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Electromagnetic Emissions Test Report and Application for Grant of Equipment Authorization Certification pursuant to Industry Canada RSS-Gen Issue 1 / RSS 210 Issue 7 FCC Part 15 Subpart C on the **Ruckus Wireless** Transmitter Model: 2231, 2232, 2241, 2242, 2252, 2292, 2932, 2942, 2952, 2962

UPN: FCC ID:	5912A-2XX2-XXX S9G2XX2-XXX
GRANTEE:	Ruckus Wireless 880 West Maude Ave. Suite 101 Sunnyvale, CA 94085
TEST SITE:	Elliott Laboratories, Inc. 684 W. Maude Ave Sunnyvale, CA 94086
REPORT DATE:	June 25, 2007
AL TEST DATE:	May 21, May 24, June 7, June 13 and June 14, 2007

AUTHORIZED SIGNATORY:

FINAL

Juan Martinez Senior EMC Engineer



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REVISION HISTORY

Revision #	Date	Comments	Modified By
1	July 13, 2007	Initial Release	David Guidotti

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SCOPE

An electromagnetic emissions test has been performed on the Ruckus Wireless model 2942 pursuant to the following rules:

Industry Canada RSS-Gen Issue 1 RSS 210 Issue 7 "Low-power Licence-exempt Radiocommunication Devices (All Frequency Bands): Category I Equipment" FCC Part 15 Subpart C

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 RSS-212 Issue 1 Test Facilities and Test Methods for Radio Equipment

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

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

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

The test results recorded herein are based on a single type test of the Ruckus Wireless model 2942 and therefore apply only to the tested sample. The sample was selected and prepared by Craig Owens of Ruckus Wireless

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 Ruckus Wireless model 2942 complied with the requirements of the following regulations:

Industry Canada RSS-Gen Issue 1 RSS 210 Issue 7 "Low-power Licence-exempt Radiocommunication Devices (All Frequency Bands): Category I Equipment" FCC Part 15 Subpart C

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

TEST RESULTS SUMMARY

FCC Rule Part	RSS Rule Part	Description	Measured Value / Comments	Limit / Requirement	Result
15.247(a)	RSS 210 A8.2	Digital Modulation	Systems uses OFDM / DSSS techniques	-	Complies
15.247 (a) (2)	RSS 210 A8.2 (1)	6dB Bandwidth	16.7MHz (802.11g) 12.2MHz (802.11b)	>500kHz	Complies
	RSP100	99% Bandwidth	18.0MHz (802.11g) 16.3MHz (802.11b)	Information only	Complies
15.247 (b) (3)	RSS 210 A8.2 (4)	Output Power (multipoint systems)	23.1 dBm (.203 Watts) EIRP = 1.62 W ^{Note 1}	1Watt, EIRP limited to 4 Watts.	Complies
15.247(d)	RSS 210 A8.2 (2)	Power Spectral Density	0.67dBm/kHz	8dBm/3kHz	Complies
15.247(c)	RSS 210 A8.5	Antenna Port Spurious Emissions 30MHz – 25 GHz	Refer to data	<-30dBc ^{Note 2}	Complies
15.247(c) / 15.209	RSS 210 A8.5	Radiated Spurious Emissions 30MHz – 25 GHz	53.8dBμV/m (489.8μV/m) @ 2389.5MHz (-0.2dB)	15.207 in restricted bands, all others <-30dBc ^{Note 2}	Complies

DIGITAL TRANSMISSION SYSTEMS (2400 - 2483.5MHz)

Note 1: EIRP calculated using antenna gain of 9 dBi for the highest EIRP multi-point system.

Note 2: Limit of -30dBc used because the power was measured using the UNII test procedure (maximum power averaged over a transmission burst) / RMS averaging over a time interval, as permitted under RSS 210 section A8.4(4).

FCC Rule Part	RSS	Description	Measured Value /	Limit /	Result
I CC Rule I uit	Rule part	Description	Comments	Requirement	(margin)
15 203		PE Connector	Reverse polarized		Complies
15.205	-	KI COINECTOI	connector		Compiles
	RSS GEN	Peceiver spurious	32.7 dBuV/m (A3.2uV/m)		Complies
15.109	7.2.3	amissions	$\bigcirc 12182.6MH_{7}$		(21 2dP)
	Table 1	ennissions	@ 12185.0ivii iz		(-21.5uB)
15 207	RSS GEN	AC Conducted	29 94D. V @ 0 904MHz	Refer to	Complies
15.207	Table 2	Emissions	38.800 µ V @ 0.8041VITZ	standard	(-7.2dB)
			Refer to MPE		
15.247 (b) (5)		DE Eve cours	calculations in Exhibit 11,	Refer to OET 65,	
15.247(0)(3) 15.407(f)	RSS 102	RF Exposure	RSS 102 declaration and	FCC Part 1 and	Complies
15.407 (I)		Requirements	User Manual statements.	RSS 102	•
	DSD 100			Statement	
	RSP 100	Lage Manual		required	
	RSS GEN	User Manual		regarding non-	
	/.1.5			interference	
				Statement	
	RSP 100			required	
	RSS GEN	User Manual		regarding	
	7.1.5			detachable	
				antenna	

GENERAL REQUIREMENTS APPLICABLE TO ALL BANDS

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.

Frequency Range (MHz)	Calculated Uncertainty (dB)
0.15 to 30	± 2.4
0.015 to 30	± 3.0
30 to 1000	± 3.6
1000 to 40000	± 6.0
	Frequency Range (MHz) 0.15 to 30 0.015 to 30 30 to 1000 1000 to 40000

EQUIPMENT UNDER TEST (EUT) DETAILS

GENERAL

The Ruckus Wireless model 2942 is a 2.4GHz wireless bridge that is designed to provide wireless internet and networking services. Since the EUT would be placed on a tabletop during operation, the EUT was treated as table-top equipment during testing to simulate the end-user environment. The electrical rating of the EUT is 120 Volts, 60 Hz, 0.3 Amps.

The sample was received on May 21, 2007 and tested on May 21, May 24, June 7, June 13 and June 14, 2007. The EUT consisted of the following component(s):

Manufacturer	Model	Description	Serial Number	FCC ID
Ruckus	2942	2.4Ghz wireless bridge	-	

OTHER EUT DETAILS

Testing performed on the 2942 was considered representative of the 2231, 2232, 2241, 2242, 2252, 2252, 2922, 2932, 2952 and 2962. The models all use identical hardware

ANTENNA SYSTEM

The antenna system used with the Ruckus Wireless model 2942 consists of a patch, omni, and sectors. Connection are reverse polarity which meet 15.203 section.

ENCLOSURE

The EUT enclosure is primarily constructed of Plastic . The EUT enclosure measures approximately 19.43cm (L), 14.43cm (W), 10.16cm (H).

MODIFICATIONS

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

SUPPORT EQUIPMENT

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

Manufacturer	Model	Description	Serial Number	FCC ID
Dell	Inspiron 2650	Laptop	N/A	DoC

No remote support equipment was used during emissions testing.

EUT INTERFACE PORTS

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

Dort	Connected To	Cable(s)			
TOIT	Connected 10	Description	Shielded or Unshielded	Length(m)	
RF	Antenna	Coaxial	Shielded	0.5	
Ethernet	Laptop	Cat5	Unshielded	1.0	
EUT DC input	AC Mains	Multiwire	Unshielded	1.5	

Note: The console port was not connected during testing. The manufacturer stated that these are for configuration purposes and therefore would not normally be connected.

EUT OPERATION

During Radio emissions testing the EUT was set to maximum power to produce CCK or OFDM modulation continuous transmission .

TEST SITE

GENERAL INFORMATION

Final test measurements were taken on May 21, May 24, June 7, June 13 and June 14, 2007 at the Elliott Laboratories Open Area Test Site located at 684 West Maude Avenue, Sunnyvale, California or 41039 Boyce Road, Fremont, California 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.

ANSI C63.4:2003 recommends that ambient noise at the test site be at least 6 dB below the allowable limits. Ambient levels are below this requirement with the exception of predictable local TV, radio, and mobile communications traffic. The test site contains 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 and RSS 212.

CONDUCTED EMISSIONS CONSIDERATIONS

Conducted emissions testing is performed in conformance with ANSI C63.4:2003 and RSS 212. 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 / RSS 212.

MEASUREMENT INSTRUMENTATION

RECEIVER SYSTEM

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

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

INSTRUMENT CONTROL COMPUTER

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

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

LINE IMPEDANCE STABILIZATION NETWORK (LISN)

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

FILTERS/ATTENUATORS

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

ANTENNAS

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

ANTENNA MAST AND EQUIPMENT TURNTABLE

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

ANSI C63.4:2003 and RSS 212 specify that the test height above ground for table mounted devices shall be 80 centimeters. Floor mounted equipment shall be placed on the ground plane if the device is normally used on a conductive floor or separated from the ground plane by insulating material from 3 to 12 mm if the device is normally used on a non-conductive floor. During radiated measurements, the EUT is positioned on a motorized turntable in conformance with this requirement.

INSTRUMENT CALIBRATION

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

TEST PROCEDURES

EUT AND CABLE PLACEMENT

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

CONDUCTED EMISSIONS

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



RADIATED EMISSIONS

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

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

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

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



Typical Test Configuration for Radiated Field Strength Measurements

BANDWIDTH MEASUREMENTS

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

SPECIFICATION LIMITS AND SAMPLE CALCULATIONS

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

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

GENERAL TRANSMITTER RADIATED EMISSIONS SPECIFICATION LIMITS

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

OUTPUT POWER LIMITS – DIGITAL TRANSMISSION SYSTEMS

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

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	
902 - 928	1 Watt (30 dBm)	8 dBm/3kHz	
2400 - 2483.5	1 Watt (30 dBm)	8 dBm/3kHz	
5725 - 5850	1 Watt (30 dBm)	8 dBm/3kHz	

The maximum permitted output power is reduced by 1dB for every dB the antenna gain exceeds 6dBi. Fixed point-to-point applications using the 5725 - 5850 MHz band are not subject to this restriction.

TRANSMIT MODE SPURIOUS RADIATED EMISSIONS LIMITS – FHSS and DTS SYSTEMS

The limits for unwanted (spurious) emissions from the transmitter falling in the restricted bands are those specified in the general limits sections of FCC Part 15 and RSS 210. All other unwanted (spurious) emissions shall be at least 20dB below the level of the highest in-band signal level (30dB if the power is measured using the sample detector/power averaging method).

SAMPLE CALCULATIONS - CONDUCTED EMISSIONS

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

$$R_r - S = M$$

where:

 $R_r =$ Receiver Reading in dBuV

S = Specification Limit in dBuV

M = Margin to Specification in +/- dB

SAMPLE CALCULATIONS - RADIATED EMISSIONS

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

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

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

where:

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

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

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

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

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

$$R_c = R_r + F_d$$

and

 $M = R_c - L_s$

where:

 R_r = Receiver Reading in dBuV/m

- F_d = Distance Factor in dB
- R_{c} = Corrected Reading in dBuV/m
- L_S = Specification Limit in dBuV/m
- M = Margin in dB Relative to Spec

SAMPLE CALCULATIONS - FIELD STRENGTH TO EIRP CONVERSION

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

 $E = \underline{1000000 \text{ v } 30 \text{ P}} \text{ microvolts per meter}$

where P is the eirp (Watts)

EXHIBIT 1: Test Equipment Calibration Data

2 Pages

Conducted Emissions - AC Power and Telecommunications Ports, 18-Jun-07

Engineer: Juan Martinez				
Manufacturer	Description	Model #	Asset #	Cal Due
Hewlett Packard	EMC Spectrum Analyzer, 9 kHz - 6.5 GHz	8595EM	787	21-Dec-07
Rohde& Schwarz	Pulse Limiter	ESH3 Z2	812	05-Feb-08
Fischer Custom Comm.	LISN, Freq. 0.9 -30 MHz,16 Amp	FCC-LISN-50/250-16-2	1079	13-Mar-08
Fischer Custom Comm.	ISN, 9 KHz -30 MHz, SV	FCC-TLISN-T4	1263	28-Feb-08
Fischer Custom Comm.	LCL Adapter 80/55 dB, RJ45-4, SV	ISNT4-EUT-RJ45-4-1	1268	28-Feb-08
Fischer Custom Comm.	ISN Adapter, RJ45-4, SV	ISNT4-AE-RJ45-4	1271	28-Feb-08
Rohde & Schwarz	Test Receiver, 9 kHz-2750 MHz	ESCS 30	1337	25-Jul-07

Radiated Emissions, 30 - 26,500 MHz	, 01-Jun-07
Engineer: Rafael Varelas	

Lingineer. Naldel Valeias				
<u>Manufacturer</u>	nufacturer Description Model #			Cal Due
EMCO	Antenna, Horn, 1-18 GHz	3115	487	24-May-08
Hewlett Packard	Microwave Preamplifier, 1-26.5GHz	8449B	870	15-Nov-07
Hewlett Packard	ard SpecAn 9 kHz - 40 GHz, FMT (SA40) Blue 8564E (84125C)		1393	09-Jan-08
Hewlett Packard	t Packard High Pass filter, 3.5 GHz (Red System) P/N 84300-80038 (84125C)		1403	09-Jun-07
Radiated Emissions, 1000 -	18,000 MHz, 13-Jun-07			
Engineer: Joseph Cadigal				
Manufacturer	Description	Model #	Asset #	Cal Due
EMCO	ICO Antenna, Horn, 1-18 GHz		487	24-May-08
Hewlett Packard Microwave Preamplifier, 1-26.5GHz		8449B	870	15-Nov-07
Hewlett Packard SpecAn 9 kHz - 40 GHz, FMT (SA40) Blue		8564E (84125C)	1393	09-Jan-08
Radio Antenna Port (Power	and Spurious Emissions), 14-Jun-07			
Engineer: Juan Martinez	-			
Manufacturer	Description	Model #	Asset #	Cal Due
EMCO	Antenna, Horn, 1-18 GHz (SA40-Purple)	3115	1779	07-Feb-08

EXHIBIT 2: Test Measurement Data

T68062 - 100 Pages T68277 - 16 Pages



EMC Test Data

Client:	Ruckus Wireless	Job Number:	J68059
Model:	2231, 2232, 2241, 2242, 2252, 2252,	Test-Log Number:	T68062
	2922, 2932, 2942, 2952, 2962	Project Manager:	Richard Gencev
Contact:	Craig Owens		
Emissions Spec:	15.247, RSS-210	Class:	Radio
Immunity Spec:	-	Environment:	-

EMC Test Data

For The

Ruckus Wireless

Model

2231, 2232, 2241, 2242, 2252, 2252, 2922, 2932, 2942, 2952, 2962

Date of Last Test: 6/14/2007

Elliott EMC Test Date				C Test Data	
Client: Ruckus Wireless				Job Number:	J68059
Ν	Aodel: 2231, 2232, 224	· 2231 2232 2241 2242 2252			T68062
•	2922 2932 294	2 2952 2962		Project Manager:	Richard Gencev
Сс	ontact: Craig Owens	2,2702,2702		i reject managen	
Emissions	Spec: 15 247 RSS-21	0		Class [,]	Radio
Immunity	Spec: -	0		Environment:	-
initiatity	opool			Linnonia	
	The following inf	EUT II	NFORMATIOns collected dur	ON ing the test sessions	s(s).
		Gen	eral Description		
The EUT is a 2.4	GHz wireless bridge the	at is designed to	o provide wireless in	ternet and networking serv	rices. Since the EUT
would be placed	on a table top during o	peration, the EL	T was treated as tak	ole-top equipment during te	esting to simulate the end
user environmen	t. The electrical rating	of the EUT is 12	0 Volts , 60 Hz, 0.3	Amps.	
Fauipment Under Test					
Manufacturer	Model		Description	Serial Number	FCC ID
Ruckus	2942	2 40	bz wireless bridge	-	10010
Other EUT Details Testing performed on the 2942 was considered representative of the 2231, 2232, 2241, 2242, 2252, 2252, 2922, 2932, 2952 and 2962. The models all use identical hardware EUT Antenna (Intentional Radiators Only) The EUT antenna is a patch, omni, and sectors. Connection are reverse polarity which meet 15.203 section.					
The EUT enclosu 10.16cm (H).	ure is primarily construc	EI ted of Plastic . ⁻	JT Enclosure The EUT enclosure r	neasures approximately 1	9.43cm (L), 14.43cm (W),
		Mod	ification History	,	
Mod. #	Test	Date		Modification	
1	-	-		None	
Modifications app	plied are assumed to be	e used on subse	quent tests unless c	otherwise stated as a furthe	er modification.

Elliott EMC Test Data Job Number: J68059 Client: Ruckus Wireless Model: 2231, 2232, 2241, 2242, 2252, 2252, T-Log Number: T68062 Project Manager: Richard Gencev 2922, 2932, 2942, 2952, 2962 Contact: Craig Owens Emissions Spec: 15.247, RSS-210 Class: Radio Immunity Spec: Environment: **Test Configuration #1** The following information was collected during the test sessions(s). Local Support Equipment Model Description Serial Number FCC ID Manufacturer Dell Inspiron 2650 Laptop N/A DoC **Remote Support Equipment** Manufacturer Model Description Serial Number FCC ID -----Cabling and Ports Port Connected To Cable(s) Description Shielded or Unshielded Length(m) RF Coaxial 0.5 Antenna Shielded Ethernet Laptop Cat5 Unshielded 1.0 EUT DC input AC Mains Multiwire Unshielded 1.5 Note: The console port was not connected during testing. The manufacturer stated that these are for configuration purposes and therefore would not normally be connected. **EUT Operation During Radio Emissions Tests**

During Radio emissions testing the EUT was set to maximum power to produce CCK or OFDM modulation continous transmission .

Elliott EMC Test Data Job Number: J68059 Client: Ruckus Wireless T-Log Number: T68062 2231, 2232, 2241, 2242, 2252, 2252, 2922, 2932, 2942, 2952, Model: 2962 Account Manager: Richard Gencev Contact: Craig Owens Standard: 15.247, RSS-210 Class: N/A RSS 210 and FCC 15.247 (DTS) Antenna Port Measurements Power, Bandwidth and Spurious Emissions (802.11g) Test Specific Details Objective: The objective of this test session is to perform final qualification testing of the EUT with respect to the specification listed above. Date of Test: 6/14/2007 Config. Used: 1 Test Engineer: Juan Martinez Config Change: None Test Location: Fremont EMC Lab EUT Voltage: 120V/60Hz 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. Ambient Conditions: Temperature: 24.1 °C Rel. Humidity: 43 % Summary of Results Test Performed Pass / Fail Run # Limit Result / Margin **Output Power** 15.247(b) 22.4 dBm 1 Pass Power spectral Density (PSD) 2 15.247(d) Pass -1.3dBm/kHz 6dB Bandwidth 15.247(a) 16.67 MHz 3 Pass 3 99% Bandwidth RSS GEN 18 MHz -4 Spurious emissions 15.247(b) Refer to run Pass

Modifications Made During Testing:

No modifications were made to the EUT during testing

Deviations From The Standard

No deviations were made from the requirements of the standard.
















Elliott EMC Test Data Job Number: J68059 Client: Ruckus Wireless T-Log Number: T68062 2231, 2232, 2241, 2242, 2252, 2252, 2922, 2932, 2942, 2952, Model: 2962 Account Manager: Richard Gencev Contact: Craig Owens Standard: 15.247, RSS-210 Class: N/A RSS 210 and FCC 15.247 (DTS) Antenna Port Measurements Power, Bandwidth and Spurious Emissions (802.11b) Test Specific Details Objective: The objective of this test session is to perform final qualification testing of the EUT with respect to the specification listed above. Date of Test: 6/14/2007 Config. Used: 1 Test Engineer: Juan Martinez Config Change: None Test Location: Fremont EMC Lab EUT Voltage: 120V/60Hz 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. Ambient Conditions: Temperature: 24.1 °C Rel. Humidity: 43 % Summary of Results Test Performed Pass / Fail Run # Limit Result / Margin **Output Power** 15.247(b) 23.1 dBm 1 Pass Power spectral Density (PSD) 2 15.247(d) Pass 0.67dBm/kHz 6dB Bandwidth 15.247(a) 12.17 MHz 3 Pass 3 99% Bandwidth RSS GEN 16.31 MHz -4 Spurious emissions 15.247(b) Refer to run Pass

Modifications Made During Testing:

No modifications were made to the EUT during testing

Deviations From The Standard

No deviations were made from the requirements of the standard.

















Client: Ruckus Wireless J 2231, 2232, 2241, 2242, 2252, 2922, 2932, 2942, 2952, T-L

EMC Test Data

Client:	Ruckus Wireless	Job Number:	J68059
Model:	2231, 2232, 2241, 2242, 2252, 2252, 2922, 2932, 2942, 2952,	T-Log Number:	T68062
	2962	Account Manager:	Richard Gencev
Contact:	Craig Owens		
Standard:	15.247, RSS-210	Class:	N/A

RSS 210 and FCC 15.247 Radiated Spurious Emissions

Test Specific Details

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

Date of Test: 6/13/2007 Test Engineer: Joseph Cadigal Test Location: SVOATS #2 Config. Used: 1 Config Change: none EUT Voltage: 120V/60Hz

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:	31.7 °C
	Rel. Humidity:	30 %

Summary of Results

Test Performed	Limit	Pass / Fail	Result / Margin
DE 1000 19000 MU7	ECC Dart 15 200 /		32.7dBµ V/m
RE, 1000 - 10000 WILZ -	15 047(a)	Pass	(43.2µ V/m) @
Spurious Emissions, RX mode	15.247(0)		12183.6MHz (-21.3dB)
DE 1000 19000 MU7	ECC Dart 15 200 /		32.5dBµ V/m
RE, 1000 - 10000 MIRZ -	15 247(a)	Pass	(42.2µ V/m) @
Spurious Emissions, RX mode	15.247(C)		12184.3MHz (-21.5dB)
	ECC Dort 1E 200 /		32.2dBµ V/m
RE, 1000 - 18000 MHZ -	FCC Pail 15.2097	Pass	(40.7µ V/m) @
Spurious Emissions, RX mode	15.247(C)		7311.6MHz (-21.8dB)
	Test Performed RE, 1000 - 18000 MHz - Spurious Emissions, Rx mode RE, 1000 - 18000 MHz - Spurious Emissions, Rx mode RE, 1000 - 18000 MHz - Spurious Emissions, Rx mode	Test Performed Limit RE, 1000 - 18000 MHz - FCC Part 15.209 / Spurious Emissions, Rx mode 15.247(c) RE, 1000 - 18000 MHz - FCC Part 15.209 / Spurious Emissions, Rx mode FCC Part 15.209 / RE, 1000 - 18000 MHz - FCC Part 15.209 / Spurious Emissions, Rx mode FCC Part 15.209 / RE, 1000 - 18000 MHz - FCC Part 15.209 / Spurious Emissions, Rx mode 15.247(c)	Test Performed Limit Pass / Fail RE, 1000 - 18000 MHz - Spurious Emissions, Rx mode FCC Part 15.209 / 15.247(c) Pass RE, 1000 - 18000 MHz - Spurious Emissions, Rx mode FCC Part 15.209 / 15.247(c) Pass RE, 1000 - 18000 MHz - Spurious Emissions, Rx mode FCC Part 15.209 / 15.247(c) Pass RE, 1000 - 18000 MHz - Spurious Emissions, Rx mode FCC Part 15.209 / 15.247(c) Pass

Modifications Made During Testing:

No modifications were made to the EUT during testing

Deviations From The Standard

No deviations were made from the requirements of the standard.

Client Ruckus Wireless

EMC Test Data

Client:	Ruckus W	/ireless			~	Job Number:	J68059		
	2231, 223	2, 2241.	2242, 2252	, 2252, 292	T-L	T-Log Number: T68062			
Model:	2962	,,	,	,			Accou	nt Manager	Richard Gencev
Contact		ons					, 10000		
Ctordard		CC 010					Class	NI/A	
Standard:	13.247, R							Class:	IV/A
Run #1: Ra	adiated Sp	ourious l	Emissions,	1000 - 180	00 MHz. Ope	erating Mode	e: 802.11b/	g	
D "1									
Run #1a: (Center Cha	annel @	2437 MHz						
RX, D MODE	e, circie ar	itenna							
Froquoney	DIY : DSA-	Dol	15 200	/ 15 2/7	Dotoctor	Azimuth	Hoight	Commonte	
MH ₇		FUI v/b	15.207	Margin		dogroos	motors	Comments	
12183 500	ασμν/π 32.7	V/II H	54 0	-21 2		360	1.0		
12103.370	32.7	V	54.0	-21.5		0	1.0		
7312 104.310	32.5	H	54.0	-21.5	AVG	360	2.0		
7311 480	32.4	V	54.0	-21.0	AVG	244	1.0		
9747.790	30.1	H	54.0	-23.9	AVG	0	1.0		
9747 440	30.0	V	54.0	-24.0	AVG	341	1.0		
4873.710	28.6	V	54.0	-25.4	AVG	94	2.3		
4875.480	28.5	H	54.0	-25.5	AVG	38	1.0		
12183.590	44.3	Н	74.0	-29.7	PK	360	1.0		
7311.480	44.0	V	74.0	-30.0	PK	244	1.0		
12184.310	44.0	V	74.0	-30.0	PK	0	1.0		
7312.190	43.9	Н	74.0	-30.1	PK	360	2.0		
9747.440	41.8	V	74.0	-32.2	PK	341	1.0		
9747.790	40.7	Н	74.0	-33.3	PK	0	1.0		
4873.710	40.3	V	74.0	-33.7	PK	94	2.3		
4875.480	39.8	Н	74.0	-34.2	PK	38	1.0		
Run #1b: (Center Cha	annel @	2437 MHz						
Rx, g mode	e, circle ar	ntenna							
power sup	oly : DSA-	12R-12	AUS				-		
Frequency	Level	Pol	15.209	/ 15.247	Detector	Azimuth	Height	Comments	
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters		
12183.830	32.6	H	54.0	-21.4	AVG	341	1.0		
12183.830	32.6	V	54.0	-21.4	AVG	360	1.0		
/312.290	32.3	H	54.0	-21.7	AVG	248	1.0		
/309.500	32.2	V	54.0	-21.8	AVG	88	1.0		
9/46.850	29.7	V	54.0	-24.3	AVG	116	1.0	ł	
9/46./80	29.6	H	54.0	-24.4	AVG	360	1.0		
4073.000	20.5 20 E	H	54.0	-25.5 25.5	AVG	3 <u>2</u> 27	1.0		
40/2.090	20.5	V	04.U	-20.5		2/	1.0		
12103.030	44.0		74.0	-29.0 20.2		<u>34 ا</u> ٥٥	1.0		
1307.300	43.7	V	74.0	-30.3		00 260	1.0		
7210 200	43.1 12 4	V	74.0	-30.3		200	1.0	ł	
1312.290	43.0 /1 2		74.0	-30.4 20 7		240 114	1.0	ł	
7/40.00U	41.3 /0.0	V L	74.0	-32.7		260	1.0		
7/40./0U	40.7	n L	74.0	-33.1 _22.7		300	1.0		
4073.000	40.3		74.0	-33.7		32 27	1.0		
4072.090	40.0	v	74.0	-34.0	ΓN	21	1.0	1	

EMC Test Data

Client:	Ruckus W	/ireless			Job Number: J68059				
	2231. 223	2, 2241	2242, 2252	, 2252, 292	T-L	og Number:	T68062		
Model:	2962	, ,	, , _ _,	,, -, -, -	, _ , _ , _ , ,	, ,	Accou	nt Manager	Richard Gencev
Contact		ns				7.0000			
Condord	15 2/17 D	STI3 SS_210					Class	N/Λ	
	1J.247, K	JJ-210		1000 100			000 441 1	Ciass.	IWA
Run #2: Ra	adiated Sp	ourious I	-missions,	1000 - 180	00 MHz. Op	erating Mode	e: 802.11b/	g	
Dum #20. (Contor Ch	nnal @	2427 MIL-						
Run #28: C		annei @	2437 IMITZ						
	r, ou Di μαι nlv · DSA.	12D-12							
Frequency	level	Pol	15 209	/ 15 247	Detector	Δzimuth	Heiaht	Comments	
MHz	dBuV/m	v/h	l imit	Margin	Pk/OP/Ava	dearees	meters	Comments	
7312.350	32.1	H	54.0	-21.9	AVG	<u>52</u>	1.0		
7310.680	32.0	V	54.0	-22.0	AVG	31	1.0		
12184.920	31.6	H	54.0	-22.4	AVG	164	1.0		
12184.160	31.4	V	54.0	-22.6	AVG	59	1.0		
9746.790	29.8	Н	54.0	-24.2	AVG	95	1.0		
9746.520	29.7	V	54.0	-24.3	AVG	214	1.9		
4873.870	28.2	Н	54.0	-25.8	AVG	70	1.0		
4872.840	28.2	V	54.0	-25.8	AVG	147	1.0		
7312.350	44.2	Н	74.0	-29.8	PK	52	1.0		
12184.920	43.4	Н	74.0	-30.6	PK	164	1.0		
7310.680	43.2	V	74.0	-30.8	PK	31	1.0		
12184.160	42.6	V	74.0	-31.4	PK	59	1.0		
9746.790	42.1	Н	74.0	-31.9	PK	9 5	1.0		
9746.520	41.0	V	74.0	-33.0	PK	214	1.9		
4872.840	40.1	V	74.0	-33.9	PK	147	1.0		
4873.870	39.7	Н	74.0	-34.3	PK	70	1.0		
Run #2b: (Center Cha	annel @	2437 MHz						
Rx, g mode	e, 8dBi pat	ch antei	nna						
power sup	oly : DSA-	12R-12	AUS	145 047		A 1 11			
Frequency	Level	Pol	15.209	/ 15.247	Detector	Azimuth	Height	Comments	
MHZ	dBµV/m	V/n	Limit	Margin	PK/QP/AVg	degrees	meters		
12184.300	32.5	V	54.0	-21.5	AVG	297	1.3		
7310.000	32.2	H	54.0	-21.8	AVG	107	1.0		
10104 070	32.0	V 11	54.0	-22.0	AVG	300	1.0		
07/7 120	31.0 20.1	U V	54.0	-22.4	AVG	157	1.0		
9747.120	20.7	 Н	54.0	-23.7	AVG	208	1.0		
1871 700	29.7	V	54.0	-24.5		5	1.0		
4074.770	20.3	 Н	54.0	-25.6		356	1.0		
7311 //60	13.7	V	74.0	-20.0	PK	360	1.0		
7310 060	43.7	H	74.0	-30.3	PK	107	1.0	1	
12184 300	43.4	V	74.0	-30.6	PK	297	1.3		
12184 070	43.2	, H	74.0	-30.8	PK	137	1.0		
9747.120	41.4	V	74.0	-32.6	PK	158	1.0		
4874.790	40.7	V	74.0	-33.3	PK	5	1.0		
9746.910	40.7	H	74.0	-33.3	PK	208	1.0		
4874.460	40.3	H	74.0	-33.7	PK	356	1.0	1	

EMC Test Data

Client:	Ruckus W	/ireless						Job Number: J68059	
	2231, 223	2, 2241,	2242, 2252	, 2252, 292	T-L	og Number:	T68062		
Model:	2962				Accou	nt Manager:	Richard Gencev		
Contact	Crain Owe	ns						· · · J·	
Ctondord	15 2/7 D	STI3 SS 210						Class	Ν/Λ
Standard:	13.247, K	33-210						CIASS.	IN/A
Run #3: Ra	adiated Sp	ourious	Emissions,	1000 - 180	00 MHz. Ope	erating Mod	e: 802.11b/	g	
D "0 0									
Run #3a: C	Center Cha	annel @	2437 MHz						
Rx, b mode	e, 9dBi Om	ni antei	nna						
power sup	DIY : DSA-	IZK-IZ	AUS	15 017	Detector	A -inc. th	Lloight	Commonto	
		P01	10.2097	10.247 Marain		Azimum	meters	Comments	
	α <u>β</u> μν/Π		54.0	22 0		2/1	1 0		
7309.920	32.0 21.0	U V	54.0	-22.0 22.2	AVG	125	1.0		
1210/ 220	31.0 21 /		54.0	-22.2	AVG	360	1.0		
12104.320	31.4	V	54.0	-22.0	AVG	58	1.0		
9747 680	29.8	V	54.0	-23.0	AVG	162	1.0		
9746 580	29.6	н	54.0	-24.2	AVG	158	1.0		
4874 630	27.0	V	54.0	-24.4	AVG	327	1.0		
4873 080	28.1	H	54.0	-25.9	AVG	360	1.0		
7309 920	43.8	H	74.0	-30.2	PK	241	1.0		
7310.040	43.7	V	74.0	-30.3	PK	125	1.0		
12183.690	42.9	V	74.0	-31.1	PK	58	1.0		
12184.320	42.5	Ĥ	74.0	-31.5	PK	360	1.0		
9747.680	41.0	V	74.0	-33.0	PK	163	1.0		
9746.580	40.8	H	74.0	-33.2	PK	158	1.0		
4873.080	39.8	H	74.0	-34.2	PK	360	1.0		
4874.630	39.6	V	74.0	-34.4	PK	327	1.0		
Run #3b: C	Center Cha	annel @	2437 MHz						
Rx, g mode	e, 9dBi Om	nni antei	nna						
power sup	oly : DSA-	12R-12	AUS						
Frequency	Level	Pol	15.209	/ 15.247	Detector	Azimuth	Height	Comments	
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters		
7311.550	32.2	V	54.0	-21.8	AVG	0	1.0		
7311.560	32.1	Н	54.0	-21.9	AVG	360	1.0		
12184.020	32.0	Н	54.0	-22.0	AVG	360	1.0		
9746.720	29.7	Н	54.0	-24.3	AVG	0	1.0		
9748.120	29.6	V	54.0	-24.4	AVG	109	1.0		
4873.810	28.4	V	54.0	-25.6	AVG	7	1.0		
4872.670	28.3	Н	54.0	-25.7	AVG	155	1.0		
7311.550	44.2	V	74.0	-29.8	PK	0	1.0		
7311.560	43.7	Н	74.0	-30.3	PK	360	1.0	ļ	
12184.020	42.9	Н	74.0	-31.1	PK	360	1.0	ļ	
9746.720	41.6	Н	74.0	-32.4	PK	0	1.0	ļ	
9748.120	40.9	V	74.0	-33.1	PK	109	1.0		
4873.810	40.2	V	74.0	-33.8	PK	7	1.0		
4872.670	39.8	Н	74.0	-34.2	PK	155	1.0		

E	liott			EM	IC Test Da
Client: Ruckus Wi	reless		Jc	b Number:	J68059
Model: 2231, 2232	2, 2241, 2242, 2252, 2252, 2922	T-Lo	g Number:	T68062	
2962			Accoun	t Manager:	Richard Gencev
Contact: Craig Owe	ns			Olasa	N1/A
Standard: 15.247, RS	5-210			Class:	N/A
	Radi	ated Emissio	ns		
Test Specific Deta	ails				
Objective:	The objective of this test sessior he specification listed above.	n is to perform engineerir	ng evaluation	testing of t	he EUT with respect
Date of Test:	5/7/2007 23:34	Config. Used:	1		
Test Engineer:	Rafael Varelas	Config Change:	None		
	JVUAI J # I	EUT VUILAYE:	1201/0002		
General Test Con	figuration				
he EUT and all local s	support equipment were located	on the turntable for radi	ated spurious	s emissions	testing.
or redicted omissions	tooting the measurement enter	na was located 2 meters	from the Fl	IT	
	testing the measurement anten	ina was located 3 meters	s from the EC	11.	
Ambient Conditio	ns: Temperature:	18 °C			
	Rel. Humidity:	43 %			
summary of Resu	lits				
Run #	Test Performed	Limit	Pass / Fail	Result	/ Margin
	RE, 30 - 18000 MHz -	FCC Part 15.209 /		52.1d	IBµ V/m
1a - c	Spurious Emissions	15.247(c)	Pass	(402.7) 1875 6M	µV/m) @ Hz (_1 9dB)
				4075.000	HZ (-1.90D)
Nodifications Mad	le During Testing:				
Io modifications were	made to the EUT during testing				
Deviations From	The Standard				
Deviations From The No deviations were main the second sec	The Standard de from the requirements of the	e standard.			
Deviations From The No deviations were main	The Standard de from the requirements of the	e standard.			
Deviations From Totol No deviations were ma	The Standard de from the requirements of the	e standard.			
Deviations From To deviations were ma	The Standard de from the requirements of the	e standard.			
Deviations From To deviations were ma	The Standard de from the requirements of the	e standard.			
Deviations From To deviations were ma	The Standard de from the requirements of the	e standard.			
Deviations From To deviations were ma	The Standard de from the requirements of the	e standard.			
Deviations From To deviations were ma	The Standard de from the requirements of the	e standard.			

EMC Test Data

L			
Client:	Ruckus Wireless	Job Number:	J68059
Model	2231, 2232, 2241, 2242, 2252, 2252, 2922, 2932, 2942, 2952,	T-Log Number:	T68062
	2962	Account Manager:	Richard Gencev
Contact:	Craig Owens		
Standard:	15.247, RSS-210	Class:	N/A

Run #1a: Radiated Spurious Emissions, 30 - 18000 MHz. Low Channel @ 2412 MHz Setting = 23, Tx100, External Patch, 8dBi antenna

	Н	V	
Fundamental emission level @ 3m in 1MHz RBW:	106	120.6	Peak Measurement (RB=VB=1MHz)
Fundamental emission level @ 3m in 1MHz RBW:	96.8	112.1	Average Measurement (RB=1MHz, VB=10Hz)

Band Edge Signal Radiated Field Strength

Frequency	Level	Pol	15.209	9/15E	Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
2387.350	53.1	V	54.0	-0.9	Avg	335	1.3	
2387.430	67.3	V	74.0	-6.7	PK	335	1.3	
2389.430	44.5	Н	54.0	-9.5	AVG	232	1.7	
2389.430	55.8	Н	74.0	-18.2	PK	232	1.7	

Other Spurious Radiated Emissions:

other opun	ous maaia		5161151					
Frequency	Level	Pol	15.209	9/15E	Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
4823.200	49.8	V	54.0	-4.2	AVG	69	1.3	
4823.200	62.8	V	74.0	-11.2	PK	69	1.3	
7239.970	39.2	V	54.0	-14.8	AVG	359	2.0	Note 3
4822.730	38.7	Н	54.0	-15.3	AVG	111	1.0	
12053.370	36.5	V	54.0	-17.5	AVG	255	1.5	
12051.400	35.4	Н	54.0	-18.6	AVG	199	1.5	
7237.930	35.0	Н	54.0	-19.0	AVG	195	1.0	Note 3
7239.970	54.2	V	74.0	-19.8	PK	359	2.0	Note 3
7237.930	52.4	Н	74.0	-21.6	PK	195	1.0	Note 3
4822.730	51.3	Н	74.0	-22.7	PK	111	1.0	
12053.370	49.7	V	74.0	-24.3	PK	255	1.5	
12051.400	46.8	Н	74.0	-27.2	PK	199	1.5	

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

Note 2: Band-edge measurement calculated from the fundamental field strength (peak or average) minus the band edge delta marker measurement.

Note 3: Signal is not in a restricted band but the more stringent restricted band limit was used.





EMC Test Data

4			
Client:	Ruckus Wireless	Job Number:	J68059
Model:	2231, 2232, 2241, 2242, 2252, 2252, 2922, 2932, 2942, 2952,	T-Log Number:	T68062
	2962	Account Manager:	Richard Gencev
Contact:	Craig Owens		
Standard:	15.247, RSS-210	Class:	N/A

Run #1b: Radiated Spurious Emissions, 30 - 18000 MHz. Center Channel @ 2437 MHz Setting = 23, Tx100, External Patch, 8dBi antenna

				Н	V					
Fundam	ental emis	sion leve	el @ 3m in 1	MHz RBW:	103.7	122.1	Peak Meas	surement (RB=VB=1MHz)		
Fundam	ental emis	sion leve	el @ 3m in 1	MHz RBW:	95.4	113.3	Average Measurement (RB=1MHz, VB=10Hz)			
							-			
Frequency	Level	Pol	15.209	/ 15.247	Detector	Azimuth	Height	Comments		
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters			
4875.600	52.1	V	54.0	-1.9	AVG	312	1.1			
4875.600	66.1	V	74.0	-7.9	PK	312	1.1			
7305.600	43.7	V	54.0	-10.3	AVG	0	1.4			
4874.070	42.1	Н	54.0	-11.9	AVG	16	1.0			
7310.070	41.9	Н	54.0	-12.1	AVG	200	2.0			
7305.600	61.7	V	74.0	-12.3	PK	0	1.4			
7310.070	59.3	Н	74.0	-14.7	PK	200	2.0			
12181.370	36.7	V	54.0	-17.3	AVG	253	1.5			
12175.030	34.3	Н	54.0	-19.7	AVG	20	1.0			
4874.070	53.8	Н	74.0	-20.2	PK	16	1.0			
12181.370	50.0	V	74.0	-24.0	PK	253	1.5			
12175.030	46.0	Η	74.0	-28.0	PK	20	1.0			

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

EMC Test Data

SC.			
Client:	Ruckus Wireless	Job Number:	J68059
Model:	2231, 2232, 2241, 2242, 2252, 2252, 2922, 2932, 2942, 2952,	T-Log Number:	T68062
	2962	Account Manager:	Richard Gencev
Contact:	Craig Owens		
Standard:	15.247, RSS-210	Class:	N/A

Run #1c: Radiated Spurious Emissions, 30 - 18000 MHz. High Channel @ 2462 MHz Setting = 23, Tx100, External Patch, 8dBi antenna

	Н	V]
Fundamental emission level @ 3m in 1MHz RBW:	100.7	121.8	Peak Measurement (RB=VB=1MHz)
Fundamental emission level @ 3m in 1MHz RBW:	92.4	113.3	Average Measurement (RB=1MHz, VB=10Hz)

Band Edge Signal Radiated Field Strength

Eana Eago	e.g. ar read		sia ettorigai					
Frequency	Level	Pol	15.200	₹/15E	Detector	Azimuth	Height	Comments
MHz	dBµV/m	V/H	Limit	Margin	Pk/QP/Avg	degrees	meters	
2483.990	53.0	V	54.0	-1.0	Avg	346	1.5	
2485.740	65.6	V	74.0	-8.4	PK	346	1.5	
2485.900	45.2	Н	54.0	-8.8	AVG	207	1.8	
2485.900	56.5	Н	74.0	-17.5	PK	207	1.8	
Other Spuri	ious Radiai	ted Emis	sions:					
Frequency	Level	Pol	15.209	/ 15.247	Detector	Azimuth	Height	Comments
MHz	dBµV/m	V/H	Limit	Margin	Pk/QP/Avg	degrees	meters	
4922.250	48.3	V	54.0	-5.7	AVG	342	1.0	
4923.770	47.0	H	54.0	-7.0	AVG	144	1.0	
7384.570	45.7	V	54.0	-8.3	AVG	206	2.0	
7385.100	44.0	H	54.0	-10.0	AVG	204	2.0	
4922.250	61.2	V	74.0	-12.8	PK	342	1.0	
7384.570	61.1	V	74.0	-12.9	PK	206	2.0	
7385.100	60.2	H	74.0	-13.8	PK	204	2.0	
4923.770	59.0	H	74.0	-15.0	PK	144	1.0	
Note 1:	For emiss 27dBm/M	ions in re Hz (~680	estricted bar dBuV/m).	nds, the limi	t of 15.209 w	/as used. Fo	r all other e	missions, the limit was set to -
Note 2:	Band-edg	e measu	rement calc	ulated from	the fundame	ental field stre	ength (peak	or average) minus the band edge
11010 2.	delta mari	ker meas	surement.					





	liott			EM	IC Test Da
Client: Ruckus Wi	ireless		J	b Number:	J68059
Model: 2231, 2232	2, 2241, 2242, 2252, 2252, 2922	2, 2932, 2942, 2952,	T-Lo	g Number:	T68062
2962			Accour	t Manager:	Richard Gencev
Contact: Craig Owe	INS			Olasa	N1/A
Standard: 15.247, RS	S-210			Class:	N/A
	Radi	ated Emissio	ns		
Test Specific Deta	ails				
Objective: t	The objective of this test session the specification listed above.	n is to perform engineerir	ng evaluation	testing of t	he EUT with respect
Date of Test: 6	6/7/2007 23:34	Config. Used:	1		
Test Engineer: I	Rafael Varelas	None			
		Eor vollage.	120 1/00112		
General Test Con	figuration				
he EUT and all local s	support equipment were located	l on the turntable for radi	ated spurious	s emissions	testing.
or radiated emissions	testing the measurement anter	nna was located 3 meters	s from the EL	IT.	
Ambient Conditio	ns: Temperature: Rel. Humidity:	17 °C 41 %			
Summary of Resu	ılts				
Summary of Resu	Ilts Test Performed	Limit	Pass / Fail	Result	/ Margin
Summary of Resu Run # 1a - c	Ilts Test Performed RE, 30 - 18000 MHz - Spurious Emissions	Limit FCC Part 15.209 / 15.247(c)	Pass / Fail Pass	Result 53.5d (473.2)	/ Margin IBµ V/m µ V/m) @
Summary of Resu Run # 1a - c Modifications Mad	Ilts Test Performed RE, 30 - 18000 MHz - Spurious Emissions de During Testing: made to the EUT during testing	Limit FCC Part 15.209 / 15.247(c)	Pass / Fail Pass	Result 53.5d (473.2j 9848.1Ml	/ Margin IBµ V/m µ V/m) @ Hz (-0.5dB)
Summary of Resu Run # 1a - c Modifications Mad Io modifications were Deviations From 1	Ilts Test Performed RE, 30 - 18000 MHz - Spurious Emissions de During Testing: made to the EUT during testing The Standard	Limit FCC Part 15.209 / 15.247(c)	Pass / Fail Pass	Result 53.5d (473.2 9848.1MI	/ Margin IBµ V/m µ V/m) @ Hz (-0.5dB)
Summary of Resu Run # 1a - c Aodifications Mac Jo modifications were Deviations From T Jo deviations were ma	Its Test Performed RE, 30 - 18000 MHz - Spurious Emissions de During Testing: made to the EUT during testing Fhe Standard Ide from the requirements of the	Limit FCC Part 15.209 / 15.247(c)	Pass / Fail Pass	Result 53.5d (473.2 9848.1MI	/ Margin IBµ V/m µ V/m) @ Hz (-0.5dB)
Summary of Resu Run # 1a - c Modifications Mac Jo modifications were Deviations From T Jo deviations were ma	Its Test Performed RE, 30 - 18000 MHz - Spurious Emissions de During Testing: made to the EUT during testing Fhe Standard ide from the requirements of the	Limit FCC Part 15.209 / 15.247(c)	Pass / Fail Pass	Result 53.5d (473.2j 9848.1Ml	/ Margin IBµ V/m µ V/m) @ Hz (-0.5dB)
Summary of Resu Run # 1a - c Aodifications Mac Jo modifications were Deviations From T Jo deviations were ma	Its Test Performed RE, 30 - 18000 MHz - Spurious Emissions de During Testing: made to the EUT during testing The Standard ide from the requirements of the	Limit FCC Part 15.209 / 15.247(c)	Pass / Fail Pass	Result 53.5d (473.2 9848.1M	/ Margin IBµ V/m µ V/m) @ Hz (-0.5dB)
Summary of Resu Run # 1a - c Modifications Mad Io modifications were Deviations From T Io deviations were ma	Its Test Performed RE, 30 - 18000 MHz - Spurious Emissions de During Testing: made to the EUT during testing The Standard Ide from the requirements of the	Limit FCC Part 15.209 / 15.247(c)	Pass / Fail Pass	Result 53.5d (473.2 9848.1MI	/ Margin IBµ V/m µ V/m) @ Hz (-0.5dB)
Summary of Resu Run # 1a - c Modifications Mac Jo modifications were Deviations From T Jo deviations were ma	Its Test Performed RE, 30 - 18000 MHz - Spurious Emissions de During Testing: made to the EUT during testing The Standard ide from the requirements of the	Limit FCC Part 15.209 / 15.247(c)	Pass / Fail Pass	Result 53.5d (473.2 9848.1M	/ Margin IBμ V/m μ V/m) @ Hz (-0.5dB)
Summary of Resu Run # 1a - c Modifications Mac Jo modifications were Deviations From T Jo deviations were ma	Its Test Performed RE, 30 - 18000 MHz - Spurious Emissions de During Testing: made to the EUT during testing The Standard Ide from the requirements of the	Limit FCC Part 15.209 / 15.247(c)	Pass / Fail Pass	Result 53.5d (473.2 9848.1MI	/ Margin IBµ V/m µ V/m) @ Hz (-0.5dB)
Summary of Resu Run # 1a - c Modifications Mac Jo modifications were Deviations From T Jo deviations were ma	Its Test Performed RE, 30 - 18000 MHz - Spurious Emissions de During Testing: made to the EUT during testing The Standard ide from the requirements of the	Limit FCC Part 15.209 / 15.247(c)	Pass / Fail Pass	Result 53.5d (473.2 9848.1M	/ Margin IBμ V/m μ V/m) @ Hz (-0.5dB)
Summary of Resu Run # 1a - c Modifications Mac No modifications were Deviations From T No deviations were ma	Its Test Performed RE, 30 - 18000 MHz - Spurious Emissions de During Testing: made to the EUT during testing The Standard Ide from the requirements of the	Limit FCC Part 15.209 / 15.247(c)	Pass / Fail Pass	Result 53.5d (473.2 9848.1M	/ Margin IBµ V/m µ V/m) @ Hz (-0.5dB)

EMC Test Data

L			
Client:	Ruckus Wireless	Job Number:	J68059
Model:	2231, 2232, 2241, 2242, 2252, 2252, 2922, 2932, 2942, 2952,	T-Log Number:	T68062
	2962	Account Manager:	Richard Gencev
Contact:	Craig Owens		
Standard:	15.247, RSS-210	Class:	N/A

Run #1a: Radiated Spurious Emissions, 30 - 18000 MHz. Low Channel @ 2412 MHz Setting = 23, Tx100, External Patch, 8dBi antenna

	Н	V	
Fundamental emission level @ 3m in 1MHz RBW:	101.7	117.5	Peak Measurement (RB=VB=1MHz)
Fundamental emission level @ 3m in 1MHz RBW:	98.8	114.6	Average Measurement (RB=1MHz, VB=10Hz)

Band Edge Signal Radiated Field Strength

Frequency	Level	Pol	15.209	9/15E	Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
2387.350	53.7	V	54.0	-0.3	Avg	328	1.5	
2387.090	63.2	V	74.0	-10.8	Pk	328	1.5	
2386.200	48.5	Н	54.0	-5.5	AVG	360	1.0	
2386.200	57.7	Н	74.0	-16.3	PK	360	1.0	

Other Spurious Radiated Emissions:

Frequency	Level	Pol	15.209	9/15E	Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
4824.080	50.0	Н	54.0	-4.0	AVG	249	2.3	
4824.020	45.2	V	54.0	-8.8	AVG	43	1.3	
9648.160	44.6	V	54.0	-9.4	AVG	0	1.8	Note 3
7236.830	36.4	V	54.0	-17.6	AVG	264	1.9	
12050.070	35.1	Н	54.0	-18.9	AVG	0	1.0	
4824.080	51.9	Н	74.0	-22.1	PK	249	2.3	
9648.160	48.7	V	74.0	-25.3	PK	0	1.8	Note 3
4824.020	47.7	V	74.0	-26.3	PK	43	1.3	
12050.070	46.2	Н	74.0	-27.8	PK	0	1.0	
7236.830	44.9	V	74.0	-29.1	PK	264	1.9	

Note 1:	For	emi	issions	in restric	ted	band	s, th	ne lim	it of	15.	209 wa	s us	ed.	Fo	r all i	othe	r emis	ssions,	the	limit	was	set	to -	-
	27d	Bm	/MHz (~68dBuV	/m).																			
	1																		`					

Noto 2:	Band-edge measurement calculated from the fundamental field strength (peak or average) minus the band edge
NULE Z.	delta marker measurement.

Note 3: Signal is not in a restricted band but the more stringent restricted band limit was used.





7312.300

12176.270

4874.070

9748.150

37.1

34.2

53.8

51.1

Η

Н

Н

٧

54.0

54.0

74.0

74.0

EMC Test Data

4			
Client:	Ruckus Wireless	Job Number:	J68059
Model:	2231, 2232, 2241, 2242, 2252, 2252, 2922, 2932, 2942, 2952,	T-Log Number:	T68062
	2962	Account Manager:	Richard Gencev
Contact:	Craig Owens		
Standard:	15.247, RSS-210	Class:	N/A

Run #1b: Radiated Spurious Emissions, 30 - 18000 MHz. Center Channel @ 2437 MHz Setting = 23, Tx100, External Patch, 8dBi antenna

-16.9

-19.8

-20.2

-22.9

					Н	V				
Fundam	iental emis	sion leve	el @ 3m in 1	MHz RBW:	100.9	119	Peak Meas	Peak Measurement (RB=VB=1MHz)		
Fundamental emission level @ 3m in 1MHz RBW:					98	116	Average M	Average Measurement (RB=1MHz, VB=10Hz)		
Frequency	Level	Pol	15.209	/ 15.247	Detector	Azimuth	Height	Comments		
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters			
4874.070	51.4	Н	54.0	-2.6	AVG	32	2.4			
9748.150	48.8	V	54.0	-5.2	AVG	120	1.5			
4874.150	45.4	V	54.0	-8.6	AVG	316	1.3			
7210 200	20.3	V	54.0	15 7	AVC	5/	10			

221

0

32

120

1.0

1.8

2.4

1.5

48/4.150	48.6	V	/4.0	-25.4	PK	316	1.3	
7310.290	46.9	V	74.0	-27.1	PK	54	1.9	
7312.300	46.7	Н	74.0	-27.3	PK	221	1.0	
12176.270	45.1	Н	74.0	-28.9	PK	0	1.8	
	Car amilaa	lono in re	otriotod hor	المعالم المعا	of 1E 200 .	vee used Te	معطام المت	micolono the limit was est to

AVG

AVG

ΡK

PΚ

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

EMC Test Data

Ľ			
Client:	Ruckus Wireless	Job Number:	J68059
Model	2231, 2232, 2241, 2242, 2252, 2252, 2922, 2932, 2942, 2952,	T-Log Number:	T68062
woder:	2962	Account Manager:	Richard Gencev
Contact:	Craig Owens		
Standard:	15.247, RSS-210	Class:	N/A

Run #1c: Radiated Spurious Emissions, 30 - 18000 MHz. High Channel @ 2462 MHz Setting = 23, Tx100, External Patch, 8dBi antenna

	Н	V]
Fundamental emission level @ 3m in 1MHz RBW:	98.3	119.2	Peak Measurement (RB=VB=1MHz)
Fundamental emission level @ 3m in 1MHz RBW:	95.4	116.1	Average Measurement (RB=1MHz, VB=10Hz)

Band Edge Signal Radiated Field Strength

Frequency	Level	Pol	15.209	9/15E	Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
2488.270	51.4	V	54.0	-2.6	AVG	345	1.5	
2488.270	61.0	V	74.0	-13.0	PK	345	1.5	
2490.770	44.4	Н	54.0	-9.6	AVG	152	1.8	
2490.770	55.3	Н	74.0	-18.7	PK	152	1.8	

Other Spurious Radiated Emissions:

Other Spanous Radiated Emissions:								
Frequency	Level	Pol	15.209	/ 15.247	Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
9848.120	53.5	V	54.0	-0.5	AVG	107	1.4	
4924.080	51.8	V	54.0	-2.2	AVG	115	1.4	
4924.080	49.6	Н	54.0	-4.4	AVG	190	1.7	
14772.230	38.2	V	54.0	-15.8	AVG	86	1.6	
12308.570	37.9	V	54.0	-16.1	AVG	334	1.9	
9848.120	55.3	V	74.0	-18.7	PK	107	1.4	
7686.870	33.8	V	54.0	-20.2	AVG	360	1.0	
7310.870	33.7	Н	54.0	-20.3	AVG	0	1.0	
4924.080	53.5	V	74.0	-20.5	PK	115	1.4	
4924.080	52.8	Н	74.0	-21.2	PK	190	1.7	
14772.230	46.8	V	74.0	-27.2	PK	86	1.6	
12308.570	46.2	V	74.0	-27.8	PK	334	1.9	
7310.870	45.0	Н	74.0	-29.0	PK	0	1.0	
7686.870	45.0	V	74.0	-29.0	PK	360	1.0	

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

Note 2: Band-edge measurement calculated from the fundamental field strength (peak or average) minus the band edge delta marker measurement.





E	liott			EM	C Tes	t Data
Client: Ruckus W	ireless		JC	b Number:	J68059	
Model: 2231, 223	2, 2241, 2242, 2252, 2252, 2923	2, 2932, 2942, 2952,	T-Lo	g Number:	T68062	
2962			Accoun	it Manager:	Richard Gen	cev
Contact: Craig Owe	ens					
Standard: 15.247, R	SS-210			Class:	N/A	
	Radi	ated Emissio	ons			
Test Specific Deta Objective:	ails The objective of this test session the specification listed above.	n is to perform engineer	ing evaluation	i testing of t	he EUT with	respect to
Date of Test:	6/4/2007 23:34	Config. Used	l: 1			
Test Engineer:	Rafael Varelas	Config Change	e: None			
Test Location:	SVOATS #2	EUT Voltage	2: 120V/60Hz			
General Test Con	figuration					
The FUT and all local	support equipment were located	l on the turntable for rac	liated sourious	s emissions	testina	
				5 61113510115	testing.	
For radiated emissions	s testing the measurement anter	nna was located 3 meter	rs from the EL	JT.		
Ambient Conditio	ns: Temperature: Rel. Humidity:	18 °C 78 %				
Summary of Resu	ılts					
Run #	Test Performed	Limit	Pass / Fail	Result	/ Margin	I
1a c	RE, 30 - 18000 MHz -	FCC Part 15.209 /	Dace	53.0dB	βµ V/m @	
1a - C	Spurious Emissions	15.247(c)	Pd55	4924.1M	Hz (-1.0dB)	
Modifications Mar No modifications were	de During Testing: made to the EUT during testing					
Deviations From	The Standard	standard				
No deviations were ma		e stanuaru.				







Elliott Client: Ruckus Wireless 2231, 2232, 2241, 2242, 2252, 2252, 2922, 2932, 2942, 2952, Model: 2962 Contact: Craig Owens Standard: 15.247, RSS-210 Other Spurious Radiated Emissions: Frequency Level Pol 15.209 / 15E Detector Azimuth MHz dBµV/m v/h Limit Margin Pk/QP/Avg degrees 4824.100 AVG 48.0 ٧ 54.0 -6.0 209 4824.100 50.4 ٧ 74.0 -23.6 ΡK 209 ٧ AVG 7235.460 32.4 54.0 -21.6 232 7235.460 43.1 ٧ 74.0 -30.9 PΚ 232 9648.130 42.6 ٧ 54.0 -11.4 AVG 148 9648.130 48.2 ٧ 74.0 -25.8 ΡK 148 12060.670 33.2 ٧ 54.0 -20.8 AVG 340 12060.670

1.0 1.0 1.1 1.1 1.0 45.4 ٧ 74.0 -28.6 ΡK 340 1.0 14472.110 36.2 ٧ 54.0 -17.8 AVG 149 1.0 14472.110 ٧ -26.6 PΚ 149 47.4 74.0 1.0 4824.100 40.2 Η -13.8 AVG 224 1.0 54.0 4824.100 45.0 Н 74.0 -29.0 ΡK 224 1.0 AVG 2.0 7236.730 30.7 Н 54.0 -23.3 288 7236.730 42.0 Н 74.0 -32.0 ΡK 288 2.0 9648.210 291 33.6 Η 54.0 -20.4 AVG 1.0 9648.210 43.8 Н 74.0 -30.2 PΚ 291 1.0 AVG 210 12059.530 33.4 Η 54.0 -20.6 1.0 12059.530 45.0 Н 74.0 -29.0 ΡK 210 1.0 14471.900 36.3 Н 54.0 -17.7 AVG 0 1.6 14471.900 Η -26.0 PK 0 48.0 74.0 1.6

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

Note 2: Band-edge measurement calculated from the fundamental field strength (peak or average) minus the band edge delta marker measurement.

EMC Test Data

Job Number: J68059

Account Manager: Richard Gencev

Class: N/A

T-Log Number: T68062

Comments

Height

meters

1.2

1.2

EMC Test Data

Ľ			
Client:	Ruckus Wireless	Job Number:	J68059
Model	2231, 2232, 2241, 2242, 2252, 2252, 2922, 2932, 2942, 2952,	T-Log Number:	T68062
woder:	2962	Account Manager:	Richard Gencev
Contact:	Craig Owens		
Standard:	15.247, RSS-210	Class:	N/A

Run #1b: Radiated Spurious Emissions, 30 - 18000 MHz. Center Channel @ 2437 MHz Setting = 23, Tx100, External Omni, 9dBi antenna

					Н	V]		
Fundam	ental emis	sion leve	el @ 3m in 1 @ او	MHz RBW:	100.1	116.5	Peak Measurement (RB=VB=1MHz)		
Fundam	ental emis	sion leve	el @ 3m in 1 @ او	MHz RBW:	94.3	113.4	Average M	leasurement (RB=1MHz, VB=10Hz)	
							-		
Frequency	Level	Pol	15.209	/ 15.247	Detector	Azimuth	Height	Comments	
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters		
4874.030	50.7	V	54.0	-3.3	AVG	146	2.0		
4874.030	52.3	V	74.0	-21.7	PK	146	2.0		
7311.800	42.6	V	54.0	-11.4	AVG	263	1.8		
7311.800	49.0	V	74.0	-25.0	PK	263	1.8		
9748.110	42.2	V	54.0	-11.8	AVG	201	1.0		
9748.110	47.0	V	74.0	-27.0	PK	201	1.0		
12184.080	33.0	V	54.0	-21.0	AVG	14	1.8		
12184.080	45.2	V	74.0	-28.8	PK	14	1.8		
14623.500	36.5	V	54.0	-17.5	AVG	192	1.9		
14623.500	49.2	V	74.0	-24.8	PK	192	1.9		
4874.090	44.7	Н	54.0	-9.3	AVG	220	1.6		
4874.090	47.9	Н	74.0	-26.1	PK	220	1.6		
7309.960	33.3	Н	54.0	-20.7	AVG	0	2.0		
7309.960	44.4	Н	74.0	-29.6	PK	0	2.0		
9748.120	36.8	Н	54.0	-17.2	AVG	212	2.0	1	
9748.120	44.2	Н	74.0	-29.8	PK	212	2.0		
12184.620	32.9	Н	54.0	-21.1	AVG	317	2.0	1	
12184.620	44.1	Н	74.0	-29.9	PK	317	2.0	1	
14621.900	36.4	Н	54.0	-17.6	AVG	162	1.3	1	
14621.900	48.5	Н	74.0	-25.5	PK	162	1.3	1	
	•		•					4	
N 1. 4	For emiss	ions in re	estricted bar	nds, the limi	t of 15.209 w	as used. Fo	or all other e	emissions, the limit was set to -	
Note 1:	27dBm/M	Hz (~680	dBuV/m).						
	<u></u>		<u> </u>						
Dun #1c∘ F	2 hatsihe	Sourious	Emission	= 30 <u>-</u> 1800(0 MHz Hiał	n Channel <i>«</i>	∂ 2462 MH7	,	
Sottina – 2'	2 Ty100 1	Evtornal	∩mni 0dP	li antenna	0 Will 12. Thigh		2402 WI 12		
Setting - 2.	3, 1 1 1 0 0, 1								
					Η	V	1		
Fundam	ental emis	sion leve	-l @ 3m in 1	MHz RBW [.]	98.2	117 1	Peak Meas	surement (RR-VR-1MHz)	
Fundam	ental emis	sion leve		MHz RBW	91 /	117.1		leasurement (RB-1MHz VR-10Hz)	
i unuum		310111070			71.4	113.7			




EMC Test Data

Client:	Ruckus Wireless	Job Number:	J68059
Model	2231, 2232, 2241, 2242, 2252, 2252, 2922, 2932, 2942, 2952,	T-Log Number:	T68062
wouer.	2962	Account Manager:	Richard Gencev
Contact:	Craig Owens		
Standard:	15.247, RSS-210	Class:	N/A

Band Edge Signal Radiated Field Strength

Danu Luge	Jighai Ka		ciu Sa crigai					
Frequency	Level	Pol	15.209	9/15E	Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
2483.930	48.0	V	54.0	-6.0	AVG	46	1.1	
2483.930	58.9	V	74.0	-15.1	PK	46	1.1	
2486.180	44.4	Н	54.0	-9.6	AVG	142	1.0	
2486.180	56.2	Н	74.0	-17.8	PK	142	1.0	

Other Spurious Radiated Emissions:

Setting = 22.5

	10							
Frequency	Level	Pol	15.209	/ 15.247	Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
4924.090	53.0	V	54.0	-1.0	AVG	47	1.9	
4924.090	54.4	V	74.0	-19.6	PK	47	1.9	
7235.170	30.1	V	54.0	-23.9	AVG	12	1.0	
7235.170	42.3	V	74.0	-31.7	PK	12	1.0	
9647.000	31.6	V	54.0	-22.4	AVG	360	1.0	
9647.000	42.7	V	74.0	-31.3	PK	360	1.0	
12061.360	33.6	V	54.0	-20.4	AVG	124	1.1	
12061.360	44.9	V	74.0	-29.1	PK	124	1.1	
14470.590	36.3	V	54.0	-17.7	AVG	152	1.0	
14470.590	47.9	V	74.0	-26.1	PK	152	1.0	
4924.050	44.5	Н	54.0	-9.5	AVG	22	1.5	
4924.050	47.6	Н	74.0	-26.4	PK	22	1.5	
7234.520	30.3	Н	54.0	-23.7	AVG	360	1.0	
7234.520	41.7	Н	74.0	-32.3	PK	360	1.0	
9647.130	31.8	Н	54.0	-22.2	AVG	109	1.0	
9647.130	42.6	Н	74.0	-31.4	PK	109	1.0	
12060.300	33.6	Н	54.0	-20.4	AVG	215	1.0	
12060.300	45.6	Н	74.0	-28.4	PK	215	1.0	
14471.750	36.2	Н	54.0	-17.8	AVG	0	1.0	
14471.750	47.2	Н	74.0	-26.8	PK	0	1.0	
Noto 1	For emiss	ions in re	estricted bar	nds, the limi	t of 15.209 w	las used. Fo	r all other e	missions, the limit was set to -
Note 1:	27dBm/M	Hz (~68ď	JBuV/m).					

Note 2: Band-edge measurement calculated from the fundamental field strength (peak or average) minus the band edge delta marker measurement.

E	liott			EM	C Test Dat
Client: Ruckus Wi	reless		Jo	b Number:	J68059
Model: 2231, 2232	, 2241, 2242, 2252, 2252, 292	2, 2932, 2942, 2952,	T-Lo	g Number:	T68062
2962			Account	t Manager:	Richard Gencev
Contact: Craig Ower	าร				
Standard: 15.247, RS	S-210			Class:	N/A
	Radi	iated Emissio	ons		
Test Specific Deta	ils			1	
Objective: t	he objective of this test session he specification listed above.	n is to perform engineer	ing evaluation	testing of t	ne EUT with respect to
Date of Test: 6	/4/2007 23:34	Config. Used	: 1		
Test Engineer: F	Rafael Varelas	Config Change	None		
Test Location: S	SVUATS #2	EUT Voltage	:: 120V/60Hz		
General Test Conf	iguration				
The EUT and all local s	upport equipment were located	I on the turntable for rad	iated spurious	emissions	testing.
			, , , , , , , , , , , , , , , , , , , ,	-	5
For radiated emissions	testing the measurement anter	nna was located 3 meter	's from the EU	Ι.	
Ambient Conditio	ns: Temperature:	18 °C			
	Rel. Humidity:	78 %			
Summary of Resu	lts				
Run #	Test Performed	Limit	Pass / Fail	Result	/ Margin
1a - c	RE, 30 - 18000 MHz -	FCC Part 15.209 /	Dass	53.863.4 @	2360 MHz (
14 - 0	Spurious Emissions	15.247(c)	1 033	0.2	2dB)
Modifications Mac	le During Testing: made to the EUT during testing	I			
Deviations From T	he Standard				
No deviations were ma	de from the requirements of the	e standard.			







EMC Test Data

Client:	Ruckus Wireless	Job Number:	J68059
Model	2231, 2232, 2241, 2242, 2252, 2252, 2922, 2932, 2942, 2952,	T-Log Number:	T68062
wouer.	2962	Account Manager:	Richard Gencev
Contact:	Craig Owens		
Standard:	15.247, RSS-210	Class:	N/A

Other Spurious Radiated Emissions: 15.209 / 15E Frequency Level Pol Detector Azimuth Height Comments dBµV/m Pk/QP/Avg MHz v/h Limit Margin degrees meters 4824.570 47.0 ٧ 54.0 -7.0 AVG 181 1.4 59.9 ٧ -14.1 ΡK 4824.570 74.0 181 1.4 ٧ AVG 7235.440 48.5 54.0 -5.5 167 1.0 7235.440 62.1 ٧ 74.0 -11.9 PΚ 167 1.0 9647.870 43.3 ٧ 54.0 -10.7 AVG 139 1.8 ΡK 9647.870 55.9 ٧ 74.0 -18.1 139 1.8 ٧ 12058.680 35.8 54.0 -18.2 AVG 184 1.0 12058.680 48.1 ٧ 74.0 -25.9 ΡK 184 1.0 ٧ AVG 157 14472.750 36.6 54.0 -17.4 1.6 14472.750 ٧ 74.0 -25.3 ΡK 157 1.6 48.7 4824.370 42.8 Н 54.0 -11.2 AVG 203 1.0 4824.370 Н -19.2 PK 54.8 74.0 203 1.0 7235.560 44.1 Н 54.0 -9.9 AVG 226 1.0 7235.560 57.9 ΡK 226 Н 74.0 -16.1 1.0 9647.670 38.8 Н 54.0 -15.2 AVG 220 1.9 9647.670 ΡK 220 1.9 52.2 Н 74.0 -21.8 12060.710 33.9 Н 54.0 -20.1 AVG 193 1.7 12060.710 45.5 Н 74.0 -28.5 ΡK 193 1.7 14473.040 Η 54.0 -17.6 AVG 344 1.0 36.4 14473.040 47.8 Η 74.0 ΡK 344 1.0 -26.2 For emissions in restricted bands, the limit of 15.209 was used. For all other emissions, the limit was set to -Note 1: 27dBm/MHz (~68dBuV/m). Band-edge measurement calculated from the fundamental field strength (peak or average) minus the band edge Note 2: delta marker measurement.

EMC Test Data

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Client:	Ruckus Wireless	Job Number:	J68059
Madal	2231, 2232, 2241, 2242, 2252, 2252, 2922, 2932, 2942, 2952,	T-Log Number:	T68062
MOUCI.	2962	Account Manager:	Richard Gencev
Contact:	Craig Owens		
Standard:	15.247, RSS-210	Class:	N/A

Run #1b: Radiated Spurious Emissions, 30 - 18000 MHz. Center Channel @ 2437 MHz Setting = 23, Tx100, External Omni, 9dBi antenna

							1	
E					H	V 100		
Fundam	ental emis	sion leve	el @ 3m in 1	MHZ RBW:	106	120	Peak Meas	surement (RB=VB=1MHz)
Fundam	ental emis	sion leve	el @ 3m in 1	MHZ RBW:	96.5	110.1	Average M	easurement (RB=1MHz, VB=10Hz)
-			45.000	45.047				
Frequency	Level	Pol	15.2097	15.247	Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
4874.100	39.3	V	54.0	-14.7	AVG	274	1.1	
4874.100	53.2	V	74.0	-20.8	PK	274	1.1	
7309.520	39.6	V	54.0	-14.4	AVG	124	1.0	
7309.520	56.2	V	74.0	-17.8	PK	124	1.0	
9746.940	40.5	V	54.0	-13.5	AVG	143	1.0	
9746.940	54.1	V	74.0	-19.9	PK	143	1.0	
12185.710	33.2	V	54.0	-20.8	AVG	201	2.0	
12185.710	45.4	V	74.0	-28.6	PK	201	2.0	
14621.250	36.5	٧	54.0	-17.5	AVG	68	1.6	
14621.250	48.1	V	74.0	-25.9	PK	68	1.6	
4875.200	37.4	Н	54.0	-16.6	AVG	122	1.0	
4875.200	50.3	Н	74.0	-23.7	PK	122	1.0	
7311.420	38.3	Н	54.0	-15.7	AVG	218	1.0	
7311.420	55.7	Н	74.0	-18.3	PK	218	1.0	
9746.830	31.8	Н	54.0	-22.2	AVG	143	1.9	
9746.830	42.5	Н	74.0	-31.5	PK	143	1.9	
12185.470	32.6	Н	54.0	-21.4	AVG	101	1.0	
12185.470	44.1	Н	74.0	-29.9	PK	101	1.0	
14623.460	36.4	Н	54.0	-17.6	AVG	159	1.0	
14623.460	48.1	Н	74.0	-25.9	PK	159	1.0	
	For emiss	ions in re	estricted bar	ds, the limit	t of 15.209 w	as used. Fo	r all other e	missions, the limit was set to -
Note 1:	27dBm/M	Hz (~68c	lBuV/m).					
		、	,					

EMC Test Data

Ľ			
Client:	Ruckus Wireless	Job Number:	J68059
Madal	2231, 2232, 2241, 2242, 2252, 2252, 2922, 2932, 2942, 2952,	T-Log Number:	T68062
MUUEI.	2962	Account Manager:	Richard Gencev
Contact:	Craig Owens		
Standard:	15.247, RSS-210	Class:	N/A

Run #1c: Radiated Spurious Emissions, 30 - 18000 MHz. High Channel @ 2462 MHz Setting = 23, Tx100, External Omni, 9dBi antenna

	Н	V]
Fundamental emission level @ 3m in 1MHz RBW:	103.9	117.2	Peak Measurement (RB=VB=1MHz)
Fundamental emission level @ 3m in 1MHz RBW:	94	108.3	Average Measurement (RB=1MHz, VB=10Hz)







EMC Test Data

Client:	Ruckus Wireless	Job Number:	J68059
Model	2231, 2232, 2241, 2242, 2252, 2252, 2922, 2932, 2942, 2952,	T-Log Number:	T68062
wouer.	2962	Account Manager:	Richard Gencev
Contact:	Craig Owens		
Standard:	15.247, RSS-210	Class:	N/A

Other Spuri	ous Radiat	ed Emis	sions:					
Frequency	Level	Pol	15.209 /	15.247	Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
4923.440	47.9	V	54.0	-6.1	AVG	203	1.6	
4923.440	60.5	V	74.0	-13.5	PK	203	1.6	<u> </u>
7386.150	43.3	V	54.0	-10.7	AVG	246	1.9	<u> </u>
7386.150	60.8	V	74.0	-13.2	PK	246	1.9	
9847.830	40.9	V	54.0	-13.1	AVG	139	1.4	
9847.830	53.7	V	74.0	-20.3	PK	139	1.4	
12311.430	32.7	V	54.0	-21.3	AVG	182	2.0	
12311.430	44.5	V	74.0	-29.5	PK	182	2.0	
14771.910	34.2	V	54.0	-19.8	AVG	360	1.0	
14771.910	45.9	V	74.0	-28.1	PK	360	1.0	
4924.400	39.6	Н	54.0	-14.4	AVG	204	1.7	
4924.400	50.9	Н	74.0	-23.1	PK	204	1.7	
7385.210	43.0	Н	54.0	-11.0	AVG	129	1.1	
7385.210	59.7	Н	74.0	-14.3	PK	129	1.1	
9848.360	35.9	Н	54.0	-18.1	AVG	300	1.9	
9848.360	48.6	Н	74.0	-25.4	PK	300	1.9	
12309.540	32.1	Н	54.0	-21.9	AVG	0	1.2	
12309.540	43.7	Н	74.0	-30.3	PK	0	1.2	
14773.380	34.3	Н	54.0	-19.7	AVG	204	1.2	
14773.380	45.5	Н	74.0	-28.5	PK	204	1.2	<u> </u>
					<u> </u>			
Noto 1	For emiss	ions in re	estricted ban	ids, the lim	it of 15.209 w	as used. Fo	or all other e	emissions, the limit was set to -
Note 1.	27dBm/M	H <u>z (~68c</u>	JBuV/m).					
Noto 2	Band-edge	e measu	rement calci	ulated from	the fundame	ental field stre	ength (peak	or average) minus the band edge
Note 2.	delta mark	ker meas	surement.					

	Elli	ott			EM	C Test	' Dat
Client:	Ruckus Wireles	ss		Jc	b Number:	J68059	
Model	2231, 2232, 22	241, 2242, 2252, 2252, 292	2, 2932, 2942, 2952,	T-Lo	g Number:	T68062	
wouer.	2962			Accoun	t Manager:	Richard Geno	cev
Contact:	Craig Owens						
Standard:	15.247, RSS-2	10			Class:	N/A	
		Radi	iated Emissio	ns			
Fest Spe	cific Details Objective: The the s	objective of this test session specification listed above.	n is to perform engineeri	ng evaluation	testing of t	he EUT with r	espect to
Da	te of Test: 5/24	/2007 23:34	Config. Used	: 1			
Test	Engineer: Rafa	el Varelas	Config Change	: None			
Test	Location: SVO	ATS #2	EUT Voltage	: 120V/60Hz			
General ⁻ The EUT ar	Test Configuent all local supp	Iration Fort equipment were located	I on the turntable for rad	iated spurious	emissions	testing.	
		ing the measurement anter			1.		
Ambient	Conditions:	Temperature:	13 °C				
		Rel. Humidity:	83 %				
Summary	y of Results	Rel. Humidity:	83 %				
Summary	y of Results	Rel. Humidity: Test Performed	83 %	Pass / Fail	Result	/ Margin	
Summary Rur 1a	y of Results	Rel. Humidity: Test Performed RE, 30 - 18000 MHz - Spurious Emissions	83 % Limit FCC Part 15.209 / 15.247(c)	Pass / Fail Pass	Result 52.7dB 2389.5M	/ Margin uµV/m @ Hz (-1.3dB)	
Summary Rur 1a - Modifica t	y of Results	Rel. Humidity: <u>Test Performed</u> RE, 30 - 18000 MHz - <u>Spurious Emissions</u> During Testing: le to the EUT during testing	Limit FCC Part 15.209 / 15.247(c)	Pass / Fail Pass	Result 52.7dB 2389.5MI	/ Margin µV/m @ Hz (-1.3dB)	
Summary Rur 1a - Modificat No modifica Deviation	y of Results	Test Performed RE, 30 - 18000 MHz - Spurious Emissions Ouring Testing: le to the EUT during testing Standard rom the requirements of the	Eimit FCC Part 15.209 / 15.247(c)	Pass / Fail Pass	Result 52.7dB 2389.5MI	/ Margin µV/m @ Hz (-1.3dB)	
Summary Rur 1a Modificat No modificat No modificat	y of Results	Test Performed RE, 30 - 18000 MHz - Spurious Emissions During Testing: le to the EUT during testing Standard rom the requirements of the	Eimit FCC Part 15.209 / 15.247(c)	Pass / Fail Pass	Result 52.7dB 2389.5MI	/ Margin u V/m @ Hz (-1.3dB)	
Summary Rur 1a - Modificat No modifica No modifica No deviation	y of Results n # - c tions Made E ations were made ns From The ns were made find	Test Performed RE, 30 - 18000 MHz - Spurious Emissions During Testing: le to the EUT during testing Standard rom the requirements of the	Limit FCC Part 15.209 / 15.247(c)	Pass / Fail Pass	Result 52.7dB 2389.5MI	/ Margin µV/m @ Hz (-1.3dB)	
Summary Rur 1a - Modificat No modificat No modificat	y of Results	Test Performed RE, 30 - 18000 MHz - Spurious Emissions During Testing: le to the EUT during testing Standard rom the requirements of the	Limit FCC Part 15.209 / 15.247(c)	Pass / Fail Pass	Result 52.7dB 2389.5M	/ Margin u V/m @ Hz (-1.3dB)	
Summary Rur 1a Modificat No modifica No modifica	y of Results n # - c tions Made I ations were made ns From The ns were made find	Rel. Humidity: <u>Test Performed</u> RE, 30 - 18000 MHz - <u>Spurious Emissions</u> During Testing: le to the EUT during testing Standard rom the requirements of the	Limit FCC Part 15.209 / 15.247(c)	Pass / Fail Pass	Result 52.7dB 2389.5MI	/ Margin u V/m @ Hz (-1.3dB)	
Summary Rur 1a - Modificat No modificat No modificat	y of Results	Test Performed RE, 30 - 18000 MHz - Spurious Emissions Ouring Testing: le to the EUT during testing Standard rom the requirements of the	Limit FCC Part 15.209 / 15.247(c)	Pass / Fail Pass	Result 52.7dB 2389.5MI	/ Margin µV/m @ Hz (-1.3dB)	
Summary Rur 1a - Modificat No modificat No modificat	y of Results	Rel. Humidity: <u>Test Performed</u> RE, 30 - 18000 MHz - <u>Spurious Emissions</u> During Testing: le to the EUT during testing Standard rom the requirements of the	Limit FCC Part 15.209 / 15.247(c)	Pass / Fail Pass	Result 52.7dB 2389.5MI	/ Margin u V/m @ Hz (-1.3dB)	
Summary Rur 1a - Modificat No modifica No modifica	y of Results	Rel. Humidity: <u>Test Performed</u> RE, 30 - 18000 MHz - <u>Spurious Emissions</u> During Testing: le to the EUT during testing Standard rom the requirements of the	Limit FCC Part 15.209 / 15.247(c)	Pass / Fail Pass	Result 52.7dB 2389.5MI	/ Margin u V/m @ Hz (-1.3dB)	
Summary Rur 1a - Aodificat Io modificat Io modificat	y of Results	Rel. Humidity: Test Performed RE, 30 - 18000 MHz - Spurious Emissions During Testing: le to the EUT during testing Standard rom the requirements of the	Limit FCC Part 15.209 / 15.247(c)	Pass / Fail Pass	Result 52.7dB 2389.5M	/ Margin u V/m @ Hz (-1.3dB)	







Client	Puckus M	/iroloss						Ioh Numbor	168050
CIIEIII.	1.uckus W	0 0044	2242 2252	0050 000	2 2022 204	2 2052	- т і		T40040
Model:	2231, 223	52, 2241,	2242, 2252	2, 2252, 292	2, 2932, 294	2, 2952,	I-L		
	2962						Accou	int Manager:	Richard Genc
Contact:	Craig Owe	ens							
Standard:	15.247, R	SS-210						Class:	N/A
Other Spuri	ous Radial	ted Emiss	sions:	0/155	Datastar	A , inc. , th	Lloight	Commonto	
Frequency		P01	15.20	9/ IDE Morain		Azimuth	Height	comments	
IVITIZ	υ <u>β</u> μν/m		54.0		AVC	uegrees	1 2		
4022.030	37.1 10.6	П	74.0	-10.9	DK	100	1.2		
7234 670	47.0 31.2	Н	54.0	-24.4	AVG	24	1.2		
7234.670	42.5	H	74.0	-22.0	PK	24	1.0		
9647 050	35.1	Н	54.0	-18.9	AVG	175	1.0		
9647.050	48.2	Н	74.0	-25.8	PK	175	1.6		
12058.920	34.2	H	54.0	-19.8	AVG	205	1.8		
12058.920	45.6	Н	74.0	-28.4	PK	205	1.8		
14470.790	36.0	Н	54.0	-18.0	AVG	53	1.2		
14470.790	49.1	Н	74.0	-24.9	PK	53	1.2		
4823.370	45.6	V	54.0	-8.4	AVG	13	1.2		
4823.370	58.8	V	74.0	-15.2	PK	13	1.2		
7235.100	34.0	V	54.0	-20.0	AVG	288	2.0		
7235.100	45.8	V	74.0	-28.2	PK	288	2.0		
9646.910	41.5	V	54.0	-12.5	AVG	6	1.5		
9646.910	53.9	V	74.0	-20.1	PK	6	1.5		
12059.000	39.6	V	54.0	-14.4	AVG	0	2.0		
12059.000	51.0	V	74.0	-23.0	PK	0	2.0		
14472.580	38.0	V	54.0	-16.0	AVG	294	1.4		
14472.580	50.3	V	74.0	-23.7	PK	294	1.4		

Band-edge measurement calculated from the fundamental field strength (peak or average) minus the band edge

Note 1:

Note 2:

27dBm/MHz (~68dBuV/m).

delta marker measurement.

EMC Test Data

EMC Test Data

Client:	Ruckus Wireless	Job Number:	J68059
Model	2231, 2232, 2241, 2242, 2252, 2252, 2922, 2932, 2942, 2952,	T-Log Number:	T68062
MOUEI.	2962	Account Manager:	Richard Gencev
Contact:	Craig Owens		
Standard:	15.247, RSS-210	Class:	N/A

Run #1b: Radiated Spurious Emissions, 30 - 18000 MHz. Center Channel @ 2437 MHz Setting = 23, Tx100, EUT Horizontal Polarization, 6.5dBi antenna

							1	
	<u> </u>	<u> </u>			Н	V	l	
Fundam	ental emis	sion leve	el @ 3m in 1	MHz RBW:	119	107.9	Peak Meas	surement (RB=VB=1MHz)
Fundam	ental emis	sion leve	el @ 3m in 1	MHz RBW:	110.5	98.7	Average M	leasurement (RB=1MHz, VB=10Hz)
Frequency	Level	Pol	15.209/	15.247	Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
4874.290	40.2	Н	54.0	-13.8	AVG	114	2.0	
4874.290	52.8	Н	74.0	-21.2	PK	114	2.0	
7311.090	35.3	Н	54.0	-18.7	AVG	25	1.6	
7311.090	48.9	Н	74.0	-25.1	PK	25	1.6	
9747.790	45.1	Н	54.0	-8.9	AVG	173	1.4	
9747.790	58.4	Н	74.0	-15.6	PK	173	1.4	
12184.330	34.4	Н	54.0	-19.6	AVG	193	1.0	
12184.330	45.4	Н	74.0	-28.6	PK	193	1.0	
14621.910	36.5	Н	54.0	-17.5	AVG	255	1.3	
14621.910	48.0	Н	74.0	-26.0	PK	255	1.3	
4873.600	47.5	V	54.0	-6.5	AVG	18	1.2	
4873.600	59.6	V	74.0	-14.4	PK	18	1.2	
7311.810	38.7	V	54.0	-15.3	AVG	288	1.9	
7311.810	51.2	V	74.0	-22.8	PK	288	1.9	
9747.100	43.0	V	54.0	-11.0	AVG	81	1.8	
9747.100	55.4	V	74.0	-18.6	PK	81	1.8	
12185.780	34.9	V	54.0	-19.1	AVG	73	1.0	
12185.780	46.2	V	74.0	-27.8	PK	73	1.0	
14621.140	36.2	V	54.0	-17.8	AVG	359	2.0	
14621.140	47.1	V	74.0	-26.9	PK	359	2.0	
	For emiss	ions in re	estricted bar	nds, the limit	t of 15.209 w	ias used. Fo	or all other e	missions, the limit was set to -
Note 1:	27dBm/M	Hz (~68d	lBuV/m).					
		•	, , , , , , , , , , , , , , , , , , ,					

EMC Test Data

Ľ			
Client:	Ruckus Wireless	Job Number:	J68059
Model	2231, 2232, 2241, 2242, 2252, 2252, 2922, 2932, 2942, 2952,	T-Log Number:	T68062
MOUEI.	2962	Account Manager:	Richard Gencev
Contact:	Craig Owens		
Standard:	15.247, RSS-210	Class:	N/A

Run #1c: Radiated Spurious Emissions, 30 - 18000 MHz. High Channel @ 2462 MHz Setting = 23, Tx100, EUT Horizontal Polarization, 6.5dBi antenna

	Н	V]
Fundamental emission level @ 3m in 1MHz RBW:	119	105.5	Peak Measurement (RB=VB=1MHz)
Fundamental emission level @ 3m in 1MHz RBW:	110.4	96.8	Average Measurement (RB=1MHz, VB=10Hz)





C	EI	lic	ott					EM	IC Test Data
Client:	Ruckus W	/ireless					J	ob Number:	J68059
	2231, 223	2, 2241,	2242, 2252	, 2252, 292	2, 2932, 294	2, 2952,	T-L	og Number:	T68062
Model:	2962	, ,		, . , .	, ,	,,	Accou	nt Manager:	Richard Gencev
Contact: Craig Owens									
Standard:	15.247, R	SS-210						Class:	N/A
							I		
🔁 85хх ге	mote control								×
Loca (manu	al Ena Jal)	ible Max Ho		g scale - scaling a 87.0 -	assumes units are	dB units with corre	ection factor app	lied (30.0 @ 2491	8 MHz)
Control RB 1MHz 85.0-									
Tune to	Peak		4Hz	80.0-					
BB Sig	Inal Cei	nter F 🚽 24	91.750	75.0-					
NB Sig	nal Freq.	Span 🚽 16	.500	70.0-					
			.0						
CF Step	125.00	ATT AUTO?	- III	65.0-	بالد وتناز الما	.1			
	 Jpdate With Ne	w Settings		60.0-000	North Andlas	AND AND AND	مار الداليون	أليميه باركاليان	libra at cathola ion.
Current	Settings (All	freqs in M	Hz)	55.0-	AL NIN AN MANYAR	an Marthall			
RBW 1.	000000 VB\	W 1.000000	1	50.0-					
Center 24	91.750 Spa	an 16.5000		45.0-					
Start 24	83.500 Sto	op 2500.00	2	45.0-					
l Refere	ence Level 57.	.0		40.0-					
	Detector Pos	sitive Peak		2483.5	2486.0	2488.0 2490	0.0 2492.0 Time	2494.0	2496.0 2498.0 2500.0
SI	weep Time 50.	.00 ms				RETURN T	O MAIN PROGRA	AM	
Note - fina will need t	al measureme to utilize "USE	nts made u E CURRENT	using a 3MHz sp " as the detect	an - if you war or, Remembe	nt to avoid mea r to set RB and	suring a signal w VB for the meas	ithin 1.5MHz o surment.	f the highest si	gnal in the screen above you
Band Edge	Signal Rad	diated Fie	eld Strenath						
Frequency	Level	Pol	15.209	9/15E	Detector	Azimuth	Height	Comments	
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters		
2485.870	48.9	Н	54.0	-5.1	AVG	330	2.0		
2485.870	64.8	H	74.0	-9.2	PK	330	2.0		
2483.990	46.3 61 /	V	54.0 74.0	-1.1	AVG PK	186	1.1		
2403.770	01.4	v	74.0	-12.0	ΓN	100	1.1	L	

Client:	Ruckus W	'ireless						lob Number:	J68059
	2231, 2232, 2241, 2242, 2252, 2252, 2922, 2932, 2942, 2952,							og Number:	T68062
Model:	2962						Accou	nt Manager:	Richard Gence
Contact:	Craig Owe	ens							
Standard:	15.247, R	SS-210						Class:	N/A
otanuaru									
Other Spuri	ous Radiat	ed Emis	sions:						
Frequency	Level	Pol	15.209	/ 15.247	Detector	Azimuth	Height	Comments	
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters		
4925.100	41.7	Н	54.0	-12.3	AVG	120	2.0		
4925.100	54.4	Н	74.0	-19.6	PK	120	2.0		
7386.650	37.7	Н	54.0	-16.3	AVG	10	1.5		
7386.650	53.4	Н	74.0	-20.6	PK	10	1.5		
9846.920	51.1	Н	54.0	-2.9	AVG	213	1.4		
9846.920	63.7	Н	74.0	-10.3	PK	213	1.4		
12308.830	39.6	Н	54.0	-14.4	AVG	336	1.3		
12308.830	51.9	Н	74.0	-22.1	PK	336	1.3		
14771.640	34.3	Н	54.0	-19.7	AVG	165	1.8		
14771.640	46.0	Н	74.0	-28.0	PK	165	1.8		
4923.310	45.4	V	54.0	-8.6	AVG	8	1.1		
4923.310	56.9	V	74.0	-17.1	PK	8	1.1		
7385.850	37.7	V	54.0	-16.3	AVG	17	1.9		
7385.850	51.7	V	74.0	-22.3	PK	17	1.9		
9846.590	47.5	V	54.0	-6.5	AVG	230	1.4		
9846.590	61.7	V	74.0	-12.3	PK	230	1.4		
12308.680	43.0	V	54.0	-11.0	AVG	56	2.0		
12308.680	55.7	V	74.0	-18.3	PK	56	2.0		
14771.470	34.2	V	54.0	-19.8	AVG	131	1.2		
14771.470	46.4	V	74.0	-27.6	PK	131	1.2		

EMC Test Data

delta marker measurement.

C	Elli	ott			EM	C Tes	t Data
Client:	Ruckus Wireless	<u> </u>		J	ob Number:	J68059	
Model	2231, 2232, 224	1, 2242, 2252, 2252, 292	2, 2932, 2942, 2952,	T-Lo	og Number:	T68062	
wouch.	2962			Accour	nt Manager:	Richard Ger	icev
Contact:	Craig Owens	0			Class	N1/A	
Standard:	15.247, RSS-21	J			Class:	N/A	
		Radi	iated Emissio	ns			
Test Spe	cific Details Objective: The ol the sp	bjective of this test session ecification listed above.	n is to perform engineeri	ng evaluatior	n testing of t	he EUT with	respect to
Da	te of Test: 5/24/2	007 23:34	: 1				
Test	Engineer: Rafae	l Varelas	Config Change	: None			
lesi	Location: SVOA	TS #2	EUT Voltage	: 120V/60Hz			
General ⁻ The EUT ar	Test Configur nd all local suppo	ation rt equipment were located	I on the turntable for radi	iated spurious	s emissions	testing.	
For radiated	d emissions testir	ig the measurement anter	nna was located 3 meters	s from the EL	JT.		
Ambient	Conditions:	Temperature: Rel. Humidity:	13 °C 83 %				
Summary	y of Results						
Rur	ו #	Test Performed	Limit	Pass / Fail	Result	/ Margin	I
1a -	- C	E, 30 - 18000 MHz - Spurious Emissions	FCC Part 15.209 / 15.247(c)	Pass	53.0dB 2483.5MI	μ V/m @ Hz (-1.0dB)	I
Modifica t No modifica	tions Made Du ations were made	uring Testing: to the EUT during testing	I				
Deviatior	ns From The S	Standard	- devidend				
No deviatio	ns were made fro	om the requirements of the	e standard.				







Elliott Client: Ruckus Wireless 2231, 2232, 2241, 2242, 2252, 2252, 2922, 2932, 2942, 2952, Model: 2962 Contact: Craig Owens Standard: 15.247, RSS-210 Other Spurious Radiated Emissions: Frequency Level Pol 15.209 / 15E Detector Azimuth MHz dBµV/m v/h Limit Margin Pk/QP/Avg degrees 4823.190 AVG 37.8 ٧ 54.0 -16.2 88 4823.190 52.7 ٧ 74.0 -21.3 ΡK 88 ٧ AVG 7234.730 31.9 54.0 -22.1 218 ٧ 7234.730 42.8 74.0 -31.2 PΚ 218 9647.140 34.5 ٧ 54.0 -19.5 AVG 155 9647.140 46.3 ٧ 74.0 -27.7 PK 155

12061.170

12061.170

14472.220

14472.220

4824.980

4824.980

7234.930

7234.930

43.0

Н

74.0

-31.0

meters 1.3 1.3 1.0 1.0 1.1 1.1 34.3 ٧ 54.0 -19.7 AVG 318 2.0 45.5 ٧ 74.0 -28.5 ΡK 318 2.0 36.0 ٧ 54.0 -18.0 AVG 17 1.4 ٧ -26.6 PΚ 17 47.4 74.0 1.4 33.2 Η -20.8 AVG 79 1.4 54.0 47.4 Н 74.0 -26.6 PΚ 79 1.4 AVG 274 30.9 Н 54.0 -23.1 1.0

274

EMC Test Data

Job Number: J68059

Account Manager: Richard Gencev

Class: N/A

T-Log Number: T68062

Comments

Height

1.0

9647.470 32.9 Н 54.0 -21.1 AVG 196 1.3 9647.470 44.6 Н 74.0 -29.4 PΚ 196 1.3 -19.9 175 12059.540 34.1 Н 54.0 AVG 1.6 12059.540 45.1 Н 74.0 -28.9 ΡK 175 1.6 14472.880 36.1 Н 54.0 -17.9 AVG 285 1.8 14472.880 Η -26.3 ΡK 285 47.7 74.0 1.8 For emissions in restricted bands, the limit of 15.209 was used. For all other emissions, the limit was set to -Note 1: 27dBm/MHz (~68dBuV/m) Band-edge measurement calculated from the fundamental field strength (peak or average) minus the band edge Note 2: delta marker measurement.

ΡK

EMC Test Data

Client:	Ruckus Wireless	Job Number:	J68059
Model	2231, 2232, 2241, 2242, 2252, 2252, 2922, 2932, 2942, 2952,	T-Log Number:	T68062
wouer.	2962	Account Manager:	Richard Gencev
Contact:	Craig Owens		
Standard:	15.247, RSS-210	Class:	N/A

Run #1b: Radiated Spurious Emissions, 30 - 18000 MHz. Center Channel @ 2437 MHz Setting = 23, Tx100, EUT Vertical Polarization, 8.7dBi antenna

						11	1	
Fundam	ontal amia	cion love	1 @ 2m in 1		H	V 110 /	Dook Moor	(DD) (D) (D) (D) (D) (D) (D) (D) (D) (D)
Fundam	ental emis	sion leve	3 @ 3m in 1		104.3	119.6	Peak Meas	Surement (RB=VB=1MHZ)
Fundam	ental emis	SION IEVE	9 @ 3m in 1	INHZ RBW:	96	111.2	Average IV	ieasurement (RB=1MHZ, VB=10HZ)
Froquopov	Lovol	Dol	15 200	/ 15 2/7	Dotoctor	Azimuth	Hoight	Commonto
		P0I	10.2097	/ 10.247 Morain		Azimum	meigni	Comments
101112 1071 720		V/II V	54.0	1VIALUIT		uegrees	1 2	
4074.720	44.4 57.5	V	74.0	-9.0 16 5		60	1.3	
7200 970	32.0	V	54.0	-10.5		2/0	2.0	
7309.070	10.0	V	74.0	-10.0		2/0	2.0	
07/6 680	36.7	V	54.0	-24.1		1/5	2.0	
97/6 680	19.8	V	74.0	-17.3	PK	145	2.0	
12183 670	36.1	V	54.0	-17.9	AVG	55	17	
12183 670	47.3	V	74.0	-26.7	PK	55	1.7	
14623 010	36.1	v	54.0	-17.9	AVG	68	1.7	
14623 010	48.5	v	74.0	-25.5	PK	68	12	
4875.090	35.5	Ĥ	54.0	-18.5	AVG	3	2.0	
4875.090	48.2	H	74.0	-25.8	PK	3	2.0	
7309.570	37.5	H	54.0	-16.5	AVG	74	1.5	
7309.570	49.4	H	74.0	-24.6	PK	74	1.5	
9747.460	37.6	H	54.0	-16.4	AVG	277	1.5	
9747.460	51.6	Н	74.0	-22.4	PK	277	1.5	
12183.530	32.8	Н	54.0	-21.2	AVG	265	1.0	
12183.530	44.4	Н	74.0	-29.6	PK	265	1.0	
14620.580	36.1	Н	54.0	-17.9	AVG	180	1.0	
14620.580	47.4	Н	74.0	-26.6	PK	180	1.0	
Nul. 4	For emiss	ions in re	estricted bar	nds, the limit	t of 15.209 w	as used. Fo	or all other e	missions, the limit was set to -
Note 1:	27dBm/M	Hz (~68c	lBuV/m).					
		-						

Client Ruckus Wireless

EMC Test Data

Client:	Ruckus Wireless	Job Number:	J68059
Model	2231, 2232, 2241, 2242, 2252, 2252, 2922, 2932, 2942, 2952,	T-Log Number:	T68062
wouer.	2962	Account Manager:	Richard Gencev
Contact:	Craig Owens		
Standard:	15.247, RSS-210	Class:	N/A

Run #1c: Radiated Spurious Emissions, 30 - 18000 MHz. High Channel @ 2462 MHz Setting = 23, Tx100, EUT Vertical Polarization, 8.7dBi antenna

	Н	V]
Fundamental emission level @ 3m in 1MHz RBW:	107.4	121.1	Peak Measurement (RB=VB=1MHz)
Fundamental emission level @ 3m in 1MHz RBW:	98.3	112.9	Average Measurement (RB=1MHz, VB=10Hz)







Client: Ruckus Wireless Model: 2231, 2232, 2241, 2242, 2252, 2922, 2932

EMC Test Data

Client:	Ruckus W	'ireless						Job Number:	J68059
	2231, 223	2, 2241,	2242, 2252	, 2252, 292	2, 2932, 294	2, 2952,	T-l	_og Number:	T68062
Model:	2962						Accou	int Manager:	Richard Gencey
Contact	Craig Owe	nc						in manager	
		CC 010						Class	N1/A
Standard:	15.247, R	55-210						Class:	N/A
Other Spuri	ous Radiat	ed Emis	sions:		<u>г </u>				
Frequency	Level Pol 15.209 / 15.247 Detector Azimuth						Height	Comments	
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters		
4923.000	49.8	V	54.0	-4.2	AVG	69	1.2		
4923.000	62.1	V	74.0	-11.9	PK	69	1.2		
7384.450	40.3	V	54.0	-13.7	AVG	130	1.6		
7384.450	60.6	V	74.0	-13.4	PK	130	1.6		
9846.830	41.6	V	54.0	-12.4	AVG	216	2.0		
9846.830	55.9	V	74.0	-18.1	PK	216	2.0		
12308.840	33.1	V	54.0	-20.9	AVG	0	1.3		
12308.840	45.1	V	74.0	-28.9	PK	0	1.3		
14771.800	34.0	V	54.0	-20.0	AVG	360	1.0		
14771.800	45.5	V	74.0	-28.5	PK	360	1.0		
4924.480	35.7	Н	54.0	-18.3	AVG	352	1.0		
4924.480	47.2	Н	74.0	-26.8	PK	352	1.0		
7386.120	36.5	Н	54.0	-17.5	AVG	190	1.4		
7386.120	53.8	Н	74.0	-20.2	PK	190	1.4		
9846.660	40.1	Н	54.0	-13.9	AVG	273	1.4		
9846.660	54.4	Н	74.0	-19.6	PK	273	1.4		
12311.460	32.6	Н	54.0	-21.4	AVG	0	1.0		
12311.460	44.0	Н	74.0	-30.0	РК	0	1.0		
14773.060	34.2	Н	54.0	-19.8	AVG	185	1.6		
14773.060	45.3	Н	74.0	-28.7	РК	185	1.6		
					11				
	For emiss	ions in re	estricted bar	nds, the limi	t of 15.209 w	as used. Fo	or all other e	emissions, th	e limit was set to -
Note 1:	27dBm/M	Hz (~680	BuV/m).						
	270211								

U	Ellic	ott		EN	IC Test Dat		
Client:	Ruckus Wireless			Job Number	: J68059		
Model	2231, 2232, 2241,	2242, 2252, 2252, 292	2, 2932, 2942, 2952,	T-Log Number	: T68062		
wouer.	2962			Account Manager	: Richard Gencev		
Contact:	Craig Owens						
Standard:	15.247, RSS-210			Class	:: N/A		
		Rad	iated Emissic	ons			
Test Spec	cific Details Objective: The obje	ective of this test session ification listed above.	on is to perform engineer	ing evaluation testing of	the EUT with respect to		
Dat	te of Test: 5/24/200	07 23:34	Config. Used	l: 1			
Test	Engineer: Rafael V	arelas	Config Change	nge: None			
Test	Location: SVOATS	S #2	EUT Voltage	e: 120V/60Hz			
General T The EUT an	Test Configurat	ion equipment were located	d on the turntable for rac	liated spurious emission	s testing.		
For radiated	l emissions testing	the measurement ante	nna was located 3 meter	rs from the EUT.			
Ambient	Conditions:	Temperature: Rel. Humidity:	13 °C 83 %				
Summary	of Results						
Summary Run	y of Results	Test Performed	Limit	Pass / Fail Resu	t / Margin		
Summary Run 1a -	y of Results #	Test Performed 30 - 18000 MHz - urious Emissions	Limit FCC Part 15.209 / 15.247(c)	Pass / Fail Resul Pass 53.448.3 0 0	t / Margin @ 4874 MHz (.6dB)		
Summary Run 1a - Modificat No modifica	r of Results	Test Performed 30 - 18000 MHz - urious Emissions ing Testing: the EUT during testing	Limit FCC Part 15.209 / 15.247(c)	Pass / Fail Resu Pass 53.448.3 0	t / Margin @ 4874 MHz (.6dB)		
Summary Run 1a - Modificat No modifica Deviation	y of Results # RE, c RE, c Sp cions Made Dur tions were made to tions From The State State	Test Performed 30 - 18000 MHz - urious Emissions ing Testing: the EUT during testing andard	Limit FCC Part 15.209 / 15.247(c)	Pass / Fail Resu Pass 53.448.3 0	t / Margin @ 4874 MHz (.6dB)		
Summary Run 1a - Modificat No modifica Deviation No deviatior	y of Results # RE, SP c RE, SP ions Made Dur RE tions were made to RE s From The Stans Stans	Test Performed 30 - 18000 MHz - urious Emissions ing Testing: the EUT during testing andard the requirements of th	Limit FCC Part 15.209 / 15.247(c)	Pass / FailResultPass53.448.30	t / Margin @ 4874 MHz (.6dB)		
Summary Run 1a - Modificat No modifica Deviation No deviatior	y of Results #	Test Performed 30 - 18000 MHz - urious Emissions ing Testing: the EUT during testing andard the requirements of th	Limit FCC Part 15.209 / 15.247(c)	Pass / Fail Resu Pass 53.448.3 0	it / Margin @ 4874 MHz (.6dB)		
Summary Run 1a - Modificat No modifica Deviation No deviatior	y of Results # - c RE, Sp ions Made Dur Sp tions were made to Sp ns From The Stans were made from	Test Performed 30 - 18000 MHz - urious Emissions ing Testing: the EUT during testing andard the requirements of th	Limit FCC Part 15.209 / 15.247(c)	Pass / Fail Resu Pass 53.448.3 0	t / Margin @ 4874 MHz (.6dB)		
Summary Run 1a - Modificat No modifica Deviation No deviatior	y of Results #	Test Performed 30 - 18000 MHz - urious Emissions ing Testing: the EUT during testing andard the requirements of th	Limit FCC Part 15.209 / 15.247(c)	Pass / Fail Resu Pass 53.448.3 0	<u>t / Margin</u> @ 4874 MHz (.6dB)		
Summary Run 1a - Modificat No modifica Deviation No deviatior	y of Results	Test Performed 30 - 18000 MHz - urious Emissions ing Testing: the EUT during testing andard the requirements of th	Limit FCC Part 15.209 / 15.247(c)	Pass / Fail Resu Pass 53.448.3 0	t / Margin @ 4874 MHz (.6dB)		
Summary Run 1a - Modificat No modifica Deviation No deviatior	y of Results	Test Performed 30 - 18000 MHz - urious Emissions ing Testing: the EUT during testing andard the requirements of th	Limit FCC Part 15.209 / 15.247(c)	Pass / Fail Resu Pass 53.448.3 0	t / Margin @ 4874 MHz (.6dB)		
Summary Run 1a - Modificat No modifica Deviation No deviation	y of Results	Test Performed 30 - 18000 MHz - urious Emissions ing Testing: the EUT during testing andard the requirements of th	Limit FCC Part 15.209 / 15.247(c)	Pass / Fail Resul Pass 53.448.3 0	t / Margin @ 4874 MHz (.6dB)		
Summary Run 1a - Modificat No modifica Deviation No deviatior	y of Results	Test Performed 30 - 18000 MHz - urious Emissions ing Testing: the EUT during testing andard the requirements of th	Limit FCC Part 15.209 / 15.247(c)	Pass / Fail Resu Pass 53.448.3 0	t / Margin @ 4874 MHz (.6dB)		






Client: Ruckus Wireless Model: 2231, 2232, 2241, 2242, 2252, 2252, 2922, 2932, 2962

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Client:	Ruckus W	/ireless						Job Number:	J68059
	2231, 223	2, 2241,	2242, 2252	. 2252, 292	2, 2932, 294	2, 2952,	T-L	_og Number:	T68062
Model:	2962	, ,			, , ,	, ,	Accou	int Manager [.]	Richard Gencey
Contact	Croig Ow	one					710000	int manager.	
								0	N1/A
Standard:	15.247, R	\$\$-210						Class:	N/A
Other Spuri	ous Radial	ted Emis	sions:				-	-	
Frequency	Level	Pol	15.20	9/15E	Detector	Azimuth	Height	Comments	
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters		
4824.090	41.1	Н	54.0	-12.9	AVG	248	1.5		
4824.090	46.0	Н	74.0	-28.0	PK	248	1.5		
7234.740	30.9	Н	54.0	-23.1	AVG	80	2.0		
7234.740	42.1	Н	74.0	-31.9	PK	80	2.0		
9648.140	41.4	Н	54.0	-12.6	AVG	158	1.5		
9648.140	47.0	Н	74.0	-27.0	PK	158	1.5		
12060.840	34.1	Н	54.0	-19.9	AVG	4	1.5		
12060.840	46.5	Н	74.0	-27.5	PK	4	1.5		
14472.100	36.0	Н	54.0	-18.0	AVG	135	1.7		
14472.100	47.2	Н	74.0	-26.8	PK	135	1.7		
4824.090	51.1	V	54.0	-2.9	AVG	88	1.3		
4824.090	52.6	V	74.0	-21.4	PK	88	1.3		
7235.290	32.2	V	54.0	-21.8	AVG	200	1.8		
7235.290	43.5	V	74.0	-30.5	PK	200	1.8		
9648.150	45.4	V	54.0	-8.6	AVG	139	1.7		
9648.150	49.4	V	74.0	-24.6	PK	139	1.7		
12061.040	34.2	V	54.0	-19.8	AVG	244	1.6		
12061.040	45.4	V	74.0	-28.6	PK	244	1.6		
14472.080	36.9	V	54.0	-17.1	AVG	0	1.9		
14472.080	48.5	V	74.0	-25.5	PK	0	1.9		
Nata 1.	For emiss	ions in r	estricted bar	nds, the limi	t of 15.209 w	as used. Fo	or all other e	emissions, th	e limit was set to -
Note 1:	27dBm/M	Hz (~680	dBuV/m).						

EMC Test Data

Client:	Ruckus Wireless	Job Number:	J68059
Model	2231, 2232, 2241, 2242, 2252, 2252, 2922, 2932, 2942, 2952,	T-Log Number:	T68062
MOUEI.	2962	Account Manager:	Richard Gencev
Contact:	Craig Owens		
Standard:	15.247, RSS-210	Class:	N/A

Run #1b: Radiated Spurious Emissions, 30 - 18000 MHz. Center Channel @ 2437 MHz Setting = 23, Tx100, EUT Horizontal Polarization, 6.5dBi antenna

							1	
					Н	V		
Fundam	iental emis	sion leve	el @ 3m in 1	MHz RBW:	116.2	104.5	Peak Meas	surement (RB=VB=1MHz)
Fundam	iental emis	sion leve	el @ 3m in 1	MHz RBW:	113.2	101.6	Average M	leasurement (RB=1MHz, VB=10Hz)
							1	1
Frequency	Level	Pol	15.209	/ 15.247	Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
4874.080	52.5	Н	54.0	-1.5	AVG	321	1.0	
4874.080	53.6	Н	74.0	-20.4	PK	321	1.0	
7310.270	36.9	Н	54.0	-17.1	AVG	166	1.6	
7310.270	45.8	Н	74.0	-28.2	PK	166	1.6	
9748.170	48.5	Н	54.0	-5.5	AVG	94	1.4	
9748.170	51.1	Н	74.0	-22.9	PK	94	1.4	
12184.540	34.0	Н	54.0	-20.0	AVG	28	1.4	
12184.540	44.3	Н	74.0	-29.7	PK	28	1.4	
14622.230	38.9	Н	54.0	-15.1	AVG	91	1.2	
14622.230	48.3	Н	74.0	-25.7	PK	91	1.2	
4874.040	53.4	V	54.0	-0.6	AVG	290	1.1	
4874.040	54.5	V	74.0	-19.5	PK	290	1.1	
7310.220	40.0	V	54.0	-14.0	AVG	284	2.0	
7310.220	48.0	V	74.0	-26.0	PK	284	2.0	
9748.180	49.0	V	54.0	-5.0	AVG	322	1.3	
9748.180	51.3	V	74.0	-22.7	PK	322	1.3	
12183.540	37.2	V	54.0	-16.8	AVG	61	1.9	
12183.540	46.1	V	74.0	-27.9	PK	61	1.9	
14622.170	39.8	V	54.0	-14.2	AVG	72	1.8	
14622.170	48.5	V	74.0	-25.5	PK	72	1.8	
	-						-	-
Nata 1	For emiss	ions in re	estricted bar	nds, the limit	t of 15.209 w	vas used. Fo	r all other e	missions, the limit was set to -
Note 1:	27dBm/M	Hz (~68c	lBuV/m).					

80.0-

75.0·

70.0

65.0·

60.0

55.0-

50.0

45.0

40.0-

37.0-

2486.0

Note - final measurements made using a 3MHz span - if you want to avoid measuring a signal within 1.5MHz of the highest signal in the screen above you will need to utilize "USE CURRENT" as the detector. Remember to set RB and VB for the measurment.

2488.0

2490.0

RETURN TO MAIN PROGRAM

2492.0

Time

2494.0

2496.0

2498.0

2500.0

Tune to Peak

BB Signal

NB Signal

CF Step 💮 125.00

Center F 🔵 2491.750

Freq. Span 🕘 16.500

Ref Lvl 💮 57.0

Update With New Settings

Current Settings (All freqs in MHz) RBW 1.000000 VBW 0.000010

Center 2491.750 Span 16.5000

Reference Level 57.0

Start 2483.500 Stop 2500.000

Detector SAMPLE

Sweep Time 6200.00 ms

ATT AUTO?



Client:	Ruckus Wireless			Job Number:	J68059
Madal	2231, 2232, 2241, 2242, 2252, 2252, 2922	, 2932, 294	2, 2952,	T-Log Number:	T68062
Mouel.	2962			Account Manager:	Richard Gencev
Contact:	Craig Owens				
Standard:	15.247, RSS-210			Class:	N/A
Run #1c: F Setting = 2	Radiated Spurious Emissions, 30 - 18000 3, Tx100, EUT Horizontal Polarization, 6.	MHz. Higl 5dBi anten	h Channel @ na	❷ 2462 MHz	
		Н	V]	
Fundam	ental emission level @ 3m in 1MHz RBW:	117.3	103	Peak Measurement (R	B=VB=1MHz)
Fundam	Client: Ruckus Wireless Model: 2231, 2232, 2241, 2242, 2252, 2252, 2922, 2932, 2942, 2952, 2962 Contact: Craig Owens Standard: 15.247, RSS-210 Im #1c: Radiated Spurious Emissions, 30 - 18000 MHz. High Chann tting = 23, Tx100, EUT Horizontal Polarization, 6.5dBi antenna Im #1c: Radiated Spurious Emissions, 30 - 18000 MHz. High Chann tting = 23, Tx100, EUT Horizontal Polarization, 6.5dBi antenna Im #1c: Radiated Spurious Emission are del units with comparison level @ 3m in 1MHz RBW: Intervention H Vertical Plot	100.1	Average Measurement	(RB=1MHz, VB=10Hz)	
	Vertical Plo	it			
🔁 85хх гег	note control				×
Loca	Enable Max Hold Log scale - scaling ass	umes units are di	B units with correct	ion factor applied (30.0 @ 2491.8 f	MHz)
(manu Contr	al) 87.0- ol RB () 1MHz 85.0-				
Tune to	Peak VB 10Hz				





Client: Ruckus Wireless Model: 2231, 2232, 2241, 2242, 2252, 2252, 2922, 2932

							1		1	
Client:	Ruckus W	/ireless					-	Job Number:	J68059	
	2231, 223	32, 2241,	2242, 2252	, 2252, 292	2, 2932, 294	2, 2952,	T-l	_og Number:	T68062	
Wodel:	2962						Accou	int Manager	Richard Gencey	
Contact	Croig Ow	0.000					710000	int managon		
Contact:										
Standard:	15.247, R	SS-210						Class:	N/A	
Other Spuri	ous Radia	ted Emis	sions:							
Frequency	Level	Pol	15.209	/ 15.247	Detector	Azimuth	Heiaht	Comments		,
MHz	dBuV/m	v/h	l imit	Margin	Pk/OP/Ava	dearees	meters			
4924 150	51 0	V	54.0	-3.0	AVG	302	13			
4924 150	52.4	V	74.0	-21.6	PK	302	1.0			
7387 290	12.1	v	54.0	-11.5	AVG	17	1.0			
7307.270	42.5	V	74.0	2/12		17	1.7			
00/0 120	47.7 51.2	V	54.0	-24.J 20		15/	1.7			
9040.130	01.Z	V	04.0 74.0	-2.0		104	1.0			
9848.130	03.Z	V	74.0	-20.8	PK	104	1.0			
12309.080	40.1	V	54.0	-13.9	AVG	66	1.9			
12309.080	47.5	V	/4.0	-26.5	PK	66	1.9			
14772.280	35.8	V	54.0	-18.2	AVG	4	1.8			
14772.280	46.9	V	74.0	-27.1	PK	4	1.8			
4924.060	47.5	H	54.0	-6.5	AVG	284	1.9			
4924.060	50.0	Н	74.0	-24.0	PK	284	1.9			
7386.710	37.4	Н	54.0	-16.6	AVG	178	1.7			
7386.710	46.6	Н	74.0	-27.4	PK	178	1.7			
9848.120	53.4	Н	54.0	-0.6	AVG	170	1.5			-
9848.120	54.9	Н	74.0	-19.1	PK	170	1.5			
12308.760	33.6	Н	54.0	-20.4	AVG	203	1.3			
12308.760	44.4	Н	74.0	-29.6	РК	203	1.3			
14772.140	35.8	Н	54.0	-18.2	AVG	143	1.2			
14772,140	45.4	Н	74.0	-28.6	PK	143	1.2			
			1.110	2010		1.10				
	For emiss	ions in re	estricted bar	nds the limi	t of 15 209 w	as used Ec	or all other e	missions th	e limit was set to -	
Note 1:	27dBm/M	Hz (~680	BuV/m)		10110.2071					
	Z/UDITI/IVI		ibuvilij.							

	liott			EM	IC Test Da	
Client: Ruckus W	ireless		J	b Number:	J68059	
Model: 2231, 2232	2, 2241, 2242, 2252, 2252, 2922	2, 2932, 2942, 2952,	T-Lo	og Number:	T68062	
2962			Accour	t Manager:	Richard Gencev	
Contact: Craig Owe	INS			EMC Test Da b Number: J68059 g Number: T68062 Manager: Richard Gencev Class: N/A testing of the EUT with respect emissions testing. T. Result / Margin 53.8dBµ V/m (489.8µ V/m) @ 2389.5MHz (-0.2dB)		
Standard: 15.247, RS	55-210			Class:	N/A	
	Radi	iated Emissio	ns			
Fest Specific Deta	ails The chiestine of this test essaie	n is to norferne analyseriu		tooling of t		
Objective:	the specification listed above.	n is to perform engineerir	ng evaluation	i testing of t	ine EUT with respec	
Date of Test:	5/21/2007 23:34	Config. Used:	1			
Test Engineer:	er: Rafael Varelas Config Change: None EUT Voltage: 120V/60Hz Configuration cal support equipment were located on the turntable for radiated spurious emissions testing.					
	SVOR13 #2	Lot voltage.	1200700112			
General Test Con	figuration					
he EUT and all local s	support equipment were located	d on the turntable for radia	ated spurious	s emissions	s testing.	
or radiated emissions	s testing the measurement anter	nna was located 3 meters	s from the EL	JT.		
Ambient Conditio	ns: Temperature: Rel. Humidity:	12.1 °C 78 %				
Summary of Resu	ılts					
	Test Performed	Limit	Pass / Fail	Result	/ Margin	
Run #		ECC Dort 1E 200 /		53.8d	IBμ V/m	
Run # 1a - c	RE, 30 - 18000 MHz - Spurious Emissions	15.247(c)	Pass	(489.8) 2200 FM	μV/m)@	
Run # 1a - c Modifications Ma	RE, 30 - 18000 MHz - Spurious Emissions	15.247(c)	Pass	(489.8) 2389.5M	μV/m) @ Hz (-0.2dB)	
Run # 1a - c Modifications Mad	RE, 30 - 18000 MHz - Spurious Emissions de During Testing: made to the EUT during testing	15.247(c)	Pass	(489.8) 2389.5M	μV/m) @ Hz (-0.2dB)	
Run # 1a - c Modifications Mac	RE, 30 - 18000 MHz - Spurious Emissions de During Testing: made to the EUT during testing	15.247(c)	Pass	(489.8) 2389.5MI	μV/m) @ Hz (-0.2dB)	
Run # 1a - c Modifications Mac Jo modifications were Deviations From	RE, 30 - 18000 MHz - Spurious Emissions de During Testing: made to the EUT during testing The Standard	15.247(c)	Pass	(489.8) 2389.5MI	μV/m) @ Hz (-0.2dB)	
Run # 1a - c Modifications Mac No modifications were Deviations From No deviations were mac	RE, 30 - 18000 MHz - Spurious Emissions de During Testing: made to the EUT during testing The Standard ide from the requirements of the	e standard.	Pass	(489.8) 2389.5MI	μV/m) @ Hz (-0.2dB)	
Run # 1a - c Modifications Mad Io modifications were Deviations From	RE, 30 - 18000 MHz - Spurious Emissions de During Testing: made to the EUT during testing The Standard ide from the requirements of the	e standard.	Pass	(489.8) 2389.5MI	μV/m) @ Hz (-0.2dB)	
Run # 1a - c Modifications Mac Io modifications were Deviations From Io deviations were ma	RE, 30 - 18000 MHz - Spurious Emissions de During Testing: made to the EUT during testing The Standard ide from the requirements of the	e standard.	Pass	(489.8) 2389.5MI	μV/m) @ <u>Hz (-0.2dB)</u>	
Run # 1a - c Modifications Mad Io modifications were Deviations From	RE, 30 - 18000 MHz - Spurious Emissions de During Testing: made to the EUT during testing The Standard ide from the requirements of the	e standard.	Pass	(489.8) 2389.5MI	μV/m) @ Hz (-0.2dB)	
Run # 1a - c Modifications Mac No modifications were Deviations From No deviations were ma	RE, 30 - 18000 MHz - Spurious Emissions de During Testing: made to the EUT during testing The Standard ide from the requirements of the	e standard.	Pass	(489.8) 2389.5MI	μV/m) @ Hz (-0.2dB)	
Run # 1a - c Modifications Mac No modifications were Deviations From No deviations were ma	RE, 30 - 18000 MHz - Spurious Emissions de During Testing: made to the EUT during testing The Standard Ide from the requirements of the	e standard.	Pass	(489.8) 2389.5MI	μV/m) @ Hz (-0.2dB)	
Run # 1a - c Modifications Mac No modifications were Deviations From No deviations were ma	Elliottic Ruckus Wireless 2231, 2232, 2241, 2242, 2252, 2252, 292 2962 Craig Owens 15.247, RSS-210 Rad Specification listed above. e of Test: 5/21/2007 23:34 Engineer: Rafael Varelas Location: SVOATS #2 Tegest Configuration d all local support equipment were located emissions testing the measurement ante Conditions: Temperature: Rel. Humidity: of Results # Test Performed c RE, 30 - 18000 MHz - Spurious Emissions Spurious Emissions toms were made to the EUT during testing ions were made to the EUT during testing is were made from the requirements of the	e standard.	Pass	(489.8) 2389.5MI	μV/m) @ <u>Hz (-0.2dB)</u>	







	Ruckus W	ireless						Job Number:	J68059
	2231, 223	2, 2241.	2242, 2252	, 2252, 292	2, 2932, 294	2, 2952,	T-l	_og Number:	T68062
Model:	2962	, =	,				Accol	Int Manager:	Richard Gencev
Contact	Crain Owe	ens							
Standard	15 2/7 P	5.210						Class	NI/A
Stanuaru.	1J.247, IX	55-210						0/033.	IN/A
)ther Souri	ous Radiat	od Emis	sions						
Frequency	Level	Pol	15.20	9/15E	Detector	Azimuth	Height	Comments	
MHz	dBuV/m	v/h	Limit	Margin	Pk/QP/Ava	degrees	meters		
4824.020	50.9	V	54.0	-3.1	AVG	330	1.1		
4824.020	52.4	V	74.0	-21.6	PK	330	1.1		
7234.480	33.2	V	54.0	-20.8	AVG	14	1.0		
7234.480	43.4	V	74.0	-30.6	PK	14	1.0		
9648.120	50.4	V	54.0	-3.6	AVG	321	1.5		
9648.120	52.7	V	74.0	-21.3	PK	321	1.5		
2059.250	38.5	V	54.0	-15.5	AVG	153	1.6		
2059.250	48.3	V	74.0	-25.7	PK	153	1.6		
14472.120	41.3	V	54.0	-12.7	AVG	113	1.2		
14472.120	50.0	V	74.0	-24.0	PK	113	1.2		
6883.180	34.5	V	54.0	-19.5	AVG	190	1.0		
6883.180	45.3	V	74.0	-28.7	PK	190	1.0		
4824.080	47.7	Н	54.0	-6.3	AVG	149	2.0		
4824.080	49.8	Н	74.0	-24.2	PK	149	2.0		
7235.540	35.3	Н	54.0	-18.7	AVG	303	1.5		
7235.540	45.5	Н	74.0	-28.5	PK	303	1.5		
9648.120	49.3	Н	54.0	-4.7	AVG	329	1.4		
9648.120	51.9	Н	74.0	-22.1	PK	329	1.4		
12061.070	37.0	Н	54.0	-17.0	AVG	360	1.3		
12061.070	47.5	Н	74.0	-26.5	PK	360	1.3		
14472.250	39.6	Н	54.0	-14.4	AVG	185	1.3		
14472.250	49.0	Н	74.0	-25.0	PK	185	1.3		
16884.270	34.4	Н	54.0	-19.6	AVG	104	1.0		
6884.270	46.5	Н	74.0	-27.5	PK	104	1.0		
	- ·								
lote 1:	For emiss	ions in re	estricted bai	nas, the lim	It of 15.209 W	as used. Fo	r all other e	emissions, th	e limit was set to -
	2/0Bm/IVII Bond odg	HZ (~680	BUV/M).	ulated from	the fundame	ntal field ctr	anath (noal	(or average)	minus the hand od
	Banu-eug	e measu		ulated from			engin (peak	t of average)	minus the band ed

EMC Test Data

Client:	Ruckus Wireless	Job Number:	J68059
Model	2231, 2232, 2241, 2242, 2252, 2252, 2922, 2932, 2942, 2952,	T-Log Number:	T68062
wouer.	2962	Account Manager:	Richard Gencev
Contact:	Craig Owens		
Standard:	15.247, RSS-210	Class:	N/A

Run #1b: Radiated Spurious Emissions, 30 - 18000 MHz. Center Channel @ 2437 MHz Setting = 23, Tx100, EUT Vertical Polarization, 8.7dBi antenna

							7	
					H	V		
Fundam	iental emis	sion leve	el @ 3m in 1	MHz RBW:	109.3	120.3	Peak Meas	surement (RB=VB=1MHz)
Fundam	ental emis	sion leve	el @ 3m in 1	MHz RBW:	106.5	117.2	Average M	leasurement (RB=1MHz, VB=10Hz)
Frequency	Level	Pol	15.209	/ 15.247	Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
4873.900	46.4	V	54.0	-7.6	AVG	106	1.2	
4873.900	51.0	V	74.0	-23.0	PK	106	1.2	
7310.330	41.3	V	54.0	-12.7	AVG	13	2.0	
7310.330	49.2	V	74.0	-24.8	PK	13	2.0	
9748.120	53.6	V	54.0	-0.4	AVG	16	1.9	
9748.120	55.0	V	74.0	-19.0	PK	16	1.9	
12183.540	38.6	V	54.0	-15.4	AVG	143	1.4	
12183.540	47.5	V	74.0	-26.5	PK	143	1.4	
14622.230	44.6	V	54.0	-9.4	AVG	13	1.5	
14622.230	51.4	V	74.0	-22.6	PK	13	1.5	
4874.030	44.1	Н	54.0	-9.9	AVG	47	2.0	
4874.030	47.3	Н	74.0	-26.7	PK	47	2.0	
7310.370	36.9	Н	54.0	-17.1	AVG	199	1.4	
7310.370	46.1	Н	74.0	-27.9	PK	199	1.4	
9748.100	51.4	Н	54.0	-2.6	AVG	179	1.4	
9748.100	53.4	Н	74.0	-20.6	PK	179	1.4	
12184.470	34.2	Н	54.0	-19.8	AVG	0	1.7	
12184.470	45.8	Н	74.0	-28.2	PK	0	1.7	
14622.140	40.1	Н	54.0	-13.9	AVG	173	1.3	
14622.140	49.2	Н	74.0	-24.8	PK	173	1.3	
					<u> </u>			•
N 4	For emiss	ions in re	estricted bar	nds, the limit	t of 15.209 v	vas used. Fo	or all other e	missions, the limit was set to -
Note 1:	27dBm/M	Hz (~68d	lBuV/m).					
			i					

Client: Ruckus Wireless

EMC Test Data

Client:	Ruckus Wireless	Job Number:	J68059
Madal	2231, 2232, 2241, 2242, 2252, 2252, 2922, 2932, 2942, 2952,	T-Log Number:	T68062
wouer.	Client: Ruckus Wireless Job Number: J68059 Aodel: 2231, 2232, 2241, 2242, 2252, 2252, 2922, 2932, 2942, 2952,	Richard Gencev	
Contact:	Craig Owens		
Standard:	15.247, RSS-210	Class:	N/A
Run #1c: F	Radiated Spurious Emissions, 30 - 18000 MHz. High Channel @	2462 MHz	
Setting = 2	3, Tx100, EUT Vertical Polarization, 8.7dBi antenna		

	Н	V	
Fundamental emission level @ 3m in 1MHz RBW:	104.4	120.3	Peak Measurement (RB=VB=1MHz)
Fundamental emission level @ 3m in 1MHz RBW:	101.2	117.4	Average Measurement (RB=1MHz, VB=10Hz)

	Vertical Plot	
🔁 85хх remote control		×
Local Enable Max Hold	Log scale - scaling assumes units are dB units with correction factor applied (30.6 @ 2491.8 MHz)	
(manual) Control RB (1) 1MHz	66.6 - 65.0 -	1
Tune to Peak VB 💮 10Hz	62.5-	1
BB Signal Center F 🔂 2491.750	57.5-	
NB Signal Freq. Span 👌 16.500	55.0-	- 12
Ref Lvl 👌 36.0	52.5-	1
ATT AUTO?	50.0-	
CF Step 🌖 125.00	47.5-	-
Update With New Settings	45.0-	_
Current Settings (All freqs in MHz)	40.0-	- 11
RBW 1.000000 VBW 0.000010	37.5-	- 12
Center 2491.750 Span 16.5000	35.0-	
Start 2483.500 Stop 2500.000	32.5	_
Reference Level 36.0	26.6-	-
Detector Positive Peak	2483.5 2486.0 2488.0 2490.0 2492.0 2494.0 2496.0 2498.0 25 Time	00.0
Sweep Time 5000.00 ms	RETURN TO MAIN PROGRAM	
Update With New Settings Current Settings (All freqs in MHz) RBW 1.000000 VBW 0.000010 Center 2491.750 Span 16.5000 Start 2483.500 Stop 2500.000 Reference Level 36.0 Detector Positive Peak Sweep Time 5000.00 ms	42.5 - 40.0 - 40	

Note - final measurements made using a 3MHz span - if you want to avoid measuring a signal within 1.5MHz of the highest signal in the screen above you will need to utilize "USE CURRENT" as the detector. Remember to set RB and VB for the measurment.





Client: Ruckus Wireless Model: 2231, 2232, 2241, 2242, 2252, 2252, 2922, 2932, 2962

Client:	Ruckus W	/ireless				Job Number: J680		J68059			
	2231, 223	2, 2241,	2242, 2252	. 2252, 292	2, 2932, 294	2, 2952,	T-Log Number:		T68062		
Model:	2962	, ,			, ,	, ,	Accor	int Manager	Richard Gencey		
Contact	Craig Ow	ne					710000	int manager.			
					Class	N1/A					
Standard:	15.247, R	55-210			Class:	N/A					
Other Spurious Radiated Emissions:											
Frequency	Level	Pol	15.209	/ 15.247	Detector	Azimuth	Height	Comments			
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters				
4924.120	43.5	V	54.0	-10.5	AVG	99	1.6				
4924.120	47.2	V	74.0	-26.8	PK	99	1.6				
7387.300	42.8	V	54.0	-11.2	AVG	43	1.9				
7387.300	49.4	V	74.0	-24.6	PK	43	1.9				
9848.150	52.8	V	54.0	-1.2	AVG	13	2.0				
9848.150	54.5	V	74.0	-19.5	PK	13	2.0				
12309.450	37.2	V	54.0	-16.8	AVG	149	1.5				
12309.450	46.1	V	74.0	-27.9	PK	149	1.5				
14772.200	41.6	V	54.0	-12.4	AVG	14	1.4				
14772.200	48.1	V	74.0	-25.9	PK	14	1.4				
4924.150	47.6	Н	54.0	-6.4	AVG	200	2.0				
4924.150	49.9	Н	74.0	-24.1	PK	200	2.0				
7387.270	38.4	Н	54.0	-15.6	AVG	219	1.5				
7387.270	46.8	Н	74.0	-27.2	PK	219	1.5				
9848.130	51.2	Н	54.0	-2.8	AVG	311	1.3				
9848.130	53.2	Н	74.0	-20.8	PK	311	1.3				
12308.630	32.4	Н	54.0	-21.6	AVG	360	1.4				
12308.630	43.7	Н	74.0	-30.3	PK	360	1.4				
14772.250	34.6	Н	54.0	-19.4	AVG	152	1.0				
14772.250	45.6	Н	74.0	-28.4	PK	152	1.0				
Note 1 [.]	For emiss	ions in re	estricted bar	nds, the limi	t of 15.209 w	as used. Fo	or all other e	emissions, th	e limit was set to -		
	27dBm/M	Hz (~680	dBuV/m).								

EMC Test Data

-			
Client:	Ruckus Wireless	Job Number:	J68059
Model:	2231, 2232, 2241, 2242, 2252, 2252,	Test-Log Number:	T68277
	2922, 2932, 2942, 2952, 2962	Project Manager:	Richard Gencev
Contact:	Craig Owens		
Emissions Spec:	EN 300 328 v1.7.1, EN 301 489	Class:	Radio
Immunity Spec:	-	Environment:	-

EMC Test Data

For The

Ruckus Wireless

Model

2231, 2232, 2241, 2242, 2252, 2252, 2922, 2932, 2942, 2952, 2962

Date of Last Test: 6/20/2007

E		iott	•				EM	C Test Data		
	Client:	Ruckus Wireless		Job Number:	J68059					
	Model:	2231, 2232, 2241	1, 2242, 2	252, 225	52,	Tes	st-Log Number:	T68277		
		2922, 2932, 2942	2, 2952, 2	962		Pr	oject Manager:	Richard Gencev		
(Contact:	Craig Owens								
Emission	is Spec:	EN 300 328 v1.7	.1, EN 30 ⁻	1 489			Class:	Radio		
Immunit	ty Spec:	-					Environment:	-		
EUT INFORMATION The following information was collected during the test sessions(s). General Description										
The EUT is a 2	.4GHz w	ireless bridge tha	it is desigr	hed to pi	rovide wireless in	ternet and i	networking serv	ices. Since the EUI		
would be place	d on a ta	ble top during op	eration, th		was treated as tal	ple-top equ	pment during te	esting to simulate the end-		
user environme	ent. The	electrical rating o	f the EUI	IS 120 \	Volts , 60 Hz, 0.3	Amps.				
Equipment Under Test										
Manufactur	er	Model		 C	Description	Seria	al Number	FCC ID		
Ruckus		2942		2.4Ghz	wireless bridge		-			
Other EUT Details Testing performed on the 2942 was considered representative of the 2231, 2232, 2241, 2242, 2252, 2252, 2922, 2932, 2952 and 2962. The models all use identical hardware EUT Enclosure The EUT enclosure is primarily constructed of Plastic . It measures approximately 19.43cm (L), 14.43cm (W), 10.16cm (H).										
Mod #		Tost	Dat	to			Modification			
1		-					None			
2		_					None			
3										
Modifications a	pplied ar	e assumed to be	used on s	subsequ	ent tests unless c	therwise st	ated as a furthe	er modification.		

Construction Construction Second construction Second construction											
Client Ruckus Wireless Job Number: Jd8059 Model: 231, 2232, 2241, 2242, 2252, 2252, 7-1-Log Number: T68277 2922, 2332, 2942, 2952, 2952, 2962 Project Manager: Richard Gencev Contact: Craig Owens Class: Radio Emissions Spec: EN 300 328 v1.7.1, EN 301 489 Class: Radio Immunity Spec: Environment: - - Test Configuration #1 The following information was collected during the test sessions(s). Local Support Equipment Manufacturer Model Description Serial Number FCC ID - - - - - - Remote Support Equipment Manufacturer Model Description Serial Number FCC ID Dell Inspiron 2650 Laptop N/A DoC Cabling and Ports Port Connected To Cable(s) Cable(s) 0.0 EUT DC input Ac Mains Multiwire Unshielded 1.5 Note: The console port was not connected during testing. The manufac	EII	iott		EM	C Test Data						
Model: 2231, 2232, 2242, 2252, 2	Client:	Ruckus Wireless		Job Number:	J68059						
2922, 2932, 2942, 2952, 2962 Project Manager: Richard Gencev Contact: Craig Owens Emissions Spec: EN 300 328 v1.7.1, EN 301 489 Environment: - Test Configuration #1 The following information was collected during the test sessions(s). Local Support Equipment Manufacturer Model Description Serial Number FCC ID Contact of Model Description Serial Number FCC ID Contacturer Model Description Serial Number FCC ID Contacturer Manufacturer Model Description Serial Number FCC ID Dell Inspiron 2650 Laptop N/A DoC Cabling and Ports Port Connected To Cable(s)	Model:	2231, 2232, 2241, 2242,	2252, 2252,	T-Log Number:	T68277						
Contact: Craig Owens Craig Owens Emissions Spec: EN 300 328 v1.7.1, EN 301 489 Class: Radio Immunity Spec: Environment: - - Test Configuration #1 The following information was collected during the test sessions(s). Local Support Equipment Manufacturer Model Description Serial Number FCC ID - - - - - - Remote Support Equipment Manufacturer Model Description Serial Number FCC ID Dell Inspiron 2650 Laptop N/A DoC Cabling and Ports Port Connected To Cable(s) RF Antenna Caaxial Shielded 0.5 Ethernet Laptop Cat3 Unshielded 1.5 Note: The console port was not connected during testing. The manufacturer stated that these are for configuration purposes and therefore would not normally be connected. EUT Operation During Radio Emissions Tests During Radio emissions testing the EUT was set to maximum power to produce CCK or OFDM m		2922, 2932, 2942, 2952,	2962	Project Manager:	Richard Gencev						
Emissions Spec. EN 300 328 v1.7.1, EN 301 489 Class: Radio Immunity Spec. - Environment: - Test Configuration #1 The following information was collected during the test sessions(s). Local Support Equipment Manufacturer Model Description Serial Number FCC ID C ID Colspan="2">Colspan="2" Manufacturer Model Description Serial Number FCC ID Colspan="2">Connected To Cable(s) Connected To Cable(s) Connected To Cable(s) Cable(s) Cable(s) Connected To <th co<="" td=""><td>Contact:</td><td>Craig Owens</td><td></td><td>, ,</td><td></td></th>	<td>Contact:</td> <td>Craig Owens</td> <td></td> <td>, ,</td> <td></td>	Contact:	Craig Owens		, ,						
Immunity Spec: Environment: - Test Configuration #1 The following information was collected during the test sessions(s). Local Support Equipment Manufacturer Model Description Serial Number FCC ID - - - - - - - Manufacturer Model Description Serial Number FCC ID - -	Emissions Spec:	EN 300 328 v1.7.1, EN 3	01 489	Class:	Radio						
Test Configuration #1 Late following information was collected during the test sessions(s). Local Support Equipment Manufacturer Model Description Serial Number FCC ID Manufacturer Model Description Serial Number FCC ID Manufacturer Model Description Serial Number FCC ID Dell Inspiron 2650 Laptop N/A DoC Cabling and Ports Port Connected To Description Shielded or Unshielded 1.5 Port Connected To Description Shielded or Unshielded 30.0 EUT DC input AC Mains Multiwire Unshielded 1.5 Note: The console port was not connected during testing. The manufacturer stated that these are for configuration purposes and therefore would not normally be connected. During Radio emissions testing the EUT was set to maximum power to produce CCK or OFDM modulation continous transmission .	Immunity Spec:	-		Environment:	-						
Manufacturer Model Description Serial Number FCC ID - <th colspan="11">Test Configuration #1 The following information was collected during the test sessions(s).</th>	Test Configuration #1 The following information was collected during the test sessions(s).										
Manufacturer Model Description Serial Number FCC ID - <td></td> <td></td> <td></td> <td>ent</td> <td></td>				ent							
Image: state of the state	Manufacturer	Model	Description	Serial Number	FCCID						
Inspire Model Description Senal Number PCC ID Dell Inspiren 2650 Laptop N/A DoC Cabling and Ports Port Connected To Cable(s) Description Shielded or Unshielded Length(m) RF Antenna Coaxial Shielded 0.5 Ethernet Laptop Cat5 Unshielded 30.0 EUT DC input AC Mains Multiwire Unshielded 1.5 Note: The console port was not connected during testing. The manufacturer stated that these are for configuration purposes and therefore would not normally be connected. EUT Operation During Radio Emissions Tests During Radio emissions testing the EUT was set to maximum power to produce CCK or OFDM modulation continous transmission .	Remote Support Equipment										
Delt Inspirion 2000 Laptop N/A DOC Cabling and Ports Port Connected To Cable(s) Port Connected To Description Shielded or Unshielded Length(m) RF Antenna Coaxial Shielded 0.5 Ethernet Laptop Cat5 Unshielded 30.0 EUT DC input AC Mains Multiwire Unshielded 1.5 Note: The console port was not connected during testing. The manufacturer stated that these are for configuration purposes and therefore would not normally be connected. EUT Operation During Radio Emissions Tests During Radio emissions testing the EUT was set to maximum power to produce CCK or OFDM modulation continous transmission . Transmission .	Doll		Description								
Port Connected To Cable(s) RF Antenna Coaxial Shielded or Unshielded 0.5 Ethernet Laptop Cat5 Unshielded 30.0 EUT DC input AC Mains Multiwire Unshielded 1.5 Note: The console port was not connected during testing. The manufacturer stated that these are for configuration purposes and therefore would not normally be connected. EUT Operation During Radio Emissions Tests During Radio emissions testing the EUT was set to maximum power to produce CCK or OFDM modulation continous transmission .			Cabling and Ports								
Description Shielded or Unshielded Length(m) RF Antenna Coaxial Shielded 0.5 Ethernet Laptop Cat5 Unshielded 30.0 EUT DC input AC Mains Multiwire Unshielded 1.5 Note: The console port was not connected during testing. The manufacturer stated that these are for configuration purposes and therefore would not normally be connected. EUT Operation During Radio Emissions Tests During Radio emissions testing the EUT was set to maximum power to produce CCK or OFDM modulation continous transmission . Further and the euter of the euter	Port	Connected To		Cable(s)							
RF Antenna Coaxial Shielded 0.5 Ethernet Laptop Cat5 Unshielded 30.0 EUT DC input AC Mains Multiwire Unshielded 1.5 Note: The console port was not connected during testing. The manufacturer stated that these are for configuration purposes and therefore would not normally be connected. The manufacturer stated that these are for configuration purposes EUT Operation During Radio Emissions Tests EUT Operation During Radio Emissions Tests During Radio emissions testing the EUT was set to maximum power to produce CCK or OFDM modulation continous transmission .			Description	Shielded or Unshield	led Length(m)						
Ethernet Laptop Cats Unshielded 30.0 EUT DC input AC Mains Multiwire Unshielded 1.5 Note: The console port was not connected during testing. The manufacturer stated that these are for configuration purposes and therefore would not normally be connected. The manufacturer stated that these are for configuration purposes EUT Operation During Radio Emissions Tests EUT operation During Radio Emissions Tests During Radio emissions testing the EUT was set to maximum power to produce CCK or OFDM modulation continous transmission .	KF	Antenna	Coaxial	Shielded	0.5						
EOT DC Input AC Mains MultiWite Onsnielded 1.3 Note: The console port was not connected during testing. The manufacturer stated that these are for configuration purposes and therefore would not normally be connected. Image: Constraint of the connected during testing. The manufacturer stated that these are for configuration purposes and therefore would not normally be connected. EUT Operation During Radio Emissions Tests During Radio emissions testing the EUT was set to maximum power to produce CCK or OFDM modulation continous transmission .	Ethernet		Cato	Unshielded	30.0						
	Note: The console port and therefore would not During Radio emissions transmission .	was not connected during t normally be connected. EUT Operati s testing the EUT was set	g testing. The manufacture on During Radio Emi to maximum power to prod	er stated that these are for stated that these are for significant states are for states are for states are constructed by the states are for	configuration purposes						

EMC Test Data

Client:	Ruckus Wireless	Job Number:	J68059
Model:	2231, 2232, 2241, 2242, 2252, 2252, 2922, 2932, 2942, 2952,	T-Log Number:	T68277
	2962	Account Manager:	Richard Gencev
Contact:	Craig Owens		
Standard:	EN 300 328 v1.7.1, EN 301 489	Class:	Radio

Conducted Emissions - Power Ports

Test Specific Details

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

Date of Test: 6/18/2007 9:24 Test Engineer: Juan Martinez Test Location: SVOATS #1 Config. Used: 1 Config Change: None EUT Voltage: Refer to individual runs

General Test Configuration

The EUT was located on a wooden table, 40 cm from a vertical coupling plane and 80cm from the LISN. Remote support equipment was located approximately 30 meters away from the test area, with all I/O connections running on top of the groundplane.

Ambient Conditions:	Temperature:	<mark>22</mark> °C
	Rel. Humidity:	47 %

Summary of Results

Run #	Test Performed	Limit	Result	Margin
1	CE, AC Power, 230V/50Hz	EN55022 B	Pass	54.6dBµV @ 0.249MHz (-7.2dB)
2	CE, AC Power,120V/60Hz	EN55022 B	Pass	38.8dBµV @ 0.804MHz (-7.2dB)
3	CE, AC Power,120V/60Hz (PoE)	EN55022 B	Pass	39.9dBµV @ 0.793MHz (-6.1dB)
4	CE, AC Power,120V/60Hz	EN55022 B	Pass	39.3dBµV @ 2.829MHz (-6.7dB)
5	CE, AC Power,120V/60Hz	EN55022 B	Pass	46.0dBµV @ 0.152MHz (-19.9dB)

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.

intt **EMC** Test Data Job Number: J68059 Client: Ruckus Wireless T-Log Number: T68277 2231, 2232, 2241, 2242, 2252, 2252, 2922, 2932, 2942, 2952, Model: 2962 Account Manager: Richard Gencev Contact: Craig Owens Standard: EN 300 328 v1.7.1, EN 301 489 Class: Radio Run #1: AC Power Port Conducted Emissions, 0.15 - 30MHz, 230V/50Hz .15 - 30 MHz (Lines) 230V,50Hz 70.0 65.0 60.0 40.0 SS.0 (gnA) SO.0 (gnA) 45.0 (dgnA) 40.0 (dgnA) 40. 55.0 Way when the when a second and 30.0 25.0 20.0-1.000 10,000 30.000 0.150 Frequency (MHz) .15 - 30 MHz (Neutral) 230V,50Hz 70.0 65.0 60.0 (ng 55.0) 50.0 (gn (45.0 40.0 35.0 55.0 WM Wind Mandalay 30.0 25.0

1.000

20.0-

0.150

Frequency (MHz)

30.000

10.000

Client:	Ruckus V	Vireless					Job Number:	J68059		
Model [.]	2231, 223	32, 2241,	2242, 2252	, 2252, 2922	2, 2932, 294	2, 2952,	T-Log Number:	T68277		
modol.	2962					Account Manager:	Richard Gencev			
Contact:	Craig Ow	ens								
Standard:	EN 300 3	28 v1.7.1	, EN 301 48	9			Class:	Radio		
Frequency	Level	AC	EN55	022 B	Detector	Comments				
MHz	dBµV	Line	Limit	Margin	QP/Ave					
0.249	54.6	Line 1	61.8	-7.2	QP					
0.249	44.0	Line 1	51.8	-7.8	AVG					
0.266	52.8	Line 1	61.2	-8.4	QP					
0.266	41.7	Line 1	51.2	-9.5	AVG					
0.154	54.5	Line 1	65.8	-11.3	QP					
0.165	53.6	Line 1	65.2	-11.6	QP					
0.154	53.8	Neutral	65.8	-12.0	QP					
0.182	52.3	Line 1	64.4	-12.1	QP					
0.165	53.1	Neutral	65.2	-12.1	QP					
0.242	49.8	Neutral	62.0	-12.2	QP					
0.176	52.2	Neutral	64.7	-12.5	QP					
0.368	36.0	Neutral	48.5	-12.5	AVG					
0.748	33.4	Line 1	46.0	-12.6	AVG					
0.748	43.2	Line 1	56.0	-12.8	QP					
0.208	50.1	Neutral	63.3	-13.2	QP					
0.368	44.6	Neutral	58.5	-13.9	QP					
0.409	33.4	Neutral	47.7	-14.3	AVG					
0.242	37.5	Neutral	52.0	-14.5	AVG					
0.409	42.6	Neutral	57.7	-15.1	QP					
0.303	44.8	Neutral	60.2	-15.4	QP					
0.646	30.3	Neutral	46.0	-15.7	AVG					
0.154	39.8	Line 1	55.8	-16.0	AVG					
0.182	37.8	Line 1	54.4	-16.6	AVG					
0.165	38.4	Line 1	55.2	-16.8	AVG					
5.000	29.1	Line 1	46.0	-16.9	AVG					
5.000	38.9	Line 1	56.0	-17.1	QP					
0.646	38.7	Neutral	56.0	-17.3	QP					
0.465	39.1	Neutral	56.6	-17.5	QP					
0.465	28.6	Neutral	46.6	-18.0	AVG					
5.000	27.9	Neutral	46.0	-18.1	AVG					
0.303	30.4	Neutral	50.2	-19.8	AVG					
0.208	32.6	Neutral	53.3	-20.7	AVG					
5.000	35.3	Neutral	56.0	-20.7	QP					
0.154	34.3	Neutral	55.8	-21.5	AVG					
0.165	33.4	Neutral	55.2	-21.8	AVG					
0.176	32.8	Neutral	54.7	-21.9	AVG					



EMC Test Data

Client:	Ruckus W	/ireless					Job Number:	J68059		
	2231, 223	2, 2241.	2242, 2252.	, 2252, 2922	2, 2932, 294	2, 2952.	T-Log Number:	T68277		
Model:	2962	, ,	, -,	, - , -	Account Manager:	Richard Gencev				
Contact:	Crain Ow	ons								
Ctandard		28 v1 7 1	EN 301 /8	0			Class	Padio		
Standard.	LN 300 3/	20 1.7.1	, LIN 301 40	5			01855.	INdulu		
F	Laval	10		000 0	Detester	0				
		AC	EINDO Limit	UZZ B Morain	Detector	Comments				
	αΒμν	Line	Limit	iviargin	QP/Ave Dook	Noto 1				
0.004	30.0 12.3	Neutral	40.0 50.0	-1.Z	Peak	Note 1				
0.281	42.3	Neutral	50.8	-1.1	Peak	Note 1				
0.201	37.5	Neutral	JU.0	-9.0	Peak	Note 1				
0.425	3/ 0	Lino 1	47.4	-9.9	Peak	Note 1				
0.725	38.5	Line 1	40.0 50.0	-11.1	Peak	Note 1				
15 562	37.6	Line 1	50.0	-12.4	Peak	Note 1				
0.185	38.3	Noutral	5/1 3	-12.4	Peak	Note 1				
0.105	37.2	Lino 1	54.3	-10.0	Peak	Note 1				
0.100	38.0	Line 1	56 0	-17.0	Peak	Note 1				
0.101	50.0		50.0	-10.0	I Cak					
Note 1 [.]	No QP rea	adinos tal	ken. All pea	ak readings	are more th	en 6-dB belov	w the average limit.			
		<u> </u>	•				0			



Client:	Ruckus W	/ireless					Job Number:	J68059		
	2231, 223	2, 2241, 2	2242, 2252,	, 2252, 2922	2, 2932, 294	12, 2952,	T-Log Number:	T68277		
Model:	2962		, ,	, ,		, ,	Account Manager:	Richard Gencev		
Contact:	Crain Owe	ens								
Ctandard	EN 300 3	28 v1 7 1	EN 301 /8	20			Class:	Padio		
Standard.	LIN 300 32	20 1.7.1,	LIN 301 40	19			01855.	INdulo		
Freesware	Laval	10		000 D	Detector	Commonto				
		AC Lino		UZZ D Morain	Detector	Comments				
	υ <u>ο</u> μν 30.0		46 0	1viaryin 6 1	QF/AVE Dook	Note 1				
0.793	38.4	Neutral	40.0	-0.1	Peak	Note 1				
15 250	41.3	Line 1	4 0.0	-7.0	Peak	Note 1				
0.377	38.7	Line 1	48.4	-9.7	Peak	Note 1				
0.268	40.8	Line 1	51.2	-10.4	Peak	Note 1				
0.433	36.8	Line 1	47.2	-10.4	Peak	Note 1				
0.383	36.8	Neutral	48.2	-11.4	Peak	Note 1				
15.625	37.9	Neutral	50.0	-12.1	Peak	Note 1				
0.162	41.3	Neutral	55.3	-14.0	Peak	Note 1				
0.217	36.6	Neutral	52.9	-16.3	Peak	Note 1				
Note 1:	No QP rea	adings tak	ken. All pea	ak readings	are more th	en 6-dB belo	w the average limit.			



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Client:	Ruckus W	/ireless					Job Number:	J68059		
M ~ -! - !	2231, 223	2, 2241,	2242, 2252,	, 2252, 2922	2, 2932, 294	12, 2952,	T-Log Number:	T68277		
Wodel:	2962					Account Manager:	Richard Gencev			
Contact:	Craig Owe	ens								
Standard [.]	EN 300 32	28 v1.7.1	EN 301 48	9			Class:	Radio		
otanuaru.	2.1 000 0.		, 211 001 10							
Frequency	l evel	AC	EN55	022 B	Detector	Comments				
MHz	dBuV	Line	Limit	Margin	QP/Ave	Commonito				
0.150	45.6	Line 1	56.0	-10.4	Peak					
0.236	35.5	Line 1	52.2	-16.7	Peak					
0.174	42.7	Line 1	54.8	-12.1	Peak					
2.255	34.8	Line 1	46.0	-11.2	Peak					
27.125	42.1	Line 1	50.0	-7.9	Peak					
0.157	46.6	Neutral	55.6	-9.0	Peak					
0.160	45.8	Neutral	55.5	-9.7	Peak					
0.448	39.9	Neutral	46.9	-7.0	Peak					
2.277	36.5	Neutral	46.0	-9.5	Peak					
27.125	41.9	Neutral	50.0	-8.1	Peak					
Nata di		adinaa ta	kan Allna	l roodingo	ara mara th	on 6 dD holo	w the everence limit			
NOLE I.		aunys la	ken. An pea	ak reaulitys			w the average inflit.			



5	4									
Client:	Client: Ruckus Wireless Job Number: J68059									
Madal	2231, 223	2, 2241,	2242, 2252,	, 2252, 2922	12, 2952,	T-Log Number:	T68277			
Wodel:	2962						Account Manager:	Richard Gencev		
Contact [.]	Craig Owe	ens					Ŭ			
Standard:	EN 300 32	28 v1 7 1	EN 301 48	9			Class [.]	Radio		
Stanuaru.		20 1111	, ER 661 16				01000.			
Frequency	ا مربعا	AC	EN55	022 B	Detector	Comments				
MH ₇	dBuV	Line	Limit	Margin	OP/Ave	Commenta				
2.829	39.3	Neutral	46.0	-6.7	Peak	Note 1				
2.773	39.2	Line 1	46.0	-6.8	Peak	Note 1				
0.252	41.1	Line 1	51.7	-10.6	Peak	Note 1				
0.153	43.9	Line 1	55.9	-12.0	Peak	Note 1				
16.250	38.3	Line 1	50.0	-11.7	Peak	Note 1				
0.189	30.5	Line 1	54.1	-23.6	AVG					
0.189	45.7	Line 1	64.1	-18.4	QP					
0.249	42.7	Neutral	51.8	-9.1	Peak	Note 1				
0.154	44.7	Neutral	55.8	-11.1	Peak	Note 1				
16.250	37.5	Neutral	50.0	-12.5	Peak	Note 1				
0.189	31.6	Neutral	54.1	-22.5	AVG					
0.189	47.1	Neutral	64.1	-17.0	QP					
Note 1:		adinas ta	ken Allnes	ak readings	are more th	en 6-dR helov	w the average limit			
		J J	-	J						



Client:	Ruckus Wireless	Job Number:	J68059				
Model:	2231, 2232, 2241, 2242, 2252, 2252, 2922, 2932, 2942, 2952,	T-Log Number:	T68277				
	2962	Account Manager:	Richard Gencev				
Contact:	Craig Owens						
Standard:	EN 300 328 v1.7.1, EN 301 489	Class:	Radio				

Run 2 Continued									
Frequency	Level	AC	EN55022 B		Detector	Comments			
MHz	dBµV	Line	Limit	Margin	QP/Ave				
0.152	46.0	Neutral	65.9	-19.9	QP				
0.165	44.5	Line 1	65.2	-20.7	QP				
0.180	42.2	Line 1	64.5	-22.3	QP				
0.192	39.7	Neutral	63.9	-24.2	QP				
0.192	24.6	Neutral	53.9	-29.3	Average				
0.165	23.5	Line 1	55.2	-31.7	Average				
0.152	22.9	Neutral	55.9	-33.0	Average				
0.180	20.0	Line 1	54.5	-34.5	Average				

EXHIBIT 3: Photographs of Test Configurations

6 Pages

EXHIBIT 4: Proposed FCC ID Label & Label Location

EXHIBIT 5: Detailed Photographs of Ruckus Wireless Model 2942Construction

Pages
EXHIBIT 6: Operator's Manual for Ruckus Wireless Model 2942

EXHIBIT 7: Block Diagram of Ruckus Wireless Model 2942

EXHIBIT 8: Schematic Diagrams for Ruckus Wireless Model 2942

EXHIBIT 9: Theory of Operation for Ruckus Wireless Model 2942

EXHIBIT 10: Advertising Literature

EXHIBIT 11: RF Exposure Information