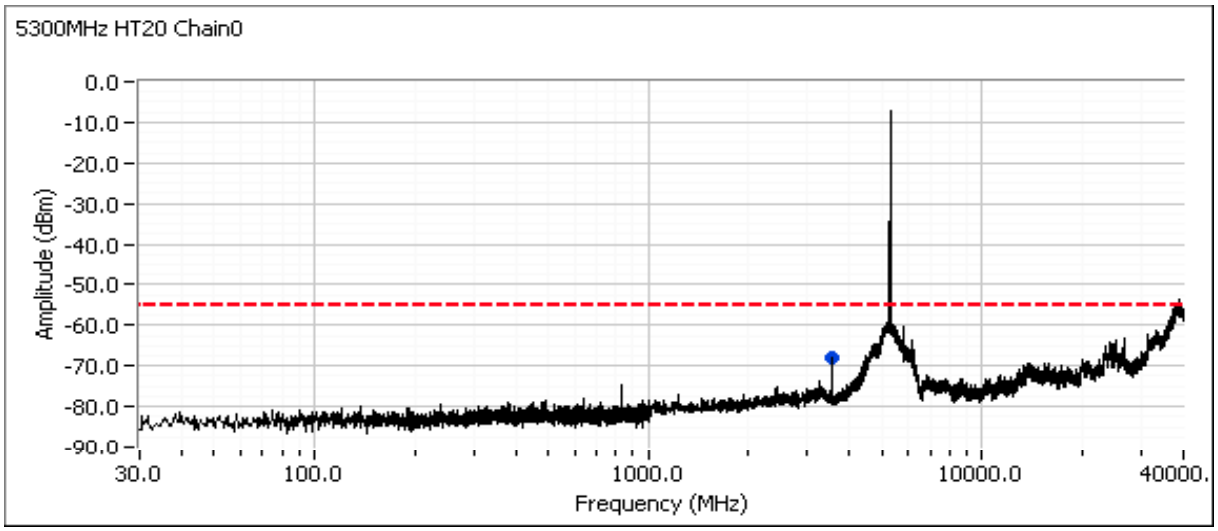
Client:	Ubiquiti Networks	Job Number:	J85880
Model:	NanoBridge M5	T-Log Number:	T85882
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A

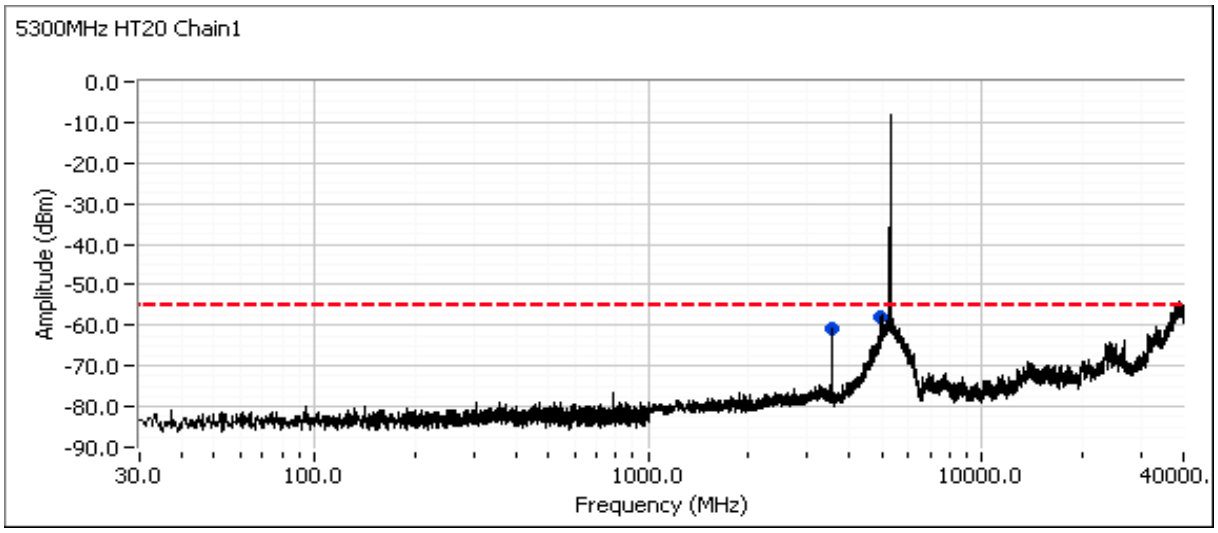
Center channel, 5250 - 5350 MHz Band

Date of Test: 12/22/2011 Test Location: FT Lab#4

Test Engineer: Jack Liu Config Change: none

Wide-band plot, RB=300kHz VB=100kHz (Peak measurements versus limit).





Client:	Ubiquiti Networks	Job Number:	J85880
Model:	NanoBridge M5	T-Log Number:	T85882
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A

Wide-band result RB=1MHz VB=3MHz (Peak measurements versus limit).

Frequency	Level	Port	FCC 15 E / RSS 210		Detector	Comment				
MHz	dBm		Limit	Margin	Pk/QP/Avg	channel	mode/Chain	Ant. gain	Setting	Note
3533.590	-65.2	RF Port	-55.0	-10.2	PK	5300	HT20/1	25	2.0	Note 1
3533.460	-59.6	RF Port	-55.0	-4.6	PK	5300	HT20/1	25	2.0	Note 1
4987.150	-48.5	RF Port	-	-	PK	5300	HT20/1	25	2.0	Note 2

Note 1	Un-restricted signal
Note 2	Restricted band signal. Refer to the radiated spurious emissions results.

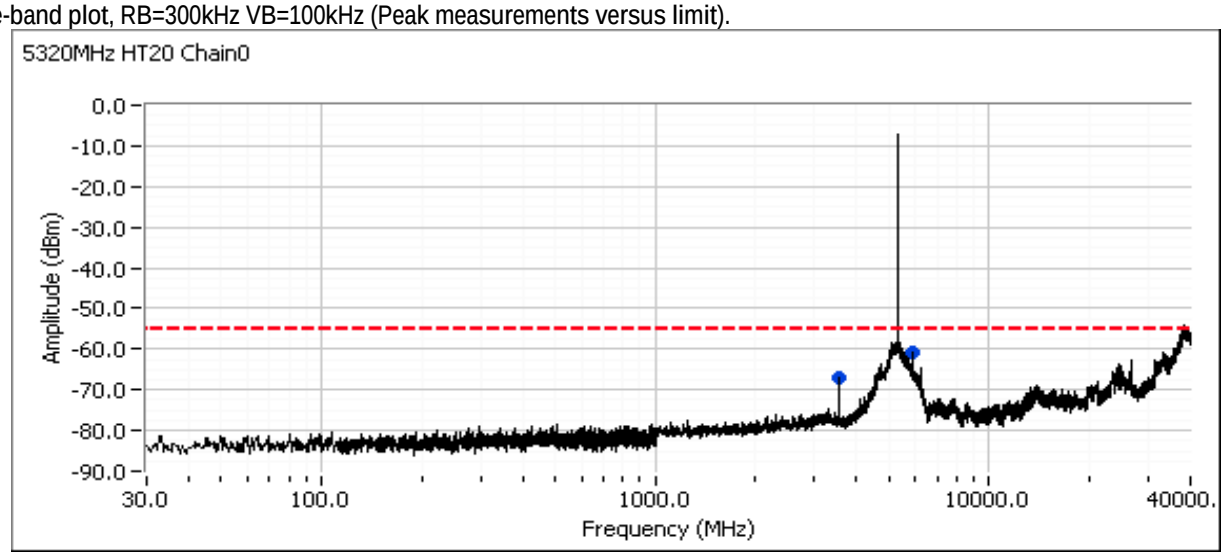
High channel, 5250 - 5350 MHz Band

Note - compliance with the radiated limits for the restricted band immediately above 5350MHz is demonstrated through the radiated emissions tests.

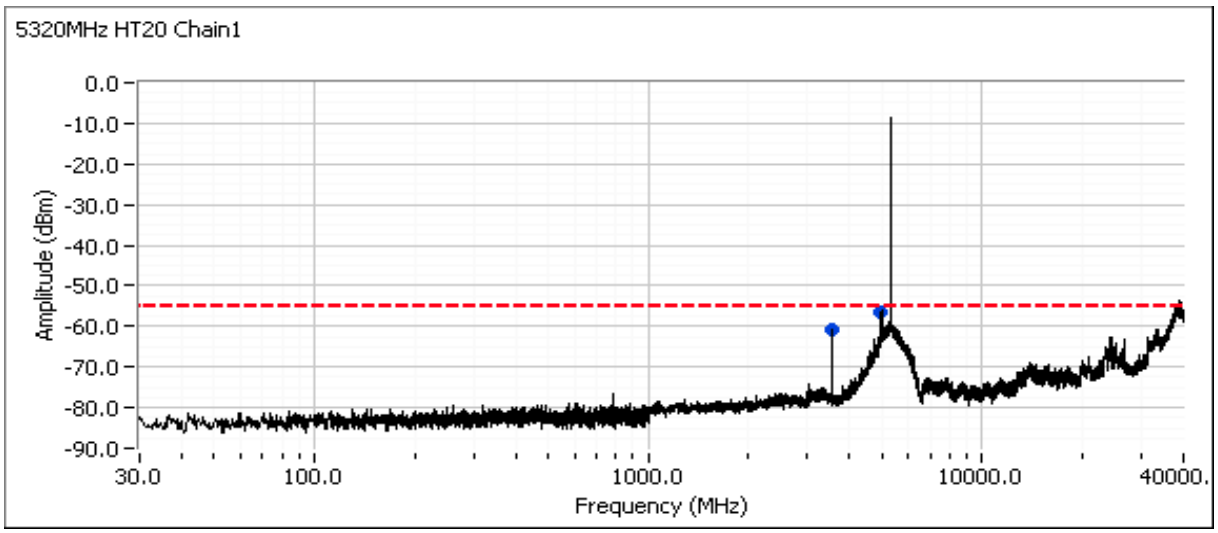
Date of Test: 12/22/2011 Test Location: FT Lab#4

Test Engineer: Jack Liu Config Change: none

Wide-band plot, RB=300kHz VB=100kHz (Peak measurements versus limit).



Client:	Ubiquiti Networks	Job Number:	J85880
Model:	NanoBridge M5	T-Log Number:	T85882
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A



Wide-band result RB=1MHz VB=3MHz (Peak measurements versus limit).

Frequency	Level	Port	FCC 15 E / RSS 210		Detector	Comment				
MHz	dBm		Limit	Margin	Pk/QP/Avg	channel	mode/Chain	Ant. gain	Setting	Note
3546.560	-64.5	RF Port	-55.0	-9.5	PK	5320	HT20/0	25	2.0	Note 1
5861.410	-56.1	RF Port	-55.0	-1.1	PK	5320	HT20/0	25	2.0	Note 1
3546.690	-59.6	RF Port	-55.0	-4.6	PK	5320	HT20/1	25	2.0	Note 1
4989.440	-49.2	RF Port	-	-	PK	5320	HT20/1	25	2.0	Note 2

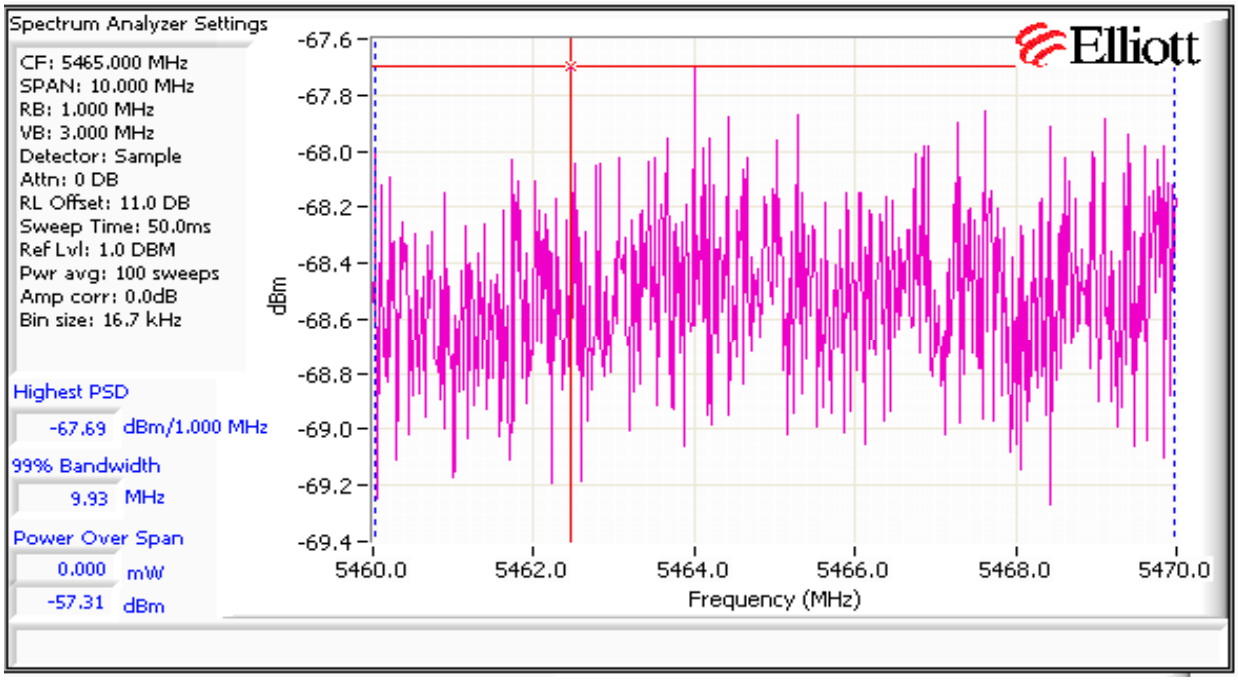
Note 1	Un-restricted signal
Note 2	Restricted band signal. Refer to the radiated spurious emissions results.

Client:	Ubiquiti Networks	Job Number:	J85880
Model:	NanoBridge M5	T-Log Number:	T85882
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A

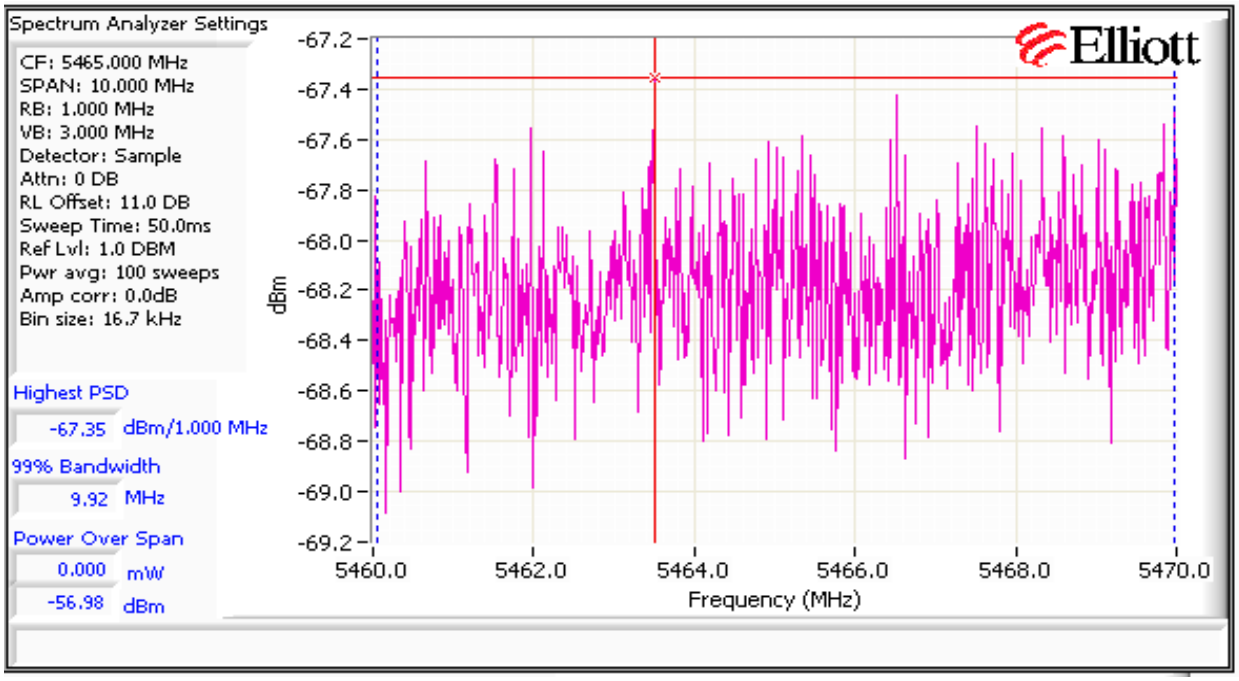
Low channel, 5470 - 5725 MHz Band

Compliance with the -27dBm/MHz limit in the 5460 - 5470 MHz band immediately below the allocated band. Start and stop frequencies set to 5460-5470 MHz, RB=1MHz, VB=3MHz, power averaging enabled (100 traces).

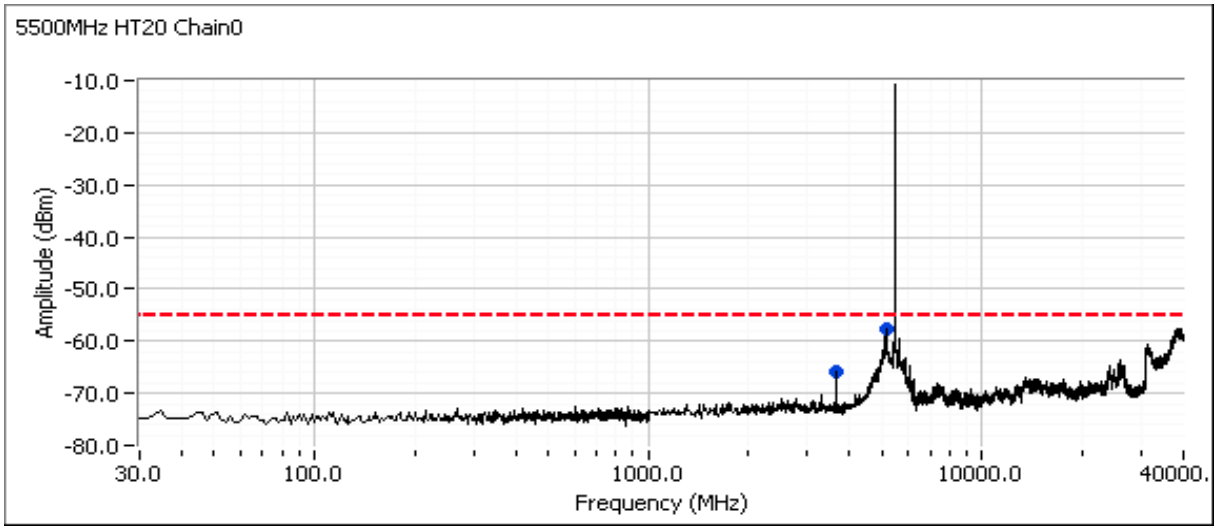
	Power Setting	Band edge Level dBm/MHz	Band edge Level mW/MHz	Antenna Gain (dBi)	EIRP mW/MHz	EIRP dBm/MHz	Total EIRP dBm/MHz	Limit dBm/MHz	Result
Chain 1	-	-67.7	0.00000	25.0	5.383E-05	-42.7	-39.5	-27	PASS
Chain 2		-67.4	0.00000	25.0	5.821E-05	-42.4			



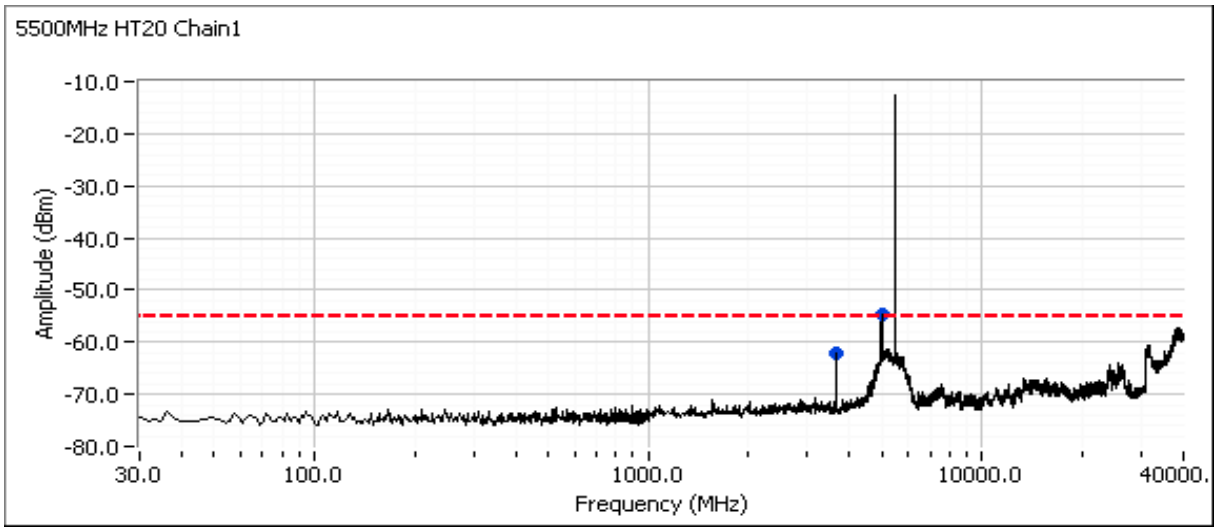
Client:	Ubiquiti Networks	Job Number:	J85880
Model:	NanoBridge M5	T-Log Number:	T85882
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A



Wide-band plot, RB=300kHz VB=100kHz (Peak measurements versus limit).



Client:	Ubiquiti Networks	Job Number:	J85880
Model:	NanoBridge M5	T-Log Number:	T85882
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A



Wide-band result RB=1MHz VB=3MHz (Peak measurements versus limit).

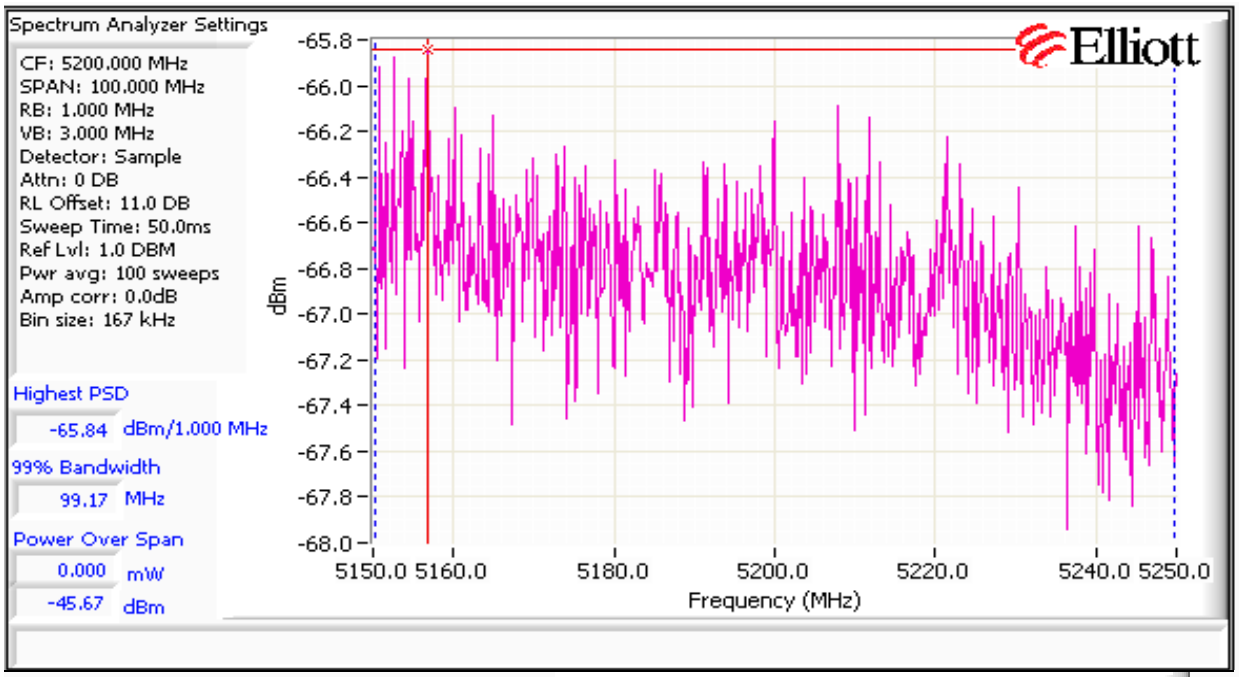
Frequency	Level	Port	FCC 15 E / RSS 210		Detector	Comment				
MHz	dBm		Limit	Margin	Pk/QP/Avg	channel	mode/Chain	Ant. gain	Setting	Note
5173.200	-51.2	RF Port	-55.0	3.8	PK	5500MHz	HT20/0	25	0.5	Note 3
3666.850	-63.4	RF Port	-	-	PK	5500MHz	HT20/0	25	0.5	Note 2
4987.600	-48.6	RF Port	-	-	PK	5500MHz	HT20/1	25	0.5	Note 2
3666.710	-60.5	RF Port	-	-	PK	5500MHz	HT20/1	25	0.5	Note 2

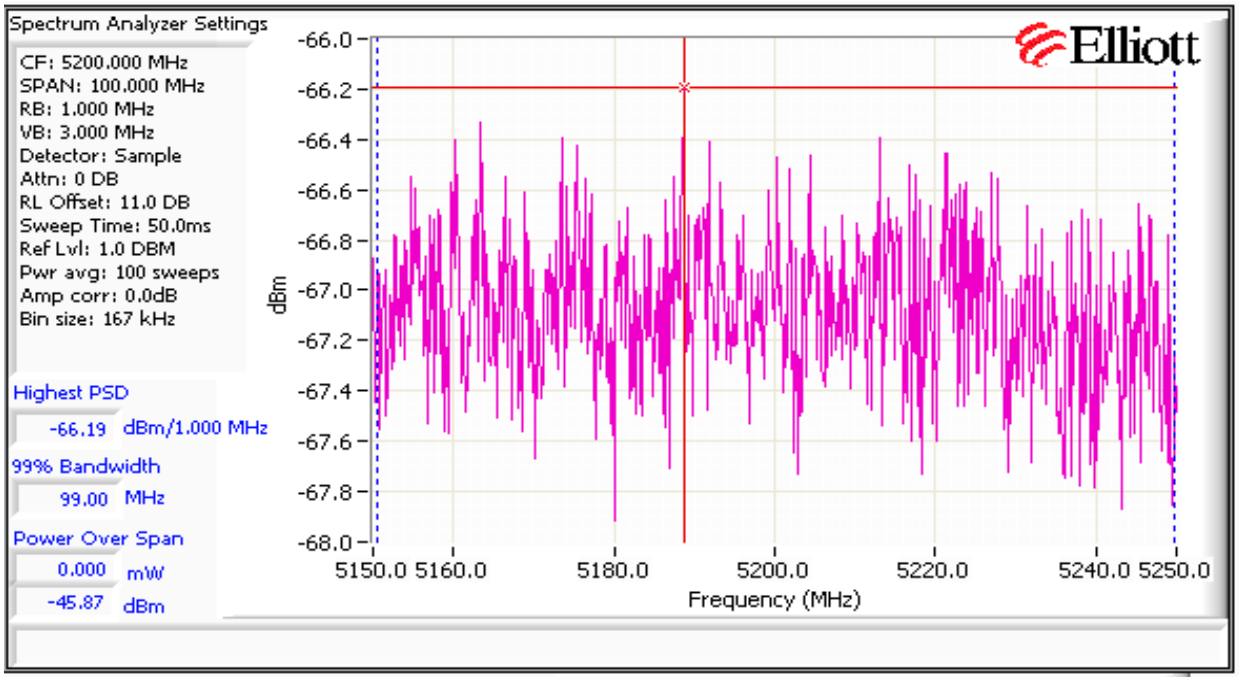
Note 1	Un-restricted signal
Note 2	Restricted band signal. Refer to the radiated spurious emissions results.
Note 3	Final measurements performed using 100sweep sample detector method. See below for final results.

5500MHz HT20
Eval 5173MHz using 100Sweep tech

	Power Setting	Band edge Level		Antenna Gain (dBi)	EIRP		Total EIRP dBm/MHz	Limit dBm/MHz	Result
		dBm/MHz	mW/MHz		mW/MHz	dBm/MHz			
Chain 1	-	-65.8	0.00000	25.0	8.241E-05	-40.8	-38.0	-27	PASS
Chain 2		-66.2	0.00000	25.0	7.603E-05	-41.2			

Client:	Ubiquiti Networks	Job Number:	J85880
Model:	NanoBridge M5	T-Log Number:	T85882
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A

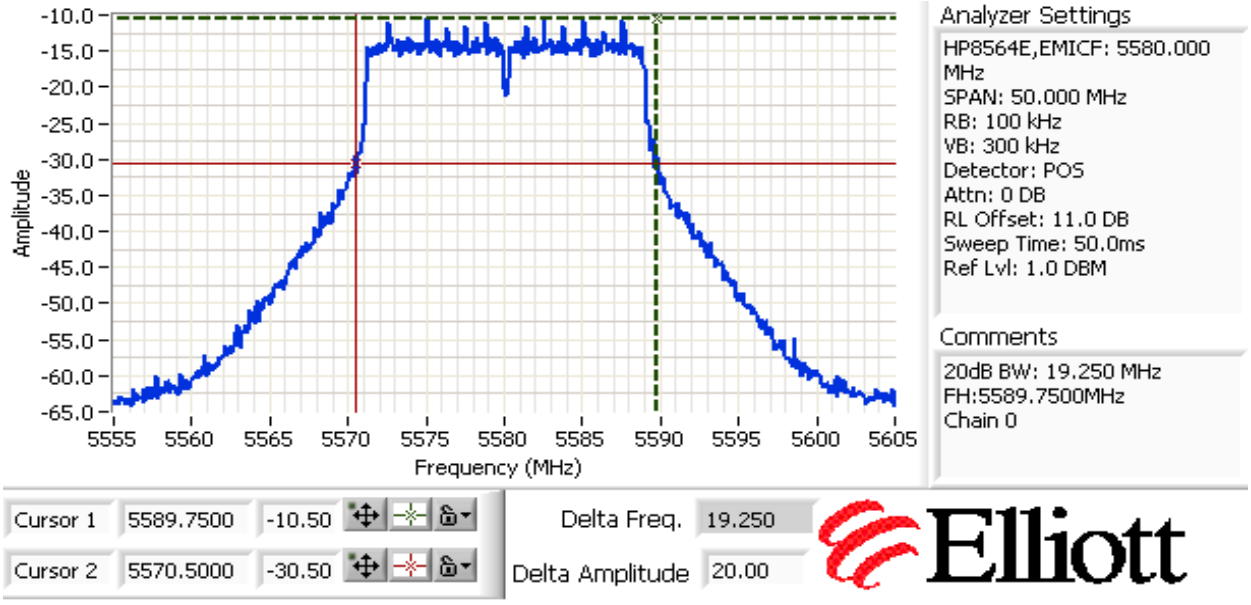


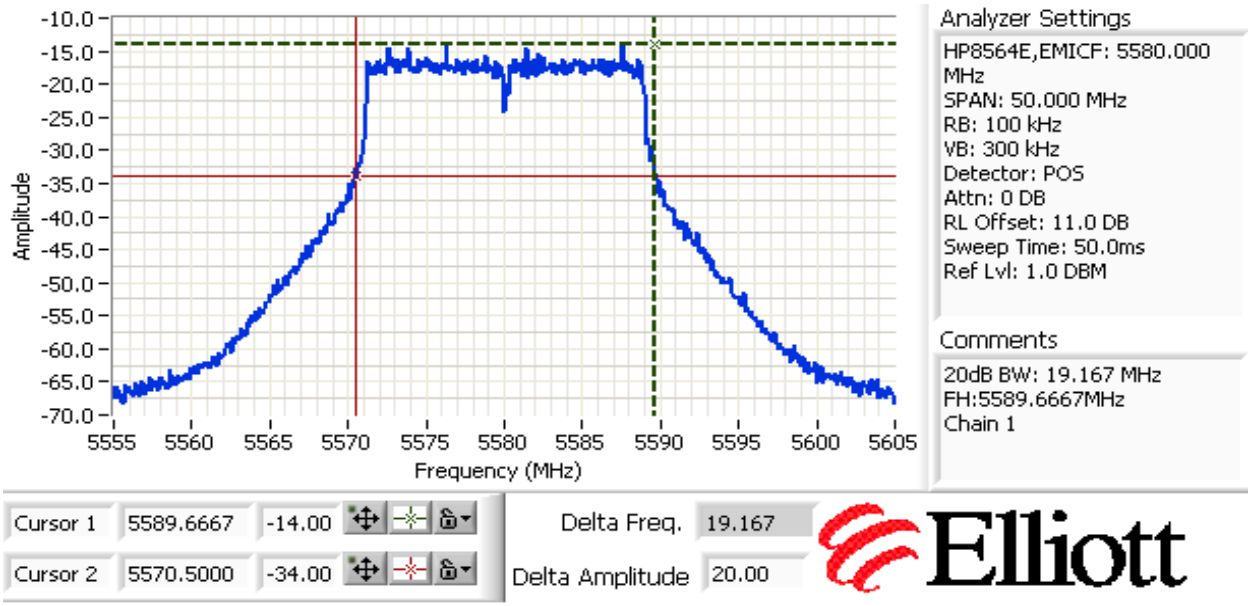


Client:	Ubiquiti Networks	Job Number:	J85880
Model:	NanoBridge M5	T-Log Number:	T85882
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A

Center channel, 5470 - 5725 MHz Band

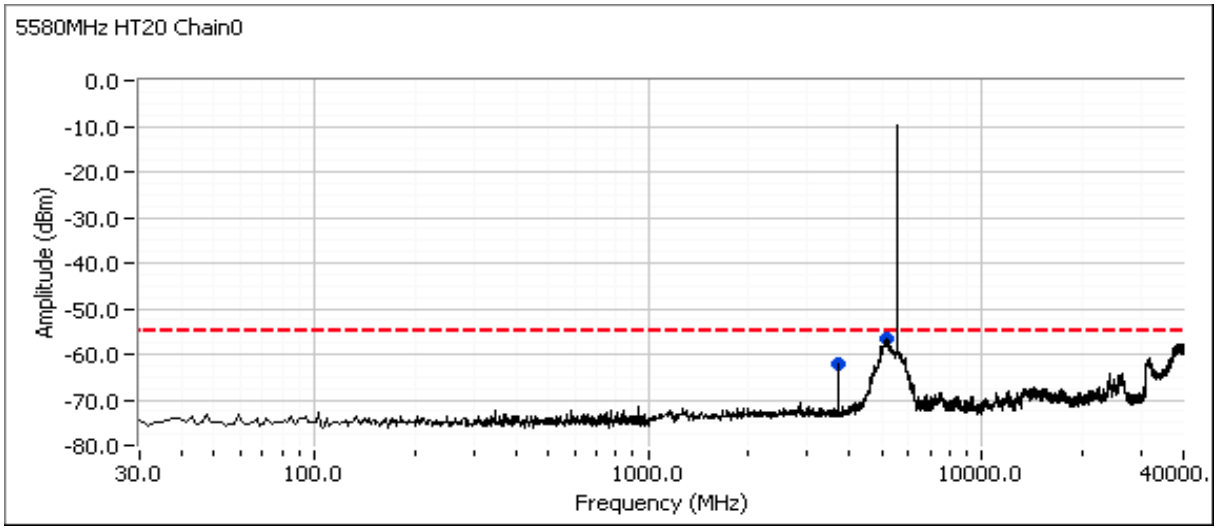
For master devices - This plot is showing hat the 20dB bandwidth of the channel closest to 5600 MHz does not spill into the 5600-5650 MHz band. RB > 1% of span.

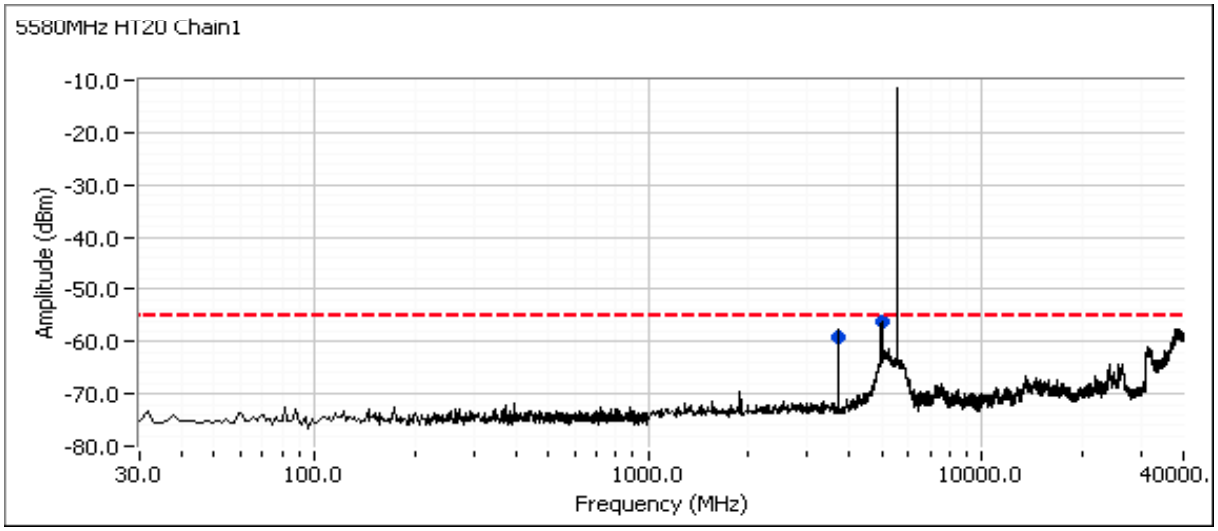




Client:	Ubiquiti Networks	Job Number:	J85880
Model:	NanoBridge M5	T-Log Number:	T85882
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A

Wide-band plot, RB=300kHz VB=100kHz (Peak measurements versus limit).





Client:	Ubiquiti Networks	Job Number:	J85880
Model:	NanoBridge M5	T-Log Number:	T85882
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A

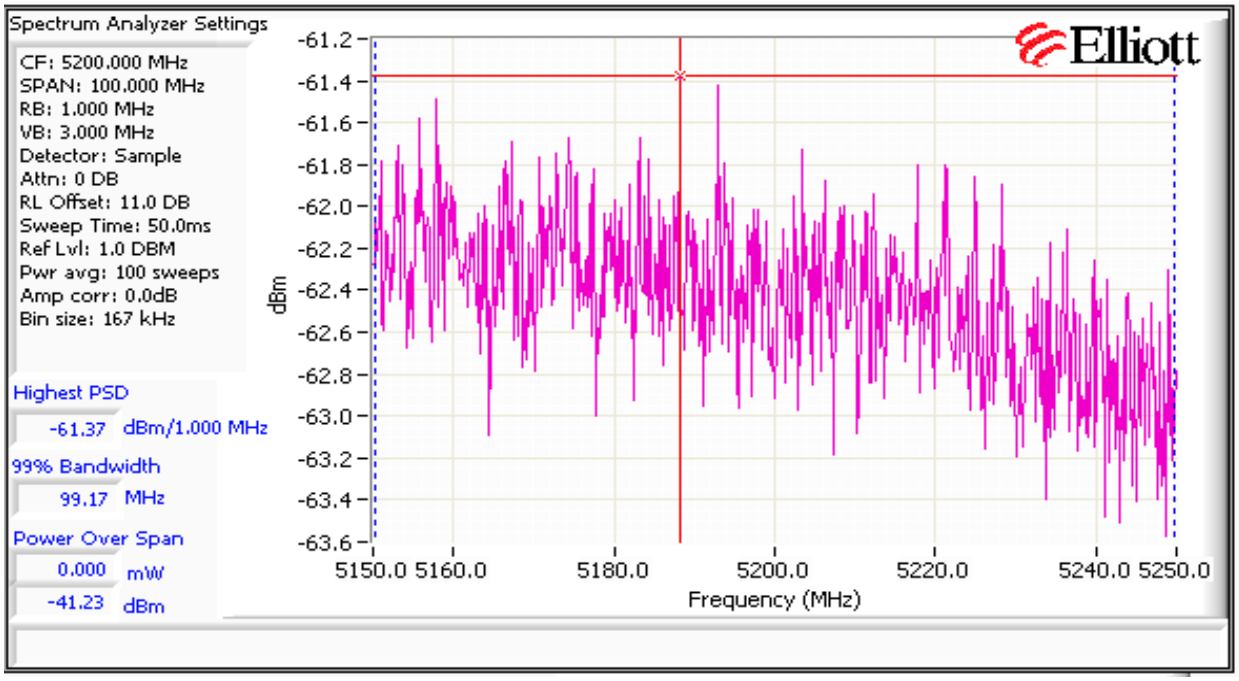
Wide-band result RB=1MHz VB=3MHz (Peak measurements versus limit).

Frequency	Level	Port	FCC 15 E / RSS 210		Detector	Comment				
MHz	dBm		Limit	Margin	Pk/QP/Avg	channel	mode/Chain	Ant. gain	Setting	Note
3719.960	-61.5	RF Port	-	-	PK	5580MHz	HT20/0	25	1.0	Note 2
5179.500	-49.7	RF Port	-55.0	5.3	PK	5580MHz	HT20/0	25	1.0	Note 3
3720.070	-57.2	RF Port	-	-	PK	5580MHz	HT20/1	25	1.0	Note 2
4987.470	-48.7	RF Port	-	-	PK	5580MHz	HT20/1	25	1.0	Note 2

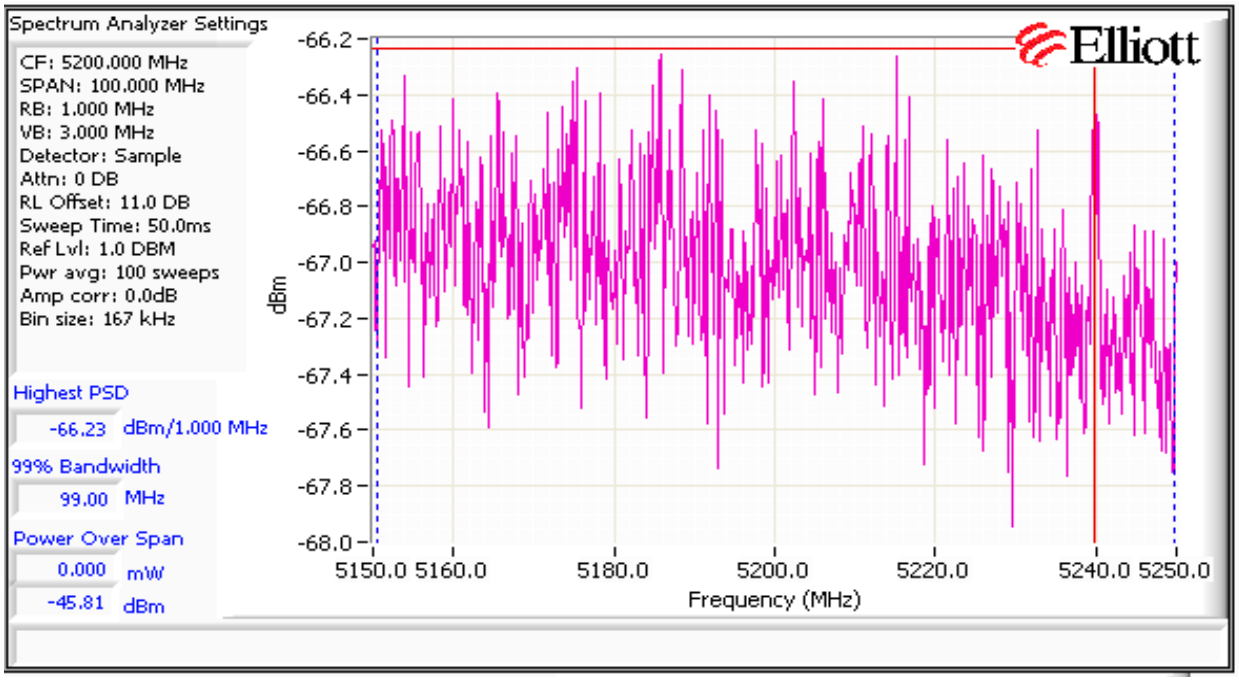
Note 1	Un-restricted signal
Note 2	Restricted band signal. Refer to the radiated spurious emissions results.
Note 3	Final measurements performed using 100sweep sample detector method. See below for final results.

5580MHz HT20
Eval 5179MHz using 100Sweep tech

	Power Setting	Band edge Level		Antenna Gain (dBi)	EIRP		Total EIRP dBm/MHz	Limit dBm/MHz	Result
		dBm/MHz	mW/MHz		mW/MHz	dBm/MHz			
Chain 1	-	-61.4	0.00000	25.0	0.0002307	-36.4	-35.1	-27	PASS
Chain 2		-66.2	0.00000	25.0	7.534E-05	-41.2			



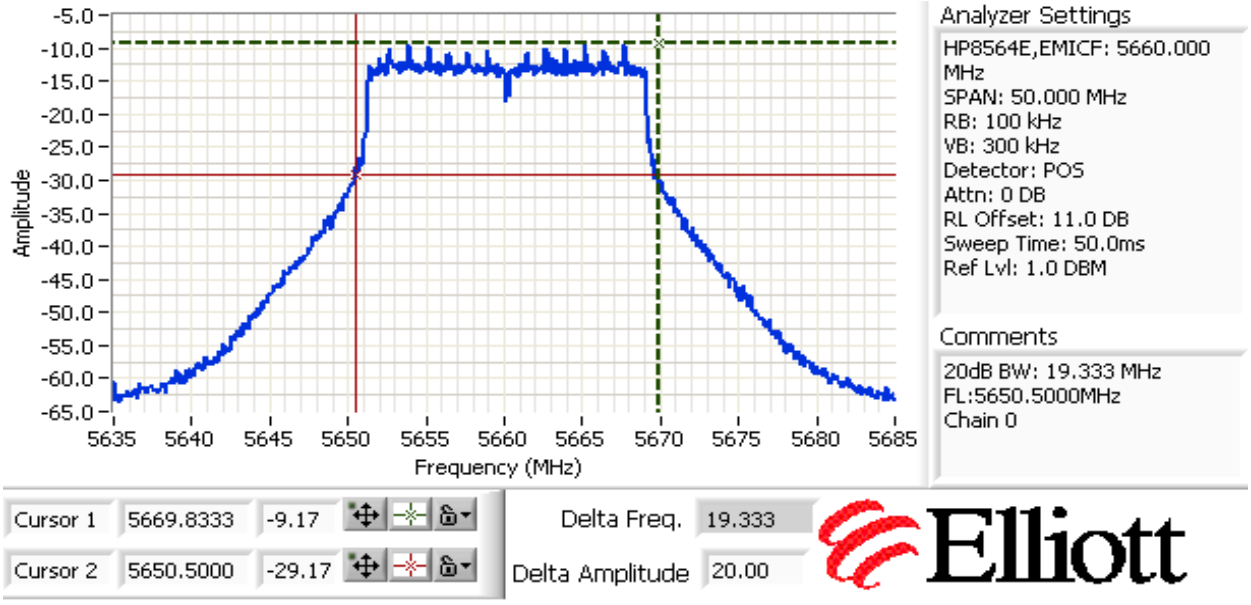
Client:	Ubiquiti Networks	Job Number:	J85880
Model:	NanoBridge M5	T-Log Number:	T85882
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A

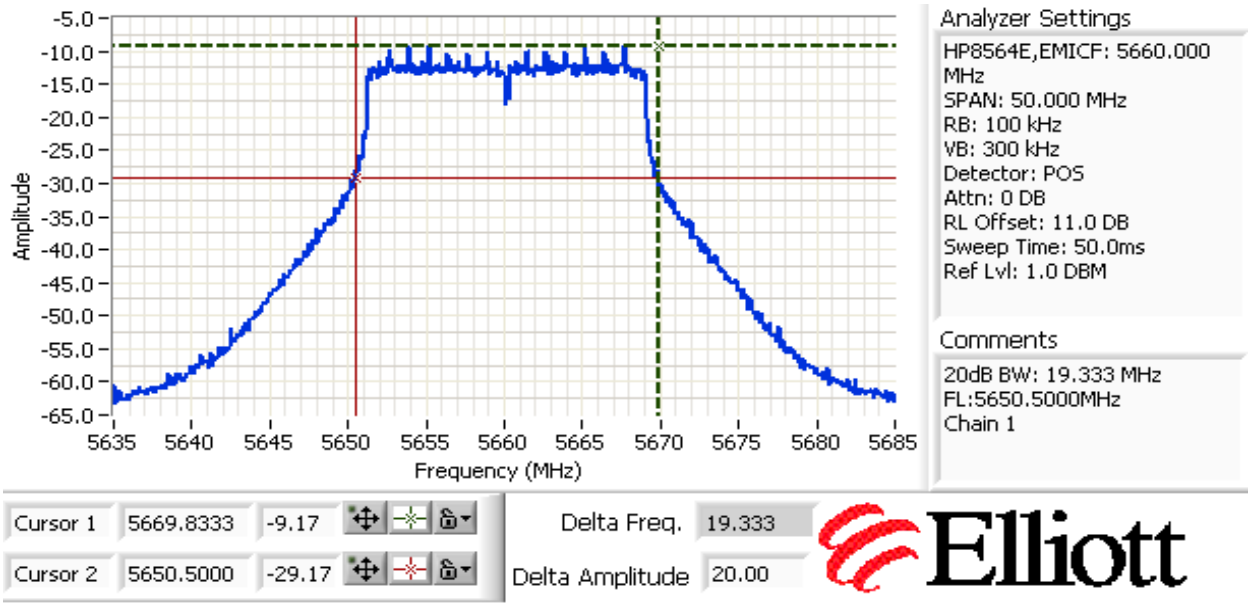


Client:	Ubiquiti Networks	Job Number:	J85880
Model:	NanoBridge M5	T-Log Number:	T85882
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A

Channel adjacent to 5650 MHz (Master Device)

Plots showing that the 20dB bandwidth of the channel closest to 5650 MHz does not spill into the 5600-5650 MHz band. RB > 1% of span.





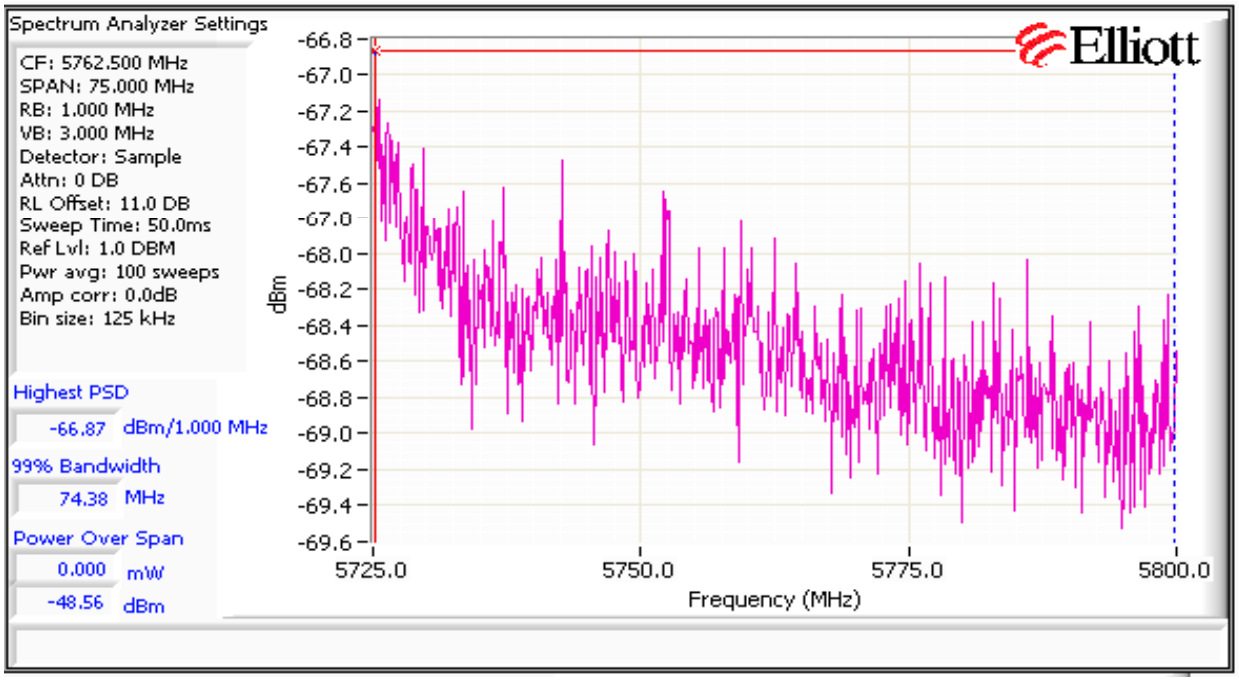
Client:	Ubiquiti Networks	Job Number:	J85880
Model:	NanoBridge M5	T-Log Number:	T85882
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A

High channel, 5470 - 5725 MHz Band

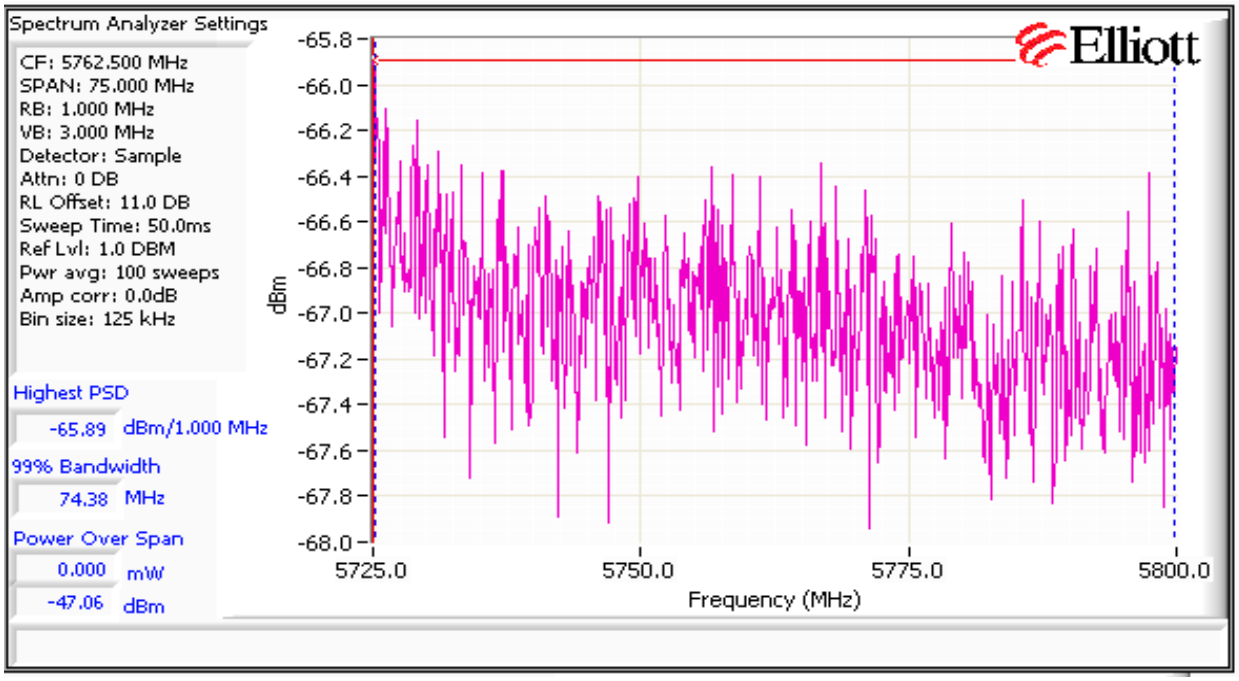
Plots for each chain showing compliance with the -27dBm/MHz limit above the 5725MHz band edge. Start and stop frequencies set to 5725-5800 MHz, RB=1MHz, VB=3MHz, power averaging enabled (100 traces):

Compliance with the -27dBm/MHz limit immediately above the band. Start and stop frequencies set to 5725-5775 MHz, RB=1MHz, VB=3MHz, power averaging enabled (100 traces) [OR use power plot if it clearly shows level at/above 5725 MHz and that the level is dropping]. Plot for worst-case channel is provided below.

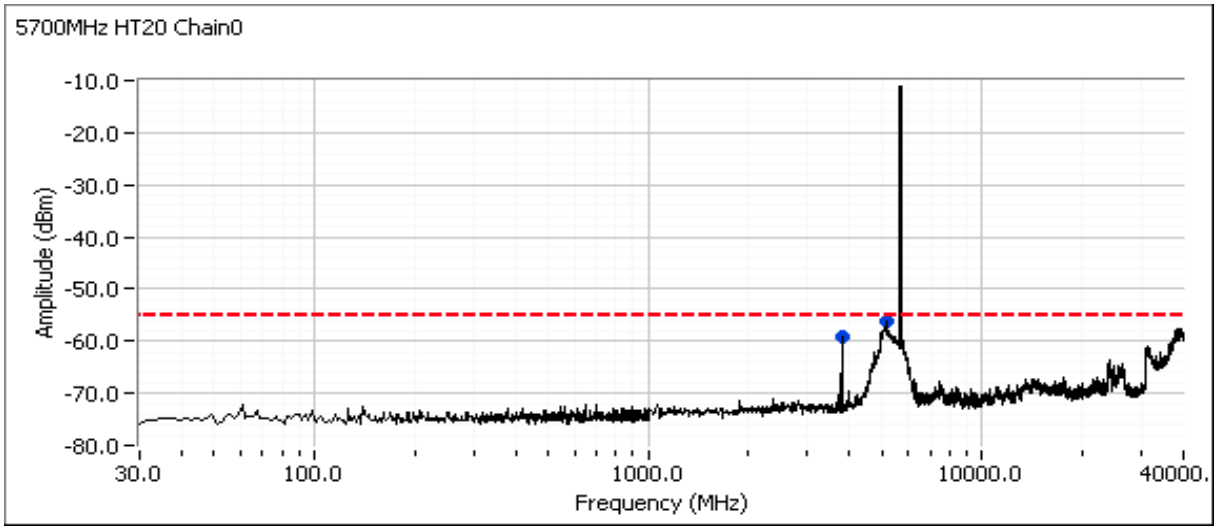
	Power Setting	Band edge Level dBm/MHz	Band edge Level mW/MHz	Antenna Gain (dBi)	EIRP mW/MHz	EIRP dBm/MHz	Total EIRP dBm/MHz	Limit dBm/MHz	Result
Chain 1	-	-66.9	0.00000	25.0	6.501E-05	-41.9	-38.3	-27	PASS
Chain 2		-65.9	0.00000	25.0	8.147E-05	-40.9			



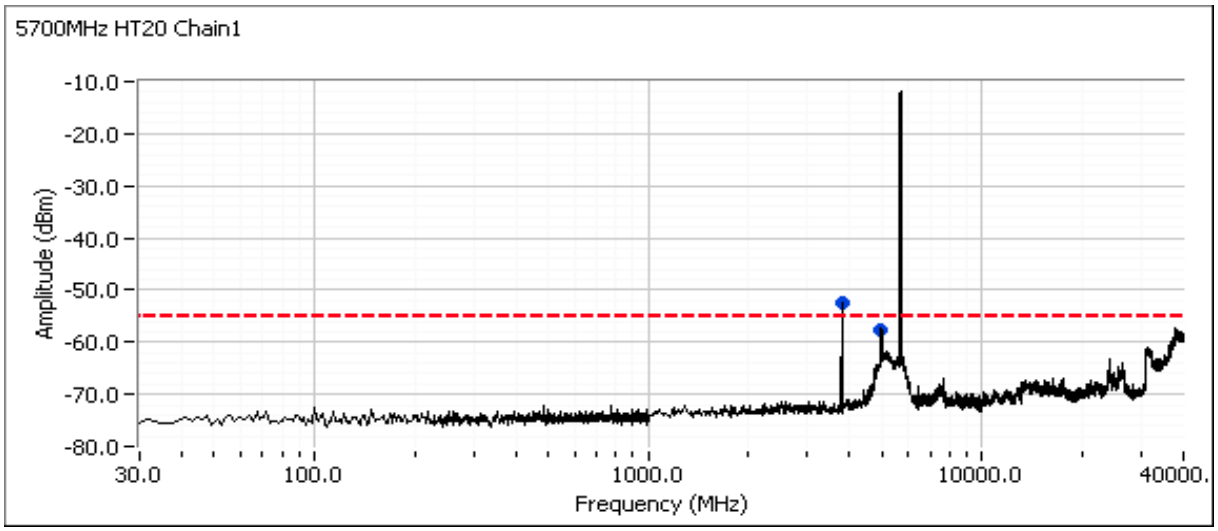
Client:	Ubiquiti Networks	Job Number:	J85880
Model:	NanoBridge M5	T-Log Number:	T85882
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A



Wide-band plot, RB=300kHz VB=100kHz (Peak measurements versus limit).



Client:	Ubiquiti Networks	Job Number:	J85880
Model:	NanoBridge M5	T-Log Number:	T85882
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A



Wide-band result RB=1MHz VB=3MHz (Peak measurements versus limit).

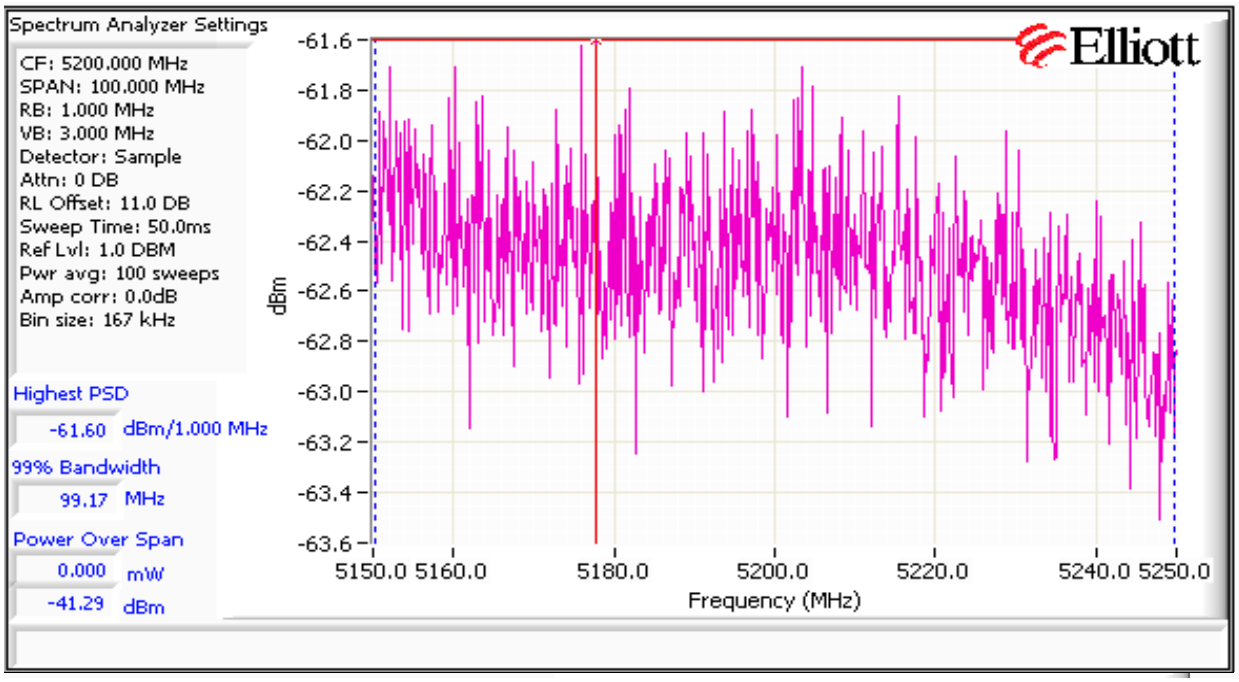
Frequency	Level	Port	FCC 15 E / RSS 210		Detector	Comment				
MHz	dBm		Limit	Margin	Pk/QP/Avg	channel	mode/Chain	Ant. gain	Setting	Note
3800.100	-52.2	RF Port	-	-	PK	5700MHZ	HT20/1	25	-0.5	Note 2
4994.770	-48.7	RF Port	-	-	PK	5700MHz	HT20/1	25	-0.5	Note 2
5165.500	-49.2	RF Port	-55.0	5.8	PK	5700MHz	HT20/0	25	-0.5	Note 3
3800.080	-58.1	RF Port	-	-	PK	5700MHz	HT20/0	25	-0.5	Note 2

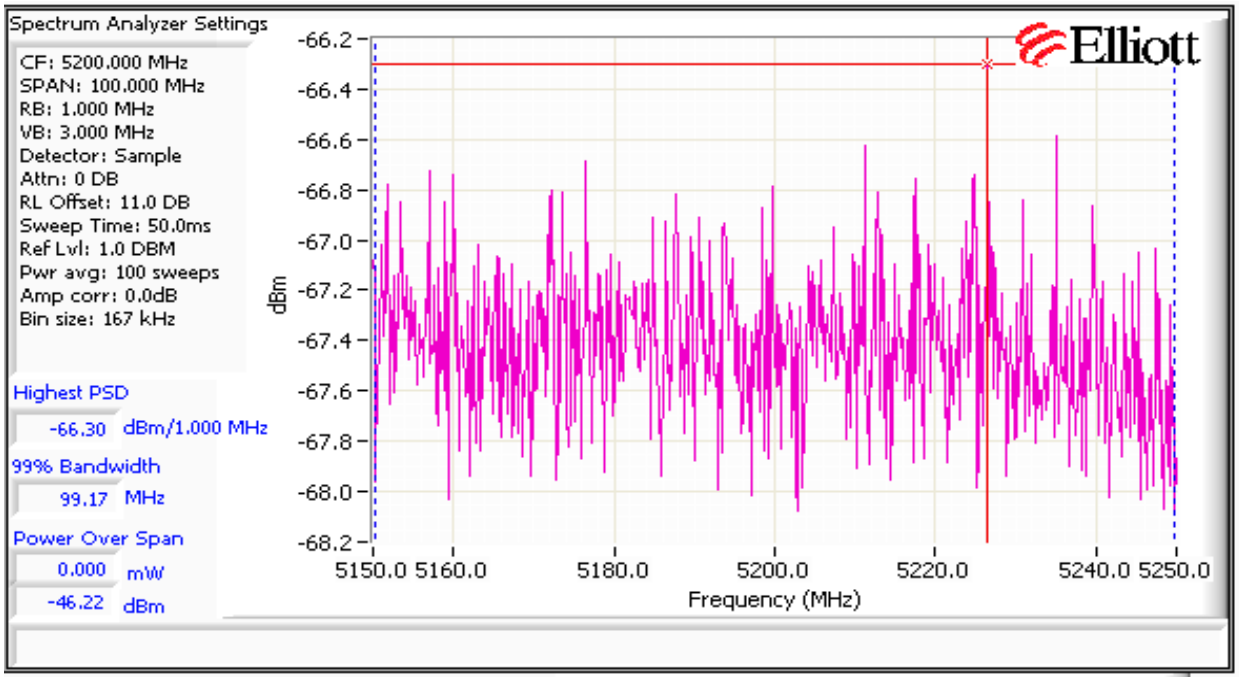
Note 1	Un-restricted signal
Note 2	Restricted band signal. Refer to the radiated spurious emissions results.
Note 3	Final measurements performed using 100sweep sample detector method. See below for final results.

5700MHz HT20
Eval 5165MHz using 100Sweep tech

	Power Setting	Band edge Level		Antenna Gain (dBi)	EIRP		Total EIRP dBm/MHz	Limit dBm/MHz	Result
		dBm/MHz	mW/MHz		mW/MHz	dBm/MHz			
Chain 1	-	-61.6	0.00000	25.0	0.0002188	-36.6	-35.3	-27	PASS
Chain 2		-66.3	0.00000	25.0	7.413E-05	-41.3			

Client:	Ubiquiti Networks	Job Number:	J85880
Model:	NanoBridge M5	T-Log Number:	T85882
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A





Client:	Ubiquiti Networks	Job Number:	J85880
Model:	NanoBridge M5	T-Log Number:	T85882
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A

RSS-210 (LELAN) and FCC 15.407(UNII)
Antenna Port Measurements
Power, PSD, Peak Excursion, 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: 12/20/2011 22:12
Test Engineer: Rafael Varelas
Test Location: Fremont Chamber #3

Config. Used: 1
Config Change: None
EUT Voltage: POE

Summary of Results

Run #	Test Performed	Limit	Pass / Fail	Result / Margin
1	Power, 5250 - 5350MHz	15.407(a) (1), (2)	Pass	HT40: 1.7dBm
1	PSD, 5250 - 5350MHz	15.407(a) (1), (2)	Pass	HT40: -14.2dBm/MHz
1	Max EIRP 5250 - 5350MHz	TPC required if EIRP≥ 500mW (27dBm). EIRP ≥ 200mW (23dBm) DFS threshold = -64dBm	Pass	EIRP = 29.7dBm (942mW)
1	Power, 5470 - 5725MHz	15.407(a) (1), (2)	Pass	HT40: 1.9dBm
1	PSD, 5470 - 5725MHz	15.407(a) (1), (2)	Pass	HT40: -14.3dBm/MHz
1	Max EIRP 5470 - 5725MHz	TPC required if EIRP≥ 500mW (27dBm). EIRP ≥ 200mW (23dBm) DFS threshold = -64dBm.	Pass	EIRP = 29.9dBm (986mW)
1	26dB Bandwidth	15.407 (Information only)	-	> 20MHz for all modes
1	99% Bandwidth	RSS 210 (Information only)	-	HT40: 36.5MHz
2	Peak Excursion Envelope	15.407(a) (6) 13dB	Pass	11.09dB
3	Antenna Conducted - Out of Band Spurious	15.407(b) -27dBm/MHz	Pass	All emissions below the -27dBm/MHz limit

Client:	Ubiquiti Networks	Job Number:	J85880
Model:	NanoBridge M5	T-Log Number:	T85882
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A

General Test Configuration

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

Ambient Conditions:

Temperature:	22.1 °C
Rel. Humidity:	35 %

Modifications Made During Testing

No modifications were made to the EUT during testing

Deviations From The Standard

No deviations were made from the requirements of the standard.

Run #1: Bandwidth, Output Power and Power Spectral Density - MIMO Systems

Note 1:	Output power measured using a spectrum analyzer (see plots below). RBW=1MHz, VB=3 MHz, # of points in sweep ≥ 2*span/RBW, sample detector, power averaging on (transmitted signal was continuous) and power integration over 50 MHz (method SA-1 of KDB 789033).
Note 2:	Measured using the same analyzer settings used for output power.
Note 3:	For RSS-210 the limit for the 5150 - 5250 MHz band accounts for the antenna gain as the maximum eirp allowed is 10dBm/MHz. The limits are also corrected for instances where the highest measured value of the PSD exceeds the average PSD (calculated from the measured power divided by the measured 99% bandwidth) by more than 3dB by the amount that the measured value exceeds the average by more than 3dB.
Note 4:	99% Bandwidth measured in accordance with RSS GEN - RB > 1% of span and VB >=3xRB
Note 5:	For MIMO systems the total output power and total PSD are calculated form the sum of the powers of the individual chains (in linear terms). The antenna gain used to determine the EIRP and limits for PSD/Output power depends on the operating mode of the MIMO device. If the signals on the non-coherent between the transmit chains then the gain used to determine the limits is the highest gain of the individual chains and the EIRP is the sum of the products of gain and power on each chain. If the signals are coherent then the effective antenna gain is the sum (in linear terms) of the gains for each chain and the EIRP is the product of the effective gain and total power.

Client:	Ubiquiti Networks	Job Number:	J85880
Model:	NanoBridge M5	T-Log Number:	T85882
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A

MIMO Device - 5250-5350 MHz Band

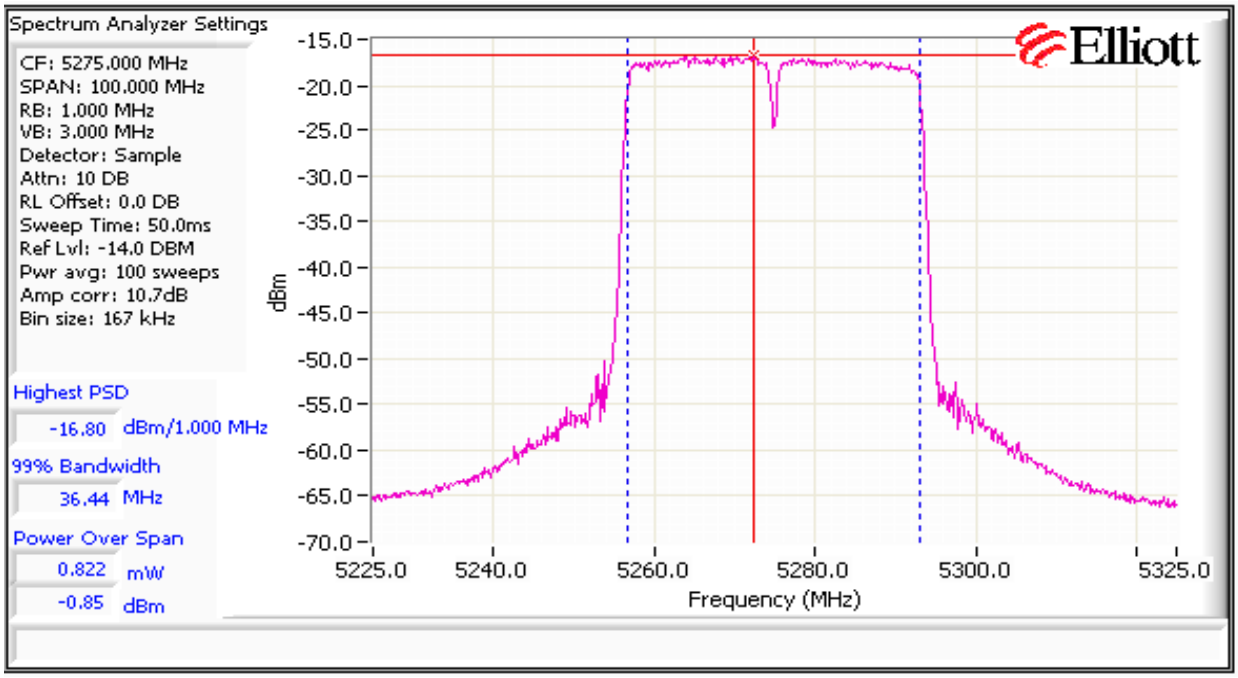
	Chain 1	Chain 2	Chain 3	Coherent	Effective[5]	EIRP (mW)	EIRP(dBm)
Antenna Gain (dBi):	25	25		Y	28.0	941.8	29.7

Power

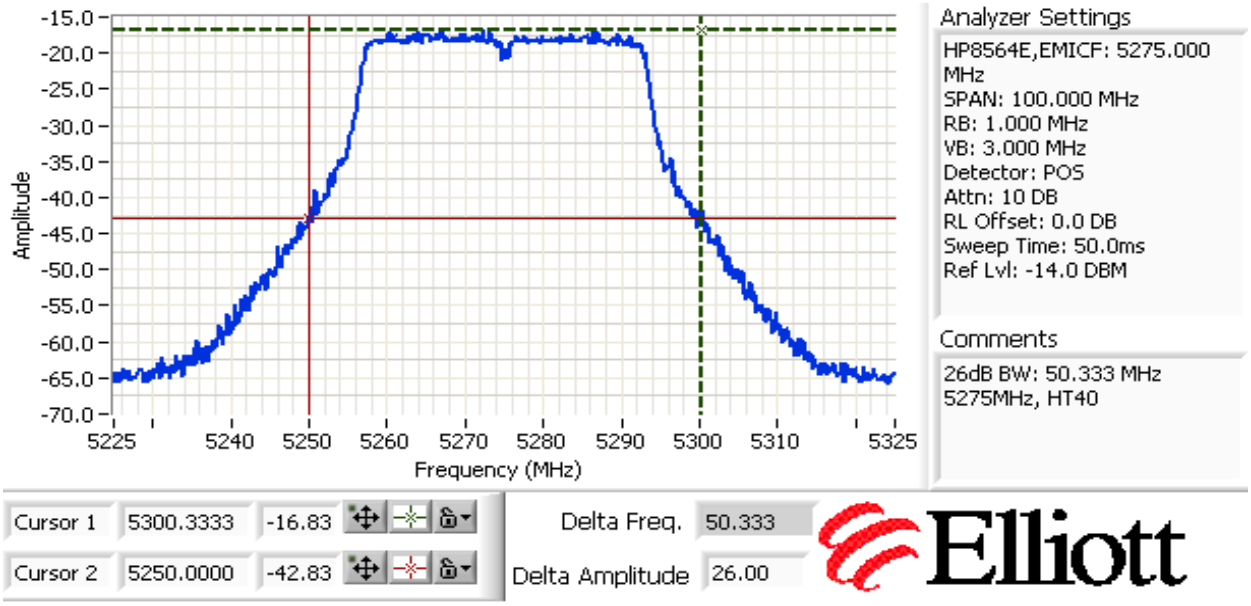
Frequency (MHz)	Software Setting	26dB BW (MHz)	Measured Output Power[1] dBm			Total		Limit (dBm)	Max Power (W)	Pass or Fail
			Chain 1	Chain 2	Chain 3	mW	dBm			
40MHz Mode										
5275	-	50.3	-0.9	-1.8		1.5	1.7	2.0	0.001	PASS
5310	-	53.5	-1.0	-1.7		1.5	1.7	2.0		PASS

PSD

Frequency (MHz)	99%[4] BW	Total Power	PSD[2] dBm/MHz			Total PSD		Limit		Pass or Fail
			Chain 1	Chain 2	Chain 3	mW/MHz	dBm/MHz	FCC	RSS 210[3]	
40MHz Mode										
5275	36.4	1.7	-16.8	-17.7		0.0	-14.2	-11.0	11.0	PASS
5310	36.4	1.7	-16.9	-17.8		0.0	-14.3	-11.0	11.0	PASS



Client:	Ubiquiti Networks	Job Number:	J85880
Model:	NanoBridge M5	T-Log Number:	T85882
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A



Client:	Ubiquiti Networks	Job Number:	J85880
Model:	NanoBridge M5	T-Log Number:	T85882
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A

MIMO Device - 5470-5725 MHz Band

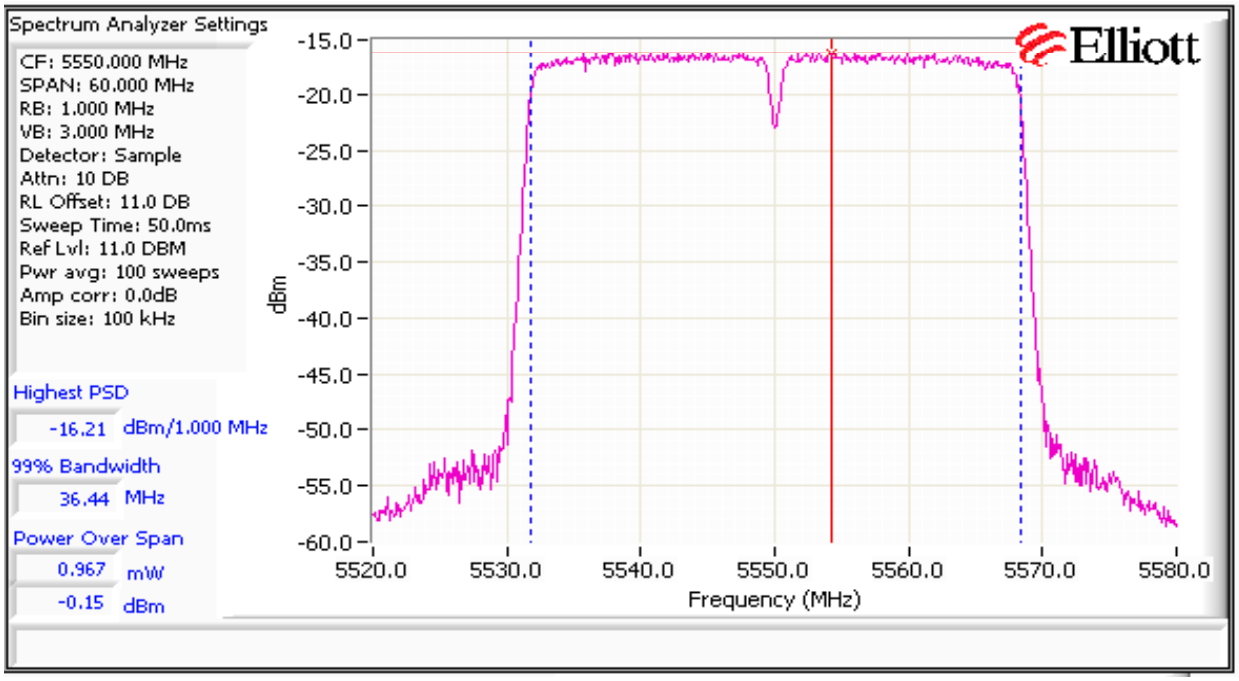
	Chain 1	Chain 2	Chain 3	Coherent	Effective[5]	EIRP (mW)	EIRP (dBm)
Antenna Gain (dBi):	25	25		Yes	28.0	986.0	29.9

Power

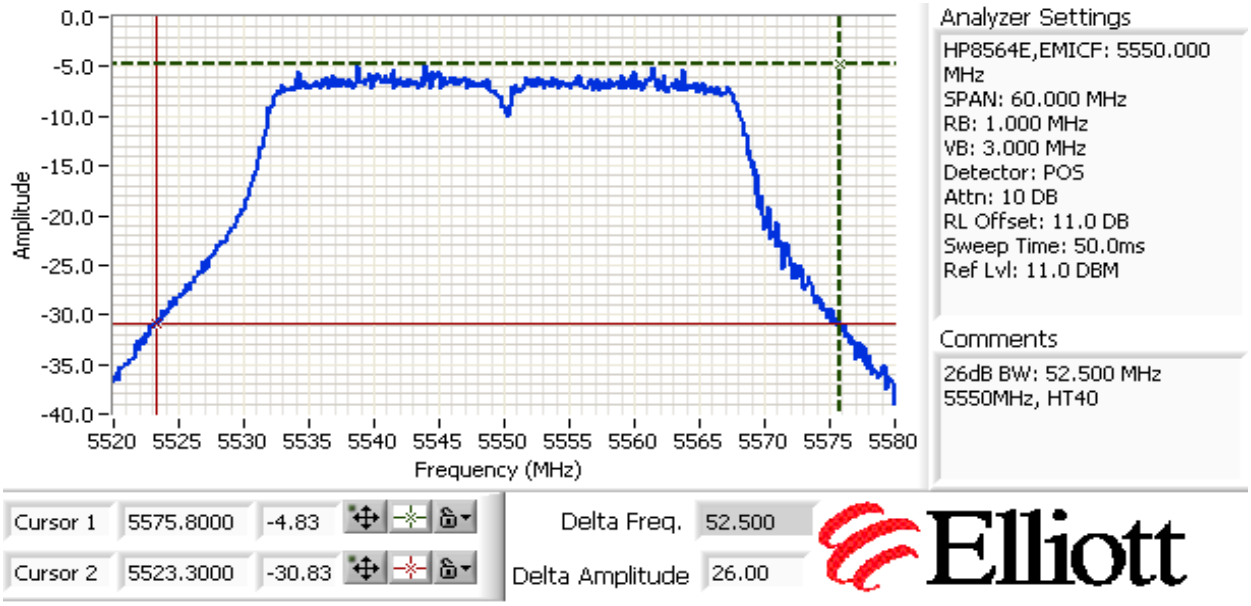
Frequency (MHz)	Software Setting	26dB BW (MHz)	Measured Output Power[1] dBm			Total		Limit (dBm)	Max Power (W)	Pass or Fail
			Chain 1	Chain 2	Chain 3	mW	dBm			
40MHz Mode										
5510	-	52.5	-0.6	-2.5		1.4	1.6	2.0	0.002	PASS
5550	-	52.5	-0.2	-2.3		1.6	1.9	2.0		PASS
5670	-	52.6	-0.3	-3.2		1.4	1.5	2.0		PASS

PSD

Frequency (MHz)	99%[4] BW	Total Power	PSD[2] dBm/MHz			Total PSD		Limit		Pass or Fail
			Chain 1	Chain 2	Chain 3	mW/MHz	dBm/MHz	FCC	RSS 210[3]	
40MHz Mode										
5510	36.4	1.6	-16.5	-18.5		0.0	-14.4	-11.0	11.0	PASS
5550	36.4	1.9	-16.2	-18.7		0.0	-14.3	-11.0	11.0	PASS
5670	36.5	1.5	-16.2	-19.2		0.0	-14.4	-11.0	11.0	PASS



Client:	Ubiquiti Networks	Job Number:	J85880
Model:	NanoBridge M5	T-Log Number:	T85882
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A



Client:	Ubiquiti Networks	Job Number:	J85880
Model:	NanoBridge M5	T-Log Number:	T85882
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A

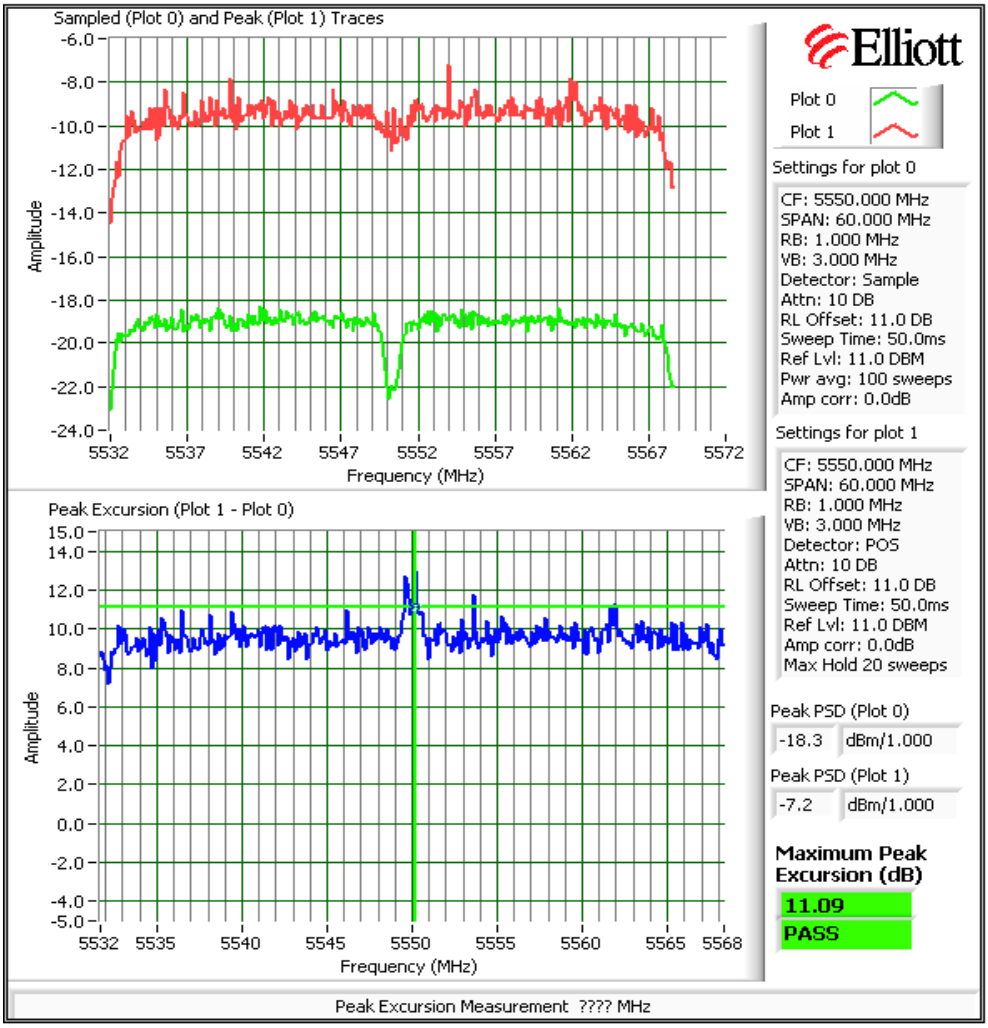
Run #2: Peak Excursion Measurement

Freq	Peak Excursion(dB)		Freq	Peak Excursion(dB)		Freq	Peak Excursion(dB)	
(MHz)	Value	Limit	(MHz)	Value	Limit	(MHz)	Value	Limit
5190		13.0	5275	10.37/10.28	13.0	5510	10.00/10.30	13.0
5230		13.0	5310	10.8/10.43	13.0	5550	10.87/11.09	13.0
						5670	10.19/11.03	13.0

Plots Showing Peak Excursion

Trace A: RBW = 1MHz, VBW = 3MHz, Peak hold

Trace B: Same settings as used for power/PSD measurements (RBW = 1 MHz, VBW = 3MHz, Integrated average power)



Client:	Ubiquiti Networks	Job Number:	J85880
Model:	NanoBridge M5	T-Log Number:	T85882
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A

Run #3: Out Of Band Spurious Emissions - Antenna Conducted

MIMO Devices: Antenna gain used is the effective gain calculated in the power section of this data sheet. The plots were obtained for each chain individually and the limit was adjusted to account for all chains transmitting simultaneously

Number of transmit chains:	2	
Maximum Antenna Gain:	25.0	dBi
Spurious Limit:	-27.0	dBm/MHz eirp
Adjustment for 2 chains:	-3.0	dB adjustment for multiple chains.
Limit Used On Plots [Note 1]:	-55.0	dBm/MHz Peak Limit (RB=VB=1MHz)

Note 1:	The -27dBm/MHz limit is an eirp limit. The limit for antenna port conducted measurements is adjusted to take into consideration the maximum antenna gain (limit = -27dBm - antenna gain). Radiated field strength measurements for signals more than 50MHz from the bands and that are close to the limit are made to determine compliance as the antenna gain is not known at these frequencies.
Note 2:	All spurious signals below 1GHz are measured during digital device radiated emissions test.
Note 3:	Signals within 10MHz of the 5.725 or 5.825 Band edge are subject to a limit of -17dBm EIRP
Note 4:	If the device is for outdoor use then the -27dBm eirp limit also applies in the 5150 - 5250 MHz band.
Note 5:	Signals that fall in the restricted bands of 15.205 are subject to the limit of 15.209.

Plots Showing Out-Of-Band Emissions

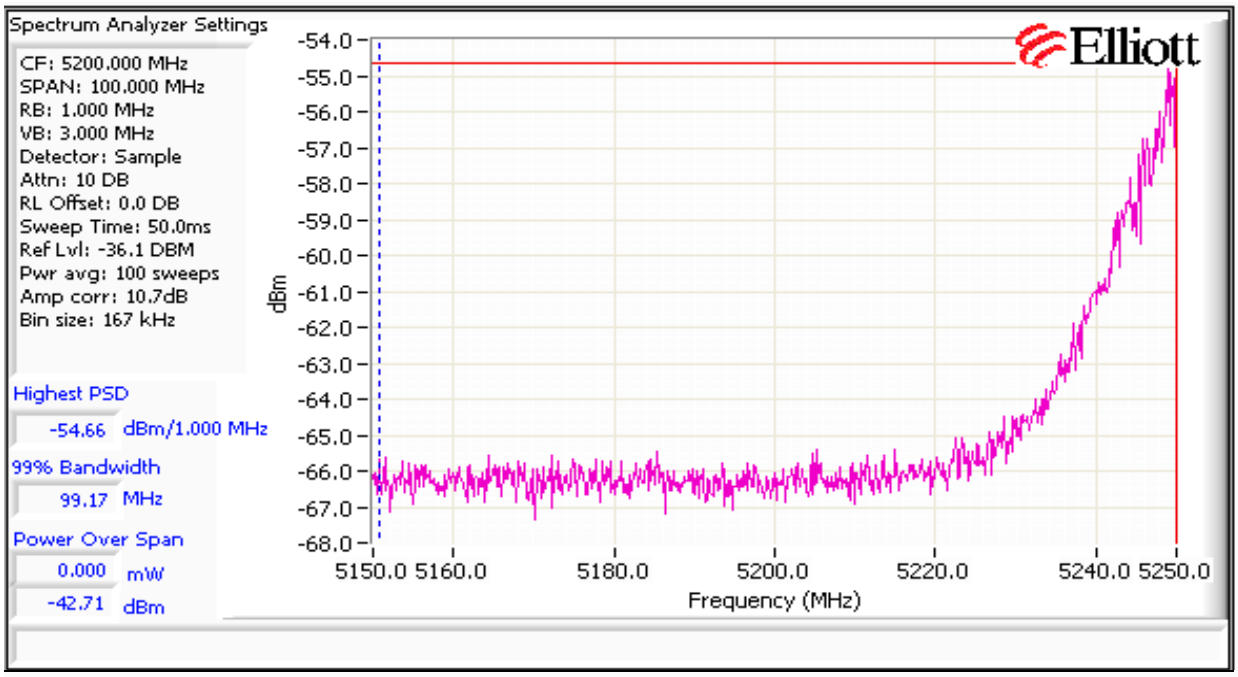
Low channel, 5250 - 5350 MHz Band - 40MHz

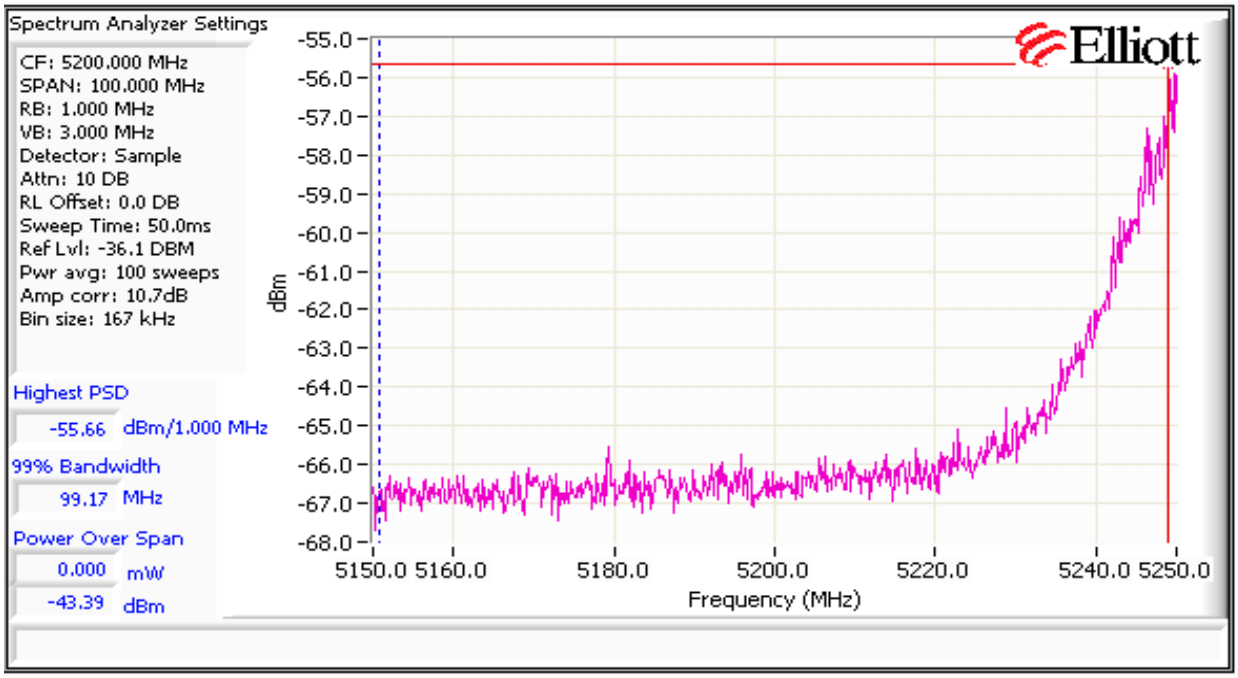
Plots for each chain showing compliance with the -27dBm/MHz limit in the 5150 - 5250 MHz band. Start and stop frequencies set to 5150-5250 MHz, RB=1MHz, VB=3MHz, power averaging enabled (100 traces):

Channel frequency: 5275 MHz - 25dBi antenna

	Power Setting	Band edge Level		Antenna Gain (dBi)	EIRP		Total EIRP dBm/MHz	Limit dBm/MHz	Result
		dBm/MHz	mW/MHz		mW/MHz	dBm/MHz			
Chain 1	-	-54.7	0.00000	25.0	0.0010814	-29.7	-27.1	-27	PASS
Chain 2		-55.7	0.00000	25.0	0.000859	-30.7			

Client:	Ubiquiti Networks	Job Number:	J85880
Model:	NanoBridge M5	T-Log Number:	T85882
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A



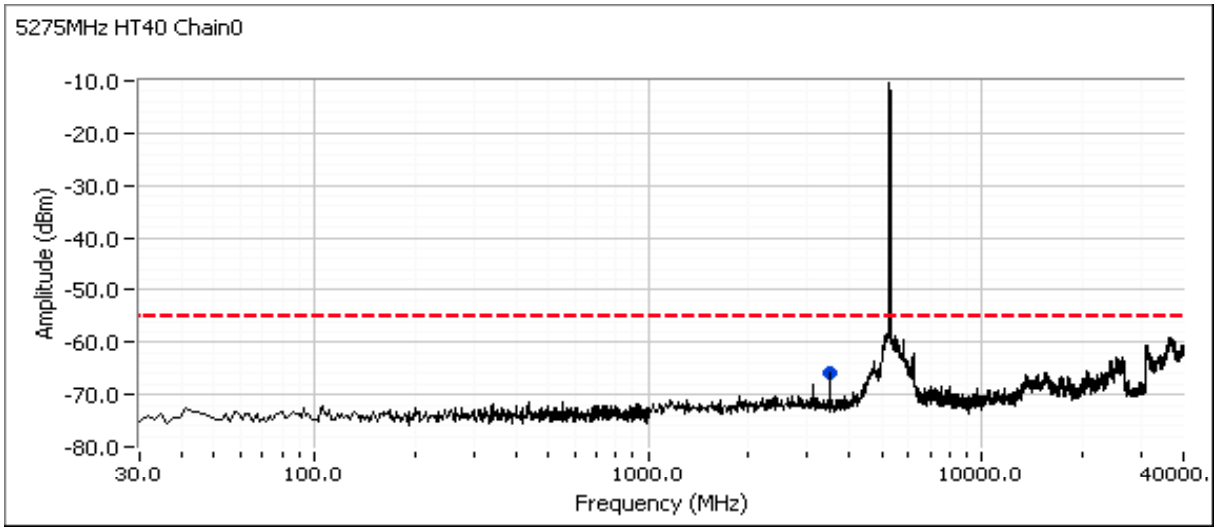


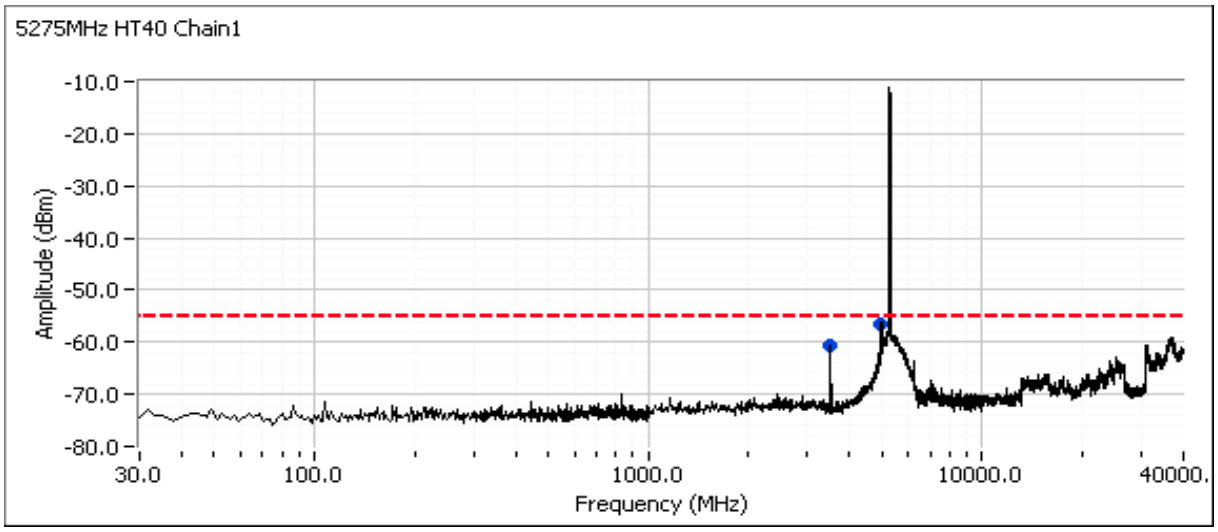
Client:	Ubiquiti Networks	Job Number:	J85880
Model:	NanoBridge M5	T-Log Number:	T85882
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A

Wide-band plot, RB=300kHz VB=100kHz (Peak measurements versus limit).

Date of Test: 12/21/2011 Test Location: FT Chamber#4

Test Engineer: Jack Liu Config Change: none





Client:	Ubiquiti Networks	Job Number:	J85880
Model:	NanoBridge M5	T-Log Number:	T85882
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A

Wide-band result RB=1MHz VB=3MHz (Peak measurements versus limit).

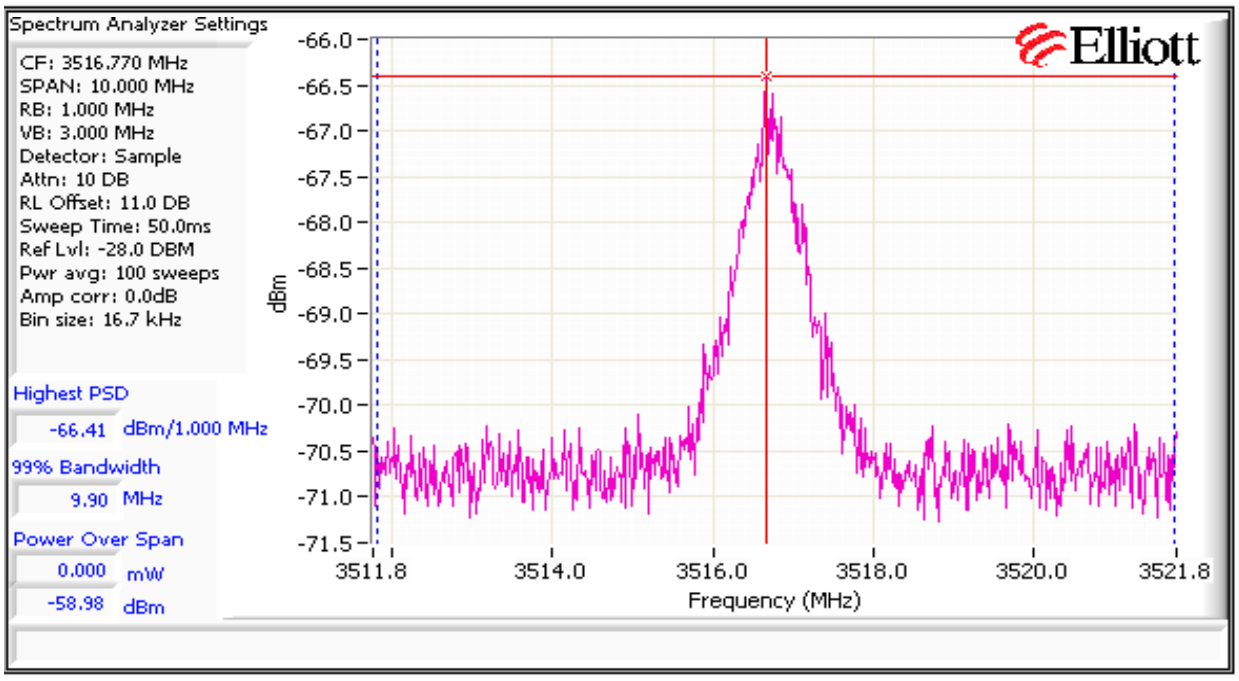
Frequency	Level	Port	FCC 15 E / RSS 210		Detector	Comment				
MHz	dBm		Limit	Margin	Pk/QP/Avg	channel	mode/Chain	Ant. gain	Setting	Note
3517.090	-55.0	RF Port	-	-	PK	5275MHz	HT40/0	25	1.0	Note 3
3516.700	-53.0	RF Port	-	-	PK	5275MHz	HT40/1	25	1.0	Note 3
4995.260	-45.6	RF Port	-	-	PK	5275MHz	HT40/1	25	1.0	Note 2

Note 1	Un-restricted signal
Note 2	Restricted band signal. Refer to the radiated spurious emissions results.
Note 3	Final measurements performed using 100sweep sample detector method. See below for final results.

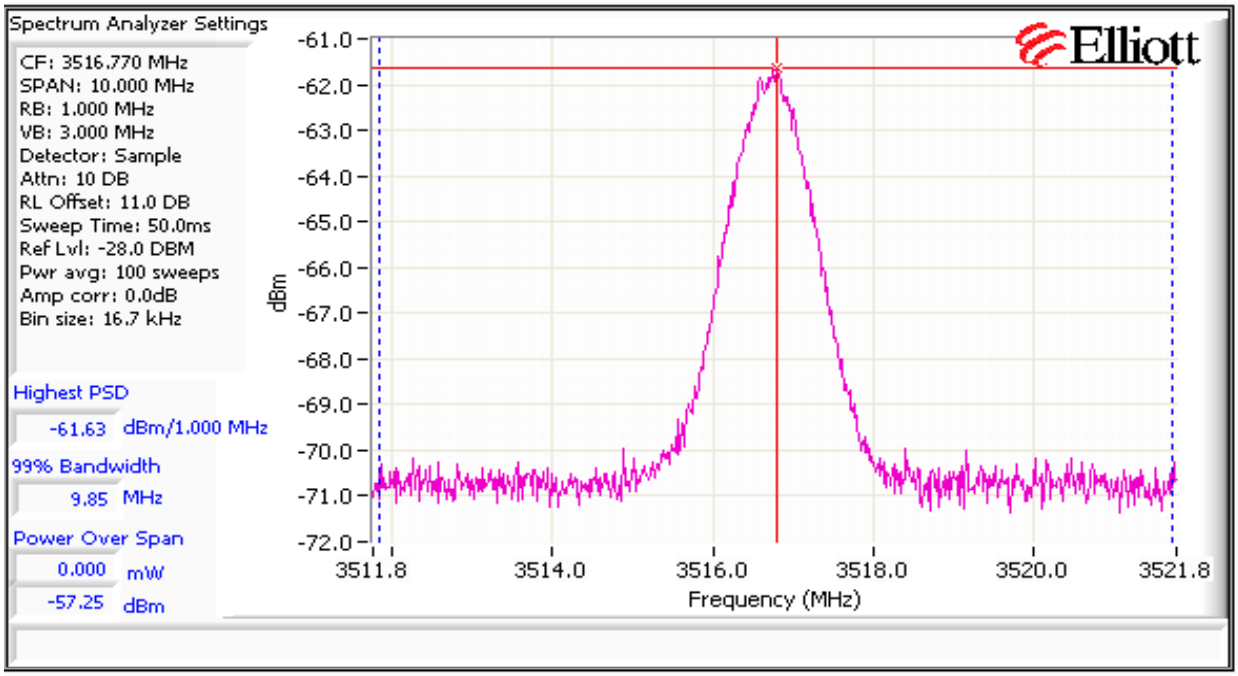
5275MHz HT40
Eval 3516 MHz using 100Sweep tech

	Power Setting	Band edge Level		Antenna Gain (dBi)	EIRP		Total EIRP dBm/MHz	Limit dBm/MHz	Result
		dBm/MHz	mW/MHz		mW/MHz	dBm/MHz			
Chain 1	-	-66.4	0.00000	25.0	7.228E-05	-41.4	-35.4	-27	PASS
Chain 2		-61.6	0.00000	25.0	0.0002173	-36.6			

Antenna gains are not added - the spurious noise is not considered coherent between chains.



Client:	Ubiquiti Networks	Job Number:	J85880
Model:	NanoBridge M5	T-Log Number:	T85882
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A



Client:	Ubiquiti Networks	Job Number:	J85880
Model:	NanoBridge M5	T-Log Number:	T85882
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A

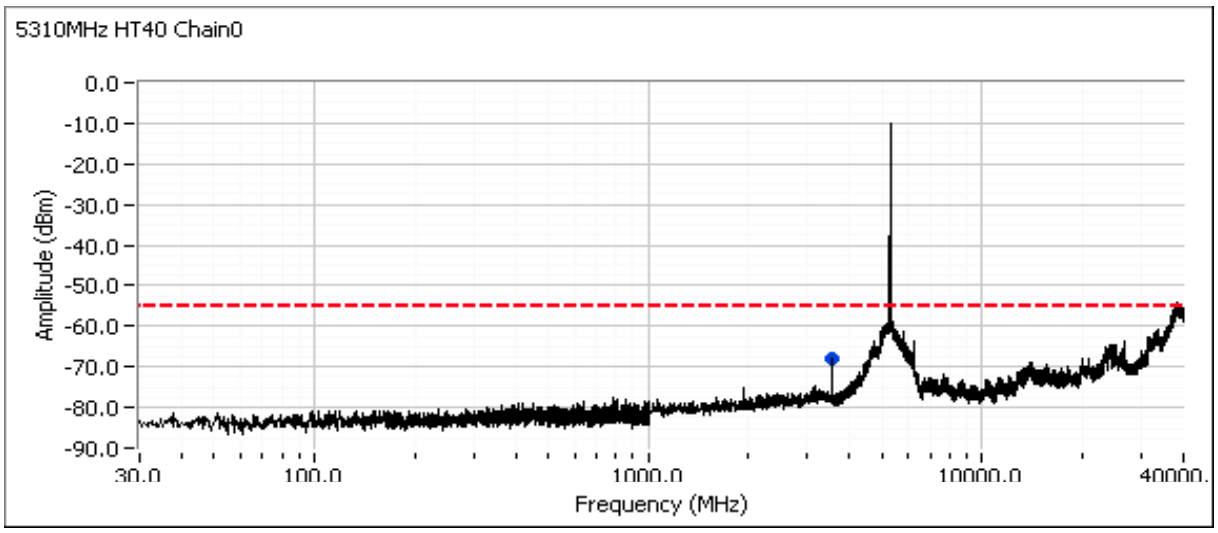
High channel, 5250 - 5350 MHz Band

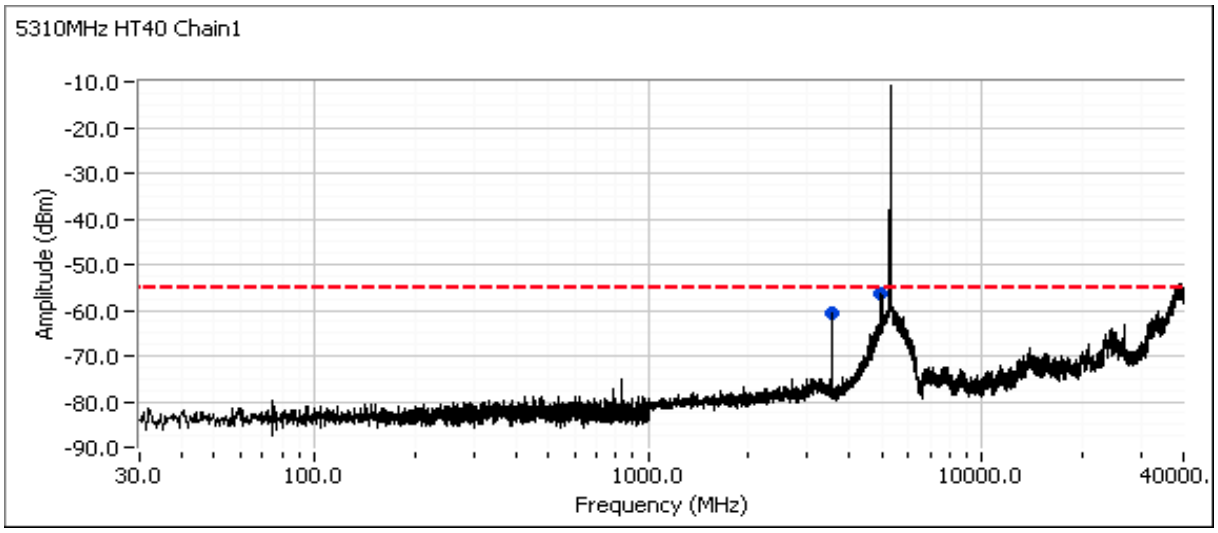
Note - compliance with the radiated limits for the restricted band immediately above 5350MHz is demonstrated through the radiated emissions tests.

Wide-band plot, RB=300kHz VB=100kHz (Peak measurements versus limit).

Date of Test: 12/22/2011 Test Location: FT Lab#4

Test Engineer: Jack Liu Config Change: none





Client:	Ubiquiti Networks	Job Number:	J85880
Model:	NanoBridge M5	T-Log Number:	T85882
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A

Wide-band result RB=1MHz VB=3MHz (Peak measurements versus limit).

Frequency	Level	Port	FCC 15 E / RSS 210		Detector	Comment				
MHz	dBm		Limit	Margin	Pk/QP/Avg	channel	mode/Chain	Ant. gain	Setting	Note
3540.100	-65.4	RF Port	-55.0	-10.4	PK	5310MHz	HT40/0	25	1.0	Note1
3540.020	-59.4	RF Port	-55.0	-4.4	PK	5310MHz	HT40/1	25	1.0	Note1
4981.150	-49.2	RF Port	-	-	PK	5310MHz	HT40/1	25	1.0	Note2

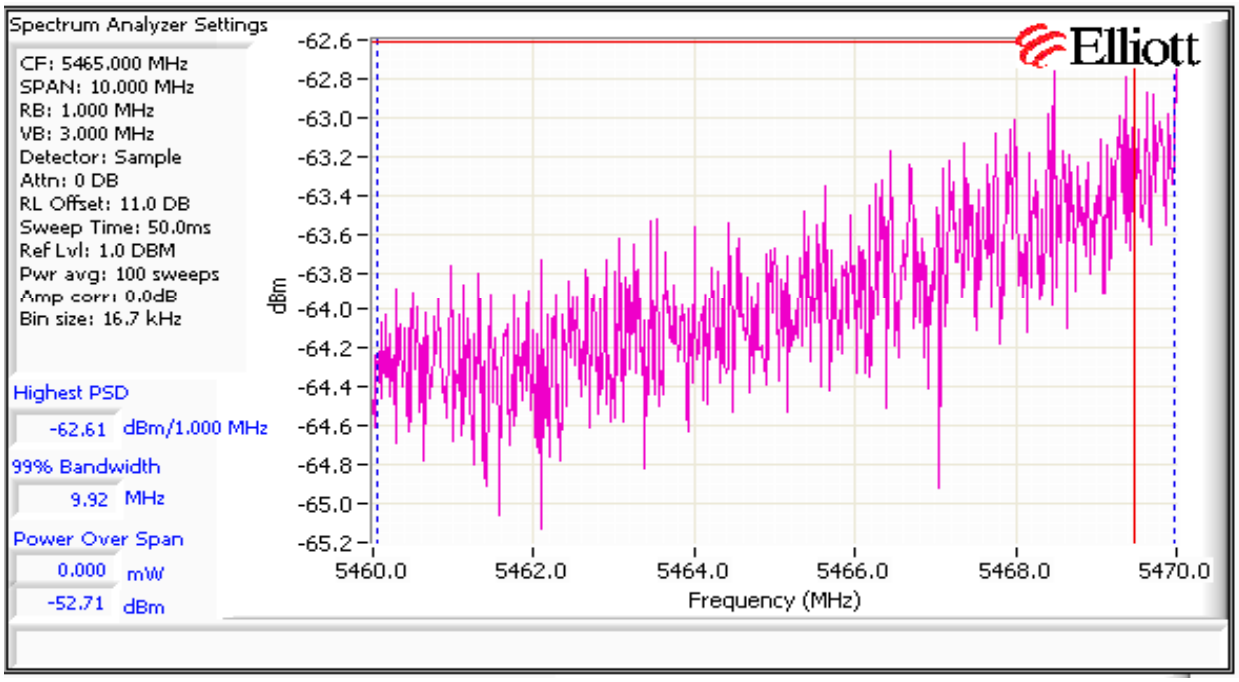
Note 1	Un-restricted signal
Note 2	Restricted band signal. Refer to the radiated spurious emissions results.

Client:	Ubiquiti Networks	Job Number:	J85880
Model:	NanoBridge M5	T-Log Number:	T85882
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A

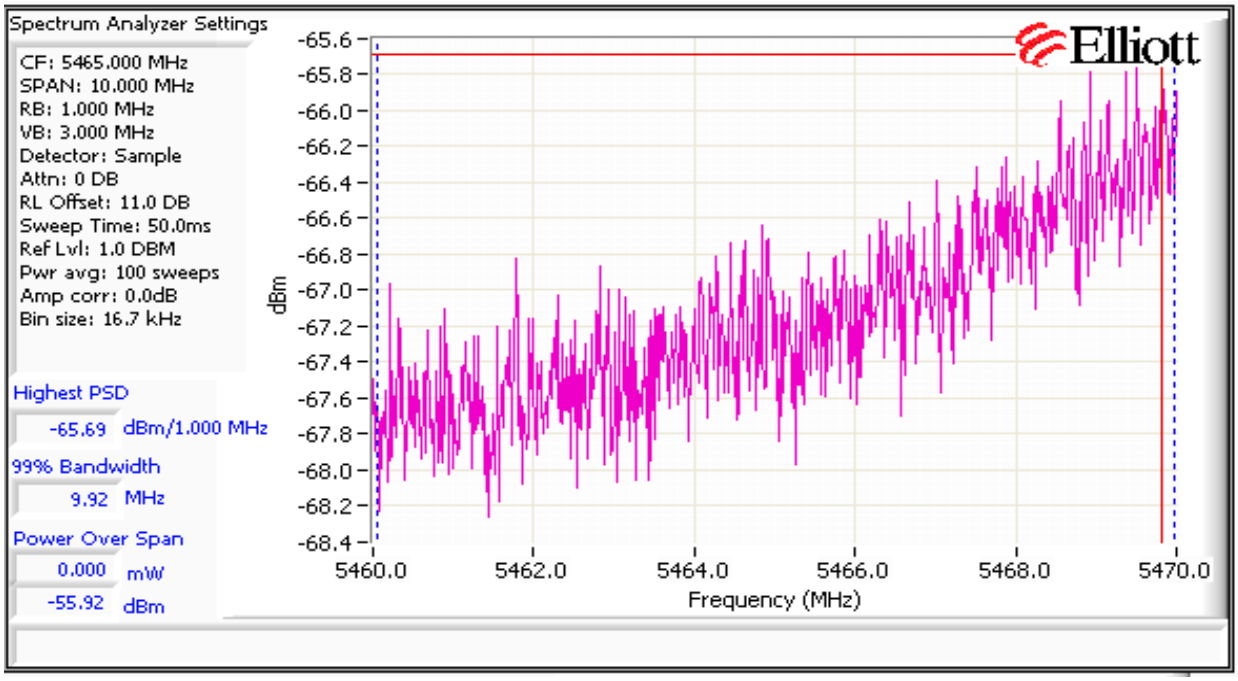
Low channel, 5470 - 5725 MHz Band

Compliance with the -27dBm/MHz limit in the 5460 - 5470 MHz band immediately below the allocated band. Start and stop frequencies set to 5460-5470 MHz, RB=1MHz, VB=3MHz, power averaging enabled (100 traces)

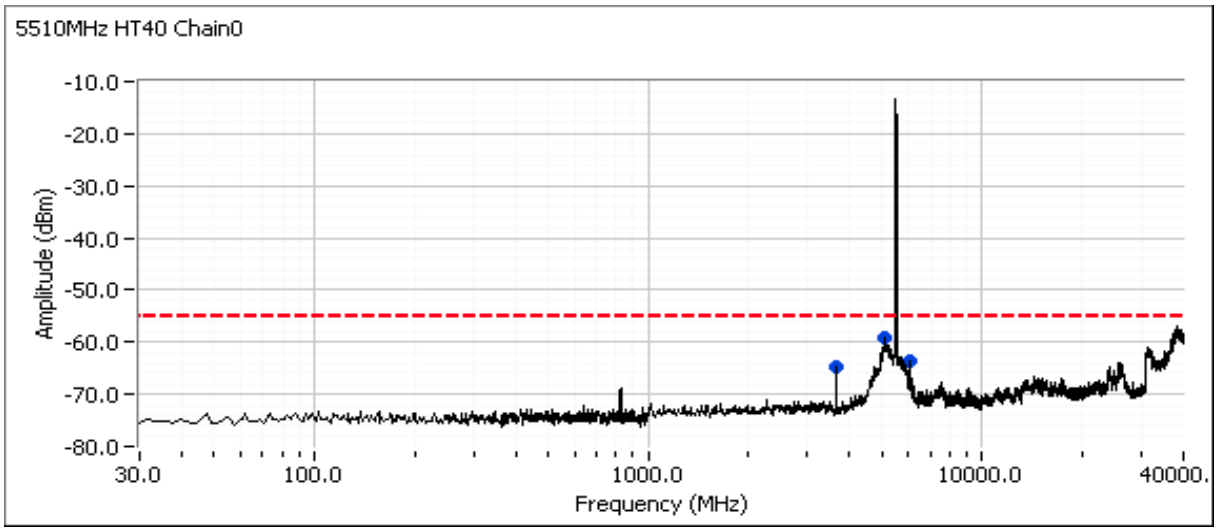
	Power Setting	Band edge Level		Antenna Gain (dBi)	EIRP		Total EIRP dBm/MHz	Limit dBm/MHz	Result
		dBm/MHz	mW/MHz		mW/MHz	dBm/MHz			
Chain 1	-	-62.6	0.00000	25.0	0.0001734	-37.6	-35.9	-27	PASS
Chain 2		-65.7	0.00000	25.0	8.531E-05	-40.7			



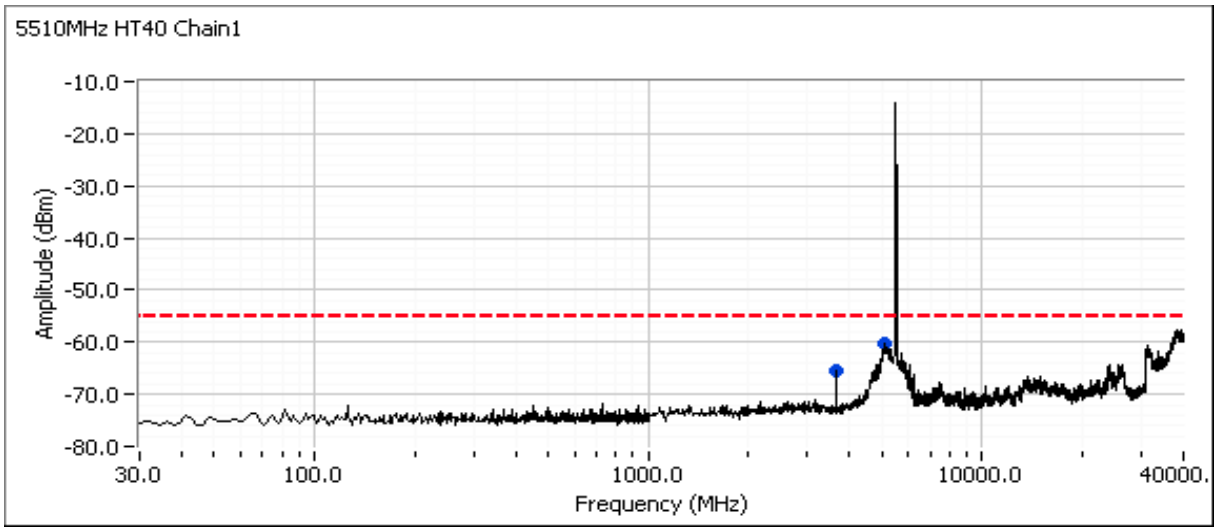
Client:	Ubiquiti Networks	Job Number:	J85880
Model:	NanoBridge M5	T-Log Number:	T85882
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A



Wide-band plot, RB=300kHz VB=100kHz (Peak measurements versus limit).



Client:	Ubiquiti Networks	Job Number:	J85880
Model:	NanoBridge M5	T-Log Number:	T85882
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A



Wide-band result RB=1MHz VB=3MHz (Peak measurements versus limit).

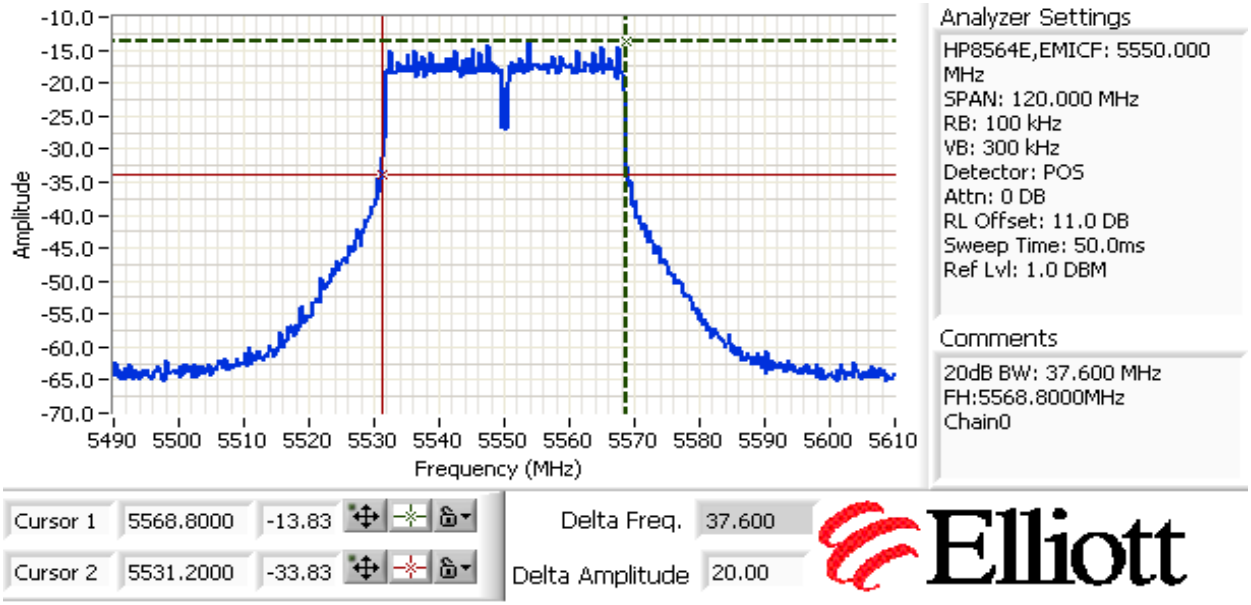
Frequency	Level	Port	FCC 15 E / RSS 210		Detector	Comment				
MHz	dBm		Limit	Margin	Pk/QP/Avg	channel	mode/Chain	Ant. gain	Setting	Note
3673.700	-62.7	RF Port	-	-	PK	5510MHz	HT40/1	25	-0.5	Note2
5130.700	-50.1	RF Port	-	-	PK	5510MHz	HT40/1	25	-0.5	Note2
3673.910	-64.8	RF Port	-	-	PK	5510MHz	HT40/0	25	-0.5	Note2
5122.820	-59.3	RF Port	-	-	PK	5510MHz	HT40/0	25	-0.5	Note2
6114.530	-58.5	RF Port	-55.0	-3.5	PK	5510MHz	HT40/0	25	-0.5	Note1

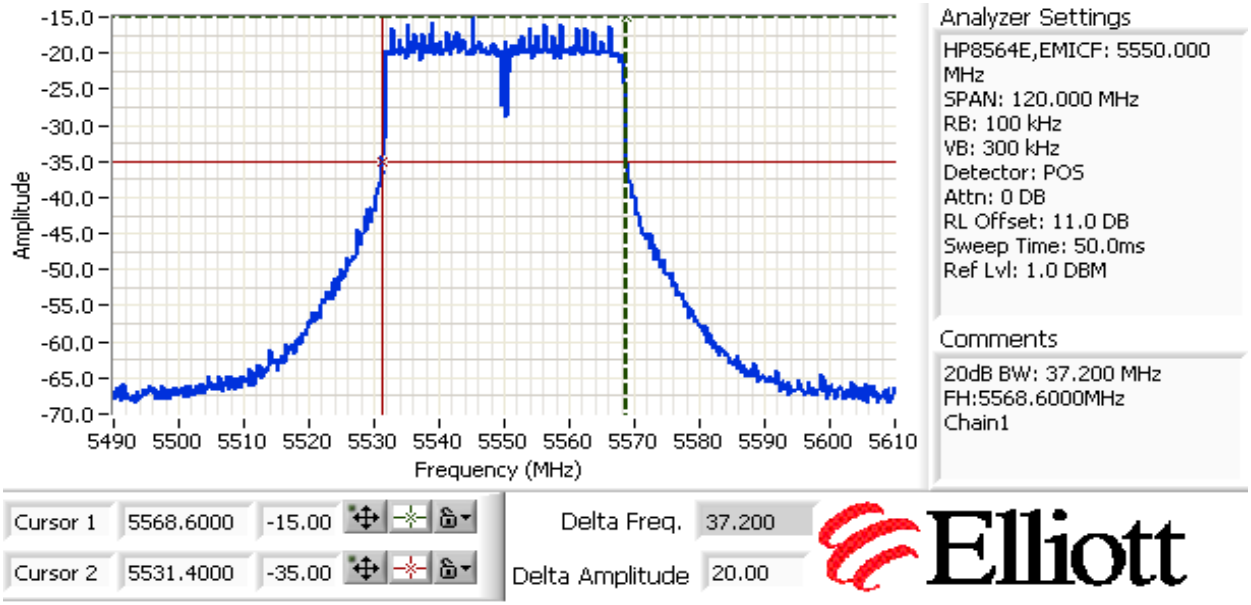
Note 1	Un-restricted signal
Note 2	Restricted band signal. Refer to the radiated spurious emissions results.

Client:	Ubiquiti Networks	Job Number:	J85880
Model:	NanoBridge M5	T-Log Number:	T85882
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A

Center channel, 5470 - 5725 MHz Band

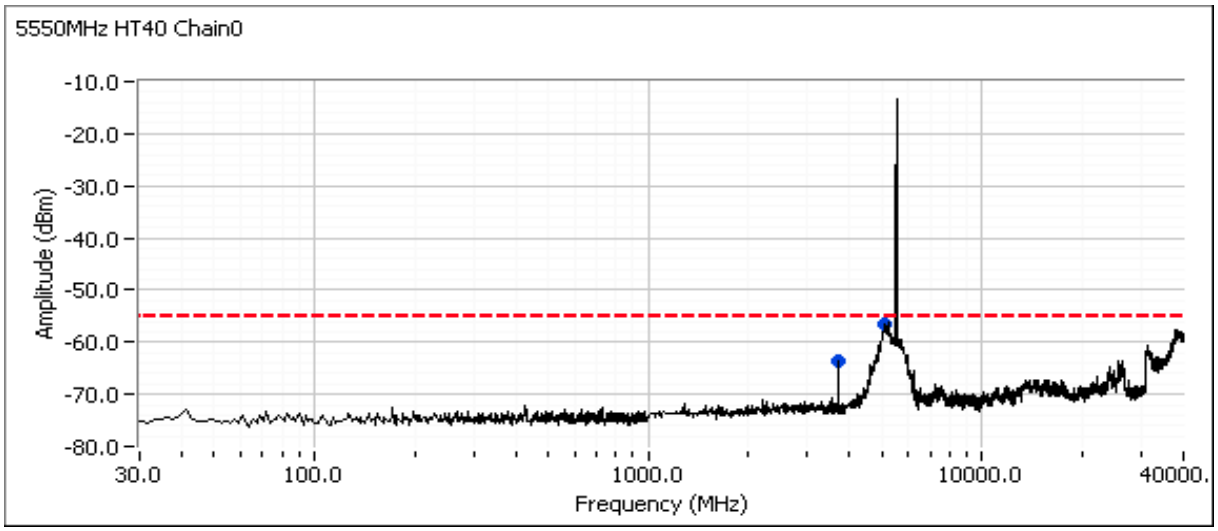
For master devices - This plot is showing hat the 20dB bandwidth of the channel closest to 5600 MHz does not spill into the 5600-5650 MHz band. RB > 1% of span.

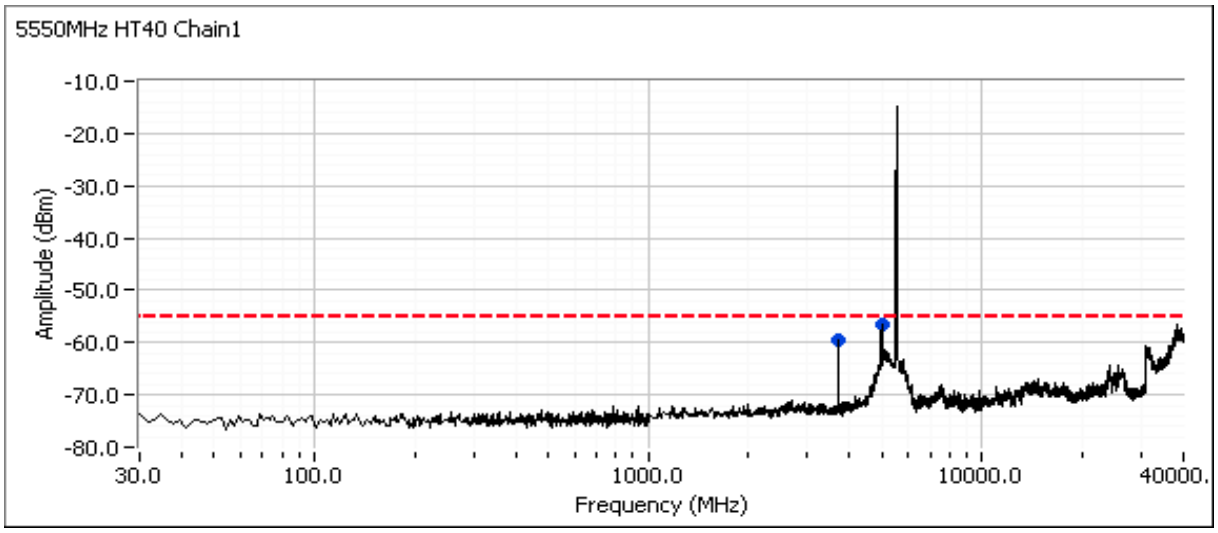




Client:	Ubiquiti Networks	Job Number:	J85880
Model:	NanoBridge M5	T-Log Number:	T85882
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A

Wide-band plot, RB=300kHz VB=100kHz (Peak measurements versus limit).





Client:	Ubiquiti Networks	Job Number:	J85880
Model:	NanoBridge M5	T-Log Number:	T85882
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A

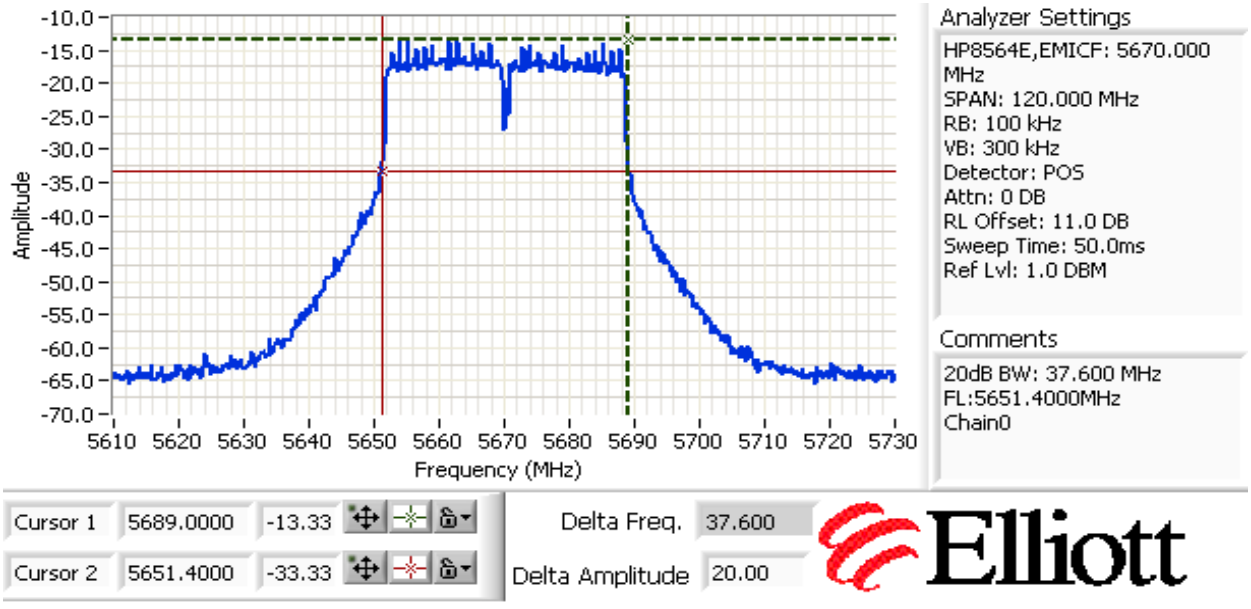
Wide-band result RB=1MHz VB=3MHz (Peak measurements versus limit).

Frequency	Level	Port	FCC 15 E / RSS 210		Detector	Comment				
MHz	dBm		Limit	Margin	Pk/QP/Avg	channel	mode/Chain	Ant. gain	Setting	Note
3700.050	-58.7	RF Port	-	-	PK	5550MHz	HT40/1	25	-0.5	Note2
4976.370	-48.8	RF Port	-	-	PK	5550MHz	HT40/1	25	-0.5	Note2
3700.100	-62.3	RF Port	-	-	PK	5550MHz	HT40/0	25	-0.5	Note2
5115.930	-49.8	RF Port	-	-	PK	5550MHz	HT40/0	25	-0.5	Note2

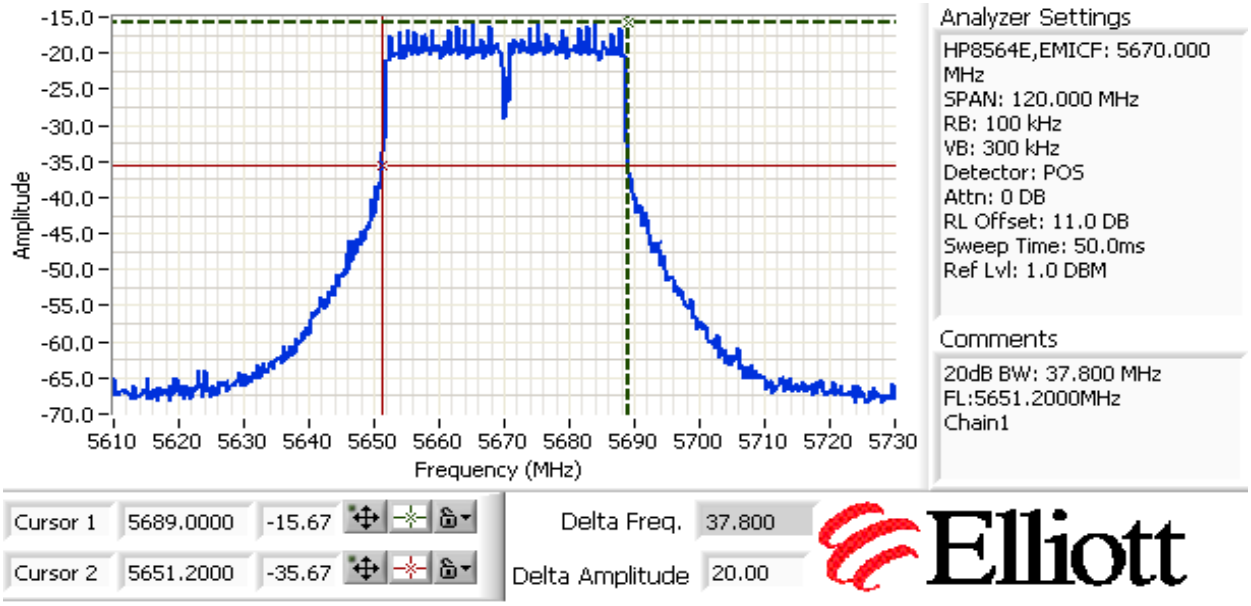
Note 1	Un-restricted signal
Note 2	Restricted band signal. Refer to the radiated spurious emissions results.

Channel adjacent to 5650 MHz (Master Device)

Plots showing that the 20dB bandwidth of the channel closest to 5650 MHz does not spill into the 5600-5650 MHz band. RB > 1% of span.



Client:	Ubiquiti Networks	Job Number:	J85880
Model:	NanoBridge M5	T-Log Number:	T85882
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A



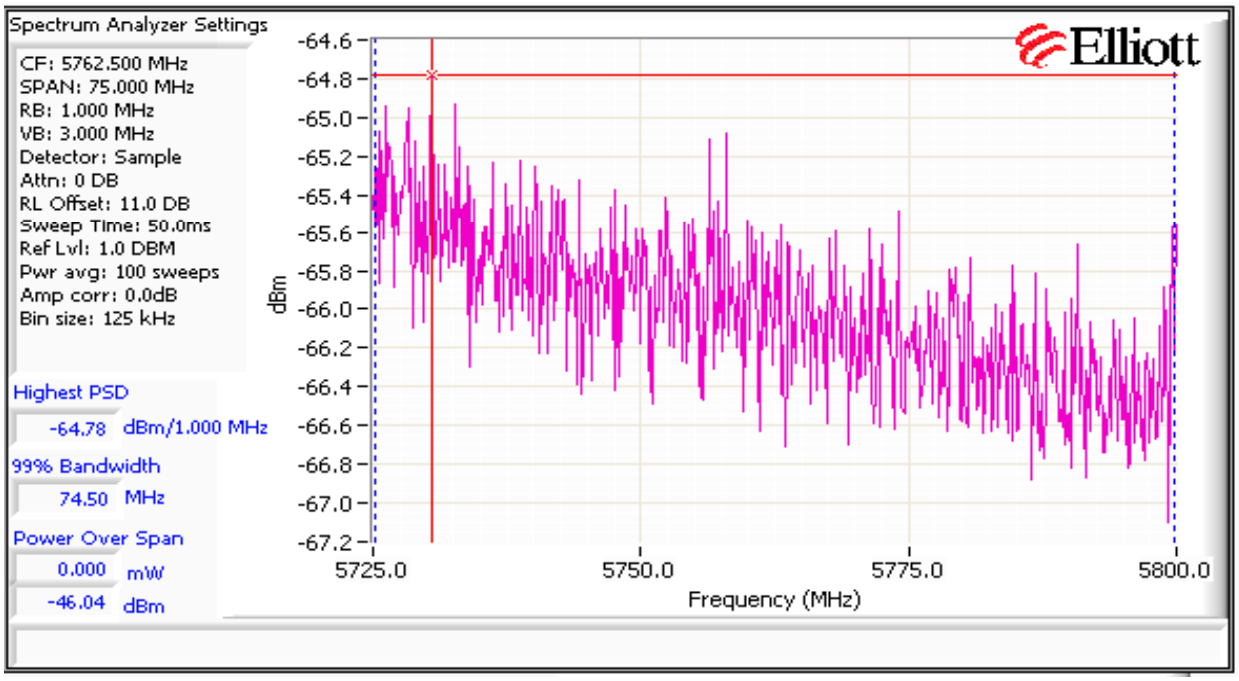
Client:	Ubiquiti Networks	Job Number:	J85880
Model:	NanoBridge M5	T-Log Number:	T85882
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A

High channel, 5470 - 5725 MHz Band

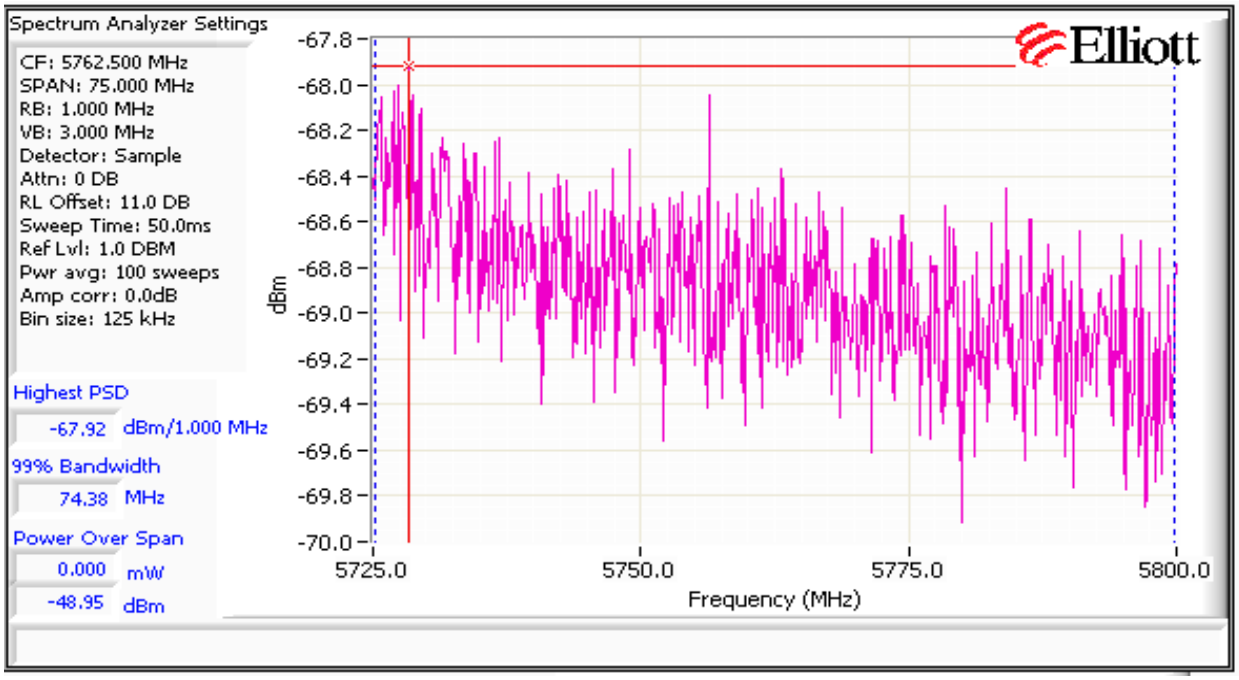
Plots for each chain showing compliance with the -27dBm/MHz limit above the 5725MHz band edge. Start and stop frequencies set to 5725-5800 MHz, RB=1MHz, VB=3MHz, power averaging enabled (100 traces):

Compliance with the -27dBm/MHz limit immediately above the band. Start and stop frequencies set to 5725-5775 MHz, RB=1MHz, VB=3MHz, power averaging enabled (100 traces)

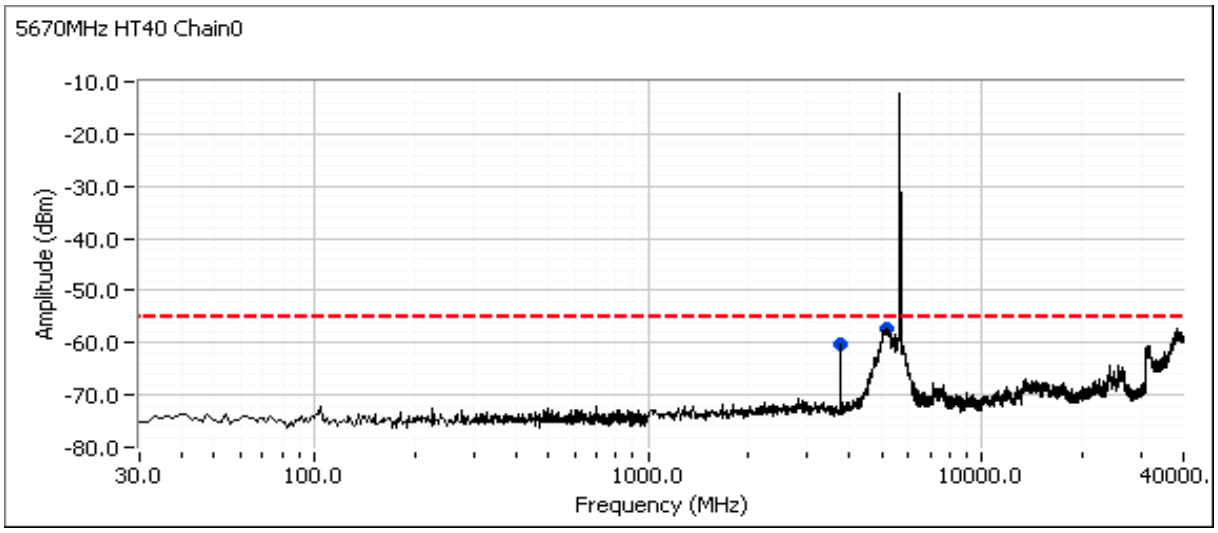
	Power Setting	Band edge Level dBm/MHz	Band edge Level mW/MHz	Antenna Gain (dBi)	EIRP mW/MHz	EIRP dBm/MHz	Total EIRP dBm/MHz	Limit dBm/MHz	Result
Chain 1	-	-64.8	0.00000	25.0	0.0001052	-39.8	-38.1	-27	PASS
Chain 2		-67.9	0.00000	25.0	5.105E-05	-42.9			



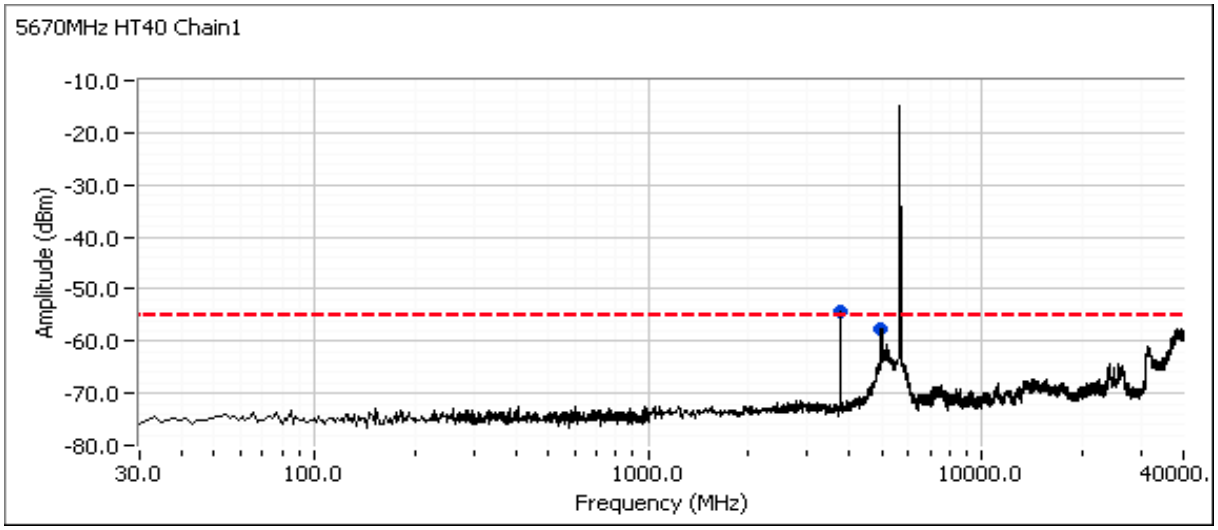
Client:	Ubiquiti Networks	Job Number:	J85880
Model:	NanoBridge M5	T-Log Number:	T85882
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A



Wide-band plot, RB=300kHz VB=100kHz (Peak measurements versus limit).



Client:	Ubiquiti Networks	Job Number:	J85880
Model:	NanoBridge M5	T-Log Number:	T85882
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A



Wide-band result RB=1MHz VB=3MHz (Peak measurements versus limit).

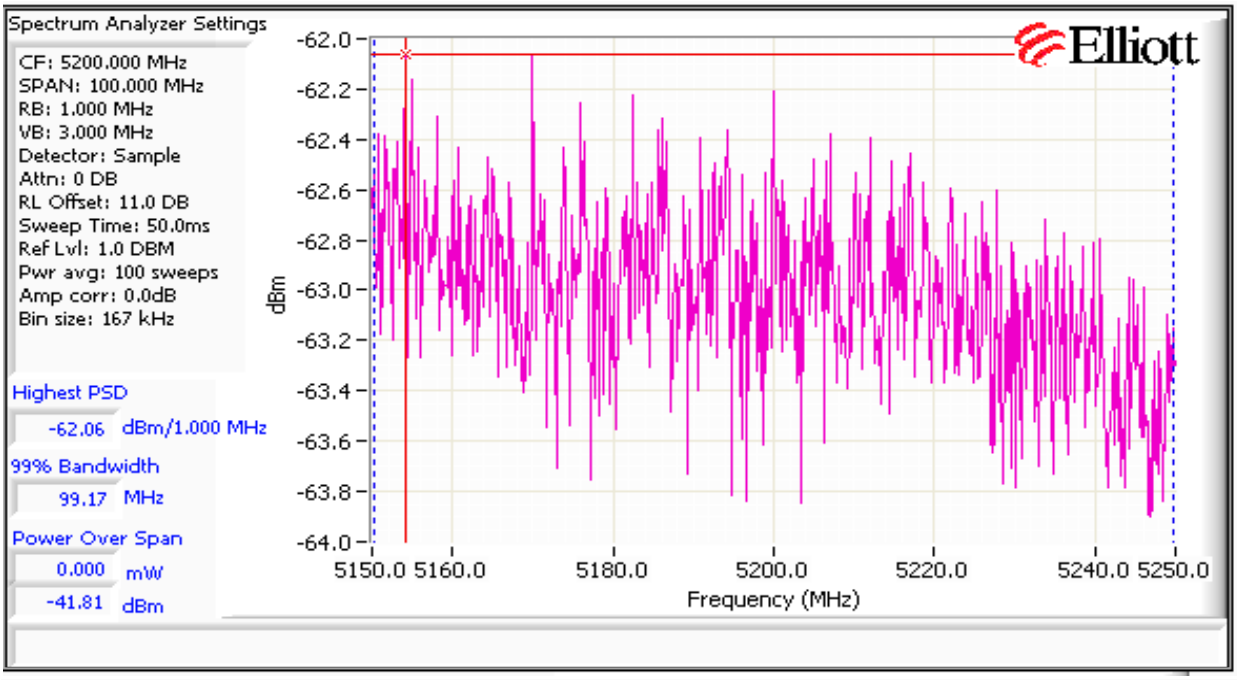
Frequency	Level	Port	FCC 15 E / RSS 210		Detector	Comment				
MHz	dBm		Limit	Margin	Pk/QP/Avg	channel	mode/Chain	Ant. gain	Setting	Note
4991.490	-49.6	RF Port	-	-	PK	5670MHz	HT40/1	25	-1.0	Note2
3780.110	-53.2	RF Port	-	-	PK	5670MHz	HT40/1	25	-1.0	Note2
3780.180	-59.1	RF Port	-	-	PK	5670MHz	HT40/0	25	-1.0	Note2
5164.830	-49.6	RF Port	-55.0	5.4	PK	5670MHz	HT40/0	25	-1.0	Note3

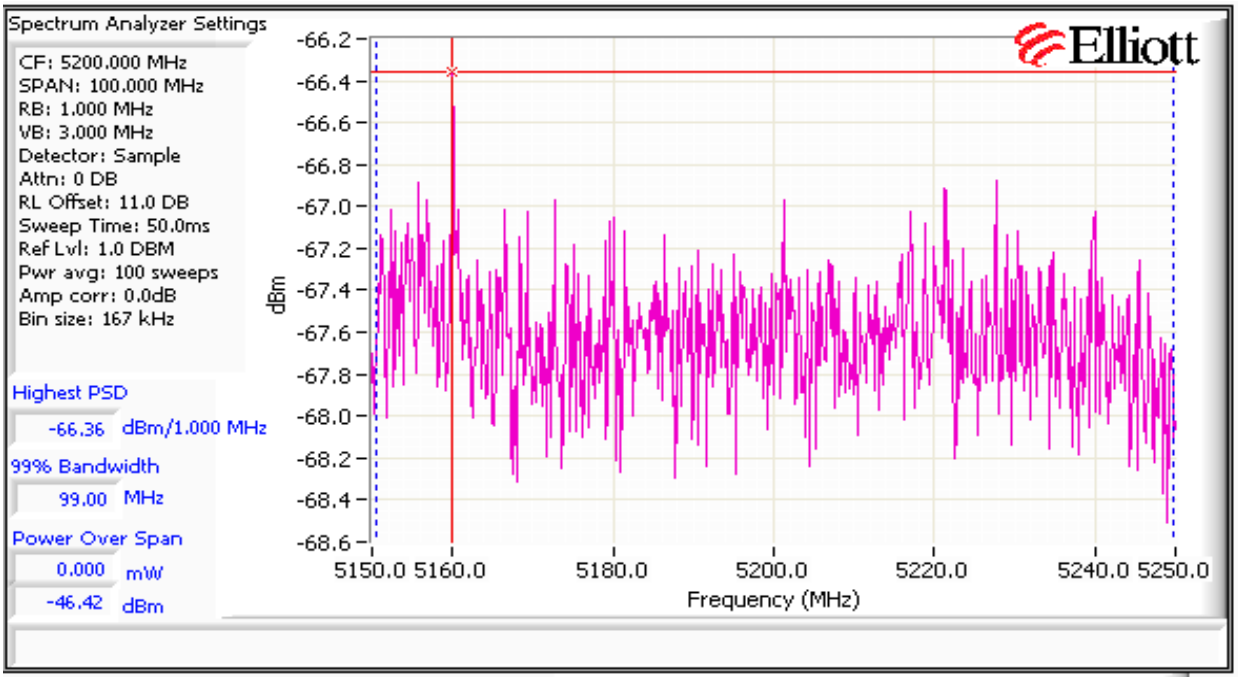
Note 1	Un-restricted signal
Note 2	Restricted band signal. Refer to the radiated spurious emissions results.
Note 3	Final measurements performed using 100sweep sample detector method. See below for final results.

5670MHz HT40
Eval 5164MHz using 100Sweep tech

	Power Setting	Band edge Level		Antenna Gain (dBi)	EIRP		Total EIRP dBm/MHz	Limit dBm/MHz	Result
		dBm/MHz	mW/MHz		mW/MHz	dBm/MHz			
Chain 1	-	-62.1	0.00000	25.0	0.0001968	-37.1	-35.7	-27	PASS
Chain 2		-66.4	0.00000	25.0	7.311E-05	-41.4			

Client:	Ubiquiti Networks	Job Number:	J85880
Model:	NanoBridge M5	T-Log Number:	T85882
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A





Client:	Ubiquiti Networks	Job Number:	J85880
Model:	NanoBridge M5	T-Log Number:	T85882
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A

RSS 210 and FCC 15.407 (UNII) 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 outside the chamber.

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

Ambient Conditions:

Temperature: 15-17 °C

Rel. Humidity: 40-60 %

Summary of Results

Run #	Mode	Channel	Power Setting	Measured Power	Test Performed	Limit	Result / Margin
Run # 1	5MHz Chain 0+1	5340MHz	-	-	Restricted Band Edge at 5350 MHz	15.209	53.1dBµV/m @ 5350.3MHz (-0.9dB)
Run # 1	5MHz Chain 0+1	5475MHz	-	-	Restricted Band Edge at 5460 MHz	15.209	53.5dBµV/m @ 5459.9MHz (-0.5dB)
Run # 2	20MHz Chain 0+1	5320MHz	-	-	Restricted Band Edge at 5350 MHz	15.209	50.2dBµV/m @ 5350.9MHz (-3.8dB)
Run # 2	20MHz Chain 0+1	5500MHz	-	-	Restricted Band Edge at 5460 MHz	15.209	53.9dBµV/m @ 5456.0MHz (-0.1dB)
Run # 3	40MHz Chain 0+1	5310MHz	-	-	Restricted Band Edge at 5350 MHz	15.209	53.6dBµV/m @ 5350.0MHz (-0.4dB)
Run # 3	40MHz Chain 0+1	5510MHz	-	-	Restricted Band Edge at 5460 MHz	15.209	53.5dBµV/m @ 5456.2MHz (-0.5dB)
Run # 4	Various	Various	-	-	Restricted Band Edge at 4500~5150 MHz	15.209	53.4dBµV/m @ 5104.3MHz (-0.6dB)

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:	Ubiquiti Networks	Job Number:	J85880
Model:	NanoBridge M5	T-Log Number:	T85882
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A

Test Procedure Comments:

Unless otherwise noted, average measurements above 1GHz were performed as documented in FCC KDB 789033 G) 6) d) Method VB

Antenna: 25dBi dish

Run # 1: Band Edge Field Strength - 5MHz, Chain 0+1

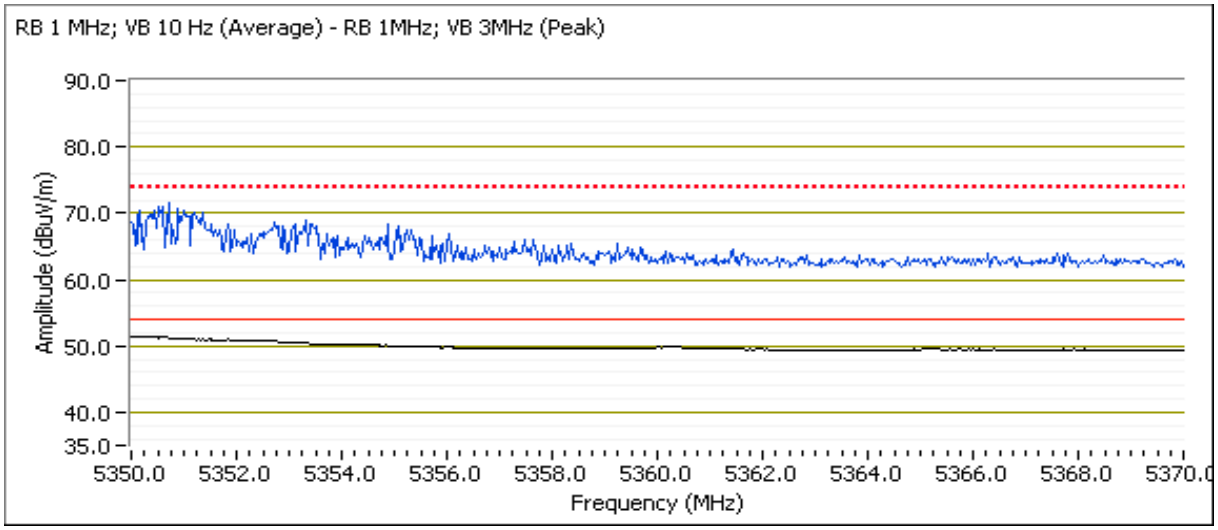
Run # 1b, EUT on Channel 5340MHz - 5MHz, Chain 0+1

Date of Test: 1/20/2012 Test Location: FT Chamber #7

Test Engineer: M. Birgani Config Change: 25dBi Dish Antenna

5350 MHz Band Edge Signal Radiated Field Strength

Frequency	Level	Pol	FCC 15.209		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5350.300	53.1	H	54.0	-0.9	AVG	2	1.1	
5350.870	52.7	V	54.0	-1.3	AVG	0	1.2	
5350.870	68.6	V	74.0	-5.4	PK	0	1.2	
5358.370	64.1	H	74.0	-9.9	PK	2	1.1	



Client:	Ubiquiti Networks	Job Number:	J85880
Model:	NanoBridge M5	T-Log Number:	T85882
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A

Run # 1c, EUT on Channel 5475MHz - 5MHz, Chain 0+1

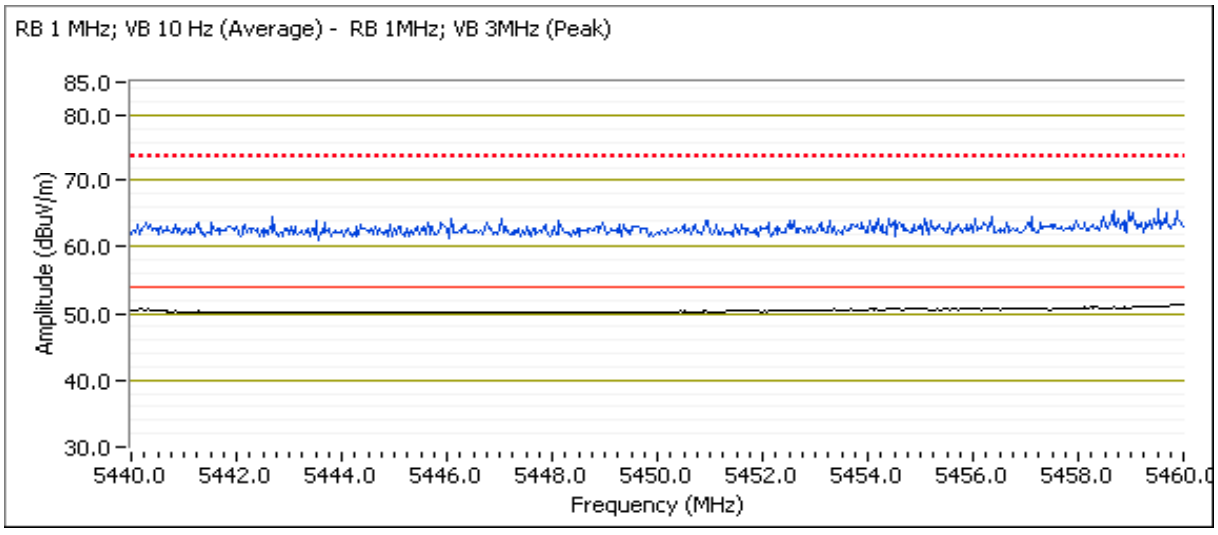
Date of Test: 1/20/2012 Test Location: FT Chamber #7

Test Engineer: M. Birgani Config Change: 25dBi Dish Antenna

5460 MHz Band Edge Radiated Field Strength

Frequency	Level	Pol	15.209		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5459.930	53.5	H	54.0	-0.5	AVG	360	1.1	
5459.930	51.0	V	54.0	-3.0	AVG	360	1.1	
5454.270	64.2	H	74.0	-9.8	PK	1	1.1	
5440.770	62.6	V	74.0	-11.4	PK	1	1.1	

For emissions in the restricted band immediately below 5460MHz the 15.209/RSS GEN limits apply.



Client:	Ubiquiti Networks	Job Number:	J85880
Model:	NanoBridge M5	T-Log Number:	T85882
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A

Run # 2, Band Edge Field Strength - 20MHz, Chain 0+1

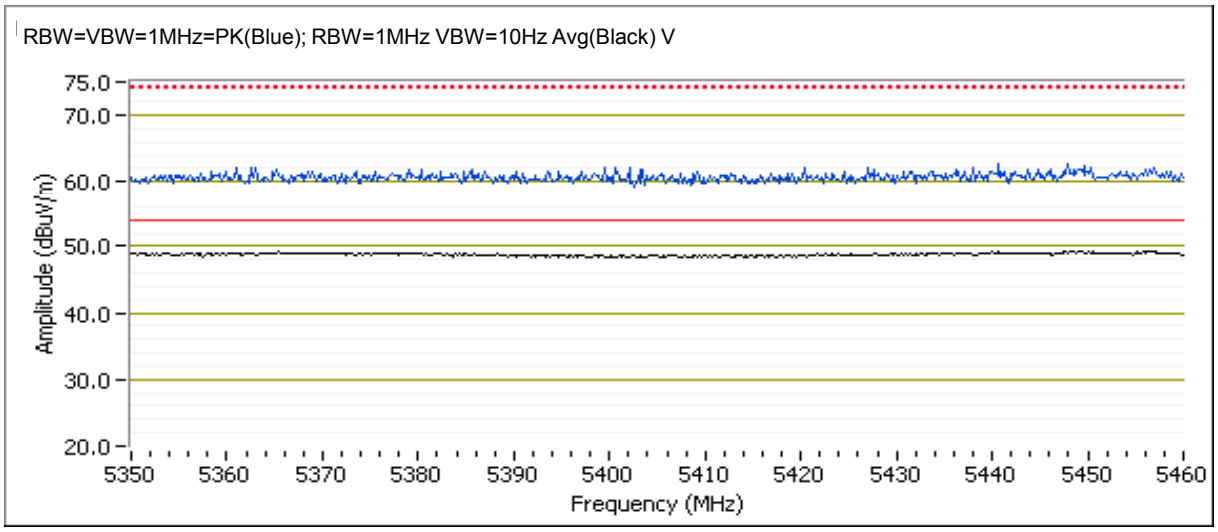
Run # 2b, EUT on Channel 5320MHz - 20MHz, Chain 0+1

Date of Test: 1/12/2012 Test Location: FT7

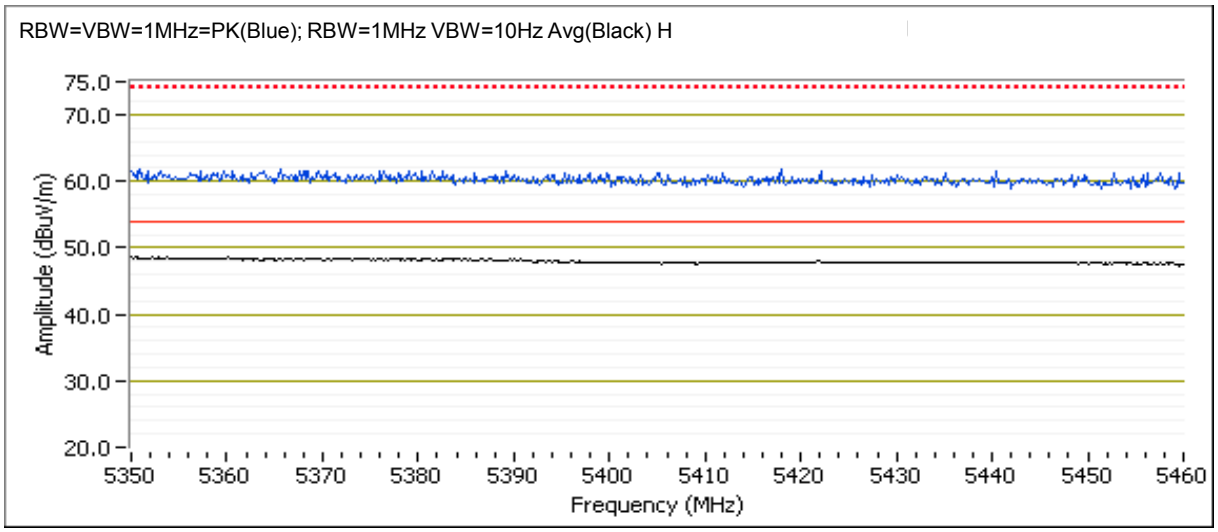
Test Engineer: Jack Liu Config Change: 25dBi Dish Antenna

5350 MHz Band Edge Signal Radiated Field Strength

Frequency	Level	Pol	FCC 15.209		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5368.430	50.0	V	54.0	-4.0	AVG	0	1.4	
5368.530	61.8	V	74.0	-12.2	PK	0	1.4	
5350.870	50.2	H	54.0	-3.8	AVG	0	1.4	
5350.300	62.2	H	74.0	-11.8	PK	0	1.4	



Client:	Ubiquiti Networks	Job Number:	J85880
Model:	NanoBridge M5	T-Log Number:	T85882
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A



Client:	Ubiquiti Networks	Job Number:	J85880
Model:	NanoBridge M5	T-Log Number:	T85882
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A

Run # 2c, EUT on Channel 5500MHz - 20MHz, Chain 0+1

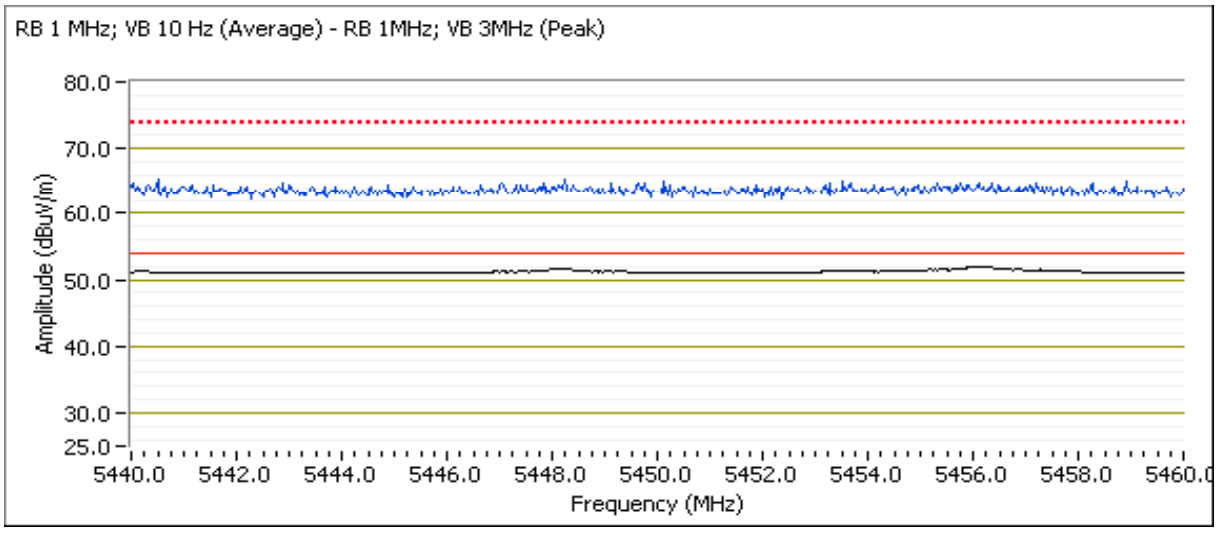
Date of Test: 1/20/2012 Test Location: FT Chamber #7

Test Engineer: M. Birgani Config Change: 25dBi Dish Antenna

5460 MHz Band Edge Radiated Field Strength

Frequency	Level	Pol	15.209		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5455.970	53.9	H	54.0	-0.1	AVG	0	1.1	
5456.070	51.0	V	54.0	-3.0	AVG	358	1.2	
5455.370	65.6	H	74.0	-8.4	PK	0	1.1	
5453.070	62.7	V	74.0	-11.3	PK	358	1.2	

For emissions in the restricted band immediately below 5460MHz the 15.209/RSS GEN limits apply.



Client:	Ubiquiti Networks	Job Number:	J85880
Model:	NanoBridge M5	T-Log Number:	T85882
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A

Run # 3, Band Edge Field Strength - 40MHz, Chain 0+1

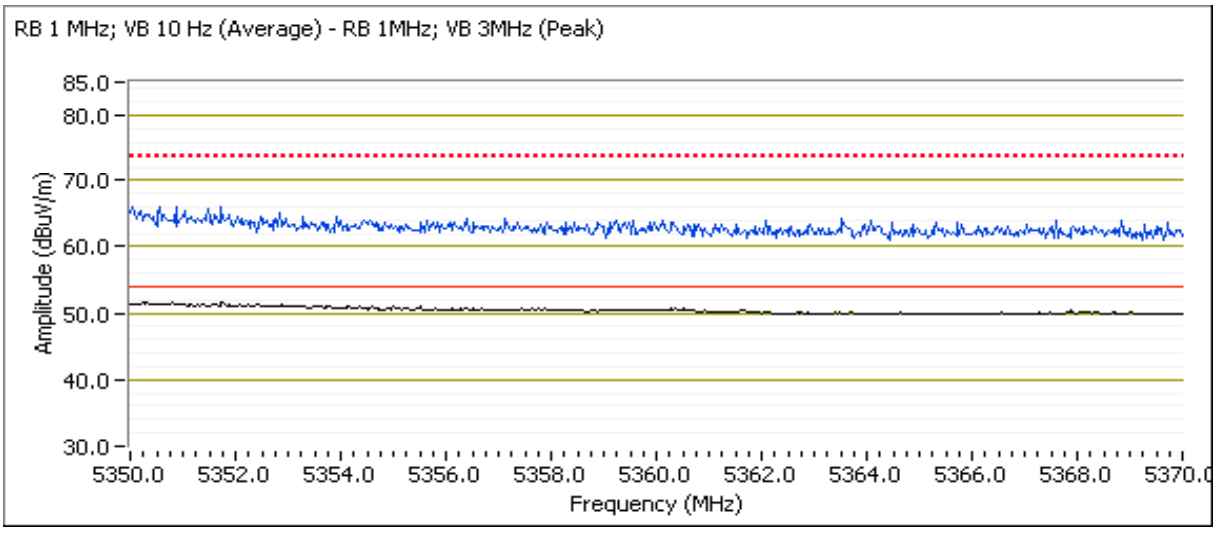
Run # 3b, EUT on Channel 5310MHz - 40MHz, Chain 0+1

Date of Test: 1/20/2012 Test Location: FT Chamber #7

Test Engineer: M. Birgani Config Change: 25dBi Dish Antenna

5350 MHz Band Edge Signal Radiated Field Strength

Frequency	Level	Pol	FCC 15.209		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5350.030	53.6	V	54.0	-0.4	AVG	0	1.3	
5350.070	53.3	H	54.0	-0.7	AVG	0	1.1	
5351.500	64.7	H	74.0	-9.3	PK	0	1.1	
5351.200	64.3	V	74.0	-9.7	PK	0	1.3	



Client:	Ubiquiti Networks	Job Number:	J85880
Model:	NanoBridge M5	T-Log Number:	T85882
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A

Run # 3c, EUT on Channel 5510MHz - 40MHz, Chain 0+1

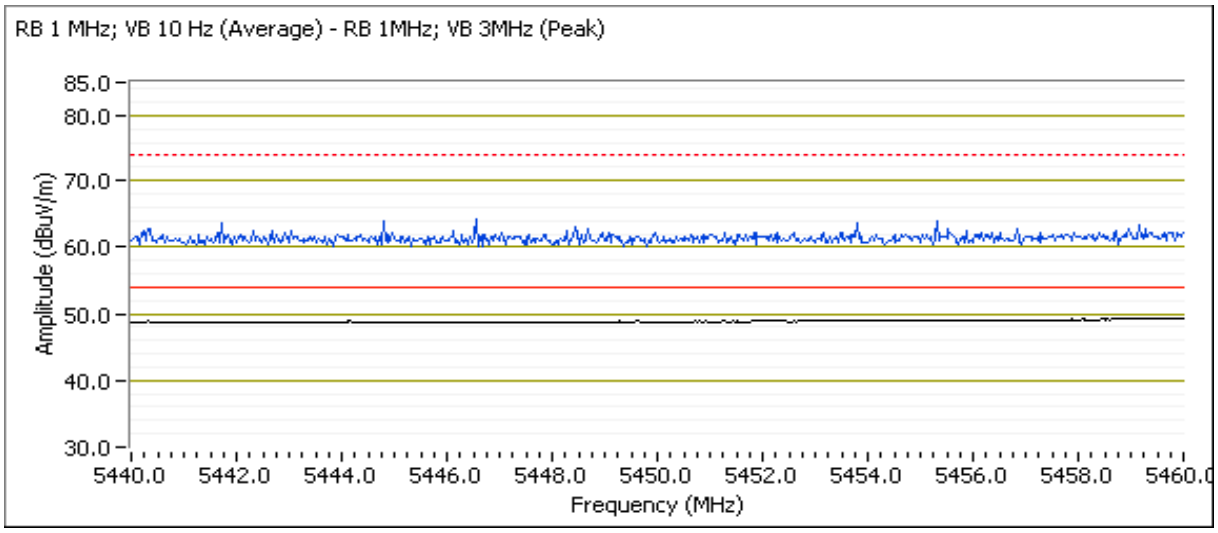
Date of Test: 1/20/2012 Test Location: FT Chamber #7

Test Engineer: M. Birgani Config Change: 25dBi Dish Antenna

5460 MHz Band Edge Radiated Field Strength

Frequency	Level	Pol	15.209		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5456.170	53.5	H	54.0	-0.5	AVG	2	1.1	
5455.230	51.5	V	54.0	-2.5	AVG	360	1.3	
5459.500	64.4	H	74.0	-9.6	PK	2	1.1	
5450.070	62.4	V	74.0	-11.6	PK	360	1.3	

For emissions in the restricted band immediately below 5460MHz the 15.209/RSS GEN limits apply.



Client:	Ubiquiti Networks	Job Number:	J85880
Model:	NanoBridge M5	T-Log Number:	T85882
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A

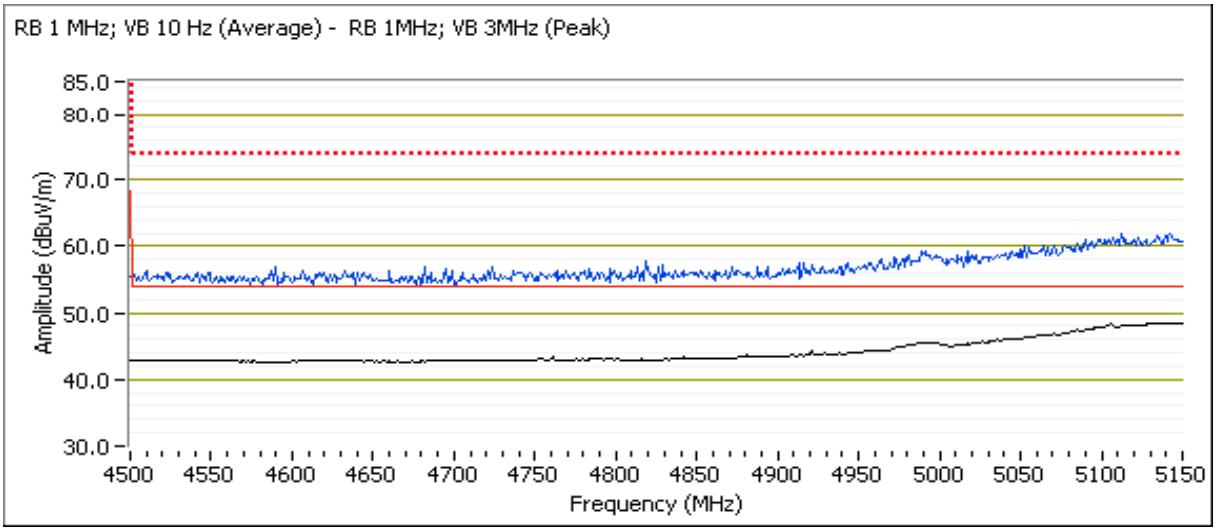
Run # 4, 4500~5150 Band Edge Eval, Chain 0+1

Date of Test: 1/20/2012 Test Location: FT Chamber #7

Test Engineer: M. Birgani Config Change: 25dBi Dish Antenna

Note: EUT configured to transmit the following: HT5 - 5475 MHz, 5595 MHz, 5715 MHz; HT20 - 5265 MHz, 5300 MHz, 5320 MHz, 5700 MHz; HT40 - 5275 MHz. Emission level maximized for each and worse case plot shown below. Showing that the emissions near the operating band in the spurious emissions plots were artificially high due to the correction factor for the band reject filters used.

Frequency	Level	Pol	15.209		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5104.330	53.4	V	54.0	-0.6	AVG	0	1.1	RB 1 MHz;VB 10 Hz;Pk
5104.170	51.4	H	54.0	-2.6	AVG	358	1.1	RB 1 MHz;VB 10 Hz;Pk
5123.920	64.9	V	74.0	-9.1	PK	0	1.1	RB 1 MHz;VB 3 MHz;Pk
5149.170	62.3	H	74.0	-11.7	PK	358	1.1	RB 1 MHz;VB 3 MHz;Pk



Client:	Ubiquiti Networks	Job Number:	J85880
Model:	NanoBridge M5	T-Log Number:	T85882
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A

RSS 210 and FCC 15.407 (UNII) Radiated Spurious Emissions

Test Specific Details

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

General Test Configuration

The EUT was mounted on a tripod on the turntable for radiated spurious emissions testing. The bottom of the EUT dish antenna was 1.2m above the ground plane. All remote support equipment was located outside the chamber, with the I/O connection running under the groundplane.

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

Ambient Conditions:

Temperature: 22.1 °C
Rel. Humidity: 35 %

Summary of Results

Run #	Mode	Channel	Power Setting	Measured Power	Test Performed	Limit	Result / Margin
Run #1	5MHz Chain 0+1	5255MHz	-	-	Radiated Emissions, 1 - 40 GHz	FCC 15.209 / 15 E	49.7dBµV/m @ 1170.1MHz (-4.3dB)
		5300MHz	-	-			50.0dBµV/m @ 1170.0MHz (-4.0dB)
		5340MHz	-	-			42.0 dBµV/m @ 5427.6 MHz (-12.0 dB)
Run #1	5MHz Chain 0+1	5475MHz	-	-	Radiated Emissions, 1 - 40 GHz	FCC 15.209 / 15 E	52.5dBµV/m @ 1170.0MHz (-1.5dB)
		5595MHz	-	-			52.4dBµV/m @ 1170.1MHz (-1.6dB)
		5715MHz	-	-			52.5dBµV/m @ 1170.1MHz (-1.5dB)
Run # 2	20MHz Chain 0+1	5265MHz	-	-	Radiated Emissions, 1 - 40 GHz	FCC 15.209 / 15 E	45.1 dBµV/m @ 1560.1 MHz (-8.9 dB)
		5300MHz	-	-			46.9dBµV/m @ 10601.1MHz (-7.1dB)
		5320MHz	-	-			50.9dBµV/m @ 1170.2MHz (-3.1dB)

Client:	Ubiquiti Networks	Job Number:	J85880
Model:	NanoBridge M5	T-Log Number:	T85882
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A

Run #	Mode	Channel	Power Setting	Measured Power	Test Performed	Limit	Result / Margin
Run # 2	20MHz Chain 0+1	5500MHz	-	-	Radiated Emissions, 1 - 40 GHz	FCC 15.209 / 15 E	52.4dBµV/m @ 1170.1MHz (-1.6dB)
		5580MHz	-	-			52.6dBµV/m @ 1170.1MHz (-1.4dB)
		5700MHz	-	-			49.8dBµV/m @ 1170.1MHz (-4.2dB)
Run # 3	40MHz Chain 0+1	5275MHz	-	-	Radiated Emissions, 1 - 40 GHz	FCC 15.209 / 15 E	53.3 dBµV/m @ 5449.6 MHz (-0.7 dB)
		-	-	-			-
		5310MHz	-	-			50.7dBµV/m @ 1170.1MHz (-3.3dB)
Run # 3	40MHz Chain 0+1	5510MHz	-	-	Radiated Emissions, 1 - 40 GHz	FCC 15.209 / 15 E	52.9dBµV/m @ 1170.1MHz (-1.1dB)
		5550MHz	-	-			51.7dBµV/m @ 1170.1MHz (-2.3dB)
		5670MHz	-	-			52.8dBµV/m @ 1170.1MHz (-1.2dB)
Run #4	RX Mode	5300MHz	-	-	Radiated Emissions, 1 - 18 GHz	RSS-GEN	52.9 dBµV/m @ 3120.1 MHz (-1.1 dB)
		5580MHz	-	-			53.3 dBµV/m @ 3120.1 MHz (-0.7 dB)

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.

Test Procedure Comments:

Unless otherwise noted, average measurements above 1GHz were performed as documented in FCC KDB 789033 G) 6) d) Method VB

Antenna: 25dBi Dish
Duty Cycle: N/A

Client:	Ubiquiti Networks	Job Number:	J85880
Model:	NanoBridge M5	T-Log Number:	T85882
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A

Run #1, Radiated Spurious Emissions, 1-40GHz, 5MHz, Chain 0+1

Date of Test: 12/29/2011 Test Location: FT Chamber #3

Test Engineer: Joseph Cadigal Config Change: none

For emissions in restricted bands, the limit of 15.209 was used. For all other emissions, the limit is -27dBm eirp (68.3dBuV/m @3m).

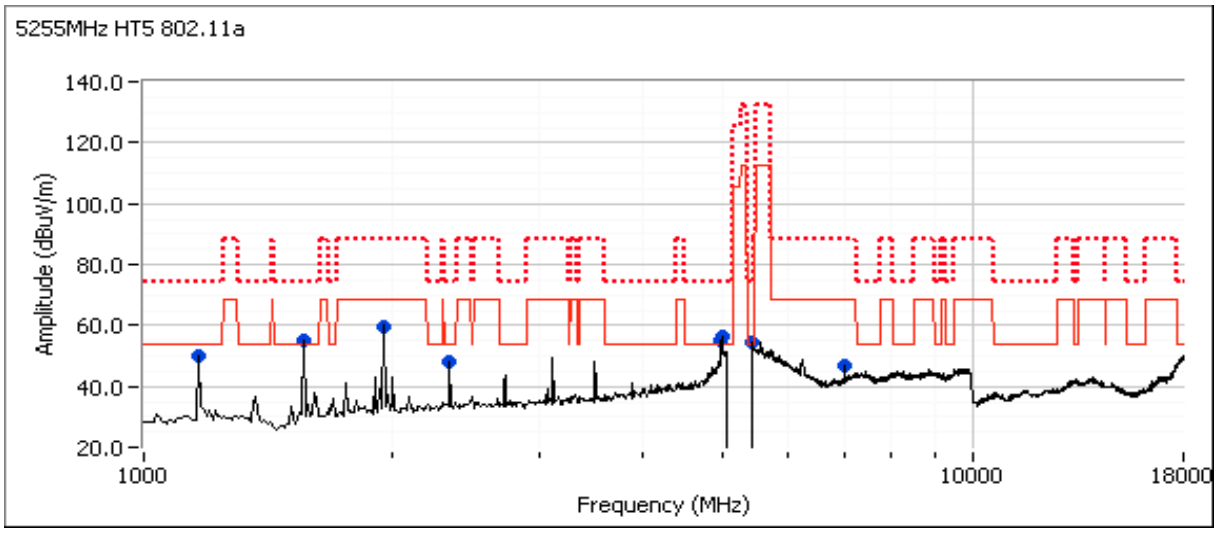
Run #1a: EUT on Channel 5255MHz - 5MHz, Chain 0+1

Spurious Radiated Emissions:

Frequency	Level	Pol	15.209 / 15E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
1170.050	49.7	H	54.0	-4.3	AVG	27	1.6	
5428.700	49.1	V	54.0	-4.9	AVG	9	1.3	Note 3
2340.080	46.9	H	54.0	-7.1	AVG	9	1.3	
4980.260	43.8	H	54.0	-10.2	AVG	5	1.0	Note 3
4992.620	42.1	H	54.0	-11.9	AVG	360	1.6	Note 3
5426.910	60.1	V	74.0	-13.9	PK	9	1.3	Note 3
4978.940	59.2	H	74.0	-14.8	PK	5	1.0	Note 3
4991.220	58.4	H	74.0	-15.6	PK	360	1.6	Note 3
1170.100	50.8	H	74.0	-23.2	PK	27	1.6	
2340.040	49.2	H	74.0	-24.8	PK	9	1.3	
1950.070	59.3	V	-	-	AVG	18	1.0	Note 2
7006.930	41.8	H	-	-	AVG	5	1.3	Note 2
1950.080	59.9	V	-	-	PK	18	1.0	Note 2
7006.790	49.3	H	-	-	PK	5	1.3	Note 2
1560.060	54.8	V	-	-	AVG	356	1.9	Note 4
1560.010	55.5	V	-	-	PK	356	1.9	Note 4

Note 1:	For emissions in restricted bands, the limit of 15.209 was used which requires average and peak measurements.
Note 2:	For emissions outside of the restricted bands the limit is -27dBm/MHz eirp (68.3dBuV/m). Refer to RF port measurements for any significant emissions.
Note 3:	For any emissions exceeding the restricted band limits in 4500MHz~5150MHz and 5350~5460MHz range please refer to band Edge testing result.
Note 4:	Digital signal. 1:Radio off the siganl still on. 2: Radio on and Change the channel. The signal didn't change or move

Client:	Ubiquiti Networks	Job Number:	J85880
Model:	NanoBridge M5	T-Log Number:	T85882
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A



Client:	Ubiquiti Networks	Job Number:	J85880
Model:	NanoBridge M5	T-Log Number:	T85882
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A

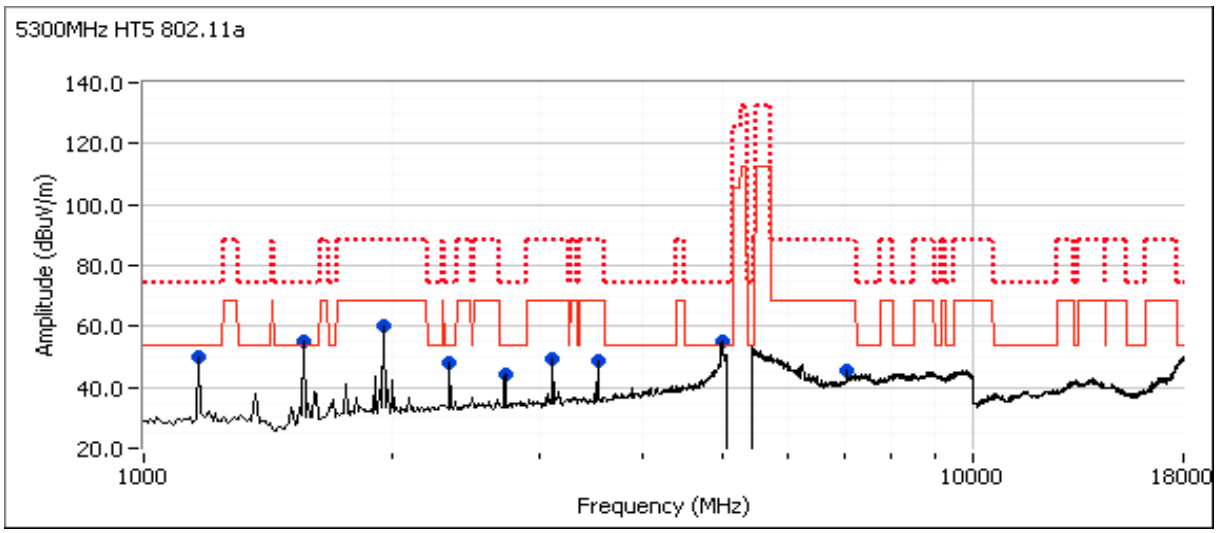
Run #1b: EUT on Channel 5300MHz - 5MHz, Chain 0+1

Spurious Radiated Emissions:

Frequency	Level	Pol	15.209 / 15E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
1170.040	50.0	H	54.0	-4.0	AVG	32	1.6	
1170.060	49.9	H	54.0	-4.1	AVG	32	1.6	
2340.080	46.5	H	54.0	-7.5	AVG	12	1.3	
4998.710	44.5	H	54.0	-9.5	AVG	12	1.3	Note 3
2730.100	44.0	H	54.0	-10.0	AVG	167	1.3	
4998.980	60.1	H	74.0	-13.9	PK	12	1.3	Note 3
1170.040	50.9	H	74.0	-23.1	PK	32	1.6	
1169.980	50.9	H	74.0	-23.1	PK	32	1.6	
2340.240	49.1	H	74.0	-24.9	PK	12	1.3	
2729.980	47.1	H	74.0	-26.9	PK	167	1.3	
7066.980	42.8	V	-	-	AVG	340	1.6	Note 2
7066.930	50.5	V	-	-	PK	340	1.6	Note 2
3533.450	48.5	V	-	-	AVG	4	1.3	Note 2
3533.420	50.9	V	-	-	PK	4	1.3	Note 2
3120.190	51.9	H	-	-	PK	1	1.3	Note 2
3120.120	49.3	H	-	-	AVG	1	1.3	Note 2
1950.120	60.0	H	-	-	PK	40	1.3	Note 2
1950.090	59.4	H	-	-	AVG	40	1.3	Note 2

Note 1:	For emissions in restricted bands, the limit of 15.209 was used which requires average and peak measurements.
Note 2:	For emissions outside of the restricted bands the limit is -27dBm/MHz eirp (68.3dBuV/m). Refer to RF port measurements for any significant emissions.
Note 3:	For any emissions exceeding the restricted band limits in 4500MHz~5150MHz and 5350~5460MHz range please refer to band Edge testing result.
Note 4:	Digital signal. 1:Radio off the siganl still on. 2: Radio on and Change the channel. The signal didn't change or move
Note 5:	Scans made between 18 - 40GHz with the measurement antenna moved around the card and its antennas 20-50cm from the device indicated there were no signifcant emissions in this frequency range

Client:	Ubiquiti Networks	Job Number:	J85880
Model:	NanoBridge M5	T-Log Number:	T85882
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A



Client:	Ubiquiti Networks	Job Number:	J85880
Model:	NanoBridge M5	T-Log Number:	T85882
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A

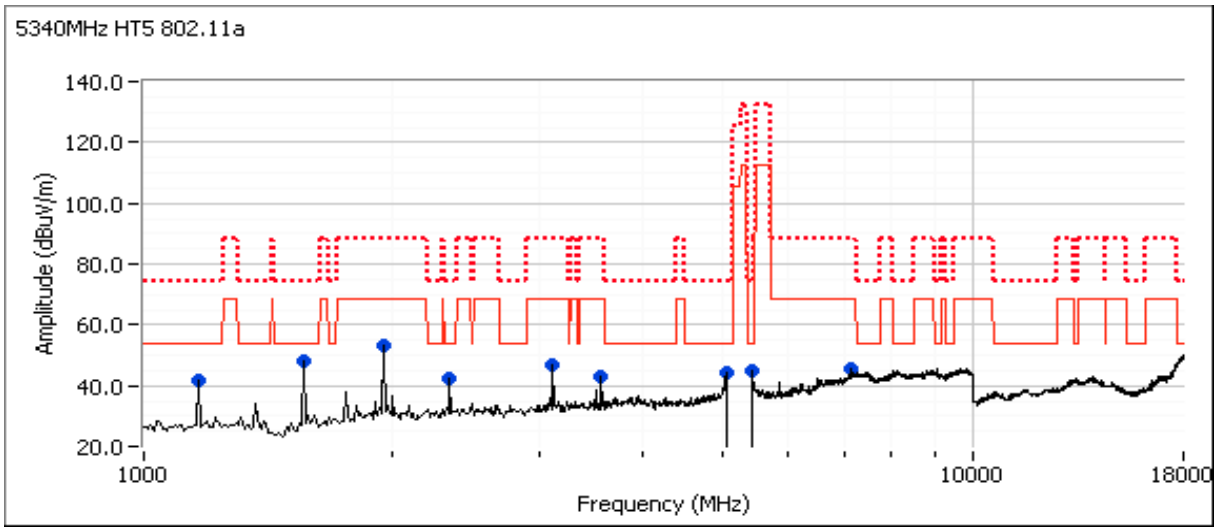
Run #1c: EUT on Channel 5340MHz - 5MHz, Chain 0+1

Spurious Radiated Emissions:

Frequency	Level	Pol	15.209 / 15E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5427.590	42.0	H	54.0	-12.0	AVG	341	1.0	Note 3
5044.780	41.1	H	54.0	-12.9	AVG	310	1.0	Note 3
1170.030	35.3	H	54.0	-18.7	AVG	310	1.0	
2339.980	34.1	H	54.0	-19.9	AVG	310	1.0	
5429.080	52.8	H	74.0	-21.2	PK	341	1.0	Note 3
5046.610	52.4	H	74.0	-21.6	PK	310	1.0	Note 3
2340.230	41.5	H	74.0	-32.5	PK	310	1.0	
1170.120	40.3	H	74.0	-33.7	PK	310	1.0	
7126.920	41.1	V	-	-	AVG	310	2.2	Note 2
7126.920	50.1	V	-	-	PK	310	2.2	Note 2
3563.470	43.5	H	-	-	AVG	341	1.0	Note 2
3563.460	47.2	H	-	-	PK	341	1.0	Note 2
3120.180	49.1	H	-	-	PK	341	1.0	Note 2
3120.110	46.1	H	-	-	AVG	341	1.0	Note 2
1950.120	51.5	H	-	-	PK	341	1.0	Note 2
1950.070	50.1	H	-	-	AVG	341	1.0	Note 2
1560.060	44.4	H	-	-	AVG	310	1.0	Note 4
1559.980	46.2	H	-	-	PK	310	1.0	Note 4

Note 1:	For emissions in restricted bands, the limit of 15.209 was used which requires average and peak measurements.
Note 2:	For emissions outside of the restricted bands the limit is -27dBm/MHz eirp (68.3dBuV/m). Refer to RF port measurements for any significant emissions.
Note 3:	For any emissions exceeding the restricted band limits in 4500MHz~5150MHz and 5350~5460MHz range please refer to band Edge testing result.
Note 4:	Digital signal. 1:Radio off the siganl still on. 2: Radio on and Change the channel. The signal didn't change or move

Client:	Ubiquiti Networks	Job Number:	J85880
Model:	NanoBridge M5	T-Log Number:	T85882
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A



Client:	Ubiquiti Networks	Job Number:	J85880
Model:	NanoBridge M5	T-Log Number:	T85882
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A

Run #1d: EUT on Channel 5475MHz - 5MHz, Chain 0+1

Date of Test: 1/9/2012 Test Location: FT Chamber #4

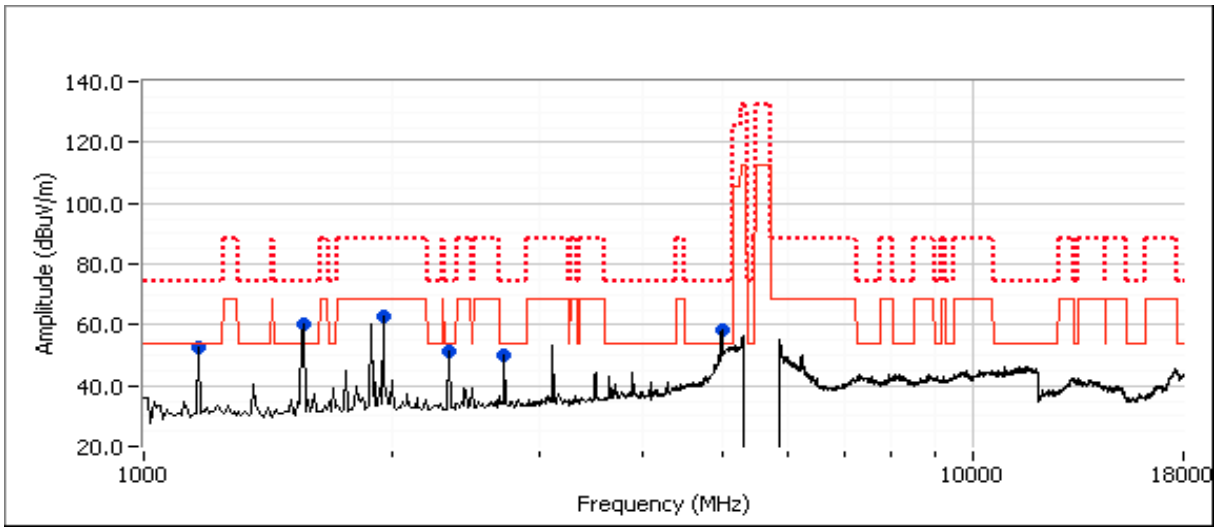
Test Engineer: Rafael Varelas Config Change: none

Spurious Radiated Emissions:

Frequency	Level	Pol	15.209 / 15E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
1170.040	52.5	H	54.0	-1.5	AVG	34	1.0	
1169.940	53.8	H	74.0	-20.2	PK	34	1.0	
2340.140	46.9	V	54.0	-7.1	AVG	1	1.1	
2340.090	49.5	V	74.0	-24.5	PK	1	1.1	
1560.110	60.1	H	54.0	6.1	AVG	36	1.5	Note 4
1560.060	60.7	H	74.0	-13.3	PK	36	1.5	Note 4
1950.120	61.3	V	-	-	AVG	5	1.1	Note 4
1950.150	62.1	V	-	-	PK	5	1.1	Note 4
2730.140	47.0	V	54.0	-7.0	AVG	154	1.4	
2729.870	49.9	V	74.0	-24.1	PK	154	1.4	
4997.200	58.4	V	-	-	Peak	360	1.6	Note 3

Note 1:	For emissions in restricted bands, the limit of 15.209 was used which requires average and peak measurements.
Note 2:	For emissions outside of the restricted bands the limit is -27dBm/MHz eirp (68.3dBuV/m). Refer to RF port measurements for any significant emissions.
Note 3:	For any emissions exceeding the restricted band limits in 4500MHz~5150MHz and 5350~5460MHz range please refer to band Edge testing result.
Note 4:	Digital signal. 1:Radio off the siganl still on. 2: Radio on and Change the channel. The signal didn't change or move

Client:	Ubiquiti Networks	Job Number:	J85880
Model:	NanoBridge M5	T-Log Number:	T85882
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A



Client:	Ubiquiti Networks	Job Number:	J85880
Model:	NanoBridge M5	T-Log Number:	T85882
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A

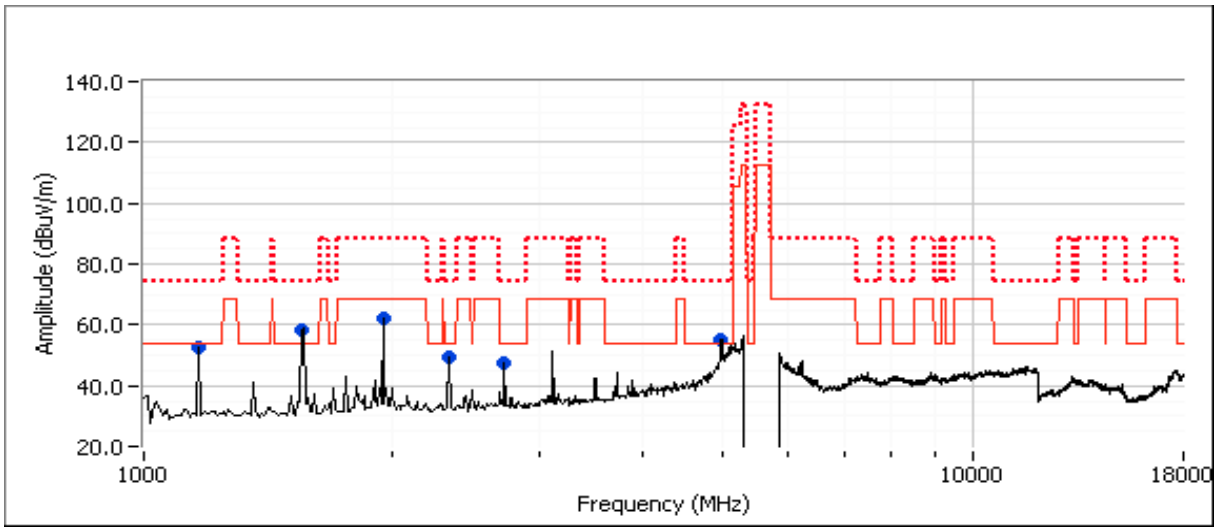
Run #1e: EUT on Channel 5595MHz - 5MHz, Chain 0+1

Spurious Radiated Emissions:

Frequency	Level	Pol	15.209 / 15E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
1170.100	52.4	H	54.0	-1.6	AVG	30	1.0	
1170.110	53.8	H	74.0	-20.2	PK	30	1.0	
2340.140	50.3	H	54.0	-3.7	AVG	355	1.3	
2339.790	52.2	H	74.0	-21.8	PK	355	1.3	
2730.150	47.2	H	54.0	-6.8	AVG	161	1.0	
2730.330	50.0	H	74.0	-24.0	PK	161	1.0	
1950.100	62.5	H	-	-	AVG	28	1.3	Note 4
1950.170	63.2	H	-	-	PK	28	1.3	Note 4
1560.090	59.7	H	-	-	AVG	31	1.5	Note 4
1560.210	60.4	H	-	-	PK	31	1.5	Note 4
4997.640	55.2	H	-	-	Peak	2	1.0	Note 3

Note 1:	For emissions in restricted bands, the limit of 15.209 was used which requires average and peak measurements.
Note 2:	For emissions outside of the restricted bands the limit is -27dBm/MHz eirp (68.3dBuV/m). Refer to RF port measurements for any significant emissions.
Note 3:	For any emissions exceeding the restricted band limits in 4500MHz~5150MHz and 5350~5460MHz range please refer to band Edge testing result.
Note 4:	Digital signal. 1:Radio off the siganl still on. 2: Radio on and Change the channel. The signal didn't change or move
Note 5:	Scans made between 18 - 40GHz with the measurement antenna moved around the card and its antennas 20-50cm from the device indicated there were no signifcant emissions in this frequency range

Client:	Ubiquiti Networks	Job Number:	J85880
Model:	NanoBridge M5	T-Log Number:	T85882
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A



Client:	Ubiquiti Networks	Job Number:	J85880
Model:	NanoBridge M5	T-Log Number:	T85882
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A

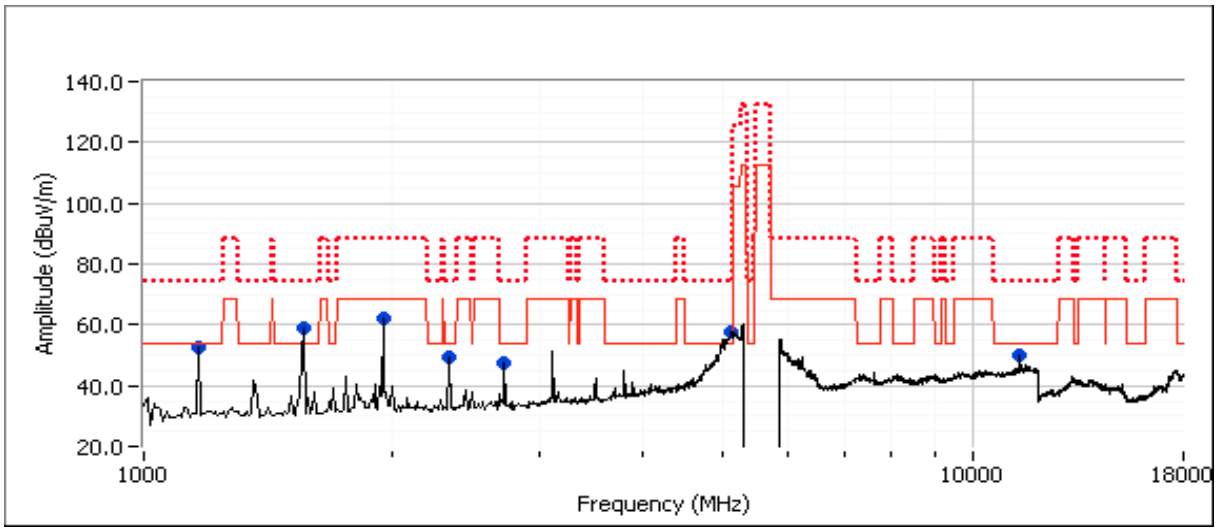
Run #1f: EUT on Channel 5715MHz - 5MHz, Chain 0+1

Spurious Radiated Emissions:

Frequency	Level	Pol	15.209 / 15E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
1170.080	52.5	H	54.0	-1.5	AVG	41	1.0	
1170.160	54.5	H	74.0	-19.5	PK	41	1.0	
11430.520	46.8	H	54.0	-7.2	AVG	11	1.3	
11430.020	58.3	H	74.0	-15.7	PK	11	1.3	
2730.130	47.2	H	54.0	-6.8	AVG	154	1.0	
2729.990	50.0	H	74.0	-24.0	PK	154	1.0	
2340.120	49.8	H	54.0	-4.2	AVG	358	1.3	
2340.200	51.9	H	74.0	-22.1	PK	358	1.3	
1560.130	59.8	H	-	-	AVG	32	1.5	Note 4
1560.110	60.3	H	-	-	PK	32	1.5	Note 4
1950.090	62.5	H	-	-	AVG	27	1.4	Note 4
1949.930	63.1	H	-	-	PK	27	1.4	Note 4
5124.520	57.5	V	-	-	Peak	3	1.6	Note 3

Note 1:	For emissions in restricted bands, the limit of 15.209 was used which requires average and peak measurements.
Note 2:	For emissions outside of the restricted bands the limit is -27dBm/MHz eirp (68.3dBuV/m). Refer to RF port measurements for any significant emissions.
Note 3:	For any emissions exceeding the restricted band limits in 4500MHz~5150MHz and 5350~5460MHz range please refer to band Edge testing result.
Note 4:	Digital signal. 1:Radio off the siganl still on. 2: Radio on and Change the channel. The signal didn't change or move

Client:	Ubiquiti Networks	Job Number:	J85880
Model:	NanoBridge M5	T-Log Number:	T85882
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A



Client:	Ubiquiti Networks	Job Number:	J85880
Model:	NanoBridge M5	T-Log Number:	T85882
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A

Run # 2, Radiated Spurious Emissions, 1-40GHz, 20MHz, Chain 0+1

Date of Test: 12/29/2011 Test Location: FT Chamber #3

Test Engineer: Joseph Cadigal Config Change: none

For emissions in restricted bands, the limit of 15.209 was used. For all other emissions, the limit is -27dBm eirp (68.3dBuV/m @3m).

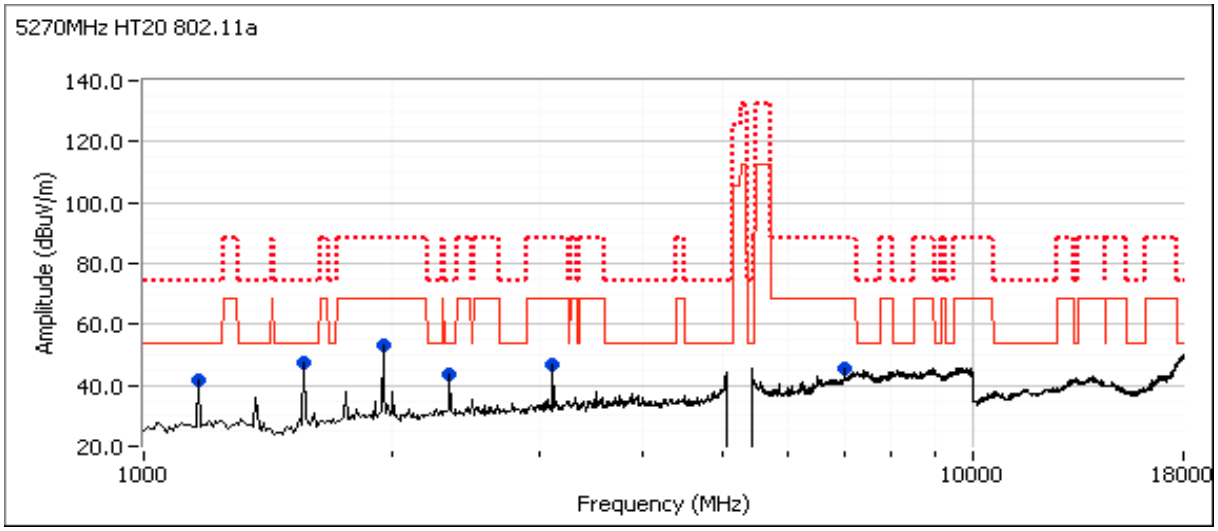
Run # 2a: EUT on Channel 5265MHz - 20MHz, Chain 0+1

Spurious Radiated Emissions:

Frequency	Level	Pol	15.209 / 15E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
1560.050	45.1	H	54.0	-8.9	AVG	310	1.0	
2340.090	42.6	H	54.0	-11.4	AVG	339	1.0	
1170.040	37.5	H	54.0	-16.5	AVG	310	1.0	
1560.230	47.0	H	74.0	-27.0	PK	310	1.0	
2340.020	46.4	H	74.0	-27.6	PK	339	1.0	
1170.070	41.4	H	74.0	-32.6	PK	310	1.0	
7027.100	49.5	H	-	-	PK	3	1.3	Note 2
7026.940	40.7	H	-	-	AVG	3	1.3	Note 2
3120.300	48.3	H	-	-	PK	339	1.0	Note 2
3120.120	45.0	H	-	-	AVG	339	1.0	Note 2
1950.100	48.7	H	-	-	AVG	339	1.0	Note 2
1950.080	50.5	H	-	-	PK	339	1.0	Note 2

Note 1:	For emissions in restricted bands, the limit of 15.209 was used which requires average and peak measurements.
Note 2:	For emissions outside of the restricted bands the limit is -27dBm/MHz eirp (68.3dBuV/m). Refer to RF port measurements for any significant emissions.
Note 3:	For any emissions exceeding the restricted band limits in 4500MHz~5150MHz and 5350~5460MHz range please refer to band Edge testing result.
Note 4:	Digital signal. 1:Radio off the siganl still on. 2: Radio on and Change the channel. The signal didn't change or move

Client:	Ubiquiti Networks	Job Number:	J85880
Model:	NanoBridge M5	T-Log Number:	T85882
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A



Client:	Ubiquiti Networks	Job Number:	J85880
Model:	NanoBridge M5	T-Log Number:	T85882
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A

Run # 2b: EUT on Channel 5265MHz - 20MHz, Chain 0+1

Date of Test: 1/9/2012 Test Location: FT Chamber #4

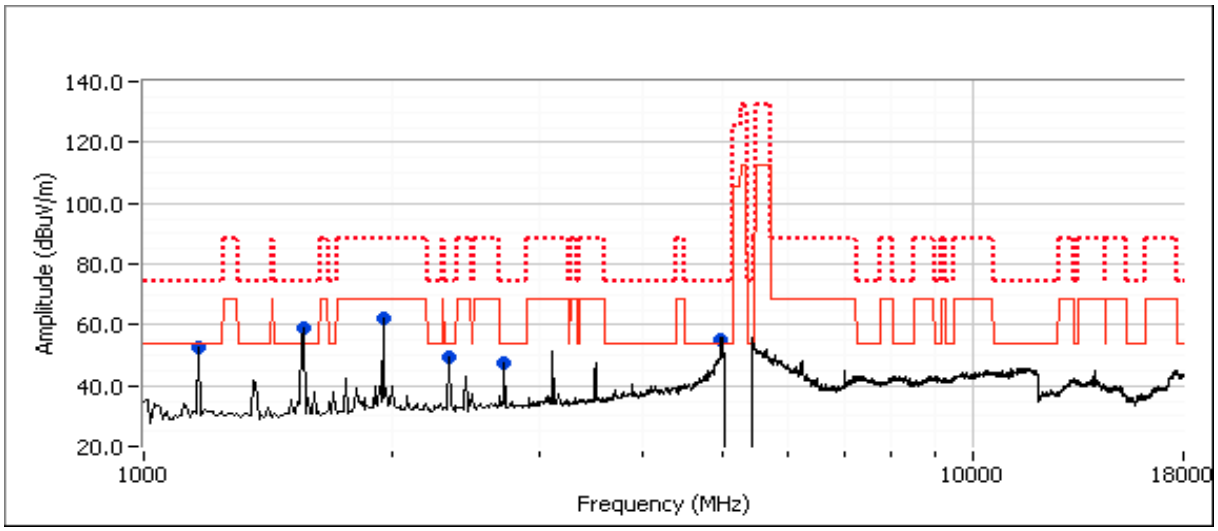
Test Engineer: Rafael Varelas Config Change: none

Spurious Radiated Emissions:

Frequency	Level	Pol	15.209 / 15E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
1170.090	52.4	H	54.0	-1.6	AVG	32	1.0	
1170.120	54.1	H	74.0	-19.9	PK	32	1.0	
2340.120	49.9	H	54.0	-4.1	AVG	352	1.3	
2339.990	51.7	H	74.0	-22.3	PK	352	1.3	
2730.120	46.7	H	54.0	-7.3	AVG	155	1.0	
2730.250	49.8	H	74.0	-24.2	PK	155	1.0	
1560.110	59.3	H	-	-	AVG	25	1.5	Note 4
1560.080	59.9	H	-	-	PK	25	1.5	Note 4
1950.100	62.8	H	-	-	AVG	29	1.3	Note 4
1950.050	63.4	H	-	-	PK	29	1.3	Note 4
4978.790	55.2	H	-	-	Peak	360	1.0	Note 3

Note 1:	For emissions in restricted bands, the limit of 15.209 was used which requires average and peak measurements.
Note 2:	For emissions outside of the restricted bands the limit is -27dBm/MHz eirp (68.3dBuV/m). Refer to RF port measurements for any significant emissions.
Note 3:	For any emissions exceeding the restricted band limits in 4500MHz~5150MHz and 5350~5460MHz range please refer to band Edge testing result.
Note 4:	Digital signal. 1:Radio off the signal still on. 2: Radio on and change the channel. The signal didn't change or move.

Client:	Ubiquiti Networks	Job Number:	J85880
Model:	NanoBridge M5	T-Log Number:	T85882
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A



Client:	Ubiquiti Networks	Job Number:	J85880
Model:	NanoBridge M5	T-Log Number:	T85882
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A

Run # 2c: EUT on Channel 5300MHz - 20MHz, Chain 0+1

Date of Test: 1/11/2012 Test Location: FT Chamber #7

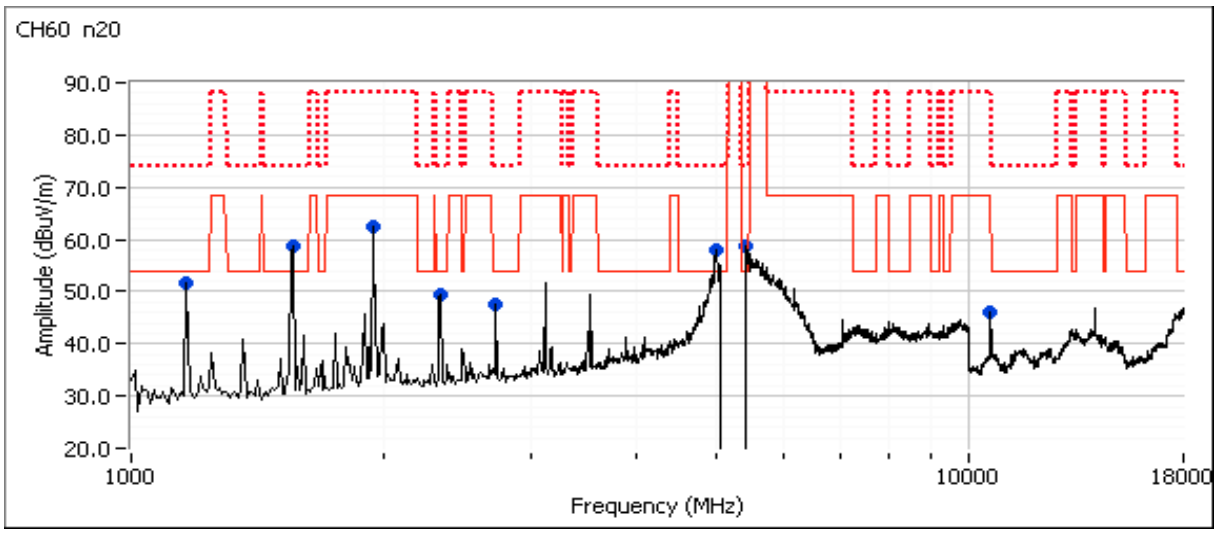
Test Engineer: John Caizzi Config Change: none

Spurious Radiated Emissions:

Frequency	Level	Pol	15.209 / 15E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
10601.070	46.9	V	54.0	-7.1	AVG	336	1.37	
10602.040	58.1	V	74.0	-15.9	PK	336	1.37	
5448.320	57.3	V	-	-	AVG	354	1.40	Note 4
5437.700	68.0	V	-	-	PK	354	1.40	Note 4
4982.580	54.7	H	-	-	AVG	355	1.30	Note 4
4975.440	68.8	H	-	-	PK	355	1.30	Note 4
2730.260	49.4	H	-	-	PK	106	1.00	Note 5
2730.230	46.7	H	-	-	AVG	106	1.00	Note 5
2340.170	50.1	H	-	-	AVG	324	1.02	Note 5
2340.020	52.1	H	-	-	PK	324	1.02	Note 5
1950.140	63.4	H	-	-	PK	24	1.05	Note 5
1950.120	62.9	H	-	-	AVG	24	1.05	Note 5
1559.170	58.8	H	-	-	Peak	47	1.3	Note 5
1170.380	54.0	H	-	-	PK	24	1.53	Note 5
1170.150	52.4	H	-	-	AVG	24	1.53	Note 5

Note 1:	For emissions in restricted bands the limit of 15.209 was used, which requires average and peak measurements.
Note 2:	For emissions outside of the restricted bands the limit is -27dBm/MHz eirp (68.3dBuV/m). Refer to RF port measurements for any significant emissions.
Note 3:	Scans made between 18 - 40GHz with the measurement antenna moved around the card and its antennas 20-50cm from the device indicated there were no signifcant emissions in this frequency range
Note 4:	For any emissions exceeding the restricted band limits in 4500MHz~5150MHz and 5350~5460MHz range please refer to band Edge testing result.
Note 5:	Non-radio signal. 1:With the carrier off, the signal is still on. 2: With the radio on, changing the channel doesn't change the signal frequency or amplitude.

Client:	Ubiquiti Networks	Job Number:	J85880
Model:	NanoBridge M5	T-Log Number:	T85882
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A



Client:	Ubiquiti Networks	Job Number:	J85880
Model:	NanoBridge M5	T-Log Number:	T85882
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A

Run # 2d: EUT on Channel 5320MHz - 20MHz, Chain 0+1

Date of Test: 1/11/2012 Test Location: FT7

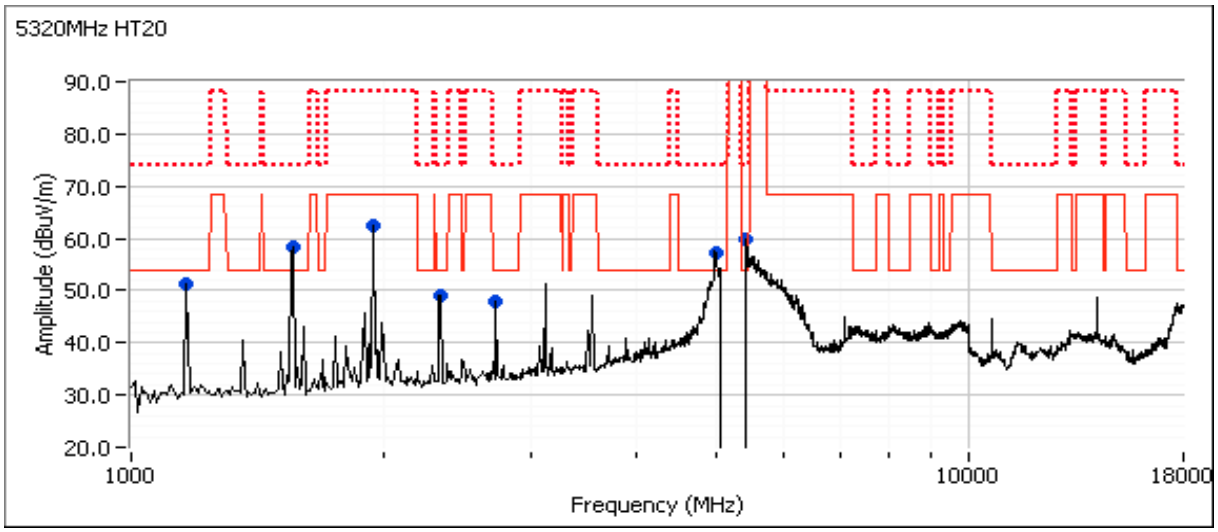
Test Engineer: John Caizzi/Jack Liu Config Change: none

Spurious Radiated Emissions:

Frequency	Level	Pol	15.209 / 15E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
1170.200	50.9	H	54.0	-3.1	AVG	18	1.6	
1170.130	51.7	H	74.0	-22.3	PK	18	1.6	
2730.180	47.4	H	54.0	-6.6	AVG	158	1.3	
2730.260	50.0	H	74.0	-24.0	PK	158	1.3	
2340.130	49.1	H	54.0	-4.9	AVG	354	1.3	
2340.230	51.6	H	74.0	-22.4	PK	354	1.3	
4981.600	50.3	H	54.0	-3.7	AVG	360	1.0	Note 3
4980.530	64.0	H	74.0	-10.0	PK	360	1.0	Note 3
1950.140	62.7	V	-	-	AVG	0	1.0	
1950.250	63.4	V	-	-	PK	0	1.0	
1560.100	58.9	H	-	-	AVG	40	1.3	Note 4
1560.150	59.6	H	-	-	PK	40	1.3	Note 4
5433.060	59.1	V	-	-	AVG	354	1.6	Note 3
5431.400	69.9	V	-	-	PK	354	1.6	Note 3

Note 1:	For emissions in restricted bands, the limit of 15.209 was used which requires average and peak measurements.
Note 2:	For emissions outside of the restricted bands the limit is -27dBm/MHz eirp (68.3dBuV/m). Refer to RF port measurements for any significant emissions.
Note 3:	For any emissions exceeding the restricted band limits in 4500MHz~5150MHz and 5350~5460MHz range please refer to band Edge testing result.
Note 4:	Digital signal. 1:Radio off the signal still on. 2: Radio on and change the channel. The signal didn't change or move.

Client:	Ubiquiti Networks	Job Number:	J85880
Model:	NanoBridge M5	T-Log Number:	T85882
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A



Client:	Ubiquiti Networks	Job Number:	J85880
Model:	NanoBridge M5	T-Log Number:	T85882
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A

Run # 2e: EUT on Channel 5500MHz - 20MHz, Chain 0+1

Date of Test: 12/30/2011 Test Location: FT Chamber #4

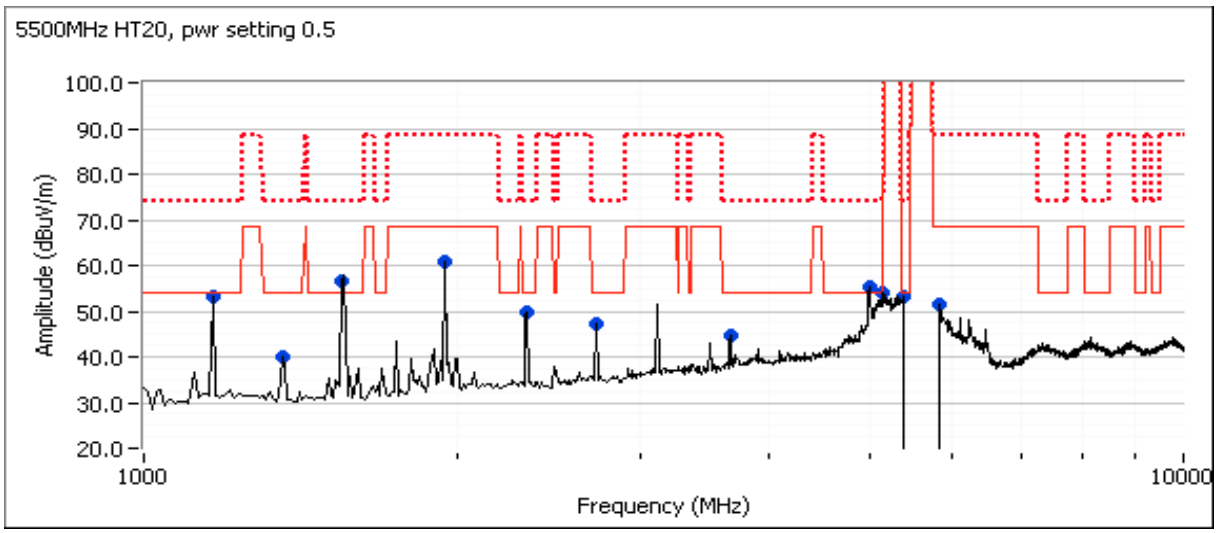
Test Engineer: Jack Liu Config Change: none

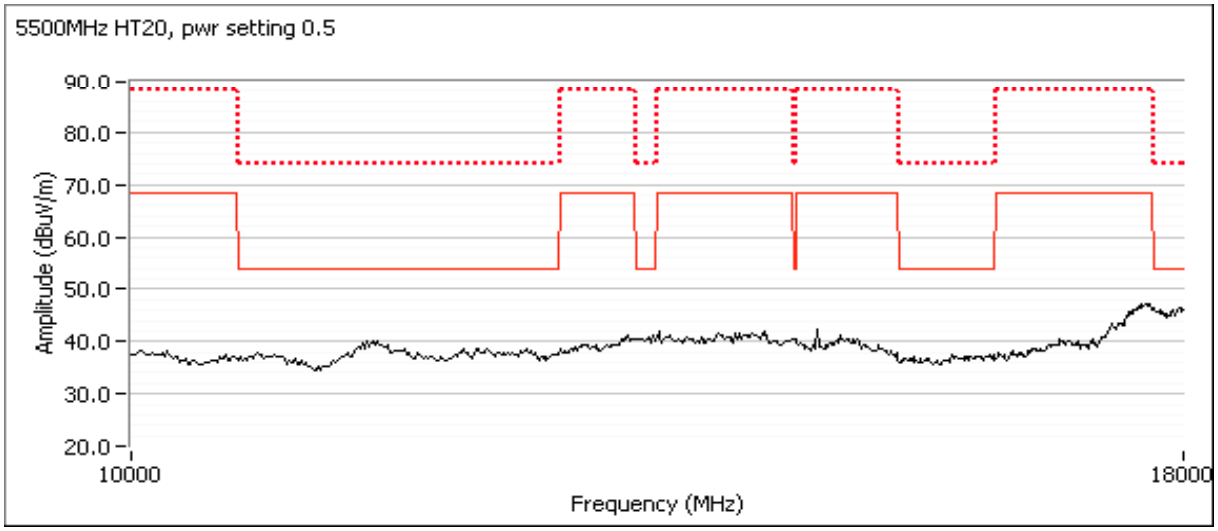
Spurious Radiated Emissions:

Frequency	Level	Pol	15.209 / 15E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
1170.120	52.4	H	54.0	-1.6	AVG	37	1.6	
2340.130	50.0	H	54.0	-4.0	AVG	356	1.0	
2730.210	46.7	H	54.0	-7.3	AVG	110	1.3	
3666.850	43.9	V	54.0	-10.1	AVG	316	1.3	
1365.100	40.0	H	54.0	-14.0	AVG	37	1.0	
1170.230	54.2	H	74.0	-19.8	PK	37	1.6	
2340.350	52.0	H	74.0	-22.0	PK	356	1.0	
2730.230	49.5	H	74.0	-24.5	PK	110	1.3	
3666.730	48.7	V	74.0	-25.3	PK	316	1.3	
1365.070	44.0	H	74.0	-30.0	PK	37	1.0	
5350.420	62.3	V	74.0	-11.7	PK	356	1.3	Note 3
5350.020	51.3	V	54.0	-2.7	AVG	356	1.3	Note 3
5121.020	57.1	V	74.0	-16.9	PK	2	1.3	Note 3
5120.320	45.8	V	54.0	-8.2	AVG	2	1.3	Note 3
4983.980	48.6	H	54.0	-5.4	AVG	5	1.3	Note 3
4981.300	63.9	H	74.0	-10.1	PK	5	1.3	Note 3
1950.300	57.8	V	-	-	PK	359	1.0	Note 2
1950.120	56.6	V	-	-	AVG	359	1.0	Note 2
5925.850	53.9	V	-	-	PK	2	1.0	Note 2
5925.630	44.1	V	-	-	AVG	2	1.0	Note 2
1560.120	54.8	H	-	-	AVG	51	1.6	Note 4
1559.950	55.9	H	-	-	PK	51	1.6	Note 4

Note 1:	For emissions in restricted bands, the limit of 15.209 was used which requires average and peak measurements.
Note 2:	For emissions outside of the restricted bands the limit is -27dBm/MHz eirp (68.3dBuV/m). Refer to RF port measurements for any significant emissions.
Note 3:	For any emissions exceeding the restricted band limits in 4500MHz~5150MHz and 5350~5460MHz range please refer to band Edge testing result.
Note 4:	Digital signal. 1:Radio off the siganl still on. 2: Radio on and Change the channel. The signal didn't change or move

Client:	Ubiquiti Networks	Job Number:	J85880
Model:	NanoBridge M5	T-Log Number:	T85882
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A





Client:	Ubiquiti Networks	Job Number:	J85880
Model:	NanoBridge M5	T-Log Number:	T85882
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A

Run # 2f: EUT on Channel 5580MHz - 20MHz, Chain 0+1

Date of Test: 12/30/2011 Test Location: FT Chamber #4

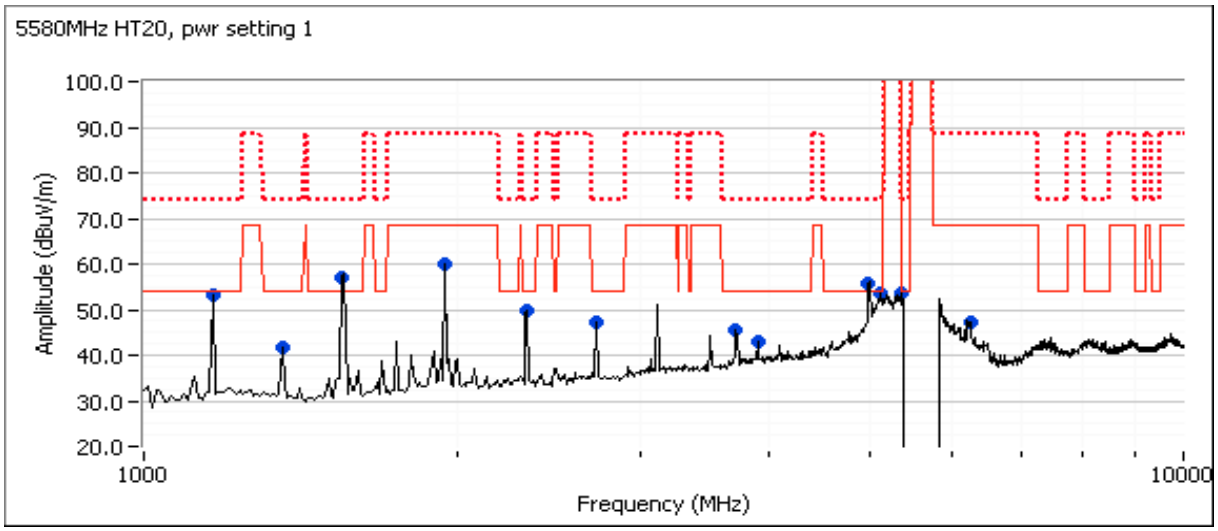
Test Engineer: Jack Liu Config Change: none

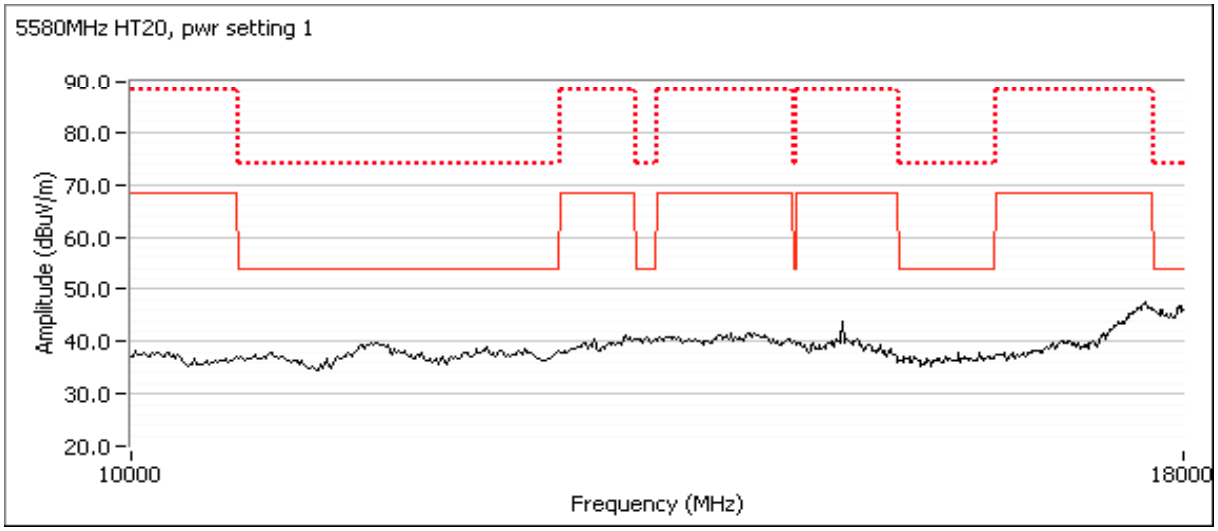
Spurious Radiated Emissions:

Frequency	Level	Pol	15.209 / 15E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
1170.120	52.6	H	54.0	-1.4	AVG	23	1.6	
2340.120	47.7	H	54.0	-6.3	AVG	347	1.0	
5120.250	45.5	V	54.0	-8.5	AVG	8	1.3	
3720.180	44.2	V	54.0	-9.8	AVG	341	1.0	
2730.210	43.9	H	54.0	-10.1	AVG	169	1.3	
3900.140	40.3	H	54.0	-13.7	AVG	359	1.0	
1365.170	39.9	H	54.0	-14.1	AVG	29	1.0	
5117.430	56.8	V	74.0	-17.2	PK	8	1.3	
1170.070	54.8	H	74.0	-19.2	PK	23	1.6	
2339.910	50.4	H	74.0	-23.6	PK	347	1.0	
3720.230	49.0	V	74.0	-25.0	PK	341	1.0	
3900.350	48.0	H	74.0	-26.0	PK	359	1.0	
2730.400	47.5	H	74.0	-26.5	PK	169	1.3	
1365.070	43.6	H	74.0	-30.4	PK	29	1.0	
5351.280	60.9	H	74.0	-13.1	PK	359	1.0	Note 3
5350.320	50.3	H	54.0	-3.7	AVG	359	1.0	Note 3
4984.350	48.8	H	54.0	-5.2	AVG	359	1.0	Note 3
4982.700	63.6	H	74.0	-10.4	PK	359	1.0	Note 3
6232.440	57.0	H	-	-	PK	359	1.0	Note 2
6231.170	42.5	H	-	-	AVG	359	1.0	Note 2
1950.140	56.4	V	-	-	AVG	8	1.3	Note 2
1950.120	57.6	V	-	-	PK	8	1.3	Note 2
1560.130	55.7	V	-	-	AVG	19	1.9	Note 4
1560.070	56.5	V	-	-	PK	19	1.9	Note 4

Note 1:	For emissions in restricted bands, the limit of 15.209 was used which requires average and peak measurements.
Note 2:	For emissions outside of the restricted bands the limit is -27dBm/MHz eirp (68.3dBuV/m). Refer to RF port measurements for any significant emissions.
Note 3:	For any emissions exceeding the restricted band limits in 4500MHz~5150MHz and 5350~5460MHz range please refer to band Edge testing result.
Note 4:	Digital signal. 1:Radio off the siganl still on. 2: Radio on and Change the channel. The signal didn't change or move
Note 5:	Scans made between 18 - 40GHz with the measurement antenna moved around the card and its antennas 20-50cm from the device indicated there were no signifcant emissions in this frequency range

Client:	Ubiquiti Networks	Job Number:	J85880
Model:	NanoBridge M5	T-Log Number:	T85882
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A





Client:	Ubiquiti Networks	Job Number:	J85880
Model:	NanoBridge M5	T-Log Number:	T85882
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A

Run # 2g: EUT on Channel 5700MHz - 20MHz, Chain 0+1

Date of Test: 12/29/2011 Test Location: FT Chamber #3

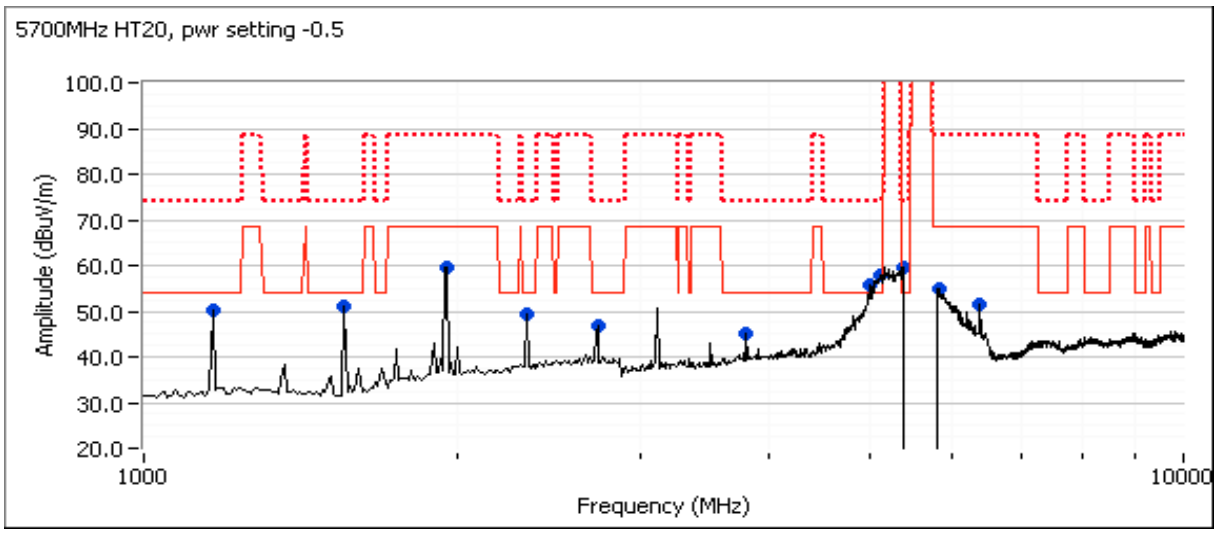
Test Engineer: Jack Liu Config Change: none

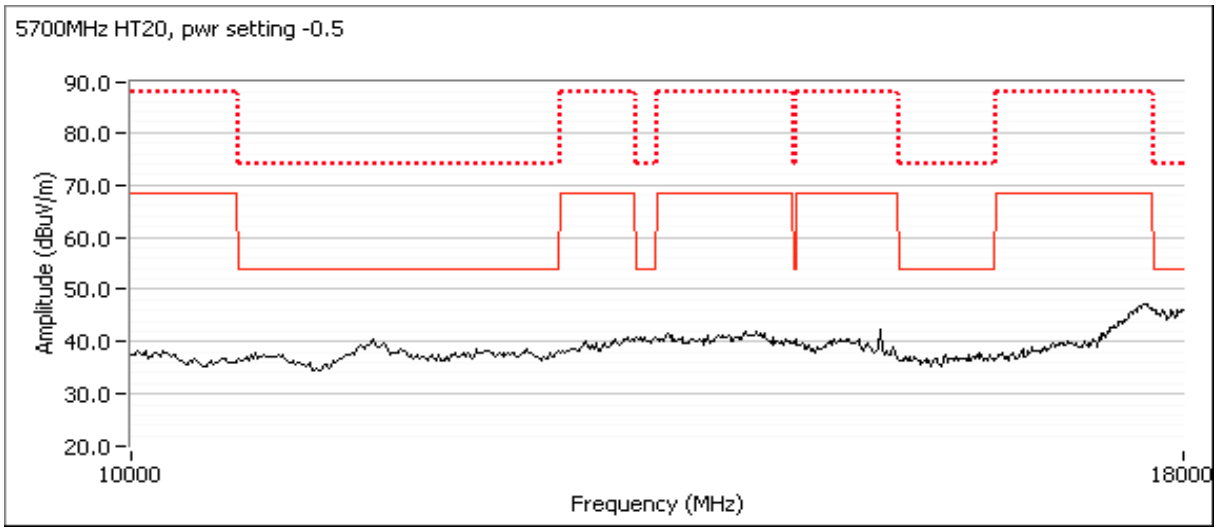
Spurious Radiated Emissions:

Frequency	Level	Pol	15.209 / 15E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
1170.050	49.8	H	54.0	-4.2	AVG	34	1.6	
2340.080	45.3	H	54.0	-8.7	AVG	0	1.6	
2730.130	44.3	H	54.0	-9.7	AVG	155	1.3	
3800.150	43.0	V	54.0	-11.0	AVG	351	1.0	
1170.100	50.7	H	74.0	-23.3	PK	34	1.6	
2340.150	48.2	H	74.0	-25.8	PK	0	1.6	
3800.330	48.2	V	74.0	-25.8	PK	351	1.0	
2730.060	47.2	H	74.0	-26.8	PK	155	1.3	
4999.520	57.8	H	74.0	-16.2	PK	13	1.3	Note 3
4997.390	42.7	H	54.0	-11.3	AVG	13	1.3	Note 3
6368.450	52.8	V	-	-	PK	360	1.0	Note 2
6368.270	46.1	V	-	-	AVG	360	1.0	Note 2
5840.250	47.7	V	-	-	AVG	7	1.3	Note 2
5840.220	58.3	V	-	-	PK	7	1.3	Note 2
5354.480	63.7	V	-	-	PK	360	1.0	Note 3
5350.050	52.1	V	-	-	AVG	360	1.0	Note 3
5108.050	63.5	V	-	-	PK	7	1.3	Note 3
5104.100	53.0	V	-	-	AVG	7	1.3	Note 3
1950.080	59.4	V	-	-	AVG	7	1.0	Note 2
1950.040	60.1	V	-	-	PK	7	1.0	Note 2
1560.080	50.8	V	-	-	AVG	357	2.2	Note 4
1560.060	51.5	V	-	-	PK	357	2.2	Note 4

Note 1:	For emissions in restricted bands, the limit of 15.209 was used which requires average and peak measurements.
Note 2:	For emissions outside of the restricted bands the limit is -27dBm/MHz eirp (68.3dBuV/m). Refer to RF port measurements for any significant emissions.
Note 3:	For any emissions exceeding the restricted band limits in 4500MHz~5150MHz and 5350~5460MHz range please refer to band Edge testing result.
Note 4:	Digital signal. 1:Radio off the siganl still on. 2: Radio on and Change the channel. The signal didn't change or move

Client:	Ubiquiti Networks	Job Number:	J85880
Model:	NanoBridge M5	T-Log Number:	T85882
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A





Client:	Ubiquiti Networks	Job Number:	J85880
Model:	NanoBridge M5	T-Log Number:	T85882
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A

Run # 3, Radiated Spurious Emissions, 1-40GHz, 40MHz, Chain 0+1

Date of Test: 1/11/2012 Test Location: FT7

Test Engineer: Jack Liu Config Change: none

For emissions in restricted bands, the limit of 15.209 was used. For all other emissions, the limit is -27dBm eirp (68.3dBuV/m @3m).

Run # 3a: EUT on Channel 5275MHz - 40MHz, Chain 0+1

Date of Test: 1/11/2012 Test Location: FT7

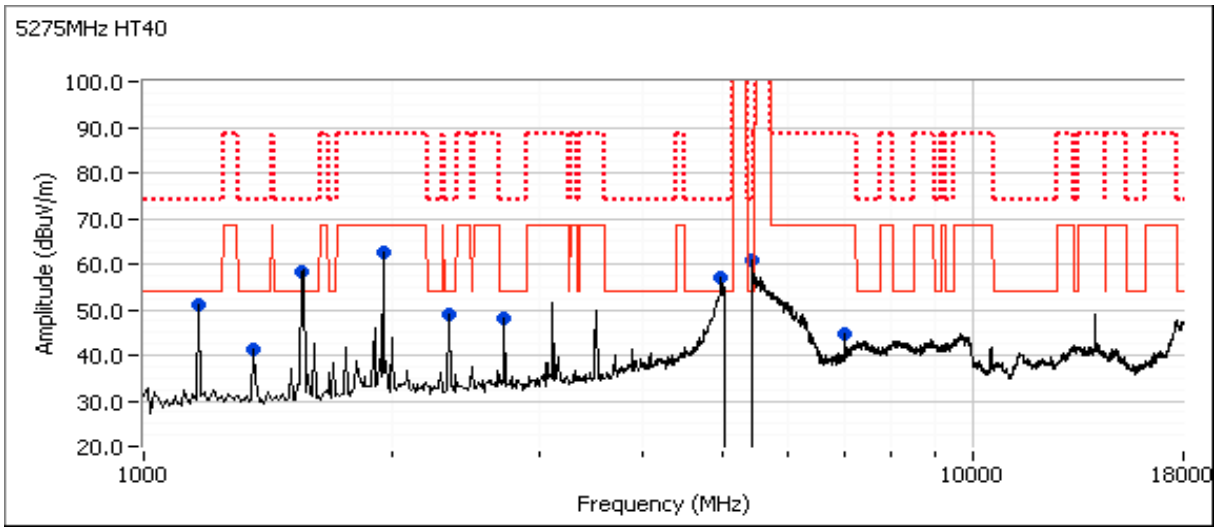
Test Engineer: Jack Liu Config Change: none

Spurious Radiated Emissions:

Frequency	Level	Pol	15.209 / 15E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5449.610	53.3	V	54.0	-0.7	AVG	349	1.3	Note3
5452.450	64.4	V	74.0	-9.6	PK	349	1.3	Note3
1170.100	50.4	H	54.0	-3.6	AVG	16	1.6	
1170.150	52.2	H	74.0	-21.8	PK	16	1.6	
1365.130	40.3	H	54.0	-13.7	AVG	32	1.6	
1365.130	43.8	H	74.0	-30.2	PK	32	1.6	
2730.260	47.0	H	54.0	-7.0	AVG	164	1.3	
2730.510	49.8	H	74.0	-24.2	PK	164	1.3	
2340.200	49.0	H	54.0	-5.0	AVG	320	1.0	
2340.090	51.1	H	74.0	-22.9	PK	320	1.0	
1560.130	58.5	H	-	-	AVG	32	1.6	Note4
1560.270	59.1	H	-	-	PK	32	1.6	Note4
1950.150	62.5	V	-	-	AVG	0	1.0	Note 2
1950.120	63.1	V	-	-	PK	0	1.0	Note 2
4981.740	54.1	H	-	-	AVG	354	1.3	Note3
4981.490	68.2	H	-	-	PK	354	1.3	Note3
7033.570	43.3	H	-	-	AVG	354	1.3	Note 2
7033.590	49.9	H	-	-	PK	354	1.3	Note 2

Note 1:	For emissions in restricted bands, the limit of 15.209 was used which requires average and peak measurements.
Note 2:	For emissions outside of the restricted bands the limit is -27dBm/MHz eirp (68.3dBuV/m). Refer to RF port measurements for any significant emissions.
Note 3:	For any emissions exceeding the restricted band limits in 4500MHz~5150MHz and 5350~5460MHz range please refer to band Edge testing result.
Note 4:	Digital signal. 1:Radio off the siganl still on. 2: Radio on and Change the channel. The signal didn't change or move
Note 5:	Scans made between 18 - 40GHz with the measurement antenna moved around the card and its antennas 20-50cm from the device indicated there were no signifcant emissions in this frequency range

Client:	Ubiquiti Networks	Job Number:	J85880
Model:	NanoBridge M5	T-Log Number:	T85882
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A



Client:	Ubiquiti Networks	Job Number:	J85880
Model:	NanoBridge M5	T-Log Number:	T85882
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A

Run # 3b: EUT on Channel 5310MHz - 40MHz, Chain 0+1

Date of Test: 1/11/2012 Test Location: FT7

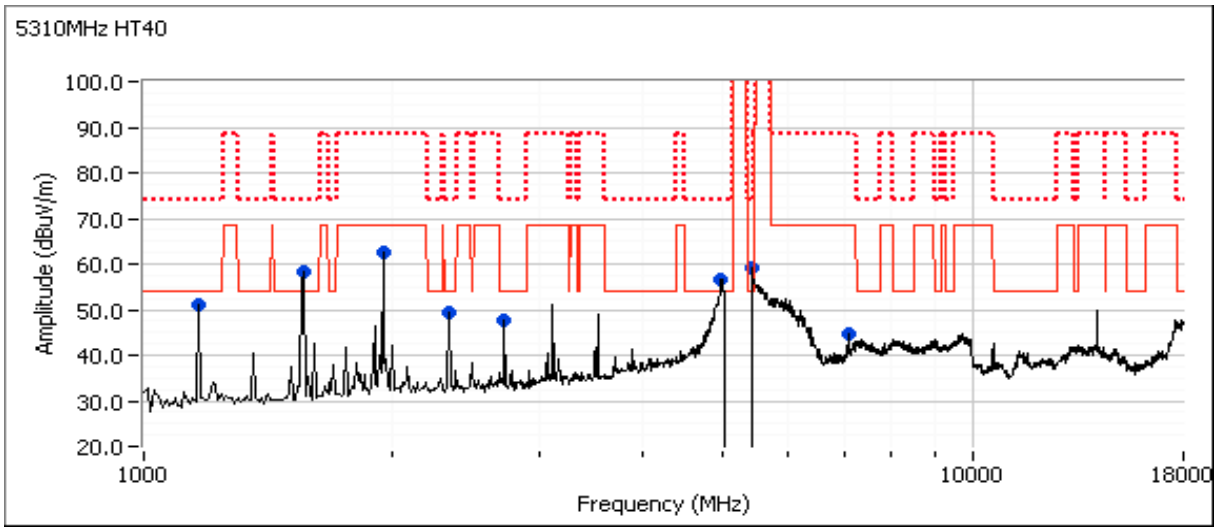
Test Engineer: Jack Liu Config Change: none

Spurious Radiated Emissions:

Frequency	Level	Pol	15.209 / 15E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
1170.120	50.7	H	54.0	-3.3	AVG	18	1.6	
2340.160	48.7	H	54.0	-5.3	AVG	358	1.3	
5419.370	47.5	V	54.0	-6.5	AVG	358	1.9	Note4
2730.230	46.4	H	54.0	-7.6	AVG	148	1.6	
5419.080	59.2	V	74.0	-14.8	PK	358	1.9	Note4
1170.250	52.8	H	74.0	-21.2	PK	18	1.6	
2340.030	51.2	H	74.0	-22.8	PK	358	1.3	
2730.500	49.1	H	74.0	-24.9	PK	148	1.6	
1950.150	62.6	V	-	-	AVG	0	1.0	Note 2
1950.170	63.3	V	-	-	PK	0	1.0	Note 2
1560.100	58.6	H	-	-	AVG	45	1.3	Note 4
1560.040	59.3	H	-	-	PK	45	1.3	Note 4
7080.260	43.2	V	-	-	AVG	328	1.9	Note 2
7080.360	49.8	V	-	-	PK	328	1.9	Note 2
4980.150	54.0	H	-	-	AVG	358	1.3	Note4
4980.090	68.0	H	-	-	PK	358	1.3	Note4

Note 1:	For emissions in restricted bands, the limit of 15.209 was used which requires average and peak measurements.
Note 2:	For emissions outside of the restricted bands the limit is -27dBm/MHz eirp (68.3dBuV/m). Refer to RF port measurements for any significant emissions.
Note 3:	For any emissions exceeding the restricted band limits in 4500MHz~5150MHz and 5350~5460MHz range please refer to band Edge testing result.
Note 4:	Digital signal. 1:Radio off the siganl still on. 2: Radio on and Change the channel. The signal didn't change or move

Client:	Ubiquiti Networks	Job Number:	J85880
Model:	NanoBridge M5	T-Log Number:	T85882
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A



Client:	Ubiquiti Networks	Job Number:	J85880
Model:	NanoBridge M5	T-Log Number:	T85882
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A

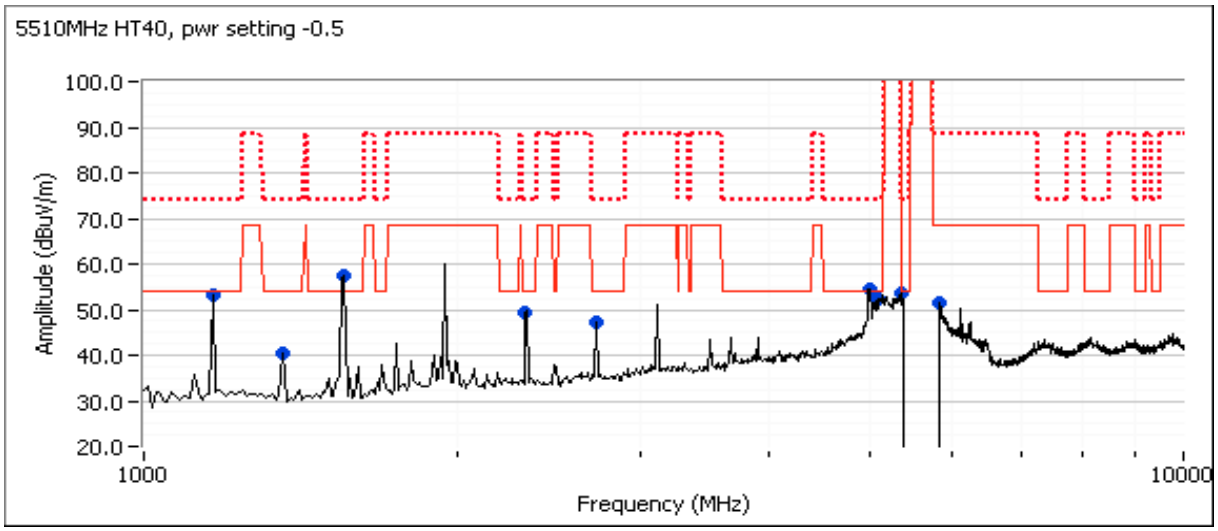
Run # 3c: EUT on Channel 5510MHz - 40MHz, Chain 0+1

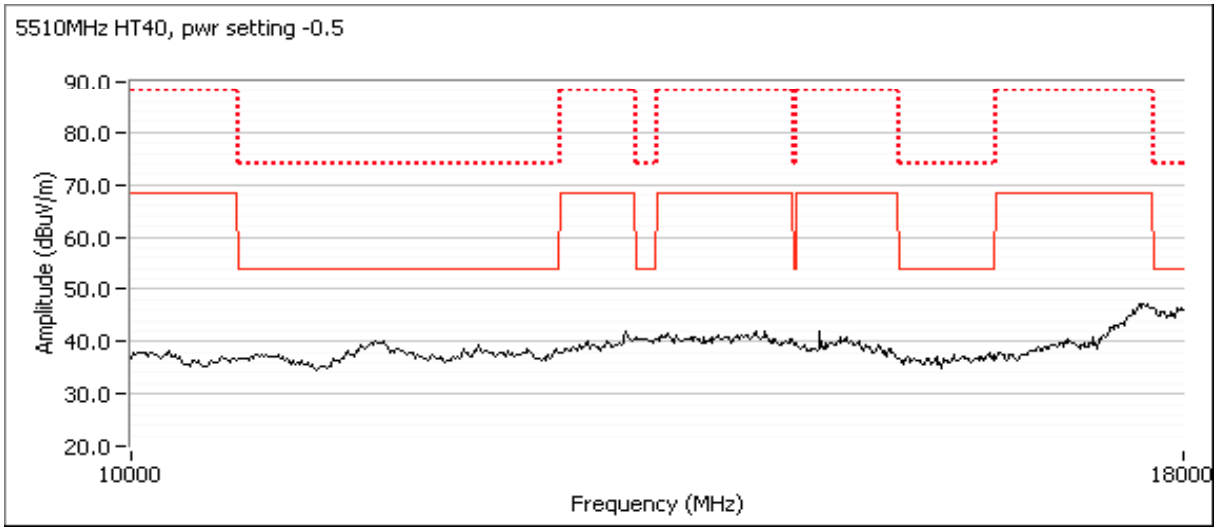
Spurious Radiated Emissions:

Frequency	Level	Pol	15.209 / 15E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
1170.120	52.9	H	54.0	-1.1	AVG	29	1.6	
2340.170	47.6	H	54.0	-6.4	AVG	0	1.0	
2730.180	46.4	H	54.0	-7.6	AVG	164	1.3	
5350.880	61.7	V	74.0	-12.3	PK	3	1.3	
1365.100	39.3	V	54.0	-14.7	AVG	3	2.2	
1170.120	54.8	H	74.0	-19.2	PK	29	1.6	
2730.260	49.4	H	74.0	-24.6	PK	164	1.3	
1365.170	43.1	V	74.0	-30.9	PK	3	2.2	
5350.270	50.6	V	54.0	-3.4	AVG	3	1.3	Note 3
5105.020	61.9	V	74.0	-12.1	PK	0	1.2	Note 3
5104.080	50.8	V	54.0	-3.2	AVG	0	1.2	Note 3
4997.190	48.7	H	54.0	-5.3	AVG	4	1.0	Note 3
4995.940	63.4	H	74.0	-10.6	PK	4	1.0	Note 3
2340.150	49.8	H	74.0	-24.2	PK	0	1.0	Note 3
5883.050	46.9	V	-	-	AVG	360	1.0	Note 2
5867.470	58.1	V	-	-	PK	360	1.0	Note 2
1560.100	58.4	V	-	-	PK	3	1.9	Note 4
1560.090	57.7	V	-	-	AVG	3	1.9	Note 4

Note 1:	For emissions in restricted bands, the limit of 15.209 was used which requires average and peak measurements.
Note 2:	For emissions outside of the restricted bands the limit is -27dBm/MHz eirp (68.3dBuV/m). Refer to RF port measurements for any significant emissions.
Note 3:	For any emissions exceeding the restricted band limits in 4500MHz~5150MHz and 5350~5460MHz range please refer to band Edge testing result.
Note 4:	Digital signal. 1:Radio off the siganl still on. 2: Radio on and Change the channel. The signal didn't change or move

Client:	Ubiquiti Networks	Job Number:	J85880
Model:	NanoBridge M5	T-Log Number:	T85882
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A





Client:	Ubiquiti Networks	Job Number:	J85880
Model:	NanoBridge M5	T-Log Number:	T85882
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A

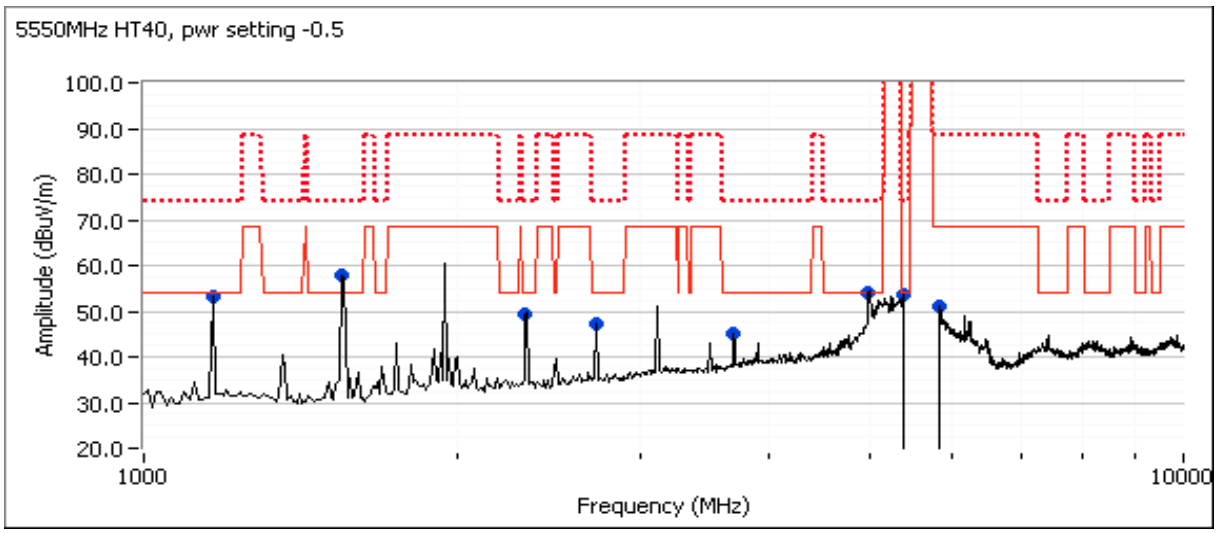
Run # 3d: EUT on Channel 5550MHz - 40MHz, Chain 0+1

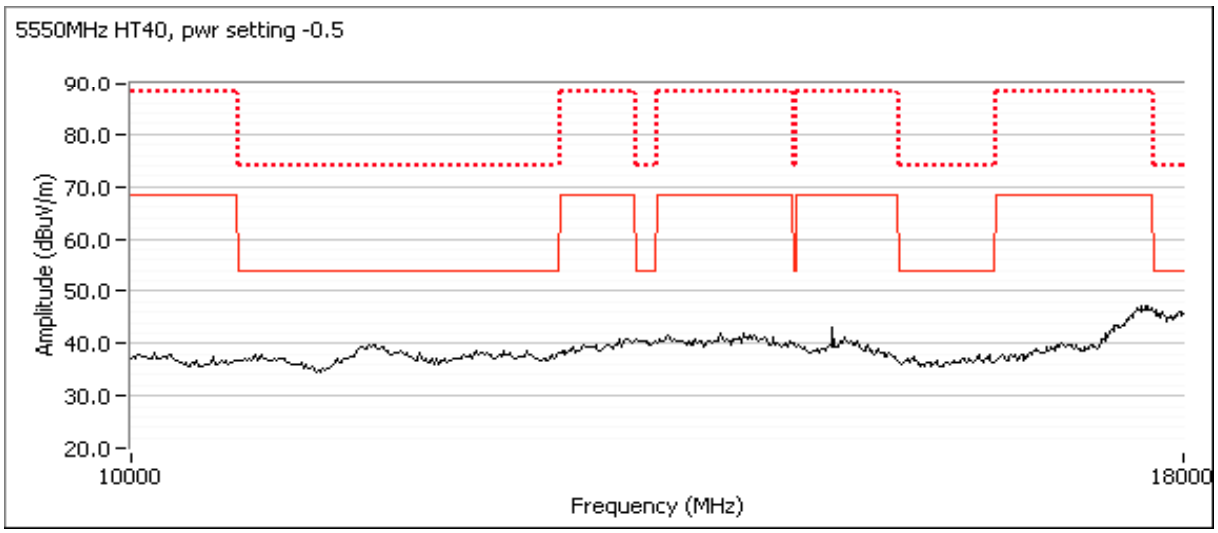
Spurious Radiated Emissions:

Frequency	Level	Pol	15.209 / 15E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
1170.100	51.7	H	54.0	-2.3	AVG	41	1.6	
2340.220	48.1	H	54.0	-5.9	AVG	10	1.0	
2730.200	45.5	H	54.0	-8.5	AVG	147	1.3	
3700.220	43.0	V	54.0	-11.0	AVG	338	1.3	
1170.080	54.0	H	74.0	-20.0	PK	41	1.6	
2340.190	50.3	H	74.0	-23.7	PK	10	1.0	
3700.030	48.5	V	74.0	-25.5	PK	338	1.3	
2730.230	48.4	H	74.0	-25.6	PK	147	1.3	
5353.910	61.7	V	74.0	-12.3	PK	357	1.3	Note 3
5350.070	50.2	V	54.0	-3.8	AVG	357	1.3	Note 3
4993.810	61.2	H	74.0	-12.8	PK	8	1.3	Note 3
4991.300	46.3	H	54.0	-7.7	AVG	8	1.3	Note 3
5866.230	42.3	H	-	-	AVG	0	1.0	Note 2
5863.500	53.3	H	-	-	PK	0	1.0	Note 2
1560.170	56.3	V	-	-	AVG	360	2.2	Note 4
1560.120	56.9	V	-	-	PK	360	2.2	Note 4

Note 1:	For emissions in restricted bands, the limit of 15.209 was used which requires average and peak measurements.
Note 2:	For emissions outside of the restricted bands the limit is -27dBm/MHz eirp (68.3dBuV/m). Refer to RF port measurements for any significant emissions.
Note 3:	For any emissions exceeding the restricted band limits in 4500MHz~5150MHz and 5350~5460MHz range please refer to band Edge testing result.
Note 4:	Digital signal. 1:Radio off the siganl still on. 2: Radio on and Change the channel. The signal didn't change or move
Note 5:	Scans made between 18 - 40GHz with the measurement antenna moved around the card and its antennas 20-50cm from the device indicated there were no signifcant emissions in this frequency range

Client:	Ubiquiti Networks	Job Number:	J85880
Model:	NanoBridge M5	T-Log Number:	T85882
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A





Client:	Ubiquiti Networks	Job Number:	J85880
Model:	NanoBridge M5	T-Log Number:	T85882
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A

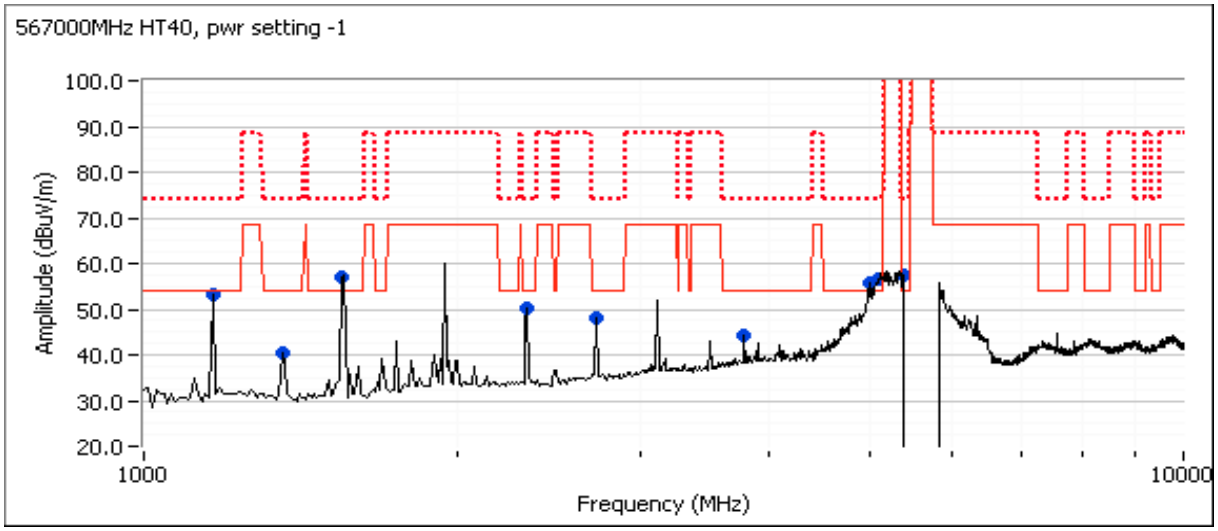
Run # 3e: EUT on Channel 5670MHz - 40MHz, Chain 0+1

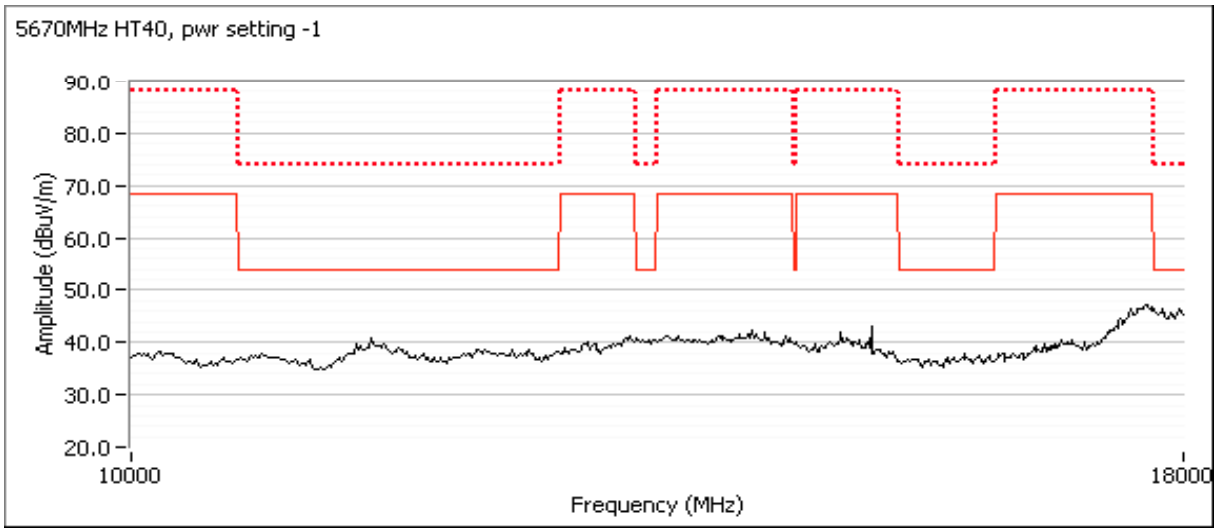
Spurious Radiated Emissions:

Frequency	Level	Pol	15.209 / 15E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
1170.120	52.8	H	54.0	-1.2	AVG	31	1.6	
2340.140	50.0	H	54.0	-4.0	AVG	349	1.0	
2730.200	43.3	H	54.0	-10.7	AVG	160	1.3	
3780.180	43.0	V	54.0	-11.0	AVG	316	1.9	
1365.130	38.1	H	54.0	-15.9	AVG	23	1.0	
1169.850	54.7	H	74.0	-19.3	PK	31	1.6	
2340.220	52.1	H	74.0	-21.9	PK	349	1.0	
3780.250	49.0	V	74.0	-25.0	PK	316	1.9	
2730.300	47.1	H	74.0	-26.9	PK	160	1.3	
1364.870	42.5	H	74.0	-31.5	PK	23	1.0	
5351.420	53.8	V	74.0	-20.2	PK	359	1.6	Note 2
5350.030	41.8	V	54.0	-12.2	AVG	359	1.6	Note 2
5098.640	63.8	V	74.0	-10.2	PK	4	1.0	Note 2
5096.340	52.3	V	54.0	-1.7	AVG	4	1.0	Note 2
4998.130	64.9	H	74.0	-9.1	PK	4	1.3	Note 2
4997.360	49.2	H	54.0	-4.8	AVG	4	1.3	Note 2
1560.170	58.0	V	-	-	PK	1	1.9	Note 4
1560.130	57.3	V	-	-	AVG	1	1.9	Note 4

Note 1:	For emissions in restricted bands, the limit of 15.209 was used which requires average and peak measurements.
Note 2:	For emissions outside of the restricted bands the limit is -27dBm/MHz eirp (68.3dBuV/m). Refer to RF port measurements for any significant emissions.
Note 3:	For any emissions exceeding the restricted band limits in 4500MHz~5150MHz and 5350~5460MHz range please refer to band Edge testing result.
Note 4:	Digital signal. 1:Radio off the siganl still on. 2: Radio on and Change the channel. The signal didn't change or move

Client:	Ubiquiti Networks	Job Number:	J85880
Model:	NanoBridge M5	T-Log Number:	T85882
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A

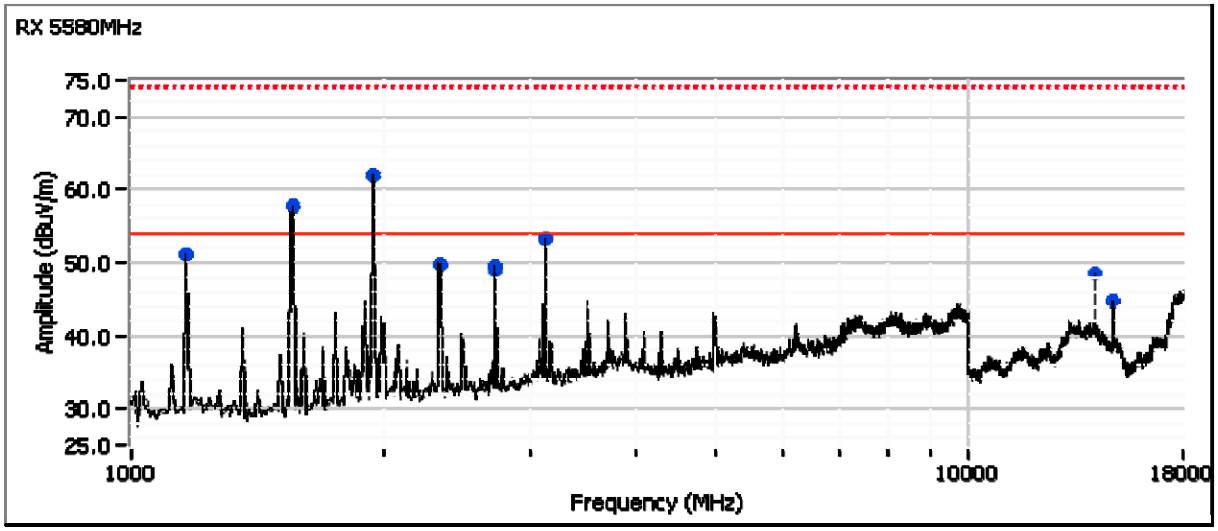




Client:	Ubiquiti Networks	Job Number:	J85880
Model:	NanoBridge M5	T-Log Number:	T85882
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A

Run # 4, Radiated Spurious Emissions, 1-40GHz, RX, Chain 0+1
Run # 4a: EUT on 5300MHz - RX, Chain 0+1

Date of Test: 1/11/2012 Test Location: FT Chamber #7
Test Engineer: Jack Liu Config Change: None



Frequency	Level	Pol	RSS-GEN		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
3120.070	52.9	H	54.0	-1.1	AVG	346	1.3	
1170.070	50.9	H	54.0	-3.1	AVG	24	1.6	
2340.130	48.5	H	54.0	-5.5	AVG	313	1.0	
2730.130	48.2	H	54.0	-5.8	AVG	159	1.3	
14133.370	45.4	V	54.0	-8.6	AVG	329	1.6	
3120.170	55.2	H	74.0	-18.8	PK	346	1.3	
1170.120	52.0	H	74.0	-22.0	PK	24	1.6	
2339.950	50.8	H	74.0	-23.2	PK	313	1.0	
2729.980	50.6	H	74.0	-23.4	PK	159	1.3	
14133.260	50.6	V	74.0	-23.4	PK	329	1.6	
1560.050	57.6	H	-	-	AVG	46	1.3	Note1
1560.030	58.2	H	-	-	PK	46	1.3	Note1
1950.070	57.4	V	-	-	AVG	360	1.3	Note1
1950.070	58.2	V	-	-	PK	360	1.3	Note1

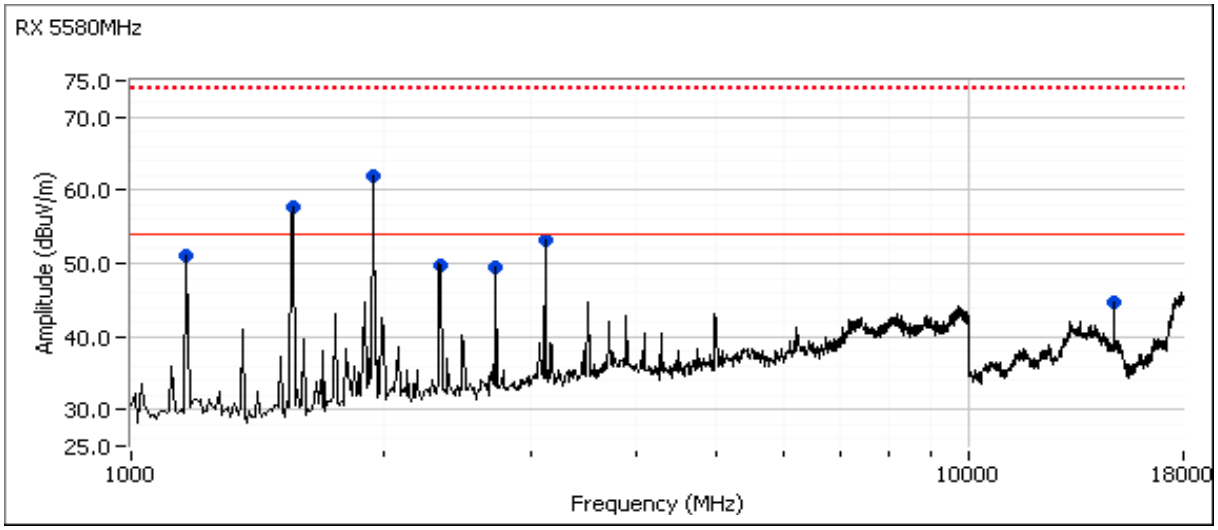
Note 1:	Non-radio signal. 1:With the carrier off, the signal is still on. 2: With the radio on, changing the channel doesn't change the signal frequency or amplitude.

Client:	Ubiquiti Networks	Job Number:	J85880
Model:	NanoBridge M5	T-Log Number:	T85882
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A

Run # 4b: EUT on 5580MHz - RX, Chain 0+1

Date of Test: 1/11/2012 Test Location: FT Chamber #7

Test Engineer: Jack Liu Config Change: None



Frequency	Level	Pol	RSS-GEN		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
3120.090	53.3	H	54.0	-0.7	AVG	339	1.3	
1170.100	50.6	H	54.0	-3.4	AVG	33	1.6	
2340.080	48.9	H	54.0	-5.1	AVG	337	1.0	
2730.110	48.2	H	54.0	-5.8	AVG	151	1.3	
14880.050	46.9	V	54.0	-7.1	AVG	333	1.5	
3119.950	55.3	H	74.0	-18.7	PK	339	1.3	
14880.180	55.2	V	74.0	-18.8	PK	333	1.5	
1169.970	51.6	H	74.0	-22.4	PK	33	1.6	
2339.980	51.0	H	74.0	-23.0	PK	337	1.0	
2730.150	50.6	H	74.0	-23.4	PK	151	1.3	
1950.100	61.4	H	-	-	AVG	22	1.3	Note1
1950.090	62.0	H	-	-	PK	22	1.3	Note1
1560.050	57.9	H	-	-	AVG	36	1.3	Note1
1560.010	58.4	H	-	-	PK	36	1.3	Note1

Note 1:	Non-radio signal. 1:With the carrier off, the signal is still on. 2: With the radio on, changing the channel doesn't change the signal frequency or amplitude.

End of Report

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marks the last page of this test report.