

## *EMC Test Report Application for Grant of Equipment Authorization Industry Canada RSS-Gen Issue 3 / RSS 210 Issue 8 FCC Part 15 Subpart C*

### Intel<sup>®</sup> Centrino<sup>®</sup> Advanced-N 6235, Models 6235ANHMRW and 6235ANHRU

IC CERTIFICATION #: FCC ID:	1000M-6235ANHR and 1000M-6235ANHRU PD96235ANHR and PD96235ANHRU
APPLICANT:	Intel Corporation 100 Center Point Circle Suite 200 Columbia, SC 29210
TEST SITE(S):	Elliott Laboratories 41039 Boyce Road. Fremont, CA. 94538-2435
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### **REVISION HISTORY**

Rev#	Date	Comments	Modified By
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#### SCOPE

An electromagnetic emissions test has been performed on the Intel Corporation model Intel® Centrino® Advanced-N 6235, Models 6235ANHMRW and 6235ANHRU, pursuant to the following rules:

Industry Canada RSS-Gen Issue 3 RSS 210 Issue 8 "Low-power Licence-exempt Radiocommunication Devices (All Frequency Bands): Category I Equipment" FCC Part 15 Subpart C

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

ANSI C63.4:2003 FHSS test procedure DA 00-0705A1, March 2000

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 Intel Corporation Intel<sup>®</sup> Centrino<sup>®</sup> Advanced-N 6235, Models 6235ANHMRW and 6235ANHRU complied with the requirements of the following regulations:

Industry Canada RSS-Gen Issue 3

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

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 Intel Corporation Intel® Centrino® Advanced-N 6235, Models 6235ANHMRW and 6235ANHRU and therefore apply only to the tested sample. The sample was selected and prepared by Steve Hackett of Intel Corporation.

#### DEVIATIONS FROM THE STANDARDS

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

### TEST RESULTS SUMMARY

FCC Rule Part	RSS Rule Part	Description	Measured Value / Comments	Limit / Requirement	Result
15.247	RSS 210	20dB Bandwidth	Basic Rate: 1.67 MHz EDR: 1.5MHz	Channel spacing > 2/3rds 20dB	Complies
(a) (1)	A8.1 (1)	Channel Separation	1 MHz	bandwidth	Complies
15.247 (a) (1) (iii)	RSS 210 A8.1 (4)	Channel Dwell Time (average time of occupancy)	<0.4 second within a period of 0.4 x number of channels	<0.4 second within a period of 0.4 x number of channels	Complies
15.247 (a) (1) (iii)	RSS 210 A8.1 (4)	Number of Channels	Min: 20 Max: 79	15 or more	Complies
15.247 (a) (1)	RSS 210 A8.1 (1)	Channel Utilization	The system uses the Bluetooth algorithm and, therefore, meets all requirements for channel utilization.	All channels shall, on average, be used equally	Complies
15.247 (b) (3)	RSS 210 A8.4 (2)	Output Power	Basic Rate: 0.0033W EDR: 0.0026 W EIRP = 0.0069W <sup>Note 1</sup>	0.125 Watts.	Complies
15.247(c)	RSS 210 A8.5	Spurious Emissions – 30MHz – 25GHz	All spurious emissions < -20dBc	< -20dBc	Complies
15.247(c) / 15.209	RSS 210 A8.5 Table 2, 3	Radiated Spurious Emissions 30MHz – 25GHz	46.2 dBµV/m @ 2483.5 MHz	15.207 in restricted bands, all others < -20dBc	Complies (- 7.8 dB)
15.247 (a) (1)	RSS 210 A8.1(2)	Receiver bandwidth	Refer to operational description, Page 2	Shall match the channel bandwidth	Complies
		g antenna gain of 3.2 dBi			1

#### FREQUENCY HOPPING SPREAD SPECTRUM (2400 – 2483.5 MHz, less than 75 channels)

FCC Rule Part	RSS Rule part	Description	Measured Value / Comments	Limit / Requirement	Result (margin)
15.203	-	RF Connector	Unique connector used	Unique or integral antenna required	Complies
15.207	RSS GEN Table 2	AC Conducted Emissions	39.7 dBµV @ 15.416 MHz	Refer to page 18	Complies (-20.3dB)
15.247 (b) (5) 15.407 (f)	RSS 102	RF Exposure Requirements	Not applicable – the output power is below the 60/f threshold.		
-	RSP 100 RSS GEN 7.1.5	User Manual	Refer to page 11 of the user's manual	Statement required regarding non- interference	Complies
-	RSP 100 RSS GEN 7.1.5	User Manual	Not applicable, antenna is integral to host systems.	Statement for products with detachable antenna	Complies
-	RSP 100 RSS GEN 4.4.1	99% Bandwidth	Basic Rate: 973 kHz EDR: 1.3 MHz	Information only	N/A

#### GENERAL REQUIREMENTS APPLICABLE TO ALL BANDS

#### ADDITIONAL MEASUREMENTS

As both Bluetooth and 802.11 transmissions can occur simultaneously, radiated spurious measurements were made with both Bluetooth and 802.11 devices transmitting simultaneously.

DTS (Wi-Fi in 2.4GHz and 5.7GHz bands) and Bluetooth					
Description Limit / Requirement					Result (margin)
15.209	RSS 210	Spurious emissions	52.1 dBμV/m @ 7386.9 MHz	15.209 in restricted bands, all others < -20dBc	Complies (-1.9dB)

LELAN/NII (Wi-Fi in 5150-5350/5470-5725MHz bands) and Bluetooth						
FCC Rule Part	RSS Rule part	Description	Measured Value / Comments	Limit / Requirement	Result (margin)	
15.209	15.209 RSS 210 Spurious emiss		46.1 dBμV/m @ 10400.0 MHz	15.209 in restricted bands, all others < -20dBc	Complies (-7.9dB)	
Note: Highest observed emissions above were actually second harmonic of 802.11 signal and not an inter- modulation product, but this was the highest level signal observed with both Bluetooth and Wi-Fi transmitters operational simultaneously.						

#### MEASUREMENT UNCERTAINTIES

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

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

#### EQUIPMENT UNDER TEST (EUT) DETAILS

#### GENERAL

The Intel Corporation Intel® Centrino® Advanced-N 6235, Models 6235ANHMRW and 6235ANHRU are PCIe Half Mini Card for factor Bluetooth/IEEE 802.11a/b/g/n wireless network adapters. The card supports MIMO (2x2) for 802.11n modes and MISO (1x2) for 802.11a/b/g modes.

Bluetooth operates on a single chain and supports Basic rate, Enhanced data rate and Low Energy modes. The Basic and Enhanced data rates fully support frequency hopping while the Low Energy (LE) mode can operate in both hoping and non-hopping modes. The LE mode was evaluated under the rules for digital modulation systems while the other modes were evaluated as FHSS.

When Bluetooth is operational then 802.11b/g/n modes operate as SISO (1x1). 802.11a/n modes still operate as MIMO (2x2) with Bluetooth operational.

The card is sold under two different FCC/IC ID numbers (see table below). The ID's ending in "U" are intended to allow user install conditions and host systems must be provided with a BIOS locking feature that prevents installation of unauthorized devices.

For radio testing purposes the card was installed in a test fixture that exposed all sides of the card. For digital device testing for certification under equipment code JBP the card was installed inside a laptop PC.

The sample was received on April 16, 2012 and tested on April 23 and 30 and May 1, 2, 9 and 10, 2012. The EUT consisted of the following component(s):

Company	Model	Description	Serial Number	FCC ID
		PCIe Half Mini		PD96235ANHR
	6235ANHMRW	Card form factor		PD96235ANHRU
Intel	0255AINTIVIK W	Bluetooth /	44850006303D	1000M-
Corporation		IEEE		6235ANHR
Corporation	6235ANHRU	802.11a/b/g/n		1000M-
		wireless		6235ANHRU
		network adapter		0255ANTIKU

#### ANTENNA SYSTEM

The EUT antenna is a a two-antenna PIFA antenna system – Shanghai Universe Communication Electron Co., Ltd. The antenna connects to the EUT via a non-standard antenna connector, thereby meeting the requirements of FCC 15.203.

#### ENCLOSURE

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

#### MODIFICATIONS

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
Intel	-	Test Fixture		N/A
Corporation				
Dell	PP17L	Laptop PC	CN-ONF743-	N/A
			48643-7B6-	
			0727	
Agilent	E3610A	DC Supply	100708	N/A

No remote support equipment was used during testing.

#### EUT INTERFACE PORTS

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

Port		Cable(s)			
From	То	Description	Shielded/Unshielded	Length(m)	
Laptop USB	Fixture USB	USB cable	Shielded	1.5	
Laptop Mini PCI	Fixture PCIe	Ribbon	unshielded	0.7	
DC Power	Fixture DC power	2-wire	unshielded	0.7	

#### EUT OPERATION

The EUT was installed into a test fixture that exposed all sides of the card. The test fixture interfaced to a laptop computer and dc power supply. The laptop computer was used to configure the EUT to continuously transmit at a specified output power or continuously receive on the channel specified in the test data. For transmit mode measurements the system was configured to operate in each of the available operating modes –Bluetooth 1Mb/s and Bluetooth 3Mb/s. In addition radiated spurious tests were repeated with the device operating in both Bluetooth and 802.11 modes to determine if any spurious emissions due to inter-modulation products were created.

Bluetooth operation was evaluated at both 1Mb/s and 3Mb/s data rates. 2Mb/s data rate was found, through preliminary testing, to produce emissions similar to those for 3Mb/s.

The PC was using the Intel test utility DRTU Version 1.5.4.0399 and the device driver was version 15.1.0.99.

#### TEST SITE

#### GENERAL INFORMATION

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

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

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

#### CONDUCTED EMISSIONS CONSIDERATIONS

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

#### RADIATED EMISSIONS CONSIDERATIONS

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

#### MEASUREMENT INSTRUMENTATION

#### RECEIVER SYSTEM

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

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

#### INSTRUMENT CONTROL COMPUTER

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

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

#### LINE IMPEDANCE STABILIZATION NETWORK (LISN)

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

#### FILTERS/ATTENUATORS

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

#### ANTENNAS

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

#### ANTENNA MAST AND EQUIPMENT TURNTABLE

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

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

#### INSTRUMENT CALIBRATION

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

#### TEST PROCEDURES

#### EUT AND CABLE PLACEMENT

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

#### CONDUCTED EMISSIONS

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

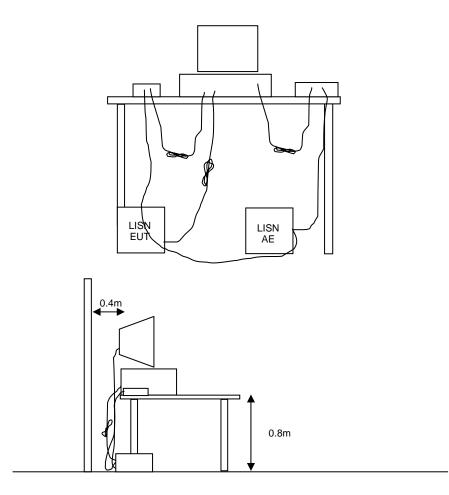


Figure 1 Typical Conducted Emissions Test Configuration

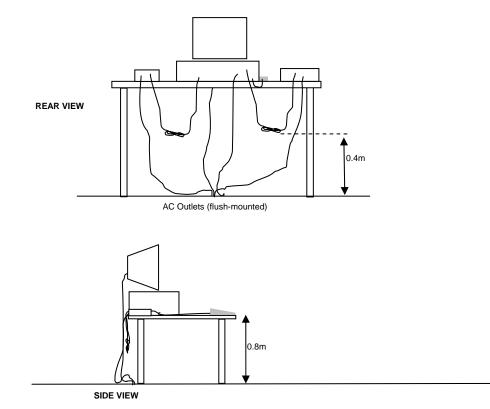
#### RADIATED EMISSIONS

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

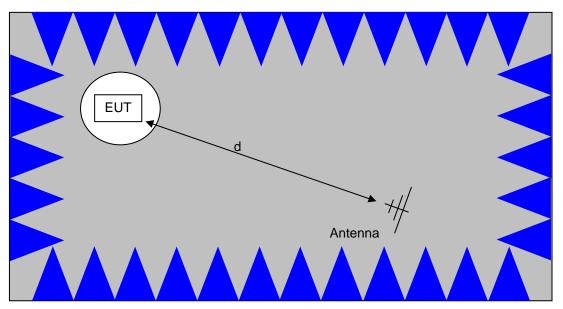
A speaker is provided in the receiver to aid in discriminating between EUT and ambient emissions. Other methods used during the preliminary scan for EUT emissions involve scanning with near field magnetic loops, monitoring I/O cables with RF current clamps, and cycling power to the EUT.

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

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

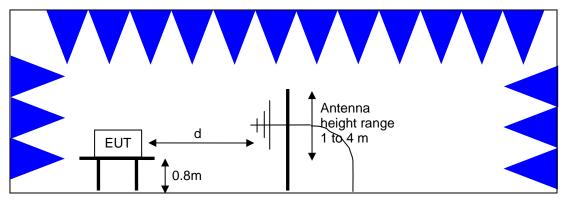


Typical Test Configuration for Radiated Field Strength Measurements



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.

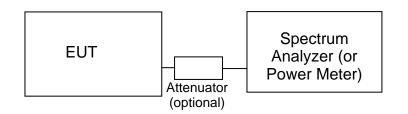
Floor-standing equipment is placed on the floor with insulating supports between the unit and the ground plane.



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

#### CONDUCTED EMISSIONS FROM ANTENNA PORT

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



#### Test Configuration for Antenna Port Measurements

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

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

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

#### **BANDWIDTH MEASUREMENTS**

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

#### SPECIFICATION LIMITS AND SAMPLE CALCULATIONS

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

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

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

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

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

#### GENERAL TRANSMITTER RADIATED EMISSIONS SPECIFICATION LIMITS

The table below shows the limits for the spurious emissions from transmitters that fall in restricted bands<sup>1</sup> (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 <sub>KHz</sub> @ 300m	67.6-20*log <sub>10</sub> (F <sub>KHz</sub> ) @ 300m
0.490-1.705	24000/F <sub>KHz</sub> @ 30m	87.6-20*log <sub>10</sub> (F <sub>KHz</sub> ) @ 30m
1.705 to 30	30 @ 30m	29.5 @ 30m
30 to 88	100 @ 3m	40 @ 3m
88 to 216	150 @ 3m	43.5 @ 3m
216 to 960	200 @ 3m	46.0 @ 3m
Above 960	500 @ 3m	54.0 @ 3m

#### RECEIVER RADIATED SPURIOUS EMISSIONS SPECIFICATION LIMITS

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

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

<sup>&</sup>lt;sup>1</sup> The restricted bands are detailed in FCC 15.203, RSS 210 Table 1 and RSS 310 Table 2

#### **OUTPUT POWER LIMITS – FHSS SYSTEMS**

The table below shows the limits for output power based on the number of channels available for the hopping system.

Operating Frequency (MHz)	Number of Channels	Output Power
902 - 928	≥ 50	1 Watt (30 dBm)
902 - 928	25 to 49	0.25 Watts (24 dBm)
2400 - 2483.5	≥ 75	1 Watt (30 dBm)
2400 - 2483.5	< 75	0.125 Watts (21 dBm)
5725 - 5850	75	1 Watt (30 dBm)

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

#### TRANSMIT MODE SPURIOUS RADIATED EMISSIONS LIMITS – FHSS and DTS SYSTEMS

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

#### SAMPLE CALCULATIONS - CONDUCTED EMISSIONS

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

$$R_r - S = M$$

where:

 $R_r =$  Receiver Reading in dBuV

S = Specification Limit in dBuV

M = Margin to Specification in +/- dB

#### SAMPLE CALCULATIONS - RADIATED EMISSIONS

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

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

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

where:

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

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

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

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

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

$$R_c = R_r + F_d$$

and

 $M = R_c - L_s$ 

where:

 $R_r$  = Receiver Reading in dBuV/m

 $F_d$  = Distance Factor in dB

 $R_c$  = Corrected Reading in dBuV/m

 $L_S$  = Specification Limit in dBuV/m

M = Margin in dB Relative to Spec

#### SAMPLE CALCULATIONS - FIELD STRENGTH TO EIRP CONVERSION

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

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

d

where P is the eirp (Watts)

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

## Appendix A Test Equipment Calibration Data

T87211				
Manufacturer	<u>Description</u> 1000 - 6,500 MHz, 17-Apr-12	Model	<u>Asset #</u>	Cal Due
EMCO Rohde & Schwarz	Antenna, Horn, 1-18GHz EMI Test Receiver, 20 Hz-7 GHz	3115 ESIB7	868 1630	6/8/2012 6/8/2012
		20121	1000	0,0,2012
Radiated Emissions, EMCO	1 <b>000 - 6,500 MHz, 18-Apr-12</b> Antenna, Horn, 1-18 GHz (SA40-Red)	3115	1142	8/2/2012
Rohde & Schwarz	EMI Test Receiver, 20 Hz-7 GHz	ESIB7	1538	12/6/2012
Radiated Emissions,	1,000 - 6,500 MHz, 19-Apr-12			
EMCO	Antenna, Horn, 1-18GHz	3115	868	6/8/2012
Rohde & Schwarz	EMI Test Receiver, 20 Hz-40	ESIB40	2493	12/9/2012
	GHz	(1088.7490.40)		
Radiated Emissions,				
Rohde & Schwarz	EMI Test Receiver, 20 Hz-7 GHz	ESIB7	1538	12/6/2012
EMCO	Antenna, Horn, 1-18 GHz	3115	1561	6/22/2012
Radiated Emissions,	1000 - 6,500 MHz, 24-Apr-12			
EMCO	Antenna, Horn, 1-18 GHz	3115	487	7/6/2012
Rohde & Schwarz	EMI Test Receiver, 20 Hz-7 GHz	ESIB7	1630	6/8/2012
Radiated Emissions.	1000 - 6,500 MHz, 24-Apr-12			
EMCO	Antenna, Horn, 1-18 GHz	3115	1386	9/21/2012
	(SA40-Blu)		4000	0/0/0040
Rohde & Schwarz	EMI Test Receiver, 20 Hz-7 GHz	ESIB7	1630	6/8/2012
Radiated Emissions,	Band Edge, 24-Apr-12			
EMCO	Antenna, Horn, 1-18GHz	3115	868	6/8/2012
Rohde & Schwarz	EMI Test Receiver, 20 Hz-40	ESIB40	2493	12/9/2012
	GHz	(1088.7490.40)		
Radiated Emissions,	30 - 18,000 MHz, 25-Apr-12			
Hewlett Packard	Microwave Preamplifier, 1-	8449B	263	3/29/2013
EMCO	26.5GHz Antenna, Horn, 1-18 GHz	3115	1386	9/21/2012
Emoo	(SA40-Blu)	0110	1000	5/21/2012
Sunol Sciences	Biconilog, 30-3000 MHz	JB3	1657	5/28/2012
Hewlett Packard	SpecAn 9 kHz - 40 GHz, (SA40) Purple	8564E (84125C)	1771	3/23/2013
Micro-Tronics	Band Reject Filter, 5150-5350 MHz	BRC50703-02	2239	10/4/2012
Micro-Tronics	Band Reject Filter, 2400-2500 MHz	BRM50702-02	2249	10/11/2012
Com-Power Corp.	Preamplifier, 30-1000 MHz	PA-103A	2359	2/14/2013
Rohde & Schwarz	EMI Test Receiver, 20 Hz-40	ESIB40	2493	12/9/2012
	GHz	(1088.7490.40)		
Radiated Emissions	1000 - 26,500 MHz, 25-Apr-12			
Hewlett Packard	Microwave Preamplifier, 1-	8449B	263	3/29/2013
5400	26.5GHz	0445	4000	0/04/00/00
EMCO	Antenna, Horn, 1-18 GHz (SA40-Blu)	3115	1386	9/21/2012

		Re	port Date: M	lay 24, 2012
<u>Manufacturer</u> Hewlett Packard	<u>Description</u> SpecAn 9 kHz - 40 GHz, (SA40) Purple	<u>Model</u> 8564E (84125C)	<u>Asset #</u> 1771	<u>Cal Due</u> 3/23/2013
A.H. Systems Micro-Tronics	Blue System Horn, 18-40GHz Band Reject Filter, 2400-2500 MHz	SAS-574, p/n: 2581 BRM50702-02	2159 2249	5/23/2012 10/11/2012
	, 1,000 - 18,000 MHz, 25-Apr-12			
EMCO Micro-Tronics	Antenna, Horn, 1-18 GHz Band Reject Filter, 5725-5875 MHz	3115 BRC50705-02	786 1682	12/19/2013 3/23/2013
Hewlett Packard	Microwave Preamplifier, 1- 26.5GHz	8449B	2199	2/23/2013
Hewlett Packard	SpecAn 9 kHz - 40 GHz, (SA40) Purple	8564E (84125C)	2415	7/28/2012
Radiated Emissions	, 1000 - 40000MHz, 27-Apr-12			
EMCO	Antenna, Horn, 1-18 GHz (SA40-Red)	3115	1142	8/2/2012
Hewlett Packard	SpecAn 30 Hz -40 GHz, SV (SA40) Red	8564E (84125C)	1148	8/15/2012
Micro-Tronics	Band Reject Filter, 5470-5725	BRC50704-02	1681	9/8/2012
Hewlett Packard	Microwave Preamplifier, 1-	8449B	1780	11/22/2012
Micro-Tronics	26.5GHz Band Reject Filter, 5150-5350 MHz	BRC50703-02	2239	10/4/2012
Radiated Spurious E	Emissions, 1000 - 40,000 MHz, 27-A	pr-12		
Hewlett Packard	High Pass filter, 8.2 GHz	P/N 84300-80039	1156	6/24/2012
EMCO Micro-Tronics	Antenna, Horn, 1-18 GHz Band Reject Filter, 5470-5725	3115 BRC50704-02	1561 1730	6/22/2012 8/5/2012
	MHz			
Hewlett Packard	Microwave Preamplifier, 1- 26.5GHz	8449B	2199	2/23/2013
Hewlett Packard	SpecAn 9 kHz - 40 GHz, (SA40) Purple	8564E (84125C)	2415	7/28/2012
Radiated Emissions	, 1,000 - 18,000 MHz, 28-Apr-12			
Hewlett Packard	Microwave Preamplifier, 1- 26.5GHz	8449B	263	3/29/2013
EMCO	Antenna, Horn, 1-18 GHz (SA40-Blu)	3115	1386	9/21/2012
Rohde & Schwarz	ÈMI Test Receiver, 20 Hz-7 GHz	ESIB7	1630	6/8/2012
Hewlett Packard	High Pass filter, 8.2 GHz (Purple System)	P/N 84300-80039 (84125C)	1767	11/29/2012
Radiated Emissions	, 1000 - 26,500 MHz, 30-Apr-12			
Hewlett Packard	Microwave Preamplifier, 1- 26.5GHz	8449B	263	3/29/2013
EMCO	Antenna, Horn, 1-18 GHz (SA40-Blu)	3115	1386	9/21/2012
Rohde & Schwarz Micro-Tronics	ÈMI Test Receiver, 20 Hz-7 GHz Band Reject Filter, 2400-2500	ESIB7 BRM50702-02	1630 1683	6/8/2012 8/3/2012
Hewlett Packard	MHz SpecAn 9 kHz - 40 GHz, (SA40)	8564E (84125C)	1771	3/23/2013
A.H. Systems	Purple Blue System Horn, 18-40GHz	SAS-574, p/n: 2581	2159	5/23/2012

		Rep	ort Date: M	lay 24, 2012
Manufacturer Radiated Emissions, 30 - 1,000 MHz, 01- May-12	<b>Description</b>	<u>Model</u>	<u>Asset #</u>	<u>Cal Due</u>
Engineer: Chris Groat Manufacturer Rohde & Schwarz Sunol Sciences Hewlett Packard	Description EMI Test Receiver, 20 Hz-7 GHz Biconilog, 30-3000 MHz 9KHz-1300MHz pre-amp	Model # ESIB7 JB3 8447F	Asset # 1538 1548 2328 CG0177	Cal Due 12/6/2012 6/24/2012 3/16/2013
<b>Conducted Emissions</b>	- AC Power Ports, 01-May-12			
Rohde & Schwarz Rohde & Schwarz Fischer Custom Comm	Pulse Limiter EMI Test Receiver, 20 Hz-7 GHz LISN, 25A, 150kHz to 30MHz, 25 Amp,	ESH3 Z2 ESIB7 FCC-LISN-50-25-2- 09	1401 1538 2000	5/12/2012 12/6/2012 10/18/2012
Fischer Custom Comm	LISN, 25A, 150kHz to 30MHz, 25 Amp,	FCC-LISN-50-25-2- 09	2001	2/15/2013
Radiated Emissions, 1 Hewlett Packard	1 <b>000 - 10,000 MHz, 02-May-12</b> Microwave Preamplifier, 1- 26.5GHz	8449B	263	3/29/2013
EMCO	Antenna, Horn, 1-18 GHz (SA40-Red)	3115	1142	8/2/2012
Rohde & Schwarz Micro-Tronics	EMI Test Receiver, 20 Hz-7 GHz Band Reject Filter, 2400-2500 MHz	ESIB7 BRM50702-02	1630 1683	6/8/2012 8/3/2012
Hewlett Packard	SpecAn 9 kHz - 40 GHz, (SA40) Purple	8564E (84125C)	1771	3/23/2013
Padiatod Emissions	1000 - 15,000 MHz, Simultaneous <sup>-</sup>	Transmisison 02-May	.12	
Hewlett Packard	Microwave Preamplifier, 1- 26.5GHz	8449B	263	3/29/2013
EMCO Hewlett Packard Micro-Tronics	Antenna, Horn, 1-18GHz High Pass filter, 8.2 GHz Band Reject Filter, 2400-2500 MHz	3115 P/N 84300-80039 BRM50702-02	868 1156 1683	6/8/2012 6/24/2012 8/3/2012
Hewlett Packard	SpecAn 9 kHz - 40 GHz, (SA40) Purple	8564E (84125C)	1771	3/30/2013
Micro-Tronics	Band Reject Filter, 5150-5350 MHz	BRC50703-02	2239	10/4/2012
Radio Antenna Port (F Hewlett Packard	<b>Power and Spurious Emissions), (</b> SpecAn 9 kHz - 40 GHz, (SA40) Purple	<b>)4-May-12</b> 8564E (84125C)	1771	3/30/2013
Radiated Emissions, 1 EMCO	I <b>,000- 6,500 MHz, 09-May-12</b> Antenna, Horn, 1-18 GHz (SA40-Blu)	3115	1386	9/21/2012
Rohde & Schwarz	EMI Test Receiver, 20 Hz-40 GHz	ESIB40 (1088.7490.40)	2493	12/9/2012
Radiated Emissions. 3	80 - 1,000 MHz, 11-May-12			
Sunol Sciences Com-Power Corp. Rohde & Schwarz	Biconilog, 30-3000 MHz Preamplifier, 30-1000 MHz EMI Test Receiver, 20 Hz-40 GHz	JB3 PA-103A ESIB40 (1088.7490.40)	1657 2359 2493	5/28/2012 2/14/2013 12/9/2012

Conducted Emissions - AC Power Ports, 11-May-12

Manufacturer Rohde & Schwarz Fischer Custom Comm Fischer Custom Comm Rohde & Schwarz	Description Pulse Limiter LISN, 25A, 150kHz to 30MHz, 25 Amp, LISN, 25A, 150kHz to 30MHz, 25 Amp, EMI Test Receiver, 20 Hz-40 GHz	<u>Model</u> ESH3 Z2 FCC-LISN-50-25-2- 09 FCC-LISN-50-25-2- 09 ESIB40 (1088.7490.40)	<u>Asset #</u> 1594 2000 2001 2493	<u>Cal Due</u> 5/17/2012 10/18/2012 2/15/2013 12/9/2012
Radiated Emissions, Rohde & Schwarz Sunol Sciences Hewlett Packard	<b>30 - 1,000 MHz, 21-May-12</b> EMI Test Receiver, 20 Hz-7 GHz Biconilog, 30-3000 MHz 9KHz-1300MHz pre-amp	ESIB7 JB3 8447F	1538 1548 2328	12/6/2012 6/24/2012 5/2/2013
<b>Conducted Emission:</b> Rohde & Schwarz Fischer Custom Comm Fischer Custom Comm	s - AC Power Ports, 21-May-12 Pulse Limiter LISN, 25A, 150kHz to 30MHz, 25 Amp, LISN, 25A, 150kHz to 30MHz, 25 Amp,	ESH3 Z2 FCC-LISN-50-25-2- 09 FCC-LISN-50-25-2- 09	1401 2000 2001	5/15/2012 10/18/2012 2/15/2013

## Appendix B Test Data

T87211 Pages 28 – 98



## EMC Test Data

Job Number: J87129
T-Log Number: T87211
Account Manager: Christine Krebill
-
Class: B
Environment: -

## **EMC** Test Data

For The

## **Intel Corporation**

Model

Intel® Centrino® Advanced-N 6235

Date of Last Test: 5/22/2012

# EMC Test Data

-	An Difference Company			
Client:	Intel Corporation	Job Number:	J87129	
Model: Intel <sup>®</sup> Centrino <sup>®</sup> Advanced-N 6235		T-Log Number:	T87211	
wodel:	IIIIel® Cellino® Auvanceu-IN 0255	Account Manager:	Christine Krebill	
Contact:	Steve Hackett			
Standard:	FCC 15.247, 15.407	Class:	N/A	

## Radiated Emissions 30-1000 MHz, Wireless Module (FCC 15.247/RSS 210)

(Elliott Laboratories Fremont Facility, Semi-Anechoic Chamber)

#### Test Specific Details

Elliott

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

Date of Test: 5/10/2012 Test Engineer: Joseph Cadigal Test Location: FT Chamber#5 Config. Used: Modular Test Config Change: None Host Unit Voltage 120V/60Hz

#### General Test Configuration

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

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

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

#### Ambient Conditions:

Temperature:	21 °C
Rel. Humidity:	34 %

#### Summary of Results

MAC Address: 44850006301F DRTU Tool Version 1.5.4.0399 Driver version 15.1.0.99

Run #	Test Performed	Limit	Result	Margin
1	Radiated Emissions 30 - 1000 MHz	FCC 15.209 / RSS 210	Pass	38.0 dBµV/m @ 58.48 MHz (-2.0 dB)

Note - preliminary measurements indicated that the radiated emissions from the combination of test fixture and EUT were not affected by the modules operating frequency or mode (transmit versus receive mode). The system was therefore evaluated against the most stringent set of limits from FCC 15.247, FCC 15E and RSS 210 with the device operating at max power (16.5dBm) on Chain A at 2437MHz, 802.11b mode and max power (7dBm) on the top channel in Bluetooth mode (1Mb/s data rate).

#### 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.

#### 6 Elliott EMC Test Data Client: Intel Corporation Job Number: J87129 T-Log Number: T87211 Model: Intel<sup>®</sup> Centrino<sup>®</sup> Advanced-N 6235 Account Manager: Christine Krebill Contact: Steve Hackett Standard: FCC 15.247, 15.407 Class: N/A Run #1: Preliminary Radiated Emissions, 30 - 1000 MHz Configured to TX , 802.11b 16.5dBm on each chain (settings 22.5) on channel 6, Bluetooth 7dBm, 1Mb/s (settings 8.0) **Frequency Range** Test Distance Limit Distance **Extrapolation Factor** 30 - 1000 MHz 3 3 0.0 Run #1: 30 - 1000 MHz 60.0 50.0 Amplitude (dBuV/m) 40.0 30.0 20.0 10.0 -1000.0 100.0 30.0 Frequency (MHz) Preliminary peak readings captured during pre-scan FCC 15.209 / RSS 210 Frequency Level Pol Detector Azimuth Height Comments MHz dBµV/m v/h Limit Margin Pk/QP/Avg degrees meters 54.342 50.0 V 40.0 10.0 Peak 2.5 0 39.3 V 2 1.5 31.815 40.0 -0.7 Peak 431.996 41.9 Η 46.0 -4.1 Peak 12 1.0 V -2.2 29 178.100 41.3 43.5 Peak 1.0 663.571 43.1 V 46.0 -2.9 Peak 87 1.0

30.022

108.350

58.477

89.397

V

Η

V

V

40.0

43.5

40.0

43.5

-5.4

-4.6

1.5

-1.6

34.6

38.9

41.5

41.9

Peak

Peak

Peak

Peak

138

267

279

286

1.0

3.0

1.0

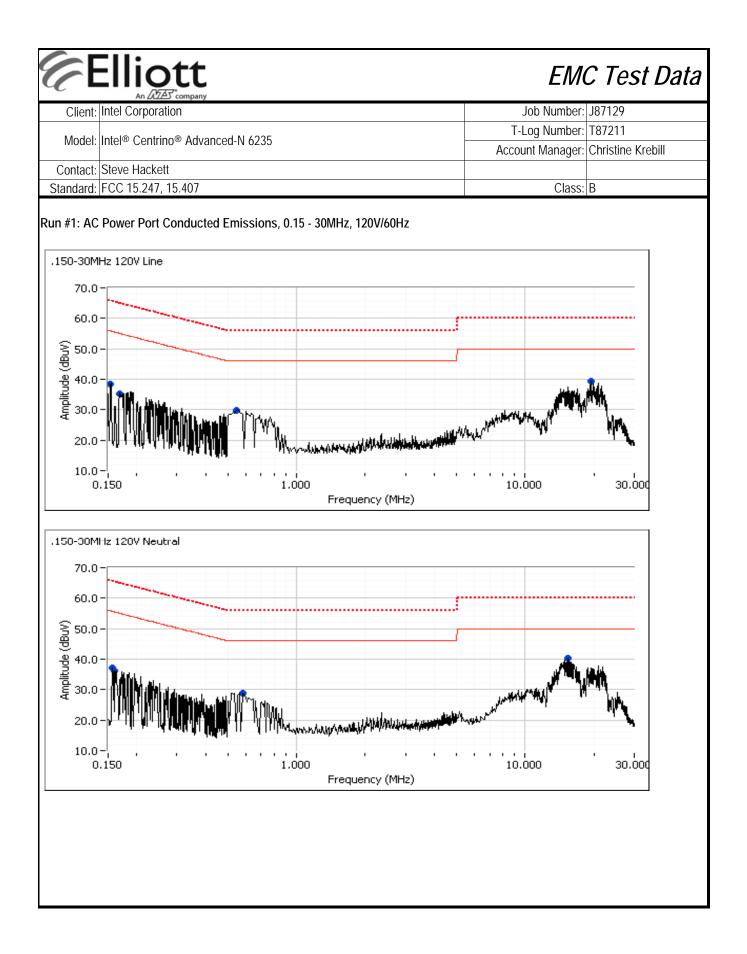
1.5

Elliott	
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# EMC Test Data

Client:         Intel Corporation         Job Number:         J87129           Model:         Intel® Centrino® Advanced-N 6235         T-Log Number:         T87211           Account Manager:         Christin           Contact:         Steve Hackett         Cliass:           Standard:         FCC 15.247, 15.407         Class:           aximized quasi-peak readings (includes manipulation of EUT interface cables)         V/A           arimized quasi-peak readings (includes manipulation of EUT interface cables)         V/A           MHz         dBµV/m         V/h         Limit         Margin         Pk/QP/Avg         degrees         meters         58.477         38.0         V         40.0         -2.0         QP         280         1.0         QP (1.00s)           108.350         38.1         H         43.5         -5.4         QP         270         3.0         QP (1.00s)           431.996         40.0         H         6.0         QP         13         1.0         QP (1.00s)	e Krebill
Model:       Intel® Centrino® Advanced-N 6235         Contact:       Steve Hackett         tandard:       FCC 15.247, 15.407         class:       N/A         ximized quasi-peak readings (includes manipulation of EUT interface cables)         equency       Level         Pol       FCC 15.209 / RSS 210         Detector       Azimuth         Height       Comments         MHz       dBµV/m       v/h         Limit       Margin       Pk/QP/Avg       degrees         88.477       38.0       V       40.0       -2.0       QP       280       1.0       QP (1.00s)         08.350       38.1       H       43.5       -5.4       QP       270       3.0       QP (1.00s)         31.996       40.0       H       46.0       -6.0       QP       13       1.0       QP (1.00s)	e Krebill
Account Manager:         Christin           Contact:         Steve Hackett	e Krebill
standard:         FCC 15.247, 15.407         Class:         N/A           ximized quasi-peak readings (includes manipulation of EUT interface cables)         EUT interface cables         EUT interface cables         EUT interface cables           equency         Level         Pol         FCC 15.209 / RSS 210         Detector         Azimuth         Height         Comments           MHz         dBμV/m         v/h         Limit         Margin         Pk/QP/Avg         degrees         meters	
ximized quasi-peak readings (includes manipulation of EUT interface cables)           equency         Level         Pol         FCC 15.209 / RSS 210         Detector         Azimuth         Height         Comments           MHz         dBµV/m         v/h         Limit         Margin         Pk/QP/Avg         degrees         meters           58.477         38.0         V         40.0         -2.0         QP         280         1.0         QP (1.00s)           08.350         38.1         H         43.5         -5.4         QP         270         3.0         QP (1.00s)           31.996         40.0         H         46.0         -6.0         QP         13         1.0         QP (1.00s)	
aximized quasi-peak readings (includes manipulation of EUT interface cables)           requency         Level         Pol         FCC 15.209 / RSS 210         Detector         Azimuth         Height         Comments           MHz         dBµV/m         v/h         Limit         Margin         Pk/QP/Avg         degrees         meters            58.477         38.0         V         40.0         -2.0         QP         280         1.0         QP (1.00s)           108.350         38.1         H         43.5         -5.4         QP         270         3.0         QP (1.00s)           131.996         40.0         H         46.0         -6.0         QP         13         1.0         QP (1.00s)	
equency         Level         Pol         FCC 15.209 / RSS 210         Detector         Azimuth         Height         Comments           MHz         dBµV/m         v/h         Limit         Margin         Pk/QP/Avg         degrees         meters	
Hz         dBμV/m         v/h         Limit         Margin         Pk/QP/Avg         degrees         meters           58.477         38.0         V         40.0         -2.0         QP         280         1.0         QP (1.00s)           108.350         38.1         H         43.5         -5.4         QP         270         3.0         QP (1.00s)           131.996         40.0         H         46.0         -6.0         QP         13         1.0         QP (1.00s)	
58.477         38.0         V         40.0         -2.0         QP         280         1.0         QP (1.00s)           108.350         38.1         H         43.5         -5.4         QP         270         3.0         QP (1.00s)           131.996         40.0         H         46.0         -6.0         QP         13         1.0         QP (1.00s)	
D8.350         38.1         H         43.5         -5.4         QP         270         3.0         QP (1.00s)           31.996         40.0         H         46.0         -6.0         QP         13         1.0         QP (1.00s)	
31.996 40.0 H 46.0 -6.0 QP 13 1.0 QP (1.00s)	
31.815 33.6 V 40.0 -6.4 QP 6 1.5 QP (1.00s)	
78.100 36.7 V 43.5 -6.8 QP 33 1.0 QP (1.00s)	
30.022 30.8 V 40.0 -9.2 QP 141 1.0 QP (1.00s)	
63.571 35.0 V 46.0 -11.0 QP 90 1.0 QP (1.00s)	
i4.342 24.4 V 40.0 -15.6 QP 0 2.5 QP (1.00s)	
39.397 26.1 V 43.5 -17.4 QP 287 1.5 QP (1.00s)	
89.397 26.1 V 43.5 -17.4 QP 287 1.5 QP (1.00s)	

Ellic	AS company				C Test Data
Client: Intel Corpora	ition	Job Number: J87129			
Model: Intel® Centri	no® Advanced-N 6235		-Log Number: ount Manager:	18/211 Christine Krebill	
Contact: Steve Hacke	tt				
Standard: FCC 15.247,	15.407		Class:	В	
	Condu (Elliott Laboratories Fren	ucted Emissions nont Facility, Semi-Anec	hoic Cham	ber)	
•	<b>S</b> The objective of this test session is to specification listed above.	o perform final qualification	n testing of	the EUT with	respect to the
Date of Test: Test Engineer: Test Location:		Modular Te None 120V/60Hz			
	ed on a wooden table inside the sem N was used for all local support equi	ipment.	m from a ve	rtical coupling	plane and 80cm from
	Rel. Humidity				
Summary of Result	6301F DRTU Tool Version 1.5.4.03			-	
	Test Derformed	Limit	Result	Margin	
MAC Address: 4485000 Run #	Test Performed	Lint			$\Im 15 116 MU_7 (202)$
	CE, AC Power,120V/60Hz	RSS 210 / 15.207	Pass	39.7 dBµV dB)	@ 15.416 MHz (-20.3



							EMC Test			
Client:	Intel Corpor	ation					Job Number:	J87129		
Madalı	Intol® Cont	duana Aduana					T-Log Number:	T87211		
		rino <sup>®</sup> Advanc	ed-IN 6235				Account Manager:	Christine Krebill		
	Steve Hack									
Standard:	FCC 15.247	7, 15.407					Class: B			
Proliminary	noak roadi	nas canturor	during pro	ascan (noak	readings v	s. average limi	+)			
-requency	Level	AC		) / 15.207	Detector	Comments	111()			
MHz	dBµV	Line	Limit	Margin	QP/Ave					
0.153	38.5	Line 1	55.8	-17.3	Peak					
19.320	39.4	Line 1	50.0	-10.6	Peak					
0.553	29.9	Line 1	46.0	-16.1	Peak					
0.168	35.2	Line 1	55.0	-19.8	Peak					
0.157	37.1	Neutral	55.6	-18.5	Peak					
15.416	40.3	Neutral	50.0	-9.7	Peak					
	28.9	Neutral	46.0	-17.1	Peak					
0.573	28.9									
0.573 0.161	36.1	Neutral	55.4	-19.3	Peak					
0.161 Final quasi	36.1 peak and a Level	Neutral verage readi AC	ngs RSS 210	) / 15.207	Peak Detector	Comments				
0.161 inal quasi- requency MHz	36.1 peak and a Level dBµV	Neutral verage readi AC Line	ngs RSS 210 Limit	) / 15.207 Margin	Peak Detector QP/Ave					
0.161 inal quasi- requency MHz 15.416	36.1 peak and a Level dBμV 39.7	Neutral verage readi AC Line Neutral	ngs RSS 21( Limit 60.0	) / 15.207 Margin - <b>20.3</b>	Peak Detector QP/Ave QP	QP (1.00s)				
0.161 inal quasi- requency MHz 15.416 19.320	36.1 peak and a Level dBµV <b>39.7</b> 28.9	Neutral verage readi AC Line Neutral Line 1	ngs RSS 210 Limit 60.0 50.0	) / 15.207 Margin -20.3 -21.1	Peak Detector QP/Ave QP AVG	QP (1.00s) AVG (0.10s)				
0.161 inal quasi- Frequency MHz 15.416 19.320 19.320	36.1 peak and a Level dBµV <b>39.7</b> 28.9 36.0	Neutral verage readi AC Line Neutral Line 1 Line 1	ngs RSS 210 Limit 60.0 50.0 60.0	) / 15.207 Margin -20.3 -21.1 -24.0	Peak Detector QP/Ave QP AVG QP	QP (1.00s) AVG (0.10s) QP (1.00s)				
0.161 inal quasi- Frequency MHz 15.416 19.320 19.320 0.553	36.1 peak and a Level dBμV 39.7 28.9 36.0 21.5	Neutral verage readi AC Line Neutral Line 1 Line 1 Line 1	ngs RSS 210 Limit 60.0 50.0 60.0 56.0	0 / 15.207 Margin -20.3 -21.1 -24.0 -34.5	Peak Detector QP/Ave QP AVG QP QP	QP (1.00s) AVG (0.10s) QP (1.00s) QP (1.00s)				
0.161 inal quasi- requency MHz 15.416 19.320 19.320 0.553 0.153	36.1 peak and a Level dBμV 39.7 28.9 36.0 21.5 30.6	Neutral verage readi AC Line Neutral Line 1 Line 1 Line 1 Line 1	ngs RSS 210 Limit 60.0 50.0 60.0 56.0 65.8	) / 15.207 Margin -20.3 -21.1 -24.0 -34.5 -35.2	Peak Detector QP/Ave QP AVG QP QP QP	QP (1.00s) AVG (0.10s) QP (1.00s) QP (1.00s) QP (1.00s)				
0.161 inal quasi- Frequency MHz 15.416 19.320 19.320 0.553 0.153 0.573	36.1 peak and a Level dBμV 39.7 28.9 36.0 21.5 30.6 20.5	Neutral verage readi AC Line Line 1 Line 1 Line 1 Line 1 Neutral	ngs RSS 210 Limit 60.0 50.0 60.0 56.0 65.8 56.0	) / 15.207 Margin -20.3 -21.1 -24.0 -34.5 -35.2 -35.5	Peak Detector QP/Ave QP AVG QP QP QP QP QP	QP (1.00s) AVG (0.10s) QP (1.00s) QP (1.00s) QP (1.00s) QP (1.00s)				
0.161 Frequency MHz 15.416 19.320 19.320 0.553 0.153 0.573 0.168	36.1 peak and a Level dBµV 39.7 28.9 36.0 21.5 30.6 20.5 28.3	Neutral AC Line Neutral Line 1 Line 1 Line 1 Line 1 Neutral Line 1	ngs RSS 210 Limit 60.0 50.0 60.0 56.0 65.8 56.0 65.1	) / 15.207 Margin -20.3 -21.1 -24.0 -34.5 -35.2 -35.5 -35.5 -36.8	Peak Detector QP/Ave QP AVG QP QP QP QP QP QP	QP (1.00s) AVG (0.10s) QP (1.00s) QP (1.00s) QP (1.00s) QP (1.00s) QP (1.00s)				
0.161 inal quasi- requency MHz 15.416 19.320 19.320 0.553 0.153 0.573 0.168 0.157	36.1 peak and a Level dBμV 39.7 28.9 36.0 21.5 30.6 20.5 28.3 26.9	Neutral AC Line Neutral Line 1 Line 1 Line 1 Line 1 Neutral Line 1 Neutral	ngs RSS 210 Limit 60.0 50.0 60.0 56.0 65.8 56.0 65.1 65.6	0 / 15.207 Margin -20.3 -21.1 -24.0 -34.5 -35.2 -35.5 -35.5 -36.8 -38.7	Peak Detector QP/Ave QP AVG QP QP QP QP QP QP QP	QP (1.00s) AVG (0.10s) QP (1.00s) QP (1.00s) QP (1.00s) QP (1.00s) QP (1.00s) QP (1.00s)				
0.161 inal quasi- requency MHz 15.416 19.320 19.320 0.553 0.153 0.573 0.573 0.168 0.157 0.161	36.1 peak and a Level dBμV 39.7 28.9 36.0 21.5 30.6 20.5 28.3 26.9 26.3	Neutral AC Line Neutral Line 1 Line 1 Line 1 Line 1 Neutral Line 1 Neutral Neutral Neutral	ngs RSS 210 Limit 60.0 50.0 60.0 56.0 65.8 56.0 65.1 65.6 65.4	0 / 15.207 Margin -20.3 -21.1 -24.0 -34.5 -35.2 -35.5 -36.8 -38.7 -39.1	Peak Detector QP/Ave QP AVG QP QP QP QP QP QP QP QP QP	QP (1.00s) AVG (0.10s) QP (1.00s) QP (1.00s) QP (1.00s) QP (1.00s) QP (1.00s) QP (1.00s) QP (1.00s)				
0.161 Frequency MHz 15.416 19.320 19.320 0.553 0.153 0.573 0.168 0.157	36.1 peak and a Level dBμV 39.7 28.9 36.0 21.5 30.6 20.5 28.3 26.9	Neutral AC Line Neutral Line 1 Line 1 Line 1 Line 1 Neutral Line 1 Neutral	ngs RSS 210 Limit 60.0 50.0 60.0 56.0 65.8 56.0 65.1 65.6	0 / 15.207 Margin -20.3 -21.1 -24.0 -34.5 -35.2 -35.5 -35.5 -36.8 -38.7	Peak Detector QP/Ave QP AVG QP QP QP QP QP QP QP	QP (1.00s) AVG (0.10s) QP (1.00s) QP (1.00s) QP (1.00s) QP (1.00s) QP (1.00s) QP (1.00s) QP (1.00s) AVG (0.10s)				
0.161 Frequency MHz 15.416 19.320 0.553 0.153 0.573 0.168 0.157 0.161 0.553	36.1 peak and a Level dBμV 39.7 28.9 36.0 21.5 30.6 20.5 28.3 26.9 26.3 4.2	Neutral verage readi AC Line Line 1 Line 1 Line 1 Line 1 Neutral Line 1 Neutral Neutral Line 1	ngs RSS 210 Limit 60.0 50.0 60.0 56.0 65.8 56.0 65.1 65.6 65.4 46.0	0 / 15.207 Margin -20.3 -21.1 -24.0 -34.5 -35.2 -35.5 -36.8 -38.7 -39.1 -41.8	Peak Detector QP/Ave QP AVG QP QP QP QP QP QP QP QP QP AVG	QP (1.00s) AVG (0.10s) QP (1.00s) QP (1.00s) QP (1.00s) QP (1.00s) QP (1.00s) QP (1.00s) QP (1.00s) AVG (0.10s) AVG (0.10s)				
0.161 Frequency MHz 15.416 19.320 0.553 0.153 0.573 0.168 0.157 0.161 0.553 0.573	36.1 peak and a Level dBµV 39.7 28.9 36.0 21.5 30.6 20.5 28.3 26.9 26.3 4.2 3.8	Neutral Verage readi AC Line Neutral Line 1 Line 1 Line 1 Line 1 Neutral Neutral Line 1 Neutral Line 1 Neutral	ngs RSS 210 Limit 60.0 50.0 60.0 56.0 65.8 56.0 65.1 65.6 65.4 46.0 46.0	) / 15.207 Margin -20.3 -21.1 -24.0 -34.5 -35.2 -35.5 -35.5 -36.8 -38.7 -39.1 -41.8 -42.2	Peak Detector QP/Ave QP AVG QP QP QP QP QP QP QP QP QP QP QP QP QP	QP (1.00s) AVG (0.10s) QP (1.00s) QP (1.00s) QP (1.00s) QP (1.00s) QP (1.00s) QP (1.00s) QP (1.00s) AVG (0.10s)				
0.161 Frequency MHz 15.416 19.320 19.320 0.553 0.153 0.153 0.168 0.157 0.161 0.553 0.573 0.573 0.573 0.153	36.1 peak and a Level dBµV 39.7 28.9 36.0 21.5 30.6 20.5 28.3 26.9 26.3 4.2 3.8 11.4	Neutral AC Line Neutral Line 1 Line 1 Line 1 Line 1 Line 1 Neutral Line 1 Neutral Line 1 Neutral Line 1 Line 1 Line 1	ngs RSS 210 Limit 60.0 50.0 60.0 56.0 65.8 56.0 65.1 65.6 65.4 46.0 46.0 55.8	) / 15.207 Margin -20.3 -21.1 -24.0 -34.5 -35.2 -35.5 -35.5 -36.8 -38.7 -39.1 -41.8 -42.2 -44.4	Peak Detector QP/Ave QP AVG QP QP QP QP QP QP QP QP QP QP AVG AVG AVG	QP (1.00s) AVG (0.10s) QP (1.00s) QP (1.00s) QP (1.00s) QP (1.00s) QP (1.00s) QP (1.00s) QP (1.00s) AVG (0.10s) AVG (0.10s) AVG (0.10s)				

# EMC Test Data

	An Z(Z=) company					
Client:	Intel Corporation	Job Number:	J87129			
Madalı	Intel <sup>®</sup> Centrino <sup>®</sup> Advanced-N 6235	T-Log Number:	T87211			
wouer.	Intel® Centino® Advanced-N 0255	Account Manager:	Christine Krebill			
Contact:	Steve Hackett					
Standard:	FCC 15.247, 15.407	Class:	N/A			

## FCC 15.247 FHSS - Power, Bandwidth and Spurious Emissions

## Test Specific Details

Elliott

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

Date of Test: 5/9/2012 0:00 Test Engineer: Joseph Cadigal Test Location: FT Chamber#3 Config. Used: 1 Config Change: none EUT Voltage: 120V/60Hz

#### General Test Configuration

When measuring the conducted emissions from the EUT's antenna port, the antenna port of the EUT was connected to the spectrum analyzer or power meter via a suitable attenuator to prevent overloading the measurement system. All measurements are corrected to allow for the external attenuators used.

Unless stated otherwise the EUT was operating such that it constantly hopped on either the low, center or high channels.

#### Ambient Conditions:

Temperature:	30-35 °C
Rel. Humidity:	17-20 %

#### Summary of Results

MAC Address: 44850006301F DRTU Tool Version 1.5.4.0399 Driver version 15.1.0.99

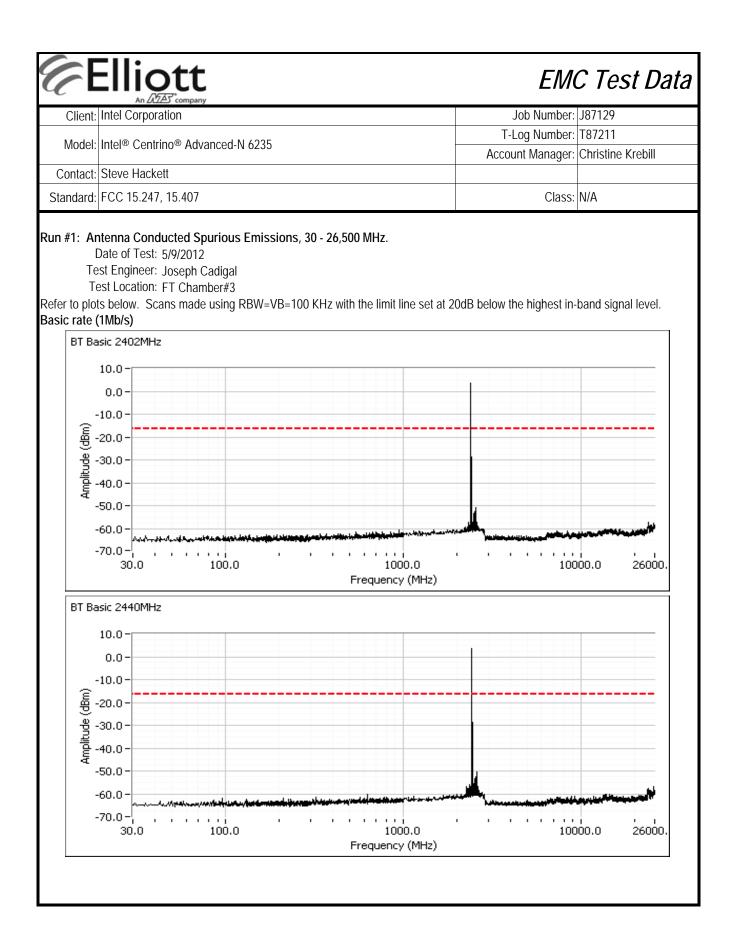
Run #	Test Performed	Limit	Pass / Fail	Result / Margin
1	Spurious Emissions	FCC Part 15.247(b)	Pass	All emissions below -20dBc
2	Output Power	15.247(b)	Pass	Basic Rate: 5.2 dBm ( .0033 W) EDR: 4.2 dBm ( .0026 W)
3	20dB Bandwidth	15.247(a)	Pass	Basic Rate: 1.67 MHz EDR: 1.5MHz
3	99% bandwidth	15.247(a)	Pass	Basic Rate: 973 kHz EDR: 1.3 MHz
4	Channel Occupancy	15.247(a)	Pass	Complies with Bluetooth protocol
3	Number of Channels	15.247(a)	Pass	79 channels

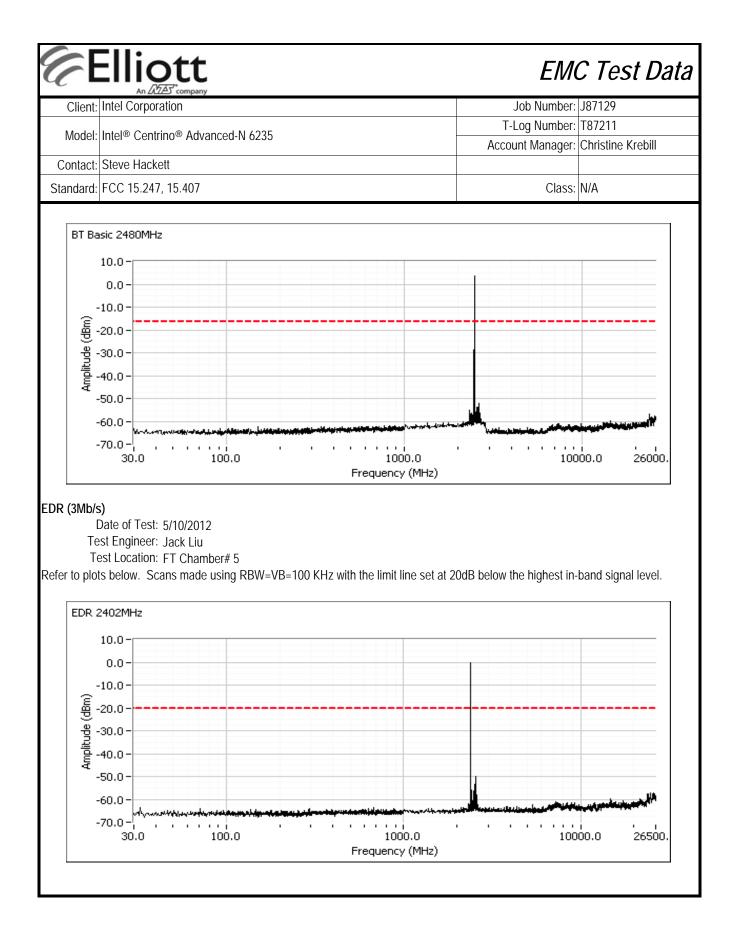
#### Modifications Made During Testing:

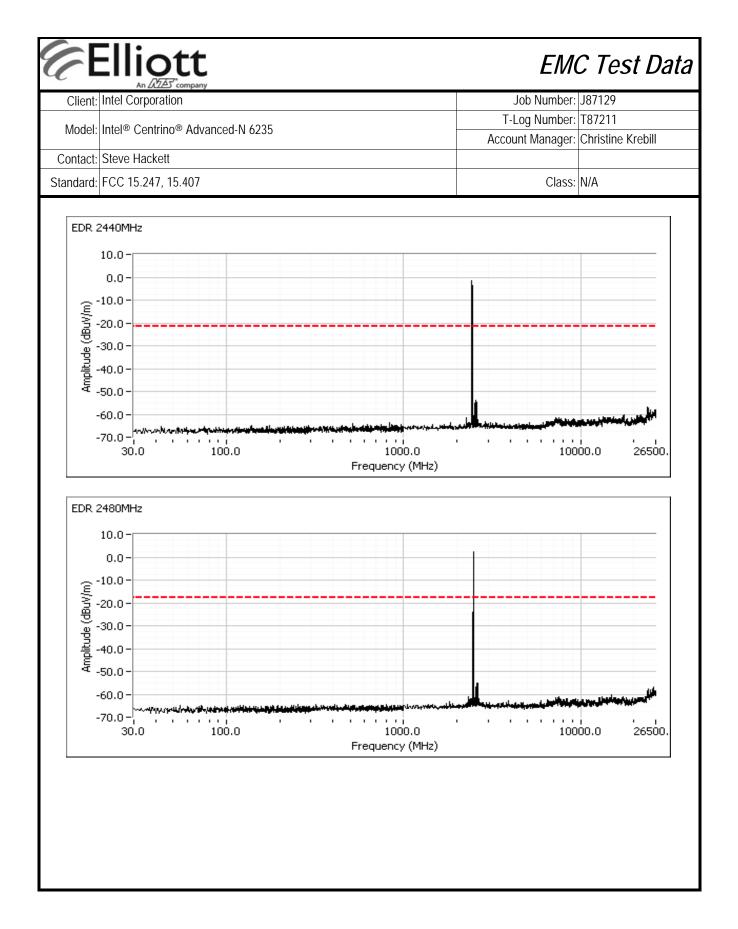
No modifications were made to the EUT during testing

#### Deviations From The Standard

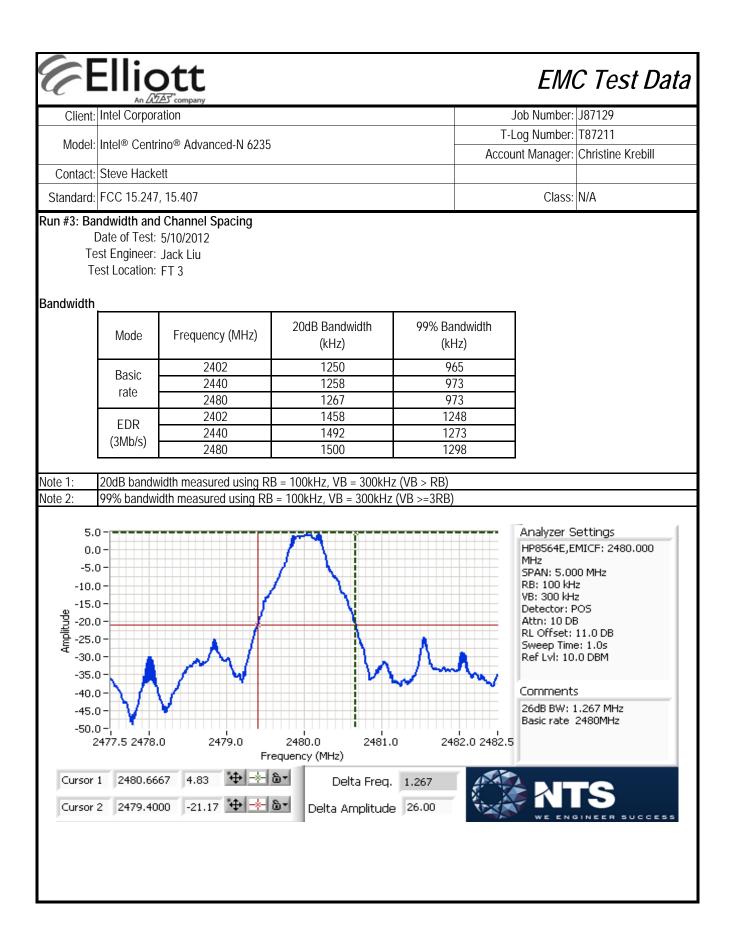
No deviations were made from the requirements of the standard.

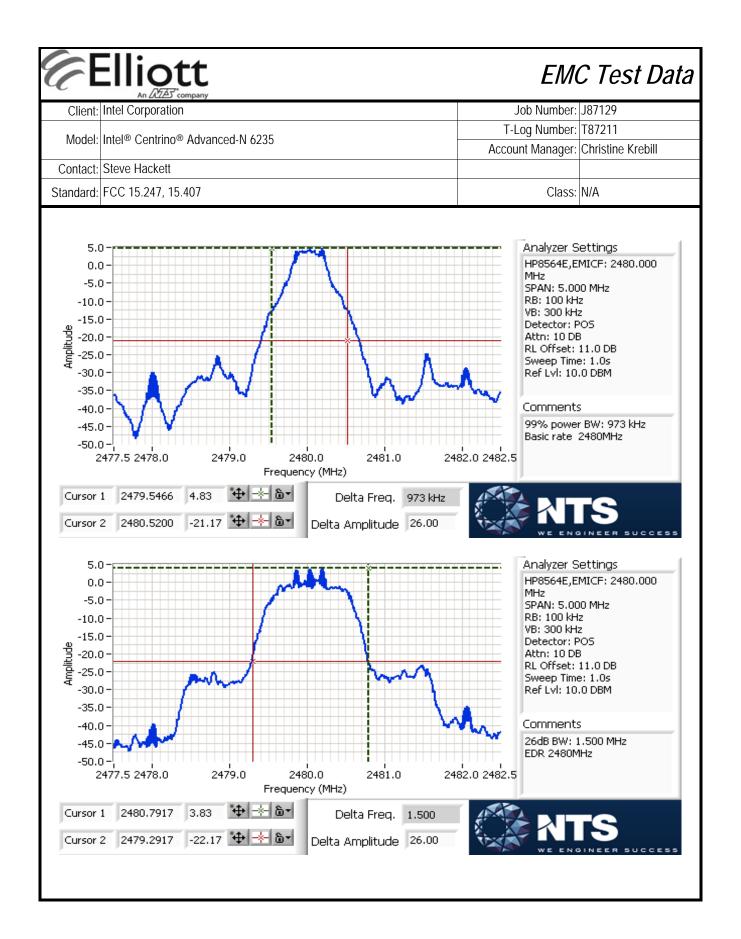


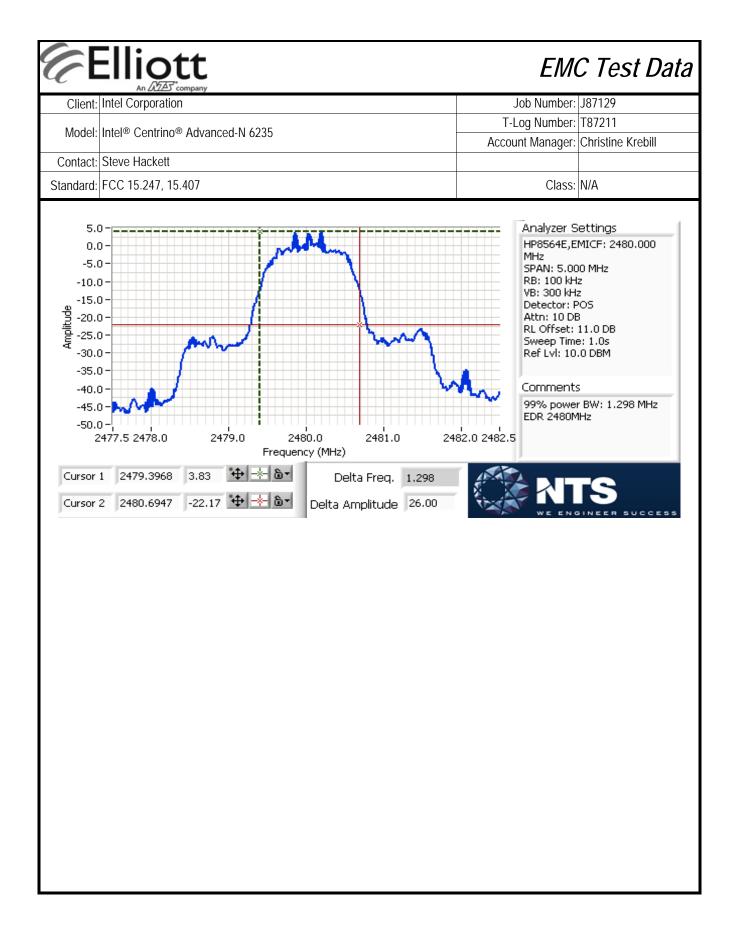


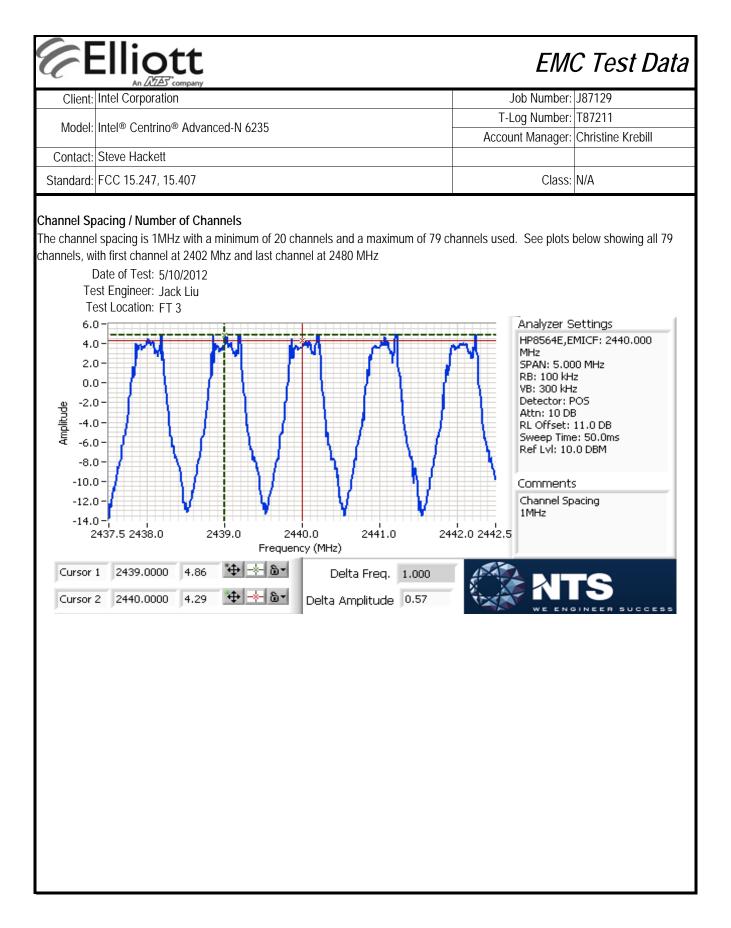


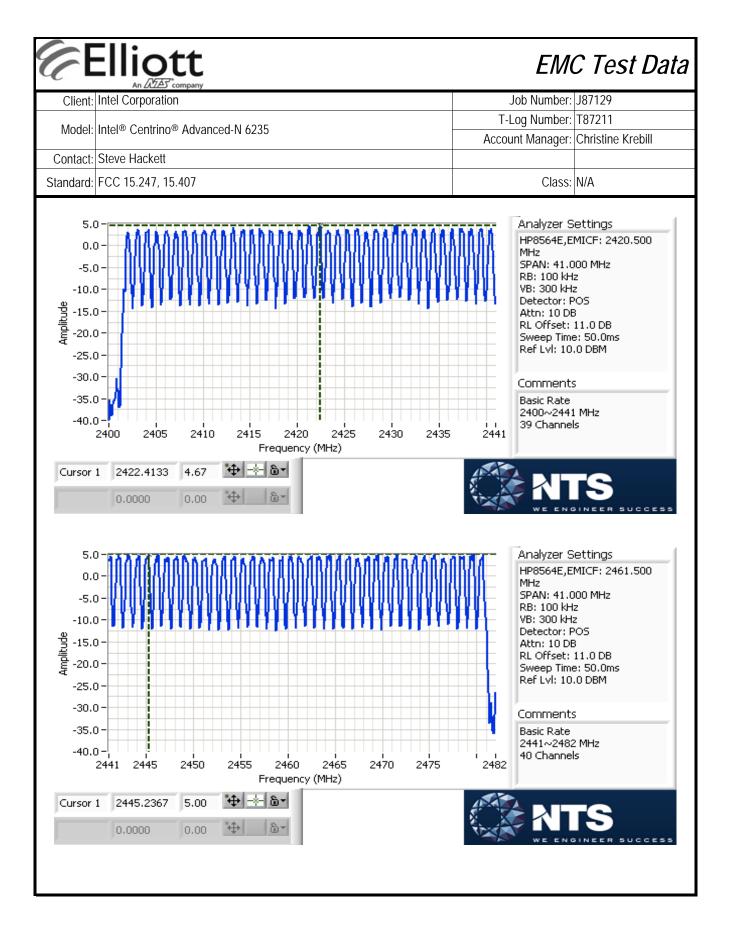
C		ott				EM	C Tes	t Data	
Client:	Intel Corpora	ation				Job Number: J87129			
Model	Intel® Centri	no <sup>®</sup> Advanced-N 6235				og Number:			
			Αссоι	int Manager:	Christine K	rebill			
	Steve Hacke								
	FCC 15.247, utput Power	15.407				Class:	N/A		
Te Te or frequenc hannels: 0.	est Location:	Joseph Cadigal FT Chamber#3 istems operating in the		MHz band	employing less than 75 ch	nannels or ov	verlapping h	opping	
IV	,,	_							
	Mode	Frequency (MHz) 2402	Setting 8	Pavg	Output Power (dBm) 4.6		Power (W) 1029	EIRP (W 0.0060	
	Basic rate	2440	8		5.1		032	0.0068	
		2480	8		5.2		033	0.0069	
	EDR	2402	8		3.1		020	0.0043	
		2440	8		3.9	0.0	025	0.0051	
ote 1:		2480 r is measured as a pea	8 Ik power usin		4.2 eak power meter or with a		0026	0.0055	
lote 1: lote 2:	Output powe and RB > 20 Setting is the	2480 r is measured as a pea dB bandwidth. The act	8 Ik power usin tual method u tting and use	used was a diference of the second seco	eak power meter or with a	spectrum a	026 nalyzer and	0.0055 VB > 3 x F	











# Elliott

# EMC Test Data

	An Z/ZZ=2 company		
Client:	Intel Corporation	Job Number:	J87129
Model	Intel <sup>®</sup> Centrino <sup>®</sup> Advanced-N 6235	T-Log Number:	T87211
wouer.	IIIIele Cellillinge Advanced-N 0255	Account Manager:	Christine Krebill
Contact:	Steve Hackett		
Standard:	FCC 15.247, 15.407	Class:	N/A

### Run #4: Channel Occupancy and Number of Channels

**Requirement:** Frequency hopping systems in the **2400-2483.5 MHz** band shall use at least 15 channels. The average time of occupancy on any channel shall not be greater than 0.4 seconds within a period of 0.4 seconds multiplied by the number of hopping channels employed. (Frequency hopping systems may avoid or suppress transmissions on a particular hopping frequency provided that a minimum of 15 channels are used.)

The device complies with the Bluetooth protocol and employs a minimum of 20 of the available 79 hopping channels when employing adaptove frequency hopping and all 79 channels when not. Channels are selected in a pseudo random manner to ensure, on average, all channels are used equally.

The hopping rate is 1600 hops per second although any channel may be used for a single hop slot, 3 hop slots or 5 hop slots. The dwell time per channel is, therefore either 0.625ms (single slot), 1.875ms (three slot) or 3.125ms (five slot). The average time of occupancy will not exceed 0.4s in any time interval of 0.4s multiplied by the number of channels being used.

# EMC Test Data

Client: Intel Corporation Job Number: J87129 T-Log Number: T87211 Model: Intel<sup>®</sup> Centrino<sup>®</sup> Advanced-N 6235 Account Manager: Christine Krebill Contact: Steve Hackett Standard: FCC 15.247, 15.407 Class: N/A RSS 210 and FCC 15.247 (DSS) Radiated Spurious Emissions **Bluetooth - Transmitter and Receiver Mode** Summary of Results - Device Operating in the 2400-2483.5 MHz Band Record results for target power and also for the passing power if it fails at target. MAC Address: 44850006303D DRTU Tool Version 1.5.4.0399 Driver version 15.1.0.99 For Bluetooth: Tx is chain B, Rx is chain B Bluetooth uses a frequency hopping algorithm that means that the device, during normal operation, is only on a specific channel for a short period of time. The average correction factor is calculated as follows: Target Measured Run # Mode Channel Test Performed Limit Result / Margin Power Power **Restricted Band Edge** FCC Part 15.209 / 40.6 dBµV/m @ 2362.0 MHz (-13.4 dB) (2390 MHz) 15.247(c) 2402 7.5dBm 4.5 1a FCC Part 15.209 / 39.7 dBµV/m @ 4880.0 Radiated Emissions, 1 - 26 GHz 15.247( c) MHz (-14.3 dB) Bluetooth Radiated Emissions, FCC Part 15.209 / 33.1 dBµV/m @ 1332.0 basic rate 7.5dBm 49 1b 2440 MHz (-20.9 dB) 1 - 26 GHz 15.247( c) (1Mb/s) Restricted Band Edge FCC Part 15.209 / 45.9 dBµV/m @ 2483.5 (2483.5 MHz) 15.247( c) MHz (-8.1 dB) 1c 2480 7.5dBm 5.1 Radiated Emissions. FCC Part 15.209 / 38.7 dBµV/m @ 4804.0 1 - 26 GHz 15.247( c) MHz (-15.3 dB) **Restricted Band Edge** FCC Part 15.209 / 34.3 dBµV/m @ 2362.1 (2390 MHz) MHz (-19.7 dB) 15.247( c) 2a 2402 7.5dBm 0.5 Radiated Emissions, FCC Part 15.209 / 35.2 dBµV/m @ 1596.8 MHz (<u>-18.8 dB)</u> 1 - 26 GHz 15.247(c) Bluetooth Radiated Emissions. FCC Part 15.209 / 34.8 dBµV/m @ 1595.9 EDR 7.5dBm 2b 2440 1.8

(3 Mb/s)

2480

7.5dBm

2.3

2c

Elliott

1 - 26 GHz

Restricted Band Edge

(2483.5 MHz)

Radiated Emissions,

1 - 26 GHz

15.247( c)

FCC Part 15.209 /

15.247(c)

FCC Part 15.209 /

15.247( c)

MHz (<u>-19.2 dB)</u>

40.2 dBµV/m @ 2483.5 MHz (-13.8 dB)

35.8 dBµV/m @ 1332.5

MHz (-18.2 dB)

# Elliott

# EMC Test Data

	An (ATLE) company		
Client:	Intel Corporation	Job Number:	J87129
Model	Intel <sup>®</sup> Centrino <sup>®</sup> Advanced-N 6235	T-Log Number:	T87211
wouer.	Intel® Centino® Advanced-in 0255	Account Manager:	Christine Krebill
Contact:	Steve Hackett		
Standard:	FCC 15.247, 15.407	Class:	N/A

# 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:	30-35 °C
Rel. Humidity:	17-20 %

### Modifications Made During Testing

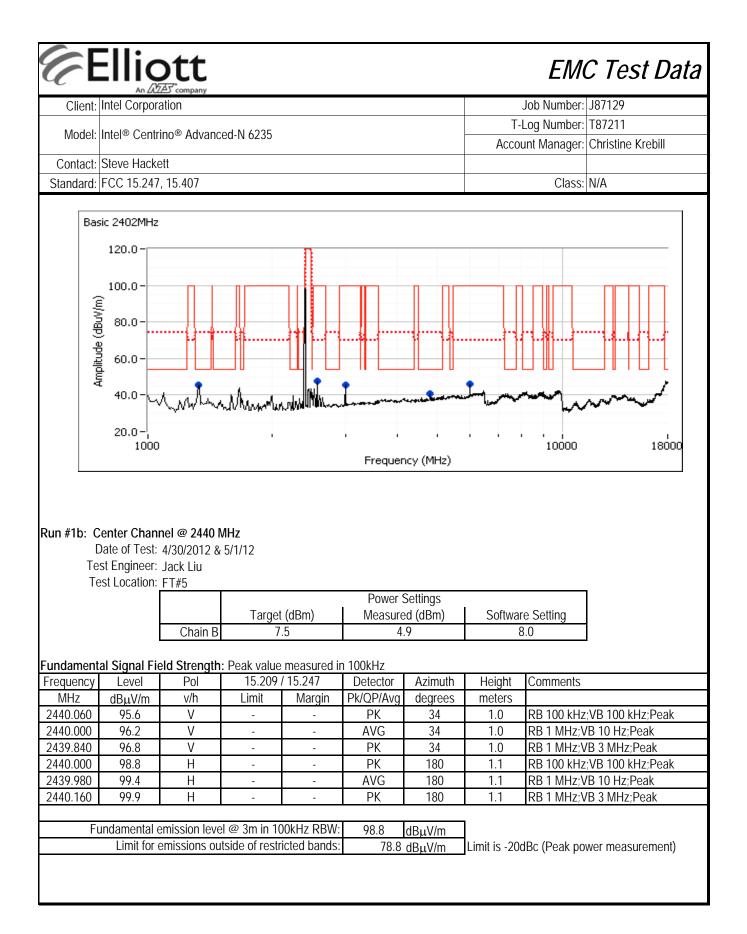
No modifications were made to the EUT during testing

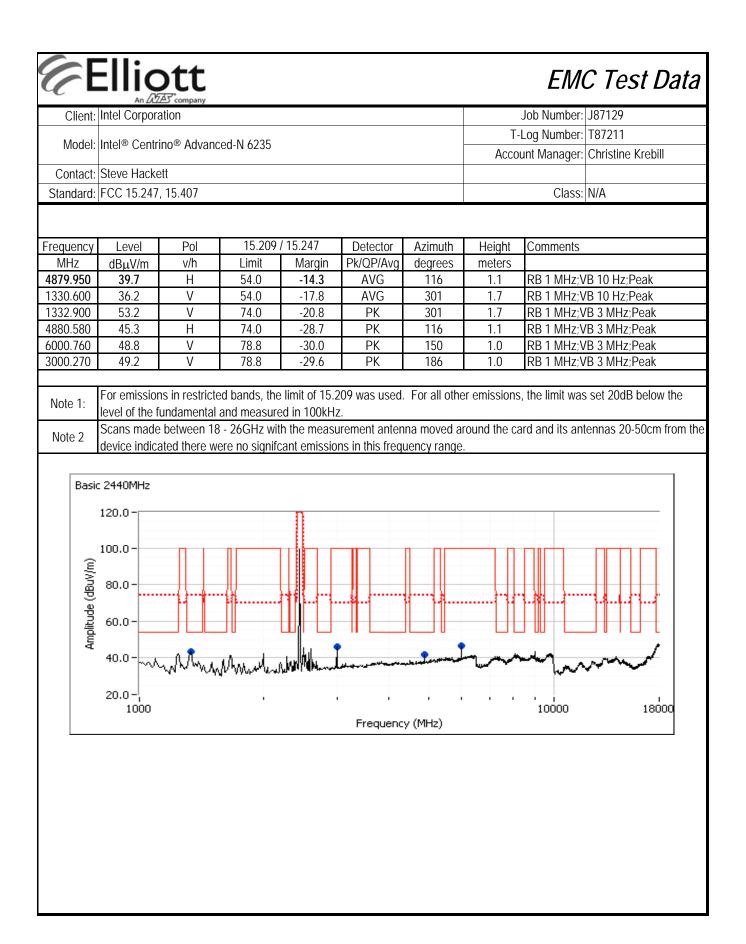
### Deviations From The Standard

No deviations were made from the requirements of the standard.

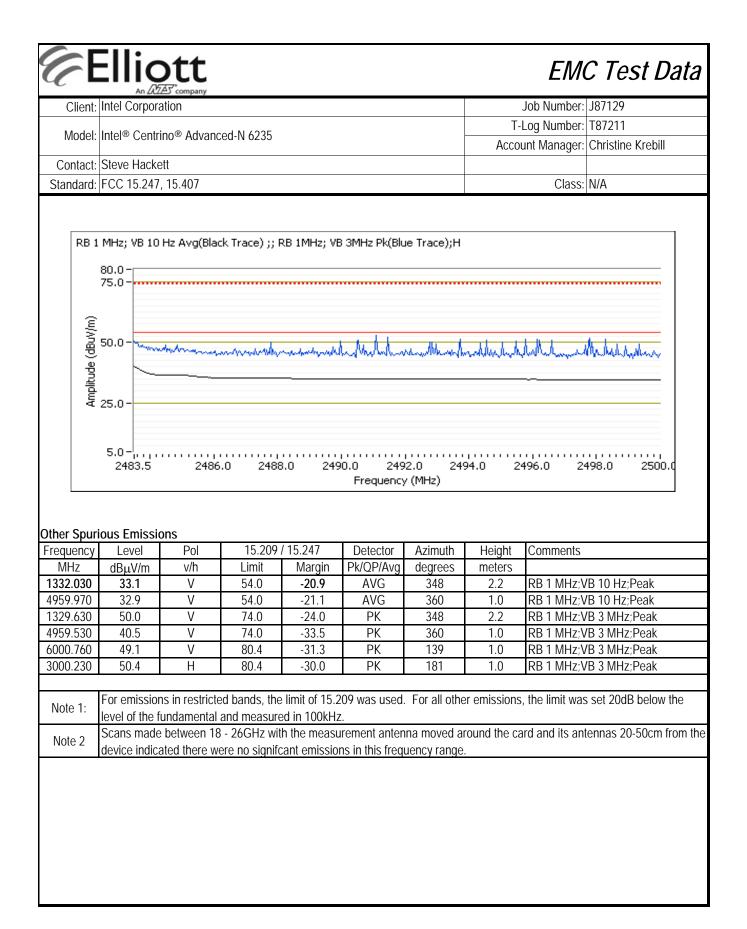
Client		ation						Job Number:	J87129
							T-	Log Number:	T87211
Model	Intel <sup>®</sup> Centr	ino <sup>®</sup> Advanc	ed-N 6235					•	Christine Krebill
Contact	Steve Hacke	stt			7,000	unt manager.			
	FCC 15.247			Class:	NI/A				
Stanuaru	100 15.247	, 13.407		0///033.	N/A				
Run #1·R	adiated Spur	ious Emissi	ons. 1000-2	6000 MHz (	Operating Mo	de: Basic o	lata rate (1N	Mb/s)	
	adiated opui		0113, 1000 2		operating me	ue. Dusie e		10/3/	
Run #1a: I	ow Channel	@ 2402 MH	Z						7
			т		Power S		C . 0		
				t (dBm)	Measure	1 /		re Setting	-
		Chain B	1	.5	4.	5	8	8.0	]
	tal Signal Fie Date of Test:	4/23/2012	: Peak value	e measureu li	II TUUKHZ				
	est Engineer: est Location:								
Frequency		Pol	15 209	/ 15.247	Detector	Azimuth	Height	Comments	
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	Comments	
2401.940	94.6	V	-	-	PK	171	1.0	POS: RB 10	00 kHz; VB: 100 kH
2402.040	91.0	V	-	-	AVG	171	1.0		MHz; VB: 10 Hz
2402.120	95.8	V	-	-	PK	171	1.0		MHz; VB: 3 MHz
2401.840	101.0	Н	-	-	PK	54	1.1	POS; RB 10	00 kHz; VB: 100 kH
2402.040	96.4	Н	-	-	AVG	54	1.1	POS; RB 1	MHz; VB: 10 Hz
2402.160	101.1	Н	-	-	PK	54	1.1	POS; RB 1	MHz; VB: 3 MHz
					101.0	15.14	1		
F	undamental e	emission leve				dBµV/m	Limitic 20	dDa (Daak na	wor magging manth
	LITTIL TOP	EIIII2210112 Ou		icieu parius.	01.0	dBµV/m		ирс (реак ро	wer measurement)
	Signal Field	Strength -	Direct meas	urement of	field strengtl	า			
Band Edge	Date of Test:	4/23/2012							
•	est Engineer:								
Te	est Location:				<u>г</u>				
Te T		Pol		/ 15.247	Detector	Azimuth	Height	Comments	
Te T Frequency	Level	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters		
Tequency MHz	dBµV/m	L	54.0 74.0	-13.4	AVG	360	1.0		MHz; VB: 10 Hz
Te T Frequency MHz 2362.020	dBμV/m 40.6	H	1/1()	-21.9	PK	360 151	1.0 1.0	,	MHz; VB: 3 MHz MHz; VB: 10 Hz
Te T Frequency MHz 2362.020 2369.800	dBµV/m 40.6 52.1	Н		22.0			• • • • •		
Te T Frequency MHz 2362.020	dBμV/m 40.6		54.0 74.0	-22.8 -32.3	AVG PK	151	1.0		MHZ; VB: 10 HZ MHZ; VB: 3 MHZ

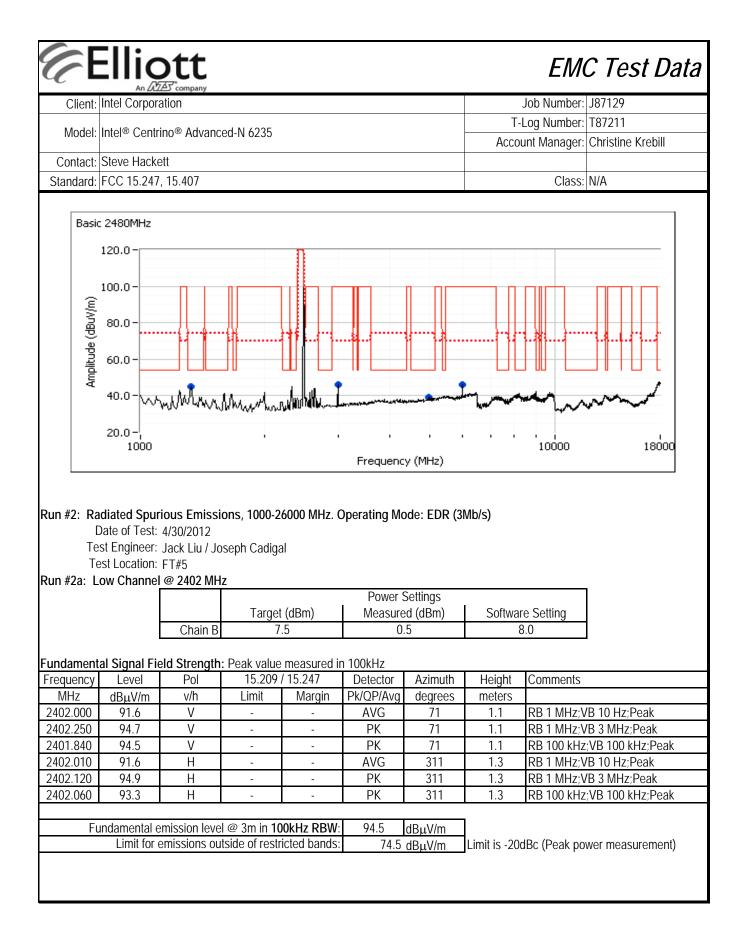
	Intel Corpora	ition						Job Number: J87129	
Model:	Intel <sup>®</sup> Centri	no® Advanc	ed-N 6235				T-Log Number: T87211		
							Account Manager: Christine Krebill		
	Steve Hacke FCC 15.247,							Class: N/A	
ilanuaru.	FCC 15.247,	13.407						Class. IN/A	
RB 1	. MHz; VB 10	Hz(Black Tra	ace) ;; RB 11	MHz; VB 3Mł	Hz Pk (Blue Tr	ace); H			
	90.0								
	80.0-								
	70.0-								
12	60.0-								
1 Ang	50.0-								
) e		a satt sa		MA		4		where the advance of the second se	
litud	40.0-****		Martin Colored	~				······································	
Amplitude (dBuV/m)	30.0			<u> </u>					
1	20.0-								
	10.0-								
	2350	2355	2360	2365	5 237( Frequency	0 233	75 2	380 2385 2390	
Te	2350 ious Emissic Date of Test: est Engineer: .	2355 ons 4/30/2012 & Jack Liu	2360	236	5 2370	0 233	75 2	2380 2385 2390	
ן Te Te	2350 ious Emissic Date of Test: est Engineer: est Location:	2355 ons 4/30/2012 & Jack Liu FT#5	2360 5/1/12	236	5 237( Frequency	0 23: / (MHz)	75 2	380 2385 2390	
ן Te Te	2350 ious Emissic Date of Test: est Engineer: . est Location: Level	2355 ons 4/30/2012 & Jack Liu FT#5 Pol	2360 5/1/12 15.209	/ 15.247	5 237( Frequency Detector	O 23: / (MHz) Azimuth	75 2 Height	Comments	
Te Te <u>Tequency</u> MHz	2350 ious Emissic Date of Test: est Engineer: est Location:	2355 ons 4/30/2012 & Jack Liu FT#5	2360 5/1/12	236	5 237( Frequency	0 23: / (MHz)	75 2	380 2385 2390	
ا Te Te equency MHz 803.990	2350 ious Emissic Date of Test: est Engineer: . est Location: Level dBµV/m	2355 ons 4/30/2012 & Jack Liu FT#5 Pol V/h V V	2360 5/1/12 <u>15.209</u> Limit	236 / 15.247 Margin	5 237( Frequency Detector Pk/QP/Avg AVG AVG	O 233 / (MHz) Azimuth degrees	75 2 Height meters	2380 2385 2390	
[ Te Te requency MHz [803.990 [331.050] [331.380]	2350 ious Emissic Date of Test: est Engineer: . est Location: Level dBµV/m 38.7 36.1 54.2	2355 ons 4/30/2012 & Jack Liu FT#5 Pol V/h V V V V	2360 5/1/12 15.209 Limit 54.0 54.0 74.0	236 / 15.247 Margin -15.3 -17.9 -19.8	5 237( Frequency Detector Pk/QP/Avg AVG AVG PK	Azimuth degrees 193 303 303	Height meters 2.3 1.8 1.8	Comments RB 1 MHz;VB 10 Hz;Peak RB 1 MHz;VB 3 MHz;Peak	
[ Te requency MHz 803.990 331.050 331.380 803.540	2350 ious Emissic Date of Test: est Engineer: Level dBμV/m 38.7 36.1 54.2 44.8	2355 ons 4/30/2012 & Jack Liu FT#5 Pol V/h V V V V V	2360 5/1/12 15.209 Limit 54.0 54.0 74.0 74.0 74.0	236 / 15.247 Margin -15.3 -17.9 -19.8 -29.2	5 237( Frequency Detector Pk/QP/Avg AVG AVG PK PK	Azimuth degrees 193 303 303 193	75 2 Height meters 2.3 1.8 1.8 2.3	Comments RB 1 MHz;VB 10 Hz;Peak RB 1 MHz;VB 10 Hz;Peak RB 1 MHz;VB 3 MHz;Peak RB 1 MHz;VB 3 MHz;Peak RB 1 MHz;VB 3 MHz;Peak	
[ Te Te equency MHz 803.990 331.050 331.380 803.540 5000.780	2350 ious Emissic Date of Test: est Engineer: Level dBµV/m 38.7 36.1 54.2 44.8 48.8	2355 ons 4/30/2012 & Jack Liu FT#5 Pol V/h V V V V V V V	2360 5/1/12 15.209 Limit 54.0 54.0 74.0 74.0 81.0	2365 / 15.247 Margin -15.3 -17.9 -19.8 -29.2 -32.2	5 237( Frequency Detector Pk/QP/Avg AVG AVG PK PK PK PK	Azimuth degrees 193 303 303 193 153	Height meters 2.3 1.8 1.8 2.3 1.0	Comments RB 1 MHz;VB 10 Hz;Peak RB 1 MHz;VB 10 Hz;Peak RB 1 MHz;VB 3 MHz;Peak RB 1 MHz;VB 3 MHz;Peak RB 1 MHz;VB 3 MHz;Peak RB 1 MHz;VB 3 MHz;Peak	
[ Te Te equency MHz 803.990 331.050 331.380 803.540 000.780 561.780	2350 ious Emissic Date of Test: est Engineer: . est Location: Level dBµV/m 38.7 36.1 54.2 44.8 48.8 50.3	2355 ons 4/30/2012 & Jack Liu FT#5 Pol V/h V V V V V V V V H	2360 5/1/12 15.209 Limit 54.0 54.0 74.0 74.0 81.0 81.0	2365 / 15.247 Margin -15.3 -17.9 -19.8 -29.2 -32.2 -30.7	5 237( Frequency Detector Pk/QP/Avg AVG AVG AVG PK PK PK PK PK	Azimuth degrees 193 303 303 193 153 177	Height meters 2.3 1.8 1.8 2.3 1.0 1.0 1.0	Comments RB 1 MHz;VB 10 Hz;Peak RB 1 MHz;VB 10 Hz;Peak RB 1 MHz;VB 3 MHz;Peak RB 1 MHz;VB 3 MHz;Peak RB 1 MHz;VB 3 MHz;Peak RB 1 MHz;VB 3 MHz;Peak RB 1 MHz;VB 3 MHz;Peak	
[ Te Te equency MHz 803.990 331.050 331.380 803.540 000.780 561.780	2350 ious Emissic Date of Test: est Engineer: Level dBµV/m 38.7 36.1 54.2 44.8 48.8	2355 ons 4/30/2012 & Jack Liu FT#5 Pol V/h V V V V V V V	2360 5/1/12 15.209 Limit 54.0 54.0 74.0 74.0 81.0	2365 / 15.247 Margin -15.3 -17.9 -19.8 -29.2 -32.2	5 237( Frequency Detector Pk/QP/Avg AVG AVG PK PK PK PK	Azimuth degrees 193 303 303 193 153	Height meters 2.3 1.8 1.8 2.3 1.0	Comments RB 1 MHz;VB 10 Hz;Peak RB 1 MHz;VB 10 Hz;Peak RB 1 MHz;VB 3 MHz;Peak RB 1 MHz;VB 3 MHz;Peak RB 1 MHz;VB 3 MHz;Peak RB 1 MHz;VB 3 MHz;Peak	
[ Te Te requency MHz 803.990 331.050 331.380 803.540 9000.780 2561.780 900.270	2350 ious Emissic Date of Test: est Engineer: . Level dBμV/m 38.7 36.1 54.2 44.8 48.8 50.3 49.2 For emission	2355 ons 4/30/2012 & Jack Liu FT#5 Pol V/h V V V V V V V V V S in restricte	2360 5/1/12 15.209 Limit 54.0 74.0 74.0 74.0 81.0 81.0 81.0 81.0 d bands, the	236 / 15.247 Margin -15.3 -17.9 -19.8 -29.2 -32.2 -30.7 -31.8 e limit of 15.2	5 237( Frequency Prequency Pk/QP/Avg AVG AVG PK PK PK PK PK PK PK 209 was used.	Azimuth degrees 193 303 303 193 153 177 194	Height         meters         2.3         1.8         2.3         1.0         1.0         1.0         1.0	Comments RB 1 MHz;VB 10 Hz;Peak RB 1 MHz;VB 10 Hz;Peak RB 1 MHz;VB 3 MHz;Peak RB 1 MHz;VB 3 MHz;Peak RB 1 MHz;VB 3 MHz;Peak RB 1 MHz;VB 3 MHz;Peak RB 1 MHz;VB 3 MHz;Peak	
Te Te Tequency	2350 ious Emissic Date of Test: est Engineer: Level dBµV/m 38.7 36.1 54.2 44.8 48.8 50.3 49.2 For emission level of the fu	2355 ons 4/30/2012 & Jack Liu FT#5 Pol V/h V V V V V V V V V S in restricte undamental a	2360 5/1/12 15.209 Limit 54.0 54.0 74.0 74.0 81.0 81.0 81.0 81.0 81.0 81.0	2365 / 15.247 Margin -15.3 -17.9 -19.8 -29.2 -32.2 -30.7 -31.8 e limit of 15.2 ed in 100kHz	5 237( Frequency Detector Pk/QP/Avg AVG AVG PK PK PK PK PK PK 209 was used.	Azimuth degrees 193 303 193 153 177 194 For all othe	Height           meters           2.3           1.8           1.8           1.0           1.0           1.0           1.0	Comments RB 1 MHz;VB 10 Hz;Peak RB 1 MHz;VB 10 Hz;Peak RB 1 MHz;VB 3 MHz;Peak RB 1 MHz;VB 3 MHz;Peak	
[ Te Te requency MHz [803.990 [331.050 [331.380][331.380 [331.380 [331.380][331.380 [331.380][331.380 [331.380]	2350 ious Emissic Date of Test: est Engineer: Level dBµV/m 38.7 36.1 54.2 44.8 48.8 50.3 49.2 For emission level of the fu Scans made	2355 ons 4/30/2012 & Jack Liu FT#5 Pol V/h V V V V V V V V V S in restricte undamental a between 18	2360 5/1/12 15.209 Limit 54.0 54.0 74.0 74.0 81.0 81.0 81.0 81.0 81.0 81.0 81.0 81	236 / 15.247 Margin -15.3 -17.9 -19.8 -29.2 -32.2 -32.2 -30.7 -31.8 e limit of 15.2 ed in 100kHz th the measu	5 237( Frequency Detector Pk/QP/Avg AVG AVG PK PK PK PK PK PK 209 was used.	Azimuth degrees 193 303 303 193 153 177 194 For all othe	Height           meters           2.3           1.8           1.8           1.0           1.0           1.0           1.0           1.0           1.0           1.0           1.0	Comments RB 1 MHz;VB 10 Hz;Peak RB 1 MHz;VB 10 Hz;Peak RB 1 MHz;VB 3 MHz;Peak RB 1 MHz;VB 3 MHz;Peak	

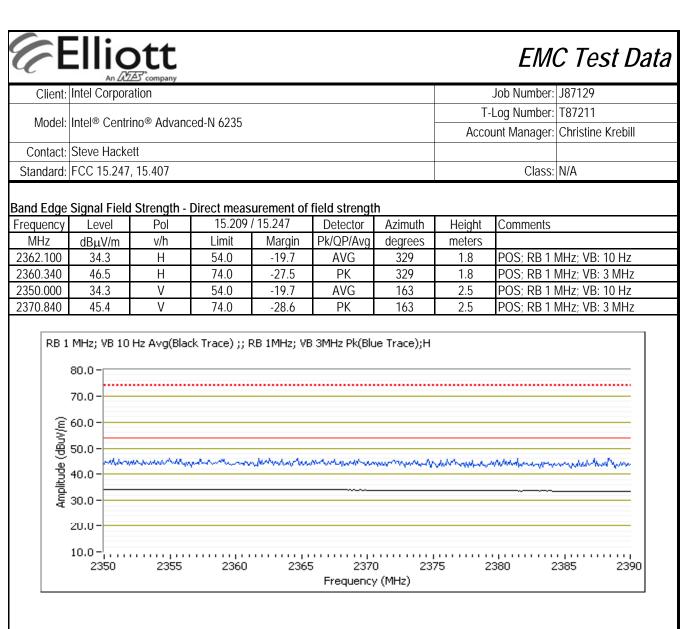




An ZAZ	D <b>tt</b>							C Test Dat		
Intel Corpora	ation					Job Number: J87129				
Intol® Contri	ino® Advanc	od N 6235				T-	Log Number:	T87211		
		eu-11 0235				Acco	unt Manager:	Christine Krebill		
FCC 15.247	, 15.407			Class:	N/A					
ate of Test: st Engineer:	4/30/2012 & Jack Liu									
				-	0					
					, ,		<u> </u>			
	Chain B	7	.5	5.	1	6	3.0			
Signal Fi	d Ctronath	. Dook volvo	moneurod	100617						
					Azimuth	Height	Comments			
						- ×	Comments			
		-	-	0			RB 100 kHz	;VB 100 kHz;Peak		
		-	-							
	Н	-	-	PK	175	1.1		B 3 MHz;Peak		
96.2	V	-	-	PK	67	1.0		;VB 100 kHz;Peak		
97.1	V	-	-	AVG	67	1.0	RB 1 MHz;VB 10 Hz;Peak			
97.7	V	-	-	PK	67	1.0	RB 1 MHz;V	RB 1 MHz;VB 3 MHz;Peak		
						7				
Signal Field	Strength -	Direct meas	urement of	field strengt	h	-		wer measurement)		
	-					- ×	Comments			
			× ×	0						
								MHZ; VB: 3 MHZ		
	Intel Corpora Intel® Centr Steve Hacke FCC 15.247 gh Channel ate of Test: st Engineer: st Location: al Signal Fie Level dBµV/m 100.4 101.1 101.6 96.2 97.1 97.7 ndamental e Limit for e	Intel Corporation Intel® Centrino® Advance Steve Hackett FCC 15.247, 15.407   gh Channel @ 2480 MH ate of Test: 4/30/2012 & st Engineer: Jack Liu st Location: FT#5   I Chain B  Al Signal Field Strength Level Pol dBµV/m v/h 100.4 H 101.1 H 101.6 H 96.2 V 97.1 V 97.7 V  I OV 97.7 V  I OV I	Intel CorporationIntel® Centrino® Advanced-N 6235Steve HackettFCC 15.247, 15.407gh Channel @ 2480 MHzate of Test: 4/30/2012 & 5/1/12st Engineer: Jack Liust Location: FT#5TargetChain B7Al Signal Field Strength: Peak valueLevel Pol15.209dBµV/mV/hLimitndamental emission level @ 3m in 10Limit for emissions outside of restrSignal Field Strength - Direct measLevel< Pol	Intel Corporation         Intel® Centrino® Advanced-N 6235         Steve Hackett         FCC 15.247, 15.407         gh Channel @ 2480 MHz         ate of Test: 4/30/2012 & 5/1/12         tengineer: Jack Liu         st Location: FT#5         Chain B 7.5         Al Signal Field Strength: Peak value measured in         Level Pol 15.209 / 15.247         dBµV/m v/h Limit Margin         100.4       H       -         101.1       H       -       -         101.6       H       -       -         97.7       V       -       -         97.1       V       -       -         ndamental emission level @ 3m in 100kHz RBW:         Limit for emissions outside of restricted bands:         Signal Field Strength - Direct measurement of         Level       Pol       15.209 / 15.247         dBµV/m       v/h       Limit       Margin         45.9       H       54.0       -8.1         56.0       H       74.0       -18.0         37.8       V       54.0       -16.2	Intel CorporationIntel® Centrino® Advanced-N 6235Steve HackettFCC 15.247, 15.407gh Channel @ 2480 MHz ate of Test: 4/30/2012 & 5/1/12 st Engineer: Jack Liu st Location: FT#5Power S Target (dBm)Chain B7.5Stocation: FT#5Chain B7.5Al Signal Field Strength: Peak value measured in 100kHz Level PolLevel Pol15.209 / 15.247Detector dBµV/mUnitMarginPK/QP/Avg100.4H-PK96.2V-PK97.1V-PK97.7V-PK97.7V-PK97.7V-PK97.7V-PK97.7V-PK97.7V-PK97.7V-PK97.7V-PK97.7PK100.4Limit for emissions outside of restricted bands: 80.4Signal Field Strength - Direct measurement of field strengt Level PolLevel Pol15.209 / 15.247Detector dBµV/mV/hLimitMarginPK/QP/Avg 45.9H <td>Intel Corporation         Intel® Centrino® Advanced-N 6235         Steve Hackett         FCC 15.247, 15.407         gh Channel @ 2480 MHz         ate of Test: 4/30/2012 &amp; 5/1/12         Steve Hackett         FCC 15.247, 15.407         Power Settings         Target (dBm)       Measured (dBm)         Chain B       7.5       5.1         al Signal Field Strength: Peak value measured in 100kHz         Level       Pol       15.209 / 15.247       Detector       Azimuth         dBµV/m       v/h       Limit       Margin       PK/OP/Avg       degrees         100.4       H       -       -       PK       175         101.1       H       -       -       PK       67         97.7       V       -       -       PK       67      <tr< td=""><td>Intel Corporation         T-           Intel® Centrino® Advanced-N 6235         T-           Steve Hackett         FCC 15.247, 15.407           gh Channel @ 2480 MHz         ate of Test: 4/30/2012 &amp; 5/1/12           ate of Test: 4/30/2012 &amp; 5/1/12         stengineer: Jack Liu           st Location:         FT#5           Chain B         7.5           Signal Field Strength:         Peak value measured in 100kHz           Level         Pol           Pol         15.209 / 15.247           Detector         Azimuth           Height         Margin           Al Signal Field Strength:         Peak value measured in 100kHz           Level         Pol         15.209 / 15.247         Detector           AVG         175         1.1           101.1         H         -         -           PK         175         1.1           101.6         H         -         PK           97.1         V         -         -         PK           97.1         V         -         -         PK           100.4         H         -         -         PK           97.7         V         -         -         PK</td><td>Intel Corporation         Job Number:           Intel® Centrino® Advanced-N 6235         T-Log Number:           Steve Hackett         Account Manager:           FCC 15.247, 15.407         Class:           gh Channel @ 2480 MHz         ate of Test: 4/30/2012 &amp; 5/1/12           ate of Test: 4/30/2012 &amp; 5/1/12         st Engineer: Jack Liu           st Location:         FT#5           Chain B         7.5           Stevel Hed Strength:         Peak value measured in 100kHz           Level         Pol           Pol         15.209 / 15.247           Detector         Azimuth           Height         Comments           dBµV/m         V/h           Limit         Margin           PK         175           1.1         RB 100 kHz           100.4         -           -         PK           101.6         H           -         -           96.2         V           -         -           97.1         V           -         PK           97.1         V           -         -           PK         67           1.0         RB 1 MHz; V</td></tr<></td>	Intel Corporation         Intel® Centrino® Advanced-N 6235         Steve Hackett         FCC 15.247, 15.407         gh Channel @ 2480 MHz         ate of Test: 4/30/2012 & 5/1/12         Steve Hackett         FCC 15.247, 15.407         Power Settings         Target (dBm)       Measured (dBm)         Chain B       7.5       5.1         al Signal Field Strength: Peak value measured in 100kHz         Level       Pol       15.209 / 15.247       Detector       Azimuth         dBµV/m       v/h       Limit       Margin       PK/OP/Avg       degrees         100.4       H       -       -       PK       175         101.1       H       -       -       PK       67         97.7       V       -       -       PK       67 <tr< td=""><td>Intel Corporation         T-           Intel® Centrino® Advanced-N 6235         T-           Steve Hackett         FCC 15.247, 15.407           gh Channel @ 2480 MHz         ate of Test: 4/30/2012 &amp; 5/1/12           ate of Test: 4/30/2012 &amp; 5/1/12         stengineer: Jack Liu           st Location:         FT#5           Chain B         7.5           Signal Field Strength:         Peak value measured in 100kHz           Level         Pol           Pol         15.209 / 15.247           Detector         Azimuth           Height         Margin           Al Signal Field Strength:         Peak value measured in 100kHz           Level         Pol         15.209 / 15.247         Detector           AVG         175         1.1           101.1         H         -         -           PK         175         1.1           101.6         H         -         PK           97.1         V         -         -         PK           97.1         V         -         -         PK           100.4         H         -         -         PK           97.7         V         -         -         PK</td><td>Intel Corporation         Job Number:           Intel® Centrino® Advanced-N 6235         T-Log Number:           Steve Hackett         Account Manager:           FCC 15.247, 15.407         Class:           gh Channel @ 2480 MHz         ate of Test: 4/30/2012 &amp; 5/1/12           ate of Test: 4/30/2012 &amp; 5/1/12         st Engineer: Jack Liu           st Location:         FT#5           Chain B         7.5           Stevel Hed Strength:         Peak value measured in 100kHz           Level         Pol           Pol         15.209 / 15.247           Detector         Azimuth           Height         Comments           dBµV/m         V/h           Limit         Margin           PK         175           1.1         RB 100 kHz           100.4         -           -         PK           101.6         H           -         -           96.2         V           -         -           97.1         V           -         PK           97.1         V           -         -           PK         67           1.0         RB 1 MHz; V</td></tr<>	Intel Corporation         T-           Intel® Centrino® Advanced-N 6235         T-           Steve Hackett         FCC 15.247, 15.407           gh Channel @ 2480 MHz         ate of Test: 4/30/2012 & 5/1/12           ate of Test: 4/30/2012 & 5/1/12         stengineer: Jack Liu           st Location:         FT#5           Chain B         7.5           Signal Field Strength:         Peak value measured in 100kHz           Level         Pol           Pol         15.209 / 15.247           Detector         Azimuth           Height         Margin           Al Signal Field Strength:         Peak value measured in 100kHz           Level         Pol         15.209 / 15.247         Detector           AVG         175         1.1           101.1         H         -         -           PK         175         1.1           101.6         H         -         PK           97.1         V         -         -         PK           97.1         V         -         -         PK           100.4         H         -         -         PK           97.7         V         -         -         PK	Intel Corporation         Job Number:           Intel® Centrino® Advanced-N 6235         T-Log Number:           Steve Hackett         Account Manager:           FCC 15.247, 15.407         Class:           gh Channel @ 2480 MHz         ate of Test: 4/30/2012 & 5/1/12           ate of Test: 4/30/2012 & 5/1/12         st Engineer: Jack Liu           st Location:         FT#5           Chain B         7.5           Stevel Hed Strength:         Peak value measured in 100kHz           Level         Pol           Pol         15.209 / 15.247           Detector         Azimuth           Height         Comments           dBµV/m         V/h           Limit         Margin           PK         175           1.1         RB 100 kHz           100.4         -           -         PK           101.6         H           -         -           96.2         V           -         -           97.1         V           -         PK           97.1         V           -         -           PK         67           1.0         RB 1 MHz; V		

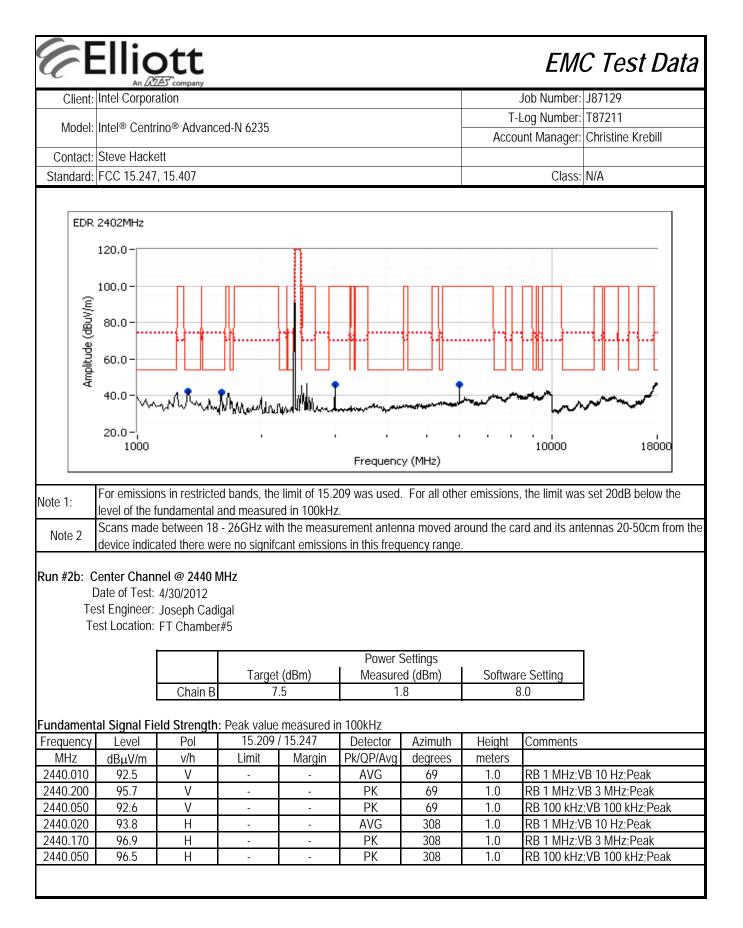


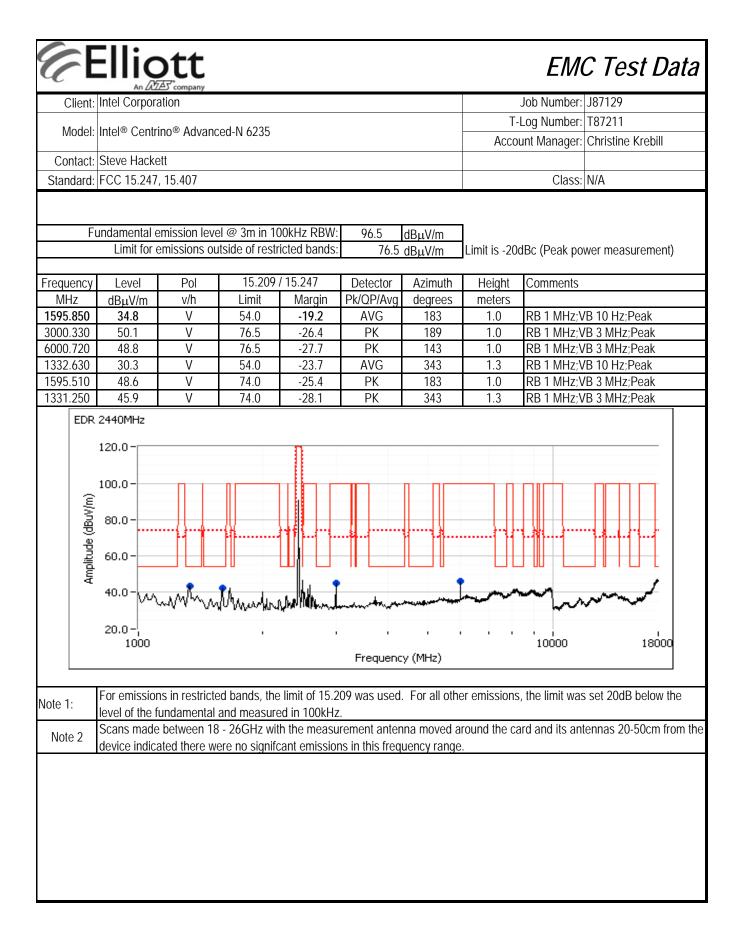




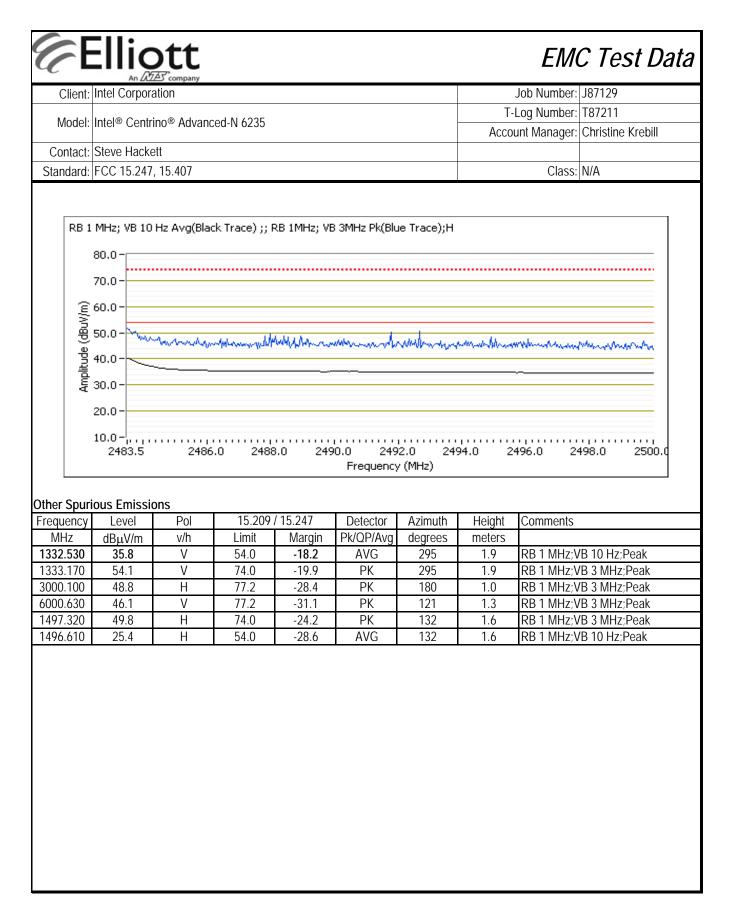
#### Other Spurious Emissions

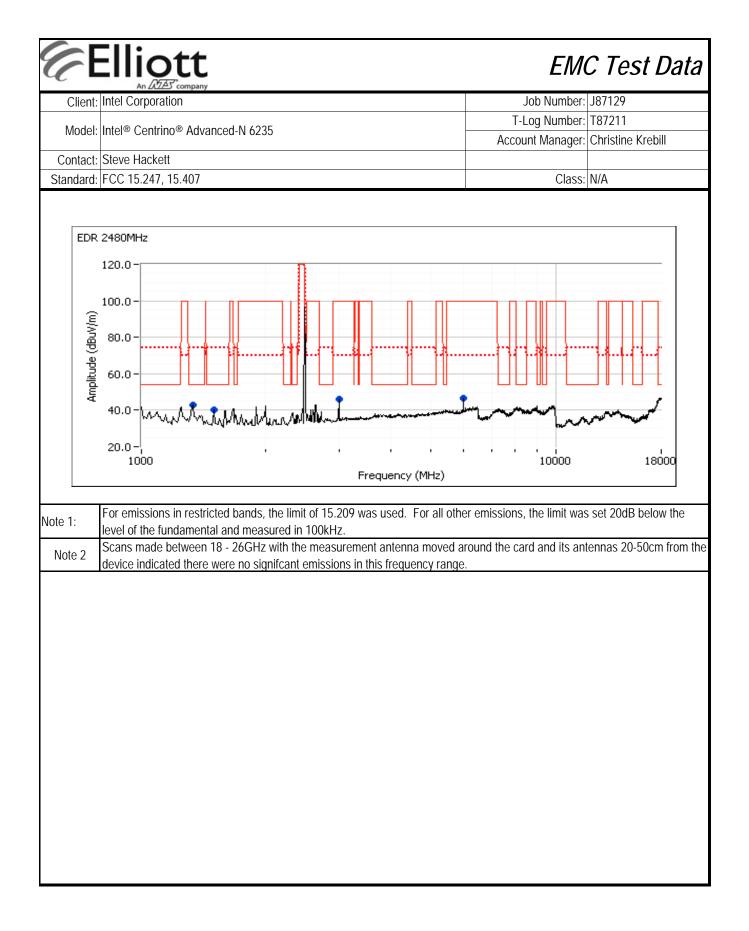
Frequency	Level	Pol	15.209	/ 15.247	Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
1596.820	35.2	V	54.0	-18.8	AVG	127	1.6	RB 1 MHz;VB 10 Hz;Peak
6000.600	50.0	V	74.5	-24.5	PK	150	1.0	RB 1 MHz;VB 3 MHz;Peak
1327.490	32.8	V	54.0	-21.2	AVG	183	1.0	RB 1 MHz;VB 10 Hz;Peak
1597.600	50.0	V	74.0	-24.0	PK	127	1.6	RB 1 MHz;VB 3 MHz;Peak
1328.400	48.8	V	74.0	-25.2	PK	183	1.0	RB 1 MHz;VB 3 MHz;Peak
3000.330	44.8	V	74.5	-29.7	PK	194	1.0	RB 1 MHz;VB 3 MHz;Peak





-		Dtt Art company							C Test Dat	
Client:	Intel Corpora	ation					Job Number: J87129			
Model	Intel <sup>®</sup> Centr	ino® Advanc	od N 6225				T-	Log Number:	T87211	
would.		IIIU® Auvanu	eu-n 0255				Acco	unt Manager:	Christine Krebill	
Contact:	Steve Hacke	ett								
Standard:	FCC 15.247	, 15.407			Class:	N/A				
C Te:	igh Channel Date of Test: st Engineer: est Location:	4/30/2012 Jack Liu/ Jo		I						
					Power S					
				(dBm)	Measure	1 1		re Setting		
		Chain B	7	.5	2.	3	8	3.0		
- · ·					100111					
	al Signal Fie	eld Strength Pol		_measured in / 15.247	n 100kHz Detector	Azimuth	Hoight	Comments		
Frequency MHz	Level dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	Height meters	Comments		
2479.970	08μv/m 92.2	V		iviaryiri	AVG	68	1.0	PR 1 MHz·\	/B 10 Hz;Peak	
2479.970	95.3	V	-	-	PK	68	1.0		B 3 MHz;Peak	
2480.120	93.2	V		-	PK	68	1.0		;VB 100 kHz;Peak	
2479.970	97.5	H	_	_	AVG	183	1.0	RB 1 MHz;VB 10 Hz;Peak		
2480.140	100.6	H	-	-	PK	183	1.1	RB 1 MHz;VB 3 MHz;Peak		
2480.080	97.2	Н	-	-	PK	183	1.1	RB 100 kHz;VB 100 kHz;Peak		
							_	•		
Fu	undamental e					dBµV/m				
	Limit for e	emissions ou	Itside of restr	icted bands:	77.2	dBµV/m	Limit is -20	dBc (Peak po	wer measurement)	
Rand Edgo	Signal Field	Strongth	Diroct moas	uromont of	field strengtl	<b>-</b>				
Frequency	Level	Pol		/ 15.247	Detector	Azimuth	Height	Comments		
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	Comments		
2483.500	40.2	H	54.0	-13.8	AVG	186	1.1	POS; RB 1	MHz; VB: 10 Hz	
2483.600	49.8	H	74.0	-24.2	PK	186	1.1		MHZ; VB: 3 MHZ	
2483.500	37.9	V	54.0	-16.1	AVG	75	1.0		MHz; VB: 10 Hz	
2483.530	48.8	V	74.0	-25.2	PK	75	1.0	POS: RB1	MHz; VB: 3 MHz	





# EMC Test Data

Client:	Intel Corporation	Job Number:	J87129
Model	Intel <sup>®</sup> Centrino <sup>®</sup> Advanced-N 6235	T-Log Number:	T87211
wouer.	Intel® Centino® Advanced-N 0255	Account Manager:	Christine Krebill
Contact:	Steve Hackett		
Standard:	FCC 15.247, 15.407	Class:	N/A

# RSS 210 and FCC 15.247 (DSS) Radiated Spurious Emissions 802.11bgn and Bluetooth LE - Transmitter Mode

Test Specific Details

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

#### General Test Configuration

Elliott

The EUT was installed into a test fixture such that the EUT was exposed (i.e. outside of a host PC).

#### Summary of Results

For Bluetooth: Tx is chain B, Rx is chain B. For WiFi, only Chain A is used for transmit in the 2.4GHz band, both chains used in 5GHz bands. The channels and WiFi modes were selected based on the worst case results from evaluating the BLE, EDR and Basic-Rate Bluetooth modes. BT Basic was selected because basic has higher power.

MAC Address: 44850006303D DRTU Tool Version 1.5.4.0399 Driver version 15.1.0.99

Mode	Channel	Target Power	Measured Power	Test Performed	Limit	Result / Margin
BT <b>Basic</b> 802.11b	2402MHz 2412MHz	7dBm 16.5dBm	4.5 16.6	Radiated Spurious Emissions	FCC 15.247	45.9 dBµV/m @ 7235.2 MHz (-8.1 dB)
BT <b>Basic</b> 802.11b	2480MHz 2462MHz	7dBm 16.5dBm	5.1 16.54	Radiated Spurious Emissions	FCC 15.247	52.1 dBµV/m @ 7386.9 MHz (-1.9 dB)
BT <b>Basic</b> 802.11g	2402MHz 2412MHz	7dBm 16.5dBm	4.5 16.47	Radiated Spurious Emissions	FCC 15.247	47.8 dBµV/m @ 7235.5 MHz (-6.2 dB)
BT <b>Basic</b> 802.11g	2480MHz 2462MHz	7dBm 16.5dBm	5.1 16.48	Radiated Spurious Emissions	FCC 15.247	48.3 dBµV/m @ 3282.7 MHz (-5.7 dB)
or the followi	ng runs base	ed on worst c	ase mode fro	om runs 1 through 4		
BT <b>Basic</b> 802.11b	2402MHz 2437MHz	7dBm 16.5dBm	4.5 16.5	Radiated Emissions	FCC 15.247	44.9 dBµV/m @ 7311.7 MHz (-9.1 dB)
BT <b>Basic</b> 802.11b	2440MHz 2412MHz	7dBm 16.5dBm	4.9 16.5	1- 10 GHz	FCC 15.247	42.5 dBµV/m @ 9001.0 MHz (-11.5 dB)
BT <b>Basic</b> 802.11b	2440MHz 2462MHz	7dBm 16.5dBm	4.9 16.5	Radiated Emissions	FCC 15.247	44.1 dBµV/m @ 7386.6 MHz (-9.9 dB)
BT <b>Basic</b> 802.11b	2480MHz 2437MHz	7dBm 16.5dBm	5.1 16.5	1- 10 GHz	FCC 15.247	45.1 dBµV/m @ 7310.1 MHz (-8.9 dB)
	BT Basic 802.11b BT Basic 802.11b BT Basic 802.11g BT Basic 802.11g Dr the followi BT Basic 802.11b BT Basic 802.11b BT Basic 802.11b BT Basic	BT Basic         2402MHz           802.11b         2412MHz           BT Basic         2480MHz           802.11b         2462MHz           802.11b         2462MHz           BT Basic         2402MHz           802.11g         2412MHz           BT Basic         2402MHz           802.11g         2412MHz           BT Basic         2462MHz           802.11g         2462MHz           S02.11g         2462MHz           S02.11g         2437MHz           BT Basic         2402MHz           802.11b         2437MHz           BT Basic         2440MHz           802.11b         2412MHz           BT Basic         2440MHz           802.11b         2412MHz           BT Basic         2440MHz           802.11b         2462MHz           BT Basic         2440MHz           802.11b         2462MHz           802.11b         2462MHz           BT Basic         2440MHz           802.11b         2462MHz	Mode         Chaimer         Power           BT Basic         2402MHz         7dBm           802.11b         2412MHz         16.5dBm           BT Basic         2480MHz         7dBm           802.11b         2462MHz         7dBm           802.11b         2462MHz         7dBm           802.11b         2462MHz         7dBm           802.11b         2402MHz         7dBm           802.11g         2412MHz         16.5dBm           BT Basic         2480MHz         7dBm           802.11g         2462MHz         7dBm           802.11g         2462MHz         7dBm           802.11g         2462MHz         7dBm           802.11b         2437MHz         16.5dBm           BT Basic         2440MHz         7dBm           802.11b         2412MHz         16.5dBm           BT Basic         2440MHz         7dBm           802.11b         2412MHz         16.5dBm           BT Basic         2440MHz         7dBm           802.11b         2442MHz         16.5dBm           BT Basic         2440MHz         7dBm           802.11b         2462MHz         16.5dBm	Mode         Chainer         Power         Power           BT Basic         2402MHz         7dBm         4.5           802.11b         2412MHz         16.5dBm         16.6           BT Basic         2480MHz         7dBm         5.1           802.11b         2462MHz         16.5dBm         16.54           BT Basic         2402MHz         7dBm         5.1           802.11b         2462MHz         16.5dBm         16.54           BT Basic         2402MHz         7dBm         4.5           802.11g         2412MHz         16.5dBm         16.47           BT Basic         2480MHz         7dBm         5.1           802.11g         2462MHz         16.5dBm         16.48           or the following runs based on worst case mode from the following runs based on worst case mode from the following runs based on worst case mode from the following runs based on worst case mode from the following runs based on worst case mode from the following runs based on worst case mode from the following runs based on worst case mode from the following runs based on worst case mode from the following runs based on worst case mode from the following runs based on worst case mode from the following runs based on worst case mode from the following runs based on worst case mode from the following runs based on worst case mode from the following runs based on worst case mode from the following runs based on worst case from the following runs based on t	ModeChaimerPowerPowerPowerPerformedBT Basic2402MHz7dBm4.5Radiated Spurious802.11b2412MHz16.5dBm16.6EmissionsBT Basic2480MHz7dBm5.1Radiated Spurious802.11b2462MHz16.5dBm16.54EmissionsBT Basic2402MHz7dBm4.5Radiated Spurious802.11g2412MHz16.5dBm16.47EmissionsBT Basic2480MHz7dBm5.1Radiated Spurious802.11g2412MHz16.5dBm16.48EmissionsBT Basic2480MHz7dBm16.48Emissionss02.11g2462MHz16.5dBm16.48Emissionsbr Basic2402MHz7dBm4.5Radiated Spurious802.11b2437MHz16.5dBm16.5Radiated EmissionsBT Basic2440MHz7dBm4.91-10 GHz802.11b2412MHz16.5dBm16.5Radiated EmissionsBT Basic2440MHz7dBm4.91-10 GHz802.11b2442MHz16.5dBm16.5Radiated EmissionsBT Basic2440MHz7dBm4.91.10 GHz802.11b2462MHz7dBm16.5Radiated EmissionsBT Basic2480MHz7dBm16.5Radiated EmissionsBT Basic2480MHz7dBm16.5Radiated EmissionsBT Basic2480MHz7dBm16.5Radiated EmissionsBT Basic<	ModeChainierPowerPowerPowerTest PerformedLinitBT Basic2402MHz7dBm4.5Radiated SpuriousFCC 15.247802.11b2412MHz16.5dBm16.6EmissionsFCC 15.247BT Basic2480MHz7dBm5.1Radiated SpuriousFCC 15.247802.11b2462MHz16.5dBm16.54EmissionsFCC 15.247BT Basic2402MHz7dBm4.5Radiated SpuriousFCC 15.247802.11g2412MHz16.5dBm16.47EmissionsFCC 15.247BT Basic2480MHz7dBm5.1Radiated SpuriousFCC 15.247802.11g2462MHz16.5dBm16.48EmissionsFCC 15.247BT Basic2402MHz7dBm4.5Fadiated SpuriousFCC 15.247BT Basic2402MHz7dBm4.5Fadiated EmissionsFCC 15.247BT Basic2402MHz7dBm4.5Fadiated EmissionsFCC 15.247BT Basic2440MHz7dBm4.9FCC 15.247FCC 15.247BT Basic2440MHz7dBm16.5FCC 15.247FCC 15.247BT Basic2440MHz7dBm16.5Fadiated EmissionsFCC 15.247BT Basic2440MHz7dBm16.5Fadiated EmissionsFCC 15.247BT Basic2480MHz7dBm16.5Fadiated EmissionsFCC 15.247BT Basic2480MHz7dBm16.5Fadiated EmissionsFCC 15.247BT Basic2480MHz

(CE						EM	C Test Data			
Client:	Intel Corpora	ation				Job Number:	J87129			
Madalı	Intel <sup>®</sup> Centr	ino® Advance	ad N 402E			T-Log Number:	T87211			
wouer.		IIIU® Auvanu	eu-in 0255			Account Manager:	Christine Krebill			
Contact:	Steve Hacke	ett								
Standard:	FCC 15.247	, 15.407		Class:	N/A					
WiFi mode and channel and Bluetooth channel based on the worst case mode from runs 1 through 8										
Run #	Mode	Channel	Target Power	Measured Power	Test Performed	Limit	Result / Margin			
9	BT <b>3Mb/s</b> 802.11b	2480 MHz 2462 MHz	7dBm 16.5dBm	2.3 16.5	Radiated Emissions 1- 10 GHz	FCC 15.247	46.0 dBµV/m @ 7386.6 MHz (-8.0 dB)			
WiFi mode - channel, Ba		MHz with bot	h chains acti	ve at 16.5dB	m per chain, center chanr	nel in each 5GHz band. B	luetooth on center			
Run #	Mode	Channel	Target Power	Measured Power	Test Performed	Limit	Result / Margin			
10	BT <b>Basic</b> 802.11n20	2440MHz 5200MHz	7dBm 16.5/16.5	4.9 15.0 / 16.0		FCC 15.247	46.1 dBµV/m @ 10400.0 MHz (-7.9 dB)			
11	BT <b>Basic</b> 802.11n20	2440MHz 5300MHz	7dBm 16.5/16.5	4.9 15.9 / 16.3	Radiated Emissions	FCC 15.247	38.0 dBµV/m @ 4880.0 MHz (-16.0 dB)			
12	BT <b>Basic</b> 802.11n20	2440MHz 5580MHz	7dBm 16.5/16.5	4.9 16.2 / 16.4	1- 15 GHz	FCC 15.247	32.8 dBµV/m @ 1660.7 MHz (-21.2 dB)			
13	BT <b>Basic</b> 802.11n20	2440MHz 5785MHz	7dBm 16.5/16.5	4.9 15.2 / 15.6		FCC 15.247	34.1 dBµV/m @ 4880.0 MHz (-19.9 dB)			
13						FCC 15.247				

### Modifications Made During Testing

No modifications were made to the EUT during testing

### Deviations From The Standard

Elliott

No deviations were made from the requirements of the standard.

### Notes:

Bluetooth uses a frequency hopping algorithm that means that the device, during normal operation, is only on a specific channel for a short period of time. The average correction factor is calculated as follows:

A maximum length packet has a duration of 5 time slots.

The hopping rate is 1600 hops/second so the maximum dwell time is 5/1600 seconds, or 3.125ms.

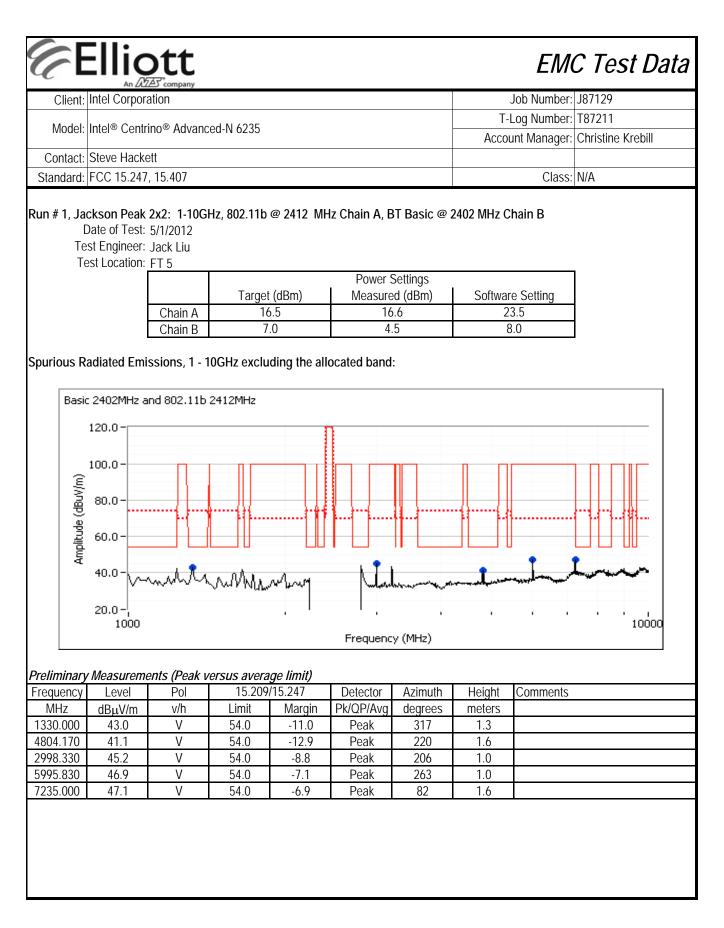
With a minimum of 20 hopping channels a channel will not be used more than 4 times in any 100ms period.

The maximum dwell time in a 100ms period is 4 x 3.125ms = 12.5ms.

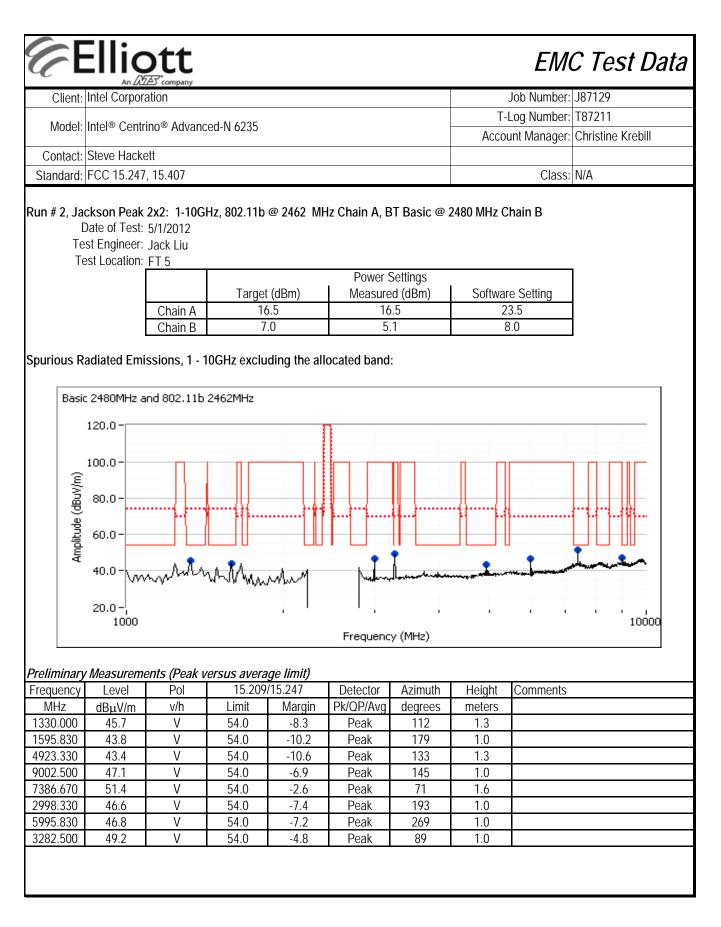
The average correction factor is, therefore, 20log(12.5/100) =-18dB

As this is a hopping radio the correction factor can be applied to the average value of the signal provided the average value was measured with the device continuously transmitting. DA 00-0705 permits the use of the average correction on the measured average value for frequency hopping radios.

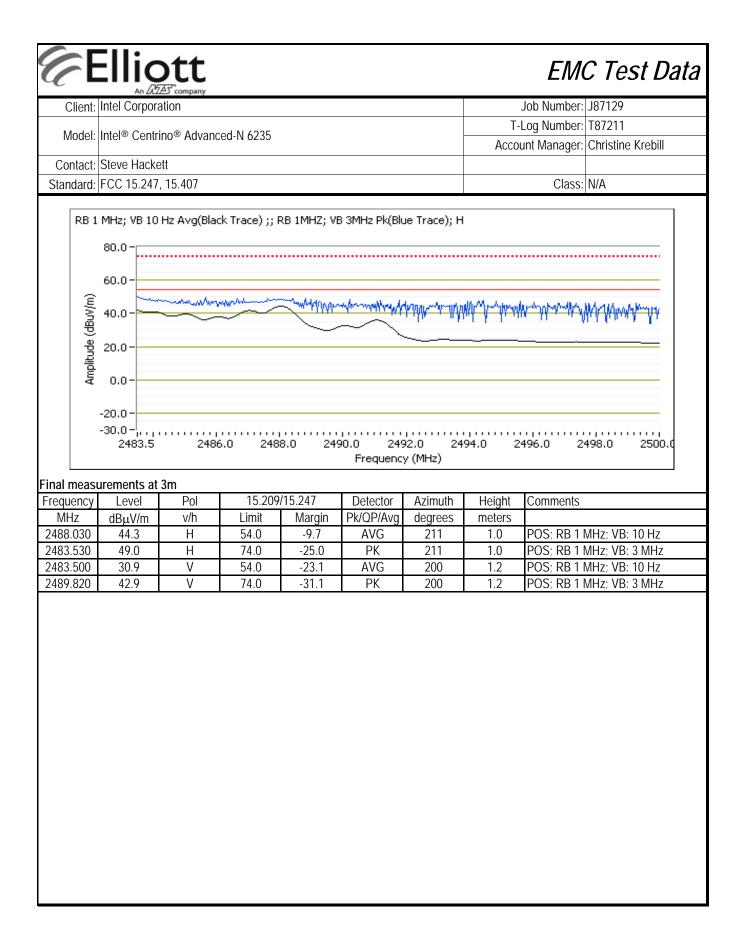
All measurements in this data sheet do not include the average correction factor.

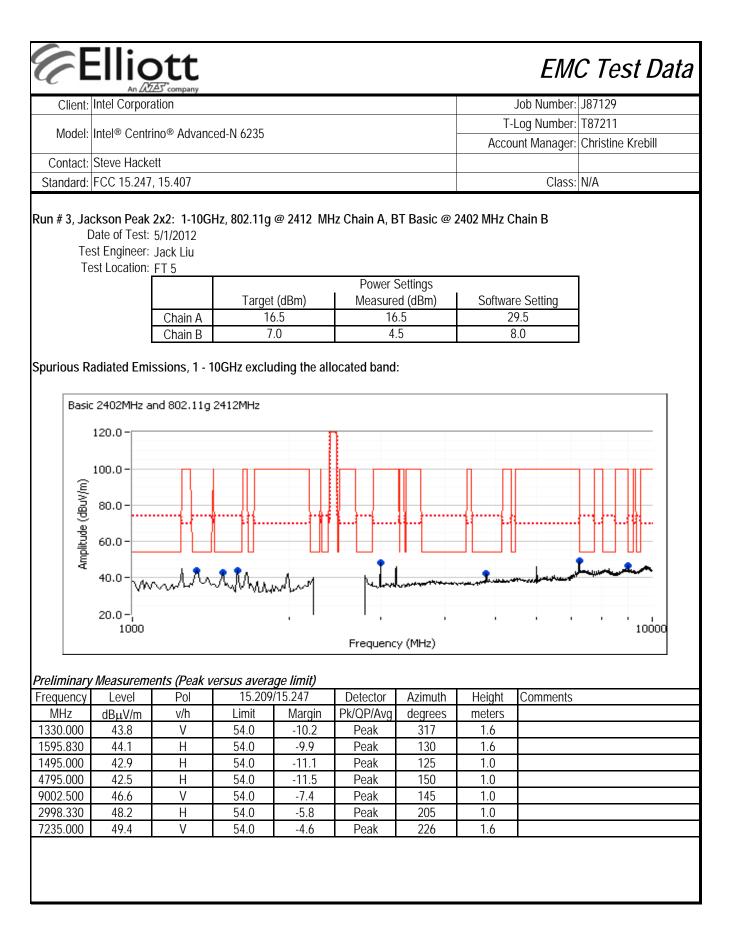


Client	Intel Corpora	≦r <sub>company</sub> tion				Job Number: J87129		
Cilent.								Log Number: T87211
Model:	Intel <sup>®</sup> Centri	no® Advanc	ed-N 6235					unt Manager: Christine Krebill
Contact	Steve Hacke	++		ALLU				
Standard:	FCC 15.247,	15.407						Class: N/A
nal moasi	urements at 3	2m						
requency	Level	Pol	15,209	/15.247	Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	Comments
235.230	45.9	V	54.0	-8.1	AVG	67	1.7	RB 1 MHz;VB 10 Hz;Peak
000.650	44.9	V	54.0	-9.1	AVG	141	1.0	RB 1 MHz;VB 10 Hz;Peak
000.280	44.4	V	54.0	-9.6	AVG	200	1.0	RB 1 MHz;VB 10 Hz;Peak
803.940	39.4	V	54.0	-14.6	AVG	219	1.6	RB 1 MHz;VB 10 Hz;Peak
345.250	32.5	V	54.0	-21.5	AVG	94	1.1	RB 1 MHz;VB 10 Hz;Peak
235.050	51.8	V	74.0	-22.2	PK	67	1.7	RB 1 MHz;VB 3 MHz;Peak
000.630	49.0	V	74.0	-25.0	PK	141	1.0	RB 1 MHz;VB 3 MHz;Peak
000.230	48.4	V	74.0	-25.6	PK	200	1.0	RB 1 MHz;VB 3 MHz;Peak
	45.6	V	74.0	-28.4	PK	219	1.6	RB 1 MHz;VB 3 MHz;Peak
804.170	40.0	v	74.0	-20.4				
346.900 Durious Ra	44.5 adiated Emis v Scan at ~ 30	V ssions, 2 - 3	74.0 8 <b>GHz</b>	-29.5	PK otential signa	94	1.1	RB 1 MHz;VB 3 MHz;Peak
1346.900 purious Ra <i>reliminary</i>	44.5 adiated Emis v Scan at ~ 30	V ssions, 2 - 3	74.0 8 <b>GHz</b>	-29.5	РК	94	1.1	RB 1 MHz;VB 3 MHz;Peak
1346.900 purious Ra reliminary Run	44.5 adiated Emis <i>c Scan at ~ 3t</i> #1: 120.0 -	V ssions, 2 - 3	74.0 8 <b>GHz</b>	-29.5	РК	94	1.1	RB 1 MHz;VB 3 MHz;Peak
1346.900 purious Ra reliminary Run	44.5 adiated Emis <i>c Scan at ~ 30</i> #1:	V ssions, 2 - 3	74.0 8 <b>GHz</b>	-29.5	РК	94	1.1	RB 1 MHz;VB 3 MHz;Peak
1346.900 purious Ra reliminary Run	44.5 adiated Emis <i>v Scan at ~ 30</i> #1: 120.0 –	V ssions, 2 - 3	74.0 8 <b>GHz</b>	-29.5	РК	94	1.1	RB 1 MHz;VB 3 MHz;Peak
1346.900 purious Ra reliminary Run	44.5 adiated Emis <i>c Scan at ~ 3t</i> #1: 120.0 -	V ssions, 2 - 3	74.0 8 <b>GHz</b>	-29.5	РК	94	1.1	RB 1 MHz;VB 3 MHz;Peak
purious Ra reliminary Run (W/\ngp) apr	44.5 adiated Emis <i>c Scan at ~ 30</i> #1: 120.0 - 100.0 - 80.0 -	V ssions, 2 - 3	74.0 8 <b>GHz</b>	-29.5	РК	94	1.1	RB 1 MHz;VB 3 MHz;Peak
346.900 purious Ra reliminary Run (W/\ngp) apr	44.5 adiated Emis <i>v Scan at ~ 30</i> #1: 120.0 –	V ssions, 2 - 3	74.0 8 <b>GHz</b>	-29.5	РК	94	1.1	RB 1 MHz;VB 3 MHz;Peak
0urious Rareliminary	44.5 adiated Emis <i>c Scan at ~ 30</i> #1: 120.0 - 100.0 - 80.0 - 60.0 -	V ssions, 2 - 3	74.0 8 <b>GHz</b>	-29.5	РК	94	1.1	RB 1 MHz;VB 3 MHz;Peak
purious Ra reliminary Run (W/\ngp) apr	44.5 adiated Emis <i>c Scan at ~ 30</i> #1: 120.0 - 100.0 - 80.0 -	V ssions, 2 - 3	74.0 8 <b>GHz</b>	-29.5	РК	94	1.1	RB 1 MHz;VB 3 MHz;Peak
Run (W/M)	44.5 adiated Emis <i>scan at ~ 30</i> #1: 120.0 - 100.0 - 80.0 - 60.0 - 40.0 -	V ssions, 2 - 3	74.0 8 <b>GHz</b>	-29.5	РК	94	1.1	RB 1 MHz;VB 3 MHz;Peak
purious Ra reliminary Run (W/\ngp) apr	44.5 adiated Emis <i>scan at ~ 30</i> #1: 120.0 - 100.0 - 80.0 - 60.0 - 40.0 - 20.0 -	V ssions, 2 - 3 Ocm from th	74.0 BGHz he product to	-29.5	PK otential signa	94 als (Peak ve	1.1	RB 1 MHz;VB 3 MHz;Peak
purious Ra reliminary Run (W/\ngp) apr	44.5 adiated Emis <i>scan at ~ 30</i> #1: 120.0 - 100.0 - 80.0 - 60.0 - 40.0 -	V ssions, 2 - 3	74.0 8 <b>GHz</b>	-29.5	PK otential signa	94 als (Peak ve	1.1	RB 1 MHz;VB 3 MHz;Peak
346.900 purious R reliminary Run (m/\ngp) aphilidwy	44.5 adiated Emis ( <i>Scan at ~ 30</i> #1: 120.0 - 100.0 - 80.0 - 60.0 - 40.0 - 20.0 - 2000	V ssions, 2 - 3 <i>Dcm from th</i>	74.0 BGHz he product to 2200	-29.5 o identify p	PK otential signa	94 als (Peak ve	1.1	RB 1 MHz;VB 3 MHz;Peak
346.900 purious R reliminary (W/\ngp) appropriate (W/\ngp) appropriate (	44.5 adiated Emis <i>scan at ~ 30</i> #1: 120.0 - 100.0 - 80.0 - 60.0 - 40.0 - 20.0 - 2000 -	V ssions, 2 - 3 Ocm from th 2100	74.0 BGHz he product to 2200	-29.5 o identify p 	PK otential signa	94 als (Peak ve	1.1	RB 1 MHz;VB 3 MHz;Peak  ge limit)  2800 2900 3000
346.900 purious R reliminary (W/\ngp) aprilidury reliminary requency	44.5 adiated Emis <i>s Scan at ~ 30</i> #1: 120.0 - 100.0 - 80.0 - 60.0 - 40.0 - 20.0 - 20.0 - 2000 -	V ssions, 2 - 3 Dcm from th 2100 nts at ~ 300 Pol	74.0 BGHz he product to 2200 cm, RB=1MH 15.209	-29.5 o identify p 2300 2 1z, VB=100k /15.247	PK otential signa	94 als (Peak ve	1.1 Prsus avera	RB 1 MHz;VB 3 MHz;Peak
aurious Ra reliminary (///ngp) apnajidwy reliminary requency MHz	44.5 adiated Emis / Scan at ~ 30 #1: 120.0 - 100.0 - 80.0 - 60.0 - 40.0 - 20.0 - 20.0 - 20.0 - 2000 / measureme Level dBμV/m	V ssions, 2 - 3 <i>Ocm from th</i> 2100 <u>nts at ~ 300</u> <u>Pol</u> V/h	74.0 BGHz he product to 2200	-29.5 o identify p 	PK otential signa otential signa version of the signal of the signal of the signal of the signal of	94 als (Peak ve	1.1 Prsus avera	RB 1 MHz;VB 3 MHz;Peak  ge limit)  2800 2900 3000
eliminary MHz	44.5 adiated Emis <i>s Scan at ~ 30</i> #1: 120.0 - 100.0 - 80.0 - 60.0 - 40.0 - 20.0 - 20.0 - 2000 -	V ssions, 2 - 3 Dcm from th 2100 nts at ~ 300 Pol	74.0 BGHz he product to 2200 cm, RB=1MH 15.209	-29.5 o identify p 2300 2 1z, VB=100k /15.247	PK otential signa	94 als (Peak ve	1.1 Prsus avera	RB 1 MHz;VB 3 MHz;Peak  ge limit)  2800 2900 3000
atterious Rangeliminary eliminary eliminary eliminary equency MHz 450.900	44.5 adiated Emis <i>y Scan at ~ 30</i> #1: 120.0 - 100.0 - 80.0 - 60.0 - 40.0 - 20.0 - 20.0 - 2000 / measureme Level dBμV/m 46.7	V ssions, 2 - 3 <i>Dcm from th</i> 2100 <u>nts at ~ 300</u> Pol V/h H	74.0 BGHz he product to 2200 cm, RB=1MH 15.209	-29.5 o identify p 2300 2 1z, VB=100k /15.247	PK otential signa otential signa etao PK PK Pk/QP/Avg	94 als (Peak ve	1.1 Prsus avera	RB 1 MHz;VB 3 MHz;Peak  ge limit)  2800 2900 3000
I346.900 Durious Rareliminary Run (Wingp) appnyldwy reliminary requency MHz 2450.900	44.5 adiated Emis / Scan at ~ 30 #1: 120.0 - 100.0 - 80.0 - 60.0 - 40.0 - 20.0 - 20.0 - 20.0 - 2000 / measureme Level dBμV/m	V ssions, 2 - 3 <i>Dcm from th</i> 2100 <u>nts at ~ 300</u> Pol V/h H	74.0 BGHz he product to 2200 cm, RB=1MH 15.209 Limit	-29.5 o identify p 2300 2 1z, VB=100k /15.247	PK otential signa otential signa etao PK PK Pk/QP/Avg	94 als (Peak ve	1.1 Prsus avera	RB 1 MHz;VB 3 MHz;Peak  ge limit)  2800 2900 3000



	Intel Corpora	tion			Job Number:	J87129			
Model:	Intel <sup>®</sup> Centrir	no® Advanc	ed-N 6235			Log Number:			
			00.110200	Ассо	unt Manager:	Christine Krebill			
	Steve Hacket								
Standard:	FCC 15.247,	15.407						Class:	N/A
requency	urements at 3	sm Pol	15 200	/15.247	Detector	Azimuth	Height	Comments	
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	COMMENTS	
7386.870	52.1	V	54.0	-1.9	AVG	63	1.6	RB 1 MHz:V	/B 10 Hz;Peak
385.870	58.1	V	74.0	-15.9	PK	63	1.6		/B 3 MHz;Peak
329.380	35.4	V	54.0	-18.6	AVG	111	1.4		/B 10 Hz;Peak
332.630	52.7	V	74.0	-21.3	РК	111	1.4		/B 3 MHz;Peak
595.750	35.8	V	54.0	-18.2	AVG	210	1.0		/B 10 Hz;Peak
593.210	48.8	V	74.0	-25.2	PK	210	1.0		/B 3 MHz;Peak
1924.050	42.7	V	54.0	-11.3	AVG	134	1.1		/B 10 Hz;Peak
1924.030	48.5	V	74.0	-25.5	PK	134	1.1		/B 3 MHz;Peak
9001.070	45.6	V	54.0	-8.4	AVG	177	1.0		/B 10 Hz;Peak
9001.190	53.7	V	74.0	-20.3	PK	177	1.0		/B 3 MHz;Peak
3000.360	47.1	V	54.0	-6.9	AVG	189	1.0		B 10 Hz;Peak
3000.390	51.8	V V	74.0	-22.2	PK	189	1.0		B 3 MHz;Peak
3282.720 3282.850	49.9 52.3	V	54.0 74.0	-4.1 -21.7	AVG PK	82 82	1.0 1.0		/B 10 Hz;Peak
6000.800	46.7	V	74.0 54.0	-21.7	AVG	oz 148	1.0		/B 3 MHz;Peak /B 10 Hz;Peak
6000.480	51.0	V	74.0	-23.0	PK	140	1.0		/B 3 MHz;Peak
	adiated Emis / <i>Scan at ~ 30</i> #2: 120.0-			o identify p	otential signa	als (Peak ve	ersus avera	ge limit)	
	100.0-								
1 8	80.0-								
(dBuV/					J {¶}				
typlitude (dBuV/	60.0-								
Amplitude (dBuV/m)	60.0 - 40.0	man an de an			d lin	~~~~~~~~			munderson

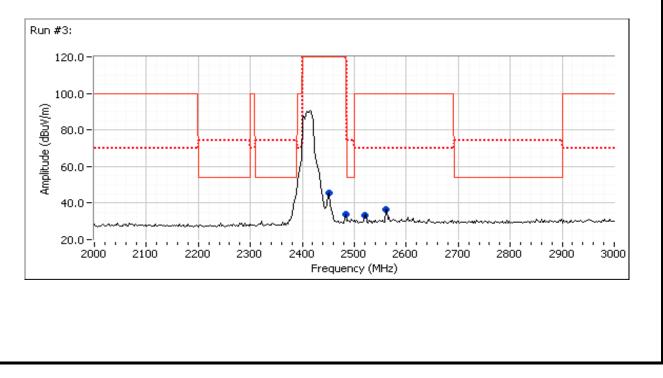




Œ		Dtt Ar company						EM	C Test Data
Client:	Intel Corpor	ation						Job Number:	J87129
Madal							T-Log Number: T87211		
Model:	Intel <sup>®</sup> Centr	ino <sup>®</sup> Advanc	ed-N 6235				Account Manager: Christine Krebill		
Contact:	Steve Hacke	ett							
Standard <sup>.</sup>	FCC 15.247	. 15.407						Class:	N/A
Final measu Frequency		3m Pol	15 209	/15.247	Detector	Azimuth	Height	Comments	
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	COMMENIS	
7235.470	47.8	V	54.0	-6.2	AVG	222	1.6	RB 1 MHz·\	/B 10 Hz;Peak
3000.420	46.1	H	54.0	-7.9	AVG	177	1.0		/B 10 Hz;Peak
9001.100	45.8	V	54.0	-8.2	AVG	136	1.0		/B 10 Hz;Peak
4804.020	42.6	Н	54.0	-11.4	AVG	144	1.0	RB 1 MHz;V	/B 10 Hz;Peak
7242.730	59.6	V	74.0	-14.4	PK	222	1.6	RB 1 MHz;\	/B 3 MHz;Peak
1593.830	36.8	Н	54.0	-17.2	AVG	133	1.0	RB 1 MHz;\	/B 10 Hz;Peak
1494.700	35.6	Н	54.0	-18.4	AVG	127	1.0		/B 10 Hz;Peak
1333.250	35.5	V	54.0	-18.5	AVG	286	1.5		/B 10 Hz;Peak
9000.490	53.3	V	74.0	-20.7	PK	136	1.0		/B 3 MHz;Peak
1328.200	53.2	V	74.0	-20.8	PK	286	1.5		/B 3 MHz;Peak
3000.000	51.3	Н	74.0	-22.7	PK	177	1.0		/B 3 MHz;Peak
4803.850	49.3	Н	74.0	-24.7	PK	144	1.0		/B 3 MHz;Peak
1495.570	49.2	Н	74.0	-24.8	PK	127	1.0		/B 3 MHz;Peak
1597.700	49.1	Н	74.0	-24.9	PK	133	1.0	RB 1 MHz;\	/B 3 MHz;Peak

#### Spurious Radiated Emissions, 2 - 3GHz

Preliminary Scan at ~ 30cm from the product to identify potential signals (Peak versus average limit)



Elliot	
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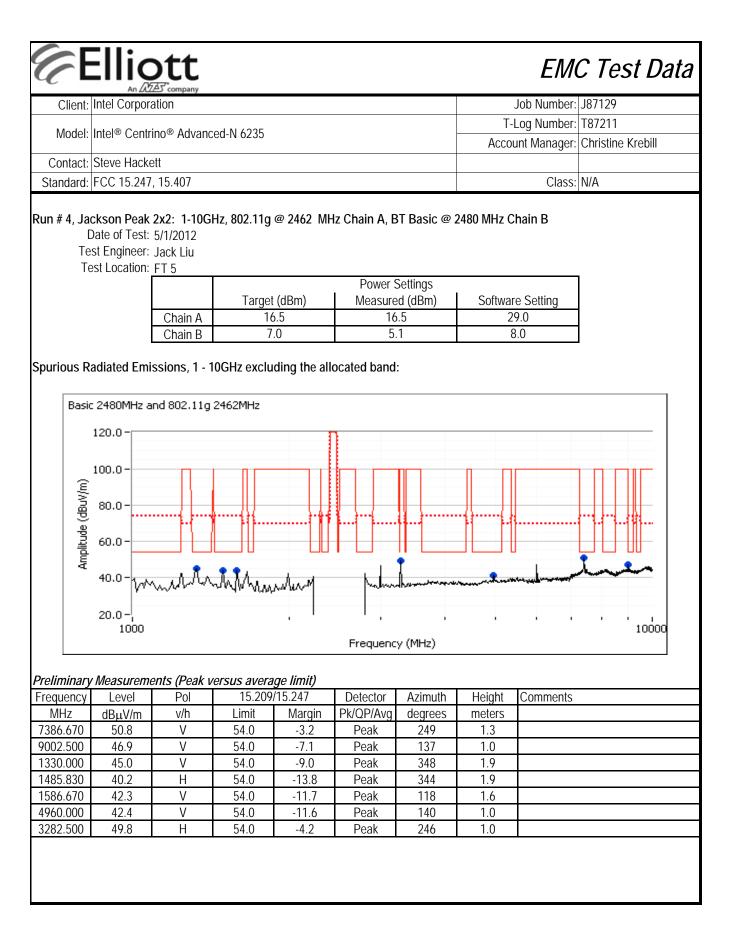
# EMC Test Data

Client:	Intel Corporation	Job Number:	J87129
Madalı	Intel <sup>®</sup> Centrino <sup>®</sup> Advanced-N 6235	T-Log Number:	T87211
wouer.	Intel® Centino® Advanced-in 0255	Account Manager:	Christine Krebill
Contact:	Steve Hackett		
Standard:	FCC 15.247, 15.407	Class:	N/A

#### Preliminary measurements at ~ 30cm, RB=1MHz, VB=100kHz

i i ommanj								
Frequency	Level	Pol	15.209	/15.247	Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
2450.900	45.4	Н	54.0	-8.6	Peak	336	1.5	
2482.970	34.0	Н	54.0	-20.0	Peak	222	1.0	
2521.040	33.3	Н	54.0	-20.7	Peak	180	1.0	
2561.120	36.4	Н	54.0	-17.6	Peak	199	1.0	

Frequency	Level	Pol	15.209	/15.247	Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	



	Intel Corpora	tion				Job Number:	J87129		
Model	Intol® Contriv	Intel® Centrino® Advanced-N 6235							T87211
MOUCI			.eu-n 0255				Ассо	unt Manager:	Christine Krebill
Contact	Steve Hacket	tt							
Standard	FCC 15.247,	15.407						Class:	N/A
inal meas	urements at 3							-	
Frequency	1	Pol		/15.247	Detector	Azimuth	Height	Comments	
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters		
3282.720	48.3	H	54.0	-5.7	AVG	244	1.0		/B 10 Hz;Peak
7385.000	47.2	V	54.0	-6.8	AVG	246	1.1		/B 10 Hz;Peak
9001.050	45.3	V	54.0	-8.7	AVG	133	1.0		/B 10 Hz;Peak
7380.540	59.6 29.5	V V	74.0	-14.4 15 5	PK AVG	246 95	1.1		/B 3 MHz;Peak
4959.970 1593.520	38.5 37.4	V	54.0 54.0	-15.5 -16.6	AVG	85 104	1.0 1.6		/B 10 Hz;Peak /B 10 Hz;Peak
1328.900	37.4	V	54.0 54.0	-10.0	AVG	351	1.0		/B 10 Hz;Peak /B 10 Hz;Peak
9001.420	53.1	V	74.0	-20.9	PK	133	1.9		/B 3 MHz;Peak
1495.130	32.3	Ĥ	54.0	-21.7	AVG	333	1.7		/B 10 Hz;Peak
3282.800	52.2	H	74.0	-21.8	PK	244	1.0		/B 3 MHz;Peak
1333.000	51.5	V	74.0	-22.5	PK	351	1.9		/B 3 MHz;Peak
1597.800	50.2	V	74.0	-23.8	РК	104	1.6		/B 3 MHz;Peak
4960.220	47.0	V	74.0	-27.0	PK	85	1.0	RB 1 MHz;\	/B 3 MHz;Peak
1497.830	44.7	Н	74.0	-29.3	PK	333	1.7	RB 1 MHz;\	/B 3 MHz;Peak
Run #4:	9 Scan at ~ 30	Cm from th	he product t	o identify p	otential signa	als (Peak ve	ersus avera	ge limit)	
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## EMC Test Data

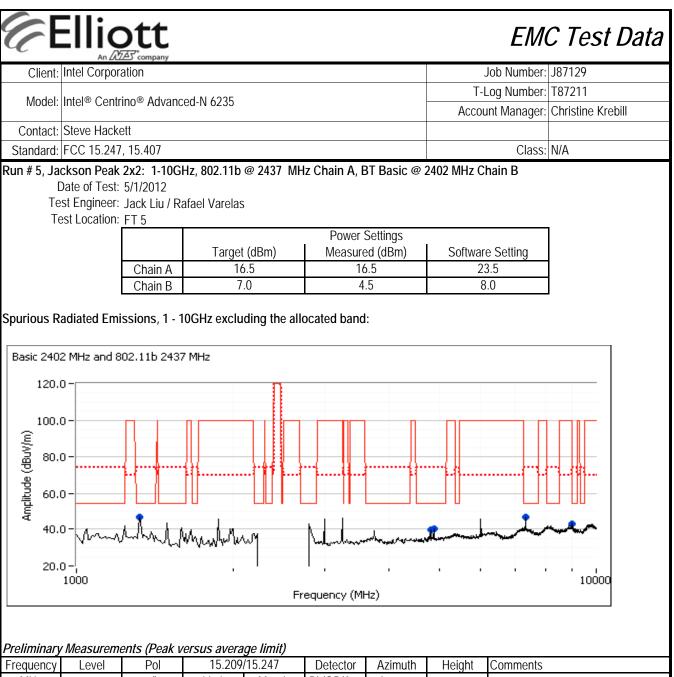
Client:	Intel Corporation	Job Number:	J87129
Madal	Intel <sup>®</sup> Centrino <sup>®</sup> Advanced-N 6235	T-Log Number:	T87211
wouer.		Account Manager:	Christine Krebill
Contact:	Steve Hackett		
Standard:	FCC 15.247, 15.407	Class:	N/A

#### Preliminary measurements at ~ 30cm, RB=1MHz, VB=100kHz

Frequency	Level	Pol	15.209	/15.247	Detector	Azimuth	Height	Comments	
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters		
2320.640	32.6	Н	54.0	-21.4	Peak	332	1.0		
2639.280	32.7	Н	54.0	-21.3	Peak	225	1.0		

#### Final measurements at 3m

Frequency	Level	Pol	15.209/15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
2320.070	40.3	Н	54.0	-13.7	AVG	117	1.0	POS; RB 1 MHz; VB: 10 Hz
2319.890	45.3	Н	74.0	-28.7	PK	117	1.0	POS; RB 1 MHz; VB: 3 MHz



Frequency	Level	Pol	15.209	/15.247	Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
1320.830	46.6	V	54.0	-7.4	Peak	314	1.6	
4868.330	40.1	V	54.0	-13.9	Peak	108	1.6	
4804.170	39.8	V	54.0	-14.2	Peak	229	1.9	
7310.830	46.4	V	54.0	-7.6	Peak	249	1.9	
9002.500	43.1	V	54.0	-10.9	Peak	146	1.0	

Client.	Intel Corporat	tion						Job Number: J87129
Model	Intel <sup>®</sup> Centrir	no® Advanc	ed-N 6235					Log Number: T87211
							Ассо	unt Manager: Christine Krebil
	Steve Hacket							
standard:	FCC 15.247,	15.407						Class: N/A
nal measi	urements at 3	łm						
requency	Level	Pol	15.209	/15.247	Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
311.700	44.9	V	54.0	-9.1	AVG	251	1.9	RB 1 MHz;VB 10 Hz;Pk
311.960	50.6	V	74.0	-23.4	PK	251	1.9	RB 1 MHz;VB 3 MHz;Pk
327.430	36.2	V	54.0	-17.8	AVG	318	1.7	RB 1 MHz; VB 10 Hz; Pk
328.960	51.0	V	74.0	-23.0	PK	318	1.7	RB 1 MHz;VB 3 MHz;Pk
373.900	40.3	V	54.0	-13.7	AVG	107	1.6	RB 1 MHz;VB 10 Hz;Pk
	40.5			-				
373.880	44.7	V	74.0	-29.3	PK	107	1.6	RB 1 MHz;VB 3 MHz;Pk
373.880 303.970	44.7 36.9	V V	74.0 54.0	-29.3 -17.1	AVG	227	1.9	RB 1 MHz;VB 10 Hz;Pk
873.880 803.970 804.340	44.7 36.9 43.3	V V V	74.0 54.0 74.0	-29.3 -17.1 -30.7	AVG PK	227 227	1.9 1.9	RB 1 MHz;VB 10 Hz;Pk RB 1 MHz;VB 3 MHz;Pk
873.880 803.970 804.340 900.980	44.7 36.9 43.3 43.4	V V V V	74.0 54.0 74.0 54.0	-29.3 -17.1 -30.7 -10.6	AVG PK AVG	227 227 145	1.9 1.9 1.0	RB 1 MHz;VB 10 Hz;Pk RB 1 MHz;VB 3 MHz;Pk RB 1 MHz;VB 10 Hz;Pk
373.880 803.970 804.340 000.980 000.940 urious R	44.7 36.9 43.3	V V V V V sions, 2 - 3	74.0 54.0 74.0 54.0 74.0 8GHz	-29.3 -17.1 -30.7 -10.6 -24.8	AVG PK AVG PK	227 227 145 145	1.9 1.9 1.0 1.0	RB 1 MHz;VB 10 Hz;Pk RB 1 MHz;VB 3 MHz;Pk RB 1 MHz;VB 10 Hz;Pk RB 1 MHz;VB 3 MHz;Pk
4873.880 4803.970 4804.340 2000.980 2000.9400.940 2000.940 2000.940 2000.940 2000.940 2000.940 2000.94	$ \begin{array}{c}     44.7 \\     36.9 \\     43.3 \\     43.4 \\     49.2 \\   \end{array} $ adiated Emis of Scan at ~ 30 $ \begin{array}{c}     0 \\     0 \\     0 \\     0 \\     0 \\     0 \\   \end{array} $	V V V V V sions, 2 - 3	74.0 54.0 74.0 54.0 74.0 BGHz he product to	-29.3 -17.1 -30.7 -10.6 -24.8	AVG PK AVG PK	227 227 145 145	1.9 1.9 1.0 1.0 rsus avera	RB 1 MHz;VB 10 Hz;Pk RB 1 MHz;VB 3 MHz;Pk RB 1 MHz;VB 10 Hz;Pk RB 1 MHz;VB 3 MHz;Pk

#### **Elliott** EMC Test Data Client: Intel Corporation Job Number: J87129 T-Log Number: T87211 Model: Intel<sup>®</sup> Centrino<sup>®</sup> Advanced-N 6235 Account Manager: Christine Krebill Contact: Steve Hackett Standard: FCC 15.247, 15.407 Class: N/A Preliminary measurements at ~ 30cm, RB=1MHz, VB=100kHz Frequency Level Pol 15.209/15.247 Detector Azimuth Height Comments MHz dBµV/m Margin Pk/QP/Avg v/h Limit degrees meters 2482.970 33.6 Н 54.0 -20.4 Peak 190 1.0 2523.050 33.9 Н 54.0 -20.1 Peak 225 1.0 2563.130 37.5 Η 54.0 -16.5 Peak 216 1.0 Final measurements at 3m 15.209/15.247 Frequency Pol Detector Azimuth Level Height Comments MHz v/h Limit Margin Pk/QP/Avg degrees meters dBuV/m Run # 6, Jackson Peak 2x2: 1-10GHz, 802.11b @ 2412 MHz Chain A, BT Basic @ 2440 MHz Chain B Date of Test: 5/1/2012 Test Engineer: Rafael Varelas Test Location: FT3 **Power Settings** Target (dBm) Measured (dBm) Software Setting 16.5 16.5 23.5 Chain A 7.0 4.9 8.0 Chain B Spurious Radiated Emissions, 1 - 10GHz excluding the allocated band: Basic 2440 MHz and 802.11b 2412 MHz 120.0 100.0 Amplitude (dBuV/m) 80.0 60.0 And Mushing 40.0 20.0-10000 1000 Frequency (MHz)

## EMC Test Data

Client:	Intel Corporation	Job Number:	J87129
Madal	Intel <sup>®</sup> Centrino <sup>®</sup> Advanced-N 6235	T-Log Number:	T87211
WOUEI.		Account Manager:	Christine Krebill
Contact:	Steve Hackett		
Standard:	FCC 15.247, 15.407	Class:	N/A

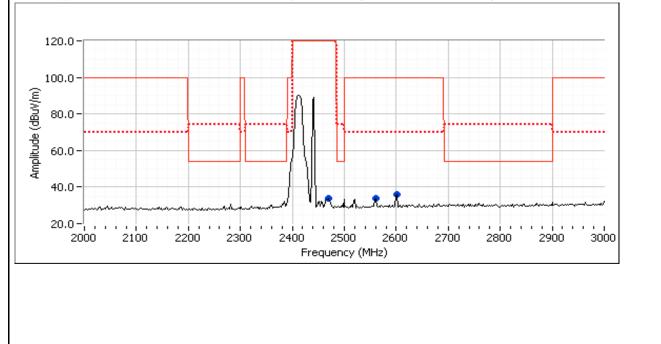
#### Preliminary Measurements (Peak versus average limit)

				9				
Frequency	Level	Pol	15.209/15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
1328.930	46.0	V	54.0	-8.0	Peak	313	1.6	
4823.960	42.0	V	54.0	-12.0	Peak	120	1.6	
7234.010	44.3	V	54.0	-9.7	Peak	234	1.6	
9000.330	44.6	V	54.0	-9.4	Peak	186	1.0	

#### Final measurements at 3m

Frequency	Level	Pol	15.209/	/15.247	Detector	Azimuth	Height	Comments	
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters		
9001.040	42.5	V	54.0	-11.5	AVG	185	1.0	RB 1 MHz;VB 10 Hz;Pk	
9001.070	49.4	V	74.0	-24.6	PK	185	1.0	RB 1 MHz;VB 3 MHz;Pk	
4823.970	40.7	V	54.0	-13.3	AVG	120	1.7	RB 1 MHz;VB 10 Hz;Pk	
4823.870	44.9	V	74.0	-29.1	PK	120	1.7	RB 1 MHz;VB 3 MHz;Pk	
1330.730	35.6	V	54.0	-18.4	AVG	312	1.9	RB 1 MHz;VB 10 Hz;Pk	
1329.600	54.4	V	74.0	-19.6	PK	312	1.9	RB 1 MHz;VB 3 MHz;Pk	

### Spurious Radiated Emissions, 2 - 3GHz



#### **Elliott** EMC Test Data Client: Intel Corporation Job Number: J87129 T-Log Number: T87211 Model: Intel<sup>®</sup> Centrino<sup>®</sup> Advanced-N 6235 Account Manager: Christine Krebill Contact: Steve Hackett Standard: FCC 15.247, 15.407 Class: N/A Preliminary measurements at ~ 30cm, RB=1MHz, VB=100kHz Frequency Level Pol 15.209/15.247 Detector Azimuth Height Comments MHz Margin Pk/QP/Avg dBµV/m v/h Limit degrees meters 2468.940 34.0 Н 54.0 -20.0 Peak 197 1.0 2561.120 34.0 Н 54.0 -20.0 Peak 227 1.0 2601.200 36.0 Η 54.0 -18.0 Peak 219 1.0 Final measurements at 3m Frequency 15.209/15.247 Level Pol Detector Azimuth Height Comments MHz dBµV/m v/h Limit Margin Pk/QP/Avg degrees meters Run # 7, Jackson Peak 2x2: 1-10GHz, 802.11b @ 2462 MHz Chain A, BT Basic @ 2440 MHz Chain B Date of Test: 5/1/2012 Test Engineer: Rafael Varelas Test Location: FT3 Power Settings Target (dBm) Measured (dBm) Software Setting 16.5 16.5 23.5 Chain A Chain B 7.0 4.9 8.0 Spurious Radiated Emissions, 1 - 10GHz excluding the allocated band: Basic 2440 MHz and 802.11b 2462 MHz 120.0 100.0 Amplitude (dBuV/m) 80.0 60.0 un hun Manne 40.0 20.0-10000 1000 Frequency (MHz)

## EMC Test Data

Client:	Intel Corporation	Job Number:	J87129
Model	Intel <sup>®</sup> Centrino <sup>®</sup> Advanced-N 6235	T-Log Number:	T87211
MOUEI.		Account Manager:	Christine Krebill
Contact:	Steve Hackett		
Standard:	FCC 15.247, 15.407	Class:	N/A

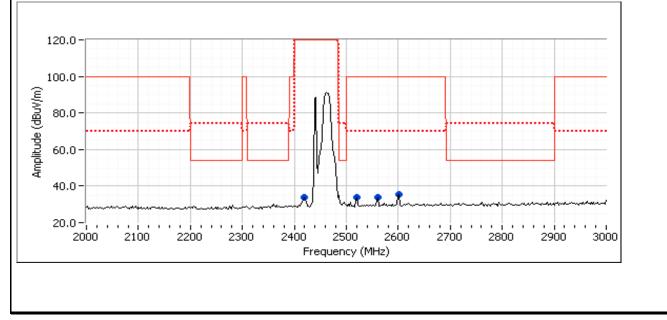
#### Preliminary Measurements (Peak versus average limit)

Frequency	Level	Pol	15.209	15.209/15.247		Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
1320.830	44.0	V	54.0	-10.0	Peak	302	1.9	
3731.700	44.6	Н	54.0	-9.4	Peak	130	1.0	
4923.880	40.7	V	54.0	-13.3	Peak	105	1.3	
7386.150	45.8	V	54.0	-8.2	Peak	233	1.6	

#### Final measurements at 3m

Frequency	Level	Pol	15.209	/15.247	Detector	Azimuth	Height	Comments		
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters			
7386.620	44.1	V	54.0	-9.9	AVG	238	1.0	RB 1 MHz;VB 10 Hz;Pk		
7386.850	49.9	V	74.0	-24.1	PK	238	1.0	RB 1 MHz;VB 3 MHz;Pk		
1326.830	30.7	V	54.0	-23.3	AVG	272	2.0	RB 1 MHz;VB 10 Hz;Pk		
1327.300	49.1	V	74.0	-24.9	PK	272	2.0	RB 1 MHz;VB 3 MHz;Pk		
3750.700	29.1	Н	54.0	-24.9	AVG	124	1.0	RB 1 MHz;VB 10 Hz;Pk		
3750.300	49.9	Н	74.0	-24.1	PK	124	1.0	RB 1 MHz;VB 3 MHz;Pk		
4923.920	39.5	V	54.0	-14.5	AVG	78	1.0	RB 1 MHz;VB 10 Hz;Pk		
4923.830	44.1	V	74.0	-29.9	PK	78	1.0	RB 1 MHz;VB 3 MHz;Pk		
1										

Spurious Radiated Emissions, 2 - 3GHz



#### **Elliott** EMC Test Data Client: Intel Corporation Job Number: J87129 T-Log Number: T87211 Model: Intel<sup>®</sup> Centrino<sup>®</sup> Advanced-N 6235 Account Manager: Christine Krebill Contact: Steve Hackett Standard: FCC 15.247, 15.407 Class: N/A Preliminary measurements at ~ 30cm, RB=1MHz, VB=100kHz Frequency Level Pol 15.209/15.247 Detector Azimuth Height Comments MHz dBµV/m Pk/QP/Avg v/h Limit Margin degrees meters 2418.840 33.9 Н 54.0 -20.1 Peak 217 1.0 2521.040 34.0 Н 54.0 -20.0 Peak 218 1.0 2561.120 34.0 Η 54.0 -20.0 Peak 220 1.0 2601.200 35.4 Η 54.0 -18.6 1.0 Peak 215 Final measurements at 3m 15.209/15.247 Frequency Level Pol Detector Azimuth Height Comments MHz dBµV/m v/h Limit Margin Pk/QP/Avg degrees meters Run # 8, Jackson Peak 2x2:1-10GHz, 802.11b @ 2437 MHz Chain A, BT Basic @ 2480 MHz Chain B Date of Test: 5/1/2012 Test Engineer: Rafael Varelas Test Location: FT3 Power Settings Target (dBm) Measured (dBm) Software Setting Chain A 16.5 16.5 23.5 Chain B 7.0 5.1 8.0 Spurious Radiated Emissions, 1 - 10GHz excluding the allocated band: Basic 2480 MHz and 802.11b 2437 MHz 120.0 100.0 Amplitude (dBuV/m) 80.0 60.0 www.h.Www.ww 40.0 20.0-10000 1000 Frequency (MHz)

## EMC Test Data

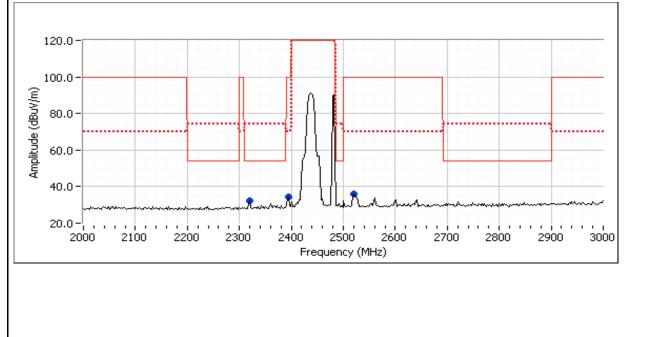
Client:	Intel Corporation	Job Number:	J87129
Modal	Intel <sup>®</sup> Centrino <sup>®</sup> Advanced-N 6235	T-Log Number:	T87211
WOUEI.		Account Manager:	Christine Krebill
Contact:	Steve Hackett		
Standard:	FCC 15.247, 15.407	Class:	N/A

#### Preliminary Measurements (Peak versus average limit)

i reminary	Micusul cint		cisus urciu	geminy				
Frequency	Level	Pol	15.209	/15.247	Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
1319.980	45.5	V	54.0	-8.5	Peak	313	1.6	
4873.940	39.4	V	54.0	-14.6	Peak	152	1.3	
7310.210	46.4	V	54.0	-7.6	Peak	241	1.9	
Final measu	urements at	3m						
Frequency	Level	Pol	15.209	/15.247	Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	

MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
7310.140	45.1	V	54.0	-8.9	AVG	234	1.6	RB 1 MHz;VB 10 Hz;Pk
7311.880	50.6	V	74.0	-23.4	PK	234	1.6	RB 1 MHz;VB 3 MHz;Pk
4873.940	37.9	V	54.0	-16.1	AVG	169	1.5	RB 1 MHz;VB 10 Hz;Pk
4873.820	43.8	V	74.0	-30.2	PK	169	1.5	RB 1 MHz;VB 3 MHz;Pk
1331.850	34.7	V	54.0	-19.3	AVG	340	1.5	RB 1 MHz;VB 10 Hz;Pk
1330.910	52.1	V	74.0	-21.9	PK	340	1.5	RB 1 MHz;VB 3 MHz;Pk

### Spurious Radiated Emissions, 2 - 3GHz



#### © Elliott EMC Test Data Client: Intel Corporation Job Number: J87129 T-Log Number: T87211 Model: Intel<sup>®</sup> Centrino<sup>®</sup> Advanced-N 6235 Account Manager: Christine Krebill Contact: Steve Hackett Standard: FCC 15.247, 15.407 Class: N/A Preliminary measurements at ~ 30cm, RB=1MHz, VB=100kHz Frequency Level Pol 15.209/15.247 Detector Azimuth Height Comments MHz dBµV/m Pk/QP/Avg v/h Limit Margin degrees meters 2320.640 32.4 V 54.0 -21.6 Peak 80 1.3 V 2394.790 34.6 54.0 -19.4 Peak 272 1.0 2521.040 36.1 Н 54.0 -17.9 Peak 214 1.0 Final measurements at 3m 15.209/15.247 Frequency Level Pol Detector Azimuth Height Comments Margin MHz dBµV/m v/h Limit Pk/QP/Avg degrees meters 2320.050 39.9 V 54.0 -14.1 AVG 91 1.0 POS; RB 1 MHz; VB: 10 Hz 2319.700 46.4 V 74.0 -27.6 ΡK 91 1.0 POS: RB 1 MHz: VB: 3 MHz Run # 9, Jackson Peak 2x2: 1-10GHz, 802.11b @ 2462 MHz Chain A, EDR Mode @ 2480 MHz Chain B Date of Test: 5/1/2012 Test Engineer: Rafael Varelas Test Location: FT3 Power Settings Target (dBm) Measured (dBm) Software Setting Chain A 16.5 16.5 23.5 Chain B 7.0 2.3 8.0 Spurious Radiated Emissions, 1 - 10GHz excluding the allocated band: EDR 2480 MHz and 802.11b 2462 MHz 120.0 100.0

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Amplitude (dBuV/m)

80.0

60.0

40.0

20.0-

1000

Frequency (MHz)

10000

## EMC Test Data

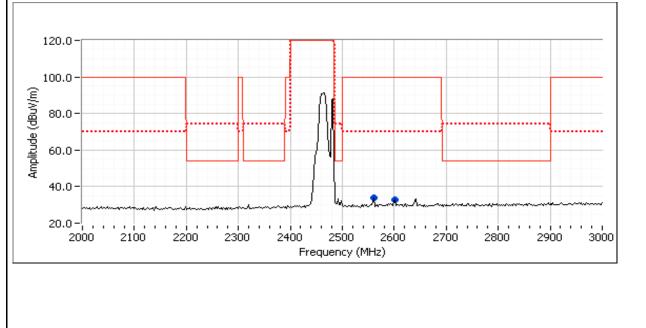
Client:	Intel Corporation	Job Number:	J87129
Madalı	Intel® Contrine® Advanced N (225	T-Log Number:	T87211
wodel:	Intel <sup>®</sup> Centrino <sup>®</sup> Advanced-N 6235	Account Manager:	Christine Krebill
Contact:	Steve Hackett		
Standard:	FCC 15.247, 15.407	Class:	N/A

#### Preliminary Measurements (Peak versus average limit)

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Frequency	Level	Pol	15.209	/15.247	Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
1328.210	43.8	V	54.0	-10.2	Peak	296	1.9	
4923.880	41.1	V	54.0	-12.9	Peak	225	1.3	
7387.210	46.5	V	54.0	-7.5	Peak	235	1.6	
Final meas	urements at	3m						
Frequency	Level	Pol	15.209	/15.247	Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	

MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
7386.610	46.0	V	54.0	-8.0	AVG	256	1.6	RB 1 MHz;VB 10 Hz;Pk
7383.680	51.1	V	74.0	-22.9	PK	256	1.6	RB 1 MHz;VB 3 MHz;Pk
1328.610	30.5	V	54.0	-23.5	AVG	269	1.6	RB 1 MHz;VB 10 Hz;Pk
1330.610	45.5	V	74.0	-28.5	PK	269	1.6	RB 1 MHz;VB 3 MHz;Pk
4923.860	40.2	V	54.0	-13.8	AVG	237	1.7	RB 1 MHz;VB 10 Hz;Pk
4923.950	44.7	V	74.0	-29.3	PK	237	1.7	RB 1 MHz;VB 3 MHz;Pk

### Spurious Radiated Emissions, 2 - 3GHz





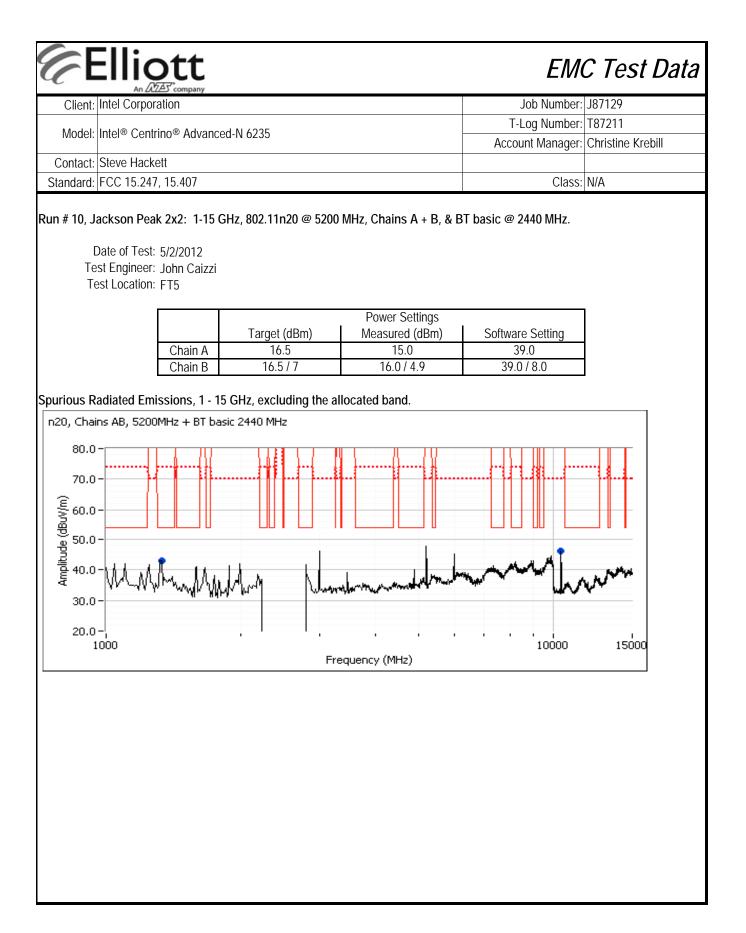
Client:	Intel Corporation	Job Number:	J87129
Madal	Intel <sup>®</sup> Centrino <sup>®</sup> Advanced-N 6235	T-Log Number:	T87211
wouer.		Account Manager:	Christine Krebill
Contact:	Steve Hackett		
Standard:	FCC 15.247, 15.407	Class:	N/A

#### Preliminary measurements at ~ 30cm, RB=1MHz, VB=100kHz

, reminer j	ineas an enne							
Frequency	Level	Pol	15.209	/15.247	Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
2561.120	33.6	Н	54.0	-20.4	Peak	214	1.0	
2601.200	32.7	Н	54.0	-21.3	Peak	215	1.0	

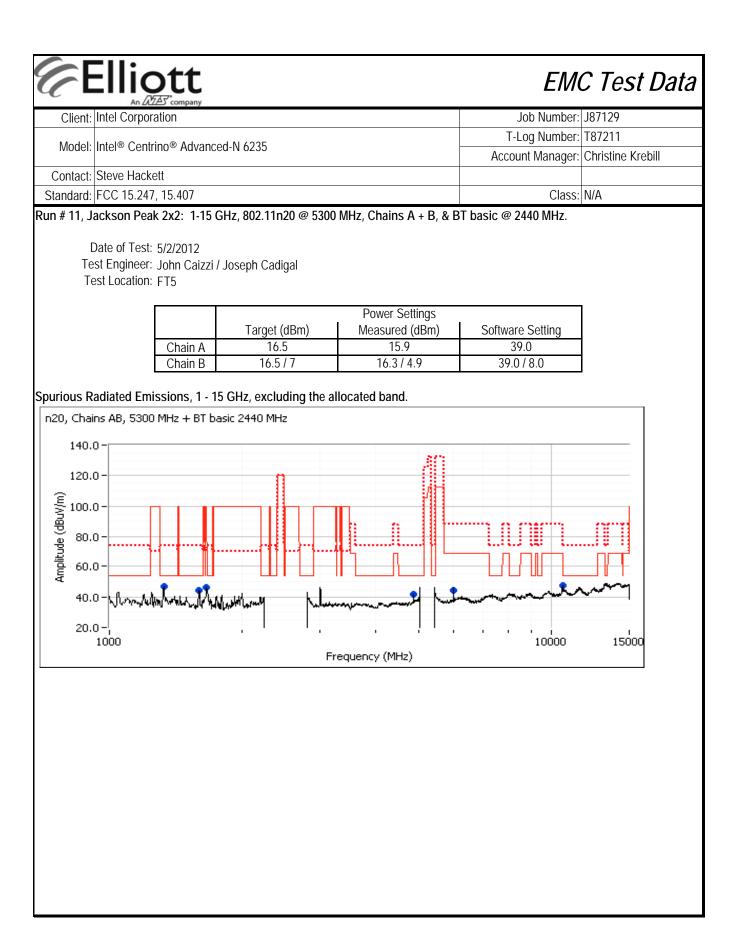
#### Final measurements at 3m

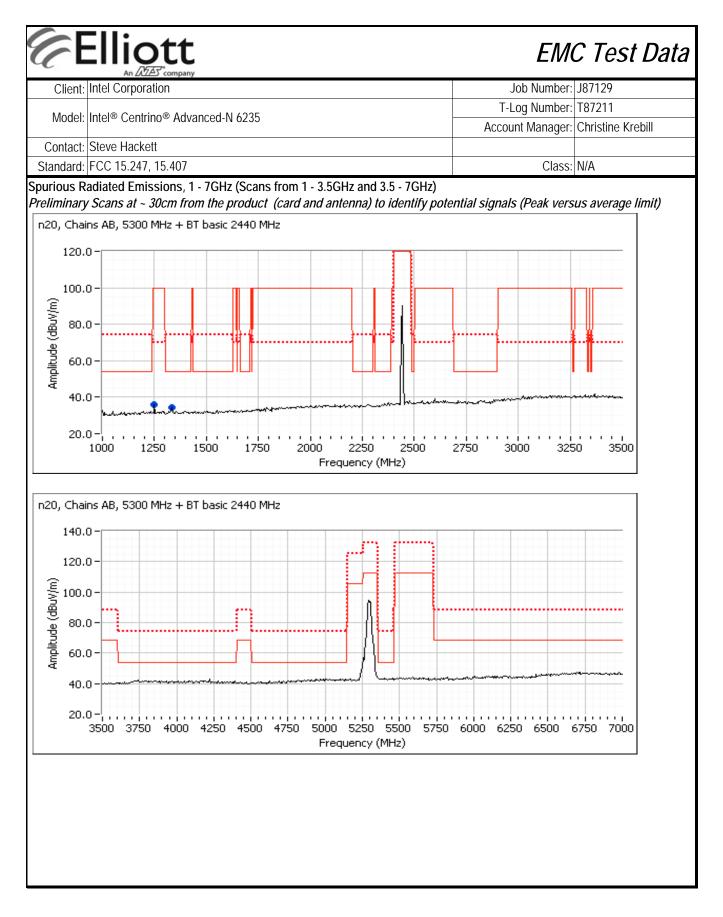
Frequency	Level	Pol	15.209	/15.247	Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	



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Hitel Corporation       Job Number:       J87129         Intel® Centrino® Advanced-N 6235       T-Log Number:       T87211         Account Manager:       Christine Krebit         Intel® Centrino® Advanced-N 6235       Class:         Intel® Centrino® Advanced-N 6235       N/A         Intel® Conservements (Peak versus average limit)       Class:         Iz       ABµV/m       V/h       Limit       Margin         PK/QP/Avg       degrees       meters       Image: Painters         Iz       ABµV/m       V/h       Limit       Margin       PK/QP/Avg       degre
Intel® Centrino® Advanced-N 6235       Account Manager: Christine Krebil         Intact:       Steve Hackett       Class: N/A         dard:       FCC 15.247, 15.407       Class: N/A         iniary Measurements (Peak versus average limit)       ency       Level       Pol       15.209/15.247       Detector       Azimuth       Height       Comments         iz       dBµV/m       v/h       Limit       Margin       Pk/QP/Avg       degrees       meters
Account Manager: Christine Krebil         htact: Steve Hackett       Class: N/A         dard: FCC 15.247, 15.407       Class: N/A         ninary Measurements (Peak versus average limit)       Class: N/A         ency       Level       Pol       15.209/15.247       Detector       Azimuth       Height       Comments         Iz       dBµV/m       v/h       Limit       Margin       Pk/QP/Avg       degrees       meters
dard:       FCC 15.247, 15.407       Class:       N/A         minary Measurements (Peak versus average limit)       ency       Level       Pol       15.209/15.247       Detector       Azimuth       Height       Comments         lz       dBµV/m       v/h       Limit       Margin       Pk/QP/Avg       degrees       meters
minary Measurements (Peak versus average limit)         ency       Level       Pol       15.209/15.247       Detector       Azimuth       Height       Comments         Az       dBμV/m       v/h       Limit       Margin       Pk/QP/Avg       degrees       meters         0.00       46.1       V       54.0       -7.9       Peak       65       1.0       Note 2         0.00       42.9       V       54.0       -11.1       Peak       172       1.0       Note 1         measurements at 3m       measurements at 3m       measurements       dBμV/m       v/h       Limit       Margin       Pk/QP/Avg       degrees       meters         ency       Level       Pol       15.209/15.247       Detector       Azimuth       Height       Comments         Iz       dBμV/m       v/h       Limit       Margin       Pk/QP/Avg       degrees       meters       Image: second comments         e1       Not an intermodulation product.       Signal present regardless of band, channel, & mode.       Image: second comments       Image: second comments
ency       Level       Pol       15.209/15.247       Detector       Azimuth       Height       Comments         dz       dBµV/m       v/h       Limit       Margin       Pk/QP/Avg       degrees       meters
ency       Level       Pol       15.209/15.247       Detector       Azimuth       Height       Comments         dz       dBµV/m       v/h       Limit       Margin       Pk/QP/Avg       degrees       meters
Iz       dBµV/m       v/h       Limit       Margin       Pk/QP/Avg       degrees       meters         0.000       46.1       V       54.0       -7.9       Peak       65       1.0       Note 2         000       42.9       V       54.0       -11.1       Peak       172       1.0       Note 1         measurements at 3m       ency       Level       Pol       15.209/15.247       Detector       Azimuth       Height       Comments         Iz       dBµV/m       v/h       Limit       Margin       Pk/QP/Avg       degrees       meters         e1       Not an intermodulation product.       Signal present regardless of band, channel, & mode.       Mode.
2.000         46.1         V         54.0         -7.9         Peak         65         1.0         Note 2           000         42.9         V         54.0         -11.1         Peak         172         1.0         Note 1           measurements at 3m         ency         Level         Pol         15.209/15.247         Detector         Azimuth         Height         Comments           Iz         dBμV/m         v/h         Limit         Margin         Pk/QP/Avg         degrees         meters           ency         Level         Pol         15.209/15.247         Detector         Azimuth         Height         Comments           dBμV/m         v/h         Limit         Margin         Pk/QP/Avg         degrees         meters           e1         Not an intermodulation product.         Signal present regardless of band, channel, & mode.         Mode.
000       42.9       V       54.0       -11.1       Peak       172       1.0       Note 1         measurements at 3m       ency       Level       Pol       15.209/15.247       Detector       Azimuth       Height       Comments         Iz       dBµV/m       v/h       Limit       Margin       Pk/QP/Avg       degrees       meters         ency       Level       Pol       15.209/15.247       Detector       Azimuth       Height       Comments         Iz       dBµV/m       v/h       Limit       Margin       Pk/QP/Avg       degrees       meters         e 1       Not an intermodulation product.       Signal present regardless of band, channel, & mode.       Mode.
measurements at 3m         ency       Level       Pol       15.209/15.247       Detector       Azimuth       Height       Comments         Iz       dBμV/m       v/h       Limit       Margin       Pk/QP/Avg       degrees       meters         e<1
ency       Level       Pol       15.209/15.247       Detector       Azimuth       Height       Comments         Iz       dBµV/m       v/h       Limit       Margin       Pk/QP/Avg       degrees       meters         Iz       or the state       Imit       Margin       Pk/QP/Avg       degrees       meters         Imit       Imit       Margin       Pk/QP/Avg       degrees       meters       Imit         Imit       Imit       Imit       Margin       Pk/QP/Avg       degrees       meters       Imit         Imit       Imit       Imit       Imit       Margin       Pk/QP/Avg       degrees       Imit         Imit       Imit       Imit       Imit       Imit       Imit       Imit       Imit         Imit       Imit
ency       Level       Pol       15.209/15.247       Detector       Azimuth       Height       Comments         Iz       dBµV/m       v/h       Limit       Margin       Pk/QP/Avg       degrees       meters         Iz       or the state       Imit       Margin       Pk/QP/Avg       degrees       meters         Imit       Imit       Margin       Pk/QP/Avg       degrees       meters       Imit         Imit       Imit       Imit       Margin       Pk/QP/Avg       degrees       meters       Imit         Imit       Imit       Imit       Imit       Margin       Pk/QP/Avg       degrees       Imit         Imit       Imit       Imit       Imit       Imit       Imit       Imit       Imit         Imit       Imit
Iz     dBµV/m     v/h     Limit     Margin     Pk/QP/Avg     degrees     meters       e 1     Not an intermodulation product.     Signal present regardless of band, channel, & mode.

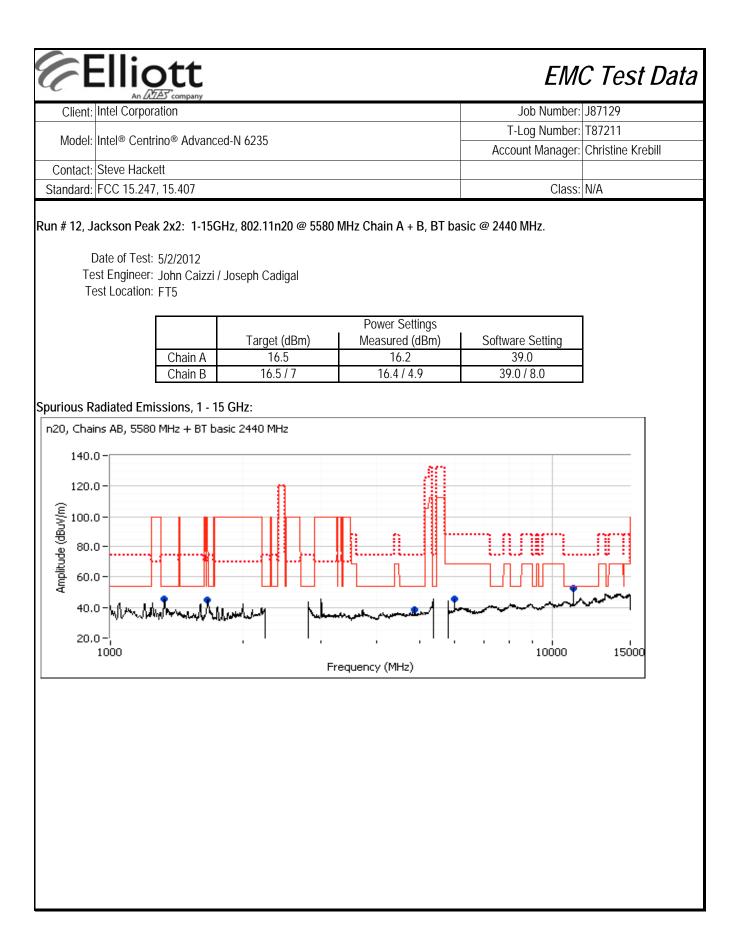


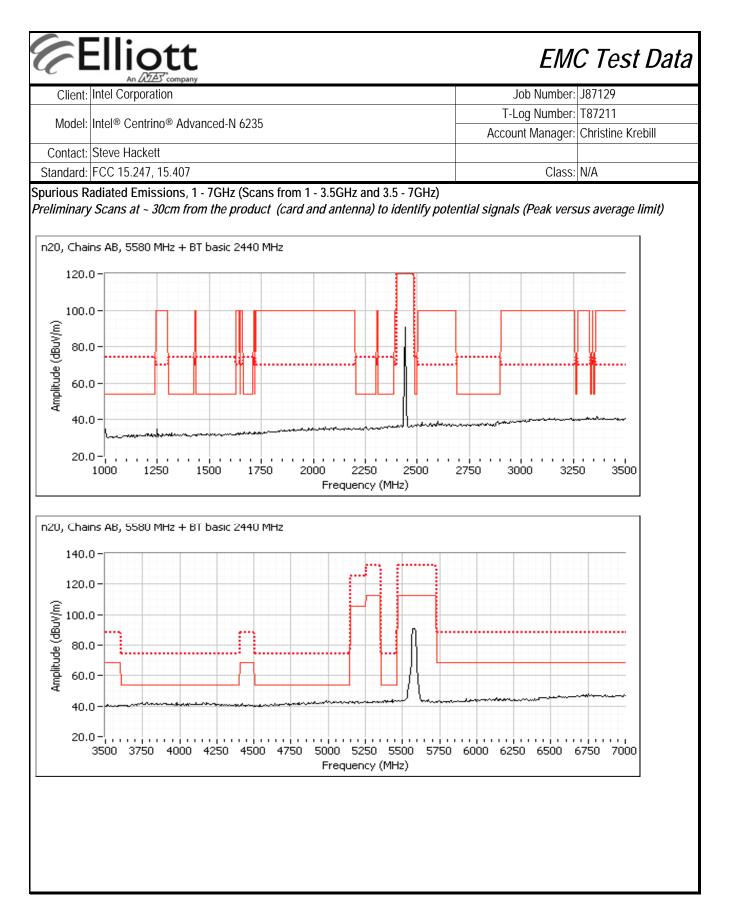


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Client:	Intel Corpora	ation						Job Number:	J87129
Madal	Intol® Contri	no® Advor-	ad N (DDE				T-	Log Number:	T87211
iviodel:	Intel <sup>®</sup> Centri	no. Advanc	eu-in 6235				Acco	unt Manager:	Christine Krebill
Contact:	Steve Hacke	ett							
andard:	FCC 15.247,	15.407						Class:	N/A
l <mark>iminary</mark> quency MHz	r measureme Level dBμV/m	ents at ~ 30c Pol v/h		<b>Iz, VB=100k</b> /15.247 Margin	KHz Detector Pk/QP/Avg	Azimuth degrees	Height meters	Comments	
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Client:	Intel Corpora	ation						Job Number:	J87129
Marte							T-	Log Number:	T87211
Wodel:	Intel <sup>®</sup> Centri	no <sup>®</sup> Advanc	ed-N 6235				Ассо	unt Manager:	Christine Krebill
Contact:	Steve Hacke	ett						-	
Standard:	FCC 15.247	, 15.407						Class:	N/A
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e <i>liminary</i> requency MHz 2601.670	ooo <i>Measureme</i> Level	9000 ents (Peak v Pol v/h V	10000 <i>rersus avera</i> 15.209 Limit <i>54.0</i>	1100 Fr ge limit) /15.247 Margin - <i>12.2</i>	00 12 equency (MH Detector Pk/QP/Avg <i>Peak</i>	Azimuth degrees 151	13000 Height	14000	15000
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e <i>liminary</i> requency MHz 0601.670 328.340 592.340	2000 2 <i>Measureme</i> Level dBμV/m 41.8 46.7 44.0	9000 ents (Peak v Pol v/h V V V	10000 versus avera 15.209 Limit 54.0 54.0 54.0	1100 Fr ge limit) /15.247 Margin -12.2 -7.3 -10.0	Detector Pk/QP/Avg Peak Peak Peak	000 z) Azimuth degrees 151 163 194	13000 Height meters 1.6 1.0 1.0	Comments	15000
eliminary equency MHz 0601.670 328.340 592.340 658.720	<i>Measureme</i> Level dBμV/m 41.8 46.7 44.0 45.9	9000 ents (Peak v Pol v/h V V V V V	10000 versus avera 15.209 Limit 54.0 54.0 54.0 54.0	1100 Fr ge limit) /15.247 Margin -12.2 -7.3 -10.0 -8.1	Detector Pk/QP/Avg Peak Peak Peak Peak	Azimuth degrees 151 163 194 209	Height meters 1.6 1.0 1.0 1.0	Comments	15000
e <i>liminary</i> equency MHz 0601.670 328.340 592.340 658.720 001.410	<i>Measureme</i> Level dBμV/m 41.8 46.7 44.0 45.9 46.2	9000 ents (Peak v Pol v/h V V V V V V	10000 <i>versus avera</i> 15.209 Limit <i>54.0</i> 54.0 54.0 54.0 54.0 54.0	1100 Fr <u>ge limit)</u> /15.247 Margin -12.2 -7.3 -10.0 -8.1 -7.8	Detector Pk/QP/Avg Peak Peak Peak Peak Peak Peak	Azimuth degrees 151 163 194 209 135	Height meters 1.6 1.0 1.0 1.0 1.0 1.0	Comments	15000
e <i>liminary</i> equency MHz 0601.670 328.340 592.340 658.720 001.410 880.110	<i>Measureme</i> Level dBμV/m 41.8 46.7 44.0 45.9 46.2 41.8	9000 ents (Peak v Pol V/h V V V V V V V V H	10000 versus avera 15.209 Limit 54.0 54.0 54.0 54.0	1100 Fr ge limit) /15.247 Margin -12.2 -7.3 -10.0 -8.1	Detector Pk/QP/Avg Peak Peak Peak Peak	Azimuth degrees 151 163 194 209	Height meters 1.6 1.0 1.0 1.0	Comments	15000
e <i>liminary</i> equency MHz 2601.670 328.340 592.340 658.720 001.410 880.110 nal measu	<i>Measureme</i> Level dBμV/m 41.8 46.7 44.0 45.9 46.2 41.8 urements at	9000 ents (Peak v Pol v/h V V V V V V V V S M	10000 <i>Tersus avera</i> 15.209 Limit 54.0 54.0 54.0 54.0 54.0 54.0 54.0	1100 Fr ge limit) /15.247 Margin -12.2 -7.3 -10.0 -8.1 -7.8 -7.8 -12.2	Detector Pk/QP/Avg Peak Peak Peak Peak Peak Peak Peak Peak	Azimuth degrees 151 163 194 209 135 159	Height meters 1.6 1.0 1.0 1.0 1.0 1.0 1.0	14000  Comments  Note 1	15000
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eliminary requency MHz 2601.670 328.340 592.340 658.720 001.410 880.110 nal measu requency MHz 879.980 0601.330	<i>Measureme</i> Level dBμV/m <i>41.8</i> 46.7 44.0 45.9 46.2 41.8 urements at Level dBμV/m 38.0 37.1	9000 ents (Peak v Pol v/h V V V V V V S H 3m Pol v/h	10000 versus avera 15.209 Limit 54.0 54.0 54.0 54.0 54.0 54.0 54.0 15.209 Limit	1100 Fr ge limit) /15.247 Margin -12.2 -7.3 -10.0 -8.1 -7.8 -12.2 /15.247 Margin -16.0 -16.9	Detector Pk/QP/Avg Peak Peak Peak Peak Peak Peak Peak Peak	Azimuth degrees <i>151</i> 163 194 209 135 159 Azimuth degrees	13000 Height meters 1.6 1.0 1.0 1.0 1.0 1.0 1.0 Height meters	Comments Note 1 Comments RB 1 MHz;V RB 1 MHz;V	15000 //////////////////////////////////
Eliminary equency MHz 601.670 328.340 592.340 558.720 001.410 380.110 al measu equency MHz 879.980 601.330 328.330	Measureme           Level           dBμV/m           41.8           46.7           44.0           45.9           46.2           41.8           urements at           Level           dBμV/m           38.0           37.1           33.4	9000 ents (Peak v Pol V/h V V V V V V V N Sm Pol v/h H V	10000 versus avera 15.209 Limit 54.0 54.0 54.0 54.0 54.0 54.0 15.209 Limit 54.0 54.0 54.0 54.0 54.0	1100 Fr ge limit) /15.247 Margin -7.3 -10.0 -8.1 -7.8 -12.2 /15.247 Margin -16.0 -16.9 -20.6	Detector Pk/QP/Avg Peak Peak Peak Peak Peak Peak Peak Peak	Azimuth degrees 151 163 194 209 135 159 Azimuth degrees 158 233 160	13000 Height meters <i>1.6</i> 1.0 1.0 1.0 1.0 1.0 1.0 Height meters 1.0 1.5	Comments Note 1 Comments RB 1 MHz;V RB 1 MHz;V RB 1 MHz;V	15000 /B 10 Hz;Peak /B 10 Hz;Peak /B 10 Hz;Peak
Eliminary equency MHz 601.670 628.340 692.340 558.720 001.410 80.110 al measu equency MHz 879.980 601.330 528.330 559.770	<i>Measureme</i> Level dBμV/m <i>41.8</i> 46.7 44.0 45.9 46.2 41.8 urements at Level dBμV/m 38.0 37.1	9000 ents (Peak v Pol v/h V V V V V V V 3m Pol v/h H V V V	10000 <i>versus avera</i> 15.209 Limit 54.0 54.0 54.0 54.0 54.0 15.209 Limit 54.0 5	1100 Fr ge limit) /15.247 Margin -12.2 -7.3 -10.0 -8.1 -7.8 -12.2 /15.247 Margin -16.0 -16.9	Detector Pk/QP/Avg Peak Peak Peak Peak Peak Peak Peak Peak	Azimuth degrees 151 163 194 209 135 159 Azimuth degrees 158 233	13000 Height meters <i>1.6</i> 1.0 1.0 1.0 1.0 1.0 Height meters 1.0 1.5 1.0	Comments Note 1 Comments RB 1 MHz;V RB 1 MHz;V RB 1 MHz;V RB 1 MHz;V	15000 //////////////////////////////////
Eliminary equency MHz 601.670 628.340 558.720 001.410 80.110 al measu 601.330 601.330 601.330 59.770 60.030	<i>Measureme</i> Level dBμV/m 41.8 46.7 44.0 45.9 46.2 41.8 urements at Level dBμV/m 38.0 37.1 33.4 49.2	9000 ents (Peak v Pol v/h V V V V V V V S V H 3m Pol v/h H V V V V	10000 versus avera 15.209 Limit 54.0 54.0 54.0 54.0 54.0 15.209 Limit 54.0 54.0 54.0 0 54.0 70.0	1100 Fr ge limit) /15.247 Margin -7.3 -10.0 -8.1 -7.8 -12.2 /15.247 Margin -16.0 -16.9 -20.6 -20.8	Detector Pk/QP/Avg Peak Peak Peak Peak Peak Peak Peak Peak	Azimuth degrees 151 163 194 209 135 159 Azimuth degrees 158 233 160 210	13000 Height meters 1.6 1.0 1.0 1.0 1.0 1.0 1.0 Height meters 1.0 1.5 1.0 1.0	Comments Note 1 Comments Comments RB 1 MHz;V RB 1 MHz;V RB 1 MHz;V RB 1 MHz;V RB 1 MHz;V RB 1 MHz;V	15000 /B 10 Hz;Peak /B 10 Hz;Peak /B 10 Hz;Peak /B 10 Hz;Peak /B 3 MHz;Peak
Eliminary equency MHz 601.670 628.340 692.340 558.720 001.410 630.110 al measu equency MHz 601.330 601.330 659.770 660.030 693.310	Measureme           Level           dBμV/m           41.8           46.7           44.0           45.9           46.2           41.8           urements at           Level           dBμV/m           38.0           37.1           33.4           49.2           32.5	9000 ents (Peak v Pol V/h V V V V V V S H 3m Pol V/h H V V V V V V	10000 versus avera 15.209 Limit 54.0 54.0 54.0 54.0 54.0 15.209 Limit 54.0 54.	1100 Fr ge limit) /15.247 Margin -7.3 -7.3 -10.0 -8.1 -7.8 -12.2 /15.247 Margin -16.0 -16.9 -20.6 -20.8 -21.5	Detector Pk/QP/Avg Peak Peak Peak Peak Peak Peak Peak Peak	Azimuth degrees <i>151</i> 163 194 209 135 159 Azimuth degrees 158 233 160 210 210	13000 Height neters 1.6 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.5 1.0 1.0 1.0 1.0 1.0	Comments Note 1 Comments RB 1 MHz;V RB 1 MHz;V	15000 /B 10 Hz;Peak /B 10 Hz;Peak /B 10 Hz;Peak /B 10 Hz;Peak /B 3 MHz;Peak /B 10 Hz;Peak
Eliminary equency MHz 601.670 328.340 328.340 358.720 001.410 880.110 al measu equency MHz 379.980 601.330 328.330 559.770 560.030 593.310 328.570	Measureme           Level           dBμV/m           41.8           46.7           44.0           45.9           46.2           41.8           urements at           Level           dBμV/m           38.0           37.1           33.4           49.2           32.5           31.6	9000 ents (Peak v Pol V/h V V V V V V S M S M Pol V/h H V V V V V V V V V	10000 versus avera 15.209 Limit 54.0 54.0 54.0 54.0 54.0 54.0 15.209 Limit 54.0 54.	1100 Fr ge limit) /15.247 Margin -7.3 -7.3 -10.0 -8.1 -7.8 -12.2 /15.247 Margin -16.0 -16.9 -20.6 -20.8 -21.5 -22.4	Detector Pk/QP/Avg Peak Peak Peak Peak Peak Peak Peak Peak	000 z) Azimuth degrees 151 163 194 209 135 159 135 159 Azimuth degrees 158 233 160 210 210 210 198	13000 Height meters <i>1.6</i> 1.0 1.0 1.0 1.0 1.0 1.0 1.5 1.0 1.0 1.0 1.0 1.0 1.0	Comments Note 1 Comments RB 1 MHz;V RB 1 MHz;V	15000 /B 10 Hz;Peak /B 10 Hz;Peak /B 10 Hz;Peak /B 10 Hz;Peak /B 10 Hz;Peak /B 10 Hz;Peak /B 10 Hz;Peak
Eliminary equency MHz 601.670 (28.340 (92.340) (58.720) (01.410) (80.110) (14.10) (80.110) (80.110) (80.110) (80.110) (91.330) (28.330) (59.770) (60.030) (93.310) (28.570) (500.120)	Measureme           Level           dBμV/m           41.8           46.7           44.0           45.9           46.2           41.8           urements at           Level           dBμV/m           38.0           37.1           33.4           49.2           32.5           31.6           51.1	9000 ents (Peak v Pol V/h V V V V V V V V H 3m Pol v/h H V V V V V V V V V V	10000 Persus avera 15.209 Limit 54.0 54.0 54.0 54.0 54.0 54.0 15.209 Limit 54.0 54.0 54.0 54.0 54.0 54.0 54.0 54.0 54.0 54.0 70.0 54.0 70.0 54.0 74.0 74.0	1100 Fr ge limit) /15.247 Margin -12.2 -7.3 -10.0 -8.1 -7.8 -12.2 /15.247 Margin -16.0 -16.9 -20.6 -20.8 -21.5 -22.4 -22.9	Detector Pk/QP/Avg Peak Peak Peak Peak Peak Peak Peak Peak	Azimuth degrees <i>151</i> 163 194 209 135 159 Azimuth degrees 158 233 160 210 210 210 198 160	13000 Height meters 1.6 1.0 1.0 1.0 1.0 1.0 1.0 1.5 1.0 1.5 1.0 1.0 1.0 1.0 1.0 1.0 1.0	Comments Note 1 Comments RB 1 MHz;V	15000 /B 10 Hz;Peak /B 10 Hz;Peak /B 10 Hz;Peak /B 10 Hz;Peak /B 3 MHz;Peak /B 10 Hz;Peak /B 10 Hz;Peak
eliminary equency MHz 0601.670 328.340 592.340 658.720 001.410 880.110 nal measu requency MHz 879.980	Measureme           Level           dBμV/m           41.8           46.7           44.0           45.9           46.2           41.8           urements at           Level           dBμV/m           38.0           37.1           33.4           49.2           32.5           31.6           51.1           50.5	9000 ents (Peak v Pol V/h V V V V V V V H 3m Pol V/h H H V V V V V V V V V V	10000 <i>versus avera</i> 15.209 Limit 54.0 54.0 54.0 54.0 15.209 Limit 54.0 54.0 54.0 54.0 54.0 54.0 54.0 54.0 54.0 54.0 70.0 54.0 74.0 74.0 74.0	1100 Fr ge limit) /15.247 Margin -12.2 -7.3 -10.0 -8.1 -7.8 -12.2 /15.247 Margin -16.0 -16.9 -20.6 -20.8 -20.6 -20.8 -21.5 -22.4 -22.9 -23.5	Detector Pk/QP/Avg Peak Peak Peak Peak Peak Peak Peak Peak	Azimuth degrees 151 163 194 209 135 159 Azimuth degrees 158 233 160 210 210 198 160 233	13000 Height meters 7.6 1.0 1.0 1.0 1.0 1.0 1.0 1.5 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0	Comments Note 1 Comments Comments RB 1 MHz;V RB 1 MHz;V	15000 /B 10 Hz;Peak /B 3 MHz;Peak

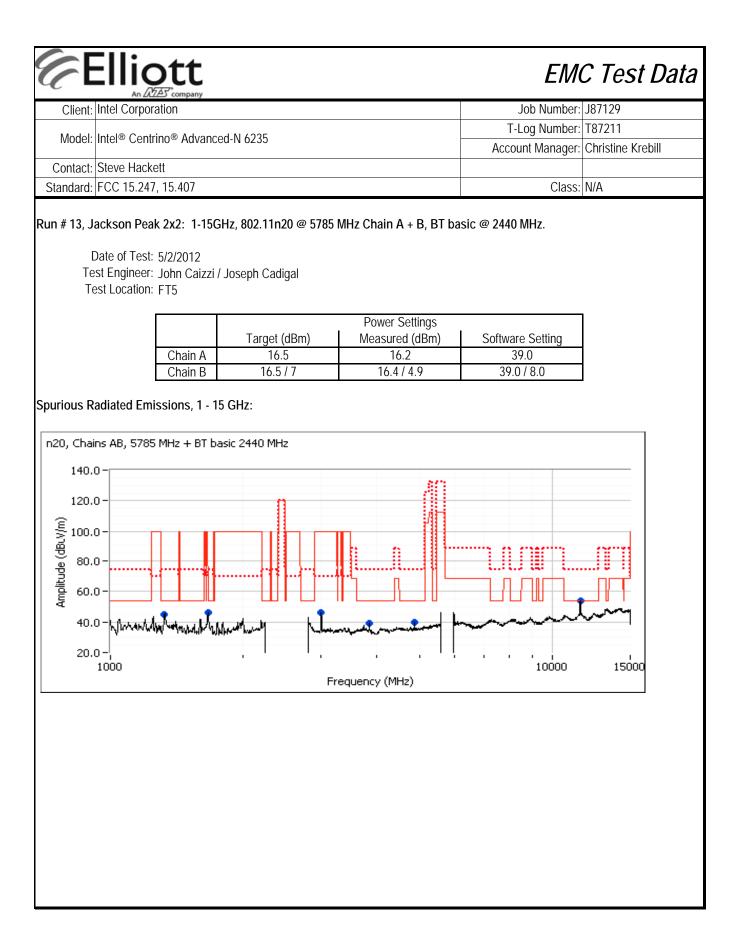


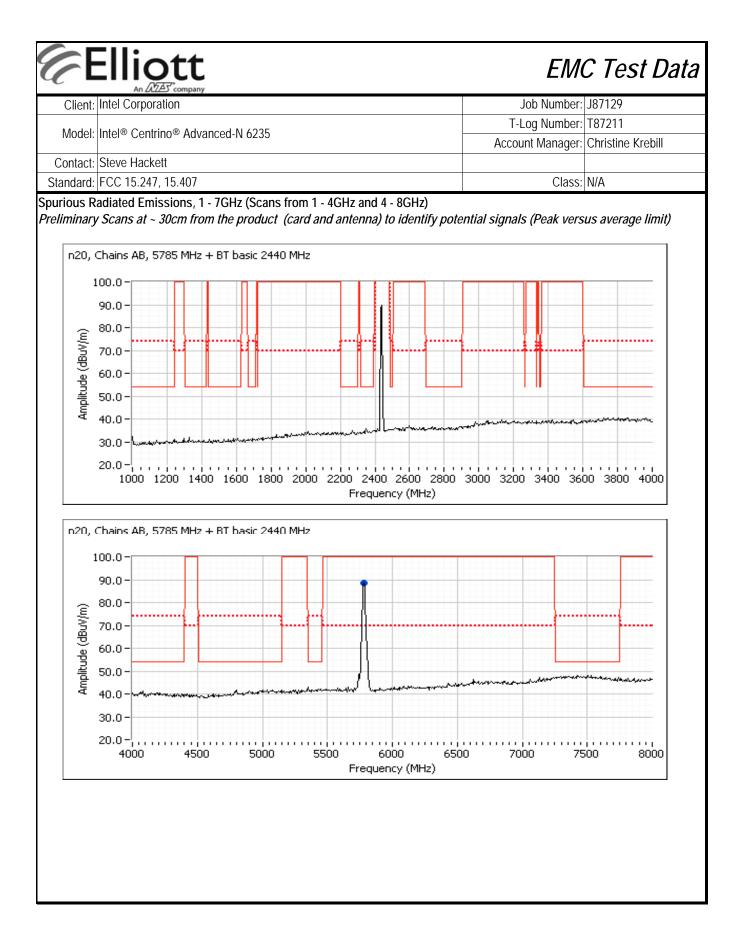


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<i>e</i>	An ATAS company

C	An AZ	A company							
Client:	Intel Corpora	ation						Job Number:	J87129
							T-I	Log Number:	T87211
wodel:	Intel <sup>®</sup> Centri	no <sup>®</sup> Advance	ed-IN 6235						Christine Krebill
Contact:	Steve Hacke	ett						-	
Standard:	FCC 15.247,	, 15.407						Class:	N/A
reliminary requency MHz	measureme Level dBµV/m	ents at ~ 30c Pol v/h		<b>Iz, VB=100k</b> /15.247 Margin	Hz Detector Pk/QP/Avg	Azimuth degrees	Height meters	Comments	
	dBµviiii								
	urements at				1				
requency	Level	Pol		/15.247	Detector	Azimuth	Height	Comments	
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters		

Client:	Intel Corpora	ntion						Job Number:	J87129
Model	Intel <sup>®</sup> Centri	no® Advanc	od N 6235				T-	Log Number:	T87211
wouer.	Intel® Centin	no® Auvand	eu-in 0255				Ассо	unt Manager:	Christine Krebill
Contact:	Steve Hacke	tt							
tandard:	FCC 15.247,	15.407						Class:	N/A
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<u>분</u> 문 40.0	_				1		hm	6	
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30.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0	<i>ν Measureme</i> Level dBμV/m 52.4 38.7 45.4 44.8 45.7 urements at Level dBμV/m 32.8 32.1	9000 ents (Peak v Pol v/h V H V V V 3m Pol v/h V H	10000 versus avera 15.209/19 Limit 54.0 68.3 70.0 54.0 15.209 Limit 54.0 54.0 54.0	1100 Fr <b>age limit)</b> 5.247/15E Margin -1.6 -15.3 -22.9 -25.2 -8.3 /15.247 Margin -21.2 -21.9	Detector Pk/QP/Avg Peak Peak Peak Peak Peak Peak Detector Pk/QP/Avg AVG AVG	Azimuth degrees 289 119 134 204 292 Azimuth degrees 208 115	13000 Height meters 1.0 1.0 1.0 1.0 1.5 Height meters 1.0 1.0 1.0	14000 Comments Note 1 Comments RB 1 MHz;V RB 1 MHz;V	15000 //B 10 Hz;Peak //B 10 Hz;Peak
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30.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0	<i>ν Measureme</i> Level dBμV/m 52.4 38.7 45.4 44.8 45.7 urements at Level dBμV/m 32.8 32.1 31.7 49.6 41.6 41.0	9000 ents (Peak v Pol V/h V H V V V 3m Pol V/h V V H V V V V H	10000 <i>versus avera</i> 15.209/11 Limit 54.0 68.3 70.0 54.0 15.209 Limit 54.0	1100 Free limit) 5.247/15E Margin -1.6 -15.3 -22.9 -25.2 -8.3 /15.247 Margin -21.2 -21.9 -22.3 -24.4 -26.7 -33.0	Detector Pk/QP/Avg Peak Peak Peak Peak Peak Peak Peak Peak	Azimuth degrees 289 119 134 204 292 Azimuth degrees 208 115 295 295 134 115	13000 Height meters 1.0 1.0 1.0 1.0 1.0 1.5 Height meters 1.0 1.5 1.5 1.5 1.5 1.0 1.0 1.0	14000 Comments Note 1 Comments RB 1 MHz;V RB 1 MHz;V	15000 /B 10 Hz;Peak /B 10 Hz;Peak /B 10 Hz;Peak /B 10 Hz;Peak /B 3 MHz;Peak /B 3 MHz;Peak
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Client:	Intel Corpora							Job Number:	J87129
Madal	Intel <sup>®</sup> Centri	no® Advance	ad N 6225				T-	Log Number:	T87211
wouer.		no® Auvanu	eu-n 0235				Αссоι	unt Manager:	Christine Krebill
	Steve Hacke								
andard:	FCC 15.247,	15.407						Class:	N/A
<b>iminary</b> quency	measureme	ents at ~ 300 Pol	cm, RB=1MH 15.209/		<b>Hz</b> Detector	Azimuth	Height	Comments	
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	Commonto	
80.000	88.5	V	-	-	Peak	247	1.0		
l measi	urements at	3m							
quency	Level	Pol	15.209/		Detector	Azimuth	Height	Comments	
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters		
				ndwidth of 10					

Client:	Intel Corpora	ation						Job Number:	J87129
Madal	Intol® Contri	inc® Advonc	ad N (DDE				T-	Log Number:	T87211
wodel:	Intel <sup>®</sup> Centr	Ino® Advanc	20-IN 6235				Ассо	unt Manager:	Christine Krebill
Contact:	Steve Hacke	ett							
Standard:	FCC 15.247	, 15.407						Class:	N/A
amplifie	r and high p	ass filter us	sed for this s	scan.					
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20.0 E Enterimenteriment Enterime	000 Measureme Level	9000 ents (Peak v Pol	10000 <i>ersus avera</i> 15.209/15	1100 Fr <i>ge limit)</i> 5.247/15E	00 12 equency (MH Detector	000 z) Azimuth	13000 Height	14000 Comments	15000
20.0 E eliminary equency MHz	000 <i>Measureme</i> Level dBμV/m	9000 ents (Peak v Pol v/h	10000 <i>versus avera</i> 15.209/15 Limit	1100 Fr <i>ge limit)</i> 5.247/15E Margin	00 12 equency (MH Detector Pk/QP/Avg	000 z) Azimuth degrees	13000 Height meters	Comments	15000
20.0 e <i>liminary</i> equency MHz 561.530	<i>Measureme</i> Level dBμV/m 53.7	9000 ents (Peak v Pol v/h V	10000 /ersus avera 15.209/15 Limit 54.0	1100 Fr 5.247/15E Margin -0.3	00 12 equency (MH Detector Pk/QP/Avg Peak	ooo z) Azimuth degrees 96	Height meters 2.5	14000	15000
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20.0 e <i>eliminary</i> equency MHz 1561.530 880.000 850.360	<u>Measureme</u> Level dBμV/m 53.7 40.0 39.2	9000 ents (Peak v Pol v/h V	10000 versus avera 15.209/15 Limit 54.0 54.0 54.0	1100 Fr 5.247/15E Margin -0.3 -14.0 -14.8	00 12 equency (MH Detector Pk/QP/Avg Peak Peak Peak	000 z) Azimuth degrees 96 100 123	13000 Height meters 2.5 1.5 1.0	Comments	15000
20.0 eliminary equency MHz 1561.530 880.000 850.360 327.140	<i>Measureme</i> Level dBμV/m 53.7 40.0	9000 ents (Peak v Pol v/h V H V	10000 versus avera 15.209/15 Limit 54.0 54.0	1100 Fr 5.247/15E Margin -0.3 -14.0 -14.8 -9.3	00 12 equency (MH Detector Pk/QP/Avg Peak Peak	Azimuth degrees 96 100	13000 Height meters 2.5 1.5	Comments	15000
20.0 eliminary equency MHz 561.530 380.000 350.360 327.140 000.290	2 <i>Measureme</i> Level dBμV/m 53.7 40.0 39.2 44.7 46.0	9000 ents (Peak v Pol v/h V H V V V	10000 versus avera 15.209/15 Limit 54.0 54.0 54.0 54.0	1100 Fr 5.247/15E Margin -0.3 -14.0 -14.8	Detector Pk/QP/Avg Peak Peak Peak Peak Peak	Azimuth degrees 96 100 123 145	Height meters 2.5 1.5 1.0 1.0	Comments	15000
20.0 eliminary equency MHz 561.530 880.000 850.360 327.140 000.290 661.070	2 <i>Measureme</i> Level dBμV/m 53.7 40.0 39.2 44.7 46.0	9000 ents (Peak v Pol v/h V H V V H V V	10000 versus avera 15.209/15 Limit 54.0 54.0 54.0 54.0 70.0	1100 Fr <u>ge limit)</u> 5.247/15E Margin -0.3 -14.0 -14.8 -9.3 -24.0	Detector Pk/QP/Avg Peak Peak Peak Peak Peak Peak Peak	Azimuth degrees 96 100 123 145 200	Height meters 2.5 1.5 1.0 1.0 1.0 1.0	Comments	15000
20.0 8 eliminary equency MHz 561.530 380.000 350.360 327.140 000.290 661.070 nal measu	<i>Measureme</i> Level dBμV/m 53.7 40.0 39.2 44.7 46.0 46.1	9000 ents (Peak v Pol v/h V H V V H V V	10000 <i>versus avera</i> 15.209/15 Limit 54.0 54.0 54.0 54.0 54.0 54.0 54.0 54.0 54.0 54.0 54.0	1100 Fr <u>ge limit)</u> 5.247/15E Margin -0.3 -14.0 -14.8 -9.3 -24.0	Detector Pk/QP/Avg Peak Peak Peak Peak Peak Peak Peak	Azimuth degrees 96 100 123 145 200	Height meters 2.5 1.5 1.0 1.0 1.0 1.0	Comments	15000
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### End of Report

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