

EMC Test Report Application for Grant of Equipment Authorization Class II Permissive Change/Reassessment pursuant to Industry Canada RSS-Gen Issue 2 / RSS 210 Issue 7 FCC Part 15, Subpart E Model: SDC-PE15N

- IC CERTIFICATION #: 6616A-SDCPE15N FCC ID: TWG-SDCPE15N
 - APPLICANT: Summit Data Communications Inc. 526 South Main St. Suite 805 Akron, OH 44311
 - TEST SITE(S): Elliott Laboratories 684 W. Maude Avenue Sunnyvale, CA 94085 and 41039 Boyce Road. Fremont, CA. 94538-2435

IC SITE REGISTRATION #:

2845A-2; 2845B-3

REPORT DATE: January 26, 2010

FINAL TEST DATES:

November 6, November 17, November 18, November 19, December 1, December 3, December 4 and December 29, 2009

AUTHORIZED SIGNATORY:

Mark E. Hill Staff Engineer Elliott Laboratories



Testing Cert #2016.01

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REVISION HISTORY

Rev#	Date	Comments	Modified By
-	January 26, 2010	First release	

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SCOPE

An electromagnetic emissions test has been performed on the Summit Data Communications Inc. model SDC-PE15N, pursuant to the following rules:

Industry Canada RSS-Gen Issue 2 RSS 210 Issue 7 "Low-power Licence-exempt Radiocommunication Devices (All Frequency Bands): Category I Equipment" FCC Part 15, Subpart E requirements for UNII Devices (using FCC DA 02-2138, August 30, 2002)

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

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

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

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

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

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 Summit Data Communications Inc. model SDC-PE15N complied with the requirements of the following regulations:

RSS 210 Issue 7 "Low-power Licence-exempt Radiocommunication Devices (All Frequency Bands): Category I Equipment" FCC Part 15, Subpart E requirements for UNII Devices

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

The test results recorded herein are based on a single type test of Summit Data Communications Inc. model SDC-PE15N and therefore apply only to the tested sample. The sample was selected and prepared by Ron Seide of Summit Data Communications Inc..

DEVIATIONS FROM THE STANDARDS

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

TEST RESULTS SUMMARY

UNII / LELAN DEVICES

Operation in the 5.15 – 5.25 GHz Band

FCC Rule Part	RSS Rule Part	Description	Measured Value / Comments	Limit / Requirement	Result
15.407(e)		Indoor operation only	-	-	Note 1
15.407(a) (1)		26dB Bandwidth	26dB Bandwidth -		Note 1
15.407 (a) (1)	A9.2(1)	Output Power	-	-	Note 2
15.407 (a) (1)	-	Power Spectral Density	-	-	Note 1
-	A9.5 (2)	Delisity		-	Note 1
15.407(b) (5) / 15.209	A9.3	Spurious Emissions below 1GHz	50.9dBµV/m @	Refer to Standard	Compliag
15.407(b) (2)	A9.3	Spurious Emissions above 1GHz	5149.8MHz (-3.1dB)	Kelei to Standard	Complies
15.407(a)(6)	-	Peak Excursion Ratio	-	-	Note 1

Note 1: Not included in this permissive change. Addition of new antennas would not change previous results.

Note 2: Prior to testing, the output power on the EUT was measured and compared to the original filing. Summit limits the power via their client utility to a level below that listed in the original certification.

Operation in the 5.25 – 5.35 GHz Band

FCC Rule Part	RSS Rule Part	Description	Measured Value / Comments	Limit / Requirement	Result (margin)
15.407(a) (2)		26dB Bandwidth	-	-	Note 1
15.407(a) (2)	A9.2(2)	Output Power	-	-	Note 2
15.407(a) (2))	-	Power Spectral Density		-	Note 1
-	A9.2(2) / A9.5 (2)	Power Spectral Density		-	Note 1
-	A9.5 (2)	Peak Spectral Density	-	-	Note 1
15.407(b) (5) / 15.209	A9.3	Spurious Emissions below 1GHz	53.1dBµV/m@	Refer to Standard	Complies
15.407(b) (2)	A9.3	Spurious Emissions above 1GHz	5350.0MHz (-0.9dB)	Kerei to Stalidard	Complies
15.407(a)(6)	-	Peak Excursion Ratio	-	-	Note 1

Note 1: Not included in this permissive change. Addition of new antennas would not change previous results.

Note 2: Prior to testing, the output power on the EUT was measured and compared to the original filing. Summit limits the power via their client utility to a level below that listed in the original certification.

Operation in the $5.47 - 5.725$ GHz Band						
FCC Rule Part	RSS Rule Part	Description	Measured Value / Comments	Limit / Requirement	Result (margin)	
15.407(a) (2)		26dB Bandwidth	-		Note 1	
15.407(a) (2)	A9.2(2)	Output Power	-	-	Note 2	
15.407(a) (2))		Power Spectral Density		-	Note 1	
	A9.2(2) / A9.5 (2)	Power Spectral Density	-	-	Note 1	
N/A	A9	Non-operation in 5600 – 5650 MHz sub band	Device is a client device with no ad-hoc capability		Note 1	
15.407(b) (5) / 15.209	A9.3	Spurious Emissions below 1GHz	50.6dBµV/m @	Refer to Standard	Complies	
15.407(b) (2)	A9.3	Spurious Emissions above 1GHz	5459.0MHz (-3.4dB)	Kelei to Standard	Compiles	
15.407(a)(6)	-	Peak Excursion Ratio	-	-	Note 1	

Operation in the 5.47 – 5.725 GHz Band

Note 1: Not included in this permissive change. Addition of new antennas would not change previous results.

Note 2: Prior to testing, the output power on the EUT was measured and compared to the original filing. Summit limits the power via their client utility to a level below that listed in the original certification.

FCC Rule Part	RSS Rule Part	Description	Measured Value / Comments	Limit / Requirement	Result
15.407	A9.5a	Modulation	-	-	Note 1
	A9.5 (3)	Channel Selection	Spurious emissions tested at outermost channels in each band	Device was tested on the top, bottom and	Complies
15			Measurements on three channels in each band	center channels in each band	Complies
15.407 (c)	A9.5(4)	Operation in the absence of information to transmit	-	-	Note 1
15.407 (g)	A9.5 (5)	Frequency Stability	-	-	Note 1
15.407 (h1)	A9.4	Transmit Power Control		-	Note 1
15.407 (h2)	A9.4	Dynamic frequency Selection (device without radar detection)	-	-	Note 1
	A9.9g	User Manual information	-	-	Note 1

Requirements for all U-NII/LELAN bands

Note 1: Not included in this permissive change. Addition of new antennas would not change previous results.

GENERAL REQUIREMENTS APPLICABLE TO ALL BANDS

FCC Rule Part	RSS Rule part	Description	Measured Value / Comments	Limit / Requirement	Result (margin)
15.203	-	RF Connector	-	-	Note 1
15.109	RSS GEN 7.2.3 Table 1	Receiver spurious emissions	No Receiver Spurious Emissions Detected	-	Complies
15.207	RSS GEN Table 2	AC Conducted Emissions	-	-	Note 1
15.247 (b) (5) 15.407 (f)	RSS 102	RF Exposure Requirements	Refer to MPE calculations in Exhibit 11, RSS 102 declaration and User Manual statements.	Refer to OET 65, FCC Part 1 and RSS 102	Complies
-	RSP 100 RSS GEN 7.1.5	User Manual	-	-	Note 1
-	RSP 100 RSS GEN 7.1.5	User Manual	-	-	Note 1
-	RSP 100 RSS GEN 4.4.1	99% Bandwidth	-	-	Note 1

Note 1: Not included in this permissive change. Addition of new antennas would not change previous results.

MEASUREMENT UNCERTAINTIES

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

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

EQUIPMENT UNDER TEST (EUT) DETAILS

GENERAL

The Summit Data Communications Inc. model SDC-PE15N is a 802.11abgn PCI-E module that is designed to provide wireless network connectivity in the 2.4 and 5GHz bands. Since the EUT would be placed on a table top during operation, the EUT was treated as table-top equipment during testing to simulate the end-user environment. The EUT is powered from the host device.

The sample was received on November 6, 2009 and tested on November 6, November 17, November 18, November 19, December 1, December 3, December 4 and December 29, 2009. The EUT consisted of the following component(s):

Company	Model	Description	Serial Number	FCC ID
Summit Data	SDC-PE15N	802.11abgn PCI-	PE15N09082400	TWG-
Communications		E module	01FS	SDCPE15N

ANTENNA SYSTEM

The antenna connects to the EUT via a non-standard u.FL antenna connector, thereby meeting the requirements of FCC 15.203.

Antennas to be included in this permissive change:

Monopole Antenna - 2.4 and 5GHz bands, Huber+Suhner, SOA 2459/360/5/0/V_C, 3dBi (2.4GHz), 6.5dBi (5GHz) Dipole Antenna #1 - 2.4 GHz only - Summit SDC-CF22G - 0dBi (2.4GHz) Dipole Antenna #2 - 2.4 and 5GHz bands - Larsen, R380.500.314, 1.6dBi (2.4GHz), 5dBi (5GHz) Dipole Antenna #3 - 2.4 GHz only - Cisco Air-Ant 4941 2.2dBi(2.4GHz)

ENCLOSURE

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

MODIFICATIONS

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

SUPPORT EQUIPMENT

The following equipment was used as support equipment for testing:

Company	Model	Description	Serial Number	FCC ID
Lenovo	4446	Laptop	L3-BNN1E	DoC
Lenovo	PA-1650-52LC	AC Adapter	-	N/A

No remote support equipment was used during testing.

EUT INTERFACE PORTS

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

Port	Connected	Cable(s)			
Polt	То	Description	Shielded or Unshielded	Length(m)	
PCMCIA	EUT Extender	N/A - Direct	-	-	
	Board	Connection			
AC Power	AC Mains	3Wire	Unshielded	1.5	
Adapter					
DC Power	AC Adapter	Multiconductor	Shielded	1.5	
Laptop					

EUT OPERATION

During emissions testing the EUT was configured to transmit on a selected channel at the desired output power. Unless otherwise noted, the EUT was configured to transmit at 1Mbs for 802.11b mode testing, 6 Mbs for 802.11g and a mode testing, and HT0 for HT20 and HT40 testing.

TEST SITE

GENERAL INFORMATION

Final test measurements were taken on December 11, December 14, December 21, December 23, December 28, December 29 and December 30, 2009 at the test sites listed below. Pursuant to section 2.948 of the FCC's Rules and section 3.3 of RSP-100, construction, calibration, and equipment data has been filed with the Commission and with industry Canada.

Site	Registration Numbers		Location
Site	FCC	Canada	
			684 West Maude Ave,
SVOATS #2	90593	2845A-2	Sunnyvale
			CA 94085-3518
			41039 Boyce Road
Chamber 3	769238	2845B-3	Fremont,
			CA 94538-2435

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

RADIATED EMISSIONS CONSIDERATIONS

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

MEASUREMENT INSTRUMENTATION

RECEIVER SYSTEM

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

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

INSTRUMENT CONTROL COMPUTER

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

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

FILTERS/ATTENUATORS

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

ANTENNAS

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

ANTENNA MAST AND EQUIPMENT TURNTABLE

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

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

INSTRUMENT CALIBRATION

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

TEST PROCEDURES

EUT AND CABLE PLACEMENT

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

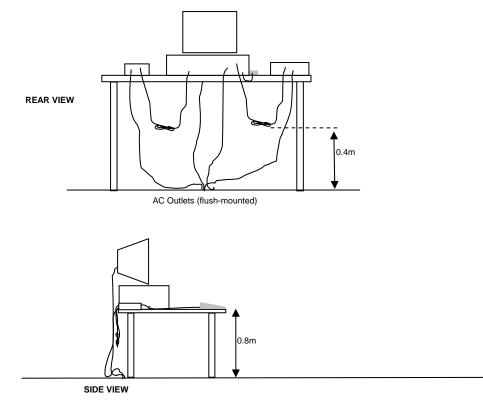
RADIATED EMISSIONS

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

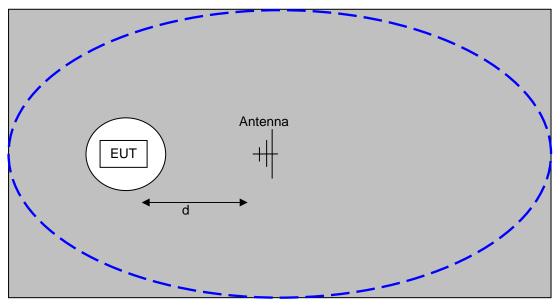
A speaker is provided in the receiver to aid in discriminating between EUT and ambient emissions. Other methods used during the preliminary scan for EUT emissions involve scanning with near field magnetic loops, monitoring I/O cables with RF current clamps, and cycling power to the EUT.

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

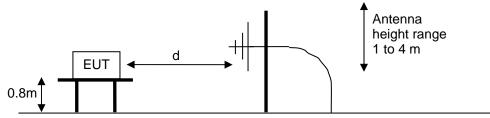
When testing above 18 GHz, the receive antenna is located at 1 meter from the EUT and the antenna height is restricted to a maximum of 2.5 meters.



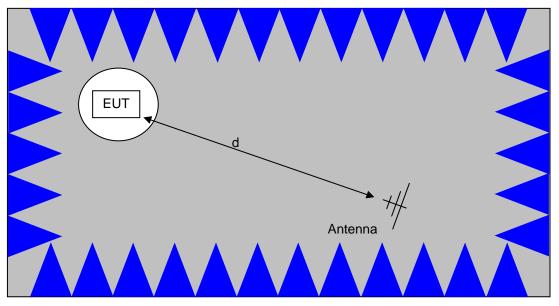
Typical Test Configuration for Radiated Field Strength Measurements



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

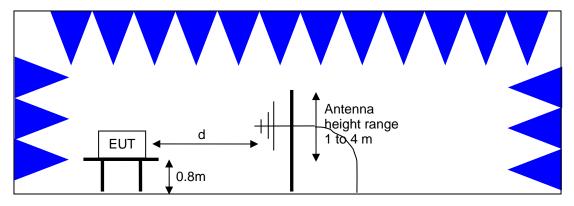


<u>Test Configuration for Radiated Field Strength Measurements</u> <u>OATS- Plan and Side Views</u>



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

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



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

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

FCC 15.407 (a) OUTPUT POWER LIMITS

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

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

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

The peak excursion envelope is limited to 13dB.

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

OUTPUT POWER LIMITS –LELAN DEVICES

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

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

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

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

OUTPUT POWER AND SPURIOUS LIMITS –UNII and LELAN DEVICES

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

² If EIRP exceeds 500mW the device must employ TPC

³ If EIRP exceeds 500mW the device must employ TPC

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:

 $R_c = R_r + F_d$

 $M = R_c - L_s$

where:

and

 R_r = Receiver Reading in dBuV/m

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

SAMPLE CALCULATIONS - FIELD STRENGTH TO EIRP CONVERSION

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

 $E = \frac{1000000 \sqrt{30 P}}{3}$ microvolts per meter 3 where P is the eirp (Watts)

Appendix A Test Equipment Calibration Data

Radio Antenna Port (Power), 16-Oct-09 Engineer: John										
Caizzi <u>Manufacturer</u>	Description	Model #	Asset #	Cal Due						
Agilent	PSA, Spectrum Analyzer, (installed options, 111, 115, 123, 1DS, B7J, HYX,	E4446A	2139	30-Dec-09						
Radio Antenna Port (Power), 22-Oct-09										
Engineer: Mehran Bi	rgani									
<u>Manufacturer</u>	Description PSA, Spectrum Analyzer,	<u>Model #</u>	<u>Asset #</u>	<u>Cal Due</u>						
Agilent	(installed options, 111, 115, 123, 1DS, B7J, HYX,	E4446A	2139	30-Dec-09						
Radiated Emissions, Engineer: Mehran Bi	30 - 40,000 MHz, 06-Nov-09									
Manufacturer	Description	Model #	Asset #	Cal Due						
EMCO	Antenna, Horn, 1-18 GHz	<u>3115</u>	487	15-Jul-10						
Hewlett Packard	Microwave Preamplifier, 1- 26.5GHz	8449B	870	19-Aug-10						
Hewlett Packard	SpecAn 30 Hz -40 GHz, SV (SA40) Red	8564E (84125C)	1148	12-Mar-10						
-	ious Emissions, 18-Nov-09									
Engineer: Suhaila Kh										
<u>Manufacturer</u> EMCO	<u>Description</u> Antenna, Horn, 1-18 GHz	<u>Model #</u> 3115	<u>Asset #</u> 487	<u>Cal Due</u> 15-Jul-10						
Hewlett Packard	Microwave Preamplifier, 1- 26.5GHz	8449B	870	19-Aug-10						
Hewlett Packard	SpecAn 30 Hz -40 GHz, SV (SA40) Red	8564E (84125C)	1148	12-Mar-10						
Hewlett Packard	High Pass filter, 8.2 GHz (Red System)	P/N 84300-80039 (84125C)	1152	28-Sep-10						
Radiated Emissions, 30 - 40,000 MHz, 19-Nov-09 Engineer: Mehran Birgani										
<u>Manufacturer</u>	Description	Model #	Asset #	Cal Due						
EMCO	Antenna, Horn, 1-18 GHz	3115	487	15-Jul-10						
Hewlett Packard	Microwave Preamplifier, 1- 26.5GHz	8449B	870	19-Aug-10						
Hewlett Packard	SpecAn 30 Hz -40 GHz, SV (SA40) Red	8564E (84125C)	1148	12-Mar-10						
Radio Antenna Port Engineer: Mehran Bi	(Power and Spurious Emissic	ons), 04-Dec-09								
Manufacturer	Description	Model #	<u>Asset #</u>	<u>Cal Due</u>						
Agilent	PSA, Spectrum Analyzer, (installed options, 111, 115, 123, 1DS, B7J, HYX,	E4446A	2139	30-Dec-09						

Radiated Emissions, 30 - 26,500 MHz, 29-Dec-09 Engineer: Rafael Varelas							
Manufacturer	Description	Model #	Asset #	Cal Due			
EMCO	Antenna, Horn, 1-18 GHz (SA40-Blu)	3115	1386	02-Sep-10			
Hewlett Packard	SpecAn 9 kHz - 40 GHz, FT (SA40) Blue	8564E (84125C)	1393	10-Apr-10			
Hewlett Packard	Head (Inc W1-W4, 1742 , 1743) Blue	84125C	1620	06-May-10			
Micro-Tronics	Band Reject Filter, 5725- 5875 MHz	BRC50705-02	1728	25-Sep-10			
Hewlett Packard	Microwave Preamplifier, 1- 26.5GHz	8449B	1780	17-Sep-10			
A.H. Systems	Blue System Horn, 18- 40GHz	SAS-574, p/n: 2581	2159	17-Mar-10			

Radiated Emissions, 1000 - 18,000 MHz, 20-Jan-10 Engineer: Rafael Varelas

	103			
Manufacturer	Description	Model #	Asset #	Cal Due
EMCO	Antenna, Horn, 1-18 GHz	3115	487	15-Jul-10
Hewlett Packard	Microwave Preamplifier, 1- 26.5GHz	8449B	870	19-Aug-10
Hewlett Packard	SpecAn 30 Hz -40 GHz, SV (SA40) Red	8564E (84125C)	1148	12-Mar-10

Appendix B Test Data

T76863 43 Pages

An A7A5 company

EMC Test Data

An UZAS company	2000 1000 2010
Client: Summit Data Communications	Job Number: J76855
Model: 802.11abgn Module	T-Log Number: T76863
	Account Manager: Christine Krebill
Contact: Ron Seide	-
Emissions Standard(s): FCC 15.407, RSS-210	Class: -
Immunity Standard(s): -	Environment: -

EMC Test Data

For The

Summit Data Communications

Model

802.11abgn Module

Date of Last Test: 1/20/2010

Elliott

EMC Test Data

	An UZAS company		
Client:	Summit Data Communications	Job Number:	J76855
Model	802.11abgn Module	T-Log Number:	T76863
would.		Account Manager:	Christine Krebill
Contact:	Ron Seide		
Standard:	FCC 15.407, RSS-210	Class:	N/A

RSS 210 and FCC 15.407 (UNII) Radiated Spurious Emissions

Test Specific Details

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

General Test Configuration

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

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

Ambient Conditions:	Temperature:	15-20 °C
	Rel. Humidity:	40-60 %

Modifications Made During Testing

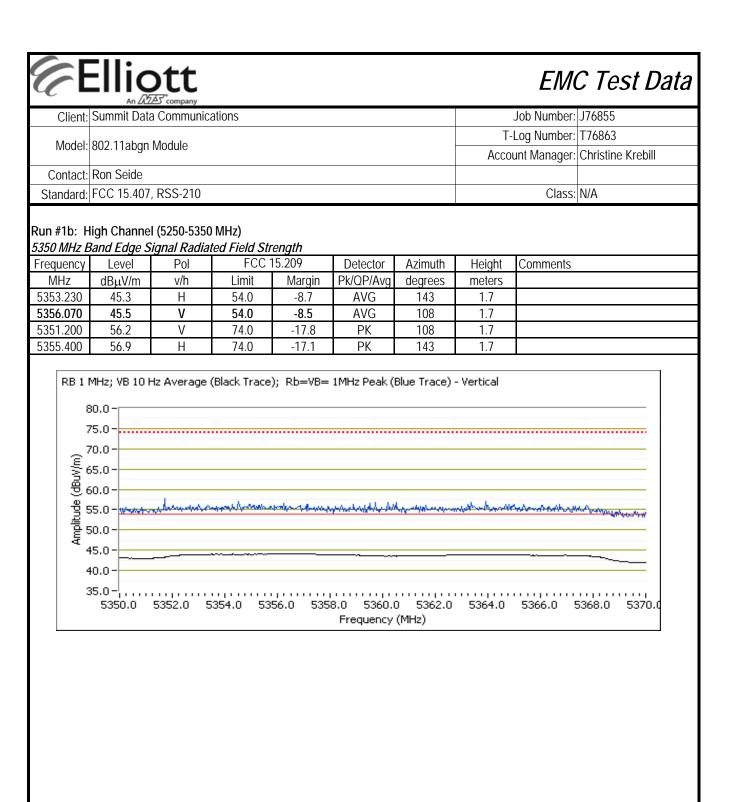
No modifications were made to the EUT during testing

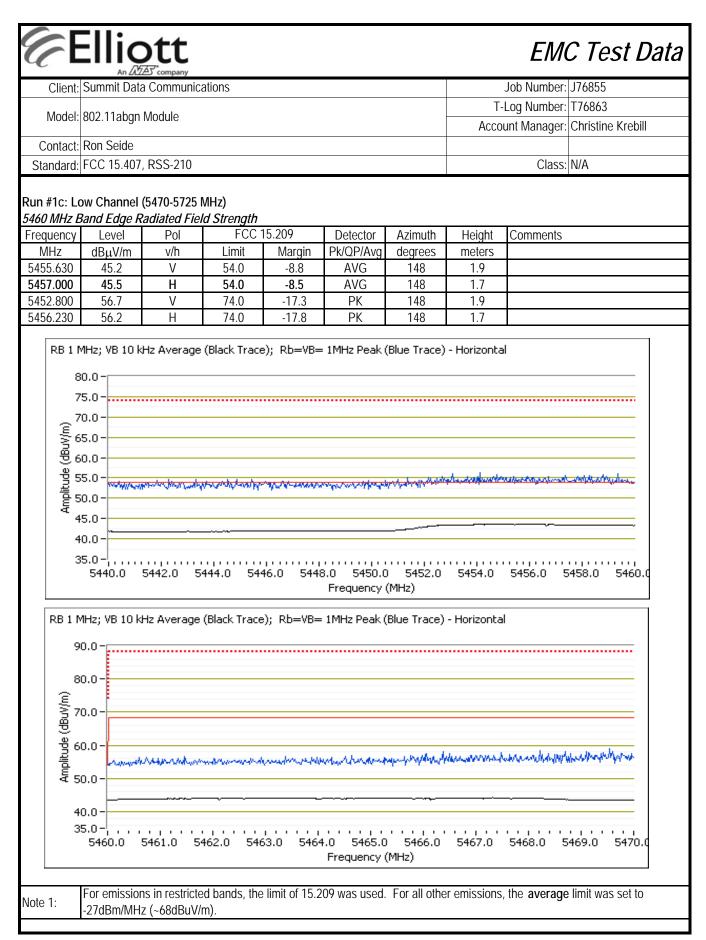
Deviations From The Standard

No deviations were made from the requirements of the standard.

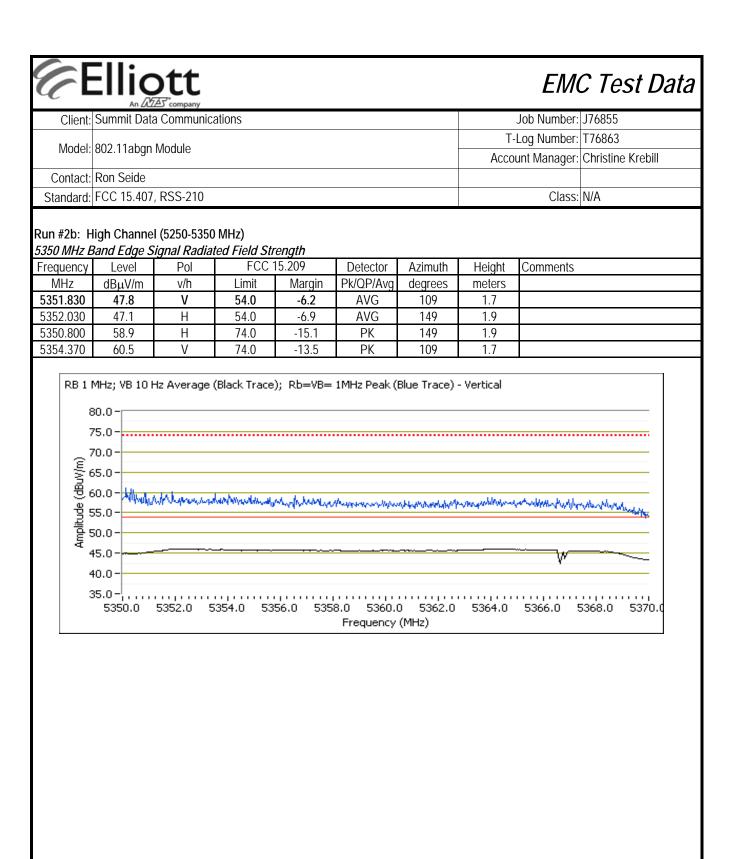
Elliott EMC Test Data										
Client:	Summit Data Communications Job Number: J76855									
Ma dal	000 11 - 1	Maria I.				T-Log Number:	T76863			
Wodel:	802.11abgn	wodule			-	Account Manager:	Christine Krebill			
Contact:	Ron Seide									
	FCC 15.407	, RSS-210				Class:	N/A			
Summary	of Result	ts								
Run #	Mode	Channel	Power Setting	Antenna	Test Performed	Limit	Result / Margin			
	802.11a Chain A	5150-5250 Low	Max	H&S Monopole	Restricted Band Edge at 5150 MHz	15.209	43.6dBµV/m @ 5147.3MHz (-10.4dB)			
1	802.11a Chain A	5250-5350 High	Max	H&S Monopole	Restricted Band Edge at 5350 MHz	15.209	45.5dBµV/m @ 5356.1MHz (-8.5dB)			
	802.11a Chain A	5470-5725 Low	Max	H&S Monopole	Restricted Band Edge at 5460 MHz	15.209	45.5dBµV/m @ 5457.0MHz (-8.5dB)			
	802.11 HT20	5150-5250 Low	Max	H&S Monopole	Restricted Band Edge at 5150 MHz	15.209	43.3dBµV/m @ 5142.5MHz (-10.7dB)			
2	802.11 HT20	5250-5350 High	Max	H&S Monopole	Restricted Band Edge at 5350 MHz	15.209	47.8dBµV/m @ 5351.8MHz (-6.2dB)			
	802.11 HT20	5470-5725 Low	Max	H&S Monopole	Restricted Band Edge at 5460 MHz	15.209	46.4dBµV/m @ 5457.8MHz (-7.6dB)			
	802.11 HT40	5150-5250 Low	Max	H&S Monopole	Restricted Band Edge at 5150 MHz	15.209	47.9dBµV/m @ 5149.9MHz (-6.1dB)			
3	802.11 HT40	5250-5350 High	Max	H&S Monopole	Restricted Band Edge at 5350 MHz	15.209	50.7dBµV/m @ 5350.0MHz (-3.3dB)			
	802.11 HT40	5470-5725 Low	Max	H&S Monopole	Restricted Band Edge at 5460 MHz	15.209	47.4dBµV/m @ 5460.0MHz (-6.6dB)			

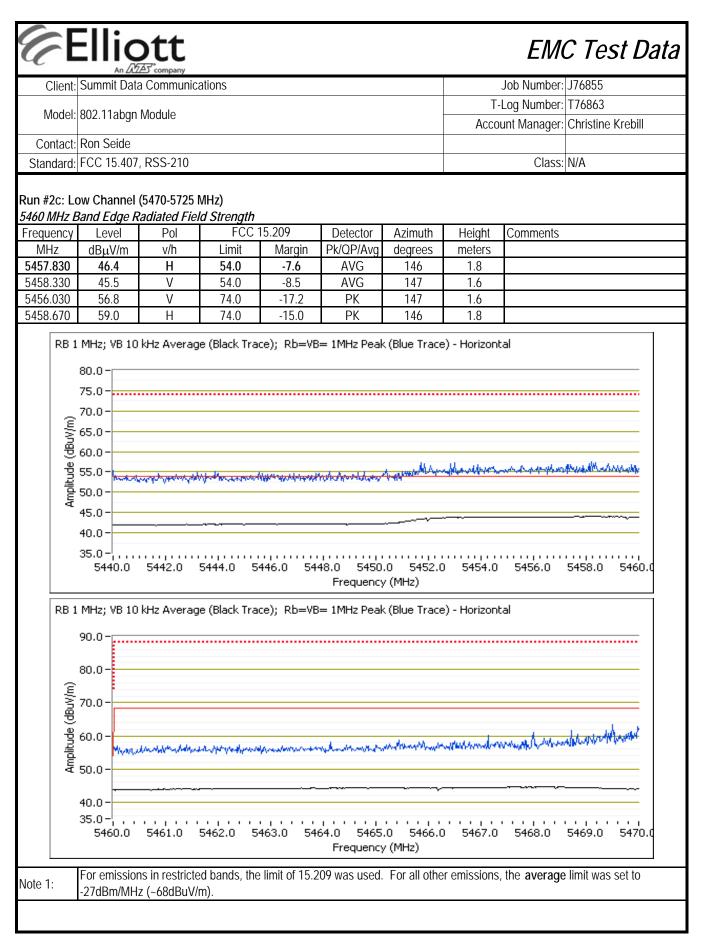
	-11.								
C		D tt						EMO	C Test Data
Client:	Summit Data	a Communic	ations				Job Number:	J76855	
	000 44						T-	Log Number:	T76863
Model:	802.11abgn	Module					Acco	unt Manager:	Christine Krebill
Contact:	Ron Seide								
Standard:	dard: FCC 15.407, RSS-210 Class: N/A								
Run #1, Radiated Band Edge, 802.11a									
		C							
Date:	11/6/2009		Engineer:	Mehran Birg	gani	Location:	OATS #2		
	Monopole #2 00172309A		uhner, SOA 2 DRIVER:		/V_C, 6.5dBi		t # 2009-163 V3.00.37	32 & 1633	
	ow Channel Band Edge S		ted Field Str						
Frequency		Pol		15.209	Detector	Azimuth	Height	Comments	
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters		
5145.130	43.6	H	54.0	-10.4	AVG	144	1.6		
5147.300	43.6	V	54.0	-10.4	AVG	109	1.6		
5137.070 5147.270	53.6 55.3	H	74.0 74.0	-20.4 -18.7	PK PK	144 109	1.6 1.6		
5147.270	00.0	V	74.0	-10.7	FN	109	1.0		
Amplitude (dBuV/m)	70.0 - 65.0 - 55.0 - 55.0 - 50.0 - 45.0 - 40.0 -	yetalaraharan 	/www.doge-st-stool		NY/More-ant-anglesson	0 5142.0			

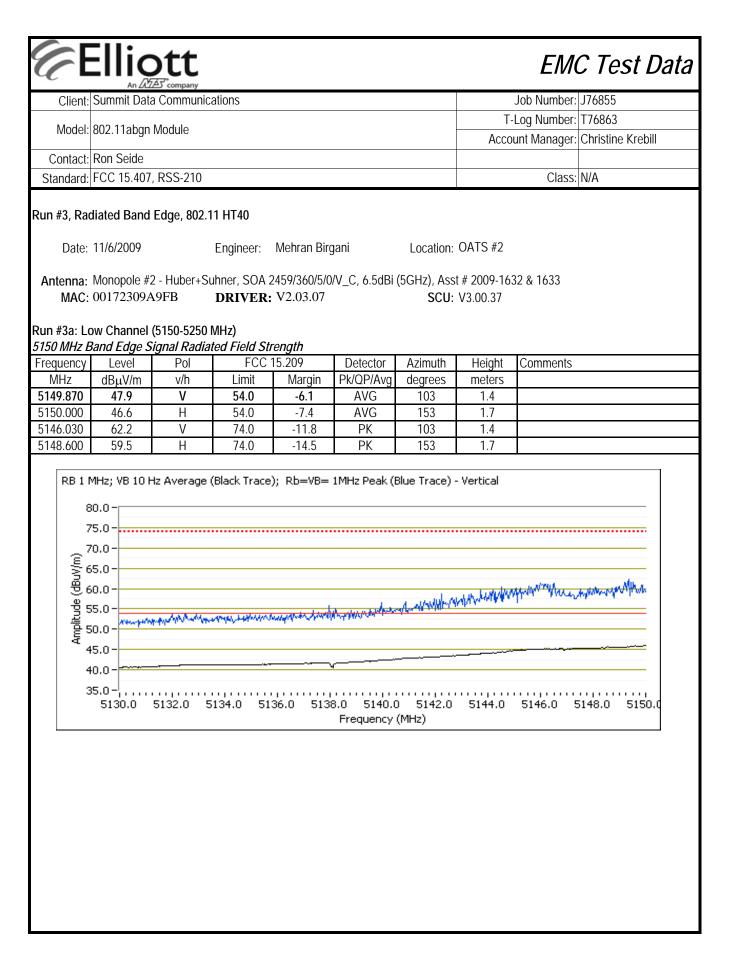


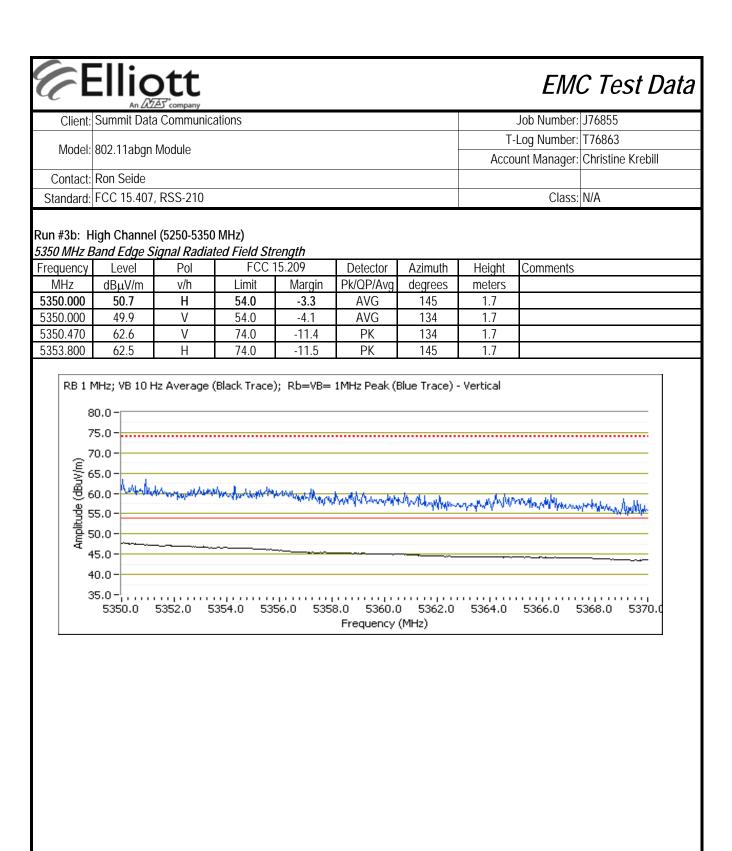


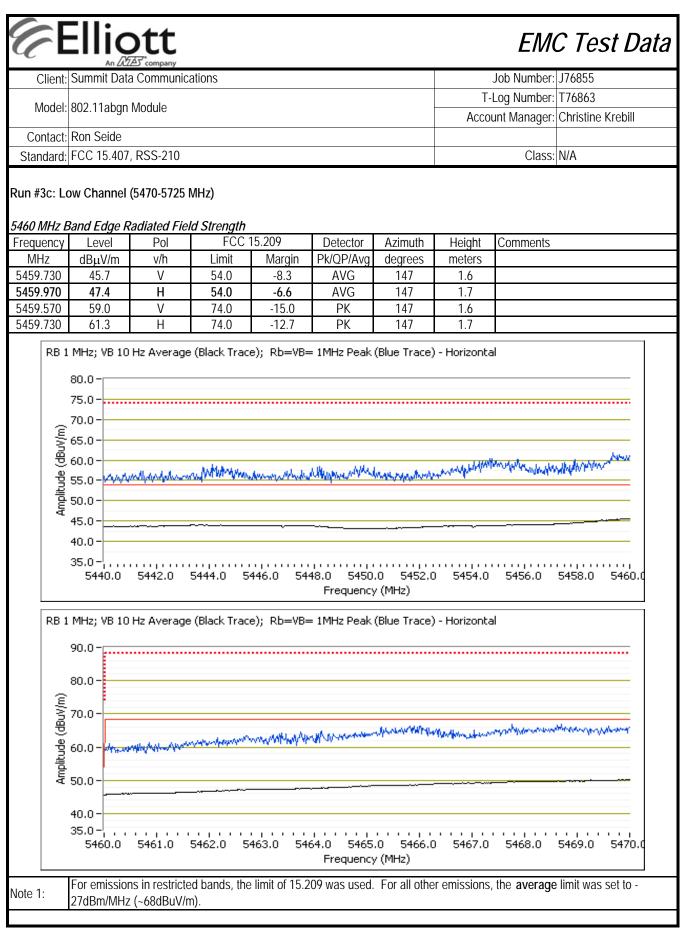
		D <i>C</i> [*] company						EM	C Test Da
Client:	Summit Data Communications							Job Number: J76855	
Model:	802.11abgn Module						T-Log Number:		
							Acco	unt Manager:	Christine Krebill
	Ron Seide							01	N1/A
Standard:	I: FCC 15.407, RSS-210							Class:	N/A
un #2, Rad	diated Band	Edge, 802.	11 HT20						
Date:	11/6/2009		Engineer:	Mehran Birç	gani	Location:	OATS #2		
	Monopole #		Suhner, SOA 2 DRIVER:		/V_C, 6.5dBi		t # 2009-163 V3.00.37	32 & 1633	
	ow Channel Band Edge S		MHz) ated Field St	rength					
requency	Level	Pol		15.209	Detector	Azimuth	Height	Comments	
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters		
5142.430	42.6 43.3	H V	54.0 54.0	-11.4 - 10.7	AVG AVG	147 106	1.7 1.5		
5142.470 5136.670	43.3 54.9	V	54.0 74.0	-10.7	PK	106	1.5		
5144.730	54.4	H	74.0	-19.6	PK	100	1.7		
Amplitude (dBuv/m)	70.0 - i5.0 - i5.0 - i5.0 - i5.0 - i5.0 - i5.0 - i5.0 - i0.0 - i5.0 - i0.0 -	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	ner and a second	an talahatan ang) 5142.0		·····	5148.0 5150.0











Elliott EMC Test Data Client: Summit Data Communications Job Number: J76855 T-Log Number: T76863 Model: 802.11abgn Module Account Manager: Christine Krebill Contact: Ron Seide Standard: FCC 15.407, RSS-210 Class: N/A **RSS 210 and FCC 15.407 (UNII) Radiated Spurious Emissions** Test Specific Details Objective: The objective of this test session is to perform final qualification testing of the EUT with respect to the specification listed above. Ambient Conditions: Temperature: 15-20 °C Rel. Humidity: 40-60 % Summary of Results Power Run # Channel Test Performed Limit Mode Antenna Result / Margin Setting 5150-5250 Radiated Emissions, 39.7dBuV/m @ 802.11a H&S Max FCC 15.209 / 15 E 1 - 40 GHz 15538.5MHz (-14.3dB) Chain A Low Monopole Radiated Emissions, 39.9dBµV/m @ 802.11a 5150-5250 H&S 1 FCC 15.209 / 15 E Max 15598.5MHz (-14.1dB) Chain A Center Monopole 1 - 40 GHz 5150-5250 H&S Radiated Emissions, 40.2dBµV/m @ 802.11a FCC 15.209 / 15 E Max 1 - 40 GHz 15718.5MHz (-13.8dB) Chain A High Monopole 82.5dBµV/m @ 802.11a 5250-5350 H&S Radiated Emissions, FCC 15.209 / 15 E Max Chain A Low Monopole 1 - 40 GHz 10519.4MHz (-5.8dB) Radiated Emissions. 43.1dBµV/m @ 802.11a 5250-5350 H&S 2 FCC 15.209 / 15 E Max Monopole 15898.5MHz (-10.9dB) Chain A Center 1 - 40 GHz 5250-5350 Radiated Emissions, 41.3dBµV/m @ 802.11a H&S FCC 15.209 / 15 E Max 1 - 40 GHz 15958.5MHz (-12.7dB) High Monopole Chain A Radiated Emissions, 40.2dBµV/m @ 802.11a 5470-5725 H&S FCC 15.209 / 15 E Max 11000.1MHz (-13.8dB) Chain A Low Monopole 1 - 40 GHz

Modifications Made During Testing

No modifications were made to the EUT during testing

5470-5725

Center

5470-5725

High

Deviations From The Standard

802.11a

Chain A

802.11a

Chain A

3

No deviations were made from the requirements of the standard.

Radiated Emissions,

1 - 40 GHz

Radiated Emissions,

1 - 40 GHz

H&S

Monopole

H&S

Monopole

Max

Max

40.2dBµV/m @

11161.3MHz (-13.8dB)

39.2dBµV/m @

11400.2MHz (-14.8dB)

FCC 15.209 / 15 E

FCC 15.209 / 15 E

un #1, Radiated Spurious Emissions, 30 - 40,000 MH. Operation in the 5150-5250 MHz Band, 802.11a Mode Date: 11/6/2009 Engineer: Peter Sales Location: OATS #2 Antenna: Monopole #2 - Huber+Suhner, SOA 2459/360/5/0V_C, 6.5dBi (5GHz), Asst # 2009-1632 & 1633 MAC: 00172309A9FB DRIVER: V2.03.07 SCU: V3.00.37 un #1a: Low Channel Durious Radiated Emissions: requency Level Pol 15.209 / 15E Detector Azimuth Height Comments MHz dBµV/m V/h Limit Margin Pk/QP/Avg degrees meters 0359.230 39.6 V 68.3 -28.7 AVG 295 1.0 RB 1 MHz; VB: 10 Hz 0360.270 51.7 V 88.3 -36.6 PK 295 1.0 RB 1 MHz; VB: 10 Hz 0361.080 39.9 H 68.3 -28.4 AVG 240 1.0 RB 1 MHz; VB: 10 Hz 5538.500 39.7 H 54.0 -14.3 AVG 63 1.0 RB 1 MHz; VB: 10 Hz 5538.500 39.7 H 54.0 -14.5 AVG 145 1.0 RB 1 MHz; VB: 10 Hz 5539.530 51.4 H 74.0 -22.6 PK 63 1.0 RB 1 MHz; VB: 10 Hz 5539.530 51.4 H 74.0 -23.0 PK 145 1.0 RB 1 MHz; VB: 10 Hz 5534.1250 51.0 V 74.0 -23.0 PK 145 1.0 RB 1 MHz; VB: 10 Hz 5541.250 51.0 V 74.0 -23.0 PK 145 1.0 RB 1 MHz; VB: 10 Hz 5541.250 51.0 V 74.0 -23.0 PK 145 1.0 RB 1 MHz; VB: 10 Hz 5541.250 51.0 V 74.0 -23.0 PK 145 1.0 RB 1 MHz; VB: 10 Hz 5541.250 51.0 V 74.0 -23.0 PK 145 1.0 RB 1 MHz; VB: 10 Hz 5541.250 51.0 V 74.0 -23.0 PK 145 1.0 RB 1 MHz; VB: 10 Hz 5541.250 51.0 V 74.0 -23.0 PK 145 1.0 RB 1 MHz; VB: 10 Hz 5541.250 51.0 V 74.0 -23.0 PK 145 1.0 RB 1 MHz; VB: 10 Hz 5541.250 51.0 V 74.0 -23.0 PK 145 1.0 RB 1 MHz; VB: 10 Hz 5541.250 51.0 V 74.0 -23.0 PK 145 1.0 RB 1 MHz; VB: 10 Hz 5541.250 51.0 V 74.0 -23.0 PK 145 1.0 RB 1 MHz; VB: 10 Hz 5541.250 51.0 V 74.0 -23.0 PK 145 1.0 RB 1 MHz; VB: 10 Hz 5541.250 51.0 V 74.0 -23.0 PK 145 1.0 RB 1 MHz; VB: 10 Hz 5541.250 51.0 V 74.0 -23.0 PK 145 1.0 RB 1 MHz; VB: 10 Hz 5541.250 51.0 V 74.0 -40.2 PR 558.550 30.4 H 55.0 PR 558.550 30.6 H 15.209 / 15E Petector Azimuth Height Comments 558.550 30.6 H 55.0 Y 45.0 -14.4 AVG 145 1.0 RB 1 MHz; VB: 10 Hz 558.550 30.6 H 55.0 Y 45.0 -14.4 AVG 145 1.0 RB 1 MHz; VB: 10 Hz 558.550 30.6 H 55.0 Y 45.0 -14.4 AVG 145 1.0 RB 1 MHz; VB: 10 Hz 558.550 30.6 H 55.0 Y 40.0 -14.4 AVG 145 1.0		Summit Data	a Communic	cations					Job Number:	
Contact: Ron Seide Standard: FCC 15.407, RSS-210 Class:: NA un #1, Radiated Spurious Emissions, 30 - 40,000 MH. Operation in the 5150-5250 MHz Band, 802.11a Mode Date:: 11/6/2009 Engineer: Peter Sales Location: OATS #2 Antenna: Monopole #2 - Huber+Suhner, SOA 2459/360/5/0/V_C, 6.5dBi (5GHz), Asst # 2009-1632 & 1633 MAC:: 00172309A9FB DRIVER: V2.03.07 SCU: V3.00.37 un #1a: Low Channel Parious Radiated Emissions: requency Level Pol 15.209 / 15E Detector Azimuth Height Comments 0359.230 39.6 V 68.3 -28.7 AVG 295 1.0 RB 1MHz; VB: 10 Hz 0359.200 39.7 H 54.0 -14.3 AVG 240 1.0 RB 1 MHz; VB: 10 Hz 0358.500 39.7 H 54.0 -14.3 AVG 63 1.0 RB 1 MHz; VB: 10 Hz 0359.530 51.4 H 74.0 -22.6 PK 63 1.0 RB 1 MHz; VB: 10 Hz	Model:	802.11abgn	Module						5	
Standard: FCC 15.407, RSS-210 Class: N/A un #1, Radiated Spurious Emissions, 30 - 40,000 MH. Operation in the 5150-5250 MHz Band, 802.11a Mode Date: 11/6/2009 Engineer: Peter Sales Location: OATS #2 Antenna: Monopole #2 - Huber+Suhner, SOA 2459/360/5/0/V_C, 6.5dBi (5GHz), Asst # 2009-1632 & 1633 MAC: 00172309A9FB DRIVER: V2.03.07 SCU: V3.00.37 un #1a: Low Channel purious Radiated Emissions: requency Level Pol 15.209/15E Detector Azimuth Height Comments MHz dBµJ/m v/h Limit Margin Pk/QP/Avg degrees meters 0359.230 39.6 V 68.3 -28.7 AVG 295 1.0 RB 1 MHz; VB: 10 Hz 0359.600 51.6 H 88.3 -36.6 PK 295 1.0 RB 1 MHz; VB: 10 Hz 0359.60 39.7 H 54.0 -14.5 AVG 145 1.0 RB 1 MHz; VB: 10 Hz 0351.820 39.7 H 54.0	Contrat	Dan Caida						ACCO	unt Manager:	Christine Kredil
tun #1, Radiated Spurious Emissions, 30 - 40,000 MH. Operation in the 5150-5250 MHz Band, 802.11a Mode Date: 11/6/2009 Engineer: Peter Sales Location: OATS #2 Antenna: Monopole #2 - Huber+Suhner, SOA 2459/360/5/0V_C, 6.5dBi (5GHz), Asst # 2009-1632 & 1633 MAC: 00172309A9FB DRIVER: V2.03.07 SCU: V3.00.37 tun #1a: Low Channel Duriver: V2.03.07 SCU: V3.00.37 tun #1a: Low Channel Date: N/h Limit Margin 0359.230 39.6 V 68.3 -28.7 AVG 295 1.0 RB 1 MHz: VB: 10 Hz 0350.200 39.7 H 68.3 -28.4 AVG 240 1.0 RB 1 MHz: VB: 10 Hz 15538.500 39.7 H 54.0 -14.3 AVG 63 1.0 RB 1 MHz: VB: 10 Hz 15539.530 51.4 H 74.0 -22.6 PK 63			DCC 210						Class	NI/A
Date: 11/6/2009 Engineer: Peler Sales Location: OATS #2 Antenna: Monopole #2 - Huber+Suhner, SOA 2459/360/5/0V/_C, 6.5dBi (5GHz), Asst # 2009-1632 & 1633 MAC: 00172309A9FB DRIVER: V2.03.07 SCU: V3.00.37 un #1a: Low Channel DRIVER: V2.03.07 SCU: V3.00.37 un #1a: Low Channel Durious Radiated Emissions: Engency Level Pol 15.209 / 15E Detector Azimuth Height Comments MHz dBµ//m v/h Limit Margin Pk/QP/Avg degrees meters 0359.230 39.6 V 68.3 -28.7 AVG 295 1.0 RB 1 MHz; VB: 10 Hz 0360.270 51.7 V 88.3 -36.6 PK 295 1.0 RB 1 MHz; VB: 10 Hz 5538.600 39.7 H 54.0 -14.3 AVG 240 1.0 RB 1 MHz; VB: 10 Hz 5539.530 51.4 H 74.0 -22.6 PK 63 1.0 RB 1 MHz; VB: 10 Hz 5539.530 51.0 V 74.0 -23.0 PK 145 1.0 RB 1	Standard:	FUU 15.407	, KSS-210						Class:	IN/A
Antenna: Monopole #2 - Huber+Suhner, SOA 2459/360/5/0/V_C, 6.5dBi (5GHz), Asst # 2009-1632 & 1633 MAC: 00172309A9FB DRIVER: V2.03.07 SCU: V3.00.37 un #1a: Low Channel jpurious Radiated Emissions:	un #1, Ra	diated Spuri	ous Emissi	ons, 30 - 40,	000 MH. Op	eration in the	5150-5250	MHz Band,	802.11a Mod	le
Antenna: Monopole #2 - Huber+Suhner, SOA 2459/360/5/0V_C, 6.5dBi (5GHz), Asst # 2009-1632 & 1633 MAC: 00172309A9FB DRIVER: V2.03.07 SCU: V3.00.37 un #1a: Low Channel Daliver: V2.03.07 SCU: V3.00.37 un #1a: Low Channel Daliver: V2.03.07 SCU: V3.00.37 un #1a: Low Channel Daliver: V2.03.07 SCU: V3.00.37 MHz dBµ.V/m v/h Limit Margin Pk/QP/Avg degrees meters D0359.230 39.6 V 68.3 -28.7 AVG 295 1.0 RB 1 MHz; VB: 10 Hz D360.270 51.7 V 88.3 -36.6 PK 295 1.0 RB 1 MHz; VB: 10 Hz D360.270 51.7 V 88.3 -36.6 PK 295 1.0 RB 1 MHz; VB: 10 Hz D538.500 39.7 H 54.0 -14.3 AVG 63 1.0 RB 1 MHz; VB: 10 Hz D538.500 39.5 V 54.0 -14.5 AVG 145 1.0 RB 1 MHz; VB: 10 Hz D539.530 51.4 H 74.0 -22.6	Date [.]	11/6/2009		Engineer [.]	Peter Sales	ξ.	Location.	OATS #2		
MAC: 00172309A9FB DRIVER: V2.03.07 SCU: V3.00.37 Run #1a: Low Channel Envirous Radiated Emissions: Frequency Level Pol 15.209 / 15E Detector Azimuth Height Comments MHz dBµV/m v/h Limit Margin Pk/QP/Avg degrees meters 10359.230 39.6 V 68.3 -28.7 AVG 295 1.0 RB 1 MHz; VB: 10 Hz 10360.270 51.7 V 88.3 -36.6 PK 295 1.0 RB 1 MHz; VB: 10 Hz 10361.080 39.9 H 68.3 -28.4 AVG 240 1.0 RB 1 MHz; VB: 10 Hz 15538.500 39.7 H 54.0 -14.3 AVG 63 1.0 RB 1 MHz; VB: 10 Hz 15538.520 39.5 V 54.0 -14.5 AVG 145 1.0 RB 1 MHz; VB: 10 Hz 15539.530 51.4 H 74.0 -22.6 PK 63 1.0	Dute.	1110/2007		Lighteen		, ,	Location.	0/110 #2		
un #1a: Low Channel ipurious Radiated Emissions: requency Level Pol 15.209/15E Detector Azimuth Height Comments MHz dBµV/m V/h Level Pol 15.209/15E Detector Azimuth Height Comments MHz dBµV/m V/h 68.3 -28.7 AVG 295 1.0 RB 1 MHz; VB: 10 Hz 0350.270 51.7 V 88.3 -36.6 PK 240 1.0 RB 1 MHz; VB: 10 Hz 0350.290 39.7 H 64.0 -1.0 RB 1 MHz; VB: 10 Hz 5336.500 39.7 H 54.0 -0 RB 1 MHz; VB: 10 Hz 5538.620)/V_C, 6.5dBi	. ,		32 & 1633	
purious Radiated Emissions: requency Level Pol 15.209 / 15E Detector Azimuth Height Comments MHz dBµV/m v/h Limit Margin Pk/OP/Avg degrees meters 0359.230 39.6 V 68.3 -28.7 AVG 295 1.0 RB 1 MHz; VB: 10 Hz 0359.960 51.6 H 88.3 -36.6 PK 240 1.0 RB 1 MHz; VB: 10 Hz 0360.270 51.7 V 88.3 -36.6 PK 295 1.0 RB 1 MHz; VB: 10 Hz 0360.270 51.7 V 88.3 -28.4 AVG 240 1.0 RB 1 MHz; VB: 10 Hz 0360.270 39.7 H 54.0 -14.3 AVG 63 1.0 RB 1 MHz; VB: 10 Hz 5538.620 39.5 V 54.0 -14.5 AVG 145 1.0 RB 1 MHz; VB: 10 Hz 5541.250 51.0 V 74.0 -23.0 PK 145	MAC:	00172309A	9FB	DRIVER :	V2.03.07		SCU:	V3.00.37		
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5541.250 51.0 V 74.0 -23.0 PK 145 1.0 RB 1 MHz; VB: 1 MHz ote 1: For emissions in restricted bands, the limit of 15.209 was used. For all other emissions, the average limit was 27dBm/MHz (~68dBuV/m). un #1b: Center Channel currious Radiated Emissions: requency Level Pol 15.209 / 15E Detector Azimuth Height Comments MHz dBµV/m v/h Limit Margin Pk/QP/Avg degrees meters 0390.930 40.0 V 68.3 -28.3 AVG 359 1.0 RB 1 MHz; VB: 10 Hz 0390.930 40.0 V 68.3 -28.1 AVG 161 1.0 RB 1 MHz; VB: 10 Hz 0390.930 40.2 H 68.3 -28.1 AVG 161 1.0 RB 1 MHz; VB: 10 Hz 0400.970 40.2 H 68.3 -28.1 AVG 161 1.0 RB 1 MHz; VB: 10 Hz 0413.870 51.6 V 88.3 -36.7 PK 359										
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0400.970 40.2 H 68.3 -28.1 AVG 161 1.0 RB 1 MHz; VB: 10 Hz 0413.870 51.6 V 88.3 -36.7 PK 359 1.0 RB 1 MHz; VB: 10 Hz 5598.500 39.6 H 54.0 -14.4 AVG 145 1.0 RB 1 MHz; VB: 10 Hz 5598.540 39.9 V 54.0 -14.1 AVG 134 1.0 RB 1 MHz; VB: 10 Hz 5598.580 51.3 V 74.0 -22.7 PK 134 1.0 RB 1 MHz; VB: 1 MHz										
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5598.540 39.9 V 54.0 -14.1 AVG 134 1.0 RB 1 MHz; VB: 10 Hz 5598.580 51.3 V 74.0 -22.7 PK 134 1.0 RB 1 MHz; VB: 10 Hz			Н			AVG		1.0		
	5598.500							1.0	RB 1 MHz; \	/B: 10 Hz
			V							
	5598.540		Н						RB 1 MHz;	/B: 1 MHz
	5598.540 5598.580									
For emissions in restricted bands, the limit of 15.209 was used. For all other emissions, the average limit was	5598.540 5598.580			ed hands the	e limit of 15.2	209 was used.	For all othe	r emissions	, the average	limit was set to
27dBm/MHz (~68dBuV/m).	5598.540 5598.580 5599.040	For emissior	is in restrict							
	5598.540 5598.580									

Client:		Communic	ations					Job Number:	J76855
Madal	000 11 ab am	Madula					T-	Log Number:	T76863
wodel: 8	302.11abgn	viouule					Ассо	unt Manager:	Christine Krebill
Contact:	Ron Seide								
tandard:	FCC 15.407,	RSS-210						Class:	N/A
irious Ra	gh Channel Indiated Emis Level		15 200	9 / 15E	Detector	Azimuth	Lloight	Comments	
quency MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	Height meters	Comments	
79.800	39.2	V	68.3	-29.1	AVG	20	1.0	RB 1 MHz;	VB: 10 Hz
9.930	50.7	V	88.3	-37.6	PK	20	1.0	RB 1 MHz;	
0.090	39.3	H	68.3	-29.0	AVG	20	1.0	RB 1 MHz;	
0.200	53.2	H	88.3	-35.1	PK	20	1.0	RB 1 MHz;	
18.500	39.5	H	54.0	-14.5	AVG	6	1.9	RB 1 MHz;	
0.870	50.6	Н	74.0	-23.4	PK	6	1.9	RB 1 MHz; V	
8.500	40.2	V	54.0	-13.8	AVG	84	1.0	RB 1 MHz;	
9.140	51.2	V	74.0	-22.8	PK	84	1.0	RB 1 MHz;	
	For emission 27dBm/MHz			limit of 15.2	09 was used.	For all othe	r emissions	, the average	Iimit was set to
· ·				limit of 15.2	09 was used.	For all othe	r emissions	, the average	limit was set to
· ·				limit of 15.2	09 was used.	For all othe	r emissions	, the average	limit was set to
				limit of 15.2	09 was used.	For all othe	r emissions	, the average	limit was set to
				e limit of 15.2	209 was used.	For all othe	r emissions	, the average	limit was set to

	Summit Data	a Communic	ations					Job Number:	
Model:	802.11abgn	Module						Log Number:	
							Acco	unt Manager:	Christine Krebill
	Ron Seide FCC 15.407,	DCC 210						Class	NI/A
Standard	FCC 13.407	, KSS-210						Class:	IWA
un #2, Ra	diated Spurio	ous Emissio	ons, 30 - 40,	000 MH. Op	eration in the	5250-5350	MHz Band,	802.11a Mod	le
Date:	11/6/2009		Engineer:	Peter Sales	i	Location:	OATS #2		
	Monopole #2 00172309A		uhner, SOA 2 DRIVER:		/V_C, 6.5dBi	• •	: # 2009-163 V3.00.37	32 & 1633	
	ow Channel								
<i>purious R</i> requency	Padiated Emis Level	<i>ssions:</i> Pol	15 20	9/15E	Detector	Azimuth	Height	Comments	
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	Commonito	
0519.410	82.5	H	88.3	-5.8	PK	261	1.0	RB 1 MHz; V	/B: 1 MHz
0520.010	71.0	V	88.3	-17.3	PK	17	1.0	RB 1 MHz; V	
0520.100	41.4	V	68.3	-26.9	AVG	17	1.0	RB 1 MHz; V	/B: 10 Hz
0520.340	43.2	Н	68.3	-25.1	AVG	261	1.0	RB 1 MHz; V	
			F40	-11.6	AVG	85	1.2	RB 1 MHz; V	/B [.] 10 Hz
5778.500	42.4	V	54.0				1.2		
5778.500 5778.500	40.2	Н	54.0	-13.8	AVG	101	1.0	RB 1 MHz; V	/B: 10 Hz
5778.500 5778.500 5778.850	40.2 51.4	H H	54.0 74.0	-13.8 -22.6	AVG PK	101 101	1.0 1.0	RB 1 MHz; RB 1 MHz;	/B: 10 Hz /B: 1 MHz
5778.500 5778.500 5778.850	40.2 51.4 54.0	H H V	54.0 74.0 74.0	-13.8 -22.6 -20.0	AVG PK PK	101 101 85	1.0 1.0 1.2	RB 1 MHz; RB 1 MHz; RB 1 MHz; RB 1 MHz;	/B: 10 Hz /B: 1 MHz /B: 1 MHz
5778.500 5778.500 5778.850 5779.920 ote 1: un #2b: (40.2 51.4 54.0 For emissior 27dBm/MHz Center Chanr	H H V ns in restricte (~68dBuV/r	54.0 74.0 74.0 ed bands, the	-13.8 -22.6 -20.0	AVG PK PK	101 101 85	1.0 1.0 1.2	RB 1 MHz; RB 1 MHz; RB 1 MHz; RB 1 MHz;	/B: 10 Hz /B: 1 MHz
5778.500 5778.500 5778.850 5779.920 ote 1: ote 1:	40.2 51.4 54.0 For emissior 27dBm/MHz Center Chanr Padiated Emi	H H V ns in restricte (~68dBuV/r nel ssions:	54.0 74.0 74.0 ed bands, the n).	-13.8 -22.6 -20.0 e limit of 15.2	AVG PK PK 209 was used.	101 101 85 For all othe	1.0 1.0 1.2 r emissions	RB 1 MHz; \ RB 1 MHz; \ RB 1 MHz; \ , the average	/B: 10 Hz /B: 1 MHz /B: 1 MHz
5778.500 5778.500 5778.850 5779.920 ote 1: ote 1:	40.2 51.4 54.0 For emission 27dBm/MHz Center Chanr Cadiated Emis Level	H H V ns in restricte (~68dBuV/r nel ssions: Pol	54.0 74.0 74.0 ed bands, the n).	-13.8 -22.6 -20.0 e limit of 15.2	AVG PK PK	101 101 85	1.0 1.0 1.2 r emissions Height	RB 1 MHz; RB 1 MHz; RB 1 MHz; RB 1 MHz;	/B: 10 Hz /B: 1 MHz /B: 1 MHz
5778.500 5778.500 5778.850 5779.920 ote 1: ote 1: un #2b: (<u>purious R</u> requency MHz	40.2 51.4 54.0 For emissior 27dBm/MHz Center Chanr Padiated Emi	H H V ns in restricte (~68dBuV/r nel ssions:	54.0 74.0 74.0 ed bands, the n).	-13.8 -22.6 -20.0 e limit of 15.2	AVG PK PK 209 was used. Detector	101 101 85 For all othe Azimuth	1.0 1.0 1.2 r emissions	RB 1 MHz; \ RB 1 MHz; \ RB 1 MHz; \ , the average	/B: 10 Hz /B: 1 MHz /B: 1 MHz limit was set to -
5778.500 5778.500 5778.850 5779.920 ote 1: ote 1: un #2b: C purious K requency MHz 0598.500 0599.620	40.2 51.4 54.0 For emission 27dBm/MHz Center Chann Cation Channel Center Channel Cente	H H V ns in restricte (~68dBuV/r nel ssions: Pol V/h H V	54.0 74.0 74.0 ed bands, the n). 15.20 Limit 68.3 88.3	-13.8 -22.6 -20.0 e limit of 15.2 9 / 15E Margin -29.7 -37.1	AVG PK PK 09 was used. Detector Pk/QP/Avg AVG PK	101 101 85 For all othe Azimuth degrees	1.0 1.0 1.2 r emissions Height meters	RB 1 MHz; \ RB 1 MHz; \ RB 1 MHz; \ , the average Comments	/B: 10 Hz /B: 1 MHz /B: 1 MHz limit was set to -
5778.500 5778.500 5778.850 5779.920 5779.920 5779.920 5779.920 5779.920 5779.920 5779.920 579.500 5599.620 5599.760	40.2 51.4 54.0 For emission 27dBm/MHz Center Chann 2adiated Emis Level dBµV/m 38.6 51.2 50.8	H H V ns in restricte (~68dBuV/r nel ssions: Pol v/h H V H	54.0 74.0 74.0 ed bands, the n). 15.20 Limit 68.3 88.3 88.3	-13.8 -22.6 -20.0 e limit of 15.2 9 / 15E Margin -29.7 -37.1 -37.5	AVG PK PK 09 was used. Detector Pk/QP/Avg AVG PK PK	101 101 85 For all othe Azimuth degrees 148 97 148	1.0 1.0 1.2 r emissions Height meters 1.0 1.8 1.0	RB 1 MHz; \ RB 1 MHz; \ RB 1 MHz; \ , the average Comments RB 1 MHz; \ RB 1 MHz; \ RB 1 MHz; \ RB 1 MHz; \	/B: 10 Hz /B: 1 MHz /B: 1 MHz limit was set to - /B: 10 Hz /B: 10 Hz /B: 1 MHz /B: 1 MHz
5778.500 5778.500 5778.850 5779.920 ote 1: ote 1: our #2b: (purious K requency MHz 0598.500 0599.620 0599.760 0599.830	40.2 51.4 54.0 For emission 27dBm/MHz Center Chanr Padiated Emis Level dBμV/m 38.6 51.2 50.8 39.5	H H V ns in restricte (~68dBuV/r nel ssions: Pol V/h H V H V	54.0 74.0 74.0 ed bands, the n). 15.20 Limit 68.3 88.3 88.3 88.3 68.3	-13.8 -22.6 -20.0 e limit of 15.2 9 / 15E Margin -29.7 -37.1 -37.5 -28.8	AVG PK PK 209 was used. Detector Pk/QP/Avg AVG PK PK AVG	101 101 85 For all othe Azimuth degrees 148 97 148 97	1.0 1.0 1.2 r emissions Height meters 1.0 1.8 1.0 1.8	RB 1 MHz; \ RB 1 MHz; \ RB 1 MHz; \ RB 1 MHz; \ , the average Comments RB 1 MHz; \ RB 1 MHz; \ RB 1 MHz; \ RB 1 MHz; \ RB 1 MHz; \	/B: 10 Hz /B: 1 MHz /B: 1 MHz - limit was set to - /B: 10 Hz /B: 1 MHz /B: 1 MHz /B: 10 Hz
5778.500 5778.500 5778.850 5779.920 ote 1: ote 1: <u>ote 1:</u> <u>ote 1:</u> <u>ote 1:</u> <u>ote 1:</u> <u>ote 305 0599.620</u> 0599.620 0599.830 5898.500	40.2 51.4 54.0 For emission 27dBm/MHz Center Chann Padiated Emis Level dBμV/m 38.6 51.2 50.8 39.5 40.9	H H V ns in restricte (~68dBuV/r hel ssions: Pol v/h H V H V H	54.0 74.0 74.0 ed bands, the n). 15.20 Limit 68.3 88.3 88.3 68.3 54.0	-13.8 -22.6 -20.0 e limit of 15.2 9 / 15E Margin -29.7 -37.1 -37.5 -28.8 -13.1	AVG PK PK 209 was used. Detector Pk/QP/Avg AVG PK PK AVG AVG AVG	101 101 85 For all othe Azimuth degrees 148 97 148 97 123	1.0 1.0 1.2 r emissions Height meters 1.0 1.8 1.0 1.8 1.0	RB 1 MHz; \ RB 1 MHz; \ RB 1 MHz; \ RB 1 MHz; \ , the average Comments RB 1 MHz; \ RB 1 MHz; \	/B: 10 Hz /B: 1 MHz /B: 1 MHz - limit was set to - - /B: 10 Hz /B: 1 MHz /B: 1 MHz /B: 10 Hz /B: 10 Hz /B: 10 Hz
5778.500 5778.500 5778.850 5779.920 ote 1: ote 1: <u>purious K</u> requency MHz 0598.500 0599.620 0599.760 0599.830 5898.500	40.2 51.4 54.0 For emission 27dBm/MHz Center Chanr Padiated Emin Level dBμV/m 38.6 51.2 50.8 39.5 40.9 43.1	H H V ns in restricte (~68dBuV/r hel ssions: Pol v/h H V H V H V H	54.0 74.0 74.0 ed bands, the n). 15.20 Limit 68.3 88.3 88.3 68.3 54.0 54.0	-13.8 -22.6 -20.0 e limit of 15.2 9 / 15E Margin -29.7 -37.1 -37.5 -28.8 -13.1 -10.9	AVG PK PK 209 was used. 209 was used. 200 wa	101 101 85 For all othe Azimuth degrees 148 97 148 97 123 86	1.0 1.0 1.2 r emissions Height meters 1.0 1.8 1.0 1.8 1.0 1.2	RB 1 MHz; \ RB 1 MHz; \ RB 1 MHz; \ RB 1 MHz; \ , the average Comments RB 1 MHz; \ RB 1 MHz; \	/B: 10 Hz /B: 1 MHz /B: 1 MHz /B: 1 MHz limit was set to - /B: 10 Hz /B: 1 MHz /B: 10 Hz /B: 10 Hz /B: 10 Hz /B: 10 Hz /B: 10 Hz
5778.500 5778.500 5778.850 5779.920 ote 1: ote 1: ote 1: ote 1: ote 500 0598.500 0599.620 0599.760 0599.830 5898.500 5898.500 5899.360	40.2 51.4 54.0 For emission 27dBm/MHz Center Chann Padiated Emis Center Chann Devel dBμV/m 38.6 51.2 50.8 39.5 40.9 43.1 52.2	H H V ns in restricte (~68dBuV/r nel ssions: Pol V/h H V H V H V H	54.0 74.0 74.0 ed bands, the n). 15.20 Limit 68.3 88.3 88.3 68.3 54.0 54.0 54.0 74.0	-13.8 -22.6 -20.0 e limit of 15.2 9 / 15E Margin -29.7 -37.1 -37.5 -28.8 -13.1 -10.9 -21.8	AVG PK PK 09 was used. 09 was used. 09 was used. NO PK PK AVG AVG AVG AVG AVG AVG PK	101 101 85 For all othe Azimuth degrees 148 97 148 97 148 97 123 86 123	1.0 1.0 1.2 r emissions Height meters 1.0 1.8 1.0 1.8 1.0 1.8 1.0 1.2 1.0	RB 1 MHz; \ RB 1 MHz; \ RB 1 MHz; \ RB 1 MHz; \ , the average Comments RB 1 MHz; \ RB 1 MHz; \	/B: 10 Hz /B: 1 MHz /B: 1 MHz /Imit was set to - limit was set to - /B: 10 Hz /B: 1 MHz /B: 10 Hz /B: 10 Hz /B: 10 Hz /B: 10 Hz /B: 10 Hz /B: 10 Hz
5778.500 5778.500 5778.850 5779.920 ote 1: ote 1: un #2b: (<i>purious K</i> requency	40.2 51.4 54.0 For emission 27dBm/MHz Center Chanr Padiated Emin Level dBμV/m 38.6 51.2 50.8 39.5 40.9 43.1	H H V ns in restricte (~68dBuV/r hel ssions: Pol v/h H V H V H V H	54.0 74.0 74.0 ed bands, the n). 15.20 Limit 68.3 88.3 88.3 68.3 54.0 54.0	-13.8 -22.6 -20.0 e limit of 15.2 9 / 15E Margin -29.7 -37.1 -37.5 -28.8 -13.1 -10.9	AVG PK PK 209 was used. 209 was used. 200 wa	101 101 85 For all othe Azimuth degrees 148 97 148 97 123 86	1.0 1.0 1.2 r emissions Height meters 1.0 1.8 1.0 1.8 1.0 1.2	RB 1 MHz; \ RB 1 MHz; \ RB 1 MHz; \ RB 1 MHz; \ , the average Comments RB 1 MHz; \ RB 1 MHz; \	/B: 10 Hz /B: 1 MHz /B: 1 MHz /Imit was set to - limit was set to - /B: 10 Hz /B: 1 MHz /B: 10 Hz /B: 10 Hz /B: 10 Hz /B: 10 Hz /B: 10 Hz /B: 10 Hz

Client: S		Communica	ations					Job Number: J76855
							Ţ	-Log Number: T76863
wodel:	02.11abgn N	viodule						unt Manager: Christine Krebill
ontact: F	Ron Seide							
andard: F	CC 15.407,	RSS-210						Class: N/A
	gh Channel							
-	diated Emis		15 20	9/15E	Detector	Azimuth	Lloight	Commonto
uency IHz	Level dBµV/m	Pol v/h	Limit	Margin	Detector Pk/QP/Avg	Azimuth degrees	Height meters	Comments
8.500	38.4	V	54.0	-15.6	AVG	157	1.0	RB 1 MHz; VB: 10 Hz
8.500	38.4	Ĥ	54.0	-15.6	AVG	237	1.0	RB 1 MHz; VB: 10 Hz
9.440	49.6	V	74.0	-24.4	PK	157	1.0	RB 1 MHz; VB: 1 MHz
).660	49.9	Н	74.0	-24.1	PK	237	1.0	RB 1 MHz; VB: 1 MHz
3.500	41.3	V	54.0	-12.7	AVG	89	1.0	RB 1 MHz; VB: 10 Hz
3.500	40.7	Н	54.0	-13.3	AVG	102	1.0	RB 1 MHz; VB: 10 Hz
	52.4	Н	74.0	-21.6	PK	102	1.0	RB 1 MHz; VB: 1 MHz
· ·	53.0	V s in restricte	74.0 ed bands, the	-21.6 -21.0	PK	89	1.0	
01.490	53.0 for emissions	V s in restricte	74.0 ed bands, the	-21.6 -21.0	PK	89	1.0	RB 1 MHz; VB: 1 MHz RB 1 MHz; VB: 1 MHz
1.490 1.	53.0 for emissions	V s in restricte	74.0 ed bands, the	-21.6 -21.0	PK	89	1.0	RB 1 MHz; VB: 1 MHz RB 1 MHz; VB: 1 MHz
1.490 _{1.} F	53.0 for emissions	V s in restricte	74.0 ed bands, the	-21.6 -21.0	PK	89	1.0	RB 1 MHz; VB: 1 MHz RB 1 MHz; VB: 1 MHz
1.490 _{1.} F	53.0 for emissions	V s in restricte	74.0 ed bands, the	-21.6 -21.0	PK	89	1.0	RB 1 MHz; VB: 1 MHz RB 1 MHz; VB: 1 MHz
1.490 _{1.} F	53.0 for emissions	V s in restricte	74.0 ed bands, the	-21.6 -21.0	PK	89	1.0	RB 1 MHz; VB: 1 MHz RB 1 MHz; VB: 1 MHz
1.490 _{1.} F	53.0 for emissions	V s in restricte	74.0 ed bands, the	-21.6 -21.0	PK	89	1.0	RB 1 MHz; VB: 1 MHz RB 1 MHz; VB: 1 MHz
1.490 . F	53.0 for emissions	V s in restricte	74.0 ed bands, the	-21.6 -21.0	PK	89	1.0	RB 1 MHz; VB: 1 MHz RB 1 MHz; VB: 1 MHz
1.490 . F	53.0 for emissions	V s in restricte	74.0 ed bands, the	-21.6 -21.0	PK	89	1.0	RB 1 MHz; VB: 1 MHz RB 1 MHz; VB: 1 MHz
1.490 . F	53.0 for emissions	V s in restricte	74.0 ed bands, the	-21.6 -21.0	PK	89	1.0	RB 1 MHz; VB: 1 MHz RB 1 MHz; VB: 1 MHz
1.490 . F	53.0 for emissions	V s in restricte	74.0 ed bands, the	-21.6 -21.0	PK	89	1.0	RB 1 MHz; VB: 1 MHz RB 1 MHz; VB: 1 MHz
1.490 . F	53.0 for emissions	V s in restricte	74.0 ed bands, the	-21.6 -21.0	PK	89	1.0	RB 1 MHz; VB: 1 MHz RB 1 MHz; VB: 1 MHz
1.490 _{I.} F	53.0 for emissions	V s in restricte	74.0 ed bands, the	-21.6 -21.0	PK	89	1.0	RB 1 MHz; VB: 1 MHz RB 1 MHz; VB: 1 MHz
1.490 . F	53.0 for emissions	V s in restricte	74.0 ed bands, the	-21.6 -21.0	PK	89	1.0	RB 1 MHz; VB: 1 MHz RB 1 MHz; VB: 1 MHz

	Summit Data	a Communic	ations					Job Number:	
Model:	802.11abgn	Module						Log Number:	I /6863 Christine Krebill
Contact	Ron Seide						ALLU	uni manayer.	
	FCC 15.407	RSS-210						Class:	N/A
otandara.		1.00 2.0						014001	
un #3, Ra	diated Spuri	ous Emissio	ons, 30 - 40,	000 MH. Op	eration in the	5470-5725	MHz Band		
Date:	11/6/2009		Engineer:	Peter Sales	i	Location:	OATS #2		
	Monopole #2 00172309A		uhner, SOA 2 DRIVER:		/V_C, 6.5dBi	• •	t # 2009-163 V3.00.37	32 & 1633	
	ow Channel								
	<i>adiated Emi</i> Level	<i>ssions:</i> Pol	15 200	9/15E	Detector	Azimuth	Height	Comments	
Frequency MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	COMMENIE	
10998.830	51.9	V	74.0	-22.1	PK	164	1.0	RB 1 MHz; V	/B: 1 MHz
0999.460	51.7	H	74.0	-22.3	PK	164	1.0	RB 1 MHz;	
1000.130	40.2	Н	54.0	-13.8	AVG	164	1.0	RB 1 MHz; V	
1000.680	40.1	V	54.0	-13.9	AVG	164	1.0	RB 1 MHz; V	
6498.500	40.4	Н	68.3	-27.9	AVG	164	1.0	RB 1 MHz; V	/B: 10 Hz
400 500	10.0	14	(0.0	07.4		100	1.0		(D. 40.11
5498.500	40.9	V	68.3	-27.4	AVG	138	1.0	RD I WINZ;	/B: 10 Hz
	40.9 53.1	V	68.3 88.3	-27.4 -35.2	AVG PK	138	1.0	RB 1 MHZ; RB 1 MHZ;	
6499.510									/B: 1 MHz
6499.510	53.1 52.9	V H	88.3 88.3	-35.2 -35.4	РК РК	138 164	1.0 1.0	RB 1 MHz; \ RB 1 MHz; \	/B: 1 MHz /B: 1 MHz
6499.510 6501.380	53.1 52.9	V H ns in restricte	88.3 88.3 ed bands, the	-35.2 -35.4	РК РК	138 164	1.0 1.0	RB 1 MHz; \ RB 1 MHz; \	/B: 1 MHz
6499.510 6501.380 ote 1: un #3b: C	53.1 52.9 For emissior 27dBm/MHz Center Chanr Padiated Emi	V H ns in restricte (~68dBuV/n nel ssions:	88.3 88.3 ed bands, the n).	-35.2 -35.4	PK PK 209 was used.	138 164 For all othe	1.0 1.0 r emissions,	RB 1 MHz; \ RB 1 MHz; \ , the average	/B: 1 MHz /B: 1 MHz
6499.510 6501.380 ote 1: un #3b: C <i>purious R</i>	53.1 52.9 For emissior 27dBm/MHz Center Chanr	V H ns in restricte (~68dBuV/r nel	88.3 88.3 ed bands, the n).	-35.2 -35.4	РК РК	138 164	1.0 1.0	RB 1 MHz; \ RB 1 MHz; \	/B: 1 MHz /B: 1 MHz
5499.510 5501.380 ote 1: un #3b: C ourious R requency MHz	53.1 52.9 For emissior 27dBm/MHz Center Chanr Cadiated Emi Level	V H ns in restricte (~68dBuV/r nel ssions: Pol v/h H	88.3 88.3 ed bands, the n). 15.20	-35.2 -35.4 e limit of 15.2 9 / 15E	PK PK 209 was used. Detector	138 164 For all othe Azimuth	1.0 1.0 r emissions, Height	RB 1 MHz; \ RB 1 MHz; \ , the average	/B: 1 MHz /B: 1 MHz
5499.510 5501.380 ote 1: our #3b: C ourious R requency MHz 1160.410	53.1 52.9 For emissior 27dBm/MHz Center Chanr Padiated Emi Level dBµV/m	V H ns in restricte (~68dBuV/r nel ssions: Pol v/h	88.3 88.3 ed bands, the n). 15.20 Limit	-35.2 -35.4 e limit of 15.2 9 / 15E Margin	PK PK 09 was used. Detector Pk/QP/Avg	138 164 For all othe Azimuth degrees	1.0 1.0 r emissions, Height meters	RB 1 MHz; \ RB 1 MHz; \ , the average	/B: 1 MHz /B: 1 MHz
5499.510 5501.380 ote 1: ote 1: <i>un #3b: C</i> ourious <i>R</i> requency MHz 1160.410 1161.160 1161.280	53.1 52.9 For emissior 27dBm/MHz Center Chanr adiated Emis diated Emis Level dBµV/m 51.9 40.1 40.2	V H ns in restricte (~68dBuV/n hel ssions: Pol v/h H V H V H	88.3 88.3 ed bands, the n). 15.20 Limit 74.0 54.0 54.0 54.0	-35.2 -35.4 Himit of 15.2 -7/15E Margin -22.1 -13.9 -13.8	PK PK 209 was used. Detector Pk/QP/Avg PK AVG AVG	138 164 For all othe Azimuth degrees 263 247 263	1.0 1.0 r emissions, Height meters 1.3 1.0 1.3	RB 1 MHz; \ RB 1 MHz; \ , the average	/B: 1 MHz /B: 1 MHz
5501.380 5501.380 te 1: te 1: te 1: <u>ourious R</u> requency MHz 1160.410 1161.160 1161.280 1161.330	53.1 52.9 For emissior 27dBm/MHz Center Chanr Padiated Emin Level dBμV/m 51.9 40.1 40.2 51.4	V H ns in restricte (~68dBuV/r nel ssions: Pol v/h H V H V	88.3 88.3 ed bands, the n). 15.20 Limit 74.0 54.0 54.0 74.0	-35.2 -35.4 e limit of 15.2 9 / 15E Margin -22.1 -13.9 -13.8 -22.6	PK PK 09 was used. Detector Pk/QP/Avg PK AVG AVG PK	138 164 For all othe Azimuth degrees 263 247 263 247	1.0 1.0 r emissions, Height meters 1.3 1.0 1.3 1.0	RB 1 MHz; \ RB 1 MHz; \ , the average	/B: 1 MHz /B: 1 MHz
5499.510 5501.380 ote 1: ote 1: <u>ourious R</u> requency <u>MHz</u> 1160.410 1161.280 1161.330 5738.500	53.1 52.9 For emissior 27dBm/MHz Center Chanr Padiated Emi Level dBμV/m 51.9 40.1 40.2 51.4 42.9	V H ns in restricte (~68dBuV/r nel ssions: Pol V/h H V V H V V	88.3 88.3 ed bands, the n). 15.20 Limit 74.0 54.0 54.0 74.0 68.3	-35.2 -35.4 e limit of 15.2 9 / 15E Margin -22.1 -13.9 -13.8 -22.6 -25.4	PK PK 209 was used. Detector Pk/QP/Avg PK AVG AVG PK AVG	138 164 For all othe Azimuth degrees 263 247 263 247 238	1.0 1.0 r emissions, Height meters 1.3 1.0 1.3 1.0 1.3 1.0 1.0	RB 1 MHz; \ RB 1 MHz; \ , the average	/B: 1 MHz /B: 1 MHz
5499.510 5501.380 ote 1: ote 1: m #3b: C purious R requency MHz 1160.410 1161.160 1161.280 1161.330 5738.500 5738.760	53.1 52.9 For emissior 27dBm/MHz Center Chanr Padiated Emin Level dBμV/m 51.9 40.1 40.2 51.4 42.9 42.3	V H ns in restricte (~68dBuV/r hel <i>ssions:</i> Pol v/h H V H V V H	88.3 88.3 ed bands, the n). 15.20 Limit 74.0 54.0 54.0 74.0 68.3 68.3	-35.2 -35.4 e limit of 15.2 9 / 15E Margin -22.1 -13.9 -13.8 -22.6 -25.4 -26.0	PK PK 209 was used. Detector Pk/QP/Avg PK AVG AVG AVG AVG AVG	138 164 For all othe Azimuth degrees 263 247 263 247 263 247 238 223	1.0 1.0 r emissions, Height meters 1.3 1.0 1.3 1.0 1.0 1.0 1.0	RB 1 MHz; \ RB 1 MHz; \ , the average	/B: 1 MHz /B: 1 MHz
5499.510 5501.380 ote 1: ote 1: ote 1: <i>un #3b</i> : C <i>purious R</i> requency MHz 1160.410 1161.160 1161.280 1161.330 5738.500 5738.760 5739.790	53.1 52.9 For emissior 27dBm/MHz Center Chanr 2adiated Emi Level dBμV/m 51.9 40.1 40.2 51.4 42.9 42.3 55.2	V H ns in restricte (~68dBuV/r hel Ssions: Pol v/h H V H V V H V V H	88.3 88.3 ed bands, the n). 15.20 Limit 74.0 54.0 54.0 54.0 74.0 68.3 68.3 88.3	-35.2 -35.4 e limit of 15.2 9 / 15E Margin -22.1 -13.9 -13.8 -22.6 -25.4 -26.0 -33.1	PK PK 209 was used. 209 was used. 200 was us	138 164 For all othe Azimuth degrees 263 247 263 247 263 247 238 223 238	1.0 1.0 r emissions, Height meters 1.3 1.0 1.3 1.0 1.0 1.0 1.0 1.0 1.0	RB 1 MHz; \ RB 1 MHz; \ , the average	/B: 1 MHz /B: 1 MHz
6499.510 6501.380 ote 1: ote 1: un #3b: C purious R requency MHz 1160.410 1161.160 1161.280 1161.330 6738.500 6738.760 6739.790	53.1 52.9 For emissior 27dBm/MHz Center Chanr Padiated Emin Level dBμV/m 51.9 40.1 40.2 51.4 42.9 42.3	V H ns in restricte (~68dBuV/r hel <i>ssions:</i> Pol v/h H V H V V H	88.3 88.3 ed bands, the n). 15.20 Limit 74.0 54.0 54.0 74.0 68.3 68.3	-35.2 -35.4 e limit of 15.2 9 / 15E Margin -22.1 -13.9 -13.8 -22.6 -25.4 -26.0	PK PK 209 was used. Detector Pk/QP/Avg PK AVG AVG AVG AVG AVG	138 164 For all othe Azimuth degrees 263 247 263 247 263 247 238 223	1.0 1.0 r emissions, Height meters 1.3 1.0 1.3 1.0 1.0 1.0 1.0	RB 1 MHz; \ RB 1 MHz; \ , the average	/B: 1 MHz /B: 1 MHz
6499.510 6501.380 ote 1: ote 1: un #3b: C purious R requency MHz 1160.410 1161.160 1161.280 1161.330 6738.500 6738.760 6739.790	53.1 52.9 For emissior 27dBm/MHz Center Chanr adiated Emi dBμV/m 51.9 40.1 40.2 51.4 42.9 42.3 55.2 53.6	V H ns in restricter (~68dBuV/n hel ssions: Pol v/h H V H V V H V V H V V H	88.3 88.3 ed bands, the n). 15.20 Limit 74.0 54.0 54.0 54.0 74.0 68.3 68.3 88.3 88.3 88.3	-35.2 -35.4 e limit of 15.2 9 / 15E Margin -22.1 -13.9 -13.8 -22.6 -25.4 -26.0 -33.1 -34.7	PK PK 209 was used. Detector Pk/QP/Avg PK AVG AVG AVG AVG AVG AVG AVG PK PK PK	138 164 For all othe Azimuth degrees 263 247 263 247 263 247 238 223 238 223	1.0 1.0 r emissions, Height meters 1.3 1.0 1.3 1.0 1.3 1.0 1.0 1.0 1.0 1.0 1.0 1.0	RB 1 MHz; \ RB 1 MHz; \ , the average Comments	/B: 1 MHz /B: 1 MHz limit was set to -
<i>Spurious R</i> Frequency	53.1 52.9 For emissior 27dBm/MHz Center Chanr adiated Emi dBμV/m 51.9 40.1 40.2 51.4 42.9 42.3 55.2 53.6	V H ns in restricte (~68dBuV/r hel ssions: Pol v/h H V H V V H V H V V H	88.3 88.3 ed bands, the n). 15.20 Limit 74.0 54.0 54.0 74.0 68.3 68.3 88.3 88.3 88.3 ed bands, the	-35.2 -35.4 e limit of 15.2 9 / 15E Margin -22.1 -13.9 -13.8 -22.6 -25.4 -26.0 -33.1 -34.7	PK PK 209 was used. Detector Pk/QP/Avg PK AVG AVG AVG AVG AVG AVG AVG PK PK PK	138 164 For all othe Azimuth degrees 263 247 263 247 263 247 238 223 238 223	1.0 1.0 r emissions, Height meters 1.3 1.0 1.3 1.0 1.3 1.0 1.0 1.0 1.0 1.0 1.0 1.0	RB 1 MHz; \ RB 1 MHz; \ , the average Comments	/B: 1 MHz /B: 1 MHz

Cilent.	Summit Data	Communic	ations					Job Number: J76855	
Model	802.11abgn N	Indula						Log Number: T76863	
	_	nouule					Ассо	unt Manager: Christine Kr	ebill
	Ron Seide								
tandard:	FCC 15.407,	RSS-210						Class: N/A	
	ligh Channel adiated Emis	cionci							
quency	Level	Pol	15.209	9/15E	Detector	Azimuth	Height	Comments	
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters		
98.720	51.2	Н	74.0	-22.8	PK	311	1.0		
99.080	51.1	V	74.0	-22.9	PK	192	1.0		
99.540	39.1	H	54.0	-14.9	AVG	311	1.0		
400.200 098.500	39.2	<u>V</u>	54.0	-14.8 -25.1	AVG	192	1.0		
98.500	43.2 44.3	H V	68.3 68.3	-25.1 -24.0	AVG AVG	192 240	1.0 2.0		
098.850	55.6	 H	88.3	-24.0	PK	192	1.0		
099.570	57.4	V	88.3	-30.9	PK	240	2.0		

Elliott

EMC Test Data

	An (ACLE) company		
Client:	Summit Data Communications	Job Number:	J76855
Model	802.11abgn Module	T-Log Number:	T76863
wouer.	ouz. Habyi Module	Account Manager:	Christine Krebill
Contact:	Ron Seide		
Standard:	FCC 15.407, RSS-210	Class:	N/A

RSS 210 and FCC 15.407 (UNII) Radiated Spurious Emissions

Test Specific Details

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

General Test Configuration

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

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

Ambient Conditions:	Temperature:	15-20 °C
	Rel. Humidity:	40-50 %

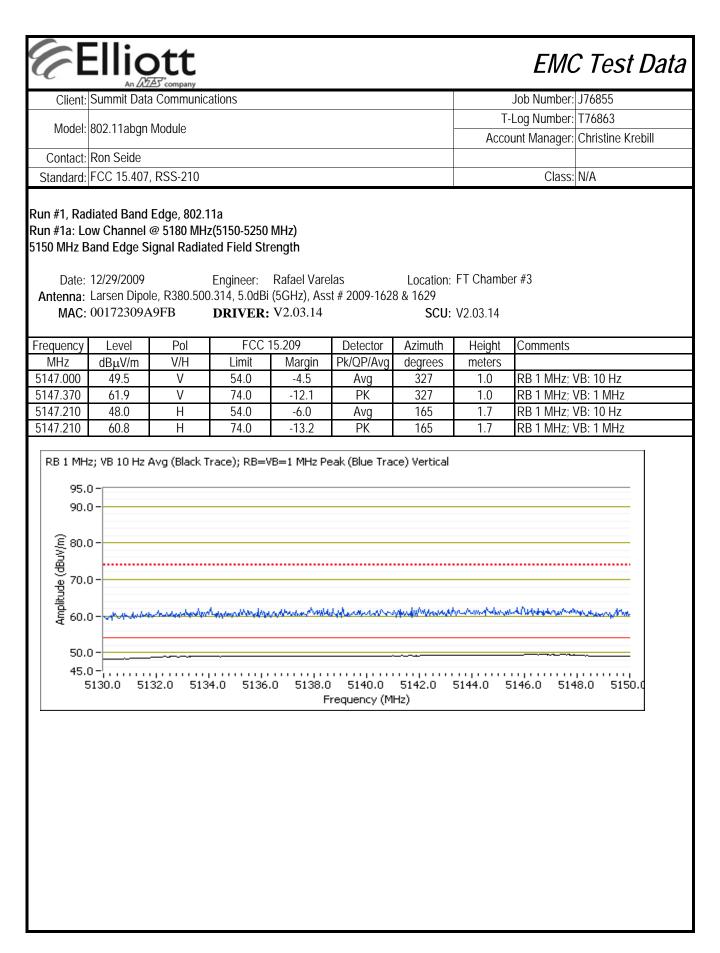
Modifications Made During Testing

No modifications were made to the EUT during testing

Deviations From The Standard

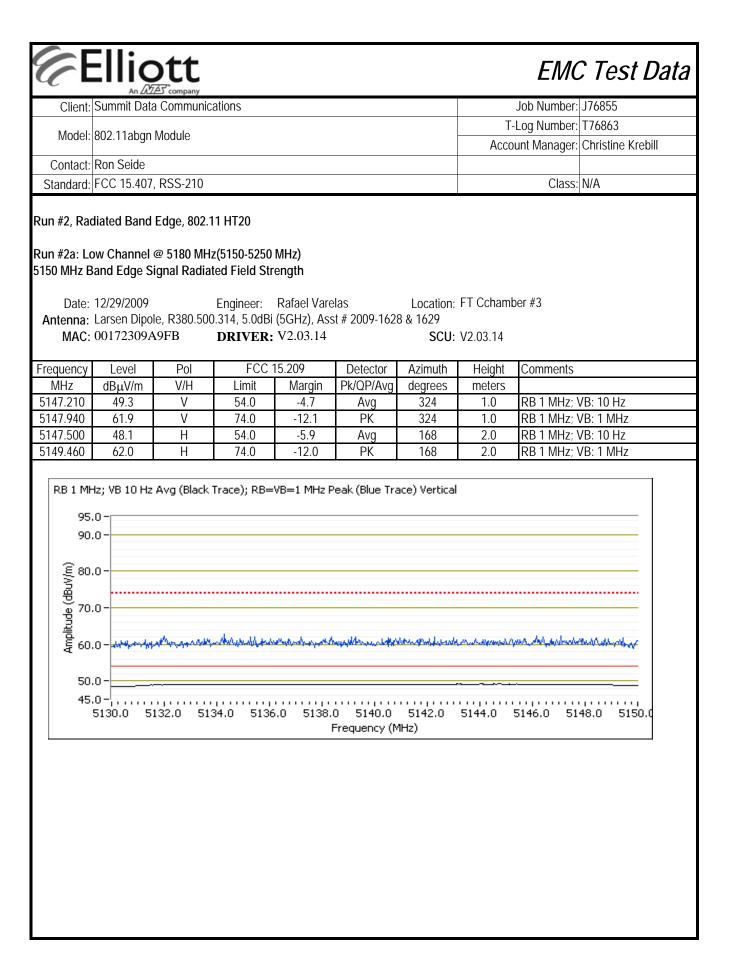
No deviations were made from the requirements of the standard.

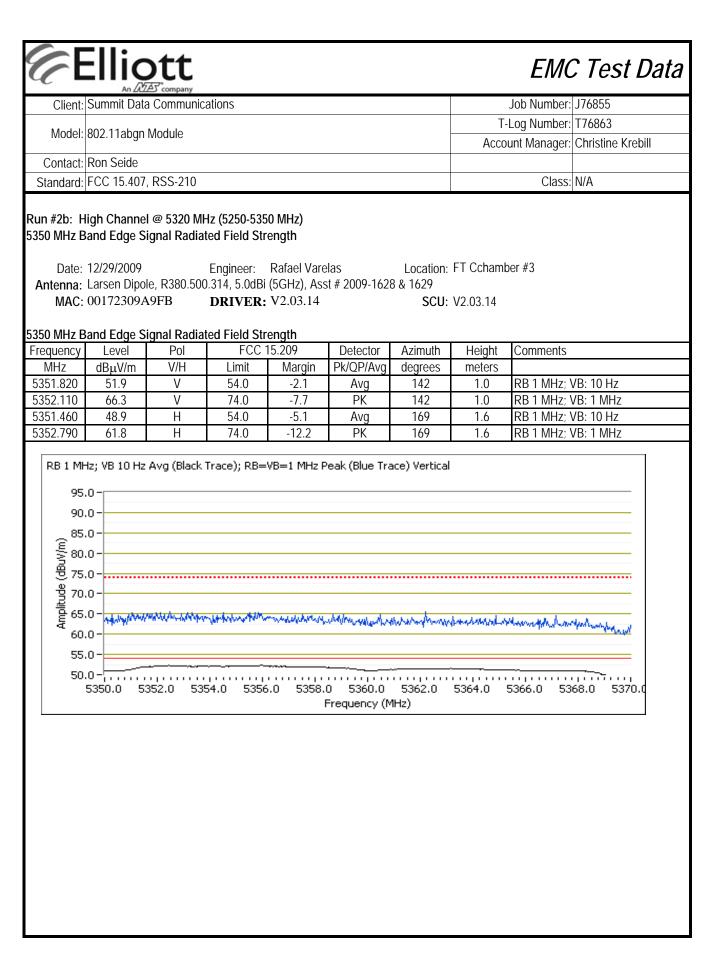
C I		D tt				EMC	C Test Data
Client:	Summit Dat	a Communic	ations			Job Number:	J76855
Marial	000 11 - 1					T-Log Number:	T76863
Model:	802.11abgn	Module				Account Manager:	Christine Krebill
Contact:	Ron Seide						
Standard:	FCC 15.407	, RSS-210				Class:	N/A
	/ of Result		Power				
Run #	Mode	Channel	Setting	Antenna	Test Performed	Limit	Result / Margin
	802.11a Chain A	5150-5250 Low(5180M)	100%	Larsen Dipole	Restricted Band Edge at 5150 MHz	15.209	49.5dBµV/m @ 5147.0MHz (-4.5dB)
1	802.11a Chain A	5250-5350 High(5320M)	100%	Larsen Dipole	Restricted Band Edge at 5350 MHz	15.209	49.3dBµV/m @ 5352.6MHz (-4.7dB)
	802.11a Chain A	5470-5725 Low(5500M)	100%	Larsen Dipole	Restricted Band Edge at 5460 MHz	15.209	49.7dBµV/m @ 5457.1MHz (-4.3dB)
	802.11 HT20	5150-5250 Low(5180M)	100%	Larsen Dipole	Restricted Band Edge at 5150 MHz	15.209	49.3dBµV/m @ 5147.2MHz (-4.7dB)
2	802.11 HT20	5250-5350 High(5320M)	100%	Larsen Dipole	Restricted Band Edge at 5350 MHz	15.209	51.9dBµV/m @ 5351.8MHz (-2.1dB)
	802.11 HT20	5470-5725 Low(5500M)	100%	Larsen Dipole	Restricted Band Edge at 5460 MHz	15.209	49.9dBµV/m @ 5457.3MHz (-4.1dB)
	802.11 HT40	5150-5250 Low(5190M)	100%	Larsen Dipole	Restricted Band Edge at 5150 MHz	15.209	50.9dBµV/m @ 5149.8MHz (-3.1dB)
3	802.11 HT40	5250-5350 High(5310M)	100%	Larsen Dipole	Restricted Band Edge at 5350 MHz	15.209	53.1dBµV/m @ 5350.0MHz (-0.9dB)
	802.11 HT40	5470-5725 Low	100%	Larsen Dipole	Restricted Band Edge at 5460 MHz	15.209	50.6dBµV/m @ 5459.0MHz (-3.4dB)



5350 MHz Band Edge Signal Radiated Field Strength Date: 12/29/2009 Engineer: Rafael Varelas Location: FT Chamber #3 Antenna: Larsen Dipole, R380.500.314, 5.0dBi (5GHz), Asst # 2009-1628 & 1629 MAC: 00172309A9FB DRIVER: V2.03.14 Frequency Level Pol FCC 15.209 Detector Azimuth Height Comments MHZ dB _I V/m V/H Limit Margin PK/OP/Avg degrees meters 5352.610 49.3 V 54.0 -4.7 Avg 142 1.0 RB 1 MHz; VB:10 Hz 5352.190 61.8 V 74.0 -12.2 PK 142 1.0 RB 1 MHz; VB:10 Hz 5351.890 48.2 H 54.0 -5.8 Avg 164 1.5 RB 1 MHz; VB:10 Hz 5352.710 61.3 H 74.0 -12.7 PK 164 1.5 RB 1 MHz; VB:10 Hz 95.0	C I	Ellic	ott						ЕМС	C Test Data
Model: B02:11abgn Module Account Manager Christine Krebill Contact: Ron Seide Class: N/A Standard: FCC 15.407, RSS-210 Class: N/A Run #1b: High Channel 5320(5250-5350 MHz) 5350 MHz Band Edge Signal Radiated Field Strength Strength Date: 12/29/2009 Engineer: Rafael Varelas Location: FT Chamber #3 Antenna: Larsen Dipole, R380.500.314, 5.0dBi (5GHz), Asst # 2009-1628 & 1629 MAC: 00172309A9FB DRIVER: V2.03.14 SCU: V2.03.14 Frequency Level Pol FCC 15.209 Detector Azimuth Height Comments MHz dBµV/m V/H Limit Margin Pk/OP/Avg degrees meters 5352.010 49.3 V 54.0 -4.7 Avg 142 1.0 RB 1 MHz: VB: 10 Hz 5352.190 61.8 V 74.0 -12.2 PK 142 1.0 RB 1 MHz: VB: 10 Hz 5352.710 61.3 H 74.0 -12.7 PK	Client:	Summit Data	a Communic	ations					Job Number:	J76855
Account Manager: Christine Krebili Contact: Ron Seide Class: Standard: FCC 15.407, RSS-210 Class: Run #1b: High Channel 5320(5250-5350 MHz) 5350 MHz Band Edge Signal Radiated Field Strength Date: 12/29/2009 Engineer: Rafael Varelas Location: FT Chamber #3 Antenna: Larsen Dipole, R380.500.314, 5.0dBi (5GHz), Asst # 2009-1628 & 1629 MAC: 00172309A9FB DRIVER: V2.03.14 SCU: V2.03.14 Frequency Level Pol FCC 15.209 Detector Azimuth Height Comments MHz dBµV/m V/H Limit Margin Pk/OP/Avg degrees meters 5352.610 49.3 V 54.0 4.7 Avg 142 1.0 RB 1 MHz; VB: 10 Hz 5352.610 49.3 V 54.0 -5.8 Avg 164 1.5 RB 1 MHz; VB: 10 Hz 5352.710 61.3 H 74.0 -12.7 PK 164 1.5 RB 1 MHz; VB: 1 MHz 95.0<		000.44						Ţ.	Log Number:	T76863
Standard: FCC 15.407, RSS-210 Class: N/A Run #1b: High Channel 5320(5250-5350 MHz) 5350 MHz Band Edge Signal Radiated Field Strength Date: 12/29/2009 Engineer: Rafael Varelas Location: FT Chamber #3 Antenna: Larsen Dipole, R380.500.314, 5.0dBi (5GHz), Asst # 2009-1628 & 1629 MAC: 00172309A9FB DRIVER: V2.03.14 SCU: V2.03.14 Frequency Level Pol FCC 15.209 Detector Azimuth Height Comments MHz dBµV/m V/H Limit Margin Pk/QP/Avg degrees meters 5352.610 49.3 V 54.0 -4.7 Avg 142 1.0 RB 1 MHz; VB: 10 Hz 5352.190 61.8 V 74.0 -12.2 PK 142 1.0 RB 1 MHz; VB: 10 Hz 5352.710 61.3 H 74.0 -12.7 PK 164 1.5 RB 1 MHz; VB: 10 Hz 95.0	Model:	802.11abgn	Module						3	
Run #1b: High Channel 5320(5250-5350 MHz) 5350 MHz Band Edge Signal Radiated Field Strength Date: 12/29/2009 Engineer: Rafael Varelas Location: FT Chamber #3 Antenna: Larsen Dipole, R380.500.314, 5.0dBi (5GHz), Asst # 2009-1628 & 1629 MAC: 00172309A9FB DRIVER: V2.03.14 SCU: V2.03.14 Frequency Level Pol FCC 15.209 Detector Azimuth Height Comments MHz dBµV/m V/H Limit Margin Pk/OP/Avg degrees meters 5352.610 49.3 V 54.0 -12.2 PK 142 1.0 RB 1 MHz; VB: 10 Hz 5352.610 48.2 H 54.0 -5.8 Avg 164 1.5 RB 1 MHz; VB: 10 Hz 5352.710 61.3 H 74.0 -12.7 PK 164 1.5 RB 1 MHz; VB: 10 Hz 90.0 - 90.0 - - - - - - - - - - - - - - - - - <	Contact:	Ron Seide								
5350 MHz Band Edge Signal Radiated Field Strength Date: 12/29/2009 Engineer: Rafael Varelas Location: FT Chamber #3 Antenna: Larsen Dipole, R380.500.314, 5.0dBi (5GHz), Asst # 2009-1628 & 1629 MAC: 00172309A9FB DRIVER: V2.03.14 Frequency Level Pol FCC 15.209 Detector Azimuth Height Comments MHZ dB _I V/m V/H Limit Margin PK/OP/Avg degrees meters 5352.010 49.3 V 54.0 -4.7 Avg 142 1.0 RB 1 MHz; VB:10 Hz 5352.190 61.8 V 74.0 -12.2 PK 142 1.0 RB 1 MHz; VB:10 Hz 5352.710 61.3 H 74.0 -12.7 PK 164 1.5 RB 1 MHz; VB:10 Hz 95.0 - - - - - - - - - - - - - - - - - - - - - - - - - - - -			, RSS-210						Class:	N/A
MHz dB _µ U/m V/H Limit Margin Pk/QP/Avg degrees meters 5352.610 49.3 V 54.0 -4.7 Avg 142 1.0 RB 1 MHz; VB: 10 Hz 5352.190 61.8 V 74.0 -12.2 PK 142 1.0 RB 1 MHz; VB: 10 Hz 5351.890 48.2 H 54.0 -5.8 Avg 164 1.5 RB 1 MHz; VB: 10 Hz 5352.710 61.3 H 74.0 -12.7 PK 164 1.5 RB 1 MHz; VB: 10 Hz 95.0	5350 MHz E Date: Antenna:	Band Edge S 12/29/2009 Larsen Dipo	ignal Radia le, R380.500	ted Field Stro Engineer: 0.314, 5.0dBi	Rafael Vare (5GHz), As:		3 & 1629		er #3	
MHz dBµV/m V/H Limit Margin Pk/QP/Avg degrees meters 5352.610 49.3 V 54.0 -4.7 Avg 142 1.0 RB 1 MHz; VB:10 Hz 5352.190 61.8 V 74.0 -12.2 PK 142 1.0 RB 1 MHz; VB:10 Hz 5351.890 48.2 H 54.0 -5.8 Avg 164 1.5 RB 1 MHz; VB:10 Hz 5352.710 61.3 H 74.0 -12.7 PK 164 1.5 RB 1 MHz; VB:10 Hz 95.0	Frequency		Pol	FCC 1	5 209	Detector	Azimuth	Height	Comments	
5352.610 49.3 V 54.0 -4.7 Avg 142 1.0 RB 1 MHz; VB: 10 Hz 5352.190 61.8 V 74.0 -12.2 PK 142 1.0 RB 1 MHz; VB: 10 Hz 5351.890 48.2 H 54.0 -5.8 Avg 164 1.5 RB 1 MHz; VB: 10 Hz 5352.710 61.3 H 74.0 -12.7 PK 164 1.5 RB 1 MHz; VB: 10 Hz 5352.710 61.3 H 74.0 -12.7 PK 164 1.5 RB 1 MHz; VB: 11 MHz 95.0-90.0-90.0-90.0-90.0-90.0-90.0-90.0-									Commento	
5352.190 61.8 V 74.0 -12.2 PK 142 1.0 RB 1 MHz; VB: 1 MHz 5351.890 48.2 H 54.0 -5.8 Avg 164 1.5 RB 1 MHz; VB: 10 Hz 5352.710 61.3 H 74.0 -12.7 PK 164 1.5 RB 1 MHz; VB: 10 Hz 5352.710 61.3 H 74.0 -12.7 PK 164 1.5 RB 1 MHz; VB: 11 MHz RB 1 MHz; VB 10 Hz Avg (Black Trace); RB=VB=1 MHz Peak (Blue Trace) Vertical 95.0					× ×	v	e e		RB 1 MHz: V	/B: 10 Hz
5351.890 48.2 H 54.0 -5.8 Avg 164 1.5 RB 1 MHz; VB: 10 Hz 5352.710 61.3 H 74.0 -12.7 PK 164 1.5 RB 1 MHz; VB: 10 Hz RB 1 MHz; VB 10 Hz Avg (Black Trace); RB=VB=1 MHz Peak (Blue Trace) Vertical 95.0 90.0 - 90.0 - - - - - - 90.0 - - - - - - - 90.0 - - - - - - - - 90.0 - - - - - - - - 90.0 - - - - - - - - 90.0 - - - - - - - - - - 90.0 - - - - - - - - - - - - - - - - - - - - - -						¥				
RB 1 MHz; VB 10 Hz Avg (Black Trace); RB=VB=1 MHz Peak (Blue Trace) Vertical 95.0- 90.0- (0) NPP 90,0- (0) NPP (0) NP (0) NP <td></td> <td></td> <td>Н</td> <td>54.0</td> <td>-5.8</td> <td>Avg</td> <td></td> <td>1.5</td> <td></td> <td></td>			Н	54.0	-5.8	Avg		1.5		
95.0- 90.0- (u) 80.0- 70.0- 60.0- 50.0- 45.0-	5352.710	61.3	Н	74.0	-12.7	PK	164	1.5	RB 1 MHz; V	/B: 1 MHz
Frequency (MHz)	(@, 80.(Mgp) apn; judu 60.(50.(45.(0 0 0 0				5360.0	5362.0 5		······	

C								ЕМС	C Test Dat
Client:	Summit Data	Communica	ations					Job Number:	
Model:	802.11abgn	Module				-		-Log Number:	
	Ron Seide						Ассо	ount Manager:	Christine Krebill
	FCC 15.407,	RSS-210						Class:	N/A
Stanuaru.	1 00 10.407,	1135 210						01033.	10/7
	ow Channel o		•	MHz)					
5460 MHz B	and Edge Ra	adiated Fiel	d Strength						
	12/29/2009			Rafael Vare			FT Chambe	er #3	
					st # 2009-1628		1/2 02 14		
MAC:	00172309A	.9FB	DRIVER:	V2.03.14		SCU:	V2.03.14		
Frequency	Level	Pol	FCC 1	15.209	Detector	Azimuth	Height	Comments	
MHz	dBµV/m	V/H	Limit	Margin	Pk/QP/Avg	degrees	meters		/D. 10 LI-
5457.060 5459.420	49.7 61.4	V V	54.0 74.0	-4.3 -12.6	Avg PK	144 144	1.0 1.0	RB 1 MHz; RB 1 MHz;	
5457.040	48.3	H	54.0	-5.7	Avg	167	1.5	RB 1 MHz; V	
5459.580	61.1	Н	74.0	-12.9	PK	167	1.5	RB 1 MHz;	
(m/ 80.0 90.00 (dBu/) 70.00 (dBu/)		yn wran y blyterae	ap., & Read Address		trya ya sa	mahron	ndalmänninga	Surveyon Statistics	pundhah
Ę 60.0									
ूर्च 60.0									
50.0				·					
50.0 45.0		, , , , , 430 54		440 54	145 545 requency (MH	0 545	; ; ; ; ; 5 54(60 5465	

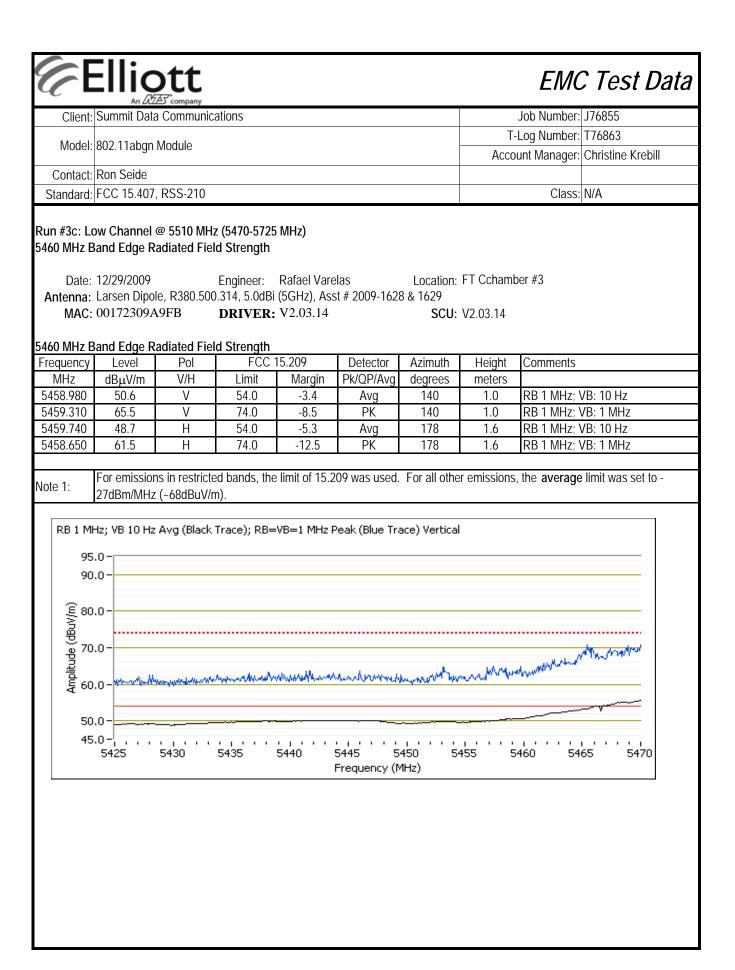




Elliott EMC Test Data Client: Summit Data Communications Job Number: J76855 T-Log Number: T76863 Model: 802.11abgn Module Account Manager: Christine Krebill Contact: Ron Seide Standard: FCC 15.407, RSS-210 Class: N/A Run #2c: Low Channel @ 5500 MHz(5470-5725 MHz) 5460 MHz Band Edge Radiated Field Strength Date: 12/29/2009 Engineer: Rafael Varelas Location: FT Cchamber #3 Antenna: Larsen Dipole, R380.500.314, 5.0dBi (5GHz), Asst # 2009-1628 & 1629 MAC: 00172309A9FB **DRIVER:** V2.03.14 SCU: V2.03.14 Frequency Level Pol FCC 15.209 Detector Azimuth Height Comments V/H Pk/QP/Avg MHz dBµV/m Limit Margin degrees meters 5457.290 49.9 V 54.0 -4.1 Avg 146 1.0 RB 1 MHz; VB: 10 Hz 62.5 V ΡK 5458.190 74.0 -11.5 146 1.0 RB 1 MHz; VB: 1 MHz 5457.470 48.7 Η 54.0 -5.3 Avg 163 1.6 RB 1 MHz; VB: 10 Hz 5459.650 61.4 Н 74.0 -12.6 ΡK 163 1.6 RB 1 MHz; VB: 1 MHz RB 1 MHz; VB 10 Hz Avg (Black Trace); RB=VB=1 MHz Peak (Blue Trace) Vertical 95.0 90.0 Amplitude (dBuV/m) 80.0 70.0 generalized and better by many proper and a second of the 60.0 50.0 45.0 -5430 5440 5425 5435 5445 5450 5455 5460 5465 5470 Frequency (MHz)

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	An ZALZ	Company							
Client:	Summit Data	a Communica	ations					Job Number:	
Model	802.11abgn	Modulo					Ţ.	Log Number:	T76863
		would					Ассо	unt Manager:	Christine Krebill
Contact:	Ron Seide								
Standard:	FCC 15.407	, RSS-210						Class:	N/A
un #3, Ra	diated Band	Edge, 802.1	1 HT40						
Date:	12/29/2009		Engineer:	Rafael Vare	elas	Location:	FT Cchamb	oer #3	
					st # 2009-1628				
MAC:	00172309A	.9FB	DRIVER:	V2.03.14		SCU:	V2.03.14		
150 MHz E	ow Channel Band Edge S	ignal Radiat	ed Field Stre	ength					
requency		Pol	FCC 1		Detector	Azimuth	Height	Comments	
MHz 5149.830	dBμV/m 50.9	V/H V	Limit 54.0	Margin -3.1	Pk/QP/Avg	degrees 155	meters 1.0	RB 1 MHz; \	/D· 10 Ц ~
5149.830 5148.000	66.2	V	54.0 74.0	-3.1	Avg PK	155	1.0	RB 1 MHZ;	
5149.830	48.5	H	54.0	-5.5	Avg	168	1.0	RB 1 MHz;	
5147.580	61.4	Н	74.0	-12.6	PK	168	1.7	RB 1 MHz; \	
plitude (dBuV/m) 20.	0 - 0 -	aranga kang ka		markakaw	an an the state of	f. Adda. or defrige	****	the second	
_ 특 60.									
50.	0								

Elliott EMC Test Data Client: Summit Data Communications Job Number: J76855 T-Log Number: T76863 Model: 802.11abgn Module Account Manager: Christine Krebill Contact: Ron Seide Standard: FCC 15.407, RSS-210 Class: N/A Run #3b: High Channel @ 5310 MHz(5250-5350 MHz) 5350 MHz Band Edge Signal Radiated Field Strength Date: 12/29/2009 Engineer: Rafael Varelas Location: FT Cchamber #3 Antenna: Larsen Dipole, R380.500.314, 5.0dBi (5GHz), Asst # 2009-1628 & 1629 MAC: 00172309A9FB **DRIVER:** V2.03.14 SCU: V2.03.14 Frequency Level Pol FCC 15.209 Detector Azimuth Height Comments V/H Pk/QP/Avg MHz dBµV/m Limit Margin degrees meters 5350.030 53.1 V 54.0 -0.9 Avg 137 1.0 RB 1 MHz; VB: 10 Hz V 74.0 -7.3 ΡK 137 5351.270 66.7 1.0 RB 1 MHz; VB: 1 MHz 5350.000 49.3 Η 54.0 -4.7 Avg 166 1.6 RB 1 MHz; VB: 10 Hz 5350.330 62.0 Н 74.0 -12.0 ΡK 166 1.6 RB 1 MHz; VB: 1 MHz RB 1 MHz; VB 10 Hz Avg (Black Trace); RB=VB=1 MHz Peak (Blue Trace) Vertical 95.0-90.0-Amplitude (dBuV/m) 20.00-000-000-..... mandelineary and a second and a second 50.0 45.0-. 5350.0 5352.0 5354.0 5356.0 5358.0 5360.0 5362.0 5364.0 5366.0 5368.0 5370.0 Frequency (MHz)



		Stt				EMO	C Test Data
Client:	: Summit Dat	a Communica	ations			Job Number:	J76855
Madal	000 11 ohan	Martula				T-Log Number:	T76863
	: 802.11abgn	Module				Account Manager:	Christine Krebill
	Ron Seide						
Standard:	FCC 15.407	, RSS-210				Class:	N/A
	RSS 2	10 and	FCC 15	5.407 (U	INII) Radiated	Spurious Emi	ssions
Test Spe	cific Detai	ls					
•	Objective:	The objective			perform final qualification	i testing of the EUT with re	espect to the
ļ	Date of Test:	See Below			Config. Used:	1	
T€	est Engineer:	See Below			Config Change:	None	
T	est Location:	See Below			EUT Voltage:	120V/ 60Hz	
General]	Test Confi	ouration					
			ment were l	ocated on the	e turntable for radiated spi	urious emissions testing.	
For radial	ted emission:	s testing the n	neasuremen	t antenna wa	is located 3 meters from th	NE EUT.	
Ambient	Condition	S :	Т	emperature:	11 °C		
/	00114111011	5.		el. Humidity:	94 %		
•				-			
Summary	y of Result	is					
Run #	Mode	Channel	Power Setting	Antenna	Test Performed	Limit	Result / Margin
	802.11a	5150-5250	100%	Larsen	Radiated Emissions,	FCC 15.209 / 15 E	39.8dBµV/m@
	Chain A	Low 5150-5250		Dipole	1 - 40 GHz		15540.5MHz (-14.2dB)
	802.11a			Larsen	Radiated Emissions,		10 0 JD 11/m @
1	Chain A		100%			FCC 15.209 / 15 E	40.0dBµV/m @ 15599 5MHz (-14.0dB)
1	Chain A 802,11a	Center		Dipole	1 - 40 GHz		15599.5MHz (-14.0dB)
1	802.11a	Center 5150-5250	100% 100%	Dipole Larsen		FCC 15.209 / 15 E FCC 15.209 / 15 E	15599.5MHz (-14.0dB) 40.4dBµV/m @
1		Center	100%	Dipole	1 - 40 GHz Radiated Emissions,	FCC 15.209 / 15 E	15599.5MHz (-14.0dB)
1	802.11a Chain A 802.11a Chain A	Center 5150-5250 High 5250-5350 Low		Dipole Larsen Dipole	1 - 40 GHz Radiated Emissions, 1 - 40 GHz Radiated Emissions, 1 - 40 GHz		15599.5MHz (-14.0dB) 40.4dBµV/m @ 15718.5MHz (-13.6dB) 40.9dBµV/m @ 15537.8MHz (-13.1dB)
	802.11a Chain A 802.11a Chain A 802.11a	Center 5150-5250 High 5250-5350 Low 5250-5350	100% 100%	Dipole Larsen Dipole Larsen Dipole Larsen	1 - 40 GHz Radiated Emissions, 1 - 40 GHz Radiated Emissions, 1 - 40 GHz Radiated Emissions,	FCC 15.209 / 15 E FCC 15.209 / 15 E	15599.5MHz (-14.0dB) 40.4dBμV/m @ 15718.5MHz (-13.6dB) 40.9dBμV/m @ 15537.8MHz (-13.1dB) 43.7dBμV/m @
2	802.11a Chain A 802.11a Chain A 802.11a Chain A	Center 5150-5250 High 5250-5350 Low 5250-5350 Center	100%	Dipole Larsen Dipole Larsen Dipole Larsen Dipole	1 - 40 GHz Radiated Emissions, 1 - 40 GHz Radiated Emissions, 1 - 40 GHz Radiated Emissions, 1 - 40 GHz	FCC 15.209 / 15 E	15599.5MHz (-14.0dB) 40.4dBμV/m @ 15718.5MHz (-13.6dB) 40.9dBμV/m @ 15537.8MHz (-13.1dB) 43.7dBμV/m @ 15897.9MHz (-10.3dB)
	802.11a Chain A 802.11a Chain A 802.11a Chain A 802.11a	Center 5150-5250 High 5250-5350 Low 5250-5350 Center 5250-5350	100% 100%	Dipole Larsen Dipole Larsen Dipole Larsen Dipole Larsen	1 - 40 GHz Radiated Emissions, 1 - 40 GHz Radiated Emissions, 1 - 40 GHz Radiated Emissions, 1 - 40 GHz Radiated Emissions,	FCC 15.209 / 15 E FCC 15.209 / 15 E	15599.5MHz (-14.0dB) 40.4dBµV/m @ 15718.5MHz (-13.6dB) 40.9dBµV/m @ 15537.8MHz (-13.1dB) 43.7dBµV/m @ 15897.9MHz (-10.3dB) 42.4dBµV/m @
	802.11a Chain A 802.11a Chain A 802.11a Chain A 802.11a Chain A	Center 5150-5250 High 5250-5350 Low 5250-5350 Center 5250-5350 High	100% 100% 100% 100%	Dipole Larsen Dipole Larsen Dipole Larsen Dipole Larsen Dipole	1 - 40 GHz Radiated Emissions, 1 - 40 GHz Radiated Emissions, 1 - 40 GHz Radiated Emissions, 1 - 40 GHz Radiated Emissions, 1 - 40 GHz	FCC 15.209 / 15 E FCC 15.209 / 15 E FCC 15.209 / 15 E FCC 15.209 / 15 E	15599.5MHz (-14.0dB) 40.4dBµV/m @ 15718.5MHz (-13.6dB) 40.9dBµV/m @ 15537.8MHz (-13.1dB) 43.7dBµV/m @ 15897.9MHz (-10.3dB) 42.4dBµV/m @ 15958.6MHz (-11.6dB)
	802.11a Chain A 802.11a Chain A 802.11a Chain A 802.11a	Center 5150-5250 High 5250-5350 Low 5250-5350 Center 5250-5350	100% 100% 100%	Dipole Larsen Dipole Larsen Dipole Larsen Dipole Larsen	1 - 40 GHz Radiated Emissions, 1 - 40 GHz Radiated Emissions, 1 - 40 GHz Radiated Emissions, 1 - 40 GHz Radiated Emissions,	FCC 15.209 / 15 E FCC 15.209 / 15 E FCC 15.209 / 15 E	15599.5MHz (-14.0dB) 40.4dBµV/m @ 15718.5MHz (-13.6dB) 40.9dBµV/m @ 15537.8MHz (-13.1dB) 43.7dBµV/m @ 15897.9MHz (-10.3dB) 42.4dBµV/m @
2	802.11a Chain A 802.11a Chain A 802.11a Chain A 802.11a Chain A 802.11a	Center 5150-5250 High 5250-5350 Low 5250-5350 Center 5250-5350 High 5470-5725	100% 100% 100% 100%	Dipole Larsen Dipole Larsen Dipole Larsen Dipole Larsen Dipole Larsen	1 - 40 GHz Radiated Emissions, 1 - 40 GHz Radiated Emissions, 1 - 40 GHz Radiated Emissions, 1 - 40 GHz Radiated Emissions, 1 - 40 GHz Radiated Emissions,	FCC 15.209 / 15 E FCC 15.209 / 15 E	15599.5MHz (-14.0dB) 40.4dBµV/m @ 15718.5MHz (-13.6dB) 40.9dBµV/m @ 15537.8MHz (-13.1dB) 43.7dBµV/m @ 15897.9MHz (-10.3dB) 42.4dBµV/m @ 15958.6MHz (-11.6dB) 41.6dBµV/m @
	802.11a Chain A 802.11a Chain A 802.11a Chain A 802.11a Chain A 802.11a Chain A 802.11a Chain A	Center 5150-5250 High 5250-5350 Center 5250-5350 High 5470-5725 Low 5470-5725 Center	100% 100% 100% 100%	Dipole Larsen Dipole Larsen Dipole Larsen Dipole Larsen Dipole Larsen Dipole	1 - 40 GHz Radiated Emissions, 1 - 40 GHz	FCC 15.209 / 15 E FCC 15.209 / 15 E FCC 15.209 / 15 E FCC 15.209 / 15 E	15599.5MHz (-14.0dB) 40.4dBµV/m @ 15718.5MHz (-13.6dB) 40.9dBµV/m @ 15537.8MHz (-13.1dB) 43.7dBµV/m @ 15897.9MHz (-10.3dB) 42.4dBµV/m @ 15958.6MHz (-11.6dB) 41.6dBµV/m @ 11010.1MHz (-12.4dB) 43.5dBµV/m @ 16740.1MHz (-10.5dB)
2	802.11a Chain A 802.11a Chain A 802.11a Chain A 802.11a Chain A 802.11a Chain A 802.11a	Center 5150-5250 High 5250-5350 Low 5250-5350 Center 5250-5350 High 5470-5725 Low 5470-5725	100% 100% 100% 100%	Dipole Larsen Dipole Larsen Dipole Larsen Dipole Larsen Dipole Larsen Dipole Larsen	1 - 40 GHz Radiated Emissions, 1 - 40 GHz	FCC 15.209 / 15 E FCC 15.209 / 15 E	15599.5MHz (-14.0dB) 40.4dBµV/m @ 15718.5MHz (-13.6dB) 40.9dBµV/m @ 15537.8MHz (-13.1dB) 43.7dBµV/m @ 15897.9MHz (-10.3dB) 42.4dBµV/m @ 15958.6MHz (-11.6dB) 41.6dBµV/m @ 11010.1MHz (-12.4dB) 43.5dBµV/m @

Client:	Summit Data		ations					Job Number:	J76855
Madal	000 11 abam	Madula					T-	Log Number:	T76863
wodel:	802.11abgn	iviodule					Ассо	unt Manager:	Christine Krebill
Contact:	Ron Seide								
Standard:	FCC 15.407,	RSS-210						Class:	N/A
No modifi Deviation No deviat un #1, Ra	ions Made cations were f is From Th ions were ma diated Spuric Date of Test:	made to the e Standar de from the ous Emissio	EUT during rd requirement	s of the stan	dard. eration in the	e 5150-5250	MHz Band,	802.11a Mod	e
T	est Engineer: est Location:	OATS # 2							
Antenna: AAC S/N: Pup #1a: L	00172309A			R-ANT4941) V2.03.07		SCU:	V3.00.37		
IAC S/N: un #1a: L	00172309A ow Channel Padiated Emis	.9FB ssions:	Driver:	V2.03.07					
AC S/N: un #1a: L purious R requency	00172309A ow Channel Padiated Emis Level	.9FB s <i>sions:</i> Pol	Driver: 15.20	V2.03.07 9 / 15E	Detector	Azimuth	Height	Comments	
AC S/N: In #1a: Li <u>purious R</u> requency MHz	00172309A ow Channel Padiated Emis Level dBµV/m	9FB ssions: Pol v/h	Driver: 15.20 Limit	V2.03.07 9 / 15E Margin	Pk/QP/Avg	Azimuth degrees	Height meters	Comments	
AC S/N: In #1a: Li In action In acti	00172309A ow Channel <i>Padiated Emis</i> Level dBµV/m 39.6	9FB ssions: Pol v/h V	Driver: 15.20 Limit 54.0	V2.03.07 9 / 15E Margin -14.4	Pk/QP/Avg AVG	Azimuth degrees 289	Height meters 1.0	Comments	
AC S/N: In #1a: Lu Durious R equency MHz 0361.070 0361.180	00172309A ow Channel <i>Padiated Emis</i> Level dBµV/m 39.6 39.7	9FB ssions: Pol V/h V H	Driver: 15.20 Limit 54.0 54.0	V2.03.07 9 / 15E Margin -14.4 -14.3	Pk/QP/Avg AVG AVG	Azimuth degrees 289 330	Height meters 1.0 1.0	Comments	
AC S/N: in #1a: Lu <u>purious R</u> requency MHz 0361.070 0361.180 0539.580	00172309A ow Channel <i>Padiated Emis</i> Level dBµV/m 39.6	9FB ssions: Pol v/h V	Driver: 15.20 Limit 54.0	V2.03.07 9 / 15E Margin -14.4	Pk/QP/Avg AVG	Azimuth degrees 289	Height meters 1.0	Comments	
AC S/N: un #1a: Lo ourious R requency	00172309A ow Channel <i>Padiated Emis</i> Level dBµV/m 39.6 39.7 39.7 39.8	9FB ssions: Pol v/h V H H H V	Driver: 15.20 Limit 54.0 54.0 54.0 54.0 54.0	V2.03.07 9 / 15E Margin -14.4 -14.3 -14.3 -14.3 -14.2	Pk/QP/Avg AVG AVG AVG AVG	Azimuth degrees 289 330 345 291	Height meters 1.0 1.0 1.0 1.0 1.0	Comments	
AC S/N: in #1a: Lo <u>ourious R</u> requency MHz 0361.070 0361.180 0361.180 0539.580 05 540.520	00172309A ow Channel <i>Padiated Emis</i> Level dBµV/m 39.6 39.7 39.7 39.8	9FB ssions: Pol V/h V H H H	Driver: 15.20 Limit 54.0 54.0 54.0	V2.03.07 9 / 15E Margin -14.4 -14.3 -14.3	Pk/QP/Avg AVG AVG AVG	Azimuth degrees 289 330 345	Height meters 1.0 1.0 1.0	Comments	
C S/N: n #1a: Lu urious R equency MHz 361.070 361.180 539.580 540.520 359.850 360.920 538.760	00172309A ow Channel <i>Padiated Emis</i> Level dBμV/m 39.6 39.7 39.7 39.8 50.8	9FB <u>ssions:</u> Pol V/h V H H V H H	Driver: 15.20 Limit 54.0 54.0 54.0 54.0 54.0 74.0	V2.03.07 9 / 15E Margin -14.4 -14.3 -14.3 -14.2 -23.2	Pk/QP/Avg AVG AVG AVG AVG PK	Azimuth degrees 289 330 345 291 330	Height meters 1.0 1.0 1.0 1.0 1.0 1.0	Comments	
C S/N: n #1a: Li <u>urious R</u> equency MHz 361.070 361.180 539.580 540.520 359.850	00172309A ow Channel <i>Dadiated Emis</i> Level dBμV/m 39.6 39.7 39.7 39.7 39.8 50.8 51.0	9FB <u>ssions:</u> Pol V/h V H H V H V V	Driver: 15.20 Limit 54.0 54.0 54.0 54.0 54.0 74.0 74.0 74.0	V2.03.07 9 / 15E Margin -14.4 -14.3 -14.3 -14.3 -14.2 -23.2 -23.0	Pk/QP/Avg AVG AVG AVG AVG PK PK	Azimuth degrees 289 330 345 291 330 289	Height meters 1.0 1.0 1.0 1.0 1.0 1.0 1.0	Comments	

Contact: Standard:	802.11abgn N		ations					Job Number:	J/6855
Contact: Standard:	ouz. Habyi II	Modulo					T	Log Number:	T76863
Standard:		nouule					Acco	unt Manager:	Christine Krebill
	Ron Seide								
	FCC 15.407,	RSS-210						Class:	N/A
un #1b: C	enter Channe	el							
	adiated Emis								
Frequency	Level	Pol		9 / 15E	Detector	Azimuth	Height	Comments	
MHz 10401.320	dBµV/m 39.9	v/h V	Limit 54.0	Margin -14.1	Pk/QP/Avg AVG	degrees 265	meters 1.0		
10401.320	39.9 39.7	 H	54.0 54.0	-14.1	AVG	205	1.0		
5599.500	40.0	V	54.0 54.0	-14.3 -14.0	AVG	285	1.0		
5599.750	39.6	H	54.0	-14.4	AVG	255	1.0		
0398.600	51.0	V	74.0	-23.0	PK	265	1.0		
0400.950	51.4	Н	74.0	-22.6	PK	231	1.0		
5598.530	51.6	V	74.0	-22.4	PK	285	1.0		
5599.700	51.2	Н	74.0	-22.8	PK	255	1.0		
un #1c: H	27dBm/MHz (igh Channel	(~68dBuV/n		e limit of 15.2	209 was used.	For all othe	r emissions	, the averag e	limit was set to -
un #1c: H	27dBm/MHz ((~68dBuV/n	n).	e limit of 15.2	209 was used. Detector	For all othe Azimuth	r emissions Height	, the average Comments	limit was set to -
un #1c: H purious R requency MHz	27dBm/MHz (igh Channel adiated Emis Level dBµV/m	(~68dBuV/n ssions: Pol v/h	n). 15.20 ⁴ Limit	9 / 15E Margin	Detector Pk/QP/Avg	Azimuth degrees	Height meters		limit was set to -
un #1c: H burious Ra requency MHz 0481.400	27dBm/MHz (igh Channel adiated Emis Level dBμV/m 38.8	(~68dBuV/n ssions: Pol v/h V	n). 15.20 Limit 54.0	9 / 15E Margin -15.2	Detector Pk/QP/Avg AVG	Azimuth degrees 233	Height meters 1.0		limit was set to -
un #1c: H burious Ra requency MHz 0481.400 0481.430	27dBm/MHz (igh Channel adiated Emis Level dBµV/m 38.8 39.0	(~68dBuV/n ssions: Pol V/h V H	n). 15.20 ⁰ Limit 54.0 54.0	9 / 15E Margin -15.2 -15.0	Detector Pk/QP/Avg AVG AVG	Azimuth degrees 233 0	Height meters 1.0 1.0		limit was set to -
un #1c: H burious R requency MHz 0481.400 0481.430 5718.500	27dBm/MHz (igh Channel adiated Emis Level dBµV/m 38.8 39.0 40.4	(~68dBuV/n ssions: Pol V/h V H V	n). 15.20 ⁰ Limit 54.0 54.0 54.0 54.0	9 / 15E Margin -15.2 -15.0 - 13.6	Detector Pk/QP/Avg AVG AVG AVG	Azimuth degrees 233 0 305	Height meters 1.0 1.0 1.0		limit was set to -
un #1c: H burious R requency MHz 0481.400 0481.430 0481.430 0718.500	27dBm/MHz (igh Channel <i>adiated Emis</i> Level dBμV/m 38.8 39.0 40.4 40.3	(~68dBuV/n ssions: Pol v/h V H V H H	n). 15.20 ^o Limit 54.0 54.0 54.0 54.0 54.0	9 / 15E Margin -15.2 -15.0 -13.6 -13.7	Detector Pk/QP/Avg AVG AVG AVG AVG AVG	Azimuth degrees 233 0 305 15	Height meters 1.0 1.0 1.0 1.0 1.0		limit was set to -
un #1c: H purious R requency MHz 0481.400 0481.430 5718.500 5718.500 0480.710	27dBm/MHz (igh Channel adiated Emis Level dBµV/m 38.8 39.0 40.4 40.3 53.2	(~68dBuV/n ssions: Pol V/h V H V	n). 15.200 Limit 54.0 54.0 54.0 54.0 74.0	9 / 15E Margin -15.2 -15.0 -13.6 -13.7 -20.8	Detector Pk/QP/Avg AVG AVG AVG AVG PK	Azimuth degrees 233 0 305 15 0	Height meters 1.0 1.0 1.0 1.0 1.0 1.0		limit was set to -
un #1c: H burious R requency MHz 0481.400 0481.430 5718.500 5718.500	27dBm/MHz (igh Channel <i>adiated Emis</i> Level dBμV/m 38.8 39.0 40.4 40.3	(~68dBuV/n ssions: Pol v/h V H V H H H	n). 15.20 ^o Limit 54.0 54.0 54.0 54.0 54.0	9 / 15E Margin -15.2 -15.0 -13.6 -13.7	Detector Pk/QP/Avg AVG AVG AVG AVG AVG	Azimuth degrees 233 0 305 15	Height meters 1.0 1.0 1.0 1.0 1.0		limit was set to -

Elliott EMC Test Data Client: Summit Data Communications Job Number: J76855 T-Log Number: T76863 Model: 802.11abgn Module Account Manager: Christine Krebill Contact: Ron Seide Standard: FCC 15.407, RSS-210 Class: N/A Run #2, Radiated Spurious Emissions, 30 - 40,000 MH. Operation in the 5250-5350 MHz Band, 802.11a Mode Date of Test: 11/18/2009 Test Engineer: Suhaila Khushzad Test Location: OATS#2 Antenna: Larsen Dipole Run #2a: Low Channel @ 5180 MHz Spurious Radiated Emissions: 15.209 / 15E Frequency Level Pol Detector Azimuth Height Comments MHz dBµV/m Pk/QP/Avg v/h Limit Margin degrees meters 10351.530 40.9 Н 68.3 -27.4 AVG 228 1.1 10360.730 41.3 V 68.3 -27.0 AVG 44 1.0 AVG 15520.530 40.7 Η 54.0 -13.3 142 1.0 15537.800 40.9 ۷ 54.0 -13.1 AVG 0 1.0 ΡK 10357.600 52.7 V 88.3 -35.6 44 1.0 Η 88.3 ΡK 228 10372.930 52.1 -36.2 1.1 15522.470 52.5 V 74.0 -21.5 ΡK 0 1.0 15544.000 51.9 Н 74.0 -22.1 ΡK 142 1.0

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

Run #2b: Center Channel @ 5300 MHz

Frequency	Level	Pol	15.20	9/15E	Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
10592.270	40.1	Н	68.3	-28.2	AVG	3	1.6	
10600.000	41.2	V	68.3	-27.1	AVG	271	1.9	
15897.530	42.3	Н	54.0	-11.7	AVG	360	1.5	
15897.870	43.7	٧	54.0	-10.3	AVG	360	1.2	
10589.330	50.8	Н	88.3	-37.5	PK	3	1.6	
10616.400	58.0	V	74.0	-16.0	PK	271	1.9	
15898.670	54.7	V	74.0	-19.3	PK	360	1.2	
15909.130	53.3	Н	74.0	-20.7	PK	360	1.5	
15909.130 Note 1:		ns in restricte	ed bands, the				-	the average limit was set to -

Client	Summit Data	a Communic	ations					Job Number:	J76855
							T.	-Log Number:	
Model:	802.11abgn	Module				·		-	Christine Krebil
Contact [.]	Ron Seide							g	
	FCC 15.407,	RSS-210						Class:	N/A
	-	-							
	ligh Channel		łz						
	adiated Emis		15.00			<u>.</u>			
equency		Pol		9 / 15E	Detector	Azimuth	Height	Comments	
MHz)620.000	dBµV/m 39.8	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters		
620.000 620.070		H V	54.0 54.0	-14.2 -14.1	AVG AVG	246 104	1.0 1.0	+	
947.800	39.9 41.8	V H	54.0 54.0	-14.1	AVG	104	1.0		
	41.0	11	J4.U	-12.2		107	1.0		
5958 600	42.4	V	54.0	-11.6	AVG	143	10		
	42.4	V H	54.0 74.0	-11.6	AVG PK	143 246	1.0 1.0		
625.930	50.8	Н	74.0	-23.2	PK	246	1.0		
)625.930)649.330	50.8 51.9	H V	74.0 74.0	-23.2 -22.1	PK PK	246 104	1.0 1.0		
5958.600 0625.930 0649.330 5949.070 5960.930 ote 1:	50.8 51.9 52.9 53.4 For emission	H V H V	74.0 74.0 74.0 74.0 74.0	-23.2 -22.1 -21.1 -20.6	РК РК РК РК	246 104 109 143	1.0 1.0 1.0 1.0	, the average	limit was set to
0625.930 0649.330 0949.070 0960.930	50.8 51.9 52.9 53.4	H V H V	74.0 74.0 74.0 74.0 74.0	-23.2 -22.1 -21.1 -20.6	РК РК РК РК	246 104 109 143	1.0 1.0 1.0 1.0	s, the average	limit was set to -
0625.930 0649.330 0949.070 0960.930	50.8 51.9 52.9 53.4 For emission	H V H V	74.0 74.0 74.0 74.0 74.0	-23.2 -22.1 -21.1 -20.6	РК РК РК РК	246 104 109 143	1.0 1.0 1.0 1.0	, the average	limit was set to
0625.930 0649.330 5949.070 5960.930	50.8 51.9 52.9 53.4 For emission	H V H V	74.0 74.0 74.0 74.0 74.0	-23.2 -22.1 -21.1 -20.6	РК РК РК РК	246 104 109 143	1.0 1.0 1.0 1.0	, the average	limit was set to
0625.930 0649.330 5949.070 5960.930	50.8 51.9 52.9 53.4 For emission	H V H V	74.0 74.0 74.0 74.0 74.0	-23.2 -22.1 -21.1 -20.6	РК РК РК РК	246 104 109 143	1.0 1.0 1.0 1.0	, the average	limit was set to
0625.930 0649.330 0949.070 0960.930	50.8 51.9 52.9 53.4 For emission	H V H V	74.0 74.0 74.0 74.0 74.0	-23.2 -22.1 -21.1 -20.6	РК РК РК РК	246 104 109 143	1.0 1.0 1.0 1.0	s, the average	limit was set to
0625.930 0649.330 0949.070 0960.930	50.8 51.9 52.9 53.4 For emission	H V H V	74.0 74.0 74.0 74.0 74.0	-23.2 -22.1 -21.1 -20.6	РК РК РК РК	246 104 109 143	1.0 1.0 1.0 1.0	, the average	limit was set to
625.930 649.330 949.070 960.930	50.8 51.9 52.9 53.4 For emission	H V H V	74.0 74.0 74.0 74.0 74.0	-23.2 -22.1 -21.1 -20.6	РК РК РК РК	246 104 109 143	1.0 1.0 1.0 1.0	, the average	limit was set to
0625.930 0649.330 0949.070 0960.930	50.8 51.9 52.9 53.4 For emission	H V H V	74.0 74.0 74.0 74.0 74.0	-23.2 -22.1 -21.1 -20.6	РК РК РК РК	246 104 109 143	1.0 1.0 1.0 1.0	, the average	limit was set to
0625.930 0649.330 0949.070 0960.930	50.8 51.9 52.9 53.4 For emission	H V H V	74.0 74.0 74.0 74.0 74.0	-23.2 -22.1 -21.1 -20.6	РК РК РК РК	246 104 109 143	1.0 1.0 1.0 1.0	, the average	limit was set to
0625.930 0649.330 0949.070 0960.930	50.8 51.9 52.9 53.4 For emission	H V H V	74.0 74.0 74.0 74.0 74.0	-23.2 -22.1 -21.1 -20.6	РК РК РК РК	246 104 109 143	1.0 1.0 1.0 1.0	s, the average	limit was set to
0625.930 0649.330 0949.070 0960.930	50.8 51.9 52.9 53.4 For emission	H V H V	74.0 74.0 74.0 74.0 74.0	-23.2 -22.1 -21.1 -20.6	РК РК РК РК	246 104 109 143	1.0 1.0 1.0 1.0	s, the average	limit was set to
625.930 649.330 949.070 960.930	50.8 51.9 52.9 53.4 For emission	H V H V	74.0 74.0 74.0 74.0 74.0	-23.2 -22.1 -21.1 -20.6	РК РК РК РК	246 104 109 143	1.0 1.0 1.0 1.0	, the average	limit was set to
0625.930 0649.330 0949.070 0960.930	50.8 51.9 52.9 53.4 For emission	H V H V	74.0 74.0 74.0 74.0 74.0	-23.2 -22.1 -21.1 -20.6	РК РК РК РК	246 104 109 143	1.0 1.0 1.0 1.0	, the average	limit was set to
0625.930 0649.330 0949.070 0960.930	50.8 51.9 52.9 53.4 For emission	H V H V	74.0 74.0 74.0 74.0 74.0	-23.2 -22.1 -21.1 -20.6	РК РК РК РК	246 104 109 143	1.0 1.0 1.0 1.0	, the average	limit was set to
0625.930 0649.330 5949.070 5960.930	50.8 51.9 52.9 53.4 For emission	H V H V	74.0 74.0 74.0 74.0 74.0	-23.2 -22.1 -21.1 -20.6	РК РК РК РК	246 104 109 143	1.0 1.0 1.0 1.0	s, the average	limit was set to
0625.930 0649.330 5949.070	50.8 51.9 52.9 53.4 For emission	H V H V	74.0 74.0 74.0 74.0 74.0	-23.2 -22.1 -21.1 -20.6	РК РК РК РК	246 104 109 143	1.0 1.0 1.0 1.0	s, the average	limit was set to
0625.930 0649.330 5949.070 5960.930	50.8 51.9 52.9 53.4 For emission	H V H V	74.0 74.0 74.0 74.0 74.0	-23.2 -22.1 -21.1 -20.6	РК РК РК РК	246 104 109 143	1.0 1.0 1.0 1.0	s, the average	limit was set to

Model: 802.11abgn Module T-Log Number: T76863 Account Manager: Christine Krebil Account Manager: Christine Krebil Standard: FCC 15.407, RSS-210 Class: N/A Run #3, Radiated Spurious Emissions, 30 - 40,000 MH. Operation in the 5470-5725 MHz Band Date: 11/19/2009 Engineer: Mehran Birgani Location: OATS #2 Antenna: Larsen Dipole, R380.500.314, 5.0dBi (5GHz), Asst # 2009-1629 MAC: 00172309A9FB DRIVER: V2.03.07 SCU: V3.00.37 Run #3a: Low Channel @ 5500 MHz Spurious Ratiated Emissions: Frequency Level Pol 15.209 / 15E Detector Azimuth Height Comments 11005.800 41.5 V 54.0 -12.5 AVG 34 1.0 11005.800 41.5 V 54.0 -12.4 AVG 46 1.0
Contact: Ron Seide Account Manager: Christine Krebit Standard: FCC 15.407, RSS-210 Class: N/A Run #3, Radiated Spurious Emissions, 30 - 40,000 MH. Operation in the 5470-5725 MHz Band Date: 11/19/2009 Engineer: Mehran Birgani Location: OATS #2 Antenna: Larsen Dipole, R380.500.314, 5.0dBi (5GHz), Asst # 2009-1629 MAC: 00172309A9FB DRIVER: V2.03.07 SCU: V3.00.37 Run #3a: Low Channel @ 5500 MHz Spurious Radiated Emissions: Frequency Level Pol 15.209 / 15E Detector Azimuth Height Comments MHz dBµV/m V/H Limit Margin PK/OP/Avg degrees meters 11005.800 41.5 V 54.0 -12.5 AVG 34 1.0 16497.870 44.3 V 68.3 -24.0 AVG 151 1.0 1005.530 53.2 V 74.0 -20.8 PK 34 1.0 11013.530 53.1
Standard: FCC 15.407, RSS-210 Class: N/A Run #3, Radiated Spurious Emissions, 30 - 40,000 MH. Operation in the 5470-5725 MHz Band Date: 11/19/2009 Engineer: Mehran Birgani Location: OATS #2 Antenna: Larsen Dipole, R380.500.314, 5.0dBi (5GHz), Asst # 2009-1629 MAC: 00172309A9FB DRIVER: V2.03.07 SCU: V3.00.37 Run #3a: Event = 5500 MHz Spurious Radiated Emissions: Frequency Level Pol 15.209 / 15E Detector Azimuth Height Comments MHz dBµV/m V/H Limit Margin Pk/QP/Avg degrees meters
Run #3, Radiated Spurious Emissions, 30 - 40,000 MH. Operation in the 5470-5725 MHz Band Date: 11/19/2009 Engineer: Mehran Birgani Location: OATS #2 Antenna: Larsen Dipole, R380.500.314, 5.0dBi (5GHz), Asst # 2009-1629 MAC: 00172309A9FB DRIVER: V2.03.07 SCU: V3.00.37 Run #3a: Low Channel @ 5500 MHz Spurious Radiated Emissions: Frequency Level Pol 15.209 / 15E Detector Azimuth Height Comments MHz dBµV/m V/H Limit Margin PK/QP/Avg degrees meters 11005.800 41.5 V 54.0 -12.5 AVG 34 1.0 11010.070 41.6 H 54.0 -12.4 AVG 46 1.0 16497.870 44.3 V 68.3 -24.0 AVG 151 1.0 1005.530 53.2 V 74.0 -20.8 PK 34 1.0 11013.530 53.1 H 74.0
Date: 11/19/2009 Engineer: Mehran Birgani Location: OATS #2 Antenna: Larsen Dipole, R380.500.314, 5.0dBi (5GHz), Asst # 2009-1629 MAC: 00172309A9FB DRIVER: V2.03.07 SCU: V3.00.37 Run #3a: Low Channel @ 5500 MHz Descriptions Scu: V3.00.37 Spurious Radiated Emissions: Errequency Level Pol 15.209 / 15E Detector Azimuth Height Comments MHz dBµV/m V/H Limit Margin PK/QP/Avg degrees meters 11005.800 41.5 V 54.0 -12.5 AVG 34 1.0 16497.870 44.3 V 68.3 -24.0 AVG 151 1.0 16511.200 41.7 H 68.3 -26.6 AVG 198 2.1 11005.530 53.2 V 74.0 -20.8 PK 34 1.0 11013.530 53.1 H 74.0 -20.9 PK 46 1.0 16499.530 57.1
Antenna: Larsen Dipole, R380.500.314, 5.0dBi (5GHz), Asst # 2009-1629 MAC: 00172309A9FB DRIVER: V2.03.07 SCU: V3.00.37 Run #3a: Low Channel @ 5500 MHz Spurious Radiated Emissions: Emissions: Frequency Level Pol 15.209 / 15E Detector Azimuth Height Comments MHz dBµV/m V/H Limit Margin Pk/QP/Avg degrees meters 11005.800 41.5 V 54.0 -12.5 AVG 34 1.0 11010.070 41.6 H 54.0 -12.4 AVG 46 1.0 16497.870 44.3 V 68.3 -24.0 AVG 151 1.0 11005.530 53.2 V 74.0 -20.8 PK 34 1.0 11013.530 53.1 H 74.0 -20.9 PK 46 1.0 11013.530 53.1 H 74.0 -20.9 PK 46 1.0 16499.530 57.1 V 88.3 -31.2 PK 151 1.0 16499.530
MAC: 00172309A9FB DRIVER: V2.03.07 SCU: V3.00.37 Run #3a: Low Channel @ 5500 MHz Spurious Radiated Emissions: Spurious Radiated Emissions: Frequency Level Pol 15.209 / 15E Detector Azimuth Height Comments MHz dBµV/m V/H Limit Margin Pk/OP/Avg degrees meters 11005.800 41.5 V 54.0 -12.5 AVG 34 1.0 11010.070 41.6 H 54.0 -12.4 AVG 46 1.0 16497.870 44.3 V 68.3 -24.0 AVG 151 1.0 16511.200 41.7 H 68.3 -26.6 AVG 198 2.1 11005.530 53.2 V 74.0 -20.8 PK 34 1.0 11013.530 53.1 H 74.0 -20.9 PK 46 1.0 16499.530 57.1 V 88.3 -31.2 PK 151
MAC: 00172309A9FB DRIVER: V2.03.07 SCU: V3.00.37 Run #3a: Low Channel @ 5500 MHz Spurious Radiated Emissions: Spurious Radiated Emissions: Frequency Level Pol 15.209 / 15E Detector Azimuth Height Comments MHz dBµV/m V/H Limit Margin Pk/QP/Avg degrees meters 11005.800 41.5 V 54.0 -12.5 AVG 34 1.0 11010.070 41.6 H 54.0 -12.4 AVG 46 1.0 16497.870 44.3 V 68.3 -24.0 AVG 151 1.0 16511.200 41.7 H 68.3 -26.6 AVG 198 2.1 11005.530 53.2 V 74.0 -20.8 PK 34 1.0 11013.530 53.1 H 74.0 -20.9 PK 46 1.0 16499.530 57.1 V 88.3 -31.2 PK 151
Spurious Radiated Emissions: Frequency Level Pol 15.209 / 15E Detector Azimuth Height Comments MHz dBµV/m V/H Limit Margin Pk/QP/Avg degrees meters 11005.800 41.5 V 54.0 -12.5 AVG 34 1.0 11010.070 41.6 H 54.0 -12.4 AVG 46 1.0 16497.870 44.3 V 68.3 -24.0 AVG 151 1.0 16511.200 41.7 H 68.3 -26.6 AVG 198 2.1 11005.530 53.2 V 74.0 -20.8 PK 34 1.0 11013.530 53.1 H 74.0 -20.9 PK 46 1.0 16499.530 57.1 V 88.3 -31.2 PK 151 1.0 16499.530 52.9 H 88.3 -35.4 PK 198 2.1<
Spurious Radiated Emissions: Frequency Level Pol 15.209 / 15E Detector Azimuth Height Comments MHz dBµV/m V/H Limit Margin Pk/QP/Avg degrees meters 11005.800 41.5 V 54.0 -12.5 AVG 34 1.0 11010.070 41.6 H 54.0 -12.4 AVG 46 1.0 16497.870 44.3 V 68.3 -24.0 AVG 151 1.0 16511.200 41.7 H 68.3 -26.6 AVG 198 2.1 11005.530 53.2 V 74.0 -20.8 PK 34 1.0 11013.530 53.1 H 74.0 -20.9 PK 46 1.0 16499.530 57.1 V 88.3 -31.2 PK 151 1.0 16499.530 52.9 H 88.3 -35.4 PK 198 2.1<
FrequencyLevelPol15.209 / 15EDetectorAzimuthHeightCommentsMHzdBμV/mV/HLimitMarginPk/QP/Avgdegreesmeters11005.80041.5V54.0-12.5AVG341.011010.07041.6H54.0-12.4AVG461.016497.87044.3V68.3-24.0AVG1511.016511.20041.7H68.3-26.6AVG1982.111005.53053.2V74.0-20.8PK341.011013.53053.1H74.0-20.9PK461.016499.53057.1V88.3-31.2PK1511.016515.93052.9H88.3-35.4PK1982.1
MHz dBμV/m V/H Limit Margin Pk/QP/Avg degrees meters 11005.800 41.5 V 54.0 -12.5 AVG 34 1.0 11010.070 41.6 H 54.0 -12.4 AVG 46 1.0 16497.870 44.3 V 68.3 -24.0 AVG 151 1.0 16511.200 41.7 H 68.3 -26.6 AVG 198 2.1 11005.530 53.2 V 74.0 -20.8 PK 34 1.0 11013.530 53.1 H 74.0 -20.9 PK 46 1.0 16499.530 57.1 V 88.3 -31.2 PK 151 1.0 16499.530 57.1 V 88.3 -35.4 PK 198 2.1
11005.800 41.5 V 54.0 -12.5 AVG 34 1.0 11010.070 41.6 H 54.0 -12.4 AVG 46 1.0 16497.870 44.3 V 68.3 -24.0 AVG 151 1.0 16511.200 41.7 H 68.3 -26.6 AVG 198 2.1 11005.530 53.2 V 74.0 -20.8 PK 34 1.0 11013.530 53.1 H 74.0 -20.9 PK 46 1.0 16499.530 57.1 V 88.3 -31.2 PK 151 1.0 16515.930 52.9 H 88.3 -35.4 PK 198 2.1
11010.070 41.6 H 54.0 -12.4 AVG 46 1.0 16497.870 44.3 V 68.3 -24.0 AVG 151 1.0 16511.200 41.7 H 68.3 -26.6 AVG 198 2.1 11005.530 53.2 V 74.0 -20.8 PK 34 1.0 11013.530 53.1 H 74.0 -20.9 PK 466 1.0 16499.530 57.1 V 88.3 -31.2 PK 151 1.0 16499.530 57.1 V 88.3 -35.4 PK 198 2.1
16497.870 44.3 V 68.3 -24.0 AVG 151 1.0 16511.200 41.7 H 68.3 -26.6 AVG 198 2.1 11005.530 53.2 V 74.0 -20.8 PK 34 1.0 11013.530 53.1 H 74.0 -20.9 PK 46 1.0 16499.530 57.1 V 88.3 -31.2 PK 151 1.0 16515.930 52.9 H 88.3 -35.4 PK 198 2.1
16511.20041.7H68.3-26.6AVG1982.111005.53053.2V74.0-20.8PK341.011013.53053.1H74.0-20.9PK461.016499.53057.1V88.3-31.2PK1511.016515.93052.9H88.3-35.4PK1982.1
11005.53053.2V74.0-20.8PK341.011013.53053.1H74.0-20.9PK461.016499.53057.1V88.3-31.2PK1511.016515.93052.9H88.3-35.4PK1982.1
16499.530 57.1 V 88.3 -31.2 PK 151 1.0 16515.930 52.9 H 88.3 -35.4 PK 198 2.1
16515.930 52.9 H 88.3 -35.4 PK 198 2.1
Note 1: For emissions in restricted bands, the limit of 15.209 was used. For all other emissions, the average limit was set to 27dBm/MHz (~68dBuV/m).

Client:	Summit Data	a Communic	ations					Job Number:	Job Number: J76855		
	000.11						T	-Log Number:	T76863		
Model:	802.11abgn	Module					Acco	ount Manager:	Christine Krebi		
Contact:	Ron Seide										
	FCC 15.407	, RSS-210						Class:	N/A		
		•									
Run #3b: C	Center Chanr	nel @ 5580 M	ЛНz								
Spurious R	adiated Emi	ssions:									
Frequency	Level	Pol	15.209	9/15E	Detector	Azimuth	Height	Comments			
MHz	dBµV/m	V/H	Limit	Margin	Pk/QP/Avg	degrees	meters				
11155.050	39.5	Н	54.0	-14.5	AVG	224	1.0				
11162.420	39.9	V	54.0	-14.1	AVG	51	1.0				
16739.920	43.2	Н	54.0	-10.8	AVG	0	1.0				
16740.100	43.5	٧	54.0	-10.5	AVG	6	1.0				
11155.420	51.2	Н	74.0	-22.8	PK	224	1.0				
11157.880	51.3	V	74.0	-22.7	PK	51	1.0				
16736.220	54.4	V	74.0	-19.6	PK	6	1.0				
16742.050	54.0	Н	74.0	-20.0	PK	0	1.0				
	-										
Note 1:				limit of 15.2	09 was used.	For all othe	r emissions	, the average	e limit was set to		
NOIC I.	-27dBm/MHz	z (~68dBuV/	m).								
		•									
	ligh Channel		IZ								
Frequency	adiated Emis	Pol	15 200	9/15E	Detector	Azimuth	Height	Comments			
MHz	dBµV/m	V/H	Limit	Margin	Pk/QP/Avg	degrees	meters	COMMENIS			
11397.550	41.5	Н	54.0	-12.5	AVG	52	1.0				
11397.550	41.3	V	54.0 54.0	-12.5	AVG	200	1.0				
17403.570 17101.070	41.3 45.0	 H	54.0 54.0	-12.7 -9.0	AVG	100	1.0				
17103.530	45.0	л V	54.0 54.0	-9.0	AVG	360	1.0				
11395.980	43.0 52.4	V	54.0 74.0	-9.0	PK	200	1.0				
11395.980	52.4	H	74.0	-21.0	PK PK	52	1.0				
17098.780	53.0 56.1	N V	74.0	-21.0	PK PK	360	1.0	+			
I MUQ IUN						1111					

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

РΚ

100

1.0

-17.6

74.0

17101.730

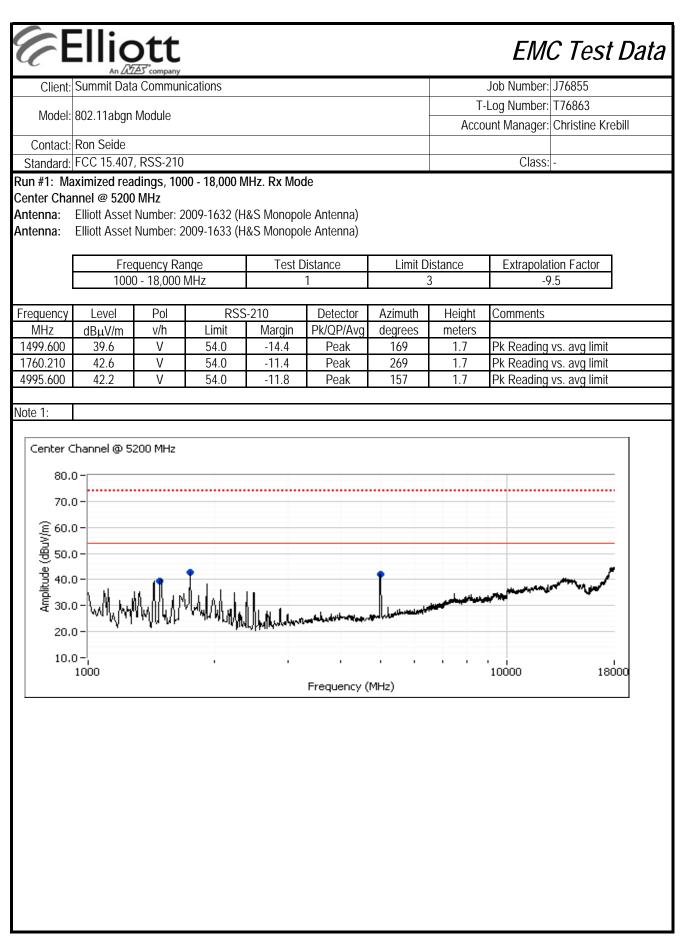
56.4

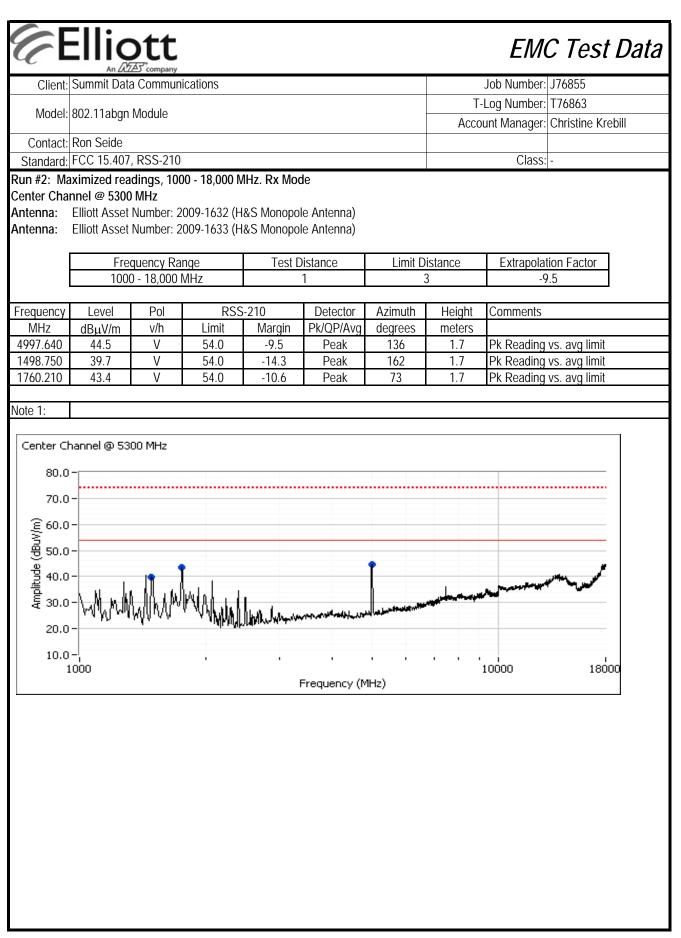
Η

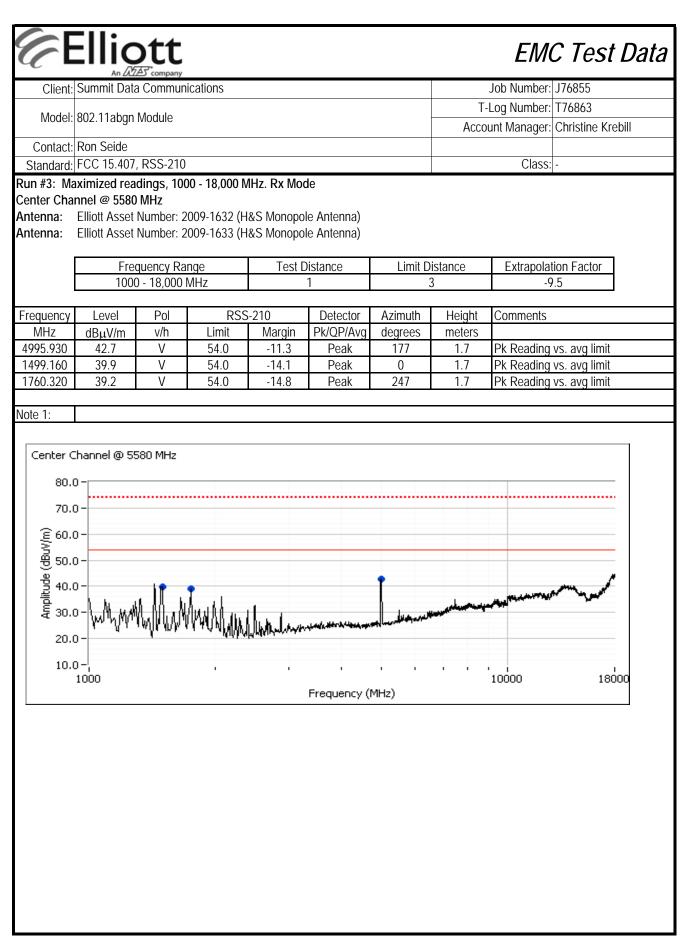
Elliott			EM	C Test Data
Client: Summit Data Communications			Job Number:	J76855
Model: 802.11abgn Module			T-Log Number:	
			Account Manager:	Christine Krebill
Contact: Ron Seide Standard: FCC 15.407, RSS-210			Class	N1/A
Standard: FCC 15.407, RSS-210			Class:	IN/A
		and FCC 15.4 easurements (
Test Specific Details Objective: Determine the powe	er settings to match t	ne original filing		
Date of Test: 12/4/2009 Test Engineer: Mehran Birgani Test Location: Environmental Lab		Config. Used: - Config Change: - Host EUT Voltage: 12	20V/ 60Hz	
General Test Configuration When measuring the conducted emissions analyzer or power meter via a suitable atte allow for the external attenuators and cable	nuator to prevent over			-
Ambient Conditions:	Temperature: Rel. Humidity:	18-20 °C 40-45 %		

	-11:									
(je		JJC						EM	C Test	' Data
Client:	Summit Dat	a Communic	ations					Job Number:	J76855	
onorm.								Log Number:		
Model:	802.11abgn	Module						unt Manager:		ohill
Contact	Ron Seide						ALLUI	uni manayer.		CDIII
								Class	N1/A	
Standard:	FCC 15.407	, RSS-210						Class:	N/A	
D #4 D										
Run #1: Ba	nawiath, Ou	Itput Power	and Powers	spectral Den	isity					
MAC:	001723094	A9FB	DRIVER:	V2.03.13		SCU:	V2.03.09			
			Choin 1	Choin 2	Choin 2	Cohoront	F (()	1		
	Antonn	a Cain (dDi).	Chain 1	Chain 2	Chain 3	Coherent	Effective ⁵	-		
	Antenna	a Gain (dBi):			4.3	Yes	4.3	J		
Notos - Tos	t using the	CCS mothor	ls and datar	mina tha au	tout nower	sattings tha	t match the	final ronort	Those will h	he used for
		ents. Powe						illiai report.		Je useu ioi
	Software	26dB BW	T			ř	otal			Total from
Frequency	Setting	(MHz)		ed Output Po				Test N	/lethod	CCS
(MHz)	0		Chain 1	Chain 2	Chain 3	mW	dBm			003
802.11a mo			/ /			4.4	/ /	DSA char	nol nowor	14.00
5180 5220	ch 36		6.4			4.4	6.4		inel power,	14.33
5320	ch 64		8.5			7.1	8.5		, 100 sweep	15.53
5500 802.11 HT2	ch 100		10.4			11.0	10.4	ave	rage	17.26
5180	ch 36		5.4	4.4		6.3	8.0	DSA char	nel power,	13.18
5320	ch 64		9.6	9.6		18.2	12.6		, 100 sweep	17.38
5500	ch 100		9.0	9.0 8.7		16.2	12.0			17.30
802.11 HT4			9.1	0.7		10.7	IZ.Z	ave	rage	19.02
5190	ch 36		4.6	3.2		5.0	7.0	PSA char	nel power,	15.20
5310	ch 60		8.6	7.8		13.3	11.2		, 100 sweep	15.63
5510	ch 100		7.6	6.1		9.9	9.9		rage	18.62
3310			7.0	0.1		7.7	7.7	ave	laye	10.02
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Ellio	tt			EM	C Test D
Client: Summit Data C	communications		Jo	b Number:	J76855
Model: 802.11abgn Mo	odule			g Number:	
Contact: Ron Seide			Account	Manager:	Christine Krebill
Standard: FCC 15.407, R	SS-210			Class:	-
	Radiated Em	issions - R	SS-210		
est Specific Details					
	e objective of this test session is to ecification listed above.	perform final qualific	ation testing of th	e EUT with	n respect to the
Date of Test: 1/2		Config. Use			
Test Engineer: Ra Test Location: Ch		Config Chang	e: None e: 120V/60Hz		
		_0			
General Test Configu The EUT and all local sup	ration oport equipment were located on the	turntable for radiate	d emissions testi	ng.	
	rapolation factor (if applicable) are c				
			·	nd alouatio	on of the measure
antenna. Maximized tes	indicates that the emissions were r ting indicated that the emissions we n of the EUT's interface cables.	5			
Ambient Conditions:	Temperature:	19.4 °C			
	Rel. Humidity:	38 %			
Summary of Results					
Run #	Test Performed	Limit	Result	Ма	rgin
1-3	RE, 1000 - 18,000 MHz, Maximized Emissions	RSS-210	Pass	44.5dB	µV/m @ Iz (-9.5dB)
Nodifications Made D No modifications were ma			<u> </u>		(
Deviations From The	Standard				
No deviations were made	from the requirements of the stand	ard.			
NOTE - This prelir	ninary data shows no emissions rela	ated to the receive m	ode. No formal r	neasureme	ents performed.







Appendix C Photographs of Test Configurations

Uploaded as a separate exhibit

Appendix D Operator's Manual

Uploaded as a separate exhibit

Appendix E RF Exposure Information

Uploaded as a separate exhibit