

*Electromagnetic Emissions Test Report
Application for Grant of Equipment Authorization
Class II Permissive Change
pursuant to
Industry Canada RSS-Gen Issue 2 / RSS 210 Issue 7
FCC Part 15, Subpart E
on the
Intel Corporation
Transmitter
Model: 533AN_MMW*

UPN: 1000M-533ANMU
FCC ID: PD9533ANMU

GRANTEE: Intel Corporation
2111 N.E. 25th Ave.
Hillsboro, OR 97124-5961

TEST SITE: Elliott Laboratories
684 W. Maude Ave
Sunnyvale, CA 94086

REPORT DATE: July 22, 2008

FINAL TEST DATE: June 27, June 28, June 30, July 1, July 2, July 3,
July 8, July 9 and July 10, 2008

AUTHORIZED SIGNATORY:



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Testing Cert #2016-01

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REVISION HISTORY

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SCOPE

An electromagnetic emissions test has been performed on the Intel Corporation model 533AN_MMW 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.

The test results recorded herein are based on a single type test of the Intel Corporation model 533AN_MMW and therefore apply only to the tested sample. The sample was selected and prepared by Robert Paxman of Intel Corporation

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 model 533AN_MMW complied with the requirements of the following regulations:

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

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

TEST RESULTS SUMMARY**UNII / LELAN DEVICES**

In the following tables the highlighted entries for receiver- and transmitter-spurious emissions were taken from the original report and are included for reference only.

Operation in the 5.15 – 5.25 GHz and 5.25 – 5.35 GHz Bands

FCC Rule Part	RSS Rule Part	Description	Measured Value / Comments	Limit / Requirement	Result
15.407(e)		Indoor operation only	Intended for use in indoor devices only	May only be designed for indoor use	Complies
15.407(a) (1)	A9.2(1)	Output Power	No tests performed, the maximum power, power spectral density remain unchanged from the values originally reported. The proposed addition of antenna does not affect the operation of the device as it relates to these requirements.		
15.407(a) (2)		Power Spectral Density 802.11a Mode			
	A9.2(2) / A9.5 (2)				
15.407(a) (2)		Power Spectral Density 802.11n20 Mode			
	A9.2(2) / A9.5 (2)				
15.407(a) (2)		Power Spectral Density 802.11n40 Mode			
	A9.2(2) / A9.5 (2)				

General requirements for all U-NII/LELAN bands

FCC Rule Part	RSS Rule Part	Description	Measured Value / Comments	Limit / Requirement	Result
	A9.5a	Modulation	Modulation and 99% bandwidth are not affected by the proposed change		
	RSP 100	99% bandwidth			
15.407(b) (5) / 15.209	A9.3	Spurious Emissions below 1GHz	During the original testing spurious emissions below 1GHz were shown to be independent of antenna or transmitter/receiver operating mode. Test was not performed as the proposed changes are only to the antenna		
15.407(b) (2)	A9.3	Spurious Emissions above 1GHz	53.2dB μ V/m @ 5149.9MHz (Amphenol)	15.207 in restricted bands, all others <-27dBm eirp	Complies (-0.8dB)
			53.3 dBuV/m @ 5350.1 MHz (Ethertronics)		Complies (-0.7dB)
15.407(a) (6)	-	Peak Excursion Ratio	The proposed addition of antenna does not affect the operation of the device as it relates to these requirements		
15.407 (c)	A9.5(4)	Operation in the absence of information to transmit			
15.407 (g)	A9.5 (5)	Frequency Stability			
15.407 (h1)	A9.4	Transmit Power Control			
15.407 (h2)	A9.4	Dynamic Frequency Selection			

GENERAL REQUIREMENTS APPLICABLE TO ALL BANDS

FCC Rule Part	RSS Rule part	Description	Measured Value / Comments	Limit / Requirement	Result (margin)
15.203	-	RF Connector	The proposed addition of antenna does not affect the antenna connector		
-	RSS GEN 7.2.3	Receiver spurious emissions	50.3dB μ V/m @ 6933.3MHz Amphenol Antenna	RSS GEN Table 1	Complies (-3.7dB)
			53.3dB μ V/m @ 6933.3MHz Ethertronics Antenna		Complies (-0.7dB)
15.207	RSS GEN Table 2	AC Conducted Emissions	The proposed addition of antenna does not affect the AC conducted emissions.		
15.247 (b) (5) 15.407 (f)	RSS 102	RF Exposure Requirements	RF exposure remains the same as the output power and maximum antenna gain in each band have not been increased.		
	RSP 100 RSS GEN 7.1.5	User Manual	The User's Manual that was submitted for the original application remains unchanged.		
	RSP 100 RSS GEN 7.1.5	User Manual			

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 model 533AN_MMW is a 3x3 MIMO 802.11abgn radio module that is designed to be installed in laptops. The module supports 802.11b, 802.11g and 802.11n protocols in the 2400 - 2483.5 MHz band and 802.11a and 802.11n protocols in the 5150 - 5250 MHz, 5250 - 5350 MHz, 5470 - 5725 MHz and 5725 - 5850 MHz bands. In legacy modes (802.11abg) any one of the transmit chain can be active. In 802.11n modes any one, two or all three chains can be active. In 802.11n mode it supports both 20-MHz and 40-MHz channels.

For testing purposes, and in accordance with requirements for evaluating a device for modular approvals, the EUT was installed onto an extender card that was connected into a PC. The EUT was outside of the PC's enclosure. The electrical rating of the EUT is 3.3 Volts DC, 0.5 Amps.

The sample was received on June 27, 2008 and tested on June 27, June 28, June 30, July 1, July 2, July 3, July 8, July 9 and July 10, 2008. The EUT consisted of the following component(s):

Manufacturer	Model	Description	Serial Number	FCC ID
Intel Corporation	533AN-MMW(MMC)	802.11abgn Radio	MAC: 0016EA02D4D0	PD9533ANMU

ANTENNA SYSTEM

Refer to the ANTENNA section of this report.

ENCLOSURE

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

MODIFICATIONS

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

SUPPORT EQUIPMENT

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

Manufacturer	Model	Description	Serial Number	FCC ID
Dell	Prototype	Laptop PC	Prototype	-

No remote support equipment was used during emissions testing.

EUT INTERFACE PORTS

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

Port	Connected To	Cable(s)		
		Description	Shielded or Unshielded	Length(m)
PC	Board	PCI-Express extender	-	0.2
Antennas(3)	Antennas(3)	Coax(3)	Shielded	0.3
DC Power	Board	3.3V dc	Unshielded	0.3

EUT OPERATION

During transmitter-related testing the EUT was configured to transmit continuously in each of the various modulation modes (802.11a and 802.11n). Preliminary testing (a data sheets is included with this application showing output power at the various data rates) determined the data rates with the highest power and power spectral density to be evaluated for the formal testing, as detailed in the table below.

Mode \ Active Chains	1 Chain	2 Chains	3 Chains
802.11b	1Mb/s		
802.11g	6 MBs		
802.11a	6 Mb/s		
802.11n (20MHz channel)	HT 0 (6 Mbps)	HT8 (12 Mb/s)	HT16 (18 Mb/s)
802.11n (40MHz channel)	HT 0 (15 Mbps)	HT8 (30 Mb/s)	HT16 (45 Mb/s)

Spurious transmitter emissions were measured with the device tuned to the high, low and center channels in both the 5150-5250MHz and 5250-5350 MHz operating bands. Spurious measurements in the restricted bands immediately above and below the 5150 – 5350 MHz band were made in all three 5GHz modes (802.11a, 802.11n (20MHz) and 902.11n (40MHz). Spurious emissions outside of those restricted bands were made with the device operating in 802.11n mode based on the fact that the Universe PIFA antenna previously tested had highest spurious emissions in 802.11a mode.

Measurements at the band edges were made with each chain active individually and, for the n-modes with all combinations (2x and 3x) of active chains. Spurious measurements were made on the center channel in each band for each individual chain and on the top, bottom and centre channel with all three chains active. With all three chains active the output power was adjusted to the highest power setting used for single-chain operation, which is higher than the power setting used for triple-chain operation, to cover 1x, 2x and 3x modes.

Spurious receiver emissions were measured with the device tuned to the center channel in both the 5150-5250MHz and 5250-5350 MHz operating bands. Measurements were made on both single chain modes (SISO modes with one, then the other chain active) and in MISO mode (with both chains active simultaneously).

PROPOSED MODIFICATION DETAILS**GENERAL**

This section details the modifications to the Intel Corporation model 512ANMU being proposed. All performance and construction deviations from the characteristics originally reported to the FCC and Industry Canada are addressed. Note that the maximum output power in each operating band remains unchanged although output power at the band edge channels is reduced for some of the 802.11n modes. Output power on the center channel in each band, which is the highest output power setting, is not affected.

ANTENNA

The original certification included a Universe PIFA antenna and so covered all PIFA antennas of lower gain. The proposed change is to add a PIFA antenna that has higher gain in one of the 512AN_MMW's operating bands. The table below shows the antenna gain of the original Universe antenna and the new antenna in each of the operating bands.

Antenna Name and model	Type	Antenna Gain			
		2.4GHz	5.2GHz	5.5GHz	5.7GHz
Universe	PIFA	3.24	3.73	4.77	4.97
WNC 81.EBC15.102 Vader T-Type	PIFA	2.93	4.7	4.69	2.68
Amphenol LX1110-11-000-R main, LX1105-08-000-R aux, LX1109-11-000- R mimo	PIFA	1.46	4.98	2.88	3.44

The new antenna sets have higher gain than the original PIFA antenna in the 5.2GHz bands (5150 – 5250MHz and 5250 – 5350MHz). Testing was limited to radiated spurious emissions in the bands where the proposed antennas had higher gains than the original antenna. Both antenna sets were evaluated.

The original filing also included data to support use of an Ethertronics magnetic dipole antenna.

TEST SITE

GENERAL INFORMATION

Final test measurements were taken on June 27, June 28, June 30, July 1, July 2, July 3, July 8, July 9 and July 10, 2008 at the Elliott Laboratories semi anechoic chamber 3 located at 41039 Boyce Road, Fremont, California Pursuant to section 2.948 of the FCC's Rules and section 3.3 of RSP-100, construction, calibration, and equipment data has been filed with the Commission.

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

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 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.

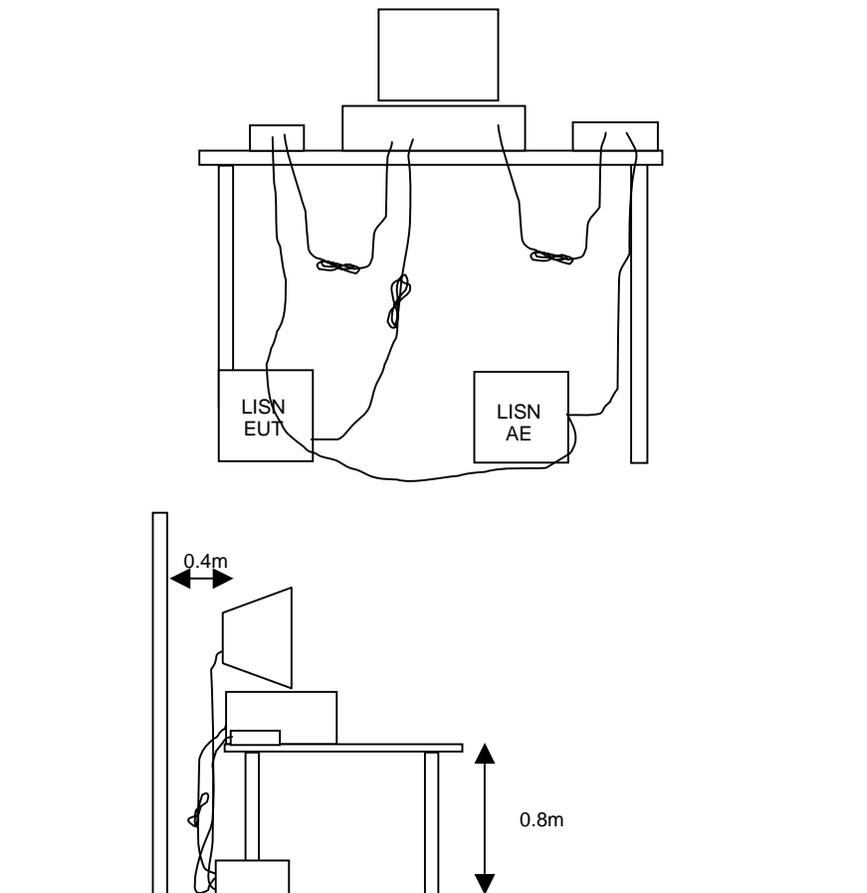
TEST PROCEDURES

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.

CONDUCTED EMISSIONS

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



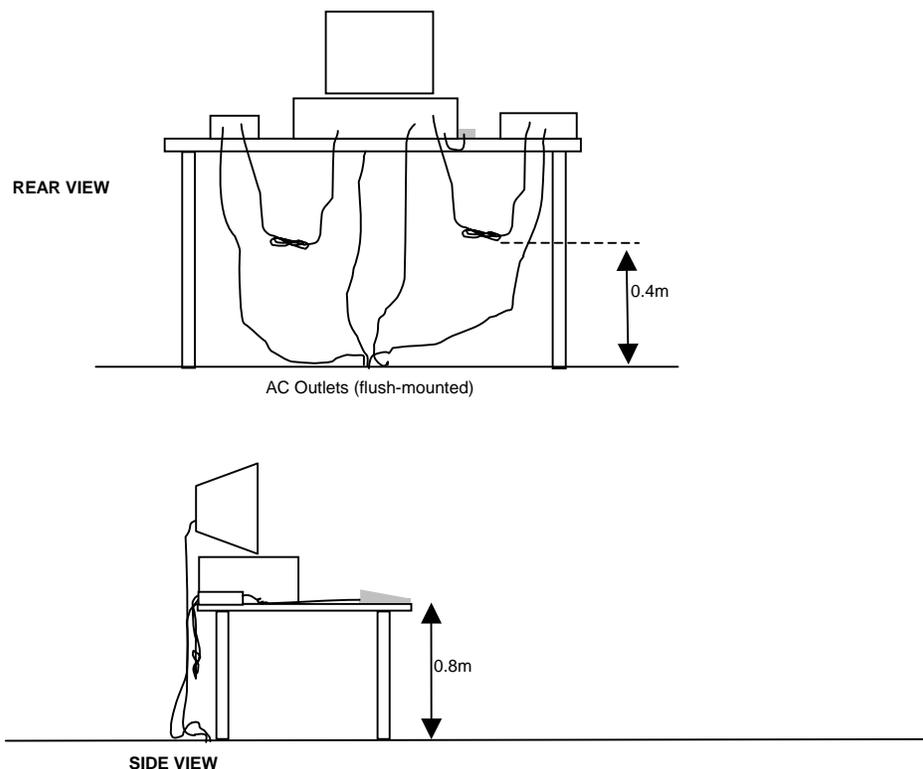
RADIATED EMISSIONS

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

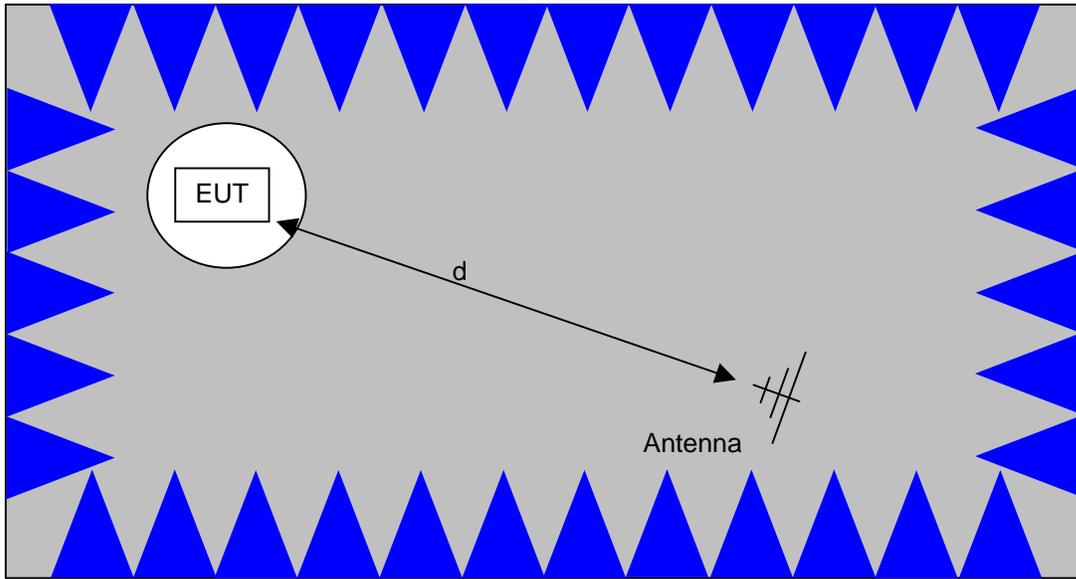
A speaker is provided in the receiver to aid in discriminating between EUT and ambient emissions. Other methods used during the preliminary scan for EUT emissions involve scanning with near field magnetic loops, monitoring I/O cables with RF current clamps, and cycling power to the EUT.

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

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

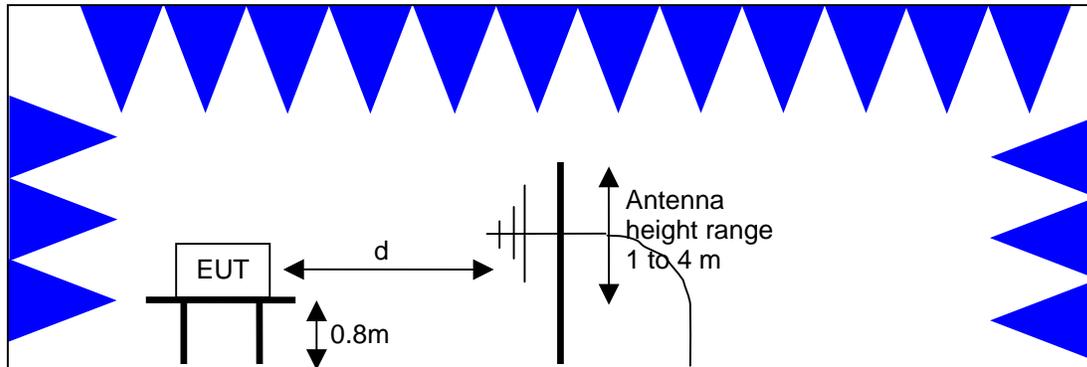


Typical Test Configuration for Radiated Field Strength Measurements



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 bands¹ (with the exception of transmitters operating under FCC Part 15 Subpart D and RSS 210 Annex 9), the limits for all emissions from a low power device operating under the general rules of RSS 310 (tables 3 and 4), RSS 210 (table 2) and FCC Part 15 Subpart C section 15.209.

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

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

OUTPUT POWER AND SPURIOUS LIMITS –LE-LAN 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) ¹ 1W (30dBm) eirp	11 dBm/MHz
5470 - 5725	250 mW (24 dBm) ² 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, determined by dividing the output power by $10\log(99\% \text{ bandwidth})$, by more than 3dB.

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 DEVICES

The table below shows the limits for output power and output power density defined by FCC Part 15 Subpart E. 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)	10 dBm/MHz
5250 - 5350	250 mW (24 dBm)	11 dBm/MHz
5470 - 5725	250 mW (24 dBm)	11 dBm/MHz
5725 – 5825	1 Watts (30 dBm)	17 dBm/MHz

The peak excursion envelope is limited to 13dB.

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.

¹ If EIRP exceeds 500mW the device must employ TPC

² 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:

$$F_d = 20 * \text{LOG}_{10} (D_m/D_s)$$

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:

$$F_d = 40 * \text{LOG}_{10} (D_m/D_s)$$

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:

$$R_r = \text{Receiver Reading in dBuV/m}$$

$$F_d = \text{Distance Factor in dB}$$

$$R_c = \text{Corrected Reading in dBuV/m}$$

$$L_s = \text{Specification Limit in dBuV/m}$$

$$M = \text{Margin in dB Relative to Spec}$$

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:

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

where P is the eirp (Watts)

EXHIBIT 1: Test Equipment Calibration Data

5 Pages

Radiated Emissions, 30 - 6,500 MHz, 12-Jun-08**Engineer: jcaizzi**

<u>Manufacturer</u>	<u>Description</u>	<u>Model #</u>	<u>Asset #</u>	<u>Cal Due</u>
Hewlett Packard	SpecAn 9 KHz-26.5 GHz, Non-Program	8563E	284	21-Jun-08
EMCO	Antenna, Horn, 1-18 GHz (SA40-Purple)	3115	1779	19-Mar-10

Radiated Emissions, NII 802.11n-20 band-edge, 13-Jun-08**Engineer: bjing**

<u>Manufacturer</u>	<u>Description</u>	<u>Model #</u>	<u>Asset #</u>	<u>Cal Due</u>
Hewlett Packard	SpecAn 9 KHz-26.5 GHz, Non-Program	8563E	284	21-Jun-08
EMCO	Antenna, Horn, 1-18 GHz (SA40-Purple)	3115	1779	19-Mar-10

Radiated Emissions, NII Band-edge test, 17-Jun-08**Engineer: Ben Jing**

<u>Manufacturer</u>	<u>Description</u>	<u>Model #</u>	<u>Asset #</u>	<u>Cal Due</u>
EMCO	Antenna, Horn, 1-18 GHz	3115	786	07-Dec-08
Rohde & Schwarz	Power Meter, Single Channel	NRVS	1534	05-Mar-09
Hewlett Packard	SpecAn 9 kHz - 40 GHz, (SA40) Purple	8564E (84125C)	1771	17-Dec-08
Rohde & Schwarz	Power Sensor, 1 uW-100 mW, DC-18 GHz, 50ohms	NRV-Z51	1797	21-Aug-08

Radio Spurious Emissions, 17-Jun-08**Engineer: skhushzad**

<u>Manufacturer</u>	<u>Description</u>	<u>Model #</u>	<u>Asset #</u>	<u>Cal Due</u>
Hewlett Packard	SpecAn 9 KHz-26.5 GHz, Non-Program	8563E	284	21-Jun-08
EMCO	Antenna, Horn, 1-18 GHz (SA40-Purple)	3115	1779	19-Mar-10

Radio Antenna Port (Power and Spurious Emissions), 18-Jun-08**Engineer: skhushzad**

<u>Manufacturer</u>	<u>Description</u>	<u>Model #</u>	<u>Asset #</u>	<u>Cal Due</u>
Hewlett Packard	Microwave Preamplifier, 1-26.5GHz	8449B	263	28-May-09
EMCO	Antenna, Horn, 1-18 GHz (SA40-Purple)	3115	1779	19-Mar-10

, 19-Jun-08**Engineer: Ben Jing**

<u>Manufacturer</u>	<u>Description</u>	<u>Model #</u>	<u>Asset #</u>	<u>Cal Due</u>
Hewlett Packard	Microwave Preamplifier, 1-26.5GHz	8449B	263	28-May-09
Hewlett Packard	SpecAn 9 KHz-26.5 GHz, Non-Program	8563E	284	21-Jun-08
Rohde & Schwarz	Power Meter, Single Channel	NRVS	1290	12-Jul-08
Rohde & Schwarz	Power Sensor 100 uW - 10 Watts	NRV-Z53	1555	15-Jan-09
Micro-Tronics	Band Reject Filter, 5150-5350 MHz	BRC50703-02	1729	17-Oct-08
Micro-Tronics	Band Reject Filter, 5470-5725 MHz	BRC50704-02	1730	17-Oct-08
EMCO	Antenna, Horn, 1-18 GHz (SA40-Purple)	3115	1779	19-Mar-10

Radiated Emissions, 1000 - 18,000 MHz, 20-Jun-08**Engineer: Ben Jing**

<u>Manufacturer</u>	<u>Description</u>	<u>Model #</u>	<u>Asset #</u>	<u>Cal Due</u>
Hewlett Packard	Microwave Preamplifier, 1-26.5GHz	8449B	263	28-May-09
Hewlett Packard	SpecAn 9 KHz-26.5 GHz, Non-Program	8563E	284	21-Jun-08
EMCO	Antenna, Horn, 1-18 GHz (SA40-Red)	3115	1142	07-Jul-08
Rohde & Schwarz	Power Meter, Single Channel	NRVS	1534	05-Mar-09
Micro-Tronics	Band Reject Filter, 5150-5350 MHz	BRC50703-02	1729	17-Oct-08
Rohde & Schwarz	Power Sensor, 1 uW-100 mW, DC-18 GHz, 50ohms	NRV-Z51	1797	21-Aug-08

Radio Spurious Emissions, 20-Jun-08**Engineer: Suhaila Khushzad**

<u>Manufacturer</u>	<u>Description</u>	<u>Model #</u>	<u>Asset #</u>	<u>Cal Due</u>
Hewlett Packard	Microwave Preamplifier, 1-26.5GHz	8449B	263	28-May-09
Hewlett Packard	SpecAn 9 KHz-26.5 GHz, Non-Program	8563E	284	21-Aug-08
EMCO	Antenna, Horn, 1-18GHz	3115	868	10-Jun-10
EMCO	Antenna, Horn, 1-18 GHz (SA40-Red)	3115	1142	07-Jul-08

Radiated Emissions, 1000 - 18,000 MHz, 21-Jun-08**Engineer: Ben Jing**

<u>Manufacturer</u>	<u>Description</u>	<u>Model #</u>	<u>Asset #</u>	<u>Cal Due</u>
Hewlett Packard	Microwave Preamplicifier, 1-26.5GHz	8449B	263	28-May-09
Hewlett Packard	SpecAn 9 KHz-26.5 GHz, Non-Program	8563E	284	21-Aug-08
EMCO	Antenna, Horn, 1-18GHz	3115	868	10-Jun-10

Radiated Emissions, UNII Band-edges, 27-Jun-08**Engineer: Ben Jing**

<u>Manufacturer</u>	<u>Description</u>	<u>Model #</u>	<u>Asset #</u>	<u>Cal Due</u>
EMCO	Antenna, Horn, 1-18GHz	3115	868	10-Jun-10
Rohde & Schwarz	Power Meter, Single Channel	NRVS	1290	12-Jul-08
Hewlett Packard	SpecAn 9 kHz - 40 GHz, (SA40) Purple	8564E (84125C)	1771	17-Dec-08
Hewlett Packard	Microwave Preamplicifier, 1-26.5GHz	8449B	1780	06-Nov-08
Rohde & Schwarz	Power Sensor, 1 uW-100 mW, DC-18 GHz, 50ohms	NRV-Z51	1797	21-Aug-08

Radiated Emissions, 1000 - 40,000 MHz, 30-Jun-08**Engineer: jcaizzi**

<u>Manufacturer</u>	<u>Description</u>	<u>Model #</u>	<u>Asset #</u>	<u>Cal Due</u>
Hewlett Packard	Microwave Preamplicifier, 1-26.5GHz	8449B	263	28-May-09
EMCO	Antenna, Horn, 1-18GHz	3115	868	10-Jun-10
Hewlett Packard	Spectrum Analyzer 30 Hz -40 GHz, SV (SA40) Red	8564E (84125C)	1148	24-Aug-08
Rohde & Schwarz	Power Meter, Single Channel	NRVS	1290	12-Jul-08
Micro-Tronics	Band Reject Filter, 5150-5350 MHz	BRC50703-02	1729	17-Oct-08
Rohde & Schwarz	Power Sensor, 1 uW-100 mW, DC-18 GHz, 50ohms	NRV-Z51	1797	21-Aug-08

Radio Spurious Emissions, 02-Jul-08**Engineer: skhushzad**

<u>Manufacturer</u>	<u>Description</u>	<u>Model #</u>	<u>Asset #</u>	<u>Cal Due</u>
EMCO	Antenna, Horn, 1-18 GHz	3115	786	07-Dec-08
Hewlett Packard	SpecAn 9 kHz - 40 GHz, (SA40) Purple	8564E (84125C)	1771	17-Dec-08
Hewlett Packard	Microwave Preamplicifier, 1-26.5GHz	8449B	1780	06-Nov-08

Radiated Emissions, 30 - 6,500 MHz, 12-Jun-08**Engineer: jcaizzi**

<u>Manufacturer</u>	<u>Description</u>	<u>Model #</u>	<u>Asset #</u>	<u>Cal Due</u>
Hewlett Packard	SpecAn 9 KHz-26.5 GHz, Non-Program	8563E	284	21-Jun-08
EMCO	Antenna, Horn, 1-18 GHz (SA40-Purple)	3115	1779	19-Mar-10

Radiated Emissions, NII 802.11n-20 band-edge, 13-Jun-08**Engineer: bjing**

<u>Manufacturer</u>	<u>Description</u>	<u>Model #</u>	<u>Asset #</u>	<u>Cal Due</u>
Hewlett Packard	SpecAn 9 KHz-26.5 GHz, Non-Program	8563E	284	21-Jun-08
EMCO	Antenna, Horn, 1-18 GHz (SA40-Purple)	3115	1779	19-Mar-10

Radiated Emissions, NII Band-edge test, 17-Jun-08**Engineer: Ben Jing**

<u>Manufacturer</u>	<u>Description</u>	<u>Model #</u>	<u>Asset #</u>	<u>Cal Due</u>
EMCO	Antenna, Horn, 1-18 GHz	3115	786	07-Dec-08
Rohde & Schwarz	Power Meter, Single Channel	NRVS	1534	05-Mar-09
Hewlett Packard	SpecAn 9 kHz - 40 GHz, (SA40) Purple	8564E (84125C)	1771	17-Dec-08
Rohde & Schwarz	Power Sensor, 1 uW-100 mW, DC-18 GHz, 50ohms	NRV-Z51	1797	21-Aug-08

Radio Spurious Emissions, 17-Jun-08**Engineer: skhushzad**

<u>Manufacturer</u>	<u>Description</u>	<u>Model #</u>	<u>Asset #</u>	<u>Cal Due</u>
Hewlett Packard	SpecAn 9 KHz-26.5 GHz, Non-Program	8563E	284	21-Jun-08
EMCO	Antenna, Horn, 1-18 GHz (SA40-Purple)	3115	1779	19-Mar-10

Radio Antenna Port (Power and Spurious Emissions), 18-Jun-08**Engineer: skhushzad**

<u>Manufacturer</u>	<u>Description</u>	<u>Model #</u>	<u>Asset #</u>	<u>Cal Due</u>
Hewlett Packard	Microwave Preamplifier, 1-26.5GHz	8449B	263	28-May-09
EMCO	Antenna, Horn, 1-18 GHz (SA40-Purple)	3115	1779	19-Mar-10

, 19-Jun-08**Engineer: Ben Jing**

<u>Manufacturer</u>	<u>Description</u>	<u>Model #</u>	<u>Asset #</u>	<u>Cal Due</u>
Hewlett Packard	Microwave Preamplifier, 1-26.5GHz	8449B	263	28-May-09
Hewlett Packard	SpecAn 9 KHz-26.5 GHz, Non-Program	8563E	284	21-Jun-08
Rohde & Schwarz	Power Meter, Single Channel	NRVS	1290	12-Jul-08
Rohde & Schwarz	Power Sensor 100 uW - 10 Watts	NRV-Z53	1555	15-Jan-09
Micro-Tronics	Band Reject Filter, 5150-5350 MHz	BRC50703-02	1729	17-Oct-08
Micro-Tronics	Band Reject Filter, 5470-5725 MHz	BRC50704-02	1730	17-Oct-08
EMCO	Antenna, Horn, 1-18 GHz (SA40-Purple)	3115	1779	19-Mar-10

Radiated Emissions, 1000 - 18,000 MHz, 20-Jun-08**Engineer: Ben Jing**

<u>Manufacturer</u>	<u>Description</u>	<u>Model #</u>	<u>Asset #</u>	<u>Cal Due</u>
Hewlett Packard	Microwave Preamplifier, 1-26.5GHz	8449B	263	28-May-09
Hewlett Packard	SpecAn 9 KHz-26.5 GHz, Non-Program	8563E	284	21-Jun-08
EMCO	Antenna, Horn, 1-18 GHz (SA40-Red)	3115	1142	07-Jul-08
Rohde & Schwarz	Power Meter, Single Channel	NRVS	1534	05-Mar-09
Micro-Tronics	Band Reject Filter, 5150-5350 MHz	BRC50703-02	1729	17-Oct-08
Rohde & Schwarz	Power Sensor, 1 uW-100 mW, DC-18 GHz, 50ohms	NRV-Z51	1797	21-Aug-08

Radio Spurious Emissions, 20-Jun-08**Engineer: Suhaila Khushzad**

<u>Manufacturer</u>	<u>Description</u>	<u>Model #</u>	<u>Asset #</u>	<u>Cal Due</u>
Hewlett Packard	Microwave Preamplifier, 1-26.5GHz	8449B	263	28-May-09
Hewlett Packard	SpecAn 9 KHz-26.5 GHz, Non-Program	8563E	284	21-Aug-08
EMCO	Antenna, Horn, 1-18GHz	3115	868	10-Jun-10
EMCO	Antenna, Horn, 1-18 GHz (SA40-Red)	3115	1142	07-Jul-08

Radiated Emissions, 1000 - 18,000 MHz, 21-Jun-08**Engineer: Ben Jing**

<u>Manufacturer</u>	<u>Description</u>	<u>Model #</u>	<u>Asset #</u>	<u>Cal Due</u>
Hewlett Packard	Microwave Preamplifier, 1-26.5GHz	8449B	263	28-May-09
Hewlett Packard	SpecAn 9 KHz-26.5 GHz, Non-Program	8563E	284	21-Aug-08
EMCO	Antenna, Horn, 1-18GHz	3115	868	10-Jun-10

Radiated Emissions, UNII Band-edges, 27-Jun-08**Engineer: Ben Jing**

<u>Manufacturer</u>	<u>Description</u>	<u>Model #</u>	<u>Asset #</u>	<u>Cal Due</u>
EMCO	Antenna, Horn, 1-18GHz	3115	868	10-Jun-10
Rohde & Schwarz	Power Meter, Single Channel	NRVS	1290	12-Jul-08
Hewlett Packard	SpecAn 9 kHz - 40 GHz, (SA40) Purple	8564E (84125C)	1771	17-Dec-08
Hewlett Packard	Microwave Preamplifier, 1-26.5GHz	8449B	1780	06-Nov-08
Rohde & Schwarz	Power Sensor, 1 uW-100 mW, DC-18 GHz, 50ohms	NRV-Z51	1797	21-Aug-08

Radiated Emissions, NII Band-edge, 04-Jul-08**Engineer: bjing**

<u>Manufacturer</u>	<u>Description</u>	<u>Model #</u>	<u>Asset #</u>	<u>Cal Due</u>
EMCO	Antenna, Horn, 1-18 GHz	3115	786	07-Dec-08
Rohde & Schwarz	Power Meter, Single Channel	NRVS	1290	12-Jul-08
Hewlett Packard	SpecAn 9 kHz - 40 GHz, (SA40) Purple	8564E (84125C)	1771	17-Dec-08
Rohde & Schwarz	Power Sensor, 1 uW-100 mW, DC-18 GHz, 50ohms	NRV-Z51	1797	21-Aug-08

Radiated Emissions, 30 - 6,500 MHz, 07-Jul-08**Engineer: jcaizzi**

<u>Manufacturer</u>	<u>Description</u>	<u>Model #</u>	<u>Asset #</u>	<u>Cal Due</u>
Hewlett Packard	SpecAn 9 KHz-26.5 GHz, Non-Program	8563E	284	21-Aug-08
EMCO	Antenna, Horn, 1-18 GHz (SA40-Purple)	3115	1779	19-Mar-10

Radiated Emissions, NII 802.11n-20 Band-edge test, 08-Jul-08**Engineer: bjing**

<u>Manufacturer</u>	<u>Description</u>	<u>Model #</u>	<u>Asset #</u>	<u>Cal Due</u>
Hewlett Packard	SpecAn 9 KHz-26.5 GHz, Non-Program	8563E	284	21-Aug-08
Rohde & Schwarz	Power Meter, Single Channel	NRVS	1290	12-Jul-08
EMCO	Antenna, Horn, 1-18 GHz (SA40-Purple)	3115	1779	19-Mar-10
Rohde & Schwarz	Power Sensor, 1 uW-100 mW, DC-18 GHz, 50ohms	NRV-Z51	1797	21-Aug-08

Radio Spurious Emissions, 09-Jul-08**Engineer: skhushzad**

<u>Manufacturer</u>	<u>Description</u>	<u>Model #</u>	<u>Asset #</u>	<u>Cal Due</u>
Hewlett Packard	SpecAn 9 KHz-26.5 GHz, Non-Program	8563E	284	21-Aug-08
EMCO	Antenna, Horn, 1-18 GHz	3115	786	07-Dec-08

Radiated Emissions, 1000 - 18,000 MHz, 09-Jul-08**Engineer: bjing**

<u>Manufacturer</u>	<u>Description</u>	<u>Model #</u>	<u>Asset #</u>	<u>Cal Due</u>
Hewlett Packard	SpecAn 9 KHz-26.5 GHz, Non-Program	8563E	284	21-Aug-08
EMCO	Antenna, Horn, 1-18 GHz	3115	786	07-Dec-08
Rohde & Schwarz	Power Meter, Single Channel	NRVS	1290	12-Jul-08
Hewlett Packard	Microwave Preamplifier, 1-26.5GHz	8449B	1780	06-Nov-08
Rohde & Schwarz	Power Sensor, 1 uW-100 mW, DC-18 GHz, 50ohms	NRV-Z51	1797	21-Aug-08

Radiated Emissions, 1000 - 18000 MHz, 11-Jul-08**Engineer: bjing**

<u>Manufacturer</u>	<u>Description</u>	<u>Model #</u>	<u>Asset #</u>	<u>Cal Due</u>
Hewlett Packard	SpecAn 9 KHz-26.5 GHz, Non-Program	8563E	284	21-Aug-08
EMCO	Antenna, Horn, 1-18 GHz	3115	786	07-Dec-08
Rohde & Schwarz	Power Meter, Single Channel	NRVS	1290	12-Jul-08
Miteq	Preamplifier, 1-18 GHz	AFS44	1346	13-Nov-08

Micro-Tronics	Band Reject Filter, 5150-5350 MHz	BRC50703-02	1729	17-Oct-08
Rohde & Schwarz	Power Sensor, 1 uW-100 mW, DC-18 GHz, 50ohms	NRV-Z51	1797	21-Aug-08

Radiated Emissions, 1000 - 18,000 MHz, 11-Jul-08

Engineer: bjjng

<u>Manufacturer</u>	<u>Description</u>	<u>Model #</u>	<u>Asset #</u>	<u>Cal Due</u>
Hewlett Packard	SpecAn 9 KHz-26.5 GHz, Non-Program	8563E	284	21-Aug-08
EMCO	Antenna, Horn, 1-18 GHz	3115	786	07-Dec-08
Miteq	Preamplifier, 1-18 GHz	AFS44	1346	13-Nov-08

EXHIBIT 2: Test Measurement Data

T72132 (Vader Antenna) 63 Pages
T72191 (Amphenol Antenna) 63 Pages

Client:	Intel Corporation	Job Number:	J72065
Model:	533AN-MMW with Vader PIFA antenna	T-Log Number:	T72132 Band Edge
Contact:	Robert Paxman	Account Manager:	Dean Eriksen
Emissions Standard(s):	RSS 210/FCC U-NII (Radiated)	Class:	-
Immunity Standard(s):	-	Environment:	-

EMC Test Data
UNII Radiated Measurements with Vader Antenna

For The

Intel Corporation

Model

533AN-MMW with Vader PIFA antenna

Date of Last Test: 7/8/2008

Client:	Intel Corporation	Job Number:	J72065
Model:	533AN-MMW with Vader PIFA antenna	T-Log Number:	T72132 Band Edge
Contact:	Robert Paxman	Account Manager:	Dean Eriksen
Standard:	RSS 210/FCC U-NII (Radiated)	Class:	N/A

**RSS 210 and FCC 15.E (U-NII, 5150- 550/5250-5350/5460-5725MHz)
Band Edge Field Strength 802.11a Vader Antenna**

Test Specific Details

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

General Test Configuration

The EUT and all local support equipment were located on the turntable for radiated spurious emissions testing. All remote support equipment was located approximately 30 meters from the EUT with all I/O connections running on top of the groundplane.

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

Ambient Conditions: Temperature: 15-25 °C
 Rel. Humidity: 35-55 %

Modifications Made During Testing

No modifications were made to the EUT during testing

Deviations From The Standard

No deviations were made from the requirements of the standard.

Summary of Results

Run #	Mode	Channel	Power Setting	Measured Power	Test Performed	Limit	Result / Margin
1a	802.11a Chain A	5180MHz	31.0	16.7	Band Edge radiated field strength	FCC Part 15.209	48.0dBµV/m @ 5150.0MHz (-6.0dB)
1b	802.11a Chain A	5320MHz	25.5	16.5	Band Edge radiated field strength	FCC Part 15.209	48.1dBµV/m @ 5350.5MHz (-5.9dB)
2a	802.11a Chain B	5180MHz	31.5	17.1	Band Edge radiated field strength	FCC Part 15.209	50.5dBµV/m @ 5149.9MHz (-3.5dB)
2b	802.11a Chain B	5320MHz	26.0	16.5	Band Edge radiated field strength	FCC Part 15.209	48.1dBµV/m @ 5350.5MHz (-5.9dB)
3a	802.11a Chain C	5180MHz	29.5	16.5	Band Edge radiated field strength	FCC Part 15.209	48.6dBµV/m @ 5149.9MHz (-5.4dB)
3b	802.11a Chain C	5320MHz	27.5	16.5	Band Edge radiated field strength	FCC Part 15.209	49.1dBµV/m @ 5350.5MHz (-4.9dB)

Client: Intel Corporation	Job Number: J72065
Model: 533AN-MMW with Vader PIFA antenna	T-Log Number: T72132 Band Edge
	Account Manager: Dean Eriksen
Contact: Robert Paxman	
Standard: RSS 210/FCC U-NII (Radiated)	Class: N/A

Run #1: Radiated Spurious Emissions, Band Edges. Operating Mode: 802.11a - Chain A

Sample ID:
Date of Test: 6/27/2008
Test Engineer: Peter Sales
Test Location: Fremont Chamber #4

Run #1a: Low Channel @ 5180 MHz (band edge at 5150 MHz)

Power Setting: 31.0 Average power: 16.7 (for reference purposes)

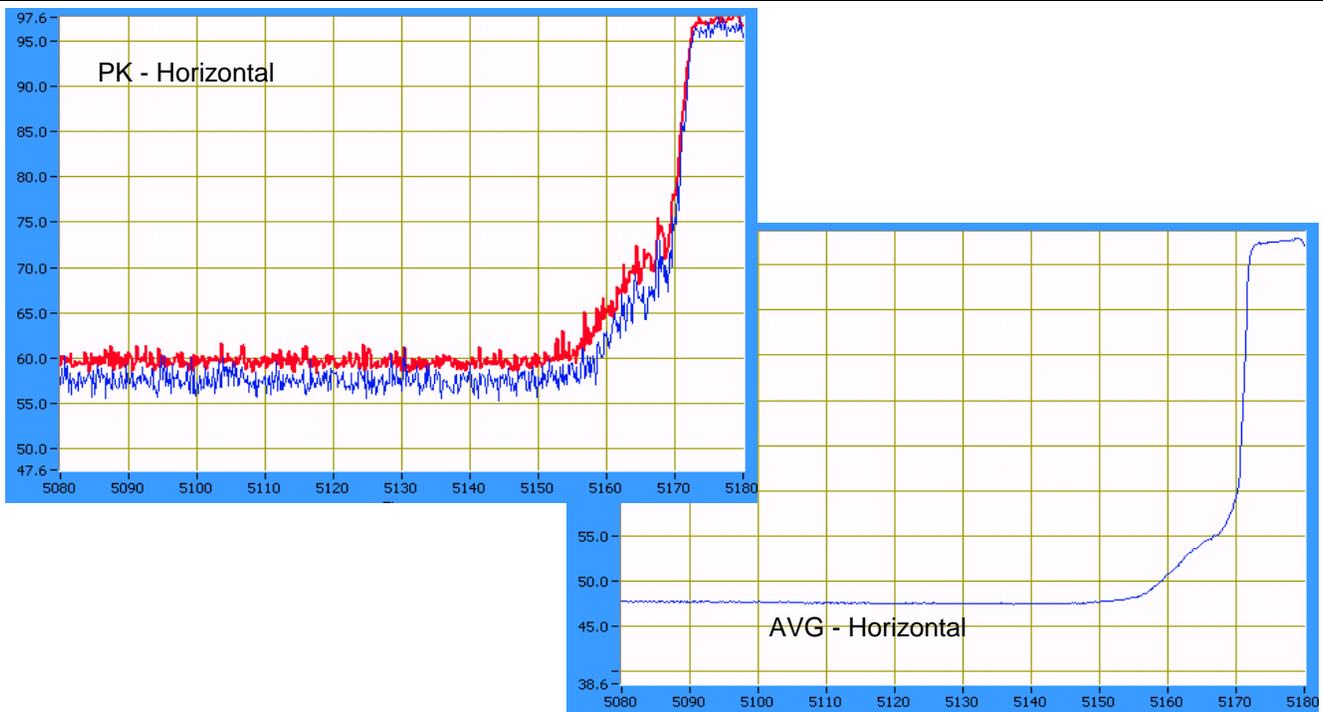
Fundamental Signal Field Strength: Peak and average values measured in 1 MHz, for reference only

Frequency MHz	Level dB μ V/m	Pol v/h	15.209 / 15.407		Detector PK/QP/Avg	Azimuth degrees	Height meters	Comments
			Limit	Margin				
5187.700	85.7	V	-	-	AVG	18	1.0	
5187.700	93.5	V	-	-	PK	18	1.0	
5186.670	91.6	H	-	-	AVG	83	1.4	
5186.670	99.6	H	-	-	PK	83	1.4	

Band Edge Signal Field Strength

Restricted band starts at allocated band edge (5350MHz), field strength limit is 54dBuV/m average, 74dBuV/m peak.

Frequency MHz	Level dB μ V/m	Pol v/h	15.209 / 15.407		Detector Pk/QP/Avg	Azimuth degrees	Height meters	Comments
			Limit	Margin				
5147.630	61.7	H	74.0	-12.3	PK	83	1.4	
5149.980	48.0	H	54.0	-6.0	AVG	83	1.4	
5147.450	60.3	V	74.0	-13.7	PK	16	1.0	
5149.190	47.9	V	54.0	-6.1	AVG	20	1.0	



Client:	Intel Corporation	Job Number:	J72065
Model:	533AN-MMW with Vader PIFA antenna	T-Log Number:	T72132 Band Edge
Contact:	Robert Paxman	Account Manager:	Dean Eriksen
Standard:	RSS 210/FCC U-NII (Radiated)	Class:	N/A

Run #1b: High Channel @ 5320 MHz (band edge at 5350 MHz)

Power Setting: **25.5** Average power: 16.5 (for reference purposes)

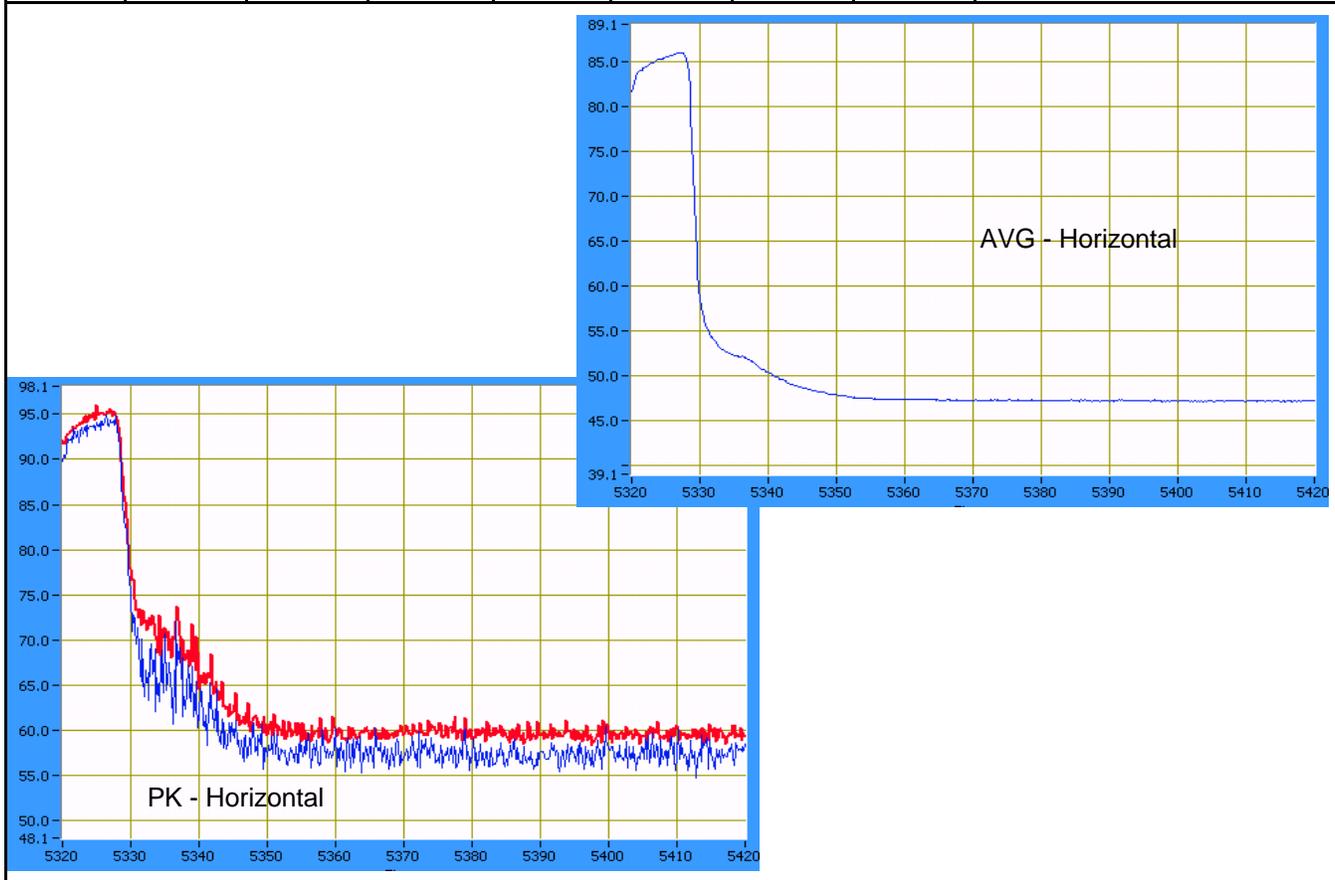
Fundamental Signal Field Strength: Peak and average values measured in 1 MHz, for reference only

Frequency MHz	Level dB μ V/m	Pol v/h	15.209 / 15.407		Detector PK/QP/Avg	Azimuth degrees	Height meters	Comments
			Limit	Margin				
5326.830	81.5	V	-	-	AVG	327	1.0	
5326.830	89.7	V	-	-	PK	327	1.0	
5327.130	87.6	H	-	-	AVG	87	1.0	
5327.130	96.2	H	-	-	PK	87	1.0	

Band Edge Signal Field Strength

Restricted band starts at allocated band edge (5350MHz), field strength limit is 54dBuV/m average, 74dBuV/m peak.

Frequency MHz	Level dB μ V/m	Pol v/h	15.209 / 15.407		Detector PK/QP/Avg	Azimuth degrees	Height meters	Comments
			Limit	Margin				
5352.810	61.6	H	74.0	-12.4	PK	87	1.0	
5350.500	48.1	H	54.0	-5.9	AVG	87	1.0	
5353.100	60.2	V	74.0	-13.8	PK	329	1.0	
5350.520	47.7	V	54.0	-6.3	AVG	325	1.0	



Client:	Intel Corporation	Job Number:	J72065
Model:	533AN-MMW with Vader PIFA antenna	T-Log Number:	T72132 Band Edge
Contact:	Robert Paxman	Account Manager:	Dean Eriksen
Standard:	RSS 210/FCC U-NII (Radiated)	Class:	N/A

Run #2: Radiated Spurious Emissions, Band Edges. Operating Mode: 802.11a - Chain B

Date of Test: 6/27/2008

Test Engineer: Peter Sales

Test Location: Fremont Chamber #4

Run #2a: Low Channel @ 5180 MHz (band edge at 5150 MHz)

Power Setting: **31.5** Average power: 17.1 (for reference purposes)

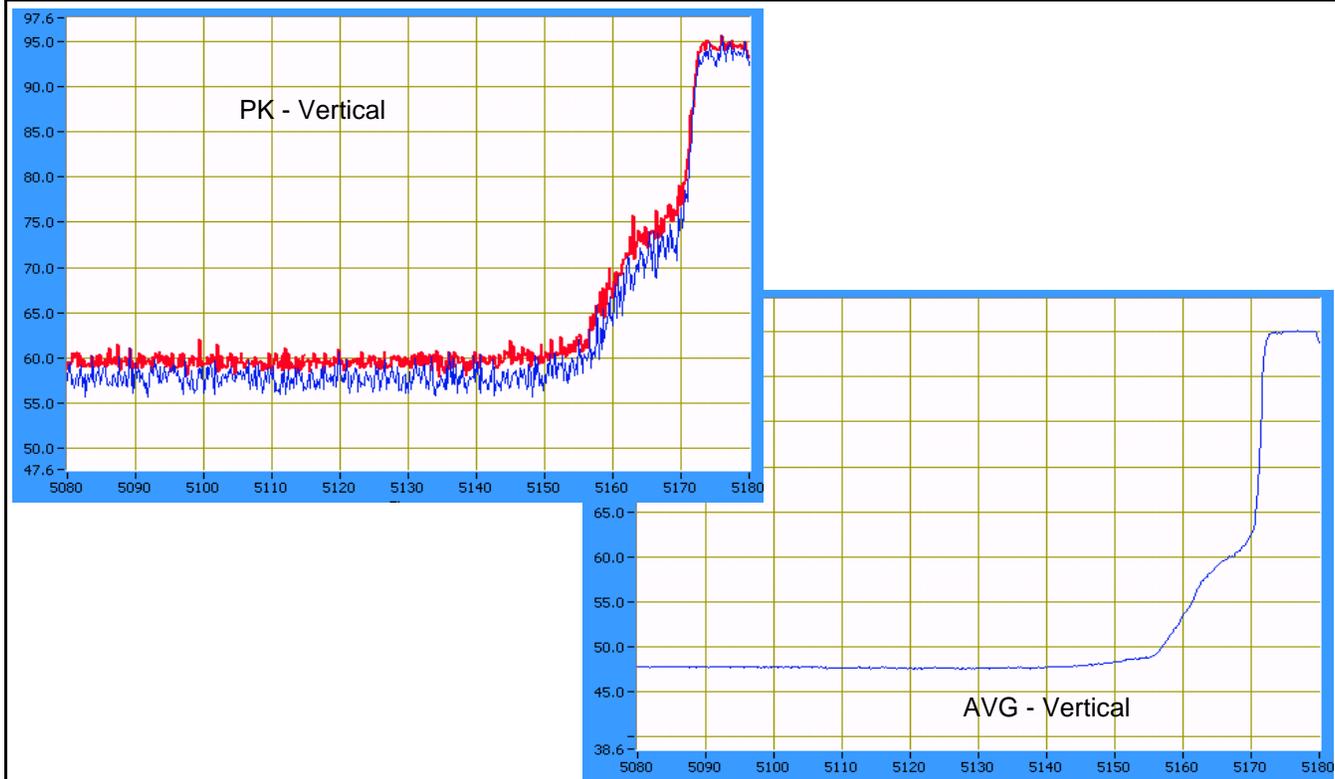
Fundamental Signal Field Strength: Peak and average values measured in 1 MHz, for reference only

Frequency	Level	Pol	15.209 / 15.407		Detector	Azimuth	Height	Comments
MHz	dB μ V/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5186.770	93.5	V	-	-	AVG	343	1.0	
5186.770	101.6	V	-	-	PK	343	1.0	
5186.870	92.6	H	-	-	AVG	291	1.0	
5186.870	100.7	H	-	-	PK	291	1.0	

Band Edge Signal Field Strength

Restricted band starts at allocated band edge (5350MHz), field strength limit is 54dBuV/m average, 74dBuV/m peak.

Frequency	Level	Pol	15.209 / 15.407		Detector	Azimuth	Height	Comments
MHz	dB μ V/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5149.150	65.3	H	74.0	-8.7	PK	291	1.0	
5149.920	49.9	H	54.0	-4.1	AVG	291	1.0	
5149.270	65.6	V	74.0	-8.4	PK	344	1.0	
5149.940	50.5	V	54.0	-3.5	AVG	344	1.0	



Client: Intel Corporation	Job Number: J72065
Model: 533AN-MMW with Vader PIFA antenna	T-Log Number: T72132 Band Edge
	Account Manager: Dean Eriksen
Contact: Robert Paxman	
Standard: RSS 210/FCC U-NII (Radiated)	Class: N/A

Run #2b: High Channel @ 5320 MHz (band edge at 5350 MHz)

Power Setting: **26.0** Average power: 16.5 (for reference purposes)

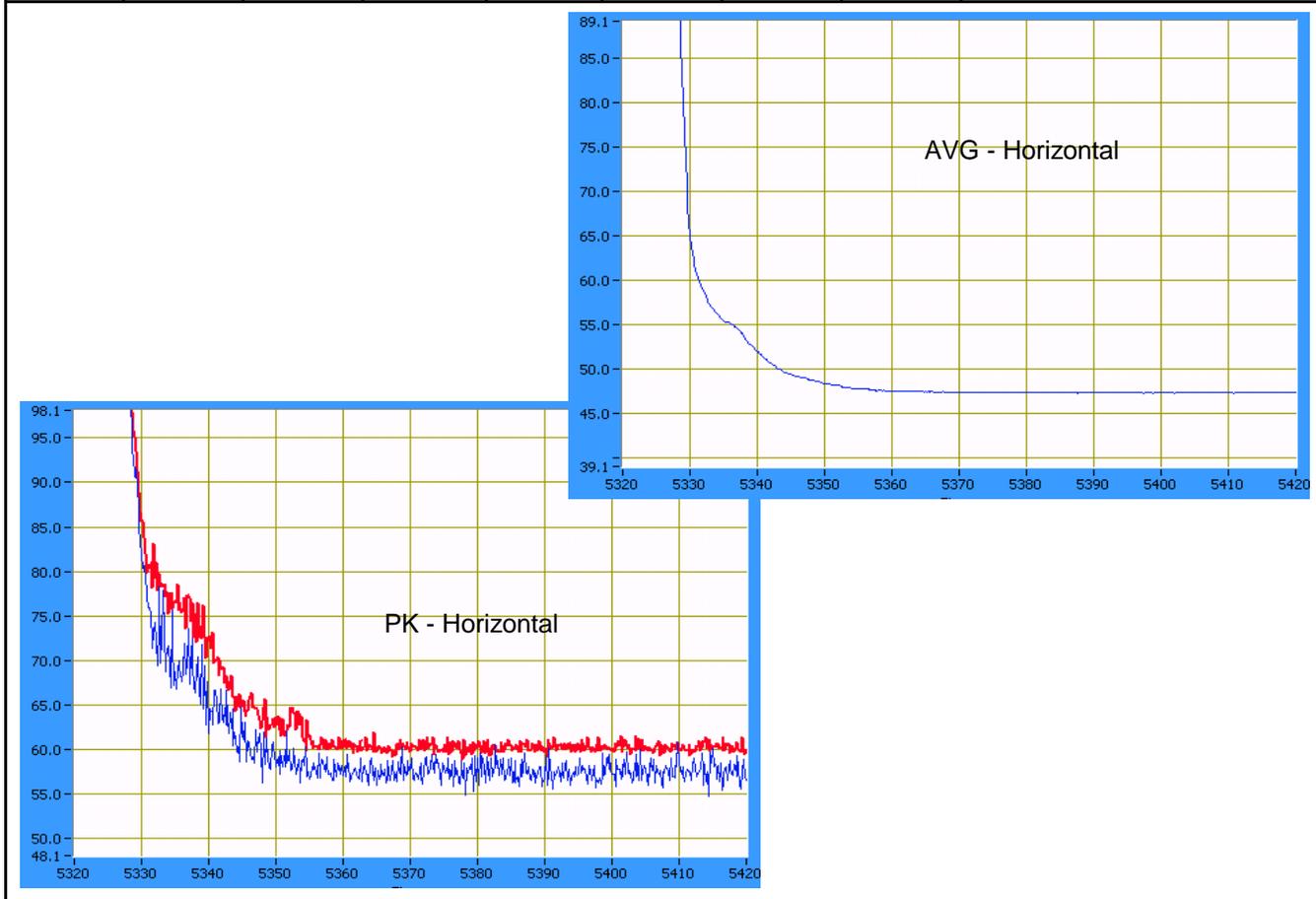
Fundamental Signal Field Strength: Peak and average values measured in 1 MHz, for reference only

Frequency MHz	Level dB μ V/m	Pol v/h	15.209 / 15.407		Detector PK/QP/Avg	Azimuth degrees	Height meters	Comments
			Limit	Margin				
5326.870	90.2	V	-	-	AVG	5	1.0	
5326.870	98.8	V	-	-	PK	5	1.0	
5327.130	90.1	H	-	-	AVG	301	1.0	
5327.130	98.5	H	-	-	PK	301	1.0	

Band Edge Signal Field Strength

Restricted band starts at allocated band edge (5350MHz), field strength limit is 54dBuV/m average, 74dBuV/m peak.

Frequency MHz	Level dB μ V/m	Pol v/h	15.209 / 15.407		Detector PK/QP/Avg	Azimuth degrees	Height meters	Comments
			Limit	Margin				
5351.960	63.4	H	74.0	-10.6	PK	301	1.0	
5350.540	48.1	H	54.0	-5.9	AVG	301	1.0	
5350.540	61.7	V	74.0	-12.3	PK	3	1.0	
5350.520	47.8	V	54.0	-6.2	AVG	4	1.0	



Client: Intel Corporation	Job Number: J72065
Model: 533AN-MMW with Vader PIFA antenna	T-Log Number: T72132 Band Edge
Contact: Robert Paxman	Account Manager: Dean Eriksen
Standard: RSS 210/FCC U-NII (Radiated)	Class: N/A

Run #3: Radiated Spurious Emissions, Band Edges. Operating Mode: 802.11a - Chain C

Date of Test: 6/27/2008

Test Engineer: Peter Sales

Test Location: Fremont Chamber #4

Run #3a: Low Channel @ 5180 MHz (band edge at 5150 MHz)

Power Setting: 29.5

Average power: 16.5

(for reference purposes)

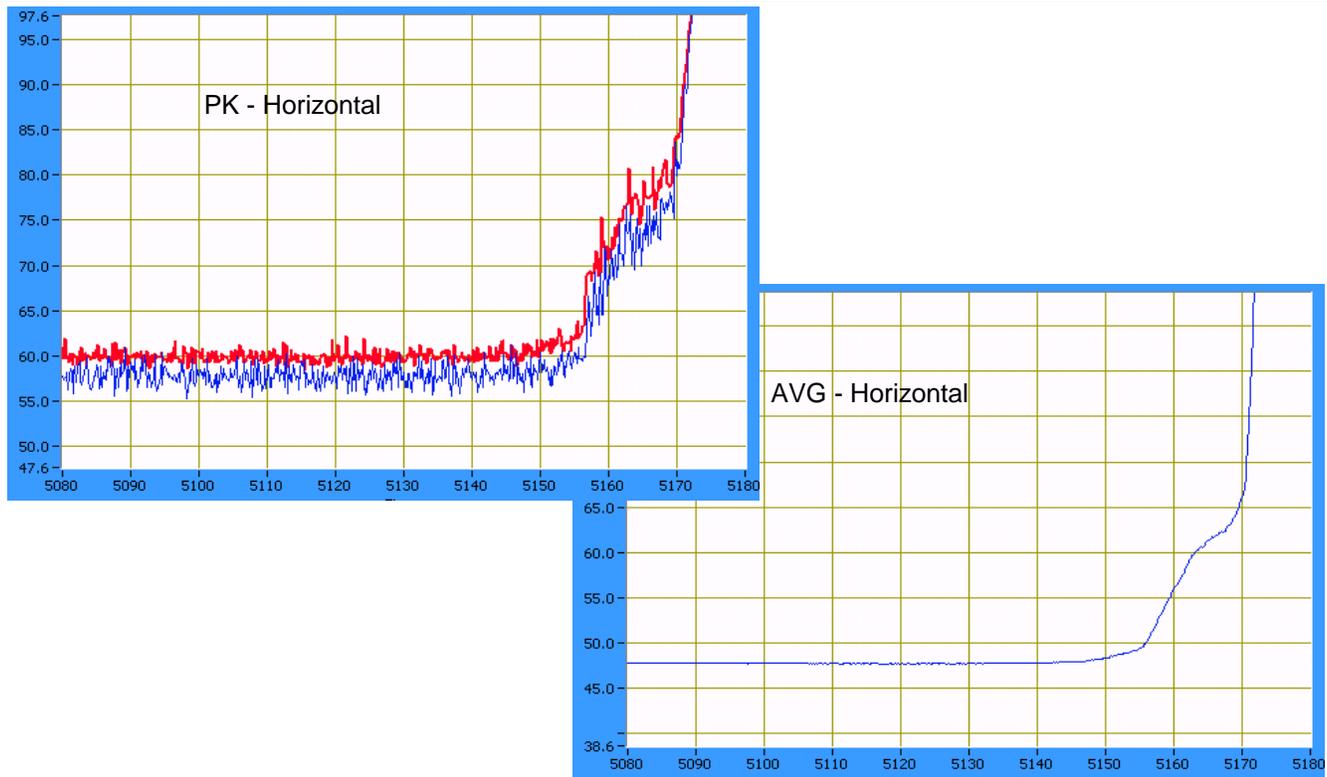
Fundamental Signal Field Strength: Peak and average values measured in 1 MHz, for reference only

Frequency MHz	Level dB μ V/m	Pol v/h	15.209 / 15.407		Detector Pk/QP/Avg	Azimuth degrees	Height meters	Comments
			Limit	Margin				
5186.770	91.6	H	-	-	AVG	73	1.0	
5186.770	99.8	H	-	-	PK	73	1.0	
5186.800	89.8	V	-	-	AVG	0	1.0	
5186.800	98.0	V	-	-	PK	0	1.0	

Band Edge Signal Field Strength

Restricted band starts at allocated band edge (5150MHz), field strength limit is 54dB μ V/m average, 74dB μ V/m peak.

Frequency MHz	Level dB μ V/m	Pol v/h	15.209 / 15.407		Detector Pk/QP/Avg	Azimuth degrees	Height meters	Comments
			Limit	Margin				
5149.920	61.6	V	74.0	-12.4	PK	1	1.0	
5149.000	48.3	V	54.0	-5.7	AVG	1	1.0	
5148.530	61.9	H	74.0	-12.1	PK	75	1.0	
5149.870	48.6	H	54.0	-5.4	AVG	72	1.0	



Client: Intel Corporation	Job Number: J72065
Model: 533AN-MMW with Vader PIFA antenna	T-Log Number: T72132 Band Edge
	Account Manager: Dean Eriksen
Contact: Robert Paxman	
Standard: RSS 210/FCC U-NII (Radiated)	Class: N/A

Run #3b: High Channel @ 5320 MHz (band edge at 5350 MHz)

Power Setting: 27.5 Average power: 16.5 (for reference purposes)

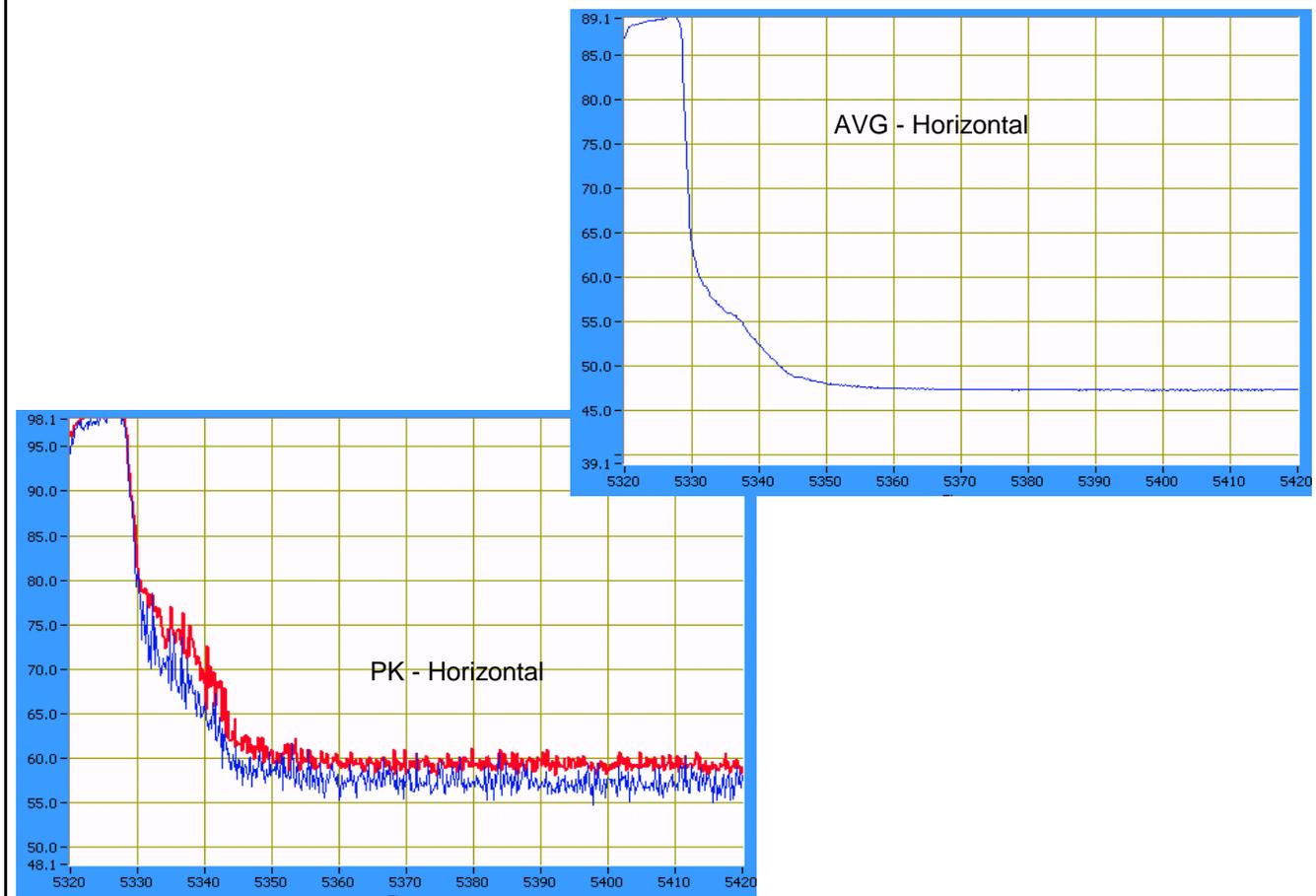
Fundamental Signal Field Strength: Peak and average values measured in 1 MHz, for reference only

Frequency MHz	Level dB μ V/m	Pol v/h	15.209 / 15.407		Detector PK/QP/Avg	Azimuth degrees	Height meters	Comments
			Limit	Margin				
5313.600	91.8	H	-	-	AVG	60	1.0	
5313.600	100.0	H	-	-	PK	60	1.0	
5326.470	91.9	V	-	-	AVG	327	1.3	
5326.470	100.0	V	-	-	PK	327	1.3	

Band Edge Signal Field Strength

Restricted band starts at allocated band edge (5350MHz), field strength limit is 54dBuV/m average, 74dBuV/m peak.

Frequency MHz	Level dB μ V/m	Pol v/h	15.209 / 15.407		Detector PK/QP/Avg	Azimuth degrees	Height meters	Comments
			Limit	Margin				
5352.560	63.6	V	74.0	-10.4	PK	327	1.3	
5350.500	48.3	V	54.0	-5.7	AVG	327	1.3	
5352.940	62.8	H	74.0	-11.2	PK	58	1.0	
5350.500	49.1	H	54.0	-4.9	AVG	61	1.0	



Client:	Intel Corporation	Job Number:	J72065
Model:	533AN-MMW with Vader PIFA antenna	T-Log Number:	T72132 Band Edge
		Account Manager:	Dean Eriksen
Contact:	Robert Paxman		
Standard:	RSS 210/FCC U-NII (Radiated)	Class:	N/A

**RSS 210 and FCC 15.E (U-NII, 5150- 550/5250-5350/5460-5725MHz)
Radiated Spurious Emissions 802.11a Vader Antenna**

Summary of Results

Run #	Mode	Channel	Power Setting	Measured Power	Test Performed	Limit	Result / Margin
1	802.11a Chain A	5180	31.5	16.5	Radiated Emissions, 1 - 40 GHz	FCC Part 15.209 / 15.407	802.11n20 MHz mode in single chain mode had higher emissions than 802.11a mode when evaluating the device with the ethertronics antenna at both harmonics and LO-related frequencies, therefore 802.11a mode is covered by tests performed in 802.11n20 mode.
		5200	31.0	16.6			
		5240	29.5	16.6			
2	802.11a Chain A	5260	29.0	16.7	Radiated Emissions, 1 - 40 GHz	FCC Part 15.209 / 15.407	
		5280	28.5	16.7			
		5320	27.0	16.5			
3	802.11a Chain A	5500	25.5	16.7	Radiated Emissions, 1 - 40 GHz	FCC Part 15.209 / 15.407	
		5600	25.5	16.6			
		5700	26.0	16.5			
4	802.11a Chain B	5180	31.0	16.5	Radiated Emissions, 1 - 40 GHz	FCC Part 15.209 / 15.407	
		5200	30.5	16.6			
		5240	30.5	16.6			
5	802.11a Chain B	5260	27.5	16.7	Radiated Emissions, 1 - 40 GHz	FCC Part 15.209 / 15.407	
		5280	27.0	16.7			
		5320	25.5	16.5			
6	802.11a Chain B	5500	24.5	16.5	Radiated Emissions, 1 - 40 GHz	FCC Part 15.209 / 15.407	
		5600	24.5	16.5			
		5700	25.0	16.7			
7	802.11a Chain C	5180	31.0	16.5	Radiated Emissions, 1 - 40 GHz	FCC Part 15.209 / 15.407	
		5200	30.5	16.5			
		5240	30.0	16.5			
8	802.11a Chain C	5260	29.5	16.6	Radiated Emissions, 1 - 40 GHz	FCC Part 15.209 / 15.407	
		5280	29.0	16.5			
		5320	28.5	16.5			
9	802.11a Chain C	5500	26.0	16.5	Radiated Emissions, 1 - 40 GHz	FCC Part 15.209 / 15.407	
		5600	25.5	16.5			
		5700	25.5	16.5			

Client:	Intel Corporation	Job Number:	J72065
Model:	533AN-MMW with Vader PIFA antenna	T-Log Number:	T72132 Band Edge
		Account Manager:	Dean Eriksen
Contact:	Robert Paxman		
Standard:	RSS 210/FCC U-NII (Radiated)	Class:	N/A

**RSS 210 and FCC 15.E (U-NII, 5150- 550/5250-5350/5460-5725MHz)
Band Edge Field Strength 802.11n20 Vader Antenna**

Test Specific Details

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

General Test Configuration

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

Ambient Conditions: Temperature: 15-25 °C
 Rel. Humidity: 35-55 %

Summary of Results

Run #	Mode	Channel	Power Setting	Measured Power	Test Performed	Limit	Result / Margin
1	802.11n20 Chain A	5180MHz	29.0	16.6	Band Edge radiated field strength	FCC Part 15.209	47.7dBµV/m @ 5150.0MHz (-6.3dB)
	802.11n20 Chain A	5320MHz	25.0	16.7	Band Edge radiated field strength	FCC Part 15.209	48.1dBµV/m @ 5350.0MHz (-5.9dB)
2	802.11n20 Chain B	5180MHz	30.0	16.5	Band Edge radiated field strength	FCC Part 15.209	49.1dBµV/m @ 5150.0MHz (-4.9dB)
	802.11n20 Chain B	5320MHz	26.0	16.6	Band Edge radiated field strength	FCC Part 15.209	48.6dBµV/m @ 5350.1MHz (-5.4dB)
3	802.11n20 Chain C	5180MHz	29.5	16.7	Band Edge radiated field strength	FCC Part 15.209	48.3dBµV/m @ 5149.8MHz (-5.7dB)
	802.11n20 Chain C	5320MHz	27.0	16.6	Band Edge radiated field strength	FCC Part 15.209	48.6dBµV/m @ 5350.0MHz (-5.4dB)
4	802.11n20 Chain A+B	5180MHz	28.5 27.5	13.5 13.7	Band Edge radiated field strength	FCC Part 15.209	47.8dBµV/m @ 5147.1MHz (-6.2dB)
	802.11n20 Chain A+B	5320MHz	25.5 24.5	13.5 13.5	Band Edge radiated field strength	FCC Part 15.209	47.6dBµV/m @ 5350.0MHz (-6.4dB)
5	802.11n20 Chain A+C	5180MHz	28.0 28.5	13.5 13.6	Band Edge field strength	FCC Part 15.209	47.8dBµV/m @ 5148.1MHz (-6.2dB)
	802.11n20 Chain A+C	5320MHz	24.0 26.0	13.6 13.5	Band Edge field strength	FCC Part 15.209	47.6dBµV/m @ 5350.0MHz (-6.4dB)
6	802.11n20 Chain B+C	5180MHz	28.5 28.5	13.6 13.5	Band Edge field strength	FCC Part 15.209	47.8dBµV/m @ 5148.0MHz (-6.2dB)
	802.11n20 Chain B+C	5320MHz	24.5 26.0	13.6 13.5	Band Edge field strength	FCC Part 15.209	47.7dBµV/m @ 5350.2MHz (-6.3dB)

Client: Intel Corporation	Job Number: J72065
Model: 533AN-MMW with Vader PIFA antenna	T-Log Number: T72132 Band Edge
	Account Manager: Dean Eriksen
Contact: Robert Paxman	
Standard: RSS 210/FCC U-NII (Radiated)	Class: N/A

Summary of Results

Run #	Mode	Channel	Power Setting	Measured Power	Test Performed	Limit	Result / Margin
7	802.11n20 A+B+C	5180MHz	29.0	12.3	Band Edge field strength	FCC Part 15.209	49.4dBµV/m @ 5149.4MHz (-4.6dB)
			30.0	12.3			
			30.5	12.4			
	802.11n20 A+B+C	5320MHz	25.0	12.3	Band Edge field strength	FCC Part 15.209	49.9dBµV/m @ 5350.05MHz (-4.1dB)
26.5			12.3				
28.5			12.4				

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.

Run #1: Radiated Spurious Emissions, Band Edges. Operating Mode: 802.11n 20MHz - Chain A

Run #1a: Low Channel @ 5180 MHz (band edge at 5150 MHz)

Sample ID: MAC:0016EA02D4D0
Date of Test: 7/1/2008
Test Engineer: Suhaila Khushzad
Test Location: Chamber # 3

Power Setting and average measurement (for reference)					
Chain A		Chain B		Chain C	
Setting	Avg	Setting	Avg	Setting	Avg
29	16.6				

Reduced from measured settings

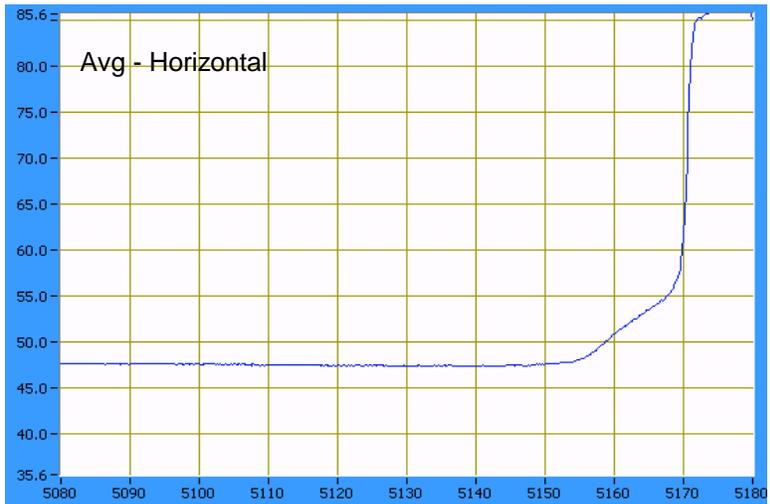
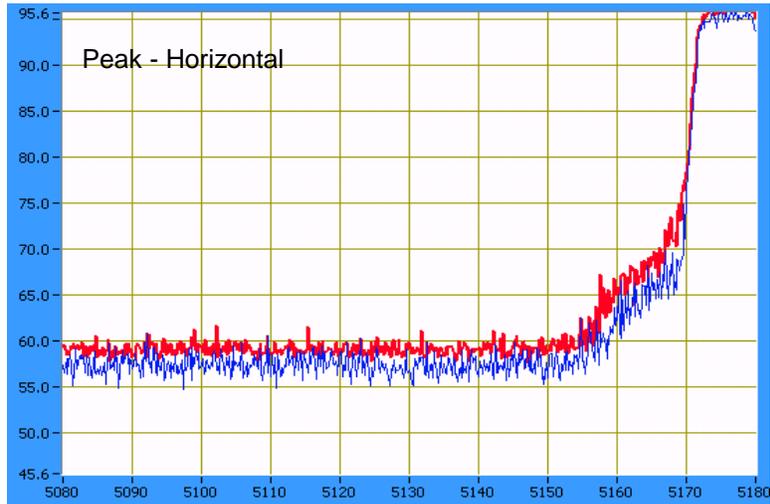
Fundamental Signal Field Strength: Peak and average values measured in 1 MHz, for reference only

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	PK/QP/Avg	degrees	meters	
5185.170	87.9	V	-	-	AVG	130	1.0	
5185.170	96.7	V	-	-	PK	130	1.0	
5187.080	89.1	H	-	-	AVG	261	1.3	
5187.080	97.5	H	-	-	PK	261	1.3	

Band Edge 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	
5150.000	47.7	H	54.0	-6.3	AVG	261	1.3	
5147.090	60.8	H	74.0	-13.2	PK	261	1.3	
5147.650	61.3	V	74.0	-12.7	PK	130	1.0	
5149.620	47.7	V	54.0	-6.3	AVG	130	1.0	

Client:	Intel Corporation	Job Number:	J72065
Model:	533AN-MMW with Vader PIFA antenna	T-Log Number:	T72132 Band Edge
Contact:	Robert Paxman	Account Manager:	Dean Eriksen
Standard:	RSS 210/FCC U-NII (Radiated)	Class:	N/A



Client: Intel Corporation	Job Number: J72065
Model: 533AN-MMW with Vader PIFA antenna	T-Log Number: T72132 Band Edge
	Account Manager: Dean Eriksen
Contact: Robert Paxman	
Standard: RSS 210/FCC U-NII (Radiated)	Class: N/A

Run #1: Radiated Spurious Emissions, Band Edges. Operating Mode: 802.11n 20MHz - Chain A
 Run #1b: High Channel @ 5320 MHz (band edge at 5350 MHz)

Sample ID: MAC:0016EA02D4D0
 Date of Test: 7/1/2008
 Test Engineer: Suhaila Khushzad
 Test Location: Chamber # 3

Power Setting and average measurement (for reference)					
Chain A		Chain B		Chain C	
Setting	Avg	Setting	Avg	Setting	Avg
25	16.7				

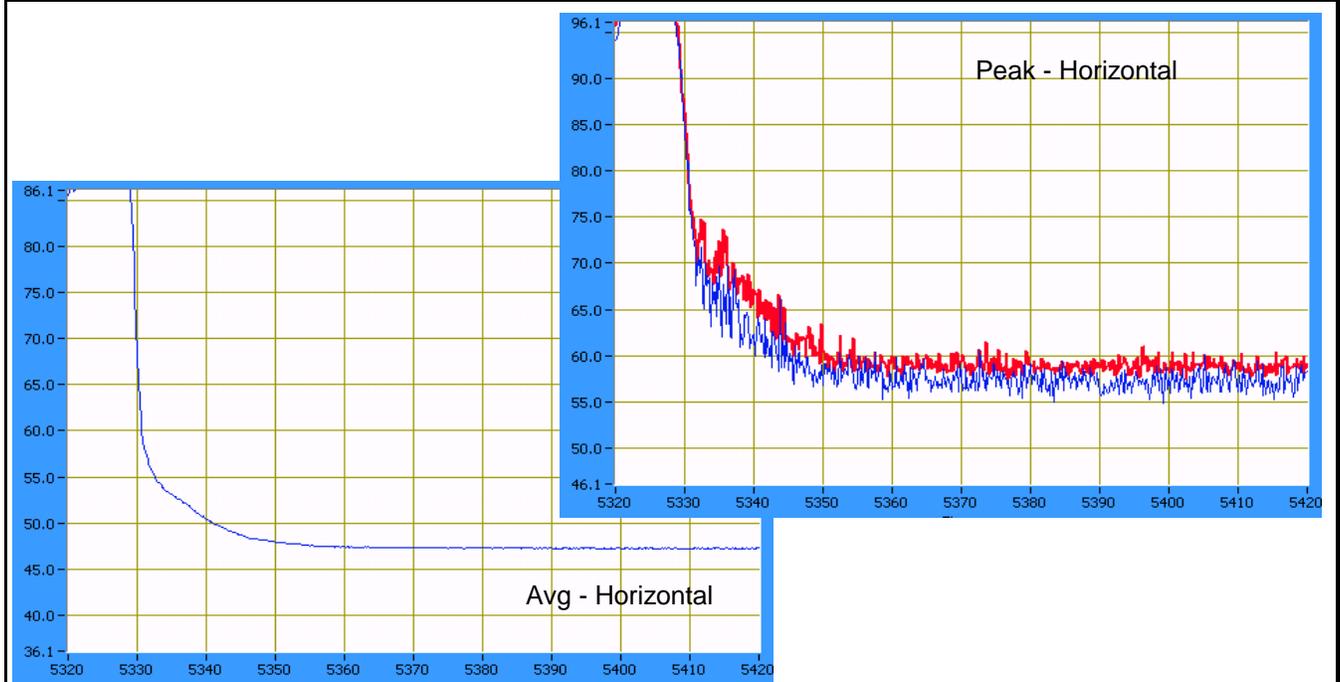
Reduced from measured settings

Fundamental Signal Field Strength: Peak and average values measured in 1 MHz, for reference only

Frequency MHz	Level dB μ V/m	Pol v/h	15.209 / 15.247		Detector Pk/QP/Avg	Azimuth degrees	Height meters	Comments
			Limit	Margin				
5325.750	91.7	H	-	-	AVG	255	1.1	
5325.750	99.7	H	-	-	PK	255	1.1	
5327.420	87.2	V	-	-	AVG	175	1.1	
5327.420	95.5	V	-	-	PK	175	1.1	

Band Edge Signal Field Strength

Frequency MHz	Level dB μ V/m	Pol v/h	15.209 / 15.247		Detector Pk/QP/Avg	Azimuth degrees	Height meters	Comments
			Limit	Margin				
5350.000	48.1	H	54.0	-5.9	AVG	255	1.1	
5350.820	62.7	H	74.0	-11.3	PK	255	1.1	
5352.200	61.5	V	74.0	-12.5	PK	175	1.0	
5350.150	47.6	V	54.0	-6.4	AVG	175	1.1	



Client: Intel Corporation	Job Number: J72065
Model: 533AN-MMW with Vader PIFA antenna	T-Log Number: T72132 Band Edge
	Account Manager: Dean Eriksen
Contact: Robert Paxman	
Standard: RSS 210/FCC U-NII (Radiated)	Class: N/A

Run #2: Radiated Spurious Emissions, Band Edges. Operating Mode: 802.11n 20MHz - Chain B

Run #2a: Low Channel @ 5180 MHz (band edge at 5150 MHz)

Sample ID: MAC:0016EA02D4D0
 Date of Test: 7/1/2008
 Test Engineer: Suhaila Khushzad
 Test Location: Chamber # 3

Power Setting and average measurement (for reference)					
Chain A		Chain B		Chain C	
Setting	Avg	Setting	Avg	Setting	Avg
		30	16.5		

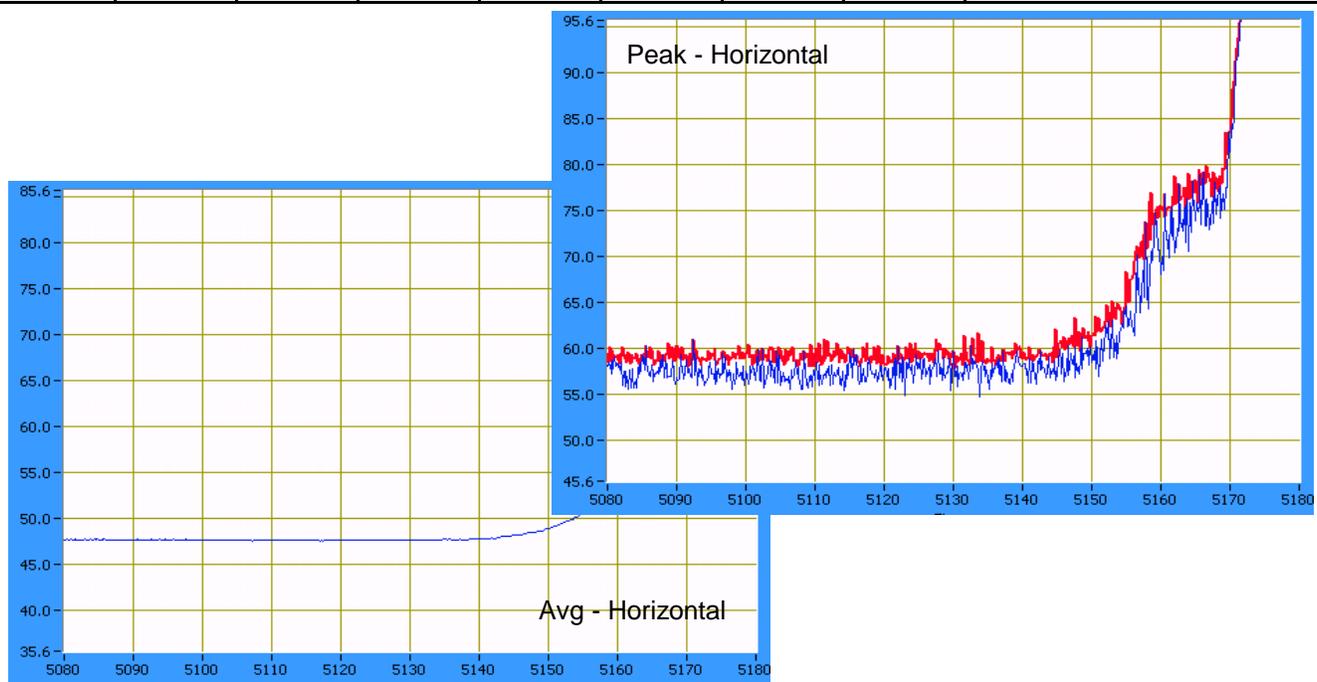
Measured Settings

Fundamental Signal Field Strength: Peak and average values measured in 1 MHz, for reference only

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dB μ V/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5185.750	92.8	V	-	-	AVG	136	1.1	
5185.750	101.0	V	-	-	PK	136	1.1	
5185.330	95.5	H	-	-	AVG	98	1.1	
5185.330	104.1	H	-	-	PK	98	1.1	

Band Edge Signal Field Strength

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dB μ V/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5149.980	49.1	H	54.0	-4.9	AVG	98	1.1	
5147.330	64.0	H	74.0	-10.0	PK	98	1.1	
5148.290	61.5	V	74.0	-12.5	PK	136	1.1	
5149.490	48.3	V	54.0	-5.7	AVG	136	1.1	



Client: Intel Corporation	Job Number: J72065
Model: 533AN-MMW with Vader PIFA antenna	T-Log Number: T72132 Band Edge
	Account Manager: Dean Eriksen
Contact: Robert Paxman	
Standard: RSS 210/FCC U-NII (Radiated)	Class: N/A

Run #2: Radiated Spurious Emissions, Band Edges. Operating Mode: 802.11n 20MHz - Chain B
Run #2b: High Channel @ 5320 MHz (band edge at 5350 MHz)

Sample ID: MAC:0016EA02D4D0
 Date of Test: 7/1/2008
 Test Engineer: Suhaila Khushzad
 Test Location: Chamber # 3

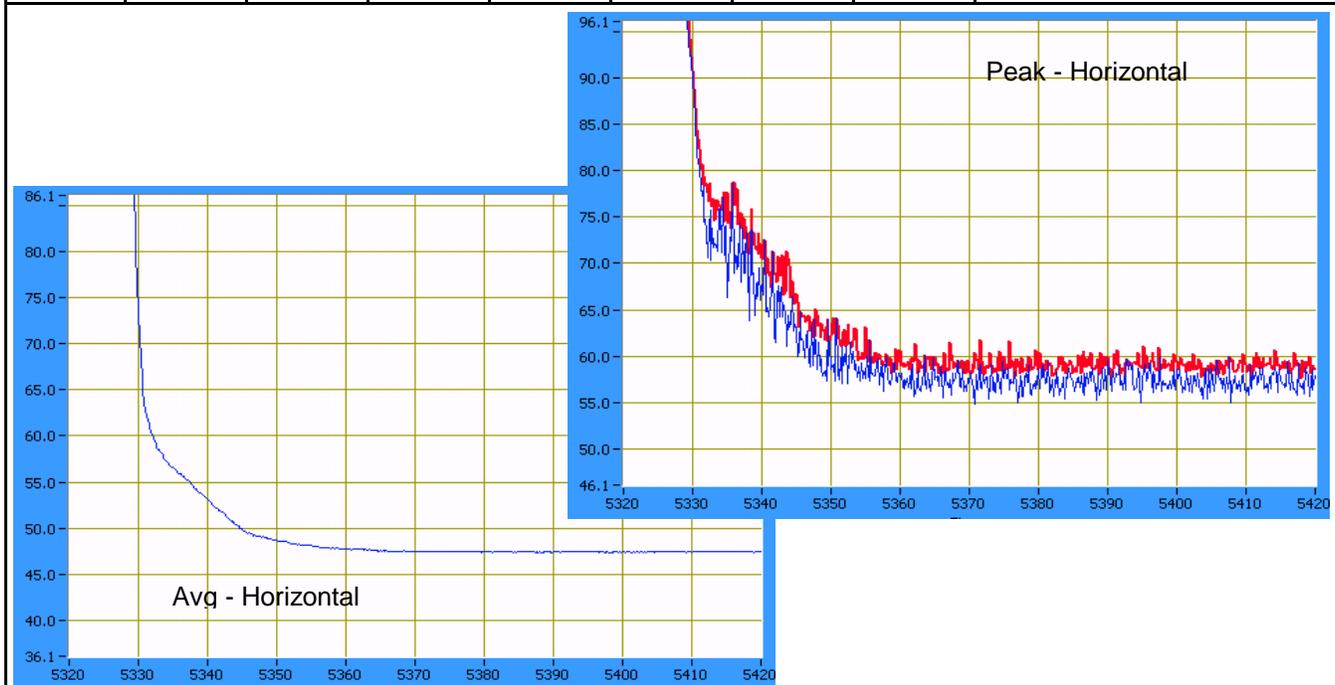
Power Setting and average measurement (for reference)					
Chain A		Chain B		Chain C	
Setting	Avg	Setting	Avg	Setting	Avg
		26	16.6		

Fundamental Signal Field Strength: Peak and average values measured in 1 MHz, for reference only

Frequency MHz	Level dB μ V/m	Pol v/h	15.209 / 15.247		Detector PK/QP/Avg	Azimuth degrees	Height meters	Comments
			Limit	Margin				
5327.080	94.3	V	-	-	AVG	206	1.2	
5327.080	102.3	V	-	-	PK	206	1.2	
5327.080	96.7	H	-	-	AVG	91	1.0	
5327.080	105.0	H	-	-	PK	91	1.0	

Band Edge Signal Field Strength

Frequency MHz	Level dB μ V/m	Pol v/h	15.209 / 15.247		Detector PK/QP/Avg	Azimuth degrees	Height meters	Comments
			Limit	Margin				
5350.110	48.6	H	54.0	-5.4	AVG	91	1.0	
5350.630	66.6	H	74.0	-7.4	PK	91	1.0	
5350.430	64.6	V	74.0	-9.4	PK	206	1.2	
5350.020	48.4	V	54.0	-5.6	AVG	206	1.2	



Client:	Intel Corporation	Job Number:	J72065
Model:	533AN-MMW with Vader PIFA antenna	T-Log Number:	T72132 Band Edge
Contact:	Robert Paxman	Account Manager:	Dean Eriksen
Standard:	RSS 210/FCC U-NII (Radiated)	Class:	N/A

Run #3: Radiated Spurious Emissions, Band Edges. Operating Mode: 802.11n 20MHz - Chain C
Run #3a: Low Channel @ 5180 MHz (band edge at 5150 MHz)

Sample ID: MAC:0016EA02D4D0
 Date of Test: 7/1/2008
 Test Engineer: Suhaila Khushzad
 Test Location: Chamber # 3

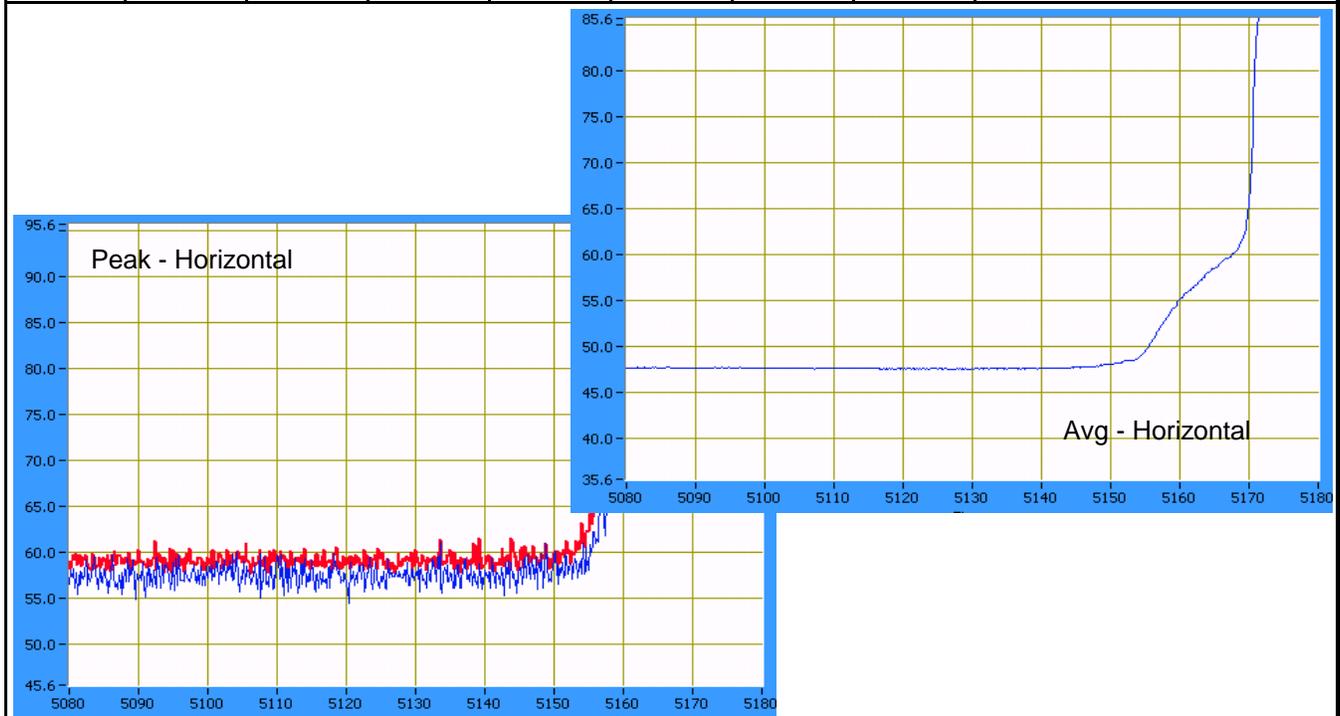
Power Setting and average measurement (for reference)					
Chain A		Chain B		Chain C	
Setting	Avg	Setting	Avg	Setting	Avg
				29.5	16.7

Fundamental Signal Field Strength: Peak and average values measured in 1 MHz, for reference only

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dB μ V/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5187.000	92.2	V	-	-	AVG	169	1.2	
5187.000	100.7	V	-	-	PK	169	1.2	
5187.250	93.2	H	-	-	AVG	238	1.0	
5187.250	101.6	H	-	-	PK	238	1.0	

Band Edge Signal Field Strength

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dB μ V/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5149.790	48.3	V	54.0	-5.7	AVG	168	1.2	
5149.880	62.4	V	74.0	-11.6	PK	168	1.2	
5149.790	48.2	H	54.0	-5.8	AVG	238	1.0	
5148.900	61.3	H	74.0	-12.7	PK	238	1.0	



Client: Intel Corporation	Job Number: J72065
Model: 533AN-MMW with Vader PIFA antenna	T-Log Number: T72132 Band Edge
	Account Manager: Dean Eriksen
Contact: Robert Paxman	
Standard: RSS 210/FCC U-NII (Radiated)	Class: N/A

Run #3: Radiated Spurious Emissions, Band Edges. Operating Mode: 802.11n 20MHz - Chain C

Run #3b: High Channel @ 5320 MHz (band edge at 5350 MHz)

Sample ID: MAC:0016EA02D4D0
 Date of Test: 7/1/2008
 Test Engineer: Suhaila Khushzad
 Test Location: Chamber # 3

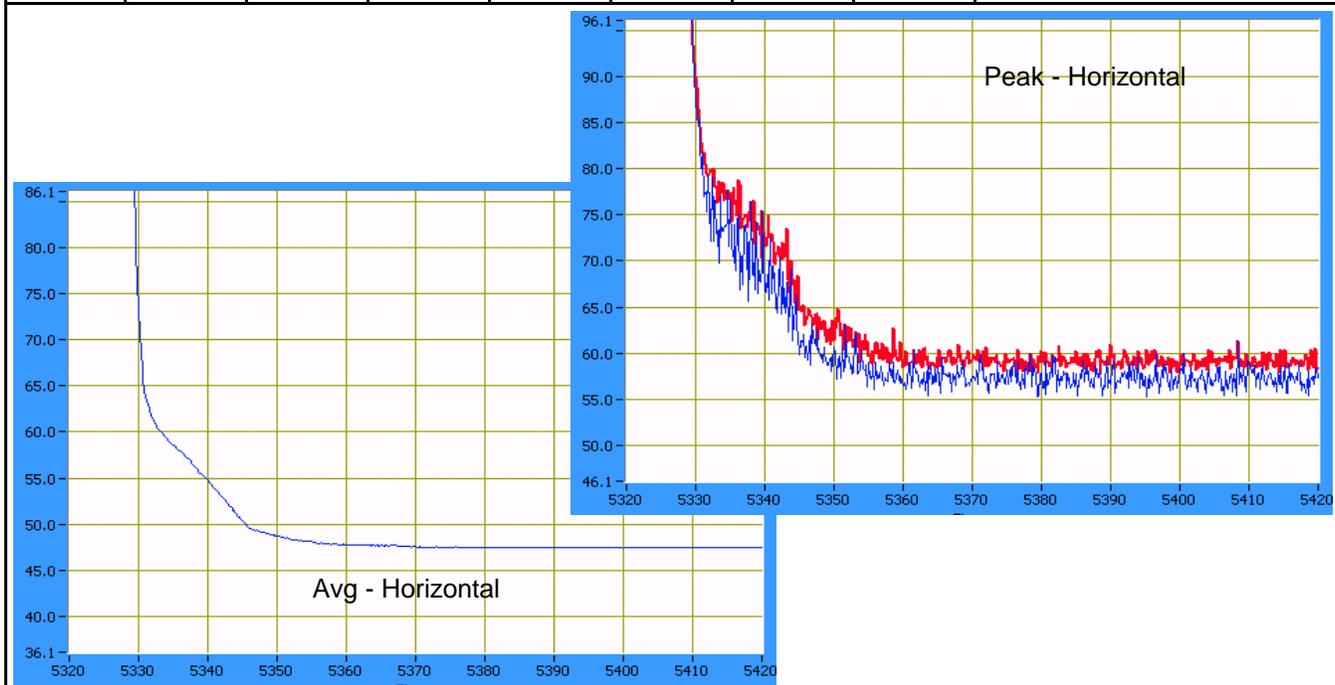
Power Setting and average measurement (for reference)					
Chain A		Chain B		Chain C	
Setting	Avg	Setting	Avg	Setting	Avg
				27	16.6

Fundamental Signal Field Strength: Peak and average values measured in 1 MHz, for reference only

Frequency MHz	Level dB μ V/m	Pol v/h	15.209 / 15.247		Detector Pk/QP/Avg	Azimuth degrees	Height meters	Comments
			Limit	Margin				
5315.000	91.3	V	-	-	AVG	113	1.0	
5315.000	100.2	V	-	-	PK	113	1.0	
5327.170	96.1	H	-	-	AVG	253	1.1	
5327.170	104.1	H	-	-	PK	253	1.1	

Band Edge Signal Field Strength

Frequency MHz	Level dB μ V/m	Pol v/h	15.209 / 15.247		Detector Pk/QP/Avg	Azimuth degrees	Height meters	Comments
			Limit	Margin				
5350.040	48.6	H	54.0	-5.4	AVG	253	1.1	
5350.110	65.0	H	74.0	-9.0	PK	253	1.1	
5352.120	62.6	V	74.0	-11.4	PK	112	1.0	
5350.000	47.8	V	54.0	-6.2	AVG	112	1.0	



Client: Intel Corporation	Job Number: J72065
Model: 533AN-MMW with Vader PIFA antenna	T-Log Number: T72132 Band Edge
	Account Manager: Dean Eriksen
Contact: Robert Paxman	
Standard: RSS 210/FCC U-NII (Radiated)	Class: N/A

Run #4: Radiated Spurious Emissions, Band Edges. Operating Mode: 802.11n 20MHz - Chain A+B

Run #4a: Low Channel @ 5180 MHz (band edge at 5150 MHz)

Sample ID: MAC:0016EA02D4D0
 Date of Test: 7/1/2008
 Test Engineer: Suhaila Khushzad
 Test Location: Chamber # 3

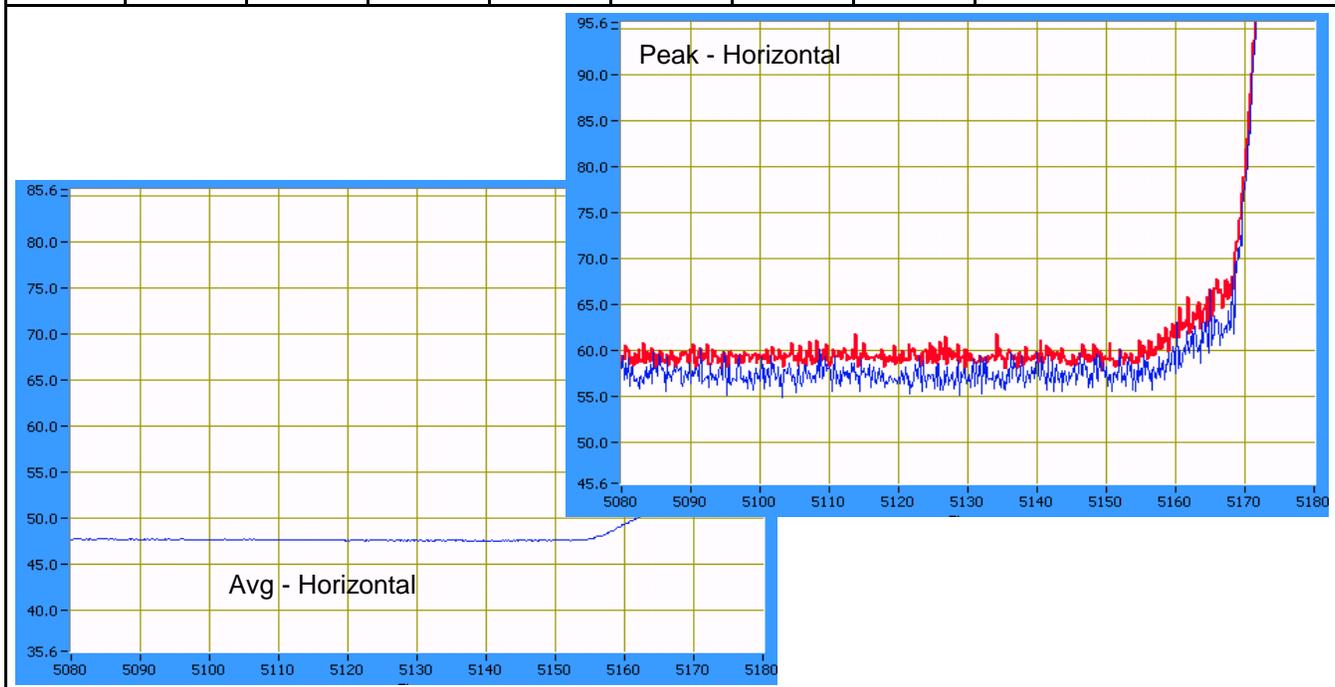
Power Setting and average measurement (for reference)					
Chain A		Chain B		Chain C	
Setting	Avg	Setting	Avg	Setting	Avg
28.5	13.5	27.5	13.7		

Fundamental Signal Field Strength: Peak and average values measured in 1 MHz, for reference only

Frequency MHz	Level dB μ V/m	Pol v/h	15.209 / 15.247		Detector Pk/QP/Avg	Azimuth degrees	Height meters	Comments
			Limit	Margin				
5188.330	90.5	V	-	-	AVG	134	1.0	
5188.330	100.4	V	-	-	PK	134	1.0	
5184.920	92.2	H	-	-	AVG	94	1.1	
5184.920	102.6	H	-	-	PK	94	1.1	

Band Edge Signal Field Strength

Frequency MHz	Level dB μ V/m	Pol v/h	15.209 / 15.247		Detector Pk/QP/Avg	Azimuth degrees	Height meters	Comments
			Limit	Margin				
5147.050	47.8	H	54.0	-6.2	AVG	94	1.1	
5147.120	60.6	H	74.0	-13.4	PK	94	1.1	
5148.270	60.9	V	74.0	-13.1	PK	134	1.0	
5147.630	47.7	V	54.0	-6.3	AVG	134	1.0	



Client: Intel Corporation	Job Number: J72065
Model: 533AN-MMW with Vader PIFA antenna	T-Log Number: T72132 Band Edge
	Account Manager: Dean Eriksen
Contact: Robert Paxman	
Standard: RSS 210/FCC U-NII (Radiated)	Class: N/A

Run #4: Radiated Spurious Emissions, Band Edges. Operating Mode: 802.11n 20MHz - Chain A+B

Run #4b: High Channel @ 5320 MHz (band edge at 5350 MHz)

Sample ID: MAC:0016EA02D4D0

Date of Test: 7/1/2008

Test Engineer: Suhaila Khushzad

Test Location: Chamber # 3

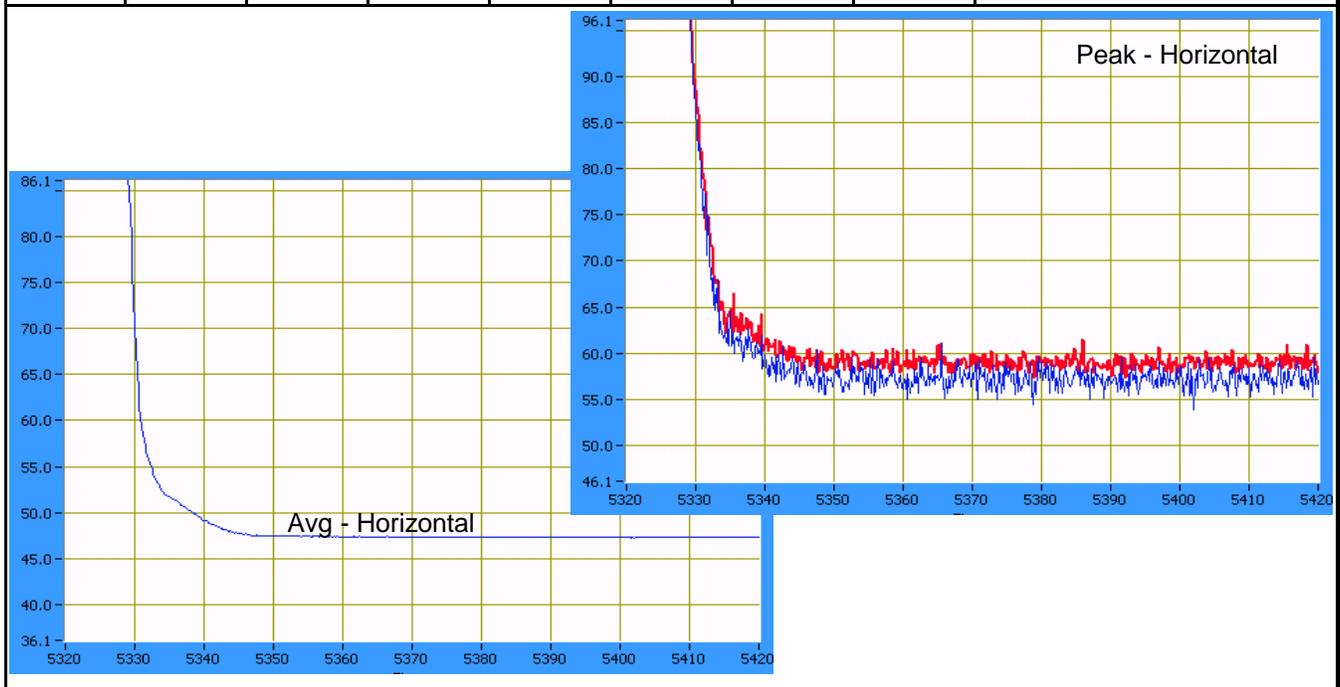
Power Setting and average measurement (for reference)					
Chain A		Chain B		Chain C	
Setting	Avg	Setting	Avg	Setting	Avg
25.5	13.5	24.5	13.5		

Fundamental Signal Field Strength: Peak and average values measured in 1 MHz, for reference only

Frequency MHz	Level dB μ V/m	Pol v/h	15.209 / 15.247		Detector PK/QP/Avg	Azimuth degrees	Height meters	Comments
			Limit	Margin				
5327.420	89.2	V	-	-	AVG	95	1.0	
5327.420	98.7	V	-	-	PK	95	1.0	
5327.420	94.4	H	-	-	AVG	94	1.0	
5327.420	104.3	H	-	-	PK	94	1.0	

Band Edge Signal Field Strength

Frequency MHz	Level dB μ V/m	Pol v/h	15.209 / 15.247		Detector PK/QP/Avg	Azimuth degrees	Height meters	Comments
			Limit	Margin				
5350.000	47.6	H	54.0	-6.4	AVG	94	1.0	
5350.920	60.7	H	74.0	-13.3	PK	94	1.0	
5350.250	61.0	V	74.0	-13.0	PK	96	1.0	
5350.110	47.5	V	54.0	-6.5	AVG	96	1.0	



Client: Intel Corporation	Job Number: J72065
Model: 533AN-MMW with Vader PIFA antenna	T-Log Number: T72132 Band Edge
	Account Manager: Dean Eriksen
Contact: Robert Paxman	
Standard: RSS 210/FCC U-NII (Radiated)	Class: N/A

Run #5: Radiated Spurious Emissions, Band Edges. Operating Mode: 802.11n 20MHz - Chain A+C

Run #5a: Low Channel @ 5180 MHz (band edge at 5150 MHz)

Sample ID: MAC:0016EA02D4D0

Date of Test: 7/1/2008

Test Engineer: Suhaila Khushzad

Test Location: Chamber # 3

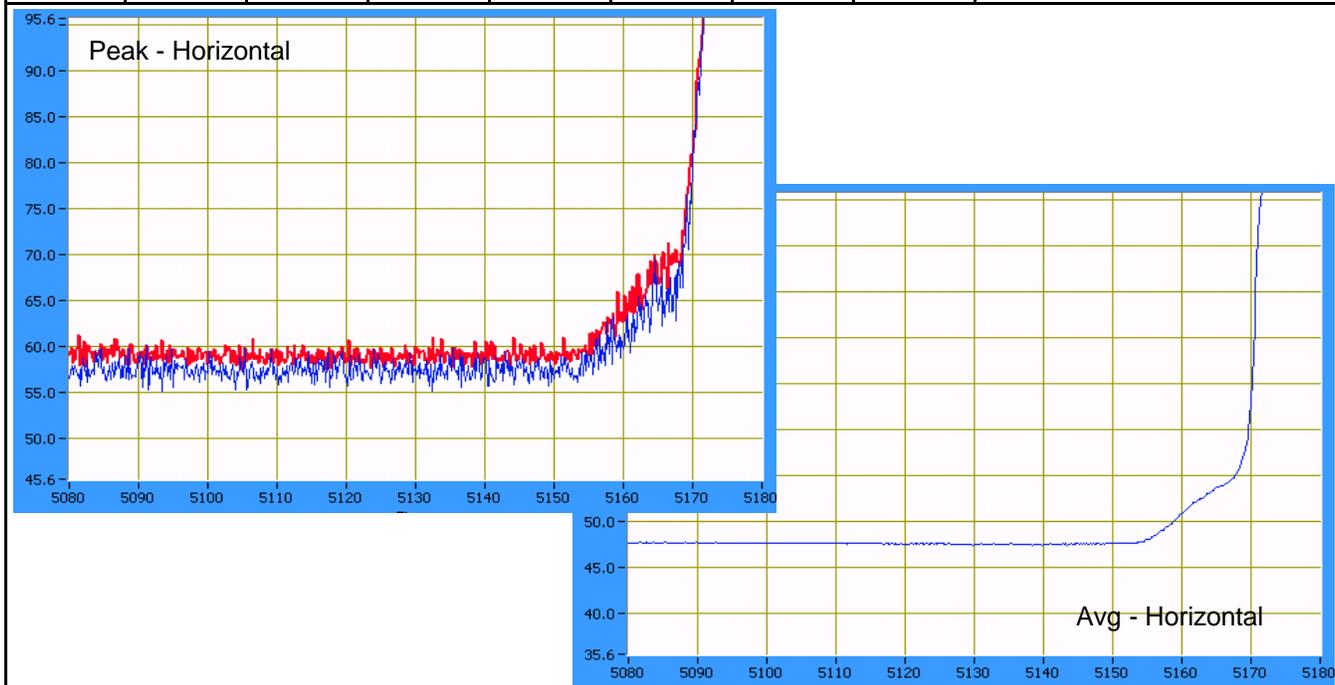
Power Setting and average measurement (for reference)					
Chain A		Chain B		Chain C	
Setting	Avg	Setting	Avg	Setting	Avg
28	13.5			28.5	13.6

Fundamental Signal Field Strength: Peak and average values measured in 1 MHz, for reference only

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dB μ V/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5185.750	90.6	V	-	-	AVG	171	1.1	
5185.750	100.9	V	-	-	PK	171	1.1	
5186.250	93.4	H	-	-	AVG	247	1.5	
5186.250	103.6	H	-	-	PK	247	1.5	

Band Edge Signal Field Strength

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dB μ V/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5148.110	47.8	H	54.0	-6.2	AVG	247	1.5	
5148.290	61.6	H	74.0	-12.4	PK	247	1.5	
5147.920	61.2	V	74.0	-12.8	PK	171	1.1	
5147.210	47.7	V	54.0	-6.3	AVG	171	1.1	



Client: Intel Corporation	Job Number: J72065
Model: 533AN-MMW with Vader PIFA antenna	T-Log Number: T72132 Band Edge
	Account Manager: Dean Eriksen
Contact: Robert Paxman	
Standard: RSS 210/FCC U-NII (Radiated)	Class: N/A

Run #5: Radiated Spurious Emissions, Band Edges. Operating Mode: 802.11n 20MHz - Chain A+C

Run #5b: High Channel @ 5320 MHz (band edge at 5350 MHz)

Sample ID: MAC:0016EA02D4D0

Date of Test: 7/1/2008

Test Engineer: Suhaila Khushzad

Test Location: Chamber # 3

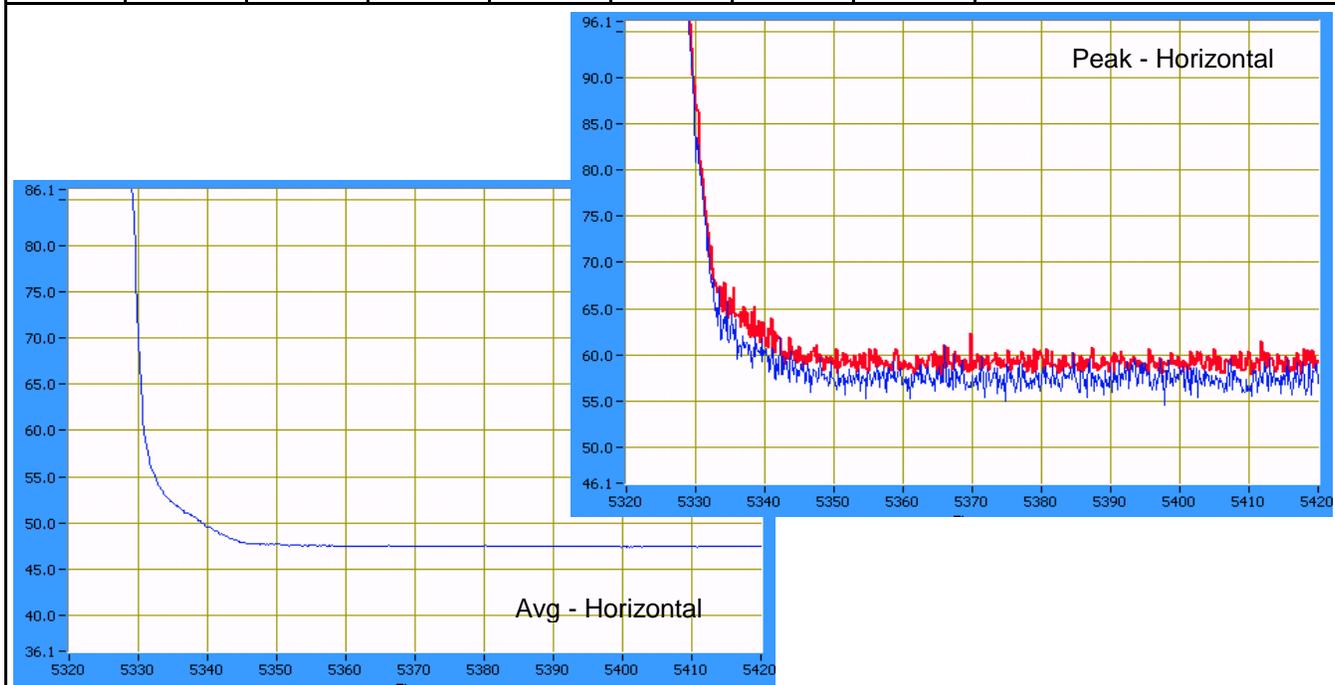
Power Setting and average measurement (for reference)					
Chain A		Chain B		Chain C	
Setting	Avg	Setting	Avg	Setting	Avg
24	13.6			26	13.5

Fundamental Signal Field Strength: Peak and average values measured in 1 MHz, for reference only

Frequency MHz	Level dB μ V/m	Pol v/h	15.209 / 15.247		Detector PK/QP/Avg	Azimuth degrees	Height meters	Comments
			Limit	Margin				
5328.330	94.4	H	-	-	AVG	250	1.2	
5328.330	104.7	H	-	-	PK	250	1.2	
5327.500	90.7	V	-	-	AVG	160	1.1	
5327.500	100.9	V	-	-	PK	160	1.1	

Band Edge Signal Field Strength

Frequency MHz	Level dB μ V/m	Pol v/h	15.209 / 15.247		Detector PK/QP/Avg	Azimuth degrees	Height meters	Comments
			Limit	Margin				
5350.010	47.6	H	54.0	-6.4	AVG	250	1.2	
5350.580	61.8	H	74.0	-12.2	PK	250	1.1	
5352.040	60.9	V	74.0	-13.1	PK	160	1.1	
5350.130	47.5	V	54.0	-6.5	AVG	160	1.1	



Client: Intel Corporation	Job Number: J72065
Model: 533AN-MMW with Vader PIFA antenna	T-Log Number: T72132 Band Edge
	Account Manager: Dean Eriksen
Contact: Robert Paxman	
Standard: RSS 210/FCC U-NII (Radiated)	Class: N/A

Run #6: Radiated Spurious Emissions, Band Edges. Operating Mode: 802.11n 20MHz - Chain B+C

Run #6a: Low Channel @ 5180 MHz (band edge at 5150 MHz)

Sample ID: MAC:0016EA02D4D0

Date of Test: 7/1/2008

Test Engineer: Suhaila Khushzad

Test Location: Chamber # 3

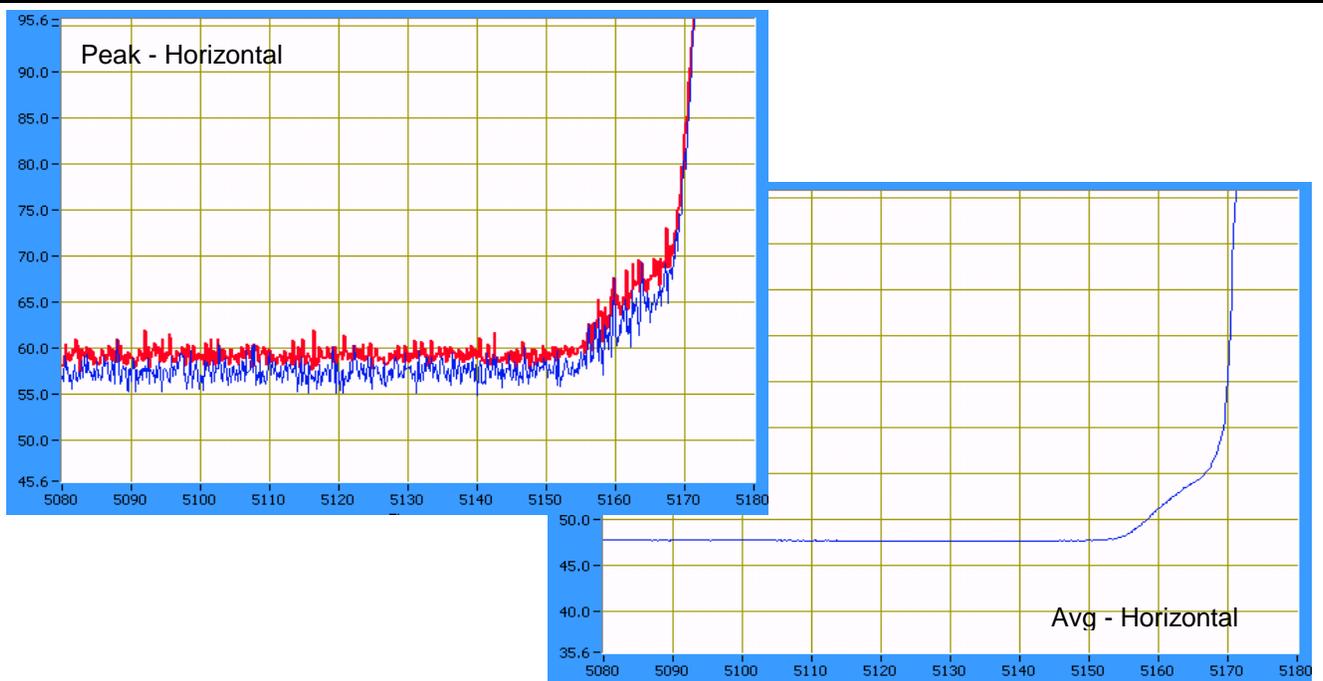
Power Setting and average measurement (for reference)					
Chain A		Chain B		Chain C	
Setting	Avg	Setting	Avg	Setting	Avg
		28.5	13.6	28.5	13.5

Fundamental Signal Field Strength: Peak and average values measured in 1 MHz, for reference only

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dB μ V/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5185.420	92.6	V	-	-	AVG	140	1.0	
5185.420	102.8	V	-	-	PK	140	1.0	
5187.250	95.1	H	-	-	AVG	96	1.0	
5187.250	105.4	H	-	-	PK	96	1.0	

Band Edge Signal Field Strength

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dB μ V/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5148.020	47.8	H	54.0	-6.2	AVG	96	1.0	
5147.030	61.2	H	74.0	-12.8	PK	96	1.0	
5149.530	60.8	V	74.0	-13.2	PK	140	1.0	
5147.170	47.8	V	54.0	-6.2	AVG	140	1.0	



Client:	Intel Corporation	Job Number:	J72065
Model:	533AN-MMW with Vader PIFA antenna	T-Log Number:	T72132 Band Edge
Contact:	Robert Paxman	Account Manager:	Dean Eriksen
Standard:	RSS 210/FCC U-NII (Radiated)	Class:	N/A

Run #6: Radiated Spurious Emissions, Band Edges. Operating Mode: 802.11n 20MHz - Chain B+C

Run #6b: High Channel @ 5320 MHz (band edge at 5350 MHz)

Sample ID: MAC:0016EA02D4D0

Date of Test: 7/1/2008

Test Engineer: Suhaila Khushzad

Test Location: Chamber # 3

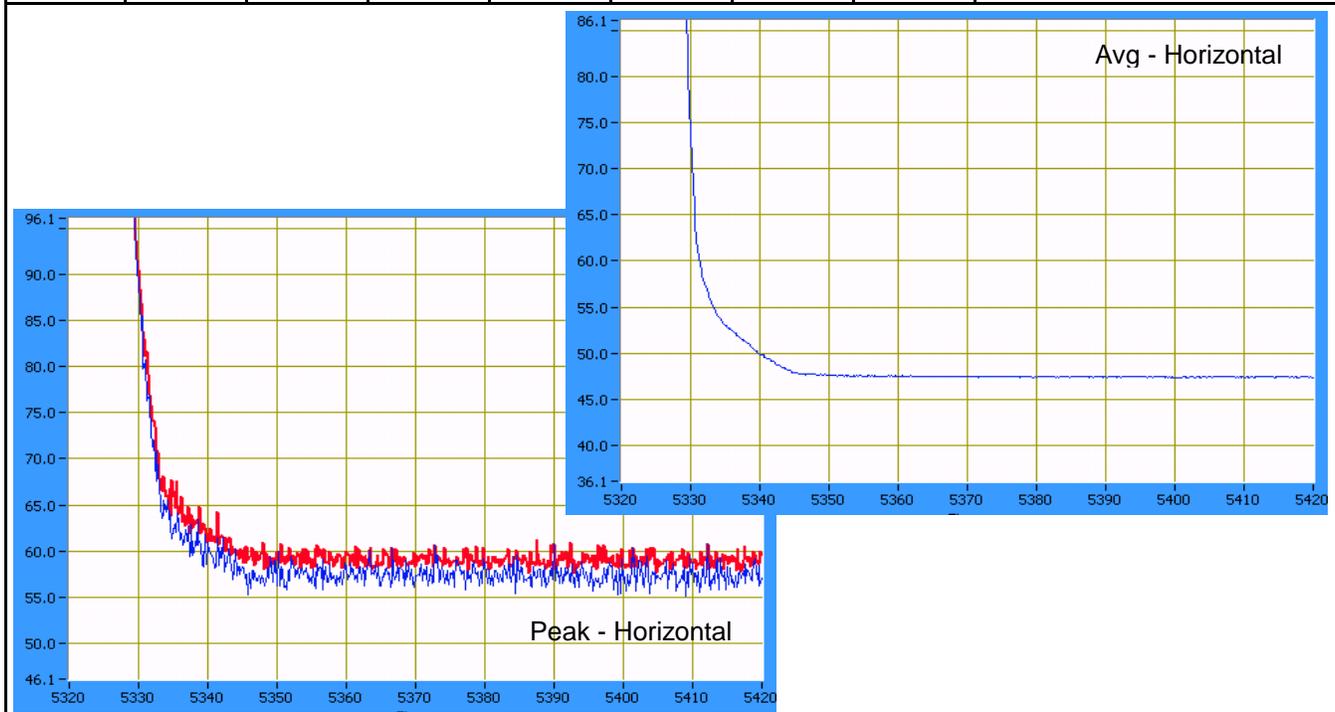
Power Setting and average measurement (for reference)					
Chain A		Chain B		Chain C	
Setting	Avg	Setting	Avg	Setting	Avg
		24.5	13.6	26	13.5

Fundamental Signal Field Strength: Peak and average values measured in 1 MHz, for reference only

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dB μ V/m	v/h	Limit	Margin	PK/QP/Avg	degrees	meters	
5326.080	90.8	V	-	-	AVG	116	1.0	
5326.080	100.9	V	-	-	PK	116	1.0	
5328.170	96.3	H	-	-	AVG	95	1.1	
5328.170	105.7	H	-	-	PK	95	1.1	

Band Edge Signal Field Strength

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dB μ V/m	v/h	Limit	Margin	PK/QP/Avg	degrees	meters	
5350.150	47.7	H	54.0	-6.3	AVG	95	1.1	
5351.940	61.9	H	74.0	-12.1	PK	95	1.1	
5352.260	61.9	V	74.0	-12.1	PK	116	1.0	
5350.100	47.5	V	54.0	-6.5	AVG	116	1.0	



Client: Intel Corporation	Job Number: J72065
Model: 533AN-MMW with Vader PIFA antenna	T-Log Number: T72132 Band Edge
	Account Manager: Dean Eriksen
Contact: Robert Paxman	
Standard: RSS 210/FCC U-NII (Radiated)	Class: N/A

Run #7: Radiated Spurious Emissions, Band Edges. Operating Mode: 802.11n 20MHz - Chain A+B+C

Sample ID: MAC:0016EA02D4D0

Date of Test: 7/1/2008

Test Engineer: Rafael Varelas

Test Location: Chamber # 4

Run #7a: Low Channel @ 5180 MHz (band edge at 5150 MHz)

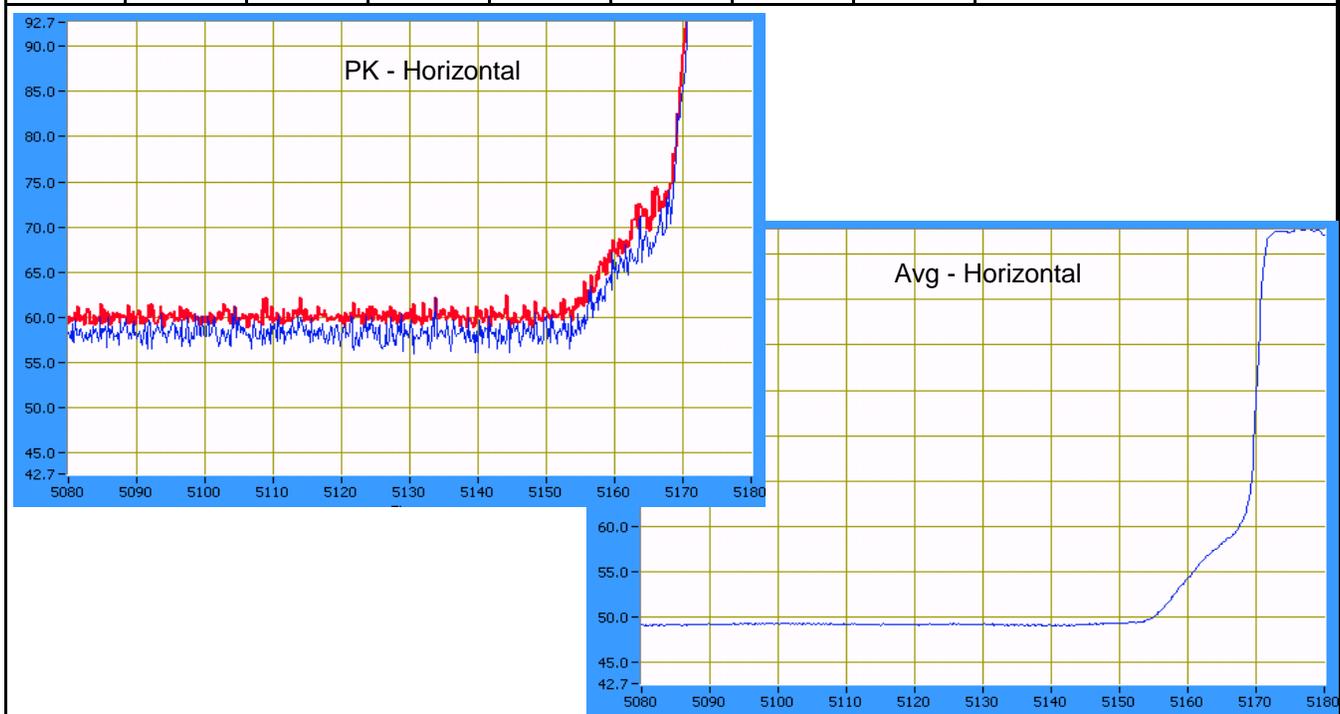
Power Setting and average measurement (for reference)					
Chain A		Chain B		Chain C	
Setting	Avg	Setting	Avg	Setting	Avg
29.0	12.3	30.0	12.3	30.5	12.4

Fundamental Signal Field Strength: Peak and average values measured in 1 MHz, for reference only

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dB μ V/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5187.230	94.1	V	-	-	AVG	220	1.1	
5187.230	103.9	V	-	-	PK	220	1.1	
5187.470	96.9	H	-	-	AVG	113	1.0	
5187.470	107.8	H	-	-	PK	113	1.0	

Band Edge Signal Field Strength

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dB μ V/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5147.170	49.2	V	54.0	-4.8	Avg	222	1.1	
5148.770	62.5	V	74.0	-11.5	PK	218	1.1	
5149.440	49.4	H	54.0	-4.6	Avg	113	1.0	
5149.900	62.3	H	74.0	-11.7	PK	113	1.0	



Client:	Intel Corporation	Job Number:	J72065
Model:	533AN-MMW with Vader PIFA antenna	T-Log Number:	T72132 Band Edge
Contact:	Robert Paxman	Account Manager:	Dean Eriksen
Standard:	RSS 210/FCC U-NII (Radiated)	Class:	N/A

Run #7b: High Channel @ 5320 MHz (band edge at 5350 MHz)

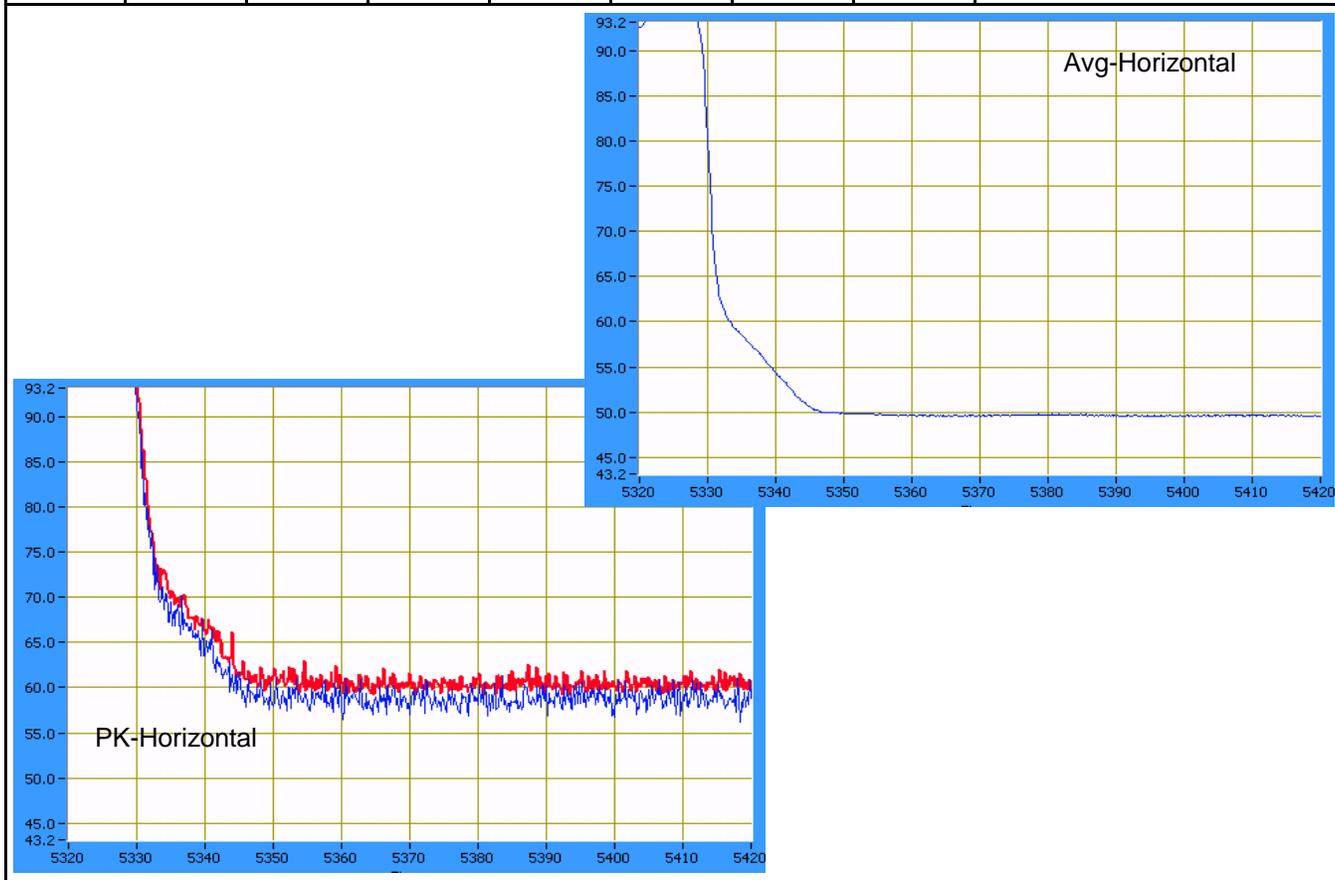
Power Setting and average measurement (for reference)					
Chain A		Chain B		Chain C	
Setting	Avg	Setting	Avg	Setting	Avg
25	12.3	26.5	12.3	28.5	12.4

Fundamental Signal Field Strength: Peak and average values measured in 1 MHz, for reference only

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dB μ V/m	v/h	Limit	Margin	PK/QP/Avg	degrees	meters	
5324.330	97.1	V	-	-	AVG	195	1.0	
5324.330	107.6	V	-	-	PK	195	1.0	
5327.370	98.1	H	-	-	AVG	108	1.1	
5327.370	108.5	H	-	-	PK	108	1.1	

Band Edge Signal Field Strength

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dB μ V/m	v/h	Limit	Margin	PK/QP/Avg	degrees	meters	
5350.000	49.7	V	54.0	-4.3	Avg	195	1.0	
5352.580	62.6	V	74.0	-11.4	PK	195	1.0	
5350.010	49.9	H	54.0	-4.1	Avg	108	1.1	
5350.900	62.6	H	74.0	-11.4	PK	108	1.1	



Client:	Intel Corporation	Job Number:	J72065
Model:	533AN-MMW with Vader PIFA antenna	T-Log Number:	T72132 Band Edge
Contact:	Robert Paxman	Account Manager:	Dean Eriksen
Standard:	RSS 210/FCC U-NII (Radiated)	Class:	N/A

**RSS 210 and FCC 15.E (U-NII, 5150- 550/5250-5350/5460-5725MHz)
Radiated Spurious Emissions 802.11n 20MHz Vader Antenna**

Test Specific Details

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

General Test Configuration

The EUT and all local support equipment were located on the turntable for radiated spurious emissions testing. All remote support equipment was located approximately 30 meters from the EUT with all I/O connections running on top of the groundplane.

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

Ambient Conditions: Temperature: 20 °C
 Rel. Humidity: 34 %

Summary of Results

Note - the dual chain mode was not tested as the triple-chain mode was tested at the higher dual chain output power in the 5.6GHz band and the single chain power in the other bands.

Note - the center channels in the 5150-5250 and 5250-5350MHz bands were tested primarily to verify the emissions related to the fixed LO common to all operating frequencies. Harmonics of the intentional signal at bottom and top frequencies in the band are covered by the measurements in triple chain mode which were performed with the power at the highest single chain power level.

Run #	Mode	Channel	Power Setting	Measured Power	Test Performed	Limit	Result / Margin
1a	802.11n20 Chain A	5200	28.0	16.7	Radiated Emissions, 1 - 40 GHz	FCC Part 15.209 / 15.407	36.9dBµV/m @ 1497.6MHz (-17.1dB)
1b	802.11n20 Chain A	5280	25.0	16.5	Radiated Emissions, 1 - 40 GHz	FCC Part 15.209 / 15.407	43.4dBµV/m @ 2494.2MHz (-10.6dB)
2a	802.11n20 Chain B	5200	28.0	16.5	Radiated Emissions, 1 - 40 GHz	FCC Part 15.209 / 15.407	41.6dBµV/m @ 3997.5MHz (-12.4dB)
2b	802.11n20 Chain B	5280	28.5	16.7	Radiated Emissions, 1 - 40 GHz	FCC Part 15.209 / 15.407	34.43dBµV/m @ 2494.2MHz (-19.6dB)
3a	802.11a Chain C	5200	31.0	16.6	Radiated Emissions, 1 - 40 GHz	FCC Part 15.209 / 15.407	32.9dBµV/m @ 3985.76MHz (-21.1dB)
3b	802.11a Chain C	5280	29.5	16.8	Radiated Emissions, 1 - 40 GHz	FCC Part 15.209 / 15.407	33.9dBµV/m @ 2494.21MHz (-20.1dB)

Client:	Intel Corporation	Job Number:	J72065
Model:	533AN-MMW with Vader PIFA antenna	T-Log Number:	T72132 Band Edge
Contact:	Robert Paxman	Account Manager:	Dean Eriksen
Standard:	RSS 210/FCC U-NII (Radiated)	Class:	N/A

Test No.	Chain	Freq (MHz)	A (dB)	B (dB)	C (dB)	Measurement	Standard	Result
4	802.11n20 Chain A+B+C	5180	34.5	35.0	35.5	Radiated Emissions, 1 - 40 GHz	FCC Part 15.209 / 15.407	47.2dB μ V/m @ 6908.32MHz (-21.1dB)
		5200	34.5	35.0	35.5	Radiated Emissions, 1 - 40 GHz	FCC Part 15.209 / 15.408	47.2dB μ V/m @ 10386.7MHz (-21.1dB)
		5240	33.5	34.0	35.5	Radiated Emissions, 1 - 40 GHz	FCC Part 15.209 / 15.409	32.7dB μ V/m @ 2494.2MHz (-21.3dB)
5	802.11n20 Chain A+B+C	5260	32.5	33.0	35.0	Radiated Emissions, 1 - 40 GHz	FCC Part 15.209 / 15.407	32.7dB μ V/m @ 3984.07MHz (-21.3dB)
		5280	31.5	32.5	34.5	Radiated Emissions, 1 - 40 GHz	FCC Part 15.209 / 15.408	33.4dB μ V/m @ 2494.21MHz (-20.6dB)
		5320	31.5	32.5	34.5	Radiated Emissions, 1 - 40 GHz	FCC Part 15.209 / 15.409	44.6dB μ V/m @ 10640.5MHz (-9.4dB)

Modifications Made During Testing

No modifications were made to the EUT during testing

Deviations From The Standard

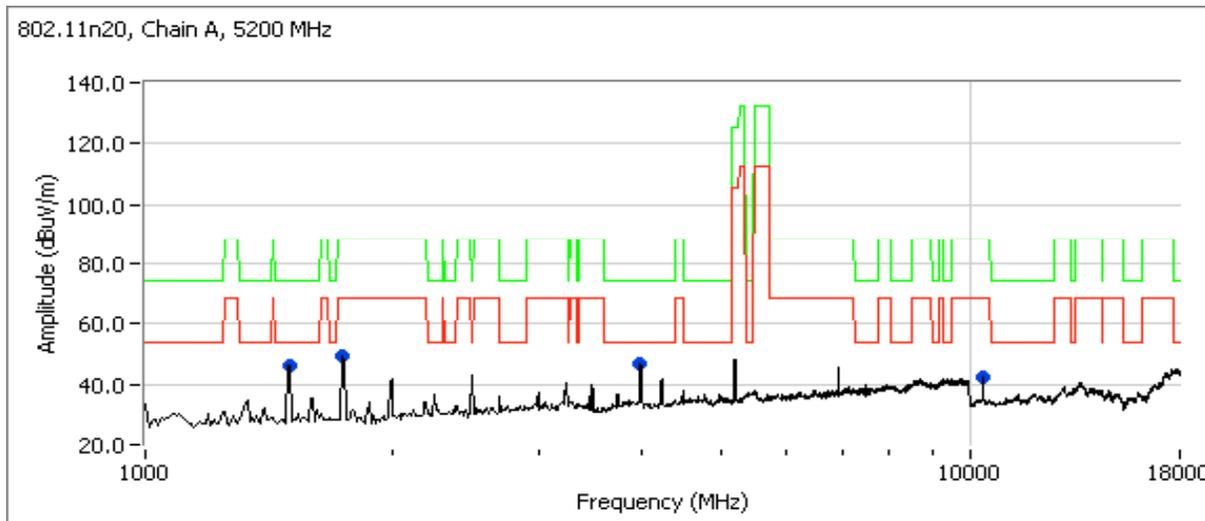
No deviations were made from the requirements of the standard.

Client: Intel Corporation	Job Number: J72065
Model: 533AN-MMW with Vader PIFA antenna	T-Log Number: T72132 Band Edge
	Account Manager: Dean Eriksen
Contact: Robert Paxman	
Standard: RSS 210/FCC U-NII (Radiated)	Class: N/A

Run #1: Radiated Spurious Emissions, 1000 - 40000 MHz. Operating Mode: 802.11n 20MHz Chain A

Sample ID:
Date of Test: 6/30/2008
Test Engineer: John Caizzi
Test Location: FT #5

Run #1a: Center Channel @ 5200 MHz



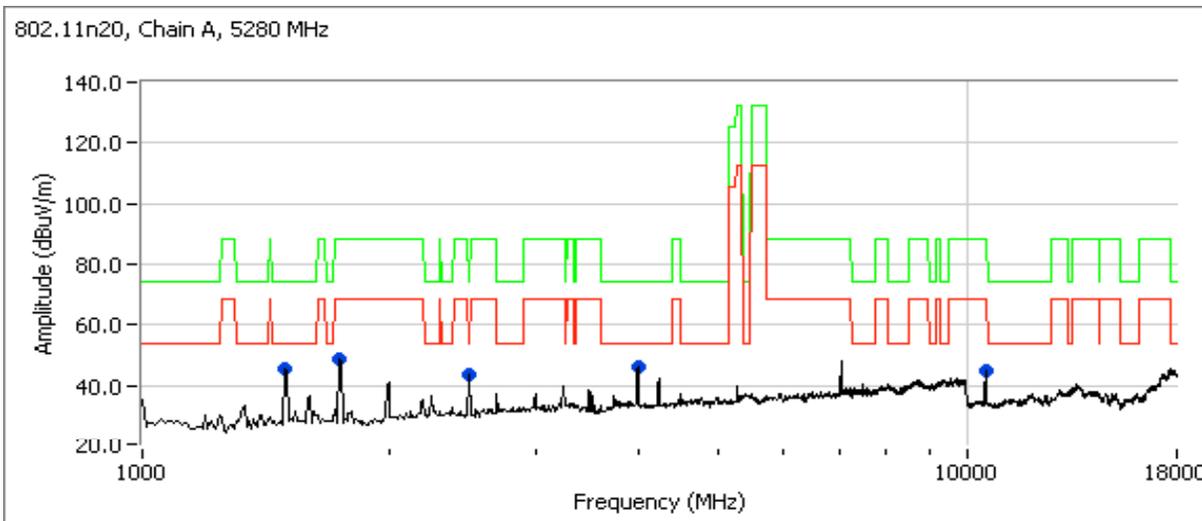
Spurious Emissions

Frequency	Level	Pol	15.209 / 15.407		Detector	Azimuth	Height	Comments
MHz	dB μ V/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
1497.600	36.9	H	54.0	-17.1	AVG	160	1.4	
1733.330	49.3	V	68.3	-19.0	Peak	169	1.0	
3983.800	55.0	H	74.0	-19.0	PK	132	1.6	
3983.800	33.9	H	54.0	-20.1	AVG	132	1.6	
1497.600	52.3	H	74.0	-21.7	PK	160	1.4	
10400.000	42.1	V	68.3	-26.2	Peak	39	1.0	

Note 1: For emissions in restricted bands, the limit of 15.209 was used. For all other emissions, the limit was set to -27dBm eirp (68.3dBuV/m average, 88.3dBuV/m peak)

Client: Intel Corporation	Job Number: J72065
Model: 533AN-MMW with Vader PIFA antenna	T-Log Number: T72132 Band Edge
	Account Manager: Dean Eriksen
Contact: Robert Paxman	
Standard: RSS 210/FCC U-NII (Radiated)	Class: N/A

Run #1b: Center Channel @ 5280 MHz



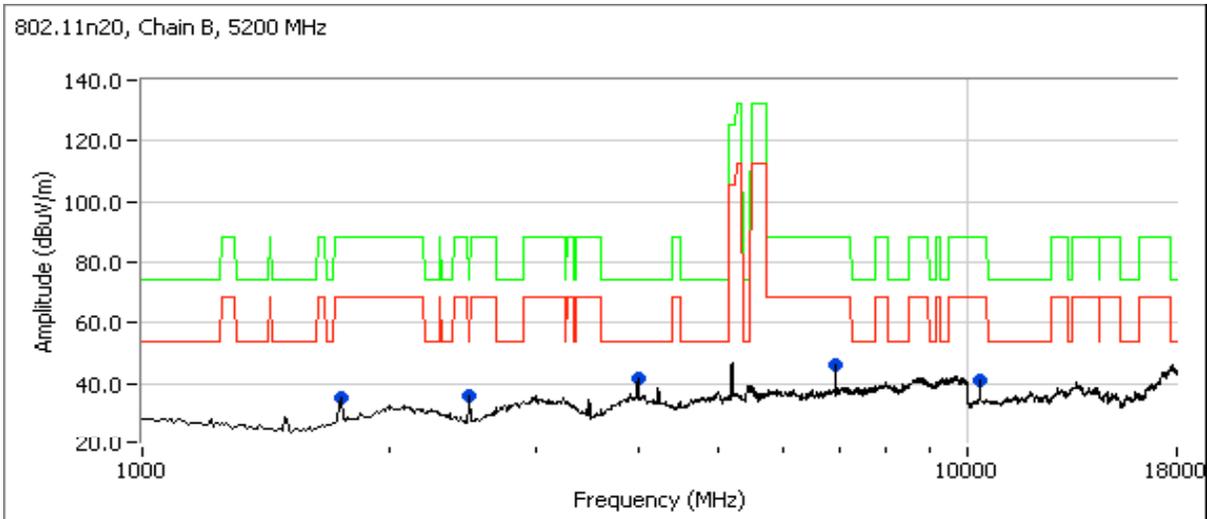
Spurious Emissions

Frequency	Level	Pol	15.209 / 15.407		Detector	Azimuth	Height	Comments
MHz	dBuV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
2494.170	43.4	V	54.0	-10.6	Peak	162	1.6	
1497.080	38.9	H	54.0	-15.1	AVG	165	1.4	
3986.920	36.9	V	54.0	-17.1	AVG	226	1.6	
3986.920	55.9	V	74.0	-18.1	PK	226	1.6	
1733.330	49.0	H	68.3	-19.3	Peak	150	1.0	
1497.410	52.4	H	74.0	-21.6	PK	165	1.4	
10546.670	44.7	V	68.3	-23.6	Peak	44	1.0	

Note 1: For emissions in restricted bands, the limit of 15.209 was used. For all other emissions, the limit was set to -27dBm eirp (68.3dBuV/m average, 88.3dBuV/m peak)

Client: Intel Corporation	Job Number: J72065
Model: 533AN-MMW with Vader PIFA antenna	T-Log Number: T72132 Band Edge
	Account Manager: Dean Eriksen
Contact: Robert Paxman	
Standard: RSS 210/FCC U-NII (Radiated)	Class: N/A

Run # 2: Radiated Spurious Emissions, 1000 - 40000 MHz. Operating Mode: 802.11n 20MHz Chain B



Run #2a: Center Channel @ 5200 MHz

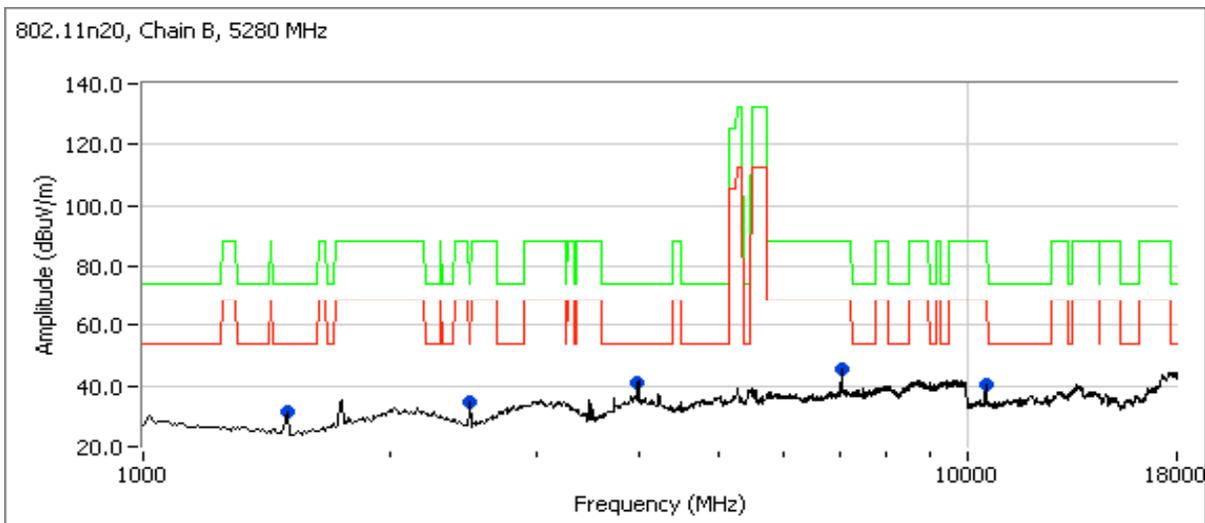
Spurious Emissions

Frequency	Level	Pol	15.209 / 15.407		Detector	Azimuth	Height	Comments
MHz	dBuV/m	v/h	Limit	Margin	PK/QP/Avg	degrees	meters	
3997.500	41.6	V	54.0	-12.4	Peak	101	1.6	
2494.170	36.2	V	54.0	-17.8	Peak	160	1.0	
6937.500	46.4	V	68.3	-21.9	Peak	301	1.3	
10386.670	40.9	H	68.3	-27.4	Peak	314	1.0	
1742.500	35.1	H	68.3	-33.2	Peak	157	1.0	

Note 1: For emissions in restricted bands, the limit of 15.209 was used. For all other emissions, the limit was set to -27dBm eirp (68.3dBuV/m average, 88.3dBuV/m peak)

Client: Intel Corporation	Job Number: J72065
Model: 533AN-MMW with Vader PIFA antenna	T-Log Number: T72132 Band Edge
Contact: Robert Paxman	Account Manager: Dean Eriksen
Standard: RSS 210/FCC U-NII (Radiated)	Class: N/A

Run #2b: Center Channel @ 5280 MHz
 Sample ID: MAC:0016EA02D4D0
 Date of Test: 7/1/2008
 Test Engineer: Rafael Varelas
 Test Location: Chamber # 4



Spurious Emissions

Frequency	Level	Pol	15.209 / 15.407	Detector	Azimuth	Height	Comments
MHz	dBuV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters
1495.000	31.6	V	54.0	-22.4	Peak	170	1.0
2494.170	34.4	V	54.0	-19.6	Peak	70	1.3
7042.500	45.7	V	68.3	-22.6	Peak	198	1.3
3985.500	32.9	V	54.0	-21.1	AVG	105	1.3
3985.500	49.4	V	74.0	-24.6	PK	105	1.3

Note 1: For emissions in restricted bands, the limit of 15.209 was used. For all other emissions, the limit was set to -27dBm eirp (68.3dBuV/m average, 88.3dBuV/m peak)

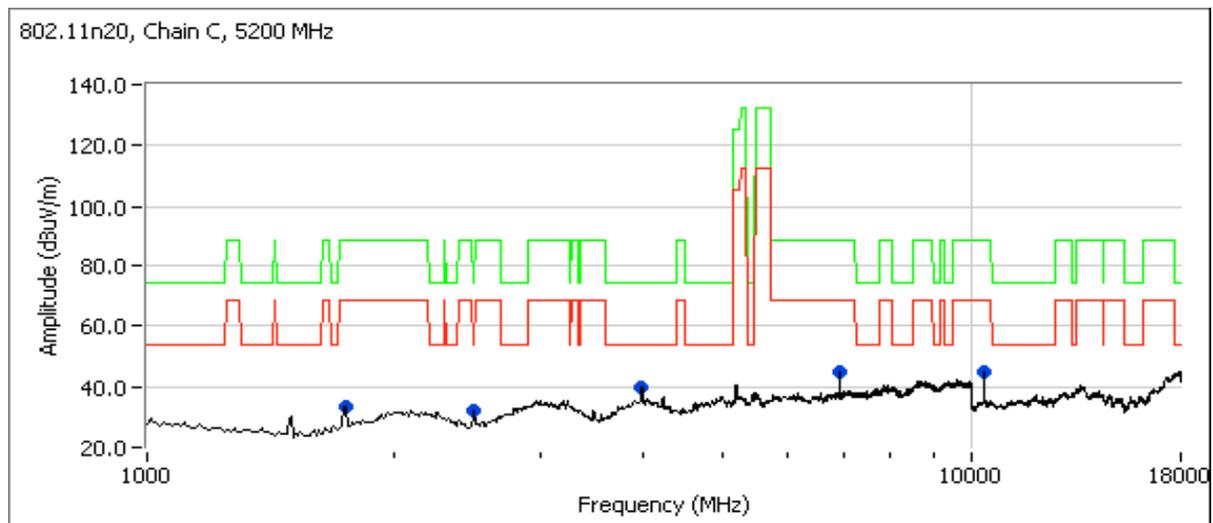
Note 2: Signal is not in a restricted band.

Client:	Intel Corporation	Job Number:	J72065
Model:	533AN-MMW with Vader PIFA antenna	T-Log Number:	T72132 Band Edge
Contact:	Robert Paxman	Account Manager:	Dean Eriksen
Standard:	RSS 210/FCC U-NII (Radiated)	Class:	N/A

Run # 3: Radiated Spurious Emissions, 1000 - 40000 MHz. Operating Mode: 802.11n 20MHz Chain C

Sample ID: MAC:0016EA02D4D0
 Date of Test: 7/1/2008
 Test Engineer: Rafael Varelas
 Test Location: Chamber # 4

Run #3a: Center Channel @ 5200 MHz



Spurious Emissions

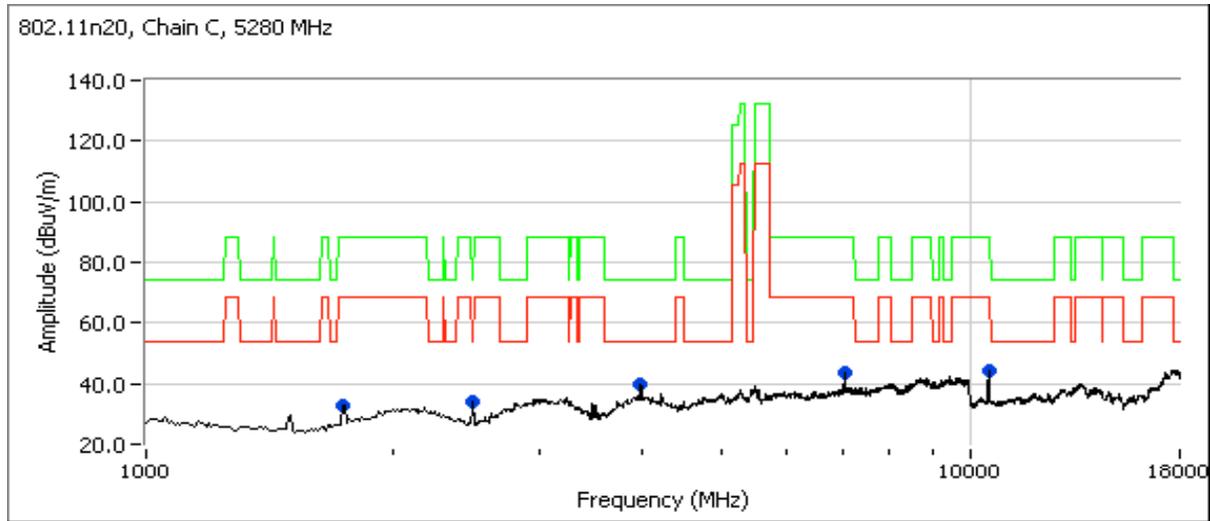
Frequency	Level	Pol	15.209 / 15.407		Detector	Azimuth	Height	Comments
MHz	dBuV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
10400.000	44.7	V	68.3	-23.6	Peak	167	1.3	
1742.500	33.2	H	68.3	-35.1	Peak	118	1.3	
2494.170	32.2	V	54.0	-21.8	Peak	70	1.3	
6937.500	45.2	V	68.3	-23.1	Peak	242	1.3	
3985.660	32.9	V	54.0	-21.1	AVG	86	1.6	
3985.660	50.0	V	74.0	-24.0	PK	86	1.6	

Note 1: For emissions in restricted bands, the limit of 15.209 was used. For all other emissions, the limit was set to -27dBm eirp (68.3dBuV/m average, 88.3dBuV/m peak)

Note 2: Signal is not in a restricted band.

Client: Intel Corporation	Job Number: J72065
Model: 533AN-MMW with Vader PIFA antenna	T-Log Number: T72132 Band Edge
	Account Manager: Dean Eriksen
Contact: Robert Paxman	
Standard: RSS 210/FCC U-NII (Radiated)	Class: N/A

Run #3b: Center Channel @ 5280 MHz



Spurious Emissions

Frequency	Level	Pol	15.209 / 15.407		Detector	Azimuth	Height	Comments
MHz	dB μ V/m	v/h	Limit	Margin	PK/QP/Avg	degrees	meters	
10546.670	44.0	V	68.3	-24.3	Peak	185	1.3	
1733.330	32.8	H	68.3	-35.5	Peak	128	1.6	
2494.170	33.9	V	54.0	-20.1	Peak	76	1.6	
7042.500	43.5	V	68.3	-24.8	Peak	240	1.6	
3984.100	32.5	H	54.0	-21.5	AVG	166	1.0	
3984.100	48.4	H	74.0	-25.6	PK	166	1.0	

Note 1: For emissions in restricted bands, the limit of 15.209 was used. For all other emissions, the limit was set to -27dBm eirp (68.3dBuV/m average, 88.3dBuV/m peak)

Note 2: Signal is not in a restricted band.

Client: Intel Corporation	Job Number: J72065
Model: 533AN-MMW with Vader PIFA antenna	T-Log Number: T72132 Band Edge
	Account Manager: Dean Eriksen
Contact: Robert Paxman	
Standard: RSS 210/FCC U-NII (Radiated)	Class: N/A

Run #4: Radiated Spurious Emissions, 1000 - 40000 MHz. Operating Mode: 802.11n20 Chain A+B+C

Sample ID: MAC:0016EA02D4D0

Date of Test: 7/1/2008

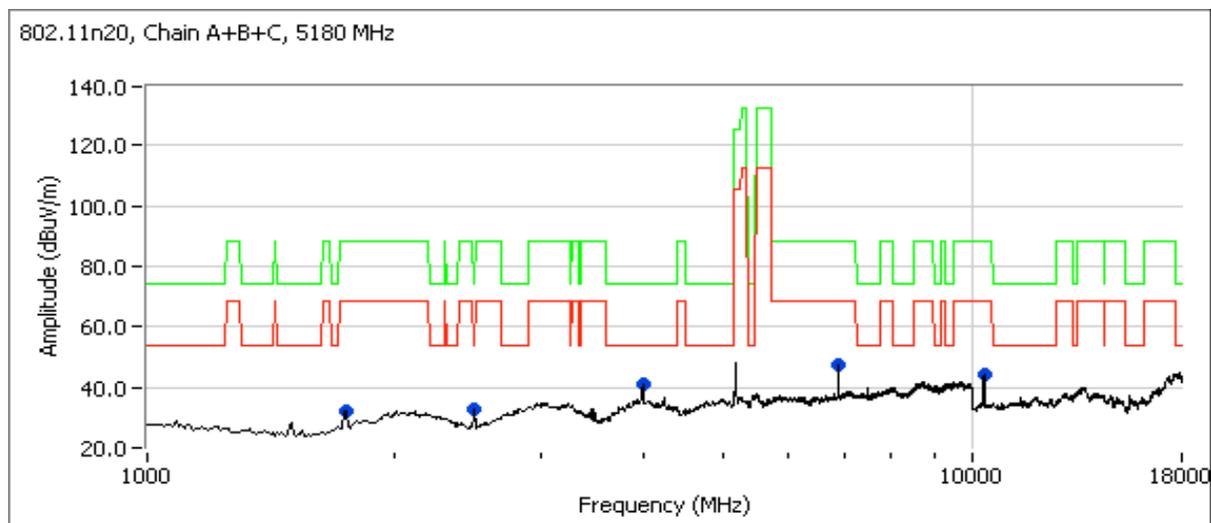
Test Engineer: Rafael Varelas

Test Location: Chamber # 4

Output power per chain set at, or above, the single-chain mode output power of 16.5dBm per chain.

Run #4a: Low Channel @ 5180 MHz

Power Setting and average measurement (for reference)					
Chain A		Chain B		Chain C	
Setting	Avg	Setting	Avg	Setting	Avg
35	16.6	35	16.6	36	16.5



Spurious Emissions

Frequency	Level	Pol	15.209 / 15.407		Detector	Azimuth	Height	Comments
MHz	dBuV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
10360.000	44.1	V	68.3	-24.2	Peak	230	1.0	
1742.500	32.4	V	68.3	-35.9	Peak	151	1.0	
2494.170	32.5	V	54.0	-21.5	Peak	99	1.0	
6908.330	47.2	V	68.3	-21.1	Peak	241	1.6	
3987.600	32.5	V	54.0	-21.5	AVG	84	1.3	
3987.600	49.2	V	74.0	-24.8	PK	84	1.3	

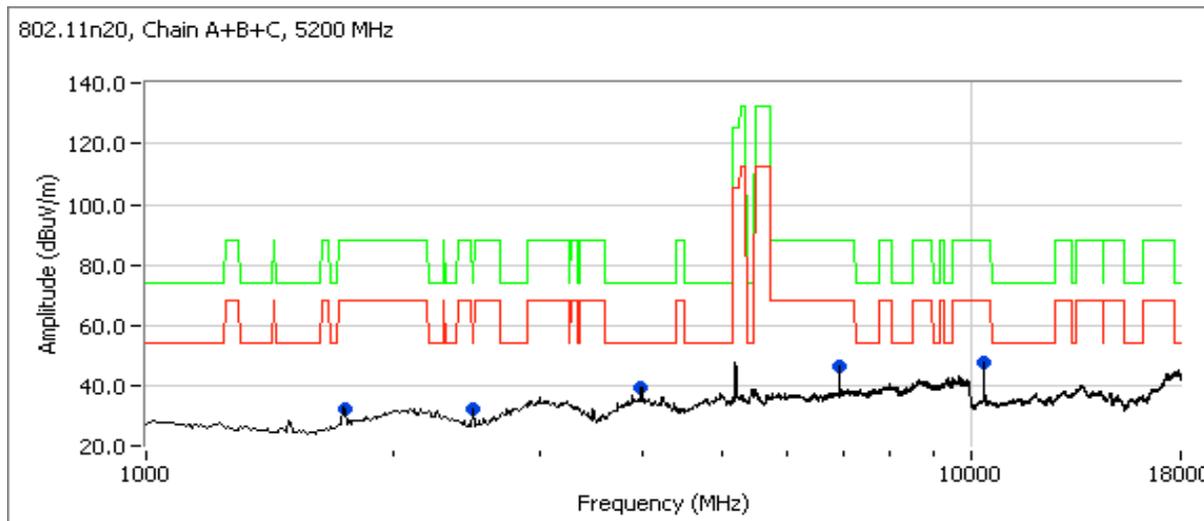
Note 1: For emissions in restricted bands, the limit of 15.209 was used. For all other emissions, the limit was set to -27dBm eirp (68.3dBuV/m average, 88.3dBuV/m peak)

Note 2: Signal is not in a restricted band.

Client: Intel Corporation	Job Number: J72065
Model: 533AN-MMW with Vader PIFA antenna	T-Log Number: T72132 Band Edge
	Account Manager: Dean Eriksen
Contact: Robert Paxman	
Standard: RSS 210/FCC U-NII (Radiated)	Class: N/A

Run #4b: Center Channel @ 5200 MHz

Power Setting and average measurement (for reference)					
Chain A		Chain B		Chain C	
Setting	Avg	Setting	Avg	Setting	Avg
35	16.6	35	16.6	36	16.5



Spurious Emissions

Frequency	Level	Pol	15.209 / 15.407		Detector	Azimuth	Height	Comments
MHz	dBuV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
1742.500	32.4	H	68.3	-35.9	Peak	111	1.3	
2494.170	32.0	V	54.0	-22.0	Peak	66	1.3	
6937.500	46.1	V	68.3	-22.2	Peak	232	1.6	
3987.430	32.6	V	54.0	-21.4	AVG	83	1.3	
3987.430	48.7	V	74.0	-25.3	PK	83	1.3	
10386.670	47.2	V	68.3	-21.1	Peak	207	1.3	

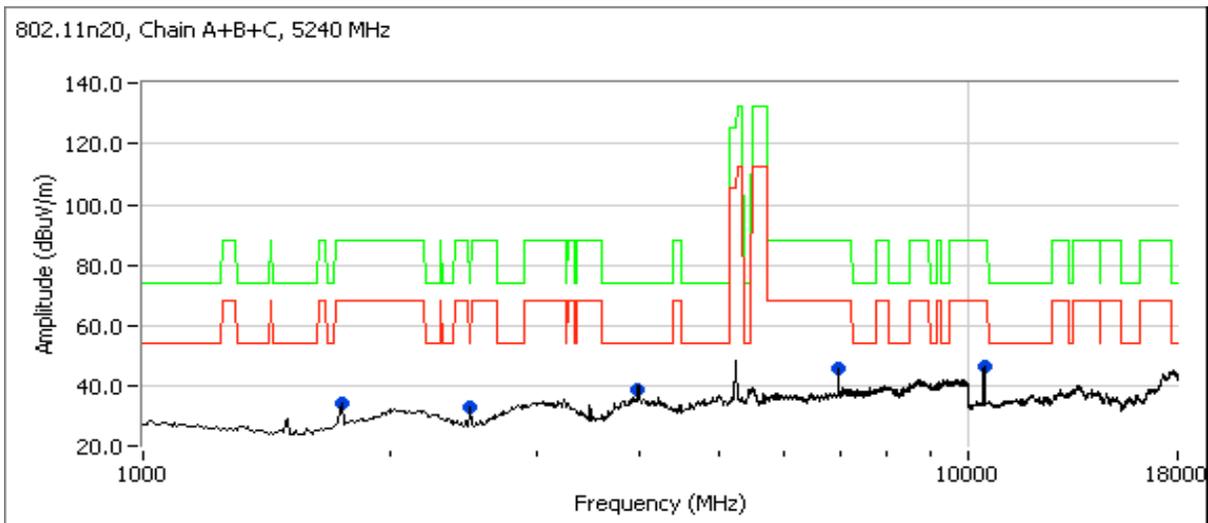
Note 1: For emissions in restricted bands, the limit of 15.209 was used. For all other emissions, the limit was set to -27dBm eirp (68.3dBuV/m average, 88.3dBuV/m peak)

Note 2: Signal is not in a restricted band.

Client: Intel Corporation	Job Number: J72065
Model: 533AN-MMW with Vader PIFA antenna	T-Log Number: T72132 Band Edge
	Account Manager: Dean Eriksen
Contact: Robert Paxman	
Standard: RSS 210/FCC U-NII (Radiated)	Class: N/A

Run #4c: High Channel @ 5240 MHz

Power Setting and average measurement (for reference)					
Chain A		Chain B		Chain C	
Setting	Avg	Setting	Avg	Setting	Avg
33.5	16.8	34.0	16.8	35.5	16.7



Spurious Emissions

Frequency	Level	Pol	15.209 / 15.407		Detector	Azimuth	Height	Comments
MHz	dBuV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
10480.000	46.0	V	68.3	-22.3	Peak	162	1.3	
1742.500	33.9	H	68.3	-34.4	Peak	117	1.3	
2494.170	32.7	V	54.0	-21.3	Peak	171	1.0	
6990.000	45.4	V	68.3	-22.9	Peak	234	1.6	
3982.830	32.6	V	54.0	-21.4	AVG	81	1.6	
3982.830	49.8	V	74.0	-24.2	PK	81	1.6	

Note 1: For emissions in restricted bands, the limit of 15.209 was used. For all other emissions, the limit was set to -27dBm eirp (68.3dBuV/m average, 88.3dBuV/m peak)

Note 2: Signal is not in a restricted band.

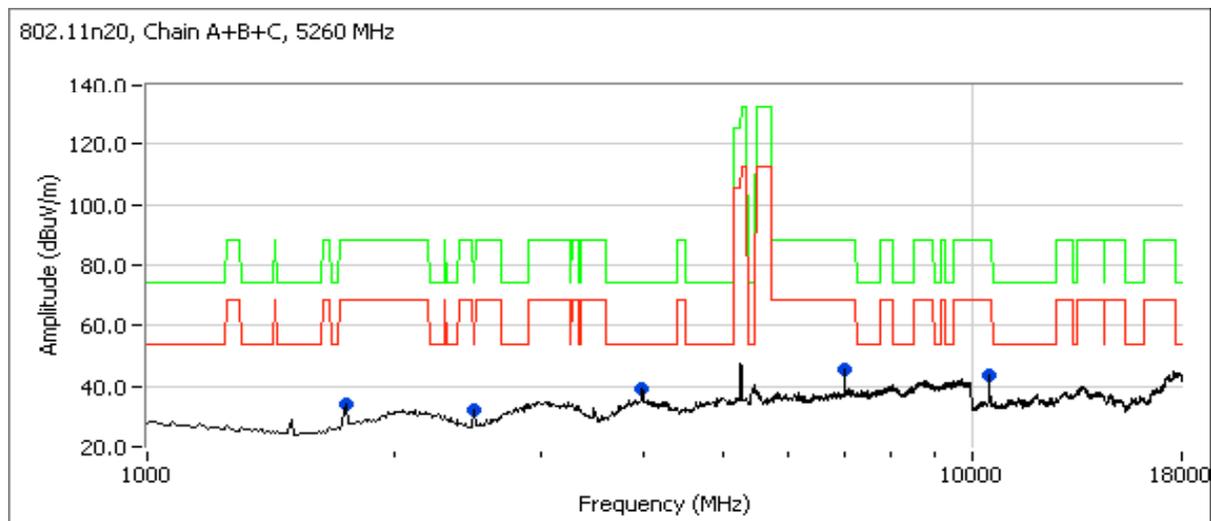
Client:	Intel Corporation	Job Number:	J72065
Model:	533AN-MMW with Vader PIFA antenna	T-Log Number:	T72132 Band Edge
Contact:	Robert Paxman	Account Manager:	Dean Eriksen
Standard:	RSS 210/FCC U-NII (Radiated)	Class:	N/A

Run #5: Radiated Spurious Emissions, 1000 - 40000 MHz. Operating Mode: 802.11n20 Chain A+B+C
Output power per chain set at, or above, the single-chain mode output power of 16.5dBm per chain.

Sample ID: MAC:0016EA02D4D0
Date of Test: 7/1/2008
Test Engineer: Rafael Varelas
Test Location: Chamber # 4

Run #5a: Low Channel @ 5260 MHz

Power Setting and average measurement (for reference)					
Chain A		Chain B		Chain C	
Setting	Avg	Setting	Avg	Setting	Avg
32.5	16.8	33.0	16.8	35.0	16.7



Spurious Emissions

Frequency	Level	Pol	15.209 / 15.407		Detector	Azimuth	Height	Comments
MHz	dBuV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
1742.500	34.1	V	68.3	-34.2	Peak	165	1.0	
2494.170	31.9	V	54.0	-22.1	Peak	69	1.3	
7013.330	45.5	V	68.3	-22.8	Peak	197	1.3	
3984.030	32.7	V	54.0	-21.3	AVG	85	1.3	
3984.030	49.7	V	74.0	-24.3	PK	85	1.3	
10520.000	43.7	V	68.3	-24.6	Peak	174	1.3	

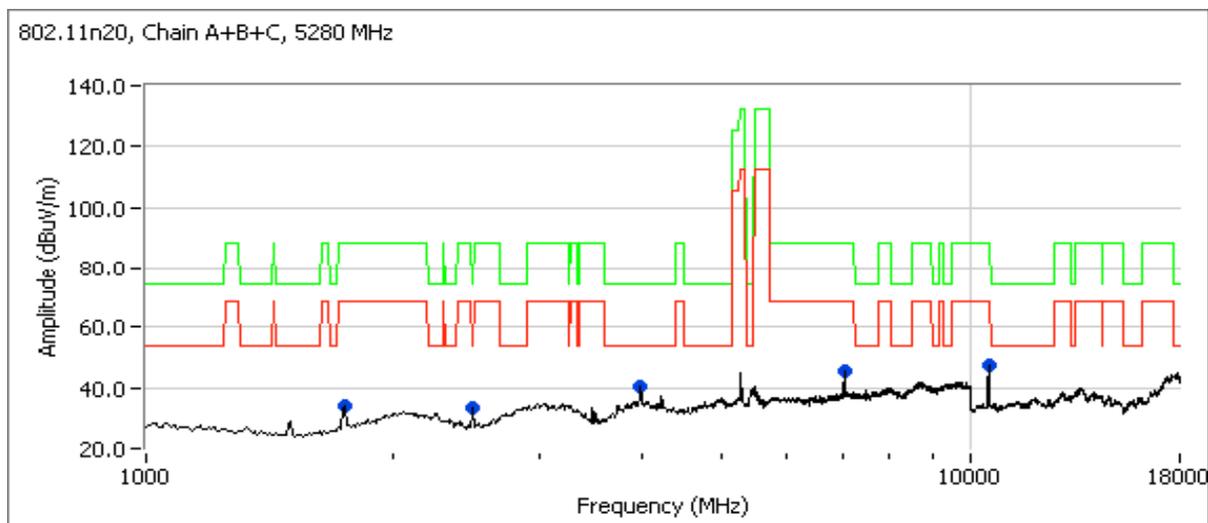
Note 1: For emissions in restricted bands, the limit of 15.209 was used. For all other emissions, the limit was set to -27dBm eirp (68.3dBuV/m average, 88.3dBuV/m peak)

Note 2: Signal is not in a restricted band.

Client: Intel Corporation	Job Number: J72065
Model: 533AN-MMW with Vader PIFA antenna	T-Log Number: T72132 Band Edge
	Account Manager: Dean Eriksen
Contact: Robert Paxman	
Standard: RSS 210/FCC U-NII (Radiated)	Class: N/A

Run #5b: Center Channel @ 5280 MHz

Power Setting and average measurement (for reference)					
Chain A		Chain B		Chain C	
Setting	Avg	Setting	Avg	Setting	Avg
31.5	16.6	32.5	16.6	34.5	16.7



Spurious Emissions

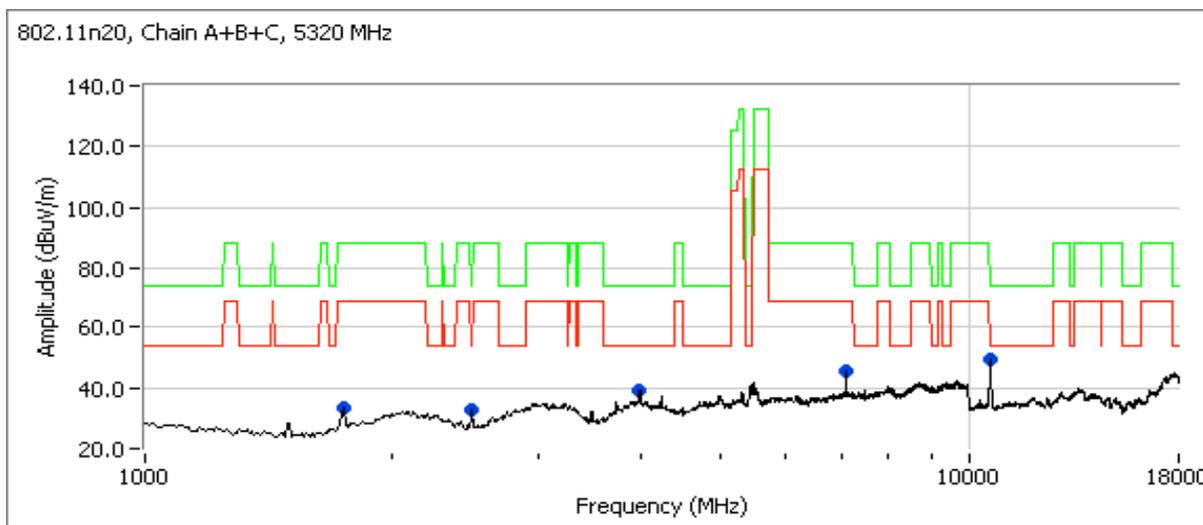
Frequency	Level	Pol	15.209 / 15.407		Detector	Azimuth	Height	Comments
MHz	dBuV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
10546.670	47.5	V	68.3	-20.8	Peak	210	1.3	
1742.500	34.1	V	68.3	-34.2	Peak	169	1.0	
2494.170	33.4	V	54.0	-20.6	Peak	169	1.0	
7042.500	45.5	V	68.3	-22.8	Peak	202	1.0	
3992.640	32.7	V	54.0	-21.3	AVG	84	1.6	
3992.640	49.9	V	74.0	-24.1	PK	84	1.6	

Note 1: For emissions in restricted bands, the limit of 15.209 was used. For all other emissions, the limit was set to -27dBm eirp (68.3dBuV/m average, 88.3dBuV/m peak)

Client: Intel Corporation	Job Number: J72065
Model: 533AN-MMW with Vader PIFA antenna	T-Log Number: T72132 Band Edge
	Account Manager: Dean Eriksen
Contact: Robert Paxman	
Standard: RSS 210/FCC U-NII (Radiated)	Class: N/A

Run #5c: High Channel @ 5320 MHz

Power Setting and average measurement (for reference)					
Chain A		Chain B		Chain C	
Setting	Avg	Setting	Avg	Setting	Avg
31.5	16.7	32.5	16.6	34.5	16.6



Spurious Emissions

Frequency	Level	Pol	15.209 / 15.407		Detector	Azimuth	Height	Comments
MHz	dBuV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
1742.500	33.6	V	68.3	-34.7	Peak	169	1.0	
2494.170	33.0	V	54.0	-21.0	Peak	159	1.3	
7095.000	45.4	V	68.3	-22.9	Peak	202	1.0	
3982.600	32.7	V	54.0	-21.3	AVG	83	1.3	
3982.600	49.8	V	74.0	-24.2	PK	83	1.3	
10640.470	44.6	V	54.0	-9.4	AVG	172	1.3	
10640.470	56.5	V	74.0	-17.5	PK	172	1.3	

Note 1:	For emissions in restricted bands, the limit of 15.209 was used. For all other emissions, the limit was set to -27dBm eirp (68.3dBuV/m average, 88.3dBuV/m peak)
Note 2:	Signal is not in a restricted band.

Client:	Intel Corporation	Job Number:	J72065
Model:	533AN-MMW with Vader PIFA antenna	T-Log Number:	T72132 Band Edge
Contact:	Robert Paxman	Account Manager:	Dean Eriksen
Standard:	RSS 210/FCC U-NII (Radiated)	Class:	N/A

**RSS 210 and FCC 15.E (U-NII, 5150- 550/5250-5350/5460-5725MHz)
Band Edge Field Strength 802.11n40 Vader Antenna**

Test Specific Details

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

General Test Configuration

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

Ambient Conditions: Temperature: 15-25 °C
 Rel. Humidity: 35-55 %

Summary of Results

Run #	Mode	Channel	Power Setting	Measured Power	Test Performed	Limit	Result / Margin
1a	802.11n40 Chain A	5190MHz	26.5	15.3	Band Edge radiated field strength	FCC Part 15.209	49.5dBµV/m @ 5131.1MHz (-4.5dB)
1b	802.11n40 Chain A	5310MHz	22.5	14.6	Band Edge radiated field strength	FCC Part 15.209	51.2dBµV/m @ 5351.4MHz (-2.8dB)
2a	802.11n40 Chain B	5190MHz	26.5	14.3	Band Edge radiated field strength	FCC Part 15.209	50.3dBµV/m @ 5149.8MHz (-3.7dB)
2b	802.11n40 Chain B	5310MHz	23.0	14.2	Band Edge radiated field strength	FCC Part 15.209	48.5dBµV/m @ 5350.1MHz (-5.5dB)
3a	802.11n40 Chain C	5190MHz	25.5	13.5	Band Edge radiated field strength	FCC Part 15.209	48.8dBµV/m @ 5149.7MHz (-5.2dB)
3b	802.11n40 Chain C	5310MHz	24.5	14.6	Band Edge radiated field strength	FCC Part 15.209	51.0dBµV/m @ 5350.1MHz (-3.0dB)
4	802.11n40 Chain A+B	5190MHz	26.0, 27.0	13.8, 14.4	Band Edge radiated field strength	FCC Part 15.209	48.8dBµV/m @ 5149.9MHz (-5.2dB)
	802.11n40 Chain A+B	5310MHz	23.0, 24.0	13.4, 13.5	Band Edge radiated field strength	FCC Part 15.209	48.1dBµV/m @ 5350.0MHz (-5.9dB)
5	802.11n40 Chain A+C	5190MHz	26.0, 27.0	13.7, 14.1	Band Edge radiated field strength	FCC Part 15.209	49.5dBµV/m @ 5149.8MHz (-4.5dB)
	802.11n40 Chain A+C	5310MHz	23.0, 26.5	13.7, 14	Band Edge radiated field strength	FCC Part 15.209	50.3dBµV/m @ 5350.0MHz (-3.7dB)
6	802.11n40 Chain B+C	5190MHz	27.5, 28.0	14, 14.1	Band Edge radiated field strength	FCC Part 15.209	50.8dBµV/m @ 5150.0MHz (-3.2dB)
	802.11n40 Chain B+C	5310MHz	24.5, 26.0	13.7, 14	Band Edge radiated field strength	FCC Part 15.209	49.7dBµV/m @ 5350.0MHz (-4.3dB)
7	802.11n40 A+B+C	5190MHz	27.5, 28.5, 29.0	11.1, 11.3, 11.2	Band Edge radiated field strength	FCC Part 15.209	52.06dBµV/m @ 5149.95MHz (-2.0dB)
	802.11n40 A+B+C	5310MHz	23.0, 24.5, 26.5	10.0, 10.1, 10.1	Band Edge radiated field strength	FCC Part 15.209	51.4dBµV/m @ 5350.05MHz (-2.6dB)

Client:	Intel Corporation	Job Number:	J72065
Model:	533AN-MMW with Vader PIFA antenna	T-Log Number:	T72132 Band Edge
Contact:	Robert Paxman	Account Manager:	Dean Eriksen
Standard:	RSS 210/FCC U-NII (Radiated)	Class:	N/A

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.

Run #1: Radiated Spurious Emissions, Band Edges. Operating Mode: 802.11n 40MHz - Chain A

Sample ID: MAC 0016EA02D4D0

Date of Test: 6/27/2008

Test Engineer: Joseph Cadigal

Test Location: FT Chamber #4

Run #1a: Low Channel @ 5190 MHz (band edge at 5150 MHz)

Power Setting: 26.5 Average power: 15.3 (for reference purposes)

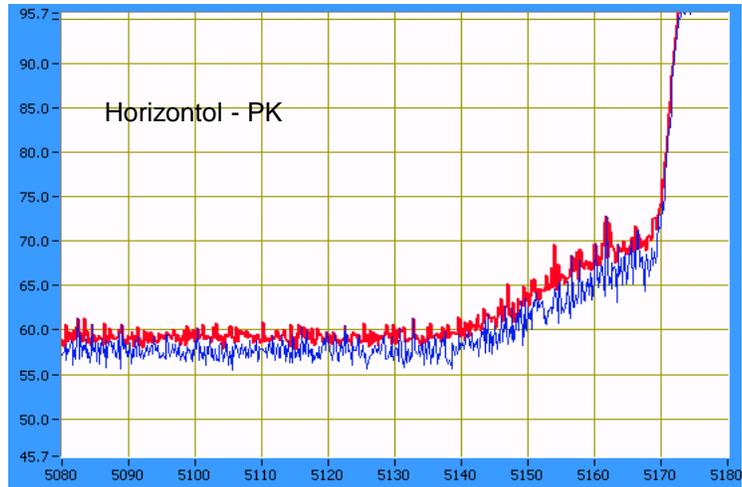
Fundamental Signal Field Strength: Peak and average values measured in 1 MHz, for reference only

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dB μ V/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5201.670	91.6	V	-	-	AVG	11	1.0	
5201.670	101.5	V	-	-	PK	11	1.0	
5201.830	92.6	H	-	-	AVG	51	1.5	
5201.830	101.8	H	-	-	PK	51	1.5	

Band Edge Signal Field Strength

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dB μ V/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5131.120	49.5	H	54.0	-4.5	AVG	51	1.5	
5131.120	61.2	H	74.0	-12.8	PK	51	1.5	
5128.770	49.4	V	54.0	-4.6	AVG	12	1.0	
5128.770	60.8	V	74.0	-13.2	PK	12	1.0	

Client: Intel Corporation	Job Number: J72065
Model: 533AN-MMW with Vader PIFA antenna	T-Log Number: T72132 Band Edge
	Account Manager: Dean Eriksen
Contact: Robert Paxman	
Standard: RSS 210/FCC U-NII (Radiated)	Class: N/A



Client:	Intel Corporation	Job Number:	J72065
Model:	533AN-MMW with Vader PIFA antenna	T-Log Number:	T72132 Band Edge
Contact:	Robert Paxman	Account Manager:	Dean Eriksen
Standard:	RSS 210/FCC U-NII (Radiated)	Class:	N/A

Run #1b: High Channel @ 5310 MHz (band edge at 5350 MHz)

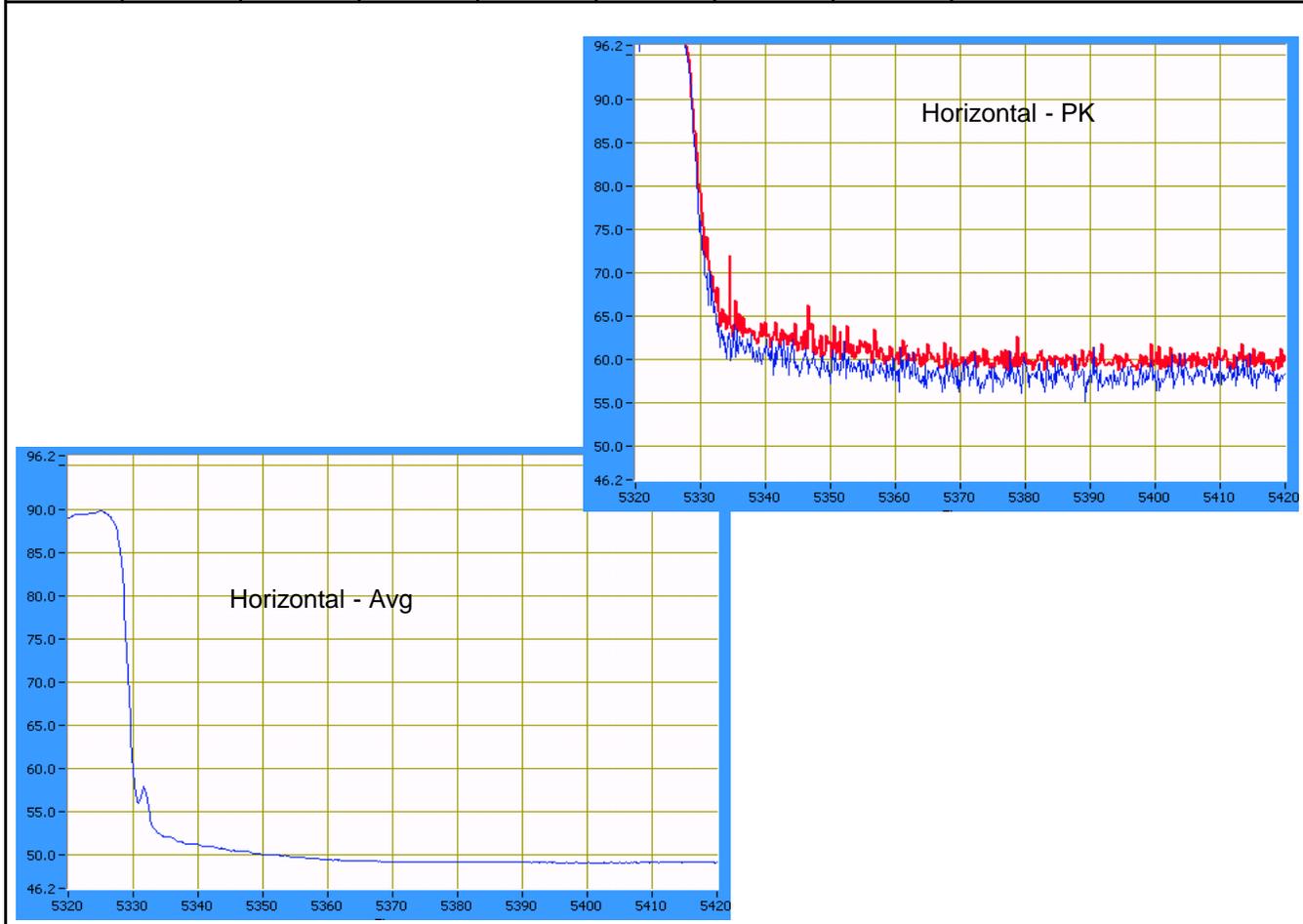
Power Setting: 22.5 Average power: 14.6 (for reference purposes)

Fundamental Signal Field Strength: Peak and average values measured in 1 MHz, for reference only

Frequency MHz	Level dB μ V/m	Pol v/h	15.209 / 15.247		Detector PK/QP/Avg	Azimuth degrees	Height meters	Comments
			Limit	Margin				
5325.170	90.7	V	-	-	AVG	16	1.0	
5325.170	99.1	V	-	-	PK	16	1.0	
5324.000	91.3	H	-	-	AVG	76	1.3	
5324.000	99.4	H	-	-	PK	76	1.3	

Band Edge Signal Field Strength

Frequency MHz	Level dB μ V/m	Pol v/h	15.209 / 15.247		Detector PK/QP/Avg	Azimuth degrees	Height meters	Comments
			Limit	Margin				
5350.230	50.5	V	54.0	-3.5	AVG	15	1.0	Note 2
5350.230	63.8	V	74.0	-10.2	PK	15	1.0	Note 2
5351.420	51.2	H	54.0	-2.8	AVG	77	1.3	Note 2
5351.420	64.7	H	74.0	-9.3	PK	77	1.3	Note 2



Client:	Intel Corporation	Job Number:	J72065
Model:	533AN-MMW with Vader PIFA antenna	T-Log Number:	T72132 Band Edge
Contact:	Robert Paxman	Account Manager:	Dean Eriksen
Standard:	RSS 210/FCC U-NII (Radiated)	Class:	N/A

Run #2: Radiated Spurious Emissions, Band Edges. Operating Mode: 802.11n 40MHz - Chain B

Sample ID: MAC 0016EA02D4D0

Date of Test: 6/27/2008

Test Engineer: Ben Jing

Test Location: FT Chamber # 3

Run #2a: Low Channel @ 5190 MHz (band edge at 5150 MHz)

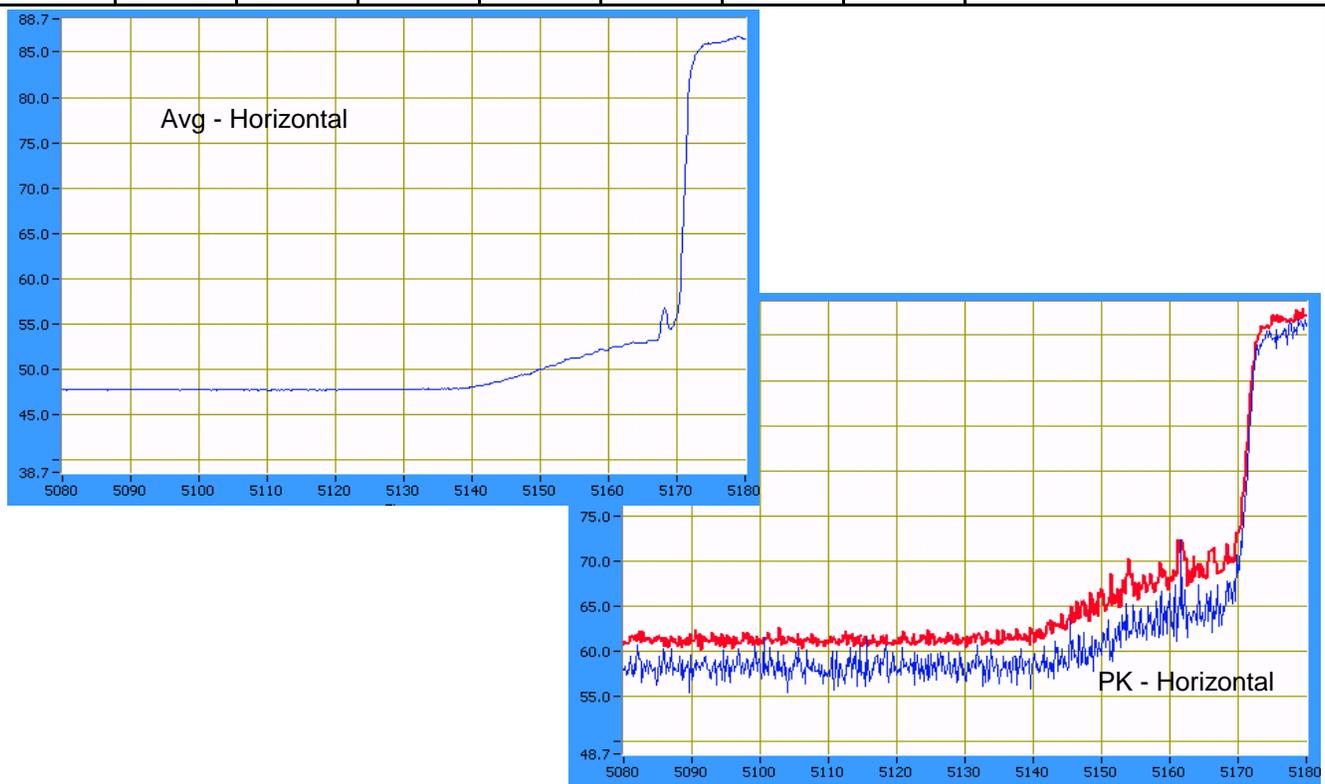
Power Setting: 26.5 Average power: 14.3 (for reference purposes)

Fundamental Signal Field Strength: Peak and average values measured in 1 MHz, for reference only

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dB μ V/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5190.940	89.4	V	-	-	AVG	188	1.0	
5190.940	97.7	V	-	-	PK	188	1.0	
5188.880	88.2	H	-	-	AVG	124	1.0	
5188.880	97.0	H	-	-	PK	124	1.0	

Band Edge Signal Field Strength

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dB μ V/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5149.790	50.3	H	54.0	-3.7	AVG	127	1.0	
5149.880	67.0	H	74.0	-7.0	PK	127	1.0	
5149.700	50.0	V	54.0	-4.0	AVG	188	1.0	
5149.720	66.6	V	74.0	-7.4	PK	187	1.0	



Client:	Intel Corporation	Job Number:	J72065
Model:	533AN-MMW with Vader PIFA antenna	T-Log Number:	T72132 Band Edge
Contact:	Robert Paxman	Account Manager:	Dean Eriksen
Standard:	RSS 210/FCC U-NII (Radiated)	Class:	N/A

Run #2b: High Channel @ 5310 MHz (band edge at 5350 MHz)

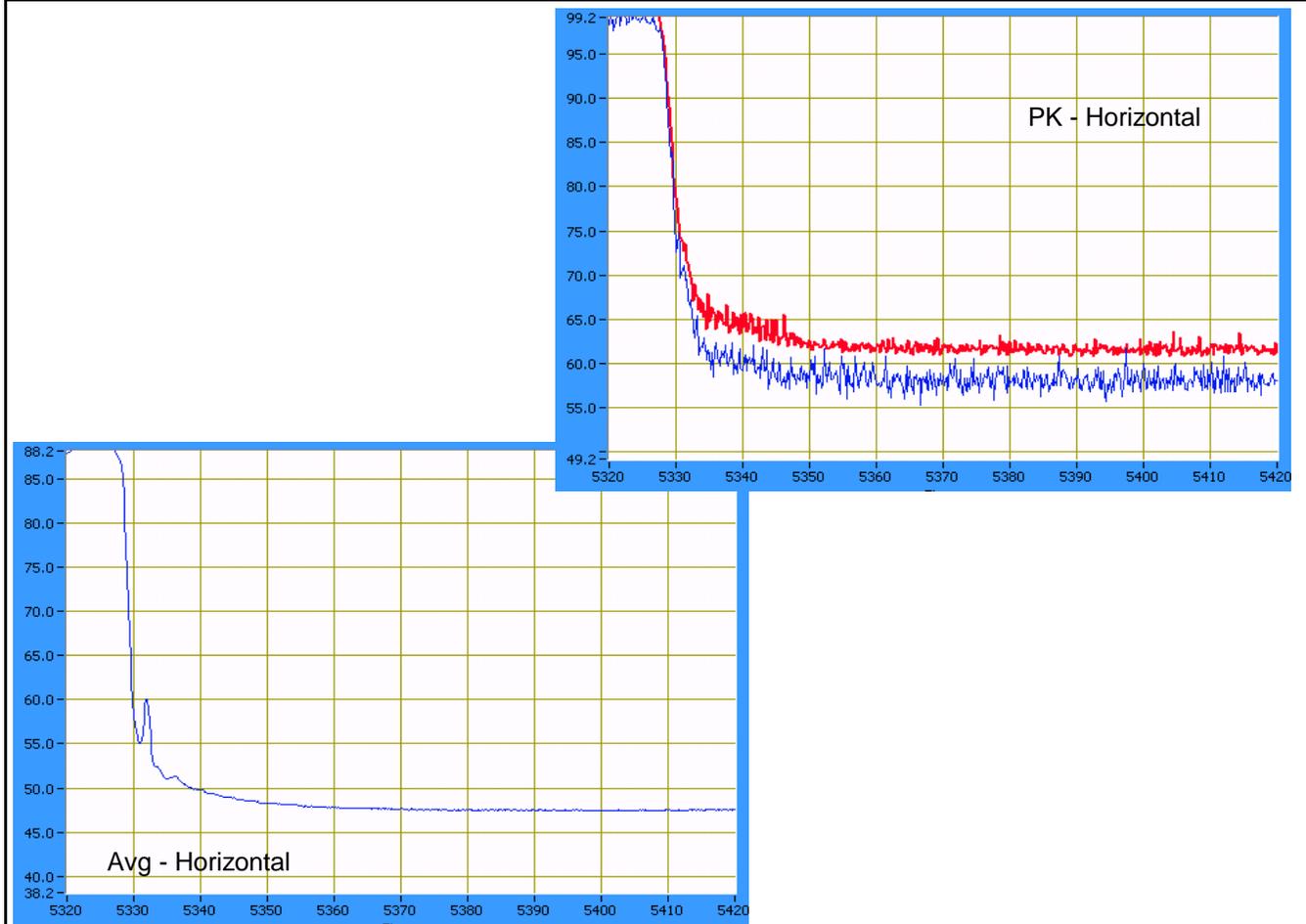
Power Setting: 23.0 Average power: 14.2 (for reference purposes)

Fundamental Signal Field Strength: Peak and average values measured in 1 MHz, for reference only

Frequency MHz	Level dB μ V/m	Pol v/h	15.209 / 15.247		Detector PK/QP/Avg	Azimuth degrees	Height meters	Comments
			Limit	Margin				
5308.710	89.6	V	-	-	AVG	189	1.0	
5308.710	98.0	V	-	-	PK	189	1.0	
5308.940	89.2	H	-	-	AVG	122	1.0	
5308.940	97.5	H	-	-	PK	122	1.0	

Band Edge Signal Field Strength

Frequency MHz	Level dB μ V/m	Pol v/h	15.209 / 15.247		Detector PK/QP/Avg	Azimuth degrees	Height meters	Comments
			Limit	Margin				
5350.120	48.5	H	54.0	-5.5	AVG	123	1.0	
5350.300	61.7	H	74.0	-12.3	PK	124	1.0	
5350.100	48.2	V	54.0	-5.8	AVG	196	1.0	
5350.170	60.7	V	74.0	-13.3	PK	192	1.0	



Client:	Intel Corporation	Job Number:	J72065
Model:	533AN-MMW with Vader PIFA antenna	T-Log Number:	T72132 Band Edge
Contact:	Robert Paxman	Account Manager:	Dean Eriksen
Standard:	RSS 210/FCC U-NII (Radiated)	Class:	N/A

Run #3: Radiated Spurious Emissions, Band Edges. Operating Mode: 802.11n 40MHz - Chain C

Run #3a: Low Channel @ 5190 MHz (band edge at 5150 MHz)

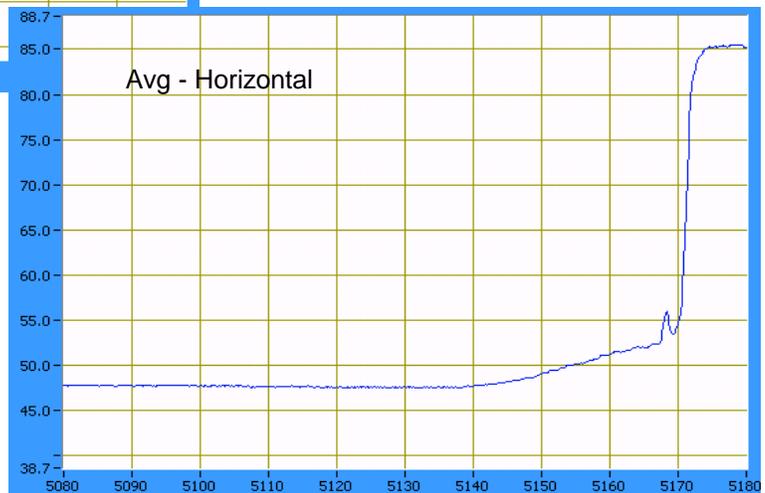
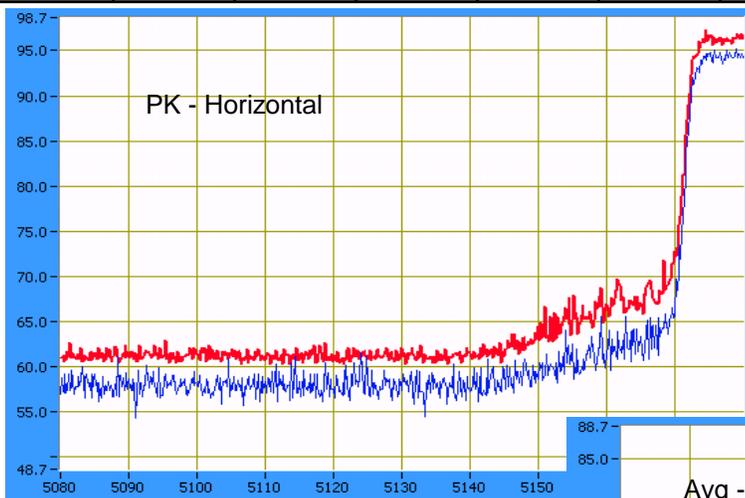
Power Setting: 25.5 Average power: 13.5 (for reference purposes)

Fundamental Signal Field Strength: Peak and average values measured in 1 MHz, for reference only

Frequency MHz	Level dB μ V/m	Pol v/h	15.209 / 15.247		Detector Pk/QP/Avg	Azimuth degrees	Height meters	Comments
			Limit	Margin				
5191.390	85.2	V	-	-	AVG	130	1.0	
5191.390	93.2	V	-	-	PK	130	1.0	
5191.340	88.3	H	-	-	AVG	243	1.0	
5191.340	96.3	H	-	-	PK	243	1.0	

Band Edge Signal Field Strength

Frequency MHz	Level dB μ V/m	Pol v/h	15.209 / 15.247		Detector Pk/QP/Avg	Azimuth degrees	Height meters	Comments
			Limit	Margin				
5149.740	48.8	H	54.0	-5.2	AVG	211	1.0	
5149.790	62.5	H	74.0	-11.5	PK	248	1.0	
5149.700	48.5	V	54.0	-5.5	AVG	130	1.0	
5149.710	61.4	V	74.0	-12.6	PK	130	1.0	



Client: Intel Corporation	Job Number: J72065
Model: 533AN-MMW with Vader PIFA antenna	T-Log Number: T72132 Band Edge
	Account Manager: Dean Eriksen
Contact: Robert Paxman	
Standard: RSS 210/FCC U-NII (Radiated)	Class: N/A

Run #3b: High Channel @ 5310 MHz (band edge at 5350 MHz)

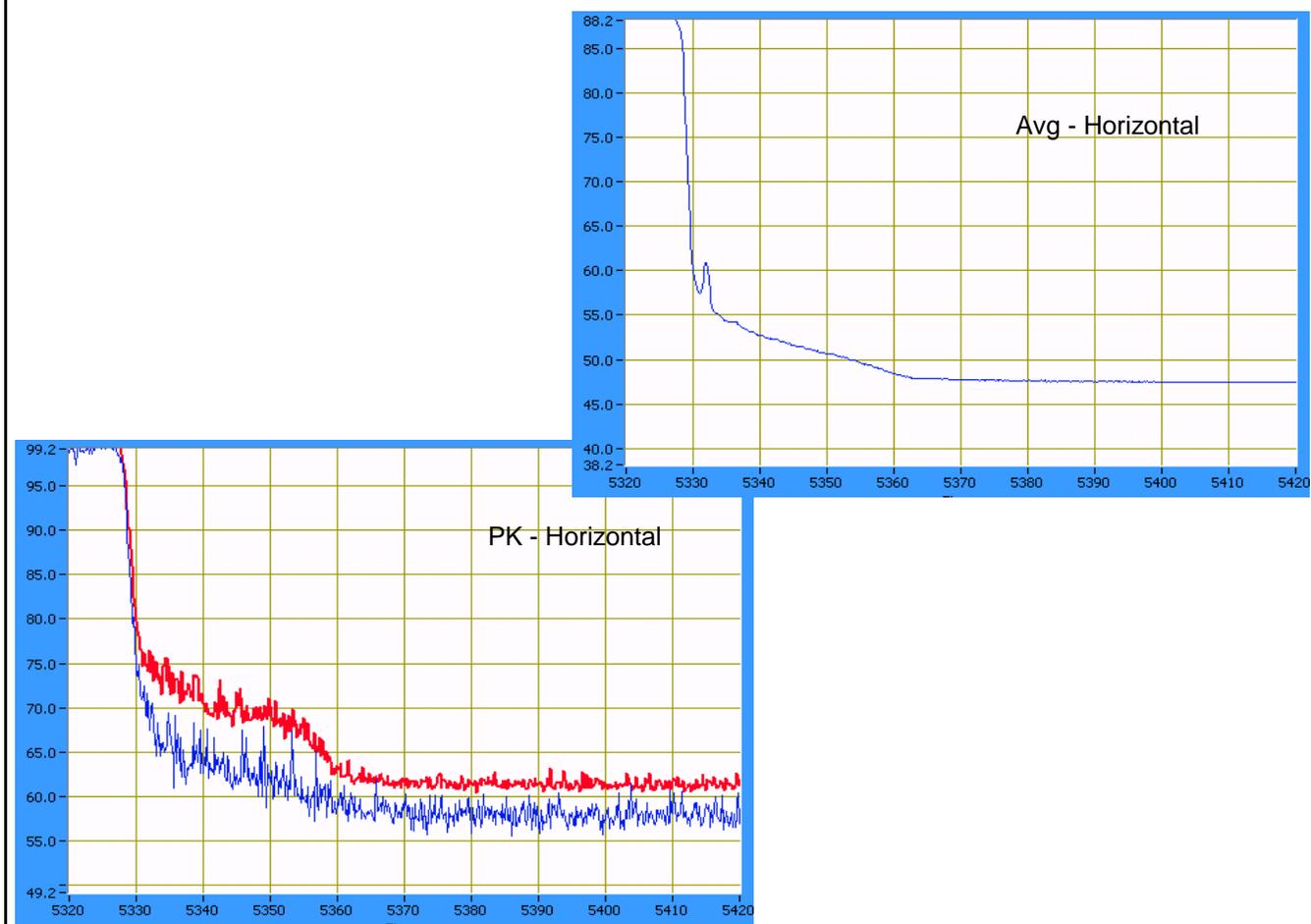
Power Setting: 24.5 Average power: 14.6 (for reference purposes)

Fundamental Signal Field Strength: Peak and average values measured in 1 MHz, for reference only

Frequency MHz	Level dB μ V/m	Pol v/h	15.209 / 15.247		Detector PK/QP/Avg	Azimuth degrees	Height meters	Comments
			Limit	Margin				
5308.650	87.4	V	-	-	AVG	147	1.0	
5308.650	96.0	V	-	-	PK	147	1.0	
5308.610	90.6	H	-	-	AVG	250	1.0	
5308.610	99.2	H	-	-	PK	250	1.0	

Band Edge Signal Field Strength

Frequency MHz	Level dB μ V/m	Pol v/h	15.209 / 15.247		Detector PK/QP/Avg	Azimuth degrees	Height meters	Comments
			Limit	Margin				
5350.100	51.0	H	54.0	-3.0	AVG	249	1.1	
5350.150	69.4	H	74.0	-4.6	PK	249	1.1	
5350.180	49.6	V	54.0	-4.4	AVG	147	1.0	
5350.290	67.3	V	74.0	-6.7	PK	148	1.0	



Client: Intel Corporation	Job Number: J72065
Model: 533AN-MMW with Vader PIFA antenna	T-Log Number: T72132 Band Edge
	Account Manager: Dean Eriksen
Contact: Robert Paxman	
Standard: RSS 210/FCC U-NII (Radiated)	Class: N/A

Run #4: Radiated Spurious Emissions, Band Edges. Operating Mode: 802.11n 40MHz - Chain A+B

Date of Test: 6/28/2008

Test Engineer: Peter Sales

Test Location: Fremont Chamber #4

Run #4a: Low Channel @ 5190 MHz (band edge at 5150 MHz)

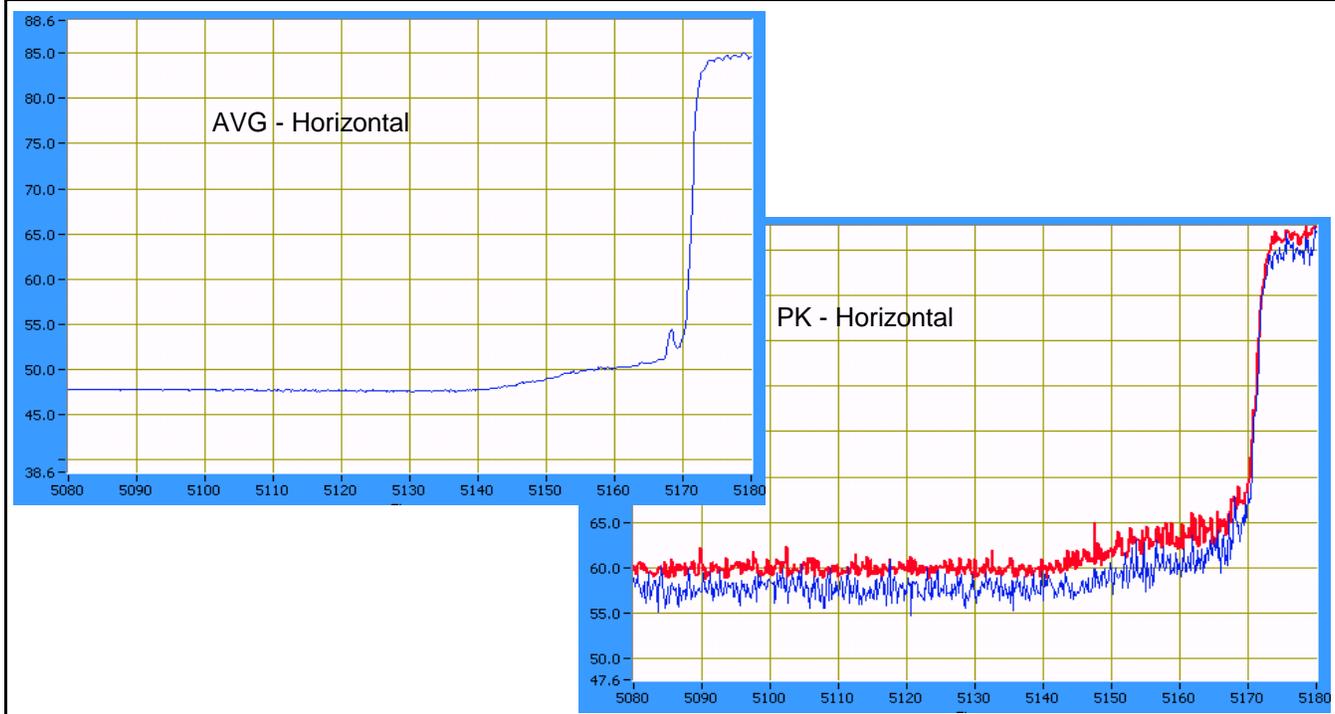
Power Setting and average measurement (for reference)					
Chain A		Chain B		Chain C	
Setting	Avg	Setting	Avg	Setting	Avg
26.0	13.8	27.0	14.4		

Fundamental Signal Field Strength: Peak and average values measured in 1 MHz, for reference only

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dB μ V/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5204.000	87.7	H	-	-	AVG	283	1.0	
5204.000	98.3	H	-	-	PK	283	1.0	
5201.670	87.0	V	-	-	AVG	7	1.1	
5201.670	97.7	V	-	-	PK	7	1.1	

Band Edge Signal Field Strength

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dB μ V/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5148.720	61.1	V	74.0	-12.9	PK	7	1.1	
5149.850	48.2	V	54.0	-5.8	AVG	7	1.1	
5149.600	63.3	H	74.0	-10.7	PK	285	1.0	
5149.870	48.8	H	54.0	-5.2	AVG	281	1.0	



Client:	Intel Corporation	Job Number:	J72065
Model:	533AN-MMW with Vader PIFA antenna	T-Log Number:	T72132 Band Edge
Contact:	Robert Paxman	Account Manager:	Dean Eriksen
Standard:	RSS 210/FCC U-NII (Radiated)	Class:	N/A

Date of Test: 6/30/2008
 Test Engineer: Ben Jing
 Test Location: Fremont Chamber # 3

Run #4b: High Channel @ 5310 MHz (band edge at 5350 MHz)

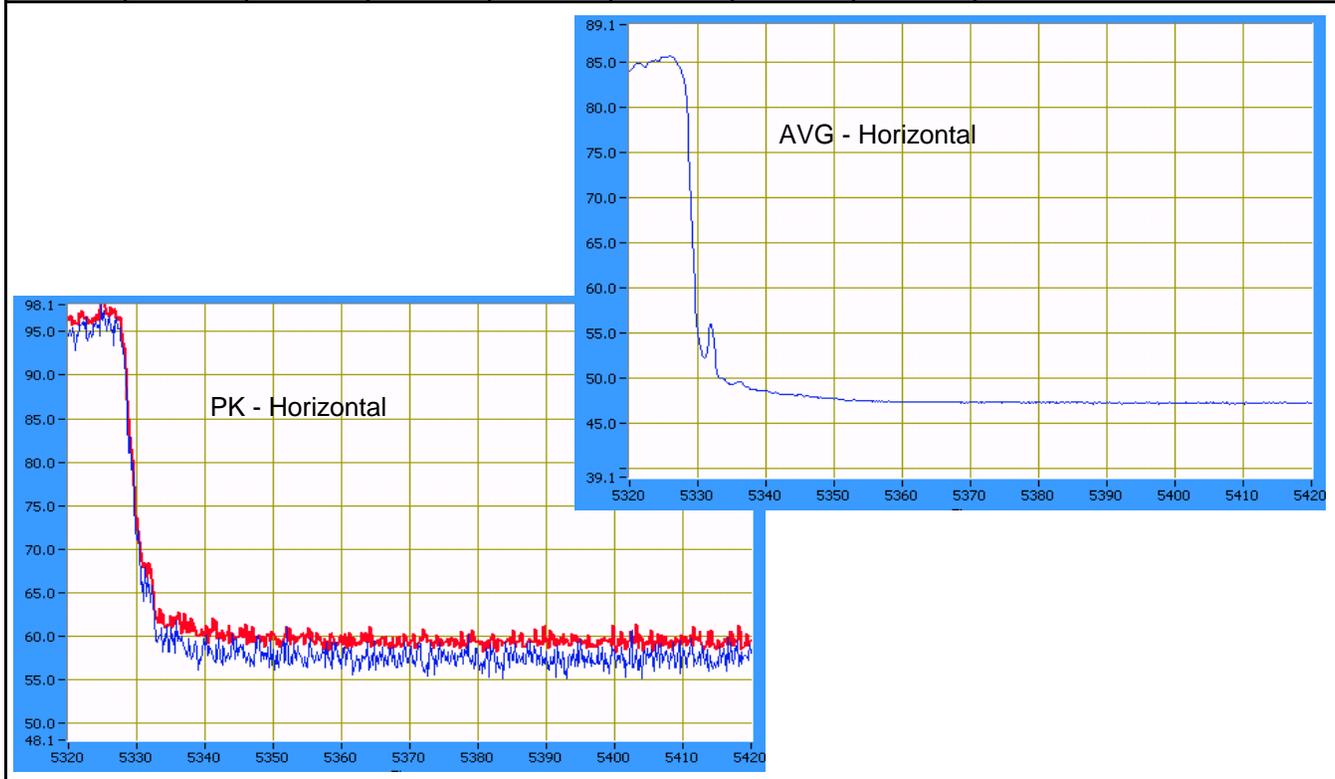
Power Setting and average measurement (for reference)					
Chain A		Chain B		Chain C	
Setting	Avg	Setting	Avg	Setting	Avg
23.0	13.4	24.0	13.5		

Fundamental Signal Field Strength: Peak and average values measured in 1 MHz, for reference only

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dB μ V/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5325.330	89.1	H	-	-	AVG	287	1.0	
5325.330	99.6	H	-	-	PK	287	1.0	
5323.530	84.5	V	-	-	AVG	291	1.0	
5323.530	94.9	V	-	-	PK	291	1.0	

Band Edge Signal Field Strength

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dB μ V/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5352.480	60.9	V	74.0	-13.1	PK	291	1.0	
5350.000	47.8	V	54.0	-6.2	AVG	291	1.0	
5352.230	61.1	H	74.0	-12.9	PK	285	1.0	
5350.030	48.1	H	54.0	-5.9	AVG	288	1.0	



Client: Intel Corporation	Job Number: J72065
Model: 533AN-MMW with Vader PIFA antenna	T-Log Number: T72132 Band Edge
	Account Manager: Dean Eriksen
Contact: Robert Paxman	
Standard: RSS 210/FCC U-NII (Radiated)	Class: N/A

Run #5: Radiated Spurious Emissions, Band Edges. Operating Mode: 802.11n 40MHz - Chain A+C

Date of Test: 7/1/2008

Test Engineer: Peter Sales

Test Location: Fremont Chamber #3

Run #5a: Low Channel @ 5190 MHz (band edge at 5150 MHz)

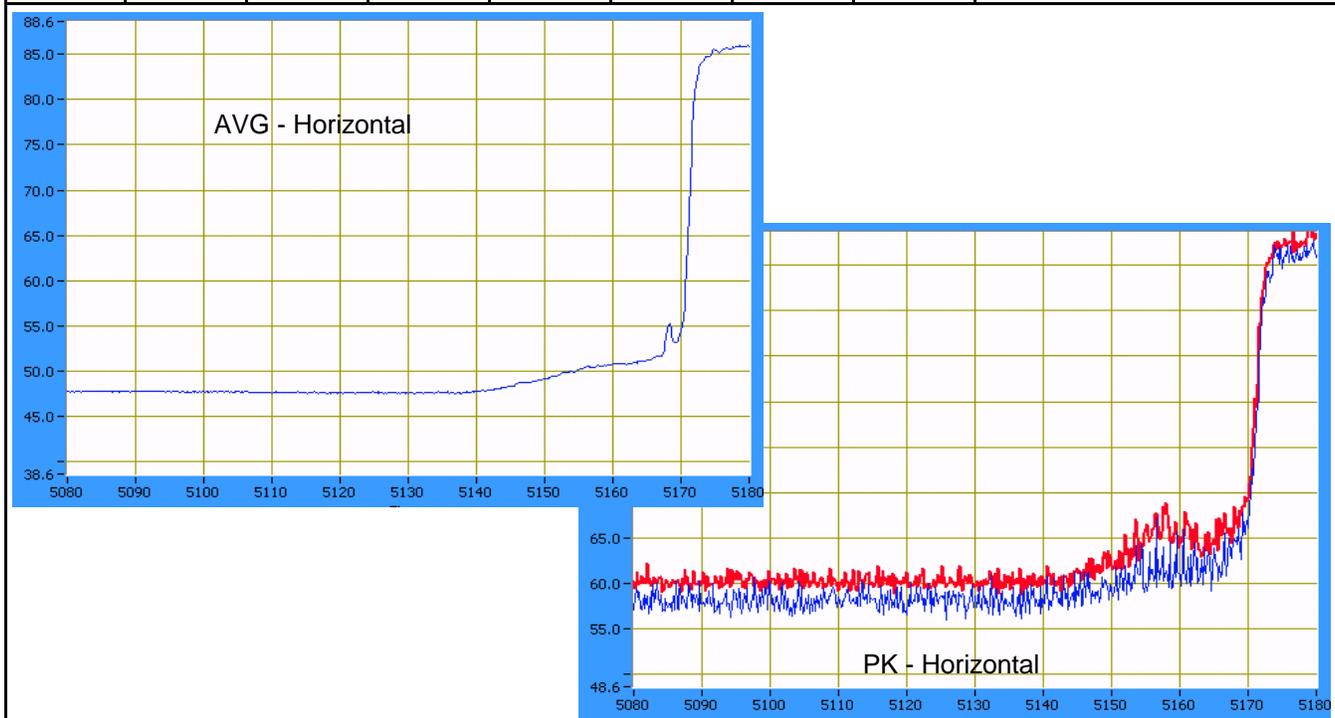
Power Setting and average measurement (for reference)					
Chain A		Chain B		Chain C	
Setting	Avg	Setting	Avg	Setting	Avg
26.0	13.7			27.0	14.1

Fundamental Signal Field Strength: Peak and average values measured in 1 MHz, for reference only

Frequency MHz	Level dB μ V/m	Pol v/h	15.209 / 15.247		Detector Pk/QP/Avg	Azimuth degrees	Height meters	Comments
			Limit	Margin				
5204.070	90.9	H	-	-	AVG	95	1.0	
5204.070	101.1	H	-	-	PK	95	1.0	
5179.330	84.4	V	-	-	AVG	158	1.0	
5179.330	94.9	V	-	-	PK	158	1.0	

Band Edge Signal Field Strength

Frequency MHz	Level dB μ V/m	Pol v/h	15.209 / 15.247		Detector Pk/QP/Avg	Azimuth degrees	Height meters	Comments
			Limit	Margin				
5149.940	63.3	V	74.0	-10.7	PK	158	1.0	
5149.830	48.7	V	54.0	-5.3	AVG	158	1.0	
5149.810	63.7	H	74.0	-10.3	PK	94	1.0	
5149.840	49.5	H	54.0	-4.5	AVG	94	1.0	



Client:	Intel Corporation	Job Number:	J72065
Model:	533AN-MMW with Vader PIFA antenna	T-Log Number:	T72132 Band Edge
Contact:	Robert Paxman	Account Manager:	Dean Eriksen
Standard:	RSS 210/FCC U-NII (Radiated)	Class:	N/A

Run #5b: High Channel @ 5310 MHz (band edge at 5350 MHz)

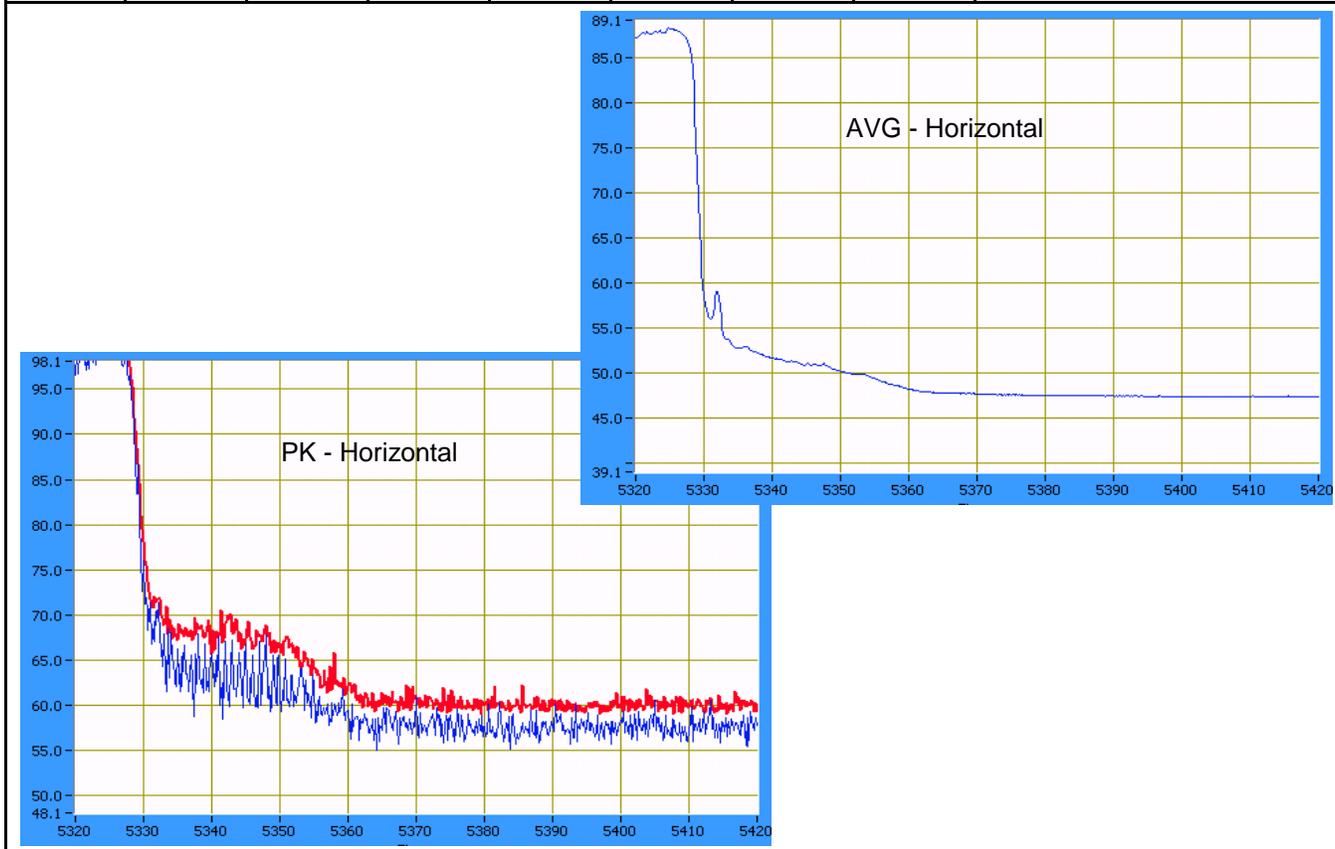
Power Setting and average measurement (for reference)					
Chain A		Chain B		Chain C	
Setting	Avg	Setting	Avg	Setting	Avg
23.0	13.7			26.5	14.0

Fundamental Signal Field Strength: Peak and average values measured in 1 MHz, for reference only

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dB μ V/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5325.530	91.7	H	-	-	AVG	258	1.0	
5325.530	102.1	H	-	-	PK	258	1.0	
5326.000	87.4	V	-	-	AVG	132	1.0	
5326.000	97.9	V	-	-	PK	132	1.0	

Band Edge Signal Field Strength

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dB μ V/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5351.120	64.6	V	74.0	-9.4	PK	132	1.0	
5350.000	48.8	V	54.0	-5.2	AVG	132	1.0	
5350.810	67.7	H	74.0	-6.3	PK	258	1.0	
5350.000	50.3	H	54.0	-3.7	AVG	258	1.0	



Client:	Intel Corporation	Job Number:	J72065
Model:	533AN-MMW with Vader PIFA antenna	T-Log Number:	T72132 Band Edge
Contact:	Robert Paxman	Account Manager:	Dean Eriksen
Standard:	RSS 210/FCC U-NII (Radiated)	Class:	N/A

Run #6: Radiated Spurious Emissions, Band Edges. Operating Mode: 802.11n 40MHz - Chain B+C

Date of Test: 7/1/2008

Test Engineer: Peter Sales

Test Location: Fremont Chamber #3

Run #6a: Low Channel @ 5190 MHz (band edge at 5150 MHz)

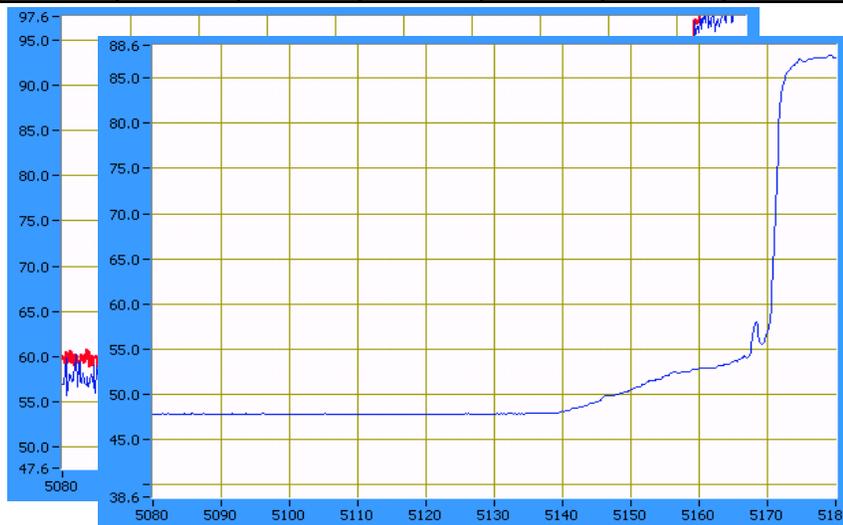
Power Setting and average measurement (for reference)					
Chain A		Chain B		Chain C	
Setting	Avg	Setting	Avg		Avg
		27.5	14.0	28.0	14.1

Fundamental Signal Field Strength: Peak and average values measured in 1 MHz, for reference only

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dB μ V/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5204.130	91.0	H	-	-	AVG	104	1.0	
5204.130	102.3	H	-	-	PK	104	1.0	
5206.270	88.2	V	-	-	AVG	156	1.0	
5206.270	97.7	V	-	-	PK	156	1.0	

Band Edge Signal Field Strength

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dB μ V/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5148.940	64.3	V	74.0	-9.7	PK	156	1.0	
5149.700	49.6	V	54.0	-4.4	AVG	156	1.0	
5148.690	65.6	H	74.0	-8.4	PK	103	1.0	
5149.970	50.8	H	54.0	-3.2	AVG	103	1.0	



AVG - Horizontal

AVG - Horizontal

Client:	Intel Corporation	Job Number:	J72065
Model:	533AN-MMW with Vader PIFA antenna	T-Log Number:	T72132 Band Edge
Contact:	Robert Paxman	Account Manager:	Dean Eriksen
Standard:	RSS 210/FCC U-NII (Radiated)	Class:	N/A

Run #6b: High Channel @ 5310 MHz (band edge at 5350 MHz)

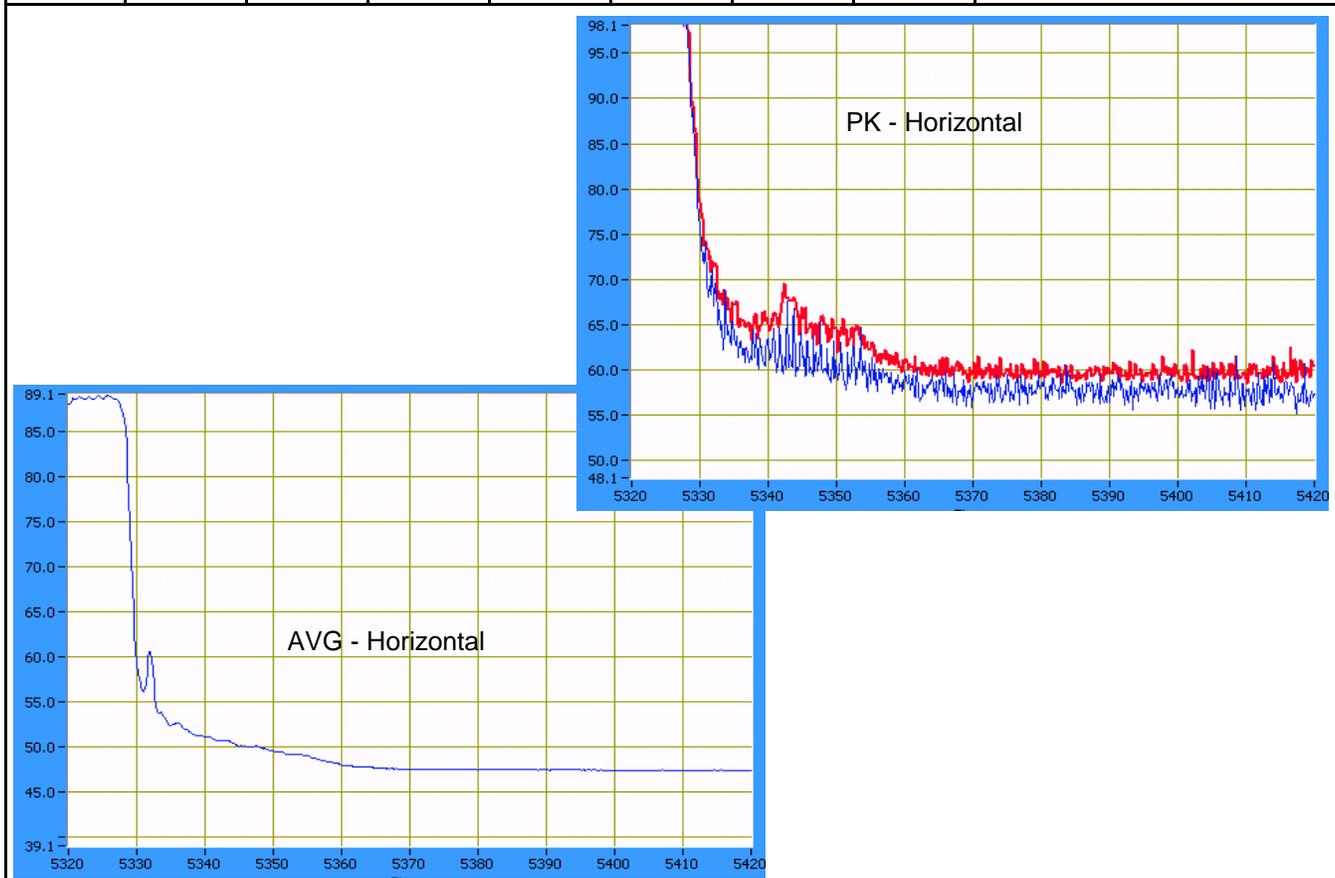
Power Setting and average measurement (for reference)					
Chain A		Chain B		Chain C	
Setting	Avg	Setting	Avg	Setting	Avg
		24.5	13.7	26.0	14.0

Fundamental Signal Field Strength: Peak and average values measured in 1 MHz, for reference only

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dB μ V/m	v/h	Limit	Margin	PK/QP/Avg	degrees	meters	
5325.870	93.2	H	-	-	AVG	94	1.0	
5325.870	103.7	H	-	-	PK	94	1.0	
5298.930	86.6	V	-	-	AVG	111	1.0	
5298.930	98.1	V	-	-	PK	111	1.0	

Band Edge Signal Field Strength

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dB μ V/m	v/h	Limit	Margin	PK/QP/Avg	degrees	meters	
5350.540	62.1	V	74.0	-11.9	PK	111	1.0	
5350.000	48.3	V	54.0	-5.7	AVG	111	1.0	
5350.670	66.3	H	74.0	-7.7	PK	93	1.0	
5350.000	49.7	H	54.0	-4.3	AVG	93	1.0	



Client:	Intel Corporation	Job Number:	J72065
Model:	533AN-MMW with Vader PIFA antenna	T-Log Number:	T72132 Band Edge
Contact:	Robert Paxman	Account Manager:	Dean Eriksen
Standard:	RSS 210/FCC U-NII (Radiated)	Class:	N/A

Run #7: Radiated Spurious Emissions, Band Edges. Operating Mode: 802.11n 40MHz - Chain A+B+C

Sample ID: MAC:0016EA02D4D0
 Date of Test: 7/1/2008
 Test Engineer: Rafael Varelas
 Test Location: Chamber # 4

Run #7a: Low Channel @ 5190 MHz (band edge at 5150 MHz)

Power Setting and average measurement (for reference)					
Chain A		Chain B		Chain C	
Setting	Avg	Setting	Avg	Setting	Avg
27.5	11.1	28.5	11.3	29.0	11.2

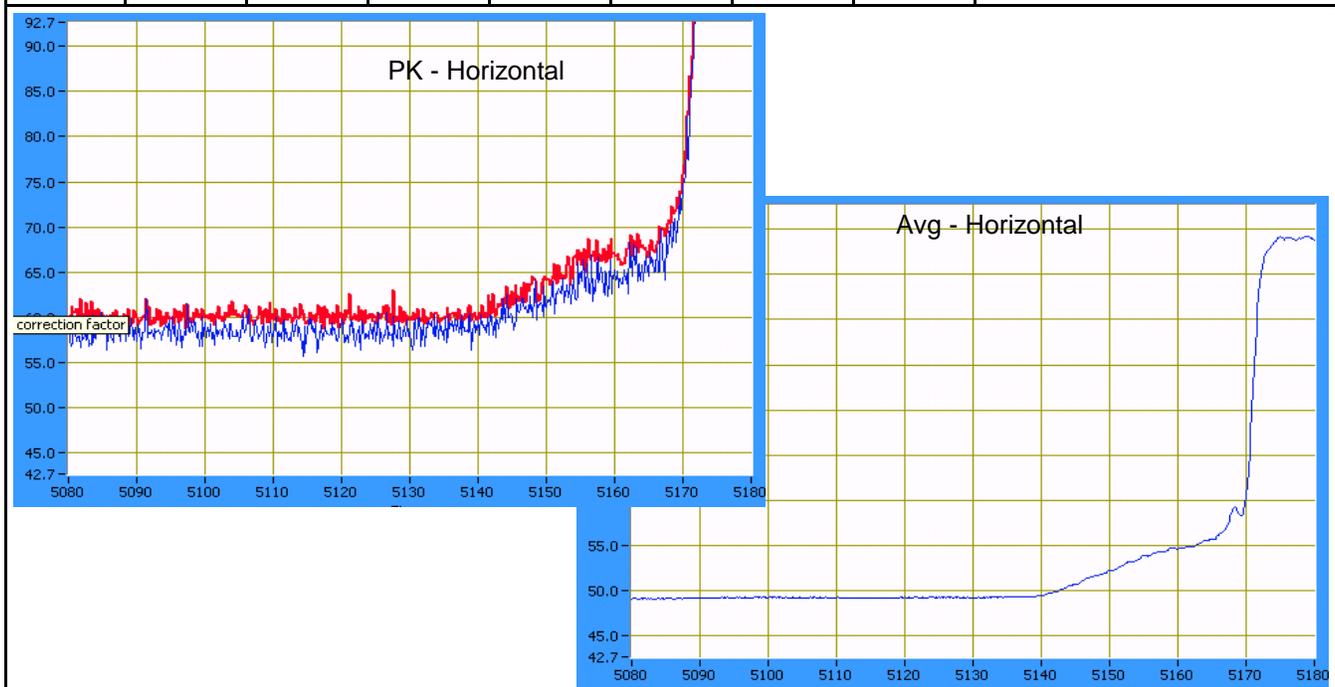
Measured Settings

Fundamental Signal Field Strength: Peak and average values measured in 1 MHz, for reference only

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dB μ V/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5205.670	92.5	V	-	-	AVG	226	1.0	
5205.670	103.8	V	-	-	PK	226	1.0	
5205.130	95.2	H	-	-	AVG	112	1.0	
5205.130	107.0	H	-	-	PK	112	1.0	

Band Edge Signal Field Strength

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dB μ V/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5149.500	50.5	V	54.0	-3.5	Avg	228	1.0	
5148.650	65.1	V	74.0	-8.9	PK	224	1.0	
5149.880	52.0	H	54.0	-2.0	Avg	112	1.0	
5149.330	66.0	H	74.0	-8.0	PK	112	1.0	



Client: Intel Corporation	Job Number: J72065
Model: 533AN-MMW with Vader PIFA antenna	T-Log Number: T72132 Band Edge
	Account Manager: Dean Eriksen
Contact: Robert Paxman	
Standard: RSS 210/FCC U-NII (Radiated)	Class: N/A

Run #7b: High Channel @ 5310 MHz (band edge at 5350 MHz)

Power Setting and average measurement (for reference)					
Chain A		Chain B		Chain C	
Setting	Avg	Setting	Avg	Setting	Avg
23.0	10.2	24.5	10.1	26.5	10.1

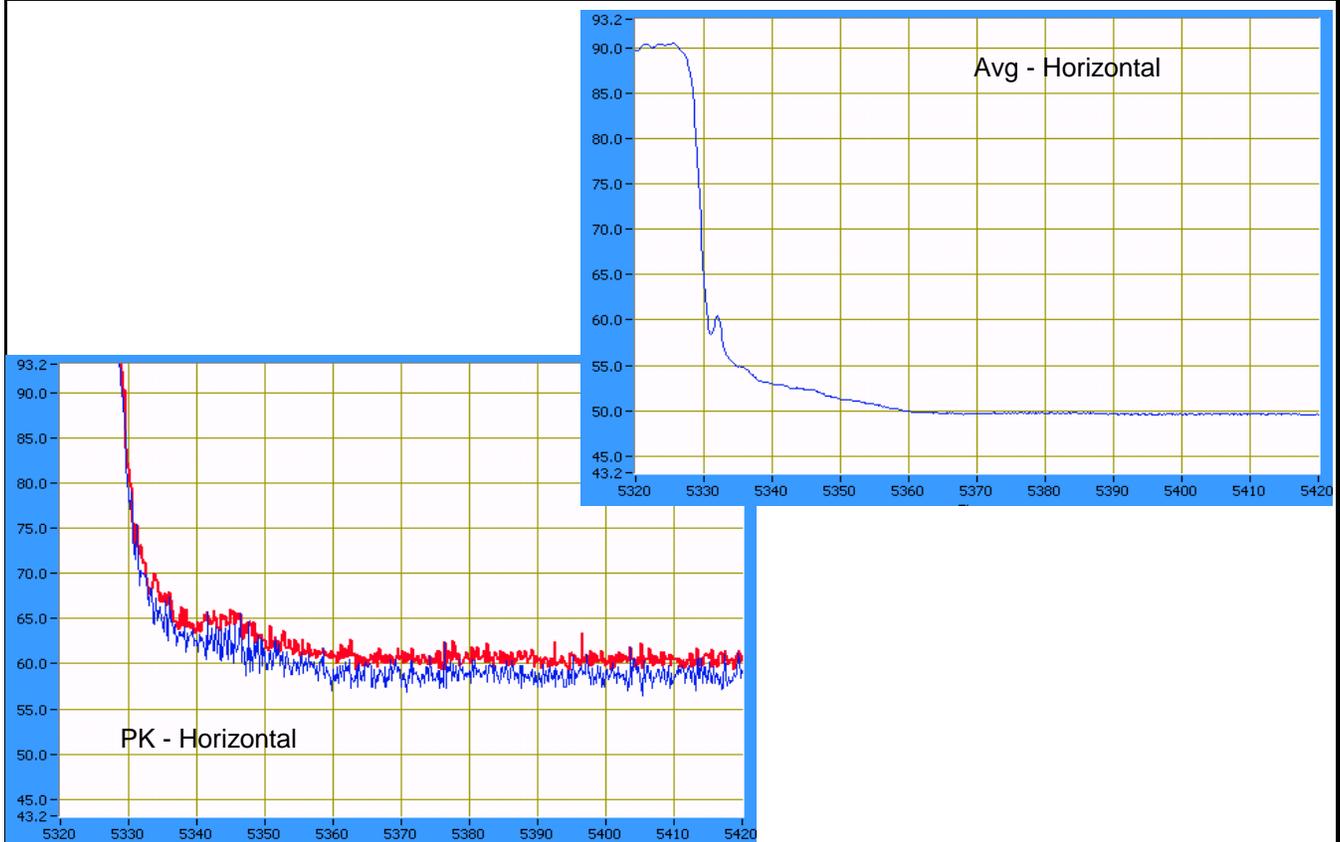
Measured Settings

Fundamental Signal Field Strength: Peak and average values measured in 1 MHz, for reference only

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dB μ V/m	v/h	Limit	Margin	PK/QP/Avg	degrees	meters	
5319.930	94.2	H	-	-	AVG	106	1.2	
5319.930	105.0	H	-	-	PK	106	1.2	
5324.730	91.5	V	-	-	AVG	197	1.3	
5324.730	101.6	V	-	-	PK	197	1.3	

Band Edge Signal Field Strength

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dB μ V/m	v/h	Limit	Margin	PK/QP/Avg	degrees	meters	
5350.000	51.4	H	54.0	-2.6	Avg	106	1.2	
5350.980	65.0	H	74.0	-9.0	PK	106	1.2	
5350.240	50.4	V	54.0	-3.6	Avg	197	1.3	
5352.470	63.3	V	74.0	-10.7	PK	197	1.3	



Client:	Intel Corporation	Job Number:	J72065
Model:	533AN-MMW with Vader PIFA antenna	T-Log Number:	T72132 Band Edge
		Account Manager:	Dean Eriksen
Contact:	Robert Paxman		
Standard:	RSS 210/FCC U-NII (Radiated)	Class:	N/A

**RSS 210 and FCC 15.E (U-NII, 5150- 550/5250-5350/5460-5725MHz)
Radiated Spurious Emissions 802.11n 40MHz Vader Antenna**

Summary of Results

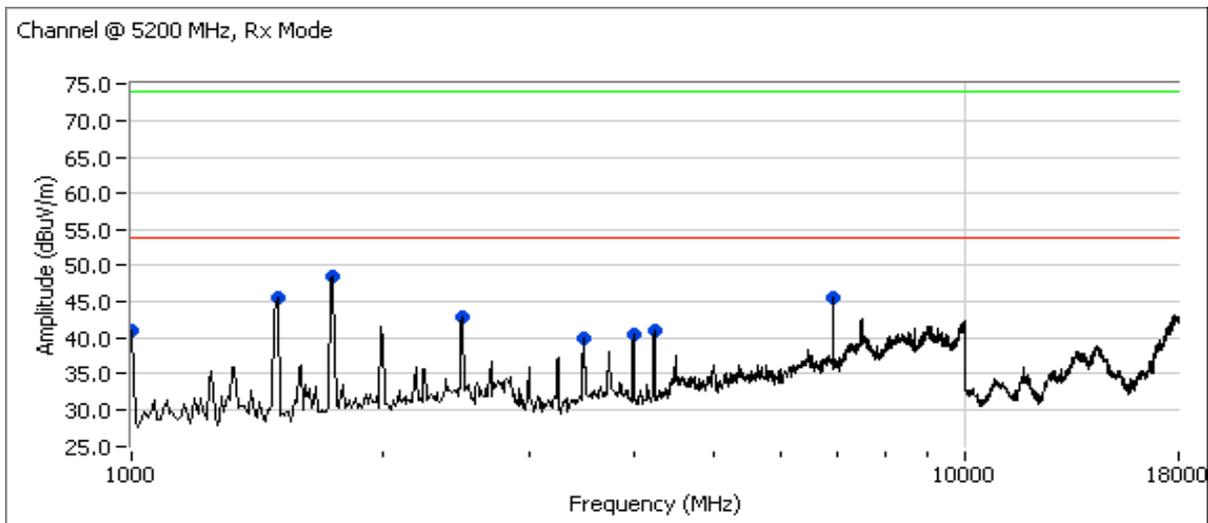
Run #	Mode	Channel	Power Setting	Measured Power	Test Performed	Limit	Result / Margin
1	802.11n40 Chain A	5190 5230	29 29	15.3 16.5	Radiated Emissions, 1 - 40 GHz	FCC Part 15.209 / 15.247(c)	Tests with ethertronics antenna indicated spurious emissions were higher when operating in 802.11n mode with a 20MHz bandwidth.
2	802.11n40 Chain A	5270 5310	27.5 26.0	16.5 16.6	Radiated Emissions, 1 - 40 GHz	FCC Part 15.209 / 15.247(c)	
3	802.11n40 Chain A	5510 5590 5670	24.5 25.0 25.5	16.3 16.7 16.7	Radiated Emissions, 1 - 40 GHz	FCC Part 15.209 / 15.247(c)	

Client:	Intel Corporation	Job Number:	J72065
Model:	533AN-MMW with Vader PIFA antenna	T-Log Number:	T72132 Band Edge
Contact:	Robert Paxman	Account Manager:	Dean Eriksen
Standard:	RSS 210/FCC U-NII (Radiated)	Class:	-

Run #1: Maximized readings, 1000 - 18000 MHz, Receive Chain A

Date of Test: 7/2/2008
 Test Engineer: Suhaila Khushzad
 Test Location: Chamber # 3

Frequency Range	Test Distance	Limit Distance	Extrapolation Factor
1000 - 10000 MHz	3	3	0.0
10000 - 18000 MHz	1	3	-9.5

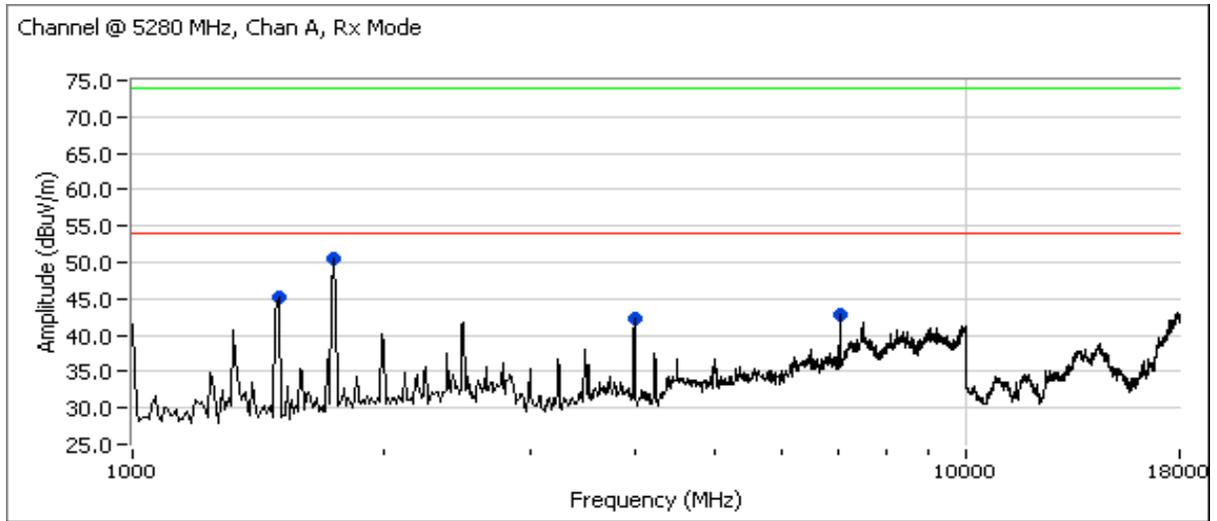


Receiver Tuned to 5200 MHz - Chain A

Frequency	Level	Pol	RSS GEN		Detector	Azimuth	Height	Comments
MHz	dB μ V/m	v/h	Limit	Margin	Pk/QP/Avq	degrees	meters	
6933.450	44.1	V	54.0	-9.9	AVG	227	1.8	
6933.450	48.5	V	74.0	-25.5	PK	227	1.8	
999.349	21.9	H	54.0	-32.1	AVG	60	1.0	
999.349	36.5	H	74.0	-37.5	PK	60	1.0	
1498.030	35.0	V	54.0	-19.0	AVG	229	1.3	
1498.030	48.0	V	74.0	-26.0	PK	229	1.3	
1748.910	31.1	V	54.0	-22.9	AVG	74	1.3	
1748.910	52.4	V	74.0	-21.6	PK	74	1.3	
2496.950	30.6	V	54.0	-23.4	AVG	133	1.0	
2496.950	46.7	V	74.0	-27.3	PK	133	1.0	
4231.650	28.1	V	54.0	-25.9	AVG	139	1.0	
4231.650	47.5	V	74.0	-26.5	PK	139	1.0	
3497.880	27.7	V	54.0	-26.3	AVG	136	1.0	
3497.880	47.3	V	74.0	-26.7	PK	136	1.0	
3997.800	28.7	V	54.0	-25.3	AVG	131	1.0	
3997.800	49.6	V	74.0	-24.4	PK	131	1.0	

Client:	Intel Corporation	Job Number:	J72065
Model:	533AN-MMW with Vader PIFA antenna	T-Log Number:	T72132 Band Edge
Contact:	Robert Paxman	Account Manager:	Dean Eriksen
Standard:	RSS 210/FCC U-NII (Radiated)	Class:	-

Run #1: Maximized readings, 1000 - 18000 MHz, Receive Chain A



Receiver Tuned to 5280 MHz - Chain A

Frequency MHz	Level dB μ V/m	Pol v/h	RSS GEN		Detector Pk/QP/Avg	Azimuth degrees	Height meters	Comments
			Limit	Margin				
7040.180	40.7	V	54.0	-13.3	AVG	237	1.6	
7040.180	45.3	V	74.0	-28.7	PK	237	1.6	
1497.780	35.9	V	54.0	-18.1	AVG	192	1.1	
1497.780	50.8	V	74.0	-23.2	PK	192	1.1	
1748.360	31.9	V	54.0	-22.1	AVG	176	1.0	
1748.360	53.6	V	74.0	-20.4	PK	176	1.0	
3994.960	28.4	H	54.0	-25.6	AVG	172	1.0	
3994.960	48.9	H	74.0	-25.1	PK	172	1.0	

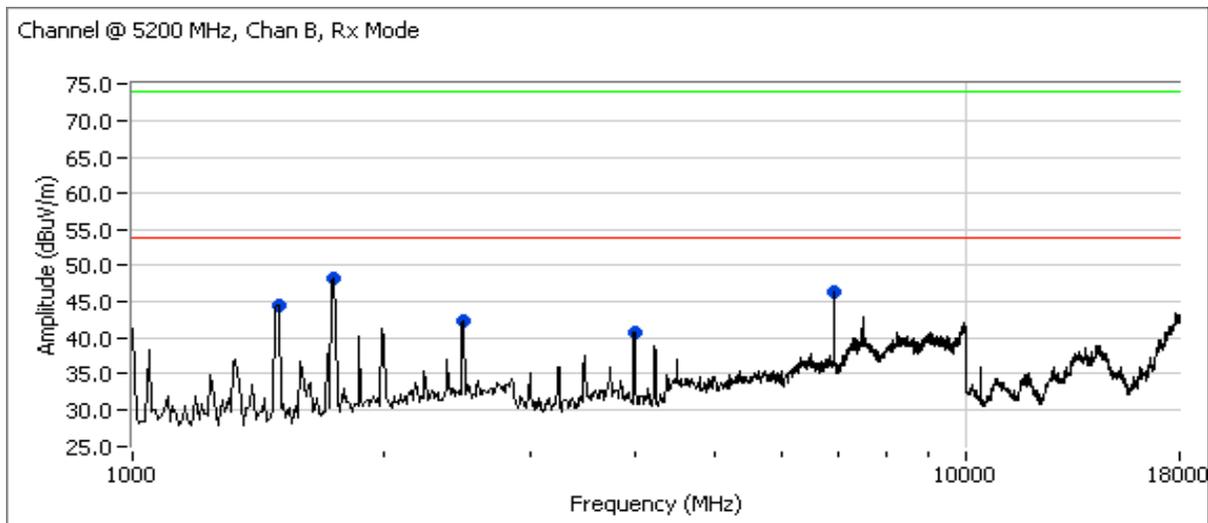
Note 1: Above 1 GHz, the FCC specifies the limit as an average measurement. In addition, the FCC states that the peak reading of any emission above 1 GHz, can not exceed the average limit by more than 20 dB.

Client: Intel Corporation	Job Number: J72065
Model: 533AN-MMW with Vader PIFA antenna	T-Log Number: T72132 Band Edge
	Account Manager: Dean Eriksen
Contact: Robert Paxman	
Standard: RSS 210/FCC U-NII (Radiated)	Class: -

Run #2: Maximized readings, 1000 - 18000 MHz, Receive Chain B

Date of Test: 7/2/2008
 Test Engineer: Suhaila Khushzad
 Test Location: Chamber # 3

Frequency Range	Test Distance	Limit Distance	Extrapolation Factor
1000 - 12000 MHz	3	3	0.0
12000 - 18000 MHz	1	3	-9.5



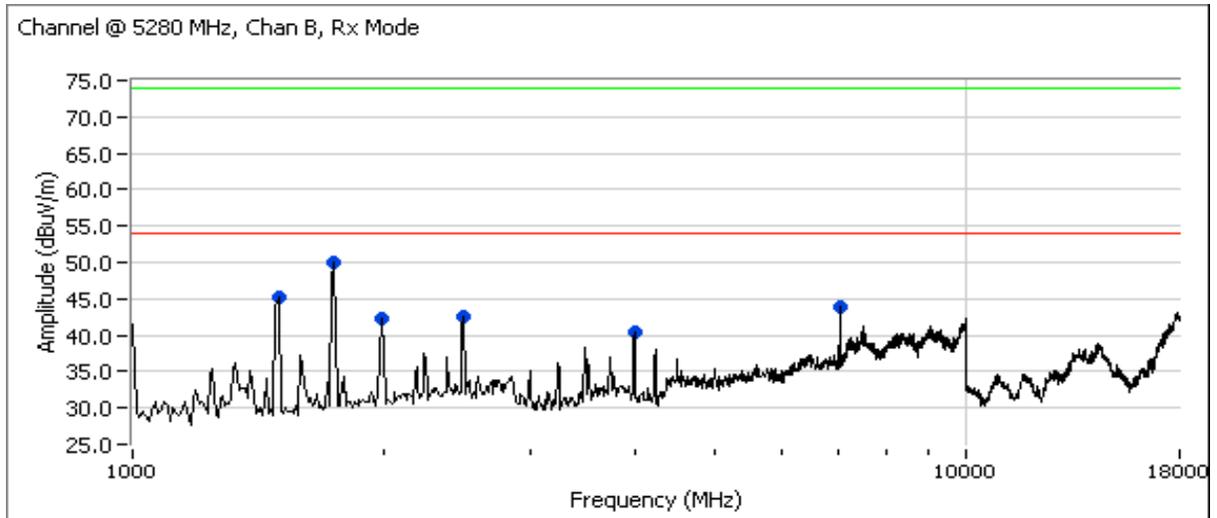
Receiver Tuned to 5200 MHz - Chain B

Frequency MHz	Level dB μ V/m	Pol v/h	RSS GEN		Detector Pk/QP/Avg	Azimuth degrees	Height meters	Comments
			Limit	Margin				
6933.320	45.2	V	54.0	-8.8	AVG	201	1.4	
6933.320	48.6	V	74.0	-25.4	PK	201	1.4	
1497.780	35.6	V	54.0	-18.4	AVG	181	1.1	
1497.780	48.2	V	74.0	-25.8	PK	181	1.1	
1747.640	33.1	V	54.0	-20.9	AVG	156	1.0	
1747.640	53.3	V	74.0	-20.7	PK	156	1.0	
2496.390	30.7	V	54.0	-23.3	AVG	151	1.4	
2496.390	49.6	V	74.0	-24.4	PK	151	1.4	
3996.540	28.5	V	54.0	-25.5	AVG	139	1.0	
3996.540	48.7	V	74.0	-25.3	PK	139	1.0	

Note 1: Above 1 GHz, the FCC specifies the limit as an average measurement. In addition, the FCC states that the peak reading of any emission above 1 GHz, can not exceed the average limit by more than 20 dB.

Client: Intel Corporation	Job Number: J72065
Model: 533AN-MMW with Vader PIFA antenna	T-Log Number: T72132 Band Edge
	Account Manager: Dean Eriksen
Contact: Robert Paxman	
Standard: RSS 210/FCC U-NII (Radiated)	Class: -

Run #2: Maximized readings, 1000 - 18000 MHz, Receive Chain B



Receiver Tuned to 5280 MHz - Chain B

Frequency MHz	Level dB μ V/m	Pol v/h	RSS GEN		Detector Pk/QP/Avg	Azimuth degrees	Height meters	Comments
			Limit	Margin				
7040.070	43.0	V	54.0	-11.0	AVG	227	1.6	
7040.070	46.9	V	74.0	-27.1	PK	227	1.6	
1498.010	34.0	V	54.0	-20.0	AVG	78	1.0	
1498.010	52.9	V	74.0	-21.1	PK	78	1.0	
1747.450	32.9	V	54.0	-21.1	AVG	171	1.0	
1747.450	54.4	V	74.0	-19.6	PK	171	1.0	
1994.170	30.0	V	54.0	-24.0	AVG	75	1.0	
1994.170	48.3	V	74.0	-25.7	PK	75	1.0	
2497.810	28.1	V	54.0	-25.9	AVG	248	1.0	
2497.810	43.4	V	74.0	-30.6	PK	248	1.0	
3994.410	29.4	V	54.0	-24.6	AVG	139	1.0	
3994.410	50.9	V	74.0	-23.1	PK	139	1.0	

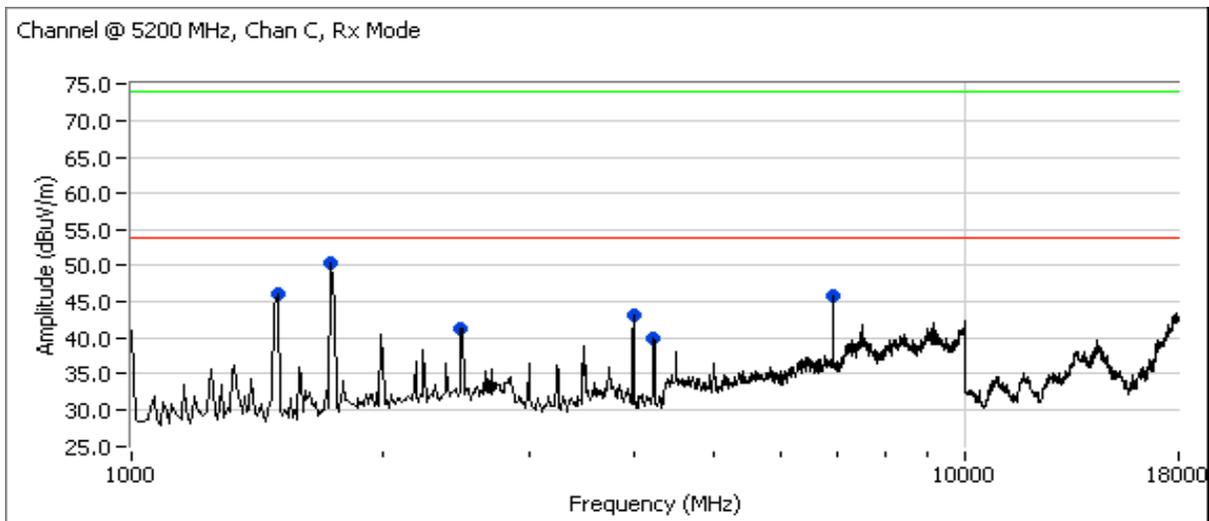
Note 1: Above 1 GHz, the FCC specifies the limit as an average measurement. In addition, the FCC states that the peak reading of any emission above 1 GHz, can not exceed the average limit by more than 20 dB.

Client: Intel Corporation	Job Number: J72065
Model: 533AN-MMW with Vader PIFA antenna	T-Log Number: T72132 Band Edge
	Account Manager: Dean Eriksen
Contact: Robert Paxman	
Standard: RSS 210/FCC U-NII (Radiated)	Class: -

Run #3: Maximized readings, 1000 - 18000 MHz, Receive Chain C

Date of Test: 7/2/2008
 Test Engineer: Suhaila Khushzad
 Test Location: Chamber # 3

Frequency Range	Test Distance	Limit Distance	Extrapolation Factor
1000 - 12000 MHz	3	3	0.0
12000 - 18000 MHz	1	3	-9.5



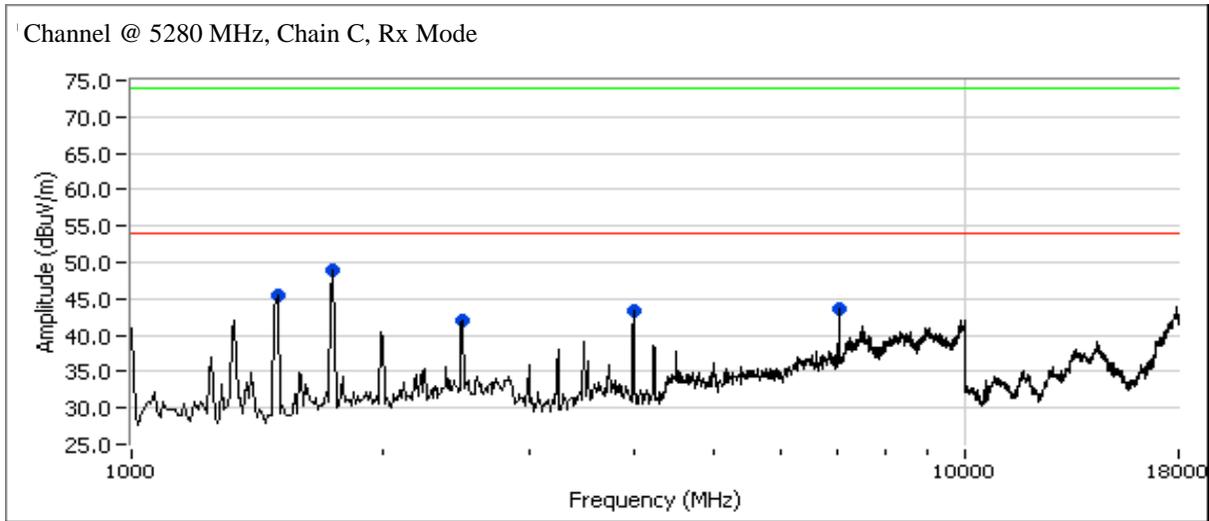
Receiver Tuned to 5200 MHz - Chain C

Frequency MHz	Level dB μ V/m	Pol v/h	RSS GEN		Detector Pk/QP/Avg	Azimuth degrees	Height meters	Comments
			Limit	Margin				
6933.350	45.2	V	54.0	-8.8	AVG	245	1.8	
6933.350	48.6	V	74.0	-25.4	PK	245	1.8	
1497.850	33.6	V	54.0	-20.4	AVG	78	1.0	
1497.850	52.7	V	74.0	-21.3	PK	78	1.0	
1746.970	32.3	V	54.0	-21.7	AVG	175	1.0	
1746.970	54.1	V	74.0	-19.9	PK	175	1.0	
2498.570	29.3	H	54.0	-24.7	AVG	152	1.0	
2498.570	47.6	H	74.0	-26.4	PK	152	1.0	
3995.710	29.0	V	54.0	-25.0	AVG	137	1.0	
3995.710	50.9	V	74.0	-23.1	PK	137	1.0	
4233.890	28.1	V	54.0	-25.9	AVG	138	1.0	
4233.890	48.2	V	74.0	-25.8	PK	138	1.0	

Note 1: Above 1 GHz, the FCC specifies the limit as an average measurement. In addition, the FCC states that the peak reading of any emission above 1 GHz, can not exceed the average limit by more than 20 dB.

Client:	Intel Corporation	Job Number:	J72065
Model:	533AN-MMW with Vader PIFA antenna	T-Log Number:	T72132 Band Edge
Contact:	Robert Paxman	Account Manager:	Dean Eriksen
Standard:	RSS 210/FCC U-NII (Radiated)	Class:	-

Run #3: Maximized readings, 1000 - 18000 MHz, Receive Chain C



Receiver Tuned to 5280 MHz - Chain C

Frequency MHz	Level dB μ V/m	Pol v/h	RSS GEN		Detector Pk/QP/Avg	Azimuth degrees	Height meters	Comments
			Limit	Margin				
7040.020	41.9	V	54.0	-12.1	AVG	235	1.5	
7040.020	46.2	V	74.0	-27.8	PK	235	1.5	
1497.810	34.9	V	54.0	-19.1	AVG	191	1.0	
1497.810	51.5	V	74.0	-22.5	PK	191	1.0	
1748.360	34.4	V	54.0	-19.6	AVG	81	1.1	
1748.360	55.7	V	74.0	-18.3	PK	81	1.1	
2497.930	29.8	V	54.0	-24.2	AVG	160	1.3	
2497.930	48.0	V	74.0	-26.0	PK	160	1.3	
3997.030	29.7	V	54.0	-24.3	AVG	138	1.0	
3997.030	51.3	V	74.0	-22.7	PK	138	1.0	

Note 1: Above 1 GHz, the FCC specifies the limit as an average measurement. In addition, the FCC states that the peak reading of any emission above 1 GHz, can not exceed the average limit by more than 20 dB.

Client:	Intel Corporation	Job Number:	J72065
Model:	533AN-MMW with Amphenol PIFA antenna	T-Log Number:	T72191
Contact:	Robert Paxman	Account Manager:	Dean Eriksen
Emissions Standard(s):	RSS 210/FCC U-NII (Radiated)	Class:	-
Immunity Standard(s):	-	Environment:	-

EMC Test Data
UNII Radiated Measurements with Amphenol Antenna

For The

Intel Corporation

Model

533AN-MMW with Amphenol PIFA antenna

Date of Last Test: 7/12/2008

Client:	Intel Corporation	Job Number:	J72065
Model:	533AN-MMW with Amphenol PIFA antenna	T-Log Number:	T72191
		Account Manager:	Dean Eriksen
Contact:	Robert Paxman		
Standard:	RSS 210/FCC U-NII (Radiated)	Class:	N/A

**RSS 210 and FCC 15.E (U-NII, 5150- 550/5250-5350/5460-5725MHz)
Band Edge Field Strength 802.11a Amphenol Antenna**

Test Specific Details

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

Sample ID: MAC : 0016EA02D4D0	Config. Used: 1
Date of Test: 7/3/2008	Config Change: None
Test Engineer: Ben Jing	Host Unit Voltage 120V/60Hz
Test Location: FT Chamber # 3	

General Test Configuration

The EUT and all local support equipment were located on the turntable for radiated spurious emissions testing. All remote support equipment was located approximately 30 meters from the EUT with all I/O connections running on top of the groundplane.

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

Ambient Conditions: Temperature: 15-25 °C
 Rel. Humidity: 35-55 %

Modifications Made During Testing

No modifications were made to the EUT during testing

Deviations From The Standard

No deviations were made from the requirements of the standard.

Summary of Results

Run #	Mode	Channel	Power Setting	Measured Power	Test Performed	Limit	Result / Margin
1a	802.11a Chain A	5180MHz	31.0	16.7	Band Edge radiated field strength	FCC Part 15.209	49.8dBµV/m @ 5149.6MHz (-4.2dB)
1b	802.11a Chain A	5320MHz	25.5	16.5	Band Edge radiated field strength	FCC Part 15.209	48.7dBµV/m @ 5350.2MHz (-5.3dB)
2a	802.11a Chain B	5180MHz	31.5	17.1	Band Edge radiated field strength	FCC Part 15.209	50.2dBµV/m @ 5149.8MHz (-3.8dB)
2b	802.11a Chain B	5320MHz	26.5	16.5	Band Edge radiated field strength	FCC Part 15.209	48.3dBµV/m @ 5350.2MHz (-5.7dB)
3a	802.11a Chain C	5180MHz	31.0	16.5	Band Edge radiated field strength	FCC Part 15.209	52.1dBµV/m @ 5149.8MHz (-1.9dB)
3b	802.11a Chain C	5320MHz	28.5	16.5	Band Edge radiated field strength	FCC Part 15.209	50.8dBµV/m @ 5350.2MHz (-3.2dB)

Client:	Intel Corporation	Job Number:	J72065
Model:	533AN-MMW with Amphenol PIFA antenna	T-Log Number:	T72191
Contact:	Robert Paxman	Account Manager:	Dean Eriksen
Standard:	RSS 210/FCC U-NII (Radiated)	Class:	N/A

Run #1: Radiated Spurious Emissions, Band Edges. Operating Mode: 802.11a - Chain A

Run #1a: Low Channel @ 5180 MHz (band edge at 5150 MHz)

Power Setting: 31.0 Average power: 16.7 (for reference purposes)

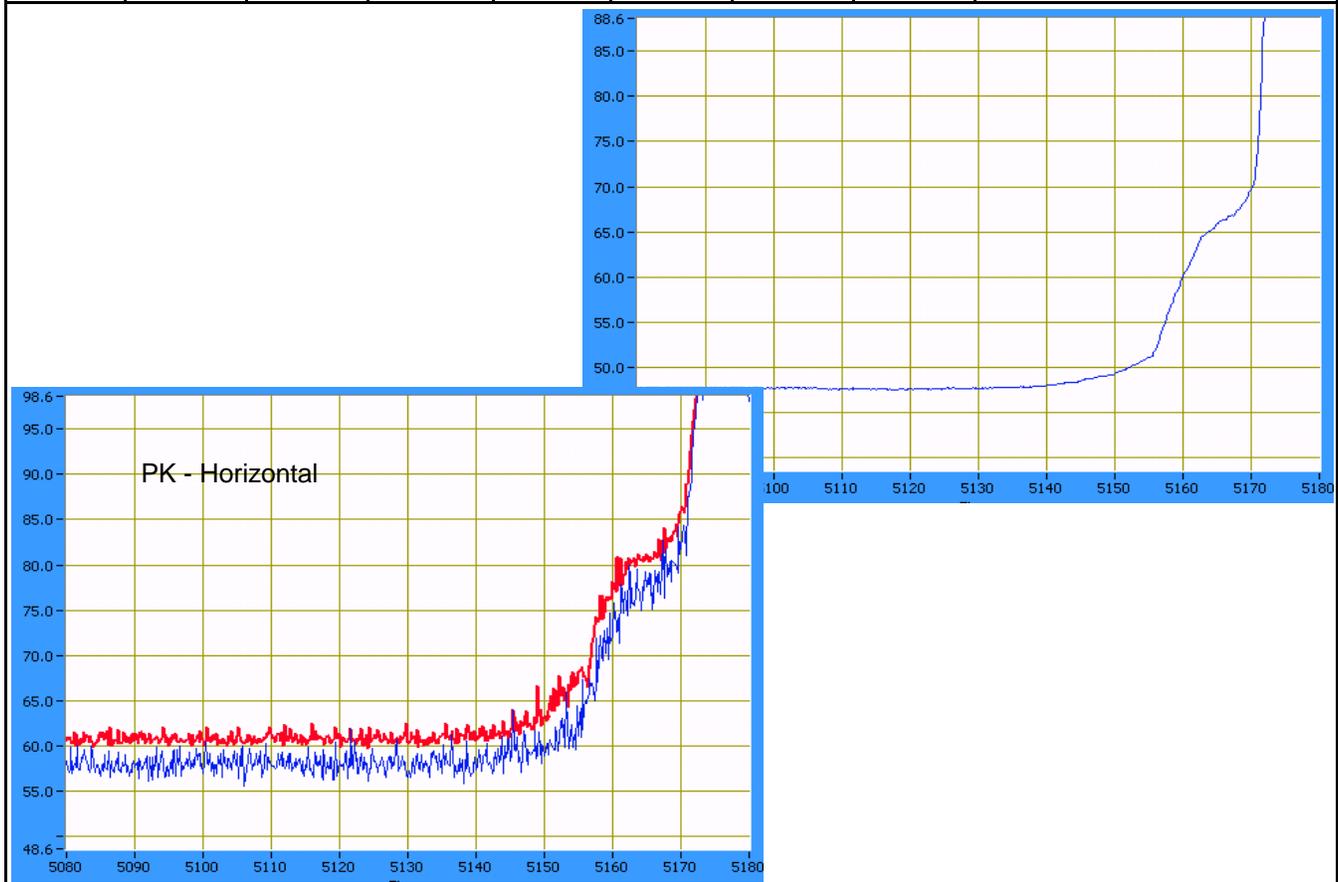
Fundamental Signal Field Strength: Peak and average values measured in 1 MHz, for reference only

Frequency MHz	Level dB μ V/m	Pol v/h	15.209 / 15.407		Detector PK/QP/Avg	Azimuth degrees	Height meters	Comments
			Limit	Margin				
5181.150	96.2	V	-	-	AVG	224	1.0	
5181.150	104.5	V	-	-	PK	224	1.0	
5181.080	93.9	H	-	-	AVG	140	1.0	
5181.080	102.1	H	-	-	PK	140	1.0	

Band Edge Signal Field Strength

Restricted band starts at allocated band edge (5150MHz), field strength limit is 54dBuV/m average, 74dBuV/m peak.

Frequency MHz	Level dB μ V/m	Pol v/h	15.209 / 15.407		Detector PK/QP/Avg	Azimuth degrees	Height meters	Comments
			Limit	Margin				
5149.600	49.8	H	54.0	-4.2	AVG	136	1.0	
5149.630	66.9	H	74.0	-7.1	PK	136	1.0	
5149.570	49.4	V	54.0	-4.6	AVG	233	1.0	
5149.750	64.7	V	74.0	-9.3	PK	235	1.0	



Client:	Intel Corporation	Job Number:	J72065
Model:	533AN-MMW with Amphenol PIFA antenna	T-Log Number:	T72191
Contact:	Robert Paxman	Account Manager:	Dean Eriksen
Standard:	RSS 210/FCC U-NII (Radiated)	Class:	N/A

Run #1b: High Channel @ 5320 MHz (band edge at 5350 MHz)

Power Setting: 25.5 Average power: 16.5 (for reference purposes)

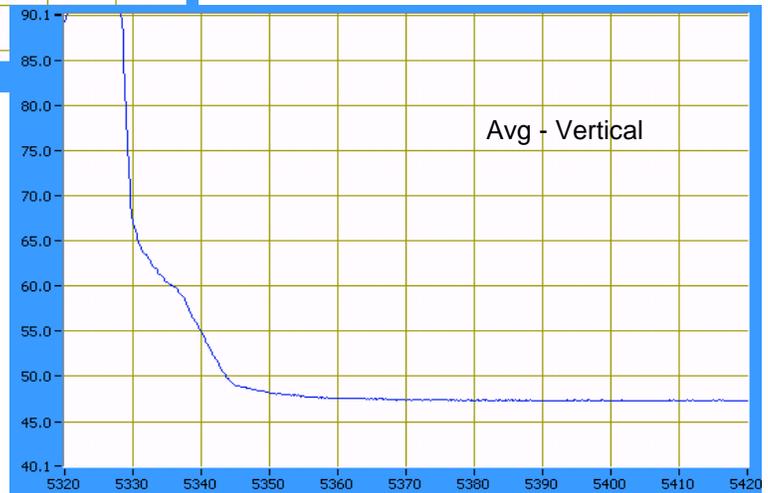
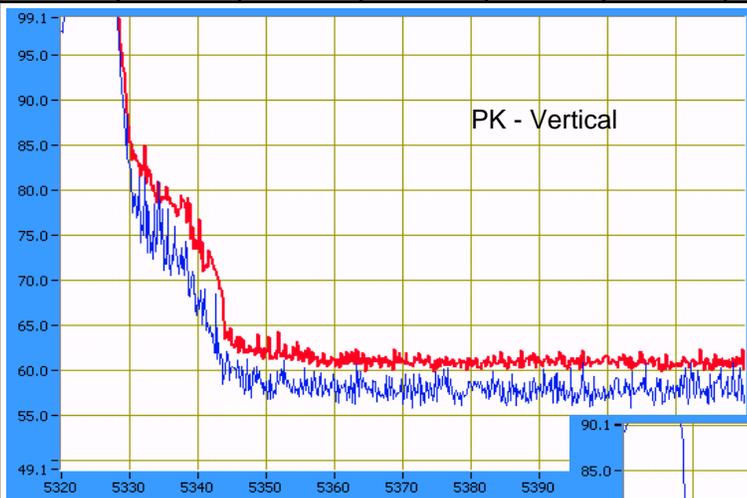
Fundamental Signal Field Strength: Peak and average values measured in 1 MHz, for reference only

Frequency MHz	Level dB μ V/m	Pol v/h	15.209 / 15.407		Detector Pk/QP/Avg	Azimuth degrees	Height meters	Comments
			Limit	Margin				
5321.370	93.2	H	-	-	AVG	166	1.1	
5321.370	101.3	H	-	-	PK	166	1.1	
5318.670	94.1	V	-	-	AVG	227	1.0	
5318.670	102.4	V	-	-	PK	227	1.0	

Band Edge Signal Field Strength

Restricted band starts at allocated band edge (5350MHz), field strength limit is 54dBuV/m average, 74dBuV/m peak.

Frequency MHz	Level dB μ V/m	Pol v/h	15.209 / 15.407		Detector Pk/QP/Avg	Azimuth degrees	Height meters	Comments
			Limit	Margin				
5350.190	48.7	V	54.0	-5.3	AVG	227	1.0	
5350.450	62.4	V	74.0	-11.6	PK	232	1.0	
5350.150	48.4	H	54.0	-5.6	AVG	162	1.1	
5350.400	61.7	H	74.0	-12.3	PK	167	1.1	



Client:	Intel Corporation	Job Number:	J72065
Model:	533AN-MMW with Amphenol PIFA antenna	T-Log Number:	T72191
Contact:	Robert Paxman	Account Manager:	Dean Eriksen
Standard:	RSS 210/FCC U-NII (Radiated)	Class:	N/A

Run #2: Radiated Spurious Emissions, Band Edges. Operating Mode: 802.11a - Chain B

Run #2a: Low Channel @ 5180 MHz (band edge at 5150 MHz)

Power Setting: 31.5 Average power: 17.1 (for reference purposes)

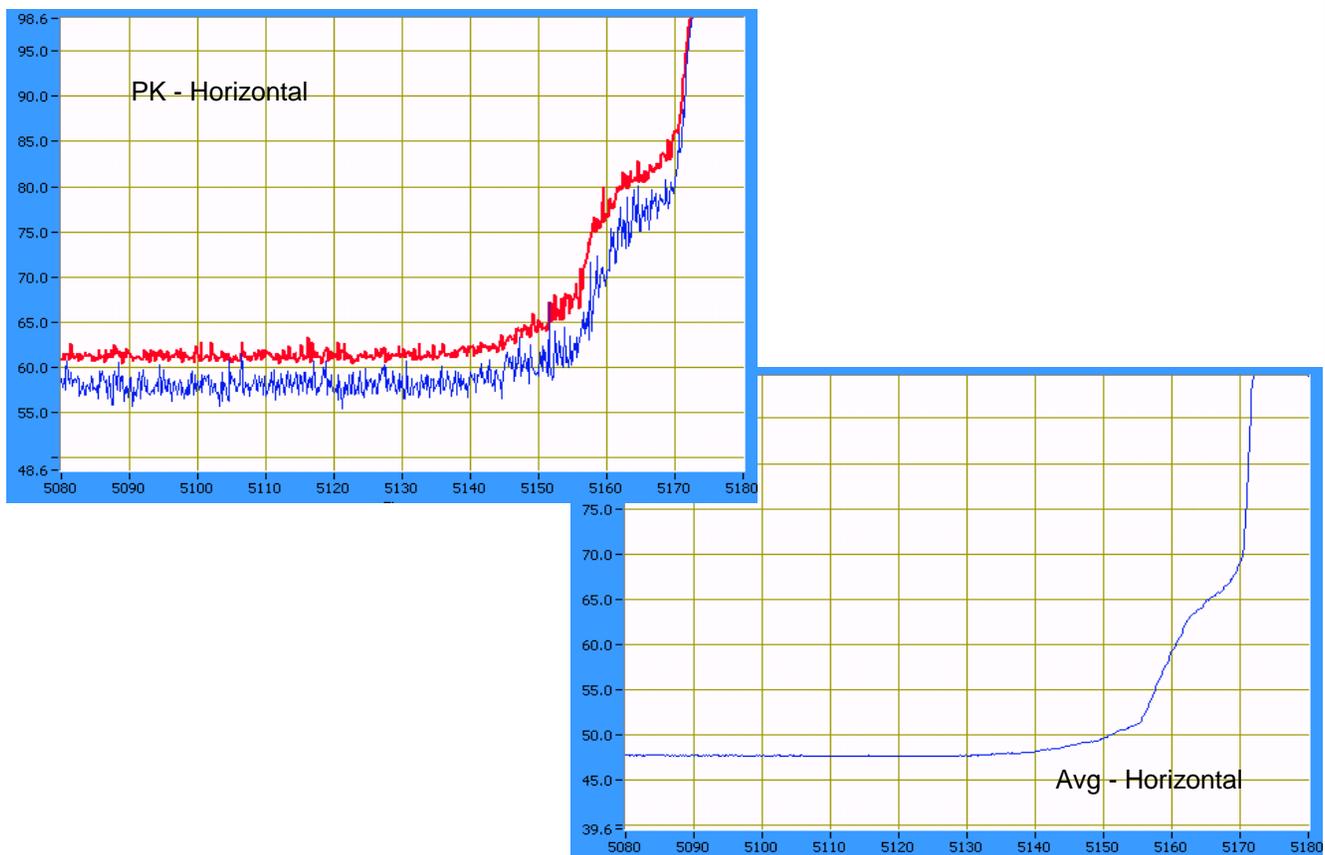
Fundamental Signal Field Strength: Peak and average values measured in 1 MHz, for reference only

Frequency MHz	Level dB μ V/m	Pol v/h	15.209 / 15.407		Detector Pk/QP/Avg	Azimuth degrees	Height meters	Comments
			Limit	Margin				
5181.080	90.8	V	-	-	AVG	134	1.0	
5181.080	99.4	V	-	-	PK	134	1.0	
5180.890	95.1	H	-	-	AVG	107	1.0	
5180.890	103.6	H	-	-	PK	107	1.0	

Band Edge Signal Field Strength

Restricted band starts at allocated band edge (5150MHz), field strength limit is 54dBuV/m average, 74dBuV/m peak.

Frequency MHz	Level dB μ V/m	Pol v/h	15.209 / 15.407		Detector Pk/QP/Avg	Azimuth degrees	Height meters	Comments
			Limit	Margin				
5149.790	50.2	H	54.0	-3.8	AVG	105	1.0	
5149.770	65.7	H	74.0	-8.3	PK	104	1.0	
5149.620	49.0	V	54.0	-5.0	AVG	133	1.0	
5149.730	63.6	V	74.0	-10.4	PK	135	1.0	



Client: Intel Corporation	Job Number: J72065
Model: 533AN-MMW with Amphenol PIFA antenna	T-Log Number: T72191
	Account Manager: Dean Eriksen
Contact: Robert Paxman	
Standard: RSS 210/FCC U-NII (Radiated)	Class: N/A

Run #2b: High Channel @ 5320 MHz (band edge at 5350 MHz)

Power Setting: 26.5 Average power: 16.5 (for reference purposes)

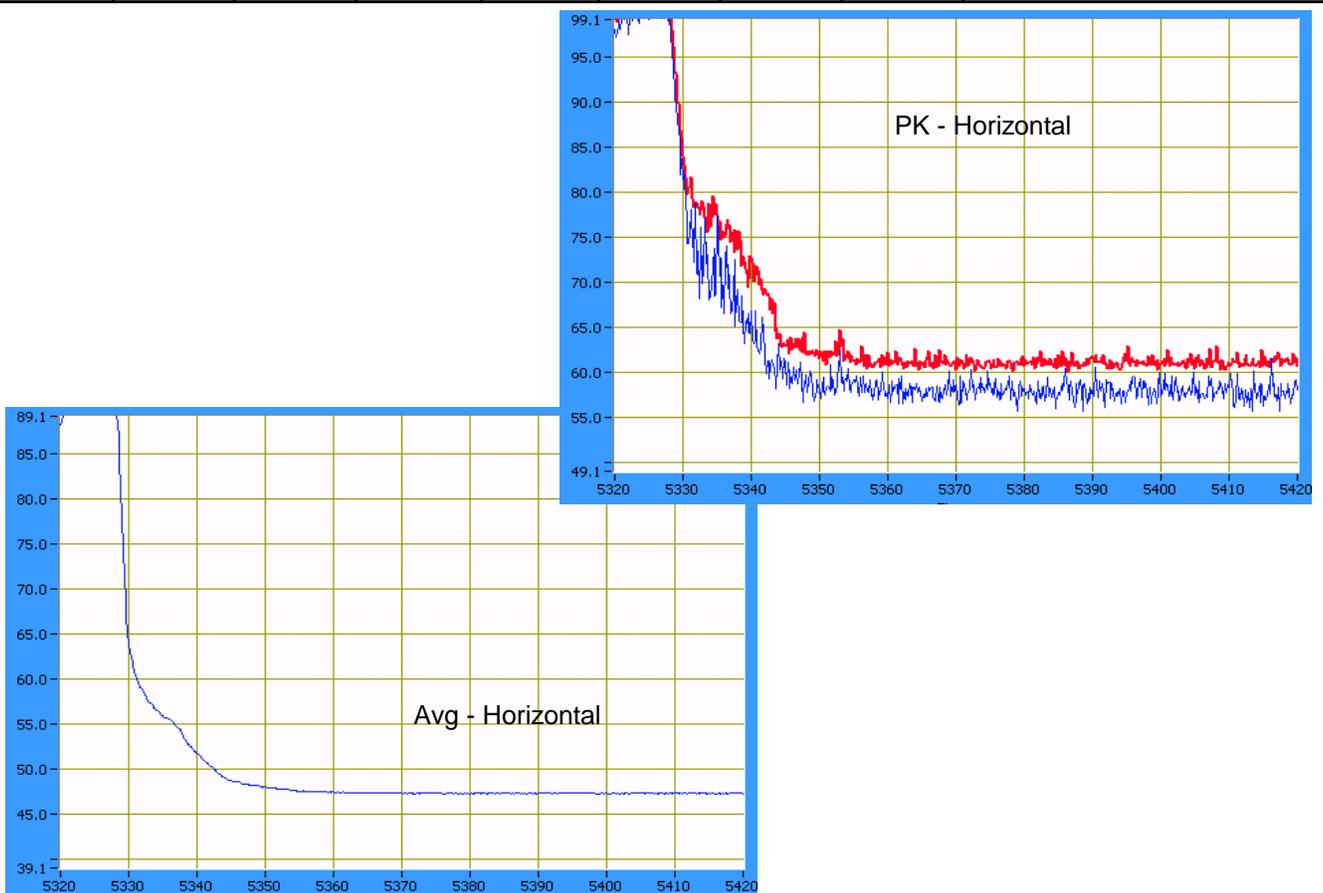
Fundamental Signal Field Strength: Peak and average values measured in 1 MHz, for reference only

Frequency MHz	Level dB μ V/m	Pol v/h	15.209 / 15.407		Detector PK/QP/Avg	Azimuth degrees	Height meters	Comments
			Limit	Margin				
5321.500	91.8	H	-	-	AVG	108	1.0	
5321.500	100.1	H	-	-	PK	108	1.0	
5321.480	89.1	V	-	-	AVG	126	1.0	
5321.480	97.4	V	-	-	PK	126	1.0	

Band Edge Signal Field Strength

Restricted band starts at allocated band edge (5350MHz), field strength limit is 54dBuV/m average, 74dBuV/m peak.

Frequency MHz	Level dB μ V/m	Pol v/h	15.209 / 15.407		Detector PK/QP/Avg	Azimuth degrees	Height meters	Comments
			Limit	Margin				
5350.150	48.3	H	54.0	-5.7	AVG	105	1.0	
5350.380	61.3	H	74.0	-12.7	PK	109	1.0	
5350.160	47.8	V	54.0	-6.2	AVG	130	1.0	
5350.430	60.3	V	74.0	-13.7	PK	132	1.0	



Client: Intel Corporation	Job Number: J72065
Model: 533AN-MMW with Amphenol PIFA antenna	T-Log Number: T72191
	Account Manager: Dean Eriksen
Contact: Robert Paxman	
Standard: RSS 210/FCC U-NII (Radiated)	Class: N/A

Run #3: Radiated Spurious Emissions, Band Edges. Operating Mode: 802.11a - Chain C

Run #3a: Low Channel @ 5180 MHz (band edge at 5150 MHz)

Power Setting: 31.0 Average power: 16.5 (for reference purposes)

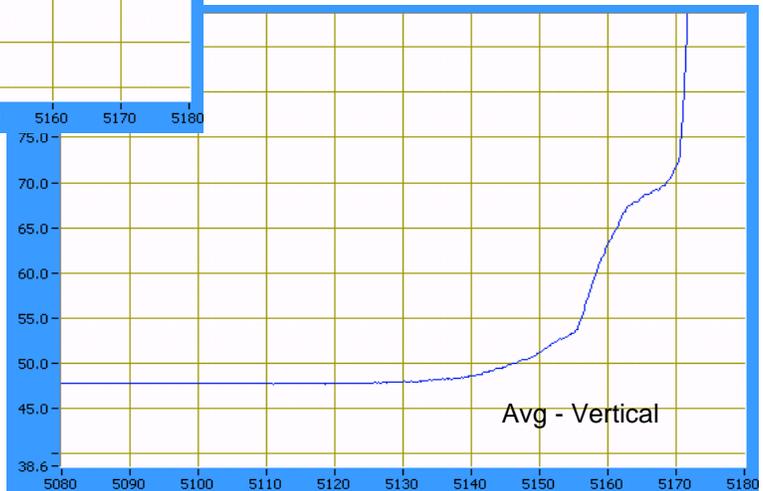
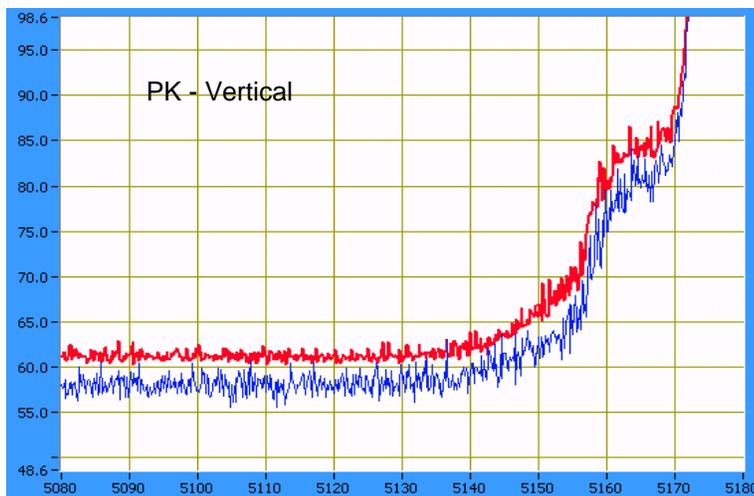
Fundamental Signal Field Strength: Peak and average values measured in 1 MHz, for reference only

Frequency MHz	Level dB μ V/m	Pol v/h	15.209 / 15.407		Detector PK/QP/Avg	Azimuth degrees	Height meters	Comments
			Limit	Margin				
5181.230	96.4	V	-	-	AVG	197	1.0	
5181.230	104.6	V	-	-	PK	197	1.0	
5181.350	95.1	H	-	-	AVG	110	1.0	
5181.350	103.5	H	-	-	PK	110	1.0	

Band Edge Signal Field Strength

Restricted band starts at allocated band edge (5150MHz), field strength limit is 54dBuV/m average, 74dBuV/m peak.

Frequency MHz	Level dB μ V/m	Pol v/h	15.209 / 15.407		Detector PK/QP/Avg	Azimuth degrees	Height meters	Comments
			Limit	Margin				
5149.780	52.1	V	54.0	-1.9	AVG	212	1.0	
5149.660	68.4	V	74.0	-5.6	PK	213	1.0	
5149.750	50.4	H	54.0	-3.6	AVG	109	1.0	
5149.700	66.2	H	74.0	-7.8	PK	110	1.0	



Client: Intel Corporation	Job Number: J72065
Model: 533AN-MMW with Amphenol PIFA antenna	T-Log Number: T72191
	Account Manager: Dean Eriksen
Contact: Robert Paxman	
Standard: RSS 210/FCC U-NII (Radiated)	Class: N/A

Run #3b: High Channel @ 5320 MHz (band edge at 5350 MHz)

Power Setting: 28.5 Average power: 16.5 (for reference purposes)

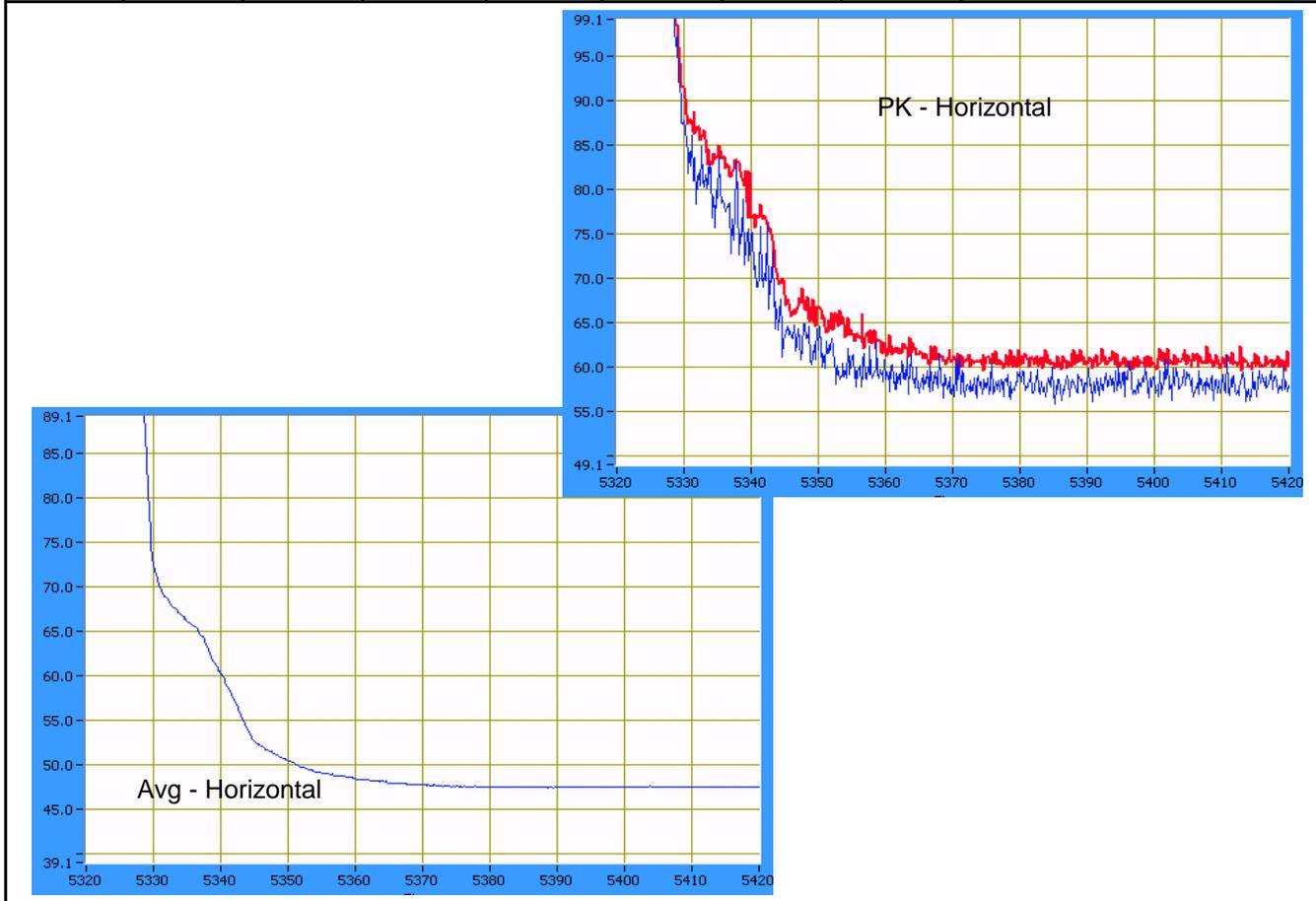
Fundamental Signal Field Strength: Peak and average values measured in 1 MHz, for reference only

Frequency MHz	Level dB μ V/m	Pol v/h	15.209 / 15.407		Detector PK/QP/Avg	Azimuth degrees	Height meters	Comments
			Limit	Margin				
5320.930	98.2	H	-	-	AVG	107	1.0	
5320.930	106.2	H	-	-	PK	107	1.0	
5321.180	98.4	V	-	-	AVG	211	1.0	
5321.180	106.4	V	-	-	PK	211	1.0	

Band Edge Signal Field Strength

Restricted band starts at allocated band edge (5350MHz), field strength limit is 54dBuV/m average, 74dBuV/m peak.

Frequency MHz	Level dB μ V/m	Pol v/h	15.209 / 15.407		Detector PK/QP/Avg	Azimuth degrees	Height meters	Comments
			Limit	Margin				
5350.170	50.8	H	54.0	-3.2	AVG	104	1.0	
5350.240	66.9	H	74.0	-7.1	PK	107	1.0	
5350.150	50.7	V	54.0	-3.3	AVG	208	1.0	
5350.310	66.6	V	74.0	-7.4	PK	212	1.0	



Client:	Intel Corporation	Job Number:	J72065
Model:	533AN-MMW with Amphenol PIFA antenna	T-Log Number:	T72191
		Account Manager:	Dean Eriksen
Contact:	Robert Paxman		
Standard:	RSS 210/FCC U-NII (Radiated)	Class:	N/A

**RSS 210 and FCC 15.E (U-NII, 5150- 550/5250-5350/5460-5725MHz)
Radiated Spurious Emissions 802.11a Amphenol Antenna**

Summary of Results

Run #	Mode	Channel	Power Setting	Measured Power	Test Performed	Limit	Result / Margin
1	802.11a Chain A	5180	31.5	16.5	Radiated Emissions, 1 - 40 GHz	FCC Part 15.209 / 15.407	802.11n20 MHz mode in single chain mode had higher emissions than 802.11a mode when evaluating the device with the ethertronics antenna at both harmonics and LO-related frequencies, therefore 802.11a mode is covered by tests performed in 802.11n20 mode.
		5200	31.0	16.6			
		5240	29.5	16.6			
2	802.11a Chain A	5260	29.0	16.7	Radiated Emissions, 1 - 40 GHz	FCC Part 15.209 / 15.407	
		5280	28.5	16.7			
		5320	27.0	16.5			
3	802.11a Chain A	5500	25.5	16.7	Radiated Emissions, 1 - 40 GHz	FCC Part 15.209 / 15.407	
		5600	25.5	16.6			
		5700	26.0	16.5			
4	802.11a Chain B	5180	31.0	16.5	Radiated Emissions, 1 - 40 GHz	FCC Part 15.209 / 15.407	
		5200	30.5	16.6			
		5240	30.5	16.6			
5	802.11a Chain B	5260	27.5	16.7	Radiated Emissions, 1 - 40 GHz	FCC Part 15.209 / 15.407	
		5280	27.0	16.7			
		5320	25.5	16.5			
6	802.11a Chain B	5500	24.5	16.5	Radiated Emissions, 1 - 40 GHz	FCC Part 15.209 / 15.407	
		5600	24.5	16.5			
		5700	25.0	16.7			
7	802.11a Chain C	5180	31.0	16.5	Radiated Emissions, 1 - 40 GHz	FCC Part 15.209 / 15.407	
		5200	30.5	16.5			
		5240	30.0	16.5			
8	802.11a Chain C	5260	29.5	16.6	Radiated Emissions, 1 - 40 GHz	FCC Part 15.209 / 15.407	
		5280	29.0	16.5			
		5320	28.5	16.5			
9	802.11a Chain C	5500	26.0	16.5	Radiated Emissions, 1 - 40 GHz	FCC Part 15.209 / 15.407	
		5600	25.5	16.5			
		5700	25.5	16.5			

Client:	Intel Corporation	Job Number:	J72065
Model:	533AN-MMW with Amphenol PIFA antenna	T-Log Number:	T72191
Contact:	Robert Paxman	Account Manager:	Dean Eriksen
Standard:	RSS 210/FCC U-NII (Radiated)	Class:	N/A

**RSS 210 and FCC 15.E (U-NII, 5150- 550/5250-5350/5460-5725MHz)
Band Edge Field Strength 802.11n20 Amphenol Antenna**

General Test Configuration

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

Ambient Conditions: Temperature: 15-25 °C
 Rel. Humidity: 35-55 %

Summary of Results

Run #	Mode	Channel	Power Setting	Measured Power	Test Performed	Limit	Result / Margin
1	802.11n20 Chain A	5180MHz	31.0	16.6	Band Edge radiated field strength	FCC Part 15.209	50.4dBµV/m @ 5149.6MHz (-3.6dB)
	802.11n20 Chain A	5320MHz	26.0	16.7	Band Edge radiated field strength	FCC Part 15.209	49.0dBµV/m @ 5350.2MHz (-5.0dB)
2	802.11n20 Chain B	5180MHz	30.5	16.5	Band Edge radiated field strength	FCC Part 15.209	51.8dBµV/m @ 5150.0MHz (-2.2dB)
	802.11n20 Chain B	5320MHz	27.0	16.5	Band Edge radiated field strength	FCC Part 15.209	72.0dBµV/m @ 5350.1MHz (-2.0dB)
3	802.11n20 Chain C	5180MHz	28.5	16.0	Band Edge radiated field strength	FCC Part 15.209	51.6dBµV/m @ 5149.8MHz (-2.4dB)
	802.11n20 Chain C	5320MHz	27.0	16.0	Band Edge radiated field strength	FCC Part 15.209	52.7dBµV/m @ 5350.0MHz (-1.3dB)
4	802.11n20 Chain A+B	5180MHz	27.5 28.0	13.5 13.7	Band Edge radiated field strength	FCC Part 15.209	49.2dBµV/m @ 5149.6MHz (-4.8dB)
	802.11n20 Chain A+B	5320MHz	23.5 25.0	13.5 13.5	Band Edge radiated field strength	FCC Part 15.209	49.6dBµV/m @ 5350.2MHz (-4.4dB)
5	802.11n20 Chain A+C	5180MHz	28.5 28.5	13.5 13.6	Band Edge field strength	FCC Part 15.209	49.5dBµV/m @ 5149.6MHz (-4.5dB)
	802.11n20 Chain A+C	5320MHz	24.0 26.0	13.6 13.5	Band Edge field strength	FCC Part 15.209	49.9dBµV/m @ 5350.2MHz (-4.1dB)
6	802.11n20 Chain B+C	5180MHz	29.5 29.0	13.6 13.5	Band Edge field strength	FCC Part 15.209	49.9dBµV/m @ 5149.6MHz (-4.1dB)
	802.11n20 Chain B+C	5320MHz	25.5 26.5	13.6 13.5	Band Edge field strength	FCC Part 15.209	49.9dBµV/m @ 5350.2MHz (-4.1dB)
7	802.11n20 A+B+C	5180MHz	30.5 30.0 30.5	12.0 12.0 12.2	Band Edge field strength	FCC Part 15.209	49.6dBµV/m @ 5148.2MHz (-4.4dB)
	802.11n20 A+B+C	5320MHz	27.0 26.0 27.0	12.2 12.2 12.0	Band Edge field strength	FCC Part 15.209	50.2dBµV/m @ 5350.0MHz (-3.8dB)

Client:	Intel Corporation	Job Number:	J72065
Model:	533AN-MMW with Amphenol PIFA antenna	T-Log Number:	T72191
		Account Manager:	Dean Eriksen
Contact:	Robert Paxman		
Standard:	RSS 210/FCC U-NII (Radiated)	Class:	N/A

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.

Run #1: Radiated Spurious Emissions, Band Edges. Operating Mode: 802.11n 20MHz - Chain A

Run #1a: Low Channel @ 5180 MHz (band edge at 5150 MHz)

Sample ID: MAC : 0016EA02D4D0

Date of Test: 7/3/2008

Test Engineer: Ben Jing

Test Location: FT Chamber # 3

Power Setting and average measurement (for reference)					
Chain A		Chain B		Chain C	
Setting	Avg	Setting	Avg	Setting	Avg
31.0	16.6				

Reduced from measured settings

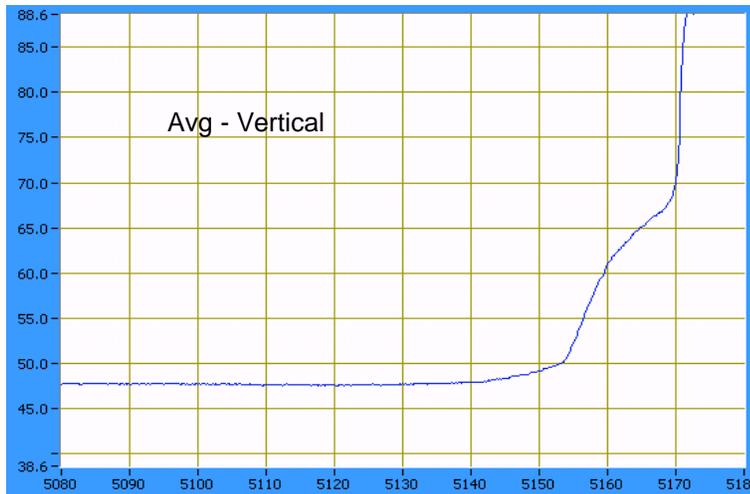
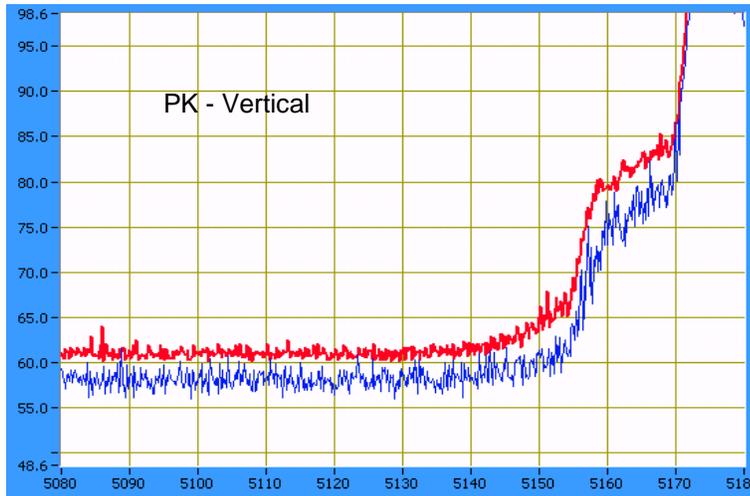
Fundamental Signal Field Strength: Peak and average values measured in 1 MHz, for reference only

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dB μ V/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5181.350	94.8	V	-	-	AVG	221	1.0	
5181.350	102.7	V	-	-	PK	221	1.0	
5181.330	94.0	H	-	-	AVG	141	1.0	
5181.330	103.1	H	-	-	PK	141	1.0	

Band Edge Signal Field Strength

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dB μ V/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5149.560	50.4	V	54.0	-3.6	AVG	221	1.0	
5149.700	67.1	V	74.0	-6.9	PK	217	1.0	
5149.560	49.8	H	54.0	-4.2	AVG	138	1.0	
5149.750	66.8	H	74.0	-7.2	PK	139	1.0	

Client:	Intel Corporation	Job Number:	J72065
Model:	533AN-MMW with Amphenol PIFA antenna	T-Log Number:	T72191
Contact:	Robert Paxman	Account Manager:	Dean Eriksen
Standard:	RSS 210/FCC U-NII (Radiated)	Class:	N/A



Client: Intel Corporation	Job Number: J72065
Model: 533AN-MMW with Amphenol PIFA antenna	T-Log Number: T72191
	Account Manager: Dean Eriksen
Contact: Robert Paxman	
Standard: RSS 210/FCC U-NII (Radiated)	Class: N/A

Run #1b: High Channel @ 5320 MHz (band edge at 5350 MHz)

Power Setting and average measurement (for reference)					
Chain A		Chain B		Chain C	
Setting	Avg	Setting	Avg	Setting	Avg
26.6	16.7				

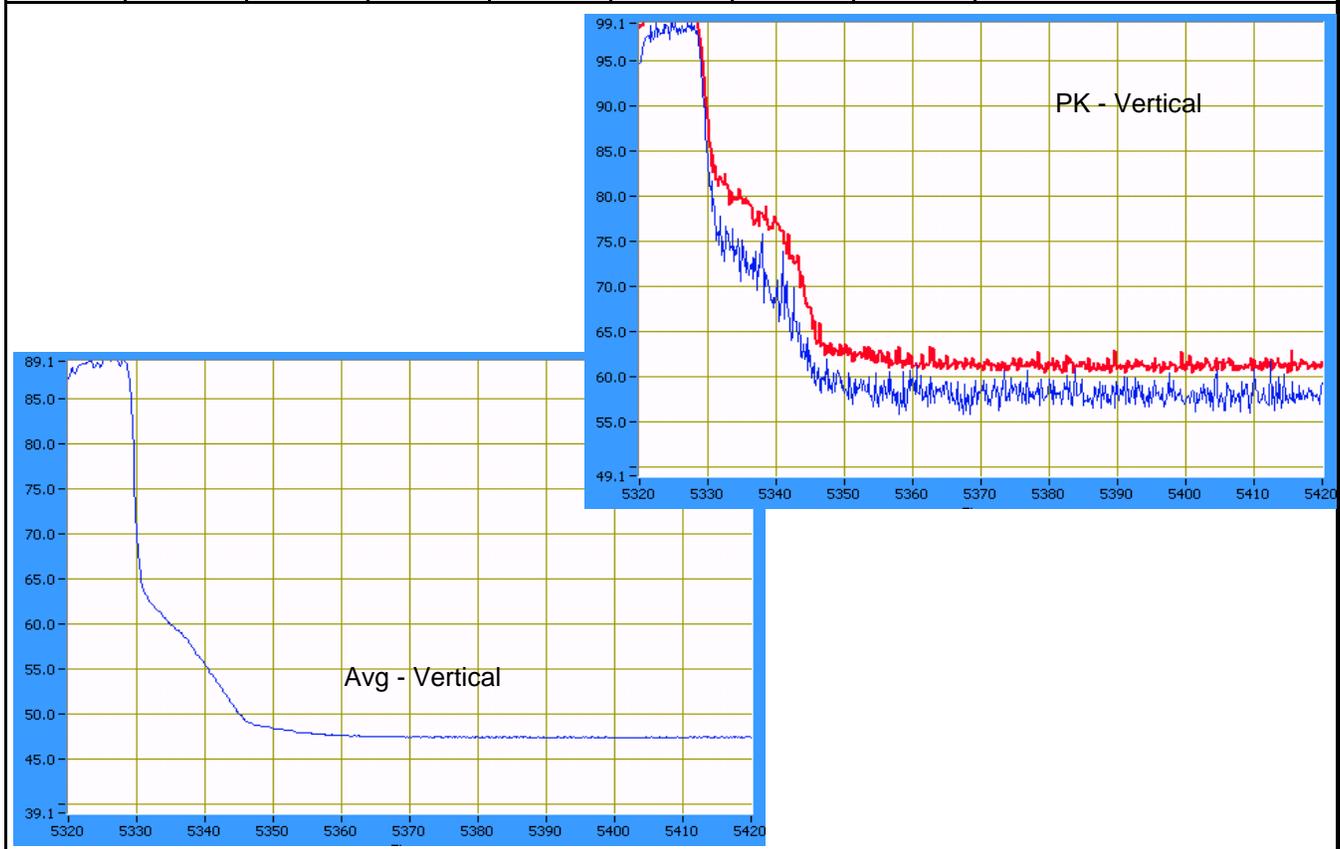
Reduced from measured settings

Fundamental Signal Field Strength: Peak and average values measured in 1 MHz, for reference only

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dB μ V/m	v/h	Limit	Margin	PK/QP/Avg	degrees	meters	
5321.420	93.3	H	-	-	AVG	166	1.0	
5321.420	101.1	H	-	-	PK	166	1.0	
5321.320	94.6	V	-	-	AVG	231	1.0	
5321.320	102.9	V	-	-	PK	231	1.0	

Band Edge Signal Field Strength

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dB μ V/m	v/h	Limit	Margin	PK/QP/Avg	degrees	meters	
5350.150	49.0	V	54.0	-5.0	AVG	173	1.0	
5350.420	63.1	V	74.0	-10.9	PK	172	1.0	
5350.150	49.0	H	54.0	-5.0	AVG	258	1.0	
5350.240	63.1	H	74.0	-10.9	PK	252	1.0	



Client: Intel Corporation	Job Number: J72065
Model: 533AN-MMW with Amphenol PIFA antenna	T-Log Number: T72191
	Account Manager: Dean Eriksen
Contact: Robert Paxman	
Standard: RSS 210/FCC U-NII (Radiated)	Class: N/A

Run #2: Radiated Spurious Emissions, Band Edges. Operating Mode: 802.11n 20MHz - Chain B

Run #2a: Low Channel @ 5180 MHz (band edge at 5150 MHz)

Sample ID: MAC : 0016EA02D4D0
 Date of Test: 7/7/2008
 Test Engineer: John Caizzi
 Test Location: Ft #3

Power Setting and average measurement (for reference)					
Chain A		Chain B		Chain C	
Setting	Avg	Setting	Avg	Setting	Avg
		30.5	16.5		

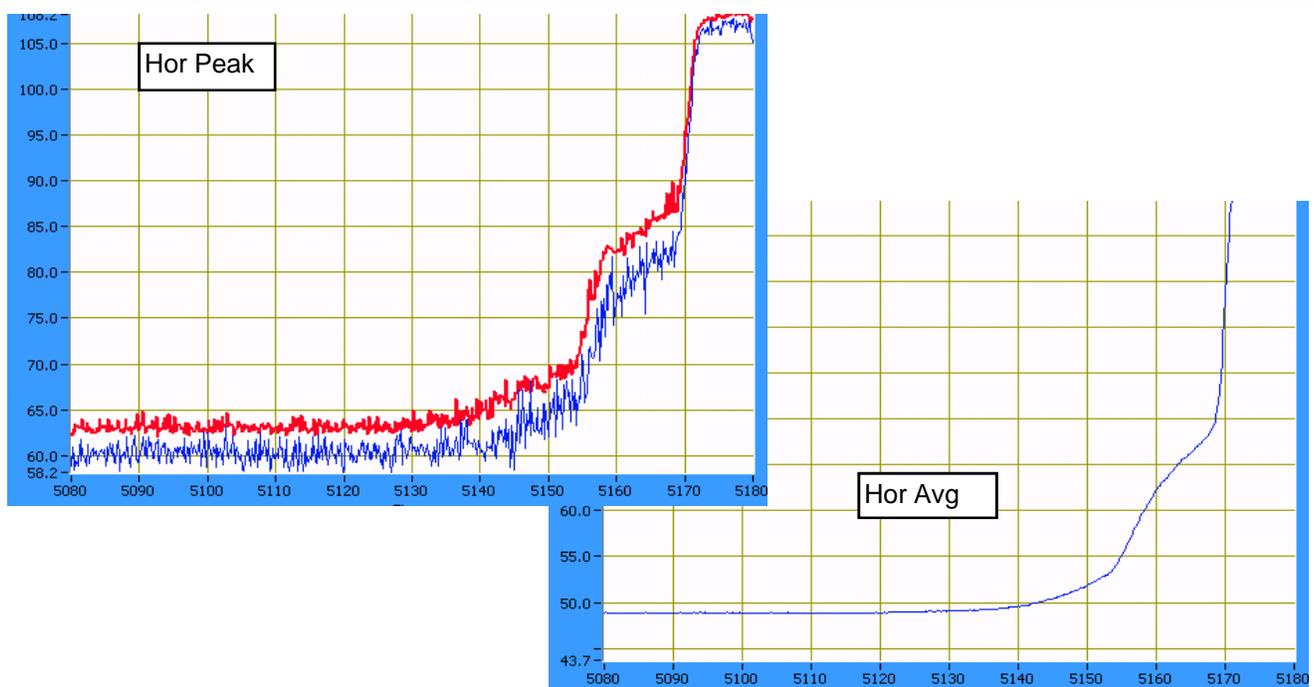
Measured Settings

Fundamental Signal Field Strength: Peak and average values measured in 1 MHz, for reference only

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dB μ V/m	v/h	Limit	Margin	PK/QP/Avg	degrees	meters	
5184.250	101.2	H	105.3	-4.1	AVG	305	1.2	
5184.250	110.3	H	125.3	-15.0	PK	305	1.2	
5187.080	94.1	V	105.3	-11.2	AVG	262	1.5	
5187.080	103.8	V	125.3	-21.5	PK	262	1.5	

Band Edge Signal Field Strength

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dB μ V/m	v/h	Limit	Margin	PK/QP/Avg	degrees	meters	
5149.960	51.8	H	54.0	-2.2	Avg	305	1.2	
5147.520	67.9	H	74.0	-6.1	PK	305	1.2	
5149.890	50.8	V	54.0	-3.2	AVG	263	1.5	
5149.100	65.4	V	74.0	-8.6	PK	263	1.5	



Client: Intel Corporation	Job Number: J72065
Model: 533AN-MMW with Amphenol PIFA antenna	T-Log Number: T72191
	Account Manager: Dean Eriksen
Contact: Robert Paxman	
Standard: RSS 210/FCC U-NII (Radiated)	Class: N/A

Run #2b: High Channel @ 5320 MHz (band edge at 5350 MHz)

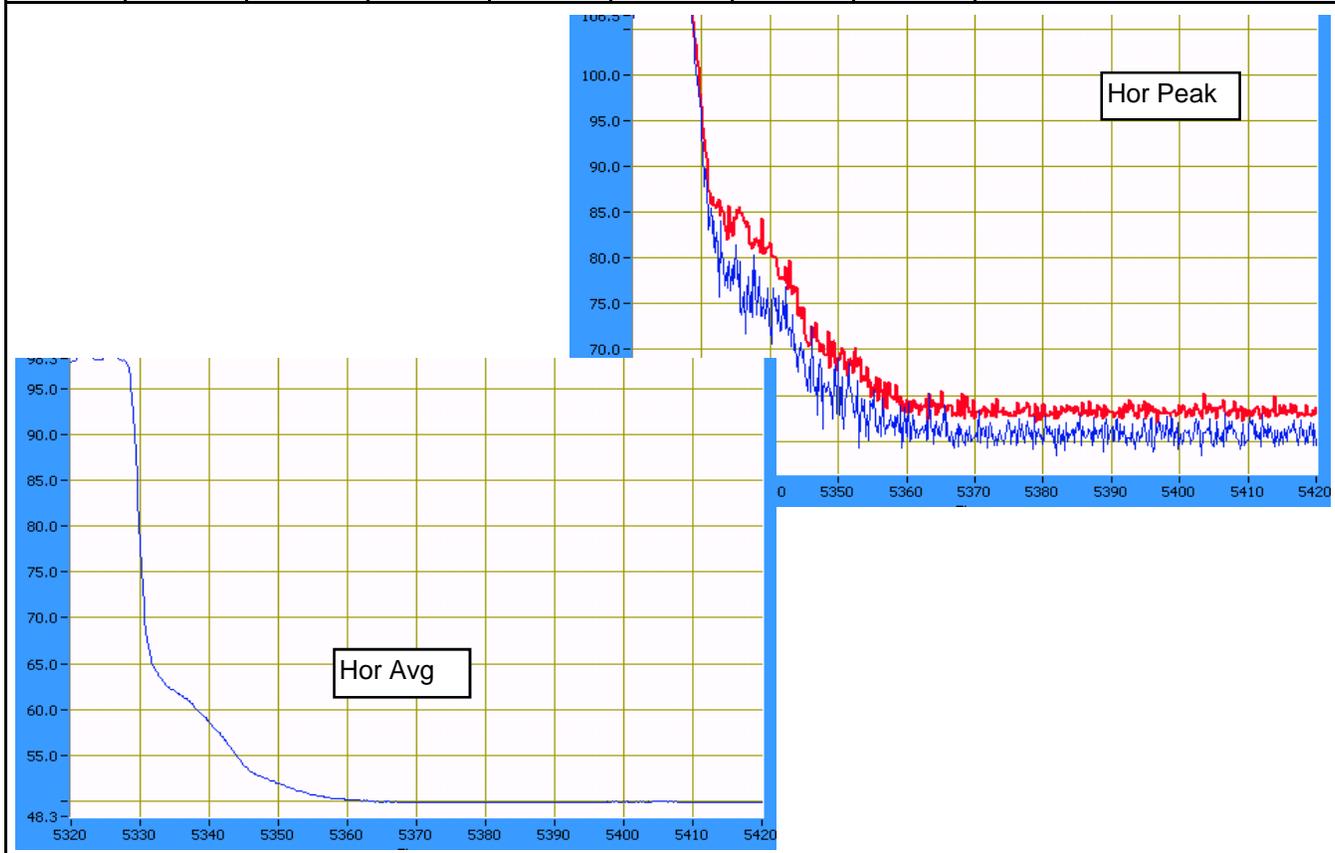
Power Setting and average measurement (for reference)					
Chain A		Chain B		Chain C	
Setting	Avg	Setting	Avg	Setting	Avg
		27	16.5		

Fundamental Signal Field Strength: Peak and average values measured in 1 MHz, for reference only

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dB μ V/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5324.670	101.4	H	112.3	-10.9	AVG	307	1.2	
5324.670	109.6	H	132.3	-22.7	PK	307	1.2	
5314.420	94.3	V	112.3	-18.0	AVG	348	1.0	
5314.420	103.0	V	132.3	-29.3	PK	348	1.0	

Band Edge Signal Field Strength

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dB μ V/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5350.050	72.0	H	74.0	-2.0	PK	307	1.2	
5350.010	51.9	H	54.0	-2.1	AVG	307	1.2	
5352.650	51.0	V	54.0	-3.0	AVG	348	1.0	
5350.600	66.3	V	74.0	-7.7	PK	348	1.0	



Client: Intel Corporation	Job Number: J72065
Model: 533AN-MMW with Amphenol PIFA antenna	T-Log Number: T72191
	Account Manager: Dean Eriksen
Contact: Robert Paxman	
Standard: RSS 210/FCC U-NII (Radiated)	Class: N/A

Run #3: Radiated Spurious Emissions, Band Edges. Operating Mode: 802.11n 20MHz - Chain C
Run #3a: Low Channel @ 5180 MHz (band edge at 5150 MHz)

Date of Test: 7/8/2008
 Test Engineer: Peter Sales
 Test Location: Fremont Chamber #3

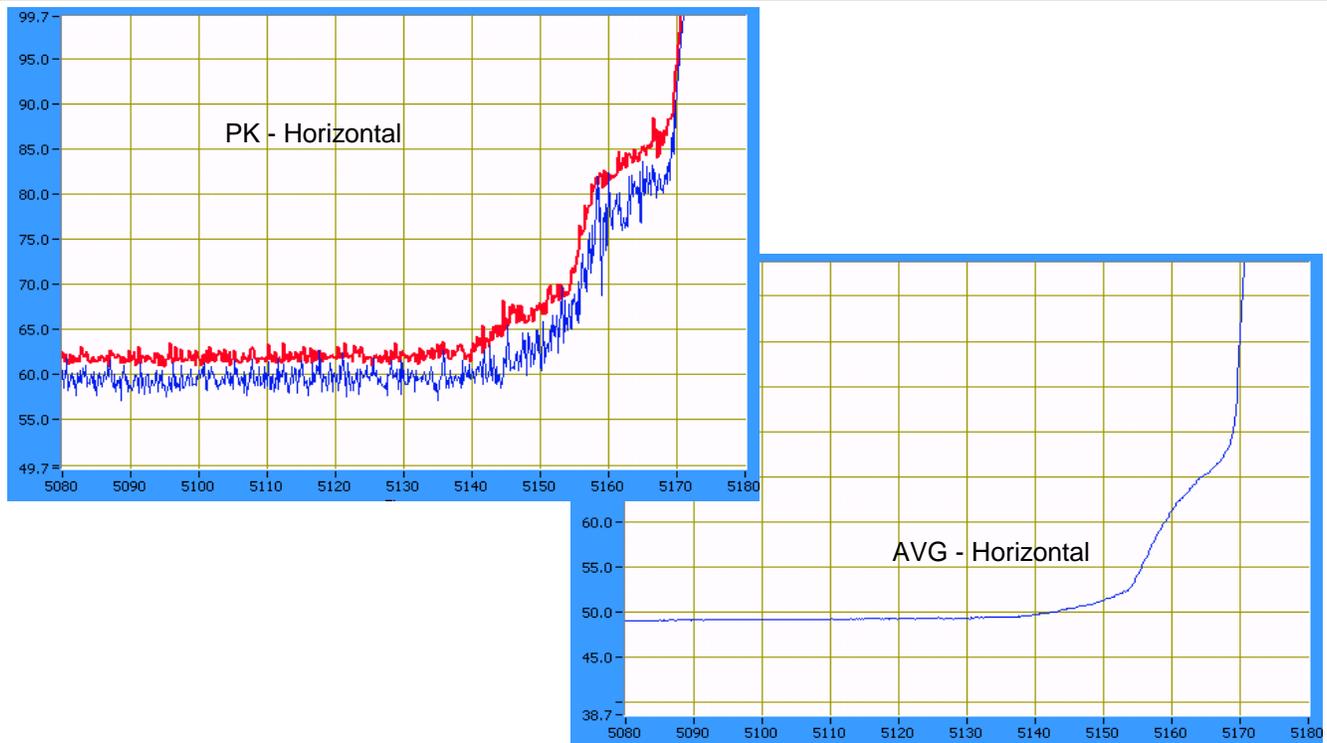
Power Setting and average measurement (for reference)					
Chain A		Chain B		Chain C	
Setting	Avg	Setting	Avg	Setting	Avg
				28.5	16.0

Fundamental Signal Field Strength: Peak and average values measured in 1 MHz, for reference only

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dB μ V/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5172.300	95.2	V	-	-	AVG	204	1.3	
5172.300	103.3	V	-	-	PK	204	1.3	
5174.800	101.6	H	-	-	AVG	112	1.0	
5174.800	109.9	H	-	-	PK	112	1.0	

Band Edge Signal Field Strength

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dB μ V/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5148.020	68.3	H	74.0	-5.7	PK	112	1.0	
5149.810	51.6	H	54.0	-2.4	AVG	112	1.0	
5147.580	62.8	V	74.0	-11.2	PK	204	1.0	
5149.650	49.6	V	54.0	-4.4	AVG	204	1.0	



Client: Intel Corporation	Job Number: J72065
Model: 533AN-MMW with Amphenol PIFA antenna	T-Log Number: T72191
	Account Manager: Dean Eriksen
Contact: Robert Paxman	
Standard: RSS 210/FCC U-NII (Radiated)	Class: N/A

Run #3b: High Channel @ 5320 MHz (band edge at 5350 MHz)

Sample ID:
Date of Test: 7/8/2008
Test Engineer: Peter Sales
Test Location: Fremont Chamber #3

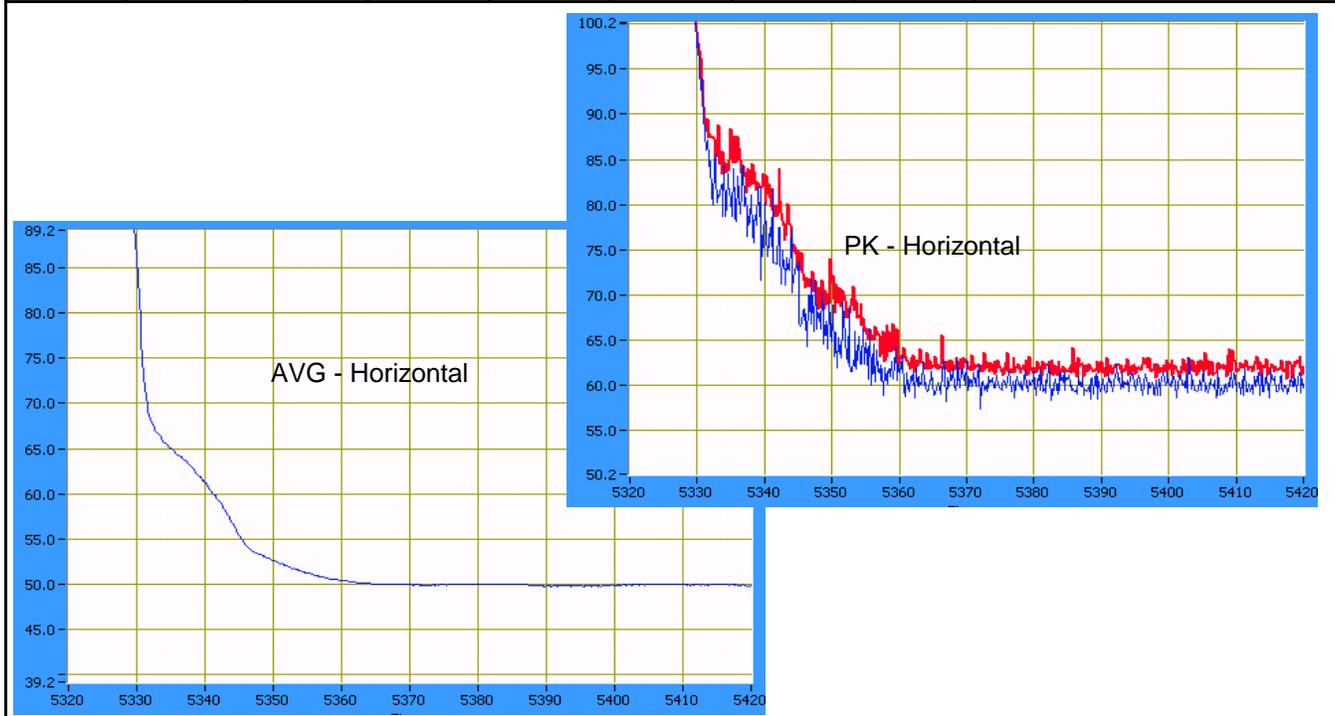
Power Setting and average measurement (for reference)					
Chain A		Chain B		Chain C	
Setting	Avg	Setting	Avg	Setting	Avg
				27.0	16.0

Fundamental Signal Field Strength: Peak and average values measured in 1 MHz, for reference only

Frequency MHz	Level dB μ V/m	Pol v/h	15.209 / 15.247		Detector Pk/QP/Avg	Azimuth degrees	Height meters	Comments
			Limit	Margin				
5323.470	94.5	V	-	-	AVG	199	1.2	
5323.470	103.6	V	-	-	PK	199	1.2	
5325.230	103.6	H	-	-	AVG	114	1.0	
5325.230	112.5	H	-	-	PK	114	1.0	

Band Edge Signal Field Strength

Frequency MHz	Level dB μ V/m	Pol v/h	15.209 / 15.247		Detector Pk/QP/Avg	Azimuth degrees	Height meters	Comments
			Limit	Margin				
5352.260	72.1	H	74.0	-1.9	PK	114	1.0	
5350.000	52.7	H	54.0	-1.3	AVG	114	1.0	
5352.300	65.2	V	74.0	-8.8	PK	199	1.0	
5350.060	50.3	V	54.0	-3.7	AVG	199	1.0	



Client:	Intel Corporation	Job Number:	J72065
Model:	533AN-MMW with Amphenol PIFA antenna	T-Log Number:	T72191
Contact:	Robert Paxman	Account Manager:	Dean Eriksen
Standard:	RSS 210/FCC U-NII (Radiated)	Class:	N/A

Sample ID: MAC : 0016EA02D4D0
 Date of Test: 7/7/2008
 Test Engineer: Ben Jing
 Test Location: Ft #3

Run #4: Radiated Spurious Emissions, Band Edges. Operating Mode: 802.11n 20MHz - Chain A+B

Run #4a: Low Channel @ 5180 MHz (band edge at 5150 MHz)

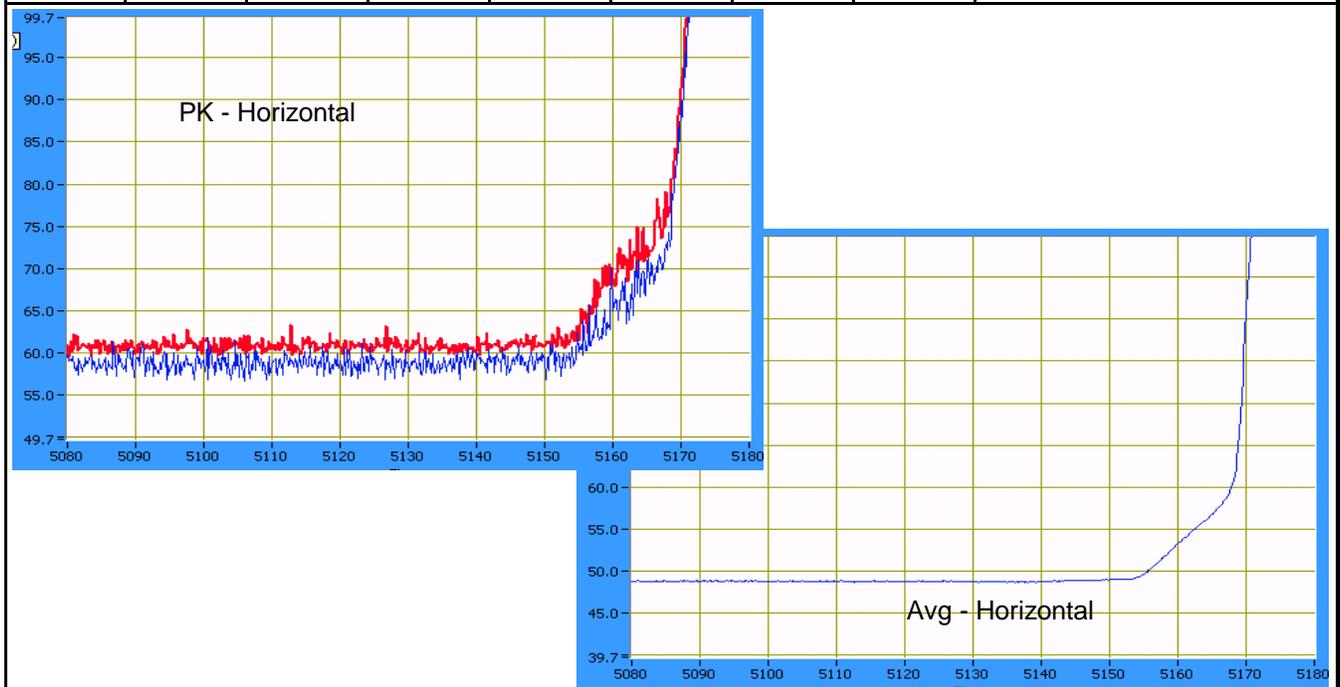
Power Setting and average measurement (for reference)					
Chain A		Chain B		Chain C	
Setting	Avg	Setting	Avg	Setting	Avg
27.5	13.5	28.0	13.7		

Fundamental Signal Field Strength: Peak and average values measured in 1 MHz, for reference only

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dB μ V/m	v/h	Limit	Margin	PK/QP/Avg	degrees	meters	
5181.200	93.8	V	105.3	-11.5	AVG	35	1.0	
5181.200	103.5	V	125.3	-21.8	PK	35	1.0	
5180.940	98.8	H	105.3	-6.5	AVG	307	1.0	
5180.940	108.3	H	125.3	-17.0	PK	307	1.0	

Band Edge Signal Field Strength

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dB μ V/m	v/h	Limit	Margin	PK/QP/Avg	degrees	meters	
5149.550	49.2	H	54.0	-4.8	AVG	303	1.0	
5149.550	62.4	H	74.0	-11.6	PK	311	1.0	
5149.550	48.9	V	54.0	-5.1	AVG	65	1.0	
5149.700	60.8	V	74.0	-13.2	PK	47	1.0	



Client: Intel Corporation	Job Number: J72065
Model: 533AN-MMW with Amphenol PIFA antenna	T-Log Number: T72191
	Account Manager: Dean Eriksen
Contact: Robert Paxman	
Standard: RSS 210/FCC U-NII (Radiated)	Class: N/A

Run #4b: High Channel @ 5320 MHz (band edge at 5350 MHz)

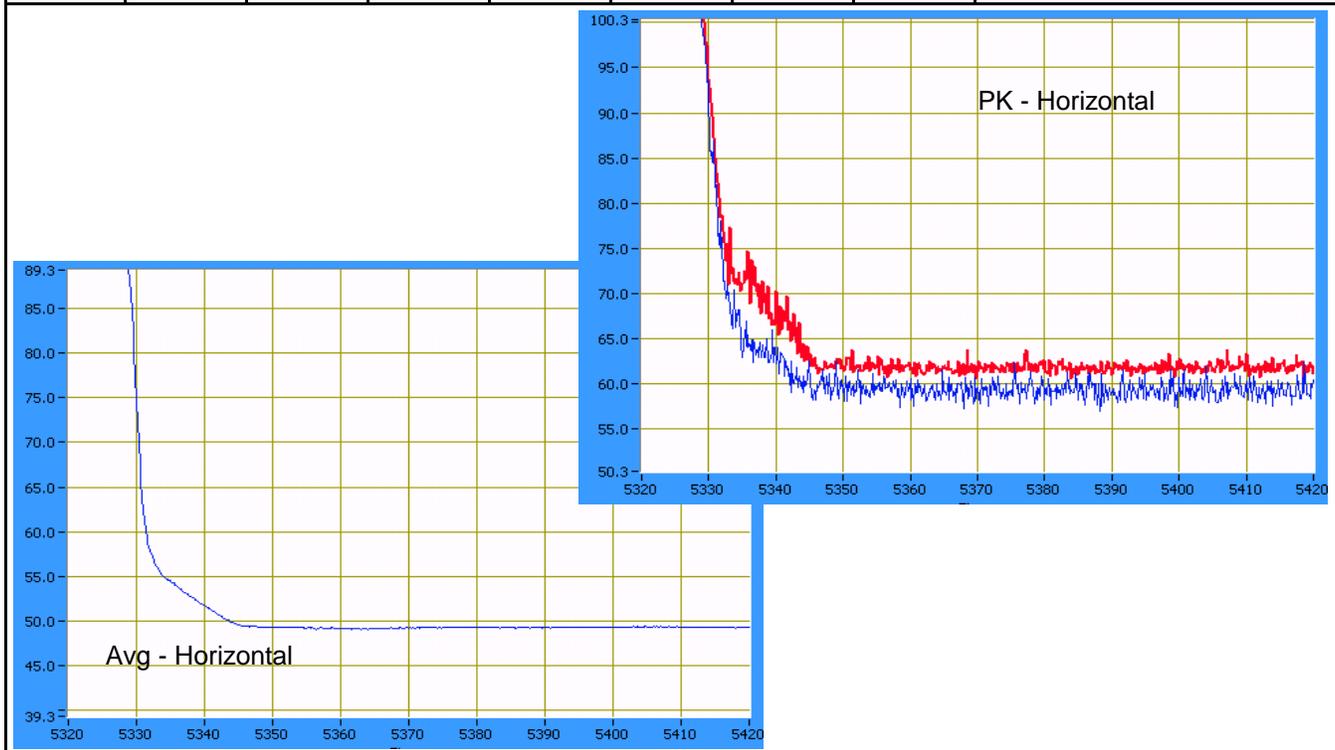
Power Setting and average measurement (for reference)					
Chain A		Chain B		Chain C	
Setting	Avg	Setting	Avg	Setting	Avg
23.5	13.5	25.0	13.5		

Fundamental Signal Fields

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dB μ V/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5319.200	94.2	V	112.3	-18.1	AVG	9	1.0	
5319.200	104.5	V	132.3	-27.8	PK	9	1.0	
5320.730	99.2	H	112.3	-13.1	AVG	317	1.0	
5320.730	109.7	H	132.3	-22.6	PK	317	1.0	

Band Edge Signal Field Strength

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dB μ V/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5350.150	49.6	H	54.0	-4.4	AVG	336	1.0	
5350.390	62.0	H	74.0	-12.0	PK	327	1.0	
5350.240	49.3	V	54.0	-4.7	AVG	14	1.0	
5350.260	61.1	V	74.0	-12.9	PK	8	1.0	



Client: Intel Corporation	Job Number: J72065
Model: 533AN-MMW with Amphenol PIFA antenna	T-Log Number: T72191
	Account Manager: Dean Eriksen
Contact: Robert Paxman	
Standard: RSS 210/FCC U-NII (Radiated)	Class: N/A

Run #5a: Low Channel @ 5180 MHz (band edge at 5150 MHz)

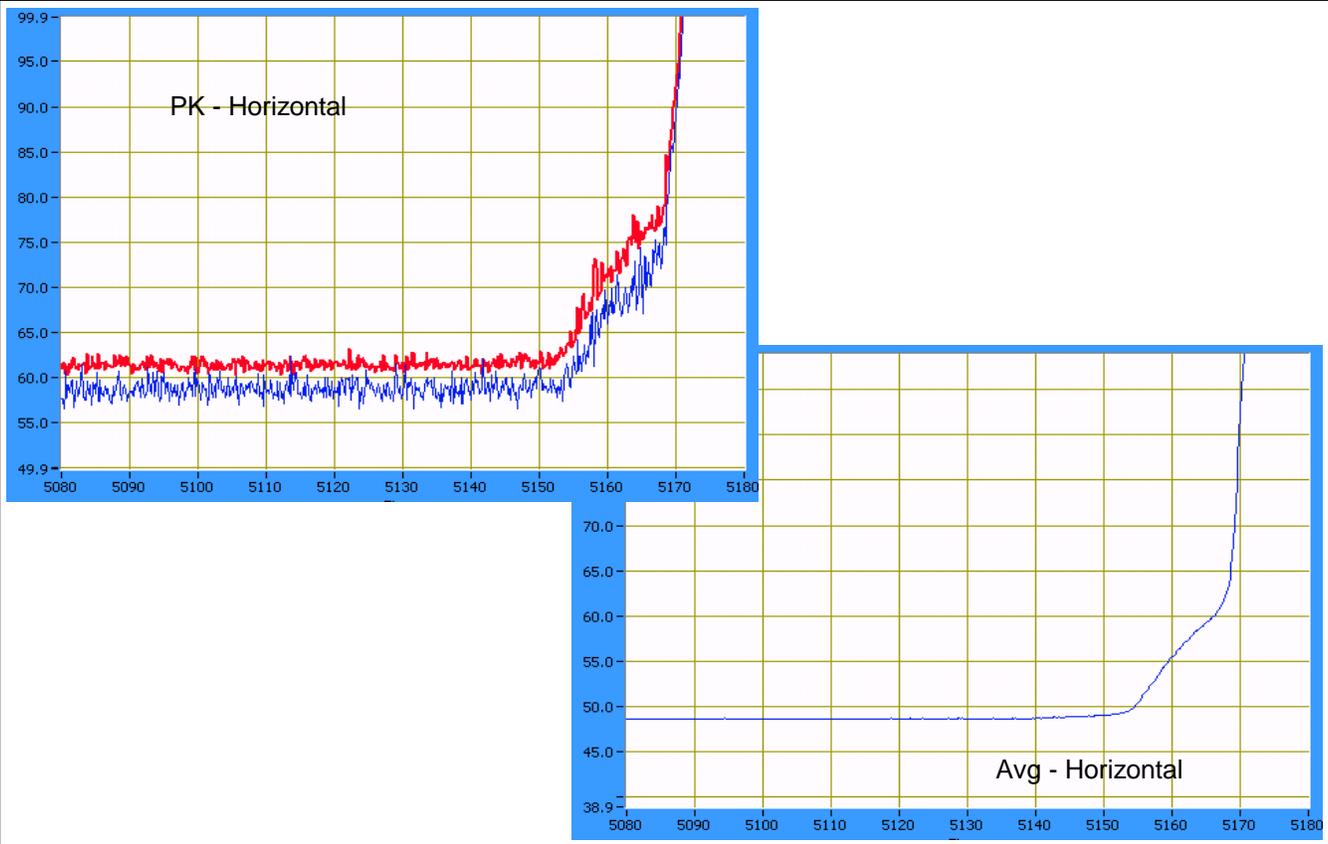
Setting	Avg	Setting	Avg	Setting	Avg
28.5	13.5			28.5	13.6

Fundamental Signal Field Strength: Peak and average values measured in 1 MHz, for reference only

Frequency MHz	Level dB μ V/m	Pol v/h	15.209 / 15.247		Detector PK/QP/Avg	Azimuth degrees	Height meters	Comments
			Limit	Margin				
5181.340	98.0	V	105.3	-7.3	AVG	9	1.2	
5181.340	107.3	V	125.3	-18.0	PK	9	1.2	
5178.730	99.9	H	105.3	-5.4	AVG	294	1.0	
5178.730	110.1	H	125.3	-15.2	PK	294	1.0	

Band Edge Signal Field Strength

Frequency MHz	Level dB μ V/m	Pol v/h	15.209 / 15.247		Detector PK/QP/Avg	Azimuth degrees	Height meters	Comments
			Limit	Margin				
5149.550	49.5	H	54.0	-4.5	AVG	289	1.0	
5149.720	63.0	H	74.0	-11.0	PK	321	1.0	
5149.550	49.2	V	54.0	-4.8	AVG	8	1.0	
5149.710	62.1	V	74.0	-11.9	PK	0	1.0	



Client:	Intel Corporation	Job Number:	J72065
Model:	533AN-MMW with Amphenol PIFA antenna	T-Log Number:	T72191
Contact:	Robert Paxman	Account Manager:	Dean Eriksen
Standard:	RSS 210/FCC U-NII (Radiated)	Class:	N/A

Run #5b: High Channel @ 5320 MHz (band edge at 5350 MHz)

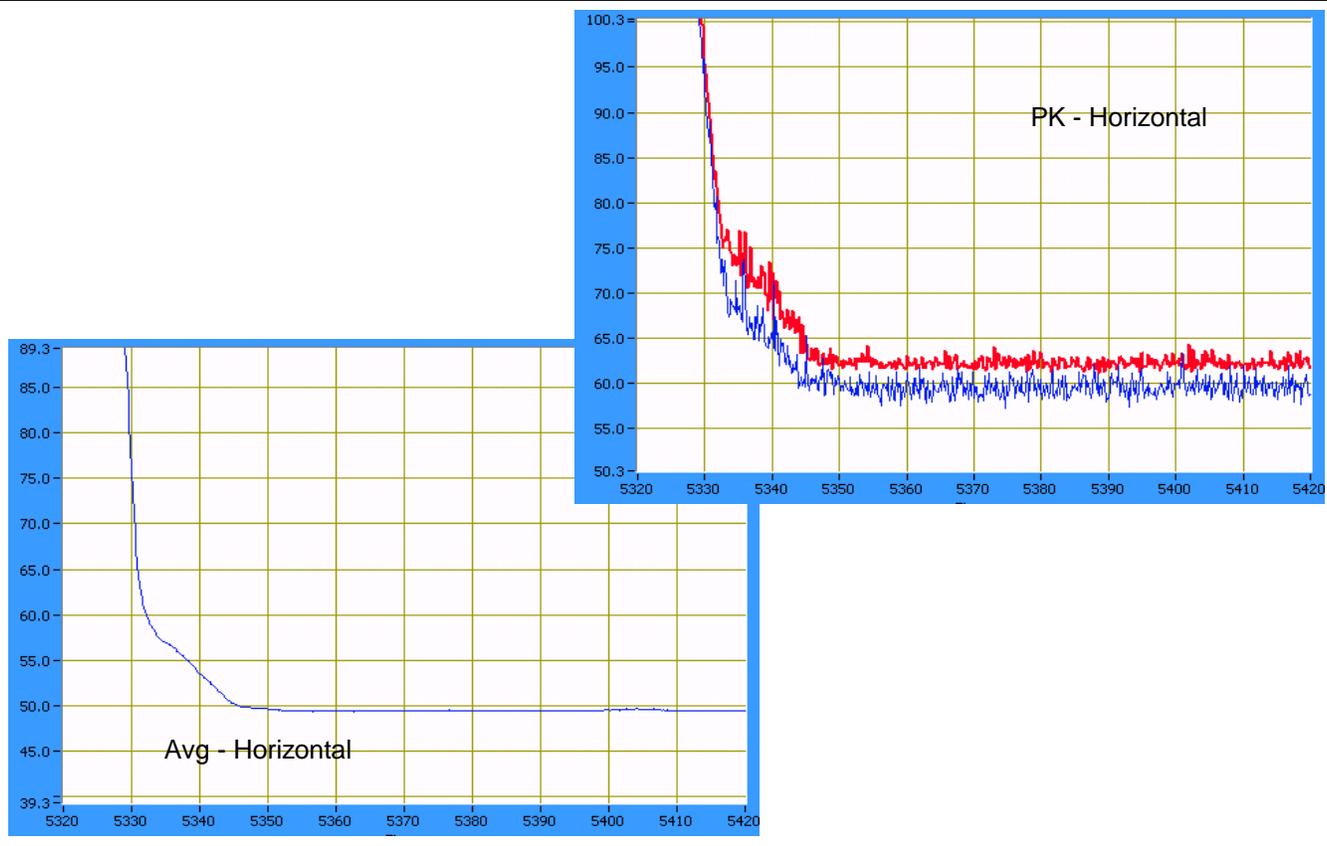
Power Setting and average measurement (for reference)					
Chain A		Chain B		Chain C	
Setting	Avg	Setting	Avg	Setting	Avg
24.0	13.6			26.0	13.5

Fundamental Signal Field Strength: Peak and average values measured in 1 MHz, for reference only

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dB μ V/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5321.420	96.6	V	112.3	-15.7	AVG	12	1.0	
5321.420	106.3	V	132.3	-26.0	PK	12	1.0	
5318.900	101.4	H	112.3	-10.9	AVG	294	1.0	
5318.900	110.7	H	132.3	-21.6	PK	294	1.0	

Band Edge Signal Field Strength

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dB μ V/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5350.160	49.9	H	54.0	-4.1	AVG	297	1.0	
5350.370	64.0	H	74.0	-10.0	PK	295	1.0	
5350.220	49.4	V	54.0	-4.6	AVG	22	1.0	
5350.310	61.6	V	74.0	-12.4	PK	13	1.0	



Client:	Intel Corporation	Job Number:	J72065
Model:	533AN-MMW with Amphenol PIFA antenna	T-Log Number:	T72191
Contact:	Robert Paxman	Account Manager:	Dean Eriksen
Standard:	RSS 210/FCC U-NII (Radiated)	Class:	N/A

Run #6: Radiated Spurious Emissions, Band Edges. Operating Mode: 802.11n 20MHz - Chain B+C
 Run #6a: Low Channel @ 5180 MHz (band edge at 5150 MHz)

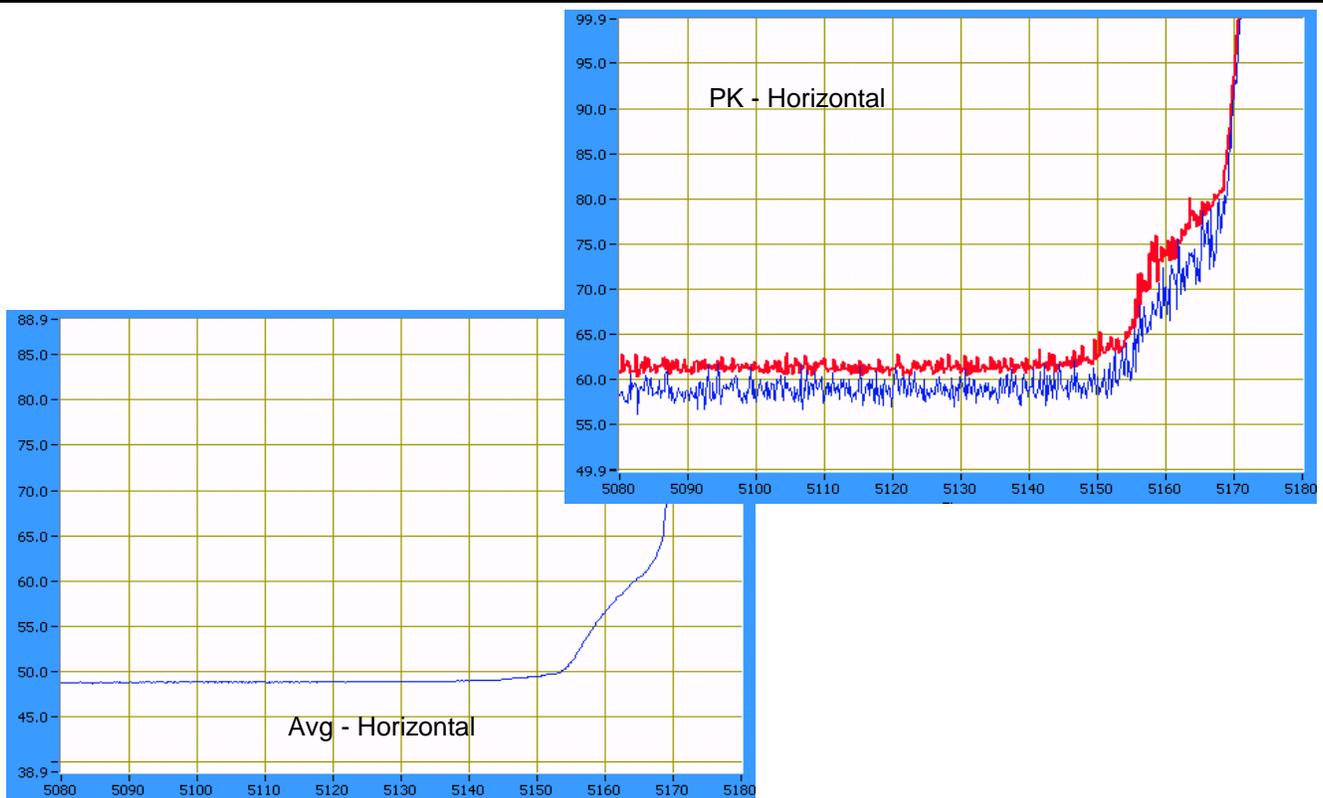
Power Setting and average measurement (for reference)					
Chain A		Chain B		Chain C	
Setting	Avg	Setting	Avg	Setting	Avg
		29.5	13.6	29.0	13.5

Fundamental Signal Field Strength: Peak and average values measured in 1 MHz, for reference only

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dB μ V/m	v/h	Limit	Margin	PK/QP/Avg	degrees	meters	
5178.850	95.5	V	105.3	-9.8	AVG	14	1.0	
5178.850	105.9	V	125.3	-19.4	PK	14	1.0	
5181.480	100.8	H	105.3	-4.5	AVG	286	1.1	
5181.480	110.4	H	125.3	-14.9	PK	286	1.1	

Band Edge Signal Field Strength

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dB μ V/m	v/h	Limit	Margin	PK/QP/Avg	degrees	meters	
5149.570	49.9	H	54.0	-4.1	AVG	282	1.1	
5149.840	64.7	H	74.0	-9.3	PK	282	1.1	
5149.550	49.1	V	54.0	-4.9	AVG	15	1.0	
5149.550	62.9	V	74.0	-11.1	PK	15	1.0	



Client:	Intel Corporation	Job Number:	J72065
Model:	533AN-MMW with Amphenol PIFA antenna	T-Log Number:	T72191
Contact:	Robert Paxman	Account Manager:	Dean Eriksen
Standard:	RSS 210/FCC U-NII (Radiated)	Class:	N/A

Run #6b: High Channel @ 5320 MHz (band edge at 5350 MHz)

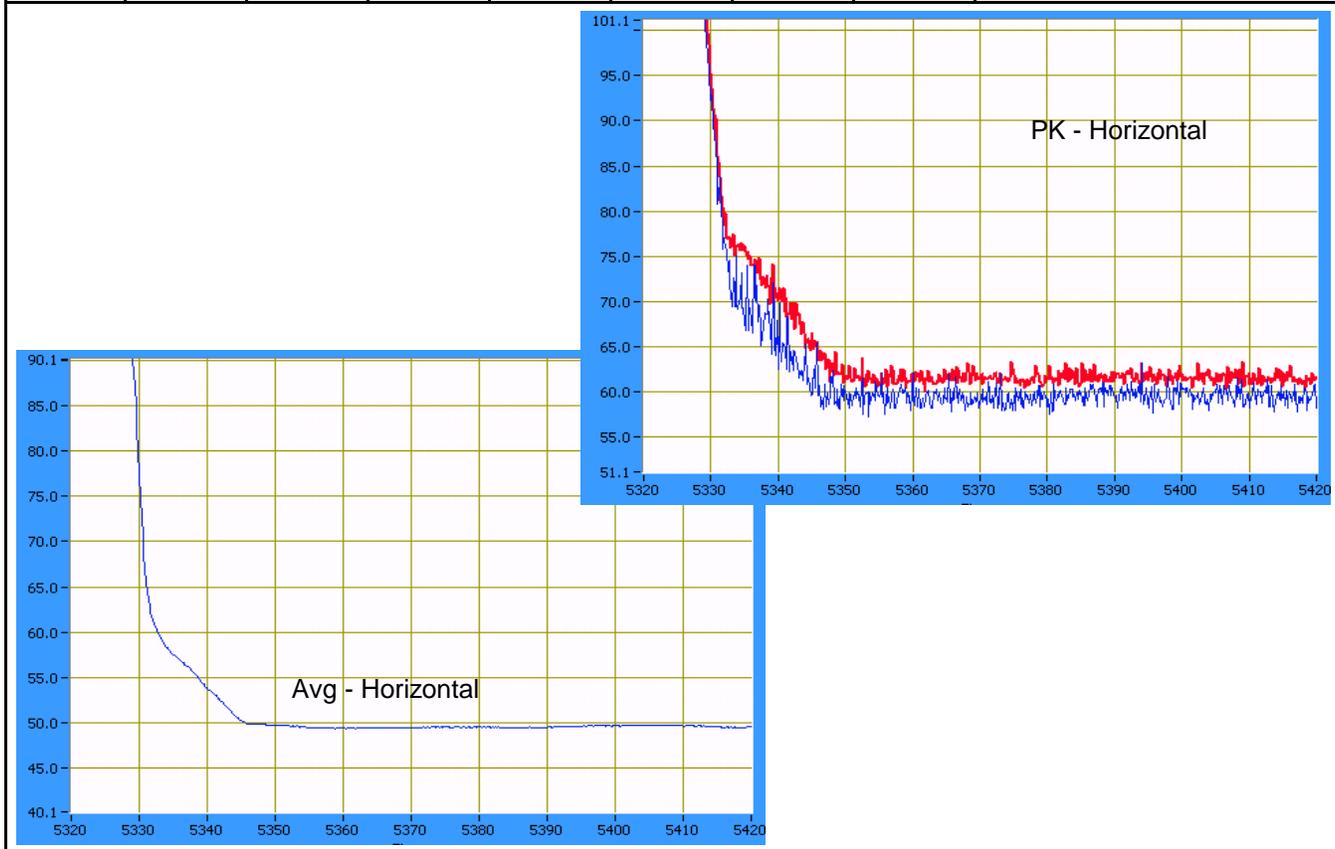
Power Setting and average measurement (for reference)					
Chain A		Chain B		Chain C	
Setting	Avg	Setting	Avg	Setting	Avg
		25.5	13.6	26.5	13.5

Fundamental Signal Field Strength: Peak and average values measured in 1 MHz, for reference only

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dB μ V/m	v/h	Limit	Margin	PK/QP/Avg	degrees	meters	
5318.520	96.0	V	112.3	-16.3	AVG	13	1.0	
5318.520	106.2	V	132.3	-26.1	PK	13	1.0	
5318.630	101.3	H	112.3	-11.0	AVG	289	1.0	
5318.630	110.6	H	132.3	-21.7	PK	289	1.0	

Band Edge Signal Field Strength

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dB μ V/m	v/h	Limit	Margin	PK/QP/Avg	degrees	meters	
5350.150	49.9	H	54.0	-4.1	AVG	285	1.0	
5350.320	63.4	H	74.0	-10.6	PK	285	1.0	
5350.160	49.4	V	54.0	-4.6	AVG	14	1.0	
5350.190	62.2	V	74.0	-11.8	PK	14	1.0	



Client:	Intel Corporation	Job Number:	J72065
Model:	533AN-MMW with Amphenol PIFA antenna	T-Log Number:	T72191
Contact:	Robert Paxman	Account Manager:	Dean Eriksen
Standard:	RSS 210/FCC U-NII (Radiated)	Class:	N/A

Date of Test: 7/8/2008
 Test Engineer: Peter Sales
 Test Location: Fremont Chamber #3

Run #7: Radiated Spurious Emissions, Band Edges. Operating Mode: 802.11n 20MHz - Chain A+B+C
 Run #7a: Low Channel @ 5180 MHz (band edge at 5150 MHz)

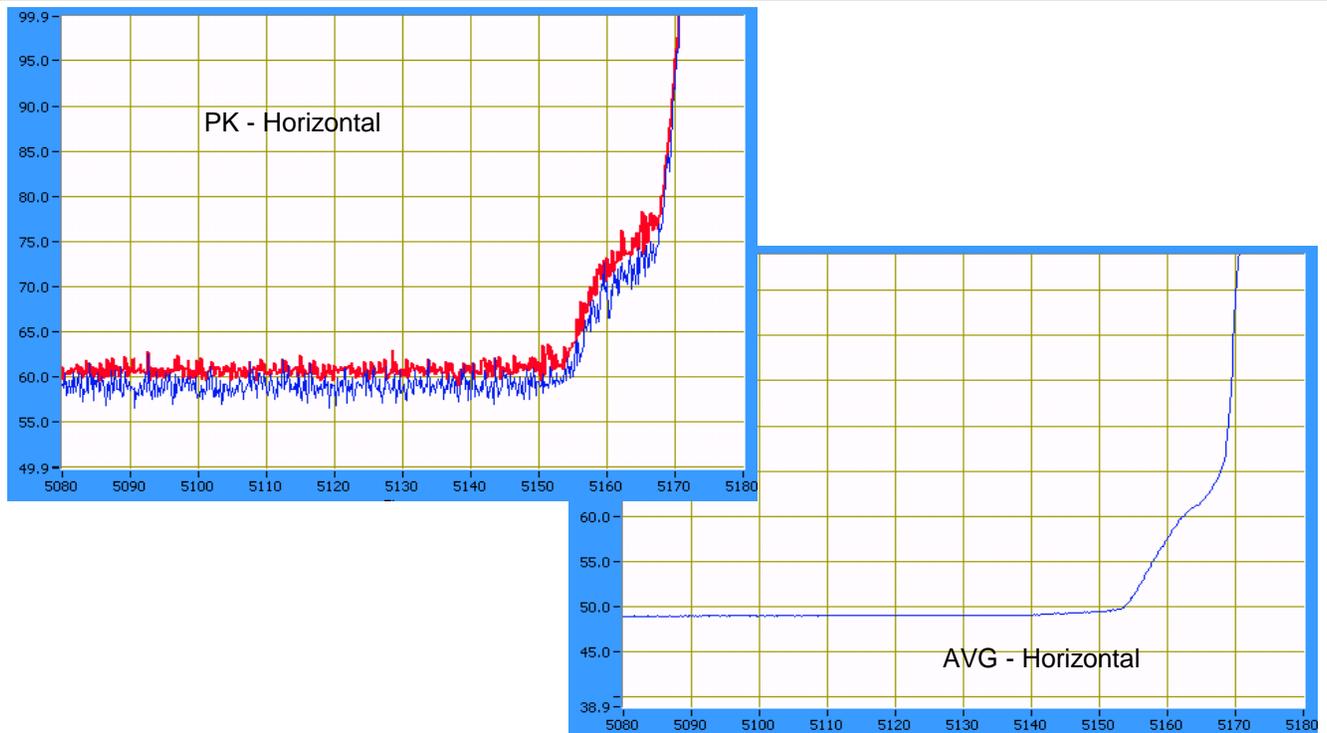
Power Setting and average measurement (for reference)					
Chain A		Chain B		Chain C	
Setting	Avg	Setting	Avg	Setting	Avg
30.5	12.0	30.0	12.0	30.5	12.2

Fundamental Signal Field Strength: Peak and average values measured in 1 MHz, for reference only

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dB μ V/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5175.430	101.6	H	-	-	AVG	293	1.0	
5175.430	111.7	H	-	-	PK	293	1.0	
5186.270	96.6	V	-	-	AVG	18	1.3	
5186.270	107.7	V	-	-	PK	18	1.3	

Band Edge Signal Field Strength

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dB μ V/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5148.050	61.2	V	74.0	-12.8	PK	18	1.0	
5147.000	48.9	V	54.0	-5.1	AVG	18	1.0	
5147.870	62.3	H	74.0	-11.7	PK	293	1.0	
5148.190	49.6	H	54.0	-4.4	AVG	293	1.0	



Client: Intel Corporation	Job Number: J72065
Model: 533AN-MMW with Amphenol PIFA antenna	T-Log Number: T72191
	Account Manager: Dean Eriksen
Contact: Robert Paxman	
Standard: RSS 210/FCC U-NII (Radiated)	Class: N/A

Run #7b: High Channel @ 5320 MHz (band edge at 5350 MHz)

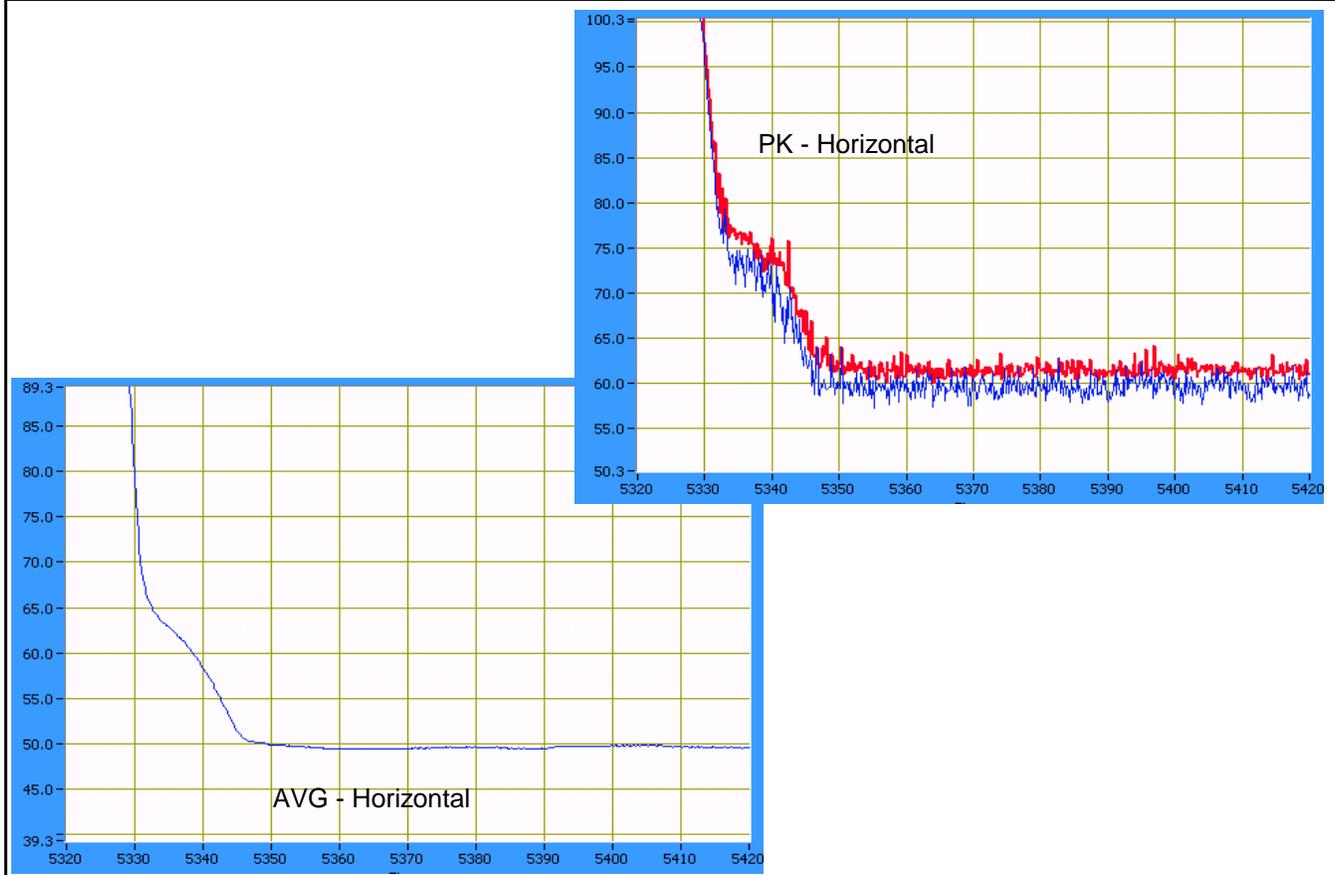
Power Setting and average measurement (for reference)					
Chain A		Chain B		Chain C	
Setting	Avg	Setting	Avg	Setting	Avg
27.0	12.2	26.0	12.2	27.0	12.0

Fundamental Signal Field Strength: Peak and average values measured in 1 MHz, for reference only

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dB μ V/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5316.500	103.7	H	-	-	AVG	293	1.0	
5316.500	113.8	H	-	-	PK	293	1.0	
5312.700	96.2	V	-	-	AVG	15	1.2	
5312.700	106.2	V	-	-	PK	15	1.2	

Band Edge Signal Field Strength

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dB μ V/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5352.730	61.5	V	74.0	-12.5	PK	15	1.2	
5350.000	49.3	V	54.0	-4.7	AVG	15	1.2	
5351.280	63.4	H	74.0	-10.6	PK	293	1.0	
5350.000	50.2	H	54.0	-3.8	AVG	293	1.0	



Client: Intel Corporation	Job Number: J72065
Model: 533AN-MMW with Amphenol PIFA antenna	T-Log Number: T72191
	Account Manager: Dean Eriksen
Contact: Robert Paxman	
Standard: RSS 210/FCC U-NII (Radiated)	Class: N/A

**RSS 210 and FCC 15.E (U-NII, 5150- 550/5250-5350/5460-5725MHz)
Radiated Spurious Emissions 802.11n 20MHz Amphenol Antenna**

Test Specific Details

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

General Test Configuration

The EUT and all local support equipment were located on the turntable for radiated spurious emissions testing. All remote support equipment was located approximately 30 meters from the EUT with all I/O connections running on top of the groundplane.

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

Ambient Conditions:
 Temperature: 20 - 23 °C
 Rel. Humidity: 34- 39 %

Summary of Results

Note - the dual chain mode was not tested as the triple-chain mode was tested at the higher dual chain output power in the 5.6GHz band and the single chain power in the other bands.

Note - the center channels in the 5150-5250 and 5250-5350MHz bands were tested primarily to verify the emissions related to the fixed LO common to all operating frequencies. Harmonics of the intentional signal at bottom and top frequencies in the band are covered by the measurements in triple chain mode which were performed with the power at the highest single chain power level.

Run #	Mode	Channel	Power Setting	Measured Power	Test Performed	Limit	Result / Margin
1a	802.11n20 Chain A	5200	29.0	16.5	Radiated Emissions, 1 - 40 GHz	FCC Part 15.209 / 15.407	57.2 dBuV/m @ 6933.3 MHz (-11.1dB)
1b	802.11n20 Chain A	5280	26.0	16.5	Radiated Emissions, 1 - 40 GHz	FCC Part 15.209 / 15.407	42.7 dBuV/m @ 7500.1 MHz (-11.3dB)
2a	802.11n20 Chain B	5200	29.0	16.5	Radiated Emissions, 1 - 40 GHz	FCC Part 15.209 / 15.407	42.1 dBuV/m @ 7499.9 MHz (-11.9dB)
2b	802.11n20 Chain B	5280	26.5	16.5	Radiated Emissions, 1 - 40 GHz	FCC Part 15.209 / 15.407	43.2 dBuV/m @ 7500.1 MHz (-10.8dB)
3a	802.11a Chain C	5200	29.5	16.5	Radiated Emissions, 1 - 40 GHz	FCC Part 15.209 / 15.407	39.8dBuV/m @ 1497.9MHz (-14.2dB)
3b	802.11a Chain C	5280	28.0	16.5	Radiated Emissions, 1 - 40 GHz	FCC Part 15.209 / 15.407	39.3dBuV/m @ 1497.9MHz (-14.7dB)

Client: Intel Corporation	Job Number: J72065
Model: 533AN-MMW with Amphenol PIFA antenna	T-Log Number: T72191
	Account Manager: Dean Eriksen
Contact: Robert Paxman	
Standard: RSS 210/FCC U-NII (Radiated)	Class: N/A

4	802.11n20 Chain A+B+C	5180	A: 33.5 B: 34.5 C: 35.0	A: 16.5 B: 16.5 C: 16.5	Radiated Emissions, 1 - 40 GHz	FCC Part 15.209 / 15.407	39.3dB μ V/m @ 1497.4MHz (-14.7dB)
		5200	A: 33.0 B: 34.0 C: 35.0	A: 16.5 B: 16.5 C: 16.5	Radiated Emissions, 1 - 40 GHz	FCC Part 15.209 / 15.408	39.8dB μ V/m @ 1497.9MHz (-14.2dB)
		5240	A: 32.0 B: 32.5 C: 34.0	A: 16.5 B: 16.5 C: 16.5	Radiated Emissions, 1 - 40 GHz	FCC Part 15.209 / 15.409	40.4 dBuV/m @ 7500.1 MHz (-13.6dB)
5	802.11n20 Chain A+B+C	5260	A: 31.5 B: 32.0 C: 33.5	A: 16.5 B: 16.5 C: 16.5	Radiated Emissions, 1 - 40 GHz	FCC Part 15.209 / 15.407	39.9dB μ V/m @ 1497.8MHz (-14.1dB)
		5280	A: 30.5 B: 31.5 C: 33.0	A: 16.5 B: 16.5 C: 16.5	Radiated Emissions, 1 - 40 GHz	FCC Part 15.209 / 15.408	39.3dB μ V/m @ 1497.9MHz (-14.7dB)
		5320	A: 29.5 B: 32.05 C: 33.0	A: 16.5 B: 16.5 C: 16.5	Radiated Emissions, 1 - 40 GHz	FCC Part 15.209 / 15.409	46.8 dBuV/m @ 10640.0 MHz (-7.2dB)

Modifications Made During Testing

No modifications were made to the EUT during testing

Deviations From The Standard

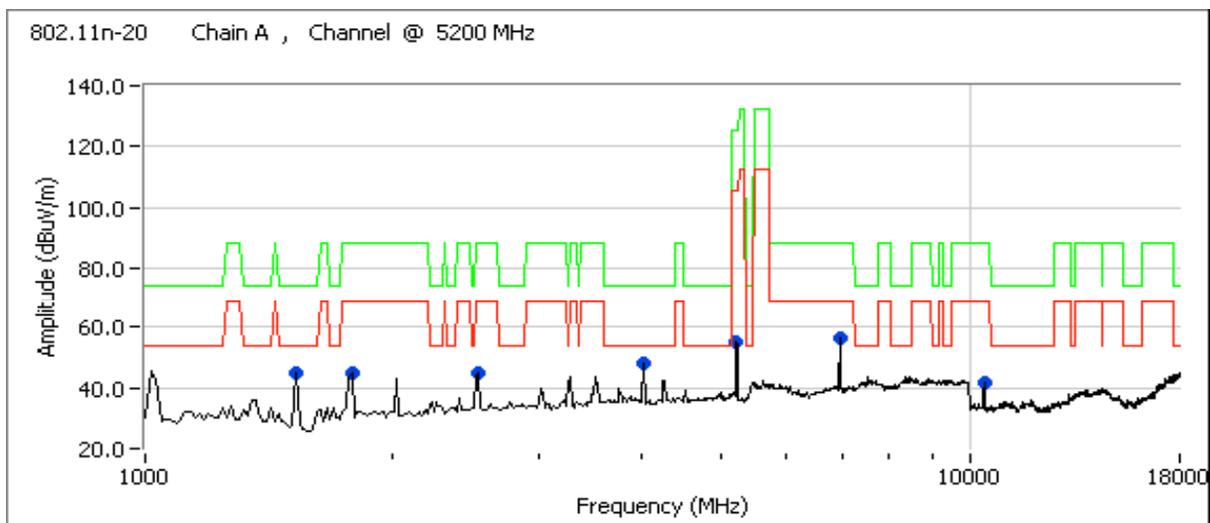
No deviations were made from the requirements of the standard.

Client: Intel Corporation	Job Number: J72065
Model: 533AN-MMW with Amphenol PIFA antenna	T-Log Number: T72191
	Account Manager: Dean Eriksen
Contact: Robert Paxman	
Standard: RSS 210/FCC U-NII (Radiated)	Class: N/A

Sample ID: 006EA02D4D0
 Date of Test: 7/9/2008
 Test Engineer: Ben Jing
 Test Location: Chamber # 3

Run #1: Radiated Spurious Emissions, 1000 - 40000 MHz. Operating Mode: 802.11n 20MHz Chain A

Run #1a: Center Channel @ 5200 MHz



Spurious Emissions

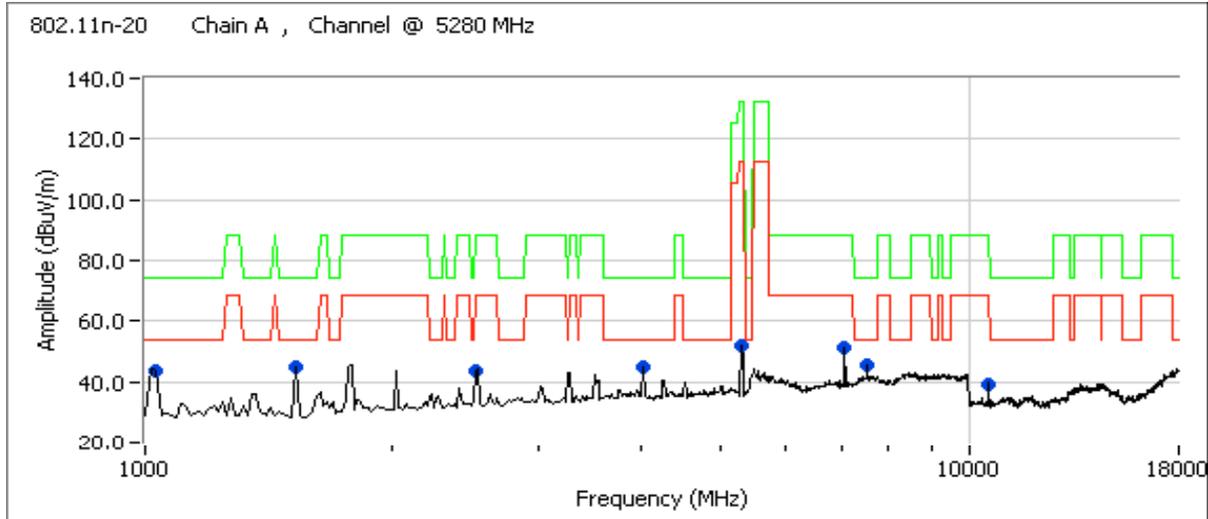
Frequency	Level	Pol	15.209 / 15.407		Detector	Azimuth	Height	Comments
MHz	dB μ V/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
1497.900	37.8	V	54.0	-16.2	AVG	70	1.0	
1497.900	53.3	V	74.0	-20.7	PK	70	1.0	
1747.330	31.0	V	68.3	-37.3	AVG	226	1.0	Note 2
1747.330	47.0	V	88.3	-41.3	PK	226	1.0	Note 2
2497.340	35.6	V	54.0	-18.4	AVG	84	1.6	
2497.340	52.5	V	74.0	-21.5	PK	84	1.6	
3996.440	34.8	V	54.0	-19.2	AVG	91	1.6	
3996.440	53.8	V	74.0	-20.2	PK	91	1.6	
5203.340	62.0	V	-	-	PK	148	1.0	Fundamental
6933.280	57.2	H	68.3	-11.1	AVG	146	1.3	Note 2
6933.280	59.0	H	88.3	-29.3	PK	146	1.3	Note 2
10399.910	38.7	V	68.3	-29.6	AVG	221	1.0	Note 2
10399.910	49.9	V	88.3	-38.4	PK	221	1.0	Note 2

Note 1: For emissions in restricted bands, the limit of 15.209 was used. For all other emissions, the limit was set to -27dBm eirp (68.3dBuV/m average, 88.3dBuV/m peak)

Note 2: Signal is not in a restricted band.

Client: Intel Corporation	Job Number: J72065
Model: 533AN-MMW with Amphenol PIFA antenna	T-Log Number: T72191
	Account Manager: Dean Eriksen
Contact: Robert Paxman	
Standard: RSS 210/FCC U-NII (Radiated)	Class: N/A

Run #1b: Center Channel @ 5280 MHz



Spurious Emissions

Frequency	Level	Pol	15.209 / 15.407		Detector	Azimuth	Height	Comments
MHz	dB μ V/m	v/h	Limit	Margin	Pk/OP/Avg	degrees	meters	
1497.940	40.0	V	54.0	-14.0	AVG	68	1.0	
1497.940	54.9	V	74.0	-19.1	PK	68	1.0	
2490.160	35.4	V	54.0	-18.6	AVG	75	1.6	
2490.160	53.5	V	74.0	-20.5	PK	75	1.6	
3994.630	34.9	V	54.0	-19.1	AVG	87	1.3	
3994.630	54.3	V	74.0	-19.7	PK	87	1.3	
5275.380	51.5	V	-	-	PK	156	1.3	Fundamental
7039.840	50.2	H	68.3	-18.1	AVG	146	1.3	Note 2
7039.840	53.4	H	88.3	-34.9	PK	146	1.3	Note 2
7500.060	42.7	V	54.0	-11.3	AVG	72	1.6	
7500.060	50.0	V	74.0	-24.0	PK	72	1.6	
10561.880	38.4	V	68.3	-29.9	AVG	232	1.0	Note 2
10561.880	50.3	V	88.3	-38.0	PK	232	1.0	Note 2

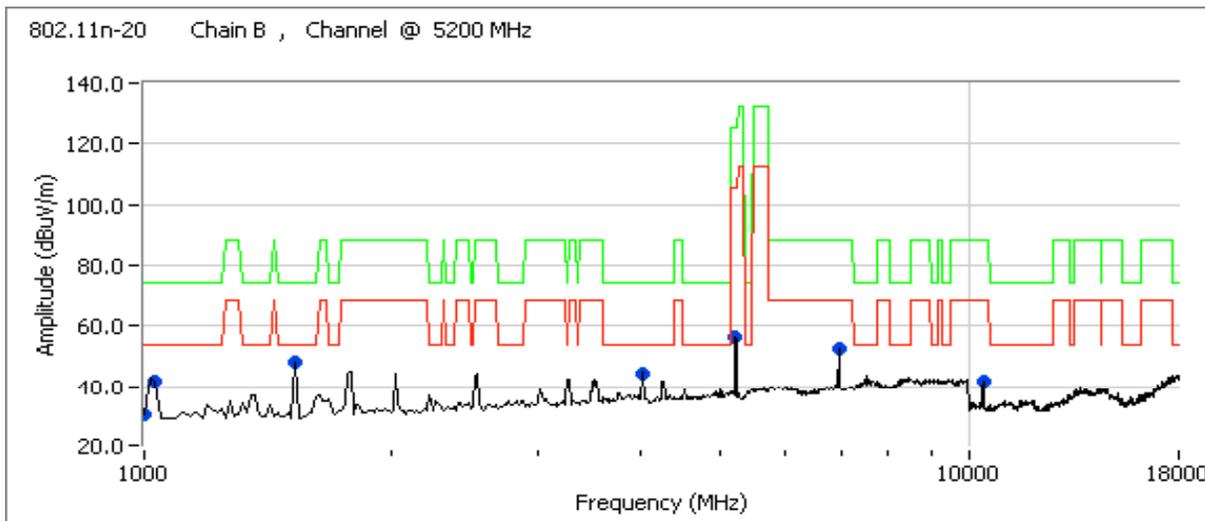
Note 1: For emissions in restricted bands, the limit of 15.209 was used. For all other emissions, the limit was set to -27dBm eirp (68.3dBuV/m average, 88.3dBuV/m peak)

Note 2: Signal is not in a restricted band.

Client: Intel Corporation	Job Number: J72065
Model: 533AN-MMW with Amphenol PIFA antenna	T-Log Number: T72191
	Account Manager: Dean Eriksen
Contact: Robert Paxman	
Standard: RSS 210/FCC U-NII (Radiated)	Class: N/A

Run # 2: Radiated Spurious Emissions, 1000 - 40000 MHz. Operating Mode: 802.11n 20MHz Chain B

Run #2a: Center Channel @ 5200 MHz



Spurious Emissions

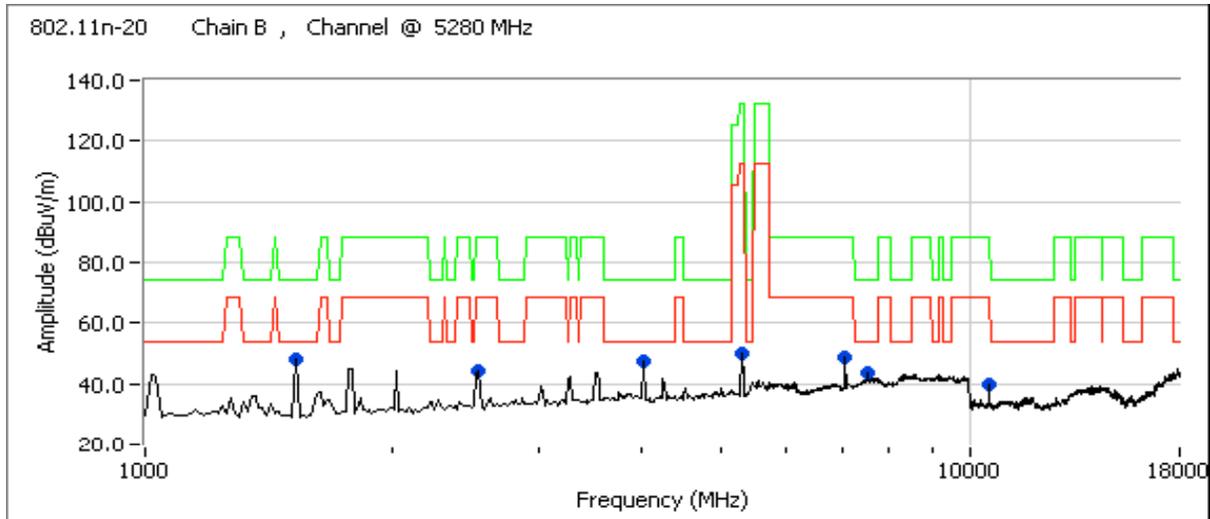
Frequency	Level	Pol	15.209 / 15.407		Detector	Azimuth	Height	Comments
MHz	dB μ V/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
1497.730	39.7	V	54.0	-14.3	AVG	66	1.0	
1497.730	54.8	V	74.0	-19.2	PK	66	1.0	
3992.870	33.7	V	54.0	-20.3	AVG	164	1.0	
3992.870	51.9	V	74.0	-22.1	PK	164	1.0	
5205.980	57.6	V	-	-	PK	142	1.3	Fundamental
6933.300	52.5	H	68.3	-15.8	AVG	137	1.3	Note 2
6933.300	55.3	H	88.3	-33.0	PK	137	1.3	Note 2
7499.860	42.1	V	54.0	-11.9	AVG	111	1.6	
7499.860	50.7	V	74.0	-23.3	PK	111	1.6	
10399.860	41.2	V	68.3	-27.1	AVG	213	1.0	Note 2
10399.860	51.2	V	88.3	-37.1	PK	213	1.0	Note 2

Note 1: For emissions in restricted bands, the limit of 15.209 was used. For all other emissions, the limit was set to -27dBm eirp (68.3dBuV/m average, 88.3dBuV/m peak)

Note 2: Signal is not in a restricted band.

Client: Intel Corporation	Job Number: J72065
Model: 533AN-MMW with Amphenol PIFA antenna	T-Log Number: T72191
	Account Manager: Dean Eriksen
Contact: Robert Paxman	
Standard: RSS 210/FCC U-NII (Radiated)	Class: N/A

Run #2b: Center Channel @ 5280 MHz



Spurious Emissions

Frequency	Level	Pol	15.209 / 15.407		Detector	Azimuth	Height	Comments
MHz	dB μ V/m	v/h	Limit	Margin	Pk/OP/Avg	degrees	meters	
1497.410	40.2	V	54.0	-13.8	AVG	66	1.0	
1497.410	55.4	V	74.0	-18.6	PK	66	1.0	
2490.050	36.3	V	54.0	-17.7	AVG	86	1.6	
2490.050	53.6	V	74.0	-20.4	PK	86	1.6	
3995.000	35.2	V	54.0	-18.8	AVG	89	1.6	
3995.000	54.8	V	74.0	-19.2	PK	89	1.6	
5286.060	49.6	V	-	-	PK	147	1.3	Fundamental
7040.000	48.4	V	68.3	-19.9	AVG	226	1.6	Note 2
7040.000	52.4	V	88.3	-35.9	PK	226	1.6	Note 2
7500.070	43.2	V	54.0	-10.8	AVG	77	1.0	
7500.070	50.5	V	74.0	-23.5	PK	77	1.0	
10560.020	35.2	V	68.3	-33.1	AVG	199	1.0	Note 2
10560.020	47.2	V	88.3	-41.1	PK	199	1.0	Note 2

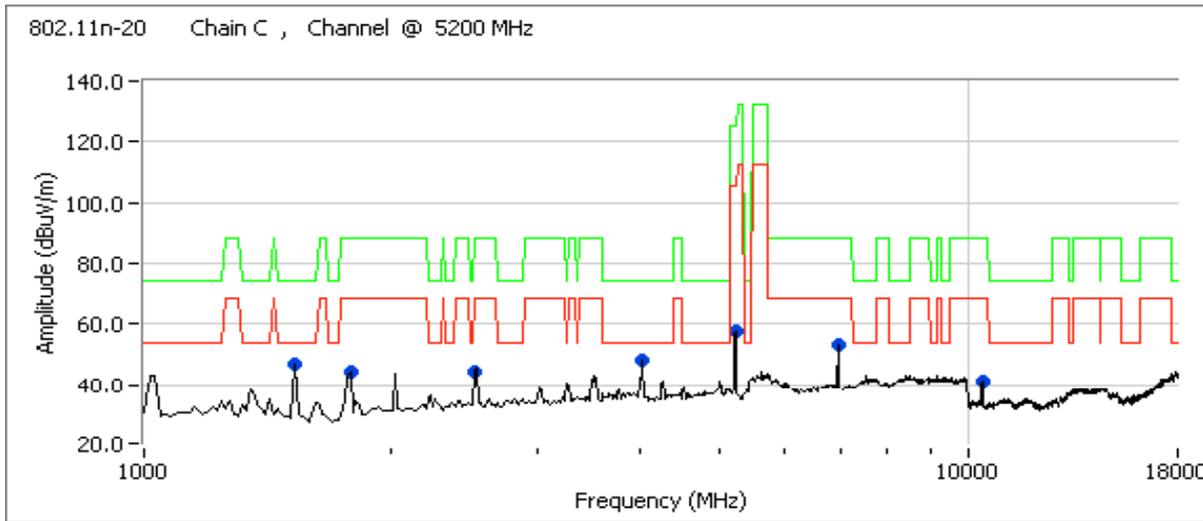
Note 1: For emissions in restricted bands, the limit of 15.209 was used. For all other emissions, the limit was set to -27dBm eirp (68.3dBuV/m average, 88.3dBuV/m peak)

Note 2: Signal is not in a restricted band.

Client: Intel Corporation	Job Number: J72065
Model: 533AN-MMW with Amphenol PIFA antenna	T-Log Number: T72191
	Account Manager: Dean Eriksen
Contact: Robert Paxman	
Standard: RSS 210/FCC U-NII (Radiated)	Class: N/A

Run # 3: Radiated Spurious Emissions, 1000 - 40000 MHz. Operating Mode: 802.11n 20MHz Chain C

Run #3a: Center Channel @ 5200 MHz



Spurious Emissions

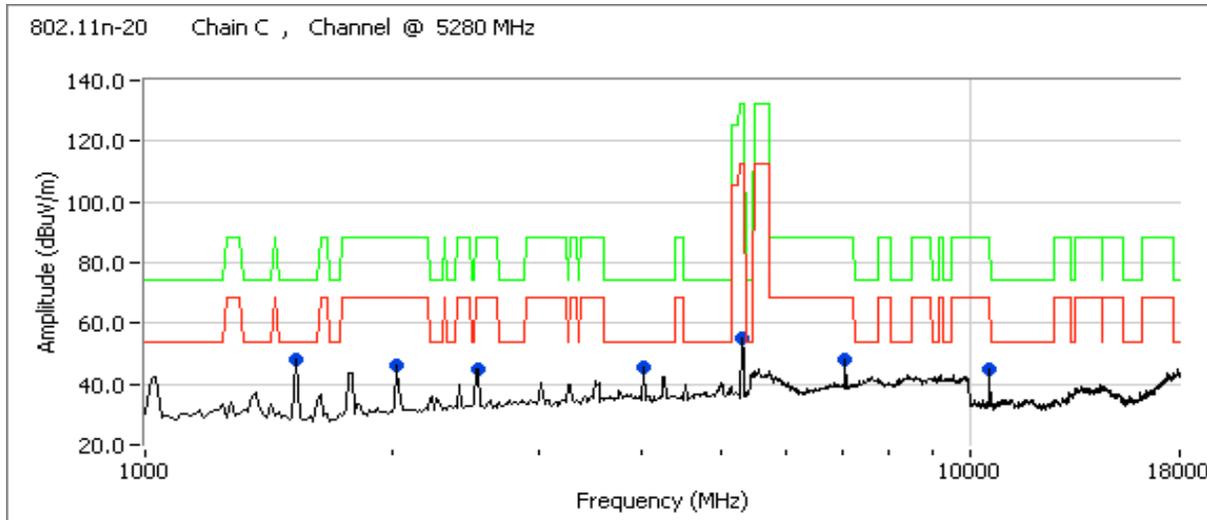
Frequency	Level	Pol	15.209 / 15.407		Detector	Azimuth	Height	Comments
MHz	dB μ V/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
1497.880	39.8	V	54.0	-14.2	AVG	66	1.0	
1497.880	55.6	V	74.0	-18.4	PK	66	1.0	
1747.890	32.7	H	68.3	-35.6	AVG	58	1.3	Note 2
1747.890	49.6	H	88.3	-38.7	PK	58	1.3	Note 2
2497.140	36.3	V	54.0	-17.7	AVG	85	1.3	
2497.140	53.3	V	74.0	-20.7	PK	85	1.3	
3994.990	35.5	V	54.0	-18.5	AVG	83	1.6	
3994.990	54.5	V	74.0	-19.5	PK	83	1.6	
5206.030	65.1	H	-	-	PK	119	1.0	Fundamental
6933.380	52.8	V	68.3	-15.5	AVG	233	1.6	Note 2
6933.380	55.4	V	88.3	-32.9	PK	233	1.6	Note 2
10400.020	39.1	V	68.3	-29.2	AVG	183	1.0	Note 2
10400.020	50.4	V	88.3	-37.9	PK	183	1.0	Note 2

Note 1: For emissions in restricted bands, the limit of 15.209 was used. For all other emissions, the limit was set to -27dBm eirp (68.3dBuV/m average, 88.3dBuV/m peak)

Note 2: Signal is not in a restricted band.

Client: Intel Corporation	Job Number: J72065
Model: 533AN-MMW with Amphenol PIFA antenna	T-Log Number: T72191
	Account Manager: Dean Eriksen
Contact: Robert Paxman	
Standard: RSS 210/FCC U-NII (Radiated)	Class: N/A

Run #3b: Center Channel @ 5280 MHz



Spurious Emissions

Frequency	Level	Pol	15.209 / 15.407		Detector	Azimuth	Height	Comments
MHz	dB μ V/m	v/h	Limit	Margin	Pk/OP/Avg	degrees	meters	
1497.860	39.3	V	54.0	-14.7	AVG	65	1.0	
1497.860	54.4	V	74.0	-19.6	PK	65	1.0	
1992.060	33.5	V	68.3	-34.8	AVG	95	1.0	Note 2
1992.060	49.7	V	88.3	-38.6	PK	95	1.0	Note 2
2490.420	35.9	V	54.0	-18.1	AVG	82	1.6	
2490.420	52.8	V	74.0	-21.2	PK	82	1.6	
3992.730	35.2	V	54.0	-18.8	AVG	85	1.3	
3992.730	54.3	V	74.0	-19.7	PK	85	1.3	
5272.500	60.3	V	-	-	PK	131	1.6	Fundamental
7040.050	47.8	V	68.3	-20.5	AVG	231	1.3	Note 2
7040.050	52.2	V	88.3	-36.1	PK	231	1.3	Note 2
10559.940	39.0	V	68.3	-29.3	AVG	215	1.0	Note 2
10559.940	51.3	V	88.3	-37.0	PK	215	1.0	Note 2

Note 1: For emissions in restricted bands, the limit of 15.209 was used. For all other emissions, the limit was set to -27dBm eirp (68.3dBuV/m average, 88.3dBuV/m peak)

Note 2: Signal is not in a restricted band.

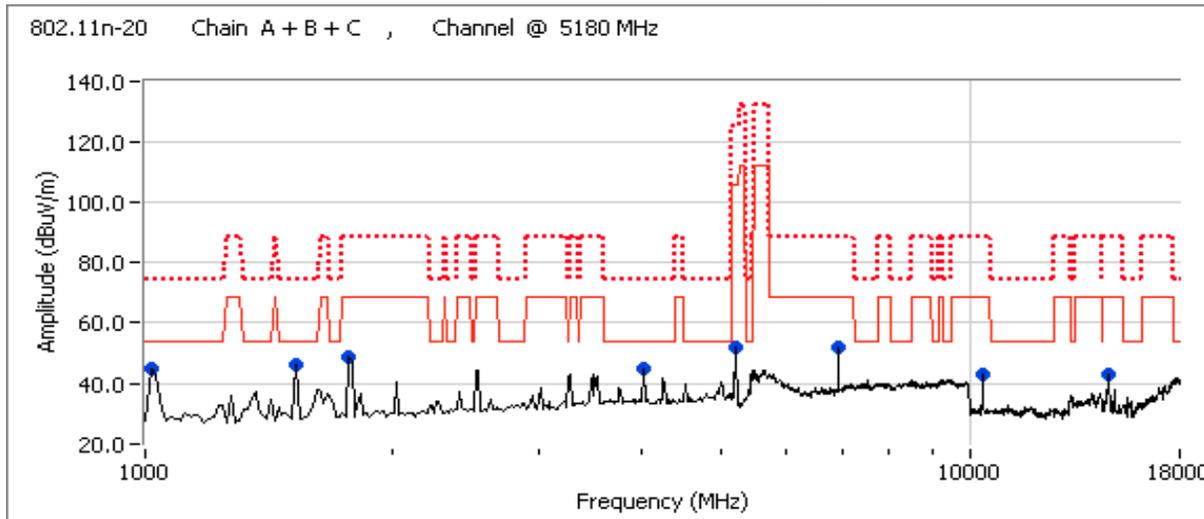
Client: Intel Corporation	Job Number: J72065
Model: 533AN-MMW with Amphenol PIFA antenna	T-Log Number: T72191
	Account Manager: Dean Eriksen
Contact: Robert Paxman	
Standard: RSS 210/FCC U-NII (Radiated)	Class: N/A

Sample ID: 006EA02D4D0
 Date of Test: 7/10/2008
 Test Engineer: Ben Jing
 Test Location: Chamber # 3

Run #4: Radiated Spurious Emissions, 1000 - 40000 MHz. Operating Mode: 802.11n20 Chain A+B+C
 Output power per chain set at, or above, the single-chain mode output power of 16.5dBm per chain.

Run #4a: Low Channel @ 5180 MHz

Power Setting and average measurement (for reference)					
Chain A		Chain B		Chain C	
Setting	Avg	Setting	Avg	Setting	Avg
33.5	16.5	34.5	16.5	35.0	16.5



Spurious Emissions

Frequency	Level	Pol	15.209 / 15.407		Detector	Azimuth	Height	Comments
MHz	dBuV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
1497.410	39.3	H	54.0	-14.7	AVG	144	1.3	
1497.410	50.9	H	74.0	-23.1	PK	144	1.3	
1743.450	58.2	H	88.3	-30.1	PK	146	1.5	Note 2
1743.820	40.6	H	68.3	-27.7	AVG	146	1.5	Note 2
3993.470	35.1	V	54.0	-18.9	AVG	107	1.6	
3993.800	52.8	V	74.0	-21.2	PK	107	1.6	
5174.000	62.7	H	-	-	PK	144	1.1	Fundamental
6906.200	47.7	H	68.3	-20.6	AVG	142	1.5	Note 2
6906.200	52.7	H	88.3	-35.6	PK	142	1.5	Note 2
10360.330	41.7	V	68.3	-26.6	AVG	229	1.0	Note 2
10360.330	52.4	V	88.3	-35.9	PK	229	1.0	Note 2

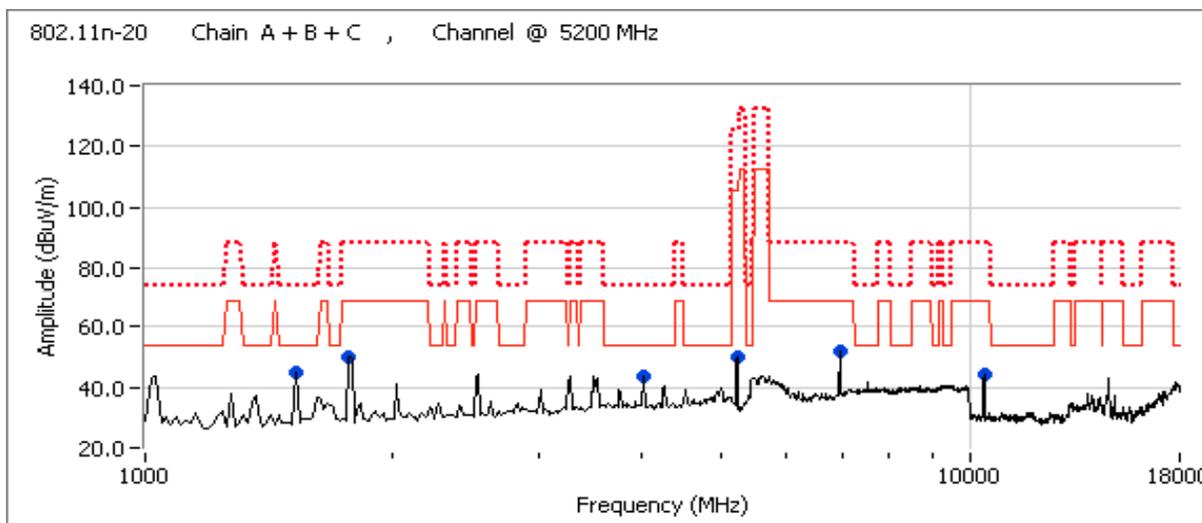
Note 1: For emissions in restricted bands, the limit of 15.209 was used. For all other emissions, the limit was set to -27dBm eirp (68.3dBuV/m average, 88.3dBuV/m peak)

Note 2: Signal is not in a restricted band.

Client: Intel Corporation	Job Number: J72065
Model: 533AN-MMW with Amphenol PIFA antenna	T-Log Number: T72191
	Account Manager: Dean Eriksen
Contact: Robert Paxman	
Standard: RSS 210/FCC U-NII (Radiated)	Class: N/A

Run #4b: Center Channel @ 5200 MHz

Power Setting and average measurement (for reference)					
Chain A		Chain B		Chain C	
Setting	Avg	Setting	Avg	Setting	Avg
33.0	16.5	34.0	16.5	35.0	16.5



Spurious Emissions

Frequency	Level	Pol	15.209 / 15.407		Detector	Azimuth	Height	Comments
MHz	dB μ V/m	v/h	Limit	Margin	Pk/OP/Avg	degrees	meters	
1497.750	39.9	H	54.0	-14.1	AVG	147	1.4	
1497.750	51.3	H	74.0	-22.7	PK	147	1.4	
1747.000	40.0	H	68.3	-28.3	AVG	150	1.6	Note 2
1747.000	57.3	H	88.3	-31.0	PK	150	1.6	Note 2
3985.000	34.9	V	54.0	-19.1	AVG	232	1.0	
3985.000	53.3	V	74.0	-20.7	PK	232	1.0	
5203.660	48.8	H	-	-	PK	150	1.0	Fundamental
6933.150	51.7	H	68.3	-16.6	AVG	132	1.0	Note 2
6933.150	55.2	H	88.3	-33.1	PK	132	1.0	Note 2
10400.000	44.1	V	68.3	-24.2	AVG	229	1.0	Note 2
10400.000	54.6	V	88.3	-33.7	PK	229	1.0	Note 2

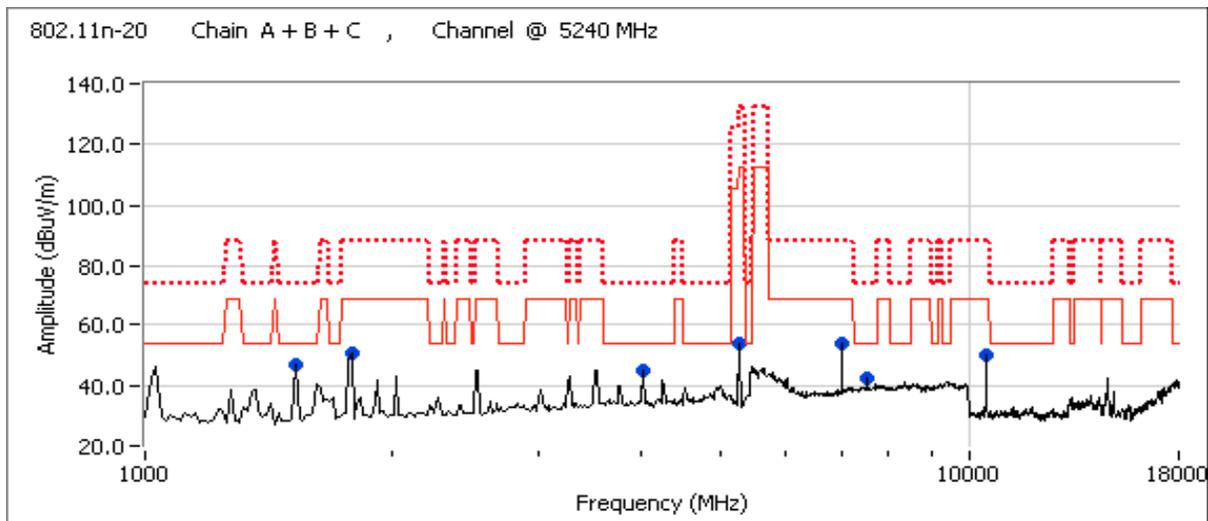
Note 1: For emissions in restricted bands, the limit of 15.209 was used. For all other emissions, the limit was set to -27dBm eirp (68.3dBuV/m average, 88.3dBuV/m peak)

Note 2: Signal is not in a restricted band.

Client: Intel Corporation	Job Number: J72065
Model: 533AN-MMW with Amphenol PIFA antenna	T-Log Number: T72191
	Account Manager: Dean Eriksen
Contact: Robert Paxman	
Standard: RSS 210/FCC U-NII (Radiated)	Class: N/A

Run #4c: High Channel @ 5240 MHz

Power Setting and average measurement (for reference)					
Chain A		Chain B		Chain C	
Setting	Avg	Setting	Avg	Setting	Avg
32.0	16.5	32.5	16.5	34.0	16.5



Spurious Emissions

Frequency	Level	Pol	15.209 / 15.407		Detector	Azimuth	Height	Comments
MHz	dB μ V/m	v/h	Limit	Margin	Pk/OP/Avg	degrees	meters	
1497.670	38.7	H	54.0	-15.3	AVG	159	1.3	
1497.670	53.1	H	74.0	-20.9	PK	159	1.3	
1747.730	41.8	V	68.3	-26.5	AVG	74	1.0	Note 2
1747.730	58.8	V	88.3	-29.5	PK	74	1.0	Note 2
3986.250	34.3	H	54.0	-19.7	AVG	145	1.6	
3986.250	52.5	H	74.0	-21.5	PK	145	1.6	
5243.280	59.7	V	-	-	PK	200	1.0	Fundamental
6986.690	54.3	H	68.3	-14.0	AVG	138	1.3	Note 2
6986.690	56.8	H	88.3	-31.5	PK	138	1.3	Note 2
7500.130	40.4	V	54.0	-13.6	AVG	90	1.2	
7500.130	48.6	V	74.0	-25.4	PK	90	1.2	
10479.830	44.9	V	68.3	-23.4	AVG	223	1.0	Note 2
10489.170	55.2	V	88.3	-33.1	PK	223	1.0	Note 2

Note 1: For emissions in restricted bands, the limit of 15.209 was used. For all other emissions, the limit was set to -27dBm eirp (68.3dBuV/m average, 88.3dBuV/m peak)

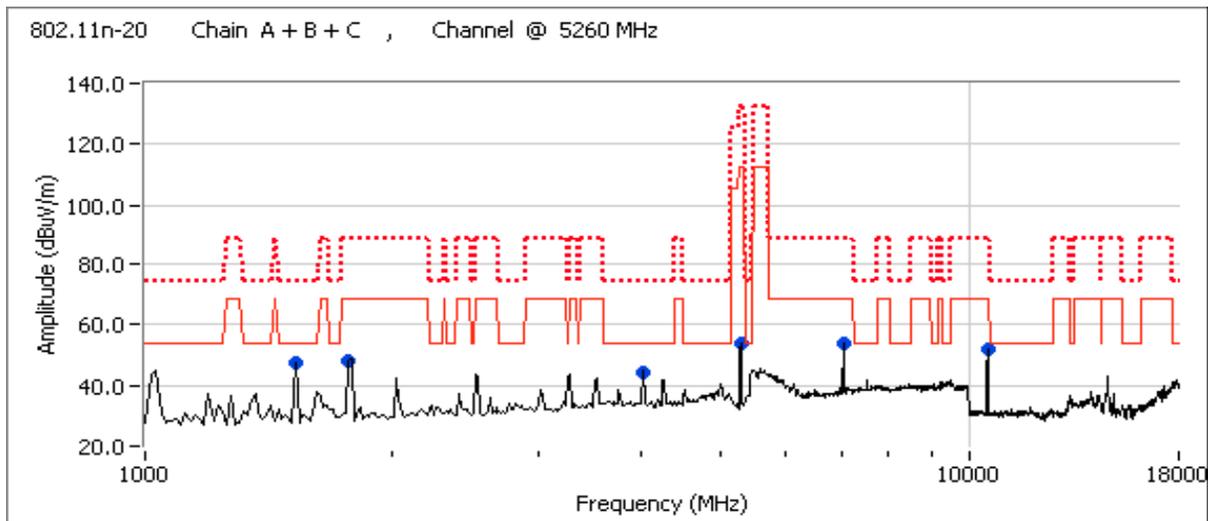
Note 2: Signal is not in a restricted band.

Client: Intel Corporation	Job Number: J72065
Model: 533AN-MMW with Amphenol PIFA antenna	T-Log Number: T72191
	Account Manager: Dean Eriksen
Contact: Robert Paxman	
Standard: RSS 210/FCC U-NII (Radiated)	Class: N/A

Run #5: Radiated Spurious Emissions, 1000 - 40000 MHz. Operating Mode: 802.11n20 Chain A+B+C
Output power per chain set at, or above, the single-chain mode output power of 16.5dBm per chain.

Run #5a: Low Channel @ 5260 MHz

Power Setting and average measurement (for reference)					
Chain A		Chain B		Chain C	
Setting	Avg	Setting	Avg	Setting	Avg
31.5	16.5	32.0	16.5	33.5	16.5



Spurious Emissions

Frequency	Level	Pol	15.209 / 15.407		Detector	Azimuth	Height	Comments
MHz	dB μ V/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
1497.820	39.9	H	54.0	-14.1	AVG	151	1.1	
1497.850	53.1	H	74.0	-20.9	PK	151	1.1	
1747.140	38.6	H	68.3	-29.7	AVG	149	1.4	Note 2
1748.100	55.7	H	88.3	-32.6	PK	149	1.4	Note 2
3986.420	36.1	V	54.0	-17.9	AVG	93	1.8	
3988.670	54.0	V	74.0	-20.0	PK	93	1.8	
5259.330	59.1	V	-	-	PK	222	1.0	Fundamental
7013.260	56.5	H	88.3	-31.8	PK	140	1.3	Note 2
7013.310	53.8	H	68.3	-14.5	AVG	140	1.3	Note 2
10520.260	44.1	V	68.3	-24.2	AVG	190	1.3	Note 2
10520.260	54.5	V	88.3	-33.8	PK	190	1.3	Note 2

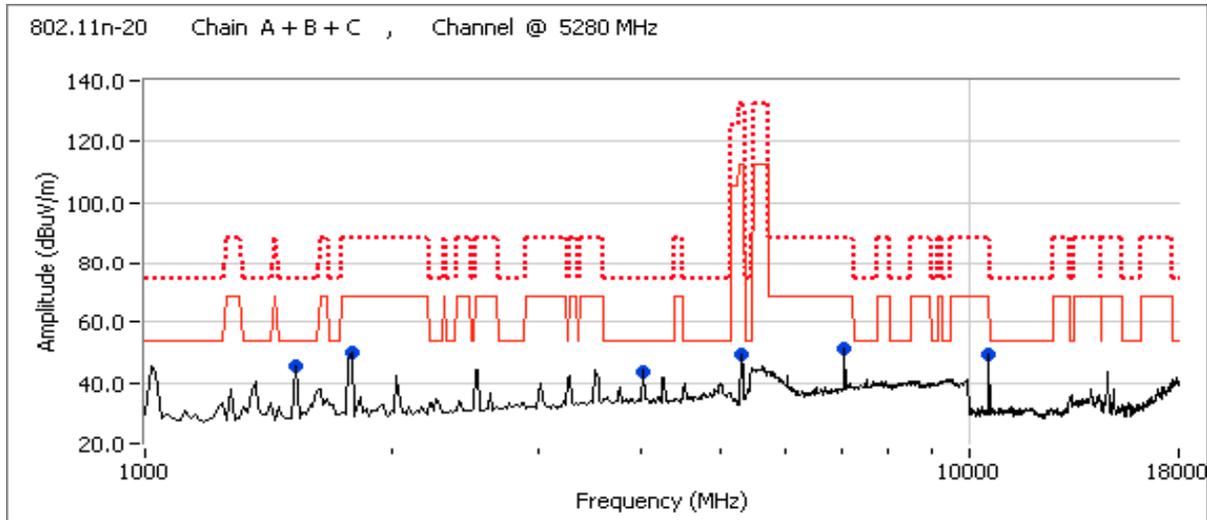
Note 1: For emissions in restricted bands, the limit of 15.209 was used. For all other emissions, the limit was set to -27dBm eirp (68.3dBuV/m average, 88.3dBuV/m peak)

Note 2: Signal is not in a restricted band.

Client: Intel Corporation	Job Number: J72065
Model: 533AN-MMW with Amphenol PIFA antenna	T-Log Number: T72191
	Account Manager: Dean Eriksen
Contact: Robert Paxman	
Standard: RSS 210/FCC U-NII (Radiated)	Class: N/A

Run #5b: Center Channel @ 5280 MHz

Power Setting and average measurement (for reference)					
Chain A		Chain B		Chain C	
Setting	Avg	Setting	Avg	Setting	Avg
30.5	16.5	31.5	16.5	33.0	16.5



Spurious Emissions

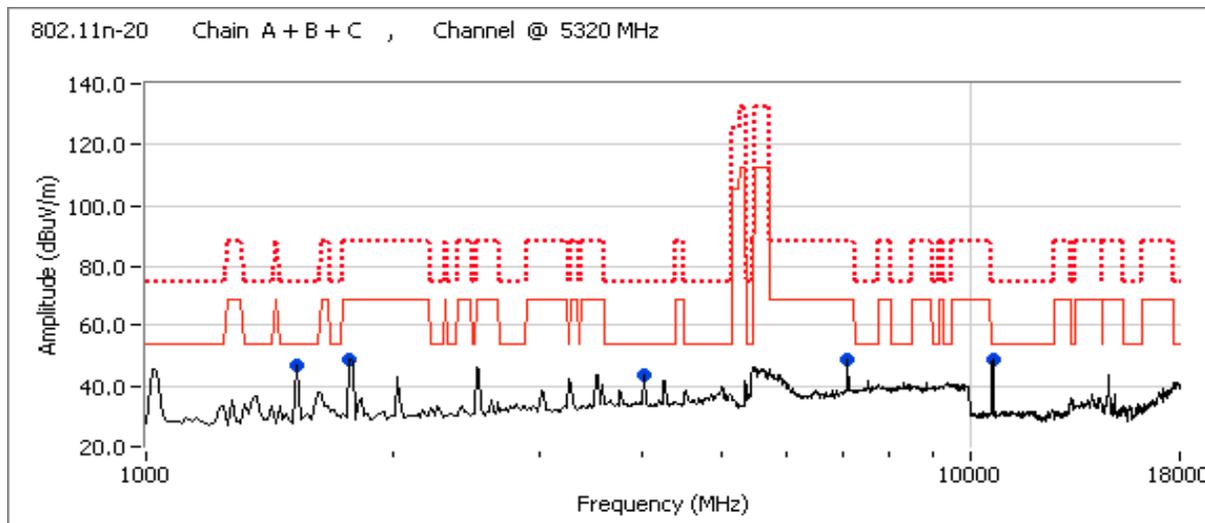
Frequency MHz	Level dB μ V/m	Pol v/h	15.209 / 15.407		Detector Pk/QP/Avg	Azimuth degrees	Height meters	Comments
			Limit	Margin				
1497.920	39.3	H	54.0	-14.7	AVG	144	1.3	
1497.920	53.1	H	74.0	-20.9	PK	144	1.3	
1747.400	41.8	V	68.3	-26.5	AVG	73	1.0	Note 2
1747.400	58.8	V	88.3	-29.5	PK	73	1.0	Note 2
3995.960	34.7	V	54.0	-19.3	AVG	90	1.7	
3995.960	52.1	V	74.0	-21.9	PK	90	1.7	
5279.100	53.7	V	-	-	PK	176	1.6	Fundamental
7039.920	50.6	V	68.3	-17.7	AVG	230	1.6	Note 2
7039.920	53.8	V	88.3	-34.5	PK	230	1.6	Note 2
10560.870	44.6	V	68.3	-23.7	AVG	170	1.2	Note 2
10560.870	55.9	V	88.3	-32.4	PK	170	1.2	Note 2

Note 1: For emissions in restricted bands, the limit of 15.209 was used. For all other emissions, the limit was set to -27dBm eirp (68.3dBuV/m average, 88.3dBuV/m peak)

Client: Intel Corporation	Job Number: J72065
Model: 533AN-MMW with Amphenol PIFA antenna	T-Log Number: T72191
	Account Manager: Dean Eriksen
Contact: Robert Paxman	
Standard: RSS 210/FCC U-NII (Radiated)	Class: N/A

Run #5c: High Channel @ 5320 MHz

Power Setting and average measurement (for reference)					
Chain A		Chain B		Chain C	
Setting	Avg	Setting	Avg	Setting	Avg
29.5	16.5	32.0	16.5	33.0	16.5



Spurious Emissions

Frequency	Level	Pol	15.209 / 15.407		Detector	Azimuth	Height	Comments
MHz	dB μ V/m	v/h	Limit	Margin	Pk/OP/Avg	degrees	meters	
1497.740	39.3	H	54.0	-14.7	AVG	125	1.3	
1497.750	53.8	H	74.0	-20.2	PK	125	1.3	
1746.990	36.3	H	68.3	-32.0	AVG	128	1.1	Note 2
1746.990	53.7	H	88.3	-34.6	PK	128	1.1	Note 2
3995.920	35.6	V	54.0	-18.4	AVG	88	1.7	
3995.920	53.4	V	74.0	-20.6	PK	88	1.7	
7093.150	48.8	H	68.3	-19.5	AVG	135	1.3	Note 2
7093.150	53.0	H	88.3	-35.3	PK	135	1.3	Note 2
10639.990	46.8	V	54.0	-7.2	AVG	172	1.0	
10639.990	57.7	V	74.0	-16.3	PK	172	1.0	

Note 1: For emissions in restricted bands, the limit of 15.209 was used. For all other emissions, the limit was set to -27dBm eirp (68.3dBuV/m average, 88.3dBuV/m peak)

Note 2: Signal is not in a restricted band.

Client:	Intel Corporation	Job Number:	J72065
Model:	533AN-MMW with Amphenol PIFA antenna	T-Log Number:	T72191
Contact:	Robert Paxman	Account Manager:	Dean Eriksen
Standard:	RSS 210/FCC U-NII (Radiated)	Class:	N/A

**RSS 210 and FCC 15.E (U-NII, 5150- 550/5250-5350/5460-5725MHz)
Band Edge Field Strength 802.11n40 Amphenol Antenna**

Test Specific Details

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

General Test Configuration

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

Ambient Conditions: Temperature: 15-25 °C
 Rel. Humidity: 35-55 %

Summary of Results

Run #	Mode	Channel	Power Setting	Measured Power	Test Performed	Limit	Result / Margin
1a	802.11n40 Chain A	5190MHz	25.5	13.4	Band Edge radiated field strength	FCC Part 15.209	53.0dBµV/m @ 5150.0MHz (-1.0dB)
1b	802.11n40 Chain A	5310MHz	22.0	14.2	Band Edge radiated field strength	FCC Part 15.209	53.0dBµV/m @ 5350.0MHz (-1.0dB)
2a	802.11n40 Chain B	5190MHz	26.5	14.3	Band Edge radiated field strength	FCC Part 15.209	50.9dBµV/m @ 5149.7MHz (-3.1dB)
2b	802.11n40 Chain B	5310MHz	23.5	14.2	Band Edge radiated field strength	FCC Part 15.209	51.4dBµV/m @ 5350.0MHz (-2.6dB)
3a	802.11n40 Chain C	5190MHz	26.0	13.5	Band Edge radiated field strength	FCC Part 15.209	53.2dBµV/m @ 5149.9MHz (-0.8dB)
3b	802.11n40 Chain C	5310MHz	22.5	11.9	Band Edge radiated field strength	FCC Part 15.209	52.5dBµV/m @ 5350.0MHz (-1.5dB)
4	802.11n40 Chain A+B	5190MHz	26.0, 27.0	13.8, 14.4	Band Edge radiated field strength	FCC Part 15.209	52.4dBµV/m @ 5149.8MHz (-1.6dB)
	802.11n40 Chain A+B	5310MHz	22.5, 24.0	13.4, 13.5	Band Edge radiated field strength	FCC Part 15.209	51.6dBµV/m @ 5350.0MHz (-2.4dB)
5	802.11n40 Chain A+C	5190MHz	23.5, 24.5	10.8, 11.1	Band Edge radiated field strength	FCC Part 15.209	52.5dBµV/m @ 5149.9MHz (-1.5dB)
	802.11n40 Chain A+C	5310MHz	20.5, 23.5	11.1, 11.7	Band Edge radiated field strength	FCC Part 15.209	52.6dBµV/m @ 5350.0MHz (-1.4dB)
6	802.11n40 Chain B+C	5190MHz	26.5, 26	13, 12	Band Edge radiated field strength	FCC Part 15.209	52.6dBµV/m @ 5149.8MHz (-1.4dB)
	802.11n40 Chain B+C	5310MHz	22.5, 23.5	11, 11	Band Edge radiated field strength	FCC Part 15.209	51.1dBµV/m @ 5350.1MHz (-2.9dB)
7	802.11n40 A+B+C	5190MHz	25.5, 27, 27.5	10.5, 11.6, 11	Band Edge radiated field strength	FCC Part 15.209	51.1dBµV/m @ 5150.0MHz (-2.9dB)
	802.11n40 A+B+C	5310MHz	24, 25.5, 27.5	12.1, 12.2, 12.7	Band Edge radiated field strength	FCC Part 15.209	53.0dBµV/m @ 5350.0MHz (-1.0dB)

Client:	Intel Corporation	Job Number:	J72065
Model:	533AN-MMW with Amphenol PIFA antenna	T-Log Number:	T72191
Contact:	Robert Paxman	Account Manager:	Dean Eriksen
Standard:	RSS 210/FCC U-NII (Radiated)	Class:	N/A

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.

Run #1: Radiated Spurious Emissions, Band Edges. Operating Mode: 802.11n 40MHz - Chain A

Date of Test: 7/8/2008

Test Engineer: Peter Sales

Test Location: Fremont Chamber #3

Run #1a: Low Channel @ 5190 MHz (band edge at 5150 MHz)

Power Setting: 26.5 Average power: 13.4 (for reference purposes) **Note: Reduced to these readings**

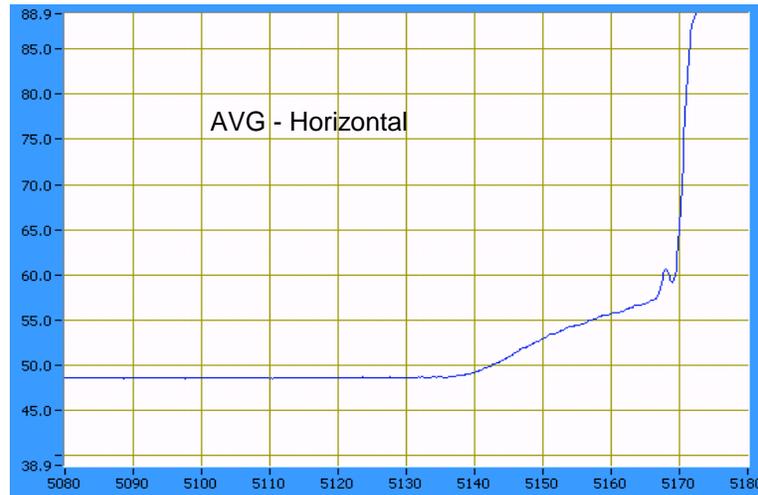
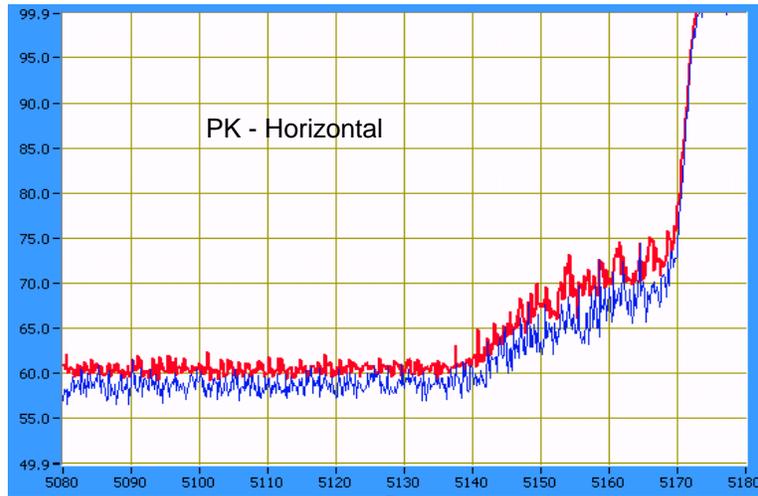
Fundamental Signal Field Strength: Peak and average values measured in 1 MHz, for reference only

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dB μ V/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5202.470	100.6	H	-	-	AVG	305	1.0	
5202.470	108.8	H	-	-	PK	305	1.0	
5204.600	96.9	V	-	-	AVG	360	2.2	
5204.600	106.2	V	-	-	PK	360	2.2	

Band Edge Signal Field Strength

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dB μ V/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5149.770	66.7	V	74.0	-7.3	PK	360	1.0	PS: 25.5, AP: 13.4
5149.770	50.4	V	54.0	-3.6	AVG	360	1.0	PS: 25.5, AP: 13.4
5148.830	70.9	H	74.0	-3.1	PK	304	1.0	PS: 25.5, AP: 13.4
5150.000	53.0	H	54.0	-1.0	AVG	304	1.0	PS: 25.5, AP: 13.4

Client:	Intel Corporation	Job Number:	J72065
Model:	533AN-MMW with Amphenol PIFA antenna	T-Log Number:	T72191
Contact:	Robert Paxman	Account Manager:	Dean Eriksen
Standard:	RSS 210/FCC U-NII (Radiated)	Class:	N/A



Client:	Intel Corporation	Job Number:	J72065
Model:	533AN-MMW with Amphenol PIFA antenna	T-Log Number:	T72191
Contact:	Robert Paxman	Account Manager:	Dean Eriksen
Standard:	RSS 210/FCC U-NII (Radiated)	Class:	N/A

Run #1b: High Channel @ 5310 MHz (band edge at 5350 MHz)

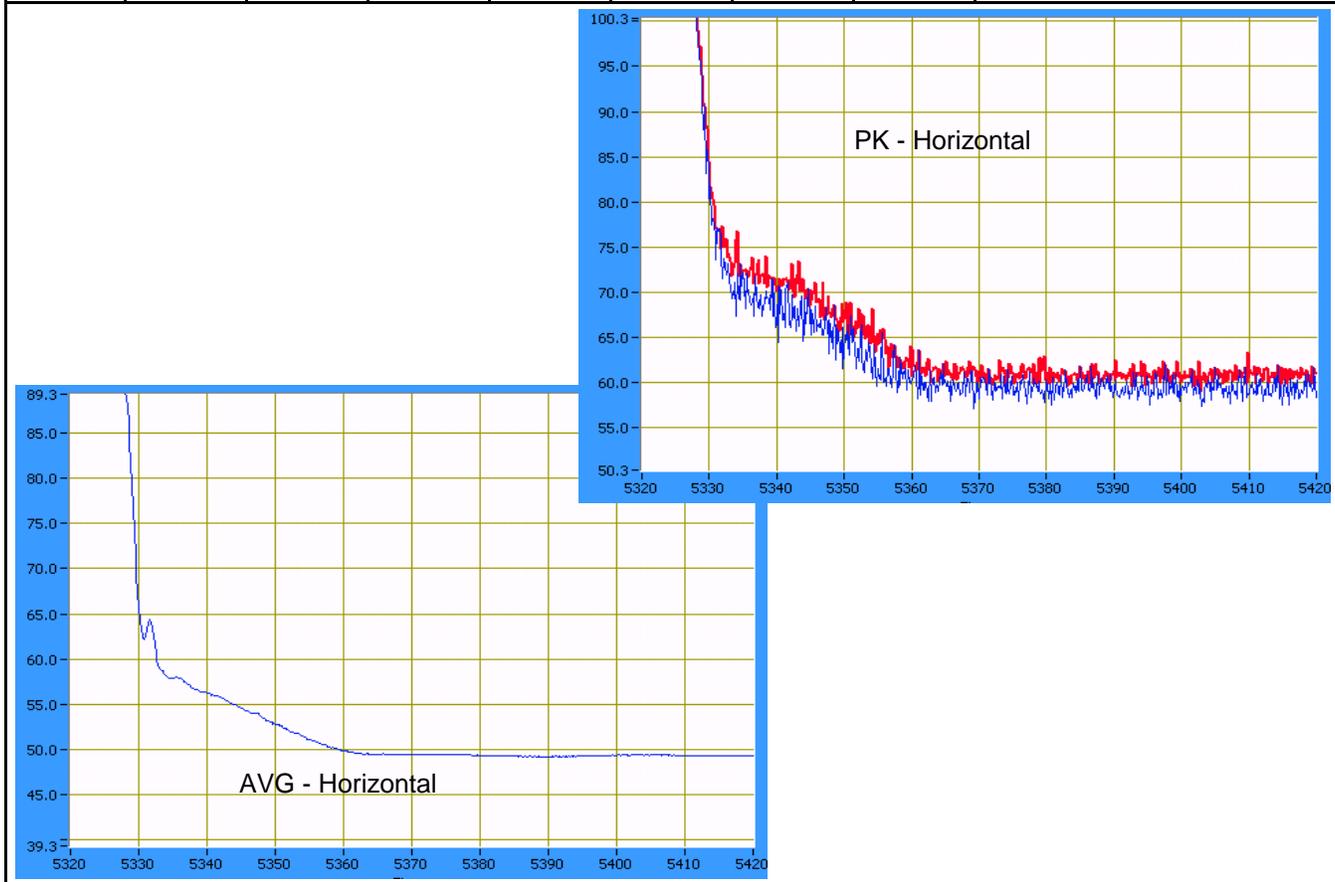
Power Setting: 22.0 Average power: 14.2 (for reference purposes)

Fundamental Signal Field Strength: Peak and average values measured in 1 MHz, for reference only

Frequency MHz	Level dB μ V/m	Pol v/h	15.209 / 15.247		Detector PK/QP/Avg	Azimuth degrees	Height meters	Comments
			Limit	Margin				
5320.530	95.8	V	-	-	AVG	321	1.0	
5320.530	104.3	V	-	-	PK	321	1.0	
5297.930	101.8	H	-	-	AVG	324	1.0	
5297.930	110.2	H	-	-	PK	324	1.0	

Band Edge Signal Field Strength

Frequency MHz	Level dB μ V/m	Pol v/h	15.209 / 15.247		Detector PK/QP/Avg	Azimuth degrees	Height meters	Comments
			Limit	Margin				
5351.580	81.3	H	74.0	7.3	PK	324	1.0	PS: 25.0, AP: 16.6
5350.000	50.6	H	54.0	-3.4	AVG	324	1.0	PS: 20.0, AP: 12.3
5352.790	68.0	V	74.0	-6.0	PK	322	1.0	PS: 22.0, AP: 14.2
5350.000	51.2	V	54.0	-2.8	AVG	322	1.0	PS: 22.0, AP: 14.2
5350.000	53.0	H	54.0	-1.0	AVG	324	1.0	PS: 22.0, AP: 14.2
5350.440	70.8	H	74.0	-3.2	PK	324	1.0	PS: 22.0, AP: 14.2



Client:	Intel Corporation	Job Number:	J72065
Model:	533AN-MMW with Amphenol PIFA antenna	T-Log Number:	T72191
Contact:	Robert Paxman	Account Manager:	Dean Eriksen
Standard:	RSS 210/FCC U-NII (Radiated)	Class:	N/A

Run #2: Radiated Spurious Emissions, Band Edges. Operating Mode: 802.11n 40MHz - Chain B

Sample ID:

Date of Test: 7/8/2008

Test Engineer: Peter Sales

Test Location: Fremont Chamber #3

Run #2a: Low Channel @ 5190 MHz (band edge at 5150 MHz)

Power Setting: 26.5

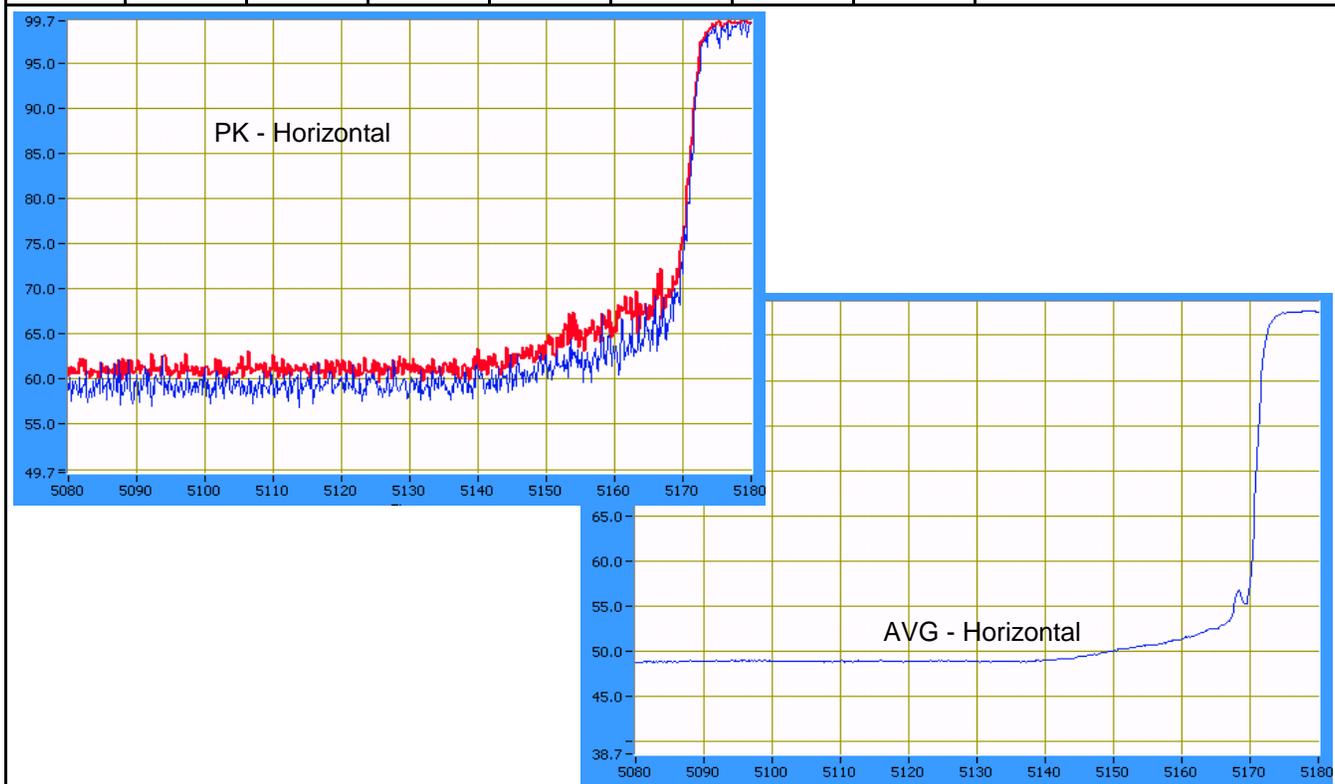
Average power: 14.3 (for reference purposes)

Fundamental Signal Field Strength: Peak and average values measured in 1 MHz, for reference only

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dB μ V/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5206.400	88.6	V	54.0	34.6	AVG	57	1.0	
5206.400	96.5	V	74.0	22.5	PK	57	1.0	
5205.070	95.3	H	54.0	41.3	AVG	107	1.1	
5205.070	103.6	H	74.0	29.6	PK	107	1.1	

Band Edge Signal Field Strength

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dB μ V/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5149.620	66.5	H	74.0	-7.5	PK	107	1.0	
5149.710	50.9	H	54.0	-3.1	AVG	107	1.0	
5149.960	64.2	V	74.0	-9.8	??	56	1.0	
5149.580	50.1	V	54.0	-3.9	AVG	56	1.0	



Client: Intel Corporation	Job Number: J72065
Model: 533AN-MMW with Amphenol PIFA antenna	T-Log Number: T72191
	Account Manager: Dean Eriksen
Contact: Robert Paxman	
Standard: RSS 210/FCC U-NII (Radiated)	Class: N/A

Run #2b: High Channel @ 5310 MHz (band edge at 5350 MHz)

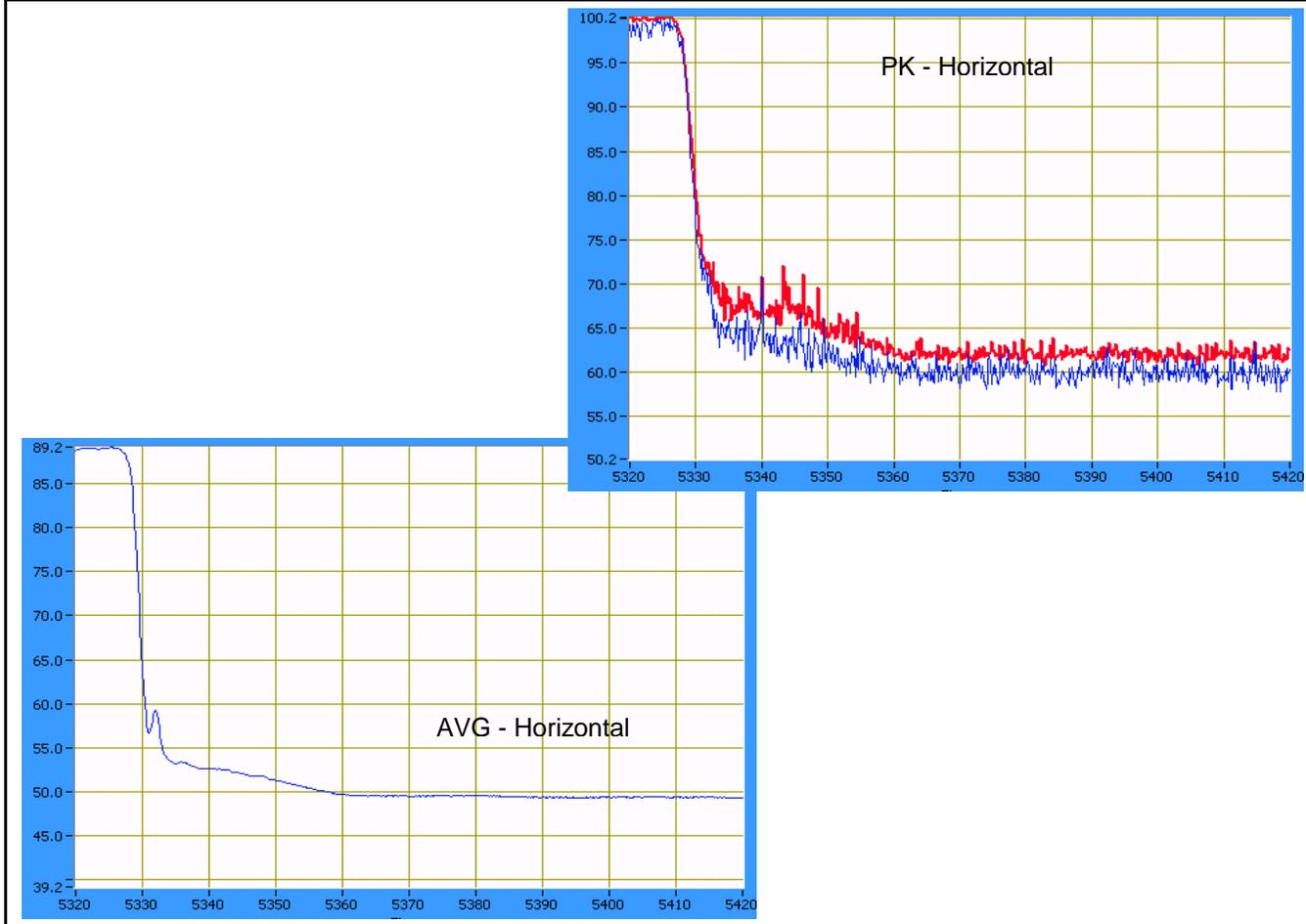
Power Setting: 23.5 Average power: 14.2 (for reference purposes)

Fundamental Signal Field Strength: Peak and average values measured in 1 MHz, for reference only

Frequency MHz	Level dB μ V/m	Pol v/h	15.209 / 15.247		Detector PK/QP/Avg	Azimuth degrees	Height meters	Comments
			Limit	Margin				
5324.270	86.9	V	-	-	AVG	75	1.0	
5324.270	95.0	V	-	-	PK	75	1.0	
5321.000	92.1	H	-	-	AVG	102	1.0	
5321.000	101.4	H	-	-	PK	102	1.0	

Band Edge Signal Field Strength

Frequency MHz	Level dB μ V/m	Pol v/h	15.209 / 15.247		Detector PK/QP/Avg	Azimuth degrees	Height meters	Comments
			Limit	Margin				
5350.100	67.7	H	74.0	-6.3	PK	102	1.0	
5350.020	51.4	H	54.0	-2.6	AVG	102	1.0	
5350.330	62.6	V	74.0	-11.4	PK	74	1.0	
5350.000	50.1	V	54.0	-3.9	AVG	74	1.0	



Client:	Intel Corporation	Job Number:	J72065
Model:	533AN-MMW with Amphenol PIFA antenna	T-Log Number:	T72191
Contact:	Robert Paxman	Account Manager:	Dean Eriksen
Standard:	RSS 210/FCC U-NII (Radiated)	Class:	N/A

Run #3: Radiated Spurious Emissions, Band Edges. Operating Mode: 802.11n 40MHz - Chain C

Run #3a: Low Channel @ 5190 MHz (band edge at 5150 MHz)

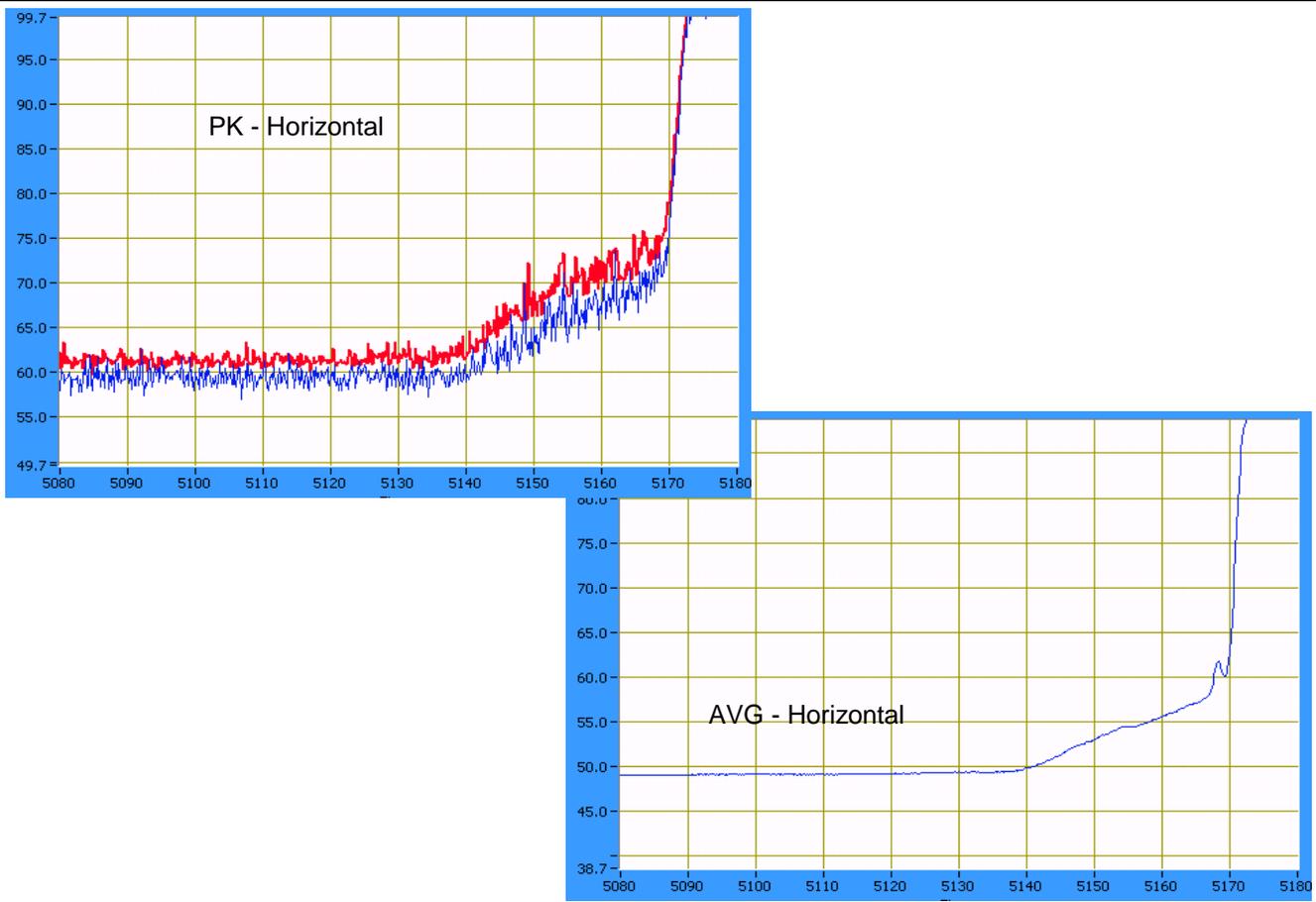
Power Setting: 26.0 Average power: 13.5 (for reference purposes)

Fundamental Signal Field Strength: Peak and average values measured in 1 MHz, for reference only

Frequency MHz	Level dB μ V/m	Pol v/h	15.209 / 15.247		Detector Pk/QP/Avg	Azimuth degrees	Height meters	Comments
			Limit	Margin				
5205.530	89.7	V	-	-	AVG	194	1.1	
5205.530	97.6	V	-	-	PK	194	1.1	
5205.070	95.8	H	-	-	AVG	119	1.1	
5205.070	104.0	H	-	-	PK	119	1.1	

Band Edge Signal Field Strength

Frequency MHz	Level dB μ V/m	Pol v/h	15.209 / 15.247		Detector Pk/QP/Avg	Azimuth degrees	Height meters	Comments
			Limit	Margin				
5147.590	71.1	H	74.0	-2.9	PK	119	1.1	
5149.940	53.2	H	54.0	-0.8	AVG	119	1.1	
5149.370	66.4	V	74.0	-7.6	PK	195	1.1	
5149.670	51.0	V	54.0	-3.0	AVG	195	1.1	



Client:	Intel Corporation	Job Number:	J72065
Model:	533AN-MMW with Amphenol PIFA antenna	T-Log Number:	T72191
Contact:	Robert Paxman	Account Manager:	Dean Eriksen
Standard:	RSS 210/FCC U-NII (Radiated)	Class:	N/A

Run #3b: High Channel @ 5310 MHz (band edge at 5350 MHz)

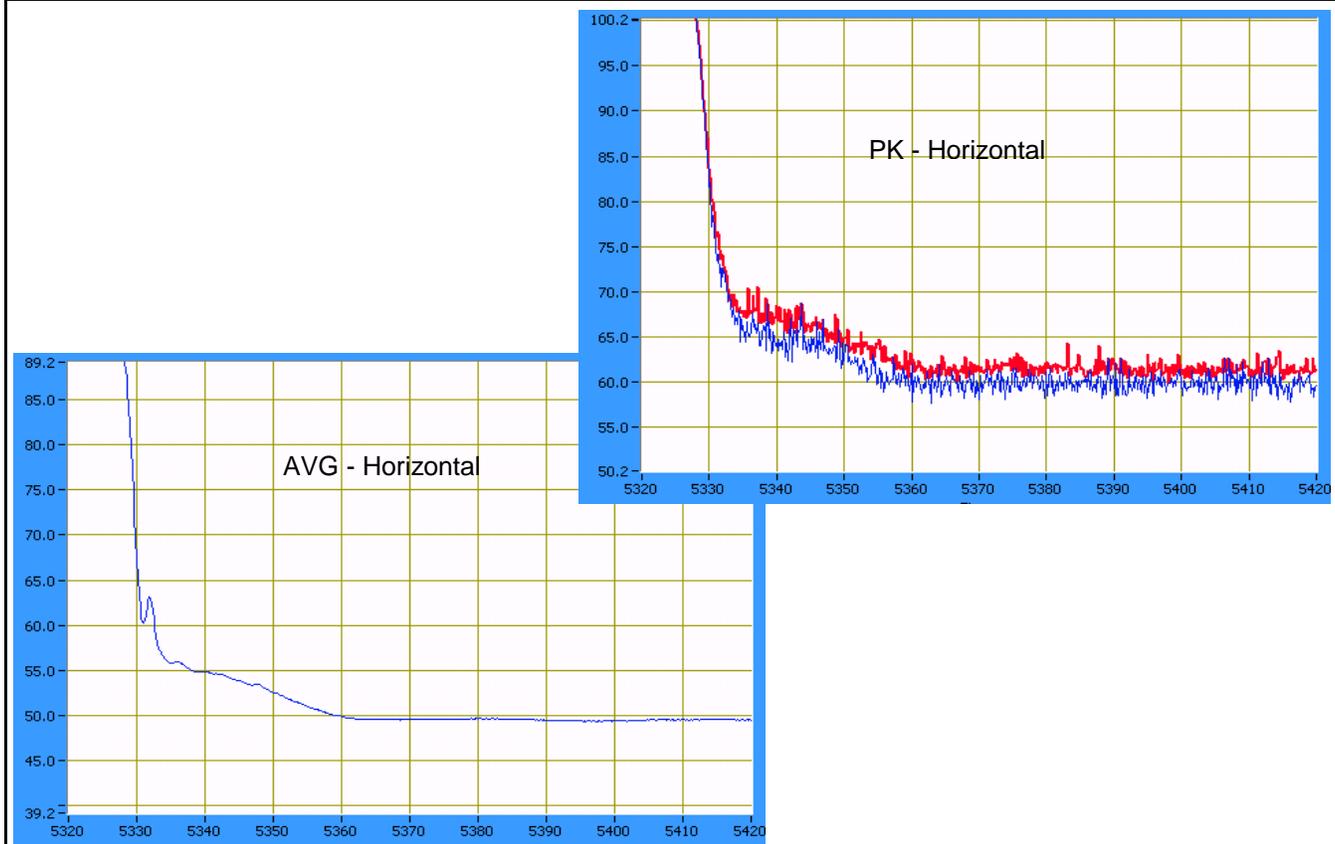
Power Setting: 22.5 Average power: 11.9 (for reference purposes)

Fundamental Signal Field Strength: Peak and average values measured in 1 MHz, for reference only

Frequency MHz	Level dB μ V/m	Pol v/h	15.209 / 15.247		Detector PK/QP/Avg	Azimuth degrees	Height meters	Comments
			Limit	Margin				
5293.870	98.1	H	-	-	AVG	103	1.0	
5293.870	106.5	H	-	-	PK	103	1.0	
5294.470	91.4	V	-	-	AVG	195	1.0	
5294.470	100.7	V	-	-	PK	195	1.0	

Band Edge Signal Field Strength

Frequency MHz	Level dB μ V/m	Pol v/h	15.209 / 15.247		Detector PK/QP/Avg	Azimuth degrees	Height meters	Comments
			Limit	Margin				
5350.190	74.3	H	74.0	0.3	PK	103	1.0	PS: 25.0, AP: 14.6
5350.000	55.7	H	54.0	1.7	AVG	103	1.0	PS: 25.0, AP: 14.6
5350.080	64.9	H	74.0	-9.1	PK	102	1.0	
5350.000	52.5	H	54.0	-1.5	AVG	102	1.0	
5351.380	64.0	V	74.0	-10.0	PK	195	1.0	
5350.000	50.5	V	54.0	-3.5	AVG	195	1.0	



Client: Intel Corporation	Job Number: J72065
Model: 533AN-MMW with Amphenol PIFA antenna	T-Log Number: T72191
	Account Manager: Dean Eriksen
Contact: Robert Paxman	
Standard: RSS 210/FCC U-NII (Radiated)	Class: N/A

Run #4: Radiated Spurious Emissions, Band Edges. Operating Mode: 802.11n 40MHz - Chain A+B

Date of Test: 7/8/2008

Test Engineer: Peter Sales

Test Location: Fremont Chamber #3

Run #4a: Low Channel @ 5190 MHz (band edge at 5150 MHz)

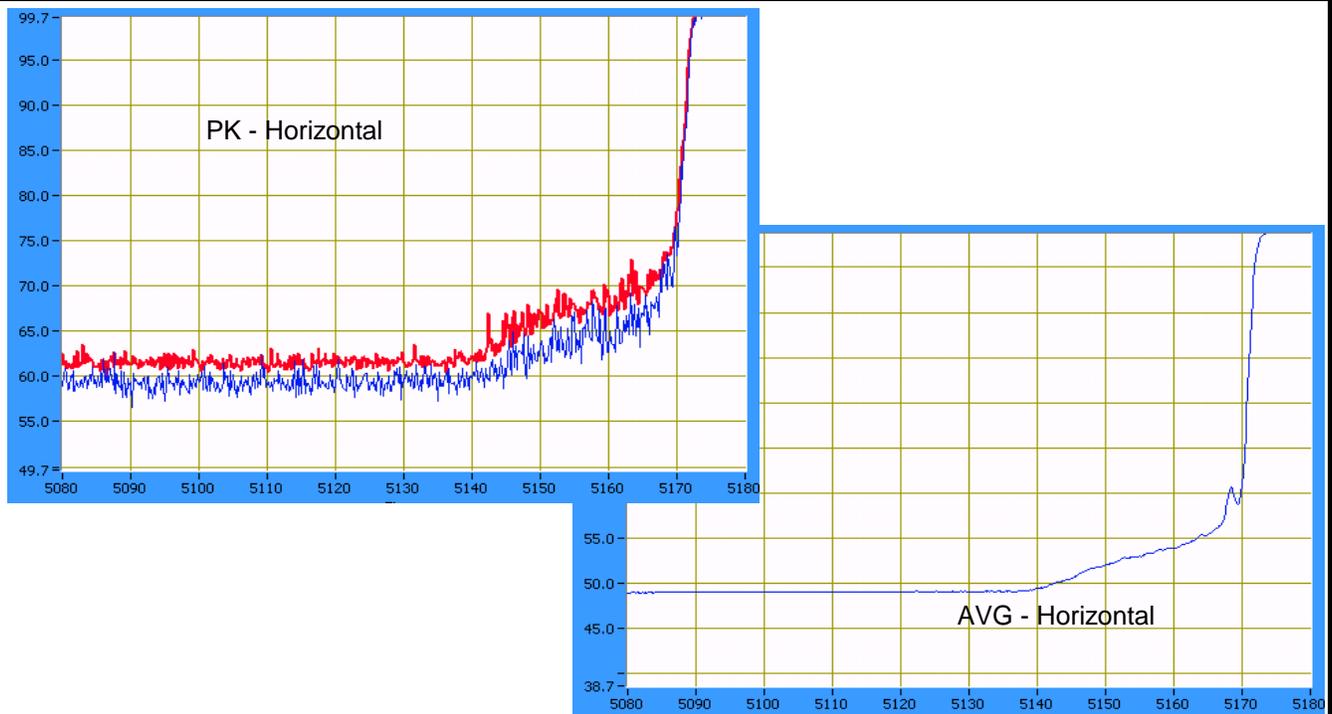
Power Setting and average measurement (for reference)					
Chain A		Chain B		Chain C	
Setting	Avg	Setting	Avg	Setting	Avg
26.0	13.8	27.0	14.4		

Fundamental Signal Field Strength: Peak and average values measured in 1 MHz, for reference only

Frequency MHz	Level dB μ V/m	Pol v/h	15.209 / 15.247		Detector Pk/QP/Avg	Azimuth degrees	Height meters	Comments
			Limit	Margin				
5204.800	96.5	H	-	-	AVG	132	1.2	
5204.800	107.2	H	-	-	PK	132	1.2	
5202.670	84.6	V	-	-	AVG	30	1.0	
5202.670	95.3	V	-	-	PK	30	1.0	

Band Edge Signal Field Strength

Frequency MHz	Level dB μ V/m	Pol v/h	15.209 / 15.247		Detector Pk/QP/Avg	Azimuth degrees	Height meters	Comments
			Limit	Margin				
5147.610	61.8	V	74.0	-12.2	PK	30	1.0	
5149.700	49.6	V	54.0	-4.4	AVG	30	1.0	
5148.140	68.0	H	74.0	-6.0	PK	132	1.2	
5149.800	52.4	H	54.0	-1.6	AVG	132	1.2	



Client: Intel Corporation	Job Number: J72065
Model: 533AN-MMW with Amphenol PIFA antenna	T-Log Number: T72191
	Account Manager: Dean Eriksen
Contact: Robert Paxman	
Standard: RSS 210/FCC U-NII (Radiated)	Class: N/A

Run #4b: High Channel @ 5310 MHz (band edge at 5350 MHz)

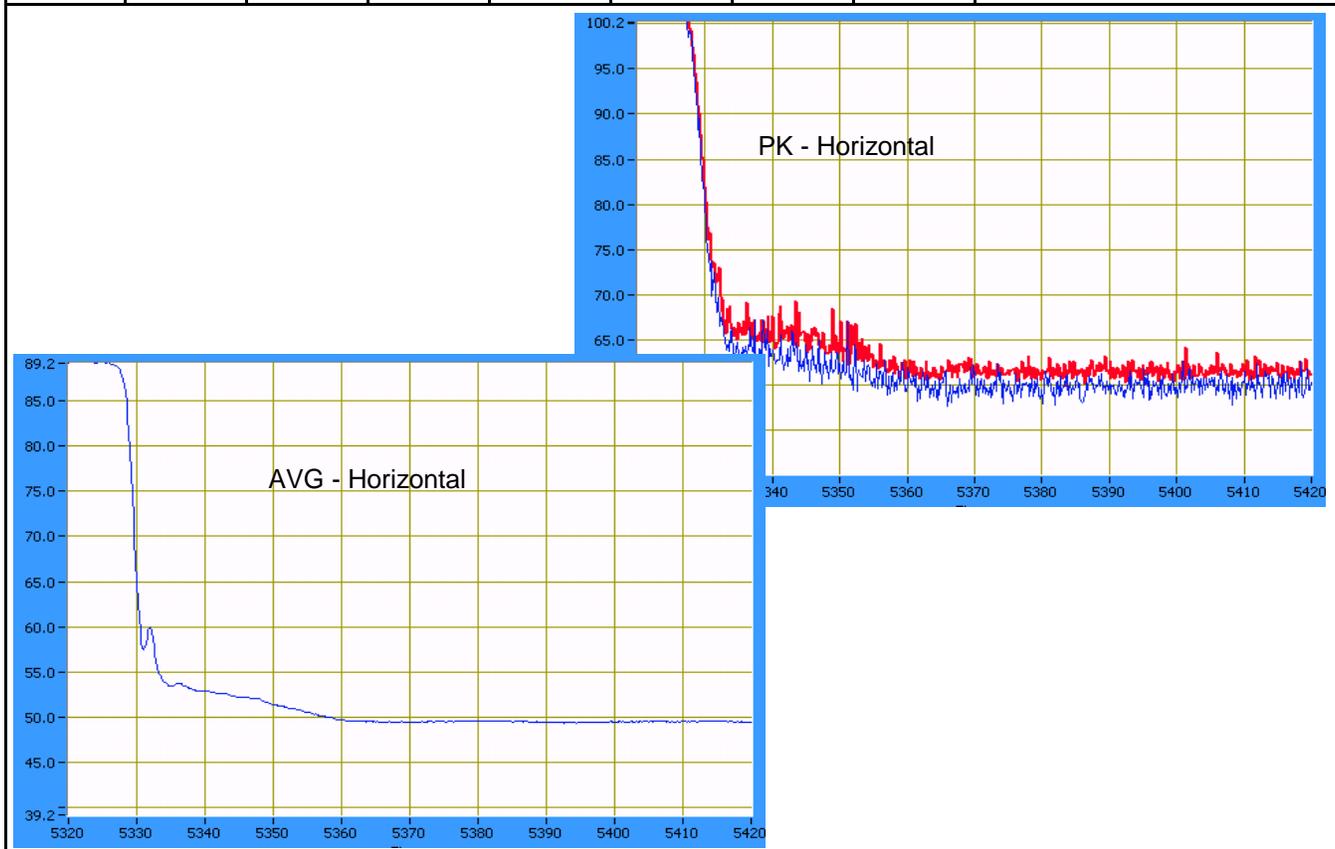
Power Setting and average measurement (for reference)					
Chain A		Chain B		Chain C	
Setting	Avg	Setting	Avg	Setting	Avg
22.5	13.4	24.0	13.5		

Fundamental Signal Field Strength: Peak and average values measured in 1 MHz, for reference only

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dB μ V/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5324.930	94.9	H	-	-	AVG	130	1.1	
5324.930	106.3	H	-	-	PK	130	1.1	
5298.330	88.9	V	-	-	AVG	214	1.7	
5298.330	99.2	V	-	-	PK	214	1.7	

Band Edge Signal Field Strength

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dB μ V/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5353.000	62.6	V	74.0	-11.4	PK	214	1.7	
5350.000	50.1	V	54.0	-3.9	AVG	214	1.7	
5350.620	66.6	H	74.0	-7.4	PK	129	1.1	
5350.000	51.6	H	54.0	-2.4	AVG	129	1.1	



Client: Intel Corporation	Job Number: J72065
Model: 533AN-MMW with Amphenol PIFA antenna	T-Log Number: T72191
	Account Manager: Dean Eriksen
Contact: Robert Paxman	
Standard: RSS 210/FCC U-NII (Radiated)	Class: N/A

Run #5: Radiated Spurious Emissions, Band Edges. Operating Mode: 802.11n 40MHz - Chain A+C

Date of Test: 7/9/2008

Test Engineer: Peter Sales

Test Location: Fremont Chamber #3

Run #5a: Low Channel @ 5190 MHz (band edge at 5150 MHz)

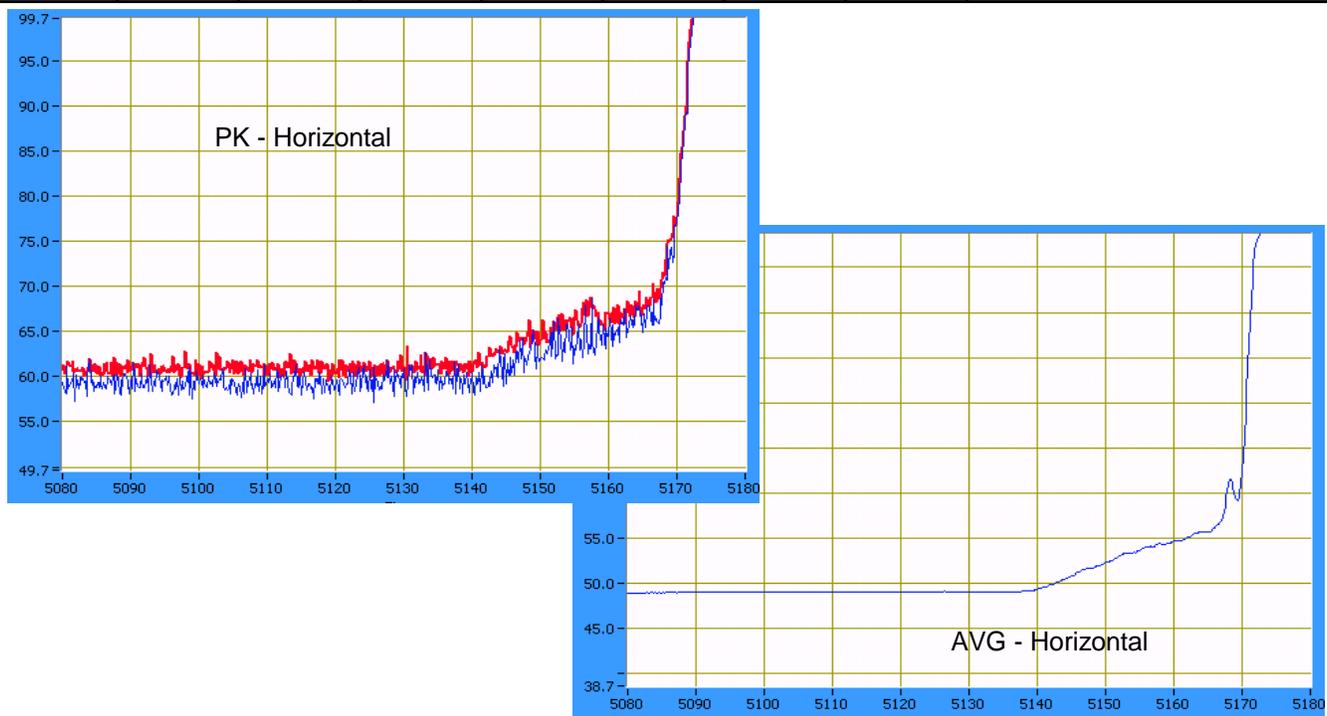
Power Setting and average measurement (for reference)					
Chain A		Chain B		Chain C	
Setting	Avg	Setting	Avg	Setting	Avg
23.5	10.8			24.5	11.1

Fundamental Signal Field Strength: Peak and average values measured in 1 MHz, for reference only

Frequency MHz	Level dB μ V/m	Pol v/h	15.209 / 15.247		Detector Pk/QP/Avg	Azimuth degrees	Height meters	Comments
			Limit	Margin				
5201.200	99.3	H	54.0	45.3	AVG	115	1.0	
5201.200	109.5	H	74.0	35.5	PK	115	1.0	
5203.870	93.0	V	54.0	39.0	AVG	176	1.9	
5203.870	103.9	V	74.0	29.9	PK	176	1.9	

Band Edge Signal Field Strength

Frequency MHz	Level dB μ V/m	Pol v/h	15.209 / 15.247		Detector Pk/QP/Avg	Azimuth degrees	Height meters	Comments
			Limit	Margin				
5149.900	52.5	H	54.0	-1.5	AVG	115	1.0	
5149.520	67.3	H	74.0	-6.7	PK	115	1.0	
5149.810	62.5	V	74.0	-11.5	PK	177	1.9	
5149.880	49.9	V	54.0	-4.1	AVG	177	1.9	



Client:	Intel Corporation	Job Number:	J72065
Model:	533AN-MMW with Amphenol PIFA antenna	T-Log Number:	T72191
Contact:	Robert Paxman	Account Manager:	Dean Eriksen
Standard:	RSS 210/FCC U-NII (Radiated)	Class:	N/A

Run #5b: High Channel @ 5310 MHz (band edge at 5350 MHz)

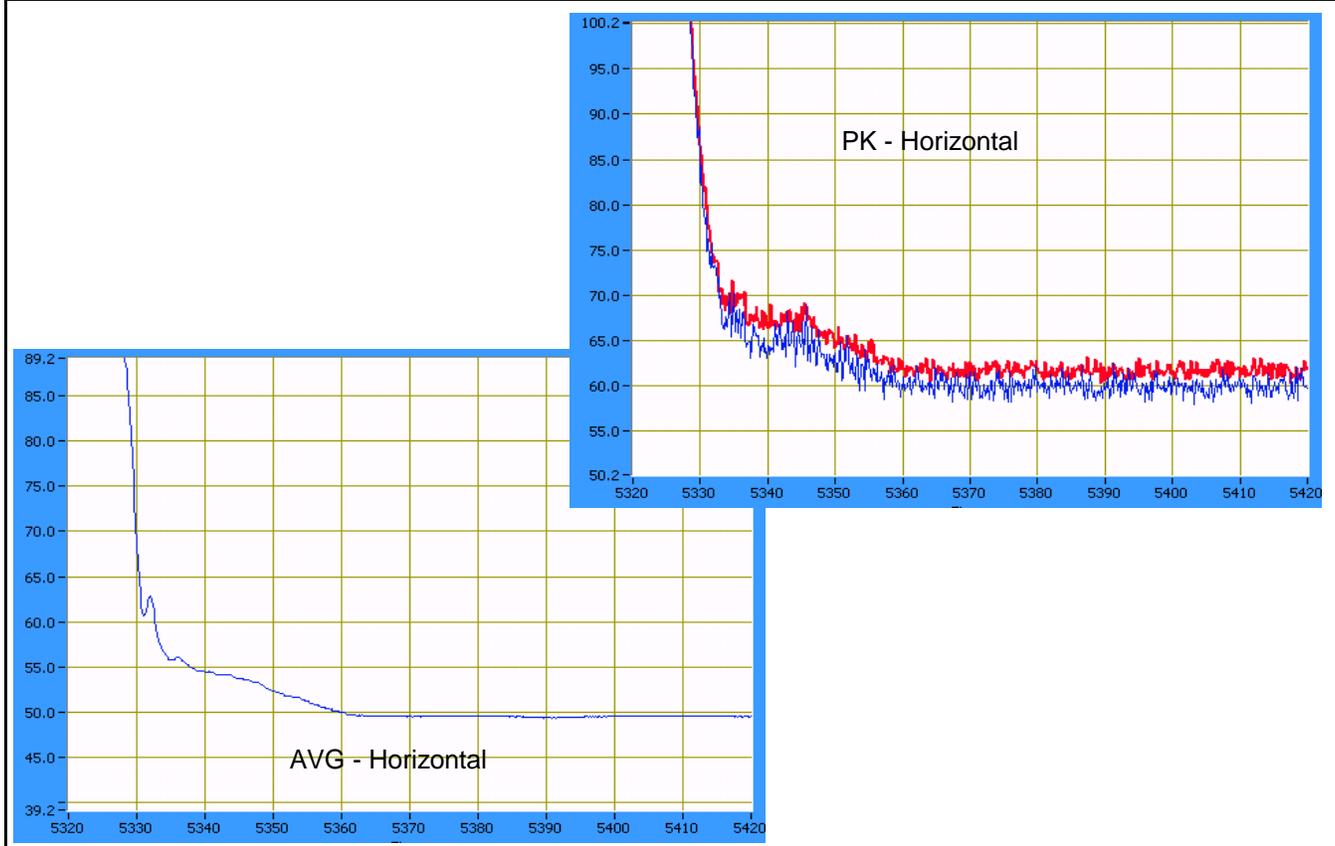
Power Setting and average measurement (for reference)					
Chain A		Chain B		Chain C	
Setting	Avg	Setting	Avg	Setting	Avg
20.5	11.1			23.5	11.7

Fundamental Signal Field Strength: Peak and average values measured in 1 MHz, for reference only

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dB μ V/m	v/h	Limit	Margin	PK/QP/Avg	degrees	meters	
5298.270	93.4	V	-	-	AVG	193	1.7	
5298.270	103.6	V	-	-	PK	193	1.7	
5325.070	99.8	H	-	-	AVG	111	1.0	
5325.070	110.2	H	-	-	PK	111	1.0	

Band Edge Signal Field Strength

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dB μ V/m	v/h	Limit	Margin	PK/QP/Avg	degrees	meters	
5352.310	67.1	H	74.0	-6.9	PK	111	1.0	
5350.000	52.6	H	54.0	-1.4	AVG	111	1.0	
5350.400	62.5	V	74.0	-11.5	PK	193	1.7	
5350.130	50.4	V	54.0	-3.6	AVG	193	1.7	



Client: Intel Corporation	Job Number: J72065
Model: 533AN-MMW with Amphenol PIFA antenna	T-Log Number: T72191
	Account Manager: Dean Eriksen
Contact: Robert Paxman	
Standard: RSS 210/FCC U-NII (Radiated)	Class: N/A

Run #6: Radiated Spurious Emissions, Band Edges. Operating Mode: 802.11n 40MHz - Chain B+C

Date of Test: 7/9/2008

Test Engineer: Suhaila Khushzad

Test Location: Chamber # 3

Run #6a: Low Channel @ 5190 MHz (band edge at 5150 MHz)

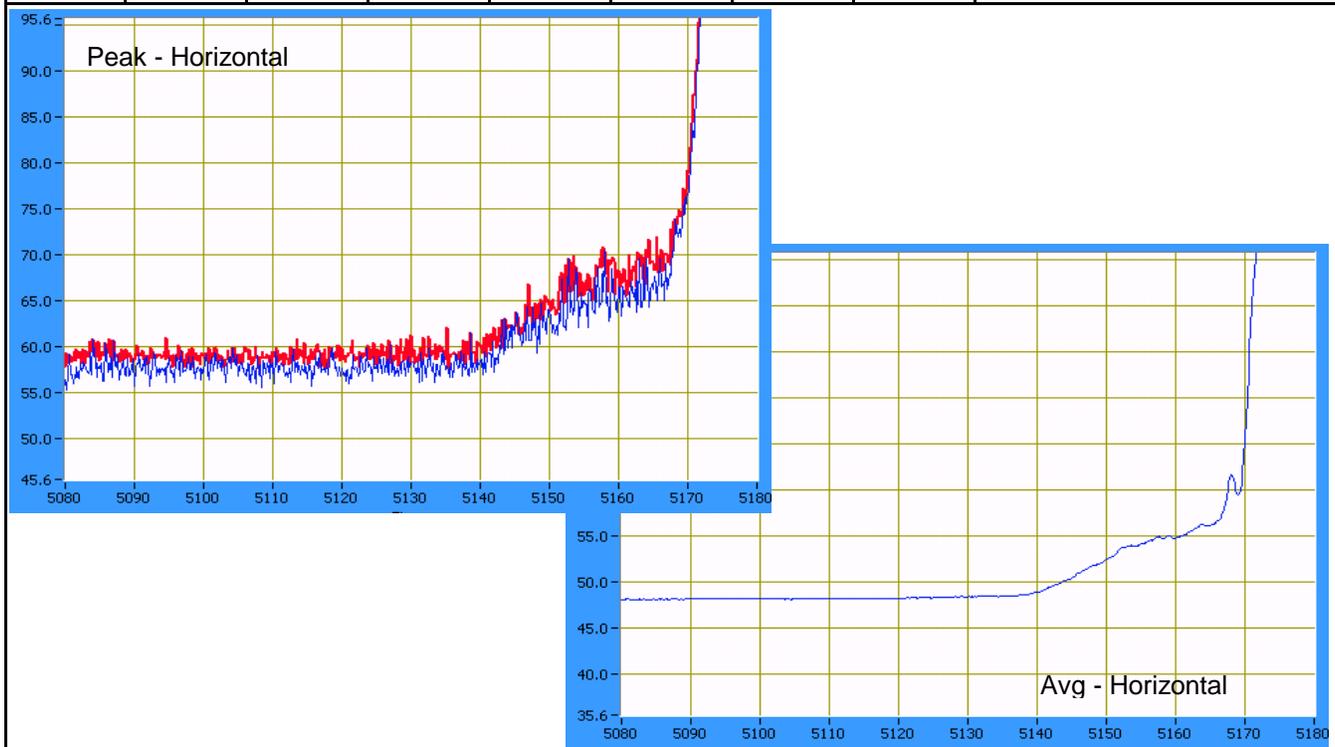
Power Setting and average measurement (for reference)					
Chain A		Chain B		Chain C	
Setting	Avg	Setting	Avg	Setting	Avg
		26.5	13.0	26.0	12.0

Fundamental Signal Field Strength: Peak and average values measured in 1 MHz, for reference only

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dB μ V/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5202.670	96.4	H	-	-	AVG	105	1.0	
5202.670	107.7	H	-	-	PK	105	1.0	
5206.270	94.9	V	-	-	AVG	202	1.1	
5206.270	104.9	V	-	-	PK	202	1.1	

Band Edge Signal Field Strength

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dB μ V/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5149.830	52.6	H	54.0	-1.4	AVG	105	1.0	
5149.900	69.3	H	74.0	-4.7	PK	105	1.0	
5149.770	50.8	V	54.0	-3.2	AVG	202	1.1	
5149.330	66.1	V	74.0	-7.9	PK	202	1.1	



Client: Intel Corporation	Job Number: J72065
Model: 533AN-MMW with Amphenol PIFA antenna	T-Log Number: T72191
	Account Manager: Dean Eriksen
Contact: Robert Paxman	
Standard: RSS 210/FCC U-NII (Radiated)	Class: N/A

Run #6b: High Channel @ 5310 MHz (band edge at 5350 MHz)

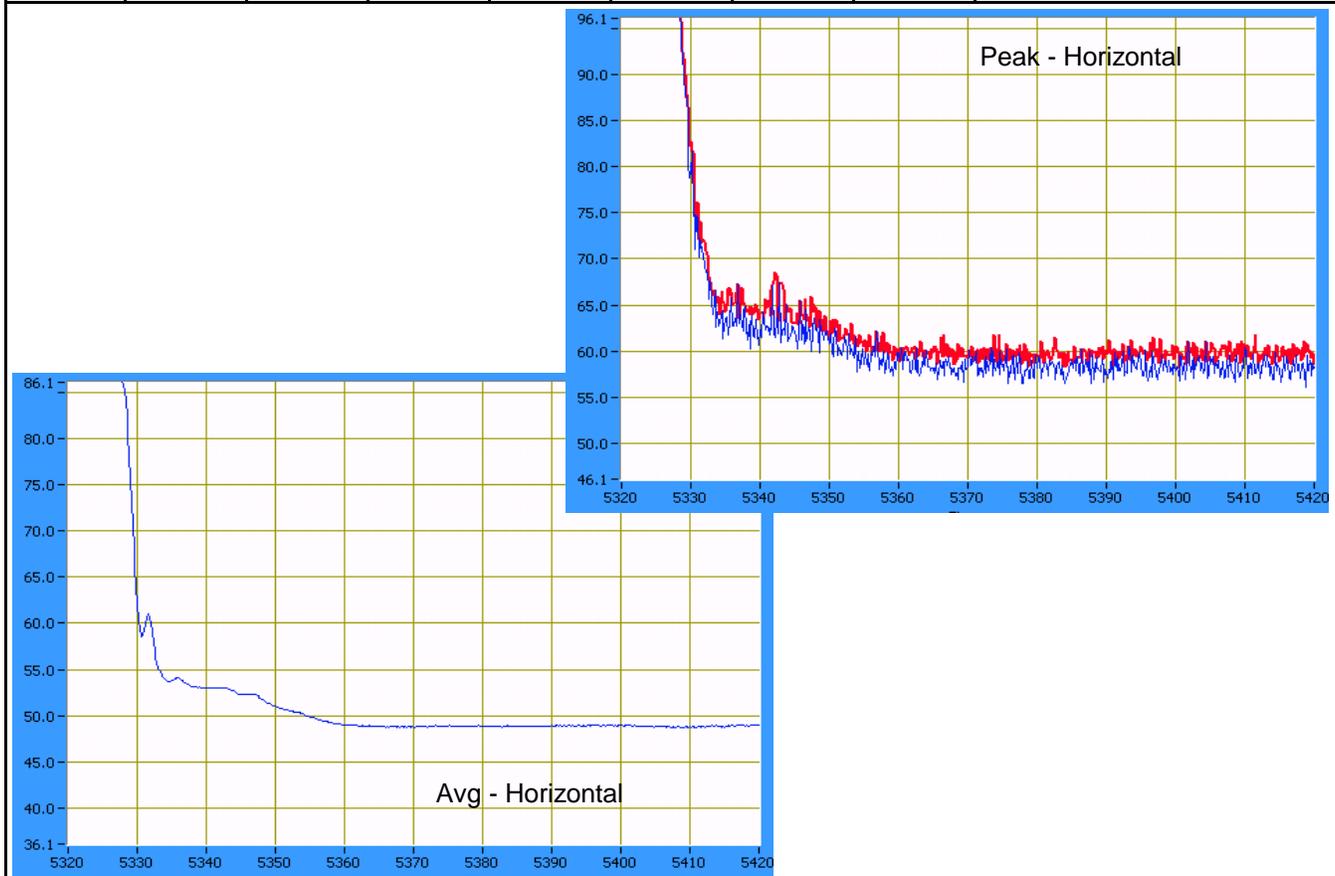
Power Setting and average measurement (for reference)					
Chain A		Chain B		Chain C	
Setting	Avg	Setting	Avg	Setting	Avg
		22.5	11.0	23.5	11.0

Fundamental Signal Field Strength: Peak and average values measured in 1 MHz, for reference only

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dB μ V/m	v/h	Limit	Margin	PK/QP/Avg	degrees	meters	
5322.450	96.7	H	-	-	AVG	108	1.0	
5322.450	106.6	H	-	-	PK	108	1.0	
5321.500	96.4	V	-	-	AVG	199	1.5	
5321.500	107.1	V	-	-	PK	199	1.5	

Band Edge Signal Field Strength

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dB μ V/m	v/h	Limit	Margin	PK/QP/Avg	degrees	meters	
5350.060	51.1	H	54.0	-2.9	AVG	108	1.1	
5350.990	64.6	H	74.0	-9.4	PK	108	1.1	
5350.010	50.5	V	54.0	-3.5	AVG	199	1.5	
5350.630	63.6	V	74.0	-10.4	PK	199	1.5	



Client: Intel Corporation	Job Number: J72065
Model: 533AN-MMW with Amphenol PIFA antenna	T-Log Number: T72191
	Account Manager: Dean Eriksen
Contact: Robert Paxman	
Standard: RSS 210/FCC U-NII (Radiated)	Class: N/A

Run #7: Radiated Spurious Emissions, Band Edges. Operating Mode: 802.11n 40MHz - Chain A+B+C

Date of Test: 7/9/2008

Test Engineer: Suhaila Khushzad

Test Location: Chamber # 3

Run #7a: Low Channel @ 5190 MHz (band edge at 5150 MHz)

Power Setting and average measurement (for reference)					
Chain A		Chain B		Chain C	
Setting	Avg	Setting	Avg	Setting	Avg
25.5	10.5	27.0	11.6	27.5	11.0

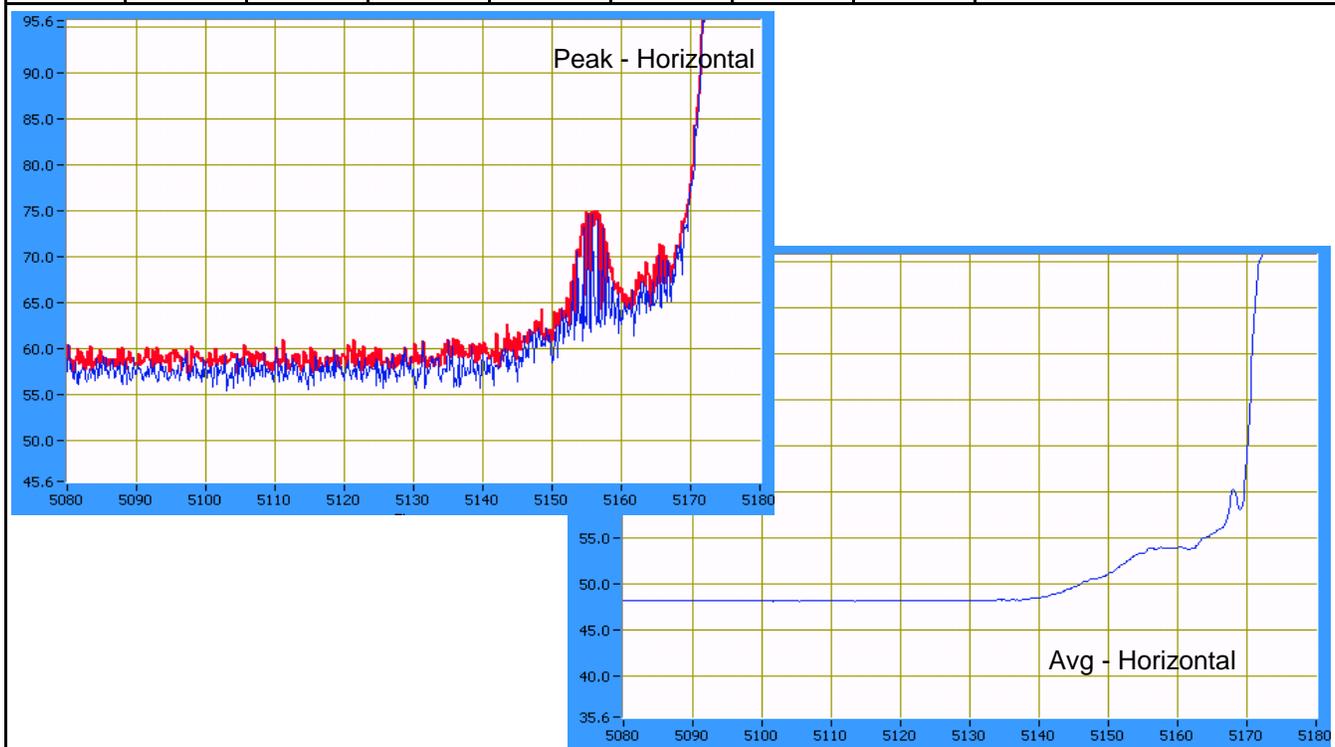
Measured Settings

Fundamental Signal Field Strength: Peak and average values measured in 1 MHz, for reference only

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dB μ V/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5178.400	95.0	H	-	-	AVG	112	1.0	
5178.400	105.1	H	-	-	PK	112	1.0	
5178.670	94.8	V	-	-	AVG	200	1.3	
5178.670	105.2	V	-	-	PK	200	1.3	

Band Edge Signal Field Strength

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dB μ V/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5149.970	51.1	H	54.0	-2.9	AVG	112	1.0	
5147.380	64.8	H	74.0	-9.2	PK	112	1.0	
5149.670	50.9	V	54.0	-3.1	AVG	200	1.3	
5149.770	64.9	V	74.0	-9.1	PK	200	1.3	



Client: Intel Corporation	Job Number: J72065
Model: 533AN-MMW with Amphenol PIFA antenna	T-Log Number: T72191
	Account Manager: Dean Eriksen
Contact: Robert Paxman	
Standard: RSS 210/FCC U-NII (Radiated)	Class: N/A

Run #7: Radiated Spurious Emissions, Band Edges. Operating Mode: 802.11n 40MHz - Chain A+B+C
Run #7b: High Channel @ 5310 MHz (band edge at 5350 MHz)

Power Setting and average measurement (for reference)					
Chain A		Chain B		Chain C	
Setting	Avg	Setting	Avg	Setting	Avg
24.0	12.1	25.5	12.2	27.5	12.7

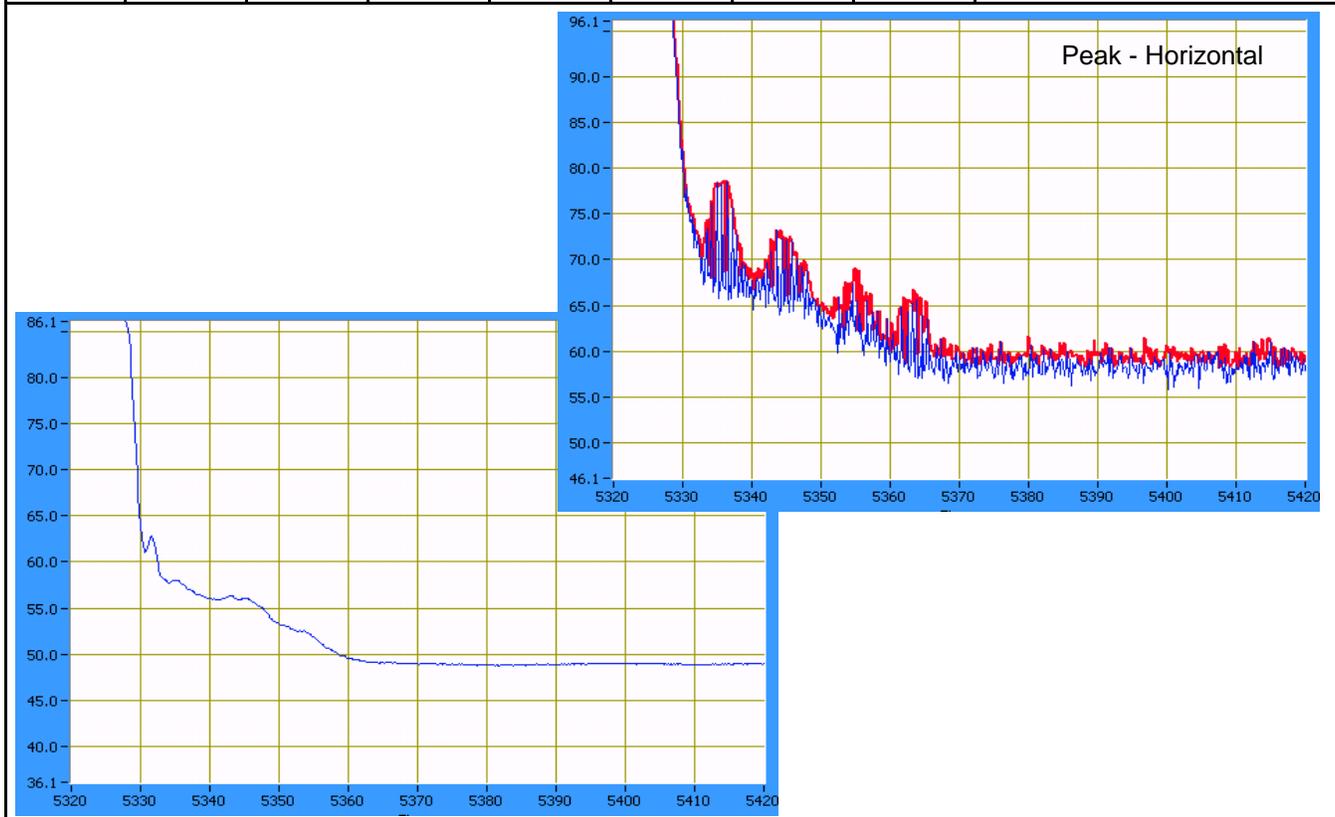
Measured Settings

Fundamental Signal Field Strength: Peak and average values measured in 1 MHz, for reference only

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dB μ V/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5298.670	96.4	H	-	-	AVG	109	1.0	
5298.670	107.4	H	-	-	PK	109	1.0	
5321.330	95.8	V	-	-	AVG	201	1.1	
5321.330	105.9	V	-	-	PK	201	1.1	

Band Edge Signal Field Strength

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dB μ V/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5350.000	53.0	H	54.0	-1.0	AVG	109	1.0	
5352.300	66.6	H	74.0	-7.4	PK	109	1.0	
5350.000	52.6	V	54.0	-1.4	AVG	201	1.1	
5350.790	66.2	V	74.0	-7.8	PK	201	1.1	



Client:	Intel Corporation	Job Number:	J72065
Model:	533AN-MMW with Amphenol PIFA antenna	T-Log Number:	T72191
		Account Manager:	Dean Eriksen
Contact:	Robert Paxman		
Standard:	RSS 210/FCC U-NII (Radiated)	Class:	N/A

**RSS 210 and FCC 15.E (U-NII, 5150- 550/5250-5350/5460-5725MHz)
Radiated Spurious Emissions 802.11n 40MHz Amphenol Antenna**

Summary of Results

Run #	Mode	Channel	Power Setting	Measured Power	Test Performed	Limit	Result / Margin
1	802.11n40 Chain A	5190 5230	29 29	15.3 16.5	Radiated Emissions, 1 - 40 GHz	FCC Part 15.209 / 15.247(c)	Tests with ethertronics antenna indicated spurious emissions were higher when operating in 802.11n mode with a 20MHz bandwidth.
2	802.11n40 Chain A	5270 5310	27.5 26.0	16.5 16.6	Radiated Emissions, 1 - 40 GHz	FCC Part 15.209 / 15.247(c)	
3	802.11n40 Chain A	5510 5590 5670	24.5 25.0 25.5	16.3 16.7 16.7	Radiated Emissions, 1 - 40 GHz	FCC Part 15.209 / 15.247(c)	

Client: Intel Corporation	Job Number: J72065
Model: 533AN-MMW with Amphenol PIFA antenna	T-Log Number: T72191
	Account Manager: Dean Eriksen
Contact: Robert Paxman	
Standard: RSS 210/FCC U-NII (Radiated)	Class: -

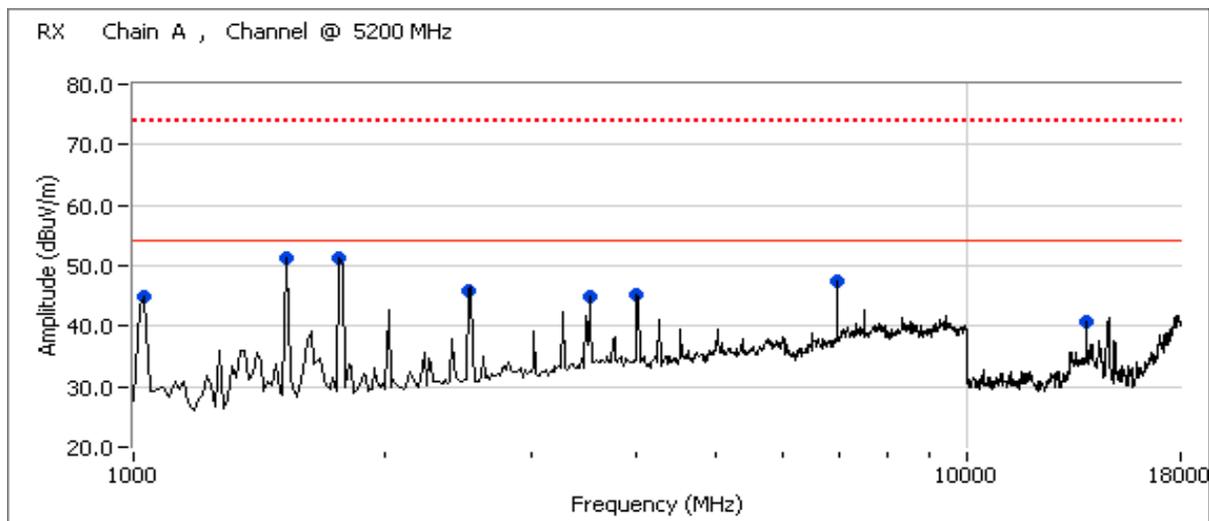
Run #1: Maximized readings, 1000 - 18000 MHz, Receive Chain A

Frequency Range	Test Distance	Limit Distance	Extrapolation Factor
1000 - 10000 MHz	3	3	0.0
10000 - 18000 MHz	1	3	-9.5

Receiver Tuned to 5200 MHz - Chain A

Frequency MHz	Level dB μ V/m	Pol v/h	RSS GEN		Detector Pk/QP/Avg	Azimuth degrees	Height meters	Comments
			Limit	Margin				
6933.250	47.0	V	54.0	-7.0	AVG	244	1.4	RB 1.000 MHz; VB: 10 Hz
1497.660	42.9	H	54.0	-11.1	AVG	134	1.2	RB 1.000 MHz; VB: 10 Hz
1747.540	41.8	H	54.0	-12.2	AVG	132	1.0	RB 1.000 MHz; VB: 10 Hz
13866.620	41.7	V	54.0	-12.3	AVG	192	1.0	RB 1.000 MHz; VB: 10 Hz
1747.540	59.5	H	74.0	-14.5	PK	132	1.0	RB 1.000 MHz; VB: 1.000 MHz
2497.660	38.9	V	54.0	-15.1	AVG	95	1.0	RB 1.000 MHz; VB: 10 Hz
1497.660	57.4	H	74.0	-16.6	PK	134	1.2	RB 1.000 MHz; VB: 1.000 MHz
3990.870	36.2	V	54.0	-17.8	AVG	97	1.7	RB 1.000 MHz; VB: 10 Hz
3497.220	34.7	V	54.0	-19.3	AVG	83	1.0	RB 1.000 MHz; VB: 10 Hz
3990.870	54.5	V	74.0	-19.5	PK	97	1.7	RB 1.000 MHz; VB: 1.000 MHz
2497.660	53.6	V	74.0	-20.4	PK	95	1.0	RB 1.000 MHz; VB: 1.000 MHz
3497.220	51.3	V	74.0	-22.7	PK	83	1.0	RB 1.000 MHz; VB: 1.000 MHz
6933.250	51.2	V	74.0	-22.8	PK	244	1.4	RB 1.000 MHz; VB: 1.000 MHz
13866.620	47.3	V	74.0	-26.7	PK	192	1.0	RB 1.000 MHz; VB: 1.000 MHz

Note 1: Above 1 GHz, the FCC specifies the limit as an average measurement. In addition, the FCC states that the peak reading of any emission above 1 GHz, can not exceed the average limit by more than 20 dB.

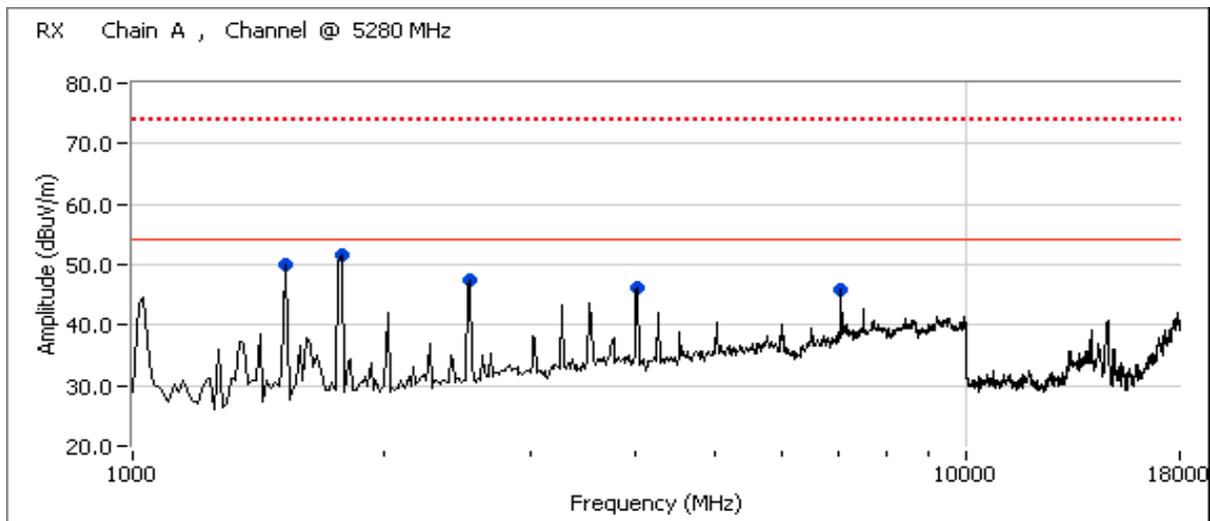


Client: Intel Corporation	Job Number: J72065
Model: 533AN-MMW with Amphenol PIFA antenna	T-Log Number: T72191
	Account Manager: Dean Eriksen
Contact: Robert Paxman	
Standard: RSS 210/FCC U-NII (Radiated)	Class: -

Receiver Tuned to 5280 MHz - Chain A

Frequency MHz	Level dB μ V/m	Pol v/h	RSS GEN		Detector Pk/QP/Avg	Azimuth degrees	Height meters	Comments
			Limit	Margin				
7039.980	46.0	V	54.0	-8.0	AVG	246	1.3	RB 1.000 MHz; VB: 10 Hz
1497.740	43.3	H	54.0	-10.7	AVG	134	1.3	RB 1.000 MHz; VB: 10 Hz
1747.310	41.5	H	54.0	-12.5	AVG	135	1.0	RB 1.000 MHz; VB: 10 Hz
1747.110	59.1	H	74.0	-14.9	PK	135	1.0	RB 1.000 MHz; VB: 1.000 MHz
2497.470	38.4	V	54.0	-15.6	AVG	98	1.0	RB 1.000 MHz; VB: 10 Hz
1497.210	57.2	H	74.0	-16.8	PK	134	1.3	RB 1.000 MHz; VB: 1.000 MHz
2497.460	53.0	V	74.0	-21.0	PK	98	1.0	RB 1.000 MHz; VB: 1.000 MHz
3998.150	32.4	V	54.0	-21.6	AVG	107	1.7	RB 1.000 MHz; VB: 10 Hz
3998.150	51.4	V	74.0	-22.6	PK	107	1.7	RB 1.000 MHz; VB: 1.000 MHz
7040.010	50.2	V	74.0	-23.8	PK	246	1.3	RB 1.000 MHz; VB: 1.000 MHz

Note 1: Above 1 GHz, the FCC specifies the limit as an average measurement. In addition, the FCC states that the peak reading of any emission above 1 GHz, can not exceed the average limit by more than 20 dB.



Client:	Intel Corporation	Job Number:	J72065
Model:	533AN-MMW with Amphenol PIFA antenna	T-Log Number:	T72191
Contact:	Robert Paxman	Account Manager:	Dean Eriksen
Standard:	RSS 210/FCC U-NII (Radiated)	Class:	-

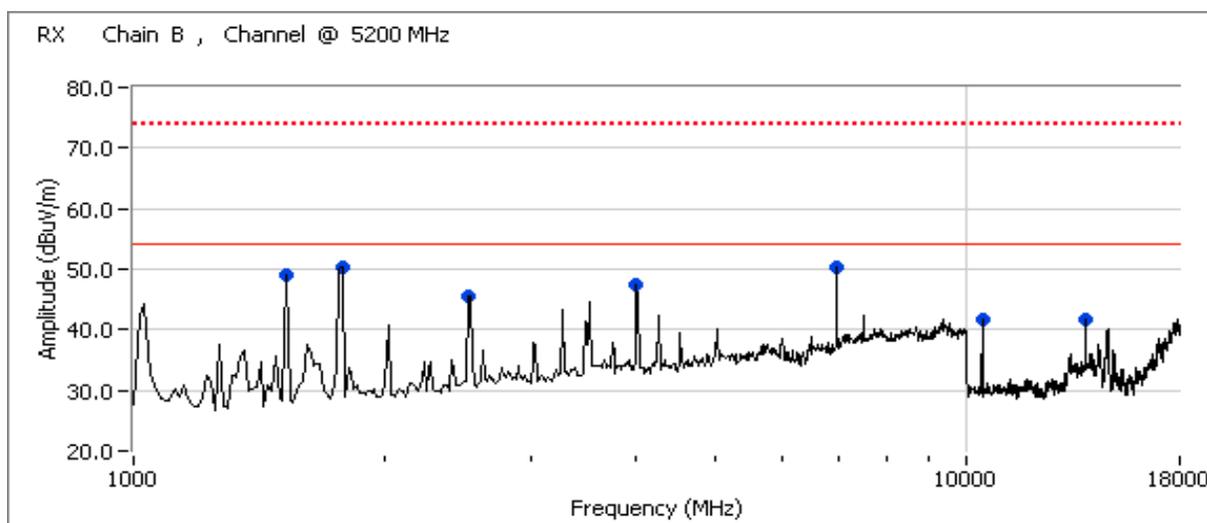
Run #2: Maximized readings, 1000 - 18000 MHz, Receive Chain B

Frequency Range	Test Distance	Limit Distance	Extrapolation Factor
1000 - 10000 MHz	3	3	0.0
10000 - 18000 MHz	1	3	-9.5

Receiver Tuned to 5200 MHz - Chain B

Frequency MHz	Level dB μ V/m	Pol v/h	RSS GEN		Detector Pk/QP/Avg	Azimuth degrees	Height meters	Comments
			Limit	Margin				
6933.290	50.3	V	54.0	-3.7	AVG	248	1.3	RB 1.000 MHz; VB: 10 Hz
1497.390	43.0	H	54.0	-11.0	AVG	131	1.2	RB 1.000 MHz; VB: 10 Hz
1747.580	39.8	H	54.0	-14.2	AVG	151	1.5	RB 1.000 MHz; VB: 10 Hz
2492.560	38.1	H	54.0	-15.9	AVG	154	1.0	RB 1.000 MHz; VB: 10 Hz
10400.000	37.7	V	54.0	-16.3	AVG	235	1.0	RB 1.000 MHz; VB: 10 Hz
1746.970	57.6	H	74.0	-16.4	PK	151	1.5	RB 1.000 MHz; VB: 1.000 MHz
3996.440	36.9	V	54.0	-17.1	AVG	104	1.5	RB 1.000 MHz; VB: 10 Hz
1497.700	56.9	H	74.0	-17.1	PK	131	1.2	RB 1.000 MHz; VB: 1.000 MHz
3996.200	55.3	V	74.0	-18.7	PK	104	1.5	RB 1.000 MHz; VB: 1.000 MHz
6933.270	53.3	V	74.0	-20.7	PK	248	1.3	RB 1.000 MHz; VB: 1.000 MHz
2492.510	53.0	H	74.0	-21.0	PK	154	1.0	RB 1.000 MHz; VB: 1.000 MHz
13866.590	33.0	V	54.0	-21.0	AVG	163	1.3	RB 1.000 MHz; VB: 10 Hz
10400.240	43.3	V	74.0	-30.7	PK	235	1.0	RB 1.000 MHz; VB: 1.000 MHz
13866.490	43.2	V	74.0	-30.8	PK	163	1.3	RB 1.000 MHz; VB: 1.000 MHz

Note 1: Above 1 GHz, the FCC specifies the limit as an average measurement. In addition, the FCC states that the peak reading of any emission above 1 GHz, can not exceed the average limit by more than 20 dB.

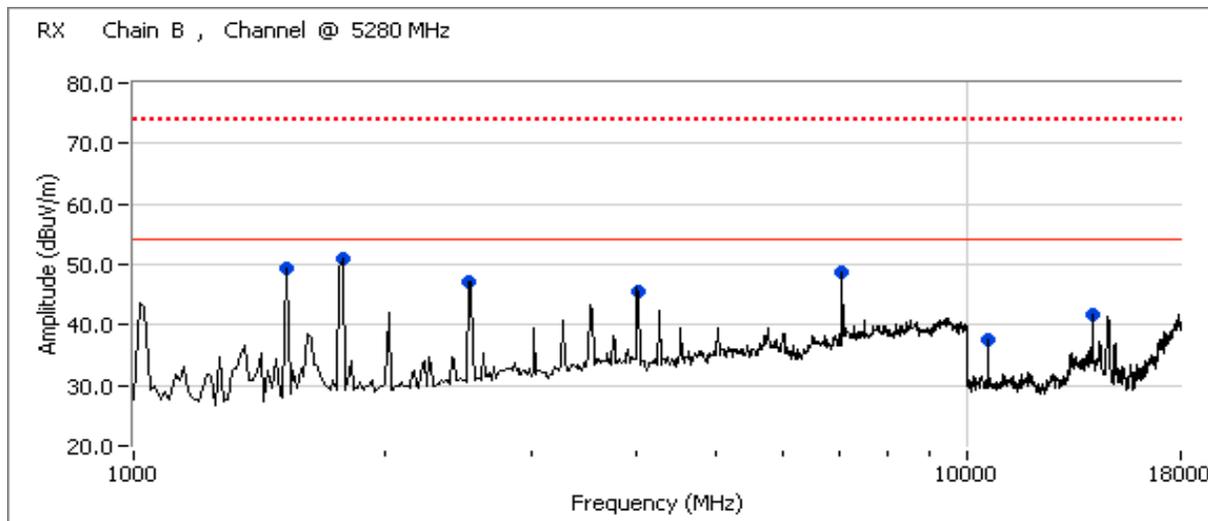


Client: Intel Corporation	Job Number: J72065
Model: 533AN-MMW with Amphenol PIFA antenna	T-Log Number: T72191
	Account Manager: Dean Eriksen
Contact: Robert Paxman	
Standard: RSS 210/FCC U-NII (Radiated)	Class: -

Receiver Tuned to 5280 MHz - Chain B

Frequency MHz	Level dB μ V/m	Pol v/h	RSS GEN		Detector PK/QP/Avg	Azimuth degrees	Height meters	Comments
			Limit	Margin				
7039.960	50.2	V	54.0	-3.8	AVG	241	1.3	RB 1.000 MHz; VB: 10 Hz
1747.440	40.9	H	54.0	-13.1	AVG	145	1.1	RB 1.000 MHz; VB: 10 Hz
14079.980	39.6	V	54.0	-14.4	AVG	173	1.0	RB 1.000 MHz; VB: 10 Hz
2496.000	39.4	H	54.0	-14.6	AVG	153	1.0	RB 1.000 MHz; VB: 10 Hz
1497.350	37.9	H	54.0	-16.1	AVG	173	1.4	RB 1.000 MHz; VB: 10 Hz
1747.310	57.7	H	74.0	-16.3	PK	145	1.1	RB 1.000 MHz; VB: 1.000 MHz
10559.990	35.6	V	54.0	-18.4	AVG	231	1.0	RB 1.000 MHz; VB: 10 Hz
2496.010	54.3	H	74.0	-19.7	PK	153	1.0	RB 1.000 MHz; VB: 1.000 MHz
3988.110	33.5	V	54.0	-20.5	AVG	110	1.6	RB 1.000 MHz; VB: 10 Hz
7039.940	53.5	V	74.0	-20.5	PK	241	1.3	RB 1.000 MHz; VB: 1.000 MHz
1497.630	52.5	H	74.0	-21.5	PK	173	1.4	RB 1.000 MHz; VB: 1.000 MHz
3988.740	51.1	V	74.0	-22.9	PK	110	1.6	RB 1.000 MHz; VB: 1.000 MHz
14079.870	46.5	V	74.0	-27.5	PK	173	1.0	RB 1.000 MHz; VB: 1.000 MHz
10560.020	42.1	V	74.0	-31.9	PK	231	1.0	RB 1.000 MHz; VB: 1.000 MHz

Note 1: Above 1 GHz, the FCC specifies the limit as an average measurement. In addition, the FCC states that the peak reading of any emission above 1 GHz, can not exceed the average limit by more than 20 dB.



Client: Intel Corporation	Job Number: J72065
Model: 533AN-MMW with Amphenol PIFA antenna	T-Log Number: T72191
	Account Manager: Dean Eriksen
Contact: Robert Paxman	
Standard: RSS 210/FCC U-NII (Radiated)	Class: -

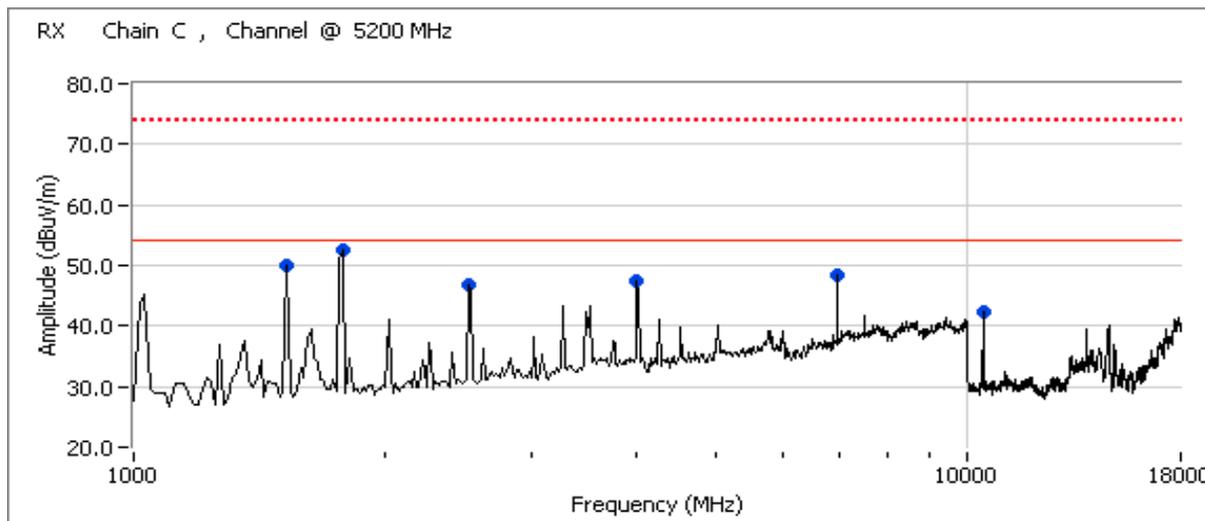
Run #3: Maximized readings, 1000 - 18000 MHz, Receive Chain C

Frequency Range	Test Distance	Limit Distance	Extrapolation Factor
1000 - 10000 MHz	3	3	0.0
10000 - 18000 MHz	1	3	-9.5

Receiver Tuned to 5200 MHz - Chain C

Frequency MHz	Level dB μ V/m	Pol v/h	RSS GEN		Detector Pk/QP/Avg	Azimuth degrees	Height meters	Comments
			Limit	Margin				
6933.290	48.4	V	54.0	-5.6	AVG	239	1.3	RB 1.000 MHz; VB: 10 Hz
1497.470	43.2	H	54.0	-10.8	AVG	130	1.1	RB 1.000 MHz; VB: 10 Hz
10399.960	41.7	V	54.0	-12.3	AVG	211	1.0	RB 1.000 MHz; VB: 10 Hz
2496.780	39.4	H	54.0	-14.6	AVG	152	1.0	RB 1.000 MHz; VB: 10 Hz
1498.260	57.2	H	74.0	-16.8	PK	130	1.1	RB 1.000 MHz; VB: 1.000 MHz
2496.870	54.0	H	74.0	-20.0	PK	152	1.0	RB 1.000 MHz; VB: 1.000 MHz
3996.570	32.9	V	54.0	-21.1	AVG	136	1.5	RB 1.000 MHz; VB: 10 Hz
6933.250	52.1	V	74.0	-21.9	PK	239	1.3	RB 1.000 MHz; VB: 1.000 MHz
3996.370	50.2	V	74.0	-23.8	PK	136	1.5	RB 1.000 MHz; VB: 1.000 MHz
1782.770	27.6	H	54.0	-26.4	AVG	123	1.1	RB 1.000 MHz; VB: 10 Hz
10399.870	45.4	V	74.0	-28.6	PK	211	1.0	RB 1.000 MHz; VB: 1.000 MHz
1783.080	38.4	H	74.0	-35.6	PK	123	1.1	RB 1.000 MHz; VB: 1.000 MHz

Note 1: Above 1 GHz, the FCC specifies the limit as an average measurement. In addition, the FCC states that the peak reading of any emission above 1 GHz, can not exceed the average limit by more than 20 dB.



Client: Intel Corporation	Job Number: J72065
Model: 533AN-MMW with Amphenol PIFA antenna	T-Log Number: T72191
	Account Manager: Dean Eriksen
Contact: Robert Paxman	
Standard: RSS 210/FCC U-NII (Radiated)	Class: -

Receiver Tuned to 5280 MHz - Chain C

Frequency MHz	Level dB μ V/m	Pol v/h	RSS GEN		Detector Pk/QP/Avg	Azimuth degrees	Height meters	Comments
			Limit	Margin				
7039.940	47.4	V	54.0	-6.6	AVG	245	1.3	RB 1.000 MHz; VB: 10 Hz
1497.620	43.7	H	54.0	-10.3	AVG	130	1.2	RB 1.000 MHz; VB: 10 Hz
1746.770	40.9	H	54.0	-13.1	AVG	140	1.0	RB 1.000 MHz; VB: 10 Hz
2496.010	39.7	H	54.0	-14.3	AVG	150	1.0	RB 1.000 MHz; VB: 10 Hz
1746.440	58.2	H	74.0	-15.8	PK	140	1.0	RB 1.000 MHz; VB: 1.000 MHz
1498.030	57.9	H	74.0	-16.1	PK	130	1.2	RB 1.000 MHz; VB: 1.000 MHz
2496.140	54.4	H	74.0	-19.6	PK	150	1.0	RB 1.000 MHz; VB: 1.000 MHz
3996.140	33.1	H	54.0	-20.9	AVG	254	1.2	RB 1.000 MHz; VB: 10 Hz
7040.110	51.7	V	74.0	-22.3	PK	245	1.3	RB 1.000 MHz; VB: 1.000 MHz
3996.900	49.9	H	74.0	-24.1	PK	254	1.2	RB 1.000 MHz; VB: 1.000 MHz

Note 1: Above 1 GHz, the FCC specifies the limit as an average measurement. In addition, the FCC states that the peak reading of any emission above 1 GHz, can not exceed the average limit by more than 20 dB.

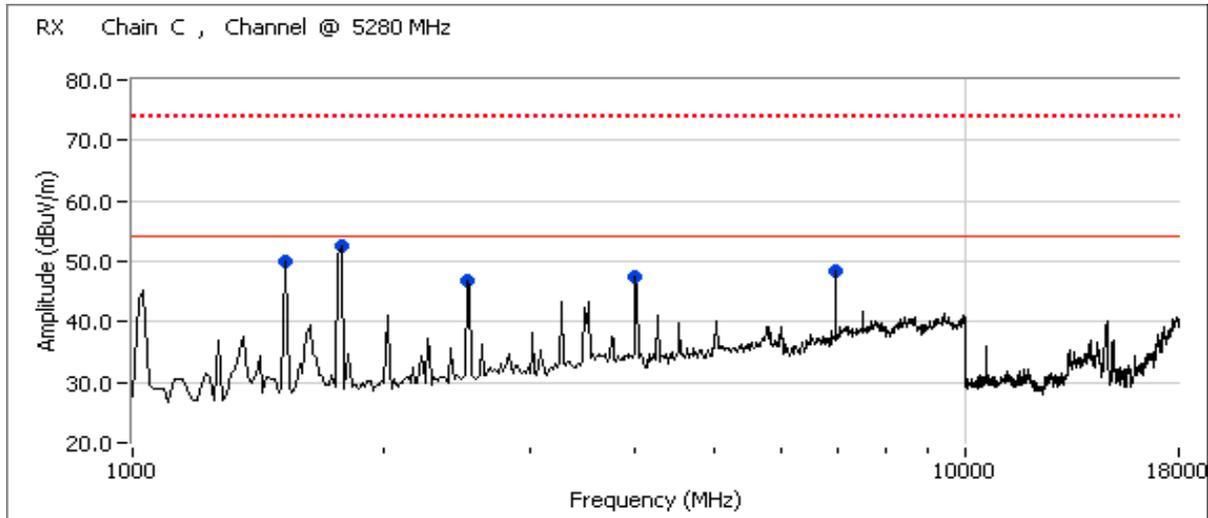


EXHIBIT 3: Photographs of Test Configurations
Radiated Emissions Test Configuration Photographs

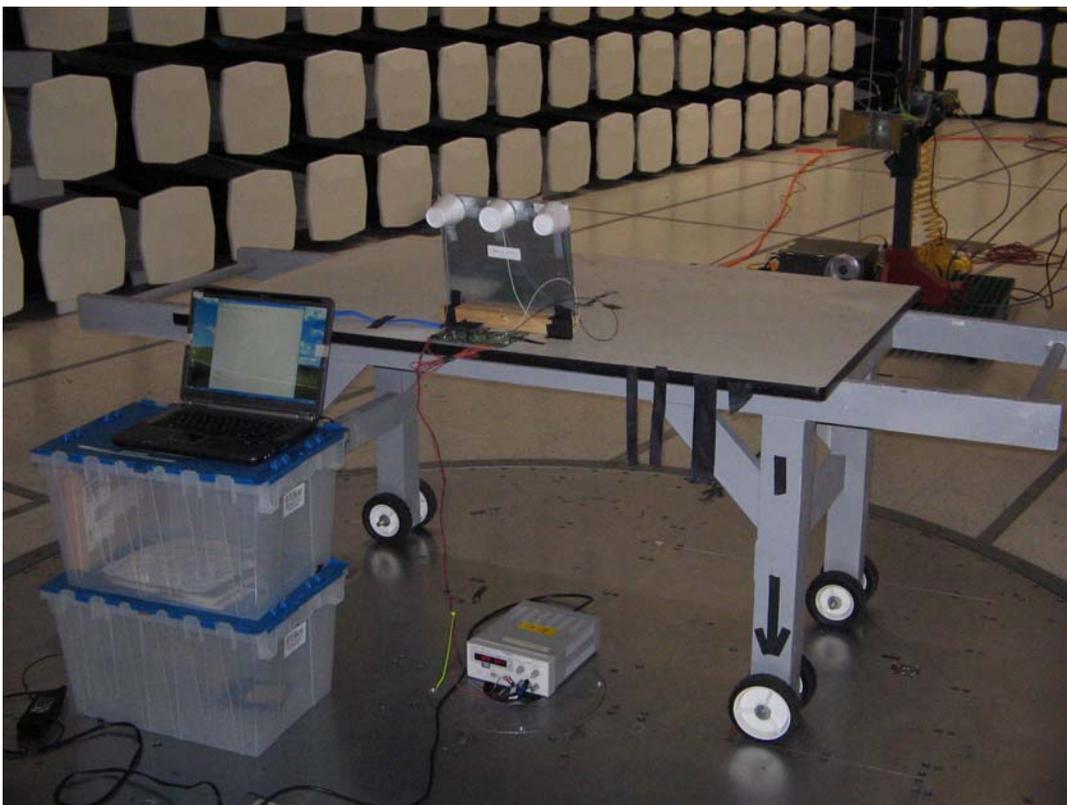
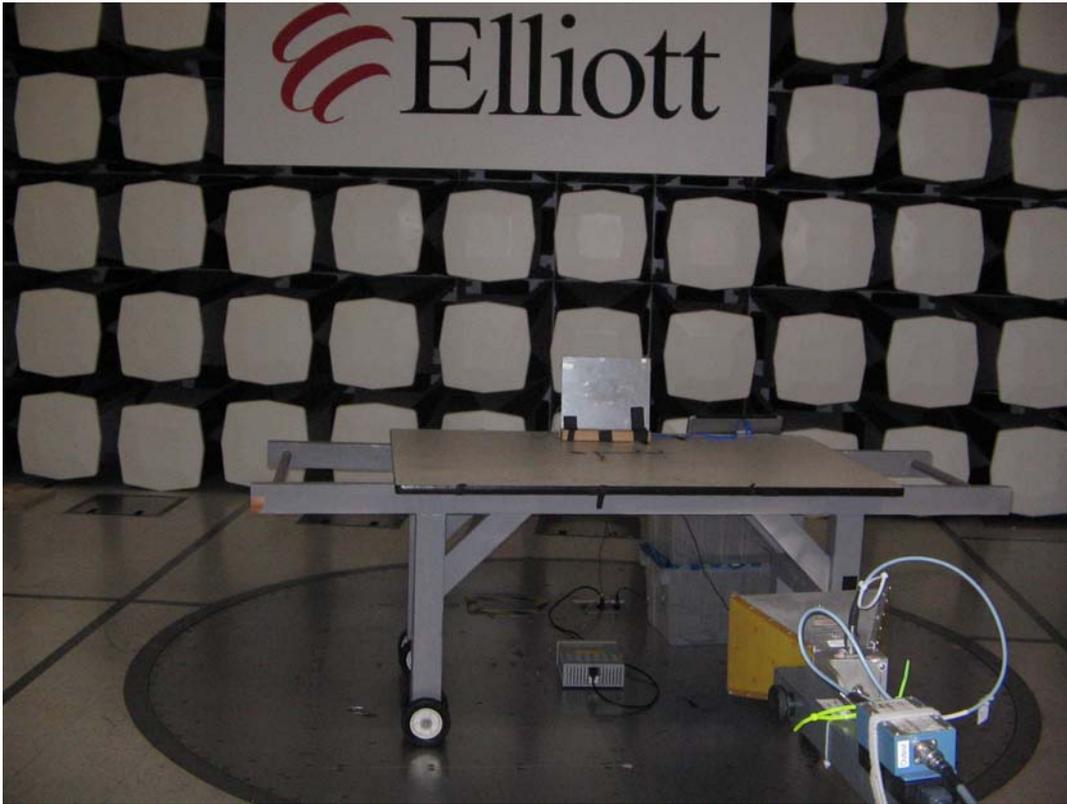


EXHIBIT 4: RF Exposure Information

3 Pages