

EMC Test Report

Application for Grant of Equipment Authorization Class II Permissive Change/Reassessment

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

Model: XI-N450 in the XR1000 and XR2000

IC CERTIFICATION #: 5428A-XN450 FCC ID: SK6XI-N450

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

TEST SITE(S): Elliott Laboratories 41039 Boyce Road. Fremont, CA. 94538-2435

IC SITE REGISTRATION #: REPORT DATE: FINAL TEST DATES: 2845B-3; 2845B-4, 2845B-5, 2845B-7

June 1, 2012

126

February 21, 22, 27, 28 and 29 and March 13, 14, 15 and 27, and April 6, 2012

TOTAL NUMBER OF PAGES:

PROGRAM MGR / TECHNICAL REVIEWER:

Mark E Hill

Staff Engineer

QUALITY ASSURANCE DELEGATE / FINAL REPORT PREPARER:

David Guidotti Senior Technical Writer



Elliott Laboratories is accredited by the A2LA, certificate number 0214.26, to perform the test(s) listed in this report, except where noted otherwise. This report and the information contained herein represent the results of testing test articles identified and selected by the client performed to specifications and/or procedures selected by the client. National Technical Systems (NTS) makes no representations, expressed or implied, that such testing is adequate (or inadequate) to demonstrate efficiency, performance, reliability, or any other characteristic of the articles being tested, or similar products. This report should not be relied upon as an endorsement or certification by NTS of the equipment tested, nor does it represent any statement whatsoever as to its merchantability or fitness of the test article, or similar products, for a particular purpose. This report shall not be reproduced except in full

REVISION HISTORY

Rev#	Date	Comments	Modified By
-	06-01-2012	First release	

TABLE OF CONTENTS

REVISION HISTORY	
TABLE OF CONTENTS	
SCOPE4	
OBJECTIVE	
STATEMENT OF COMPLIANCE	
DEVIATIONS FROM THE STANDARDS	
TEST RESULTS SUMMARY	
UNII / LELAN DEVICES	
GENERAL REQUIREMENTS APPLICABLE TO ALL BANDS	
MEASUREMENT UNCERTAINTIES9	
EQUIPMENT UNDER TEST (EUT) DETAILS	
GENERAL	
ANTENNA SYSTEM	
ENCLOSURE	
MODIFICATIONS	
EUT INTERFACE PORTS	
EUT OPERATION	
TEST SITE	
GENERAL INFORMATION	
CONDUCTED EMISSIONS CONSIDERATIONS	
RADIATED EMISSIONS CONSIDERATIONS	
MEASUREMENT INSTRUMENTATION	
RECEIVER SYSTEM	
INSTRUMENT CONTROL COMPUTER14	
LINE IMPEDANCE STABILIZATION NETWORK (LISN)14	
FILTERS/ATTENUATORS	
ANTENNAS	
ANTENNA MAST AND EQUIPMENT TURNTABLE	
TEST PROCEDURES 16 EUT AND CABLE PLACEMENT 16	
EUT AND CABLE PLACEMENT	
RADIATED EMISSIONS	
CONDUCTED EMISSIONS FROM ANTENNA PORT	
BANDWIDTH MEASUREMENTS	
SPECIFICATION LIMITS AND SAMPLE CALCULATIONS	
CONDUCTED EMISSIONS SPECIFICATION LIMITS: FCC 15.207; FCC 15.107(A), RSS GEN19	
GENERAL TRANSMITTER RADIATED EMISSIONS SPECIFICATION LIMITS	
RECEIVER RADIATED SPURIOUS EMISSIONS SPECIFICATION LIMITS	
FCC 15.407 (A) OUTPUT POWER LIMITS	
SPURIOUS EMISSIONS LIMITS –UNII AND LELAN DEVICES	
SAMPLE CALCULATIONS - CONDUCTED EMISSIONS	
SAMPLE CALCULATIONS - RADIATED EMISSIONS	
SAMPLE CALCULATIONS - FIELD STRENGTH TO EIRP CONVERSION	
APPENDIX A TEST EQUIPMENT CALIBRATION DATA	
APPENDIX B TEST DATA	
END OF REPORT	

SCOPE

An electromagnetic emissions test has been performed on the Xirrus, Inc. model XI-N450 in the XR1000 and XR2000, pursuant to the following rules:

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

Conducted and radiated emissions data has been collected, reduced, and analyzed within this report in accordance with measurement guidelines set forth in the following reference standards and as outlined in Elliott Laboratories test procedures:

ANSI C63.4:2003 FCC UNII test procedure 2002-08 DA-02-2138, August 2002

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

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

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

OBJECTIVE

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

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

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

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

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

STATEMENT OF COMPLIANCE

The tested sample of Xirrus, Inc. model XI-N450 in the XR1000 and XR2000 complied with the requirements of the following regulations:

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

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

The test results recorded herein are based on a single type test of Xirrus, Inc. model XI-N450 in the XR1000 and XR2000 and therefore apply only to the tested sample. The sample was selected and prepared by Steve Smith of Xirrus, Inc..

DEVIATIONS FROM THE STANDARDS

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

TEST RESULTS SUMMARY

UNII / LELAN DEVICES

Operation in the 5.15 – 5.25 GHz Band

FCC Rule Part	RSS Rule Part	Description	Measured Value / Comments	Limit / Requirement	Result	
15.407(e)		Indoor operation only	Refer to user's manual	N/A	Complies	
15.407(a) (2)		26dB Bandwidth				
15.407 (a) (1)	A9.2(1)	Output Power	Testing not performed, no changes from the original filing. Output power of test sample confirmed to be with 0.5dB of the original filing. (note 1)			
15.407 (a) (1)	-	Power Spectral				
-	- A9.5 (2) Density					
Note 1: In some cases power had to be reduced from the level of the original certification to comply with the spurious emissions requirements. These are noted in the test data.						

Operation in the 5.25 – 5.35 GHz Band

Operation in the 5.25 – 5.55 GHz band						
FCC Rule Part	RSS Rule Part	Description	Measured Value / Comments	Limit / Requirement	Result (margin)	
15.407(a) (2)		26dB Bandwidth				
15.407(a) (2)	A9.2(2) Output Power Testing not performed, no changes from the original					
15.407(a) (2)	-	Power Spectral Density	filing. Output power of test sample confirmed to be with 0.5dB of the original filing. (note 1)			
-	- A9.2(2) / A9.5 (2) Power Spectral Density					
Note 1: In some cases power had to be reduced from the level of the original certification to comply with the spurious emissions requirements. These are noted in the test data.						

Operation in the 5.47 – 5.725 GHz Band

FCC	RSS	Description	Measured Value /	Limit / Requirement	Result	
Rule Part	Rule Part	Comments		1	(margin)	
15.407(a) (2)		26dB Bandwidth				
15.407(a) (2) A9.2(2)		Output Power	Testing not performed, no changes from the original			
15.407(a) (2))		Power Spectral Density	filing. Output power of test sample confirmed to be w 0.5dB of the original filing. (note 1)			
	A9.2(2) / A9.5 (2)	Power Spectral Density				
KDB 443999	A9	Non-operation in 5600 – 5650 MHz sub band	Device cannot operate i MHz band –refer to Op		Complies	
Note 1: In some cases power had to be reduced from the level of the original certification to comply with the						
spurious emiss	ions requirement	nts. These are noted in th	e test data.	1.2		

Requirements for all U-NII/LELAN bands							
FCC Rule Part	RSS Rule Part	Description	Measured Value / Comments	Limit / Requirement	Result		
15.407	A9.5a	Modulation	Unchange	d from original filing.			
15.407(b) (5) / 15.209	A9.3	Spurious Emissions	54.0 dBµV/m @ 10601.7 MHz (-0.0 dB)	Refer to page Error! Bookmark not defined.	Complies		
15.407(a)(6)	-	Peak Excursion Ratio	Unchange	d from original filing.			
15	A9.5 (3)	- Channel Selection	Spurious emissions tested at outermost channels in each band Measurements on three channels in each	Device was tested on the top, bottom and center channels in each band	N/A		
15.407 (c)	A9.5(4)	Operation in the absence of information to transmit	band Unchanged from original filing.				
15.407 (g)	A9.5 (5)	Frequency Stability	Unchange	d from original filing.			
15.407 (h1)	A9.4	Transmit Power Control	Unchange	d from original filing.			
15.407 (h2)	A9.4	Dynamic frequency Selection (device with radar detection)	Refer to separate test report, reference R86855	Threshold -62dBm (-64dBm if eirp > 200mW) Channel Availability Check > 60s Channel closing transmission time < 260ms Channel move time < 10s Non occupancy period > 30minutes	Complies		
	A9.9g	User Manual information	Unchange	d from original filing.			

GENERAL REQUIREMENTS APPLICABLE TO ALL BANDS

FCC Rule Part	RSS Rule part	Description	Measured Value / Comments	Limit / Requirement	Result (margin)
15.203	-	RF Connector	Unchange	d from original filing.	
15.207	RSS GEN Table 2	AC Conducted Emissions	57.4 dBµV @ 4.716 MHz (-2.6 dB)	Refer to page 19	Complies
15.247 (b) (5) 15.407 (f)	RSS 102	RF Exposure Requirements	Unchange	ed from original filing.	
-	RSP 100 RSS GEN 7.1.5	User Manual	Unchanged from original filing.		
-	RSP 100 RSS GEN 7.1.5	User Manual	Unchanged from original filing.		
-	RSP 100 RSS GEN 4.4.1	99% Bandwidth	Unchanged from original filing.		

MEASUREMENT UNCERTAINTIES

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

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

EQUIPMENT UNDER TEST (EUT) DETAILS

GENERAL

The Xirrus, Inc. model XI-N450 in the XR1000 and XR2000 is an 802.11abgn 3x3 module intended to be installed in Xirrus Wireless Access Points. The module supports 802.11bgn 3x3 in the 2400-2483.5MHz, 5725-5850MHz, 5150-5250MHz, 5250-5350MHz and 5470-5725MHz bands. It additionally supports 802.11a SISO mode in the 5150-5250MHz, 5250-5350MHz and 5470-5725MHz and 5470-5725MHz bands at a higher per chain power. SISO modes in the other bands operate at the same output power per chain as the equivalent MIMO mode. It can operate in both 20- and 40-MHz channels in 802.11n mode.

For testing purposes one sample of the XI-N300 2x2 module, and one sample of a 3x3 version of the module (model number XI-N450) were installed into a Xirrus XR1000 host system. Two samples of the XI-N300 2x2 module and two samples of a 3x3 version of the module (model number XI-N450) were installed into a Xirrus XR2000 host system. During normal operation, the host system would be limited to one variety of module.

The sample was received on February 7, 2012 and tested on February 21, 22, 27, 28 and 29 and March 13, 14, 15 and 27, and April 6, 2012. The EUT consisted of the following component(s):

Company	Model	Description	Serial Number	FCC ID
Xirrus	N/A	3x3 Wifi module	Various	SK6XI-N450

ANTENNA SYSTEM

The antenna system is integrated into the module with two antennas per module (one for each transmit-receive chain). The nominal antenna gains are 1dBi in the 2.4GHz band and 4dBi in the 5GHz bands.

ENCLOSURE

The EUT has no enclosure. It is designed to be installed within the enclosure of a host computer.

MODIFICATIONS

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

SUPPORT EQUIPMENT

The following equipment was used as support equipment for testing:

Company	Model	Description	Serial Number	FCC ID
Xirrus	XR1000	2 radio Access	-	-
		Point		
Xirrus	XR2000	4 radio Access	-	-
		Point		

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

Company	Model	Description	Serial Number	FCC ID
HP	Compaq 6910P	PC Laptop	n/a	DoC
Xirrus	XP2-MSI-95M	Dual Port POE	P12400043B1	N/A
Allfus		Injector		

EUT INTERFACE PORTS

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

Port	Connected		Cable(s)	
Folt	То	Description	Shielded or Unshielded	Length(m)
POE1	Remote POE Injector	CAT5	Unshielded	10
Laptop Ethernet	PoE Injector	Cat 5	Unshielded	1

EUT OPERATION

The modules were installed into a host system for spurious emissions tests.

To evaluate the radiated spurious emissions related to the transmitter the module was evaluated in all operating modes (802.11b, 802.11g, 802.11a, 802.11n in both20- and 40-MHz channels) using ART software utility to place the module(s) under test in continuous transmit modes. Both transmit chains were active for the DTS tests, NII tests were repeated in 802.11a mode with a single chain active.

For measurements at the restricted band edges one module was operating on the channel closest to the band edge. The worse case operating mode from the original filing was tested for each band. For other spurious emissions measurements multiple radios were operating simultaneously. As the host system can also house additional modules, during radiated spurious emissions tests all radios were active simultaneously. When installed into host systems the host system firmware will not allow multiple radios to operate on the same or overlapping channels, so if signals were above the limit with multiple radios active, and those signals were related to harmonics of the transmitted signal, then the measurements were repeated with only one of radio or one mode active because these harmonic emissions would only be present form one radio at any specific time.

Measurements on the host system for the frequency range 30 - 1000 MHz demonstrated that all significant emissions were from the host system. Digital device emissions from the host system above 1GHz (occurring at 2.5GHz, 5.0GHz and 7.5GHz) were excluded from the scope of this test report and will be evaluated as a part of the host system digital device tests.

AC conducted emissions measurements were made on the AC input to the Power-Over-Ethernet (PoE) injector used to power the host system. For these measurements all both radios were in a transmit/receive mode with all chains active.

TEST SITE

GENERAL INFORMATION

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

Site	Registratio	Location	
Site	FCC	Canada	Location
Chamber 3	769238	2845B-3	
Chamber 4	211948	2845B-4	41039 Boyce Road
Chamber 5	211948	2845B-5	Fremont,
Chamber 7	A2LA	2845B-7	CA 94538-2435
Chamber /	accreditation	2043D-7	

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

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 16-1-1 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.

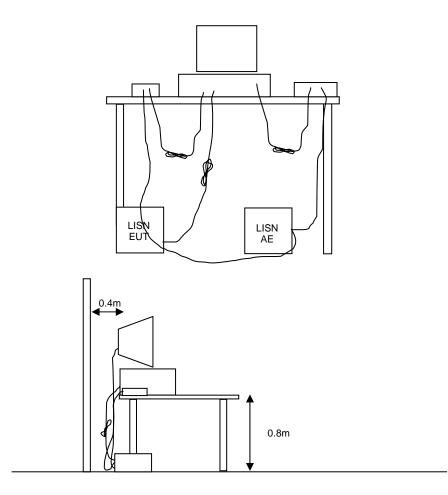


Figure 1 Typical Conducted Emissions Test Configuration

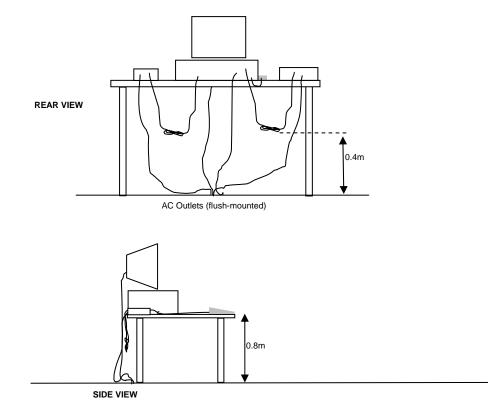
RADIATED EMISSIONS

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.

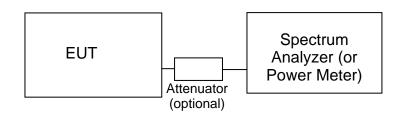
When testing above 18 GHz, the receive antenna is located at 1 meter from the EUT and the antenna height is restricted to a maximum of 2.5 meters.



Typical Test Configuration for Radiated Field Strength Measurements

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:

CONDUCTED EMISSIONS SPECIFICATION LIMITS: FCC 15.207; FCC 15.107(a), RSS GEN

The table below shows the limits for the emissions on the AC power line from an intentional radiator and a receiver.

Frequency (MHz)	Average Limit (dBuV)	Quasi Peak Limit (dBuV)
0.150 to 0.500	Linear decrease on logarithmic frequency axis between 56.0 and 46.0	Linear decrease on logarithmic frequency axis between 66.0 and 56.0
0.500 to 5.000	46.0	56.0
5.000 to 30.000	50.0	60.0

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

RECEIVER RADIATED SPURIOUS EMISSIONS SPECIFICATION LIMITS

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

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

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

FCC 15.407 (a) OUTPUT POWER LIMITS

The table below shows the limits for output power and output power density. Where the signal bandwidth is less than 20 MHz the maximum output power is reduced to the power spectral density limit plus 10 times the log of the bandwidth (in MHz).

Operating Frequency (MHz)	Output Power	Power Spectral Density
5150 - 5250	50mW (17 dBm)	4 dBm/MHz
5250 - 5350	250 mW (24 dBm)	11 dBm/MHz
5725 - 5825	1 Watts (30 dBm)	17 dBm/MHz

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

The peak excursion envelope is limited to 13dB.

OUTPUT POWER LIMITS –LELAN DEVICES

The table below shows the limits for output power and output power density defined by RSS 210. Where the signal bandwidth is less than 20 MHz the maximum output power is reduced to the power spectral density limit plus 10 times the log of the bandwidth (in MHz).

Operating Frequency	Output Power	Power Spectral
(MHz)		Density
5150 - 5250	200mW (23 dBm) eirp	10 dBm/MHz eirp
5250 - 5350	$250 \text{ mW} (24 \text{ dBm})^2$ 1W (30dBm) eirp	11 dBm/MHz
5470 - 5725	$250 \text{ mW} (24 \text{ dBm})^3$ 1W (30dBm) eirp	11 dBm/MHz
5725 - 5825	1 Watts (30 dBm) 4W eirp	17 dBm/MHz

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

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

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

SPURIOUS EMISSIONS LIMITS –UNII and LELAN DEVICES

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

SAMPLE CALCULATIONS - CONDUCTED EMISSIONS

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

$$R_r - S = M$$

where:

 $R_r = Receiver Reading in dBuV$

S = Specification Limit in dBuV

M = Margin to Specification in +/- dB

SAMPLE CALCULATIONS - RADIATED EMISSIONS

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

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

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

where:

 F_d = Distance Factor in dB D_m = Measurement Distance in meters D_s = Specification Distance in meters

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

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

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

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

 $R_c = R_r + F_d$

and

 $M = R_c - L_s$

where:

 R_r = Receiver Reading in dBuV/m

 F_d = Distance Factor in dB

- R_c = Corrected Reading in dBuV/m
- L_S = Specification Limit in dBuV/m
- M = Margin in dB Relative to Spec

SAMPLE CALCULATIONS - FIELD STRENGTH TO EIRP CONVERSION

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

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

where P is the eirp (Watts)

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

Appendix A Test Equipment Calibration Data

Radiated Emissions, I <u>Manufacturer</u> EMCO Rohde & Schwarz	Bandedge, 22-Feb-12 <u>Description</u> Antenna, Horn, 1-18GHz EMI Test Receiver, 20 Hz-40 GHz	<u>Model</u> 3115 ESIB40 (1088.7490.40)	<u>Asset #</u> 868 2493	<u>Cal Due</u> 6/8/2012 12/9/2012
Radio Antenna Port (F <u>Manufacturer</u> Rohde & Schwarz Rohde & Schwarz	Power and Spurious Emissions), <u>Description</u> Power Meter, Single Channel Power Sensor 100 uW - 2 Watts	15-Mar-12 <u>Model</u> NRVS NRV-Z32	<u>Asset #</u> 1422 1423	<u>Cal Due</u> 12/13/2012 9/1/2012
Agilent	use with 20dB attenuator sn:100059 only PSA, Spectrum Analyzer, (installed options, 111, 115, 123, 1DS, B7J, HYX,	E4446A	2139	2/23/2013

Appendix B Test Data

T86381Pages 26 - 59T86382Pages 60 - 88T86500Pages 89 - 111T86501Pages 112 - 121T86343Pages 122 - 125

6 Ell	iott
-------	------

EMC Test Data

An LACE) company		
Client:	Xirrus	Job Number:	J86254
Model:	XI-N300 (2x2 radio module) in XR1000	T-Log Number:	T86381
		Account Manager:	Michelle Kim
Contact:	Steve Smith		-
Emissions Standard(s):	FCC 15.247/15.E/RSS-210	Class:	-
Immunity Standard(s):	-	Environment:	-
ininiunity Stanuaru(S).	-	EIIVII UIIIIIIEIII.	-

EMC Test Data

For The

Xirrus

Model

XI-N300 (2x2 radio module) in XR1000

Date of Last Test: 5/24/2012

6	Elliot	t		EM	C Test	
Client:	Xirrus	any			Job Number	: J86254
	XI-N300 (2x2 radio	module) in XR1000			T-Log Number	
	Steve Smith				Account Manager	: Michelle Kim
	FCC 15.247/15.E/R	SS-210			Class	: N/A
	RSS 2	10 and FCC 1	5.407 (UNII) Ra (5150-5250 MH	-	ous Emissioi	IS
est Spec		jective of this test se cation listed above.	ession is to perform fin	al qualification testir	g of the EUT with	respect to the
	est Configuration		tenna was located 3 m	eters from the EUT.		
mbient (Conditions:	Temperature:	20-25 °C	Rel. Hur	nidity: 30-40) %
	ions Made Durir cations were made to	• •	sting			
	s From The States ons were made from		of the standard.			

6	Ellic	ott				EMO	C Test Data
Client:	An ZALZ	company کے				Job Number:	J86254
		0 " 1				T-Log Number:	T86381
Model:	XI-N300 (2x)	2 radio modi	lie) in XR I U	00		Account Manager:	Michelle Kim
	Steve Smith						
Standard:	FCC 15.247	/15.E/RSS-2	10			Class:	N/A
	v of Result Radiated Er		(2 and 3x3)	Modules for a	802.11a; HT20; and HT4	0 modes	
Run #	Mode	Channel	Power Setting	Measured Power	Test Performed	Limit	Result / Margin
1	802.11a	2x2: 5180 MHz 3x3: 5240 MHz	27 19		Radiated Emissions, 1 - 40 GHz	FCC 15.209 / 15 E	53.0 dBµV/m @ 4999 MHz (-1.0 dB)
2	802.11a	2x2: 5240 MHz 3x3: 5180 MHz	27 19		Radiated Emissions, 1 - 40 GHz	FCC 15.209 / 15 E	53.7 dBµV/m @ 5000 MHz (-0.3 dB)
3	802.11a	2x2: 5200 MHz 3x3: 5200 MHz	28 19		Radiated Emissions, 1 - 40 GHz	FCC 15.209 / 15 E	53.7 dBµV/m @ 5000 MHz (-0.3 dB)
4	802.11n20	2x2: 5180 MHz 3x3: 5240 MHz	26 19		Radiated Emissions, 1 - 40 GHz	FCC 15.209 / 15 E	53.5 dBµV/m @ 5000 MHz (-0.5 dB)
5	802.11n20	2x2: 5240 MHz 3x3: 5180 MHz	28 19		Radiated Emissions, 1 - 40 GHz	FCC 15.209 / 15 E	52.9 dBµV/m @ 5000 MHz (-1.1 dB)
6	802.11n20	2x2: 5200 MHz 3x3: 5200 MHz	28 19		Radiated Emissions, 1 - 40 GHz	FCC 15.209 / 15 E	53.2 dBµV/m @ 5000 MHz (-0.8 dB)
7	802.11n40	2x2: 5190 MHz 3x3: 5230 MHz	11 19		Radiated Emissions, 1 - 40 GHz	FCC 15.209 / 15 E	49.8 dBµV/m @ 5000 MHz (-4.2 dB)
8	802.11n40	2x2: 5230 MHz 3x3: 5190 MHz	28 8		Radiated Emissions, 1 - 40 GHz	FCC 15.209 / 15 E	52.7 dBµV/m @ 5000 MHz (-1.3 dB)

Client:	Xirrus						Job Number:	J86254
Madal	VI N200 /22	radia mar				Ţ	Log Number:	T86381
iviodel:	xi-in300 (2X2		lule) in XR1000			Acco	unt Manager:	Michelle Kim
Contact:	Steve Smith							
Standard:	FCC 15.247/	15.E/RSS-	210				Class:	N/A
Custom Cor	figuration	0.5	orating within F1F0					
System Cor Radio #	Frequency	Op Module	erating within 5150- Mode	SZSU IVIHZ Radio #	Frequency	Module	Mode	
Run: 1	requeries	module		Run: 2	requeries	module	mode	
1	5180	2x2	802.11a	1	5240	2x2	802.11a	
0	5240	3x3	802.11a	0	5180	3x3	802.11a	
Run: 3								
1	5200	2x2	802.11a					
0	5200	3x3	802.11a					
Run: 4				Run: 5				
1	5180	2x2	802.11HT20	1	5240	2x2	802.11HT20)
0	5240	3x3	802.11HT20	0	5180	3x3	802.11HT20)
Run: 6								
1	5200	2x2	802.11HT20					
0	5200	3x3	802.11HT20					
Run: 7				Run: 8				
1	5190	2x2	802.11HT40	1	5230	2x2	802.11HT40)
0	5230	3x3	802.11HT40	0	5190	3x3	802.11HT40)

Notes - Multiple radios operating at the same time as shown above. In all cases, power set to the maximum worse case single channel power, transmitting on all chains.

Contact: S Standard: F un #1, Radi Da	Steve Smith FCC 15.247/		ıle) in XR100	0				Log Number: T86381 unt Manager: Michelle Kim				
Contact: S Standard: F un #1, Radi Da	Steve Smith FCC 15.247/		-	0			٨		T-Log Number: T86381			
Standard: F u n #1, Radi Da	FCC 15.247/	15 F/RSS-2			Chause Careline							
un #1, Radi Da		15 F/RSS-2										
Da		15.L/1052	10					Class: N/A				
	ate of Test: 2 at Engineer: 1	2/27/2012 Rafael Varel		000 MHz. Oj		ne 5150-5250 est Location:		1				
otner Spul	rious Emiss Level	Pol	15.209) / 15F	Detector	Azimuth	Height	Comments				
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters					
999.860	53.0	V	54.0	-1.0	AVG	118	1.0	RB 1 MHz;VB 10 Hz;Pk				
999.960	58.1	V	74.0	-15.9	PK	118	1.0	RB 1 MHz;VB 3 MHz;Pk				
906.660	54.3	V	-	-	PK	74	1.2	RB 1 MHz;VB 3 MHz;Pk,				
0359.210	59.0	V	-	-	PK	247	1.0	RB 1 MHz;VB 3 MHz;Pk,	note 2			
140.0 120.0 (W/Ngp) apon 80.0 40.0 40.0 1	- - - - - - - - -	Î		anton franksense '	requency (MH							

Contact: Steve Standard: FCC 1 un #2, Radiated Date of Test Engi Date Other Spurious requency MHz dBµN 5000.030 53. 5000.000 58. 5006.550 57. 0475.760 58. 50te 1: For em pote 2: For em	5.247/15.E/RSS-2 Spurious Emissi Test: 2/27/2012 neer: Rafael Vare Emissions /el Pol V/m v/h .7 V .5 V .2 V .9 V	210 ons, 30 - 40,0 clas 15.209 Limit 54.0 74.0 - - ed bands, the f the restricted t during the o	000 MHz. O 000 MHz. O 015E Margin -0.3 -15.5 - - - - - - - - - - - - - - - - - -	Detector Pk/QP/Avg AVG PK PK PK 209 was used limit is -27dB	Azimuth degrees 110 110 280 99 which requir	T- Acco D MHz Band FT7 Height meters 1.1 1.1 1.3 1.0 es average	Comments RB 1 MHz;VB 10 Hz;Pk RB 1 MHz;VB 3 MHz;Pk RB 1 MHz;VB 3 MHz;Pk, note 2 RB 1 MHz;VB 3 MHz;Pk, note 2 and peak measurements.
Contact:SteveStandard:FCC 1un #2, RadiatedDate ofTest EngiOther SpuriousrequencyLevMHzdBµV5000.000585006.550570475.76058ote 1:For emote 2:For emote 3:No sig	Smith 5.247/15.E/RSS-2 Spurious Emissi Test: 2/27/2012 neer: Rafael Vare Emissions rel Pol V/m v/h .7 V .5 V .2 V .9 V Phissions in restricted missions outside of cted measuremen	210 ons, 30 - 40,0 clas 15.209 Limit 54.0 74.0 - - ed bands, the f the restricted t during the o	000 MHz. O 000 MHz. O 015E Margin -0.3 -15.5 - - - - - - - - - - - - - - - - - -	Detector Pk/QP/Avg AVG PK PK PK 209 was used limit is -27dB	Azimuth degrees 110 110 280 99 which requir	Acco O MHz Band FT7 Height meters 1.1 1.1 1.3 1.0 es average	Class: N/A Class: N/A Comments RB 1 MHz;VB 10 Hz;Pk RB 1 MHz;VB 3 MHz;Pk RB 1 MHz;VB 3 MHz;Pk, note 2 RB 1 MHz;VB 3 MHz;Pk, note 2 and peak measurements.
Standard:FCC 1un #2, RadiatedDate ofTest EngiOther SpuriousrequencyLevMHzdBµV5000.03053.5000.00058.5006.55057.0475.76058.50te 1:For emote 2:For emote 3:No sig	5.247/15.E/RSS-2 Spurious Emissi Test: 2/27/2012 neer: Rafael Vare Emissions //m V/h .7 V .5 V .2 V .9 V hissions in restricten issions outside of cted measuremen	ons, 30 - 40,0 elas 15.209 Limit 54.0 74.0 - - ed bands, the f the restricted t during the o	9 / 15E Margin -0.3 -15.5 - - e limit of 15.2 d bands the riginal filing.	Detector Pk/QP/Avg AVG PK PK PK 209 was used limit is -27dB	Azimuth degrees 110 110 280 99 which requir	D MHz Band FT7 Height meters 1.1 1.1 1.3 1.0 es average	Class: N/A Class: N/A Comments RB 1 MHz;VB 10 Hz;Pk RB 1 MHz;VB 3 MHz;Pk RB 1 MHz;VB 3 MHz;Pk, note 2 RB 1 MHz;VB 3 MHz;Pk, note 2 and peak measurements.
Standard:FCC 1un #2, RadiatedDate ofTest EngiOther SpuriousrequencyLevMHzdBµV5000.03053.5000.00058.5006.55057.0475.76058.50te 1:For emote 2:For emote 3:No sig	5.247/15.E/RSS-2 Spurious Emissi Test: 2/27/2012 neer: Rafael Vare Emissions //m V/h .7 V .5 V .2 V .9 V hissions in restricten issions outside of cted measuremen	ons, 30 - 40,0 elas 15.209 Limit 54.0 74.0 - - ed bands, the f the restricted t during the o	9 / 15E Margin -0.3 -15.5 - - e limit of 15.2 d bands the riginal filing.	Detector Pk/QP/Avg AVG PK PK PK 209 was used limit is -27dB	Azimuth degrees 110 110 280 99 which requir	FT7 Height meters 1.1 1.1 1.3 1.0 es average	Comments RB 1 MHz;VB 10 Hz;Pk RB 1 MHz;VB 3 MHz;Pk RB 1 MHz;VB 3 MHz;Pk, note 2 RB 1 MHz;VB 3 MHz;Pk, note 2 and peak measurements.
un #2, Radiated Date of Test Engi Other Spurious requency Lev MHz dBµ 5000.030 53. 5000.000 58. 5006.550 57. 0475.760 58. Date 1: For em conduc ote 2: For em conduc	Spurious Emissi Test: 2/27/2012 neer: Rafael Vare Emissions Vare /el Pol V/m v/h .7 V .5 V .9 V nissions in restriction nissions outside of cted measurement	ons, 30 - 40,0 elas 15.209 Limit 54.0 74.0 - - ed bands, the f the restricted t during the o	9 / 15E Margin -0.3 -15.5 - - e limit of 15.2 d bands the riginal filing.	Detector Pk/QP/Avg AVG PK PK PK 209 was used limit is -27dB	Azimuth degrees 110 110 280 99 which requir	FT7 Height meters 1.1 1.1 1.3 1.0 es average	Comments RB 1 MHz;VB 10 Hz;Pk RB 1 MHz;VB 3 MHz;Pk RB 1 MHz;VB 3 MHz;Pk, note 2 RB 1 MHz;VB 3 MHz;Pk, note 2 and peak measurements.
Date of Test Engi Other Spurious requency Lev MHz dBµV 5000.030 53. 5000.000 58. 5006.550 57. 0475.760 58. Date 1: For em conduc ote 2: For em conduc	Test: 2/27/2012 neer: Rafael Vare Emissions Vare vel Pol V/m v/h .7 V .5 V .2 V .9 V nissions in restriction nissions outside of cted measurement	elas 15.209 Limit 54.0 74.0 - ed bands, the f the restricted t during the o	9 / 15E Margin -0.3 -15.5 - - e limit of 15.2 d bands the riginal filing.	Detector Pk/QP/Avg AVG PK PK PK 209 was used limit is -27dB	Azimuth degrees 110 110 280 99 which requir	FT7 Height meters 1.1 1.1 1.3 1.0 es average	Comments RB 1 MHz;VB 10 Hz;Pk RB 1 MHz;VB 3 MHz;Pk RB 1 MHz;VB 3 MHz;Pk, note 2 RB 1 MHz;VB 3 MHz;Pk, note 2 and peak measurements.
requency Lev MHz dBµV 5000.030 53. 5000.000 58. 5906.550 57. 0475.760 58. 50te 1: For em 50te 2: For em 50te 3: No sig	Pol V/m v/h .7 V .5 V .2 V .9 V	Limit 54.0 74.0 - ed bands, the f the restricted t during the o	Margin -0.3 -15.5 - e limit of 15.2 d bands the riginal filing.	Pk/QP/Avg AVG PK PK PK 209 was used limit is -27dB	degrees 110 110 280 99 which requir	meters 1.1 1.1 1.3 1.0 es average	RB 1 MHz;VB 10 Hz;Pk RB 1 MHz;VB 3 MHz;Pk RB 1 MHz;VB 3 MHz;Pk, note 2 RB 1 MHz;VB 3 MHz;Pk, note 2 and peak measurements.
MHz dBµ1 5000.030 53. 5000.000 58. 5906.550 57. 0475.760 58. ote 1: For em conduc ote 2: For em conduc ote 3: No sig	V/m v/h .7 V .5 V .2 V .9 V	Limit 54.0 74.0 - ed bands, the f the restricted t during the o	Margin -0.3 -15.5 - e limit of 15.2 d bands the riginal filing.	Pk/QP/Avg AVG PK PK PK 209 was used limit is -27dB	degrees 110 110 280 99 which requir	meters 1.1 1.1 1.3 1.0 es average	RB 1 MHz;VB 10 Hz;Pk RB 1 MHz;VB 3 MHz;Pk RB 1 MHz;VB 3 MHz;Pk, note 2 RB 1 MHz;VB 3 MHz;Pk, note 2 and peak measurements.
5000.030 53. 5000.000 58. 5906.550 57. 0475.760 58. ote 1: For em ote 2: For em conduct For em ote 3: No sig	.7 V .5 V .2 V .9 V	54.0 74.0 - ed bands, the f the restricted t during the o	-0.3 -15.5 - e limit of 15.2 d bands the riginal filing.	AVG PK PK PK 209 was used limit is -27dB	110 110 280 99 which requir	1.1 1.1 1.3 1.0 es average	RB 1 MHz;VB 3 MHz;Pk RB 1 MHz;VB 3 MHz;Pk, note 2 RB 1 MHz;VB 3 MHz;Pk, note 2 and peak measurements.
5000.000 58. 5906.550 57. 0475.760 58. ote 1: For em ote 2: For em conduct For em ote 3: No signed	.5 V .2 V .9 V nissions in restrict nissions outside of cted measuremen	74.0 - ed bands, the f the restricted t during the o	-15.5 - e limit of 15.2 d bands the riginal filing.	PK PK PK 209 was used limit is -27dB	110 280 99 which requir	1.1 1.3 1.0 es average	RB 1 MHz;VB 3 MHz;Pk RB 1 MHz;VB 3 MHz;Pk, note 2 RB 1 MHz;VB 3 MHz;Pk, note 2 and peak measurements.
5906.550 57. 0475.760 58. ote 1: For em ote 2: For em condux condux ote 3: No sig	.2 V .9 V hissions in restrict hissions outside of cted measuremen	ed bands, the f the restricted t during the o	- limit of 15.2 d bands the riginal filing.	PK PK 209 was used limit is -27dBi	280 99 which requir	1.3 1.0 es average	RB 1 MHz;VB 3 MHz;Pk, note 2 RB 1 MHz;VB 3 MHz;Pk, note 2 and peak measurements.
ote 1: For em ote 2: For em conduc ote 3: No sig	nissions in restrict nissions outside of cted measuremen	ed bands, the f the restricted t during the o	limit of 15.2 d bands the riginal filing.	209 was used limit is -27dBi	which requir	es average	and peak measurements.
ote 2: For em conductor 3: No sig	nissions outside of cted measuremen	f the restricted t during the o	d bands the riginal filing.	limit is -27dBi			
120.0 - (July 100.0 - (July 10	 		mond where	requency (Mł			

	Xirrus	AS company					Job Number: J86254		
Madal) radia madu		0			T-Log Number: T86381		
woder:	XI-N300 (2x2		lie) in XR IUU	10			Account Manager: Michelle Kim		
Contact:	Steve Smith								
Standard:	FCC 15.247	/15.E/RSS-2	10					Class: N/A	
l Te	Date of Test: est Engineer:	2/27/2012 Rafael Vare		000 MHz. O	peration in th Te	ne 5150-5250 est Location:			
requency	urious Emis Level	Pol	15 200	9 / 15E	Detector	Azimuth	Height	Comments	
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	Comments	
5000.020	53.7	V	54.0	-0.3	AVG	111	1.1	RB 1 MHz;VB 10 Hz;Pk	
999.910	58.5	V	74.0	-15.5	PK	111	1.1	RB 1 MHz;VB 3 MHz;Pk	
5933.290	55.0	V	-	-	PK	282	1.1	RB 1 MHz;VB 3 MHz;Pk, note 2	
0404.530	58.9	V	-	-	PK	294	1.0	RB 1 MHz;VB 3 MHz;Pk, note 2	
140. 120. (m/\ngn 80. 80. 60.	0- 0- 0-	î[" î/"							

Client:	Xirrus	2 company						Job Number: J86254	
		2					T-Log Number: T86381		
Model:	XI-N300 (2x	2 radio modu	lie) in XRTOC	00			Account Manager: Michelle Kim		
Contact:	Steve Smith								
Standard:	FCC 15.247	/15.E/RSS-2	10					Class: N/A	
l Te	Date of Test: est Engineer:	2/27/2012 Rafael Vare		000 MHz. Oj	peration in th Te	ne 5150-5250 est Location:		3	
Trequency	urious Emis Level	Pol	15 200	9 / 15E	Detector	Azimuth	Height	Comments	
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	Comments	
5000.010	53.5	V	54.0	-0.5	AVG	111	1.1	RB 1 MHz;VB 10 Hz;Pk	
4999.890	58.6	V	74.0	-15.4	PK	111	1.1	RB 1 MHz;VB 3 MHz;Pk	
0361.800	56.7	V	-	-	PK	298	1.0	RB 1 MHz;VB 3 MHz;Pk, note 2	
6906.560	54.7	V	-	-	PK	78	1.3	RB 1 MHz;VB 3 MHz;Pk, note 2	
ote 3: 140.			were observe	riginal filing. ed for 18-40	GHz				
140. 120. (m/\ng) epntitude 80. 80. 40.					GHz				

Model:	Xirrus						Job Number: J86254		
would.	VI N200 (2v2	radio modu	ula) in VD100	0			T-Log Number: T86381		
	×I-IN300 (2X2			0			Account Manager: Michelle Kim		
Contact:	Steve Smith								
Standard:	FCC 15.247/	15.E/RSS-2	10					Class: N/A	
] Te	diated Spuric Date of Test: 2 Ist Engineer: 1 urious Emiss	2/27/2012 Rafael Varel		JUU MHZ. U		est Location:		1	
requency	Level	Pol	15.209) / 15E	Detector	Azimuth	Height	Comments	
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters		
5000.020	52.9	V	54.0	-1.1	AVG	115	1.2	RB 1 MHz;VB 10 Hz;Pk	
999.980	58.0	V	74.0	-16.0	PK	115	1.2	RB 1 MHz;VB 3 MHz;Pk	
0477.490	59.9	V	-	-	PK	138	1.0	RB 1 MHz;VB 3 MHz;Pk, note 2	
5906.710	57.5	V	-	-	PK	280	1.3	RB 1 MHz;VB 3 MHz;Pk, note 2	
140.1 120.1 (W) 100.1 (W) 100.1 (M) 100.1 (M) 40.1 40.1	o- o- o	 						theme	

	Xirrus	≙5 company						Job Number: J86254			
Madal) radia madu					T-Log Number: T86381				
Wodel:	XI-N300 (2x2	2 radio modi	lie) in XR100	10		-	Account Manager: Michelle Kim				
Contact:	Steve Smith										
Standard:	FCC 15.247/	'15.E/RSS-2	10					Class: N/A			
l Te	diated Spurie Date of Test: est Engineer:	2/27/2012 Rafael Vare		000 MHz. Oj		ne 5150-5250 est Location:		3			
Other Sp requency	urious Emiss Level	sions Pol	15 200	9 / 15E	Detector	Azimuth	Height	Comments			
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	Comments			
5000.050	53.2	V	54.0	-0.8	AVG	114	1.0	RB 1 MHz;VB 10 Hz;Pk			
5000.150	58.4	V	74.0	-15.6	PK	114	1.0	RB 1 MHz;VB 3 MHz;Pk			
933.270	54.8	V	-	-	PK	281	1.3	RB 1 MHz;VB 3 MHz;Pk, note 2			
0400.280	60.9	V	-	-	PK	138	1.0	RB 1 MHz;VB 3 MHz;Pk, note 2			
140. 120. (January) (Janu)	0-										

_		company							C Test Data
Client:	Xirrus						Job Number: J86254		
Model:	XI-N300 (2x2	2 radio modu	le) in XR100	0		·		Log Number:	
Contact	Steve Smith						Account Manager: Michelle Kim		
	FCC 15.247/	15.E/RSS-2	10					Class:	N/A
				000 MHz. O	peration in th	ne 5150-525() MHz Band		
Те	Date of Test:	Rafael Varel	as		Τe	est Location:	FT7		
Other Spi Frequency	urious Emiss Level	Pol	15.209) / 15F	Detector	Azimuth	Height	Comments	
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters		
5000.060	49.8	V	54.0	-4.2	AVG	112	1.2	RB 1 MHz;V	/B 10 Hz;Pk
5000.000	54.7	V	74.0	-19.3	PK	112	1.2	RB 1 MHz;V	
6919.830	54.4	V	-	-	PK	83	1.3	RB 1 MHz;V	'B 3 MHz;Pk, note 2
140,1 120,1 (m)/100,1 (m)/100,1 80,1 80,1 40,1 20,1)-)-)-)-)-)-	 							
				Fr	requency (MH	1 z)			

01)して る [*] company						EMC Test Data
Client	: Xirrus							Job Number: J86254 Log Number: T86381
Model	: XI-N300 (2x2	2 radio modu	ıle) in XR100	0				unt Manager: Michelle Kim
Contact	: Steve Smith							
Standard	: FCC 15.247	/15.E/RSS-2	10					Class: N/A
T	adiated Spuri Date of Test: est Engineer:	2/27/2012 Rafael Varel		000 MHz. Oj		ne 5150-5250 est Location:		3
Frequency	ourious Emise	Pol	15 209	9 / 15E	Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	Comments
5000.050	52.7	V	54.0	-1.3	AVG	116	1.2	RB 1 MHz;VB 10 Hz;Pk
5000.100	57.5	V	74.0	-16.5	PK	116	1.2	RB 1 MHz;VB 3 MHz;Pk
10460.320		V	-	-	PK	99	1.2	RB 1 MHz;VB 3 MHz;Pk, note 2
6920.040	56.8	V	-	-	PK	280	1.3	RB 1 MHz;VB 3 MHz;Pk, note 2
140 120 (m/,100 80 60 60	.0-			······································	i i 1 N			

6		t			EM	C Test
Client:	Xirrus	arry			Job Number:	: J86254
	XI-N300 (2x2 radio	modula) in XP1000			T-Log Number:	: T86381
				A	ccount Manager:	: Michelle Kim
	Steve Smith	200.040				N1/A
Stanuaru.	FCC 15.247/15.E/F			diated Couries		
	K33 Z		5.407 (UNII) Ra (5250-5350 MH	-	IS EI11155101	15
lest Spe	cific Details					
		ojective of this test s cation listed above.	ession is to perform fina	al qualification testing	of the EUT with	respect to the
	Fest Configurati I emissions testing the		tenna was located 3 m	eters from the EUT.		
Ambient	Conditions:	Temperature:	20-25 °C	Rel. Humi	dity: 30-40) %
	ions Made Duri		sting			
	is From The Sta		of the standard.			

τ -		ompany *					C Test Dat
Client:	Xirrus					Job Number:	
Model:	XI-N300 (2x)	2 radio modu	ile) in XR100	00		T-Log Number:	
						Account Manager:	Michelle Kim
	Steve Smith		10				
Standard:	FCC 15.247	/15.E/RSS-2	10			Class:	N/A
ummarv	of Result	s					
-			x2 and 3x3 I	Modules for a	802.11a; HT20; and HT4	0 modes	
Run #	Mode	Channel	Power	Measured	Test Performed	Limit	Result / Margin
Run #	MOUE		Setting	Power	restrenomed	Liitiit	Result / Margin
		2x2: 5260	05		Dedicted Factories		
1	802.11a	MHz	35		Radiated Emissions, 1 - 40 GHz	FCC 15.209 / 15 E	53.8 dBµV/m @ 10642.8 MHz (-0.2 c
		3x3: 5320 MHz	28		I - 40 GNZ		10042.0 10172 (-0.2 (
		2x2: 5320					
_		MHz	29*		Radiated Emissions,		68.2 dBµV/m @
2	802.11a	3x3: 5260	32		1 - 40 GHz	FCC 15.209 / 15 E	10520.9 MHz (-0.1 d
		MHz					
		2x2: 5300					
3	802.11a	MHz	32*		Radiated Emissions,	FCC 15.209 / 15 E	54.0 dBµV/m @
5	002.110	3x3: 5300	32		1 - 40 GHz	100 10.2077 10 E	10601.7 MHz (-0.0 d
		MHz					
		2x2: 5260 MHz	34		Radiated Emissions,		No significant non
4	802.11n20	3x3: 5320	34 21		1 - 40 GHz	FCC 15.209 / 15 E	restricted band
		MHz	21				emissions
		2x2: 5320					
5	802.11n20	MHz	27		Radiated Emissions,	FCC 15.209 / 15 E	52.7 dBµV/m @
Э	802.111120	3x3: 5260	33		1 - 40 GHz	FCC 15.2097 15 E	10638.2 MHz (-1.3 (
		MHz					
		2x2: 5300	0.0*				
6	802.11n20	MHz	29*		Radiated Emissions, 1 - 40 GHz	FCC 15.209 / 15 E	52.9 dBµV/m @ 10600.0 MHz (-1.1 (
		3x3: 5300 MHz	33		1 - 40 GHZ		10600.0 IVIHZ (-1.1
		2x2: 5270					
		272. 3270 MHz	33		Radiated Emissions,		No significant nor
7	802.11n40	3x3: 5310	12		1 - 40 GHz	FCC 15.209 / 15 E	restricted band
		MHz					emissions
		2x2: 5310					No significant por
8	802.11n40	MHz	14		Radiated Emissions,	FCC 15.209 / 15 E	No significant non restricted band
0	002.11140	3x3: 5270	34		1 - 40 GHz	1 00 10.2077 10 L	emissions
		MHz					01110010110

Client:	Xirrus						Job Number:	J86254
Model		radia maa				Ţ.	Log Number:	T86381
wodel:	XI-IN300 (2X2	radio mod	lule) in XR1000			Acco	unt Manager:	Michelle Kim
Contact:	Steve Smith							
Standard:	FCC 15.247/	15.E/RSS-	210				Class:	N/A
	с н	0						
System Cor Radio #	Frequency	Op Module	erating within 5250- Mode	5350 MHz Radio #	Frequency	Module	Mode	
Run: 1	riequency	would	INIOUC	Raulo # Run: 2	ricquency	would	NUUC	
1	5260	2x2	802.11a	1	5320	2x2	802.11a	
0	5320	3x3	802.11a	0	5260	3x3	802.11a	
Run: 3								
1	5300	2x2	802.11a					
0	5300	3x3	802.11a					
Run: 4				Run: 5				
1	5260	2x2	802.11HT20	1	5320	2x2	802.11HT20)
0	5320	3x3	802.11HT20	0	5260	3x3	802.11HT20)
Run: 6								
1	5300	2x2	802.11HT20					
0	5300	3x3	802.11HT20					
Run: 7				Run: 8				
1 1	5270	2x2	802.11HT40	1 Kull. 0	5310	2x2	802.11HT40)
0	5310	3x3	802.11HT40	0	5270	3x3	802.11HT40	

Notes - Multiple radios operating at the same time as shown above. In all cases, power set to the maximum worse case single channel power, transmitting on all chains.

Client:								Job Number:	J86254
Madal	VI N200 (2v2) radia madu		0			T-	Log Number:	T86381
wodel:	XI-N300 (2x2		ule) in XR 100	10			Acco	unt Manager:	Michelle Kim
Contact:	Steve Smith								
Standard:	FCC 15.247/	15.E/RSS-2	10					Class:	N/A
	diated Spuric		ons, 30 - 40,0	000 MHz. O				t	
	Date of Test: 2 est Engineer: 1		lac		le	st Location:	F13		
10		Kalael Vale	105						
Other Sp	urious Emiss	sions							
requency	Level	Pol	15.209	9/15E	Detector	Azimuth	Height	Comments	
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters		
	ing = 35 (2x2)					111	1.0		
000.010	61.7 53.8	V V	74.0 54.0	-12.3 -0.2	PK AVG	111 77	1.0 1.0	RB 1 MHz;V RB 1 MHz;V	
)642.830	67.3	V	74.0	-0.2	PK	77	1.0	RB 1 MHZ;V	
			74.0	0.7		245	1.0		
	71.4	V	-	-	РК	Z40		IKR I MH2.M	B 3 MHZPK. NOIE /
)522.790	71.4 56.8	V V	-	-	PK AVG	245 111	1.0	RB T MHZ;V Note 4	'B 3 MHz;Pk, note 2
)522.790									B 3 MHZ;PK, NOLE 2
)522.790 000.060	56.8 For emission	V s in restricte	- ed bands, the	- limit of 15.2	AVG 09 was used	111 which requir	1.0 es average	Note 4 and peak me	asurements.
0522.790 5000.060 ote 1:	56.8 For emission For emission	V s in restricte s outside of	- ed bands, the the restricted	- limit of 15.2 d bands the	AVG 09 was used	111 which requir	1.0 es average	Note 4 and peak me	
0522.790 000.060 ote 1: ote 2:	56.8 For emission For emission conducted m	V s in restricte s outside of easurement	ed bands, the the restricted t during the o	- limit of 15.2 d bands the riginal filing.	AVG 209 was used limit is -27dBr	111 which requir	1.0 es average	Note 4 and peak me	asurements.
0522.790 6000.060 bte 1: bte 2: bte 3:	56.8 For emission For emission conducted m No significan	V s in restricte s outside of easurement t emissions	ed bands, the the restricted t during the o were observe	- limit of 15.2 d bands the riginal filing. ed for 18-40	AVG 109 was used limit is -27dBr GHz	111 which requir n/MHz eirp (1.0 es average 68.3dBuV/n	Note 4 and peak me	asurements.
0522.790 6000.060 bte 1: bte 2: bte 3:	56.8 For emission For emission conducted m No significan	V s in restricte s outside of easurement t emissions	ed bands, the the restricted t during the o were observe	- limit of 15.2 d bands the riginal filing. ed for 18-40	AVG 209 was used limit is -27dBr	111 which requir n/MHz eirp (1.0 es average 68.3dBuV/n	Note 4 and peak me	asurements.
0522.790 5000.060 ote 1: ote 2: ote 3:	56.8 For emission For emission conducted m No significan	V s in restricte s outside of easurement t emissions	ed bands, the the restricted t during the o were observe	- limit of 15.2 d bands the riginal filing. ed for 18-40	AVG 109 was used limit is -27dBr GHz	111 which requir n/MHz eirp (1.0 es average 68.3dBuV/n	Note 4 and peak me	asurements.
0522.790 5000.060 ote 1: ote 2: ote 3: ote 4:	56.8 For emission For emission <u>conducted m</u> No significan Emission fror	V s in restricte s outside of easurement t emissions	ed bands, the the restricted t during the o were observe	- limit of 15.2 d bands the riginal filing. ed for 18-40	AVG 109 was used limit is -27dBr GHz	111 which requir n/MHz eirp (1.0 es average 68.3dBuV/n	Note 4 and peak me	asurements.
0522.790 5000.060 ote 1: ote 2: ote 3:	56.8 For emission For emission <u>conducted m</u> No significan Emission fror	V s in restricte s outside of easurement t emissions	ed bands, the the restricted t during the o were observe	- limit of 15.2 d bands the riginal filing. ed for 18-40	AVG 109 was used limit is -27dBr GHz	111 which requir n/MHz eirp (1.0 es average 68.3dBuV/n	Note 4 and peak me	asurements.
0522.790 000.060 ote 1: ote 2: ote 3: ote 4:	56.8 For emission For emission conducted m No significan Emission fror	V s in restricte s outside of easurement t emissions	ed bands, the the restricted t during the o were observe	- limit of 15.2 d bands the riginal filing. ed for 18-40	AVG 109 was used limit is -27dBr GHz	111 which requir n/MHz eirp (1.0 es average 68.3dBuV/n	Note 4 and peak me	asurements.
0522.790 000.060 ote 1: ote 2: ote 3: ote 4: 140. 120.	56.8 For emission For emission conducted m No significan Emission from	V s in restricte s outside of easurement t emissions	ed bands, the the restricted t during the o were observe	- limit of 15.2 d bands the riginal filing. ed for 18-40	AVG 109 was used limit is -27dBr GHz	111 which requir n/MHz eirp (1.0 es average 68.3dBuV/n	Note 4 and peak me	asurements.
0522.790 000.060 ote 1: ote 2: ote 3: ote 4: 140. 120.	56.8 For emission For emission conducted m No significan Emission from	V s in restricte s outside of easurement t emissions	ed bands, the the restricted t during the o were observe	- limit of 15.2 d bands the riginal filing. ed for 18-40	AVG 109 was used limit is -27dBr GHz	111 which requir n/MHz eirp (1.0 es average 68.3dBuV/n	Note 4 and peak me	asurements.
0522.790 000.060 ote 1: ote 2: ote 3: ote 4: 140. 120.	56.8 For emission For emission conducted m No significan Emission from 0 - 0 -	V s in restricte s outside of easurement t emissions	ed bands, the the restricted t during the o were observe	- limit of 15.2 d bands the riginal filing. ed for 18-40	AVG 109 was used limit is -27dBr GHz	111 which requir n/MHz eirp (1.0 es average 68.3dBuV/n	Note 4 and peak me	asurements.
0522.790 000.060 ote 1: ote 2: ote 3: ote 4: 140. 120.	56.8 For emission For emission conducted m No significan Emission from 0 - 0 -	V s in restricte s outside of easurement t emissions	ed bands, the the restricted t during the o were observe	- limit of 15.2 d bands the riginal filing. ed for 18-40	AVG 109 was used limit is -27dBr GHz	111 which requir n/MHz eirp (1.0 es average 68.3dBuV/n	Note 4 and peak me	asurements.
0522.790 000.060 ote 1: ote 2: ote 3: ote 4: 140. 120. E 100	56.8 For emission For emission conducted m No significan Emission from 0 - 0 - 0 -	V s in restricte s outside of easurement t emissions	ed bands, the the restricted t during the o were observe	- limit of 15.2 d bands the riginal filing. ed for 18-40	AVG 109 was used limit is -27dBr GHz	111 which requir n/MHz eirp (1.0 es average 68.3dBuV/n	Note 4 and peak me	asurements.
0522.790 000.060 ote 1: ote 2: ote 3: ote 4: 140. 120. (W) 100. (W) 100. 80. 000.000	56.8 For emission For emission conducted m No significan Emission fror 0 - 0 - 0 - 0 - 0 -	V s in restricte s outside of easurement t emissions	ed bands, the the restricted t during the o were observe	- limit of 15.2 d bands the riginal filing. ed for 18-40	AVG 109 was used limit is -27dBr GHz	111 which requir n/MHz eirp (1.0 es average 68.3dBuV/n	Note 4 and peak me	asurements.
0522.790 000.060 ote 1: ote 2: ote 3: ote 4: 140. 120. E 100	56.8 For emission For emission conducted m No significan Emission fror 0 - 0 - 0 - 0 - 0 -	V s in restricte s outside of easurement t emissions	ed bands, the the restricted t during the o were observe	- limit of 15.2 d bands the riginal filing. ed for 18-40	AVG 109 was used limit is -27dBr GHz	111 which requir n/MHz eirp (1.0 es average 68.3dBuV/n	Note 4 and peak me	asurements.
0522.790 000.060 ote 1: ote 2: ote 3: ote 4: 140. 120. (W/\ngp) apprilude 80. 40.	56.8 For emission For emission conducted m No significan Emission fror 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 -	V s in restricte s outside of easurement t emissions	ed bands, the the restricted t during the o were observe	- limit of 15.2 d bands the riginal filing. ed for 18-40	AVG 109 was used limit is -27dBr GHz	111 which requir n/MHz eirp (1.0 es average 68.3dBuV/n	Note 4 and peak me	asurements.
0522.790 000.060 ote 1: ote 2: ote 3: ote 4: 140. 120. (W/\ngp) apprilude 80. 40.	56.8 For emission For emission conducted m No significan Emission fror 0 - 0 - 0 - 0 - 0 -	V s in restricte s outside of easurement t emissions	ed bands, the the restricted t during the o were observe	e limit of 15.2 d bands the riginal filing. ed for 18-40 ne host syste	AVG	111 which requir n/MHz eirp (1.0 es average 68.3dBuV/n st resutIs.	Note 4 and peak me	asurements.
0522.790 000.060 ote 1: ote 2: ote 3: ote 4: 140. 120. (III) 100. 80. 40.	56.8 For emission For emission conducted m No significan Emission fror 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 -	V s in restricte s outside of easurement t emissions	ed bands, the the restricted t during the o were observe	e limit of 15.2 d bands the riginal filing. ed for 18-40 ne host syste	AVG 109 was used limit is -27dBr GHz	111 which requir n/MHz eirp (1.0 es average 68.3dBuV/n st resutIs.	Note 4	asurements. ce demonstrated via

Contact:								Job Number:	J86254
Contact:		2 radio modu	ula) in VD100	0			T-	Log Number:	T86381
	XI-N300 (2x)						Acco	unt Manager:	Michelle Kim
	Steve Smith								
standard:	FCC 15.247	/15.E/RSS-2	10					Class:	N/A
I Te	diated Spuri Date of Test: est Engineer: urious Emis	2/28/2012 Rafael Varel		000 MHz. O	peration in th Te	ne 5250-5350 est Location:		1	
equency	Level	Pol	15.209	9 / 15E	Detector	Azimuth	Height	Comments	
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	Comments	
	ng = 29 (2x2			x3)		u			
)520.890		V	68.3	-0.1	PK	84	1.0		/B 3 MHz;Pk
000.090	58.1	V	-	-	Peak	88	1.3	Note 4	
640.640 640.840	53.4 67.5	V V	54.0 74.0	-0.6 -6.5	AVG PK	254 254	1.1 1.1		
e 2: e 3:	For emissior conducted m No significar	ns outside of neasurement nt emissions	the restricted during the o were observe	d bands the <u>riginal filing.</u> ed for 18-40	limit is -27dBr GHz	m/MHz eirp (68.3dBuV/n	and peak me n). Compliand	asurements. ce demonstrated via
te 2: te 3: te 4: 141	For emissior conducted m No significar	ns outside of neasurement nt emissions	the restricted during the o were observe	d bands the <u>riginal filing.</u> ed for 18-40	limit is -27dBr	m/MHz eirp (68.3dBuV/n		
12 (m/\m) 8 8	For emissior conducted n No significar Emission fro	ns outside of neasurement nt emissions	the restricted during the o were observe	d bands the <u>riginal filing.</u> ed for 18-40	limit is -27dBr GHz	m/MHz eirp (68.3dBuV/n		
te 2: te 3: te 4: 14 (m//ngp) aprilidme 4	For emission <u>conducted n</u> <u>No significar</u> Emission fro 0.0 – 0.0 – 0.0 – 0.0 – 0.0 – 0.0 –	ns outside of neasurement nt emissions	the restricted during the o were observe	d bands the <u>riginal filing.</u> ed for 18-40	limit is -27dBr GHz	m/MHz eirp (68.3dBuV/n		
te 2: te 3: te 4: 14 (m/\ngp) anni for the for the for	For emission <u>conducted n</u> <u>No significar</u> Emission fro 0.0 - 0.0 - 0.0 - 0.0 - 0.0 -	ns outside of neasurement nt emissions	the restricted during the o were observe	d bands the <u>riginal filing.</u> ed for 18-40	limit is -27dBr GHz	m/MHz eirp (68.3dBuV/n		

E		Stt						EM	C Test Data
Client:	Xirrus							Job Number:	J86254
Model		2 radio modu	ıle) in XR100	0			T-	Log Number:	T86381
wouer.	XI-INSUU (2X			0			Acco	unt Manager:	Michelle Kim
Contact:	Steve Smith								
Standard:	FCC 15.247	/15.E/RSS-2	10					Class:	N/A
L Te	diated Spuri Date of Test: st Engineer: urious Emis	2/28/2012 Rafael Vare		000 MHz. Oj	peration in th Te	ne 5250-5350 est Location:		1	
Frequency	Level	Pol	15.209	9 / 15F	Detector	Azimuth	Height	Comments	
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	Sommonto	
			tting = 32 (3			J			
5000.090	59.6	V	-	-	Peak	105	1.3	Note 4	
10601.740	54.0	V	54.0	0.0	AVG	245	1.0		
10601.920	67.2	V	74.0	-6.8	PK	245	1.0		
120 (m/)100 epnalitrade 80 80 40).0 -).0 -).0 -).0 -).0 -).0 -	[]]])]] 	 	[][
	1000		·					10000	18000
					Frequency (N	nHZ)			

Contact: Steve Smith Class: N/A Standard: FCC 15.247/15.E/RSS-210 Class: N/A Run #4, Radiated Spurious Emissions, 30 - 40,000 MHz. Operation in the 5250-5350 MHz Band Date of Test: 2/28/2012 Test Location: FT3 Test Engineer: Rafael Varelas Test Location: FT3 Other Spurious Emissions Test Location: FT3 Frequency Level Pol 15.209 / 15E Detector Azimuth Height Comments MHz dBµV/m v/h Limit Margin Pk/QP/Avg degrees meters 10522.970 67.3 V - - PK 251 1.0 RB 1 MHz;VB 3 MHz;Pk, no 5436.670 61.1 V - - Peak 76 1.3 Note 4 Stoo0.090 58.3 V - - Peak 97 1.3 Note 4 Note 1: For emissions in restricted bands, the limit of 15.209 was used which requires average and peak measurements. Stote 2: For emissions outside of the restricted bands the limit is -27dBm/MHz eirp (68.3dBuV/m). Compliance demonstrated conducted measurement during the original filing. </th <th>Model:</th> <th>Xirrus XI-N300 (2x2</th> <th>2 radio modu</th> <th>ıle) in XR100</th> <th>0</th> <th></th> <th></th> <th></th> <th>Job Number: Log Number: unt Manager:</th> <th></th>	Model:	Xirrus XI-N300 (2x2	2 radio modu	ıle) in XR100	0				Job Number: Log Number: unt Manager:	
Run #4, Radiated Spurious Emissions, 30 - 40,000 MHz. Operation in the 5250-5350 MHz Band Date of Test: 2/28/2012 Test Engineer: Rafael Varelas Other Spurious Emissions Frequency Level Pol 15.209 / 15E Detector Azimuth Height Comments MHz dBµV/m v/h Limit Margin PK/QP/Avg degrees meters 10522.970 67.3 V - - PK 251 1.0 RB 1 MHz;VB 3 MHz;Pk, no 5436.670 61.1 V - - Peak 76 1.3 Note 4 5000.090 58.3 V - - Peak 97 1.3 Note 4 lote 1: For emissions in restricted bands, the limit of 15.209 was used which requires average and peak measurements. Iote 2: For emissions outside of the restricted bands the limit is -27dBm/MHz eirp (68.3dBuV/m). Compliance demonstrated conducted measurement during the original filing. lote 3: No significant emissions were observed for 18-40GHz Iote 4: Emission from the digital circuitry of the host system. Refer to FCC 15.B test results. 140.0 - - - For emission form the digital circuitry of the host system. <t< th=""><th>Contact:</th><th>Steve Smith</th><th></th><th></th><th></th><th></th><th></th><th>7,000</th><th>un managen</th><th></th></t<>	Contact:	Steve Smith						7,000	un managen	
Test Engineer: Rafael Varelas Other Spurious Emissions Frequency Level Pol 15.209 / 15E Detector Azimuth Height Comments MHz dBµV/m v/h Limit Margin Pk/QP/Avg degrees meters Image: Comments 10522.970 67.3 V - - PK 251 1.0 RB 1 MHz;VB 3 MHz;Pk, no 5436.670 61.1 V - - Peak 76 1.3 Note 4 5000.090 58.3 V - - Peak 97 1.3 Note 4 Note 1: For emissions in restricted bands, the limit of 15.209 was used which requires average and peak measurements. Image: Conducted measurement during the original filing. Image: Conducted measurement during the origina	Standard:	FCC 15.247/	15.E/RSS-2	10					Class:	N/A
Frequency Level Pol 15.209 / 15E Detector Azimuth Height Comments MHz dBµV/m v/h Limit Margin Pk/QP/Avg degrees meters integration 10522.970 67.3 V - - PK 251 1.0 RB 1 MHz;VB 3 MHz;Pk, no 5436.670 61.1 V - - Peak 76 1.3 Note 4 5000.090 58.3 V - - Peak 97 1.3 Note 4 Iote 1: For emissions in restricted bands, the limit of 15.209 was used which requires average and peak measurements. For emissions outside of the restricted bands the limit is -27dBm/MHz eirp (68.3dBuV/m). Compliance demonstrated conducted measurement during the original filing. Iote 2: For emissions were observed for 18-40GHz Emission from the digital circuitry of the host system. Refer to FCC 15.B test results. Iote 4: Emission from the digital circuitry of the host system. Refer to FCC 15.B test results. Iot.0 - - - - - - Iot.0 - - - - - - - <	Te	Date of Test: est Engineer:	2/28/2012 Rafael Varel		000 MHz. O				d	
MHz dBμV/m v/h Limit Margin Pk/QP/Avg degrees meters 10522.970 67.3 V - - PK 251 1.0 RB 1 MHz;VB 3 MHz;Pk, no 5436.670 61.1 V - - Peak 76 1.3 Note 4 5000.090 58.3 V - - Peak 97 1.3 Note 4 lote 1: For emissions in restricted bands, the limit of 15.209 was used which requires average and peak measurements. lote 2: For emissions outside of the restricted bands the limit is -27dBm/MHz eirp (68.3dBuV/m). Compliance demonstrated conducted measurement during the original filing. lote 3: No significant emissions were observed for 18-40GHz lote 4: Emission from the digital circuitry of the host system. Refer to FCC 15.B test resutts. 140.0 - - 120.0 - - - massion from the digital circuitry of the host system. Refer to FCC 15.B test resutts. - 140.0 - - - - 120.0 - - - - massion from the digital circuitry of the host system.			1	15 209) / 15F	Detector	Δzimuth	Height	Comments	
10522.970 67.3 V - - PK 251 1.0 RB 1 MHz;VB 3 MHz;Pk, no 5436.670 61.1 V - - Peak 76 1.3 Note 4 5000.090 58.3 V - - Peak 97 1.3 Note 4 lote 1: For emissions in restricted bands, the limit of 15.209 was used which requires average and peak measurements. lote 2: For emissions outside of the restricted bands the limit is -27dBm/MHz eirp (68.3dBuV/m). Compliance demonstrated conducted measurement during the original filing. lote 3: No significant emissions were observed for 18-40GHz lote 4: Emission from the digital circuitry of the host system. Refer to FCC 15.B test resutts. 140.0 - 120.0 - 130.0 - 9 80.0		1 1							COMMENTS	
5436.670 61.1 V - - Peak 76 1.3 Note 4 5000.090 58.3 V - - Peak 97 1.3 Note 4 lote 1: For emissions in restricted bands, the limit of 15.209 was used which requires average and peak measurements. lote 2: For emissions outside of the restricted bands the limit is -27dBm/MHz eirp (68.3dBuV/m). Compliance demonstrated conducted measurement during the original filing. lote 3: No significant emissions were observed for 18-40GHz lote 4: Emission from the digital circuitry of the host system. Refer to FCC 15.B test resutls. 140.0 - 120.0 - 80.0 -					-	U U			RB 1 MHz·\	/B 3 MHz:Pk, note 2
5000.090 58.3 V - Peak 97 1.3 Note 4 lote 1: For emissions in restricted bands, the limit of 15.209 was used which requires average and peak measurements. lote 2: For emissions outside of the restricted bands the limit is -27dBm/MHz eirp (68.3dBuV/m). Compliance demonstrated conducted measurement during the original filing. lote 3: No significant emissions were observed for 18-40GHz lote 4: Emission from the digital circuitry of the host system. Refer to FCC 15.B test resutls. 140.0 - 120.0 - 80.0 -				-	-					_ 0 iz/i k/ 11010 Z
lote 1: For emissions in restricted bands, the limit of 15.209 was used which requires average and peak measurements. lote 2: For emissions outside of the restricted bands the limit is -27dBm/MHz eirp (68.3dBuV/m). Compliance demonstrated conducted measurement during the original filing. lote 3: No significant emissions were observed for 18-40GHz lote 4: Emission from the digital circuitry of the host system. Refer to FCC 15.B test resutls. 140.0				-	-					
40.0-	140.						<u>í</u>			
20.0 - 10000 18000 10000 Frequency (MHz)	120. (m/ 100. 900 (gpn/ / / / / / / / / / / / / / / / / / /	o o)))) 						

Client:	Xirrus	Company						Job Number:	J86254
Madal	XI-N300 (2x2	radio modu	ula) in VD100				T	Log Number:	T86381
wouer.	XI-INSUU (2X2			10			Ассо	unt Manager:	Michelle Kim
Contact:	Steve Smith								
Standard:	FCC 15.247/	15.E/RSS-2	10					Class:	N/A
l Te	diated Spurio Date of Test: 2 est Engineer: F	2/28/2012 Rafael Varel		000 MHz. O	•	ne 5250-5350 est Location:		d	
otner Sp requency	urious Emiss Level	lons Pol	15.209	0/15F	Detector	Azimuth	Height	Comments	
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	Comments	
0638.200		V	54.0	-1.3	AVG	103	1.3	RB 1 MHz;V	/B 10 Hz;Pk
)639.670	65.3	V	74.0	-8.7	PK	103	1.3		/B 3 MHz;Pk
516.340	66.3	V	-	-	PK	23	1.4		/B 3 MHz;Pk, note 2
436.670	61.1	V	-	-	Peak	76	1.3	Note 4	
000.090	57.8	V	-	-	Peak	105	1.0	Note 4	
140.	<u> </u>				em. Refer to I	FCC 15.B tes	st resutls.		
140. 120. (m/\n100. 80. 80. 60.	0- 0- 0- 0-					FCC 15.B tes			
120. (w/ 100. (gpn / 100. 80. 80. 40. 40.	0- 0- 0- 0-	 				FCC 15.B tes			

Client:								Job Number:	J86254
							T-	Log Number:	T86381
Model:	XI-N300 (2x)	2 radio modu	ile) in XR100	0				-	Michelle Kim
Contact:	Steve Smith							5	
Standard:	FCC 15.247	/15.E/RSS-2	10					Class:	N/A
				000 MHz. OI	peration in th	ne 5250-5350	0 MHz Band		
l Te	Date of Test: est Engineer:	2/28/2012 Rafael Varel				est Location:			
Trequency	urious Emis Level	sions Pol	15.209)/15E	Detector	Azimuth	Height	Comments	
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	Comments	
	ng = 34 (2x2)				- NGI IANY	ucyicco	1101013		
5436.670	61.1	V	-	-	Peak	76	1.3	Note 4	
5000.090	57.3	V	-	-	Peak	94	1.3	Note 4	
0600.000	52.9	V	54.0	-1.1	AVG	266	1.1	RB 1 MHz;V	
601.410	64.8	V	74.0	-9.2	PK	266	1.1	RB 1 MHz·V	'B 3 MHz;Pk
ote 2: ote 3:	For emissior conducted m No significar	ns outside of neasurement nt emissions	the restricted during the o were observe	d bands the riginal filing. ed for 18-40		m/MHz eirp (68.3dBuV/n	and peak me	asurements.
ote 2: ote 3:	For emission conducted m No significar Emission fro	ns outside of neasurement nt emissions	the restricted during the o were observe	d bands the riginal filing. ed for 18-40	limit is -27dBr GHz	m/MHz eirp (68.3dBuV/n	and peak me	
ote 2: ote 3: ote 4: 140. 120.	For emission conducted m No significar Emission fro	ns outside of neasurement nt emissions	the restricted during the o were observe	d bands the riginal filing. ed for 18-40	limit is -27dBr GHz	m/MHz eirp (68.3dBuV/n	and peak me	asurements.
120. É 100	For emission conducted m No significar Emission fro	ns outside of neasurement nt emissions	the restricted during the o were observe	d bands the riginal filing. ed for 18-40	limit is -27dBr GHz	m/MHz eirp (68.3dBuV/n	and peak me	asurements.
ote 2: ote 3: ote 4: 140. 120. (Jan Mage (Mg) 100. 00. 00. 00. 00. 00. 00. 00	For emission conducted m No significar Emission fro	ns outside of neasurement nt emissions	the restricted during the o were observe	d bands the riginal filing. ed for 18-40	limit is -27dBr GHz	m/MHz eirp (68.3dBuV/n	and peak me	asurements.
ote 2: ote 3: ote 4: 140. 120.	For emission conducted m No significar Emission fro	ns outside of neasurement nt emissions	the restricted during the o were observe	d bands the riginal filing. ed for 18-40	limit is -27dBr GHz	m/MHz eirp (68.3dBuV/n	and peak me	asurements.
ote 2: ote 3: ote 4: 140. 120. (W/\ngp) 80. 100. 80. 40.	For emission conducted m No significar Emission fro	ns outside of neasurement nt emissions	the restricted during the o were observe	d bands the riginal filing. ed for 18-40	limit is -27dBr GHz	m/MHz eirp (68.3dBuV/n	and peak me	asurements.
ote 2: <u>ote 3:</u> <u>ote 4:</u> 140. 120. (July and a construction of the second of the	For emission conducted m No significar Emission fro	ns outside of neasurement nt emissions	the restricted during the o were observe	d bands the riginal filing. ed for 18-40 ne host syste	limit is -27dBr GHz	n/MHz eirp (68.3dBuV/n	and peak me	asurements.

un #7, Radiated Spurious Emissions, 30 - 40,000 MHz. Operation in the 5250-5350 MHz Band Date of Test: 2/29/2012 Test Location: FT7 Test Engineer: Rafael Varelas Other Spurious Emissions requency Level Pol 15.209 / 15E Detector Azimuth Height Comments MHz dB _µ V/m v/h Limit Margin Pk/OP/Avg degrees meters 0537.020 54.6 V - PK 86 1.7 RB 1 MHz;VB 3 MHz;Pk, note 2 1999.960 55.4 V - Peak 116 1.0 Note 4 ote 1: For emissions in restricted bands, the limit of 15.209 was used which requires average and peak measurements. For emissions outside of the restricted bands the limit is -27dBm/MHz eirp (68.3dBuV/m). Compliance demonstrated via conducted measurement during the original filling. ote 3: No significant emissions were observed for 18-40GHz ote 4: Emission from the digital circuitry of the host system. Refer to FCC 15.B test results.	Model: MI-M300 (2x2 radio module) in XR 1000 Account Manager: Michelle Kim Contact: Steve Smith Standard: FCC 15.247/15.E/RSS-210 Un #7, Radiated Spurious Emissions, 30 - 40,000 MHz. Operation in the 5250-5350 MHz Band Date of Test: 2/29/2012 Test Engineer: Radiated Spurious Emissions requency Level Pol 15.209 / 15E Detector Azimuth Height Comments MHz dBu/Vm vh Linit Margin PV(P/Avg degrees meters 0537.020 54.6 V 2 Peak 116 1.0 Note 4 Note 4 ote 1: For emissions in restricted bands, the limit of 15.209 was used which requires average and peak measurements. ote 2: For emissions outside of the restricted bands the limit is -27dBm/MHz eirp (68.3dBu//m). Compliance demonstrated via conducted measurement during the original filma. ote 4: Emission from the digital circuitry of the host system. Refer to FCC 15.B test results. 140.0 0 0 0 0 0 0 0 0 0 0 0 <th>Cilent.</th> <th>Xirrus</th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th>Job Number: J86254</th>	Cilent.	Xirrus							Job Number: J86254
Account Manager: Michelle Kim Standard: FCC 15.247/15.E/RSS-210 un #7, Radiated Spurious Emissions, 30 - 40,000 MHz. Operation in the 5250-5350 MHz Band Date of Test: 2/29/2012 Test Location: FT7 Test Engineer: Rafael Varelas Other Spurious Emissions requency Level Pol 15.209 / 15E Detector Azimuth Height Comments MHz dB _{LV} /m v/h Limit Margin Pk/QP/Avg degrees meters 0537.020 54.6 V - PK 86 1.7 RB 1 MHz:VB 3 MHz;Pk, note 2 1999 960 55.4 V - PK 86 1.7 RB 1 MHz:VB 3 MHz;Pk, note 2 1999 960 55.4 V - PK 86 1.7 CB 1 MHz:VB 3 MHz;Pk, note 2 1999 960 55.4 V - PK 86 1.7 CB 1 MHz:VB 3 MHz;Pk, note 2 1999 960 15.2 V - PK 86 1.7 CB 1 MHz:VB 3 MHz;Pk, note 2 1999 960 15.4 V - PK 86 1.7 CB 1 MHz:VB 3 MHz;Pk, note 2 1999 960 15.4 V - PK 86 1.7 CB 1 MHz:VB 3 MHz;Pk, note 2 1999 960 15.4 V - PK 86 1.7 CB 1 MHz;VB 3 MHz;Pk, note 2 1999 960 15.4 V - PK 86 1.7 CB 1 MHz;VB 3 MHz;Pk, note 2 1999 960 15.4 V - PK 86 1.7 CB 1 MHz;VB 3 MHz;Pk, note 2 1999 960 15.4 V - PK 86 1.7 CB 1 MHz;VB 3 MHz;Pk, note 2 1999 960 15.4 V - PK 86 1.7 CB 1 MHz;VB 3 MHz;Pk, note 2 1999 960 15.4 V - PK 86 1.7 CB 1 MHz;VB 3 MHz;Pk, note 2 1000 100 0 100	Account Manager: Michelle Kim Standard: FCC 15.247/15.E/RSS-210 Class: N/A un #7, Radiated Spurious Emissions, 30 - 40,000 MHz. Operation in the 5250-5350 MHz Band Date of Test: 2/29/2012 Test Location: FT7 Test Engineer: Rafael Varelas Other Spurious Emissions requency Level Pol 15.209 / 15E Detector Azimuth Height Comments MHz dB _{IL} V/m v/h Limit Margin PK/OP/Avg degrees meters 0537.020 54.6 V - PK 86 1.7 RB 1 MHz:VB 3 MHz:Pk, note 2 1999 960 55.4 V - PEK 86 1.7 RB 1 MHz:VB 3 MHz:Pk, note 2 1999 960 55.4 V - PEK 86 1.7 RB 1 MHz:VB 3 MHz:Pk, note 2 1999 960 test: For emissions in restricted bands, the limit of 15.209 was used which requires average and peak measurements. For emissions outside of the restricted bands the limit is -27dBm/MHz eirp (68.3dBuV/m). Compliance demonstrated via conducted measurement during the original filing. Det 3: No significant emissions were observed for 18.40GHz Det 4: Emission from the digital circuitry of the host system. Refer to FCC 15.B test results.	Model:	XI-N300 (2x2	2 radio modu	ule) in XR100	0				-
Standard: FCC 15.247/15.E/RSS-210 Class: N/A un #7, Radiated Spurious Emissions, 30 - 40,000 MHz. Operation in the 5250-5350 MHz Band Date of Test: 2/29/2012 Test Location: FT7 Test Engineer: Rafael Varelas Test Location: FT7 Other Spurious Emissions requency Level Pol 15.209 / 15E Detector Azimuth Height Comments MHz dBµV/m v/h Limit Margin Pk/QP/Avg degrees meters 0537.020 55.4 V - - Pk 86 1.7 RB 1 MHz;VB 3 MHz;Pk, note 2 099.960 55.4 V - - Peak 116 1.0 Note 4 othe restricted bands, the limit of 15.209 was used which requires average and peak measurements. ote 1: For emissions outside of the restricted bands the limit is -27dBm/MHz eirp (68.3dBuV/m). Compliance demonstrated via conducted measurement during the original filing. ote 2: Eor emission from the digital circuitry of the host system. Refer to FCC 15.B test results. 140.0 - 00.0 - - 0 - - - -	Standard: FCC 15.247/15.E/RSS-210 un #7, Radiated Spurious Emissions, 30 - 40,000 MHz. Operation in the 5250-5350 MHz Band Date of Test: 2/29/2012 Test Engineer: Rafael Varelas Other Spurious Emissions requency Level Pol 15.209 / 15E Detector Azimuth Height Comments MHz dB _µ V/m v/h Limit Margin Pk/0P/Avg degrees meters 0537.020 54.6 V - PR 86 1.7 RB 1 MHz;VB 3 MHz;Pk, note 2 4999.960 55.4 V - Peak 116 1.0 Note 4 ote 1: For emissions in restricted bands, the limit of 15.209 was used which requires average and peak measurements. ofe 2: For emissions outside of the restricted bands the limit is -27dBm/MHz eirp (68.3dBuV/m). Compliance demonstrated via conducted measurement during the original filing. ote 3: No significant emissions were observed for 18-40CHz ote 4: Emission from the digital circuitry of the host system. Refer to FCC 15.B test results. 140.0 0 0 0 0 0 0 0 0 0 0 0 0 0								Acco	unt Manager: Michelle Kim
un #7, Radiated Spurious Emissions, 30 - 40,000 MHz. Operation in the 5250-5350 MHz Band Date of Test: 2/29/2012 Test Location: FT7 Test Engineer: Rafael Varelas Other Spurious Emissions requency Level Pol 15.209 / 15E Detector Azimuth Height Comments MHz dBµV/m v/h Limit Margin Pk/OP/Avg degrees meters 0537.020 54.6 V - PK 86 1.7 RB 1 MHz;VB 3 MHz;Pk, note 2 4999.960 55.4 V - Peak 116 1.0 Note 4 ote 1: For emissions in restricted bands, the limit of 15.209 was used which requires average and peak measurements. ote 2: For emissions outside of the restricted bands the limit is -27dBm/MHz eirp (68.3dBuV/m). Compliance demonstrated via conducted measurement during the original filing. ote 3: No significant emissions were observed for 18-40GHz ote 4: Emission from the digital circuitry of the host system. Refer to FCC 15.B test results. 140.0 000 100.0 000 000 000 000 000	un #7, Radiated Spurious Emissions, 30 - 40,000 MHz. Operation in the 5250-5350 MHz Band Date of Test: 2/29/2012 Test Location: FT7 Test Engineer: Rafael Varelas Other Spurious Emissions Trequency Level Pol 15.209 / 15E Detector Azimuth Height Comments MHz dB _µ //m v/h Limit Margin Pk/OP/Avg degrees meters 0537.020 54.6 V - PK 86 1.7 RB 1 MHz;VB 3 MHz;Pk, note 2 4999.960 55.4 V - PEK 86 1.7 RB 1 MHz;VB 3 MHz;Pk, note 2 100 Note 4 Detector Azimuth Height Comments For emissions unstricted bands, the limit of 15.209 was used which requires average and peak measurements. Tor emissions outside of the restricted bands the limit is -27dBm/MHz eirp (68.3dBuV/m). Compliance demonstrated via conducted measurement during the original filling. Det 3: No significant emissions were observed for 18-40GHz ote 4: Emission from the digital circuitry of the host system. Refer to FCC 15.B test results. 140.0 100.0 1				10					
Date of Test: 2/29/2012 Test Engineer: Rafael Varelas Other Spurious Emissions requency Level Pol 15.209 / 15E Detector Azimuth Height Comments MHz dBµV/m V/h Limit Margin Pk/OP/Avg degrees meters 0537.020 54.6 V - PK 86 1.7 RB 1 MHz:VB 3 MHz:Pk, note 2 1999.960 55.4 V - Peak 116 1.0 Note 4 ote 1: For emissions in restricted bands, the limit of 15.209 was used which requires average and peak measurements. ote 2: For emissions outside of the restricted bands the limit is -27dBm/MHz eirp (68.3dBuV/m). Compliance demonstrated via conducted measurement during the original filing. ote 3: No significant emissions were observed for 18-40CHz ote 4: Emission from the digital circuitry of the host system. Refer to FCC 15.B test results.	Date of Test: 2/29/2012 Test Engineer: Rafael Varelas Conter Spurious Emissions requency Level Pol 15.209 / 15E Detector Azimuth Height Comments MHz dBµV/m v/h Limit Margin PK/OP/Avg degrees meters 0537.020 54.6 V PK 86 1.7 RB 1 MHz:VB 3 MHz;Pk, note 2 1999.960 55.4 V PEAk 116 1.0 Note 4 Ote 1: For emissions unstricted bands, the limit of 15.209 was used which requires average and peak measurements. ote 2: For emissions sutside of the restricted bands the limit is -27dBm/MHz eirp (68.3dBuV/m). Compliance demonstrated via conducted measurement during the original filing. ote 3: No significant emissions were observed for 18.40CHz ote 4: Emission from the digital circuitry of the host system. Refer to FCC 15.B test results.						norotion in th			
requency Level Pol 15.209 / 15E Detector Azimuth Height Comments MHz dB _µ V/m v/h Limit Margin Pk/OP/Avg degrees meters 0537.020 54.6 V - PK 86 1.7 RB 1 MHz;VB 3 MHz;Pk, note 2 1999.960 55.4 V - Peak 116 1.0 Note 4 ote 1: For emissions in restricted bands, the limit of 15.209 was used which requires average and peak measurements. ote 2: For emissions outside of the restricted bands the limit is -27dBm/MHz eirp (68.3dBuV/m). Compliance demonstrated via conducted measurement during the original filing. ote 3: No significant emissions were observed for 18-40GHz ote 4: Emission from the digital circuitry of the host system. Refer to FCC 15.B test results.	requency Level Pol 15.209 / 15E Detector Azimuth Height Comments MHz dB _L V/m V/h Limit Margin Pk/OP/Avg degrees meters 0537.020 54.6 V - PK 86 1.7 RB 1 MHz;VB 3 MHz;Pk, note 2 1999.960 55.4 V - Peak 116 1.0 Note 4 ote 1: For emissions in restricted bands, the limit of 15.209 was used which requires average and peak measurements. ote 2: For emissions outside of the restricted bands the limit is -27dBm/MHz eirp (68.3dBuV/m). Compliance demonstrated via conducted measurement during the original filing. ote 3: No significant emissions were observed for 18-40GHz ote 4: Emission from the digital circuitry of the host system. Refer to FCC 15.B test results. 140.0- 100.0- 100.0- 100.0- 1000 18000	l Te	Date of Test: est Engineer:	2/29/2012 Rafael Varel		500 Minz. Oj				4
MHz dBµV/m v/h Limit Margin Pk/OP/Avg degrees meters 0537.020 54.6 V - - PK 86 1.7 RB 1 MHz;VB 3 MHz;Pk, note 2 1999.960 55.4 V - - Peak 116 1.0 Note 4 ote 1: For emissions in restricted bands, the limit of 15.209 was used which requires average and peak measurements. For emissions outside of the restricted bands the limit is -27dBm/MHz eirp (68.3dBuV/m). Compliance demonstrated via conducted measurement during the original filing. ote 2: For emissions outside of the restricted bands the limit is -27dBm/MHz eirp (68.3dBuV/m). Compliance demonstrated via conducted measurement during the original filing. ote 3: No significant emissions were observed for 18-40GHz ote 4: Emission from the digital circuitry of the host system. Refer to FCC 15.B test results. 140.0 -	MHz dBµV/m v/h Limit Margin Pk/OP/Avg degrees meters 0537.020 54.6 V - - PK 86 1.7 RB 1 MHz;VB 3 MHz;Pk, note 2 1999.960 55.4 V - - Peak 116 1.0 Note 4 ote 1: For emissions in restricted bands, the limit of 15.209 was used which requires average and peak measurements. Compliance demonstrated via conducted measurement during the original filing. ote 2: For emissions outside of the restricted bands the limit is -27dBm/MHz eirp (68.3dBuV/m). Compliance demonstrated via conducted measurement during the original filing. ote 3: No significant emissions were observed for 18-40GHz ote 4: Emission from the digital circuitry of the host system. Refer to FCC 15.B test results. 140.0 - <t< td=""><td></td><td>1 1</td><td></td><td>15 200</td><td>) / 150</td><td>Dotostor</td><td>Azimuth</td><td>Lloight</td><td>Commonto</td></t<>		1 1		15 200) / 150	Dotostor	Azimuth	Lloight	Commonto
0537.020 54.6 V - PK 86 1.7 RB 1 MHz;VB 3 MHz;Pk, note 2 4999.960 55.4 V - Peak 116 1.0 Note 4 et 1: For emissions in restricted bands, the limit of 15.209 was used which requires average and peak measurements. For emissions outside of the restricted bands the limit is -27dBm/MHz eirp (68.3dBuV/m). Compliance demonstrated via conducted measurement during the original filing. ote 3: No significant emissions were observed for 18-40GHz ote 4: Emission from the digital circuitry of the host system. Refer to FCC 15.B test results. 140.0 - 120.0 - 1000 18000	0537.020 54.6 V - PK 86 1.7 RB 1 MHz;VB 3 MHz;Pk, note 2 4999.960 55.4 V - Peak 116 1.0 Note 4 et 1: For emissions in restricted bands, the limit of 15.209 was used which requires average and peak measurements. ote 2: For emissions outside of the restricted bands the limit is -27dBm/MHz eirp (68.3dBuV/m). Compliance demonstrated via conducted measurement during the original filling. ote 3: No significant emissions were observed for 18-40GHz ote 4: Emission from the digital circuitry of the host system. Refer to FCC 15.B test results.								<u> </u>	Comments
1999.960 55.4 V - Peak 116 1.0 Note 4 111 1.0 Note 4 1120.0 Note 4 1.0 Note 4 1100.0 Note 4 1.0 Note 4 1100.0 Note 4 1.0 Note 4 1100.0 Note 4 1.0 Note 4 100.0 Note	1999.960 55.4 V - Peak 116 1.0 Note 4 101 For emissions in restricted bands, the limit of 15.209 was used which requires average and peak measurements. ote 2: For emissions outside of the restricted bands the limit is -27dBm/MHz eirp (68.3dBuV/m). Compliance demonstrated via conducted measurement during the original filing. ote 3: No significant emissions were observed for 18-40GHz ote 4: Emission from the digital circuitry of the host system. Refer to FCC 15.B test results.						u u			RB 1 MHz;VB 3 MHz;Pk, note 2
ote 2: For emissions outside of the restricted bands the limit is -27dBm/MHz eirp (68.3dBuV/m). Compliance demonstrated via conducted measurement during the original filing. ote 3: No significant emissions were observed for 18-40GHz ote 4: Emission from the digital circuitry of the host system. Refer to FCC 15.B test results. 140.0 120.0 120.0 0 00.0 0 00.0 0 00.0 0 00.0 0 00.0 0 00.0 0 0.0 <t< td=""><td>ote 2: For emissions outside of the restricted bands the limit is -27dBm/MHz eirp (68.3dBuV/m). Compliance demonstrated via conducted measurement during the original filing. ote 3: No significant emissions were observed for 18-40GHz ote 4: Emission from the digital circuitry of the host system. Refer to FCC 15.B test resutls.</td><td>1999.960</td><td>55.4</td><td>V</td><td>-</td><td>-</td><td>Peak</td><td>116</td><td>1.0</td><td></td></t<>	ote 2: For emissions outside of the restricted bands the limit is -27dBm/MHz eirp (68.3dBuV/m). Compliance demonstrated via conducted measurement during the original filing. ote 3: No significant emissions were observed for 18-40GHz ote 4: Emission from the digital circuitry of the host system. Refer to FCC 15.B test resutls.	1999.960	55.4	V	-	-	Peak	116	1.0	
20.0- 1000 10000 18000	20.0- 1000 10000 18000						1 0	Í		
1000 10000 18000	1000 10000 18000	Amplitude (dBuV/m) 80. 60.	o							
		(m/\nge) 80. 80. 60. 40.	0			L. II				-
Frequency (MHz)		(m/ 100. 80. 80. 40.	0- 0- 0-							-trans
		(w/\ngp) apnilidme 80. 60. 40.	0- 0- 0-				requency (Mł			-trans
		(w/\ngp) apnilidme 80. 60. 40.	0- 0- 0-			Fr	requency (Mł			-trans
		(m/\nge) 80. 80. 60. 40.	0- 0- 0-				requency (Mł			-trans
		(m/\nge) 80. 80. 60. 40.	0- 0- 0-			Fr	requency (Mł			-trans

	An 2022 Xirrus							LIVIC Job Number:	C Test Data
Client:	AITUS							Log Number:	
Model:	XI-N300 (2x2	2 radio modu	ıle) in XR100	0				unt Manager:	
Contact:	Steve Smith						7.000		
	FCC 15.247/	15.E/RSS-2	10					Class:	N/A
Te	diated Spuric Date of Test: : est Engineer:	2/29/2012 Rafael Varel		000 MHz. Oj		ne 5250-5350 est Location:		d	
	urious Emiss		15 000			A 1 11			
Frequency MHz	Level dBµV/m	Pol v/h	15.209 Limit	Margin	Detector Pk/QP/Avg	Azimuth degrees	Height meters	Comments	
10533.040		V	-	iviaryiri -	PK	78	1.1	RB 1 MHz:V	B 3 MHz;Pk, note 2
4996.670	52.2	V	-	-	Peak	353	1.0	Note 4	
140. 120.									
	0- 0- 0- 0-		111 111 111						
120. (w/\ngp 90. 80. 40. 40.	0- 0- 0- 0-		111 111 111 111						
120. (m/ 100. (m/ not so. 80. 40. 40.	0- 0- 0- 0-	 	 	····					
120. (w/\ngp 80. 80. Huhltrde 60. 40.	0- 0- 0- 0- 0-		 	Fr	requency (MH			-	
120. (w/\ngp 90. 80. 40. 40.	0- 0- 0- 0- 0-	 	 	astra fr	requency (Mł			-	
120. (W/ 100. (W/ Ngp) 80. 80. 40. 40.	0- 0- 0- 0- 0-		111 111 1	 	requency (MH			-	
120. (W/ 100. (W/ Ngp) 80. 80. 40. 40.	0- 0- 0- 0- 0-		 	 	requency (Mł			-	
120. (m/ 100. (m/ Angp 80. 80. 40. 40.	0- 0- 0- 0- 0-		 	 or y Fr	requency (Mł			-	
120. (m/ 100. (m/ not so. 80. 40. 40.	0- 0- 0- 0- 0-			Fr	requency (MH			-	
120. (W/ 100. (W/ Ngp) 80. 80. 40. 40.	0- 0- 0- 0- 0-			 	requency (MH			-	
120. (January)) (January)) (January)) (January)) (January)) (January)) (Janu	0- 0- 0- 0- 0-		t.	Fr	requency (Mł			-	

Client: Xirus Job Number: Jdb Number: Jdb Number: Jdb Number: Tel.og Number: <th>Elliott</th> <th>EMO</th> <th>C Test</th>	Elliott	EMO	C Test
Model: XI-N300 (2x2 radio module) in XR1000 T-Log Number: T86381 Contact: Steve Smith Michelk Standard: FCC 15.247/15.E/RSS-210 Class: N/A RSS 210 and FCC 15.407 (UNII) Radiated Spurious Emissions (5470-5725 MHz Band) Gest Specific Details Objective: The objective of this test session is to perform final qualification testing of the EUT with respect t specification listed above. Seneral Test Configuration or radiated emissions testing the measurement antenna was located 3 meters from the EUT. Modifications Made During Testing No modifications were made to the EUT during testing Veviations From The Standard	Client: Xirrus	Job Number:	J86254
Contact: Steve Smith Image: Michelik Standard: FCC 15.247/15.E/RSS-210 Class: N/A RSS 210 and FCC 15.407 (UNII) Radiated Spurious Emissions (5470-5725 MHz Band) est Specific Details Objective: The objective of this test session is to perform final qualification testing of the EUT with respect t specification listed above. eneral Test Configuration r radiated emissions testing the measurement antenna was located 3 meters from the EUT. mbient Conditions: Temperature: 20-25 °C Rel. Humidity: 30-40 % odifications Made During Testing No modifications were made to the EUT during testing eviations From The Standard			
Itandard: FCC 15.247/15.E/RSS-210 Class: N/A RSS 210 and FCC 15.407 (UNII) Radiated Spurious Emissions (5470-5725 MHz Band) st Specific Details Objective: The objective of this test session is to perform final qualification testing of the EUT with respect to specification listed above. emeral Test Configuration radiated emissions testing the measurement antenna was located 3 meters from the EUT. minimizer Conditions: Temperature: 20-25 °C Rel. Humidity: 30-40 % podifications Made During Testing No modifications were made to the EUT during testing eviations From The Standard		Account Manager:	Michelle Kim
RSS 210 and FCC 15.407 (UNII) Radiated Spurious Emissions (5470-5725 MHz Band) est Specific Details Objective: The objective of this test session is to perform final qualification testing of the EUT with respect to specification listed above. eneral Test Configuration radiated emissions testing the measurement antenna was located 3 meters from the EUT. Inbient Conditions: Temperature: 20-25 °C Rel. Humidity: 30-40 % podifications Made During Testing No modifications were made to the EUT during testing eviations From The Standard		Class.	N/A
Objective: The objective of this test session is to perform final qualification testing of the EUT with respect to specification listed above. eneral Test Configuration Intervention radiated emissions testing the measurement antenna was located 3 meters from the EUT. Intervention nbient Conditions: Temperature: 20-25 °C redifications Made During Testing Intervention to modifications were made to the EUT during testing Intervention eviations From The Standard Intervention		purious Emission	IS
or radiated emissions testing the measurement antenna was located 3 meters from the EUT. mbient Conditions: Temperature: 20-25 °C Rel. Humidity: 30-40 % lodifications Made During Testing No modifications were made to the EUT during testing eviations From The Standard	Objective. The objective of this test session is to perform final qualificatio	n testing of the EUT with r	respect to the
Temperature: 20-25 °C Rel. Humidity: 30-40 % Modifications Made During Testing No modifications were made to the EUT during testing Deviations From The Standard Standard		e EUT.	
No modifications were made to the EUT during testing Deviations From The Standard		Rel. Humidity: 30-40	%

Client:		Company				Job Number:	J86254
						T-Log Number:	
Model:	XI-N300 (2x)	2 radio modu	lle) in XR100	00		Account Manager:	
Contact:	Steve Smith						
Standard:	FCC 15.247	/15.E/RSS-2 ⁻	10			Class:	N/A
		-					
•	of Result		2 and 3v3 l	Modules for 9	802.11a; HT20; and HT4	0 modes	
			Power	Measured	Test Performed	Limit	Docult / Morgin
Run #	Mode	Channel	Setting	Power	Test Penonneu	LIIIII	Result / Margin
		2x2: 5500 MHz	35		Radiated Emissions,		47.3dBµV/m @
1	802.11a	3x3: 5700	33		1 - 40 GHz	FCC 15.209 / 15 E	11000.1MHz (-6.7dE
		MHz					, ,
		2x2: 5700			De d'ate d'Enclasione		
2	802.11a	MHz 3x3: 5500	32 33		Radiated Emissions, 1 - 40 GHz	FCC 15.209 / 15 E	49.0dBµV/m @ 11399.5MHz (-5.0dE
		MHz	55				11077.00012 (0.001
		2x2: 5580					
3	802.11a	MHz	32*		Radiated Emissions,	FCC 15.209 / 15 E	52.4dBµV/m@
		3x3: 5580 MHz	30*		1 - 40 GHz		11158.76MHz (-1.6d
		2x2: 5500					
4	802.11n20	MHz	32*		Radiated Emissions,	FCC 15.209 / 15 E	53.9dBµV/m @
т	002.11120	3x3: 5700	33		1 - 40 GHz	10010.20771012	5080.03MHz (-0.1dE
		MHz 2x2: 5700					
F	000 11-00	MHz	31*		Radiated Emissions,	FCC 15.209 / 15 E	53.9dBµV/m @
5	802.11n20	3x3: 5500	30		1 - 40 GHz	FCC 15.2097 15 E	11398.89MHz (-0.1d
		MHz					
		2x2: 5580 MHz	32		Radiated Emissions,		52.5dBµV/m @
6	802.11n20	3x3: 5580	30		1 - 40 GHz	FCC 15.209 / 15 E	11158.45MHz (-1.5d
		MHz					
		2x2: 5510	00		Dedicted Environment		
7	802.11n40	MHz 3x3: 5670	20 34		Radiated Emissions, 1 - 40 GHz	FCC 15.209 / 15 E	51.8dBµV/m @ 5119.99MHz (-2.2dl
		MHz	34				5117.77Wi12 (-2.20
		2x2: 5670					
8	802.11n40	MHz	27		Radiated Emissions,	FCC 15.209 / 15 E	51.1dBµV/m@
		3x3: 5510 MHz	13		1 - 40 GHz		5080.06MHz (-2.9dE

Client:	Xirrus						Job Number:	J86254
Model		radia mar				Ţ·	Log Number:	T86381
wodel:	XI-IN3UU (2X2		lule) in XR1000		Acco	Michelle Kim		
Contact:	Steve Smith							
Standard:	FCC 15.247/	15.E/RSS-	210				Class:	N/A
System Cor	figuration	Ωn	erating within 5470-	5725 MHz				
Radio #	Frequency	Module	Mode	Radio #	Frequency	Module	Mode	
Run: 1				Run: 2	1 3			
1	5500	2x2	802.11a	1	5700	2x2	802.11a	
0	5700	3x3	802.11a	0	5500	3x3	802.11a	
Run: 3								
1	5580	2x2	802.11a					
0	5580	3x3	802.11a					
Run: 4				Run: 5				
1	5500	2x2	802.11HT20	1	5700	2x2	802.11HT20)
0	5700	3x3	802.11HT20	0	5500	3x3	802.11HT20)
Run: 6								
1	5580	2x2	802.11HT20					
0	5580	3x3	802.11HT20					
Run: 7				Run: 8				
1	5510	2x2	802.11HT40	1	5670	2x2	802.11HT40)
0	5670	3x3	802.11HT40	0	5510	3x3	802.11HT40)

Notes - Multiple radios operating at the same time as shown above. In all cases, power set to the maximum worse case single channel power, transmitting on all chains.

Client:	Xirrus							Job Number: J86254
Madal	VI N200 (2v2	radia madu		0			T-	Log Number: T86381
wodel:	XI-N300 (2x2		lie) in XR100	0			Ассо	unt Manager: Michelle Kim
Contact:	Steve Smith							
Standard:	FCC 15.247/	15.E/RSS-2	10					Class: N/A
l Te	diated Spurio Date of Test: 2 est Engineer: 1	2/29/2012 Rafael Varel)00 MHz. Oj		ne 5470-5728 est Location:		d
	urious Emiss		15 200		Detector	A :	Llainht	Commonte
requency MHz	Level	Pol v/h	15.209 Limit		Detector Pk/QP/Avg	Azimuth degrees	Height meters	Comments
1000.070	dBμV/m 47.3	V	54.0	Margin -6.7	AVG	208	1.3	RB 1 MHz;VB 10 Hz;Pk
1005.200	59.6	V	74.0	-14.4	PK	208	1.3	RB 1 MHz;VB 3 MHz;Pk
1399.640	45.9	V	54.0	-8.1	AVG	88	1.1	RB 1 MHz;VB 10 Hz;Pk
394.970	56.7	V	74.0	-17.3	PK	88	1.1	RB 1 MHz;VB 3 MHz;Pk
000.060	52.3	V	-	-	Peak	104	1.0	Note 4
140.	0 - [FCC 15.B tes		
140. 120. (W/\ngp) apnitique 80. 80. 40.	o- o- o	 	 					
.120 (m) 100. 80. 60.	0- 0- 0- 0- 0- 0-	 	 					
120. (m/\nge (ggn()/m) 80. 60. 40.	0- 0- 0- 0- 0- 0-	 	 		requency (MH			

E E	Ellic	ott						EM	C Test Data
Client:	Xirrus	은 company						Job Number:	J86254
				•			T-	Log Number:	T86381
Model:	XI-N300 (2x)	2 radio modu	ile) in XR100	0			Αссоι	unt Manager:	Michelle Kim
Contact:	Steve Smith							0	
Standard:	FCC 15.247	/15.E/RSS-2	10					Class:	N/A
)00 MHz. OI	peration in th	ne 5470-572	5 MHz Band		
[Te	Date of Test: st Engineer: urious Emis	2/29/2012 Rafael Varel				est Location:			
Frequency	Level	Pol	15.209	/ 15F	Detector	Azimuth	Height	Comments	
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	Sommenus	
11399.470	49.0	V	54.0	-5.0	AVG	201	1.1	RB 1 MHz;V	/B 10 Hz;Pk
11399.540	59.3	V	74.0	-14.7	PK	201	1.1		/B 3 MHz;Pk
2750.270	48.1	Н	54.0	-5.9	AVG	130	1.0	RB 1 MHz;V	
2749.540	60.5	Н	74.0	-13.5	PK	130	1.0		/B 3 MHz;Pk
11004.760	43.4	V	54.0	-10.6	AVG	81	1.0	RB 1 MHz;V	
10996.090	54.9	V	74.0	-19.1	PK	81	1.0	RB 1 MHz;V	/B 3 MHz;Pk
5000.060	49.6	V	-	-	Peak	100	1.0	Note 4	
Note 2: Note 3: Note 4:	No significar	nt emissions	during the or were observe circuitry of th	ed for 12-40	GHz em. Refer to l	FCC 15.B tes	st resutls.		
140,/ 120,/ (m//ngp) 80,/ 90,1 40,/ 20,/	D				requency (MH				

Client		ompany Company						Job Number:	186254
Oliciti.								Log Number:	
Model:	XI-N300 (2x2	2 radio modu	ile) in XR100	0				unt Manager:	
Contact	Steve Smith						ACCO	uni manayor.	
	FCC 15.247/	15 E/DSS 0	10					Class:	N/Λ
	diated Spurio				noration in th		E MUIT Dong		N/A
Te	Date of Test: est Engineer:	3/14/2012 Peter Sales	יייסי - ססי, אווא, א	500 Militz. Oj		est Location:			
	urious Emiss		15.209)/15E	Dotoctor	Azimuth	Hoight	Commonte	
Frequency MHz	Level dBµV/m	Pol v/h	Limit	Margin	Detector Pk/QP/Avg	Azimuth degrees	Height meters	Comments	
11158.760		V	54.0	-1.6	AVG	316	1.0	RB 1 MHz;V	/B 10 Hz:Pk
11158.700	64.8	V	74.0	-9.2	PK	316	1.0	RB 1 MHz;V	
5080.020	51.6	V	54.0	-2.4	AVG	281	1.1	RB 1 MHz;V	
5080.190	57.8	V	74.0	-16.2	PK	281	1.1	RB 1 MHz;V	
5000.070	55.3	V	54.0	1.3	AVG	247	1.0	RB 1 MHz;V	
5000.170	60.9	V	74.0	-13.1	PK	247	1.0	RB 1 MHz;V	'B 3 MHz;Pk
5120.090	51.5	V V	54.0	-2.5	AVG	281	1.1	2x2 5580	
5119.930 5119.940	57.9 39.9	V	74.0 54.0	-16.1 -14.1	PK AVG	281 310	1.1 1.0	2x2 5580 3x3 5580	
5120.060	48.4	V	74.0	-25.6	PK	310	1.0	3x3 5580	
lote 2: lote 3: lote 4: 140. 120. (^(U) /100. (^(U) /100. 80. (^(U) /100. 80. (^(U) /100. 80. (^(U) /100. 80. (^(U) /100. (^{(U}	Conducted m No significan Emission froi	<u>easurement</u> t emissions	during the o	riginal filing. ed for 12-40					ce demonstrated via a
20.	0- 1000	un gan de a la companya de la company	-derma be-	مىيۇ (بە رىمەر بەرمەر) بورىمە	requency (MF	47)	Ι.		0000 12000

Client:		Company						Job Number:	J86254
							T-	Log Number:	T86381
Model:	XI-N300 (2x)	2 radio modu	ıle) in XR100	0				0	Michelle Kim
Contact.	Steve Smith								
	FCC 15.247	/15 F/RSS-2	10					Class:	N/A
				00 MHz O	peration in th	ne 5470-572	5 MHz Band		
	Date of Test:			, , , , , , , , , , , , , , , , , , ,		est Location:			
Te	st Engineer:	Peter Sales							
	urious Emis		15.209		Detector	A _!	11.2.1.1	0	
requency MHz		Pol	Limit		Detector Pk/QP/Avg	Azimuth	Height	Comments	
5080.030	dBµV/m 53.9	v/h V	54.0	Margin -0.1	AVG	degrees 260	meters 1.0	RB 1 MHz;V	/B 10 H7·Pk
5079.880	59.0	V	74.0	-15.0	PK	260	1.0		/B 3 MHz;Pk
5000.060	54.9	V	-	-	AVG	247	1.1	Note 4	,
5000.190	59.5	V	-	-	PK	247	1.1	Note 4	
1000.670	53.9	V	54.0	-0.1	AVG	176	1.0	2x2 5500	
0998.710	66.2	V	74.0	-7.8	PK	176	1.0	2x2 5500	
1395.670	53.7	V	54.0	-0.3	AVG	340	1.0	RB 1 MHz;V	
1395.800 5119.970	67.2 48.3	V	74.0 54.0	-6.8 -5.7	PK AVG	340 288	<u>1.0</u> 1.3	RB 1 MHz;V 2x2 5500	/B 3 MHz;Pk
5120.110	46.3 56.6	V	74.0	-17.4	PK	288	1.3	2x2 5500 2x2 5500	
5120.130	48.3	V	54.0	-5.7	AVG	81	1.0	3x3 5700	
5120.000	56.7	V	74.0	-17.3	PK	81	1.0	3x3 5700	
ote 1:					09 was used				
lote 2:					limit is -27dBr	m/MHz eirp (68.3dBuV/m	n). Compliand	ce demonstrated via
ote 3:			during the o		GH7				
ote 4:					em. Refer to I	FCC 15 B tes	st resutts		
	LINISSION NO		circulary of a	ie nost syste		00 10.0 10.			
140.	0-					_			
120.	0-					8			
_									
Amplitude (dBuV/m) 80. 80.	o –					- I			
фр (фр		n i r		im i		- n		n n m	
୍ର ୫୦. ଜୁ	0-	L		ui LJ	- II L			(U	.
. 11 문 60.	0-	η μ Γ				ЛЦ		וורקרך	
¥			u l						
40.	0-	Y	A .	allow and a			he have a		
	- mar	-warde	and a second barrow	والجناب ويري فيحاد منهاده					
20.	U-¦ 1000						· · ·	1	0000 12000
					equency (MH			-	

Client:								EM Job Number:	C Test Data
Client:	AITUS							Log Number:	
Model:	XI-N300 (2x2	2 radio modu	ıle) in XR100	0				9	Michelle Kim
Contact.	Steve Smith						7,000	ant manager.	
	FCC 15.247		10					Class:	N/A
				000 MHz Ou	peration in th	e 5470-572	5 MHz Band		
[Te	Date of Test: st Engineer:	3/14/2012 Peter Sales				st Location:			
· · · · · ·	urious Emis		15.209)/15E	Dotoctor	Azimuth	Hoight	Comments	
Frequency MHz	Level dBµV/m	Pol v/h	Limit	Margin	Detector Pk/QP/Avg	Azimuth degrees	Height meters	Comments	
11398.390	<u>αβμν/π</u> 53.9	V	54.0	-0.1	AVG	360	1.0	2x2 5700	
11398.190	66.0	V	74.0	-8.0	PK	360	1.0	2x2 5700	
11000.280	50.0	V	54.0	-4.0	AVG	352	1.2	RB 1 MHz;\	/B 10 Hz;Pk
11000.870	62.7	V	74.0	-11.3	PK	352	1.2	RB 1 MHz;\	/B 3 MHz;Pk
5000.080	54.2	V	-	-	AVG	250	1.1	Note 4	
5000.200	59.7	V	-	-	PK	250	1.1	Note 4	
5080.120	53.5	V	54.0	-0.5	AVG	263	1.0	RB 1 MHz;\	
5079.830	59.0	V	74.0	-15.0	PK	263	1.0	RB 1 MHZ;\	/B 3 MHz;Pk
Note 1: Note 2: Note 3: Note 4:	For emissior conducted m No significar	ns outside of neasurement nt emissions	the restricted during the o were observe	l bands the riginal filing. ed for 12-40		m/MHz eirp (68.3dBuV/m		ce demonstrated via a
140.1 120.1 (W/Mg) 100.1 80.1 80.1 40.1 20.1		[][/			equency (MH				0000 12000

Client:	Xirrus	Stt						Job Number: J86254
Model	XI-N300 (2x2	radio modu	ila) in VD100	0				-Log Number: T86381
would.	AI-19300 (282			0			Ассо	ount Manager: Michelle Kim
Contact:	Steve Smith							
Standard:	FCC 15.247/	15.E/RSS-2	10					Class: N/A
] Te	diated Spuric Date of Test: (st Engineer:	3/14/2012 Peter Sales	ons, 30 - 40,(000 MHz. Oj		ne 5470-572! est Location:		
	urious Emiss		15.000			A 1 11		
equency	Level	Pol	15.209		Detector	Azimuth	Height	Comments
MHz 158.450	dBμV/m 52.5	v/h V	Limit 54.0	Margin -1.5	Pk/QP/Avg AVG	degrees 321	meters 1.0	RB 1 MHz;VB 10 Hz;Pk
158.040	52.5 65.2	V	54.0 74.0	-1.5 -8.8	PK	321	1.0	RB 1 MHz;VB 3 MHz;Pk
80.010	51.7	V	54.0	-2.3	AVG	281	1.0	RB 1 MHz; VB 10 Hz; Pk
80.100	57.0	V	74.0	-17.0	PK	281	1.1	RB 1 MHz;VB 3 MHz;Pk
	55.6	V	-	-	AVG	252	1.1	Note 4
00.060 00.120 e 1: e 2: e 3:	55.6 61.1 For emission For emission conducted m No significan Emission fror	V V s in restricte s outside of easurement t emissions	- ed bands, the the restricted during the o were observe	- limit of 15.2 d bands the riginal filing. ed for 12-40	PK 209 was used limit is -27dBr	252 which requir m/MHz eirp (1.1 es average 68.3dBuV/n	Note 4 Note 4 and peak measurements. n). Compliance demonstrated vi
000.060 000.120 ie 1: ie 2: ie 3: ie 4:	55.6 61.1 For emission For emission conducted m No significan Emission fror	V V s in restricte s outside of easurement t emissions	- ed bands, the the restricted during the o were observe	- limit of 15.2 d bands the riginal filing. ed for 12-40	PK 109 was used limit is -27dBr GHz	252 which requir m/MHz eirp (1.1 es average 68.3dBuV/n	Note 4 and peak measurements.
000.060 000.120 e 1: e 2: e 3: e 4: 140,1 120,1	55.6 61.1 For emission For emission conducted m No significan Emission fror	V V s in restricte s outside of easurement t emissions	- ed bands, the the restricted during the o were observe	- limit of 15.2 d bands the riginal filing. ed for 12-40	PK 109 was used limit is -27dBr GHz	252 which requir m/MHz eirp (1.1 es average 68.3dBuV/n	Note 4 and peak measurements.
e 1: e 2: e 3: e 4: 140,1 120,1 (June (Many Many Many Many Many Many Many Many	55.6 61.1 For emission For emission conducted m No significan Emission fror 0 - 0 - 0 -	V V s in restricte s outside of easurement t emissions	- ed bands, the the restricted during the o were observe	- limit of 15.2 d bands the riginal filing. ed for 12-40	PK 109 was used limit is -27dBr GHz	252 which requir m/MHz eirp (1.1 es average 68.3dBuV/n	Note 4
00.060 00.120 e 1: e 2: e 3: e 4: 140.1 (Julyingp) apprildmy 40.1	55.6 61.1 For emission For emission conducted m No significan Emission fror 0 - 0 - 0 -	V V s in restricte s outside of easurement t emissions	- ed bands, the the restricted during the o were observe	- limit of 15.2 d bands the riginal filing. ed for 12-40 ne host syste	PK 109 was used limit is -27dBr GHz	252 which requir m/MHz eirp (1.1 es average 68.3dBuV/n	Note 4 and peak measurements.

Client:	Xirrus	Company						Job Number: J86254
Model	XI-N300 (2x2	radio modu	ile) in XR100	0		-		-Log Number: T86381
							Ассо	ount Manager: Michelle Kim
Contact:	Steve Smith							
Standard:	FCC 15.247/	15.E/RSS-2	10					Class: N/A
] Te	diated Spurio Date of Test: 3 est Engineer: 1	3/15/2012 Peter Sales	ons, 30 - 40,	000 MHz. O		ne 5470-5728 est Location:		
	urious Emiss		15 200	9 / 15E	Detector	A -:	l la la la la la	Commente
equency MHz		Pol			Detector	Azimuth	Height	Comments
336.620	dBµV/m 50.9	v/h V	Limit 54.0	Margin -3.1	Pk/QP/Avg AVG	degrees 346	meters 1.0	RB 1 MHz;VB 10 Hz;Pk
336.430	63.9	V	74.0	-10.1	PK	340	1.0	RB 1 MHz;VB 3 MHz;Pk
000.050	52.1	V	-	-	AVG	252	1.3	Note 4
99.950	56.5	V			PK	252	1.3	Note 4
///./50	50.5	v	-	-		202		
	51.8	V	54.0	-2.2	AVG	100	1.1	RB 1 MHz;VB 10 Hz;Pk
119.990 119.730 te 1: te 2: te 3: te 4:	51.8 58.0 For emission: For emission: conducted mo No significant Emission fror	V V s in restricte s outside of easurement t emissions	74.0 ed bands, the the restricted t during the o were observe	-16.0 e limit of 15.2 d bands the riginal filing. ed for 12-40	AVG PK 209 was used limit is -27dBr GHz	100 100 which requir n/MHz eirp (1.1 1.1 es average 68.3dBuV/n	
119.990 119.730 te 1: te 2:	51.8 58.0 For emissions For emissions conducted me No significant Emission fror	V V s in restricte s outside of easurement t emissions	74.0 ed bands, the the restricted t during the o were observe	-16.0 e limit of 15.2 d bands the riginal filing. ed for 12-40	AVG PK 209 was used limit is -27dBr GHz	100 100 which requir n/MHz eirp (1.1 1.1 es average 68.3dBuV/n	RB 1 MHz;VB 10 Hz;Pk RB 1 MHz;VB 3 MHz;Pk and peak measurements.
119.990 119.730 te 1: te 2: te 3: te 4: 140.1 (W/\ngg) 80.1 120.1 (W/\ngg) 80.1 40.1	51.8 58.0 For emission: conducted minimized mi	V V s in restricte s outside of easurement t emissions	74.0 ed bands, the the restricted t during the o were observe	-16.0 e limit of 15.2 d bands the riginal filing. ed for 12-40	AVG PK 209 was used limit is -27dBr GHz	100 100 which require n/MHz eirp (FCC 15.B tes	1.1 1.1 es average 68.3dBuV/n	RB 1 MHz;VB 10 Hz;Pk RB 1 MHz;VB 3 MHz;Pk and peak measurements.
119.990 119.730 te 1: te 2: te 3: te 4: 140.1 120.1 (July 100.1 100.1 0.1 0.1 0.1 100.1	51.8 58.0 For emission: conducted minimized mi	V V s in restricte s outside of easurement t emissions	74.0 ed bands, the the restricted t during the o were observe	-16.0 e limit of 15.2 d bands the riginal filing. ed for 12-40 ne host syste	AVG PK 209 was used limit is -27dBr GHz	100 100 which require n/MHz eirp (FCC 15.B tes	1.1 1.1 es average 68.3dBuV/n	RB 1 MHz;VB 10 Hz;Pk RB 1 MHz;VB 3 MHz;Pk and peak measurements.

Client:	: Xirrus	Stt						Job Number: J86254
Model	: XI-N300 (2x2	radio modu	ILe) in XR100	0				Log Number: T86381
							Acco	unt Manager: Michelle Kim
Contact:	Steve Smith							
tandard:	FCC 15.247/	15.E/RSS-2	10					Class: N/A
Te	diated Spurio Date of Test: 3 est Engineer: 1	3/15/2012 Peter Sales		000 MHz. O		ne 5470-572! est Location:		
	ourious Emiss		15.209)/15E	Detector	Azimuth	Hoight	Comments
quency MHz	Level	Pol v/h	Limit	Margin	Pk/QP/Avg	Azimuth degrees	Height meters	Comments
58.590	dBµV/m 47.9	V	54.0	-6.1	AVG	13	1.3	RB 1 MHz;VB 10 Hz;Pk
61.040		V	74.0	-11.6	PK	13	1.3	RB 1 MHz;VB 3 MHz;Pk
00.050	54.7	V	-	-	AVG	250	1.1	Note 4
99.970	60.1	V	-	-	PK	250	1.1	Note 4
30.060	51.1	V	54.0	-2.9	AVG	269	1.0	RB 1 MHz;VB 10 Hz;Pk
30.280	57.4	V	74.0	-16.6	PK	269	1.0	RB 1 MHz;VB 3 MHz;Pk
e 2: e 3: e 4:		<u>easurement</u> t emissions	t during the o were observe	<u>riginal filing.</u> ed for 12-40		-		and peak measurements. n). Compliance demonstrated vi
2 3: 2 4: 140. 120.	No significant Emission from 0	<u>easurement</u> t emissions	t during the o were observe	<u>riginal filing.</u> ed for 12-40	GHz	-		
2 3: 2 4: 140. 120. (III) 100. (III) 100. 80. 80. 80.	No significant Emission from 0	<u>easurement</u> t emissions	t during the o were observe	<u>riginal filing.</u> ed for 12-40	GHz	-		n). Compliance demonstrated vi
2 3: 2 4: 140. 120. (III) 100. 80. 40. 40.	No significant Emission from 0	<u>easurement</u> t emissions	t during the o were observe	riginal filing. ed for 12-40 ne host syste	GHz	FCC 15.B tes		

СЕ	li	io	tt
~	1	in RTAS	COMPANY

EMC Test Data

An LACE) company		
Client:	Xirrus	Job Number:	J86254
Model:	XI-N450 (3x3 radio module) in XR1000	T-Log Number:	T86382
		Account Manager:	Michelle Kim
Contact:	Steve Smith		-
Emissions Standard(s):	FCC 15.247/15.E/RSS-210	Class:	-
Immunity Standard(s):	-	Environment:	-
Immunity Standard(s):	-	Environment:	-

EMC Test Data

For The

Xirrus

Model

XI-N450 (3x3 radio module) in XR1000

Date of Last Test: 5/24/2012

EMC Test Data

Client:	Xirrus	Job Number:	J86254
Model	XI-N450 (3x3 radio module) in XR1000	T-Log Number:	T86382
wouer.		Account Manager:	Michelle Kim
Contact:	Steve Smith		
Standard:	FCC 15.247/15.E/RSS-210	Class:	N/A

RSS 210 and FCC 15.247 (DTS) Radiated Spurious Emissions 802.11bg, HT20 Band Edge and Spurious, HT40 Band Edge

Test Specific Details

Elliott

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

General Test Configuration

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

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

Ambient Conditions:	Temperature:	20-25 °C
	Rel. Humidity:	30-40 %

Modifications Made During Testing

No modifications were made to the EUT during testing

Deviations From The Standard

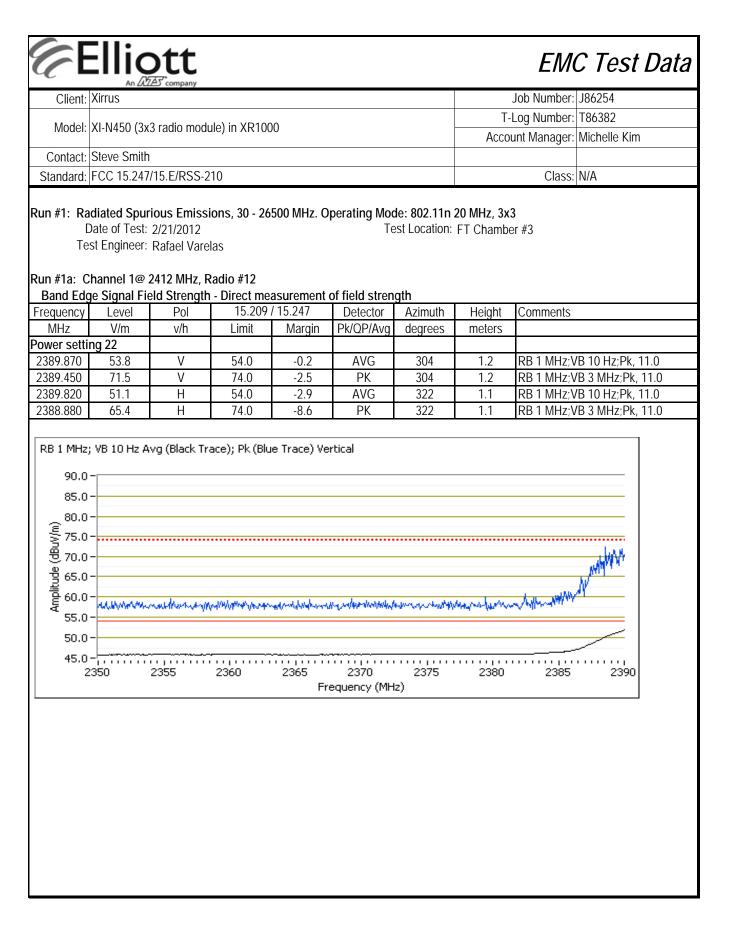
No deviations were made from the requirements of the standard.

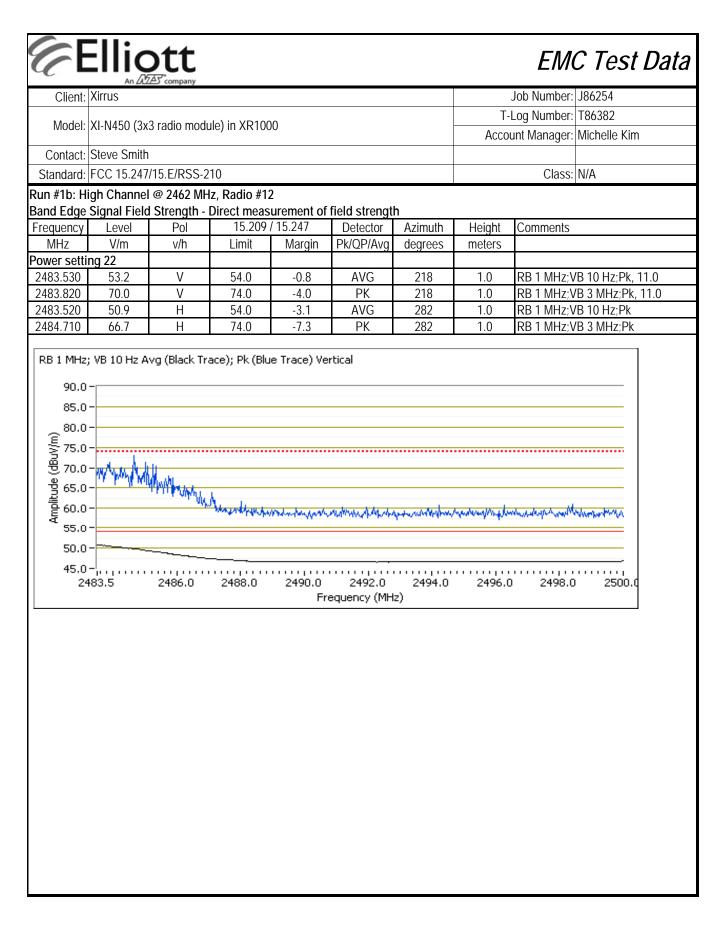
Summary of Results - Device Operating in the 2400-2483.5 MHz Band

Run #	Mode	Channel	Power Setting	Test Perfor	med Limit	Result / Margin
1a Low Channel	HT20	2412 MHz	22*	Restricted Bar (2390 MH	0	
1b High Channel	1120	2462 MHz	22*	Restricted Bar (2483.5 M	0	

Note: * - indicates power reduced from original certification

Testing was performed on the worse case mode from the original filing. Power was set to be within 0.5dB of the original filing power.





EMC Test Data

	An ZLED company		
Client:	Xirrus	Job Number:	J86254
Model	XI-N450 (3x3 radio module) in XR1000	T-Log Number:	T86382
would.		Account Manager:	Michelle Kim
Contact:	Steve Smith		
Standard:	FCC 15.247/15.E/RSS-210	Class:	N/A

RSS 210 and FCC 15.407 (UNII) Radiated Spurious Emissions

Test Specific Details

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

General Test Configuration

The EUT and all local support equipment were located on the turntable for radiated spurious emissions testing. All remote support equipment was located approximately 30 meters from the EUT.

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

Ambient Conditions:

Temperature:	20-25 °C	;
Rel. Humidity:	30-40 %	

Summary of Results

<u> </u>						
Run #	Mode	Channel	Power Setting	Test Performed	Limit	Result / Margin
		5150-5250	19	Restricted Band Edge		47.2 dBµV/m @ 5149.8
1	HT20	#36 (low)	.,	at 5150 MHz	15.209	MHz (-6.8 dB)
I	Chain 012	5150-5250	15*	Restricted Band Edge	13.207	53.8 dBµV/m @ 5000.0
		#40	15	at 5150 MHz		MHz (-0.2 dB)
		5250-5350	21	Restricted Band Edge		53.4 dBµV/m @ 5359.9
2	HT20	#64 (High)	21	at 5350 MHz	15.209	MHz (-0.6 dB)
Z	Chain 012	5150-5250	33	Restricted Band Edge	15.209	47.5 dBµV/m @ 5360.0
		#60	33	at 5350 MHz		MHz (-6.5 dB)
2	HT20	5470-5725	30	Restricted Band Edge	15.209	53.2 dBµV/m @ 5440.0
3	Chain 012	Low	30	at 5460 MHz	15.209	MHz (-0.8 dB)

Note: * - indicates power reduced from original certification

Testing was performed on the worse case mode from the original filing. Power was set to be within 0.5dB of the original filing power.

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.

EMC Test Data

Client: Xirrus Jdb Number: Jdb Number: Idb Number: <td< th=""><th>og Number: T86382</th><th></th><th></th><th></th><th></th><th></th><th></th><th>An AZ</th><th></th></td<>	og Number: T86382							An AZ			
Model: XI-N450 (3x3 radio module) in XR1000 T-Log Number: T86382 Contact: Steve Smith Account Manager: Michelle Kim Standard: FCC 15.247/15.E/RSS-210 Class: N/A Run #1, Radiated Spurious Emissions at Band Edges. Operation in the 5150-5250 MHz Band Run #1a: Low Channel, 5180 MHz Date of Test: 2/22/2012 Test Engineer: John Caizzi Test Location: FT5 F5150 MHz Band Edge Signal Radiated Field Strength Frequency Level Pol FCC 15.209 Detector Azimuth Height Comments MHz dBµV/m Vh Limit Margin PK/OP/Avg degrees meters 5149.800 47.2 V 54.0 -6.8 AVG 109 1.05 Stan arrow 60.0 - - - - - - WHz 06.0 - - - - - - - MHz VB 10 Hz Blue = pk, balck = avg V - - - - - -	0							Xirrus	Client:		
Contact: Steve Smith Account Manager: Michelle Km Standard: FCC 15.247/15.E/RSS-210 Class: N/A Run #1, Radiated Spurious Emissions at Band Edges. Operation in the 5150-5250 MHz Band Run #1. Run	nt Manager: Michelle Kim	T-L			•						
Contact: Steve Smith Class: N/A Standard: FCC 15.247/15.E/RSS-210 Class: N/A Run #1, Radiated Spurious Emissions at Band Edges. Operation in the 5150-5250 MHz Band Run #1a: Low Channel, 5180 MHz Date of Test: 2/22/2012 Test Engineer: John Caizzi Test Location: FT5 FT5 50150 MHz Band Edge Signal Radiated Field Strength Frequency Frequency Level Pol FCC 15.209 Detector Azimuth Height Comments MHz dBµV/m V/h Limit Margin Pk/QP/Avg degrees meters 5149.800 47.2 V 54.0 -6.8 AVG 109 1.05 5148.770 61.6 V 74.0 -12.4 PK 109 1.05 \$0.0					0	ile) in XR100	3 radio modu	xI-N450 (3x	Model:		
Standard: FCC 15.247/15.E/RSS-210 Class: N/A Run #1, Radiated Spurious Emissions at Band Edges. Operation in the 5150-5250 MHz Band Run #1a: Low Channel, 5180 MHz Date of Test: 2/2/2012 Test Engineer: John Calizzi Test Location: FTS 5150 MHz Band Edge Signal Radiated Field Strength Frequency Level Pol FCC 15.209 Detector Azimuth Height Comments MHz dBµV/m v/h Limit Margin Pk/QP/Avg degrees meters 5149.800 47.2 V 54.0 -6.8 AVG 109 1.05 5148.770 61.6 V 74.0 -12.4 PK 109 1.05 5148.770 61.6 V 74.0 -12.4 PK 109 1.05 5148.70 50.0 - 60.0 - <td< td=""><td colspan="11"></td></td<>											
Run #1, Radiated Spurious Emissions at Band Edges. Operation in the 5150-5250 MHz Band Run #1a: Low Channel, 5180 MHz Date of Test: 2/22/2012 Test Engineer: John Caizzi Test Location: FT5 S150 MHz Band Edge Signal Radiated Field Strength Frequency Level Pol FCC 15.209 Detector Azimuth Height Comments MHz dBµV/m v/h Limit Margin Pk/QP/Avg degrees meters Site State Sta	Class: N/A					10					
Run #1a: Low Channel, 5180 MHz Date of Test: 2/22/2012 Test Engineer: John Caizzi Test Location: FT5 5150 MHz Band Edge Signal Radiated Field Strength Frequency Level Pol FCC 15.209 Detector Azimuth Height Comments MHz dBµV/m v/h Limit Margin Pk/QP/Avg degrees meters											
Test Engineer: John Caizzi Test Location: FT5 5150 MHz Band Edge Signal Radiated Field Strength Frequency Level Pol FCC 15.209 Detector Azimuth Height Comments MHz dB μ V/m v/h Limit Margin PK/QP/Avg degrees meters 5149.800 47.2 V 54.0 -6.8 AVG 109 1.05 5148.770 61.6 V 74.0 -12.4 PK 109 1.05 RB 1 MHz; VB 10 Hz Blue = pk, balck = avg V 85.0 - 85.0 - 60.0 -		MHz Band	5150-5250 N	eration in the	Edges. Ope	ons at Band		-			
Test Location: FT5 5150 MHz Band Edge Signal Radiated Field Strength Frequency Level Pol FCC 15.209 Detector Azimuth Height Comments MHz dBµV/m v/h Limit Margin PK/OP/Avg degrees meters 5149.800 47.2 V 54.0 -6.8 AVG 109 1.05 5148.770 61.6 V 74.0 -12.4 PK 109 1.05 RB 1 MHz; VB 10 Hz Blue = pk, balck = avg V $85.0^{-6}_{0.0^{$							2/22/2012	Date of Test:	C		
S150 MHz Band Edge Signal Radiated Field Strength Frequency Level Pol FCC 15.209 Detector Azimuth Height Comments MHz dBµV/m v/h Limit Margin Pk/QP/Avg degrees meters											
Frequency Level Pol FCC 15.209 Detector Azimuth Height Comments MHz dBµV/m v/h Limit Margin Pk/QP/Avg degrees meters							FT5	est Location:	Te		
Frequency Level Pol FCC 15.209 Detector Azimuth Height Comments MHz dBµV/m v/h Limit Margin Pk/QP/Avg degrees meters 5149.800 47.2 V 54.0 -6.8 AVG 109 1.05 5148.770 61.6 V 74.0 -12.4 PK 109 1.05 5148.770 51.6 V 74.0 -12.4 PK 109 1.05 5148.70 61.6 V 74.0 -12.4 PK 109 1.05 50.0											
MHz dBµV/m v/h Limit Margin Pk/QP/Avg degrees meters 5149.800 47.2 V 54.0 -6.8 AVG 109 1.05 5149.800 47.2 V 54.0 -6.8 AVG 109 1.05 5148.770 61.6 V 74.0 -12.4 PK 109 1.05 RB 1 MHz; VB 10 Hz Blue = pk, balck = avg V 85.0 80.0 -		11	A -lass alla	Detector							
$ \frac{5149.800}{5148.770} \frac{47.2}{61.6} V 54.0 -6.8 AVG 109 1.05 \\ 5148.770 61.6 V 74.0 -12.4 PK 109 1.05 \\ \hline RB 1 MHz; VB 10 Hz Blue = pk, balck = avg V \\ $	Comments Chains	N N									
5148.770 61.6 V 74.0 -12.4 PK 109 1.05 RB 1 MHz; VB 10 Hz Blue = pk, balck = avg V 85.0 85.0 80.0 80.0 - - - - - 80.0 - - - - 90 60.0 - - - 91 50.0 - - -				V							
RB 1 MHz; VB 10 Hz Blue = pk, balck = avg V 85.0 - 80.0 - 80.0 - 90 90 60.0 - 90 90											
85.0 - 80.0 - (@ 70.0 - () () () () () () () () () () () () () (1.05	109	۲N	-12.4	74.0	V	01.0	3146.770		
	angagagaanaakaala, sasaad	<u>4 4 - 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4</u>	terneterskerkerskerskerskerskerskerskerskerske	Alerie - Caroldon	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	waxaa ha	and an	60.0 - 50.0 -	Amplitude (dBuV)		
30.0- 5100 5105 5110 5115 5120 5125 5130 5135 5140 5145 519 Frequency (MHz)	5140 5145 5150	5135	5 5130 7 (MHz)	20 5125 Frequency	115 51	5110 5	5105	30.0-, , , 5100			

EMC Test Data

Client:	Xirrus							Job Number:	J86254
Model		2 radio modu	ila) in VD100)0			T-	Log Number:	T86382
	XI-N450 (3x3 radio module) in XR1000 Account Manager: N							Michelle Kim	
Contact:	Steve Smith								
Standard:	FCC 15.247	/15.E/RSS-2	10					Class:	N/A
[Te	hannel 40, 5 Date of Test: est Engineer: est Location:	2/22/2012 John Caizzi							
5150 MHz E	Band Edge S							-	
requency	Level	Pol		15.209	Detector	Azimuth	Height	Comments	Chains
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters		
5000.000 4999.810	53.8 61.1	V	54.0 74.0	-0.2 -12.9	AVG PK	118 118	1.07 1.07		
4777.01U	01.1	V	/4.U	-12.7	ΓN	110	1.07	1	
	110.0-								(54)

EMC Test Data

	Xirrus							Job Number:	J86254
Madal	VI NAEO (25)	2 radio made	ula) in VD100	20			Ţ	Log Number:	T86382
wodel:									Michelle Kim
	Steve Smith								
Standard:	FCC 15.247	/15.E/RSS-2	10					Class:	N/A
un #2a Hig [Te	gh Channel Date of Test: est Engineer: est Location:	2/22/2012 John Caizzi		Luges. Op	eration in the	3230-33301			
350 MHz E	Band Edge S	ignal Radia	ted Field Sti	rength					
requency	Level	Pol	FCC	15.209	Detector	Azimuth	Height	Comments	Chain
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters		
5359.910	53.4	V	54.0	-0.6	AVG	66	1.02		
5359.800	61.9	V	74.0	-12.1	PK	66	1.02		
	MHz; VB 10			the signal wa	as absent.				
	MHz; VB 10		pk, black = -	avg V		mound	a Chattada da anta	www.way.hosterd	
	MHz; VB 10 90.0 - 80.0 - 70.0 - 60.0 -	Hz Blue =	pk, black = -	avg V		horan and h	w Autholicador	wycennydwytheth	
	MHz; VB 10 90.0 - 80.0 - 70.0 - 60.0 -	Hz Blue = \\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	pk, black = -	avg V		<u> </u>			

EMC Test Data

	An A	Company							
Client:	Xirrus							Job Number:	J86254
Model		2 radio modu	ula) in VD100	0			T-	Log Number:	T86382
		3 radio modu		0			Acco	unt Manager:	Michelle Kim
Contact:	Steve Smith								
Standard:	FCC 15.24	7/15.E/RSS-2	210					Class:	N/A
I Te Te	est Location:	2/22/2012 John Caizzi FT5							
		Signal Radia						<u> </u>	
Frequency MHz	Level	Pol		15.209 Margin	Detector	Azimuth	Height	Comments	Cha
101HZ 5360.020	dBμV/m 47.5	v/h V	Limit 54.0	Margin -6.5	Pk/QP/Avg AVG	degrees 139	meters 1.00		
5361.420	59.9	V	74.0	-0.5	PK	139	1.00	1	
mplitude (dBuV/m)	70.0 - 65.0 - 60.0 - 55.0 - 50.0 -	utulo wanya a	nalattan na ana ana ana ana ana ana ana ana	hhundru	Markadola	mana a	yanyaadhahaha	an a	handhararahadh
F 4	45.0-		~	~~	~~~~~	~			

EMC Test Data

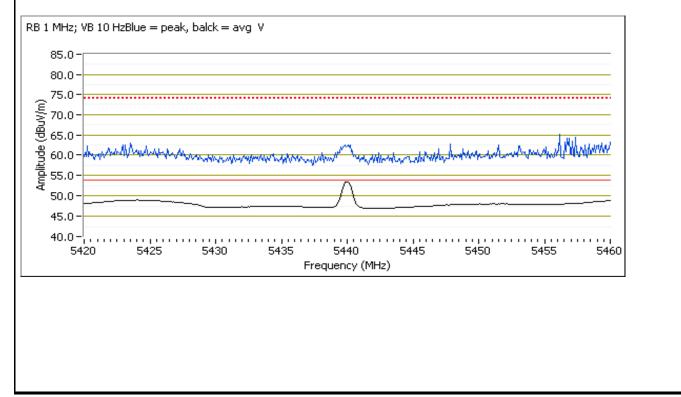
	An Deep company		
Client:	Xirrus	Job Number:	J86254
Madal	Model: XI-N450 (3x3 radio module) in XR1000	T-Log Number:	T86382
would.	AI-1430 (3x3 Tadio Hiodule) III AR 1000	Account Manager:	Michelle Kim
Contact:	Steve Smith		
Standard:	FCC 15.247/15.E/RSS-210	Class:	N/A

Run #3, Radiated Spurious Emissions at Band Edges. Operation in the 5470-5725 MHz Band Run #3a: Low Channel, Radio #12

Date of Test: 2/22/2012 Test Engineer: Rafael Varelas Test Location: FT Chamber #5

5350-5460 MHz Restricted Band Edge Signal Radiated Field Strength

Frequency	Level	Pol	FCC ²	15.209	Detector	Azimuth	Height	Comments Chair	ns
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters		
5439.960	53.2	V	54.0	-0.8	AVG	273	1.0	POS; RB 1 MHz; VB: 10 Hz	
5455.270	63.2	V	74.0	-10.8	PK	273	1.0	POS; RB 1 MHz; VB: 10 MHz	
5439.960	44.6	Н	54.0	-9.4	AVG	326	1.0	POS; RB 1 MHz; VB: 10 Hz	
5447.740	57.5	Н	74.0	-16.5	PK	326	1.0	POS; RB 1 MHz; VB: 10 MHz	



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

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

Power measured on radio #10 with XR2000 unit

EMC Test Data

 Client:
 Xirrus
 Job Number:
 J86254

 Model:
 XI-N450 (3x3 radio module) in XR1000
 T-Log Number:
 T86382

 Account Manager:
 Michelle Kim

 Contact:
 Steve Smith
 Michelle Kim

 Standard:
 FCC 15.247/15.E/RSS-210
 Class:
 N/A

RSS 210 and FCC 15.247 (DTS) Antenna Port Measurements MIMO and Smart Antenna Systems

Power

Test Specific Details

General Test Configuration

Elliott

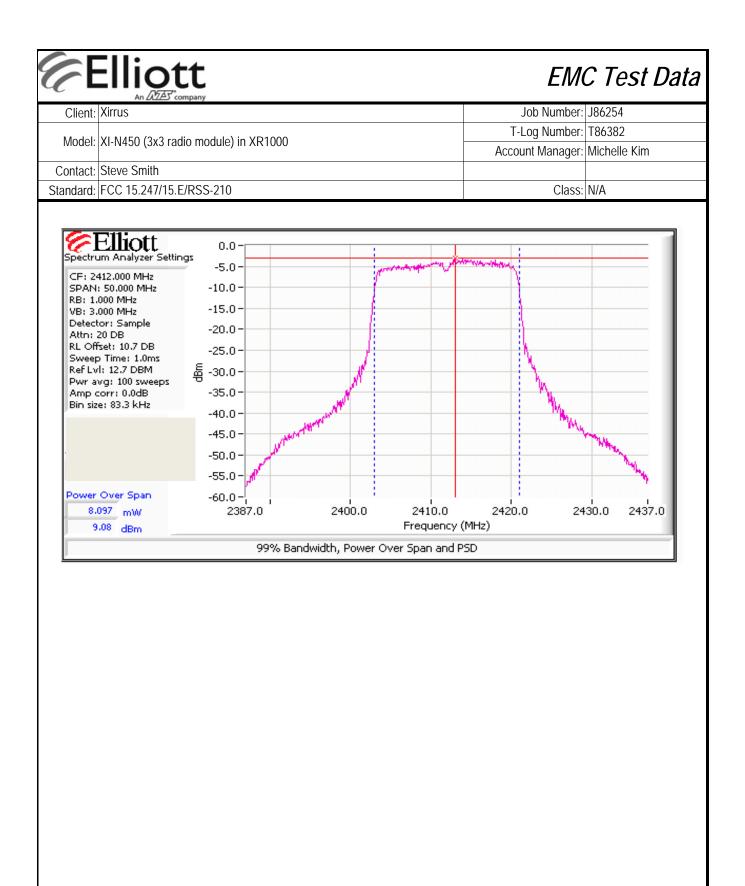
Objective: The objective of this test session is to perform final qualification testing of the EUT with respect to the specification listed above.

Config. Used: 1

Config Change: None EUT Voltage: POE

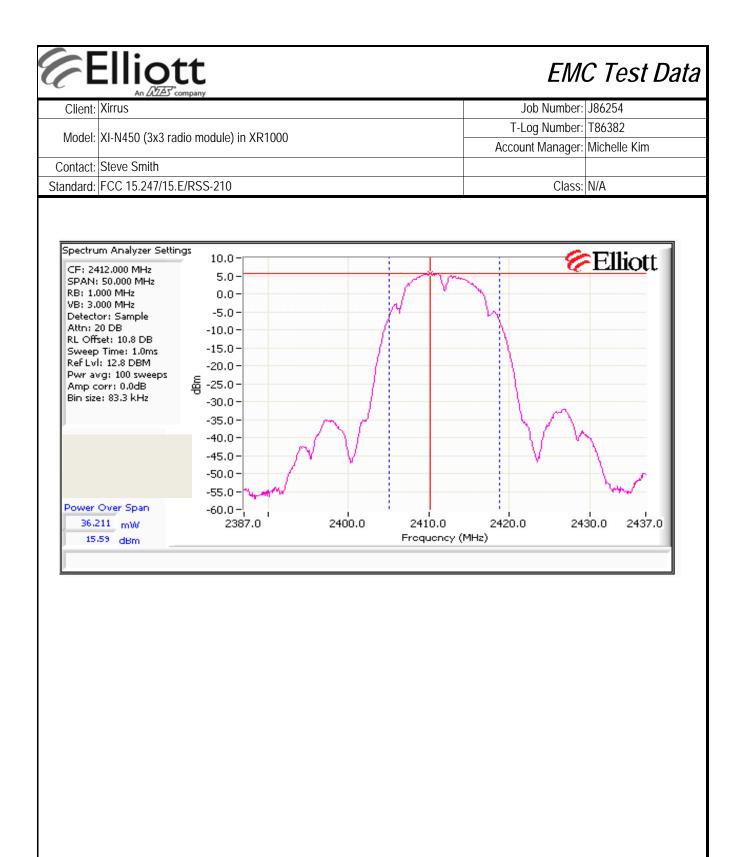
Date of Test: 3/27/2012 Test Engineer: Rafael Varelas Test Location: FT Lab #4

Antenna Gain (dBi) ^{Note} eirp (dBm) ^{Note 2} 2462 MHz Power Setting ^{Note 3}	h 7/15.E/RSS-2 Ope Inal on chain	210 erating Mode: is coherent ? Chain 1 22.0	802.11n20				og Number: nt Manager: Class:	Michelle Kim		
Contact: Steve Smit Standard: FCC 15.24 XR1000 - Transmitted sig 2412 MHz Power Setting ^{Note 3} Output Power (dBm) ^{Note} Antenna Gain (dBi) ^{Note} eirp (dBm) ^{Note 2}	h 7/15.E/RSS-2 Ope Inal on chain	210 erating Mode: is coherent ? Chain 1 22.0	802.11n20 yes			Accou				
Standard: FCC 15.24 KR1000 - Transmitted sig 2412 MHz Power Setting ^{Note 3} Output Power (dBm) ^{Note} Antenna Gain (dBi) ^{Note} eirp (dBm) ^{Note 2} 2462 MHz Power Setting ^{Note 3}	7/15.E/RSS-2 Ope Inal on chain	erating Mode: is coherent ? Chain 1 22.0	yes				Class:	N/A		
Transmitted sig 2412 MHz Power Setting ^{Note 3} Output Power (dBm) ^{Not} Antenna Gain (dBi) ^{Note} eirp (dBm) ^{Note 2} 2462 MHz Power Setting ^{Note 3}	nal on chain	is coherent ? Chain 1 22.0	yes							
2412 MHz Power Setting ^{Note 3} Output Power (dBm) ^{Not} Antenna Gain (dBi) ^{Note} eirp (dBm) ^{Note 2} 2462 MHz Power Setting ^{Note 3}	nal on chain	is coherent ? Chain 1 22.0	yes							
Power Setting ^{Note 3} Dutput Power (dBm) ^{Not} Antenna Gain (dBi) ^{Note} eirp (dBm) ^{Note 2} 2462 MHz Power Setting ^{Note 3}	e 1	22.0	Chain 2	-						
Dutput Power (dBm) ^{Not} Antenna Gain (dBi) ^{Note} eirp (dBm) ^{Note 2} 2462 MHz Power Setting ^{Note 3}				Chain 3	Cibaiin 4	Total Agree	All Chaina	Lin		
Dutput Power (dBm) ^{Not} Antenna Gain (dBi) ^{Note} eirp (dBm) ^{Note 2} 2462 MHz Power Setting ^{Note 3}		0 (22.0	22.0		Total Across	s All Chains	Lin	.111	
eirp (dBm) ^{Note 2} 2462 MHz Power Setting ^{Note 3}	2	8.6	9.0	9.1		13.7 dBm	0.023 W	29.2 dBm	0.837 W	
2462 MHz Power Setting ^{Note 3}	itenna Gain (dBi) ^{Note 2}		2.0	2.0		6.8 dBi	6.8 dBi	Pa	Pass	
Power Setting ^{Note 3}		10.6	11	11.1		20.4 dBm	0.111 W			
Power Setting ^{Note 3}										
Power Setting ^{Note 3}		Chain 1	Chain 2	Chain 3	ChamA					
Jutnut Dowor (dDm) No	Power Setting ^{Note 3}			22.0		Total Across All Chains		Limit		
Julpul Power (uBIII)	e 1	8.6	8.4	8.8		13.4 dBm	0.022 W	29.2 dBm	0.837 W	
Antenna Gain (dBi) Note	2.0	2.0	2.0		6.8 dBi	6.8 dBi	Da	<u></u>		
eirp (dBm) ^{Note 2}		10.6	10.4	10.8		20.1 dBm	0.103 W	Pass		
Note 1: averaging	Output power measured using a spectrum analyzer (see plots below) with RBW=1MHz, VB=3 MHz, sample detector, por averaging on (transmitted signal was continuous) and power integration over 50 MHz (option #2, method 1 in KDB 55807 equivalent to method 1 of DA-02-2138A1 for U-NII devices). Spurious limit becomes -30dBc .									
	As there is coherency between chains the effective antenna gain is the sum of the individual antenna gains and the eirp is product of the total power and the effective antenna gain									
	Power setting - if a single number the same power setting was used for each chain. If multiple numbers the power setting each chain is separated by a comma (e.g. x,y would indicate power setting x for chain 1, power setting y for chain 2.								•	



E		EM	C Test Data
Client:	Xirrus	Job Number:	J86254
Madal	VI NAEO (2v2 radio modulo) in VD1000	T-Log Number:	T86382
Wouer.	XI-N450 (3x3 radio module) in XR1000	Account Manager:	Michelle Kim
Contact:	Steve Smith		
Standard:	FCC 15.247/15.E/RSS-210	Class:	N/A
(R2000 - Run #1: Ou	tput Power - Chain A + B + C Operating Mode: 802.11b		

	0		-						
	2412 MHz	Chain 1	Chain 2	Chain 3	Chain 4	Total Acros	s All Chains	Lir	nit
Power Set		34.0	34.0	34.0				00.0.15	0.007.14/
Output Pov		15.6	14.2	15.0		19.8 dBm	0.094 W	29.2 dBm	0.837 W
Antenna G	ain (dBi) Note 2	2.0	2.0	2.0		6.8 dBi	6.8 dBi	Pa	SS
eirp (dBm)	NOLE 2	17.6	16.23	17		26.5 dBm	0.449 W		
Note 1:	Output power measured averaging on (transmitter equivalent to method 1 o	d signal was	continuous)	and power ir	ntegration over	er 50 MHz (oj	otion #2, met		
Note 2:	As there is coherency be product of the total powe	etween chains	s the effective	e antenna ga				gains and th	e eirp is the
Note 3:	Power setting - if a single each chain is separated		•	0			•		0



 Client:
 Xirrus
 Job Number:
 J86254

 Model:
 XI-N450 (3x3 radio module) in XR1000
 T-Log Number:
 T86382

 Contact:
 Steve Smith
 Michelle Kim

 Standard:
 FCC 15.247/15.E/RSS-210
 Class:
 N/A

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

Test Specific Details

Elliott

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: 3/27/2012 Test Engineer: Rafael Varelas Test Location: FT Lab #4

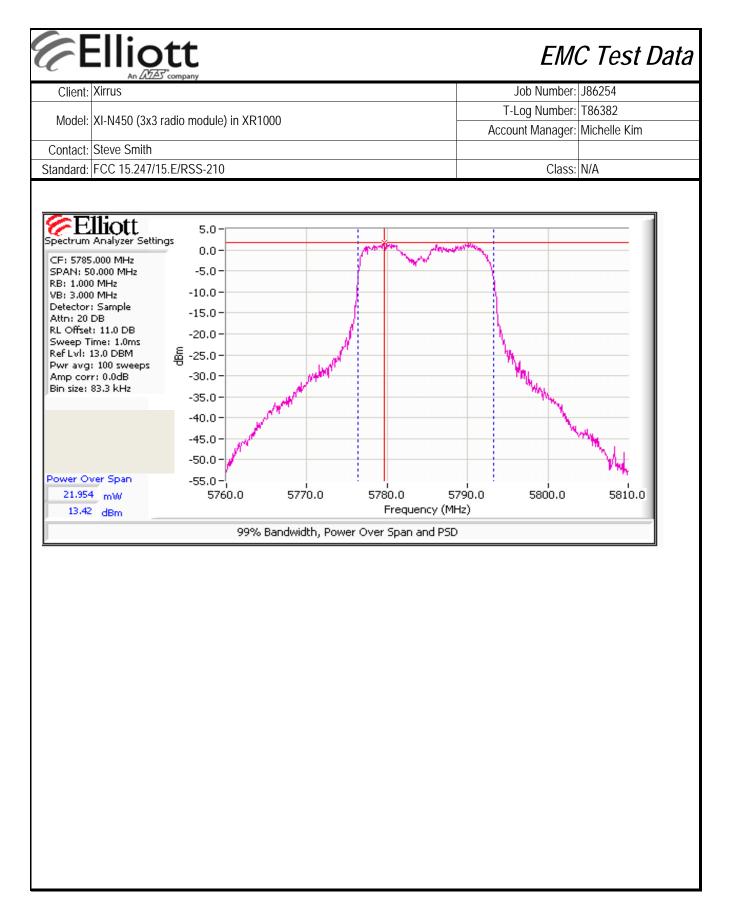
General Test Configuration

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

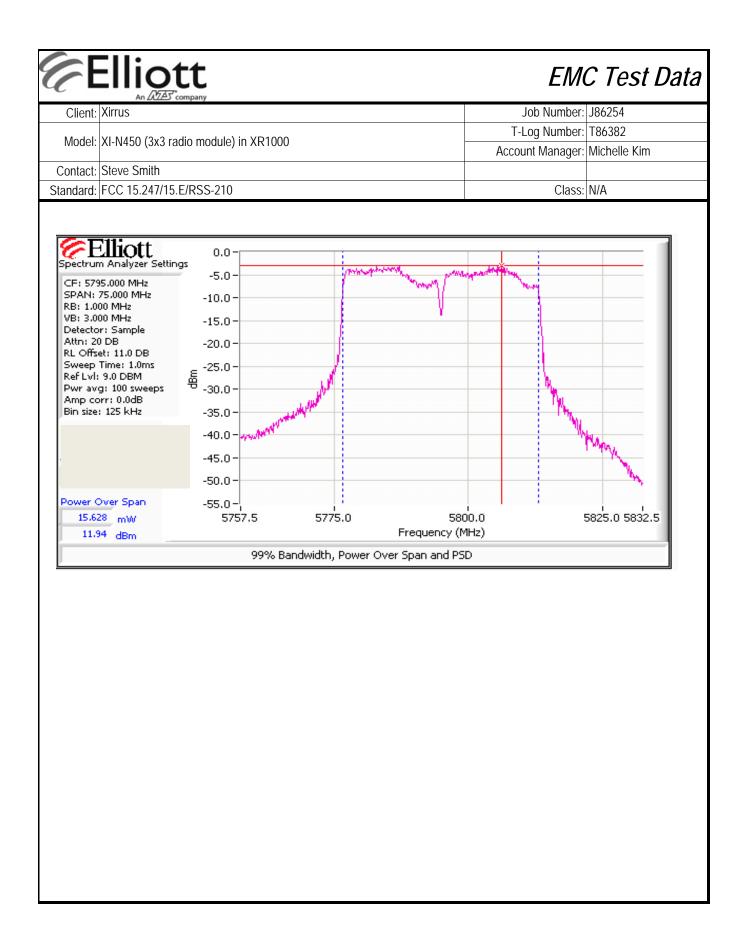
All measurements have been corrected to allow for the external attenuators used.

Power measured on radio #10 with XR2000 unit

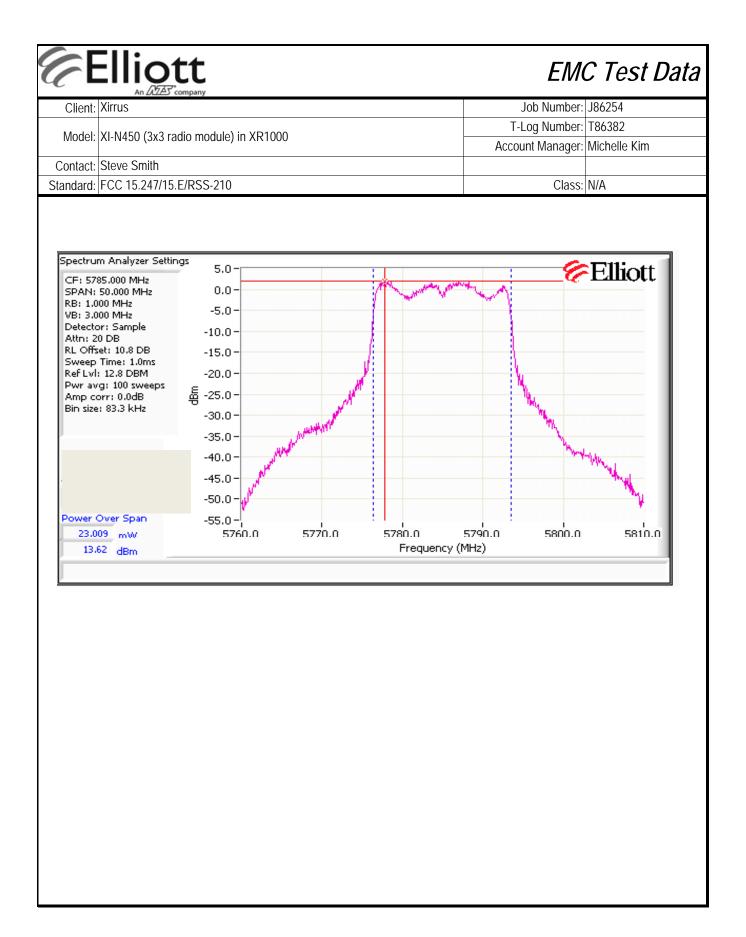
							LIVIO	C Test	Dala
Client:	Xirrus						lob Number:	J86254	
Madalı	VI NAEO (2v2 radio ma		0			T-L	og Number:	T86382	
would:	XI-N450 (3x3 radio mo)0			Accou	nt Manager:	Michelle Kim)
Contact:	Steve Smith								
Standard:	FCC 15.247/15.E/RSS	5-210					Class:	N/A	
	utput Power - Chain A Օլ nsmitted signal on chai	perating Mode:							
	5785 MHz	Chain 1	Chain 2	Chain 3	Chain 4	Total Acros	c All Chains	Lir	nit
ower Setti	ng ^{Note 3}	35.0	35.0	35.0		Total Across All Chains		LI	m
utput Pow	er (dBm) ^{Note 1}	12.9	13.4	12.8		17.8 dBm	0.061 W	27.2 dBm	0.528 \
ntenna Ga	in (dBi) ^{Note 2}	4.0	4.0	4.0		8.8 dBi		Pa	22
irp (dBm) [∧]	lote 2	16.94	17.4	16.8		26.6 dBm	0.457 W		00
	5825 MHz	Chain 1	Chain 2	Chain 3	Cham 4	T			
ower Setti	ng ^{Note 3}	32.0	32.0	32.0		Total Acros	s All Chains	Lir	nit
utput Pow	er (dBm) Note 1	10.8	12.3	11.1		16.2 dBm	0.042 W	27.2 dBm	0.528 \
ntenna Ga	in (dBi) ^{Note 2}	4.0	4.0	4.0		8.8 dBi		Pa	22
rp (dBm) [∧]	lote 2	14.8	16.3	15.1		25.0 dBm	0.316 W	10	33
Note 1: Note 2:	Output power measure averaging on (transmit equivalent to method As there is coherency product of the total power Power setting - if a sin	ted signal was of DA-02-213 between chain wer and the effe	continuous) 8A1 for U-NI s the effectiv ective antenr	and power i I devices). S e antenna g na gain	ntegration ove Spurious limit ain is the sum	er 50 MHz (o becomes -30 a of the indivio	ption #2, me D dBc. dual antenna	thod 1 in KDE	8 558074 le eirp is



ed signal on chain MHz m) ^{Note 1}) ^{Note 2} MHz	210 erating Mode: is coherent ? Chain 1 29.0 10.3 4.0 14.3	802.11n40 Yes 701.0 Chain 2 29.0 9.9 4.0	Chain 3 29.0 8.5		T-L	Class:	T86382 Michelle Kim	1
Smith 15.247/15.E/RSS- Ope ed signal on chain MHz MHz Note 1 Note 2 MHz	210 erating Mode: is coherent ? Chain 1 29.0 10.3 4.0 14.3	802.11n40 Yes 701.0 Chain 2 29.0 9.9 4.0	29.0 8.5		Accou	nt Manager: Class:	Michelle Kim	<u>)</u>
Smith 15.247/15.E/RSS- Ope ed signal on chain MHz MHz Note 1 Note 2 MHz	210 erating Mode: is coherent ? Chain 1 29.0 10.3 4.0 14.3	802.11n40 Yes 701.0 Chain 2 29.0 9.9 4.0	29.0 8.5			Class:		1
15.247/15.E/RSS- Optical signal on chain MHz m) Note 1 1) Note 2 MHz	erating Mode: is coherent ? Chain 1 29.0 10.3 4.0 14.3	Yes 701.0 Chain 2 29.0 9.9 4.0	29.0 8.5	Chain 4	Total Acros		N/A	
Ope ed signal on chain MHz m) Note 1 i) Note 2 MHz	erating Mode: is coherent ? Chain 1 29.0 10.3 4.0 14.3	Yes 701.0 Chain 2 29.0 9.9 4.0	29.0 8.5	Chain 4	Total Acros		N/A	
ed signal on chain MHz m) ^{Note 1}) ^{Note 2} MHz	is coherent ? Chain 1 29.0 10.3 4.0 14.3	Yes 701.0 Chain 2 29.0 9.9 4.0	29.0 8.5	Chain 4	Total Acros			
Mote 1 Note 2 MHz	29.0 10.3 4.0 14.3	29.0 9.9 4.0	29.0 8.5	Chain 4	Total Acros	c All Chains		
m) Note 1 Note 2 MHz	10.3 4.0 14.3	9.9 4.0	8.5				Lir	nit
m) Note 1 Note 2 MHz	4.0 14.3	4.0		hill hill have a second second				
MHz	14.3				14.4 dBm	0.028 W	27.2 dBm	0.528 V
			4.0		8.8 dBi		Pa	ISS
		13.9	12.5		23.2 dBm	0.208 W		
	Chain 1	Chain 2	Chain 3	Chans 4				
	32.0	32.0	32.0		Total Acros	s All Chains	Lir	nit
m) ^{Note 1}	11.4	11.9	11.1		16.3 dBm	0.042 W	27.2 dBm	0.528 V
) Note 2	4.0	4.0	4.0		8.8 dBi		De	
<i>.</i>	15.4	15.9	15.1		25.0 dBm	0.318 W	Pa	SS
alent to method 1 ere is coherency b ct of the total pow	of DA-02-2138 etween chains er and the effe	8A1 for U-NII s the effective ective antenr	I devices). S e antenna g na gain	Spurious limit ain is the sum	becomes -30 n of the individ	dBc. dual antenna	i gains and th	ne eirp is t
chain is separated	i by a comma	(e.g. x,y wou	an maicate t	Jowei setting	x ioi chain i,	power setur	ig y for chain	2.
	ging on (transmitte alent to method 1 ere is coherency b act of the total pow r setting - if a sing	It power measured using a spec ging on (transmitted signal was alent to method 1 of DA-02-213 ere is coherency between chains ict of the total power and the effo r setting - if a single number the	It power measured using a spectrum analyzed ging on (transmitted signal was continuous) alent to method 1 of DA-02-2138A1 for U-NI ere is coherency between chains the effective act of the total power and the effective antenr r setting - if a single number the same powe	It power measured using a spectrum analyzer (see plots ging on (transmitted signal was continuous) and power in alent to method 1 of DA-02-2138A1 for U-NII devices). S ere is coherency between chains the effective antenna g ict of the total power and the effective antenna gain r setting - if a single number the same power setting was	It power measured using a spectrum analyzer (see plots below) with ging on (transmitted signal was continuous) and power integration over alent to method 1 of DA-02-2138A1 for U-NII devices). Spurious limit ere is coherency between chains the effective antenna gain is the sum loct of the total power and the effective antenna gain r setting - if a single number the same power setting was used for eac	It power measured using a spectrum analyzer (see plots below) with RBW=1MHz, ging on (transmitted signal was continuous) and power integration over 75 MHz (o alent to method 1 of DA-02-2138A1 for U-NII devices). Spurious limit becomes -30 ere is coherency between chains the effective antenna gain is the sum of the individ ict of the total power and the effective antenna gain r setting - if a single number the same power setting was used for each chain. If m	It power measured using a spectrum analyzer (see plots below) with RBW=1MHz, VB=3 MHz, ging on (transmitted signal was continuous) and power integration over 75 MHz (option #2, me alent to method 1 of DA-02-2138A1 for U-NII devices). Spurious limit becomes -30dBc . ere is coherency between chains the effective antenna gain is the sum of the individual antenna lict of the total power and the effective antenna gain r setting - if a single number the same power setting was used for each chain. If multiple numb	It power measured using a spectrum analyzer (see plots below) with RBW=1MHz, VB=3 MHz, sample deter ging on (transmitted signal was continuous) and power integration over 75 MHz (option #2, method 1 in KDE alent to method 1 of DA-02-2138A1 for U-NII devices). Spurious limit becomes -30dBc . ere is coherency between chains the effective antenna gain is the sum of the individual antenna gains and th

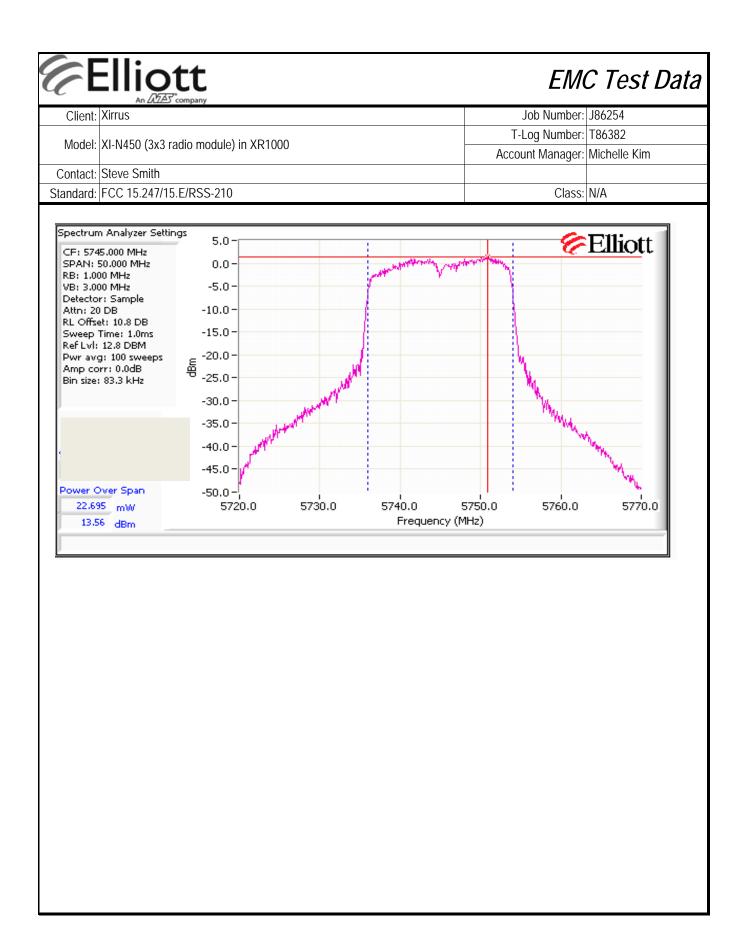


Clien	An ZAZAS company						lob Number:	J86254	
			2				og Number:		
Mode	I: XI-N450 (3x3 radio mod	ule) in XR100	0			Accou	nt Manager:	Michelle Kim	۱
	t: Steve Smith								
Standard	I: FCC 15.247/15.E/RSS-2	210					Class:	N/A	
(R2000 -									
)un #1. (Nutnut Dowor Chain A	R . C							
un#1: C	• Dutput Power - Chain A) Ope	в+с rating Mode:	802.11a						
Tr	ansmitted signal on chain								
	5745 MHz	Chain 1	Chain 2	Chain 3	Citiania 4				
ower Set		32.0	32.0	32.0		Total Acros	s All Chains	Lir	nit
Dutput Pov	ver (dBm) Note 1	12.2	12.8	12.6		17.3 dBm	0.054 W	27.2 dBm	0.528 V
	ain (dBi) Note 2	4.0	4.0	4.0		8.8 dBi		Pa	SS
irp (dBm)	Note 2	16.2	16.82	16.64		26.1 dBm	0.408 W		
	5785 MHz	Chain 1	Chain 2	Chain 3	Chan 4	Tabal Assoc			
ower Set	ing ^{Note 3}	34.0	34.0	34.0		Total Acros	s All Chains	Lir	nit
Dutput Pov	ver (dBm) Note 1	13.0	13.6	12.8		17.9 dBm	0.062 W	27.2 dBm	0.528 \
Antenna G	ain (dBi) ^{Note 2}	4.0	4.0	4.0		8.8 dBi	0.4(0.))	Pa	SS
eirp (dBm)		17.03	17.62	16.8		26.7 dBm	0.468 W		
	Output power measured								
		•		•	•			inod 1 in KDE	3 558074,
Note 1:	averaging on (transmitte	nt DA-02-213		ucriccoj. C	spundus innit				
	equivalent to method 1 c			e antenna a	ain is the sum	n of the indivi	dual antenna	aains and th	ie eirp is t
Note 1: Note 2:	0 0	etween chain	s the effectiv	•	ain is the sum	n of the indivi	dual antenna	gains and th	ne eirp is t
	equivalent to method 1 of As there is coherency be	etween chain: er and the effe e number the	s the effective ective antenr same power	a gain setting was	s used for eac	ch chain. If m	ultiple numb	ers the powe	r setting f



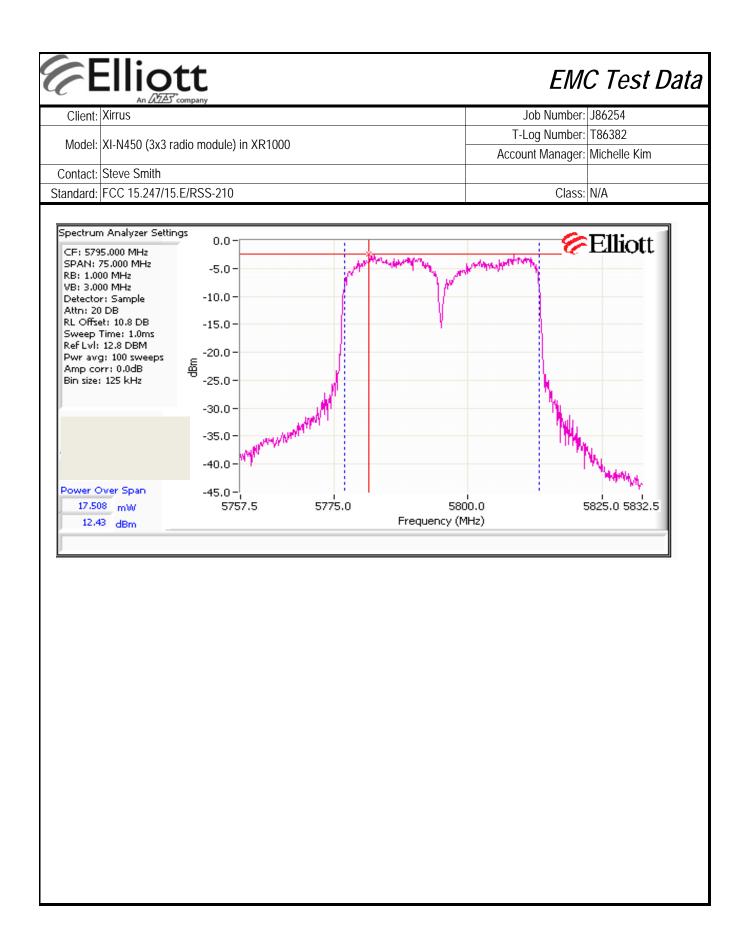
Æ	Iliott	
Client:	irrus	

Client:	Xirrus					J	ob Number:	J86254	
Maria I.			20			T-L	og Number:	T86382	
Wodel:	XI-N450 (3x3 radio modu	ule) in XR100)0			Accou	nt Manager:	Michelle Kim)
Contact:	Steve Smith						Ŭ		
	FCC 15.247/15.E/RSS-2	10					Class:	N/A	
		rating Mode:							
Tra	nsmitted signal on chain is	s coherent?	Yes						
	5745 MHz	Chain 1	Chain 2	Chain 3	Chain 4				
Power Settin	na ^{Note 3}	33.0	33.0	33.0	CACIONIA (4	Total Acros	s All Chains	Lir	nit
Output Pow	er (dBm) ^{Note 1}	12.3	13.6	12.9		17.7 dBm	0.059 W	27.2 dBm	0.528 W
Antenna Ga	in (dBi) ^{Note 2}	4.0	4.0	4.0		8.8 dBi	0100711		
eirp (dBm) ^N	lote 2	16.3	17.6	16.9		26.5 dBm	0.448 W	Pa	SS
					<u> </u>				
	5785 MHz	Chain 1	Chain 2	Chain 3	Chain 4	Total Acros	All Chaine	Lir	nit
Power Settin	ng ^{Note 3}	31.0	31.0	31.0		TUIAI ACTUS		LII	IIIL
Output Pow	er (dBm) ^{Note 1}	11.0	12.3	11.5		16.4 dBm	0.044 W	27.2 dBm	0.528 W
Antenna Ga	in (dBi) Note 2	4.0	4.0	4.0		8.8 dBi		Pa	22
eirp (dBm) [^]	lote 2	15	16.31	15.5		25.2 dBm	0.330 W	Tu	33
Note 1: Note 2: Note 3:	averaging on (transmitted equivalent to method 1 o As there is coherency be product of the total powe Power setting - if a single each chain is separated	of DA-02-213 Setween chains for and the effore e number the	8A1 for U-NII s the effective ective antenne same power	I devices). S e antenna g na gain r setting was	Spurious limit ain is the sum s used for eac	becomes -30 n of the individ	dBc. dual antenna ultiple numb	gains and the rs the powe	e eirp is the r setting for



(7 Ell	iott An AZAS [*] company
Oliand Virrue	

	An AZAS company								
Client:	Xirrus					J	ob Number:	J86254	
Ma dal			20			T-L	og Number:	T86382	
Wodel:	XI-N450 (3x3 radio modu	lie) in XR IOC)0			Accou	nt Manager:	Michelle Kim	
Contact:	Steve Smith								
Standard:	FCC 15.247/15.E/RSS-2	10					Class:	N/A	
Trai	Ope nsmitted signal on chain i	rating Mode: s coherent ?							
	5755 MHz	Chain 1	Chain 2	Chain 3	Chain 4	T			
Power Settir		29.0	29.0	29.0		Total Across	s All Chains	Lir	nit
Output Pow	er (dBm) ^{Note 1}	9.3	10.6	10.1		14.8 dBm	0.030 W	27.2 dBm	0.528 W
Antenna Ga	in (dBi) Note 2	4.0	4.0	4.0		8.8 dBi		Da	~~
eirp (dBm) [∧]	lote 2	13.3	14.6	14.1		23.6 dBm	0.228 W	Pa	SS
			-	•				-	
	5795 MHz	Chain 1	Chain 2	Chain 3	Chain 4	Total Across	s All Chains	Lir	nit
Power Settir	ng ^{Note 3}	32.0	32.0	32.0					
Output Pow	er (dBm) Note 1	10.9	12.4	10.8		16.2 dBm	0.042 W	27.2 dBm	0.528 W
Antenna Ga	in (dBi) ^{Note 2}	4.0	4.0	4.0		8.8 dBi		Pa	22
eirp (dBm) ^N	lote 2	14.94	16.43	14.84		25.0 dBm	0.317 W	14	55
Note 2:	equivalent to method 1 of As there is coherency be product of the total power	etween chains or and the effe	s the effective ective antenr	e antenna ga na gain	ain is the sum	n of the individ	dual antenna	-	•
Note 3:	Power setting - if a single each chain is separated								



C E	Elliott	EMC Test Data
Client:	An DIZES company Xirrus	Job Number: J86254
Model:	XI-N450 (3x3 radio module) in XR1000	T-Log Number: T86382
	Steve Smith	Account Manager: Michelle Kim
	FCC 15.247/15.E/RSS-210	Class: N/A
	RSS-210 (LELAN) and FCC 15.40 Antenna Port Measurement Power	
·	Control Contro	
Те	Date of Test: 3/27/2012Config. Used:St Engineer: Rafael VarelasConfig Change:St Location: FT Lab #4EUT Voltage:	None
	ndwidth, Output Power and Power Spectral Density - MIMO Systems Output power measured using a spectrum analyzer (see plots below). RBW: 2*span/RBW, sample detector, power averaging on (transmitted signal was for 802.11a, 802.11n 20MHz and 75MHz for 802.11n 40 MHz (method SA- For MIMO systems the total output power and total PSD are calculated form (in linear terms). The antenna gain used to determine the EIRP and limits for mode of the MIMO device. If the signals on the non-coherent between the ti- the limits is the highest gain of the individual chains and the EIRP is the sum chain. If the signals are coherent then the effective antenna gain is the sum the EIRP is the product of the effective gain and total power.	continuous) and power integration over 50MHz <u>1 of KDB 789033)</u> . the sum of the powers of the individual chains or PSD/Output power depends on the operating ransmit chains then the gain used to determine of the products of gain and power on each

6	Ellic	ott						EM	C Test	Data
Client:	Xirrus	company کے						Job Number:	J86254	
Madal		2 radio modu		0			T-	Log Number:	T86382	
woder:	XI-IN450 (3X	3 radio modu	ile) III XR IU)0			Acco	unt Manager:	Michelle Kim	l
Contact:	Steve Smith									
Standard:	FCC 15.247	/15.E/RSS-2 ⁻	10					Class:	N/A	
KR 1000 -										
MIMO Devi	ce - 5150-52	50 MHz Band	d Chain 1	Chain 2	Chain 3	Coherent	Effective ⁵	FIPP (m\//)	EIRP (dBm)	
	Antenn	a Gain (dBi):	4.0	4.0	4.0	Yes	8.8	47.3	16.7	
Power	7 (110)111	a Gain (abi).	4.0	4.0	٠.٠	103	0.0	77.5	10.7	
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
, ,	MHz MIMO N	<i>lode</i>							1	
5200	15.0	20.0	3.2	3.5	2.9	6.3	8.0	14.2	0.006	PASS
Power Frequency		26dB BW		d Output Po	•		otal dDm	Limit (dBm)	Max Power	Pass or
(MHz)	Setting	(MHz)	Chain 1	Chain 2	Chain 3	mW	dBm	Limit (dBm)	(W)	Fail
802.11a MI	T									
5580	30.0	20.0	11.7	13.8	14.1	64.5	18.1	21.2	0.064	PASS
Spectrum CF: 5580 SPAN: 50 RB: 1.000 VB: 3.000 Detector: Attn: 20 I RL Offset Sweep Ti Ref Lvl: 1) MH2 : Sample DB : 11.0 DB ime: 1.0ms I3.0 DBM : 100 sweeps r: 0.0dB	5.0 ings 0.0 -5.0 -10.0 -15.0 -20.0 慶 -25.0 -30.0			yh .			huhy.		
Power Ov 25,723		-35.0 -40.0 -45.0 -50.0 -55.0		<i>*</i>				Hallow	man h	

Client: Xir Model: XI-		3 radio modul	e) in XR100	0			T-	Job Number: Log Number: unt Manager:	T86382	
Contact: Ste	eve Smith						ALLU	uni manayer.		
Standard: FC	CC 15.247/	'15.E/RSS-21	0					Class:	N/A	
2000 -										
MO Device ·	- 5250-535	i0 MHz Band	l							
			Chain 1	Chain 2	Chain 3	Coherent	Effective ⁵		EIRP (dBm)	
ower	Antenna	Gain (dBi):	4.0	4.0	4.0	Yes	8.8	302.6	24.8	
1	Software	26dB BW	Measure	d Output Po	wer ¹ dBm	Тс	otal	limit (dDre)	Max Power	Pas
(MHz)	Setting	(MHz)	Chain 1	Chain 2	Chain 3	mW	dBm	Limit (dBm)	(W)	Fa
<i>02.11n 20MH</i> 5300	<i>Iz MIMO N</i> 32.0	<i>lode</i> 20.0	11.2	11.3	11.3	40.2	16.0	21.2	0.040	PA
5300	JZ.U	20.0	11.2	11.5	11.3	40.2	10.0	21.2	0.040	ΓA.
Detector: S. Attn: 20 DB RL Offset: 1 Sweep Time Ref Lvl: 12.8 Pwr avg: 10 Amp corr: 0 Bin size: 83.	: 0.8 DB 2: 1.0ms 8 DBM 00 sweeps 0.0dB	-15.0 -20.0	- - - -	and a second second				Non we wanted	NAMANANA -	

СЕ	iott
	no BTAS commence

An LACE) company		
Client:	Xirrus	Job Number:	J86256
Model:	XI-N300 (2x2 radio module) in XR2000	T-Log Number:	T86500
		Account Manager:	Michelle Kim
Contact:	Steve Smith		-
Emissions Standard(s):	FCC 15.247/15.E/RSS-210	Class:	-
Immunity Standard(s):	-	Environment:	-
ininiunity Stanuaru(S).	-	EIIVII OI IIII EIII.	-

EMC Test Data

For The

Xirrus

Model

XI-N300 (2x2 radio module) in XR2000

Date of Last Test: 5/24/2012

6		t			EM	C Test
Client:	Xirrus	any			Job Number:	J86256
	XI-N300 (2x2 radio	module) in XR2000			T-Log Number:	
					Account Manager:	Michelle Kim
	Steve Smith FCC 15.247/15.E/R	<u> </u>			Class:	N1/A
	RSS 2	10 and FCC 1	5.407 (UNII) Ra (5150-5250 MH	-	us Emissior	IS
Гest Spe		jective of this test so cation listed above.	ession is to perform fin	al qualification testin	g of the EUT with I	respect to the
	est Configurati I emissions testing th		tenna was located 3 m	eters from the EUT.		
Ambient	Conditions:	Temperature:	20-25 °C	Rel. Hur	nidity: 30-40	%
	ions Made Durir cations were made t		sting			
	is From The Sta ions were made fron		of the standard.			

Jummary of Results Spurious Radiated Emissions: 2x2 and 3x3 Modules for 802.11a; HT20; and HT40 modes Run # Mode Channel Power Setting Measured Power Test Performed Limit Result 1 802.11a See Below See Below Radiated Emissions, 1 - 40 GHz FCC 15.209 / 15 E 53.1 d 2 802.11a See Below See Below Radiated Emissions, 1 - 40 GHz FCC 15.209 / 15 E 54.0 d 3 802.11a See Below See Below Radiated Emissions, 1 - 40 GHz FCC 15.209 / 15 E 54.0 d	m
Model: XI-N300 (2X2 radio module) in XR2000 Account Manager: Michelle K Contact: Steve Smith Standard: FCC 15.247/15.E/RSS-210 Class: N/A ummary of Results Spurious Radiated Emissions: 2x2 and 3x3 Modules for 802.11a; HT20; and HT40 modes Run # Mode Channel Power Setting Measured Power Test Performed Limit Result 1 802.11a See Below See Below Radiated Emissions, 1 - 40 GHz FCC 15.209 / 15 E 53.1 d 2 802.11a See Below See Below Radiated Emissions, 1 - 40 GHz FCC 15.209 / 15 E 54.0 d 3 803.11n20 See Below See Below Radiated Emissions, 1 - 40 GHz FCC 15.209 / 15 E 52.2 d	m
Standard: FCC 15.247/15.E/RSS-210 Class: N/A ummary of Results Spurious Radiated Emissions: 2x2 and 3x3 Modules for 802.11a; HT20; and HT40 modes Run # Mode Channel Power Setting Measured Power Test Performed Limit Result 1 802.11a See Below See Below Radiated Emissions, 1 - 40 GHz FCC 15.209 / 15 E 53.1 d 2 802.11a See Below See Below Radiated Emissions, 1 - 40 GHz FCC 15.209 / 15 E 54.0 d 3 802.11a See Below See Below Radiated Emissions, 1 - 40 GHz FCC 15.209 / 15 E 54.0 d 2 802.11a See Below See Below Radiated Emissions, 1 - 40 GHz FCC 15.209 / 15 E 54.0 d 3 802.11a20 See Below See Below Radiated Emissions, 1 - 40 GHz FCC 15.209 / 15 E 52.2 d	
ummary of Results Spurious Radiated Emissions: 2x2 and 3x3 Modules for 802.11a; HT20; and HT40 modes Run # Mode Channel Power Setting Measured Power Test Performed Limit Result 1 802.11a See Below See Below Radiated Emissions, 1 - 40 GHz FCC 15.209 / 15 E 53.1 d 2 802.11a See Below See Below Radiated Emissions, 1 - 40 GHz FCC 15.209 / 15 E 54.0 d 3 802.11a See Below See Below Radiated Emissions, 1 - 40 GHz FCC 15.209 / 15 E 54.0 d	
Spurious Radiated Emissions: 2x2 and 3x3 Modules for 802.11a; HT20; and HT40 modes Run # Mode Channel Power Setting Measured Power Test Performed Limit Result 1 802.11a See Below See Below See Below Radiated Emissions, 1 - 40 GHz FCC 15.209 / 15 E 53.1 d 5440.04 M 2 802.11a See Below See Below Radiated Emissions, 1 - 40 GHz FCC 15.209 / 15 E 54.0 d 5440.00 M 3 802.11a See Below See Below Radiated Emissions, 1 - 40 GHz FCC 15.209 / 15 E 54.0 d 5440.00 M	
Run # Mode Channel Setting Power Test Performed Limit Result 1 802.11a See Below See Below Radiated Emissions, 1 - 40 GHz FCC 15.209 / 15 E 53.1 d 5440.04 N 2 802.11a See Below See Below Radiated Emissions, 1 - 40 GHz FCC 15.209 / 15 E 54.0 d 5440.00 N 3 802.11a2 See Below See Below Radiated Emissions, 1 - 40 GHz FCC 15.209 / 15 E 54.0 d 5440.00 N	
1 802.11a See Below See Below 1 - 40 GHz FCC 15.209 / 15 E 5440.04 N 2 802.11a See Below See Below Radiated Emissions, 1 - 40 GHz FCC 15.209 / 15 E 54.0 d 3 802.11a See Below See Below Radiated Emissions, 1 - 40 GHz FCC 15.209 / 15 E 54.0 d 3 802.11a20 See Below See Below Radiated Emissions, 540.00 N FCC 15.209 / 15 E 52.2 d	/ Margin
2 802.11a See Below See Below 1 - 40 GHz FCC 15.209 / 15 E 5440.00 f 3 802.11a20 See Below See Below Radiated Emissions, ECC 15.209 / 15 E 52.2 d	3µV/m @ 1Hz (-0.9 dE
	3µV/m @ /IHz (0.0 dB
	3µV/m @ 1Hz (-1.8 dE
	3µV/m @ 1Hz (-0.4 dE
	3µV/m @ 1Hz (-0.7 dE

Job Number: J86256				C [*] company	An 2424 Xirrus	Cliont
T-Log Number: T86500					AITUS	Client
Account Manager: Michelle Ki			ule) in XR2000	radio mod	XI-N300 (2x2	Model:
					Steve Smith	Contact:
Class: N/A			210	15.E/RSS-2	FCC 15.247/	
	MUz	5150 5250	erating within !	Onc	figuration:	ictom Cor
	Radio #	Pwr	Mode	Module	Frequency	Radio #
		1 001	Wode	Module	requeries	Run: 1
	2	27	802.11a	2x2	5180	1
	10	19	802.11a	3x3	5240	0
	6	27	802.11a	2x2	5240	2
	14	19	802.11a	3x3	5180	3
						Run: 2
	2	26 (28)	802.11a	2x2	5200	1 1
	10	19	802.11a 802.11a	2x2 3x3	5200	0
	6	28	802.11a 802.11n20	2x2	5200	2
	14	19	802.11n20	3x3	5200	3
						Run: 3
	2	26	802.11n20	2x2	5180	run. 5 1
	10	20 19	802.11120 802.11n20	2x2 3x3	5240	0
	6	28	802.11n20 802.11n20	2x2	5240 5240	2
	14	19	802.11n20	3x3	5180	3
						Run: 4
	2	27 (28)	802.11n20	2x2	5200	Run: 4 1
	10	19	802.11n20 802.11n20	2x2 3x3	5200	0
	6	27 (28)	802.11n20 802.11n20	2x2	5200	2
	14	19	802.11n20 802.11n20	3x3	5200	2
	2	11	000 11UT //	℃	E100	Run: 5
	2 10	11 19	802.11HT4C 802.11HT4C	2x2 3x3	5190 5220	1
					5230 5220	0
	6 14	<mark>26 (28)</mark> 8	802.11HT40 802.11HT40	2x2 3x3	5230 5190	2 3

Notes - Multiple radios operating at the same time as shown above. In all cases, power set to the maximum worse case single channel power, transmitting on all chains.

Highlights indicate that power was lowered from the original level. Notation - XX (YY), XX = passing power setting, YY = power setting for original power levels.

Client:	Xirrus	Company						Job Number:	J86256
Model	XI-N300 (2x2	radio modu	ila) in XP200	0			T-	Log Number:	T86500
MOUEI.	XI-IN300 (2X2			0			Ассо	unt Manager:	Michelle Kim
Contact:	Steve Smith								
Standard:	FCC 15.247/	15.E/RSS-2	10					Class:	N/A
l Te	diated Spurio Date of Test: 3 est Engineer: F	3/13/2012 Peter Sales	ons, 30 - 40,0	000 MHz. O		ne 5150-5250 est Location:			
	urious Emiss		15.000						
equency	Level	Pol	15.209		Detector	Azimuth	Height	Comments	
MHz 000.090	dBµV/m 58.5	v/h V	Limit	Margin	Pk/QP/Avg AVG	degrees 181	meters 1.0	Note 4	
140.040	58.5 53.1	V	- 54.0	-0.9	AVG	95	1.0	RB 1 MHz;V	'R 10 Hz·Pk
54.520	43.7	V	54.0	-10.3	AVG	185	1.0	RB 1 MHz;V	
000.030	63.3	V	-	-	PK	181	1.0	Note 4	D 10112/11
439.790	62.0	V	74.0	-12.0	PK	95	1.0	RB 1 MHz;V	'B 3 MHz;Pk
554.400	53.5	V	74.0	-20.5	PK	185	1.1	RB 1 MHz;V	'B 3 MHz;Pk
	-				em. Refer to I	FCC 15.B tes	st resutls.		
140. 120. (Janual (Manageria) 100. 80. 80. 60.	0- 0- 0- 0-					-CC 15.B tes			
120.						-CC 15.B tes			

(je		ott							C Test Data
Client:	Xirrus							Job Number:	
Model:	XI-N300 (2x2	2 radio modu	le) in XR200	0				Log Number:	
			,				Accou	unt Manager:	Michelle Kim
	Steve Smith								
Standard:	FCC 15.247/	/15.E/RSS-2	10					Class:	N/A
[Te	Date of Test: st Engineer:	3/13/2012 Peter Sales	ons, 30 - 40,0)00 MHz. Oj	peration in th Te	e 5150-5250 st Location:			
	urious Emiss		15.000						
Frequency	Level	Pol	15.209		Detector	Azimuth	Height	Comments	
MHz	dBµV/m	v/h V	Limit	Margin	Pk/QP/Avg	degrees	meters		
5039.870 5040.340	45.8 56.9	V	54.0 74.0	-8.2 -17.1	AVG PK	14 14	<u> </u>	RB 1 MHz;V	/B 10 HZ;PK /B 3 MHZ;Pk
1552.710	46.9	V	74.0 54.0	-17.1	AVG	204	1.1	RB 1 MHZ;V	
1553.010	56.0	V	74.0	-18.0	PK	204	1.0		/B 3 MHz;Pk
5000.050	58.9	V	-	-	AVG	248	1.0	Note 4	
5000.070	63.4	V	-	-	PK	248	1.0	Note 4	
5440.000	54.0 V 54.0 0.0 AVG 297 1.2 2x2 aMode, Power 26								
5440.560	64.0 V 74.0 -10.0 PK 297 1.2 2x2 aMode, Power 26								
5439.980									
5439.870	59.5	V	74.0	-14.5	PK	323	1.2	2x2 HT20, F	Power 28
5439.990	52.5	V	54.0	-1.5	AVG	106	1.2	3x3 aMode,	Power 19
5439.990	62.1	V	74.0	-11.9	PK	106	1.2	3x3 aMode,	
5439.980	53.8	V	54.0	-0.2	AVG	111	1.1	3x3 HT20, F	
5440.130	63.1	V	74.0	-10.9	PK	111	1.1	3x3 HT20, F	Power 19
Nata 1	F		d have day the s	1	00				
Note 1:					09 was used				
Note 2:	conducted m				IIMILIS -270Br	n/iviHz eirp (08.30BUV/II	i). Compliand	ce demonstrated via a
Note 3:	No significan				GHz				
					em. Refer to I	FCC 15.B tes	st resutls.		
140. 120. (^{WI} /100. (^{WI} /100. 80. 80. 40. 40. 20.			L. L.						

Client:	Xirrus							Job Number:	J86256
				_			T-	Log Number:	T86500
Model:	XI-N300 (2x2	radio modu	ile) in XR200	0				•	Michelle Kim
Contact.	Steve Smith							<u> </u>	
	FCC 15.247/	15 F/RSS-2	10					Class:	N/A
	diated Spuric				noration in th	0 5150 525() MHz Band		14/7
[Te	Date of Test: 3	3/13/2012 Peter Sales				est Location:			
	urious Emiss		15.209)/150	Dotostor	Azimuth	Lloight	Commonto	
equency MHz		Pol			Detector Pk/QP/Avg	Azimuth	Height	Comments	
101HZ 919.990	dBμV/m 50.3	v/h V	Limit 54.0	Margin -3.7	AVG	degrees 292	meters 1.2	RB 1 MHz;V	'R 10 Hz·Pk
20.160	57.3	V	74.0	-16.7	PK	292	1.2	RB 1 MHz;V	
000.040	56.4	V	-	-	AVG	293	1.3	Note 4	2 0 11112/1 12
00.140	63.7	V	-	-	PK	293	1.3	Note 4	
139.980	52.2	V	54.0	-1.8	AVG	229	1.3	2x2 5180, P	ower 28
139.880	62.0	V	74.0	-12.0	PK	229	1.3	2x2 5180, P	
40.010	52.1	V	54.0	-1.9	AVG	229	1.3	2x2 5240, P	
39.730	62.2	V	74.0	-11.8	PK	229	1.3	2x2 5240, P	
39.940	50.7	V	54.0	-3.3	AVG	28	1.1	3x3 5240, P	
40.200	59.9	V	74.0	-14.1	PK	28	1.1	3x3 5240, P	
39.950	52.2	V	54.0	-1.8	AVG	12	1.3	3x3 5180, P	
139.790	62.5	V	74.0	-11.5	РК	12	1.3	3x3 5180, P	ower 19
e 1:	For emission	s in restricte	d hands the	limit of 15.2	09 was used	which requir	es average	and neak me	asurements
									ce demonstrated via
te 2:	conducted m							i)i oʻompilari	
te 3:	No significan				GHz				
te 4:	Emission fror	m the digital	circuitry of th	ne host syste	em. Refer to l	FCC 15.B tes	st resutls.		
140. 120. (w) 100. 100. 80. 80. 40. 20.	0- 0- 0- 0- 0-		- Auman	 Muranaa					

Client:	Xirrus	T company						Job Number:	J86256
Ma dal				0			T-	Log Number:	T86500
Model:	XI-N300 (2x2	radio modu	ile) in XR200	0		-	Acco	unt Manager:	Michelle Kim
Contact:	Steve Smith								
	FCC 15.247/1	15.E/RSS-2	10					Class:	N/A
	diated Spurio			00 MHz O	neration in th	ne 5150-525() MHz Band		
[Date of Test: 3 st Engineer: F	3/13/2012	.,,.			est Location:			
Other Sp	urious Emiss	ions							
requency	Level	Pol	15.209		Detector	Azimuth	Height	Comments	
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters		
440.170	53.6	V	54.0	-0.4	AVG	218	1.1	2x2 5200, P	
439.910	62.4	V	74.0	-11.6	PK	218	1.1	2x2 5200, P	
440.080	49.6	V V	54.0	-4.4	AVG	23	1.3	3x3 5200, P	
440.230	60.6 52.4	V	74.0	-13.4	PK AVG	23 31	1.3	3x3 5200, P	ower 19
999.990	52.4 59.9	V	-	-	PK	31	1.0 1.0	Note 4 Note 4	
	•								
	0							n n m	
140. 120. (W/\mg) 100. 80. 80. 60. 40.									
120. (m//mge (gBn//m) 80. 60.					requency (MH		Real and and		0000 12000
.120 (m/ 100. 80. 60. 60.	o o								

Client:		S [*] company						Job Number:	C Test Data
Cilent.	Airus							Log Number:	
Model:	XI-N300 (2x2	radio modu	ile) in XR200	0			Account Manager: Michelle Kim		
Contact	Steve Smith						71000	ant manager.	
	FCC 15.247/	15 F/RSS-2	10					Class:	N/A
	diated Spurio				neration in th	e 5150-525() MHz Band		
l Te	Date of Test: 3 est Engineer: F	8/13/2012 Peter Sales				st Location:			
	urious Emiss		15 200) / 155	Detector	۸ <u> </u>	l la la la la la	Commente	
requency MHz		Pol v/h	15.209 Limit		Detector Pk/QP/Avg	Azimuth	Height meters	Comments	
4920.020	dBµV/m 45.8	V/f1 V	54.0	Margin -8.2	AVG	degrees 35	1.1	RB 1 MHz;V	'R 10 Hz∙Pk
4920.020	45.8 55.1	V	74.0	-0.2	PK	35	1.1	RB 1 MHz;V	
5440.030	53.3	V	54.0	-0.7	AVG	229	1.1	2x2 5230, P	
5439.850	62.7	V	74.0	-11.3	PK	229	1.1	2x2 5230, P	
5439.960	52.9	V	54.0	-1.1	AVG	229	1.1	2x2 5190, P	ower 11
5439.880	60.6	V	74.0	-13.4	PK	229	1.1	2x2 5190, P	
5440.010	48.1	V	54.0	-5.9	AVG	311	1.2	3x3 5190, P	
5439.850	58.0	V	74.0	-16.0	PK	311	1.2	3x3 5190, P	
5439.960	48.2	V	54.0	-5.8	AVG	297	1.1	3x3 5230, P	
5440.060	58.2	V	74.0	-15.8	PK	297	1.1	3x3 5230, P	ower 13
ote 1: ote 2: ote 3: ote 4: 140.	conducted me No significant Emission fron	s outside of easurement emissions	the restricted during the o were observe	d bands the riginal filing. ed for 18-40	limit is -27dBr GHz	m/MHz eirp (68.3dBuV/m		asurements.
120.	0-					- 6			
_	-					n n			
Amplitude (dBuV/m) 80. 60.	0-								
면 9 80.	o			1000 1				n n mu	
a 80.	۰i	·····							÷
불 60.	o-	1 1					e		
Æ									
40.	0- <u> </u> (1	~ #	Anne	a how here were		m / m /			
20.	0-l~~~~~	Serveral Ula							
20.	1000							· · · 1	0000 12000
				Fr	requency (MH	łz)			

4		any			EM	C Test
Client:	Xirrus				Job Number:	J86256
Model:	XI-N300 (2x2 radio	module) in XR2000		Δ	T-Log Number: ccount Manager:	
Contact:	Steve Smith			A	count manager.	
	FCC 15.247/15.E/R	SS-210			Class	N/A
		10 and FCC 1	5.407 (UNII) Ra (5250-5350 MH	-	is Emissior	IS
Test Spe		jective of this test so cation listed above.	ession is to perform fin	al qualification testing	of the EUT with	respect to the
	Test Configurati		tenna was located 3 m	eters from the EUT.		
Ambient	Conditions:	Temperature:	20-25 °C	Rel. Humi	dity: 30-40	%
	tions Made Duri		sting			
	ns From The Sta ions were made fror		of the standard.			

6	Elliott An DEAS' company	EMC Test Da			
	Xirrus	Job Number:	J86256		
Madal	VI N200 (2v2 radia madula) in VD2000	T-Log Number:	T86500		
wouer:	XI-N300 (2x2 radio module) in XR2000	Account Manager:	Michelle Kim		
Contact:	Steve Smith				
Standard:	FCC 15.247/15.E/RSS-210	Class:	N/A		
Standard:	FCC 15.247/15.E/RSS-210	Class:	N/A		

Power Measured **Test Performed** Limit Result / Margin Run # Mode Channel Setting Power Radiated Emissions, 53.9 dBµV/m @ FCC 15.209 / 15 E 1 802.11a See Below See Below 5439.98 MHz (-0.1 dB) 1 - 40 GHz Radiated Emissions, 53.9 dBµV/m @ 2 See Below See Below FCC 15.209 / 15 E 802.11a 5440.06 MHz (-0.1 dB) 1 - 40 GHz Radiated Emissions, 54.0 dBµV/m @ 802.11n20 See Below See Below FCC 15.209 / 15 E 3 5440.11 MHz (0.0 dB) 1 - 40 GHz 48.4 dBµV/m @ Radiated Emissions, 5 802.11n40 See Below See Below FCC 15.209 / 15 E 5440.10 MHz (-5.6 dB) 1 - 40 GHz

	: Xirrus				Job Number:	J86256
Modo	· XI N300 (2v) radio mor	dule) in XR2000		T-Log Number:	T86500
					Account Manager:	Michelle Kim
	: Steve Smith					
Standard	: FCC 15.247/	'15.E/RSS-	210		Class:	N/A
		0.5	anating within I			
vstem Co Radio #	nfiguration: Frequency	Op Module	Mode	5250-5350 MHz Pwr		
Run: 1	riequency	would	IVIOUE			
1	5260	2x2	802.11a	34 (35)		
0	5320	3x3	802.11a	28		
2	5320	2x2	802.11a	31		
3	5260	3x3	802.11a	32		
Run: 2						
1	5300	2x2	802.11a	34		
0	5300	3x3	802.11a	32		
2	5300	2x2	802.11n20	31 (34)		
3	5300	3x3	802.11n20	32 (33)		
Run: 3						
1	5260	2x2	802.11n20	34		
0	5320	3x3	802.11n20	21		
2	5320	2x2	802.11n20	27		
3	5260	3x3	802.11n20	33		
Run: 5						
1	5270	2x2	802.11HT4C	33		
0	5310	3x3	802.11HT4C	12		
2	5310	2x2	802.11HT4C	14		
	5270	3x3	802.11HT4C	34		

Contact: Standard: Run #1, Rad D Tes Other Spu Frequency MHz 5000.050 5000.010 5039.960 5040.130 5439.980 5439.790 5440.000 5440.000 5440.210 5440.210 5440.210 5440.210 5440.230 10640.230 10640.620	XI-N300 (2x) Steve Smith FCC 15.247	15.E/RSS-2 ous Emissic 3/14/2012 Peter Sales	10	000 MHz. Oj	Detector Pk/QP/Avg AVG PK AVG PK	Azimuth degrees 239 239 140	T- Accou O MHz Band	Class: Class: d namber #3 Comments Note 4 Note 4	T86500 Michelle Kim
Contact: Standard: Run #1, Rad D Tes Other Spu Frequency MHz 5000.050 5000.010 5039.960 5040.130 5439.790 5440.000 5439.790 5440.000 5439.560 5440.100 5440.21	Steve Smith FCC 15.247/ diated Spurio Date of Test: st Engineer: urious Emiss Level dBµV/m 58.7 61.8 52.2 60.7 53.9 61.1 49.4 59.0 52.5	15.E/RSS-2 Dus Emissic 3/14/2012 Peter Sales sions Pol V/h V V V V V V V V V V V V V	10 pms, 30 - 40 ,0 15.209 Limit - 54.0 74.0 54.0 74.0 54.0 74.0 54.0	000 MHz. O 0 / 15E Margin - -1.8 -13.3 -0.1	Te Detector Pk/QP/Avg AVG PK AVG PK	Azimuth degrees 239 239 140	Accou D MHz Band Fremont Ch Height meters 1.0 1.0	Class: Class: d namber #3 Comments Note 4 Note 4	Michelle Kim
Contact: Standard: Run #1, Rad D Tes Other Spu Frequency MHz 5000.050 5000.010 5039.960 5040.130 5439.790 5440.000 5439.790 5440.000 5439.560 5440.100 5440.21	Steve Smith FCC 15.247/ diated Spurio Date of Test: st Engineer: urious Emiss Level dBµV/m 58.7 61.8 52.2 60.7 53.9 61.1 49.4 59.0 52.5	15.E/RSS-2 Dus Emissic 3/14/2012 Peter Sales sions Pol V/h V V V V V V V V V V V V V	10 pms, 30 - 40 ,0 15.209 Limit - 54.0 74.0 54.0 74.0 54.0 74.0 54.0	000 MHz. O 0 / 15E Margin - -1.8 -13.3 -0.1	Te Detector Pk/QP/Avg AVG PK AVG PK	Azimuth degrees 239 239 140	D MHz Band Fremont Ch Height meters 1.0 1.0	Class: d hamber #3 Comments Note 4 Note 4	
Standard: Run #1, Rad D Tes Other Spu Frequency MHz 5000.050 5000.010 5039.960 5040.130 5439.790 5440.000 5439.560 5440.100 5439.850 10640.230 10640.620	FCC 15.247/ diated Spurio Date of Test: st Engineer: Level dBµV/m 58.7 61.8 52.2 60.7 53.9 61.1 49.4 59.0 52.5	Dus Emissic 3/14/2012 Peter Sales sions Pol V/h V	15.209 Limit - 54.0 74.0 54.0 74.0 54.0 54.0	0 / 15E Margin - - -1.8 -13.3 -0.1	Te Detector Pk/QP/Avg AVG PK AVG PK	Azimuth degrees 239 239 140	Fremont Ch Height meters 1.0 1.0	Comments Note 4 Note 4	N/A
Run #1, Rad D Tes Other Spu Frequency MHz 5000.050 5000.010 5039.960 5040.130 5439.960 5439.960 5439.960 5439.560 5440.000 5439.560 5440.210 5440.210 5440.210 5440.230 10640.230 10640.620	diated Spurio Date of Test: st Engineer: urious Emiss Level dBμV/m 58.7 61.8 52.2 60.7 53.9 61.1 49.4 59.0 52.5	Dus Emissic 3/14/2012 Peter Sales sions Pol V/h V	15.209 Limit - 54.0 74.0 54.0 74.0 54.0 54.0	0 / 15E Margin - - -1.8 -13.3 -0.1	Te Detector Pk/QP/Avg AVG PK AVG PK	Azimuth degrees 239 239 140	Fremont Ch Height meters 1.0 1.0	Comments Note 4 Note 4	N/A
D Tes Other Spu Frequency MHz 5000.050 5000.010 5039.960 5040.130 5439.980 5439.790 5440.000 5440.000 5440.000 5440.210 5440.210 5440.210 5440.210 5440.210 10640.230 10640.620	Date of Test: st Engineer: Level dBµV/m 58.7 61.8 52.2 60.7 53.9 61.1 49.4 59.0 52.5	3/14/2012 Peter Sales sions Pol V/h V V V V V V V V V V V V V	15.209 Limit - 54.0 74.0 54.0 74.0 54.0 54.0	0 / 15E Margin - - -1.8 -13.3 -0.1	Te Detector Pk/QP/Avg AVG PK AVG PK	Azimuth degrees 239 239 140	Fremont Ch Height meters 1.0 1.0	Comments Note 4 Note 4	
Frequency MHz 5000.050 5000.010 5039.960 5040.130 5439.790 5439.790 5440.000 5439.560 5440.100 5439.850 10640.230 10640.620	Level dBμV/m 58.7 61.8 52.2 60.7 53.9 61.1 49.4 59.0 52.5	Pol V/h V V V V V V V V V V	Limit - 54.0 74.0 54.0 74.0 54.0 54.0	Margin - -1.8 -13.3 -0.1	Pk/QP/Avg AVG PK AVG PK	degrees 239 239 140	meters 1.0 1.0	Note 4 Note 4	
MHz 5000.050 5000.010 5039.960 5040.130 5439.790 5440.000 5439.560 5440.100 5439.850 10640.230 10640.620	dBμV/m 58.7 61.8 52.2 60.7 53.9 61.1 49.4 59.0 52.5	V/h V V V V V V V V V	Limit - 54.0 74.0 54.0 74.0 54.0 54.0	Margin - -1.8 -13.3 -0.1	Pk/QP/Avg AVG PK AVG PK	degrees 239 239 140	meters 1.0 1.0	Note 4 Note 4	
5000.050 5000.010 5039.960 5040.130 5439.790 5440.000 5439.560 5440.100 5440.210 5439.850 10640.230 10640.620	58.7 61.8 52.2 60.7 53.9 61.1 49.4 59.0 52.5	V V V V V V V V	- 54.0 74.0 54.0 74.0 54.0	- -1.8 -13.3 - 0.1	AVG PK AVG PK	239 239 140	1.0 1.0	Note 4	
5000.010 5039.960 5040.130 5439.980 5439.790 5440.000 5439.560 5440.100 5440.210 5440.210 5440.040 5439.850 10640.230 10640.620	61.8 52.2 60.7 53.9 61.1 49.4 59.0 52.5	V V V V V V V	74.0 54.0 74.0 54.0	-13.3 -0.1	PK AVG PK	239 140	1.0	Note 4	
5039.960 5040.130 5439.980 5439.790 5440.000 5439.560 5440.100 5440.210 5440.210 5440.210 5440.210 5440.220 10640.230 10640.620	52.2 60.7 53.9 61.1 49.4 59.0 52.5	V V V V V V	74.0 54.0 74.0 54.0	-13.3 -0.1	AVG PK	140			
5040.130 5439.980 5439.790 5440.000 5439.560 5440.100 5440.210 5440.210 5440.040 5439.850 10640.230 10640.620 Note 1:	60.7 53.9 61.1 49.4 59.0 52.5	V V V V V	74.0 54.0 74.0 54.0	-13.3 -0.1	PK			IKK I MH7 V	/B 10 Hz;Pk
5439.980 5439.790 5440.000 5439.560 5440.100 5440.210 5440.040 5439.850 10640.230 10640.620	53.9 61.1 49.4 59.0 52.5	V V V V	54.0 74.0 54.0	-0.1		140	1.0		/B 3 MHz;Pk
5439.790 5440.000 5439.560 5440.100 5440.210 5440.040 5439.850 10640.230 10640.620 Note 1:	61.1 49.4 59.0 52.5	V V V	74.0 54.0		AVG	58	1.3	2x2 5320, P	
5440.000 5439.560 5440.100 5440.210 5440.040 5439.850 10640.230 10640.620 Note 1:	49.4 59.0 52.5	V V	54.0		PK	58	1.3	2x2 5320, P	
5439.560 5440.100 5440.210 5440.040 5439.850 10640.230 10640.620 Note 1:	59.0 52.5	V		-4.6	AVG	69	1.1	2x2 5260, P	
5440.100 5440.210 5440.040 5439.850 10640.230 10640.620 Note 1:	52.5		74.0	-15.0	PK	69	1.1	2x2 5260, P	
5440.210 5440.040 5439.850 10640.230 10640.620 Note 1:			54.0	-1.5	AVG	47	1.3	3x3 5320, P	
5440.040 5439.850 10640.230 10640.620 Note 1:		V	74.0	-10.7	PK	47	1.3	3x3 5320, P	
5439.850 10640.230 10640.620 Note 1:	52.9	V	54.0	-1.1	AVG	28	1.2	3x3 5260, P	
10640.230 10640.620 Note 1:	63.7	V	74.0	-10.3	PK	28	1.2	3x3 5260, P	
10640.620 Note 1:	52.4	V	54.0	-1.6	AVG	353	1.1	RB 1 MHz;V	
Note 1:	65.6	V	74.0	-8.4	PK	353	1.1		/B 3 MHz;Pk
					11			,	- /
	For emissior	s in restricte	d bands, the	limit of 15.2	09 was used	which requir	es average	and peak me	asurements.
									ce demonstrated via a
vole Z:			during the o			1 1		, 1	
	No significar								
Note 4:	Emission fro	m the digital	circuitry of th	ne host syste	em. Refer to I	FCC 15.B tes	st resutls.		
140.0 120.0 (W) 100.0 (M)			L.		requency (MH				0000 12000

		D tt							C Test Data
Client	Xirrus						Job Number: J86256		
Model	XI-N300 (2x2	2 radio modu	ıle) in XR200	0				Log Number:	
							Accou	unt Manager:	Michelle Kim
	Steve Smith								
	FCC 15.247							Class:	N/A
Te	idiated Spurie Date of Test: est Engineer:	3/14/2012 Peter Sales	ons, 30 - 40,(000 MHz. O		ne 5250-5350 Ist Location:			
	ourious Emis		45.000		I			<u> </u>	
Frequency	Level	Pol	15.209		Detector	Azimuth	Height	Comments	
MHz 5000.030	dBµV/m 55.9	v/h V	Limit	Margin	Pk/QP/Avg AVG	degrees 206	meters 1.1	Note 4	
5000.030	62.1	V	-	-	PK	206	1.1	Note 4	
5040.000	53.4	V	54.0	-0.6	AVG	143	1.1	RB 1 MHz;V	/B 10 Hz:Pk
5039.990	60.7	V	74.0	-13.3	PK	143	1.1		/B 3 MHz;Pk
5439.770	53.9	V	54.0	-0.1	AVG	240	1.2	2x2 aMode,	Power 34
5439.980	63.6	V	74.0	-10.4	PK	240	1.2	2x2 aMode,	Power 34
5440.060	53.9	V	54.0	-0.1	AVG	243	1.2	2x2 HT20, F	Power 31
5440.340	63.6	V	74.0	-10.4	PK	243	1.2	2x2 HT20, F	Power 31
5439.910	48.9	V	54.0	-5.1	AVG	360	1.0	3x3 aMode,	
5440.570	59.9	V	74.0	-14.1	PK	360	1.0	3x3 aMode,	
5439.980	52.4	V	54.0	-1.6	AVG	38	1.1	3x3 HT20, F	
5441.570	62.9	V	74.0	-11.1	PK	38	1.1	3x3 HT20, F	
10600.340		V	54.0	-0.2	AVG	10	1.2	RB 1 MHz;V	
10600.190	66.2	V	74.0	-7.8	PK	10	1.2	RB I MHZ;V	/B 3 MHz;Pk
Note 1:	For omission	ns in rostricto	d hands the	limit of 15.2	09 was used	which roquir	os avorado	and noak mo	asuramants
									ce demonstrated via a
Note 2:			during the o				00.500000	i). Oompilan	
Note 3:	No significar				GHz				
Note 4:	<u> </u>				em. Refer to I	FCC 15.B tes	st resutls.		
140, 120, (Jack de de de la constant 100, 100, 100, 100, 100, 100, 100, 100	.0 - .0 - .0 -								

		Dtt Art company							C Test Data
Client:	Xirrus						Job Number: J		
Model.	XI-N300 (2x2	2 radio modu	ile) in XR200	0			T-Log Number: T86500		
	-			-			Acco	unt Manager:	Michelle Kim
	Steve Smith								
Standard:	FCC 15.247/	/15.E/RSS-2	10					Class:	N/A
[Te	Date of Test: st Engineer:	3/14/2012 Peter Sales	ons, 30 - 40,0)00 MHz. Oj	peration in th Te	e 5250-5350 st Location:			
	urious Emis		15.209	/ 155	Detector	Azimuth	Hoight	Comments	
Frequency MHz		Pol v/h	Limit	Margin	Pk/QP/Avg	degrees	Height meters	Comments	
5000.120	dBµV/m 56.2	V		iviaryin -	AVG	207	1.0	Note 4	
4999.970	63.0	V	-	-	PK	207	1.0	Note 4	
4919.880	46.2	V	54.0	-7.8	AVG	243	1.0	RB 1 MHz;V	/B 10 Hz:Pk
4919.870	56.0	V	74.0	-18.0	PK	243	1.0		/B 3 MHz;Pk
5439.950	53.8	V	54.0	-0.2	AVG	222	1.0	2x2 5320, P	
5439.930	63.6	V	74.0	-10.4	PK	222	1.0	2x2 5320, P	ower 27
5440.010	53.4	V	54.0	-0.6	AVG	222	1.0	2x2 5260, P	ower 34
5440.010	63.8	V	74.0	-10.2	PK	222	1.0	2x2 5260, P	
5439.980	52.4	V	54.0	-1.6	AVG	310	1.1	3x3 5260, P	
5440.290	63.2	V	74.0	-10.8	PK	310	1.1	3x3 5260, P	
5440.110	54.0	V	54.0	0.0	AVG	300	1.1	3x3 5320, P	
5441.040	65.2	V	74.0	-8.8	PK	300	1.1	3x3 5320, P	
10640.460	50.5	V	54.0	-3.5	AVG	360	1.1	RB 1 MHz;V	
10642.020	64.0	V	74.0	-10.0	PK	360	1.1	RB 1 MHz;V	/B 3 MHz;Pk
Note 1:	For emission	ns in restricte	d hands the	limit of 15.2	09 was used	which requir	es averane	and neak me	asurements
Note 2:	For emission	ns outside of		I bands the					ce demonstrated via a
Note 3:	No significar				GHz				
	<u> </u>				em. Refer to I	CC 15.B tes	st resutls.		
140. 120. (W) 100. (W) 100. (W			- Maria						0000 12000

Æ		D tt						EM	C Test Data
Client:	Xirrus							Job Number:	J86256
Madalı) radio modu	ula) in VD200	0			T-	Log Number:	T86500
woder:	XI-N300 (2x2		iie) iii Arzuu	0			Accou	unt Manager:	Michelle Kim
Contact:	Steve Smith								
Standard:	FCC 15.247	/15.E/RSS-2	10					Class:	N/A
C Te	Date of Test: st Engineer:	3/14/2012 Peter Sales	ons, 30 - 40,0	000 MHz. Oj	peration in th Te	e 5250-5350 st Location:			
	urious Emis								
Frequency	Level	Pol	15.209		Detector	Azimuth	Height	Comments	
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters		
10604.410	41.3 E2.1	V V	54.0	-12.7	AVG	131	1.1	RB 1 MHz;\	
10605.670 5033.470	53.1 45.4	V	74.0 54.0	-20.9 -8.6	PK AVG	131 334	1.1 1.1	RB 1 MHZ;\ RB 1 MHZ;\	/B 3 MHz;Pk /B 10 Hz·Pk
5033.470	45.4 56.6	V	74.0	-0.0	PK	334	1.1		/B 3 MHz;Pk
5033.000 5440.100	48.4	V	54.0	-17.4	AVG	313	1.1	2x2 5270, P	
5440.480	60.1	V	74.0	-13.9	PK	313	1.2	2x2 5270, P	
5439.940	44.9	V	54.0	-9.1	AVG	315	1.2	2x2 5270, P	
5441.460	56.9	V	74.0	-17.1	PK	315	1.2	2x2 5310, P	
5440.040	49.1	V	54.0	-4.9	AVG	138	1.0	3x3 5270, P	
5439.360	59.0	V	74.0	-15.0	PK	138	1.0	3x3 5270, P	
5439.970	47.7	V	54.0	-6.3	AVG	139	1.0	3x3 5310, P	
5439.960	57.1	V	74.0	-16.9	PK	139	1.0	3x3 5310, P	
5000.130	60.1	V	-	-	AVG	146	1.1	Note 4	
5000.150	64.2	V	-	-	PK	146	1.1	Note 4	
Note 1:	For emission	ns in restricte	d bands, the	limit of 15.2	09 was used	which requir	es average	and peak me	asurements.
Noto D									ce demonstrated via a
Note 2:	conducted m	neasurement	during the o	riginal filing.		•			
	No significar								
Note 4:	Emission fro	m the digital	circuitry of th	ie host syste	em. Refer to I	FCC 15.B tes	st resutls.		
140.0 120.0 (W/\ngp) 100.0 9pnjildwy 60.0 40.0 20.0) -) -) -) -) -) -								0000 12000
	-			Fr	equency (MH	lz)		-	[

6		t		EMC Test					
Client:	Xirrus	any			Job Number:	J86256			
		modulo) in VP2000			T-Log Number:	T86500			
	XI-N300 (2x2 radio				Account Manager:	Michelle Kim			
	Steve Smith								
Standard:	FCC 15.247/15.E/R	SS-210			Class:	N/A			
	RSS 2	10 and FCC 1	5.407 (UNII) Ra (5470-5725 MH	-	ous Emissior	IS			
Fest Spe		jective of this test so cation listed above.	ession is to perform fin	al qualification testir	g of the EUT with I	respect to the			
	Fest Configurati I emissions testing th		tenna was located 3 m	eters from the EUT.					
Ambient	Conditions:	Temperature:	20-25 °C	Rel. Hur	nidity: 30-40	%			
	ions Made Durin cations were made t		sting						
	is From The Sta ions were made fror		of the standard.						

Æ		Dtt Zer company				EMO	C Test Data
Client:	Xirrus					Job Number:	J86256
Madal		2 radio modu			T-Log Number: T86500		
wouer.	Model: XI-N300 (2x2 radio module) in XR2000					Account Manager:	Michelle Kim
Contact:	Steve Smith	ı					
Standard:	FCC 15.247	//15.E/RSS-2	10		Class:	N/A	
Spurious		missions: 2	x2 and 3x3 M Power	Modules for Measured	802.11a; HT20; and HT4		
Run #	Mode	Channel	Setting	Power	Test Performed	Limit	Result / Margin
1	802.11a	See Below	See Below		Radiated Emissions, 1 - 40 GHz	FCC 15.209 / 15 E	53.2 dBµV/m @ 11400.20 MHz (-0.8 dB)
2	802.11a	See Below	See Below		Radiated Emissions,	FCC 15.209 / 15 E	51.9 dBµV/m @ 5039.93 MHz

1 - 40 GHz

Radiated Emissions,

1 - 40 GHz

Radiated Emissions,

1 - 40 GHz

FCC 15.209 / 15 E

FCC 15.209 / 15 E

(-2.1 dB)

54.0 dB μ V/m @

11397.33 MHz

(0.0 dB)

51.8 dBµV/m @

. 5040.04 MHz

(-2.2 dB)

3

5

802.11n20 See Below See Below

802.11n40 See Below See Below

Client	Xirrus					Job Number:	J86256
Madal) radia mar	lule) in XR2000		T-Log Number:	T86500	
					A	ccount Manager:	Michelle Kin
	Steve Smith						
Standard	FCC 15.247/	15.E/RSS-	210			Class:	N/A
stem Coi	nfiguration:	Ор	erating within §	6470-5725 MHz			
Radio # Run: 1	Frequency	Module	Mode	Pwr			
1	5500	2x2	802.11a	35			
0	5700	3x3	802.11a	33			
2	5700	2x2	802.11a	32			
3	5500	3x3	802.11a	33			
Run: 2							
1	5580	2x2	802.11a	35			
0	5580	3x3	802.11a	33			
2	5580	2x2	802.11n20	32			
3	5580	3x3	802.11n20	30			
Run: 3							
1	5500	2x2	802.11HT2C	33			
0	5700	3x3	802.11HT2C	33			
2	5700	2x2	802.11HT2C	32			
3	5500	3x3	802.11HT2C	30			
Run: 5							
1	5510	2x2	802.11HT4C	20			
0	5670	3x3	802.11HT4C	34			
2	5670	2x2	802.11HT4C	27			
3	5510	3x3	802.11HT4C	13			

Client:		2 [°] company						Job Number:	186256
Clicht.								Log Number:	
Model:	XI-N300 (2x2	radio modu	ıle) in XR200	0				0	Michelle Kim
Contact	Steve Smith						ALLU	uni manayer.	
	FCC 15.247/	15 E/DCC 0	10					Class:	NI/A
	diated Spuric								N/A
l Te	Date of Test: 3	3/14/2012 Peter Sales	5113, 50 - 10 ₁ 0	500 Minž. O		st Location:			
	urious Emiss		15.209)/155	Dotostor	Azimuth	Hoight	Commonto	
Frequency MHz	Level dBµV/m	Pol v/h	Limit	Margin	Detector Pk/QP/Avg	Azimuth degrees	Height meters	Comments	
1400.200	53.2	V	54.0	-0.8	AVG	212	1.1	2x2 5700, P	ower 32
1400.200	66.9	V	74.0	-7.1	PK	212	1.1	2x2 5700, P	
1401.240	52.0	V	54.0	-2.0	AVG	209	1.1	3x3 5700, P	
1401.290	65.3	V	74.0	-8.7	PK	209	1.1	3x3 5700, P	
2749.890	48.8	V	54.0	-5.2	AVG	138	1.0	RB 1 MHz;V	
2749.230	63.5	V	74.0	-10.5	PK	138	1.0	RB 1 MHz;V	
5039.990	45.7	V	54.0	-8.3	AVG	336	1.1	RB 1 MHz;V	
5040.420	54.7	V	74.0	-19.3	PK	336	1.1	RB 1 MHz;V	/B 3 MHz;Pk
5000.200 5000.080	56.5 62.2	V V	-	-	AVG PK	318 318	1.1 1.1	Note 4 Note 4	
lote 1: lote 2: lote 3: lote 4:	For emission conducted m No significan	s outside of <u>easurement</u> t emissions	the restricted during the of were observe	l bands the riginal filing. ed for 12-40		m/MHz eirp (68.3dBuV/n		ce demonstrated via a
140. 120.	0 -	~							
(W) 100. 80. 80. 80. 80. 80. 80. 80. 80. 80.	0- 0-	€! ` _/ ~~~/\[requency (MH	-	 		0000 12000
					1				

Æ		Dtt Arcompany							C Test Data
Client:	Xirrus							Job Number:	
Model:	XI-N300 (2x)	2 radio modu	ıle) in XR200	0				Log Number:	
	•		•				Accou	unt Manager:	Michelle Kim
	Steve Smith								
		/15.E/RSS-2						Class:	N/A
E Te	Date of Test: St Engineer: Urious Emis	3/14/2012 Peter Sales	ons, 30 - 40,0	JUU MHZ. Uj	peration in th Te	e 5470-572 st Location:			
Frequency	Level	Pol	15.209) / 15F	Detector	Azimuth	Height	Comments	
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	Comments	
5039.930	51.9	V	54.0	-2.1	AVG	336	1.3	RB 1 MHz;\	/B 10 Hz;Pk
5040.190	58.2	V	74.0	-15.8	PK	336	1.3		/B 3 MHz;Pk
5080.050	50.6	V	54.0	-3.4	AVG	318	1.1	RB 1 MHz;\	
5079.750	58.1	V	74.0	-15.9	PK	318	1.1		/B 3 MHz;Pk
11169.360	49.8	V	54.0	-4.2	AVG	327	1.0	RB 1 MHz;\	
11170.170	62.9	V	74.0	-11.1	PK	327	1.0		/B 3 MHz;Pk
5000.220	55.2	V V	-	-	AVG	117	1.0	Note 4	
5000.090	59.7	V	-	-	РК	117	1.0	Note 4	
Note 2: Note 3:	For emissior conducted m No significar	ns outside of neasurement nt emissions	the restricted during the of were observe	l bands the riginal filing. ed for 12-40		m/MHz eirp (68.3dBuV/m		asurements. ce demonstrated via a
140.0 120.0 (W/\ngp) 100.0 9pnjildwy 60.0 40.0 20.0) -) -) -) -) -			rulur.l.u	equency (MH	12)			0000 12000

(7E		D tt							C Test Data
Client:	Xirrus							Job Number:	
Model:	XI-N300 (2x)	2 radio modu	ıle) in XR200	0				Log Number:	
				•			Accou	unt Manager:	Michelle Kim
Contact:	Steve Smith								
Standard:	FCC 15.247	/15.E/RSS-2	10					Class:	N/A
C Te	diated Spuri Date of Test: st Engineer: Jurious Emis	3/14/2012 Peter Sales	ons, 30 - 40,0	000 MHz. Oj	peration in th Te	ne 5470-572 est Location:			
Frequency	Level	Pol	15.209) / 15E	Detector	Azimuth	Height	Comments	
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	Johnnonta	
11397.330	54.0	V	54.0	0.0	AVG	94	1.1	RB 1 MHz;\	/B 10 Hz;Pk
11396.710	66.2	V	74.0	-7.8	PK	94	1.1		/B 3 MHz;Pk
5120.210	49.0	V	54.0	-5.0	AVG	151	1.3	RB 1 MHz;V	
5119.980	58.0	V	74.0	-16.0	PK	151	1.3		/B 3 MHz;Pk
5000.200	54.3	V	-	-	AVG	143	1.0	Note 4	
5000.180	59.7	V	-	-	PK	143	1.0	Note 4	
5039.980	45.8	V	54.0	-8.2	AVG	334	1.1	RB 1 MHz;\	
5039.990	55.9	V	74.0	-18.1	PK	334	1.1	RB 1 MHz;\	/B 3 MHz;Pk
Note 2: Note 3:	<u>conducted m</u> No significar	neasurement nt emissions	during the or were observe	riginal filing. ed for 12-40					ce demonstrated via a
140.0 120.0 (W/ 100.0 (M/ 100.0 90.0 80.0 40.0 40.0 20.0				III IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII	requency (MH	12)			0000 12000

	An /AZ					1			
Client:	Xirrus							Job Number:	
Model:	XI-N300 (2x2	2 radio modu	ıle) in XR200	0				Log Number:	
Cambrad	Steve Smith						ACCO	unt ivianager:	Michelle Kim
	FCC 15.247		10					Class	N1/A
	diated Spuri				ooration in th		E Mila Dona	Class:	IN/A
l Te	Date of Test: est Engineer:	3/14/2012 Peter Sales	JII3, 30 - 40,	500 Minz. O		est Location:			
	urious Emis		15.209) / 155	Datastar	A , ino. , th	Lloight	Commonto	
Frequency MHz	Level dBµV/m	Pol v/h	Limit	Margin	Detector Pk/QP/Avg	Azimuth degrees	Height meters	Comments	
11334.320	49.7	VIII	54.0	-4.3	AVG	140	1.1	RB 1 MHz;\	/B 10 Hz:Pk
1333.090	62.2	V	74.0	-11.8	PK	140	1.1		/B 3 MHz;Pk
5000.220	54.2	V	-	-	AVG	142	1.2	Note 4	
5000.210	60.2	V	-	-	PK	142	1.2	Note 4	
5120.020	48.0	V	54.0	-6.0	AVG	147	1.0	RB 1 MHz;\	
5120.080	57.6	V V	74.0	-16.4	PK	147	1.0		/B 3 MHz;Pk
5040.040 5039.910	51.8 57.8	V	54.0 74.0	-2.2 -16.2	AVG PK	335 335	1.3 1.3	RB 1 MHz;\	/B 3 MHz;Pk
ata 1.									
ote 1: ote 2: ote 3: ote 4:	For emissior conducted m No significar	ns outside of neasurement nt emissions	the restricted during the o were observe	d bands the riginal filing. ed for 12-40		m/MHz eirp (68.3dBuV/m		asurements. ce demonstrated via a

СЕ	iott
~	An RTAS company

EMC Test Data

An LACE) company		
Client:	Xirrus	Job Number:	J86256
Model:	XI-N450 (3x3 radio module) in XR2000	T-Log Number:	T86501
		Account Manager:	Michelle Kim
Contact:	Steve Smith		-
Emissions Standard(s):	FCC 15.247/15.E/RSS-210	Class:	-
Immunity Standard(s):	-	Environment:	-

EMC Test Data

For The

Xirrus

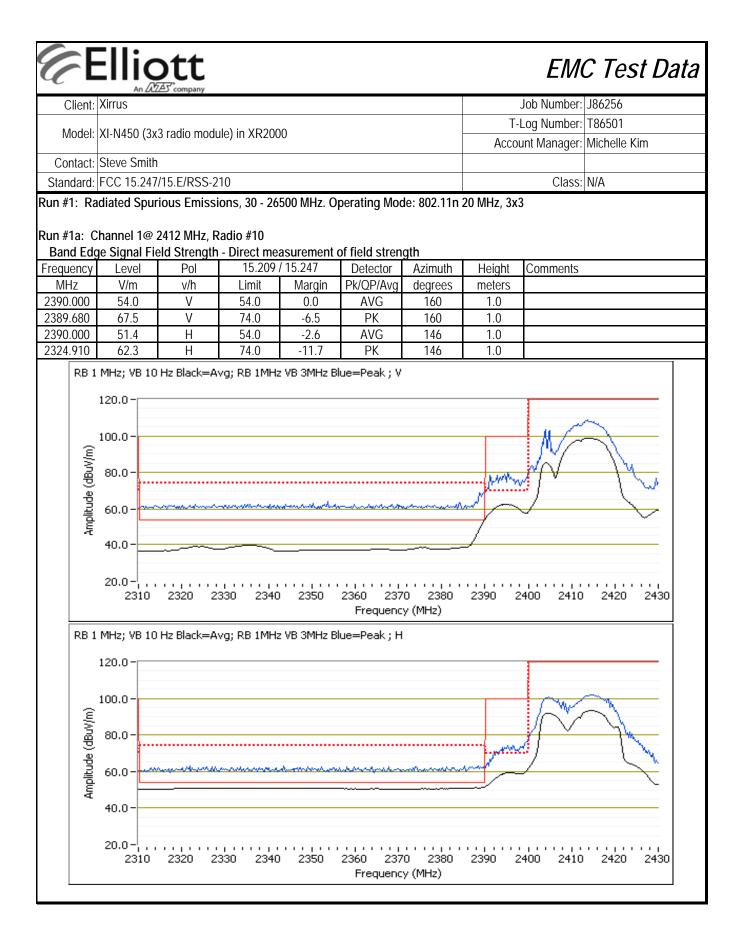
Model

XI-N450 (3x3 radio module) in XR2000

Date of Last Test: 5/24/2012

	Elliott					C Test Da	
Client:	Xirrus				Job Number:		
Model:	XI-N450 (3x3 radio mod	ule) in XR200	00	-	T-Log Number: T86501 Account Manager: Michelle Kim		
Contact:	Steve Smith				Account Manager.		
	FCC 15.247/15.E/RSS-2	210			Class:	: N/A	
	802.11b			(DTS) Radiated Sp ge and Spurious,			
	cific Details Objective: The objective specification Date of Test: 2/21/2012 est Engineer: Jack Liu	ve of this test n listed above	session is t e.	o perform final qualification Test Location:		respect to the	
	Test Configuration	n mont word	acatad an ti	na turntable for radiated sn	urious emissions testina		
	and all local support equ	-		as located 3 meters from the	-		
For radial		measuremen T		as located 3 meters from the contract of the c	-		
For radiat Ambient Modificat	ted emissions testing the	measuremen T R	it antenna w emperature el. Humidity	as located 3 meters from the contract of the c	-		
For radial Ambient Modificat No modifica Deviation No deviation	ted emissions testing the Conditions: Conditions: tions Made During T tions were made to the E tions From The Standa	measuremen T R Testing UT during tes rd	it antenna w emperature el. Humidity sting of the standa	ras located 3 meters from th : 20-25 °C : 30-40 %	he EUT.		
For radiat Ambient Modificat No modifica No modifica No deviation	ted emissions testing the Conditions: Conditions: tions Made During T tions were made to the E tions From The Standa	measuremen T R Testing UT during tes rd equirements c e Operatin Power	it antenna w emperature el. Humidity sting of the standa	ras located 3 meters from th : 20-25 °C : 30-40 %	he EUT.	Result / Margin	
For radial Ambient Modificat No modifica Deviation No deviation	ted emissions testing the Conditions: tions Made During T tions were made to the E tions were made to the E tions were made from the re or Results - Device	measuremen T R esting UT during tes rd equirements c	it antenna w emperature el. Humidity sting of the standa	ras located 3 meters from th 20-25 °C 30-40 % ard. 400-2483.5 MHz Banc	he EUT.		

Testing was performed on the worse case mode from the original filing. Power was set to be within 0.5dB of the original filing power.



CEII	
-------------	--

EMC Test Data

	Xirrus							Job Number:	J86256
Model		(2v2 radio mod	ila) in VD200	0			T-	Log Number:	T86501
		(3x3 radio modu					Accou	unt Manager:	Michelle Kim
Contact:	Steve Si	mith							
Standard:	FCC 15.	247/15.E/RSS-2	10					Class:	N/A
un #1b: H	ligh Char	nnel @ 2462 MH	lz, Radio #1()					
		ield Strength -						1-	
requency				15.247	Detector	Azimuth	Height	Comments	
MHz	V/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters		
2483.500 2484.360	53.9 66.7	V	54.0 74.0	-0.1 -7.3	AVG PK	163 163	1.2 1.2		
2484.300	52.6		74.0 54.0	-7.3 -1.4	AVG	140	1.2		
2483.500	63.3		74.0	-10.7	PK	140	1.0		
100.000	00.0		71.0	10.7		110	1.0		
RB 1	MHz: VE	3 10 Hz Black=A	va: RB 1MHz	VB 3MHz B	lue=Peak : V				
			rgj (to Inina	. 70 01 12 0	100-1 Odiki, 1				
	120.0-								
					-				
	100.0-	- martin			-1-				
Amplitude (dBuV/m)		1/		_	1 mar				
- A	80.0-	~~ (mar and a second	_		
e)					Wing more has		
E I	60.0-	_					~		~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
	· I							~~	
Į Į									
J III	40.0-								
- Final State	40.0-								
E F	40.0-	50 2455	2460	2465	470 247		2405	2400	2405 2500
Ē	40.0-	50 2455	2460	2465 2	2470 247	5 2480	2485	2490	2495 2500
	40.0- 20.0- 24!	50 2455	2460	2465 2	Frequency	5 2480 y (MHz)	2485	2490	2495 2500
	40.0- 20.0- 24!	50 2455 3 10 Hz Black=A	2460	2465 2	Frequency	5 2480 y (MHz)	2485	2490	2495 2500
	40.0- 20.0- 24!	50 2455	2460	2465 2	Frequency	5 2480 y (MHz)	2485	2490	2495 2500
	40.0 - 20.0 - 24!	50 2455	2460	2465 2	Frequency	5 2480 y (MHz)	2485	2490	2495 2500
	40.0 - 20.0 - 24!	50 2455	2460	2465 2	Frequency	5 2480 y (MHz)	2485	2490	2495 2500
RB 1	40.0 - 20.0 - 24! I MHz; VE 120.0 - 100.0 -	50 2455	2460	2465 2	Frequency	5 2480 y (MHz)	2485	2490	2495 2500
RB 1	40.0 - 20.0 - 24! I MHz; VE 120.0 - 100.0 -	50 2455 3 10 Hz Black=A	2460	2465 2	Frequency	5 2480 y (MHz)	2485	2490	2495 2500
RB 1	40.0 - 20.0 - 24! I MHz; VE 120.0 - 100.0 -	50 2455	2460	2465 2	Frequency	5 2480 y (MHz)	2485	2490	2495 2500
RB 1	40.0 - 20.0 - 24! I MHz; VE 120.0 - 100.0 -	50 2455 3 10 Hz Black=A	2460	2465 2	Frequency	5 2480 y (MHz)	2485		2495 2500
RB 1	40.0 - 20.0 - 24! I MHz; VE 120.0 - 100.0 -	50 2455 3 10 Hz Black=A	2460	2465 2	Frequency	5 2480 y (MHz)	2485	· · · 2490	2495 2500
	40.0 - 20.0 - 24 100.0 - 100.0 - 80.0 -	50 2455 3 10 Hz Black=A	2460	2465 2	Frequency	5 2480 y (MHz)	2485	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	2495 2500
RB 1	40.0 - 20.0 - 24! I MHz; VE 120.0 - 100.0 -	50 2455 3 10 Hz Black=A	2460	2465 2	Frequency	5 2480 y (MHz)	2485		2495 2500
RB 1	40.0 - 20.0 - 24 100.0 - 100.0 - 80.0 - 40.0 -	50 2455 3 10 Hz Black=A	2460 vg; RB 1MHz	2465 2	2470 247 Frequenc	5 2480 y (MHz)	2485	2490	
RB 1	40.0 - 20.0 - 24 100.0 - 100.0 - 80.0 - 40.0 -	50 2455 3 10 Hz Black=A	2460	2465 2	2470 247 Frequenc	5 2480 y (MHz)	2485	2490	2495 2500

Elliott

EMC Test Data

Client:	Xirrus	Job Number:	J86256
Madalı	XI-N450 (3x3 radio module) in XR2000	T-Log Number:	T86501
woder:		Account Manager:	Michelle Kim
Contact:	Steve Smith		
Standard:	FCC 15.247/15.E/RSS-210	Class:	N/A

RSS 210 and FCC 15.407 (UNII) Radiated Spurious Emissions

Test Specific Details

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

General Test Configuration

The EUT and all local support equipment were located on the turntable for radiated spurious emissions testing. All remote support equipment was located approximately 30 meters from the EUT.

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

Ambient Conditions:

Temperature:	20-25 °C
Rel. Humidity:	30-40 %

Summary of Results

· · J						
Run #	Mode	Channel	Power Setting	Test Performed	Limit	Result / Margin
		5150-5250	9.5	Restricted Band Edge		45.7 dBµV/m @ 5149.8
1	HT20	#36 (low)	7.5	at 5150 MHz	15.209	MHz (-8.3 dB)
1	Chain 012	5150-5250	9.5	Restricted Band Edge	15.209	44.0 dBµV/m @ 5132.7
		#40	9.0	at 5150 MHz		MHz (-10.0 dB)
		5250-5350	10.5	Restricted Band Edge		46.5 dBµV/m @ 5359.9
2	HT20	#64 (High)	10.5	at 5350 MHz	15.209	MHz (-7.5 dB)
Z	Chain 012	5150-5250	16.5	Restricted Band Edge	15.209	46.9 dBµV/m @ 5360.0
		#60	10.0	at 5350 MHz		MHz (-7.1 dB)
2	HT20	5470-5725	15.0	Restricted Band Edge	15.209	49.5 dBµV/m @ 5440.0
3	Chain 012	#100 Low	10.0	at 5460 MHz	15.209	MHz (-4.5 dB)

Testing was performed on the worse case mode from the original filing. Power was set to be within 0.5dB of the original filing power.

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.

		tt						EM	C Test Dat	
Client: X	Kirrus							Job Number:	J86256	
Model: X	(I-N450 (3x3	radio modu	ulo) in VD200	0			T-Log Number: T86501		T86501	
	•			10			Account Manager: Michelle Ki		Michelle Kim	
Contact: S	Steve Smith									
Standard: F	CC 15.247/1	15.E/RSS-2	10					Class:	N/A	
Da Test Tesi un #1a: Lov	ate of Test: 2 t Engineer: F st Location: F w Channel, !	2/22/2012 Peter Sales T Chamber 5180 MHz	r #7		eration in the	5150-5250				
	Iz Band Edge Signal Radiated Field Strength cy Level Pol FCC 15.209 Detector Azimuth						Hoight	Commonte	Chain	
requency MHz	Level dBµV/m	v/h	Limit	Margin	Detector Pk/QP/Avg	degrees	Height meters	Comments	Chain	
5149.800	45. 7	V	54.0	-8.3	AVG	222	1.21	RB 1 MHz;VB 10 Hz;Pk		
5149.830	59.7	V	74.0	-14.3	PK	222	1.21		/B 3 MHz;Pk	
5148.970	43.1	Н	54.0	-10.9	AVG	206	1.16	RB 1 MHz;V		
5147.200	56.1	Η	74.0	-17.9	PK	206	1.16	RB 1 MHz;\	/B 3 MHz;Pk	
-0.00 - 4mplitude (dBuv/m) -0.00 - 20000 - 20000 - 2000 - 2000 - 2000 -	adminia	wayer when the states	rnadaunaiged	grade-meile	halowand a stand port	nap-ithorna	Mtrahran Mayor	Madadista Manafana anda	Natural Contraction	
40.0- 513	30.0 5132	.0 5134	.0 5136.0	5138.0	5140.0 equency (MH	5142.0 5	 144.0 51	46.0 5148		

$\begin{tabular}{ c c c c c c c c c c c c c c c c c c c$	Model: XI-N450 (3x3 radio module) in XR2000 T-Log Number: T86501 Account Manager: Michelle Kim Account Manager: Michelle Kim Standard: FCC 15.247/15.E/RSS-210 Class: N/A un #1b: Channel 40, 5200 MHz Class: N/A Date of Test: 2/22/2012 Test Engineer: Peter Sales Test Location: FT Chamber #7 150 MHz Badd Edge Signal Radiated Field Strength Tequency Level Pol FCC 15.209 Detector Azimuth Height Comments Chain: MHz dBµV/m v/h Limit Margin Pk/QP/Avg degrees meters 5132.00 42.2 H 54.0 -10.0 AVG 252 1.0 RB 1 MHz;VB 10 Hz;Pk 5134.170 55.0 V 74.0 -19.0 PK 214 1.0 RB 1 MHz;VB 3 MHz;Pk S134.170 55.0 V 74.0 -20.3 PK 252 1.0 RB 1 MHz;VB 3 MHz;Pk RB 1 MHz; VB 10 Hz Avg (Black Trace); Pk (Blue Trace) V	Model: XI-N450 (3x3 radio module) in XR2000 T-Log Number: T86501 Contact: Steve Smith	Client:	Xirrus	2 company						Job Number:	186256	
Model: XI-N450 (3/3) radio module) in XR2000 Account Manager: Michelle Kim Contact: Steve Smith Class: N/A Standard: FCC 15.247/15.E/RSS-210 Class: N/A un #1b: Channel 40, 5200 MHz Class: N/A Date of Test: 2/22/2012 Test Engineer: Peter Sales Test Location: FT Chamber #7 150 MHz Band Edge Signal Radiated Field Strength Feeder Sales Test Location: FT Chamber #7 1502.670 44.0 V 54.0 -10.0 AVG 214 1.0 RB 1 MHz;VB 10 Hz;Pk 5132.670 44.0 V 54.0 -11.8 AVG 252 1.0 RB 1 MHz;VB 10 Hz;Pk 5134.170 55.0 V 74.0 -19.0 PK 214 1.0 RB 1 MHz;VB 3 MHz;Pk 5147.330 53.7 H 74.0 -20.3 PK 252 1.0 RB 1 MHz;VB 3 MHz;Pk RB 1 MHz; VB 10 Hz zwg (Black Trace); Pk (Blue Trace) Vertical 90.0 - - - - - -	Model: X-N450 (3/3/adio module) in XR2000 Account Manager: Michelle Kim Contact: Steve Smith Class: N/A Standard: FCC 15.247/15.E/RSS-210 Class: N/A un #1b: Channel 40, 5200 MHz Class: N/A Date of Test: 2/22/2012 Test Engineer: Peter Sales Test Location: FT Chamber #7 Comments Chain: MHz dBµU/m v/h Limit Margin Pk/QP/Avg degrees meters 5132.670 44.0 V 54.0 -10.0 AVG 214 1.0 RB 1 MHz;VB 10 Hz;Pk 5132.400 42.2 H 54.0 -11.8 AVG 252 1.0 RB 1 MHz;VB 3 MHz;Pk 5134.170 55.0 V 74.0 -19.0 PK 214 1.0 RB 1 MHz;VB 3 MHz;Pk 5147.330 53.7 H 74.0 -20.3 PK 252 1.0 RB 1 MHz;VB 3 MHz;Pk 60.0	Model: RI-N450 (3x3 radio module) in XR2000 Account Manager: Michelle Kim Contact: Steve Smith Class: N/A Standard: FCC 15.247/15.E/RSS-210 Class: N/A un #1b: Channel 40, 5200 MHz Class: N/A Date of Test: 2/22/2012 Test Engineer: Peter Sales Test Location: FT Chamber #7 FCC 15.209 Detector Azimuth Height Comments Chains MHz dBµV/m v/h Limit Margin Pk/QP/Avg degrees meters 5132.670 44.0 V 54.0 -11.8 AVG 252 1.0 RB 1 MHz:VB 10 Hz:Pk 5132.400 42.2 H 54.0 -11.8 AVG 252 1.0 RB 1 MHz:VB 3 MHz:Pk 5147.730 53.7 H 74.0 -19.0 PK 252 1.0 RB 1 MHz:VB 3 MHz:Pk 60.0 - - - - - - - - - -								T·			
Standard: FCC 15.247/15.E/RSS-210 Class: N/A un #1b: Channel 40, 5200 MHz Date of Test: 2/22/2012 Test Engineer: Peter Sales Test Engineer: Peter Sales Test Location: FT Chamber #7 150 MHz Band Edge Signal Radiated Field Strength requency Level Pol FCC 15.209 Detector Azimuth Height Comments Chain MHz dBµV/m v/h Limit Margin Pk/QP/Avg degrees meters 5132.670 44.0 V 54.0 -10.0 AVG 214 1.0 RB 1 MHz; VB 10 Hz; Pk 5134.170 55.0 V 74.0 -19.0 PK 214 1.0 RB 1 MHz; VB 3 MHz; Pk 514.170 55.0 V 74.0 -20.3 PK 252 1.0 RB 1 MHz; VB 3 MHz; Pk 60.0 -	Standard: FCC 15.247/15.E/RSS-210 Class: N/A un #1b: Channel 40, 5200 MHz Date of Test: 2/22/2012 Test Engineer: Peter Sales Test Engineer: Peter Sales Test Location: FT Chamber #7 150 MHz Band Edge Signal Radiated Field Strength requency Level Pol FCC 15.209 Detector Azimuth Height Comments Chains MHz dBµV/m v/h Limit Margin PK/QP/Avg degrees meters 5132.670 44.0 V 54.0 -10.0 AVG 214 1.0 RB 1 MHz:VB 10 Hz:Pk 5134.170 55.0 V 74.0 -19.0 PK 214 1.0 RB 1 MHz:VB 3 MHz:Pk 5134.170 55.0 V 74.0 -20.3 PK 252 1.0 RB 1 MHz:VB 3 MHz:Pk 60.0 - - - - 252 1.0 RB 1 MHz:VB 3 MHz:Pk 90.0 - - - - - - - - - - -	Standard: FCC 15.247/15.E/RSS-210 Class: N/A un #1b: Channel 40, 5200 MHz Date of Test: 2/22/2012 Test Engineer: Peter Sales Test Location: FT Chamber #7 150 MHz Band Edge Signal Radiated Field Strength requency Level Pol FCC 15.209 Detector Azimuth Height Comments Chains MHz dBµV/m v/h Limit Margin PK/QP/Avg degrees meters 5132.670 44.0 V 54.0 -10.0 AVG 214 1.0 RB 1 MHz:VB 10 Hz:Pk 5132.400 42.2 H 54.0 -11.8 AVG 252 1.0 RB 1 MHz:VB 10 Hz:Pk 5134.700 55.0 V 74.0 -20.3 PK 252 1.0 RB 1 MHz:VB 3 MHz:Pk 5147.730 53.7 H 74.0 -20.3 PK 252 1.0 RB 1 MHz:VB 3 MHz:Pk 60.0	Model:	XI-N450 (3x3	3 radio modu	ile) in XR200	00				-		
un #1b: Channel 40, 5200 MHz Date of Test: 2/22/2012 Test Engineer: Peter Sales Test Location: FT Chamber #7 150 MHz Band Edge Signal Radiated Field Strength requency Level Pol FCC 15.209 Detector Azimuth Height Comments Chain MHz dBµV/m V/h Limit Margin Pk/QP/Avg degrees meters 5132.670 44.0 V 54.0 -10.0 AVG 214 1.0 RB 1 MHz;VB 10 Hz;Pk 5132.400 42.2 H 54.0 -11.8 AVG 252 1.0 RB 1 MHz;VB 10 Hz;Pk 5134.170 55.0 V 74.0 -119.0 PK 214 1.0 RB 1 MHz;VB 3 MHz;Pk 5141.730 55.7 H 74.0 -20.3 PK 252 1.0 RB 1 MHz;VB 3 MHz;Pk RB 1 MHz; VB 10 Hz Avg (Black Trace); Pk (Blue Trace) Vertical 90.0 90.0 50.0 50.0 50.0 50.0 51.32.0 5132.0 5134.0 5136.0 5138.0 5140.0 5142.0 5144.0 5146.0 5148.0 5150.0	un #1b: Channel 40, 5200 MHz Date of Test: 2/22/2012 Test Engineer: Peter Sales Test Location: FT Chamber #7 150 MHz Band Edge Signal Radiated Field Strength requency Level Pol FCC 15.209 Detector Azimuth Height Comments Chains MHZ dBµV/m v/h Limit Margin Pk/QP/Avg degrees meters 5132.670 44.0 V 54.0 -10.0 AVG 214 1.0 RB 1 MHz:VB 10 Hz:Pk 5132.400 42.2 H 54.0 -11.8 AVG 252 1.0 RB 1 MHz:VB 10 Hz:Pk 5132.400 55.0 V 74.0 -19.0 PK 214 1.0 RB 1 MHz:VB 30 Hz:Pk 5134.170 55.0 V 74.0 -20.3 PK 252 1.0 RB 1 MHz:VB 3 MHz:Pk 5141.7330 53.7 H 74.0 -20.3 PK 252 1.0 RB 1 MHz:VB 3 MHz:Pk RB 1 MHz: VB 10 Hz Avg (Black Trace); Pk (Blue Trace) Vertical 90.0 60.0 50.0 50.0 50.0 50.0 50.0 50.0 51.32.0 51.32.0 51.34.0 51.36.0 51.36.0 51.40.0 51.42.0 51.44.0 51.46.0 51.46.0 51.40.0 51.40.0 51.42.0 51.44.0 51.46.0 51.46.0 51.40.0 51	un #1b: Channel 40, 5200 MHz Date of Test: 2/22/2012 Test Engineer: Peter Sales Test Location: FT Chamber #7 150 MHz Band Edge Signal Radiated Field Strength requency Level Pol FCC 15.209 Detector Azimuth Height Comments Chains MHz dBµV/m v/h Limit Margin Pk/QP/Avg degrees meters 132.670 44.0 V 54.0 -10.0 AVG 214 1.0 RB 1 MHz:VB 10 Hz:Pk 132.400 42.2 H 54.0 -11.8 AVG 252 1.0 RB 1 MHz:VB 10 Hz:Pk 133.170 55.0 V 74.0 -19.0 PK 214 1.0 RB 1 MHz:VB 3 MHz:Pk 134.170 55.0 V 74.0 -20.3 PK 252 1.0 RB 1 MHz:VB 3 MHz:Pk 134.170 55.0 V 74.0 -20.3 PK 252 1.0 RB 1 MHz:VB 3 MHz:Pk RB 1 MHz; VB 10 Hz Avg (Black Trace); Pk (Blue Trace) Vertical 90.0- 50.0- 50.0- 50.0- 51.30.0 51.32.0 51.34.0 51.36.0 51.38.0 51.40.0 51.42.0 51.44.0 51.46.0 51.46.0 51.46.0	Contact:	Steve Smith									
Date of Test: 2/22/2012 Test Engineer: Peter Sales Test Location: FT Chamber #7 150 MHz Band Edge Signal Radiated Field Strength requency Level Pol FCC 15.209 Detector Azimuth Height Comments Chain MHz dBµV/m v/h Limit Margin Pk/OP/Avg degrees meters 5132.670 44.0 V 54.0 -10.0 AVG 214 1.0 RB 1 MHz;VB 10 Hz;Pk 5132.400 42.2 H 54.0 -11.8 AVG 252 1.0 RB 1 MHz;VB 10 Hz;Pk 5132.400 42.2 H 54.0 -11.8 AVG 252 1.0 RB 1 MHz;VB 3 MHz;Pk 5134.730 53.7 H 74.0 -20.3 PK 252 1.0 RB 1 MHz;VB 3 MHz;Pk RB 1 MHz; VB 10 Hz Avg (Black Trace); Pk (Blue Trace) Vertical 90.0	Date of Test: 2/22/2012 Test Engineer: Peter Sales Test Location: FT Chamber #7 150 MHz Band Edge Signal Radiated Field Strength requency Level Pol FCC 15.209 Detector Azimuth Height Comments Chains MHz dBµV/m v/h Limit Margin Pk/OP/Avg degrees meters 5132.670 44.0 V 54.0 -10.0 AVG 214 1.0 RB 1 MHz:VB 10 Hz:Pk 5132.400 42.2 H 54.0 -11.8 AVG 252 1.0 RB 1 MHz:VB 10 Hz:Pk 5132.400 42.2 H 54.0 -11.0 PK 214 1.0 RB 1 MHz:VB 10 Hz:Pk 5134.730 55.0 V 74.0 -19.0 PK 214 1.0 RB 1 MHz:VB 3 MHz:Pk 5147.330 53.7 H 74.0 -20.3 PK 252 1.0 RB 1 MHz:VB 3 MHz:Pk RB 1 MHz: VB 10 Hz Avg (Black Trace); Pk (Blue Trace) Vertical 90.0 60.0 60.0 50.0	Date of Test: 2/22/2012 Test Engineer: Peter Sales Test Location: FT Chamber #7				10					Class:	N/A	
requency Level Pol FCC 15.209 Detector Azimuth Height Comments Chain MHz dBµV/m v/h Limit Margin Pk/QP/Avg degrees meters 5132.670 44.0 V 54.0 -10.0 AVG 214 1.0 RB 1 MHz;VB 10 Hz;Pk 5132.400 42.2 H 54.0 -11.8 AVG 252 1.0 RB 1 MHz;VB 10 Hz;Pk 5131.4.170 55.0 V 74.0 -19.0 PK 214 1.0 RB 1 MHz;VB 3 MHz;Pk 5147.330 53.7 H 74.0 -20.3 PK 252 1.0 RB 1 MHz;VB 3 MHz;Pk RB 1 MHz; VB 10 Hz Avg (Black Trace); Pk (Blue Trace) Vertical 90.0 -	requency Level Pol FCC 15.209 Detector Azimuth Height Comments Chains MHz dBµV/m v/h Limit Margin Pk/QP/Avg degrees meters 5132.670 44.0 V 54.0 -10.0 AVG 214 1.0 RB 1 MHz;VB 10 Hz;Pk 5132.400 42.2 H 54.0 -11.8 AVG 252 1.0 RB 1 MHz;VB 10 Hz;Pk 5131.4.170 55.0 V 74.0 -19.0 PK 214 1.0 RB 1 MHz;VB 3 MHz;Pk 5147.330 53.7 H 74.0 -20.3 PK 252 1.0 RB 1 MHz;VB 3 MHz;Pk RB 1 MHz; VB 10 Hz Avg (Black Trace); Pk (Blue Trace) Vertical 90.0 -	requency Level Pol FCC 15.209 Detector Azimuth Height Comments Chains MHz dBµV/m v/h Limit Margin Pk/QP/Avg degrees meters	E Te Te	Date of Test: st Engineer: est Location:	2/22/2012 Peter Sales FT Chamber								
MHz dBµU/m V/h Limit Margin Pk/OP/Avg degrees meters 5132.670 44.0 V 54.0 -10.0 AVG 214 1.0 RB 1 MHz;VB 10 Hz;Pk 5132.400 42.2 H 54.0 -11.8 AVG 252 1.0 RB 1 MHz;VB 10 Hz;Pk 5134.170 55.0 V 74.0 -19.0 PK 214 1.0 RB 1 MHz;VB 3 MHz;Pk 5147.330 53.7 H 74.0 -20.3 PK 252 1.0 RB 1 MHz;VB 3 MHz;Pk RB 1 MHz; VB 10 Hz Avg (Black Trace); Pk (Blue Trace) Vertical 90.0 -	MHz dBµV/m V/h Limit Margin PK/QP/Avg degrees meters 5132.670 44.0 V 54.0 -10.0 AVG 214 1.0 RB 1 MHz; VB 10 Hz; Pk 5132.400 42.2 H 54.0 -11.8 AVG 252 1.0 RB 1 MHz; VB 10 Hz; Pk 5134.170 55.0 V 74.0 -19.0 PK 214 1.0 RB 1 MHz; VB 3 MHz; Pk 5147.330 53.7 H 74.0 -20.3 PK 252 1.0 RB 1 MHz; VB 3 MHz; Pk RB 1 MHz; VB 10 Hz Avg (Black Trace); Pk (Blue Trace) Vertical 90.0 -	MHz dBµV/m v/h Limit Margin PK/QP/Avg degrees meters \$132.670 44.0 V 54.0 -10.0 AVG 214 1.0 RB 1 MHz; VB 10 Hz; Pk \$132.400 42.2 H 54.0 -11.8 AVG 252 1.0 RB 1 MHz; VB 10 Hz; Pk \$134.170 55.0 V 74.0 -19.0 PK 214 1.0 RB 1 MHz; VB 3 MHz; Pk \$5147.330 53.7 H 74.0 -20.3 PK 252 1.0 RB 1 MHz; VB 3 MHz; Pk RB 1 MHz; VB 10 Hz Avg (Black Trace); Pk (Blue Trace) Vertical 90.0 - <td< td=""><td></td><td><u> </u></td><td>0</td><td></td><td></td><td>Detector</td><td>∧ –insuth</td><td>Llaight</td><td>Commonto</td><td></td><td>Chaina</td></td<>		<u> </u>	0			Detector	∧ –insuth	Llaight	Commonto		Chaina
5132.670 44.0 V 54.0 -10.0 AVG 214 1.0 RB 1 MHz;VB 10 Hz;Pk 5132.400 42.2 H 54.0 -11.8 AVG 252 1.0 RB 1 MHz;VB 10 Hz;Pk 5134.170 55.0 V 74.0 -19.0 PK 214 1.0 RB 1 MHz;VB 3 MHz;Pk 5134.170 55.0 V 74.0 -19.0 PK 214 1.0 RB 1 MHz;VB 3 MHz;Pk 5147.330 53.7 H 74.0 -20.3 PK 252 1.0 RB 1 MHz;VB 3 MHz;Pk RB 1 MHz; VB 10 Hz Avg (Black Trace); Pk (Blue Trace) Vertical 90.0 -	5132.670 44.0 V 54.0 -10.0 AVG 214 1.0 RB 1 MHz;VB 10 Hz;Pk 5132.400 42.2 H 54.0 -11.8 AVG 252 1.0 RB 1 MHz;VB 10 Hz;Pk 5134.170 55.0 V 74.0 -19.0 PK 214 1.0 RB 1 MHz;VB 3 MHz;Pk 5134.170 55.0 V 74.0 -19.0 PK 214 1.0 RB 1 MHz;VB 3 MHz;Pk 5147.330 53.7 H 74.0 -20.3 PK 252 1.0 RB 1 MHz;VB 3 MHz;Pk RB 1 MHz; VB 10 Hz Avg (Black Trace); Pk (Blue Trace) Vertical 90.0 -	3132.670 44.0 V 54.0 -10.0 AVG 214 1.0 RB 1 MHz;VB 10 Hz;Pk 5132.400 42.2 H 54.0 -11.8 AVG 252 1.0 RB 1 MHz;VB 10 Hz;Pk 5132.400 42.2 H 54.0 -11.8 AVG 252 1.0 RB 1 MHz;VB 10 Hz;Pk 5134.170 55.0 V 74.0 -19.0 PK 214 1.0 RB 1 MHz;VB 3 MHz;Pk 5147.330 53.7 H 74.0 -20.3 PK 252 1.0 RB 1 MHz;VB 3 MHz;Pk RB 1 MHz; VB 10 Hz Avg (Black Trace); Pk (Blue Trace) Vertical 90.0 - <td< td=""><td></td><td></td><td></td><td></td><td>1</td><td></td><td></td><td>u u</td><td>comments</td><td></td><td>Unains</td></td<>					1			u u	comments		Unains
5134.170 55.0 V 74.0 -19.0 PK 214 1.0 RB 1 MHz;VB 3 MHz;Pk 5147.330 53.7 H 74.0 -20.3 PK 252 1.0 RB 1 MHz;VB 3 MHz;Pk RB 1 MHz; VB 10 Hz Avg (Black Trace); Pk (Blue Trace) Vertical 90.0 90.0 90.0 90.0 90.0	5134.170 55.0 V 74.0 -19.0 PK 214 1.0 RB 1 MHz;VB 3 MHz;Pk 5147.330 53.7 H 74.0 -20.3 PK 252 1.0 RB 1 MHz;VB 3 MHz;Pk RB 1 MHz; VB 10 Hz Avg (Black Trace); Pk (Blue Trace) Vertical 90.0 90.0 90.0 90.0 90.0 - - - - - - - - 90.0 -	5134.170 55.0 V 74.0 -19.0 PK 214 1.0 RB 1 MHz;VB 3 MHz;Pk 5147.330 53.7 H 74.0 -20.3 PK 252 1.0 RB 1 MHz;VB 3 MHz;Pk RB 1 MHz; VB 10 Hz Avg (Black Trace); Pk (Blue Trace) Vertical 90.0						5	<u> </u>		RB 1 MHz;\	/B 10 Hz;Pk	
Sil47.330 53.7 H 74.0 -20.3 PK 252 1.0 RB 1 MHz; VB 3 MHz; VB 3 MHz; Pk RB 1 MHz; VB 10 Hz Avg (Black Trace); Pk (Blue Trace) Vertical 90.0 90.0 90.0 90.0 80.0 90.0 90.0 90.0 90.0 90.0 90.0 90.0 90.0 90.0 90.0 90.0 90.0 90.0 90.0 90.0 90.0 90.0 90.0 90.0 90.0 90.0 90.0 90.0 90.0	Sil47.330 53.7 H 74.0 -20.3 PK 252 1.0 RB 1 MHz;VB 3 MHz;VB 3 MHz;Pk RB 1 MHz; VB 10 Hz Avg (Black Trace); Pk (Blue Trace) Vertical 90.0	Sil47.330 53.7 H 74.0 -20.3 PK 252 1.0 RB 1 MHz; VB 3 MHz; VB 3 MHz; VB 3 MHz; PK RB 1 MHz; VB 10 Hz Avg (Black Trace); Pk (Blue Trace) Vertical 90.0 90.0 90.0 90.0 80.0 90.0 90.0 90.0 90.0 90.0 90.0 90.0 90.0 90.0 90.0 90.0 90.0 90.0 90.0 90.0 90.0 90.0 90.0 90.0 90.0 90.0 90.0<		42.2	Н	54.0	-11.8	AVG	252	1.0			
RB 1 MHz; VB 10 Hz Avg (Black Trace); Pk (Blue Trace) Vertical 90.0- 80.0- 70.0- 60.0- 50.0- 50.0- 5130.0 5132.0 5134.0 5136.0 5138.0 5140.0 5142.0 5144.0 5146.0 5148.0 5150.0	RB 1 MHz; VB 10 Hz Avg (Black Trace); Pk (Blue Trace) Vertical 90.0- 80.0- 70.0- 60.0- 50.0- 50.0- 50.0- 5130.0 5132.0 5134.0 5136.0 5138.0 5140.0 5142.0 5144.0 5146.0 5148.0 5150.0	RB 1 MHz; VB 10 Hz Avg (Black Trace); Pk (Blue Trace) Vertical 90.0- 80.0- (U) 90.0- 50.0- 40.0- 5130.0 5132.0 5134.0 5136.0 5138.0 5140.0 5142.0 5144.0 5146.0 5148.0 5150.0			-					-			
5130.0 5132.0 5134.0 5136.0 5138.0 5140.0 5142.0 5144.0 5146.0 5148.0 5150.0	5130.0 5132.0 5134.0 5136.0 5138.0 5140.0 5142.0 5144.0 5146.0 5148.0 5150.0	5130.0 5132.0 5134.0 5136.0 5138.0 5140.0 5142.0 5144.0 5146.0 5148.0 5150.0		-									
			Amplitude (dBuV/m) 0.09 0.02		les, autobriet comme	tekarterakan tekartetak	ndus menter and had	yn wet atmitten	unde gorintica)	ornak fileder starde	in and a state		
			(m) 70.0 Willtrde (dBn//m) 50.0 40.0	- - 	2.0 5134	.0 5136.0) 5138.0	5140.0	5142.0 5		146.0 5148		
			40.00 transformed (gpn//m) with transformed	- - 	2.0 5134	.0 5136.0) 5138.0	5140.0	5142.0 5		1.46.0 5148	3.0 5150.0	
			(m) 70.0 Willtrde (dBn//m) 50.0 40.0	- - 	2.0 5134	.0 5136.0) 5138.0	5140.0	5142.0 5		1	3.0 5150.0	

Client:	Xirrus	2 company						Job Number:	186256
							T-	Log Number:	
Model: 2	XI-N450 (3x3	3 radio modu	le) in XR200	00				5	Michelle Kim
Contact:	Steve Smith							0	
Standard:	FCC 15.247/	15.E/RSS-2	10					Class:	N/A
D Tes Te un #2a Hig	ate of Test: st Engineer: st Location: h Channel and Edge S	2/22/2012 Peter Sales FT Chamber	- #7		eration in the				
Frequency	Level	Pol		15.209	Detector	Azimuth	Height	Comments	Chains
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters		01141110
5359.900	46.5	V	54.0	-7.5	AVG	233	1.1	RB 1 MHz;\	
5359.770	43.0	Н	54.0	-11.0	AVG	190	1.0	RB 1 MHz;V	
5360.400 5362.370	57.3 53.7	V H	74.0 74.0	-16.7 -20.3	PK PK	233 190	1.1 1.0		/B 3 MHz;Pk /B 3 MHz;Pk
Amplitude (dBuV/m) 0.00	nderwoodn	nhanan	ang	n-Mensonanda	nandruthinan	undforsandam.	han an a	an a	-tellperson to
년 50.0-							364.0 53		

Contact: Ste Standard: FC un #2a Chan Date	-N450 (3x3 eve Smith	radio modu							_	
Contact: Ste Standard: FC un #2a Chan Date	eve Smith	radio modu						Job Number:		
Contact: Ste Standard: FC un #2a Chan Date	eve Smith		ıle) in XR200	۱O		-	T-	Log Number:	T86501	
Standard: FC un #2a Chan Date							Αссоι	unt Manager:	Michelle Kim	
un #2a Chan Date	CC 15.247/									
Date		15.E/RSS-2	10					Class:	N/A	
Test	e of Test: 2 Engineer: 1 Location: 1	2/22/2012 Peter Sales FT Chambe								
350 MHz Ban			ted Field Sti	r <i>ength</i> 15.209	Datastar	A zinath	Llaight	Commonto		Chaina
requency MHz c	Level dBµV/m	Pol v/h	Limit	Margin	Detector Pk/QP/Avg	Azimuth degrees	Height	Comments		Chains
360.030	46.9	V	54.0	-7.1	AVG	242	meters 1.3	RB 1 MHz;V	′B 10 Hz∙Pk	
366.970	43.0	H	54.0	-11.0	AVG	190	2.0	RB 1 MHz;V		
350.170	58.2	V	74.0	-15.8	РК	242	1.3	RB 1 MHz;V		
360.870	54.5	Н	74.0	-19.5	PK	190	2.0	RB 1 MHz;V	'B 3 MHz;Pk	
-₹ 50.0-		·		5358.0	5360.0 equency (MH	5362.0 53		•		

Client:								EMC Te	st Data
	Xirrus							Job Number: J86256	
)		20			T-	Log Number: T86501	
Wodel:	XI-N450 (3x)	3 radio modi	lie) in XR200)0			Acco	unt Manager: Michelle	Kim
Contact:	Steve Smith								
Standard:	FCC 15.247	/15.E/RSS-2	10					Class: N/A	
D Tes Te un #3a: Lo	Date of Test: st Engineer: est Location: ow Channel	2/22/2012 Peter Sales FT Chambe	r #7		eration in the	5470-5725	MHZ BANU		
	<i>MHz Restric</i> Level	Pol		<i>adiated Fie</i> 15.209	Detector	Azimuth	Height	Comments	Chains
requency MHz	dBµV/m	P0i v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	COMMENIS	Chailis
5440.000	4 9 .5	V	54.0	-4.5	AVG	232	1.0	RB 1 MHz;VB 10 Hz	·Pk
5459.770	57.5	V	74.0	-16.5	PK	232	1.0	RB 1 MHz; VB 3 MHz	
5458.070	43.1	Н	54.0	-10.9	AVG	298	1.0	RB 1 MHz; VB 10 Hz	
5448.800	53.9	Н	74.0	-20.1	PK	298	1.0	RB 1 MHz;VB 3 MHz	z;Pk
(m//mgp 70.0 · 60.0 · 50.0 · 40.0 · 54) 5448.0		5452.0 5	·		-



EMC Test Data

AN DALIE	2 company		
Client:	Xirrus	Job Number:	J86254
Model:	XR1000	T-Log Number:	T86343
		Account Manager:	Susan Pelzl
Contact:	Steve Smith		
Emissions Standard(s):	EN55022, FCC	Class:	В
Immunity Standard(s):	EN 301 489-1 V1.8.1	Environment:	-

EMC Test Data

For The

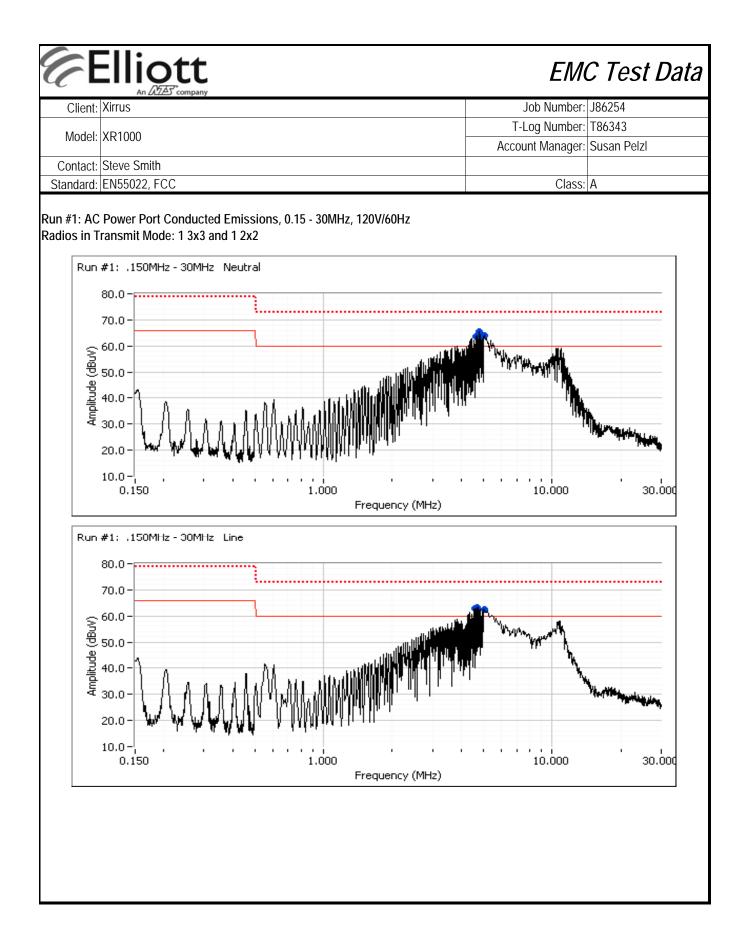
Xirrus

Model

XR1000

Date of Last Test: 4/17/2012

Ellio	tt			EMC Test Dat
Client: Xirrus	Company			Job Number: J86254
Model: XR1000				Log Number: T86343 unt Manager: Susan Pelzl
Contact: Steve Smith			ALLUI	uni manayer. Susan Pelzi
Standard: EN55022, FC	2			Class: A
	Conduct (Elliott Laboratories Fremont	ed Emissions Facility, Semi-Ane		per)
Test Specific Details				
Objective: T	he objective of this test session is to per pecification listed above.	rform final qualificati	on testing of t	he EUT with respect to the
Date of Test: 4		Config. Use		
Test Engineer: C Test Location: F	hris Groat remont Chamber #3	Config Change EUT Voltage		
		5		
General Test Configu	Iration			
For tabletop equipment, the	e EUT was located on a wooden table i	nside the semi-anec	hoic chamber.	. 40 cm from a vertical coupling pla
and 80cm from the LISN. the semi-anechoic chambe passed through a ferrite cla	e EUT was located on a wooden table in A second LISN was used for all local s r. Any cables running to remote suppo amp upon exiting the chamber.	upport equipment. rt equipment where	Remote supp	ort equipment was located outside
and 80cm from the LISN. the semi-anechoic chambe passed through a ferrite cla	A second LISN was used for all local s r. Any cables running to remote suppo amp upon exiting the chamber. Temperature:	upport equipment. rt equipment where 21 °C	Remote supp	ort equipment was located outside
and 80cm from the LISN. the semi-anechoic chambe passed through a ferrite cla Ambient Conditions:	A second LISN was used for all local s r. Any cables running to remote suppo amp upon exiting the chamber.	upport equipment. rt equipment where	Remote supp	ort equipment was located outside
and 80cm from the LISN. the semi-anechoic chambe	A second LISN was used for all local s r. Any cables running to remote suppo amp upon exiting the chamber. Temperature:	upport equipment. rt equipment where 21 °C	Remote supp	ort equipment was located outs
and 80cm from the LISN. the semi-anechoic chamber passed through a ferrite cla Ambient Conditions: Summary of Results Run # 1 Modifications Made I	A second LISN was used for all local s r. Any cables running to remote suppo amp upon exiting the chamber. Temperature: Rel. Humidity: Test Performed CE, AC Power, 120V/60Hz	upport equipment. rt equipment where 21 °C	Remote supp	ort equipment was located outside h metal conduit and when possible Margin
and 80cm from the LISN. the semi-anechoic chamber passed through a ferrite cla Ambient Conditions: Summary of Results Run # 1 Modifications Made I No modifications were made Deviations From The	A second LISN was used for all local s r. Any cables running to remote suppo amp upon exiting the chamber. Temperature: Rel. Humidity: <u>Test Performed</u> <u>CE, AC Power, 120V/60Hz</u> During Testing le to the EUT during testing	upport equipment. rt equipment where 21 °C 34 % Limit	Remote supp routed through Result	ort equipment was located outside h metal conduit and when possible
and 80cm from the LISN. the semi-anechoic chamber passed through a ferrite cla Ambient Conditions: Summary of Results Run # 1 Modifications Made I No modifications were made Deviations From The	A second LISN was used for all local s r. Any cables running to remote suppo amp upon exiting the chamber. Temperature: Rel. Humidity: <u>Test Performed</u> <u>CE, AC Power, 120V/60Hz</u> During Testing le to the EUT during testing Standard	upport equipment. rt equipment where 21 °C 34 % Limit	Remote supp routed through Result	ort equipment was located outside h metal conduit and when possible Margin
and 80cm from the LISN. the semi-anechoic chamber passed through a ferrite cla Ambient Conditions: Summary of Results Run # 1 Modifications Made I No modifications were made Deviations From The	A second LISN was used for all local s r. Any cables running to remote suppo amp upon exiting the chamber. Temperature: Rel. Humidity: <u>Test Performed</u> <u>CE, AC Power, 120V/60Hz</u> During Testing le to the EUT during testing Standard	upport equipment. rt equipment where 21 °C 34 % Limit	Remote supp routed through Result	ort equipment was located outside h metal conduit and when possible Margin
and 80cm from the LISN. the semi-anechoic chamber passed through a ferrite cla Ambient Conditions: Summary of Results Run # 1 Modifications Made I No modifications were made Deviations From The	A second LISN was used for all local s r. Any cables running to remote suppo amp upon exiting the chamber. Temperature: Rel. Humidity: <u>Test Performed</u> <u>CE, AC Power, 120V/60Hz</u> During Testing le to the EUT during testing Standard	upport equipment. rt equipment where 21 °C 34 % Limit	Remote supp routed through Result	ort equipment was located outside h metal conduit and when possible Margin
and 80cm from the LISN. the semi-anechoic chamber passed through a ferrite cla Ambient Conditions: Summary of Results Run # 1 Modifications Made I No modifications were made Deviations From The	A second LISN was used for all local s r. Any cables running to remote suppo amp upon exiting the chamber. Temperature: Rel. Humidity: <u>Test Performed</u> <u>CE, AC Power, 120V/60Hz</u> During Testing le to the EUT during testing Standard	upport equipment. rt equipment where 21 °C 34 % Limit	Remote supp routed through Result	ort equipment was located outside h metal conduit and when possible Margin



	Ellic	ott					EM	C Tes
Client	Xirrus	company					Job Number:	J86254
							T-Log Number:	T86343
Model:	XR1000						Account Manager:	
Contact:	Steve Smith	1						
	EN55022, F						Class:	A
dios in 1	Fransmit Mo	t Conducted de: 1 3x3 and	d 1 2x2			tz rs. average limit	'n	
		AC		ss A	Detector	Comments	l)	
requency MHz	dBµV	Line	Limit	SS A Margin	QP/Ave	Comments		
4.819	65.4	Neutral	60.0	5.4	Peak			
4.716	64.1	Neutral	60.0	4.1	Peak			
5.020	63.9	Neutral	60.0	3.9	Peak	1		
4.666	63.6	Neutral	60.0	3.6	Peak			
4.869	63.6	Neutral	60.0	3.6	Peak			
4.720	63.3	Line 1	60.0	3.3	Peak			
4.669	63.2	Line 1	60.0	3.2	Peak			
4.618	62.8	Line 1	60.0	2.8	Peak			
5.075	62.6	Line 1	60.0	2.6	Peak			
nal quasi	i-peak and a	verage readi		ss A	Detector	Commonto		
equency		AC				Comments		
requency MHz	dBµV	Line	Limit	Margin	QP/Ave			
equency MHz 4.716	dBμV 57.4	Line Neutral	Limit 60.0	Margin -2.6	QP/Ave AVG	AVG (0.10s)		
equency MHz 4.716 4.819	dBμV 57.4 56.1	Line Neutral Neutral	Limit 60.0 60.0	Margin -2.6 -3.9	QP/Ave AVG AVG	AVG (0.10s) AVG (0.10s)		
requency MHz 4.716	dBμV 57.4 56.1 55.8	Line Neutral	Limit 60.0	Margin -2.6	QP/Ave AVG	AVG (0.10s) AVG (0.10s) AVG (0.10s)		
requency MHz 4.716 4.819 4.720	dBμV 57.4 56.1	Line Neutral Neutral Line 1	Limit 60.0 60.0 60.0	Margin -2.6 -3.9 -4.2	QP/Ave AVG AVG AVG	AVG (0.10s) AVG (0.10s)		
equency MHz 4.716 4.819 4.720 4.666 5.020	dBμV 57.4 56.1 55.8 55.6	Line Neutral Neutral Line 1 Neutral	Limit 60.0 60.0 60.0 60.0	Margin -2.6 -3.9 -4.2 -4.4	QP/Ave AVG AVG AVG AVG	AVG (0.10s) AVG (0.10s) AVG (0.10s) AVG (0.10s)		
equency MHz 4.716 4.819 4.720 4.666	dBμV 57.4 56.1 55.8 55.6 55.5	Line Neutral Neutral Line 1 Neutral Neutral	Limit 60.0 60.0 60.0 60.0 60.0	Margin -2.6 -3.9 -4.2 -4.4 -4.5	QP/Ave AVG AVG AVG AVG AVG	AVG (0.10s) AVG (0.10s) AVG (0.10s) AVG (0.10s) AVG (0.10s)		
equency MHz 4.716 4.819 4.720 4.666 5.020 5.075	dBμV 57.4 56.1 55.8 55.6 55.5 55.5 55.3	Line Neutral Neutral Line 1 Neutral Neutral Line 1	Limit 60.0 60.0 60.0 60.0 60.0 60.0	Margin -2.6 -3.9 -4.2 -4.4 -4.5 -4.7 -5.3 -5.5	QP/Ave AVG AVG AVG AVG AVG AVG AVG	AVG (0.10s) AVG (0.10s) AVG (0.10s) AVG (0.10s) AVG (0.10s) AVG (0.10s)		
equency MHz 4.716 4.819 4.720 4.666 5.020 5.075 4.869 4.669 4.618	dBμV 57.4 56.1 55.8 55.6 55.5 55.3 54.7 54.5 52.8	Line Neutral Line 1 Neutral Neutral Line 1 Neutral	Limit 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.	Margin -2.6 -3.9 -4.2 -4.4 -4.5 -4.7 -5.3	QP/Ave AVG AVG AVG AVG AVG AVG AVG AVG	AVG (0.10s) AVG (0.10s) AVG (0.10s) AVG (0.10s) AVG (0.10s) AVG (0.10s) AVG (0.10s) AVG (0.10s) AVG (0.10s)		
equency MHz 4.716 4.819 4.720 4.666 5.020 5.075 4.869 4.669 4.618 4.716	dBμV 57.4 56.1 55.8 55.6 55.5 55.3 54.7 52.8 64.4	Line Neutral Neutral Neutral Neutral Line 1 Line 1 Line 1 Neutral Neutral	Limit 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.	Margin -2.6 -3.9 -4.2 -4.4 -4.5 -4.7 -5.3 -5.5 -7.2 -8.6	QP/Ave AVG AVG AVG AVG AVG AVG AVG AVG QP	AVG (0.10s) AVG (0.10s) AVG (0.10s) AVG (0.10s) AVG (0.10s) AVG (0.10s) AVG (0.10s) AVG (0.10s) AVG (0.10s) QP (1.00s)		
equency MHz 4.716 4.819 4.720 4.666 5.020 5.075 4.869 4.669 4.669 4.618 4.716 4.819	dBμV 57.4 56.1 55.8 55.6 55.5 55.3 54.7 54.5 52.8 64.4 64.2	Line Neutral Neutral Neutral Neutral Line 1 Neutral Line 1 Line 1 Neutral Neutral Neutral	Limit 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.	Margin -2.6 -3.9 -4.2 -4.4 -4.5 -4.7 -5.3 -5.5 -7.2 -8.6 -8.8	QP/Ave AVG AVG AVG AVG AVG AVG AVG AVG QP QP	AVG (0.10s) AVG (0.10s) AVG (0.10s) AVG (0.10s) AVG (0.10s) AVG (0.10s) AVG (0.10s) AVG (0.10s) AVG (0.10s) QP (1.00s) QP (1.00s)		
equency MHz 4.716 4.819 4.720 4.666 5.020 5.075 4.869 4.669 4.618 4.716 4.819 4.666	dBμV 57.4 56.1 55.8 55.6 55.3 54.7 54.5 52.8 64.4 64.2 63.9	Line Neutral Line 1 Neutral Line 1 Neutral Line 1 Line 1 Line 1 Neutral Neutral Neutral Neutral	Limit 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.	Margin -2.6 -3.9 -4.2 -4.4 -4.5 -4.7 -5.3 -5.5 -7.2 -8.6 -8.8 -9.1	QP/Ave AVG AVG AVG AVG AVG AVG AVG AVG QP QP QP	AVG (0.10s) AVG (0.10s) AVG (0.10s) AVG (0.10s) AVG (0.10s) AVG (0.10s) AVG (0.10s) AVG (0.10s) AVG (0.10s) QP (1.00s) QP (1.00s) QP (1.00s)		
requency MHz 4.716 4.819 4.720 4.666 5.020 5.075 4.869 4.669 4.618 4.716 4.819 4.666 5.020	dBμV 57.4 56.1 55.8 55.6 55.3 54.7 54.5 52.8 64.4 64.2 63.9 63.4	Line Neutral Line 1 Neutral Line 1 Neutral Line 1 Line 1 Line 1 Neutral Neutral Neutral Neutral Neutral	Limit 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.	Margin -2.6 -3.9 -4.2 -4.4 -4.5 -4.7 -5.3 -5.5 -7.2 -8.6 -8.8 -9.1 -9.6	QP/Ave AVG AVG AVG AVG AVG AVG AVG AVG QP QP QP QP	AVG (0.10s) AVG (0.10s) AVG (0.10s) AVG (0.10s) AVG (0.10s) AVG (0.10s) AVG (0.10s) AVG (0.10s) AVG (0.10s) AVG (0.10s) QP (1.00s) QP (1.00s) QP (1.00s) QP (1.00s)		
requency MHz 4.716 4.819 4.720 4.666 5.020 5.075 4.869 4.618 4.716 4.819 4.666 5.020 4.869 4.869	dBμV 57.4 56.1 55.8 55.6 55.5 55.3 54.7 54.5 52.8 64.4 64.2 63.9 63.4 63.4	Line Neutral Neutral Neutral Line 1 Line 1 Line 1 Line 1 Line 1 Neutral Neutral Neutral Neutral Neutral Neutral	Limit 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.	Margin -2.6 -3.9 -4.2 -4.4 -4.5 -4.7 -5.3 -5.5 -7.2 -8.6 -8.8 -9.1 -9.6 -9.6	QP/Ave AVG AVG AVG AVG AVG AVG AVG AVG QP QP QP QP QP	AVG (0.10s) AVG (0.10s) AVG (0.10s) AVG (0.10s) AVG (0.10s) AVG (0.10s) AVG (0.10s) AVG (0.10s) AVG (0.10s) AVG (0.10s) QP (1.00s) QP (1.00s) QP (1.00s) QP (1.00s) QP (1.00s)		
requency MHz 4.716 4.819 4.720 4.666 5.020 5.075 4.869 4.669 4.618 4.716 4.819 4.666 5.020 4.869 4.869 4.869 4.720	dBμV 57.4 56.1 55.8 55.6 55.5 55.3 54.7 54.5 52.8 64.4 64.2 63.9 63.4 63.0	Line Neutral Neutral Neutral Neutral Line 1 Neutral Line 1 Neutral Neutral Neutral Neutral Neutral Neutral Line 1	Limit 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.	Margin -2.6 -3.9 -4.2 -4.4 -4.5 -4.7 -5.3 -5.5 -7.2 -8.6 -8.8 -9.1 -9.6 -9.6 -10.0	QP/Ave AVG AVG AVG AVG AVG AVG AVG AVG QP QP QP QP QP QP	AVG (0.10s) AVG (0.10s) AVG (0.10s) AVG (0.10s) AVG (0.10s) AVG (0.10s) AVG (0.10s) AVG (0.10s) AVG (0.10s) QP (1.00s) QP (1.00s) QP (1.00s) QP (1.00s) QP (1.00s) QP (1.00s)		
requency MHz 4.716 4.819 4.720 4.666 5.020 5.075 4.869 4.669 4.618 4.716 4.819 4.666 5.020 4.869	dBμV 57.4 56.1 55.8 55.6 55.5 55.3 54.7 54.5 52.8 64.4 64.2 63.9 63.4 63.4	Line Neutral Neutral Neutral Line 1 Line 1 Line 1 Line 1 Line 1 Neutral Neutral Neutral Neutral Neutral Neutral	Limit 60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.	Margin -2.6 -3.9 -4.2 -4.4 -4.5 -4.7 -5.3 -5.5 -7.2 -8.6 -8.8 -9.1 -9.6 -9.6	QP/Ave AVG AVG AVG AVG AVG AVG AVG AVG QP QP QP QP QP	AVG (0.10s) AVG (0.10s) AVG (0.10s) AVG (0.10s) AVG (0.10s) AVG (0.10s) AVG (0.10s) AVG (0.10s) AVG (0.10s) AVG (0.10s) QP (1.00s) QP (1.00s) QP (1.00s) QP (1.00s) QP (1.00s)		

End of Report

This page is intentionally blank and marks the last page of this test report.