Test Report

Industry Canada RSS-Gen Issue 2 / RSS 210 Issue 7
FCC Part 15, Subpart E

Model: Intel Centrino Advanced-N 6200 with Yageo p/n 79010C500-011-G and p/n 79010C400-011-G antennas

IC CERTIFICATION #:	1000M-622ANHU and 1000M-622ANH
FCC ID:	PD9622ANHU and PD9622ANH
APPLICANT:	Intel Corporation 2111 NE 25th Avenue Hillsboro, OR 97124
TEST SITE(S):	Elliott Laboratories 41039 Boyce Road. Fremont, CA. 94538-2435
IC SITE REGISTRATION #:	2845B-4, 2845B-5
REPORT DATE:	April 7, 2010
FINAL TEST DATES:	March 25 to April 1, 2010

AUTHORIZED SIGNATORY:

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ACCREDITED

Testing Cert #2016-01

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REVISION HISTORY

Revision #	Date	Comments	Modified By
-	April 8, 2010	First release	

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SCOPE

An electromagnetic emissions test has been performed on the Intel Corporation Intel Centrino Advanced-N 6200 with Yageo p/n 79010C500-011-G and p/n 79010C400-011-G antennas, pursuant to the following rules:

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

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

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

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

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

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

OBJECTIVE

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

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

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

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

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

STATEMENT OF COMPLIANCE

The tested sample of Intel Corporation Intel Centrino Advanced-N 6200 with Yageo p/n 79010C500-011-G and p/n 79010C400-011-G antennas complied with the requirements of the following regulations:

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

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 6200 with Yageo p/n 79010C500-011-G and p/n 79010C400-011-G antennas 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

UNII / LELAN DEVICES

Operation in the 5.15 – 5.25 GHz Band

FCC Rule Part	RSS Rule Part	Description	Measured Value / Comments	Limit / Requirement	Result
15.407(e)		Indoor operation only	The change in antenna does not affect the requirement for indoor-use.		
15.407(a) (1)		26dB Bandwidth	The proposed change to add a new antenna type does not affect the characteristics of the device with respect to output power, bandwidth, power density or other measurements made at the antenna port. As the new antenna has a lower gain than the antennas previously evaluated with the device, therefore the maximum eirp remains unchanged from the previously reported value.		
15.407 (a) (1)	A9.2(1)	Output Power			
15.407 (a) (1)	-	Power Spectral Density			
-	A9.5 (2)				
15.407(b) (2)	A9.3	Spurious Emissions above 1GHz	53.6dBµV/m @ 5150.0MHz (-0.4dB)	Refer to pages 17 and 19	Complies

Operation in the 5.25 – 5.35 GHz Band

FCC Rule Part	RSS Rule Part	Description	Measured Value / Comments	Limit / Requirement	Result (margin)
15.407(a) (2)		26dB Bandwidth	The proposed change to add a new antenna type does not affect the characteristics of the device with respect to output power, bandwidth, power density or other measurements made at the antenna port. As the new antenna has a lower gain than the antennas previously evaluated with the device, therefore the maximum eirp remains unchanged from the previously reported value.		
15.407(a) (2)	A9.2(2)	Output Power			
15.407(a) (2))	-	Power Spectral Density			
-	A9.2(2) / A9.5 (2)	Power Spectral Density			
-	A9.5 (2)	Peak Spectral Density			
15.407(b) (2)	A9.3	Spurious Emissions above 1GHz	53.3dBµV/m @ 5350.6MHz (-0.7dB)	Refer to pages 17 and 19	Complies

Operation in the 5.47 – 5.725 GHz Band

FCC Rule Part	RSS Rule Part	Description	Measured Value / Comments	Limit / Requirement	Result (margin)
15.407(a) (2)		26dB Bandwidth	The proposed change to add a new antenna type does not affect the characteristics of the device with respect to output power, bandwidth, power density or other measurements made at the antenna port. As the new antenna has a lower gain than the antennas previously evaluated with the device, therefore the maximum eirp remains unchanged from the previously reported value.		
15.407(a) (2)	A9.2(2)	Output Power			
15.407(a) (2))		Power Spectral Density			
	A9.2(2) / A9.5 (2)	Power Spectral Density			
15.407(b) (2)	A9.3	Spurious Emissions above 1GHz	51.5dBµV/m @ 5460.0MHz (-2.5dB)	Refer to pages 17 and 19	Complies

Requirements for all U-NII/LELAN bands

FCC Rule Part	RSS Rule Part	Description	Measured Value / Comments	Limit / Requirement	Result
15.407	A9.5a	Modulation			
15.407(b) (5) / 15.209	A9.3	Spurious Emissions below 1GHz	The spurious emissions below 1GHz were independent of the antenna, therefore these measurements were not performed.		
15.407(a)(6)	-	Peak Excursion Ratio	The proposed change to add a new antenna type does not affect the characteristics of the device with respect to the peak excursion measurement made at the antenna port.		
	A9.5 (3)	Channel Selection	Spurious emissions tested at outermost channels in each band	Device was tested on the top, bottom and center channels in each band	N/A
15			Measurements on three channels in each band		
15.407 (c)	A9.5(4)	Operation in the absence of information to transmit	The proposed change to add a new antenna type does not affect these characteristics of the device as detailed in the original filing for certification.		
15.407 (g)	A9.5 (5)	Frequency Stability			
15.407 (h1)	A9.4	Transmit Power Control			
15.407 (h2)	A9.4	Dynamic frequency Selection (device without radar detection)	The proposed change in antenna does not affect the DFS measurements for channel closing time and channel move time for a slave device. The data provided in the original filing remains representative of the device so no measurements were made.		
	A9.9g	User Manual information	No changes are proposed to the user manual information as detailed in the original filing for certification.		

GENERAL REQUIREMENTS APPLICABLE TO ALL BANDS

FCC Rule Part	RSS Rule part	Description	Measured Value / Comments	Limit / Requirement	Result (margin)
15.203	-	RF Connector	No changes to the rf connectors are proposed.		
15.109	RSS GEN 7.2.3 Table 1	Receiver spurious emissions	43.8dBµV/m @ 7466.7MHz (-10.2dB)	Refer to page 18	Complies
15.207	RSS GEN Table 2	AC Conducted Emissions	The proposed change to add a new antenna type does not affect the values originally reported for AC conducted emissions.		
15.247 (b) (5) 15.407 (f)	RSS 102	RF Exposure Requirements	The new antenna has a lower gain than the antennas previously evaluated with the device. The maximum eirp and, therefore, the MPE evaluation, remains unchanged from that previously reported.		
-	RSP 100 RSS GEN 7.1.5	User Manual	No changes to the user manual are proposed.		
-	RSP 100 RSS GEN 4.4.1	99% Bandwidth	The proposed change to add a new antenna type does not affect the bandwidth of the signal as previously reported.		

MEASUREMENT UNCERTAINTIES

ISO/IEC 17025 requires that an estimate of the measurement uncertainties associated with the emissions test results be included in the report. The measurement uncertainties

given below are based on a 95% confidence level and were calculated in accordance with UKAS document LAB 34.

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

EQUIPMENT UNDER TEST (EUT) DETAILS

GENERAL

The Intel Corporation Intel Centrino Advanced-N 6200 with Yageo p/n 79010C500-011-G and p/n 79010C400-011-G antennas is a 2x2 802.11abgn mini PCI express module. The device is sold under two different model numbers in Canada, one having a full modular approval (622ANHMW) and the other a limited modular approval (622ANHU). There are no hardware or firmware differences between the two model numbers it is only the scope of the certification that is different..

The sample was received on March 25, 2010 and tested from March 25 to April 1, 2010. The EUT consisted of the following component(s):

Company	Model	Description	Serial Number	Cert #
Intel Corporation	622ANHU	2x2 802.11abgn mini PCI express module	MAC Address 002314129674	FCC: PD9622ANHU IC: 1000M-622ANHU
	622ANHMW			FCC: PD9622ANH IC: 1000M-622ANH

OTHER EUT DETAILS

The scope of testing was to evaluate a new antenna system comprising of a PIFA design for the main antenna and a couple design for the aux antenna. The model numbers are 79010C500-011-G for the main and 79010C400-011-G for the aux. The antenna details are below.

Frequency Band	Gain (dBi)	
	Main	Aux
2400-2500 MHz	0.95	-0.26
5150-5350 MHz	-1.06	1.4
5470-5725 MHz	-0.21	0.85
5725-5850 MHz	1.05	-0.15

The device was originally approved with the Universe PIFA antennas, specifications are provided below for reference.

Frequency Band	Gain (dBi)	
	Main	Aux
2400-2500 MHz	3.24	
5150-5350 MHz	3.73	
5470-5725 MHz	4.77	
5725-5850 MHz	4.97	

ENCLOSURE

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

MODIFICATIONS

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

SUPPORT EQUIPMENT

The following equipment was used as support equipment for testing:

Company	Model	Description	Serial Number	FCC ID
Dell	-	Laptop	Prototype	N/A
Intel	Mini PCIE extender card	Extender card	None	N/A

EUT INTERFACE PORTS

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

Port	Connected To	Cable(s)		
		Description	Shielded or Unshielded	Length(m)
Laptop Adapter	AC power	-	Unshielded	1.0
Extender mini PCI	Laptop mini PCI bus	Ribbon	Unshielded	1.0
Extender dc power	DC power supply	2-wires	Unshielded	1.0

EUT OPERATION

For measurements on the spurious emissions from the transmitter the EUT was operating on the specified channel at the specified output power using one or both chains, as detailed in the test descriptions, with a > 99% duty cycle. Worst case modes were selected based on either the original test data for spurious emissions. Band edge measurements were made in all modes on the chain that had the highest effective gain based on measurements in one mode on both chains.

The output power for all spurious measurements away from the band edges was at, or above, the maximum power rating in each band. For band edge measurements the output power was set at or above either the rated power in each band or, in some cases, to the maximum nominal operating power (as programmed into the EEPROM) plus +1.5dB to account for the worst case tolerance in output power from the programmed power stored in EEPROM. The EEPROM power is always lower than the maximum rated power by at least 1.5dB. All target powers are measured with an average power meter and, therefore, do not exactly correlate with the powers listed in the grant which are measured in accordance with the FCC procedures based on the U-NII power measurement methods. The original report includes information correlating the average power (measured with a power meter) to the reported average power (measured using a spectrum analyzer).

For receiver spurious the device was in receive mode and tested on the center channel in each band.

TEST SITE

GENERAL INFORMATION

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

Site	Registration Numbers		Location
	FCC	Canada	
Chamber 3	769238	2845B-3	41039 Boyce Road
Chamber 4	211948	2845B-4	Fremont, CA 94538-2435

ANSI C63.4:2003 recommends that ambient noise at the test site be at least 6 dB below the allowable limits. Ambient levels are below this requirement. 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 non-conductive antenna mast equipped with a motor-drive to vary the antenna height. Measurements below 30 MHz are made with the loop antenna at a fixed height of 1m above the ground plane.

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

INSTRUMENT CALIBRATION

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

TEST PROCEDURES

EUT AND CABLE PLACEMENT

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

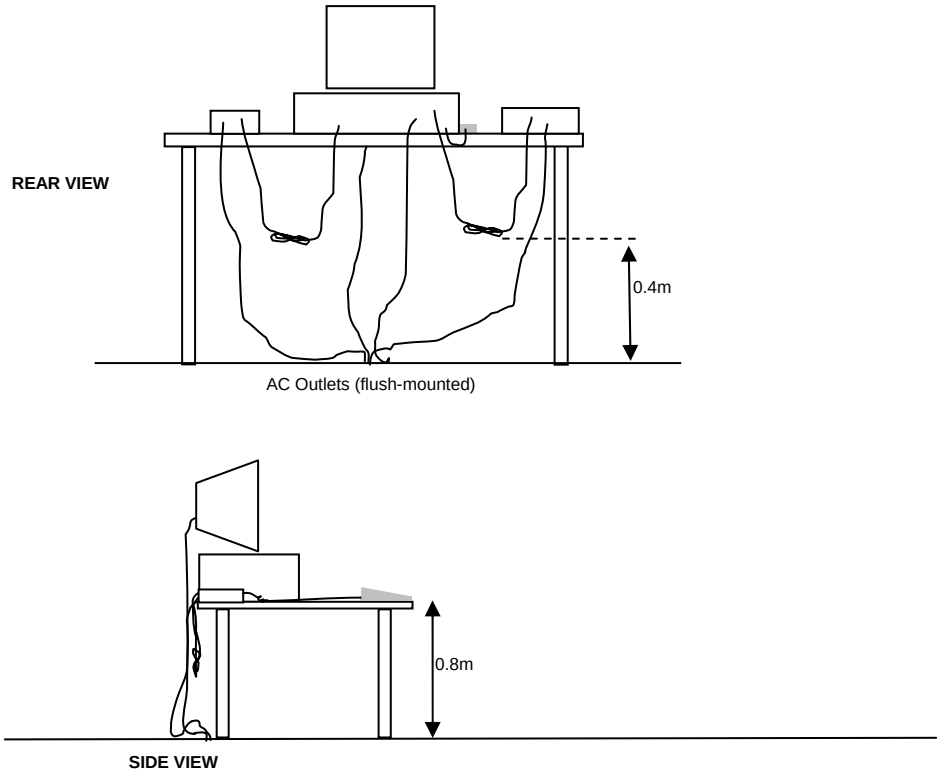
RADIATED EMISSIONS

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

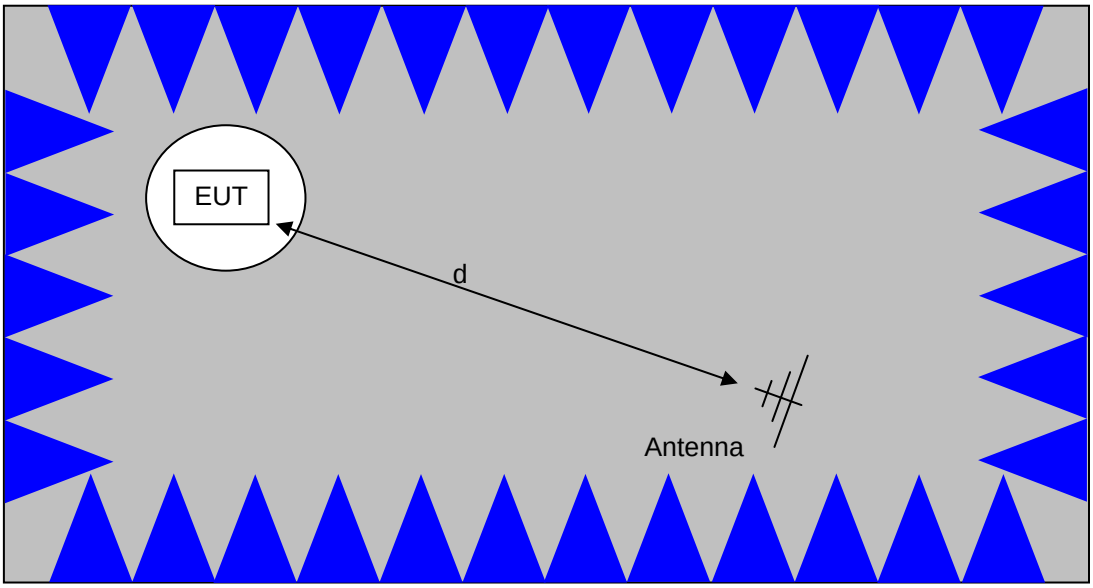
A speaker is provided in the receiver to aid in discriminating between EUT and ambient emissions. Other methods used during the preliminary scan for EUT emissions involve scanning with near field magnetic loops, monitoring I/O cables with RF current clamps, and cycling power to the EUT.

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

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

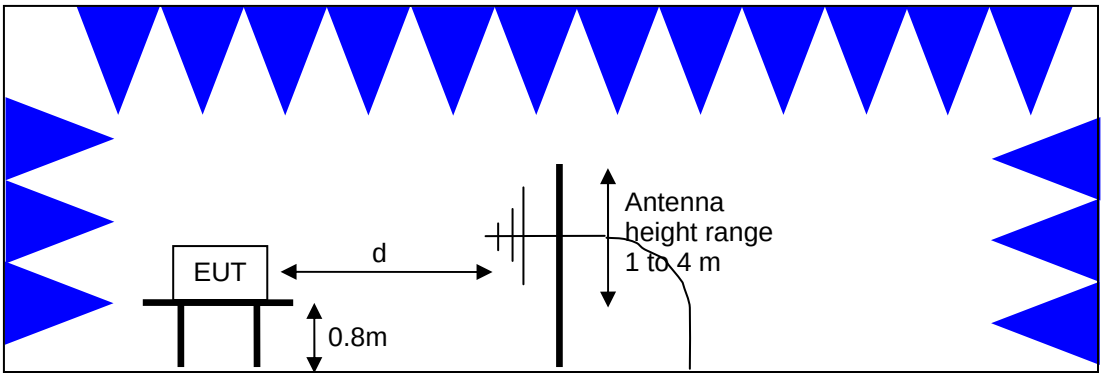


Typical Test Configuration for Radiated Field Strength Measurements



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.



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

SPECIFICATION LIMITS AND SAMPLE CALCULATIONS

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

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

GENERAL TRANSMITTER RADIATED EMISSIONS SPECIFICATION LIMITS

The table below shows the limits for the spurious emissions from transmitters that fall in restricted bands[1] (with the exception of transmitters operating under FCC Part 15 Subpart D and RSS 210 Annex 9), the limits for all emissions from a low power device operating under the general rules of RSS 310 (tables 3 and 4), RSS 210 (table 2) and FCC Part 15 Subpart C section 15.209.

Frequency Range (MHz)	Limit (uV/m)	Limit (dBuV/m @ 3m)
0.009-0.490	$2400/F_{KHz}$ @ 300m	$67.6-20*\log_{10}(F_{KHz})$ @ 300m
0.490-1.705	$24000/F_{KHz}$ @ 30m	$87.6-20*\log_{10}(F_{KHz})$ @ 30m
1.705 to 30	30 @ 30m	29.5 @ 30m
30 to 88	100 @ 3m	40 @ 3m
88 to 216	150 @ 3m	43.5 @ 3m
216 to 960	200 @ 3m	46.0 @ 3m
Above 960	500 @ 3m	54.0 @ 3m

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

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

FCC 15.407 (a) OUTPUT POWER LIMITS

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

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

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

The peak excursion envelope is limited to 13dB.

OUTPUT POWER LIMITS –LELAN DEVICES

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

Operating Frequency (MHz)	Output Power	Power Spectral Density
5150 - 5250	200mW (23 dBm) eirp	10 dBm/MHz eirp
5250 - 5350	250 mW (24 dBm)[2] 1W (30dBm) eirp	11 dBm/MHz
5470 - 5725	250 mW (24 dBm)[3] 1W (30dBm) eirp	11 dBm/MHz
5725 – 5825	1 Watts (30 dBm) 4W eirp	17 dBm/MHz

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

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

OUTPUT POWER AND SPURIOUS LIMITS –UNII and LELAN DEVICES

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

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

SAMPLE CALCULATIONS - CONDUCTED EMISSIONS

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

$$R_r - S = M$$

where:

R_r = Receiver Reading in dBuV

S = Specification Limit in dBuV

M = Margin to Specification in +/- dB

SAMPLE CALCULATIONS - RADIATED EMISSIONS

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

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

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

where:

F_d = Distance Factor in dB

D_m = Measurement Distance in meters

D_s = Specification Distance in meters

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

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

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

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

$$R_c = R_r + F_d$$

and

$$M = R_c - L_s$$

where:

R_r = Receiver Reading in dBuV/m

F_d = Distance Factor in dB

R_c = Corrected Reading in dBuV/m

L_s = Specification Limit in dBuV/m

M = Margin in dB Relative to Spec

SAMPLE CALCULATIONS - FIELD STRENGTH TO EIRP CONVERSION

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

$$E = \frac{1000000 \sqrt{30 P}}{3} \text{ microvolts per meter}$$

where P is the eirp (Watts)

Appendix A Test Equipment Calibration Data

Manufacturer	Description	Model #	Asset #	Cal Due
Hewlett Packard	Microwave Preamplifier, 1-26.5GHz	8449B	785	03-Jun-10
EMCO	Antenna, Horn, 1-18 GHz (SA40-Red)	3115	1142	15-Jul-10
Hewlett Packard	SpecAn 30 Hz -40 GHz, SV (SA40) Red	8564E (84125C)	1148	12-Apr-10
EMCO	Antenna, Horn, 1-18 GHz	3115	1561	10-Jun-10
Micro-Tronics	Band Reject Filter, 2400-2500 MHz	BRM50702-02	1683	29-Jul-10
Micro-Tronics	Band Reject Filter, 5150-5350 MHz	BRC50703-02	1729	25-Sep-10
Hewlett Packard	SpecAn 9 kHz - 40 GHz, (SA40) Purple	8564E (84125C)	1771	30-Sep-10
Hewlett Packard	Microwave Preamplifier, 1-26.5GHz	8449B	1780	17-Sep-10
A.H. Systems	Spare System Horn, 18-40GHz	SAS-574, p/n: 2581	2162	19-Jan-11

Appendix B Test Data

T78805 55 Pages

Client:	Intel Corporation	Job Number:	J78748
Model:	Intel Centrino Advanced-N 6200 with Yageo p/n	T-Log Number:	T78805
	79010C500-011-G and p/n 79010C400-011-G	Account Manager:	Christine Krebill
Contact:	Steve Hackett		-
Emissions Standard(s):	15.209 / 15.247	Class:	B
Immunity Standard(s):	-	Environment:	-

EMC Test Data

For The

Intel Corporation

Model

Intel Centrino Advanced-N 6200 with Yageo p/n 79010C500-011-G and p/n 79010C400-011-G antennas

Date of Last Test: 3/31/2010

Client:	Intel Corporation	Job Number:	J78748
Model:	Intel Centrino Advanced-N 6200 with Yageo p/n 79010C500-011-G and p/n 79010C400-011-G antennas	T-Log Number:	T78805
		Account Manager:	Christine Krebill
Contact:	Steve Hackett		
Standard:	15.209 / 15.247	Class:	N/A

RSS 210 and FCC 15 E Radiated Emissions
Band Edge Measurements

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

The EUT was installed into a test fixture such that the EUT was exposed (i.e. outside of a host PC).
For radiated emissions testing the measurement antenna was located 3 meters from the EUT.

Summary of Results

MAC Address: 002314129674 CRTU Tool Version 5.15.36.0 Driver version 13.0.0.91 Sample: 1
The target power is the average power and was taken from the oriingal certification test data

Run #	Mode	Channel	Target Power	Measured Power	Test Performed	Limit	Result / Margin
Run #1 and #2 to determine if Chain A or Chain B antenna has higher gain. 802.11a mode							
Run # 1	802.11a Chain A	#36 5180MHz	16.5	16.7	Restricted Band Edge at 5150 MHz	15.209	50.2dBµV/m @ 5150.1MHz (-3.8dB)
	802.11a Chain A	#64 5320MHz	16.5	16.7	Restricted Band Edge at 5350 MHz	15.209	48.7dBµV/m @ 5350.0MHz (-5.3dB)
	802.11a Chain A	#100 5500MHz	16.4	16.7	Restricted Band Edge at 5460 MHz	15.209	44.4dBµV/m @ 5459.5MHz (-9.6dB)
					Restricted Band Edge at 5470 MHz	15 E	49.7dBµV/m @ 5470.1MHz (-18.6dB)
	802.11a Chain A	#140 5700MHz	16.4	16.6	Restricted Band Edge at 5725 MHz	15 E	49.5dBµV/m @ 5725.0MHz (-18.8dB)
Run # 2	802.11a Chain B	#36 5180MHz	16.4	16.5	Restricted Band Edge at 5150 MHz	15.209	49.3dBµV/m @ 5150.0MHz (-4.7dB)
	802.11a Chain B	#64 5320MHz	16.3	16.5	Restricted Band Edge at 5350 MHz	15.209	44.8dBµV/m @ 5350.1MHz (-9.2dB)
	802.11a Chain B	#100 5500MHz	16.6	16.7	Restricted Band Edge at 5460 MHz	15.209	43.4dBµV/m @ 5460.0MHz (-10.6dB)
					Restricted Band Edge at 5470 MHz	15 E	48.3dBµV/m @ 5470.0MHz (-20.0dB)
	802.11a Chain B	#140 5700MHz	16.6	16.7	Restricted Band Edge at 5725 MHz	15 E	49.0dBµV/m @ 5725.6MHz (-19.3dB)

Client:	Intel Corporation	Job Number:	J78748
Model:	Intel Centrino Advanced-N 6200 with Yageo p/n 79010C500-011-G and p/n 79010C400-011-G antennas	T-Log Number:	T78805
		Account Manager:	Christine Krebill
Contact:	Steve Hackett		
Standard:	15.209 / 15.247	Class:	N/A

Run #3 and run #4 in the n20 and n40 modes on chain with highest gain antenna in the 5150-5350 MHz band and 5470-5725 MHz band based on results from run #1 and run #2. (Chain A). Targte powers for #38 and #62 are based on the EEPROM power settings.

Run # 3	n20 Chain A	#36 5180MHz	16.5	16.7	Restricted Band Edge at 5150 MHz	15.209	53.2dBµV/m @ 5150.0MHz (-0.8dB)
Run # 3		#64 5320MHz	16.6	16.8	Restricted Band Edge at 5350 MHz	15.209	47.6dBµV/m @ 5350.0MHz (-6.4dB)
Run # 3	n20 Chain A	#100 5500MHz	16.6	16.7	Restricted Band Edge at 5460 MHz	15.209	44.6dBµV/m @ 5460.0MHz (-9.4dB)
					Restricted Band Edge at 5470 MHz	15 E	48.5dBµV/m @ 5470.0MHz (-19.8dB)
Run # 3		#140 5700MHz	16.6	16.8	Restricted Band Edge at 5725 MHz	15 E	54.7dBµV/m @ 5725.0MHz (-13.6dB)
Run # 4	n40 Chain A	#38 5190MHz	10.5	12.7	Restricted Band Edge at 5150 MHz	15.209	53.6dBµV/m @ 5150.0MHz (-0.4dB)
Run # 4		#62 5310MHz	11.5	13.7	Restricted Band Edge at 5350 MHz	15.209	53.3dBµV/m @ 5350.6MHz (-0.7dB)
Run # 4	n40 Chain A	#102 5510MHz	16.6	16.8	Restricted Band Edge at 5460 MHz	15.209	51.5dBµV/m @ 5460.0MHz (-2.5dB)
					Restricted Band Edge at 5470 MHz	15 E	56.5dBµV/m @ 5469.5MHz (-11.8dB)
Run # 4		#134 5670MHz	16.4	16.4	Restricted Band Edge at 5725 MHz	15 E	49.0dBµV/m @ 5725.0MHz (-19.3dB)

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:	Intel Corporation	Job Number:	J78748
Model:	Intel Centrino Advanced-N 6200 with Yageo p/n 79010C500-011-G and p/n 79010C400-011-G antennas	T-Log Number:	T78805
		Account Manager:	Christine Krebill
Contact:	Steve Hackett		
Standard:	15.209 / 15.247	Class:	N/A

Run # 1, Band Edge Field Strength - 802.11a, Chain A

Run # 1a, EUT on Channel #36 5180MHz - 802.11a, Chain A

Date of Test: 3/28/2010 Test Location: Chamber #4

Test Engineer: Suhaila Khushzad Config Change: none

	Power Settings		
	Target (dBm)	Measured (dBm)	Software Setting
Chain A	16.5	16.7	27.5

Fundamental Signal Field Strength

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5173.070	95.2	H	-	-	AVG	225	1.0	RB 1 MHz; VB: 10 Hz
5173.470	103.8	H	-	-	PK	225	1.0	RB 1 MHz; VB: 1 MHz
5172.930	95.1	V	-	-	AVG	342	1.0	RB 1 MHz; VB: 10 Hz
5173.730	103.0	V	-	-	PK	342	1.0	RB 1 MHz; VB: 1 MHz

5150 MHz Band Edge Signal Radiated Field Strength - Marker Delta

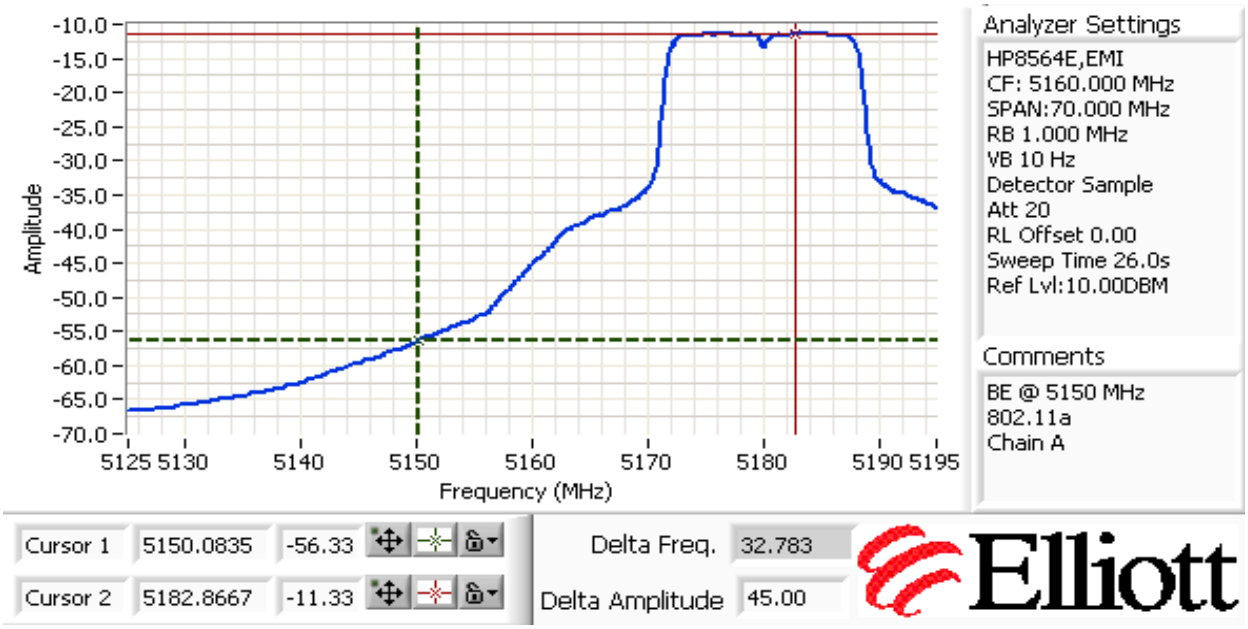
	H	V	
Fundamental emission level @ 3m in 1MHz RBW:	103.8	103.0	Peak Measurement (RB=VB=1MHz)
Fundamental emission level @ 3m in 1MHz RBW:	95.2	95.1	Average Measurement (RB=1MHz, VB=10Hz)
Delta Marker - 100kHz	*44.5 dB*		<- this can only be used if band edge signal is highest within 2MHz of band edge.
Calculated Band-Edge Measurement (Peak):	59.3 dBuV/m		
Calculated Band-Edge Measurement (Avg):	50.7 dBuV/m		

Margin	Level	Limit	Detector
-3.8	50.2	54	Avg
-14.7	59.3	74	Pk

Delta Marker - 1MHz/1MHz:	*39.3 dB*	
Delta Marker - 1MHz/10Hz:	45.0 *dB*	
Calculated Band-Edge Measurement (Peak):	64.5 dBuV/m	Using 100kHz delta value
Calculated Band-Edge Measurement (Avg):	50.2 dBuV/m	Using 1MHz delta value

Frequency	Level	Pol	FCC 15.209		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5150.083	50.2	-	54.0	-3.8	Avg	-	-	Using 1MHz delta value

Client:	Intel Corporation	Job Number:	J78748
Model:	Intel Centrino Advanced-N 6200 with Yageo p/n 79010C500-011-G and p/n 79010C400-011-G antennas	T-Log Number:	T78805
		Account Manager:	Christine Krebill
Contact:	Steve Hackett		
Standard:	15.209 / 15.247	Class:	N/A



Client:	Intel Corporation	Job Number:	J78748
Model:	Intel Centrino Advanced-N 6200 with Yageo p/n 79010C500-011-G and p/n 79010C400-011-G antennas	T-Log Number:	T78805
		Account Manager:	Christine Krebill
Contact:	Steve Hackett		
Standard:	15.209 / 15.247	Class:	N/A

Run # 1b, EUT on Channel #64 5320MHz - 802.11a, Chain A

Date of Test: 3/28/2010 Test Location: Chamber #4

Test Engineer: Suhaila Khushzad Config Change: none

	Power Settings		
	Target (dBm)	Measured (dBm)	Software Setting
Chain A	16.5	16.7	26.0

Fundamental Signal Field Strength

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5316.670	94.9	H	-	-	AVG	67	1.0	RB 1 MHz; VB: 10 Hz
5317.670	102.9	H	-	-	PK	67	1.0	RB 1 MHz; VB: 1 MHz
5316.800	97.7	V	-	-	AVG	346	1.0	RB 1 MHz; VB: 10 Hz
5316.870	105.5	V	-	-	PK	346	1.0	RB 1 MHz; VB: 1 MHz

5350 MHz Band Edge Signal Radiated Field Strength - Marker Delta

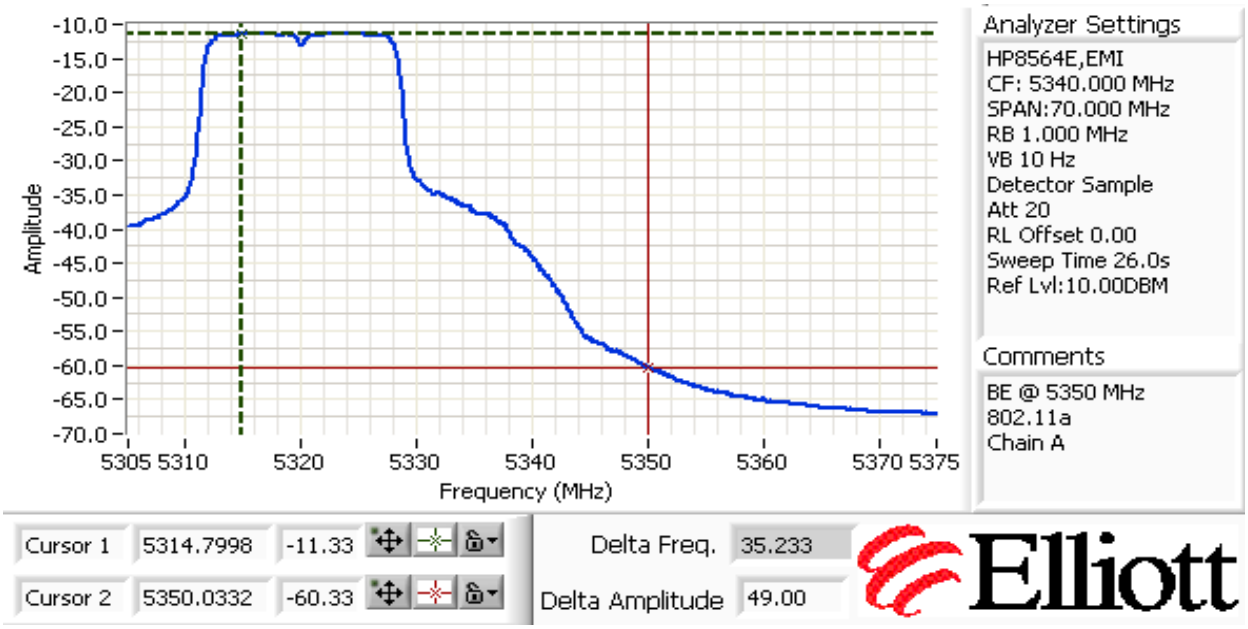
	H	V	
Fundamental emission level @ 3m in 1MHz RBW:	102.9	105.5	Peak Measurement (RB=VB=1MHz)
Fundamental emission level @ 3m in 1MHz RBW:	94.9	97.7	Average Measurement (RB=1MHz, VB=10Hz)
Delta Marker - 100kHz	*48.7 dB*		<- this can only be used if band edge signal is highest within 2MHz of band edge.
Calculated Band-Edge Measurement (Peak):	56.8 dBuV/m		
Calculated Band-Edge Measurement (Avg):	49.0 dBuV/m		

Margin	Level	Limit	Detector
-5.3	48.7	54	Avg
-17.2	56.8	74	Pk

Delta Marker - 1MHz/1MHz:	*42.2 dB*	
Delta Marker - 1MHz/10Hz:	49.0 *dB*	
Calculated Band-Edge Measurement (Peak):	63.3 dBuV/m	Using 100kHz delta value
Calculated Band-Edge Measurement (Avg):	48.7 dBuV/m	Using 1MHz delta value

Frequency	Level	Pol	FCC 15.209		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5350.033	48.7	-	54.0	-5.3	Avg	-	-	Using 1MHz delta value

Client:	Intel Corporation	Job Number:	J78748
Model:	Intel Centrino Advanced-N 6200 with Yageo p/n 79010C500-011-G and p/n 79010C400-011-G antennas	T-Log Number:	T78805
		Account Manager:	Christine Krebill
Contact:	Steve Hackett		
Standard:	15.209 / 15.247	Class:	N/A



Client:	Intel Corporation	Job Number:	J78748
Model:	Intel Centrino Advanced-N 6200 with Yageo p/n 79010C500-011-G and p/n 79010C400-011-G antennas	T-Log Number:	T78805
		Account Manager:	Christine Krebill
Contact:	Steve Hackett		
Standard:	15.209 / 15.247	Class:	N/A

Run # 1c, EUT on Channel #100 5500MHz - 802.11a, Chain A

	Power Settings		
	Target (dBm)	Measured (dBm)	Software Setting
Chain A	16.5	16.7	24.5

Fundamental Signal Field Strength

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5493.070	96.9	V	-	-	AVG	338	1.0	RB 1 MHz; VB: 10 Hz
5493.200	104.6	V	-	-	PK	338	1.0	RB 1 MHz; VB: 1 MHz
5493.200	97.4	H	-	-	AVG	222	1.0	RB 1 MHz; VB: 10 Hz
5496.870	105.4	H	-	-	PK	222	1.0	RB 1 MHz; VB: 1 MHz

5460 MHz Restricted Band Edge Signal Radiated Field Strength - Marker Delta

	H	V	
Fundamental emission level @ 3m in 1MHz RBW:	105.4	104.6	Peak Measurement (RB=VB=1MHz)
Fundamental emission level @ 3m in 1MHz RBW:	97.4	96.9	Average Measurement (RB=1MHz, VB=10Hz)
Delta Marker - 100kHz	*52.7 dB*		<- this can only be used if band edge signal is highest within 2MHz of band edge.
Calculated Band-Edge Measurement (Peak):	52.7 dBuV/m		
Calculated Band-Edge Measurement (Avg):	44.7 dBuV/m		Margin / Level / Limit / Detector
Delta Marker - 1MHz/1MHz:	*48.2 dB*		-9.6 / 44.4 / 54 / Avg
Delta Marker - 1MHz/10Hz:	53.0 dB		-21.3 / 52.7 / 74 / Pk
Calculated Band-Edge Measurement (Peak):	57.2 dBuV/m		Using 100kHz delta value
Calculated Band-Edge Measurement (Avg):	44.4 dBuV/m		Using 1MHz delta value

Frequency	Level	Pol	FCC 15.209		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5459.480	44.4	-	54.0	-9.6	Avg	-	-	Using 1MHz delta value

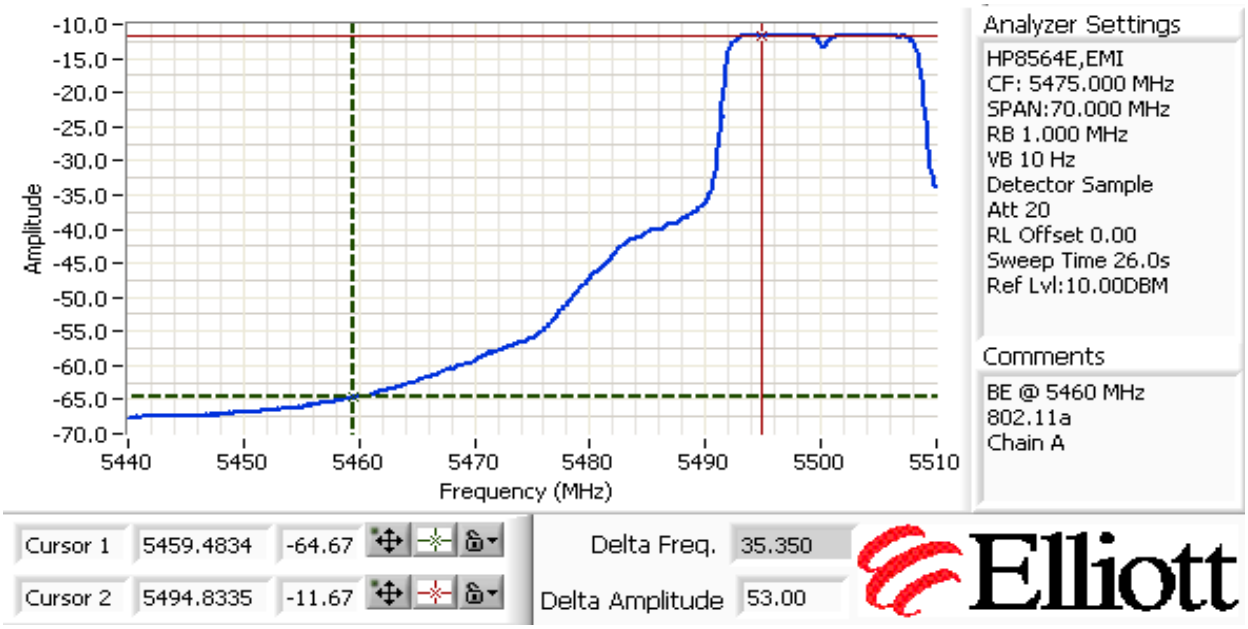
5470 MHz Band Edge Signal Radiated Field Strength - Marker Delta

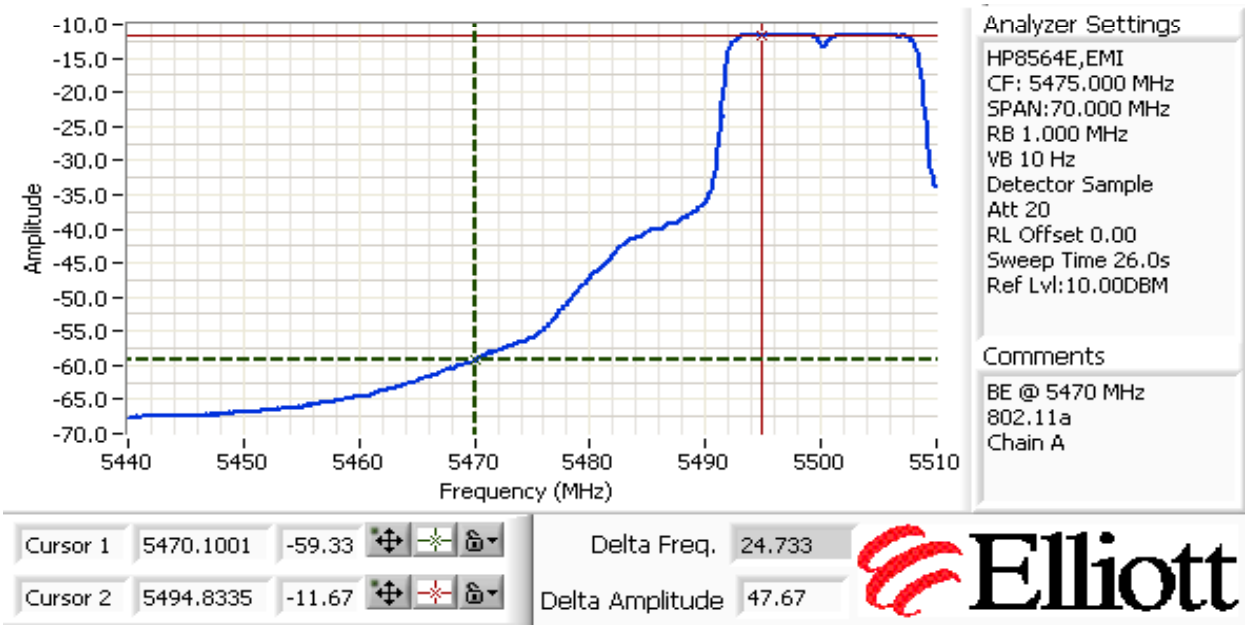
	H	V	
Fundamental emission level @ 3m in 1MHz RBW:	105.4	104.6	Peak Measurement (RB=VB=1MHz)
Fundamental emission level @ 3m in 1MHz RBW:	97.4	96.9	Average Measurement (RB=1MHz, VB=10Hz)
Delta Marker - 100kHz	*47.3 dB*		<- this can only be used if band edge signal is highest within 2MHz of band edge.
Calculated Band-Edge Measurement (Peak):	58.1 dBuV/m		
Calculated Band-Edge Measurement (Avg):	50.1 dBuV/m		Margin / Level / Limit / Detector
Delta Marker - 1MHz/1MHz:	*42.7 dB*		-18.6 / 49.7 / 68.3 / Avg
Delta Marker - 1MHz/10Hz:	47.7 dB		-30.2 / 58.1 / 88.3 / Pk
Calculated Band-Edge Measurement (Peak):	62.7 dBuV/m		Using 100kHz delta value
Calculated Band-Edge Measurement (Avg):	49.7 dBuV/m		Using 1MHz delta value

Frequency	Level	Pol	FCC 15E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5470.100	49.7	-	68.3	-18.6	Avg	-	-	Using 1MHz delta value

Note - average limit is equivalent to -27dBm eirp.

Client:	Intel Corporation	Job Number:	J78748
Model:	Intel Centrino Advanced-N 6200 with Yageo p/n 79010C500-011-G and p/n 79010C400-011-G antennas	T-Log Number:	T78805
		Account Manager:	Christine Krebill
Contact:	Steve Hackett		
Standard:	15.209 / 15.247	Class:	N/A





Client:	Intel Corporation	Job Number:	J78748
Model:	Intel Centrino Advanced-N 6200 with Yageo p/n 79010C500-011-G and p/n 79010C400-011-G antennas	T-Log Number:	T78805
		Account Manager:	Christine Krebill
Contact:	Steve Hackett		
Standard:	15.209 / 15.247	Class:	N/A

Run # 1d, EUT on Channel #140 5700MHz - 802.11a, Chain A

	Power Settings		
	Target (dBm)	Measured (dBm)	Software Setting
Chain A	16.4	16.6	25.0

Fundamental Signal Field Strength

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5696.670	96.8	H	-	-	AVG	217	1.0	RB 1 MHz; VB: 10 Hz
5693.670	104.4	H	-	-	PK	217	1.0	RB 1 MHz; VB: 1 MHz
5702.730	98.0	V	-	-	AVG	97	1.0	RB 1 MHz; VB: 10 Hz
5702.400	105.5	V	-	-	PK	97	1.0	RB 1 MHz; VB: 1 MHz

5725 MHz Restricted Band Edge Signal Radiated Field Strength - Marker Delta

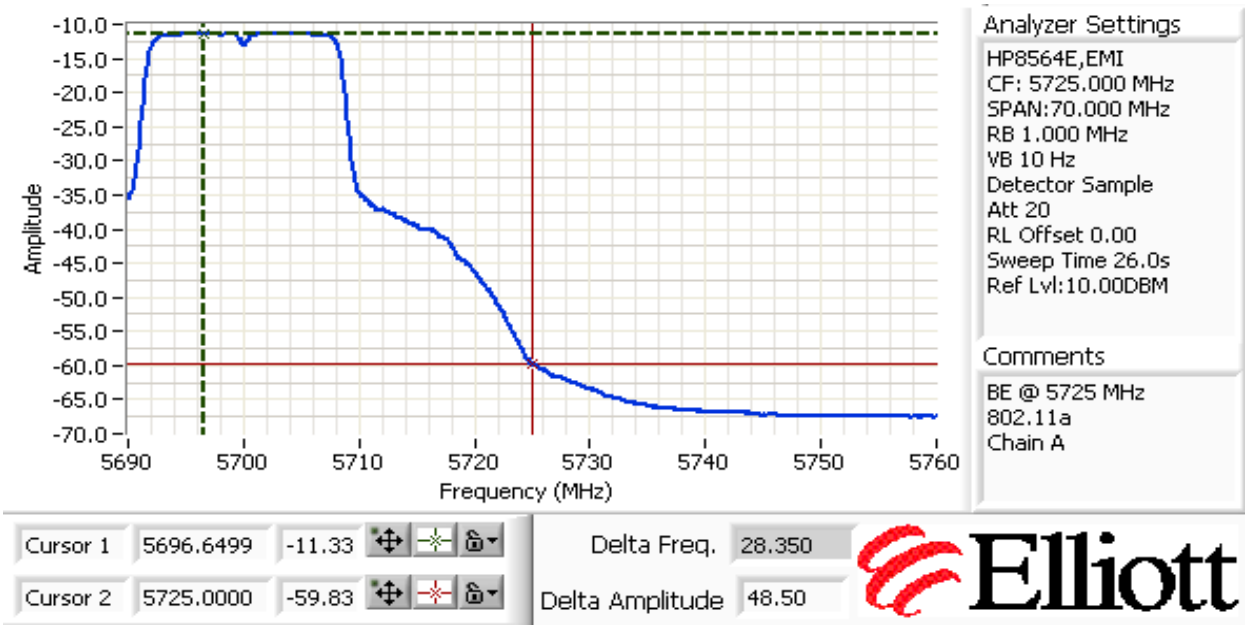
	H	V	
Fundamental emission level @ 3m in 1MHz RBW:	104.4	105.5	Peak Measurement (RB=VB=1MHz)
Fundamental emission level @ 3m in 1MHz RBW:	96.8	98.0	Average Measurement (RB=1MHz, VB=10Hz)
Delta Marker - 100kHz	*48.2 dB*		<- this can only be used if band edge signal is highest within 2MHz of band edge.
Calculated Band-Edge Measurement (Peak):	57.3 dBuV/m		
Calculated Band-Edge Measurement (Avg):	49.8 dBuV/m		

		Margin	Level	Limit	Detector
Delta Marker - 1MHz/1MHz:	*41.8 dB*	-18.8	49.5	68.3	Avg
Delta Marker - 1MHz/10Hz:	48.5 *dB*	-31.0	57.3	88.3	Pk
Calculated Band-Edge Measurement (Peak):	63.7 dBuV/m	Using 100kHz delta value			
Calculated Band-Edge Measurement (Avg):	49.5 dBuV/m	Using 1MHz delta value			

Frequency	Level	Pol	FCC 15E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5725.000	49.5	-	68.3	-18.8	Avg	-	-	Using 1MHz delta value

Note - average limit is equivalent to -27dBm eirp.

Client:	Intel Corporation	Job Number:	J78748
Model:	Intel Centrino Advanced-N 6200 with Yageo p/n 79010C500-011-G and p/n 79010C400-011-G antennas	T-Log Number:	T78805
		Account Manager:	Christine Krebill
Contact:	Steve Hackett		
Standard:	15.209 / 15.247	Class:	N/A



Client:	Intel Corporation	Job Number:	J78748
Model:	Intel Centrino Advanced-N 6200 with Yageo p/n 79010C500-011-G and p/n 79010C400-011-G antennas	T-Log Number:	T78805
		Account Manager:	Christine Krebill
Contact:	Steve Hackett		
Standard:	15.209 / 15.247	Class:	N/A

Run # 2, Band Edge Field Strength - 802.11a, Chain B

Run # 2a, EUT on Channel #36 5180MHz - 802.11a, Chain B

Date of Test: 3/28/2010 Test Location: Chamber #4

Test Engineer: Suhaila Khushzad Config Change: none

	Power Settings		
	Target (dBm)	Measured (dBm)	Software Setting
Chain B	16.4	16.5	25.5

Fundamental Signal Field Strength

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5182.530	96.6	V	-	-	AVG	108	1.0	RB 1 MHz; VB: 10 Hz
5173.530	104.5	V	-	-	PK	108	1.0	RB 1 MHz; VB: 1 MHz
5182.930	95.4	H	-	-	AVG	134	1.0	RB 1 MHz; VB: 10 Hz
5182.530	103.4	H	-	-	PK	134	1.0	RB 1 MHz; VB: 1 MHz

5150 MHz Band Edge Signal Radiated Field Strength - Marker Delta

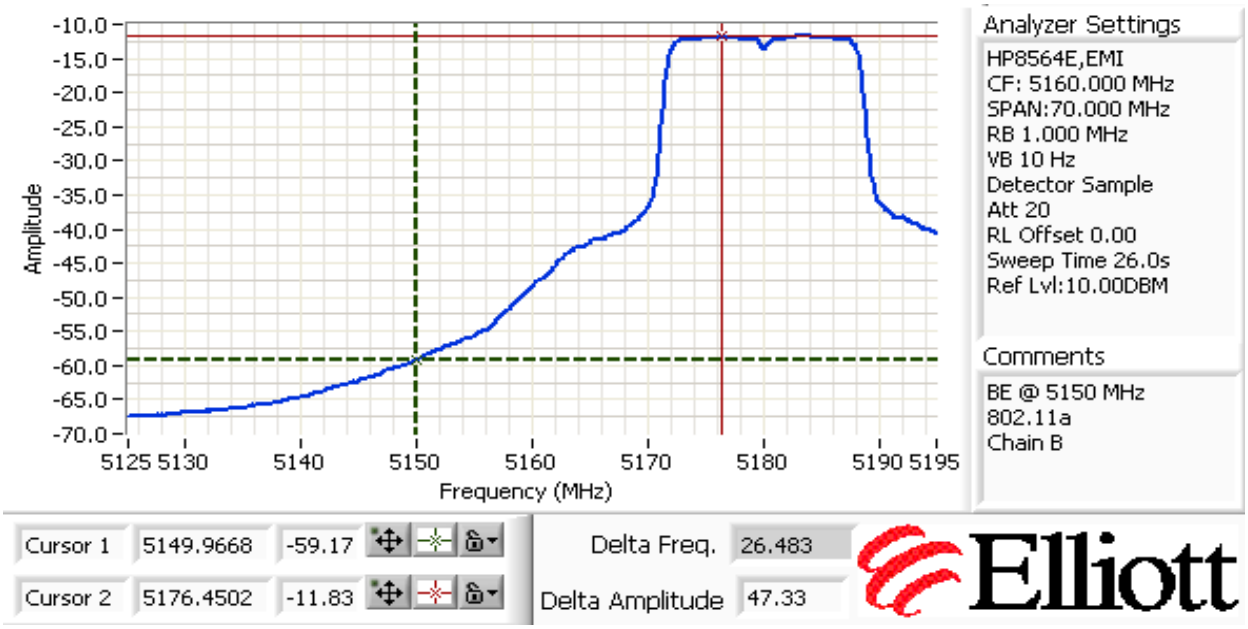
	H	V	
Fundamental emission level @ 3m in 1MHz RBW:	103.4	104.5	Peak Measurement (RB=VB=1MHz)
Fundamental emission level @ 3m in 1MHz RBW:	95.4	96.6	Average Measurement (RB=1MHz, VB=10Hz)
Delta Marker - 100kHz	*46.3 dB*		<- this can only be used if band edge signal is highest within 2MHz of band edge.
Calculated Band-Edge Measurement (Peak):	58.2 dBuV/m		
Calculated Band-Edge Measurement (Avg):	50.3 dBuV/m		

Margin	Level	Limit	Detector
-4.7	49.3	54	Avg
-15.8	58.2	74	Pk

Delta Marker - 1MHz/1MHz:	*42.7 dB*	
Delta Marker - 1MHz/10Hz:	47.3 *dB*	
Calculated Band-Edge Measurement (Peak):	61.8 dBuV/m	Using 100kHz delta value
Calculated Band-Edge Measurement (Avg):	49.3 dBuV/m	Using 1MHz delta value

Frequency	Level	Pol	FCC 15.209		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5149.960	49.3	-	54.0	-4.7	Avg	-	-	Using 1MHz delta value

Client:	Intel Corporation	Job Number:	J78748
Model:	Intel Centrino Advanced-N 6200 with Yageo p/n 79010C500-011-G and p/n 79010C400-011-G antennas	T-Log Number:	T78805
		Account Manager:	Christine Krebill
Contact:	Steve Hackett		
Standard:	15.209 / 15.247	Class:	N/A



Client:	Intel Corporation	Job Number:	J78748
Model:	Intel Centrino Advanced-N 6200 with Yageo p/n 79010C500-011-G and p/n 79010C400-011-G antennas	T-Log Number:	T78805
		Account Manager:	Christine Krebill
Contact:	Steve Hackett		
Standard:	15.209 / 15.247	Class:	N/A

Run # 2b, EUT on Channel #64 5320MHz - 802.11a, Chain B

Date of Test: 3/28/2010 Test Location: Chamber #4

Test Engineer: Suhaila Khushzad Config Change: none

	Power Settings		
	Target (dBm)	Measured (dBm)	Software Setting
Chain B	16.3	16.5	24.5

Fundamental Signal Field Strength

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5313.130	96.6	H	-	-	AVG	134	1.0	RB 1 MHz; VB: 10 Hz
5313.530	104.9	H	-	-	PK	134	1.0	RB 1 MHz; VB: 1 MHz
5322.870	97.0	V	-	-	AVG	77	1.1	RB 1 MHz; VB: 10 Hz
5316.200	105.0	V	-	-	PK	77	1.1	RB 1 MHz; VB: 1 MHz

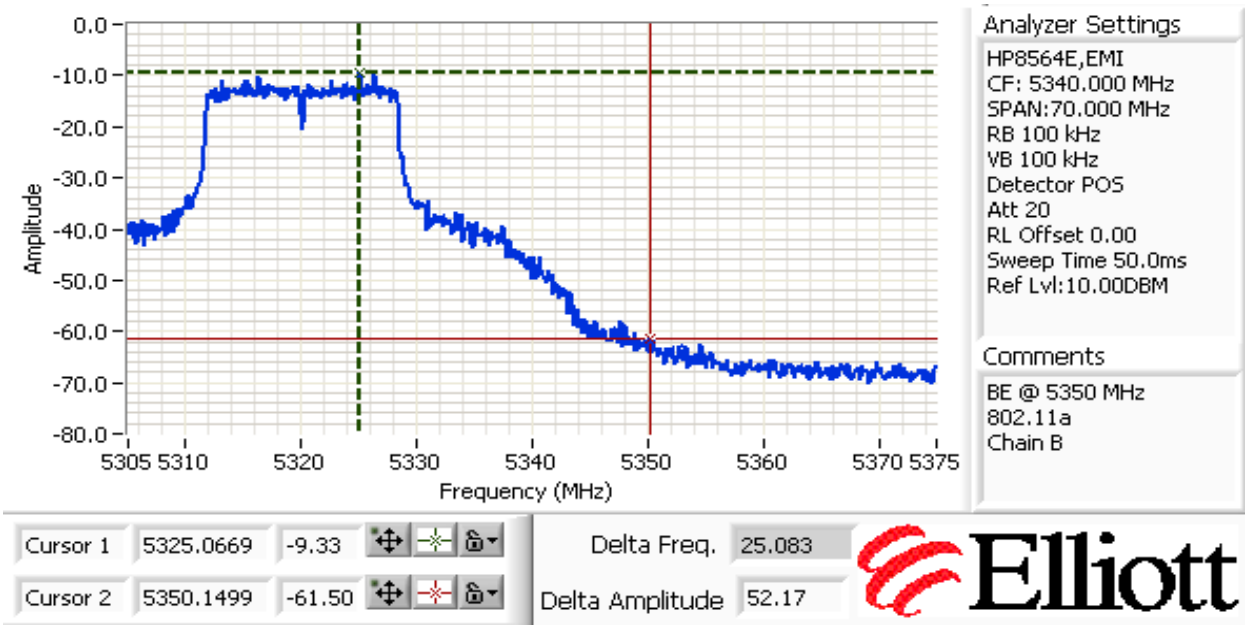
5350 MHz Band Edge Signal Radiated Field Strength - Marker Delta

	H	V	
Fundamental emission level @ 3m in 1MHz RBW:	104.9	105.0	Peak Measurement (RB=VB=1MHz)
Fundamental emission level @ 3m in 1MHz RBW:	96.6	97.0	Average Measurement (RB=1MHz, VB=10Hz)
Delta Marker - 100kHz	52.2 *dB*		<- this can only be used if band edge signal is highest within 2MHz of band edge.
Calculated Band-Edge Measurement (Peak):	52.8 dBuV/m		
Calculated Band-Edge Measurement (Avg):	44.8 dBuV/m		
Delta Marker - 1MHz/1MHz:	*48.5 dB*		
Delta Marker - 1MHz/10Hz:	*51.8 dB*		
Calculated Band-Edge Measurement (Peak):	56.5 dBuV/m		Using 100kHz delta value
Calculated Band-Edge Measurement (Avg):	45.2 dBuV/m		Using 100kHz delta value

Margin	Level	Limit	Detector
-9.2	44.8	54	Avg
-21.2	52.8	74	Pk

Frequency	Level	Pol	FCC 15.209		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5350.140	44.8	-	54.0	-9.2	Avg	-	-	Using 100kHz delta value

Client:	Intel Corporation	Job Number:	J78748
Model:	Intel Centrino Advanced-N 6200 with Yageo p/n 79010C500-011-G and p/n 79010C400-011-G antennas	T-Log Number:	T78805
		Account Manager:	Christine Krebill
Contact:	Steve Hackett		
Standard:	15.209 / 15.247	Class:	N/A



Client:	Intel Corporation	Job Number:	J78748
Model:	Intel Centrino Advanced-N 6200 with Yageo p/n 79010C500-011-G and p/n 79010C400-011-G antennas	T-Log Number:	T78805
		Account Manager:	Christine Krebill
Contact:	Steve Hackett		
Standard:	15.209 / 15.247	Class:	N/A

Run # 2c, EUT on Channel #100 5500MHz - 802.11a, Chain B

	Power Settings		
	Target (dBm)	Measured (dBm)	Software Setting
Chain B	16.6	16.7	26.0

Fundamental Signal Field Strength

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5496.600	98.1	V	-	-	AVG	65	1.0	RB 1 MHz; VB: 10 Hz
5496.130	105.9	V	-	-	PK	65	1.0	RB 1 MHz; VB: 1 MHz
5494.870	97.3	H	-	-	AVG	53	1.0	RB 1 MHz; VB: 10 Hz
5493.670	105.2	H	-	-	PK	53	1.0	RB 1 MHz; VB: 1 MHz

5460 MHz Restricted Band Edge Signal Radiated Field Strength - Marker Delta

	H	V	
Fundamental emission level @ 3m in 1MHz RBW:	105.2	105.9	Peak Measurement (RB=VB=1MHz)
Fundamental emission level @ 3m in 1MHz RBW:	97.3	98.1	Average Measurement (RB=1MHz, VB=10Hz)
Delta Marker - 100kHz	*54.5 dB*		<- this can only be used if band edge signal is highest within 2MHz of band edge.
Calculated Band-Edge Measurement (Peak):	51.4 dBuV/m		
Calculated Band-Edge Measurement (Avg):	43.6 dBuV/m		

		Margin	Level	Limit	Detector
Delta Marker - 1MHz/1MHz:	*49.7 dB*	-10.6	43.4	54	Avg
Delta Marker - 1MHz/10Hz:	54.7 dB	-22.6	51.4	74	Pk
Calculated Band-Edge Measurement (Peak):	56.2 dBuV/m	Using 100kHz delta value			
Calculated Band-Edge Measurement (Avg):	43.4 dBuV/m	Using 1MHz delta value			

Frequency	Level	Pol	FCC 15.209		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5459.950	43.4	-	54.0	-10.6	Avg	-	-	Using 1MHz delta value

5470 MHz Band Edge Signal Radiated Field Strength - Marker Delta

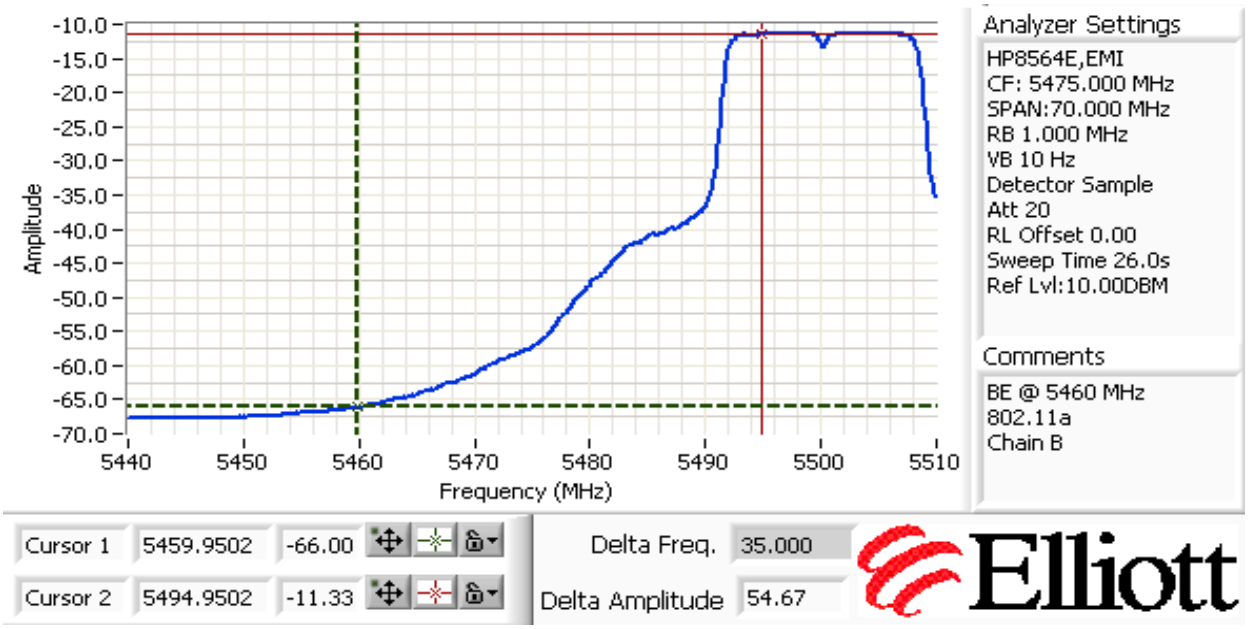
	H	V	
Fundamental emission level @ 3m in 1MHz RBW:	105.2	105.9	Peak Measurement (RB=VB=1MHz)
Fundamental emission level @ 3m in 1MHz RBW:	97.3	98.1	Average Measurement (RB=1MHz, VB=10Hz)
Delta Marker - 100kHz	*47.8 dB*		<- this can only be used if band edge signal is highest within 2MHz of band edge.
Calculated Band-Edge Measurement (Peak):	58.1 dBuV/m		
Calculated Band-Edge Measurement (Avg):	50.3 dBuV/m		

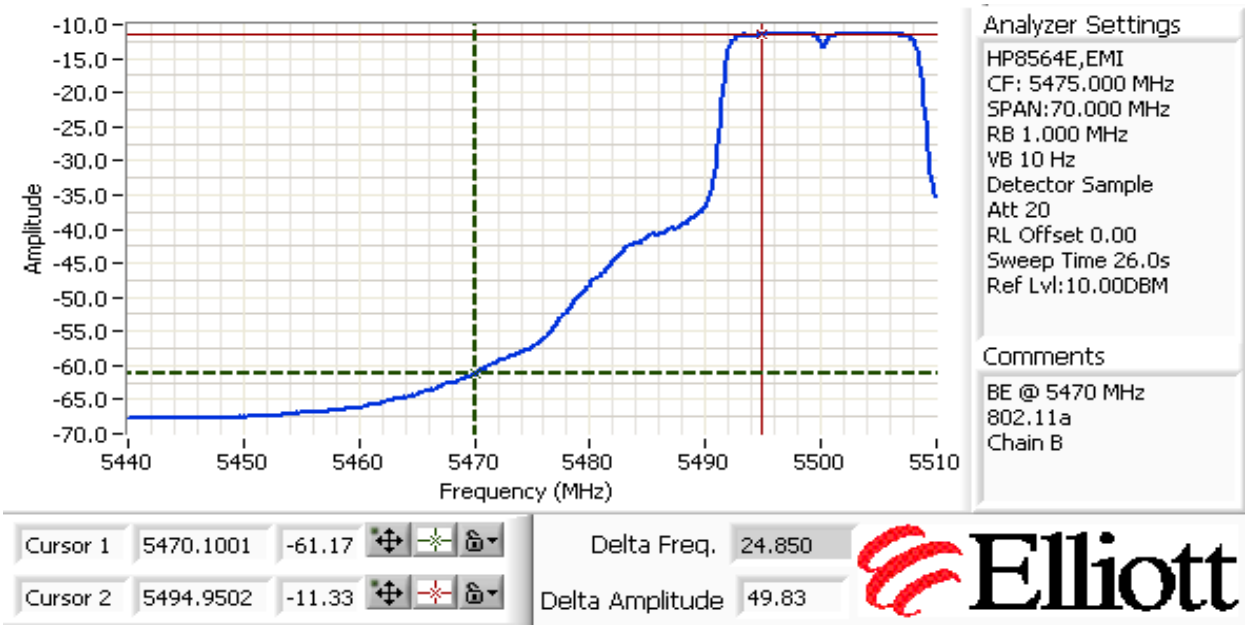
		Margin	Level	Limit	Detector
Delta Marker - 1MHz/1MHz:	*44.0 dB*	-20.0	48.3	68.3	Avg
Delta Marker - 1MHz/10Hz:	49.8 dB	-30.2	58.1	88.3	Pk
Calculated Band-Edge Measurement (Peak):	61.9 dBuV/m	Using 100kHz delta value			
Calculated Band-Edge Measurement (Avg):	48.3 dBuV/m	Using 1MHz delta value			

Frequency	Level	Pol	FCC 15E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5470.000	48.3	-	68.3	-20.0	Avg	-	-	Using 1MHz delta value

Note - average limit is equivalent to -27dBm eirp.

Client:	Intel Corporation	Job Number:	J78748
Model:	Intel Centrino Advanced-N 6200 with Yageo p/n 79010C500-011-G and p/n 79010C400-011-G antennas	T-Log Number:	T78805
		Account Manager:	Christine Krebill
Contact:	Steve Hackett		
Standard:	15.209 / 15.247	Class:	N/A





Client:	Intel Corporation	Job Number:	J78748
Model:	Intel Centrino Advanced-N 6200 with Yageo p/n 79010C500-011-G and p/n 79010C400-011-G antennas	T-Log Number:	T78805
		Account Manager:	Christine Krebill
Contact:	Steve Hackett		
Standard:	15.209 / 15.247	Class:	N/A

Run # 2d, EUT on Channel #140 5700MHz - 802.11a, Chain B

	Power Settings		
	Target (dBm)	Measured (dBm)	Software Setting
Chain B	16.6	16.7	27.0

Fundamental Signal Field Strength

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5693.200	97.2	H	-	-	AVG	120	1.0	RB 1 MHz; VB: 10 Hz
5693.470	105.5	H	-	-	PK	120	1.0	RB 1 MHz; VB: 1 MHz
5696.670	97.5	V	-	-	AVG	75	1.0	RB 1 MHz; VB: 10 Hz
5703.400	105.4	V	-	-	PK	75	1.0	RB 1 MHz; VB: 1 MHz

5725 MHz Restricted Band Edge Signal Radiated Field Strength - Marker Delta

	H	V	
Fundamental emission level @ 3m in 1MHz RBW:	105.5	105.4	Peak Measurement (RB=VB=1MHz)
Fundamental emission level @ 3m in 1MHz RBW:	97.2	97.5	Average Measurement (RB=1MHz, VB=10Hz)
Delta Marker - 100kHz	*47.8 dB*		<- this can only be used if band edge signal is highest within 2MHz of band edge.
Calculated Band-Edge Measurement (Peak):	57.7 dBuV/m		
Calculated Band-Edge Measurement (Avg):	49.7 dBuV/m		

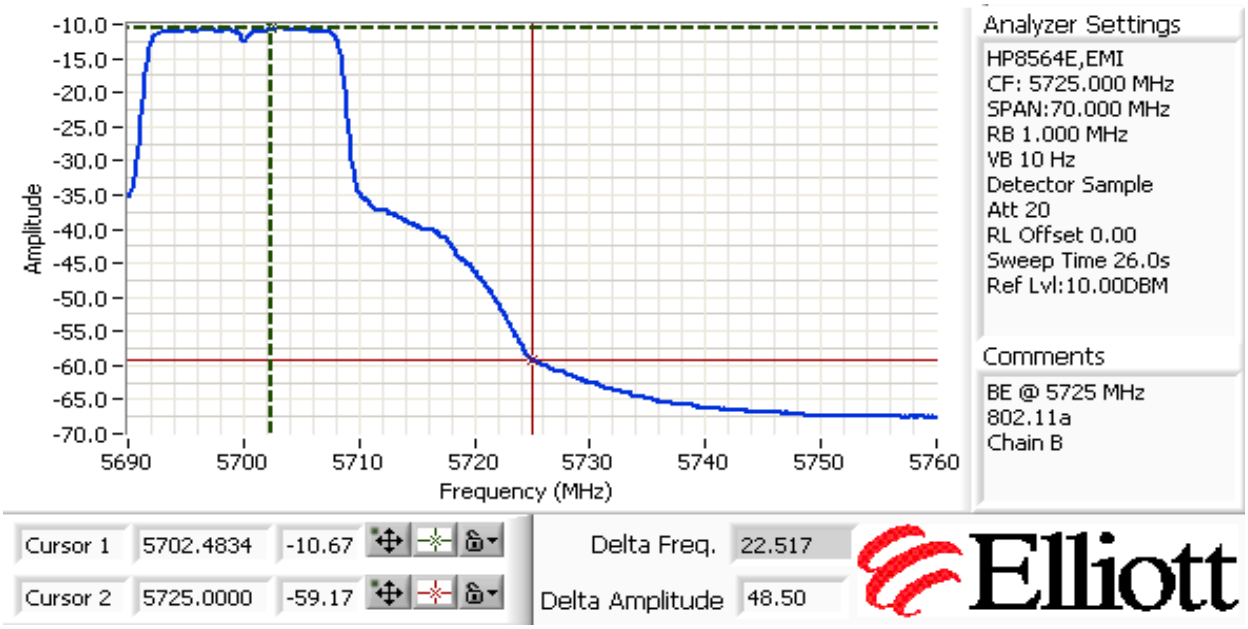
	Margin	Level	Limit	Detector
Delta Marker - 1MHz/1MHz:	-19.3	49.0	68.3	Avg
Delta Marker - 1MHz/10Hz:	-30.6	57.7	88.3	Pk

Calculated Band-Edge Measurement (Peak):	63.7 dBuV/m	Using 100kHz delta value
Calculated Band-Edge Measurement (Avg):	49.0 dBuV/m	Using 1MHz delta value

Frequency	Level	Pol	FCC 15E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5725.580	49.0	-	68.3	-19.3	Avg	-	-	Using 1MHz delta value

Note - average limit is equivalent to -27dBm eirp.

Client:	Intel Corporation	Job Number:	J78748
Model:	Intel Centrino Advanced-N 6200 with Yageo p/n 79010C500-011-G and p/n 79010C400-011-G antennas	T-Log Number:	T78805
		Account Manager:	Christine Krebill
Contact:	Steve Hackett		
Standard:	15.209 / 15.247	Class:	N/A



Client:	Intel Corporation	Job Number:	J78748
Model:	Intel Centrino Advanced-N 6200 with Yageo p/n 79010C500-011-G and p/n 79010C400-011-G antennas	T-Log Number:	T78805
		Account Manager:	Christine Krebill
Contact:	Steve Hackett		
Standard:	15.209 / 15.247	Class:	N/A

Run # 3, Band Edge Field Strength - n20, Chain A

Run # 3a, EUT on Channel #36 5180MHz - n20, Chain A

Date of Test: 3/28/2010 Test Location: Chamber #4

Test Engineer: Suhaila Khushzad Config Change: none

	Power Settings		
	Target (dBm)	Measured (dBm)	Software Setting
Chain A	16.6	16.7	28.5

Fundamental Signal Field Strength

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5174.470	96.9	V	-	-	AVG	291	1.7	RB 1 MHz; VB: 10 Hz
5174.870	104.6	V	-	-	PK	291	1.7	RB 1 MHz; VB: 1 MHz
5174.330	96.2	H	-	-	AVG	227	1.6	RB 1 MHz; VB: 10 Hz
5172.530	104.0	H	-	-	PK	227	1.6	RB 1 MHz; VB: 1 MHz

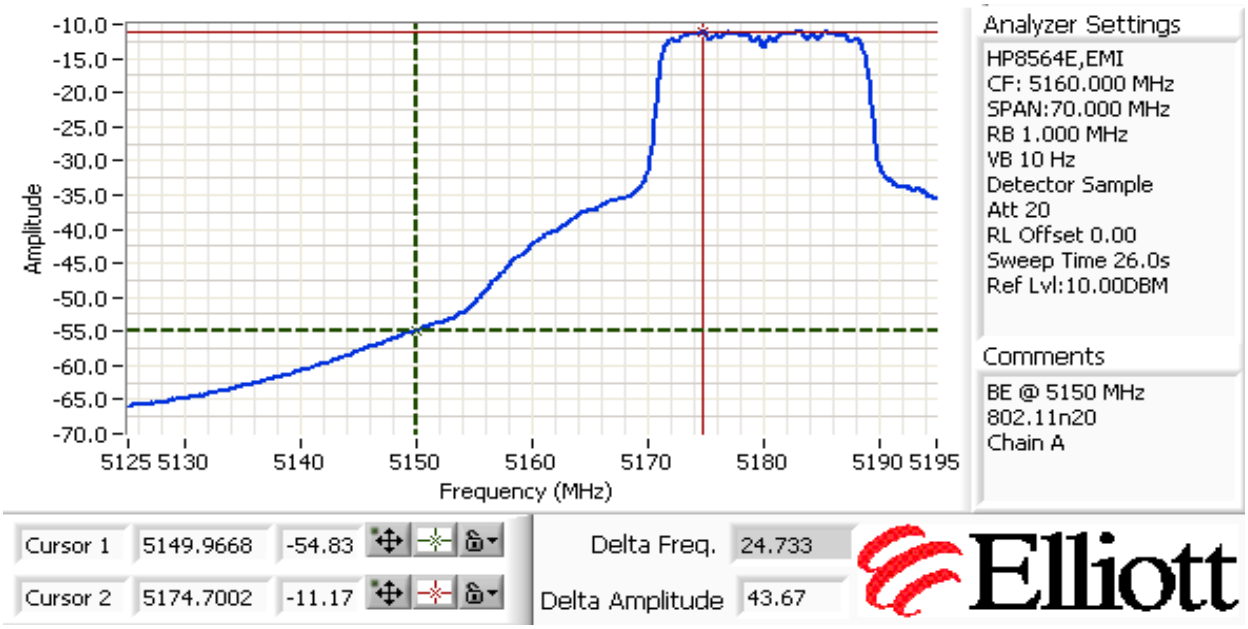
5150 MHz Band Edge Signal Radiated Field Strength - Marker Delta

	H	V	
Fundamental emission level @ 3m in 1MHz RBW:	104.6	104.0	Peak Measurement (RB=VB=1MHz)
Fundamental emission level @ 3m in 1MHz RBW:	96.9	96.2	Average Measurement (RB=1MHz, VB=10Hz)
Delta Marker - 100kHz	*42.2 dB*		<- this can only be used if band edge signal is highest within 2MHz of band edge.
Calculated Band-Edge Measurement (Peak):	62.4 dBuV/m		
Calculated Band-Edge Measurement (Avg):	54.7 dBuV/m		
Delta Marker - 1MHz/1MHz:	*38.8 dB*		
Delta Marker - 1MHz/10Hz:	43.7 *dB*		
Calculated Band-Edge Measurement (Peak):	65.8 dBuV/m		Using 100kHz delta value
Calculated Band-Edge Measurement (Avg):	53.2 dBuV/m		Using 1MHz delta value

Margin	Level	Limit	Detector
-0.8	53.2	54	Avg
-11.6	62.4	74	Pk

Frequency	Level	Pol	FCC 15.209		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5149.960	53.2	-	54.0	-0.8	Avg	-	-	Using 1MHz delta value

Client:	Intel Corporation	Job Number:	J78748
Model:	Intel Centrino Advanced-N 6200 with Yageo p/n 79010C500-011-G and p/n 79010C400-011-G antennas	T-Log Number:	T78805
		Account Manager:	Christine Krebill
Contact:	Steve Hackett		
Standard:	15.209 / 15.247	Class:	N/A



Client:	Intel Corporation	Job Number:	J78748
Model:	Intel Centrino Advanced-N 6200 with Yageo p/n 79010C500-011-G and p/n 79010C400-011-G antennas	T-Log Number:	T78805
		Account Manager:	Christine Krebill
Contact:	Steve Hackett		
Standard:	15.209 / 15.247	Class:	N/A

Run # 3b, EUT on Channel #64 5320MHz - n20, Chain A

Date of Test: 3/28/2010 Test Location: Chamber #4

Test Engineer: Suhaila Khushzad Config Change: none

	Power Settings		
	Target (dBm)	Measured (dBm)	Software Setting
Chain A	16.6	16.8	26.5

Fundamental Signal Field Strength

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5314.470	96.6	H	-	-	AVG	226	1.1	RB 1 MHz; VB: 10 Hz
5317.070	104.6	H	-	-	PK	226	1.1	RB 1 MHz; VB: 1 MHz
5314.470	97.1	V	-	-	AVG	216	1.0	RB 1 MHz; VB: 10 Hz
5314.530	105.4	V	-	-	PK	216	1.0	RB 1 MHz; VB: 1 MHz

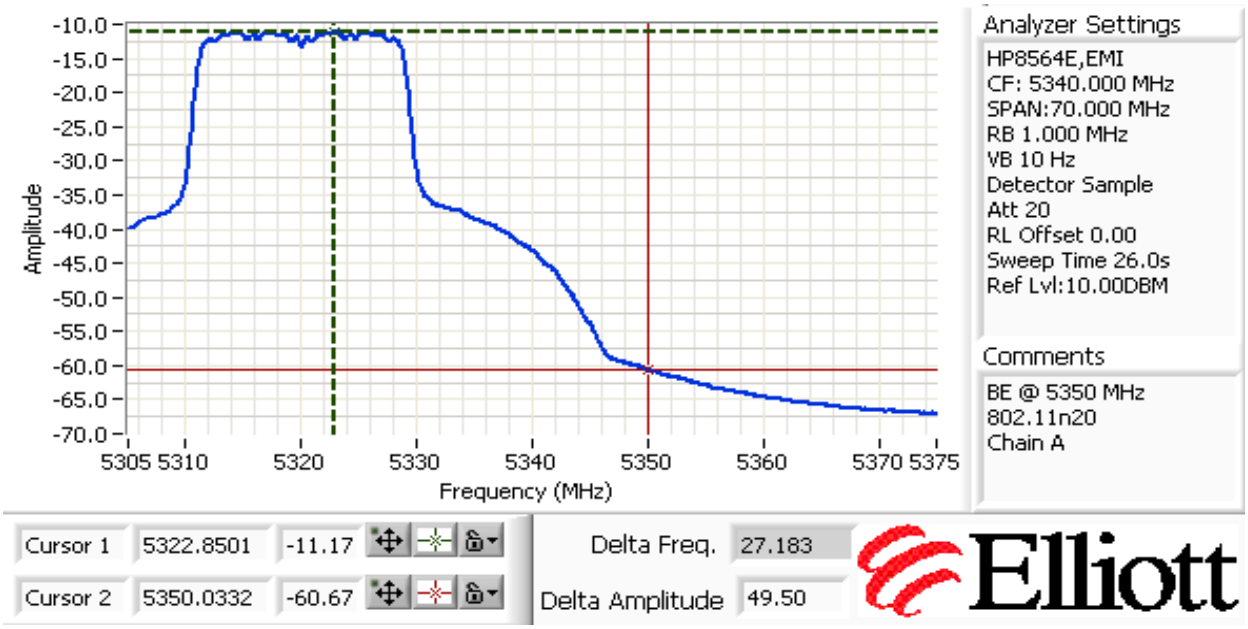
5350 MHz Band Edge Signal Radiated Field Strength - Marker Delta

	H	V	
Fundamental emission level @ 3m in 1MHz RBW:	104.6	105.4	Peak Measurement (RB=VB=1MHz)
Fundamental emission level @ 3m in 1MHz RBW:	96.6	97.1	Average Measurement (RB=1MHz, VB=10Hz)
Delta Marker - 100kHz	*49.0 dB*		<- this can only be used if band edge signal is highest within 2MHz of band edge.
Calculated Band-Edge Measurement (Peak):	56.4 dBuV/m		
Calculated Band-Edge Measurement (Avg):	48.1 dBuV/m		
Delta Marker - 1MHz/1MHz:	*42.5 dB*		
Delta Marker - 1MHz/10Hz:	49.5 *dB*		
Calculated Band-Edge Measurement (Peak):	62.9 dBuV/m		Using 100kHz delta value
Calculated Band-Edge Measurement (Avg):	47.6 dBuV/m		Using 1MHz delta value

Margin	Level	Limit	Detector
-6.4	47.6	54	Avg
-17.6	56.4	74	Pk

Frequency	Level	Pol	FCC 15.209		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5350.033	47.6	-	54.0	-6.4	Avg	-	-	Using 1MHz delta value

Client:	Intel Corporation	Job Number:	J78748
Model:	Intel Centrino Advanced-N 6200 with Yageo p/n 79010C500-011-G and p/n 79010C400-011-G antennas	T-Log Number:	T78805
		Account Manager:	Christine Krebill
Contact:	Steve Hackett		
Standard:	15.209 / 15.247	Class:	N/A



Client:	Intel Corporation	Job Number:	J78748
Model:	Intel Centrino Advanced-N 6200 with Yageo p/n 79010C500-011-G and p/n 79010C400-011-G antennas	T-Log Number:	T78805
		Account Manager:	Christine Krebill
Contact:	Steve Hackett		
Standard:	15.209 / 15.247	Class:	N/A

Run # 3c, EUT on Channel #100 5500MHz - n20, Chain A

	Power Settings		
	Target (dBm)	Measured (dBm)	Software Setting
Chain A	16.6	16.7	24.5

Fundamental Signal Field Strength

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5494.470	96.8	H	-	-	AVG	234	1.0	RB 1 MHz; VB: 10 Hz
5492.330	104.6	H	-	-	PK	234	1.0	RB 1 MHz; VB: 1 MHz
5493.000	96.1	V	-	-	AVG	187	1.0	RB 1 MHz; VB: 10 Hz
5494.730	104.2	V	-	-	PK	187	1.0	RB 1 MHz; VB: 1 MHz

5460 MHz Restricted Band Edge Signal Radiated Field Strength - Marker Delta

	H	V	
Fundamental emission level @ 3m in 1MHz RBW:	104.6	104.2	Peak Measurement (RB=VB=1MHz)
Fundamental emission level @ 3m in 1MHz RBW:	96.8	96.1	Average Measurement (RB=1MHz, VB=10Hz)
Delta Marker - 100kHz	*51.8 dB*		<- this can only be used if band edge signal is highest within 2MHz of band edge.
Calculated Band-Edge Measurement (Peak):	52.8 dBuV/m		
Calculated Band-Edge Measurement (Avg):	45.0 dBuV/m		Margin / Level / Limit / Detector
Delta Marker - 1MHz/1MHz:	*46.3 dB*		-9.4 / 44.6 / 54 / Avg
Delta Marker - 1MHz/10Hz:	52.2 dB		-21.2 / 52.8 / 74 / Pk
Calculated Band-Edge Measurement (Peak):	58.3 dBuV/m		Using 100kHz delta value
Calculated Band-Edge Measurement (Avg):	44.6 dBuV/m		Using 1MHz delta value

Frequency	Level	Pol	FCC 15.209		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5460.000	44.6	-	54.0	-9.4	Avg	-	-	Using 1MHz delta value

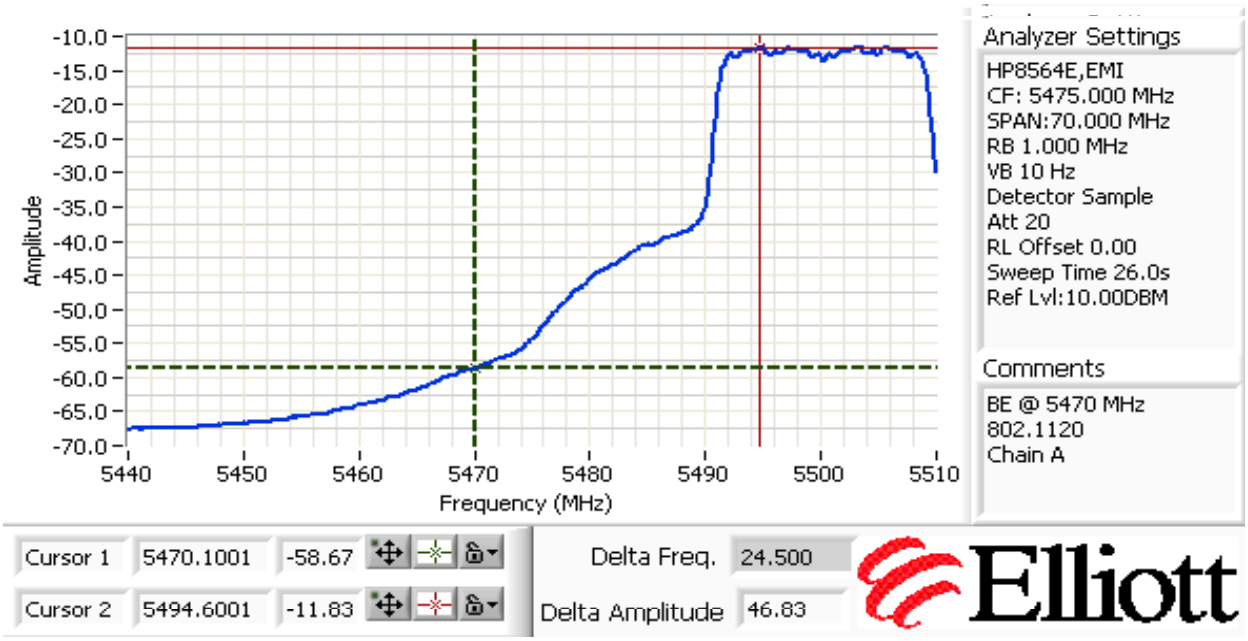
5470 MHz Band Edge Signal Radiated Field Strength - Marker Delta

	H	V	
Fundamental emission level @ 3m in 1MHz RBW:	104.6	104.2	Peak Measurement (RB=VB=1MHz)
Fundamental emission level @ 3m in 1MHz RBW:	96.8	96.1	Average Measurement (RB=1MHz, VB=10Hz)
Delta Marker - 100kHz	48.3 dB		<- this can only be used if band edge signal is highest within 2MHz of band edge.
Calculated Band-Edge Measurement (Peak):	56.3 dBuV/m		
Calculated Band-Edge Measurement (Avg):	48.5 dBuV/m		Margin / Level / Limit / Detector
Delta Marker - 1MHz/1MHz:	*41.8 dB*		-19.8 / 48.5 / 68.3 / Avg
Delta Marker - 1MHz/10Hz:	*46.8 dB*		-32.0 / 56.3 / 88.3 / Pk
Calculated Band-Edge Measurement (Peak):	62.8 dBuV/m		Using 100kHz delta value
Calculated Band-Edge Measurement (Avg):	50.0 dBuV/m		Using 100kHz delta value

Frequency	Level	Pol	FCC 15E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5470.000	48.5	-	68.3	-19.8	Avg	-	-	Using 100kHz delta value

Note - average limit is equivalent to -27dBm eirp.

Client:	Intel Corporation	Job Number:	J78748
Model:	Intel Centrino Advanced-N 6200 with Yageo p/n 79010C500-011-G and p/n 79010C400-011-G antennas	T-Log Number:	T78805
		Account Manager:	Christine Krebill
Contact:	Steve Hackett		
Standard:	15.209 / 15.247	Class:	N/A



Client:	Intel Corporation	Job Number:	J78748
Model:	Intel Centrino Advanced-N 6200 with Yageo p/n 79010C500-011-G and p/n 79010C400-011-G antennas	T-Log Number:	T78805
		Account Manager:	Christine Krebill
Contact:	Steve Hackett		
Standard:	15.209 / 15.247	Class:	N/A

Run # 3d, EUT on Channel #140 5700MHz - n20, Chain A

	Power Settings		
	Target (dBm)	Measured (dBm)	Software Setting
Chain A	16.6	16.8	25.5

Fundamental Signal Field Strength

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5694.530	97.2	H	-	-	AVG	188	1.0	RB 1 MHz; VB: 10 Hz
5695.200	105.4	H	-	-	PK	188	1.0	RB 1 MHz; VB: 1 MHz
5705.330	98.0	V	-	-	AVG	338	1.0	RB 1 MHz; VB: 10 Hz
5706.600	105.5	V	-	-	PK	338	1.0	RB 1 MHz; VB: 1 MHz

5725 MHz Restricted Band Edge Signal Radiated Field Strength - Marker Delta

	H	V	
Fundamental emission level @ 3m in 1MHz RBW:	105.4	105.5	Peak Measurement (RB=VB=1MHz)
Fundamental emission level @ 3m in 1MHz RBW:	97.2	98.0	Average Measurement (RB=1MHz, VB=10Hz)
Delta Marker - 100kHz	*42.2 dB*		<- this can only be used if band edge signal is highest within 2MHz of band edge.
Calculated Band-Edge Measurement (Peak):	63.3 dBuV/m		
Calculated Band-Edge Measurement (Avg):	55.8 dBuV/m		

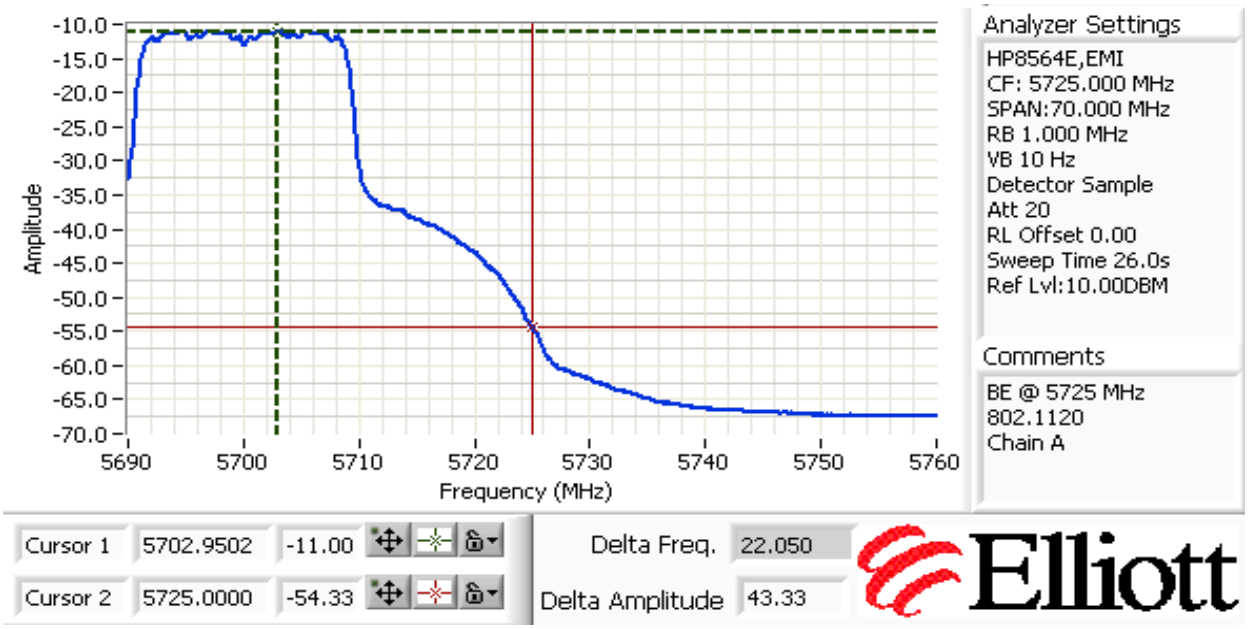
	Margin	Level	Limit	Detector
Delta Marker - 1MHz/1MHz: *34.8 dB*	-13.6	54.7	68.3	Avg
Delta Marker - 1MHz/10Hz: 43.3 *dB*	-25.0	63.3	88.3	Pk

Calculated Band-Edge Measurement (Peak):	70.7 dBuV/m	Using 100kHz delta value
Calculated Band-Edge Measurement (Avg):	54.7 dBuV/m	Using 1MHz delta value

Frequency	Level	Pol	FCC 15E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5725.000	54.7	-	68.3	-13.6	Avg	-	-	Using 1MHz delta value

Note - average limit is equivalent to -27dBm eirp.

Client:	Intel Corporation	Job Number:	J78748
Model:	Intel Centrino Advanced-N 6200 with Yageo p/n 79010C500-011-G and p/n 79010C400-011-G antennas	T-Log Number:	T78805
		Account Manager:	Christine Krebill
Contact:	Steve Hackett		
Standard:	15.209 / 15.247	Class:	N/A



Client:	Intel Corporation	Job Number:	J78748
Model:	Intel Centrino Advanced-N 6200 with Yageo p/n 79010C500-011-G and p/n 79010C400-011-G antennas	T-Log Number:	T78805
		Account Manager:	Christine Krebill
Contact:	Steve Hackett		
Standard:	15.209 / 15.247	Class:	N/A

Run # 4, Band Edge Field Strength - n40, Chain A

Run # 4a, EUT on Channel #38 5190MHz - n40, Chain A

Date of Test: 3/30/2010 Test Location: FT Chamber#3

Test Engineer: Joseph Cadigal Config Change: none

	Power Settings		
	Target (dBm)	Measured (dBm)	Software Setting
Chain A	16.7	12.7	25.0

Fundamental Signal Field Strength

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5178.930	91.6	V	-	-	AVG	345	1.0	RB 1 MHz; VB: 10 Hz
5179.070	99.5	V	-	-	PK	345	1.0	RB 1 MHz; VB: 1 MHz
5178.930	90.4	H	-	-	AVG	174	1.0	RB 1 MHz; VB: 10 Hz
5200.330	98.5	H	-	-	PK	174	1.0	RB 1 MHz; VB: 1 MHz

5150 MHz Band Edge Signal Radiated Field Strength - Marker Delta

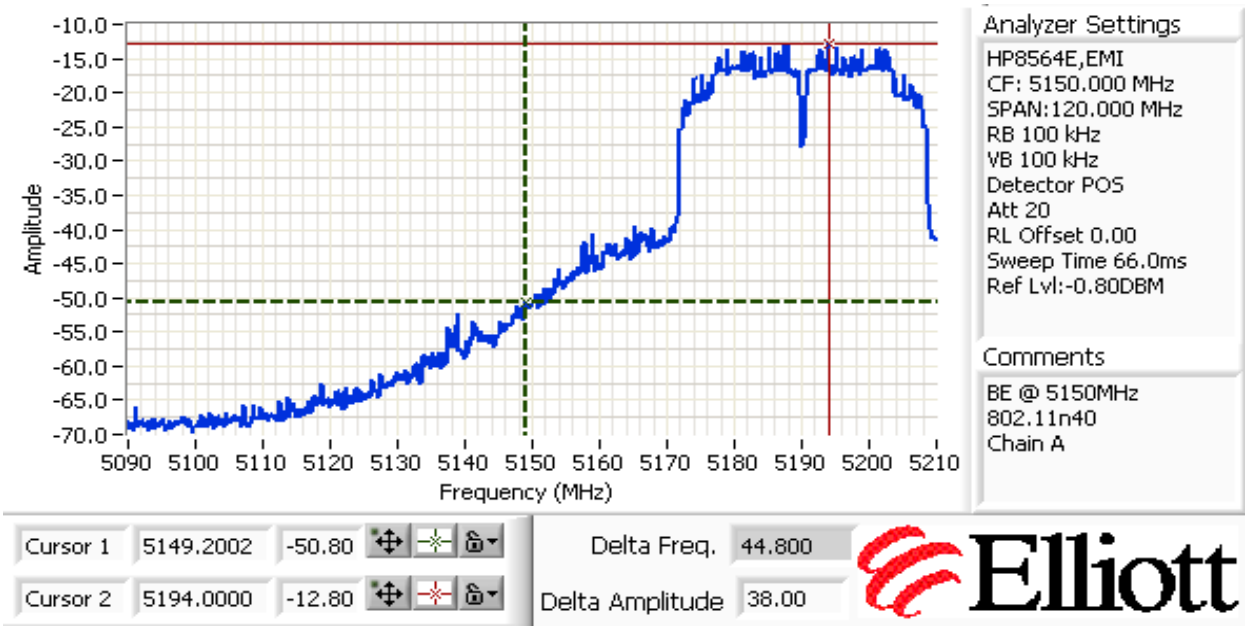
	H	V	
Fundamental emission level @ 3m in 1MHz RBW:	98.5	99.5	Peak Measurement (RB=VB=1MHz)
Fundamental emission level @ 3m in 1MHz RBW:	90.4	91.6	Average Measurement (RB=1MHz, VB=10Hz)
Delta Marker - 100kHz	38.0 *dB*		<- this can only be used if band edge signal is highest within 2MHz of band edge.
Calculated Band-Edge Measurement (Peak):	61.5 dBuV/m		
Calculated Band-Edge Measurement (Avg):	53.6 dBuV/m		

Margin	Level	Limit	Detector
-0.4	53.6	54	Avg
-12.5	61.5	74	Pk

Delta Marker - 1MHz/1MHz:	*33.8 dB*	
Delta Marker - 1MHz/10Hz:	*36.8 dB*	
Calculated Band-Edge Measurement (Peak):	65.7 dBuV/m	Using 100kHz delta value
Calculated Band-Edge Measurement (Avg):	54.8 dBuV/m	Using 100kHz delta value

Frequency	Level	Pol	FCC 15.209		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5150.000	53.6	-	54.0	-0.4	Avg	-	-	Using 100kHz delta value

Client:	Intel Corporation	Job Number:	J78748
Model:	Intel Centrino Advanced-N 6200 with Yageo p/n 79010C500-011-G and p/n 79010C400-011-G antennas	T-Log Number:	T78805
		Account Manager:	Christine Krebill
Contact:	Steve Hackett		
Standard:	15.209 / 15.247	Class:	N/A



Client:	Intel Corporation	Job Number:	J78748
Model:	Intel Centrino Advanced-N 6200 with Yageo p/n 79010C500-011-G and p/n 79010C400-011-G antennas	T-Log Number:	T78805
		Account Manager:	Christine Krebill
Contact:	Steve Hackett		
Standard:	15.209 / 15.247	Class:	N/A

Run # 4b, EUT on Channel #62 5310MHz - n40, Chain A

Date of Test: 3/30/2010 Test Location: FT Chamber#3

Test Engineer: Joseph Cadigal Config Change: none

	Power Settings		
	Target (dBm)	Measured (dBm)	Software Setting
Chain A	16.7	13.7	24.0

Fundamental Signal Field Strength

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5312.600	93.0	V	-	-	AVG	154	1.0	RB 1 MHz; VB: 10 Hz
5313.800	101.0	V	-	-	PK	154	1.0	RB 1 MHz; VB: 1 MHz
5298.930	91.4	H	-	-	AVG	70	1.0	RB 1 MHz; VB: 10 Hz
5299.800	99.5	H	-	-	PK	70	1.0	RB 1 MHz; VB: 1 MHz

5350 MHz Band Edge Signal Radiated Field Strength - Marker Delta

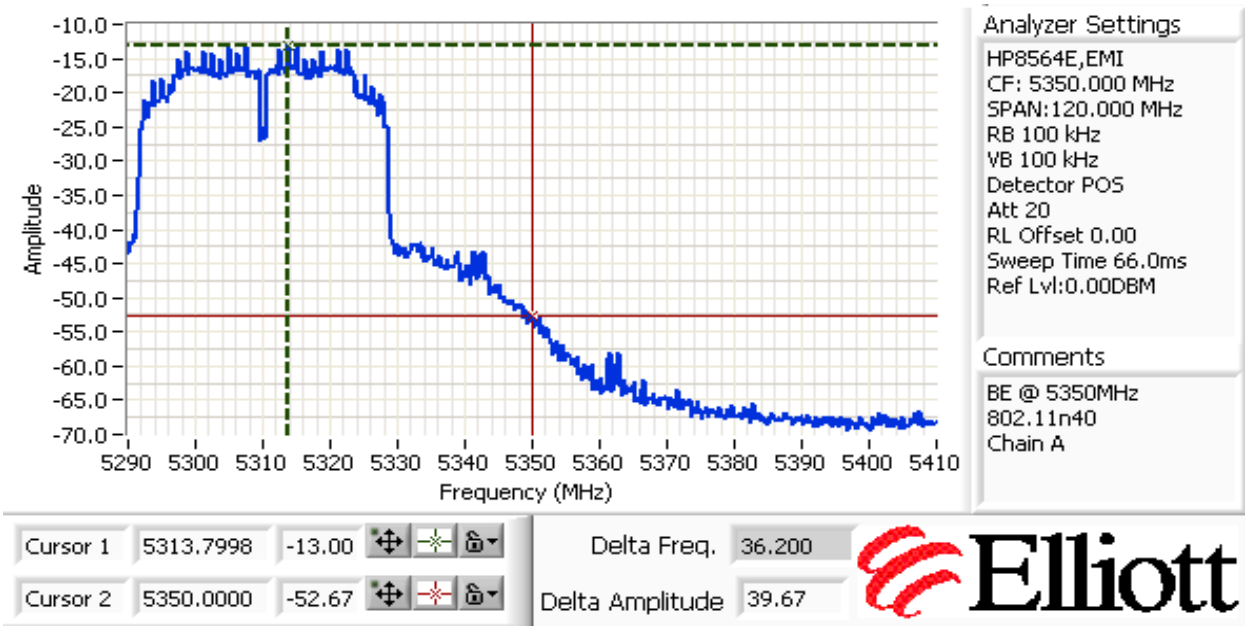
	H	V	
Fundamental emission level @ 3m in 1MHz RBW:	99.5	101.0	Peak Measurement (RB=VB=1MHz)
Fundamental emission level @ 3m in 1MHz RBW:	91.4	93.0	Average Measurement (RB=1MHz, VB=10Hz)
Delta Marker - 100kHz	*39.7 dB*		<- this can only be used if band edge signal is highest within 2MHz of band edge.
Calculated Band-Edge Measurement (Peak):	61.3 dBuV/m		
Calculated Band-Edge Measurement (Avg):	53.3 dBuV/m		

	Margin	Level	Limit	Detector
Delta Marker - 1MHz/1MHz:	-0.7	53.3	54	Avg
Delta Marker - 1MHz/10Hz:	-12.7	61.3	74	Pk

Calculated Band-Edge Measurement (Peak):	64.8 dBuV/m	Using 100kHz delta value
Calculated Band-Edge Measurement (Avg):	53.3 dBuV/m	Using 1MHz delta value

Frequency	Level	Pol	FCC 15.209		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5350.600	53.3	-	54.0	-0.7	Avg	-	-	Using 1MHz delta value

Client:	Intel Corporation	Job Number:	J78748
Model:	Intel Centrino Advanced-N 6200 with Yageo p/n 79010C500-011-G and p/n 79010C400-011-G antennas	T-Log Number:	T78805
		Account Manager:	Christine Krebill
Contact:	Steve Hackett		
Standard:	15.209 / 15.247	Class:	N/A



Client:	Intel Corporation	Job Number:	J78748
Model:	Intel Centrino Advanced-N 6200 with Yageo p/n 79010C500-011-G and p/n 79010C400-011-G antennas	T-Log Number:	T78805
		Account Manager:	Christine Krebill
Contact:	Steve Hackett		
Standard:	15.209 / 15.247	Class:	N/A

Run # 4c, EUT on Channel #102 5510MHz - n40, Chain A

	Power Settings		
	Target (dBm)	Measured (dBm)	Software Setting
Chain A	16.6	16.8	26.0

Fundamental Signal Field Strength

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5521.530	94.8	H	-	-	AVG	218	1.0	RB 1 MHz; VB: 10 Hz
5506.070	103.0	H	-	-	PK	218	1.0	RB 1 MHz; VB: 1 MHz
5512.530	93.9	V	-	-	AVG	85	1.0	RB 1 MHz; VB: 10 Hz
5507.930	102.1	V	-	-	PK	85	1.0	RB 1 MHz; VB: 1 MHz

5460 MHz Restricted Band Edge Signal Radiated Field Strength - Marker Delta

	H	V	
Fundamental emission level @ 3m in 1MHz RBW:	103.0	102.1	Peak Measurement (RB=VB=1MHz)
Fundamental emission level @ 3m in 1MHz RBW:	94.8	93.9	Average Measurement (RB=1MHz, VB=10Hz)
Delta Marker - 100kHz	*40.8 dB*		<- this can only be used if band edge signal is highest within 2MHz of band edge.
Calculated Band-Edge Measurement (Peak):	62.2 dBuV/m		
Calculated Band-Edge Measurement (Avg):	54.0 dBuV/m		Margin / Level / Limit / Detector
Delta Marker - 1MHz/1MHz:	*40.0 dB*		-2.5 / 51.5 / 54 / Avg
Delta Marker - 1MHz/10Hz:	43.3 dB		-11.8 / 62.2 / 74 / Pk
Calculated Band-Edge Measurement (Peak):	63.0 dBuV/m		Using 100kHz delta value
Calculated Band-Edge Measurement (Avg):	51.5 dBuV/m		Using 1MHz delta value

Frequency	Level	Pol	FCC 15.209		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5459.960	51.5	-	54.0	-2.5	Avg	-	-	Using 1MHz delta value

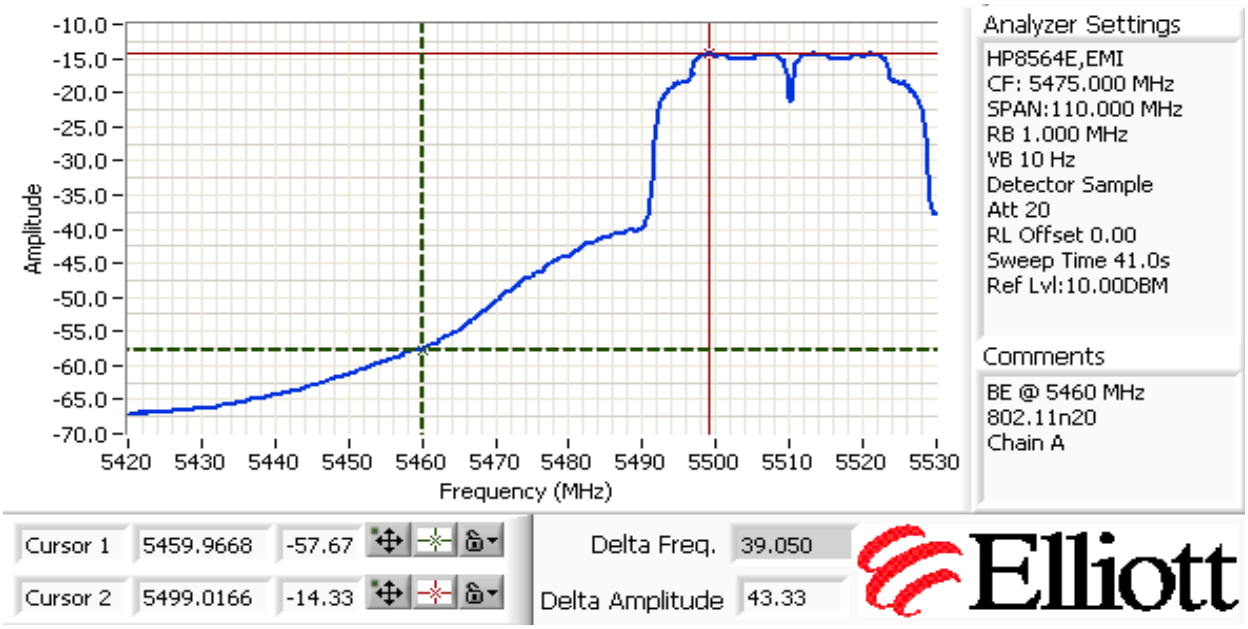
5470 MHz Band Edge Signal Radiated Field Strength - Marker Delta

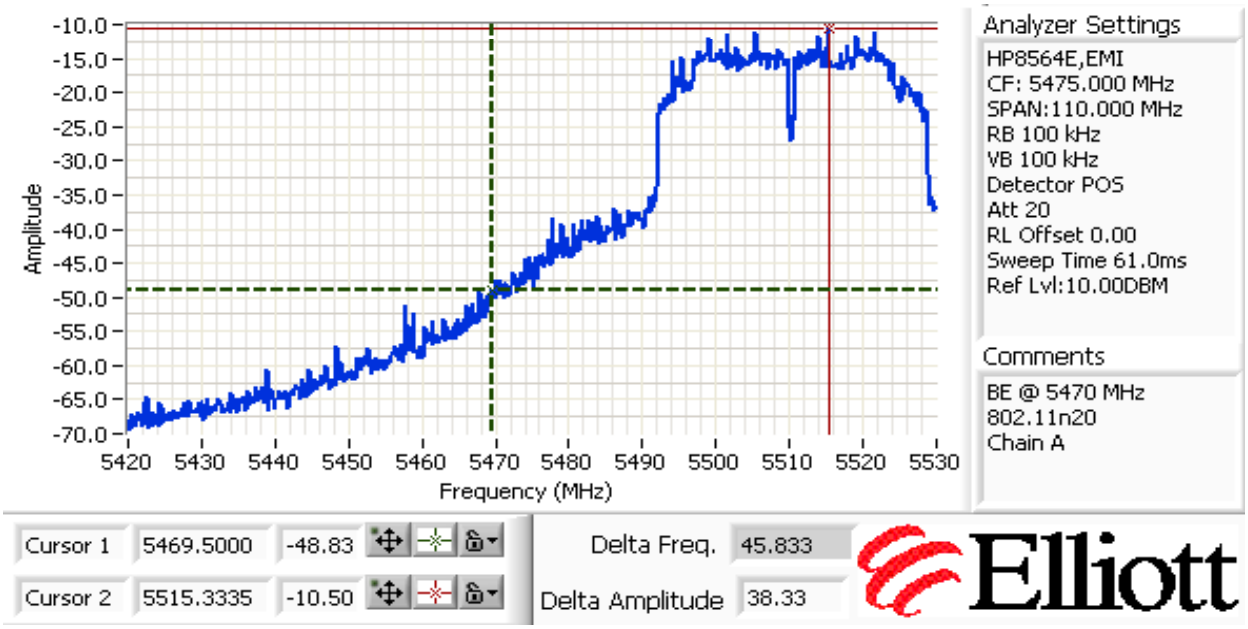
	H	V	
Fundamental emission level @ 3m in 1MHz RBW:	103.0	102.1	Peak Measurement (RB=VB=1MHz)
Fundamental emission level @ 3m in 1MHz RBW:	94.8	93.9	Average Measurement (RB=1MHz, VB=10Hz)
Delta Marker - 100kHz	38.3 dB		<- this can only be used if band edge signal is highest within 2MHz of band edge.
Calculated Band-Edge Measurement (Peak):	64.7 dBuV/m		
Calculated Band-Edge Measurement (Avg):	56.5 dBuV/m		Margin / Level / Limit / Detector
Delta Marker - 1MHz/1MHz:	*33.8 dB*		-11.8 / 56.5 / 68.3 / Avg
Delta Marker - 1MHz/10Hz:	*36.3 dB*		-23.6 / 64.7 / 88.3 / Pk
Calculated Band-Edge Measurement (Peak):	69.2 dBuV/m		Using 100kHz delta value
Calculated Band-Edge Measurement (Avg):	58.5 dBuV/m		Using 100kHz delta value

Frequency	Level	Pol	FCC 15E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5469.500	56.5	-	68.3	-11.8	Avg	-	-	Using 100kHz delta value

Note - average limit is equivalent to -27dBm eirp.

Client:	Intel Corporation	Job Number:	J78748
Model:	Intel Centrino Advanced-N 6200 with Yageo p/n 79010C500-011-G and p/n 79010C400-011-G antennas	T-Log Number:	T78805
		Account Manager:	Christine Krebill
Contact:	Steve Hackett		
Standard:	15.209 / 15.247	Class:	N/A





Client:	Intel Corporation	Job Number:	J78748
Model:	Intel Centrino Advanced-N 6200 with Yageo p/n 79010C500-011-G and p/n 79010C400-011-G antennas	T-Log Number:	T78805
		Account Manager:	Christine Krebill
Contact:	Steve Hackett		
Standard:	15.209 / 15.247	Class:	N/A

Run # 4d, EUT on Channel #134 5670MHz - n40, Chain A

Date of Test: 3/29/2010 Test Location: FT Chamber#4

Test Engineer: Joseph Cadigal Config Change: none

	Power Settings		
	Target (dBm)	Measured (dBm)	Software Setting
Chain A	16.4	16.4	27.0

Fundamental Signal Field Strength

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5681.330	97.0	V	-	-	AVG	0	1.0	RB 1 MHz; VB: 10 Hz
5680.870	105.0	V	-	-	PK	0	1.0	RB 1 MHz; VB: 1 MHz
5658.870	98.3	H	-	-	AVG	228	1.0	RB 1 MHz; VB: 10 Hz
5658.600	106.2	H	-	-	PK	228	1.0	RB 1 MHz; VB: 1 MHz

5725 MHz Restricted Band Edge Signal Radiated Field Strength - Marker Delta

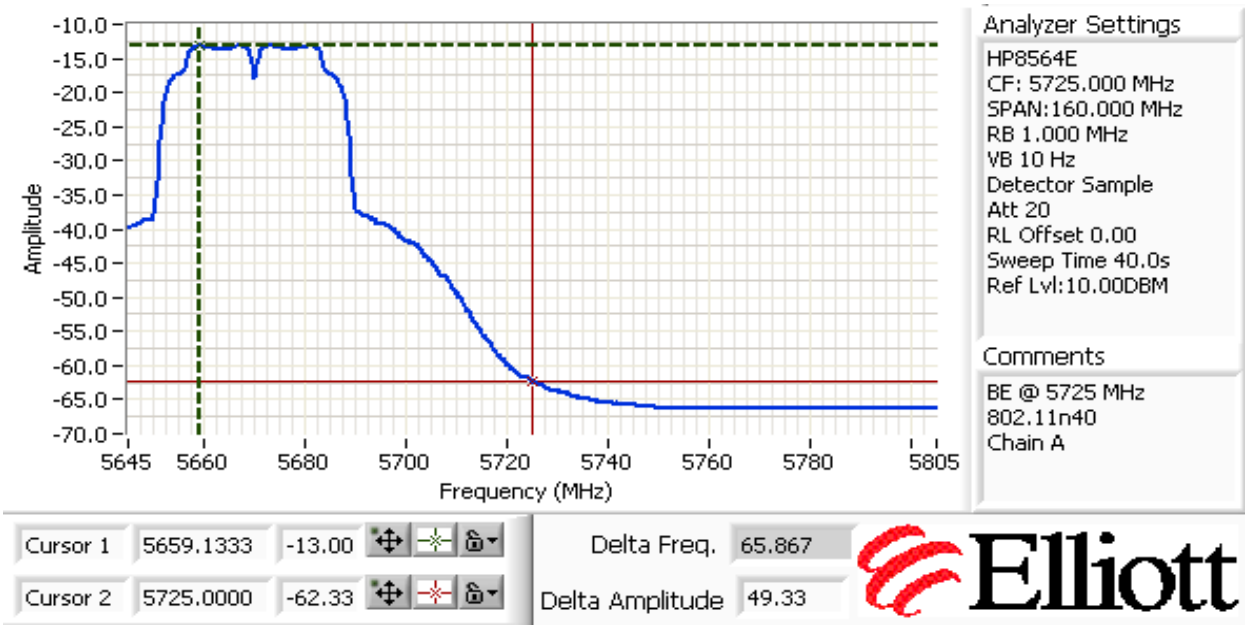
	H	V	
Fundamental emission level @ 3m in 1MHz RBW:	106.2	105.0	Peak Measurement (RB=VB=1MHz)
Fundamental emission level @ 3m in 1MHz RBW:	98.3	97.0	Average Measurement (RB=1MHz, VB=10Hz)
Delta Marker - 100kHz	*49.2 dB*		<- this can only be used if band edge signal is highest within 2MHz of band edge.
Calculated Band-Edge Measurement (Peak):	57.0 dBuV/m		
Calculated Band-Edge Measurement (Avg):	49.1 dBuV/m		
Delta Marker - 1MHz/1MHz:	*43.3 dB*		
Delta Marker - 1MHz/10Hz:	49.3 *dB*		
Calculated Band-Edge Measurement (Peak):	62.9 dBuV/m		Using 100kHz delta value
Calculated Band-Edge Measurement (Avg):	49.0 dBuV/m		Using 1MHz delta value

Margin	Level	Limit	Detector
-19.3	49.0	68.3	Avg
-31.3	57.0	88.3	Pk

Frequency	Level	Pol	FCC 15E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5725.000	49.0	-	68.3	-19.3	Avg	-	-	Using 1MHz delta value

Note - average limit is equivalent to -27dBm eirp.

Client:	Intel Corporation	Job Number:	J78748
Model:	Intel Centrino Advanced-N 6200 with Yageo p/n 79010C500-011-G and p/n 79010C400-011-G antennas	T-Log Number:	T78805
		Account Manager:	Christine Krebill
Contact:	Steve Hackett		
Standard:	15.209 / 15.247	Class:	N/A



Client:	Intel Corporation	Job Number:	J78748
Model:	Intel Centrino Advanced-N 6200 with Yageo p/n 79010C500-011-G and p/n 79010C400-011-G antennas	T-Log Number:	T78805
		Account Manager:	Christine Krebill
Contact:	Steve Hackett		
Standard:	15.209 / 15.247	Class:	N/A

RSS 210 and FCC 15 E Radiated Emissions

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.

Summary of Results

MAC Address: 002314129674 CRTU Tool Version 5.15.36.0 Driver version 13.0.0.91 Sample: 1

The target power is the average power and was taken from the oriingal certification test data

Run #	Mode	Channel	Target Power	Measured Power	Test Performed	Limit	Result / Margin
Run # 1	802.11a Chain A	#36 5180MHz	16.5	16.5	Radiated Emissions, 1 - 40 GHz	FCC 15.209 / 15 E	32.5dBµV/m @ 1331.5MHz (-21.5dB)
		#40 5200MHz	16.5	16.7			29.0dBµV/m @ 1329.7MHz (-25.0dB)
		#48 5240MHz	16.5	16.5			38.9dBµV/m @ 1330.3MHz (-15.1dB)
Run # 2	802.11a Chain B	#36 5180MHz	16.5	16.5	Radiated Emissions, 1 - 40 GHz	FCC 15.209 / 15 E	36.5dBµV/m @ 1331.4MHz (-17.5dB)
		#40 5200MHz	16.5	16.6			34.0dBµV/m @ 1330.4MHz (-20.0dB)
		#48 5240MHz	16.5	16.6			37.0dBµV/m @ 2385.1MHz (-17.0dB)
Previous testing (original certification report) shows that for the 5250-5350 MHz band the module had the highest emissions when operating in 802.11n20 mode. Tests were done with the power on each chain set the single chain power setting (16.5dBm) to cover both single- and dual chain modes simultaneously							
Run # 3	n20 Chain A+B	#52 5260MHz	16.5 per chain	16.5	Radiated Emissions, 1 - 40 GHz	FCC 15.209 / 15 E	51.0dBµV/m @ 7013.5MHz (-17.3dB)
		#60 5300MHz	16.5 per chain	16.5			39.7dBµV/m @ 2385.0MHz (-14.3dB)
		#64 5320MHz	16.5 per chain	16.5			34.7dBµV/m @ 1329.1MHz (-19.3dB)
Previous testing (original certification report) shows that for the 5470-5725 MHz band the module had the highest emissions when operating in 802.11n20 mode. Tests were done with the power on each chain set the single chain power setting (16.5dBm) to cover both single- and dual chain modes simultaneously							
Run # 4	n40 Chain A+B	#102 5510MHz	16.5 per chain	16.4	Radiated Emissions, 1 - 40 GHz	FCC 15.209 / 15 E	45.3dBµV/m @ 7346.8MHz (-8.7dB)
		#118 5590MHz	16.5 per chain	16.4			48.6dBµV/m @ 7453.4MHz (-5.4dB)
		#134 5670MHz	16.5 per chain	16.4			48.8dBµV/m @ 7560.1MHz (-5.2dB)

Client:	Intel Corporation	Job Number:	J78748
Model:	Intel Centrino Advanced-N 6200 with Yageo p/n 79010C500-011-G and p/n 79010C400-011-G antennas	T-Log Number:	T78805
		Account Manager:	Christine Krebill
Contact:	Steve Hackett		
Standard:	15.209 / 15.247	Class:	N/A

General Test Configuration

The EUT was installed into a test fixture such that the EUT was exposed (i.e. outside of a host PC).
For radiated emissions testing the measurement antenna was located 3 meters from the EUT.

Modifications Made During Testing

No modifications were made to the EUT during testing

Deviations From The Standard

No deviations were made from the requirements of the standard.

Scans above 18Ghz and found no significant signals

Run # 1, Radiated Spurious Emissions, 1-40GHz, 802.11a, Chain A

Date of Test: 3/29/2010 Test Location: FT Chamber#4

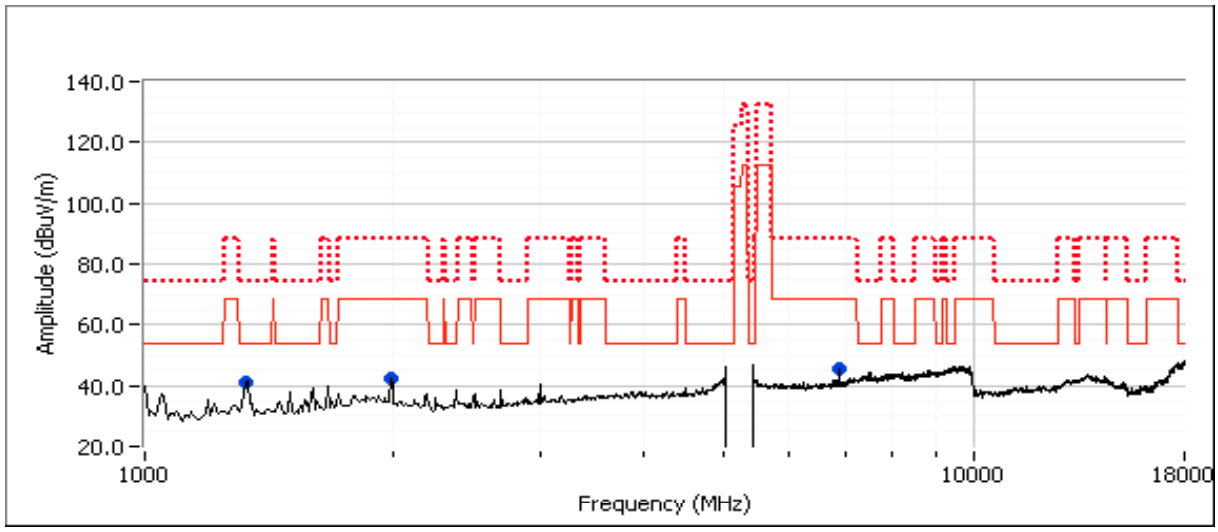
Test Engineer: Joseph Cadigal Config Change: none

For emissions in restricted bands, the limit of 15.209 was used. For all other emissions, the limit is -27dBm eirp (68.3dBuV/m @3m). As the power measured is average power this is ocnsidered an average limit so the peak limit would be 88.3dBuV/m at 3m.

Client:	Intel Corporation	Job Number:	J78748
Model:	Intel Centrino Advanced-N 6200 with Yageo p/n 79010C500-011-G and p/n 79010C400-011-G antennas	T-Log Number:	T78805
		Account Manager:	Christine Krebill
Contact:	Steve Hackett		
Standard:	15.209 / 15.247	Class:	N/A

Run # 1a: EUT on Channel #36 5180MHz - 802.11a, Chain A

	Power Settings								
	Target (dBm)				Measured (dBm)				Software Setting
Chain	A	B	C	Total	A	B	C	Total	
	16.5				16.6				30.0



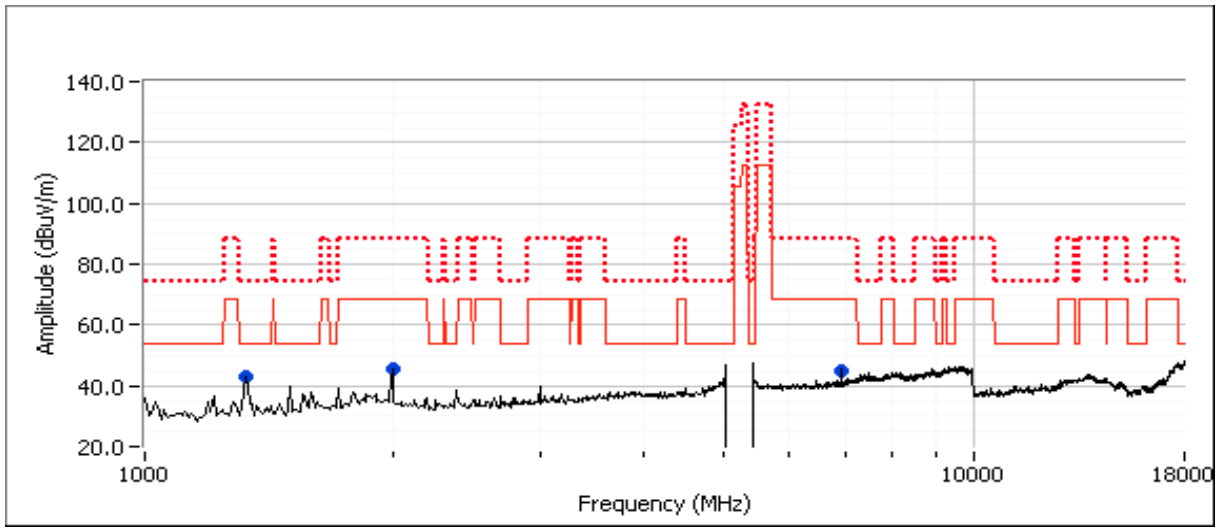
Spurious Radiated Emissions:

Frequency	Level	Pol	15.209 / 15E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
1331.540	32.5	V	54.0	-21.5	AVG	240	1.3	RB 1 MHz; VB: 10 Hz
6906.690	43.3	H	68.3	-25.0	AVG	244	1.0	RB 1 MHz; VB: 10 Hz
1331.090	47.9	V	74.0	-26.1	PK	240	1.3	RB 1 MHz; VB: 1 MHz
6906.500	52.4	H	88.3	-35.9	PK	244	1.0	RB 1 MHz; VB: 1 MHz
1977.580	30.4	V	68.3	-37.9	AVG	79	1.6	RB 1 MHz; VB: 10 Hz
1975.690	42.0	V	88.3	-46.3	PK	79	1.6	RB 1 MHz; VB: 1 MHz

Client:	Intel Corporation	Job Number:	J78748
Model:	Intel Centrino Advanced-N 6200 with Yageo p/n 79010C500-011-G and p/n 79010C400-011-G antennas	T-Log Number:	T78805
		Account Manager:	Christine Krebill
Contact:	Steve Hackett		
Standard:	15.209 / 15.247	Class:	N/A

Run # 1b: EUT on Channel #40 5200MHz - 802.11a, Chain A

	Power Settings								
	Target (dBm)				Measured (dBm)				Software Setting
Chain	A	B	C	Total	A	B	C	Total	
	16.5				16.7				26.0



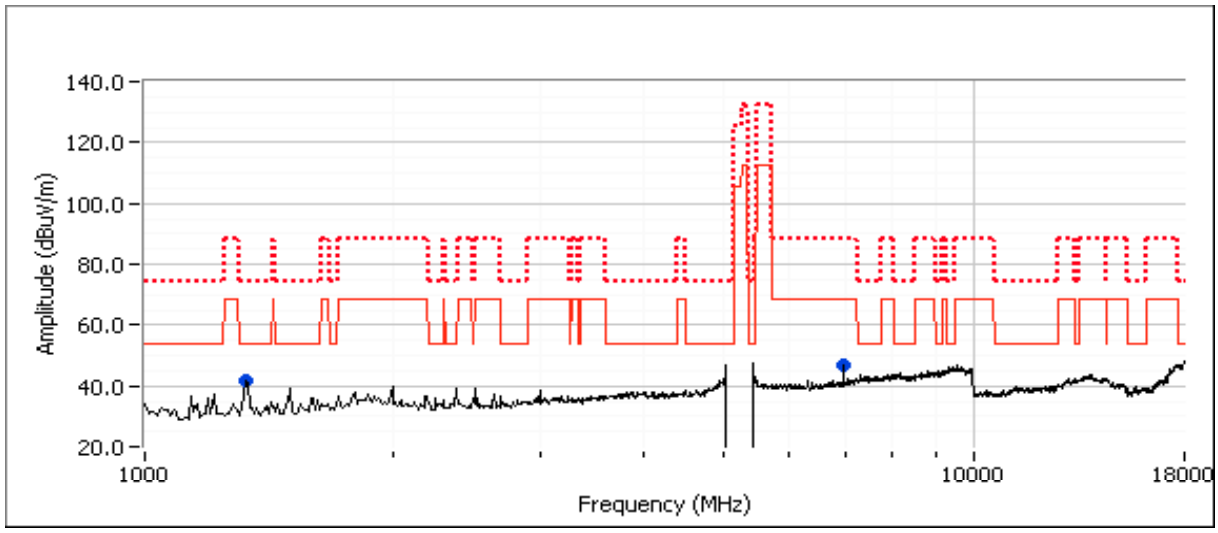
Spurious Radiated Emissions:

Frequency	Level	Pol	15.209 / 15E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
1329.730	29.0	V	54.0	-25.0	AVG	94	1.6	. MHz; VB: 10 Hz
1329.690	45.3	V	74.0	-28.7	PK	94	1.6	MHz; VB: 1 MHz
6933.370	32.4	V	68.3	-35.9	AVG	151	2.2	. MHz; VB: 10 Hz
1986.690	21.1	V	68.3	-47.2	AVG	94	1.3	. MHz; VB: 10 Hz
6933.500	40.1	V	88.3	-48.2	PK	151	2.2	MHz; VB: 1 MHz
1985.290	32.5	V	88.3	-55.8	PK	94	1.3	MHz; VB: 1 MHz

Client:	Intel Corporation	Job Number:	J78748
Model:	Intel Centrino Advanced-N 6200 with Yageo p/n 79010C500-011-G and p/n 79010C400-011-G antennas	T-Log Number:	T78805
		Account Manager:	Christine Krebill
Contact:	Steve Hackett		
Standard:	15.209 / 15.247	Class:	N/A

Run # 1c: EUT on Channel #48 5240MHz - 802.11a, Chain A

	Power Settings								
	Target (dBm)				Measured (dBm)				Software Setting
Chain	A	B	C	Total	A	B	C	Total	
	16.5				16.5				30.0



Spurious Radiated Emissions:

Frequency	Level	Pol	15.209 / 15E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
1330.310	38.9	V	54.0	-15.1	AVG	99	1.6	RB 1 MHz; VB: 10 Hz
1329.160	58.1	V	74.0	-15.9	PK	99	1.6	RB 1 MHz; VB: 1 MHz
6986.650	40.6	V	68.3	-27.7	AVG	179	1.3	RB 1 MHz; VB: 10 Hz
6986.910	49.2	V	88.3	-39.1	PK	179	1.3	RB 1 MHz; VB: 1 MHz

Client:	Intel Corporation	Job Number:	J78748
Model:	Intel Centrino Advanced-N 6200 with Yageo p/n 79010C500-011-G and p/n 79010C400-011-G antennas	T-Log Number:	T78805
		Account Manager:	Christine Krebill
Contact:	Steve Hackett		
Standard:	15.209 / 15.247	Class:	N/A

Run # 2, Radiated Spurious Emissions, 1-40GHz, 802.11a, Chain B

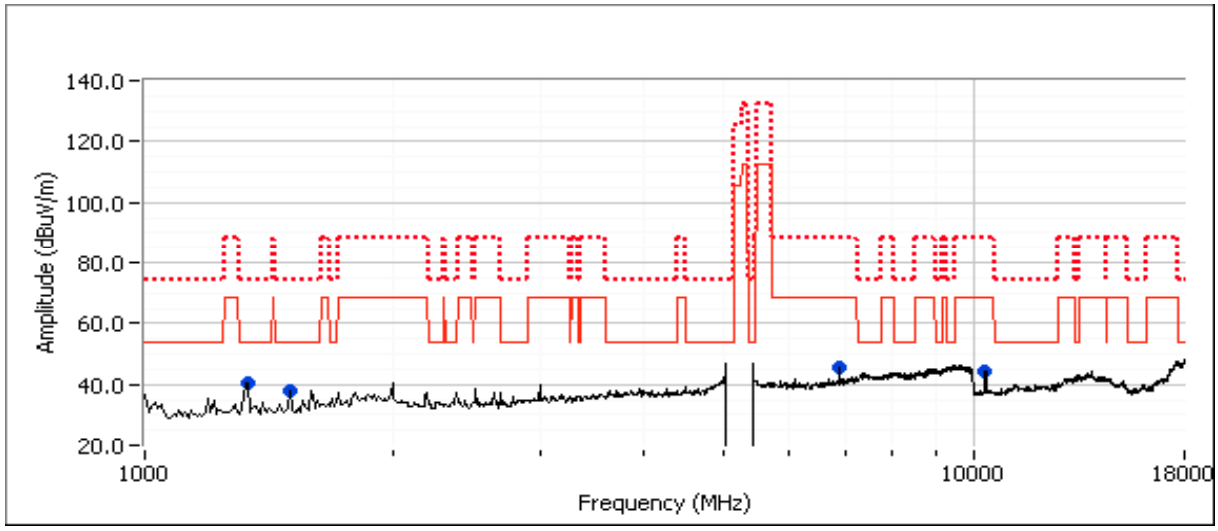
Date of Test: 3/29/2010 Test Location: FT Chamber#4

Test Engineer: Joseph Cadigal Config Change: none

For emissions in restricted bands, the limit of 15.209 was used. For all other emissions, the limit is -27dBm eirp (68.3dBuV/m @3m). As the power measured is average power this is ocnsidered an average limit so the peak limit would be 88.3dBuV/m at 3m.

Run # 2a: EUT on Channel #36 5180MHz - 802.11a, Chain B

	Power Settings								
	Target (dBm)				Measured (dBm)				Software Setting
Chain	A	B	C	Total	A	B	C	Total	
		16.5				16.5			30.0



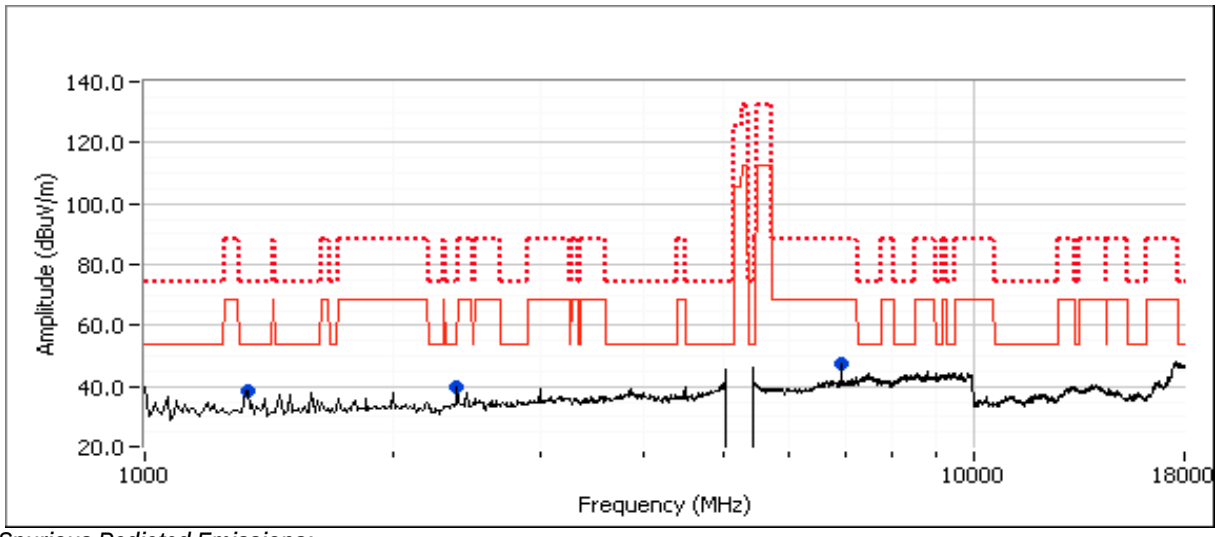
Spurious Radiated Emissions:

Frequency	Level	Pol	15.209 / 15E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
1331.430	36.5	V	54.0	-17.5	AVG	99	1.6	RB 1 MHz; VB: 10 Hz
1498.530	31.0	V	54.0	-23.0	AVG	214	1.3	RB 1 MHz; VB: 10 Hz
1331.830	49.9	V	74.0	-24.1	PK	99	1.6	RB 1 MHz; VB: 1 MHz
6911.030	37.6	V	68.3	-30.7	AVG	168	1.6	RB 1 MHz; VB: 10 Hz
1498.540	42.4	V	74.0	-31.6	PK	214	1.3	RB 1 MHz; VB: 1 MHz
10361.830	31.9	V	68.3	-36.4	AVG	193	1.0	RB 1 MHz; VB: 10 Hz
6912.770	49.2	V	88.3	-39.1	PK	168	1.6	RB 1 MHz; VB: 1 MHz
10359.610	43.2	V	88.3	-45.1	PK	193	1.0	RB 1 MHz; VB: 1 MHz

Client:	Intel Corporation	Job Number:	J78748
Model:	Intel Centrino Advanced-N 6200 with Yageo p/n 79010C500-011-G and p/n 79010C400-011-G antennas	T-Log Number:	T78805
		Account Manager:	Christine Krebill
Contact:	Steve Hackett		
Standard:	15.209 / 15.247	Class:	N/A

Run # 2b: EUT on Channel #40 5200MHz - 802.11a, Chain B

	Power Settings								
	Target (dBm)				Measured (dBm)				Software Setting
Chain	A	B	C	Total	A	B	C	Total	
		16.5				16.6			29.0



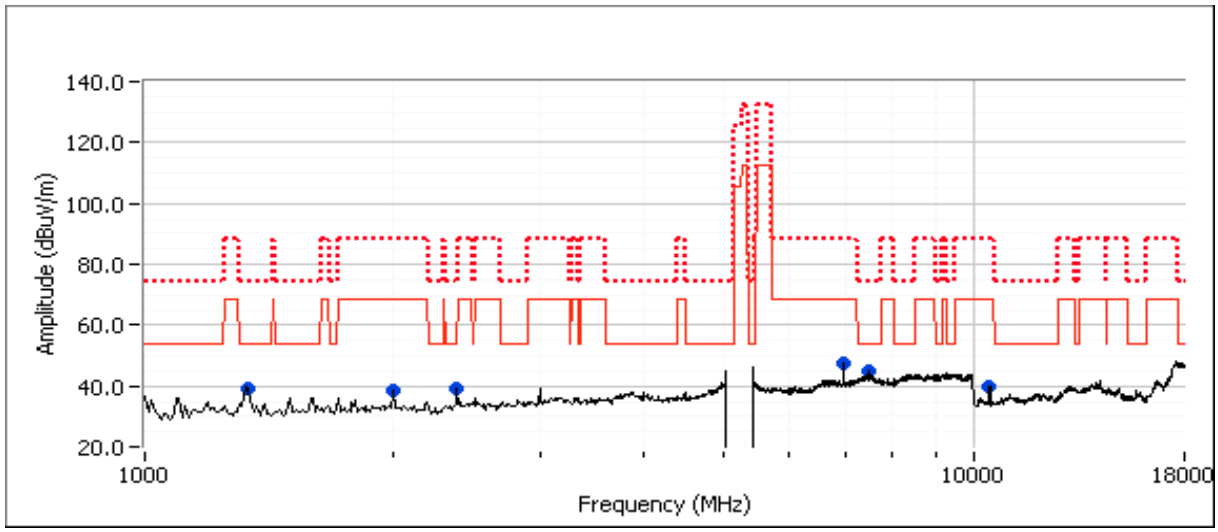
Spurious Radiated Emissions:

Frequency	Level	Pol	15.209 / 15E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
1330.420	34.0	V	54.0	-20.0	AVG	122	1.0	MHz; VB: 10 Hz
2385.020	33.8	H	54.0	-20.2	AVG	296	1.3	MHz; VB: 10 Hz
1330.650	49.7	V	74.0	-24.3	PK	122	1.0	MHz; VB: 1 MHz
6933.320	40.3	V	68.3	-28.0	AVG	168	1.6	MHz; VB: 10 Hz
2384.710	41.4	H	74.0	-32.6	PK	296	1.3	MHz; VB: 1 MHz
6933.300	48.8	V	88.3	-39.5	PK	168	1.6	MHz; VB: 1 MHz

Client:	Intel Corporation	Job Number:	J78748
Model:	Intel Centrino Advanced-N 6200 with Yageo p/n 79010C500-011-G and p/n 79010C400-011-G antennas	T-Log Number:	T78805
		Account Manager:	Christine Krebill
Contact:	Steve Hackett		
Standard:	15.209 / 15.247	Class:	N/A

Run # 2c: EUT on Channel #48 5240MHz - 802.11a, Chain B

	Power Settings								
	Target (dBm)				Measured (dBm)				Software Setting
Chain	A	B	C	Total	A	B	C	Total	
		16.5				16.6			31.0



Spurious Radiated Emissions:

Frequency	Level	Pol	15.209 / 15E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
2385.120	37.0	H	54.0	-17.0	AVG	76	1.0	RB 1 MHz; VB: 10 Hz
7507.310	36.2	V	54.0	-17.8	AVG	214	1.0	RB 1 MHz; VB: 10 Hz
6986.660	42.4	V	68.3	-25.9	AVG	172	1.6	RB 1 MHz; VB: 10 Hz
7509.620	48.0	V	74.0	-26.0	PK	214	1.0	RB 1 MHz; VB: 1 MHz
1327.650	27.3	V	54.0	-26.7	AVG	250	1.0	RB 1 MHz; VB: 10 Hz
2385.900	39.5	H	74.0	-34.5	PK	76	1.0	RB 1 MHz; VB: 1 MHz
1325.130	39.4	V	74.0	-34.6	PK	250	1.0	RB 1 MHz; VB: 1 MHz
10479.960	32.8	V	68.3	-35.5	AVG	273	1.9	RB 1 MHz; VB: 10 Hz
6986.800	50.0	V	88.3	-38.3	PK	172	1.6	RB 1 MHz; VB: 1 MHz
1997.360	28.7	V	68.3	-39.6	AVG	29	1.3	RB 1 MHz; VB: 10 Hz
10480.680	45.4	V	88.3	-42.9	PK	273	1.9	RB 1 MHz; VB: 1 MHz
1997.010	40.5	V	88.3	-47.8	PK	29	1.3	RB 1 MHz; VB: 1 MHz

Client:	Intel Corporation	Job Number:	J78748
Model:	Intel Centrino Advanced-N 6200 with Yageo p/n 79010C500-011-G and p/n 79010C400-011-G antennas	T-Log Number:	T78805
		Account Manager:	Christine Krebill
Contact:	Steve Hackett		
Standard:	15.209 / 15.247	Class:	N/A

Run # 3, Radiated Spurious Emissions, 1-40GHz, n20, Chain A+B

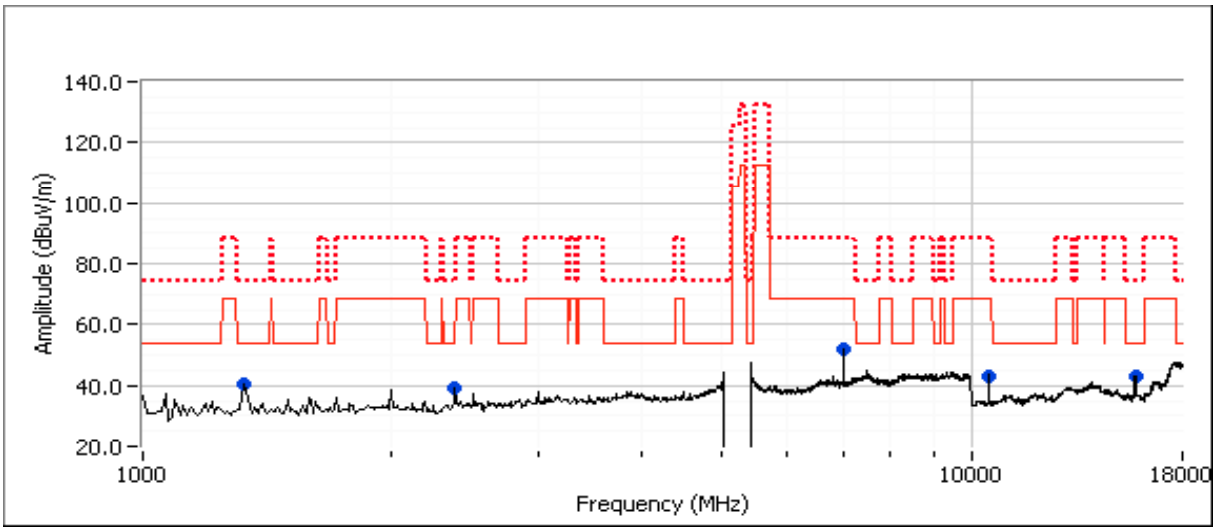
Date of Test: 3/30/2010 Test Location: FT Chamber#3

Test Engineer: Joseph Cadigal Config Change: none

For emissions in restricted bands, the limit of 15.209 was used. For all other emissions, the limit is -27dBm eirp (68.3dBuV/m @3m). As the power measured is average power this is ocnsidered an average limit so the peak limit would be 88.3dBuV/m at 3m.

Run # 3d: EUT on Channel #52 5260MHz - n20, Chain A+B

	Power Settings								
	Target (dBm)				Measured (dBm)				Software Setting
Chain	A	B	C	Total	A	B	C	Total	
	16.5	16.5		19.5	14.7	16.5		18.7	41.5



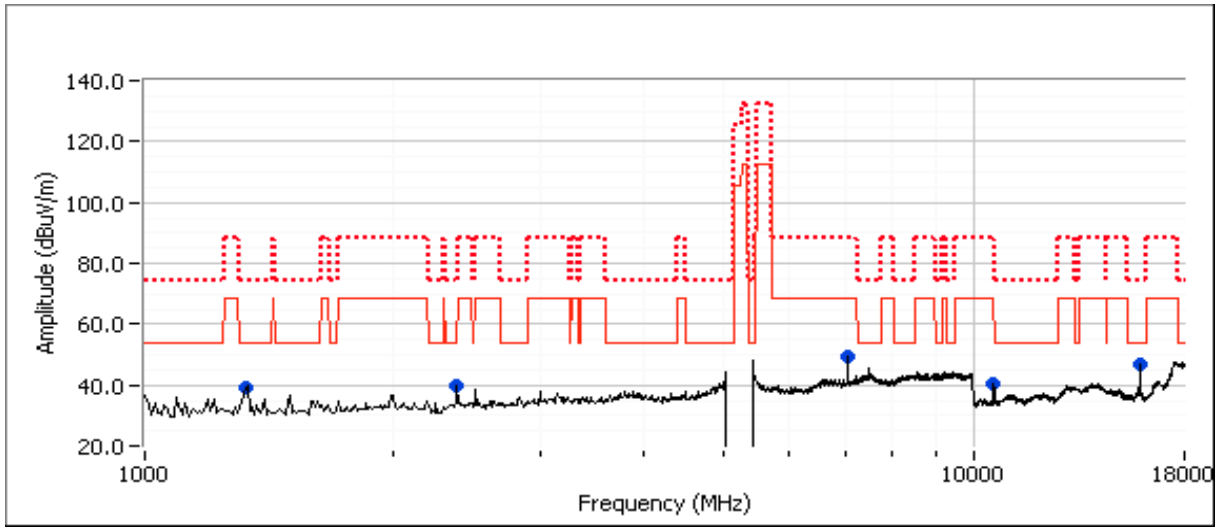
Spurious Radiated Emissions:

Frequency	Level	Pol	15.209 / 15E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
7013.450	51.0	V	68.3	-17.3	AVG	198	1.6	RB 1 MHz; VB: 10 Hz
1328.310	33.0	V	54.0	-21.0	AVG	114	1.0	RB 1 MHz; VB: 10 Hz
15770.200	32.5	V	54.0	-21.5	AVG	160	1.0	RB 1 MHz; VB: 10 Hz
2385.050	30.8	H	54.0	-23.2	AVG	360	1.0	RB 1 MHz; VB: 10 Hz
1326.950	48.1	V	74.0	-25.9	PK	114	1.0	RB 1 MHz; VB: 1 MHz
15769.980	44.2	V	74.0	-29.8	PK	160	1.0	RB 1 MHz; VB: 1 MHz
7013.390	54.4	V	88.3	-33.9	PK	198	1.6	RB 1 MHz; VB: 1 MHz
2384.260	38.9	H	74.0	-35.1	PK	360	1.0	RB 1 MHz; VB: 1 MHz
10523.010	31.1	H	68.3	-37.2	AVG	186	1.0	RB 1 MHz; VB: 10 Hz
10524.000	42.2	H	88.3	-46.1	PK	186	1.0	RB 1 MHz; VB: 1 MHz

Client:	Intel Corporation	Job Number:	J78748
Model:	Intel Centrino Advanced-N 6200 with Yageo p/n 79010C500-011-G and p/n 79010C400-011-G antennas	T-Log Number:	T78805
		Account Manager:	Christine Krebill
Contact:	Steve Hackett		
Standard:	15.209 / 15.247	Class:	N/A

Run # 3e: EUT on Channel #60 5300MHz - n20, Chain A+B

	Power Settings								
	Target (dBm)				Measured (dBm)				Software Setting
Chain	A	B	C	Total	A	B	C	Total	
	16.5	16.5		19.5	15.7	15.7		18.7	41.5



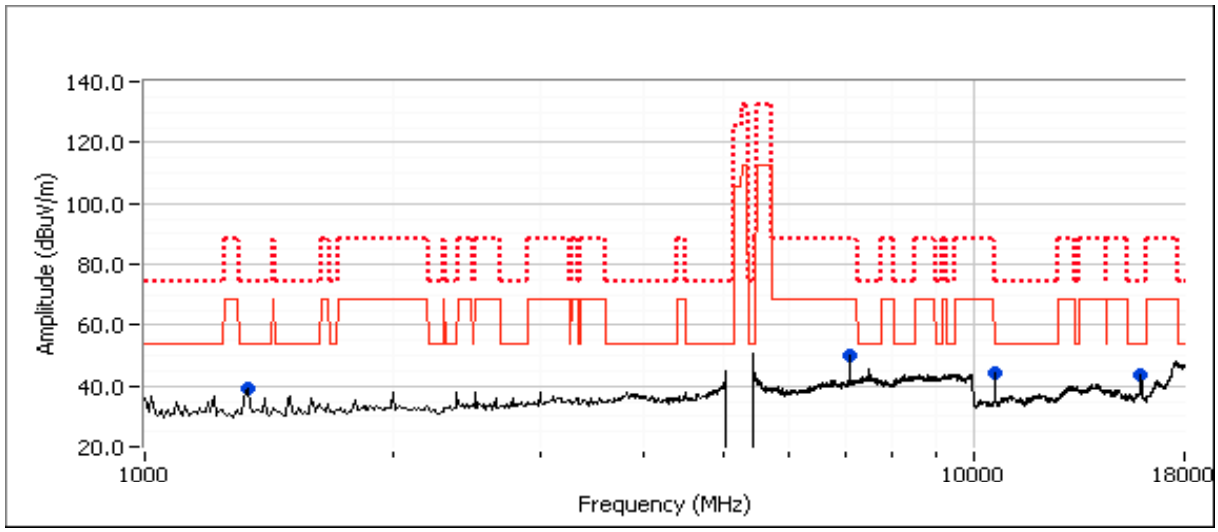
Spurious Radiated Emissions:

Frequency	Level	Pol	15.209 / 15E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
2385.000	39.7	V	54.0	-14.3	AVG	149	1.3	RB 1 MHz; VB: 10 Hz
15901.610	34.6	V	54.0	-19.4	AVG	186	1.0	RB 1 MHz; VB: 10 Hz
7066.780	48.3	V	68.3	-20.0	AVG	81	1.6	RB 1 MHz; VB: 10 Hz
1329.310	31.0	V	54.0	-23.0	AVG	79	1.0	RB 1 MHz; VB: 10 Hz
10600.980	29.9	V	54.0	-24.1	AVG	20	1.3	RB 1 MHz; VB: 10 Hz
1329.610	49.5	V	74.0	-24.5	PK	79	1.0	RB 1 MHz; VB: 1 MHz
15902.890	47.0	V	74.0	-27.0	PK	186	1.0	RB 1 MHz; VB: 1 MHz
10600.140	44.4	V	74.0	-29.6	PK	20	1.3	RB 1 MHz; VB: 1 MHz
2385.500	40.8	V	74.0	-33.2	PK	149	1.3	RB 1 MHz; VB: 1 MHz
7066.750	53.1	V	88.3	-35.2	PK	81	1.6	RB 1 MHz; VB: 1 MHz

Client:	Intel Corporation	Job Number:	J78748
Model:	Intel Centrino Advanced-N 6200 with Yageo p/n 79010C500-011-G and p/n 79010C400-011-G antennas	T-Log Number:	T78805
		Account Manager:	Christine Krebill
Contact:	Steve Hackett		
Standard:	15.209 / 15.247	Class:	N/A

Run # 3f: EUT on Channel #64 5320MHz - n20, Chain A+B

	Power Settings								
	Target (dBm)				Measured (dBm)				Software Setting
Chain	A	B	C	Total	A	B	C	Total	
	16.5	16.5		19.5	16.2	15.7		19.0	41.5



Spurious Radiated Emissions:

Frequency	Level	Pol	15.209 / 15E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
1329.110	34.7	V	54.0	-19.3	AVG	129	1.9	RB 1 MHz; VB: 10 Hz
1327.540	53.7	V	74.0	-20.3	PK	129	1.9	RB 1 MHz; VB: 1 MHz
15948.750	31.6	V	54.0	-22.4	AVG	155	1.0	RB 1 MHz; VB: 10 Hz
10641.800	28.1	V	54.0	-25.9	AVG	127	1.6	RB 1 MHz; VB: 10 Hz
15947.930	43.6	V	74.0	-30.4	PK	155	1.0	RB 1 MHz; VB: 1 MHz
10640.440	42.4	V	74.0	-31.6	PK	127	1.6	RB 1 MHz; VB: 1 MHz
7100.330	35.2	V	68.3	-33.1	AVG	87	1.0	RB 1 MHz; VB: 10 Hz
7100.170	46.7	V	88.3	-41.6	PK	87	1.0	RB 1 MHz; VB: 1 MHz

Client:	Intel Corporation	Job Number:	J78748
Model:	Intel Centrino Advanced-N 6200 with Yageo p/n 79010C500-011-G and p/n 79010C400-011-G antennas	T-Log Number:	T78805
		Account Manager:	Christine Krebill
Contact:	Steve Hackett		
Standard:	15.209 / 15.247	Class:	N/A

Run # 4, Radiated Spurious Emissions, 1-40GHz, n40, Chain A+B

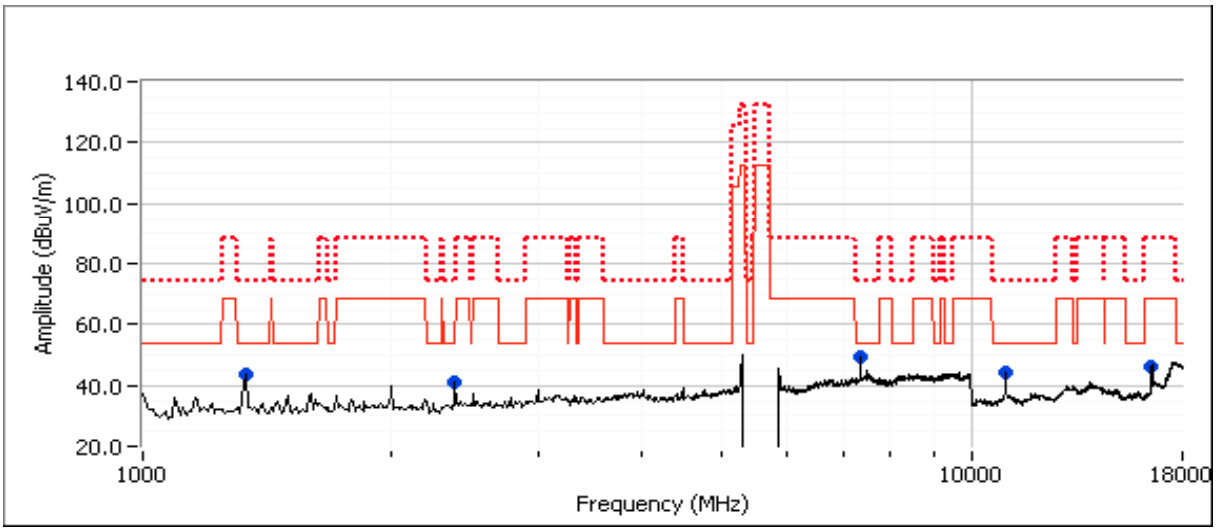
Date of Test: 3/30/2010 Test Location: FT Chamber#3

Test Engineer: Joseph Cadigal Config Change: none

For emissions in restricted bands, the limit of 15.209 was used. For all other emissions, the limit is -27dBm eirp (68.3dBuV/m @3m). As the power measured is average power this is ocnsidered an average limit so the peak limit would be 88.3dBuV/m at 3m.

Run # 4g: EUT on Channel #102 5510MHz - n40, Chain A+B

	Power Settings								
	Target (dBm)				Measured (dBm)				Software Setting
Chain	A	B	C	Total	A	B	C	Total	
	16.5	16.5		19.5	15.5	16.4		19.0	41.5



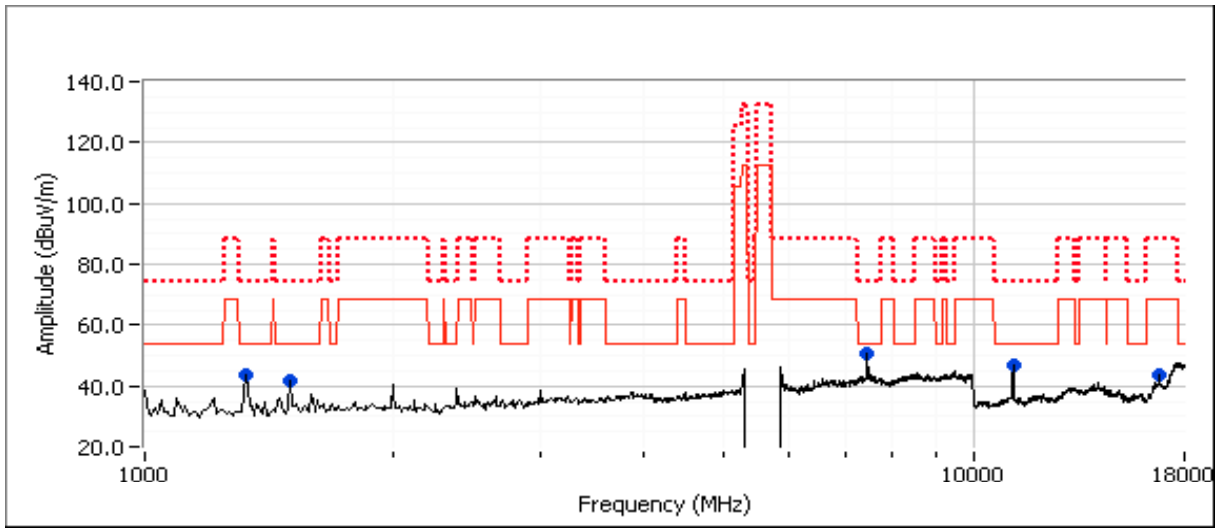
Spurious Radiated Emissions:

Frequency	Level	Pol	15.209 / 15E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
7346.800	45.3	V	54.0	-8.7	AVG	184	1.6	RB 1 MHz; VB: 10 Hz
2385.050	41.4	V	54.0	-12.6	AVG	237	1.0	RB 1 MHz; VB: 10 Hz
1328.820	31.8	V	54.0	-22.2	AVG	255	1.3	RB 1 MHz; VB: 10 Hz
7346.820	51.7	V	74.0	-22.3	PK	184	1.6	RB 1 MHz; VB: 1 MHz
1328.310	47.8	V	74.0	-26.2	PK	255	1.3	RB 1 MHz; VB: 1 MHz
2385.600	42.2	V	74.0	-31.8	PK	237	1.0	RB 1 MHz; VB: 1 MHz
16520.040	36.6	H	68.3	-31.7	AVG	86	1.6	RB 1 MHz; VB: 10 Hz
16519.580	48.8	H	88.3	-39.5	PK	86	1.6	RB 1 MHz; VB: 1 MHz
11026.380	32.2	V	54.0	-21.8	AVG	212	1.0	RB 1 MHz; VB: 10 Hz
11026.220	44.0	V	74.0	-30.0	PK	212	1.0	RB 1 MHz; VB: 1 MHz

Client:	Intel Corporation	Job Number:	J78748
Model:	Intel Centrino Advanced-N 6200 with Yageo p/n 79010C500-011-G and p/n 79010C400-011-G antennas	T-Log Number:	T78805
		Account Manager:	Christine Krebill
Contact:	Steve Hackett		
Standard:	15.209 / 15.247	Class:	N/A

Run # 4h: EUT on Channel #118 5590MHz - n40, Chain A+B

	Power Settings								
	Target (dBm)				Measured (dBm)				Software Setting
Chain	A	B	C	Total	A	B	C	Total	
	16.5	16.5		19.5	16.4	15.6		19.0	41.5



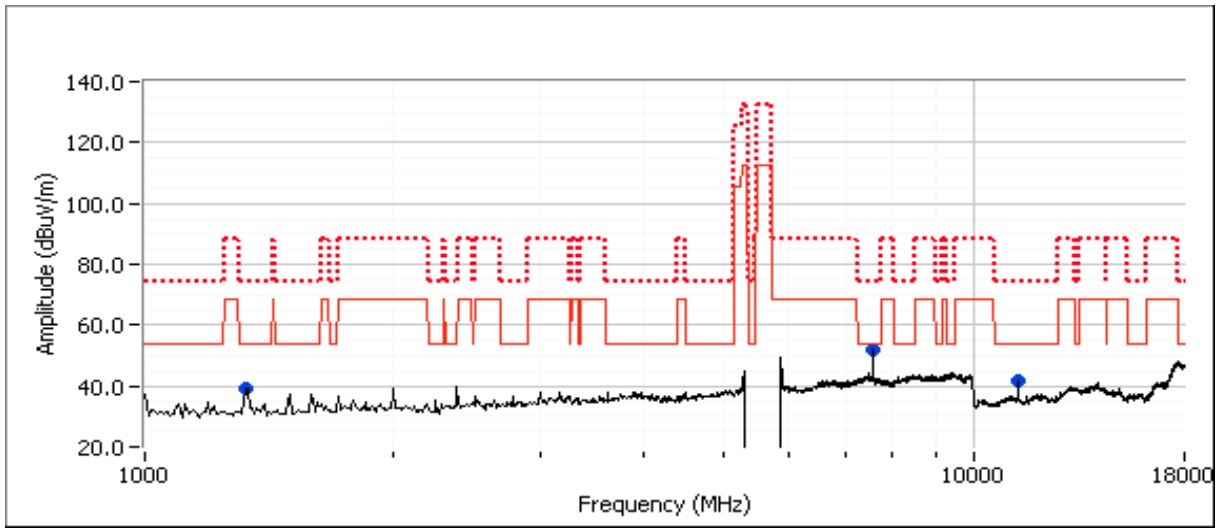
Spurious Radiated Emissions:

Frequency	Level	Pol	15.209 / 15E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
7453.430	48.6	V	54.0	-5.4	AVG	186	1.3	RB 1 MHz; VB: 10 Hz
11179.020	34.7	V	54.0	-19.3	AVG	263	1.6	RB 1 MHz; VB: 10 Hz
7453.370	53.7	V	74.0	-20.3	PK	186	1.3	RB 1 MHz; VB: 1 MHz
1328.560	32.3	V	54.0	-21.7	AVG	130	2.2	RB 1 MHz; VB: 10 Hz
1497.640	32.0	V	54.0	-22.0	AVG	175	1.0	RB 1 MHz; VB: 10 Hz
1327.840	49.3	V	74.0	-24.7	PK	130	2.2	RB 1 MHz; VB: 1 MHz
11180.030	48.8	V	74.0	-25.2	PK	263	1.6	RB 1 MHz; VB: 1 MHz
1499.430	43.9	V	74.0	-30.1	PK	175	1.0	RB 1 MHz; VB: 1 MHz
16780.290	34.9	H	68.3	-33.4	AVG	158	1.6	RB 1 MHz; VB: 10 Hz
16780.200	46.6	H	88.3	-41.7	PK	158	1.6	RB 1 MHz; VB: 1 MHz

Client:	Intel Corporation	Job Number:	J78748
Model:	Intel Centrino Advanced-N 6200 with Yageo p/n 79010C500-011-G and p/n 79010C400-011-G antennas	T-Log Number:	T78805
		Account Manager:	Christine Krebill
Contact:	Steve Hackett		
Standard:	15.209 / 15.247	Class:	N/A

Run # 4i: EUT on Channel #134 5670MHz - n40, Chain A+B

	Power Settings								
	Target (dBm)				Measured (dBm)				Software Setting
Chain	A	B	C	Total	A	B	C	Total	
	16.5	16.5		19.5	15.4	16.4		18.9	41.5



Spurious Radiated Emissions:

Frequency	Level	Pol	15.209 / 15E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
7560.090	48.8	V	54.0	-5.2	AVG	164	1.6	RB 1 MHz; VB: 10 Hz
1327.530	34.4	V	54.0	-19.6	AVG	123	1.0	RB 1 MHz; VB: 10 Hz
7560.170	53.6	V	74.0	-20.4	PK	164	1.6	RB 1 MHz; VB: 1 MHz
1326.470	49.7	V	74.0	-24.3	PK	123	1.0	RB 1 MHz; VB: 1 MHz
11346.610	30.8	V	54.0	-23.2	AVG	174	1.3	RB 1 MHz; VB: 10 Hz
11347.200	42.8	V	74.0	-31.2	PK	174	1.3	RB 1 MHz; VB: 1 MHz

Client:	Intel Corporation	Job Number:	J78748
Model:	Intel Centrino Advanced-N 6200 with Yageo p/n 79010C500-011-G and p/n 79010C400-011-G antennas	T-Log Number:	T78805
		Account Manager:	Christine Krebill
Contact:	Steve Hackett		
Standard:	15.209 / 15.247	Class:	N/A

RSS 210 Receiver Spurious Emissions

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

The EUT was installed into a test fixture such that the EUT was exposed (i.e. outside of a host PC).
For radiated emissions testing the measurement antenna was located 3 meters from the EUT.

Summary of Results

MAC Address: 002314129674 CRTU Tool Version 5.15.36.0 Driver version 13.0.0.91 Sample: 1

Run #	Mode	Channel	Target Power	Measured Power	Test Performed	Limit	Result / Margin
Run # 1	Rx Chain A+B	#6 (2437MHz)	-	-	Radiated Emissions, 1 - 7.5 GHz	RSS 210	43.6dBµV/m @ 2384.9MHz (-10.4dB)
		#40 (5200MHz)	-	-	Radiated Emissions, 1 - 18 GHz		40.6dBµV/m @ 7500.0MHz (-13.4dB)
		#60 (5300MHz)	-	-			41.6dBµV/m @ 2385.2MHz (-12.4dB)
		#120 (5600MHz)	-	-			43.8dBµV/m @ 7466.7MHz (-10.2dB)
		#157 (5785MHz)	-	-			40.6dBµV/m @ 7500.0MHz (-13.4dB)

No measurements made below 1GHz - emissions below 1GHz were independent of the antenna connected and operating mode during the orignal testing so were not repeated here.

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:	Intel Corporation	Job Number:	J78748
Model:	Intel Centrino Advanced-N 6200 with Yageo p/n 79010C500-011-G and p/n 79010C400-011-G antennas	T-Log Number:	T78805
		Account Manager:	Christine Krebill
Contact:	Steve Hackett		
Standard:	15.209 / 15.247	Class:	N/A

Run # 1, Radiated Spurious Emissions, 1-7.5 / 18 GHz, Rx, Chain A+B

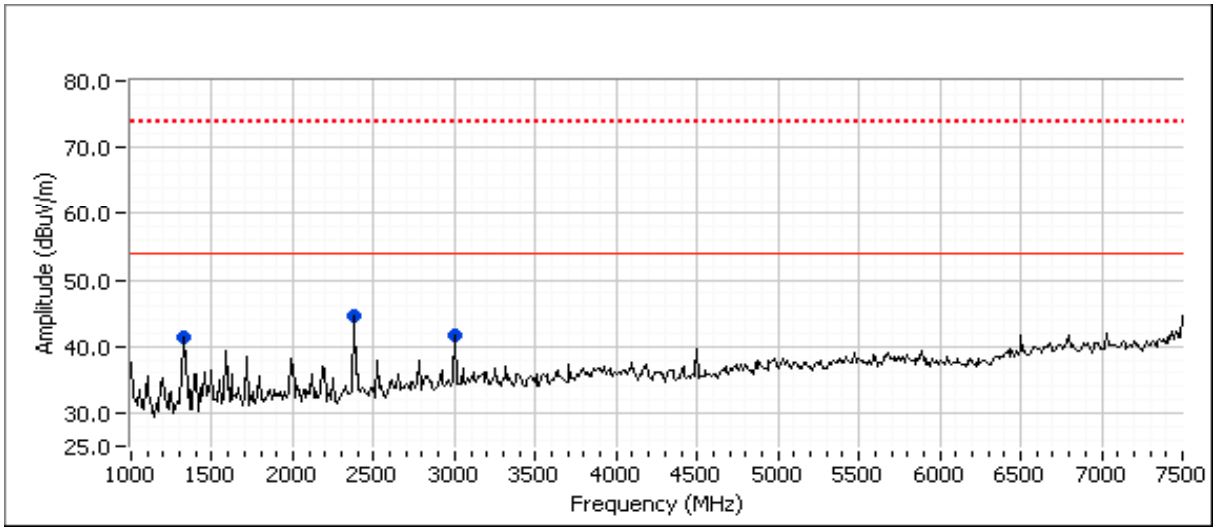
Date of Test: 4/1/2010 Test Location: FT Chamber #4

Test Engineer: Rafael Varelas Config Change: none

Run # 1a: EUT on Channel #6 (2437MHz) - Rx, Chain A+B

Spurious Radiated Emissions:

Frequency	Level	Pol	15.209 / 15E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
2384.870	43.6	V	54.0	-10.4	AVG	220	1.2	RB 1 MHz; VB: 10 Hz
2385.840	39.1	V	74.0	-34.9	PK	220	1.2	RB 1 MHz; VB: 1 MHz
3000.030	39.0	V	54.0	-15.0	AVG	270	1.0	RB 1 MHz; VB: 10 Hz
2999.880	45.2	V	74.0	-28.8	PK	270	1.0	RB 1 MHz; VB: 1 MHz
1330.000	31.1	V	54.0	-22.9	AVG	163	1.0	RB 1 MHz; VB: 10 Hz
1329.830	50.5	V	74.0	-23.5	PK	163	1.0	RB 1 MHz; VB: 1 MHz

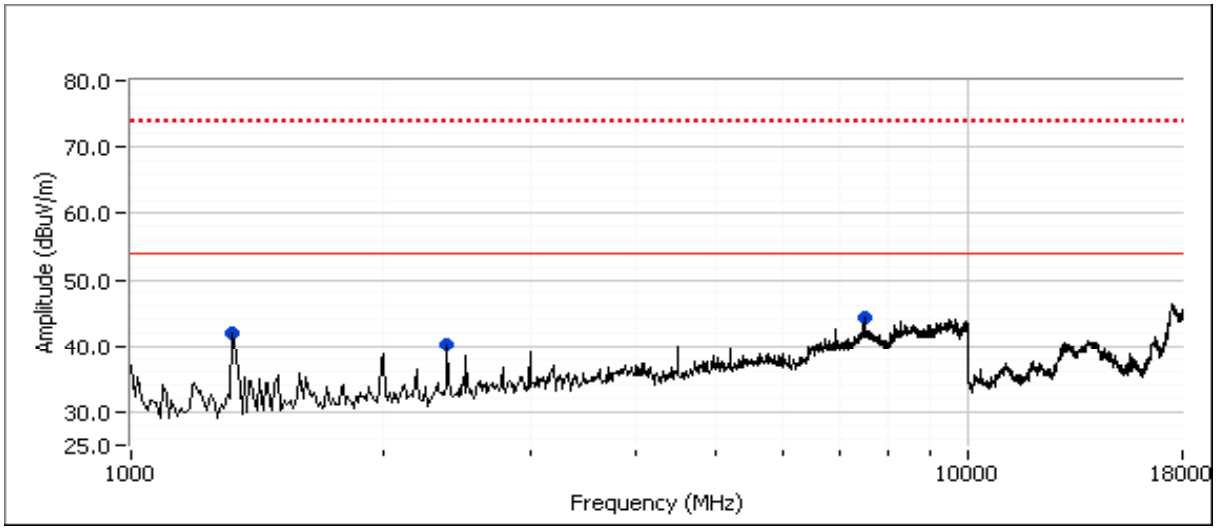


Client:	Intel Corporation	Job Number:	J78748
Model:	Intel Centrino Advanced-N 6200 with Yageo p/n 79010C500-011-G and p/n 79010C400-011-G antennas	T-Log Number:	T78805
		Account Manager:	Christine Krebill
Contact:	Steve Hackett		
Standard:	15.209 / 15.247	Class:	N/A

Run # 1b: EUT on Channel #40 (5200MHz) - Rx, Chain A+B

Spurious Radiated Emissions:

Frequency	Level	Pol	15.209 / 15E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
7500.000	40.6	V	54.0	-13.4	AVG	252	1.0	. MHz; VB: 10 Hz
7500.120	49.0	V	74.0	-25.0	PK	252	1.0	MHz; VB: 1 MHz
1331.160	34.3	V	54.0	-19.7	AVG	92	1.6	. MHz; VB: 10 Hz
1332.730	55.2	V	74.0	-18.8	PK	92	1.6	MHz; VB: 1 MHz
2384.470	34.2	V	54.0	-19.8	AVG	223	1.4	. MHz; VB: 10 Hz
2385.140	45.8	V	74.0	-28.2	PK	223	1.4	MHz; VB: 1 MHz

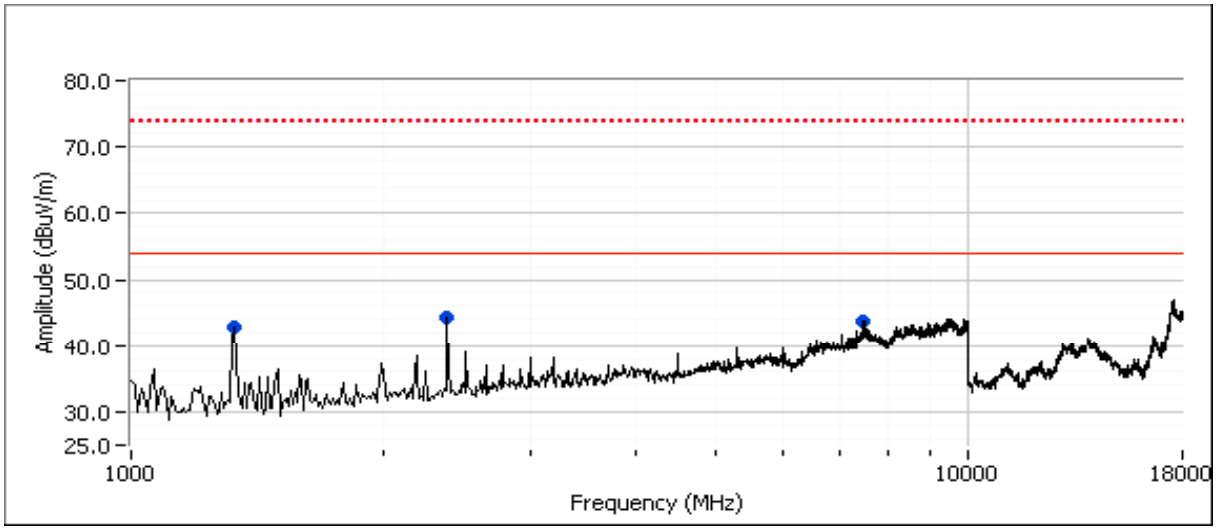


Client:	Intel Corporation	Job Number:	J78748
Model:	Intel Centrino Advanced-N 6200 with Yageo p/n 79010C500-011-G and p/n 79010C400-011-G antennas	T-Log Number:	T78805
		Account Manager:	Christine Krebill
Contact:	Steve Hackett		
Standard:	15.209 / 15.247	Class:	N/A

Run # 1c: EUT on Channel #60 (5300MHz) - Rx, Chain A+B

Spurious Radiated Emissions:

Frequency	Level	Pol	15.209 / 15E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
2385.170	41.6	V	54.0	-12.4	AVG	213	1.3	RB 1 MHz; VB: 10 Hz
2384.350	39.6	V	74.0	-34.4	PK	213	1.3	RB 1 MHz; VB: 1 MHz
1330.840	35.4	V	54.0	-18.6	AVG	255	1.2	RB 1 MHz; VB: 10 Hz
1321.200	55.2	V	74.0	-18.8	PK	255	1.2	RB 1 MHz; VB: 1 MHz
7500.010	40.6	V	54.0	-13.4	AVG	96	1.0	RB 1 MHz; VB: 10 Hz
7499.820	48.9	V	74.0	-25.1	PK	96	1.0	RB 1 MHz; VB: 1 MHz

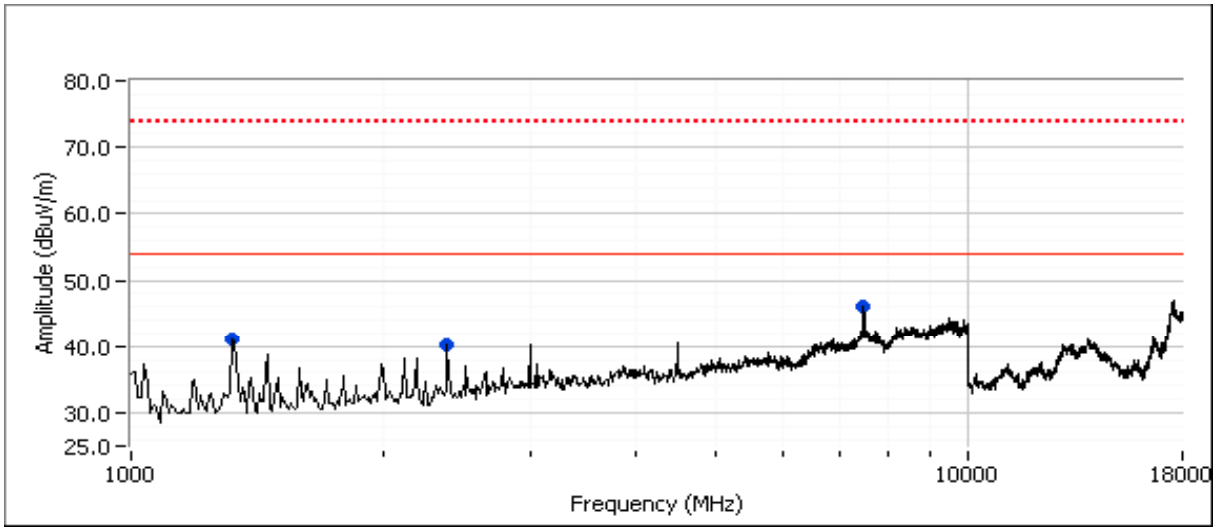


Client:	Intel Corporation	Job Number:	J78748
Model:	Intel Centrino Advanced-N 6200 with Yageo p/n 79010C500-011-G and p/n 79010C400-011-G antennas	T-Log Number:	T78805
		Account Manager:	Christine Krebill
Contact:	Steve Hackett		
Standard:	15.209 / 15.247	Class:	N/A

Run # 1d: EUT on Channel #120 (5600MHz) - Rx, Chain A+B

Spurious Radiated Emissions:

Frequency	Level	Pol	15.209 / 15E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
7466.700	43.8	V	54.0	-10.2	AVG	193	1.4	RB 1 MHz; VB: 10 Hz
7466.800	49.8	V	74.0	-24.2	PK	193	1.4	RB 1 MHz; VB: 1 MHz
2384.990	39.7	V	54.0	-14.3	AVG	20	1.3	RB 1 MHz; VB: 10 Hz
2385.030	44.5	V	74.0	-29.5	PK	20	1.3	RB 1 MHz; VB: 1 MHz
1330.570	34.2	V	54.0	-19.8	AVG	244	1.1	RB 1 MHz; VB: 10 Hz
1329.800	46.9	V	74.0	-27.1	PK	244	1.1	RB 1 MHz; VB: 1 MHz

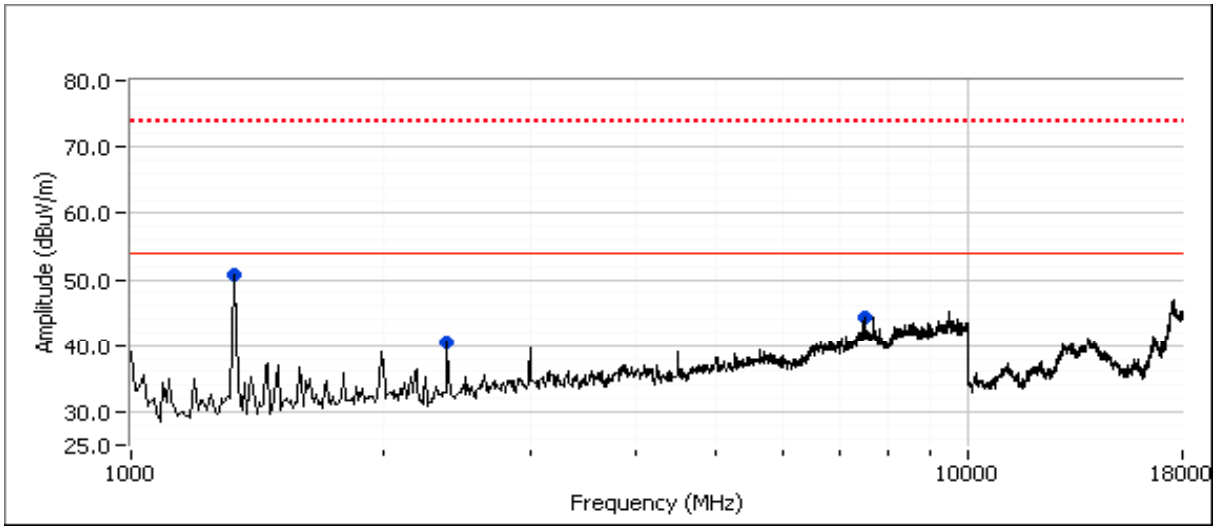


Client:	Intel Corporation	Job Number:	J78748
Model:	Intel Centrino Advanced-N 6200 with Yageo p/n 79010C500-011-G and p/n 79010C400-011-G antennas	T-Log Number:	T78805
		Account Manager:	Christine Krebill
Contact:	Steve Hackett		
Standard:	15.209 / 15.247	Class:	N/A

Run # 1e: EUT on Channel #157 (5785MHz) - Rx, Chain A+B

Spurious Radiated Emissions:

Frequency	Level	Pol	15.209 / 15E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
7500.040	40.6	V	54.0	-13.4	AVG	75	1.1	RB 1 MHz; VB: 10 Hz
7500.010	49.5	V	74.0	-24.5	PK	75	1.1	RB 1 MHz; VB: 1 MHz
1329.610	33.3	V	54.0	-20.7	AVG	245	1.2	RB 1 MHz; VB: 10 Hz
1329.550	52.5	V	74.0	-21.5	PK	245	1.2	RB 1 MHz; VB: 1 MHz
2385.070	35.4	V	54.0	-18.6	AVG	140	1.0	RB 1 MHz; VB: 10 Hz
2384.960	41.8	V	74.0	-32.2	PK	140	1.0	RB 1 MHz; VB: 1 MHz



Appendix C Photographs of Test Configurations

Uploaded as a separate exhibit

Appendix D Theory of Operation

Uploaded as a separate exhibit

Appendix E RF Exposure Information

Uploaded as a separate exhibit. Note that the rf exposure calculation is taken form the original filing. The antennas evaluated as part of this permissive change are of lower gain, therefore the original evaluation represents the worst case MPE calculation for the device.