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: RocketM5

IC CERTIFICATION #:	6545A-M5
FCC ID:	SWX-RM5
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
1		First release	-

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SCOPE

An electromagnetic emissions test has been performed on the Ubiquiti Networks model RocketM5, 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 RocketM5 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 RocketM5 and therefore apply only to the tested sample. The sample was selected and prepared by Jennifer Sanchez of Ubiquiti Networks.

DEVIATIONS FROM THE STANDARDS

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

TEST RESULTS SUMMARY

UNII / LELAN DEVICES

Operation in the 5.25 – 5.35 GHz Band

Note: The device may be used outdoors, 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	HT20: 25.5MHz HT40: 47.0MHz	N/A – limits output power if < 20MHz	N/A
15.407(a) (2)	A9.2(2)	Output Power	HT20: 16.7dBm (47mW) HT40: 16.8dBm (47mW) (Max eirp: 0.949 W)	17dBm (50mW)	Complies
15.407(a) (2)	-	Power Spectral Density	HT20: 3.8dBm/MHz HT40: -1.2dBm/MHz	4 dBm/MHz	Complies
-	A9.2(2) / A9.5 (2)	Power Spectral Density		11 dBm / 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	HT20: 25.5MHz HT40: 47.3MHz	N/A – limits output power if < 20MHz	N/A
15.407(a) (2)	A9.2(2)	Output Power	HT20: 16.3dBm (42mW) HT40: 16.6dBm (46mW) (Max eirp: 0.916 W)	24 dBm / 250mW (eirp < 30dBm)	Complies
15.407(a) (2))		Power Spectral Density	HT20: 3.5dBm/MHz HT40: 1.0dBm/MHz	4 dBm/MHz	Complies
	A9.2(2) / A9.5 (2)	Power Spectral Density		11 dBm / 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	53.8dBµV/m @ 1560.1MHz (-0.2dB)	Refer to page 22	Complies
15.407(a)(6)	-	Peak Excursion Ratio	13.0	< 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 R85390	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 reverse SMA connectors	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	52.8dBµV/m @ 1950.1MHz (-1.2dB)	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	HT20: 18.1MHz HT40: 36.9MHz	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 RocketM5 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 November 3, 2011 and tested on November 15, 21, December 5, 6, 7, 8, and 16, 2011. The EUT consisted of the following component(s):

Company	Model	Description	Serial Number	FCC ID
Ubiquiti Networks	Rocket M5	Wireless AP	1141L 0027228C26FE	SWX-RM5
Ubiquiti Networks	UBI-PoE-24-1	PoE injector	1107-0024630	-

OTHER EUT DETAILS

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

ANTENNA SYSTEM

The antenna connects to the EUT via non-standard SMA connectors, thereby meeting the requirements of FCC 15.203.

ENCLOSURE

The EUT enclosure measures approximately 16.5cm high, 8.5cm wide and 4.0cm deep. It is primarily constructed of uncoated 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 5	211948	2845B-5	
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 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.

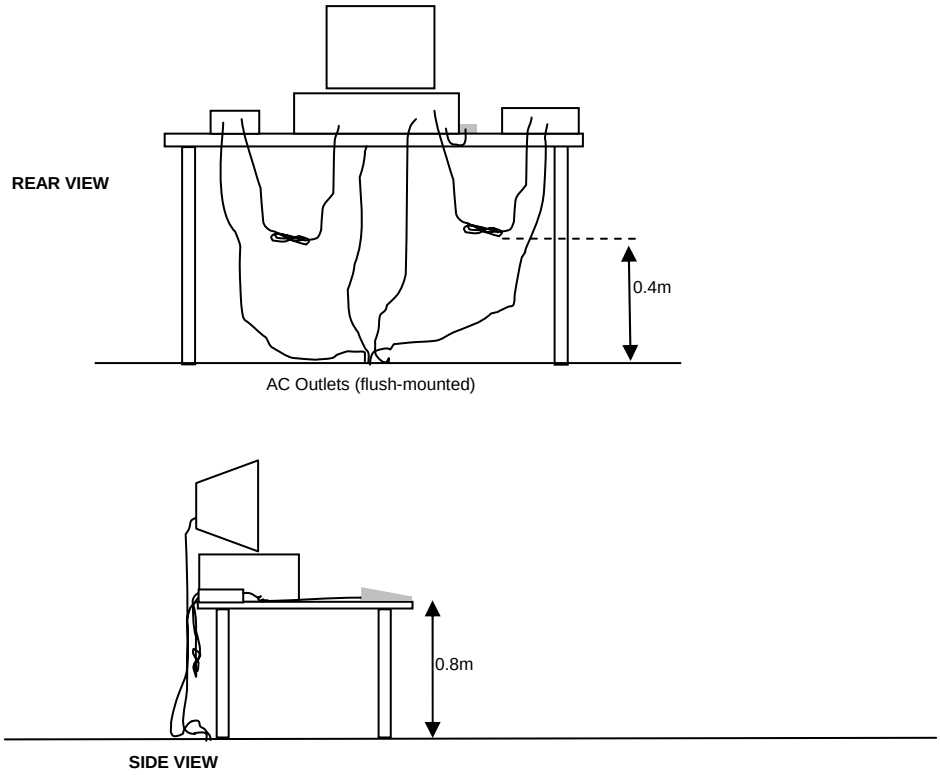
RADIATED EMISSIONS

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.

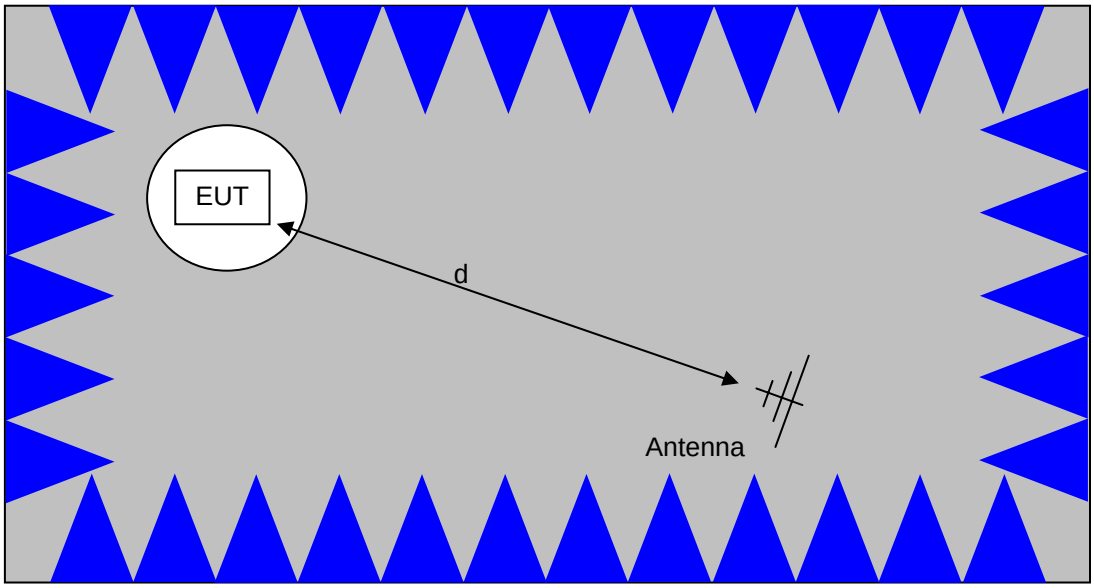
A speaker is provided in the receiver to aid in discriminating between EUT and ambient emissions. Other methods used during the preliminary scan for EUT emissions involve scanning with near field magnetic loops, monitoring I/O cables with RF current clamps, and cycling power to the EUT.

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.

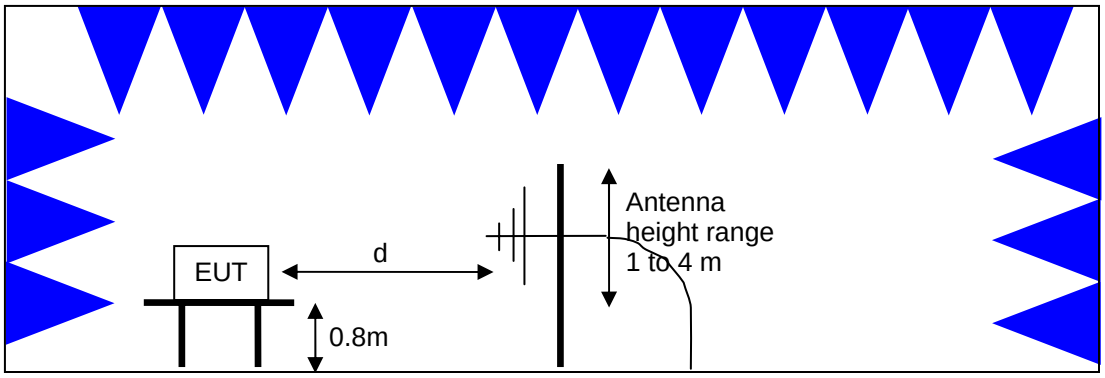


Typical Test Configuration for Radiated Field Strength Measurements



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

BANDWIDTH MEASUREMENTS

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

SPECIFICATION LIMITS AND SAMPLE CALCULATIONS

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

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

GENERAL TRANSMITTER RADIATED EMISSIONS SPECIFICATION LIMITS

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

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

RECEIVER RADIATED SPURIOUS EMISSIONS SPECIFICATION LIMITS

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

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

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

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.

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

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 - 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:

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

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

Manufacturer	Description	Model	Asset #	Cal Due
Radio Antenna Port (Power and Spurious Emissions), 15-Nov-11				
Hewlett Packard	SpecAn 9 kHz - 40 GHz, (SA40) Purple	8564E (84125C)	2415	7/28/2012
Radio Antenna Port (Power and Spurious Emissions), 15-Nov-11				
Agilent	PSA, Spectrum Analyzer, (installed options, 111, 115, 123, 1DS, B7J, HYX,	E4446A	2139	1/26/2012
Radio Antenna Port (Power and Spurious Emissions), 16-Nov-11				
Hewlett Packard	SpecAn 9 kHz - 40 GHz, (SA40) Purple	8564E (84125C)	2415	7/28/2012
Radio Antenna Port (Power and Spurious Emissions), 18-Nov-11				
Hewlett PackardDescription	SpecAn 9 kHz - 40 GHz, (SA40) PurpleModel	8564E (84125C)Asset #	2415Cal Due	7/28/2012
Radio Antenna Port (Power and Spurious Emissions), 22-Nov-11				
Hewlett Packard	SpecAn 9 kHz - 40 GHz, (SA40) Purple	8564E (84125C)	2415	7/28/2012
Radiated Emissions, 1000 - 18,000 MHz, 05-Dec-11				
Hewlett Packard	Microwave Preamplifier, 1-26.5GHz	8449B	263	12/8/2011
EMCO	Antenna, Horn, 1-18 GHz (SA40-Red)	3115	1142	8/2/2012
Hewlett Packard	SpecAn 30 Hz -40 GHz, SV (SA40) Red	8564E (84125C)	1148	8/15/2012
Radiated Emissions, 1000 - 6,500 MHz, 06-Dec-11				
EMCO	Antenna, Horn, 1-18 GHz	3115	487	7/6/2012
Hewlett Packard	SpecAn 9 kHz - 40 GHz, (SA40) Purple	8564E (84125C)	1771	3/30/2012
Hewlett Packard	Microwave Preamplifier, 1-26.5GHz	8449B	2199	2/23/2012
Radiated Emissions, 1000 - 18,000 MHz, 06-Dec-11				
EMCO	Antenna, Horn, 1-18GHz	3115	868	6/8/2012
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 - 18,000 MHz, 07-Dec-11				
Hewlett Packard	Microwave Preamplifier, 1-26.5GHz	8449B	785	5/18/2012
EMCO	Antenna, Horn, 1-18 GHz	3115	786	12/11/2011
Hewlett Packard	SpecAn 9 kHz - 40 GHz, FT (SA40) Blue	8564E (84125C)	1393	8/9/2012
Micro-Tronics	Band Reject Filter, 5150-5350 MHz	BRC50703-02	2239	10/4/2012

Manufacturer	Description	Model	Asset #	Cal Due
Radiated Emissions, 1000 - 18,000 MHz, 07-Dec-11				
Hewlett Packard	Microwave Preamplifier, 1-26.5GHz	8449B	263	12/8/2011
Hewlett Packard	SpecAn 30 Hz -40 GHz, SV (SA40) Red	8564E (84125C)	1148	8/15/2012
EMCO	Antenna, Horn, 1-18 GHz	3115	1561	6/22/2012
Micro-Tronics	Band Reject Filter, 5150-5350 MHz	BRC50703-02	1729	8/5/2012
Micro-Tronics	Band Reject Filter, 5470-5725 MHz	BRC50704-02	1730	8/5/2012
Radiated Emissions, 1000 - 18,000 MHz, 08-Dec-11				
Hewlett Packard	Microwave Preamplifier, 1-26.5GHz	8449B	263	12/9/2011
Hewlett Packard	SpecAn 30 Hz -40 GHz, SV (SA40) Red	8564E (84125C)	1148	8/15/2012
EMCO	Antenna, Horn, 1-18 GHz	3115	1561	6/22/2012
Micro-Tronics	Band Reject Filter, 5470-5725 MHz	BRC50704-02	1730	8/5/2012
Radiated Emissions, 1000 - 18,000MHz, 08-Dec-11				
EMCO	Antenna, Horn, 1-18 GHz (SA40-Red)	3115	1142	8/2/2012
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
Radio Antenna Port (Power and Spurious Emissions), 13-Dec-11				
Agilent	PSA, Spectrum Analyzer, (installed options, 111, 115, 123, 1DS, B7J, HYX,	E4446A	2139	1/26/2012
Radiated Emissions, 1000 - 18,000 MHz, 15-Dec-11				
Hewlett Packard	Microwave Preamplifier, 1-26.5GHz	8449B	263	12/9/2012
Hewlett Packard	SpecAn 30 Hz -40 GHz, SV (SA40) Red	8564E (84125C)	1148	8/15/2012
EMCO	Antenna, Horn, 1-18 GHz	3115	1561	6/22/2012
Micro-Tronics	Band Reject Filter, 5150-5350 MHz	BRC50703-02	1729	8/5/2012
Micro-Tronics	Band Reject Filter, 5470-5725 MHz	BRC50704-02	1730	8/5/2012

Appendix B Test Data

T85333 Pages 27 - 121

Client:	Ubiquiti Networks	Job Number:	J85296
Model:	RocketM5	T-Log Number:	T85333
		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

RocketM5

Date of Last Test: 12/28/2011

Client:	Ubiquiti Networks	Job Number:	J85296
Model:	RocketM5	T-Log Number:	T85333
		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: 11/15/2011 0:00
Test Engineer: Jack Liu / R. Varelas/ J. Cadigal
Test Location: FT Lab #4 and FT Chamber #4.

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

Summary of Results
For 13dBi ant

Run #	Test Performed	Limit	Pass / Fail	Result / Margin
1	Power, 5250 - 5350MHz	15.407(a) (1), (2)	Pass Pass	HT20: 13.7 dBm HT40: 13.5 dBm
1	PSD, 5250 - 5350MHz	15.407(a) (1), (2)	Pass Pass	HT20: 1.0 dBm/MHz HT40: -2.4 dBm/MHz
1	Max EIRP 5250 - 5350MHz	TPC required if EIRP≥ 500mW (27dBm). EIRP ≥ 200mW (23dBm) DFS threshold = -64dBm.	Pass	EIRP = 29.7dBm
1	Power, 5470 - 5725MHz	15.407(a) (1), (2)	Pass	HT20: 13.7 dBm HT40: 13.9dBm
1	PSD, 5470 - 5725MHz	15.407(a) (1), (2)	Pass	HT20: 1 dBm/MHz HT40: -1.9 dBm/MHz
1	Max EIRP 5470 - 5725MHz	TPC required if EIRP≥ 500mW (27dBm). EIRP ≥ 200mW (23dBm) DFS threshold = -64dBm.	Pass	EIRP = 29.9 dBm
1	26dB Bandwidth	15.407 (Information only)	-	> 20MHz for all modes
1	99% Bandwidth	RSS 210 (Information only)	-	HT20: 18.2 MHz HT40: 36.8MHz
2	Peak Excursion Envelope	15.407(a) (6) 13dB	Pass	12.94 dB
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:	J85296
Model:	RocketM5	T-Log Number:	T85333
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A

For 10dBi ant

Run #	Test Performed	Limit	Pass / Fail	Result / Margin
1	Power, 5250 - 5350MHz	15.407(a) (1), (2)	Pass Pass	HT20: 16.7 dBm HT40: 16.8 dBm
1	PSD, 5250 - 5350MHz	15.407(a) (1), (2)	Pass Pass	HT20: 3.8dBm/MHz HT40: 1.2 dBm/MHz
1	Max EIRP 5250 - 5350MHz	TPC required if EIRP≥ 500mW (27dBm). EIRP ≥ 200mW (23dBm) DFS threshold = -64dBm.	Pass	EIRP = 29.8dBm
1	Power, 5470 - 5725MHz	15.407(a) (1), (2)	Pass	HT20: 16.3 dBm HT40: 15.6 dBm
1	PSD, 5470 - 5725MHz	15.407(a) (1), (2)	Pass	HT20: 3.5 dBm/MHz HT40: 1.0 dBm/MHz
1	Max EIRP 5470 - 5725MHz	TPC required if EIRP≥ 500mW (27dBm). EIRP ≥ 200mW (23dBm) DFS threshold = -64dBm.	Pass	EIRP = 29.6 dBm
1	26dB Bandwidth	15.407 (Information only)	-	> 20MHz for all modes
1	99% Bandwidth	RSS 210 (Information only)	-	HT20: 18.1 MHz HT40: 36.9 MHz
2	Peak Excursion Envelope	15.407(a) (6) 13dB	Pass	13.0dB
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:	J85296
Model:	RocketM5	T-Log Number:	T85333
		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: 18-22 °C

Rel. Humidity: 30-40 %

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, sample detector, power averaging on (transmitted signal was continuous) and power integration over 40/60 MHz (method 1 of DA-02-2138A1).
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:	J85296
Model:	RocketM5	T-Log Number:	T85333
		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):	13	13		Yes	16.0	937.9	29.7

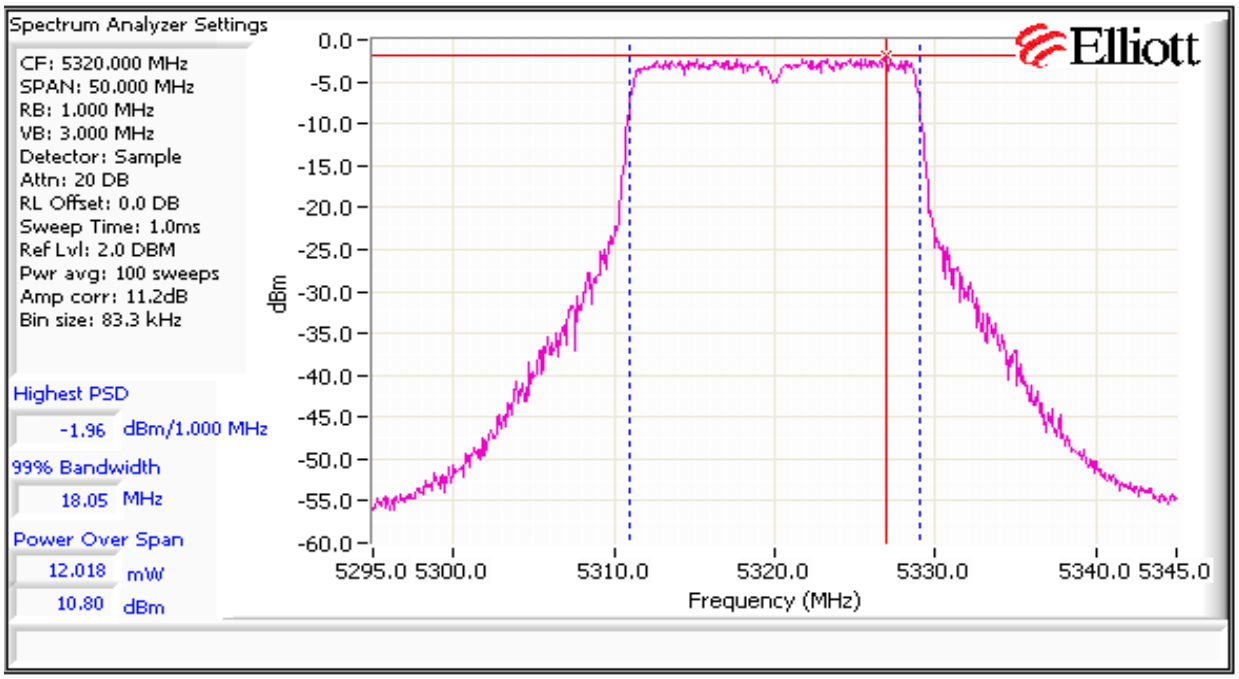
Power

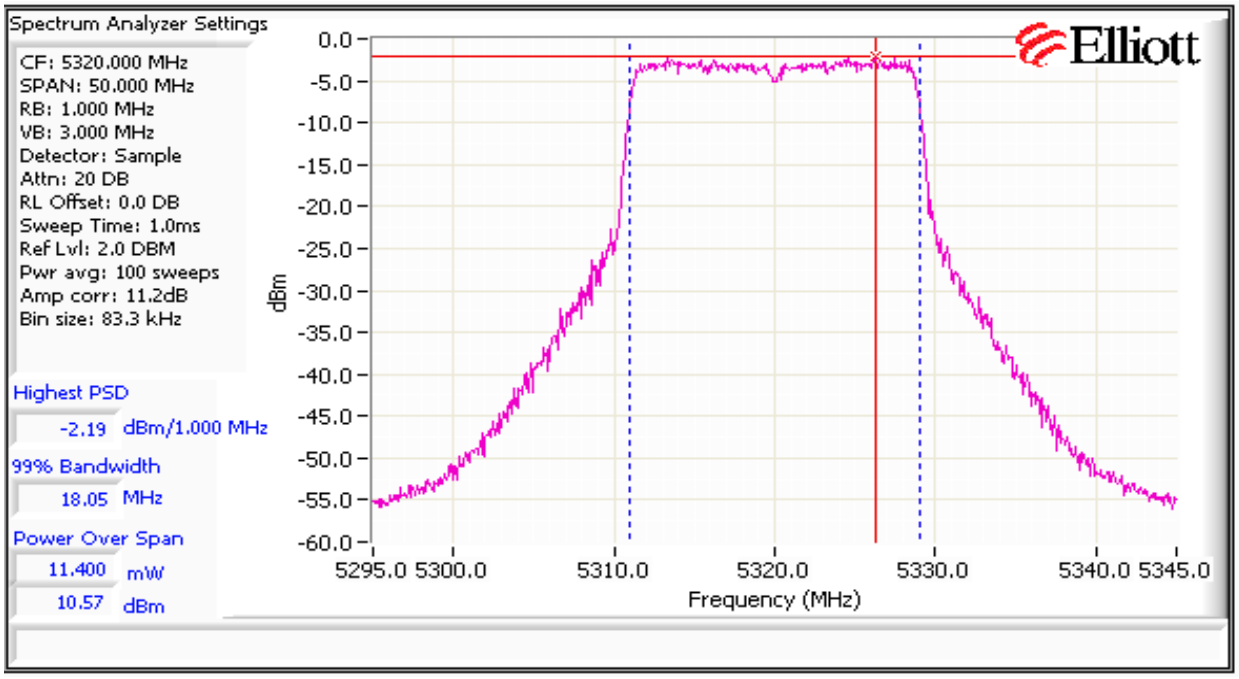
Frequency (MHz)	Software Setting	26dB BW (MHz)	Measured Output Power[1] dBm			Total		Limit (dBm)	Max Power (W)	Pass or Fail
			Chain 1	Chain 2	Chain 3	mW	dBm			
20MHz Mode										
5270	7.5	25.5	10.1	9.7		19.5	12.9	14.0	0.024	PASS
5300	7.5	25.9	10.3	10.5		21.9	13.4	14.0		PASS
5320	7.5	26.2	10.8	10.6		23.5	13.7	14.0		PASS
40MHz Mode										
5275	7.5	47.0	11.0	9.8		22.1	13.4	14.0	0.022	PASS
5310	8.0	47.0	10.5	10.5		22.4	13.5	14.0		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										
5270	17.4	12.9	-2.7	-3.1		1.0	0.1	1.0	11.0	PASS
5300	18.1	13.4	-2.5	-2.3		1.2	0.6	1.0	11.0	PASS
5320	18.1	13.7	-2.0	-2.1		1.2	1.0	1.0	11.0	PASS
40MHz Mode										
5275	36.6	13.4	-4.5	-5.7		0.6	-2.0	1.0	11.0	PASS
5310	36.6	13.5	-5.5	-5.3		0.6	-2.4	1.0	11.0	PASS

Client:	Ubiquiti Networks	Job Number:	J85296
Model:	RocketM5	T-Log Number:	T85333
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A





Client:	Ubiquiti Networks	Job Number:	J85296
Model:	RocketM5	T-Log Number:	T85333
		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):	13	13		Yes	16.0	975.2	29.9

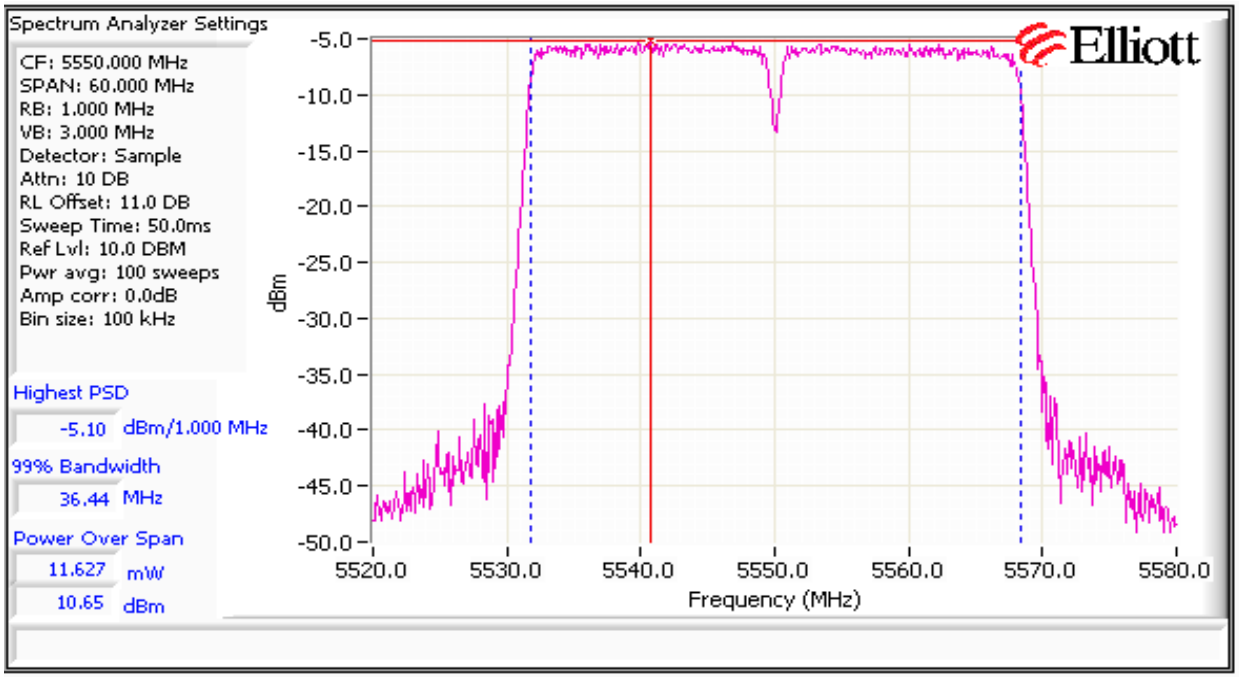
Power

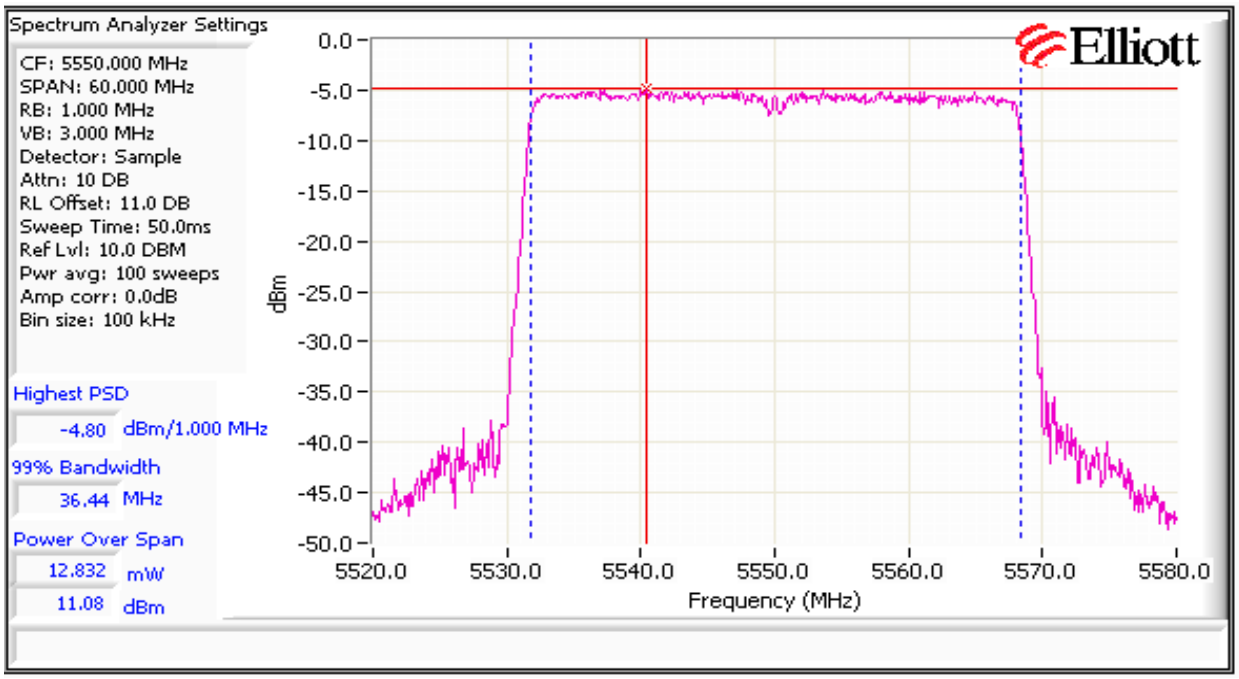
Frequency (MHz)	Software Setting	26dB BW (MHz)	Measured Output Power[1] dBm			Total		Limit (dBm)	Max Power (W)	Pass or Fail
			Chain 1	Chain 2	Chain 3	mW	dBm			
20MHz Mode										
5500	7.0	25.9	10.7	10.7		23.5	13.7	14.0	0.023	PASS
5580	7.0	25.8	10.0	10.2		20.5	13.1	14.0		PASS
5700	7.0	25.5	9.8	10.2		20.0	13.0	14.0		PASS
40MHz Mode										
5510	4.0	47.3	7.7	6.6		10.4	10.2	14.0	0.024	PASS
5550	9.0	50.8	10.7	11.1		24.4	13.9	14.0		PASS
5670	7.5	50.8	10.6	10.9		23.8	13.8	14.0		PASS
5675	8.0	50.8	10.3	10.2		21.0	13.2	14.0		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	18.1	13.7	-2.1	-2.0		1.2	1.0	1.0	11.0	PASS
5580	18.1	13.1	-2.5	-2.4		1.1	0.6	1.0	11.0	PASS
5700	18.1	13.0	-3.0	-2.7		1.0	0.2	1.0	11.0	PASS
40MHz Mode										
5510	36.7	10.2	-8.5	-9.5		0.3	-5.9	1.0	11.0	PASS
5550	36.4	13.9	-5.1	-4.8		0.6	-1.9	1.0	11.0	PASS
5670	36.9	13.8	-5.2	-4.7		0.6	-1.9	1.0	11.0	PASS
5675	36.8	13.2	-5.9	-5.9		0.5	-2.9	1.0	11.0	PASS

Client:	Ubiquiti Networks	Job Number:	J85296
Model:	RocketM5	T-Log Number:	T85333
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A





Client:	Ubiquiti Networks	Job Number:	J85296
Model:	RocketM5	T-Log Number:	T85333
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A

Power measurements for 10dBi antenna operating at higher output power

MIMO Device - 5250-5350 MHz Band

	Chain 1	Chain 2	Chain 3	Coherent	Effective[5]	EIRP (mW)	EIRP (dBm)
Antenna Gain (dBi):	10	10		Yes	13.0	948.6	29.8

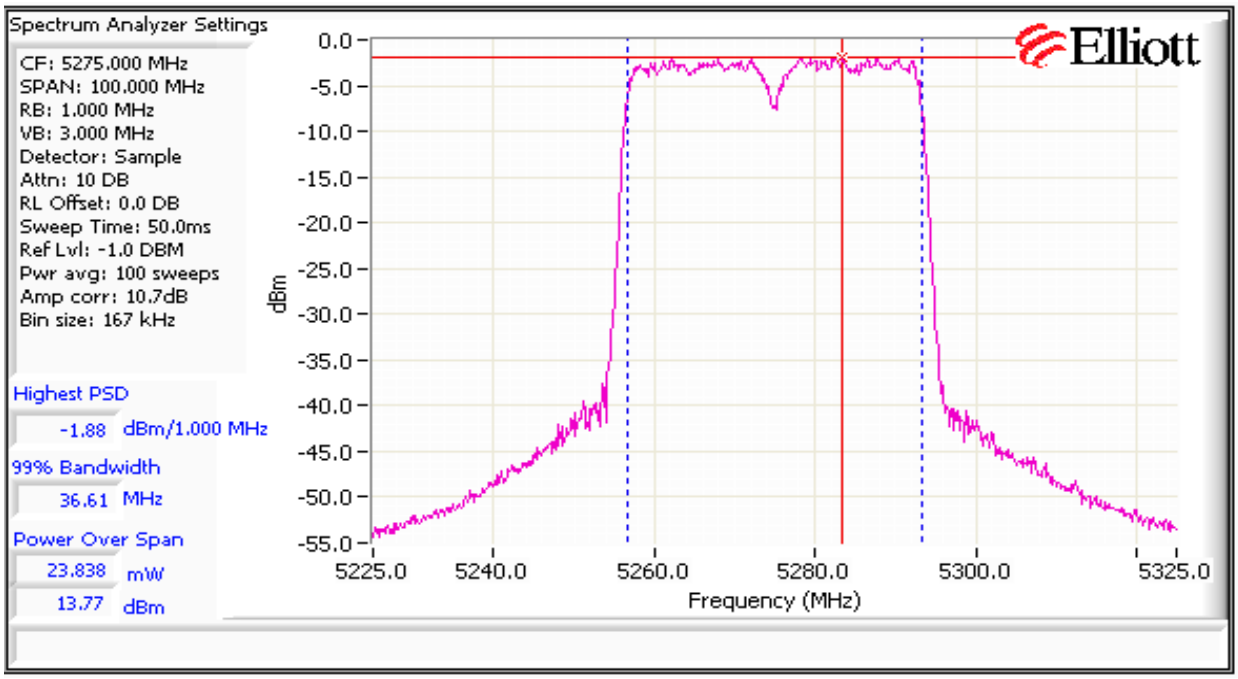
Power

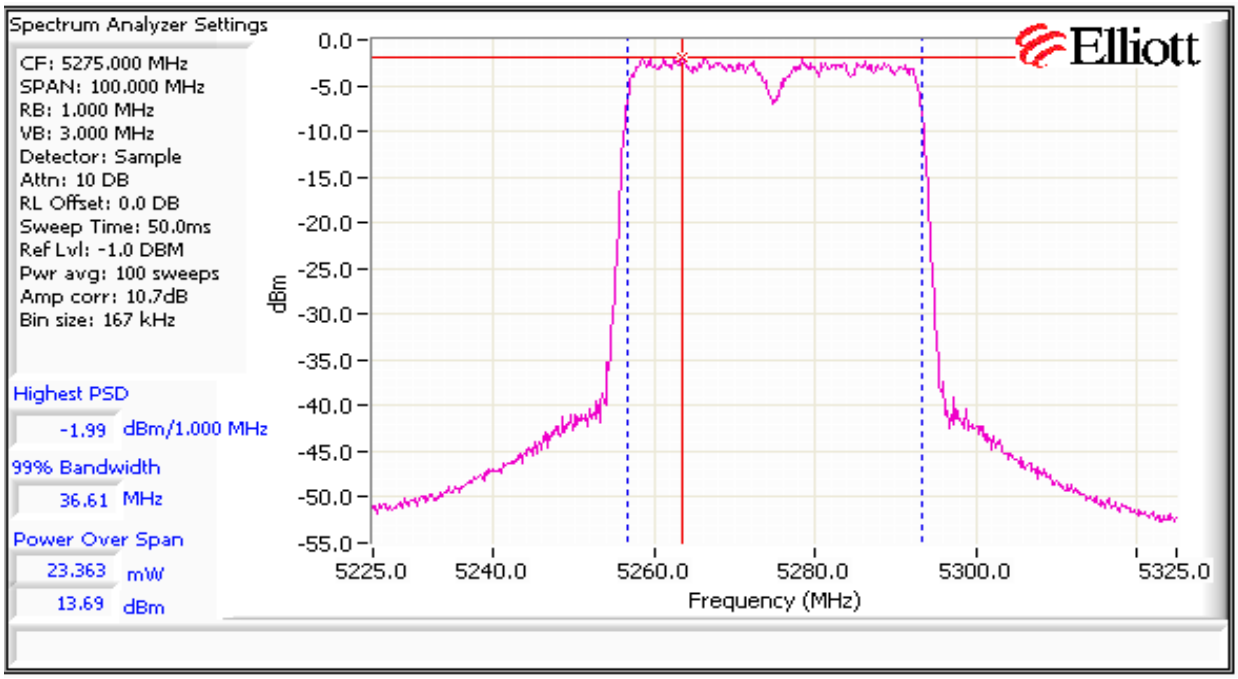
Frequency (MHz)	Software Setting	26dB BW (MHz)	Measured Output Power[1] dBm			Total		Limit (dBm)	Max Power (W)	Pass or Fail
			Chain 1	Chain 2	Chain 3	mW	dBm			
20MHz Mode										
5270	10.0	26.0	12.6	12.6		36.4	15.6	17.0	0.047	PASS
5300	10.0	26.0	13.8	13.4		45.9	16.6	17.0		PASS
5320	10.0	26.0	13.7	13.7		47.2	16.7	17.0		PASS
40MHz Mode										
5275	10.0	47.0	13.8	13.7		47.4	16.8	17.0	0.047	PASS
5310	10.5	47.0	13.5	13.4		44.0	16.4	17.0		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										
5270	17.4	15.6	-0.3	0.0		1.9	2.9	4.0	11.0	PASS
5300	18.1	16.6	0.9	0.7		2.4	3.8	4.0	11.0	PASS
5320	18.1	16.7	0.7	0.8		2.4	3.8	4.0	11.0	PASS
40MHz Mode										
5275	36.6	16.8	-1.9	-1.7		1.3	1.2	4.0	11.0	PASS
5310	36.5	16.4	-2.6	-2.2		1.2	0.7	4.0	11.0	PASS

Client:	Ubiquiti Networks	Job Number:	J85296
Model:	RocketM5	T-Log Number:	T85333
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A





Client:	Ubiquiti Networks	Job Number:	J85296
Model:	RocketM5	T-Log Number:	T85333
		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):	10	10		Yes	13.0	916.3	29.6

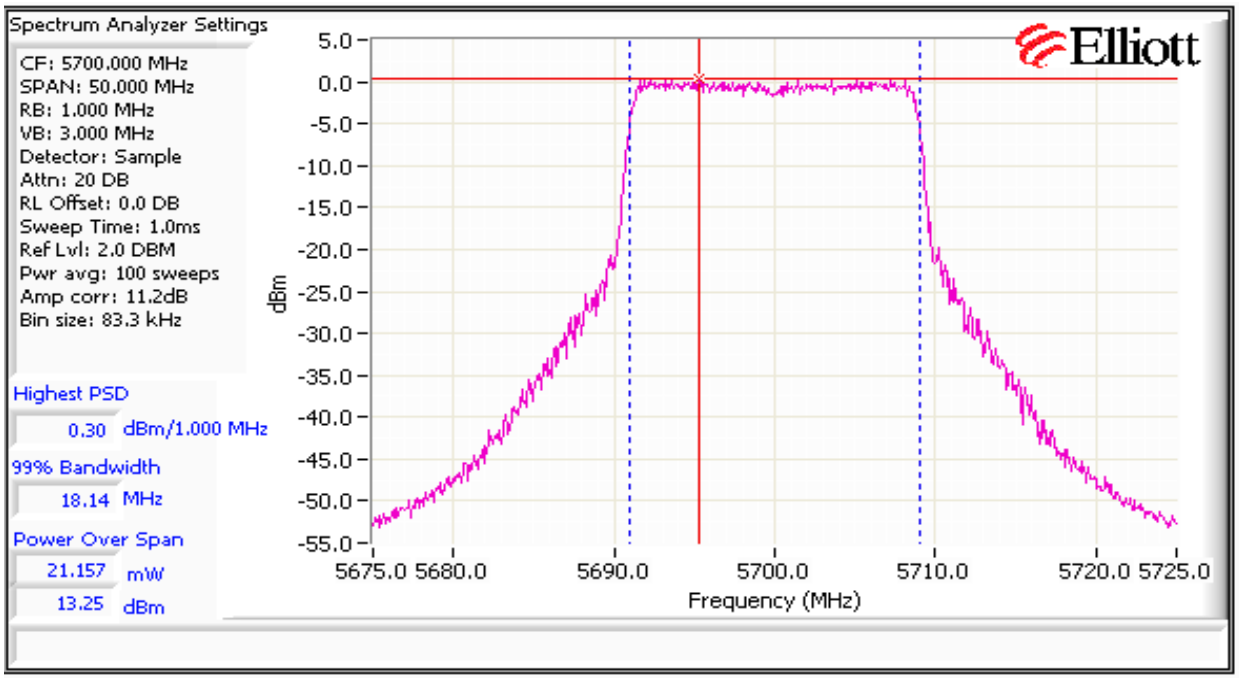
Power

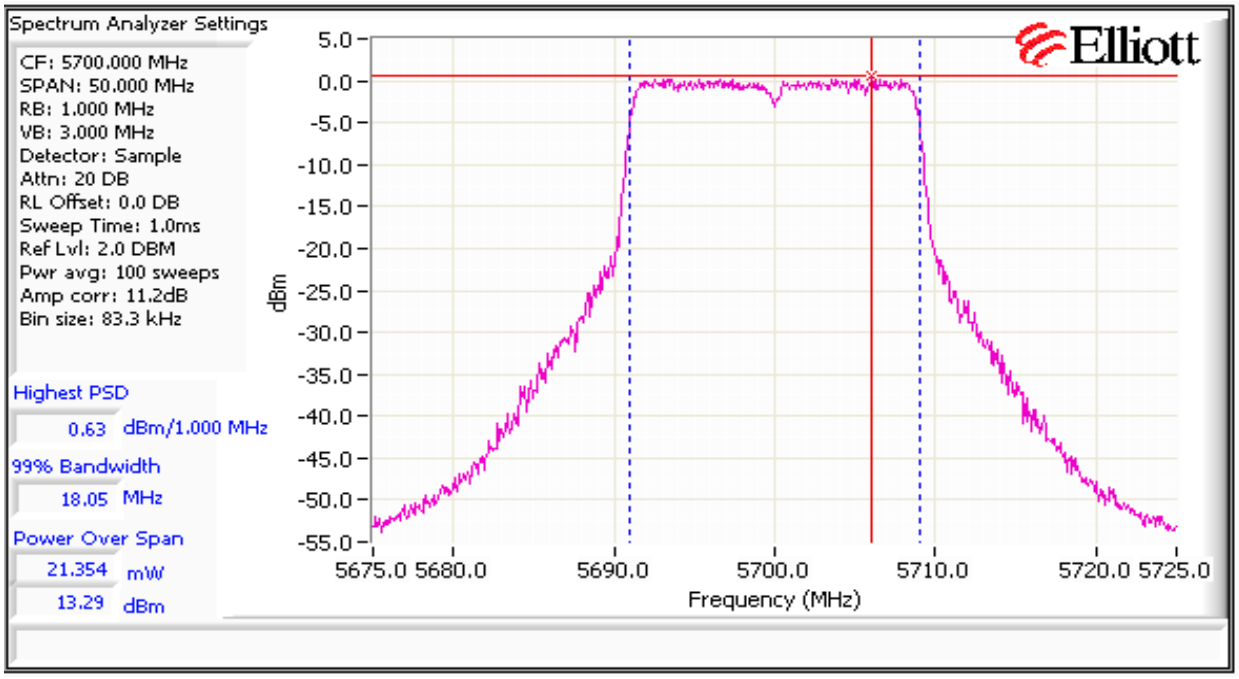
Frequency (MHz)	Software Setting	26dB BW (MHz)	Measured Output Power[1] dBm			Total		Limit (dBm)	Max Power (W)	Pass or Fail
			Chain 1	Chain 2	Chain 3	mW	dBm			
20MHz Mode										
5500	10.0	25.9	13.1	13.2		41.4	16.2	17.0	0.042	PASS
5580	10.0	25.7	13.0	13.2		40.5	16.1	17.0		PASS
5700	10.0	26.1	13.3	13.3		42.5	16.3	17.0		PASS
40MHz Mode										
5510	6.0	47.3	9.6	9.8		18.5	12.7	17.0	0.046	PASS
5550	10.5	50.8	12.6	13.0		38.5	15.9	17.0		PASS
5670	10.0	50.0	13.6	13.6		45.8	16.6	17.0		PASS
5675	8.5	50.8	12.3	11.7		31.9	15.0	17.0		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	18.1	16.2	0.1	0.3		2.1	3.2	4.0	11.0	PASS
5580	18.1	16.1	0.1	0.3		2.1	3.2	4.0	11.0	PASS
5700	18.1	16.3	0.6	0.3		2.2	3.5	4.0	11.0	PASS
40MHz Mode										
5510	36.7	12.7	-6.5	-6.4		0.5	-3.4	4.0	11.0	PASS
5550	36.4	15.9	-3.3	-2.8		1.0	0.0	4.0	11.0	PASS
5670	36.9	16.6	-1.9	-2.1		1.3	1.0	4.0	11.0	PASS
5675	36.8	15.0	-3.9	-4.4		0.8	-1.1	4.0	11.0	PASS

Client:	Ubiquiti Networks	Job Number:	J85296
Model:	RocketM5	T-Log Number:	T85333
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A





Client:	Ubiquiti Networks	Job Number:	J85296
Model:	RocketM5	T-Log Number:	T85333
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A

Run #2: Peak Excursion Measurement
For 13dBi Ant

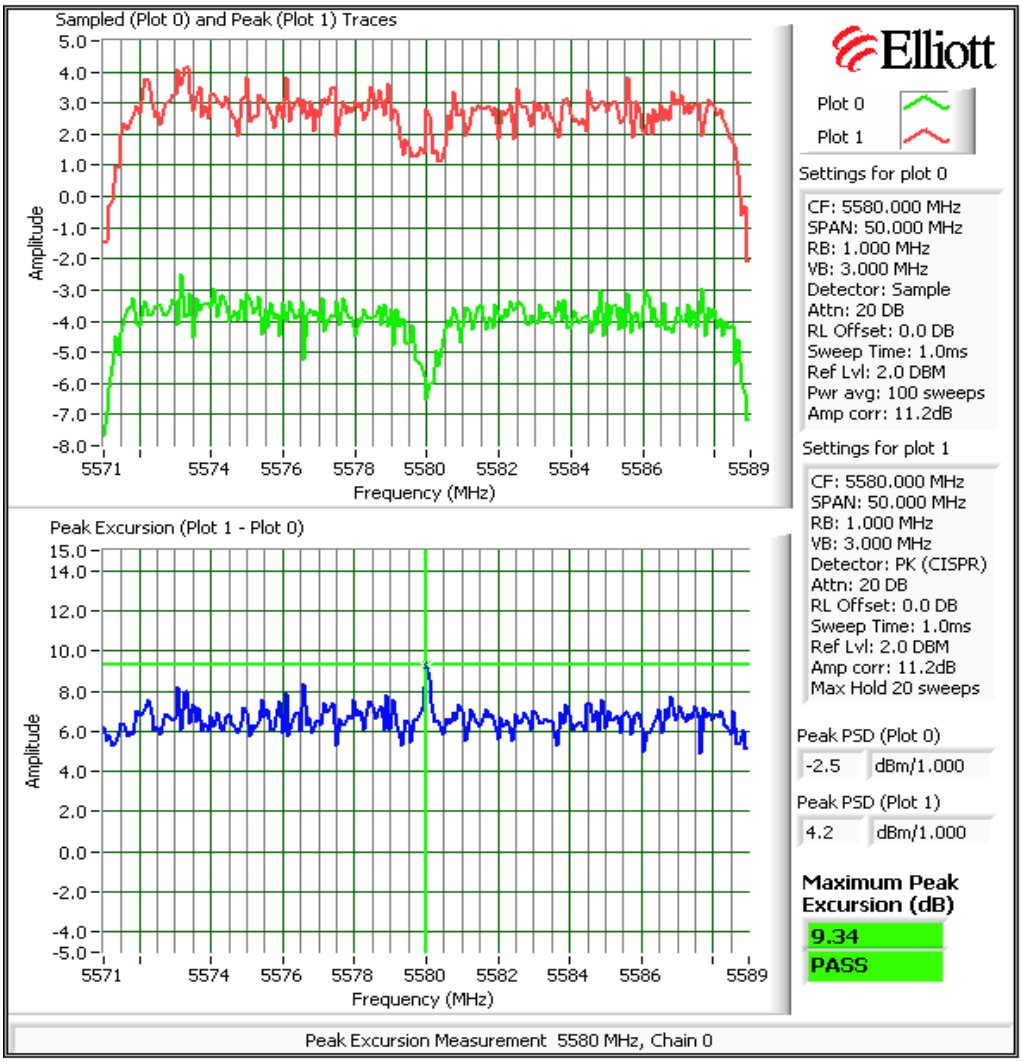
20MHz: Device meets the requirement for the peak excursion

Freq	Peak Excursion(dB)		Freq	Peak Excursion(dB)		Freq	Peak Excursion(dB)	
(MHz)	Value	Limit	(MHz)	Value	Limit	(MHz)	Value	Limit
5180		13.0	5270	8.6 /8.3	13.0	5500	8.4/8.8	13.0
5200		13.0	5300	8.7/8.5	13.0	5580	9.3/8.2	13.0
5240		13.0	5320	8.4/8.5	13.0	5700	8.7/8.5	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:	J85296
Model:	RocketM5	T-Log Number:	T85333
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A

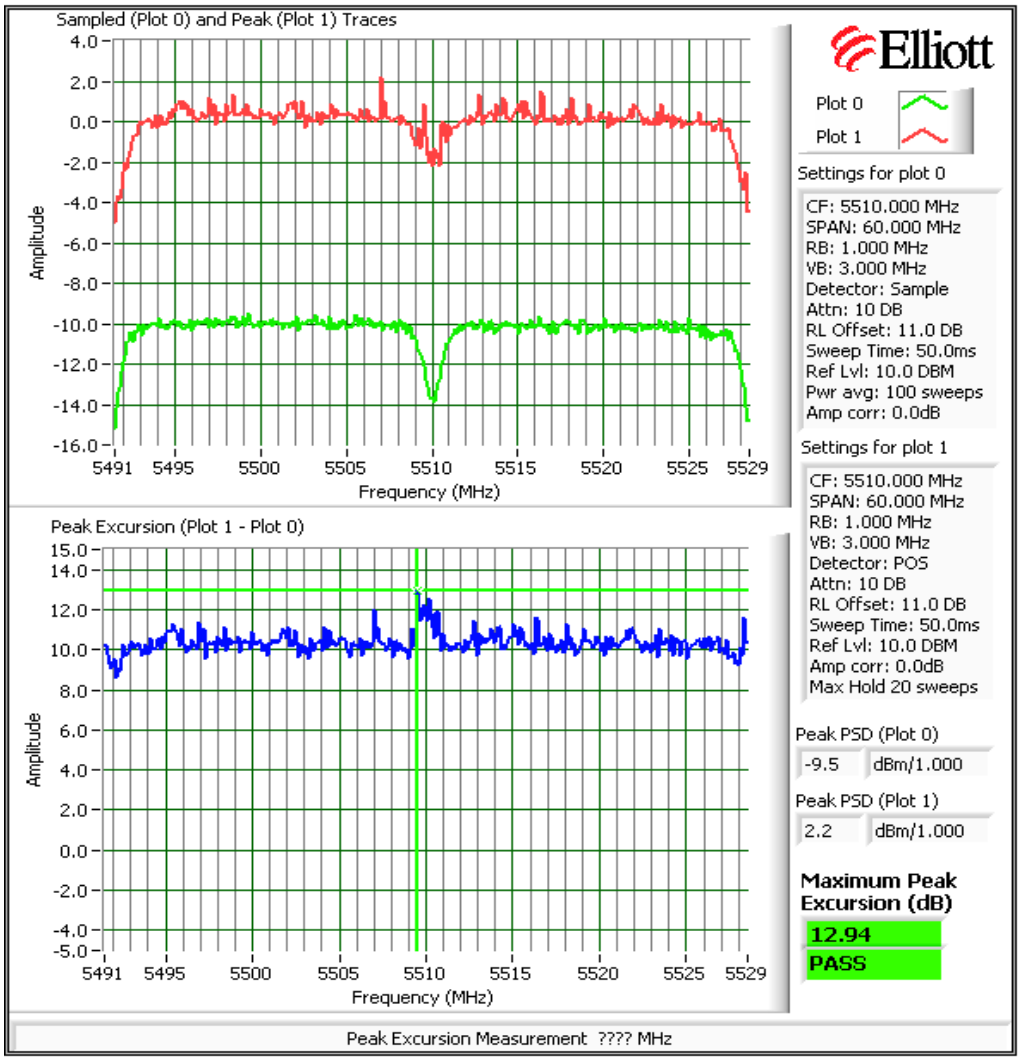
40MHz: Device meets the requirement for the peak excursion

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	8.6/9.0	13.0	5510	11.7/12.9	13.0
5230		13.0	5310	11.7/11.3	13.0	5550	12.6/11.6	13.0
						5670	12.4/12.3	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:	J85296
Model:	RocketM5	T-Log Number:	T85333
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A

For 10dBi Ant

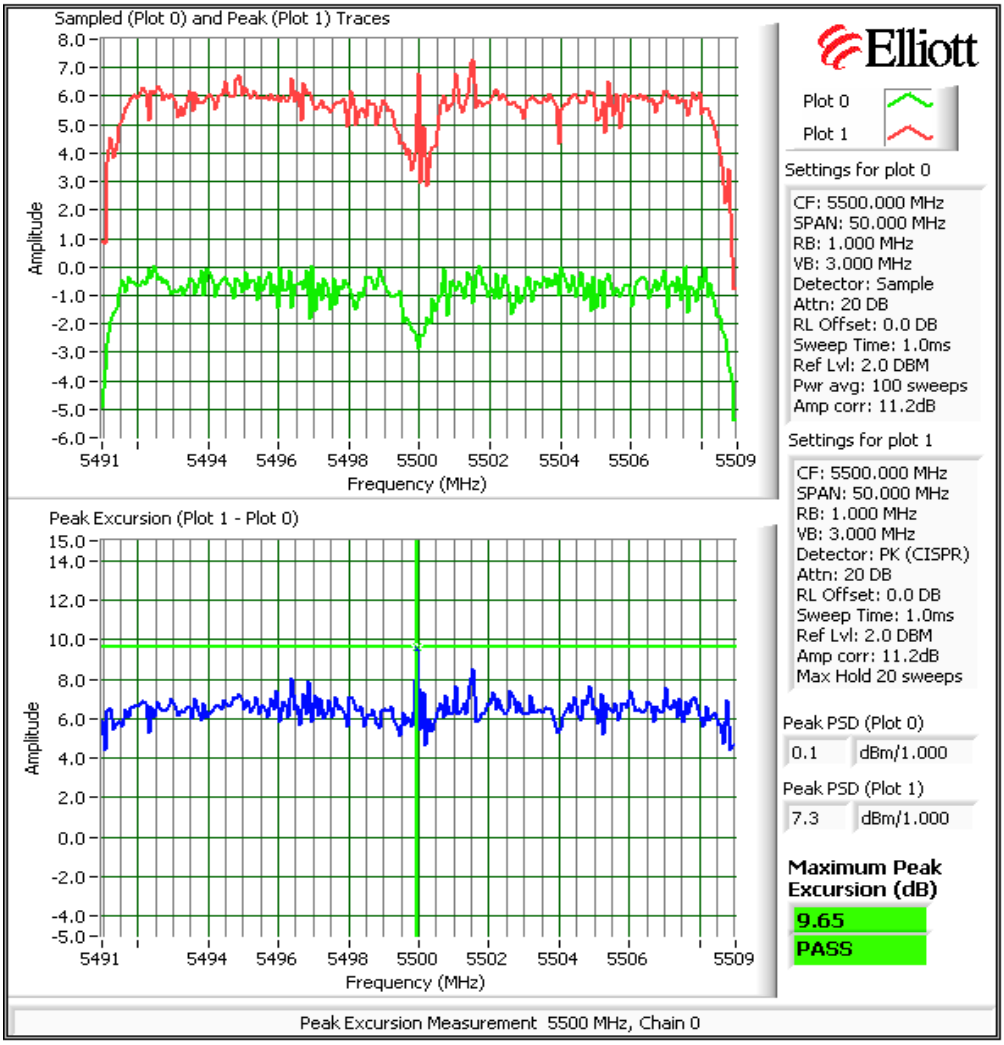
20MHz: Device meets the requirement for the peak excursion

Freq	Peak Excursion(dB)		Freq	Peak Excursion(dB)		Freq	Peak Excursion(dB)	
(MHz)	Value	Limit	(MHz)	Value	Limit	(MHz)	Value	Limit
5180		13.0	5270	8.9/8.0	13.0	5500	9.7/8.8	13.0
5200		13.0	5300	8.5/8.7	13.0	5580	8.2/8.0	13.0
5240		13.0	5320	8.7/9.0	13.0	5700	8.5/8.9	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:	J85296
Model:	RocketM5	T-Log Number:	T85333
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A

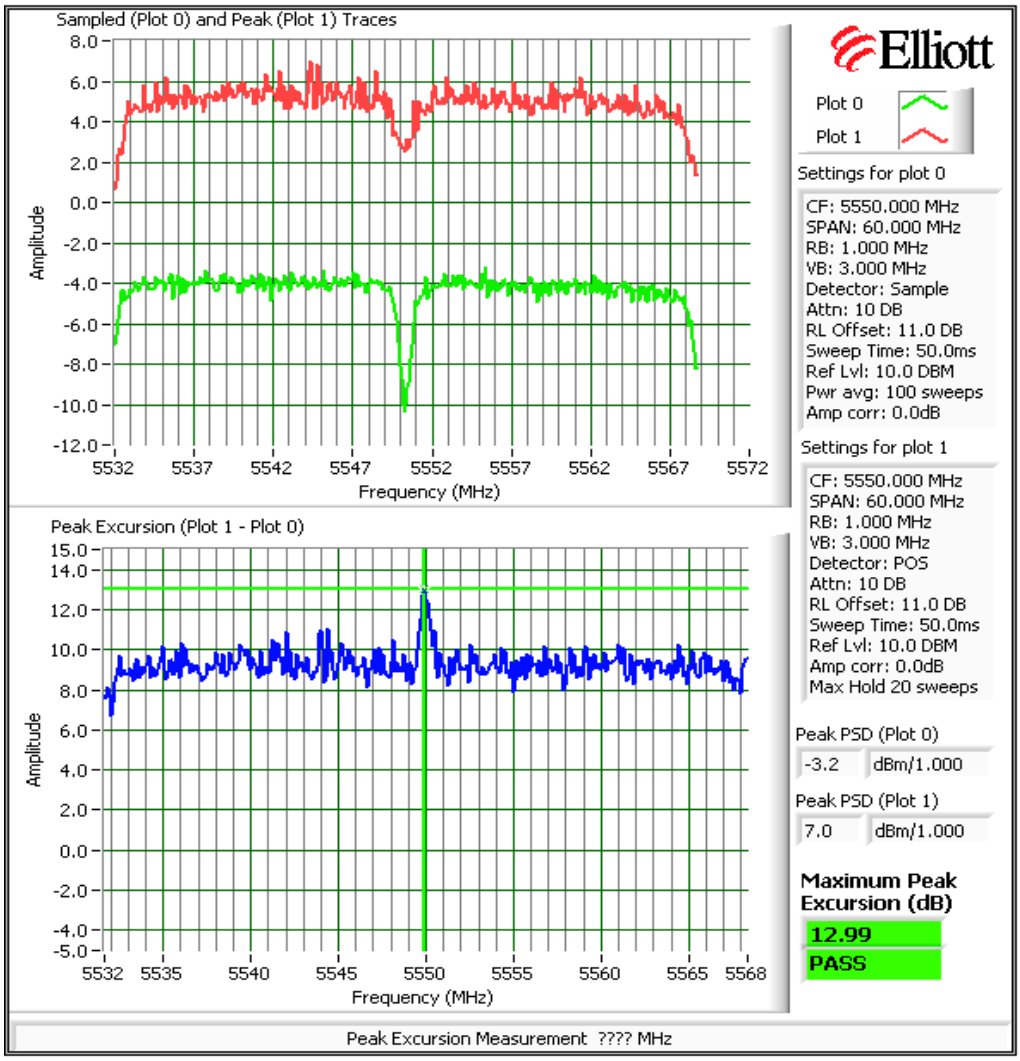
40MHz: Device meets the requirement for the peak excursion

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	10.0/8.9	13.0	5510	12.6/12.6	13.0
5230		13.0	5310	11.8/12.3	13.0	5550	13.0/12.5	13.0
						5670	12.5/13.0	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:	J85296
Model:	RocketM5	T-Log Number:	T85333
		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:	10.0	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:	-40.0	dBm/MHz Peak Limit (RB=1MHz VB=3MHz)

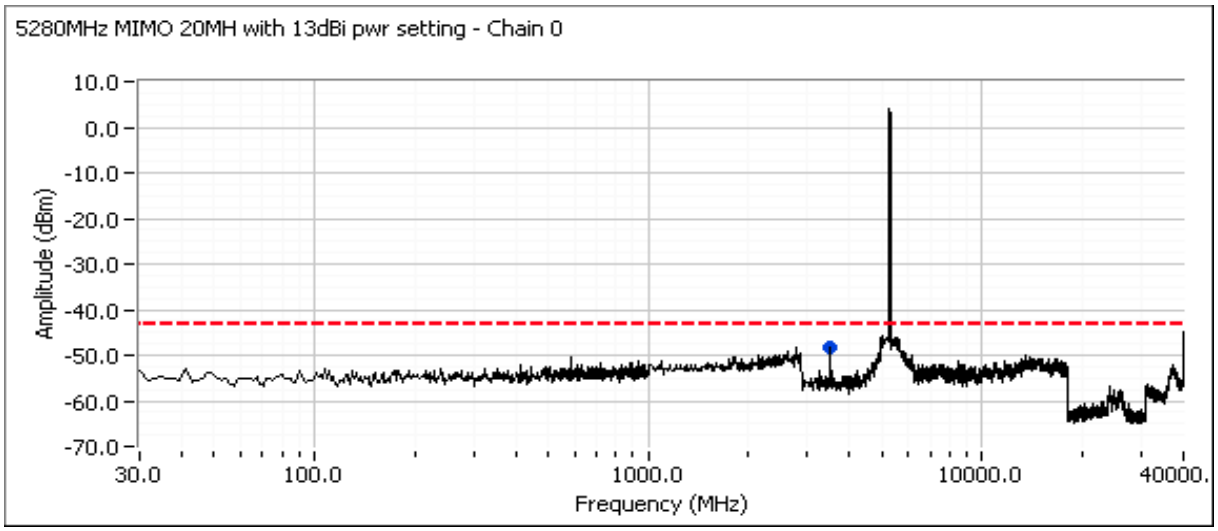
Number of transmit chains:	2	
Maximum Antenna Gain:	13.0	dBi
Spurious Limit:	-27.0	dBm/MHz eirp
Adjustment for 2 chains:	-3.0	dB adjustment for multiple chains.
Limit Used On Plots Note 1:	-43.0	dBm/MHz Peak Limit (RB=1MHz VB=3MHz)

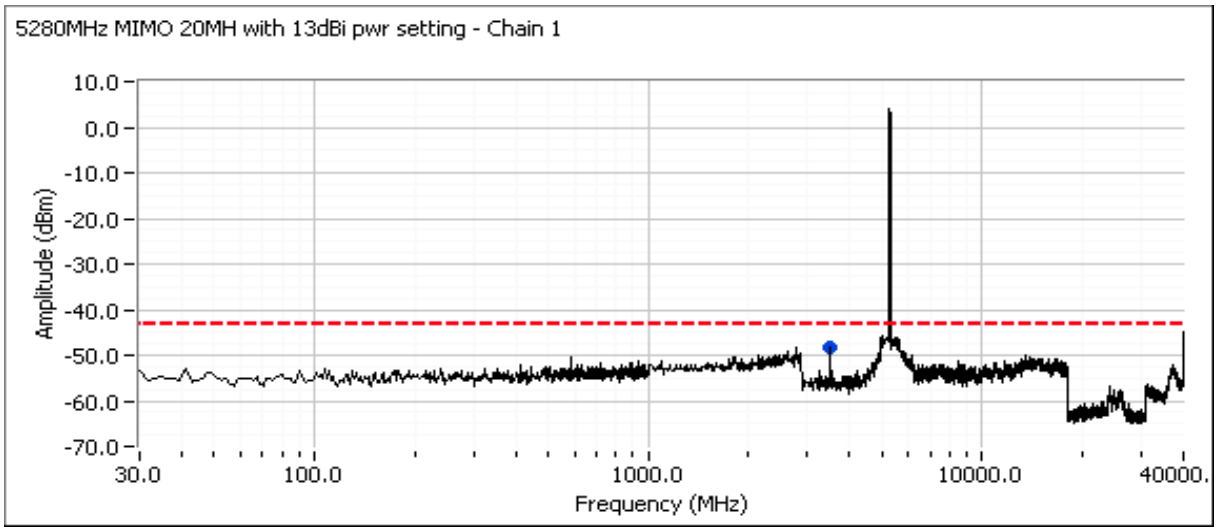
Note 1:	The -27dBm/MHz limit is an eirp limit. The limit for antenna port conducted measurements is adjusted to take into consideration the maximum antenna gain (limit = -27dBm - antenna gain). Radiated field strength measurements for signals more than 50MHz from the bands and that are close to the limit 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.

Client:	Ubiquiti Networks	Job Number:	J85296
Model:	RocketM5	T-Log Number:	T85333
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A

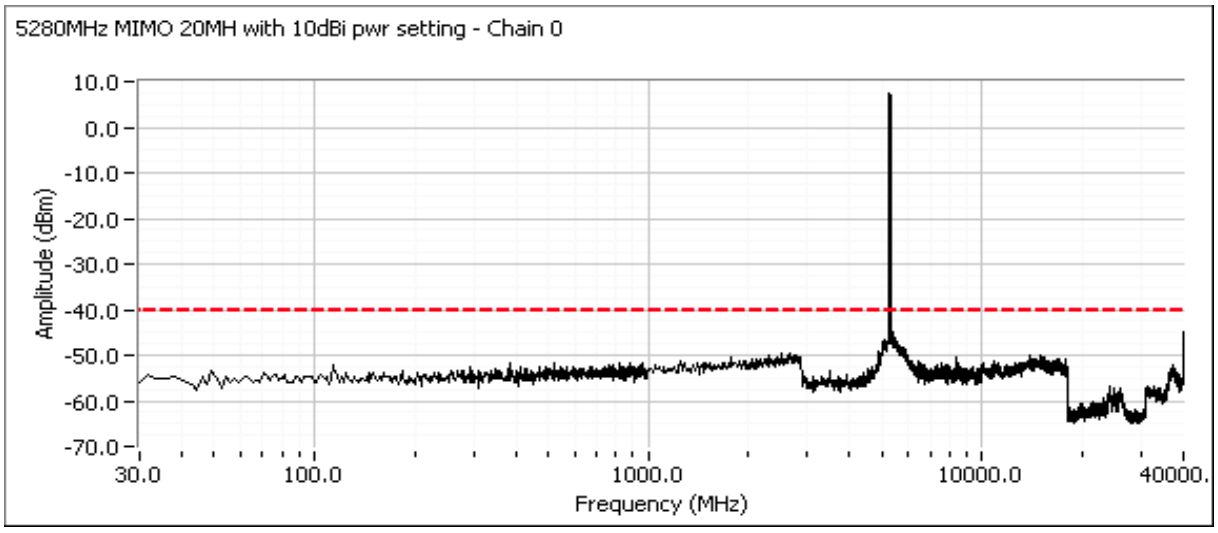
Plots Showing Out-Of-Band Emissions (RBW=1MHz VBW=3MHz)

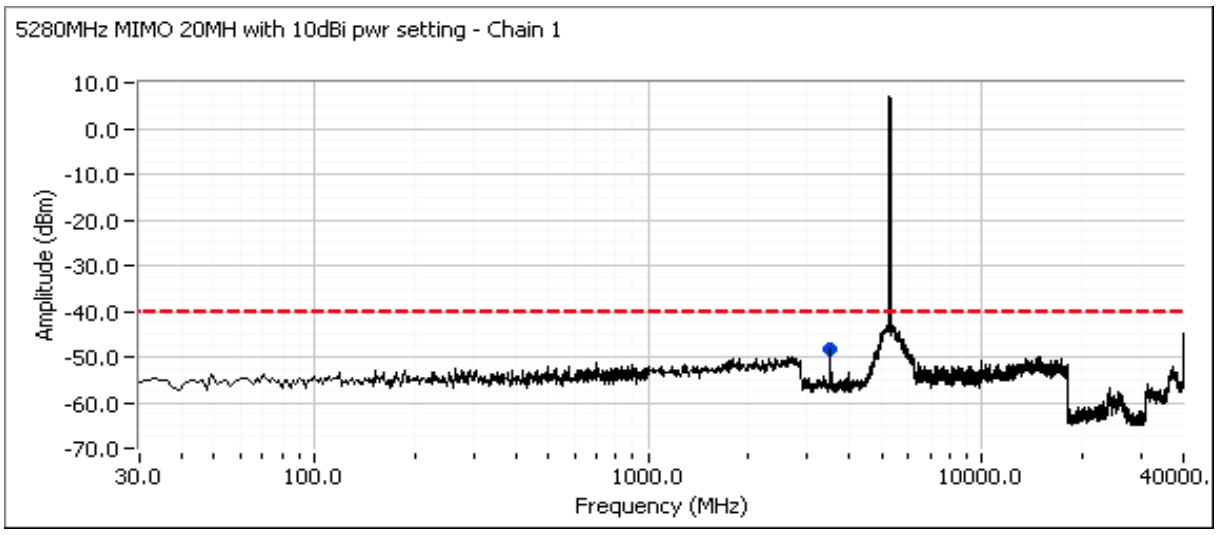
Low channel, 5250 - 5350 MHz Band
n20 mode





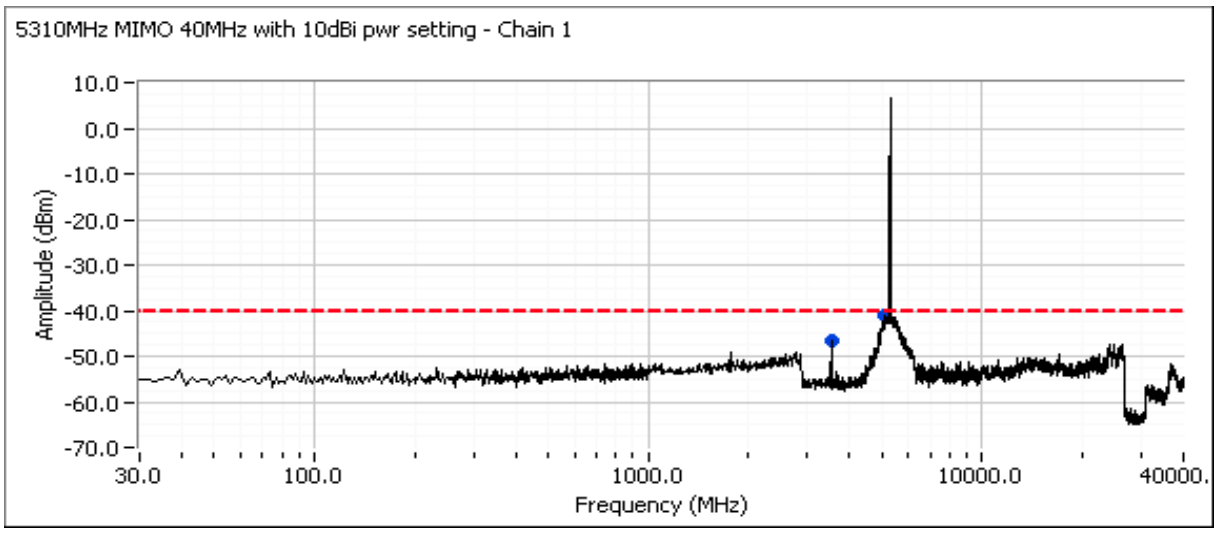
Client:	Ubiquiti Networks	Job Number:	J85296
Model:	RocketM5	T-Log Number:	T85333
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A

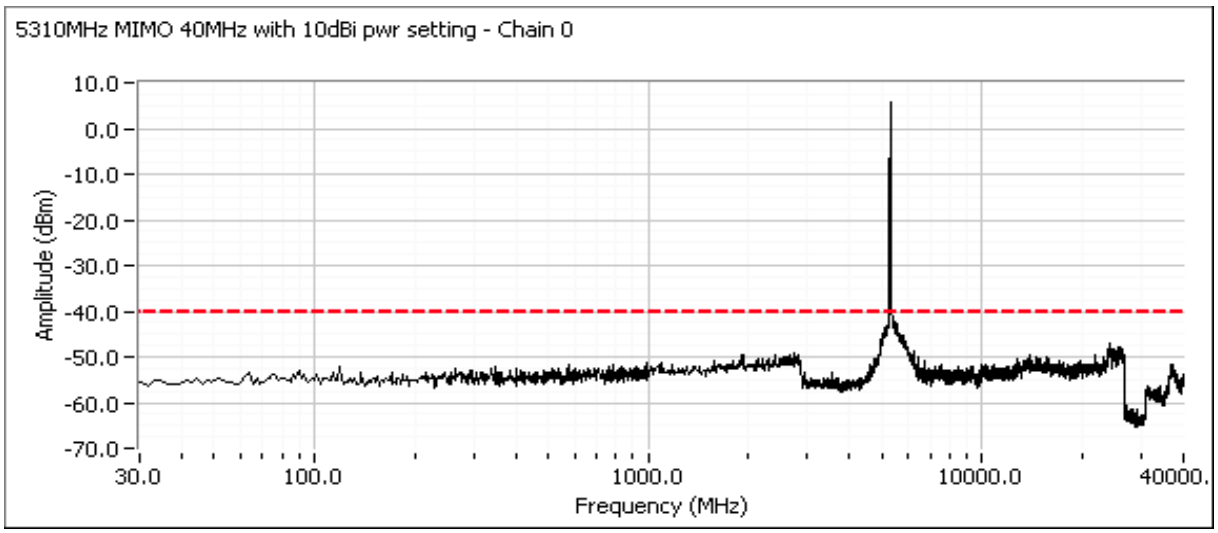




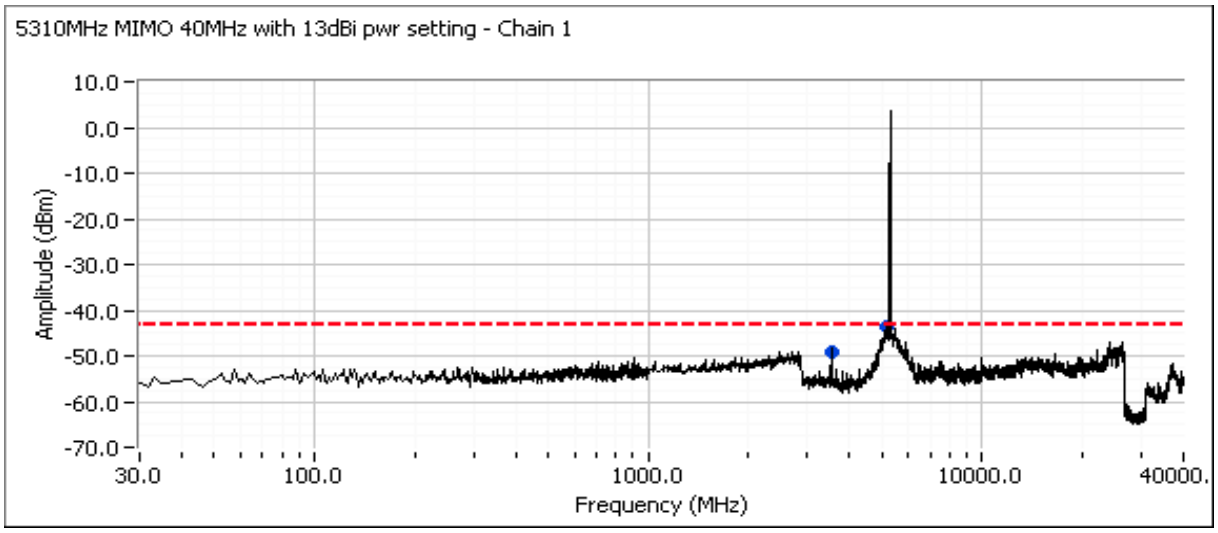
Client:	Ubiquiti Networks	Job Number:	J85296
Model:	RocketM5	T-Log Number:	T85333
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A

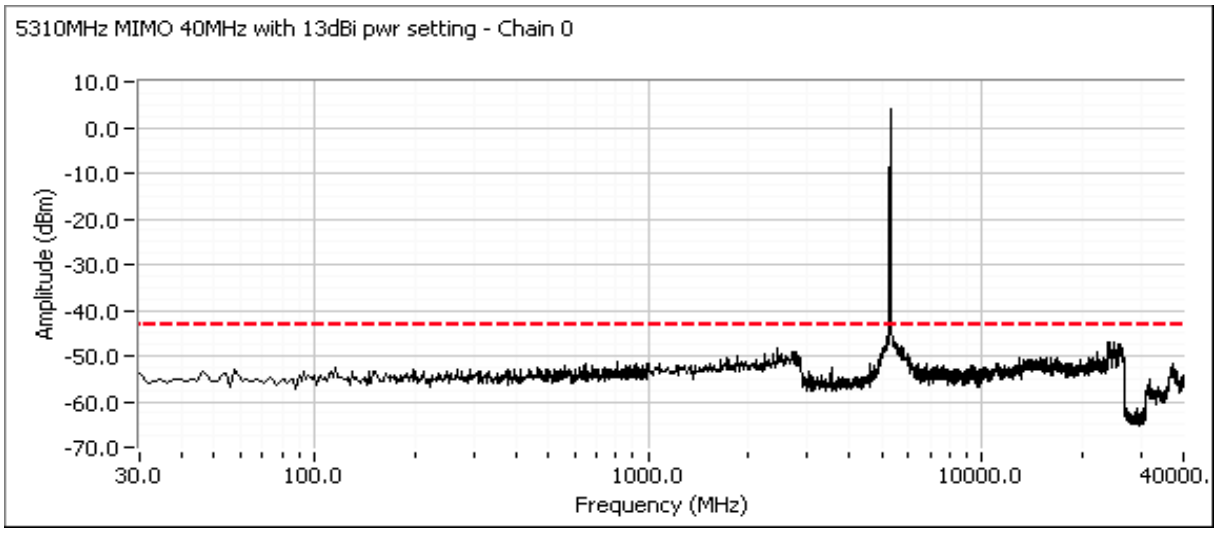
n40 mode
5270 Not allow to use





Client:	Ubiquiti Networks	Job Number:	J85296
Model:	RocketM5	T-Log Number:	T85333
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A





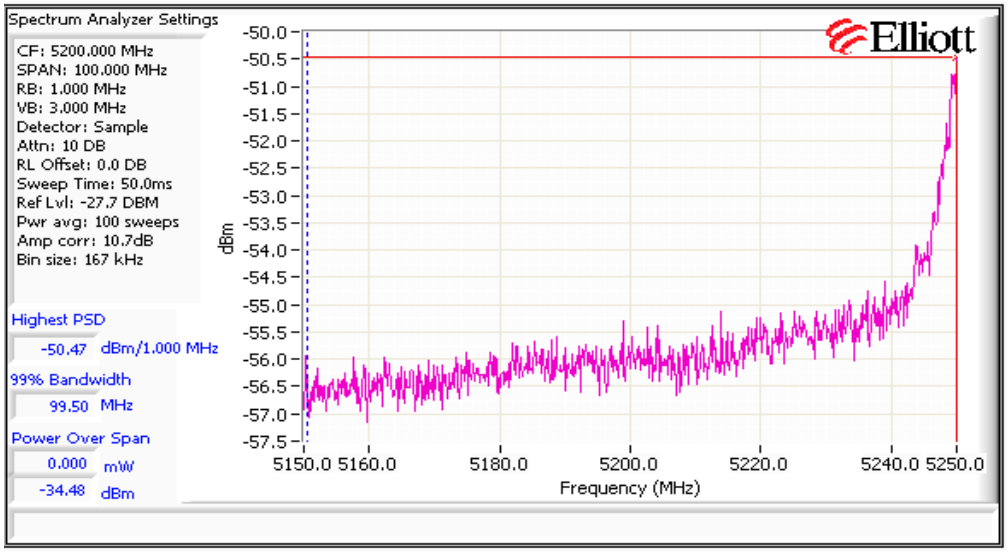
Client:	Ubiquiti Networks	Job Number:	J85296
Model:	RocketM5	T-Log Number:	T85333
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A

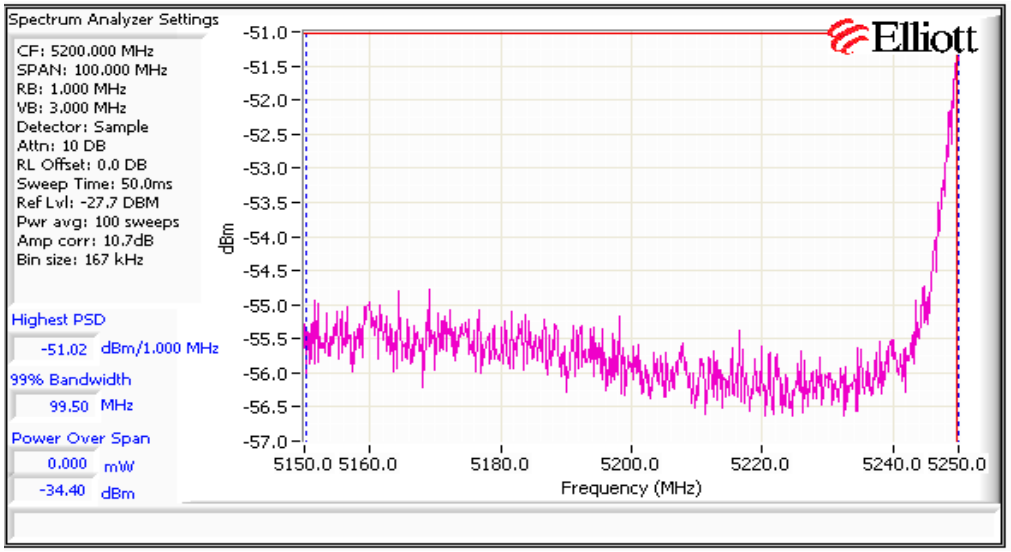
Low channel, 5250 - 5350 MHz Band - 20MHz

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 - 10dBi 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	10	-50.5	0.00001	10.0	8.974E-05	-40.5	-37.7	-27	PASS
Chain 2		-51.0	0.00001	10.0	7.943E-05	-41.0			

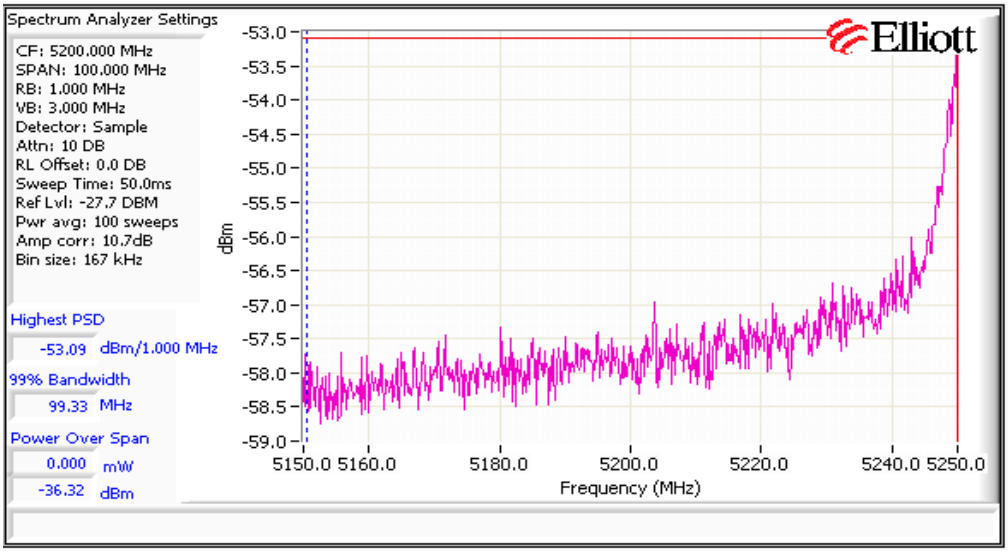


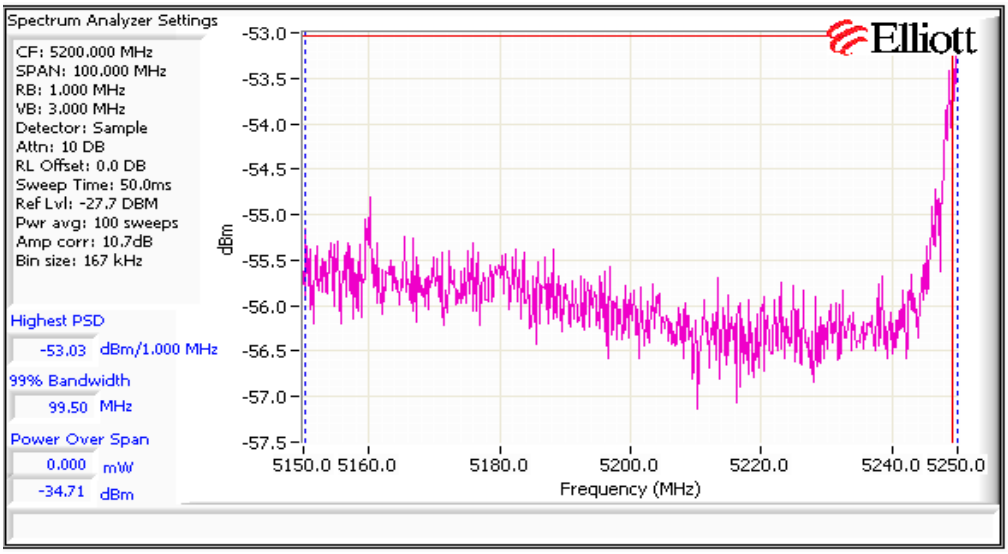


Client:	Ubiquiti Networks	Job Number:	J85296
Model:	RocketM5	T-Log Number:	T85333
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A

Channel frequency: 5270 MHz - 13dBi 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	7.5	-53.1	0.00000	13.0	9.772E-05	-40.1	-37.0	-27	PASS
Chain 2		-53.0	0.00001	13.0	0.0001	-40.0			





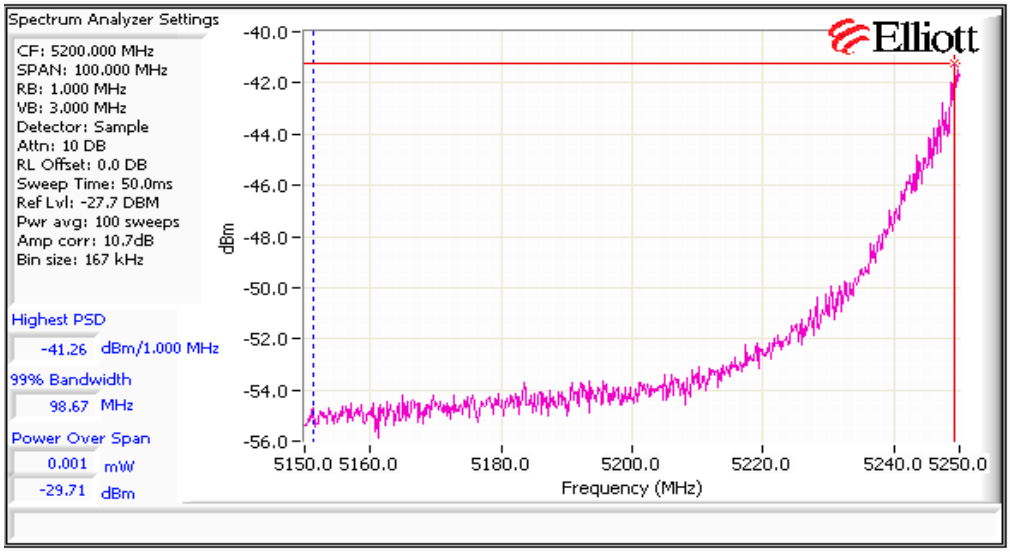
Client:	Ubiquiti Networks	Job Number:	J85296
Model:	RocketM5	T-Log Number:	T85333
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A

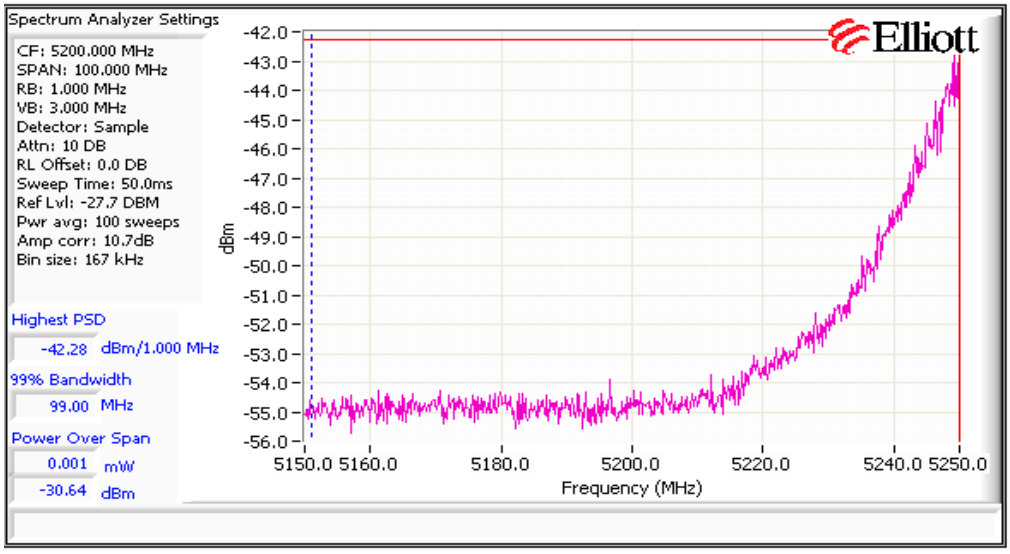
Low channel, 5250 - 5350 MHz Band - 40MHz

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 - 10dBi 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	10.5	-41.3	0.00007	10.0	0.0007482	-31.3	-28.7	-27	PASS
Chain 2		-42.3	0.00006	10.0	0.0005888	-32.3			

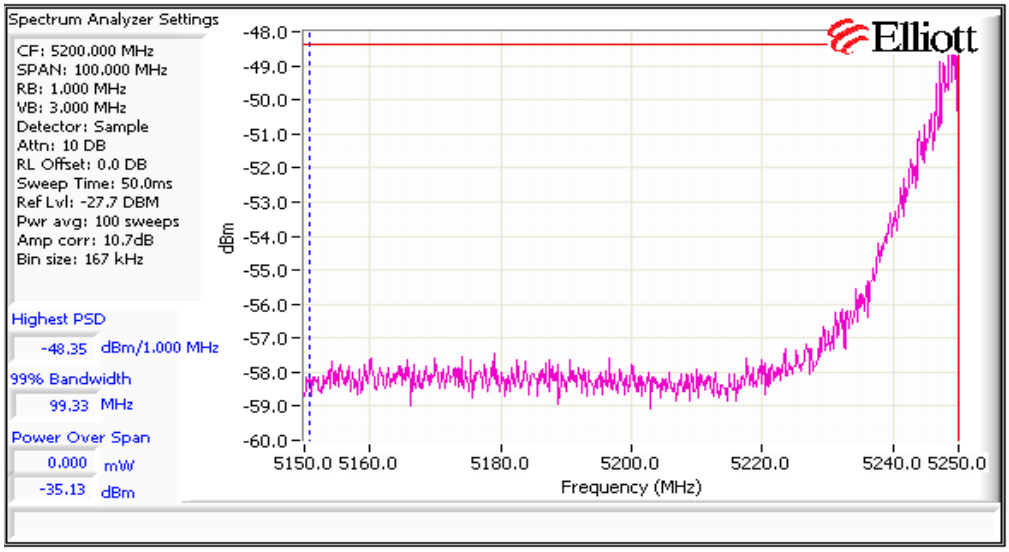


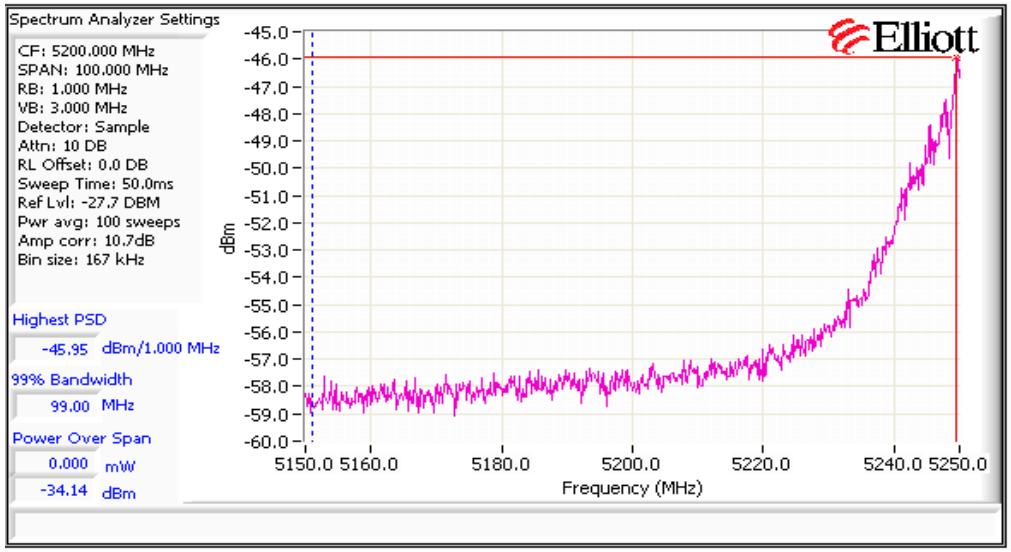


Client:	Ubiquiti Networks	Job Number:	J85296
Model:	RocketM5	T-Log Number:	T85333
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A

Channel frequency: 5275 MHz - 13dBi antenna

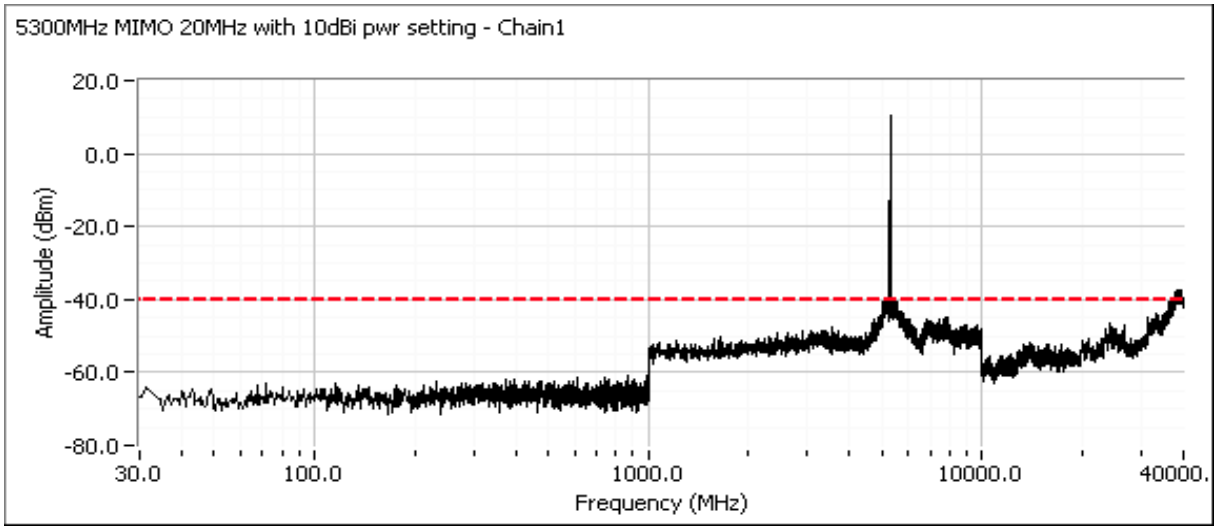
	Power Setting	Band edge Level dBm/MHz	Band edge Level mW/MHz	Antenna Gain (dBi)	EIRP mW/MHz	EIRP dBm/MHz	Total EIRP dBm/MHz	Limit dBm/MHz	Result
Chain 1	7.5	-48.4	0.00001	13.0	0.0002917	-35.4	-31.0	-27	PASS
Chain 2		-46.0	0.00003	13.0	0.000507	-33.0			

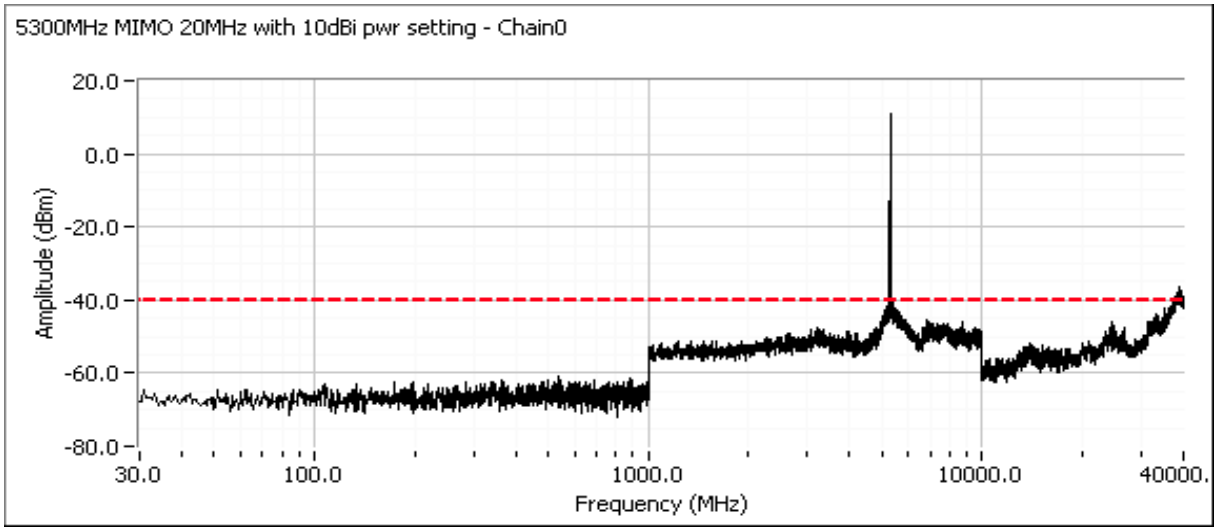




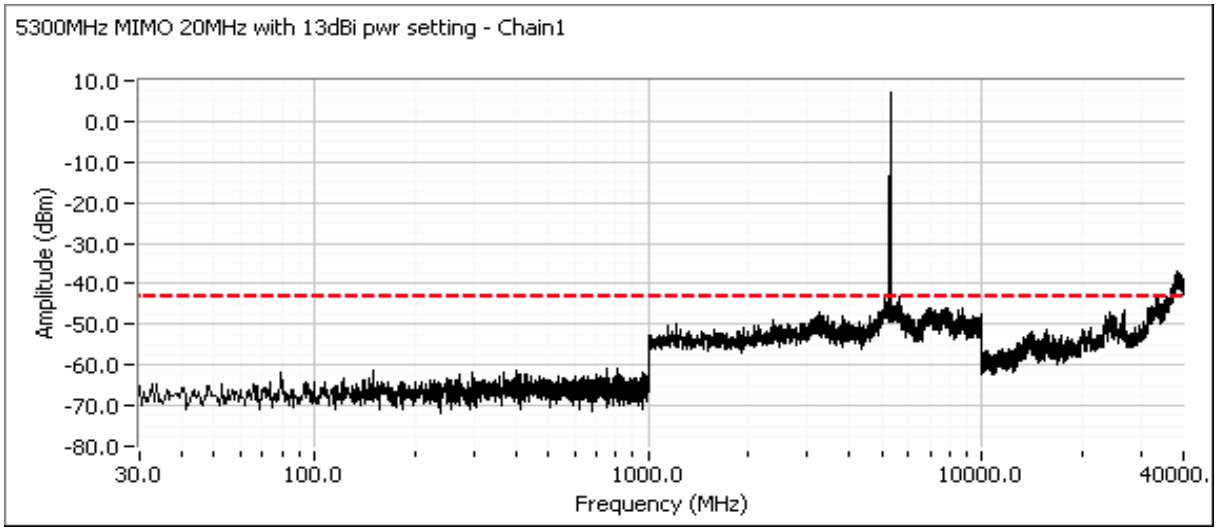
Client:	Ubiquiti Networks	Job Number:	J85296
Model:	RocketM5	T-Log Number:	T85333
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A

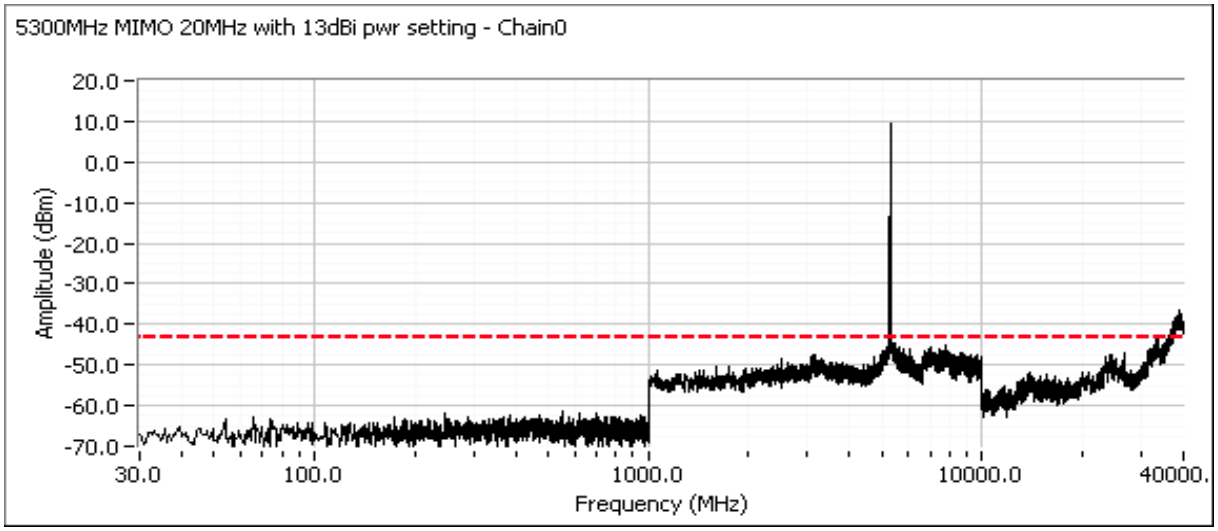
Center channel, 5250 - 5350 MHz Band
n20 mode





Client:	Ubiquiti Networks	Job Number:	J85296
Model:	RocketM5	T-Log Number:	T85333
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A



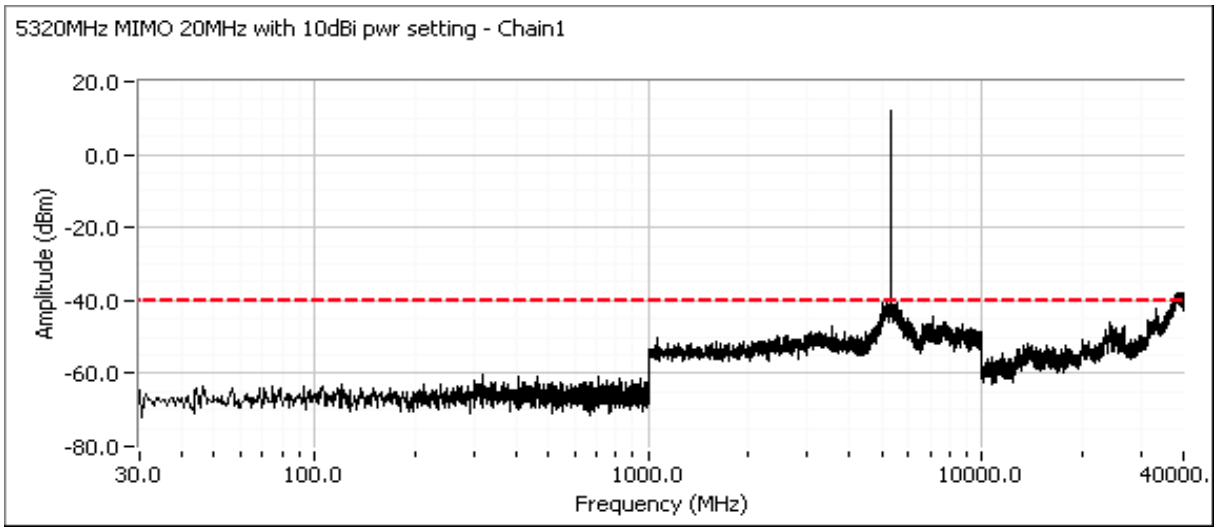


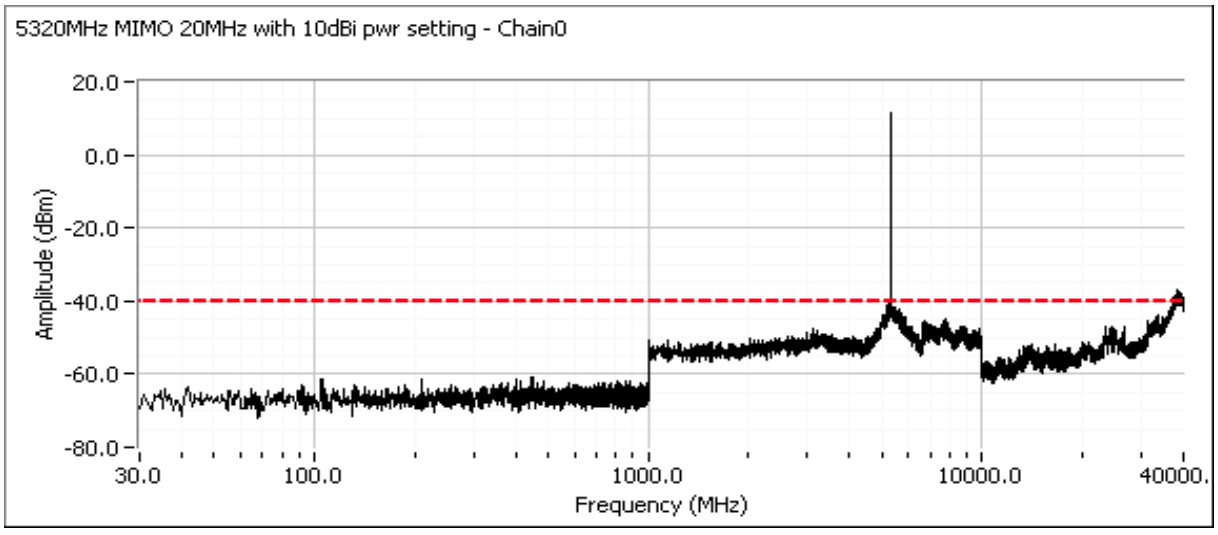
Client:	Ubiquiti Networks	Job Number:	J85296
Model:	RocketM5	T-Log Number:	T85333
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A

High channel, 5250 - 5350 MHz Band

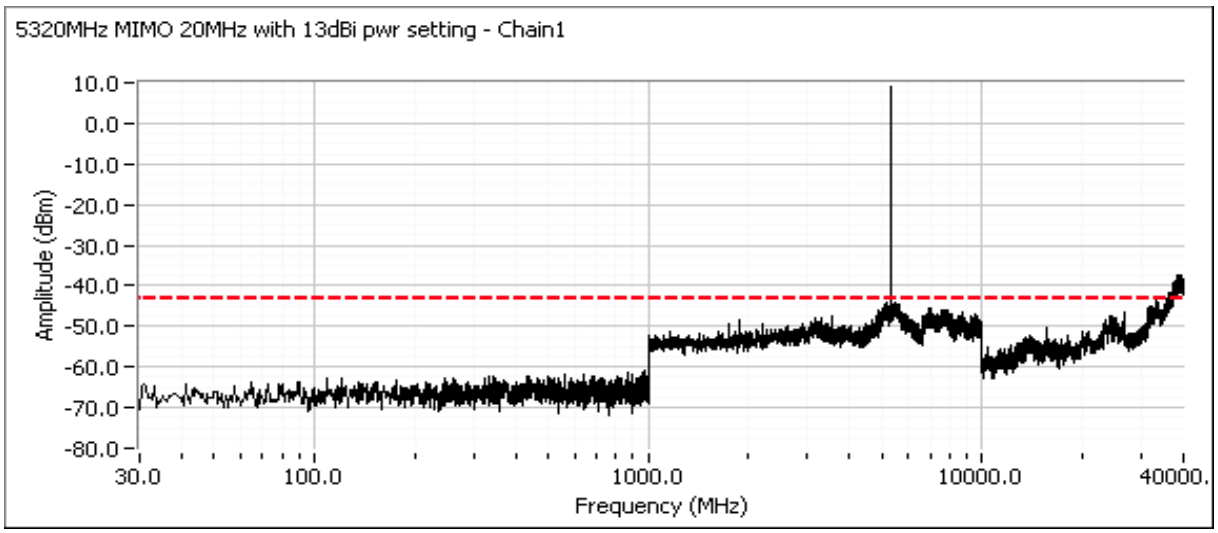
Note - compliance with the radiated limits for the restricted band immediately above 5350MHz is demonstrated through the radiated emissions tests.

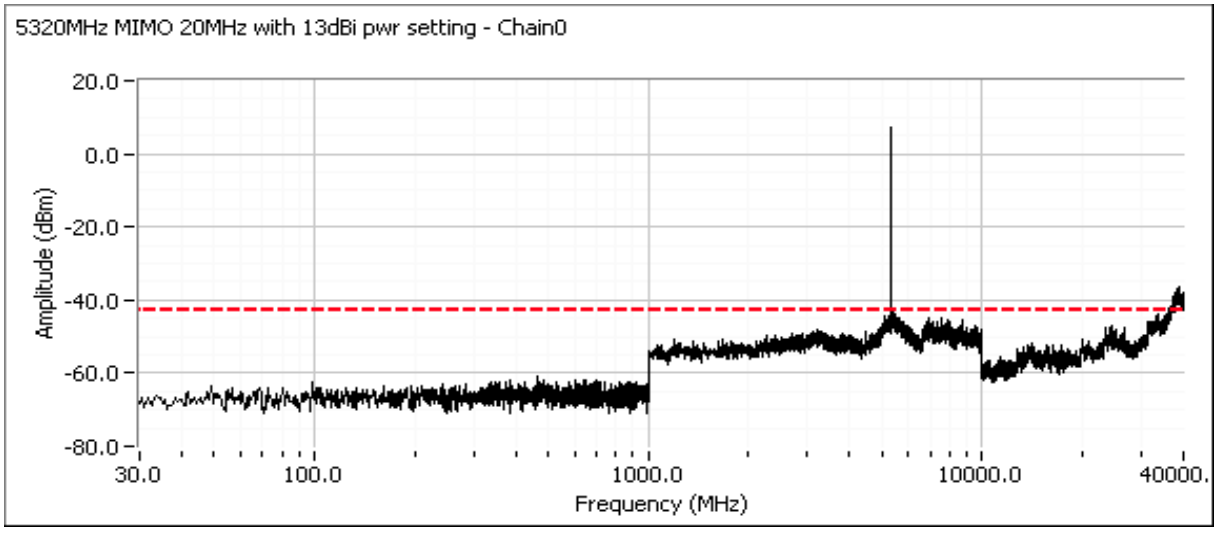
n20 mode





Client:	Ubiquiti Networks	Job Number:	J85296
Model:	RocketM5	T-Log Number:	T85333
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A





Client:	Ubiquiti Networks	Job Number:	J85296
Model:	RocketM5	T-Log Number:	T85333
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A

Frequency	Level	Pol	FCC 15 E / RSS 210		Detector	Comment				
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	channel	mode/Chain	Ant. gain	Setting	Note
3530.000	-48.6	RF Port	-40.0	-8.6	Peak	56	n40,1	10	10.5	Note1
3511.670	-48.3	RF Port	-40.0	-8.3	Peak	56	n20, 0	13	7.5	Note1
3511.670	-48.1	RF Port	-40.0	-8.1	Peak	56	n20, 1	10	10.0	Note1
3502.500	-48.8	RF Port	-40.0	-8.8	Peak	52	n20, 1	10	12..5	Note1
3502.500	-48.6	RF Port	-43.0	-5.6	Peak	52	n20, 1	13	11.0	Note1
3530.000	-46.5	RF Port	-40.0	-6.5	Peak	62	n40,1	10	10.5	Note1
5115.830	-41.0	RF Port	-40.0	-1.0	Peak	62	n40,1	10	10.5	Note1
3539.170	-49.0	RF Port	-43.0	-6.0	Peak	62	n40,1	13	9.0	Note1
5152.500	-43.8	RF Port	-43.0	-0.8	Peak	62	n40,1	13	9.0	Note1

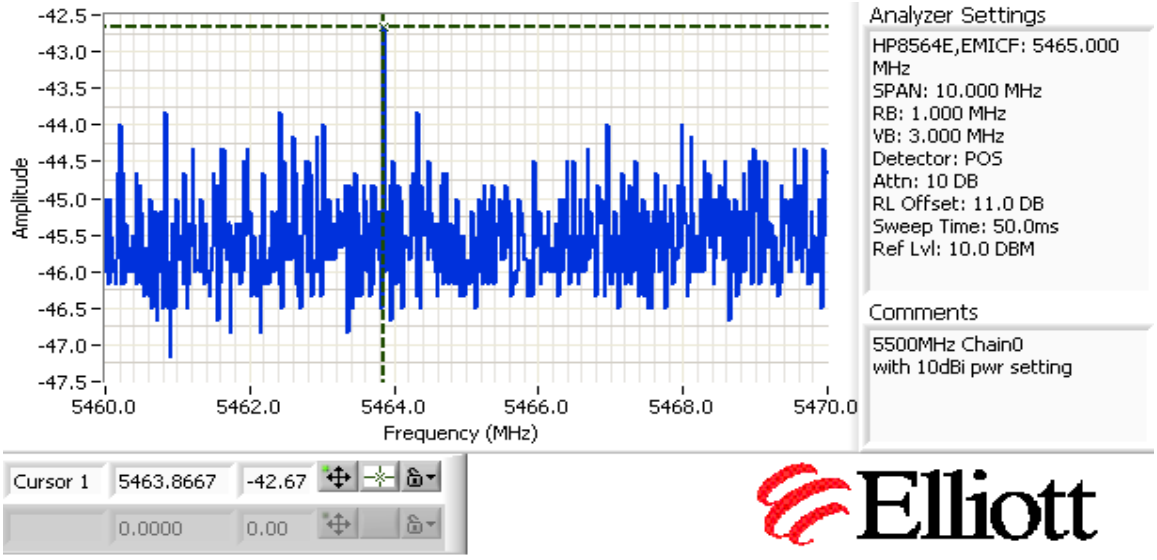
Note 1	Un-restircted signal, refer to radiated spurious emissions data
Note 2	Restircted signal

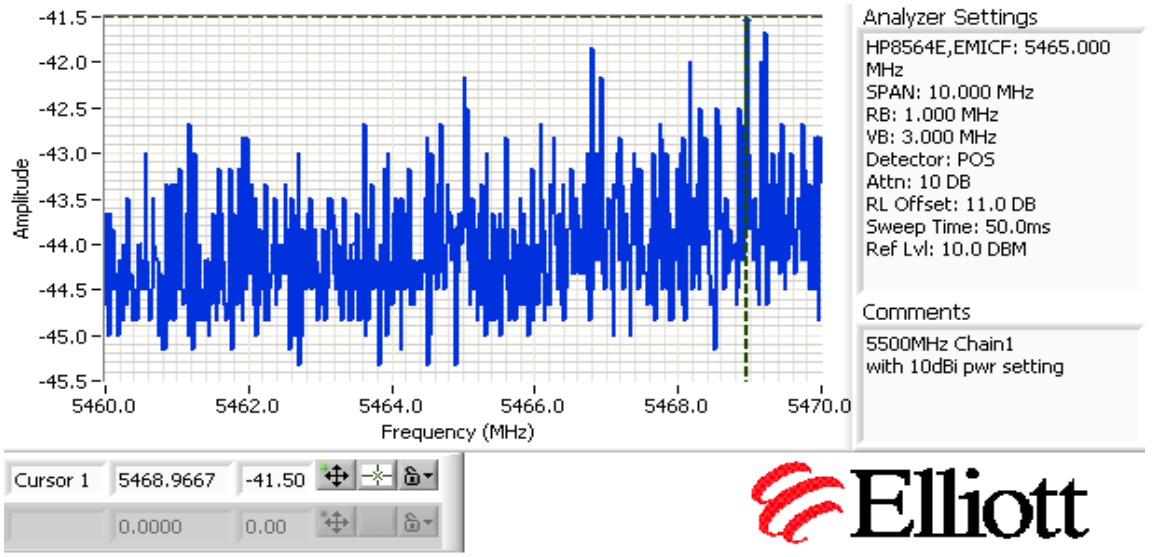
Client:	Ubiquiti Networks	Job Number:	J85296
Model:	RocketM5	T-Log Number:	T85333
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A

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, Peak Detector, Max -hold

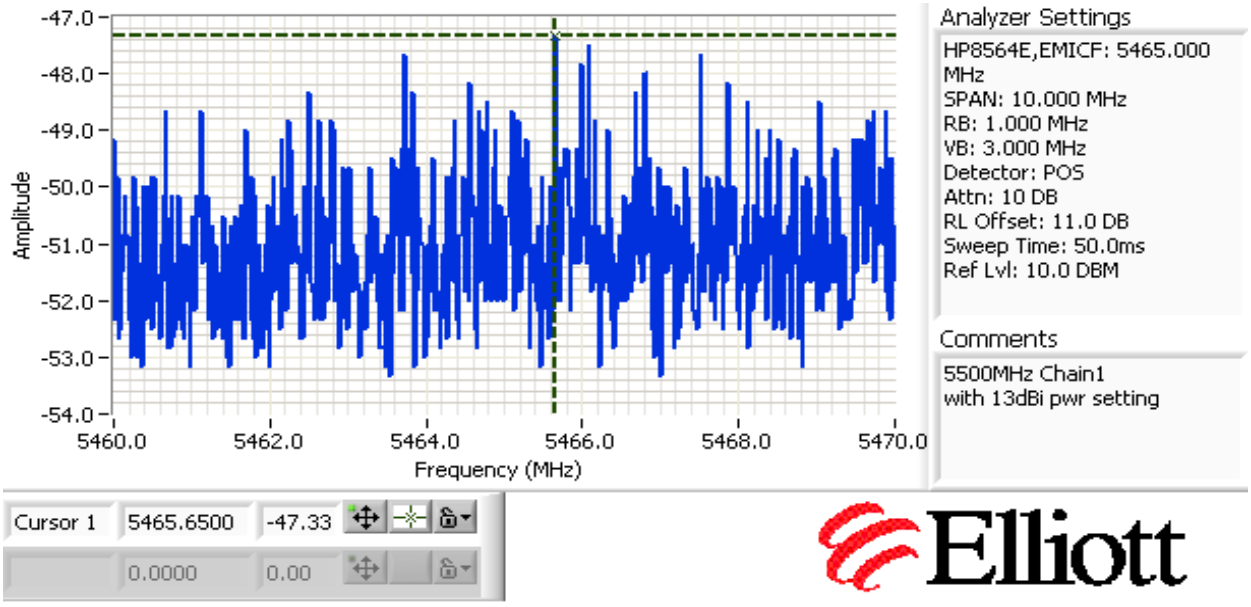
n20 mode
(10dBi pwr setting)

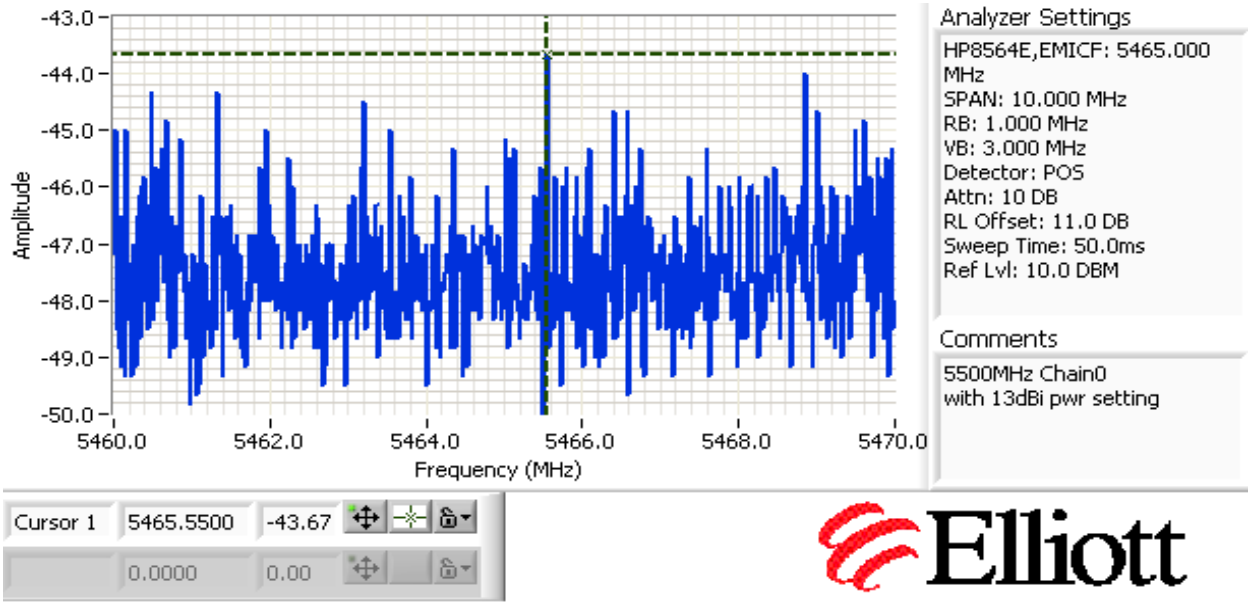




Client:	Ubiquiti Networks	Job Number:	J85296
Model:	RocketM5	T-Log Number:	T85333
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A

(13dBi pwr setting)

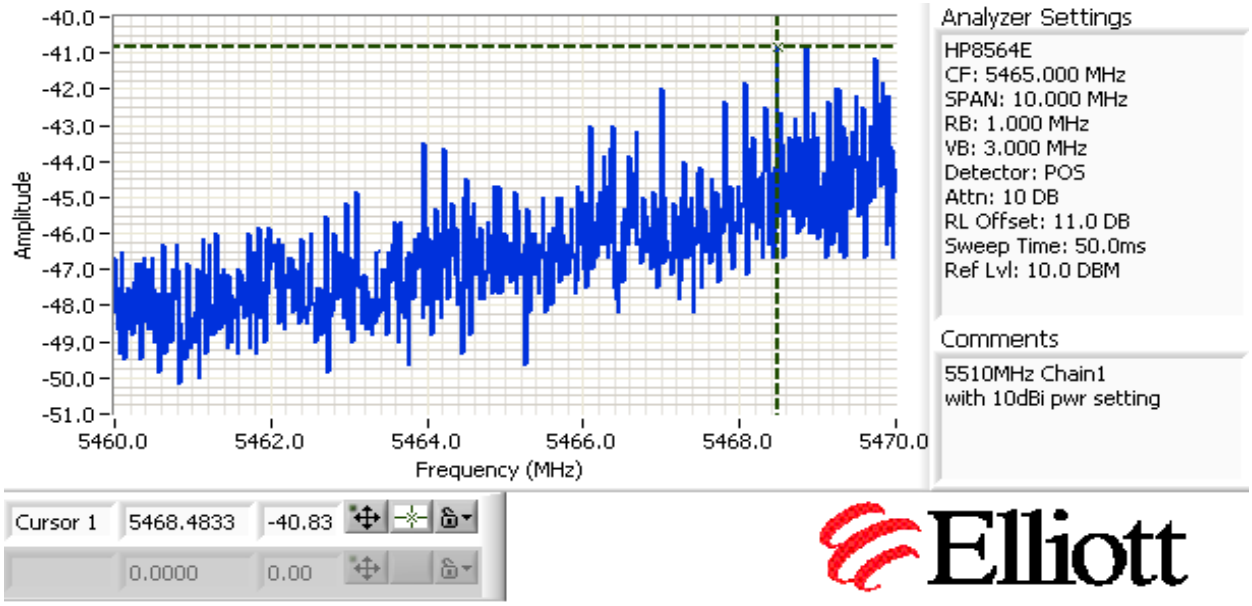


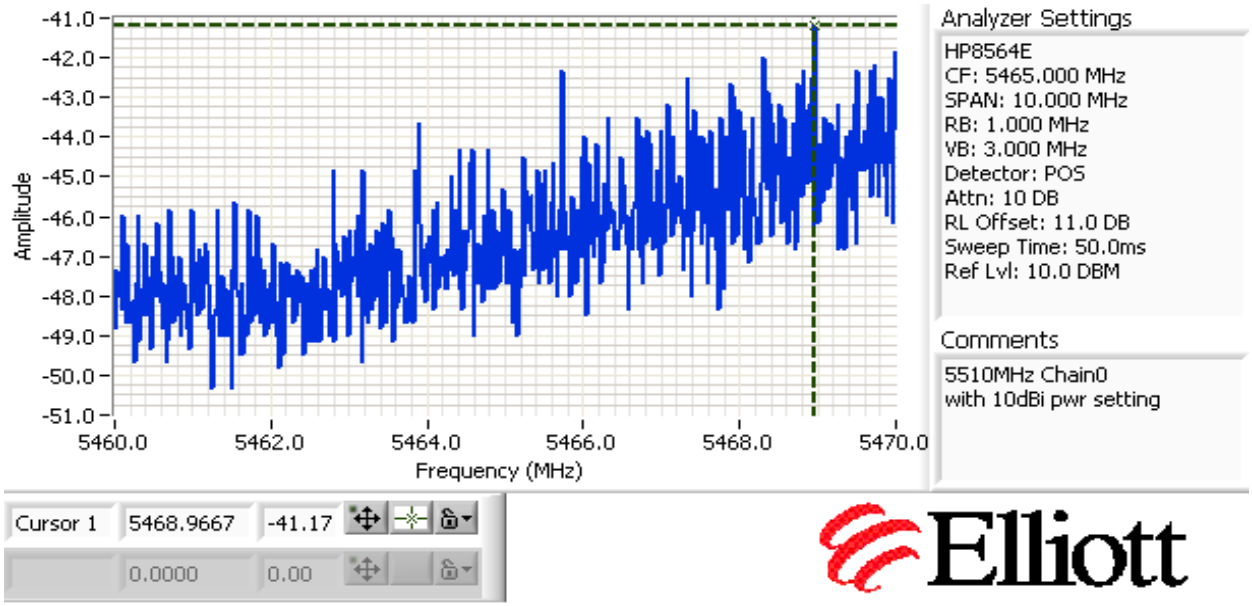


Client:	Ubiquiti Networks	Job Number:	J85296
Model:	RocketM5	T-Log Number:	T85333
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A

n40 mode

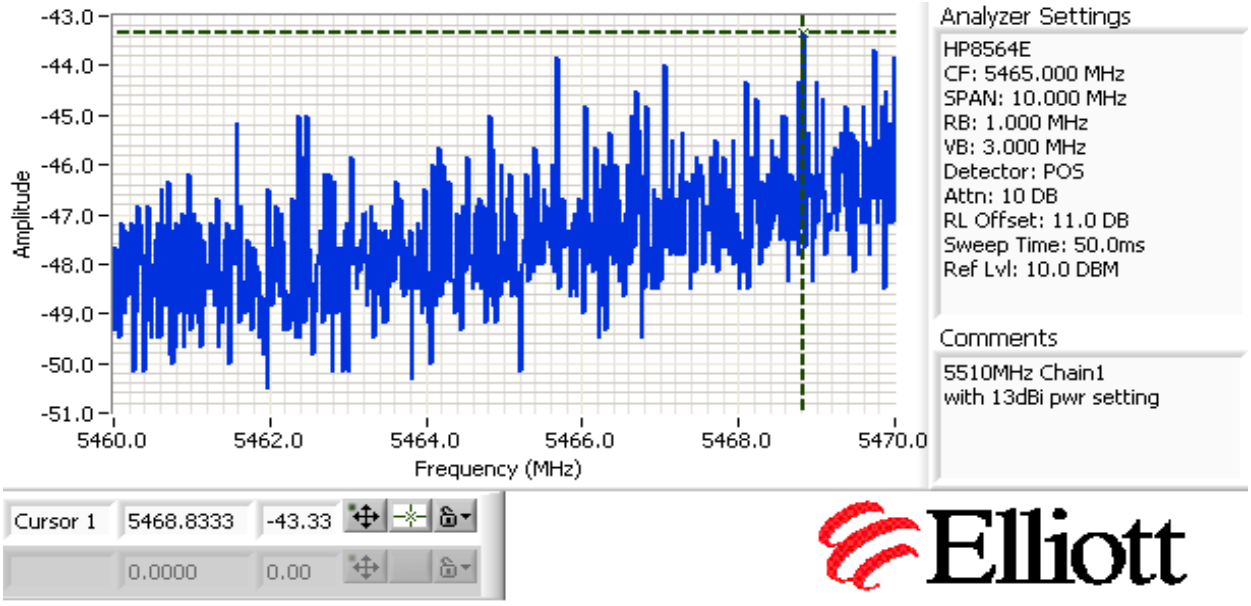
(10dBi pwr setting)

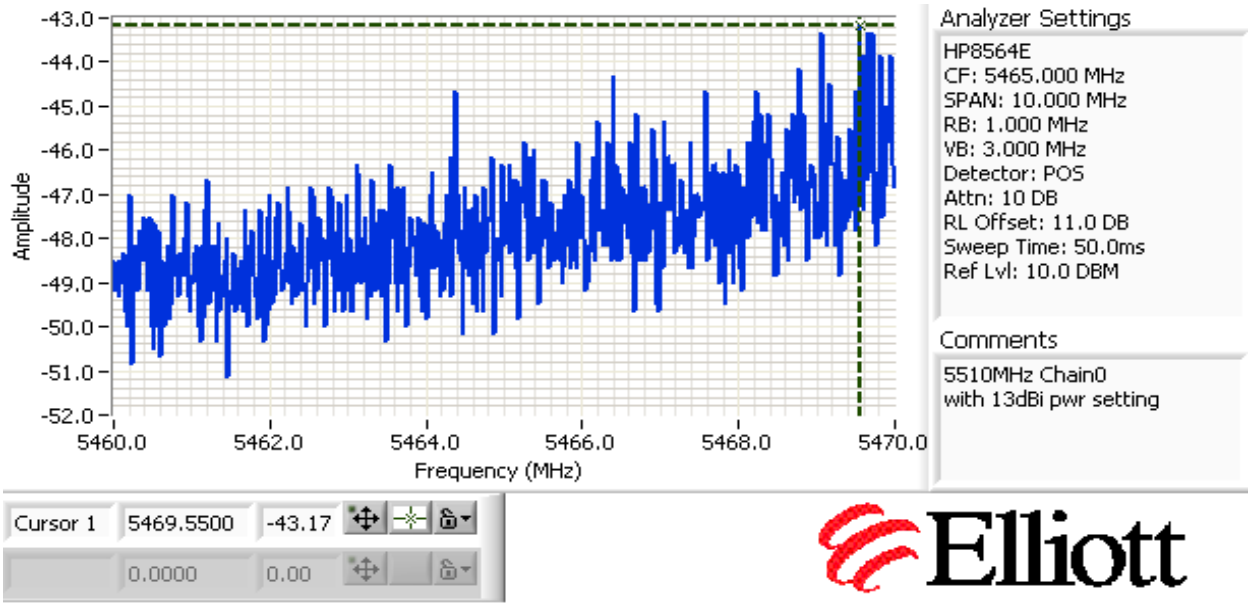




Client:	Ubiquiti Networks	Job Number:	J85296
Model:	RocketM5	T-Log Number:	T85333
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A

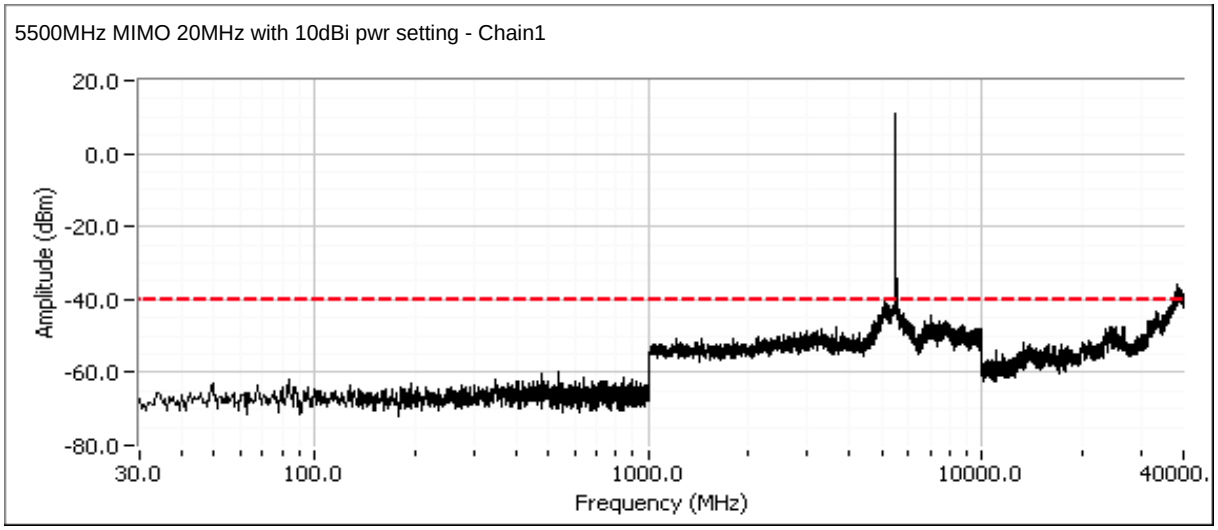
(13dBi pwr setting)

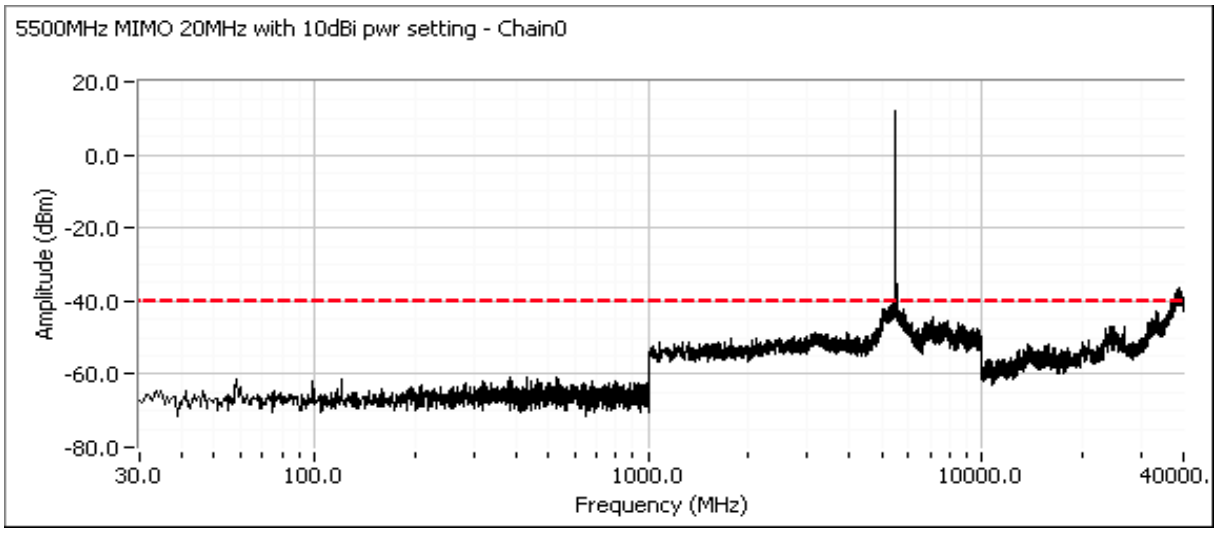




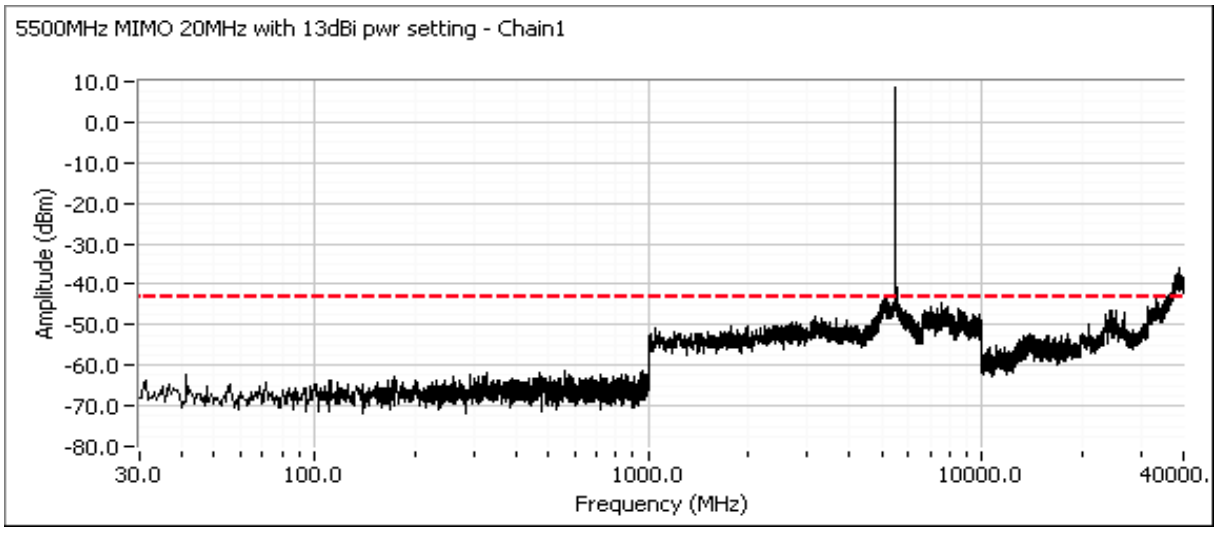
Client:	Ubiquiti Networks	Job Number:	J85296
Model:	RocketM5	T-Log Number:	T85333
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A

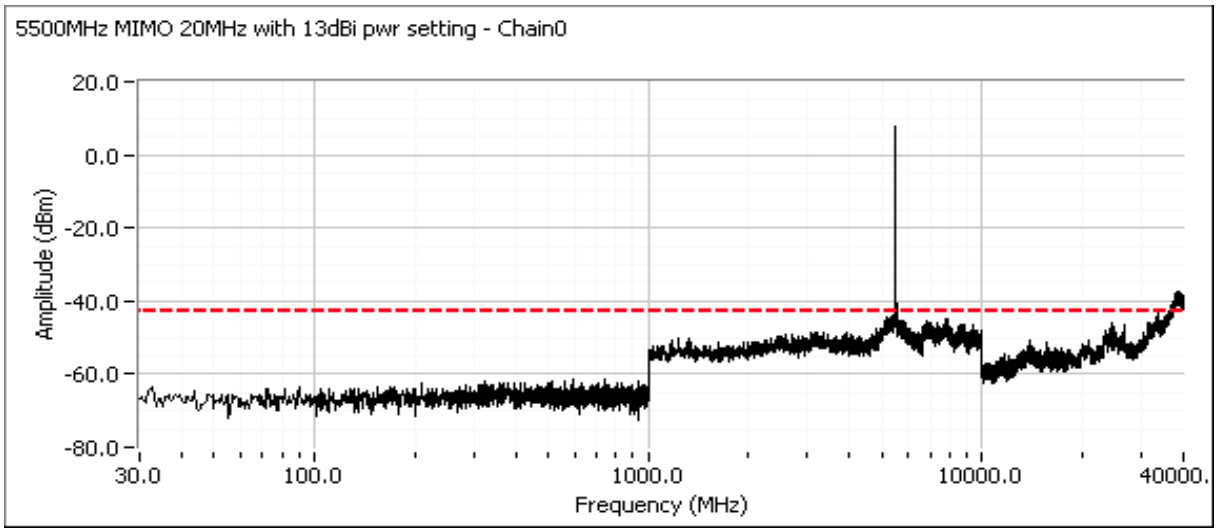
Wide-band plot, RB=1MHz VB=3MHz (Peak measurements versus limit).
n20 mode





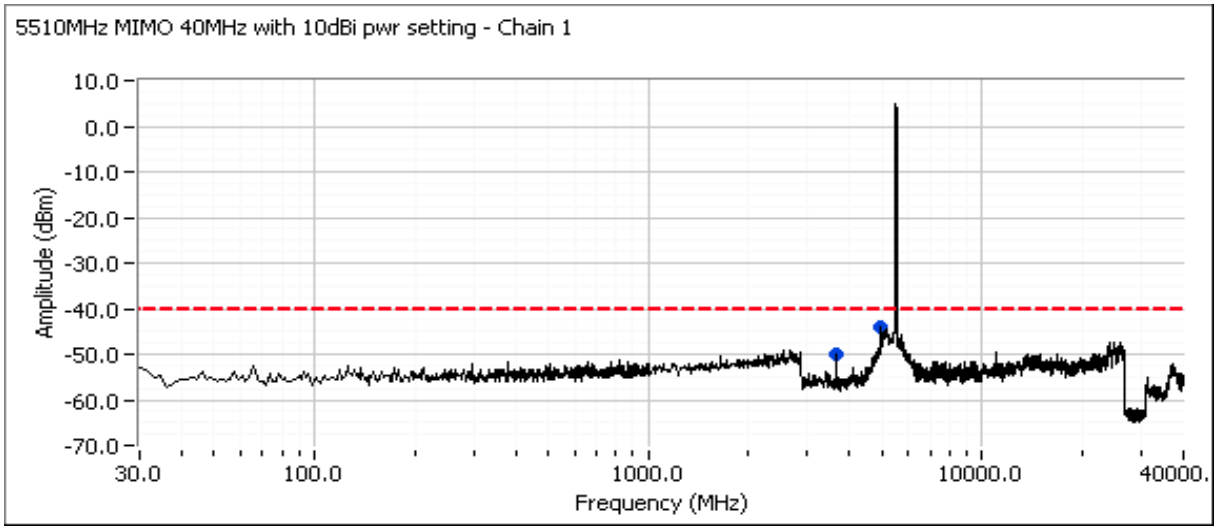
Client:	Ubiquiti Networks	Job Number:	J85296
Model:	RocketM5	T-Log Number:	T85333
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A

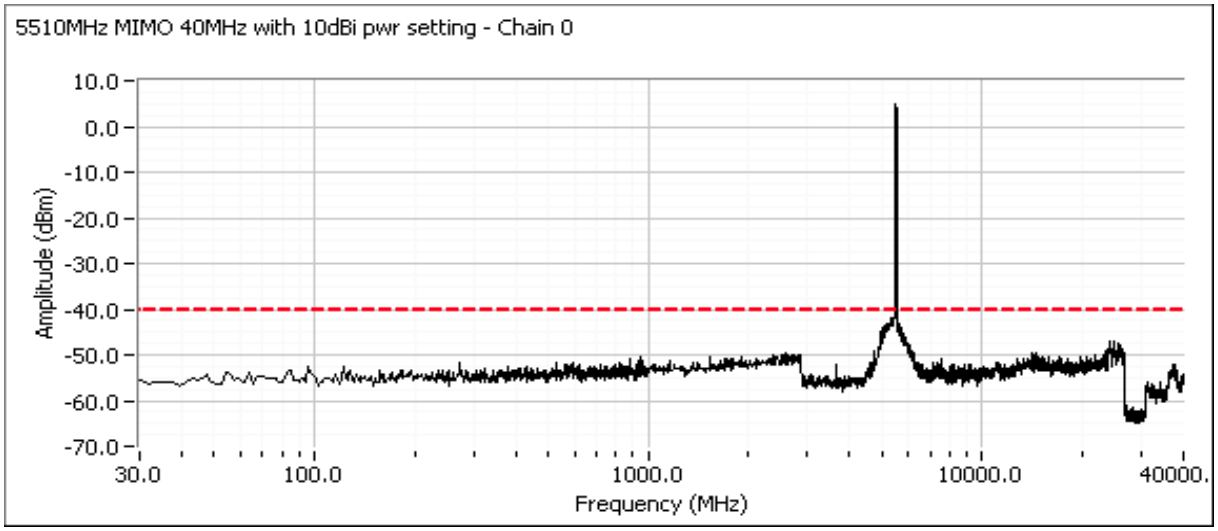




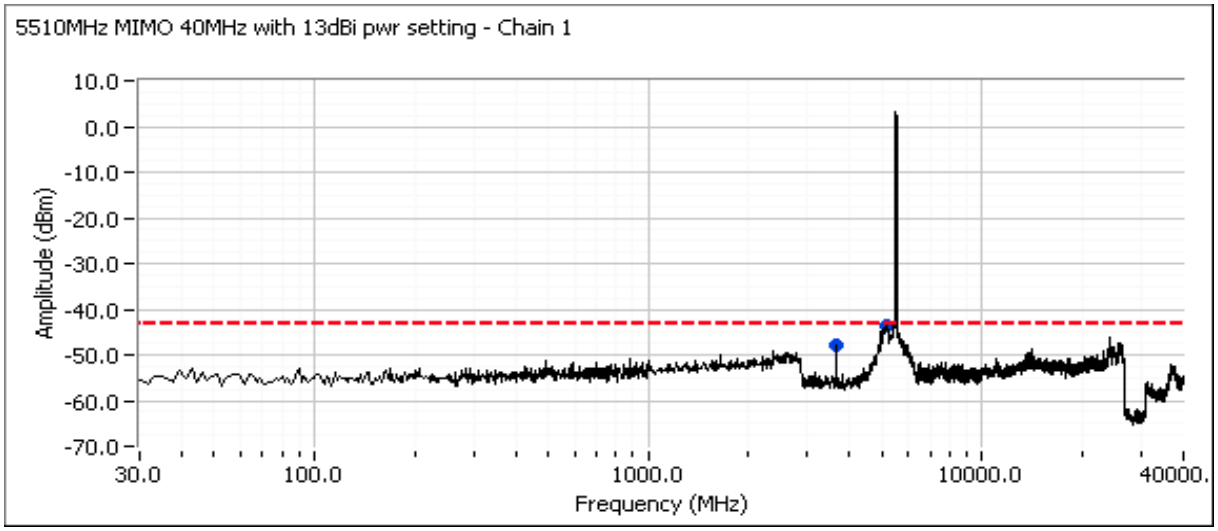
Client:	Ubiquiti Networks	Job Number:	J85296
Model:	RocketM5	T-Log Number:	T85333
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A

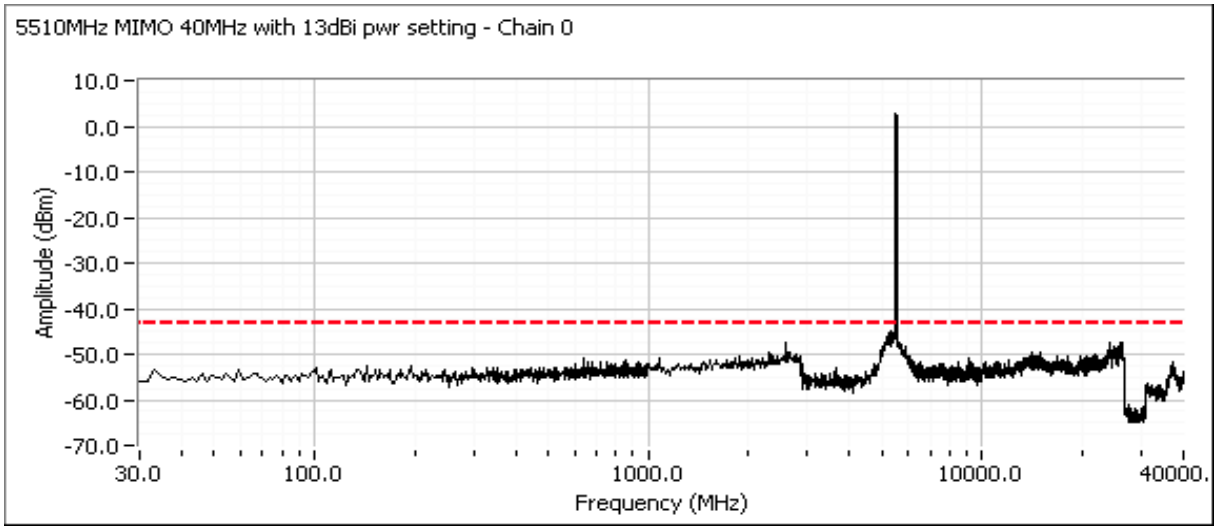
n40 mode





Client:	Ubiquiti Networks	Job Number:	J85296
Model:	RocketM5	T-Log Number:	T85333
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A

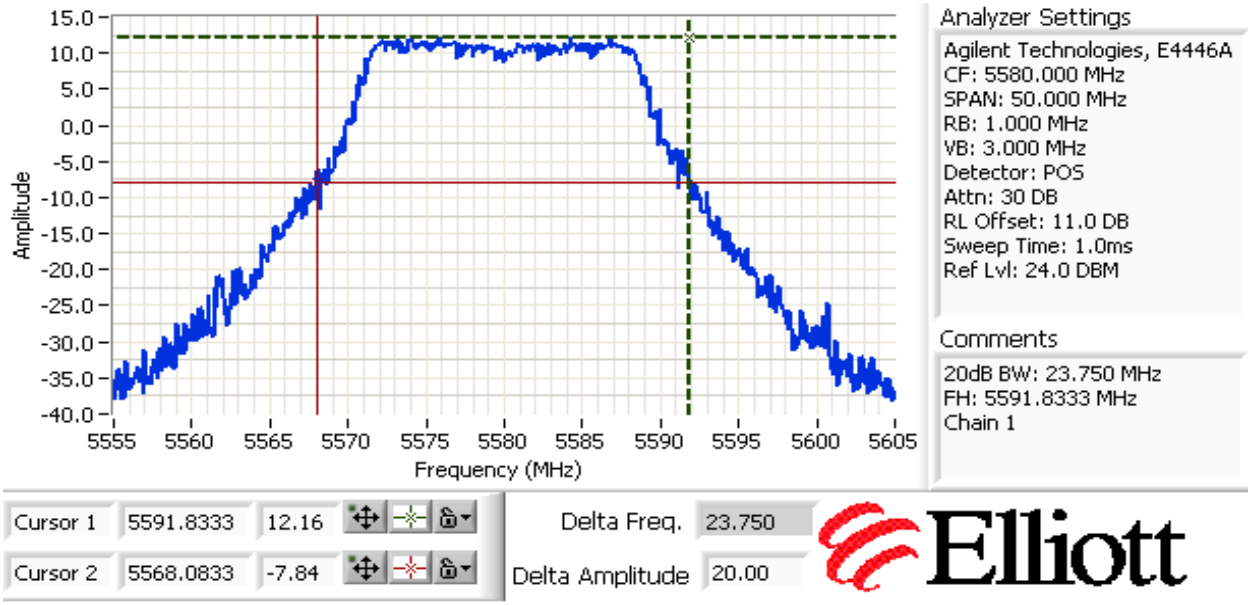


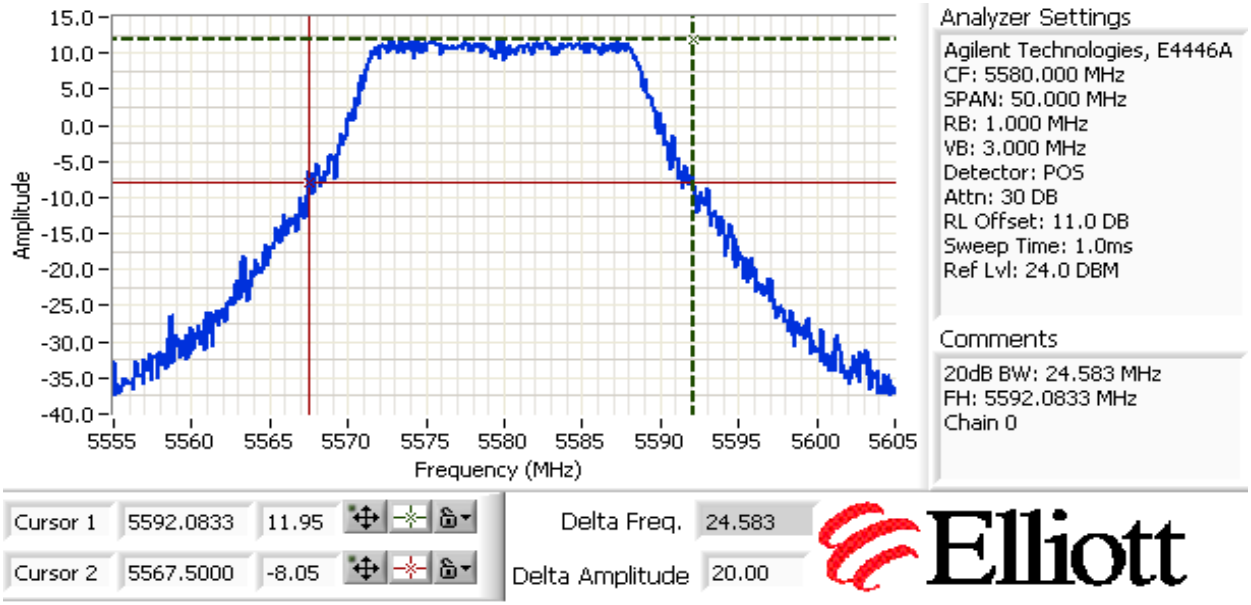


Client:	Ubiquiti Networks	Job Number:	J85296
Model:	RocketM5	T-Log Number:	T85333
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A

Center channel, 5470 - 5725 MHz Band
For master devices - This plot is showing that the 20dB bandwidth of the channel closest to 5600 MHz does not spill into the 5600-5650 MHz band. RB > 1% of span.

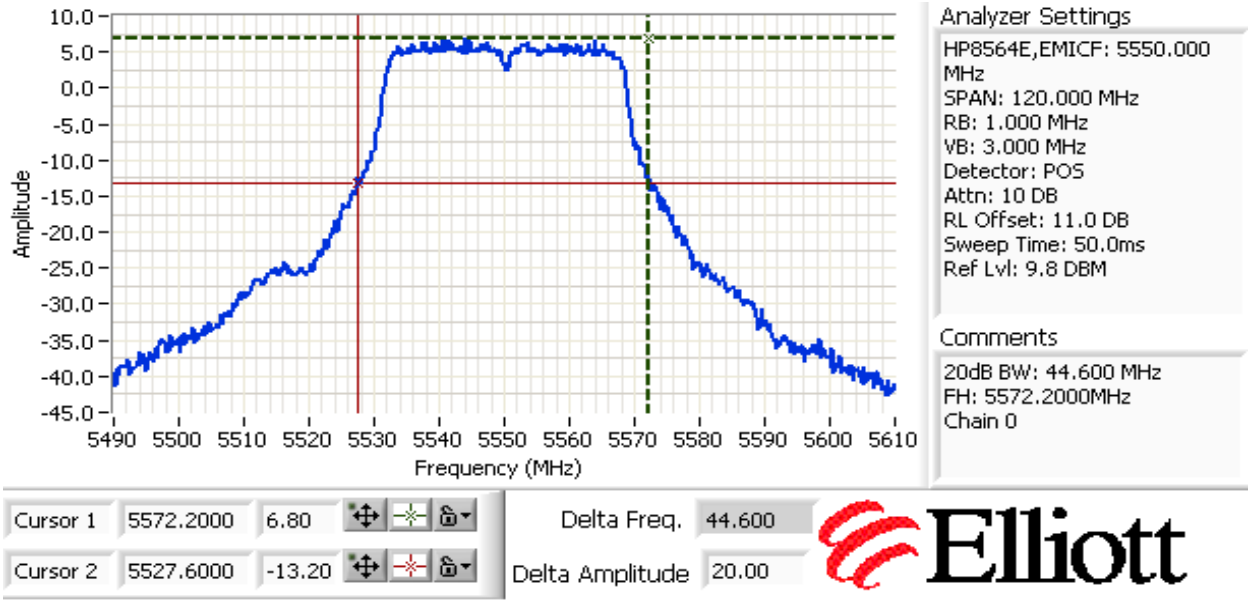
n20 Mode

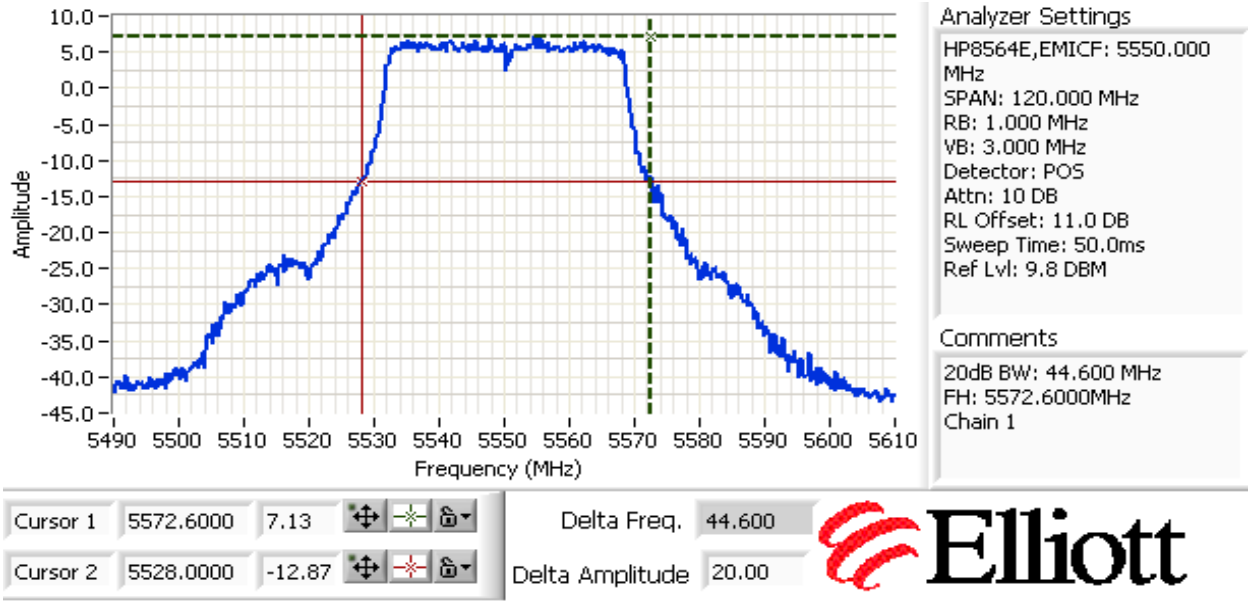




Client:	Ubiquiti Networks	Job Number:	J85296
Model:	RocketM5	T-Log Number:	T85333
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A

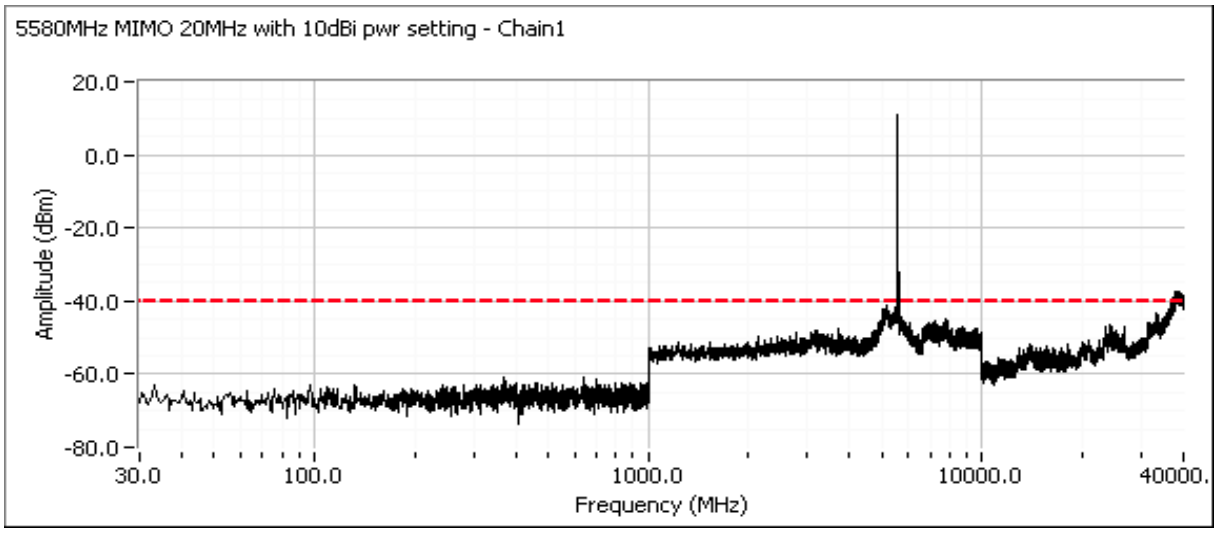
n40 Mode

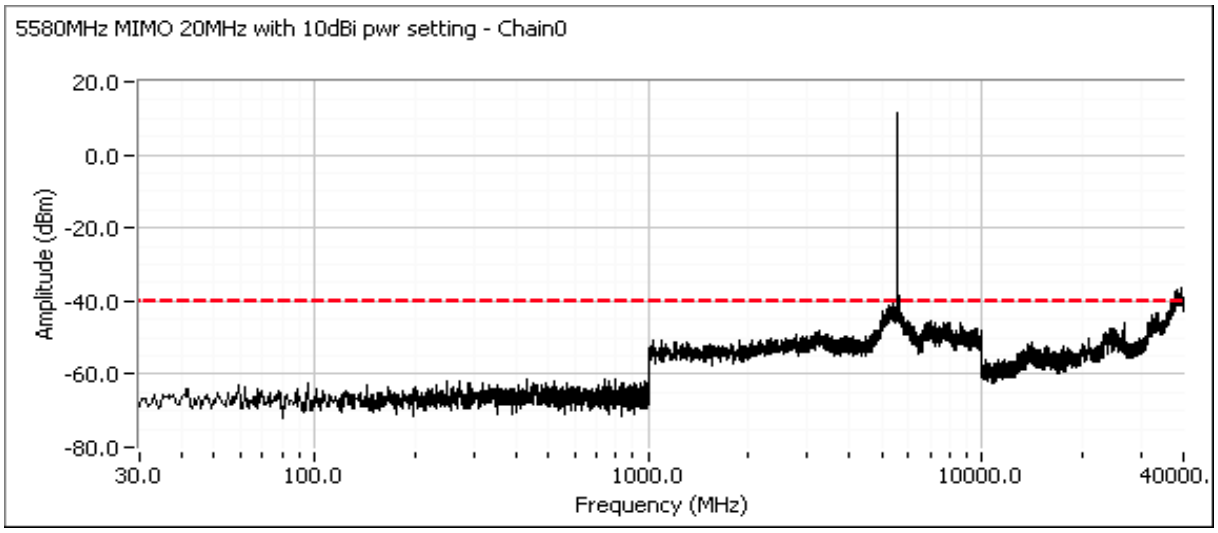




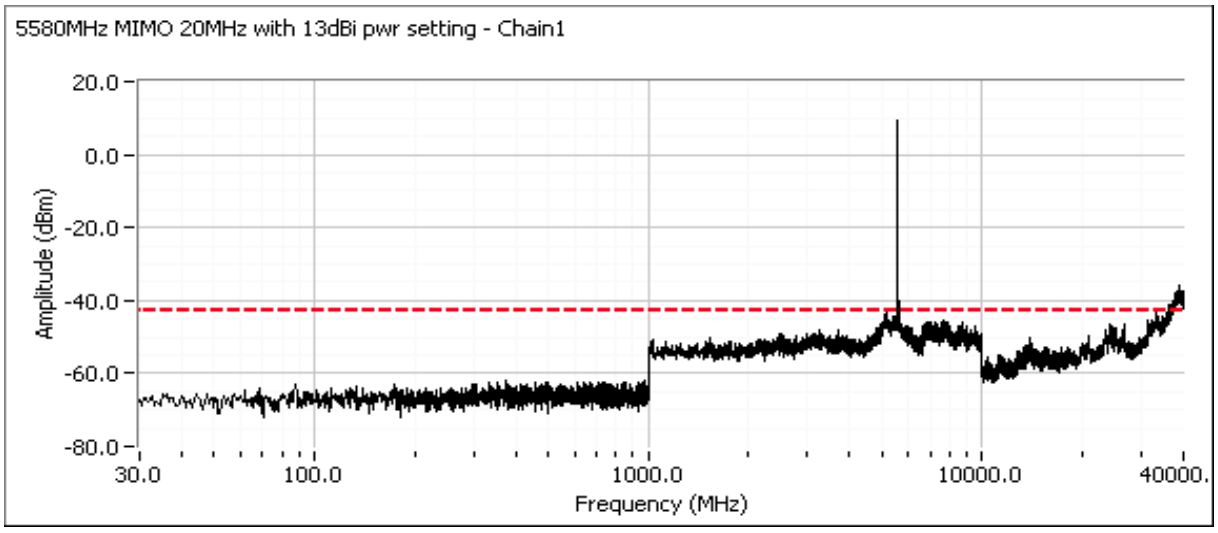
Client:	Ubiquiti Networks	Job Number:	J85296
Model:	RocketM5	T-Log Number:	T85333
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A

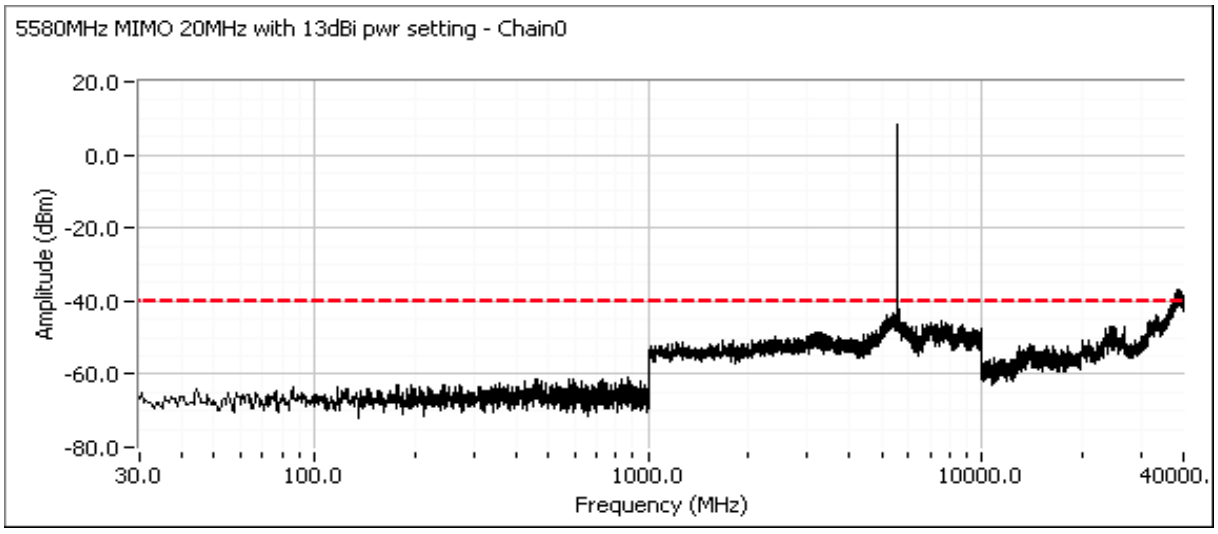
Wide-band plot, RB=1MHz VB=3MHz (Peak measurements versus limit).
n20 mode





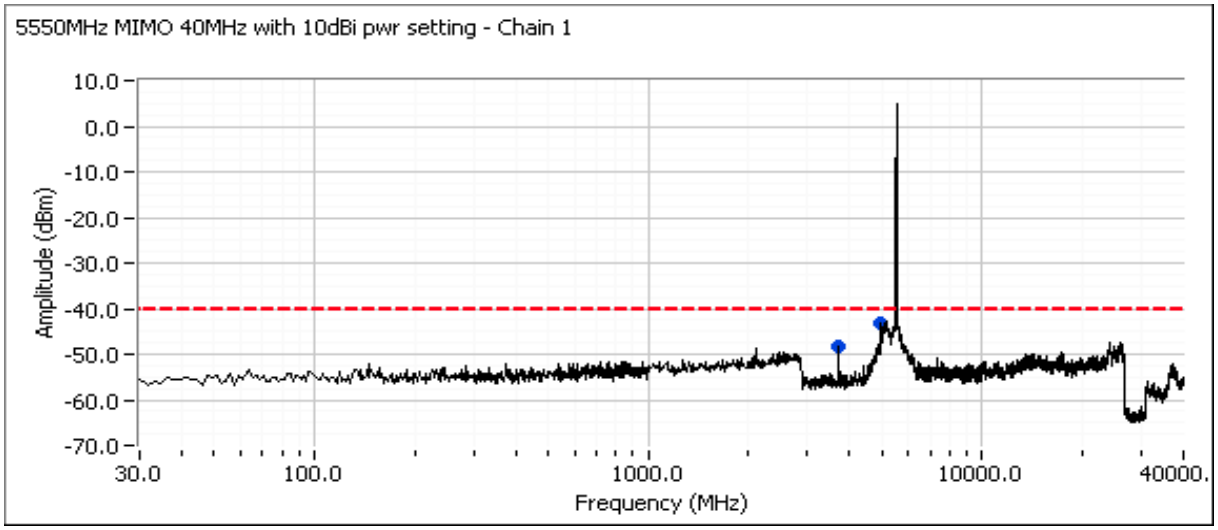
Client:	Ubiquiti Networks	Job Number:	J85296
Model:	RocketM5	T-Log Number:	T85333
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A

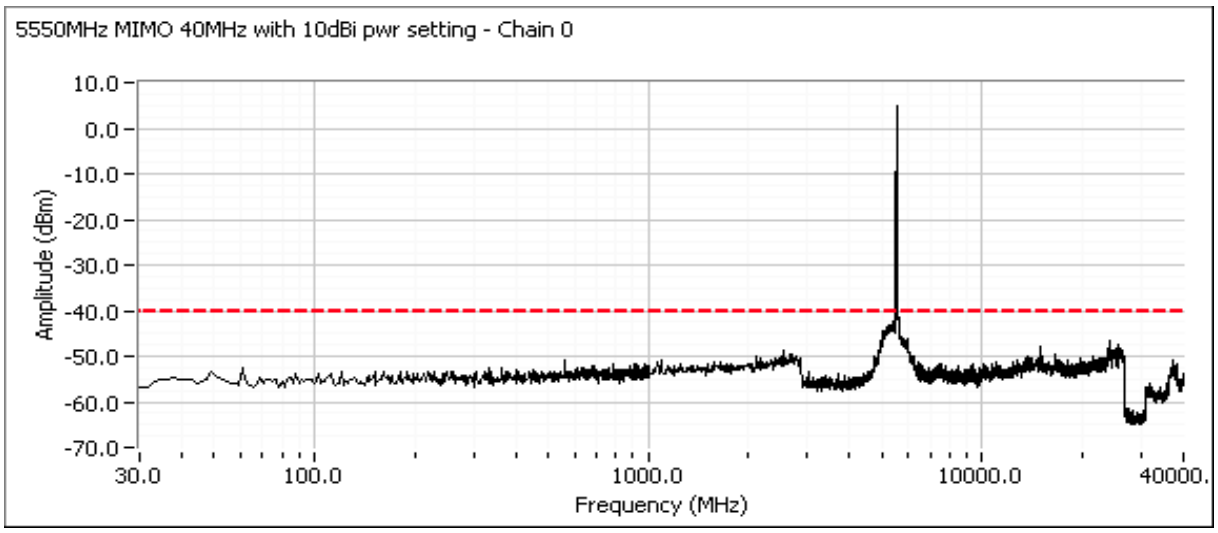




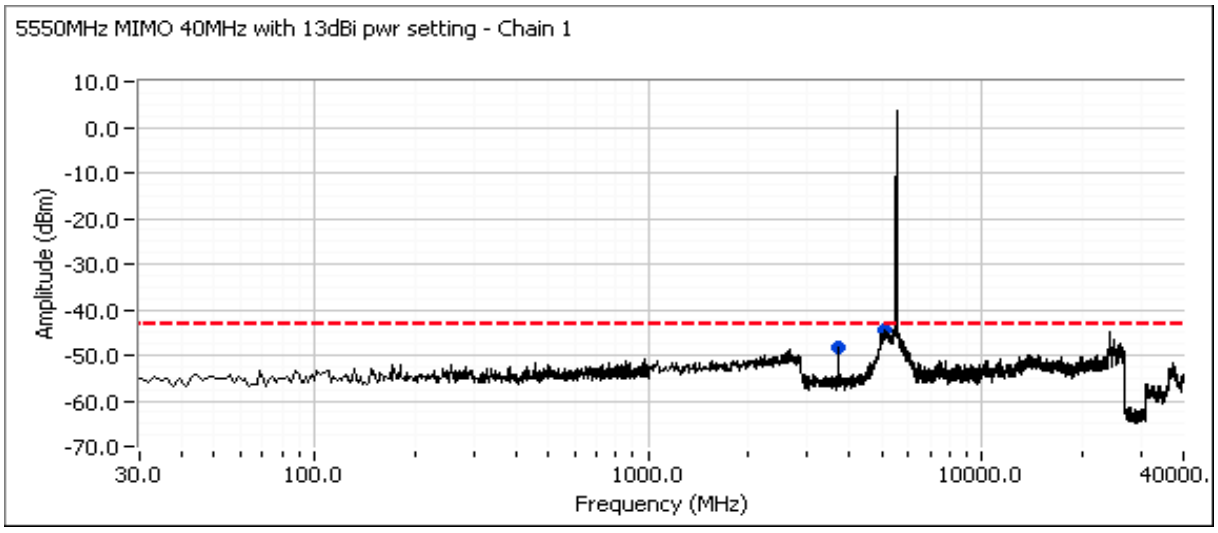
Client:	Ubiquiti Networks	Job Number:	J85296
Model:	RocketM5	T-Log Number:	T85333
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A

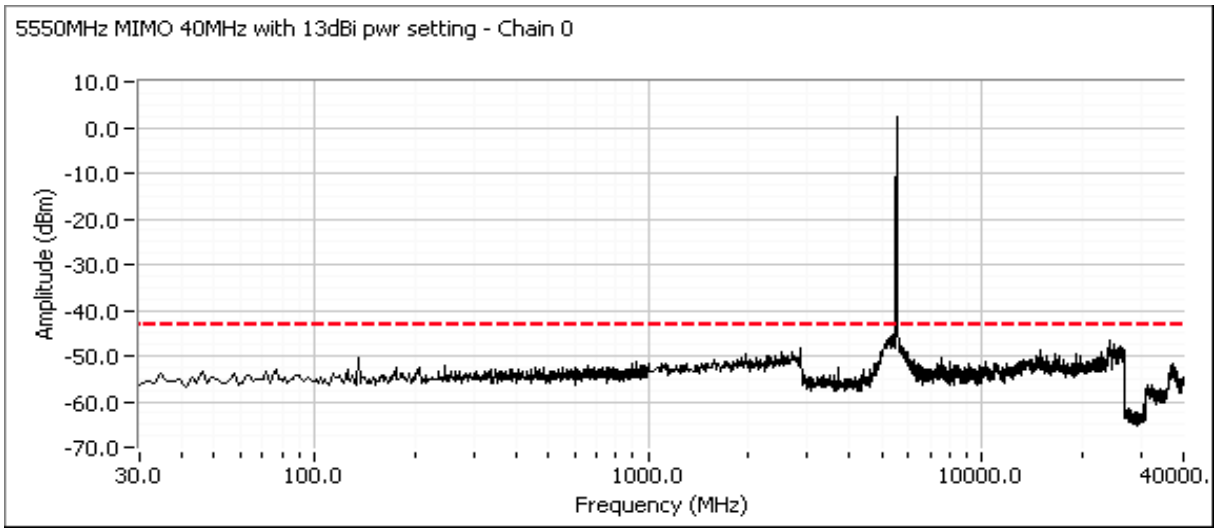
n40 mode





Client:	Ubiquiti Networks	Job Number:	J85296
Model:	RocketM5	T-Log Number:	T85333
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A

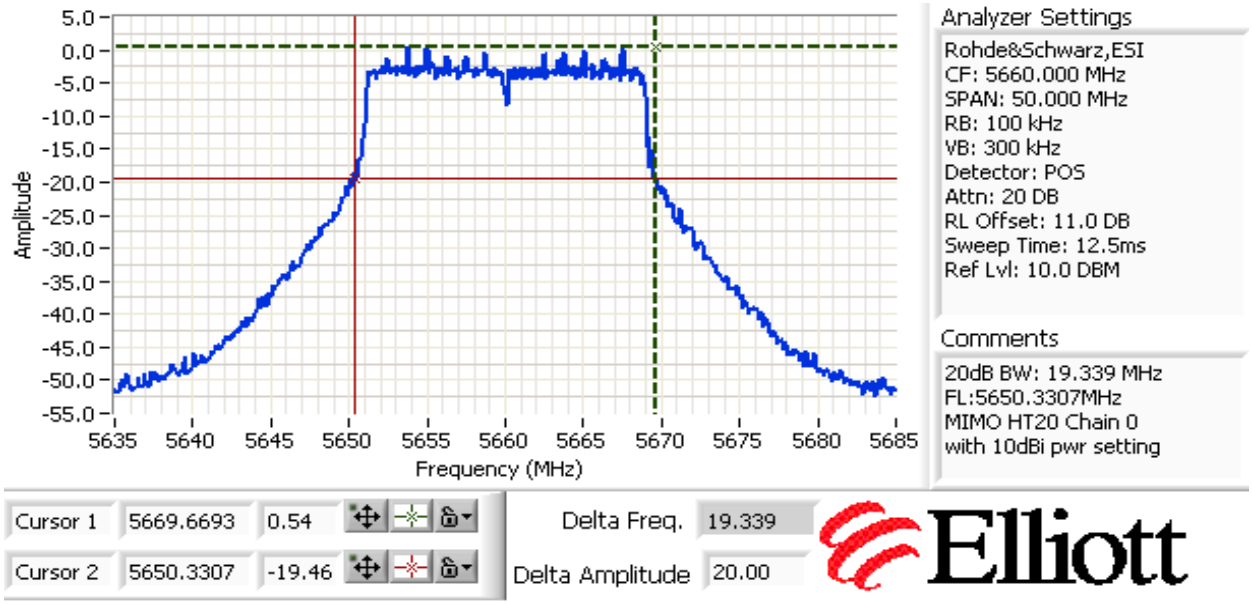


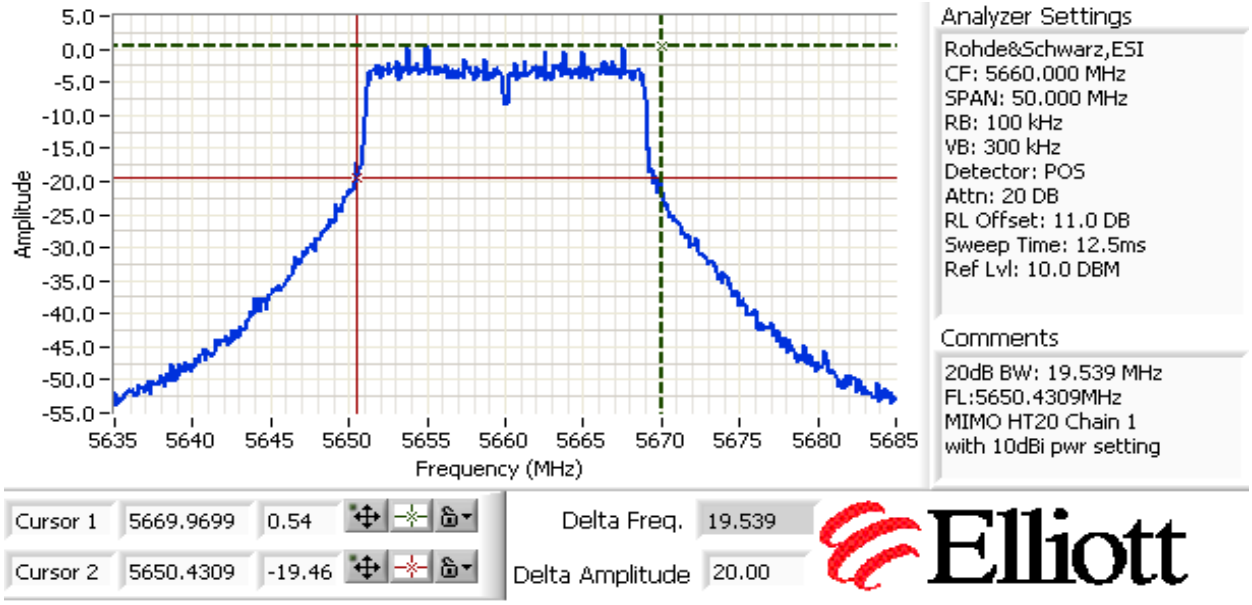


Client:	Ubiquiti Networks	Job Number:	J85296
Model:	RocketM5	T-Log Number:	T85333
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A

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.

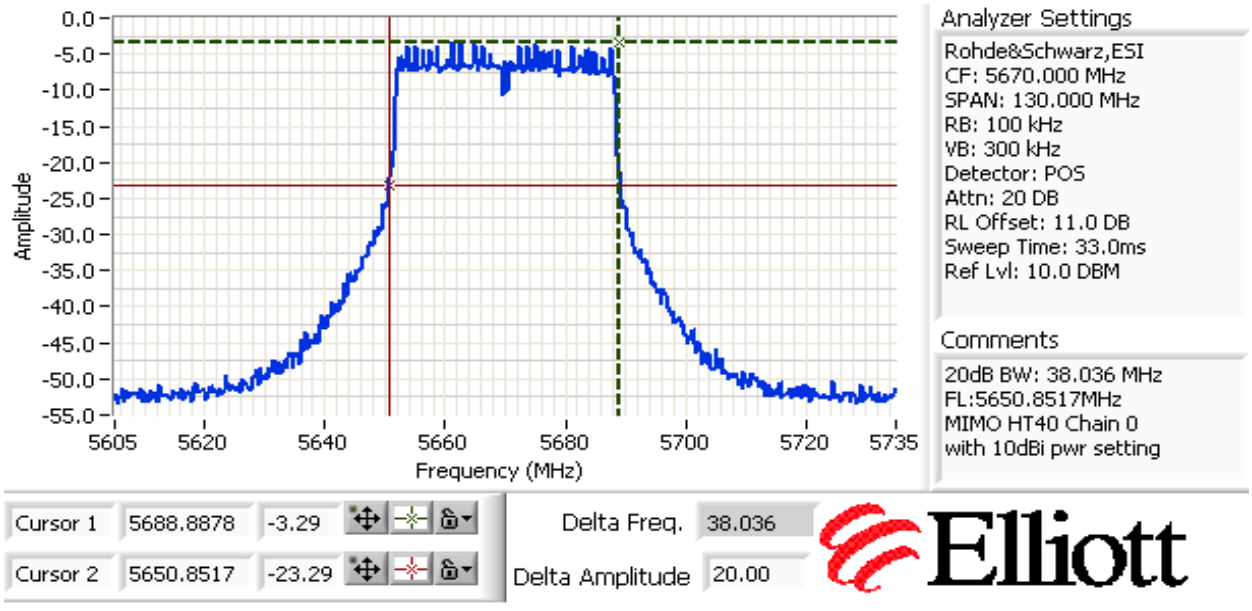
n20 Mode

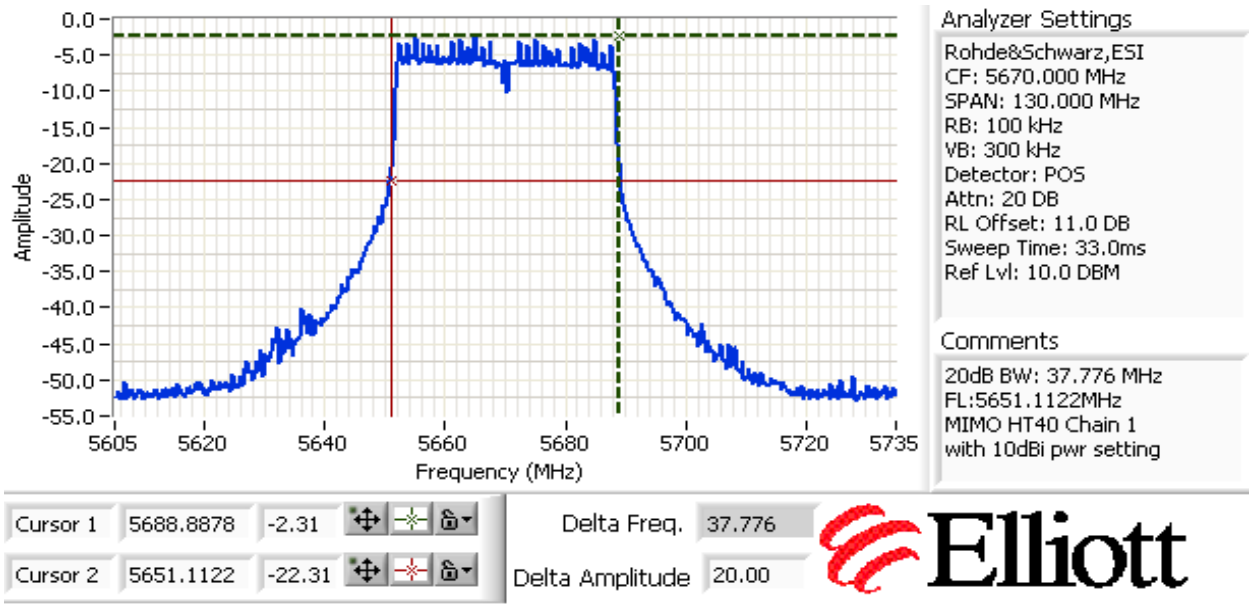




Client:	Ubiquiti Networks	Job Number:	J85296
Model:	RocketM5	T-Log Number:	T85333
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A

n40 Mode



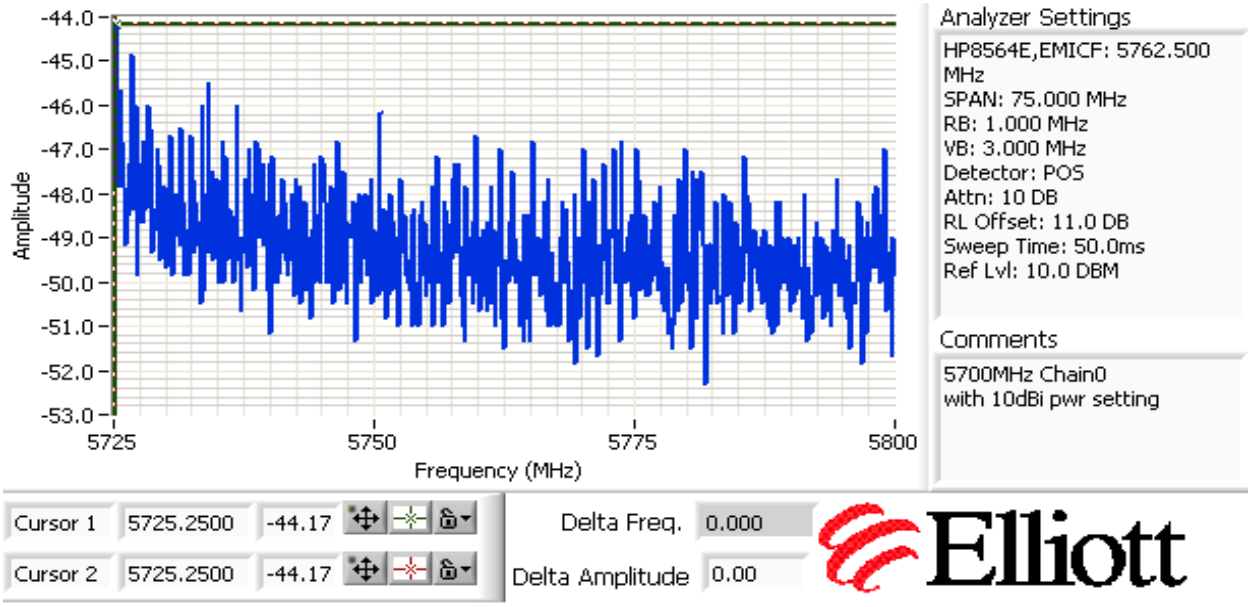


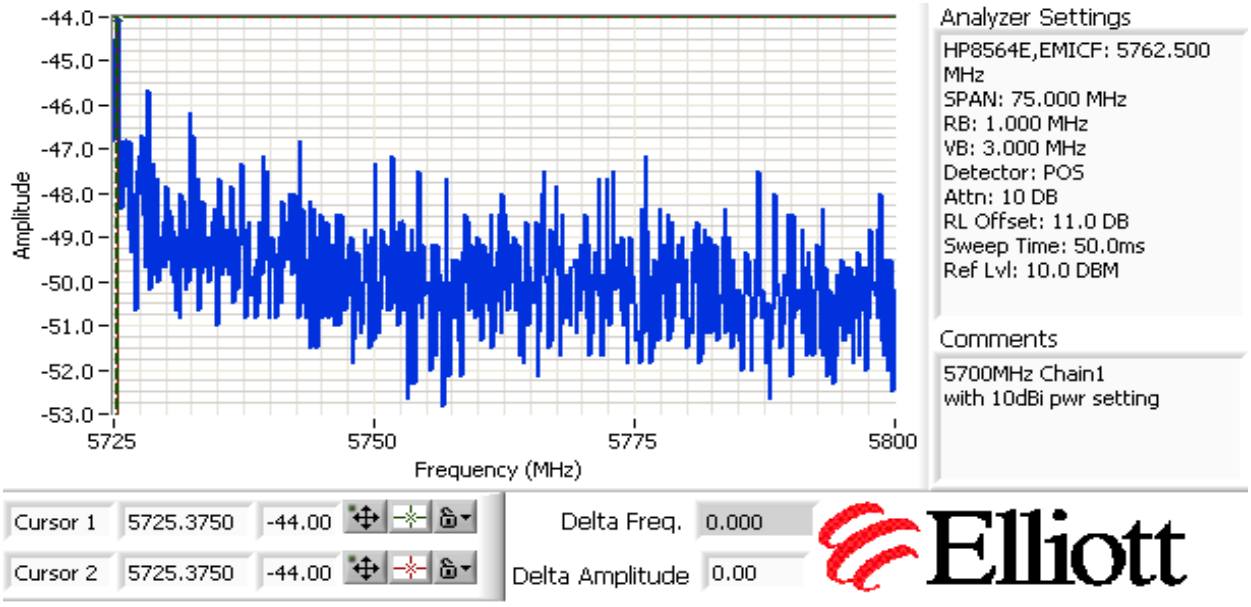
Client:	Ubiquiti Networks	Job Number:	J85296
Model:	RocketM5	T-Log Number:	T85333
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A

High channel, 5470 - 5725 MHz Band (10dBi Antennas)

Compliance with the -27dBm/MHz limit immediately above the band. Start and stop frequencies set to 5725-5775 MHz, RB=1MHz, VB=3MHz, Peak Detector, Max -hold

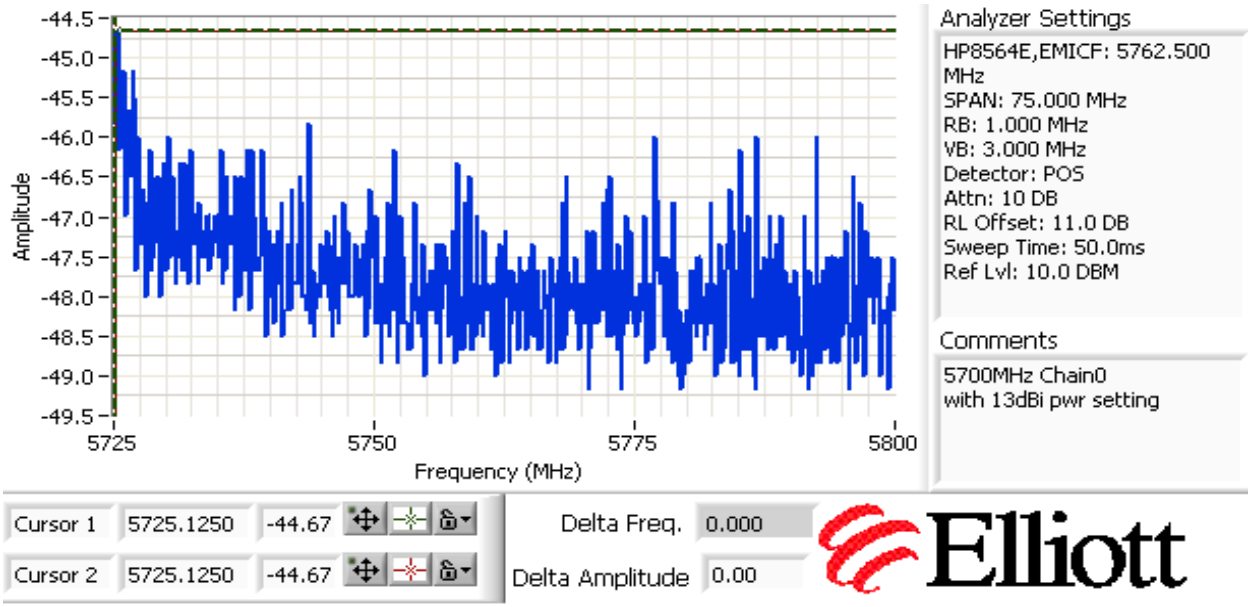
n20 mode
(10dBi pwr setting)

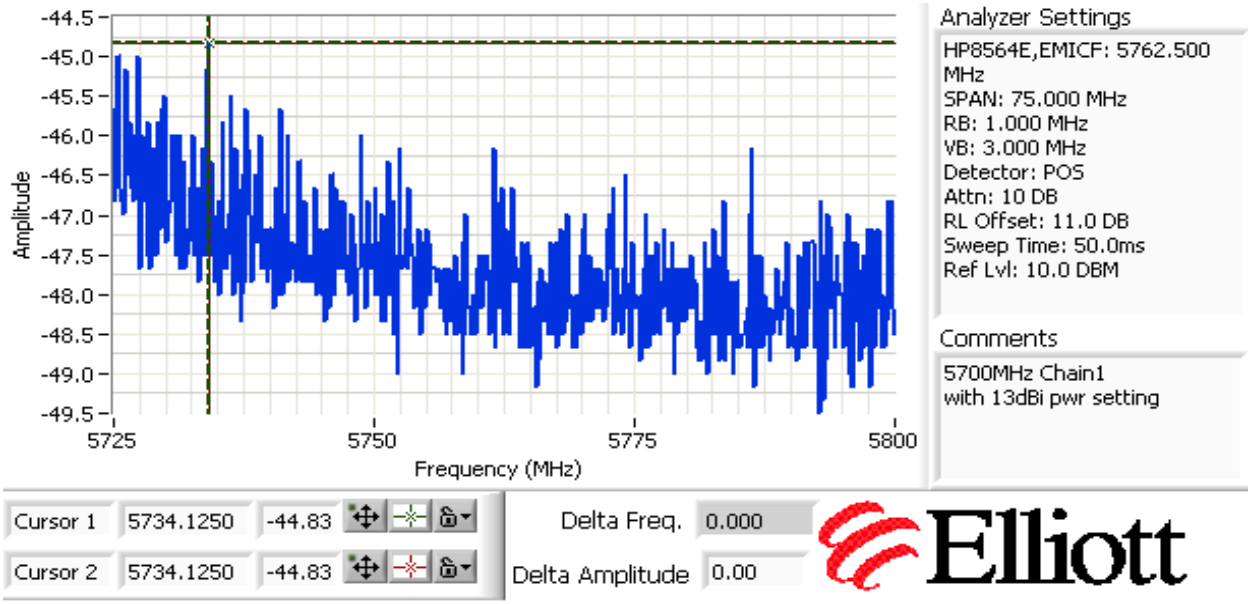




Client:	Ubiquiti Networks	Job Number:	J85296
Model:	RocketM5	T-Log Number:	T85333
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A

(13dBi pwr setting)

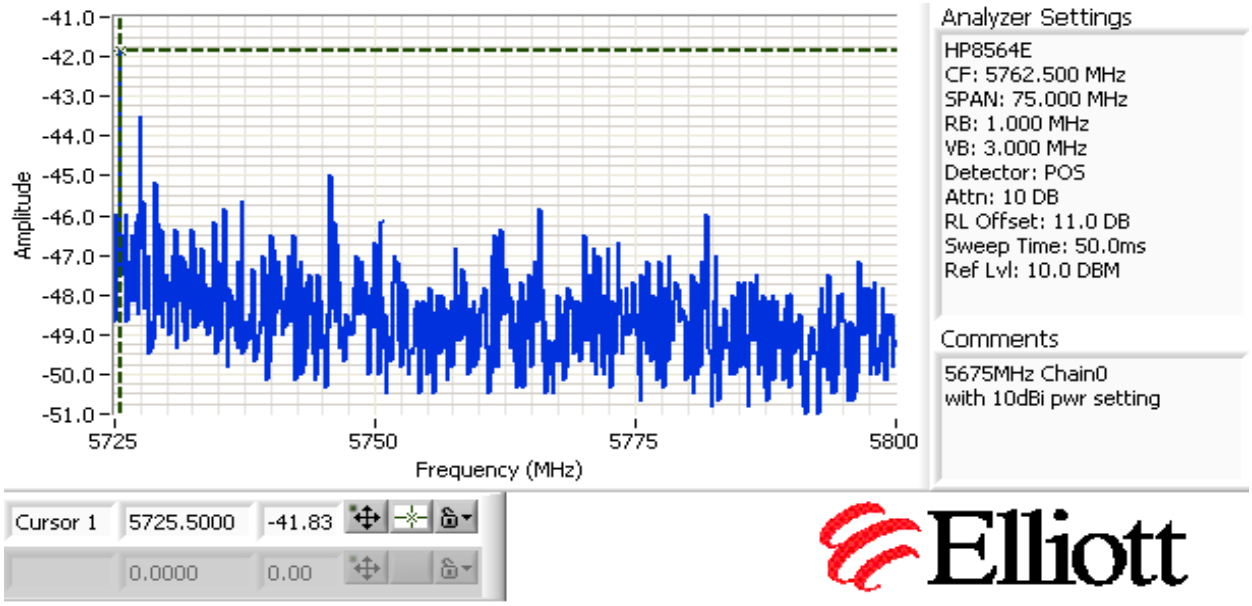


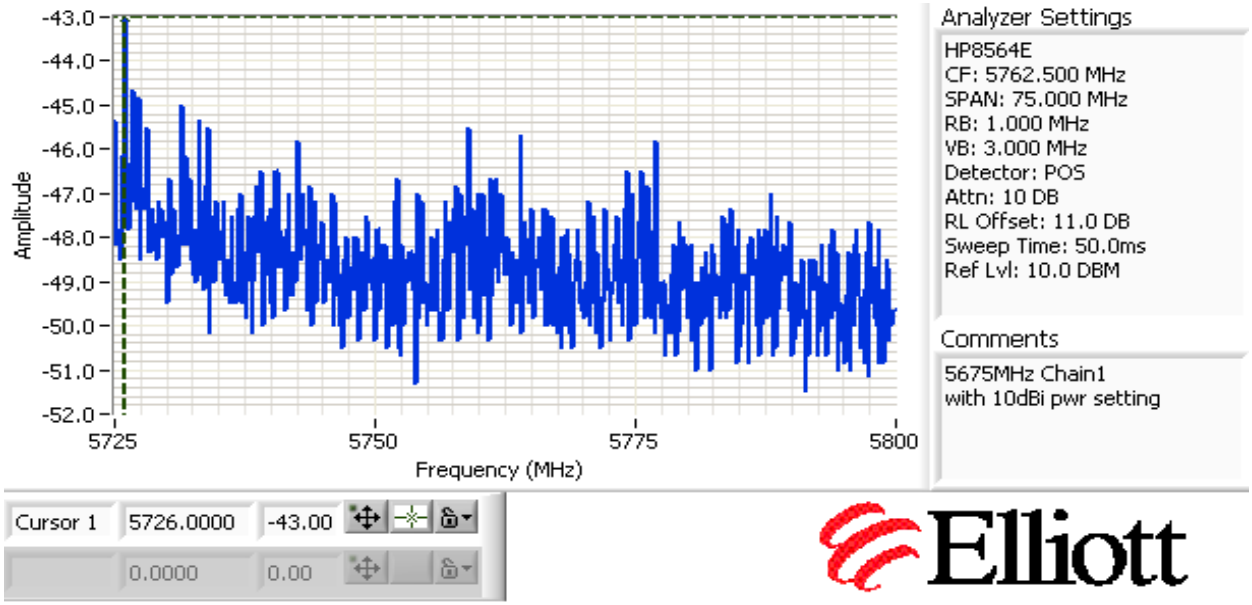


Client:	Ubiquiti Networks	Job Number:	J85296
Model:	RocketM5	T-Log Number:	T85333
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A

n40 Mode

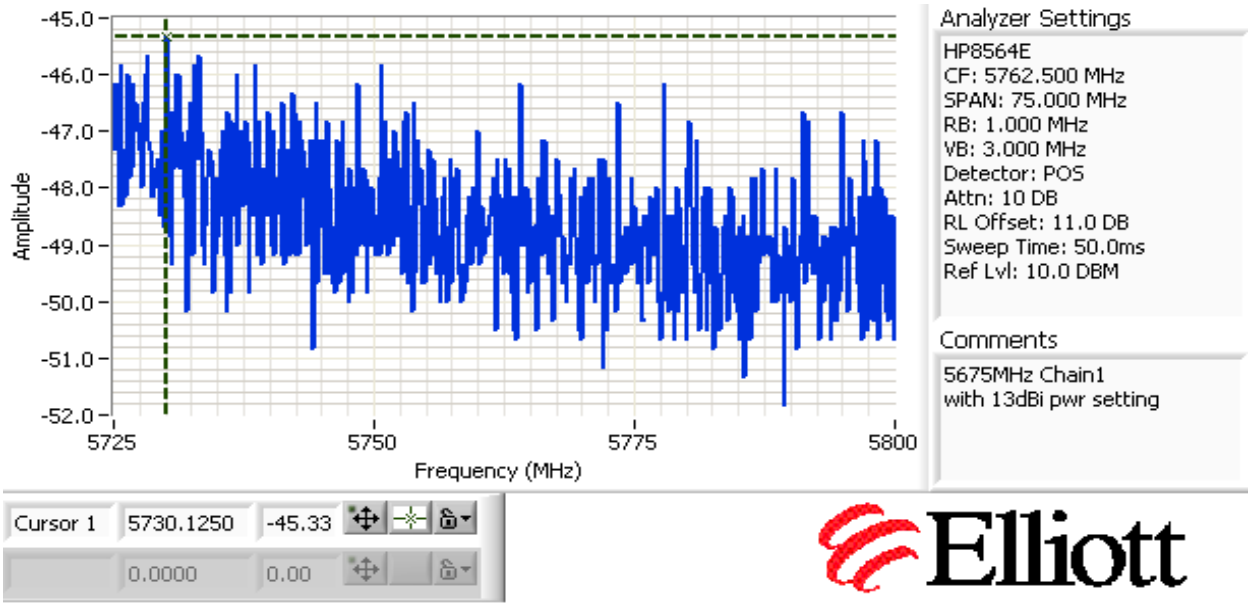
(10dBi pwr setting)

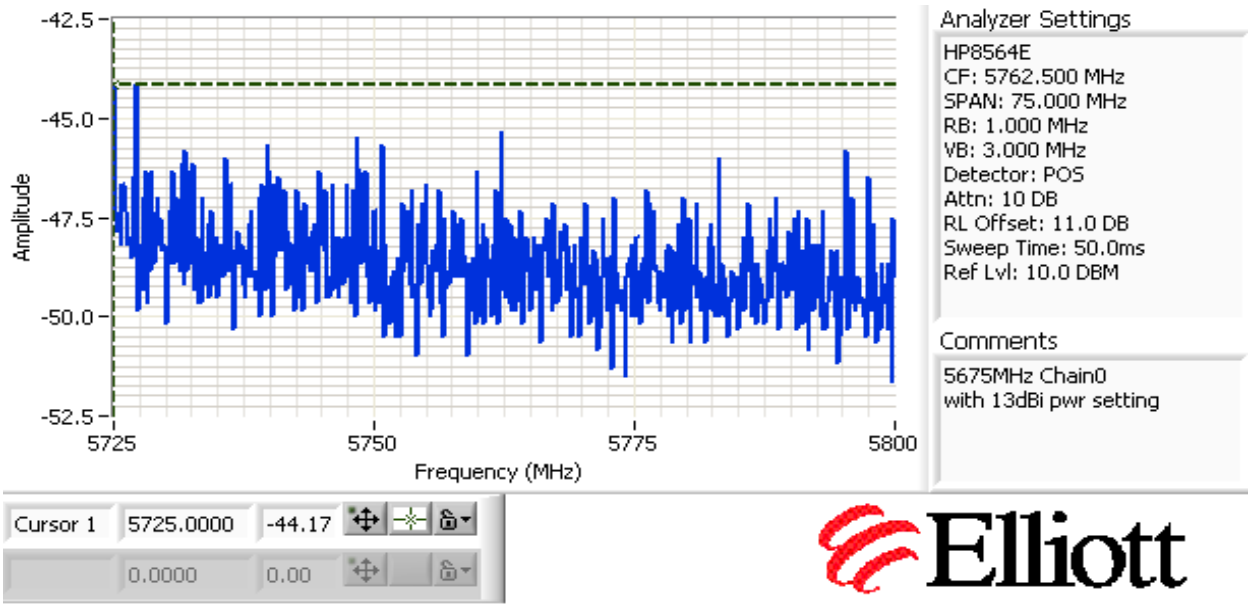




Client:	Ubiquiti Networks	Job Number:	J85296
Model:	RocketM5	T-Log Number:	T85333
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A

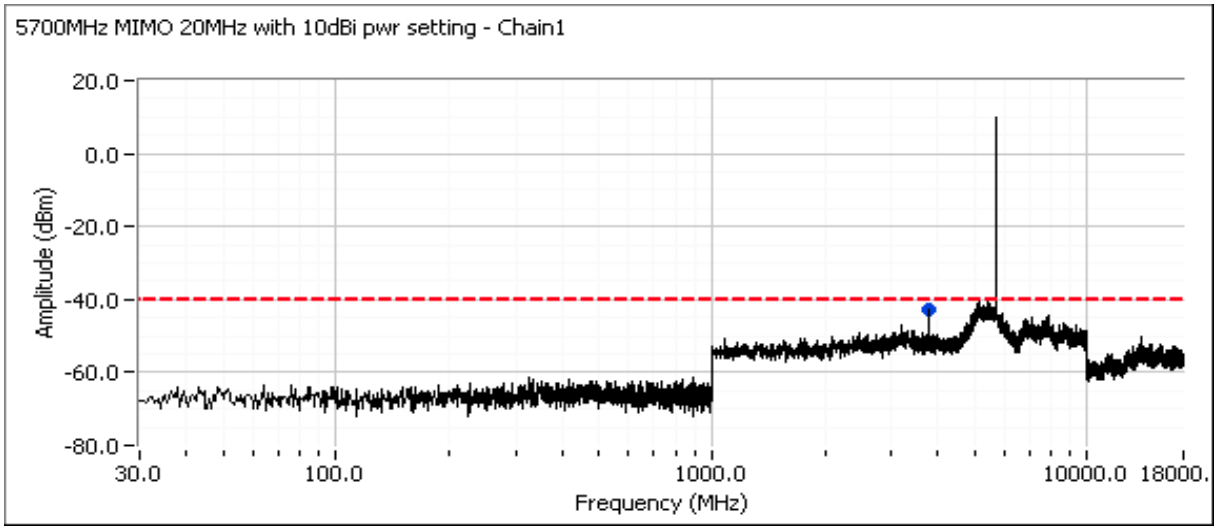
(13dBi pwr setting)

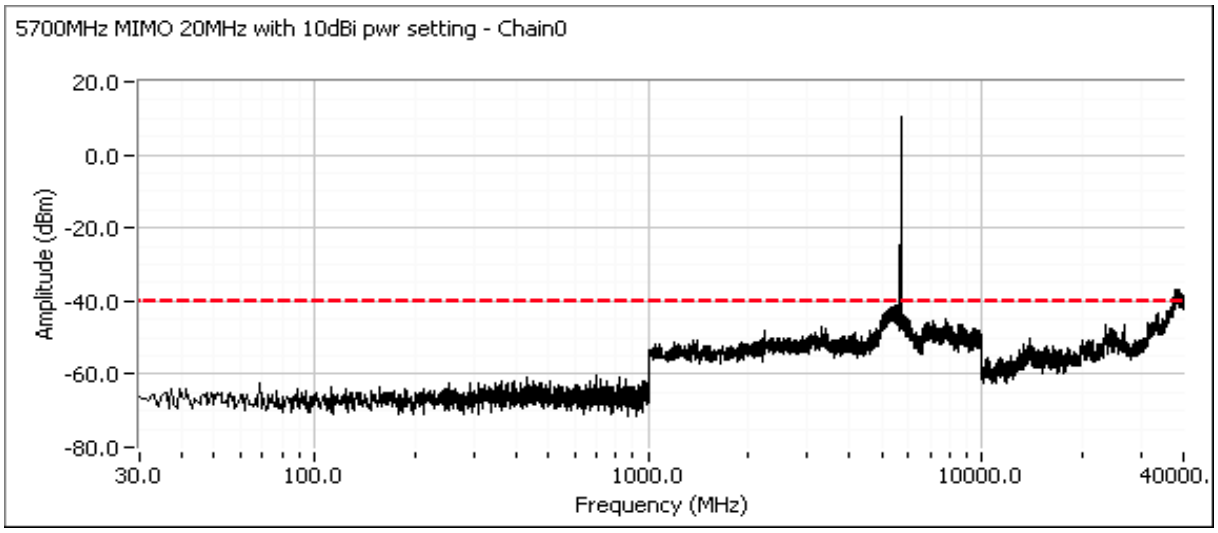




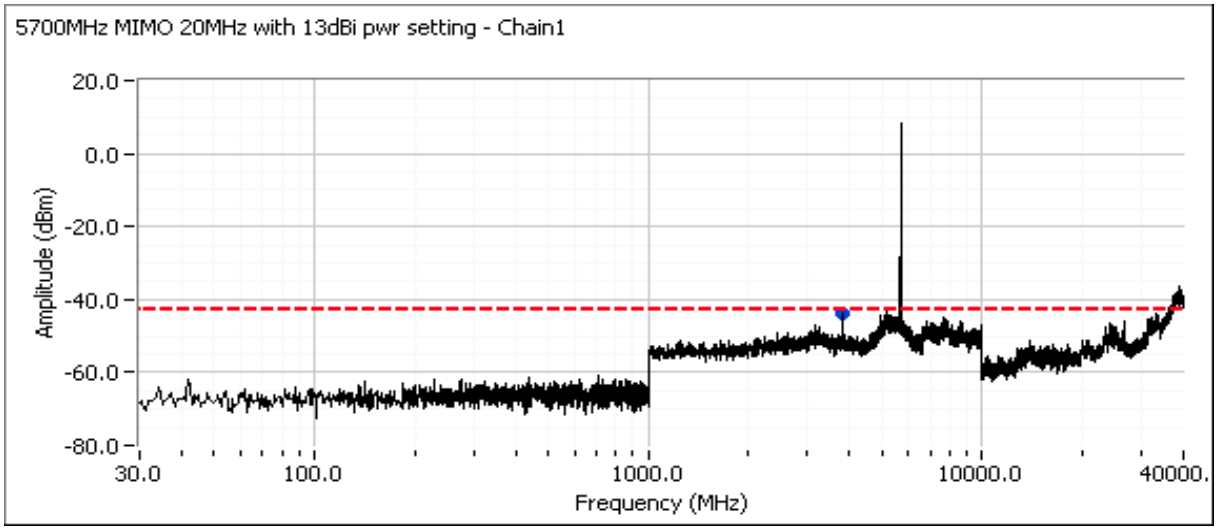
Client:	Ubiquiti Networks	Job Number:	J85296
Model:	RocketM5	T-Log Number:	T85333
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A

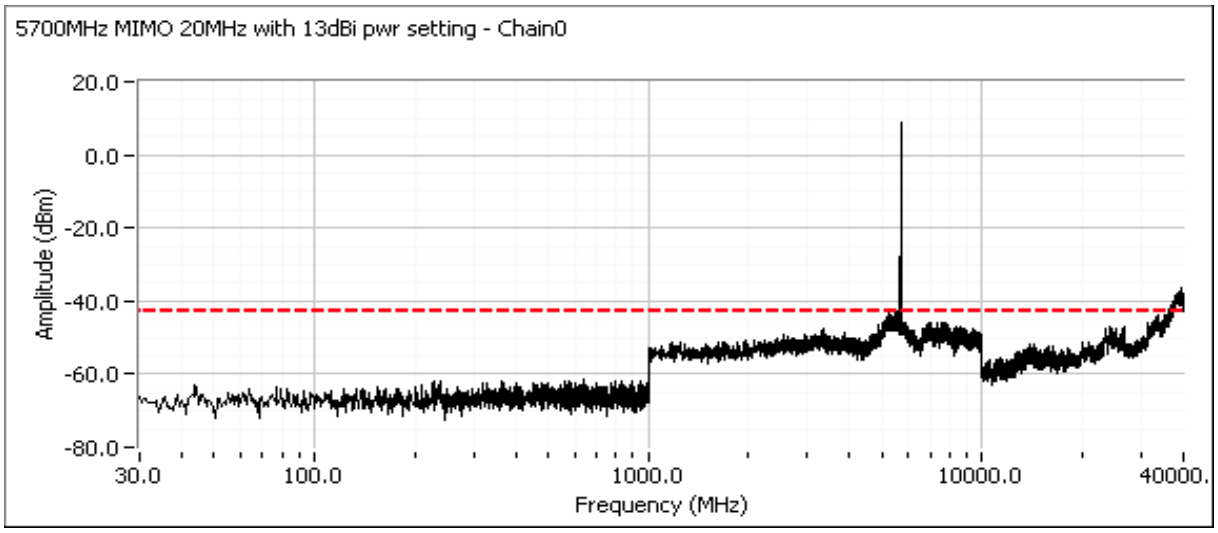
Wide-band plot, RB=1MHz VB=3MHz (Peak measurements versus limit).
n20 Mode





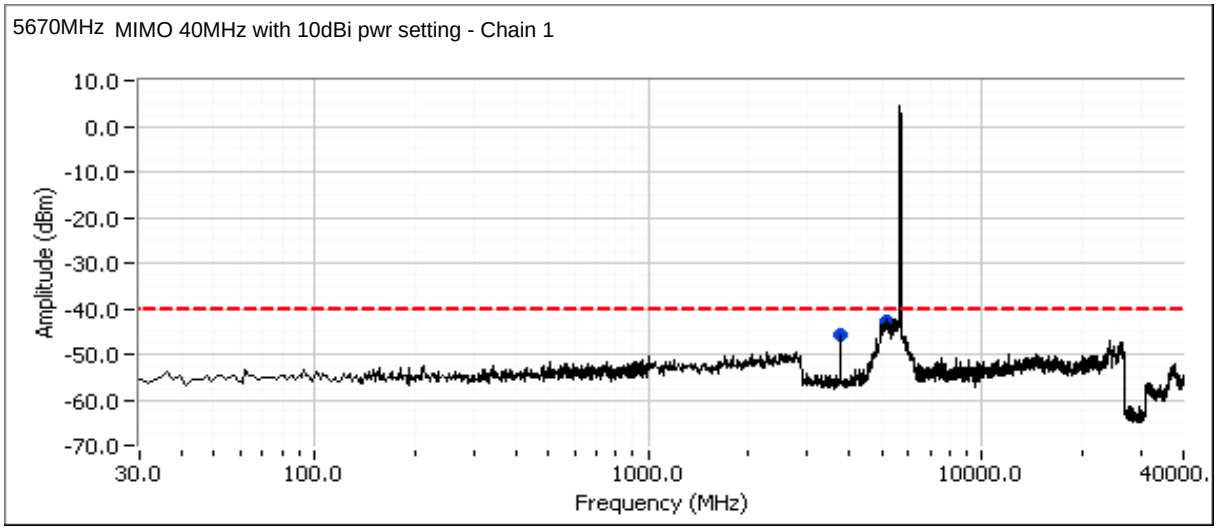
Client:	Ubiquiti Networks	Job Number:	J85296
Model:	RocketM5	T-Log Number:	T85333
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A

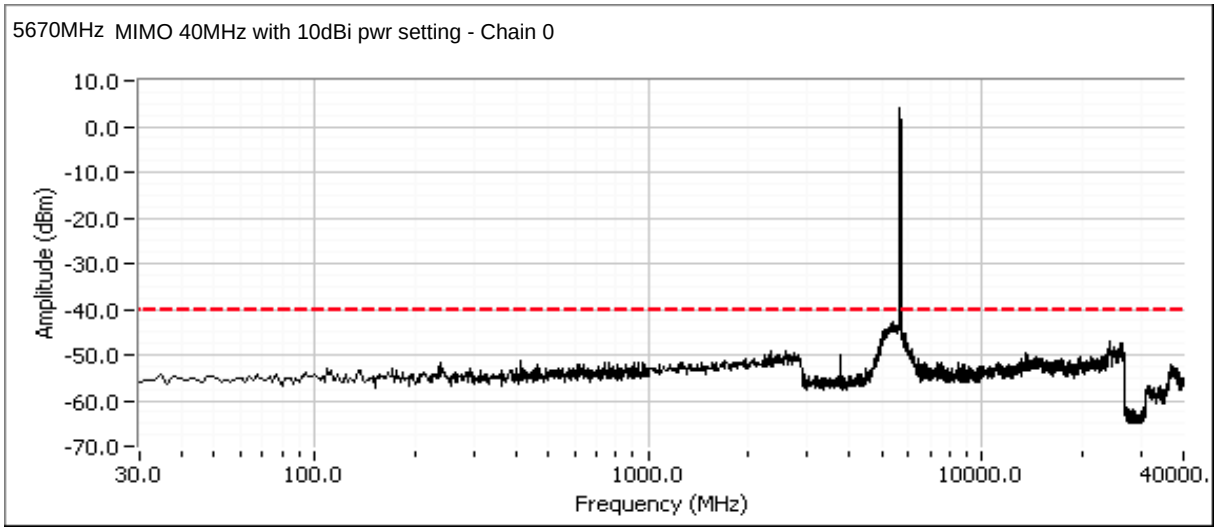




Client:	Ubiquiti Networks	Job Number:	J85296
Model:	RocketM5	T-Log Number:	T85333
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A

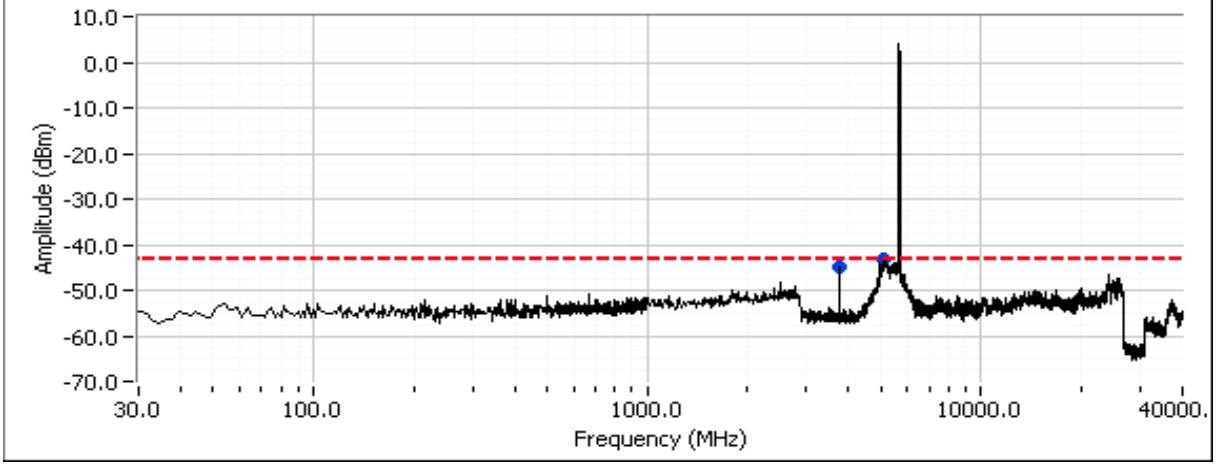
n40 mode



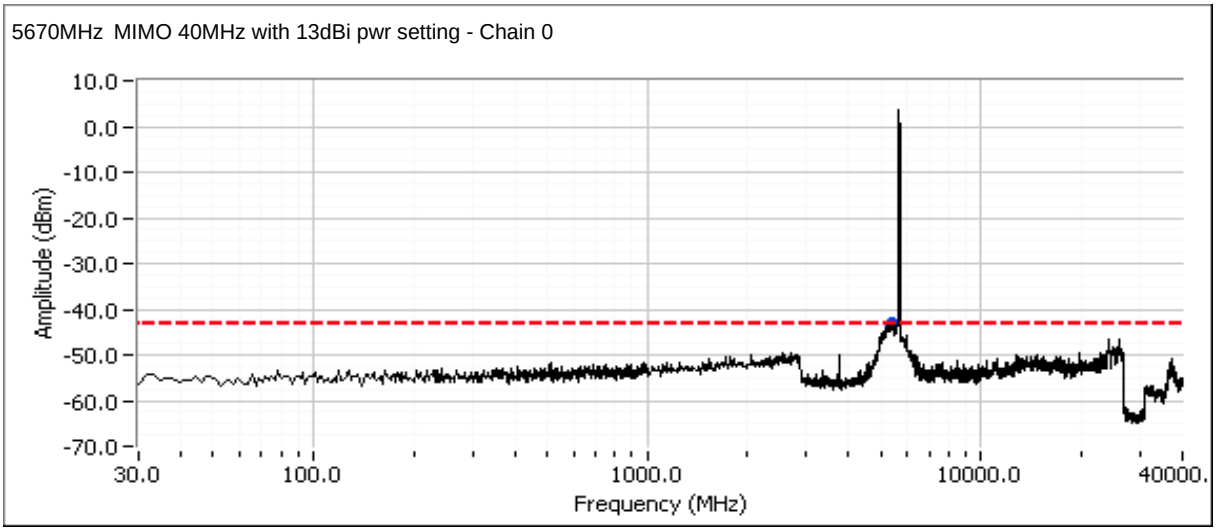


Client:	Ubiquiti Networks	Job Number:	J85296
Model:	RocketM5	T-Log Number:	T85333
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A

5670MHz MIMO 40MHz with 13dBi pwr setting - Chain 1



5670MHz MIMO 40MHz with 13dBi pwr setting - Chain 0



Client:	Ubiquiti Networks	Job Number:	J85296
Model:	RocketM5	T-Log Number:	T85333
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A

Frequency	Level	Pol	FCC 15 E / RSS 210		Detector	Comment				
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	channel	mode/Chain	Ant. gain	Setting	Note
3799.930	-42.8	RF Port	-40.0	-2.8	Peak	140	n20,1	10	11.5	Note1
3799.930	-43.7	RF Port	-43.0	-0.7	Peak	140	n20,1	13	9.5	Note1
5170.830	-43.8	RF Port	-43.0	-0.8	Peak	102	n40,1	13	9.0	Note1
3667.500	-47.8	RF Port	-43.0	-4.8	Peak	102	n40,1	13	9.0	Note1
4969.170	-44.0	RF Port	-40.0	-4.0	Peak	102	n40,1	10	10.5	Note2
3667.500	-50.0	RF Port	-40.0	-10.0	Peak	102	n40,1	10	10.5	Note1
4987.500	-43.3	RF Port	-40.0	-3.3	Peak	110	n40,1	10	10.5	Note2
3695.000	-48.1	RF Port	-40.0	-8.1	Peak	110	n40,1	10	10.5	Note1
3695.000	-48.1	RF Port	-43.0	-5.1	Peak	110	n40,1	13	9.0	Note1
5134.170	-44.5	RF Port	-43.0	-1.5	Peak	110	n40,1	13	9.0	Note1
3777.500	-45.0	RF Port	-43.0	-2.0	Peak	134	n40,1	13	9.0	Note1
5134.170	-43.0	RF Port	-43.0	0.0	Peak	134	n40,1	13	9.0	Note1
5372.500	-43.0	RF Port	-43.0	0.0	Peak	134	n40,0	13	9.0	Note1
3777.500	-45.8	RF Port	-40.0	-5.8	Peak	134	n40,1	10	9.5	Note1
5207.500	-42.6	RF Port	-40.0	-2.6	Peak	134	n40,1	10	9.5	Note1

Note 1	Un-restricted signal, refer to the radiated spurious emissions results.
Note 2	Restricted signal

Client:	Ubiquiti Networks	Job Number:	J85296
Model:	RocketM5	T-Log Number:	T85333
		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 approximately 30 meters from the EUT with all I/O connections running on top of the groundplane or routed in overhead in the GR-1089 test configuration.

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

Ambient Conditions:

Temperature: 18-22 °C
Rel. Humidity: 30-40 %

Summary of Results

Run #	Mode	Channel	Power Setting	Measured Power	Test Performed	Limit	Result / Margin
Run # 2a	20MHz MIMO Chain 0+1	5270MHz	10.0	-	Restricted Band at 4500~5150 MHz	15.209	49.2dBµV/m @ 5135.5MHz (-4.8dB)
	20MHz MIMO Chain 0+1	5270MHz	10.0	-	Restricted Band at 5350~5460 MHz	15.209	50.1dBµV/m @ 5451.9MHz (-3.9dB)
Run # 2b	20MHz MIMO Chain 0+1	5320MHz	10.0	-	Restricted Band at 4500~5150 MHz	15.209	48.0dBµV/m @ 5147.0MHz (-6.0dB)
	20MHz MIMO Chain 0+1	5320MHz	10.0	-	Restricted Band at 5350~5460 MHz	15.209	53.7dBµV/m @ 5459.8MHz (-0.3dB)
Run # 2c	20MHz MIMO Chain 0+1	5500MHz	10.0	-	Restricted Band Edge at 4500~5150 MHz & 5460 MHz	15.209	52.0dBµV/m @ 5456.3MHz (-2.0dB)

Client:	Ubiquiti Networks	Job Number:	J85296
Model:	RocketM5	T-Log Number:	T85333
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A

Summary of Results Continued

Run #	Mode	Channel	Power Setting	Measured Power	Test Performed	Limit	Result / Margin
Run # 3a	40MHz MIMO Chain 0+1	5310MHz	10.5	-	Restricted Band at 4500~5150 MHz	15.209	43.7dBµV/m @ 5131.6MHz (-10.3dB)
	40MHz MIMO Chain 0+1	5310MHz	10.5	-	Restricted Band at 5350~5460 MHz	15.209	48.4dBµV/m @ 5350.0MHz (-5.6dB)
Run # 3b	40MHz MIMO Chain 0+1	5510MHz	6.0	-	Restricted Band Edge at 4500~5150 MHz & 5460 MHz	15.209	50.4dBµV/m @ 5126.0MHz (-3.6dB)

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.

Notes:

Refer to UNII RF Port MIMO sheet for data for non-restricted bandedge measurements vs the -27dBm/MHz eirp limit

Due to the factor of the band reject filter used during the wideband spurious emissions scans, verification of the emissions near the band were performed without a filter (care was taken to avoid pre-amplifier saturation) and reported here.

Testing was performed with the 13dBi antenna with power set to the higher power settings for the 10dBi antenna for worse case condition.

Client:	Ubiquiti Networks	Job Number:	J85296
Model:	RocketM5	T-Log Number:	T85333
		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 MIMO, Chain 0+1

Run # 2a, EUT on 5270MHz - 20MHz MIMO, Chain 0+1

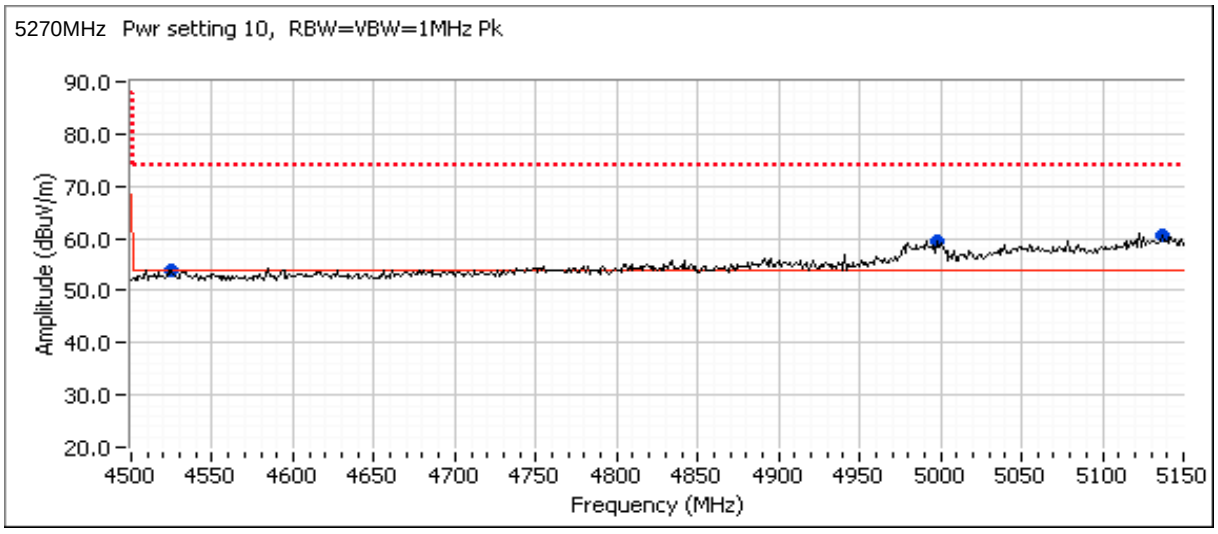
Date of Test: 12/6/2011 Test Location: FT chamber# 7

Test Engineer: Jack Liu Config Change: none

	Power Settings		
	Target (dBm)	Measured (dBm)	Software Setting
Chain 0+1			10.0

4500-5150 MHz Band Edge Signal Radiated Field Strength

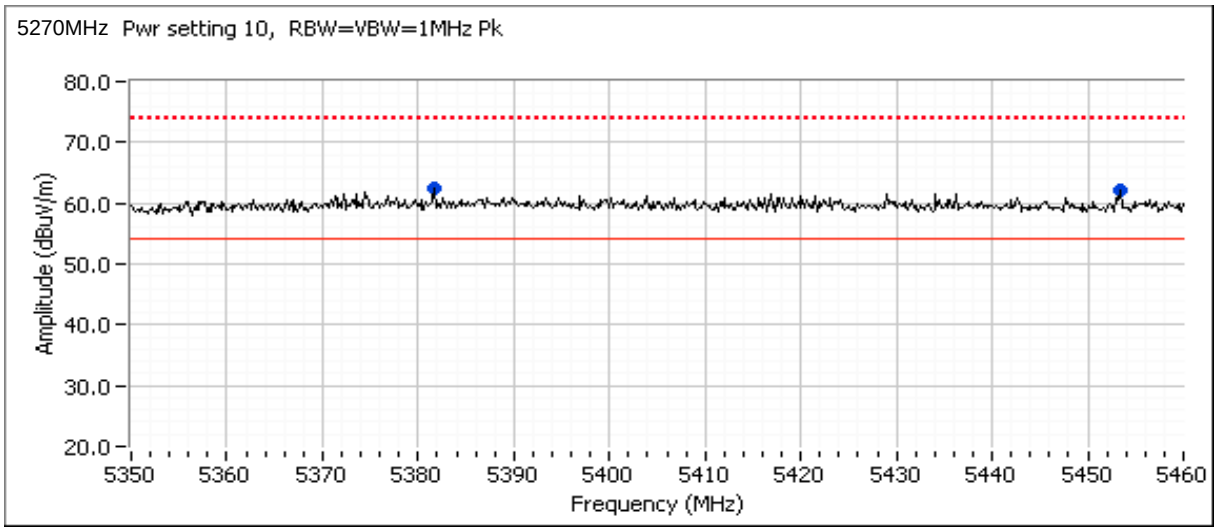
Frequency	Level	Pol	FCC 15.209		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5135.530	49.2	V	54.0	-4.8	AVG	268	1.3	
4997.900	46.7	V	54.0	-7.3	AVG	268	1.2	
4525.770	41.4	H	54.0	-12.6	AVG	185	1.0	
5136.080	61.0	V	74.0	-13.0	PK	268	1.3	
4998.010	59.9	V	74.0	-14.1	PK	268	1.2	
4524.520	52.0	H	74.0	-22.0	PK	185	1.0	



Client:	Ubiquiti Networks	Job Number:	J85296
Model:	RocketM5	T-Log Number:	T85333
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A

5350-5460 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	
5451.900	50.1	V	54.0	-3.9	AVG	274	1.6	
5380.390	49.6	V	54.0	-4.4	AVG	274	1.6	
5452.670	62.2	V	74.0	-11.8	PK	274	1.6	
5382.560	61.1	V	74.0	-12.9	PK	274	1.6	



Client:	Ubiquiti Networks	Job Number:	J85296
Model:	RocketM5	T-Log Number:	T85333
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A

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

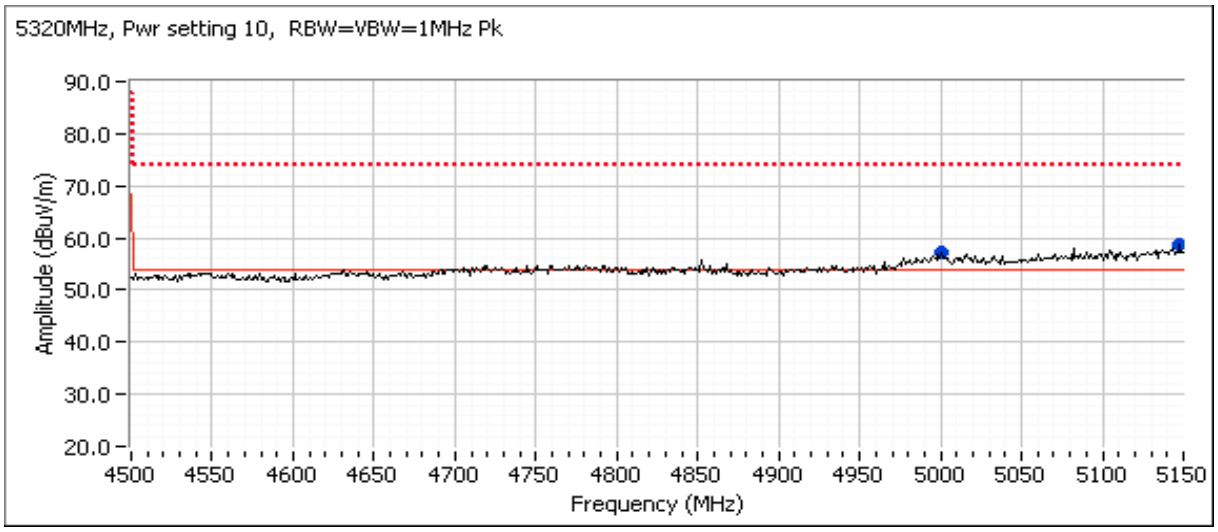
Date of Test: 12/5/2011 Test Location: FT chamber# 7

Test Engineer: Jack Liu Config Change: none

	Power Settings		
	Target (dBm)	Measured (dBm)	Software Setting
Chain 0+1			10.0

4500-5150 MHz Band Edge Signal Radiated Field Strength

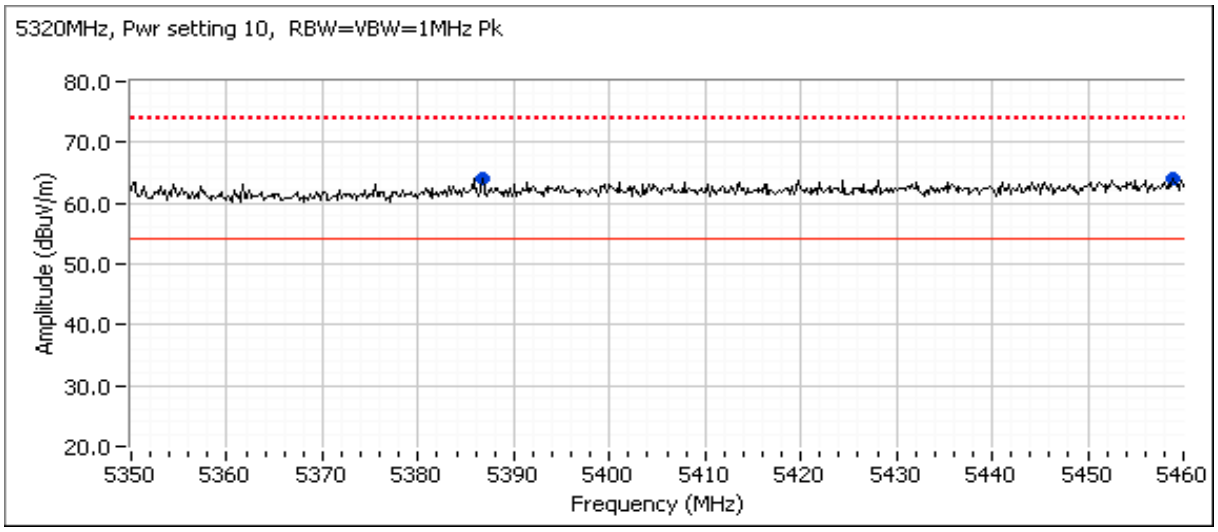
Frequency	Level	Pol	FCC 15.209		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5146.970	48.0	H	54.0	-6.0	AVG	202	1.0	
5000.120	44.7	V	54.0	-9.3	AVG	304	1.9	
5149.210	59.8	H	74.0	-14.2	PK	202	1.0	
5000.560	57.6	V	74.0	-16.4	PK	304	1.9	



Client:	Ubiquiti Networks	Job Number:	J85296
Model:	RocketM5	T-Log Number:	T85333
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A

5350-5460 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	
5459.750	53.7	V	54.0	-0.3	AVG	280	1.0	
5387.480	52.7	V	54.0	-1.3	AVG	104	1.0	
5458.700	64.8	V	74.0	-9.2	PK	280	1.0	
5387.780	64.2	V	74.0	-9.8	PK	104	1.0	



Client:	Ubiquiti Networks	Job Number:	J85296
Model:	RocketM5	T-Log Number:	T85333
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A

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

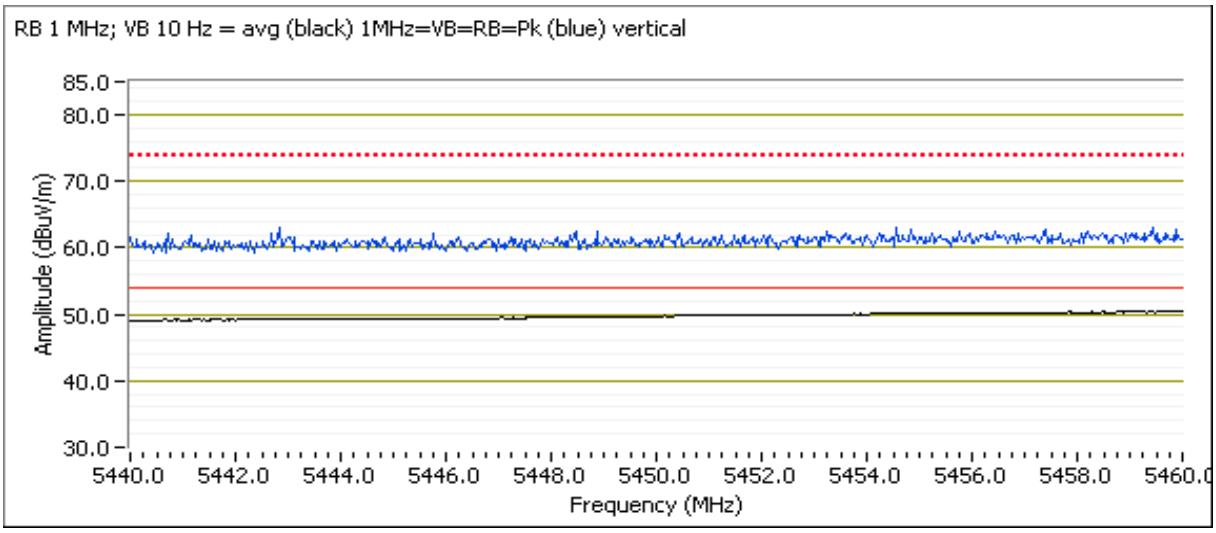
Date of Test: 11/21/2011& 12/8/2011 Test Location: FT Chamber#7 / #4

Test Engineer: Joseph Cadigal / Jack Liu Config Change: none

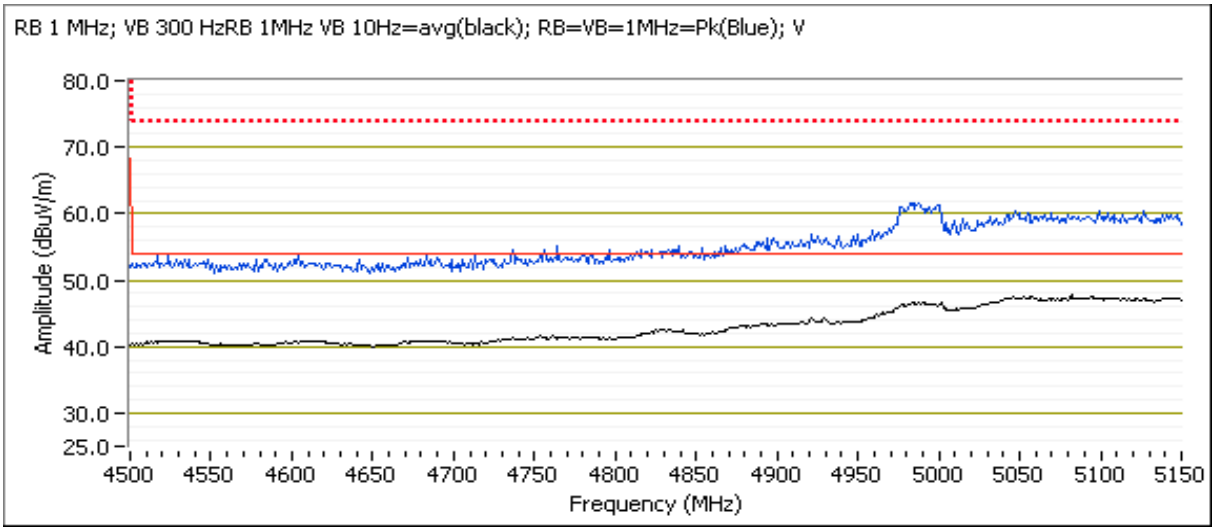
	Power Settings		
	Target (dBm)	Measured (dBm)	Software Setting
Chain 0+1			10.0

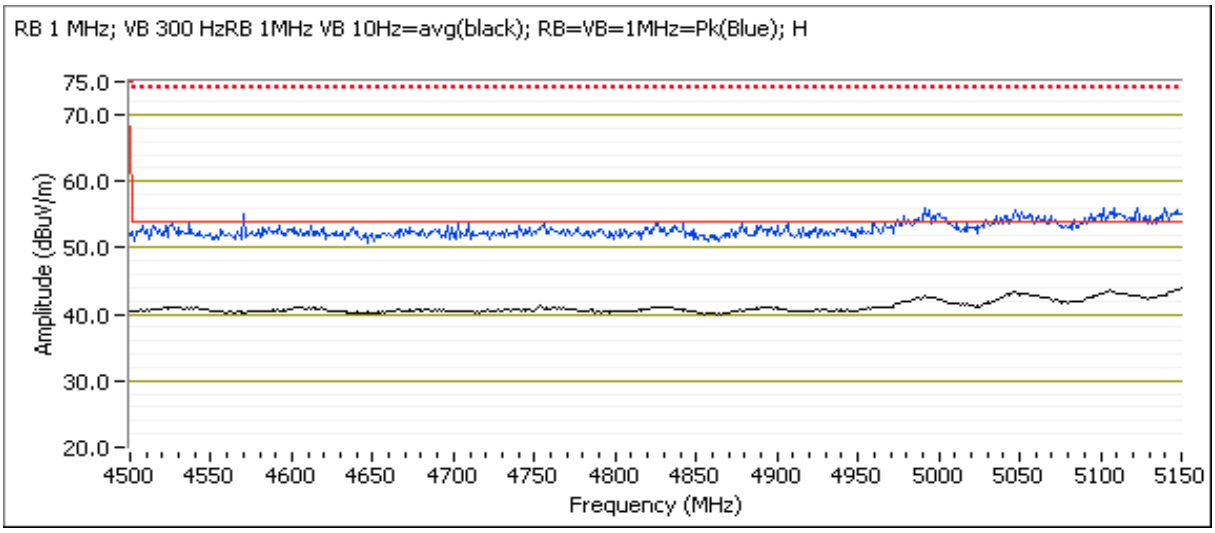
4500~5150MHz and 5460 MHz Restricted Band Edge Signal Radiated Field Strength

Frequency	Level	Pol	FCC 15.209		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5456.270	52.0	V	54.0	-2.0	AVG	275	1.0	
5450.970	49.6	H	54.0	-4.4	AVG	360	1.0	
4983.230	48.4	V	54.0	-5.6	AVG	261	1.0	
5456.100	63.6	V	74.0	-10.4	PK	275	1.0	
4982.720	61.6	V	74.0	-12.4	PK	261	1.0	
5446.630	60.7	H	74.0	-13.3	PK	360	1.0	



Client:	Ubiquiti Networks	Job Number:	J85296
Model:	RocketM5	T-Log Number:	T85333
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A





Client:	Ubiquiti Networks	Job Number:	J85296
Model:	RocketM5	T-Log Number:	T85333
		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 MIMO, Chain 0+1

Run # 3a, EUT on 5310MHz - 40MHz MIMO, Chain 0+1

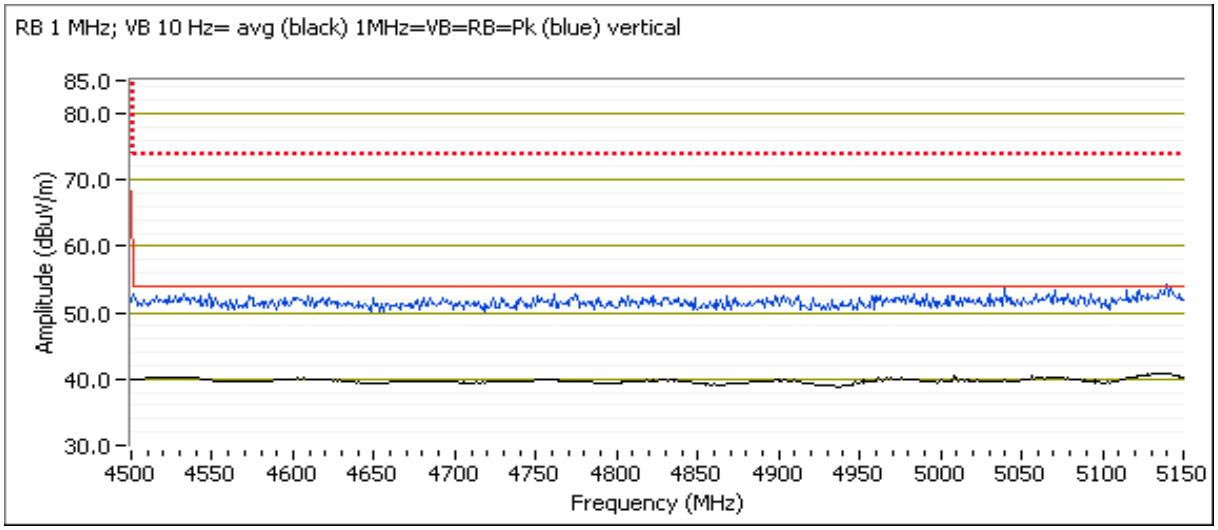
Date of Test: 12/5/2011 Test Location: FT Chamber#7

Test Engineer: Joseph Cadigal Config Change: none

	Power Settings		
	Target (dBm)	Measured (dBm)	Software Setting
Chain 0+1			10.5

4500-5150 MHz Band Edge Signal Radiated Field Strength

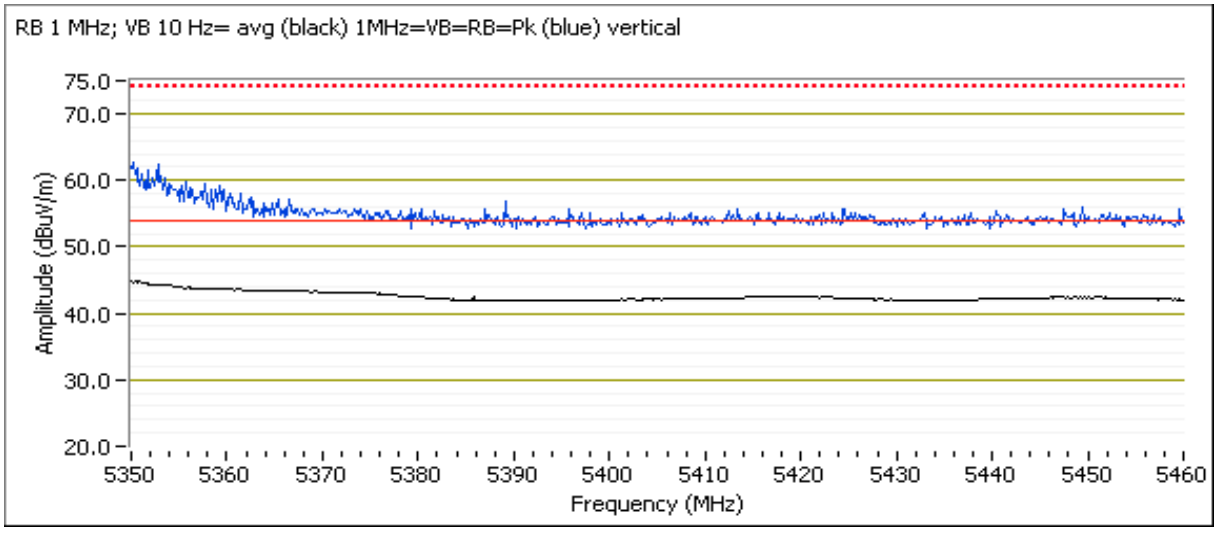
Frequency	Level	Pol	FCC 15.209		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5131.570	43.7	V	54.0	-10.3	AVG	249	1.6	
5137.530	54.8	V	74.0	-19.2	PK	249	1.6	
5115.500	43.3	H	54.0	-10.7	AVG	342	1.2	
5140.080	54.5	H	74.0	-19.5	PK	342	1.2	



Client:	Ubiquiti Networks	Job Number:	J85296
Model:	RocketM5	T-Log Number:	T85333
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A

5350-5460 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	48.4	H	54.0	-5.6	AVG	249	1.6	
5350.330	66.1	H	74.0	-7.9	PK	249	1.6	
5351.330	47.7	V	54.0	-6.3	AVG	342	1.2	
5351.000	66.3	V	74.0	-7.7	PK	342	1.2	



Client:	Ubiquiti Networks	Job Number:	J85296
Model:	RocketM5	T-Log Number:	T85333
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A

Run # 3b, EUT on 5510MHz - 40MHz MIMO, Chain 0+1

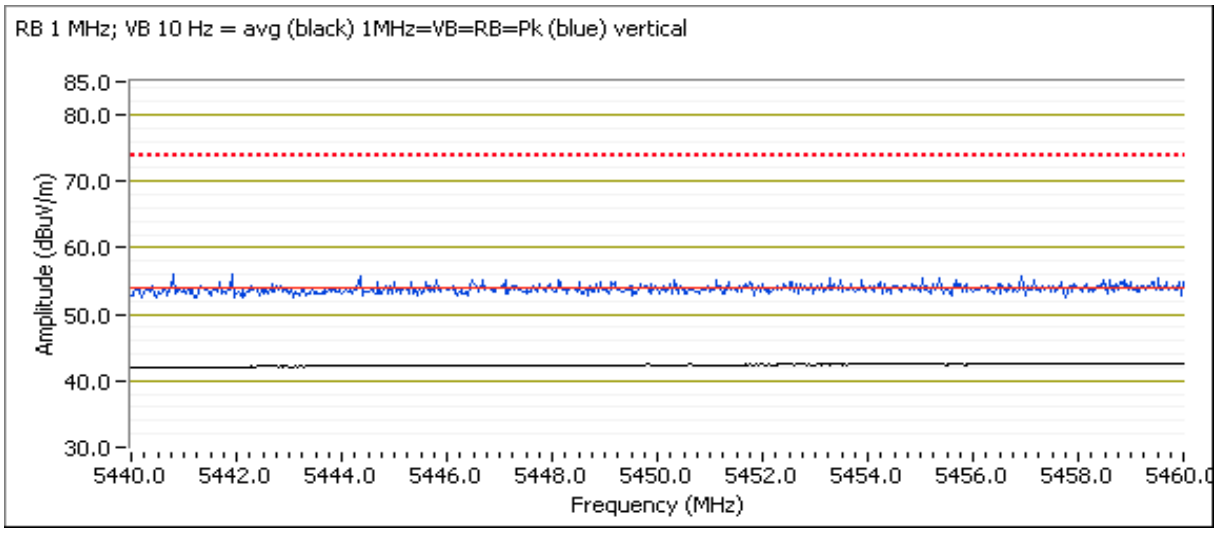
Date of Test: 12/5/2011 & 12/08/2011 Test Location: FT Chamber#7 /#7

Test Engineer: Joseph Cadigal / Jack Liu Config Change: none

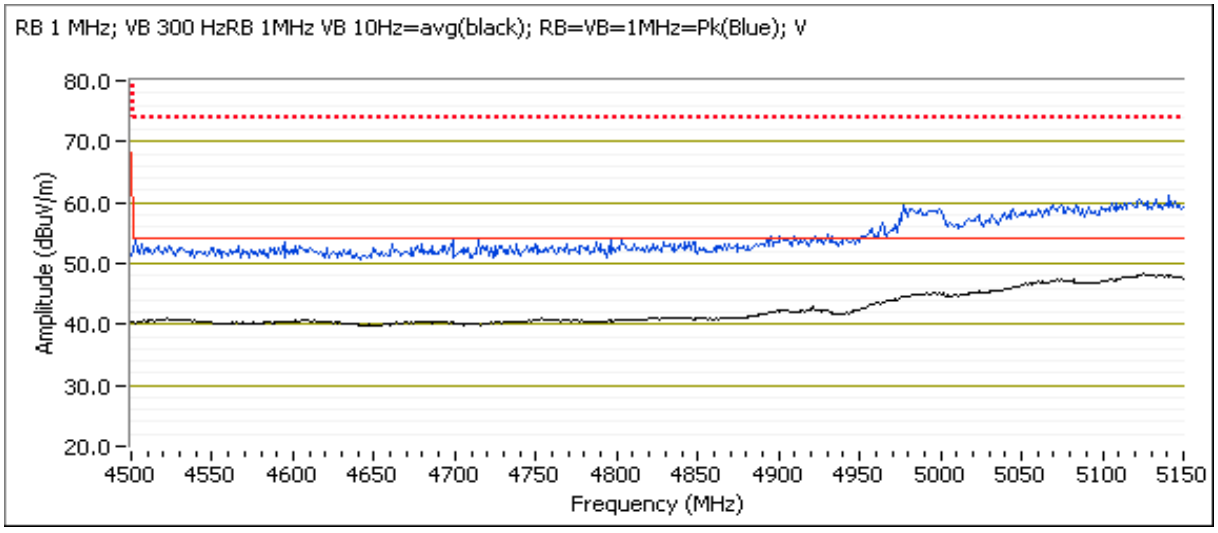
	Power Settings		
	Target (dBm)	Measured (dBm)	Software Setting
Chain 0+1			6.0

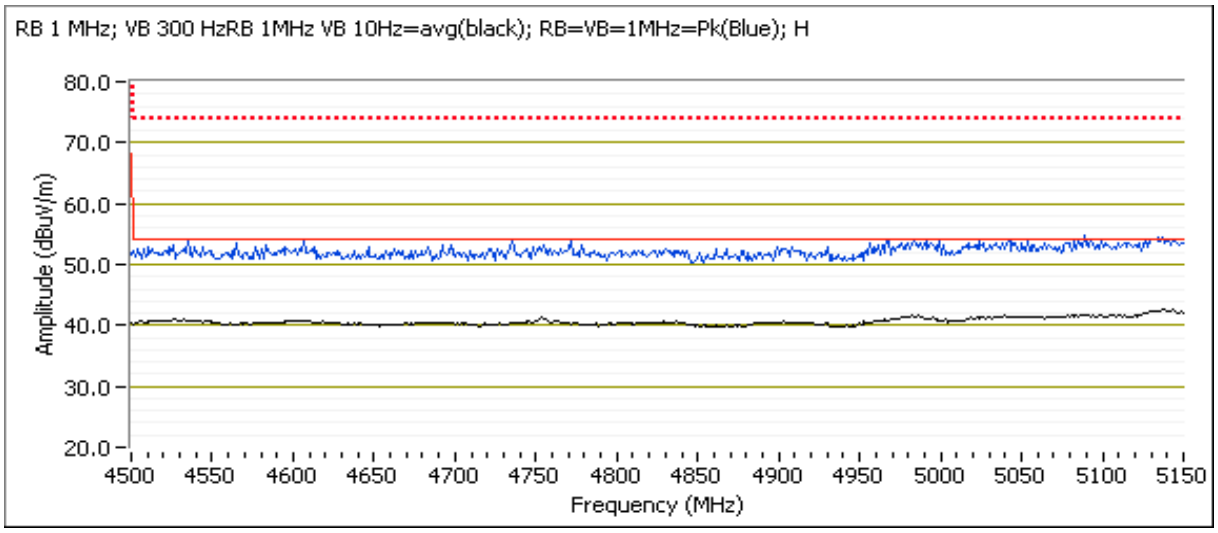
4500~5150MHz and 5460 MHz Restricted Band Edge Signal Radiated Field Strength

Frequency	Level	Pol	FCC 15.209		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5125.960	50.4	V	54.0	-3.6	AVG	259	1.1	
5456.830	44.6	V	54.0	-9.4	AVG	360	1.4	
5458.870	43.5	H	54.0	-10.5	AVG	0	1.0	
5130.660	61.8	V	74.0	-12.2	PK	259	1.1	
5453.370	55.1	V	74.0	-18.9	PK	360	1.4	
5444.100	54.2	H	74.0	-19.8	PK	0	1.0	



Client:	Ubiquiti Networks	Job Number:	J85296
Model:	RocketM5	T-Log Number:	T85333
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A





Client:	Ubiquiti Networks	Job Number:	J85296
Model:	RocketM5	T-Log Number:	T85333
		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.

Date of Test: 12/7/2011 0:00
Test Engineer: Jack Liu / Rafael Varelas
Test Location: FT Chamber #7
Config. Used: 1
Config Change: None
EUT Voltage: POE

General Test Configuration

The EUT and all local support equipment were located on the turntable for radiated spurious emissions testing. All remote support equipment was located approximately 30 meters from the EUT with all I/O connections running on top of the groundplane or routed in overhead in the GR-1089 test configuration.

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

Ambient Conditions:

Temperature: 20~23 °C
Rel. Humidity: 36~40 %

Summary of Results

Run #	Mode	Channel	Power Setting	Measured Power	Test Performed	Limit	Result / Margin
Run # 2	20MHz MIMO Chain 0+1	5270MHz	10.0	-	Radiated Emissions, 1 - 40 GHz	FCC 15.209 / 15 E	51.4dBµV/m @ 2340.0MHz (-2.6dB)
		5300MHz	10.0	-			51.4dBµV/m @ 2340.0MHz (-2.6dB)
		5320MHz	10.0	-			51.3dBµV/m @ 2340.0MHz (-2.7dB)
Run # 2	20MHz MIMO Chain 0+1	5500MHz	10.0	-	Radiated Emissions, 1 - 40 GHz	FCC 15.209 / 15 E	52.8dBµV/m @ 2340.1MHz (-1.2dB)
		5580MHz	10.0	-			53.3dBµV/m @ 2340.0MHz (-0.7dB)
		5700MHz	10.0	-			52.9dBµV/m @ 1560.0MHz (-1.1dB)

Client:	Ubiquiti Networks	Job Number:	J85296
Model:	RocketM5	T-Log Number:	T85333
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A

Summary of Results

Run #	Mode	Channel	Power Setting	Measured Power	Test Performed	Limit	Result / Margin
Run # 3	40MHz MIMO Chain 0+1	5275MHz	10.0	-	Radiated Emissions, 1 - 40 GHz	FCC 15.209 / 15 E	49.8dBµV/m @ 1170.1MHz (-4.2dB)
		-	-	-			-
		5310MHz	10.5	-			50.9dBµV/m @ 2340.0MHz (-3.1dB)
Run # 3	40MHz MIMO Chain 0+1	5510MHz	6.0	-	Radiated Emissions, 1 - 40 GHz	FCC 15.209 / 15 E	53.8dBµV/m @ 1560.1MHz (-0.2dB)
		5550MHz	10.5	-			53.0dBµV/m @ 1560.1MHz (-1.0dB)
		5675MHz	8.5	-			53.5dBµV/m @ 1560.0MHz (-0.5dB)
Run # 4	RX Chain 0+1	5300MHz	-	-	Radiated Emissions, 1 - 18 GHz	RSS-GEN	52.8dBµV/m @ 1950.1MHz (-1.2dB)
		5580MHz	-	-			52.8dBµV/m @ 1950.1MHz (-1.2dB)

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.

Notes:

Due to the factor of the band reject filter used during the wideband spurious emissions scans, verification of the emissions near the band were performed without a filter (care was taken to avoid pre-amplifier saturation). See the UNII RE BE data.

Testing was performed with the 13dBi antenna with power set to the higher power settings for the 10dBi antenna for worse case condition.

Preliminary testing showed no radio related emissions below 1GHz.

Client:	Ubiquiti Networks	Job Number:	J85296
Model:	RocketM5	T-Log Number:	T85333
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A

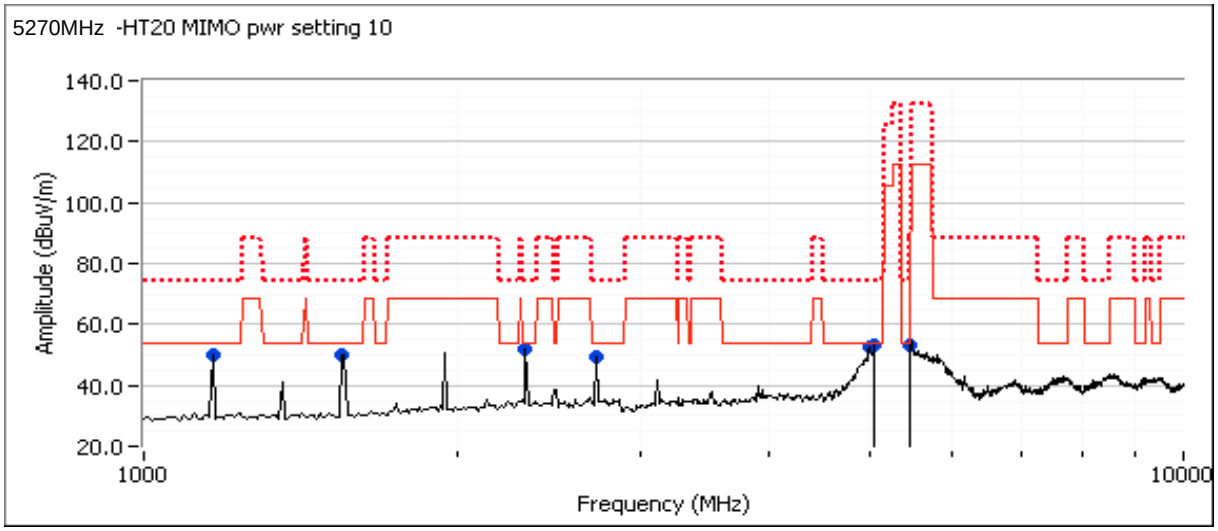
Run # 2, Radiated Spurious Emissions, 1-40GHz, 20MHz MIMO, Chain 0+1

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 5270MHz - 20MHz MIMO, Chain 0+1

Date of Test: 12/7/2011 Test Location: Fremont Chamber#5

Test Engineer: Jack Liu Config Change: none



Client:	Ubiquiti Networks	Job Number:	J85296
Model:	RocketM5	T-Log Number:	T85333
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A

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	
2340.040	51.4	H	54.0	-2.6	AVG	259	1.0	
1170.070	49.8	H	54.0	-4.2	AVG	177	1.0	
1560.020	49.8	H	54.0	-4.2	AVG	172	1.6	
2730.060	48.1	H	54.0	-5.9	AVG	21	1.6	
5042.500	53.4	V	74.0	-20.6	Peak	261	1.0	Note3
2340.120	53.2	H	74.0	-20.8	PK	259	1.0	
5445.830	53.0	V	74.0	-21.0	Peak	270	1.6	Note3
4987.500	52.6	V	74.0	-21.4	Peak	276	1.0	Note3
1170.100	50.9	H	74.0	-23.1	PK	177	1.0	
1559.950	50.7	H	74.0	-23.3	PK	172	1.6	
2730.060	50.4	H	74.0	-23.6	PK	21	1.6	

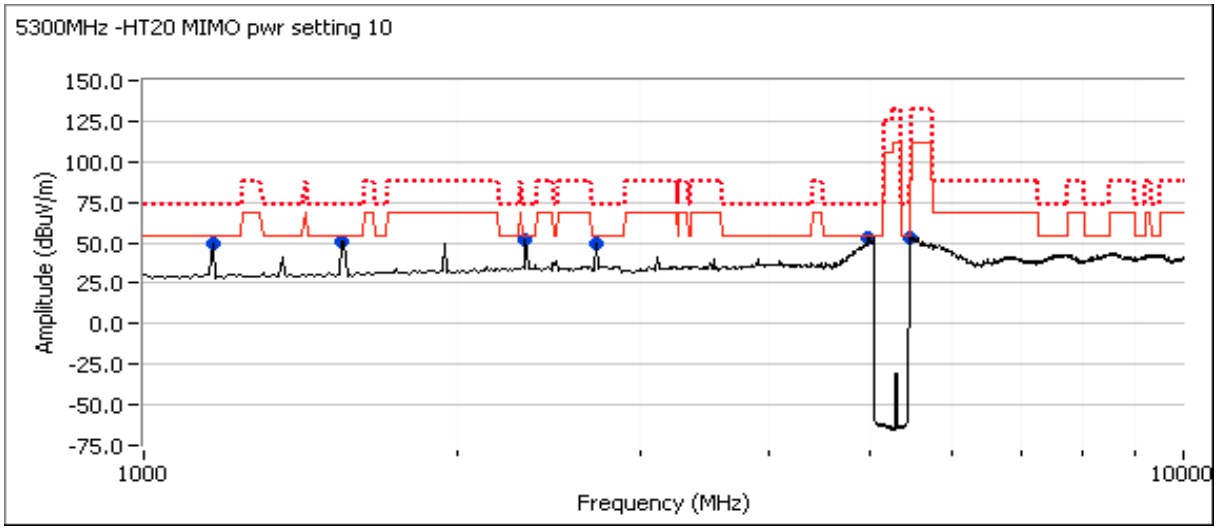
Note 1:	For emissions in restricted bands, the limit of 15.209 was used which requires average and peak measurements.
Note 2:	For emissions outside of the restricted bands the limit is -27dBm/MHz eirp (68.3dBuV/m).
Note 3:	For emissions in 4500MHz~5150MHz and 5350~5460MHz please refer to band Edge testing result.
Note 4:	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 5:	No Emission in 10GHz to 40GHz

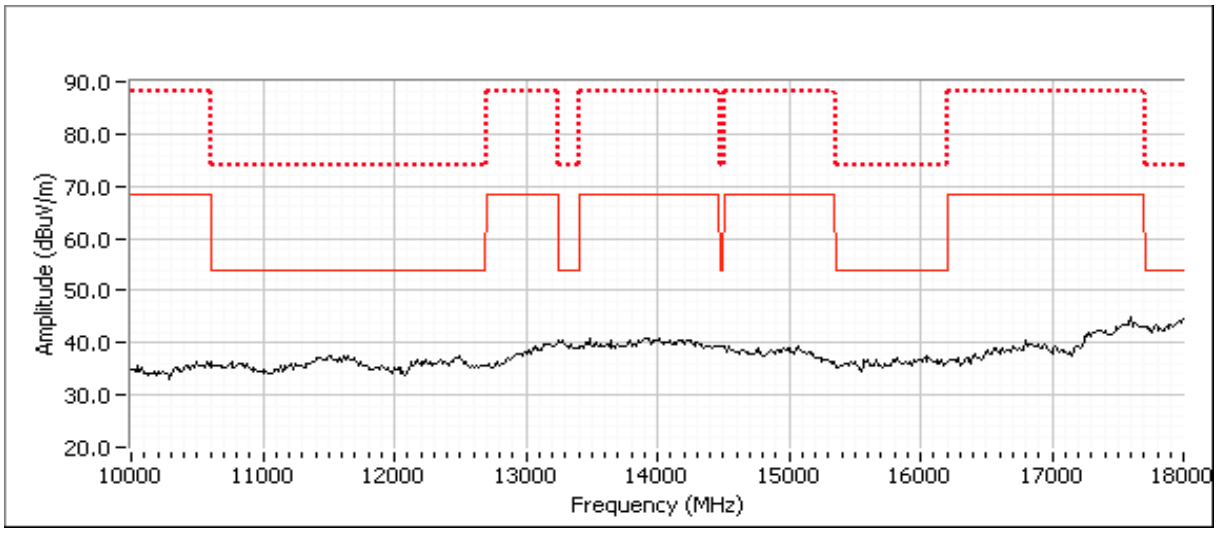
Client:	Ubiquiti Networks	Job Number:	J85296
Model:	RocketM5	T-Log Number:	T85333
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A

Run # 2b: EUT on 5300MHz - 20MHz MIMO, Chain 0+1

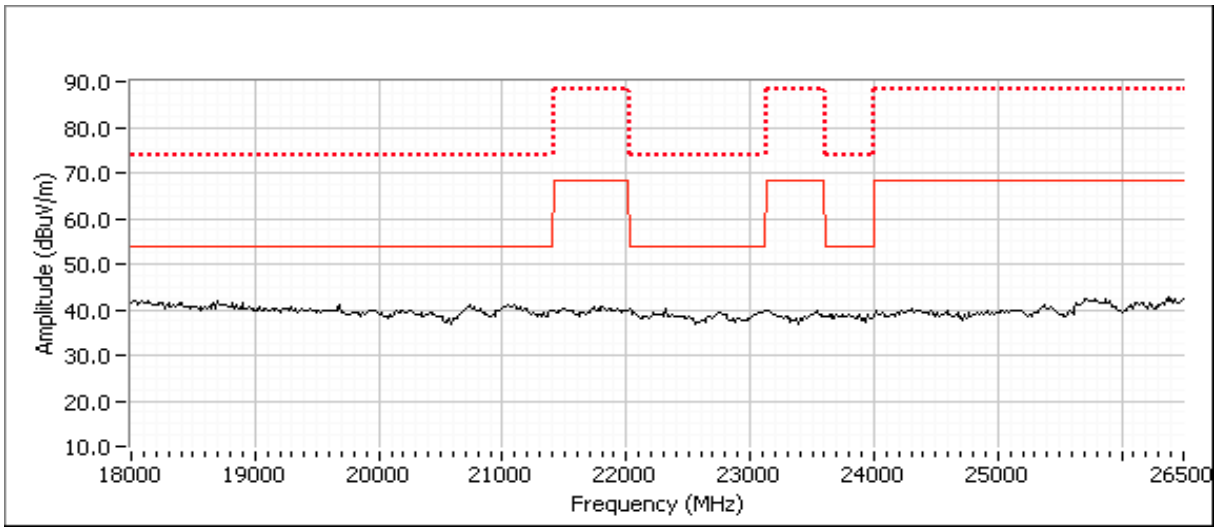
Date of Test: 11/21/2011&12/7/2011 Test Location: Fremont Chamber #7 & #5

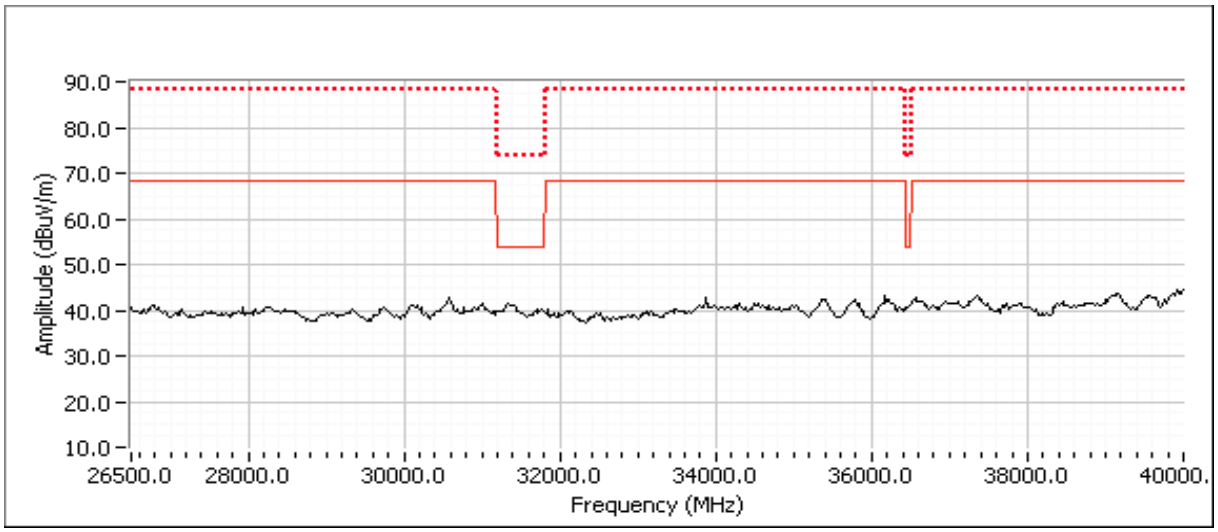
Test Engineer: Peter Sales & Jack Liu Config Change: none





Client:	Ubiquiti Networks	Job Number:	J85296
Model:	RocketM5	T-Log Number:	T85333
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A





Client:	Ubiquiti Networks	Job Number:	J85296
Model:	RocketM5	T-Log Number:	T85333
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A

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	
2340.020	51.4	H	54.0	-2.6	AVG	252	1.0	
1560.020	49.9	H	54.0	-4.1	AVG	346	1.3	
1170.050	49.9	H	54.0	-4.1	AVG	178	1.0	
2730.030	48.5	H	54.0	-5.5	AVG	30	1.6	
2339.970	53.0	H	74.0	-21.0	PK	252	1.0	
5455.000	52.8	V	74.0	-21.2	Peak	92	1.6	Note3
4969.170	52.5	V	74.0	-21.5	Peak	258	1.0	Note3
1560.080	50.9	H	74.0	-23.1	PK	346	1.3	
2730.110	50.8	H	74.0	-23.2	PK	30	1.6	
1170.030	50.7	H	74.0	-23.3	PK	178	1.0	

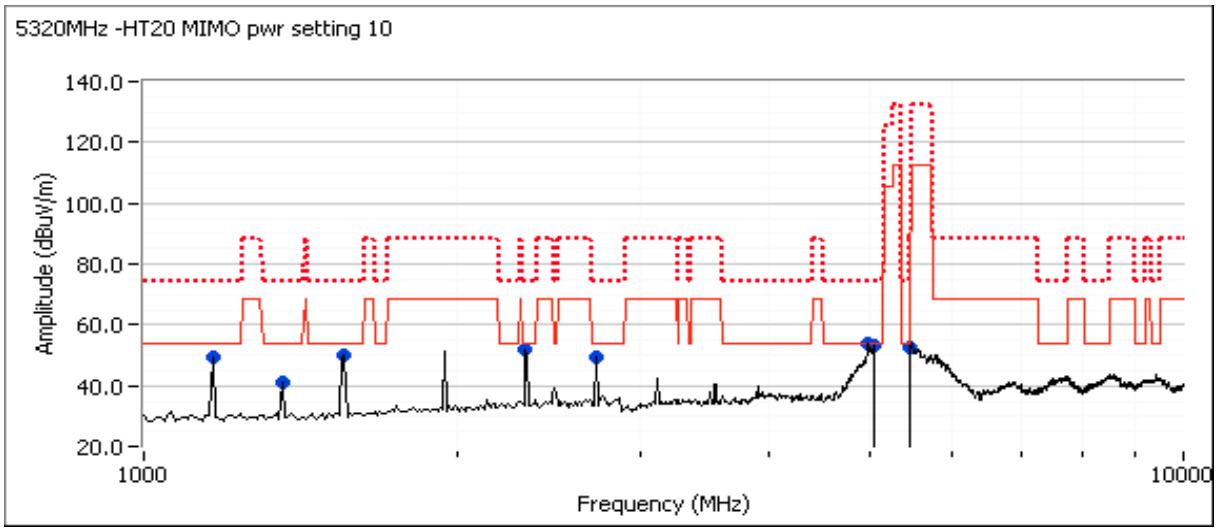
Note 1:	For emissions in restricted bands, the limit of 15.209 was used which requires average and peak measurements.
Note 2:	For emissions outside of the restricted bands the limit is -27dBm/MHz eirp (68.3dBuV/m).
Note 3:	filter factor (noise floor). Refer to bandedge data.
Note 4:	Scans made between 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 5:	No Emission in 10GHz to 40GHz

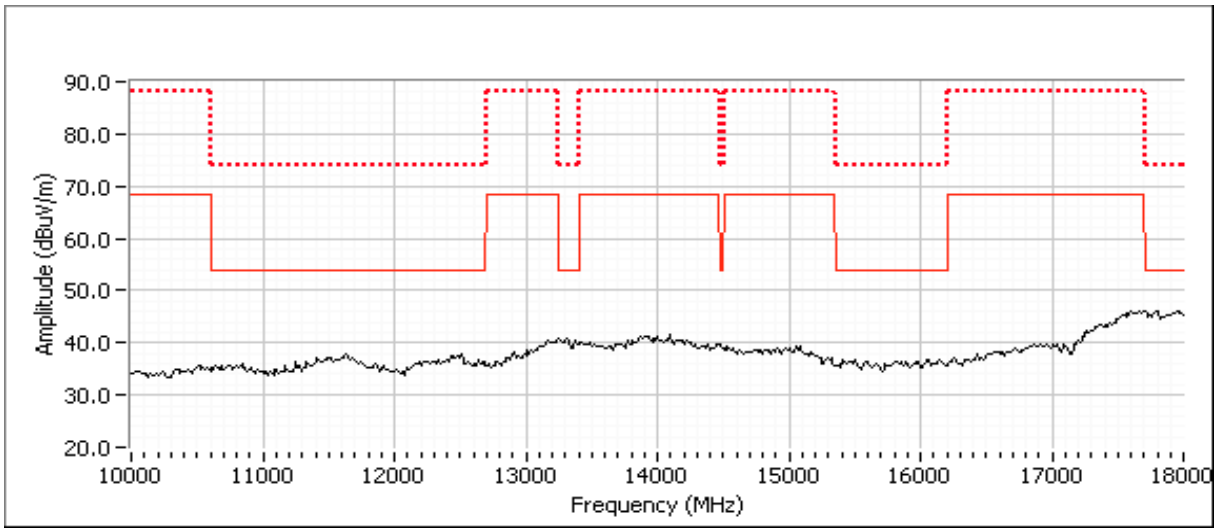
Client:	Ubiquiti Networks	Job Number:	J85296
Model:	RocketM5	T-Log Number:	T85333
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A

Run # 2c: EUT on Channel #64 5320MHz - 20MHz MIMO, Chain 0+1

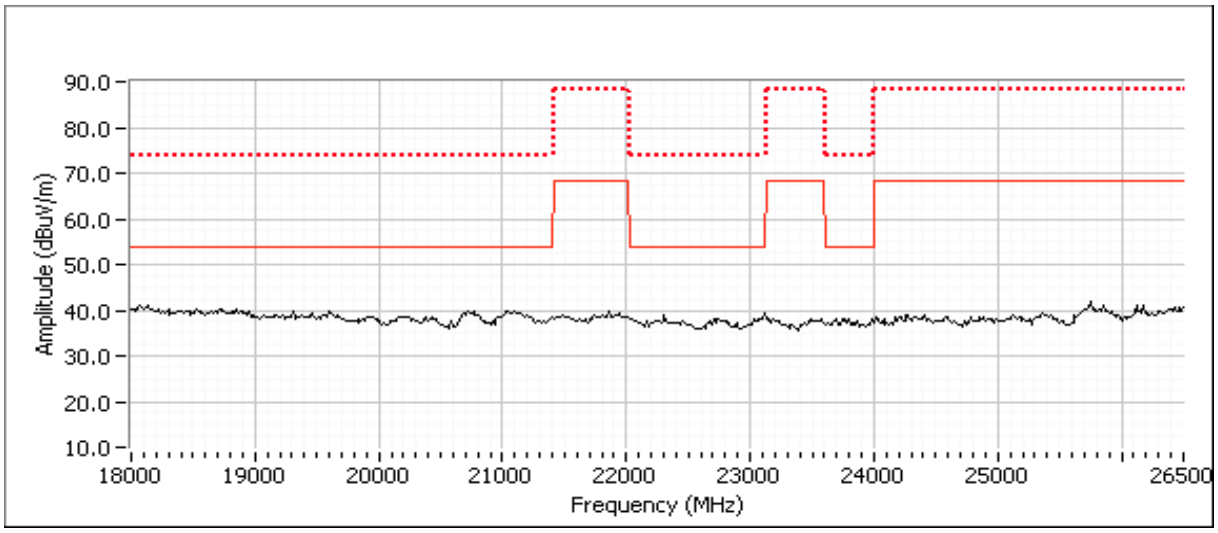
Date of Test: 11/21/2011&12/7/2011 Test Location: Fremont Chamber #7 & #5

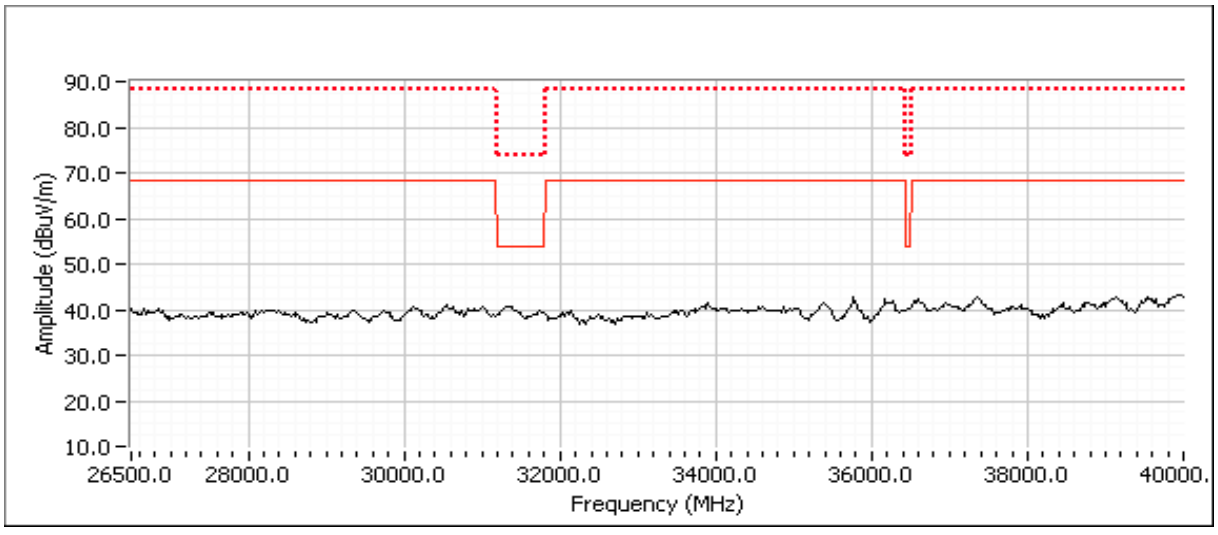
Test Engineer: Peter Sales & Jack Liu Config Change: none





Client:	Ubiquiti Networks	Job Number:	J85296
Model:	RocketM5	T-Log Number:	T85333
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A





Client:	Ubiquiti Networks	Job Number:	J85296
Model:	RocketM5	T-Log Number:	T85333
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A

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	
2340.040	51.3	H	54.0	-2.7	AVG	271	1.0	
1560.000	50.1	H	54.0	-3.9	AVG	173	1.6	
1170.030	49.4	H	54.0	-4.6	AVG	157	1.0	
2730.100	49.0	H	54.0	-5.0	AVG	40	1.6	
1365.020	40.1	H	54.0	-13.9	AVG	348	1.9	
4969.170	53.7	V	74.0	-20.3	Peak	253	1.0	Note3
5042.500	53.5	V	74.0	-20.5	Peak	274	1.0	Note3
5445.830	52.8	V	74.0	-21.2	Peak	249	1.6	Note3
2339.900	52.5	H	74.0	-21.5	PK	271	1.0	
2730.160	51.4	H	74.0	-22.6	PK	40	1.6	
1559.980	51.2	H	74.0	-22.8	PK	173	1.6	
1170.150	50.4	H	74.0	-23.6	PK	157	1.0	
1365.070	43.2	H	74.0	-30.8	PK	348	1.9	

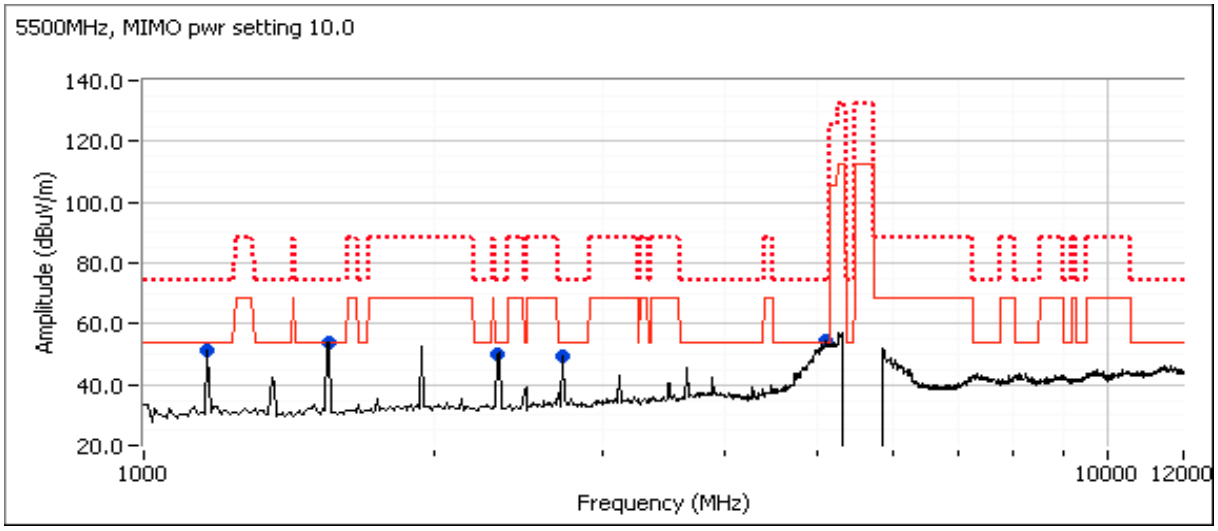
Note 1:	For emissions in restricted bands, the limit of 15.209 was used which requires average and peak measurements.
Note 2:	For emissions outside of the restricted bands the limit is -27dBm/MHz eirp (68.3dBuV/m).
Note 3:	For emissions in 4500MHz~5150MHz and 5350~5460MHz please refer to Band Edge testing result.
Note 4:	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 5:	No Emission in 10GHz to 40GHz

Client:	Ubiquiti Networks	Job Number:	J85296
Model:	RocketM5	T-Log Number:	T85333
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A

Run # 2d: EUT on 5500MHz - 20MHz MIMO, Chain 0+1

Date of Test: 12/7/2011 Test Location: FT Chamber #7

Test Engineer: Rafael Varelas Config Change: None



Client:	Ubiquiti Networks	Job Number:	J85296
Model:	RocketM5	T-Log Number:	T85333
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A

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	
2340.060	52.8	H	54.0	-1.2	AVG	256	1.1	
1560.060	52.8	H	54.0	-1.2	AVG	348	1.0	
1170.090	51.0	H	54.0	-3.0	AVG	162	1.1	
2730.070	49.1	H	54.0	-4.9	AVG	41	1.5	
2339.980	54.5	H	74.0	-19.5	PK	256	1.1	
1560.050	54.0	H	74.0	-20.0	PK	348	1.0	
1169.980	52.2	H	74.0	-21.8	PK	162	1.1	
2730.390	51.6	H	74.0	-22.4	PK	41	1.5	
5127.170	54.5	V	74.0	-19.5	Peak	267	1.0	Note 3

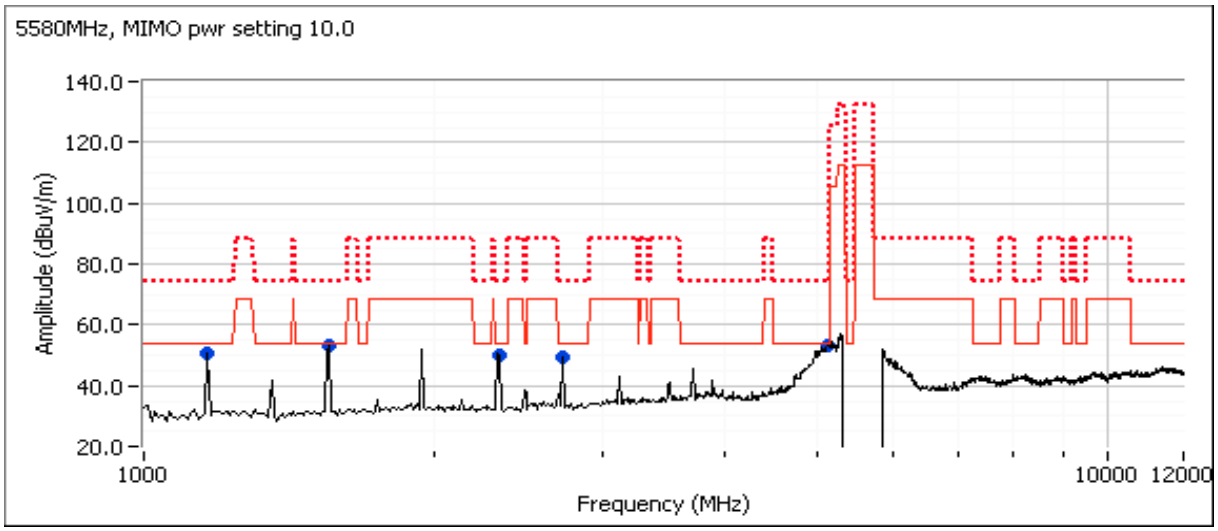
Note 1:	For emissions in restricted bands, the limit of 15.209 was used which requires average and peak measurements.
Note 2:	For emissions outside of the restricted bands the limit is -27dBm/MHz eirp (68.3dBuV/m).
Note 3:	For emissions in 4500MHz~5150MHz please refer to Band Edge testing result.
Note 4:	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 5:	No Emission in 10GHz to 40GHz

Client:	Ubiquiti Networks	Job Number:	J85296
Model:	RocketM5	T-Log Number:	T85333
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A

Run # 2e: EUT on 5580MHz - 20MHz MIMO, Chain 0+1

Date of Test: 12/7/2011 Test Location: FT Chamber #7

Test Engineer: Rafael Varelas Config Change: None



Client:	Ubiquiti Networks	Job Number:	J85296
Model:	RocketM5	T-Log Number:	T85333
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A

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	
2340.040	53.3	H	54.0	-0.7	AVG	247	1.1	
1560.060	53.0	H	54.0	-1.0	AVG	328	1.2	
1170.050	51.2	H	54.0	-2.8	AVG	169	1.0	
2730.030	48.7	H	54.0	-5.3	AVG	48	1.5	
2340.020	54.8	H	74.0	-19.2	PK	247	1.1	
1560.010	54.2	H	74.0	-19.8	PK	328	1.2	
5126.490	52.9	V	74.0	-21.1	Peak	258	1.0	Note 3
1169.960	52.5	H	74.0	-21.5	PK	169	1.0	
2729.950	51.3	H	74.0	-22.7	PK	48	1.5	

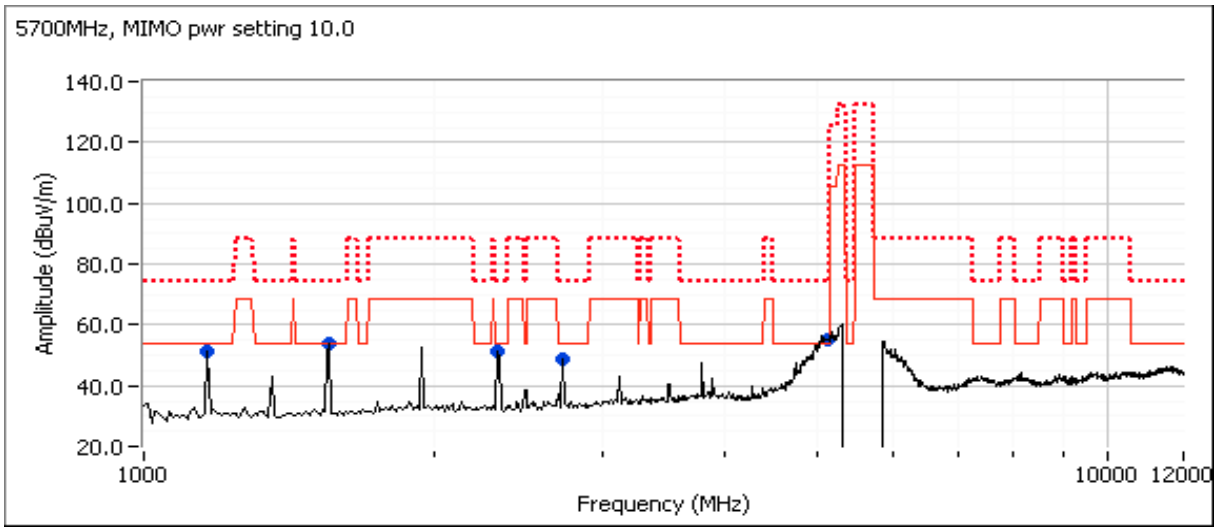
Note 1:	For emissions in restricted bands, the limit of 15.209 was used which requires average and peak measurements.
Note 2:	For emissions outside of the restricted bands the limit is -27dBm/MHz eirp (68.3dBuV/m).
Note 3:	filter factor (noise floor). Refer to bandedge results.
Note 4:	Scans made between 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 5:	No Emission in 10GHz to 40GHz

Client:	Ubiquiti Networks	Job Number:	J85296
Model:	RocketM5	T-Log Number:	T85333
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A

Run # 2f: EUT on 5700MHz - 20MHz MIMO, Chain 0+1

Date of Test: 12/7/2011 Test Location: FT Chamber #7

Test Engineer: Rafael Varelas Config Change: None



Client:	Ubiquiti Networks	Job Number:	J85296
Model:	RocketM5	T-Log Number:	T85333
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A

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	
1560.040	52.9	H	54.0	-1.1	AVG	342	1.0	
2340.060	52.8	H	54.0	-1.2	AVG	255	1.2	
1170.050	51.1	H	54.0	-2.9	AVG	173	1.0	
2730.040	49.0	H	54.0	-5.0	AVG	46	1.6	
5127.150	55.3	V	74.0	-18.7	Peak	256	1.0	Note 3
2339.850	54.6	H	74.0	-19.4	PK	255	1.2	
1559.920	54.1	H	74.0	-19.9	PK	342	1.0	
1169.910	52.2	H	74.0	-21.8	PK	173	1.0	
2729.920	51.6	H	74.0	-22.4	PK	46	1.6	

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).
Note 3:	filter factor (noise floor). Refere to bandedge results.
Note 4:	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 5:	No Emission in 10GHz to 40GHz

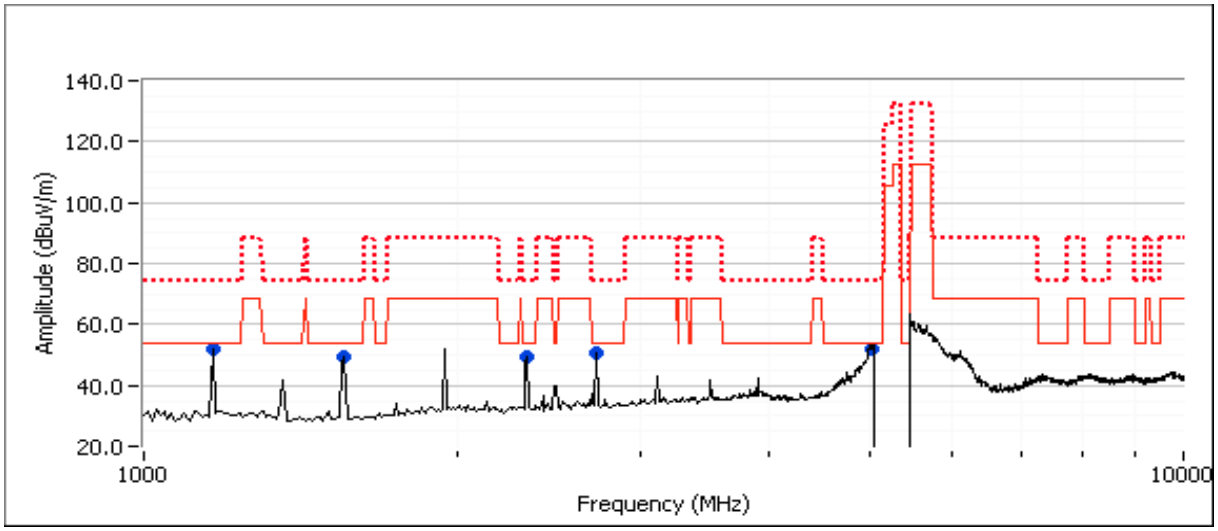
Client:	Ubiquiti Networks	Job Number:	J85296
Model:	RocketM5	T-Log Number:	T85333
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A

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

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

Date of Test: 12/16/2011 Test Location: Fremont Chamber#7

Test Engineer: Rafael varelas Config Change: nono



Client:	Ubiquiti Networks	Job Number:	J85296
Model:	RocketM5	T-Log Number:	T85333
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A

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	89	1.0	RB 1 MHz;VB 10 Hz;Pk
1170.200	51.1	H	74.0	-22.9	PK	89	1.0	RB 1 MHz;VB 3 MHz;Pk
2340.060	47.8	H	54.0	-6.2	AVG	8	1.0	RB 1 MHz;VB 10 Hz;Pk
2340.080	50.4	H	74.0	-23.6	PK	8	1.0	RB 1 MHz;VB 3 MHz;Pk
2730.030	49.4	H	54.0	-4.6	AVG	12	1.1	RB 1 MHz;VB 10 Hz;Pk
2729.940	52.1	H	74.0	-21.9	PK	12	1.1	RB 1 MHz;VB 3 MHz;Pk
1560.050	47.8	H	54.0	-6.2	AVG	357	1.0	RB 1 MHz;VB 10 Hz;Pk
1559.990	49.4	H	74.0	-24.6	PK	357	1.0	RB 1 MHz;VB 3 MHz;Pk
5005.830	52.2	V	54.0	-1.8	Peak	254	1.0	Note 3

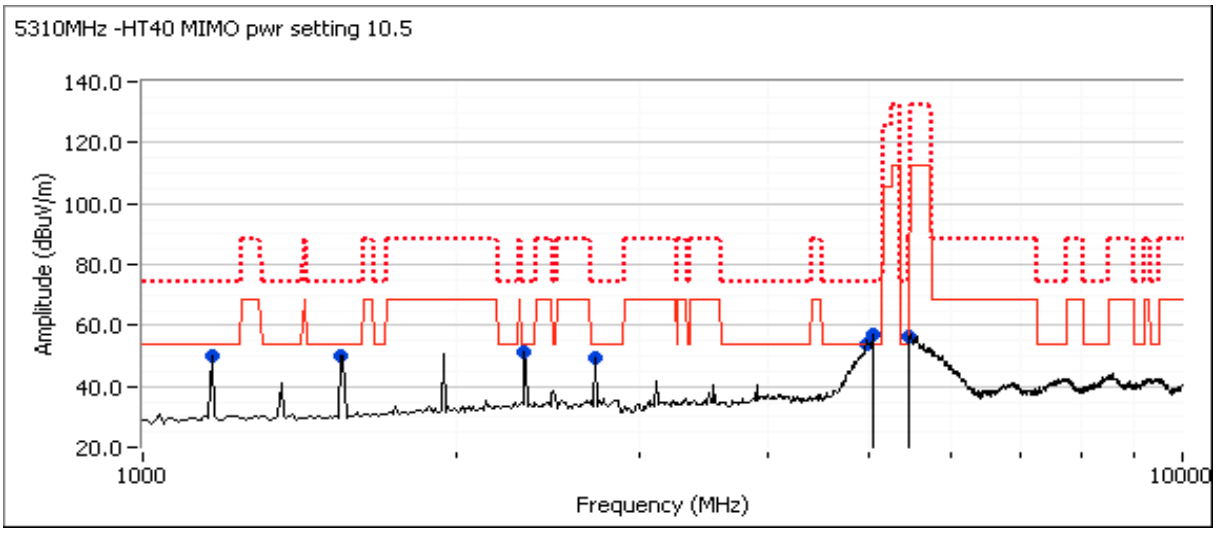
Note 1:	For emissions in restricted bands, the limit of 15.209 was used which requires average and peak measurements.
Note 2:	For emissions outside of the restricted bands the limit is -27dBm/MHz eirp (68.3dBuV/m).
Note 3:	For emissions in 4500MHz~5150MHz and 5350~5460MHz please refer to band Edge testing result.
Note 4:	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 5:	No Emission in 10GHz to 40GHz

Client:	Ubiquiti Networks	Job Number:	J85296
Model:	RocketM5	T-Log Number:	T85333
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A

Run # 3a: EUT on 5310MHz - 40MHz MIMO, Chain 0+1

Date of Test: 12/7/2011 Test Location: Fremont Chamber#5

Test Engineer: Jack Liu Config Change: nono



Client:	Ubiquiti Networks	Job Number:	J85296
Model:	RocketM5	T-Log Number:	T85333
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A

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	
2340.020	50.9	H	54.0	-3.1	AVG	249	1.0	RB 1 MHz;VB 10 Hz;Pk
1560.030	50.0	H	54.0	-4.0	AVG	341	1.3	RB 1 MHz;VB 10 Hz;Pk
1169.900	49.8	H	54.0	-4.2	AVG	158	1.0	RB 1 MHz;VB 10 Hz;Pk
2730.050	48.6	H	54.0	-5.4	AVG	46	1.6	RB 1 MHz;VB 10 Hz;Pk
5042.500	57.0	V	74.0	-17.0	Peak	263	1.0	Note3
5445.830	56.1	V	74.0	-17.9	Peak	83	1.6	Note3
4960.000	53.6	V	74.0	-20.4	Peak	251	1.0	Note3
2340.070	52.5	H	74.0	-21.5	PK	249	1.0	RB 1 MHz;VB 3 MHz;Pk
1559.980	51.2	H	74.0	-22.8	PK	341	1.3	RB 1 MHz;VB 3 MHz;Pk
2730.280	50.9	H	74.0	-23.1	PK	46	1.6	RB 1 MHz;VB 3 MHz;Pk
1169.980	50.7	H	74.0	-23.3	PK	158	1.0	RB 1 MHz;VB 3 MHz;Pk

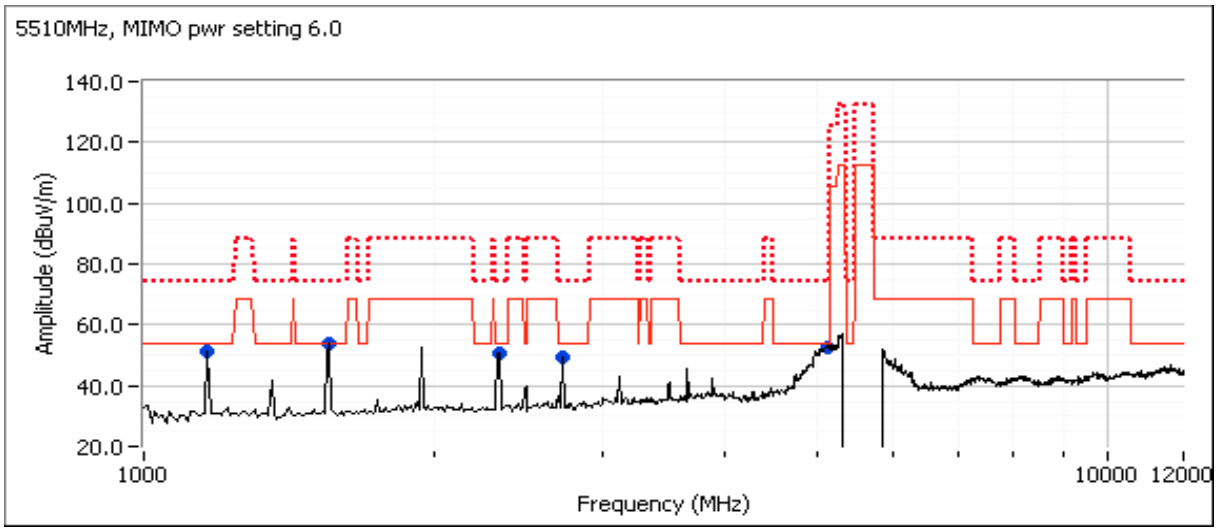
Note 1:	For emissions in restricted bands, the limit of 15.209 was used which requires average and peak measurements.
Note 2:	For emissions outside of the restricted bands the limit is -27dBm/MHz eirp (68.3dBuV/m).
Note 3:	For emissions in 4500MHz~5150MHz and 5350~5460MHz please refer to band Edge testing result.
Note 4:	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 5:	No Emission in 10GHz to 40GHz

Client:	Ubiquiti Networks	Job Number:	J85296
Model:	RocketM5	T-Log Number:	T85333
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A

Run # 3b: EUT on 5510MHz-40MHz MIMO, Chain 0+1

Date of Test: 12/7/2011 Test Location: FT Chamber #7

Test Engineer: Rafael Varelas Config Change: None



Client:	Ubiquiti Networks	Job Number:	J85296
Model:	RocketM5	T-Log Number:	T85333
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A

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	
1560.080	53.8	H	54.0	-0.2	AVG	332	1.3	
2340.040	53.0	H	54.0	-1.0	AVG	255	1.2	
5131.100	52.6	V	74.0	-21.4	Peak	77	1.3	Note 3
1170.070	50.9	H	54.0	-3.1	AVG	178	1.0	
2730.050	48.8	H	54.0	-5.2	AVG	51	1.6	
1560.120	54.8	H	74.0	-19.2	PK	332	1.3	
2340.110	54.5	H	74.0	-19.5	PK	255	1.2	
1170.070	52.2	H	74.0	-21.8	PK	178	1.0	
2730.070	51.8	H	74.0	-22.2	PK	51	1.6	

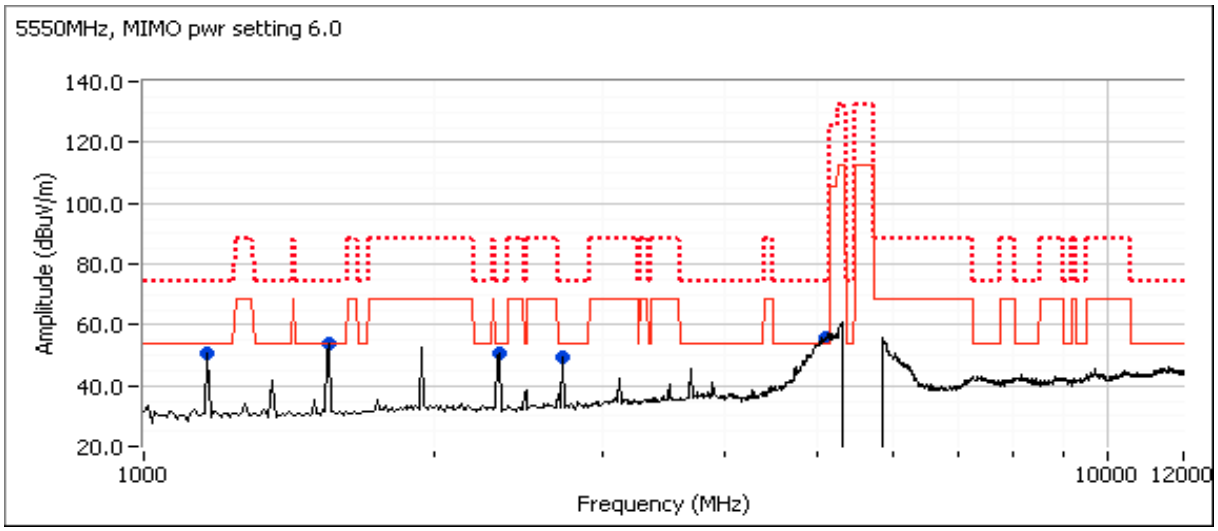
Note 1:	For emissions in restricted bands, the limit of 15.209 was used which requires average and peak measurements.
Note 2:	For emissions outside of the restricted bands the limit is -27dBm/MHz eirp (68.3dBuV/m).
Note 3:	For emissions in 4500MHz~5150MHz please refer to band Edge testing result.
Note 4:	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 5:	No Emission in 10GHz to 40GHz

Client:	Ubiquiti Networks	Job Number:	J85296
Model:	RocketM5	T-Log Number:	T85333
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A

Run # 3c: EUT on 5550\MHz - 40MHz MIMO, Chain 0+1

Date of Test: 12/7/2011 Test Location: FT Chamber #7

Test Engineer: Rafael Varelas Config Change: None



Client:	Ubiquiti Networks	Job Number:	J85296
Model:	RocketM5	T-Log Number:	T85333
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A

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	
1560.060	53.0	H	54.0	-1.0	AVG	338	1.2	
2340.060	52.6	H	54.0	-1.4	AVG	259	1.1	
1170.060	51.2	H	54.0	-2.8	AVG	159	1.0	
2730.100	48.8	H	54.0	-5.2	AVG	45	1.6	
5123.000	55.5	V	74.0	-18.5	Peak	276	1.0	Note 3
2340.030	54.2	H	74.0	-19.8	PK	259	1.1	
1559.910	54.1	H	74.0	-19.9	PK	338	1.2	
1170.140	52.3	H	74.0	-21.7	PK	159	1.0	
2730.150	51.3	H	74.0	-22.7	PK	45	1.6	

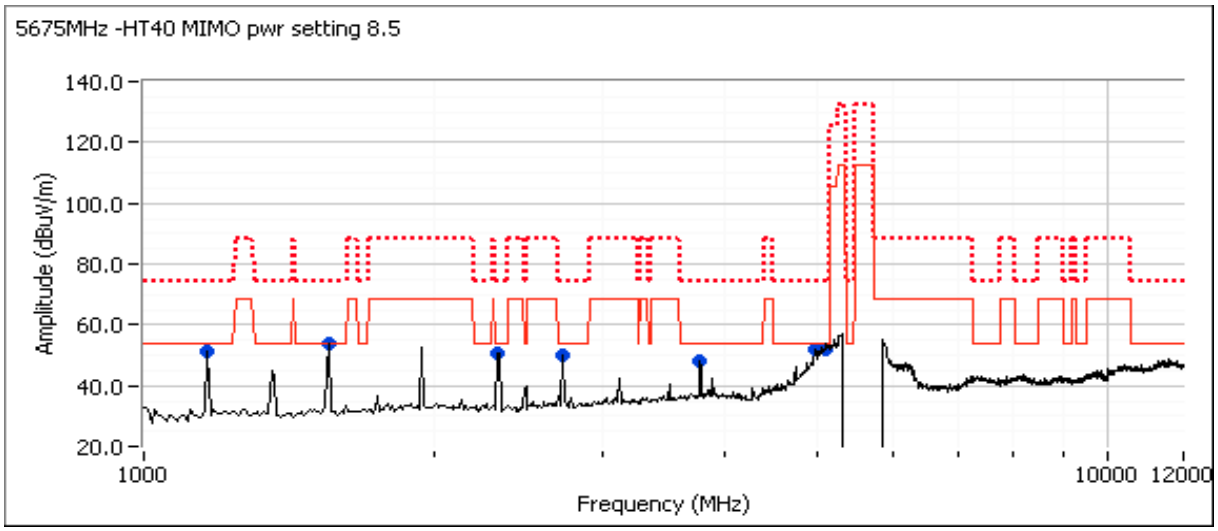
Note 1:	For emissions in restricted bands, the limit of 15.209 was used which requires average and peak measurements.
Note 2:	For emissions outside of the restricted bands the limit is -27dBm/MHz eirp (68.3dBuV/m).
Note 3:	filter factor (noise floor). Refer to bandedge measurements
Note 4:	Scans made 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 5:	No Emission in 10GHz to 40GHz

Client:	Ubiquiti Networks	Job Number:	J85296
Model:	RocketM5	T-Log Number:	T85333
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A

Run # 3d: EUT on 5675MHz - 40MHz MIMO, Chain 0+1

Date of Test: 12/8/2011 Test Location: FT Chamber #7

Test Engineer: Jack Liu Config Change: None



Client:	Ubiquiti Networks	Job Number:	J85296
Model:	RocketM5	T-Log Number:	T85333
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A

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	
1560.040	53.5	H	54.0	-0.5	AVG	325	1.3	
1170.070	51.7	H	54.0	-2.3	AVG	172	1.0	
2340.120	49.4	H	54.0	-4.6	AVG	267	1.0	
2730.100	48.3	H	54.0	-5.7	AVG	30	1.6	
3783.420	46.7	V	54.0	-7.3	AVG	48	1.0	
1560.040	54.7	H	74.0	-19.3	PK	325	1.3	
1170.130	52.7	H	74.0	-21.3	PK	172	1.0	
5097.500	52.2	V	74.0	-21.8	Peak	240	1.0	Note3
4969.170	51.6	V	74.0	-22.4	Peak	247	1.0	Note3
2340.190	51.6	H	74.0	-22.4	PK	267	1.0	
2730.180	51.3	H	74.0	-22.7	PK	30	1.6	
3783.500	50.4	V	74.0	-23.6	PK	48	1.0	

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).
Note 3:	filter factor (noise floor). Refer to bandedge measurements
Note 4:	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 5:	No Emission in 10GHz to 40GHz

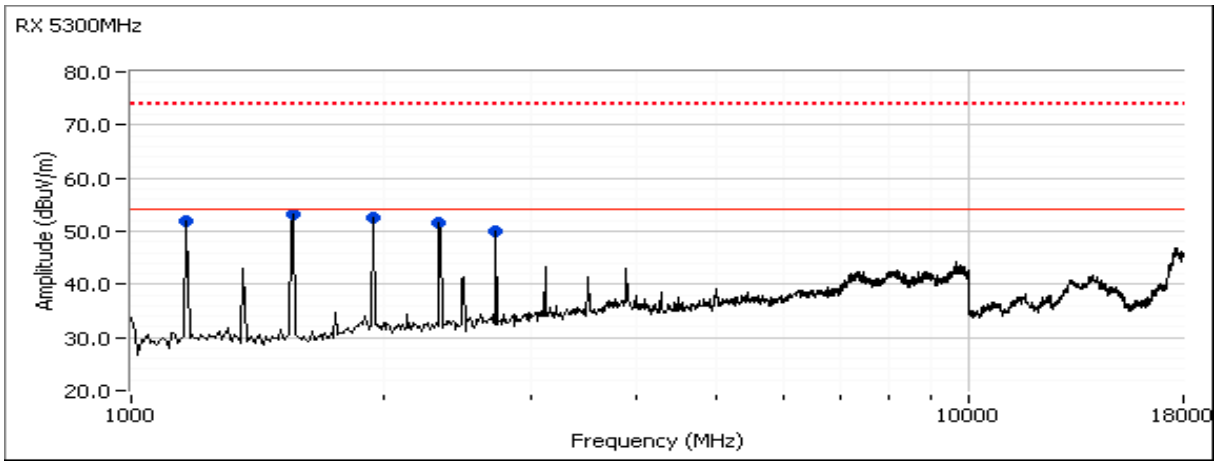
Client:	Ubiquiti Networks	Job Number:	J85296
Model:	RocketM5	T-Log Number:	T85333
		Account Manager:	Susan Pelzl
Contact:	Jennifer Sanchez		
Standard:	FCC 15.407, RSS-210 Issue 8	Class:	N/A

Run # 4, Radiated Spurious Emissions, 1-40GHz, RX, Chain 0+1

Run # 4a: EUT on 5300MHz - RX, Chain 0+1

Date of Test: 12/8/2011 Test Location: FT Chamber #7

Test Engineer: Jack Liu Config Change: None



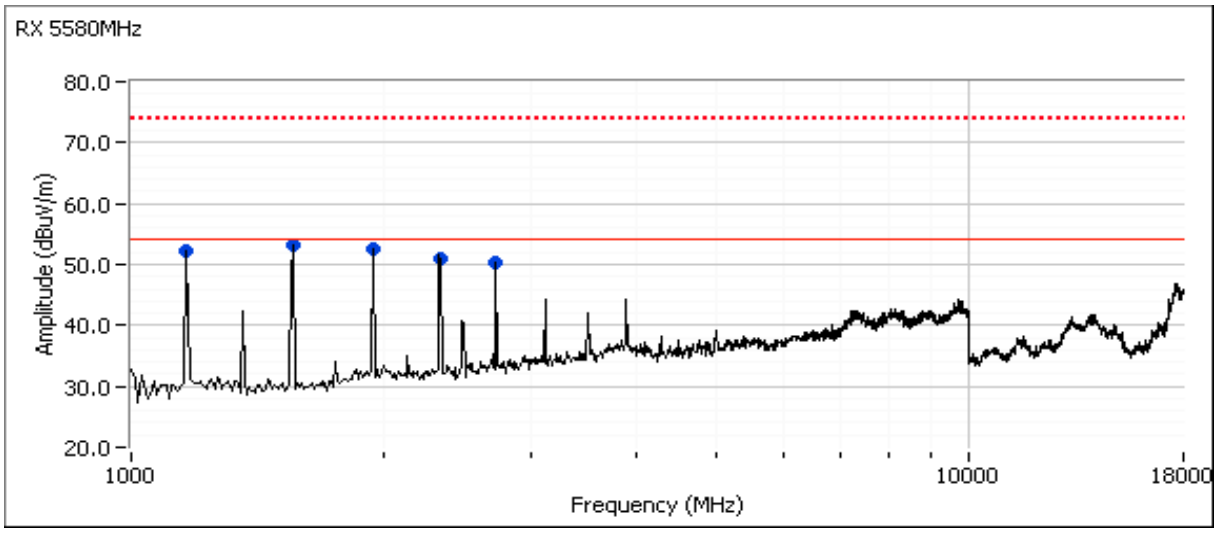
Frequency	Level	Pol	RSS-GEN		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
1950.070	52.8	H	54.0	-1.2	AVG	348	1.6	
1560.060	52.5	H	54.0	-1.5	AVG	343	1.3	
1170.080	52.2	H	54.0	-1.8	AVG	168	1.0	
2340.090	50.7	H	54.0	-3.3	AVG	262	1.3	
2730.110	49.2	H	54.0	-4.8	AVG	12	1.6	
1950.070	54.2	H	74.0	-19.8	PK	348	1.6	
1560.100	53.6	H	74.0	-20.4	PK	343	1.3	
1170.150	53.1	H	74.0	-20.9	PK	168	1.0	
2340.150	52.5	H	74.0	-21.5	PK	262	1.3	
2730.100	51.9	H	74.0	-22.1	PK	12	1.6	

Client:	Ubiquiti Networks	Job Number:	J85296
Model:	RocketM5	T-Log Number:	T85333
		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: 12/8/2011 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	
1950.050	52.8	H	54.0	-1.2	AVG	345	1.6	
1560.060	52.6	H	54.0	-1.4	AVG	336	1.3	
1170.080	52.2	H	54.0	-1.8	AVG	165	1.0	
2340.050	51.0	H	54.0	-3.0	AVG	258	1.3	
2730.130	49.3	H	54.0	-4.7	AVG	20	1.6	
1949.970	54.1	H	74.0	-19.9	PK	345	1.6	
1560.070	53.7	H	74.0	-20.3	PK	336	1.3	
1170.180	53.1	H	74.0	-20.9	PK	165	1.0	
2340.110	53.0	H	74.0	-21.0	PK	258	1.3	
2729.900	51.6	H	74.0	-22.4	PK	20	1.6	

Appendix C Photographs of Test Configurations

Uploaded as a separate exhibit

Appendix D Proposed FCC ID Label & Label Location

Uploaded as a separate exhibit

Appendix E Detailed Photographs

Uploaded as a separate exhibit

Appendix F Operator's Manual

Uploaded as a separate exhibit

Appendix G Block Diagram

Uploaded as a separate exhibit

Appendix H Schematic Diagrams

Uploaded as a separate exhibit

Appendix I Theory of Operation

Uploaded as a separate exhibit

Appendix J Advertising Literature

Uploaded as a separate exhibit

Appendix K RF Exposure Information

Uploaded as a separate exhibit

End of Report

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