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Electromagnetic Emissions Test Report
Application for Grant of Equipment Authorization
pursuant to
Industry Canada RSS-Gen Issue 2 / RSS 210 Issue 7
FCC Part 15, Subpart E
on the
Broadcom Corporation
Transmitter
Model: BCM943224HMS

UPN:	4324A-BRCM1041
FCC ID:	QDS-BRCM1041
GRANTEE:	Broadcom Corporation 190 Mathilda Ave. Sunnyvale, CA 94086
TEST SITE(S):	Elliott Laboratories 41039 Boyce Road. Fremont, CA. 94538-2435 IC Site Registration #: IC 2845B-3, IC 2845B-4, IC 2845B-5
REPORT DATE:	March 2, 2009
FINAL TEST DATE:	December 17, December 18, December 22, and December 23, 2008, Janauary 26, January 27, January 29, February 5, February 6, February 10, February 12, February 15, February 23 and February 24, 2009
AUTHORIZED SIGNATORY:	Mark E. Hill Staff Engineer

ACCREDITED

Testing Cert #2016-01

REVISION HISTORY

Rev #	Date	Comments	Modified By
1			

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SCOPE

An electromagnetic emissions test has been performed on the Broadcom Corporation model BCM943224HMS pursuant to the following rules:

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

The test results recorded herein are based on a single type test of the Broadcom Corporation model BCM943224HMS and therefore apply only to the tested sample. The sample was selected and prepared by Anne Liang of Broadcom Corporation.

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 Broadcom Corporation model BCM943224HMS complied with the requirements of the following regulations:

RSS 210 Issue 7 "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 modification of the product which may result in increased emissions should be checked to ensure compliance has been maintained (i.e., printed circuit board layout changes, different line filter, different power supply, harnessing or I/O cable changes, etc.).

TEST RESULTS SUMMARY

UNII / LELAN DEVICES

Operation in the 5.15 – 5.25 GHz Band

FCC Rule Part	RSS Rule Part	Description	Measured Value / Comments	Limit / Requirement	Result
15.407(e)		Indoor operation only	Refer to user's manual	N/A	Complies
15.407(a) (1)		26dB Bandwidth	802.11a 21.9 MHz 802.11n20 19.7 MHz 802.11n40 51.8 MHz	N/A – limits output power if < 20MHz	N/A
15.407 (a) (1)	A9.2(1)	Output Power	802.11a 13.2dBm (0.021W) 802.11n20 10.5 dBm (0.011W) 802.11n40 14.3 dBm (0.027W)	17 dBm	Complies
15.407 (a) (1)		Power Spectral Density	802.11a 0.7 dBm/MHz 802.11n20 0.1 dBm/MHz 802.11n40 -1.1 dBm/MHz	4 dBm/MHz	Complies
	A9.2(1) / A9.5 (2)	Peak Spectral Density	802.11a 0.7 dBm/MHz 802.11n20 0.1 dBm/MHz 802.11n40 -1.1 dBm/MHz	Shall not exceed the average value by more than 3dB	Complies
	RSP 100	99% bandwidth	801.11a 16.7 MHz 802.11n20 18.2 MHz 802.11n40 36.5 MHz	Information only	N/A

Operation in the 5.25 – 5.35 GHz Band

Note: The device is restricted to indoor use only, therefore the spectral density of spurious emissions in the 5.15 – 5.25 GHz band were limited to the power spectral limits for intentional signals detailed in FCC 15.407(a)(1) and RSS 210 6.2.2 q1 (i)

FCC Rule Part	RSS Rule Part	Description	Measured Value / Comments	Limit / Requirement	Result (margin)
15.407(a) (2)		26dB Bandwidth	802.11a 26.0 MHz 802.11n20 29.8 MHz 802.11n40 45.8 MHz	N/A – limits output power if < 20MHz	N/A
15.407(a) (2)	A9.2(2)	Output Power	802.11a 17.6dBm (0.057W) 802.11n20 18.5dBm (0.072W) 802.11n40 19.5 dBm (0.089W)	24 dBm	Complies
15.407(a) (2))		Power Spectral Density	802.11a 4.8 dBm/MHz 802.11n20 8.0 dBm/MHz 802.11n40 4.2 dBm/MHz	11 dBm/MHz	Complies
	A9.2(2) / A9.5 (2)	Power Spectral Density		Shall not exceed the average value by more than 3dB	Complies
	RSP 100	99% bandwidth	801.11a 16.9 MHz 802.11n20 18.6 MHz 802.11n40 37.7 MHz	Information only	N/A

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	802.11a 41.8 MHz 802.11n20 41.3 MHz 802.11n40 58.8MHz	N/A – limits output power if < 20MHz	N/A
15.407(a) (2)	A9.2(2)	Output Power	802.11a 16.5dBm(0.044W) 802.11n20 19.7dBm (0.094W) 802.11n40 21.0 dBm (0.127W)	24 dBm / 250mW (eirp < 30dBm)	Complies
15.407(a) (2))		Power Spectral Density	802.11a 4.3 dBm/MHz	11 dBm/MHz	Complies
	A9.2(2) / A9.5(2)	Power Spectral Density	802.11n20 8.1 dBm/MHz 802.11n40 5.9 dBm/MHz	Shall not exceed the average value by more than 3dB	Complies
	A9.4	Non-operation in 5600 – 5650 MHz sub band	The device operates as a client only. It does not determine frequency of operation for the network.		Complies
	RSP 100	99% bandwidth	801.11a 16.7 MHz 802.11n20 18.6 MHz 802.11n40 41.1 MHz	Information only	N/A

General requirements for all UNII bands

FCC Rule Part	RSS Rule Part	Description	Measured Value / Comments	Limit / Requirement	Result
	A9.5a	Modulation	OFDM modulation is used	Digital modulation is required	Complies
15.407(b) (5) / 15.209	A9.3	Spurious Emissions below 1GHz	No emissions below 1GHz detected	Refer to Standard	Complies
15.407(b) (2)	A9.3	Spurious Emissions above 1GHz	53.7dBµV/m @ 5150.1MHz (-0.3dB)	Refer to Standard	Complies
15.407(a)(6)	-	Peak Excursion Ratio	12.9 dB	< 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		N/A
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 (Operational Description)		Complies
15.407 (h1)	A9.4	Transmit Power Control	TPC is not required as the device operates at below 500mW eirp	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 without radar detection)	Refer to separate test report, reference R74578	Channel move time < 10s Channel closing transmission time < 260ms	Complies
	A9.9g	User Manual information	Refer to Exhibit 6 for details		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	Device uses a unique connector type		Complies
15.109	RSS GEN 7.2.3 Table 1	Receiver spurious emissions	44.1dBµV/m @ 2493.6MHz (-9.9dB)	Refer to standard	Complies
15.207	RSS GEN Table 2	AC Conducted Emissions	34.8dBµV @ 3.622MHz (-11.2dB)	Refer to standard	Complies (- ?.? dB)
15.247 (b) (5) 15.407 (f)	RSS 102	RF Exposure Requirements	Refer to MPE calculations in Exhibit 11, RSS 102 declaration and User Manual statements.	Refer to OET 65, FCC Part 1 and RSS 102	Complies
	RSP 100 RSS GEN 7.1.5	User Manual		Statement required regarding non-interference	
	RSP 100 RSS GEN 7.1.5	User Manual		Statement required regarding detachable antenna	

MEASUREMENT UNCERTAINTIES

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

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

EQUIPMENT UNDER TEST (EUT) DETAILS

GENERAL

The Broadcom Corporation model BCM943224HMS is a WLAN card designed to be installed in laptop computers. Since the EUT would be placed on a table top during operation, the EUT was treated as table-top equipment during testing to simulate the end-user environment. The electrical rating of the EUT is 3.3 VDC.

The sample was received on December 17, 2008 and tested on December 17, December 18, December 22, and December 23, 2008, Janauary 26, January 27, January 29, February 5, February 6, February 10, February 12, February 15, February 23 and February 24, 2009. The EUT consisted of the following component(s):

Manufacturer	Model	Description	Serial Number	FCC ID
Broadcom	BCM943224 HMS	WLAN card	106 & 108	QDS-BRCM1041

ANTENNA SYSTEM

The EUT antenna is an 802.11a/b/g/n WLAN antenna, with peak gains for 3.9dBi/2.4GHz, 5.6dBi/5.2GHz, 4.2dBi/5.5GHz and 5.8dBi/5.7GHz.

The antenna connects to the EUT via a U.FL antenna connector, thereby meeting the requirements of FCC 15.203.

ENCLOSURE

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

MODIFICATIONS

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

SUPPORT EQUIPMENT

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

Manufacturer	Model	Description	Serial Number	FCC ID
Dell	Inspiron 630m	Laptop	-	-
Dell	-	External power supply	-	-
Canon	iP2600	Printer	-	-

The following remote support equipment was used during emissions testing.

Manufacturer	Model	Description	Serial Number	FCC ID
Netgear	GS605	Hub	-	-

EUT INTERFACE PORTS

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

Port	Connected To	Cable(s)		
		Description	Shielded or Unshielded	Length(m)
USB/Laptop	Printer	USB cable	Shielded	1.5
Ethernet/Laptop	Hub	Cat-5	Unshielded	10.0
Adapter card	-	-	-	-
AC Power	AC Mains	3 wire	Unshielded	2.0

EUT OPERATION

During emissions testing the EUT was continuously transmitting on the desired channel.

TEST SITE

GENERAL INFORMATION

Final test measurements were taken on December 17, December 18, December 22, and December 23, 2008, Janauary 26, January 27, January 29, February 5, February 6, February 10, February 12, February 15, February 23 and February 24, 2009 at the test sites listed below. Pursuant to section 2.948 of the FCC's Rules and section 3.3 of RSP-100, construction, calibration, and equipment data has been filed with the Commission and with industry Canada.

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

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

CONDUCTED EMISSIONS CONSIDERATIONS

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

RADIATED EMISSIONS CONSIDERATIONS

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

MEASUREMENT INSTRUMENTATION

RECEIVER SYSTEM

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

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

INSTRUMENT CONTROL COMPUTER

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

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

LINE IMPEDANCE STABILIZATION NETWORK (LISN)

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

FILTERS/ATTENUATORS

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

ANTENNAS

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

ANTENNA MAST AND EQUIPMENT TURNTABLE

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

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

INSTRUMENT CALIBRATION

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

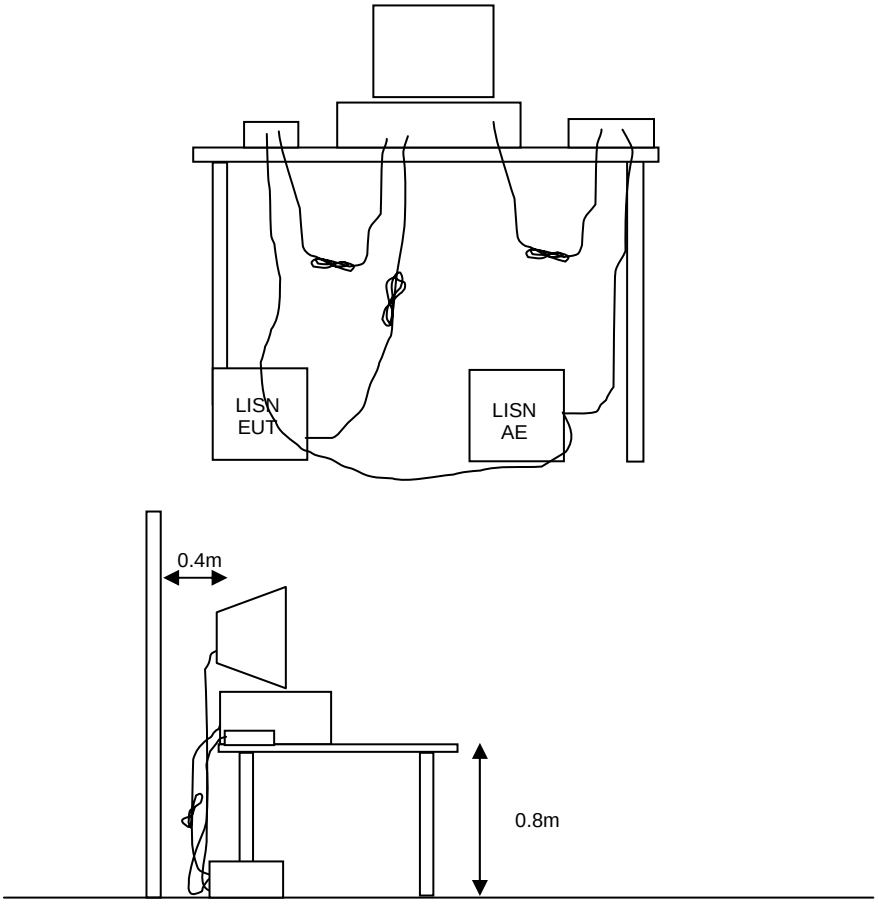
TEST PROCEDURES

EUT AND CABLE PLACEMENT

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

CONDUCTED EMISSIONS

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

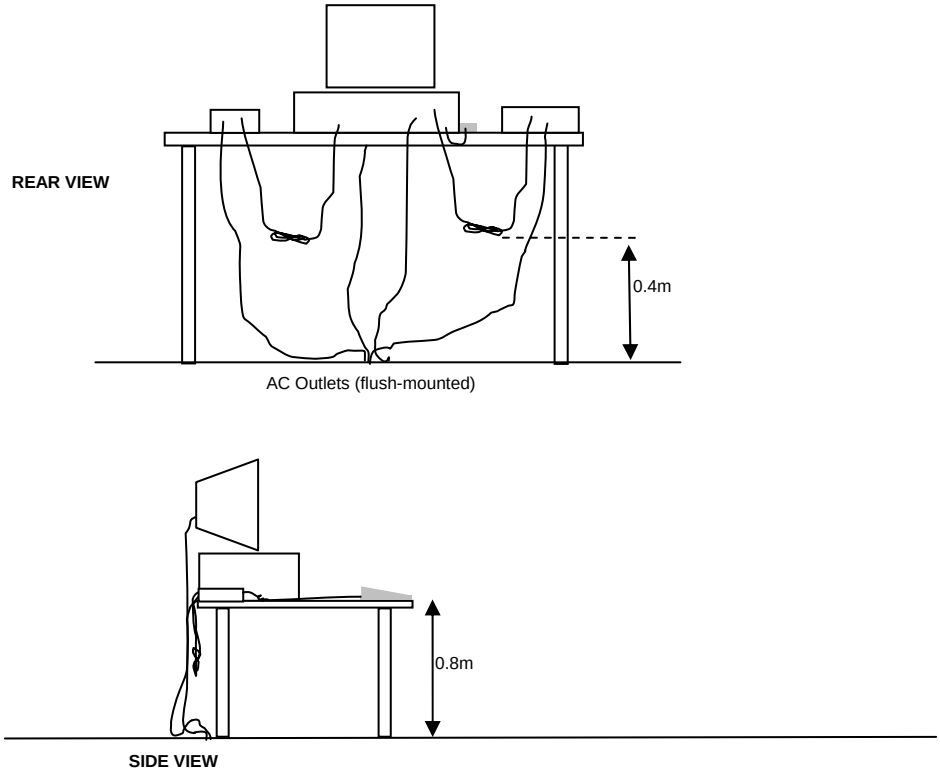


A preliminary scan of the radiated emissions is performed in which all significant EUT frequencies are identified with the system in a nominal configuration. At least two scans are performed, one scan for each antenna polarization (horizontal and vertical; loop parallel and perpendicular to the EUT).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

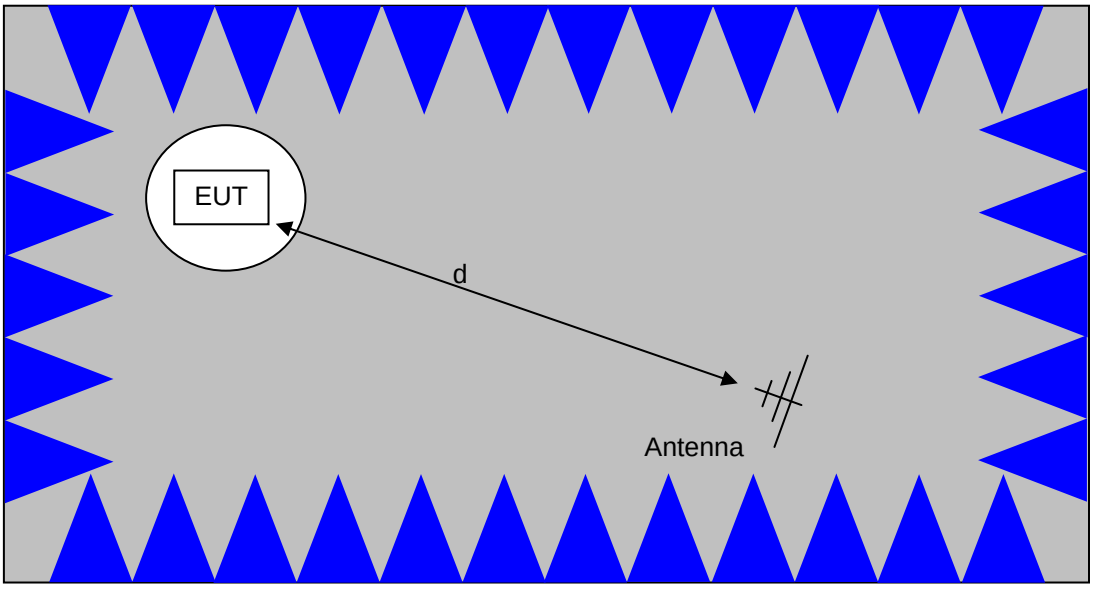
A speaker is provided in the receiver to aid in discriminating between EUT and ambient emissions. Other methods used during the preliminary scan for EUT emissions involve scanning with near field magnetic loops, monitoring I/O cables with RF current clamps, and cycling power to the EUT.

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

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

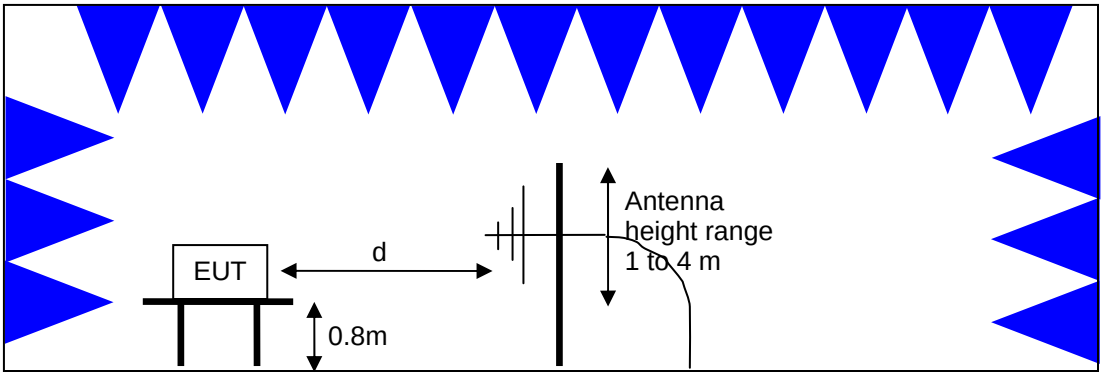


Typical Test Configuration for Radiated Field Strength Measurements



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

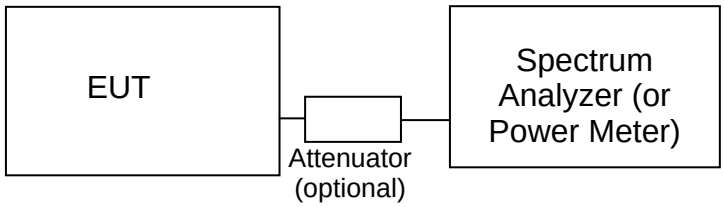
Floor-standing equipment is placed on the floor with insulating supports between the unit and the ground plane.



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

CONDUCTED EMISSIONS FROM ANTENNA PORT

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



Test Configuration for Antenna Port Measurements

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

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

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

BANDWIDTH MEASUREMENTS

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

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

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

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

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)[1] 1W (30dBm) eirp	11 dBm/MHz
5470 - 5725	250 mW (24 dBm)[2] 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.

OUTPUT POWER AND SPURIOUS 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 (68.3dBuV/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.

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

SAMPLE CALCULATIONS - CONDUCTED EMISSIONS

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

$$R_r - S = M$$

where:

R_r = Receiver Reading in dBuV

S = Specification Limit in dBuV

M = Margin to Specification in +/- dB

SAMPLE CALCULATIONS - RADIATED EMISSIONS

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

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

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

where:

F_d = Distance Factor in dB

D_m = Measurement Distance in meters

D_s = Specification Distance in meters

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

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

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

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

$$R_c = R_r + F_d$$

and

$$M = R_c - L_s$$

where:

R_r = Receiver Reading in dBuV/m

F_d = Distance Factor in dB

R_c = Corrected Reading in dBuV/m

L_s = Specification Limit in dBuV/m

M = Margin in dB Relative to Spec

SAMPLE CALCULATIONS - FIELD STRENGTH TO EIRP CONVERSION

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

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

where P is the eirp (Watts)

EXHIBIT 1: Test Equipment Calibration Data

2 Pages

Radio Antenna Port (Power and Spurious Emissions), 01-Feb-09
Engineer: Suhaila Khushzad

Manufacturer	Description	Model #	Asset #	Cal Due
EMCO	Antenna, Horn, 1-18 GHz (SA40-Blu)	3115	1386	02-Sep-10
Hewlett Packard	SpectAn 9 kHz - 40 GHz, FT (SA40) Blue	8564E (84125C)	1393	15-Feb-09
Micro-Tronics	Band Reject Filter, 5150-5350 MHz	BRC50703-02	1729	07-Oct-09
Hewlett Packard	Microwave Preamplifier, 1-26.5GHz	8449B	1780	13-Nov-09

Radio Antenna Port (Power and Spurious Emissions), 02-Feb-09
Engineer: skhushzad

Manufacturer	Description	Model #	Asset #	Cal Due
Hewlett Packard	Microwave Preamplifier, 1-26.5GHz	8449B	263	09-Oct-09
EMCO	Antenna, Horn, 1-18 GHz	3115	786	06-Dec-09
Micro-Tronics	Band Reject Filter, 5150-5350 MHz	BRC50703-02	1729	07-Oct-09
Hewlett Packard	Test Sys (SA40, 9kHz - 40GHz) Purple	84125C	1770	20-Oct-09

, 03-Feb-09
Engineer: jcaizzi

Manufacturer	Description	Model #	Asset #	Cal Due
EMCO	Antenna, Horn, 1-18 GHz (SA40-Blu)	3115	1386	02-Sep-10
Hewlett Packard	SpectAn 9 kHz - 40 GHz, FT (SA40) Blue	8564E (84125C)	1393	15-Feb-09
Hewlett Packard	Head (Inc W1-W4, 1742 , 1743) Blue	84125C	1620	22-Feb-09
Micro-Tronics	Band Reject Filter, 5150-5350 MHz	BRC50703-02	1729	07-Oct-09
Hewlett Packard	Microwave Preamplifier, 1-26.5GHz	8449B	1780	13-Nov-09
ETS Lindgren	Antenna, Horn, 18-26.5 GHz (Loaner)	3160-09	2144	15-Jan-10

Radio Spurious Emissions, 04-Feb-09
Engineer: Suhaila Khushzad

Manufacturer	Description	Model #	Asset #	Cal Due
EMCO	Antenna, Horn, 1-18GHz	3115	868	10-Jun-10
Micro-Tronics	Band Reject Filter, 5150-5350 MHz	BRC50703-02	1729	07-Oct-09
Micro-Tronics	Band Reject Filter, 5470-5725 MHz	BRC50704-02	1730	07-Oct-09
Hewlett Packard	SpecAn 9 kHz - 40 GHz, (SA40) Purple	8564E (84125C)	1771	20-Oct-09
Hewlett Packard	Microwave Preamplifier, 1-26.5GHz	8449B	1780	13-Nov-09

Radio Spurious Emissions, 05-Feb-09
Engineer: skhushzad

Manufacturer	Description	Model #	Asset #	Cal Due
EMCO	Antenna, Horn, 1-18 GHz (SA40-Blu)	3115	1386	02-Sep-10
Rohde & Schwarz	EMI Test Receiver, 20 Hz-7 GHz	ESIB7	1630	22-Feb-09

Radio Antenna Port (Power and Spurious Emissions), 06-Feb-09
Engineer: skhushzad

Manufacturer	Description	Model #	Asset #	Cal Due
EMCO	Antenna, Horn, 1-18 GHz (SA40-Blu)	3115	1386	02-Sep-10
Rohde & Schwarz	EMI Test Receiver, 20 Hz-7 GHz	ESIB7	1630	22-Feb-09

Radiated Emissions, 1000 - 18,000 MHz, 13-Feb-09
Engineer: rvarelas

Manufacturer	Description	Model #	Asset #	Cal Due
EMCO	Antenna, Horn, 1-18 GHz	3115	786	06-Dec-09
Micro-Tronics	Band Reject Filter, 5150-5350 MHz	BRC50703-02	1729	07-Oct-09
Micro-Tronics	Band Reject Filter, 5470-5725 MHz	BRC50704-02	1730	07-Oct-09
Hewlett Packard	SpecAn 9 kHz - 40 GHz, (SA40) Purple	8564E (84125C)	1771	20-Oct-09
Hewlett Packard	Microwave Preamplifier, 1-26.5GHz	8449B	1780	13-Nov-09

Radiated Emissions, 1000 - 18,000 MHz, 17-Dec-08
Engineer: jcaizzi

Manufacturer	Description	Model #	Asset #	Cal Due
Hewlett Packard	SpecAn 9 KHz-26.5 GHz, Non-Program	8563E	284	24-Dec-08
EMCO	Antenna, Horn, 1-18 GHz (SA40-Blu)	3115	1386	02-Sep-10
Micro-Tronics	Band Reject Filter, 2400-2500 MHz	BRM50702-02	1731	02-Dec-09
Hewlett Packard	Microwave Preamplifier, 1-26.5GHz	8449B	1780	13-Nov-09

Radio Antenna Port (Power and Spurious Emissions), 18-Dec-08
Engineer: skhushzad

Manufacturer	Description	Model #	Asset #	Cal Due
Rohde & Schwarz	EMI Test Receiver, 20 Hz-7 GHz	ESIB7	1756	24-Dec-08
EMCO	Antenna, Horn, 1-18 GHz (SA40-Purple)	3115	1779	19-Mar-10

Radio Antenna Port (Power and Spurious Emissions), 07-Feb-09
Engineer: rvarelas

Manufacturer	Description	Model #	Asset #	Cal Due
Rohde & Schwarz	EMI Test Receiver, 20 Hz-7 GHz	ESIB7	1630	22-Feb-09

Radio Antenna Port (Power and Spurious Emissions), 09-Feb-09
Engineer: skhushzad

Manufacturer	Description	Model #	Asset #	Cal Due
Hewlett Packard	SpectAn 9 kHz - 40 GHz, FT (SA40) Blue	8564E (84125C)	1393	15-Feb-09
Rohde & Schwarz	EMI Test Receiver, 20 Hz-7 GHz	ESIB7	1630	22-Feb-09

Radio Antenna Port (Power and Spurious Emissions), 10-Feb-09
Engineer: Suhaila Khushzad

Manufacturer	Description	Model #	Asset #	Cal Due
Hewlett Packard	SpectAn 9 kHz - 40 GHz, FT (SA40) Blue	8564E (84125C)	1393	15-Feb-09

Radio Antenna Port (Power and Spurious Emissions), 11-Feb-09
Engineer: skhushzad

Manufacturer	Description	Model #	Asset #	Cal Due
Hewlett Packard	SpecAn 9 kHz - 40 GHz, (SA40) Purple	8564E (84125C)	1771	20-Oct-09

Radio Antenna Port (Power and Spurious Emissions), 17-Feb-09
Engineer: Mehran Birgani

Manufacturer	Description	Model #	Asset #	Cal Due
Hewlett Packard	SpecAn 9 kHz - 40 GHz, (SA40) Purple	8564E (84125C)	1771	20-Oct-09

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

Manufacturer	Description	Model #	Asset #	Cal Due
Hewlett Packard	SpecAn 9 kHz - 40 GHz, (SA40) Purple	8564E (84125C)	1771	20-Oct-09

Radio Antenna Port (Power and Spurious Emissions), 19-Feb-09
Engineer: Suhaila Khushzad

Manufacturer	Description	Model #	Asset #	Cal Due
Hewlett Packard	SpecAn 9 kHz - 40 GHz, (SA40) Purple	8564E (84125C)	1771	20-Oct-09

EXHIBIT 2: Test Measurement Data

200 Pages

Client:	Broadcom	Job Number:	J74037
Model:	BCM943224HMS	T-Log Number:	T74146
		Account Manager:	Eriksen / Washington
Contact:	Anne Liang		Briggs
Emissions Standard(s):	FCC 15.247, FCC 15E, RSS 210, LP0002	Class:	NII
Immunity Standard(s):	-	Environment:	-

EMC Test Data

For The

Broadcom

Model

BCM943224HMS

Date of Last Test: 2/18/2009

)2.11n WLAN PCI-E minicard that is designed to enable wireless data transmissions in PCs. Since the top during operation, the EUT was treated as table-top equipment during testing to simulate the end-rating of the EUT is 3.3Vdc from the host.

Client:	Broadcom	Job Number:	J74037
Model:	BCM943224HMS	T-Log Number:	T74146
		Account Manger:	Eriksen / Washington
Contact:	Anne Liang		
Emissions Standard(s):	FCC 15.247, FCC 15E, RSS 210, LP0002	Class:	NII
Immunity Standard(s):	-	Environment:	-

EUT INFORMATION

The following information was collected during the test sessions.

General Description

The EUT is an 802.11ag/Draft 802.11n WLAN PCI-E minicard that is designed to enable wireless data transmissions in PCs. Since the EUT would be placed on a table top during operation, the EUT was treated as table-top equipment during testing to simulate the end-user environment. The electrical rating of the EUT is 3.3Vdc from the host.

Equipment Under Test

Manufacturer	Model	Description	Serial Number	FCC ID
Broadcom	BCM943224HMS	802.11ag/Draft 802.11n WLAN PCI-E Minicard	-	QDS-BRCM1041

EUT Antenna (Intentional Radiators Only)

The EUT antenna is an 802.11a/b/g/n WLAN antenna, with peak gains for 3.9dBi/2.4GHz and 5.8dBi/5GHz.

The antenna connects to the EUT via a U.FL antenna connector, thereby meeting the requirements of FCC 15.203.

EUT Enclosure

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

Modification History

Mod. #	Test	Date	Modification
1			No modifications were made to the EUT during testing.
2			
3			

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

Client:	Broadcom	Job Number:	J74037
Model:	BCM943224HMS	T-Log Number:	T74146
		Account Manger:	Eriksen / Washington
Contact:	Anne Liang		
Emissions Standard(s):	FCC 15.247, FCC 15E, RSS 210, LP0002	Class:	NII
Immunity Standard(s):	-	Environment:	-

Test Configuration #1

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

Local Support Equipment

Manufacturer	Model	Description	Serial Number	FCC ID
Dell	Inspiron	Laptop	-	-

Remote Support Equipment

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

Cabling and Ports

Port	Connected To	Cable(s)		
		Description	Shielded or Unshielded	Length(m)
Adapter card	-	-	-	-
AC Power	AC Mains	3 wire	Unshielded	2.0

EUT Operation During Emissions Tests

During emissions testing the EUT was continuously transmitting on the desired channel.

Client:	Broadcom	Job Number:	J74037
Model:	BCM943224HMS	T-Log Number:	T74146
		Account Manager:	Eriksen / Washington
Contact:	Anne Liang		
Standard:	FCC 15.247, FCC 15E, RSS 210, LP0002	Class:	N/A

RSS 210 and FCC 15.407 (UNII) Band Edge Field Strength

Test Specific Details

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

Date of Test: Refer to individual run
Test Engineer: Refer to individual run
Test Location: Refer to individual run

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

General Test Configuration

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

Ambient Conditions:

Temperature: 15 - 25 °C
Rel. Humidity: 35 - 65 %

Summary of Results

Run #	Mode	Channel	Chain/ Antenna	Power Setting	Test Performed	Limit	Result / Margin
1	802.11a (SISO)	#36 5180MHz	Main	-	Restricted Band Edge at 5150 MHz	15.209	47.3dBµV/m @ 5150.1MHz (-6.7dB)
		#36 5180MHz	Aux	-	Restricted Band Edge at 5150 MHz	15.209	66.3dBµV/m @ 5149.1MHz (-7.7dB)
		#56 5280 MHz	Main	-	Restricted Band Edge at 5250 MHz	LP0002 (Taiwan Only)	43.8dBµV/m @ 5250.1MHz (-10.2dB)
		#60 5300MHz	Main	-	Restricted Band Edge at 5350 MHz	15.209	46.6dBµV/m @ 5350.1MHz (-7.4dB)
		#64 5320MHz	Main	-	Restricted Band Edge at 5350 MHz	15.209	52.3dBµV/m @ 5350.1MHz (-1.7dB)
		#100 5500MHz	Main	-	Restricted Band Edge at 5460 MHz	15.209	68.5dBµV/m @ 5458.3MHz (-5.6dB)
				-	Band Edge 5460 - 5470 MHz	15E	72.5dBµV/m @ 5466.1MHz (-15.8dB)

Client:	Broadcom	Job Number:	J74037
Model:	BCM943224HMS	T-Log Number:	T74146
		Account Manager:	Eriksen / Washington
Contact:	Anne Liang		
Standard:	FCC 15.247, FCC 15E, RSS 210, LP0002	Class:	N/A

Run #	Mode	Channel	Chain/ Antenna	Power Setting	Test Performed	Limit	Result / Margin
2	CDD 20MHz (MIMO)	#36 5180MHz	Main + Aux	-	Restricted Band Edge at 5150 MHz	15.209	44.4dBµV/m @ 5150.1MHz (-9.7dB)
		#56 5280 MHz	Main + Aux	-	Restricted Band Edge at 5250 MHz	LP0002 (Taiwan Only)	44.5dBµV/m @ 5250.1MHz (-9.5dB)
		#60 5300MHz	Main + Aux	-	Restricted Band Edge at 5350 MHz	15.209	46.1dBµV/m @ 5350.3MHz (-7.9dB)
		#64 5320MHz	Main + Aux	-	Restricted Band Edge at 5350 MHz	15.209	73.5dBµV/m @ 5350.1MHz (-0.5dB)
		#100 5500MHz	Main + Aux	-	Restricted Band Edge at 5460 MHz	15.209	49.6dBµV/m @ 5460.1MHz (-4.4dB)
				-	Band Edge 5460 - 5470 MHz	15E	54.2dBµV/m @ 5470.1MHz (-14.2dB)
3	CDD 40MHz (MIMO)	#38 5190MHz	Main + Aux	-	Restricted Band Edge at 5150 MHz	15.209	53.7dBµV/m @ 5150.1MHz (-0.3dB)
		#54 5270MHz	Main + Aux	-	Restricted Band Edge at 5150 MHz	15.209	45.6dBµV/m @ 5139.3MHz (-8.4dB)
		#54 5270MHz	Main + Aux	-	Restricted Band Edge at 5350 MHz	15.209	53.8dBµV/m @ 5352.5MHz (-0.3dB)
		#62 5310 MHz	Main + Aux	-	Restricted Band Edge at 5250 MHz	LP0002 (Taiwan Only)	41.2dBµV/m @ 5249.8MHz (-12.8dB)
		#62 5310MHz	Main + Aux	-	Restricted Band Edge at 5350 MHz	15.209	51.7dBµV/m @ 5350.1MHz (-2.3dB)
		#102 5510MHz	Main + Aux	-	Restricted Band Edge at 5460 MHz	15.209	52.6dBµV/m @ 5460.1MHz (-1.4dB)
				-	Band Edge 5460 - 5470 MHz	15E	61.4dBµV/m @ 5470.1MHz (-7.0dB)

Modifications Made During Testing

No modifications were made to the EUT during testing

Deviations From The Standard

No deviations were made from the requirements of the standard.

Client:	Broadcom	Job Number:	J74037
Model:	BCM943224HMS	T-Log Number:	T74146
		Account Manager:	Eriksen / Washington
Contact:	Anne Liang		
Standard:	FCC 15.247, FCC 15E, RSS 210, LP0002	Class:	N/A

Run #1, Band Edge Radiated Spurious Emissions, 802.11a SISO Mode

Date of Test: 1/30/2009 Test Engineer: Rafael Varelas

Test Location: FT Chamber #4 Comments: None

Run #1a: Channel 36 (5180MHz), 802.11a SISO, 5150MHz Band Edge

Fundamental Signal Field Strength

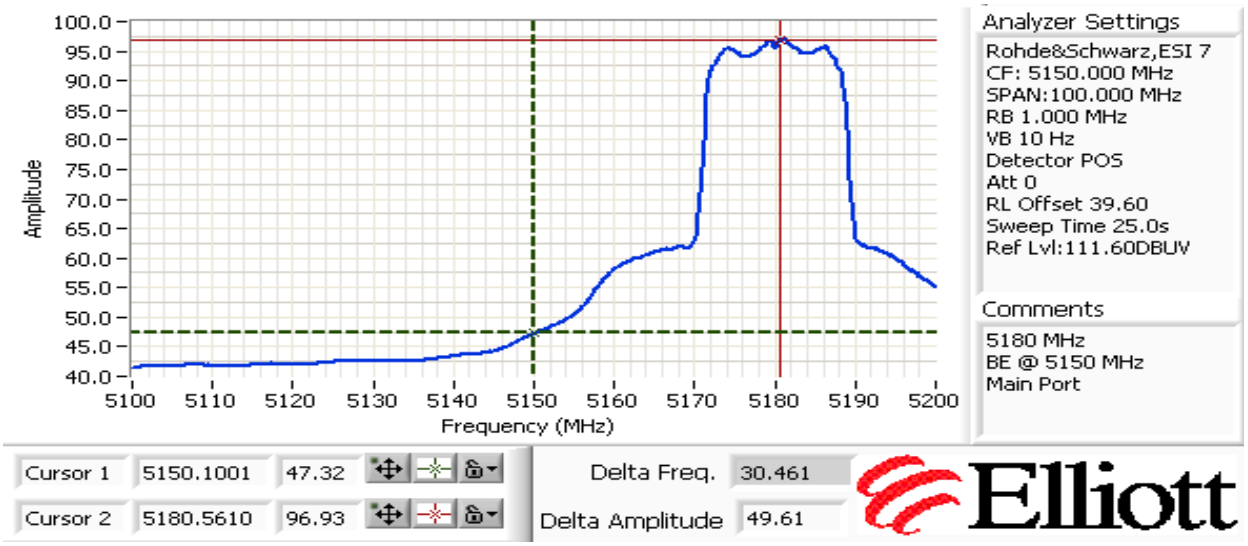
Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
Main Port								
5179.359	104.8	v	-	-	Pk	187	1.0	RB = VB = 1MHz
5179.359	93.6	v	-	-	Avg	187	1.0	RB = 1MHz, VB = 10Hz
5180.962	108.4	h	-	-	Pk	223	1.4	RB = VB = 1MHz
5180.561	96.9	h	-	-	Avg	223	1.4	RB = 1MHz, VB = 10Hz
AUX Port								
5179.960	105.7	v	-	-	Pk	187	1.0	RB = VB = 1MHz
5180.962	93.7	v	-	-	Avg	187	1.0	RB = 1MHz, VB = 10Hz
5181.563	106.7	h	-	-	Pk	224	1.4	RB = VB = 1MHz
5180.561	95.6	h	-	-	Avg	224	1.4	RB = 1MHz, VB = 10Hz

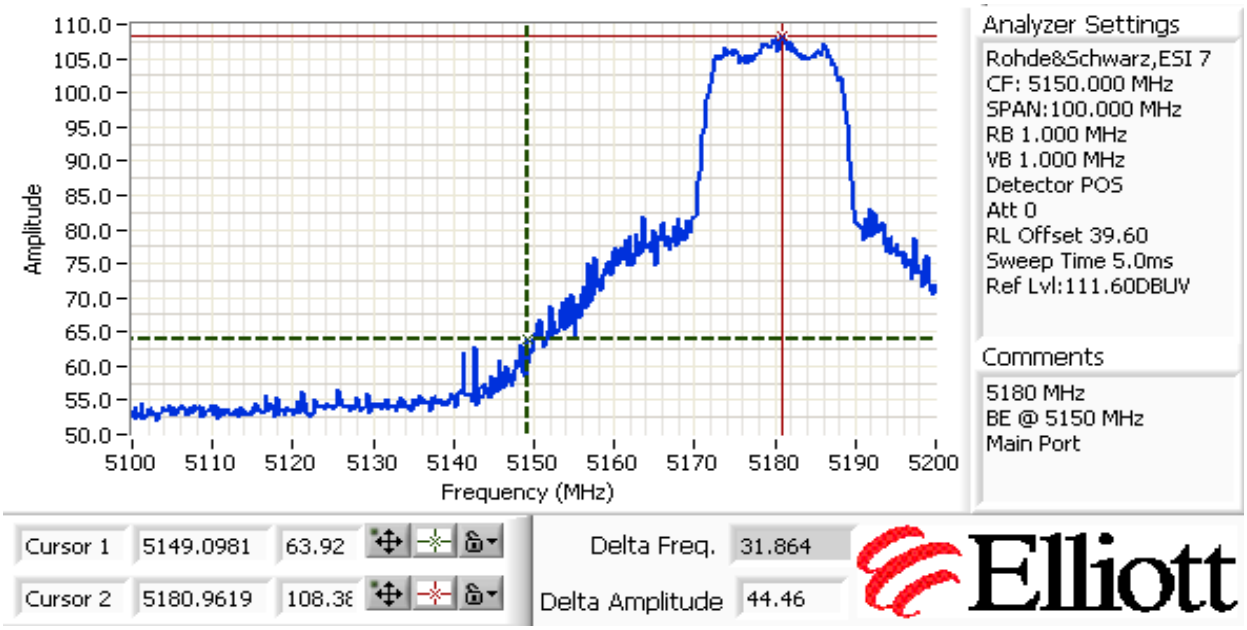
5150 MHz Band Edge Signal Radiated Field Strength

Frequency	Level	Pol	FCC 15.209		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
Main Port								
5150.100	47.3	h	54.0	-6.7	Avg	223	1.4	RB = 1MHz, VB = 10Hz
5150.100	44.3	v	54.0	-9.7	Avg	187	1.0	RB = 1MHz, VB = 10Hz
5149.098	63.9	h	74.0	-10.1	Pk	223	1.4	RB = VB = 1MHz
5150.100	61.9	v	74.0	-12.1	Pk	187	1.0	RB = VB = 1MHz
AUX Port								
5149.098	66.3	h	74.0	-7.7	Pk	224	1.4	RB = VB = 1MHz
5150.100	45.0	h	54.0	-9.0	Avg	224	1.4	RB = 1MHz, VB = 10Hz
5150.100	43.4	v	54.0	-10.6	Avg	187	1.0	RB = 1MHz, VB = 10Hz
5149.499	63.2	v	74.0	-10.8	Pk	187	1.0	RB = VB = 1MHz

Note 1:	Field strength measured at 3m

Client:	Broadcom	Job Number:	J74037
Model:	BCM943224HMS	T-Log Number:	T74146
		Account Manager:	Eriksen / Washington
Contact:	Anne Liang		
Standard:	FCC 15.247, FCC 15E, RSS 210, LP0002	Class:	N/A





Client:	Broadcom	Job Number:	J74037
Model:	BCM943224HMS	T-Log Number:	T74146
		Account Manager:	Eriksen / Washington
Contact:	Anne Liang		
Standard:	FCC 15.247, FCC 15E, RSS 210, LP0002	Class:	N/A

Run #1b: Channel 56 (5280MHz), 802.11a SISO, 5250MHz Band Edge for Taiwan LP0002

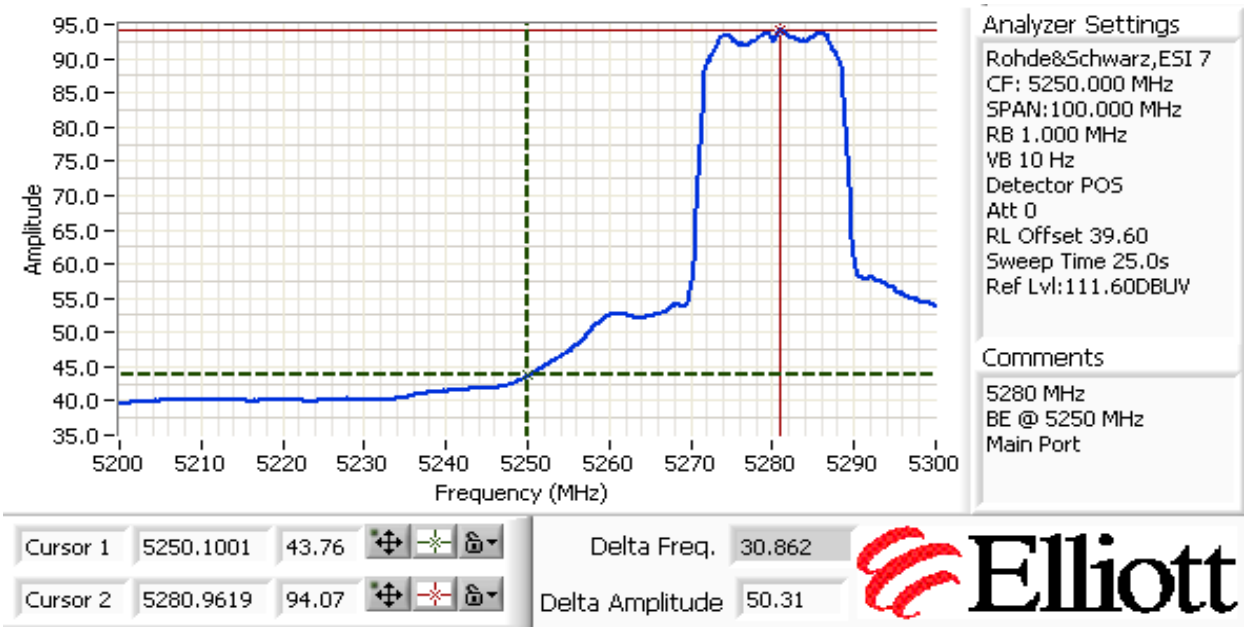
Fundamental Signal Field Strength

Frequency	Level	Pol	LP0002		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5279.960	101.9	v	-	-	Pk	182	1.0	RB = VB = 1MHz
5286.172	90.1	v	-	-	Avg	182	1.0	RB = 1MHz, VB = 10Hz
5281.964	106.0	h	-	-	Pk	223	1.6	RB = VB = 1MHz
5280.962	94.1	h	-	-	Avg	223	1.6	RB = 1MHz, VB = 10Hz

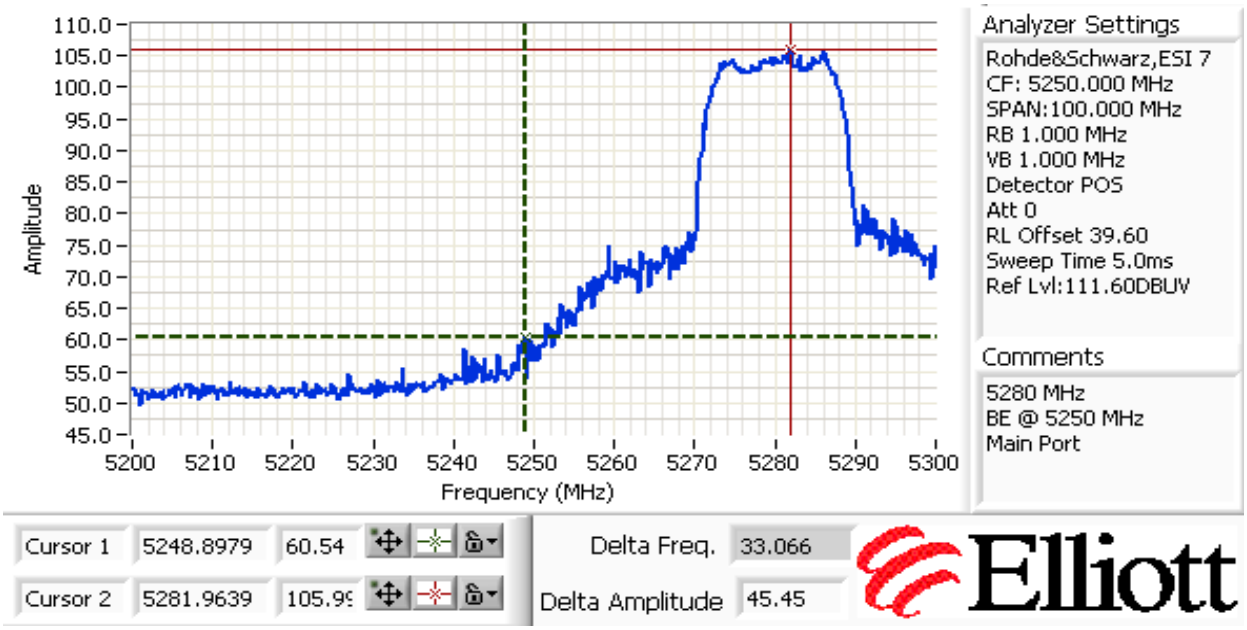
5250 MHz Band Edge Signal Radiated Field Strength

Frequency	Level	Pol	LP0002		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5250.100	43.8	h	54.0	-10.2	Avg	223	1.6	RB = 1MHz, VB = 10Hz
5250.100	41.5	v	54.0	-12.5	Avg	182	1.0	RB = 1MHz, VB = 10Hz
5248.898	60.5	h	74.0	-13.5	Pk	223	1.6	RB = VB = 1MHz
5249.900	57.8	v	74.0	-16.2	Pk	182	1.0	RB = VB = 1MHz

Note 1:	Field strength measured at 3m



Client:	Broadcom	Job Number:	J74037
Model:	BCM943224HMS	T-Log Number:	T74146
		Account Manager:	Eriksen / Washington
Contact:	Anne Liang		
Standard:	FCC 15.247, FCC 15E, RSS 210, LP0002	Class:	N/A



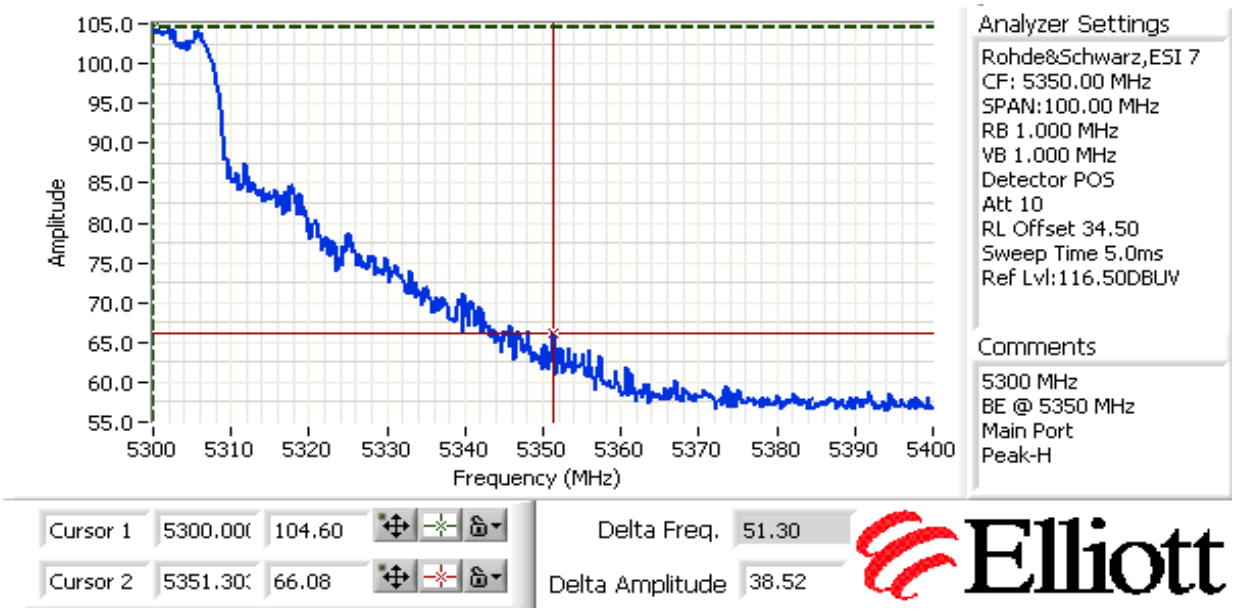
Client:	Broadcom	Job Number:	J74037
Model:	BCM943224HMS	T-Log Number:	T74146
		Account Manager:	Eriksen / Washington
Contact:	Anne Liang		
Standard:	FCC 15.247, FCC 15E, RSS 210, LP0002	Class:	N/A

Run #1c: Channel 60 (5300MHz), 802.11a SISO, 5350MHz Band Edge

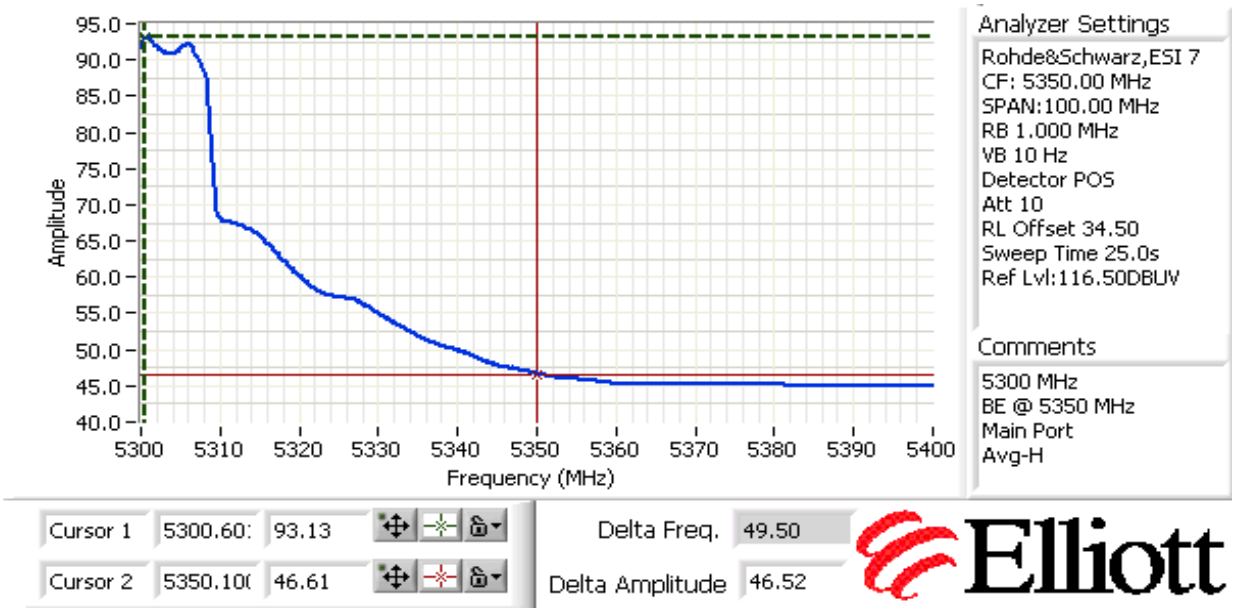
5350 MHz Band Edge Signal Radiated Field Strength

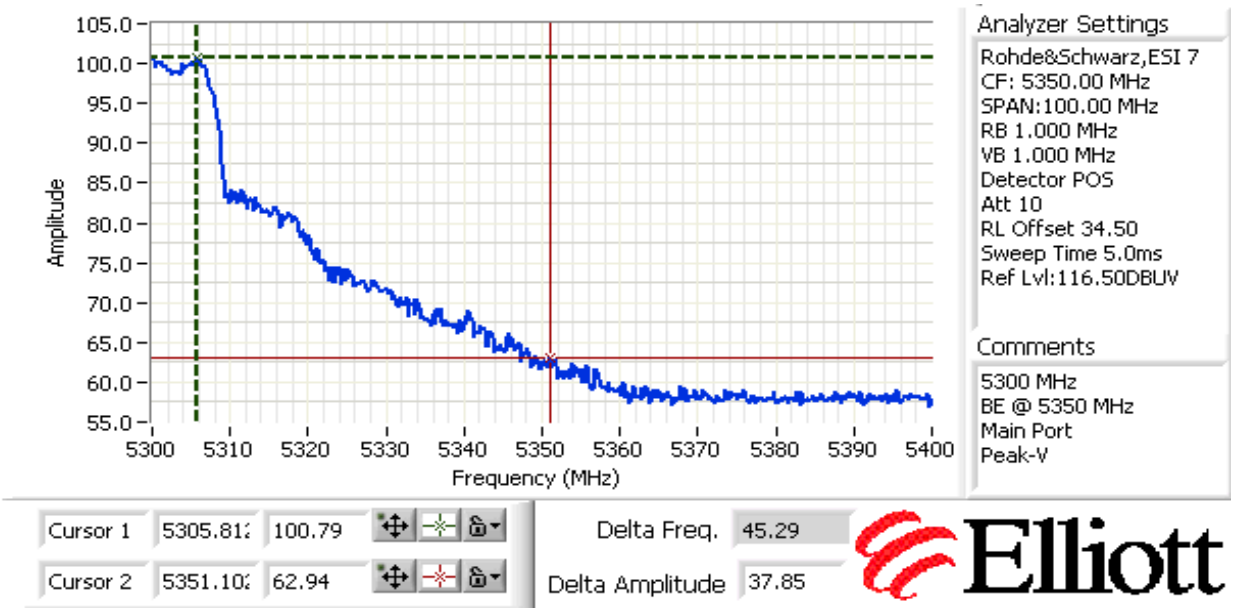
Frequency	Level	Pol	FCC 15.209		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5350.100	46.6	H	54.0	-7.4	Avg	215	1.5	RB = 1MHz, VB = 10Hz
5351.300	66.1	H	74.0	-7.9	Pk	215	1.5	RB = VB = 1MHz
5351.100	62.9	V	74.0	-11.1	Pk	130	1.2	RB = VB = 1MHz
5350.100	45.9	V	54.0	-8.1	Avg	130	1.2	RB = 1MHz, VB = 10Hz

Note 1:	Field strength measured at 3m

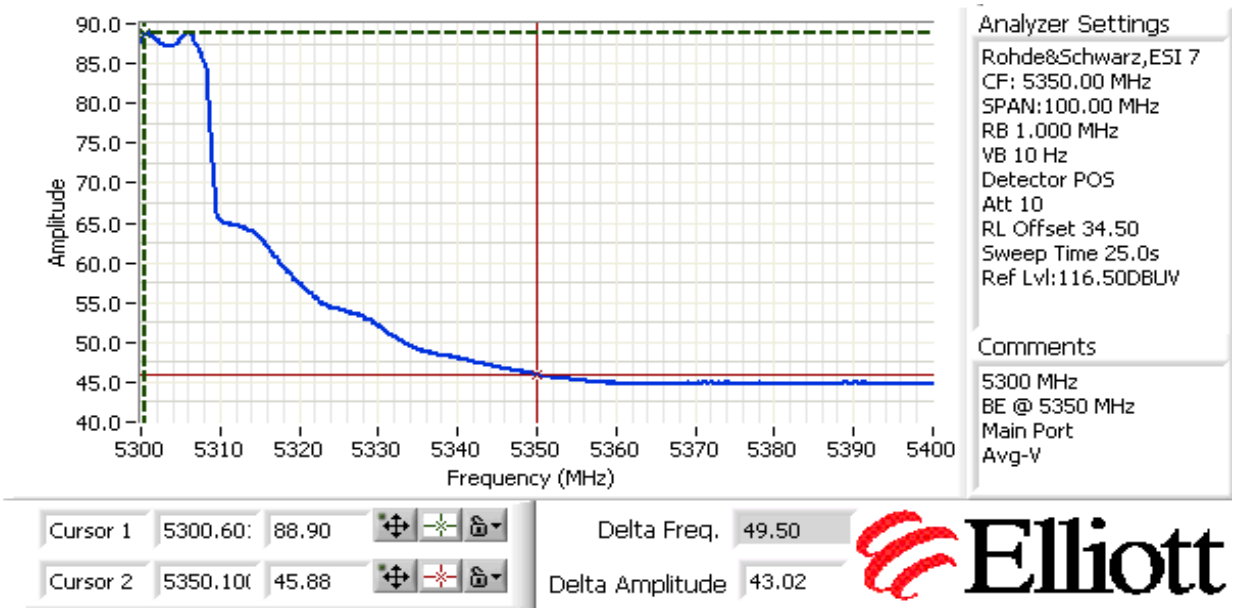


Client:	Broadcom	Job Number:	J74037
Model:	BCM943224HMS	T-Log Number:	T74146
		Account Manager:	Eriksen / Washington
Contact:	Anne Liang		
Standard:	FCC 15.247, FCC 15E, RSS 210, LP0002	Class:	N/A





Client:	Broadcom	Job Number:	J74037
Model:	BCM943224HMS	T-Log Number:	T74146
		Account Manager:	Eriksen / Washington
Contact:	Anne Liang		
Standard:	FCC 15.247, FCC 15E, RSS 210, LP0002	Class:	N/A



Client:	Broadcom	Job Number:	J74037
Model:	BCM943224HMS	T-Log Number:	T74146
		Account Manager:	Eriksen / Washington
Contact:	Anne Liang		
Standard:	FCC 15.247, FCC 15E, RSS 210, LP0002	Class:	N/A

Run #1d: Channel 64 (5320MHz), 802.11a SISO, 5350MHz Band Edge

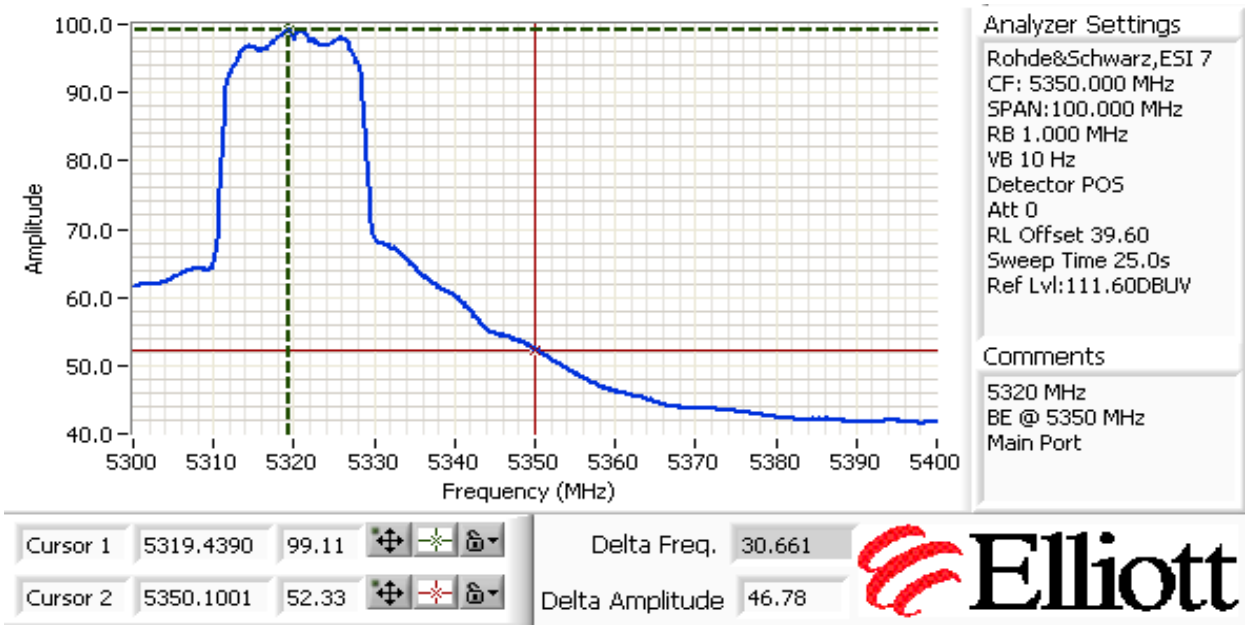
Fundamental Signal Field Strength

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5320.641	105.6	v	-	-	Pk	140	1.1	RB = VB = 1MHz
5319.238	94.6	v	-	-	Avg	140	1.1	RB = 1MHz, VB = 10Hz
5320.040	109.8	h	-	-	Pk	219	1.4	RB = VB = 1MHz
5319.439	99.1	h	-	-	Avg	219	1.4	RB = 1MHz, VB = 10Hz

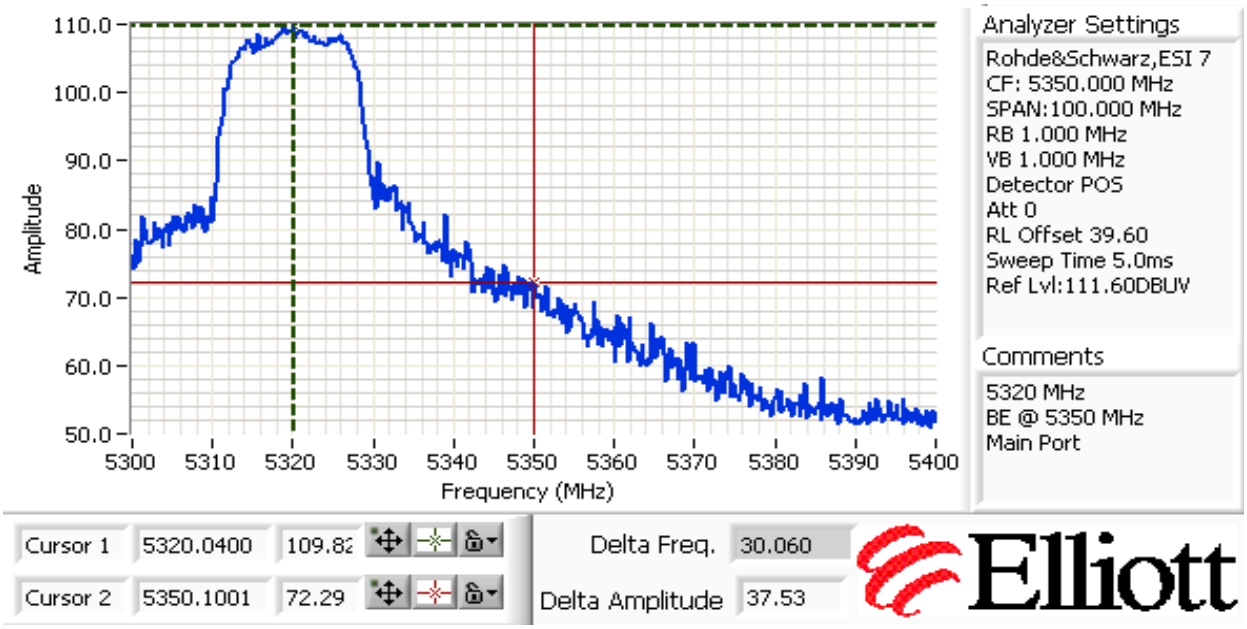
5150 MHz Band Edge Signal Radiated Field Strength

Frequency	Level	Pol	FCC 15.209		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5350.100	52.3	h	54.0	-1.7	Avg	219	1.4	RB = 1MHz, VB = 10Hz
5350.100	72.3	h	74.0	-1.7	Pk	219	1.4	RB = VB = 1MHz
5351.303	70.8	v	74.0	-3.2	Pk	140	1.1	RB = VB = 1MHz
5350.100	49.1	v	54.0	-4.9	Avg	140	1.1	RB = 1MHz, VB = 10Hz

Note 1:	Field strength measured at 3m



Client:	Broadcom	Job Number:	J74037
Model:	BCM943224HMS	T-Log Number:	T74146
		Account Manager:	Eriksen / Washington
Contact:	Anne Liang		
Standard:	FCC 15.247, FCC 15E, RSS 210, LP0002	Class:	N/A



Run #1e: Channel 100 (5500MHz), 802.11a SISO, 5460MHz & 5470MHz Band Edges

Fundamental Signal Field Strength

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5498.577	105.3	v	-	-	Pk	138	1.1	RB = VB = 1MHz
5498.978	93.8	v	-	-	Avg	138	1.1	RB = 1MHz, VB = 10Hz
5501.182	110.5	h	-	-	Pk	220	1.5	RB = VB = 1MHz
5499.178	98.5	h	-	-	Avg	220	1.5	RB = 1MHz, VB = 10Hz

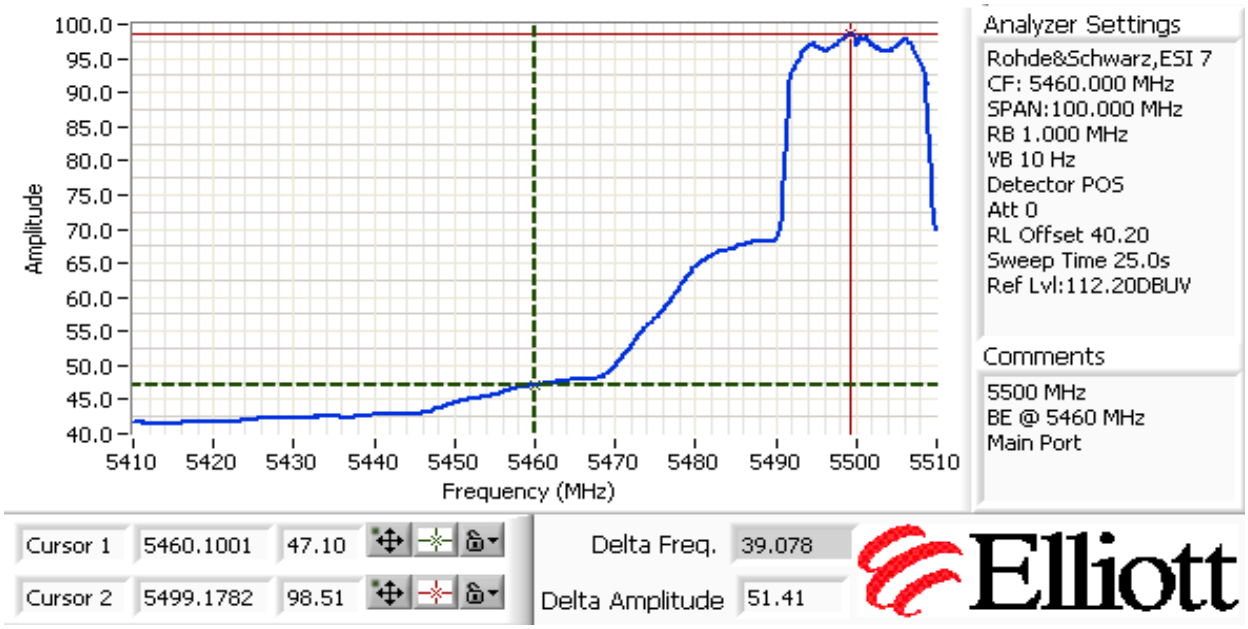
5350-5460 MHz Restricted Band Edge Signal Radiated Field Strength

Frequency	Level	Pol	FCC 15.209		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5458.296	68.5	h	74.0	-5.6	Pk	220	1.5	RB = VB = 1MHz
5460.100	47.1	h	54.0	-6.9	Avg	220	1.5	RB = 1MHz, VB = 10Hz
5459.299	64.7	v	74.0	-9.3	Pk	138	1.1	RB = VB = 1MHz
5460.100	43.7	v	54.0	-10.3	Avg	138	1.1	RB = 1MHz, VB = 10Hz

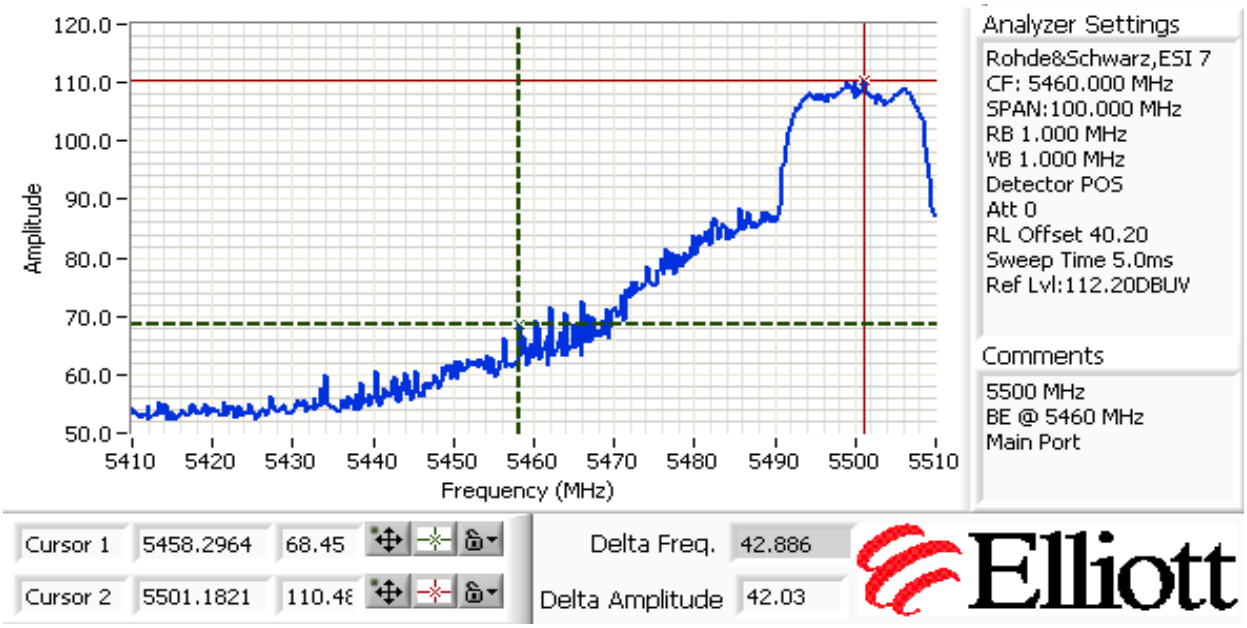
Client:	Broadcom	Job Number:	J74037
Model:	BCM943224HMS	T-Log Number:	T74146
		Account Manager:	Eriksen / Washington
Contact:	Anne Liang		
Standard:	FCC 15.247, FCC 15E, RSS 210, LP0002	Class:	N/A

5460 - 5470 MHz Band Edge Radiated Field Strength

Frequency	Level	Pol	15 E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5466.112	72.5	h	88.3	-15.8	Pk	220	1.5	RB = VB = 1MHz
5470.120	50.2	h	68.3	-18.1	Avg	220	1.5	RB = 1MHz, VB = 10Hz
5469.719	68.4	v	88.3	-19.9	Pk	138	1.1	RB = VB = 1MHz
5470.120	47.0	v	68.3	-21.3	Avg	138	1.1	RB = 1MHz, VB = 10Hz



Client:	Broadcom	Job Number:	J74037
Model:	BCM943224HMS	T-Log Number:	T74146
		Account Manager:	Eriksen / Washington
Contact:	Anne Liang		
Standard:	FCC 15.247, FCC 15E, RSS 210, LP0002	Class:	N/A



Run #2, Band Edge Radiated Spurious Emissions, CDD 20MHz MIMO Mode

Date of Test: 1/30/2009 Test Engineer: Rafael Varelas

Test Location: FT Chamber #4 Comments: None

Run #2a: Channel 36 (5180MHz), CDD 20MHz MIMO, 5150MHz Band Edge

Fundamental Signal Field Strength

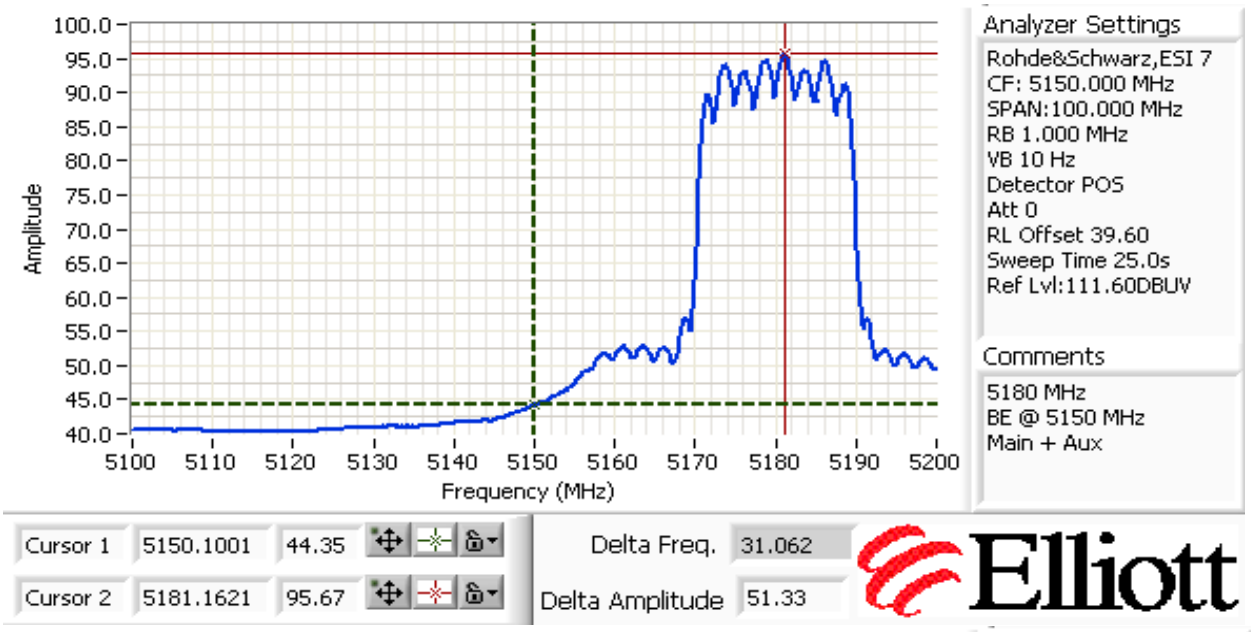
Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5181.563	101.4	v	-	-	Pk	62	1.7	RB = VB = 1MHz
5179.359	90.9	v	-	-	Avg	62	1.7	RB = 1MHz, VB = 10Hz
5179.559	106.1	h	-	-	Pk	223	1.2	RB = VB = 1MHz
5179.759	96.6	h	-	-	Avg	223	1.2	RB = 1MHz, VB = 10Hz

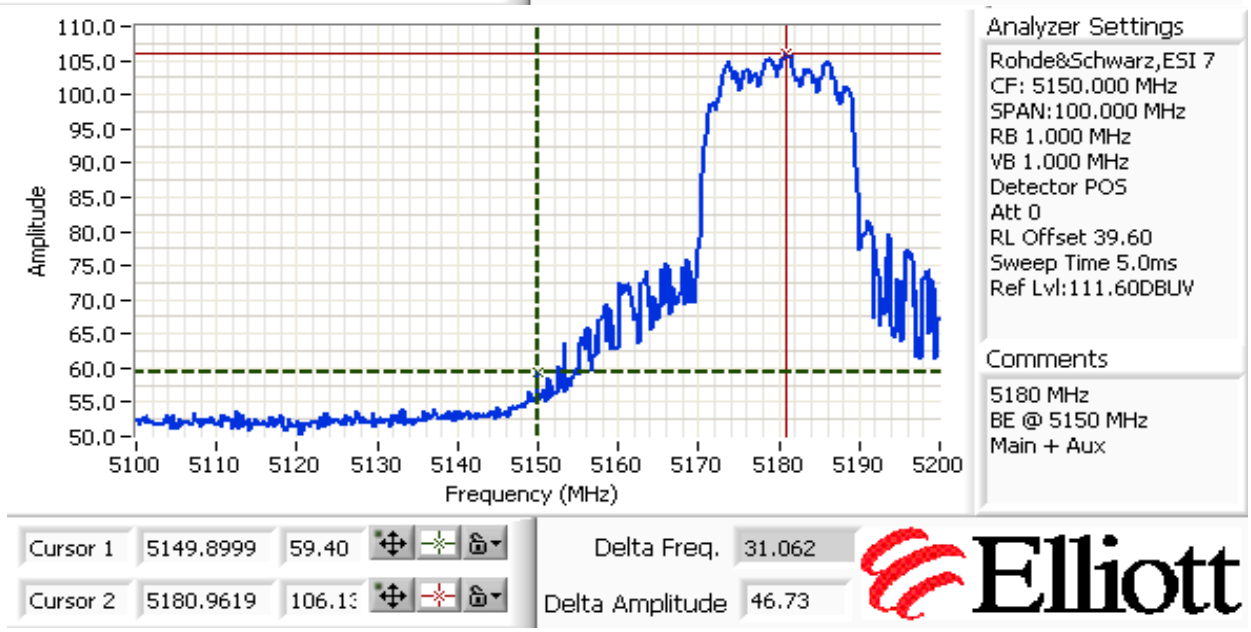
5150 MHz Band Edge Signal Radiated Field Strength

Frequency	Level	Pol	FCC 15.209		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5150.100	44.4	h	54.0	-9.7	Avg	223	1.2	RB = 1MHz, VB = 10Hz
5150.100	41.0	v	54.0	-13.0	Avg	62	1.7	RB = 1MHz, VB = 10Hz
5149.299	59.4	h	74.0	-14.6	Pk	223	1.2	RB = VB = 1MHz
5149.699	53.4	v	74.0	-20.6	Pk	62	1.7	RB = VB = 1MHz

Note 1:	Field strength measured at 3m

Client:	Broadcom	Job Number:	J74037
Model:	BCM943224HMS	T-Log Number:	T74146
		Account Manager:	Eriksen / Washington
Contact:	Anne Liang		
Standard:	FCC 15.247, FCC 15E, RSS 210, LP0002	Class:	N/A





Client:	Broadcom	Job Number:	J74037
Model:	BCM943224HMS	T-Log Number:	T74146
		Account Manager:	Eriksen / Washington
Contact:	Anne Liang		
Standard:	FCC 15.247, FCC 15E, RSS 210, LP0002	Class:	N/A

Run #2b: Channel 56 (5280MHz), CDD 20MHz MIMO, 5250MHz Band Edge

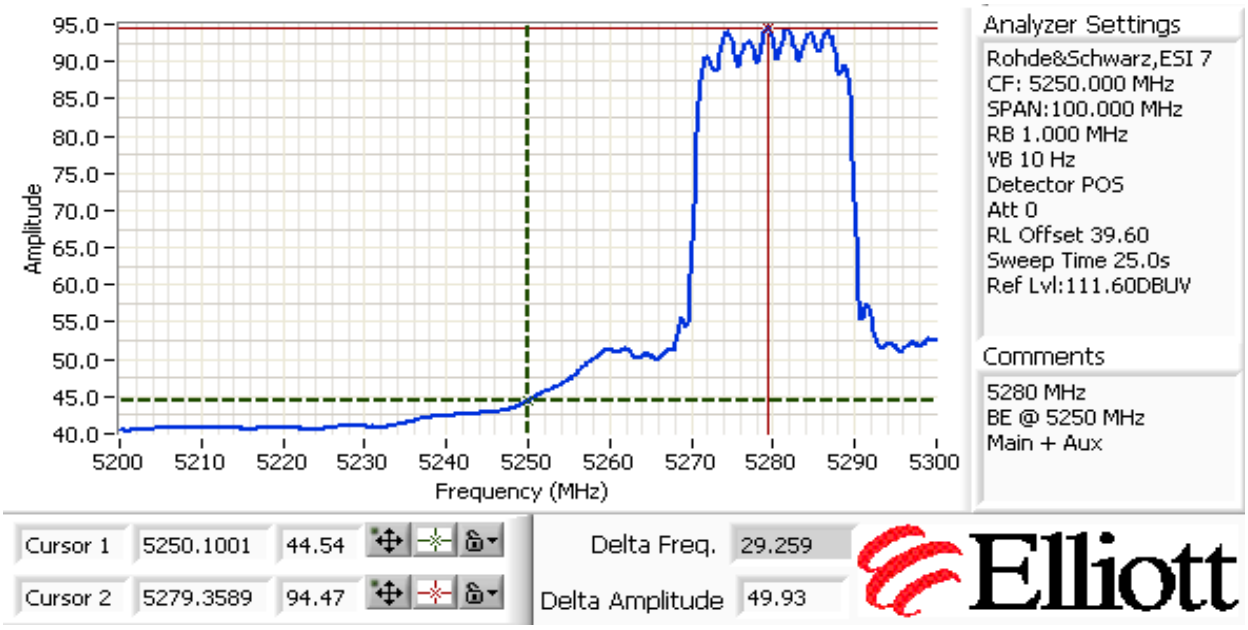
Fundamental Signal Field Strength

Frequency	Level	Pol	LP0002		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5278.757	100.0	v	-	-	Pk	191	1.1	RB = VB = 1MHz
5281.363	89.0	v	-	-	Avg	191	1.1	RB = 1MHz, VB = 10Hz
5281.764	106.2	h	-	-	Pk	251	1.6	RB = VB = 1MHz
5279.359	94.5	h	-	-	Avg	251	1.6	RB = 1MHz, VB = 10Hz

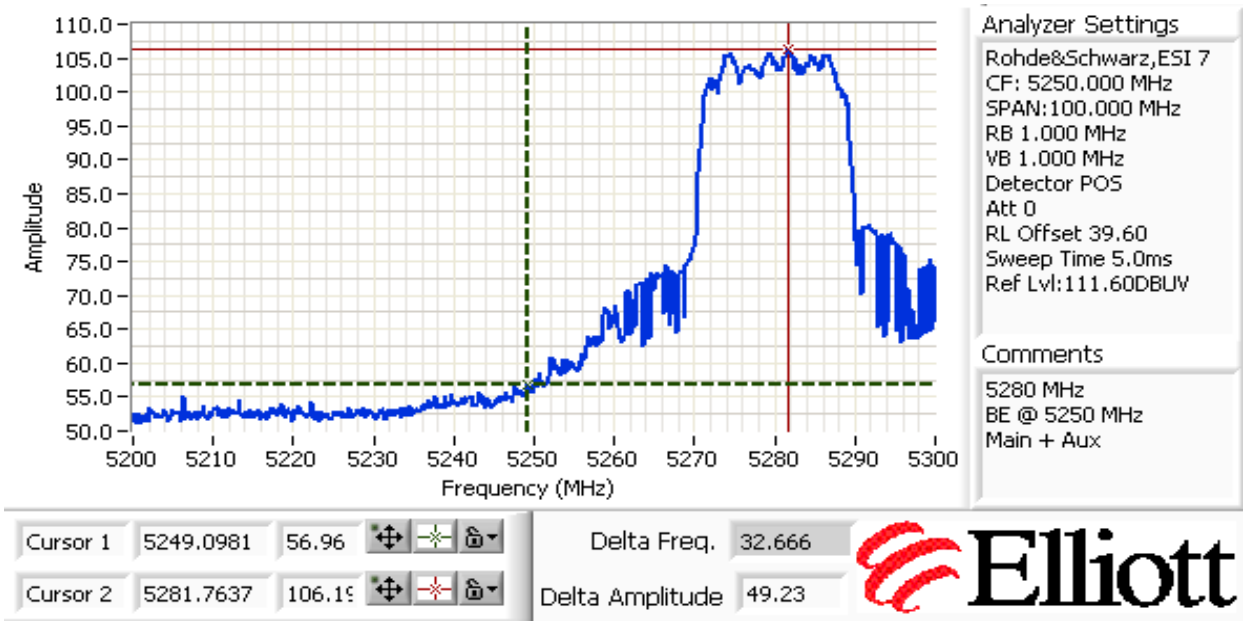
5250 MHz Band Edge Signal Radiated Field Strength

Frequency	Level	Pol	LP0002		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5250.100	44.5	h	54.0	-9.5	Avg	251	1.6	RB = 1MHz, VB = 10Hz
5250.100	40.6	v	54.0	-13.4	Avg	191	1.1	RB = 1MHz, VB = 10Hz
5249.098	57.0	h	74.0	-17.0	Pk	251	1.6	RB = VB = 1MHz
5248.497	53.7	v	74.0	-20.3	Pk	191	1.1	RB = VB = 1MHz

Note 1:	Field strength measured at 3m



Client:	Broadcom	Job Number:	J74037
Model:	BCM943224HMS	T-Log Number:	T74146
		Account Manager:	Eriksen / Washington
Contact:	Anne Liang		
Standard:	FCC 15.247, FCC 15E, RSS 210, LP0002	Class:	N/A



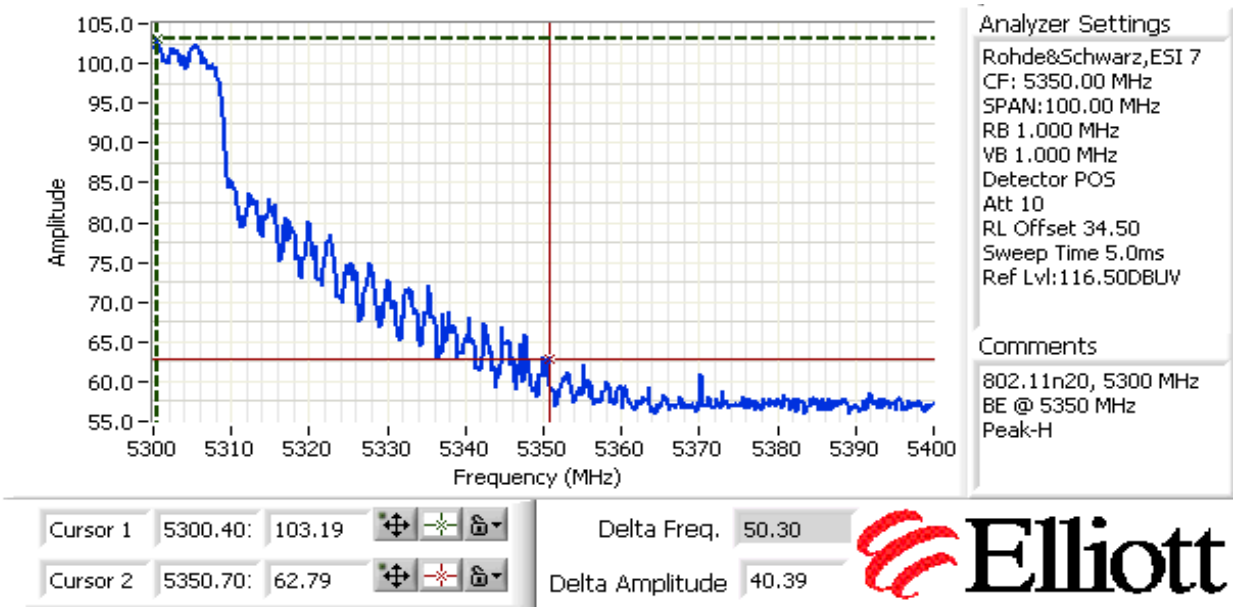
Client:	Broadcom	Job Number:	J74037
Model:	BCM943224HMS	T-Log Number:	T74146
		Account Manager:	Eriksen / Washington
Contact:	Anne Liang		
Standard:	FCC 15.247, FCC 15E, RSS 210, LP0002	Class:	N/A

Run #2c: Channel 60 (5300MHz), CDD 20MHz MIMO, 5350MHz Band Edge

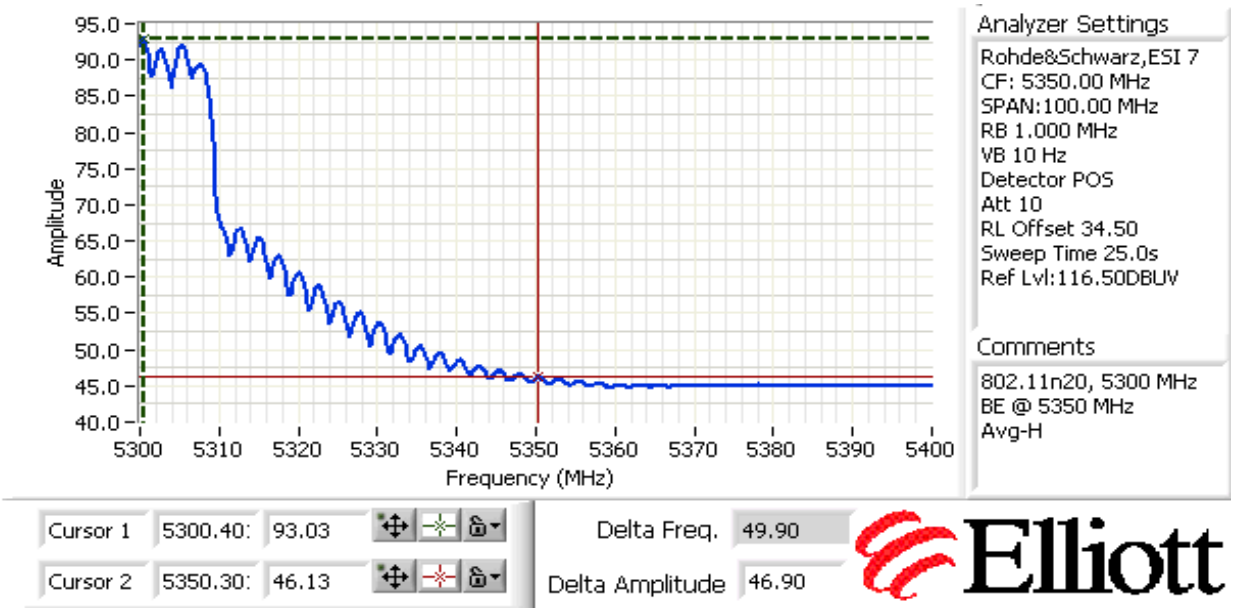
5150 MHz Band Edge Signal Radiated Field Strength

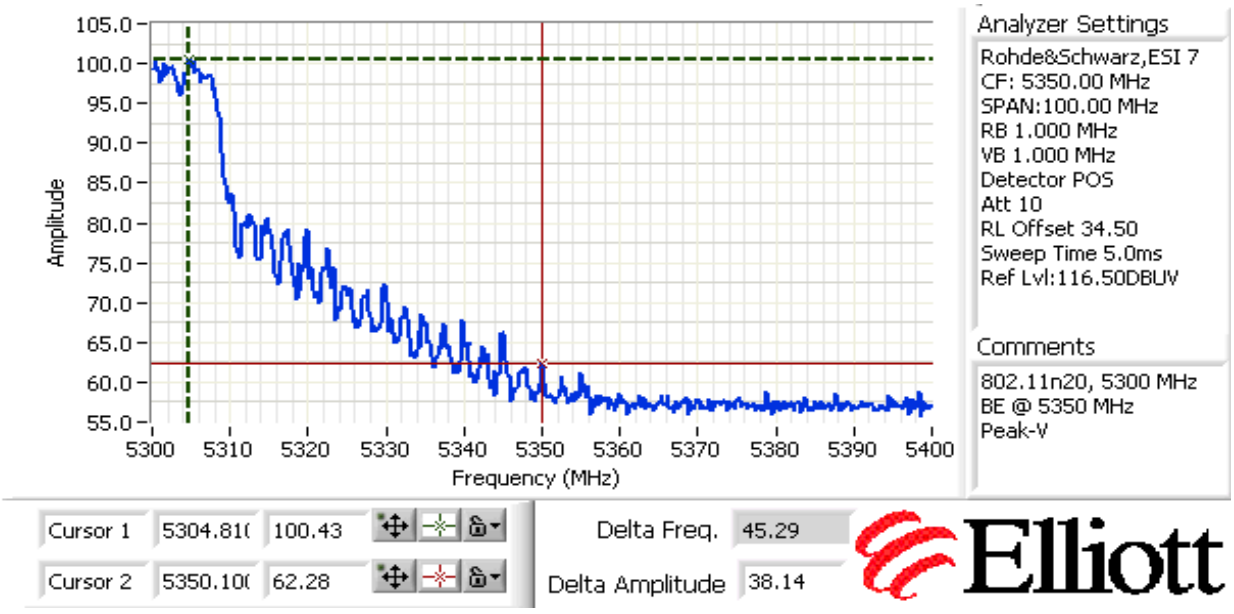
Frequency	Level	Pol	FCC 15.209		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5350.300	46.1	H	54.0	-7.9	Avg	218	1.7	RB = 1MHz, VB = 10Hz
5350.700	62.8	H	74.0	-11.2	Pk	218	1.7	RB = VB = 1MHz
5350.100	62.3	V	74.0	-11.7	Pk	217	1.0	RB = VB = 1MHz
5350.100	45.9	V	54.0	-8.1	Avg	217	1.0	RB = 1MHz, VB = 10Hz

Note 1:	Field strength measured at 3m

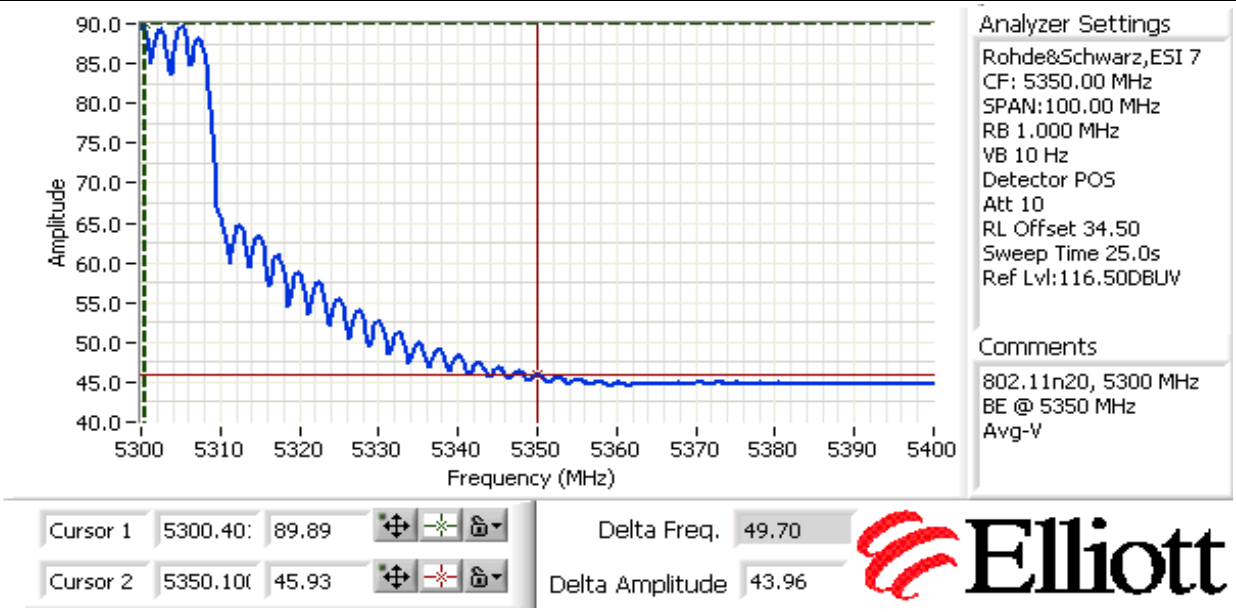


Client:	Broadcom	Job Number:	J74037
Model:	BCM943224HMS	T-Log Number:	T74146
		Account Manager:	Eriksen / Washington
Contact:	Anne Liang		
Standard:	FCC 15.247, FCC 15E, RSS 210, LP0002	Class:	N/A





Client:	Broadcom	Job Number:	J74037
Model:	BCM943224HMS	T-Log Number:	T74146
		Account Manager:	Eriksen / Washington
Contact:	Anne Liang		
Standard:	FCC 15.247, FCC 15E, RSS 210, LP0002	Class:	N/A



Run #2d: Channel 64 (5320MHz), CDD 20MHz MIMO, 5350MHz Band Edge

Fundamental Signal Field Strength

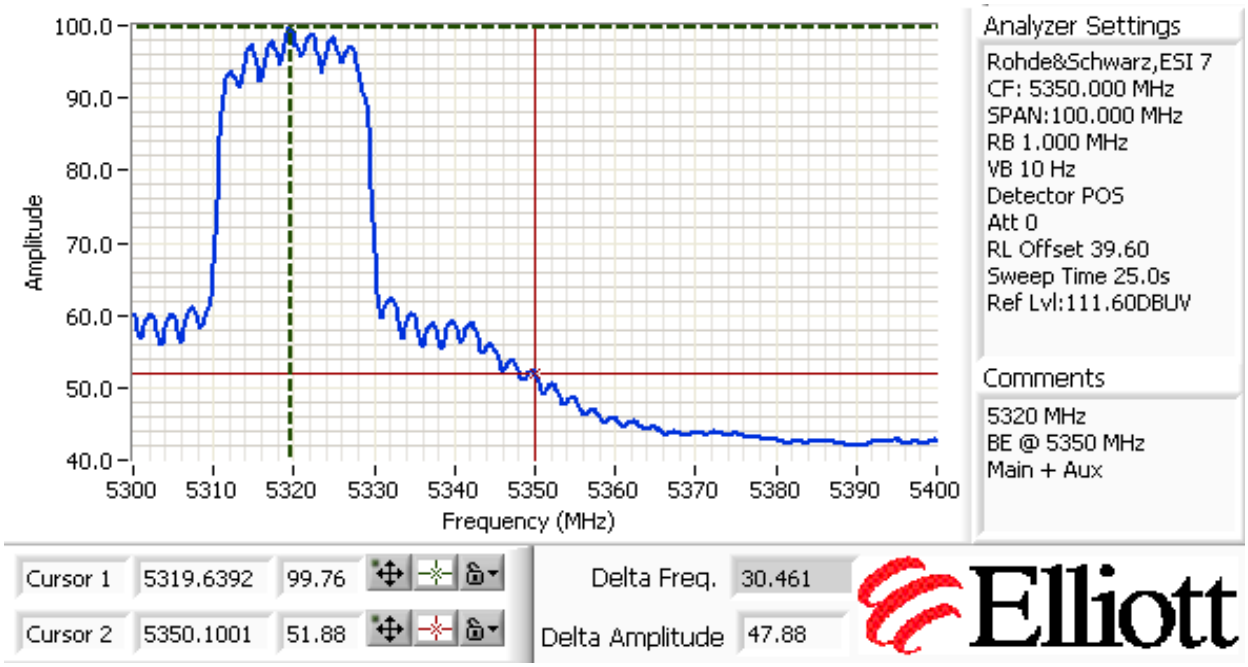
Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5319.238	106.4	v	-	-	Pk	94	1.3	RB = VB = 1MHz
5319.038	96.1	v	-	-	Avg	94	1.3	RB = 1MHz, VB = 10Hz
5321.844	110.4	h	-	-	Pk	250	1.6	RB = VB = 1MHz
5319.639	99.8	h	-	-	Avg	250	1.6	RB = 1MHz, VB = 10Hz

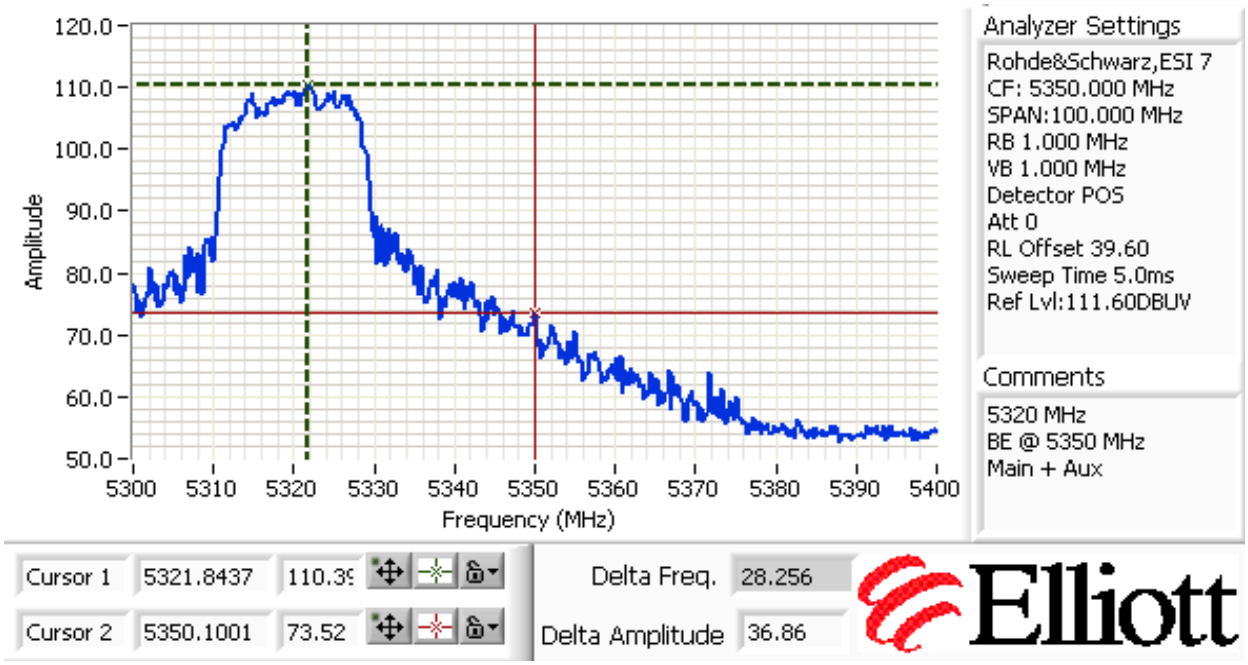
5150 MHz Band Edge Signal Radiated Field Strength

Frequency	Level	Pol	FCC 15.209		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5350.100	73.5	h	74.0	-0.5	Pk	250	1.6	RB = VB = 1MHz
5350.100	51.9	h	54.0	-2.1	Avg	250	1.6	RB = 1MHz, VB = 10Hz
5351.102	68.4	v	74.0	-5.7	Pk	94	1.3	RB = VB = 1MHz
5351.303	46.5	v	54.0	-7.5	Avg	94	1.3	RB = 1MHz, VB = 10Hz

Note 1:	Field strength measured at 3m

Client:	Broadcom	Job Number:	J74037
Model:	BCM943224HMS	T-Log Number:	T74146
		Account Manager:	Eriksen / Washington
Contact:	Anne Liang		
Standard:	FCC 15.247, FCC 15E, RSS 210, LP0002	Class:	N/A





Client:	Broadcom	Job Number:	J74037
Model:	BCM943224HMS	T-Log Number:	T74146
		Account Manager:	Eriksen / Washington
Contact:	Anne Liang		
Standard:	FCC 15.247, FCC 15E, RSS 210, LP0002	Class:	N/A

Run #2e: Channel 100 (5500MHz), CDD 20MHz MIMO, 5460MHz & 5470MHz Band Edges

Fundamental Signal Field Strength

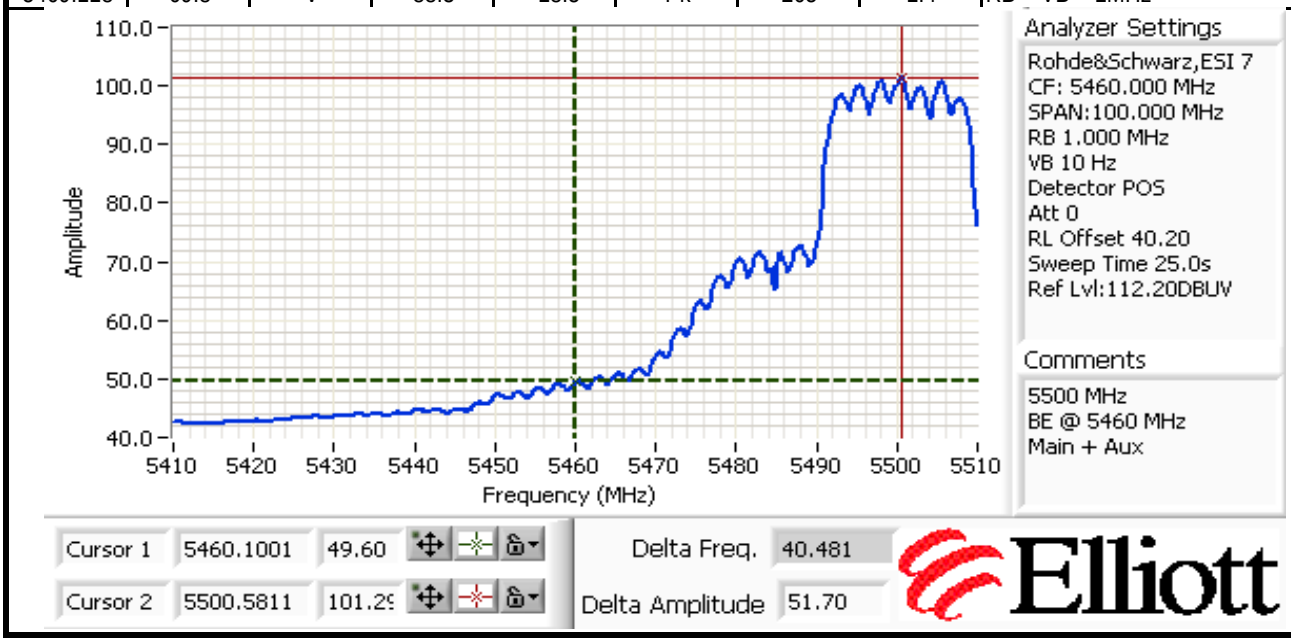
Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5499.178	107.6	v	-	-	Pk	265	1.4	RB = VB = 1MHz
5499.178	97.2	v	-	-	Avg	265	1.4	RB = 1MHz, VB = 10Hz
5497.775	111.3	h	-	-	Pk	220	1.4	RB = VB = 1MHz
5500.581	101.3	h	-	-	Avg	220	1.4	RB = 1MHz, VB = 10Hz

5350-5460 MHz Restricted Band Edge Signal Radiated Field Strength

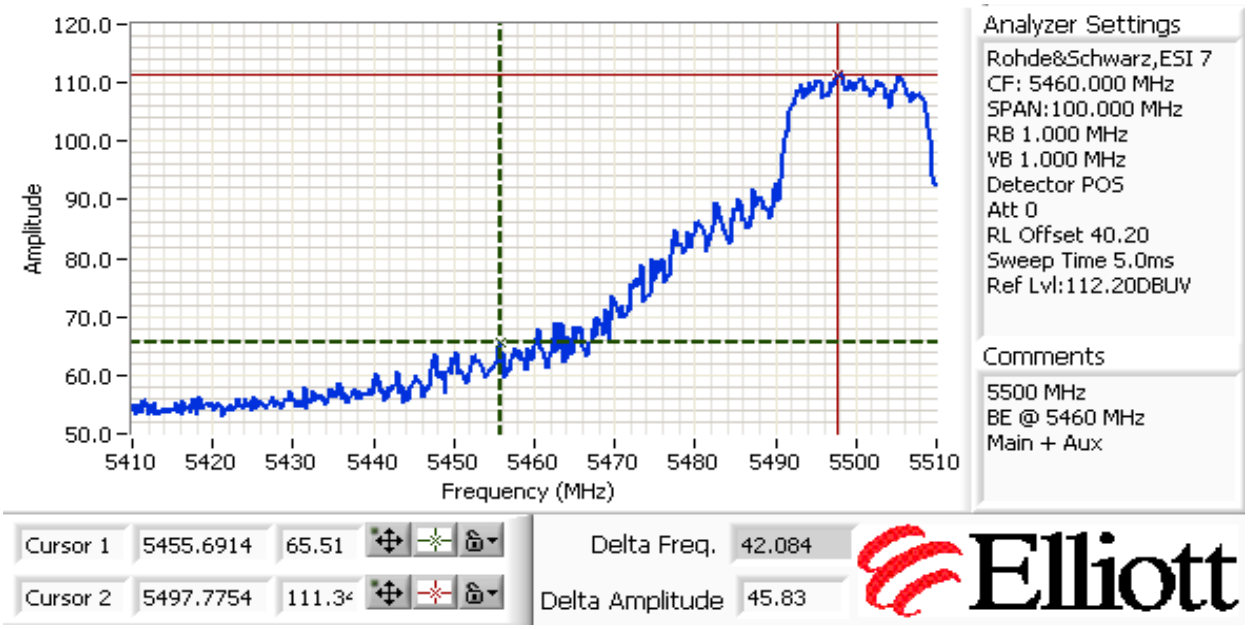
Frequency	Level	Pol	FCC 15.209		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5460.100	49.6	h	54.0	-4.4	Avg	220	1.4	RB = 1MHz, VB = 10Hz
5459.499	47.4	v	54.0	-6.6	Avg	265	1.4	RB = 1MHz, VB = 10Hz
5455.691	65.5	h	74.0	-8.5	Pk	220	1.4	RB = VB = 1MHz
5459.098	65.4	v	74.0	-8.6	Pk	265	1.4	RB = VB = 1MHz

5460 - 5470 MHz Band Edge Radiated Field Strength

Frequency	Level	Pol	15 E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5470.120	54.2	h	68.3	-14.2	Avg	220	1.4	RB = 1MHz, VB = 10Hz
5469.719	73.5	h	88.3	-14.8	Pk	220	1.4	RB = VB = 1MHz
5469.519	49.9	v	68.3	-18.4	Avg	265	1.4	RB = 1MHz, VB = 10Hz
5469.118	69.8	v	88.3	-18.5	Pk	265	1.4	RB = VB = 1MHz



Client:	Broadcom	Job Number:	J74037
Model:	BCM943224HMS	T-Log Number:	T74146
		Account Manager:	Eriksen / Washington
Contact:	Anne Liang		
Standard:	FCC 15.247, FCC 15E, RSS 210, LP0002	Class:	N/A



Run #3, Band Edge Radiated Spurious Emissions, CDD 40MHz MIMO Mode

Date of Test: 1/31/2009 Test Engineer: Rafael Varelas

Test Location: FT Chamber #4 Comments: None

Run #3a: Channel 38 (5190MHz), CDD 40MHz MIMO, 5150MHz Band Edge

Fundamental Signal Field Strength

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5193.387	100.0	v	-	-	Pk	200	1.0	RB = VB = 1MHz
5193.788	88.9	v	-	-	Avg	200	1.0	RB = 1MHz, VB = 10Hz
5186.573	103.7	h	-	-	Pk	223	1.7	RB = VB = 1MHz
5186.773	92.7	h	-	-	Avg	223	1.7	RB = 1MHz, VB = 10Hz

Date of Test: 2/6/2009 Test Engineer: Suhaila Khushzad

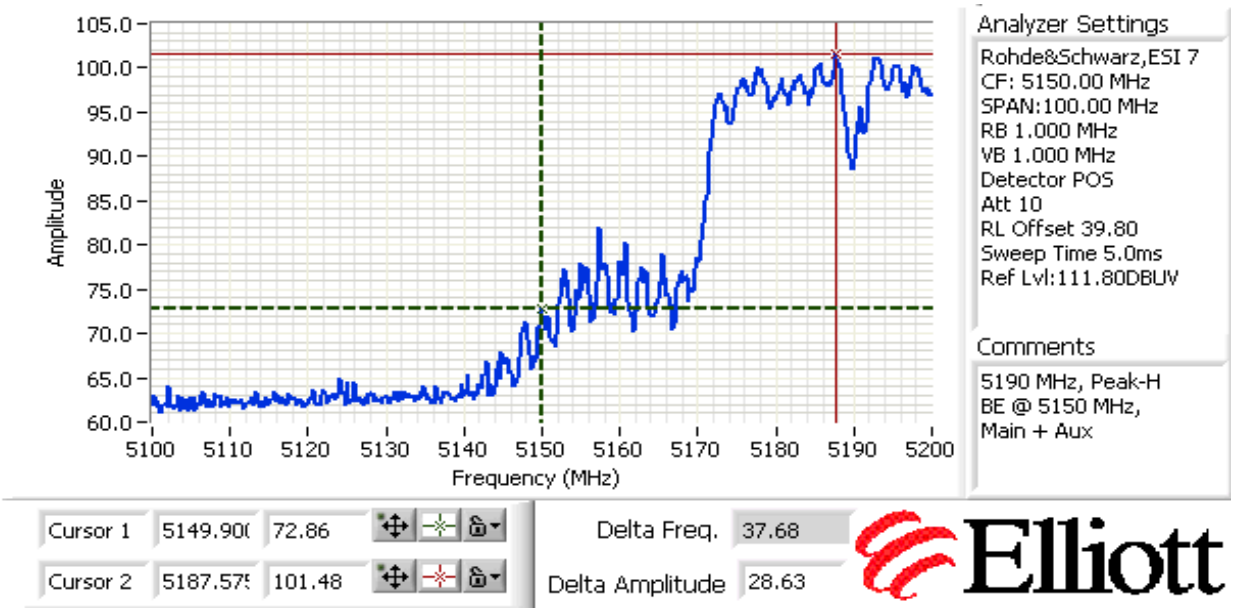
Test Location: FT Chamber #3 Comments: None

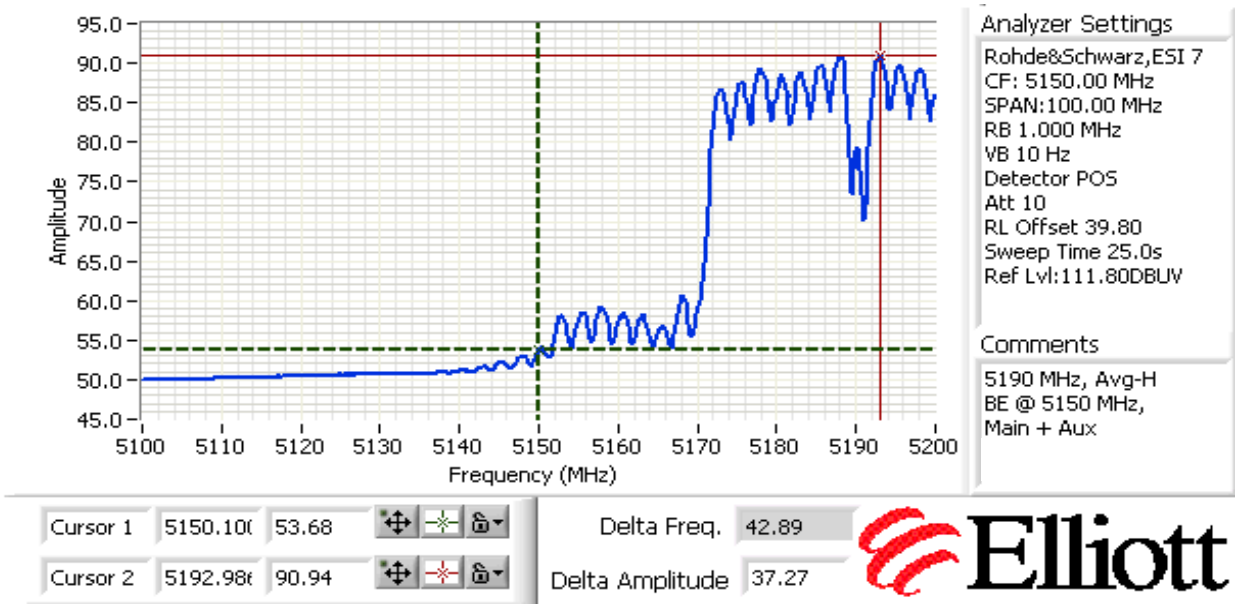
5150 MHz Band Edge Signal Radiated Field Strength

Frequency	Level	Pol	FCC 15.209		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5150.100	53.7	h	54.0	-0.3	Avg	232	1.7	
5149.900	72.9	h	74.0	-1.1	Pk	232	1.7	

Note 1: Field strength measured at 3m

Client:	Broadcom	Job Number:	J74037
Model:	BCM943224HMS	T-Log Number:	T74146
		Account Manager:	Eriksen / Washington
Contact:	Anne Liang		
Standard:	FCC 15.247, FCC 15E, RSS 210, LP0002	Class:	N/A





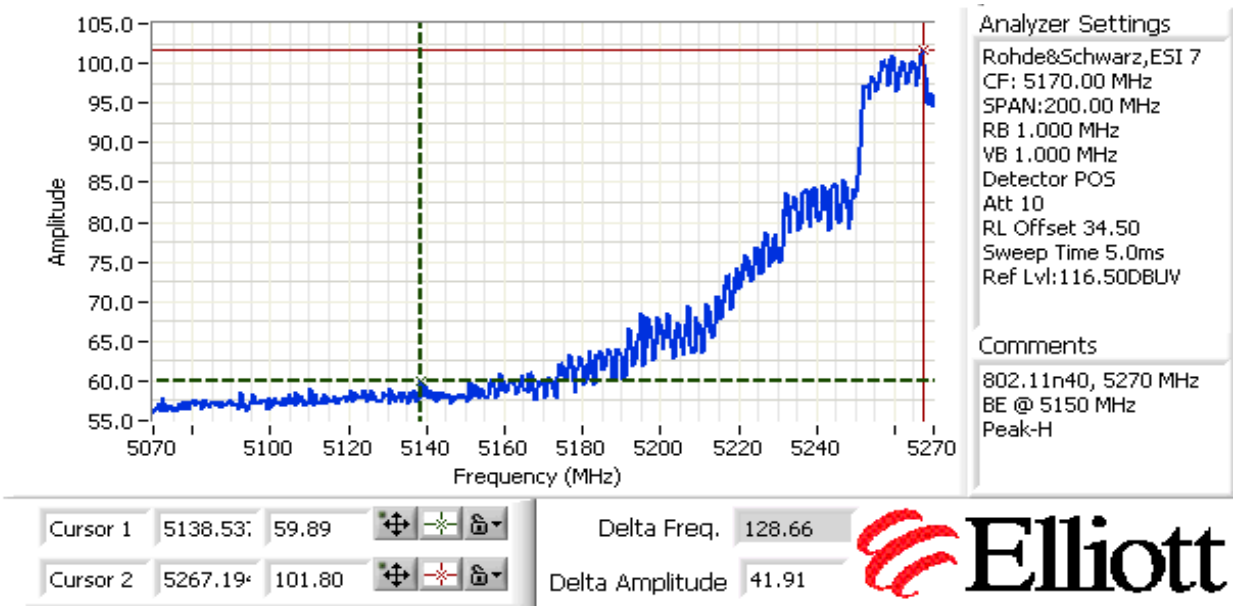
Client:	Broadcom	Job Number:	J74037
Model:	BCM943224HMS	T-Log Number:	T74146
		Account Manager:	Eriksen / Washington
Contact:	Anne Liang		
Standard:	FCC 15.247, FCC 15E, RSS 210, LP0002	Class:	N/A

Run #3b: Channel 54 (5270MHz), CDD 40MHz MIMO, 5150MHz Band Edge

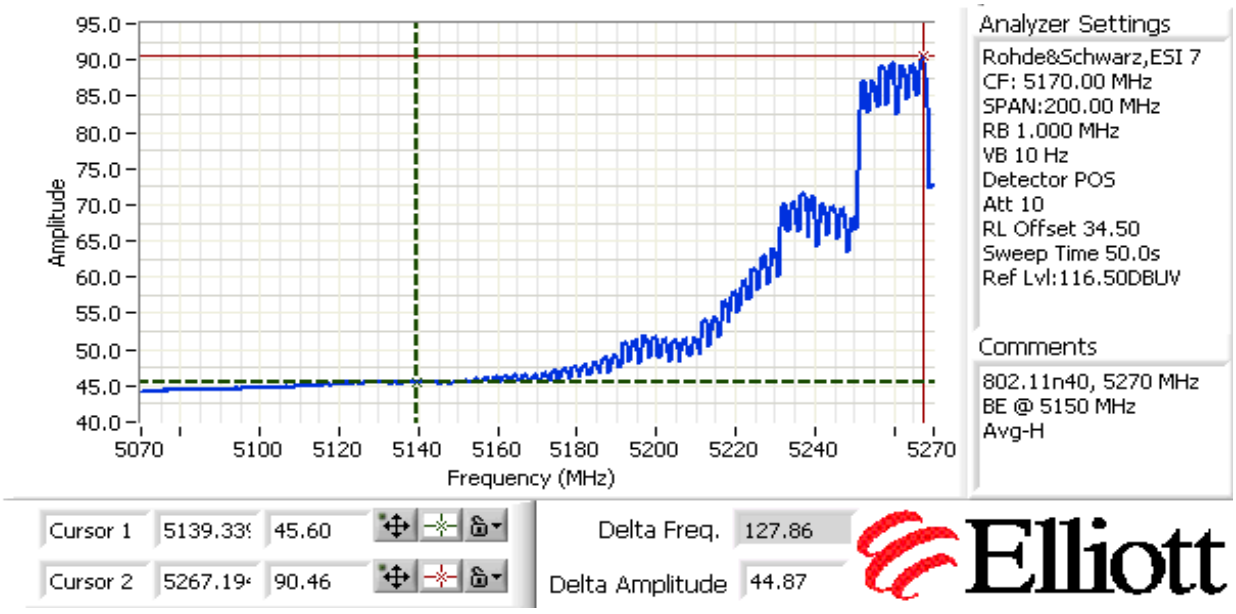
5150 MHz Band Edge Signal Radiated Field Strength

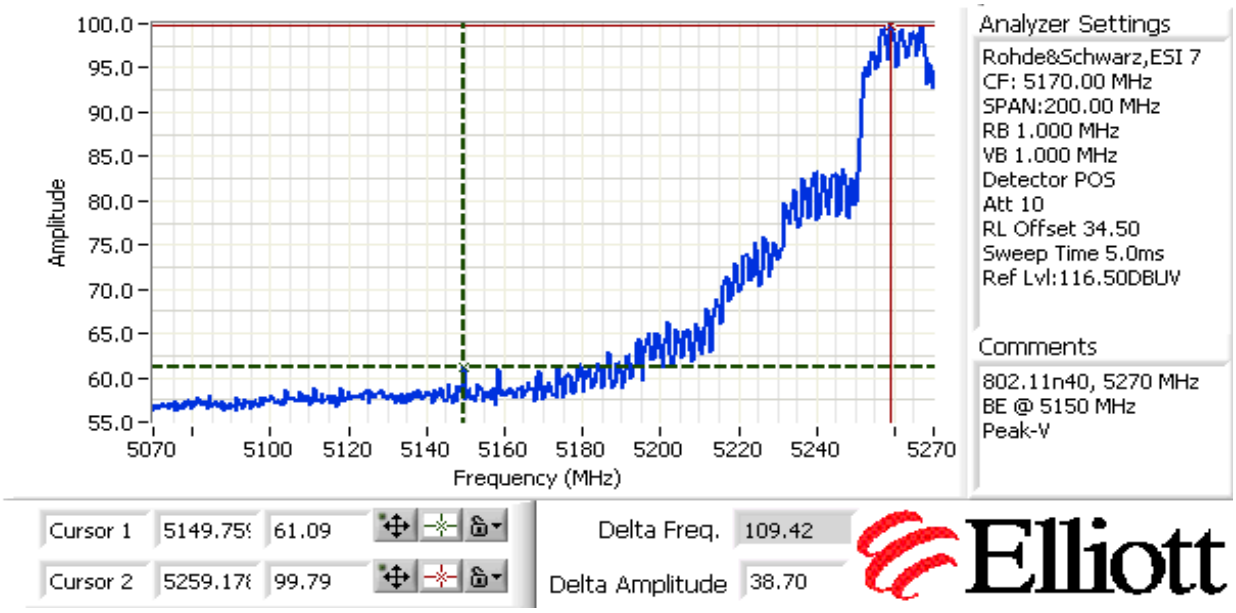
Frequency	Level	Pol	LP0002		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5139.330	45.6	h	54.0	-8.4	Avg	201	1.0	RB = 1MHz, VB = 10Hz
5138.530	59.9	h	74.0	-14.1	Pk	201	1.0	RB = VB = 1MHz
5140.940	45.5	v	54.0	-8.5	Avg	199	1.0	RB = 1MHz, VB = 10Hz
5149.750	61.1	v	74.0	-12.9	Pk	199	1.0	RB = VB = 1MHz

Note 1:	Field strength measured at 3m

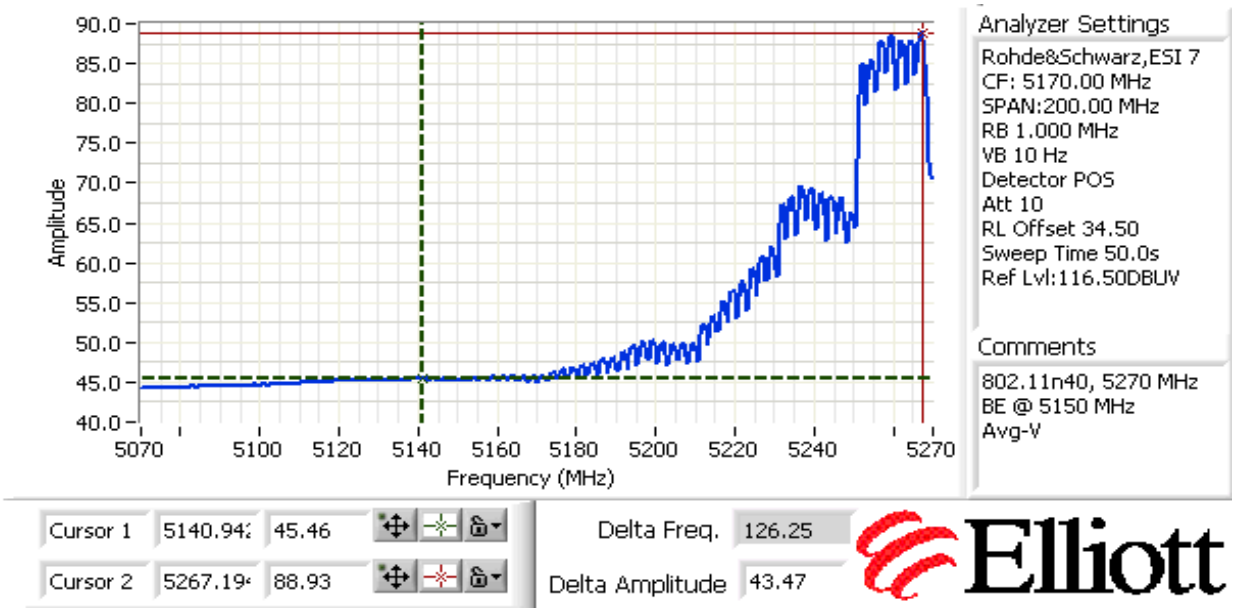


Client:	Broadcom	Job Number:	J74037
Model:	BCM943224HMS	T-Log Number:	T74146
		Account Manager:	Eriksen / Washington
Contact:	Anne Liang		
Standard:	FCC 15.247, FCC 15E, RSS 210, LP0002	Class:	N/A





Client:	Broadcom	Job Number:	J74037
Model:	BCM943224HMS	T-Log Number:	T74146
		Account Manager:	Eriksen / Washington
Contact:	Anne Liang		
Standard:	FCC 15.247, FCC 15E, RSS 210, LP0002	Class:	N/A



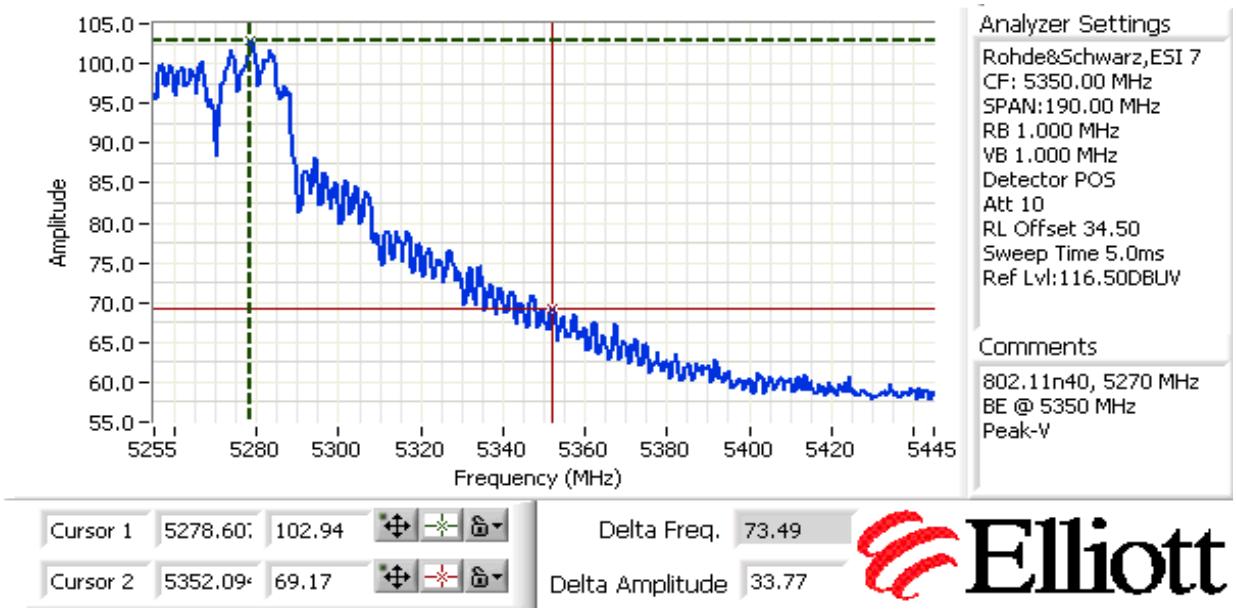
Run #3c: Channel 54 (5270MHz), CDD 40MHz MIMO, 5350MHz Band Edge

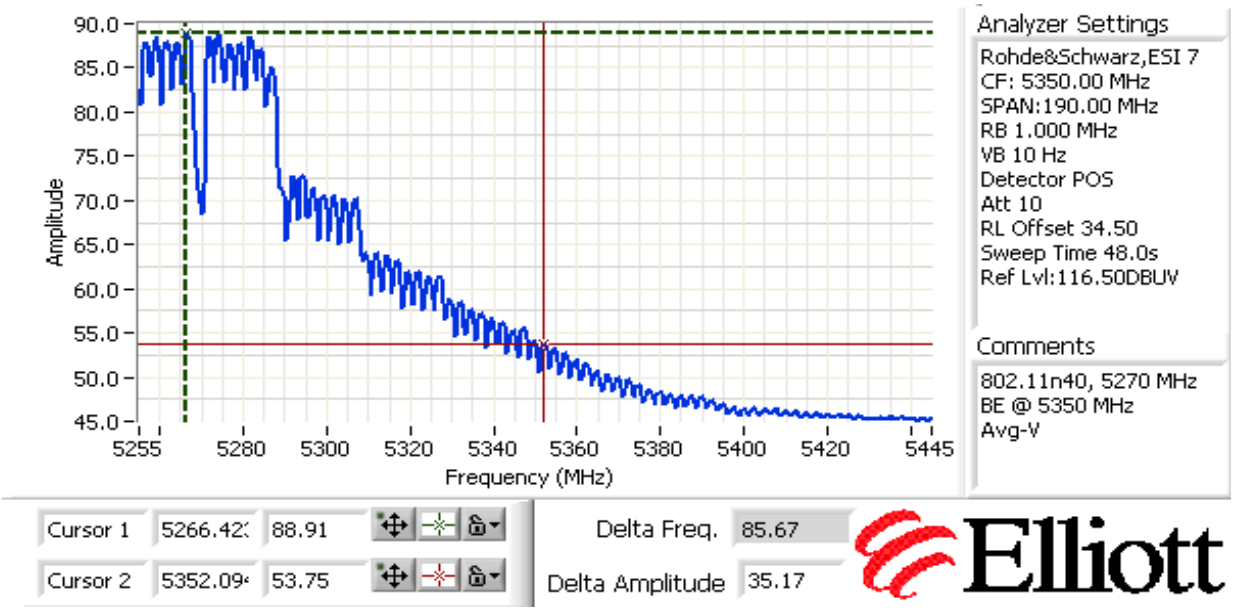
5350 MHz Band Edge Signal Radiated Field Strength

Frequency	Level	Pol	LP0002		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5352.470	53.8	v	54.0	-0.3	Avg	199	1.0	RB = 1MHz, VB = 10Hz
5352.090	69.2	v	74.0	-4.8	Pk	199	1.0	RB = VB = 1MHz
5352.090	52.6	h	54.0	-1.4	Avg	201	1.0	RB = 1MHz, VB = 10Hz
5354.750	67.6	h	74.0	-6.5	Pk	201	1.0	RB = VB = 1MHz

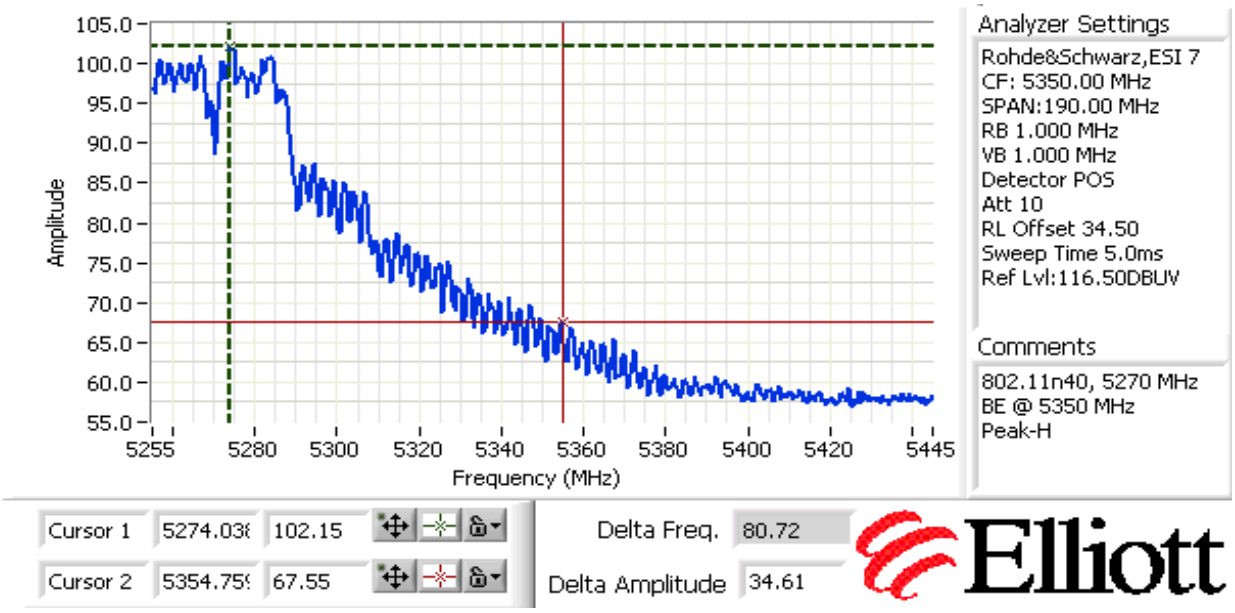
Note 1:	Field strength measured at 3m

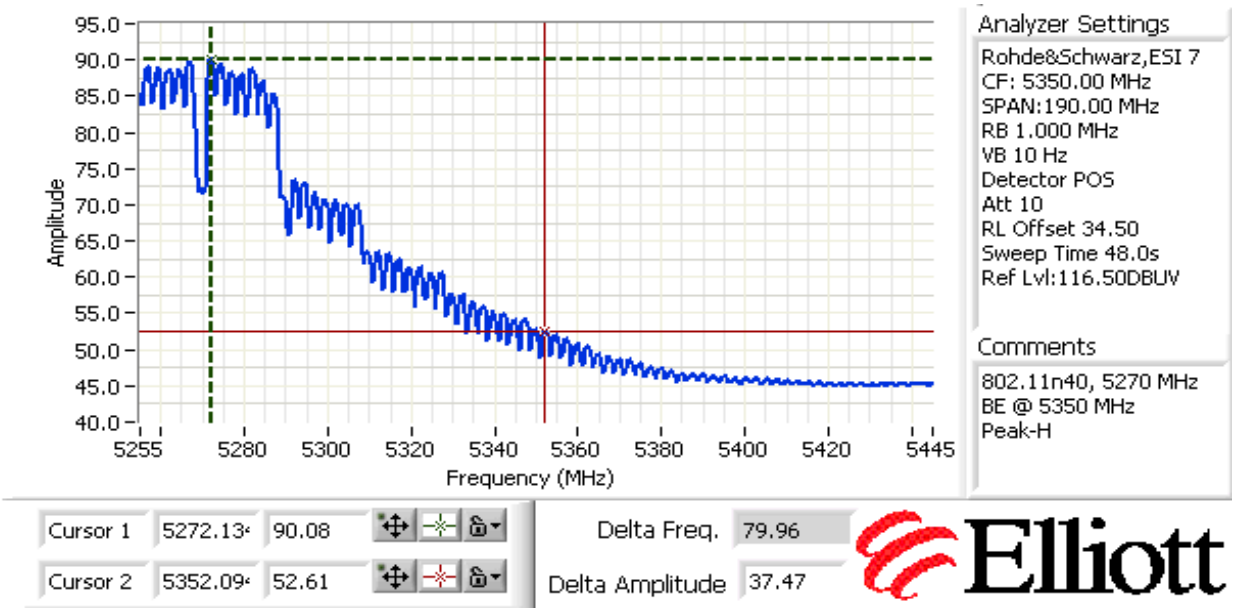
Client:	Broadcom	Job Number:	J74037
Model:	BCM943224HMS	T-Log Number:	T74146
		Account Manager:	Eriksen / Washington
Contact:	Anne Liang		
Standard:	FCC 15.247, FCC 15E, RSS 210, LP0002	Class:	N/A





Client:	Broadcom	Job Number:	J74037
Model:	BCM943224HMS	T-Log Number:	T74146
		Account Manager:	Eriksen / Washington
Contact:	Anne Liang		
Standard:	FCC 15.247, FCC 15E, RSS 210, LP0002	Class:	N/A





Client:	Broadcom	Job Number:	J74037
Model:	BCM943224HMS	T-Log Number:	T74146
		Account Manager:	Eriksen / Washington
Contact:	Anne Liang		
Standard:	FCC 15.247, FCC 15E, RSS 210, LP0002	Class:	N/A

Run #3d: Channel 62 (5310MHz), CDD 40MHz MIMO, 5250MHz Band Edge

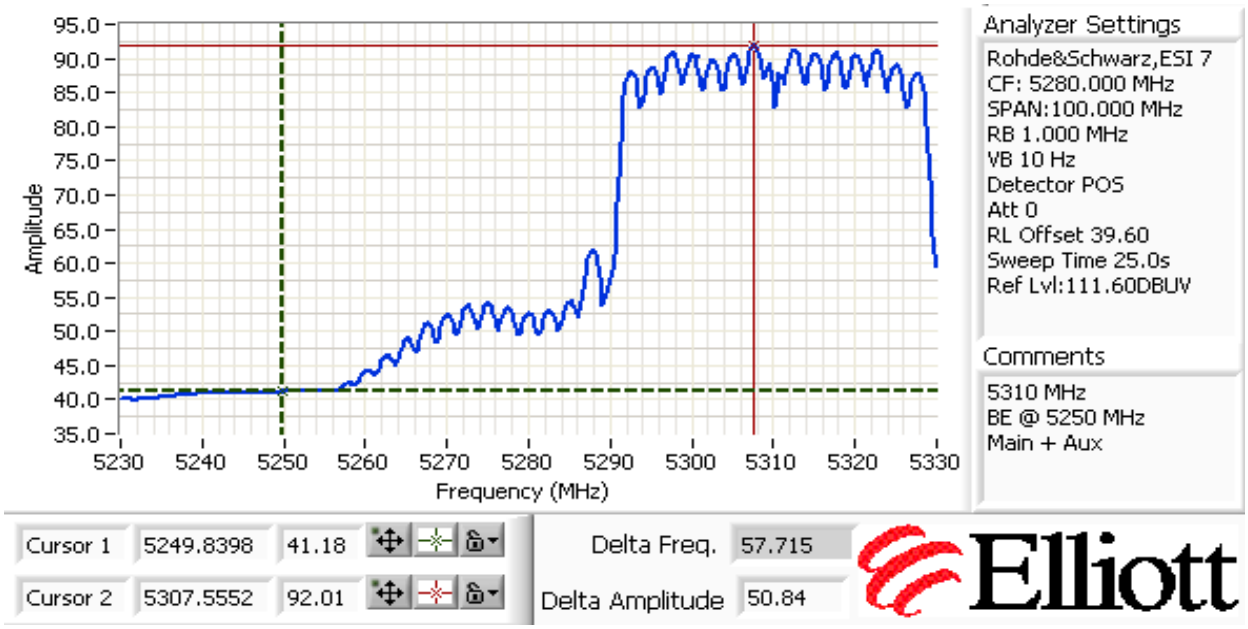
Fundamental Signal Field Strength

Frequency	Level	Pol	LP0002		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5322.986	103.7	v	-	-	Pk	190	1.0	RB = VB = 1MHz
5308.958	90.3	v	-	-	Avg	190	1.0	RB = 1MHz, VB = 10Hz
5307.555	105.2	h	-	-	Pk	250	1.7	RB = VB = 1MHz
5307.555	92.0	h	-	-	Avg	250	1.7	RB = 1MHz, VB = 10Hz

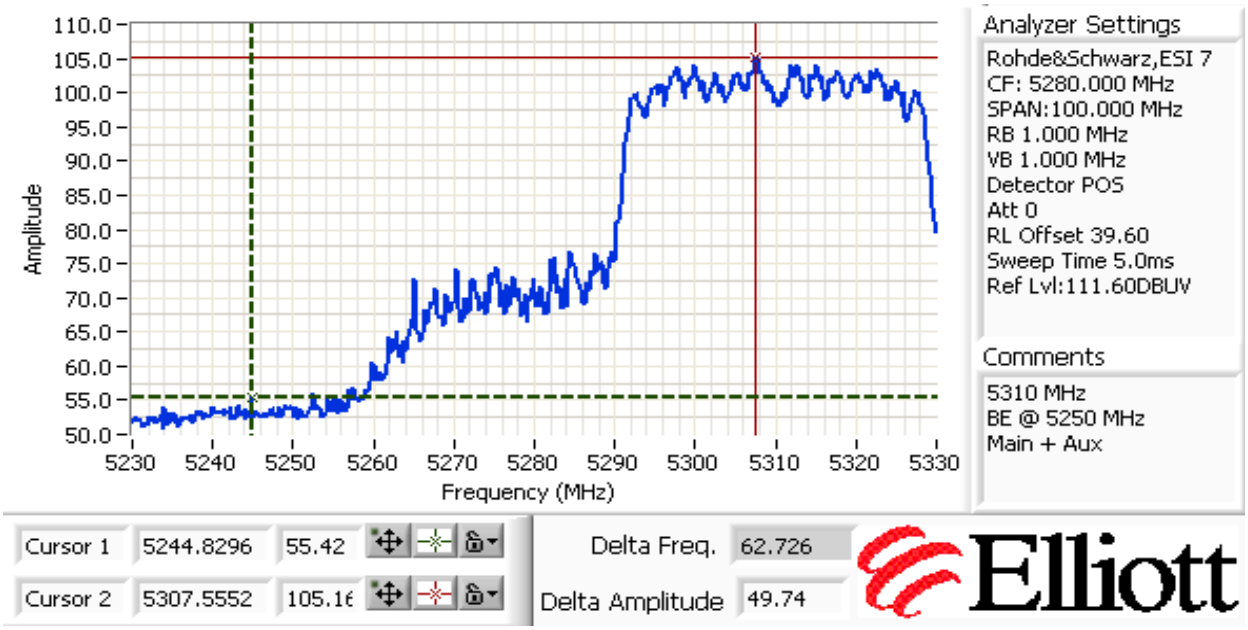
5250 MHz Band Edge Signal Radiated Field Strength

Frequency	Level	Pol	LP0002		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5249.840	41.2	h	54.0	-12.8	Avg	250	1.7	RB = 1MHz, VB = 10Hz
5249.639	39.8	v	54.0	-14.2	Avg	190	1.0	RB = 1MHz, VB = 10Hz
5244.830	55.4	h	74.0	-18.6	Pk	250	1.7	RB = VB = 1MHz
5249.038	53.9	v	74.0	-20.1	Pk	190	1.0	RB = VB = 1MHz

Note 1:	Field strength measured at 3m



Client:	Broadcom	Job Number:	J74037
Model:	BCM943224HMS	T-Log Number:	T74146
		Account Manager:	Eriksen / Washington
Contact:	Anne Liang		
Standard:	FCC 15.247, FCC 15E, RSS 210, LP0002	Class:	N/A



Run #3e: Channel 62 (5310MHz), CDD 40MHz MIMO, 5350MHz Band Edge

Fundamental Signal Field Strength

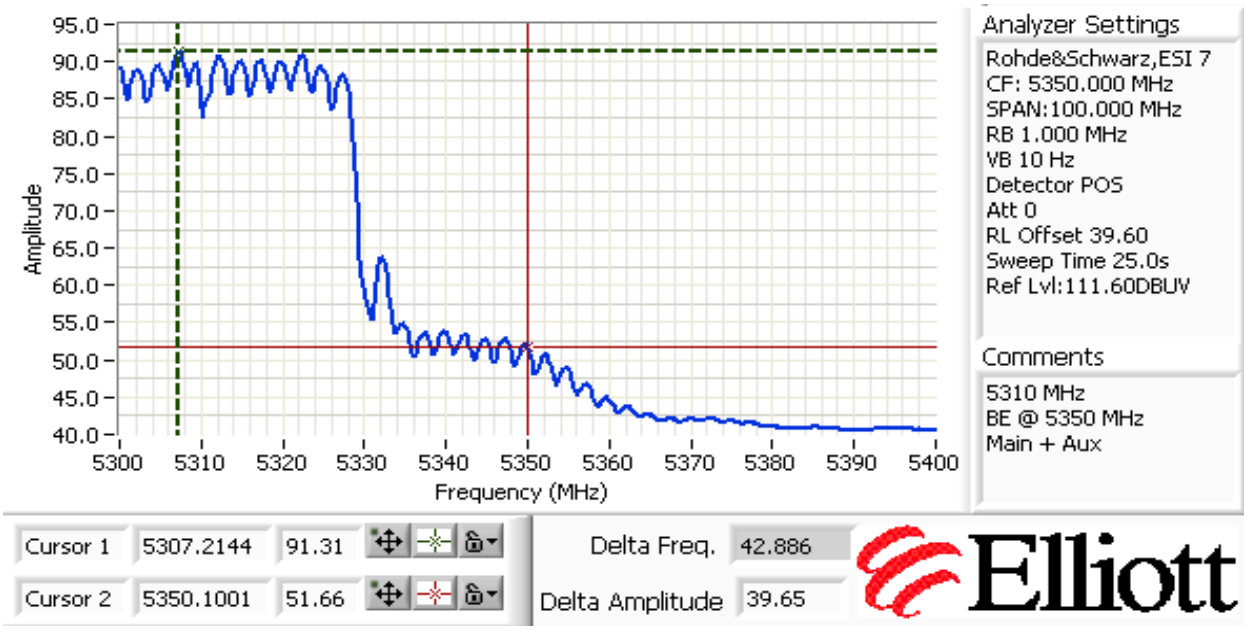
Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5308.818	101.5	v	-	-	Pk	190	1.0	RB = VB = 1MHz
5308.818	89.4	v	-	-	Avg	190	1.0	RB = 1MHz, VB = 10Hz
5307.014	102.6	h	-	-	Pk	220	1.6	RB = VB = 1MHz
5307.214	91.3	h	-	-	Avg	220	1.6	RB = 1MHz, VB = 10Hz

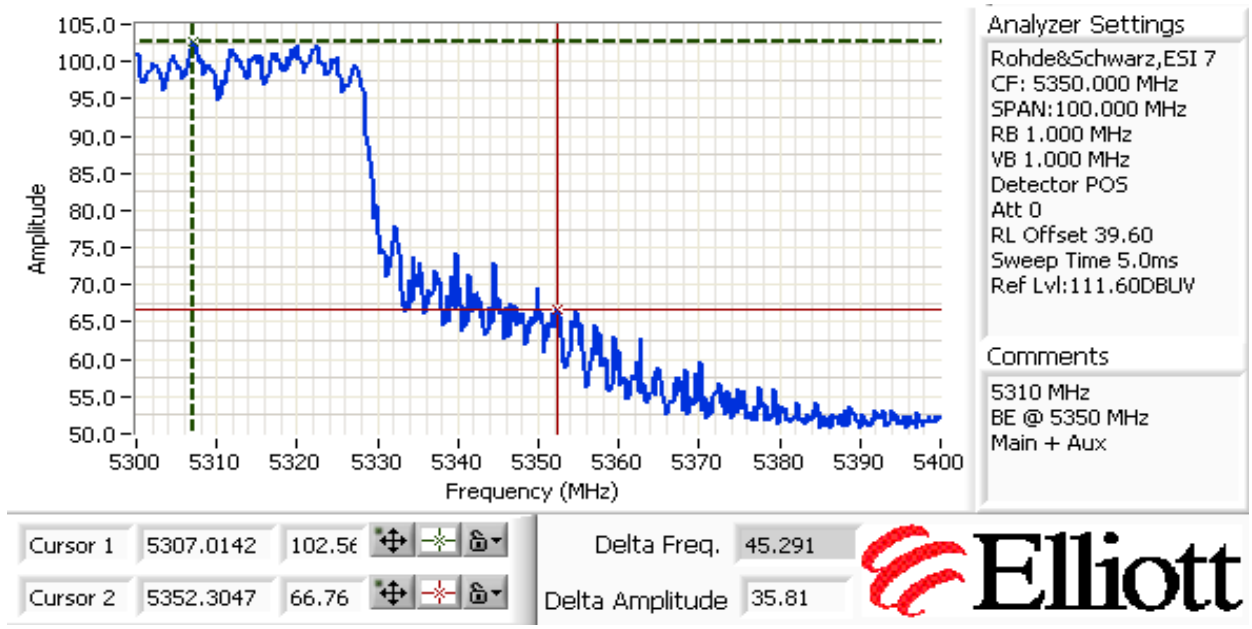
5150 MHz Band Edge Signal Radiated Field Strength

Frequency	Level	Pol	FCC 15.209		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5350.100	51.7	h	54.0	-2.3	Avg	220	1.6	RB = 1MHz, VB = 10Hz
5351.303	50.3	v	54.0	-3.7	Avg	190	1.0	RB = 1MHz, VB = 10Hz
5351.102	67.9	v	74.0	-6.1	Pk	190	1.0	RB = VB = 1MHz
5352.305	66.8	h	74.0	-7.2	Pk	220	1.6	RB = VB = 1MHz

Note 1:	Field strength measured at 3m

Client:	Broadcom	Job Number:	J74037
Model:	BCM943224HMS	T-Log Number:	T74146
		Account Manager:	Eriksen / Washington
Contact:	Anne Liang		
Standard:	FCC 15.247, FCC 15E, RSS 210, LP0002	Class:	N/A





Client:	Broadcom	Job Number:	J74037
Model:	BCM943224HMS	T-Log Number:	T74146
		Account Manager:	Eriksen / Washington
Contact:	Anne Liang		
Standard:	FCC 15.247, FCC 15E, RSS 210, LP0002	Class:	N/A

Run #3f: Channel 102 (5510MHz), CDD 40MHz MIMO, 5460MHz & 5470MHz Band Edges

Fundamental Signal Field Strength

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5520.982	100.0	v	-	-	Pk	210	1.0	RB = VB = 1MHz
5513.567	89.4	v	-	-	Avg	210	1.0	RB = 1MHz, VB = 10Hz
5513.167	110.1	h	-	-	Pk	230	1.6	RB = VB = 1MHz
5508.156	99.6	h	-	-	Avg	230	1.6	RB = 1MHz, VB = 10Hz

Date of Test: 2/6/2009 Test Engineer: Suhaila Khushzad

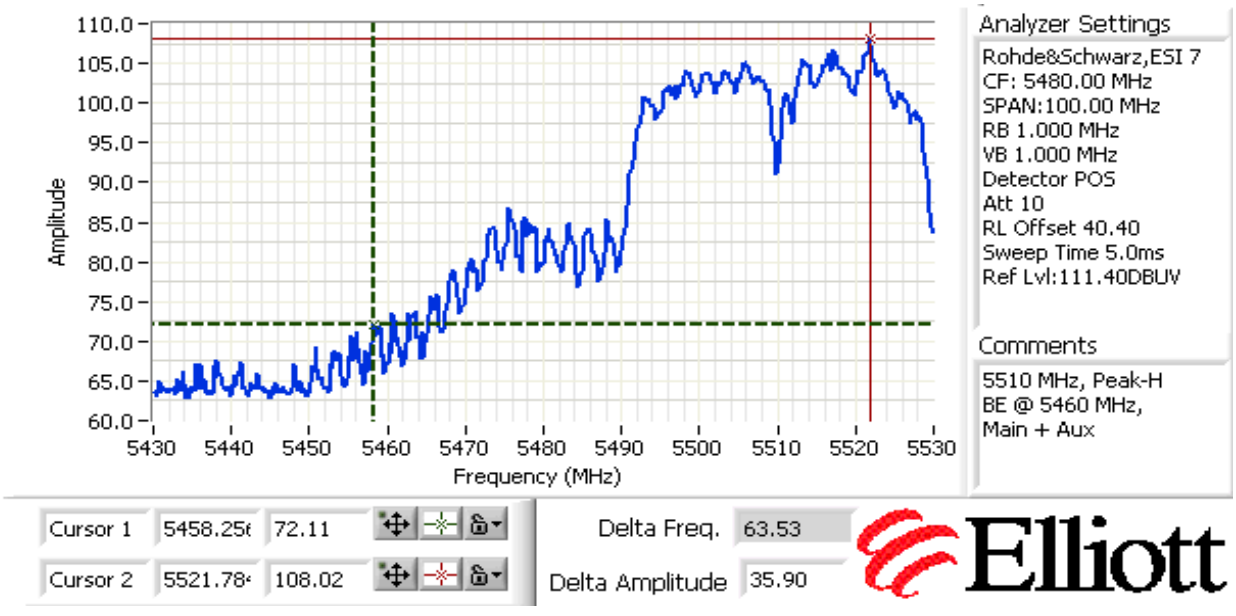
Test Location: FT Chamber #3 Comments: None

5350-5460 MHz Restricted Band Edge Signal Radiated Field Strength

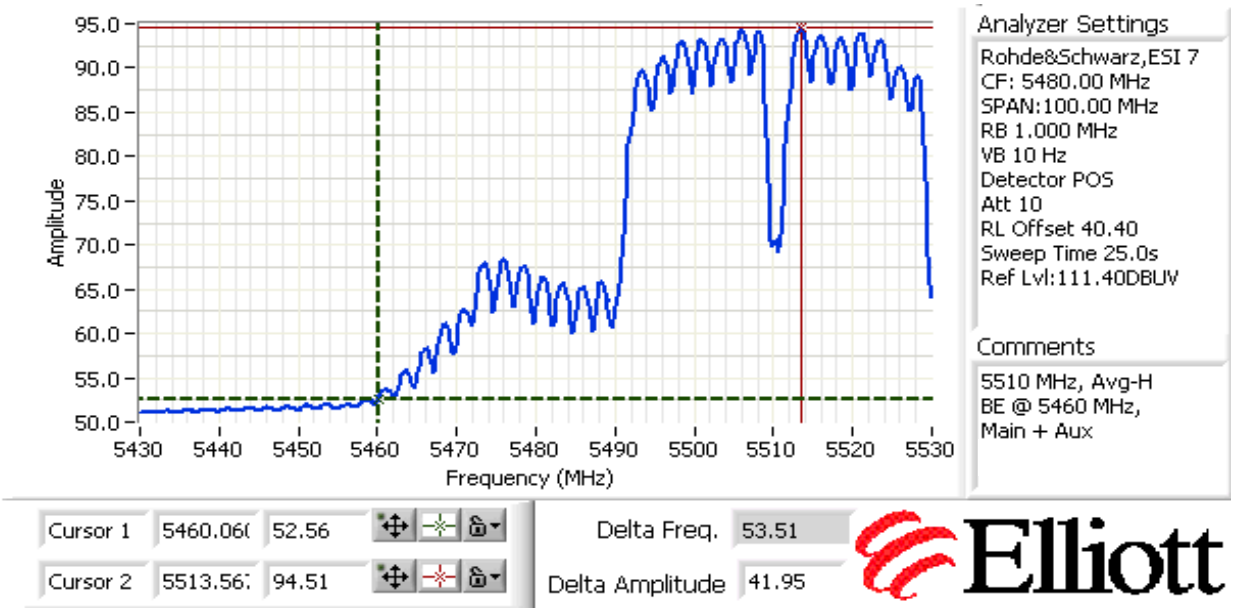
Frequency	Level	Pol	FCC 15.209		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5460.060	52.6	h	54.0	-1.4	Avg	227	1.5	
5458.250	72.1	h	74.0	-1.9	Pk	227	1.5	

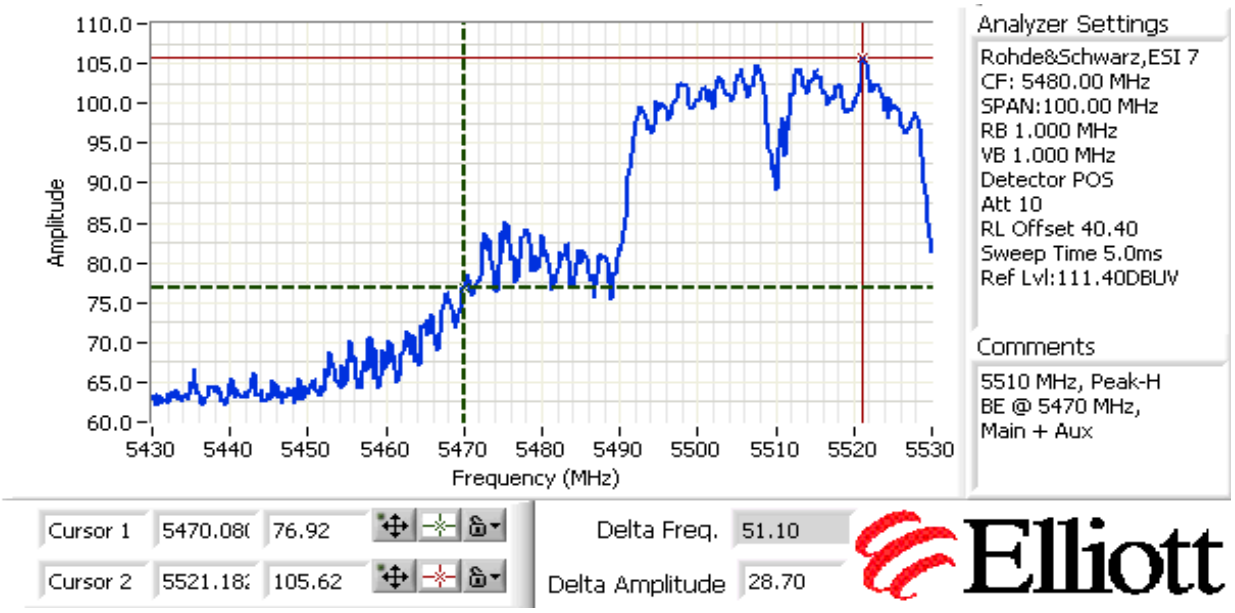
5460 - 5470 MHz Band Edge Radiated Field Strength

Frequency	Level	Pol	15 E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5470.080	61.4	h	68.3	-7.0	Avg	227	1.5	
5470.080	76.9	h	88.3	-11.4	Pk	227	1.5	

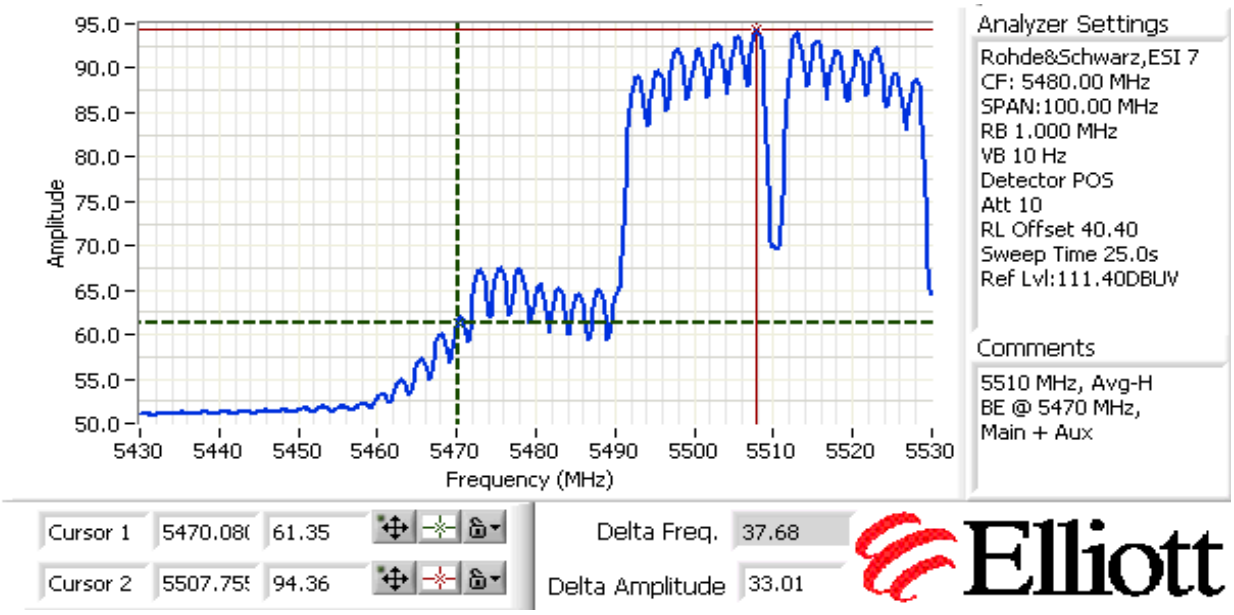


Client:	Broadcom	Job Number:	J74037
Model:	BCM943224HMS	T-Log Number:	T74146
		Account Manager:	Eriksen / Washington
Contact:	Anne Liang		
Standard:	FCC 15.247, FCC 15E, RSS 210, LP0002	Class:	N/A





Client:	Broadcom	Job Number:	J74037
Model:	BCM943224HMS	T-Log Number:	T74146
		Account Manager:	Eriksen / Washington
Contact:	Anne Liang		
Standard:	FCC 15.247, FCC 15E, RSS 210, LP0002	Class:	N/A



Client:	Broadcom	Job Number:	J74037
Model:	BCM943224HMS	T-Log Number:	T74146
		Account Manager:	Eriksen / Washington
Contact:	Anne Liang		
Standard:	FCC 15.247, FCC 15E, RSS 210, LP0002	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: 1/30/2009
Test Engineer: Suhaila Khushzad
Test Location: Chamber # 4

Config. Used: Refer to individual runs
Config Change: Refer to individual runs
Host Unit Voltage 120V/60Hz

General Test Configuration

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

Ambient Conditions:

Temperature: 15 - 25 °C
Rel. Humidity: 35 - 65 %

Summary of Results

Run #	Mode	Channel	Chain/ Antenna	Power Setting	Test Performed	Limit	Result / Margin
1	802.11a SISO	#36 5180MHz	Main	-	Radiated Emissions, 1 - 40 GHz	FCC 15.209 / 15 E	44.6dBµV/m @ 2494.6MHz (-9.4dB)
		#44 5220MHz	Main	-	Radiated Emissions, 1 - 40 GHz	FCC 15.209 / 15 E	43.8dBµV/m @ 2494.7MHz (-10.2dB)
		#44 5220MHz	Aux	-	Radiated Emissions, 1 - 40 GHz	FCC 15.209 / 15 E	43.8dBµV/m @ 2494.7MHz (-10.2dB)
		#48 5240MHz	Main	-	Radiated Emissions, 1 - 40 GHz	FCC 15.209 / 15 E	42.5dBµV/m @ 2494.7MHz (-11.5dB)
2	CDD 20MHz	#36 5180MHz	Main + Aux	-	Radiated Emissions, 1 - 40 GHz	FCC 15.209 / 15 E	42.4dBµV/m @ 2494.7MHz (-11.6dB)
		#44 5220MHz	Main + Aux	-	Radiated Emissions, 1 - 40 GHz	FCC 15.209 / 15 E	42.4dBµV/m @ 2493.0MHz (-11.6dB)
		#48 5240MHz	Main + Aux	-	Radiated Emissions, 1 - 40 GHz	FCC 15.209 / 15 E	41.8dBµV/m @ 5431.4MHz (-12.2dB)
3	CDD 40MHz	#38 5190MHz	Main + Aux	-	Radiated Emissions, 1 - 40 GHz	FCC 15.209 / 15 E	42.6dBµV/m @ 2496.7MHz (-11.4dB)
		#46 5230MHz	Main + Aux	-	Radiated Emissions, 1 - 40 GHz	FCC 15.209 / 15 E	40.1dBµV/m @ 5440.3MHz (-13.9dB)

Client:	Broadcom	Job Number:	J74037
Model:	BCM943224HMS	T-Log Number:	T74146
		Account Manager:	Eriksen / Washington
Contact:	Anne Liang		
Standard:	FCC 15.247, FCC 15E, RSS 210, LP0002	Class:	N/A

Modifications Made During Testing

No modifications were made to the EUT during testing

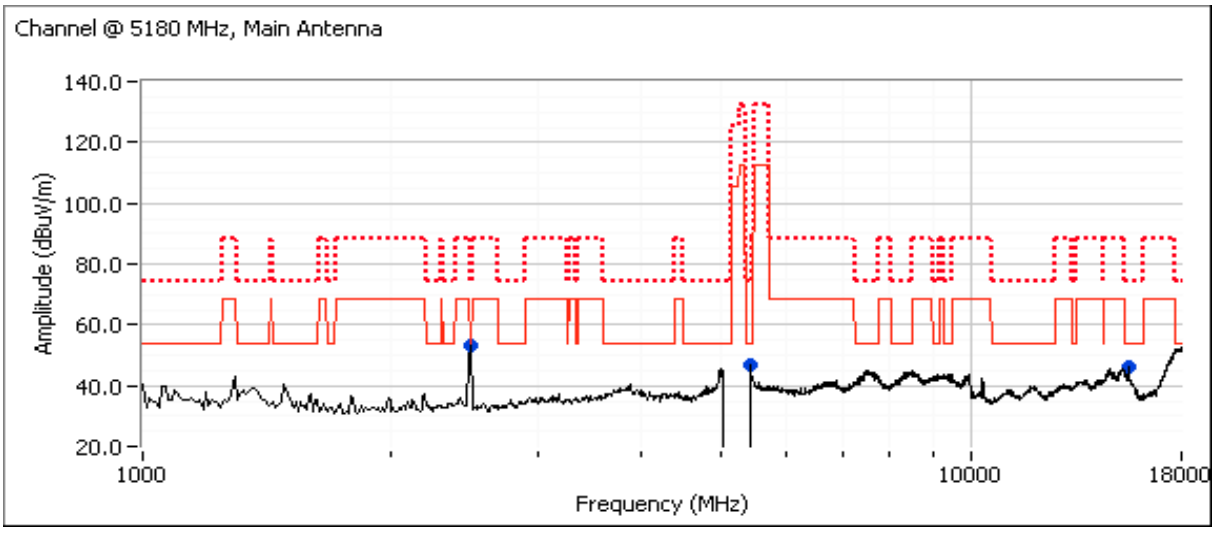
Deviations From The Standard

No deviations were made from the requirements of the standard.

Note, preliminary evaluation showed no emissions above 18 GHz.

Run #1, Radiated Spurious Emissions, 30 - 40,000 MH. Operation in the 5150-5250 MHz Band - 802.11a SISO Mode
Run #1a: Channel 36 (5180 MHz), 802.11a SISO
Spurious Radiated Emissions - Main Antenna (antenna with highest emissions at 5220 MHz)

Frequency	Level	Pol	15.209 / 15E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
2494.640	44.6	V	54.0	-9.4	AVG	176	1.5	RB 1 MHz; VB: 10 Hz
2498.800	61.4	V	74.0	-12.6	PK	176	1.5	RB 1 MHz; VB: 1 MHz
5424.030	41.0	H	54.0	-13.0	AVG	239	1.5	RB 1 MHz; VB: 10 Hz
5423.950	52.7	H	74.0	-21.3	PK	239	1.5	RB 1 MHz; VB: 1 MHz
15539.720	42.1	H	54.0	-11.9	AVG	79	1.0	RB 1 MHz; VB: 10 Hz
15538.920	56.6	H	74.0	-17.4	PK	79	1.0	RB 1 MHz; VB: 1 MHz



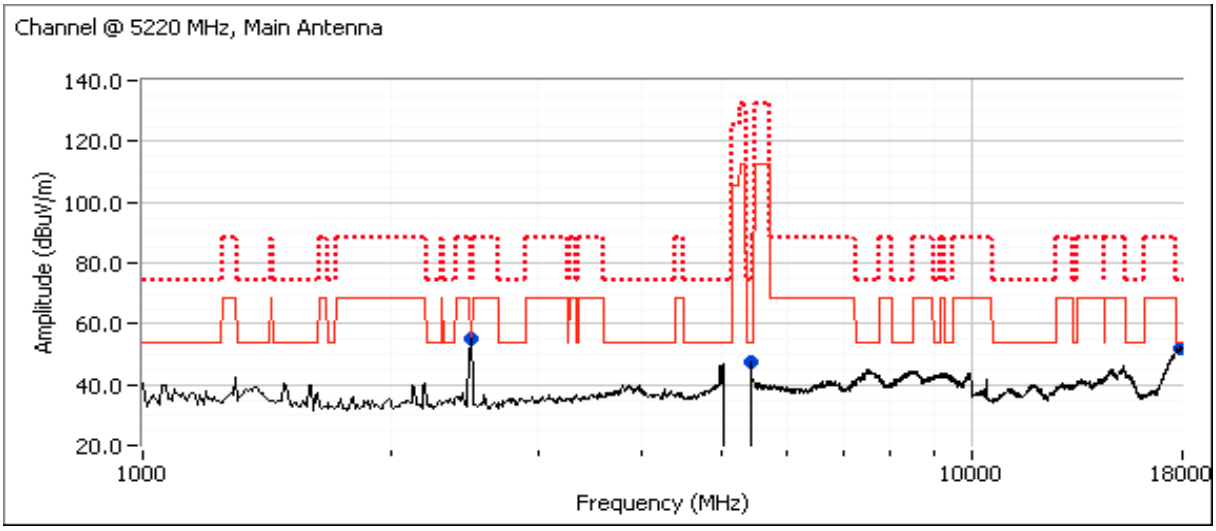
Note 1:	For emissions in restricted bands, the limit of 15.209 was used. For all other emissions, the average limit was set to -27dBm/MHz (~68dBuV/m).

Client:	Broadcom	Job Number:	J74037
Model:	BCM943224HMS	T-Log Number:	T74146
		Account Manager:	Eriksen / Washington
Contact:	Anne Liang		
Standard:	FCC 15.247, FCC 15E, RSS 210, LP0002	Class:	N/A

Run #1b: Channel 44 (5220 MHz), 802.11a SISO

Spurious Radiated Emissions - Main antenna

Frequency	Level	Pol	15.209 / 15E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
2494.680	43.8	V	54.0	-10.2	AVG	171	1.5	RB 1 MHz; VB: 10 Hz
2497.800	60.4	V	74.0	-13.6	PK	171	1.5	RB 1 MHz; VB: 1 MHz
5430.400	38.7	H	54.0	-15.3	AVG	236	1.6	RB 1 MHz; VB: 10 Hz
5425.800	50.6	H	74.0	-23.4	PK	236	1.6	RB 1 MHz; VB: 1 MHz
17872.640	44.7	H	54.0	-9.3	AVG	83	1.9	RB 1 MHz; VB: 10 Hz
17873.450	56.1	H	74.0	-17.9	PK	83	1.9	RB 1 MHz; VB: 1 MHz

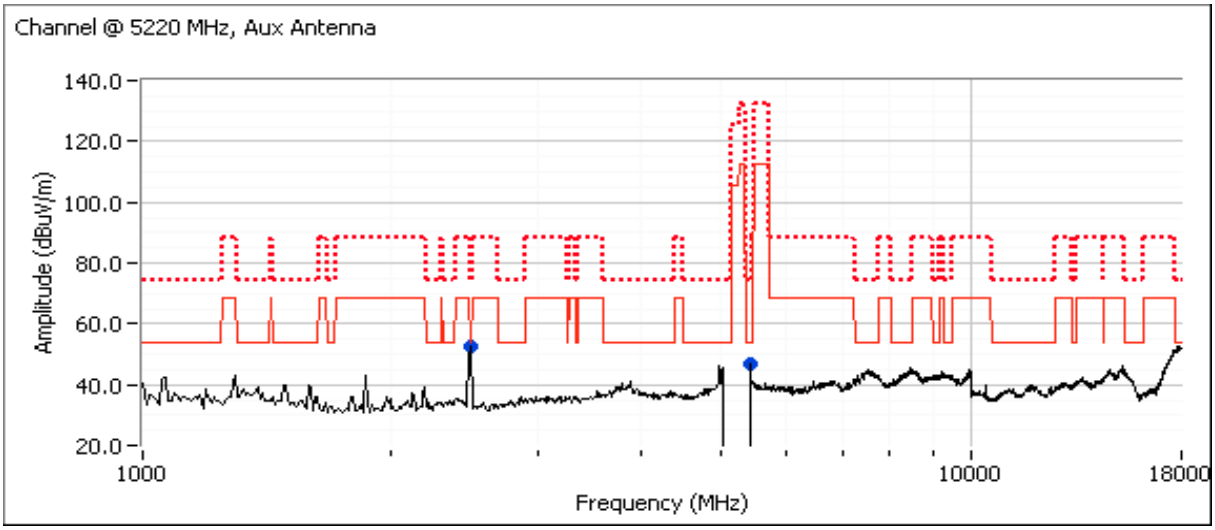


Note 1:	For emissions in restricted bands, the limit of 15.209 was used. For all other emissions, the average limit was set to -27dBm/MHz (~68dBuV/m).

Client:	Broadcom	Job Number:	J74037
Model:	BCM943224HMS	T-Log Number:	T74146
		Account Manager:	Eriksen / Washington
Contact:	Anne Liang		
Standard:	FCC 15.247, FCC 15E, RSS 210, LP0002	Class:	N/A

Spurious Radiated Emissions - Aux antenna

Frequency	Level	Pol	15.209 / 15E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
2494.660	43.8	V	54.0	-10.2	AVG	210	1.4	RB 1 MHz; VB: 10 Hz
2499.690	60.6	V	74.0	-13.4	PK	210	1.4	RB 1 MHz; VB: 1 MHz
5424.660	41.9	H	54.0	-12.1	AVG	173	1.6	RB 1 MHz; VB: 10 Hz
5432.820	53.4	H	74.0	-20.6	PK	173	1.6	RB 1 MHz; VB: 1 MHz



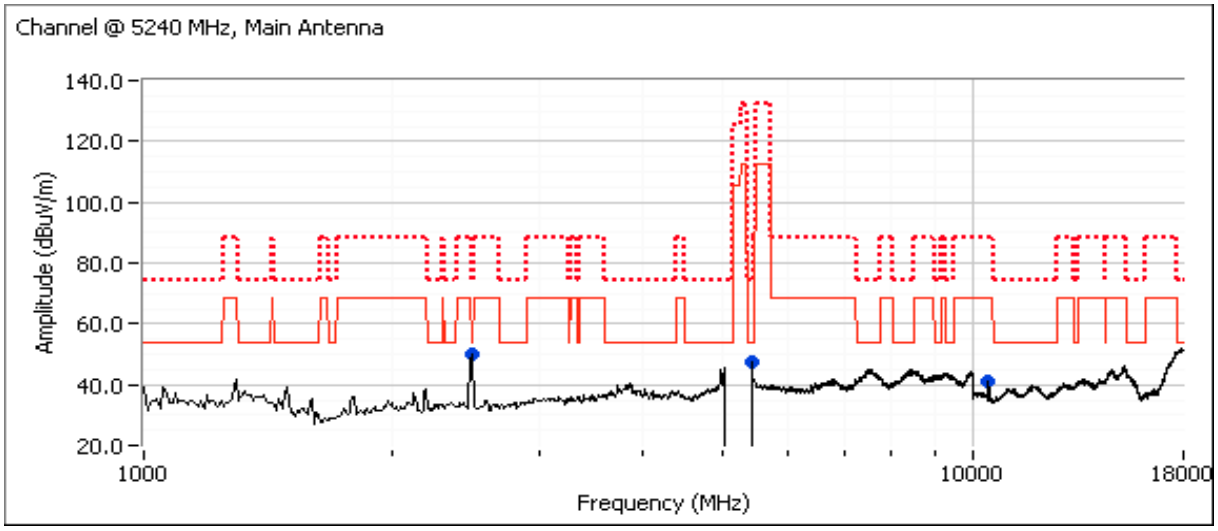
Note 1:	For emissions in restricted bands, the limit of 15.209 was used. For all other emissions, the average limit was set to -27dBm/MHz (~68dBuV/m).

Client:	Broadcom	Job Number:	J74037
Model:	BCM943224HMS	T-Log Number:	T74146
		Account Manager:	Eriksen / Washington
Contact:	Anne Liang		
Standard:	FCC 15.247, FCC 15E, RSS 210, LP0002	Class:	N/A

Run #1c: Channel 48 (5240 MHz), 802.11a SISO

Spurious Radiated Emissions - Main Antenna (antenna with highest emissions at 5220 MHz)

Frequency	Level	Pol	15.209 / 15E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
2494.660	42.5	V	54.0	-11.5	AVG	206	1.3	RB 1 MHz; VB: 10 Hz
2488.980	58.7	V	74.0	-15.3	PK	206	1.3	RB 1 MHz; VB: 1 MHz
5439.880	38.9	H	54.0	-15.1	AVG	223	1.3	RB 1 MHz; VB: 10 Hz
5423.410	50.5	H	74.0	-23.5	PK	223	1.3	RB 1 MHz; VB: 1 MHz
10479.780	34.6	V	68.3	-33.7	AVG	265	1.1	RB 1 MHz; VB: 10 Hz
10474.040	47.5	V	88.3	-40.8	PK	265	1.1	RB 1 MHz; VB: 1 MHz

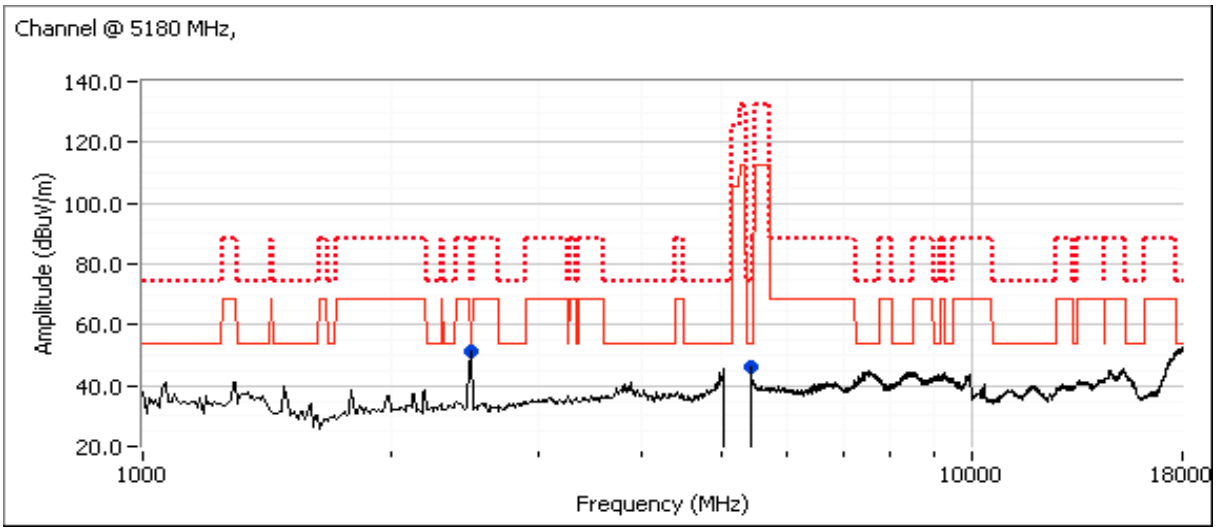


Note 1:	For emissions in restricted bands, the limit of 15.209 was used. For all other emissions, the average limit was set to -27dBm/MHz (~68dBuV/m).

Client:	Broadcom	Job Number:	J74037
Model:	BCM943224HMS	T-Log Number:	T74146
		Account Manager:	Eriksen / Washington
Contact:	Anne Liang		
Standard:	FCC 15.247, FCC 15E, RSS 210, LP0002	Class:	N/A

Run #2, Radiated Spurious Emissions, 30 - 40,000 MH. Operation in the 5150-5250 MHz Band - 802.11n20 MHz CDD Mode
Run #2a: Channel 36 (5180 MHz), 802.11n20 MHz CDD
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	
2494.660	42.4	V	54.0	-11.6	AVG	208	1.4	RB 1 MHz; VB: 10 Hz
2499.550	58.6	V	74.0	-15.4	PK	208	1.4	RB 1 MHz; VB: 1 MHz
5425.690	37.3	H	54.0	-16.7	AVG	164	2.2	RB 1 MHz; VB: 10 Hz
5413.610	48.5	H	74.0	-25.5	PK	164	2.2	RB 1 MHz; VB: 1 MHz

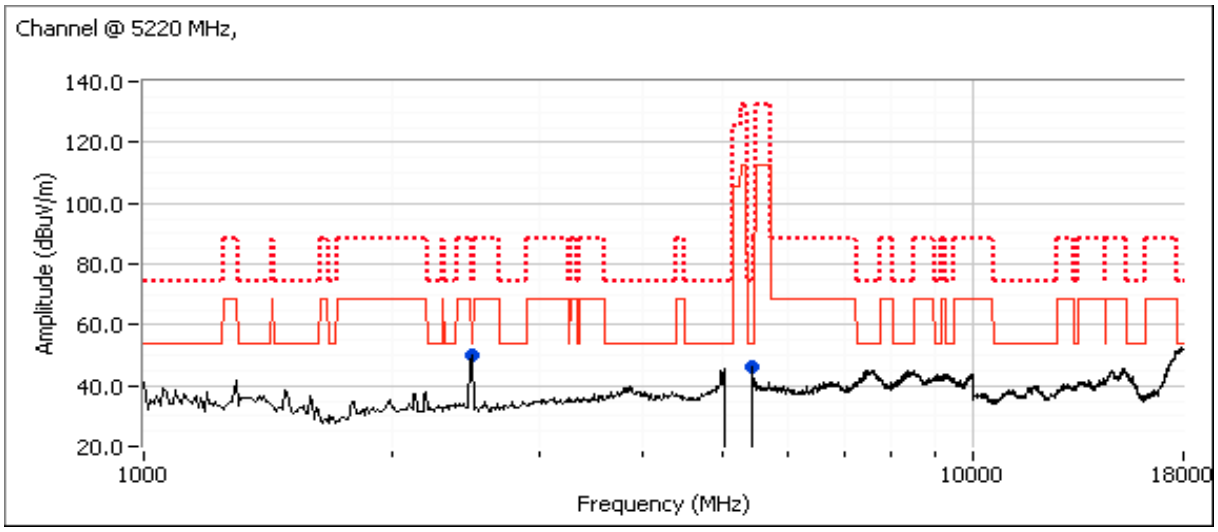


Client:	Broadcom	Job Number:	J74037
Model:	BCM943224HMS	T-Log Number:	T74146
		Account Manager:	Eriksen / Washington
Contact:	Anne Liang		
Standard:	FCC 15.247, FCC 15E, RSS 210, LP0002	Class:	N/A

Run #2b: Channel 44 (5220 MHz), 802.11n20 MHz CDD

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	
2493.010	42.4	V	54.0	-11.6	AVG	208	1.1	RB 1 MHz; VB: 10 Hz
2488.390	58.6	V	74.0	-15.4	PK	208	1.1	RB 1 MHz; VB: 1 MHz
5434.790	41.6	H	54.0	-12.4	AVG	182	1.6	RB 1 MHz; VB: 10 Hz
5430.650	52.7	H	74.0	-21.3	PK	182	1.6	RB 1 MHz; VB: 1 MHz

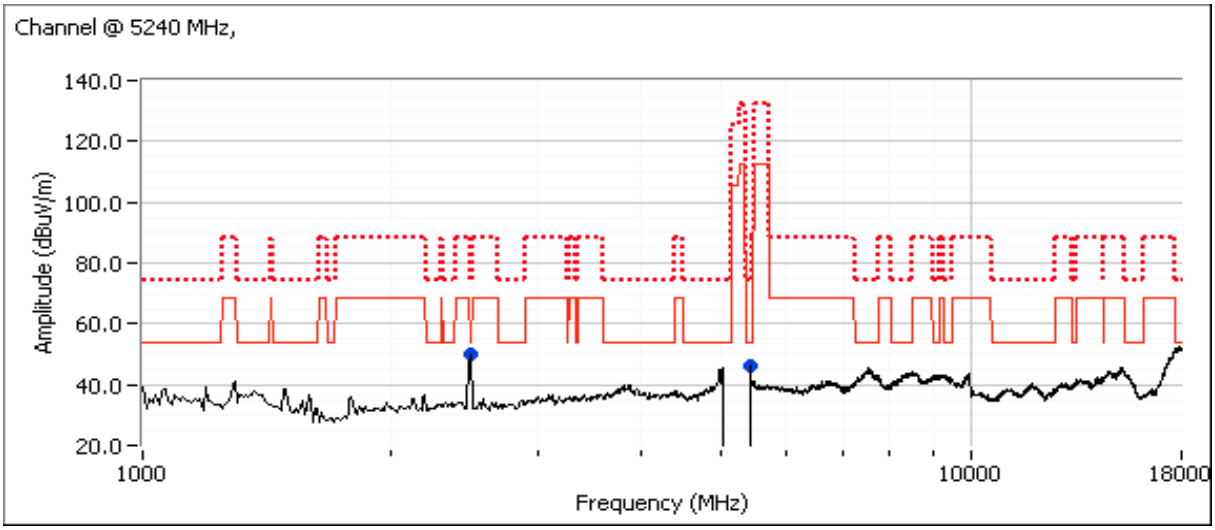


Client:	Broadcom	Job Number:	J74037
Model:	BCM943224HMS	T-Log Number:	T74146
		Account Manager:	Eriksen / Washington
Contact:	Anne Liang		
Standard:	FCC 15.247, FCC 15E, RSS 210, LP0002	Class:	N/A

Run #2c: Channel 48 (5240 MHz), 802.11n20 MHz CDD

Spurious Radiated Emissions

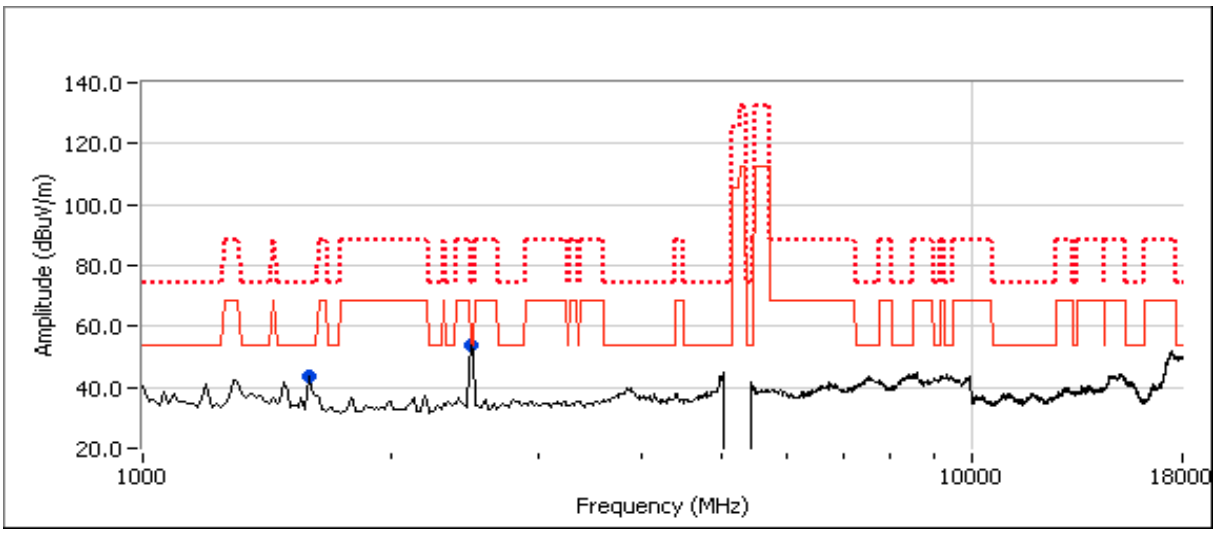
Frequency	Level	Pol	15.209 / 15E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5431.380	41.8	H	54.0	-12.2	AVG	300	1.6	RB 1 MHz; VB: 10 Hz
5424.000	54.7	H	74.0	-19.3	PK	300	1.6	RB 1 MHz; VB: 1 MHz
2494.670	41.4	V	54.0	-12.6	AVG	210	1.1	RB 1 MHz; VB: 10 Hz
2489.200	57.6	V	74.0	-16.4	PK	210	1.1	RB 1 MHz; VB: 1 MHz



Client:	Broadcom	Job Number:	J74037
Model:	BCM943224HMS	T-Log Number:	T74146
		Account Manager:	Eriksen / Washington
Contact:	Anne Liang		
Standard:	FCC 15.247, FCC 15E, RSS 210, LP0002	Class:	N/A

Run #3, Radiated Spurious Emissions, 30 - 40,000 MH. Operation in the 5150-5250 MHz Band - 802.11n40 MHz CDD Mode
Run #3a: Channel 38 (5190 MHz), 802.11n40 MHz CDD
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	
2496.680	42.6	V	54.0	-11.4	AVG	214	1.3	RB 1 MHz; VB: 10 Hz
2497.640	59.8	V	74.0	-14.2	PK	214	1.3	RB 1 MHz; VB: 1 MHz
1593.030	31.6	V	54.0	-22.4	AVG	181	1.0	RB 1 MHz; VB: 10 Hz
1593.060	54.1	V	74.0	-19.9	PK	181	1.0	RB 1 MHz; VB: 1 MHz

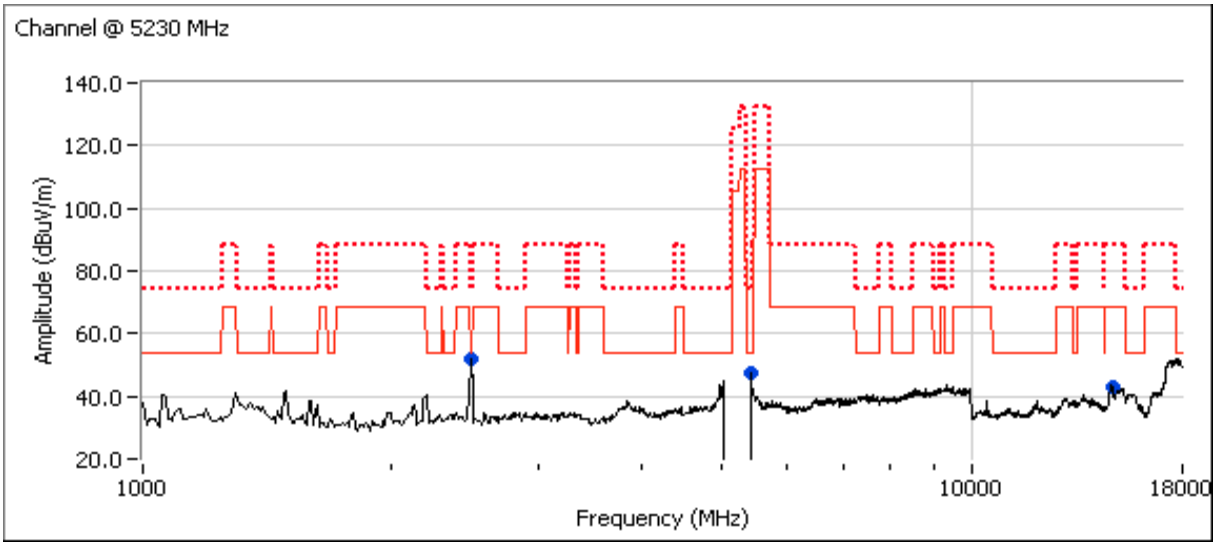


Client:	Broadcom	Job Number:	J74037
Model:	BCM943224HMS	T-Log Number:	T74146
		Account Manager:	Eriksen / Washington
Contact:	Anne Liang		
Standard:	FCC 15.247, FCC 15E, RSS 210, LP0002	Class:	N/A

Run #3b: Channel 46 (5230 MHz), 802.11n40 MHz CDD

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	
5440.260	40.1	H	54.0	-13.9	AVG	259	1.0	RB 1 MHz; VB: 10 Hz
5441.810	51.7	H	74.0	-22.3	PK	259	1.0	RB 1 MHz; VB: 1 MHz
2494.650	37.6	V	54.0	-16.4	AVG	248	1.0	RB 1 MHz; VB: 10 Hz
2499.670	53.7	V	74.0	-20.3	PK	248	1.0	RB 1 MHz; VB: 1 MHz



Client:	Broadcom	Job Number:	J74037
Model:	BCM943224HMS	T-Log Number:	T74146
		Account Manager:	Eriksen / Washington
Contact:	Anne Liang		
Standard:	FCC 15.247, FCC 15E, RSS 210, LP0002	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: Refer to individual run
Test Engineer: Refer to individual run
Test Location: Refer to individual run

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

General Test Configuration

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

Ambient Conditions:

Temperature: 18.7 °C
Rel. Humidity: 34 %

Summary of Results

Run #	Mode	Channel	Chain/ Antenna	Power Setting	Test Performed	Limit	Result / Margin
1	802.11a SISO	#52 5260MHz	Aux	-	Radiated Emissions, 1 - 40 GHz	FCC 15.209 / 15 E / LP0002 / RSS 210	48.6dBµV/m @ 15782.2MHz (-5.4dB)
		#56 5280MHz	Aux	-	Radiated Emissions, 1 - 40 GHz	LP0002	43.9dBµV/m @ 2496.8MHz (-10.1dB)
		#60 5300MHz	Main	-	Radiated Emissions, 1 - 40 GHz	FCC 15.209 / 15 E / LP0002 / RSS 210	42.4dBµV/m @ 2494.6MHz (-11.6dB)
			Aux	-	Radiated Emissions, 1 - 40 GHz	FCC 15.209 / 15 E / LP0002 / RSS 210	48.0dBµV/m @ 15901.7MHz (-6.0dB)
		#64 5320MHz	Aux	-	Radiated Emissions, 1 - 40 GHz	FCC 15.209 / 15 E / LP0002 / RSS 210	43.1dBµV/m @ 15955.9MHz (-10.9dB)
		#100 5500MHz	Main	-	Radiated Emissions, 1 - 40 GHz	FCC 15.209 / 15 E / LP0002 / RSS 210	50.8dBµV/m @ 11100.0MHz (-3.2dB)
		#120 5600MHz	Main	-	Radiated Emissions, 1 - 40 GHz	FCC 15.209 / 15 E / LP0002 / RSS 210	44.5dBµV/m @ 11199.8MHz (-9.5dB)
			Aux	-	Radiated Emissions, 1 - 40 GHz	FCC 15.209 / 15 E / LP0002 / RSS 210	42.4dBµV/m @ 2494.3MHz (-11.6dB)
		#140 5700MHz	Main	-	Radiated Emissions, 1 - 40 GHz	FCC 15.209 / 15 E / LP0002 / RSS 210	47.7dBµV/m @ 11100.2MHz (-6.3dB)

Client:	Broadcom	Job Number:	J74037
Model:	BCM943224HMS	T-Log Number:	T74146
		Account Manager:	Eriksen / Washington
Contact:	Anne Liang		
Standard:	FCC 15.247, FCC 15E, RSS 210, LP0002	Class:	N/A

Summary of Results Continued

Run #	Mode	Channel	Chain/ Antenna	Power Setting	Test Performed	Limit	Result / Margin
2	CDD 20MHz	#52 5260MHz	Main + Aux	-	Radiated Emissions, 1 - 40 GHz	FCC 15.209 / 15 E / LP0002 / RSS 210	47.8dBµV/m @ 15780.4MHz (-6.2dB)
		#56 5280MHz	Main + Aux	-	Radiated Emissions, 1 - 40 GHz	LP0002	42.8dBµV/m @ 2497.0MHz (-11.2dB)
		#60 5300MHz	Main + Aux	-	Radiated Emissions, 1 - 40 GHz	FCC 15.209 / 15 E / LP0002 / RSS 211	43.5dBµV/m @ 15906.7MHz (-10.5dB)
		#64 5320MHz	Main + Aux	-	Radiated Emissions, 1 - 40 GHz	FCC 15.209 / 15 E / LP0002 / RSS 212	41.2dBµV/m @ 15960.0MHz (-12.8dB)
		#100 5500MHz	Main + Aux	-	Radiated Emissions, 1 - 40 GHz	FCC 15.209 / 15 E / LP0002 / RSS 213	46.5dBµV/m @ 11000.6MHz (-7.5dB)
		#120 5600MHz	Main + Aux	-	Radiated Emissions, 1 - 40 GHz	FCC 15.209 / 15 E / LP0002 / RSS 210	49.1dBµV/m @ 11200.2MHz (-4.9dB)
		#140 5700MHz	Main + Aux	-	Radiated Emissions, 1 - 40 GHz	FCC 15.209 / 15 E / LP0002 / RSS 210	64.0dBµV/m @ 17100.9MHz (-4.3dB)
3	CDD 40MHz	#54 5270MHz	Main + Aux	-	Radiated Emissions, 1 - 40 GHz	FCC 15.209 / 15 E / LP0002 / RSS 210	52.8dBµV/m @ 5422.0MHz (-1.2dB)
		#62 5310MHz	Main + Aux	-	Radiated Emissions, 1 - 40 GHz	FCC 15.209 / 15 E / LP0002 / RSS 212	44.9dBµV/m @ 2493.5MHz (-9.1dB)
		#102 5510MHz	Main + Aux	-	Radiated Emissions, 1 - 40 GHz	FCC 15.209 / 15 E / LP0002 / RSS 213	44.9dBµV/m @ 2493.5MHz (-9.1dB)
		#118 5590MHz	Main + Aux	-	Radiated Emissions, 1 - 40 GHz	FCC 15.209 / 15 E / LP0002 / RSS 210	46.6dBµV/m @ 11180.3MHz (-7.4dB)
		#134 5670MHz	Main + Aux	-	Radiated Emissions, 1 - 40 GHz	FCC 15.209 / 15 E / LP0002 / RSS 210	45.2dBµV/m @ 11361.2MHz (-8.8dB)

Modifications Made During Testing

No modifications were made to the EUT during testing

Deviations From The Standard

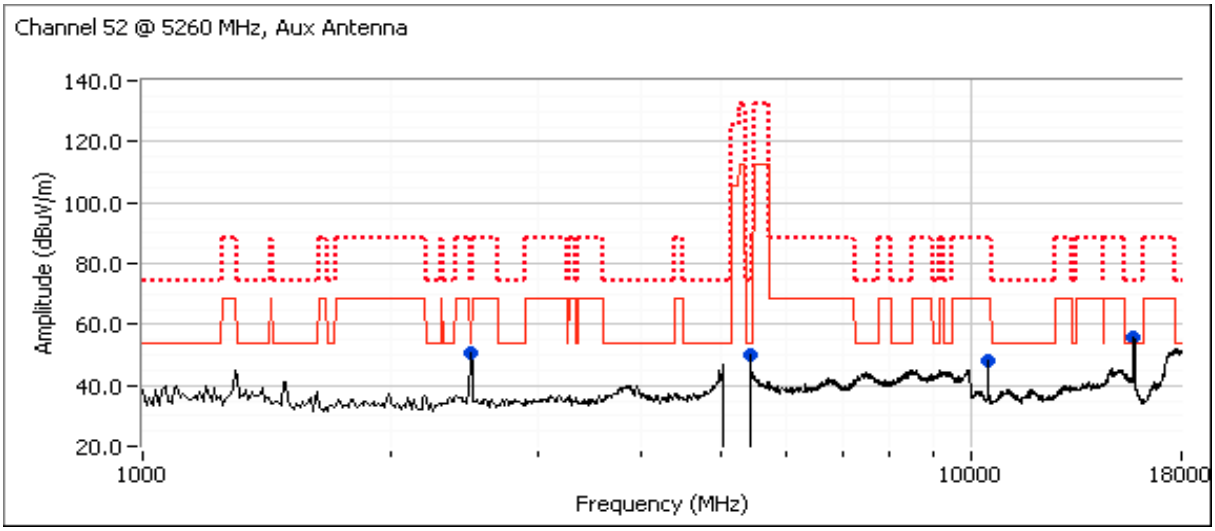
No deviations were made from the requirements of the standard.
Note, preliminary evaluation showed no emissions above 18 GHz.

Client:	Broadcom	Job Number:	J74037
Model:	BCM943224HMS	T-Log Number:	T74146
		Account Manager:	Eriksen / Washington
Contact:	Anne Liang		
Standard:	FCC 15.247, FCC 15E, RSS 210, LP0002	Class:	N/A

Run #1, Radiated Spurious Emissions, 30 - 40,000 MHz. 5250-5350 & 5470-5725 MHz Bands - 802.11a SISO Mode
Run #1a: Channel 52 (5260 MHz), 802.11a SISO
Spurious Radiated Emissions - Aux Antenna *(antenna with highest emissions at 5300 MHz)*

Frequency	Level	Pol	15.209 / 15E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
15782.190	48.6	V	54.0	-5.4	AVG	210	1.0	RB 1 MHz; VB: 10 Hz
15784.630	61.3	V	74.0	-12.7	PK	210	1.0	RB 1 MHz; VB: 1 MHz
2494.150	39.8	V	54.0	-14.2	AVG	360	1.6	RB 1 MHz; VB: 10 Hz
2499.460	55.7	V	74.0	-18.3	PK	360	1.6	RB 1 MHz; VB: 1 MHz
5434.960	39.6	H	54.0	-14.4	AVG	338	1.2	RB 1 MHz; VB: 10 Hz
5441.190	50.9	H	74.0	-23.1	PK	338	1.2	RB 1 MHz; VB: 1 MHz
10520.120	40.9	H	68.3	-27.4	AVG	73	1.0	RB 1 MHz; VB: 10 Hz
10520.820	53.9	H	88.3	-34.4	PK	73	1.0	RB 1 MHz; VB: 1 MHz

Note 1:	For emissions in restricted bands, the limit of 15.209 was used. For all other emissions, the average limit was set to -27dBm/MHz (~68dBuV/m).



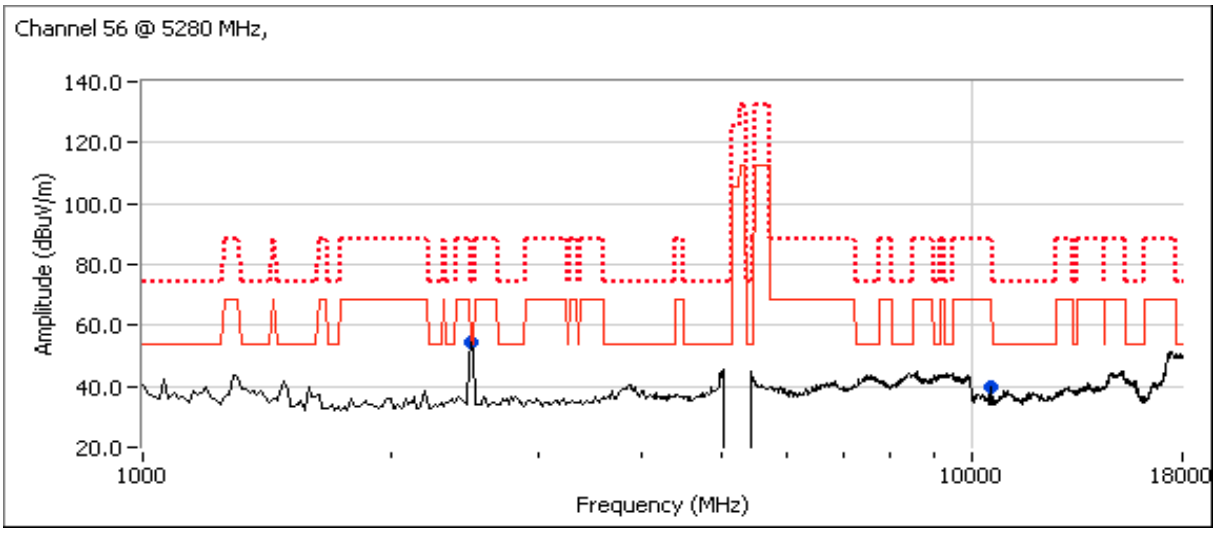
Client:	Broadcom	Job Number:	J74037
Model:	BCM943224HMS	T-Log Number:	T74146
		Account Manager:	Eriksen / Washington
Contact:	Anne Liang		
Standard:	FCC 15.247, FCC 15E, RSS 210, LP0002	Class:	N/A

Run #1b: Channel 56 (5280 MHz), 802.11a SISO

Spurious Radiated Emissions - Aux Antenna

Frequency	Level	Pol	15.209 / 15E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
2496.840	43.9	V	54.0	-10.1	AVG	215	1.3	RB 1 MHz; VB: 10 Hz
2497.340	61.6	V	74.0	-12.4	PK	215	1.3	RB 1 MHz; VB: 1 MHz
10546.670	39.5	V	68.3	-28.8	Peak	257	1.0	

Note 1:	For emissions in restricted bands, the limit of 15.209 was used. For all other emissions, the average limit was set to -27dBm/MHz (~68dBuV/m).

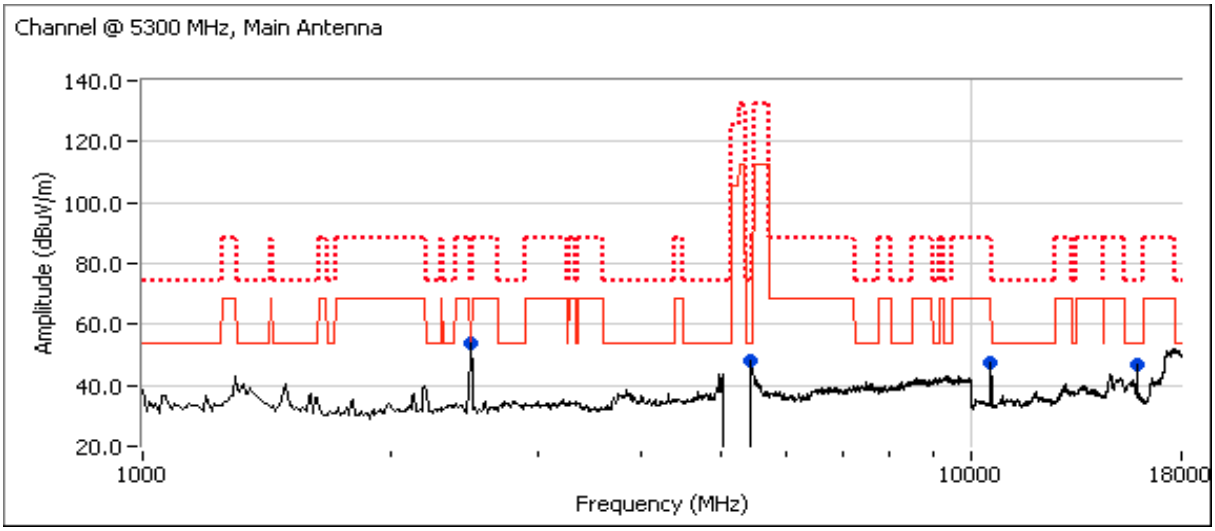


Client:	Broadcom	Job Number:	J74037
Model:	BCM943224HMS	T-Log Number:	T74146
		Account Manager:	Eriksen / Washington
Contact:	Anne Liang		
Standard:	FCC 15.247, FCC 15E, RSS 210, LP0002	Class:	N/A

Date of Test: 2/2/2009
Test Engineer: Suhaila Khushzad
Test Location: Chamber # 3

Run #1c: Channel 60 (5300 MHz), 802.11a SISO
Spurious Radiated Emissions - Main antenna

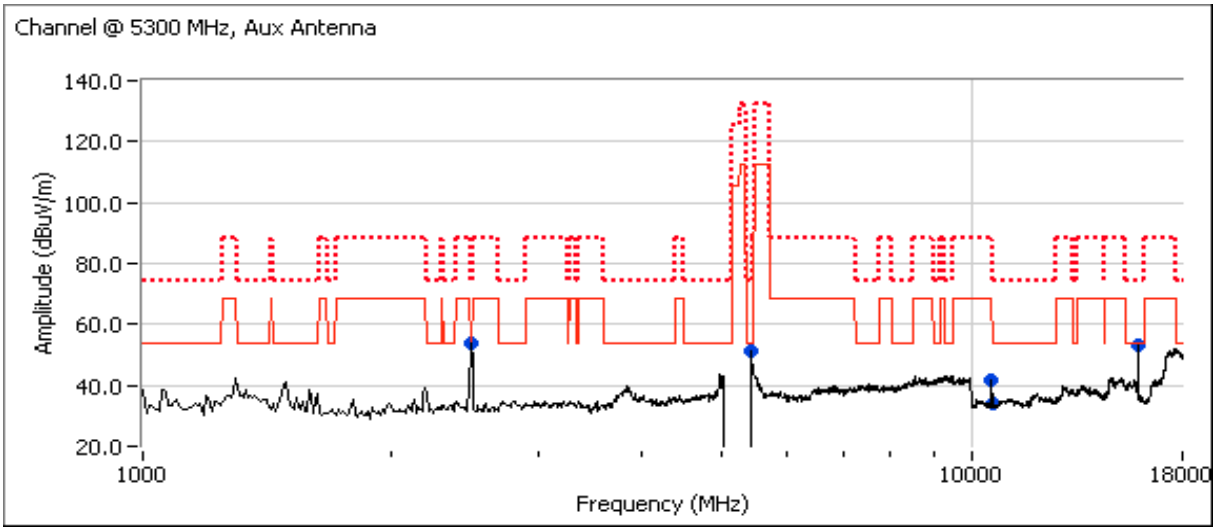
Frequency	Level	Pol	15.209 / 15E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
2494.630	42.4	V	54.0	-11.6	AVG	237	1.3	RB 1 MHz; VB: 10 Hz
2498.000	59.1	V	74.0	-14.9	PK	237	1.3	RB 1 MHz; VB: 1 MHz
10598.990	41.8	V	68.3	-26.5	AVG	240	1.1	RB 1 MHz; VB: 10 Hz
10598.050	55.1	V	88.3	-33.2	PK	240	1.1	RB 1 MHz; VB: 1 MHz
15806.410	31.2	V	54.0	-22.8	AVG	90	1.0	RB 1 MHz; VB: 10 Hz
15810.110	42.9	V	74.0	-31.1	PK	90	1.0	RB 1 MHz; VB: 1 MHz
5433.880	41.2	H	54.0	-12.8	AVG	164	1.6	RB 1 MHz; VB: 10 Hz
5439.720	52.5	H	74.0	-21.5	PK	164	1.6	RB 1 MHz; VB: 1 MHz



Client:	Broadcom	Job Number:	J74037
Model:	BCM943224HMS	T-Log Number:	T74146
		Account Manager:	Eriksen / Washington
Contact:	Anne Liang		
Standard:	FCC 15.247, FCC 15E, RSS 210, LP0002	Class:	N/A

Spurious Radiated Emissions - Aux antenna

Frequency	Level	Pol	15.209 / 15E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
15901.690	48.0	H	54.0	-6.0	AVG	128	1.0	RB 1 MHz; VB: 10 Hz
15904.840	60.1	H	74.0	-13.9	PK	128	1.0	RB 1 MHz; VB: 1 MHz
5433.840	42.9	H	54.0	-11.1	AVG	218	1.4	RB 1 MHz; VB: 10 Hz
5431.750	54.1	H	74.0	-19.9	PK	218	1.4	RB 1 MHz; VB: 1 MHz
2492.470	40.3	V	54.0	-13.7	AVG	218	1.3	RB 1 MHz; VB: 10 Hz
2489.820	56.7	V	74.0	-17.3	PK	218	1.3	RB 1 MHz; VB: 1 MHz
10595.610	32.4	V	68.3	-35.9	AVG	283	1.0	RB 1 MHz; VB: 10 Hz
10602.810	43.5	V	74.0	-30.5	PK	283	1.0	RB 1 MHz; VB: 1 MHz



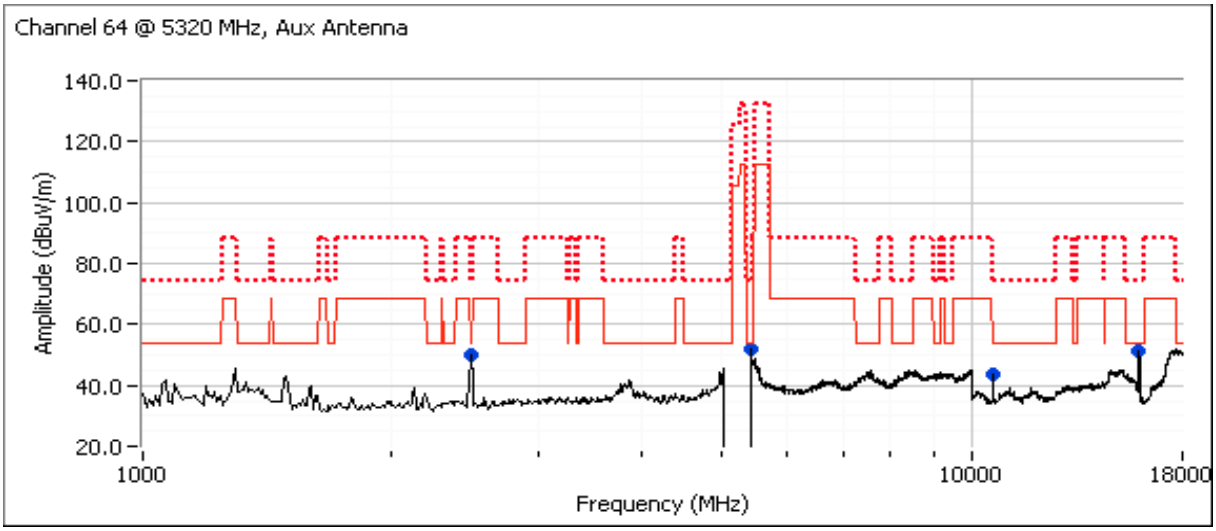
Note 1:	For emissions in restricted bands, the limit of 15.209 was used. For all other emissions, the **average** limit was set to -27dBm/MHz (~68dBuV/m).

Client:	Broadcom	Job Number:	J74037
Model:	BCM943224HMS	T-Log Number:	T74146
		Account Manager:	Eriksen / Washington
Contact:	Anne Liang		
Standard:	FCC 15.247, FCC 15E, RSS 210, LP0002	Class:	N/A

Run #1d: Channel 64 (5320 MHz), 802.11a SISO

Spurious Radiated Emissions - Aux Antenna (antenna with highest emissions at 5300 MHz)

Frequency	Level	Pol	15.209 / 15E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
15955.900	43.1	V	54.0	-10.9	AVG	207	1.0	RB 1 MHz; VB: 10 Hz
15948.850	55.5	V	74.0	-18.5	PK	207	1.0	RB 1 MHz; VB: 1 MHz
10640.260	36.7	H	54.0	-17.3	AVG	69	1.0	RB 1 MHz; VB: 10 Hz
10636.820	49.6	H	74.0	-24.4	PK	69	1.0	RB 1 MHz; VB: 1 MHz
5427.210	48.6	H	54.0	-5.4	AVG	52	1.4	RB 1 MHz; VB: 10 Hz
5427.030	61.8	H	74.0	-12.2	PK	52	1.4	RB 1 MHz; VB: 1 MHz
2493.630	41.8	V	54.0	-12.2	AVG	28	1.4	RB 1 MHz; VB: 10 Hz
2498.000	58.1	V	74.0	-15.9	PK	28	1.4	RB 1 MHz; VB: 1 MHz

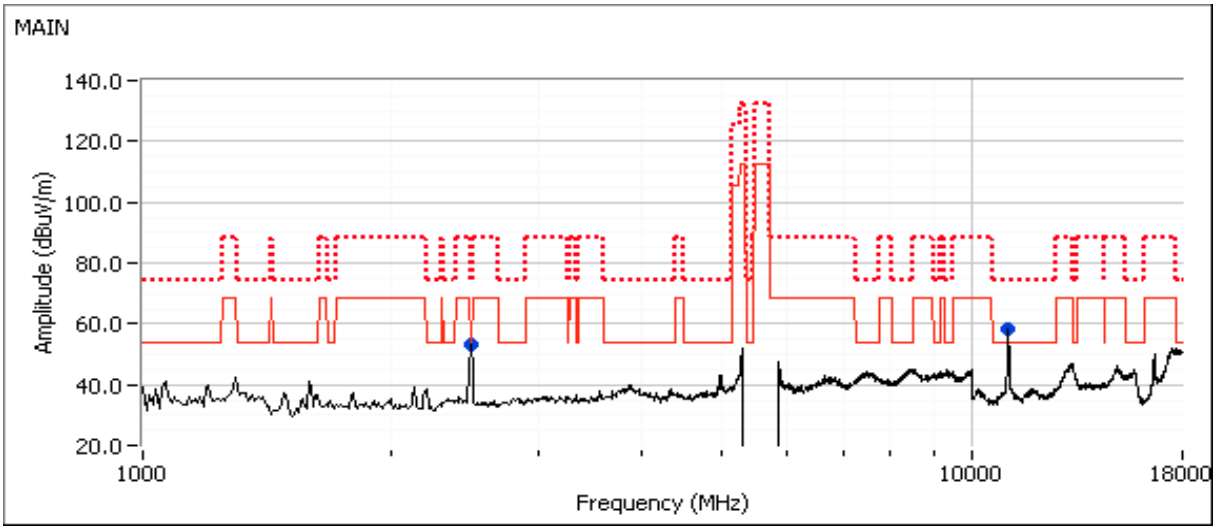


Client:	Broadcom	Job Number:	J74037
Model:	BCM943224HMS	T-Log Number:	T74146
		Account Manager:	Eriksen / Washington
Contact:	Anne Liang		
Standard:	FCC 15.247, FCC 15E, RSS 210, LP0002	Class:	N/A

Run #1e: Channel 100 (5500 MHz), 802.11a SISO
Spurious Radiated Emissions - Main Antenna (antenna with highest emissions at 5600 MHz)

Frequency	Level	Pol	15.209 / 15E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
11099.960	50.8	H	54.0	-3.2	AVG	329	1.0	MHz; VB: 10 Hz
2494.640	44.8	V	54.0	-9.2	AVG	27	1.5	MHz; VB: 10 Hz
11101.620	62.0	H	74.0	-12.0	PK	329	1.0	MHz; VB: 1 MHz
2499.870	61.7	V	74.0	-12.3	PK	27	1.5	MHz; VB: 1 MHz

Note 1:	For emissions in restricted bands, the limit of 15.209 was used. For all other emissions, the average limit was set to -27dBm/MHz (~68dBuV/m).

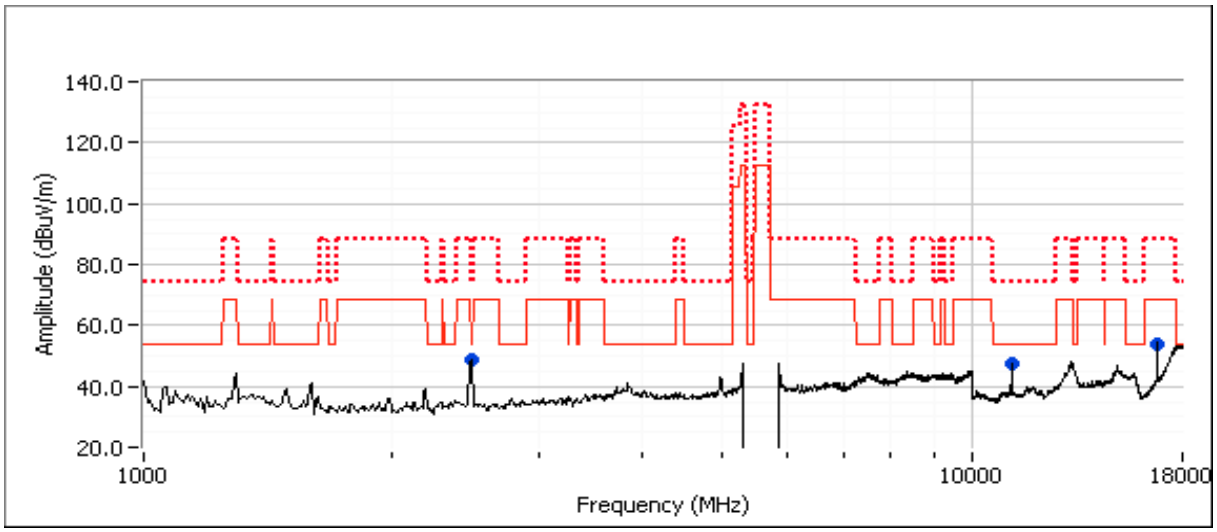


Client:	Broadcom	Job Number:	J74037
Model:	BCM943224HMS	T-Log Number:	T74146
		Account Manager:	Eriksen / Washington
Contact:	Anne Liang		
Standard:	FCC 15.247, FCC 15E, RSS 210, LP0002	Class:	N/A

Run #1f: Channel 120 (5600 MHz), 802.11a SISO

Spurious Radiated Emissions - Main antenna

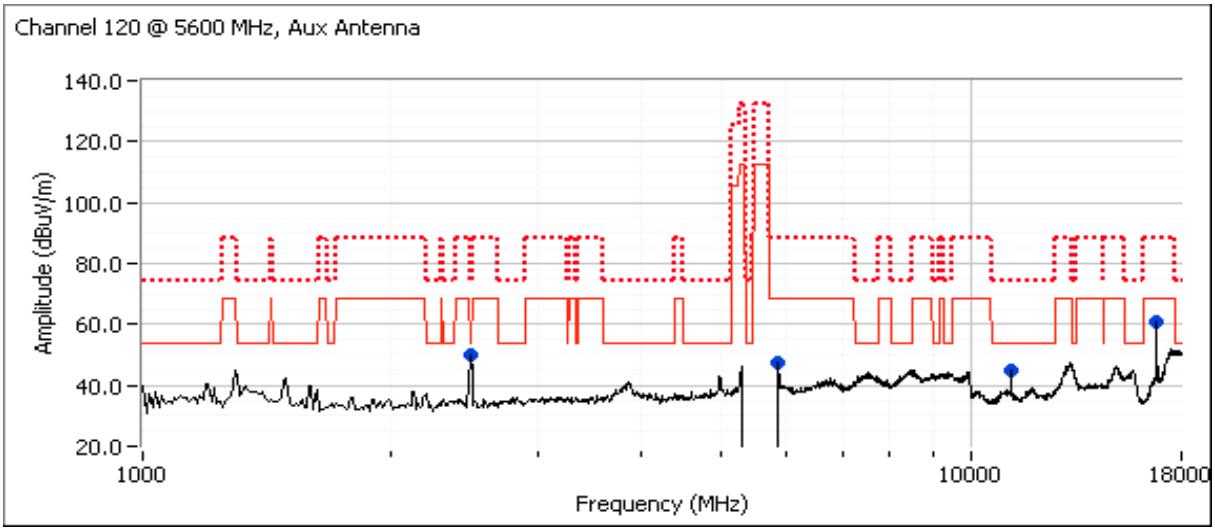
Frequency	Level	Pol	15.209 / 15E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
11199.750	44.5	H	54.0	-9.5	AVG	224	1.0	. MHz; VB: 10 Hz
2493.640	43.1	V	54.0	-10.9	AVG	79	1.1	. MHz; VB: 10 Hz
2497.380	57.5	V	74.0	-16.5	PK	79	1.1	MHz; VB: 1 MHz
11197.820	57.0	H	74.0	-17.0	PK	224	1.0	MHz; VB: 1 MHz



Client:	Broadcom	Job Number:	J74037
Model:	BCM943224HMS	T-Log Number:	T74146
		Account Manager:	Eriksen / Washington
Contact:	Anne Liang		
Standard:	FCC 15.247, FCC 15E, RSS 210, LP0002	Class:	N/A

Spurious Radiated Emissions - Aux antenna

Frequency	Level	Pol	15.209 / 15E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
2494.300	42.4	V	54.0	-11.6	AVG	25	1.4	RB 1 MHz; VB: 10 Hz
2498.810	58.6	V	74.0	-15.4	PK	25	1.4	RB 1 MHz; VB: 1 MHz
5867.290	40.9	V	68.3	-27.4	AVG	264	1.3	RB 1 MHz; VB: 10 Hz
5864.200	52.4	V	88.3	-35.9	PK	264	1.3	RB 1 MHz; VB: 1 MHz
16799.610	54.8	V	68.3	-13.5	AVG	227	1.0	RB 1 MHz; VB: 10 Hz
16794.490	66.6	V	88.3	-21.7	PK	227	1.0	RB 1 MHz; VB: 1 MHz
11200.020	36.4	H	54.0	-17.6	AVG	220	1.0	RB 1 MHz; VB: 10 Hz
11197.600	49.8	H	74.0	-24.2	PK	220	1.0	RB 1 MHz; VB: 1 MHz



Note 1:	For emissions in restricted bands, the limit of 15.209 was used. For all other emissions, the **average** limit was set to -27dBm/MHz (~68dBuV/m).

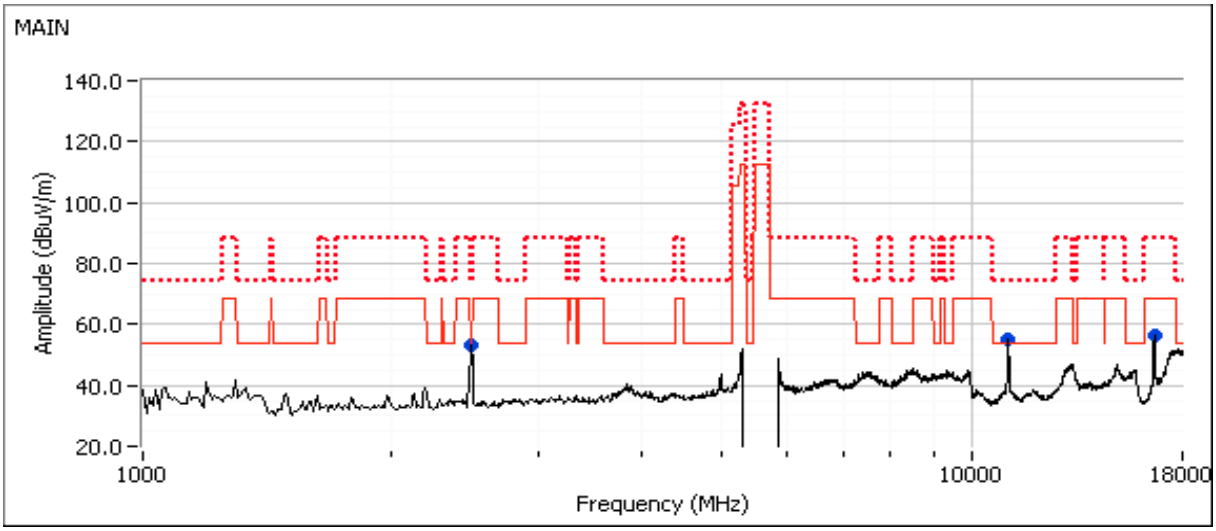
Client:	Broadcom	Job Number:	J74037
Model:	BCM943224HMS	T-Log Number:	T74146
		Account Manager:	Eriksen / Washington
Contact:	Anne Liang		
Standard:	FCC 15.247, FCC 15E, RSS 210, LP0002	Class:	N/A

Run #1g: Channel 140 (5700 MHz), 802.11a SISO

Spurious Radiated Emissions - MAIN Antenna (antenna with highest emissions at 5600 MHz)

Frequency	Level	Pol	15.209 / 15E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
11100.180	47.7	V	54.0	-6.3	AVG	307	1.0	MHz; VB: 10 Hz
2494.690	42.0	H	54.0	-12.0	AVG	81	1.6	MHz; VB: 10 Hz
11101.040	59.1	V	74.0	-14.9	PK	307	1.0	MHz; VB: 1 MHz
2499.590	58.8	H	74.0	-15.2	PK	81	1.6	MHz; VB: 1 MHz

Note 1:	For emissions in restricted bands, the limit of 15.209 was used. For all other emissions, the average limit was set to -27dBm/MHz (~68dBuV/m).



Client:	Broadcom	Job Number:	J74037
Model:	BCM943224HMS	T-Log Number:	T74146
		Account Manager:	Eriksen / Washington
Contact:	Anne Liang		
Standard:	FCC 15.247, FCC 15E, RSS 210, LP0002	Class:	N/A

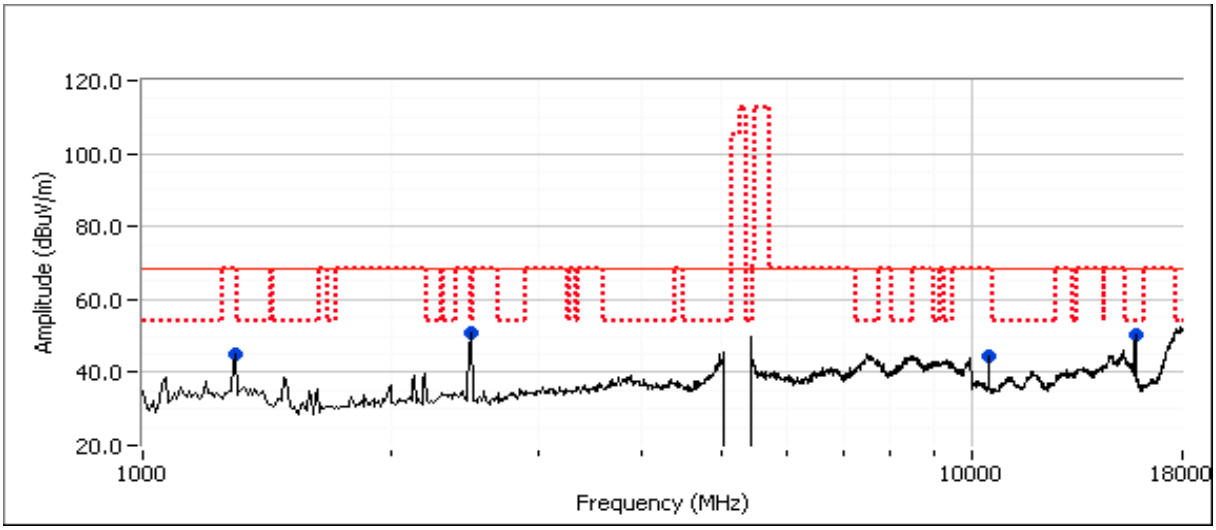
Run #2, Radiated Spurious Emissions, 30 - 40,000 MHz. 5250-5350 & 5470-5725 MHz Bands - 802.11n20 mode

Run #2a: Channel 52 (5260 MHz), 802.11n20 MIMO

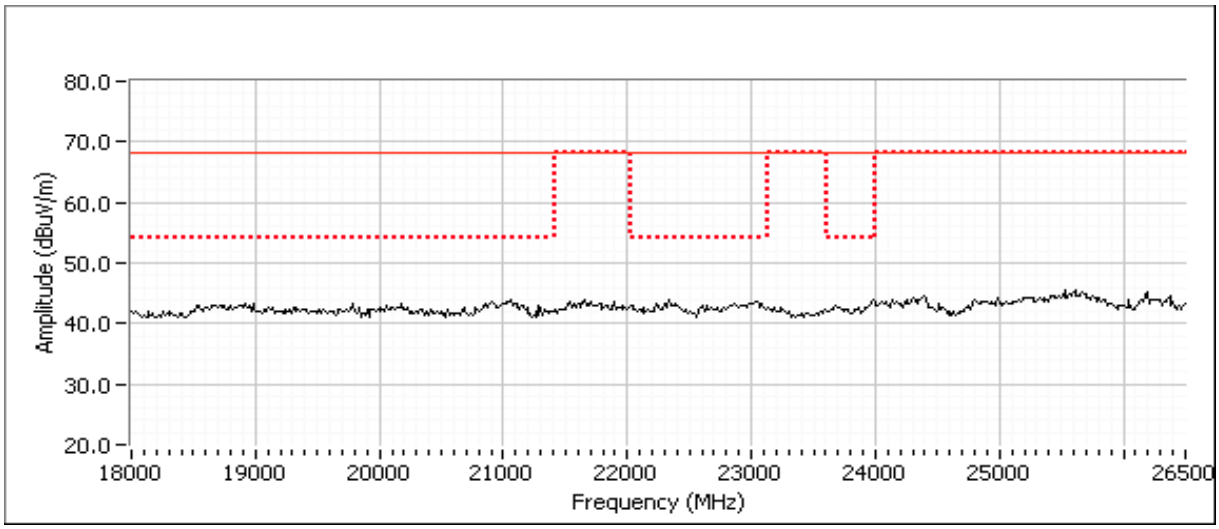
Spurious Radiated Emissions - Main & Aux Antennas

Frequency	Level	Pol	15.209 / 15E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
15780.400	47.8	H	54.0	-6.2	AVG	220	1.0	
2493.700	42.2	V	54.0	-11.8	AVG	33	1.5	
15782.470	59.2	H	74.0	-14.8	PK	220	1.0	
2497.370	58.4	V	74.0	-15.6	PK	33	1.5	
1294.460	51.6	V	68.3	-16.7	PK	279	1.1	
10518.070	50.3	H	68.3	-18.0	PK	67	1.0	
1296.530	38.8	V	68.3	-29.5	AVG	279	1.1	
10520.400	38.7	H	68.3	-29.6	AVG	67	1.0	

Note 1	For emissions in restricted bands, the limit of 15.209 was used. For all other emissions, the average limit was set to -27dBm/MHz (~68dBuV/m).
Note 2	Both main & aux outputs at the default batch file setting, 16 dBm.



Client:	Broadcom	Job Number:	J74037
Model:	BCM943224HMS	T-Log Number:	T74146
		Account Manager:	Eriksen / Washington
Contact:	Anne Liang		
Standard:	FCC 15.247, FCC 15E, RSS 210, LP0002	Class:	N/A



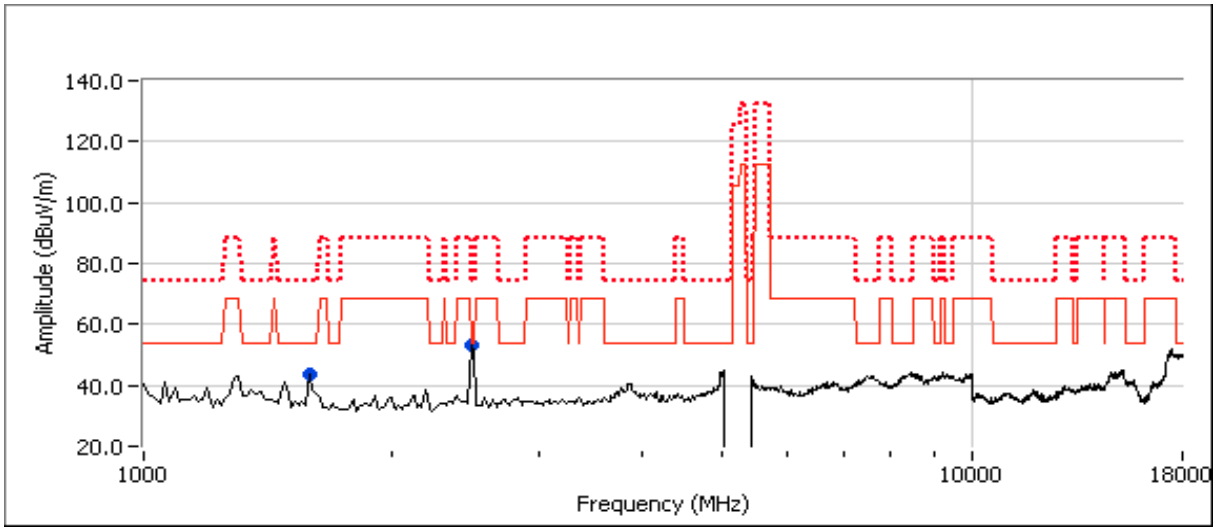
Client:	Broadcom	Job Number:	J74037
Model:	BCM943224HMS	T-Log Number:	T74146
		Account Manager:	Eriksen / Washington
Contact:	Anne Liang		
Standard:	FCC 15.247, FCC 15E, RSS 210, LP0002	Class:	N/A

Run #2b: Channel 56 (5280 MHz), 802.11n20 MIMO

Spurious Radiated Emissions - Main & Aux Antennas

Frequency	Level	Pol	15.209 / 15E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
2496.980	42.8	V	54.0	-11.2	AVG	224	1.6	MHz; VB: 10 Hz
2498.280	60.3	V	74.0	-13.7	PK	224	1.6	MHz; VB: 1 MHz
1598.540	31.8	V	54.0	-22.2	AVG	180	1.0	MHz; VB: 10 Hz
1599.160	54.2	V	74.0	-19.8	PK	180	1.0	MHz; VB: 1 MHz

Note 1	For emissions in restricted bands, the limit of 15.209 was used. For all other emissions, the average limit was set to -27dBm/MHz (~68dBuV/m).
Note 2	Both main & aux outputs at the default batch file setting, 10 dBm.

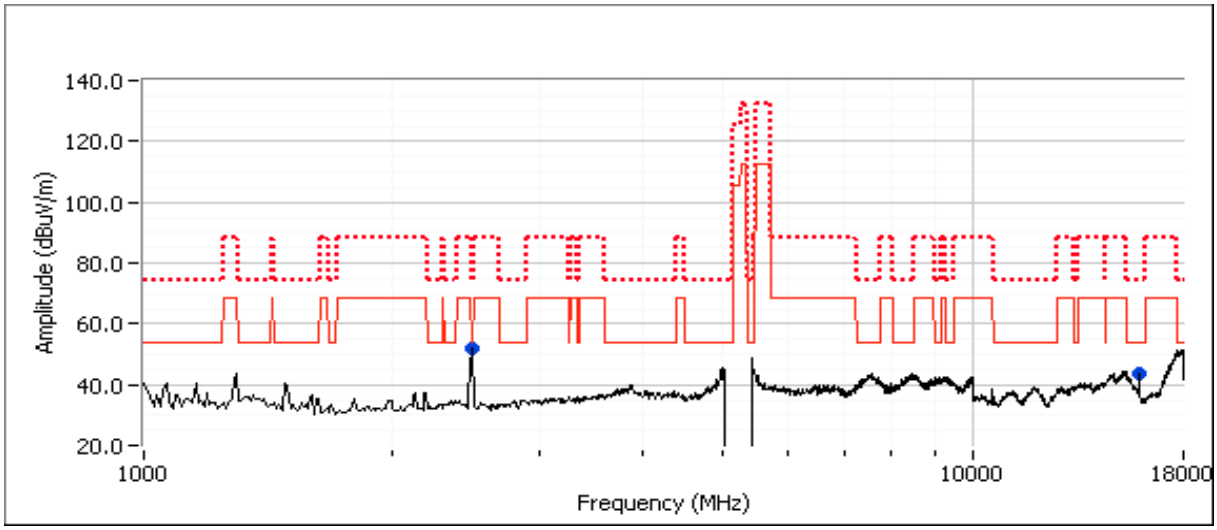


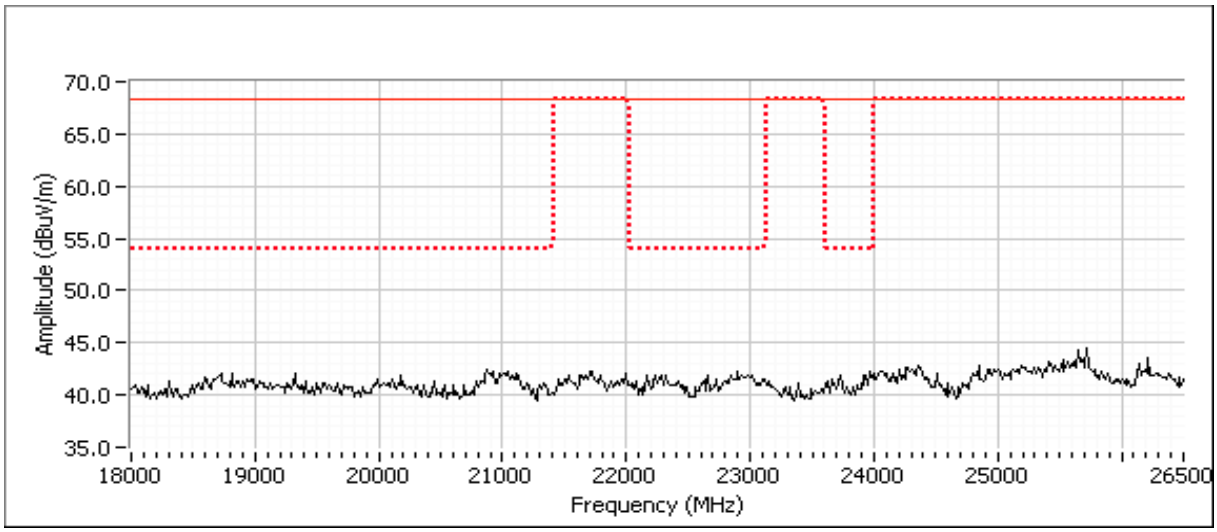
Client:	Broadcom	Job Number:	J74037
Model:	BCM943224HMS	T-Log Number:	T74146
		Account Manager:	Eriksen / Washington
Contact:	Anne Liang		
Standard:	FCC 15.247, FCC 15E, RSS 210, LP0002	Class:	N/A

Run #2c: Channel 60 (5300 MHz), 802.11n20 MIMO

Spurious Radiated Emissions - Main & Aux Antennas

Frequency	Level	Pol	15.209 / 15E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
15906.670	43.5	V	54.0	-10.5	Peak	221	1.0	Peak reading with average limit
2493.630	40.5	V	54.0	-13.5	AVG	272	1.0	RB 1 MHz; VB: 10 Hz
2499.430	55.4	V	74.0	-18.6	PK	272	1.0	RB 1 MHz; VB: 1 MHz



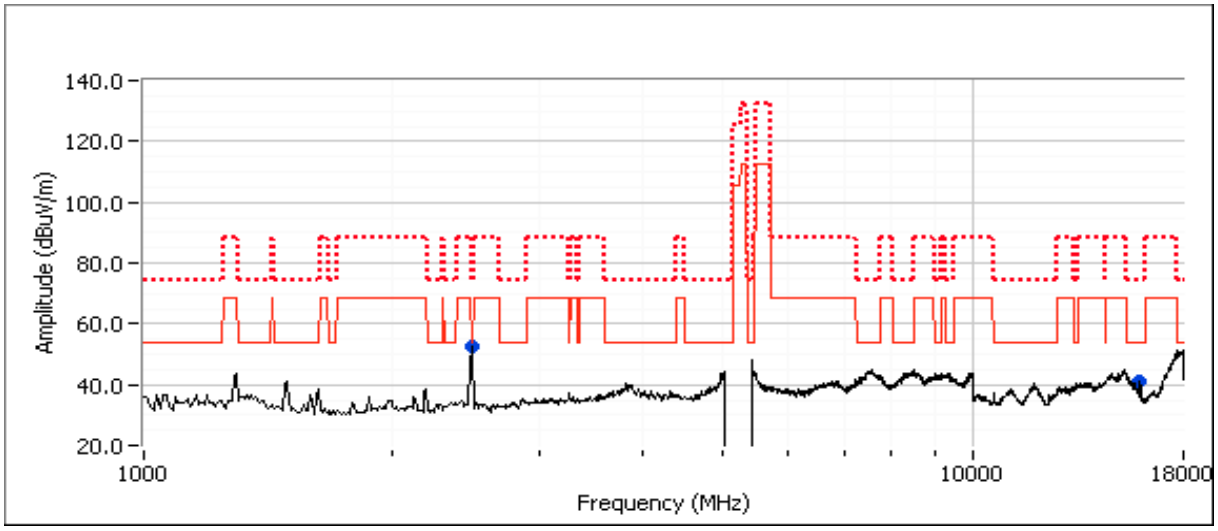


Client:	Broadcom	Job Number:	J74037
Model:	BCM943224HMS	T-Log Number:	T74146
		Account Manager:	Eriksen / Washington
Contact:	Anne Liang		
Standard:	FCC 15.247, FCC 15E, RSS 210, LP0002	Class:	N/A

Run #2d: Channel 64 (5320 MHz), 802.11n20 MIMO

Spurious Radiated Emissions - Main & Aux Antennas

Frequency	Level	Pol	15.209 / 15E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
15960.000	41.2	H	54.0	-12.8	Peak	327	1.2	Peak reading with average limit
2493.630	40.5	V	54.0	-13.5	AVG	272	1.0	RB 1 MHz; VB: 10 Hz
2499.430	55.4	V	74.0	-18.6	PK	272	1.0	RB 1 MHz; VB: 1 MHz

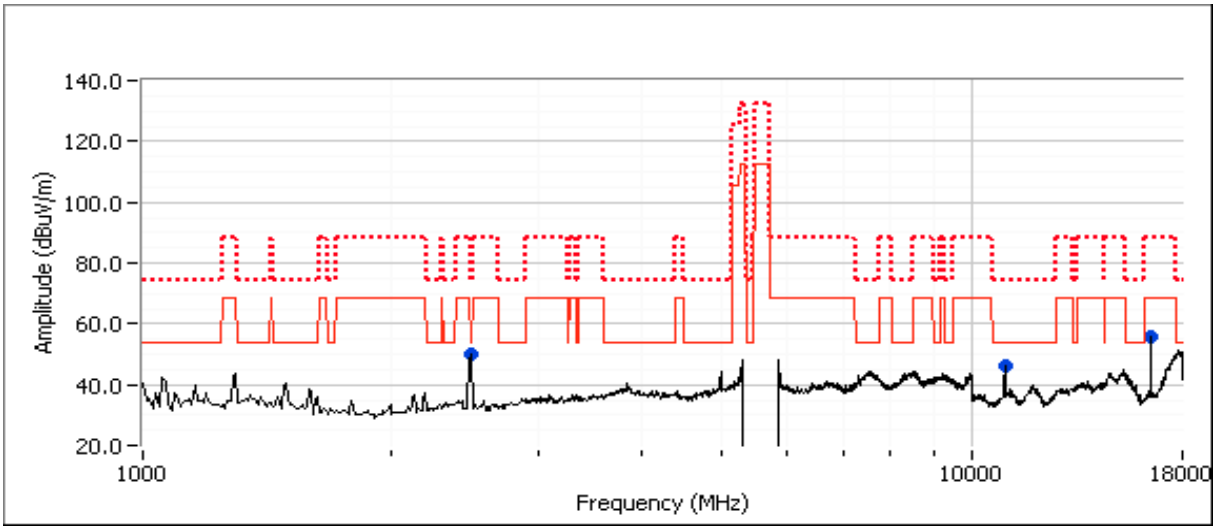


Client:	Broadcom	Job Number:	J74037
Model:	BCM943224HMS	T-Log Number:	T74146
		Account Manager:	Eriksen / Washington
Contact:	Anne Liang		
Standard:	FCC 15.247, FCC 15E, RSS 210, LP0002	Class:	N/A

Run #2e: Channel 100 (5500 MHz), 802.11n20 MIMO

Spurious Radiated Emissions - Main & Aux Antennas

Frequency	Level	Pol	15.209 / 15E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
11000.600	46.5	H	54.0	-7.5	AVG	233	1.0	RB 1 MHz; VB: 10 Hz
10998.070	59.6	H	74.0	-14.4	PK	233	1.0	RB 1 MHz; VB: 1 MHz
16506.670	55.7	H	68.3	-12.6	Peak	325	1.2	Peak reading with average limit
2493.700	42.1	V	54.0	-11.9	AVG	35	1.4	RB 1 MHz; VB: 10 Hz
2497.370	58.4	V	74.0	-15.6	PK	35	1.4	RB 1 MHz; VB: 1 MHz

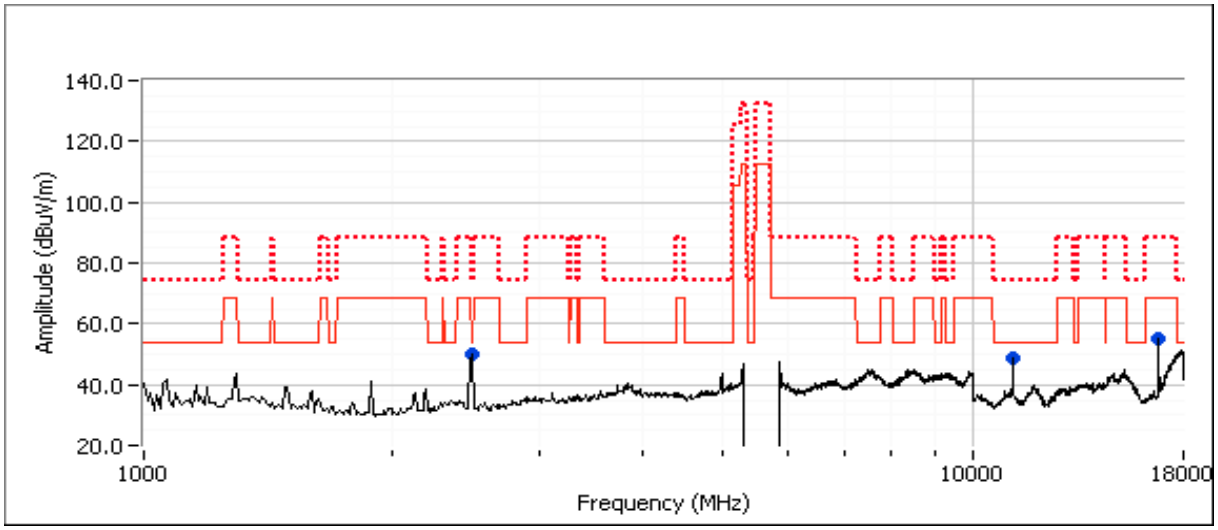


Client:	Broadcom	Job Number:	J74037
Model:	BCM943224HMS	T-Log Number:	T74146
		Account Manager:	Eriksen / Washington
Contact:	Anne Liang		
Standard:	FCC 15.247, FCC 15E, RSS 210, LP0002	Class:	N/A

Run #2f: Channel 120 (5600 MHz), 802.11n20 MIMO

Spurious Radiated Emissions - Main & Aux Antennas

Frequency	Level	Pol	15.209 / 15E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
11200.230	49.1	H	54.0	-4.9	AVG	228	1.0	RB 1 MHz; VB: 10 Hz
11200.500	60.8	H	74.0	-13.2	PK	228	1.0	RB 1 MHz; VB: 1 MHz
16797.580	55.4	H	68.3	-12.9	Peak	304	1.0	Peak reading with average limit
2493.700	42.1	V	54.0	-11.9	AVG	35	1.4	RB 1 MHz; VB: 10 Hz
2497.370	58.4	V	74.0	-15.6	PK	35	1.4	RB 1 MHz; VB: 1 MHz

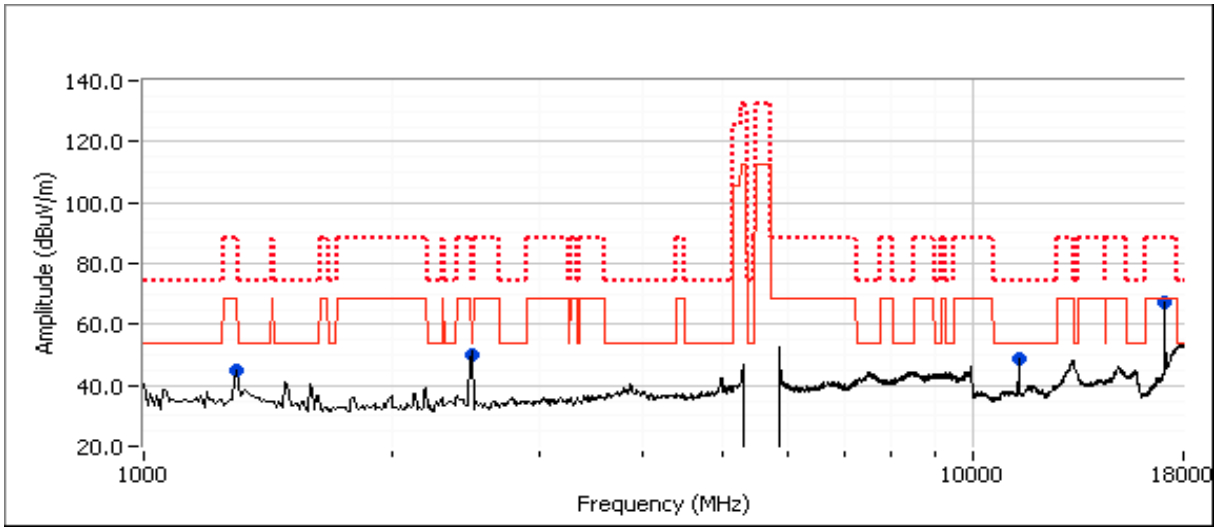


Client:	Broadcom	Job Number:	J74037
Model:	BCM943224HMS	T-Log Number:	T74146
		Account Manager:	Eriksen / Washington
Contact:	Anne Liang		
Standard:	FCC 15.247, FCC 15E, RSS 210, LP0002	Class:	N/A

Run #2g: Channel 140 (5700 MHz), 802.11n20 MIMO

Spurious Radiated Emissions - Main & Aux Antennas

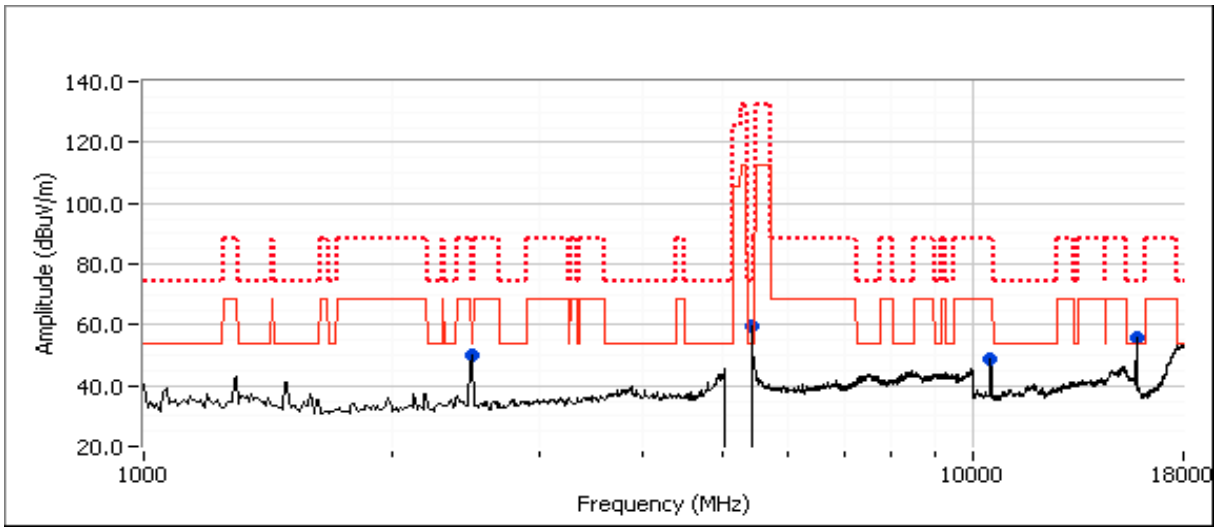
Frequency	Level	Pol	15.209 / 15E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
17100.890	64.0	V	68.3	-4.3	AVG	246	1.0	RB 1 MHz; VB: 10 Hz
11400.480	43.6	V	54.0	-10.4	AVG	260	1.0	RB 1 MHz; VB: 10 Hz
17103.710	75.3	V	88.3	-13.0	PK	246	1.0	RB 1 MHz; VB: 1 MHz
11400.620	56.2	V	74.0	-17.8	PK	260	1.0	RB 1 MHz; VB: 1 MHz
1296.470	39.2	V	68.3	-29.1	AVG	276	1.6	RB 1 MHz; VB: 10 Hz
1299.770	50.8	V	88.3	-37.5	PK	276	1.6	RB 1 MHz; VB: 1 MHz



Client:	Broadcom	Job Number:	J74037
Model:	BCM943224HMS	T-Log Number:	T74146
		Account Manager:	Eriksen / Washington
Contact:	Anne Liang		
Standard:	FCC 15.247, FCC 15E, RSS 210, LP0002	Class:	N/A

Run #3, Radiated Spurious Emissions, 30 - 40,000 MH. Operation in the 5250-5350 & 5470-5725 MHz Band - 802.11n40 MHz CDD
Run #3a: Channel 54 (5270 MHz), 802.11n40 MIMO
Spurious Radiated Emissions - Main & Aux Antennas

Frequency	Level	Pol	15.209 / 15E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5422.000	52.8	H	54.0	-1.2	AVG	190	1.7	RB 1 MHz; VB: 10 Hz
15812.860	50.2	H	54.0	-3.8	AVG	11	1.1	RB 1 MHz; VB: 10 Hz
5418.920	66.0	H	74.0	-8.0	PK	190	1.7	RB 1 MHz; VB: 1 MHz
2493.470	42.3	V	54.0	-11.7	AVG	32	1.9	RB 1 MHz; VB: 10 Hz
15807.540	60.6	H	74.0	-13.4	PK	11	1.1	RB 1 MHz; VB: 1 MHz
2499.410	56.7	V	74.0	-17.3	PK	32	1.9	RB 1 MHz; VB: 1 MHz

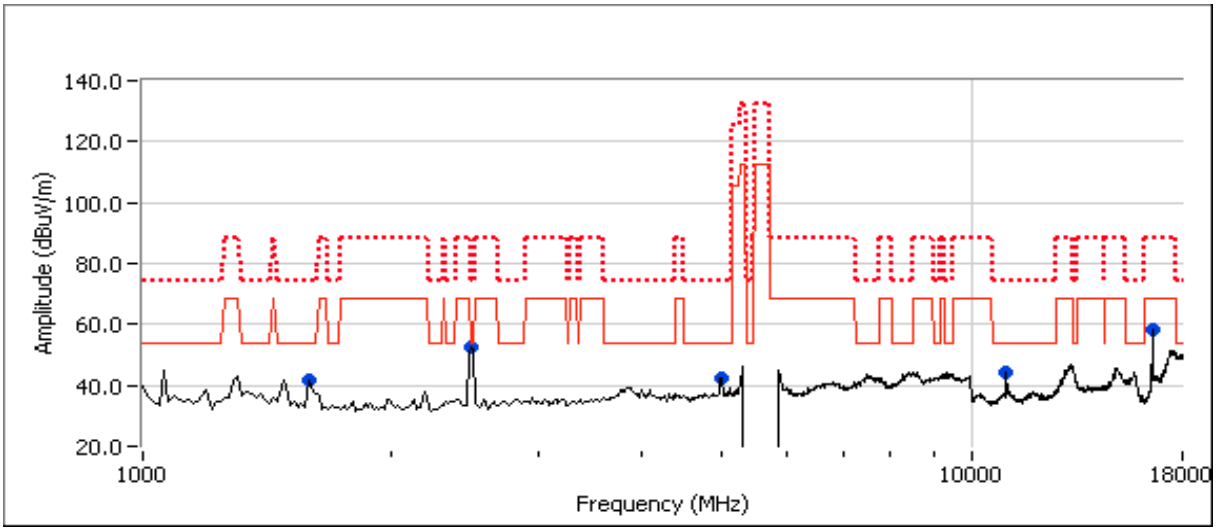


Client:	Broadcom	Job Number:	J74037
Model:	BCM943224HMS	T-Log Number:	T74146
		Account Manager:	Eriksen / Washington
Contact:	Anne Liang		
Standard:	FCC 15.247, FCC 15E, RSS 210, LP0002	Class:	N/A

Run #3b: Channel 62 (5310 MHz), 802.11n40 MIMO

Spurious Radiated Emissions - Main & Aux Antennas

Frequency	Level	Pol	15.209 / 15E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
2493.540	44.9	V	54.0	-9.1	AVG	27	1.5	RB 1 MHz; VB: 10 Hz
2490.490	59.2	V	74.0	-14.8	PK	27	1.5	RB 1 MHz; VB: 1 MHz
1484.520	35.7	V	54.0	-18.3	AVG	304	1.0	RB 1 MHz; VB: 10 Hz
1487.470	48.9	V	74.0	-25.1	PK	304	1.0	RB 1 MHz; VB: 1 MHz
16561.730	53.0	H	68.3	-15.3	AVG	128	1.0	RB 1 MHz; VB: 10 Hz
16561.320	67.1	H	88.3	-21.2	PK	128	1.0	RB 1 MHz; VB: 1 MHz
11041.170	38.1	V	54.0	-15.9	AVG	280	1.0	RB 1 MHz; VB: 10 Hz
11041.860	51.6	V	74.0	-22.4	PK	280	1.0	RB 1 MHz; VB: 1 MHz

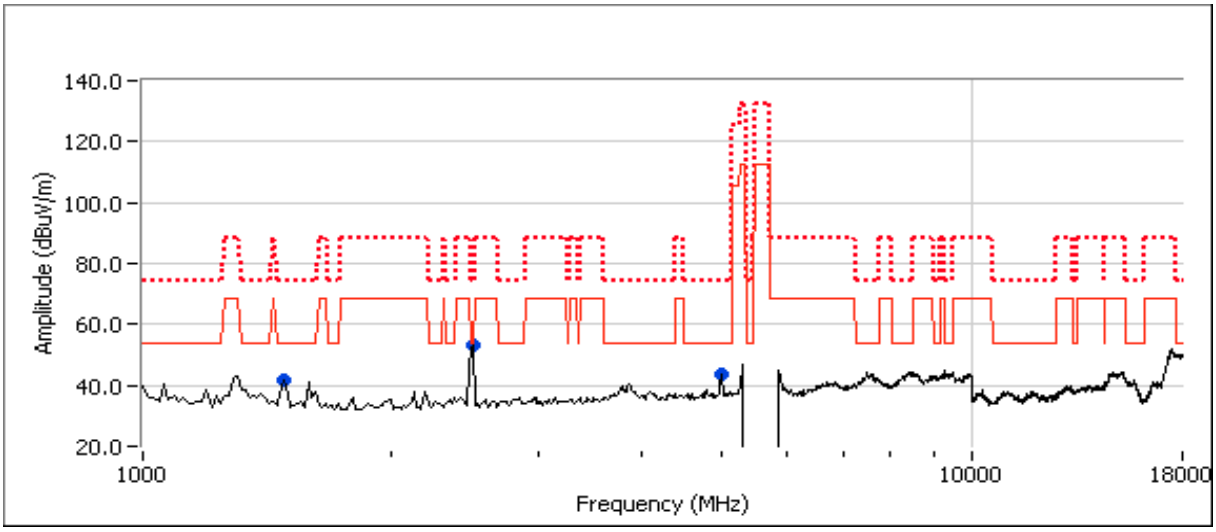


Client:	Broadcom	Job Number:	J74037
Model:	BCM943224HMS	T-Log Number:	T74146
		Account Manager:	Eriksen / Washington
Contact:	Anne Liang		
Standard:	FCC 15.247, FCC 15E, RSS 210, LP0002	Class:	N/A

Run #3c: Channel 102 (5510 MHz), 802.11n40 MIMO

Spurious Radiated Emissions - Main & Aux Antennas

Frequency	Level	Pol	15.209 / 15E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
2498.350	42.0	V	54.0	-12.0	AVG	219	1.6	RB 1 MHz; VB: 10 Hz
2498.830	60.0	V	74.0	-14.0	PK	219	1.6	RB 1 MHz; VB: 1 MHz
4998.710	33.8	V	54.0	-20.2	AVG	206	1.3	RB 1 MHz; VB: 10 Hz
5000.550	50.9	V	74.0	-23.1	PK	206	1.3	RB 1 MHz; VB: 1 MHz
1495.960	29.2	V	54.0	-24.8	AVG	125	1.3	RB 1 MHz; VB: 10 Hz
1496.060	41.6	V	74.0	-32.4	PK	125	1.3	RB 1 MHz; VB: 1 MHz

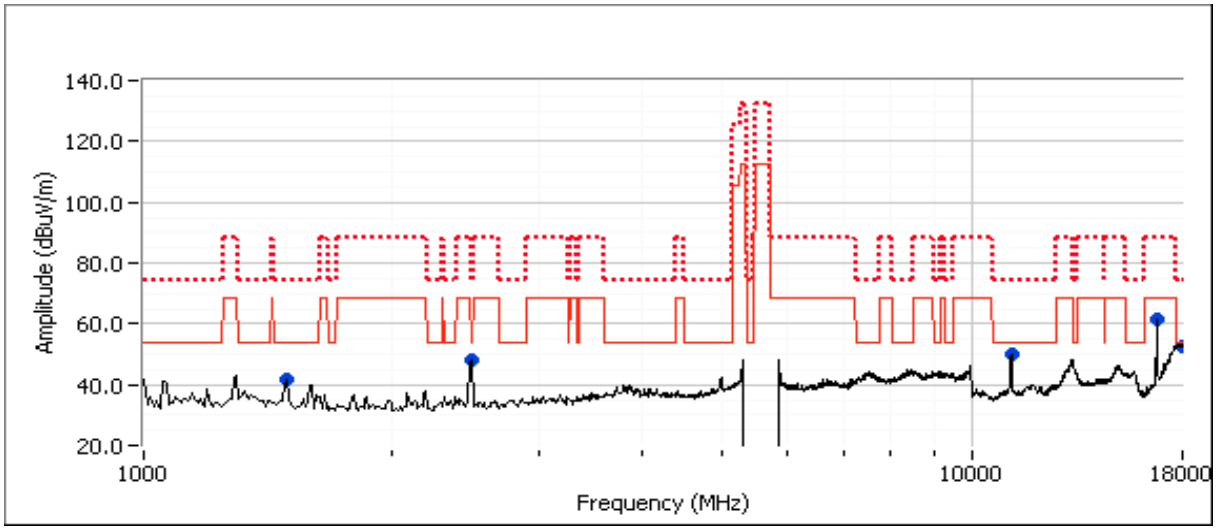


Client:	Broadcom	Job Number:	J74037
Model:	BCM943224HMS	T-Log Number:	T74146
		Account Manager:	Eriksen / Washington
Contact:	Anne Liang		
Standard:	FCC 15.247, FCC 15E, RSS 210, LP0002	Class:	N/A

Run #3d: Channel 118 (5590 MHz), 802.11n40 MIMO

Spurious Radiated Emissions - Main & Aux Antennas

Frequency	Level	Pol	15.209 / 15E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
11180.280	46.6	H	54.0	-7.4	AVG	226	1.0	RB 1 MHz; VB: 10 Hz
2493.690	43.0	V	54.0	-11.0	AVG	269	1.1	RB 1 MHz; VB: 10 Hz
16765.770	56.4	H	68.3	-11.9	AVG	337	1.1	RB 1 MHz; VB: 10 Hz
11175.570	58.9	H	74.0	-15.1	PK	226	1.0	RB 1 MHz; VB: 1 MHz
2499.420	57.7	V	74.0	-16.3	PK	269	1.1	RB 1 MHz; VB: 1 MHz
1484.990	36.0	V	54.0	-18.0	AVG	304	1.0	RB 1 MHz; VB: 10 Hz
16775.730	67.5	H	88.3	-20.8	PK	337	1.1	RB 1 MHz; VB: 1 MHz
1484.490	49.0	V	74.0	-25.0	PK	304	1.0	RB 1 MHz; VB: 1 MHz

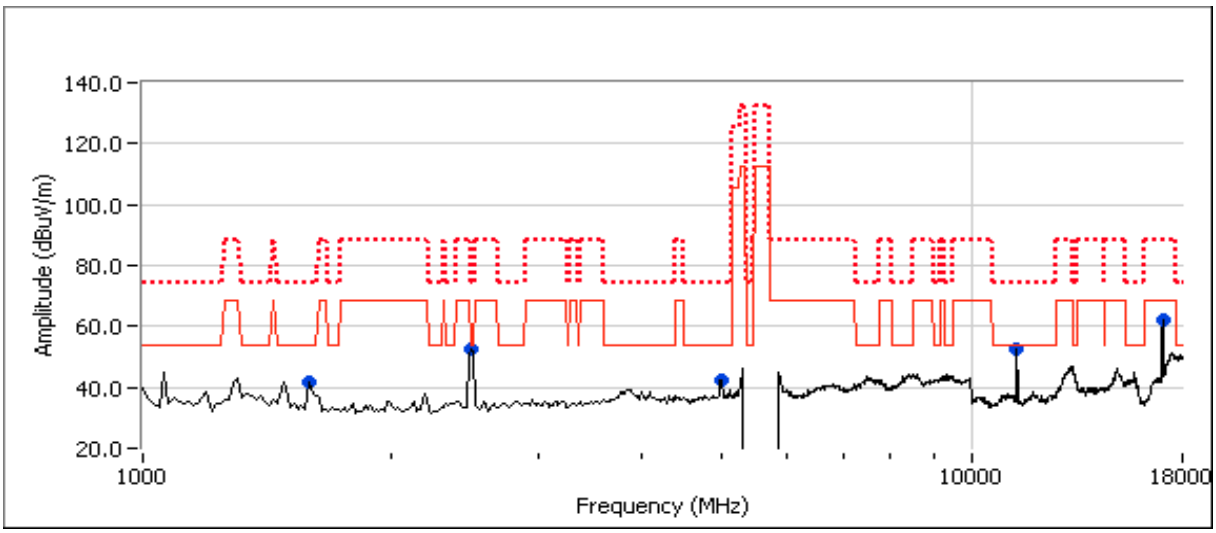


Client:	Broadcom	Job Number:	J74037
Model:	BCM943224HMS	T-Log Number:	T74146
		Account Manager:	Eriksen / Washington
Contact:	Anne Liang		
Standard:	FCC 15.247, FCC 15E, RSS 210, LP0002	Class:	N/A

Run #3e: Channel 134 (5670 MHz), 802.11n40 MIMO

Spurious Radiated Emissions - Main & Aux Antennas

Frequency	Level	Pol	15.209 / 15E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
11361.210	45.2	V	54.0	-8.8	AVG	81	1.0	RB 1 MHz; VB: 10 Hz
2497.580	42.3	V	54.0	-11.7	AVG	225	1.6	RB 1 MHz; VB: 10 Hz
17042.400	54.8	H	68.3	-13.5	AVG	122	1.0	RB 1 MHz; VB: 10 Hz
2498.580	60.2	V	74.0	-13.8	PK	225	1.6	RB 1 MHz; VB: 1 MHz
11361.230	58.6	V	74.0	-15.4	PK	81	1.0	RB 1 MHz; VB: 1 MHz
17042.530	67.3	H	88.3	-21.0	PK	122	1.0	RB 1 MHz; VB: 1 MHz
4998.310	32.7	H	54.0	-21.3	AVG	240	1.6	RB 1 MHz; VB: 10 Hz
1593.870	29.5	V	54.0	-24.5	AVG	197	1.0	RB 1 MHz; VB: 10 Hz
1592.660	49.5	V	74.0	-24.5	PK	197	1.0	RB 1 MHz; VB: 1 MHz
4998.300	47.4	H	74.0	-26.6	PK	240	1.6	RB 1 MHz; VB: 1 MHz



Client:	Broadcom	Job Number:	J74037
Model:	BCM943224HMS	T-Log Number:	T74146
		Account Manager:	Eriksen / Washington
Contact:	Anne Liang		
Standard:	FCC 15.247, FCC 15E, RSS 210, LP0002	Class:	NII

Radiated Emissions

(Elliott Laboratories Fremont Facility, Semi-Anechoic Chamber)

Test Specific Details

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

Date of Test:	2/11/2009 & 2/12/09	Config. Used:	1
Test Engineer:	Vishal Narayan/R. Varelas	Config Change:	None
Test Location:	Chamber #5	Host Unit Voltage	120V/60Hz

General Test Configuration

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

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

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

Ambient Conditions:

Temperature:	20 °C
Rel. Humidity:	41 %

Client:	Broadcom	Job Number:	J74037
Model:	BCM943224HMS	T-Log Number:	T74146
		Account Manager:	Eriksen / Washington
Contact:	Anne Liang		
Standard:	FCC 15.247, FCC 15E, RSS 210, LP0002	Class:	NII

Summary of Results

Run #	Test Performed	Limit	Result	Margin
1a Rx at 5220MHz, Aux only	RE, 1000 - 18,000 MHz, Maximized Emissions	RSS 210, LP0002	Pass	43.9dBµV/m @ 2493.5MHz (-10.1dB)
1b Rx at 5220MHz, Aux and Main	RE, 1000 - 18,000 MHz, Maximized Emissions	RSS 210, LP0002	Pass	42.4dBµV/m @ 2494.6MHz (-11.6dB)
1c Rx at 5220MHz, Main only	RE, 1000 - 18,000 MHz, Maximized Emissions	RSS 210, LP0002	Pass	43.8dBµV/m @ 2494.2MHz (-10.2dB)
2a Rx at 5300MHz, Aux only	RE, 1000 - 18,000 MHz, Maximized Emissions	RSS 210, LP0002	Pass	44.1dBµV/m @ 2493.6MHz (-9.9dB)
2b Rx at 5300MHz, Aux and Main	RE, 1000 - 18,000 MHz, Maximized Emissions	RSS 210, LP0002	Pass	41.8dBµV/m @ 2494.6MHz (-12.2dB)
2c Rx at 5300MHz, Main only	RE, 1000 - 18,000 MHz, Maximized Emissions	RSS 210, LP0002	Pass	41.4dBµV/m @ 2493.4MHz (-12.6dB)
3a Rx at 5600MHz, Aux only	RE, 1000 - 18,000 MHz, Maximized Emissions	RSS 210, LP0002	Pass	43.8dBµV/m @ 2493.9MHz (-10.2dB)
3b Rx at 5600MHz, Aux and Main	RE, 1000 - 18,000 MHz, Maximized Emissions	RSS 210, LP0002	Pass	41.6dBµV/m @ 2494.7MHz (-12.4dB)
3c Rx at 5600MHz, Main only	RE, 1000 - 18,000 MHz, Maximized Emissions	RSS 210, LP0002	Pass	42.6dBµV/m @ 2493.5MHz (-11.4dB)
4 Rx at 5230MHz, Aux and Main	RE, 1000 - 18,000 MHz, Maximized Emissions	RSS 210, LP0002	Pass	41.6dBµV/m @ 2497.2MHz (-12.4dB)
5 Rx at 5310MHz, Aux and Main	RE, 1000 - 18,000 MHz, Maximized Emissions	RSS 210, LP0002	Pass	41.7dBµV/m @ 2498.8MHz (-12.3dB)
6 Rx at 5590MHz, Aux and Main	RE, 1000 - 18,000 MHz, Maximized Emissions	RSS 210, LP0002	Pass	43.0dBµV/m @ 2498.9MHz (-11.0dB)

Modifications Made During Testing

No modifications were made to the EUT during testing

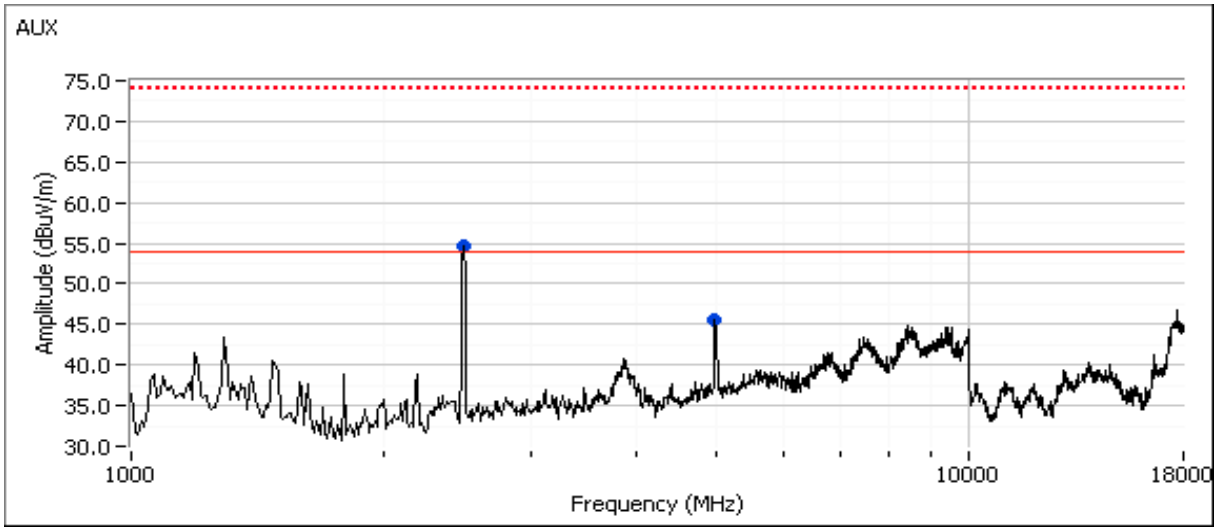
Deviations From The Standard

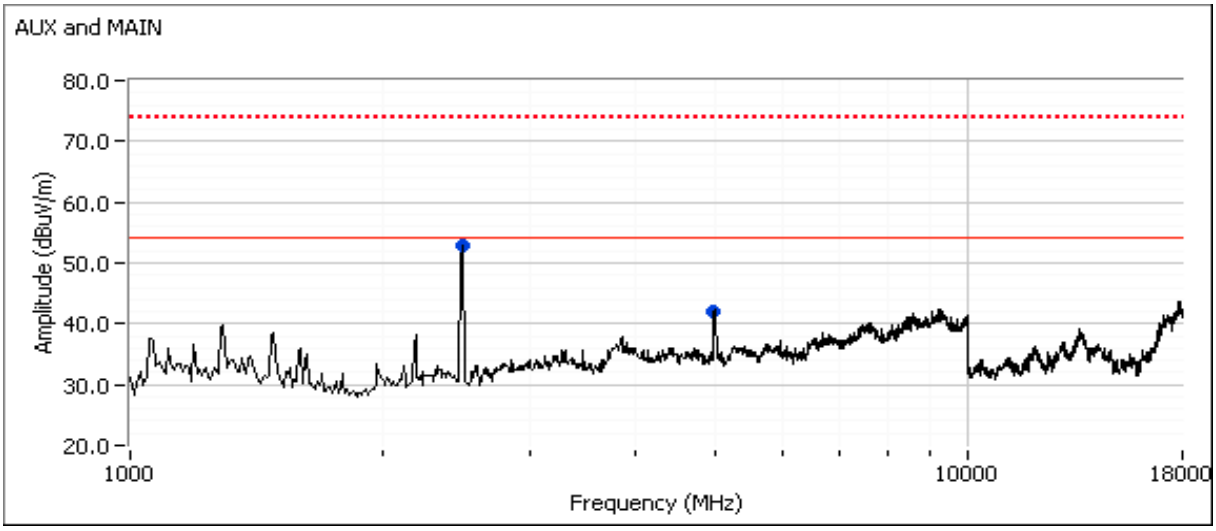
No deviations were made from the requirements of the standard.

Client:	Broadcom	Job Number:	J74037
Model:	BCM943224HMS	T-Log Number:	T74146
		Account Manager:	Eriksen / Washington
Contact:	Anne Liang		
Standard:	FCC 15.247, FCC 15E, RSS 210, LP0002	Class:	NII

Run #1: Preliminary Radiated Emissions, 1000 - 18000 MHz (Receive mode, 5220 MHz)

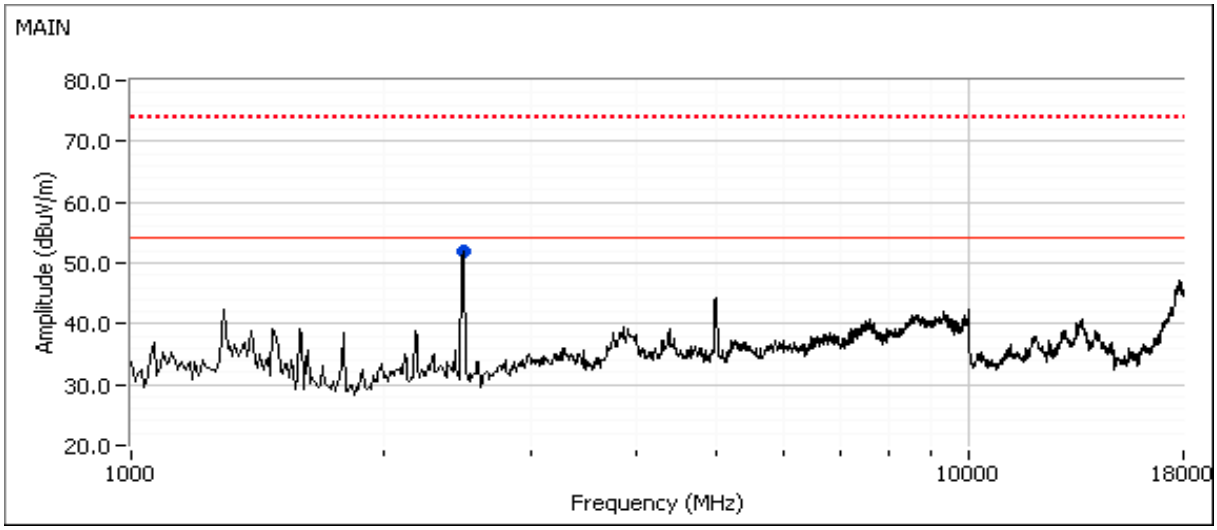
Frequency Range	Test Distance	Limit Distance	Extrapolation Factor
1000-10000	3	3	0.0
10000-18000	1	3	-9.5





Client:	Broadcom	Job Number:	J74037
Model:	BCM943224HMS	T-Log Number:	T74146
		Account Manager:	Eriksen / Washington
Contact:	Anne Liang		
Standard:	FCC 15.247, FCC 15E, RSS 210, LP0002	Class:	NII

Continuation of Run #1



Preliminary peak readings captured during pre-scan - Aux antenna

Frequency	Level	Pol	RSS GEN \ LP0002		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
2497.830	54.7	V	54.0	0.7	Peak	35	1.9	
4977.410	45.6	V	54.0	-8.4	Peak	121	1.6	

Preliminary peak readings captured during pre-scan - Aux and Main antenna

Frequency	Level	Pol	RSS GEN \ LP0002		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
2494.610	42.4	V	54.0	-11.6	AVG	213	1.6	AUX + MAIN
2499.840	58.7	V	74.0	-15.3	PK	213	1.6	AUX + MAIN
4987.300	34.4	H	54.0	-19.6	AVG	105	1.7	AUX + MAIN
4976.690	51.0	H	74.0	-23.0	PK	105	1.7	AUX + MAIN

Preliminary peak readings captured during pre-scan - Main antenna <--- *only do this one if aux results are worse then main + aux.*

Frequency	Level	Pol	RSS GEN \ LP0002		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
2489.550	52.0	V	54.0	-2.0	Peak	92	1.0	

Client:	Broadcom	Job Number:	J74037
Model:	BCM943224HMS	T-Log Number:	T74146
		Account Manager:	Eriksen / Washington
Contact:	Anne Liang		
Standard:	FCC 15.247, FCC 15E, RSS 210, LP0002	Class:	NII

Continuation of Run #1

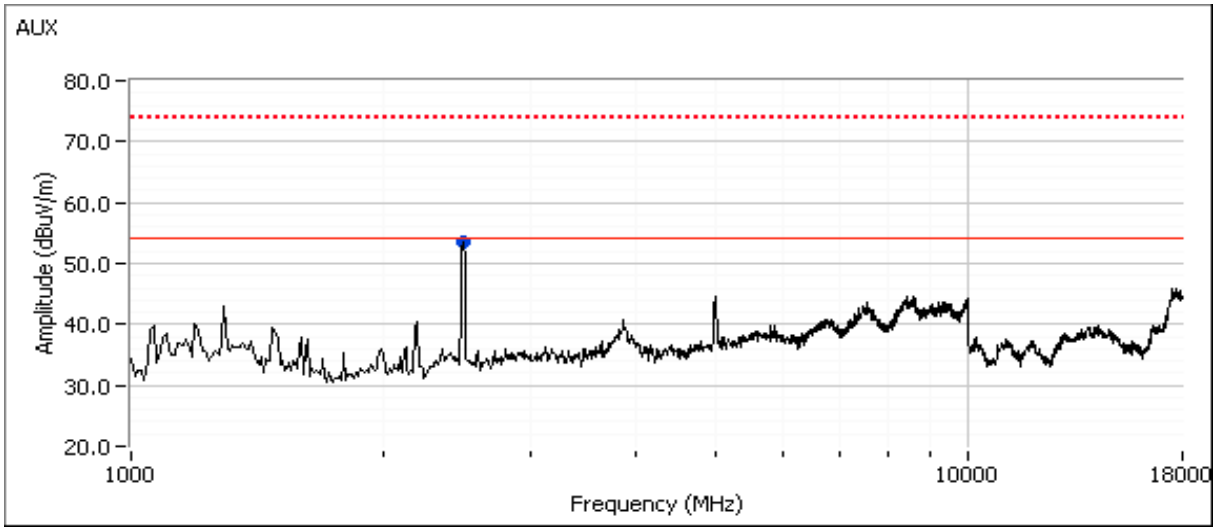
Maximized average and peak readings - worst-case antenna combination

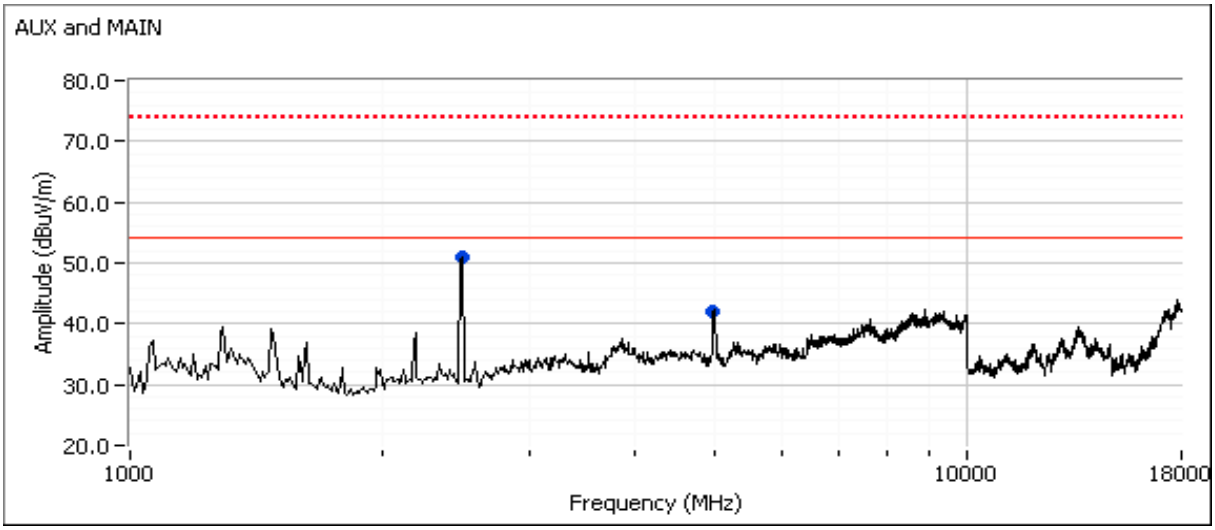
Frequency	Level	Pol	RSS GEN \ LP0002		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
2493.490	43.9	V	54.0	-10.1	AVG	48	1.8	AUX
2494.230	43.8	V	54.0	-10.2	AVG	84	1.0	MAIN
2494.610	42.4	V	54.0	-11.6	AVG	213	1.6	AUX + MAIN
2498.770	60.2	V	74.0	-13.8	PK	48	1.8	AUX
2499.550	59.9	V	74.0	-14.1	PK	84	1.0	MAIN
2499.840	58.7	V	74.0	-15.3	PK	213	1.6	AUX + MAIN
17698.350	37.8	H	54.0	-16.2	AVG	229	1.4	AUX
4976.560	35.8	V	54.0	-18.2	AVG	123	1.6	AUX
4987.300	34.4	H	54.0	-19.6	AVG	105	1.7	AUX + MAIN
4977.800	53.2	V	74.0	-20.8	PK	123	1.6	AUX
4976.690	51.0	H	74.0	-23.0	PK	105	1.7	AUX + MAIN
17697.200	49.4	H	74.0	-24.6	PK	229	1.4	AUX

Client:	Broadcom	Job Number:	J74037
Model:	BCM943224HMS	T-Log Number:	T74146
		Account Manager:	Eriksen / Washington
Contact:	Anne Liang		
Standard:	FCC 15.247, FCC 15E, RSS 210, LP0002	Class:	NII

Run #2: Preliminary Radiated Emissions, 1000 - 18000 MHz (Receive mode, 5300 MHz)

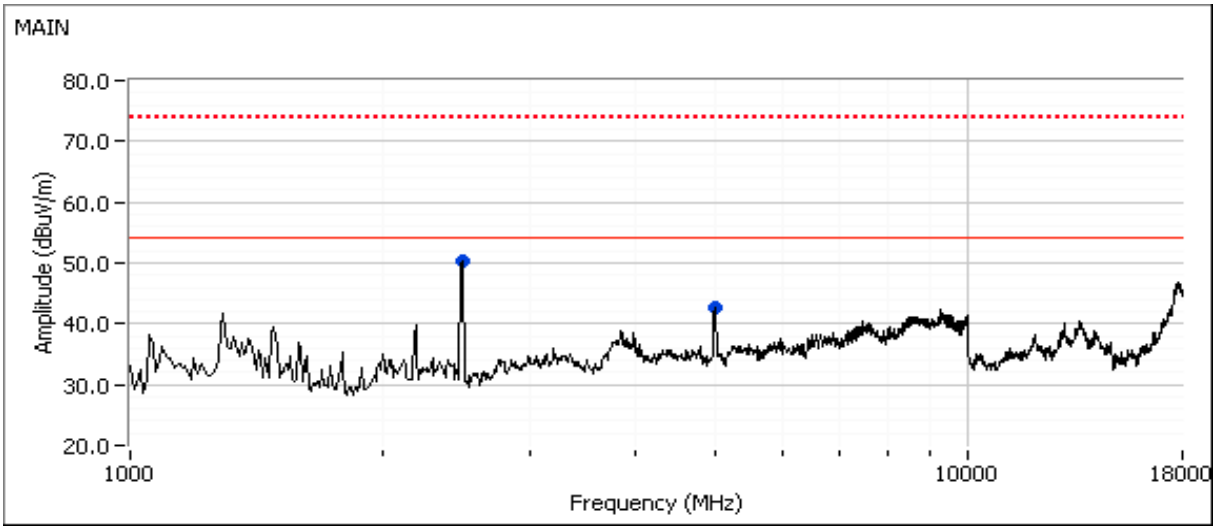
Frequency Range	Test Distance	Limit Distance	Extrapolation Factor
1000-10000	3	3	0.0
10000-18000	1	3	-9.5





Client:	Broadcom	Job Number:	J74037
Model:	BCM943224HMS	T-Log Number:	T74146
		Account Manager:	Eriksen / Washington
Contact:	Anne Liang		
Standard:	FCC 15.247, FCC 15E, RSS 210, LP0002	Class:	NII

Continuation of Run #2



Client:	Broadcom	Job Number:	J74037
Model:	BCM943224HMS	T-Log Number:	T74146
		Account Manager:	Eriksen / Washington
Contact:	Anne Liang		
Standard:	FCC 15.247, FCC 15E, RSS 210, LP0002	Class:	NII

Continuation of Run #2

Preliminary peak readings captured during pre-scan - Aux antenna

Frequency	Level	Pol	RSS GEN \ LP0002		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
2499.360	53.4	V	54.0	-0.6	Peak	27	1.6	

Preliminary peak readings captured during pre-scan - Aux and Main antenna

Frequency	Level	Pol	RSS GEN \ LP0002		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
2490.810	50.9	V	54.0	-3.1	Peak	262	1.6	
4976.490	42.1	V	54.0	-11.9	Peak	315	1.6	

Preliminary peak readings captured during pre-scan - Main antenna <--- *only do this one if aux results are worse then main + aux.*

Frequency	Level	Pol	RSS GEN \ LP0002		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
2489.900	50.3	V	54.0	-3.7	Peak	210	1.0	
4992.690	42.8	H	54.0	-11.2	Peak	318	2.0	

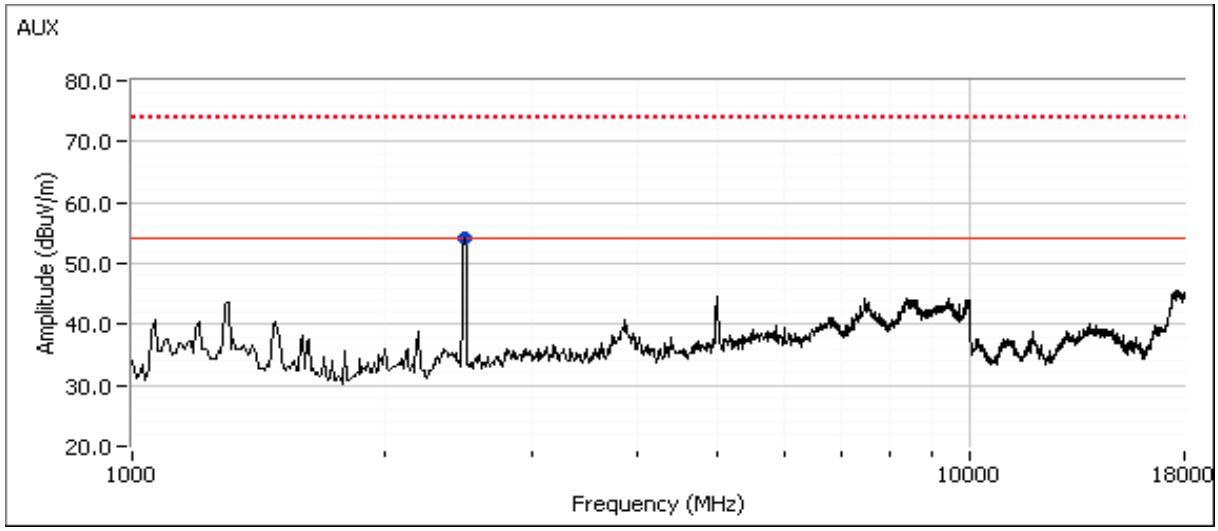
Maximized average and peak readings - worst-case antenna combination

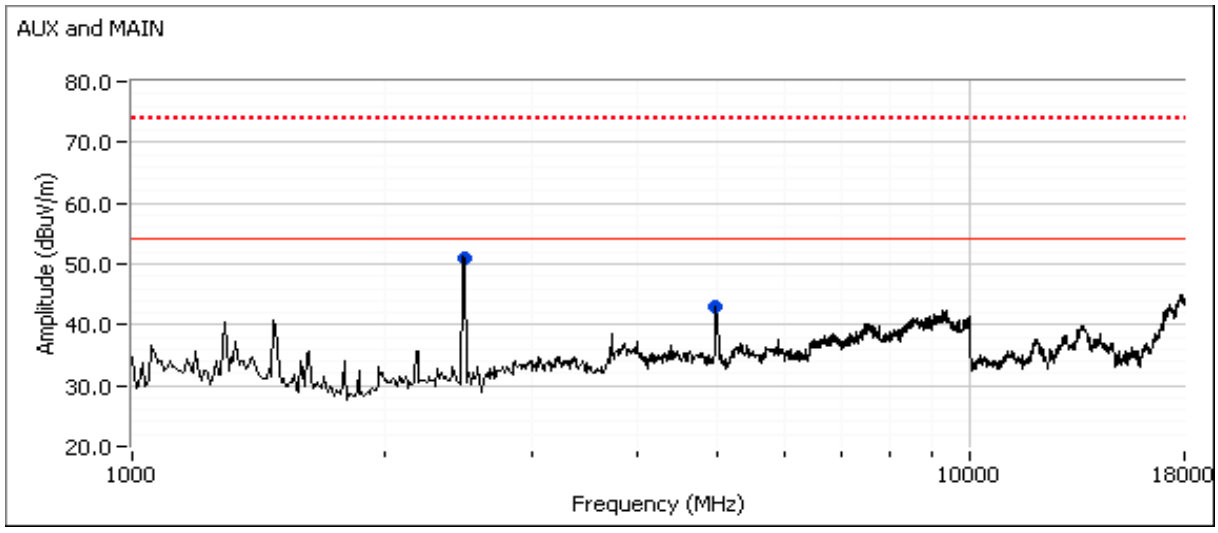
Frequency	Level	Pol	RSS GEN \ LP0002		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
2493.550	44.1	V	54.0	-9.9	AVG	26	1.6	AUX
2494.610	41.8	V	54.0	-12.2	AVG	262	1.6	AUX + MAIN
2493.390	41.4	V	54.0	-12.6	AVG	200	1.0	MAIN
2498.190	60.5	V	74.0	-13.5	PK	26	1.6	AUX
2498.120	58.0	V	74.0	-16.0	PK	262	1.6	AUX + MAIN
2498.010	57.8	V	74.0	-16.2	PK	200	1.0	MAIN
4987.200	34.4	H	54.0	-19.6	AVG	300	1.9	MAIN
4976.270	33.5	V	54.0	-20.5	AVG	316	1.6	AUX + MAIN
4976.470	51.3	V	74.0	-22.7	PK	316	1.6	AUX + MAIN
4998.390	51.3	H	74.0	-22.7	PK	300	1.9	MAIN

Client:	Broadcom	Job Number:	J74037
Model:	BCM943224HMS	T-Log Number:	T74146
		Account Manager:	Eriksen / Washington
Contact:	Anne Liang		
Standard:	FCC 15.247, FCC 15E, RSS 210, LP0002	Class:	NII

Run #3: Preliminary Radiated Emissions, 1000 - 18000 MHz (Receive mode, 5600 MHz)

Frequency Range	Test Distance	Limit Distance	Extrapolation Factor
1000-10000	3	3	0.0
10000-18000	1	3	-9.5





Client:	Broadcom	Job Number:	J74037
Model:	BCM943224HMS	T-Log Number:	T74146
		Account Manager:	Eriksen / Washington
Contact:	Anne Liang		
Standard:	FCC 15.247, FCC 15E, RSS 210, LP0002	Class:	NII

Continuation of Run #3

Preliminary peak readings captured during pre-scan - Aux antenna

Frequency	Level	Pol	RSS GEN \ LP0002		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
2498.750	54.0	V	54.0	0.0	Peak	51	1.6	

Preliminary peak readings captured during pre-scan - Aux and Main antenna

Frequency	Level	Pol	RSS GEN \ LP0002		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
2500.270	51.1	V	54.0	-2.9	Peak	190	1.6	
4996.930	43.1	V	54.0	-10.9	Peak	306	1.6	

Preliminary peak readings captured during pre-scan - Main antenna <--- *only do this one if aux results are worse then main + aux.*

Frequency	Level	Pol	RSS GEN \ LP0002		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
2500.270	52.0	V	54.0	-2.0	Peak	199	1.0	
4987.500	41.8	H	54.0	-12.2	Peak	269	1.1	

Maximized average and peak readings - worst-case antenna combination

Frequency	Level	Pol	RSS GEN \ LP0002		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
2493.880	43.8	V	54.0	-10.2	AVG	27	1.5	AUX
2493.460	42.6	V	54.0	-11.4	AVG	199	1.0	MAIN
2494.680	41.6	V	54.0	-12.4	AVG	209	1.6	AUX + MAIN
2498.100	60.3	V	74.0	-13.7	PK	27	1.5	AUX
2489.810	58.8	V	74.0	-15.2	PK	199	1.0	MAIN
2499.340	58.1	V	74.0	-15.9	PK	209	1.6	AUX + MAIN
4987.180	34.2	V	54.0	-19.8	AVG	312	1.6	AUX + MAIN
4978.480	51.8	V	74.0	-22.2	PK	312	1.6	AUX + MAIN

Client:	Broadcom	Job Number:	J74037
Model:	BCM943224HMS	T-Log Number:	T74146
		Account Manager:	Eriksen / Washington
Contact:	Anne Liang		
Standard:	FCC 15.247, FCC 15E, RSS 210, LP0002	Class:	NII

Run #4: Preliminary Radiated Emissions, 1000 - 18000 MHz (Receive mode, 5230 MHz)
802.11n 40MHz

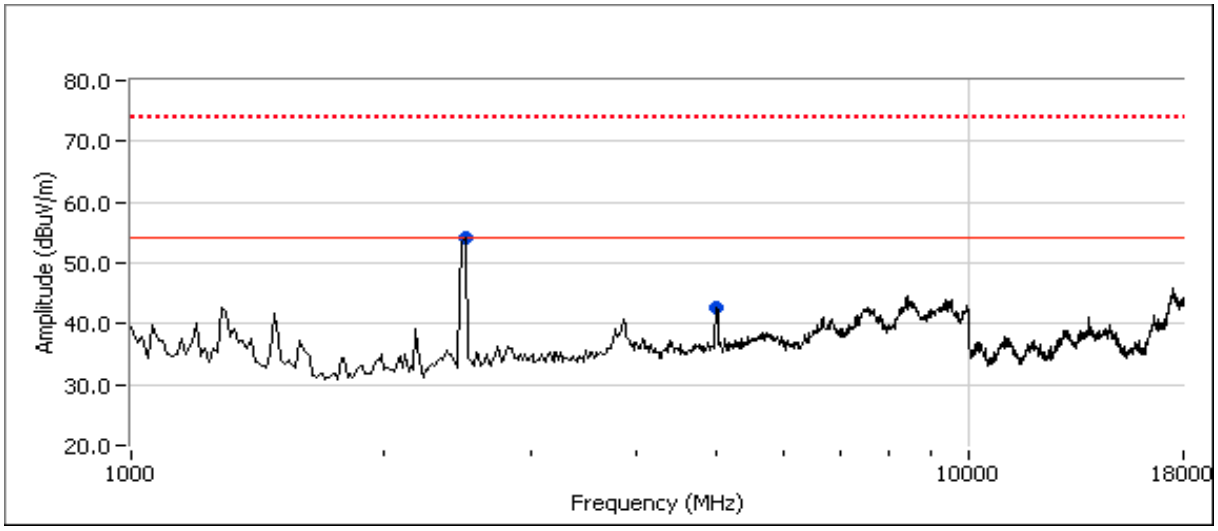
Frequency Range	Test Distance	Limit Distance	Extrapolation Factor
1000-10000	3	3	0.0
10000-18000	1	3	-9.5

Preliminary peak readings captured during pre-scan - Aux and Main antenna

Frequency	Level	Pol	RSS GEN \ LP0002		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
2498.650	54.2	V	54.0	0.2	Peak	249	1.3	
5000.310	42.8	V	54.0	-11.2	Peak	321	1.6	

Maximized average and peak readings

Frequency	Level	Pol	RSS GEN \ LP0002		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
2497.160	41.6	V	54.0	-12.4	AVG	249	1.3	RB 1 MHz; VB: 10 Hz
2499.330	59.5	V	74.0	-14.5	PK	249	1.3	RB 1 MHz; VB: 1 MHz
4998.810	32.8	V	54.0	-21.2	AVG	321	1.6	RB 1 MHz; VB: 10 Hz
4999.160	49.4	V	74.0	-24.6	PK	321	1.6	RB 1 MHz; VB: 1 MHz



Client:	Broadcom	Job Number:	J74037
Model:	BCM943224HMS	T-Log Number:	T74146
		Account Manager:	Eriksen / Washington
Contact:	Anne Liang		
Standard:	FCC 15.247, FCC 15E, RSS 210, LP0002	Class:	NII

Run #5: Preliminary Radiated Emissions, 1000 - 18000 MHz (Receive mode, 5310 MHz)
802.11n 40MHz

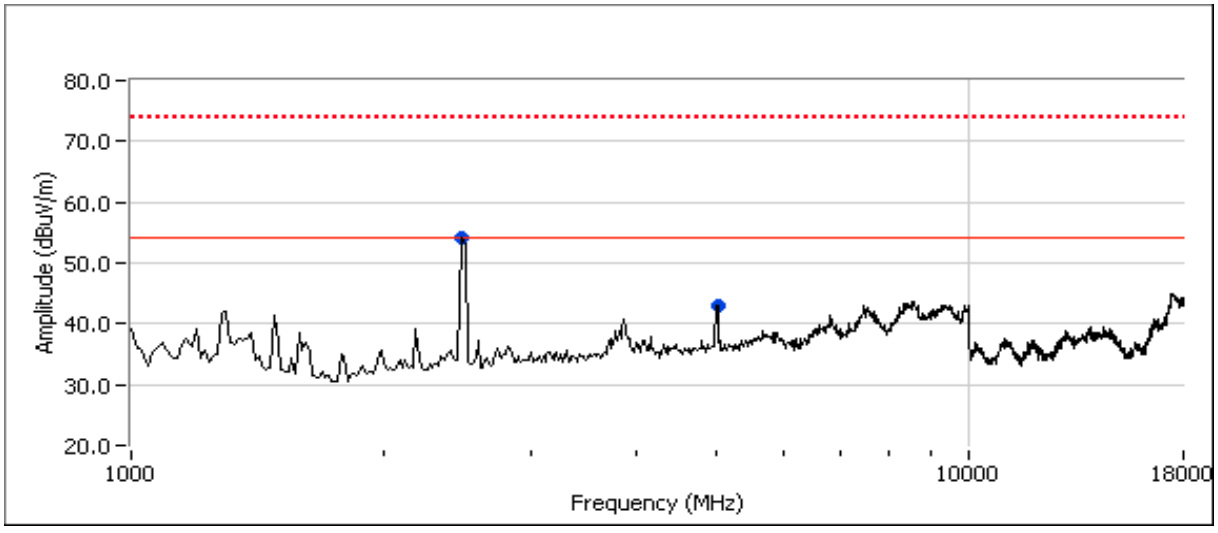
Frequency Range	Test Distance	Limit Distance	Extrapolation Factor
1000-10000	3	3	0.0
10000-18000	1	3	-9.5

Preliminary peak readings captured during pre-scan - Aux and Main antenna

Frequency	Level	Pol	RSS GEN \ LP0002		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
2499.530	54.2	V	54.0	0.2	Peak	208	1.3	
5000.210	43.0	V	54.0	-11.0	Peak	179	1.6	

Maximized average and peak readings

Frequency	Level	Pol	RSS GEN \ LP0002		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
2498.780	41.7	V	54.0	-12.3	AVG	207	1.3	RB 1 MHz; VB: 10 Hz
2498.610	59.5	V	74.0	-14.5	PK	207	1.3	RB 1 MHz; VB: 1 MHz
4998.740	33.5	V	54.0	-20.5	AVG	178	1.6	RB 1 MHz; VB: 10 Hz
4999.240	50.3	V	74.0	-23.7	PK	178	1.6	RB 1 MHz; VB: 1 MHz



Client:	Broadcom	Job Number:	J74037
Model:	BCM943224HMS	T-Log Number:	T74146
		Account Manager:	Eriksen / Washington
Contact:	Anne Liang		
Standard:	FCC 15.247, FCC 15E, RSS 210, LP0002	Class:	NII

Run #6: Preliminary Radiated Emissions, 1000 - 18000 MHz (Receive mode, 5590 MHz)
802.11n 40MHz

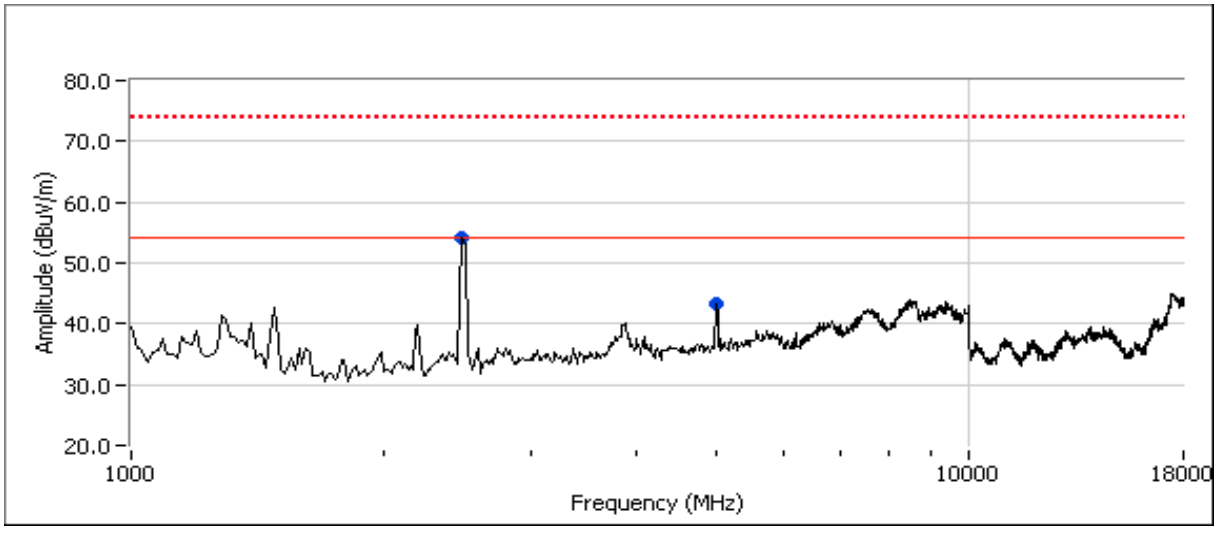
Frequency Range	Test Distance	Limit Distance	Extrapolation Factor
1000-10000	3	3	0.0
10000-18000	1	3	-9.5

Preliminary peak readings captured during pre-scan - Aux and Main antenna

Frequency	Level	Pol	RSS GEN \ LP0002		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
2500.120	54.2	V	54.0	0.2	Peak	212	1.9	
4997.610	43.3	H	54.0	-10.7	Peak	73	1.0	

Maximized average and peak readings

Frequency	Level	Pol	RSS GEN \ LP0002		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
2498.870	43.0	V	54.0	-11.0	AVG	212	1.9	RB 1 MHz; VB: 10 Hz
2499.980	61.1	V	74.0	-12.9	PK	212	1.9	RB 1 MHz; VB: 1 MHz
4996.410	32.6	H	54.0	-21.4	AVG	73	1.0	RB 1 MHz; VB: 10 Hz
4998.370	49.8	H	74.0	-24.2	PK	73	1.0	RB 1 MHz; VB: 1 MHz



Client:	Broadcom	Job Number:	J74037
Model:	BCM943224HMS	T-Log Number:	T74077
		Account Manager:	Dean Eriksen
Contact:	Anne Liang		-
Emissions Standard(s):	FCC 15.247 & 15.205	Class:	B
Immunity Standard(s):	-	Environment:	-

EMC Test Data

For The

Broadcom

Model

BCM943224HMS

Date of Last Test: 3/9/2009

Client:	Broadcom	Job Number:	J74037
Model:	BCM943224HMS	T-Log Number:	T74077
		Account Manager:	Dean Eriksen
Contact:	Anne Liang		
Standard:	FCC 15.247 & 15.205	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: 2/9&10/2009
Test Engineer: Suhaila Khushzad
Test Location: Fremont Chamber #3 & Fremont
Config. Used: 1
Config Change: None
EUT Voltage: 120V/60Hz

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: 20 °C
Rel. Humidity: 45 %

Summary of Results

Run #	Test Performed	Limit	Pass / Fail	Result / Margin
1	Power, 5150 - 5250MHz	15.407(a) (1), (2)	Pass	13.2dBm (0.02W)
1	Power, 5250 - 5350MHz	15.407(a) (1), (2)	Pass	17.6dBm (0.06W)
1	Power, 5470 - 5725MHz	15.407(a) (1), (2)	Pass	16.5dBm (0.04W)
1	PSD, 5150 - 5250MHz	15.407(a) (1), (2)	Pass	0.7 dBm/MHz
1	PSD, 5250 - 5350MHz	15.407(a) (1), (2)	Pass	4.8 dBm/MHz
1	PSD, 5470 - 5725MHz	15.407(a) (1), (2)	Pass	4.3 dBm/MHz
1	26dB BW, 5150-5250 MHz	15.407	-	23.1 MHz
1	26dB BW, 5250-5350 MHz	15.407	-	45.8 MHz
1	26dB BW, 5470-5725 MHz	15.407	-	42.3 MHz
1	99% Bandwidth	RSS 210	-	17.0 MHz
2	Peak Excursion Envelope	15.407(a) (6)	Pass	12.8 dBm
3	Antenna Conducted Out of Band Spurious	15.407(b)	Pass	All emissions below the -27dBm/MHz limit

Modifications Made During Testing

No modifications were made to the EUT during testing

Deviations From The Standard

No deviations were made from the requirements of the standard.

Client:	Broadcom	Job Number:	J74037
Model:	BCM943224HMS	T-Log Number:	T74077
		Account Manager:	Dean Eriksen
Contact:	Anne Liang		
Standard:	FCC 15.247 & 15.205	Class:	N/A

Run #1: Bandwidth, Output Power and Power spectral Density

Antenna Gain (dBi): 5.6

Frequency (MHz)	Software Setting	Bandwidth 26dB	Bandwidth 99%[4]	Output Power[1] dBm Measured	Output Power[1] dBm Limit	Power (Watts)	PSD[2] dBm/MHz Measured	PSD[2] dBm/MHz FCC Limit	PSD[2] dBm/MHz RSS Limit[3]	Result
Power for 5150-5250 MHz Band										
5180	-	22.8	16.6	13.2	17.0	0.021	0.6	4.0	4.4	Pass
5220	-	23.1	16.6	13.2	17.0	0.021	0.7	4.0	4.4	Pass
5240	-	21.9	16.7	12.9	17.0	0.019	0.2	4.0	4.4	Pass
Power for 5250-5350 MHz Band										
5260	-	45.8	16.9	17.1	24.0	0.051	4.7	11.0	11.0	Pass
5300	-	44.0	16.9	17.6	24.0	0.057	4.8	11.0	11.0	Pass
5320	-	26.0	16.7	14.1	24.0	0.026	1.0	11.0	11.0	Pass

Antenna Gain (dBi): 4.2

Power for 5470-5725 MHz Band

Frequency (MHz)	Software Setting	Bandwidth 26dB	Bandwidth 99%[4]	Output Power[1] dBm Measured	Output Power[1] dBm Limit	Power (Watts)	PSD[2] dBm/MHz Measured	PSD[2] dBm/MHz FCC Limit	PSD[2] dBm/MHz RSS Limit[3]	Result
5500	-	41.8	16.7	15.6	24.0	0.036	3.1	11.0	11.0	Pass
5600	-	41.8	16.8	16.4	24.0	0.043	3.9	11.0	11.0	Pass
5700	-	42.3	17.0	16.5	24.0	0.044	4.3	11.0	11.0	Pass

Note 1:	RBW=1MHz, VB=3 MHz, sample detector, power averaging on (transmitted signal was not continuous but the ESI analyzer was configured with a gated sweep such that the analyzer was only sweeping when the device was transmitting) and power integration over 40MHz.
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

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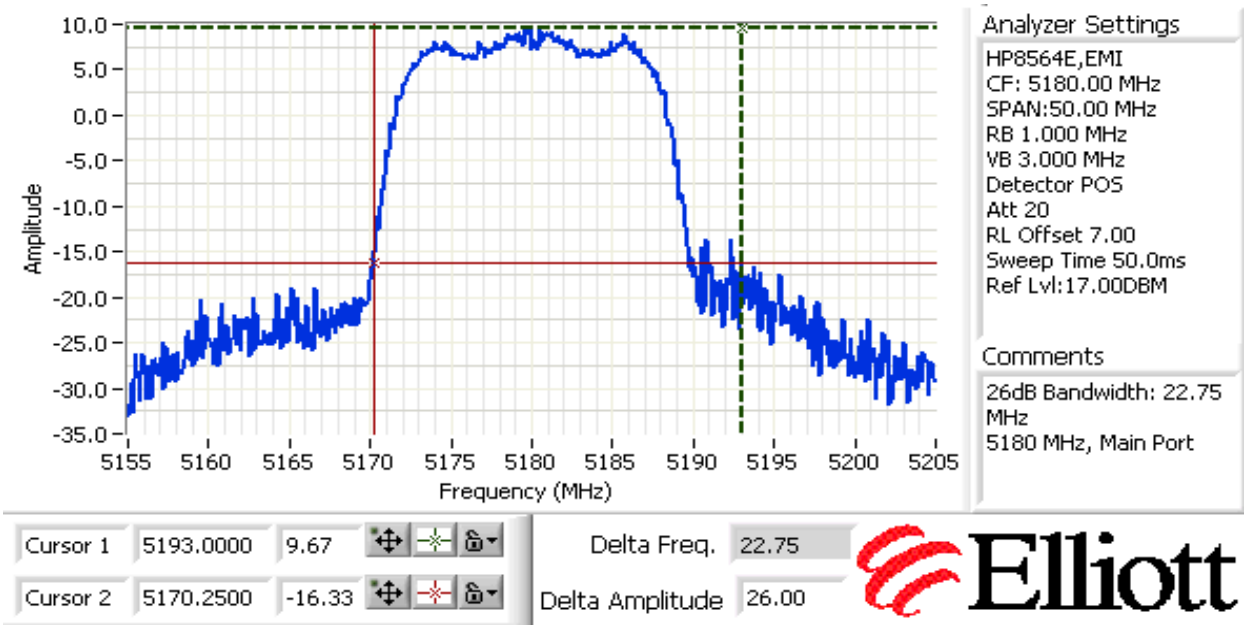
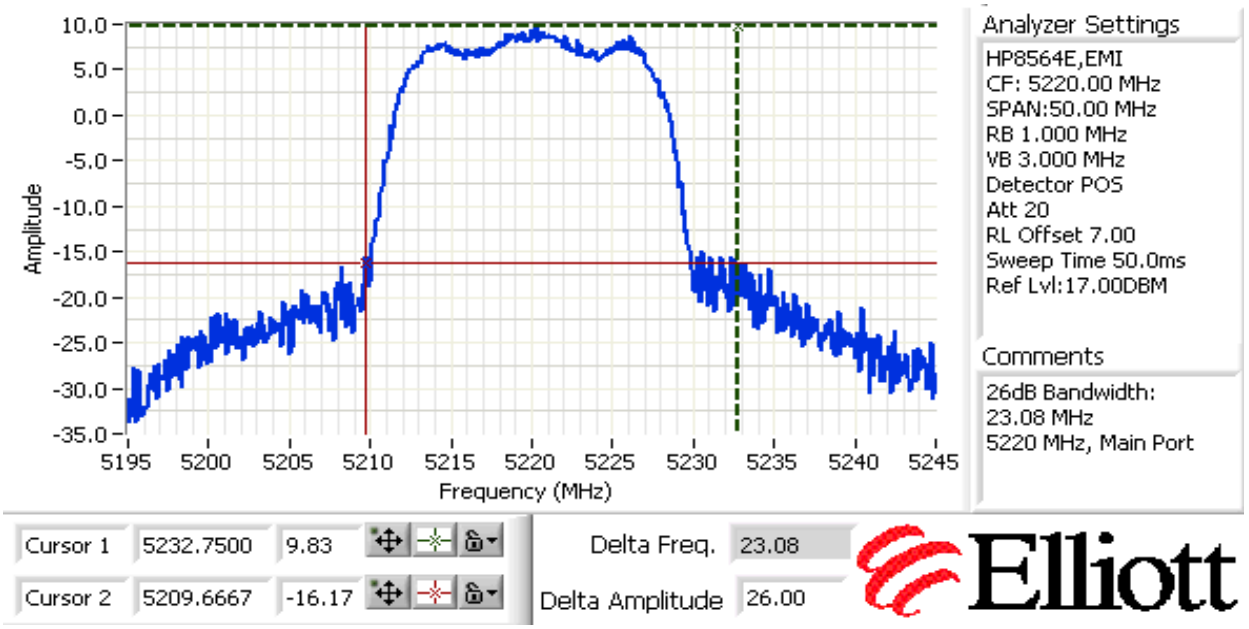
Standard:	FCC 15.247 & 15.205	Class:	N/A





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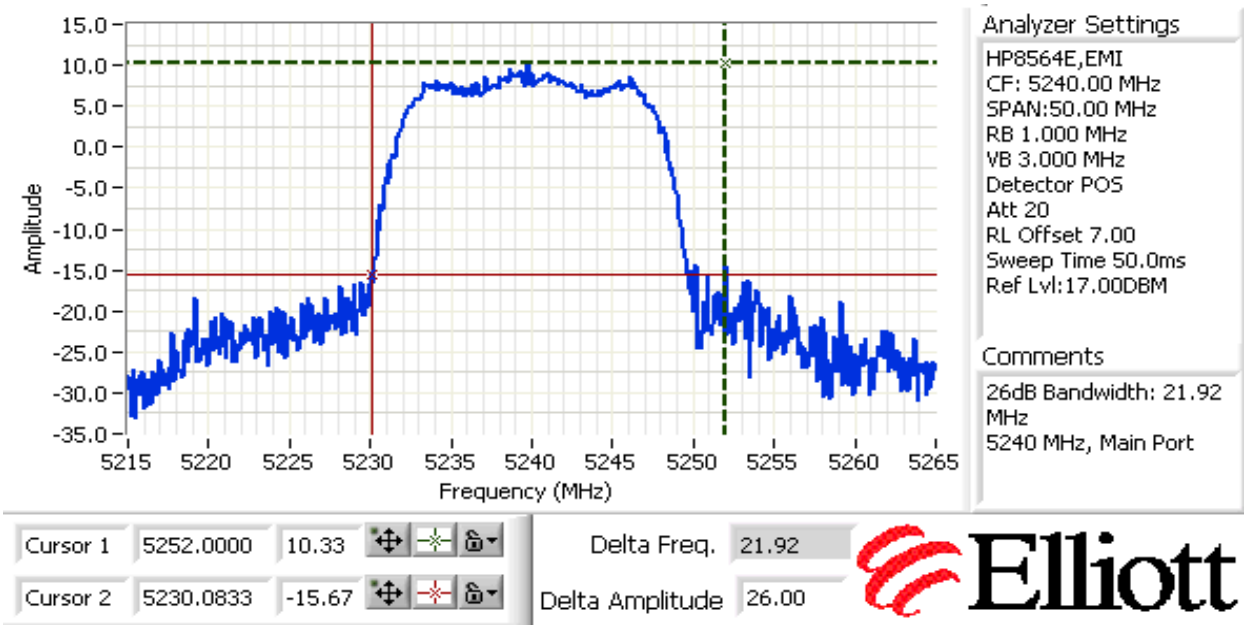
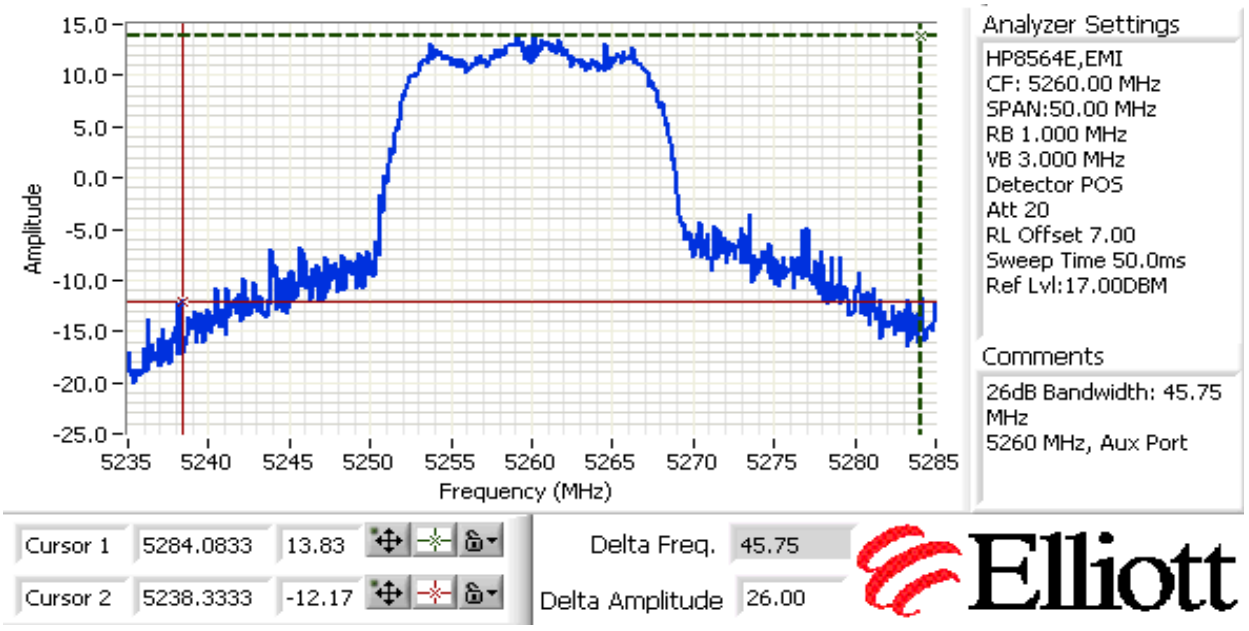
		Account Manager:	Dean Eriksen
Contact:	Anne Liang		
Standard:	FCC 15.247 & 15.205	Class:	N/A





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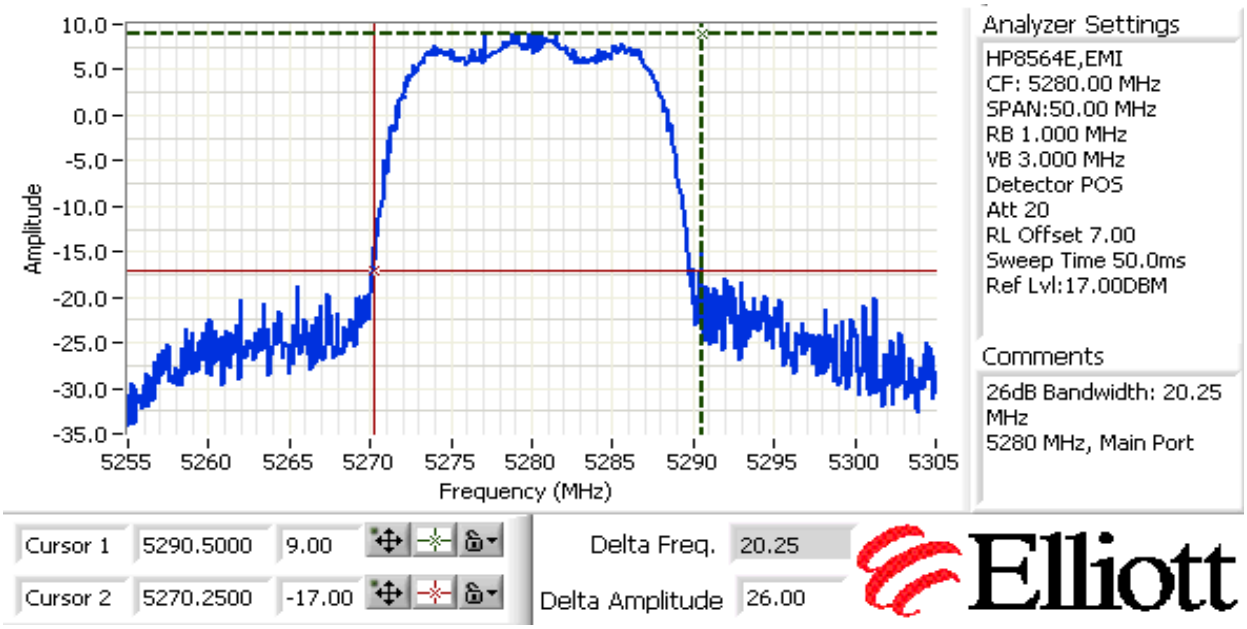
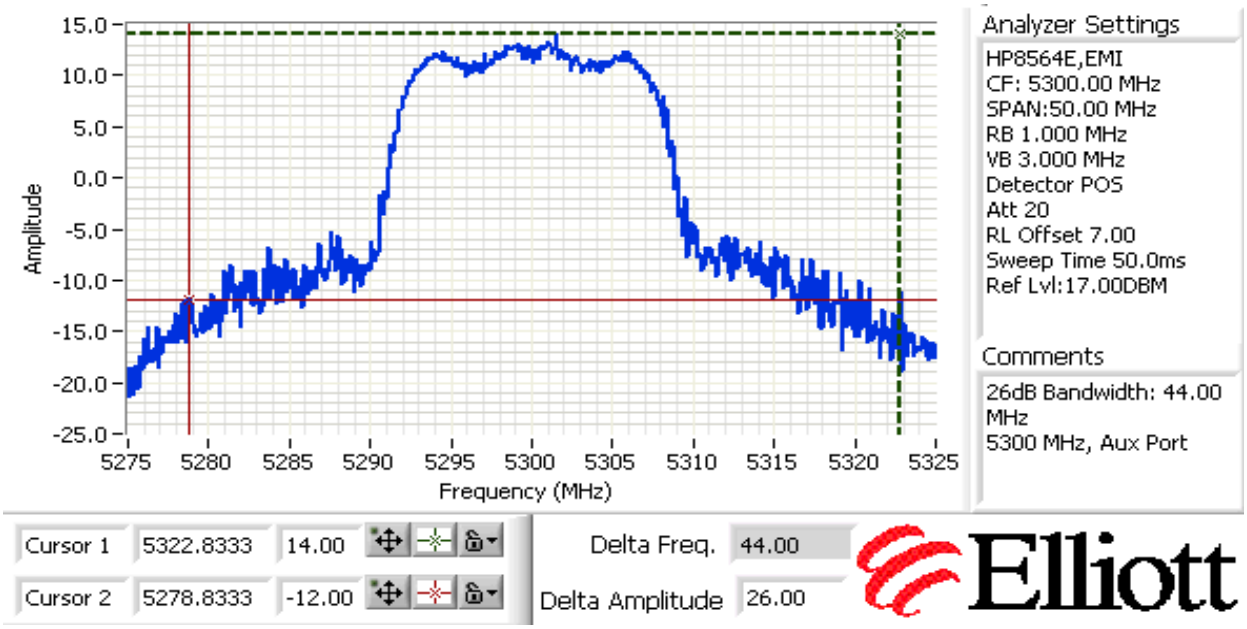
Model:	BCM943224HMS	T-Log Number:	T74077
		Account Manager:	Dean Eriksen
Contact:	Anne Liang		
Standard:	FCC 15.247 & 15.205	Class:	N/A





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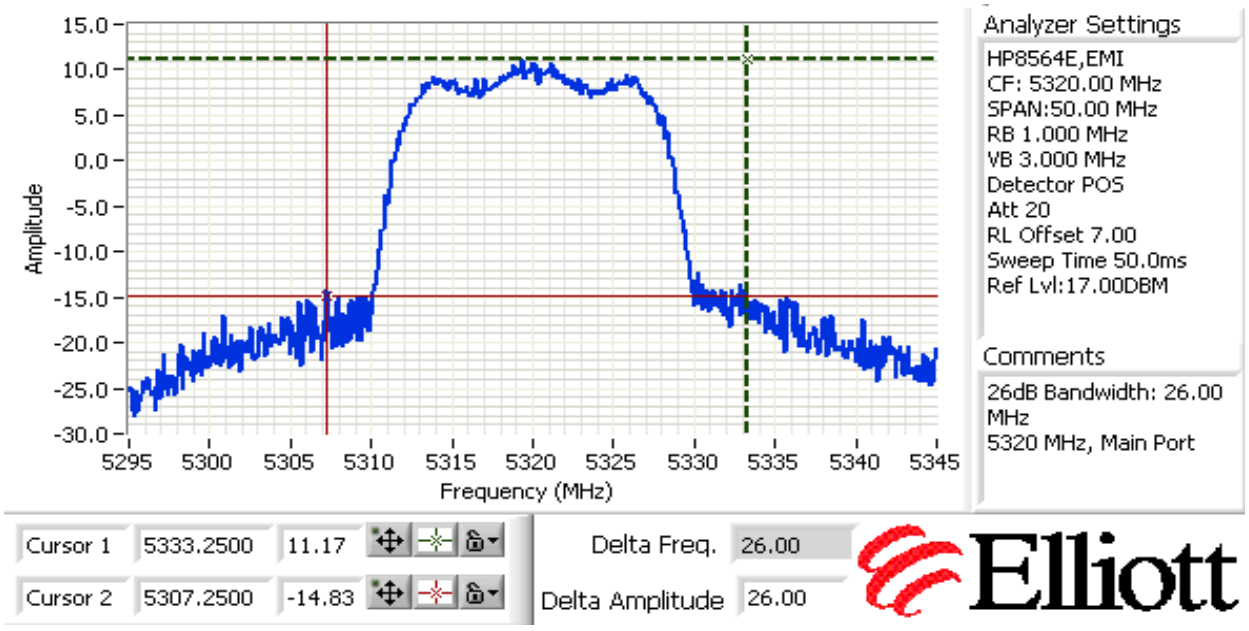
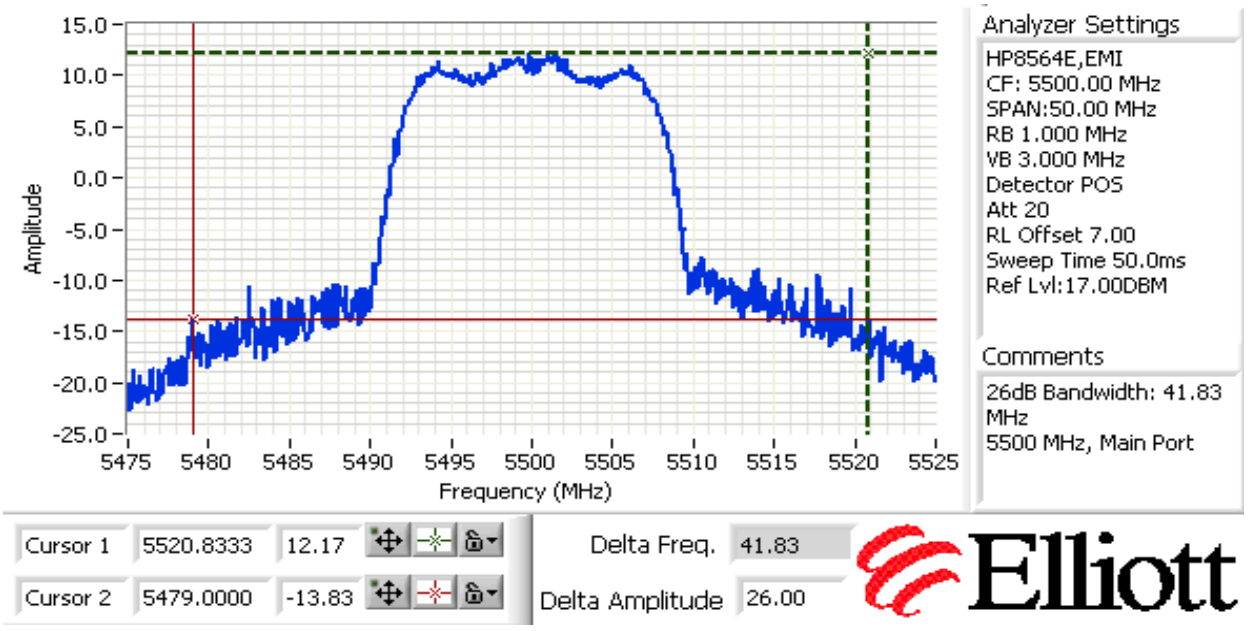
Model:	BCM943224HMS	T-Log Number:	T74077
		Account Manager:	Dean Eriksen
Contact:	Anne Liang		
Standard:	FCC 15.247 & 15.205	Class:	N/A





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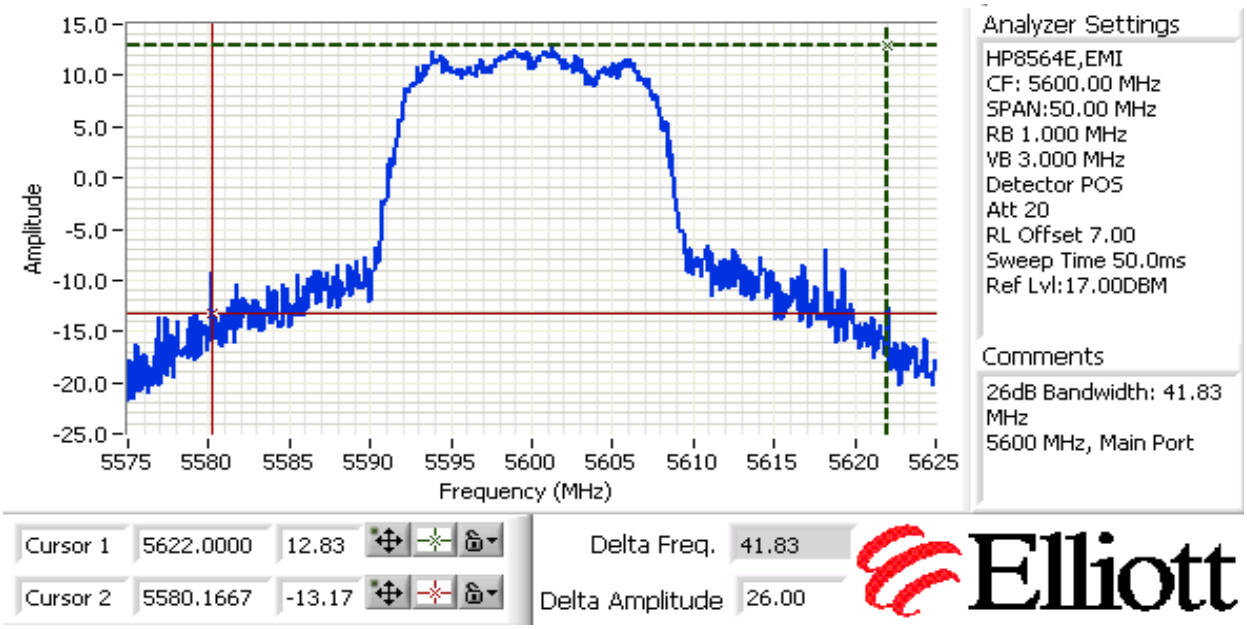
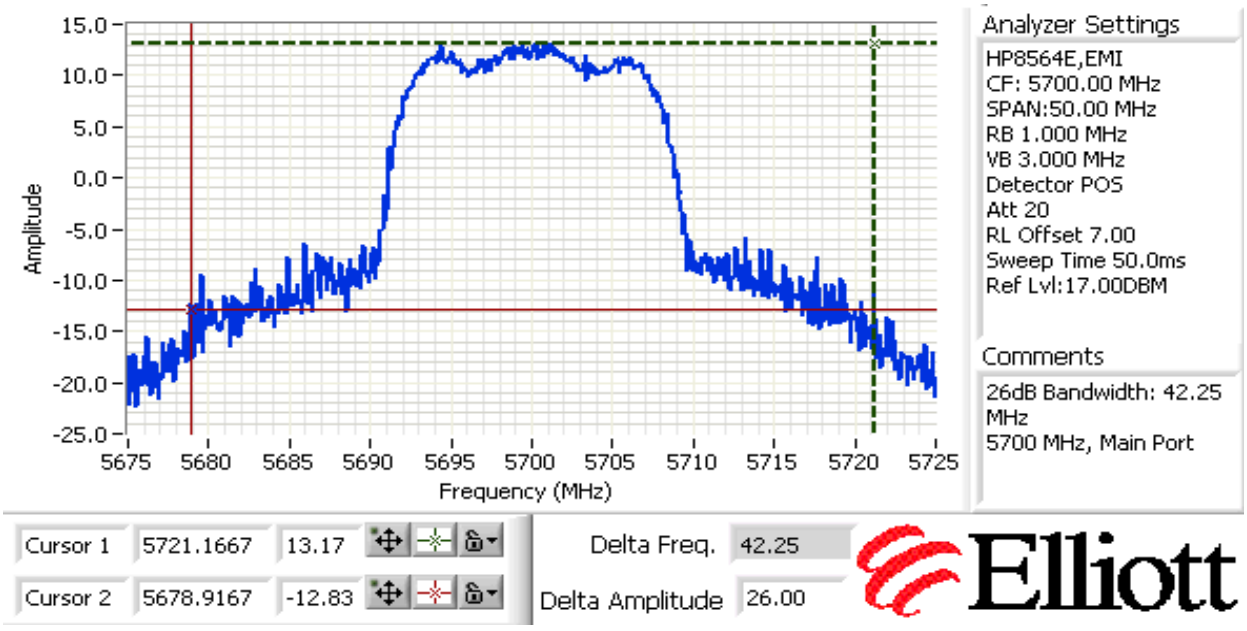
		Account Manager:	Dean Eriksen
Contact:	Anne Liang		
Standard:	FCC 15.247 & 15.205	Class:	N/A





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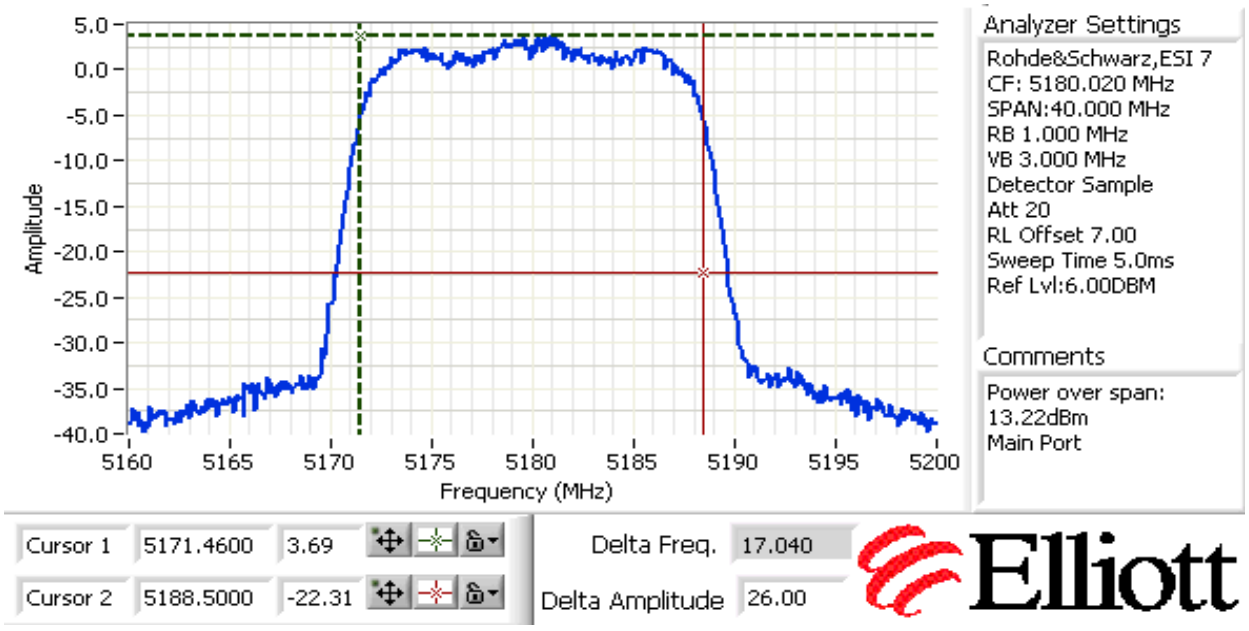
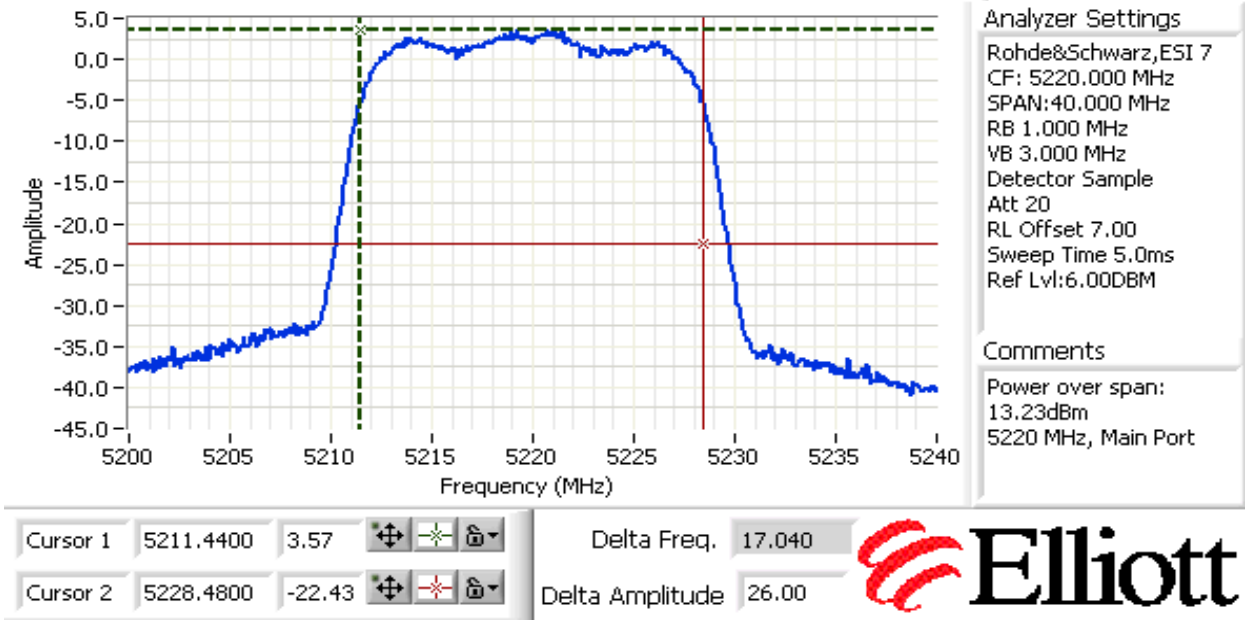
		Account Manager:	Dean Eriksen
Contact:	Anne Liang		
Standard:	FCC 15.247 & 15.205	Class:	N/A





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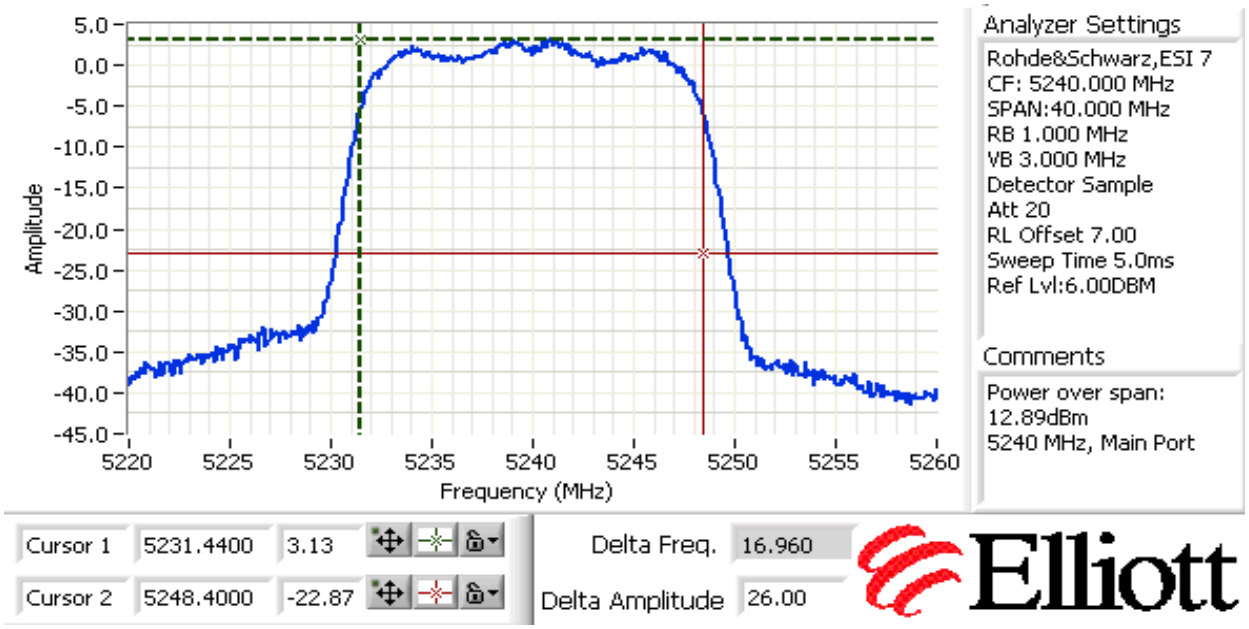
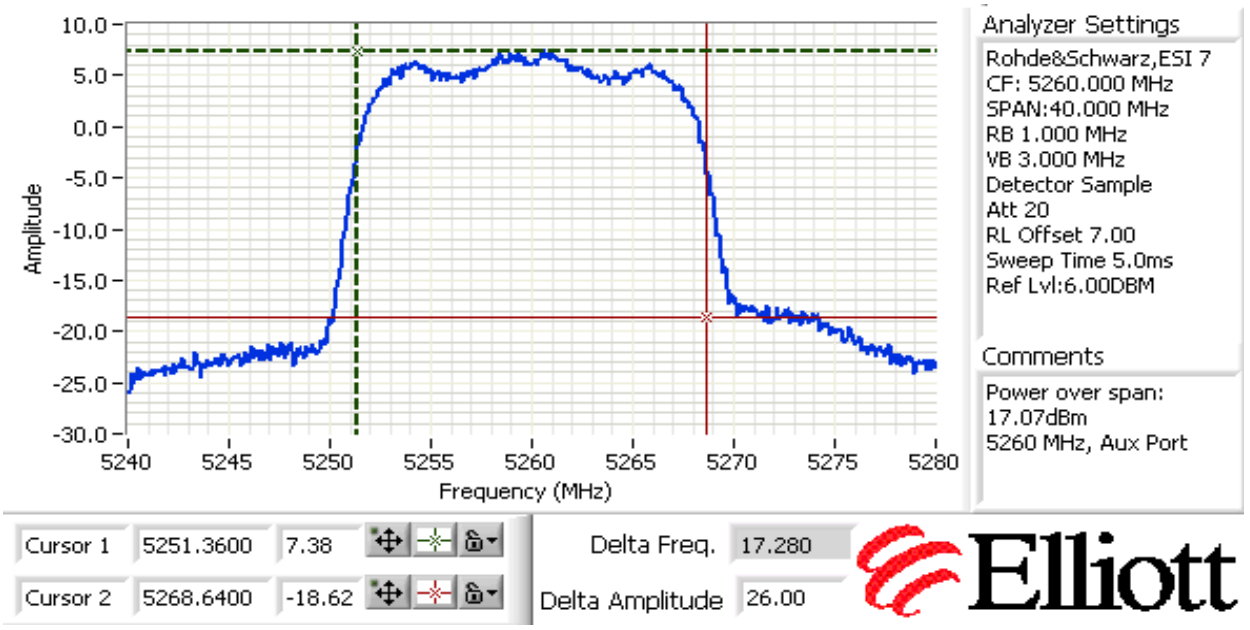
Model:	BCM943224HMS	T-Log Number:	T74077
		Account Manager:	Dean Eriksen
Contact:	Anne Liang		
Standard:	FCC 15.247 & 15.205	Class:	N/A





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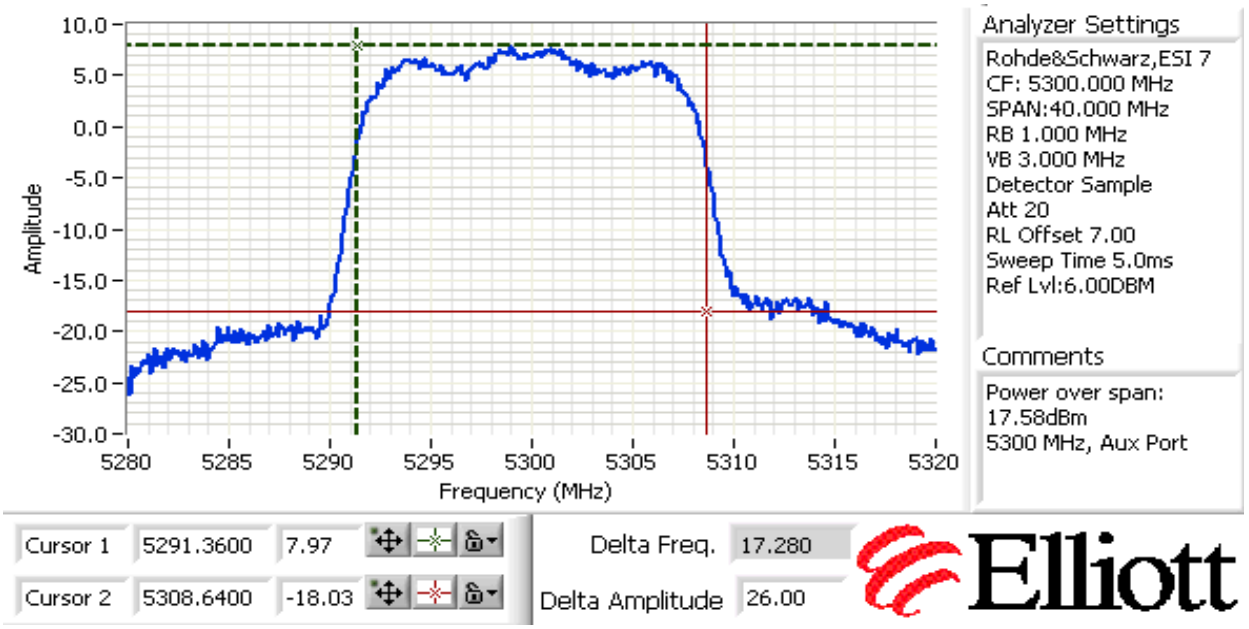
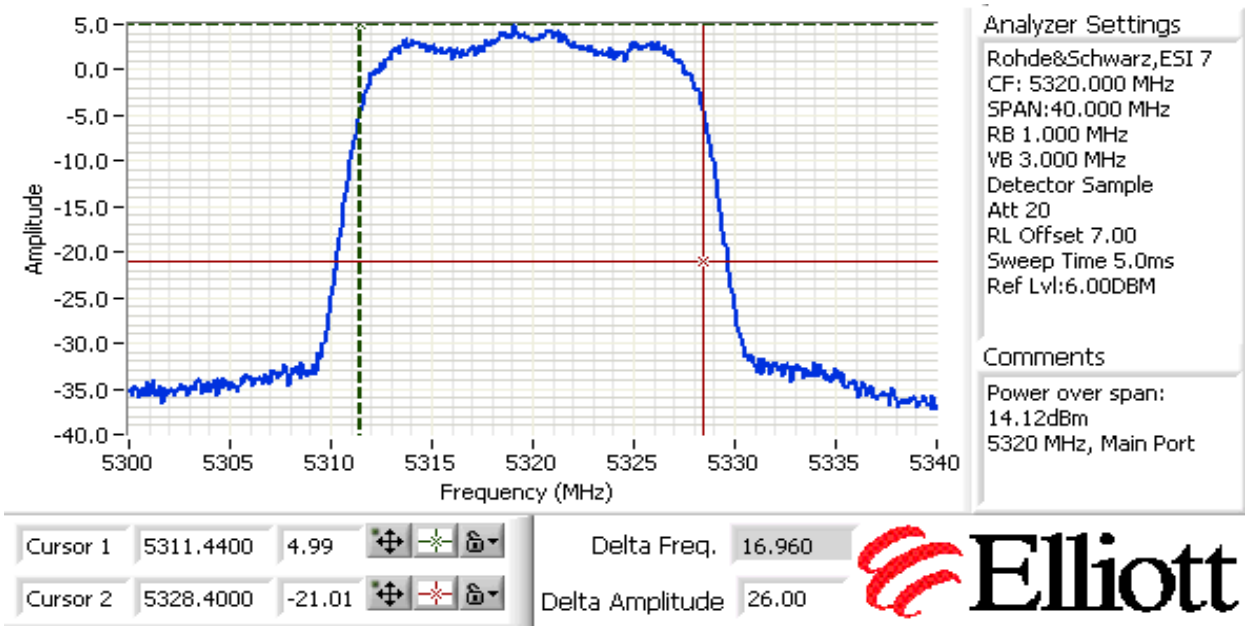
Model:	BCM943224HMS	T-Log Number:	T74077
		Account Manager:	Dean Eriksen
Contact:	Anne Liang		
Standard:	FCC 15.247 & 15.205	Class:	N/A





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Model:	BCM943224HMS	T-Log Number:	T74077
		Account Manager:	Dean Eriksen
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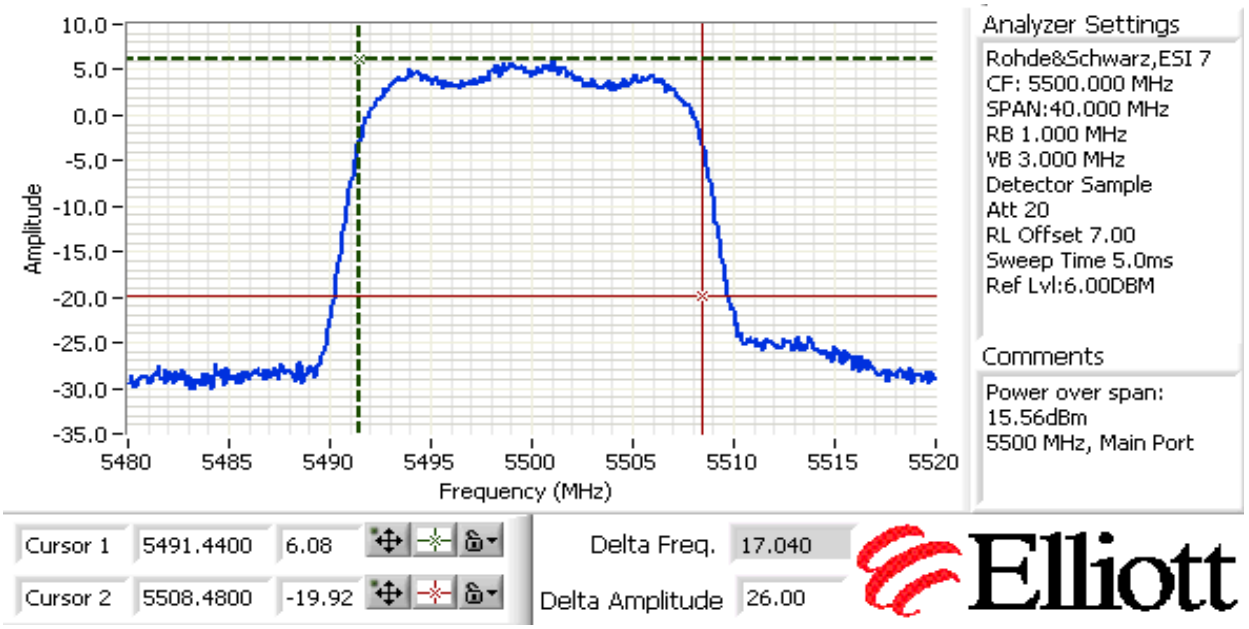
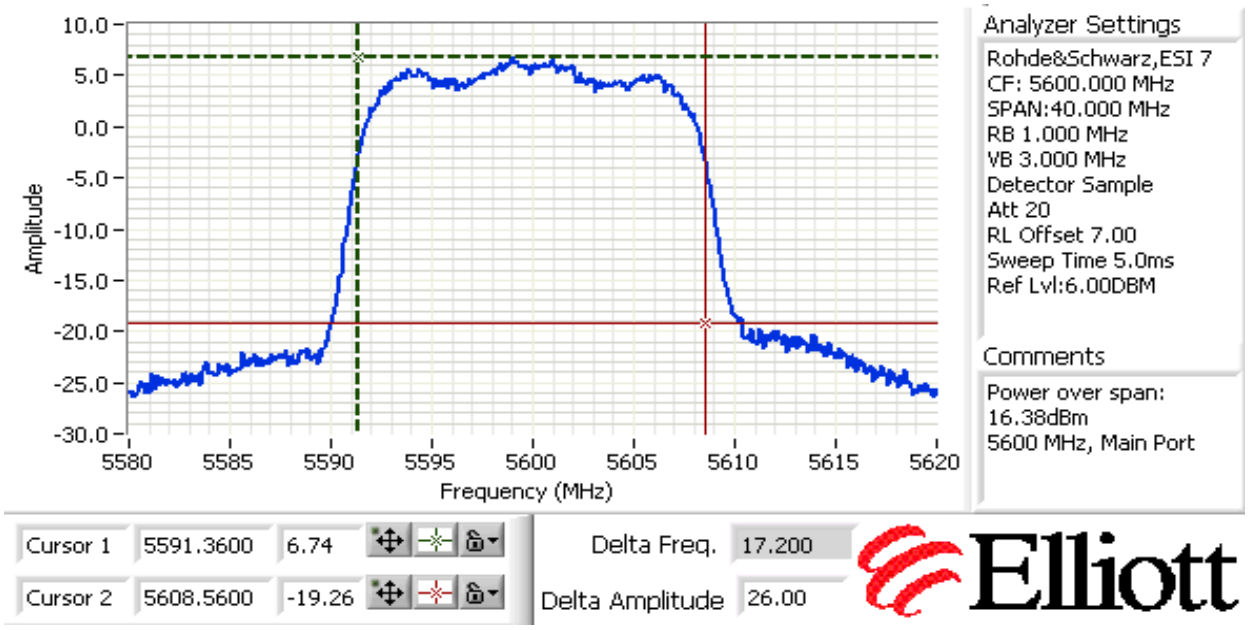
Standard:	FCC 15.247 & 15.205	Class:	N/A





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Model:	BCM943224HMS	T-Log Number:	T74077
		Account Manager:	Dean Eriksen
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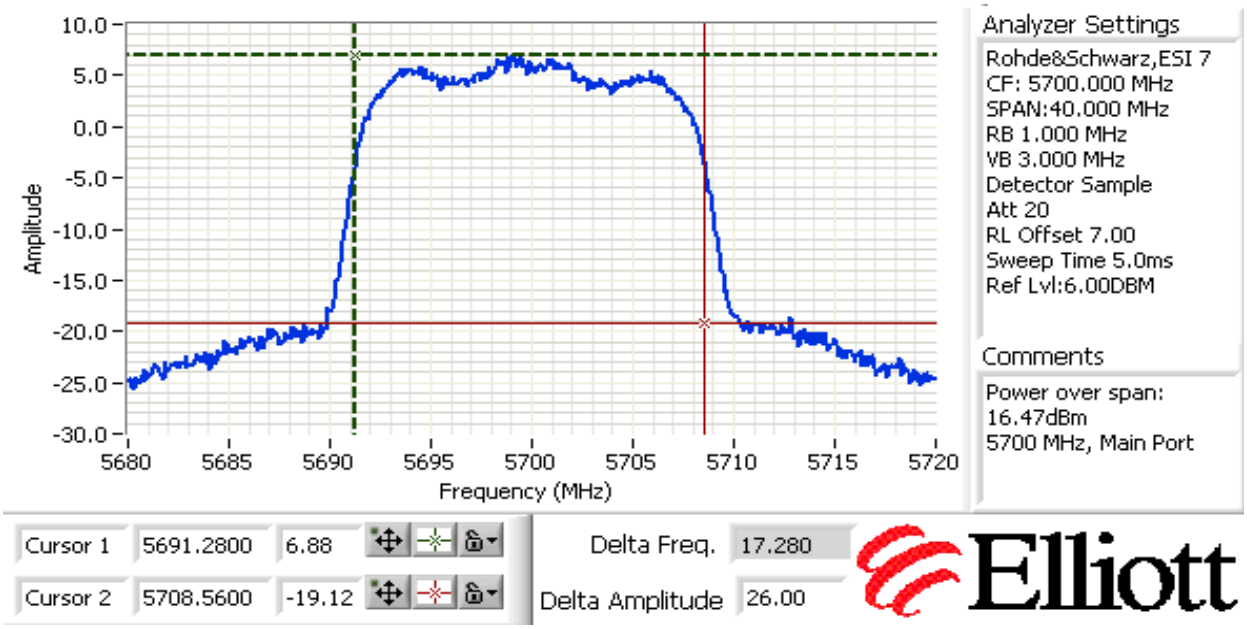
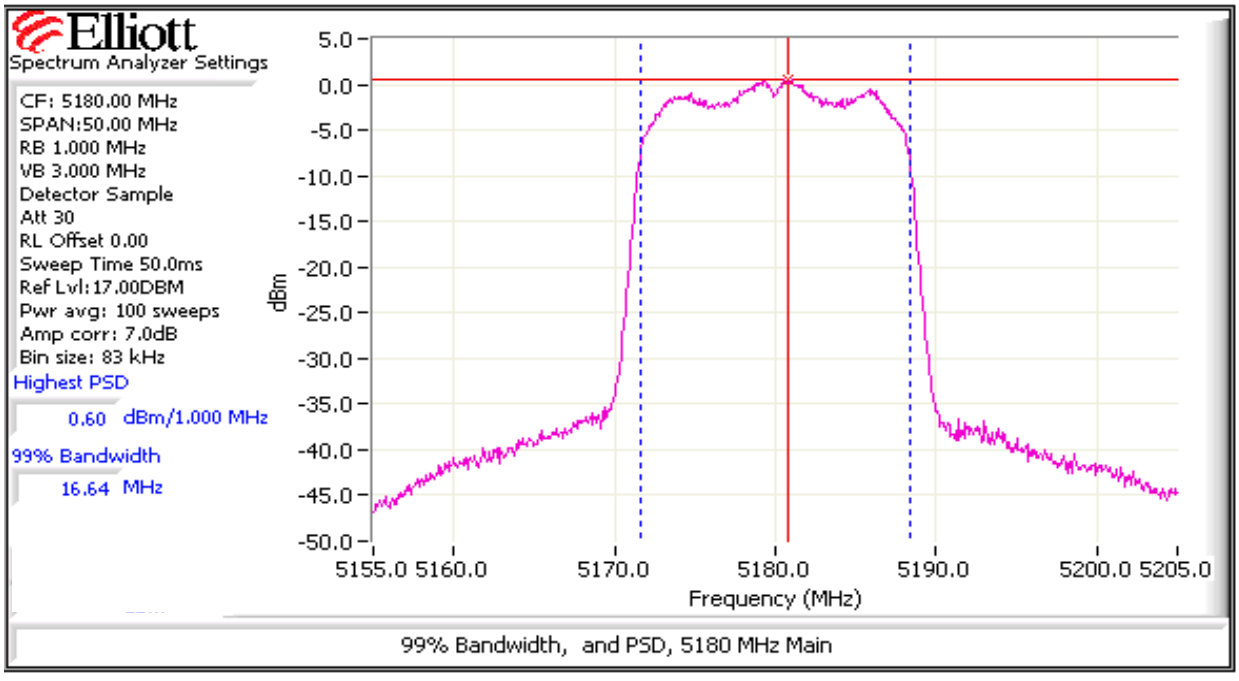
Standard:	FCC 15.247 & 15.205	Class:	N/A





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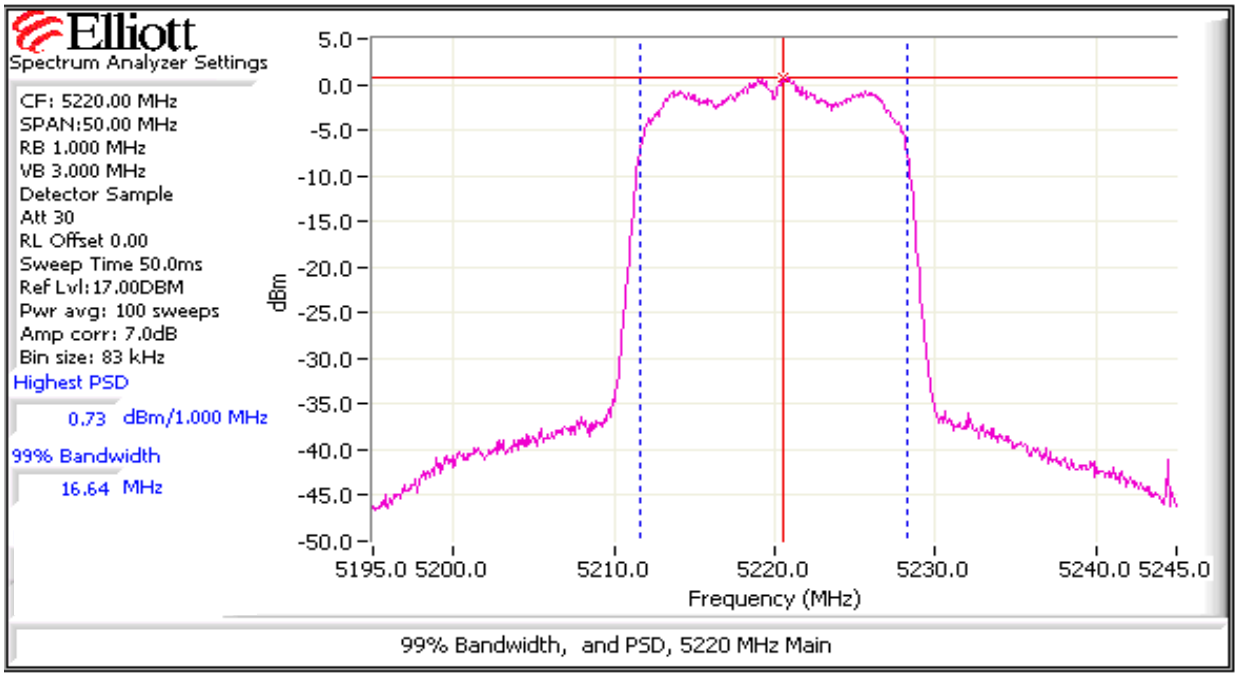
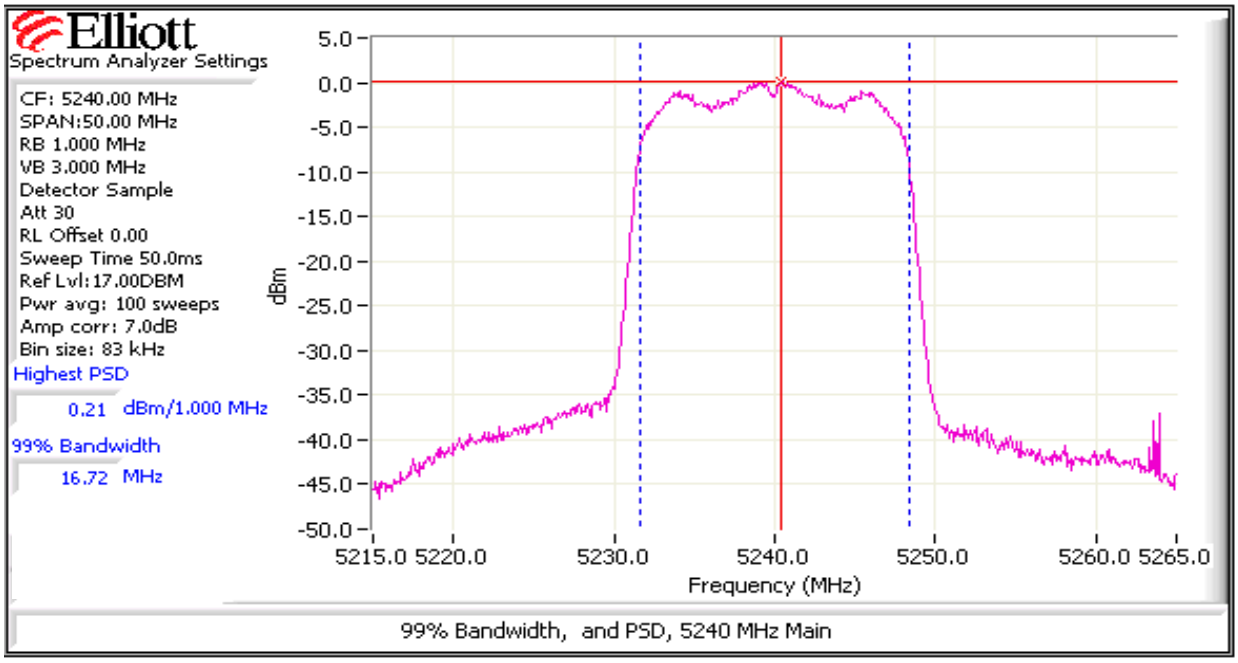
Model:	BCM943224HMS	T-Log Number:	T74077
		Account Manager:	Dean Eriksen
Contact:	Anne Liang		
Standard:	FCC 15.247 & 15.205	Class:	N/A





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		Account Manager:	Dean Eriksen
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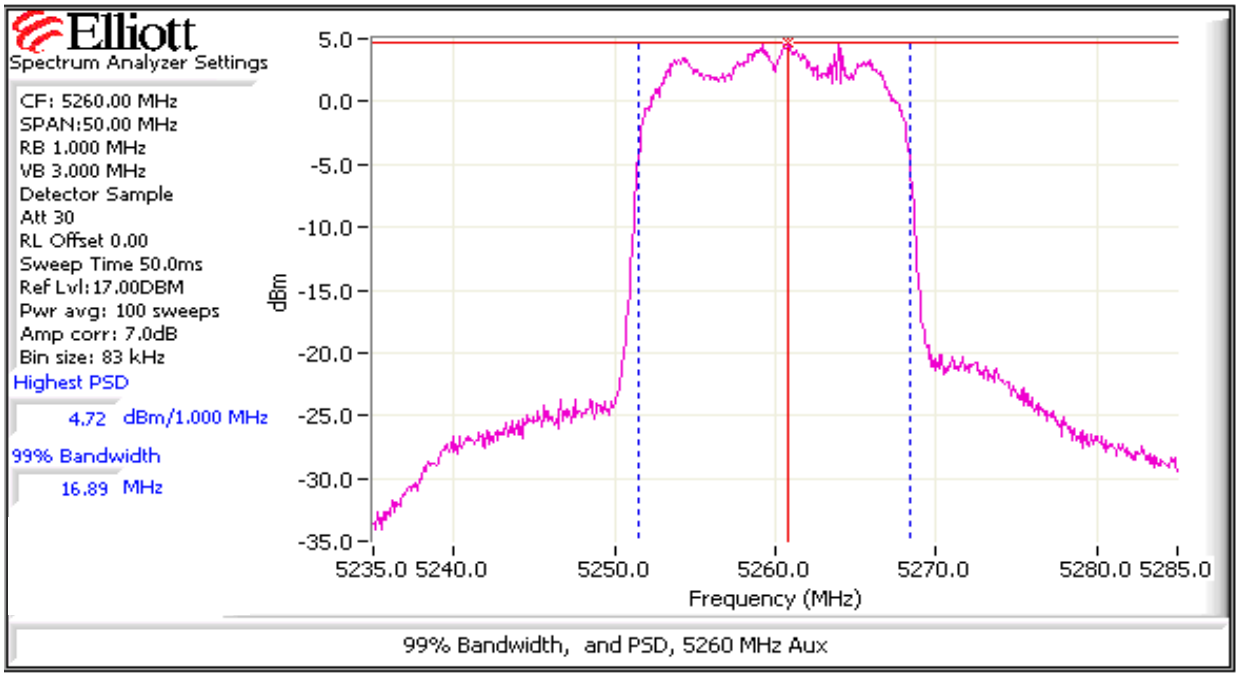
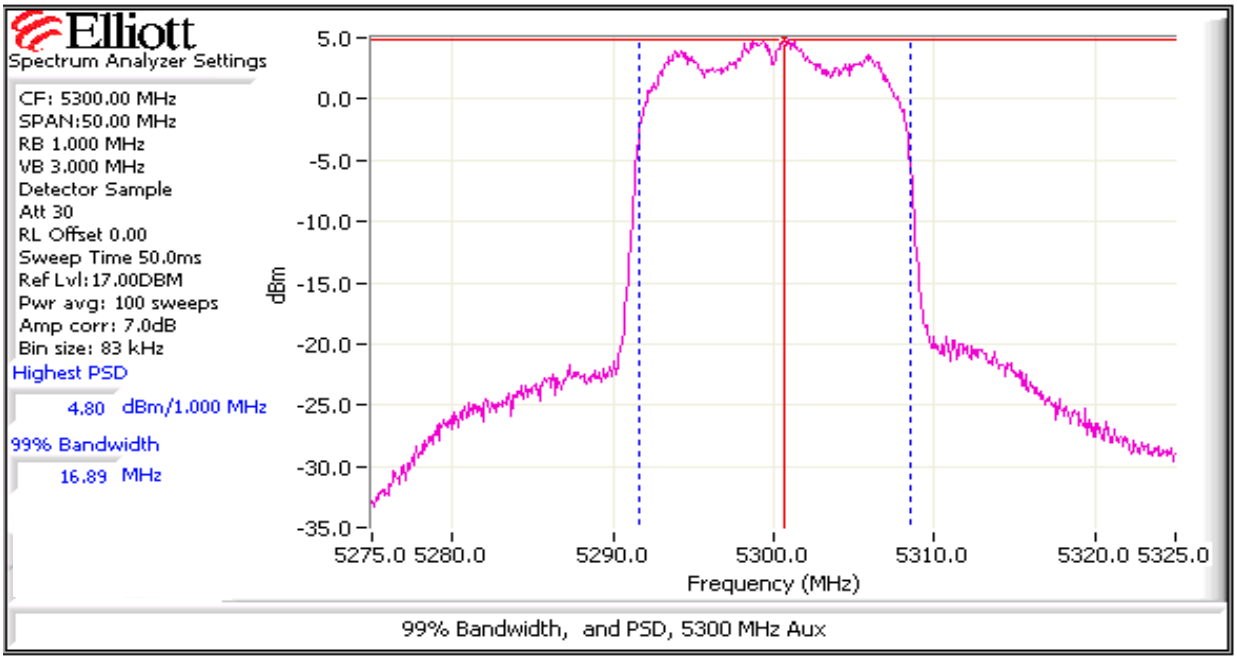
Standard:	FCC 15.247 & 15.205	Class:	N/A





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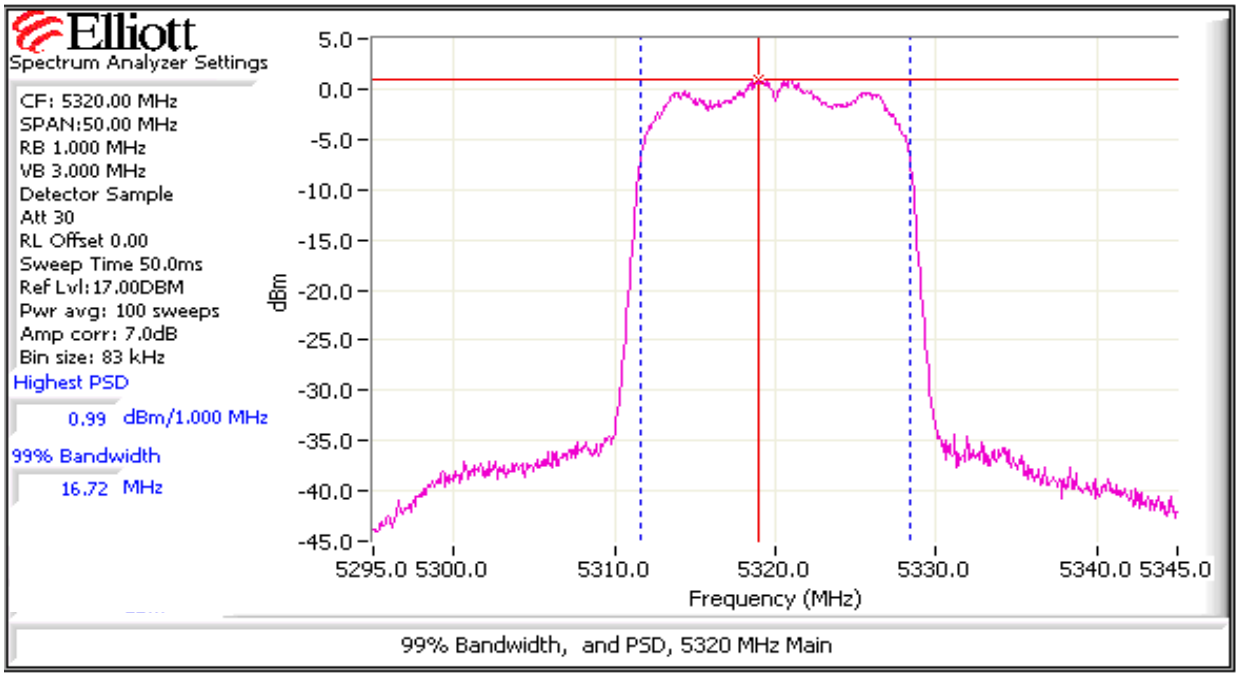
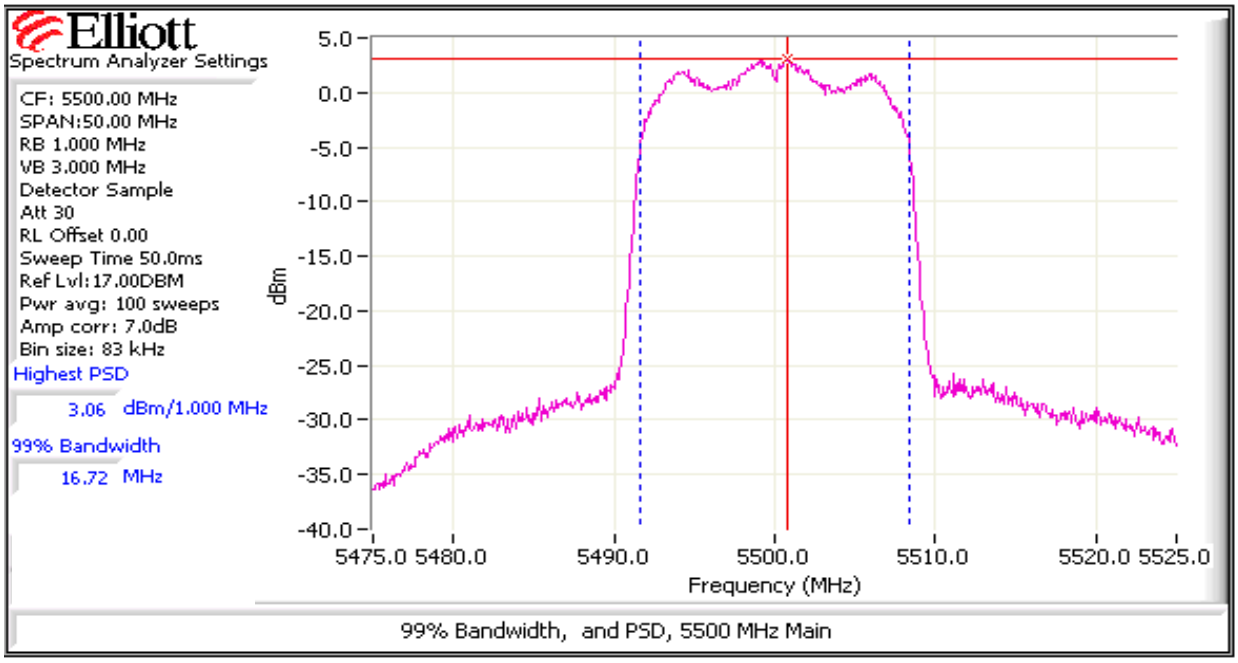
Model:	BCM943224HMS	T-Log Number:	T74077
		Account Manager:	Dean Eriksen
Contact:	Anne Liang		
Standard:	FCC 15.247 & 15.205	Class:	N/A





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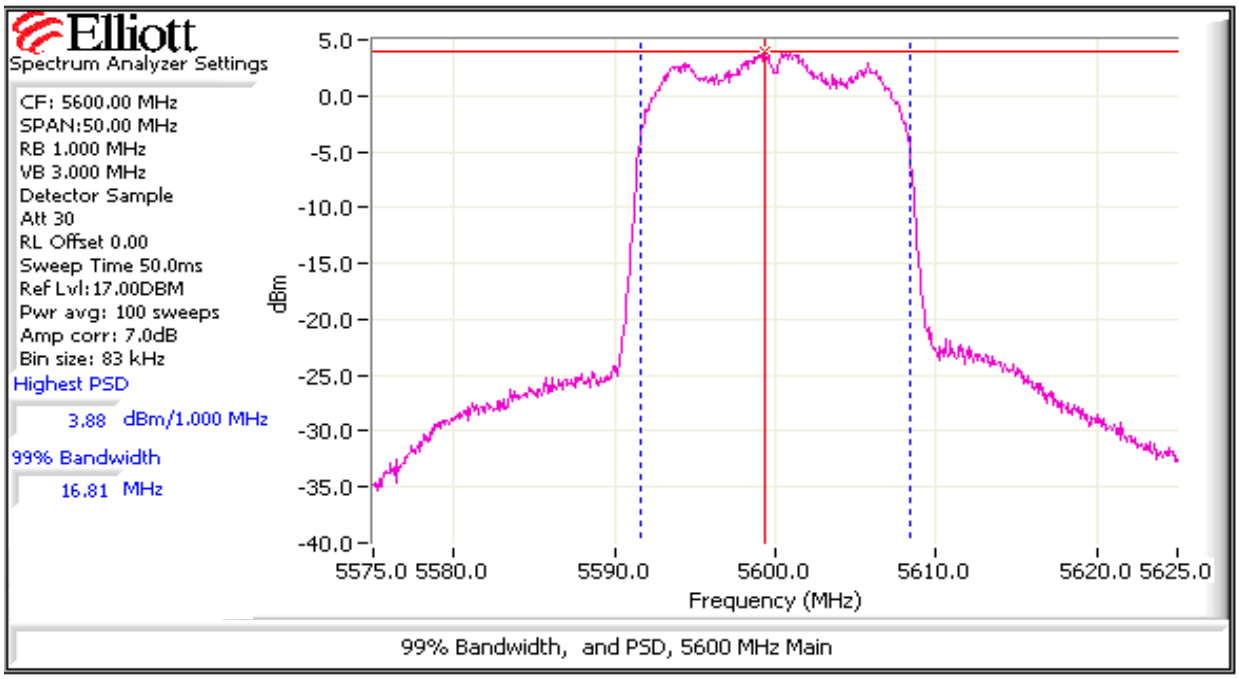
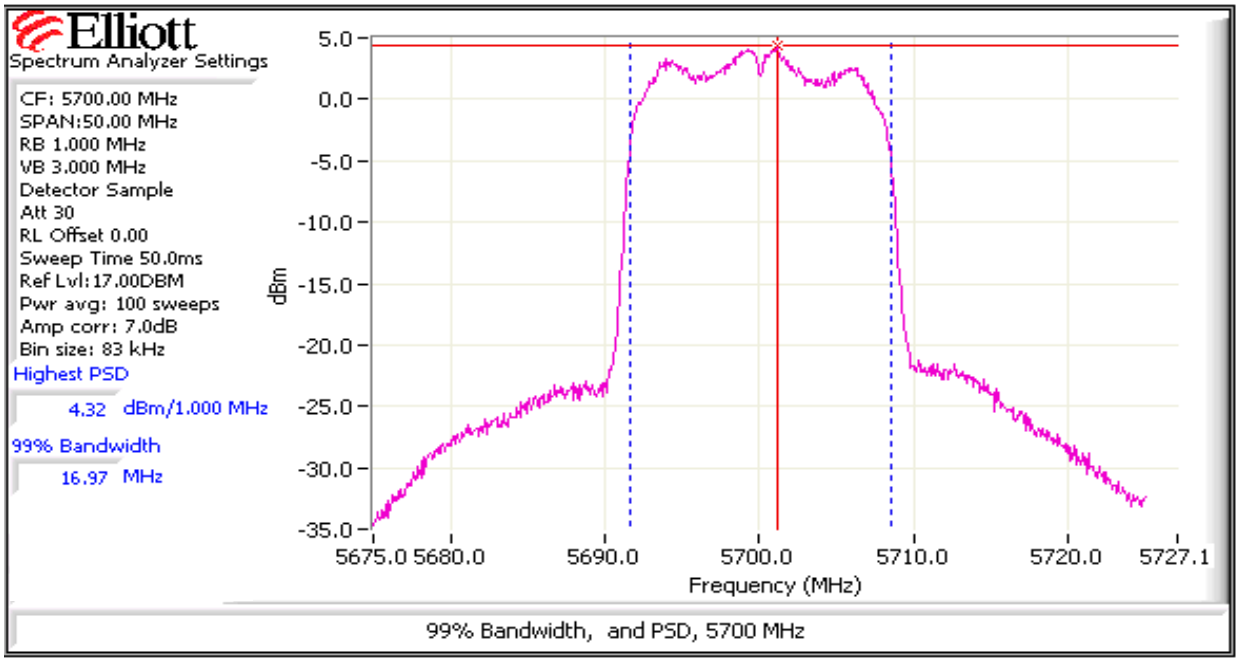
Model:	BCM943224HMS	T-Log Number:	T74077
		Account Manager:	Dean Eriksen
Contact:	Anne Liang		
Standard:	FCC 15.247 & 15.205	Class:	N/A





Client:	Broadcom	Job Number:	J74037
Model:	BCM943224HMS	T-Log Number:	T74077
		Account Manager:	Dean Eriksen
Contact:	Anne Liang		
Standard:	FCC 15.247 & 15.205	Class:	N/A

Run #2: Peak Excursion Measurement

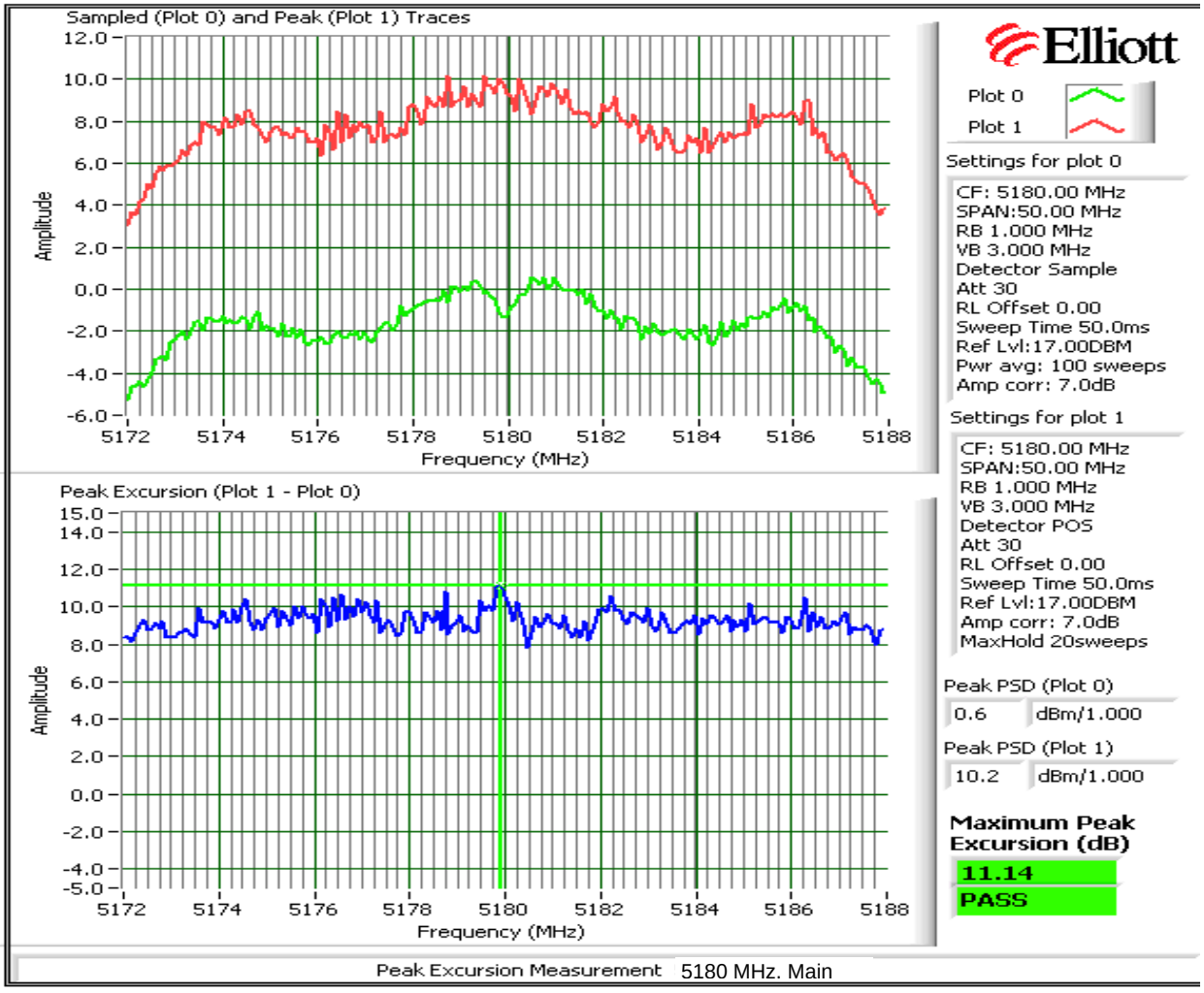
Device meets the requirement for the peak excursion

Freq	Peak Excursion(dB)		Freq	Peak Excursion(dB)		Freq	Peak Excursion(dB)	
(MHz)	Value	Limit	(MHz)	Value	Limit	(MHz)	Value	Limit
5180	11.1	13.0	5260	11.5	13.0	5500	11.6	13.0
5220	11.0	13.0	5300	11.9	13.0	5600	12.8	13.0
5240	12.5	13.0	5320	11.5	13.0	5700	12.0	13.0

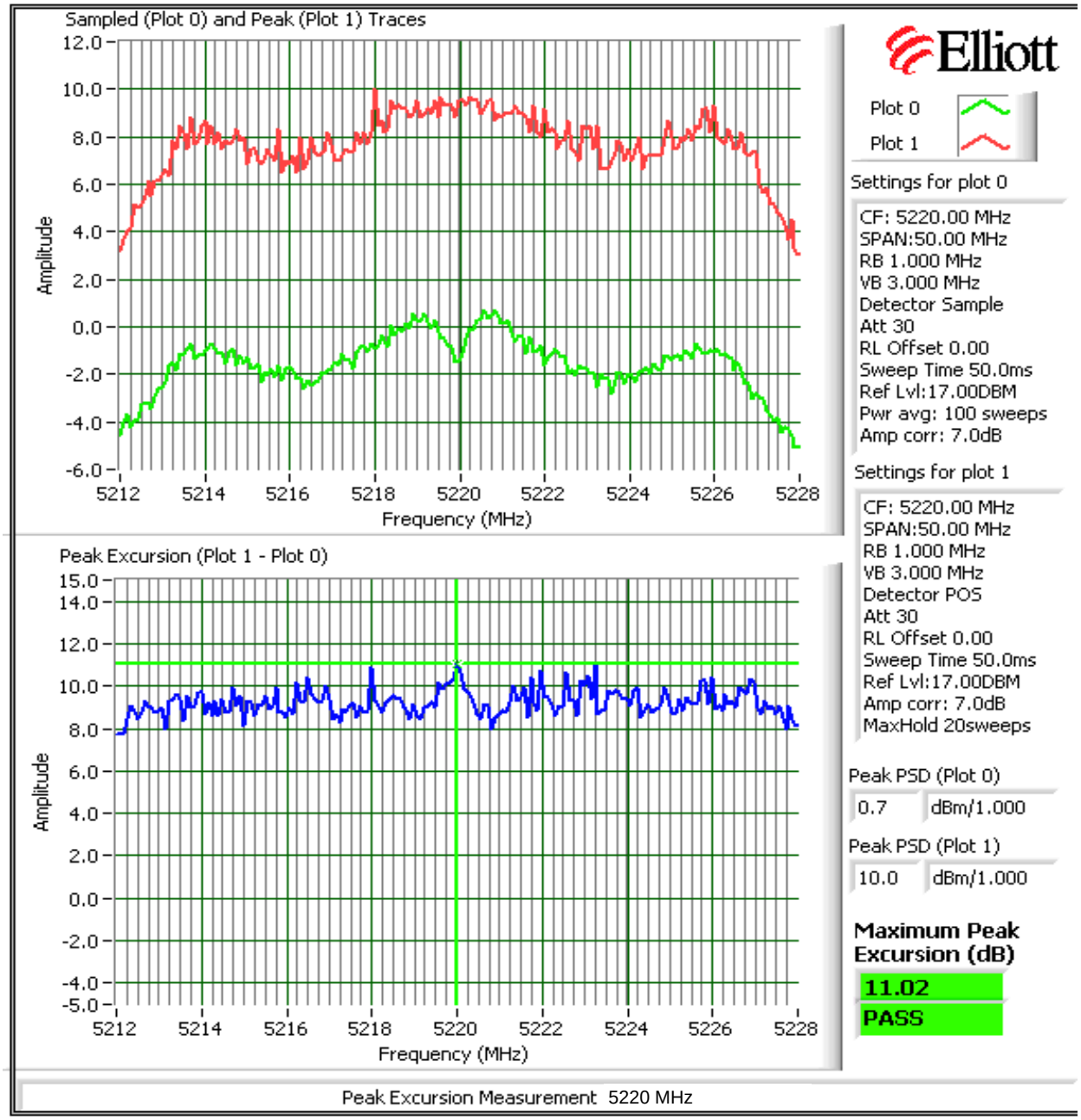
Plots Showing Peak Excursion

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

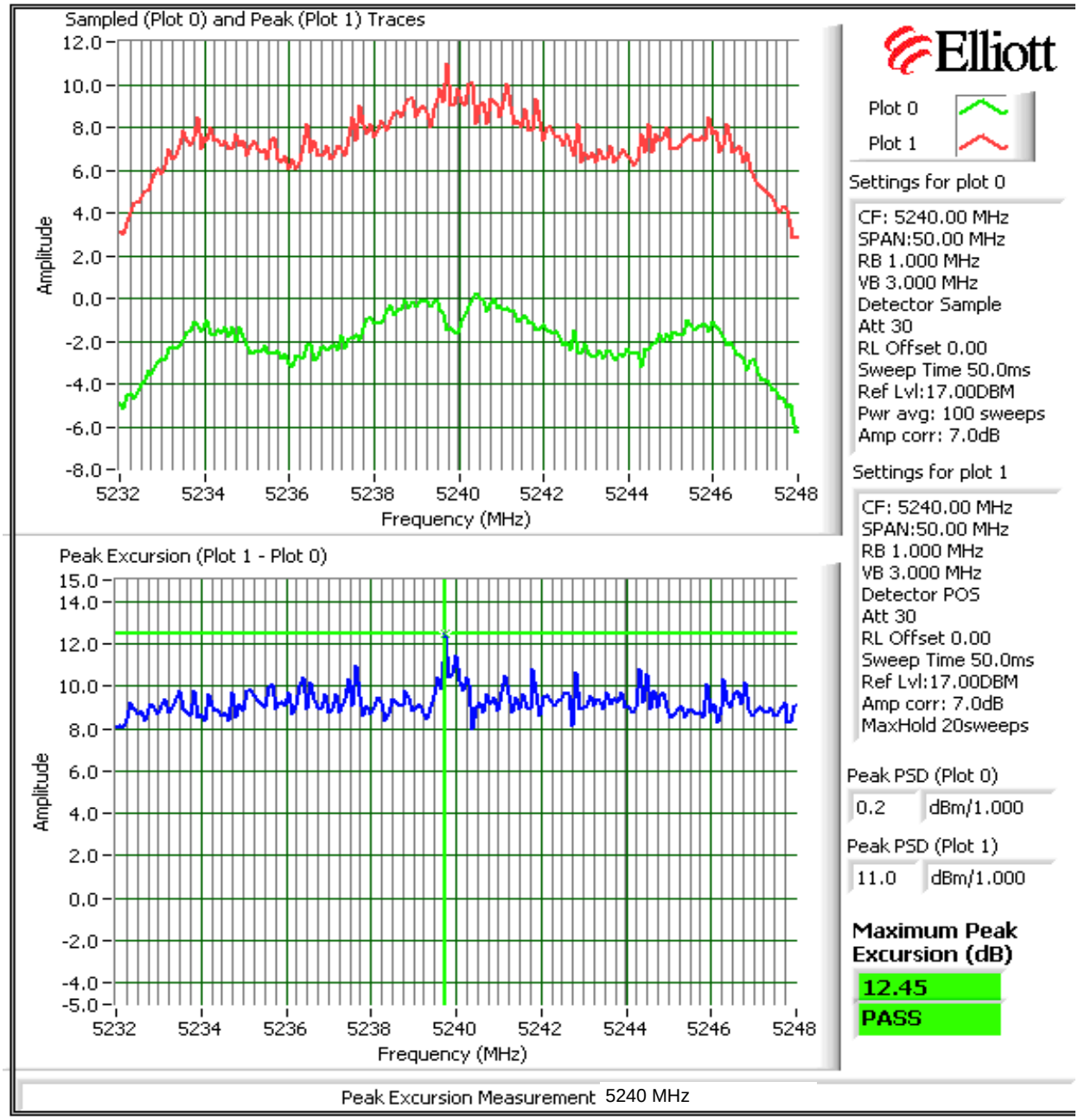
Trace B: RBW = 1 MHz, VBW = 3MHz, Integrated average power



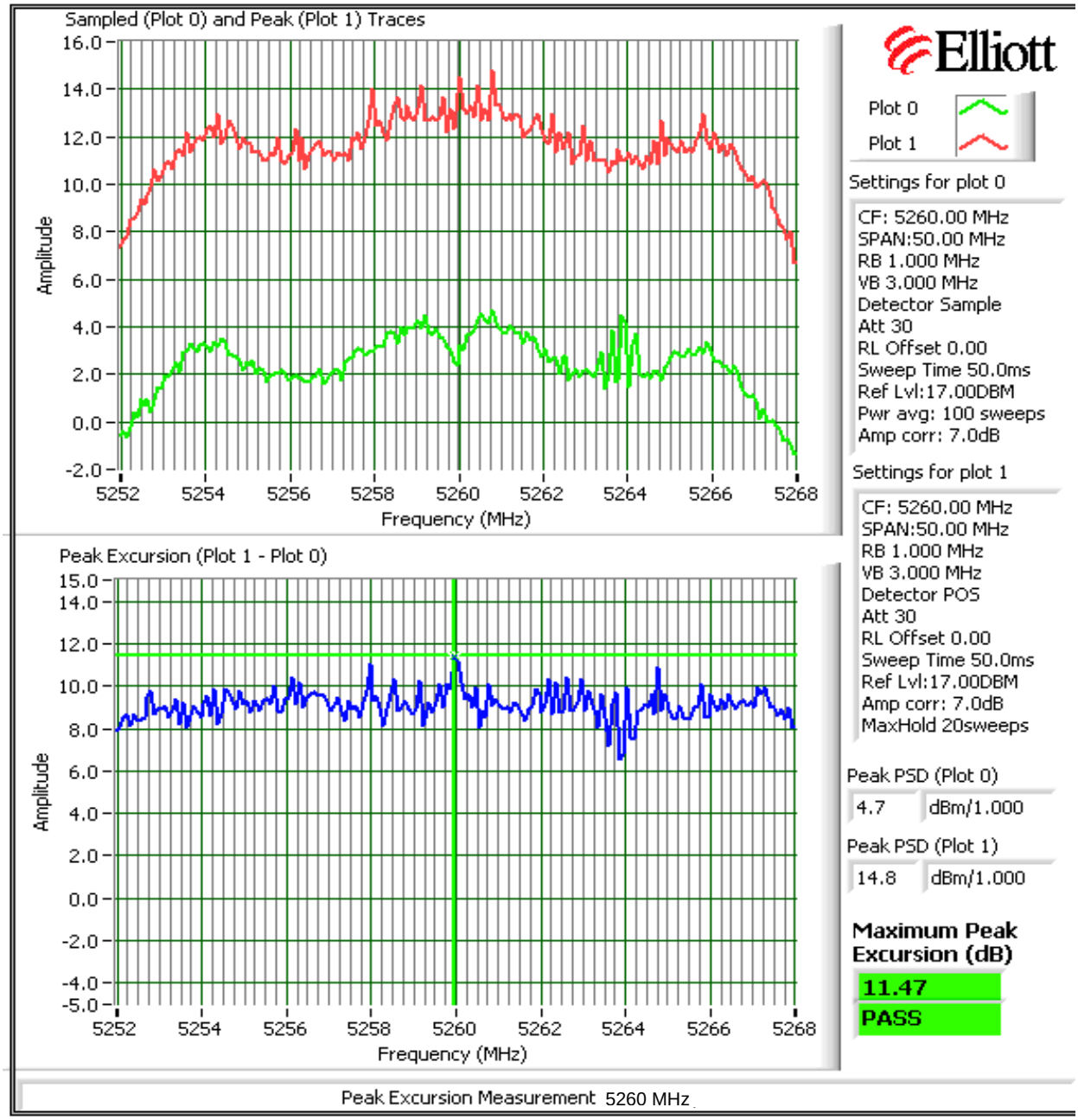
Client:	Broadcom	Job Number:	J74037
Model:	BCM943224HMS	T-Log Number:	T74077
		Account Manager:	Dean Eriksen
Contact:	Anne Liang		
Standard:	FCC 15.247 & 15.205	Class:	N/A



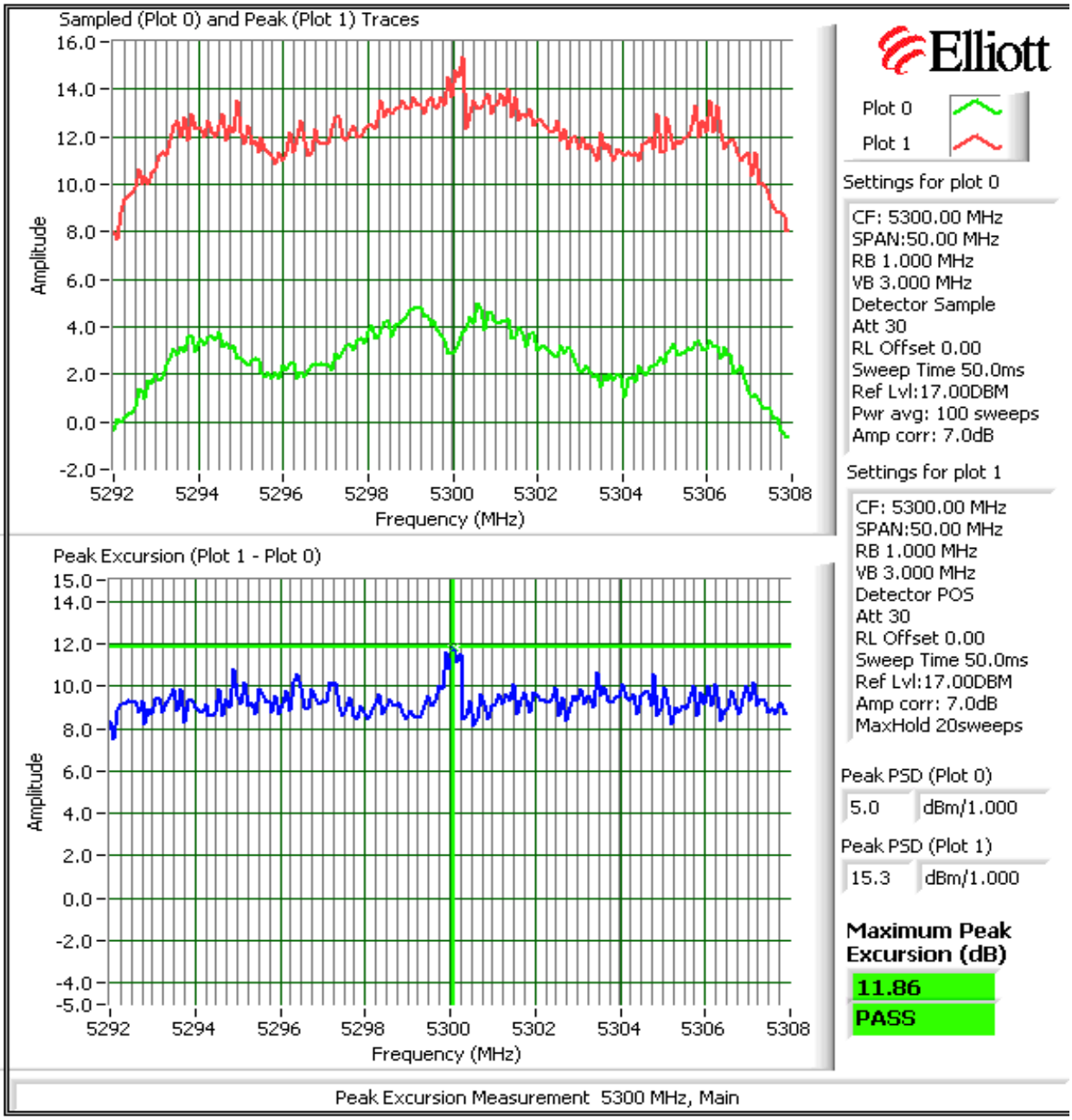
Client:	Broadcom	Job Number:	J74037
Model:	BCM943224HMS	T-Log Number:	T74077
		Account Manager:	Dean Eriksen
Contact:	Anne Liang		
Standard:	FCC 15.247 & 15.205	Class:	N/A



Client:	Broadcom	Job Number:	J74037
Model:	BCM943224HMS	T-Log Number:	T74077
		Account Manager:	Dean Eriksen
Contact:	Anne Liang		
Standard:	FCC 15.247 & 15.205	Class:	N/A



Client:	Broadcom	Job Number:	J74037
Model:	BCM943224HMS	T-Log Number:	T74077
		Account Manager:	Dean Eriksen
Contact:	Anne Liang		
Standard:	FCC 15.247 & 15.205	Class:	N/A



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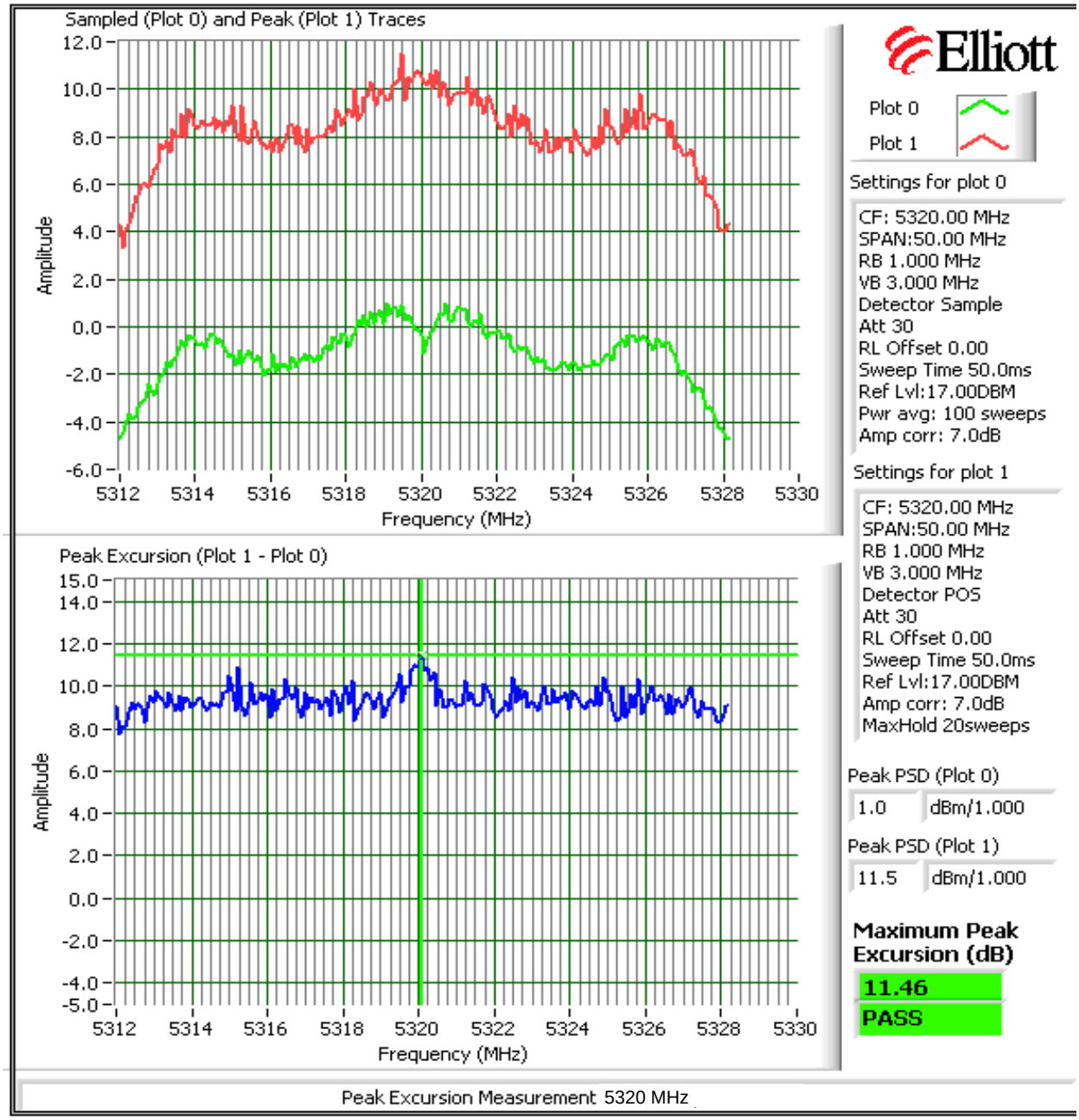
Model:	BCM943224HMS	T-Log Number:	T74077
		Account Manager:	Dean Eriksen
Contact:	Anne Liang		
Standard:	FCC 15.247 & 15.205	Class:	N/A



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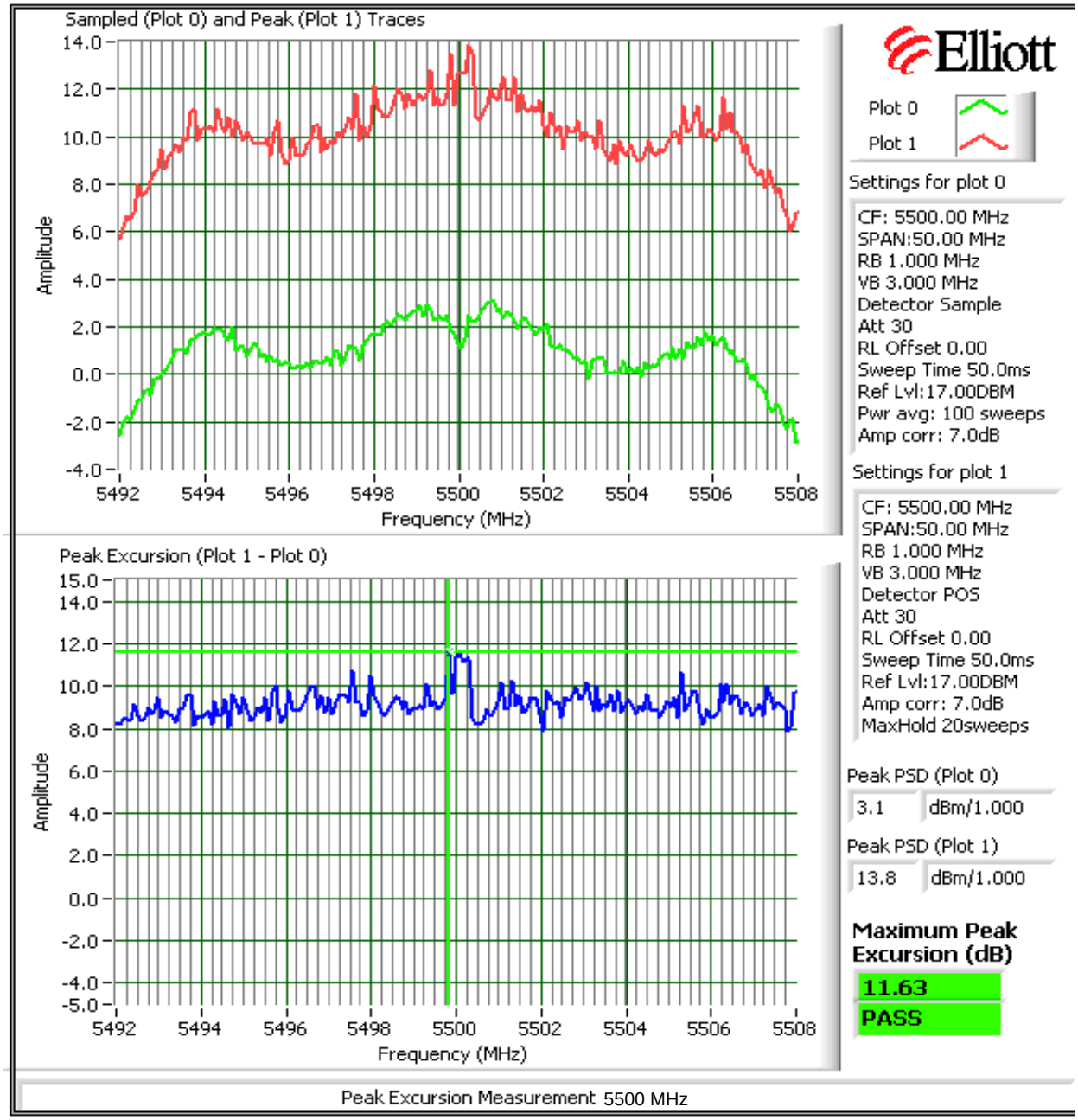
Model:	BCM943224HMS	T-Log Number:	T74077
		Account Manager:	Dean Eriksen
Contact:	Anne Liang		
Standard:	FCC 15.247 & 15.205	Class:	N/A



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		Account Manager:	Dean Eriksen
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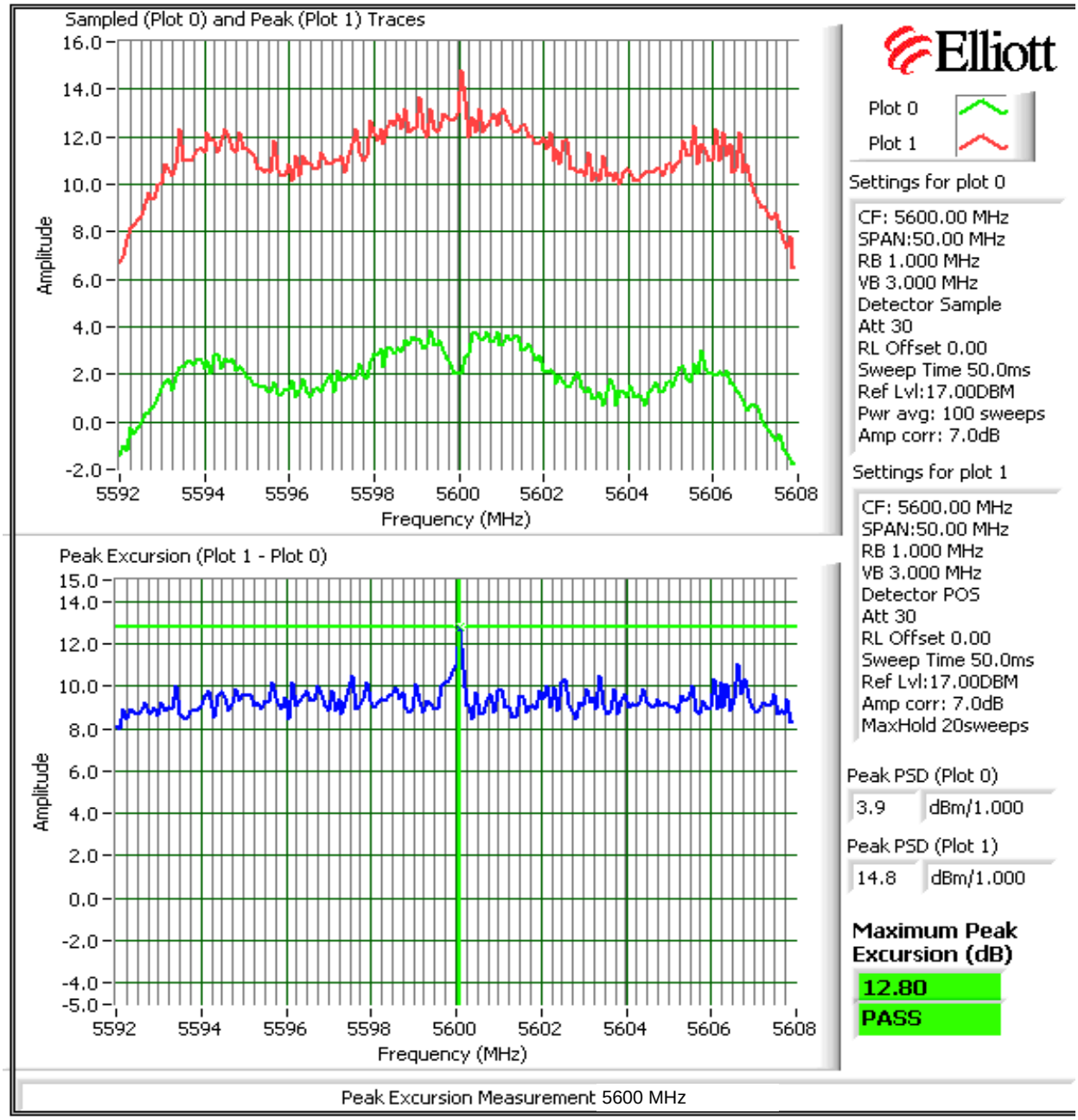
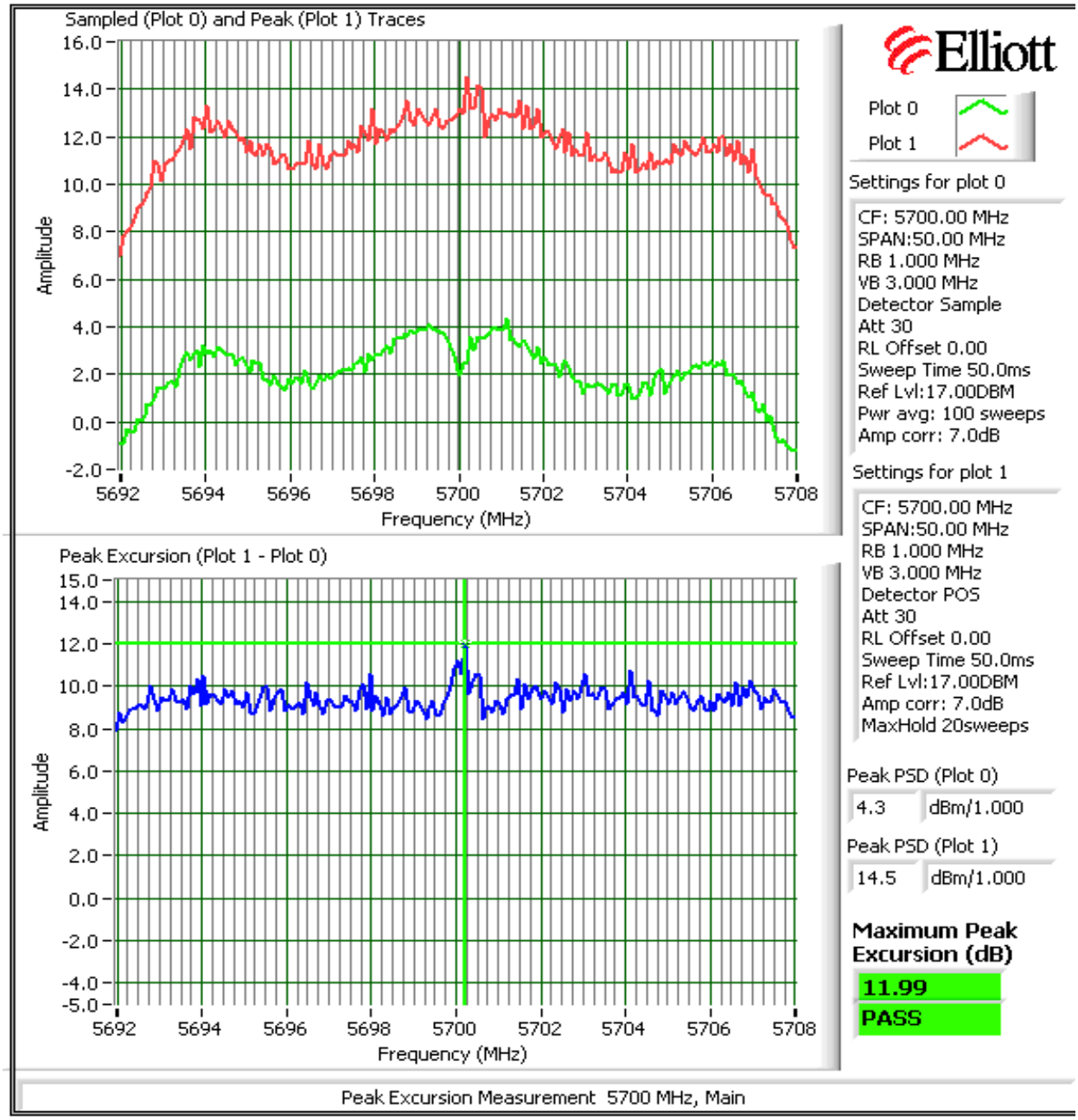
Standard:	FCC 15.247 & 15.205	Class:	N/A



Client:	Broadcom	Job Number:	J74037
Model:	BCM943224HMS	T-Log Number:	T74077
		Account Manager:	Dean Eriksen
Contact:	Anne Liang		
Standard:	FCC 15.247 & 15.205	Class:	N/A



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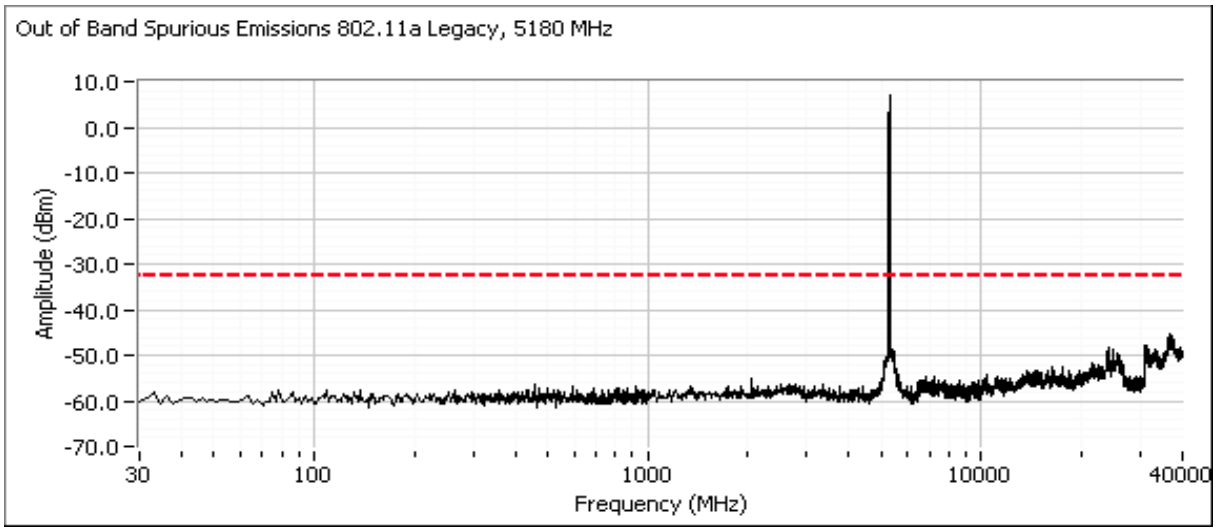
		Account Manager:	Dean Eriksen
Contact:	Anne Liang		
Standard:	FCC 15.247 & 15.205	Class:	N/A

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

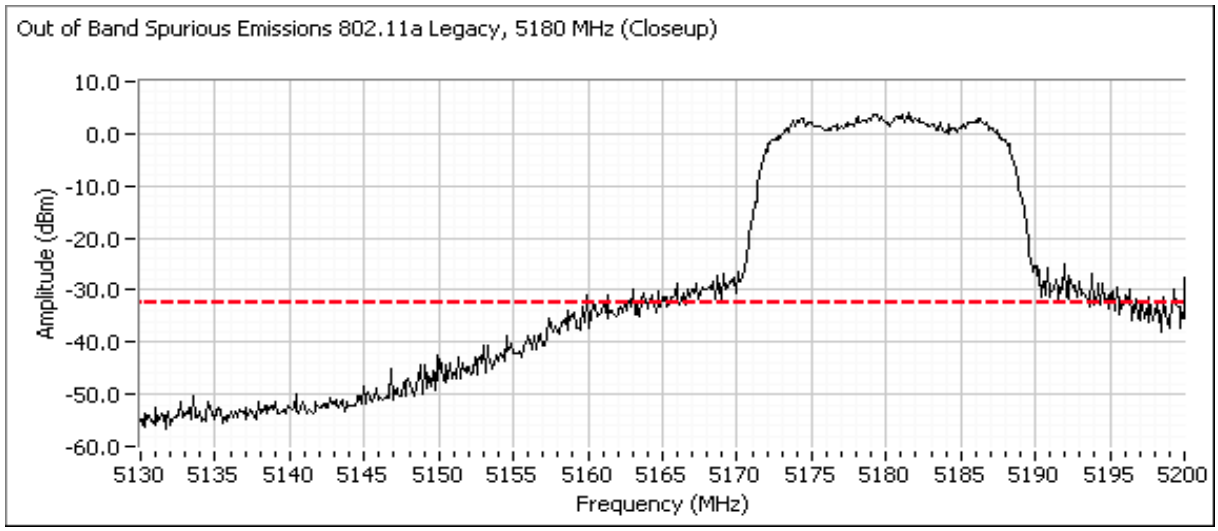
Maximum Antenna Gain:	5.6 dBi	for 5150 - 5350 MHz
Spurious Limit:	-27 dBm/MHz eirp	
Limit Used On Plots Note 1:	-32.6 dBm/MHz	

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

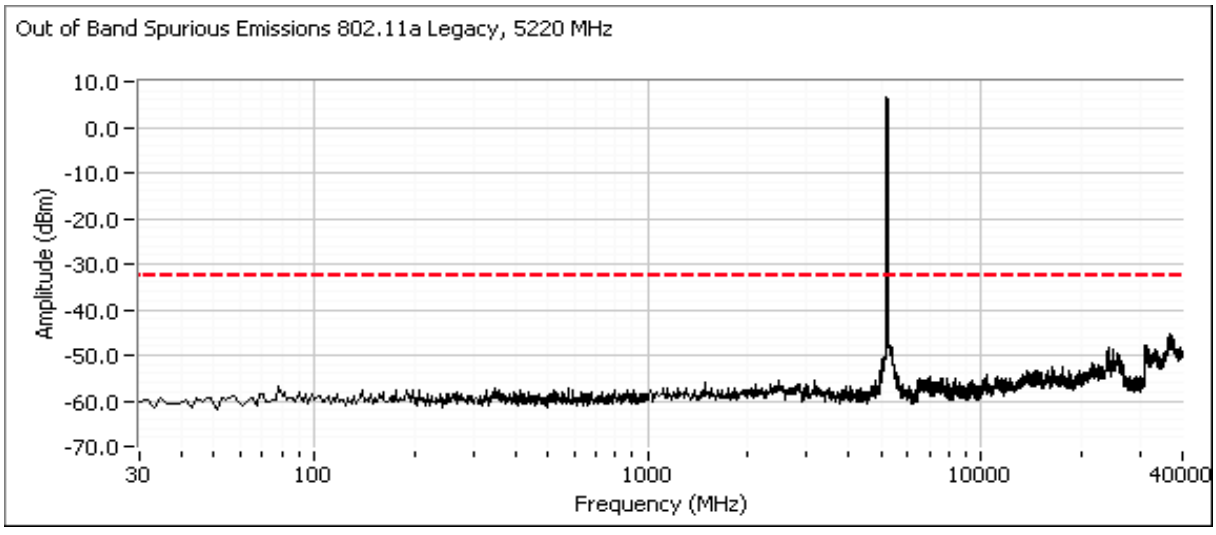
Plots Showing Out-Of-Band Emissions (RBW=VBW=1MHz)



Client:	Broadcom	Job Number:	J74037
Model:	BCM943224HMS	T-Log Number:	T74077
		Account Manager:	Dean Eriksen
Contact:	Anne Liang		
Standard:	FCC 15.247 & 15.205	Class:	N/A

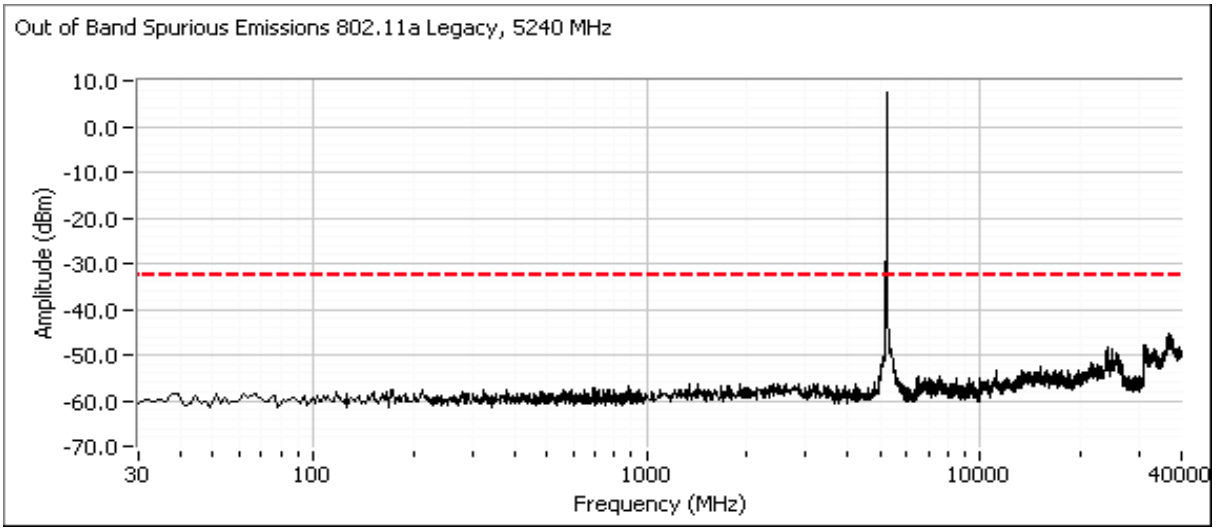


Plots Showing Out-Of-Band Emissions (RBW=VBW=1MHz)

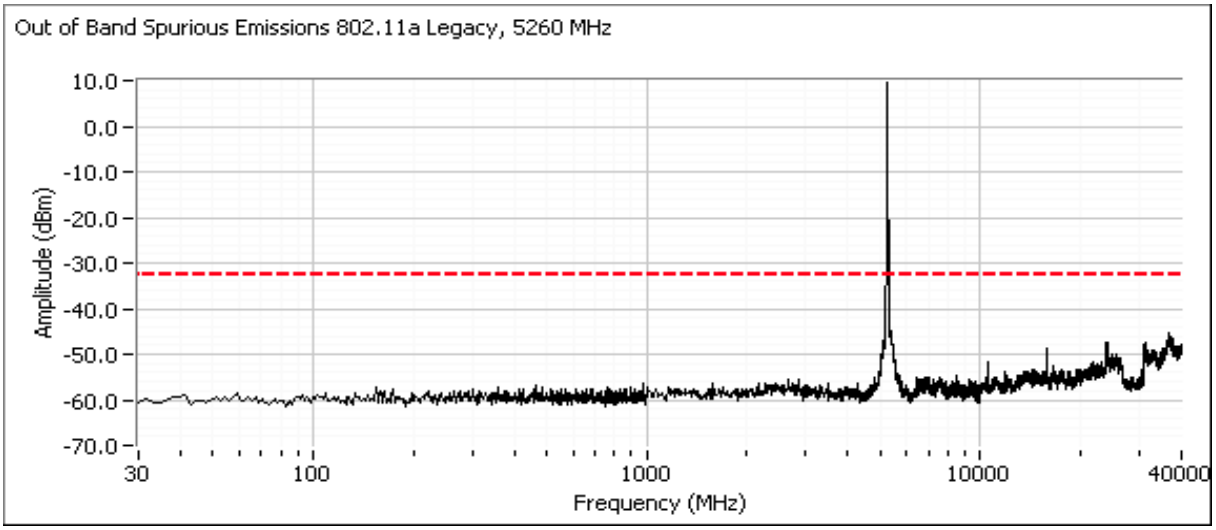


Client:	Broadcom	Job Number:	J74037
Model:	BCM943224HMS	T-Log Number:	T74077
		Account Manager:	Dean Eriksen
Contact:	Anne Liang		
Standard:	FCC 15.247 & 15.205	Class:	N/A

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

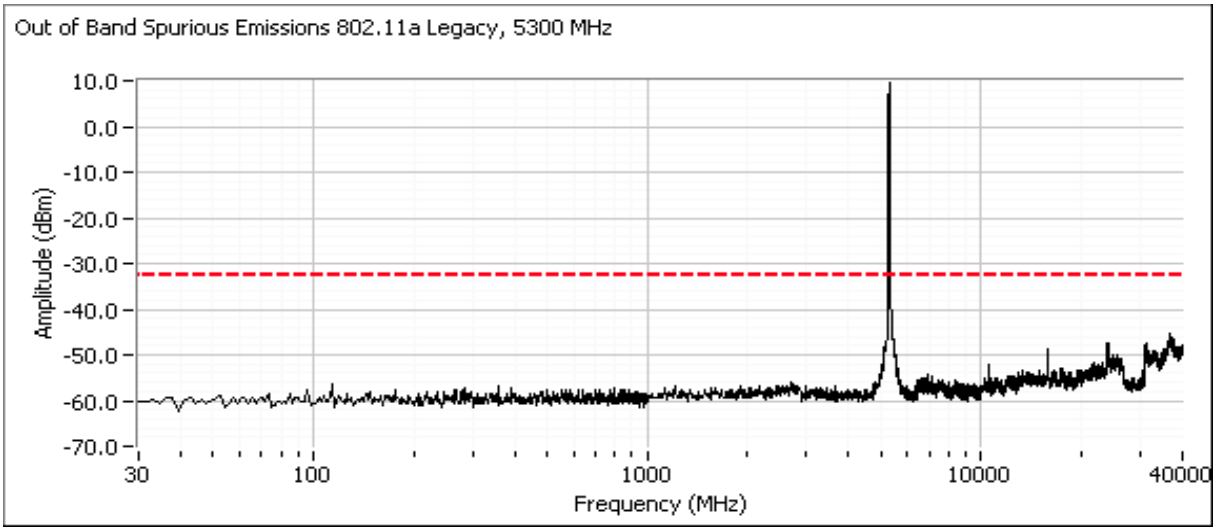


Plots Showing Out-Of-Band Emissions (RBW=VBW=1MHz)

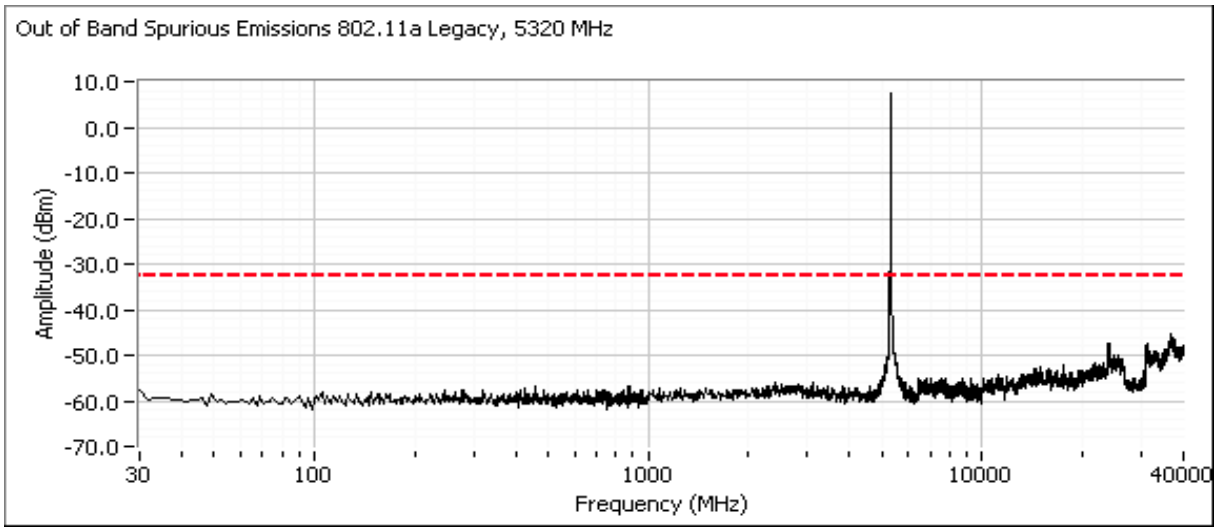


Client:	Broadcom	Job Number:	J74037
Model:	BCM943224HMS	T-Log Number:	T74077
		Account Manager:	Dean Eriksen
Contact:	Anne Liang		
Standard:	FCC 15.247 & 15.205	Class:	N/A

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



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



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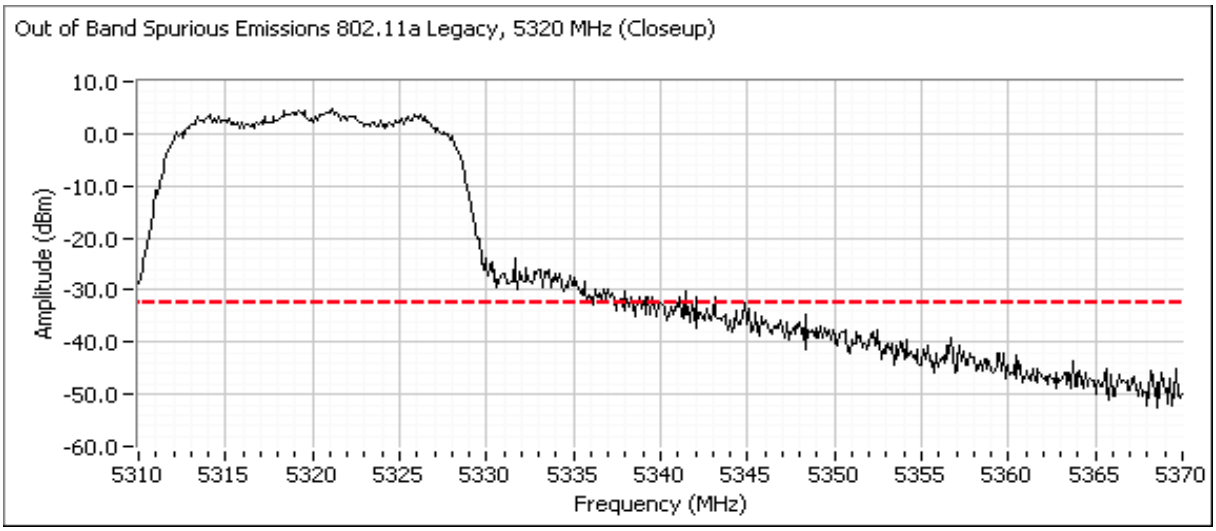
Model:	BCM943224HMS	T-Log Number:	T74077
		Account Manager:	Dean Eriksen
Contact:	Anne Liang		
Standard:	FCC 15.247 & 15.205	Class:	N/A



Maximum Antenna Gain: 4.2 dBi for 5470 - 5725 MHz
Spurious Limit: -27 dBm/MHz eirp
Limit Used On Plots [Note 1]: -31.2 dBm/MHz

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.

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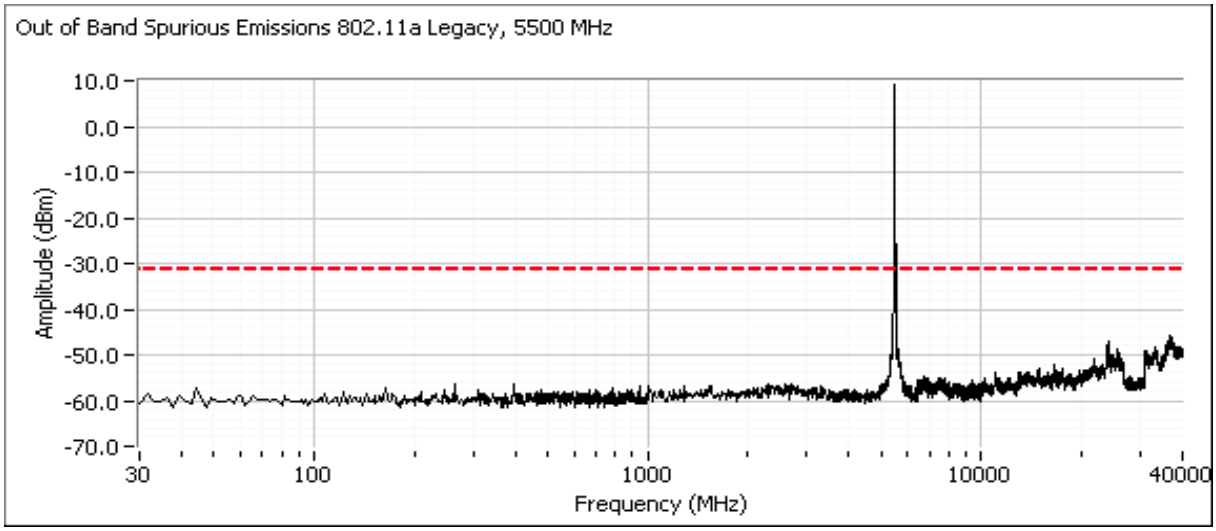
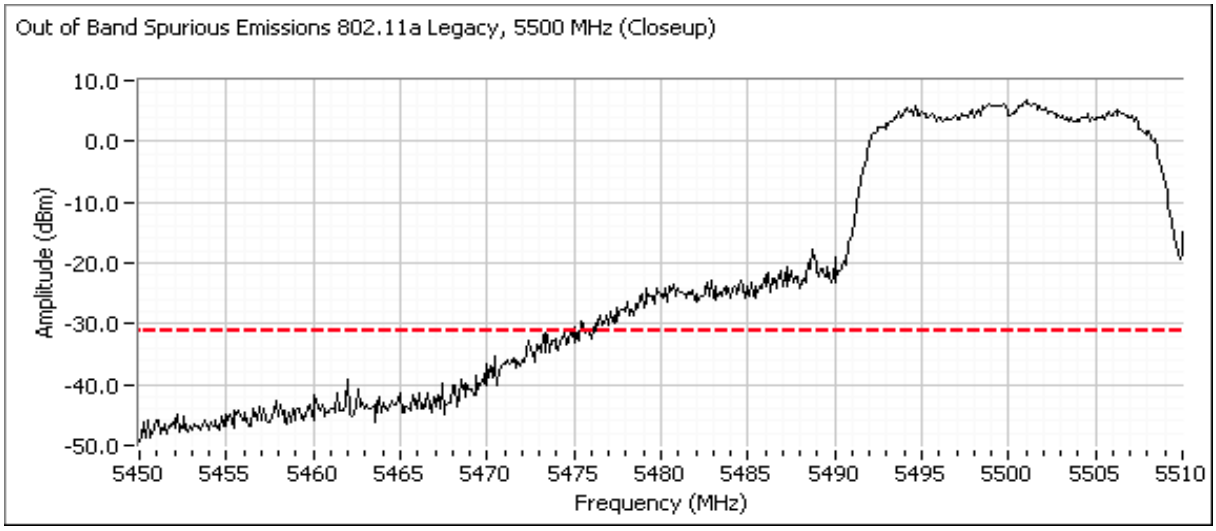
Standard:	FCC 15.247 & 15.205	Class:	N/A

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





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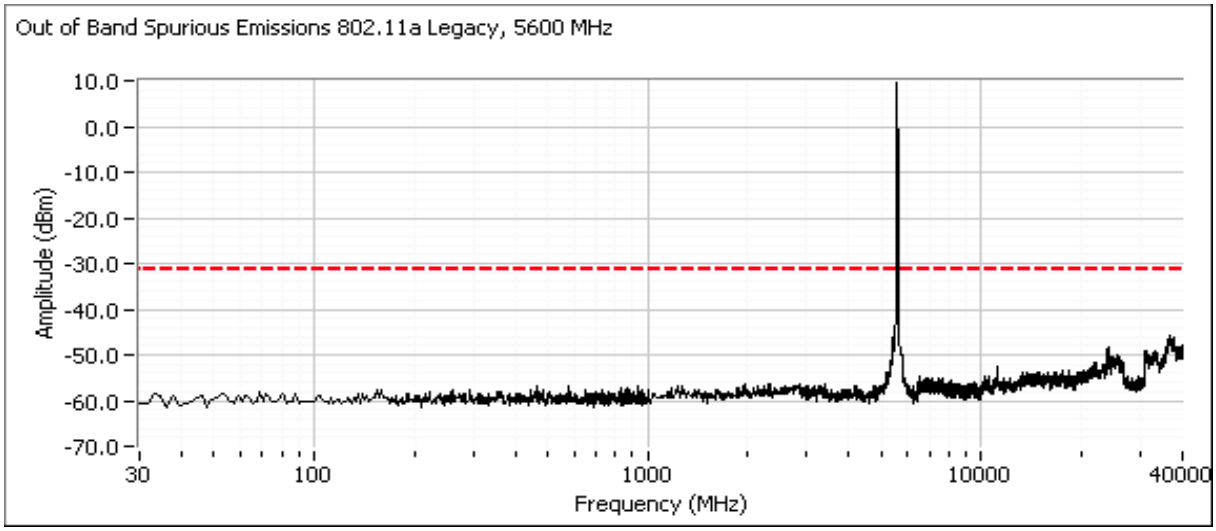
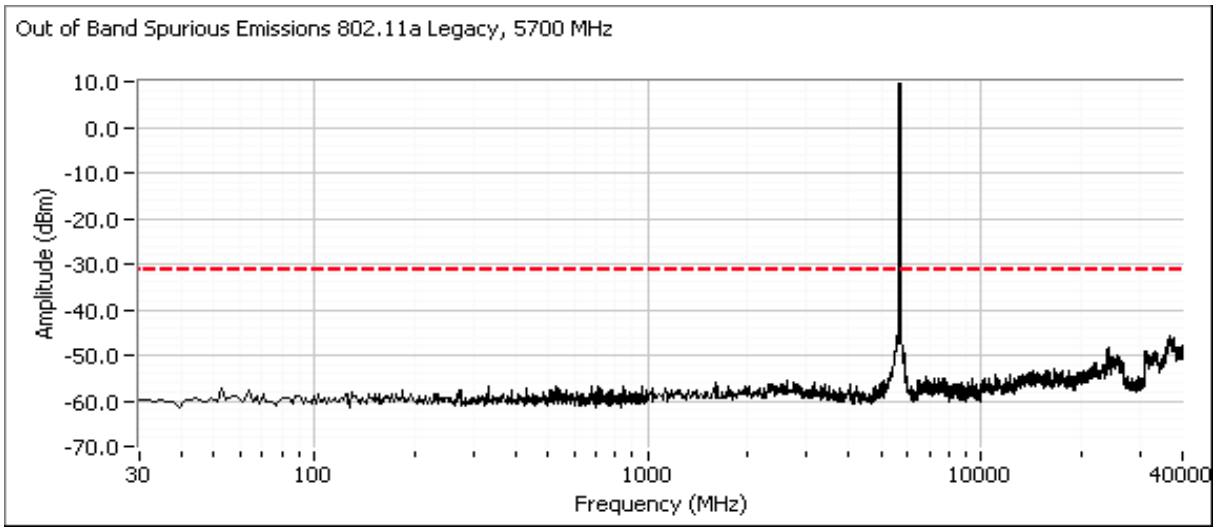
Model:	BCM943224HMS	T-Log Number:	T74077
		Account Manager:	Dean Eriksen
Contact:	Anne Liang		
Standard:	FCC 15.247 & 15.205	Class:	N/A

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



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



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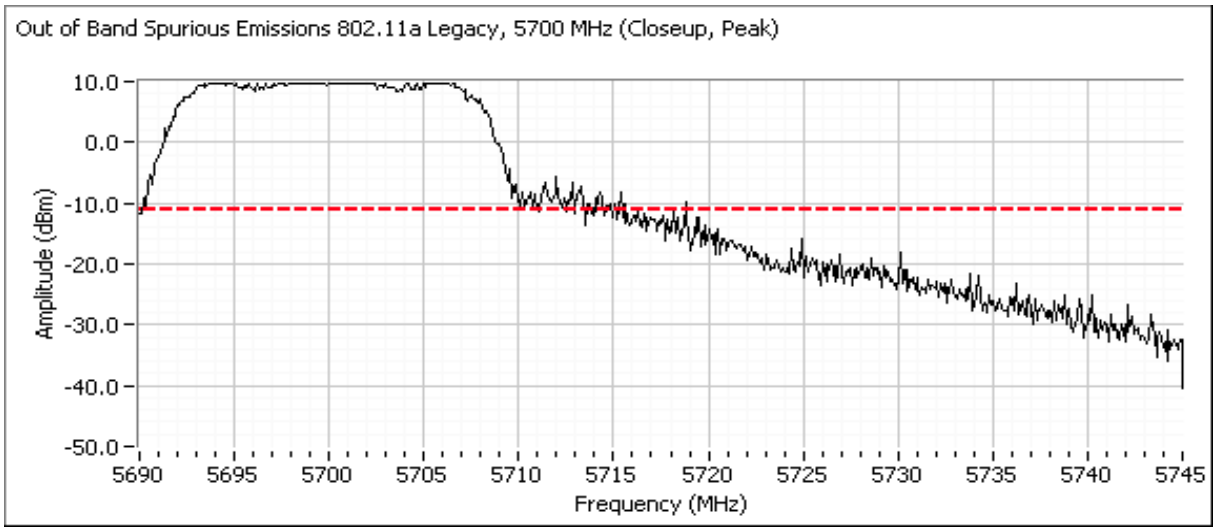
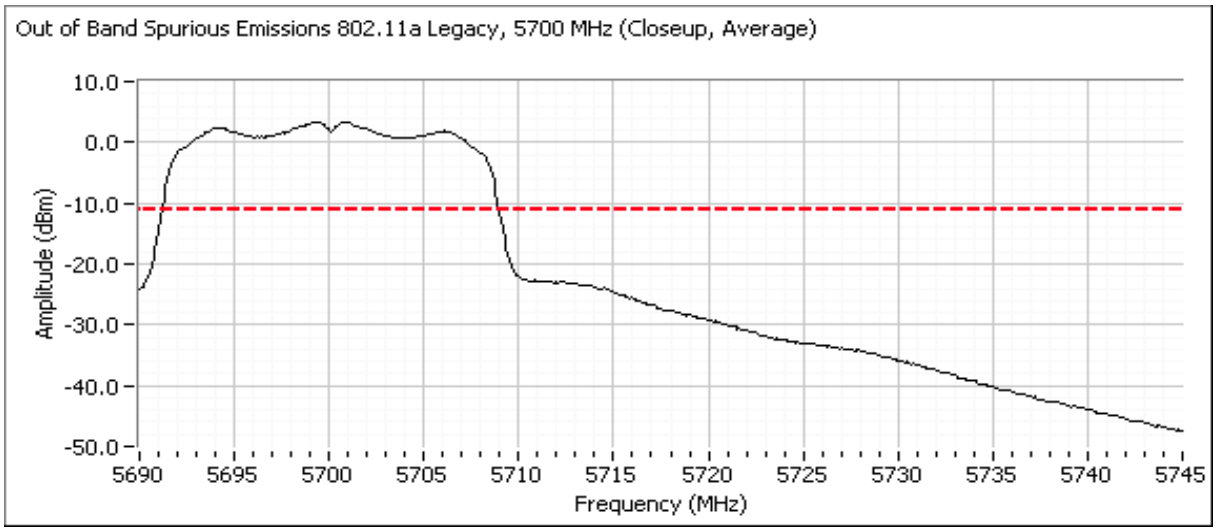
Model:	BCM943224HMS	T-Log Number:	T74077
		Account Manager:	Dean Eriksen
Contact:	Anne Liang		
Standard:	FCC 15.247 & 15.205	Class:	N/A





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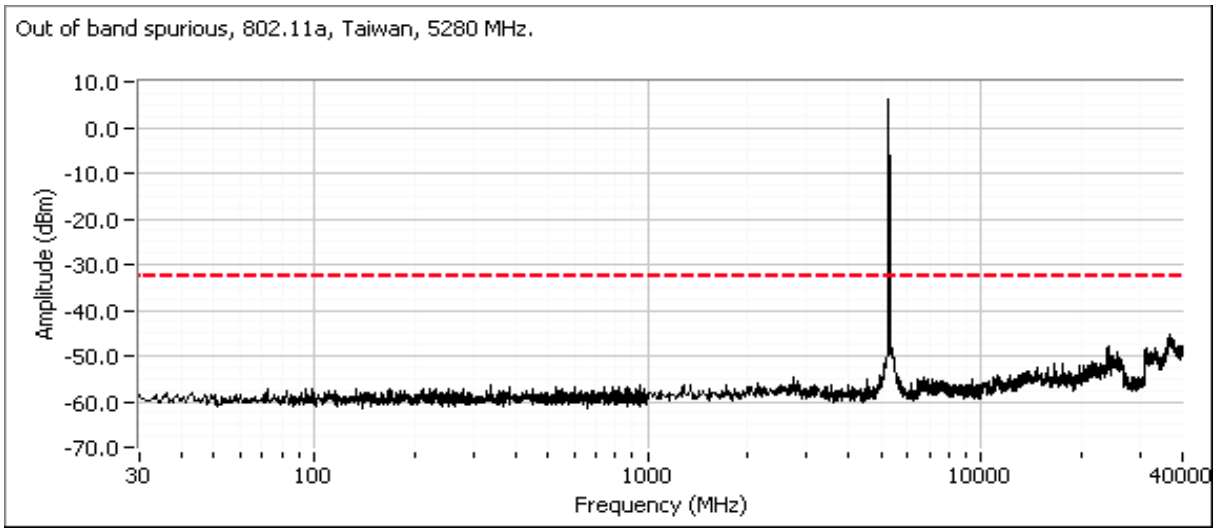
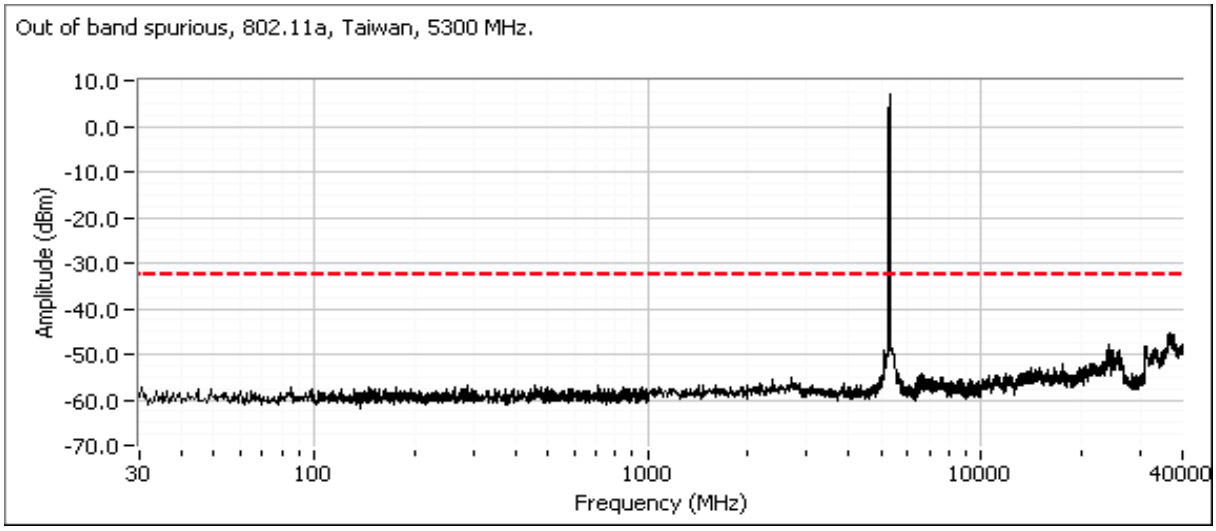
Model:	BCM943224HMS	T-Log Number:	T74077
		Account Manager:	Dean Eriksen
Contact:	Anne Liang		
Standard:	FCC 15.247 & 15.205	Class:	N/A

Date of Test: 2/26/2009 0:00
Test Engineer: John Caizzi
Test Location: Fremont Chamber #4

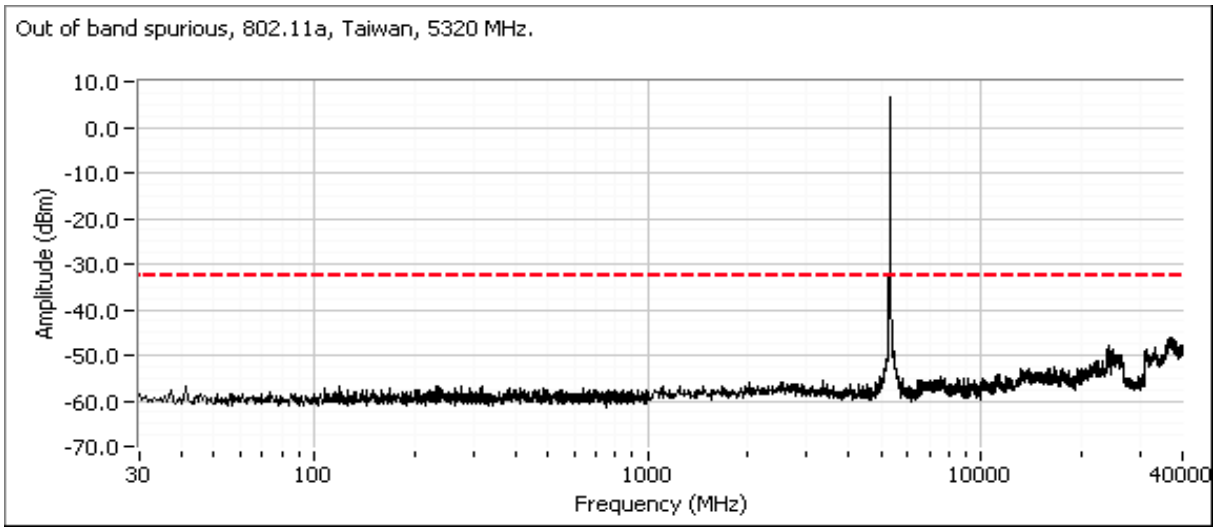
Config. Used: 1
Config Change: None
Host Voltage: 120V/60Hz

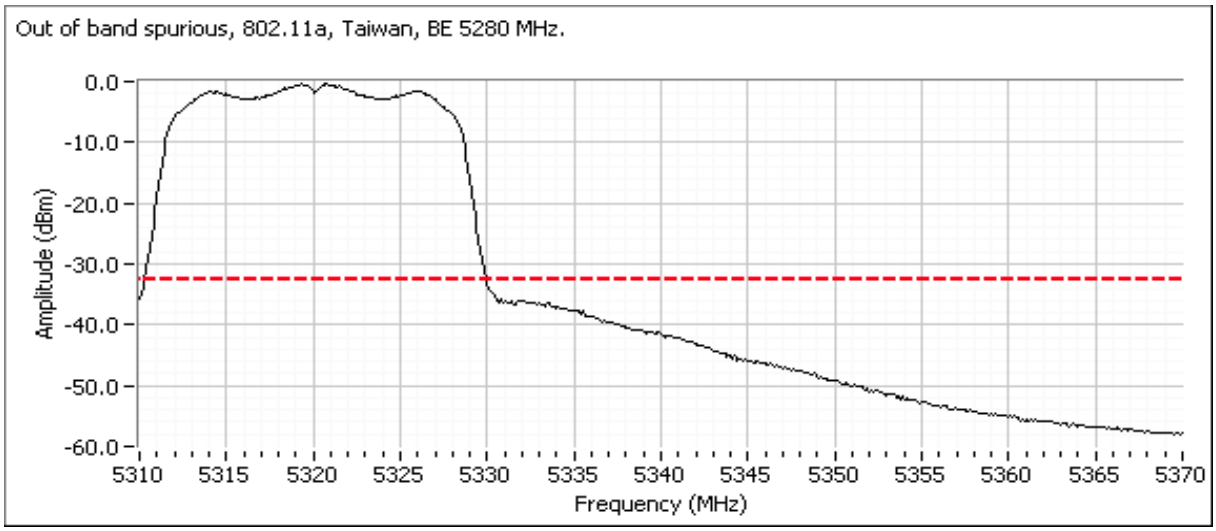
Out-Of-Band Emissions (RBW=VBW=1MHz)



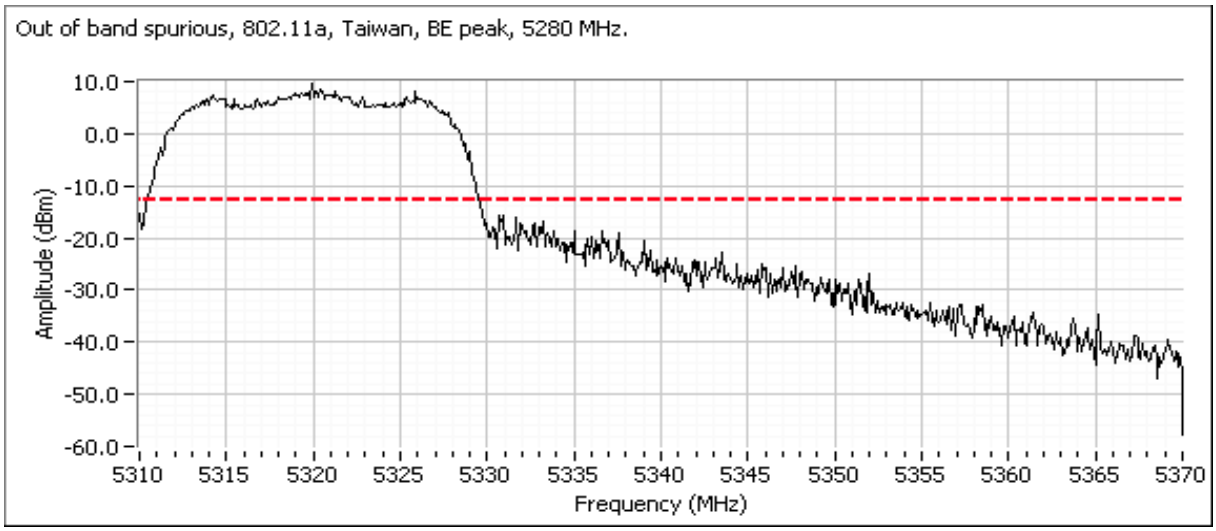


Client:	Broadcom	Job Number:	J74037
Model:	BCM943224HMS	T-Log Number:	T74077
		Account Manager:	Dean Eriksen
Contact:	Anne Liang		
Standard:	FCC 15.247 & 15.205	Class:	N/A





Client:	Broadcom	Job Number:	J74037
Model:	BCM943224HMS	T-Log Number:	T74077
		Account Manager:	Dean Eriksen
Contact:	Anne Liang		
Standard:	FCC 15.247 & 15.205	Class:	N/A



Client:	Broadcom	Job Number:	J74037
Model:	BCM943224HMS	T-Log Number:	T74077
		Account Manager:	Dean Eriksen
Contact:	Anne Liang		
Standard:	FCC 15.247 & 15.205	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: 2/9/2009 13:06
Test Engineer: Rafael Varelas
Test Location: Fremont Chamber #3
Config. Used: 1
Config Change: None
EUT Voltage: 120V/60Hz

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: 18.9 °C
Rel. Humidity: 35 %

Summary of Results

Run #	Test Performed	Limit	Pass / Fail	Result / Margin
1	Power, 5150 - 5250MHz	15.407(a) (1), (2)	Pass	10.5dBm (11.3mW)
1	Power, 5250 - 5350MHz	15.407(a) (1), (2)	Pass	18.5dBm (71.5mW)
1	Power, 5470 - 5725MHz	15.407(a) (1), (2)	Pass	19.7dBm (94mW)
1	PSD, 5150 - 5250MHz	15.407(a) (1), (2)	Pass	0.1dBm/MHz
1	PSD, 5250 - 5350MHz	15.407(a) (1), (2)	Pass	8.0dBm/MHz
1	PSD, 5470 - 5725MHz	15.407(a) (1), (2)	Pass	8.1dBm/MHz
1	26dB Bandwidth	15.407	-	19.7 MHz
1	99% Bandwidth	RSS 210	-	18.6 MHz
2	Peak Excursion Envelope	15.407(a) (6)		Max PE: 12.3dB
3	Antenna Conducted - Out of Band Spurious	15.407(b)	Pass	All emissions below the -27dBm/MHz limit

Modifications Made During Testing

No modifications were made to the EUT during testing

Deviations From The Standard

No deviations were made from the requirements of the standard.

Client:	Broadcom	Job Number:	J74037
Model:	BCM943224HMS	T-Log Number:	T74077
		Account Manager:	Dean Eriksen
Contact:	Anne Liang		
Standard:	FCC 15.247 & 15.205	Class:	N/A

Run #1: Bandwidth, Output Power and Power spectral Density
For 5150-5350 MHz bands

	Chain 1	Chain 2	Chain 3	Coherent	Effective[5]
Antenna Gain (dBi):	5.6	5.6		yes	8.6

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			
5180	-	19.9	6.2	7.1		9.3	9.7	14.4	0.011	PASS
5220	-	19.7	6.3	7.2		9.5	9.8	14.3		PASS
5240	-	19.8	6.6	8.3		11.3	10.5	14.4		PASS
5260	-	42.3	13.9	14.6		53.4	17.3	21.4	0.072	PASS
5300	-	43.4	15.1	16.0		71.5	18.5	21.4		PASS
5320	-	29.8	12.8	13.6		42.1	16.2	21.4		PASS

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]	
5180	18.2	9.7	-3.2	-3.0		1.0	-0.1	1.4	1.4	PASS
5220	18.2	9.8	-3.1	-2.7		1.0	0.1	1.4	1.4	PASS
5240	18.2	10.5	-3.7	-3.1		0.9	-0.3	1.4	1.4	PASS
5260	18.2	17.3	3.3	3.5		4.4	6.4	8.4	11.0	PASS
5300	18.6	18.5	4.6	5.3		6.3	8.0	8.4	11.0	PASS
5320	18.1	16.2	2.2	2.5		3.4	5.3	8.4	11.0	PASS

Client:	Broadcom	Job Number:	J74037
Model:	BCM943224HMS	T-Log Number:	T74077
		Account Manager:	Dean Eriksen
Contact:	Anne Liang		
Standard:	FCC 15.247 & 15.205	Class:	N/A

For 5470-5725 MHz band

	Chain 1	Chain 2	Chain 3	Coherent	Effective[5]
Antenna Gain (dBi):	4.2	4.2		yes	7.2

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			
5500	-	41.3	15.5	15.7		72.5	18.6	21.4	0.094	PASS
5600	-	42.8	16.6	16.8		93.6	19.7	21.4		PASS
5700	-	45.9	16.6	16.8		93.3	19.7	21.4		PASS

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]	
5500	18.3	18.6	3.6	3.5		4.5	6.5	8.4	11.0	PASS
5600	18.6	19.7	4.8	5.3		6.4	8.1	8.4	11.0	PASS
5700	18.5	19.7	4.5	5.2		6.1	7.8	8.4	11.0	PASS

Note 1:	RBW=1MHz, VB=3 MHz, sample detector, power averaging on (transmitted signal was not continuous but the ESI analyzer was configured with a gated sweep such that the analyzer was only sweeping when the device was transmitting) and power integration over 40 MHz
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.

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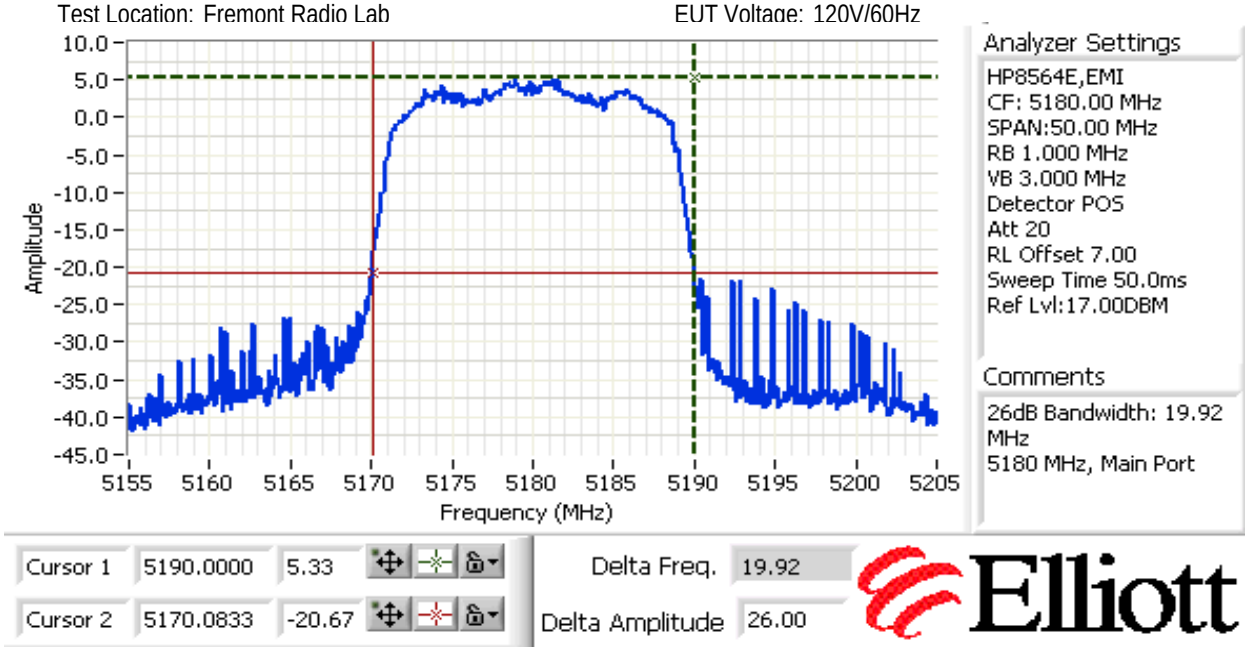
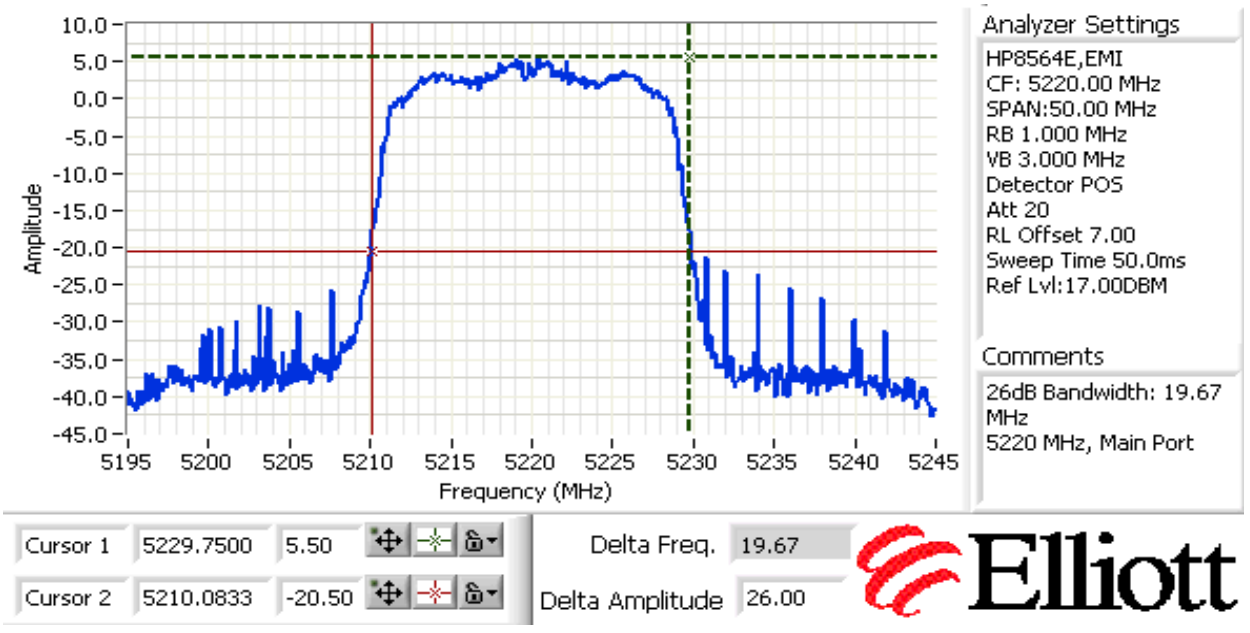
Model:	BCM943224HMS	T-Log Number:	T74077
		Account Manager:	Dean Eriksen
Contact:	Anne Liang		
Standard:	FCC 15.247 & 15.205	Class:	N/A

Date of Test: 2/10/2009 0:00 Config. Used: 1
Test Engineer: Suhaila Khushzad Config Change: None
Test Location: Fremont Radio Lab EUT Voltage: 120V/60Hz





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		Account Manager:	Dean Eriksen
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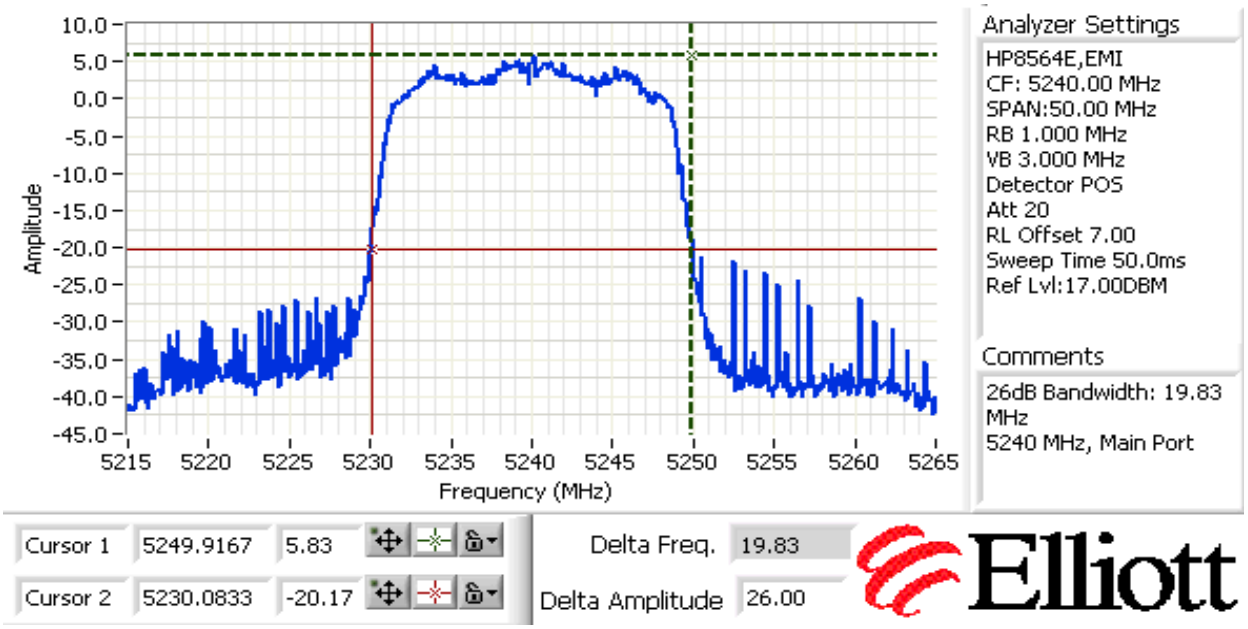

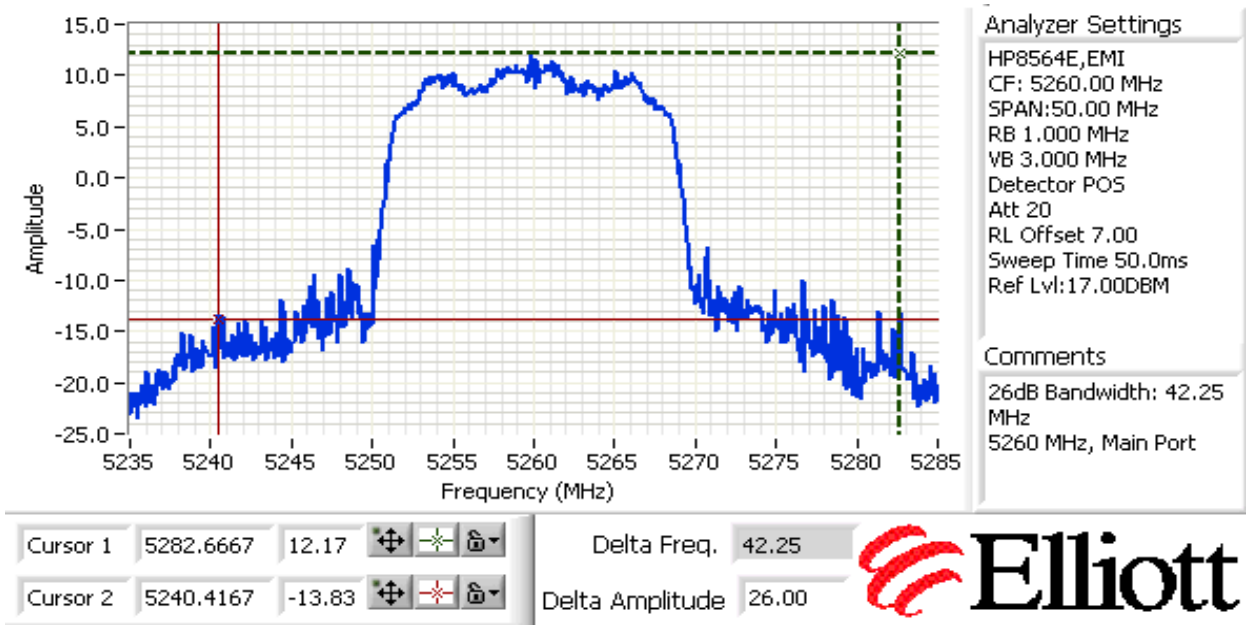

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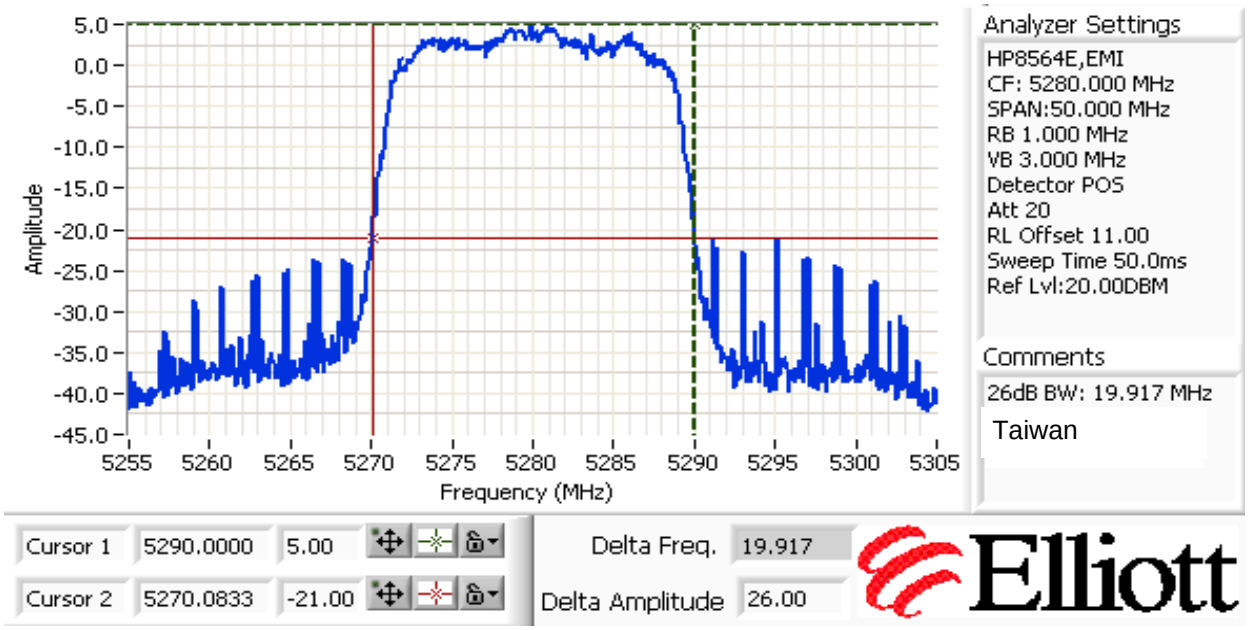

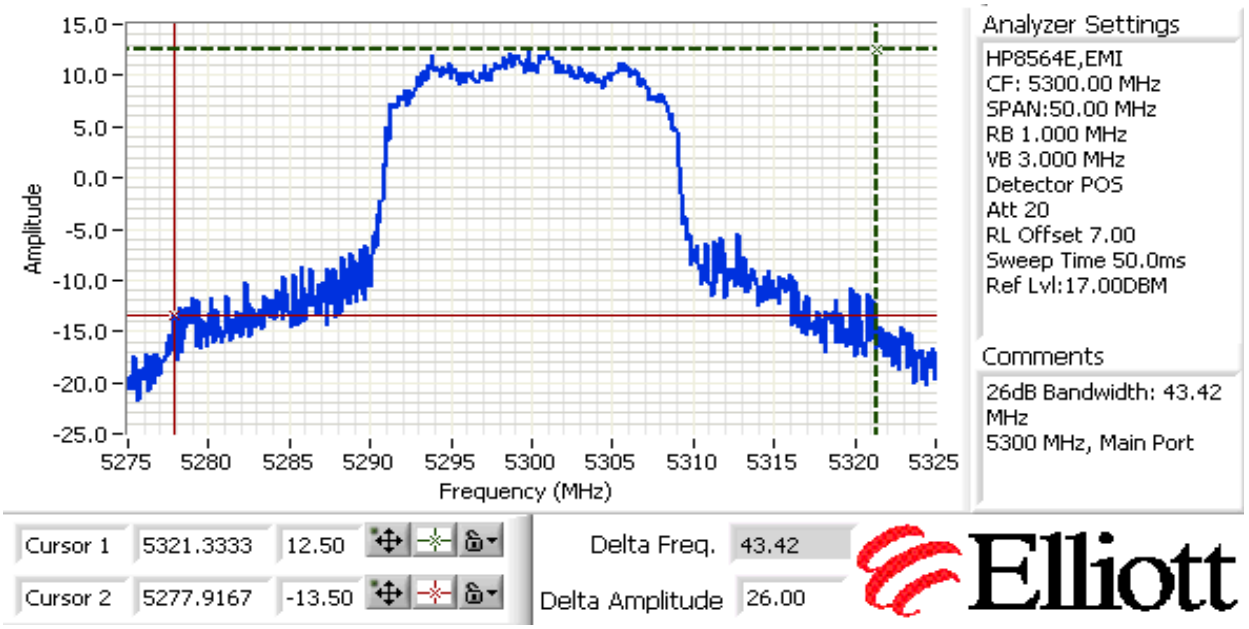

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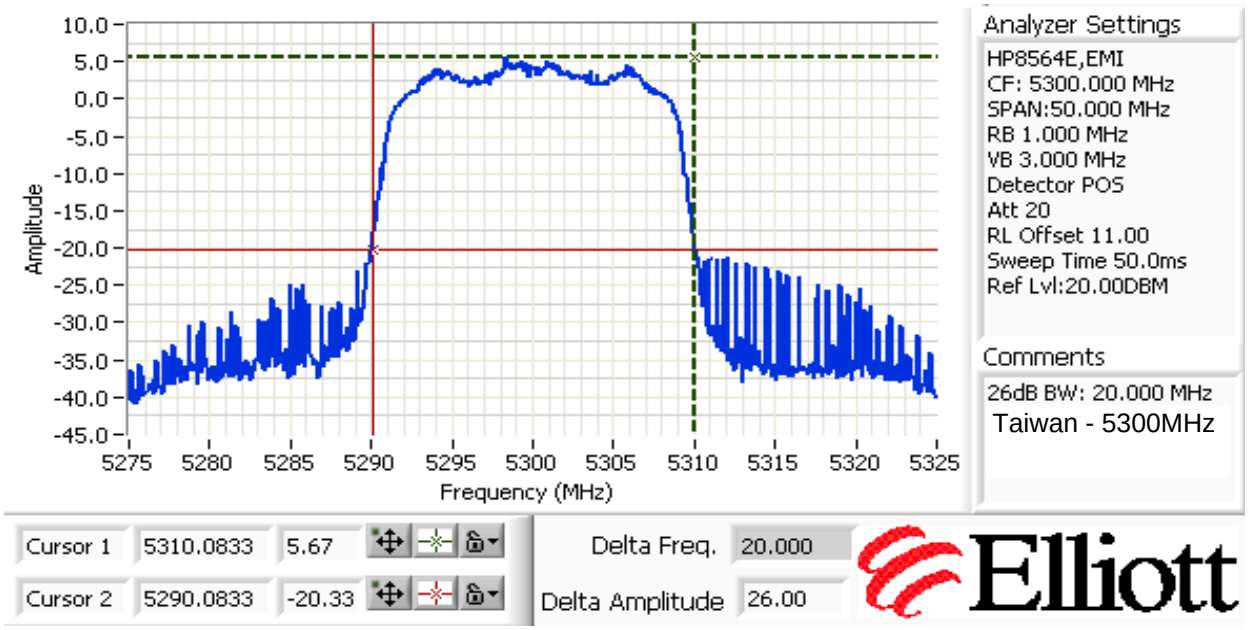

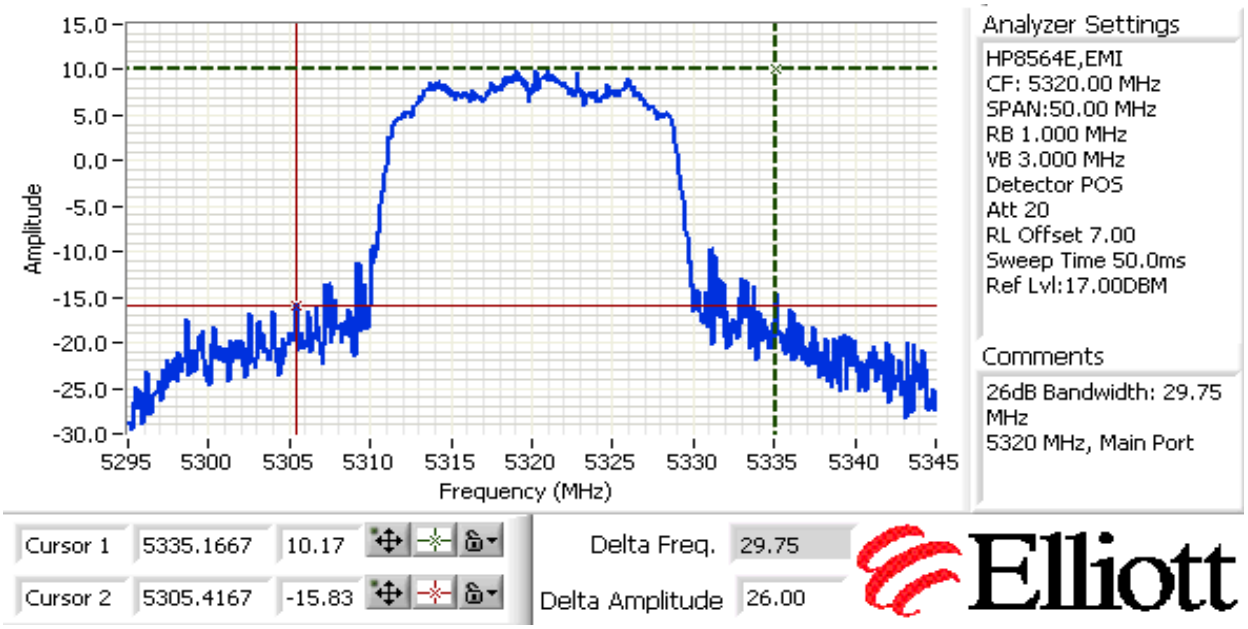

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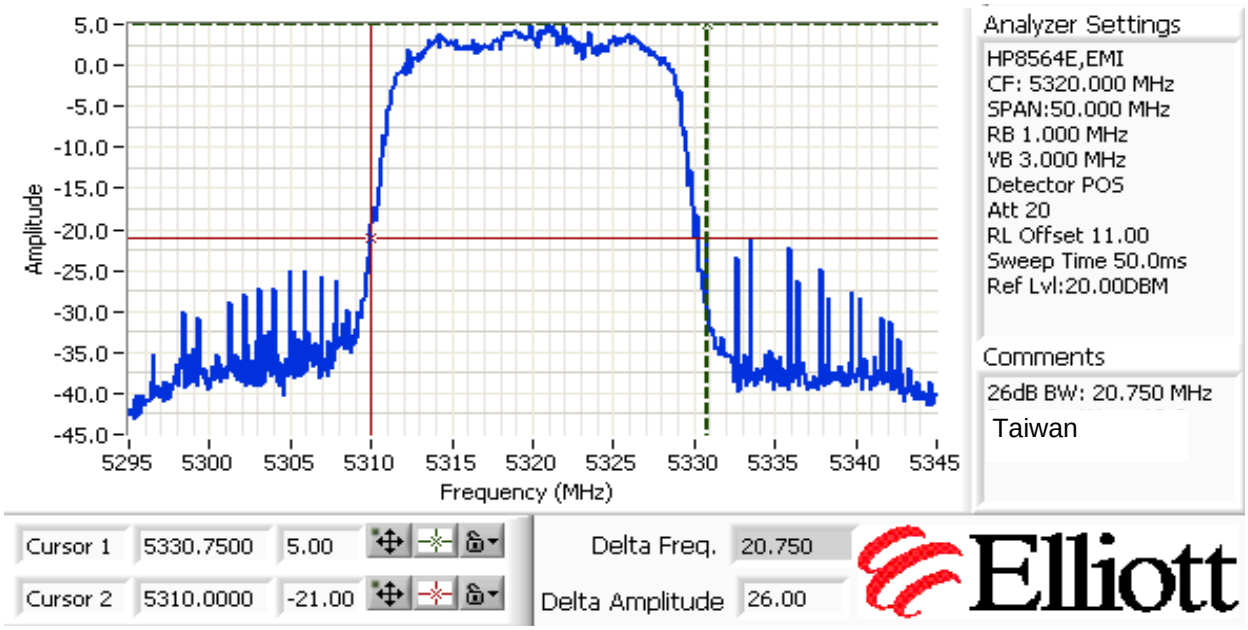

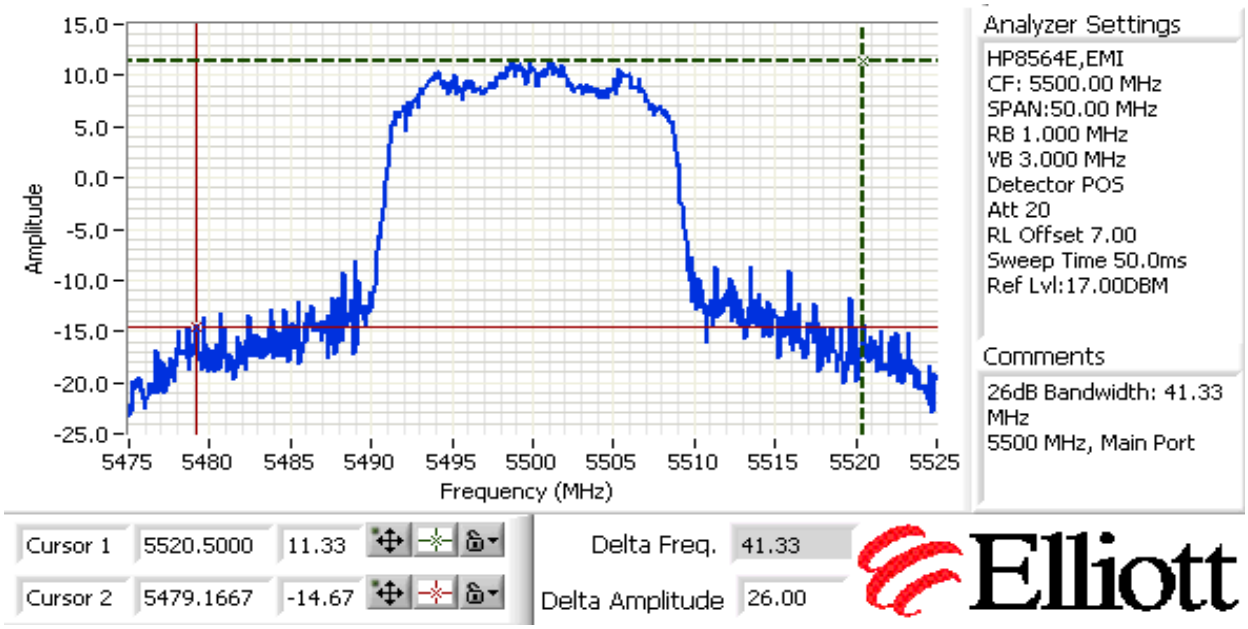

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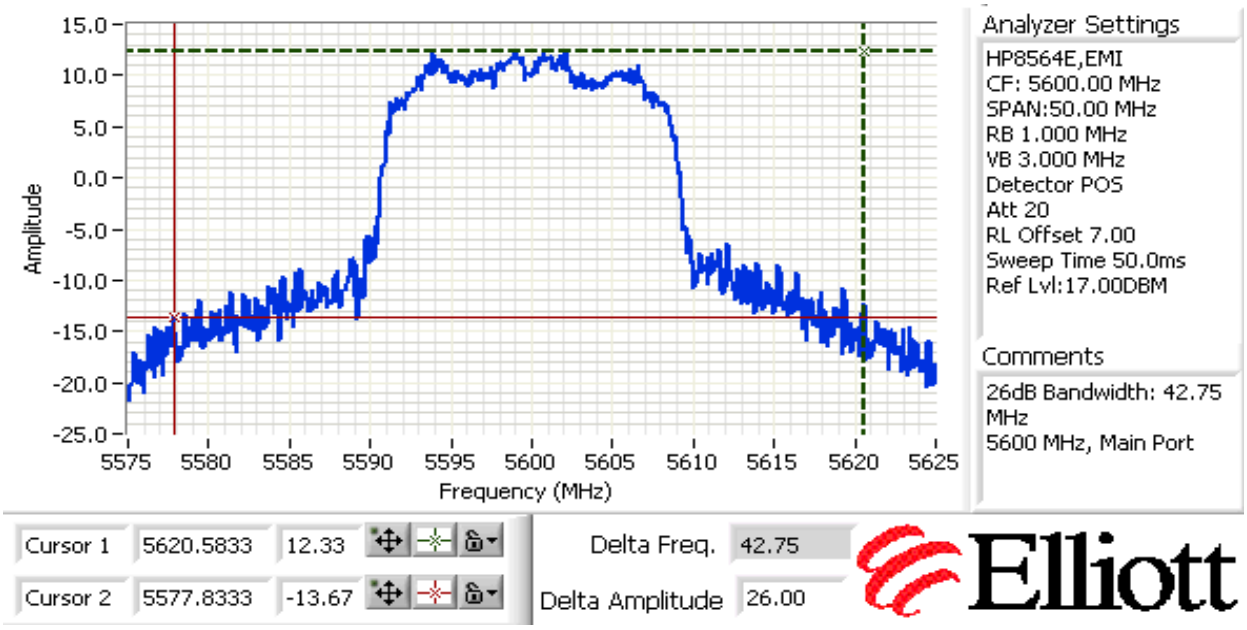

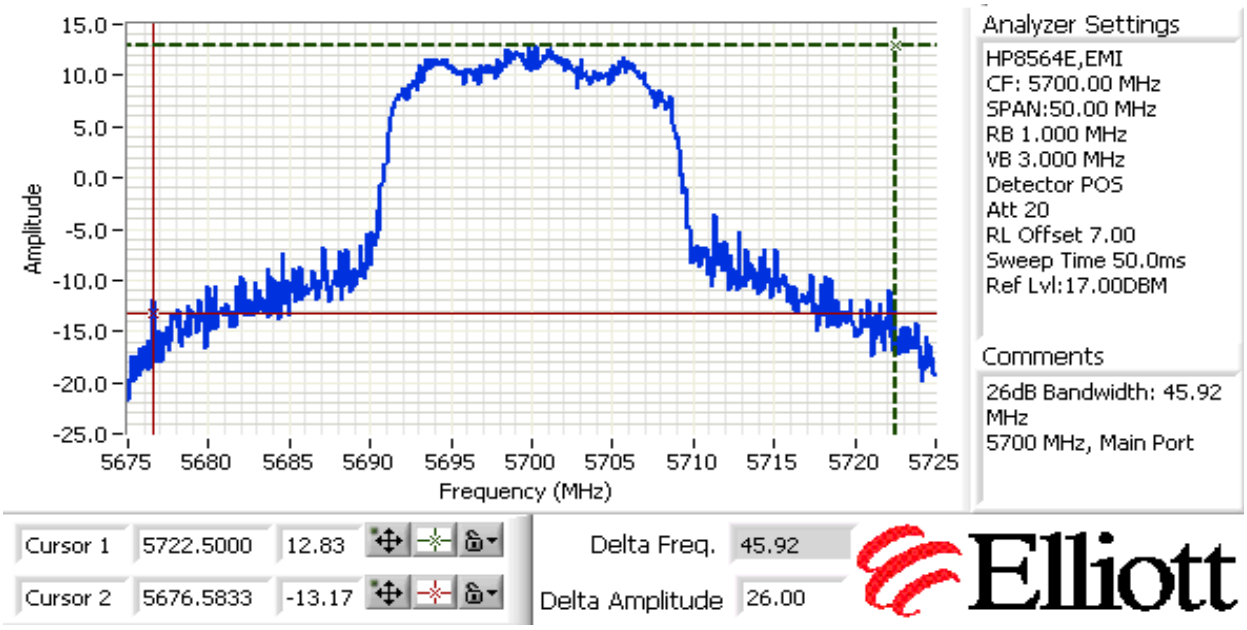

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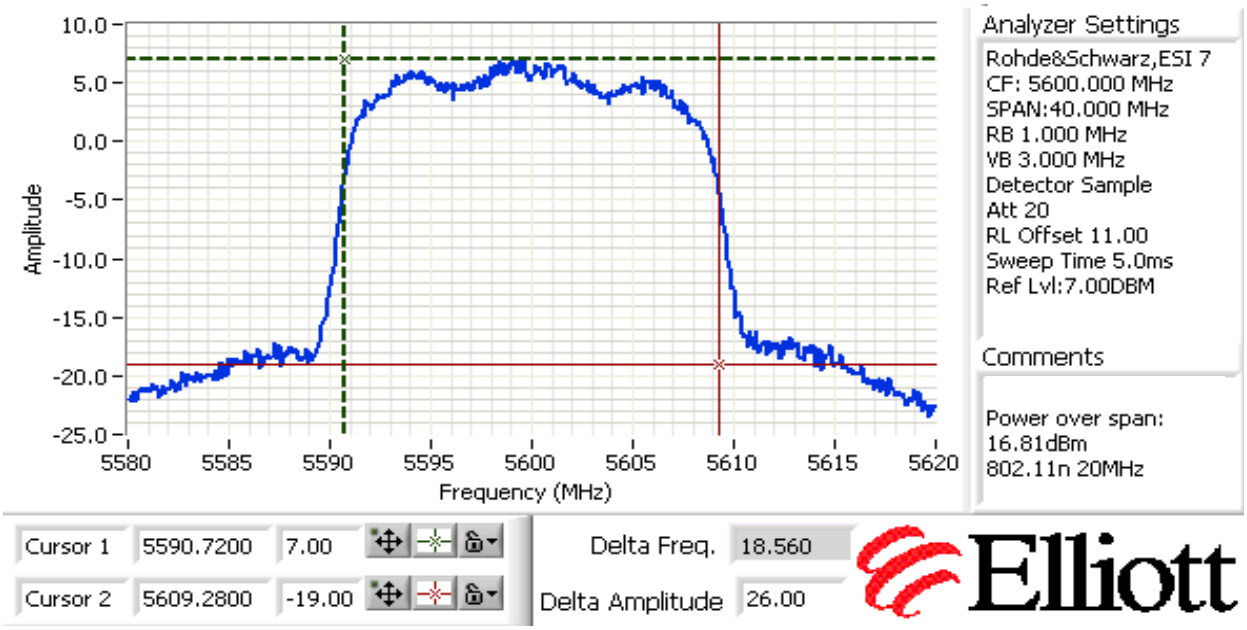
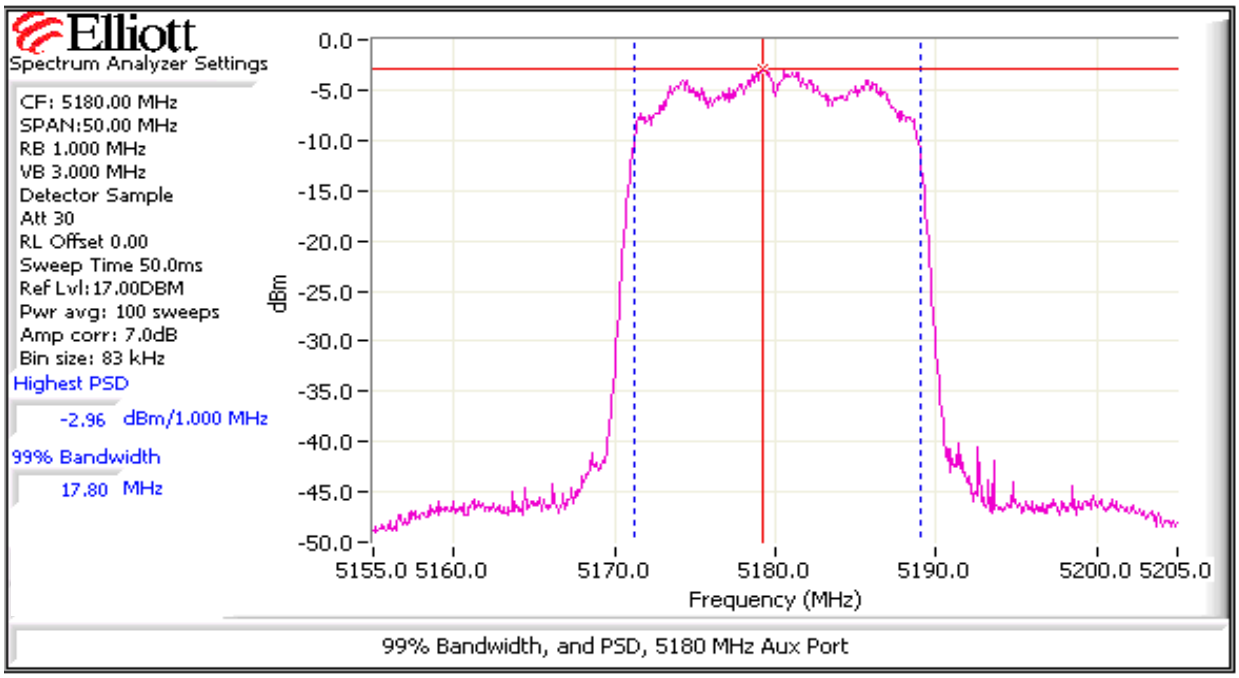
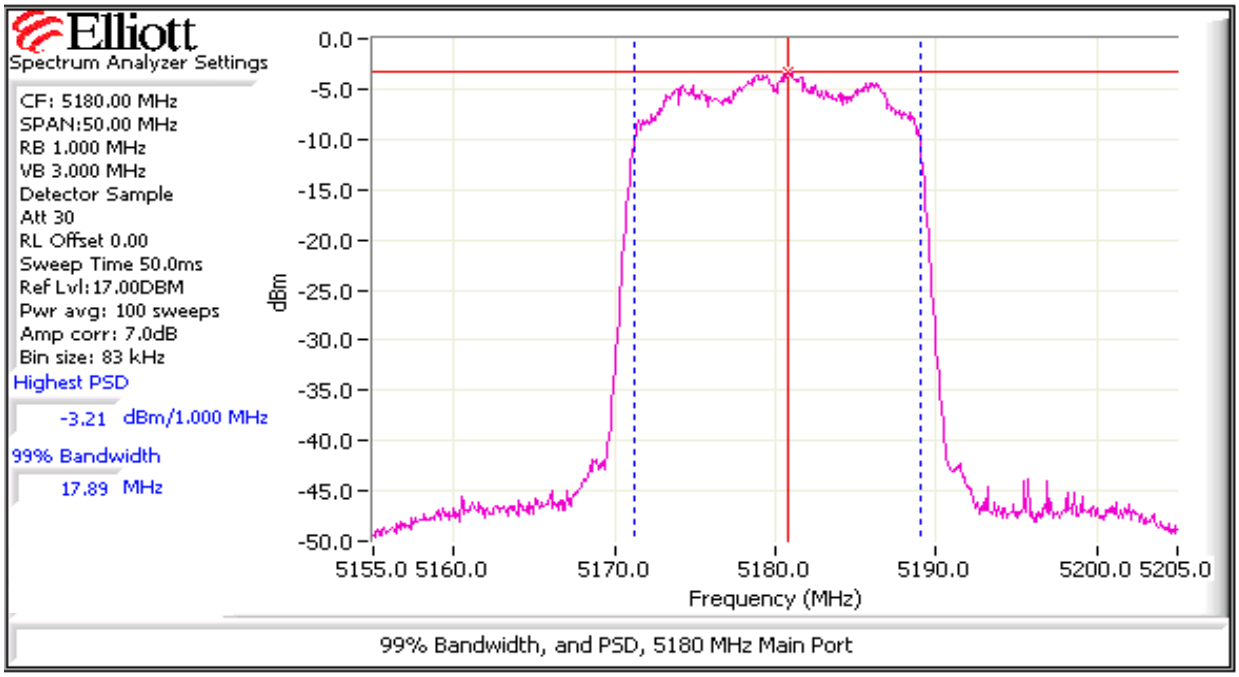
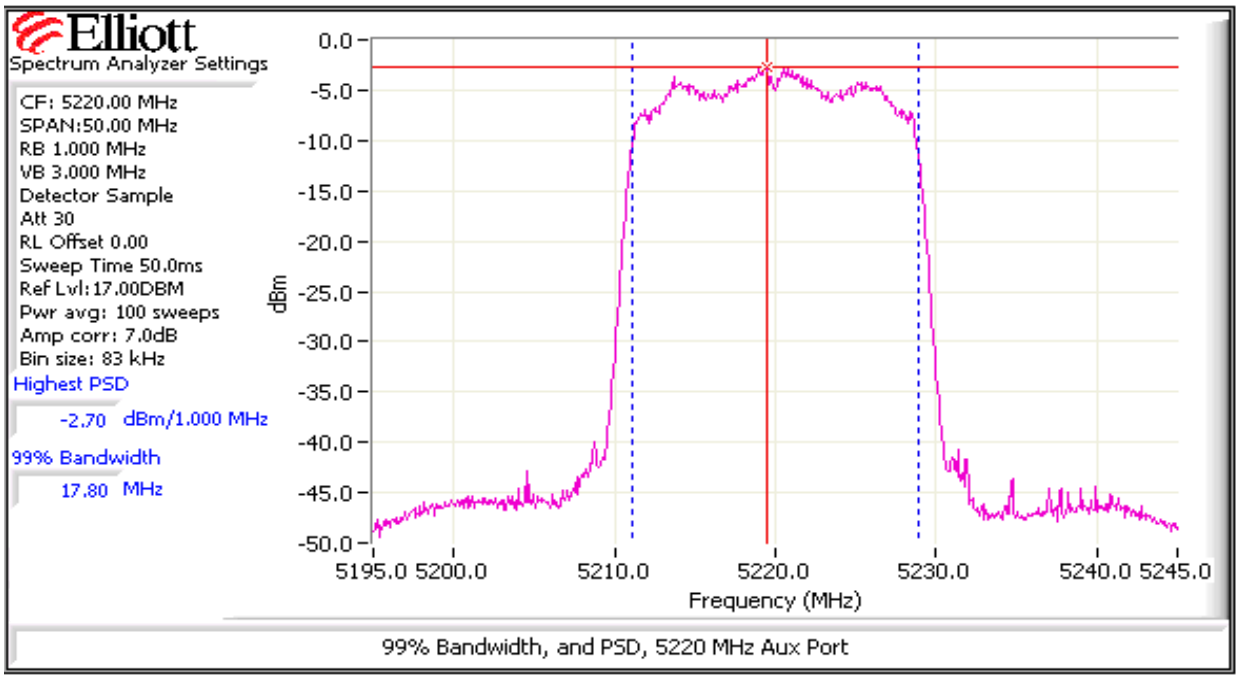
Standard:	FCC 15.247 & 15.205	Class:	N/A



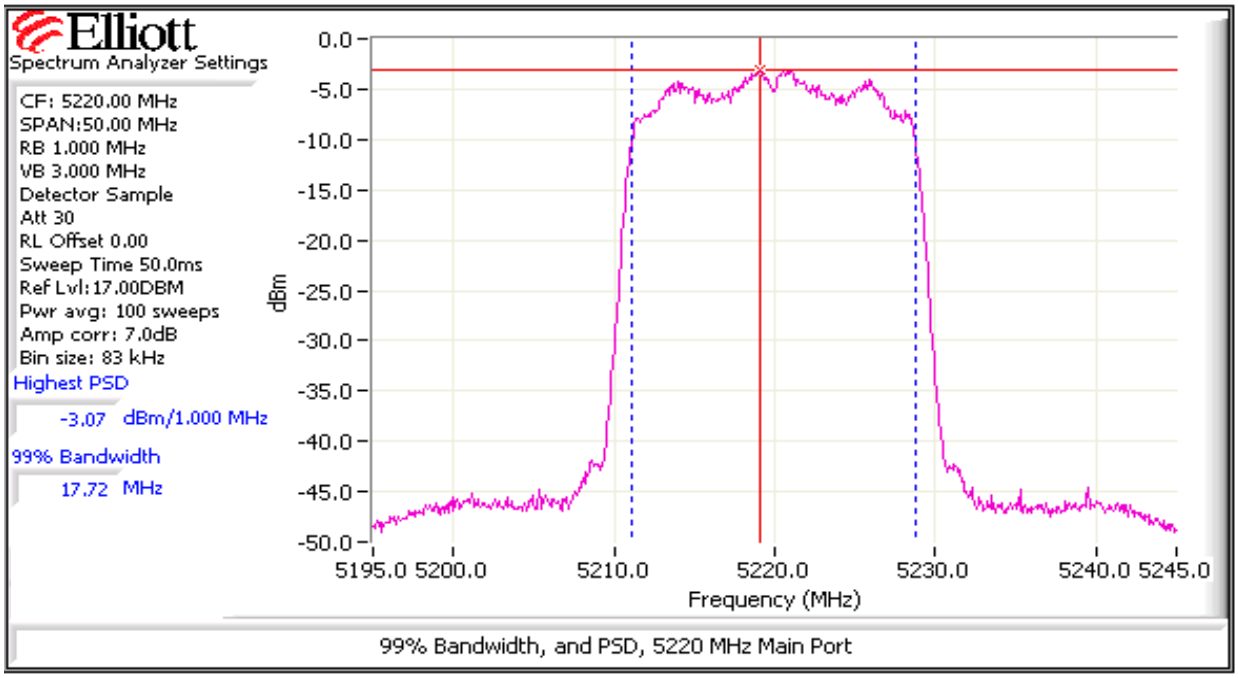


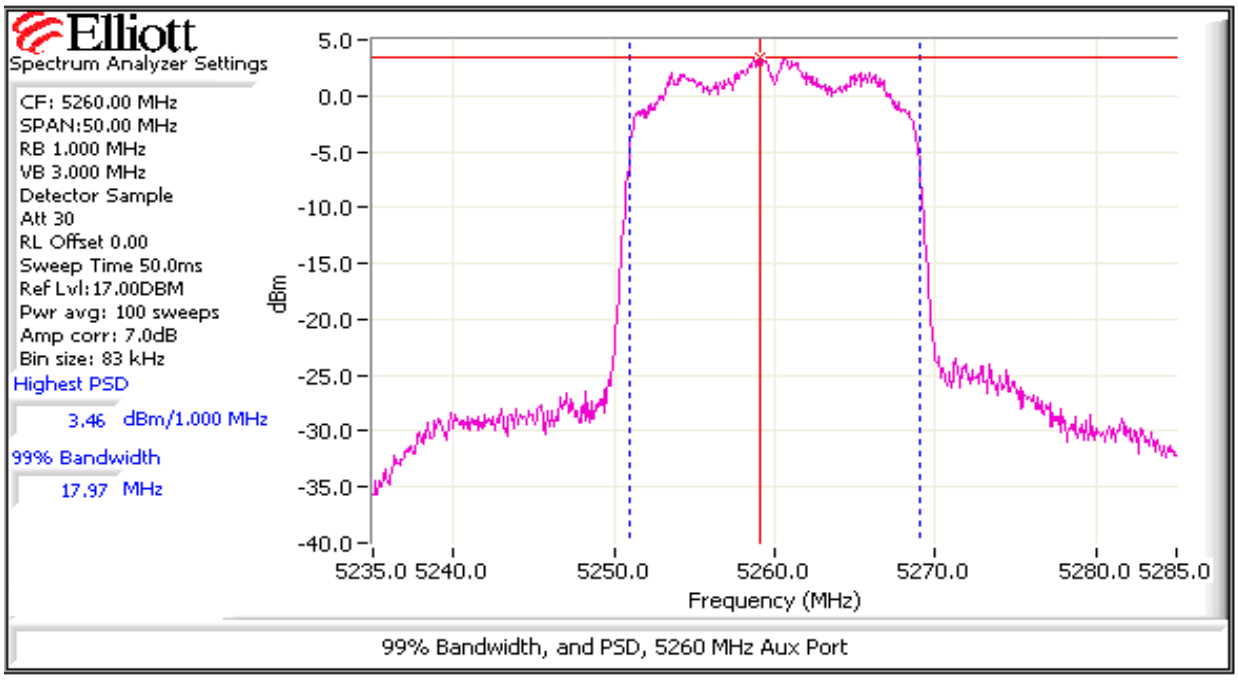
Client:	Broadcom	Job Number:	J74037
Model:	BCM943224HMS	T-Log Number:	T74077
		Account Manager:	Dean Eriksen
Contact:	Anne Liang		
Standard:	FCC 15.247 & 15.205	Class:	N/A



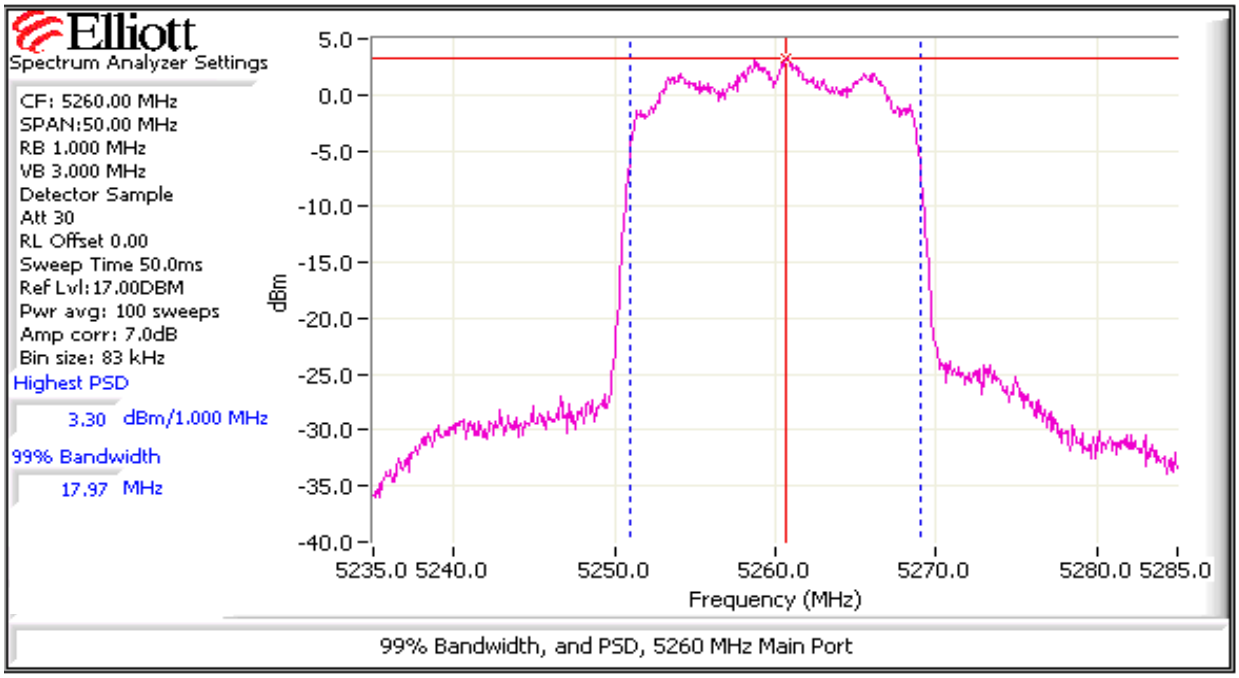


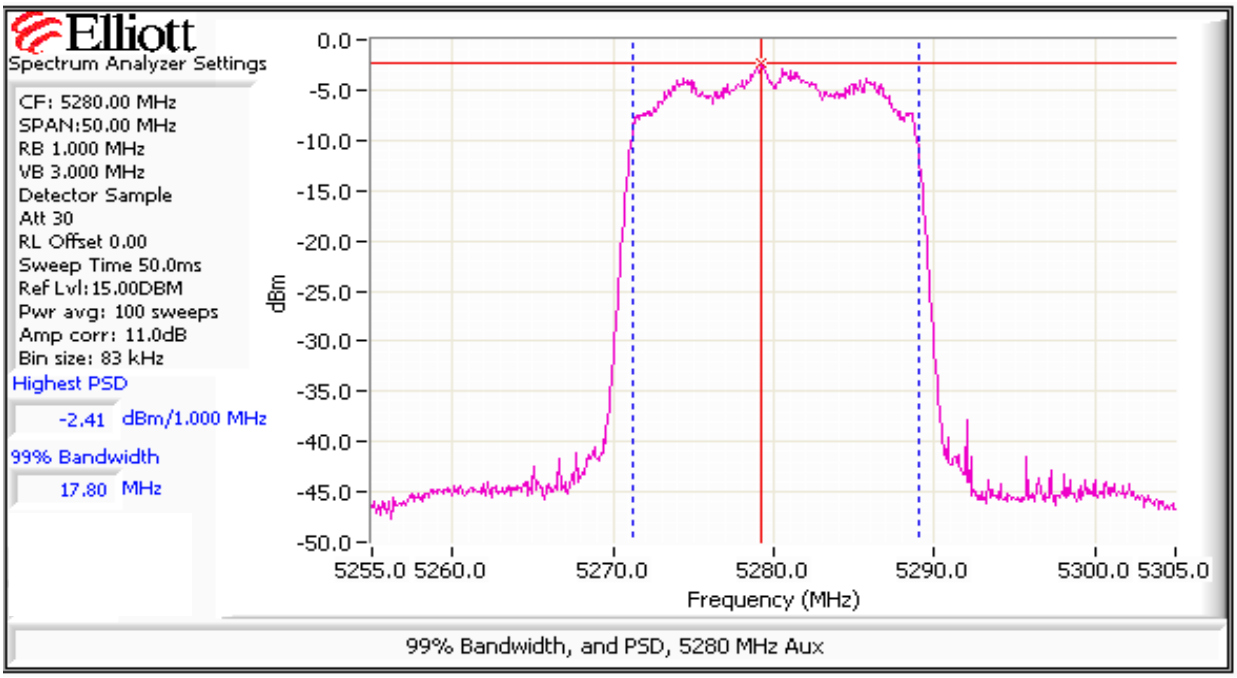
Client:	Broadcom	Job Number:	J74037
Model:	BCM943224HMS	T-Log Number:	T74077
		Account Manager:	Dean Eriksen
Contact:	Anne Liang		
Standard:	FCC 15.247 & 15.205	Class:	N/A





Client:	Broadcom	Job Number:	J74037
Model:	BCM943224HMS	T-Log Number:	T74077
		Account Manager:	Dean Eriksen
Contact:	Anne Liang		
Standard:	FCC 15.247 & 15.205	Class:	N/A





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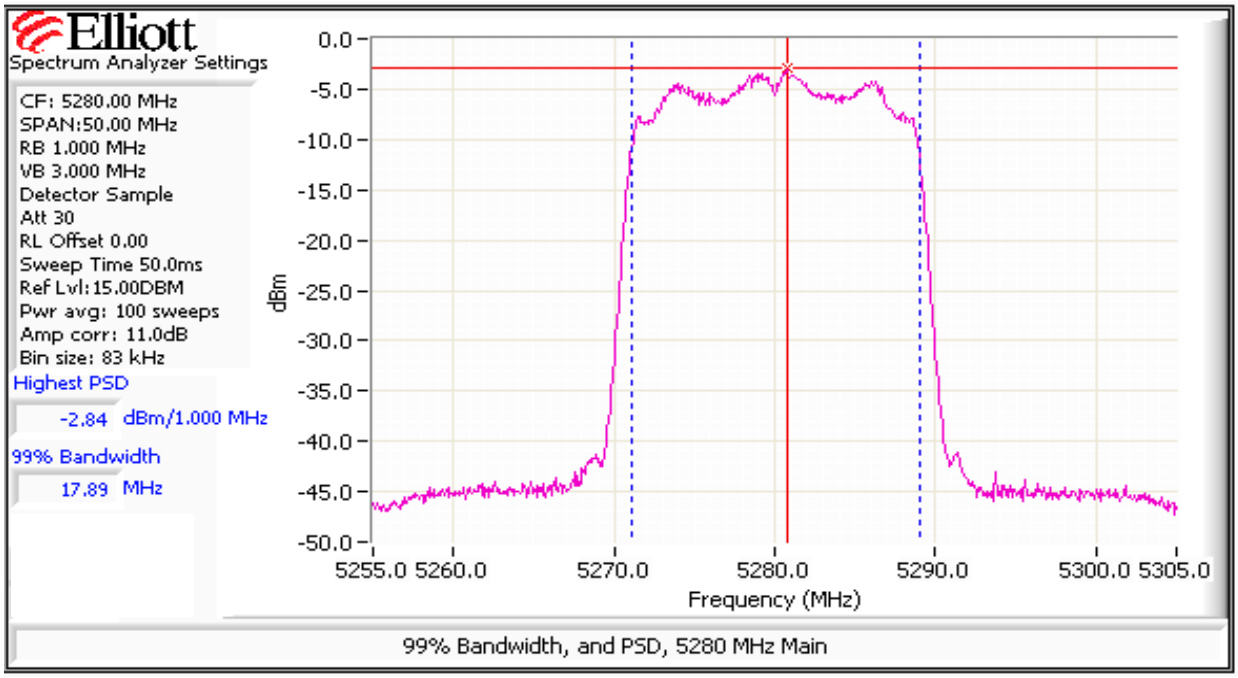
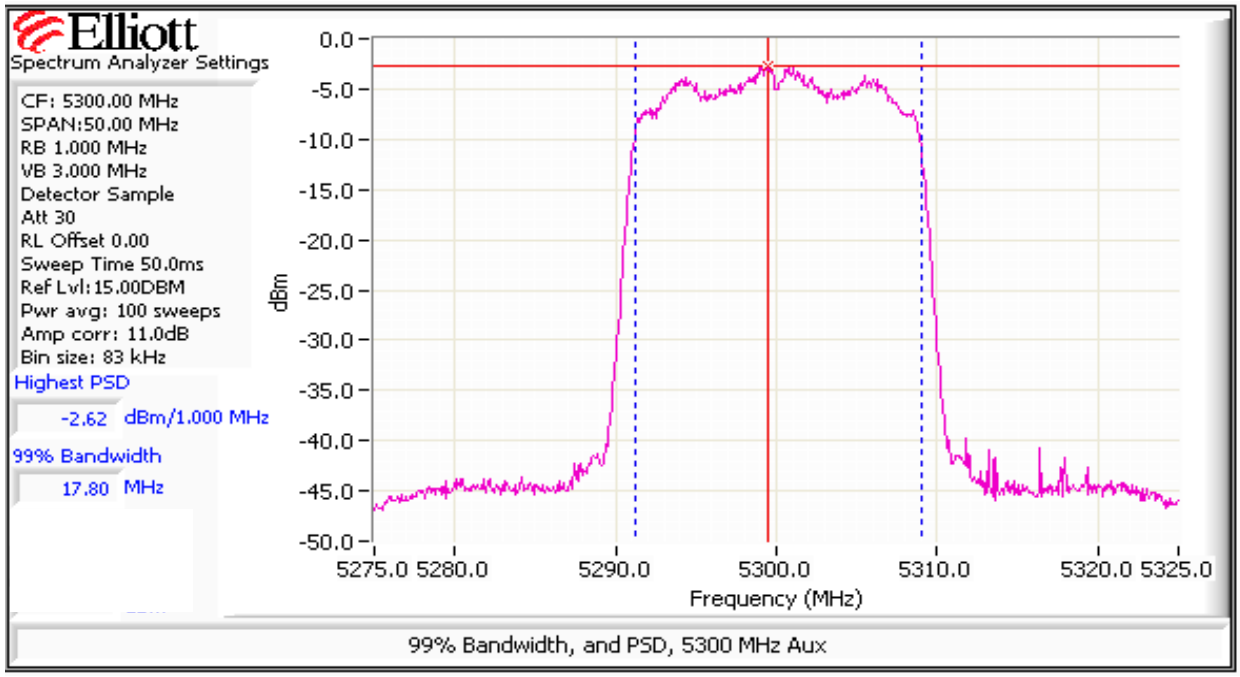
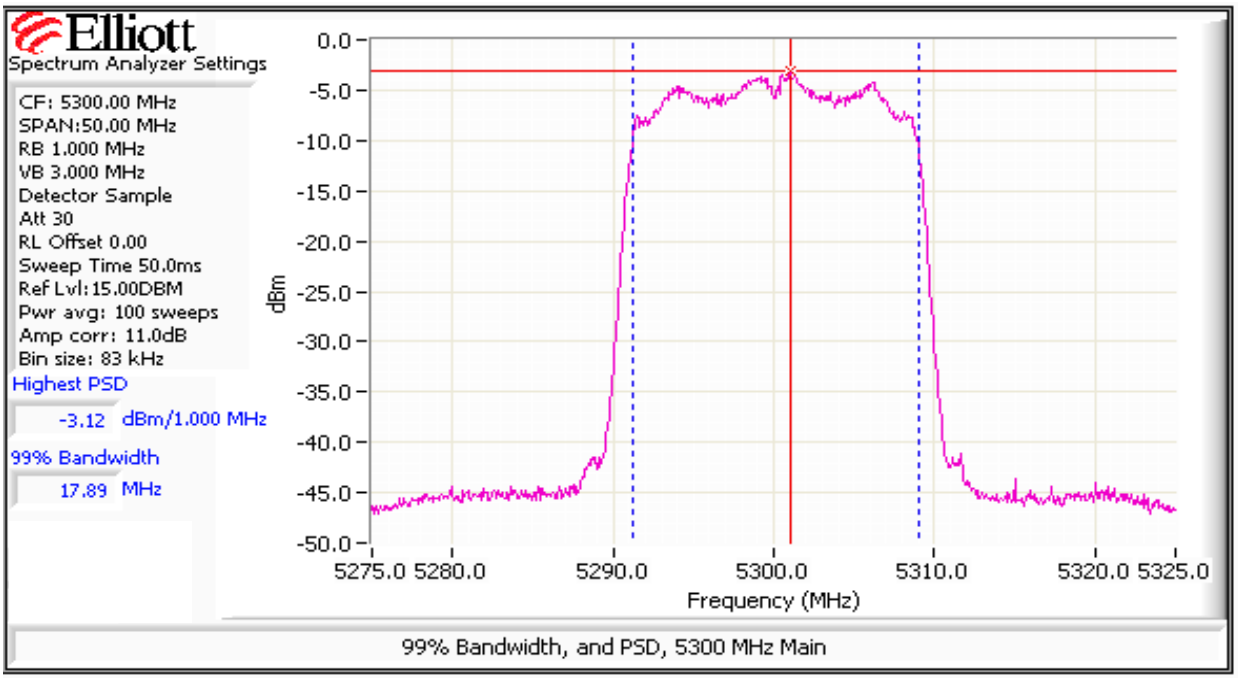
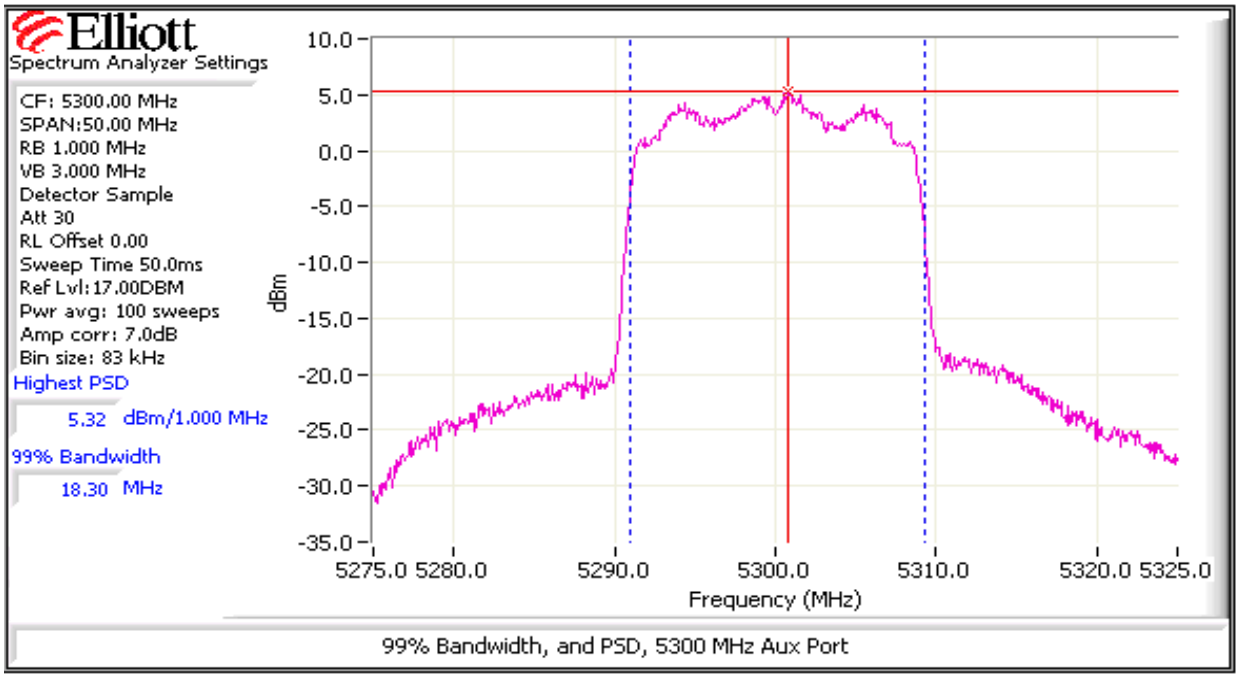
Model:	BCM943224HMS	T-Log Number:	T74077
		Account Manager:	Dean Eriksen
Contact:	Anne Liang		
Standard:	FCC 15.247 & 15.205	Class:	N/A





Client:	Broadcom	Job Number:	J74037
Model:	BCM943224HMS	T-Log Number:	T74077
		Account Manager:	Dean Eriksen
Contact:	Anne Liang		
Standard:	FCC 15.247 & 15.205	Class:	N/A





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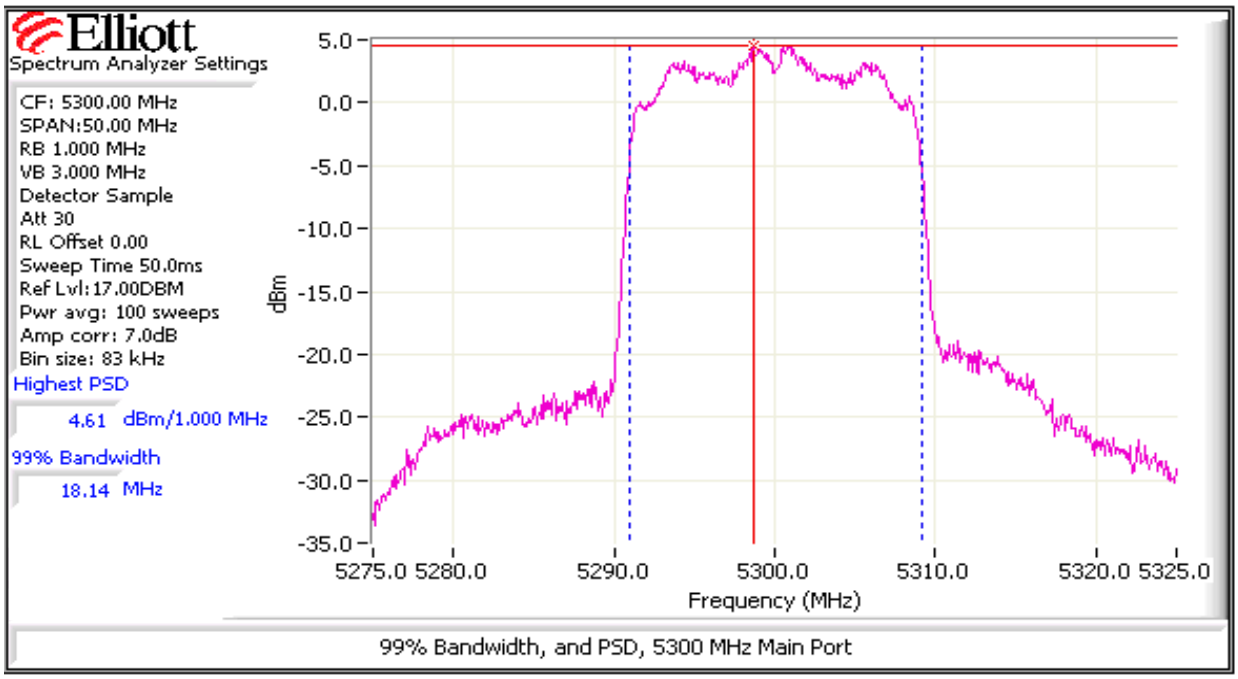
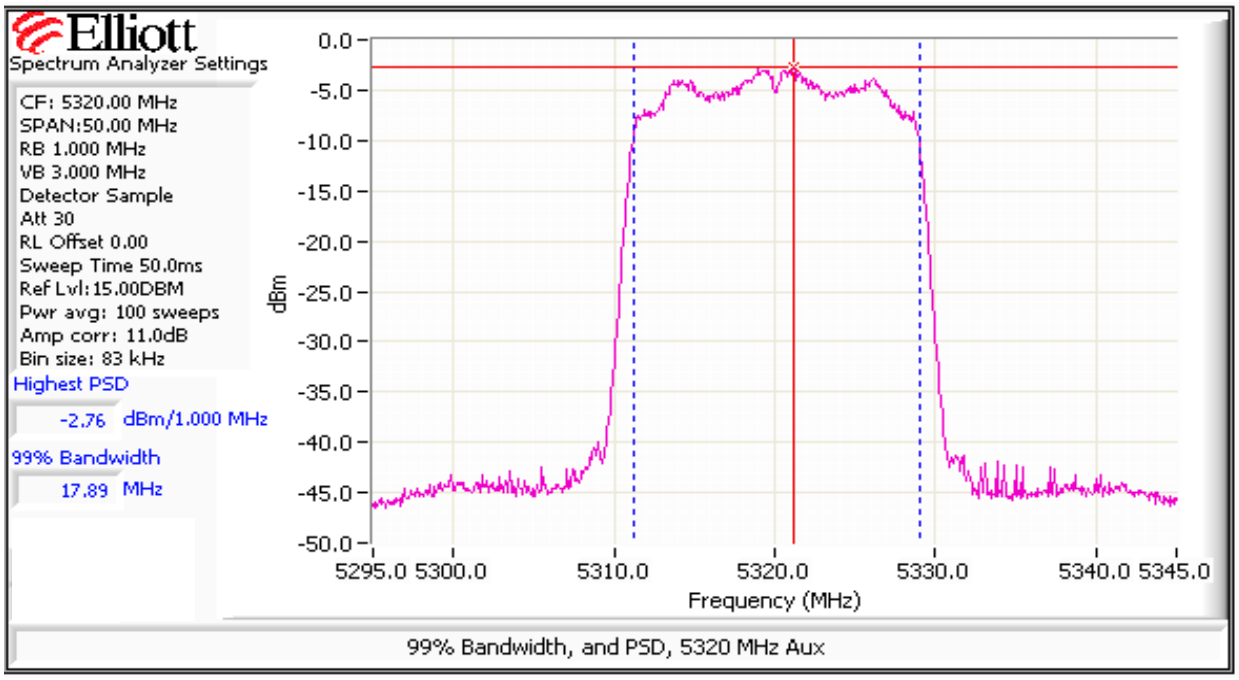
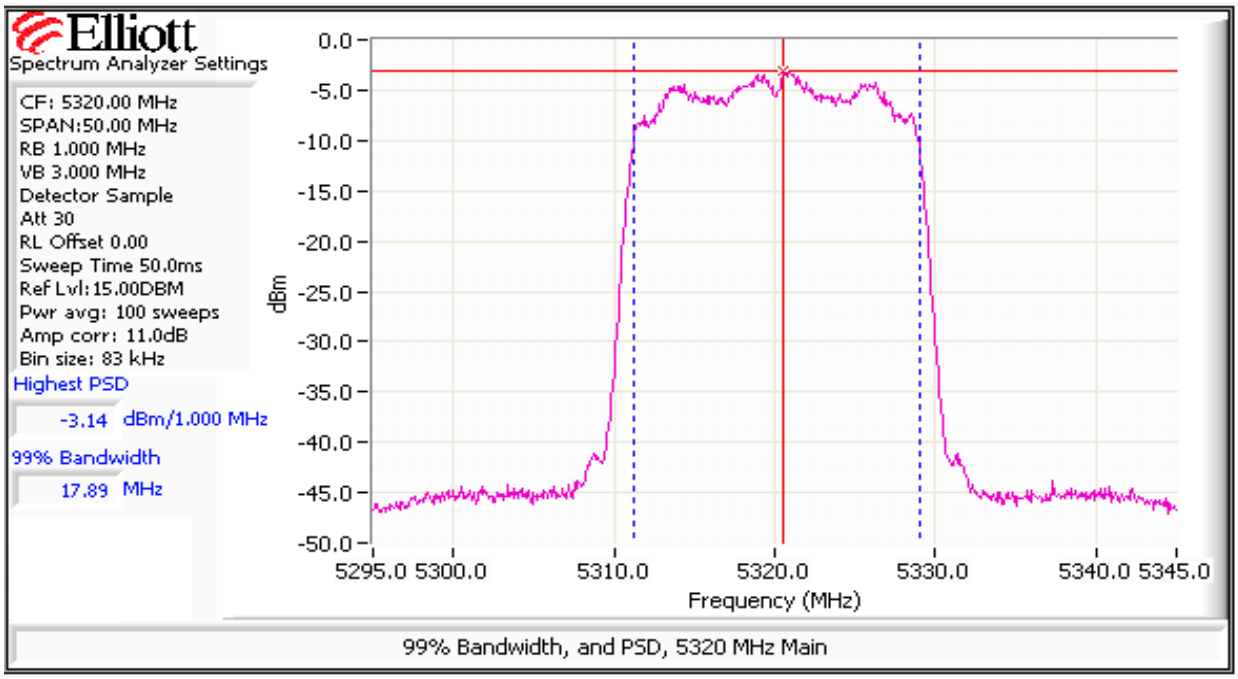
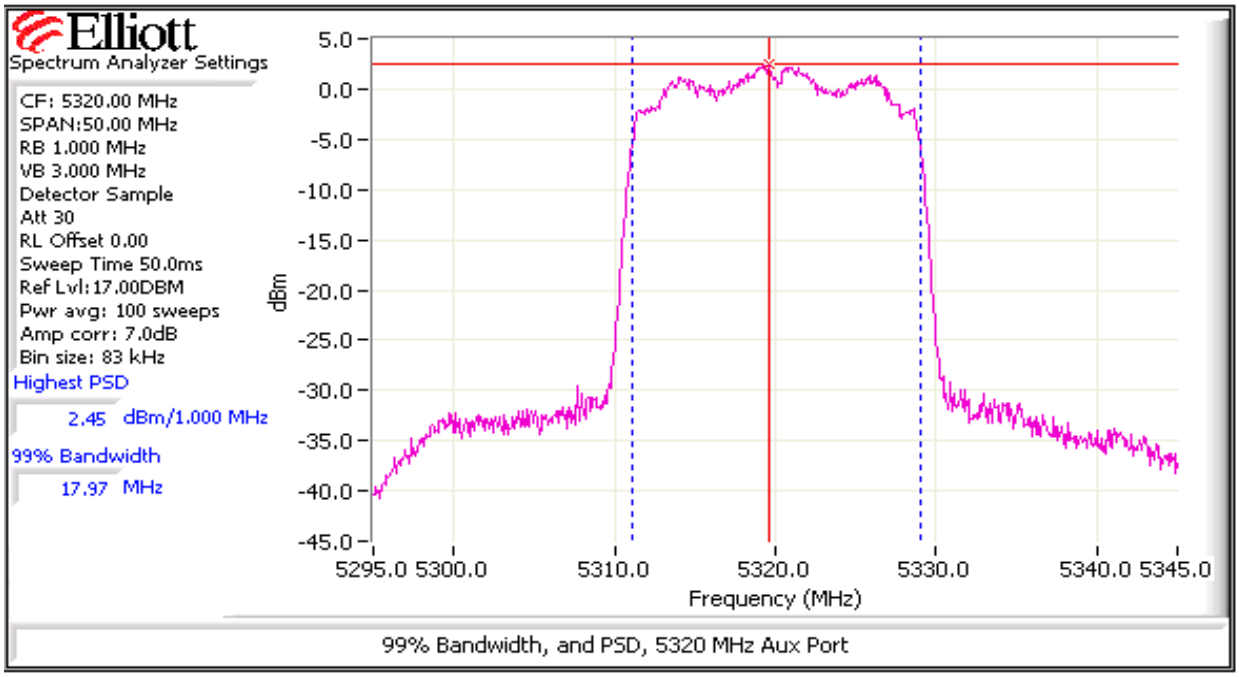
Model:	BCM943224HMS	T-Log Number:	T74077
		Account Manager:	Dean Eriksen
Contact:	Anne Liang		
Standard:	FCC 15.247 & 15.205	Class:	N/A



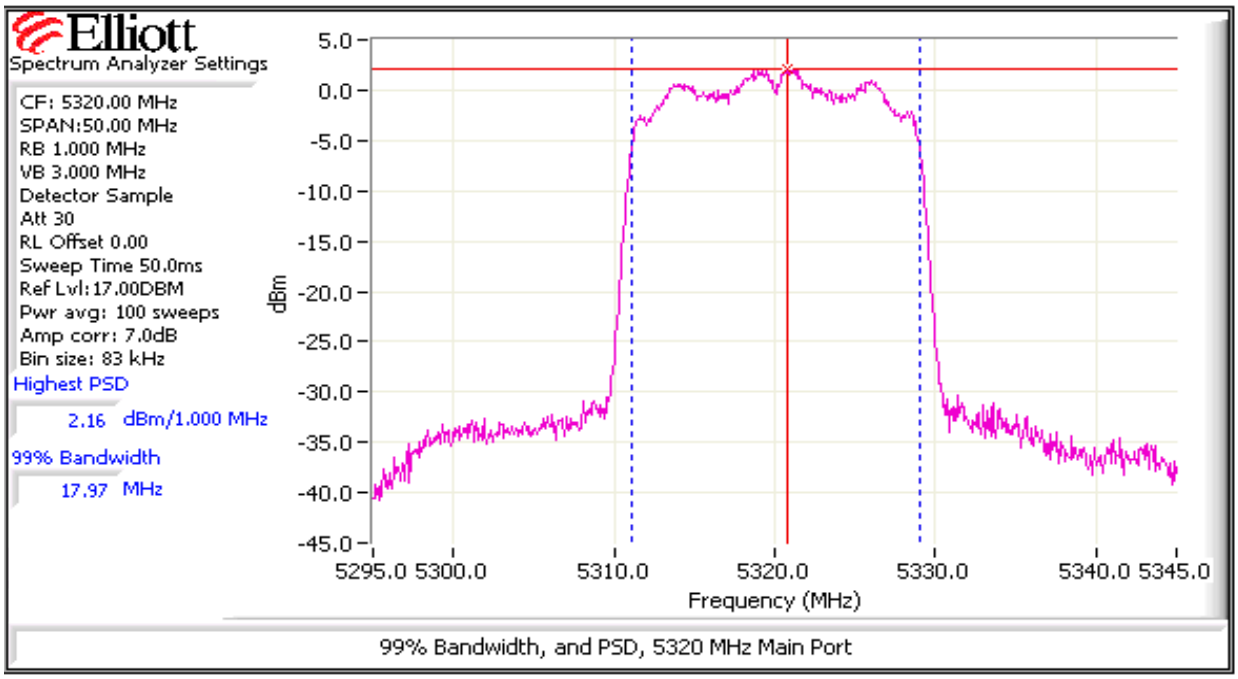


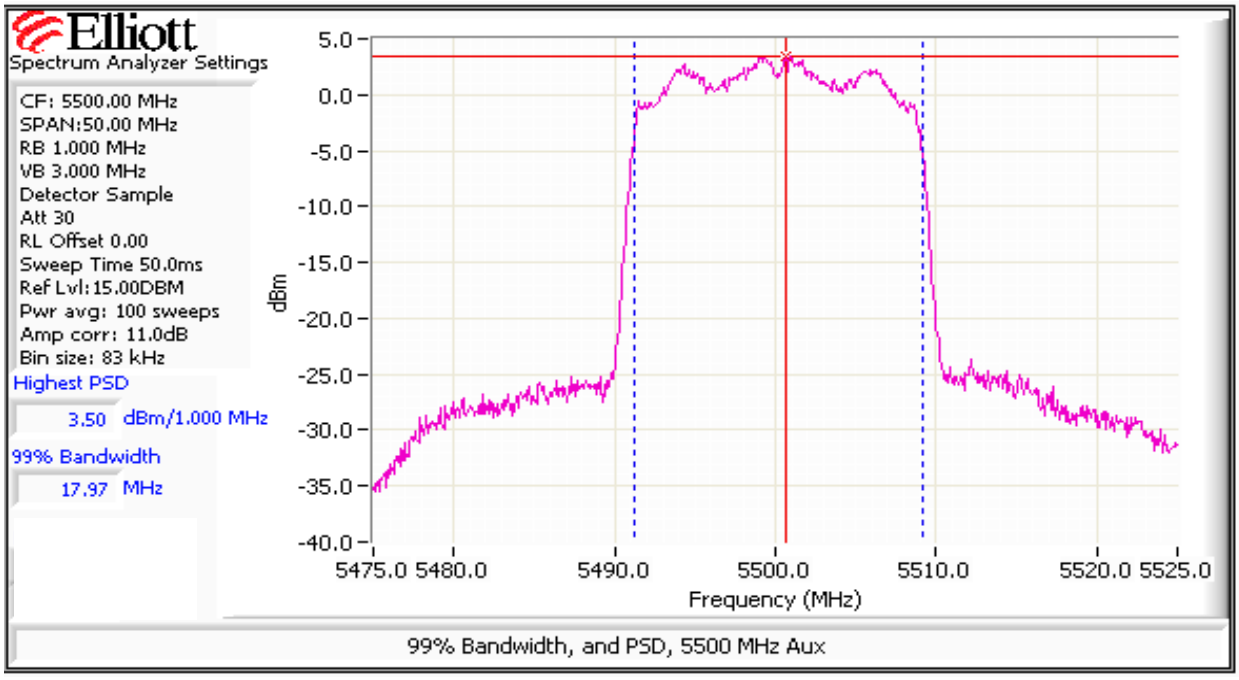
Client:	Broadcom	Job Number:	J74037
Model:	BCM943224HMS	T-Log Number:	T74077
		Account Manager:	Dean Eriksen
Contact:	Anne Liang		
Standard:	FCC 15.247 & 15.205	Class:	N/A



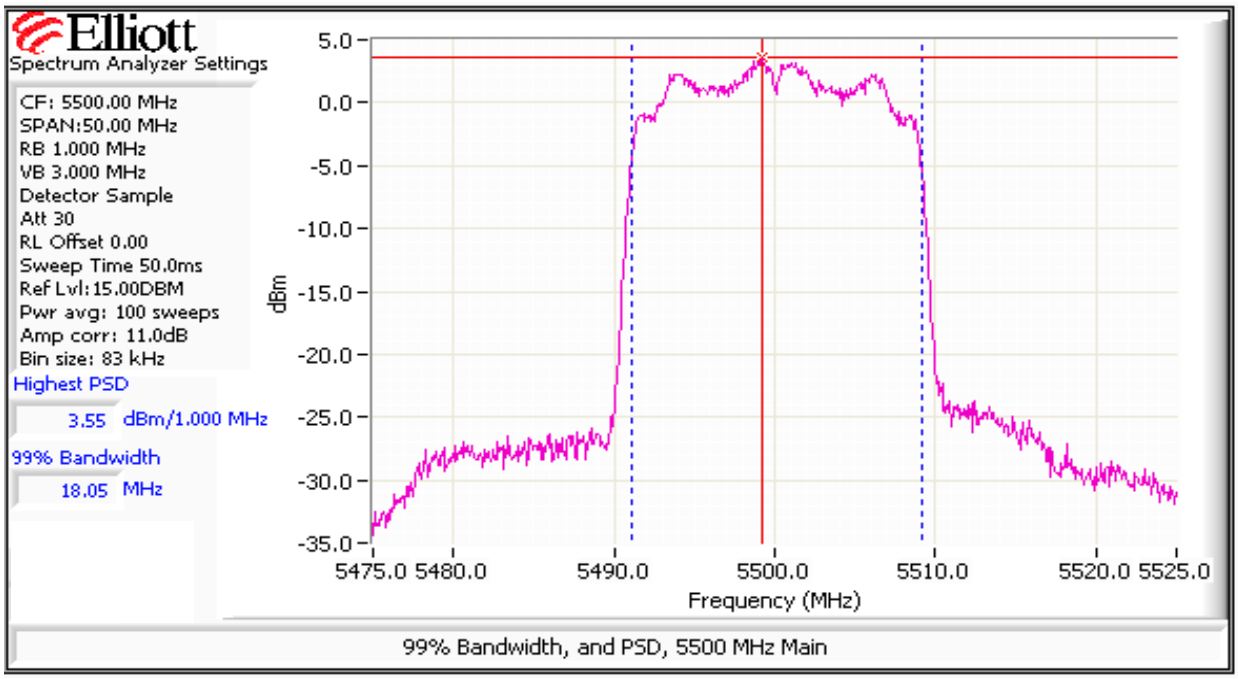


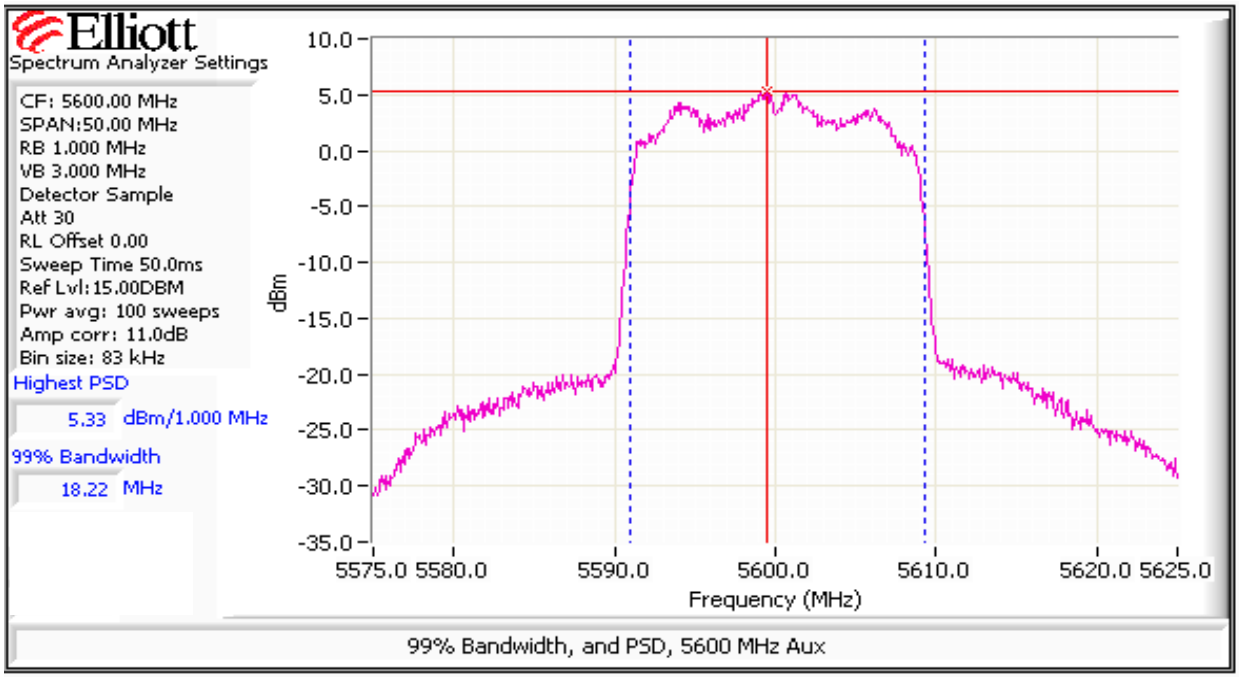
Client:	Broadcom	Job Number:	J74037
Model:	BCM943224HMS	T-Log Number:	T74077
		Account Manager:	Dean Eriksen
Contact:	Anne Liang		
Standard:	FCC 15.247 & 15.205	Class:	N/A



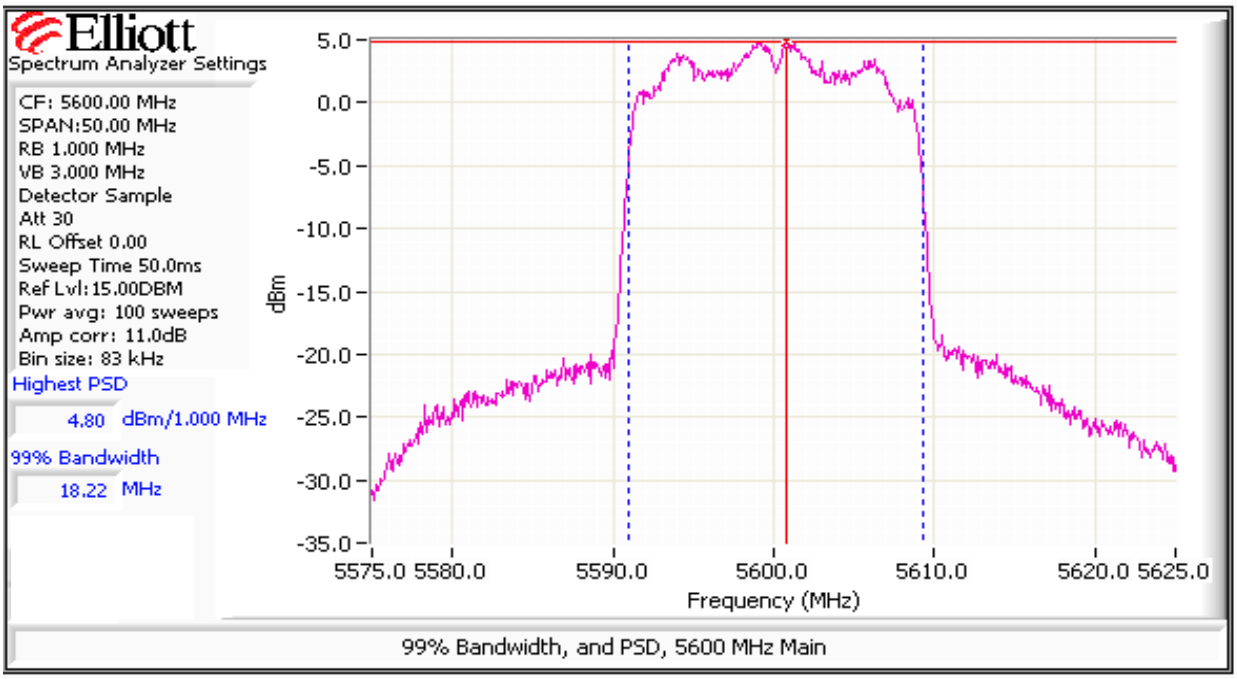


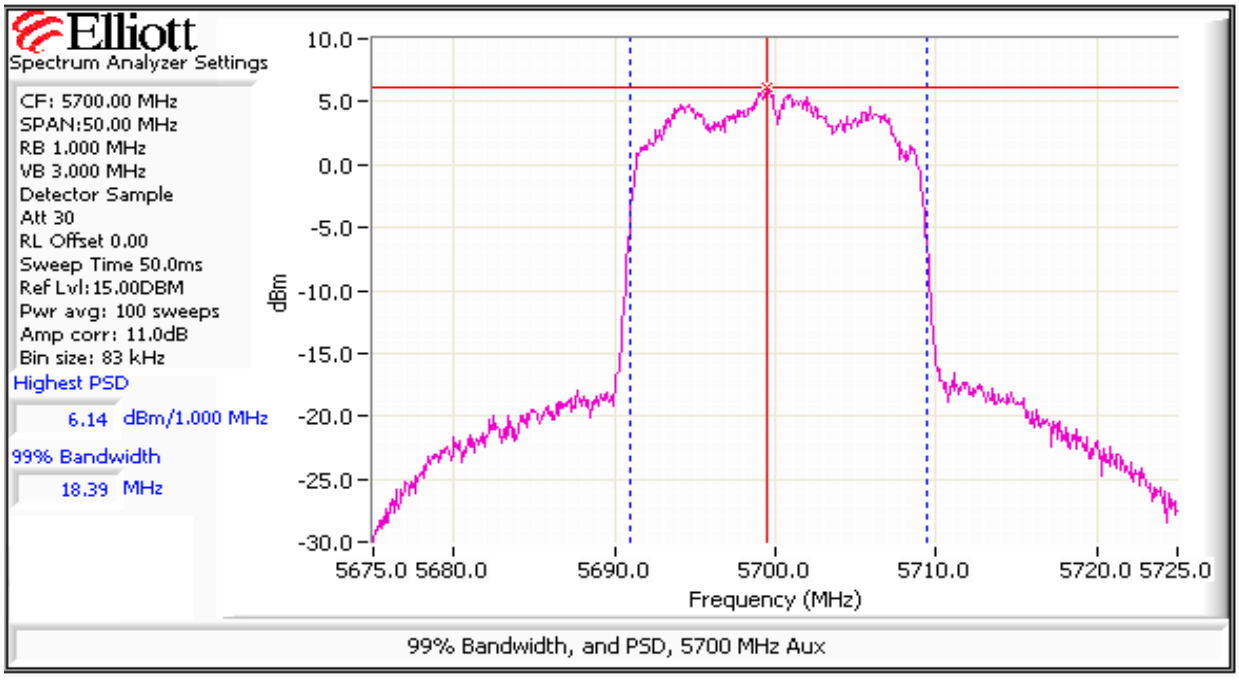
Client:	Broadcom	Job Number:	J74037
Model:	BCM943224HMS	T-Log Number:	T74077
		Account Manager:	Dean Eriksen
Contact:	Anne Liang		
Standard:	FCC 15.247 & 15.205	Class:	N/A



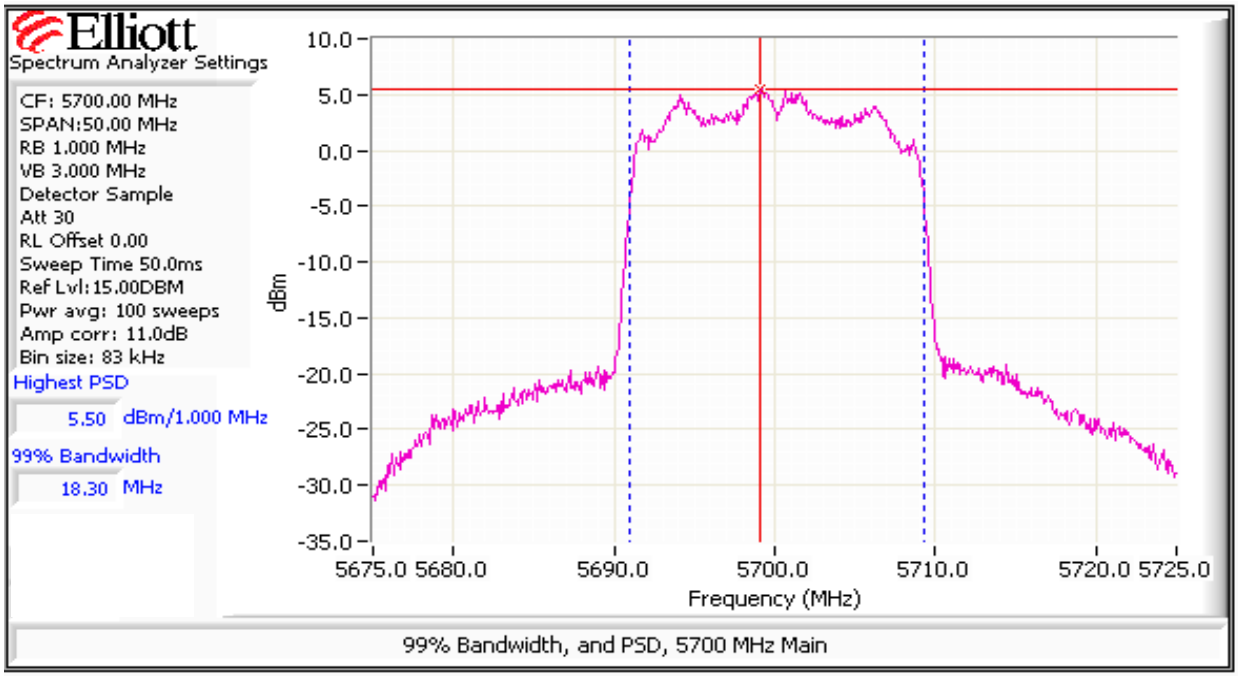


Client:	Broadcom	Job Number:	J74037
Model:	BCM943224HMS	T-Log Number:	T74077
		Account Manager:	Dean Eriksen
Contact:	Anne Liang		
Standard:	FCC 15.247 & 15.205	Class:	N/A





Client:	Broadcom	Job Number:	J74037
Model:	BCM943224HMS	T-Log Number:	T74077
		Account Manager:	Dean Eriksen
Contact:	Anne Liang		
Standard:	FCC 15.247 & 15.205	Class:	N/A



Run #2: Peak Excursion Measurement

Device meets the requirement for the peak excursion

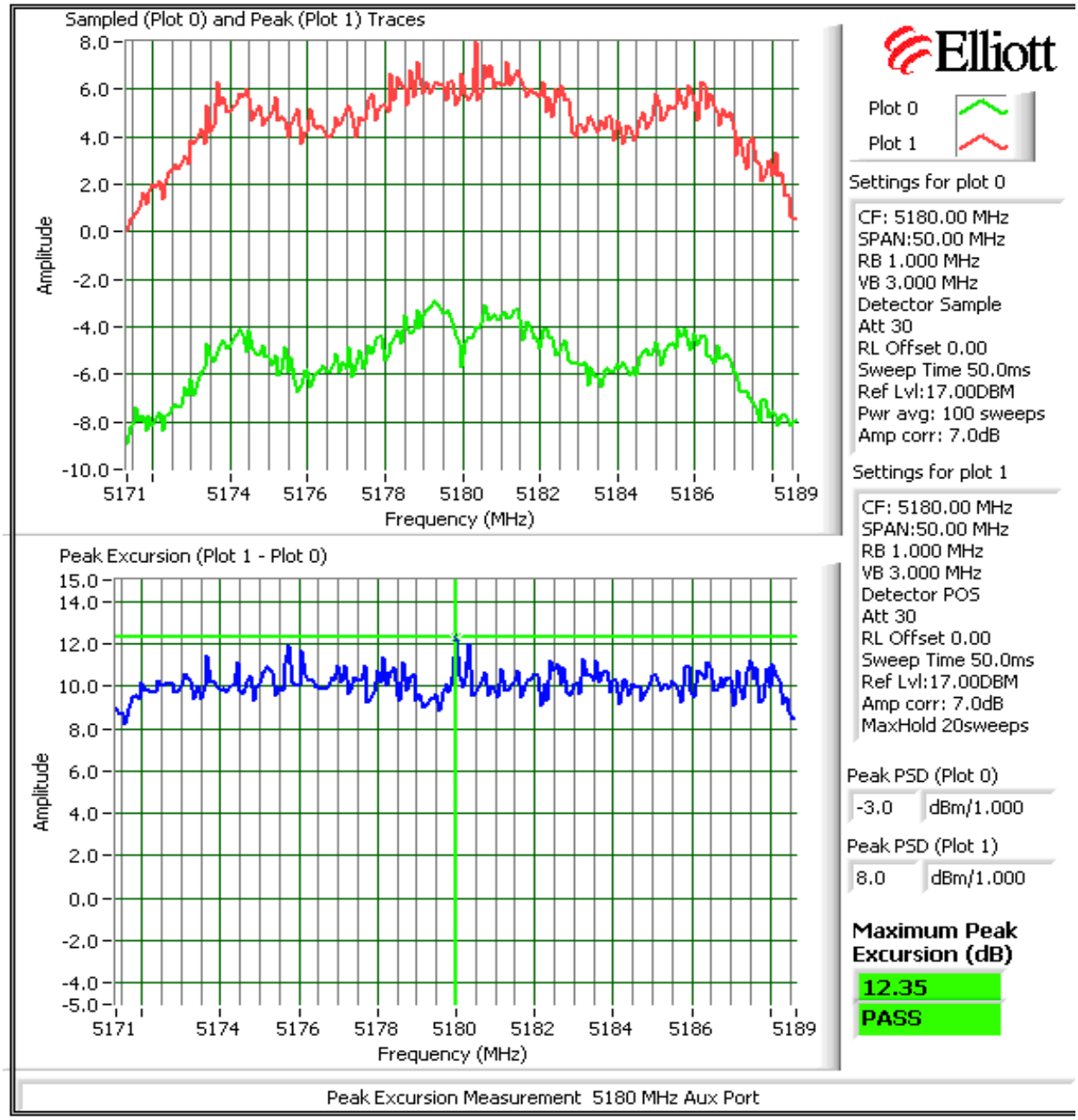
Freq	Peak Excursion(dB)		Freq	Peak Excursion(dB)		Freq	Peak Excursion(dB)	
(MHz)	Value	Limit	(MHz)	Value	Limit	(MHz)	Value	Limit
5180	12.4	13.0	5260	11.7	13.0	5500	11.8	13.0
5220	11.9	13.0	5300	11.8	13.0	5600	12.3	13.0
5240	12.2	13.0	5320	12.0	13.0	5700	11.7	13.0

Plots Showing Peak Excursion

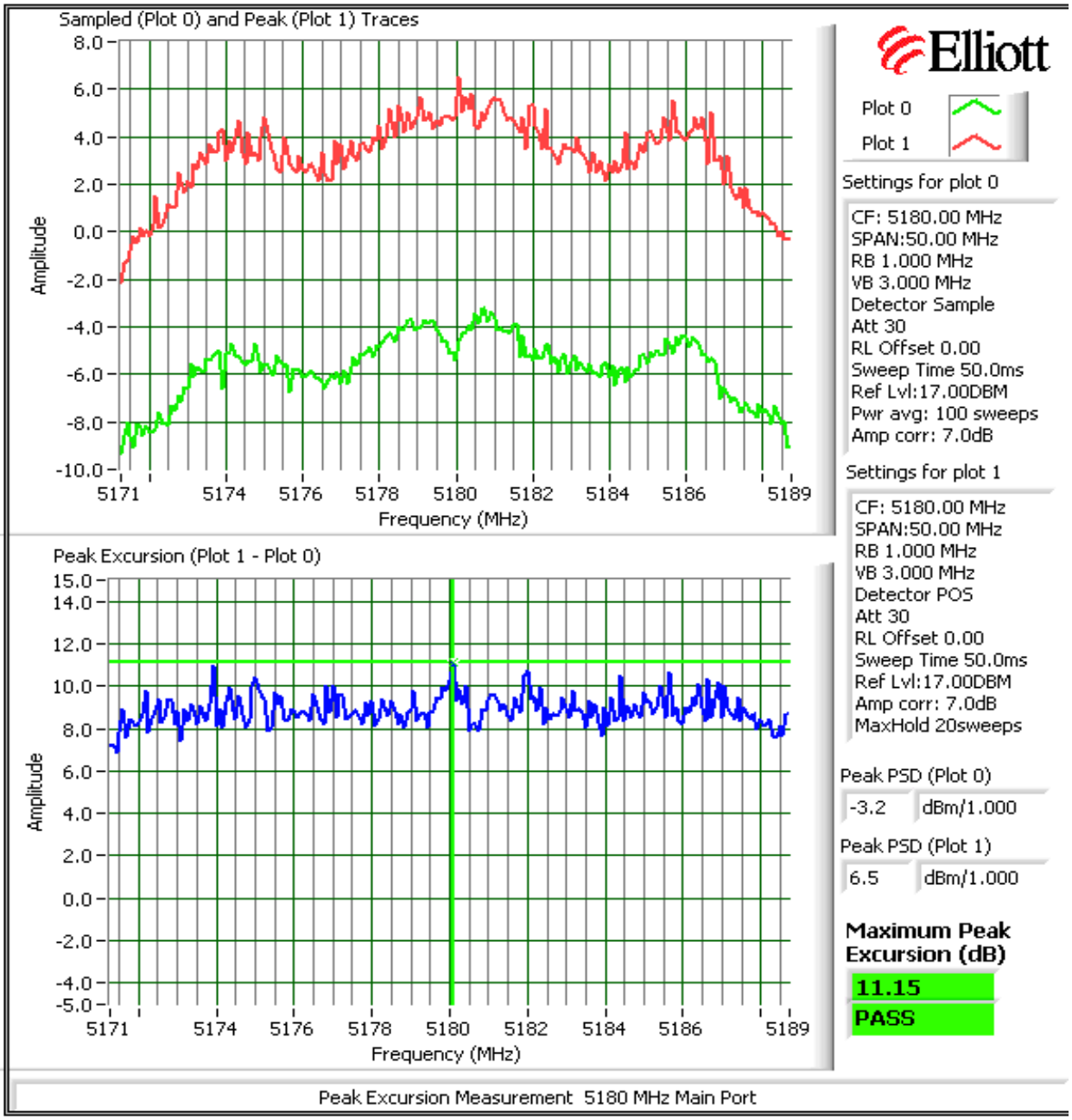
Trace A: RBW = VBW = 3MHz, Peak hold

Trace B: RBW = 1 MHz, VBW = 3MHz, Integrated average power

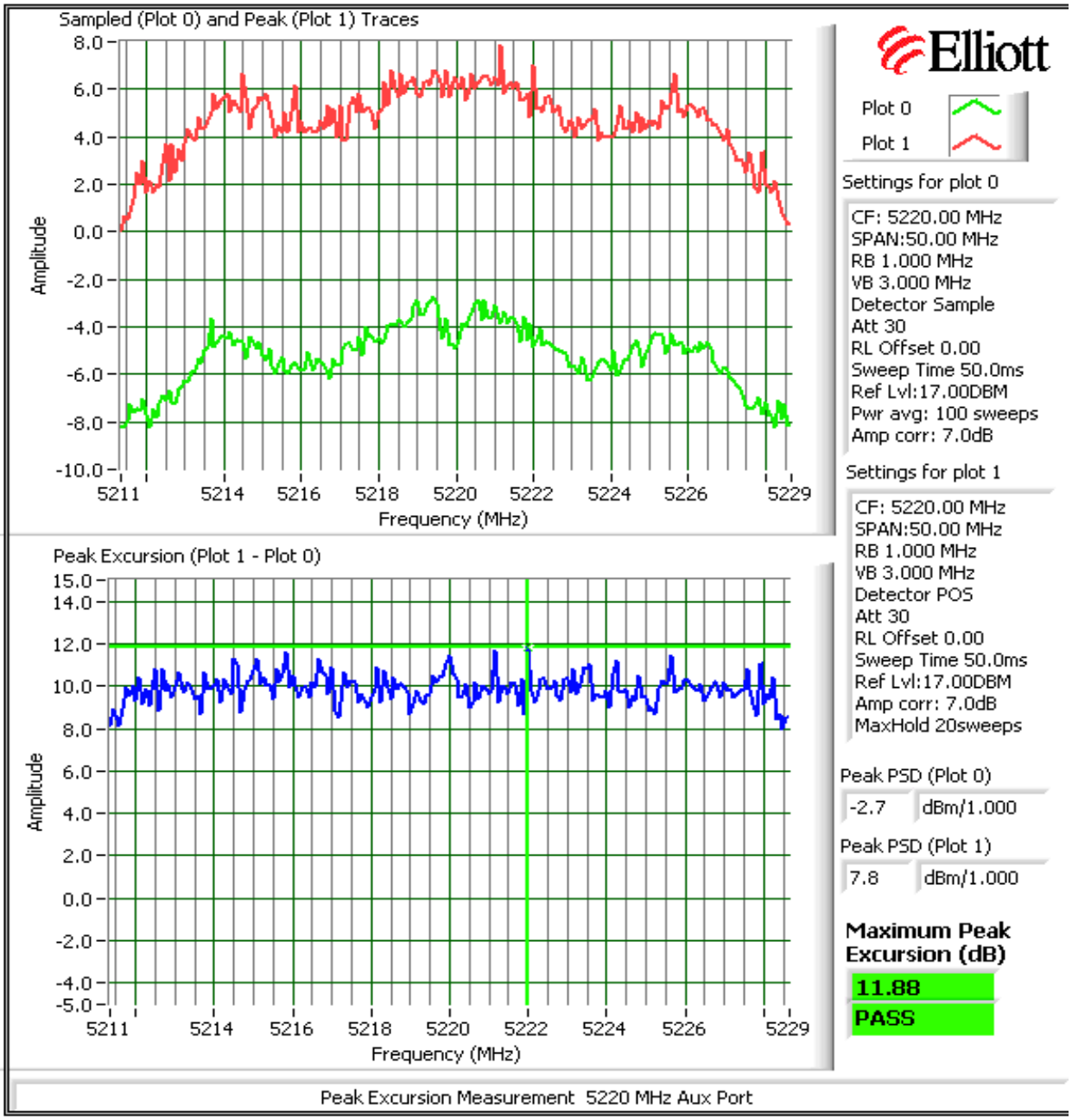
Client:	Broadcom	Job Number:	J74037
Model:	BCM943224HMS	T-Log Number:	T74077
		Account Manager:	Dean Eriksen
Contact:	Anne Liang		
Standard:	FCC 15.247 & 15.205	Class:	N/A



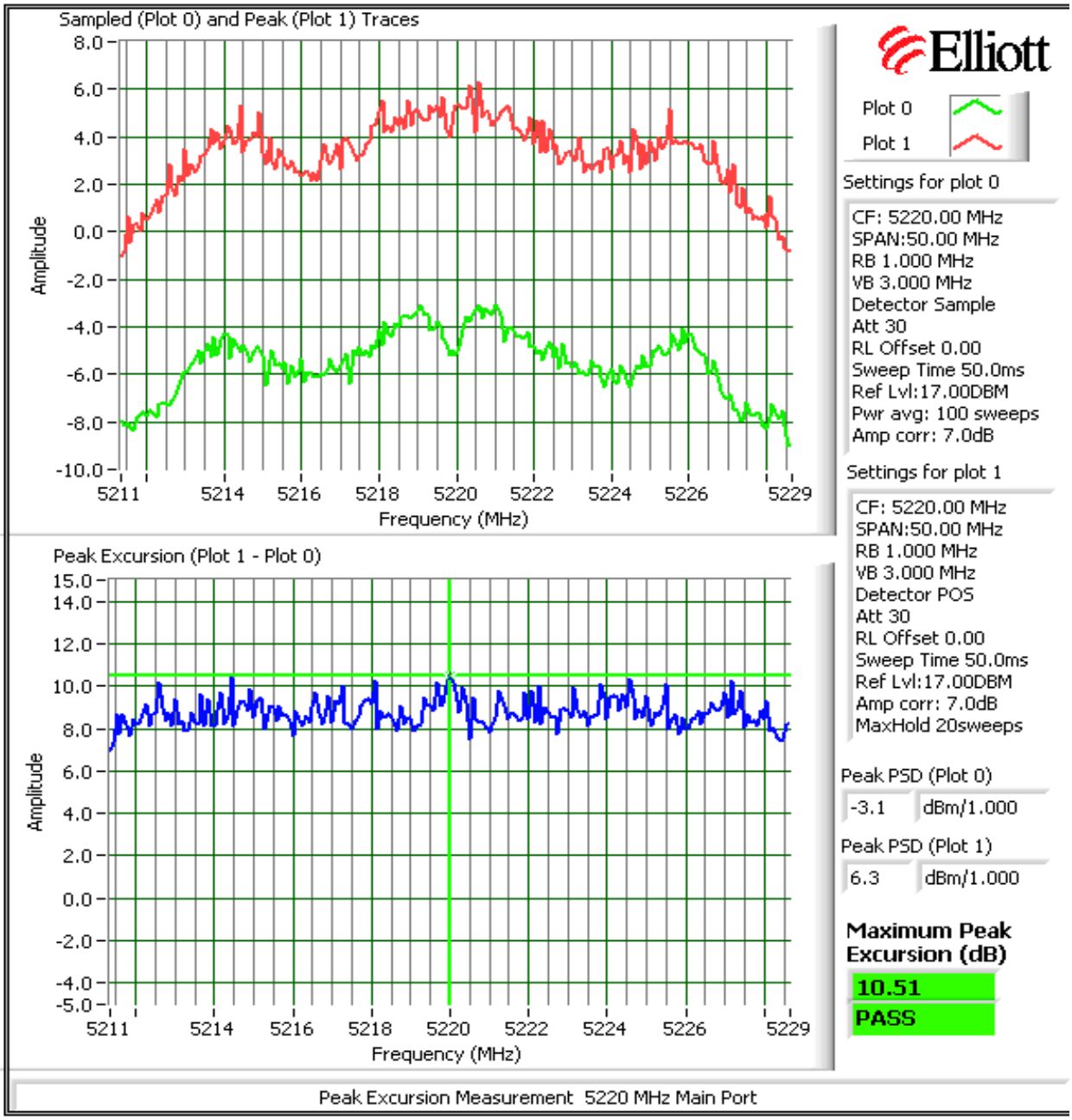
Client:	Broadcom	Job Number:	J74037
Model:	BCM943224HMS	T-Log Number:	T74077
		Account Manager:	Dean Eriksen
Contact:	Anne Liang		
Standard:	FCC 15.247 & 15.205	Class:	N/A



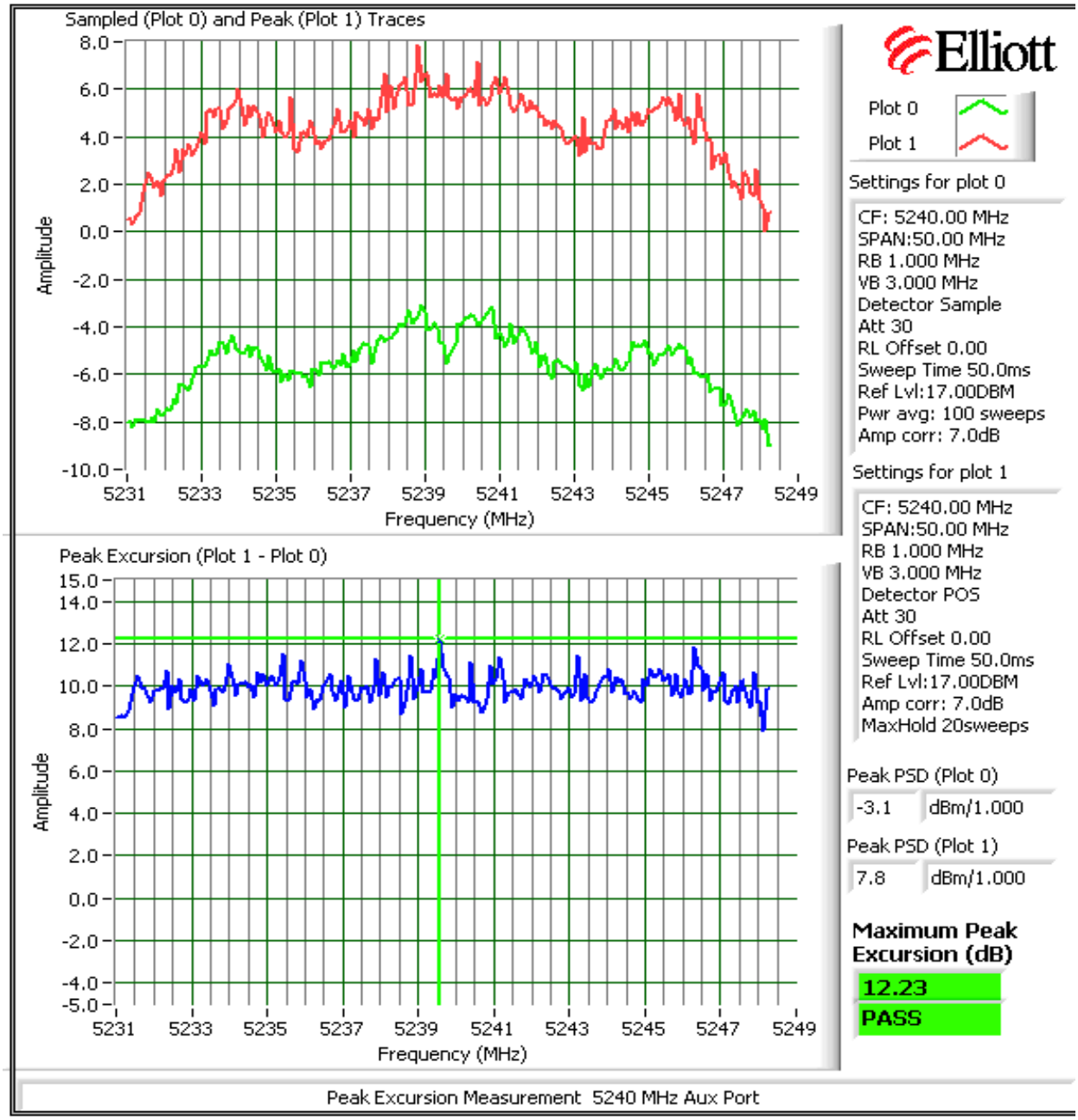
Client:	Broadcom	Job Number:	J74037
Model:	BCM943224HMS	T-Log Number:	T74077
		Account Manager:	Dean Eriksen
Contact:	Anne Liang		
Standard:	FCC 15.247 & 15.205	Class:	N/A



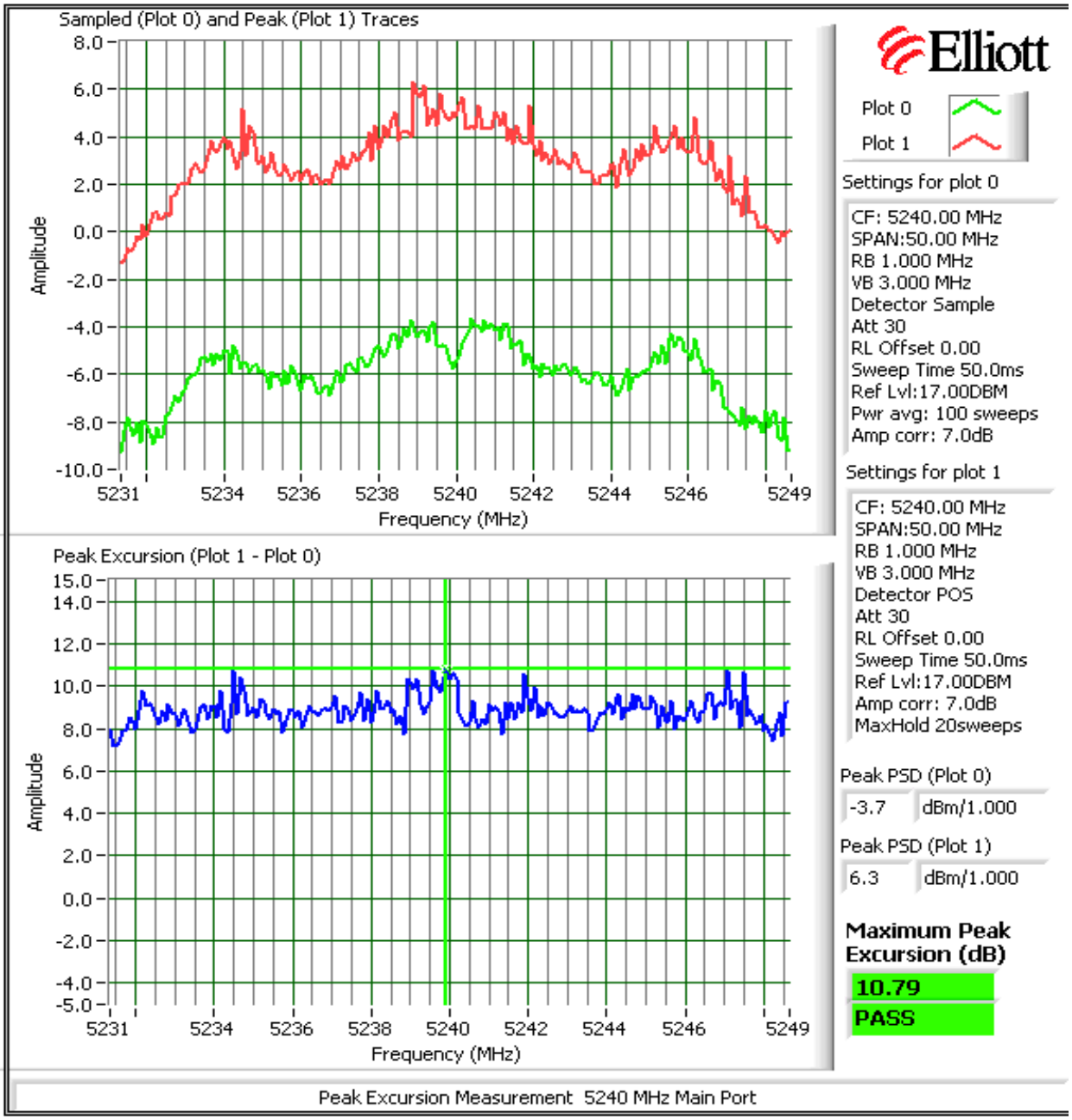
Client:	Broadcom	Job Number:	J74037
Model:	BCM943224HMS	T-Log Number:	T74077
		Account Manager:	Dean Eriksen
Contact:	Anne Liang		
Standard:	FCC 15.247 & 15.205	Class:	N/A



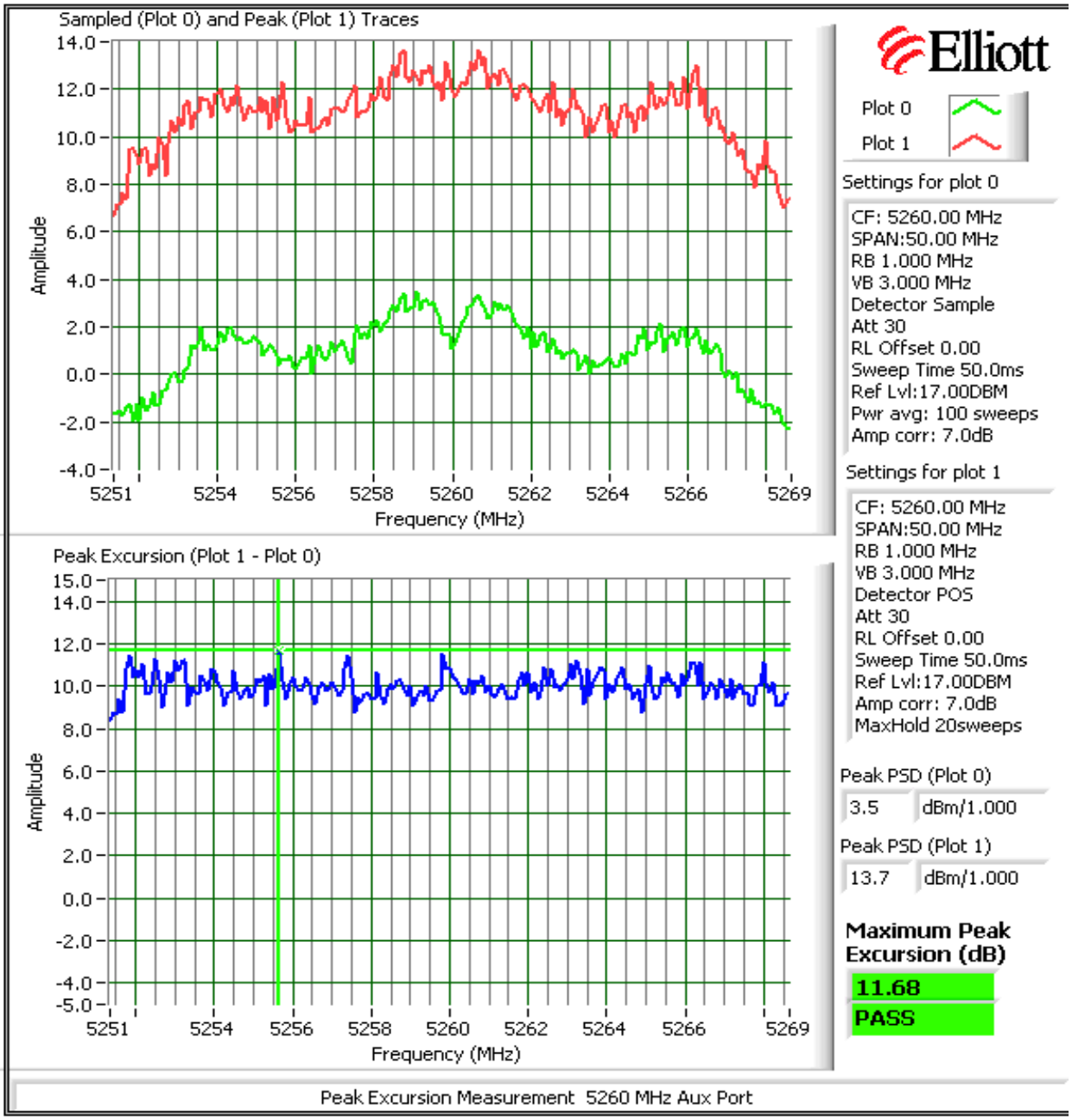
Client:	Broadcom	Job Number:	J74037
Model:	BCM943224HMS	T-Log Number:	T74077
		Account Manager:	Dean Eriksen
Contact:	Anne Liang		
Standard:	FCC 15.247 & 15.205	Class:	N/A



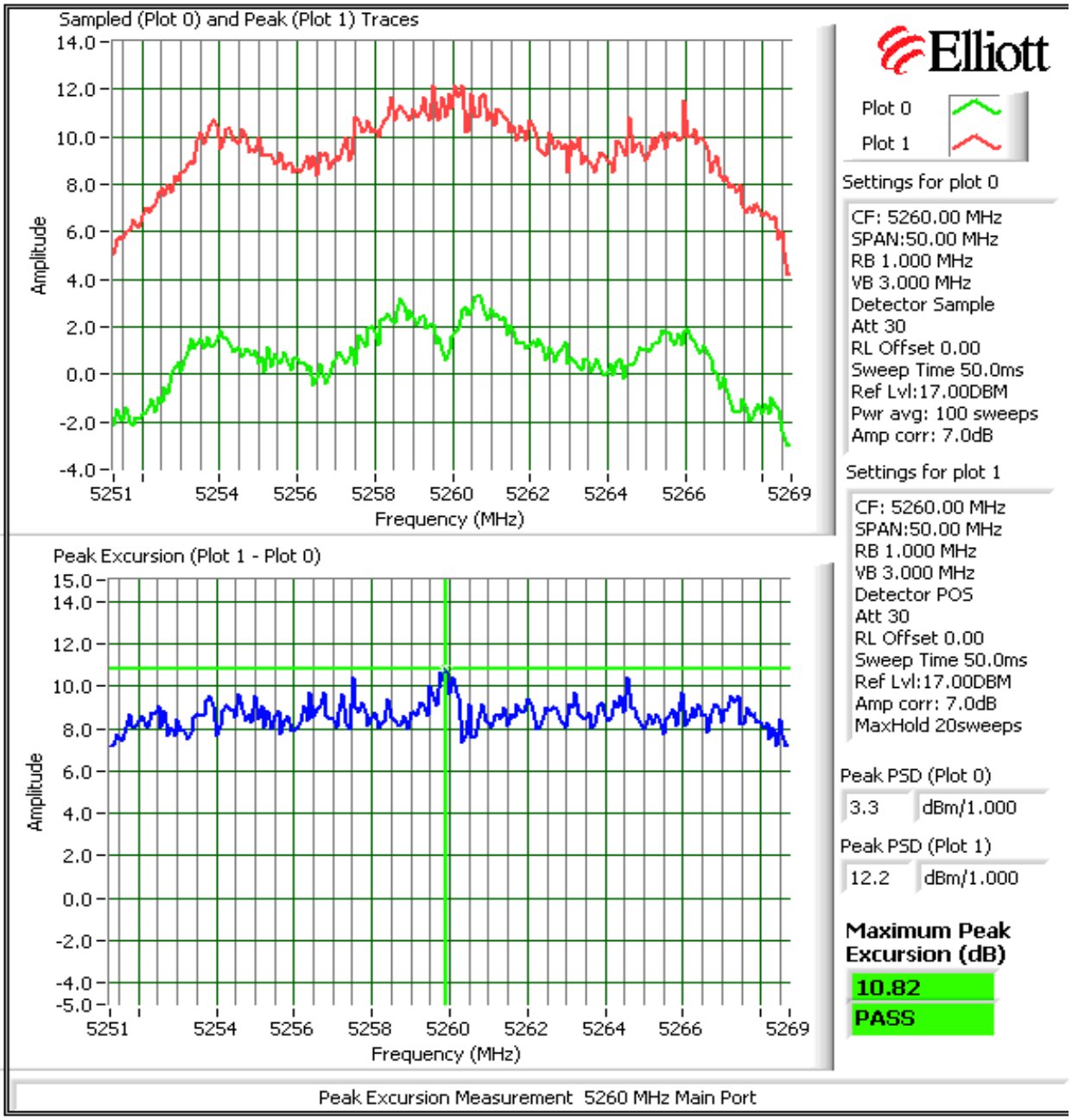
Client:	Broadcom	Job Number:	J74037
Model:	BCM943224HMS	T-Log Number:	T74077
		Account Manager:	Dean Eriksen
Contact:	Anne Liang		
Standard:	FCC 15.247 & 15.205	Class:	N/A



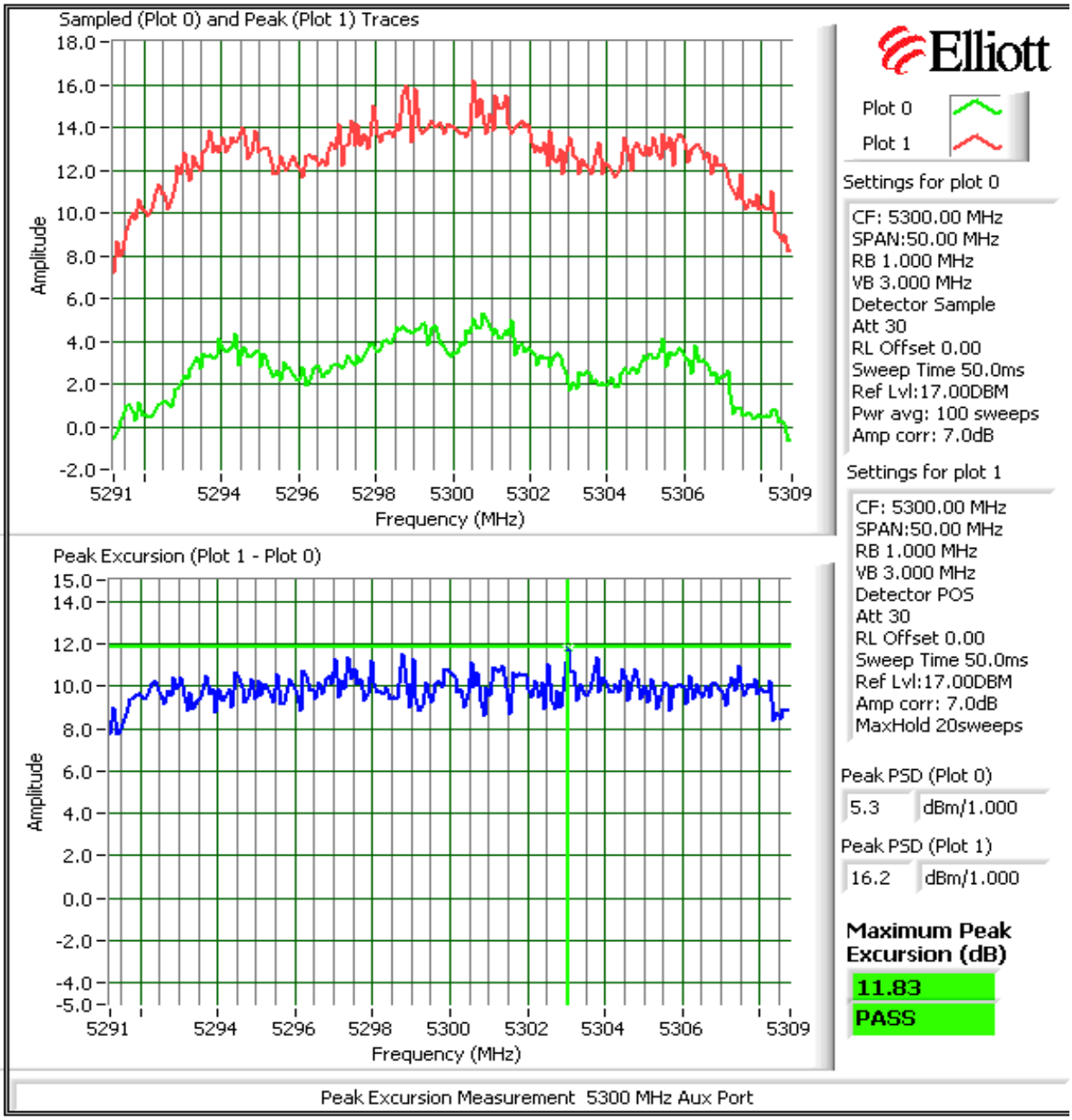
Client:	Broadcom	Job Number:	J74037
Model:	BCM943224HMS	T-Log Number:	T74077
		Account Manager:	Dean Eriksen
Contact:	Anne Liang		
Standard:	FCC 15.247 & 15.205	Class:	N/A



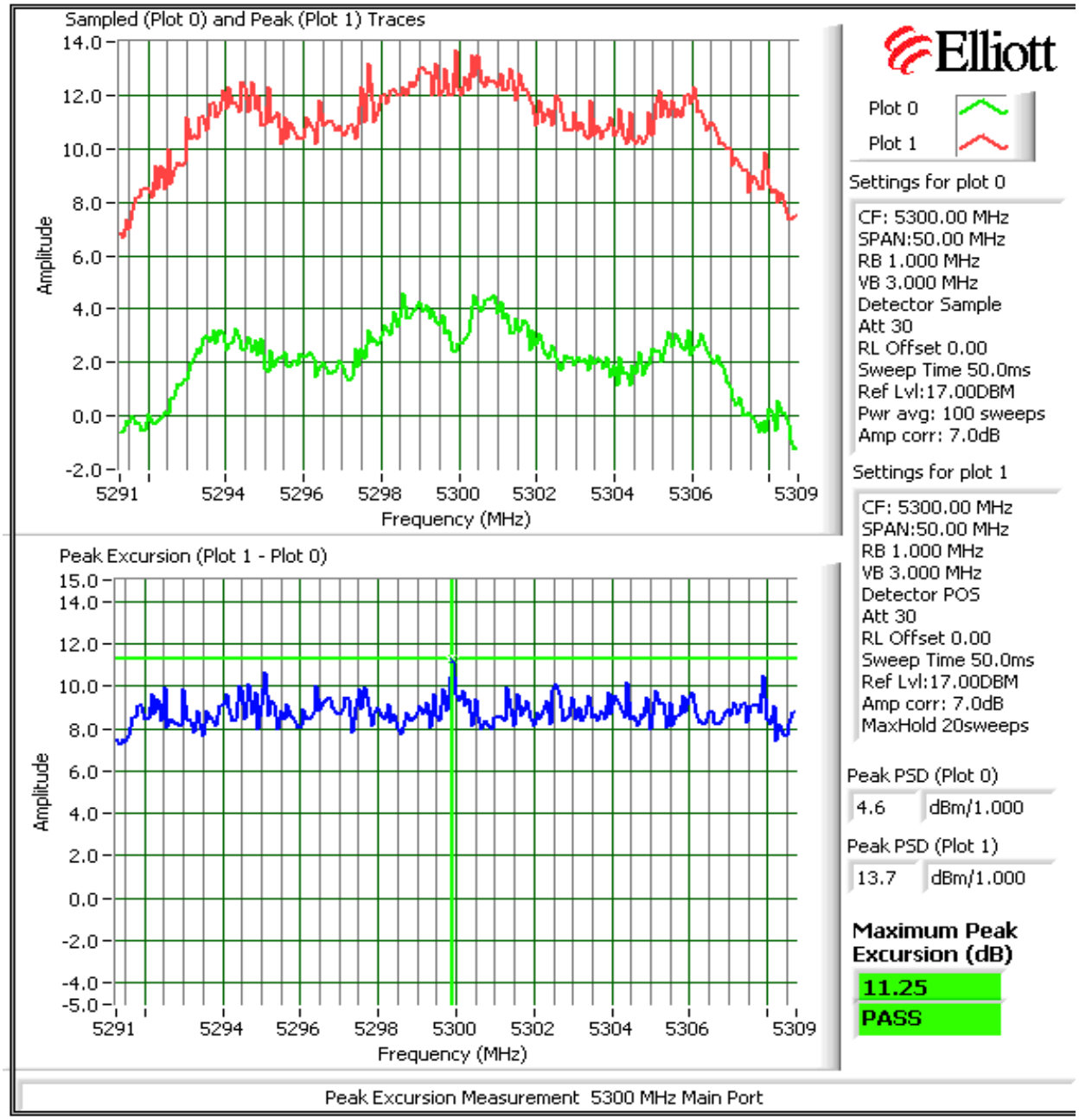
Client:	Broadcom	Job Number:	J74037
Model:	BCM943224HMS	T-Log Number:	T74077
		Account Manager:	Dean Eriksen
Contact:	Anne Liang		
Standard:	FCC 15.247 & 15.205	Class:	N/A



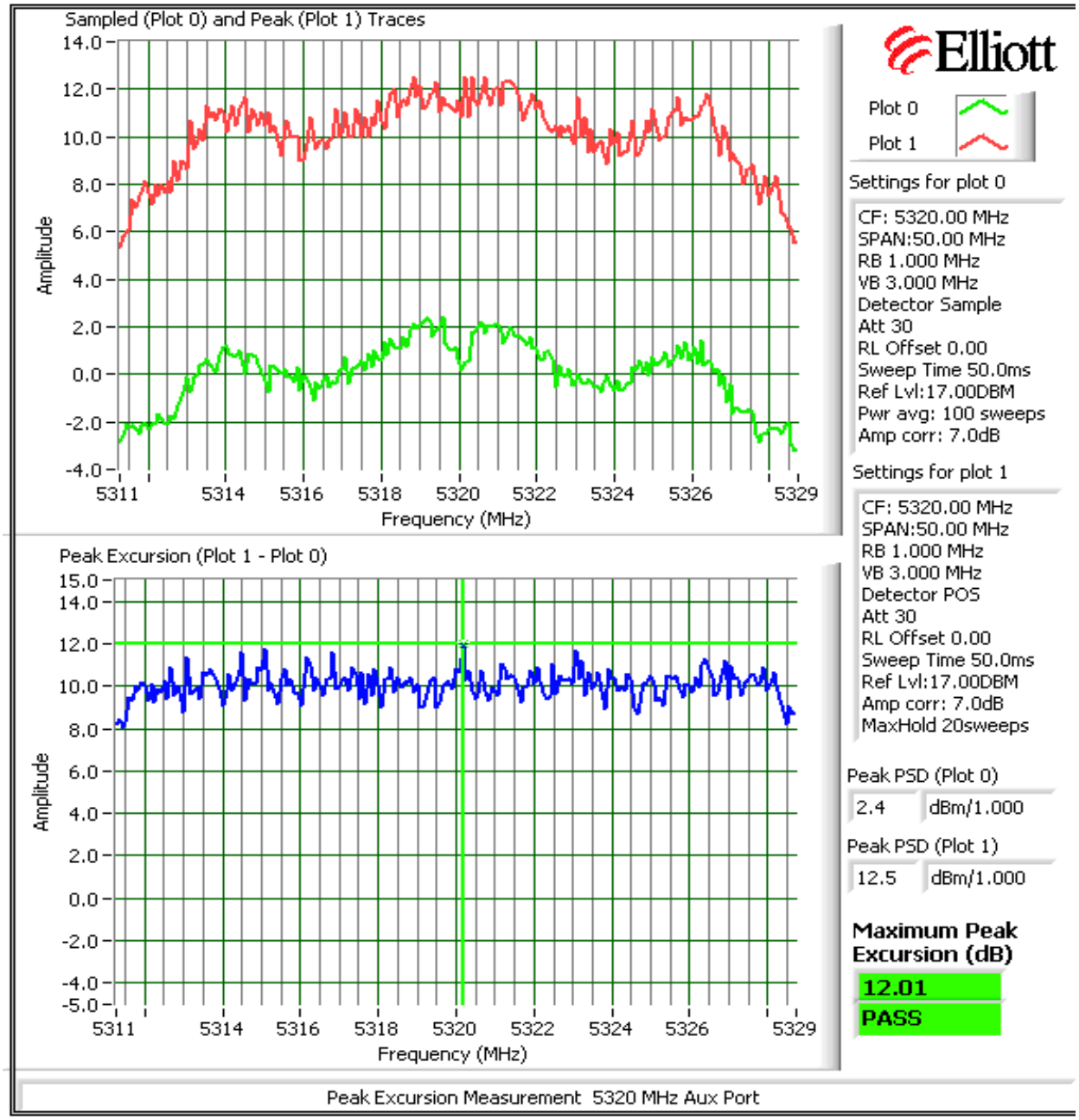
Client:	Broadcom	Job Number:	J74037
Model:	BCM943224HMS	T-Log Number:	T74077
		Account Manager:	Dean Eriksen
Contact:	Anne Liang		
Standard:	FCC 15.247 & 15.205	Class:	N/A



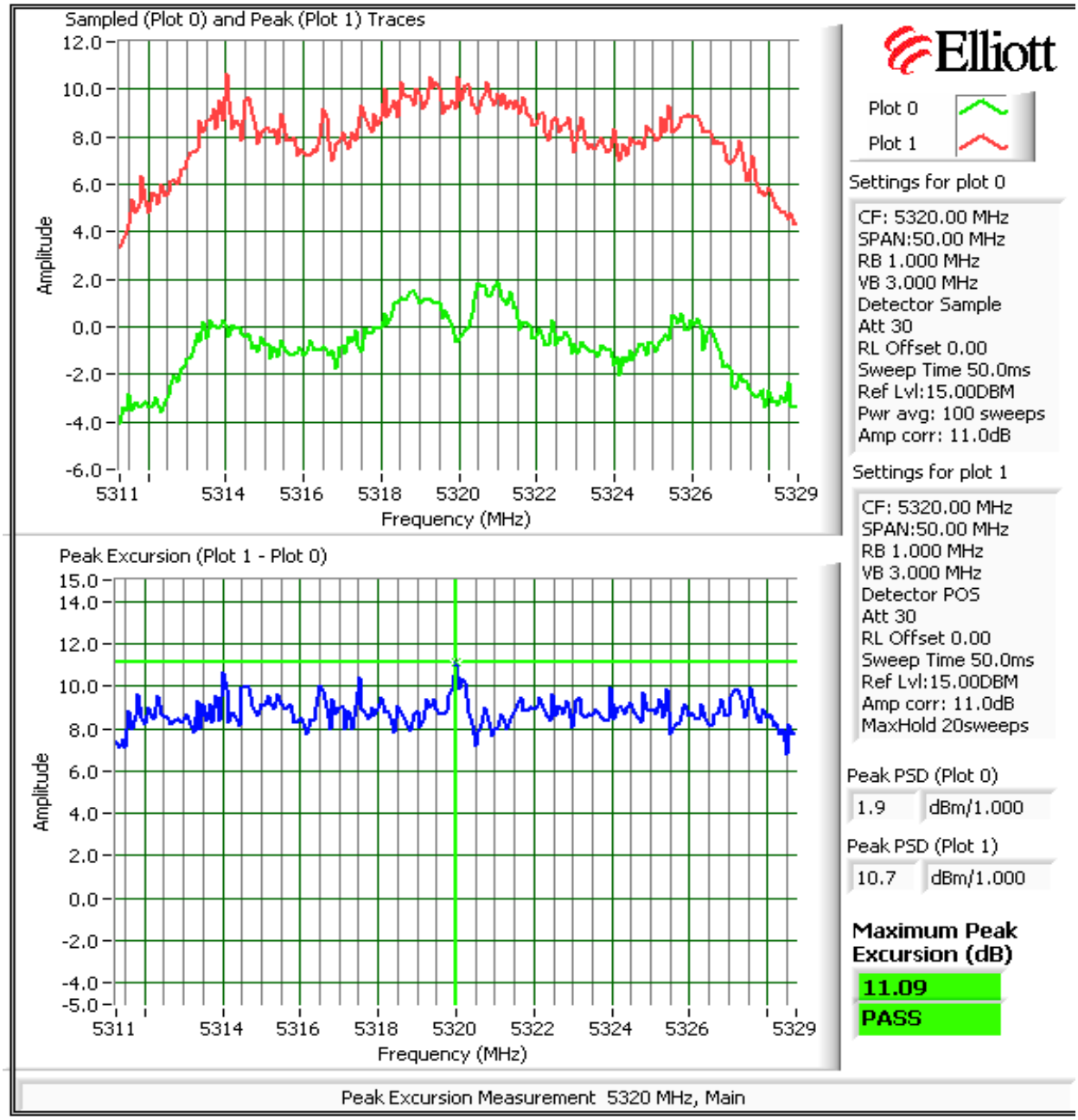
Client:	Broadcom	Job Number:	J74037
Model:	BCM943224HMS	T-Log Number:	T74077
		Account Manager:	Dean Eriksen
Contact:	Anne Liang		
Standard:	FCC 15.247 & 15.205	Class:	N/A



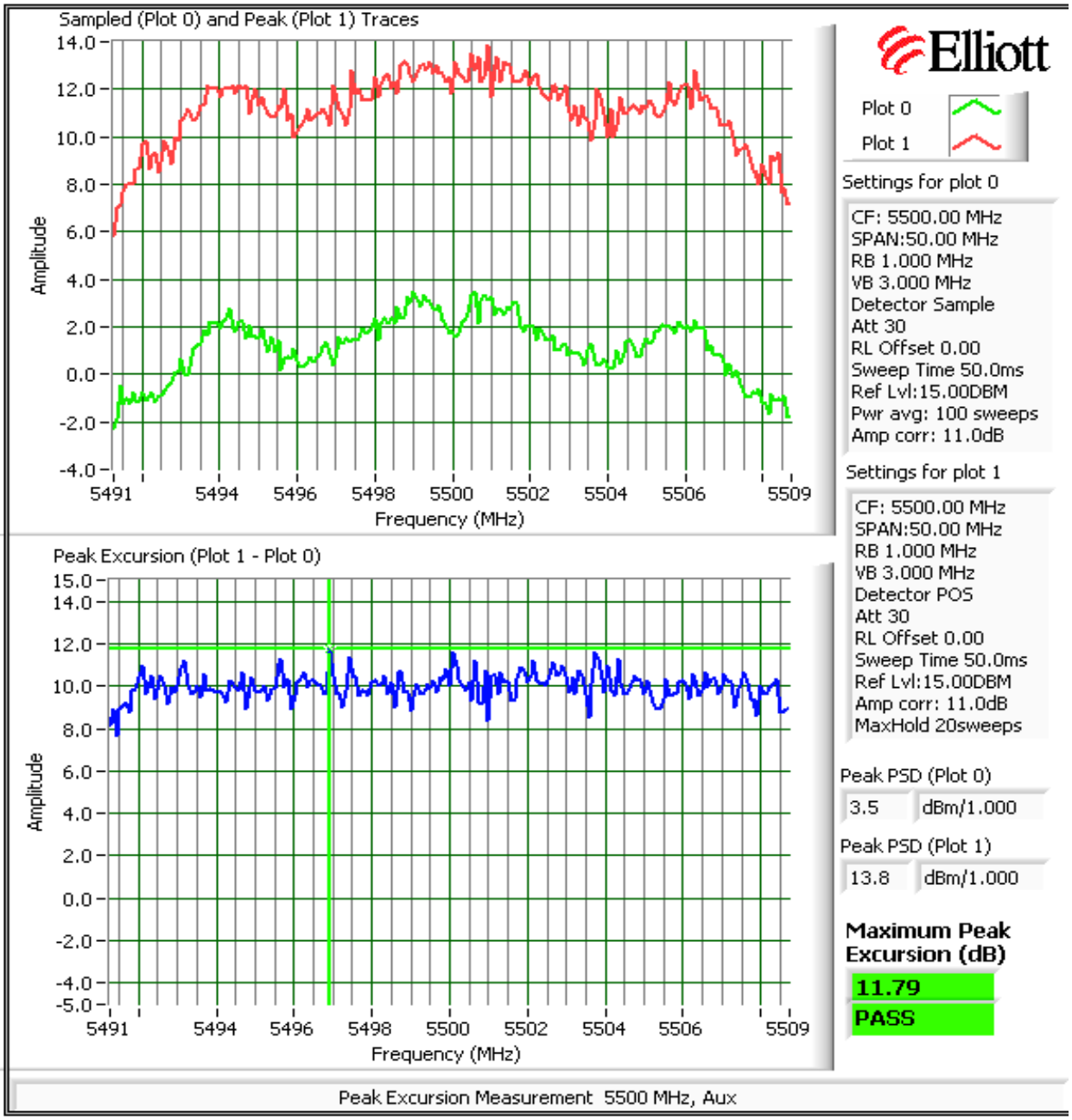
Client:	Broadcom	Job Number:	J74037
Model:	BCM943224HMS	T-Log Number:	T74077
		Account Manager:	Dean Eriksen
Contact:	Anne Liang		
Standard:	FCC 15.247 & 15.205	Class:	N/A



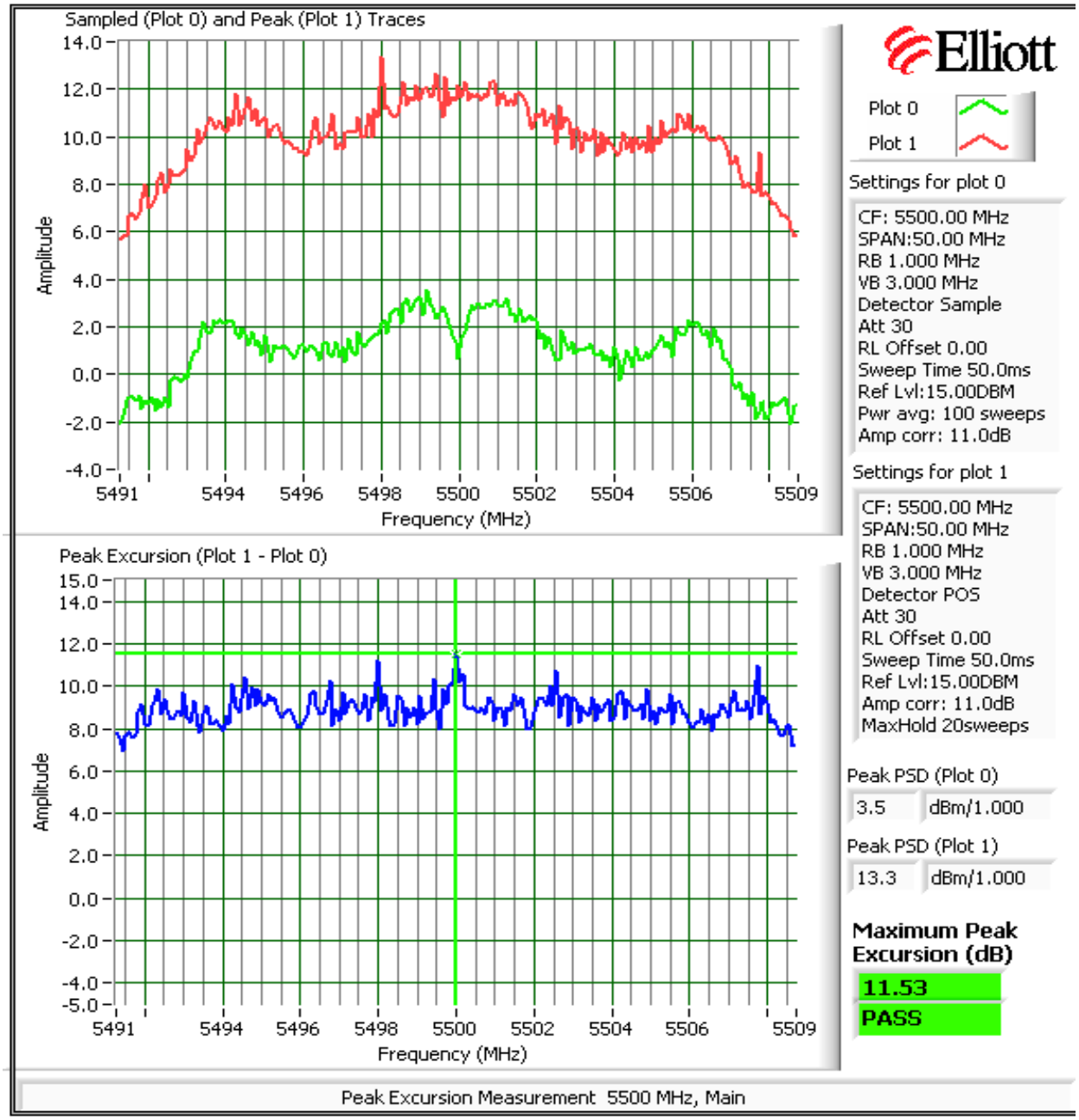
Client:	Broadcom	Job Number:	J74037
Model:	BCM943224HMS	T-Log Number:	T74077
		Account Manager:	Dean Eriksen
Contact:	Anne Liang		
Standard:	FCC 15.247 & 15.205	Class:	N/A



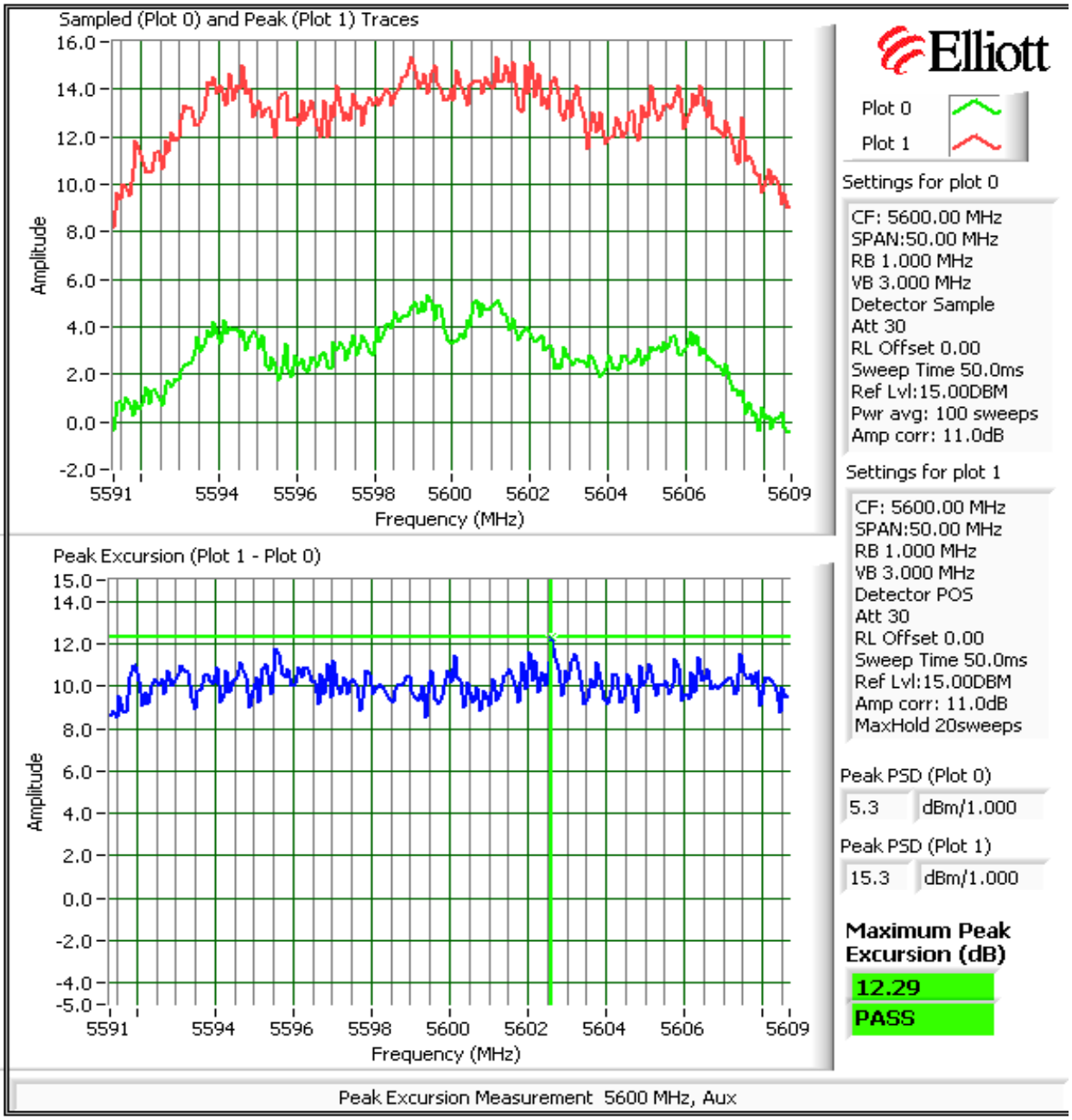
Client:	Broadcom	Job Number:	J74037
Model:	BCM943224HMS	T-Log Number:	T74077
		Account Manager:	Dean Eriksen
Contact:	Anne Liang		
Standard:	FCC 15.247 & 15.205	Class:	N/A



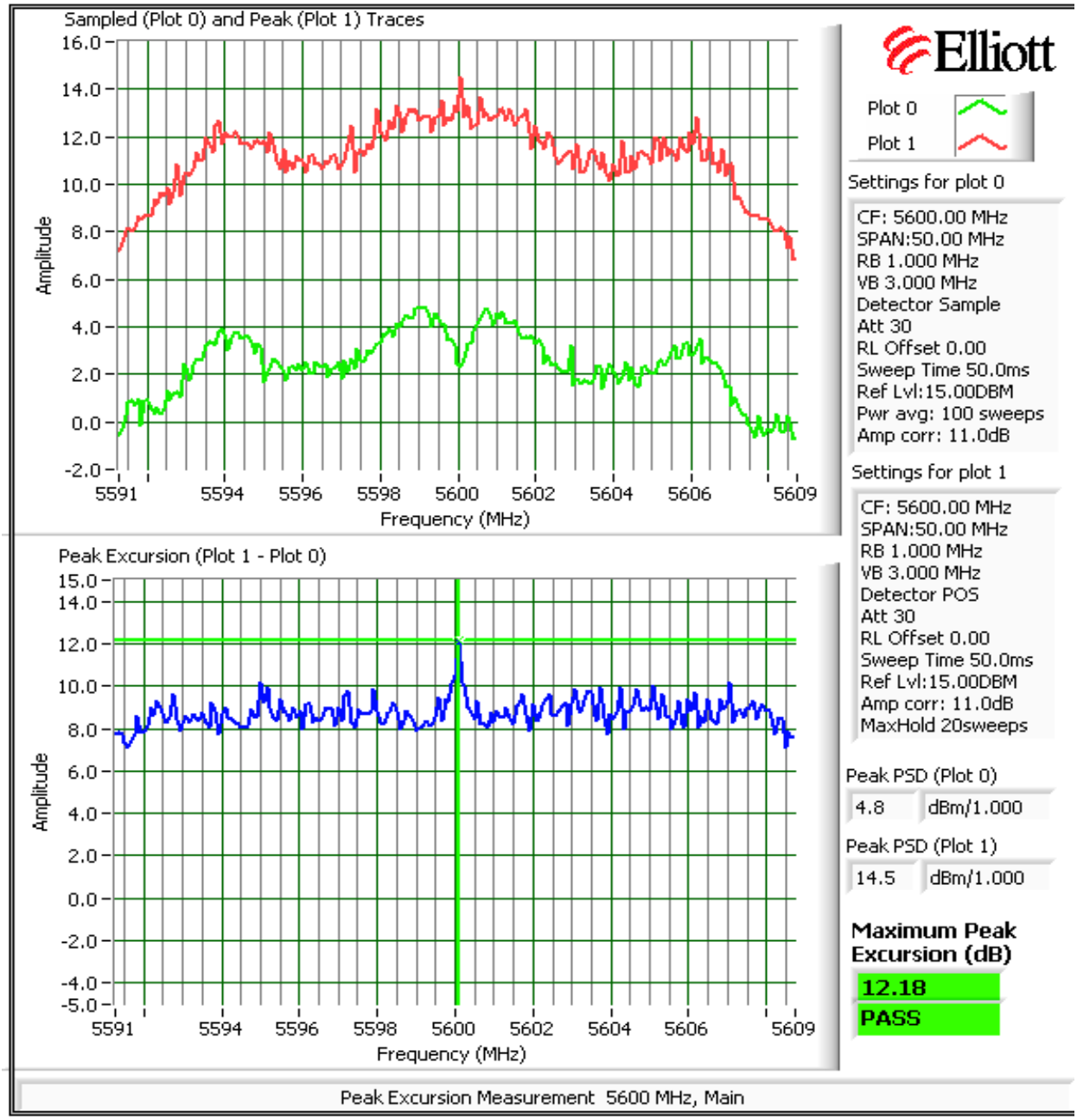
Client:	Broadcom	Job Number:	J74037
Model:	BCM943224HMS	T-Log Number:	T74077
		Account Manager:	Dean Eriksen
Contact:	Anne Liang		
Standard:	FCC 15.247 & 15.205	Class:	N/A



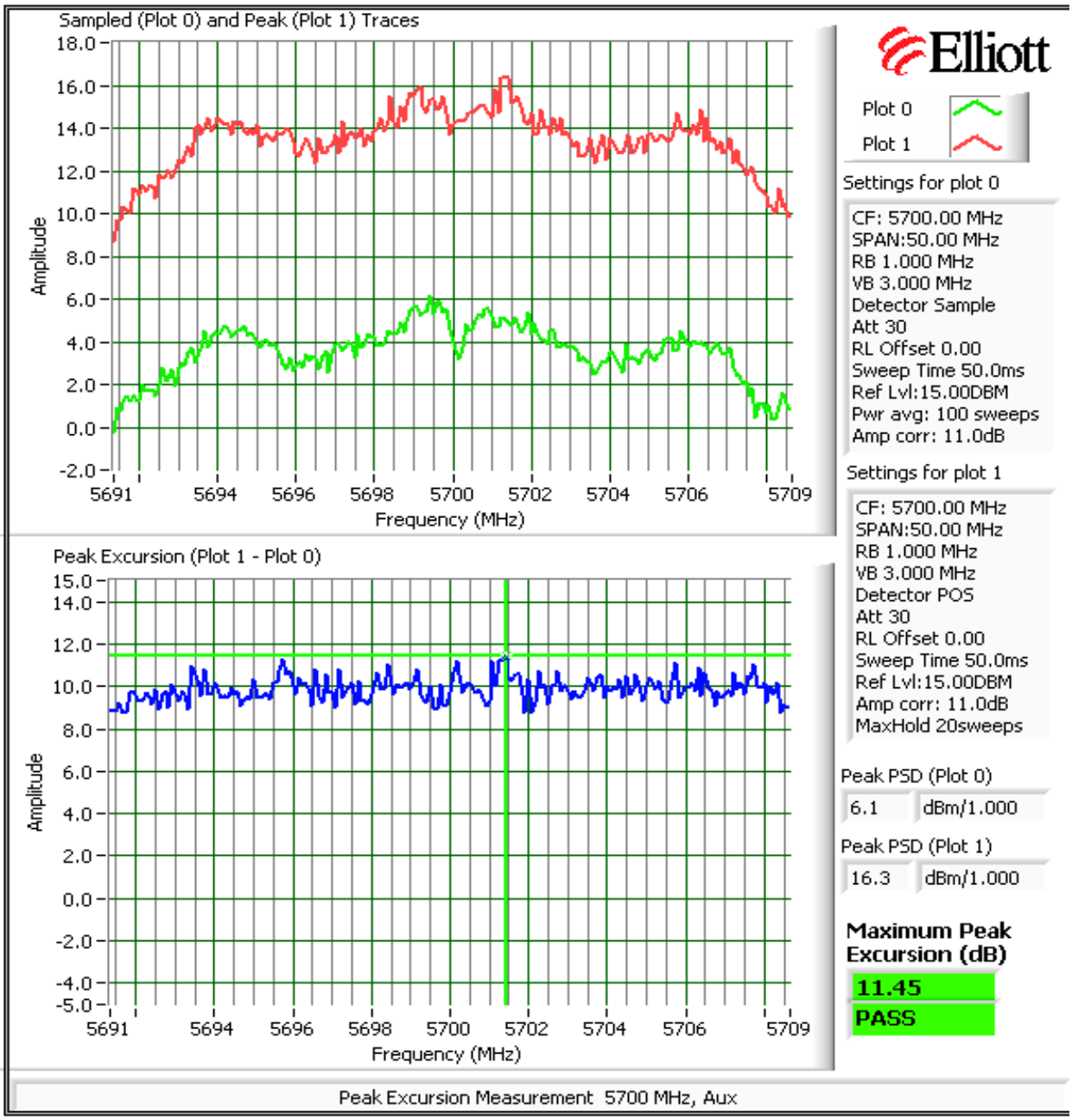
Client:	Broadcom	Job Number:	J74037
Model:	BCM943224HMS	T-Log Number:	T74077
		Account Manager:	Dean Eriksen
Contact:	Anne Liang		
Standard:	FCC 15.247 & 15.205	Class:	N/A



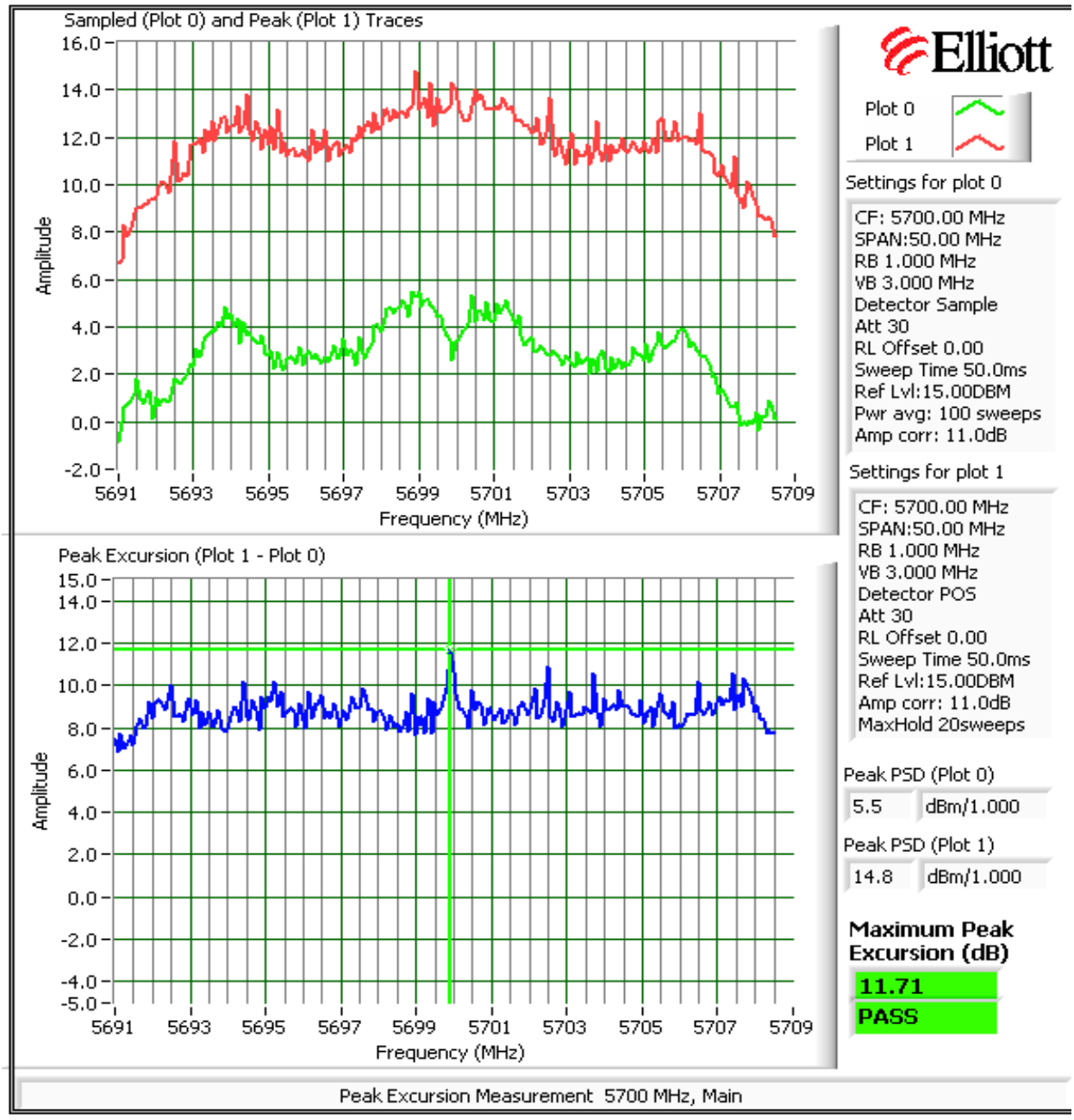
Client:	Broadcom	Job Number:	J74037
Model:	BCM943224HMS	T-Log Number:	T74077
		Account Manager:	Dean Eriksen
Contact:	Anne Liang		
Standard:	FCC 15.247 & 15.205	Class:	N/A



Client:	Broadcom	Job Number:	J74037
Model:	BCM943224HMS	T-Log Number:	T74077
		Account Manager:	Dean Eriksen
Contact:	Anne Liang		
Standard:	FCC 15.247 & 15.205	Class:	N/A



Client:	Broadcom	Job Number:	J74037
Model:	BCM943224HMS	T-Log Number:	T74077
		Account Manager:	Dean Eriksen
Contact:	Anne Liang		
Standard:	FCC 15.247 & 15.205	Class:	N/A



Client:	Broadcom	Job Number:	J74037
Model:	BCM943224HMS	T-Log Number:	T74077
		Account Manager:	Dean Eriksen
Contact:	Anne Liang		
Standard:	FCC 15.247 & 15.205	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 on a single chain.

Maximum Antenna Gain:	5.6	dBi
Spurious Limit:	-27	dBm/MHz eirp
Limit Used On Plots [Note 1]:	-32.6	dBm/MHz

Power Setting Per Chain #1	#2	#3	#4	Frequency (MHz)	Limit	Result
-	-			5180	-27dBm	Pass
-	-			5220	-27dBm	Pass
-	-			5240	-27dBm	Pass
-	-			5260	-27dBm	Pass
-	-			5300	-27dBm	Pass
-	-			5320	-27dBm	Pass
Taiwan Reduced Power						
-	-			5280	-27dBm	Pass
-	-			5300	-27dBm	Pass
-	-			5320	-27dBm	Pass

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.

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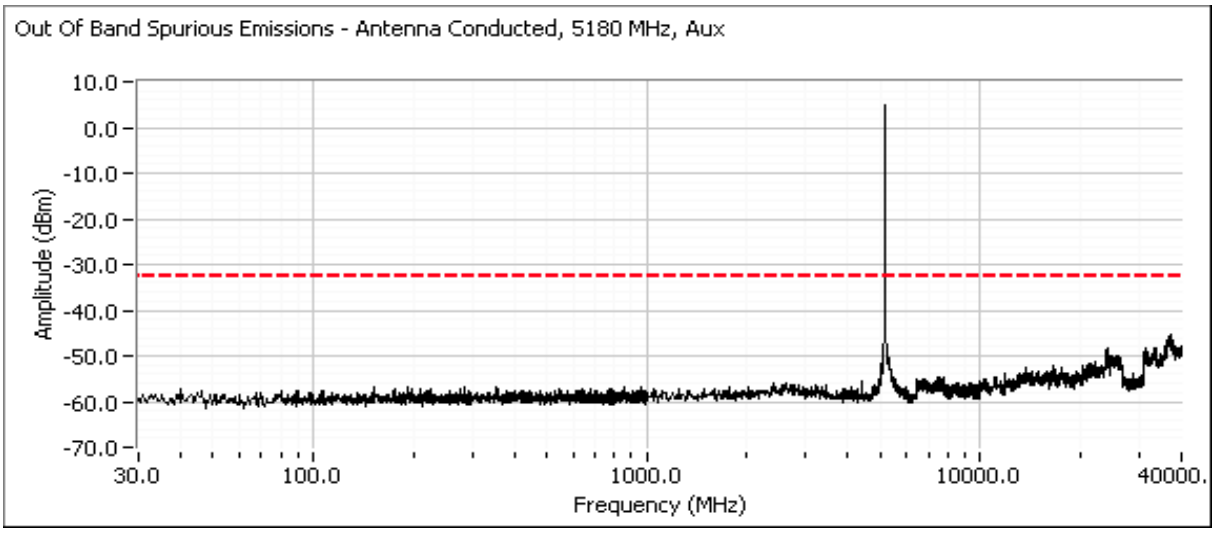
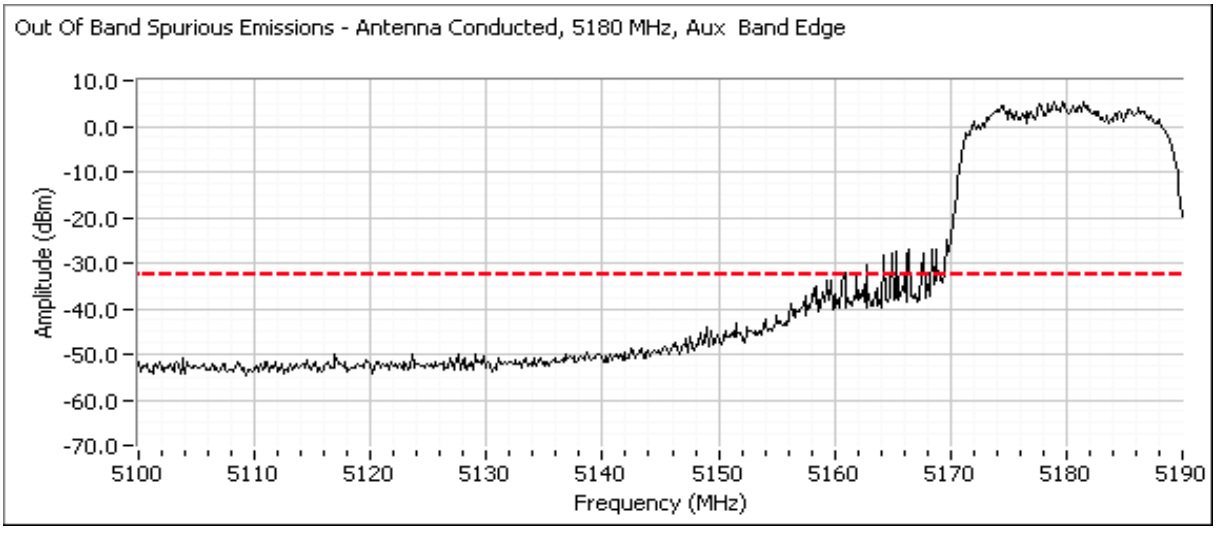
Model:	BCM943224HMS	T-Log Number:	T74077
		Account Manager:	Dean Eriksen
Contact:	Anne Liang		
Standard:	FCC 15.247 & 15.205	Class:	N/A

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





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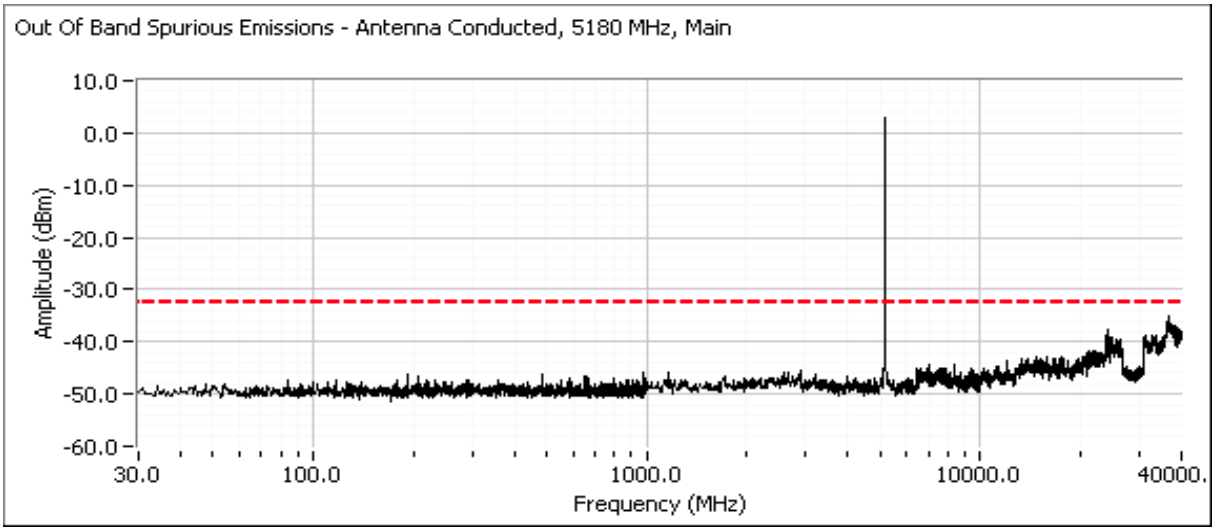

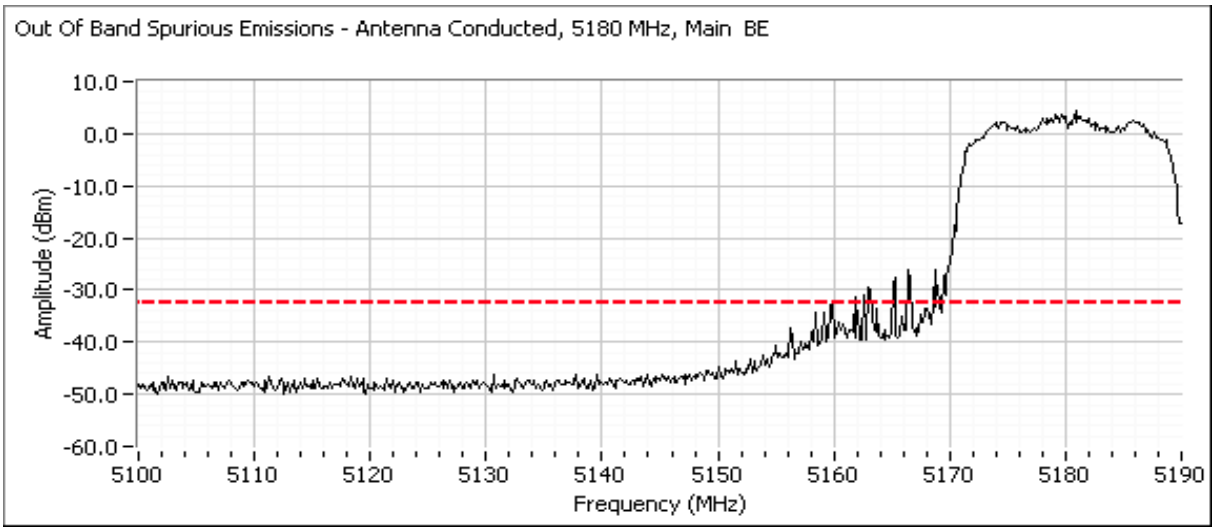

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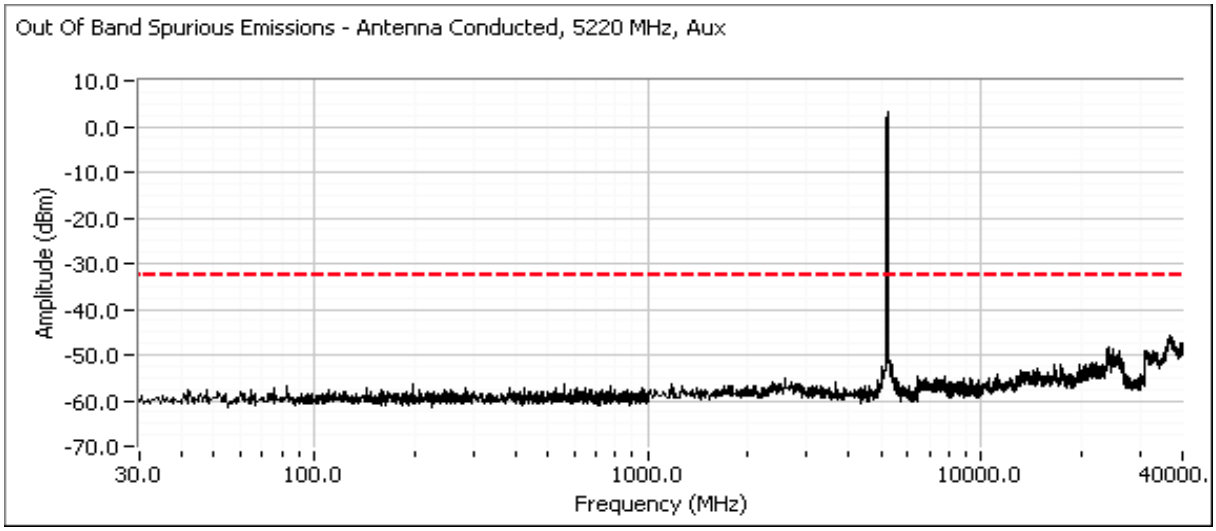

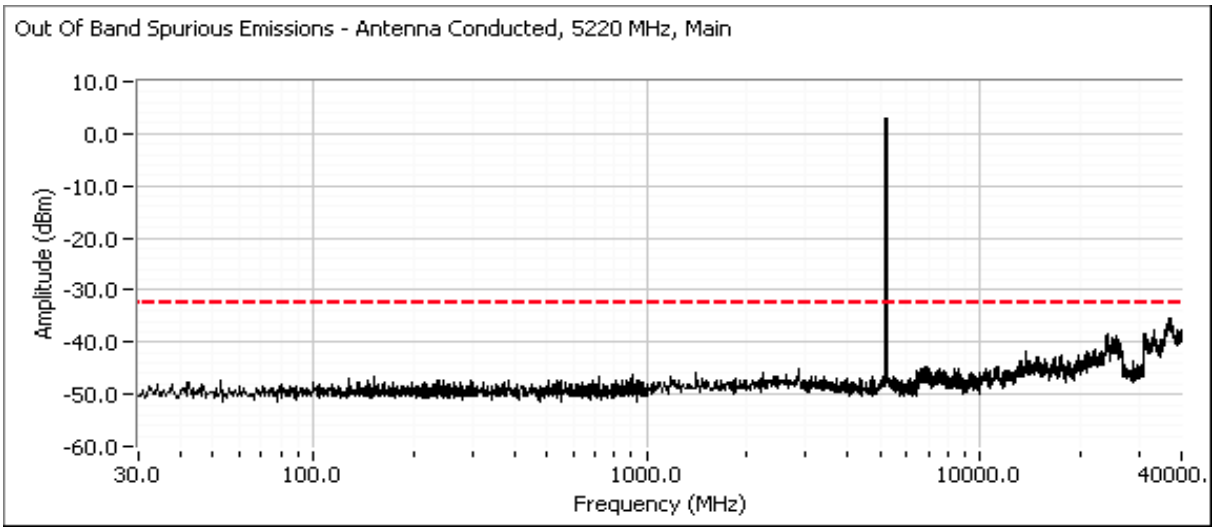

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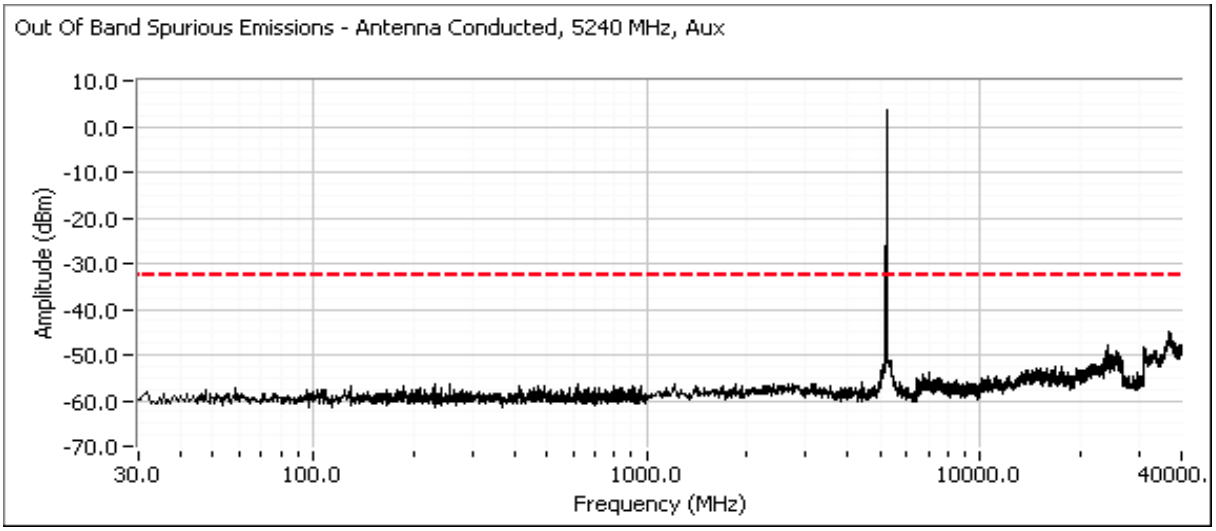

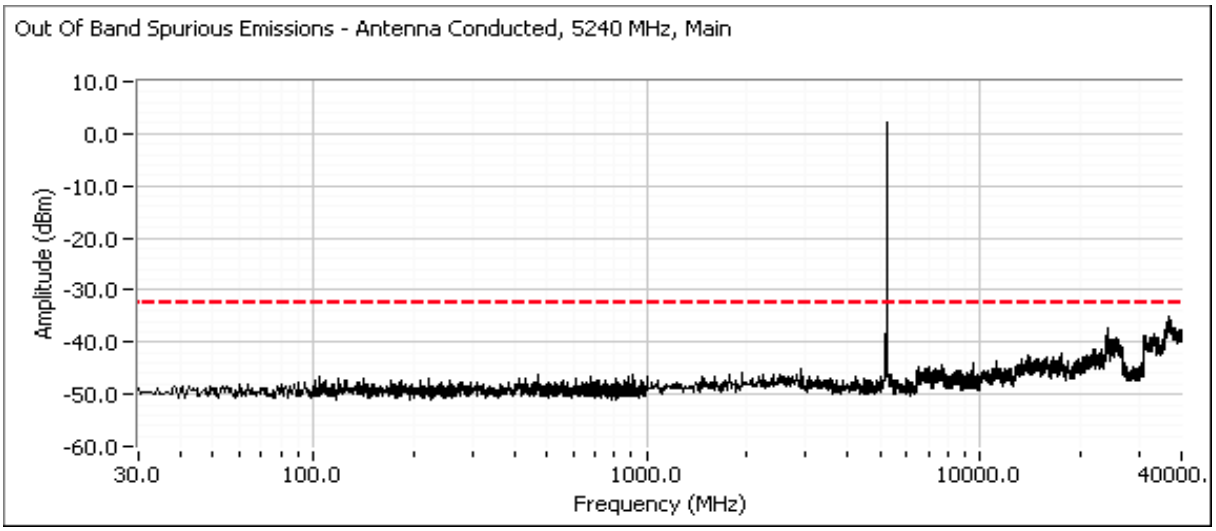

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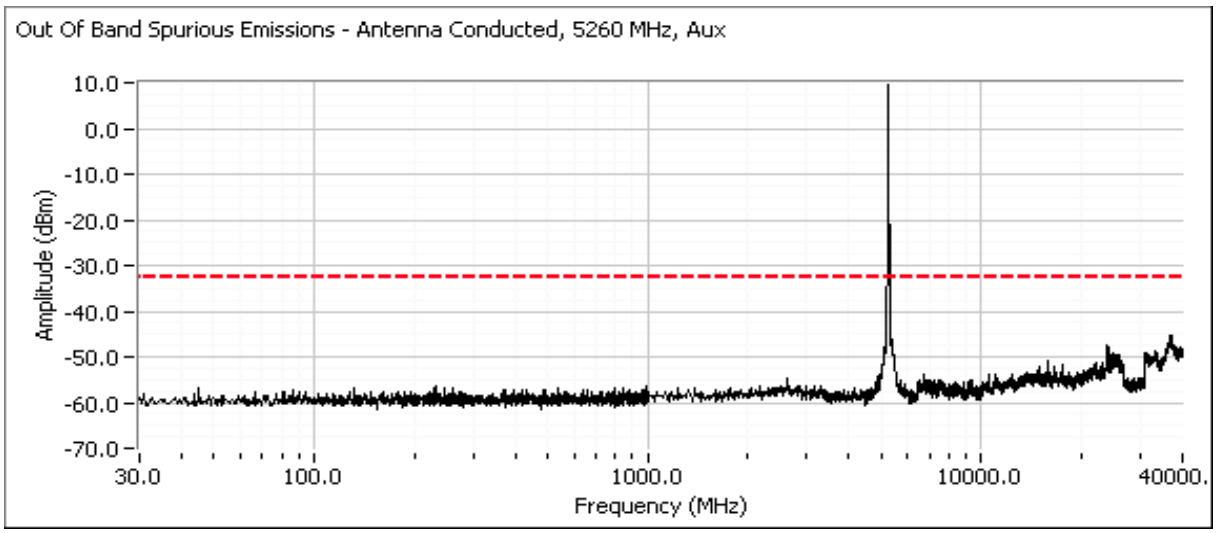

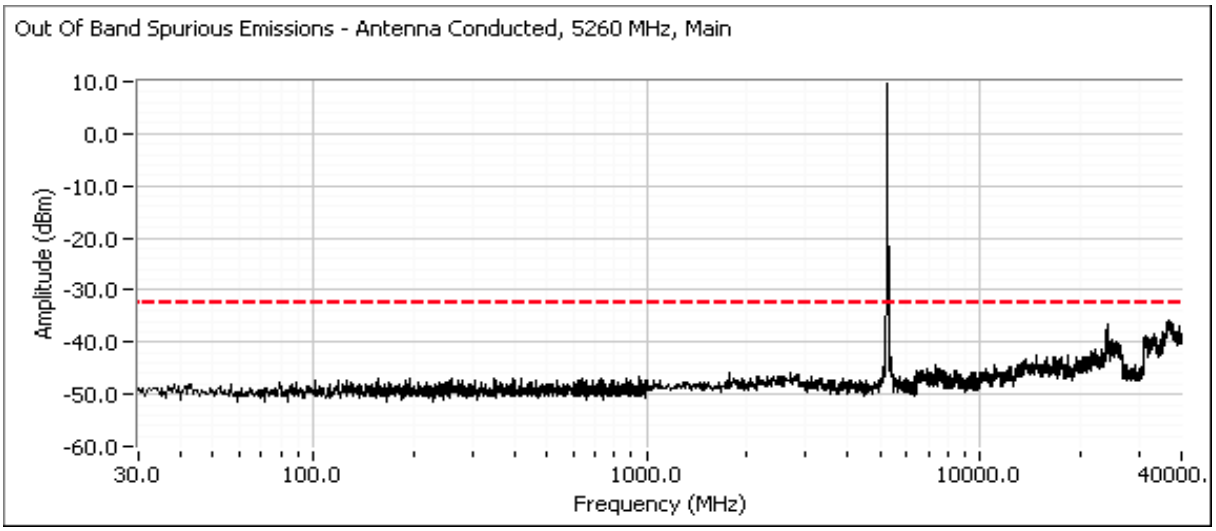

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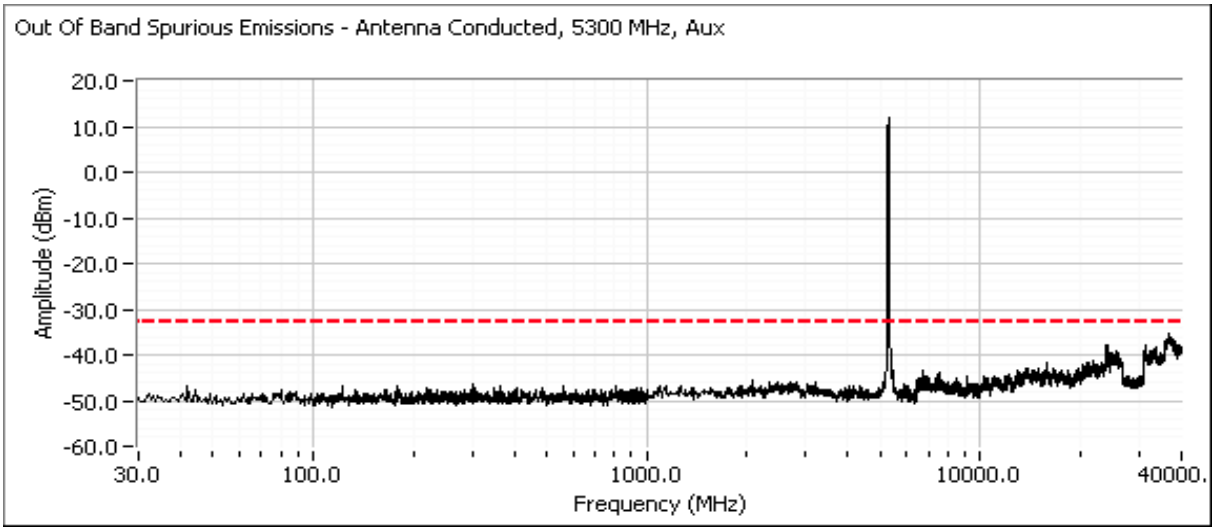
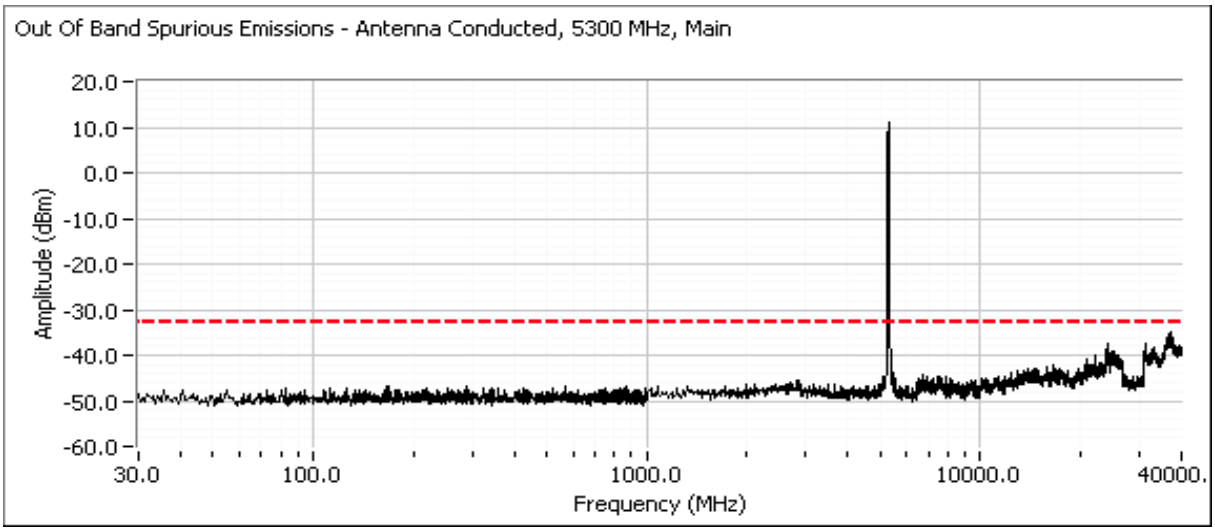
Contact:	Anne Liang		
Standard:	FCC 15.247 & 15.205	Class:	N/A





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		Account Manager:	Dean Eriksen
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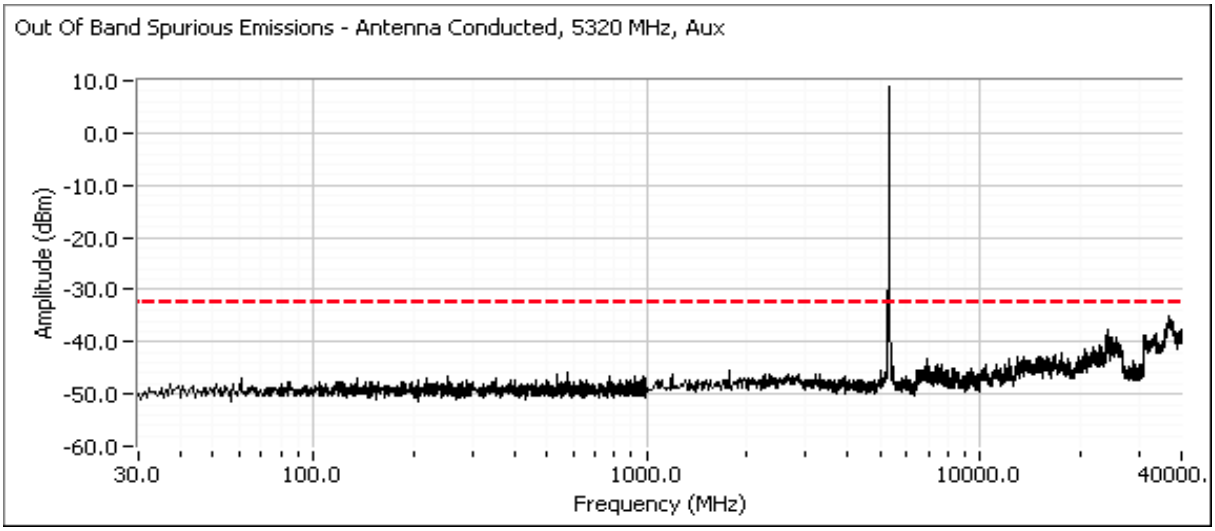
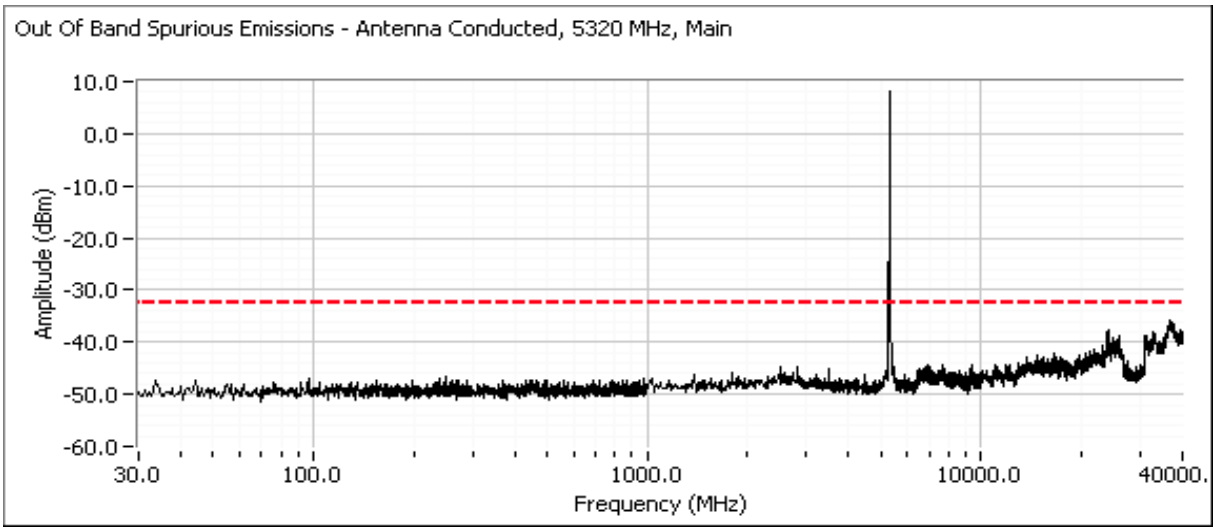
Standard:	FCC 15.247 & 15.205	Class:	N/A





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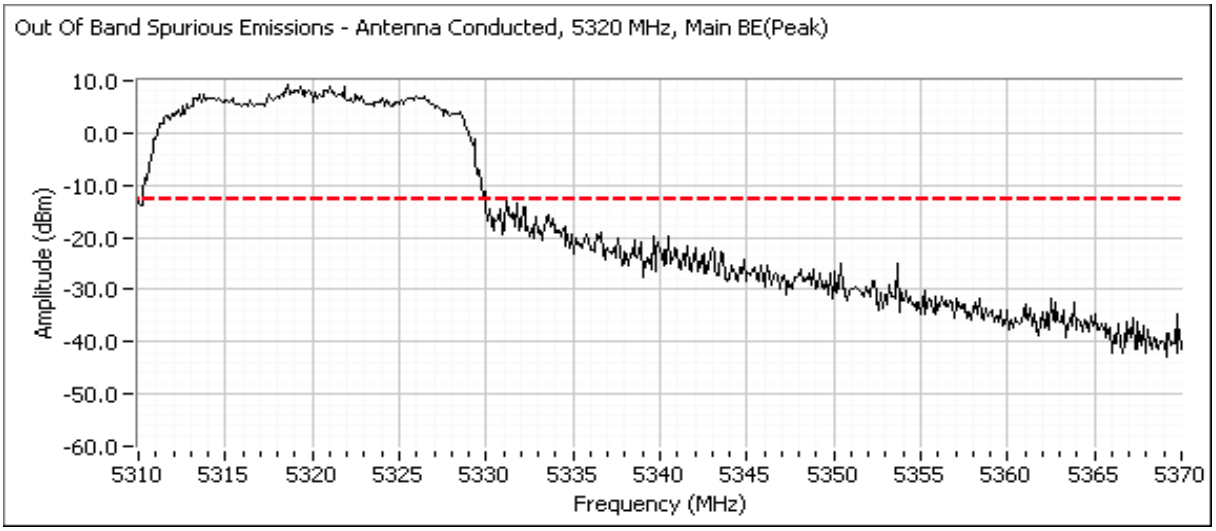

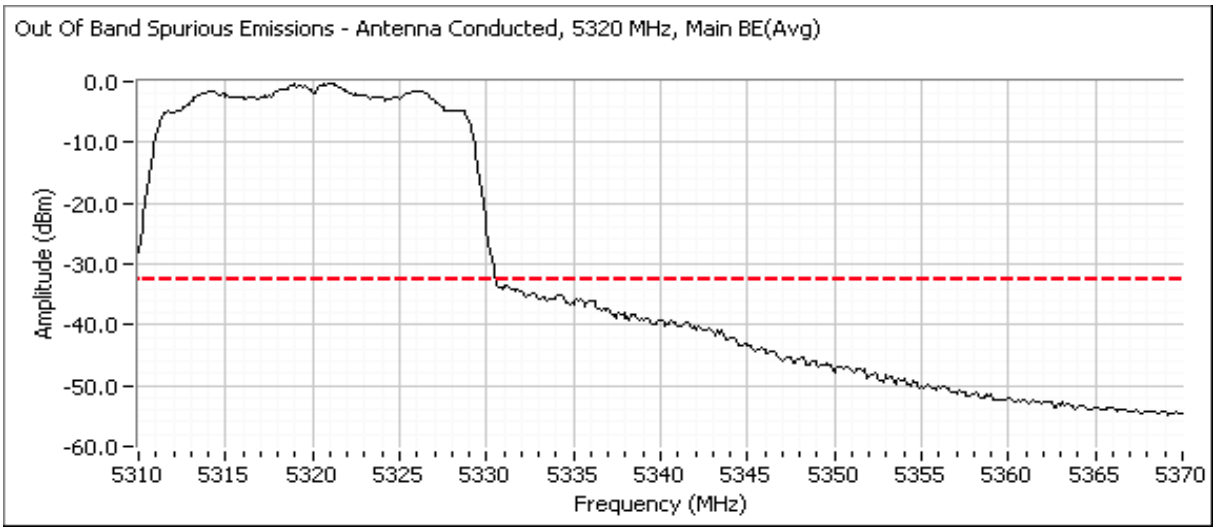

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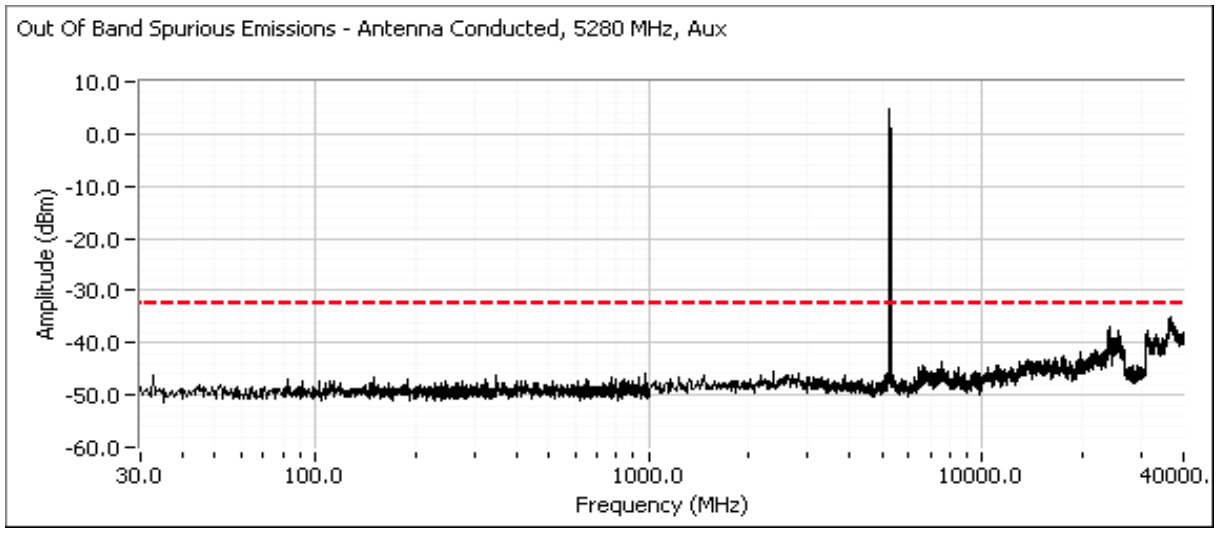
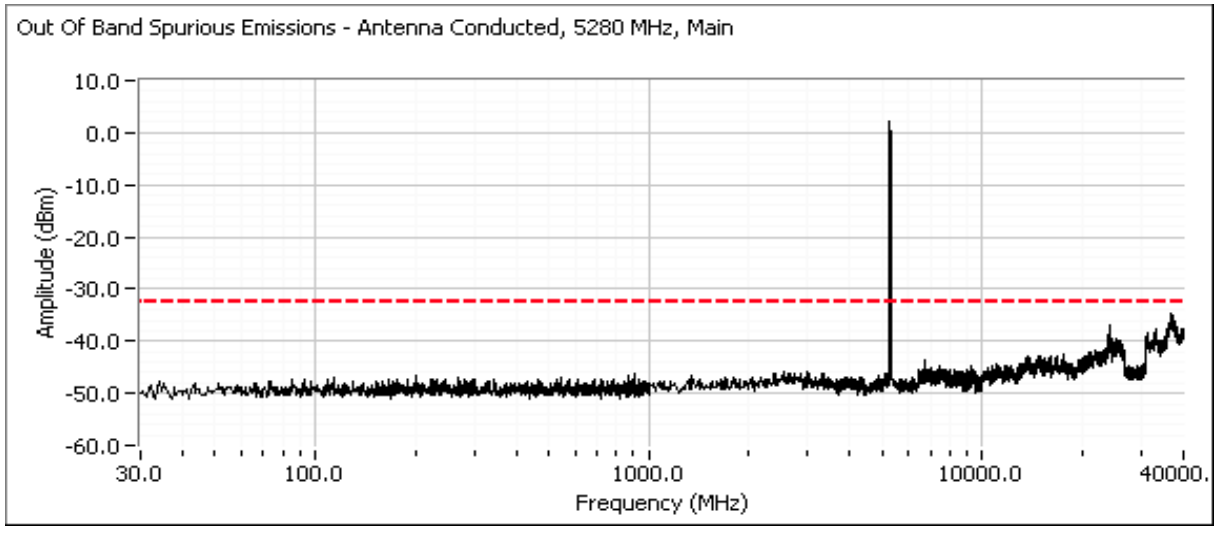
Taiwan Reduced Power





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		Account Manager:	Dean Eriksen
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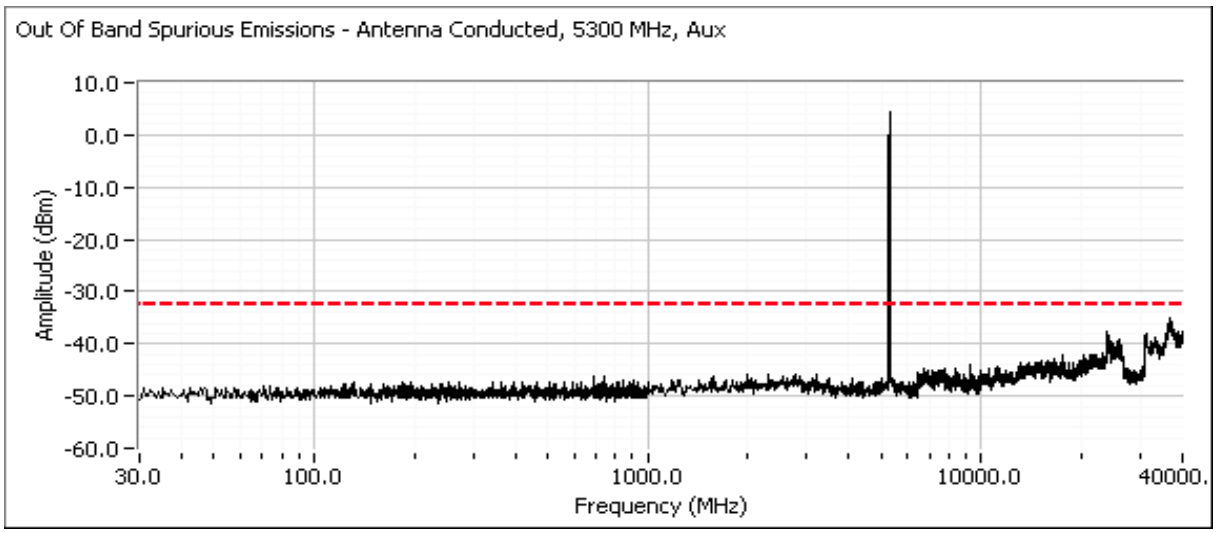
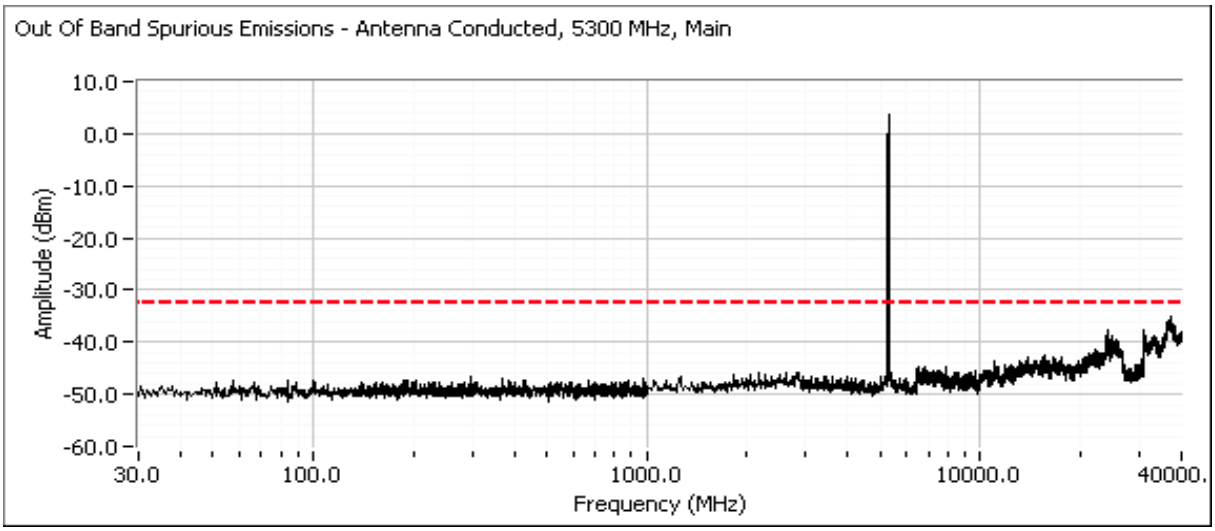
Standard:	FCC 15.247 & 15.205	Class:	N/A





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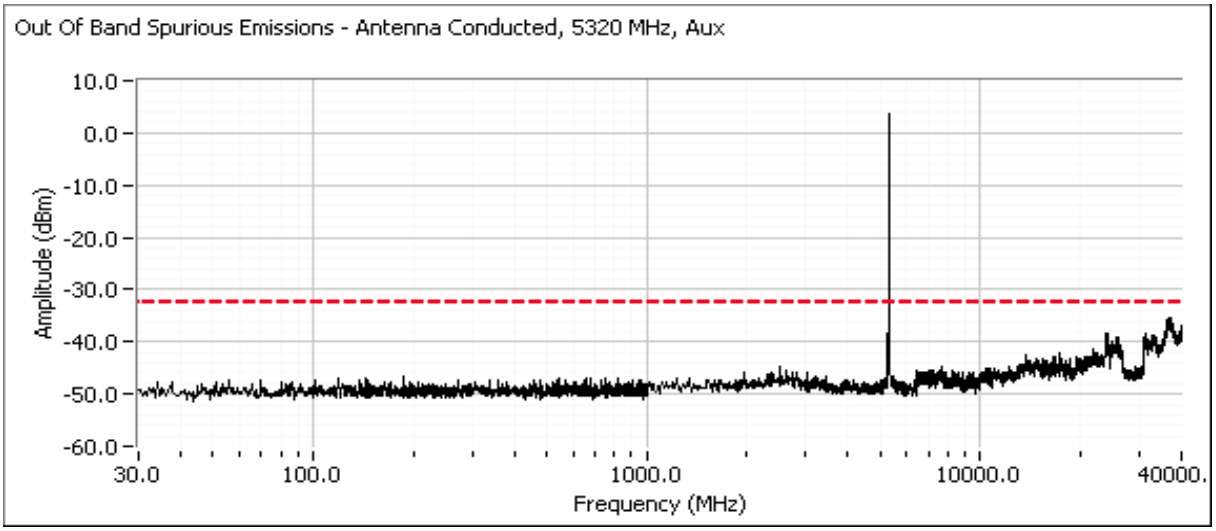
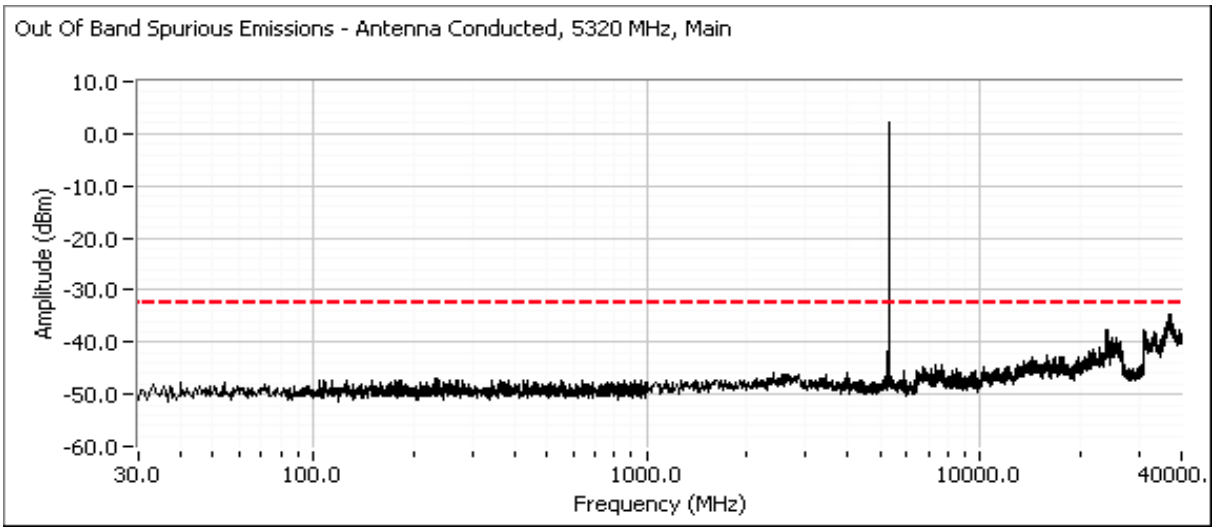
Standard:	FCC 15.247 & 15.205	Class:	N/A





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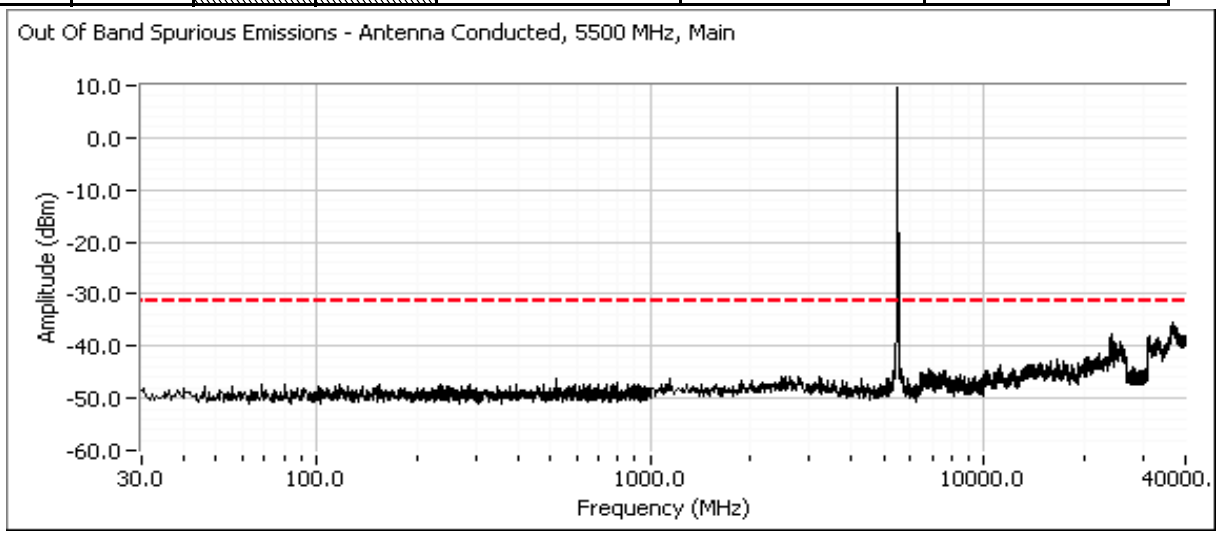
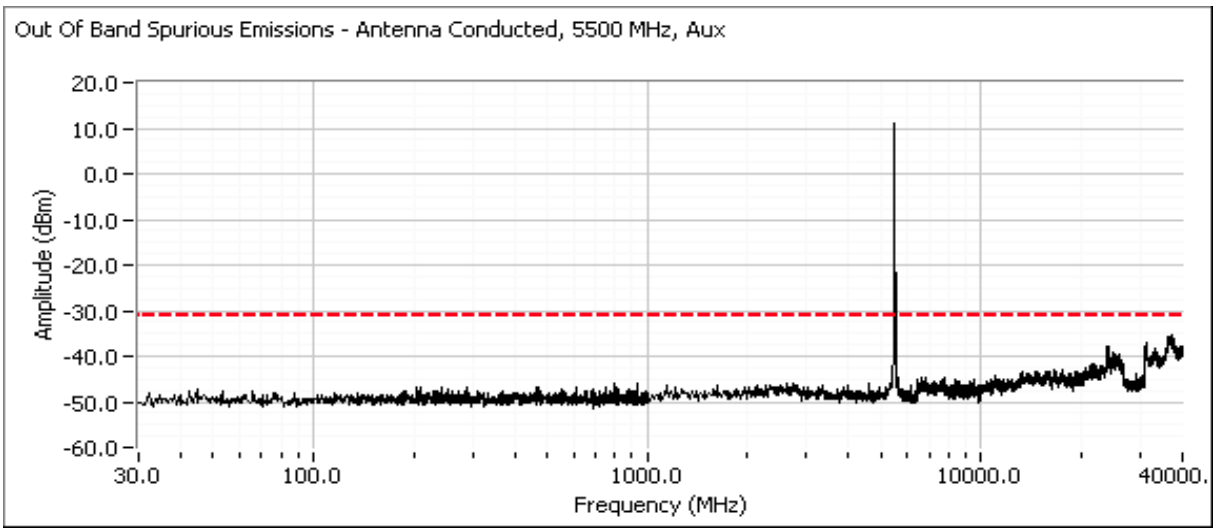
Contact:	Anne Liang		
Standard:	FCC 15.247 & 15.205	Class:	N/A

Maximum Antenna Gain: 4.2 dBi
Spurious Limit: -27 dBm/MHz eirp
Limit Used On Plots [Note 1]: -31.2 dBm/MHz

Power Setting Per Chain #1	#2	#3	#4	Frequency (MHz)	Limit	Result
-	-			5500	-27dBm	Pass
-	-			5600	-27dBm	Pass
-	-			5700	-27dBm	Pass





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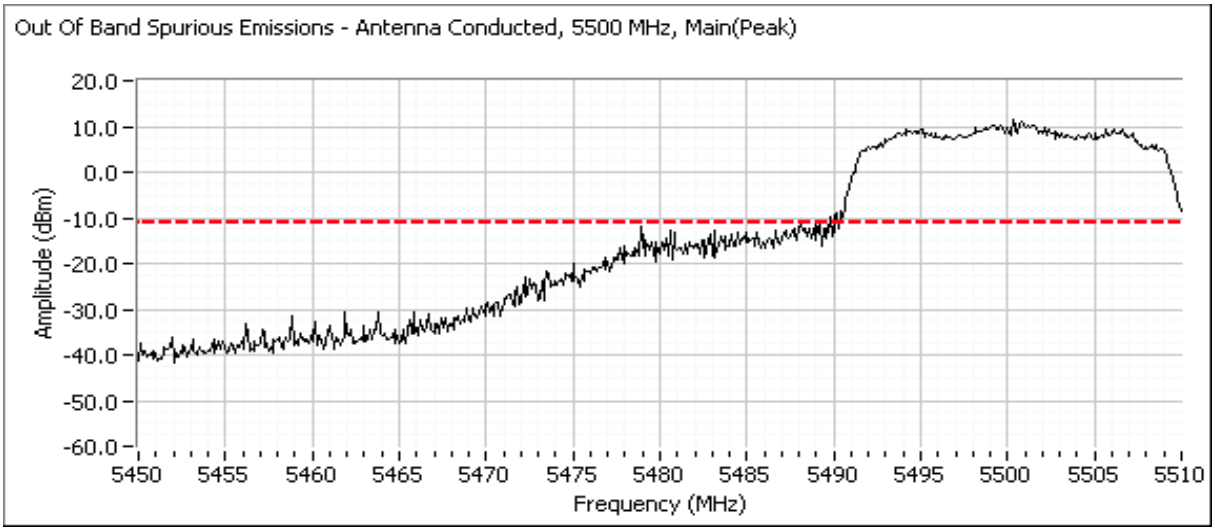

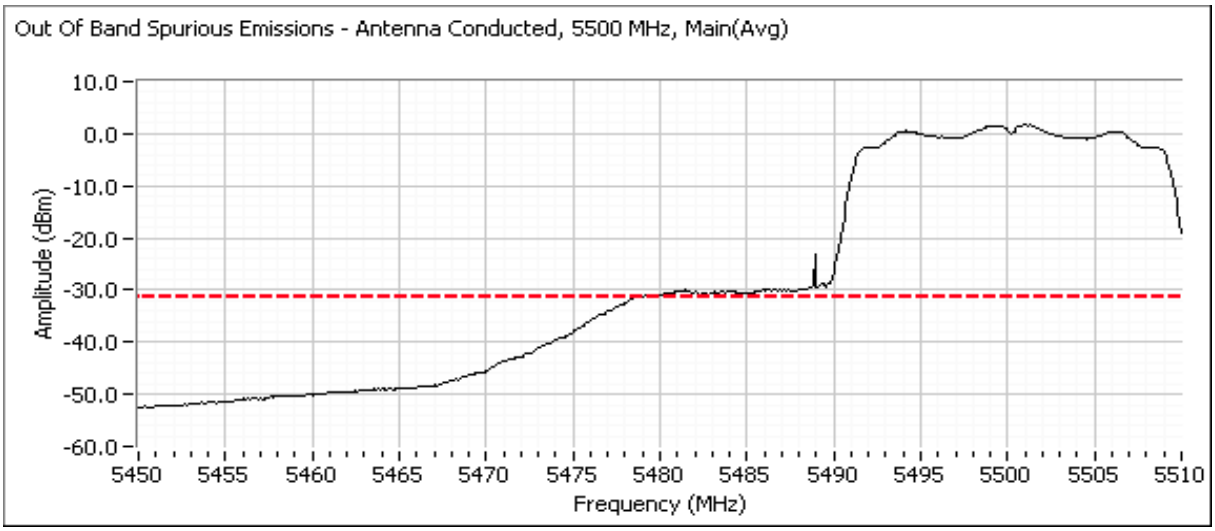

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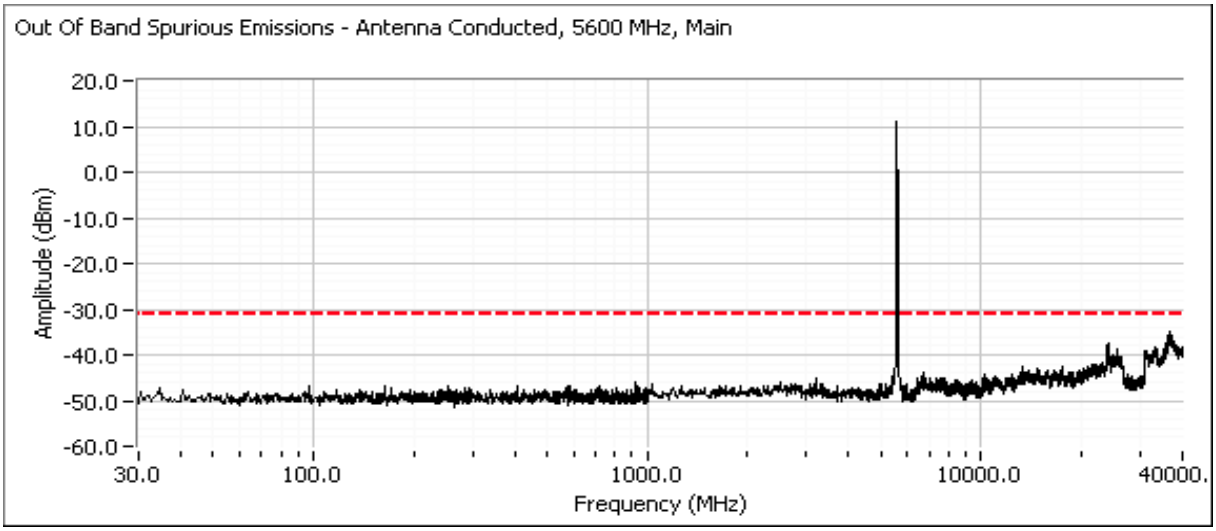

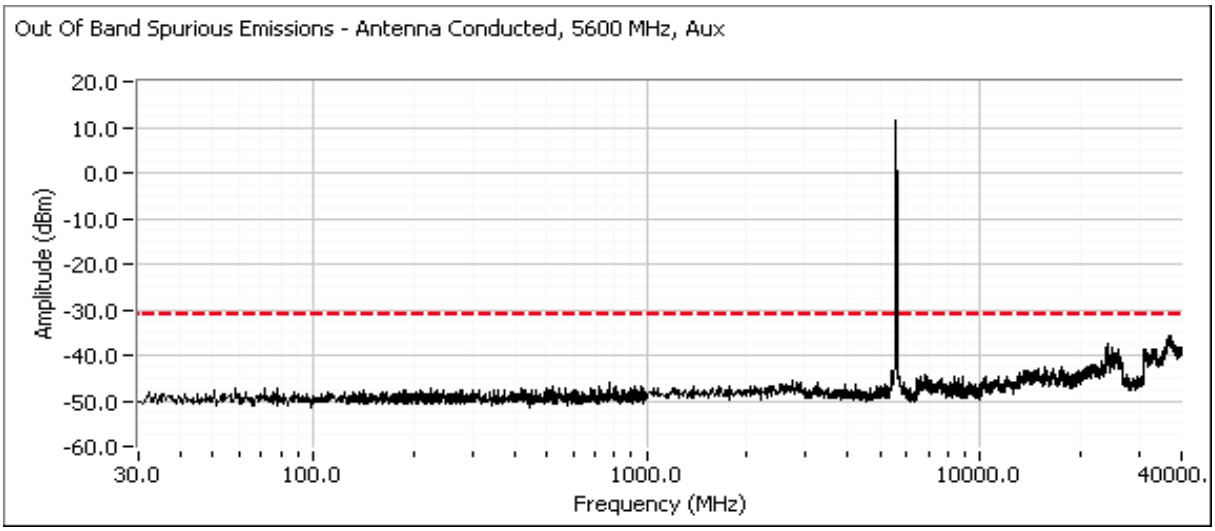

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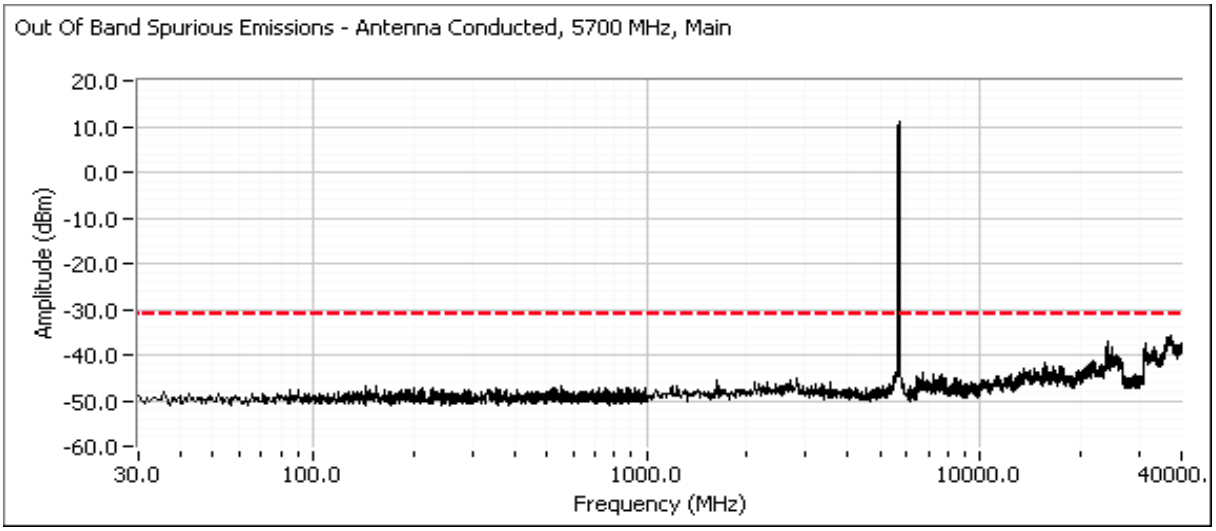

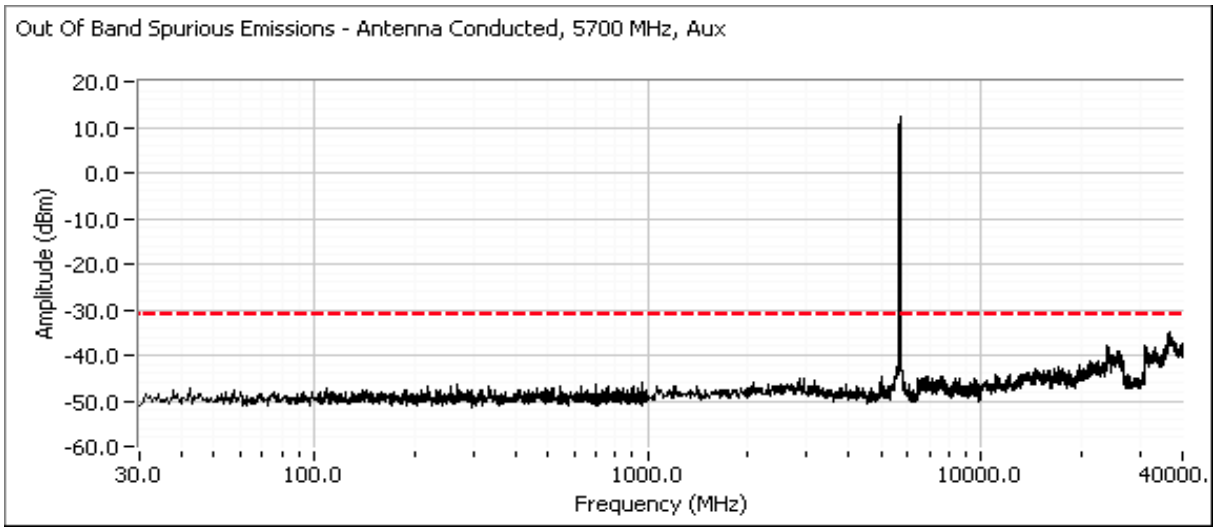

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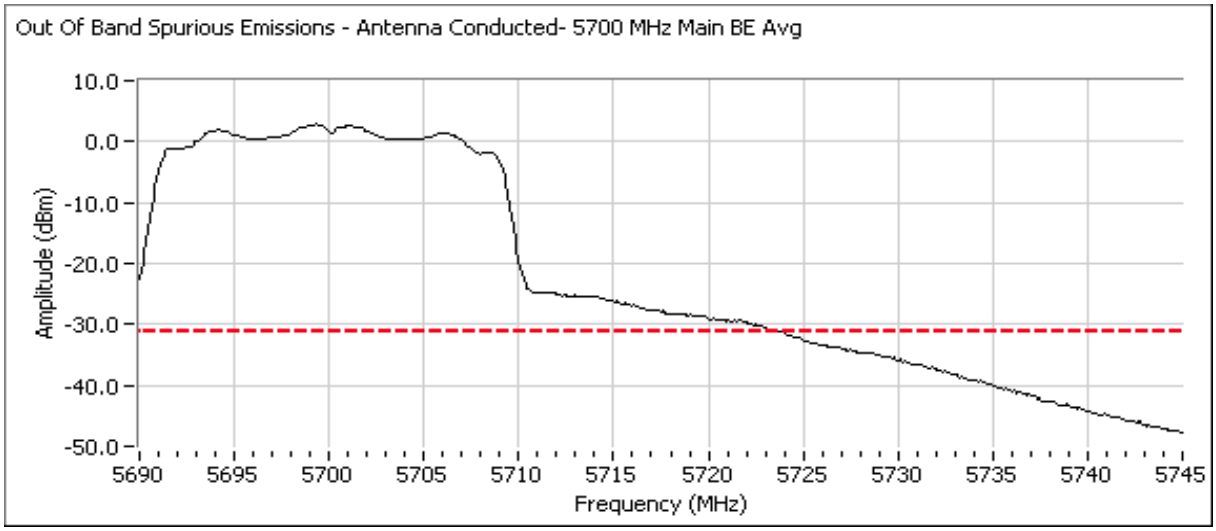

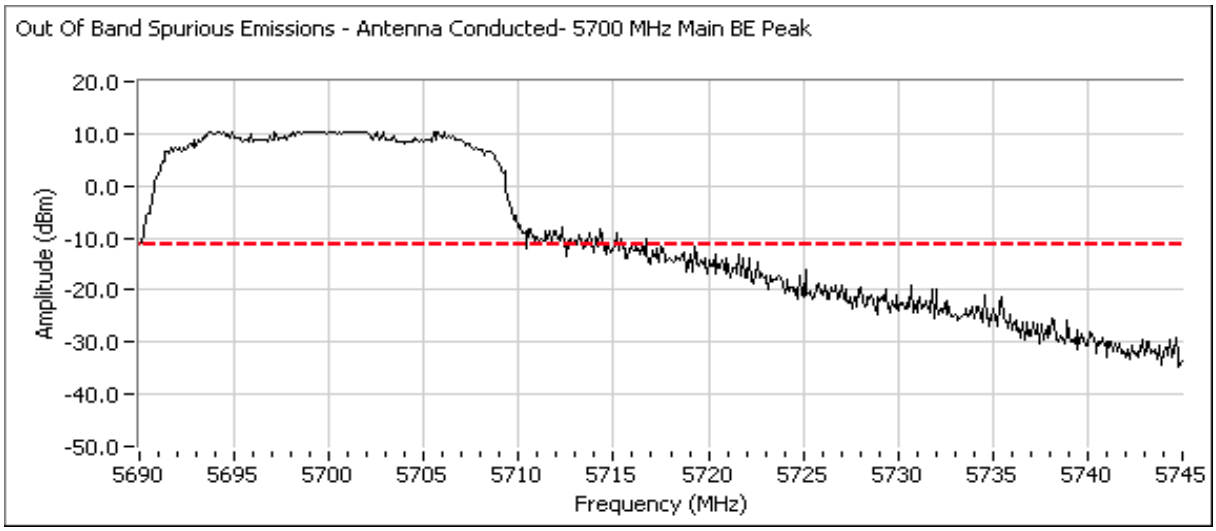

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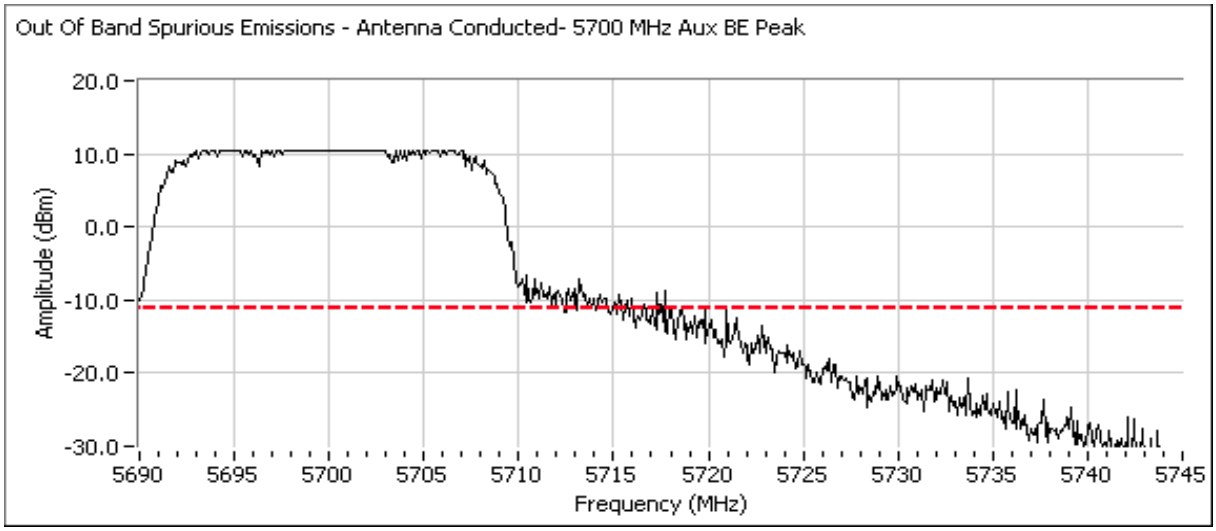

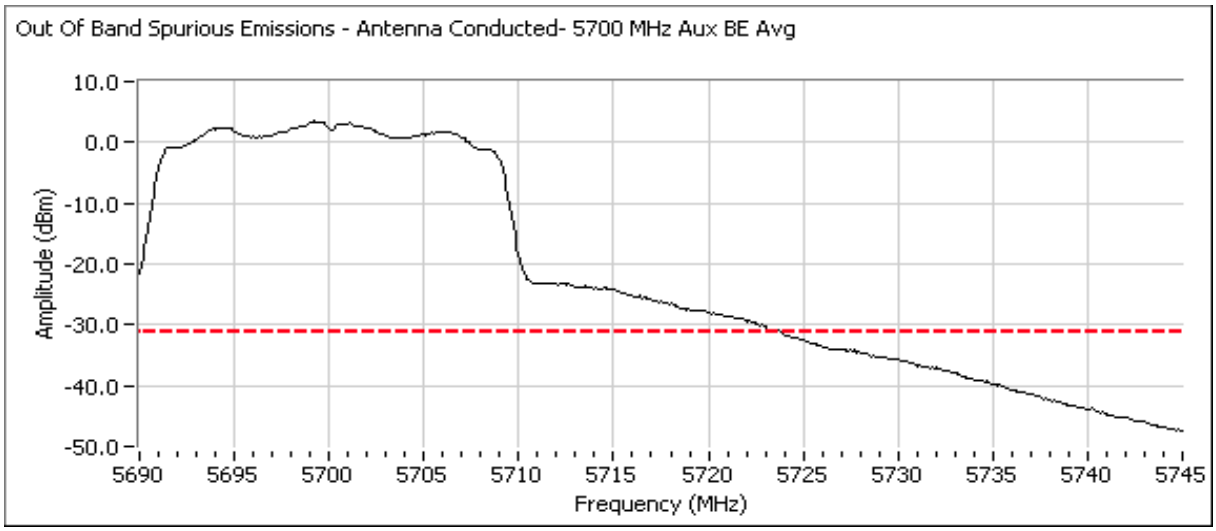

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Standard:	FCC 15.247 & 15.205	Class:	N/A

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: 2/9/2009 & 2/18/09
Test Engineer: rvarelas & Suhaila
Test Location: Fremont Chamber #3

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

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

Ambient Conditions:

Temperature: 18.9 °C
Rel. Humidity: 35 %

Summary of Results

Run #	Test Performed	Limit	Pass / Fail	Result / Margin
1	Power, 5150 - 5250MHz	15.407(a) (1), (2)	Pass	14.3 dBm (0.027W)
1	Power, 5250 - 5350MHz	15.407(a) (1), (2)	Pass	19.5 dBm (0.032 W)
1	Power, 5470 - 5725MHz	15.407(a) (1), (2)	Pass	21.0 dBm (0.127 W)
1	PSD, 5150 - 5250MHz	15.407(a) (1), (2)	Pass	-1.1 dBm/MHz
1	PSD, 5250 - 5350MHz	15.407(a) (1), (2)	Pass	4.2 dBm/MHz
1	PSD, 5470 - 5725MHz	15.407(a) (1), (2)	Pass	5.9 dBm/MHz
1	26dB Bandwidth	15.407	-	40 MHz
1	99% Bandwidth	RSS 210	-	41.1 MHz
2	Peak Excursion Envelope	15.407(a) (6)	Pass	12.9 dB
3	Antenna Conducted - Out of Band Spurious	15.407(b)	Pass	All emissions below the -27dBm/MHz limit

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.

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Model:	BCM943224HMS	T-Log Number:	T74077
		Account Manager:	Dean Eriksen
Contact:	Anne Liang		
Standard:	FCC 15.247 & 15.205	Class:	N/A

Run #1: Bandwidth, Output Power and Power spectral Density
5150-5350 MHz bands

	Chain 1	Chain 2	Chain 3	Coherent	Effective[5]
Antenna Gain (dBi):	5.6	5.6		Yes	8.6

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			
5190	-	51.8	8.3	9.0		14.7	11.7	14.4	0.027	PASS
5230	-	75.7	11.1	11.4		26.7	14.3	14.4		PASS
5270	-	95.0	16.0	17.0		89.3	19.5	21.4	0.089	PASS
5310	-	45.8	12.7	13.1		38.9	15.9	21.4		PASS

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]	
5190	36.5	11.7	-6.7	-6.9		0.4	-3.8	1.4	1.4	PASS
5230	36.4	14.3	-4.3	-4.0		0.8	-1.1	1.4	1.4	PASS
5270	37.7	19.5	1.0	1.5		2.7	4.2	8.4	11.0	PASS
5310	36.4	15.9	-3.8	-3.3		0.9	-0.6	8.4	11.0	PASS

5470-5725 MHz bands

	Chain 1	Chain 2	Chain 3	Coherent	Effective[5]
Antenna Gain (dBi):	4.2	4.2		Yes	7.2

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			
5510	-	58.8	13.2	13.3		42.3	16.3	22.8	0.127	PASS
5590	-	97.3	18.1	17.9		126.7	21.0	22.8		PASS
5670	-	98.8	17.5	18.4		125.4	21.0	22.8		PASS

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]	
5510	36.6	16.3	-3.0	-2.5		1.1	0.3	9.8	11.0	PASS
5590	41.1	21.0	3.4	1.9		3.7	5.7	9.8	11.0	PASS
5670	39.3	21.0	2.6	3.2		3.9	5.9	9.8	11.0	PASS

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Model:	BCM943224HMS	T-Log Number:	T74077
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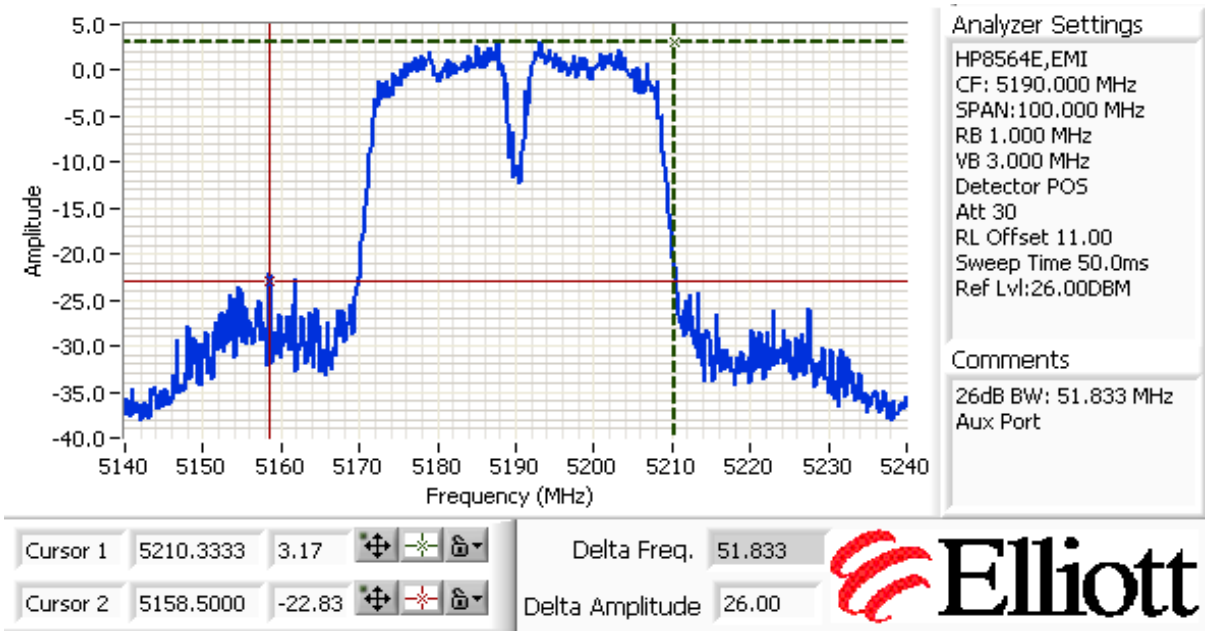
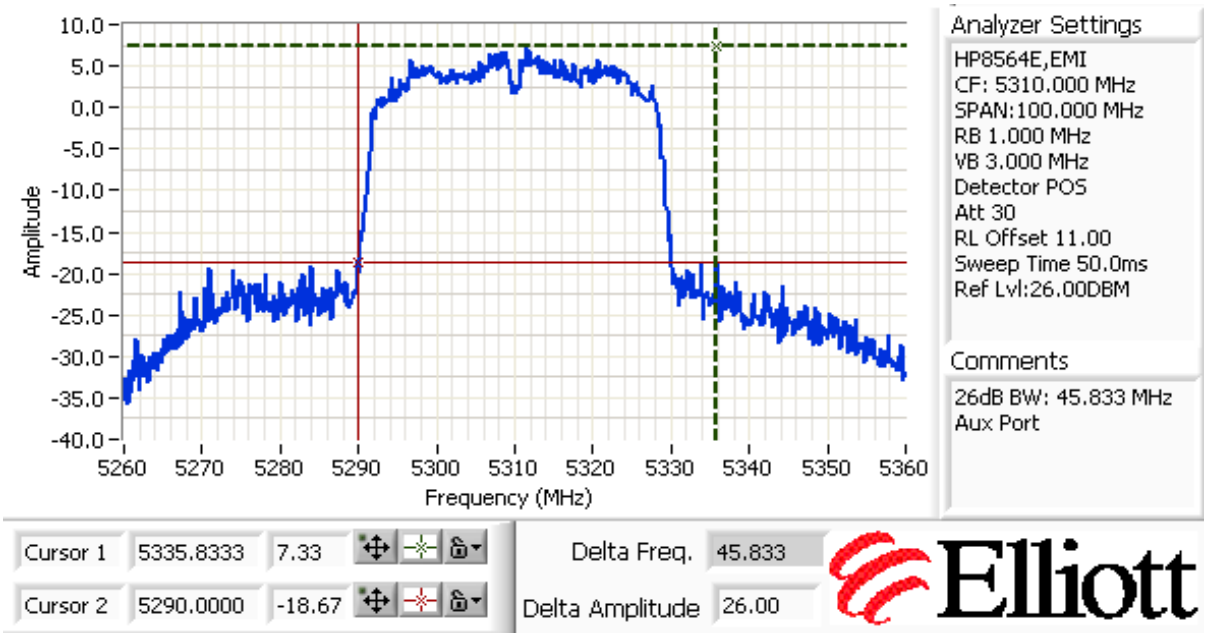
Standard:	FCC 15.247 & 15.205	Class:	N/A

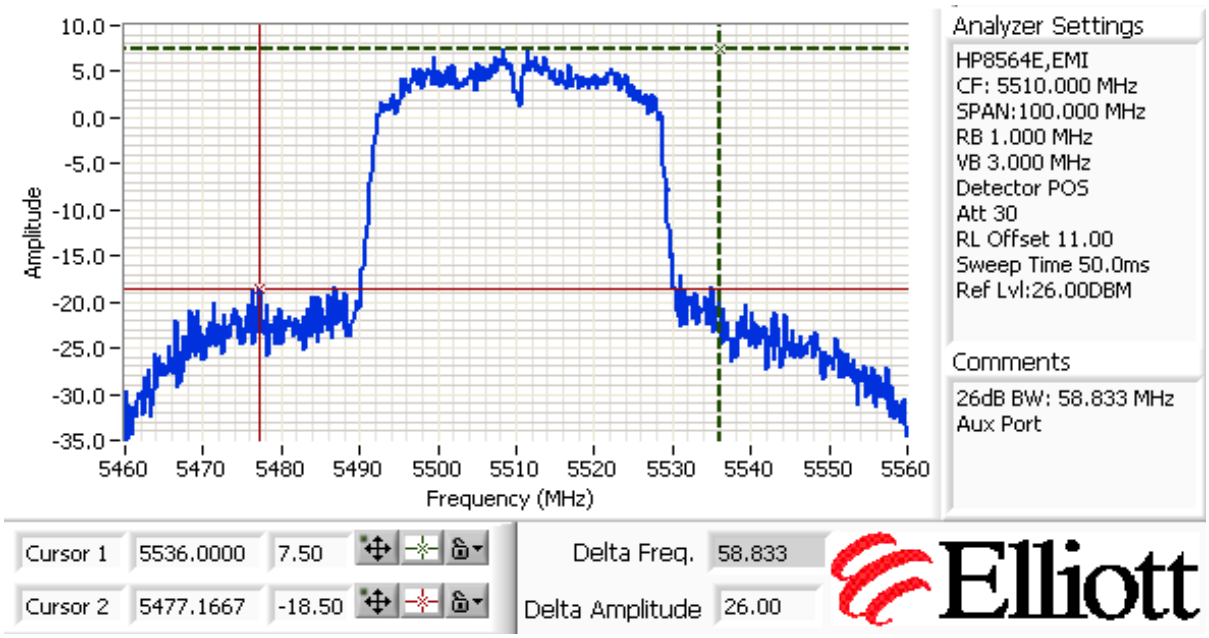
Note 1:	RBW=1MHz, VB=3 MHz, sample detector, power averaging on (transmitted signal was not continuous but the ESI analyzer was configured with a gated sweep such that the analyzer was only sweeping when the device was transmitting) and power integration over 50 MHz
Note 2:	Measured using the same analyzer 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.

Plots for worse case measurements within each band.



Client:	Broadcom	Job Number:	J74037
Model:	BCM943224HMS	T-Log Number:	T74077
		Account Manager:	Dean Eriksen
Contact:	Anne Liang		
Standard:	FCC 15.247 & 15.205	Class:	N/A





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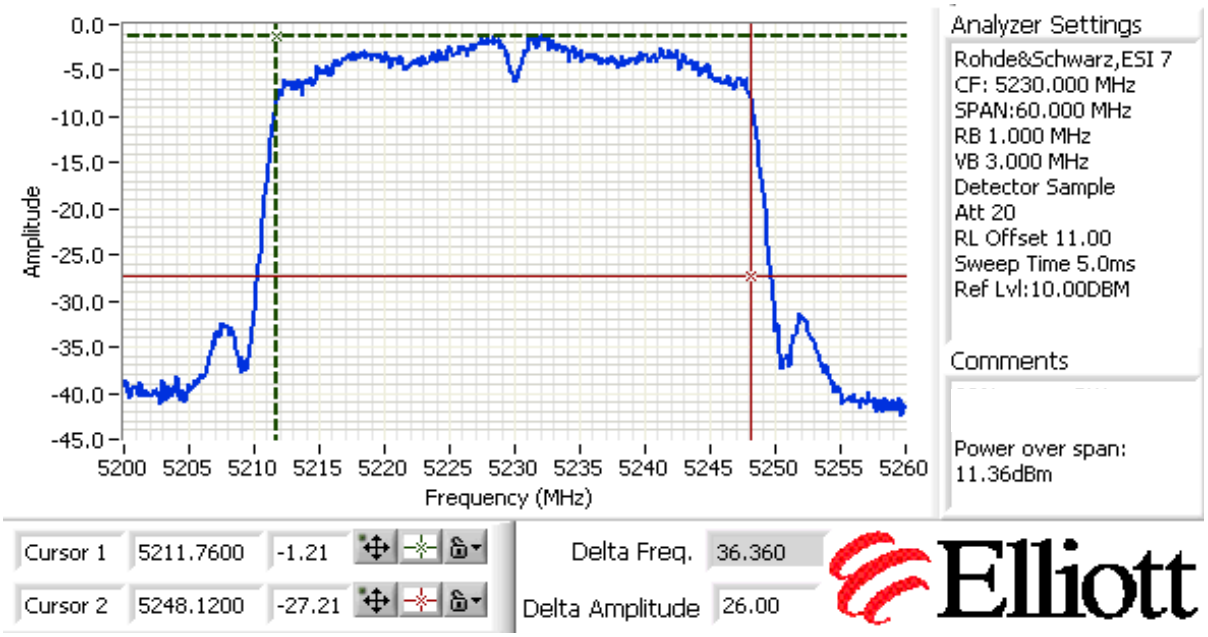

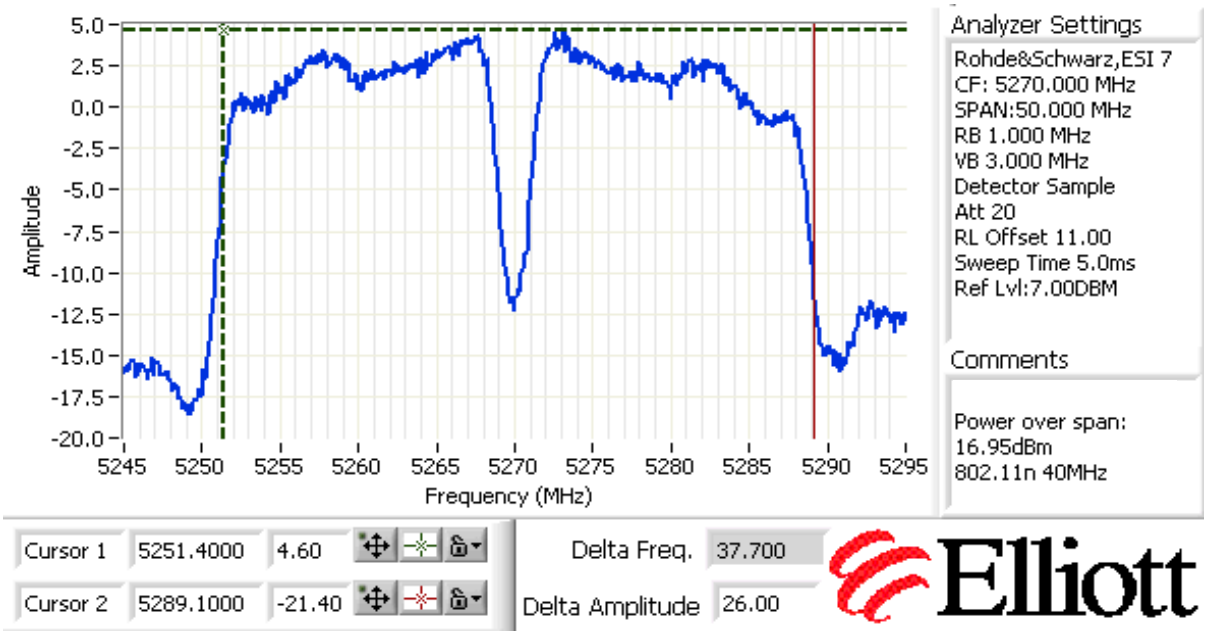

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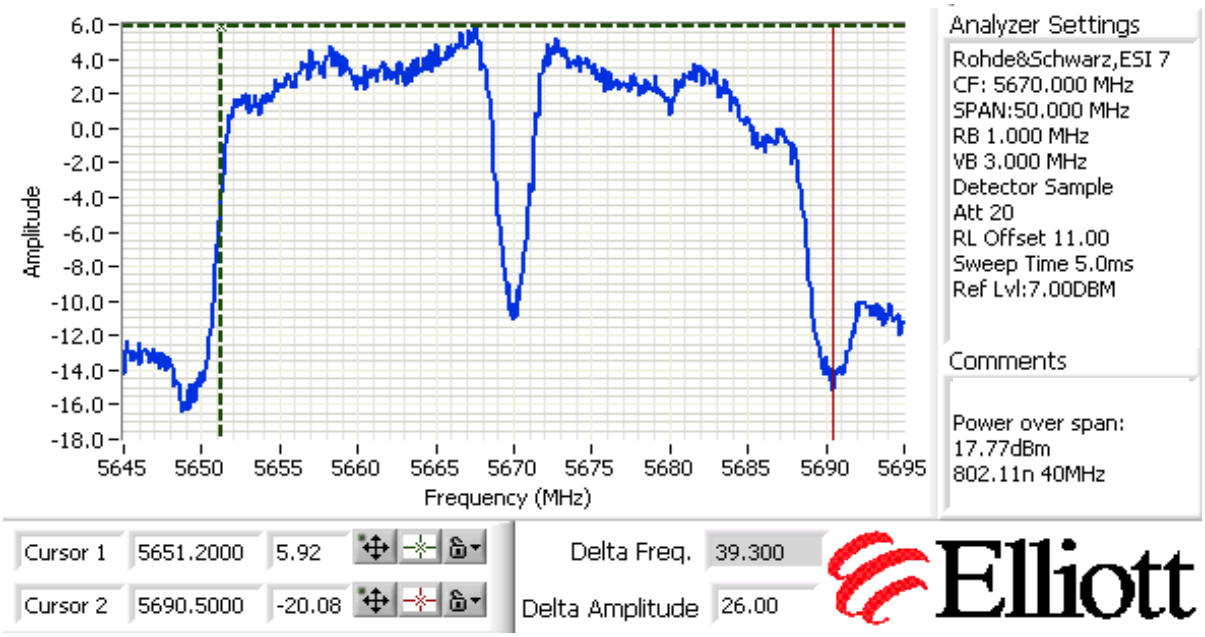
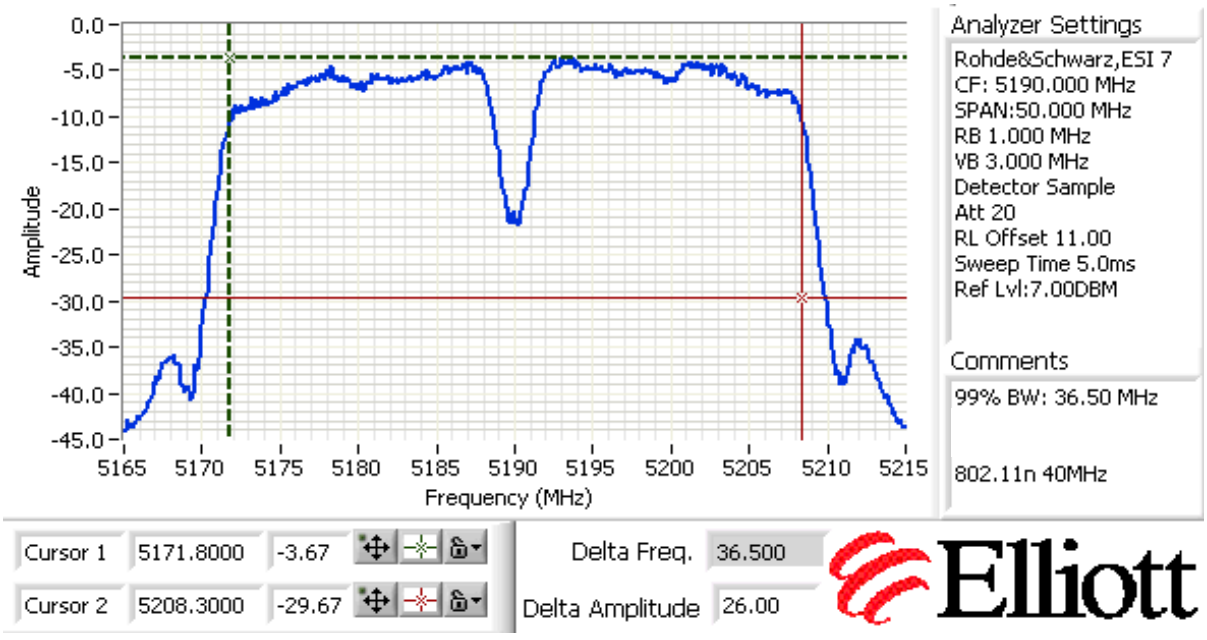
Standard:	FCC 15.247 & 15.205	Class:	N/A





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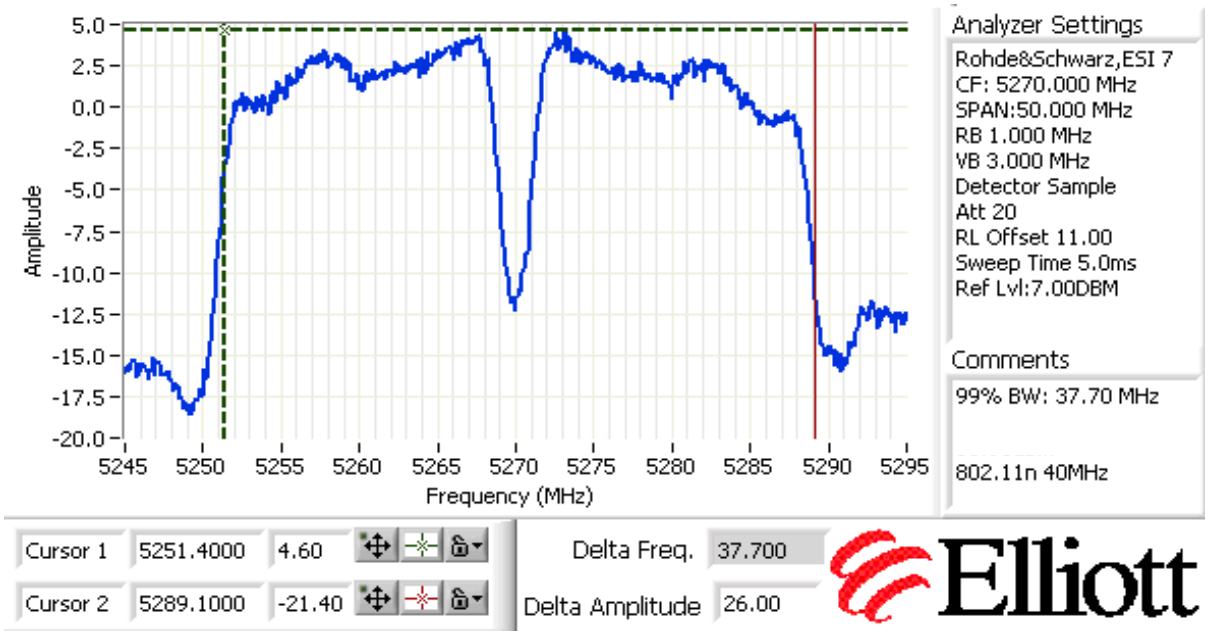
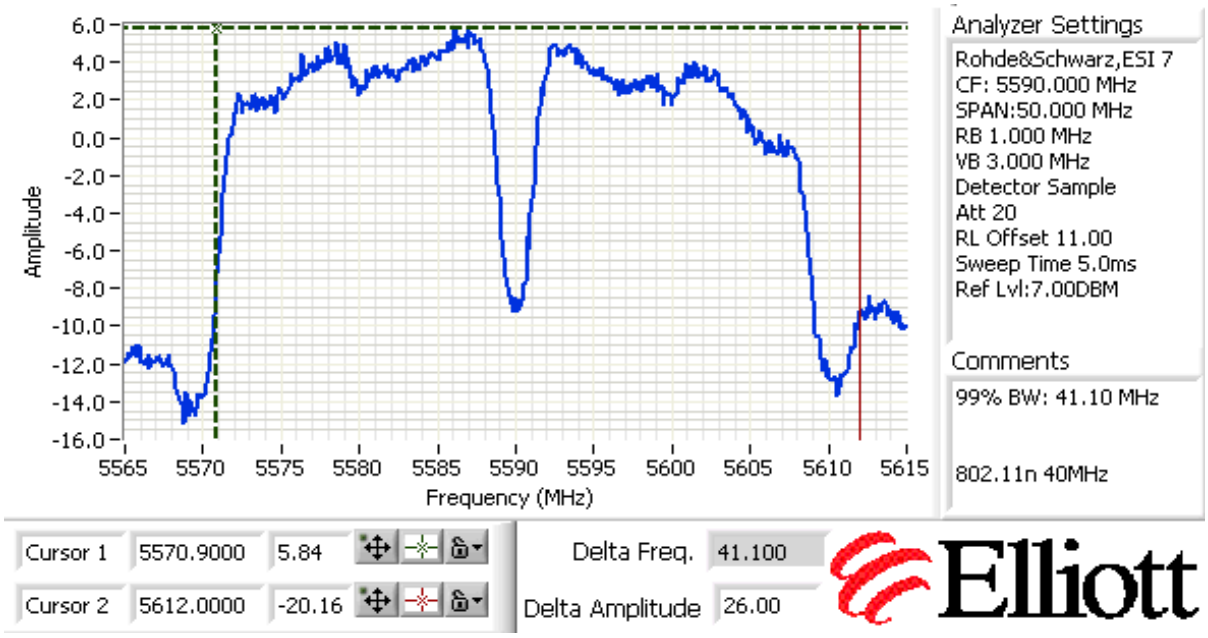
Standard:	FCC 15.247 & 15.205	Class:	N/A





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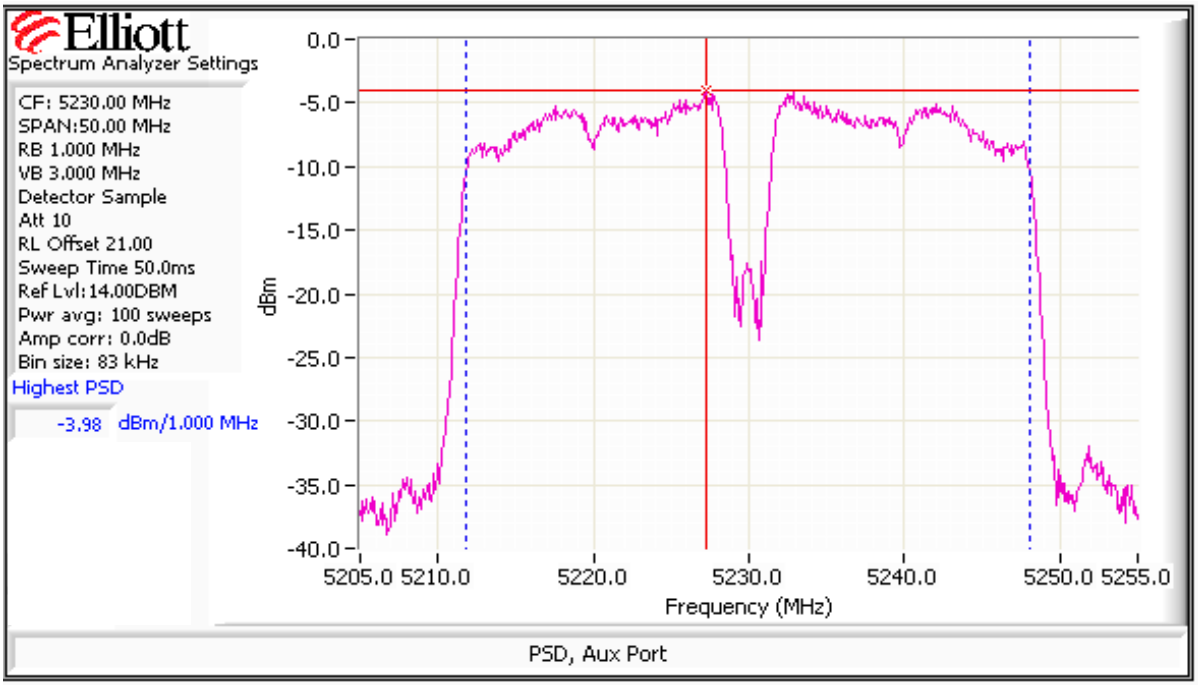
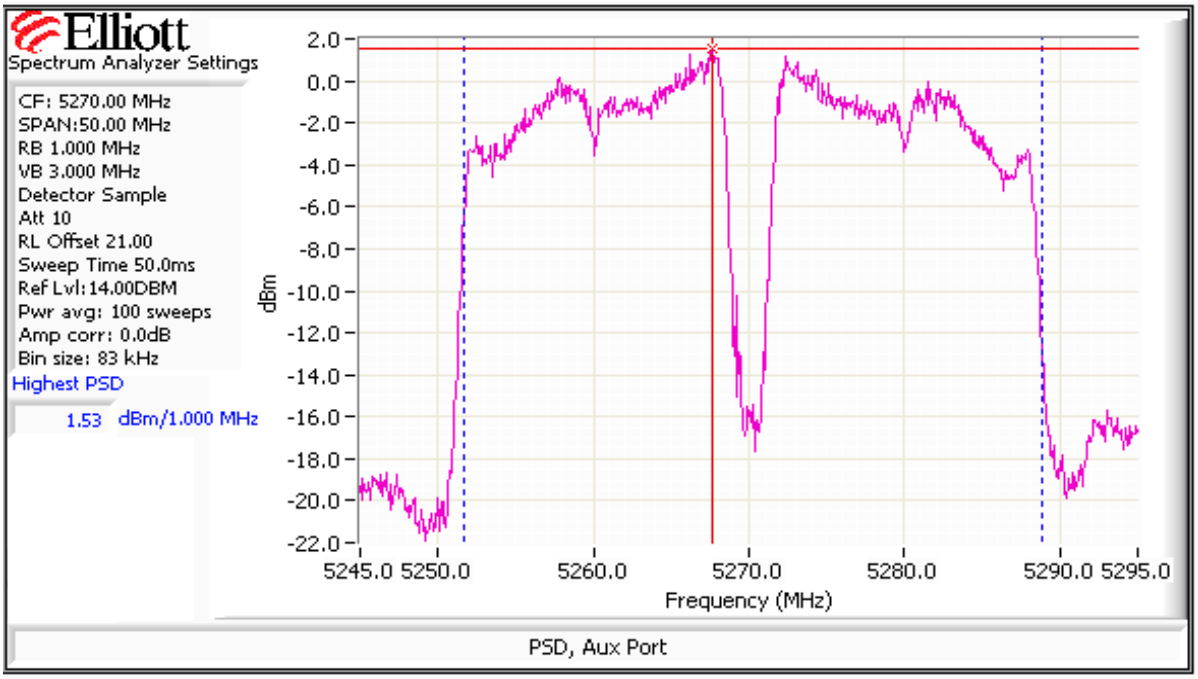
		Account Manager:	Dean Eriksen
Contact:	Anne Liang		
Standard:	FCC 15.247 & 15.205	Class:	N/A





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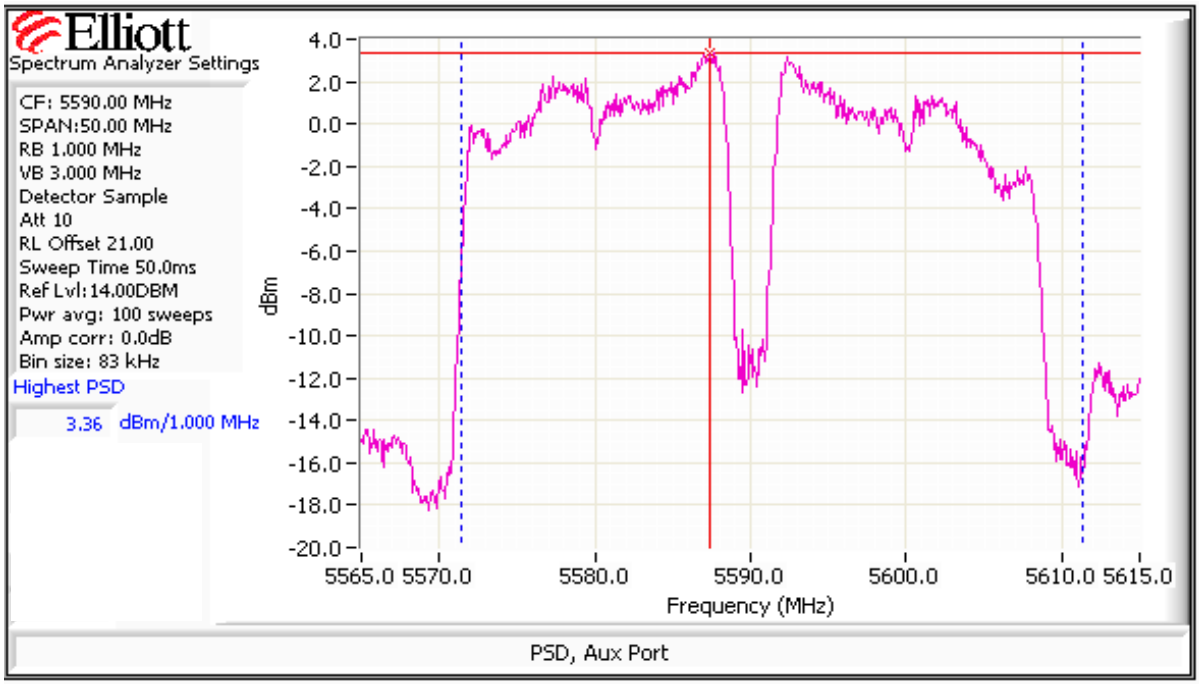
		Account Manager:	Dean Eriksen
Contact:	Anne Liang		
Standard:	FCC 15.247 & 15.205	Class:	N/A



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		Account Manager:	Dean Eriksen
Contact:	Anne Liang		
Standard:	FCC 15.247 & 15.205	Class:	N/A

Run #2: Peak Excursion Measurement

Date of Test: 3/9/2009 0:00 Config. Used: 1

Test Engineer: Suhaila Khushzad Config Change: None

Test Location: Chamber # 3 EUT Voltage: 120V/60Hz

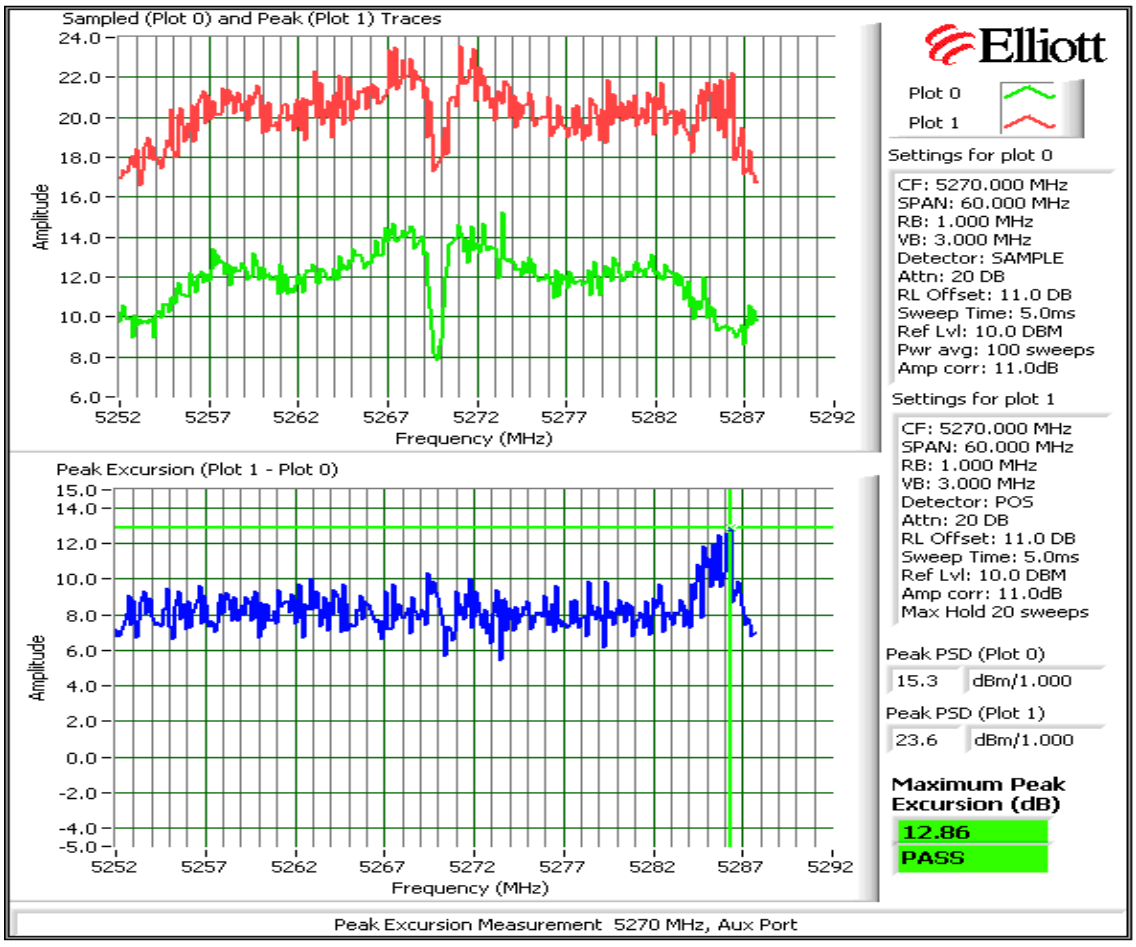
Device meets the requirement for the peak excursion

Freq	Peak Excursion(dB)		Freq	Peak Excursion(dB)		Freq	Peak Excursion(dB)	
(MHz)	Value	Limit	(MHz)	Value	Limit	(MHz)	Value	Limit
5190	12.6	13.0	5310	12.1	13.0	5510	12.0	13.0
5230	12.4	13.0				5590	12.6	13.0
5270	12.9	13.0				5670	12.2	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)



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Model:	BCM943224HMS	T-Log Number:	T74077
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Contact:	Anne Liang		
Standard:	FCC 15.247 & 15.205	Class:	N/A

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

Maximum Antenna Gain:	5.6 dBi	
Spurious Limit:	-27.0 dBm/MHz eirp	
Limit Used On Plots [Note 1]:	-32.6 dBm/MHz	Average Limit (RB=1MHz, VB=10Hz)
	-12.6 dBm/MHz	Peak Limit (RB=VB=1MHz)

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

Power Setting Per Chain				Frequency (MHz)	Limit	Result
#1	#2	#3	#4			
-	-			5190	-32.6dBm	Pass
-	-			5230	-32.6dBm	Pass
-	-			5270	-32.6dBm	Pass
-	-			5310	-32.6dBm	Pass
-	-			5510	-32.6dBm	Pass
-	-			5590	-32.6dBm	Pass
-	-			5670	-32.6dBm	Pass

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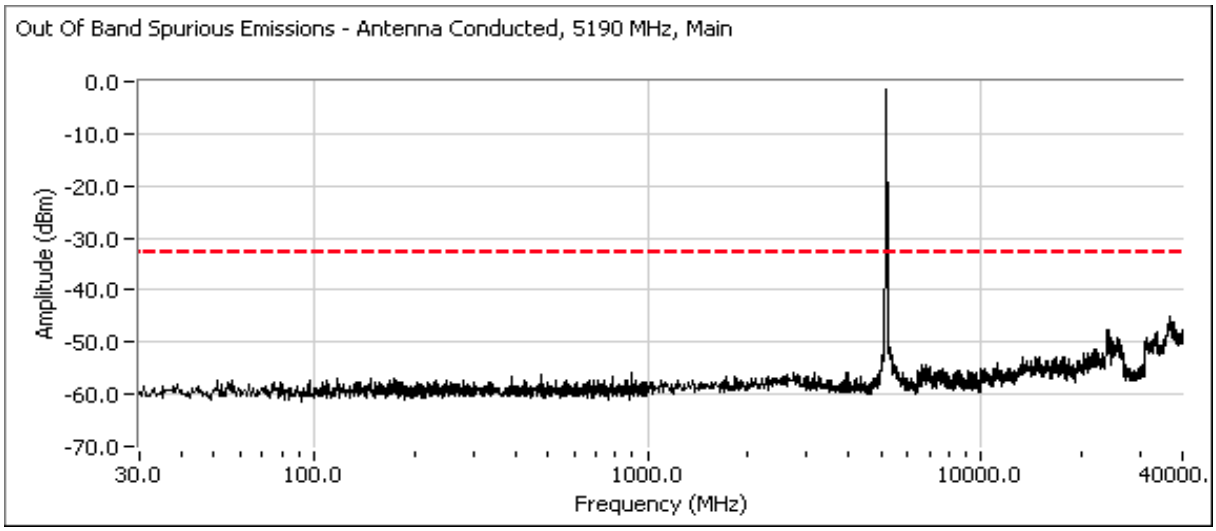
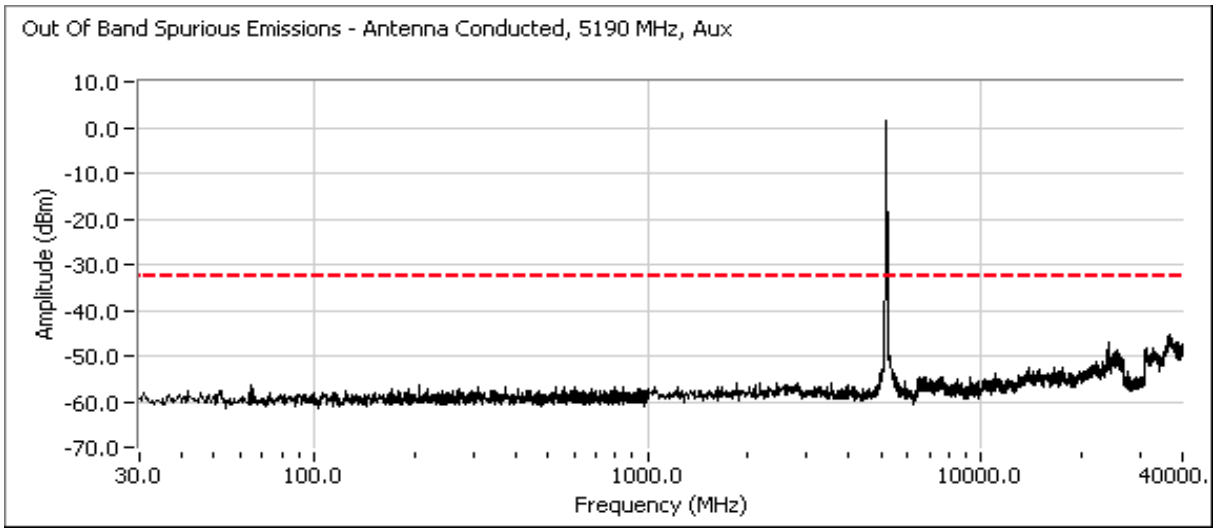
Standard:	FCC 15.247 & 15.205	Class:	N/A

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





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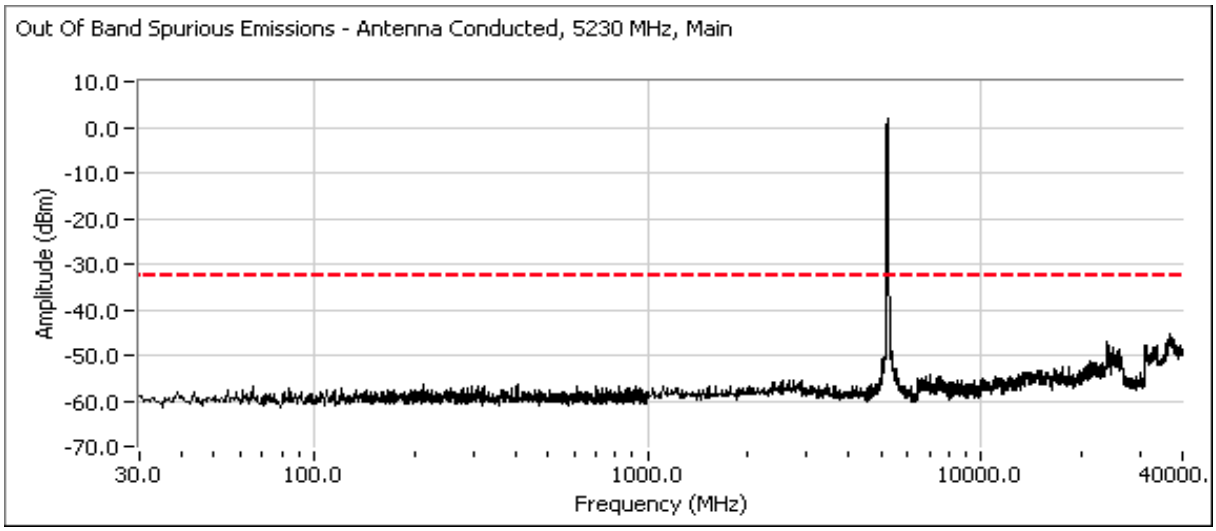
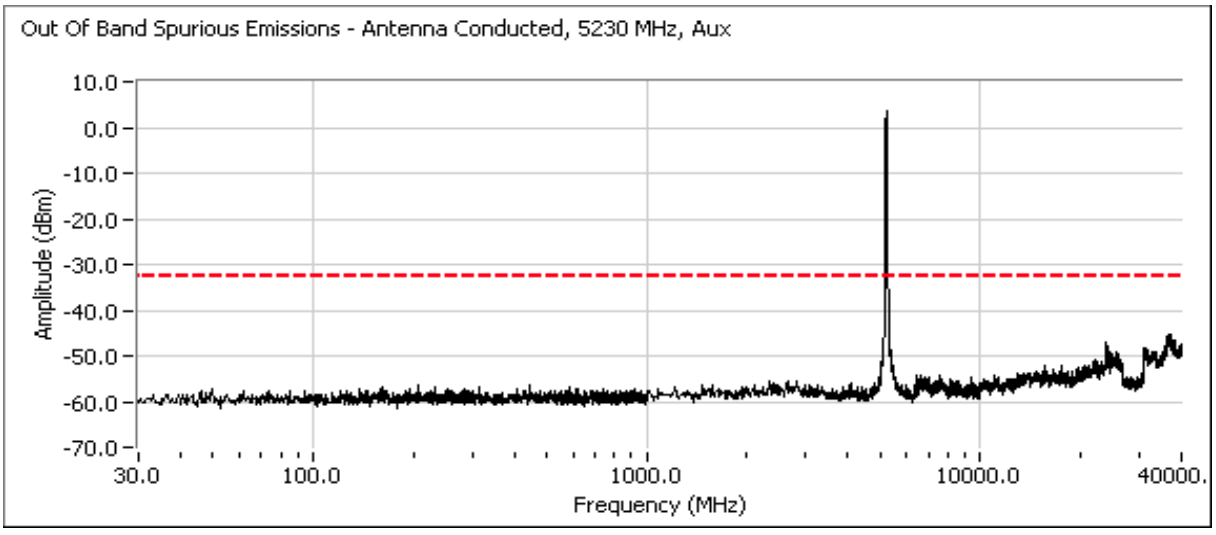
Contact:	Anne Liang		
Standard:	FCC 15.247 & 15.205	Class:	N/A





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		Account Manager:	Dean Eriksen
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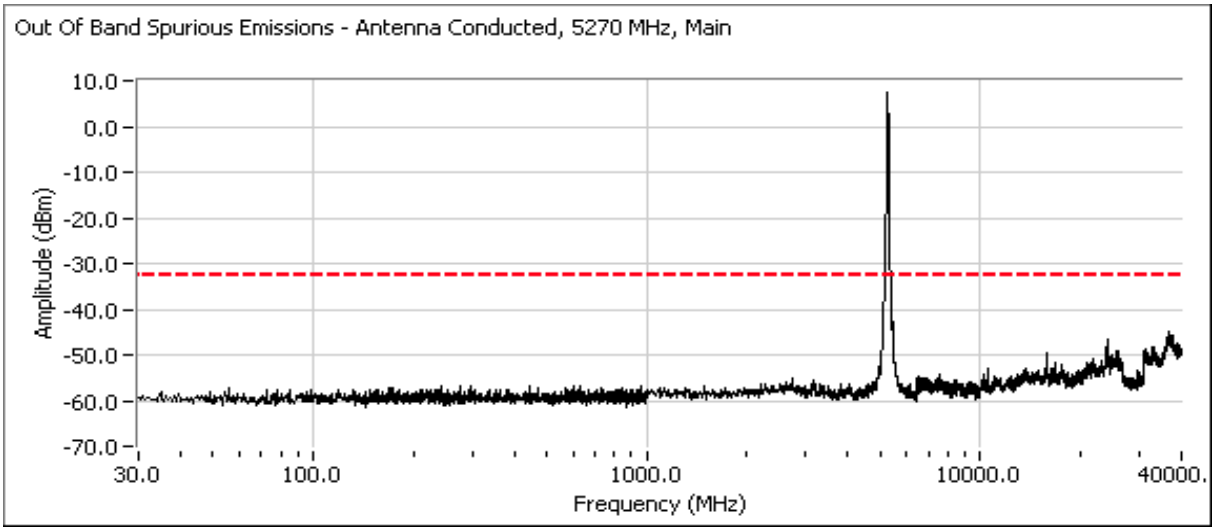
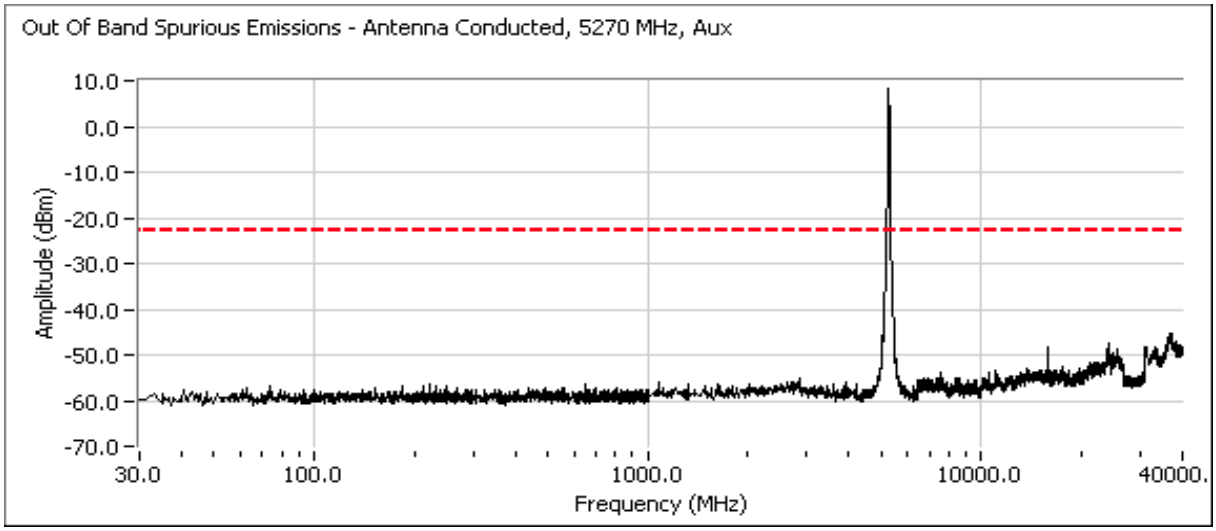
Standard:	FCC 15.247 & 15.205	Class:	N/A





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		Account Manager:	Dean Eriksen
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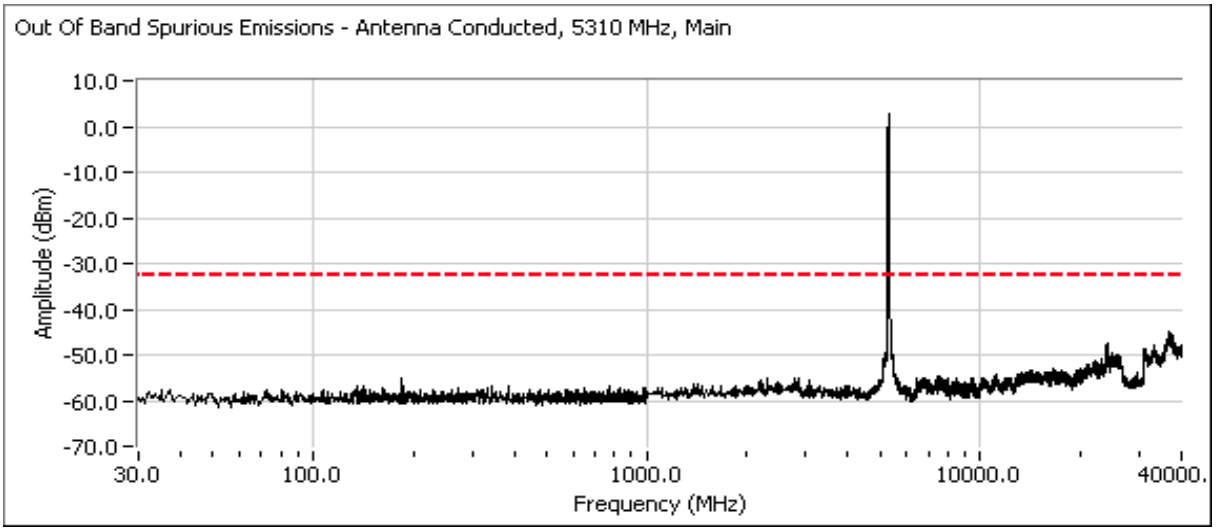
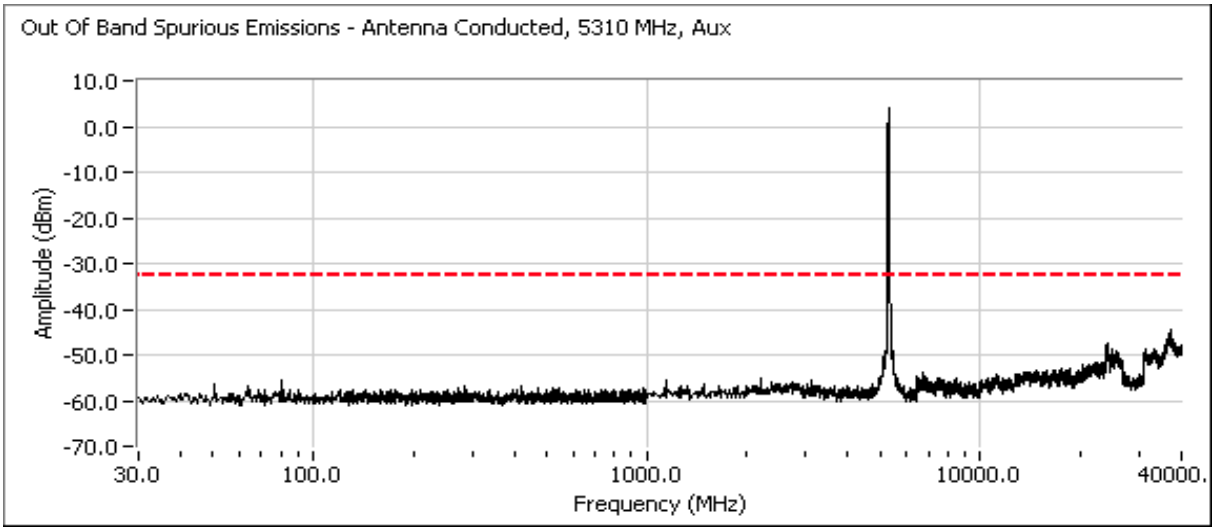
Standard:	FCC 15.247 & 15.205	Class:	N/A





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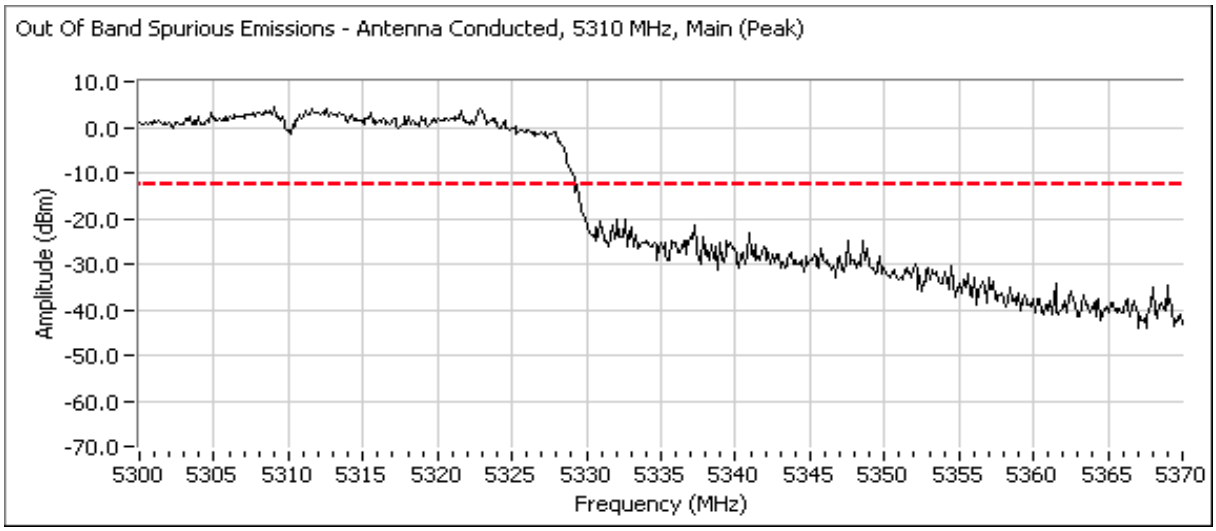

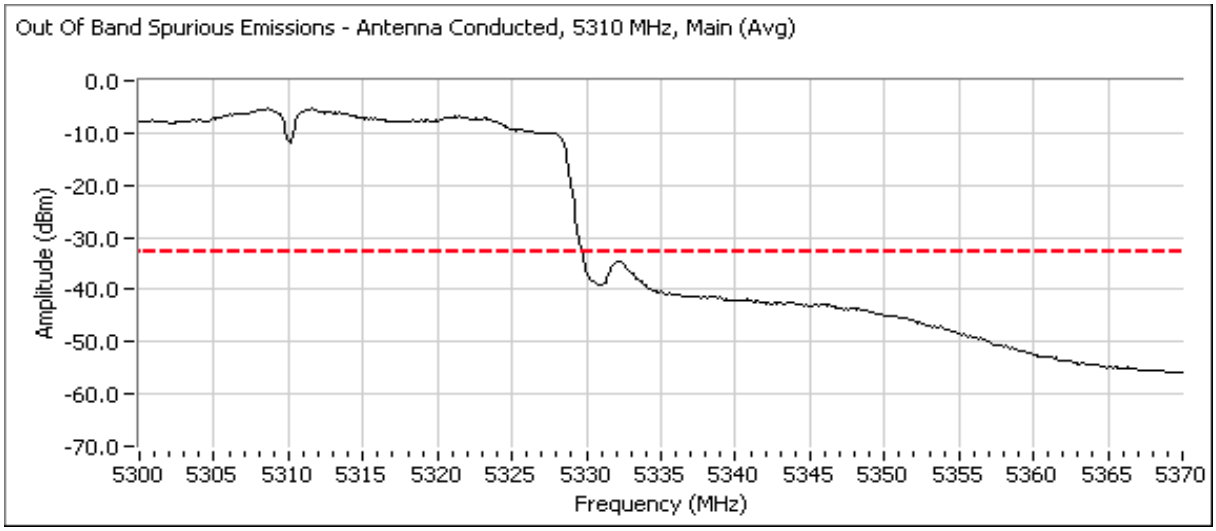

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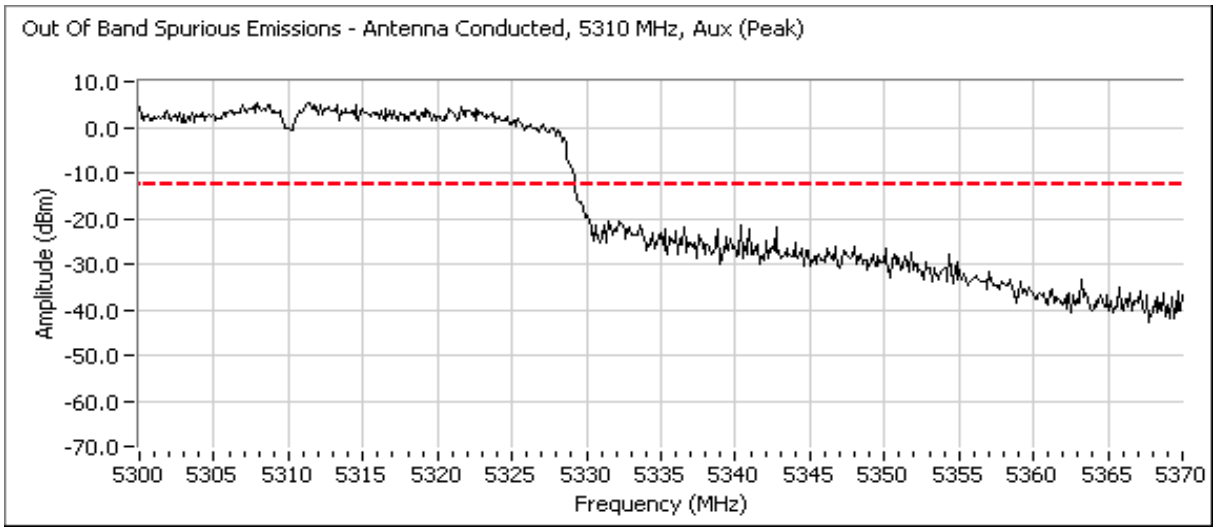

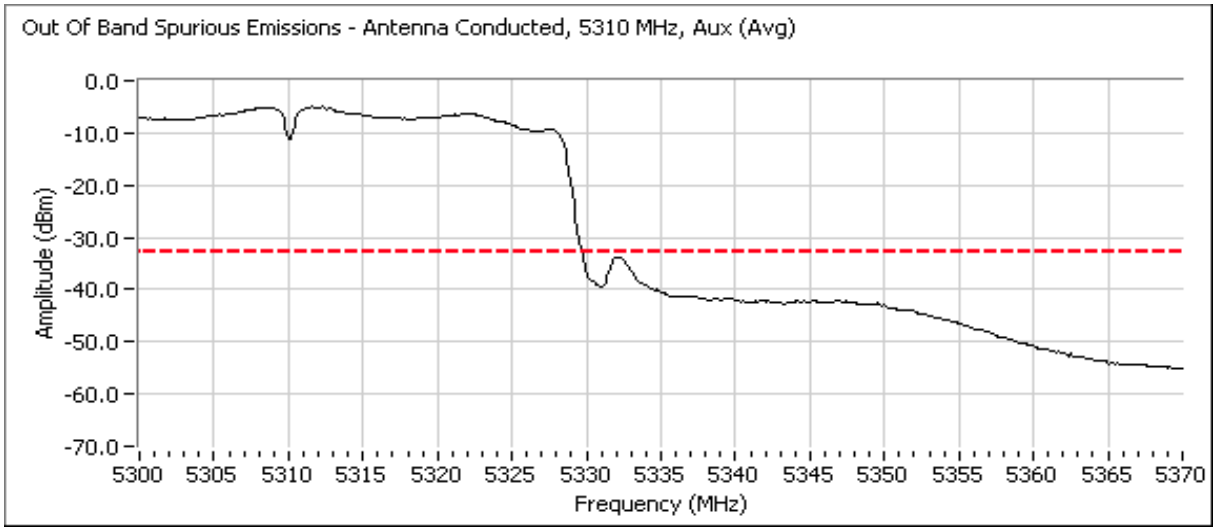

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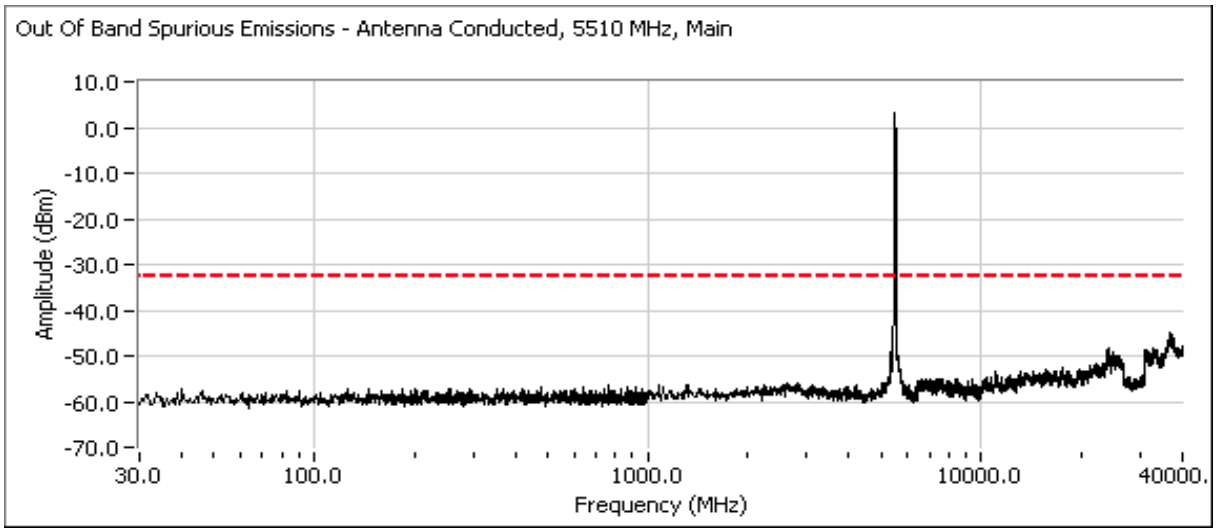

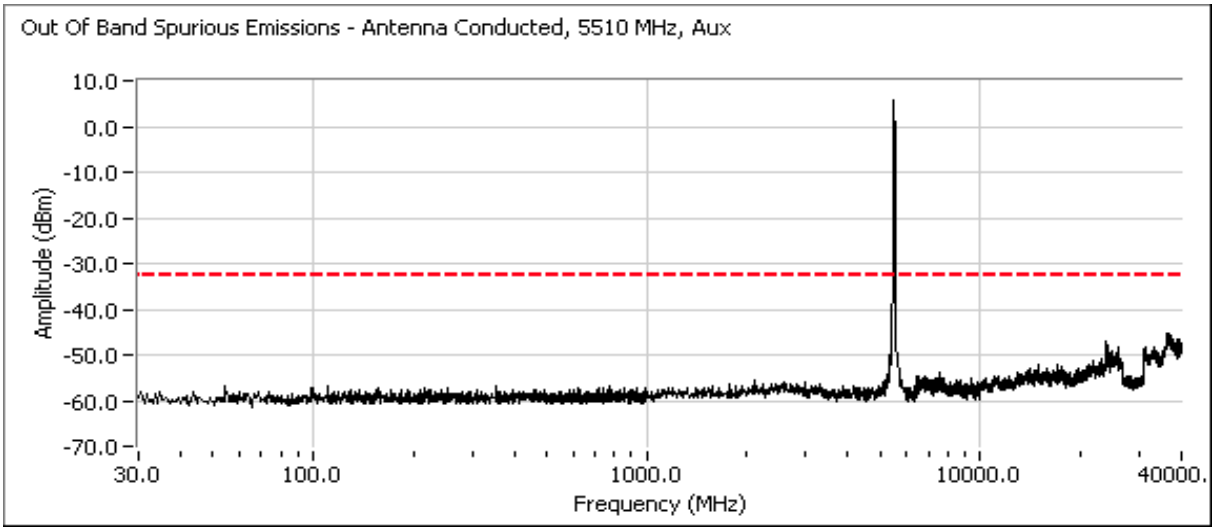

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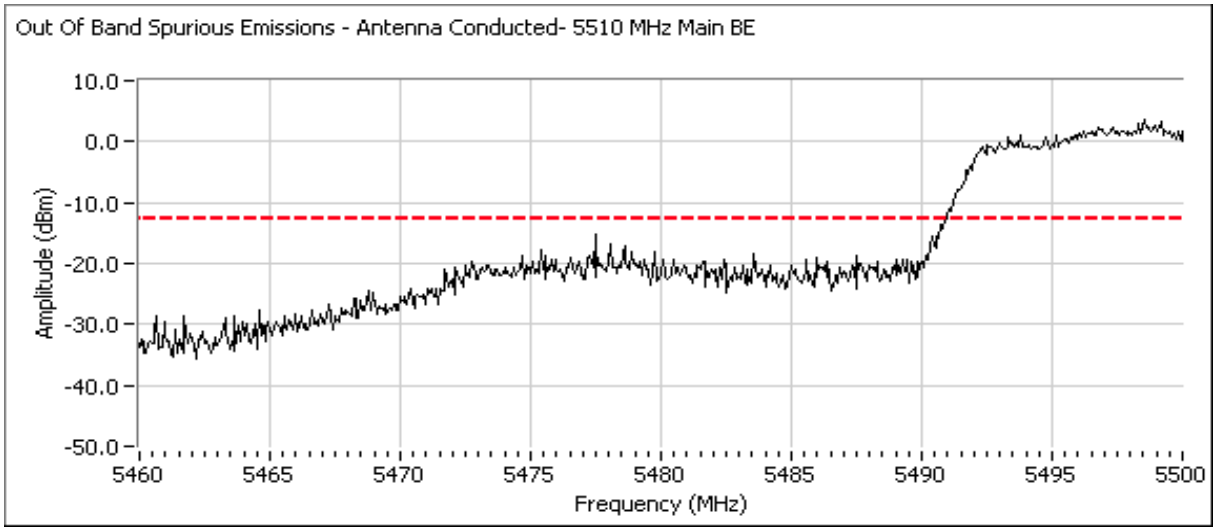

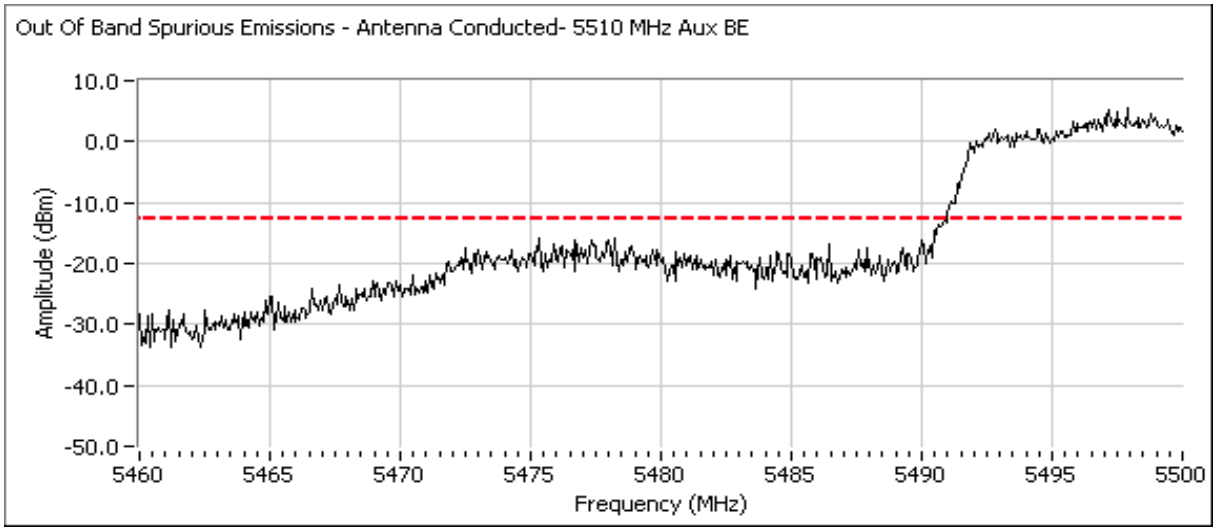

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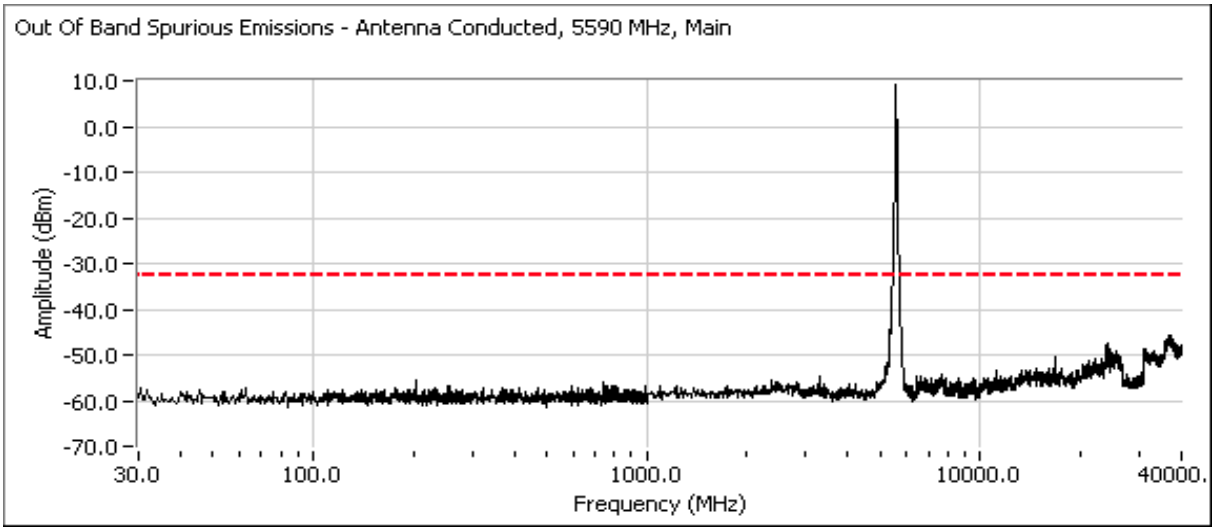

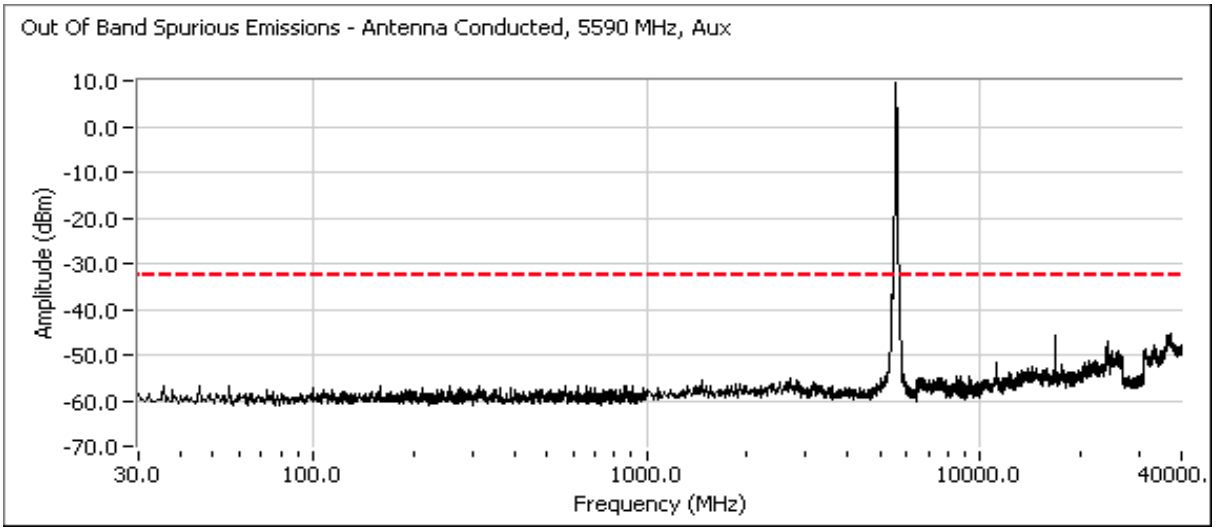

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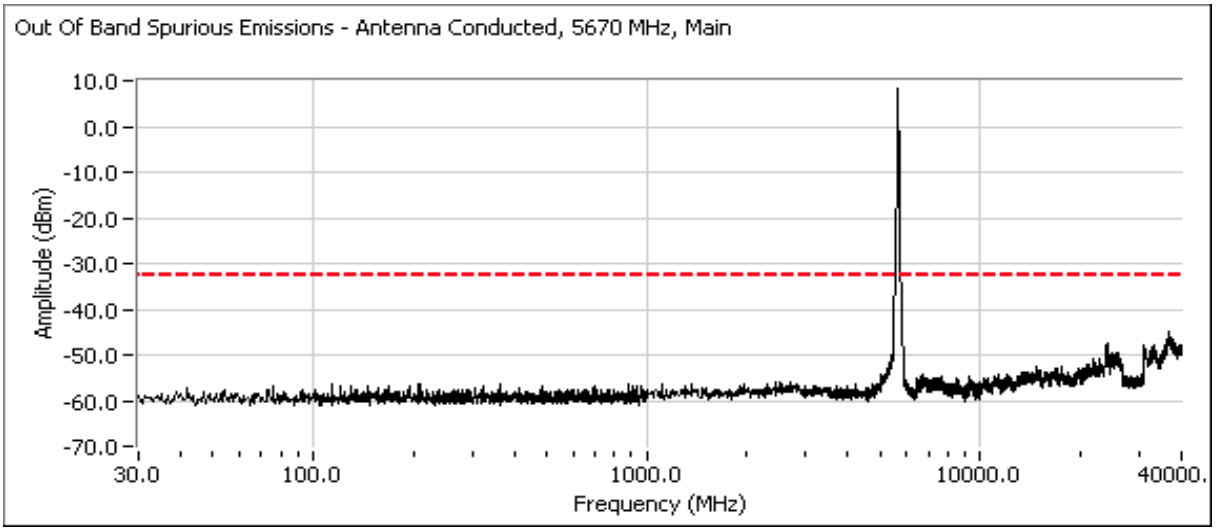

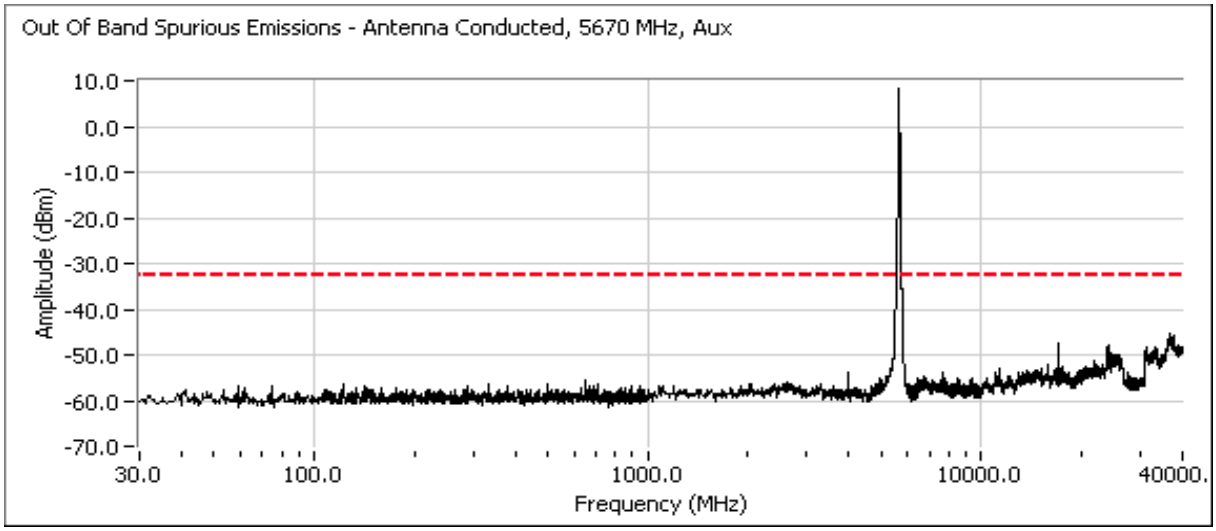

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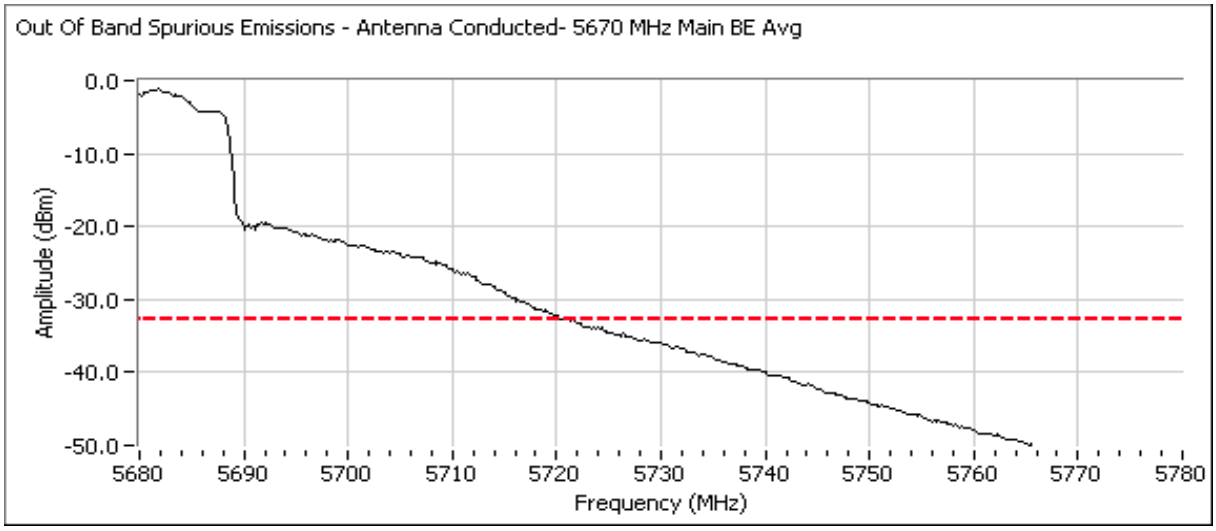
Standard:	FCC 15.247 & 15.205	Class:	N/A

High channel, 5470 - 5725 MHz Band

Includes a plot from 5700 - 5780 MHz showing compliance with the limit immediately above the allocated band.



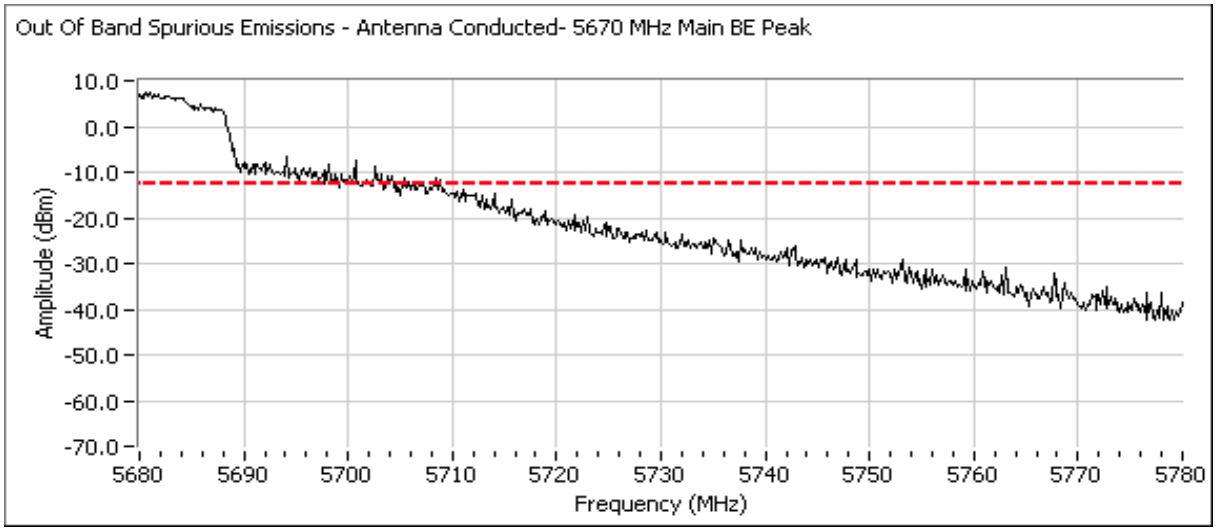


EXHIBIT 3: Photographs of Test Configurations

EXHIBIT 4: Proposed FCC ID Label & Label Location

EXHIBIT 5: Detailed Photographs of Broadcom Corporation Model BCM943224HMSConstruction

EXHIBIT 6: Operator's Manual for Broadcom Corporation Model BCM943224HMS

EXHIBIT 7: Block Diagram of Broadcom Corporation Model BCM943224HMS

EXHIBIT 8: Schematic Diagrams for Broadcom Corporation Model BCM943224HMS

EXHIBIT 9: Theory of Operation for Broadcom Corporation Model BCM943224HMS

EXHIBIT 10: RF Exposure Information