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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 Xirrus, Inc. Transmitter

Model: XN4

UPN: 5428A-XN4 FCC ID: SK6XN4

GRANTEE: Xirrus. Inc. 2101 Corporate Center Dr. Newbury Park, CA 91320

TEST SITE(S): **Elliott Laboratories** 684 W. Maude Ave Sunnyvale, CA 94086 IC Site Registration #: IC 2845-1; IC 2845-2

REPORT DATE: January 21, 2009

REISSUE DATE: March 13, 2009

FINAL TEST DATE:

October 24, through November 11, 2008 January 7, 2009

AUTHORIZED SIGNATORY:

Mark Briggs Staff Engineer



Testing Cert #2016-01

Elliott Laboratories is accredited by the A2LA, certificate number 2016-01, to perform the test(s) listed in this report. This report shall not be reproduced, except in its entirety, without the written approval of Elliott Laboratories

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REVISION HISTORY

Rev #	Date	Comments	Modified By
1	Feb 6, 2009	First Release	Briggs
2	March 13, 2009	Added test data for the 5250-5350MHz and 5470-5725 MHz bands (original report only covered 5150-5250MHz operation.	Briggs

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SCOPE

An electromagnetic emissions test has been performed on the Xirrus, Inc. model XN4 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 Xirrus, Inc. model XN4 and therefore apply only to the tested sample. The sample was selected and prepared by Steve Smith of Xirrus, Inc.

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 Xirrus, Inc. model XN4 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	Device shall be designed for indoor use only	Complies			
15.407 (a) (1)	A9.2(1)	Output Power	Single radio a: 16.2 dBm a2x: 16.1dBm n20: 16.6dBm n40: 16.3dBm 4x radio a2x: 16.6dBm n40: 16.7dBm n40: 16.7dBm 0.047 Watts	17dBm	Complies			
15.407 (a) (1)	-		a: 3.7 dBm/MHz	4 dBm/MHz	Complies			
-	- A9.5 (2) Power Spectral Density Density n20: 3.9 dBm/MHz 5 dBm/MHz Complies							
Output power is detailed for a single radio operating in the 5150-5250 MHz band and also for multiple radios operating in the band. A maximum of four radios using 20MHz channels or two radios using 40MHz channels can operate in the band (the device does not allow two radios to operate on overlapping channels). When multiple radios are operational in the band the maximum output power per radio is reduced by 10log(n) where n is the number of radios in the band. The maximum power is detailed for a single radio for each mode (802.11a, 802.11a 2x2 MIMO, 802.11n 20MHz and 802.11n 40 MHz. The maximum output power across the band for 40MHz and 20MMz channels is also								

provided.

FCC	RSS	Decorintian	Measured Value /	Limit /	Result		
Rule Part	Rule Part	Description	Comments	Requirement	(margin)		
15.407(a) (2)	A9.2(2)	Output Power	<u>Single radio</u> a: 18.3 dBm a2x: 21.3 Bm n20: 20.9 dBm n40: 22.8 dBm <u>4x radio</u> a2x: 23.9 dBm 0.245 Watts	24 dBm / 250mW (eirp < 30dBm)	Complies		
15.407(a) (2))			a: 5.7 dBm/MHz	11 dBm/MHz	Complies		
	A9.2(2) /	Power Spectral Density	a2x: 8.8 dBm/MHz n20: 8.2 dBm/MHz	11 dBm / MHz (Shall not exceed	Complies		
	A9.5 (2)		n40: 4.4 dBm/MHz	the average value by more than 3dB)	Complies		
operating in the b	Output power is detailed for a single radio operating in the 5250-5350 MHz band and also for multiple radios operating in the band. A maximum of four radios using 20MHz channels or two radios using 40MHz channels can operate in the band (the device does not allow two radios to operate on overlapping channels). When						

Operation in the 5.25 – 5.35 GHz Band

Output power is detailed for a single radio operating in the 5250-5350 MHz band and also for multiple radios operating in the band. A maximum of four radios using 20MHz channels or two radios using 40MHz channels can operate in the band (the device does not allow two radios to operate on overlapping channels). When multiple radios are operational in the band the maximum output power per radio is reduced by 10log(n) where n is the number of radios in the band.

The maximum power is detailed for a single radio for each mode (802.11a, 802.11a 2x2 MIMO, 802.11n 20MHz and 802.11n 40 MHz. The maximum output power across the band for 40MHz and 20MMz channels is also provided.

Operation in the 5.47 – 5.725 GHz Band

FCC	RSS	Description	Measured Value /	Limit /	Result
Rule Part	Rule Part	Description	Comments	Requirement	(margin)
15.407(a) (2)	A9.2(2)	Output Power	<u>Single radio</u> a: 20.2 dBm a2x: 22.4 Bm n20: 22.8 dBm n40: 22.3 dBm <u>4x radio</u> a: 23.9 dBm 0.245 Watts	24 dBm / 250mW (eirp < 30dBm)	Complies
15.407(a) (2))			a: 7.8 dBm/MHz	11 dBm/MHz	Complies
	A9.2(2) /	Power Spectral Density	a2x: 9.9 dBm/MHz n20: 9.5 dBm/MHz	11 dBm / MHz (Shall not exceed	Complies
	A9.5 (2)		n40: 5.9 dBm/MHz	the average value by more than 3dB)	Complies
N/A	A9.2	Non-operation in 5600 – 5650 MHz sub band	Device cannot operate in the 5600 – 5650 MHz band –refer to manufacturer's attestation.		Complies

Output power is detailed for a single radio operating in the 5470-5725 MHz band and also for multiple radios operating in the band. All four radios can operate in the band using either 20MHz or 40MHz channels (the device does not allow two radios to operate on the same/overlapping channels). When multiple radios are operational in the band the maximum output power per radio is reduced by 10log(n) where n is the number of radios in the band.

The maximum power is detailed for a single radio for each mode (802.11a, 802.11a 2x2 MIMO, 802.11n 20MHz and 802.11n 40 MHz. The maximum output power across the band for 40MHz and 20MMz channels is also provided.

			1 2	, ,	,
General Requirer	nents for all NI	I bands			
FCC Rule Part	RSS Rule Part	Description	Measured Value / Comments	Limit / Requirement	Result
15.401	A9.5a	Modulation	Digital Modulation is used (OFDM)	Digital modulation is required	Complies
15.407(a) (1)	-	26dB Bandwidth (minimum)	a: 21.4 MHz a2x: 21.2 MHz n20: 22.1MHz n40: 40.3MHz	N/A – limits output power if < 20MHz	N/A
-	RSP 100	99% bandwidth (maximum)	a: 17.8 MHz n20: 18.4 MHz n40: 36.9MHz	Information only	N/A
15.407(b) (5) / 15.209	A9.3	Spurious Emissions below 1GHz		to transmitter/receiver e tested against FCC / I	
15.407(b) (2)	A9.3	Spurious Emissions above 1GHz	53.9dBμV/m (495.5μV/m) @ 5350.0MHz	Refer to SPURIOUS LIMITS –UNII and LELAN DEVICES	Complies (-0.1dB)
15.407(a)(6)	-	Peak Excursion Ratio	12.97 dB	< 13dB	Complies
15.407 (c)	A9.5(4)	Operation in the absence of information to transmit	Operation is discontinued in the absence of information (Operational Description p16)	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 p 16)		Complies
15.407 (h1)	A9.4	Transmit Power Control	Transmit power control is available and can be set manually and through the 802.11h protocol. Refer to operational description	The U-NII device shall have the capability to operate with a mean EIRP value lower than 24dBm (250mW)	Complies
15.407 (h2)	A9.4	Dynamic frequency Selection (device with radar detection)	Refer to Elliott Test r	eport R74742	
	A9.9g	User Manual information	Refer to pages 434 and 435 of the user manual		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	Internal antennas are integral to the device. External antenna connects using reverse TNC	Unique connector or integral antenna	Complies	
15.109RSS GEN 7.2.3 Table 1Receiver spurious emissions44.2dBμV/m (162.2μV/m) @ 1320.1MHzRefer to LIMITS FOR RECEIVER RADIATED SPURIOUS EMISSIONSComplies (-9.8 dB)						
15.207	RSS GEN Table 2	AC Conducted Emissions	41.3dBµV @ 2.972MHz	Refer to standard	Complies (- 4.7 dB)	
15.247 (b) (5) 15.407 (f)RSS 102RF Exposure RequirementsRefer to MPE calculations in Exhibit 11, RSS 102 declaration and User Manual statements (page 434).Refer to OET 65, FCC Part 1 and RSS 102Complies						
RSP 100 RSS GEN 7.1.5User ManualRefer to pages 434 and 435 of the user manualStatements required regarding non- interference and detachable antennaComplies						
			in the 2.4GHz and 5.7GHz gnificant signals were observ		er was	

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 Radiated Emissions	0.15 to 30 0.015 to 30	± 2.4 ± 3.0
Radiated Emissions Radiated Emissions	30 to 1000 1000 to 40000	$\pm 3.6 \pm 6.0$

EQUIPMENT UNDER TEST (EUT) DETAILS

GENERAL

The Xirrus, Inc. model XN4 is a multi-radio 802.11abgn Access Point radio which is designed to act as a hub for a wireless local area network (WLAN). The device contains 4 individual 802.11abgn radios supporting legacy mode and 3x3n modes in the 2.4GHz band and legacy and 2x2n modes in the 5 GHz bands. All four radios use internal antennas, with one radio also having the option to use an external antenna (the external antenna only supports legacy mode operation, no MIMO modes). The XN4 is powered via a proprietary PoE connection.

Normally, the EUT's would be ceiling mounted during operation. Preliminary measurements were made with the EUT tested as table-top equipment and also at a height of 1.5m above the ground plane. No significant difference in emissions was observed so formal tests were performed as table-top equipment

The sample was received on October 23, 2008 and tested on October 24, November 3, November 4, November 5, November 6, November 7, November 10 and November 11, 2008. Conducted emissions measurements were made on January 7, 2009. The EUT consisted of the following component(s):

Company	Model	Description	Serial Number	FCC ID
Xirrus	XN4	802.11abgn access point	Prototype	SK6XN4
PhiHong	P73800202A1	PoE Injector	POE60U- 560(G)-SS-R	N/A

ANTENNA SYSTEM

Each of the radios connects to an internal antenna set configured for 3x3 MIMO operation in 2.4GHz bands and 2x2 MIMO operation in the 5GHz bands. Each internal antenna has a maximum gain of between 0 and 1dBi in the 2.4GHz band and 6dBi in the 5GHz bands.

One radio also has provision for connecting to a single external antenna to operate (typically) as a single-chain, receive-only radio. The external antenna connects to the EUT via a non-standard reverse TNC antenna connector, thereby meeting the requirements of FCC 15.203. The external antenna's maximum gain is 2.5dBi for all bands.

ENCLOSURE

The EUT enclosure is primarily constructed of plastic. It measures approximately 32 cm in diameter by 6 cm high.

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 testing:

Company	Model	Description	Serial Number	FCC ID
IBM	Thinkpad R51	Laptop	-	-

No remote support equipment was used during testing.

EUT INTERFACE PORTS

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

Port	Connected To		Cable(s)	
FOIL	Connected 10	Description	Shielded or Unshielded	Length(m)
PoE IN	Switch	Cat 5	Unshielded	10.0
PoE Out	Data& Power IN	Cat 5	Unshielded	1.0
AC Power	PoE	3 wire	Unshielded	1.5

Note: The service port was not connected during testing. The manufacturer stated that this is for setup purposes and therefore would not normally be connected.

EUT OPERATION

During testing the EUT was configured in either a transmit or a receive mode using ART software.

For transmit mode one or more of the four radios was configured to continuously transmit on a specific channel on one or more chains. Each radio could be configured for a single chain operation (legacy 802.11b, g or a modes) or for multi-chain (MIMO) operation (all modes). In receive mode one or more radios was configured in a receive only mode with all chains active.

When evaluating the external antenna only one radio was operating during testing. When evaluating the internal antennas the rf port and radiated band edge measurements were made with a single radio operational. Radiated spurious measurements were made with multiple radios active to allow for evaluating spurious emissions with radios active on top, bottom and center channels. This also allowed for evaluation of any intermodulation products from the system (none were observed).

TEST SITE

GENERAL INFORMATION

Final test measurements were taken on October 24, November 3, November 4, November 5, November 6, November 7, November 10 and November 11, 2008 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	Registratio	Location	
Site	FCC	Canada	
SVOATS #1	90592	IC 2845-1	684 West Maude Ave, Sunnyvale
SVOATS #2	90593	IC 2845-2	CA 94085-3518

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

CONDUCTED EMISSIONS CONSIDERATIONS

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

RADIATED EMISSIONS CONSIDERATIONS

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

MEASUREMENT INSTRUMENTATION

RECEIVER SYSTEM

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

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

INSTRUMENT CONTROL COMPUTER

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

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

LINE IMPEDANCE STABILIZATION NETWORK (LISN)

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

FILTERS/ATTENUATORS

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

ANTENNAS

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

ANTENNA MAST AND EQUIPMENT TURNTABLE

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

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

INSTRUMENT CALIBRATION

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

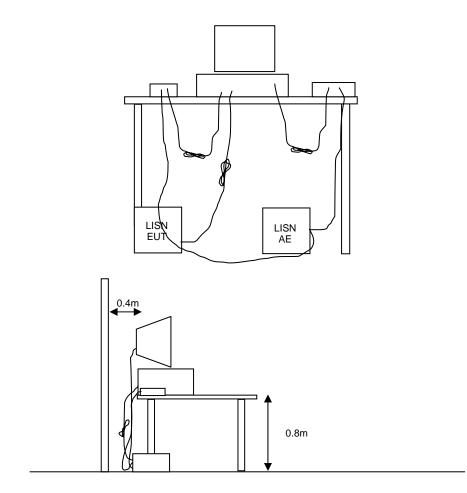
TEST PROCEDURES

EUT AND CABLE PLACEMENT

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

CONDUCTED EMISSIONS

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



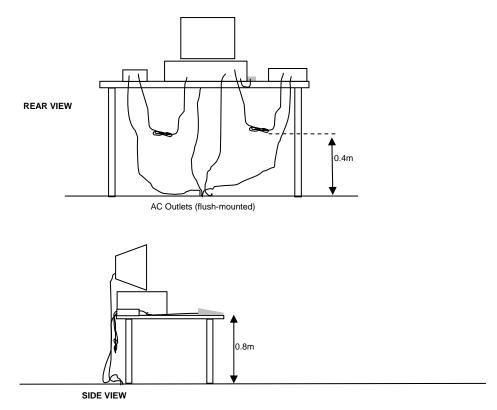
RADIATED EMISSIONS

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

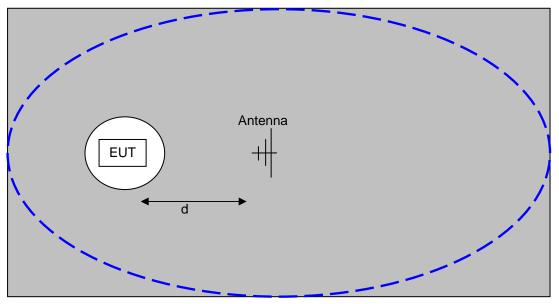
A speaker is provided in the receiver to aid in discriminating between EUT and ambient emissions. Other methods used during the preliminary scan for EUT emissions involve scanning with near field magnetic loops, monitoring I/O cables with RF current clamps, and cycling power to the EUT.

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

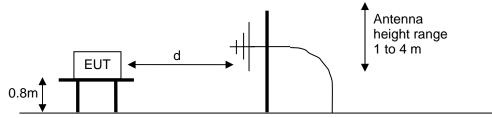
When testing above 18 GHz, the receive antenna is located at 1 meter from the EUT and the antenna height is restricted to a maximum of 2.5 meters.



Typical Test Configuration for Radiated Field Strength Measurements



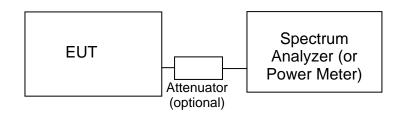
The ground plane extends beyond the ellipse defined in CISPR 16 / CISPR 22 / ANSI C63.4 and is large enough to accommodate test distances (d) of 3m and 10m. Refer to the test data tables for the actual measurement distance.



<u>Test Configuration for Radiated Field Strength Measurements</u> <u>OATS- Plan and Side Views</u>

CONDUCTED EMISSIONS FROM ANTENNA PORT

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



Test Configuration for Antenna Port Measurements

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

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

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

BANDWIDTH MEASUREMENTS

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

SPECIFICATION LIMITS AND SAMPLE CALCULATIONS

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

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

LIMITS FOR RECEIVER RADIATED SPURIOUS EMISSIONS

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

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

GENERAL TRANSMITTER RADIATED EMISSIONS SPECIFICATION LIMITS

The table below shows the limits for the spurious emissions from transmitters that fall in restricted bands¹ (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

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.

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

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	$250 \text{ mW} (24 \text{ dBm})^2$ 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.

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:

 $\begin{array}{lll} F_d &=& \text{Distance Factor in dB} \\ D_m &=& \text{Measurement Distance in meters} \\ D_s &=& \text{Specification Distance in meters} \end{array}$

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

EXHIBIT 1: Test Equipment Calibration Data

1 Page

Manufacturer	Description	Model #	Asset # Cal Due
Hewlett Packard	Microwave Preamplifier, 1-26.5GHz	8449B	870 09-Oct-09
EMCO	Antenna, Horn, 1-18 GHz	3115	1561 10-Jun-10
Hewlett Packard	SpecAn 9 kHz - 40 GHz, (SA40)	8564E	CH5273 24-Oct-08
	18,000 MHz, 30-Oct-08 (Receiver Spurious)		
Engineer: Mehran Birgani		•• • • •	
Manufacturer	<u>Description</u>	Model #	Asset # Cal Due
EMCO	Antenna, Horn, 1-18 GHz	3115	487 15-Jul-10
Hewlett Packard	Microwave Preamplifier, 1-26.5GHz	8449B	785 06-Jun-09
Hewlett Packard	SpecAn 30 Hz -40 GHz, SV (SA40) Red	8564E (84125C)	1148 24-Nov-08
Radiated Emissions, 1,00	0 - 40,000 MHz, 03-Nov-08		
Engineer: Mehran Birgani			
Manufacturer	Description	Model #	Asset # Cal Due
EMCO	Antenna, Horn, 1-18 GHz	3115	487 15-Jul-10
Hewlett Packard	Microwave Preamplifier, 1-26.5GHz	8449B	785 06-Jun-09
Hewlett Packard	SpecAn 30 Hz -40 GHz, SV (SA40) Red	8564E (84125C)	1148 24-Nov-08
Radiated Emissions, 1000) - 40,000 MHz, 05-Nov-08		
Engineer: Rafael Varelas	-,,		
Manufacturer	Description	Model #	Asset # Cal Due
EMCO	Antenna, Horn, 1-18 GHz	3115	487 15-Jul-10
Hewlett Packard	Microwave Preamplifier, 1-26.5GHz	8449B	785 06-Jun-09
Hewlett Packard	SpecAn 30 Hz -40 GHz, SV (SA40) Red	8564E (84125C)	1148 24-Nov-08
Receiver Spurious Emiss	ions, 14-Nov-08		
Engineer: Suhaila Khusha	zad		
<u>Manufacturer</u>	Description	Model #	Asset # Cal Due
EMCO	Antenna, Horn, 1-18 GHz	3115	487 15-Jul-10
Hewlett Packard	Microwave Preamplifier, 1-26.5GHz	8449B	785 06-Jun-09
Hewlett Packard	SpecAn 30 Hz -40 GHz, SV (SA40) Red	8564E (84125C)	1148 24-Nov-08
Conducted Emissions - A	C Power and Telecommunications Ports, 07-Jan	1-09	
Engineer: Joseph Cadiga			
Manufacturer	Description	Model #	Asset # Cal Due
Hewlett Packard	SpecAn 9 KHz-26.5 GHz, Non-Program	8563E	284 29-Dec-09
Elliott Laboratories	LISN, FCC / CISPR	LISN-4, OATS	362 31-Jul-09
Fischer Custom Comm.	150-50 ohm adapter, 1/2, 0.15 to 80 MHz	FCC-801-150-50	873 03-Jun-09
Rohde & Schwarz	Test Receiver, 9 kHz-2750 MHz	ESCS 30	1337 02-Oct-09
Rohde& Schwarz	Pulse Limiter	ESH3 Z2	1398 12-Feb-09
Radio Antenna Port (Pow	er and Spurious Emissions), 06-Nov-08 to 11-No	v-08	
Engineer: Mehran Birgani			
Manufacturer	Description	Model #	Asset # Cal Due
Hewlett Packard	SpecAn 30 Hz -40 GHz, SV (SA40) Red	8564E (84125C)	1148 24-Nov-08

EXHIBIT 2: Test Measurement Data

T73388 (RF Port measurements) 105 pages T73389 (Transmitter radiated measurements) 39 pages T73397 (Receiver spurious measurements) 4 pages T73385 (AC Conducted emissions measurements) 6 pages

6 Ell	iott
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EMC Test Data

An ZAIZE	Company		
Client:	Xirrus	Job Number:	J71484
Model:	XN4	T-Log Number:	T73388
		Account Manager:	Susan Pelzl
Contact:	Steve Smith		Mark Briggs
Emissions Standard(s):	FCC 15 E, RSS 210	Class:	NII
Immunity Standard(s):	-	Environment:	Wireless

NII RF Port Test Data

For The

Xirrus

Model

XN4

Date of Last Test: 11/11/2008

Ellic	Dtt VAT company		EMC Test Data						
Client: Xirrus	company.		J	ob Number: J71484					
Model: XN4		T-L	og Number: T73388						
		Accou	nt Manager: Susan Pelzl						
Contact: Steve Smith									
Standard: FCC 15 E,	RSS 210			Class: N/A					
RSS-210 (LELAN) and FCC 15.407(UNII) Antenna Port Measurements Power, PSD, Peak Excursion, Bandwidth and Spurious Emissions									
Test Specific Detai	ls								
Objective:	The objective of this test session is to specification listed above.	perform final qualificatio	n testing of th	e EUT with respect to the					
Date of Test: Test Engineer: Test Location:	Mehran Birgani	Config. Used: Config Change: EUT Voltage:	Direct conne	ection					
analyzer or power me	conducted emissions from the EUT's a ter via a suitable attenuator to prevent attenuators and cables used.	overloading the measure		-					
Summary of Resul		10-00 %							
Run #	Test Performed	Limit	Pass / Fail	Result / Margin					
1	Power, 5150 - 5250MHz	15.407(a) (1), (2)	Pass	Single radio: 16.2 dBm 4x radio: 16.3 dBm					
1	PSD, 5150 - 5250MHz	15.407(a) (1), (2)	Pass	3.7 dBm/MHz					
1	26dB Bandwidth	15.407	-	23.4 MHz					
1	99% Bandwidth	RSS 210	-	17.2 MHz					
2	Peak Excursion Envelope	15.407(a) (6)	Pass	11.9 dB					
3 Antenna Conducted 15.407(b) Pass All emissions belo Out of Band Spurious 15.407(b) Pass -27dBm/MHz I									
Out of Band Spundus -27dBm/WH2 Inflit Modifications Made During Testing -27dBm/WH2 Inflit No modifications were made to the EUT during testing -27dBm/WH2 Inflit Deviations From The Standard No deviations were made from the requirements of the standard.									

Elliott Client: Xirrus Job Number: J71484 Model: XN4

T-Log Number: T73388

EMC Test Data

Account Manager: Susan Pelzl

Class: N/A

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

Contact: Steve Smith Standard: FCC 15 E, RSS 210

Antenna gain used is for the internal antenna. The external antenna gain is lower (2.5dBi) and not used for MIMO modes.

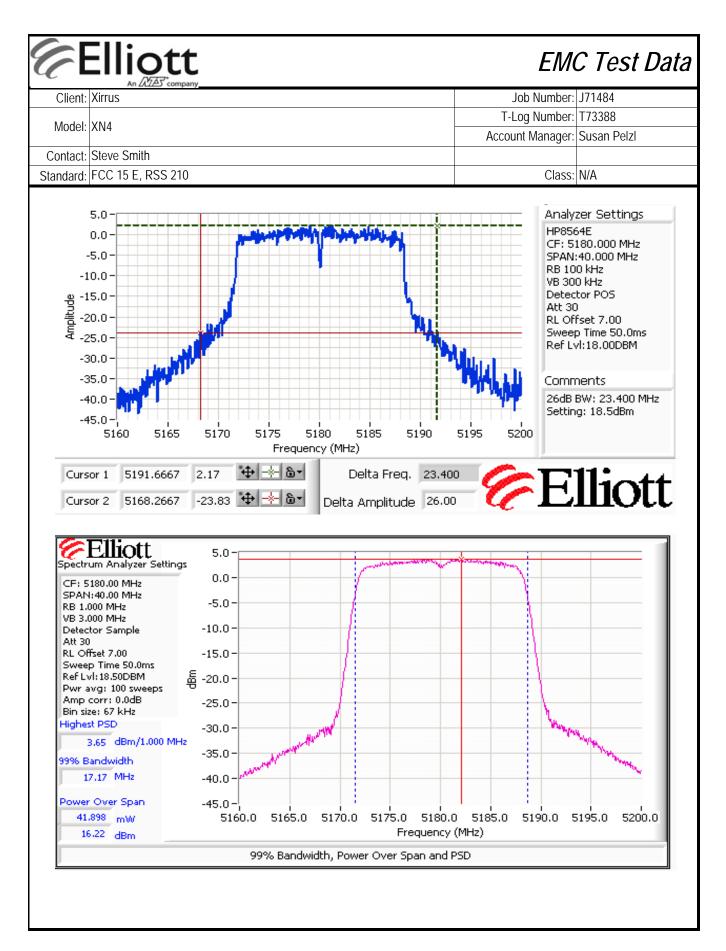
Antenna Gain (dBi):	3.0

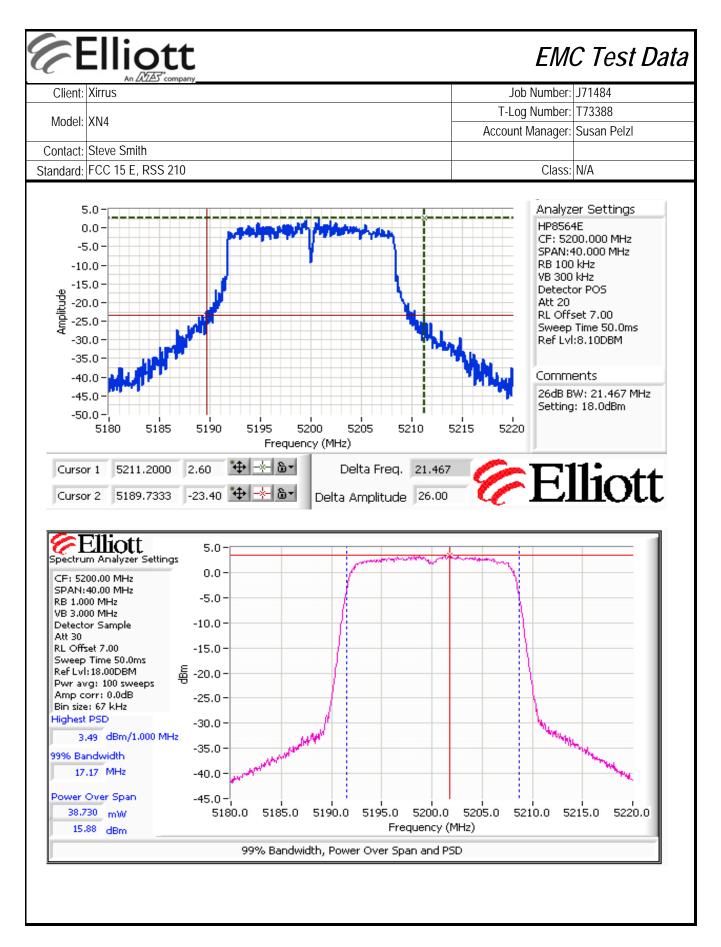
Power settings for a single radio operating in the band										
Frequency	Software	Band	width	Output Po	wer ¹ dBm	Power	P	SD ² dBm/MH	lz	Result
(MHz)	Setting	26dB	99 % ⁴	Measured	Limit	(Watts)	Measured	FCC Limit	RSS Limit ³	Result
5180	18.5	23.4	17.2	16.2	17.0	0.042	3.7	4.0	7.0	Pass
5200	18.0	21.5	17.2	15.9	17.0	0.039	3.5	4.0	7.0	Pass
5240	18.5	21.5	17.2	16.1	17.0	0.041	3.6	4.0	7.0	Pass

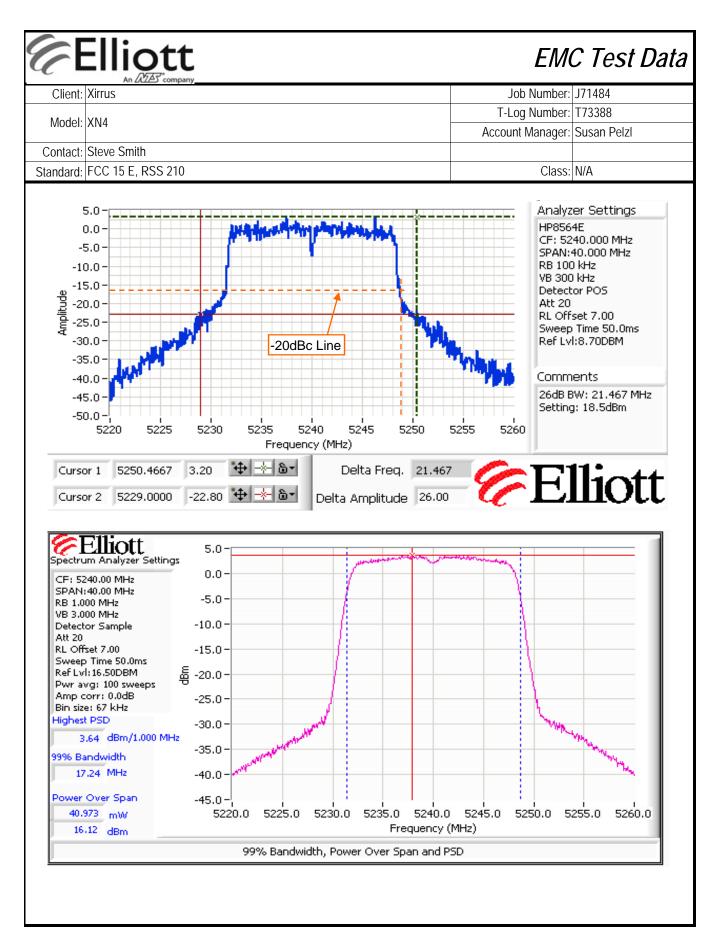
Power settings for all four channels being used in the band

Output power measured on the centre channel to demonstrate power control is available to set the power to a level low enough to comply with limits when all four radios are operational in the band. Only power was measured - aggregation of PSD is not applicable as the device cannot have more than one radio operating on a channel.

Frequency	Software	Band	lwidth	Measure	d Power ¹	
(MHz)	Setting	26dB	99 % ⁴	dBm	mW	
5200	11.0	19.1	17.2	10.3	10.7	Limit
	Total	Power Acros	ss The Band	16.3	42.9	17 dBm
			ed using a sp	5		
Note 1:	RBW=1M	Hz, VB=3 MI	Hz, sample d	etector, powe	er averaging	g on (transmitted signal was continuous) and power integration
	over 40 M					
Note 2:			ame analyzer			
						nts for the antenna gain as the maximum eirp allowed is
Note 3:						ere the highest measured value of the PSD exceeds the
11010 0.	•					by the measured 99% bandwidth) by more than 3dB by the
						ore than 3dB.
Note 4:	99% Band	dwidth measu	ured in accord	dance with R	SS GEN - R	RB > 1% of span and VB >=3xRB









E C	Elliott	EM	C Test Data
Client:		Job Number:	J71484
Model:	YN4	T-Log Number:	T73388
wouer.	^IN4	Account Manager:	Susan Pelzl
Contact:	Steve Smith		
Standard:	FCC 15 E, RSS 210	Class:	N/A

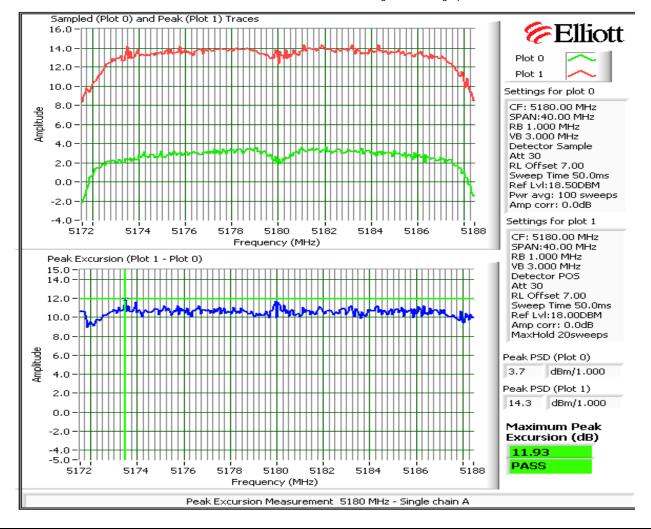
Run #2: Peak Excursion Measurement

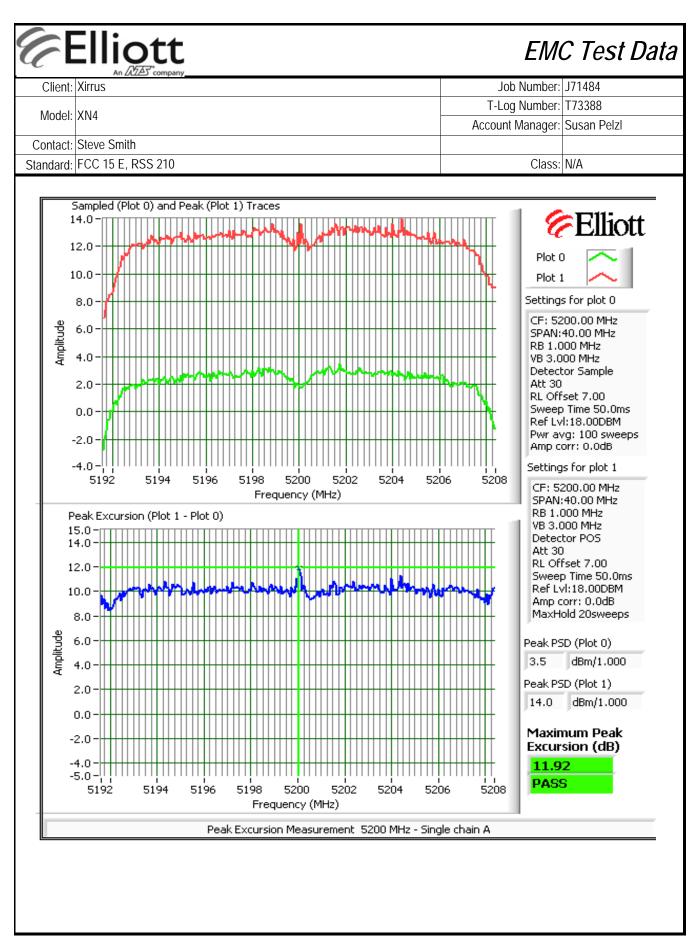
Device meets the requirement for the peak excursion

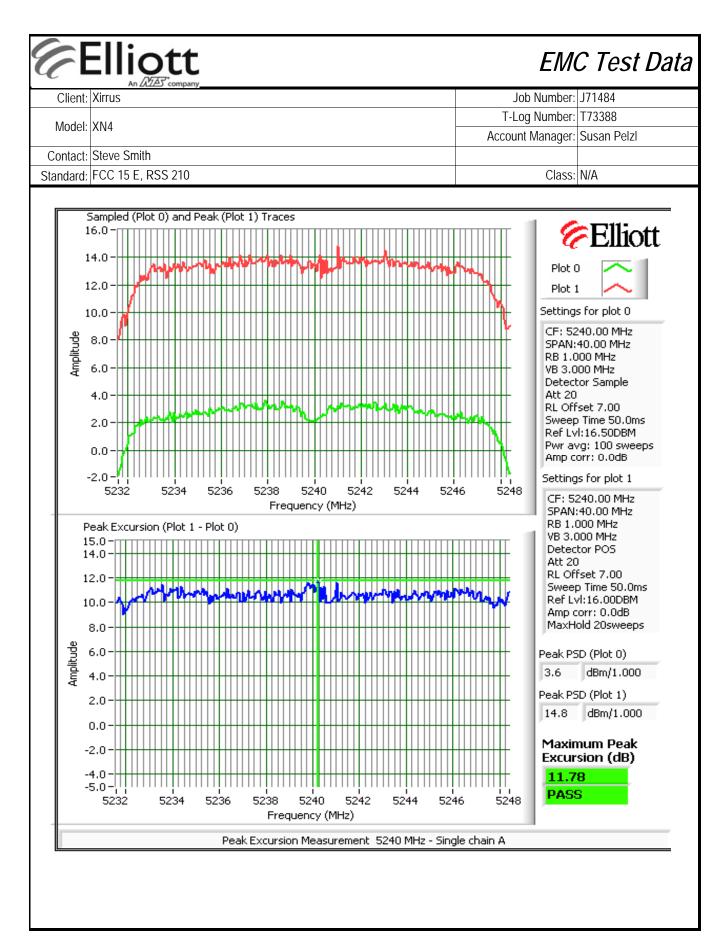
	Freq	Peak Excursion(dB)		Freq	Peak Excursion(dB)		Freq	Peak Excursion(dB)	
	(MHz)	Value	Limit	(MHz)	Value	Limit	(MHz)	Value	Limit
	5180	11.9	13.0	5260		13.0	5500		13.0
	5200	11.9	13.0	5300		13.0	5600		13.0
Γ	5240	11.8	13.0	5320		13.0	5700		13.0

Plots Showing Peak Excursion

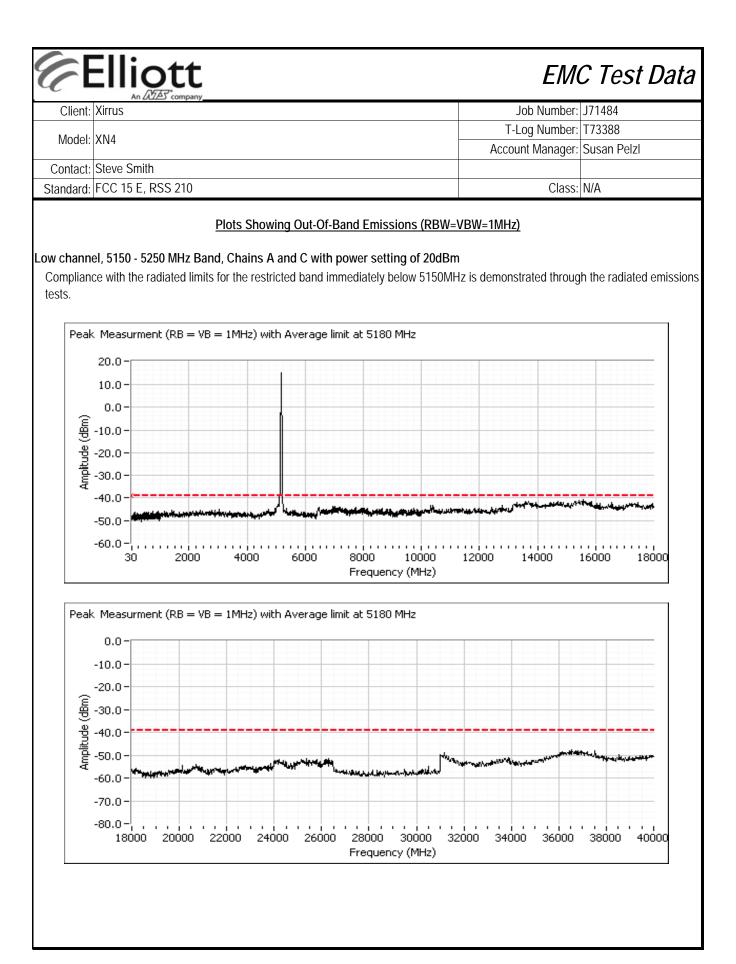
Trace A: RBW = VBW = 3MHz, Peak hold Trace B: RBW = 1 MHz, VBW = 3MHz, Integrated average power

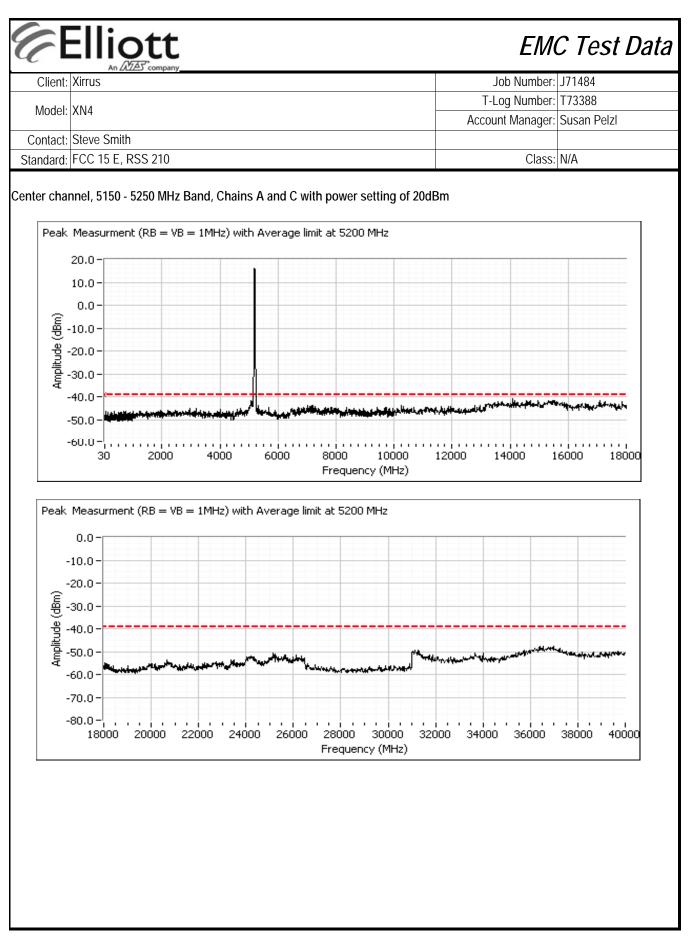






Client	Xirrus	Job Number:	J71484
		T-Log Number:	
Model:	XN4	Account Manager:	
Contact:	Steve Smith		
	FCC 15 E, RSS 210	Class:	N/A
out of ba	Spurious Limit: -27.0 dBm/MHz eirp Adjustment for 2 chains: -6.0 dB adjustment for m Limit Lised On Plots Note 1. -39.0 dBm/MHz	ow cover both single- and dua ed to assume two coherent da ultiple chains and coherency t e Limit (RB=1MHz, VB=10Hz) mit (RB=VB=1MHz)	ta streams)
Note 2: Note 3: Note 4:	signals more than 50MHz from the bands and that are close to the lir gain is not known at these frequencies. All spurious signals below 1GHz are measured during digital device r Signals within 10MHz of the 5.725 or 5.825 Band edge are subject to If the device is for outdoor use then the -27dBm eirp limit also applies	adiated emissions test. a limit of -17dBm EIRP	
Note 5:	Signals that fall in the restricted bands of 15.205 are subject to the lin		

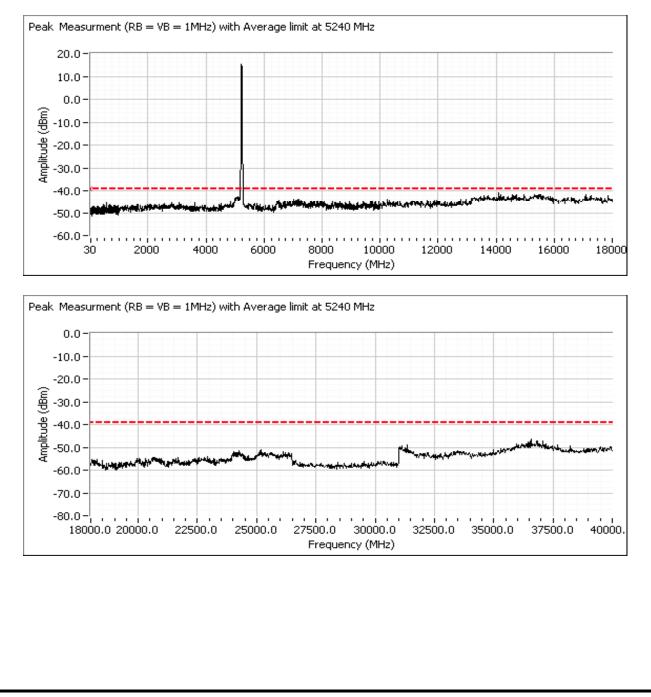




Client: Xirrus Job Number: J71484 Model: XN4 T-Log Number: T73388 Contact: Steve Smith Susan Pelzl Standard: FCC 15 E, RSS 210 Class: N/A

High channel, 5150 - 5250 MHz Band, Chains A and C

Note; Initial approval for FCC will only allow operation in the 5150 - 5250 MHz NII band so a plot showing -20dBc at 5250 MHz and above is included.

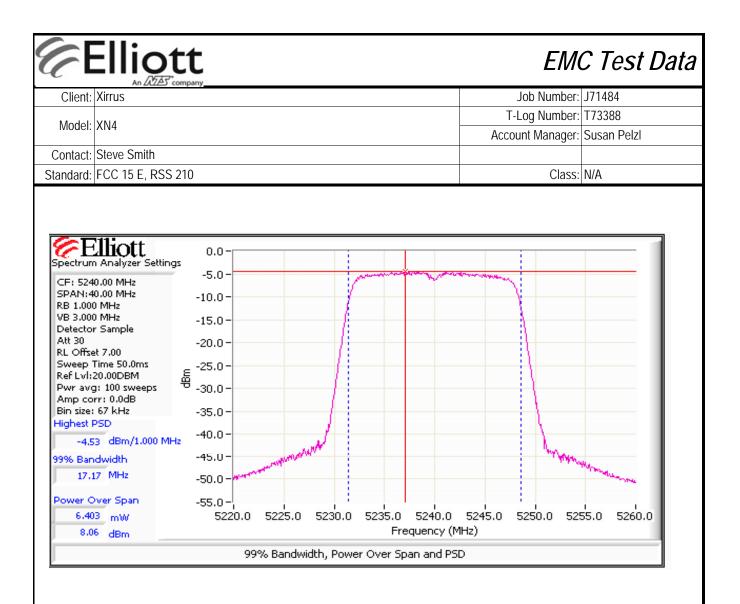


(CE	Ellic	ott			EM	C Test Data
Client:	An 242 Xirrus	company <u>ح</u>		J	ob Number:	J71484
					.og Number:	
Model:	XN4				0	Susan Pelzl
Contact:	Steve Smith					
	FCC 15 E, R	SS 210			Class:	N/A
	Powe	RSS-210 (LELAN Antenna Po er, PSD, Peak Excursion,	ort Measurem	ents		sions
Test Spec	ific Detail:	S				
-		The objective of this test session is to specification listed above.	perform final qualificatio	n testing of th	e EUT with	respect to the
Те	Date of Test: st Engineer: est Location:	Rafael Varelas	Config. Used: Config Change: EUT Voltage:	Direct conne	ection	
analyzer o allow for ti Ambient (or power meter	Rel. Humidity:	-			-
Summary	or nesure	5				
Ru	n #	Test Performed	Limit	Pass / Fail		Result / Margin
1		Power, 5150 - 5250MHz	15.407(a) (1), (2)	Pass	•	e radio: 16.1 dBm
-		PSD, 5150 - 5250MHz	15.407(a) (1), (2)	Pass		radio: 16.6 dBm 3.6 dBm/MHz
-		26dB Bandwidth	15.407	- F d 5 5		21.9 MHz
		99% Bandwidth	RSS 210	-		17.2 MHz
		Peak Excursion Envelope	15.407(a) (6)	Pass		12.6 dB
		Antenna Conducted		1 435	Covered by	single-chain
3	5	Out of Band Spurious	15.407(b)			asurements
No modifice Deviation	cations were s From Th	During Testing made to the EUT during testing the Standard de from the requirements of the stand	lard.			

FMC Test Data

Client:	Xirrus						~	Job Number:	J71484	
Madalı							T-l	og Number:	T73388	
Model:	XIN4						Accou	int Manager:	Susan Pelzl	
Contact:	Steve Smith									
Standard:	FCC 15 E, F	RSS 210						Class:	N/A	
		tput Power a		•	•	- I	D') and a d		N	
intenna gai	n used is for	the internal a		e external an Chain 2	Chain 3	7	1	sed for MINIC) modes.	
	Antonn	a Gain (dBi):	Chain 1 3	Chain 2	Chain 3	Coherent Yes	6.0			
	Antenn	a Gaill (ubi).	3		3	res	0.0	l		
ower setti	ngs for a si	ngle radio op	perating in t	he band						
requency	Software	26dB BW		d Output Po	wer ¹ dBm	Тс	otal		Max Power	Pass o
(MHz)	Setting	(MHz)	Chain 1	Chain 2	Chain 3	mW	dBm	Limit (dBm)	(W)	Fail
5180	14.5	20.8	12.4		13.7	40.8	16.1	17.0		PASS
5200	15.0	22.1	12.6		12.9	37.6	15.8	17.0	0.041	PASS
5240	15.0	21.9	12.5		13.6	40.5	16.1	17.0		PASS
						T		r		
requency	99% ⁴	Total	Р	SD ² dBm/MH	Ηz	Tota	PSD	Lir	mit	
Frequency (MHz)	99% ⁴ BW	Total Power	P Chain 1	SD ² dBm/MF Chain 2	Iz Chain 3	Total mW/MHz	PSD dBm/MHz	Lii FCC	mit RSS 210 ³	Pass c Fail
. ,	BW 17.2	Power 16.1	Chain 1 -0.1			mW/MHz 2.3	dBm/MHz 3.6			Fail
(MHz) 5180 5200	BW 17.2 17.2	Power 16.1 15.8	Chain 1 -0.1 0.0		Chain 3 1.2 0.5	mW/MHz 2.3 2.1	dBm/MHz 3.6 3.3	FCC 4.0 4.0	RSS 210 ³ 4.0 4.0	Fail PASS PASS
(MHz) 5180	BW 17.2 17.2 17.2 Output powe	Power 16.1 15.8 16.1 er measured	Chain 1 -0.1 0.0 -0.1 using a spec	Chain 2	Chain 3 1.2 0.5 1.0 er (see plots	mW/MHz 2.3 2.1 2.2 below for the	dBm/MHz 3.6 3.3 3.5 e high power	FCC 4.0 4.0 4.0 measuremer	RSS 210 ³ 4.0 4.0 4.0	PASS PASS PASS
(MHz) 5180 5200 5240 Note 1: Note 2: Note 3:	BW 17.2 17.2 17.2 Output power RBW=1MHz over 50MHz Measured u For RSS-21 10dBm/MHz PSD (calcul the measured	Power 16.1 15.8 16.1 er measured u c, VB=3 MHz, sing the same 0 the limit for c. The limits a ated from the ed value exce	Chain 1 -0.1 0.0 -0.1 using a spect sample deter e analyzer so the 5150 - 5 re also corre measured p eds the ave	Chain 2 ctrum analyze ector, power ettings used i250 MHz ba ected for insta power divideo rage by more	Chain 3 1.2 0.5 1.0 er (see plots averaging of for output pc nd accounts ances where d by the mea e than 3dB.	mW/MHz 2.3 2.1 2.2 below for the n (transmitted ower. for the anter the highest sured 99% b	dBm/MHz 3.6 3.3 3.5 high power d signal was of ma gain as the measured va andwidth) by	FCC 4.0 4.0 measuremer continuous) a ne maximum lue of the PS more than 3	RSS 210 ³ 4.0 4.0 4.0	Fail PASS PASS PASS egration s e averag
5180 5200 5240 Note 1: Note 2:	BW 17.2 17.2 17.2 Output power RBW=1MHz over 50MHz Measured u For RSS-21 10dBm/MHz PSD (calcul the measure 99% Bandw	Power 16.1 15.8 16.1 er measured u c, VB=3 MHz, sing the same o the limit for c. The limits a ated from the ed value exce idth measured	Chain 1 -0.1 0.0 -0.1 using a spect sample deter e analyzer so the 5150 - 5 re also corre measured p eds the ave d in accorda	Chain 2 Chain 2 Ctrum analyze ector, power ettings used 5250 MHz ba ected for insta power divideo rage by more nce with RSS	Chain 3 1.2 0.5 1.0 er (see plots averaging of for output po nd accounts ances where d by the mea e than 3dB. S GEN - RB	mW/MHz 2.3 2.1 2.2 below for the n (transmitted wer. for the anter the highest f sured 99% b > 1% of spar	dBm/MHz 3.6 3.3 3.5 high power d signal was of ma gain as the measured va andwidth) by and VB >=3	FCC 4.0 4.0 measuremer continuous) a me maximum lue of the PS more than 3 xRB	RSS 210 ³ 4.0 4.0 4.0 and power interest of the second se	Fail PASS PASS PASS egration s e averag ount that

(MHz) Setting (MHz) Chain 1 Chain 2 Chain 3 mW dBm 5240 8.5 21.9 6.9 8.1 11.4 10.6 Limit P (W) Result		Xirrus						-	Job Number:	J71484	
Account Manager: Susan Pelzi Standard: FCC 15 E, RSS 210 wer settings for all four 802.11a channels being used in the band: tiput power measured on the high channel to demonstrate power control is available to set the power to a level low enough to complete the more than one radio operational in the band. Only power was measured - aggregation of PSD is not applicable as the vice cannot have more than one radio operating on a channel. equency Software 26dB BW Measured Output Power ¹ dBm Total (MHz) Setting (MHz) Chain 1 Chain 2 Rhin 3 W dBm 5240 8.5 21.9 6.9 8.1 11.4 10.6 Limit P (W) Result Total power in the band (four radios operational): 45.4 16.6 17.0 0.045 PAS: Software 5.0 -5.0 5.20 5.23 0 5.24 0.0 5.25 5.0 5.20	N 4 I - I							T-L	_og Number:	T73388	
Slandard: FCC 15 E, RSS 210 Class: N/A wer settings for all four 802.11a channels being used in the band: Iput power measured on the high channel to demonstrate power control is available to set the power to a level low enough to complete hims when all four radios are operational in the band. Only power was measured - aggregation of PSD is not applicable as the vice cannot have more than one radio operating on a channel. equency Software 26dB BW Measured Output Power ¹ dBm Total (MHz) Setting (MHz) Chain 1 Chain 2 Chain 3 mW dBm 5240 8.5 21.9 6.9 8.1 11.4 10.6 Limit P (W) Resured (MHz) Total power in the band (four radios operational): 45.4 16.6 17.0 0.045 PAS: Note 1: RBW=1MHz, VB=3 MHz, sample detector, power averaging on (transmitted signal was continuous) and power integration over 50MHz. -10.0 -15.0 -25.0 -25.0 -25.0 -25.0 -25.0 -25.0 -25.0 -25.0 -25.0 -25.0 -523.0 5240.0 5245.0 5250.0 5250.0 5250.0 5250.0 5250.0 5250.0 5250.0 5250.0 5250.0 5250.0 525	Model:	XN4						Accou	int Manager:	Susan Pelzl	
wer settings for all four 802.11a channels being used in the band: tput power measured on the high channel to demonstrate power control is available to set the power to a level low enough to complete himits when all four radios are operational in the band. Only power was measured - aggregation of PSD is not applicable as the vice cannot have more than one radio operating on a channel. Equency Software 26dB BW Measured Output Power ¹ dBm Total (MHz) Setting (MHz) Chain 1 Chain 2 Chain 3 mW dBm 5240 8.5 21.9 6.9 8.1 11.4 10.6 Limit P (W) Resu Total power in the band (four radios operational): 45.4 16.6 17.0 0.045 PAS: 0.045 PAS: 0.046 PAS: 0.045 PAS: 0.046 PAS: 0.045 PAS: 0.045 PAS: 0.046 PAS: 0.045 PAS: 0.046 PAS: 0.045 PAS: 0.046 PAS: 0.045 PAS: 0.046 PAS	Contact:	Steve Smith									
<pre>itput power measured on the high channel to demonstrate power control is available to set the power to a level low enough to complet hilmits when all four radios are operational in the band. Only power was measured - aggregation of PSD is not applicable as the vice cannot have more than one radio operating on a channel.</pre>	Standard:	FCC 15 E, R	SS 210						Class:	N/A	
MHz Setting (MHz) Chain 1 Chain 2 Chain 3 mW dBm 5240 8.5 21.9 6.9 8.1 11.4 10.6 Limit P (W) Result Total power in the band (four radios operational): 45.4 16.6 17.0 0.045 PAS: Output power measured using a spectrum analyzer (see plots below for the high power measurements): RBW=1MHz, VB=3 MHz, sample detector, power averaging on (transmitted signal was continuous) and power integration over 50MHz. Spectrum Analyzer Settings -5.0 -5.0 -5.0 -10.0 -15.0 -10.0 -15.0 -10.0	itput powe th limits wi	er measured hen all four ra	on the high cl adios are ope	hannel to de rational in t	emonstrate p he band. On	ower control i ly power was		•		•	
(MHz) Setting (MHz) Chain 1 Chain 2 Chain 3 mW dBm 5240 8.5 21.9 6.9 8.1 11.4 10.6 Limit P (W) Result Total power in the band (four radios operational): 45.4 16.6 17.0 0.045 PASt Output power measured using a spectrum analyzer (see plots below for the high power measurements): RBW-1MHz, VB-3 MHz, sample detector, power averaging on (transmitted signal was continuous) and power integration over 50MHz. Spectrum Analyzer Settings -5.0 -5.0 -10.0 -15.0 -10.0 -15.0 -10.0 -15.0 -10.0 -15.0 -10.0 -15.0 -10.0 -15.0 -20.0 -25.0 -20.0 -25.0 -25.0 -25.0 -25.0 -25.0 -25.0 -25.0 -25.0 -25.0 -25.0 -35.0 -40.0 -45.0 -40.0 -45.0 -40.0 -45.0 -40.0 -45.0 -52.0 52.0 52.0 52.0 52.0.0 52.0.0 52.0.0 </td <td>requency</td> <td>Software</td> <td>26dB BW</td> <td>Measure</td> <td>d Output Po</td> <td>wer¹dBm</td> <td>To</td> <td>otal</td> <td></td> <td></td> <td></td>	requency	Software	26dB BW	Measure	d Output Po	wer ¹ dBm	To	otal			
5240 8.5 21.9 6.9 8.1 11.4 10.6 Limit P (W) Result Total power in the band (four radios operational): 45.4 16.6 17.0 0.045 PASt Output power measured using a spectrum analyzer (see plots below for the high power measurements): RBW=1MHz, VB=3 MHz, sample detector, power averaging on (transmitted signal was continuous) and power integration over 50MHz. Spectrum Analyzer Settings -5.0 -5.0 -10.0 -10.0 -15.0 -10.0 -15.0 -10.0 -15.0 -10.0 -15.0 -10.0 -15.0 -10.0 -15.0 -10.0 -15.0 -10.0 -15.0 -20.0 -10.0 -15.0 -20.0 -25.0 -20.0 -25.0 -25.0 -25.0 -25.0 -25.0 -25.0 -25.0 -25.0 -25.0 -25.0 -35.0 -40.0 -45.0 -40.0 -45.0 -40.0 -45.0 -40.0 -45.0 -55.0 520.0 5255.0 5260.0 5255.0 5260.0 5255.0 5		Setting	(MHz)		_		mW	dBm			
Output power measured using a spectrum analyzer (see plots below for the high power measurements): RBW=1MHz, VB=3 MHz, sample detector, power averaging on (transmitted signal was continuous) and power integration over 50MHz. Spectrum Analyzer Settings -5.0 CF: 5240.00 MHz -10.0 SPAN:40.00 MHz -15.0 VB 3.000 MHz -15.0 VB 3.000 MHz -15.0 VB 3.000 MHz -20.0 Att 30 -25.0 Sweep Time 50.0ms -25.0 Sweep Time 50.0ms -5.3.0 Mp corr: 0.0dB -35.0 Highest PSD -40.0 -5.5.5 dBm/1.000 MHz 99% Bandwidth -50.0 17.17 MHz -50.0 Power Over Span -55.0 41.920 mW 5220.0 5225.0 520.0 5225.0 5230.0 5240.0 5250.0 5250.0 6.32 dBm -520.0 5250.0 5250.0 5250.0 5260.0		8.5		6.9		8.1			Limit	P (W)	Resul
Note 1: RBW=1MHz, VB=3 MHz, sample detector, power averaging on (transmitted signal was continuous) and power integration over 50MHz. Spectrum Analyzer Settings -5.0 CF: 5240.00 MHz -10.0 Spectrum Analyzer Settings -20.0 Image: CF: 5240.00 MHz -15.0 Spectrum Analyzer Settings -20.0 CF: 5240.00 MHz -15.0 RB 1.000 MHz -20.0 Re L viz.000 DBM E Operation of the transmitted signal was continuous) and power integration Sweep Time 50.000 MHz -20.0 Sweep Time 50.000 MHz -35.0 Bin size: 57 kHz -35.0 Highest PSD -40.0 -55.0 -55.0 -55.0 Power Over Span -55.0 -52.0.0 5225.0 5230.0 5245.0 5250.0 5255.0 5260.0 Multiple detector Span -55.0 -52.0.0 5225.0 5230.0 5245.0 5250.0 5255.0 5260.0 Multiple detector Span -55.0 -52.0.0 5225.0 5230.0 5245.0 5250.0 5250.0			Total power	in the band	(four radios	operational):	45.4	16.6	17.0	0.045	PASS
Power Over Span -55.0 - :	Att 30 RL Offse Sweep Ref Lvl: Pwr avg Amp co Bin size: Highest I	et 7.00 Time 50.0ms 20.00DBM g: 100 sweep: rr: 0.0dB 67 kHz PSD 55 dBm/1.000	-25. 돌 등 -30. -35. -40.	0 - 0 - 0 - 0 -	work				Lam.		
Power Over Span -55.0 - :				C . War	all all and and all				. and the	the shares	
4.920 mW 5220.0 5225.0 5230.0 5235.0 5240.0 5245.0 5250.0 5260.0 6.92 dBm Frequency (MHz)				° "						- Aller	
6.92 dBm Frequency (MHz)					- 225.0 523	0.0 5235.0	1 5240.0	5245.0	5250.0 52	55.0 5260	1.0
			,								
				99%	Bandwidth. R	ower Over 9	5pan and PS	iD			



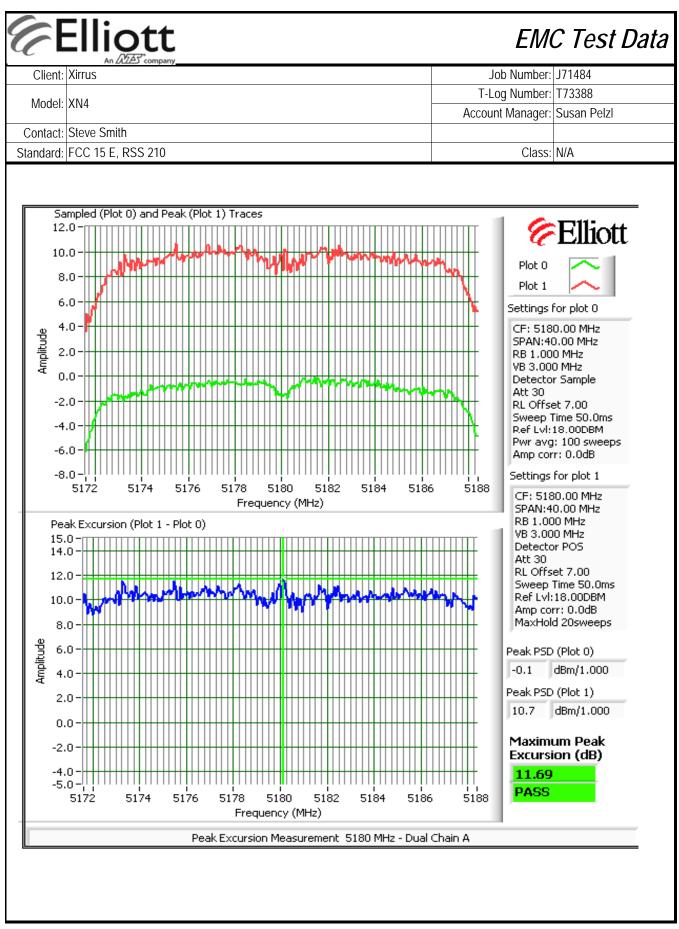
Run #2: Peak Excursion Measurement

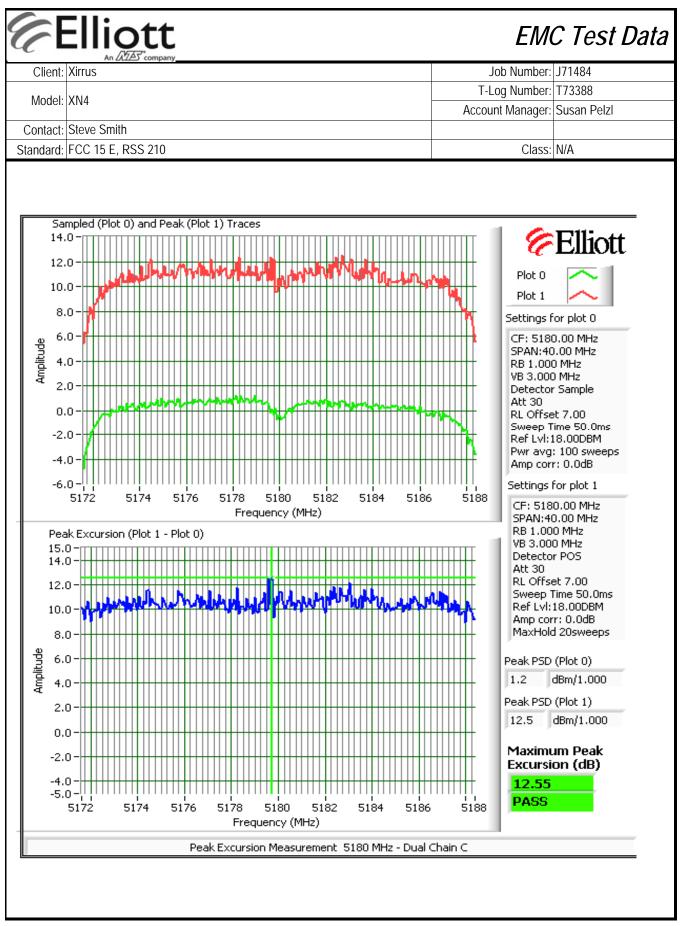
Device meets the requirement for the peak excursion

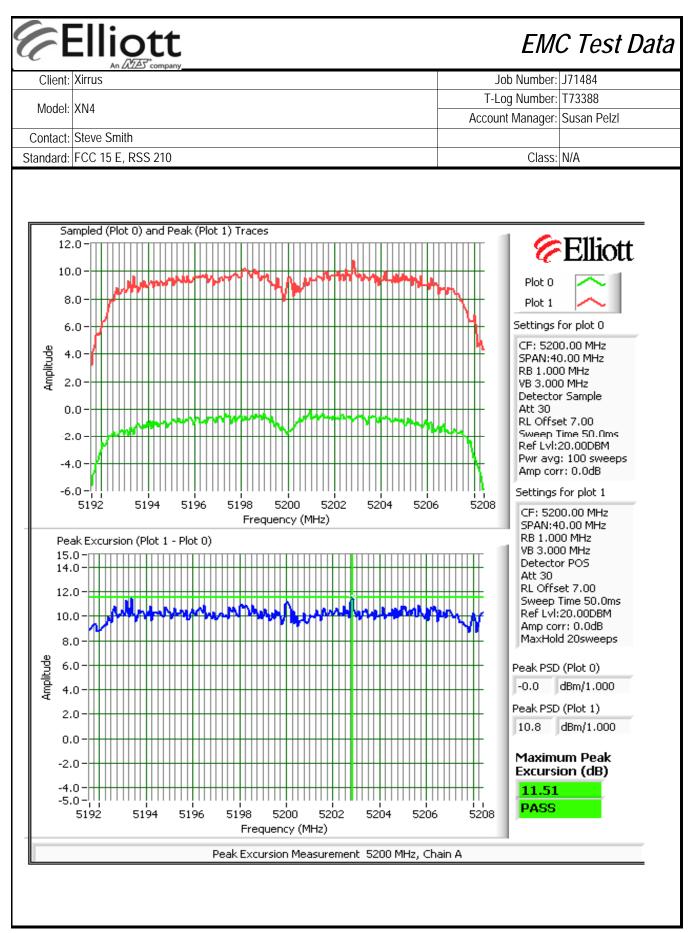
	Freq	Peak Exc	ursion(dB)	Freq	Peak Exc	ursion(dB)	Freq	Peak Exc	ursion(dB)
ĺ	(MHz)	Value	Limit	(MHz)	Value	Limit	(MHz)	Value	Limit
	5180	12.6	13.0	5260		13.0	5500		13.0
ĺ	5200	11.7	13.0	5300		13.0	5600		13.0
[5240	11.3	13.0	5320		13.0	5700		13.0

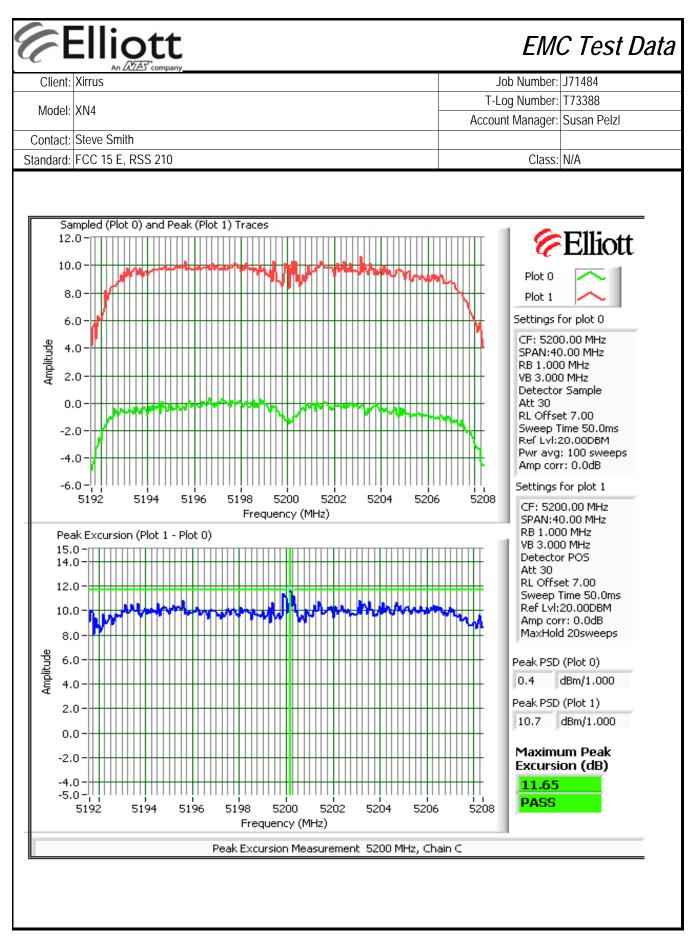
Plots Showing Peak Excursion

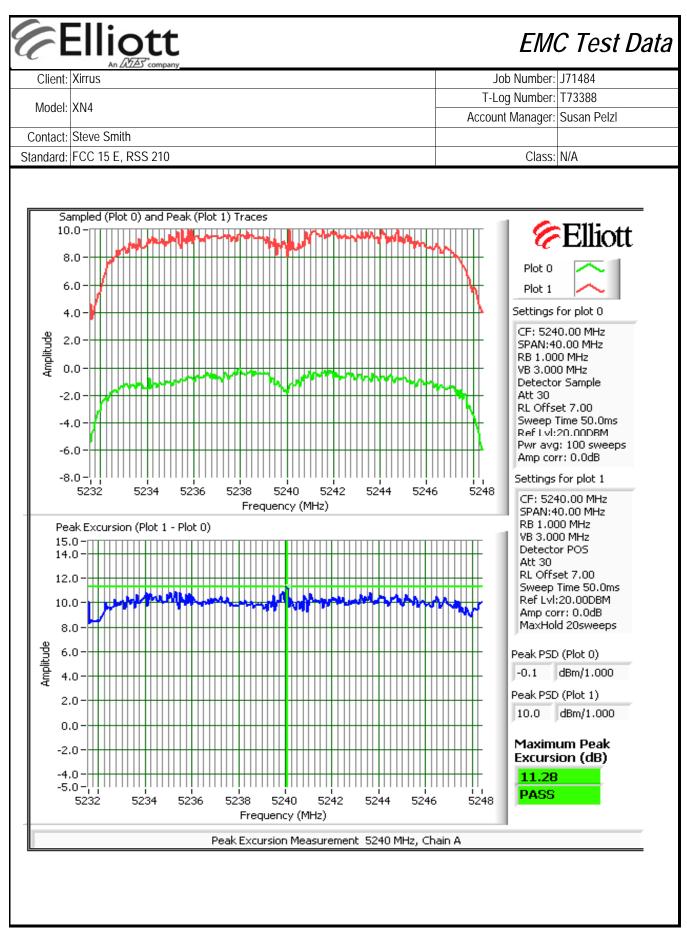
Trace A: RBW = VBW = 3MHz, Peak hold Trace B: RBW = 1 MHz, VBW = 3MHz, Integrated average power

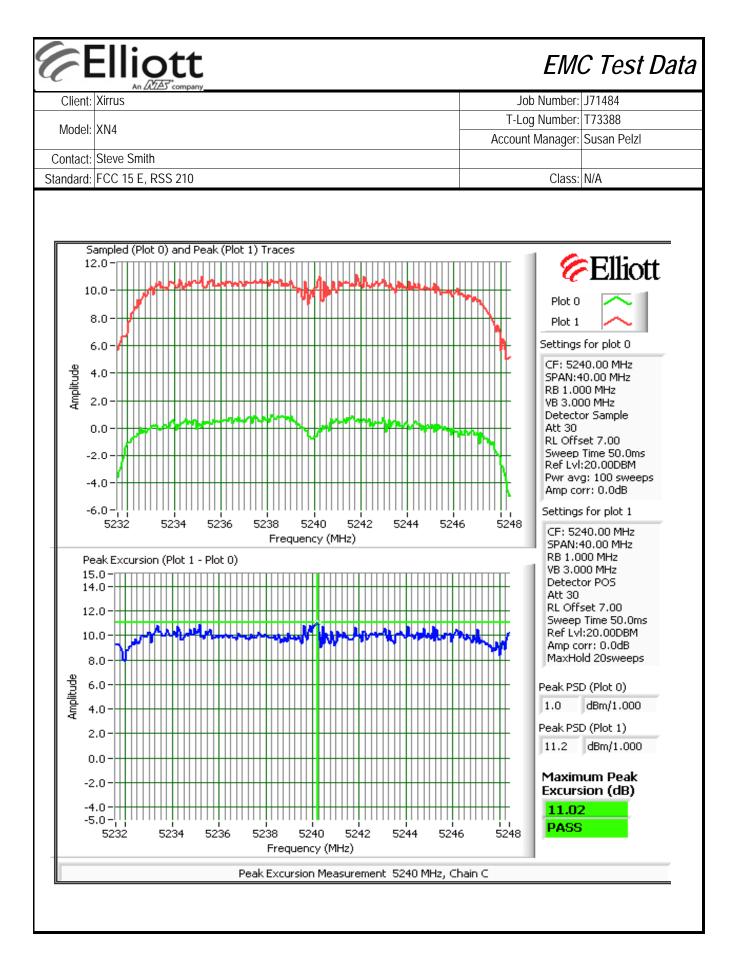












C	Ellic	ott			EMO	C Test Data
Client:		<u>company</u>			Job Number:	J71484
Model:				T-l	og Number:	T73388
woder:	XIN4			Accou	int Manager:	Susan Pelzl
Contact:	Steve Smith					
Standard:	FCC 15 E, F	RSS 210			Class:	N/A
	Powe	RSS-210 (LELA Antenna er, PSD, Peak Excursic	Port Measure	ments		sions
Test Spe	cific Detail Objective:	S The objective of this test session is specification listed above.	s to perform final qualifica	ation testing of th	ne EUT with r	respect to the
T€	est Engineer:	11/10 and 11/2008 Mehran Birgani SV OATS #1		ed: AC powered ge: Direct conne ge: PoE		
When me analyzer (or power met	guration onducted emissions from the EUT's er via a suitable attenuator to preve ttenuators and cables used.				
Ambient	Condition	S: Temperatu Rel. Humidi				
Summary	of Result	S				
Run #	Mode	Test Performed	Limit	Pass / Fail		Result / Margin
1	n20MHz	Power, 5150 - 5250MHz	15.407(a) (1), (2)	Pass	Single	e radio: 16.6 dBm

Run #	Mode	Test Performed	Limit	Pass / Fail	Result / Margin
1	n20MHz	Power, 5150 - 5250MHz	15.407(a) (1), (2)	Pass	Single radio: 16.6 dBm
•	1120101112		10.107(4) (1)7(2)	1 435	4x radio: 16.5 dBm
1	n20MHz	PSD, 5150 - 5250MHz	15.407(a) (1), (2)	Pass	3.9 dBm/MHz
1	n20MHz	99% Bandwidth	RSS 210	-	18.4 MHz
1	n40MUz	Power, 5150 - 5250MHz	15.407(a) (1), (2)	Daca	Single radio: 16.3 dBm
I	n40MHz	Power, 5150 - 525000112	15.407(d) (1), (Z)	Pass	2x radio: 16.7 dBm
1	n40MHz	PSD, 5150 - 5250MHz	15.407(a) (1), (2)	Pass	0.6 dBm/MHz
1	n40MHz	99% Bandwidth	RSS 210	-	36.7 MHz
2	n20 & n40	Peak Excursion Envelope	15.407(a) (6)	Pass	12.9 dB
3	n20 & n40	Antenna Conducted Spurious	15.407(b)	Pass	< -27dBm/MHz eirp

Modifications Made During Testing

No modifications were made to the EUT during testing

Deviations From The Standard

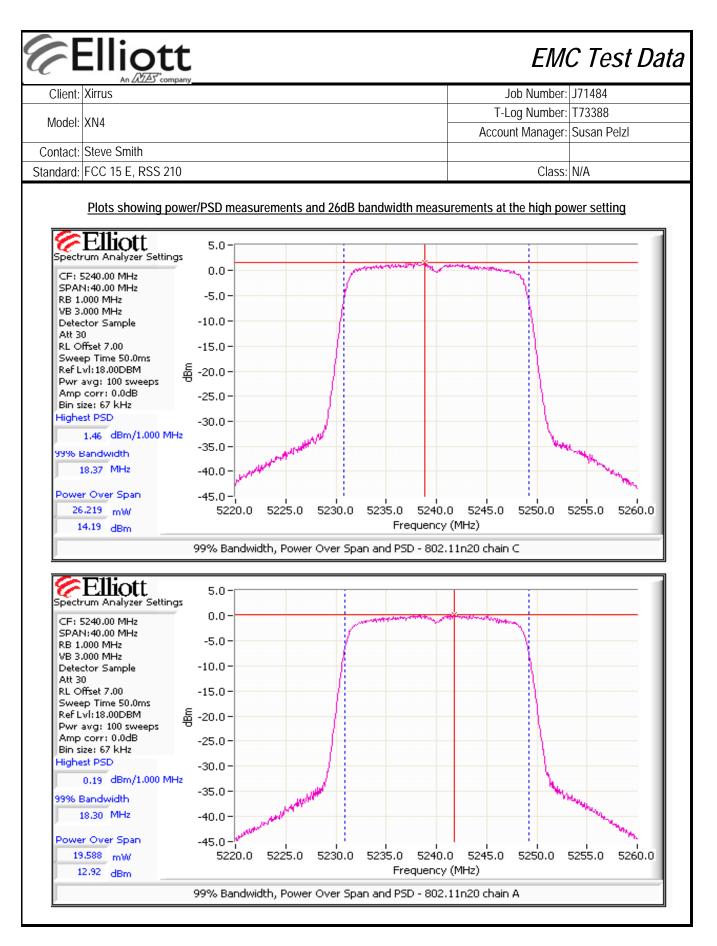
No deviations were made from the requirements of the standard.

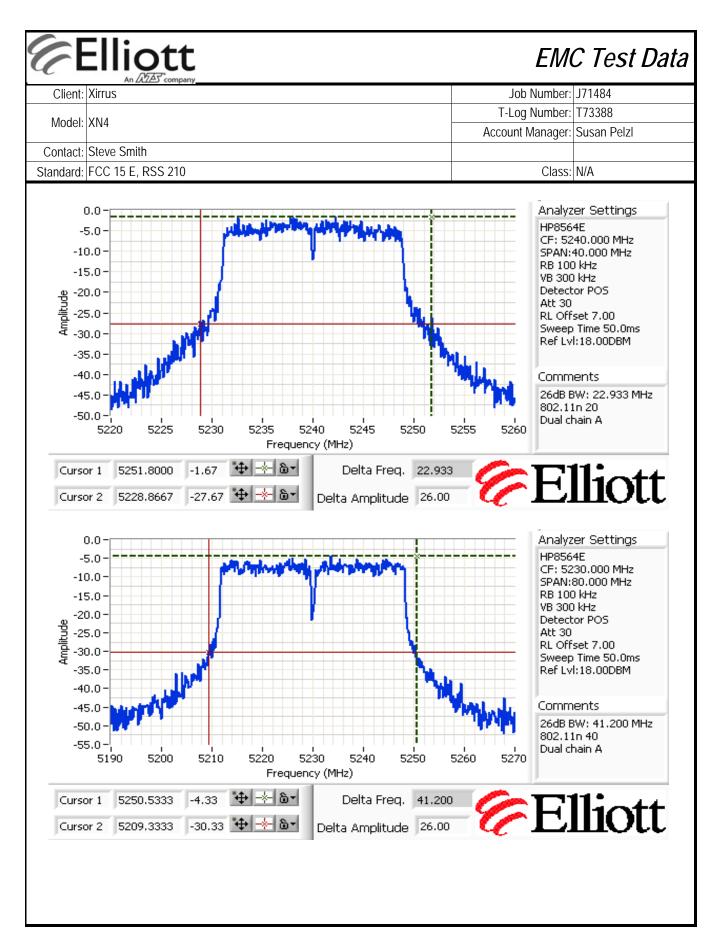
(CE								EM	C Test	Data
Client:	Xirrus							Job Number:	J71484	
Madal							T-I	Log Number:	T73388	
Model:	XIN4						Αссоι	unt Manager:	Susan Pelzl	
Contact:	Steve Smith									
Standard:	FCC 15 E, F	RSS 210						Class:	N/A	
	n used is for	the internal a a Gain (dBi):				s lower (2.5d Coherent No	Bi) and not u Effective ⁵ 3.0	sed for MIMC) modes.	
Power setti	ngs for a sii	ngle radio oj	perating in t	the band						
Frequency	Software	26dB BW	Measure	d Output Po	wer ¹ dBm	To	otal		Max Power	Pass or
(MHz)	Setting	(MHz)	Chain 1	Chain 2	Chain 3	mW	dBm	Limit (dBm)	(W)	Fail
5180	15.0	22.3	12.9		14.0	44.6	16.5	17.0		PASS
5200	15.0	22.5	12.6		14.1	43.9	16.4	17.0	0.046	PASS
5240	15.5	22.9	12.9		14.2	45.8	16.6	17.0		PASS
5190	13.0	40.4	10.9		12.1	28.5	14.6	17.0	0.043	PASS
5230	15.5	41.2	12.6		13.9	42.7	16.3	17.0	0.010	PASS
Frequency	99 % ⁴	Total	Р	SD ² dBm/MH	łz	Tota	I PSD	Li	mit	Pass or
(MHz)	BW	Power	Chain 1	Chain 2	Chain 3	mW/MHz	dBm/MHz	FCC	RSS 210 ³	Fail
5180	18.4	16.5	0.3	ondin 2	1.2	2.4	3.8	4.0	7.0	PASS
5200	18.3	16.4	-0.2		1.3	2.3	3.6	4.0	7.0	PASS
5240	18.4	16.6	0.2		1.5	2.5	3.9	4.0	7.0	PASS
5190	36.7	14.6	-5.2		-3.9	0.7	-1.5	4.0	7.0	PASS
5230	36.6	16.3	-3.3		-1.7	1.1	0.6	4.0	7.0	PASS
Note 1: Note 2: Note 3:	RBW=1M over 40M Measured For RSS-2 10dBm/M	wer measure Hz, VB=3 MH Hz (20MHz n I using the sa 210 the limit Hz. The limits PSD (calculat	Hz, sample d node) and 80 nme analyzer for the 5150 s are also co	letector, pow <u>MHz (40MH</u> <u>settings use</u> - 5250 MHz prected for in	er averaging <u>z mode)</u> ed for output band accour istances whe	on (transmit power. Its for the ant ere the highes	ted signal wa	as continuous s the maximu value of the l	s) and power m eirp allowe PSD exceeds	ed is s the

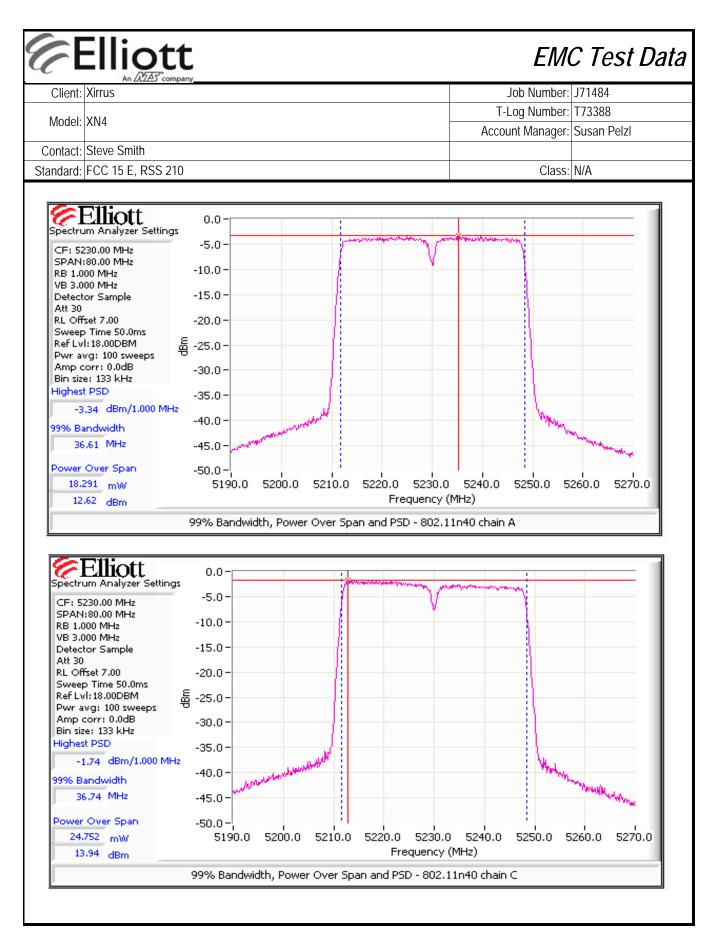
 Note 4:
 99% Bandwidth measured in accordance with RSS GEN - RB > 1% of span and VB >=3xRB

 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.





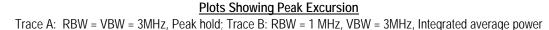


FMC Test Data

Client:	Xirrus							Job Number:	J71484	
Model:							T-l	og Number:	T73388	
wouer.	AN4						Αссоι	int Manager:	Susan Pelzl	
Contact:	Steve Smith									
Standard:	FCC 15 E, F	RSS 210						Class:	N/A	
The lowest p OMHz char Output power vith limits w	power level rennel available er measured hen all four r ot have more	equired per r e, with both ra on the cente adios are op	adio is 14dB adios at 14dE r channel to erational in th	m for two rac 3m the total µ demonstrate ne band. On	nnels being u lios operating power in the b power contro ly power was el.	in n40MHz and is 17dB I is available	(two 40 MHz sm). e to set the p	ower to a lev	el low enoug	h to com
Frequency	Software	26dB BW	Measure	d Output Pov	wer ¹ dBm	То	ital			
(MHz)	Setting	(MHz)	Chain 1	Chain 2	Chain 3	mW	dBm			
5200	8.5	22.5	6.7		8.2	11.3	10.5	Limit	P (W)	Resul
Tota	al power in th	e band (four	radios opera	itional in n20	MHz mode):	45.1	16.5	17.0	0.045	PASS
	Coffeenant				1.5	т.	1	1		
Frequency	Software Setting	26dB BW (MHz)		d Output Pov			ital			
(MHz) 5190	12.0	40.4	Chain 1 9.8	Chain 2	Chain 3 11.4	mW 23.4	dBm 13.7			
5230	12.0	40.4	9.0		11.4	23.4	13.7	Limit	P (W)	Resu
	al power in th			tional in n40		46.5	16.7	17.0	0.046	PASS
Note 1: Note 2: Note 3:	over 40M Measured For RSS- 10dBm/M average F amount th 99% Band	Hz (20MHz n using the sa 210 the limit Hz. The limit PSD (calculat at the measu width measu	node) and 80 ame analyzer for the 5150 s are also co ed from the r ured value ex ured in accor	MHz (40MH settings use - 5250 MHz rrected for in measured po cceeds the ar dance with R power and to	ed for output p band accounts istances wher wer divided b verage by more SS GEN - RE otal PSD are of	ower. s for the ant e the highes y the measu e than 3dB > 1% of sp alculated fo	enna gain as st measured ured 99% bar an and VB > orm the sum	the maximu value of the ndwidth) by n =3xRB of the powers	m eirp allowe PSD exceeds nore than 3d	ed is s the B by the idual cha
Note 4:	FOLIVITIVIC	Systems the		used to dete	ermine the EIF	RP and limit	s for PSD/Ou	utput power c	lepends on tl	ha anarat

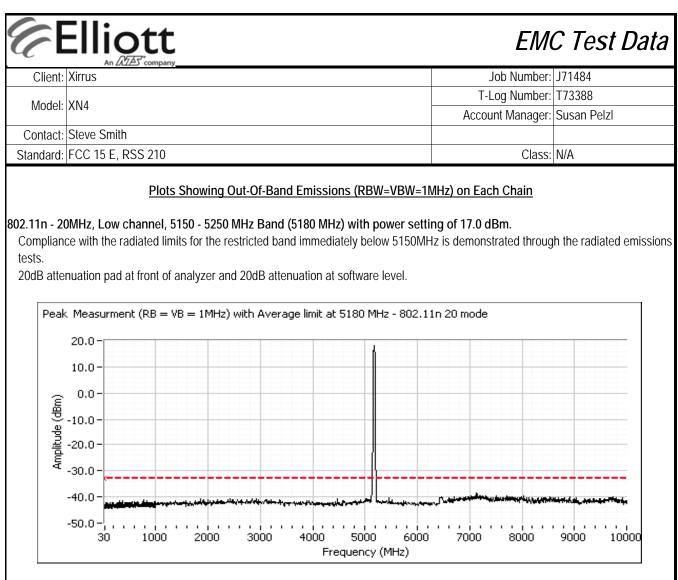
Client Xirus Job Number: J71484 Model: XN4 T-Log Number: T73388 Contact: Steve Smith Account Manager: Susan Pelzl Contact: Steve Smith Class: N/A Standard: FCC 15 E, RSS 210 Class: N/A Device meets the requirement for the peak excursion Freq Mode/ Peak Excursion(dB) Mode/ Peak Excursion(dB) Mode/ Chain Value Limit Value Limit

	ricq	modol		arsion(ab)	mouor		arsion(ub)
	(MHz)	Chain	Value	Limit	Chain	Value	Limit
	5180	n20 A	11.7	13.0	n20 C	11.1	13.0
	5200	n20 A	11.4	13.0	n20 C	12.1	13.0
	5240	n20 A	11.9	13.0	n20 C	11.6	13.0
	5190	n40 A	12.9	13.0	n40 A	12.7	13.0
ſ	5230	n40 A	12.3	13.0	n40 C	12.6	13.0

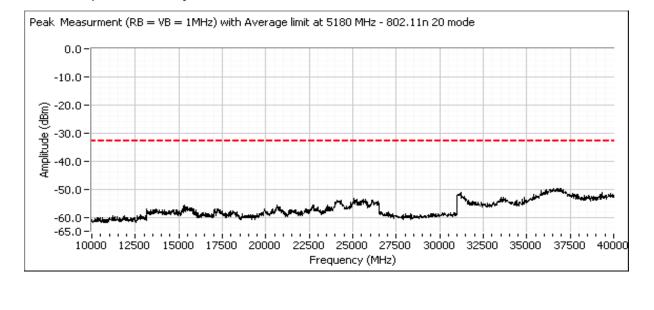


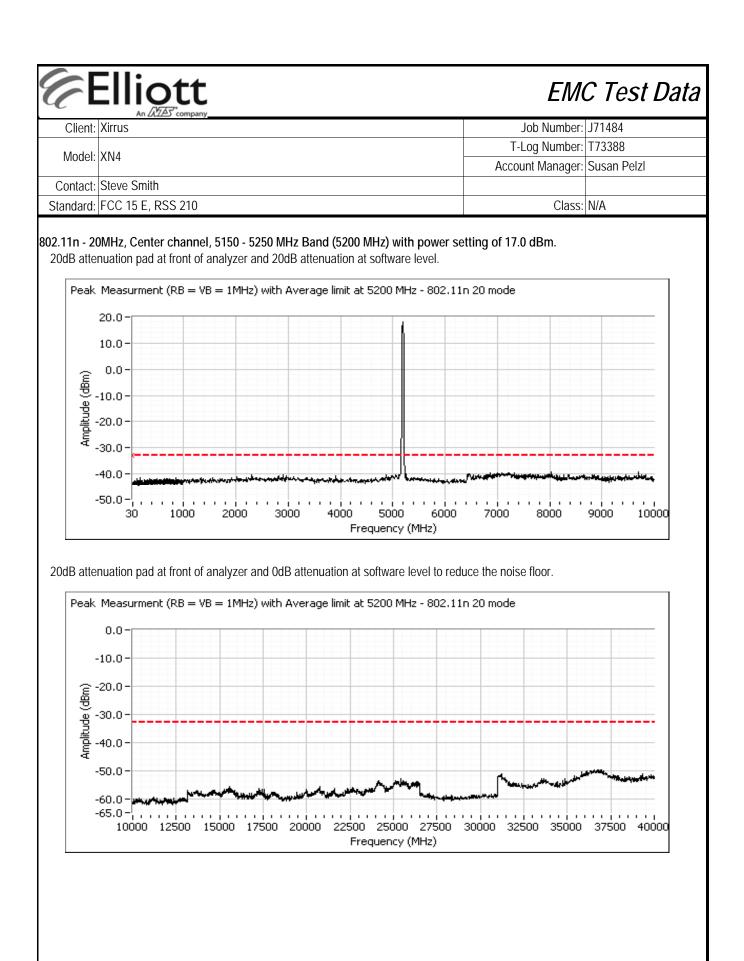


			ENA	C Test Data
Client:	Xirrus		Job Number:	J71484
Model:	YN4		T-Log Number:	T73388
wouer.	×11/4		Account Manager:	Susan Pelzl
Contact:	Steve Smith			
Standard:	FCC 15 E, RSS 210		Class:	N/A
IIMO Devi	ut Of Band Spurious Emissions - Anteni ces: Antenna gain used is the effective ga	in calculated in the power section		lots were obtained for
ach chain i	ndividually and the limit was adjusted to ad		simultaneously	
	Number of transmit chains: Maximum Antenna Gain:	2 3.0 dBi		
	Spurious Limit:	-27.0 dBm/MHz eirp		
	Adjustment for 2 chains:	-3.0 dB adjustment for multi	iple chains.	
	Limit Used On Plots Note 1:	-33.0 dBm/MHz Average L	imit (RB=1MHz, VB=10Hz)	
	Limit Used On Piols :	-13.0 dBm/MHz Peak Limit	t (RB=VB=1MHz)	
Note 1:	The -27dBm/MHz limit is an eirp limit. consideration the maximum antenna ga signals more than 50MHz from the ban gain is not known at these frequencies.	ain (limit = -27dBm - antenna gai ds and that are close to the limit	in). Radiated field strength are made to determine cor	measurements for
Note 2:	All spurious signals below 1GHz are me			
Note 3: Note 4:	Signals within 10MHz of the 5.725 or 5. If the device is for outdoor use then the			Ч
Note 5:	Signals that fall in the restricted bands			u.

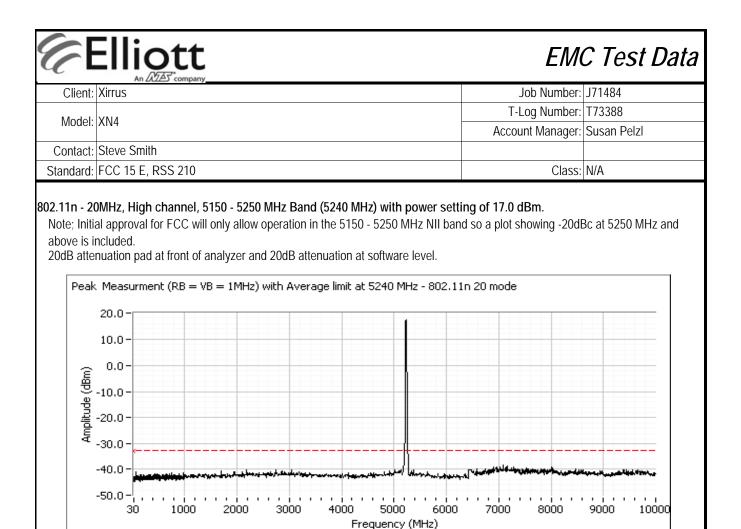


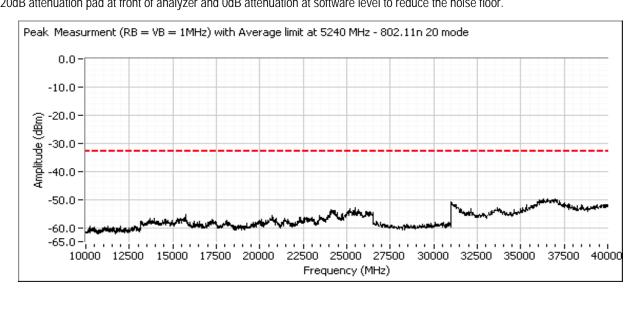




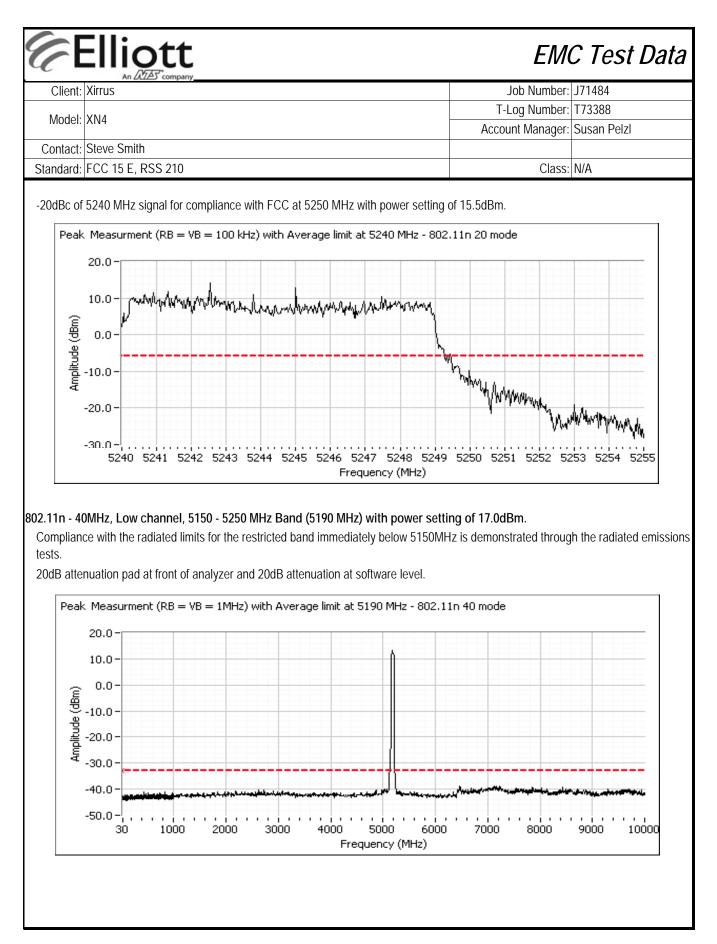


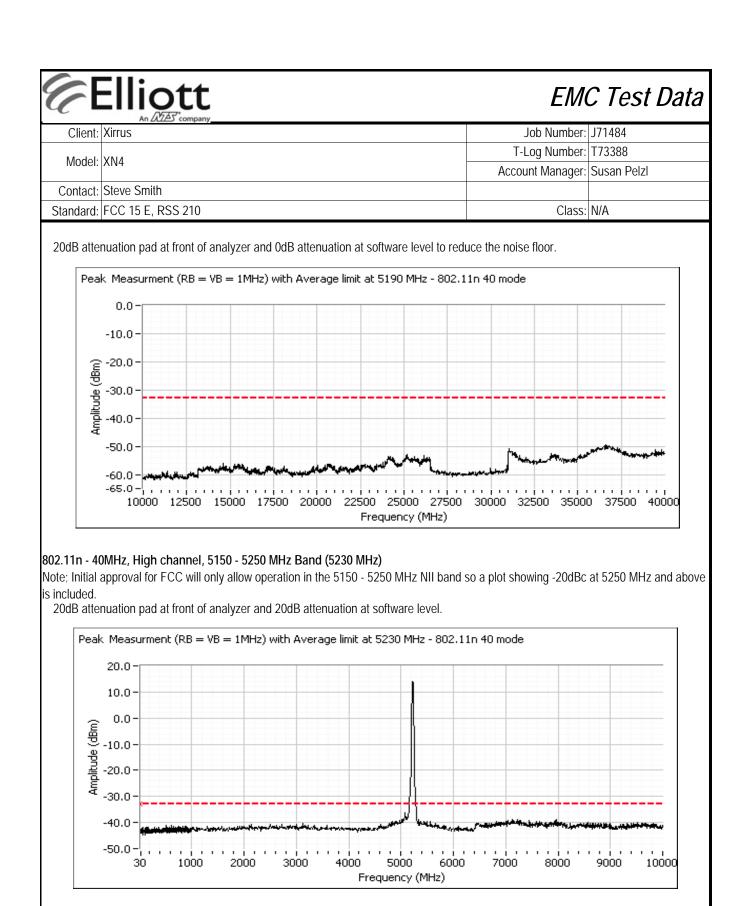
T73388 (RF Port Measurements).xls

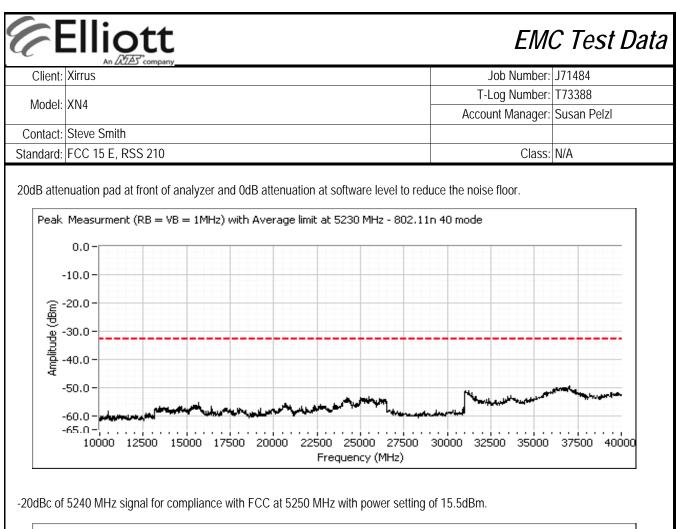


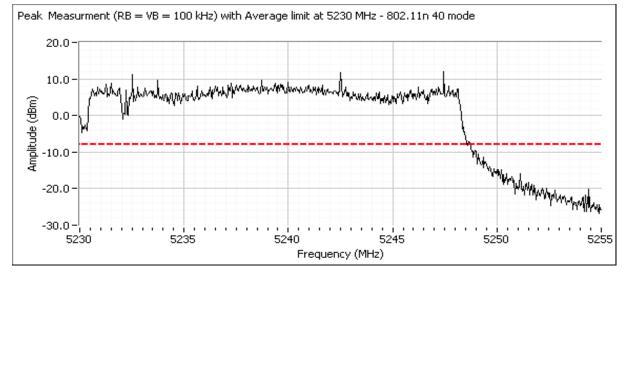


20dB attenuation pad at front of analyzer and 0dB attenuation at software level to reduce the noise floor.









llic	btt			ЕМС	C Test Data
rrus	company		J	ob Number:	J71484
N4				0	
			Accour	nt Manager:	Susan Pelzl
	SS 210			Class: I	N/A
Powe	Antenna P	ort Measurem	nents	-	ions
ic Details	5				
Objective:	The objective of this test session is to specification listed above.	o perform final qualificatio	on testing of the	e EUT with re	espect to the
Engineer: N	Mehran Birgani	Config Change	: Direct conne	ection	
uring the co power mete external at	onducted emissions from the EUT's a r via a suitable attenuator to prevent tenuators and cables used. : Temperature Rel. Humidity	t overloading the measur : 15-35 °C			
<i>¥</i>	Test Performed	Limit	Pass / Fail	R	esult / Margin
	Power, 5250 - 5350MHz	15.407(a) (1), (2)	Pass	Single 3x r	radio: 18.3 dBm adio: 23.1dBm adio: 23.3 dBm
	PSD, 5250 - 5350MHz	15.407(a) (1), (2)	Pass	5	.7 dBm/MHz
			Pass		24.0 MHz
			- Dace		17.2 MHz 11.8 dB
				Allem	issions below the
	Out of Band Spurious	15.407(b)	Pass		dBm/MHz limit
ions were r From The	nade to the EUT during testing e Standard	dard			
	Powe ic Details Objective: St Config uring the cc power mete external at onditions of Results	In 2020 company rrus N4 teve Smith CC 15 E, RSS 210 RSS-210 (LELAI Antenna P Power, PSD, Peak Excursion ic Details Objective: The objective of this test session is to specification listed above. te of Test: 11/6/2008 Engineer: Mehran Birgani Location: SV OATS #2 st Configuration uring the conducted emissions from the EUT's a power meter via a suitable attenuator to prevent external attenuators and cables used. onditions: Temperature Rel. Humidity of Results Test Performed # Test Performed PSD, 5250 - 5350MHz 26dB Bandwidth 99% Bandwidth 99% Bandwidth Peak Excursion Envelope Antenna Conducted Envelope	N4 teve Smith CC 15 E, RSS 210 RSS-210 (LELAN) and FCC 15 Antenna Port Measurem Power, PSD, Peak Excursion, Bandwidth and ic Details Objective: The objective of this test session is to perform final qualification specification listed above. te of Test: 11/6/2008 Config. Usec Engineer: Mehran Birgani Config Change Location: SV OATS #2 EUT Voltage St Configuration uring the conducted emissions from the EUT's antenna port, the antenna poower meter via a suitable attenuator to prevent overloading the measure external attenuators and cables used. Onditions: Test Performed Limit Power, 5250 - 5350MHz 15.407(a) (1), (2) 26dB Bandwidth 15.407 99% Bandwidth RSS 210 Peak Excursion Envelope Voltage Mehran Birgani Config Change Location: SV OATS #2 EUT Voltage St Configuration Uring the conducted emissions from the EUT's antenna port, the antenna coower meter via a suitable attenuator to prevent ove	AzZes J Y4 T-L Accou eve Smith CC 15 E, RSS 210 RSS-210 (LELAN) and FCC 15.407(UN Antenna Port Measurements Power, PSD, Peak Excursion, Bandwidth and Spuriou ic Details Objective: The objective of this test session is to perform final qualification testing of th specification listed above. te of Test: 11/6/2008 Config Change: Direct connel Location: SV OATS #2 EUT Voltage: 120V/60Hz st Configuration uring the conducted emissions from the EUT's antenna port, the antenna port of the EU sower meter via a suitable attenuator to prevent overloading the measurement system. external attenuators and cables used. onditions: Temperature: 15-35 °C Rel. Humidity: 10-60 % of Results # Test Performed Limit Pass / Fail # Test Performed 15.407(a) (1), (2) Pass 99% Bandwidth 15.407(a) (6) Pass 99% Bandwidth 15.407(a) (6) Pass Out of Band Spurious Inst Made During Testing Inst Made During Testing Inst Made During testing	Add20: company

Elliott

EMC Test Data

Client:	Xirrus	Job Number:	J71484
Model:	VN/	T-Log Number:	T73388
	AIN4	Account Manager:	Susan Pelzl
Contact:	Steve Smith		
Standard:	FCC 15 E, RSS 210	Class:	N/A

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

Antenna gain used is for the internal antenna. The external antenna gain is lower (2.5dBi) and not used for MIMO modes. Ar

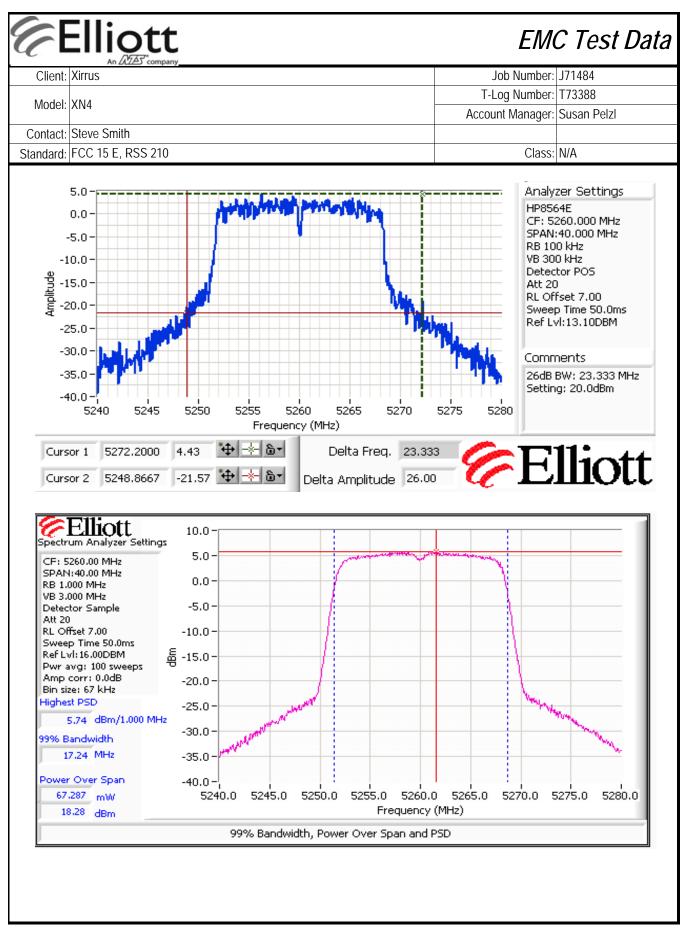
ntenna Gain ((dBi):	3.0

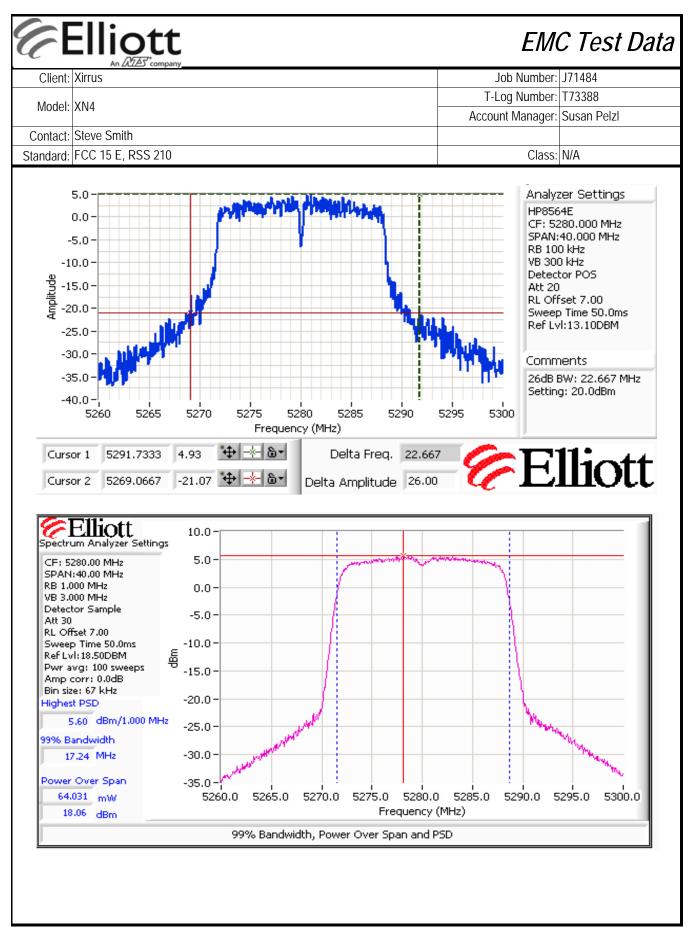
Power settings for a single radio operating in the band										
Frequency	Software	Bandwidth		Output Po	wer ¹ dBm	Power	PSD ² dBm/MHz			Result
(MHz)	Setting	26dB	99 % ⁴	Measured	Limit	(Watts)	Measured	FCC Limit	RSS Limit ³	Result
5260	20.0	23.3	17.2	18.3	24.0	0.068	5.7	11.0	11.0	Pass
5280	20.0	22.7	17.2	18.1	24.0	0.065	5.6	11.0	11.0	Pass
5320	19.5	24.0	17.2	18.0	24.0	0.063	5.4	11.0	11.0	Pass

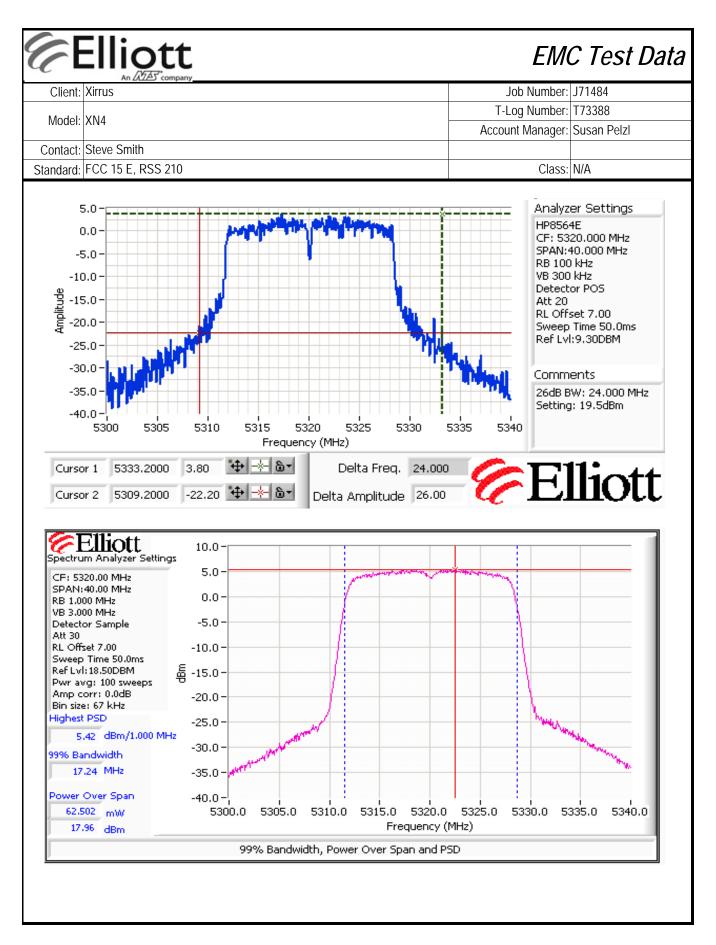
Power settings for mutliple channels being used in the band

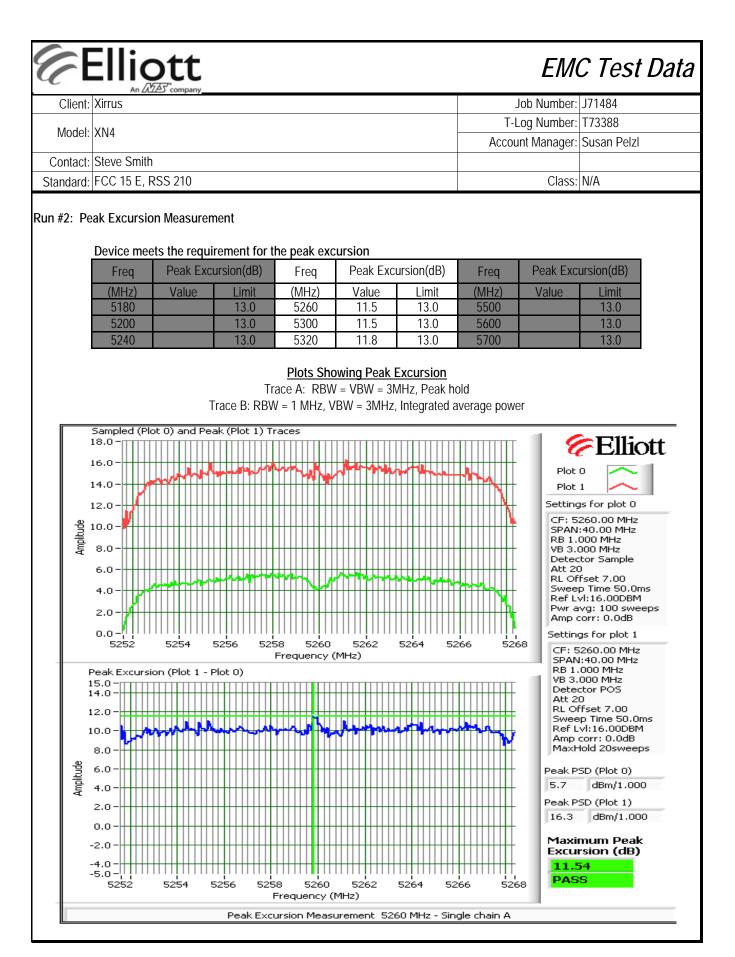
Output power measured on the centre channel to demonstrate power control is available to set the power to a level low enough to comply with limits when all four radios are operational in the band. Only power was measured - aggregation of PSD is not applicable as the device cannot have more than one radio operating on a channel.

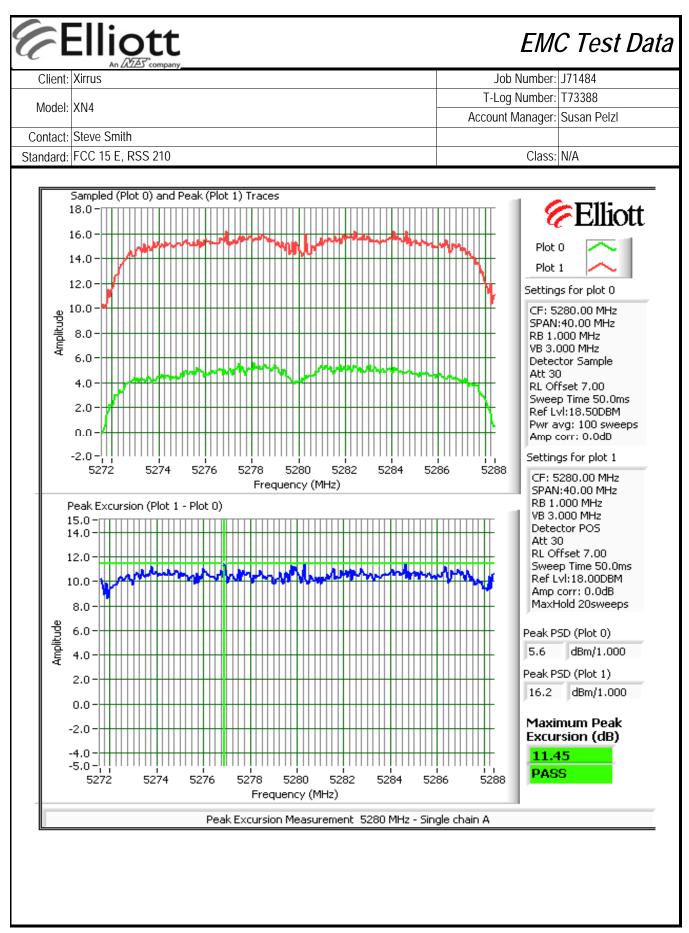
				j un a chann	CI.	•			
Frequency	Software	Band	width	Measured Power ¹		th Measured Power ¹		red Power ¹	
(MHz)	Setting	26dB	99 % ⁴	dBm	mW				
5260	20.0	23.3	17.2	18.3	67.6	Limit			
To	tal Power Ac	ross The Ba	nd - 3 radios	23.1	202.8	24 dBm			
						_			
Frequency	Software	Bandwidth		Measured Power ¹					
(MHz)	Setting	26dB	99 % ⁴	dBm	mW				
5280	19.0	21.9	17.2	17.3	53.7	Limit			
To	Total Power Across The Band - 4 radios			23.3	214.8	24 dBm			
Note 1:	Output power measured using a spectrum analyzer (see plots below): RBW=1MHz, VB=3 MHz, sample detector, power averaging on (transmitted signal was continuous) and power integration over 40 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:									

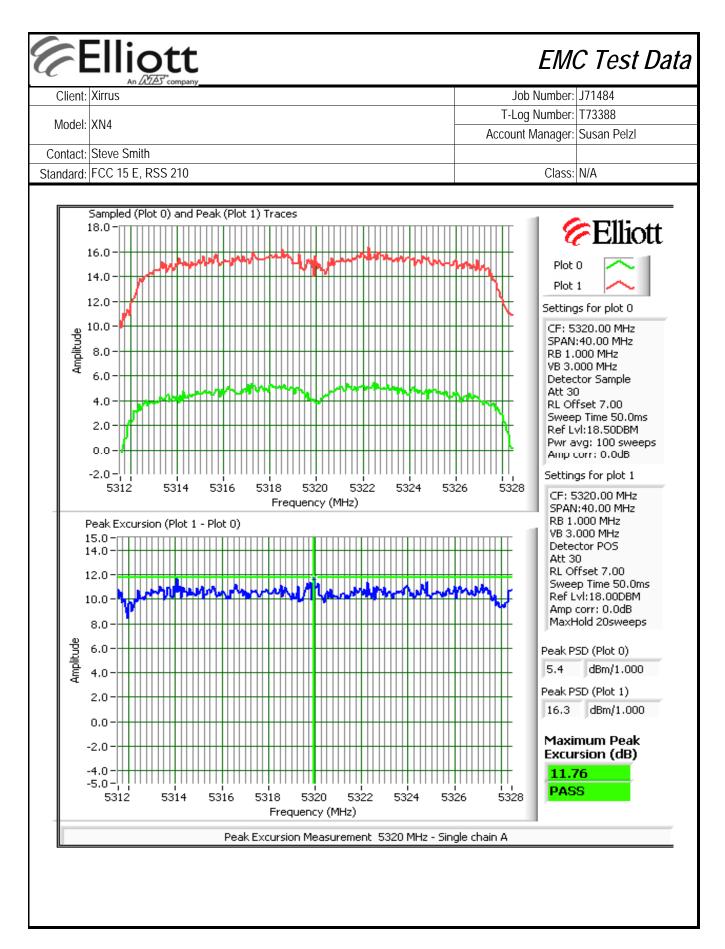




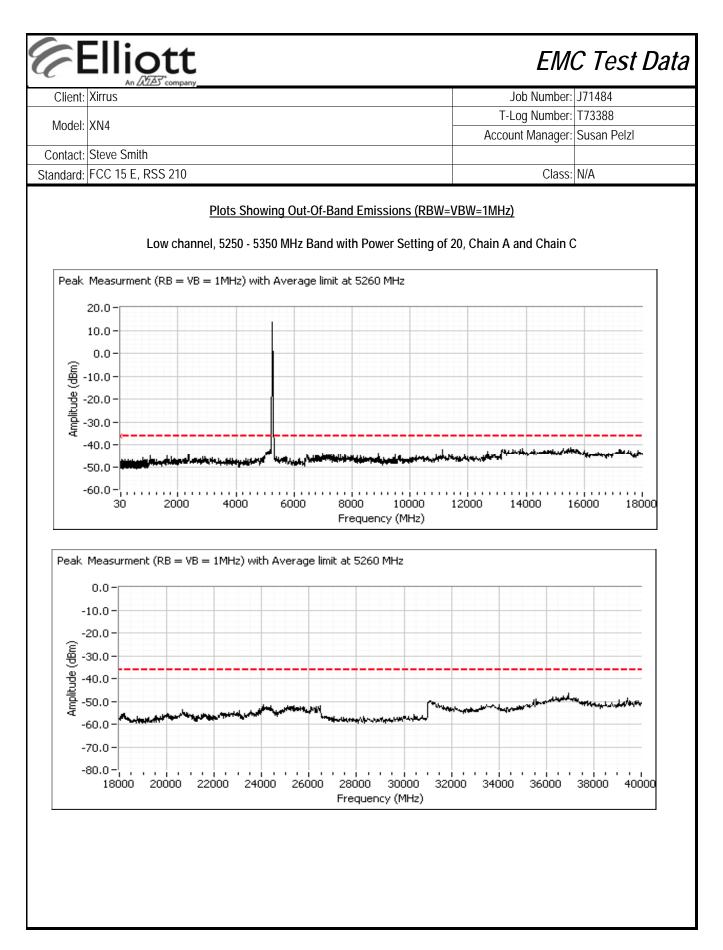


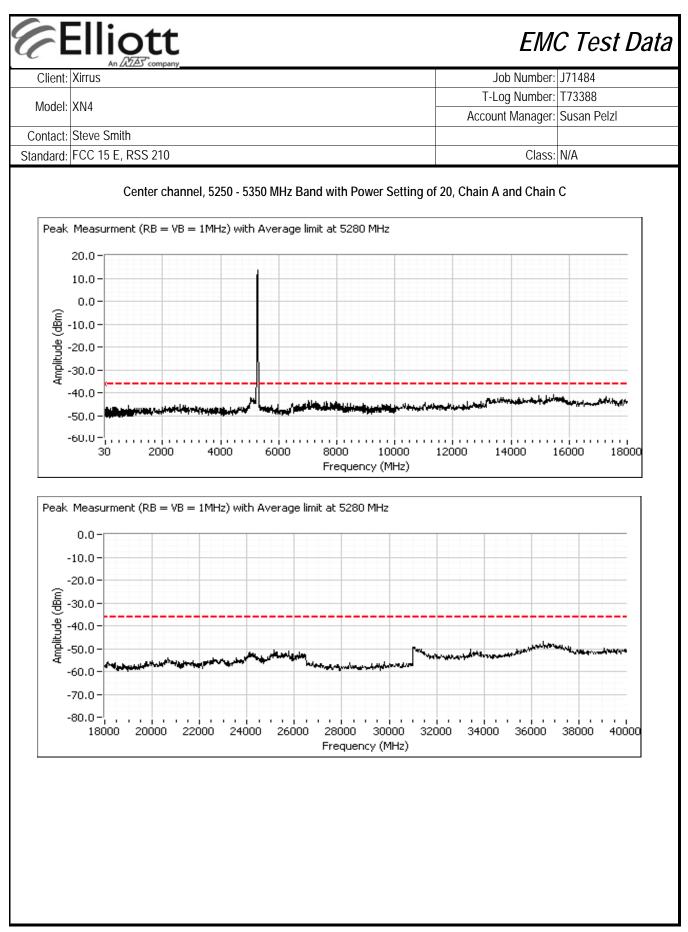


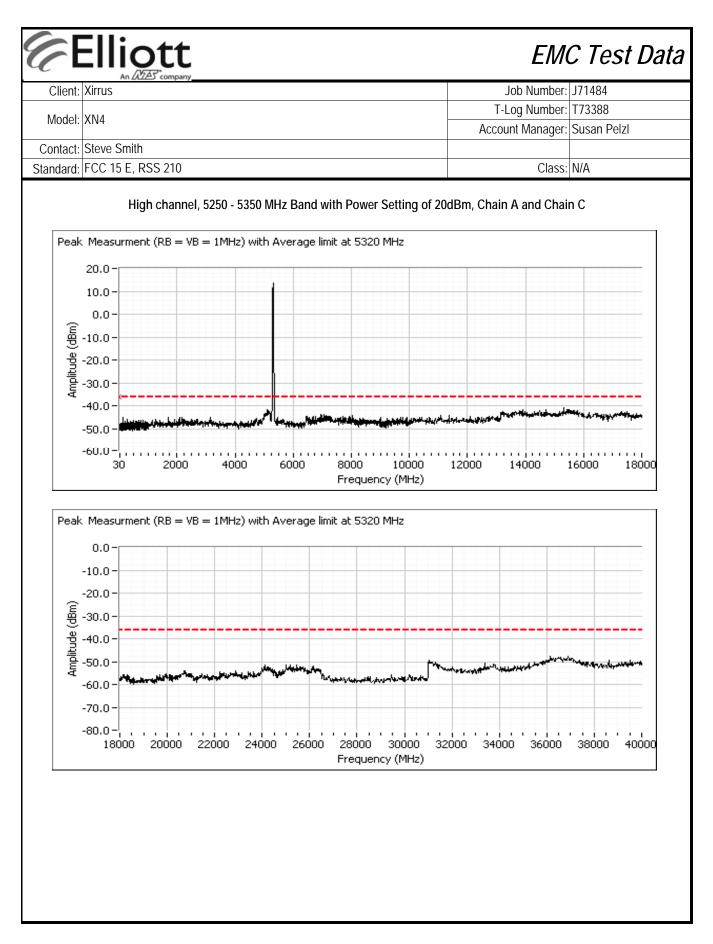




E	Elliott			EMO	C Test Data		
Client:	An AZAS company			Job Number:	171484		
				T-Log Number:			
Model:	XN4		_	Account Manager:			
Contact:	Steve Smith						
Standard:	FCC 15 E, RSS 210			Class:	N/A		
MIMO Devid	ut Of Band Spurious Emissions - Anten ces: As the output power setting for the si nd spurious emissions to account for dual Number of transmit chains: Maximum Antenna Gain: Spurious Limit: Adjustment for 2 chains: Limit Used On Plots ^{Note 1} :	ingle chain mode is h chain operation, the 2 3.0 dBi -27.0 dBm/MHz e -6.0 dB adjustme	plots below co irp ent for multiple Average Lim		I chain operation.		
Note 1:	The -27dBm/MHz limit is an eirp limit. consideration the maximum antenna ga signals more than 50MHz from the ban gain is not known at these frequencies.	ain (limit = -27dBm - a ds and that are close	antenna gain). to the limit ar	. Radiated field strength re made to determine con	measurements for		
Note 2:	All spurious signals below 1GHz are me	<u> </u>					
Note 3:	5 5 1						
Note 4: Note 5:	Signals that fall in the restricted bands				J.		







Elliott EMC Test Data Client: Xirrus Job Number: J71484 T-Log Number: T73388 Model: XN4 Account Manager: Susan Pelzl Contact: Steve Smith Standard: FCC 15 E, RSS 210 Class: N/A RSS-210 (LELAN) and FCC 15.407(UNII) **Antenna Port Measurements** Power, PSD, Peak Excursion, Bandwidth and Spurious Emissions Test Specific Details Objective: The objective of this test session is to perform final qualification testing of the EUT with respect to the specification listed above. Date of Test: 11/7/2008 Config. Used: AC powered Test Engineer: Rafael Varelas Config Change: Direct connection Test Location: OATS #1 EUT Voltage: PoE 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: 15-36 °C Temperature: Rel. Humidity: 10-60 % Summary of Results Run # Test Performed Limit Pass / Fail Result Single radio: 21.3 dBm 1 Power, 5250 - 5350MHz 15.407(a) (1), (2) Pass 4x radio: 23.9 dBm 1 PSD, 5250 - 5350MHz 15.407(a) (1), (2) Pass 8.8 dBm/MHz 25.8 MHz 26dB Bandwidth 1 15.407 -99% Bandwidth **RSS 210** 1 17.3 MHz 2 Peak Excursion Envelope 15.407(a) (6) 12.6 dB Pass Covered by single-chain Antenna Conducted 3 15.407(b) mode measurements Out of Band Spurious 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.

Elliott

EMC Test Data

	An ZCZED company		
Client:	Xirrus	Job Number:	J71484
Model:	VN4	T-Log Number:	T73388
would	AIN4	Account Manager:	Susan Pelzl
Contact:	Steve Smith		
Standard:	FCC 15 E, RSS 210	Class:	N/A

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

Antenna gain used is for the internal antenna. The external antenna gain is lower (2.5dBi) and not used for MIMO modes.

	Chain 1	Chain 2	Chain 3	Coherent	Effective ⁵
Antenna Gain (dBi):	3		3	Yes	6.0

Power settings for a single radio operating in the band

Pass or Fail PASS PASS
PASS PASS
PASS
PASS
Pass or
Fail
PASS
PASS
PASS

Elliott

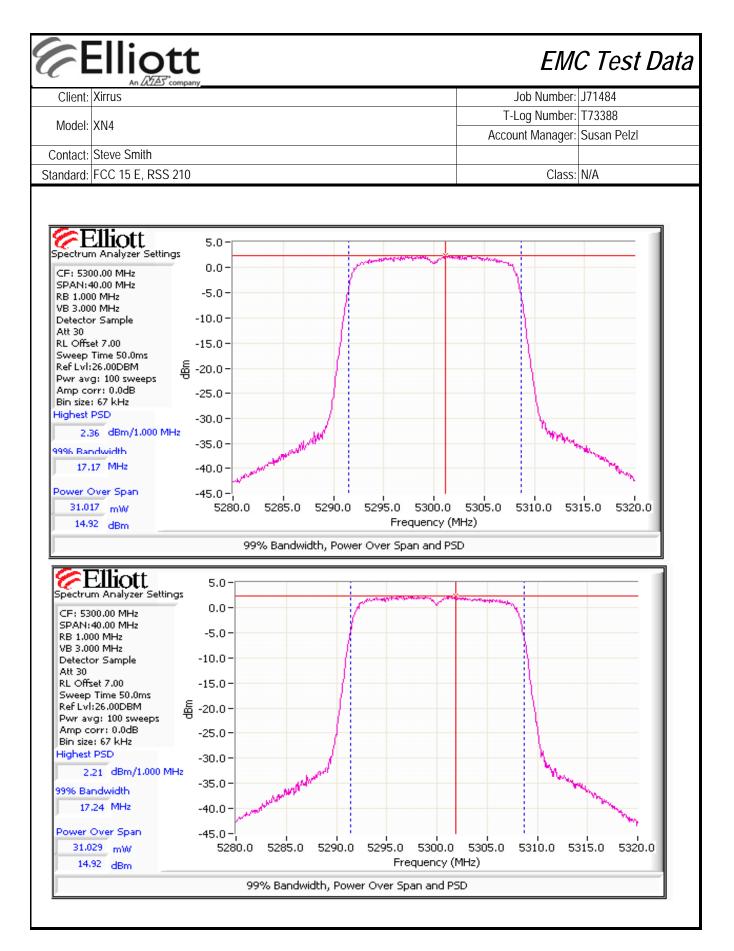
EMC Test Data

	An ZAZZO company		
Client:	Xirrus	Job Number:	J71484
Model:	VN4	T-Log Number:	T73388
woder	AIN4	Account Manager:	Susan Pelzl
Contact:	Steve Smith		
Standard:	FCC 15 E, RSS 210	Class:	N/A

Power settings for all four 802.11a channels being used in the band:

Output power measured on the center channel to demonstrate power control is available to set the power to a level low enough to comply with limits when all four radios are operational in the band. Only power was measured - aggregation of PSD is not applicable as the device cannot have more than one radio operating on a channel.

(MHz) Setting (MHz) Chain 1 Chain 2 Chain 3 mW dBm 5300 16.5 25.8 14.9 14.9 61.8 17.9 Limit P (W) Total power in the band (four radios operational): 247.2 23.9 24.0 0.247 Output power measured using a spectrum analyzer (see plots below for the high power measurements): RBW=1MHz, VB=3 MHz, sample detector, power averaging on (transmitted signal was continuous) and power integr over 50MHz. Note 1: Reasured using the same analyzer settings used for output power. 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 a PSD (calculated from the measured power divided by the measured 99% bandwidth) by more than 3dB by the amount 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 For MIMO systems the total output power and total PSD are calculated form the sum of the powers of the individual of (in linear terms). The antenna gain used to determine the EIRP and limits for PSD/Output power depends on the option of the power d
Total power in the band (four radios operational): 247.2 23.9 24.0 0.247 Note 1: Output power measured using a spectrum analyzer (see plots below for the high power measurements): RBW=1MHz, VB=3 MHz, sample detector, power averaging on (transmitted signal was continuous) and power integr over 50MHz. Note 2: Measured using the same analyzer settings used for output power. 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 by more than 3dB. Note 4: 99% Bandwidth measured in accordance with RSS GEN - RB > 1% of span and VB >=3xRB For MIMO systems the total output power and total PSD are calculated form the sum of the powers of the individual of (in linear terms). The antenna gain used to determine the EIRP and limits for PSD/Output power depends on the opends
Note 1: Output power measured using a spectrum analyzer (see plots below for the high power measurements): RBW=1MHz, VB=3 MHz, sample detector, power averaging on (transmitted signal was continuous) and power integr over 50MHz. Note 2: Measured using the same analyzer settings used for output power. 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 a PSD (calculated from the measured power divided by the measured 99% bandwidth) by more than 3dB by the amount
Note 1: RBW=1MHz, VB=3 MHz, sample detector, power averaging on (transmitted signal was continuous) and power integr over 50MHz. Note 2: Measured using the same analyzer settings used for output power. 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 a PSD (calculated from the measured power divided by the measured 99% bandwidth) by more than 3dB by the amount 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 For MIMO systems the total output power and total PSD are calculated form the sum of the powers of the individual of (in linear terms). The antenna gain used to determine the EIRP and limits for PSD/Output power depends on the opends.
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Note 3: 10dBm/MHz. The limits are also corrected for instances where the highest measured value of the PSD exceeds the a PSD (calculated from the measured power divided by the measured 99% bandwidth) by more than 3dB by the amount 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 For MIMO systems the total output power and total PSD are calculated form the sum of the powers of the individual of (in linear terms). The antenna gain used to determine the EIRP and limits for PSD/Output power depends on the operation.
For MIMO systems the total output power and total PSD are calculated form the sum of the powers of the individual of (in linear terms). The antenna gain used to determine the EIRP and limits for PSD/Output power depends on the operation of the individual of the second
(in linear terms). The antenna gain used to determine the EIRP and limits for PSD/Output power depends on the ope
Note 5: mode of the MIMO device. If the signals on the non-coherent between the transmit chains then the gain used to det 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 the EIRP is the product of the effective gain and total power.





EMC Test Data

	An 2/22 company		
Client:	Xirrus	Job Number:	J71484
Model:	VNA	T-Log Number:	T73388
wouer:	AIN4	Account Manager:	Susan Pelzl
Contact:	Steve Smith		
Standard:	FCC 15 E, RSS 210	Class:	N/A

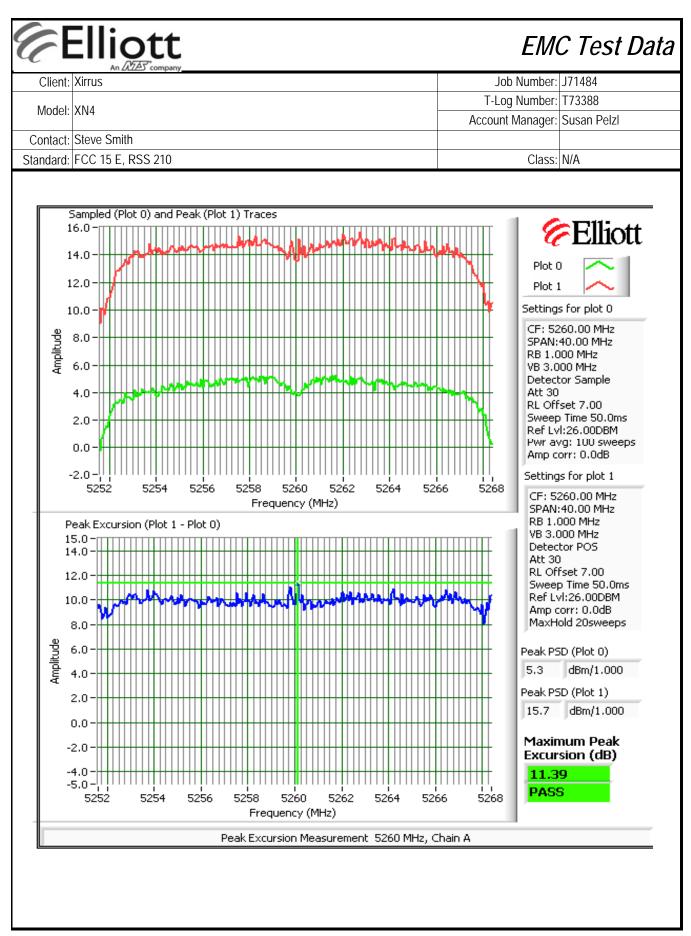
Run #2: Peak Excursion Measurement

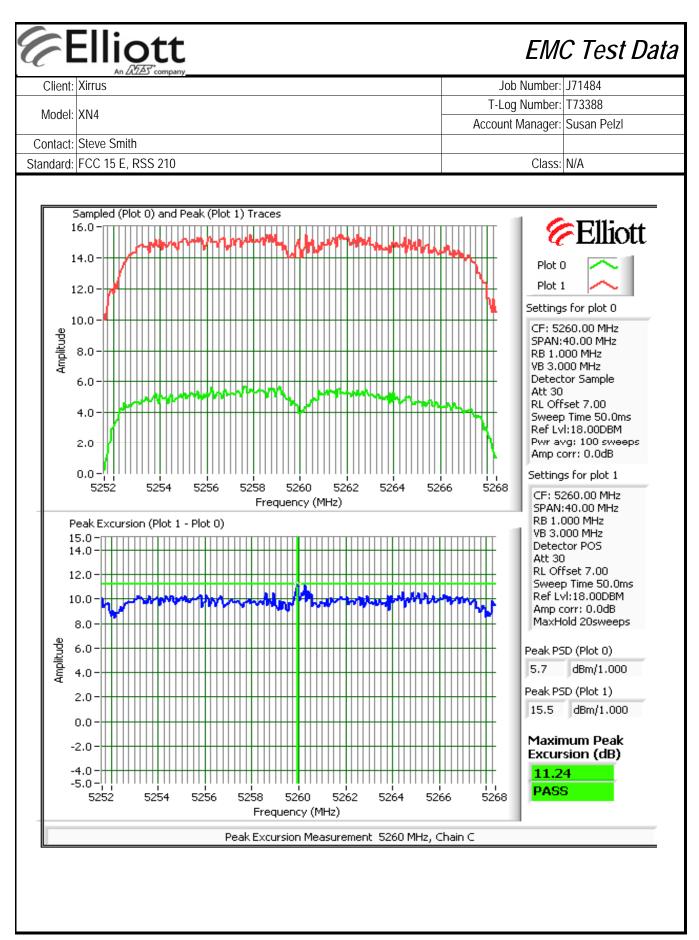
Device meets the requirement for the peak excursion

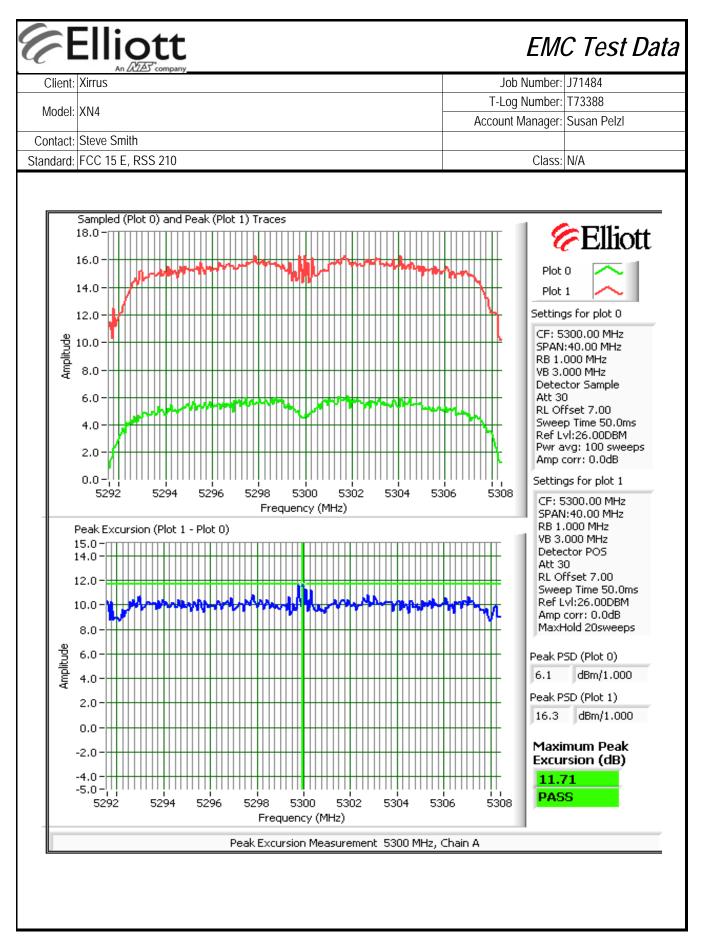
Freq	Peak Exc	ursion(dB)	Freq	Peak Exc	ursion(dB)	Freq	Peak Exc	ursion(dB)
(MHz)	Value	Limit	(MHz)	Value	Limit	(MHz)	Value	Limit
5180		13.0	5260	11.4	13.0	5500		13.0
5200		13.0	5300	11.7	13.0	5600		13.0
5240		13.0	5320	12.6	13.0	5700		13.0

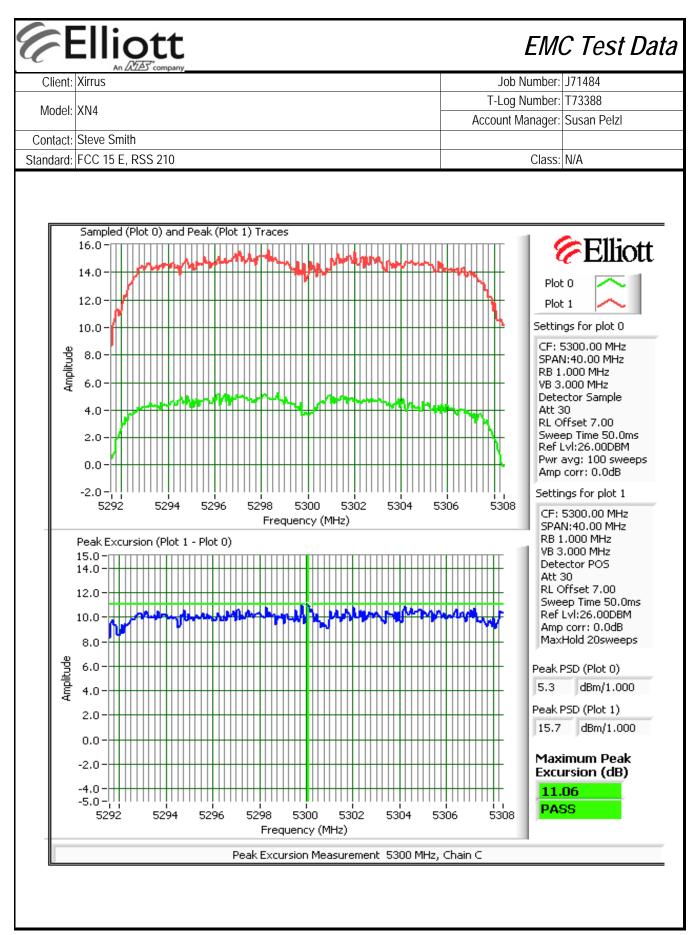
Plots Showing Peak Excursion

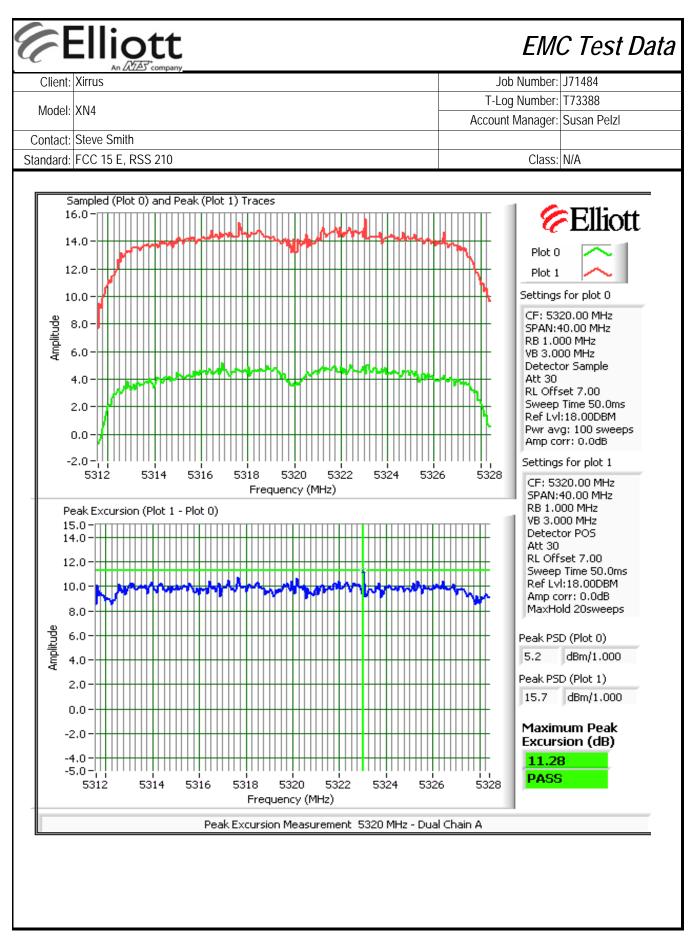
Trace A: RBW = VBW = 3MHz, Peak hold Trace B: RBW = 1 MHz, VBW = 3MHz, Integrated average power

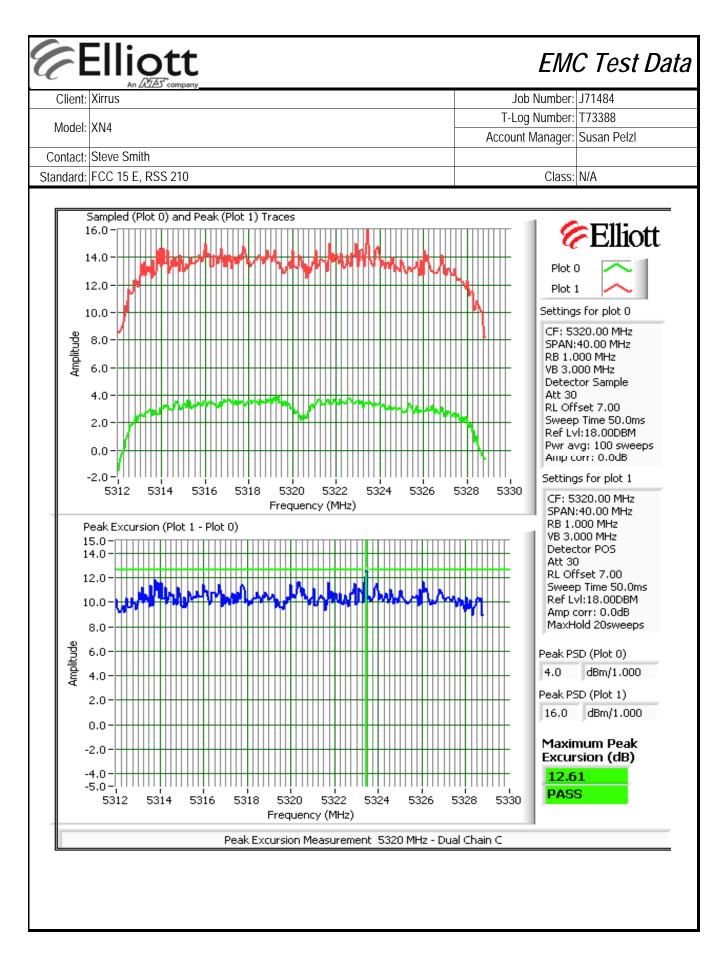












Ć	Elliott	EMC Test Data
Client:	Xirrus	Job Number: J71484
Model:	YN/	T-Log Number: T73388
wouer.	X114	Account Manager: Susan Pelzl
Contact:	Steve Smith	
Standard:	FCC 15 E, RSS 210	Class: N/A
		Port Measurements on, Bandwidth and Spurious Emissions
Test Spec	Cific Details Objective: The objective of this test session specification listed above.	is to perform final qualification testing of the EUT with respect to the
Те	Date of Test: 11/10 and 11/2008 st Engineer: Mehran Birgani est Location: SV OATS #1	Config. Used: AC powered Config Change: Direct connection EUT Voltage: PoE

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: Rel. Humidity:

15-36 °C 10-60 %

Summary of Results

Run #	Mode	Test Performed	Limit	Pass / Fail	ě
1	n20MHz	Power, 5250-5350MHz	15.407(a) (1), (2)	Pass	Single radio: 20.9 dBm
· .					4x radio: 23.5 dBm
1	n20MHz	PSD, 5250-5350MHz	15.407(a) (1), (2)	Pass	8.2 dBm/MHz
1	n20MHz	99% Bandwidth	RSS 210	-	18.4 MHz
1	n40MHz	Power, 5250-5350MHz	15.407(a) (1), (2)	Dece	Single radio: 20.4 dBm
		Fower, 3230-3330MHz	15.407(a) (1), (2)	Pass	2x radio: 21.9 dBm
1	n40MHz	PSD, 5250-5350MHz	15.407(a) (1), (2)	Pass	4.4 dBm/MHz
1	n40MHz	99% Bandwidth	RSS 210	-	36.9 MHz
2	n20 & n40	Peak Excursion Envelope	15.407(a) (6)	Pass	12.97 dB
3	n20 & n40	Antenna Conducted Spurious	15.407(b)	Pass	< -27dBm/MHz eirp

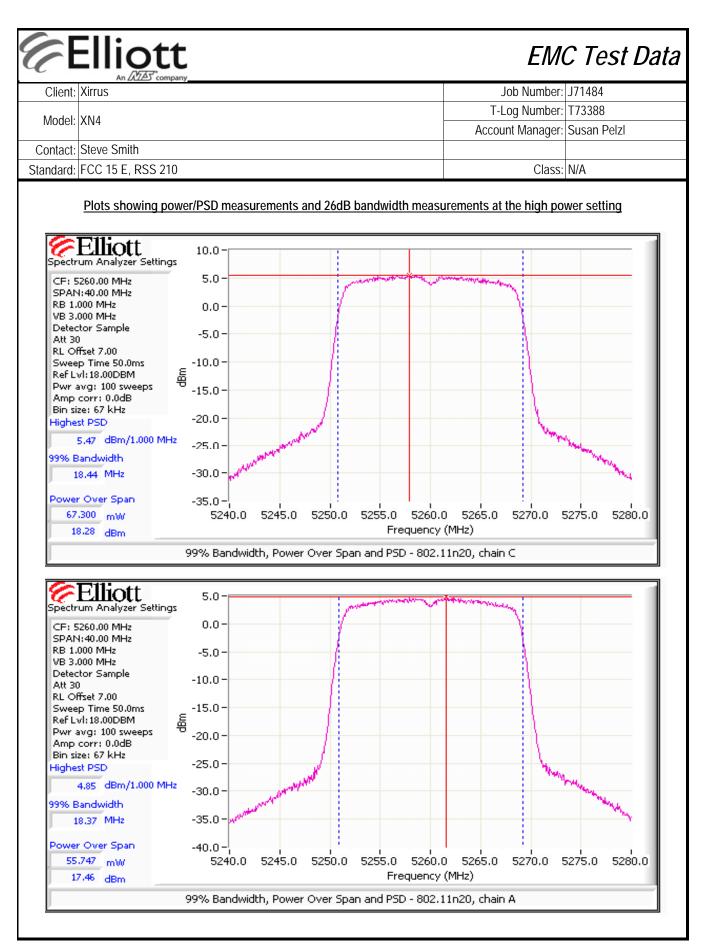
Modifications Made During Testing

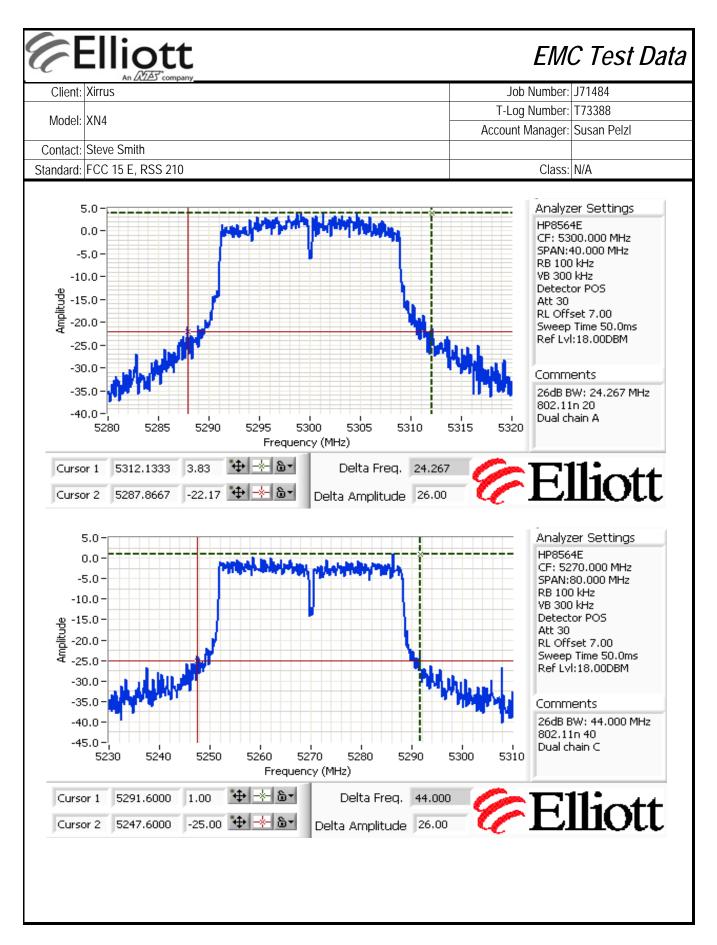
No modifications were made to the EUT during testing

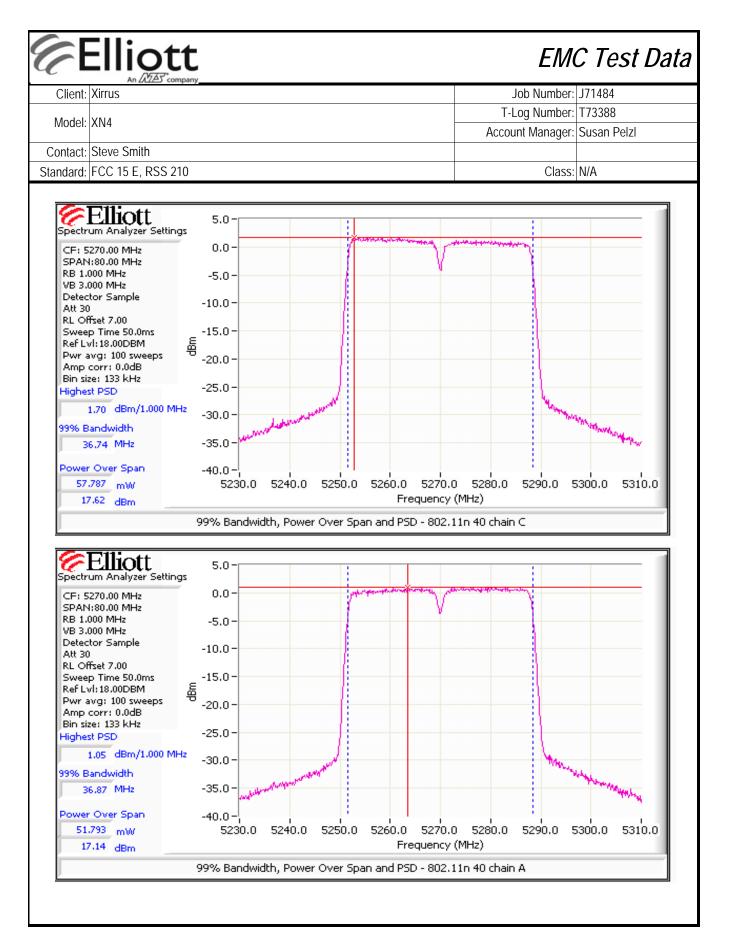
Deviations From The Standard

No deviations were made from the requirements of the standard.

Client:	Xirrus							Job Number:		
Model:	XN4						T-l	_og Number:	T73388	
							Accou	int Manager:	Susan Pelzl	
	Steve Smith									
Standard:	FCC 15 E, F	RSS 210						Class:	N/A	
Run #1: Ba	ndwidth, Ou	tput Power	and Power s	spectral Den	isity					
Antenna gai	n used is for	the internal a				1	1	sed for MIMC) modes.	
	Autour		Chain 1	Chain 2	Chain 3		Effective ⁵	-		
	Antenna	a Gain (dBi):	3		3	No	3.0	J		
ower setti	ngs for a si	ngle radio oj	perating in t	he band						
Frequency	Software	26dB BW	v v	d Output Pov	wer ¹ dBm	To	otal	Limit (dDm)	Max Power	Pass or
(MHz)	Setting	(MHz)	Chain 1	Chain 2	Chain 3	mW	dBm	Limit (dBm)	(W)	Fail
5260	20.0	23.0	17.5		18.3	123.8	20.9	24.0		PASS
5300	20.0	24.3	18.0		17.4	118.0	20.7	24.0	0.124	PASS
5320	18.5	22.1	16.4		15.7	80.8	19.1	24.0		PASS
5270 5310	20.0 16.5	44.0 41.6	17.1 13.8		17.6 13.5	108.8 46.4	20.4 16.7	24.0 24.0	0.109	PASS PASS
3310	10.5	41.0	13.0		15.5	40.4	10.7	24.0		1733
Frequency	99 % ⁴	99% ⁴ Total PSD ² dBm/MHz Total		l PSD Lir		mit	Pass or			
(MHz)	BW	Power	Chain 1	Chain 2	Chain 3	mW/MHz	dBm/MHz	FCC	RSS 210 ³	Fail
5260	18.4	20.9	4.9	Officin' 2	5.5	6.6	8.2	11.0	11.0	PASS
5280	18.4	20.7	5.4		4.7	6.4	8.1	11.0	11.0	PASS
5320	18.4	19.1	3.8		3.0	4.4	6.4	11.0	11.0	PASS
5270 5310	36.9 36.9	20.4 16.7	<u>1.1</u> -2.2		1.7 -2.4	2.8 1.2	4.4 0.7	11.0 11.0	11.0 11.0	PASS PASS
0010	30.9	10.7	-2.2		-2.4	Ι.Ζ	0.7	11.0	11.0	FA33
	Output po	wer measure	d using a sp	ectrum analy	zer (see plo	ts below for t	he high pow	er measurem	ents):	
Note 1:		Hz, VB=3 MH			0 0	on (transmit	ted signal wa	as continuous) and power	integratior
		<u>Hz (20MHz n</u>								
Note 2:		<u>l using the sa</u> 210 the limit f					onno goin og	the maximu	m oirn allour	d ic
		Hz. The limits					•			
Note 3:		SD (calculat								
	0	at the measu				5				5 0 1 1 1 0
Note 4:	99% Band	dwidth measu	red in accor	dance with R	SS GEN - R	B > 1% of sp	an and VB >			
) systems the	•	•				•		
		erms). The a	-							-
Note 5:		he MIMO dev		•					0	
									-	-
	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								is) of the gai	IIS IOI eac
	chain and	tha LIDD is t	$n \Delta n n n n n n n n n n n n n n n n n n$							







EMC Test Data

Ć	EM	C Test Data	
Client:		Job Number:	J71484
Model:	VN4	T-Log Number:	T73388
wouer.	AIN4	Account Manager:	Susan Pelzl
Contact:	Steve Smith		
Standard:	FCC 15 E, RSS 210	Class:	N/A

Power settings for all four n20 channels and both n40 channels being used in the band:

The device adjusts output power downwards if mutliple radios operate in the same band to maintain compliance with the total power limit for the band. Measuremetns were made at the lowest required power setting (i.e. all non-overlaping channels in the band occupied) to verify the device has the dynamic range to do this.

Frequency	Software	26dB BW	Measure	d Output Po	wer ¹ dBm	То	tal			
(MHz)	Setting	(MHz)	Chain 1	Chain 2	Chain 3	mW	dBm			
5300	17.0	24.3	14.6		14.4	56.4	17.5	Limit	P (W)	Result
Tota	al power in th	e band (four	radios opera	itional in n20	MHz mode):	225.5	23.5	24.0	0.226	PASS
Frequency	Software	26dB BW	Measure	d Output Po	wer ¹ dBm	То	tal			
(MHz)	Setting	(MHz)	Chain 1	Chain 2	Chain 3	mW	dBm			
5270	20.0	44.0	17.1	Ondin 2	17.6	108.8	20.4			
5310	16.5	41.6	13.8		13.5	46.4	16.7	Limit	P (W)	Result
Tot	al power in th	ne band (two	radios opera	itional in n40	MHz mode):	155.2	21.9	24.0	0.155	PASS
Note 1:	RBW=1M over 40M	Hz, VB=3 Mł Hz (20MHz n	Hz, sample d	etector, pow MHz (40MH		on (transmitt	• •			integratio
Note 2:					ed for output p band account		onno goin oc	the maximu	m airn allaur	
Note 3:	11dBm/M average F	Hz. The limit SD (calculat	s are also co ed from the i	rrected for ir measured po	band account istances wher ower divided b verage by mo	e the highes y the measu	st measured v ired 99% bar	value of the	PSD exceed	s the
Note 4:					RSS GEN - RE			=3xRB		
Note 5:	(in linear t mode of t determine	erms). The a he MIMO deve the limits is	antenna gain vice. If the si the highest g	used to det gnals on the jain of the in	otal PSD are of ermine the EII non-coherent dividual chains the effective a	RP and limit t between th s and the EI	s for PSD/Ou e transmit ch RP is the sur	Itput power on Iains then the In of the procession of the procesion of the procession of the procession of the process	depends on t ne gain used	ne operatir to and power

Elliott EMC Test Data Job Number: J71484 T-Log Number: T73388 Account Manager: Susan Pelzl Contact: Steve Smith

Class: N/A

Run #2: Peak Excursion Measurement

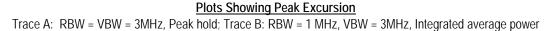
Standard: FCC 15 E, RSS 210

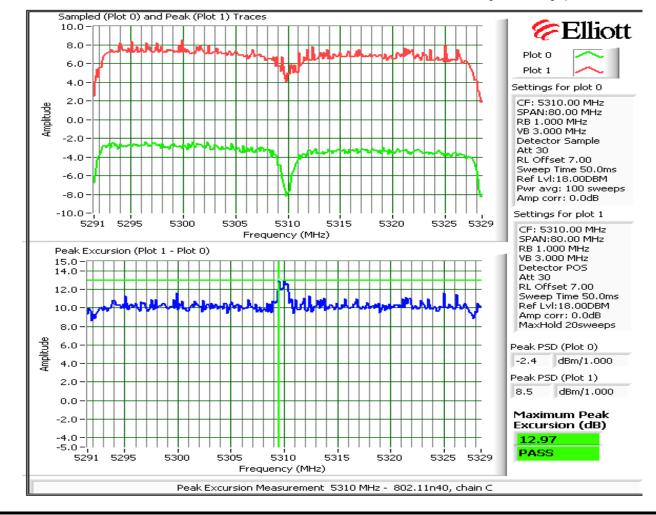
Client: Xirrus

Model: XN4

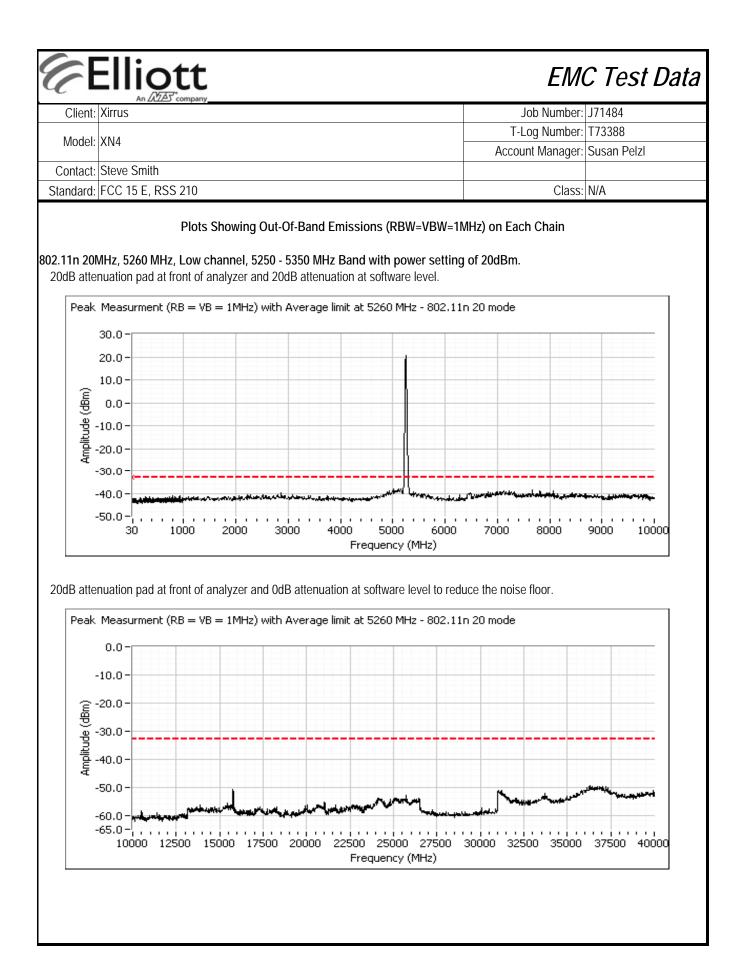
Device meets the requirement for the peak excursion

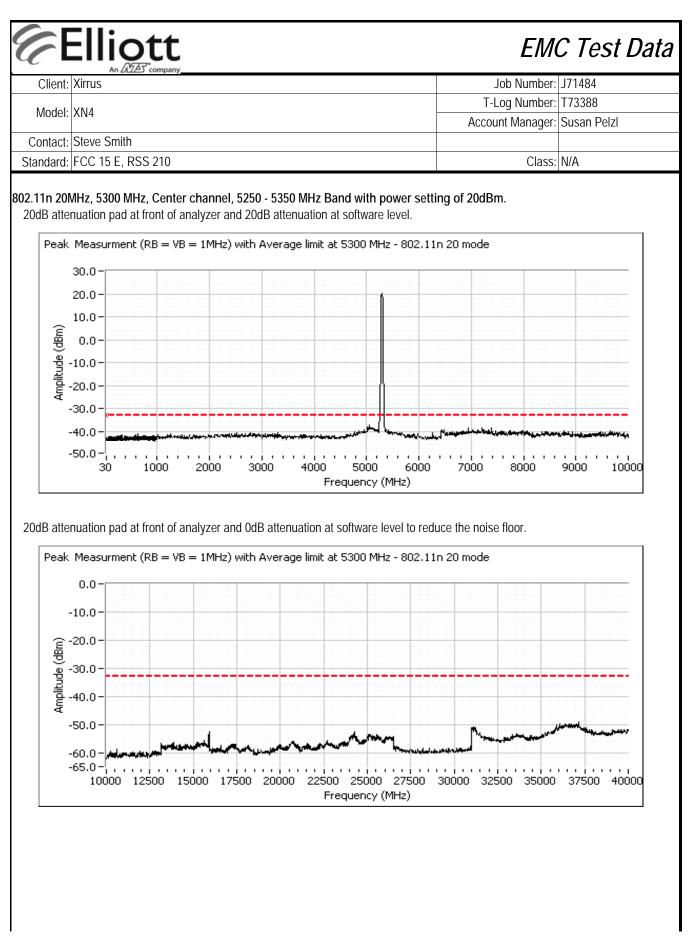
Freq	Mode/	Peak Exc	ursion(dB)	Mode/	Peak Exc	ursion(dB)
(MHz)	Chain	Value	Limit	Chain	Value	Limit
5260	n20 A	11.2	13.0	n20 C	11.2	13.0
5280	n20 A	11.3	13.0	n20 C	11.4	13.0
5320	n20 A	11.9	13.0	n20 C	11.3	13.0
5270	n40 A	12.6	13.0	n40 A	12.9	13.0
5310	n40 A	12.8	13.0	n40 C	12.97	13.0

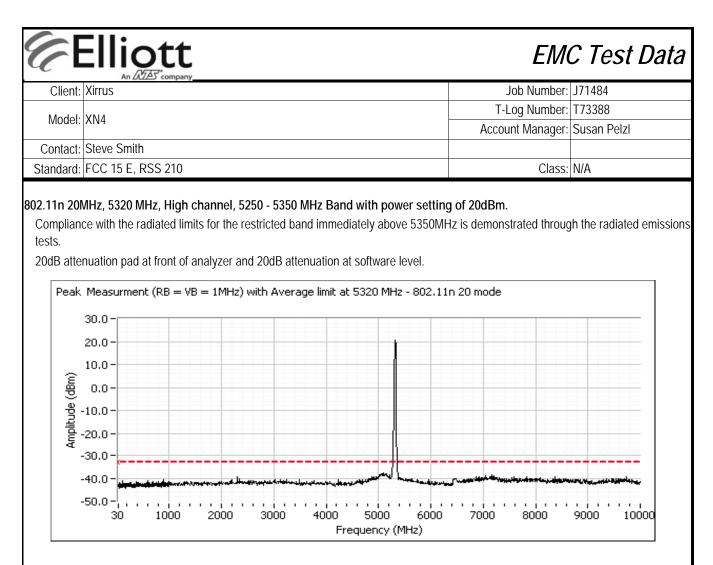




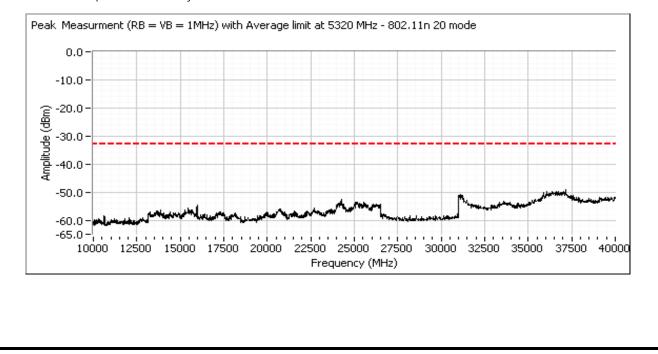
Client: Xirrus Model: XN4	company		C Test Data
		Job Number:	J71484
Model: XN4		T-Log Number:	T73388
		Account Manager:	
Contact: Steve Smith			
Standard: FCC 15 E, RS	SS 210	Class:	N/A
IMO Devices: Antenna	urious Emissions - Antenna Conducted gain used is the effective gain calculated in the power section d the limit was adjusted to account for all chains transmitting		lots were obtained for
Nun	nber of transmit chains: 2		
Μ	laximum Antenna Gain: 3.0 dBi		
-	Spurious Limit: -27.0 dBm/MHz eirp		
A	Adjustment for 2 chains: -3.0 dB adjustment for multip		
Lir	nit Used On Plots Note 1: -33.0 dBm/MHz Average Liu -13.0 dBm/MHz Peak Limit		
	-13.0 abm/NHZ Peak Limit	(RB=VB=TIVIHZ)	
Note 2: All spurious si Note 3: Signals within Note 4: If the device is	se frequencies. ignals below 1GHz are measured during digital device radiate 10MHz of the 5.725 or 5.825 Band edge are subject to a lim is for outdoor use then the -27dBm eirp limit also applies in th all in the restricted bands of 15.205 are subject to the limit of	it of -17dBm EIRP e 5150 - 5250 MHz band.	

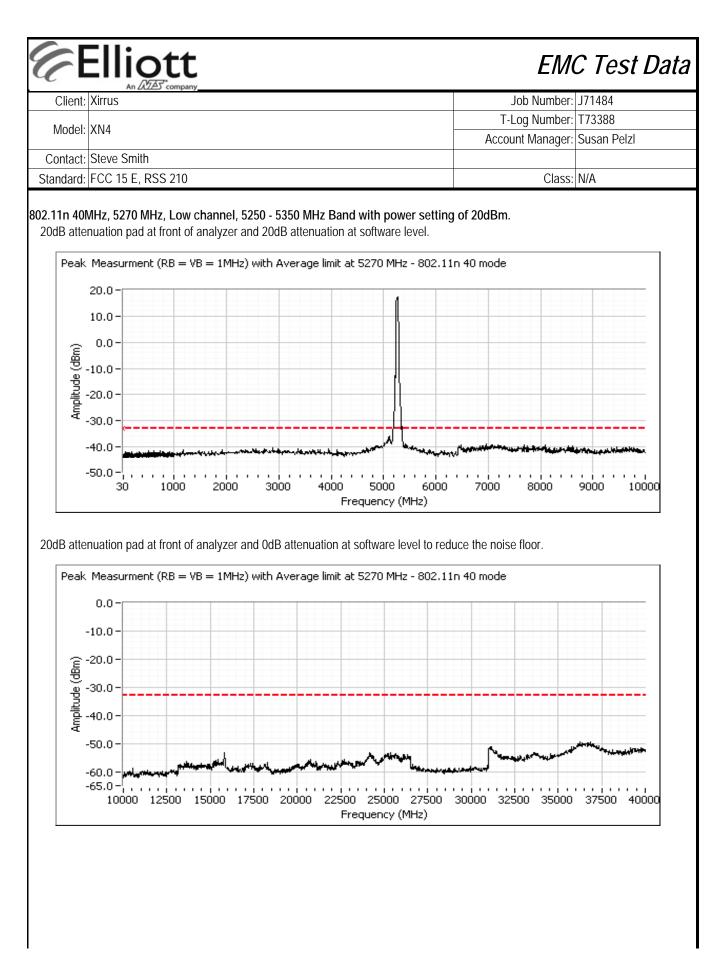






20dB attenuation pad at front of analyzer and 0dB attenuation at software level to reduce the noise floor.



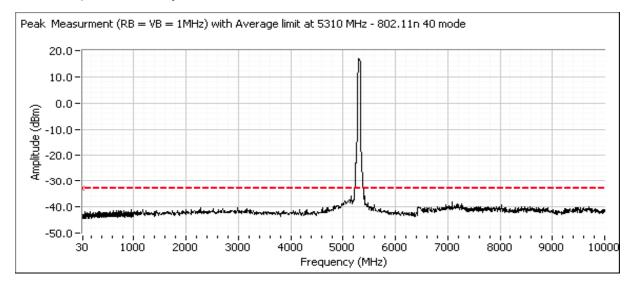


Client: Xirrus Job Number: J71484 Model: XN4 T-Log Number: T73388 Contact: Steve Smith Account Manager: Susan Pelzl Standard: FCC 15 E, RSS 210 Class: N/A

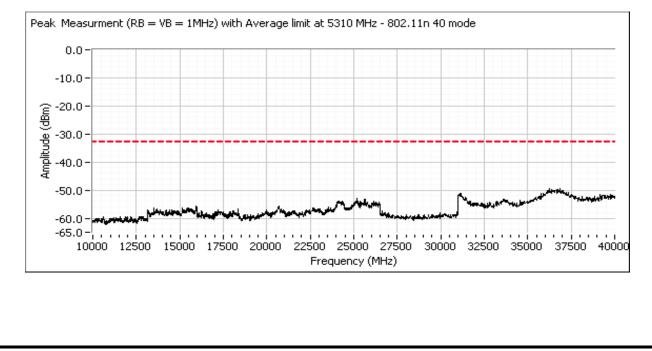
802.11n 40MHz, 5310 MHz, High channel, 5250 - 5350 MHz Band with power setting of 20dBm.

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

20dB attenuation pad at front of analyzer and 20dB attenuation at software level.



20dB attenuation pad at front of analyzer and 0dB attenuation at software level to reduce the noise floor.



Ellic	Dtt			EM	C Test Data		
Client: Xirrus	company		J	ob Number:	J71484		
				og Number:			
Model: XN4				-	Susan Pelzl		
Contact: Steve Smith	1			5			
Standard: FCC 15 E, I				Class:	N/A		
Test Specific Detai	er, PSD, Peak Excursion	ort Measurem , Bandwidth and	ents d Spuriou	is Emis			
Date of Test: Test Engineer: Test Location: General Test Confi When measuring the o	Objective: The objective of this test session is to perform final qualification testing of the EUT with respect to the specification listed above. Date of Test: 11/6/2008 Config. Used: - Test Engineer: Mehran Birgani Config Change: Direct connection Test Location: SV OATS #2 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						
Ambient Condition Summary of Result	Rel. Humidity:						
Run #	Test Performed	Limit			Docult / Margin		
			Pass / Fail		Result / Margin e radio: 20.2 dBm		
1	Power, 5470 - 5725MHz	15.407(a) (1), (2)	Pass	•	radio: 23.9 dBm		
1	PSD, 5470 - 5725MHz	15.407(a) (1), (2)	Pass		7.8 dBm/MHz		
1	26dB Bandwidth	15.407	Pass		30.7 MHz		
1	99% Bandwidth	RSS 210	-		17.5 MHz		
2	Peak Excursion Envelope	15.407(a) (6)	Pass		11.9 dB		
3	Antenna Conducted Out of Band Spurious	15.407(b)	Pass		nissions below the 7dBm/MHz limit		
Deviations From TI	e made to the EUT during testing	dard.					

Elliott

EMC Test Data

Client:	Xirrus	Job Number:	J71484
Model:	YNA	T-Log Number:	T73388
mouer.	AN4	Account Manager:	Susan Pelzl
Contact:	Steve Smith		
Standard:	FCC 15 E, RSS 210	Class:	N/A

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

Antenna gain used is for the internal antenna. The external antenna gain is lower (2.5dBi) and not used for MIMO modes. Ar

ntenna Gain ((dBi):	3.0

Power setti	ngs for a sir	ngle radio oj	perating in t	he band						
Frequency	Software	Band	width	Output Po	wer ¹ dBm	Power	P	PSD ² dBm/MHz		Result
(MHz)	Setting	26dB	99 % ⁴	Measured	Limit	(Watts)	Measured	FCC Limit	RSS Limit ³	Result
5500	20.0	23.1	17.3	19.0	24.0	0.079	6.5	11.0	11.0	Pass
5600	20.0	30.7	17.5	20.2	24.0	0.105	7.8	11.0	11.0	Pass
5700	20.0	22.5	17.4	17.7	24.0	0.059	5.2	11.0	11.0	Pass

Power settings for all eleven channels being used in the band

Output power measured on the centre channel to demonstrate power control is available to set the power to a level low enough to comply with limits when all four radios are operational in the band. Only power was measured - aggregation of PSD is not applicable as the device cannot have more than one radio operating on a channel.

Frequency	Software	Bandwidth		Measure		
(MHz)	Setting	26dB	99 % ⁴	dBm	mW	
5600	20.0	30.7	17.5	20.2	104.7	Limit
To	tal Power Ac	ross The Bai	nd - 2 radios	23.2	209.4	24 dBm

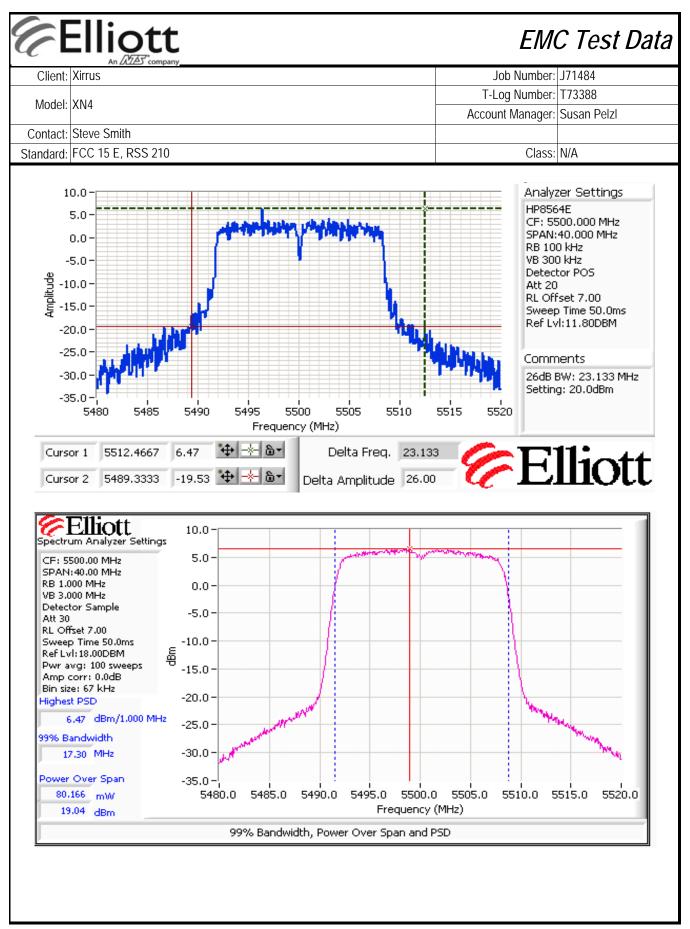
Frequency	Software	Bandwidth		Measure		
(MHz)	Setting	26dB	99 % ⁴	dBm	mW	
5600	19.0	30.7	17.5	19.1	81.3	Limit
To	Total Power Across The Band - 3 radios			23.9	243.8	24 dBm

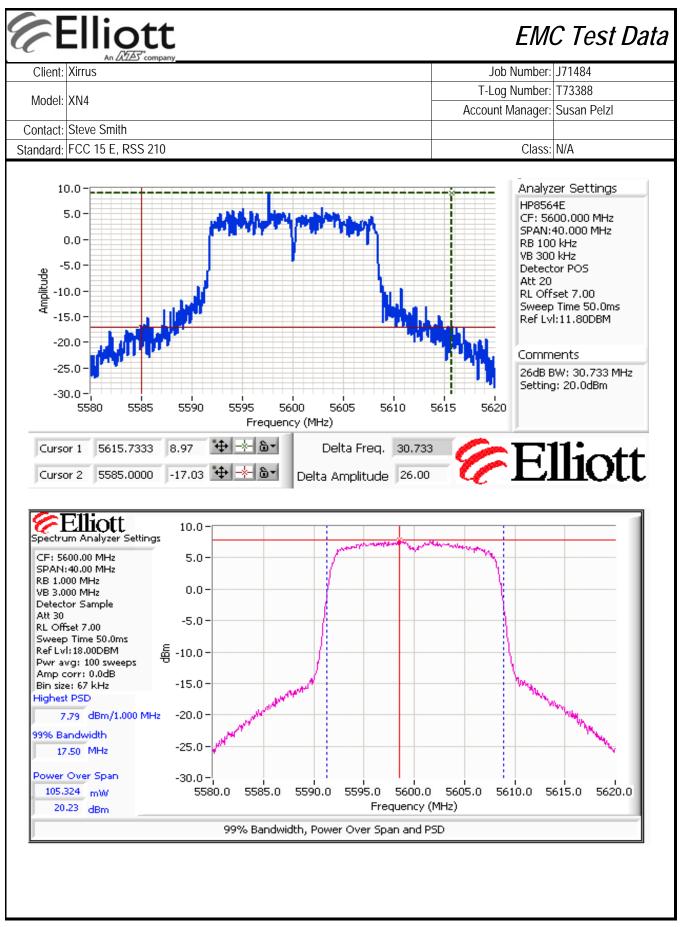
Frequency	Software	Band	width	Measure		
(MHz)	Setting	26dB	99 % ⁴	dBm	mW	
5600	17.5	28.1	17.2	17.6	57.5	Limit
	Total	Power Acros	ss The Band	23.6	230.2	24 dBn

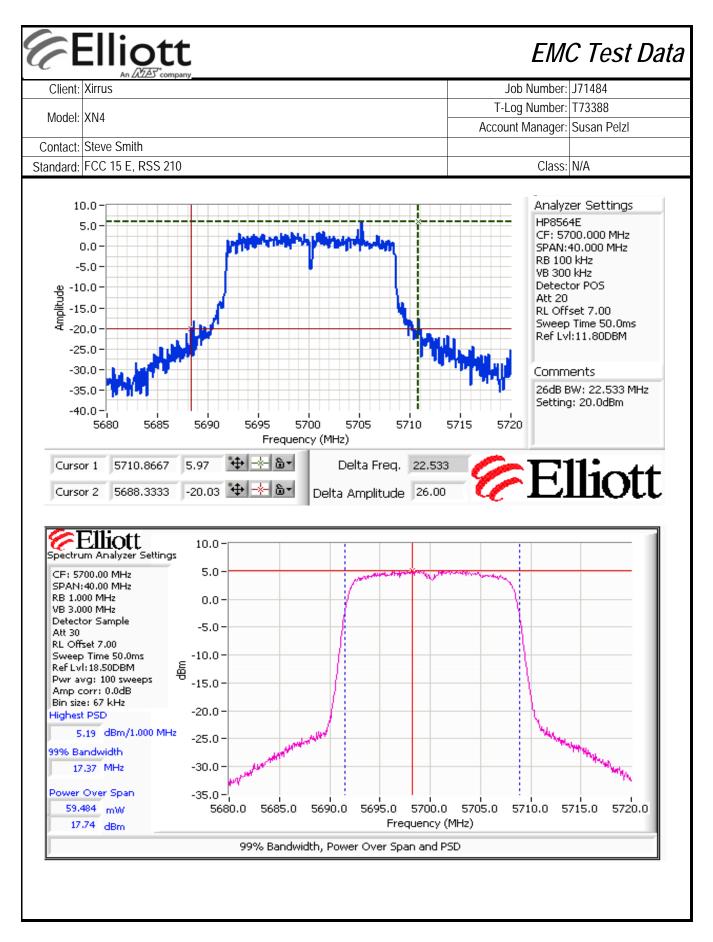
Output power measured using a spectrum analyzer (see plots below):

RBW=1MHz, VB=3 MHz, sample detector, power averaging on (transmitted signal was continuous) and power integration Note 1: over 40 MHz

Note 2:	Measured using the same analyzer settings used for output power.
	For RSS-210 the limit for the 5150 - 5250 MHz band accounts for the antenna gain as the maximum eirp allowed is
Note 3:	10dBm/MHz. The limits are also corrected for instances where the highest measured value of the PSD exceeds the
NOLE 3.	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







Elliott EMC Test Data Job Number: J71484 T-Log Number: T73388

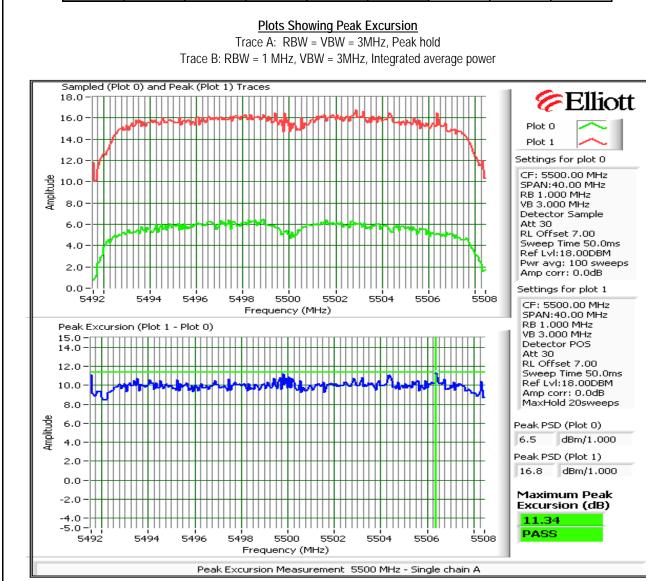


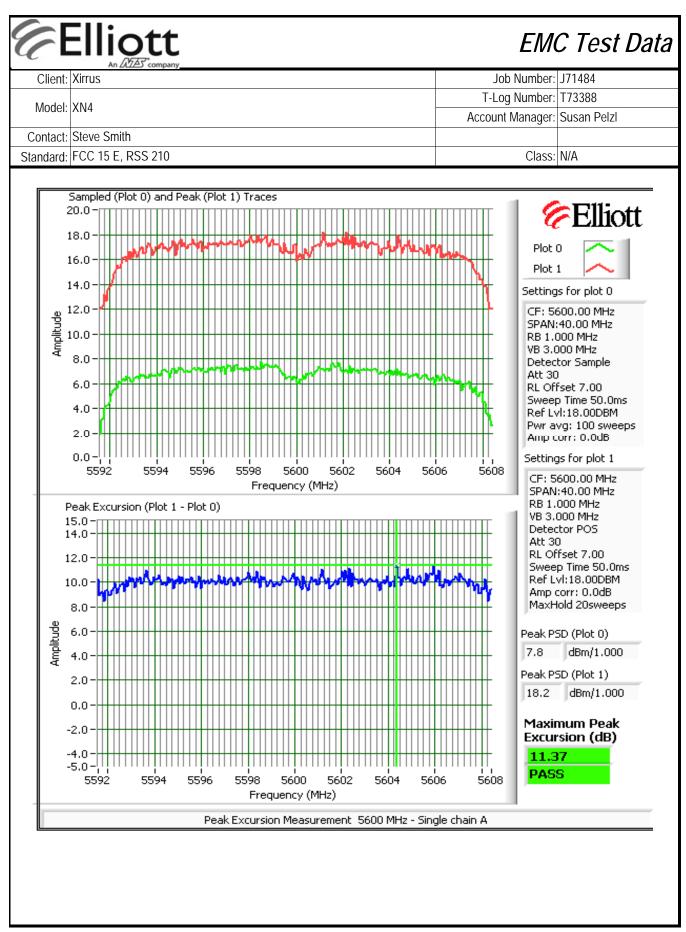
Run #2: Peak Excursion Measurement

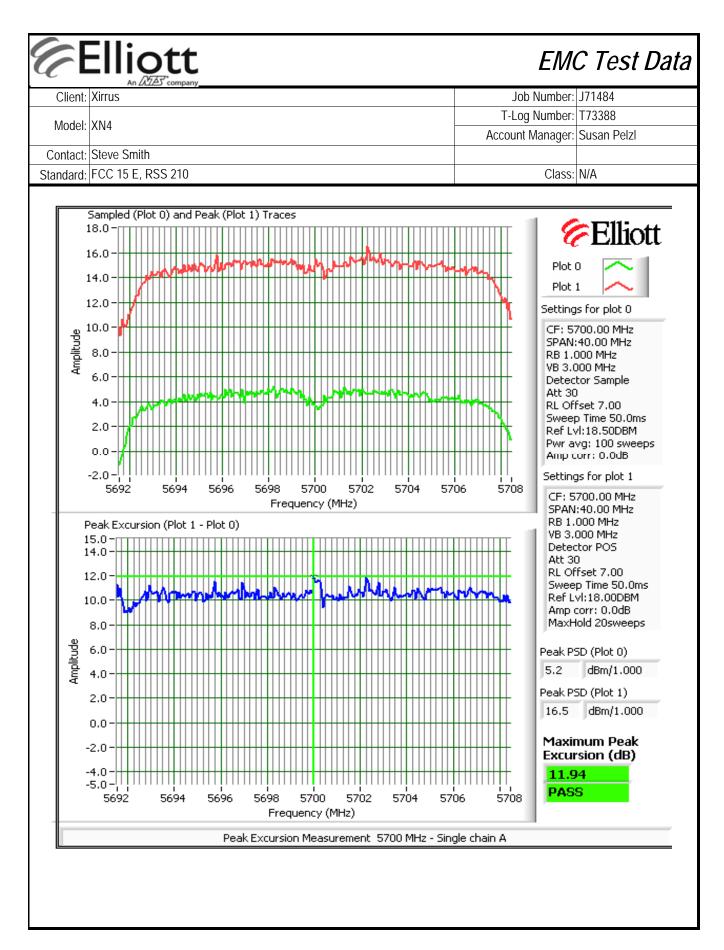
Client: Xirrus

Device meets the requirement for the peak excursion

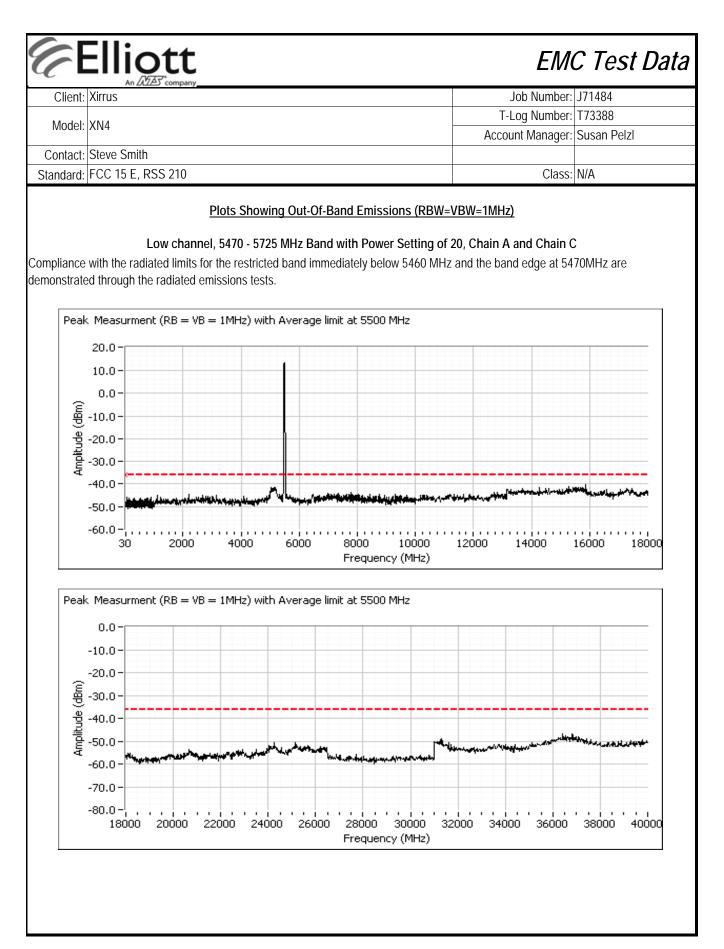
Freq	Peak Exc	ursion(dB)	Freq	Peak Excursion(dB)		Freq	Peak Exc	ursion(dB)
(MHz)	Value	Limit	(MHz)	Value	Limit	(MHz)	Value	Limit
5180		13.0	5260		13.0	5500	11.3	13.0
5200		13.0	5300		13.0	5600	11.4	13.0
5240		13.0	5320		13.0	5700	11.9	13.0

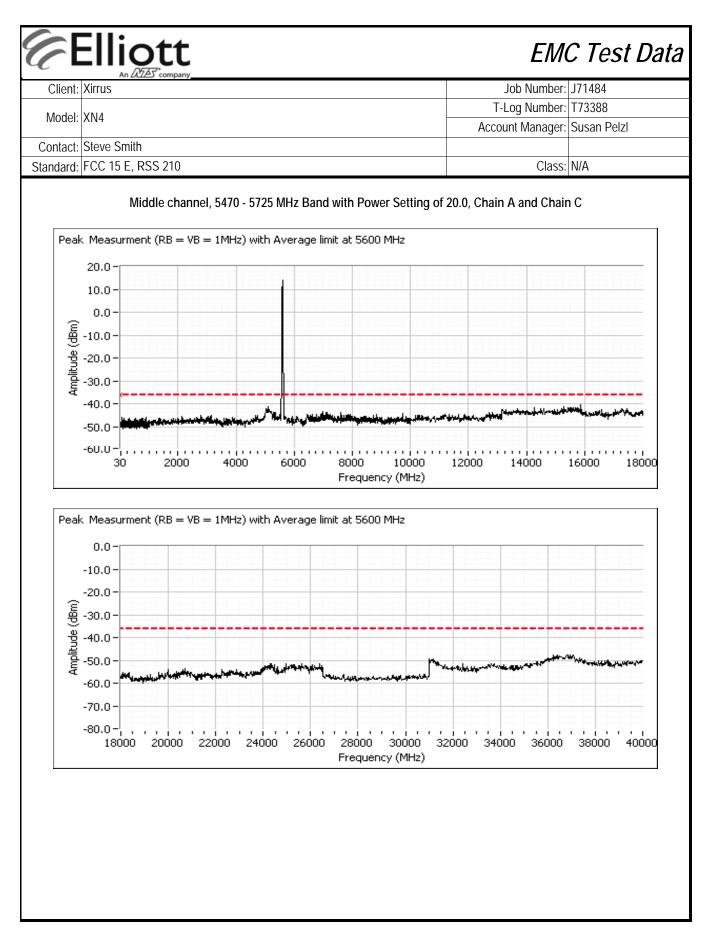






out of band spurious emissions to account for dual chain operation, the plots below cover both single- and dual chain operation. Number of transmit chains: 2 Maximum Antenna Gain: 3.0 dBi Spurious Limit: -27.0 dBm/MHz eirp Adjustment for 2 chains: -6.0 dB adjustment for multiple chains and coherency between chains. Limit Used On Plots -800 dBm/MHz Average Limit (RB=1MHz, VB=10Hz) -36.0 dBm/MHz -16.0 dBm/MHz Peak Limit (RB=VB=1MHz) Vote 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.			EMC Test Da							
Model: XN4 Account Manager: Susan Pelzl Contact: Steve Smith Image: Susan Pelzl Standard: FCC 15 E, RSS 210 Class: N/A Im #3: Out Of Band Spurious Emissions - Antenna Conducted Image: MO Devices: As the output power setting for the single chain mode is higher than the setting for dual chain, and by adjusting the lim out of band spurious emissions to account for dual chain operation, the plots below cover both single- and dual chain operation. Number of transmit chains: 2 Maximum Antenna Gain: 3.0 dBi Spurious Limit: -27.0 dBm/MHz eirp Adjustment for 2 chains: -6.0 dB adjustment for multiple chains and coherency between chains. Limit Used On Plots -36.0 dBm/MHz Peak Limit (RB=1MHz, VB=10Hz) -16.0 dBm/MHz Peak Limit (RB=VB=1MHz) -16.0 dBm/MHz Peak Limit (RB=VB=1MHz) Note 1: The -27dBm/MHz limit is an eirp limit. The limit for antenna port conducted measurements is adjusted to take into consideration the maximum antenna gain (limit = -27dBm - antenna gain). Radiated field strength measurements for signals more than 50MHz from the bands and that are close to the limit are made to determine compliance as the antenna gain is not known at these frequencies. Note 2: All spurious signals below 1CHz are measured during digital device radiated emissions test. <th>Client:</th> <th>Xirrus</th> <th>Job Number: J71484</th>	Client:	Xirrus	Job Number: J71484							
Model: XN4 Account Manager: Susan Pelzl Contact: Steve Smith Image: Susan Pelzl Standard: FCC 15 E, RSS 210 Class: N/A Im #3: Out Of Band Spurious Emissions - Antenna Conducted Image: MO Devices: As the output power setting for the single chain mode is higher than the setting for dual chain, and by adjusting the lim out of band spurious emissions to account for dual chain operation, the plots below cover both single- and dual chain operation. Number of transmit chains: 2 Maximum Antenna Gain: 3.0 dBi Spurious Limit: -27.0 dBm/MHz eirp Adjustment for 2 chains: -6.0 dB adjustment for multiple chains and coherency between chains. Limit Used On Plots -36.0 dBm/MHz Peak Limit (RB=1MHz, VB=10Hz) -16.0 dBm/MHz Peak Limit (RB=VB=1MHz) -16.0 dBm/MHz Peak Limit (RB=VB=1MHz) Note 1: The -27dBm/MHz limit is an eirp limit. The limit for antenna port conducted measurements is adjusted to take into consideration the maximum antenna gain (limit = -27dBm - antenna gain). Radiated field strength measurements for signals more than 50MHz from the bands and that are close to the limit are made to determine compliance as the antenna gain is not known at these frequencies. Note 2: All spurious signals below 1CHz are measured during digital device radiated emissions test. <td></td> <td></td> <td>T-Log Number: T73388</td>			T-Log Number: T73388							
Contact: Steve Smith Standard: FCC 15 E, RSS 210 Class: N/A Im #3: Out Of Band Spurious Emissions - Antenna Conducted MO Devices: As the output power setting for the single chain mode is higher than the setting for dual chain, and by adjusting the lim out of band spurious emissions to account for dual chain operation, the plots below cover both single- and dual chain operation. Number of transmit chains: 2 Maximum Antenna Gain: 3.0 dBi Spurious Limit: -27.0 dBm/MHz eirp Adjustment for 2 chains: -6.0 dB adjustment for multiple chains and coherency between chains. Limit Used On Plots Note 1: The -27dBm/MHz limit is an eirp limit. The limit for 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 anten gain is not known at these frequencies. Note 1: 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.	Model:									
Standard: FCC 15 E, RSS 210 Class: N/A Im #3: Out Of Band Spurious Emissions - Antenna Conducted MO Devices: As the output power setting for the single chain mode is higher than the setting for dual chain, and by adjusting the lin out of band spurious emissions to account for dual chain operation, the plots below cover both single- and dual chain operation. Number of transmit chains: 2 Maximum Antenna Gain: 3.0 dBi 3.0 dBi Spurious Limit: -27.0 dBm/MHz eirp Adjustment for 2 chains: -6.0 dB adjustment for multiple chains and coherency between chains. Limit Used On Plots -6.0 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 anten 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.	Contact:	Steve Smith								
In #3: Out Of Band Spurious Emissions - Antenna Conducted MO Devices: As the output power setting for the single chain mode is higher than the setting for dual chain, and by adjusting the lin out of band spurious emissions to account for dual chain operation, the plots below cover both single- and dual chain operation. Number of transmit chains: 2 Maximum Antenna Gain: 3.0 dBi Spurious Limit: -27.0 dBm/MHz eirp Adjustment for 2 chains: -6.0 dB adjustment for multiple chains and coherency between chains. Limit Used On Plots -6.0 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 anten 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.			Class: N/A							
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 anten 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.	IMO Devic	ces: As the output power setting for the single chain mode is higher nd spurious emissions to account for dual chain operation, the plots I Number of transmit chains: 2 Maximum Antenna Gain: 3.0 dBi Spurious Limit: -27.0 dBm/MHz eirp Adjustment for 2 chains: -6.0 dB adjustment for Limit Used On Plots -36.0 dBm/MHz Aver	pelow cover both single- and dual chain operation. multiple chains and coherency between chains. age Limit (RB=1MHz, VB=10Hz)							
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 1: Note 2:	consideration the maximum antenna gain (limit = -27dBm - antenr signals more than 50MHz from the bands and that are close to the gain is not known at these frequencies.	a gain). Radiated field strength measurements for e limit are made to determine compliance as the ante							
Note 4: If the device is for outdoor use then the -27dBm eirp limit also applies in the 5150 - 5250 MHz band.	Note 3:									
	Note 4:									
	Note 5:									

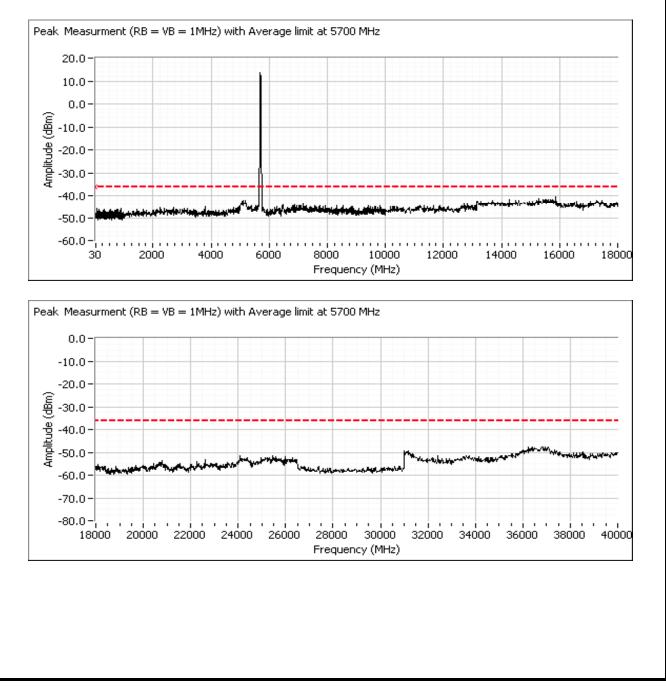




	An AZZ company		
Client:	Xirrus	Job Number:	J71484
Model:	YNA	T-Log Number:	T73388
Model	×114	Account Manager:	Susan Pelzl
Contact:	Steve Smith		
Standard:	FCC 15 E, RSS 210	Class:	N/A

High channel, 5470 - 5725 MHz Band with Power Setting of 20, Chain A and Chain C

The 26dB bandiwtdh data shows that the 26dB signal bandiwdth (and, therefore, the 20dB signal bandwidth) remains within the allocated band.



Elliott

CE	Elliott EMC Test Data										
Client:	Xirrus	company.		J	ob Number:	J71484					
Madal	V/N1 4			T-L	og Number:	T73388					
Model:	XN4			Accou	nt Manager:	Susan Pelzl					
Contact:	Steve Smith										
Standard:	FCC 15 E, F	RSS 210			Class:	N/A					
Test Spec	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										
	Objective:	The objective of this test session is to specification listed above.	perform final qualification	n testing of th	e EUT with	respect to the					
Date of Test: 11/10/2008Config. Used: AC poweredTest Engineer: Mehran BirganiConfig Change: Direct connectionTest Location: SV OATS #1EUT Voltage: PoE											
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: 15-36 °C											
Summary	of Result	Rel. Humidity:	10-60 %								
Run #	Mode	Test Performed	Limit	Pass / Fail		Result / Margin					
1	а	Power, 5470 - 5725MHz	15.407(a) (1), (2)	Pass	•	e radio: 22.4 dBm radio: 23.7 dBm					
1	а	PSD, 5470 - 5725MHz	15.407(a) (1), (2)	Pass		9.9 dBm/MHz					
1	a	99% Bandwidth	RSS 210	-		17.8 MHz					
2	а	Peak Excursion Envelope	15.407(a) (6)	Pass		12.4 dB					
		Antenna Conducted - Out of Band			Covered by	single-chain					
)	Spurious	15.407(b)		mode mea	asurements					
No modifice Deviation	3 Antenna conducted - Out of Danu 15.407(b) Covered by single-chain mode measurements 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.										

Elliott

EMC Test Data

	An 2A2A company		
Client:	Xirrus	Job Number:	J71484
Model:	YNA	T-Log Number:	T73388
	×114	Account Manager:	Susan Pelzl
Contact:	Steve Smith		
Standard:	FCC 15 E, RSS 210	Class:	N/A

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

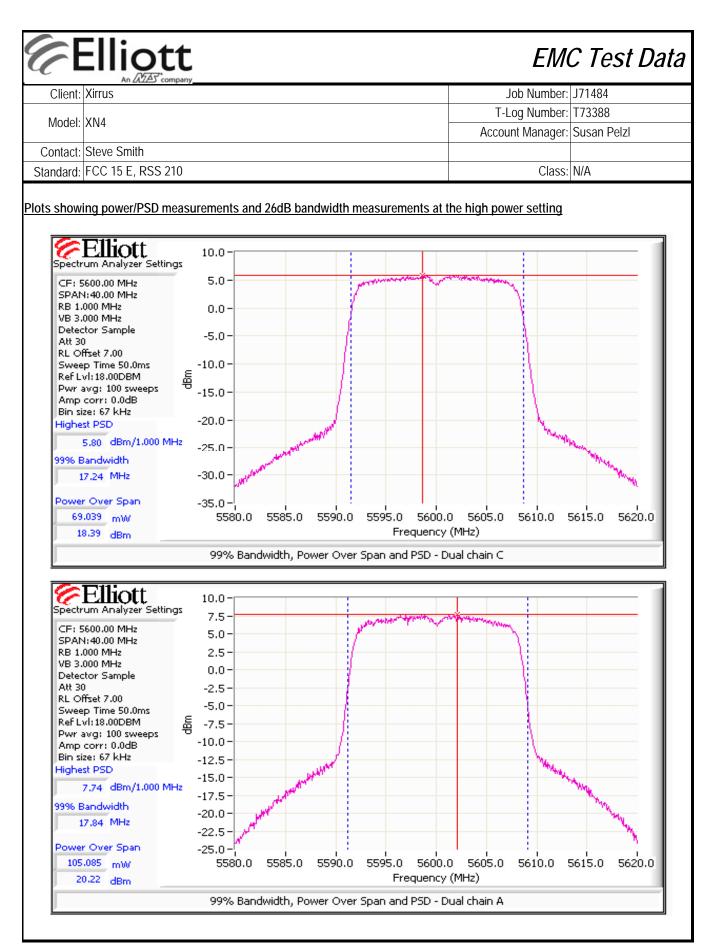
Antenna gain used is for the internal antenna. The external antenna gain is lower (2.5dBi) and not used for MIMO modes.

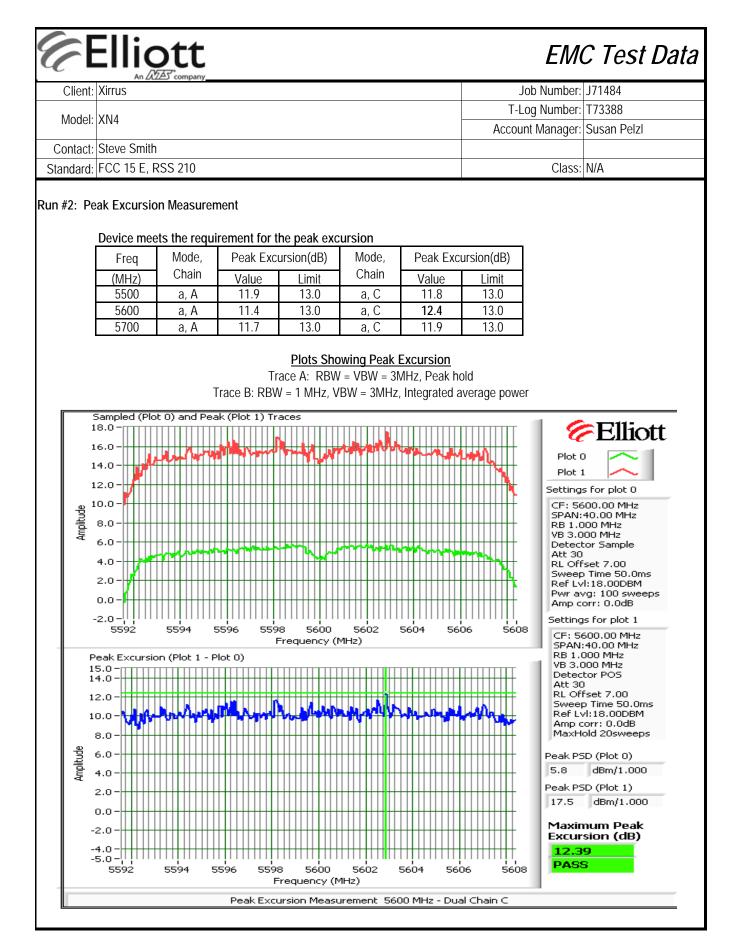
J .					J		/	_		
			Chain 1	Chain 2	Chain 3	Coherent	Effective ⁵			
	Antenna	a Gain (dBi):	3		3	Yes	6.0			
Power setti	ngs for a sii	ngle radio o	perating in t	he band						
Frequency	Software	26dB BW	Measure	d Output Pov	wer ¹ dBm	To	otal	Limit (dBm)	Max Power	Pass or
(MHz)	Setting	(MHz)	Chain 1	Chain 2	Chain 3	mW	dBm	Ennie (GDIII)	(W)	Fail
5500	20.0	21.2	18.2		17.2	118.6	20.7	24.0		PASS
5600	20.0	33.9	20.2		18.4	173.9	22.4	24.0	0.174	PASS
5700	20.0	26.7	17.8		17.8	120.5	20.8	24.0		PASS
Frequency	99 % ⁴	Total	PSD ² dBm/MHz		Total	PSD	Li	mit	Pass or	
(MHz)	BW	Power	Chain 1	Chain 2	Chain 3	mW/MHz	dBm/MHz	FCC	RSS 210 ³	Fail
5500	17.3	20.7	5.8		4.6	6.7	8.3	11.0	11.0	PASS
5600	17.8	22.4	7.7		5.8	9.7	9.9	11.0	11.0	PASS
5700	17.4	20.8	5.3		5.2	6.7	8.3	11.0	11.0	PASS
1										

Power settings for all four 802.11a channels being used in the band:

Output power measured on the center channel to demonstrate power control is available to set the power to a level low enough to comply with limits when all four radios are operational in the band. Only power was measured - aggregation of PSD is not applicable as the device cannot have more than one radio operating on a channel.

Frequency	Software	26dB BW	Measured Output Power ¹ dBm		То	tal					
(MHz)	Setting	(MHz)	Chain 1	Chain 2	Chain 3	mW	dBm				
5600	15.5	33.9	15.8		13.1	58.4	17.7	Limit	P (W)	Result	
-	Total power in the band (four radios operational):233.723.724.00.234PASS										
Output power measured using a spectrum analyzer (see plots below for the high power measurements):											
Note 1:	1: RBW=1MHz, VB=3 MHz, sample detector, power averaging on (transmitted signal was continuous) and power integration										
	over 40M	over 40MHz (20MHz mode) and 100MHz (40MHz mode)									
Note 2:	Measured using the same analyzer settings used for output power.										
	For RSS-210 the limit for the 5150 - 5250 MHz band accounts for the antenna gain as the maximum eirp allowed is										
Note 3:	10dBm/MHz. The limits are also corrected for instances where the highest measured value of the PSD exceeds the										
NOIC J.	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										
	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										
Note 5:	mode of the MIMO device. If the signals on the non-coherent between the transmit chains then the gain used to										
NUCE J.	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 c	hain. If the s	ignals are co	herent then	the effective	antenna gair	n is the sum ((in linear terr	ns) of the gai	ins for each	
	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.										





	Elliott An DEAT company	EMO	C Test Data
Client:	Xirrus	Job Number:	J71484
Madalı	VNI4	T-Log Number:	T73388
Model:	XIN4	Account Manager:	Susan Pelzl
Contact:	Steve Smith		
Standard:	FCC 15 E, RSS 210	Class:	N/A
Test Spec	cific Details		
	Ante	LELAN) and FCC 15.407(UNII) nna Port Measurements cursion, Bandwidth and Spurious Emiss	_
Test Spec	CIFIC Details	session is to perform final qualification testing of the EUT with r	respect to the
	specification listed above.		•
[Date of Test: 11/10 and 11/2008	Config. Used: AC powered	
	st Engineer: Mehran Birgani	Config Change: Direct connection	
Te	est Location: SV OATS #1	EUT Voltage: PoE	
General 1	est Configuration		
When me	asuring the conducted emissions from t	the EUT's antenna port, the antenna port of the EUT was conn	ected to the spectrum
5	•	to prevent overloading the measurement system. All measur	ements are corrected to
allow for t	he external attenuators and cables use	d.	

Ambient Conditions:

Temperature: Rel. Humidity:

15-36 °C 10-60 %

Summary of Results

Run #	Mode	Test Performed	Limit	Pass / Fail	~
1	n20MHz	Power, 5470-5725MHz	15.407(a) (1), (2)	Pass	Single radio: 22.8 dBm
		· · · · · · · · · · · · · · · · · · ·			4x radio: 23.6 dBm
1	n20MHz	PSD, 5470-5725MHz	15.407(a) (1), (2)	Pass	9.5 dBm/MHz
1	n20MHz	99% Bandwidth	RSS 210	-	19.0 MHz
1	n40MHz	Power, 5470-5725MHz	15.407(a) (1), (2)	Pass	Single radio: 22.3 dBm
1	TI40IVIHZ	Fower, 5470-5725WINZ	15.407(a) (1), (z)	rass	4x radio: 23.5 dBm
1	n40MHz	PSD, 5470-5725MHz	15.407(a) (1), (2)	Pass	5.9 dBm/MHz
1	n40MHz	99% Bandwidth	RSS 210	-	45.0 MHz
2	n20 & n40	Peak Excursion Envelope	15.407(a) (6)	Pass	12.9 dB
3	n20 & n40	Antenna Conducted Spurious	15.407(b)	Pass	< -27dBm/MHz eirp

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.

Elliott

EMC Test Data

	An ZZZZO Company		
Client:	Xirrus	Job Number:	J71484
Model:	YNA	T-Log Number:	T73388
woder:	AN4	Account Manager:	Susan Pelzl
Contact:	Steve Smith		
Standard:	FCC 15 E, RSS 210	Class:	N/A

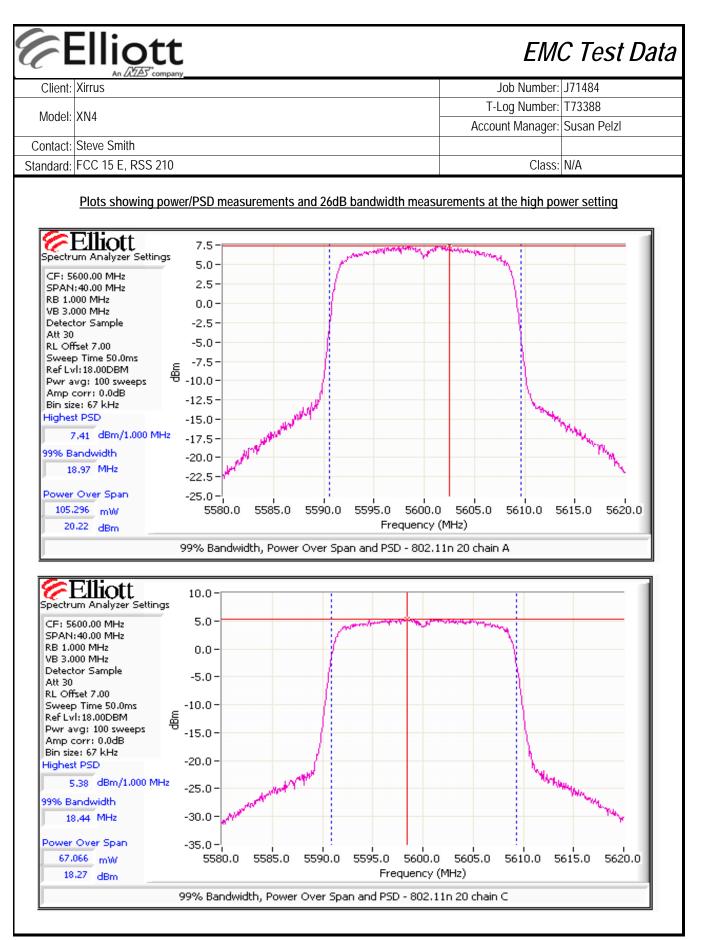
Run #1: Bandwidth, Output Power and Power spectral Density

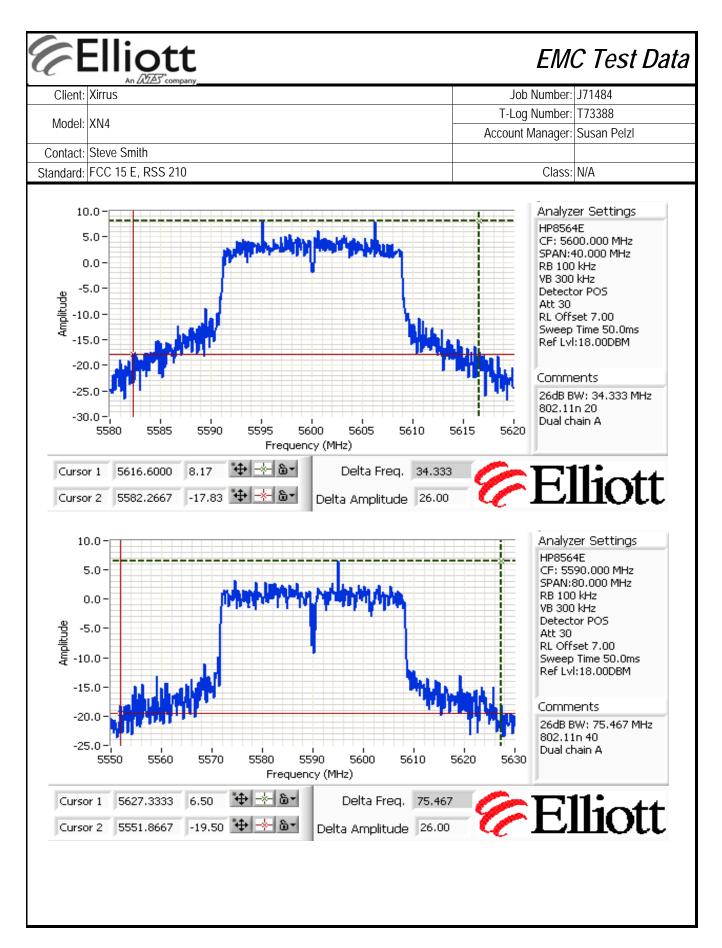
Antenna gain used is for the internal antenna. The external antenna gain is lower (2.5dBi) and not used for MIMO modes.

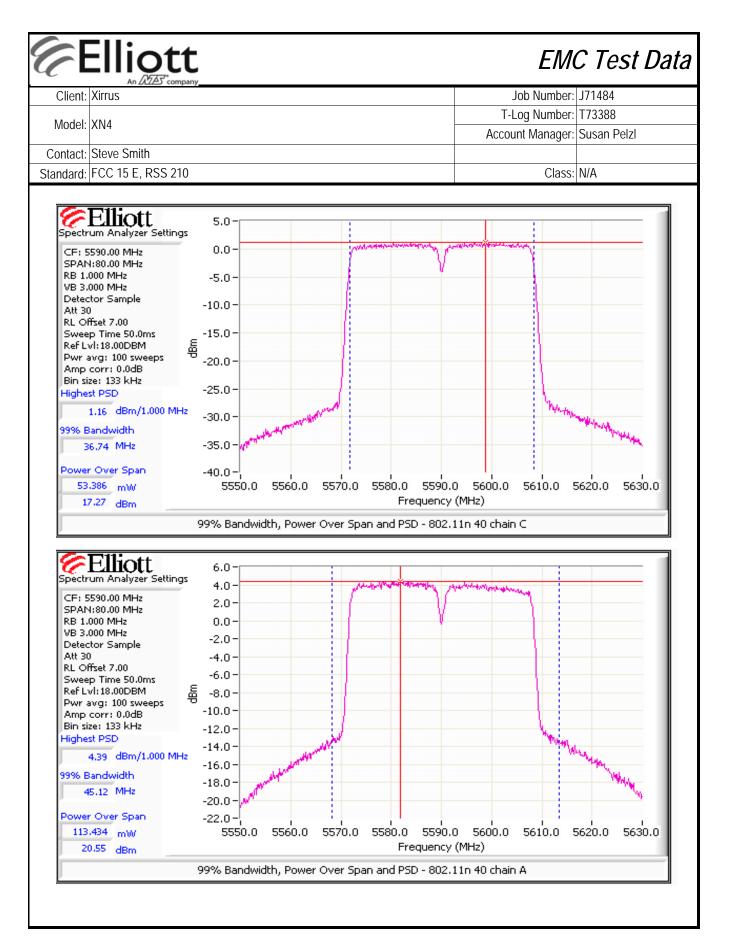
	Chain 1	Chain 2	Chain 3	Coherent	Effective ⁵
Antenna Gain (dBi):	3		3	No	3.0

Power settings for a single radio operating in the band

ware 26dB BW ting (MHz) 0.0 23.9 0.0 34.3 0.0 27.1 7.5 40.7 0.0 75.5 0.0 71.6 % ⁴ Total W Power 3.4 20.9	Chain 1 18.6 20.2 18.3 15.4 20.6 18.8	d Output Pov Chain 2	wer ¹ dBm <u>Chain 3</u> 17.1 19.3 17.7 14.5 17.3	To mW 123.7 189.8 126.5 62.9	dBm 20.9 22.8 21.0	Limit (dBm) 24.0 24.0 24.0	Max Power (W) 0.190	Pass or Fail PASS PASS				
0.0 23.9 0.0 34.3 0.0 27.1 7.5 40.7 0.0 75.5 0.0 71.6	18.6 20.2 18.3 15.4 20.6 18.8	Chain 2	17.1 19.3 17.7 14.5	123.7 189.8 126.5	20.9 22.8 21.0	24.0 24.0	. ,	PASS				
0.0 34.3 0.0 27.1 7.5 40.7 0.0 75.5 0.0 71.6 % ⁴ Total W Power	20.2 18.3 15.4 20.6 18.8		19.3 17.7 14.5	189.8 126.5	22.8 21.0	24.0	0.190					
0.0 27.1 7.5 40.7 0.0 75.5 0.0 71.6 % ⁴ Total W Power	18.3 15.4 20.6 18.8		17.7 14.5	126.5	21.0		0.190	PASS				
7.5 40.7 0.0 75.5 0.0 71.6 % ⁴ Total W Power	15.4 20.6 18.8		14.5			24.0						
0.0 75.5 0.0 71.6 % ⁴ Total W Power	20.6 18.8			62.9	10.5			PASS				
0.0 71.6 % ⁴ Total W Power	18.8		17.3		18.0	24.0		PASS				
% ⁴ Total W Power	-			168.5	22.3	24.0	0.169	PASS				
W Power			17.2	128.3	21.1	24.0		PASS				
W Power	1 11	Frequency 99% ⁴ Total PSD ² dBm/MHz Total PSD Limit Pass or										
	P	SD ² dBm/MH	IZ	lotal	PSD	Lir	nit	Pass or				
3.4 20.9	Chain 1	Chain 2	Chain 3	mW/MHz	dBm/MHz	FCC	RSS 210 ³	Fail				
	6.0		4.3	6.7	8.2	11.0	11.0	PASS				
22.8	7.4		5.4	9.0	9.5	11.0	11.0	PASS				
3.6 21.0	5.6		4.9	6.7	8.3	11.0	11.0	PASS				
5.9 18.0	-0.6		-1.4	1.6	2.0	11.0	11.0	PASS				
5.0 22.3	4.1		1.2	3.9	5.9	11.0	11.0	PASS				
5670 37.1 21.1 2.7 1.3 3.2 5.1 11.0 11.0 PASS												
Output power measured using a spectrum analyzer (see plots below for the high power measurements): RBW=1MHz, VB=3 MHz, sample detector, power averaging on (transmitted signal was continuous) and power integration over 40MHz (20MHz mode) and 80MHz (40MHz mode)												
asured using the s	ame analyzer	r settings use	ed for output	power.								
Measured using the same analyzer settings used for output power. For RSS-210 the limit for the 5470 - 5725 MHz band accounts for the antenna gain as the maximum eirp allowed is 11dBm/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.												
% Bandwidth meas	ured in accor	dance with R	SS GEN - R	B > 1% of sp	an and VB >	=3xRB						
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												
<u>ount th</u> <u>% Band</u> MIMC linear t	hat the meas dwidth meas o systems the terms). The he MIMO de the limits is hain. If the	hat the measured value ex- dwidth measured in accor o systems the total output terms). The antenna gain he MIMO device. If the side the limits is the highest of hain. If the signals are con-	hat the measured value exceeds the and dwidth measured in accordance with R o systems the total output power and to terms). The antenna gain used to dete he MIMO device. If the signals on the e the limits is the highest gain of the ind hain. If the signals are coherent then	hat the measured value exceeds the average by me dwidth measured in accordance with RSS GEN - R o systems the total output power and total PSD are terms). The antenna gain used to determine the E the MIMO device. If the signals on the non-coherer the limits is the highest gain of the individual chair hain. If the signals are coherent then the effective	hat the measured value exceeds the average by more than 3dB, dwidth measured in accordance with RSS GEN - RB > 1% of sp o systems the total output power and total PSD are calculated for terms). The antenna gain used to determine the EIRP and limit the MIMO device. If the signals on the non-coherent between the term the limits is the highest gain of the individual chains and the EI	hat the measured value exceeds the average by more than 3dB. dwidth measured in accordance with RSS GEN - RB > 1% of span and VB >= 0 systems the total output power and total PSD are calculated form the sum of terms). The antenna gain used to determine the EIRP and limits for PSD/Out the MIMO device. If the signals on the non-coherent between the transmit ch te the limits is the highest gain of the individual chains and the EIRP is the sur thain. If the signals are coherent then the effective antenna gain is the sum (hat the measured value exceeds the average by more than 3dB. dwidth measured in accordance with RSS GEN - RB > 1% of span and VB >=3xRB o systems the total output power and total PSD are calculated form the sum of the powers terms). The antenna gain used to determine the EIRP and limits for PSD/Output power d the MIMO device. If the signals on the non-coherent between the transmit chains then the terms is the highest gain of the individual chains and the EIRP is the sum of the prod than. If the signals are coherent then the effective antenna gain is the sum (in linear term	hat the measured value exceeds the average by more than 3dB. dwidth measured in accordance with RSS GEN - RB > 1% of span and VB >=3xRB o systems the total output power and total PSD are calculated form the sum of the powers of the individent terms). The antenna gain used to determine the EIRP and limits for PSD/Output power depends on the the MIMO device. If the signals on the non-coherent between the transmit chains then the gain used to the the limits is the highest gain of the individual chains and the EIRP is the sum of the products of gain a chain. If the signals are coherent then the effective antenna gain is the sum (in linear terms) of the gain the gain is the sum of the signals on the non-coherent between the transmit chains the sum of the products of gain a chain. If the signals are coherent then the effective antenna gain is the sum (in linear terms) of the gain the gain is the sum of the sum of the gain is the sum (in linear terms) of the gain the gain is the sum of the sum of the gain is the sum (in linear terms) of the gain the gain is the sum of the sum of the gain is the sum (in linear terms) of the gain the gain is the sum of the sum of the gain is the sum (in linear terms) of the gain the sum of the sum of the sum of the gain is the sum (in linear terms) of the gain the sum of the sum of				

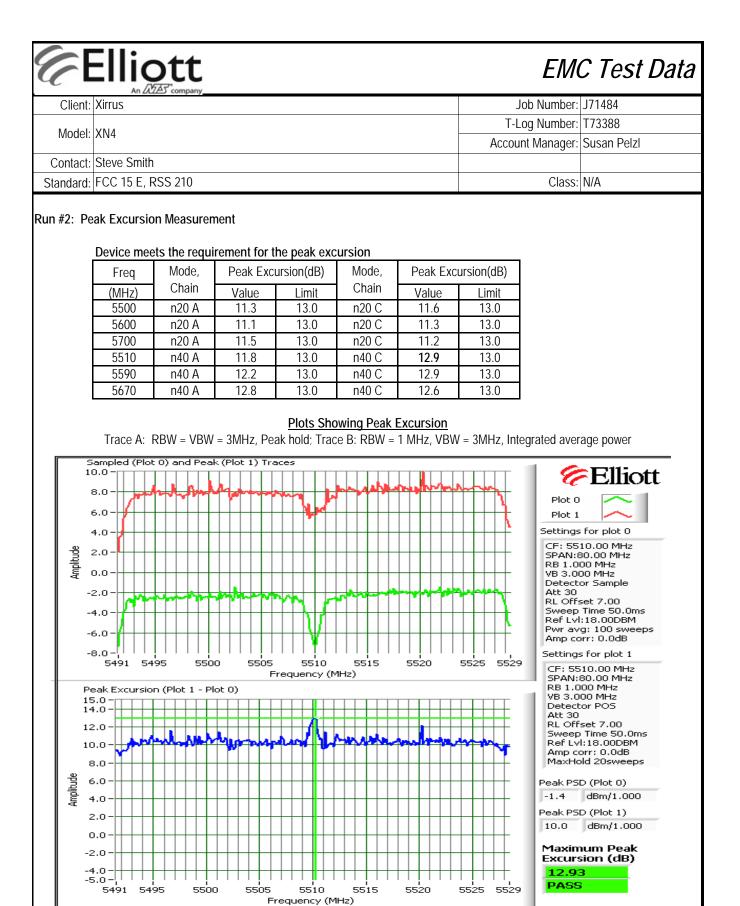






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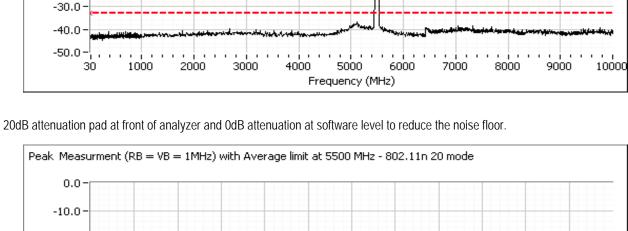
Client:										
	Xirrus							Job Number:	J71484	
Madal	VNI 4						T-l	og Number:	T73388	
Model:	XIN4						Accou	int Manager:	Susan Pelz	
Contact	Steve Smith							5		
	FCC 15 E, F							Class:	N/A	
Stanuaru.	1 00 10 L, 100 Z10						0/033.			
The device or the banc	adjusts outpu I. Measurem evice has the	it power dow ents were ma	nwards if mu ade at the lov ge to do this	Iltiple radios west required	nnels being operate in the d power settin wer ¹ dBm <u>Chain 3</u> 13.5	same band	to maintain n-overlappin	•		•
	al power in th			tional in n20		228.2	23.6	24.0	0.228	PASS
100						220.2	20.0	24.0	0.220	1765
Frequency	Software	26dB BW	Moocuro	d Output Po	wor ¹ dPm	То	let			
	Setting	(MHz)		•			1			
<u>(MHz)</u> 5590	16.0	75.5	Chain 1 15.4	Chain 2	Chain 3 13.4	mW 56.6	dBm 17.5	Limit		Decult
	al power in th			tional in n40		226.2	23.5	24.0	P (W) 0.226	Result PASS
100					ivitiz moue).	ZZ0.Z	23.0	24.0	0.220	FA33
					ed for output p band account		enna gain as	the maximu	m eirp allow	ed is
Note 3:	11dBm/M	Hz. The limits	s are also co	rrected for in	stances wher	0		value of the l		s the
Note 3:	11dBm/M average F	Hz. The limits SD (calculat	s are also co ed from the i	rrected for in measured po	ower divided b	y the measu		value of the l		s the
	11dBm/M average F amount th	Hz. The limit: PSD (calculat at the measu	s are also co ed from the r ured value ex	rrected for in measured po ceeds the a	ower divided b verage by mo	y the measu re than 3dB.	ired 99% bai	value of the l ndwidth) by n		s the
Note 3: Note 4:	11dBm/M average F amount th 99% Band	Hz. The limits PSD (calculat <u>at the measu</u> Jwidth measu	s are also co ed from the r ured value ex ured in accor	rrected for in measured po <u>ceeds the a</u> dance with R	ower divided b	y the measu re than 3dB. 3 > 1% of spa	ired 99% bai an and VB >	value of the l ndwidth) by n =3xRB	nore than 3d	s the B by the

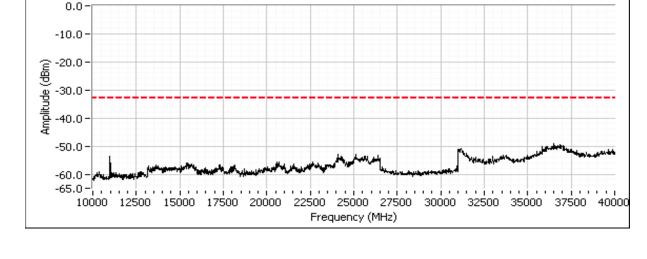


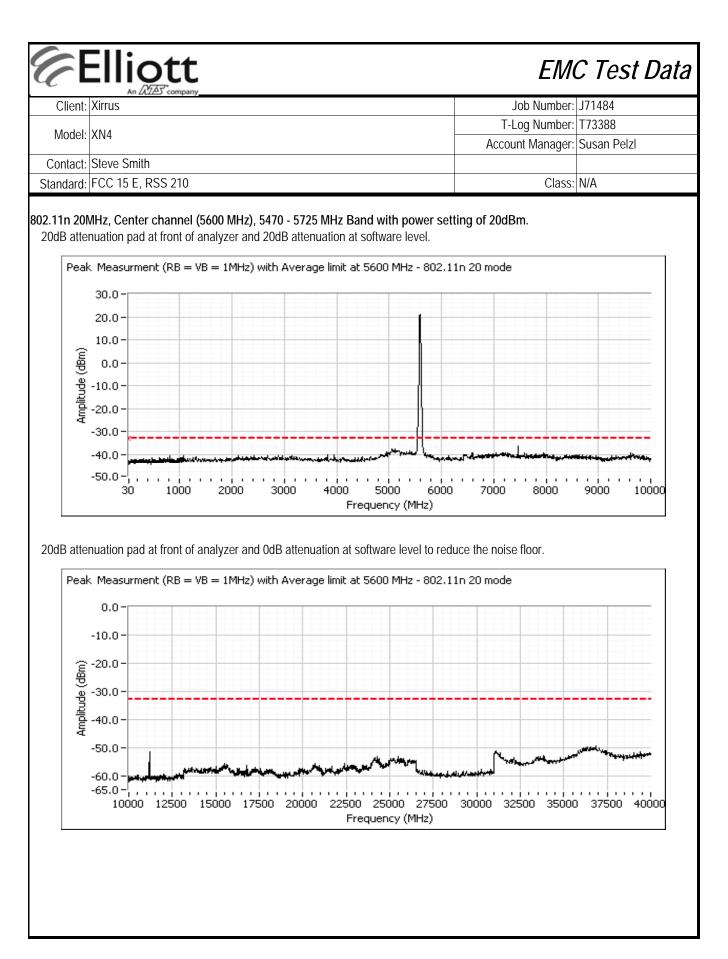
Peak Excursion Measurement 5510 MHz - 802.11n 40 chain C

			EMO	C Test Data
Client:			Job Number:	J71484
Madal			T-Log Number:	T73388
Model:			Account Manager:	Susan Pelzl
	Steve Smith			
Standard:	FCC 15 E, RSS 210		Class:	N/A
	It Of Band Spurious Emissions - Anten			
	ces: Antenna gain used is the effective gand ndividually and the limit was adjusted to a	•		lots were obtained for
	Number of transmit chains:	2	j	
	Maximum Antenna Gain:	3.0 dBi		
	Spurious Limit:	-27.0 dBm/MHz eirp		
	Adjustment for 2 chains:	-3.0 dB adjustment for multiple	chains.	
		-33.0 dBm/MHz Average Limit		
	Limit Used On Plots Note 1:	-13.0 dBm/MHz Peak Limit (R	· ,	
	The -27dBm/MHz limit is an eirp limit. Th	e limit for antenna port conducted m	neasurements is adjuste	d to take into
	consideration the maximum antenna gain	•		
Note 1:	more than 50MHz from the bands and that	• • • •	5	5
	known at these frequencies.		· · · · · · · · · · · · · · · · · · ·	J. J
Note 2:	All spurious signals below 1GHz are mea	sured during digital device radiated	emissions test.	
Note 3:	Signals within 10MHz of the 5.725 or 5.82	<u> </u>		
Note 4:	If the device is for outdoor use then the -2			
Note 5:	Signals that fall in the restricted bands of	15.205 are subject to the limit of 15.	.209.	

6	lliott	EMC Test Data
Client:	Kirrus	Job Number: J71484
Model: X	ZN14	T-Log Number: T73388
wouer.	XIN4	Account Manager: Susan Pelzl
Contact: S	Steve Smith	
Standard: F	FCC 15 E, RSS 210	Class: N/A
Peak	uation pad at front of analyzer and 20dB attenuation at sc Measurment (RB = VB = 1MHz) with Average limit at 5	
	30.0 -	
	20.0 -	
	10.0-	
and and a second s	0.0-	
- je -	10.0-	
Amplitude (dBm)	20.0-	R
-	20.0	







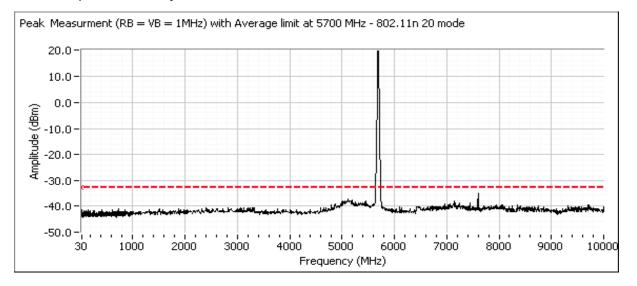
Kirus Job Number: J71484 Model: XN4 T-Log Number: T73388 Contact: Steve Smith Account Manager: Susan Pelzl Standard: FCC 15 E, RSS 210 Class: N/A

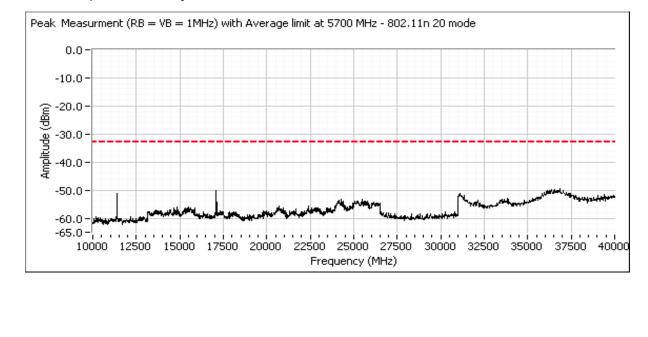
802.11n 20MHz, High channel (5700 MHz), 5470 - 5725 MHz Band with power setting of 20dBm.

The 26dB bandwidth data shows that the 26dB signal bandwidth (and, therefore, the 20dB signal bandwidth) remains within the allocated band - see plots on the following page.

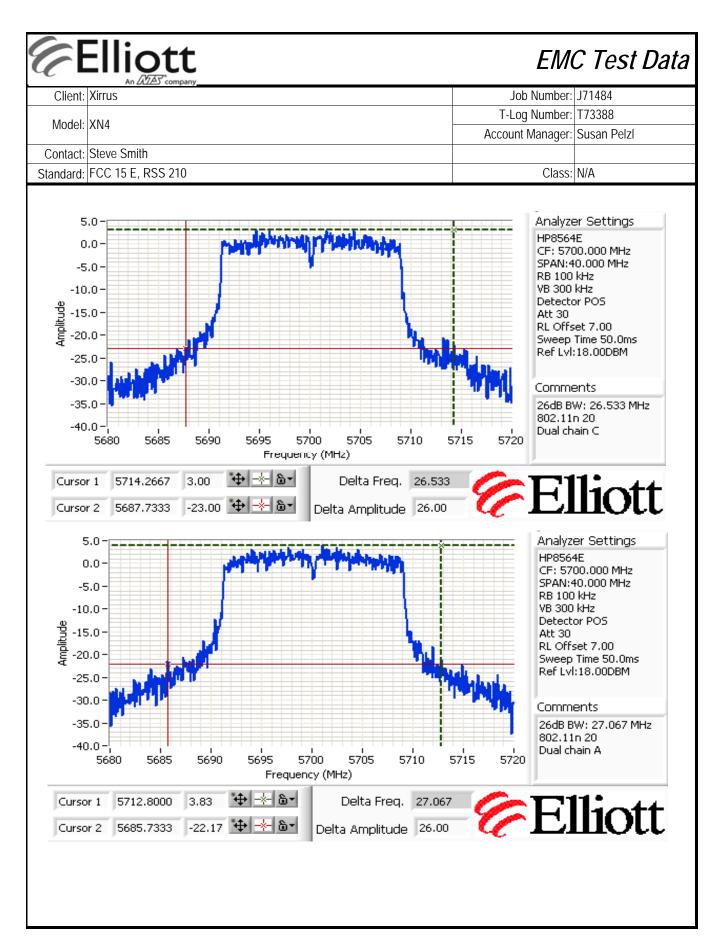
20dB attenuation pad at front of analyzer and 20dB attenuation at software level.

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20dB attenuation pad at front of analyzer and 0dB attenuation at software level to reduce the noise floor.



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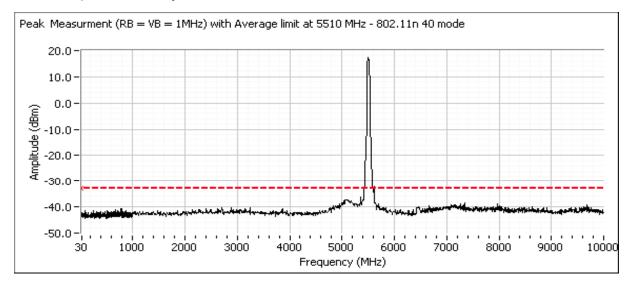
EMC Test Data

	An AZAS company		
Client:	Xirrus	Job Number:	J71484
Model:	YNA	T-Log Number:	T73388
wouer.	AIN4	Account Manager:	Susan Pelzl
Contact:	Steve Smith		
Standard:	FCC 15 E, RSS 210	Class:	N/A

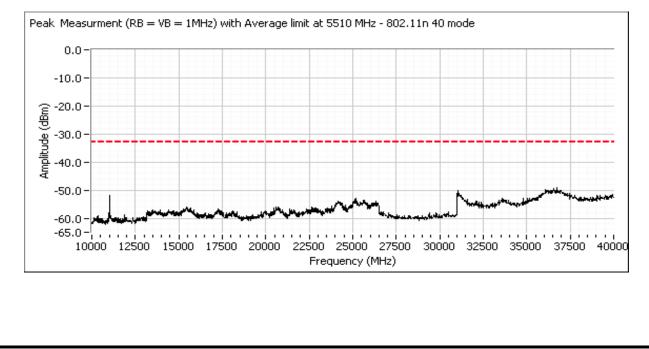
802.11n 40MHz, Low channel (5510 MHz), 5470 - 5725 MHz Band with power setting of 20dBm.

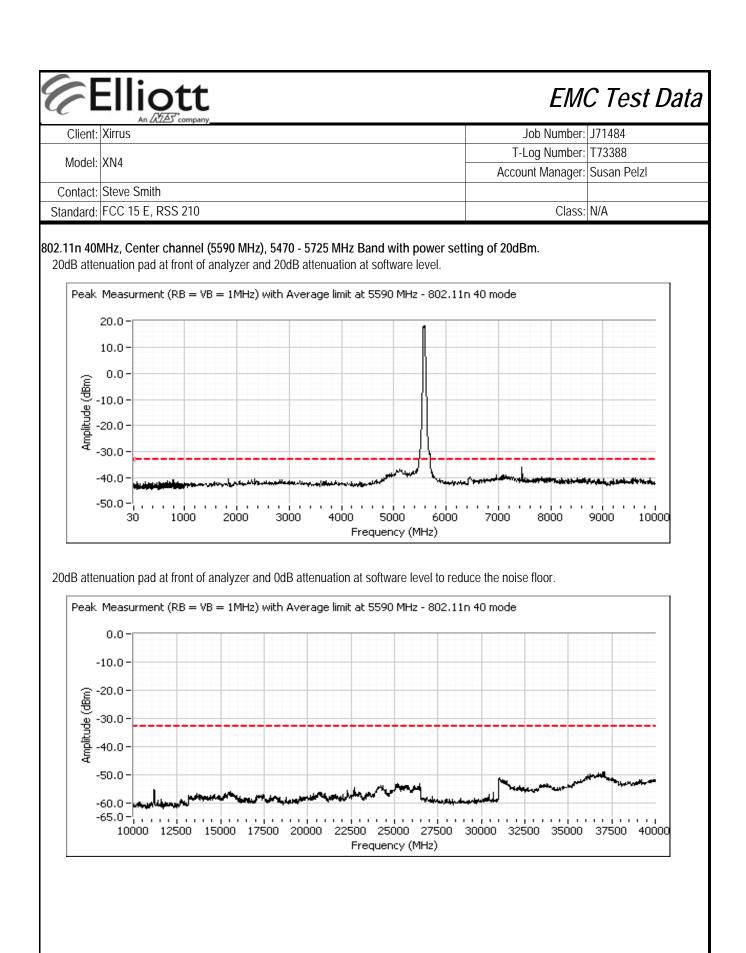
Compliance with the radiated limits for the restricted band immediately below 5460 MHz and the band edge at 5470MHz are demonstrated through the radiated emissions tests.

20dB attenuation pad at front of analyzer and 20dB attenuation at software level.



20dB attenuation pad at front of analyzer and 0dB attenuation at software level to reduce the noise floor.





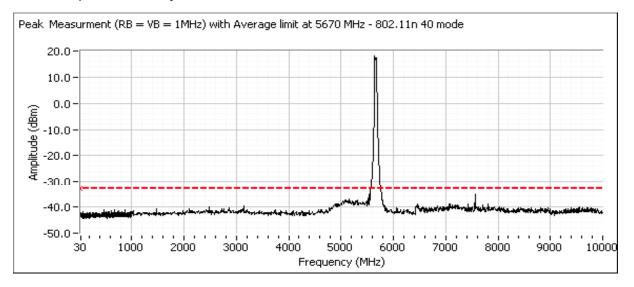
	An DZAS [*] company		
Client:	Xirrus	Job Number:	J71484
Model:	VN/	T-Log Number:	T73388
wouer.	AN4	Account Manager:	Susan Pelzl
Contact:	Steve Smith		
Standard:	FCC 15 E, RSS 210	Class:	N/A

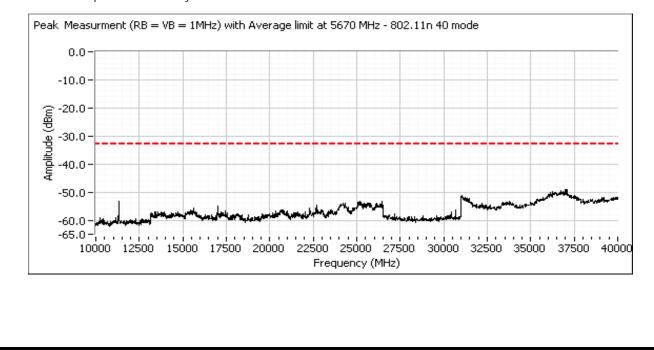
802.11n 40MHz, High channel (5670 MHz), 5470 - 5725 MHz Band with power setting of 20dBm.

The 26dB bandwidth data shows that the 26dB signal bandwidth (and, therefore, the 20dB signal bandwidth) remains within the allocated band - see plots on the following page.

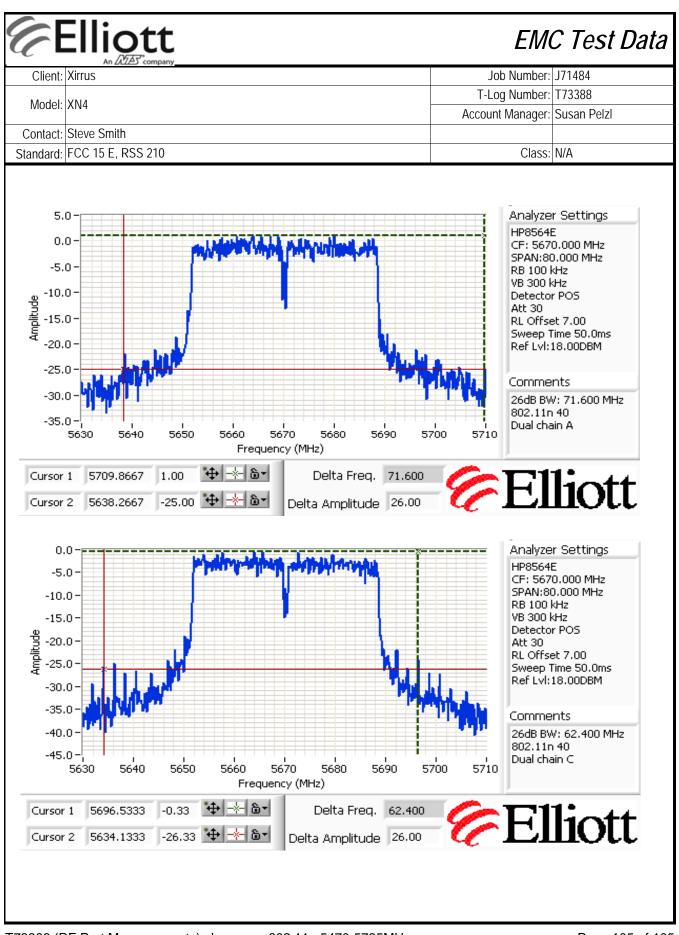
20dB attenuation pad at front of analyzer and 20dB attenuation at software level.

Elliott





20dB attenuation pad at front of analyzer and 0dB attenuation at software level to reduce the noise floor.



	iott
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An <u>2A-22-</u>	Company		
Client:	Xirrus	Job Number:	J71484
Model:	XN4	T-Log Number:	T73389
		Account Manager:	Susan Pelzl
Contact:	Steve Smith		Mark Briggs
Emissions Standard(s):	FCC 15.247 / RSS 210	Class:	UNII
Immunity Standard(s):	-	Environment:	Wireless

EMC Test Data

For The

Xirrus

Model

XN4

Date of Last Test: 11/6/2008

Client: Xirrus Job Number: J71484 Model: XN4 T-Log Number: T73389 Contact: Steve Smith Account Manager: Susan Pelzl

Standard: FCC 15.247 / RSS 210

Class: N/A

RSS 210 and FCC 15.407 (UNII - 5150 - 5250 MHz) Radiated Spurious Emissions, Band Edges - Internal Antenna

Test Specific Details

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

General Test Configuration

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

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

Ambient Conditions:	Temperature:	15-35 °C
	Rel. Humidity:	10-60 %

Summary of Results

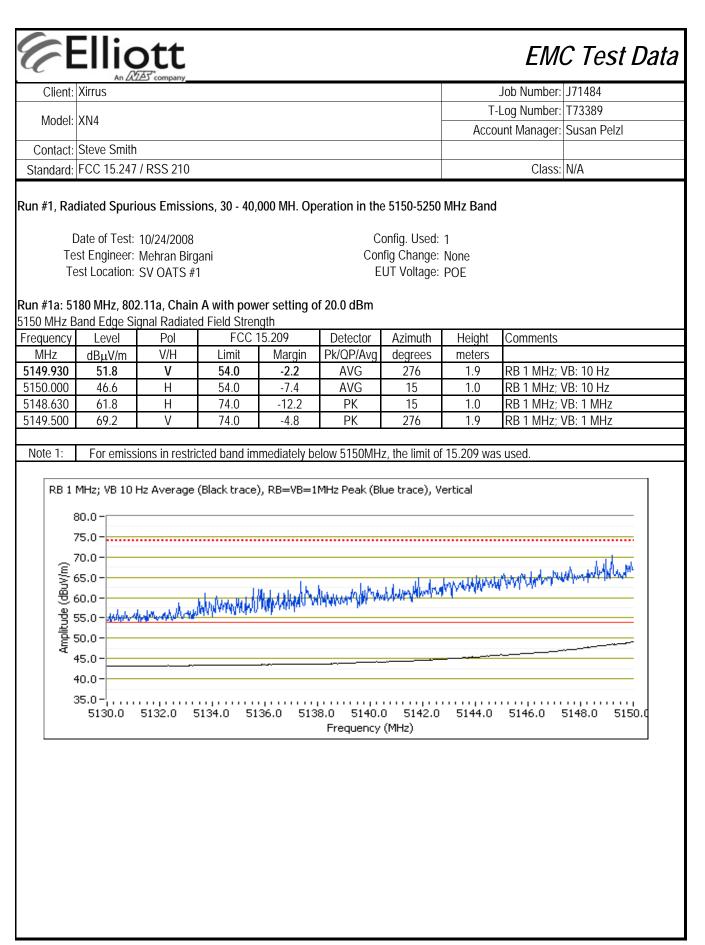
Run #	Mode	Channel	Power Setting	Test Performed	Limit	Result / Margin
1a	802.11a	5180 MHz	20.0dBm	Restricted Band Edge	15.209	51.8dBµV/m (389.0µV/m) @
Id	Chain A		20.00DIII	at 5150 MHz	13.207	5149.9MHz (-2.2dB)
1b	802.11a	5180 MHz	18.5dBm	Restricted Band Edge	15.209	53.2dBµV/m (457.1µV/m) @
u	Chain A+C		TO.JUDIII	at 5150 MHz	13.207	5149.9MHz (-0.8dB)
1c	802.11n20	5180 MHz	17.0dBm	Restricted Band Edge	15.209	53.7dBµV/m (484.2µV/m) @
IC.	Chain A+C		T7.00DIII	at 5150 MHz	13.207	5149.9MHz (-0.3dB)
1d	802.11n40	5190 MHz	13.0dBm	Restricted Band Edge	15.209	52.4dBµV/m (416.9µV/m) @
Tu	Chain A+C		13.00DIII	at 5150 MHz	15.209	5148.3MHz (-1.6dB)

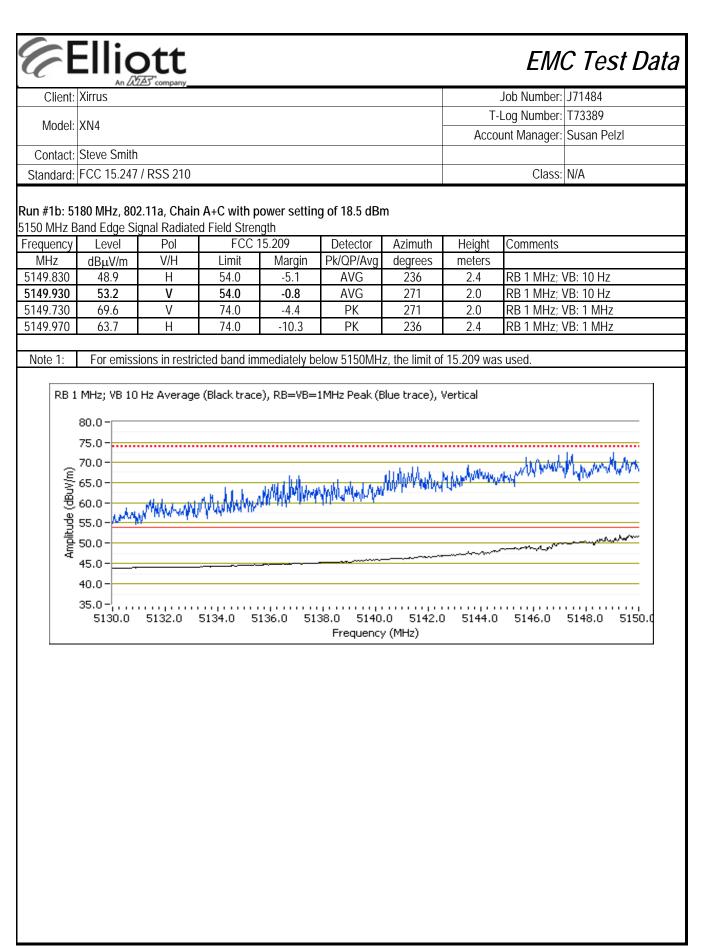
Modifications Made During Testing

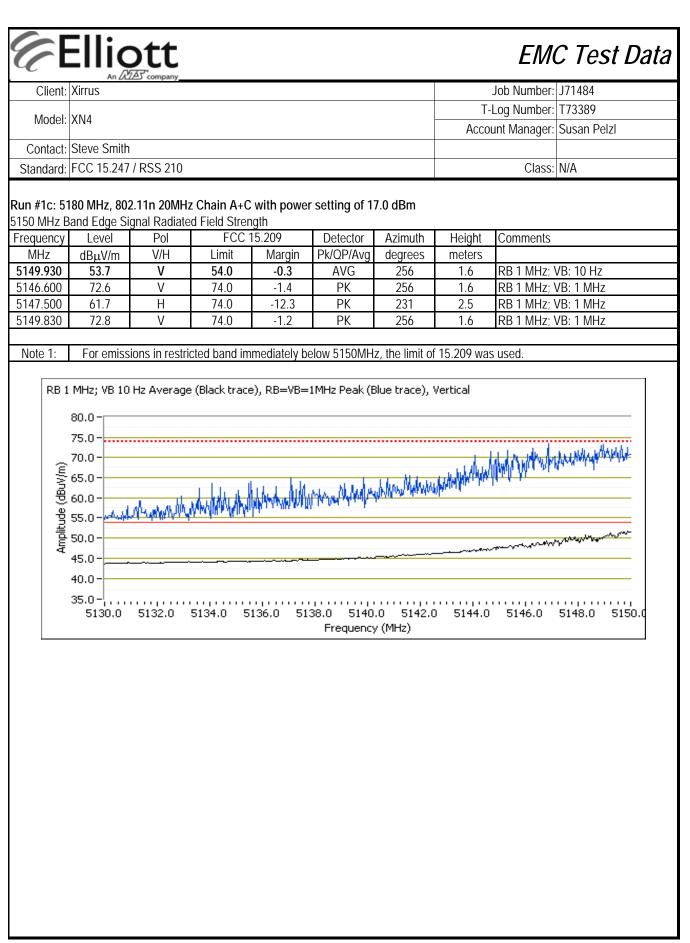
No modifications were made to the EUT during testing

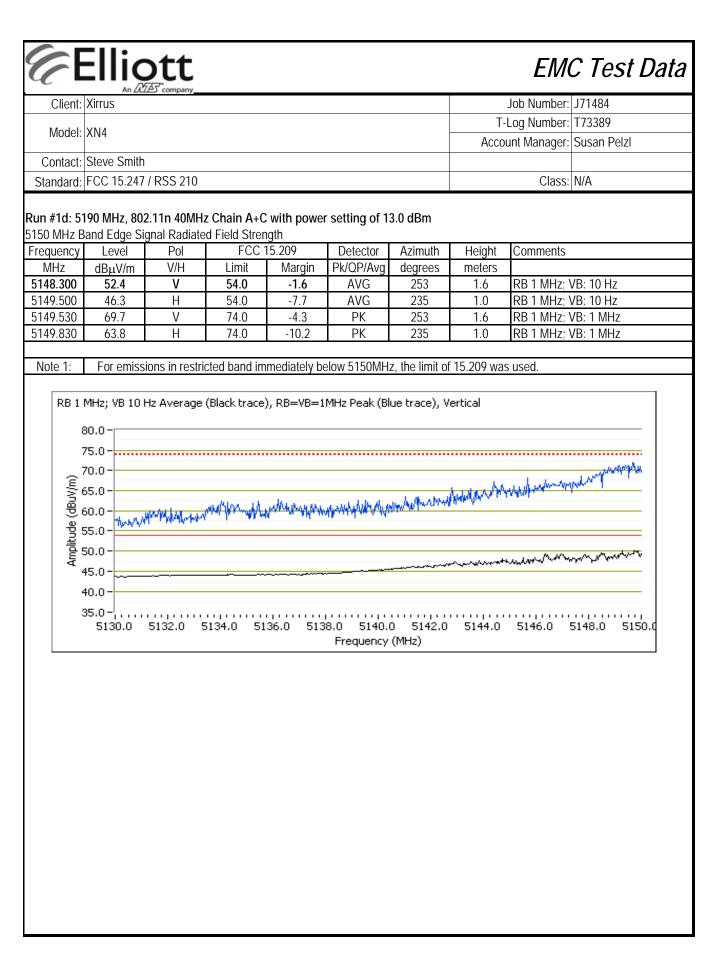
Deviations From The Standard

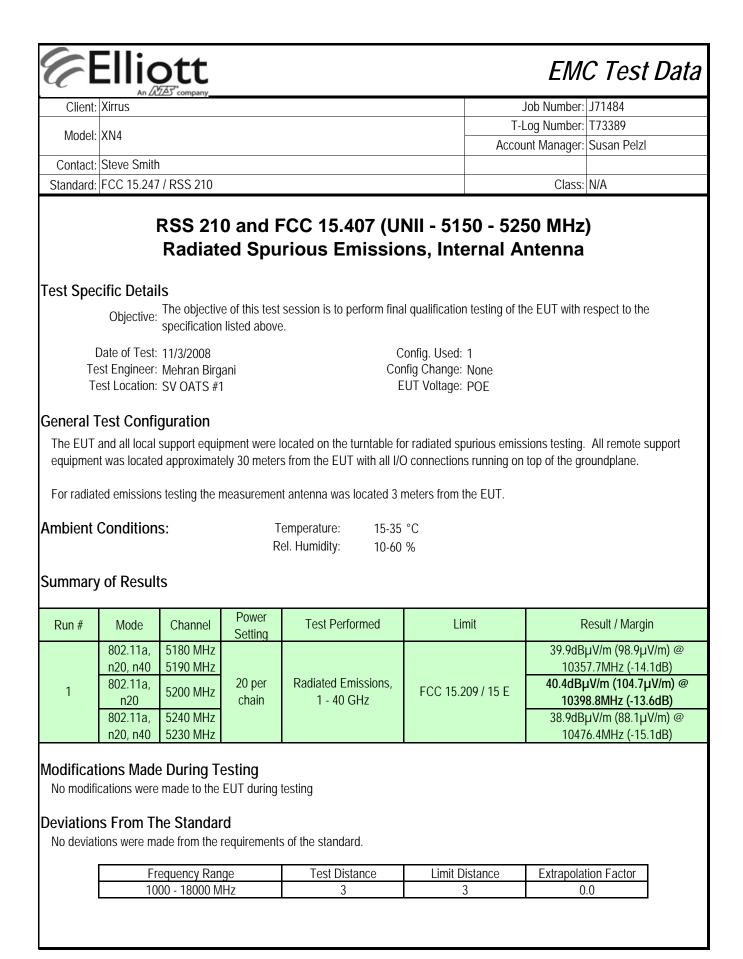
No deviations were made from the requirements of the standard.











Client:	Xirrus							Job Number:	J71484
onorm.								Log Number:	
Model:	XN4							unt Manager:	
Contact:	Steve Smith								
Standard:	FCC 15.247	/ RSS 210						Class:	N/A
	diated Spuri				eration in the w Channel	e 5150-5250	MHz Band	, 802.11a Mo	de
Dadia	Channel	Mada	Power	Setting			Com	manta	
Radio	(MHz)	Mode	Chain A	Chain C			Com	nments	
1	5180	а	20	20					
2	5180	n20	20	20					
3	5190	n40	20	20					
4	-	-							
•	adiated Emi		15 200	9 / 15F	Detector	Δzimuth	Height	Comments	
Frequency MHz	Level dBµV/m	Pol v/h	Limit	9 / 15E Margin	Detector Pk/QP/Avg	Azimuth degrees	Height meters	Comments	
Frequency MHz 6902.620	Level dBµV/m 33.9	Pol v/h H	Limit 54.0	Margin -20.1	Pk/QP/Avg AVG	degrees 58	meters 1.0	Note 2, RB	1 MHz; VB: 10 Hz
Frequency MHz 6902.620 6906.880	Level dBµV/m 33.9 33.9	Pol v/h H V	Limit 54.0 54.0	Margin -20.1 -20.1	Pk/QP/Avg AVG AVG	degrees 58 21	meters 1.0 1.0	Note 2, RB Note 2, RB	1 MHz; VB: 10 Hz
Frequency MHz 6902.620 6906.880 6919.930	Level dBµV/m 33.9 33.9 34.4	Pol v/h H V V	Limit 54.0 54.0 54.0	Margin -20.1 -20.1 -19.6	Pk/QP/Avg AVG AVG AVG	degrees 58 21 349	meters 1.0 1.0 1.0	Note 2, RB Note 2, RB Note 2, RB	1 MHz; VB: 10 Hz 1 MHz; VB: 10 Hz
requency MHz 6902.620 6906.880 6919.930 6922.720	Level dBµV/m 33.9 33.9 34.4 34.2	Pol v/h H V V H	Limit 54.0 54.0 54.0 54.0 54.0	Margin -20.1 -20.1 -19.6 -19.8	Pk/QP/Avg AVG AVG AVG AVG	degrees 58 21 349 253	meters 1.0 1.0 1.0 1.0 1.0	Note 2, RB Note 2, RB Note 2, RB Note 2, RB	1 MHz; VB: 10 Hz 1 MHz; VB: 10 Hz 1 MHz; VB: 10 Hz
requency MHz 6902.620 6906.880 6919.930 6922.720 0355.230	Level dBµV/m 33.9 33.9 34.4 34.2 39.3	Pol v/h H V V H H	Limit 54.0 54.0 54.0 54.0 54.0 54.0	Margin -20.1 -20.1 -19.6 -19.8 -14.7	Pk/QP/Avg AVG AVG AVG AVG AVG	degrees 58 21 349 253 27	meters 1.0 1.0 1.0 1.0 1.0 1.0	Note 2, RB Note 2, RB Note 2, RB Note 2, RB Note 2, RB	1 MHz; VB: 10 Hz 1 MHz; VB: 10 Hz 1 MHz; VB: 10 Hz 1 MHz; VB: 10 Hz 1 MHz; VB: 10 Hz
requency MHz 6902.620 6906.880 6919.930 6922.720 10355.230 10357.720	Level dBµV/m 33.9 33.9 34.4 34.2 39.3 39.9	Pol v/h H V V H	Limit 54.0 54.0 54.0 54.0 54.0 54.0 54.0	Margin -20.1 -20.1 -19.6 -19.8 -14.7 -14.1	Pk/QP/Avg AVG AVG AVG AVG AVG AVG	degrees 58 21 349 253 27 233	meters 1.0 1.0 1.0 1.0 1.0 1.0 1.0	Note 2, RB Note 2, RB Note 2, RB Note 2, RB Note 2, RB Note 2, RB	1 MHz; VB: 10 Hz 1 MHz; VB: 10 Hz
requency MHz 6902.620 6906.880 6919.930 6922.720 10355.230 10357.720 10381.820	Level dBµV/m 33.9 33.9 34.4 34.2 39.3	Pol v/h H V V H H V V	Limit 54.0 54.0 54.0 54.0 54.0 54.0	Margin -20.1 -20.1 -19.6 -19.8 -14.7	Pk/QP/Avg AVG AVG AVG AVG AVG	degrees 58 21 349 253 27	meters 1.0 1.0 1.0 1.0 1.0 1.0	Note 2, RB Note 2, RB Note 2, RB Note 2, RB Note 2, RB Note 2, RB Note 2, RB	1 MHz; VB: 10 Hz 1 MHz; VB: 10 Hz 1 MHz; VB: 10 Hz 1 MHz; VB: 10 Hz 1 MHz; VB: 10 Hz
Frequency MHz 6902.620 6906.880 6919.930 6922.720 10355.230 10357.720 10381.820 10381.820	Level dBµV/m 33.9 33.9 34.4 34.2 39.3 39.9 39.5	Pol v/h H V V H H V V V	Limit 54.0 54.0 54.0 54.0 54.0 54.0 54.0 54.0	Margin -20.1 -20.1 -19.6 -19.8 -14.7 -14.1 -14.5	Pk/QP/Avg AVG AVG AVG AVG AVG AVG AVG	degrees 58 21 349 253 27 233 258	meters 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0	Note 2, RB Note 2, RB	1 MHz; VB: 10 Hz 1 MHz; VB: 1 MHz
requency MHz 6902.620 6906.880 6919.930 6922.720 10355.230 10357.720 10381.820 10381.820 6904.370 6908.000	Level dBµV/m 33.9 33.9 34.4 34.2 39.3 39.9 39.5 39.4 45.3 44.7	Pol V/h H V H H V V H V H V H	Limit 54.0 54.0 54.0 54.0 54.0 54.0 54.0 54.0	Margin -20.1 -20.1 -19.6 -19.8 -14.7 -14.7 -14.1 -14.5 -14.6 -28.7 -29.3	Pk/QP/Avg AVG AVG AVG AVG AVG AVG AVG AVG PK PK	degrees 58 21 349 253 27 233 258 177 21 58	meters 1.0	Note 2, RB Note 2, RB	1 MHz; VB: 10 Hz 1 MHz; VB: 1 MHz 1 MHz; VB: 1 MHz
Frequency MHz 6902.620 6906.880 6919.930 6922.720 10355.230 10357.720 10381.820 10381.820 6904.370 6908.000 6914.730	Level dBµV/m 33.9 33.9 34.4 34.2 39.3 39.3 39.9 39.5 39.4 45.3 44.7 45.3	Pol v/h H V H H V V H V H V H V	Limit 54.0 54.0 54.0 54.0 54.0 54.0 54.0 54.0	Margin -20.1 -20.1 -19.6 -19.8 -14.7 -14.7 -14.1 -14.5 -14.6 -28.7 -29.3 -28.7	Pk/QP/Avg AVG AVG AVG AVG AVG AVG AVG AVG PK PK PK	degrees 58 21 349 253 27 233 258 177 21 58 349	meters 1.0	Note 2, RB Note 2, RB	1 MHz; VB: 10 Hz 1 MHz; VB: 1 MHz 1 MHz; VB: 1 MHz 1 MHz; VB: 1 MHz
Frequency MHz 6902.620 6906.880 6919.930 6922.720 10355.230 10355.230 10357.720 10381.820 6904.370 6908.000 6914.730 6917.270	Level dBµV/m 33.9 33.9 34.4 34.2 39.3 39.9 39.5 39.4 45.3 44.7 45.3 45.6	Pol v/h H V H H V V H V H V H V H	Limit 54.0 54.0 54.0 54.0 54.0 54.0 54.0 54.0	Margin -20.1 -20.1 -19.6 -19.8 -14.7 -14.7 -14.5 -14.6 -28.7 -29.3 -28.7 -28.4	Pk/QP/Avg AVG AVG AVG AVG AVG AVG AVG AVG PK PK PK PK	degrees 58 21 349 253 27 233 258 177 21 58 349 253	meters 1.0	Note 2, RB Note 2, RB	1 MHz; VB: 10 Hz 1 MHz; VB: 1 MHz 1 MHz; VB: 1 MHz 1 MHz; VB: 1 MHz 1 MHz; VB: 1 MHz
Frequency MHz 6902.620 6906.880 6919.930 6922.720 10355.230 10357.720 10381.820 10381.820 6904.370 6908.000 6914.730 6917.270 10355.200	Level dBµV/m 33.9 33.9 34.4 34.2 39.3 39.9 39.5 39.4 45.3 44.7 45.3 45.6 51.1	Pol v/h H V V H V H V H V H V H V V V V V V V V V V V V V	Limit 54.0 54.0 54.0 54.0 54.0 54.0 54.0 54.0	Margin -20.1 -20.1 -19.6 -19.8 -14.7 -14.7 -14.5 -14.6 -28.7 -29.3 -28.7 -28.4 -22.9	Pk/QP/Avg AVG AVG AVG AVG AVG AVG AVG AVG PK PK PK PK PK PK	degrees 58 21 349 253 27 233 258 177 21 58 349 253 349 253 233	meters 1.0	Note 2, RB Note 2, RB	1 MHz; VB: 10 Hz 1 MHz; VB: 1 MHz 1 MHz; VB: 1 MHz
requency MHz 6902.620 6906.880 6919.930 6922.720 10355.230 10357.720 10381.820 6904.370 6908.000 6914.730 6917.270 10359.200 10359.580	Level dBµV/m 33.9 33.9 34.4 34.2 39.3 39.9 39.5 39.4 45.3 44.7 45.3 45.6 51.1 50.4	Pol V/h H V H H V V H V H V H V H V H	Limit 54.0 54.0 54.0 54.0 54.0 54.0 54.0 74.0 74.0 74.0 74.0 74.0 74.0 74.0 7	Margin -20.1 -20.1 -19.6 -19.8 -14.7 -14.7 -14.5 -14.6 -28.7 -29.3 -28.7 -29.3 -28.7 -28.4 -22.9 -23.6	Pk/QP/Avg AVG AVG AVG AVG AVG AVG AVG PK PK PK PK PK PK PK	degrees 58 21 349 253 27 233 258 177 21 58 349 253 27 233 258 177 21 58 349 253 233 27	meters 1.0	Note 2, RB Note 2, RB	1 MHz; VB: 10 Hz 1 MHz; VB: 1 MHz 1 MHz; VB: 1 MHz
requency MHz 6902.620 6906.880 6919.930 6922.720 0355.230 0355.230 0381.820 0381.820 0381.820 6904.370 6908.000 6914.730 6917.270 0359.200 0359.580 0376.800	Level dBµV/m 33.9 34.4 34.2 39.3 39.9 39.5 39.4 45.3 44.7 45.3 44.7 45.3 51.1 50.4 50.3	Pol V/h H V H H V H V H V H V H V H H H	Limit 54.0 54.0 54.0 54.0 54.0 54.0 54.0 54.0	Margin -20.1 -20.1 -19.6 -19.8 -14.7 -14.7 -14.1 -14.5 -14.6 -28.7 -29.3 -28.7 -28.4 -22.9 -23.6 -23.7	Pk/QP/Avg AVG AVG AVG AVG AVG AVG AVG AVG PK PK PK PK PK PK PK PK	degrees 58 21 349 253 27 233 258 177 21 58 349 253 27 21 58 349 253 233 27 177	meters 1.0	Note 2, RB Note 2, RB	1 MHz; VB: 10 Hz 1 MHz; VB: 1 MHz 1 MHz; VB: 1 MHz
requency MHz 6902.620 6906.880 6919.930 6922.720 0355.230 0357.720 0381.820 0381.820 0381.820 0381.820 6904.370 6904.370 6904.370 0359.200 0359.200 0359.580 0376.800	Level dBµV/m 33.9 33.9 34.4 34.2 39.3 39.9 39.5 39.4 45.3 44.7 45.3 45.6 51.1 50.4	Pol V/h H V H H V V H V H V H V H V H	Limit 54.0 54.0 54.0 54.0 54.0 54.0 54.0 74.0 74.0 74.0 74.0 74.0 74.0 74.0 7	Margin -20.1 -20.1 -19.6 -19.8 -14.7 -14.7 -14.5 -14.6 -28.7 -29.3 -28.7 -29.3 -28.7 -28.4 -22.9 -23.6	Pk/QP/Avg AVG AVG AVG AVG AVG AVG AVG PK PK PK PK PK PK PK	degrees 58 21 349 253 27 233 258 177 21 58 349 253 27 233 258 177 21 58 349 253 233 27	meters 1.0	Note 2, RB Note 2, RB	1 MHz; VB: 10 Hz 1 MHz; VB: 1 MHz 1 MHz; VB: 1 MHz
Frequency	Level dBµV/m 33.9 34.4 34.2 39.3 39.3 39.9 39.5 39.4 45.3 44.7 45.3 45.6 51.1 50.4 50.3 50.6 For emissi	Pol v/h H V V H V H V H V H V H V H V H V H V H V H V H V V H V V H V V V V V V V V V V V V V	Limit 54.0 54.0 54.0 54.0 54.0 54.0 54.0 74.0 74.0 74.0 74.0 74.0 74.0 74.0 7	Margin -20.1 -20.1 -19.6 -19.8 -14.7 -14.7 -14.5 -14.6 -28.7 -29.3 -28.7 -29.3 -28.7 -28.4 -22.9 -23.6 -23.7 -23.4 the limit of 1	Pk/QP/Avg AVG AVG AVG AVG AVG AVG AVG AVG PK PK PK PK PK PK PK PK PK PK PK PK	degrees 58 21 349 253 27 233 258 177 21 58 349 253 27 21 58 349 253 233 27 177 258 ed. For all ot	meters 1.0 1.4	Note 2, RB Note 2, RB	1 MHz; VB: 10 Hz 1 MHz; VB: 1 MHz 1 MHz + Mz

Client:	Xirrus	Company						Job Number:	J71484
							T-	Log Number:	T73389
Model:	XN4							unt Manager:	
Contact:	Steve Smith								
Standard:	FCC 15.247	/ RSS 210						Class:	N/A
	1						I		
ın #1b: 5	200 MHz, 802	2.11a, 802.1 [°]							
Radio	Channel	Mode	Power		-		Com	nments	
1	(MHz) 5200	а	Chain A 20	Chain C 20					
2	5200	n20	20	20					
2	0200	1120	20	20					
ourious R	Radiated Emi	ssions:					-	_	
equency	Level	Pol	15.209		Detector	Azimuth	Height	Comments	
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters		
933.170	34.5	Н	54.0	-19.5	AVG	253	1.0		1 MHz; VB: 10 Hz
933.300	35.6	V	54.0	-18.4	AVG	310	1.0		1 MHz; VB: 10 Hz
398.500	40.3	Н	54.0	-13.7	AVG	315	1.0		1 MHz; VB: 10 Hz
	10.1	V	54.0	-13.6	AVG	18	1.6		1 MHz; VB: 10 Hz
398.820	40.4				DV	310	1.0	Note 2 RB	1 MHz; VB: 1 MHz
)398.820 931.500	46.1	V	74.0	-27.9	PK		-		
)398.820 931.500 935.450	46.1 45.8	V H	74.0	-28.2	PK	253	1.0	Note 2, RB	1 MHz; VB: 1 MHz
398.820 931.500 935.450 398.620	46.1 45.8 51.6	V H H	74.0 74.0	-28.2 -22.4	PK PK	253 315	1.0 1.0	Note 2, RB Note 2, RB	1 MHz; VB: 1 MHz 1 MHz; VB: 1 MHz
398.820 931.500 935.450 398.620	46.1 45.8 51.6 51.7	V H H V	74.0 74.0 74.0	-28.2 -22.4 -22.3	PK PK PK	253 315 18	1.0 1.0 1.6	Note 2, RB Note 2, RB Note 2, RB	1 MHz; VB: 1 MHz
3398.820 931.500 935.450 0398.620 0402.000 Note 1:	46.1 45.8 51.6 51.7 For emissi the averac dBuV/m).	V H V v	74.0 74.0 74.0 cted bands, t set to -27dBr	-28.2 -22.4 -22.3 he limit of 15	PK PK PK 5.209 was use	253 315 18 ed. For all ot	1.0 1.0 1.6 ther emissio	Note 2, RB Note 2, RB Note 2, RB	1 MHz; VB: 1 MHz 1 MHz; VB: 1 MHz 1 MHz; VB: 1 MHz
3398.820 931.500 935.450 0398.620 0402.000 Note 1:	46.1 45.8 51.6 51.7 For emissi the averac dBuV/m).	V H H V	74.0 74.0 74.0 cted bands, t set to -27dBr	-28.2 -22.4 -22.3 he limit of 15	PK PK PK 5.209 was use	253 315 18 ed. For all ot	1.0 1.0 1.6 ther emissio	Note 2, RB Note 2, RB Note 2, RB	1 MHz; VB: 1 MHz 1 MHz; VB: 1 MHz 1 MHz; VB: 1 MHz e 5150 - 5250MHz b
0398.820 931.500 935.450 0398.620 0402.000 Note 1: Note 2:	46.1 45.8 51.6 51.7 For emissi the averac dBuV/m).	V H V v	74.0 74.0 74.0 cted bands, t set to -27dBr	-28.2 -22.4 -22.3 he limit of 15	PK PK PK 5.209 was use	253 315 18 ed. For all ot	1.0 1.0 1.6 ther emissio	Note 2, RB Note 2, RB Note 2, RB	1 MHz; VB: 1 MHz 1 MHz; VB: 1 MHz 1 MHz; VB: 1 MHz e 5150 - 5250MHz b
0398.820 931.500 935.450 0398.620 0402.000 Note 1:	46.1 45.8 51.6 51.7 For emissi the averac dBuV/m).	V H V v	74.0 74.0 74.0 cted bands, t set to -27dBr	-28.2 -22.4 -22.3 he limit of 15	PK PK PK 5.209 was use	253 315 18 ed. For all ot	1.0 1.0 1.6 ther emissio	Note 2, RB Note 2, RB Note 2, RB	1 MHz; VB: 1 MHz 1 MHz; VB: 1 MHz 1 MHz; VB: 1 MHz e 5150 - 5250MHz b
0398.820 931.500 935.450 0398.620 0402.000 Note 1:	46.1 45.8 51.6 51.7 For emissi the averac dBuV/m).	V H V v	74.0 74.0 74.0 cted bands, t set to -27dBr	-28.2 -22.4 -22.3 he limit of 15	PK PK PK 5.209 was use	253 315 18 ed. For all ot	1.0 1.0 1.6 ther emissio	Note 2, RB Note 2, RB Note 2, RB	1 MHz; VB: 1 MHz 1 MHz; VB: 1 MHz 1 MHz; VB: 1 MHz e 5150 - 5250MHz b
0398.820 931.500 935.450 0398.620 0402.000 Note 1:	46.1 45.8 51.6 51.7 For emissi the averac dBuV/m).	V H V v	74.0 74.0 74.0 cted bands, t set to -27dBr	-28.2 -22.4 -22.3 he limit of 15	PK PK PK 5.209 was use	253 315 18 ed. For all ot	1.0 1.0 1.6 ther emissio	Note 2, RB Note 2, RB Note 2, RB	1 MHz; VB: 1 MHz 1 MHz; VB: 1 MHz 1 MHz; VB: 1 MHz e 5150 - 5250MHz b
398.820 931.500 935.450 398.620 0402.000 Note 1:	46.1 45.8 51.6 51.7 For emissi the averac dBuV/m).	V H V v	74.0 74.0 74.0 cted bands, t set to -27dBr	-28.2 -22.4 -22.3 he limit of 15	PK PK PK 5.209 was use	253 315 18 ed. For all ot	1.0 1.0 1.6 ther emissio	Note 2, RB Note 2, RB Note 2, RB	1 MHz; VB: 1 MHz 1 MHz; VB: 1 MHz 1 MHz; VB: 1 MHz e 5150 - 5250MHz b
398.820 931.500 935.450 398.620 402.000 Note 1:	46.1 45.8 51.6 51.7 For emissi the averac dBuV/m).	V H V v	74.0 74.0 74.0 cted bands, t set to -27dBr	-28.2 -22.4 -22.3 he limit of 15	PK PK PK 5.209 was use	253 315 18 ed. For all ot	1.0 1.0 1.6 ther emissio	Note 2, RB Note 2, RB Note 2, RB	1 MHz; VB: 1 MHz 1 MHz; VB: 1 MHz 1 MHz; VB: 1 MHz e 5150 - 5250MHz b
398.820 931.500 935.450 398.620 0402.000 Note 1:	46.1 45.8 51.6 51.7 For emissi the averac dBuV/m).	V H V v	74.0 74.0 74.0 cted bands, t set to -27dBr	-28.2 -22.4 -22.3 he limit of 15	PK PK PK 5.209 was use	253 315 18 ed. For all ot	1.0 1.0 1.6 ther emissio	Note 2, RB Note 2, RB Note 2, RB	1 MHz; VB: 1 MHz 1 MHz; VB: 1 MHz 1 MHz; VB: 1 MHz e 5150 - 5250MHz b
0398.820 931.500 935.450 0398.620 0402.000	46.1 45.8 51.6 51.7 For emissi the averac dBuV/m).	V H V v	74.0 74.0 74.0 cted bands, t set to -27dBr	-28.2 -22.4 -22.3 he limit of 15	PK PK PK 5.209 was use	253 315 18 ed. For all ot	1.0 1.0 1.6 ther emissio	Note 2, RB Note 2, RB Note 2, RB	1 MHz; VB: 1 MHz 1 MHz; VB: 1 MHz 1 MHz; VB: 1 MHz e 5150 - 5250MHz b
398.820 931.500 935.450 398.620 0402.000 Note 1:	46.1 45.8 51.6 51.7 For emissi the averac dBuV/m).	V H V v ions in restric ge limit was	74.0 74.0 74.0 cted bands, t set to -27dBr	-28.2 -22.4 -22.3 he limit of 15	PK PK PK 5.209 was use	253 315 18 ed. For all ot	1.0 1.0 1.6 ther emissio	Note 2, RB Note 2, RB Note 2, RB	1 MHz; VB: 1 MHz 1 MHz; VB: 1 MHz 1 MHz; VB: 1 MHz e 5150 - 5250MHz b
398.820 931.500 935.450 398.620 402.000	46.1 45.8 51.6 51.7 For emissi the averac dBuV/m).	V H V v ions in restric ge limit was	74.0 74.0 74.0 cted bands, t set to -27dBr	-28.2 -22.4 -22.3 he limit of 15	PK PK PK 5.209 was use	253 315 18 ed. For all ot	1.0 1.0 1.6 ther emissio	Note 2, RB Note 2, RB Note 2, RB	1 MHz; VB: 1 MHz 1 MHz; VB: 1 MHz 1 MHz; VB: 1 MHz e 5150 - 5250MHz b
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Contact: Steve Sm Standard: FCC 15.2 un #1c: 802.11a, 80 Radio Channe (MHz) 1 5240 2 5240 3 5230 purious Radiated E requency Level MHz dBµV/n 5966.600 34.0 5986.350 34.0 0460.280 38.9 0463.780 38.7 0475.170 38.8 0476.380 38.9 5976.020 45.1	247 / RSS 210 2.11n20 and 8 2.1 Mode a n20 n40 cmissions: Pol n v/h	Power Chain A 20 20 20 20 15.20	Setting Chain C 20 20				Class:	
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10463.78038.710475.17038.810476.38038.96976.02045.1	H	54.0	-20.0	AVG	10	1.0		1 MHz; VB: 10 Hz
10475.17038.810476.38038.96976.02045.1	V	54.0	-15.1	AVG	53	1.0		<u>1 MHz; VB: 10 Hz</u>
10476.38038.96976.02045.1	H	54.0	-15.3	AVG AVG	355	1.0		<u>1 MHz; VB: 10 Hz</u>
6976.020 45.1	<u>Н</u>	54.0 54.0	-15.2 - 15.1	AVG	0 246	1.0 1.0		1 MHz; VB: 10 Hz 1 MHz; VB: 10 Hz
	H	74.0	-13.1	PK	76	1.0		1 MHz; VB: 1 MHz
0702.000 HJ.I	H	74.0	-28.9	PK	10	1.0		1 MHz; VB: 1 MHz
10457.720 50.5	V	74.0	-23.5	PK	53	1.0		1 MHz; VB: 1 MHz
10461.730 49.7	H	74.0	-24.3	PK	355	1.0		1 MHz; VB: 1 MHz
10476.120 51.0	V	74.0	-23.0	PK	246	1.0		1 MHz; VB: 1 MHz
10476.230 49.9	H	74.0	-24.1	PK	0	1.0		1 MHz; VB: 1 MHz
								e 5150 - 5250MHz I
Note 1: the ave dBuV/n	•	Set to -270B	11/IVIHZ (~08.	.3 uBuv/m) ar	ю реак птп	Set to 200B	nigher than t	he average limit (88
	a restricted bar	nd						

	Elliott An DEAT company	EM	C Test Data
Client:	Xirrus	Job Number:	J71484
Madal	VNIA	T-Log Number:	T73389
Model:	XIV4	Account Manager:	Susan Pelzl
Contact:	Steve Smith		
Standard:	FCC 15.247 / RSS 210	Class:	N/A
	RSS 210 and FCC 15.407 (UNII - 51 Radiated Spurious Emissions, Band Edge		-

Test Specific Details

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

Date of Test: 11/5/2008 Test Engineer: Rafael Varelas Test Location: OATS #1 Config. Used: 1 Config Change: None EUT Voltage: POE

General Test Configuration

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

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

Ambient	Conditions:
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Temperature:	15-35 °C
Rel. Humidity:	10-60 %

Summary of Results

Run #	Mode	Channel	Power Setting	Test Performed	Limit	Result / Margin
1	802.11a Chain B	5180 MHz	20.0	Restricted Band Edge at 5150 MHz	15.209	51.5dBµV/m @ 5149.9MHz (-2.5dB)

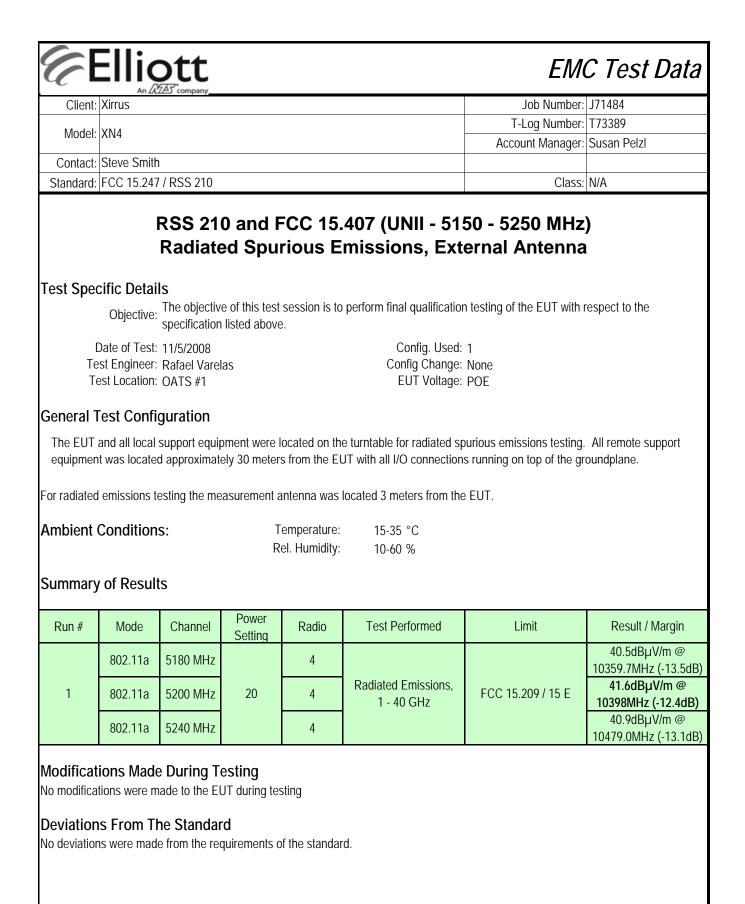
Modifications Made During Testing

No modifications were made to the EUT during testing

Deviations From The Standard

No deviations were made from the requirements of the standard.

n #1, Radiated Spurious Emissions, 30 - 40,000 MH. Operation in the 5150-5250 MHz Band 30 MHz, 802.11a, Chain B with power setting of 20dBm 50 MHz Band Edge Signal Radiated Field Strength equency Level Pol FCC 15.209 Detector Azimuth Height Comments MHz dBμV/m V/H Limit Margin Pk/QP/Avg degrees meters 149.940 51.5 V 54.0 -2.5 Avg 303 1.9 RB 1 MHz; VB 147.440 66.6 V 74.0 -7.4 PK 303 1.9 RB 1 MHz; VB 149.810 49.5 H 54.0 -4.5 Avg 347 1.0 RB 1 MHz; VB 149.210 62.0 H 74.0 -12.0 PK 347 1.0 RB 1 MHz; VB	73389 usan Pelzl /A
Model: XN4 Account Manager: St Contact: Steve Smith Class: N/ tandard: FCC 15.247 / RSS 210 Class: N/ n #1, Radiated Spurious Emissions, 30 - 40,000 MH. Operation in the 5150-5250 MHz Band R/ R/ 80 MHz, 802.11a, Chain B with power setting of 20dBm Steve Smith Comments 60 MHz Band Edge Signal Radiated Field Strength Edgency Level Pol FCC 15.209 Detector Azimuth Height Comments MHz dBµV/m V/H Limit Margin Pk/QP/Avg degrees meters Image: VB 49.940 51.5 V 54.0 -2.5 Avg 303 1.9 RB 1 MHz; VB 47.440 66.6 V 74.0 -7.4 PK 303 1.9 RB 1 MHz; VB 49.810 49.5 H 54.0 -4.5 Avg 347 1.0 RB 1 MHz; VB 49.210 62.0 H 74.0 -12.0 PK 347 1.0 RB 1 MHz; VB kote 1: For emissions in restricted band immediately below	usan Pelzl /A
Contact: Steve Smith Class: N. tandard: FCC 15.247 / RSS 210 Class: N. n #1, Radiated Spurious Emissions, 30 - 40,000 MH. Operation in the 5150-5250 MHz Band Band Band 30 MHz, 802.11a, Chain B with power setting of 20dBm Steve Signal Radiated Field Strength Comments 60 MHz Band Edge Signal Radiated Field Strength Equency Level Pol FCC 15.209 Detector Azimuth Height Comments MHz dBµV/m V/H Limit Margin Pk/QP/Avg degrees meters 149.940 51.5 V 54.0 -2.5 Avg 303 1.9 RB 1 MHz; VB 147.440 66.6 V 74.0 -7.4 PK 303 1.9 RB 1 MHz; VB 149.810 49.5 H 54.0 -4.5 Avg 347 1.0 RB 1 MHz; VB 149.210 62.0 H 74.0 -12.0 PK 347 1.0 RB 1 MHz; VB Jote 1: For emissions in restricted band immediately below 5150MHz, the limit of 15.209 was used. Steve Steve Steve<	/A
n #1, Radiated Spurious Emissions, 30 - 40,000 MH. Operation in the 5150-5250 MHz Band 30 MHz, 802.11a, Chain B with power setting of 20dBm 50 MHz Band Edge Signal Radiated Field Strength equency Level Pol FCC 15.209 Detector Azimuth Height Comments MHz dBµV/m V/H Limit Margin Pk/QP/Avg degrees meters 149.940 51.5 V 54.0 -2.5 Avg 303 1.9 RB 1 MHz; VB 147.440 66.6 V 74.0 -7.4 PK 303 1.9 RB 1 MHz; VB 149.810 49.5 H 54.0 -4.5 Avg 347 1.0 RB 1 MHz; VB 149.210 62.0 H 74.0 -12.0 PK 347 1.0 RB 1 MHz; VB 149.210 For emissions in restricted band immediately below 5150MHz, the limit of 15.209 was used.	
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	: 1 MHz
65.0 65.0 60.0 9 9 55.0 45.0 40.0 35.0 5130.0 5132.0 5134.0 5136.0 5138.0 5140.0 5142.0 5144.0 5146.0 5143 Frequency (MHz)	



Client: Xirus Job Number: J71484 Model: XN4 T-Log Number: T73389 Account Manager: Susan Petzl Contact: Steve Smith Class: N/A Standard: FCC 15.247 / RSS 210 Class: N/A Run #1, Radiated Spurious Emissions, 30 - 40,000 MH. Operation in the 5150-5250 MHz Band, 802.11a Mode, External A Run #1a: 5180 MHz, 802.11a, Low Channel, With External Antenna Frequency Range Test Distance Limit Distance Extrapolation Factor 1000 - 18000 MHz 3 3 0.0 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 10359.660 1.0 RB 1 MHz; VB: 10 Hz 10359.660 40.5 V 54.0 -13.5 AVG 360 1.0 RB 1 MHz; VB: 10 Hz 6906.680 39.0 V 54.0 -15.0 AVG 0 1.0	C E								EM	C Test Da
Model: XN4 Account Manager: Susan Pelzl Contact: Steve Smith	Client:	Xirrus							Job Number:	J71484
Account Manager: Susan Pelzl Contact: Steve Smith Standard: FCC 15.247 / RSS 210 Class: N/A Run #1, Radiated Spurious Emissions, 30 - 40,000 MH. Operation in the 5150-5250 MHz Band, 802.11a Mode, External A Run #1a: 5180 MHz, 802.11a, Low Channel, With External Antenna Run #1a: 5180 MHz, 802.11a, Low Channel, With External Antenna Extrapolation Factor 0.0 Spurious Radiated Emissions: Frequency Range Test Distance Limit Distance Extrapolation Factor MHz dBµU/m v/h Limit Margin Pk/QP/Avg degrees meters 10359.660 40.5 V 54.0 -13.5 AVG 360 1.0 RB 1 MHz; VB: 10 Hz 6906.680 39.0 V 54.0 -15.0 AVG 0 1.0 RB 1 MHz; VB: 10 Hz 6906.520 34.4 H 54.0 -19.6 AVG 233 1.0 RB 1 MHz; VB: 10 Hz 6905.270 45.8 H 74.0 -28.2 PK 233 1.0 RB 1 MHz; VB: 10 Hz <	Model							T-	Log Number:	T73389
Standard: FCC 15.247 / RSS 210 Class: N/A Run #1, Radiated Spurious Emissions, 30 - 40,000 MH. Operation in the 5150-5250 MHz Band, 802.11a Mode, External A Run #1a: 5180 MHz, 802.11a, Low Channel, With External Antenna Frequency Range Test Distance Limit Distance Extrapolation Factor 1000 - 18000 MHz 3 0.0 0.0 Spurious Radiated Emissions: Frequency Level Pol 15.209 / 15E Detector Azimuth Height Comments MHz dBu//m V/h Limit Distance Extrapolation Factor 10300 - 18000 MHz 3 0.0 10 RB 1 MHz; VB: 10 Hz 10359.60 40.5 V 54.0 -15.0 AVG </th <td>woder:</td> <td>XIN4</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>Acco</td> <td>unt Manager:</td> <td>Susan Pelzl</td>	woder:	XIN4						Acco	unt Manager:	Susan Pelzl
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Run #1a: 5180 MHz, 802.11a, Low Channel, With External Antenna Frequency Range Test Distance Limit Distance Extrapolation Factor 1000 - 18000 MHz 3 3 0.0 Spurious Radiated Emissions: Frequency Level Pol 15.209 / 15E Detector Azimuth Height Comments 10359.660 40.5 V 54.0 -13.5 AVG 360 1.0 RB 1 MHz; VB: 10 Hz 10359.760 51.9 V 74.0 -22.1 PK 360 1.0 RB 1 MHz; VB: 10 Hz 6906.680 39.0 V 54.0 -15.0 AVG 0 1.0 RB 1 MHz; VB: 10 Hz 6906.520 34.4 H 54.0 -19.6 AVG 233 1.0 RB 1 MHz; VB: 10 Hz 6905.270 45.8 H 74.0 -28.2 PK 233 1.0 RB 1 MHz; VB: 10 Hz 10359.680 39.8 H 54.0 -14.2 AVG 298 1.0 RB 1 MHz; VB: 10 Hz<	Standard:	FCC 15.247	/ RSS 210						Class:	N/A
Run #1a: 5180 MHz, 802.11a, Low Channel, With External Antenna Frequency Range Test Distance Limit Distance Extrapolation Factor 1000 - 18000 MHz 3 3 0.0 Spurious Radiated Emissions: Errequency Level Pol 15.209 / 15E Detector Azimuth Height Comments 10359.660 40.5 V 54.0 -13.5 AVG 360 1.0 RB 1 MHz; VB: 10 Hz 10359.760 51.9 V 74.0 -22.1 PK 360 1.0 RB 1 MHz; VB: 10 Hz 6906.680 39.0 V 54.0 -15.0 AVG 0 1.0 RB 1 MHz; VB: 10 Hz 6906.520 34.4 H 54.0 -19.6 AVG 233 1.0 RB 1 MHz; VB: 10 Hz 6905.270 45.8 H 74.0 -28.2 PK 233 1.0 RB 1 MHz; VB: 10 Hz 10359.680 39.8 H 54.0 -14.2 AVG 298 1.0 RB 1 MHz; VB: 1 MHz	Run #1. Rac	diated Spuri	ous Emissio	ons, 30 - 40,	000 MH. Op	eration in the	e 5150-5250	MHz Band	. 802.11a Mo	de, External Ant.
1000 - 18000 MHz 3 3 0.0 Spurious Radiated Emissions: Errequency Level Pol 15.209 / 15E Detector Azimuth Height Comments MHz dBµV/m v/h Limit Margin Pk/QP/Avg degrees meters 10359.660 40.5 V 54.0 -13.5 AVG 360 1.0 RB 1 MHz; VB: 10 Hz 10359.760 51.9 V 74.0 -22.1 PK 360 1.0 RB 1 MHz; VB: 10 Hz 6906.680 39.0 V 54.0 -15.0 AVG 0 1.0 RB 1 MHz; VB: 10 Hz 6906.520 34.4 H 54.0 -19.6 AVG 233 1.0 RB 1 MHz; VB: 10 Hz 6905.270 45.8 H 74.0 -28.2 PK 233 1.0 RB 1 MHz; VB: 10 Hz 10359.680 39.8 H 54.0 -14.2 AVG 298 1.0 RB 1 MHz; VB: 10 Hz 10360.380 51.1 H										
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MHz dBµV/m v/h Limit Margin Pk/QP/Avg degrees meters	6905.270 10359.680 10360.380	45.8 39.8 51.1	H H H	54.0 74.0	-14.2 -22.9	AVG PK	298	1.0	RB 1 MHz; V	VB: 10 Hz
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6933.330 47.9 V 74.0 -26.1 PK 253 1.0 RB 1 MHz; VB: 1 MHz Run #1c: 5240 MHz, 802.11a, High Channel, With External Antenna	6905.270 10359.680 10360.380 Run #1b: 52 Spurious R Frequency MHz 10398.520 10400.070 6933.080 6931.920 10398.670 10400.080 6933.390 6933.330 6933.330	45.8 39.8 51.1 200 MHz, 802 adiated Emi Level dBμV/m 41.6 52.6 35.9 46.6 41.1 52.2 37.9 47.9 240 MHz, 802	H H 2.11a, Cente <i>issions:</i> Pol V/h H H H H V V V V V	54.0 74.0 er Channel, V 15.20 Limit 54.0 74.0 54.0 74.0 54.0 74.0 54.0 74.0 54.0 74.0 54.0 74.0	-14.2 -22.9 With Extern 9 / 15E Margin -12.4 -21.4 -21.4 -27.4 -18.1 -27.4 -12.9 -21.8 -16.1 -26.1 th External	AVG PK al Antenna Detector Pk/QP/Avg AVG PK AVG PK AVG PK AVG PK AVG PK	298 298 Azimuth degrees 0 0 0 360 360 5 5 5 253 253 253	1.0 1.0 Height meters 2.1 2.3 2.3 1.1 1.1 1.0 1.0	RB 1 MHz; RB 1 MHz;	VB: 10 Hz VB: 1 MHz VB: 10 Hz VB: 10 Hz VB: 1 MHz VB: 10 Hz VB: 10 Hz VB: 10 Hz VB: 10 Hz VB: 10 Hz VB: 10 Hz
6933.330 47.9 V 74.0 -26.1 PK 253 1.0 RB 1 MHz; VB: 1 MHz Run #1c: 5240 MHz, 802.11a, High Channel, With External Antenna Frequency Level Pol 15.209 / 15E Detector Azimuth Height Comments MHz dBµV/m v/h Limit Margin Pk/QP/Avg degrees meters	6905.270 10359.680 10360.380 Run #1b: 52 Spurious R Frequency MHz 10398.520 10400.070 6933.080 6931.920 10400.080 6933.390 6933.330 Run #1c: 52 Frequency	45.8 39.8 51.1 200 MHz, 802 201 MHz, 802 202 MHz, 802 35.9 46.6 41.1 52.2 37.9 47.9 240 MHz, 802 Level	H H H 2.11a, Cente <i>issions:</i> Pol V/h H H H H V V V V V V V	54.0 74.0 er Channel, V 15.20 Limit 54.0 74.0 54.0 74.0 54.0 74.0 54.0 74.0 54.0 74.0 54.0 74.0 54.0 74.0 54.0 74.0	-14.2 -22.9 With Extern 9 / 15E Margin -12.4 -21.4 -21.4 -18.1 -27.4 -12.9 -21.8 -16.1 -26.1 th External 9 / 15E	AVG PK al Antenna Detector Pk/QP/Avg AVG PK AVG PK AVG PK AVG PK AVG PK AVG PK AVG PK AVG Detector	298 298 Azimuth degrees 0 0 0 360 360 5 5 5 253 253 253 253	1.0 1.0 Height meters 2.1 2.3 2.3 1.1 1.1 1.0 1.0 Height	RB 1 MHz; RB 1 MHz;	VB: 10 Hz VB: 1 MHz VB: 10 Hz VB: 10 Hz VB: 1 MHz VB: 10 Hz VB: 10 Hz VB: 10 Hz VB: 10 Hz VB: 10 Hz VB: 10 Hz
6933.330 47.9 V 74.0 -26.1 PK 253 1.0 RB 1 MHz; VB: 1 MHz Run #1c: 5240 MHz, 802.11a, High Channel, With External Antenna Frequency Level Pol 15.209 / 15E Detector Azimuth Height Comments MHz dBμV/m v/h Limit Margin Pk/QP/Avg degrees meters 10478.990 40.9 V 54.0 -13.1 AVG 351 1.0 MHz; VB: 10 Hz	6905.270 10359.680 10360.380 Run #1b: 52 Spurious R Frequency MHz 10398.520 10400.070 6933.080 6931.920 10400.080 6933.390 6933.330 Run #1c: 52 Frequency MHz	45.8 39.8 51.1 200 MHz, 802 20 adiated Emi Level dBμV/m 41.6 52.6 35.9 46.6 41.1 52.2 37.9 47.9 240 MHz, 802 Level dBμV/m	H H H 2.11a, Cente <i>issions:</i> Pol V/h H H H H V V V V V V V V	54.0 74.0 er Channel, V 15.20 Limit 54.0 74.0 54.0 74.0 54.0 74.0 54.0 74.0 54.0 74.0 54.0 74.0 54.0 74.0 54.0 74.0	-14.2 -22.9 With Extern 9 / 15E Margin -12.4 -21.4 -21.4 -27.4 -12.9 -21.8 -16.1 -26.1 th External 9 / 15E Margin	AVG PK al Antenna Detector Pk/QP/Avg AVG PK AVG PK AVG PK AVG PK AVG PK AVG PK AVG PK AVG PK	298 298 Azimuth degrees 0 0 0 360 360 5 5 5 253 253 253 253	1.0 1.0 Height meters 2.1 2.3 2.3 1.1 1.0 1.0 Height meters	RB 1 MHz; RB 1 MHz;	VB: 10 Hz VB: 1 MHz VB: 10 Hz VB: 10 Hz VB: 1 MHz VB: 10 Hz VB: 10 Hz VB: 10 Hz VB: 10 Hz VB: 10 Hz VB: 11 MHz VB: 11 MHz
6933.330 47.9 V 74.0 -26.1 PK 253 1.0 RB 1 MHz; VB: 1 MHz Run #1c: 5240 MHz, 802.11a, High Channel, With External Antenna Frequency Level Pol 15.209 / 15E Detector Azimuth Height Comments MHz dBμV/m v/h Limit Margin Pk/QP/Avg degrees meters 10478.990 40.9 V 54.0 -13.1 AVG 351 1.0 MHz; VB: 10 Hz	6905.270 10359.680 10360.380 Run #1b: 52 Spurious R Frequency MHz 10398.520 10400.070 6933.080 6931.920 10400.080 6933.390 6933.390 6933.330 Run #1c: 52 Frequency MHz 10478.990	45.8 39.8 51.1 200 MHz, 802 2adiated Emi Level dBμV/m 41.6 52.6 35.9 46.6 41.1 52.2 37.9 47.9 240 MHz, 802 Level dBμV/m 40.9	H H H 2.11a, Cente <i>issions:</i> Pol V/h H H H H V V V V V V V V	54.0 74.0 er Channel, V 15.20 Limit 54.0 74.0 54.0 74.0 54.0 74.0 54.0 74.0 54.0 74.0 54.0 74.0 54.0 74.0 54.0 74.0	-14.2 -22.9 With Extern 9 / 15E Margin -12.4 -21.4 -21.4 -21.4 -21.4 -21.4 -21.4 -21.4 -21.4 -21.4 -21.4 -21.4 -21.4 -21.4 -12.9 -21.8 -16.1 -26.1 th External 9 / 15E Margin -13.1	AVG PK al Antenna Detector Pk/QP/Avg AVG PK AVG PK AVG PK AVG PK AVG PK AVG PK AVG PK AVG PK AVG PK	298 298 Azimuth degrees 0 0 0 360 360 360 5 5 253 253 253 253 253 253	1.0 1.0 Height meters 2.1 2.1 2.3 2.3 1.1 1.1 1.0 1.0 Height meters 1.0	RB 1 MHz; ' RB 1 MZ 1 M	VB: 10 Hz VB: 1 MHz VB: 1 MHz VB: 1 MHz VB: 1 MHz VB: 10 Hz VB: 10 Hz VB: 10 Hz VB: 10 Hz VB: 10 Hz VB: 1 MHz VB: 1 MHz 0 Hz
6933.330 47.9 V 74.0 -26.1 PK 253 1.0 RB 1 MHz; VB: 1 MHz Run #1c: 5240 MHz, 802.11a, High Channel, With External Antenna Frequency Level Pol 15.209 / 15E Detector Azimuth Height Comments MHz dBμV/m v/h Limit Margin Pk/QP/Avg degrees meters 10478.990 40.9 V 54.0 -13.1 AVG 351 1.0 MHz; VB: 10 Hz 10479.360 51.8 V 74.0 -22.2 PK 351 1.0 MHz; VB: 1 MHz	6905.270 10359.680 10360.380 Run #1b: 52 Spurious Ra Frequency MHz 10398.520 10400.070 6933.080 6931.920 10400.080 6933.390 6933.390 6933.330 Run #1c: 52 Frequency MHz 10478.990 10479.360	45.8 39.8 51.1 200 MHz, 802 2adiated Emi Level dBμV/m 41.6 52.6 35.9 46.6 41.1 52.2 37.9 47.9 240 MHz, 802 Level dBμV/m 40.9 51.8	H H H 2.11a, Cente 2.55 Pol v/h H H H H H H V V V V V V V V V V V V V	54.0 74.0 er Channel, V 15.20 Limit 54.0 74.0 54.0 74.0 54.0 74.0 54.0 74.0 54.0 74.0 54.0 74.0 54.0 74.0 54.0 74.0 74.0	-14.2 -22.9 With Extern 9 / 15E Margin -12.4 -21.4 -21.4 -21.4 -21.4 -21.4 -21.4 -21.4 -21.4 -21.4 -21.4 -21.4 -21.4 -12.9 -21.8 -16.1 -26.1 th External 9 / 15E Margin -13.1 -22.2	AVG PK al Antenna Detector Pk/QP/Avg AVG PK AVG PK AVG PK AVG PK AVG PK AVG PK AVG PK	298 298 Azimuth degrees 0 0 360 360 5 5 253 253 253 253 253 253 253 351 351	1.0 1.0 1.0 Height meters 2.1 2.3 2.3 1.1 1.1 1.0 1.0 Height meters 1.0 1.0	RB 1 MHz; ' RB 1 MZ] (RB 1 MZ) (RB 1	VB: 10 Hz VB: 1 MHz VB: 1 MHz VB: 1 MHz VB: 1 MHz VB: 10 Hz VB: 10 Hz VB: 1 MHz VB: 1 MHz VB: 1 MHz VB: 1 MHz VB: 1 MHz 0 Hz MHz
6933.330 47.9 V 74.0 -26.1 PK 253 1.0 RB 1 MHz; VB: 1 MHz Run #1c: 5240 MHz, 802.11a, High Channel, With External Antenna Frequency Level Pol 15.209 / 15E Detector Azimuth Height Comments MHz dBμV/m v/h Limit Margin Pk/QP/Avg degrees meters 10478.990 40.9 V 54.0 -13.1 AVG 351 1.0 MHz; VB: 10 Hz 10479.360 51.8 V 74.0 -22.2 PK 351 1.0 MHz; VB: 10 Hz 6972.750 34.5 V 54.0 -19.5 AVG 244 1.0 MHz; VB: 10 Hz 6970.150 45.5 V 74.0 -28.5 PK 244 1.0 MHz; VB: 1 MHz	6905.270 10359.680 10360.380 Run #1b: 52 Spurious Ra Frequency MHz 10398.520 10400.070 6933.080 6931.920 10400.080 6933.390 6933.330 Run #1c: 52 Frequency MHz 10478.990 10479.360 6972.750	45.8 39.8 51.1 200 MHz, 802 2adiated Emi Level dBμV/m 41.6 52.6 35.9 46.6 41.1 52.2 37.9 47.9 240 MHz, 802 Level dBμV/m 40.9 51.8 34.5	H H H 2.11a, Cente <i>issions:</i> Pol v/h H H H H H V V V V V V V V V V V V V V	54.0 74.0 er Channel, V 15.20 Limit 54.0 74.0 54.0 74.0 54.0 74.0 54.0 74.0 54.0 74.0 54.0 74.0 54.0 74.0 54.0 74.0 54.0 74.0 54.0 74.0 54.0	-14.2 -22.9 With Extern 9 / 15E Margin -12.4 -21.4 -21.4 -21.4 -27.4 -12.9 -21.8 -16.1 -26.1 th External 9 / 15E Margin -13.1 -22.2 -19.5	AVG PK al Antenna Detector Pk/QP/Avg AVG PK AVG PK AVG PK AVG PK AVG PK AVG PK AVG PK AVG PK AVG PK AVG AVG	298 298 Azimuth degrees 0 0 360 360 5 5 5 253 253 253 253 253 253 253 351 351 351 244	1.0 1.0 1.0 Height meters 2.1 2.3 2.3 1.1 1.1 1.0 1.0 Height meters 1.0 1.0 1.0 1.0	RB 1 MHz; ⁽⁾ RB 1 Mz; ⁽⁾ RB	VB: 10 Hz VB: 1 MHz VB: 1 MHz O Hz MHz 0 Hz MHz
6933.330 47.9 V 74.0 -26.1 PK 253 1.0 RB 1 MHz; VB: 1 MHz Run #1c: 5240 MHz, 802.11a, High Channel, With External Antenna Frequency Level Pol 15.209 / 15E Detector Azimuth Height Comments MHz dBµV/m v/h Limit Margin Pk/QP/Avg degrees meters 10478.990 40.9 V 54.0 -13.1 AVG 351 1.0 MHz; VB: 10 Hz 10479.360 51.8 V 74.0 -22.2 PK 351 1.0 MHz; VB: 10 Hz 6972.750 34.5 V 54.0 -19.5 AVG 244 1.0 MHz; VB: 10 Hz 6970.150 45.5 V 74.0 -28.5 PK 244 1.0 MHz; VB: 1 MHz	6905.270 10359.680 10360.380 Run #1b: 52 Spurious R Frequency MHz 10398.520 10400.070 6933.080 6931.920 10400.080 6933.390 6933.330 6933.330 6933.330 Run #1c: 52 Frequency MHz 10478.990 10479.360 6972.750 6970.150	45.8 39.8 51.1 200 MHz, 802 adiated Emi Level dBμV/m 41.6 52.6 35.9 46.6 41.1 52.2 37.9 47.9 240 MHz, 802 Level dBμV/m 40.9 51.8 34.5 45.5	H H H 2.11a, Cente <i>ssions:</i> Pol v/h H H H H V V V V V V V V V V V V V V V	54.0 74.0 er Channel, V Limit 54.0 74.0 54.0 74.0 54.0 74.0 54.0 74.0 54.0 74.0 54.0 74.0 54.0 74.0 54.0 74.0 54.0 74.0 54.0 74.0 74.0	-14.2 -22.9 With Extern 9 / 15E Margin -12.4 -21.4 -21.4 -21.4 -27.4 -12.9 -21.8 -16.1 -26.1 th External 9 / 15E Margin -13.1 -22.2 -19.5 -28.5	AVG PK al Antenna Detector Pk/QP/Avg AVG PK AVG PK AVG PK AVG PK AVG PK AVG PK AVG PK AVG PK AVG PK AVG PK AVG	298 298 Azimuth degrees 0 0 360 360 5 5 5 253 253 253 253 253 253 253 253 351 351 351 244 244	1.0 1.0 1.0 Height meters 2.1 2.3 2.3 1.1 1.1 1.0 1.0 Height meters 1.0 1.0 1.0 1.0 1.0	RB 1 MHz; ⁽⁾ RB 1 Mz; ⁽⁾ RB	VB: 10 Hz VB: 1 MHz VB: 1 MHz O Hz MHz 0 Hz MHz
6933.330 47.9 V 74.0 -26.1 PK 253 1.0 RB 1 MHz; VB: 1 MHz Run #1c: 5240 MHz, 802.11a, High Channel, With External Antenna Frequency Level Pol 15.209 / 15E Detector Azimuth Height Comments MHz dBµV/m V/h Limit Margin Pk/QP/Avg degrees meters 10478.990 40.9 V 54.0 -13.1 AVG 351 1.0 MHz; VB: 10 Hz 10479.360 51.8 V 74.0 -22.2 PK 351 1.0 MHz; VB: 10 Hz 6972.750 34.5 V 54.0 -19.5 AVG 244 1.0 MHz; VB: 10 Hz 6970.150 45.5 V 74.0 -28.5 PK 244 1.0 MHz; VB: 10 Hz 10478.530 40.1 H 54.0 -13.9 AVG 360 1.0 MHz; VB: 10 Hz	6905.270 10359.680 10360.380 Run #1b: 52 Spurious R Frequency MHz 10398.520 10400.070 6933.080 6931.920 10400.080 6933.390 6933.390 6933.330 Run #1c: 52 Frequency MHz 10478.990 10479.360 6972.750 6970.150 10478.530	45.8 39.8 51.1 200 MHz, 802 201 adiated Emi Level dBμV/m 41.6 52.6 35.9 46.6 41.1 52.2 37.9 47.9 240 MHz, 802 Level dBμV/m 40.9 51.8 34.5 45.5 40.1	H H H 2.11a, Cente <i>issions:</i> Pol V/h H H H H V V V V V V V V V V V V V V V	54.0 74.0 er Channel, V Limit 54.0 74.0 54.0 74.0 54.0 74.0 54.0 74.0 54.0 74.0 54.0 74.0 54.0 74.0 54.0 74.0 54.0 74.0 54.0 74.0 54.0 74.0 54.0 74.0 54.0	-14.2 -22.9 With Extern 9 / 15E Margin -12.4 -21.4 -21.4 -27.4 -12.9 -21.8 -16.1 -26.1 th External 9 / 15E Margin -13.1 -22.2 -19.5 -28.5 -13.9	AVG PK al Antenna Detector Pk/QP/Avg AVG PK AVG PK AVG PK AVG PK AVG PK AVG PK AVG PK AVG PK AVG PK AVG	298 298 Azimuth degrees 0 0 360 360 5 5 253 253 253 253 253 253 253 253 253	1.0 1.0 1.0 Height meters 2.1 2.3 2.3 1.1 1.1 1.0 1.0 1.0 1.0 1.0 1.0	RB 1 MHz; V RB 1 MHz; V R 1 MZ 1	VB: 10 Hz VB: 1 MHz VB: 1 MHz O Hz MHz 0 Hz 0 Hz 0 Hz
6933.330 47.9 V 74.0 -26.1 PK 253 1.0 RB 1 MHz; VB: 1 MHz Run #1c: 5240 MHz, 802.11a, High Channel, With External Antenna Frequency Level Pol 15.209 / 15E Detector Azimuth Height Comments MHz dBµV/m V/h Limit Margin Pk/QP/Avg degrees meters 10478.990 40.9 V 54.0 -13.1 AVG 351 1.0 MHz; VB: 10 Hz 10479.360 51.8 V 74.0 -22.2 PK 351 1.0 MHz; VB: 10 Hz 6972.750 34.5 V 54.0 -19.5 AVG 244 1.0 MHz; VB: 10 Hz 6970.150 45.5 V 74.0 -28.5 PK 244 1.0 MHz; VB: 1 MHz 10478.530 40.1 H 54.0 -13.9 AVG 360 1.0 MHz; VB: 10 Hz	6905.270 10359.680 10360.380 Run #1b: 52 Spurious R Frequency MHz 10398.520 10400.070 6933.080 6931.920 10400.080 6933.390 6933.390 6933.390 6933.390 6933.390 6933.390 6933.390 6933.390 6973.50 10478.500 6972.750 6970.150 10478.530 10481.310	45.8 39.8 51.1 200 MHz, 802 2adiated Emi Level dBμV/m 41.6 52.6 35.9 46.6 41.1 52.2 37.9 47.9 240 MHz, 802 Level dBμV/m 40.9 51.8 34.5 45.5 40.1 54.9	H H H 2.11a, Cente <i>issions:</i> Pol v/h H H H V V V V V V V V V V V V V V V V	54.0 74.0 er Channel, V 15.20 Limit 54.0 74.0 54.0 74.0 54.0 74.0 54.0 74.0 54.0 74.0 54.0 74.0 54.0 74.0 54.0 74.0 54.0 74.0 54.0 74.0 54.0 74.0 54.0 74.0	-14.2 -22.9 With Extern 9 / 15E Margin -12.4 -21.4 -21.4 -21.4 -21.4 -21.4 -21.4 -21.4 -21.4 -21.4 -21.4 -21.4 -21.4 -12.9 -21.8 -16.1 -26.1 th External 9 / 15E Margin -13.1 -22.2 -19.5 -28.5 -13.9 -19.1	AVG PK al Antenna Detector Pk/QP/Avg AVG PK AVG PK AVG PK AVG PK AVG PK AVG PK AVG PK AVG PK AVG PK AVG PK	298 298 298 Azimuth degrees 0 0 0 360 360 5 5 253 253 253 253 253 253 253 253 253	1.0 1.0 1.0 Height meters 2.1 2.3 2.3 1.1 1.1 1.0 1.0 Height meters 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0	RB 1 MHz; V RB 1 MHz; V R 1 MZ 1	VB: 10 Hz VB: 1 MHz VB: 1 MHz O Hz MHz 0 Hz MHz 0 Hz MHz 0 Hz MHz

Ć	Elliott An MAS* company	EM	C Test Data
Client:		Job Number:	J71484
Model:	YN A	T-Log Number:	T73389
would.	AIN4	Account Manager:	Susan Pelzl
Contact:	Steve Smith		
Standard:	FCC 15.247 / RSS 210	Class:	N/A

RSS 210 and FCC 15.407 (UNII - 5250 - 5350 MHz and 5470-5725MHz) Radiated Spurious Emissions, Band Edges, Internal Antenna

Test Specific Details

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

General Test Configuration

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

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

Ambient Conditions:	Temperature:	15-35 °C
	Rel. Humidity:	10-60 %

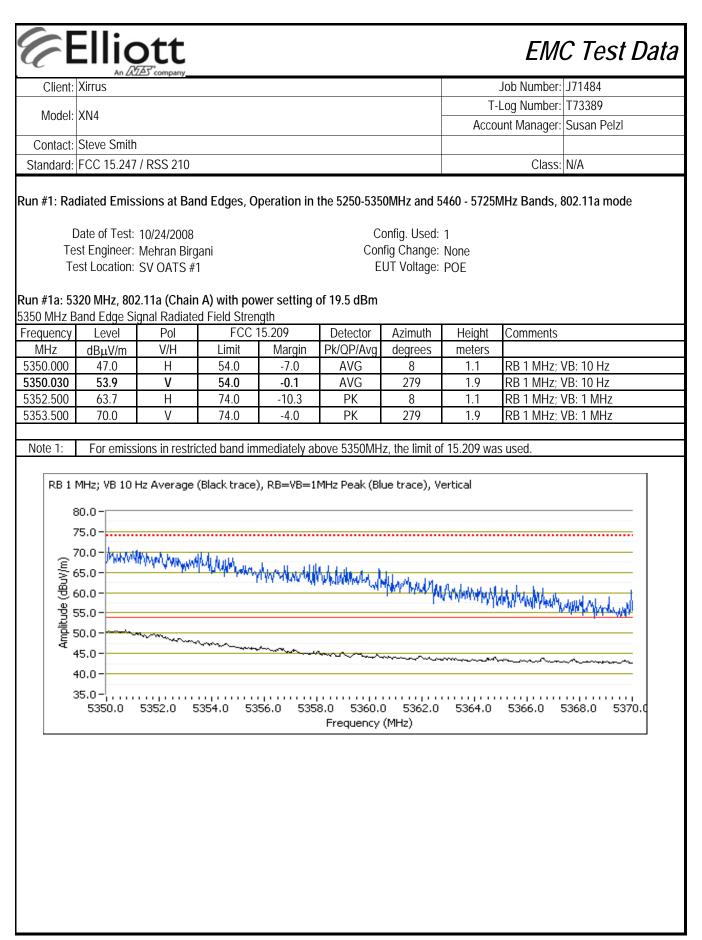
Modifications Made During Testing

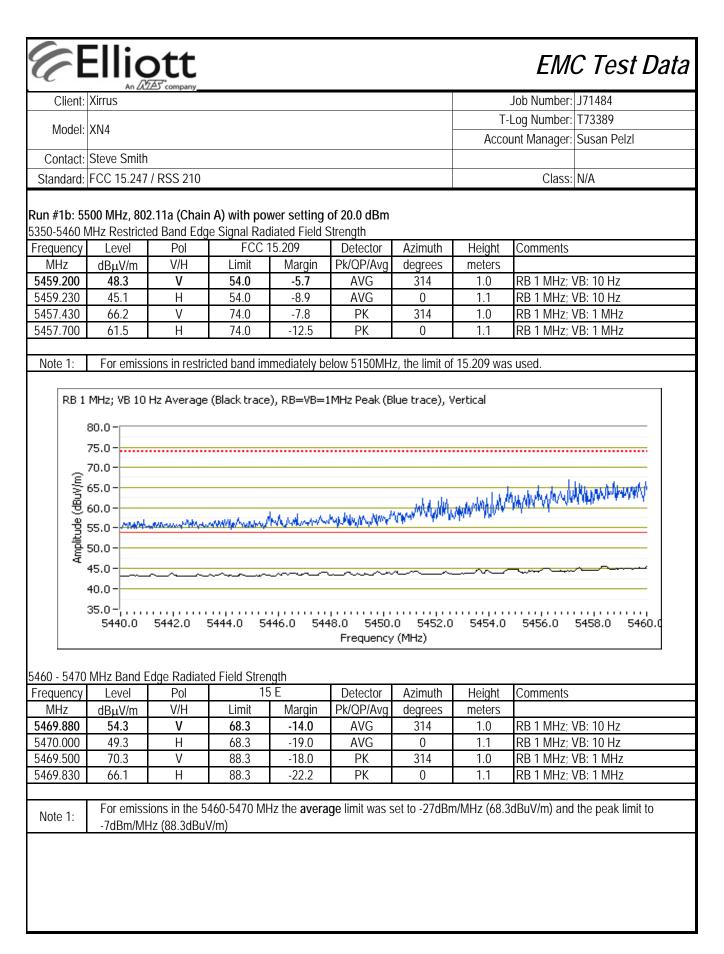
No modifications were made to the EUT during testing

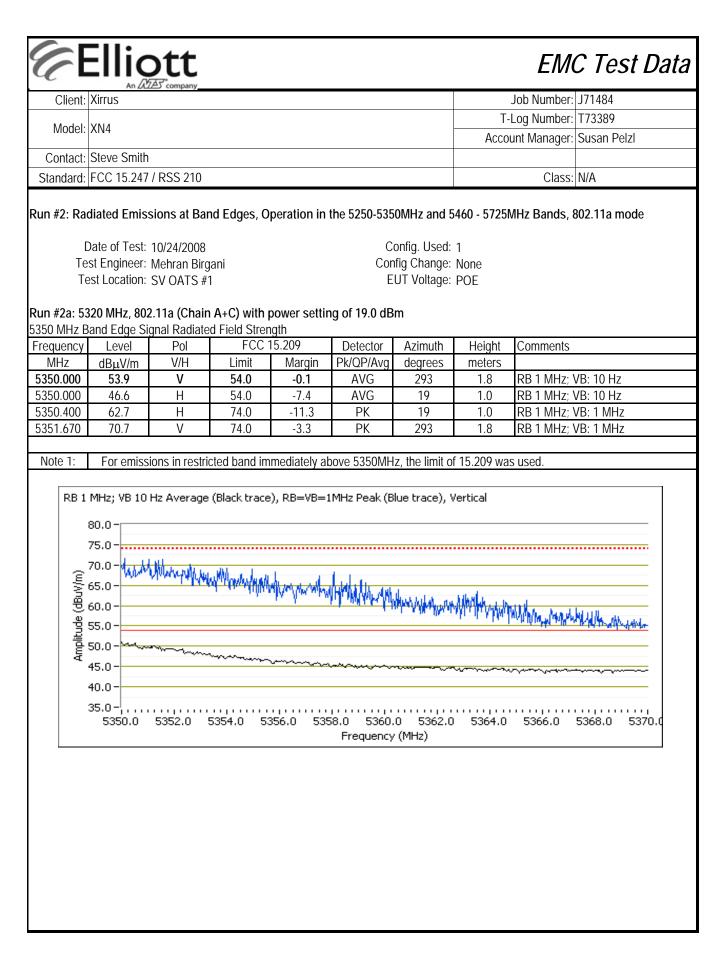
Deviations From The Standard

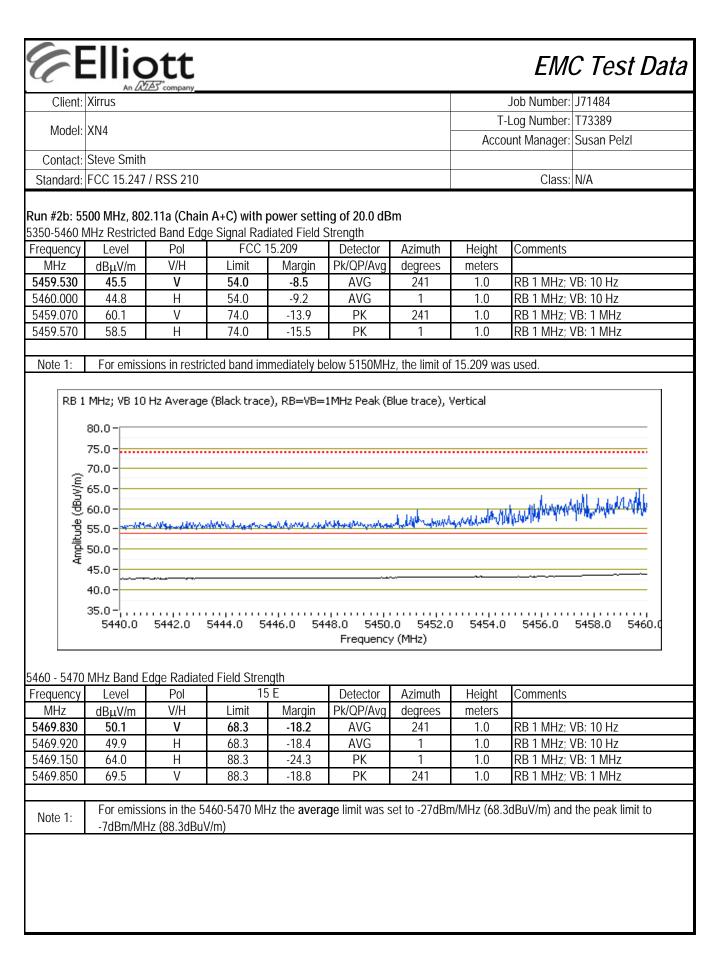
No deviations were made from the requirements of the standard.

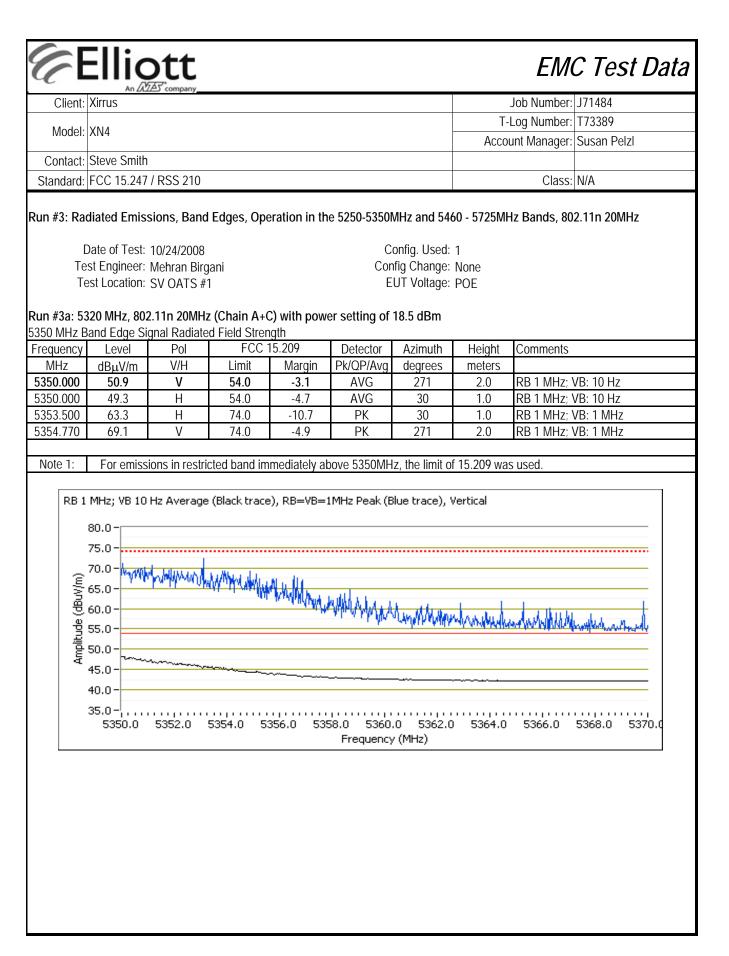
Client:	Xirrus						ob Number:	
Model:	XN4				-		og Number:	
Contact	Steve Smith					Accour	nt Manager:	Susan Pelzl
	FCC 15.247						Class:	N/A
mmary	/ of Result	S						
Run #	Mode	Channel	Power Setting	Test Performed	Lin	nit	Result / Margin	
1a	802.11a Chain A	5320 MHz	19.5dBm	Restricted Band Edge at 5350 MHz	FCC 15.209 / 15 E		53.9dBµV/m (495.5µV/r 5350.0MHz (-0.1dB)	
1b	802.11a	5500 MHz	20.0dBm	Restricted Band Edge at 5460 MHz	FCC 15.209 / 15 E		545	uV/m (260.0µV/m) @ 9.2MHz (-5.7dB)
10	Chain A	5500 10112	20.0dBm	Band Edge 5460 - 5470 MHz	15E (68.3 dBuV/m avg, 88.3dBuV/m peak)			uV/m (518.8µV/m) @ 9.9MHz (-14.0dB)
2a	802.11a Chain A+C	5320 MHz	19.0dBm	Restricted Band Edge at 5350 MHz	FCC 15.2	09 / 15 E		μV/m (495.5μV/m) @ 0.0MHz (-0.1dB)
2b 802.11a 5500 MHz		20.0dBm	Restricted Band Edge at 5460 MHz	FCC 15.2	09 / 15 E		uV/m (188.4µV/m) @ 9.5MHz (-8.5dB)	
20	Chain A+C	5500 10112	20.0dBm	Band Edge 5460 - 5470 MHz	15E (68.3 dBuV/m av 88.3dBuV/m peak)			uV/m (319.9µV/m) @ 9.8MHz (-18.2dB)
3a	802.11n20 Chain A+C	5320 MHz	18.5dBm	Restricted Band Edge at 5350 MHz	FCC 15.2	09 / 15 E	5350.0MF	
3b	802.11n20	5500 MHz	20.0dBm	Restricted Band Edge at 5460 MHz	FCC 15.2	09 / 15 E		uV/m (216.3µV/m) @ 0.0MHz (-7.3dB)
30	Chain A+C	5500 WHZ	20.0dBm	Band Edge 5460 - 5470 MHz	15E (68.3 dl 88.3dBuV	0		uV/m (426.6µV/m) @ 9.8MHz (-15.7dB)
4a	802.11n40 Chain A+C	5310 MHz	17.0dBm	Restricted Band Edge at 5350 MHz	FCC 15.2	09 / 15 E	535	JV/m (407.4µV/m) @ 0.0MHz (-1.8dB)
4b	802.11n40	5510 MHz	17.5dBm	Restricted Band Edge at 5460 MHz	FCC 15.2		545	JV/m (478.6µV/m) @ 9.8MHz (-0.4dB)
10	Chain A+C		17.5dBm	Band Edge 5460 - 5470 MHz	15E (68.3 dl 88.3dBuV			JV/m (767.4µV/m) @ 9.7MHz (-10.6dB)

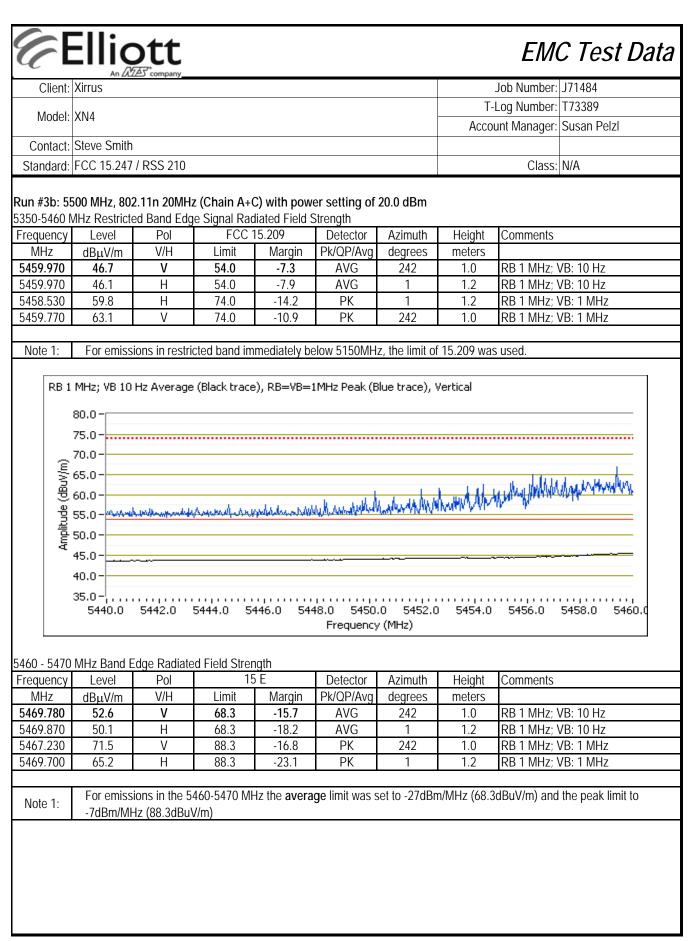




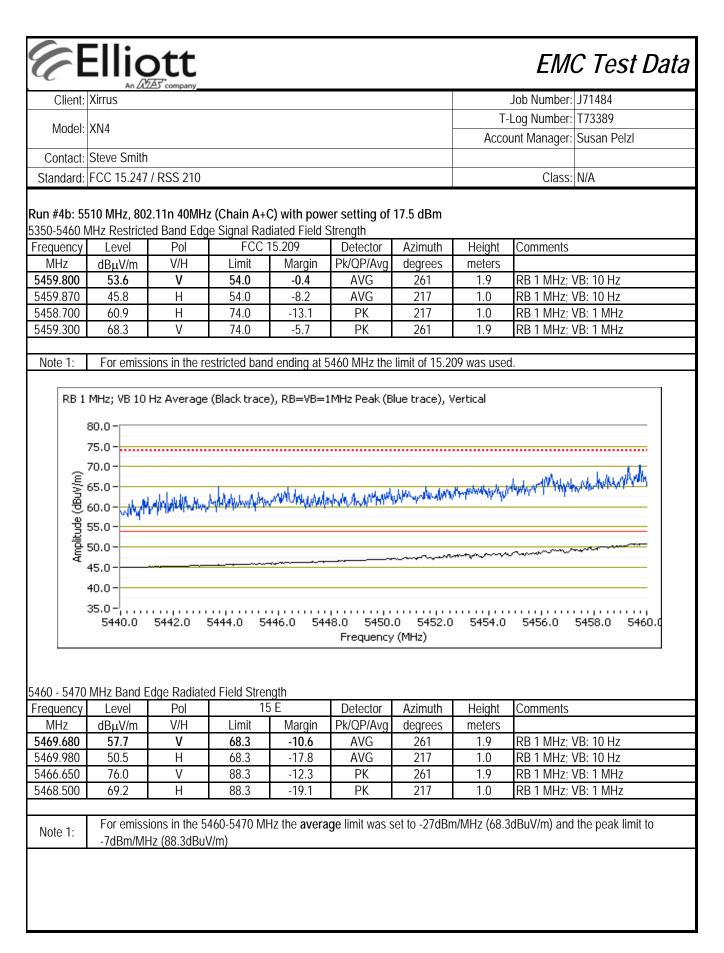








		ott						EM	C Test Da
Client:		company						Job Number:	J71484
Model:	YN/						T-	Log Number:	T73389
MOUCI.	AN4						Ассо	unt Manager:	Susan Pelzl
Contact:	Steve Smith								
Standard:	FCC 15.247	/ RSS 210						Class:	N/A
un #4: Ra	diated Emis	sions, Band	Edges, Ope	ration in th	e 5250-5350N	MHz and 546	50 - 5725MH	Hz Bands, 80	2.11n 40MHz
Г	Date of Test:	10/24/2008			C	onfig. Used:	1		
		Mehran Birg	ani			fig Change:			
		SV OATS #1				UT Voltage:			
350 MHz B	and Edge Si	gnal Radiate	d Field Stren	gth	er setting of				
requency	Level	Pol	FCC 1		Detector	Azimuth	Height	Comments	
MHz 5350.030	dBμV/m 52.2	V/H V	Limit 54.0	Margin -1.8	Pk/QP/Avg AVG	degrees 313	meters 1.9	RB 1 MHz; '	VB· 10 Hz
5350.030	49.3	H	54.0	-4.7	AVG	0	1.7	RB 1 MHz;	
5350.200	66.4	H	74.0	-7.6	PK	0	1.2	RB 1 MHz; '	
5350.230	71.2	V	74.0	-2.8	PK	313	1.9	RB 1 MHz; '	
8	30.0- 75.0-		a Martillumpu	And March	whenter				



Elliott EMC Test Data Client: Xirrus Job Number: J71484 T-Log Number: T73389 Model: XN4 Account Manager: Susan Pelzl Contact: Steve Smith Standard: FCC 15.247 / RSS 210 Class: N/A RSS 210 and FCC 15.407 (UNII - 5250 - 5350 MHz and 5470-5725MHz) Radiated Spurious Emissions, 1 - 40 GHz, Internal Antenna Test Specific Details Objective: The objective of this test session is to perform final qualification testing of the EUT with respect to the

specification listed above.

Config. Used: 1

Config Change: None

EUT Voltage: POE

Date of Test: 11/3 & 11/4/2008 Test Engineer: Mehran Birgani/Rafael Varelas Test Location: SV OATS #1

General Test Configuration

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

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

Ambient	Conditions:	
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Temperature: 15-35 °C Rel. Humidity: 10-60 %

Summary of Results

Run #	Mode	Channel	Power Setting	Test Performed	Limit	Result / Margin
1a	802.11a, n20,n40	5260 MHz 5270 MHz				41.7dBµV/m (121.6µV/m) @ 7026.7MHz (-12.3dB)
1b	802.11a, n20	5300 MHz	20 on oach			38.1dBµV/m (80.4µV/m) @ 10597.1MHz (-15.9dB)
1c	802.11a, n20,n40	5320 MHz 5310 MHz	20 on each chain (highest	Radiated Emissions,	FCC 15.209 / 15 E	39.9dBµV/m @ 10638.8MHz (-14.1dB)
1d	802.11a, n20,n40	5500 MHz 5510 MHz	power setting)	1 - 40 GHz	FCC 15.2097 15 E	46.0dBµV/m @ 7333.4MHz (-8.0dB)
1e	802.11a, n20,n40	5600 MHz 5590 MHz	seuny)			49.4dBµV/m @ 7466.8MHz (-4.6dB)
1f	802.11a, n20,n40	5700 MHz 5670 MHz				50.3dBµV/m @ 7600.1MHz (-3.7dB)

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.

Elliott EMC Test Data Client: Xirrus Job Number: J71484 T-Log Number: T73389 Model: XN4 Account Manager: Susan Pelzl Contact: Steve Smith Standard: FCC 15.247 / RSS 210 Class: N/A **Frequency Range** Test Distance Limit Distance **Extrapolation Factor** 1000 - 18000 MHz 0.0 3 3

Run #1, Radiated Spurious Emissions, 1,000 - 40,000 MHz. Operation in the 5250-5350 MHz and 5470 - 5725 MHz Bands

Scan made in anechoic chamber, measurements in tables below taken on OATS. Run #1a: Low Channel (5250-5350 MHz) 802.11a, 802.11n20 and 802.11n40

	Radio	Channel	Mode	Power	Setting	Comments
	Raulu	(MHz)	NUULE	Chain A	Chain C	Comments
	1	5260	а	20	20	
	2	5260	n20	20	20	
	3	5270	n40	20	20	
Γ	4	-	-	-	-	

Spurious Radiated Emissions:

Frequency	Level	Pol	15.209	9/15E	Detector	Azimuth	Height	Comments	Mode
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters		
7013.410	36.8	V	54.0	-17.2	AVG	8	1.0	RB 1 MHz; VB: 10 Hz	all
7026.660	41.7	V	54.0	-12.3	AVG	88	2.2	RB 1 MHz; VB: 10 Hz	all
10518.260	38.4	Н	54.0	-15.6	AVG	65	1.7	RB 1 MHz; VB: 10 Hz	all
10520.870	37.8	V	54.0	-16.2	AVG	96	1.0	RB 1 MHz; VB: 10 Hz	all
10536.770	37.8	Н	54.0	-16.2	AVG	0	1.0	RB 1 MHz; VB: 10 Hz	all
10544.050	38.1	V	54.0	-15.9	AVG	54	1.0	RB 1 MHz; VB: 10 Hz	all
7013.440	46.9	V	74.0	-27.1	PK	8	1.0	RB 1 MHz; VB: 1 MHz	all
7026.680	49.1	V	74.0	-24.9	PK	88	2.2	RB 1 MHz; VB: 1 MHz	all
10518.600	59.7	Н	74.0	-14.3	PK	65	1.7	RB 1 MHz; VB: 1 MHz	all
10524.980	54.3	V	74.0	-19.7	PK	96	1.0	RB 1 MHz; VB: 1 MHz	all
10536.450	49.6	Н	74.0	-24.4	PK	0	1.0	RB 1 MHz; VB: 1 MHz	all
10541.100	48.9	V	74.0	-25.1	PK	54	1.0	RB 1 MHz; VB: 1 MHz	all

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 (~68.3 dBuV/m) and peak limit set to 20dB higher than the average limit (88.3 dBuV/m).

UIEIII.								Job Number:	J71484	
							T-	Log Number:	T73389	
Model:	XN4						Acco	unt Manager:	Susan Pelzl	
Contact:	Steve Smith									
Standard:	FCC 15.247	/ RSS 210						Class:	N/A	
2un #1b: C	enter Chann	el (5250-53			n20					
Radio	Channel	Mode	Chain A	Setting Chain C			Com	ments		
1	(MHz) 5300	а	20	20						
2	5300	n20	20	20						
3	-	-	-	-						
4	-	-	-	-						
	adiated Emi		15 200		Datastas	A _!	11.2.1.1	0		M. d.
Frequency		Pol		9 / 15E	Detector	Azimuth	Height	Comments		Mode
MHz	dBµV/m	v/h H	Limit	Margin	Pk/QP/Avg	degrees	meters	RB 1 MHz; '	/D. 10 U-	0 00
7066.600	35.4 38.1	н V	54.0 54.0	-18.6 -15.9	AVG AVG	101 360	1.8 1.0	RB 1 MHZ;		a, n20 a, n20
0595.080	37.5	H	54.0	-15.9	AVG	81	2.3	RB 1 MHz; '		a, n20
0597.130	38.1	V	54.0	-15.9	AVG	0	2.2	RB 1 MHz;		a, n20
7066.620	47.2	V	74.0	-26.8	PK	360	1.0	RB 1 MHz;		a, n20
7066.720	45.6	Н	74.0	-28.4	PK	101	1.8	RB 1 MHz; '		a, n20
10597.580	49.3	V	74.0	-24.7	PK	0	2.2	RB 1 MHz; Y		a, n20
10600.150	49.1	Н	74.0	-24.9	PK	81	2.3	RB 1 MHz; '	VB: 1 MHz	a, n20
	1									
Note 1:					5.209 was use				•	et to
	-2/dBm/l	/IHZ (~68.3 (Buv/m) and	peak limit se	et to 20dB hig	her than the	average lim	it (88.3 dBuV	/m).	
	ligh Channel	(5250-5350	MHz) 802.11	la, 802.11n2	20 and 802.11	In40				
un #1c: H				Setting			0			
		Mode	Chain A	Chain C			Com	ments		
Run #1c: H Radio	Channel (MHz)		Onum							
	Channel	a	20	20						
Radio 1 2	Channel (MHz)	a n20	20 20	20						
Radio 1	Channel (MHz) 5320	а	20							

Client:	Xirrus							Job Number:	J71484	
							T-	Log Number:	T73389	
Model:	XN4						Ассо	unt Manager:	Susan Pelzl	
Contact:	Steve Smith							-		
Standard:	FCC 15.247	/ RSS 210						Class:	N/A	
'nurious D	adiated Emi	ccionc.								
Frequency	adiated Emi Level	Pol	15.209	9 / 15F	Detector	Azimuth	Height	Comments		Mode
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	oomments		moue
10638.780	39.9	V	54.0	-14.1	AVG	360	1.8	RB 1 MHz; V	VB: 10 Hz	all
10638.530	39.5	Н	54.0	-14.5	AVG	0	1.5	RB 1 MHz; V		all
10618.540	39.2	Н	54.0	-14.8	AVG	305	1.0	RB 1 MHz; V		all
10618.500	39.0	V	54.0	-15.0	AVG	34	1.0	RB 1 MHz; V	VB: 10 Hz	all
7093.390	38.6	V	54.0	-15.4	AVG	19	1.6	RB 1 MHz; V	VB: 10 Hz	all
7093.260	36.7	Н	54.0	-17.3	AVG	280	1.3	RB 1 MHz; V	VB: 10 Hz	all
7080.240	36.4	Н	54.0	-17.6	AVG	28	1.3	RB 1 MHz; V	VB: 10 Hz	all
7080.390	36.2	V	54.0	-17.8	AVG	240	1.0	RB 1 MHz; V	VB: 10 Hz	all
10638.740	51.3	V	74.0	-22.7	PK	360	1.8	RB 1 MHz; V	VB: 1 MHz	all
10621.420	50.4	Н	74.0	-23.6	PK	305	1.0	RB 1 MHz; V	VB: 1 MHz	all
10638.580	50.3	Н	74.0	-23.7	PK	0	1.5	RB 1 MHz; V	VB: 1 MHz	all
10620.230	50.1	V	74.0	-23.9	PK	34	1.0	RB 1 MHz; V		all
7093.370	49.2	V	74.0	-24.8	PK	19	1.6	RB 1 MHz; V		all
7093.940	48.7	Н	74.0	-25.3	PK	280	1.3	RB 1 MHz; V		all
7081.310	47.9	Н	74.0	-26.1	PK	28	1.3	RB 1 MHz; V		all
7078.970	47.6	V	74.0	-26.4	PK	240	1.0	RB 1 MHz;	VB: 1 MHz	all
	Eor omico	ione in restri	ctod bando t	ha limit of 1	5 200 was use	d For all at	hor omiccio	ne the average	no limit was s	ot to
Note 1:					5.209 was use et to 20dB hig			-		
2un #1d: L	1	(5470-5725		<u>a, 802.11n2</u> Setting	20 and 802.11	n40				
Radio	Channel (MHz)	Mode	Chain A	Chain C			Com	nments		
	5500	а	20	20						
1		n20	20	20						
1	5500	1120		20	1					
1 2 3	5500 5510	n40	20							

Client	Xirrus	company						Job Number:	J71484	
								Log Number:		
Model:	XN4							unt Manager:		
Contact:	Steve Smith									
Standard:	FCC 15.247 /	/ RSS 210						Class:	N/A	
ourious R	adiated Emis	sions: Pol	15 20	9 / 15E	Detector	Azimuth	Height	Comments		Mode
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	Comments		woue
333.420	46.0	V	54.0	-8.0	AVG	330	1.0	RB 1 MHz; V	/B: 10 Hz	all
346.710	43.7	V	54.0	-10.3	AVG	27	1.0	RB 1 MHz;		all
1000.910	41.8	V	54.0	-12.2	AVG	334	1.0	RB 1 MHz;		all
018.530	41.2	V	54.0	-12.8	AVG	153	1.0	RB 1 MHz; V		all
999.650	40.5	Н	54.0	-13.5	AVG	265	1.0	RB 1 MHz;		all
020.270	40.4	Н	54.0	-13.6	AVG	93	1.0	RB 1 MHz;	VB: 10 Hz	all
333.630	39.3	Н	54.0	-14.7	AVG	21	1.0	RB 1 MHz; V	VB: 10 Hz	all
346.730	38.2	Н	54.0	-15.8	AVG	123	1.1	RB 1 MHz; V		all
000.450	52.9	V	74.0	-21.1	PK	334	1.0	RB 1 MHz; V		all
019.290	52.8	V	74.0	-21.2	PK	153	1.0	RB 1 MHz; V		all
001.040	52.4	Н	74.0	-21.6	PK	265	1.0	RB 1 MHz;		all
333.070	52.3	V	74.0	-21.7	PK	330	1.0	RB 1 MHz;		all
020.080	51.7	H	74.0	-22.3	PK	93	1.0	RB 1 MHz;		all
346.650	50.4	V	74.0	-23.6	PK	27	1.0	RB 1 MHz;		all
332.810 346.390	48.6 48.2	H H	74.0 74.0	-25.4 -25.8	PK PK	21 123	1.0 1.1	RB 1 MHz; RB 1 MHz;		all all
340.390	48.Z	П	74.0	-20.8	PK	123	1.1	KD I WIHZ;	VD: I IVIHZ	all
Note 1:					5.209 was use et to 20dB hig				•	et to



	An <u>AZES</u> company		
Client:	Xirrus	Job Number:	J71484
Model:	YNA	T-Log Number:	T73389
WOUEI.	AIN4	Account Manager:	Susan Pelzl
Contact:	Steve Smith		
Standard:	FCC 15.247 / RSS 210	Class:	N/A

Run #1e: Center Channel (5470-5725 MHz) 802.11a, 802.11n20 and 802.11n40

Radio	Channel	Mode	Power	Setting	Comments
Naulu	(MHz)	NUUC	Chain A	Chain C	Comments
1	5600	а	20	20	
2	5600	n20	20	20	
3	5590	n40	20	20	
4	-	-	-	-	

Spurious Radiated Emissions:

Spurious R	aulateu Elli	2210112							
Frequency	Level	Pol	15.209	9/15E	Detector	Azimuth	Height	Comments	Mode
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters		
7466.750	49.4	V	54.0	-4.6	AVG	332	1.9	RB 1 MHz; VB: 10 Hz	all
7453.370	47.1	V	54.0	-6.9	AVG	106	1.0	RB 1 MHz; VB: 10 Hz	all
11198.540	44.2	V	54.0	-9.8	AVG	295	1.1	RB 1 MHz; VB: 10 Hz	all
11198.500	42.9	Н	54.0	-11.1	AVG	235	1.0	RB 1 MHz; VB: 10 Hz	all
11178.610	42.4	V	54.0	-11.6	AVG	255	1.0	RB 1 MHz; VB: 10 Hz	all
11178.510	42.0	Н	54.0	-12.0	AVG	62	1.0	RB 1 MHz; VB: 10 Hz	all
7466.670	40.9	Н	54.0	-13.1	AVG	275	1.0	RB 1 MHz; VB: 10 Hz	all
7453.330	40.7	Н	54.0	-13.3	AVG	77	1.9	RB 1 MHz; VB: 10 Hz	all
7466.680	55.8	V	74.0	-18.2	PK	332	1.9	RB 1 MHz; VB: 1 MHz	all
11198.510	55.4	V	74.0	-18.6	PK	295	1.1	RB 1 MHz; VB: 1 MHz	all
11179.490	54.3	V	74.0	-19.7	PK	255	1.0	RB 1 MHz; VB: 1 MHz	all
11199.410	54.0	Н	74.0	-20.0	PK	235	1.0	RB 1 MHz; VB: 1 MHz	all
11179.670	53.0	Н	74.0	-21.0	PK	62	1.0	RB 1 MHz; VB: 1 MHz	all
7453.670	52.8	V	74.0	-21.2	PK	106	1.0	RB 1 MHz; VB: 1 MHz	all
7466.560	50.5	Н	74.0	-23.5	PK	275	1.0	RB 1 MHz; VB: 1 MHz	all
7453.460	49.9	Н	74.0	-24.1	PK	77	1.9	RB 1 MHz; VB: 1 MHz	all

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 (~68.3 dBuV/m) and peak limit set to 20dB higher than the average limit (88.3 dBuV/m).



	An <u>AZA</u> S company		
Client:	Xirrus	Job Number:	J71484
Model:	VNA	T-Log Number:	T73389
wouer.	×1v4	Account Manager:	Susan Pelzl
Contact:	Steve Smith		
Standard:	FCC 15.247 / RSS 210	Class:	N/A

Run #1f: high Channel (5470-5725 MHz) 802.11a, 802.11n20 and 802.11n40

	J		1		
Radio	Channel	Mode	Power	Setting	Comments
Raulo	(MHz)	NIUUE	Chain A	Chain C	Comments
1	5700	а	20	20	
2	5700	n20	20	20	
3	5670	n40	20	20	
4	-	-	-	-	

Spurious Radiated Emissions:

Frequency	Level	Pol	15.209	9/15E	Detector	Azimuth	Height	Comments	Mode
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters		
7600.080	50.3	V	54.0	-3.7	AVG	319	2.0	RB 1 MHz; VB: 10 Hz	all
11399.460	47.2	V	54.0	-6.8	AVG	327	1.0	RB 1 MHz; VB: 10 Hz	all
7560.040	45.7	V	54.0	-8.3	AVG	72	2.0	RB 1 MHz; VB: 10 Hz	all
11399.920	44.3	Н	54.0	-9.7	AVG	239	1.0	RB 1 MHz; VB: 10 Hz	all
7600.060	43.7	Н	54.0	-10.3	AVG	318	2.0	RB 1 MHz; VB: 10 Hz	all
11339.530	42.4	V	54.0	-11.6	AVG	237	1.0	RB 1 MHz; VB: 10 Hz	all
11339.910	41.2	Н	54.0	-12.8	AVG	74	1.0	RB 1 MHz; VB: 10 Hz	all
11400.420	59.5	V	74.0	-14.5	PK	327	1.0	RB 1 MHz; VB: 1 MHz	all
7560.060	38.8	Н	54.0	-15.2	AVG	123	1.0	RB 1 MHz; VB: 10 Hz	all
11399.120	56.5	Н	74.0	-17.5	PK	239	1.0	RB 1 MHz; VB: 1 MHz	all
7600.150	55.0	V	74.0	-19.0	PK	319	2.0	RB 1 MHz; VB: 1 MHz	all
11339.760	53.9	Н	74.0	-20.1	PK	74	1.0	RB 1 MHz; VB: 1 MHz	all
11340.130	53.8	V	74.0	-20.2	PK	237	1.0	RB 1 MHz; VB: 1 MHz	all
7559.840	51.6	V	74.0	-22.4	PK	72	2.0	RB 1 MHz; VB: 1 MHz	all
7600.260	51.5	Н	74.0	-22.5	PK	318	2.0	RB 1 MHz; VB: 1 MHz	all
7560.270	48.9	Н	74.0	-25.1	PK	123	1.0	RB 1 MHz; VB: 1 MHz	all
Note 1:								ns the average limit was se it (88.3 dBuV/m).	et to

6	Elliott	EMO	C Test Da
Client:	Xirrus	Job Number:	J71484
Madal	VNIA	T-Log Number:	T73389
Model:	XN4	Account Manager:	Susan Pelzl
Contact:	Steve Smith		
Standard:	FCC 15.247 / RSS 210	Class:	N/A
	Radiated Spurious Emis	NII - 5250 - 5350 MHz and 5470- sions, Band Edges - External A	ntenna
	Radiated Spurious Emis		ntenna
est Spec	Radiated Spurious Emis cific Details Objective: The objective of this test session specification listed above. Date of Test: 11/5/2008	sions, Band Edges - External A on is to perform final qualification testing of the EUT with r Config. Used: 1	ntenna
est Spec	Radiated Spurious Emis cific Details Objective: The objective of this test session specification listed above. Date of Test: 11/5/2008 st Engineer: Rafael Varelas	sions, Band Edges - External A on is to perform final qualification testing of the EUT with r Config. Used: 1 Config Change: None	ntenna
e st Spec [Te Te	Radiated Spurious Emis cific Details Objective: The objective of this test session specification listed above. Date of Test: 11/5/2008 st Engineer: Rafael Varelas est Location: OATS #1	sions, Band Edges - External A on is to perform final qualification testing of the EUT with r Config. Used: 1	ntenna
e st Spec [Te Te	Radiated Spurious Emis cific Details Objective: The objective of this test session specification listed above. Date of Test: 11/5/2008 st Engineer: Rafael Varelas	sions, Band Edges - External A on is to perform final qualification testing of the EUT with r Config. Used: 1 Config Change: None	ntenna

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

Temperature:	15-35 °C
Rel. Humidity:	10-60 %

Modifications Made During Testing No modifications were made to the EUT during testing

Deviations From The Standard

No deviations were made from the requirements of the standard.

Summary of Results

h				D			
	Run #	Mode	Channel	Power	Test Performed	Limit	Result / Margin
	IXUIT #	MOUC	Channel	Setting	restrenomed	Linin	Result / Wargin
	1.0	802.11a	5320 MHz	19.5	Restricted Band Edge	FCC 15.209 / 15 E	49.6dBµV/m @ 5350.0MHz
	1a	Chain B	5320 MHZ	19.5	at 5350 MHz	FCC 15.2097 15 E	(-4.4dB)
				20.0	Restricted Band Edge	FCC 15.209 / 15 E	49.5dBµV/m @ 5457.0MHz
	1b	802.11a	5500 MHz	20.0	at 5460 MHz	FCC 10.2097 10 E	(-4.5dB)
	ŭ	Chain B	5500 MITZ	20.0	Band Edge 5460 - 5470	15E (68.3 dBuV/m avg,	49.8dBµV/m @ 5469.7MHz
				20.0	MHz	88.3dBuV/m peak)	(-18.5dB)

_									
6	Ellic	Dtt Art company						EMO	C Test Data
Client:								Job Number:	J71484
Model:							T-	Log Number:	T73389
MOUEI.	A114						Acco	unt Manager:	Susan Pelzl
Contact:	Steve Smith								
Standard:	FCC 15.247	/ RSS 210						Class:	N/A
			•	•		0MHz and 5	460 - 5725	/Hz Bands, 8	802.11a mode
Run #1a: 53	320 MHz, 802	.11a (Chain	B) with pov	wer setting	of 19.5				
5350 MH7 B	Band Edge Sig	nnal Radiate	d Field Stren	ath					
Frequency	Level	Pol		15.209	Detector	Azimuth	Height	Comments	
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters		
5350.000	49.6	V	54.0	-4.4	Avg	101	1.9	RB 1 MHz; \	
5352.420	61.9	V	74.0	-12.1	PK	101	1.9	RB 1 MHz; \	
5350.030	49.4	<u>H</u>	54.0	-4.6	Avg	183	2.3	RB 1 MHz; \	
5350.880	62.1	Н	74.0	-11.9	РК	183	2.3	RB 1 MHz; \	/B: I MHZ
Note 1:	For emissi	ons in restri	cted band im	mediately at	ove 5350MH	z, the limit of	f 15.209 was	s used.	
80. 75. (W/\ngp 60. 901ptnde 50. 40. 35.	.0 - .0 - .0 - .0 - .0 - .0 - .0 - .0 -	M.M. Marine		www.~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	Hz Peak (Blue	5362.0			

un #1b: 5500 MHz, 802.11a (Chain B) with power setting of 20	3389 san Pelzl
Model: XN4 Account Manager: Sus Contact: Steve Smith Image: Standard: Standard: FCC 15.247 / RSS 210 Class: N/A Standard: FCC 15.247 / RSS 210 Class: N/A Pun #1b: 5500 MHz, 802.11a (Chain B) with power setting of 20 Class: N/A	san Pelzl
Contact: Steve Smith Standard: FCC 15.247 / RSS 210 Class: N/A Run #1b: 5500 MHz, 802.11a (Chain B) with power setting of 20	
Standard: FCC 15.247 / RSS 210 Class: N/A Run #1b: 5500 MHz, 802.11a (Chain B) with power setting of 20 Run #1b: 5500 MHz, 802.11a (Chain B) with power setting of 20	λ
Run #1b: 5500 MHz, 802.11a (Chain B) with power setting of 20	
Frequency Level Pol FCC 15.209 Detector Azimuth Height Comments	
MHz dBμV/m V/H Limit Margin Pk/QP/Avg degrees meters	10 11-
5457.020 49.5 V 54.0 -4.5 Avg 313 1.8 RB 1 MHz; VB: 5458.060 62.0 V 74.0 -12.0 PK 313 1.8 RB 1 MHz; VB:	
5457.110 49.4 H 54.0 -4.6 Avg 5 1.1 RB1MHz; VB:	
5458.370 61.7 H 74.0 -12.3 PK 5 1.1 RB 1 MHz; VB:	
70.0 65.0 65.0 60.0 <t< th=""><th>.5 5470.0</th></t<>	.5 5470.0
470 MHz Band Edge Radiated Field Strength	
requency Level Pol 15 E Detector Azimuth Height Comments	
requency Level Pol 15 E Detector Azimuth Height Comments MHz dBμV/m V/H Limit Margin Pk/QP/Avg degrees meters	10 Hz
TrequencyLevelPol15 EDetectorAzimuthHeightCommentsMHzdBμV/mV/HLimitMarginPk/QP/Avgdegreesmeters5469.67049.8V68.3-18.5Avg3131.8RB 1 MHz; VB:	
Trequency Level Pol 15 E Detector Azimuth Height Comments MHz dBμV/m V/H Limit Margin Pk/QP/Avg degrees meters 5469.670 49.8 V 68.3 -18.5 Avg 313 1.8 RB 1 MHz; VB: 5469.490 62.3 V 88.3 -26.0 PK 313 1.8 RB 1 MHz; VB:	1 MHz
requency Level Pol 15 E Detector Azimuth Height Comments MHz dBµV/m V/H Limit Margin Pk/QP/Avg degrees meters 5469.670 49.8 V 68.3 -18.5 Avg 313 1.8 RB 1 MHz; VB: 5469.490 62.3 V 88.3 -26.0 PK 313 1.8 RB 1 MHz; VB: 5468.130 49.5 H 68.3 -18.8 Avg 5 1.1 RB 1 MHz; VB:	1 MHz 10 Hz
Frequency Level Pol 15 E Detector Azimuth Height Comments MHz dBμV/m V/H Limit Margin Pk/QP/Avg degrees meters 5469.670 49.8 V 68.3 -18.5 Avg 313 1.8 RB 1 MHz; VB: 5469.490 62.3 V 88.3 -26.0 PK 313 1.8 RB 1 MHz; VB: 5468.130 49.5 H 68.3 -18.8 Avg 5 1.1 RB 1 MHz; VB:	1 MHz 10 Hz

6	Elliott An 心云 [*] company	EM	C Test Data
	Xirrus	Job Number:	J71484
Model:	VN4	T-Log Number:	T73389
wouer.	AN4	Account Manager:	Susan Pelzl
Contact:	Steve Smith		
Standard:	FCC 15.247 / RSS 210	Class:	N/A

RSS 210 and FCC 15.407 (UNII - 5250 - 5350 MHz and 5470-5725MHz) Radiated Spurious Emissions, 1 - 40 GHz, External Antenna

Test Specific Details

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

Date of Test: 11/4/2008 Test Engineer: Rafael Varelas Test Location: SVOATS #1 Config. Used: 1 Config Change: None EUT Voltage: POE

General Test Configuration

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

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

Ambient Conditions:	Temperature:	15-35 °C
	Rel. Humidity:	10-60 %

Summary of Results

Run #	Mode	Channel	Power Setting	Measured Power	Test Performed	Limit	Result / Margin
	802.11a	5260 MHz MHz					63.7dBµV/m@ 10520.8MHz (-10.3dB)
1	802.11a	5300 MHz	20				41.3dBµV/m @ 7066.8MHz (-12.7dB)
	802.11a	5320 MHz			Dadiated Emissions		40.3dBµV/m @
	802.11a	5500 MHz			Radiated Emissions, 1 - 40 GHz	FCC 15.209 / 15 E	7093.4MHz (-13.7dB) 42.9dBµV/m @
2	802.11a	5600 MHz	20				7333.5MHz (-11.1dB) 53.1dBµV/m @
2	002.110		20				7466.7MHz (-0.9dB)
	802.11a	5700 MHz					52.3dBµV/m @ 7600.1MHz (-1.7dB)

Modifications Made During Testing

No modifications were made to the EUT during testing

E	liott
•	An ATAS company

	An Z(Z/2) company		
Client:	Xirrus	Job Number:	J71484
Model:	YNA	T-Log Number:	T73389
would.	AN4	Account Manager:	Susan Pelzl
Contact:	Steve Smith		
Standard:	FCC 15.247 / RSS 210	Class:	N/A

Deviations From The Standard

No deviations were made from the requirements of the standard.

Run #1, Radiated Spurious Emissions, 1,000 - 40,000 MHz. Operation in the 5250-5350 MHz and 5470 - 5725 MHz Bands

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

Run #1a: 802.11a, Low Channel @ 5260

Radio	Channel	Mode	Power Setting	Comments
rtadio	(MHz)	mode	Chain A	Comments
4	5260	а	20	

Spurious Radiated Emissions:

Frequency	Level	Pol	15.209	9/15E	Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
10520.790	63.7	Н	74.0	-10.3	PK	349	1.0	RB 1 MHz; VB: 1 MHz
10518.830	40.4	Н	54.0	-13.6	AVG	349	1.0	RB 1 MHz; VB: 10 Hz
10519.860	39.8	V	54.0	-14.2	AVG	163	1.0	RB 1 MHz; VB: 10 Hz
7013.340	39.0	V	54.0	-15.0	AVG	345	1.1	RB 1 MHz; VB: 10 Hz
7013.400	37.9	Н	54.0	-16.1	AVG	238	1.7	RB 1 MHz; VB: 10 Hz
10521.280	52.0	V	74.0	-22.0	PK	163	1.0	RB 1 MHz; VB: 1 MHz
7013.380	48.2	V	74.0	-25.8	PK	345	1.1	RB 1 MHz; VB: 1 MHz
7013.680	48.1	Н	74.0	-25.9	PK	238	1.7	RB 1 MHz; VB: 1 MHz
		Cha	ain B on 11/5	5/08				
10518.660	39.5	V	54.0	-14.5	AVG	360	1.8	RB 1 MHz; VB: 10 Hz
10518.990	50.5	V	74.0	-23.5	PK	360	1.8	RB 1 MHz; VB: 1 MHz
7013.410	40.2	V	54.0	-13.8	AVG	287	1.0	RB 1 MHz; VB: 10 Hz
7013.480	48.8	V	74.0	-25.2	PK	287	1.0	RB 1 MHz; VB: 1 MHz
10518.760	40.4	Н	54.0	-13.6	AVG	253	1.8	RB 1 MHz; VB: 10 Hz
10519.120	61.7	Н	74.0	-12.3	PK	253	1.8	RB 1 MHz; VB: 1 MHz

Client:		Company						Job Number:	J71484
								Log Number:	
Model:	XN4							unt Manager:	
Contact:	Steve Smith							5	
	FCC 15.247							Class:	N/A
		1100 210						014001	
ın #1b: 80	02.11a, Cent	er Channel							
Radio	Channel	Mode		Setting			Com	ments	
	(MHz)			ain A					
4	5300	а	2	20					
irious R	adiated Emis	ssions							
equency		Pol	15.20	9/15E	Detector	Azimuth	Height	Comments	
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters		
066.750	41.3	V	54.0	-12.7	AVG	349	2.0	RB 1 MHz; V	/B: 10 Hz
598.500	39.6	Н	54.0	-14.4	AVG	0	1.0	RB 1 MHz; V	
598.500	39.6	V	54.0	-14.4	AVG	268	1.0	RB 1 MHz; V	
66.310	36.1	Н	54.0	-17.9	AVG	314	1.4	RB 1 MHz;	
598.840	51.4	Н	74.0	-22.6	PK	0	1.0	RB 1 MHz;	
599.570	51.1	V V	74.0	-22.9	PK	268	1.0	RB 1 MHz;	
)66.750)66.130	49.7 47.1	V H	74.0 74.0	-24.3 -26.9	PK PK	349 314	2.0 1.4	RB 1 MHz; RB 1 MHz;	
00.130	47.1		ain B on 11/		PN	514	1.4	KD I WINZ,	VD. I IVINZ
598.540	39.0	H	54.0	-15.0	AVG	17	1.0	RB 1 MHz; V	/B [.] 10 Hz
599.470	50.4	H	74.0	-23.6	PK	17	1.0	RB 1 MHz;	
066.690	38.2	V	54.0	-15.8	AVG	23	1.0	RB 1 MHz; V	
067.100	47.6	V	74.0	-26.4	PK	23	1.0	RB 1 MHz; V	
te 1:					209 was used. 20dB higher			the average 8.3 dBuV/m).	limit was se

6		Stt						EM	C Test	Dat
Client:	Xirrus	company						Job Number:	J71484	
							T-	Log Number:	T73389	
Model:	XN4						Acco	unt Manager:	Susan Pelzl	
Contact:	Steve Smith									
Standard:	FCC 15.247	/ RSS 210						Class:	N/A	
un #1, Ra	diated Spuri	ous Emissi	ons, 1,000 -	40,000 MHz.	Operation in	n the 5250-5	350 MHz ar	nd 5470 - 572	5 MHz Band	S
Run #1c: 8	02.11a, High	Channel @			-					
Radio	Channel	Mode		Setting			Com	ments		
	(MHz)			in A			0011			
4	5320	а	2	0						
Fraguanau	Loval	Pol	15 200	9/15E	Dotostor	Azimuth	Lloight	Comments		
Frequency MHz		v/h			Detector Pk/QP/Avg	Azimuth	Height	Comments		
7093.370	dBμV/m 40.3	V/N	Limit 54.0	Margin -13.7	AVG	degrees 360	meters 1.0	RB 1 MHz; '	/R· 1∩ ⊔-	
10638.830		V	54.0 54.0	-13.7 -14.6	AVG	252	1.0	RB 1 MHZ;		
10638.530		H	54.0 54.0	-14.0	AVG	5	1.0	RB 1 MHZ; '		
7093.290	37.6	H	54.0	-14.0	AVG	180	1.0	RB 1 MHz; '		
10640.940		V	74.0	-22.9	PK	252	1.0	RB 1 MHz;		
10638.570		H	74.0	-23.4	PK	5	1.0	RB 1 MHz;		
7093.140	49.2	V	74.0	-24.8	PK	360	1.0	RB 1 MHz;		
7093.500	48.1	H	74.0	-25.9	PK	180	1.1	RB 1 MHz;		
1070.000	10.1		ain B on 11/5		1 1	100	1.1			
7093.530	41.1	V	54.0	-12.9	AVG	181	1.0	RB 1 MHz; '	VB: 10 Hz	
7093.270	49.5	V	74.0	-24.5	PK	181	1.0	RB 1 MHz;		
10638.510	39.0	V	54.0	-15.0	AVG	360	1.0	RB 1 MHz; '		
10639.460		V	74.0	-23.0	PK	360	1.0	RB 1 MHz;		
lote 1:	For emission				09 was used. 20dB higher			•	limit was set t	0 -
	diated Spuri 02.11a, Low			40,000 MHz	Operation in	n the 5250-5	350 MHz ar	nd 5470 - 572	25 MHz Band	S
	Channel	Mode	Dowor							
Radio	(MHz)	IVIUUE		Setting			Com	ments		
Radio			Cha	in A			Com	iments		
Radio 4	5500	a	Cha	<i>u</i>			Com	iments		
4 Spurious R	5500 Radiated Emi	a ssions:	Cha 2	in A 0						
4 Spurious R Frequency	5500 adiated Emi Level	a ssions: Pol	Cha 2 15.20	in A 0 9 / 15E	Detector	Azimuth	Height	Comments		Mode
4 Frequency MHz	5500 adiated Emi Level dBµV/m	a ssions: Pol v/h	Cha 2 15.20 Limit	in A 0 9 / 15E Margin	Pk/QP/Avg	degrees	Height meters	Comments		Mode
4 Frequency MHz 7333.450	5500 Cadiated Emi Level dBµV/m 42.9	a ssions: Pol V/h V	Cha 2 15.20 Limit 54.0	in A 0 9 / 15E Margin -11.1	Pk/QP/Avg AVG	degrees 227	Height meters 1.0	Comments RB 1 MHz; ¹		Mod
4 Frequency MHz 7333.450 11000.830	5500 2adiated Emi Level dBµV/m 42.9 40.1	a ssions: Pol v/h V V	Cha 2 15.20 Limit 54.0 54.0	in A 0 9 / 15E Margin -11.1 -13.9	Pk/QP/Avg AVG AVG	degrees 227 14	Height meters 1.0 1.0	Comments RB 1 MHz; RB 1 MHz;	VB: 10 Hz	a a
4 purious R requency MHz 7333.450 1000.830 1000.750	5500 2adiated Emi Level dBµV/m 42.9 40.1 40.0	a ssions: Pol V/h V V V H	Cha 2 15.20 Limit 54.0 54.0 54.0	in A 0 9 / 15E Margin -11.1 -13.9 -14.0	Pk/QP/Avg AVG AVG AVG	degrees 227 14 360	Height meters 1.0 1.0 1.0	Comments RB 1 MHz; RB 1 MHz; RB 1 MHz;	VB: 10 Hz VB: 10 Hz	a a a
4 Frequency MHz 7333.450 11000.750 7333.400	5500 Cadiated Emi dBµV/m 42.9 40.1 40.0 39.1	a ssions: Pol V/h V V V H H	Cha 2 15.20 Limit 54.0 54.0 54.0 54.0 54.0	in A 0 7 / 15E Margin -11.1 -13.9 -14.0 -14.9	Pk/QP/Avg AVG AVG AVG AVG	degrees 227 14 360 250	Height meters 1.0 1.0 1.0 1.0 1.0	Comments RB 1 MHz; ¹ RB 1 MHz; ¹ RB 1 MHz; ¹ RB 1 MHz; ¹	VB: 10 Hz VB: 10 Hz VB: 10 Hz	a a a a
4 purious R requency MHz 7333.450 1000.830 1000.750 7333.400 0999.820	5500 Cadiated Emi dBµV/m 42.9 40.1 40.0 39.1 51.1	a ssions: Pol V/h V V H H H V	Cha 2 15.20 Limit 54.0 54.0 54.0 54.0 74.0	in A 0 7 / 15E Margin -11.1 -13.9 -14.0 -14.9 -22.9	Pk/QP/Avg AVG AVG AVG AVG PK	degrees 227 14 360 250 14	Height meters 1.0 1.0 1.0 1.0 1.0 1.0	Comments RB 1 MHz; ' RB 1 MHz; ' RB 1 MHz; ' RB 1 MHz; ' RB 1 MHz; '	VB: 10 Hz VB: 10 Hz VB: 10 Hz VB: 10 Hz	a a a a a
4 Frequency MHz 7333.450 11000.830 11000.750 7333.400 10999.820 11001.360	5500 2 diated Emi	a ssions: Pol V/h V V H H V H H V H	Cha 2 15.20 Limit 54.0 54.0 54.0 54.0 74.0 74.0	in A 0 7 / 15E Margin -11.1 -13.9 -14.0 -14.9 -22.9 -22.9	Pk/QP/Avg AVG AVG AVG AVG PK PK	degrees 227 14 360 250 14 360	Height meters 1.0 1.0 1.0 1.0 1.0 1.0 1.0	Comments RB 1 MHz; RB 1 MHz; RB 1 MHz; RB 1 MHz; RB 1 MHz; RB 1 MHz;	VB: 10 Hz VB: 10 Hz VB: 10 Hz VB: 1 MHz VB: 1 MHz	a a a a a a
4 purious R Trequency MHz 7333.450 1000.830 1000.750 7333.400 10999.820 1001.360 7333.370	5500 2adiated Emi Level dBμV/m 42.9 40.1 40.0 39.1 51.1 51.1 50.0	a ssions: Pol V/h V V H H V H V H V	Cha 2 15.20 Limit 54.0 54.0 54.0 54.0 74.0 74.0 74.0 74.0	in A 0 7 / 15E Margin -11.1 -13.9 -14.0 -14.9 -22.9 -22.9 -22.9 -24.0	Pk/QP/Avg AVG AVG AVG AVG PK PK PK PK	degrees 227 14 360 250 14 360 227	Height meters 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0	Comments RB 1 MHz; ' RB 1 MHz; '	VB: 10 Hz VB: 10 Hz VB: 10 Hz VB: 1 MHz VB: 1 MHz VB: 1 MHz VB: 1 MHz	a a a a a a a
4 Frequency MHz 7333.450 11000.830 11000.750 7333.400 10999.820 11001.360 7333.370	5500 2 diated Emi	a Pol V/h V V H H V H V H V H	Cha 2 15.20 Limit 54.0 54.0 54.0 54.0 74.0 74.0 74.0 74.0 74.0	in A 0 7 / 15E Margin -11.1 -13.9 -14.0 -14.9 -22.9 -22.9 -22.9 -22.9 -22.9 -25.4	Pk/QP/Avg AVG AVG AVG AVG PK PK	degrees 227 14 360 250 14 360	Height meters 1.0 1.0 1.0 1.0 1.0 1.0 1.0	Comments RB 1 MHz; RB 1 MHz; RB 1 MHz; RB 1 MHz; RB 1 MHz; RB 1 MHz;	VB: 10 Hz VB: 10 Hz VB: 10 Hz VB: 1 MHz VB: 1 MHz VB: 1 MHz VB: 1 MHz	a a a a a a
4 Spurious R Frequency MHz 7333.450 11000.830 11000.750 7333.400 10999.820 11001.360 7333.370 7333.290	5500 2adiated Emi Level dBµV/m 42.9 40.1 40.0 39.1 51.1 51.1 51.1 50.0 48.6	a Pol V/h V V H H V H V H Cha	Cha 2 15.20 Limit 54.0 54.0 54.0 54.0 74.0 74.0 74.0 74.0 74.0 ain B on 11/5	in A 0 7 / 15E Margin -11.1 -13.9 -14.0 -14.9 -22.9 -22.9 -22.9 -24.0 -25.4 5/08	Pk/QP/Avg AVG AVG AVG PK PK PK PK PK	degrees 227 14 360 250 14 360 227 250 14 360 250 14 360 227 250	Height meters 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0	Comments RB 1 MHz; ¹ RB 1 MHz; ¹	VB: 10 Hz VB: 10 Hz VB: 10 Hz VB: 1 MHz VB: 1 MHz VB: 1 MHz VB: 1 MHz	a a a a a a a
4 Spurious R Frequency MHz 7333.450 11000.830 11000.750 7333.400 10999.820 11001.360 7333.370	5500 2adiated Emi Level dBμV/m 42.9 40.1 40.0 39.1 51.1 51.1 50.0	a Pol V/h V V H H V H V H V H	Cha 2 15.20 Limit 54.0 54.0 54.0 54.0 74.0 74.0 74.0 74.0 74.0	in A 0 7 / 15E Margin -11.1 -13.9 -14.0 -14.9 -22.9 -22.9 -22.9 -22.9 -22.9 -25.4	Pk/QP/Avg AVG AVG AVG AVG PK PK PK PK	degrees 227 14 360 250 14 360 227	Height meters 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0	Comments RB 1 MHz; ' RB 1 MHz; '	VB: 10 Hz VB: 10 Hz VB: 10 Hz VB: 1 MHz VB: 1 MHz VB: 1 MHz VB: 1 MHz VB: 10 Hz	a a a a a a a

6	Ellic	ott						EM	C Test	Data
Client:	Xirrus	Company						Job Number:	J71484	
							T-	Log Number:	T73389	
Model:	XN4						Acco	unt Manager:	Susan Pelzl	
Contact:	Steve Smith									
Standard:	FCC 15.247	/ RSS 210						Class:	N/A	
)2.11a, Cent		@ 5600							
	Channel			Setting			Com	monto		
Radio	(MHz)	Mode		hin A			Com	ments		
4	5600	а	2	0						
purious Ra	adiated Emi							-		
Frequency	Level	Pol		9 / 15E	Detector	Azimuth	Height	Comments		Mode
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters		/D. 10 U	
7466.730	53.1	V H	54.0 54.0	-0.9	AVG	206	1.0	RB 1 MHz; RB 1 MHz;		a
7466.730 1201.390	44.5 41.6	H V	54.0 54.0	-9.5 -12.4	AVG AVG	232 231	1.1 1.7	RB 1 MHZ;		<u>а</u> а
1201.390	41.0	H	54.0 54.0	-12.4	AVG	263	1.7	RB 1 MHZ;		a
7466.690	56.1	V	74.0	-17.9	PK	205	1.0	RB 1 MHz;		a
1200.420	52.6	V	74.0	-21.4	PK	231	1.7	RB 1 MHz; \		а
1201.160	52.4	Н	74.0	-21.6	PK	263	1.0	RB 1 MHz; V	VB: 1 MHz	а
7466.810	50.9	Н	74.0	-23.1	PK	232	1.1	RB 1 MHz; V	VB: 1 MHz	а
			ain B on 11/5	ī —						
7466.710	44.3	V	54.0	-9.7	AVG	218	1.0	RB 1 MHz; V		а
7466.940	50.9	V	74.0	-23.1	PK	218	1.0	RB 1 MHz;		а
7466.710	38.8 49.1	H H	54.0 74.0	-15.2 -24.9	AVG PK	305 305	1.0 1.0	RB 1 MHz; RB 1 MHz;		a
7466.460	49.1	H	54.0	-24.9	AVG	285	1.0	RB 1 MHZ;		<u>а</u> а
11198.570	53.7	H	74.0	-20.3	PK	205	1.9	RB 1 MHz;		a a
11199.840	42.1	V	54.0	-11.9	AVG	262	1.0	RB 1 MHz; V		a
11198.860	53.8	V	74.0	-20.2	PK	262	1.0	RB 1 MHz; V		а
Radio 4	02.11a, High Channel (MHz) 5700	Mode a	Power Cha	Setting in A 0	-		Com	nments		
	adiated Emi		15.00		Datastas	A _ '	11.2.1.1	0		N 4 1 -
requency MHz	Level	Pol v/h		9 / 15E Margin	Detector Pk/QP/Avg	Azimuth	Height	Comments		Mode
7600.050	dBµV/m 52.3	V/n	Limit 54.0	-1.7	AVG	degrees 230	meters 2.0	RB 1 MHz; \	/R· 10 Hz	а
1398.500	42.8	V	54.0	-11.2	AVG	230	1.9	RB 1 MHz;		a a
7600.040	42.8	Ĥ	54.0	-11.2	AVG	234	1.0	RB 1 MHz;		a
11399.060	41.9	Н	54.0	-12.1	AVG	263	1.0	RB 1 MHz; V		a
7600.140	55.7	V	74.0	-18.3	PK	230	2.0	RB 1 MHz; V	VB: 1 MHz	а
1399.220	54.5	V	74.0	-19.5	PK	217	1.9	RB 1 MHz; V		а
	53.3	Н	74.0	-20.7	PK	263	1.0	RB 1 MHz; \		а
11400.570		Н	74.0	-23.8	PK	234	1.0	RB 1 MHz; V	VB: 1 MHz	а
11400.570	50.2						-	,		G
7600.020	50.2 44.1		ain B on 11/5 54.0		AVG	352	1.1	RB 1 MHz; V		a

Elliott	E/	MC Tes
Client: Xirrus	Job Number:	
Model: XN4	T-Log Number:	
	Account Manager:	
Contact: Steve Smith		Mark Briggs
s Standard(s): FCC 15.247 / RSS 210	Class:	
y Standard(s): -	Environment:	Wireless
DTC Dedicted Fm	aaiana Taat Data	
DTS Radiated Emi		
For T		
Xirr	us	
Mod	el	
XN4		
Date of Last Tes	t: 11/14/2008	
Date of Last Tes	t: 11/14/2008	
Date of Last Tes	t: 11/14/2008	
Date of Last Tes	t: 11/14/2008	
Date of Last Tes	t: 11/14/2008	
Date of Last Tes	t: 11/14/2008	
Date of Last Tes	t: 11/14/2008	
Date of Last Tes	t: 11/14/2008	

Client:	Xirrus				Job Number:	J71484
Model:	YN/			T-L	_og Number:	T73387
				Accou	int Manager:	Susan Pelzl
	Steve Smith					
Standard:	FCC 15.247	/ RSS 210			Class:	DTS
		Radia	ted Emissions	s (Reve	iver)	
est Spe	cific Detail	S				
	•	The objective of this test session is specification listed above.	to perform final qualificat	ion testing of	the EUT wit	h respect to the
		support equipment were located on ately 30 meters from the test area wi			•	
		extrapolation factor (if applicable) an	e detailed under each ru	n description.	U U	
The test of Note, pre antenna.	listance and (liminary test Maximized t	extrapolation factor (if applicable) ar ing indicates that the emissions were esting indicated that the emissions v tion of the EUT's interface cables.	e maximized by orientation	on of the EUT	and elevation	on of the measureme
The test of Note, pre antenna. antenna,	listance and d liminary test Maximized t and manipula	ing indicates that the emissions were esting indicated that the emissions were tion of the EUT's interface cables.	e maximized by orientation were maximized by orien	on of the EUT	and elevation	on of the measureme
The test of Note, pre antenna. antenna,	listance and (liminary test Maximized t	ing indicates that the emissions were esting indicated that the emissions tion of the EUT's interface cables. Temperature:	e maximized by orientation were maximized by orien 10-25 °C	on of the EUT	and elevation	on of the measureme
The test of Note, pre antenna. antenna, Ambient	listance and d liminary test Maximized t and manipula	ing indicates that the emissions were esting indicated that the emissions were tion of the EUT's interface cables. Temperature: Rel. Humidity:	e maximized by orientation were maximized by orien 10-25 °C	on of the EUT	and elevation	on of the measureme on of the measureme
The test of Note, pre antenna. antenna, mbient	listance and d liminary test Maximized t and manipula Conditions	ing indicates that the emissions were esting indicated that the emissions were tion of the EUT's interface cables. s: Temperature: Rel. Humidity: s Test Performed	e maximized by orientation were maximized by orien 10-25 °C	on of the EUT	and elevatio	on of the measureme on of the measureme Margin
The test of Note, pre antenna. antenna, Ambient Summary	listance and d liminary test Maximized t and manipula Conditions	ing indicates that the emissions were esting indicated that the emissions v tion of the EUT's interface cables. 5: Temperature: Rel. Humidity: 5	e maximized by orientatio were maximized by orien 10-25 °C 25 - 65 %	on of the EUT tation of the F	Tand elevatio EUT, elevatio 44.2dB	on of the measureme on of the measureme

Deviations From The Standard

No deviations were made from the requirements of the standard.

Frequency Range	Test Distance	Limit Distance	Extrapolation Factor
1000 - 18,000 MHz	3	3	0.0

Cilent.	Xirrus			Job Number:	J71484					
Madal	VNIA						T-	Log Number:	T73387	
Model:	XIN4						Acco	unt Manager:	Susan Pelzl	
Contact:	Steve Smith									
	FCC 15.247				Class:	DTS				
otandara		/ 1100 210						olacol	5.0	
un #1: Ma	aximized rea	dings, 100)0 - 18,000 N	/Hz, Interna	I Antenna					
г	Date of Test:	10/20/00			C	onfig. Used:	1			
	st Engineer:		raani			fig Change:				
	est Location:		•			UT Voltage:				
		SV ORIS	<i>II Z</i>		L	or voltage.	TUL			
	Radio			lio 2	Rad			dio 4		
	2437 s			7 All	5785			35 All		
	Single = (only one R	x chain activ	e. All = all F	X chains acti	ve (2 in 5Gh	z band, 3 in	2.4 band)		
requency	Level	Pol	R22	GEN	Detector	Azimuth	Height	Comments		
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	50111101113		
320.050	44.2	H	54.0	-9.8	AVG	241	1.0	RB 1 MHz; V	/B: 10 Hz	Note
320.060	43.2	V	54.0	-10.8	AVG	38	2.1	RB 1 MHz; V		Note
386.040	35.4	Н	54.0	-18.6	AVG	242	1.0	RB 1 MHz; V		Note
386.130	32.8	V	54.0	-21.2	AVG	237	1.1	RB 1 MHz; V		Note
642.100	28.4	Н	54.0	-25.6	AVG	90	1.0	RB 1 MHz; V	/B: 10 Hz	Note
642.880	30.0	V	54.0	-24.0	AVG	306	1.2	RB 1 MHz; V	/B: 10 Hz	Note
2303.000	30.7	Н	54.0	-23.3	AVG	63	1.0	RB 1 MHz; V		Note
2626.670	35.3	Н	54.0	-18.7	AVG	0	1.0	RB 1 MHz; V		Note
969.990	32.7	Н	54.0	-21.3	AVG	86	1.0	RB 1 MHz; V		Note
463.710	35.8	Н	54.0	-18.2	AVG	187	1.0	RB 1 MHz; V		Note
713.360	37.7	Н	54.0	-16.3	AVG	128	2.0	RB 1 MHz;		Note
713.420	38.4	V	54.0	-15.6	AVG	173	1.0	RB 1 MHz;		Note
320.120	47.5	H	74.0	-26.5	PK	241	1.0	RB 1 MHz;		Note
320.330	47.1	V	74.0	-26.9	PK	38	2.1	RB 1 MHz;		Note
386.070	44.2	H	74.0	-29.8	PK	242	1.0	RB 1 MHz;		Note
386.100	41.5	V H	74.0	-32.5	PK	237	1.1	RB 1 MHz;		Note
641.800 642.220	40.6 42.5	H V	74.0 74.0	-33.4 -31.5	PK PK	90 306	1.0 1.2	RB 1 MHz; RB 1 MHz;		Note Note
2302.970	42.5	H	74.0	-31.5	PK PK	63	1.2	RB 1 MHZ;		Note
2628.290	40.3 53.9	H	74.0	-33.5	PK PK	0	1.0	RB 1 MHZ;		Note
970.380	42.0	H	74.0	-32.0	PK	86	1.0	RB 1 MHz;		Note
469.530	46.9	H	74.0	-27.1	PK	187	1.0	RB 1 MHz;		Note
713.100	48.8	V	74.0	-25.2	PK	173	1.0	RB 1 MHz; V		Note
713.280	47.7	H	74.0	-26.3	PK	128	2.0	RB 1 MHz; V		Note
		-								
Note 1:	Signal is inde	ependent o	of the tuned f	requency ar	nd related to t	ne digital dev	vice operatio	on.		
	Related to th					~				

Model: XN4 Contact: Steve Smith Standard: FCC 15.247 / RSS 210 un #2: Maximized readings, 1000 - 18,000 MHz, External Antenna Date of Test: 11/14/2008 Config. Used: Test Engineer: Suhaila Khushzad Config Change: Test Location: OATS # 1 EUT Voltage: Radio 1 Radio 2 Radio 3	Ассоі 1	Log Number: unt Manager: Class:	Susan Pelz	I
Contact: Steve Smith Standard: FCC 15.247 / RSS 210 un #2: Maximized readings, 1000 - 18,000 MHz, External Antenna Date of Test: 11/14/2008 Config. Used: 7 Test Engineer: Suhaila Khushzad Config Change: 7 Test Location: OATS # 1 EUT Voltage: 1	1			
Standard: FCC 15.247 / RSS 210 un #2: Maximized readings, 1000 - 18,000 MHz, External Antenna Date of Test: 11/14/2008 Config. Used: Test Engineer: Suhaila Khushzad Test Location: OATS # 1	-	Class:	DTS	
n #2: Maximized readings, 1000 - 18,000 MHz, External Antenna Date of Test: 11/14/2008 Config. Used: Test Engineer: Suhaila Khushzad Config Change: Test Location: OATS # 1 EUT Voltage: I	-	Class:	DTS	
Date of Test: 11/14/2008Config. Used: 1Test Engineer: Suhaila KhushzadConfig Change: 1Test Location: OATS # 1EUT Voltage: 1	-			
Radio 1 Radio 2 Radio 3				
	Ra	dio 4	ī	
		785		
			L	
equency Level Pol RSS GEN Detector Azimuth	Height	Comments		
MHz dBμV/m v/h Limit Margin Pk/QP/Avg degrees	meters			
713.470 39.2 V 54.0 -14.8 AVG 357	1.0	RB 1 MHz;		
713.870 48.2 V 74.0 -25.8 PK 357	1.0	RB 1 MHz;		Naiaa El
713.440 37.0 H 54.0 -17.0 AVG 204 727.190 48.4 H 74.0 -25.6 PK 204	1.7	RB 1 MHz;		Noise Fl
	1.7	RB 1 MHz;		Noise Fl
142.280 35.7 V 54.0 -18.3 AVG 15 173.100 46.9 V 74.0 -27.1 PK 15	<u>1.7</u> 1.7	RB 1 MHz; RB 1 MHz;		Noise Fl Noise Fl
142.210 35.7 H 54.0 -18.3 AVG 325	1.7	RB 1 MHZ;		Noise Fl
455.830 47.4 H 74.0 -26.6 PK 325	1.0	RB 1 MHz;		Noise Fl
100.000 TI.T II TT.0 20.0 TIK 525	1.0			1003011
Note 1: Signals related to the digital device were excluded from being measured. Note 2: Preliminary scans showed no significant emissions related to the receiver 5350 and 5470-5725 MHz bands.	5			



An ZAZZA	Company Company		
Client:	Xirrus	Job Number:	J71484
Model:	XN4	T-Log Number:	T73385 (EMC)
		Account Manager:	Susan Pelzl
Contact:	Steve Smith		Mark Briggs
Emissions Standard(s):	EN 301 489-17, FCC 15B	Class:	FCC Class B
Immunity Standard(s):	EN 301 489-17	Environment:	-

EMC Test Data

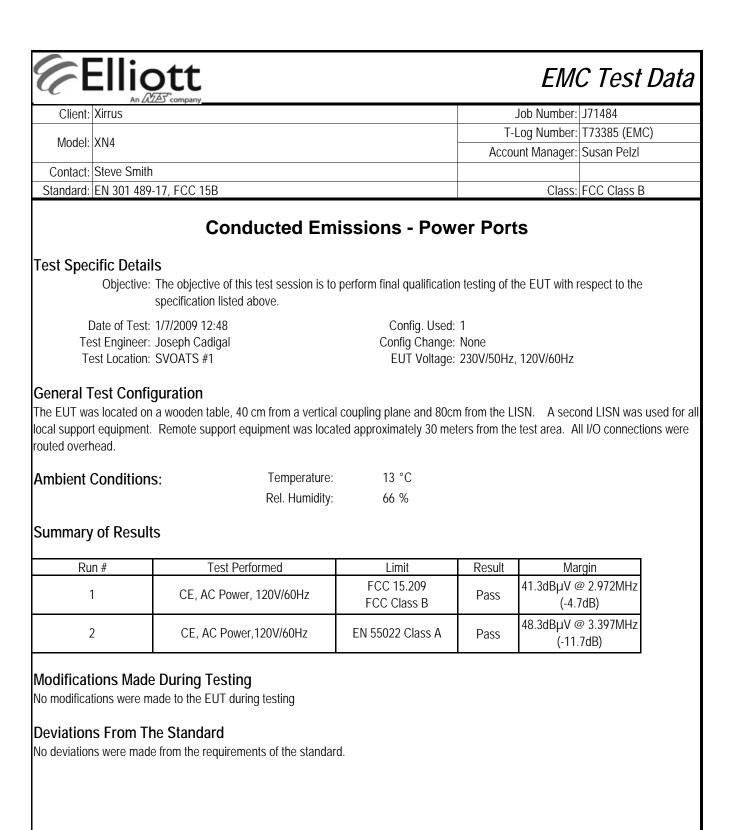
For The

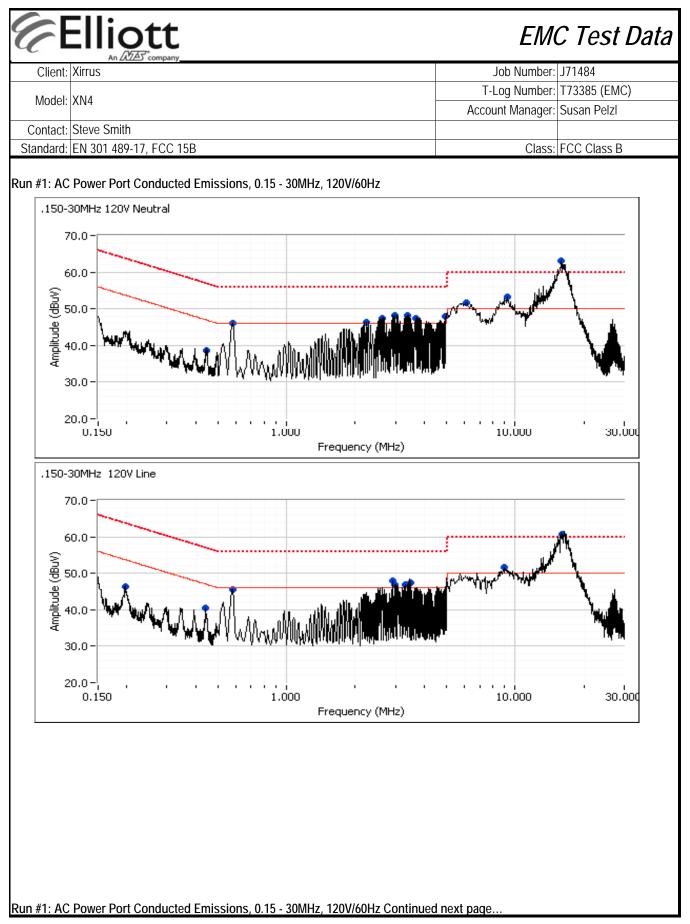
Xirrus

Model

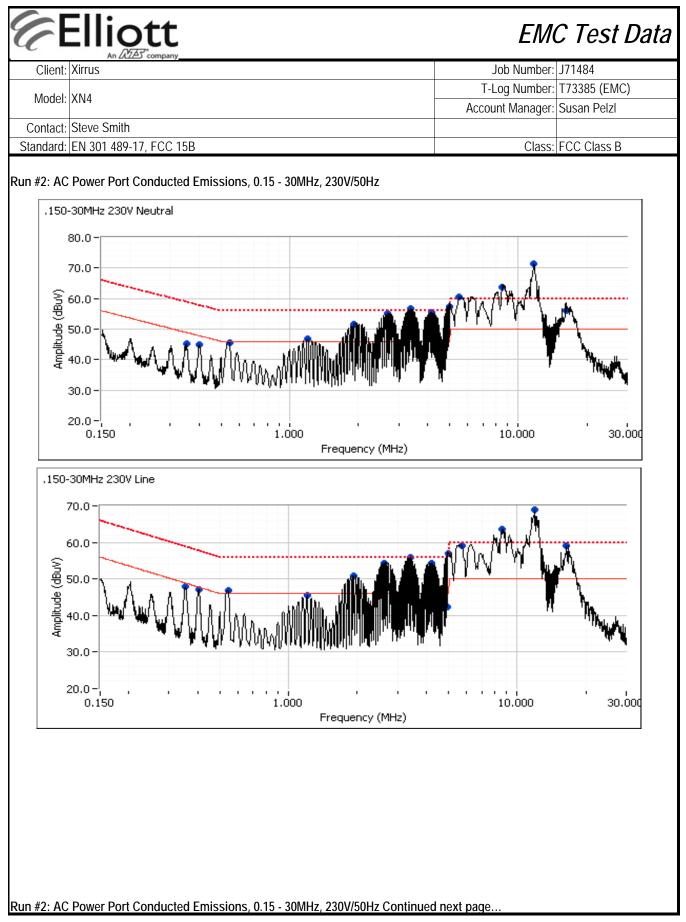
XN4

Date of Last Test: 1/21/2009





	_	ott					EIVIO	C Test
Client:	Xirrus	company					Job Number:	J71484
Model:							T-Log Number:	T73385 (EMC
would:	XIN4						Account Manager:	Susan Pelzl
Contact:	Steve Smith	1						
tandard:	EN 301 489	-17, FCC 15E	}				Class:	FCC Class B
equency	Level	AC	Clas	ss B	Detector	Comments		
MHz	dBµV	Line	Limit	Margin	QP/Ave			
2.972	41.3	Line 1	46.0	-4.7	AVG	AVG (0.100s)		
0.594	41.0	Line 1	46.0	-5.0	AVG	AVG (0.100s)		
2.634	40.7	Neutral	46.0	-5.3	AVG	AVG (0.100s)		
2.981	40.5	Neutral	46.0	-5.5	AVG	AVG (0.100s)		
2.921	40.1	Line 1	46.0	-5.9	AVG	AVG (0.100s)		
3.318	40.0	Line 1	46.0	-6.0	AVG	AVG (0.100s)		
3.378	39.5	Neutral	46.0	-6.5	AVG	AVG (0.100s)		
3.466	39.4	Line 1	46.0	-6.6	AVG	AVG (0.100s)		
2.236	39.1	Neutral	46.0	-6.9	AVG	AVG (0.100s)		
).594	38.7	Neutral	46.0	-7.3	AVG	AVG (0.100s)		
3.677	34.8	Neutral	46.0	-11.2	AVG	AVG (0.100s)		
2.634	42.7	Neutral	56.0	-13.3	QP	QP (1.000s)		
5.905	46.6	Neutral	60.0	-13.4	QP	QP (1.000s)		
3.466	42.5	Line 1	56.0	-13.5	QP	QP (1.000s)		
2.972	42.5	Line 1	56.0	-13.5	QP	QP (1.000s)		
).594	42.3	Line 1	56.0	-13.7	QP	QP (1.000s)		
2.921	42.0	Line 1	56.0	-14.0	QP	QP (1.000s)		
3.318	41.9	Line 1	56.0	-14.1	QP	QP (1.000s)		
2.981	41.9	Neutral	56.0	-14.1	QP	QP (1.000s)		
6.098	45.7	Line 1	60.0	-14.3	QP	QP (1.000s)		
2.236	41.2	Neutral	56.0	-14.8	QP	QP (1.000s)		
3.378	40.9	Neutral	56.0	-15.1	QP	QP (1.000s)		
5.905	34.8	Neutral	50.0	-15.2	AVG	AVG (0.100s)		
4.970	30.2	Neutral	46.0	-15.8	AVG	AVG (0.100s)		
6.098	34.1	Line 1	50.0	-15.9	AVG	AVG (0.100s)		
).444	30.9	Line 1	47.0	-16.1	AVG	AVG (0.100s)		
0.594	39.9	Neutral	56.0	-16.1	QP	QP (1.000s)		
).447	30.4	Neutral	46.9	-16.5	AVG	AVG (0.100s)		
0.198	36.7	Line 1	53.7	-17.0	AVG	AVG (0.100s)		
3.677	37.5	Neutral	56.0	-18.5	QP	QP (1.000s)		
9.146	30.6	Neutral	50.0	-19.4	AVG	AVG (0.100s)		
3.966	29.0	Line 1	50.0	-21.0	AVG	AVG (0.100s)		
4.970	33.9	Neutral	56.0	-22.1	QP	QP (1.000s)		
9.146	37.1	Neutral	60.0	-22.9	QP	QP (1.000s)		
).444	33.2	Line 1	57.0	-23.8	QP	QP (1.000s)		
5.114	26.0	Neutral	50.0	-24.0	AVG	AVG (0.100s)		
0.198	39.4	Line 1	63.7	-24.3	QP	QP (1.000s)		
3.966	35.5	Line 1	60.0	-24.5	QP	QP (1.000s)		
).447 5.114	32.1 32.6	Neutral Neutral	56.9 60.0	-24.8 -27.4	QP QP	QP (1.000s) QP (1.000s)		



E	liott
-	An ATAS company

	An UZES company		
Client:	Xirrus	Job Number:	J71484
Model:	VN/	T-Log Number:	T73385 (EMC)
MOUEI.	A114	Account Manager:	Susan Pelzl
Contact:	Steve Smith		
Standard:	EN 301 489-17, FCC 15B	Class:	FCC Class B

Frequency	Level	AC	EN55	022 A	Detector	Comments
MHz	dBµV	Line	Limit	Margin	QP/Ave	
0.555	42.1	Neutral	60.0	-17.9	AVG	AVG (0.100s)
0.556	40.5	Line 1	60.0	-19.5	AVG	AVG (0.100s)
1.916	44.4	Neutral	60.0	-15.6	AVG	AVG (0.100s)
1.927	45.0	Line 1	60.0	-15.0	AVG	AVG (0.100s)
2.637	47.3	Line 1	60.0	-12.7	AVG	AVG (0.100s)
2.671	46.6	Neutral	60.0	-13.4	AVG	AVG (0.100s)
3.377	44.0	Neutral	60.0	-16.0	AVG	AVG (0.100s)
3.397	48.3	Line 1	60.0	-11.7	AVG	AVG (0.100s)
4.209	43.9	Line 1	60.0	-16.1	AVG	AVG (0.100s)
4.981	42.7	Line 1	60.0	-17.3	AVG	AVG (0.100s)

EXHIBIT 3: Photographs of Test Configurations