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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
(Canada model number 533ANMU)

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:	September 8, 2008
REISSUE DATE:	September 19, 2008
FINAL TEST DATE:	August 25 - September 3, 2008
AUTHORIZED SIGNATORY:	Mark Briggs Staff Engineer

ACCREDITED

Testing Cert #2016-01

REVISION HISTORY

Rev #	Date	Comments	Modified By
1	9/11/08	First Release	-
2	9/19/08	Corrected the model name in the GENERAL subsection of PROPOSED MODIFICATION DETAILS on page 12. Modified the text describing the MIMO modes of operation with the specific antenna set being evaluated in the ANTENNA section of PROPOSED MODIFICATION DETAILS on page 12.	David Guidotti

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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

Operation in the 5.15 – 5.25 GHz Band

FCC Rule Part	RSS Rule Part	Description	Measured Value / Comments	Limit / Requirement	Result
15.407(e)		Indoor operation only	The proposed changes do not affect the values for power, bandwidth and indoor operation previously reported.		N/A
15.407(a) (1)		26dB Bandwidth			
15.407 (a) (1)	A9.2(1)	Output Power			
15.407 (a) (1)		Power Spectral Density			
	A9.5 (2)				

Operation in the 5.25 – 5.35 GHz Band

FCC Rule Part	RSS Rule Part	Description	Measured Value / Comments	Limit / Requirement	Result (margin)
15.407(a) (2)		26dB Bandwidth	The proposed changes do not affect the values for power, bandwidth and indoor operation previously reported.		N/A
15.407(a) (2)	A9.2(2)	Output Power			
15.407(a) (2))		Power Spectral Density			
	A9.2(2) / A9.5 (2)	Power Spectral Density			
	A9.5 (2)	Peak Spectral Density			

Operation in the 5.47 – 5.725 GHz Band

FCC Rule Part	RSS Rule Part	Description	Measured Value / Comments	Limit / Requirement	Result (margin)
15.407(a) (2)		26dB Bandwidth	The proposed changes do not affect the values for power, bandwidth and indoor operation previously reported.		N/A
15.407(a) (2)	A9.2(2)	Output Power			
15.407(a) (2))		Power Spectral Density			
	A9.2(2) / A9.5 (2)	Power Spectral Density			
N/A	??	Non-operation in 5600 – 5650 MHz sub band	The proposed changes do not affect the devices operation in this sub-band		

General requirements for all bands

FCC Rule Part	RSS Rule Part	Description	Measured Value / Comments	Limit / Requirement	Result
	A9.5a	Modulation	The proposed changes do not affect the values for modulation and bandwidth previously reported		N/A
	RSP 100	99% bandwidth			
15.407(b) (5) / 15.209	A9.3	Spurious Emissions below 1GHz	See note 1		N/A
15.407(b) (2)	A9.3	Spurious Emissions above 1GHz	n40MHz Mode: 53.2dBµV/m @ 5350.1MHz	15.209 in restricted bands, -27dBm eirp all others	Complies (- 0.8 dB)
15.407(a)(6)	-	Peak Excursion Ratio	The proposed changes do not affect the values for modulation and bandwidth previously reported		N/A
	A9.5 (3)	Channel Selection	Device was tested on the top, bottom and center channels in each band	Spurious emissions tested at outermost channels	Complies
15				Measurements on three channels in each band	Complies
15.407 (c)	A9.5(4)	Operation in the absence of information to transmit	The proposed changes do not affect the information previously reported		N/A
15.407 (g)	A9.5 (5)	Frequency Stability			
15.407 (h1)	A9.4	Transmit Power Control			
15.407 (h2)	A9.4	Dynamic frequency Selection			
	A9.9g	User Manual information			

Note 1: Spurious emissions below 1GHz were independent of operating mode and dominated by emissions from the test fixture. Test were not performed below 1GHz as the proposed changes are only to the antenna The highest emission in transmit reported during the original testing was 53.3 dBuV/m @ 5350.1 MHz (Ethertronics Antenna), 0.7dB below the limit.

GENERAL REQUIREMENTS APPLICABLE TO ALL BANDS

FCC Rule Part	RSS Rule part	Description	Measured Value / Comments	Limit / Requirement	Result (margin)
15.203	-	RF Connector	Connector remains unchanged from original filing	Unique connector	Complies
15.109	RSS GEN 7.2.3 Table 1	Receiver spurious emissions (note 1)	48.3dBµV/m @ 7466.7MHz	RSS GEN	Complies (- 5.7 dB)
15.207	RSS GEN Table 2	AC Conducted Emissions	The new antenna would not affect AC conducted emissions level.		N/A
15.247 (b) (5) 15.407 (f)	RSS 102	RF Exposure Requirements	The new antenna gain is lower than the previously evaluated antennas, therefore the rf exposure calculations and forms previously uploaded remain unchanged.		N/A
	RSP 100 RSS GEN 7.1.5	User Manual	The addition of the new antenna does not affect the content required in the User Manual.		N/A
	RSP 100 RSS GEN 7.1.5	User Manual			
Note 1: Spurious emissions below 1GHz were independent of operating mode and dominated by emissions from the test fixture. Tests were not performed below 1GHz as the proposed changes are only to the antenna. The highest emission in receive mode from the original testing was 53.3dBµV/m @ 6933.3MHz (Ethertronics Antenna), 0.7dB below the limit.					

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 802.11abgn Radio that is designed to be installed in laptops for wireless transmission/reception. Since the EUT would be placed on a tabletop during operation, the EUT was treated as tabletop equipment during testing to simulate the end-user environment. The electrical rating of the EUT is 3.3 Volts DC, 0.5 Amps.

The sample was received on June 9, 2008 and tested on August 25, August 26, August 27, August 28, August 29, August 30 and September 3, 2008. The EUT consisted of the following component(s):

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

ANTENNA SYSTEM

Refer to the PROPOSED MODIFICATION DETAILS 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 Port 1& 2 (A&B)	Antenna main and aux	Coax (2)	Shielded	0.3
DC Power	Board	3.3V dc	Unshielded	0.3

EUT OPERATION

During testing the EUT was transmitting at the stated power level at a data rate of 1Mb/s for 802.11b mode and 6Mb/s for 802.11g and n20 modes and 12Mb/s for 802.11n 40MHz mode. The following modes were selected as the worst case mode(s) for each of the transmitter-related measurements:

Band Edge, 2.4GHz Band: 802.11g, 802.11n 20MHz and 802.11n 40MHz modes
Band Edge, 5150MHz, 5350MHz, 5470MHz: 802.11n 20MHz and 40MHz modes, single- and dual-chains active
Spurious emissions, 2.4GHz Band: 802.11b, 802.11n 20MHz dual chain and n40MHz dual chain modes
Spurious emissions, 5150-5250MHz Band: 802.11n 20MHz mode - Dual chains active at the higher single chain power level
Spurious emissions, 5250-5350MHz Band: 802.11n 20MHz mode - Dual chains active at the higher single chain power level
Spurious emissions, 5470-5725MHz Band: 802.11n 20MHz mode - Dual chains active at the higher single chain power level and individual; chains active.
Spurious emissions, 5725-5850MHz Band: 802.11n20 MHz mode - Dual chains active at the higher single chain power level

Receiver-related measurements were made with the device operating on each chain alone and on both chains simultaneously ion the DTS bands. In the NII band measurements were made with just the single chains active as previous testing identified this mode as the worst case.

During emissions testing the EUT was continuously transmitting.

PROPOSED MODIFICATION DETAILS

GENERAL

This section details the modifications to the Intel Corporation model 533AN_MMW (MMC) being proposed. All performance and construction deviations from the characteristics originally reported to the FCC are addressed

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-based antenna designed for use with the module. Selection of operating modes for each series of tests (band-edge spurious emissions, radiated spurious emissions) is based on previous results with the universe PIFA antenna.

Antenna Name and model	Type	Antenna Gain				Comments
		2.4GHz	5.2GHz	5.5GHz	5.7GHz	
Universe	PIFA	3.24	3.73	4.77	4.97	Original Antenna tested
Amphenol WLAN Main: 14G152168231LV:	PIFA Carrier	-0.59	1.36	2.18	1.64	Proposed new antenna
WLAN Aux: 14G152168131LV:		-1.00	0.01	2.19	2.76	

The Intel Model 533AN_MMW is a 3x3 transceiver with antenna connect detection. As the antenna set being evaluated has only 2 antenna elements the device operated as a 2x2 transceiver during the evaluation. The module still remains a 3x3 transceiver and the associated grant notes should indicate this to be the case.

TEST SITE

GENERAL INFORMATION

Final test measurements were taken on August 25, August 26, August 27, August 28, August 29, August 30 and September 3, 2008 at the Elliott Laboratories semi anechoic chambers 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.

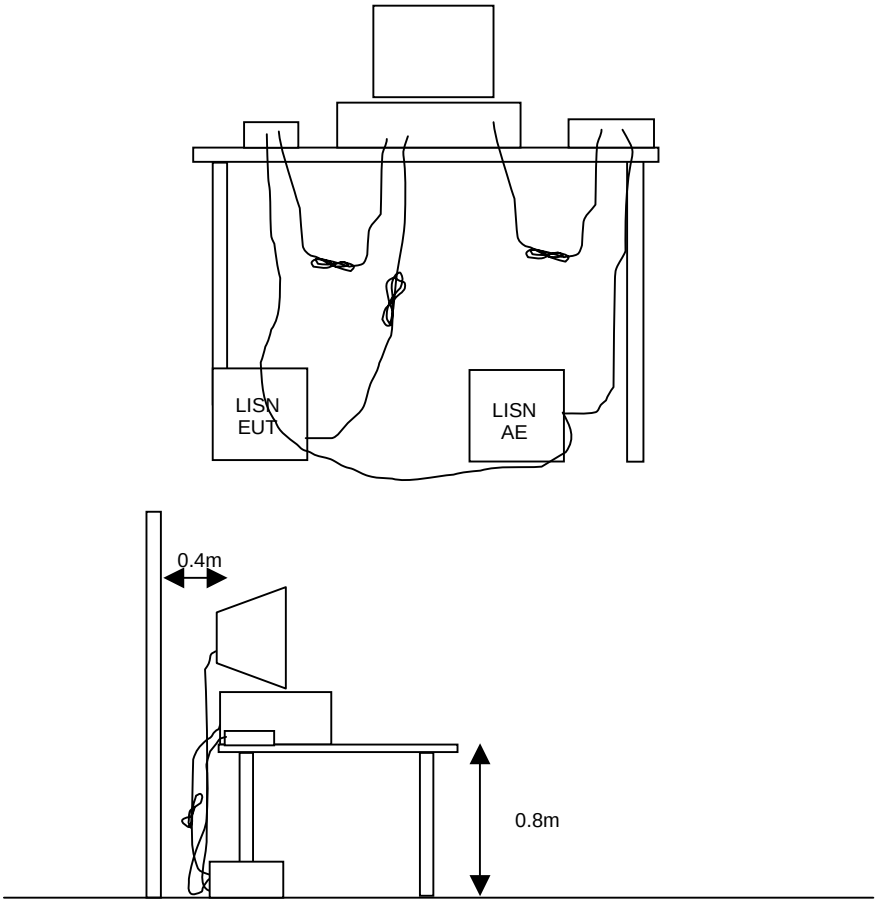
TEST PROCEDURES

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.



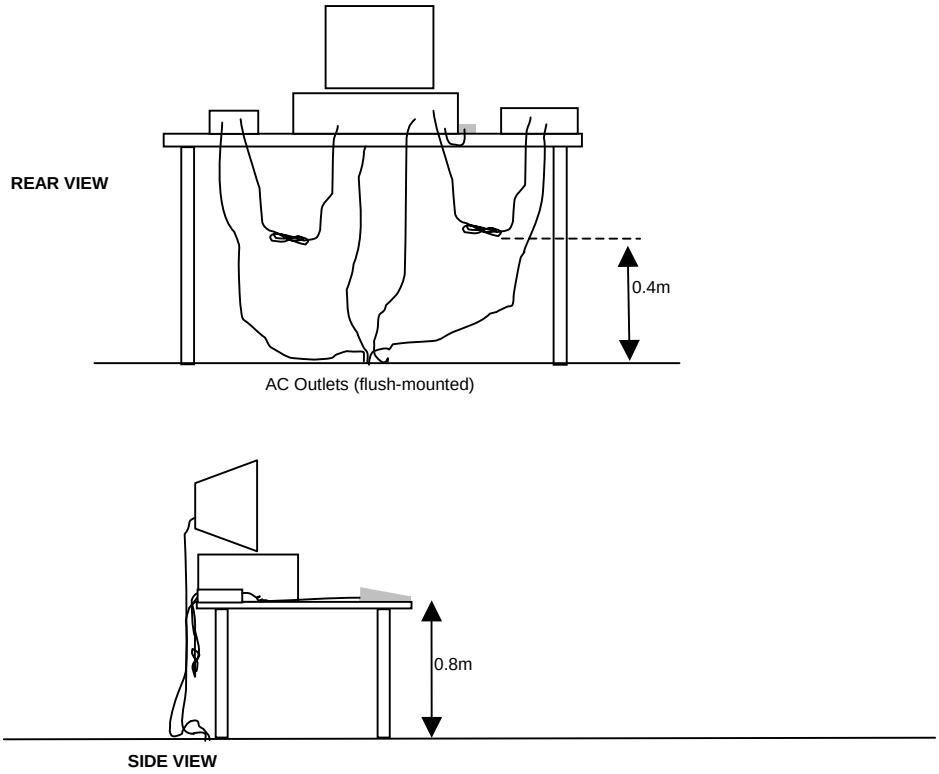
RADIATED EMISSIONS

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.

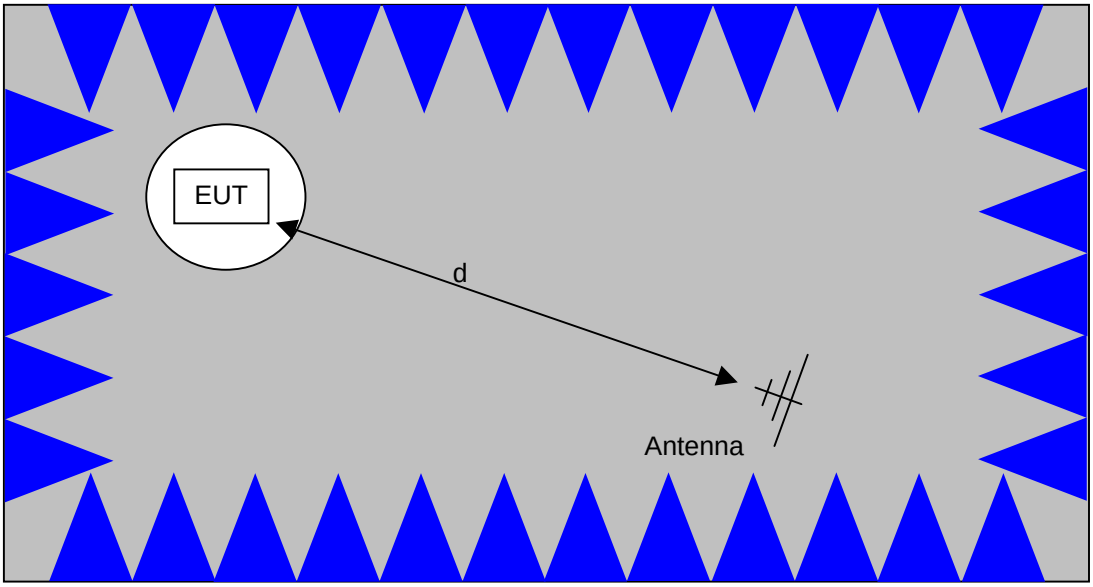
A speaker is provided in the receiver to aid in discriminating between EUT and ambient emissions. Other methods used during the preliminary scan for EUT emissions involve scanning with near field magnetic loops, monitoring I/O cables with RF current clamps, and cycling power to the EUT.

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 1meter from the EUT and the antenna height is restricted to a maximum of 2.5 meters.

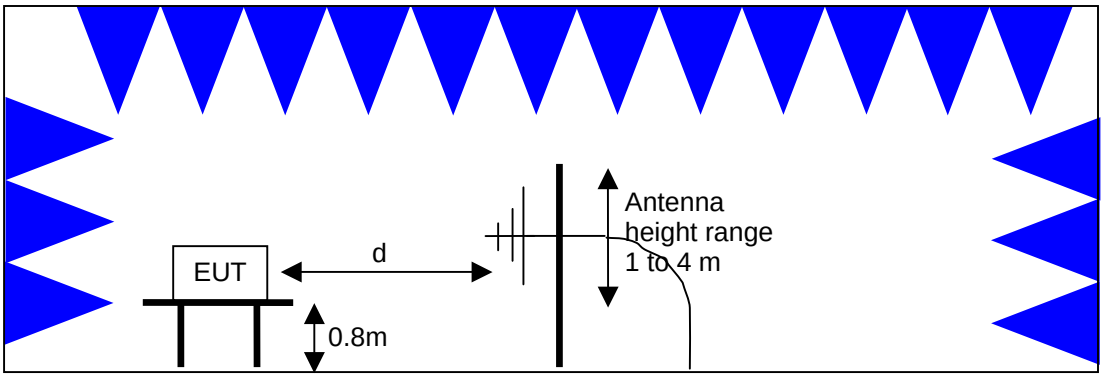


Typical Test Configuration for Radiated Field Strength Measurements



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

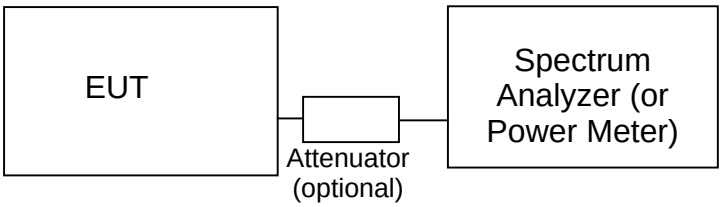
Floor-standing equipment is placed on the floor with insulating supports between the unit and the ground plane.



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

CONDUCTED EMISSIONS FROM ANTENNA PORT

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



Test Configuration for Antenna Port Measurements

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

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

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

BANDWIDTH MEASUREMENTS

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

SPECIFICATION LIMITS AND SAMPLE CALCULATIONS

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

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

GENERAL TRANSMITTER RADIATED EMISSIONS SPECIFICATION LIMITS

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

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

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

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 10log(99% 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:

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

where:

F_d = Distance Factor in dB

D_m = Measurement Distance in meters

D_s = Specification Distance in meters

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

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

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

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

$$R_c = R_r + F_d$$

and

$$M = R_c - L_s$$

where:

R_r = Receiver Reading in dBuV/m

F_d = Distance Factor in dB

R_c = Corrected Reading in dBuV/m

L_s = Specification Limit in dBuV/m

M = Margin in dB Relative to Spec

SAMPLE CALCULATIONS - FIELD STRENGTH TO EIRP CONVERSION

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

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

where P is the eirp (Watts)

EXHIBIT 1: Test Equipment Calibration Data

1 Page

26-Aug-08
Engineer: Ben Jing

Manufacturer	Description	Model #	Asset #	Cal Due
Hewlett Packard	SpectAn 9 kHz - 40 GHz, FT (SA40) Blue	8564E (84125C)	1393	15-Jan-09
Rohde & Schwarz	EMI Test Receiver, 20 Hz-7 GHz	ESIB7	1756	04-Dec-08
EMCO	Antenna, Horn, 1-18 GHz (SA40-Purple)	3115	1779	19-Mar-10

27-Aug-08
Engineer: Ben Jing

Manufacturer	Description	Model #	Asset #	Cal Due
EMCO	Antenna, Horn, 1-18 GHz	3115	786	07-Dec-08
Hewlett Packard	SpectAn 9 kHz - 40 GHz, FT (SA40) Blue	8564E (84125C)	1393	15-Jan-09
Rohde & Schwarz	EMI Test Receiver, 20 Hz-7 GHz	ESIB7	1538	29-Aug-08
Rohde & Schwarz	Power Sensor 100 uW - 10 Watts	NRV-Z53	1555	15-Jan-09
Rohde & Schwarz	Power Meter, Dual Channel	NRVD	1786	07-Jan-09

Radiated Emissions, 5 GHz UNII Band-edge, 28-Aug-08
Engineer: Ben Jing

Manufacturer	Description	Model #	Asset #	Cal Due
EMCO	Antenna, Horn, 1-18 GHz	3115	786	07-Dec-08
Hewlett Packard	SpectAn 9 kHz - 40 GHz, FT (SA40) Blue	8564E (84125C)	1393	15-Jan-09
Rohde & Schwarz	EMI Test Receiver, 20 Hz-7 GHz	ESIB7	1538	29-Aug-08
Rohde & Schwarz	Power Sensor 100 uW - 10 Watts	NRV-Z53	1555	15-Jan-09
Rohde & Schwarz	Power Meter, Dual Channel	NRVD	1786	07-Jan-09

Radiated Emissions, UNII 5 GHz 802.11n-40 Band-edge, 29-Aug-08
Engineer: bjing

Manufacturer	Description	Model #	Asset #	Cal Due
EMCO	Antenna, Horn, 1-18 GHz	3115	786	07-Dec-08
Hewlett Packard	SpectAn 9 kHz - 40 GHz, FT (SA40) Blue	8564E (84125C)	1393	15-Jan-09
Rohde & Schwarz	Power Meter, Single Channel	NRVS	1534	05-Mar-09
Rohde & Schwarz	Power Sensor 100 uW - 10 Watts	NRV-Z53	1555	15-Jan-09
Rohde & Schwarz	EMI Test Receiver, 20 Hz-7 GHz	ESIB7	1630	22-Feb-09

Radiated Emissions, 1000 - 18,000 MHz, 30-Aug-08
Engineer: bjing

Manufacturer	Description	Model #	Asset #	Cal Due
EMCO	Antenna, Horn, 1-18 GHz	3115	786	07-Dec-08
Hewlett Packard	SpectAn 9 kHz - 40 GHz, FT (SA40) Blue	8564E (84125C)	1393	15-Jan-09
Miteq	Preamplifier, 1-18 GHz	AFS44	1540	12-Nov-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
Rohde & Schwarz	Power Meter, Dual Channel	NRVD	1786	07-Jan-09

Radiated Emissions, 1000 - 18,000 MHz, 03-Sep-08
Engineer: Ben Jing

Manufacturer	Description	Model #	Asset #	Cal Due
EMCO	Antenna, Horn, 1-18 GHz	3115	786	07-Dec-08
Hewlett Packard	SpectAn 9 kHz - 40 GHz, FT (SA40) Blue	8564E (84125C)	1393	15-Jan-09
Miteq	Preamplifier, 1-18 GHz	AFS44	1540	12-Nov-08
Rohde & Schwarz	Power Sensor 100 uW - 10 Watts	NRV-Z53	1555	15-Jan-09
Rohde & Schwarz	Power Meter, Dual Channel	NRVD	1786	07-Jan-09

, 03-Sep-08
Engineer: skhushzad

Manufacturer	Description	Model #	Asset #	Cal Due
EMCO	Antenna, Horn, 1-18GHz	3115	868	10-Jun-10
Hewlett Packard	SpecAn 30 Hz -40 GHz, SV (SA40) Red	8564E	Rental	20-Sep-08
Hewlett Packard	Microwave Preamplifier, 1-26.5GHz	8449B	1780	06-Nov-08

EXHIBIT 2: Test Measurement Data

64 Pages

Client:	Intel Corporation	Job Number:	J72725
Model:	533AN-MMW with SL-300 Boxter Antenna	T-Log Number:	T72736
		Account Manager:	Dean Eriksen
Contact:	Robert Paxman		-
Emissions Standard(s):	FCC Part 15E/RSS 210	Class:	NII
Immunity Standard(s):	-	Environment:	-

EMC Test Data
UNII Radiated Measurements with Universe Antenna

For The

Intel Corporation

Model

533AN-MMW with SL-300 Boxter Antenna

Date of Last Test: 9/8/2008

Client:	Intel Corporation	Job Number:	J72725
Model:	533AN-MMW with SL-300 Boxter Antenna	T-Log Number:	T72736
		Account Manager:	Dean Eriksen
Contact:	Robert Paxman		
Standard:	FCC Part 15E/RSS 210	Class:	N/A

RSS 210 and FCC 15.E (U-NII, 5150- 550/5250-5350/5460-5725MHz)

Band Edge Field Strength 802.11n20 SL-300 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	28.0	16.1	Band Edge radiated field strength	FCC Part 15.209	48.4dBµV/m @ 5149.8MHz (-5.6dB)
	802.11n20 Chain A	5320MHz	24.0	16.7	Band Edge radiated field strength	FCC Part 15.209	48.9dBµV/m @ 5350.1MHz (-5.1dB)
	802.11n20 Chain A	5500MHz	22.5	17.0	Band Edge - 5460-5470MHz	FCC Part 15E	50.7dBµV/m @ 5470.0MHz (-17.6dB)
					Band Edge field strength - 5460MHz	FCC Part 15.209	49.3dBµV/m @ 5459.1MHz (-4.7dB)
2	802.11n20 Chain B	5180MHz	28.5	16.7	Band Edge radiated field strength	FCC Part 15.209	48.9dBµV/m @ 5149.8MHz (-5.1dB)
	802.11n20 Chain B	5320MHz	25.5	16.6	Band Edge radiated field strength	FCC Part 15.209	49.3dBµV/m @ 5350.2MHz (-4.7dB)
	802.11n20 Chain B	5500MHz	24.5	16.6	Band Edge - 5460-5470MHz	FCC Part 15E	49.8dBµV/m @ 5469.8MHz (-18.5dB)
					Band Edge field strength - 5460MHz	FCC Part 15.209	49.5dBµV/m @ 5459.9MHz (-4.5dB)
3	802.11n20 Chain A+B	5180MHz	26.5 26.5	13.5 13.7	Band Edge radiated field strength	FCC Part 15.209	48.5dBµV/m @ 5149.8MHz (-5.5dB)
	802.11n20 Chain A+B	5320MHz	23.0 23.5	13.5 13.5	Band Edge radiated field strength	FCC Part 15.209	48.9dBµV/m @ 5367.6MHz (-5.1dB)
	802.11n20 Chain A+B	5500MHz	20.5 23.0	13.6 13.5	Band Edge - 5460-5470MHz	FCC Part 15E	49.5dBµV/m @ 5469.0MHz (-18.5dB)
					Band Edge field strength - 5460MHz	FCC Part 15.209	49.4dBµV/m @ 5459.7MHz (-4.6dB)

Client:	Intel Corporation	Job Number:	J72725
Model:	533AN-MMW with SL-300 Boxter Antenna	T-Log Number:	T72736
		Account Manager:	Dean Eriksen
Contact:	Robert Paxman		
Standard:	FCC Part 15E/RSS 210	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

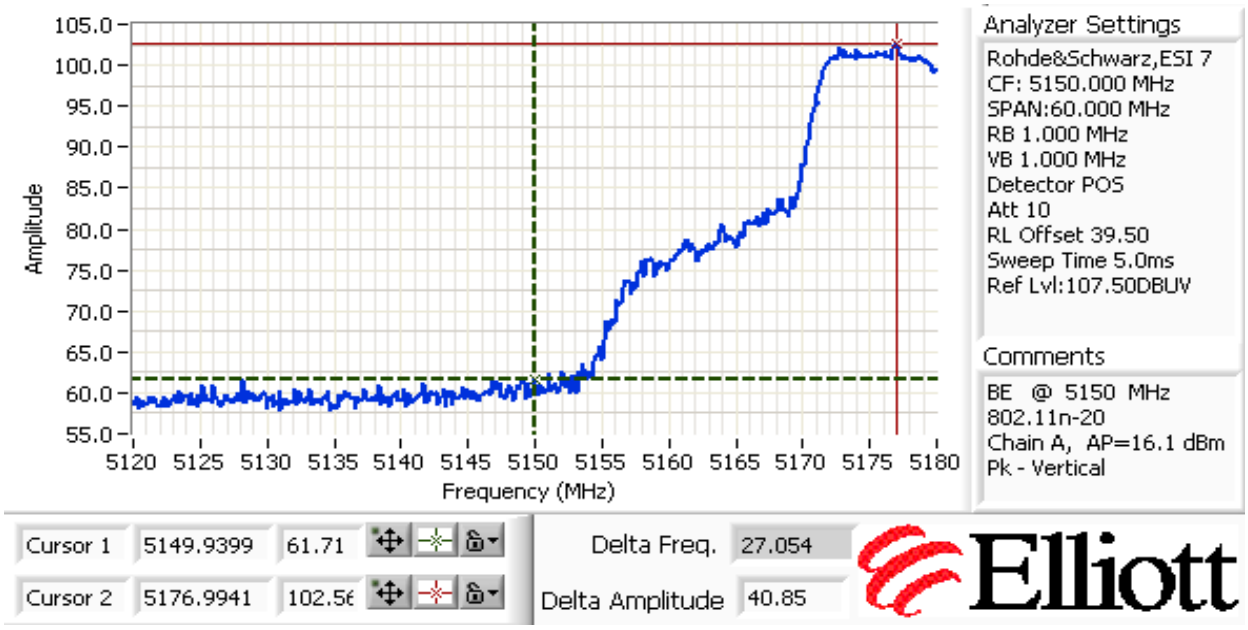
Date of Test: 8/25/2008
Test Engineer: Ben Jing
Test Location: FT Chamber # 5
MAC Address: 0016EA02D4D0

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

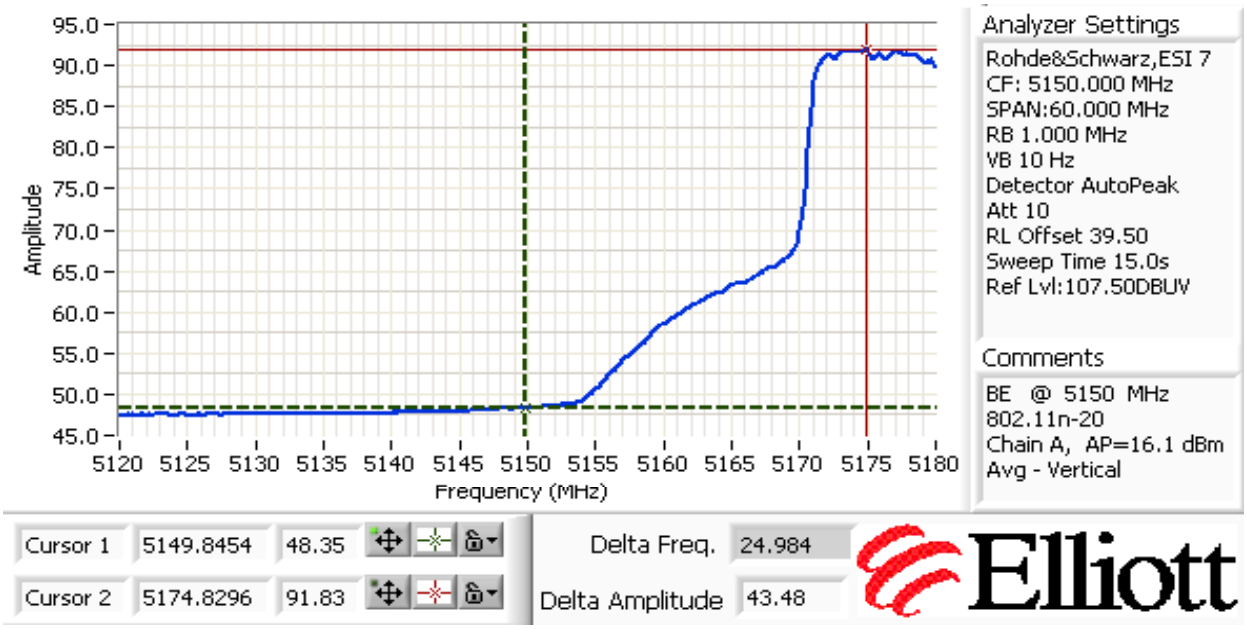
Power Setting and average measurement (for reference)						
Chain A		Chain B		Chain C		
Setting	Avg	Setting	Avg	Setting	Avg	
28.0	16.1					Measured Settings

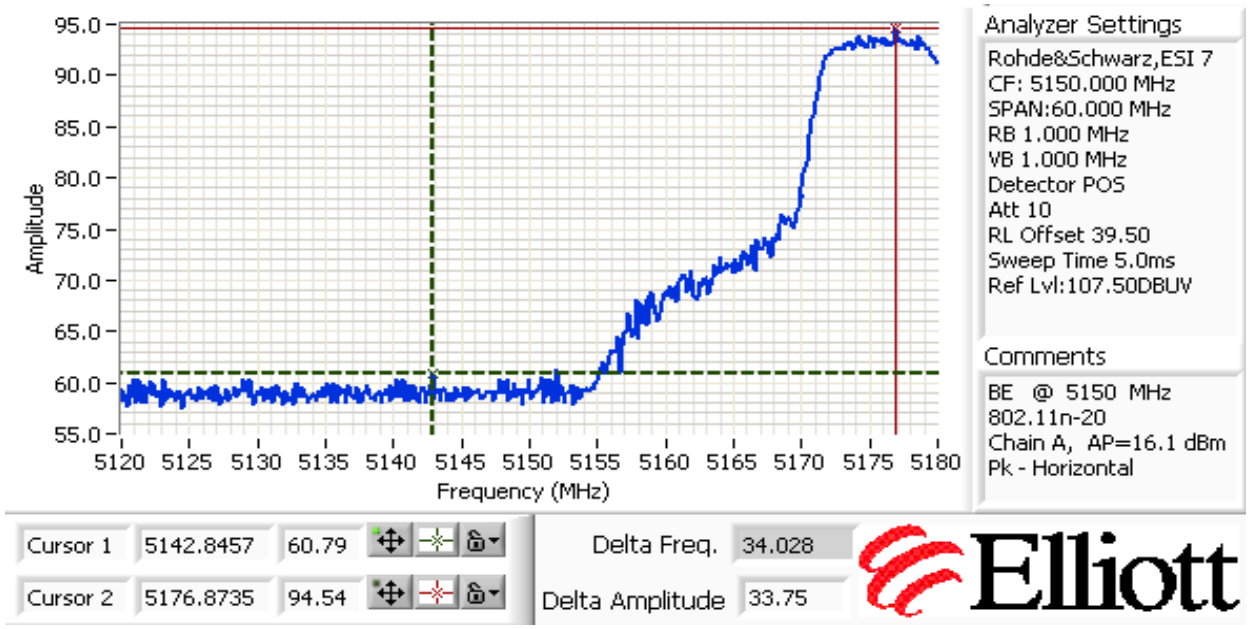
Band Edge Signal Field Strength

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5149.845	48.4	V	54.0	-5.6	AVG	230	1.0	
5149.939	61.7	V	74.0	-12.3	PK	230	1.0	
5149.819	45.1	H	54.0	-8.9	AVG	241	1.0	
5142.845	60.8	H	74.0	-13.2	PK	241	1.0	

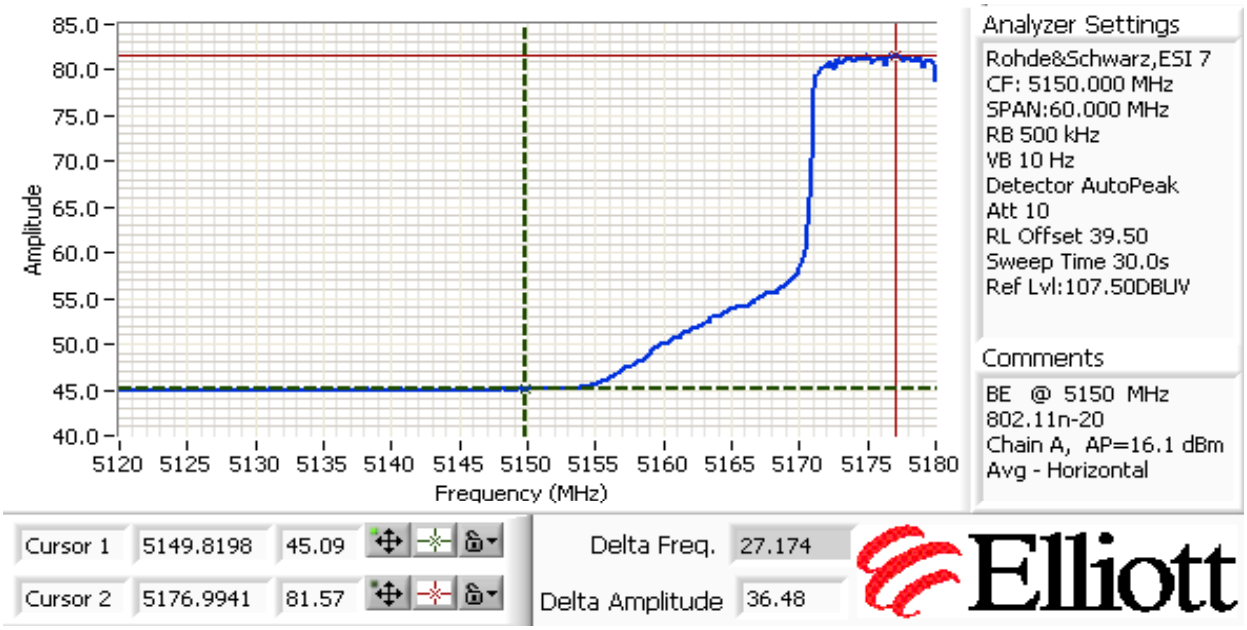


Client:	Intel Corporation	Job Number:	J72725
Model:	533AN-MMW with SL-300 Boxter Antenna	T-Log Number:	T72736
		Account Manager:	Dean Eriksen
Contact:	Robert Paxman		
Standard:	FCC Part 15E/RSS 210	Class:	N/A





Client:	Intel Corporation	Job Number:	J72725
Model:	533AN-MMW with SL-300 Boxter Antenna	T-Log Number:	T72736
		Account Manager:	Dean Eriksen
Contact:	Robert Paxman		
Standard:	FCC Part 15E/RSS 210	Class:	N/A



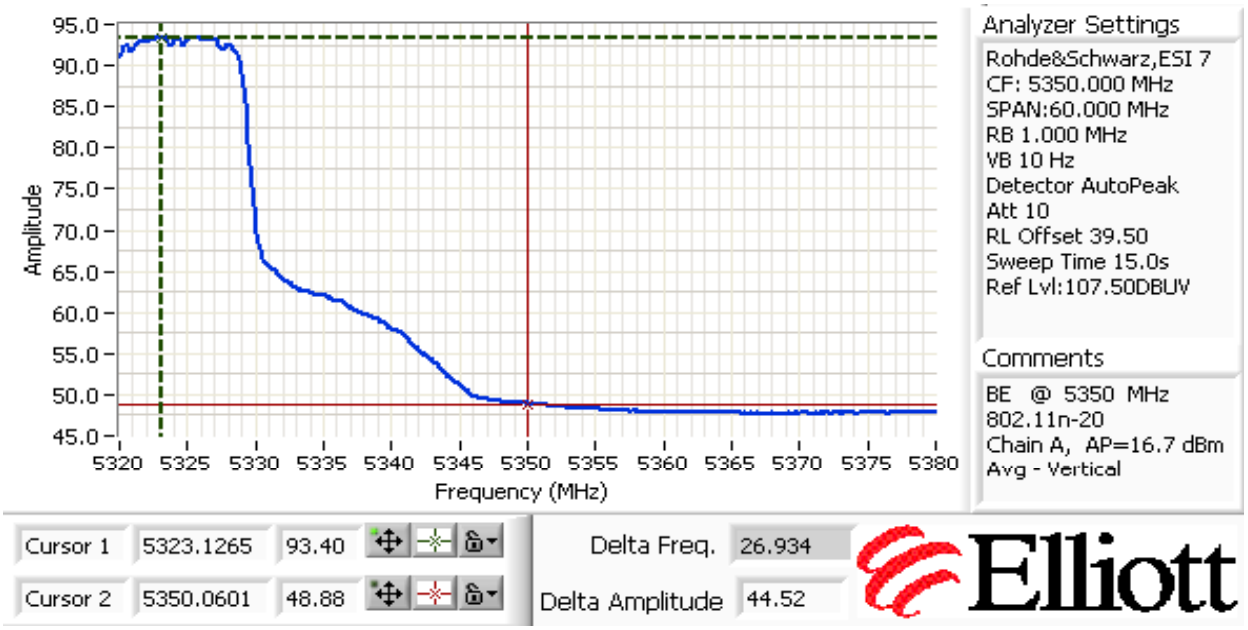
Run #1b: High Channel @ 5320 MHz (band edge at 5350 MHz)

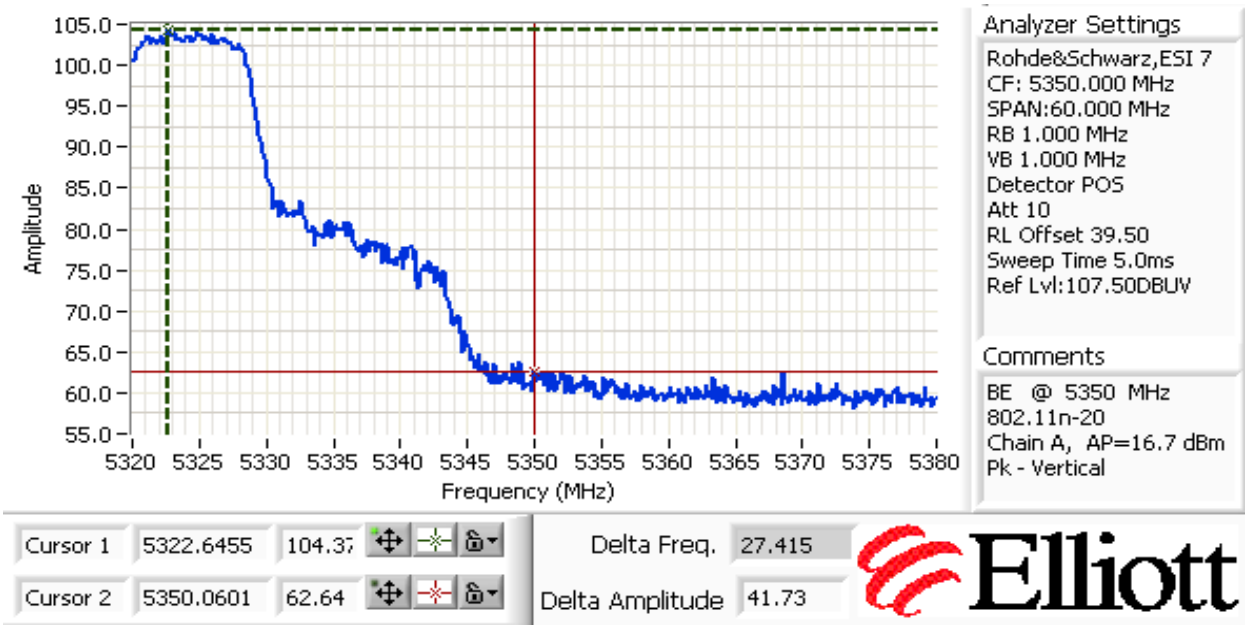
Power Setting and average measurement (for reference)						
Chain A		Chain B		Chain C		
Setting	Avg	Setting	Avg	Setting	Avg	
24.0	16.7					Measured Settings

Band Edge Signal Field Strength

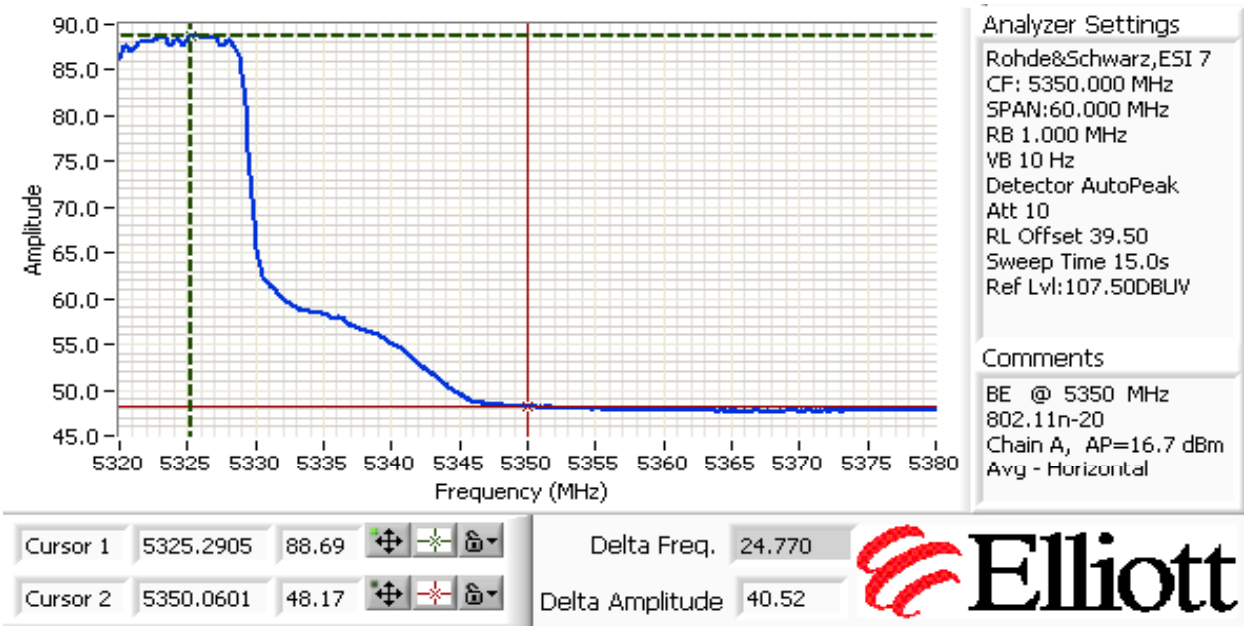
Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5350.060	48.9	V	54.0	-5.1	AVG	230	1.0	
5350.060	62.6	V	74.0	-11.4	PK	230	1.0	
5350.060	48.2	H	54.0	-5.8	AVG	241	1.0	
5357.395	61.4	H	74.0	-12.6	PK	241	1.0	

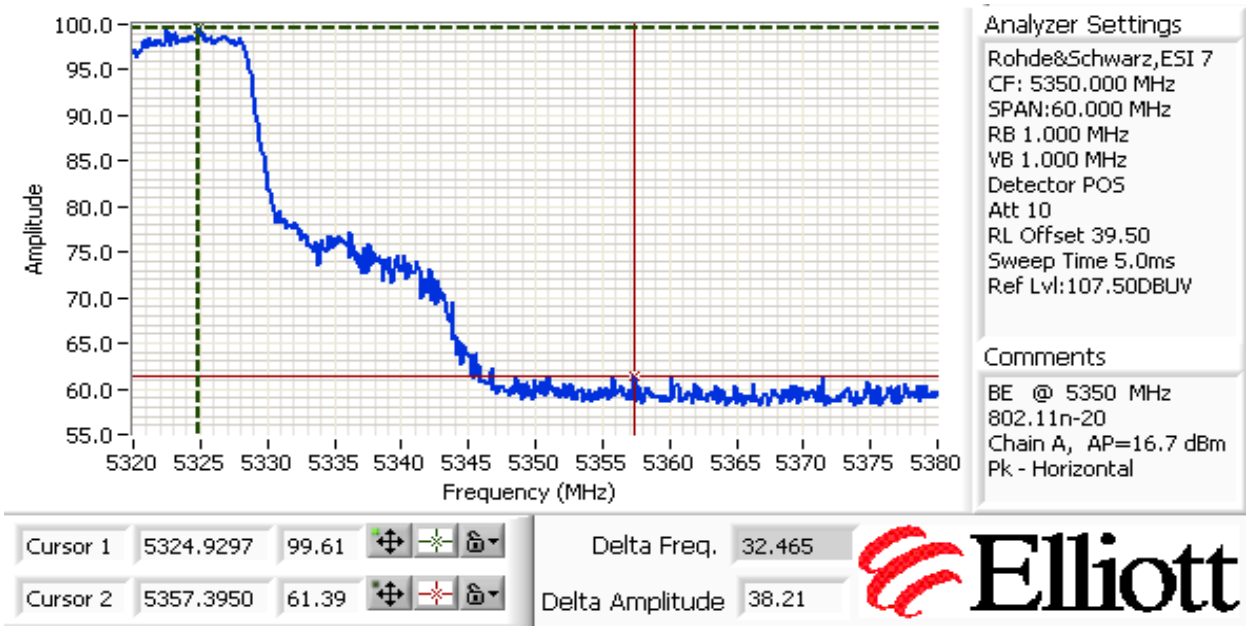
Client:	Intel Corporation	Job Number:	J72725
Model:	533AN-MMW with SL-300 Boxter Antenna	T-Log Number:	T72736
		Account Manager:	Dean Eriksen
Contact:	Robert Paxman		
Standard:	FCC Part 15E/RSS 210	Class:	N/A





Client:	Intel Corporation	Job Number:	J72725
Model:	533AN-MMW with SL-300 Boxter Antenna	T-Log Number:	T72736
		Account Manager:	Dean Eriksen
Contact:	Robert Paxman		
Standard:	FCC Part 15E/RSS 210	Class:	N/A





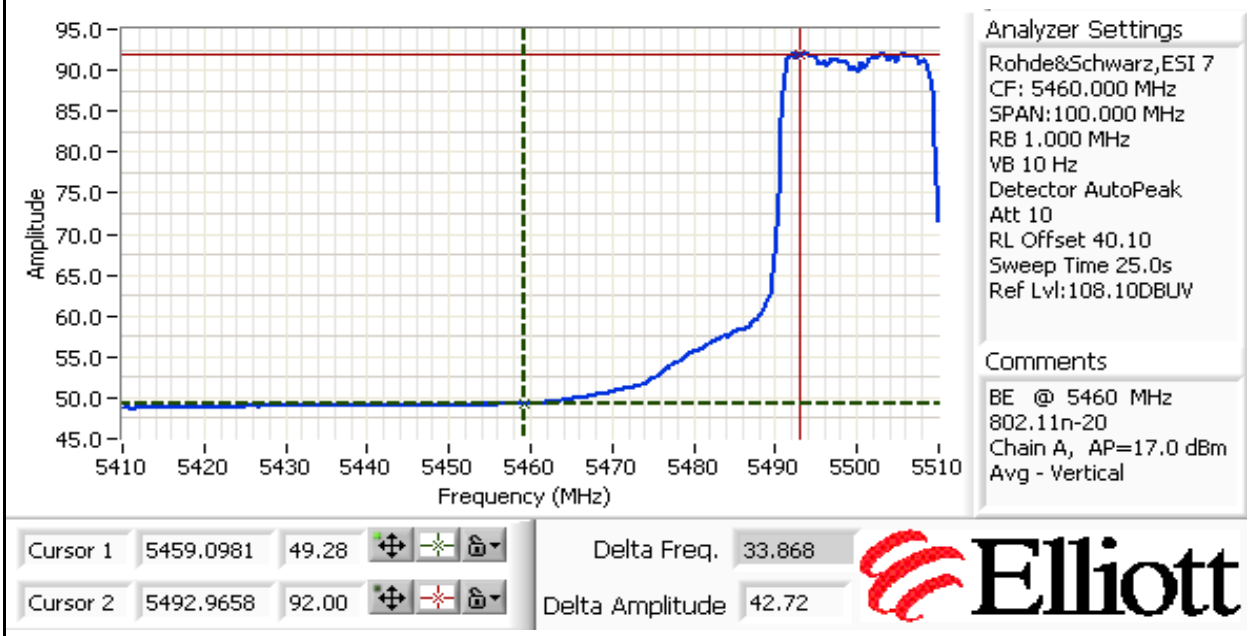
Client:	Intel Corporation	Job Number:	J72725
Model:	533AN-MMW with SL-300 Boxter Antenna	T-Log Number:	T72736
		Account Manager:	Dean Eriksen
Contact:	Robert Paxman		
Standard:	FCC Part 15E/RSS 210	Class:	N/A

Run #1c: Low Channel @ 5500 MHz (restricted band edge at 5460 MHz, allocated band edge at 5470MHz)

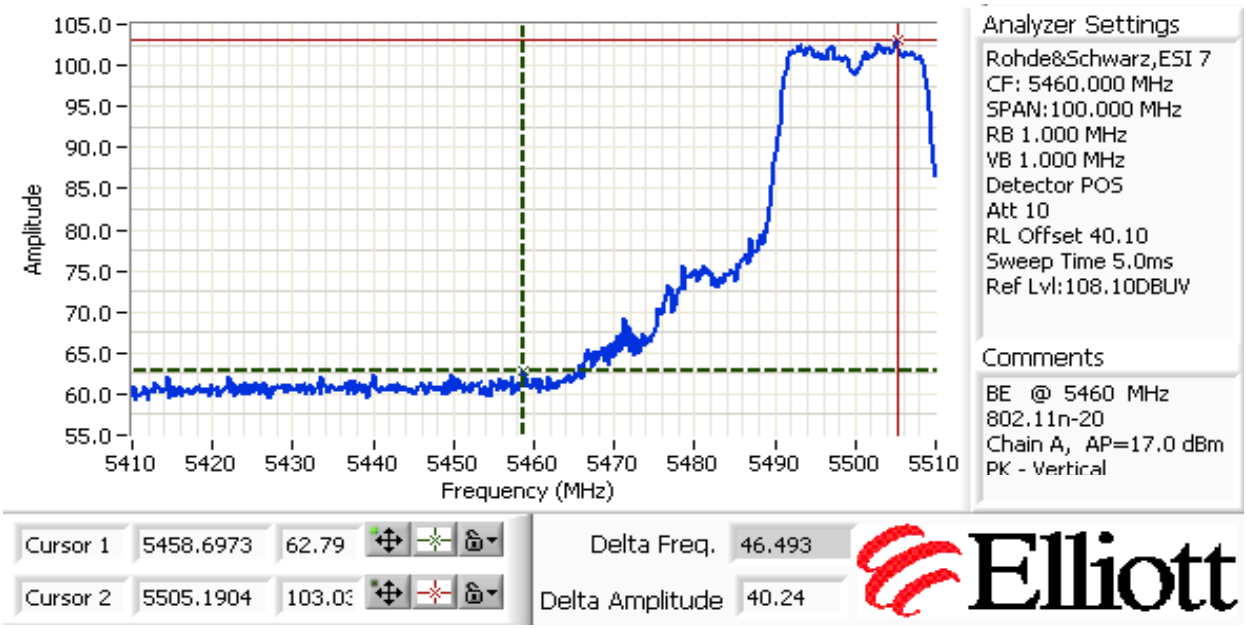
Power Setting and average measurement (for reference)						
Chain A		Chain B		Chain C		
Setting	Avg	Setting	Avg	Setting	Avg	
22.5	17.0					Measured Settings

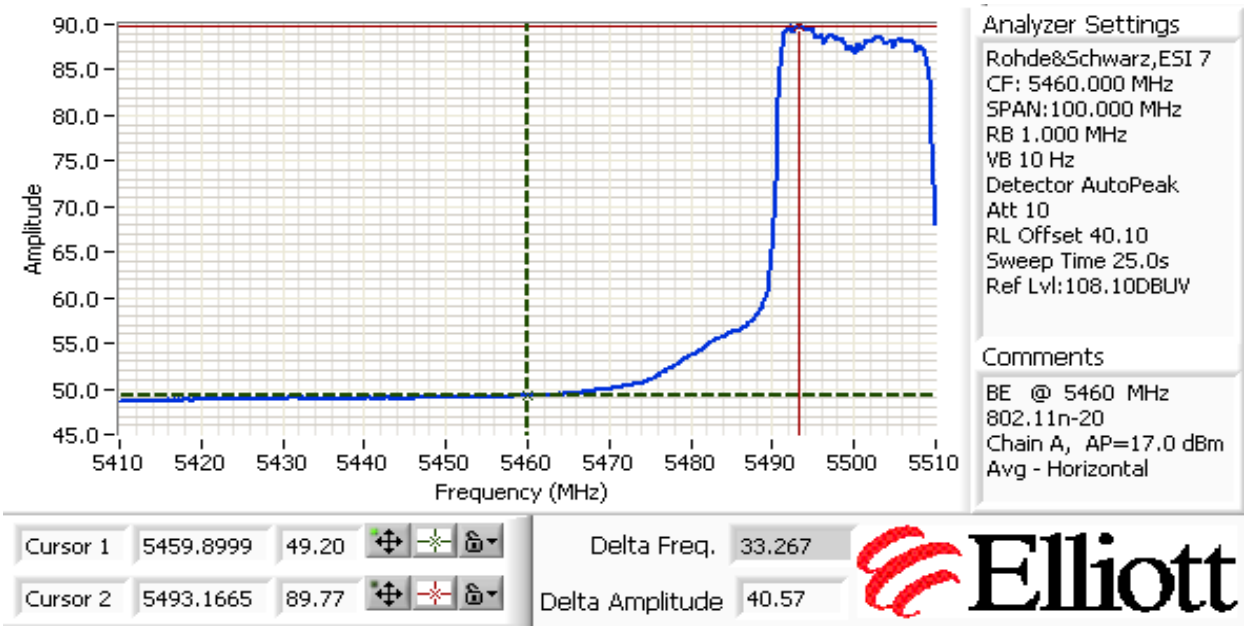
Band Edge Signal Field Strength

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5459.098	49.3	V	54.0	-4.7	AVG	230	1.0	
5458.697	62.8	V	74.0	-11.2	PK	230	1.0	
5459.899	49.2	H	54.0	-4.8	AVG	241	1.0	
5446.673	62.6	H	74.0	-11.4	PK	241	1.0	

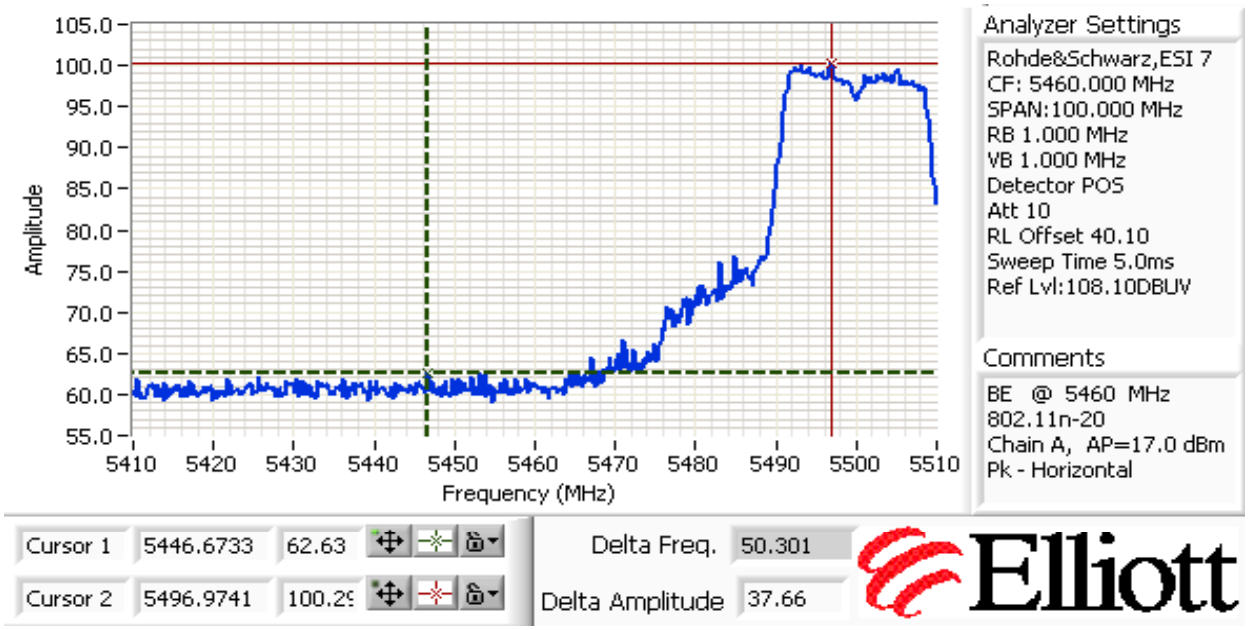


Client:	Intel Corporation	Job Number:	J72725
Model:	533AN-MMW with SL-300 Boxter Antenna	T-Log Number:	T72736
		Account Manager:	Dean Eriksen
Contact:	Robert Paxman		
Standard:	FCC Part 15E/RSS 210	Class:	N/A



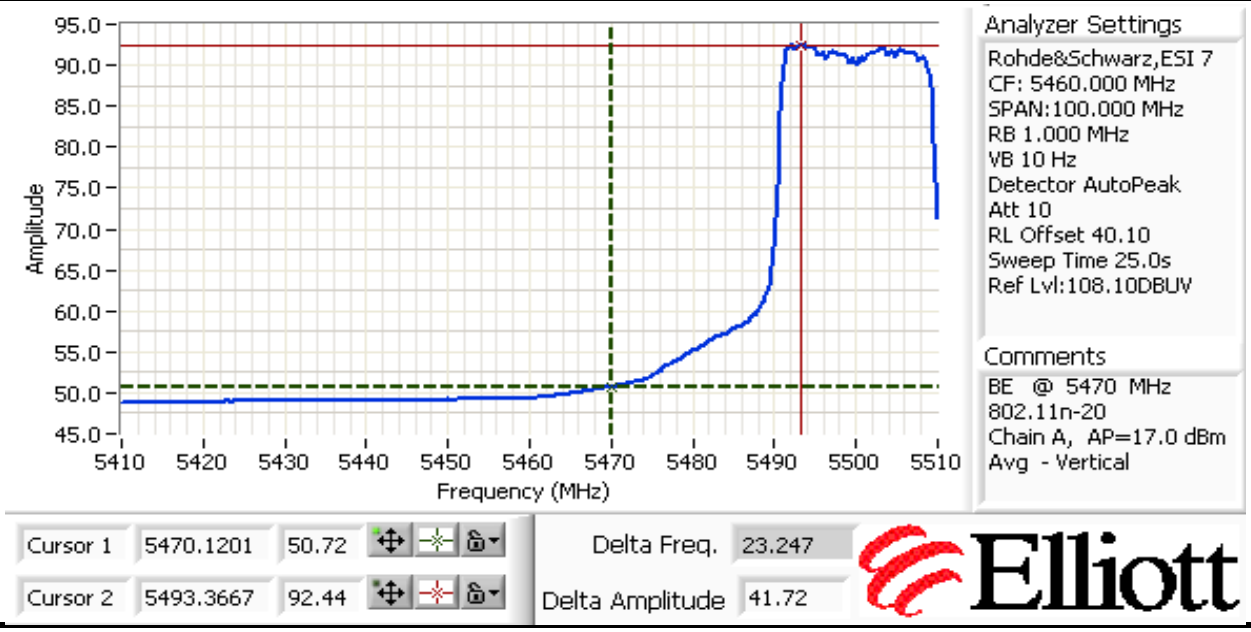


Client:	Intel Corporation	Job Number:	J72725
Model:	533AN-MMW with SL-300 Boxter Antenna	T-Log Number:	T72736
		Account Manager:	Dean Eriksen
Contact:	Robert Paxman		
Standard:	FCC Part 15E/RSS 210	Class:	N/A

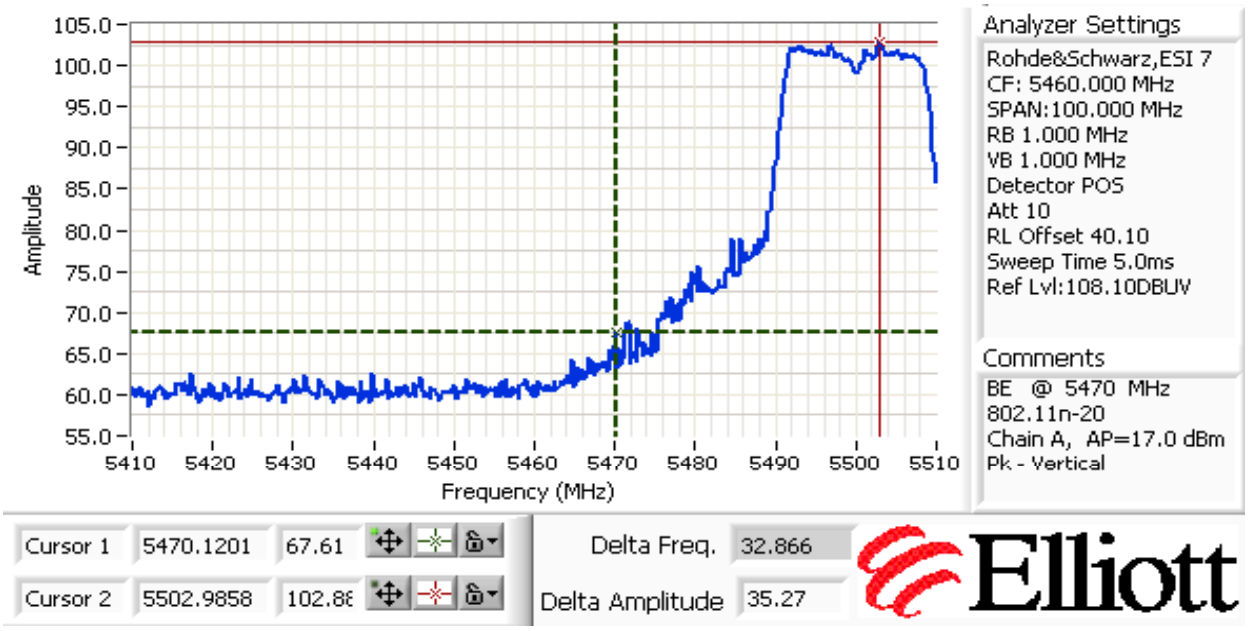


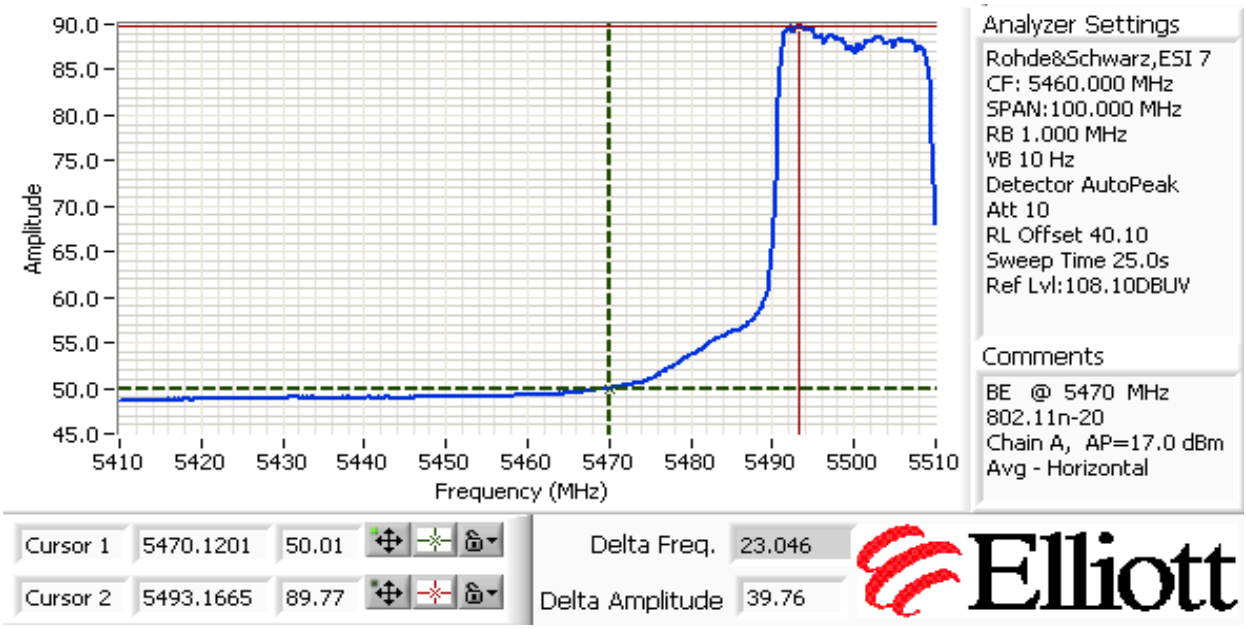
5460 - 5470 MHz, Limit is -27dBm eirp (68.3dBuV/m average, 88.3dBuV/m peak at 3m)

Frequency	Level	Pol	15.209 / 15.407		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5470.000	50.7	V	68.3	-17.6	AVG	230	1.0	
5470.000	67.6	V	88.3	-20.7	PK	230	1.0	
5470.000	50.0	H	68.3	-18.3	AVG	241	1.0	
5469.118	64.1	H	88.3	-24.2	PK	241	1.0	

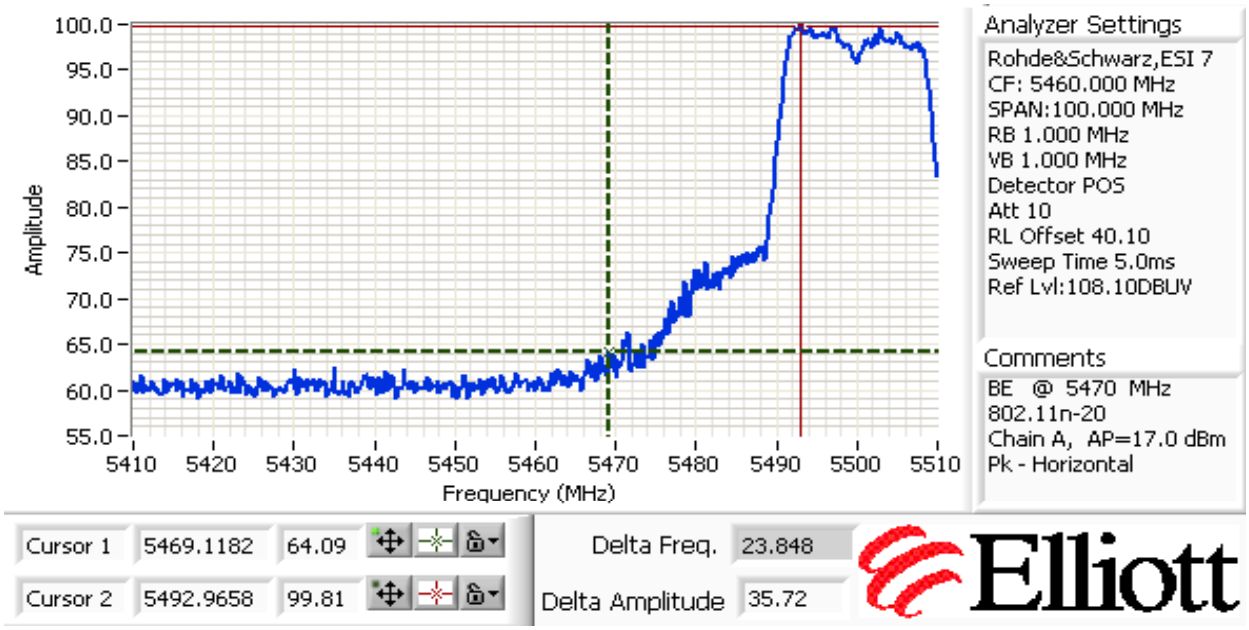


Client:	Intel Corporation	Job Number:	J72725
Model:	533AN-MMW with SL-300 Boxter Antenna	T-Log Number:	T72736
		Account Manager:	Dean Eriksen
Contact:	Robert Paxman		
Standard:	FCC Part 15E/RSS 210	Class:	N/A





Client:	Intel Corporation	Job Number:	J72725
Model:	533AN-MMW with SL-300 Boxter Antenna	T-Log Number:	T72736
		Account Manager:	Dean Eriksen
Contact:	Robert Paxman		
Standard:	FCC Part 15E/RSS 210	Class:	N/A



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

Date of Test: 8/25/2008
Test Engineer: Ben Jing
Test Location: FT Chamber # 5
MAC Address: 0016EA02D4D0

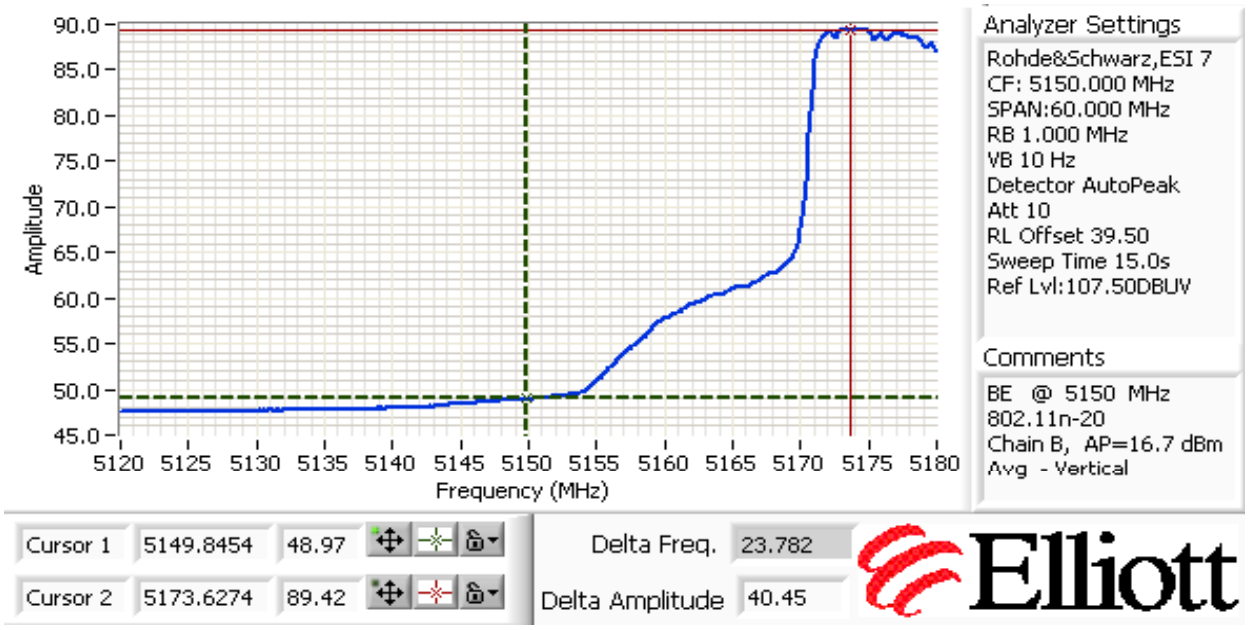
Run #2a: Low Channel @ 5180 MHz (band edge at 5150 MHz)

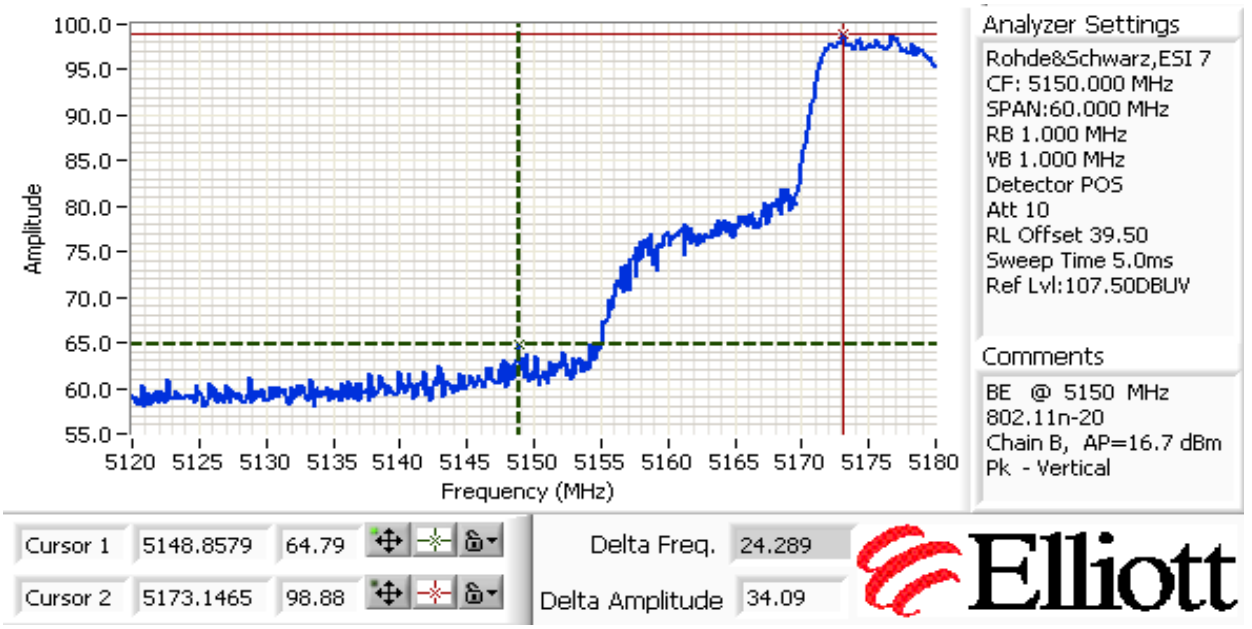
Power Setting and average measurement (for reference)						
Chain A		Chain B		Chain C		
Setting	Avg	Setting	Avg	Setting	Avg	
		28.5	16.7			Measured Settings

Band Edge Signal Field Strength

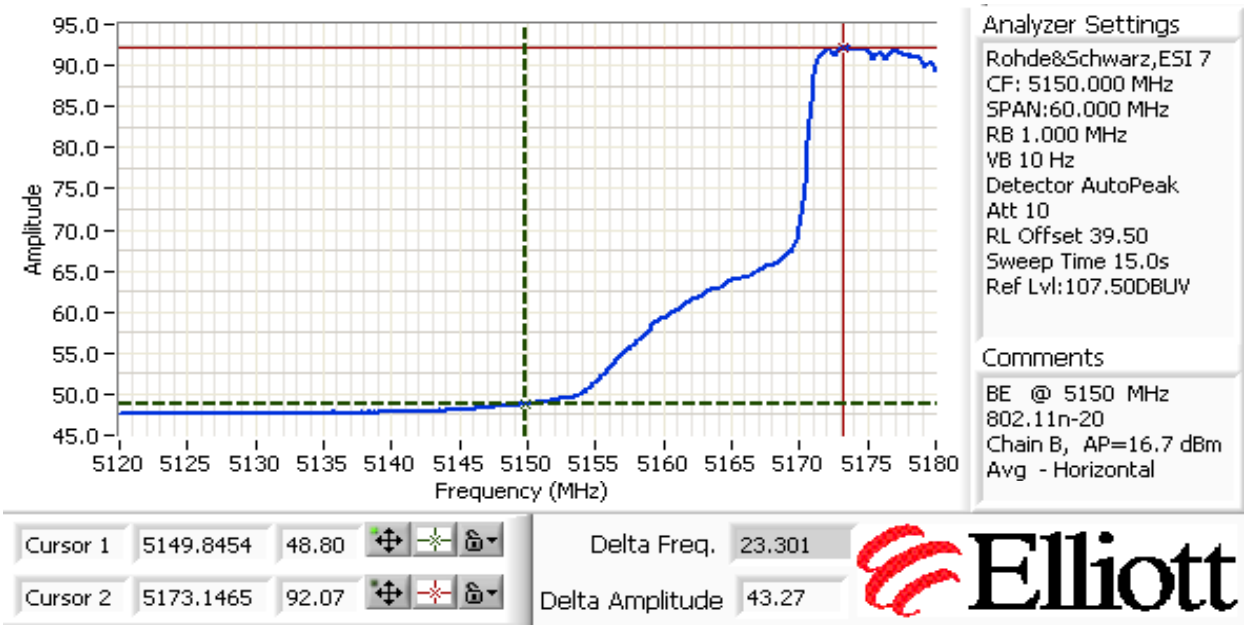
Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5149.845	48.9	V	54.0	-5.1	AVG	230	1.0	
5148.857	64.8	V	74.0	-9.2	PK	230	1.0	
5149.845	48.8	H	54.0	-5.2	AVG	241	1.0	
5149.218	63.1	H	74.0	-10.9	PK	241	1.0	

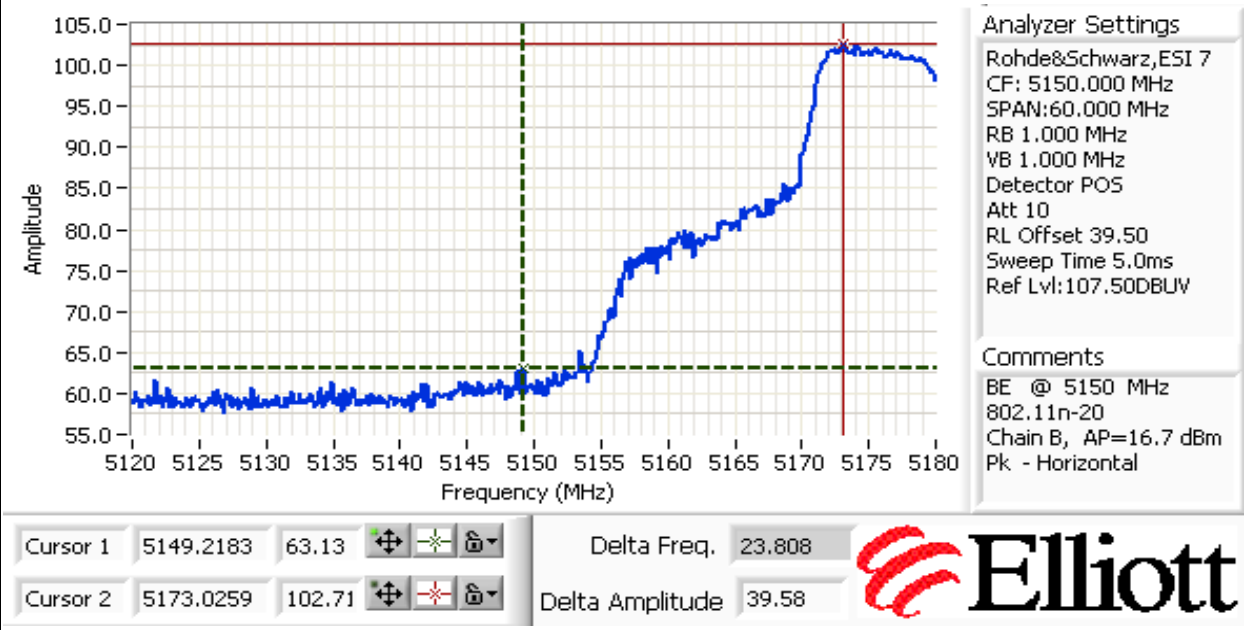
Client:	Intel Corporation	Job Number:	J72725
Model:	533AN-MMW with SL-300 Boxter Antenna	T-Log Number:	T72736
		Account Manager:	Dean Eriksen
Contact:	Robert Paxman		
Standard:	FCC Part 15E/RSS 210	Class:	N/A





Client:	Intel Corporation	Job Number:	J72725
Model:	533AN-MMW with SL-300 Boxter Antenna	T-Log Number:	T72736
		Account Manager:	Dean Eriksen
Contact:	Robert Paxman		
Standard:	FCC Part 15E/RSS 210	Class:	N/A





Client:	Intel Corporation	Job Number:	J72725
Model:	533AN-MMW with SL-300 Boxter Antenna	T-Log Number:	T72736
		Account Manager:	Dean Eriksen
Contact:	Robert Paxman		
Standard:	FCC Part 15E/RSS 210	Class:	N/A

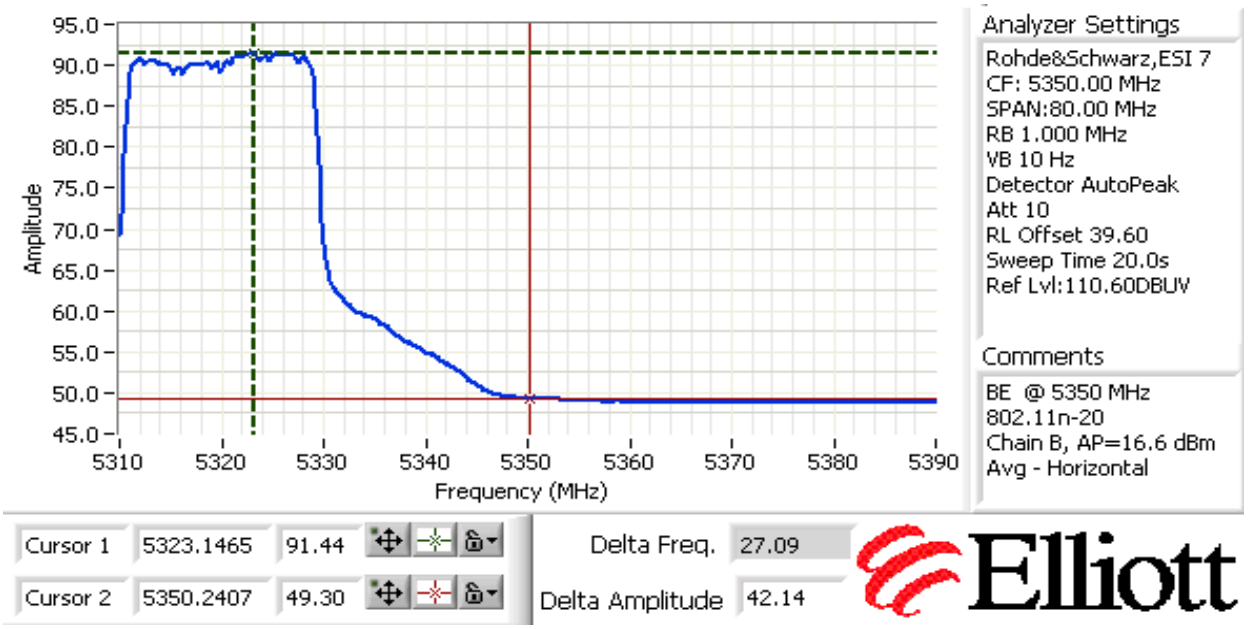
Date of Test: 8/26/2008
Test Engineer: Ben Jing
Test Location: FT Chamber # 4
MAC Address: 0016EA02D4D0

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

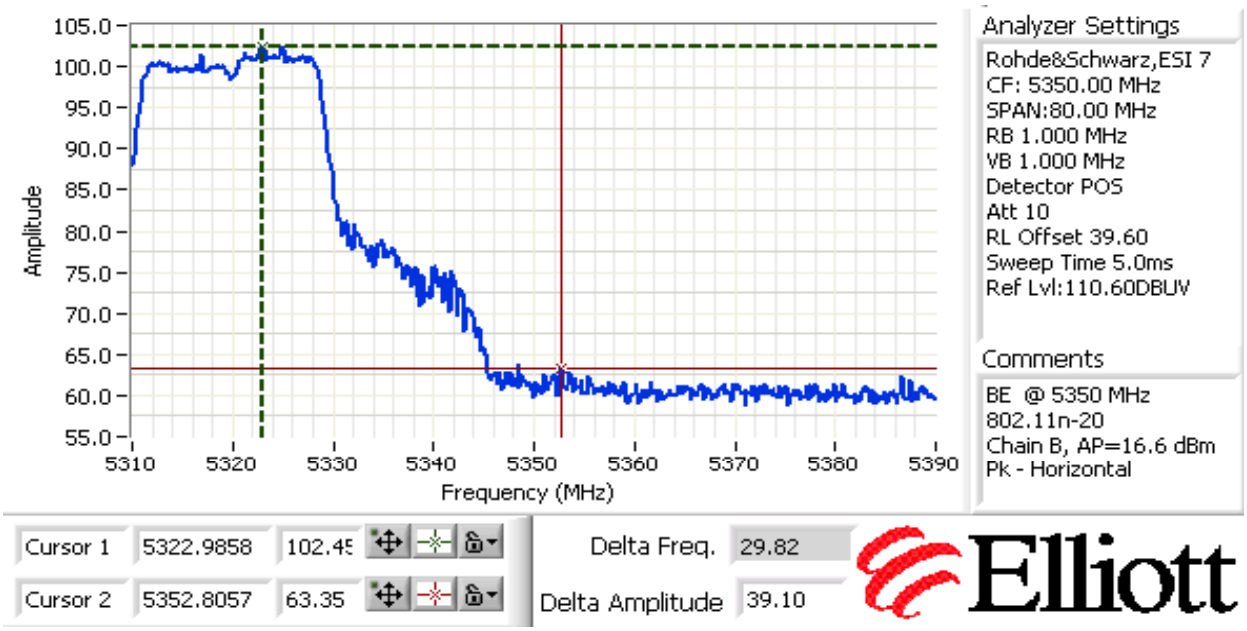
Power Setting and average measurement (for reference)					
Chain A		Chain B		Chain C	
Setting	Avg	Setting	Avg	Setting	Avg
		25.5	16.6		

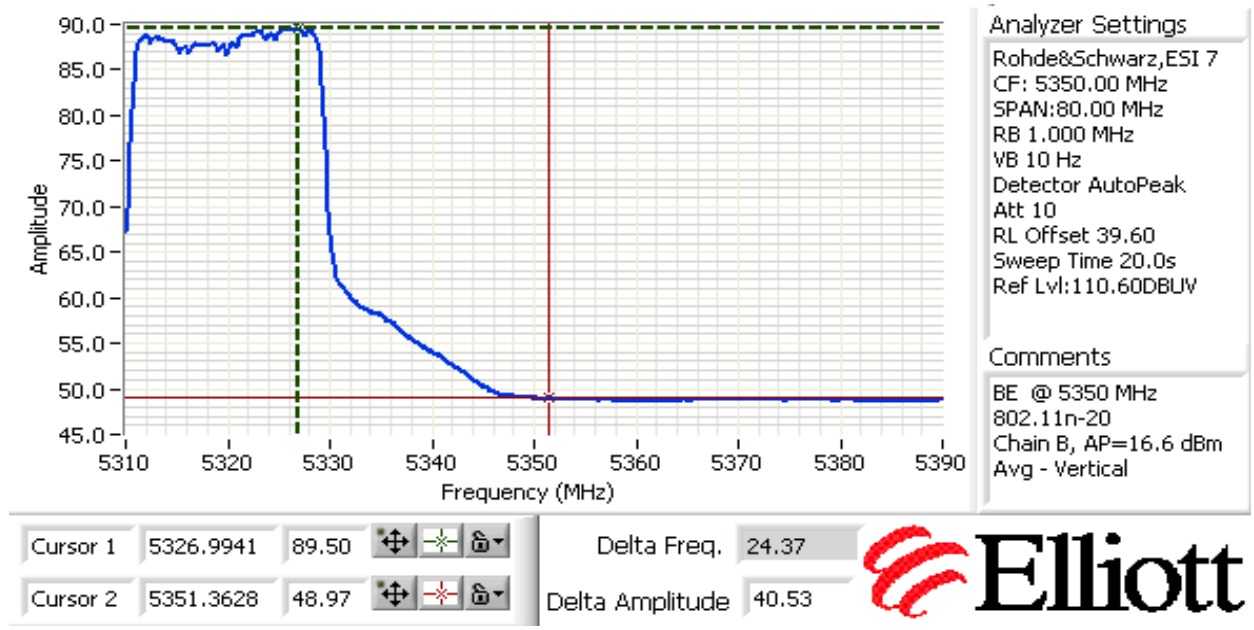
Band Edge Signal Field Strength

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5350.241	49.3	H	54.0	-4.7	AVG	205	1.0	
5352.805	63.4	H	74.0	-10.6	PK	205	1.0	
5351.362	49.0	V	54.0	-5.0	AVG	127	1.0	
5352.965	62.0	V	74.0	-12.0	PK	127	1.0	

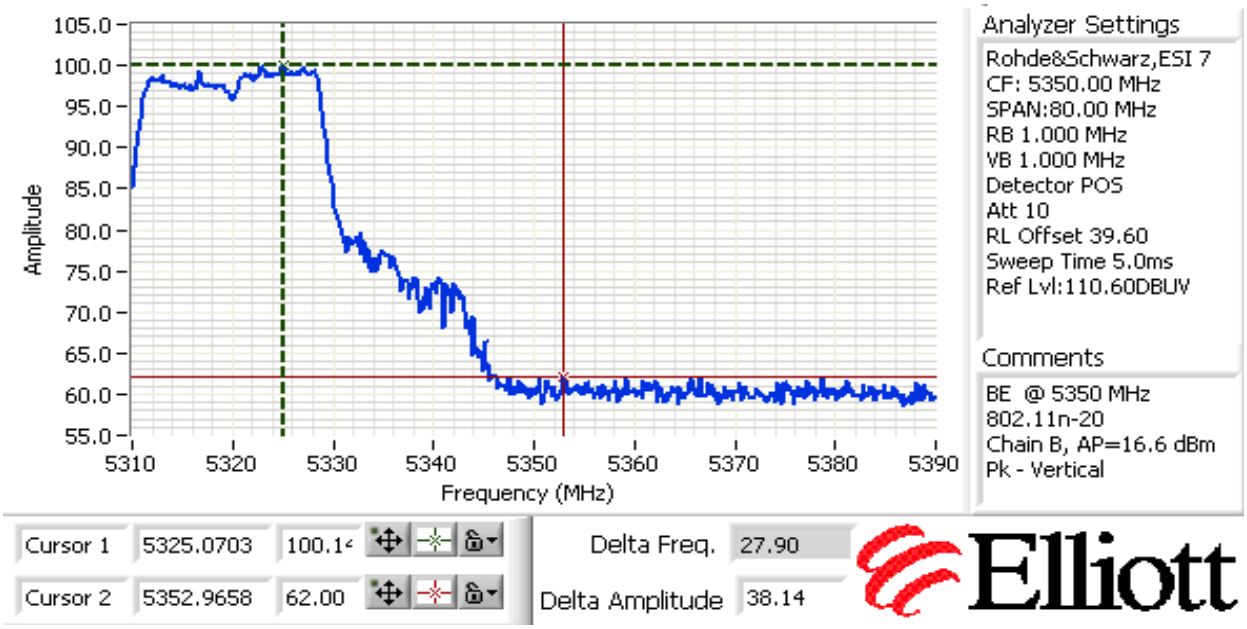


Client:	Intel Corporation	Job Number:	J72725
Model:	533AN-MMW with SL-300 Boxter Antenna	T-Log Number:	T72736
		Account Manager:	Dean Eriksen
Contact:	Robert Paxman		
Standard:	FCC Part 15E/RSS 210	Class:	N/A





Client:	Intel Corporation	Job Number:	J72725
Model:	533AN-MMW with SL-300 Boxter Antenna	T-Log Number:	T72736
		Account Manager:	Dean Eriksen
Contact:	Robert Paxman		
Standard:	FCC Part 15E/RSS 210	Class:	N/A



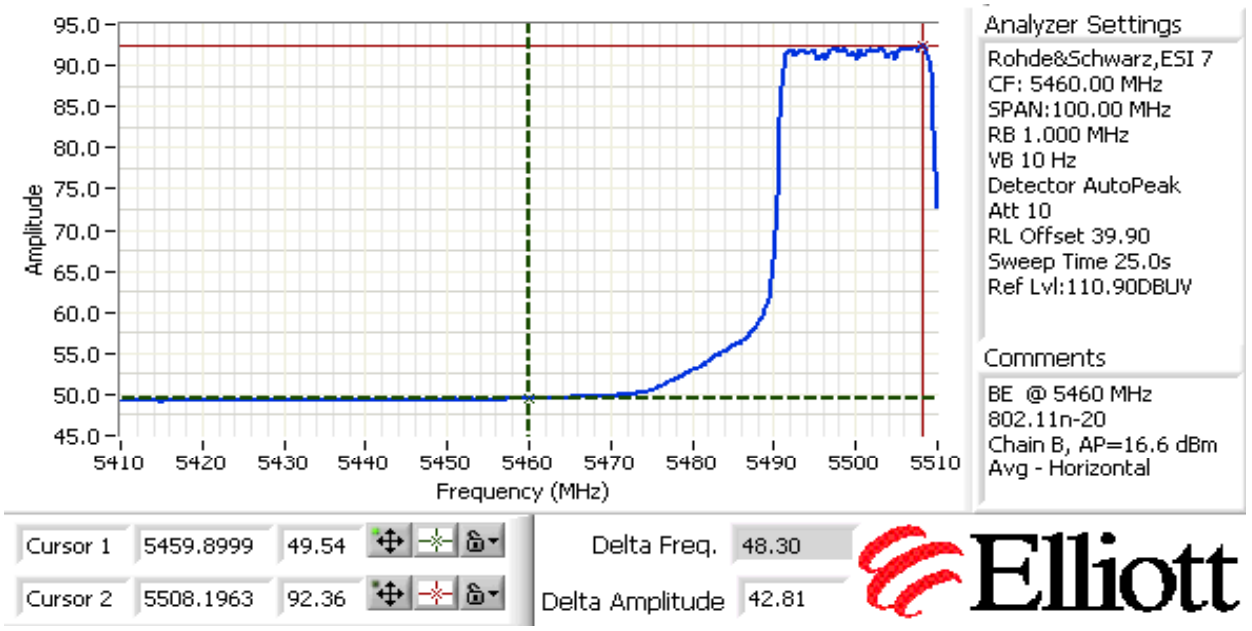
Run #2c: Low Channel @ 5500 MHz (restricted band edge at 5460 MHz, allocated band edge at 5470MHz)

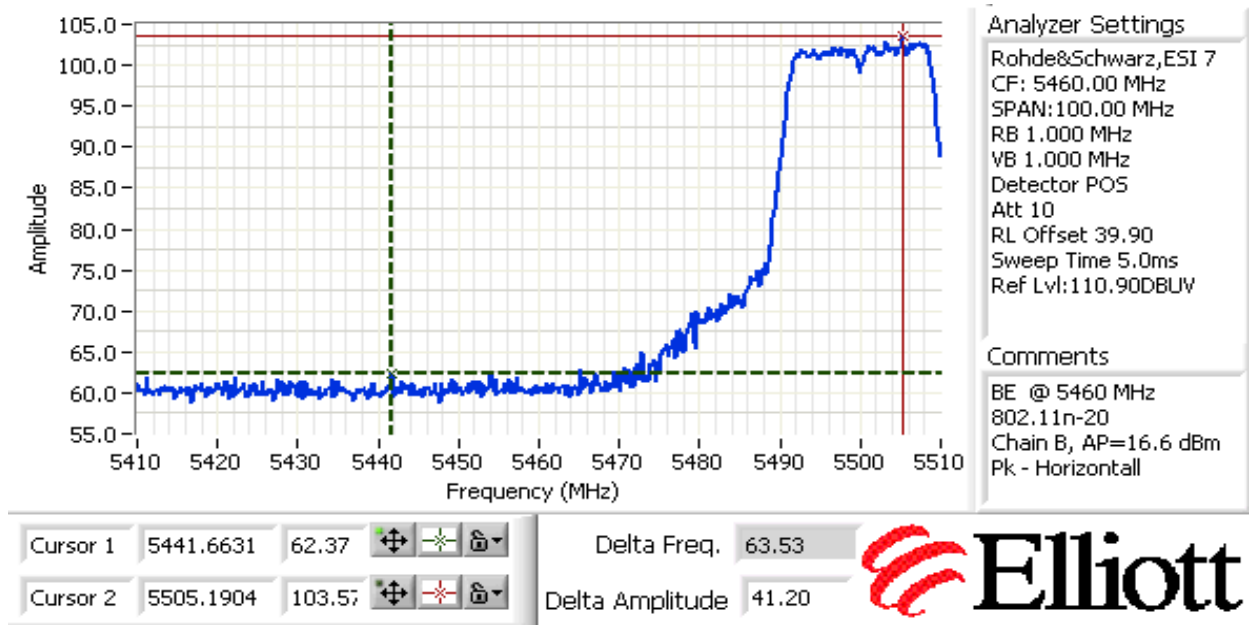
Power Setting and average measurement (for reference)					
Chain A		Chain B		Chain C	
Setting	Avg	Setting	Avg	Setting	Avg
		24.5	16.6		

Band Edge Signal Field Strength

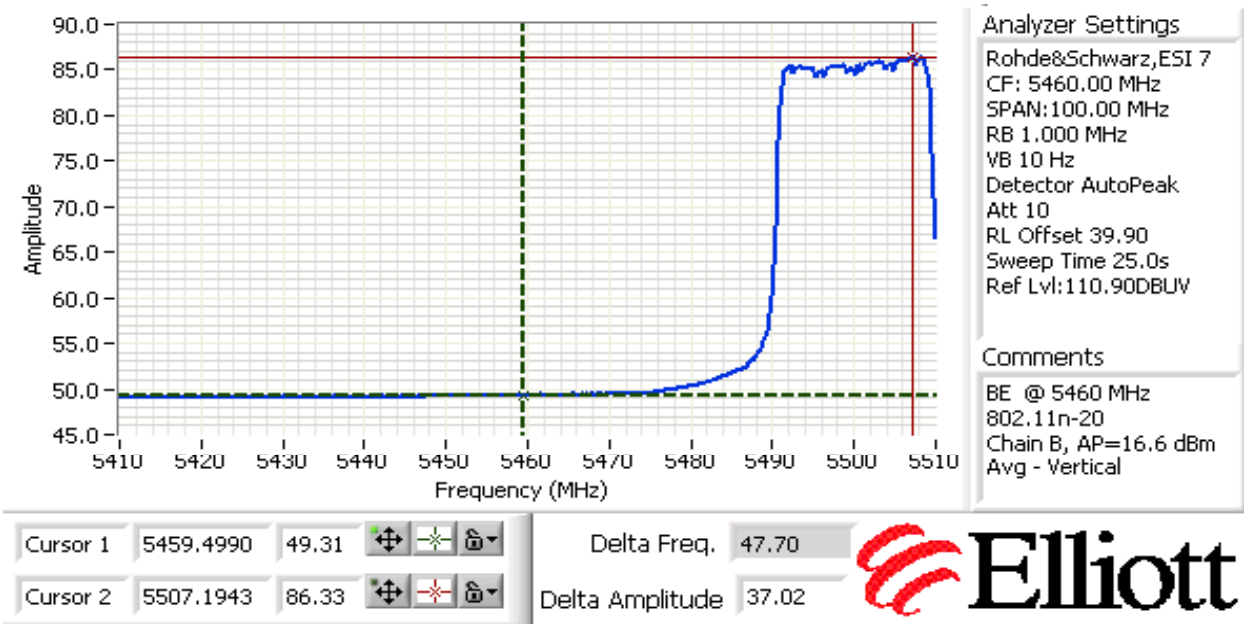
Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5459.899	49.5	H	54.0	-4.5	AVG	108	1.0	
5441.663	62.4	H	74.0	-11.6	PK	108	1.0	
5459.499	49.3	V	54.0	-4.7	AVG	153	1.0	
5421.222	62.5	V	74.0	-11.5	PK	153	1.0	

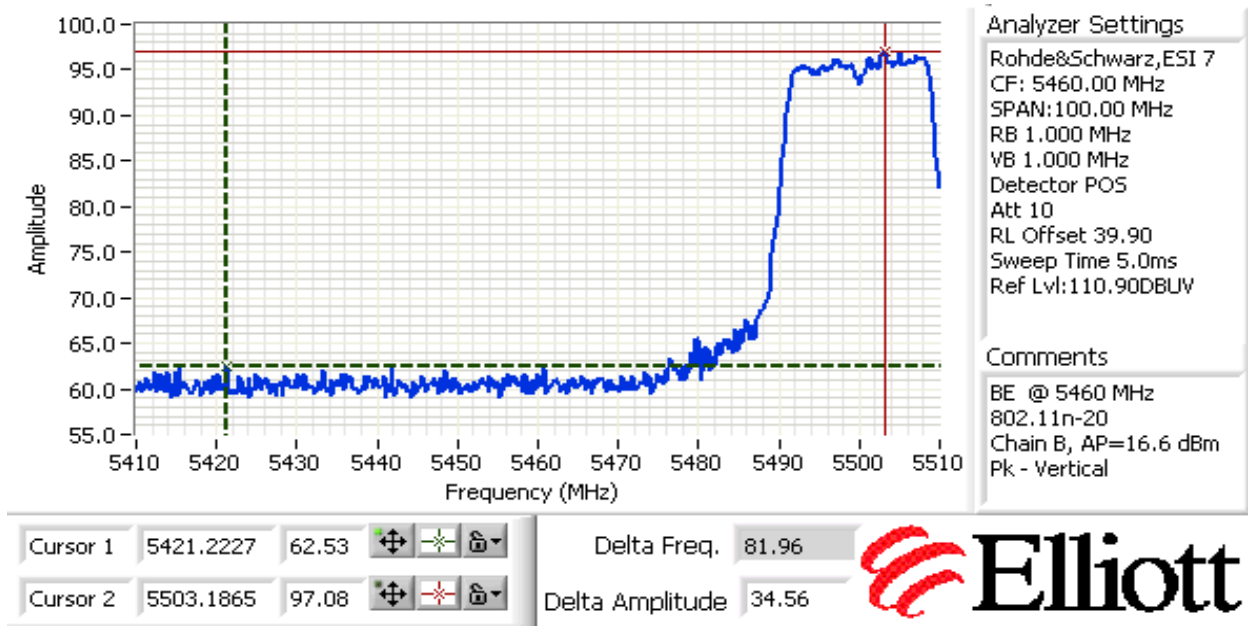
Client:	Intel Corporation	Job Number:	J72725
Model:	533AN-MMW with SL-300 Boxter Antenna	T-Log Number:	T72736
		Account Manager:	Dean Eriksen
Contact:	Robert Paxman		
Standard:	FCC Part 15E/RSS 210	Class:	N/A





Client:	Intel Corporation	Job Number:	J72725
Model:	533AN-MMW with SL-300 Boxter Antenna	T-Log Number:	T72736
		Account Manager:	Dean Eriksen
Contact:	Robert Paxman		
Standard:	FCC Part 15E/RSS 210	Class:	N/A

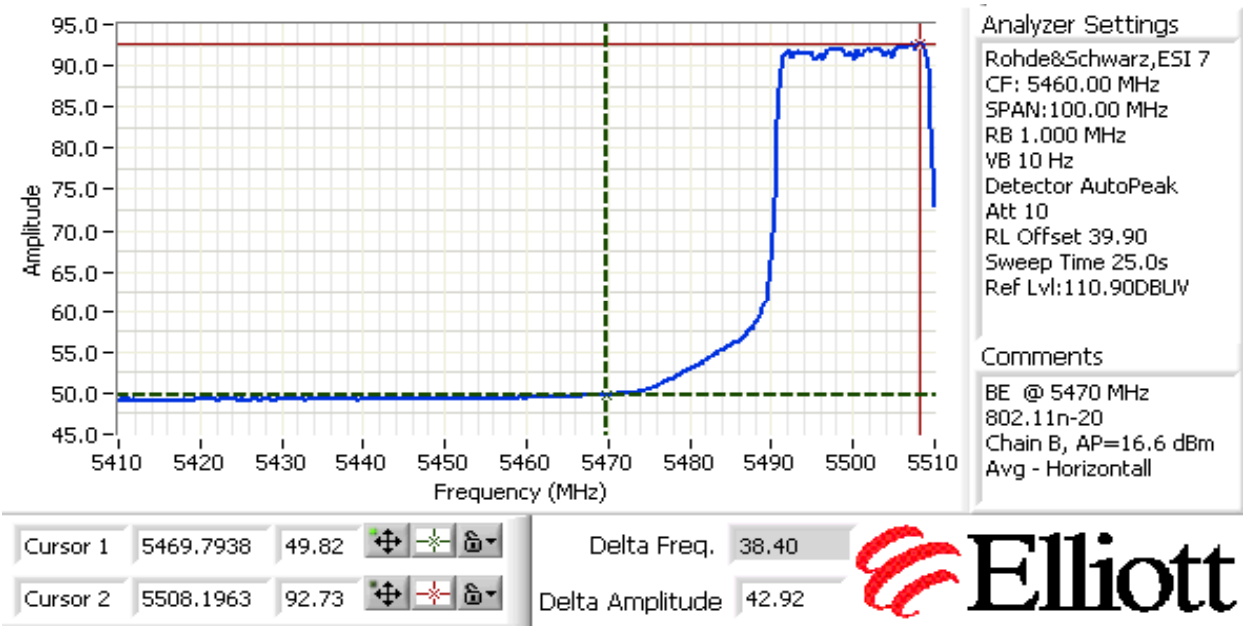


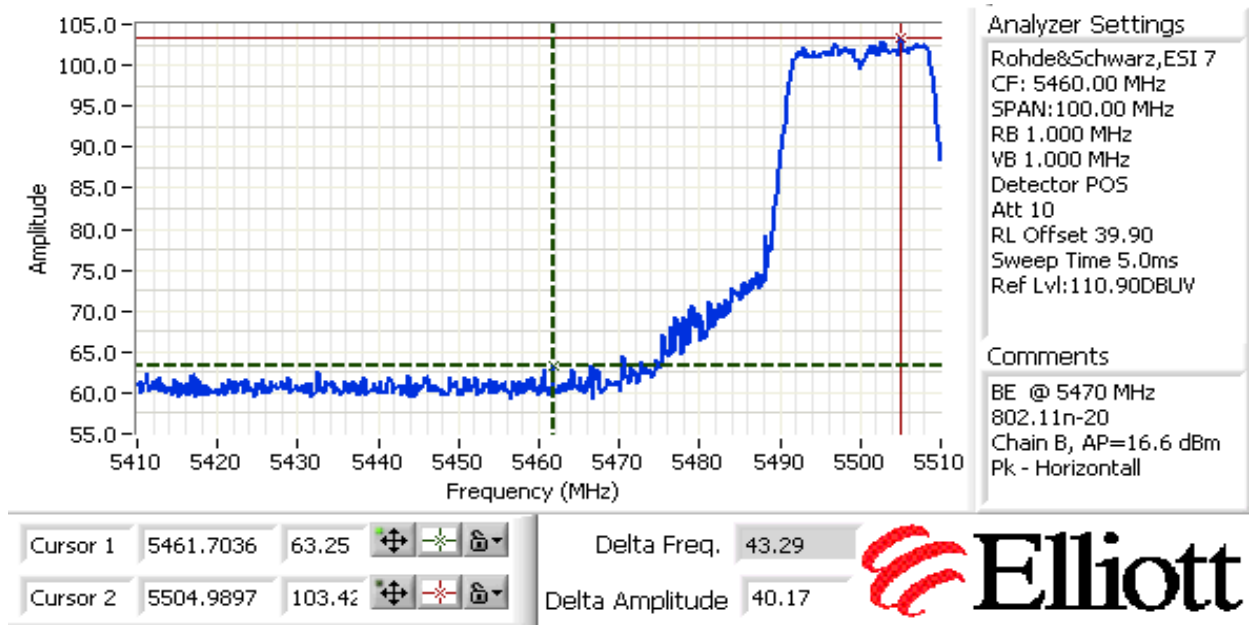


Client:	Intel Corporation	Job Number:	J72725
Model:	533AN-MMW with SL-300 Boxter Antenna	T-Log Number:	T72736
		Account Manager:	Dean Eriksen
Contact:	Robert Paxman		
Standard:	FCC Part 15E/RSS 210	Class:	N/A

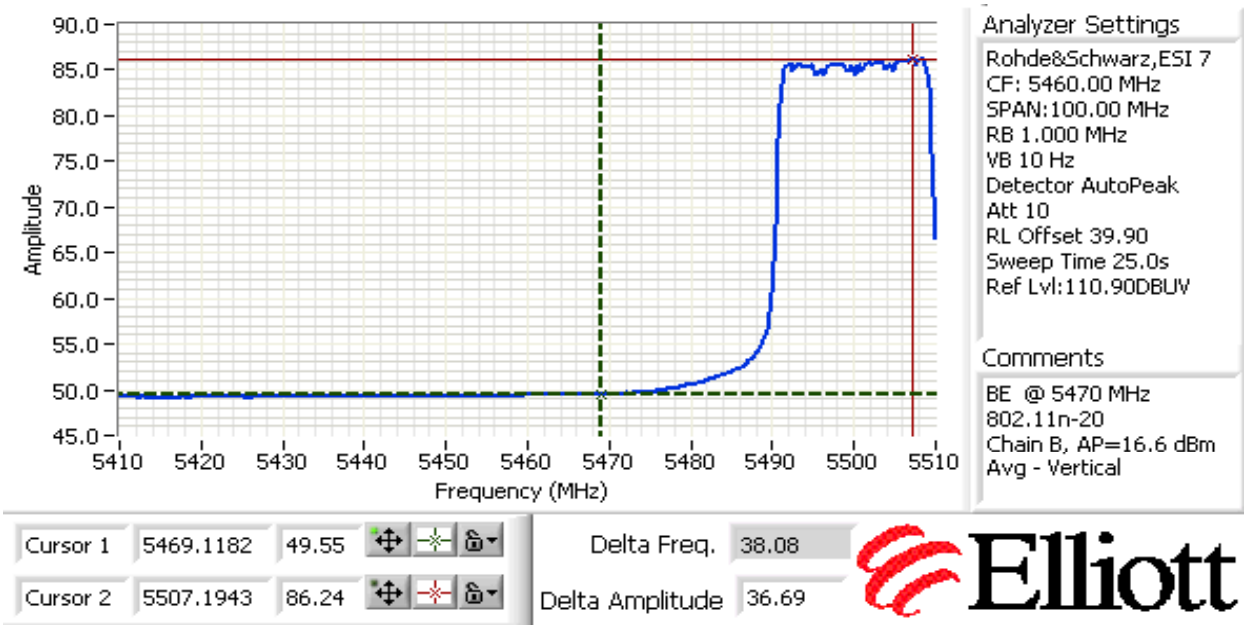
5460 - 5470 MHz, Limit is -27dBm eirp (68.3dBuV/m average, 88.3dBuV/m peak at 3m)

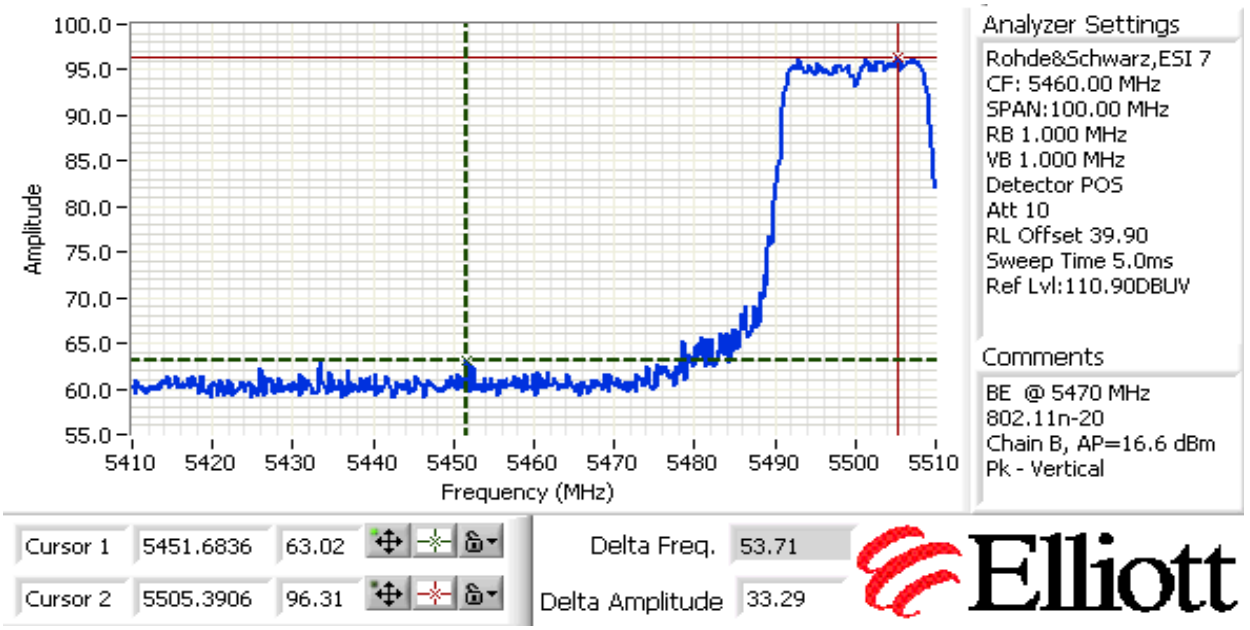
Frequency	Level	Pol	15.209 / 15.407		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5469.793	49.8	H	68.3	-18.5	AVG	108	1.0	
5461.703	63.3	H	88.3	-25.0	PK	108	1.0	
5469.118	49.6	V	68.3	-18.7	AVG	153	1.0	
5451.683	63.0	V	88.3	-25.3	PK	153	1.0	





Client:	Intel Corporation	Job Number:	J72725
Model:	533AN-MMW with SL-300 Boxter Antenna	T-Log Number:	T72736
		Account Manager:	Dean Eriksen
Contact:	Robert Paxman		
Standard:	FCC Part 15E/RSS 210	Class:	N/A





Client:	Intel Corporation	Job Number:	J72725
Model:	533AN-MMW with SL-300 Boxter Antenna	T-Log Number:	T72736
		Account Manager:	Dean Eriksen
Contact:	Robert Paxman		
Standard:	FCC Part 15E/RSS 210	Class:	N/A

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

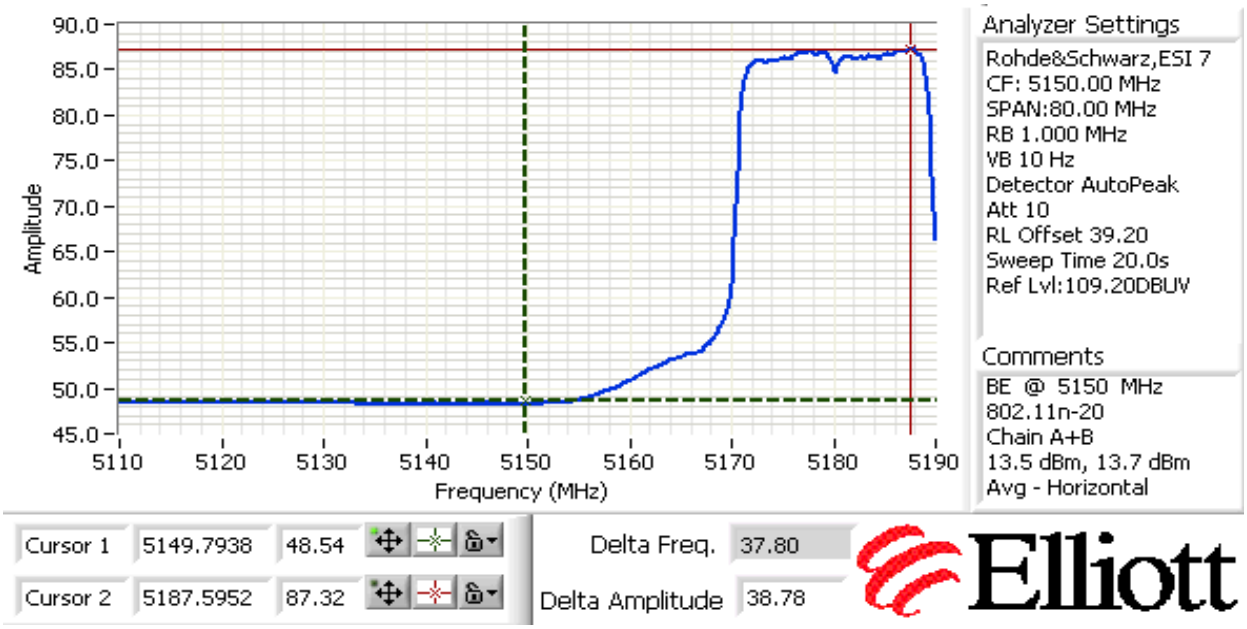
Date of Test: 8/27/2008
Test Engineer: Ben Jing
Test Location: FT Chamber # 4
MAC Address: 0016EA02D4D0

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

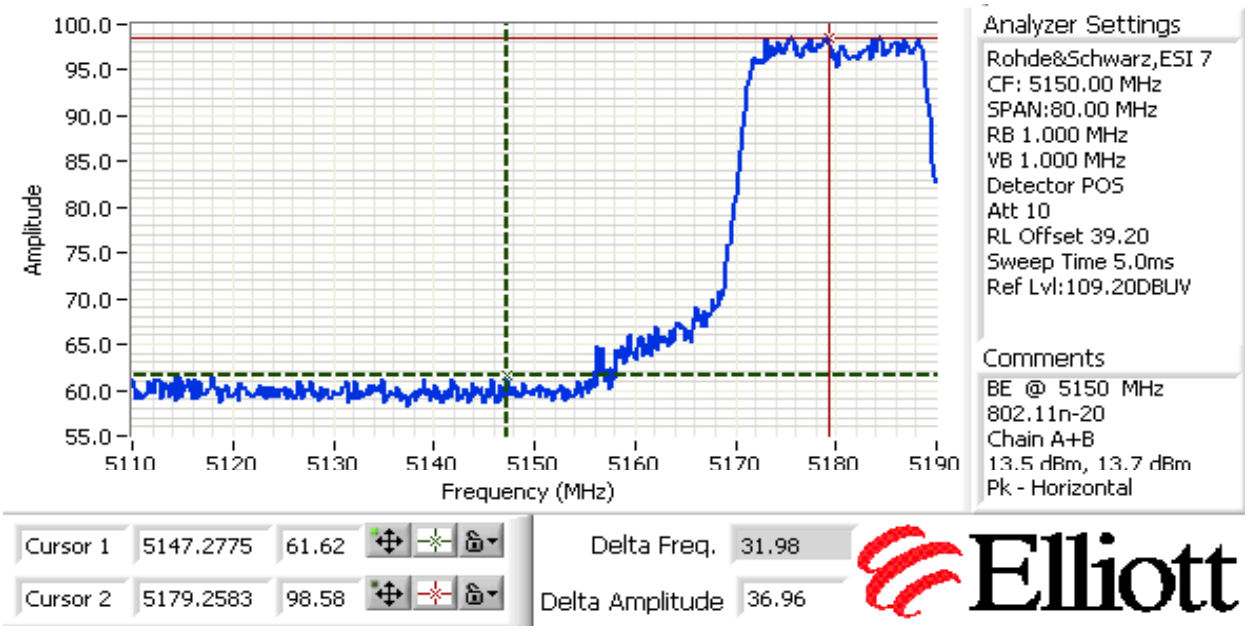
Power Setting and average measurement (for reference)					
Chain A		Chain B		Chain C	
Setting	Avg	Setting	Avg	Setting	Avg
26.5	13.5	26.5	13.7		

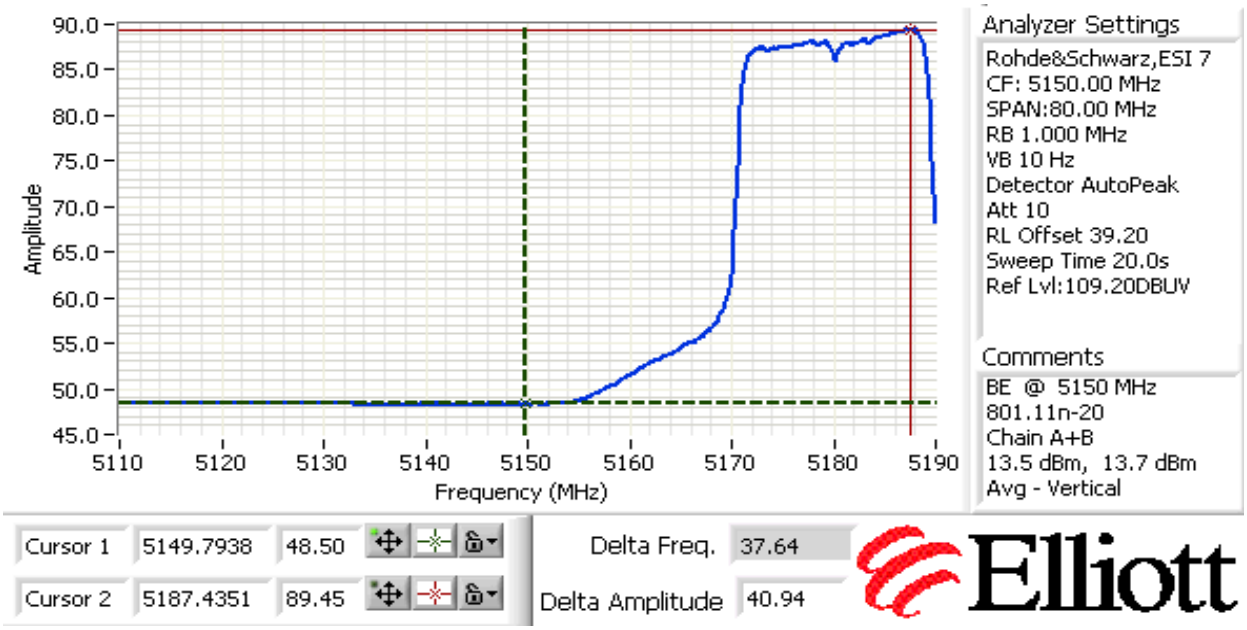
Band Edge Signal Field Strength

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5149.793	48.5	H	54.0	-5.5	AVG	111	1.0	
5147.277	61.6	H	74.0	-12.4	PK	111	1.0	
5149.793	48.5	V	54.0	-5.5	AVG	152	1.0	
5129.719	62.9	V	74.0	-11.1	PK	152	1.0	

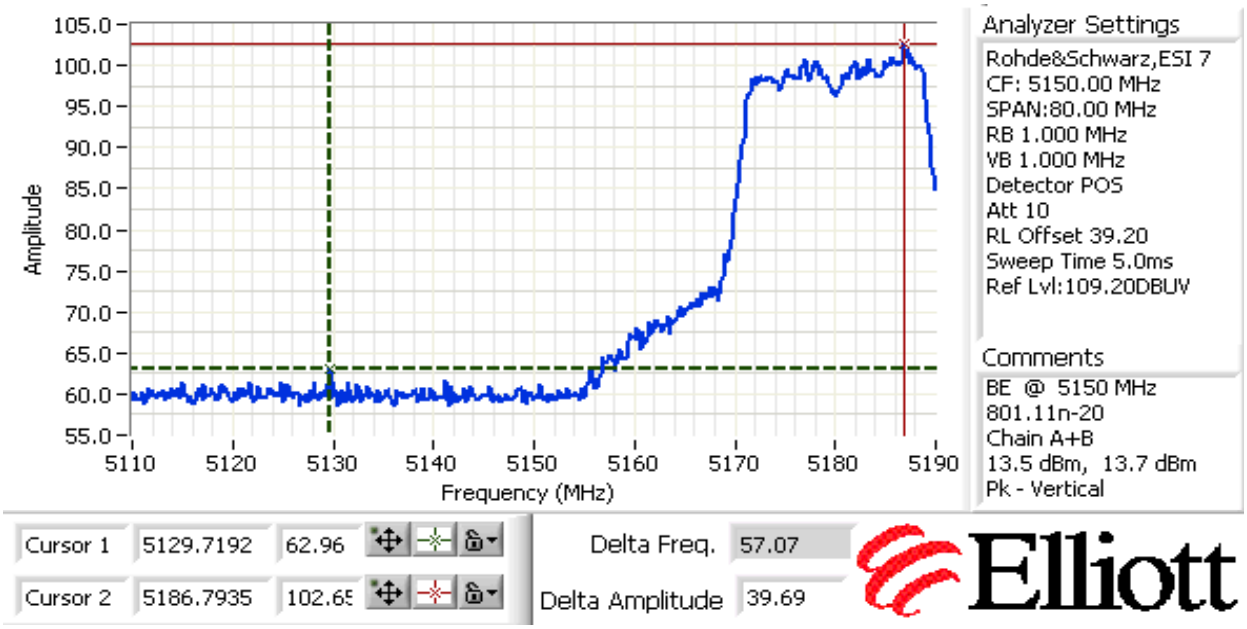


Client:	Intel Corporation	Job Number:	J72725
Model:	533AN-MMW with SL-300 Boxter Antenna	T-Log Number:	T72736
		Account Manager:	Dean Eriksen
Contact:	Robert Paxman		
Standard:	FCC Part 15E/RSS 210	Class:	N/A





Client:	Intel Corporation	Job Number:	J72725
Model:	533AN-MMW with SL-300 Boxter Antenna	T-Log Number:	T72736
		Account Manager:	Dean Eriksen
Contact:	Robert Paxman		
Standard:	FCC Part 15E/RSS 210	Class:	N/A



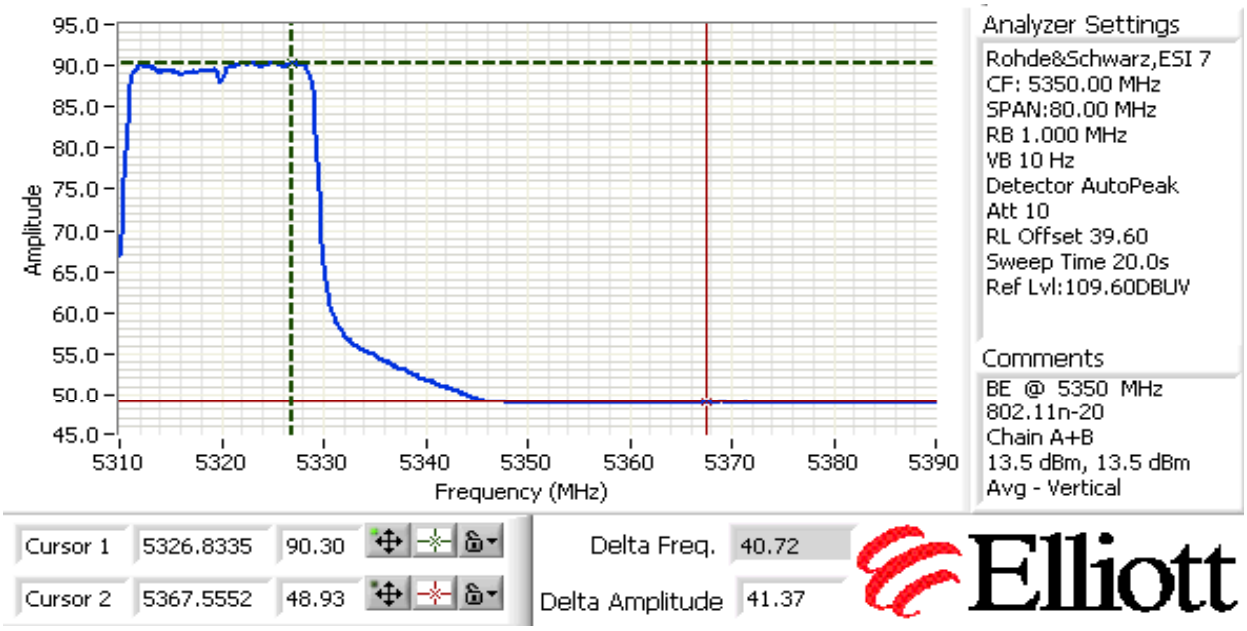
Run #3b: High Channel @ 5320 MHz (band edge at 5350 MHz)

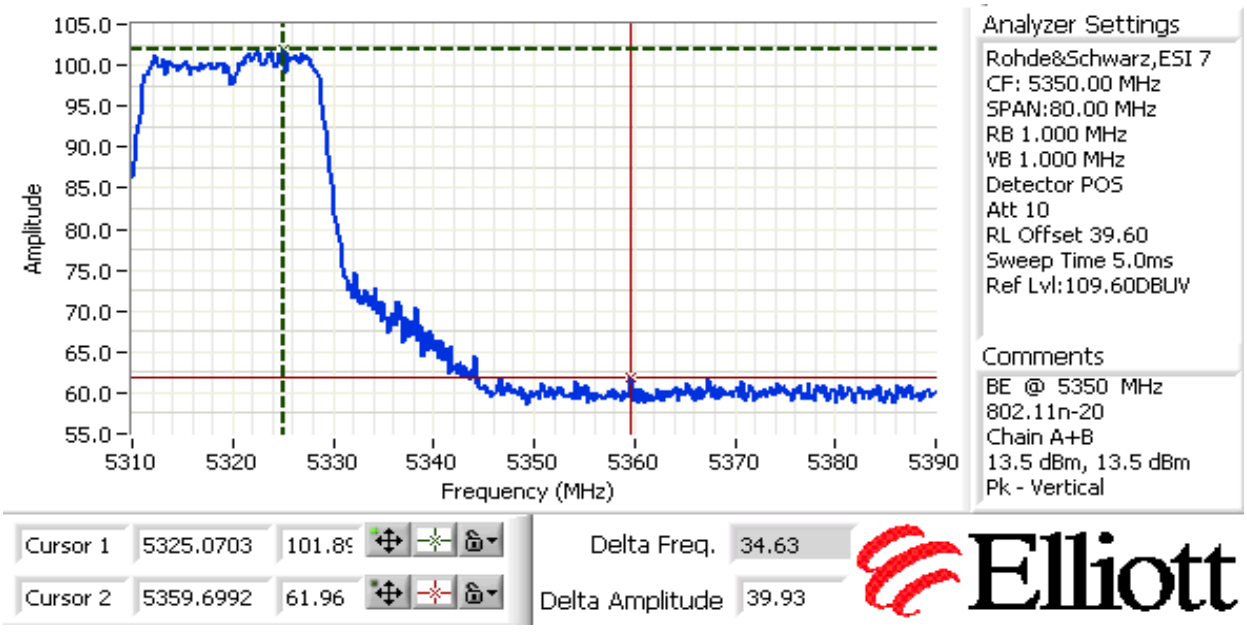
Power Setting and average measurement (for reference)					
Chain A		Chain B		Chain C	
Setting	Avg	Setting	Avg	Setting	Avg
23. 0	13.5	23.5	13.5		

Band Edge Signal Field Strength

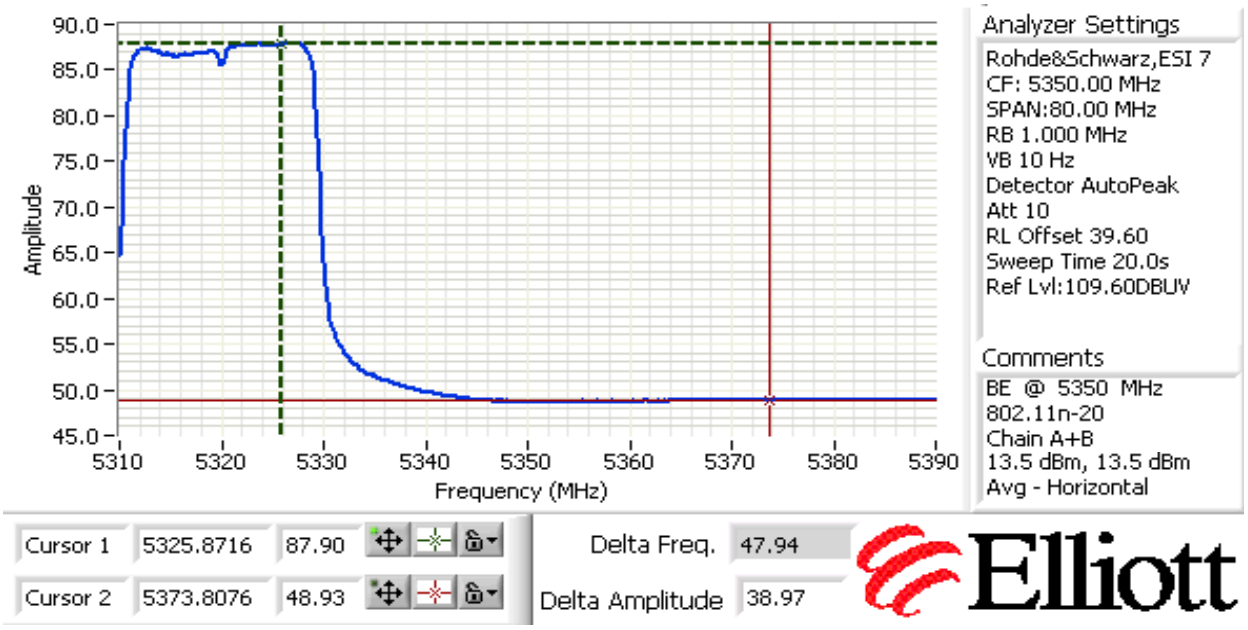
Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5367.555	48.9	V	54.0	-5.1	AVG	159	1.0	
5359.699	61.9	V	74.0	-12.1	PK	159	1.0	
5373.807	48.9	H	54.0	-5.1	AVG	108	1.0	
5384.709	62.1	H	74.0	-11.9	PK	108	1.0	

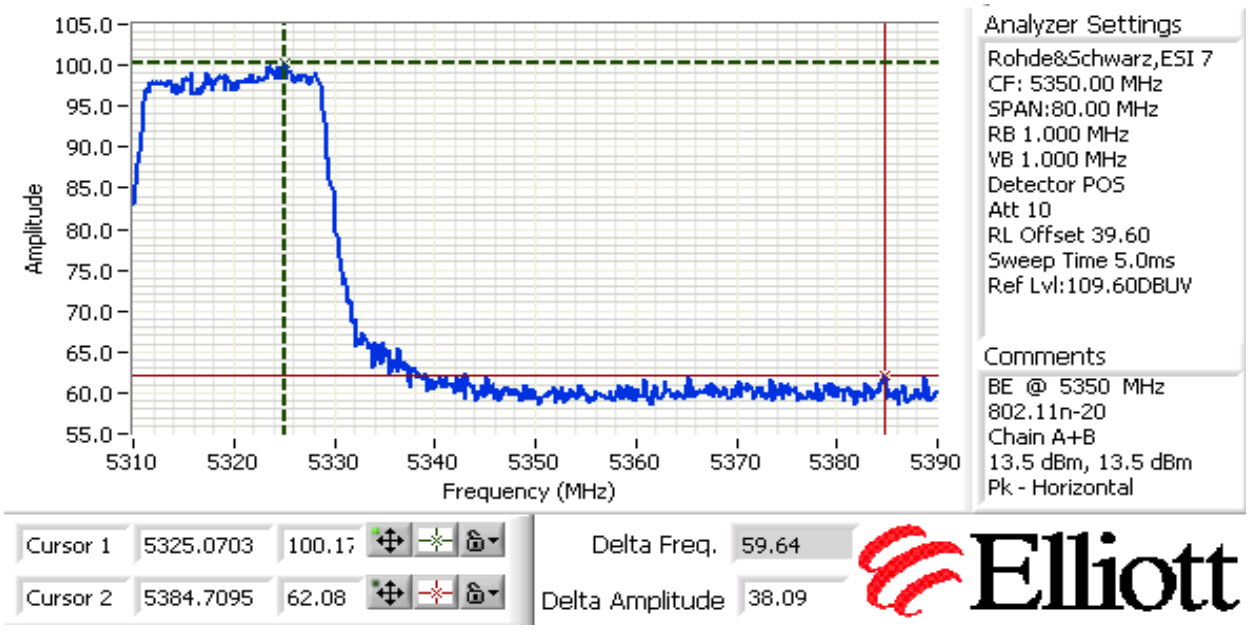
Client:	Intel Corporation	Job Number:	J72725
Model:	533AN-MMW with SL-300 Boxter Antenna	T-Log Number:	T72736
		Account Manager:	Dean Eriksen
Contact:	Robert Paxman		
Standard:	FCC Part 15E/RSS 210	Class:	N/A





Client:	Intel Corporation	Job Number:	J72725
Model:	533AN-MMW with SL-300 Boxter Antenna	T-Log Number:	T72736
		Account Manager:	Dean Eriksen
Contact:	Robert Paxman		
Standard:	FCC Part 15E/RSS 210	Class:	N/A





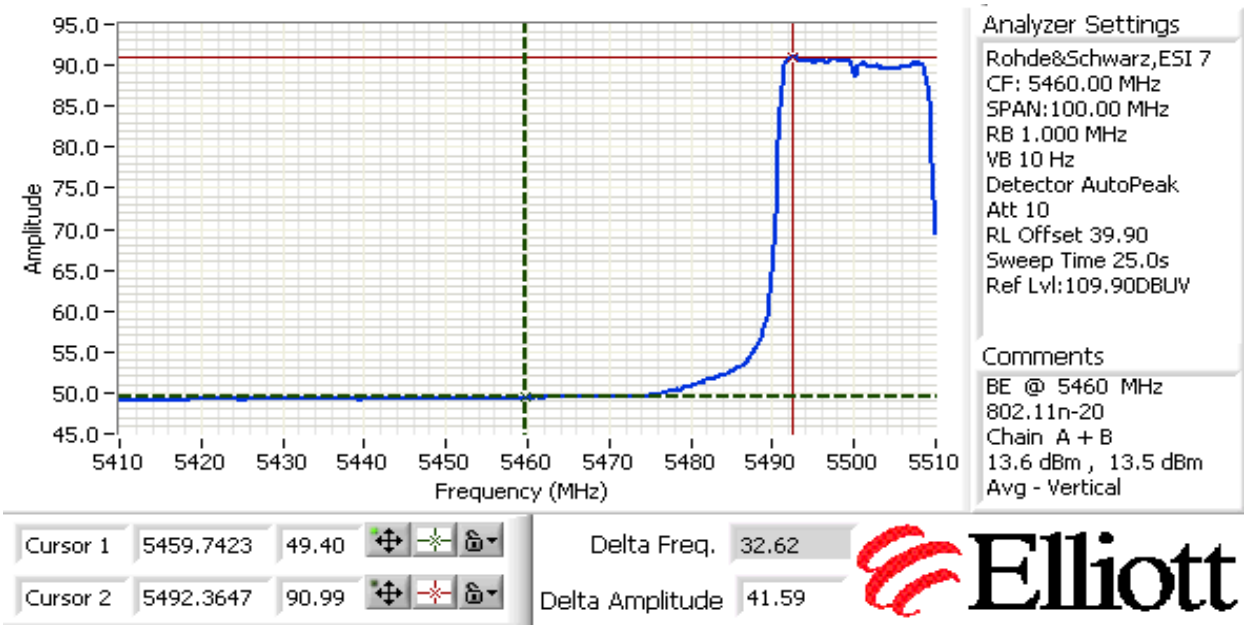
Client:	Intel Corporation	Job Number:	J72725
Model:	533AN-MMW with SL-300 Boxter Antenna	T-Log Number:	T72736
		Account Manager:	Dean Eriksen
Contact:	Robert Paxman		
Standard:	FCC Part 15E/RSS 210	Class:	N/A

Run #3c: Low Channel @ 5500 MHz (restricted band edge at 5460 MHz, allocated band edge at 5470MHz)

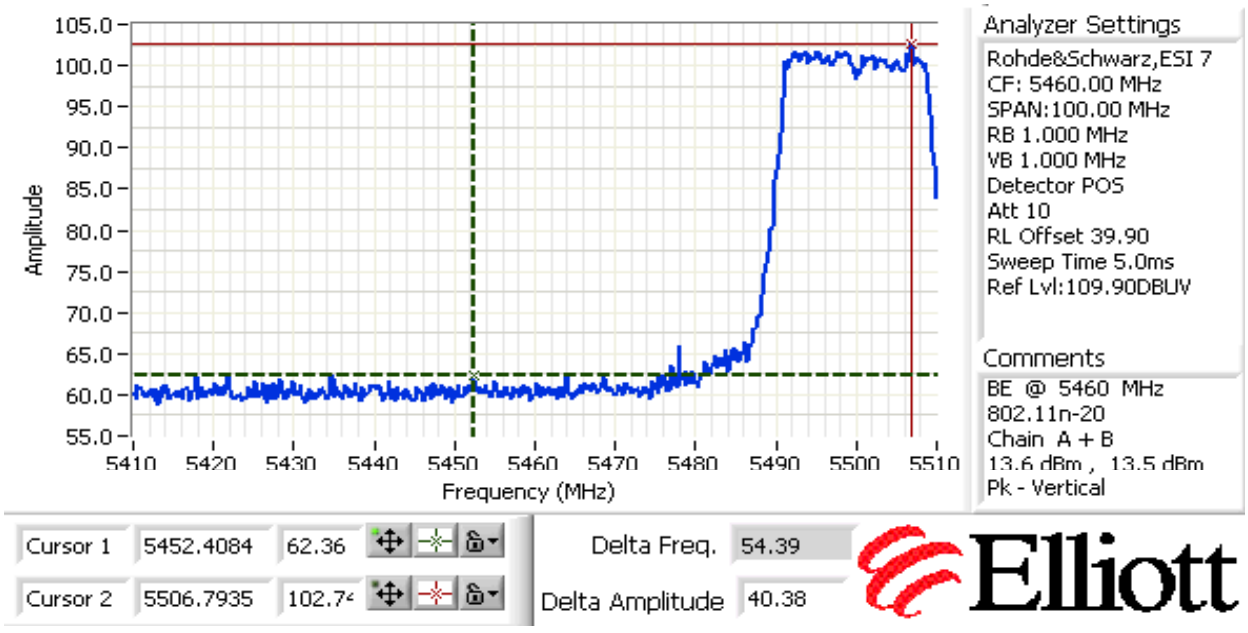
Power Setting and average measurement (for reference)					
Chain A		Chain B		Chain C	
Setting	Avg	Setting	Avg	Setting	Avg
20.5	13.6	23. 0	13.5		

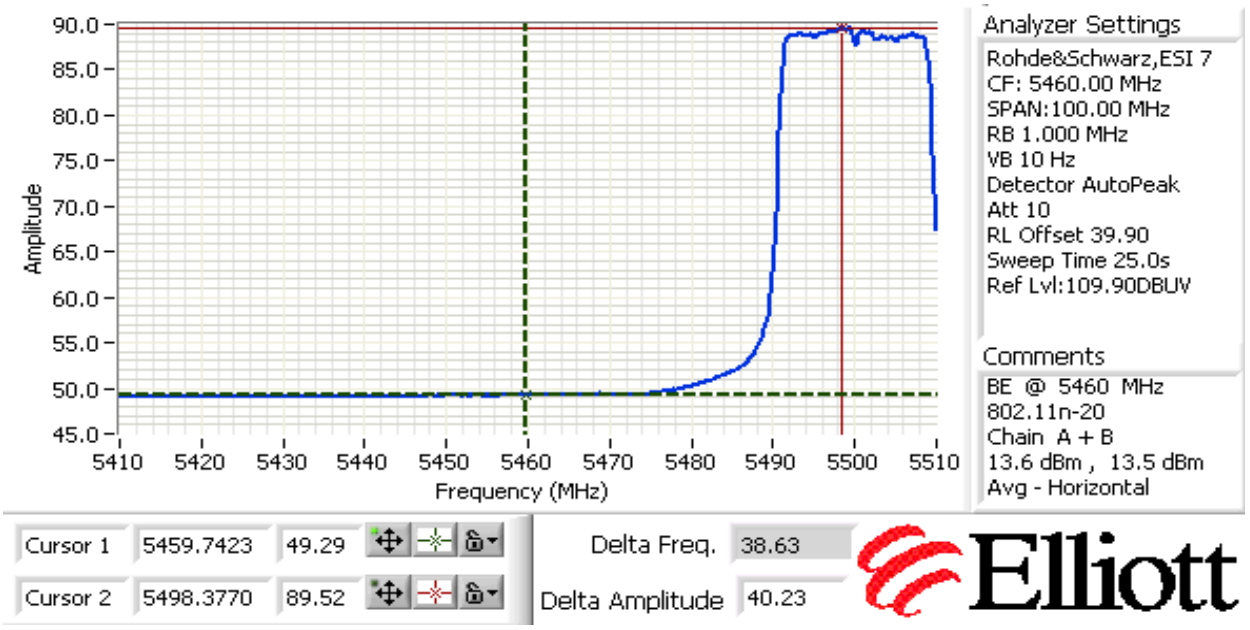
Band Edge Signal Field Strength

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5459.742	49.4	V	54.0	-4.6	AVG	161	1.1	
5452.408	62.4	V	74.0	-11.6	PK	161	1.1	
5459.742	49.3	H	54.0	-4.7	AVG	112	1.1	
5450.881	63.7	H	74.0	-10.3	PK	112	1.1	

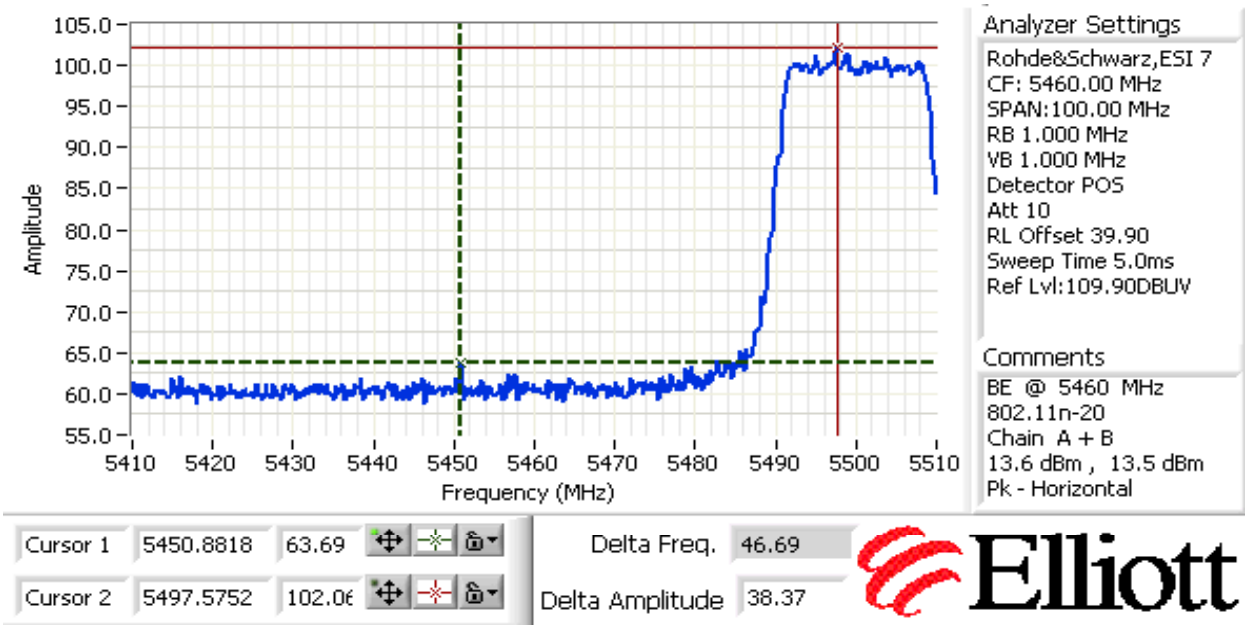


Client:	Intel Corporation	Job Number:	J72725
Model:	533AN-MMW with SL-300 Boxter Antenna	T-Log Number:	T72736
		Account Manager:	Dean Eriksen
Contact:	Robert Paxman		
Standard:	FCC Part 15E/RSS 210	Class:	N/A



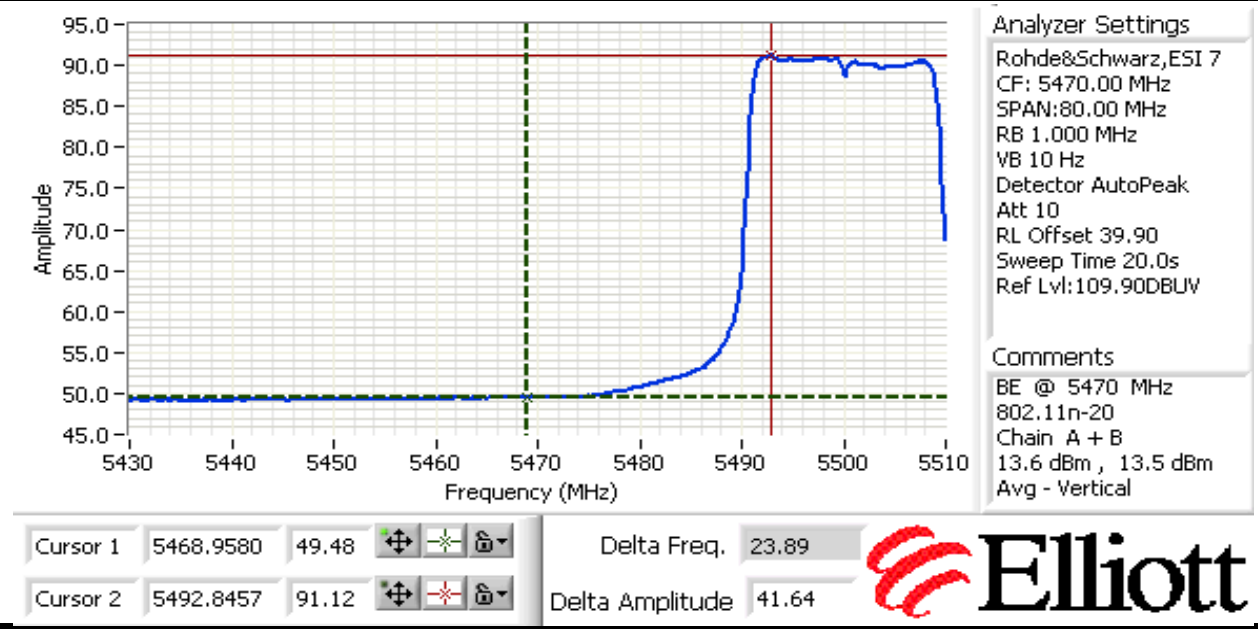


Client:	Intel Corporation	Job Number:	J72725
Model:	533AN-MMW with SL-300 Boxter Antenna	T-Log Number:	T72736
		Account Manager:	Dean Eriksen
Contact:	Robert Paxman		
Standard:	FCC Part 15E/RSS 210	Class:	N/A

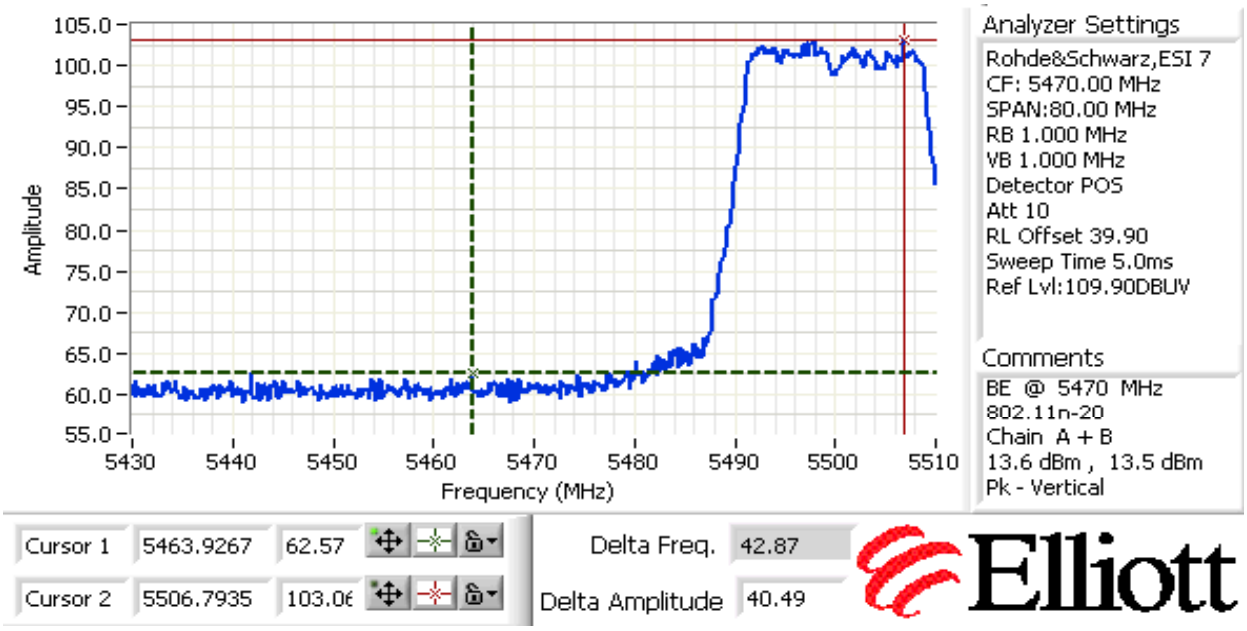


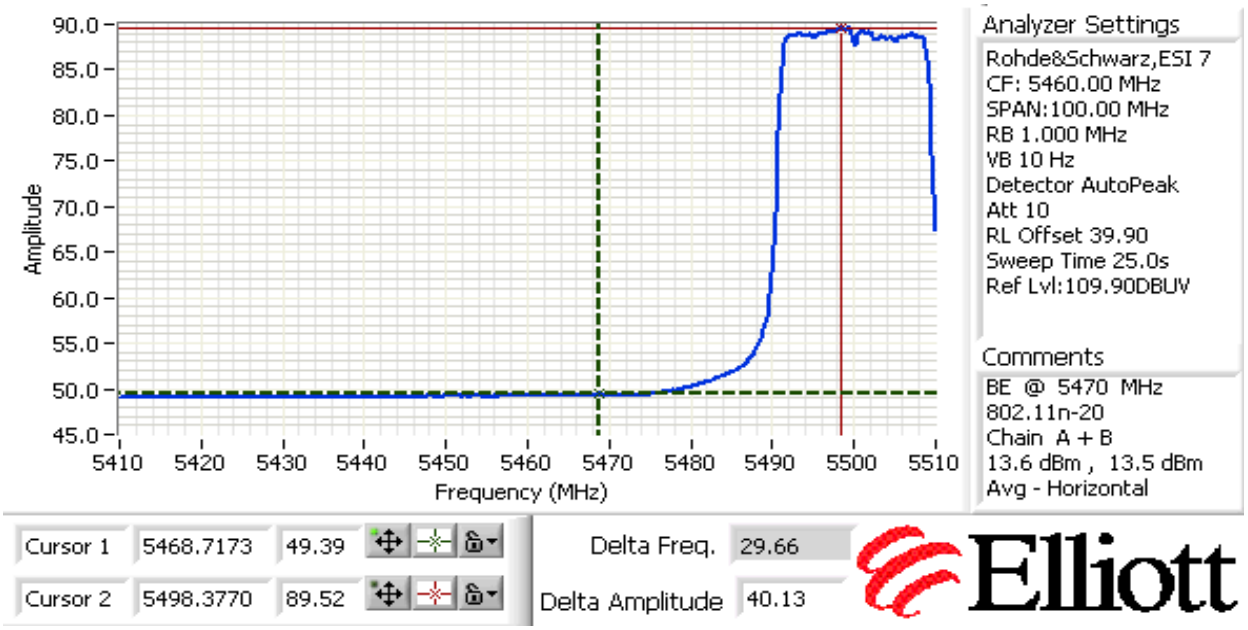
5460 - 5470 MHz, Limit is -27dBm eirp (68.3dBuV/m average, 88.3dBuV/m peak at 3m)

Frequency	Level	Pol	15.209 / 15.407		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5468.958	49.5	V	68.3	-18.8	AVG	161	1.1	
5463.926	62.6	V	88.3	-25.7	PK	161	1.1	
5468.717	49.4	H	68.3	-18.9	AVG	112	1.1	
5460.157	62.9	H	88.3	-25.4	PK	112	1.1	

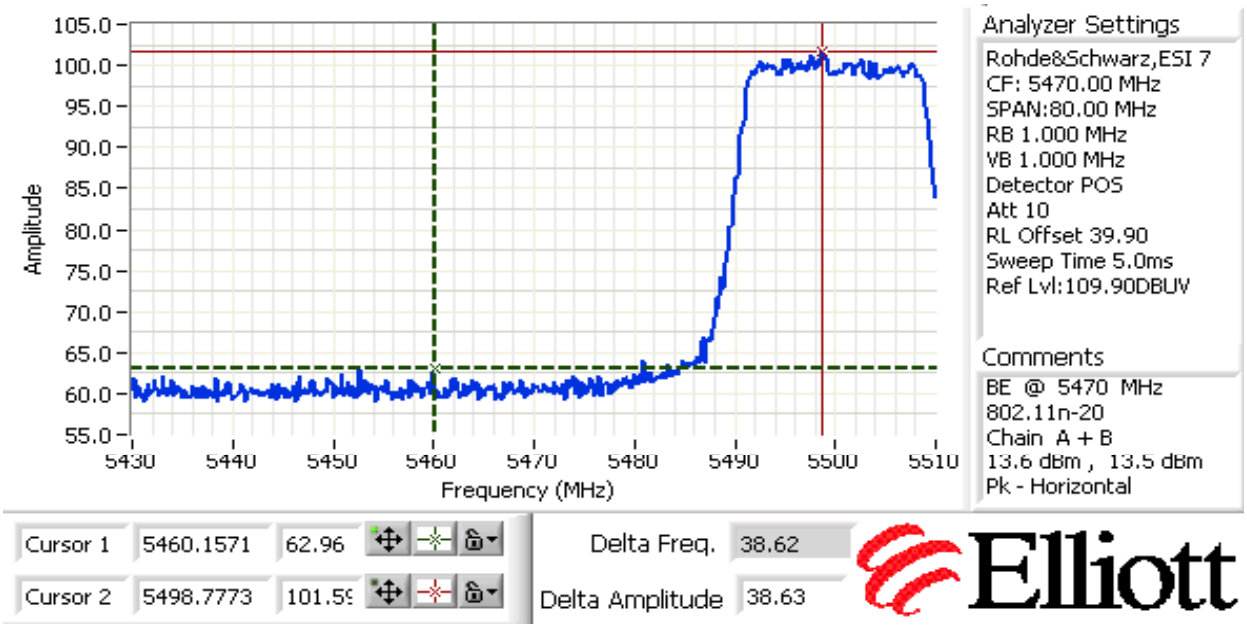


Client:	Intel Corporation	Job Number:	J72725
Model:	533AN-MMW with SL-300 Boxter Antenna	T-Log Number:	T72736
		Account Manager:	Dean Eriksen
Contact:	Robert Paxman		
Standard:	FCC Part 15E/RSS 210	Class:	N/A





Client:	Intel Corporation	Job Number:	J72725
Model:	533AN-MMW with SL-300 Boxter Antenna	T-Log Number:	T72736
		Account Manager:	Dean Eriksen
Contact:	Robert Paxman		
Standard:	FCC Part 15E/RSS 210	Class:	N/A



Client:	Intel Corporation	Job Number:	J72725
Model:	533AN-MMW with SL-300 Boxter Antenna	T-Log Number:	T72736
		Account Manager:	Dean Eriksen
Contact:	Robert Paxman		
Standard:	FCC Part 15E/RSS 210	Class:	N/A

RSS 210 and FCC 15.E (U-NII, 5150- 550/5250-5350/5460-5725MHz)

Band Edge Field Strength 802.11n40 SL-300 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	14.5	Band Edge radiated field strength	FCC Part 15.209	51.7dBµV/m @ 5149.8MHz (-2.3dB)
1b	802.11n40 Chain A	5310MHz	22.0	15.0	Band Edge radiated field strength	FCC Part 15.209	53.2dBµV/m @ 5350.1MHz (-0.8dB)
1c	802.11n40 Chain A	5510MHz	22.5	17.2	Band Edge - 5460-5470MHz	FCC Part 15E	51.5dBµV/m @ 5469.8MHz (-16.8dB)
					Band Edge radiated field strength	FCC Part 15.209	46.7dBµV/m @ 5459.7MHz (-7.3dB)
2a	802.11n40 Chain B	5190MHz	25.5	14.3	Band Edge radiated field strength	FCC Part 15.209	47.4dBµV/m @ 5149.7MHz (-6.6dB)
2b	802.11n40 Chain B	5310MHz	22.5	14.2	Band Edge radiated field strength	FCC Part 15.209	45.2dBµV/m @ 5350.1MHz (-8.8dB)
2c	802.11n40 Chain B	5510MHz	23.0	15.4	Band Edge - 5460-5470MHz	FCC Part 15E	46.6dBµV/m @ 5469.8MHz (-21.7dB)
					Band Edge radiated field strength	FCC Part 15.209	45.2dBµV/m @ 5459.7MHz (-8.8dB)
3	802.11n40 Chain A+B	5190MHz	26.0, 26.5	14.0, 14.5	Band Edge radiated field strength	FCC Part 15.209	47.8dBµV/m @ 5149.7MHz (-6.2dB)
	802.11n40 Chain A+B	5310MHz	23, 25	15.1, 15.7	Band Edge radiated field strength	FCC Part 15.209	47.3dBµV/m @ 5350.1MHz (-6.7dB)
	802.11n40 Chain A+B	5510MHz	23, 25.5	16.8, 16.7	Band Edge - 5460-5470MHz	FCC Part 15E	45.5dBµV/m @ 5460.1MHz (-8.5dB)
					Band Edge radiated field strength	FCC Part 15.209	47.6dBµV/m @ 5470.1MHz (-20.7dB)

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:	J72725
Model:	533AN-MMW with SL-300 Boxter Antenna	T-Log Number:	T72736
		Account Manager:	Dean Eriksen
Contact:	Robert Paxman		
Standard:	FCC Part 15E/RSS 210	Class:	N/A

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

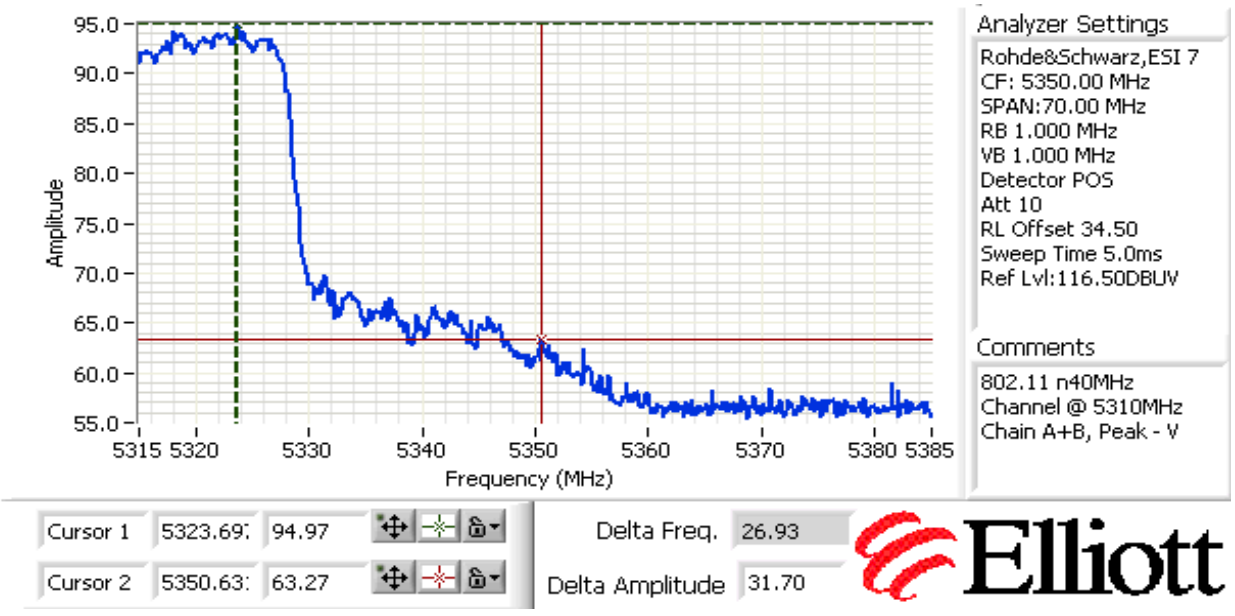
Date of Test: 8/29/2008
Test Engineer: Suhaila Khushzad
Test Location: Chamber # 3

Run #3b: 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	15.1	25.0	15.8		

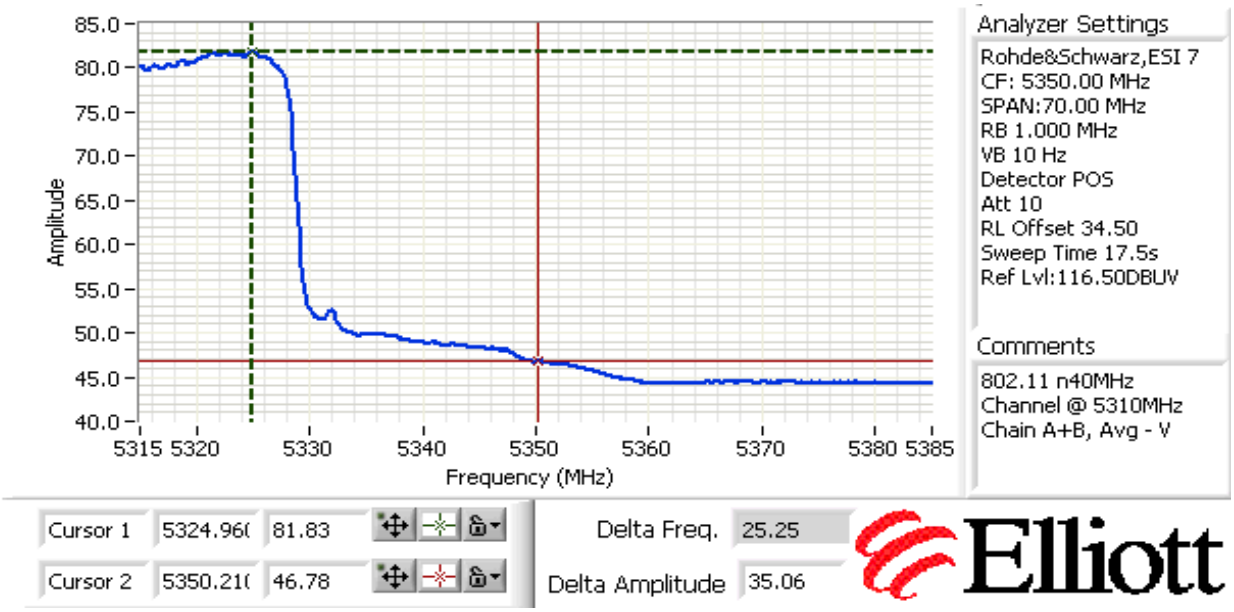
Band Edge Signal Field Strength

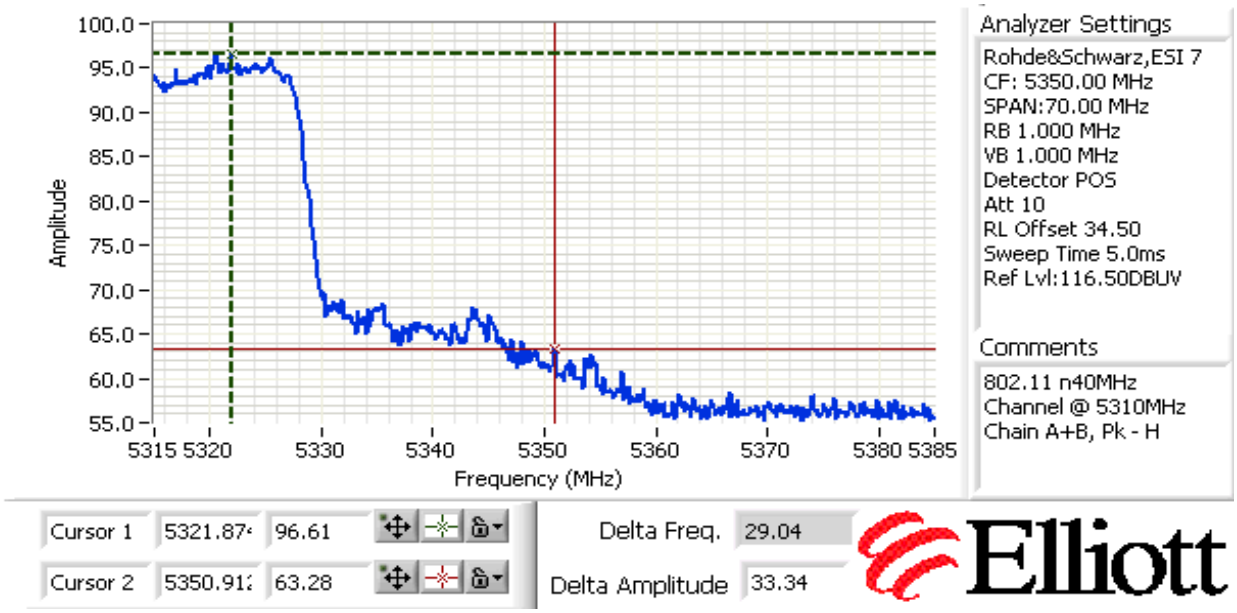
Frequency	Level	Pol	15.209 / RSS 210		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5350.070	47.3	H	54.0	-6.7	AVG	117	1.5	
5350.912	63.3	H	74.0	-10.7	PK	117	1.5	
5350.630	63.3	V	74.0	-10.7	PK	169	1.0	
5350.210	46.8	V	54.0	-7.2	AVG	169	1.0	



Client:	Intel Corporation	Job Number:	J72725
Model:	533AN-MMW with SL-300 Boxter Antenna	T-Log Number:	T72736
		Account Manager:	Dean Eriksen
Contact:	Robert Paxman		
Standard:	FCC Part 15E/RSS 210	Class:	N/A

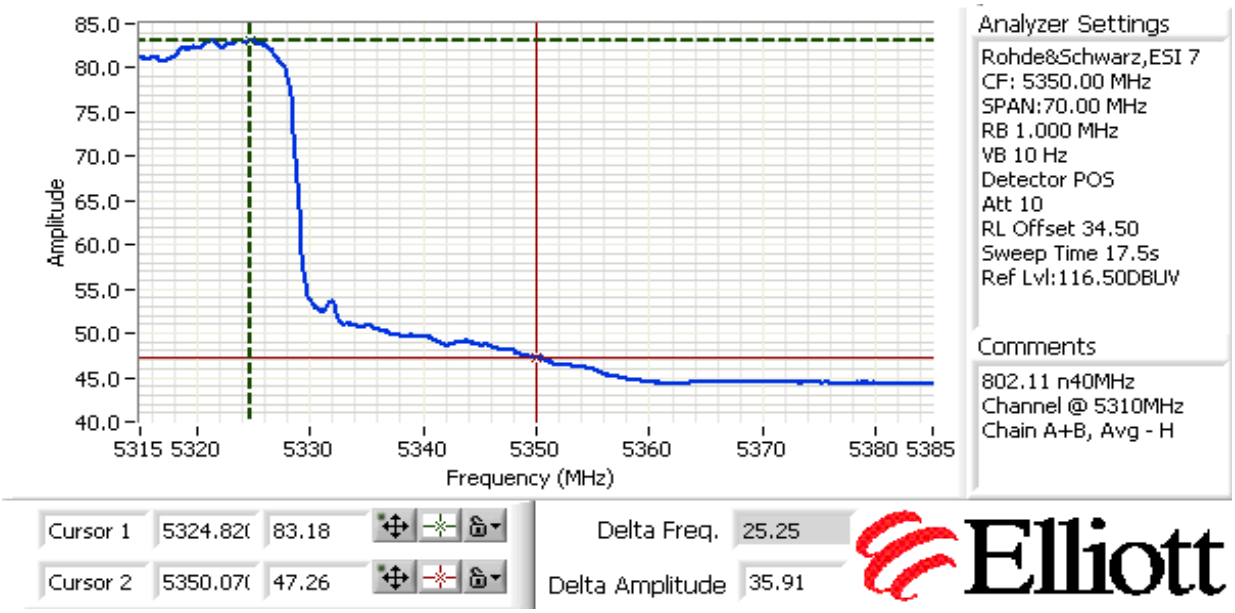
Run #3: Radiated Spurious Emissions, Band Edges. Operating Mode: 802.11n 40MHz - Chain A+B
Run #3b: High Channel @ 5310 MHz (band edge at 5350 MHz)





Client:	Intel Corporation	Job Number:	J72725
Model:	533AN-MMW with SL-300 Boxter Antenna	T-Log Number:	T72736
		Account Manager:	Dean Eriksen
Contact:	Robert Paxman		
Standard:	FCC Part 15E/RSS 210	Class:	N/A

Run #3: Radiated Spurious Emissions, Band Edges. Operating Mode: 802.11n 40MHz - Chain A+B
Run #3b: High Channel @ 5310 MHz (band edge at 5350 MHz)



Client:	Intel Corporation	Job Number:	J72725
Model:	533AN-MMW with SL-300 Boxter Antenna	T-Log Number:	T72736
		Account Manager:	Dean Eriksen
Contact:	Robert Paxman		
Standard:	FCC Part 15E/RSS 210	Class:	N/A

Run #3c: Low Channel @ 5510 MHz (restricted band edge at 5460 MHz, allocated band edge at 5470MHz)

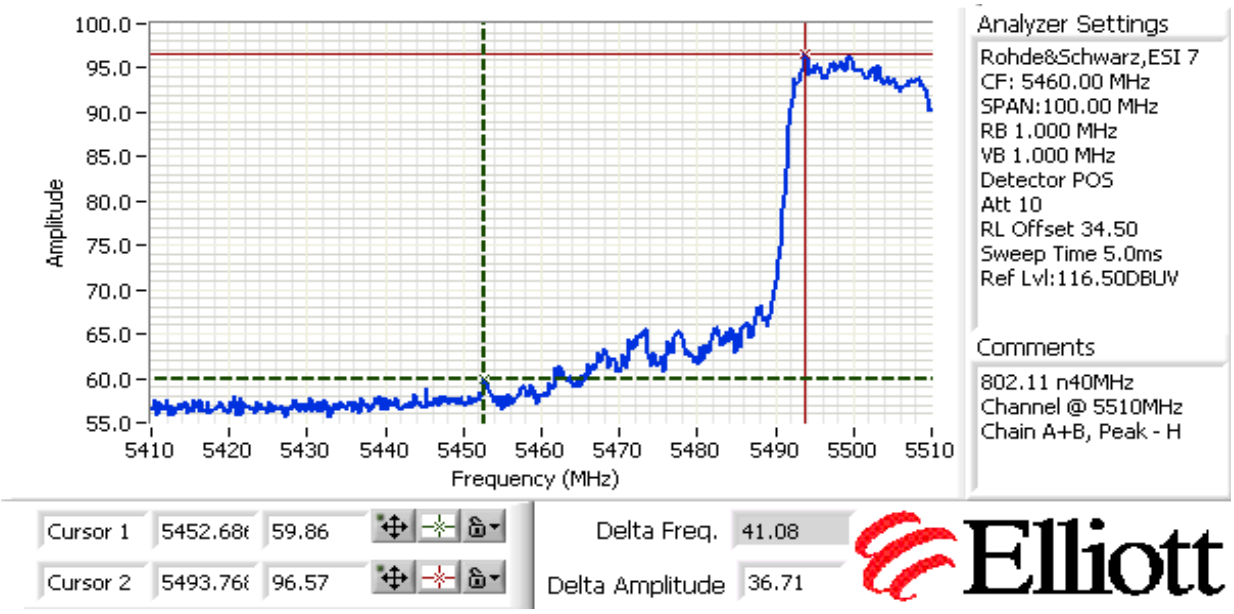
Power Setting and average measurement (for reference)					
Chain A		Chain B		Chain C	
Setting	Avg	Setting	Avg	Setting	Avg
23.0	16.8	25.5	16.7		

5460 Restricted Band Feld strength limit = 54dBuV/m avg, 74dBuV/m peak at 3m

Frequency	Level	Pol	15.209 / 15.407		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5460.100	45.5	H	54.0	-8.5	AVG	108	1.3	
5452.686	59.9	H	74.0	-14.1	PK	108	1.3	
5452.886	60.8	V	74.0	-13.2	PK	224	1.0	
5460.100	45.4	V	54.0	-8.6	AVG	224	1.0	

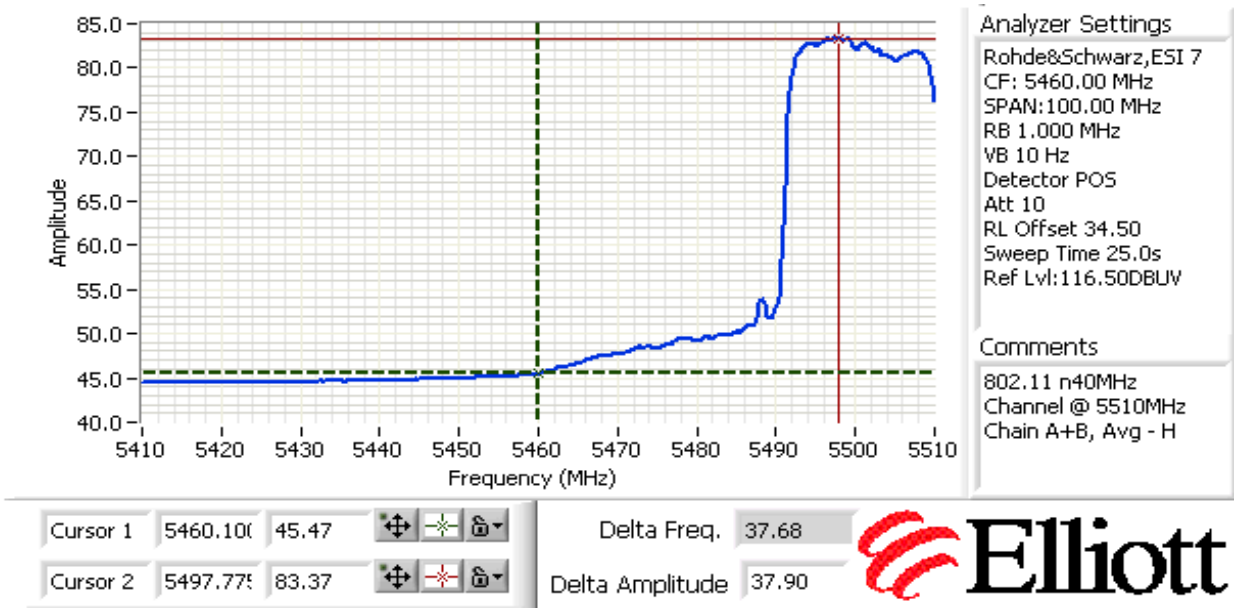
5460 - 5470 MHz, Limit is -27dBm eirp (68.3dBuV/m average, 88.3dBuV/m peak at 3m)

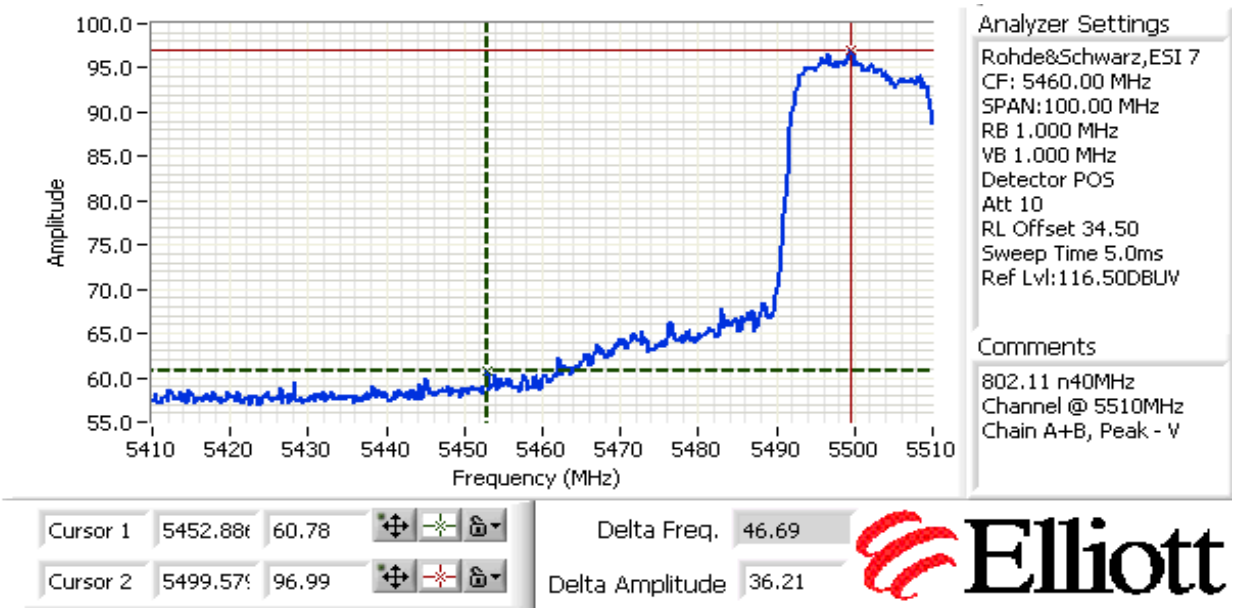
Frequency	Level	Pol	15.209 / 15.407		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5470.120	47.6	V	68.3	-20.7	AVG	224	1.0	
5470.120	62.6	V	88.3	-25.7	PK	224	1.0	
5467.890	62.4	H	88.3	-25.9	PK	108	1.3	
5469.900	47.5	H	68.3	-20.8	AVG	108	1.3	



Client:	Intel Corporation	Job Number:	J72725
Model:	533AN-MMW with SL-300 Boxter Antenna	T-Log Number:	T72736
		Account Manager:	Dean Eriksen
Contact:	Robert Paxman		
Standard:	FCC Part 15E/RSS 210	Class:	N/A

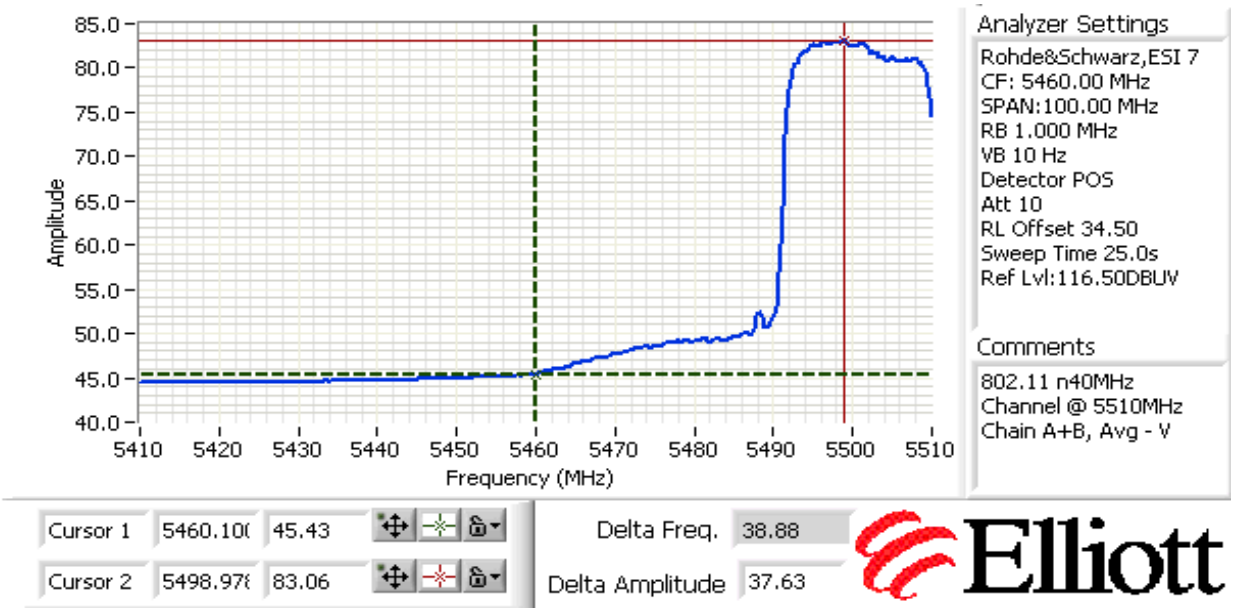
Run #3c: Low Channel @ 5510 MHz (restricted band edge at 5460 MHz, allocated band edge at 5470MHz)

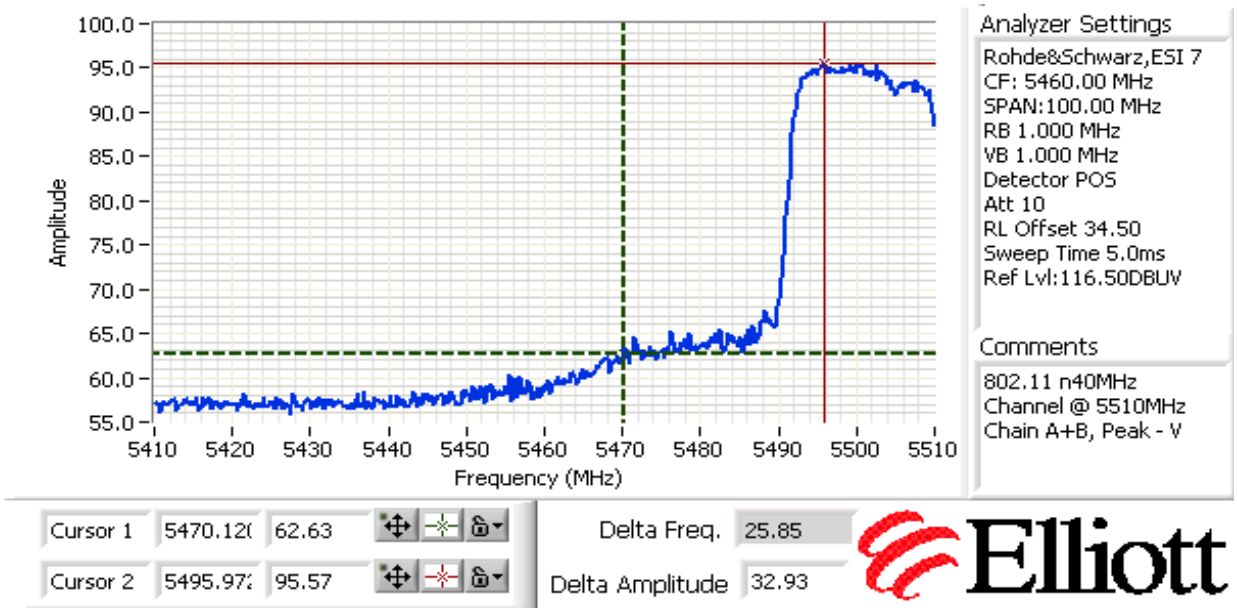




Client:	Intel Corporation	Job Number:	J72725
Model:	533AN-MMW with SL-300 Boxter Antenna	T-Log Number:	T72736
		Account Manager:	Dean Eriksen
Contact:	Robert Paxman		
Standard:	FCC Part 15E/RSS 210	Class:	N/A

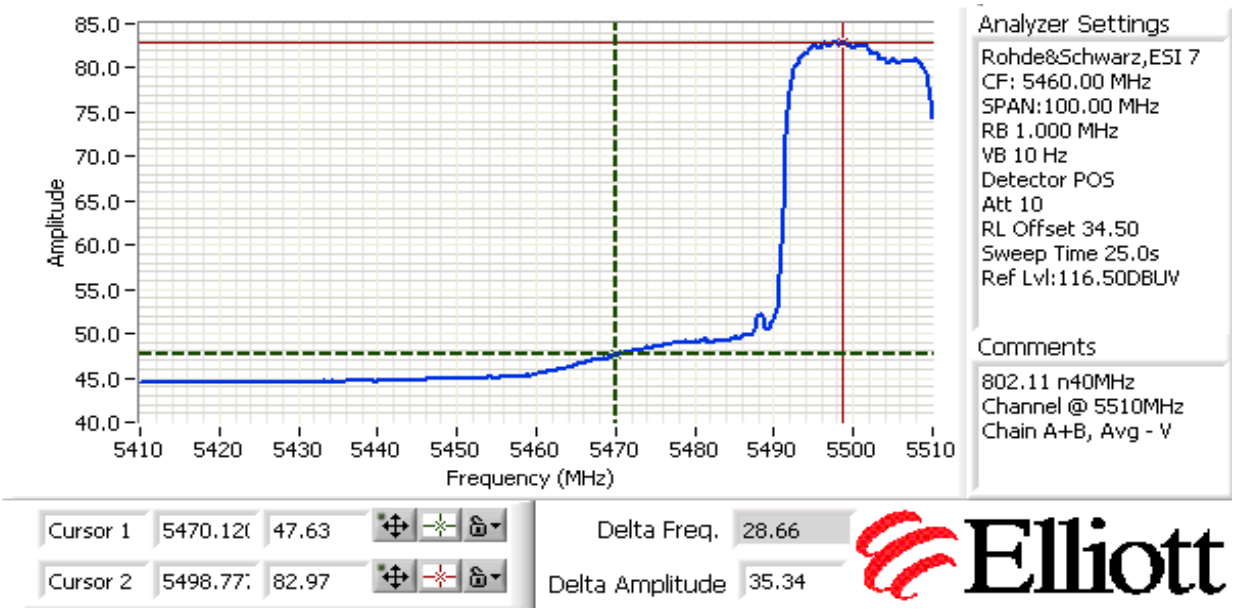
Run #3c: Low Channel @ 5510 MHz (restricted band edge at 5460 MHz, allocated band edge at 5470MHz)

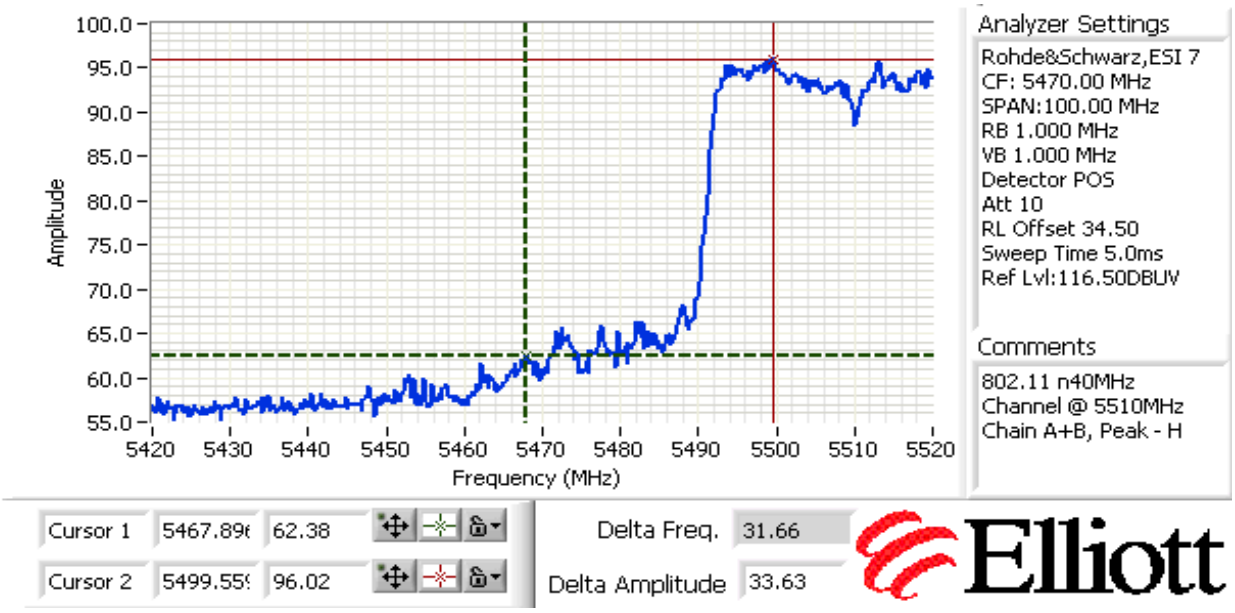




Client:	Intel Corporation	Job Number:	J72725
Model:	533AN-MMW with SL-300 Boxter Antenna	T-Log Number:	T72736
		Account Manager:	Dean Eriksen
Contact:	Robert Paxman		
Standard:	FCC Part 15E/RSS 210	Class:	N/A

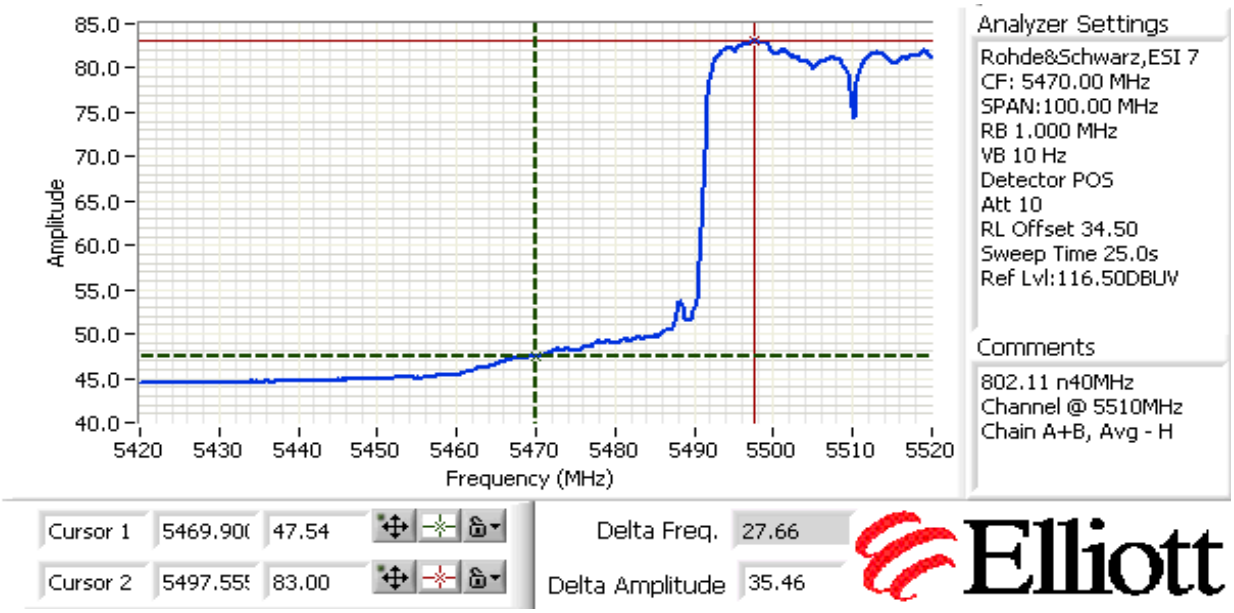
Run #3c: Low Channel @ 5510 MHz (restricted band edge at 5460 MHz, allocated band edge at 5470MHz)





Client:	Intel Corporation	Job Number:	J72725
Model:	533AN-MMW with SL-300 Boxter Antenna	T-Log Number:	T72736
		Account Manager:	Dean Eriksen
Contact:	Robert Paxman		
Standard:	FCC Part 15E/RSS 210	Class:	N/A

Run #3c: Low Channel @ 5510 MHz (restricted band edge at 5460 MHz, allocated band edge at 5470MHz)



Client:	Intel Corporation	Job Number:	J72725
Model:	533AN-MMW with SL-300 Boxter Antenna	T-Log Number:	T72736
		Account Manager:	Dean Eriksen
Contact:	Robert Paxman		
Standard:	FCC Part 15E/RSS 210	Class:	N/A

RSS 210 and FCC 15.E (U-NII, 5150- 550/5250-5350/5460-5725MHz)

Radiated Spurious Emissions 802.11n 20MHz SL-300 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:	24 °C
Rel. Humidity:	40 %

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:	J72725
Model:	533AN-MMW with SL-300 Boxter Antenna	T-Log Number:	T72736
		Account Manager:	Dean Eriksen
Contact:	Robert Paxman		
Standard:	FCC Part 15E/RSS 210	Class:	N/A

Summary of Results

Note -Note - Previous testing demonstrated that, for the 5150 - 5350MHz range, the single-chain emissions were lower than mutli-chain emissions, therefore single chain emissions were only evauated in the upper 5GHz band. Dual chain operation was evaluated with both chains set to the maximum (single-chain) power level in the 5150-5350Mhz band to cover single- and dual-chain operation.

Run #	Mode	Channel	Power Setting	Measured Power	Test Performed	Limit	Result / Margin
1a	802.11n20 Chain A	5500	24.0	18.2	Radiated Emissions, 1 - 40 GHz	FCC Part 15.209 / 15.407	53.0dBµV/m @ 10999.4MHz (-1.0dB)
1b	802.11n20 Chain A	5600	24.0	18.2	Radiated Emissions, 1 - 40 GHz	FCC Part 15.209 / 15.407	51.3dBµV/m @ 11195.8MHz (-2.7dB)
1c	802.11n20 Chain A	5700	24.5	18.2	Radiated Emissions, 1 - 40 GHz	FCC Part 15.209 / 15.407	50.1dBµV/m @ 7600.1MHz (-3.9dB)
2a	802.11n20 Chain B	5500	25.0	17.0	Radiated Emissions, 1 - 40 GHz	FCC Part 15.209 / 15.407	50.3dBµV/m @ 7333.3MHz (-3.7dB)
2b	802.11n20 Chain B	5600	24.5	16.5	Radiated Emissions, 1 - 40 GHz	FCC Part 15.209 / 15.407	51.5dBµV/m @ 7466.7MHz (-2.5dB)
2c	802.11n20 Chain B	5700	25.0	16.7	Radiated Emissions, 1 - 40 GHz	FCC Part 15.209 / 15.407	51.4dBµV/m @ 7600.0MHz (-2.6dB)
3	802.11n20 Chain A+B	5180	A: 29.5 B: 29.5	A: 16.5 B: 16.5	Radiated Emissions, 1 - 40 GHz	FCC Part 15.209 / 15.407	55.8dBµV/m @ 6906.7MHz (-12.5dB)
		5200	A: 29.0 B: 29.0	A: 16.5 B: 16.5	Radiated Emissions, 1 - 40 GHz	FCC Part 15.209 / 15.408	56.8dBµV/m @ 6933.3MHz (-11.5dB)
		5240	A: 28.0 B: 28.0	A: 16.5 B: 16.5	Radiated Emissions, 1 - 40 GHz	FCC Part 15.209 / 15.409	54.7dBµV/m @ 6986.7MHz (-13.6dB)
4	802.11n20 Chain A+B	5260	A: 27.0 B: 27.5	A: 16.5 B: 16.5	Radiated Emissions, 1 - 40 GHz	FCC Part 15.209 / 15.407	57.3dBµV/m @ 7013.3MHz (-11.0dB)
		5280	A: 26.0 B: 27.0	A: 16.5 B: 16.5	Radiated Emissions, 1 - 40 GHz	FCC Part 15.209 / 15.408	59.0dBµV/m @ 3995.0MHz (-15.0dB)
		5320	A: 25.5 B: 26.5	A: 16.5 B: 16.5	Radiated Emissions, 1 - 40 GHz	FCC Part 15.209 / 15.409	42.8dBµV/m @ 10639.8MHz (-11.2dB)
5	802.11n20 Chain A+B	5500	A: 23.0 B: 24.0	A: 15.5 B: 13.8	Radiated Emissions, 1 - 40 GHz	FCC Part 15.209 / 15.407	49.2dBµV/m @ 10999.9MHz (-4.8dB)
		5600	A: 24.5 B: 26.0	A: 16.4 B: 15.8	Radiated Emissions, 1 - 40 GHz	FCC Part 15.209 / 15.408	49.2dBµV/m @ 11199.7MHz (-4.8dB)
		5700	A: 23.5 B: 26.5	A: 15.2 B: 16.0	Radiated Emissions, 1 - 40 GHz	FCC Part 15.209 / 15.409	51.7dBµV/m @ 11399.8MHz (-2.3dB)

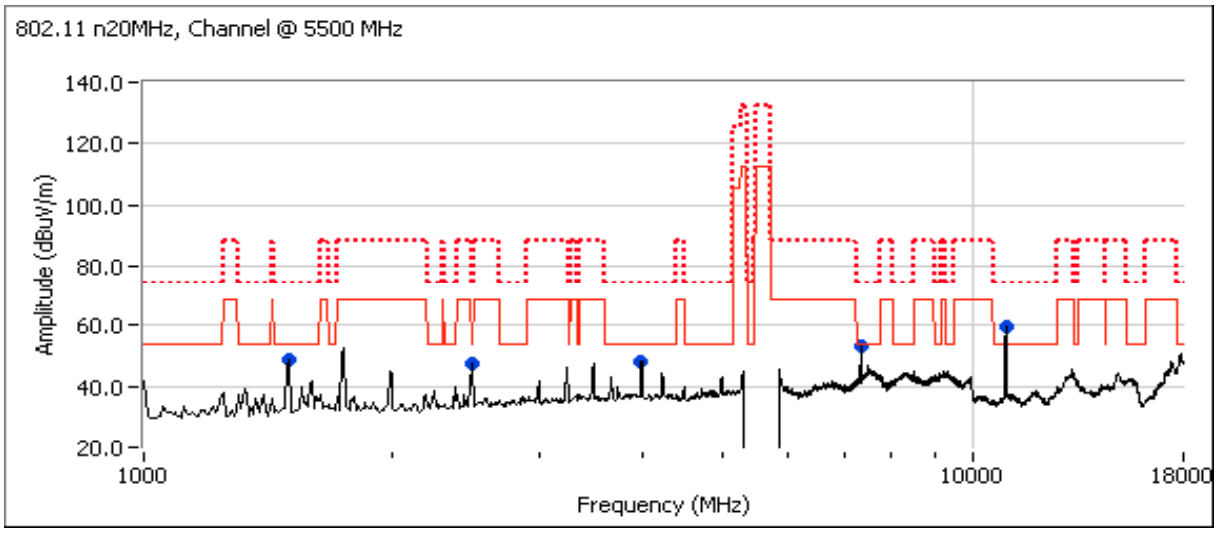
Client:	Intel Corporation	Job Number:	J72725
Model:	533AN-MMW with SL-300 Boxter Antenna	T-Log Number:	T72736
		Account Manager:	Dean Eriksen
Contact:	Robert Paxman		
Standard:	FCC Part 15E/RSS 210	Class:	N/A

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

Date of Test: 8/29/2008
Test Engineer: Suhaila Khushzad
Test Location: Chamber # 3

Run #1a: Low Channel @ 5500 MHz, Chain A

Power Setting: 24 Average power: 18.2 (for reference purposes)



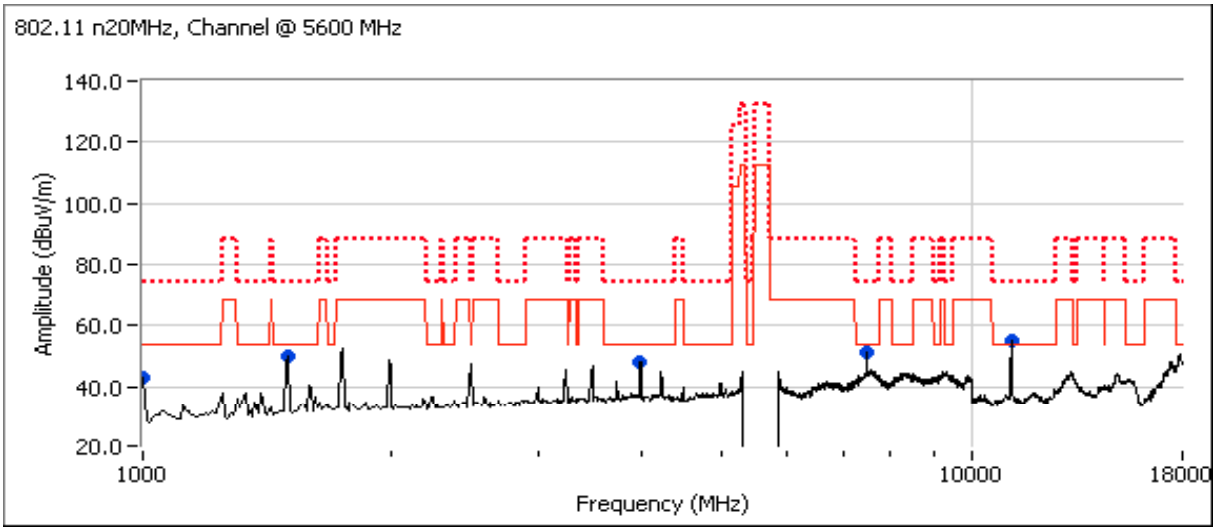
Spurious Emissions

Frequency	Level	Pol	15.209 / 15.407		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
10999.440	53.0	V	54.0	-1.0	AVG	185	1.0	RB 1.000 MHz; VB: 10 Hz
10998.190	65.1	V	74.0	-8.9	PK	185	1.0	RB 1.000 MHz; VB: 1.000 MHz
1497.580	39.0	H	54.0	-15.0	AVG	163	1.0	RB 1.000 MHz; VB: 10 Hz
1497.890	54.8	H	74.0	-19.2	PK	163	1.0	RB 1.000 MHz; VB: 1.000 MHz
3989.750	37.9	V	54.0	-16.1	AVG	69	1.0	RB 1.000 MHz; VB: 10 Hz
3997.190	57.4	V	74.0	-16.6	PK	69	1.0	RB 1.000 MHz; VB: 1.000 MHz
2490.030	37.2	H	54.0	-16.8	AVG	136	1.0	RB 1.000 MHz; VB: 10 Hz
2489.030	53.4	H	74.0	-20.6	PK	136	1.0	RB 1.000 MHz; VB: 1.000 MHz
5304.700	41.2	V	54.0	-12.8	AVG	184	1.0	RB 1.000 MHz; VB: 10 Hz
5307.450	52.7	V	74.0	-21.3	PK	184	1.0	RB 1.000 MHz; VB: 1.000 MHz
7333.330	47.1	V	54.0	-6.9	AVG	291	1.1	RB 1.000 MHz; VB: 10 Hz
7333.390	48.8	V	74.0	-25.2	PK	291	1.1	RB 1.000 MHz; VB: 1.000 MHz

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:	J72725
Model:	533AN-MMW with SL-300 Boxter Antenna	T-Log Number:	T72736
		Account Manager:	Dean Eriksen
Contact:	Robert Paxman		
Standard:	FCC Part 15E/RSS 210	Class:	N/A

Run #1: Radiated Spurious Emissions, 1000 - 40000 MHz. Operating Mode: 802.11n 20MHz Chain A
Run #1b: Center Channel @ 5600 MHz, Chain A
Power Setting: 24 Average power: 18.2 (for reference purposes)



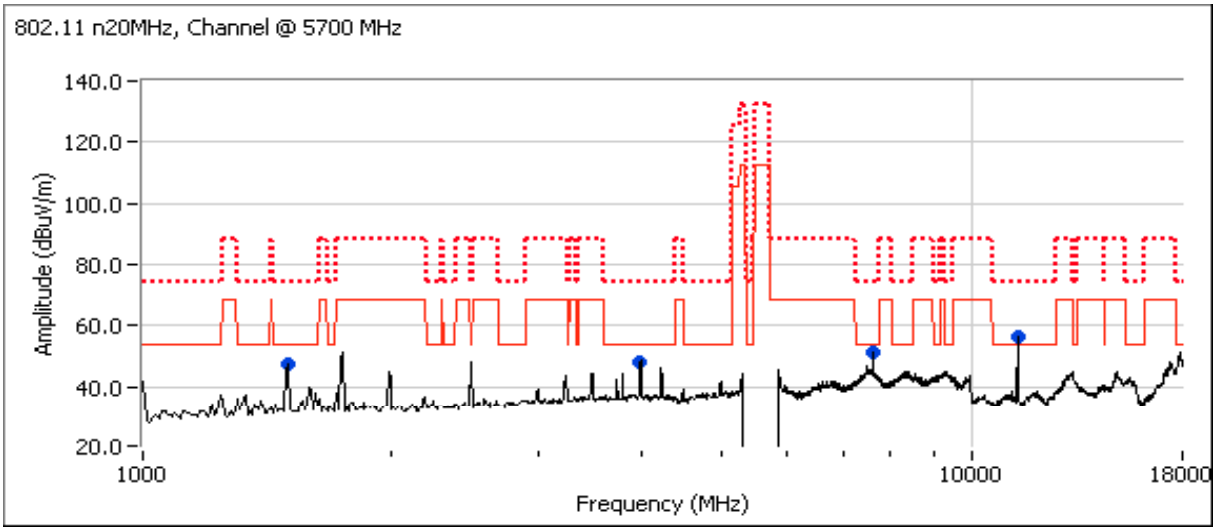
Spurious Emissions

Frequency	Level	Pol	15.209 / 15.407		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
11195.820	51.3	V	54.0	-2.7	AVG	210	1.1	RB 1.000 MHz; VB: 10 Hz
11195.820	63.4	V	74.0	-10.6	PK	210	1.1	RB 1.000 MHz; VB: 1.000 MHz
7466.790	46.9	V	54.0	-7.1	AVG	265	1.6	RB 1.000 MHz; VB: 10 Hz
7466.720	51.8	V	74.0	-22.2	PK	265	1.6	RB 1.000 MHz; VB: 1.000 MHz
1497.700	39.3	H	54.0	-14.7	AVG	159	1.0	RB 1.000 MHz; VB: 10 Hz
1498.240	55.4	H	74.0	-18.6	PK	159	1.0	RB 1.000 MHz; VB: 1.000 MHz
3989.900	38.3	V	54.0	-15.7	AVG	68	1.0	RB 1.000 MHz; VB: 10 Hz
3990.500	58.9	V	74.0	-15.1	PK	68	1.0	RB 1.000 MHz; VB: 1.000 MHz
1031.968	22.7	H	54.0	-31.3	AVG	207	1.0	RB 1.000 MHz; VB: 10 Hz
1011.114	35.5	H	74.0	-38.5	PK	207	1.0	RB 1.000 MHz; VB: 1.000 MHz

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:	J72725
Model:	533AN-MMW with SL-300 Boxter Antenna	T-Log Number:	T72736
		Account Manager:	Dean Eriksen
Contact:	Robert Paxman		
Standard:	FCC Part 15E/RSS 210	Class:	N/A

Run #1: Radiated Spurious Emissions, 1000 - 40000 MHz. Operating Mode: 802.11n 20MHz Chain A
Run #1c: High Channel @ 5700 MHz, Chain A
Power Setting: 24.5 Average power: 18.2 (for reference purposes)



Spurious Emissions

Frequency	Level	Pol	15.209 / 15.407		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
7600.130	50.1	V	54.0	-3.9	AVG	302	1.2	RB 1.000 MHz; VB: 10 Hz
7600.170	54.5	V	74.0	-19.5	PK	302	1.2	RB 1.000 MHz; VB: 1.000 MHz
1497.670	38.9	H	54.0	-15.1	AVG	162	1.0	RB 1.000 MHz; VB: 10 Hz
1498.150	54.9	H	74.0	-19.1	PK	162	1.0	RB 1.000 MHz; VB: 1.000 MHz
3989.810	38.3	V	54.0	-15.7	AVG	69	1.0	RB 1.000 MHz; VB: 10 Hz
3985.610	58.7	V	74.0	-15.3	PK	69	1.0	RB 1.000 MHz; VB: 1.000 MHz
11399.940	48.2	V	54.0	-5.8	AVG	187	1.0	RB 1.000 MHz; VB: 10 Hz
11402.940	60.5	V	74.0	-13.5	PK	187	1.0	RB 1.000 MHz; VB: 1.000 MHz

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)

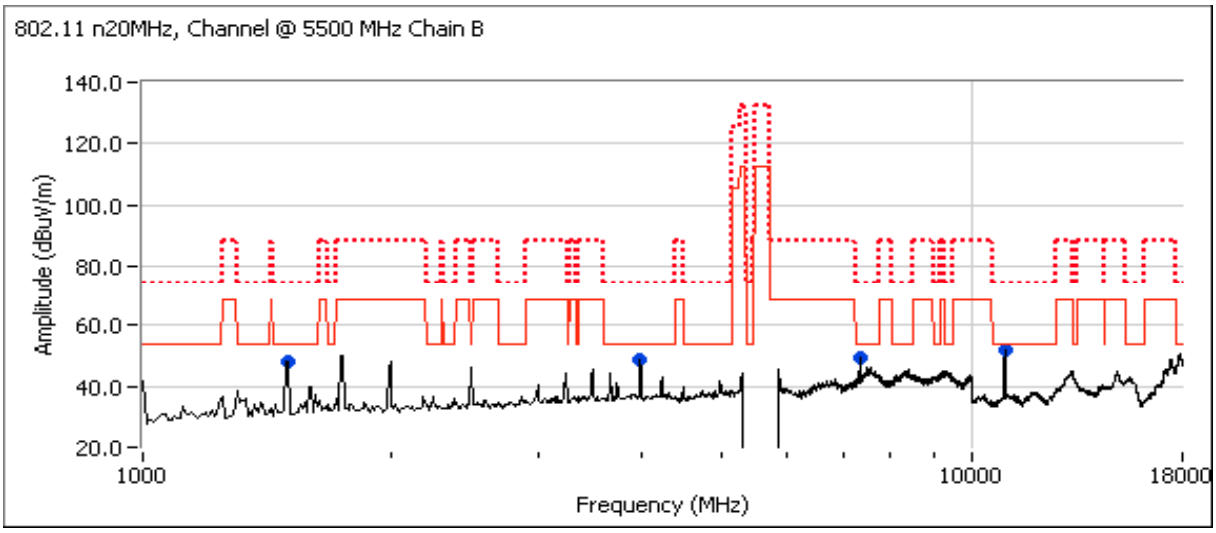
Client:	Intel Corporation	Job Number:	J72725
Model:	533AN-MMW with SL-300 Boxter Antenna	T-Log Number:	T72736
		Account Manager:	Dean Eriksen
Contact:	Robert Paxman		
Standard:	FCC Part 15E/RSS 210	Class:	N/A

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

Date of Test: 8/29/2008
Test Engineer: Suhaila Khushzad
Test Location: Chamber # 3

Run #2a: Low Channel @ 5500 MHz, Chain B

Power Setting: 25 Average power: 17 (for reference purposes)



Spurious Emissions

Frequency	Level	Pol	15.209 / 15.407		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
7333.330	50.3	V	54.0	-3.7	AVG	256	1.1	00 MHz; VB: 10 Hz
7333.250	54.1	V	74.0	-19.9	PK	256	1.1	MHz; VB: 1.000 MHz
11000.050	46.9	V	54.0	-7.1	AVG	191	1.1	RB 1.000 MHz; VB: 10 Hz
10996.950	59.0	V	74.0	-15.0	PK	191	1.1	RB 1.000 MHz; VB: 1.000 MHz
1497.670	36.3	H	54.0	-17.7	AVG	170	1.3	RB 1.000 MHz; VB: 10 Hz
1498.140	51.5	H	74.0	-22.5	PK	170	1.3	RB 1.000 MHz; VB: 1.000 MHz
3992.380	37.7	V	54.0	-16.3	AVG	63	1.1	RB 1.000 MHz; VB: 10 Hz
3995.840	58.2	V	74.0	-15.8	PK	63	1.1	RB 1.000 MHz; VB: 1.000 MHz

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:	J72725
Model:	533AN-MMW with SL-300 Boxter Antenna	T-Log Number:	T72736
		Account Manager:	Dean Eriksen
Contact:	Robert Paxman		
Standard:	FCC Part 15E/RSS 210	Class:	N/A

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

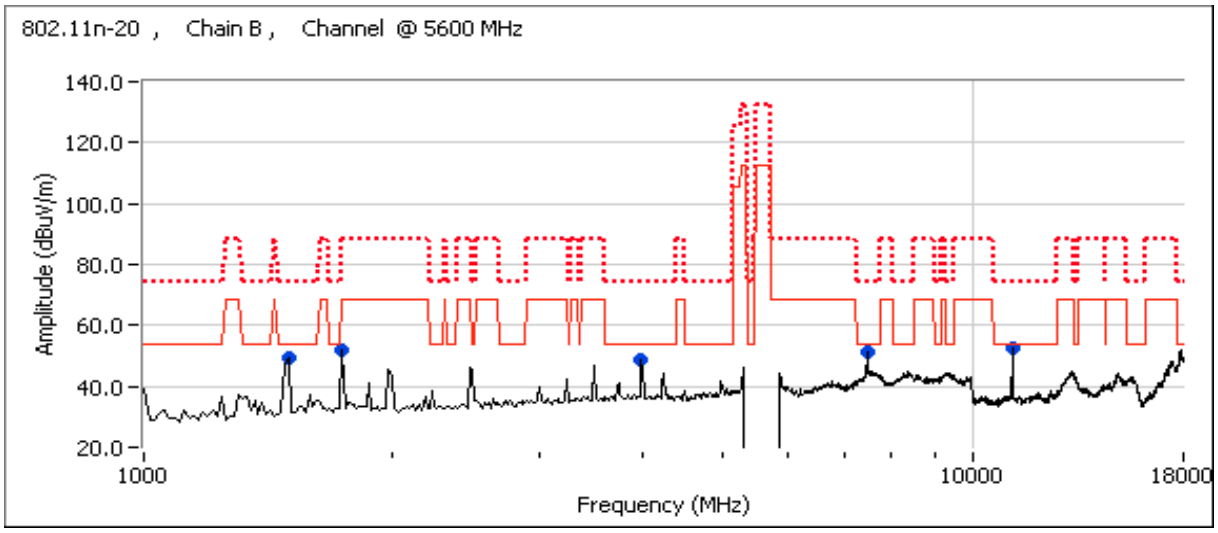
Date of Test: 8/29/2008
Test Engineer: Ben Jing
Test Location: Chamber # 3

Run #2b: Center Channel @ 5600 MHz, Chain B

Spurious Emissions

Frequency	Level	Pol	15.209 / 15.407		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
7466.660	51.5	V	54.0	-2.5	AVG	255	1.0	RB 1.000 MHz; VB: 10 Hz
11200.070	49.4	V	54.0	-4.6	AVG	202	1.0	RB 1.000 MHz; VB: 10 Hz
11202.930	62.0	V	74.0	-12.0	PK	202	1.0	RB 1.000 MHz; VB: 1.000 MHz
1499.980	37.9	V	54.0	-16.1	AVG	185	1.0	RB 1.000 MHz; VB: 10 Hz
3986.650	57.6	V	74.0	-16.4	PK	69	1.3	RB 1.000 MHz; VB: 1.000 MHz
3987.870	37.4	V	54.0	-16.6	AVG	69	1.3	RB 1.000 MHz; VB: 10 Hz
7466.720	55.5	V	74.0	-18.5	PK	255	1.0	RB 1.000 MHz; VB: 1.000 MHz
1499.970	51.4	V	74.0	-22.6	PK	185	1.0	RB 1.000 MHz; VB: 1.000 MHz

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)



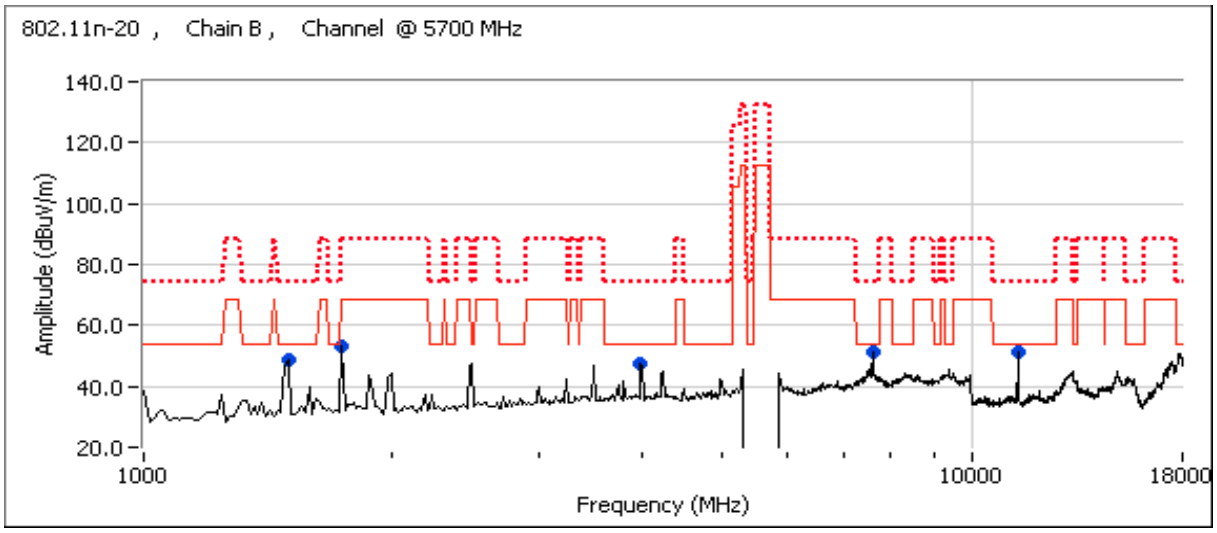
Client:	Intel Corporation	Job Number:	J72725
Model:	533AN-MMW with SL-300 Boxter Antenna	T-Log Number:	T72736
		Account Manager:	Dean Eriksen
Contact:	Robert Paxman		
Standard:	FCC Part 15E/RSS 210	Class:	N/A

Run #2c: High Channel @ 5700 MHz, Chain B

Spurious Emissions

Frequency	Level	Pol	15.209 / 15.407		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
7600.010	51.4	V	54.0	-2.6	AVG	176	1.8	RB 1.000 MHz; VB: 10 Hz
11400.020	47.8	V	54.0	-6.2	AVG	212	1.0	RB 1.000 MHz; VB: 10 Hz
1497.700	42.3	V	54.0	-11.7	AVG	166	1.0	RB 1.000 MHz; VB: 10 Hz
11401.040	60.5	V	74.0	-13.5	PK	212	1.0	RB 1.000 MHz; VB: 1.000 MHz
3994.500	38.5	V	54.0	-15.5	AVG	69	1.2	RB 1.000 MHz; VB: 10 Hz
3993.230	58.4	V	74.0	-15.6	PK	69	1.2	RB 1.000 MHz; VB: 1.000 MHz
1497.360	56.4	V	74.0	-17.6	PK	166	1.0	RB 1.000 MHz; VB: 1.000 MHz
7600.070	54.9	V	74.0	-19.1	PK	176	1.8	RB 1.000 MHz; VB: 1.000 MHz

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:	J72725
Model:	533AN-MMW with SL-300 Boxter Antenna	T-Log Number:	T72736
		Account Manager:	Dean Eriksen
Contact:	Robert Paxman		
Standard:	FCC Part 15E/RSS 210	Class:	N/A

Run # 3: Radiated Spurious Emissions, 1000 - 40000 MHz. Operating Mode: 802.11n 20MHz Chains A+B
Output power per chain set at, or above, the single-chain mode output power of 16.5dBm per chain.

Date of Test: 8/29/2008
Test Engineer: Ben Jing
Test Location: Chamber # 3

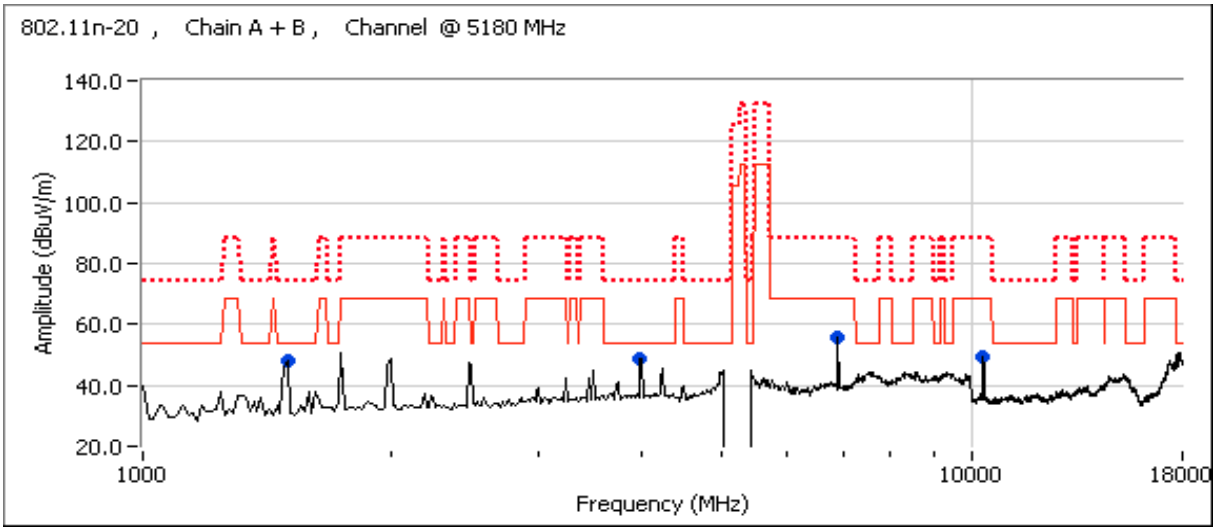
Run #3a: Low Channel @ 5180 MHz

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

Spurious Emissions

Frequency	Level	Pol	15.209 / 15.407		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
6906.670	55.8	V	68.3	-12.5	AVG	238	1.6	RB 1.000 MHz; VB: 10 Hz
3997.970	58.6	V	74.0	-15.4	PK	66	1.3	RB 1.000 MHz; VB: 1.000 MHz
3992.570	38.5	V	54.0	-15.5	AVG	66	1.3	RB 1.000 MHz; VB: 10 Hz
1499.970	37.9	V	54.0	-16.1	AVG	185	1.0	RB 1.000 MHz; VB: 10 Hz
1499.960	51.1	V	74.0	-22.9	PK	185	1.0	RB 1.000 MHz; VB: 1.000 MHz
10360.020	42.5	V	68.3	-25.8	AVG	222	1.0	RB 1.000 MHz; VB: 10 Hz
6906.630	57.7	V	88.3	-30.6	PK	238	1.6	RB 1.000 MHz; VB: 1.000 MHz
10360.060	54.0	V	88.3	-34.3	PK	222	1.0	RB 1.000 MHz; VB: 1.000 MHz

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:	J72725
Model:	533AN-MMW with SL-300 Boxter Antenna	T-Log Number:	T72736
		Account Manager:	Dean Eriksen
Contact:	Robert Paxman		
Standard:	FCC Part 15E/RSS 210	Class:	N/A

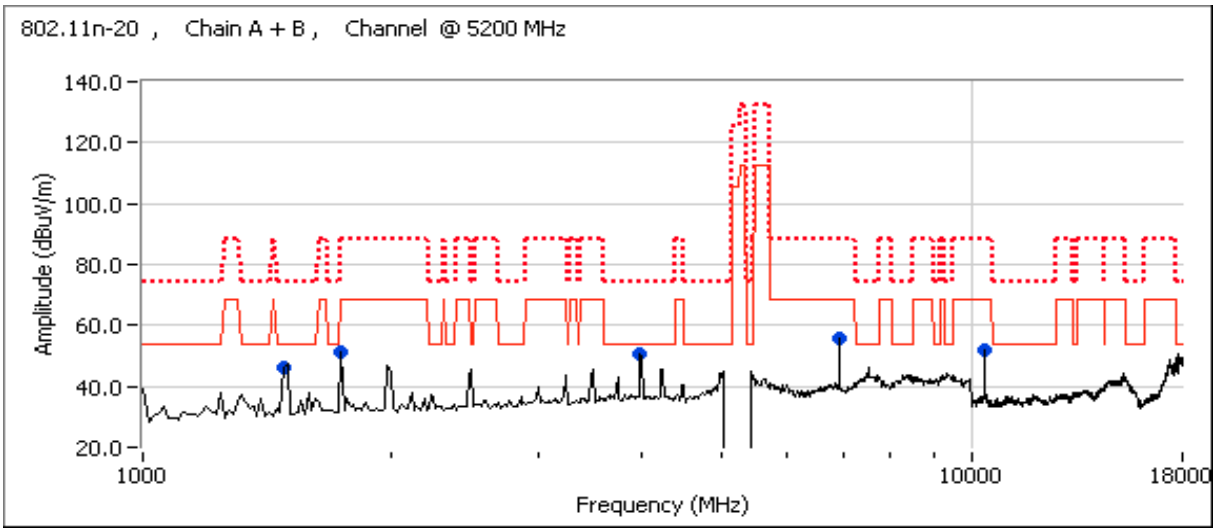
Run #3b: Center Channel @ 5200 MHz

Power Setting and average measurement (for reference)					
Chain A		Chain B		Chain C	
Setting	Avg	Setting	Avg	Setting	Avg
29.0	16.5	29.0	16.5		

Spurious Emissions

Frequency	Level	Pol	15.209 / 15.407		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
6933.330	56.8	V	68.3	-11.5	AVG	194	1.9	RB 1.000 MHz; VB: 10 Hz
3990.450	60.7	V	74.0	-13.3	PK	64	1.1	RB 1.000 MHz; VB: 1.000 MHz
3990.050	39.9	V	54.0	-14.1	AVG	64	1.1	RB 1.000 MHz; VB: 10 Hz
1497.670	37.6	V	54.0	-16.4	AVG	215	1.5	RB 1.000 MHz; VB: 10 Hz
10400.090	43.8	V	68.3	-24.5	AVG	259	1.0	RB 1.000 MHz; VB: 10 Hz
1497.560	48.5	V	74.0	-25.5	PK	215	1.5	RB 1.000 MHz; VB: 1.000 MHz
1747.900	40.0	V	68.3	-28.3	AVG	44	1.6	RB 1.000 MHz; VB: 10 Hz
6933.290	58.4	V	88.3	-29.9	PK	194	1.9	RB 1.000 MHz; VB: 1.000 MHz
1748.500	58.2	V	88.3	-30.1	PK	44	1.6	RB 1.000 MHz; VB: 1.000 MHz
10399.970	57.6	V	88.3	-30.7	PK	259	1.0	RB 1.000 MHz; VB: 1.000 MHz

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:	J72725
Model:	533AN-MMW with SL-300 Boxter Antenna	T-Log Number:	T72736
		Account Manager:	Dean Eriksen
Contact:	Robert Paxman		
Standard:	FCC Part 15E/RSS 210	Class:	N/A

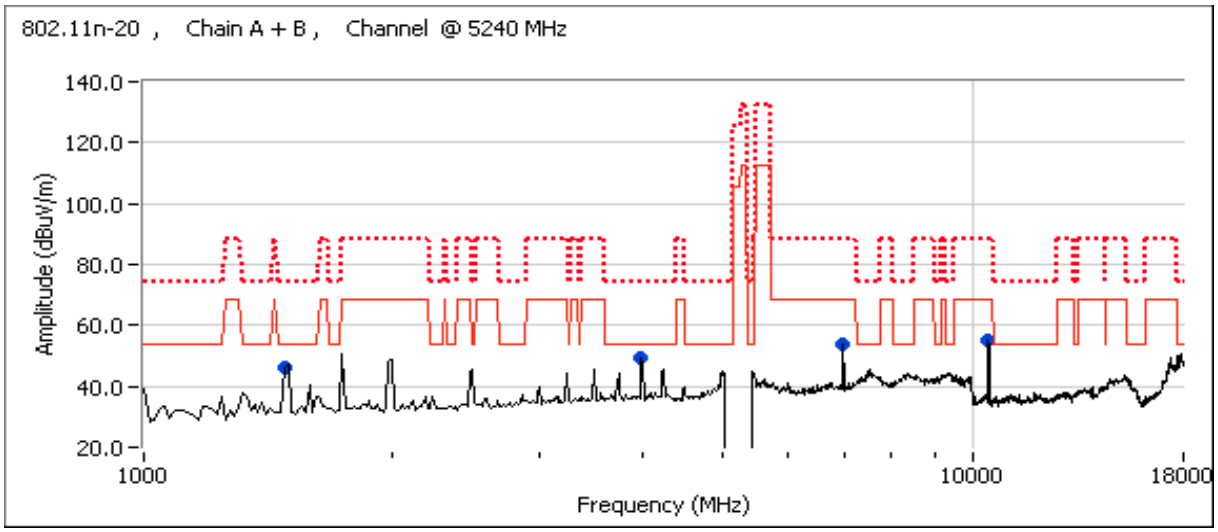
Run #3c: High Channel @ 5240 MHz

Power Setting and average measurement (for reference)					
Chain A		Chain B		Chain C	
Setting	Avg	Setting	Avg	Setting	Avg
28.0	16.5	28.0	16.5		

Spurious Emissions

Frequency	Level	Pol	15.209 / 15.407		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
6986.660	54.7	V	68.3	-13.6	AVG	261	1.0	RB 1.000 MHz; VB: 10 Hz
3985.180	59.4	V	74.0	-14.6	PK	67	1.3	RB 1.000 MHz; VB: 1.000 MHz
1497.640	39.1	H	54.0	-14.9	AVG	206	1.0	RB 1.000 MHz; VB: 10 Hz
3984.880	38.7	V	54.0	-15.3	AVG	67	1.3	RB 1.000 MHz; VB: 10 Hz
1493.600	55.9	H	74.0	-18.1	PK	206	1.0	RB 1.000 MHz; VB: 1.000 MHz
10479.750	45.4	V	68.3	-22.9	AVG	252	1.0	RB 1.000 MHz; VB: 10 Hz
10479.940	60.4	V	88.3	-27.9	PK	252	1.0	RB 1.000 MHz; VB: 1.000 MHz
6986.750	56.3	V	88.3	-32.0	PK	261	1.0	RB 1.000 MHz; VB: 1.000 MHz

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:	J72725
Model:	533AN-MMW with SL-300 Boxter Antenna	T-Log Number:	T72736
		Account Manager:	Dean Eriksen
Contact:	Robert Paxman		
Standard:	FCC Part 15E/RSS 210	Class:	N/A

Run # 4: Radiated Spurious Emissions, 1000 - 40000 MHz. Operating Mode: 802.11n 20MHz Chains A+B
Output power per chain set at, or above, the single-chain mode output power of 16.5dBm per chain.

Date of Test: 8/29/2008
Test Engineer: Ben Jing
Test Location: Chamber # 3

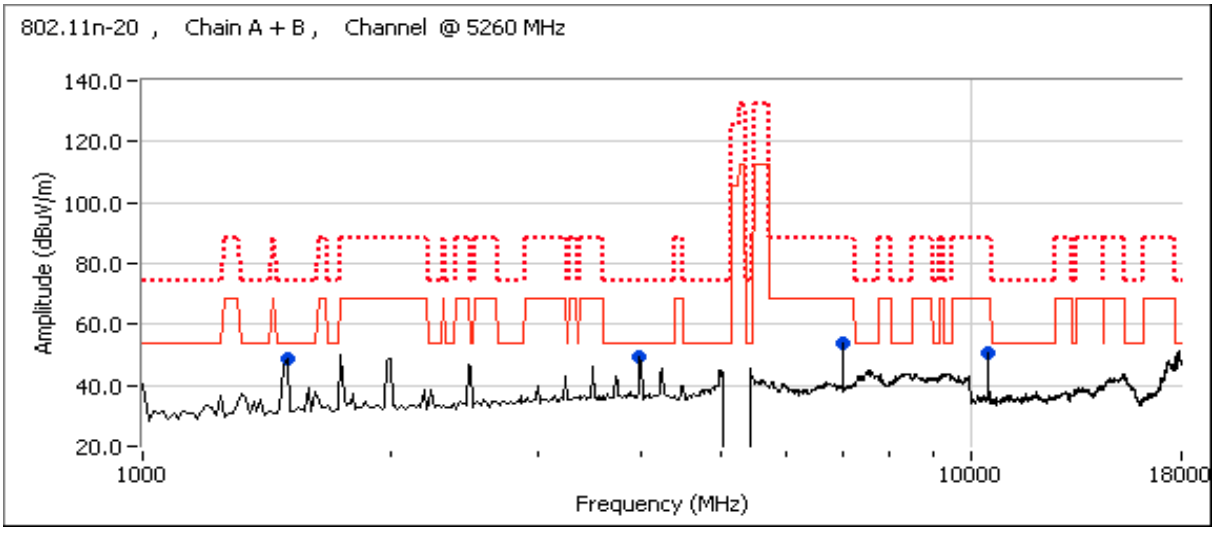
Run #4a: Low Channel @ 5260 MHz

Power Setting and average measurement (for reference)					
Chain A		Chain B		Chain C	
Setting	Avg	Setting	Avg	Setting	Avg
27.0	16.6	27.5	16.5		

Spurious Emissions

Frequency	Level	Pol	15.209 / 15.407		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
7013.330	57.3	V	68.3	-11.0	AVG	215	1.1	RB 1.000 MHz; VB: 10 Hz
3985.710	60.0	V	74.0	-14.0	PK	64	1.2	RB 1.000 MHz; VB: 1.000 MHz
3990.350	39.4	V	54.0	-14.6	AVG	64	1.2	RB 1.000 MHz; VB: 10 Hz
1499.970	36.7	V	54.0	-17.3	AVG	189	1.4	RB 1.000 MHz; VB: 10 Hz
1499.090	51.0	V	74.0	-23.0	PK	189	1.4	RB 1.000 MHz; VB: 1.000 MHz
10519.900	43.6	V	68.3	-24.7	AVG	235	1.0	RB 1.000 MHz; VB: 10 Hz
10520.000	59.5	V	88.3	-28.8	PK	235	1.0	RB 1.000 MHz; VB: 1.000 MHz
7013.300	58.7	V	88.3	-29.6	PK	215	1.1	RB 1.000 MHz; VB: 1.000 MHz

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:	J72725
Model:	533AN-MMW with SL-300 Boxter Antenna	T-Log Number:	T72736
		Account Manager:	Dean Eriksen
Contact:	Robert Paxman		
Standard:	FCC Part 15E/RSS 210	Class:	N/A

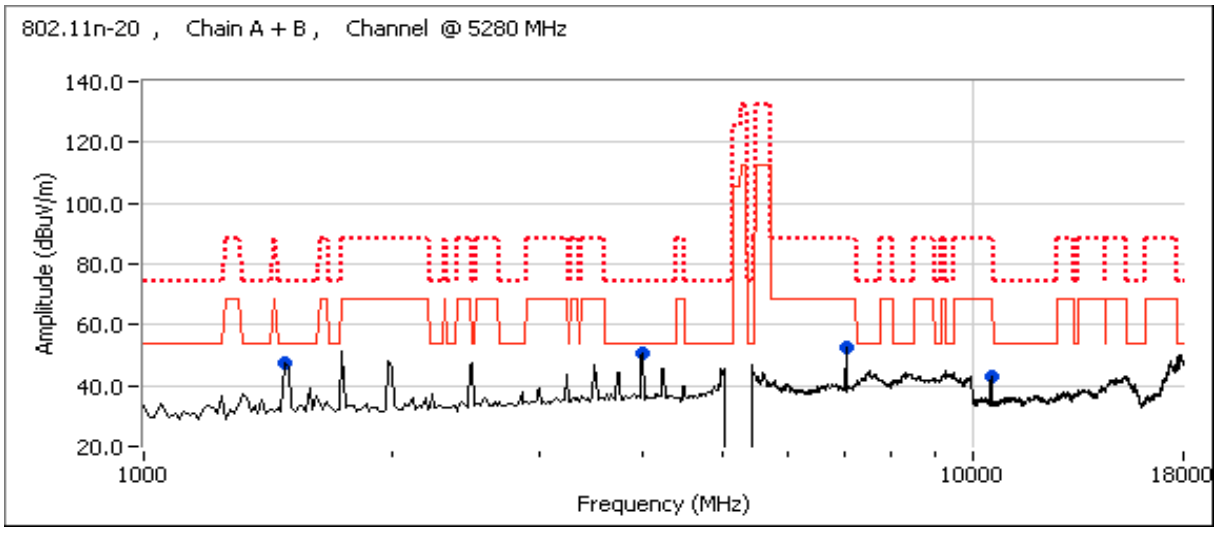
Run #4b: Center Channel @ 5280 MHz

Power Setting and average measurement (for reference)					
Chain A		Chain B		Chain C	
Setting	Avg	Setting	Avg	Setting	Avg
26.0	16.5	27.0	16.5		

Spurious Emissions

Frequency	Level	Pol	15.209 / 15.407		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
3994.990	59.0	V	74.0	-15.0	PK	67	1.3	RB 1.000 MHz; VB: 1.000 MHz
3990.960	38.3	V	54.0	-15.7	AVG	67	1.3	RB 1.000 MHz; VB: 10 Hz
1497.670	37.7	V	54.0	-16.3	AVG	186	1.0	RB 1.000 MHz; VB: 10 Hz
7040.000	51.8	V	68.3	-16.5	AVG	207	1.3	RB 1.000 MHz; VB: 10 Hz
1499.170	52.6	V	74.0	-21.4	PK	186	1.0	RB 1.000 MHz; VB: 1.000 MHz
10550.150	37.8	V	68.3	-30.5	AVG	224	1.0	RB 1.000 MHz; VB: 10 Hz
7040.090	54.3	V	88.3	-34.0	PK	207	1.3	RB 1.000 MHz; VB: 1.000 MHz
10551.040	49.5	V	88.3	-38.8	PK	224	1.0	RB 1.000 MHz; VB: 1.000 MHz

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:	J72725
Model:	533AN-MMW with SL-300 Boxter Antenna	T-Log Number:	T72736
		Account Manager:	Dean Eriksen
Contact:	Robert Paxman		
Standard:	FCC Part 15E/RSS 210	Class:	N/A

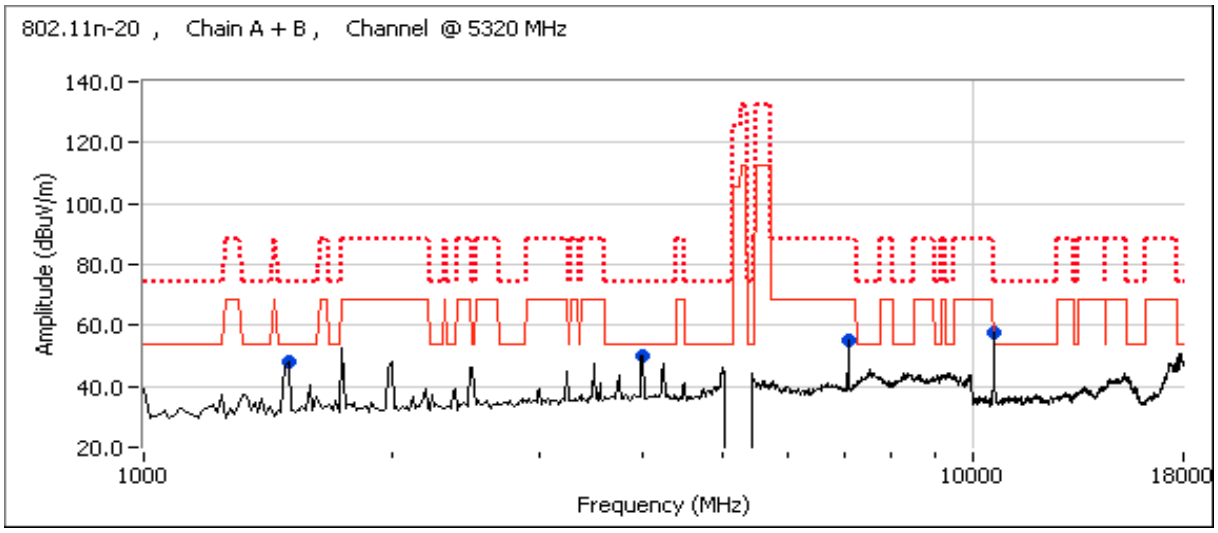
Run #4c: High Channel @ 5320 MHz

Power Setting and average measurement (for reference)					
Chain A		Chain B		Chain C	
Setting	Avg	Setting	Avg	Setting	Avg
25.5	16.5	26.5	16.5		

Spurious Emissions

Frequency	Level	Pol	15.209 / 15.407		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
10639.800	42.8	V	54.0	-11.2	AVG	257	1.0	RB 1.000 MHz; VB: 10 Hz
7093.340	55.7	V	68.3	-12.6	AVG	203	1.0	RB 1.000 MHz; VB: 10 Hz
3985.830	59.5	V	74.0	-14.5	PK	66	1.3	RB 1.000 MHz; VB: 1.000 MHz
3983.560	39.0	V	54.0	-15.0	AVG	66	1.3	RB 1.000 MHz; VB: 10 Hz
1493.650	38.4	H	54.0	-15.6	AVG	163	1.2	RB 1.000 MHz; VB: 10 Hz
10640.070	57.7	V	74.0	-16.3	PK	257	1.0	RB 1.000 MHz; VB: 1.000 MHz
1497.600	53.2	H	74.0	-20.8	PK	163	1.2	RB 1.000 MHz; VB: 1.000 MHz
7093.340	57.4	V	88.3	-30.9	PK	203	1.0	RB 1.000 MHz; VB: 1.000 MHz

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:	J72725
Model:	533AN-MMW with SL-300 Boxter Antenna	T-Log Number:	T72736
		Account Manager:	Dean Eriksen
Contact:	Robert Paxman		
Standard:	FCC Part 15E/RSS 210	Class:	N/A

Run # 5: Radiated Spurious Emissions, 1000 - 40000 MHz. Operating Mode: 802.11n 20MHz Chains A+B
Output power per chain set at, or above, the dual-chain mode output power of 13.5dBm per chain.

Date of Test: 9/2/2008
Test Engineer: Ben Jing
Test Location: Chamber # 4

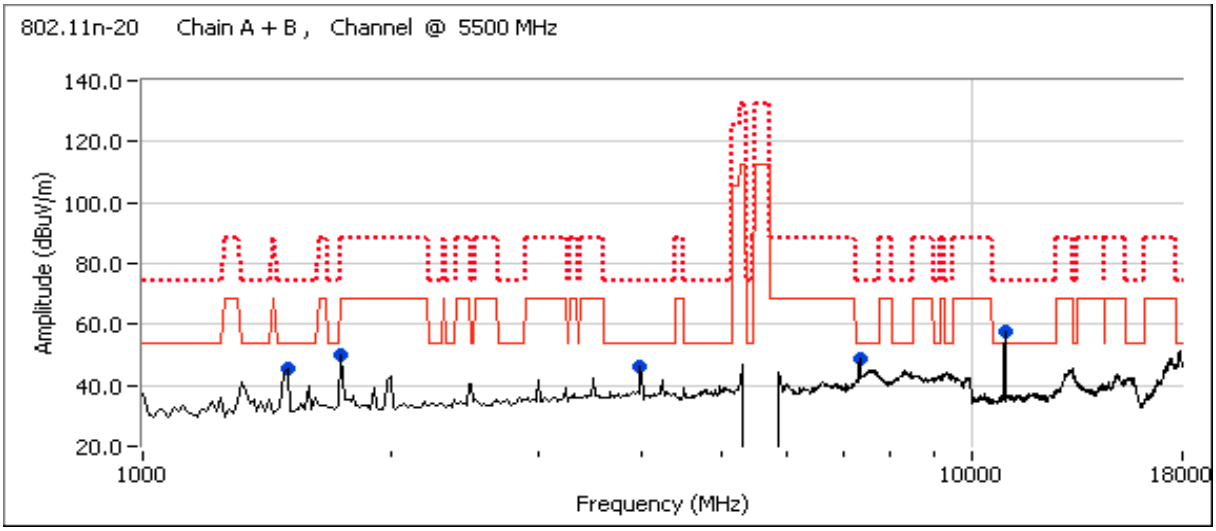
Run #5a: Low Channel @ 5500 MHz

Power Setting and average measurement (for reference)					
Chain A		Chain B		Chain C	
Setting	Avg	Setting	Avg	Setting	Avg
23.0	15.7	24.0	13.8		

Spurious Emissions

Frequency	Level	Pol	15.209 / 15.407		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
10999.850	49.2	V	54.0	-4.8	AVG	180	1.0	RB 1.000 MHz; VB: 10 Hz
7333.320	47.8	V	54.0	-6.2	AVG	212	1.6	RB 1.000 MHz; VB: 1.000 MHz
10999.930	61.8	V	74.0	-12.2	PK	180	1.0	RB 1.000 MHz; VB: 1.000 MHz
1499.960	35.0	V	54.0	-19.0	AVG	75	1.0	RB 1.000 MHz; VB: 10 Hz
3982.750	34.6	V	54.0	-19.4	AVG	213	1.2	RB 1.000 MHz; VB: 10 Hz
7333.350	53.2	V	74.0	-20.8	PK	212	1.6	RB 1.000 MHz; VB: 1.000 MHz
1499.950	51.9	V	74.0	-22.1	PK	75	1.0	RB 1.000 MHz; VB: 10 Hz
3982.280	51.9	V	74.0	-22.1	PK	213	1.2	RB 1.000 MHz; VB: 1.000 MHz
1745.180	35.4	V	68.3	-32.9	AVG	207	1.0	RB 1.000 MHz; VB: 1.000 MHz
1747.170	52.4	V	88.3	-35.9	PK	207	1.0	RB 1.000 MHz; VB: 10 Hz

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:	J72725
Model:	533AN-MMW with SL-300 Boxter Antenna	T-Log Number:	T72736
		Account Manager:	Dean Eriksen
Contact:	Robert Paxman		
Standard:	FCC Part 15E/RSS 210	Class:	N/A

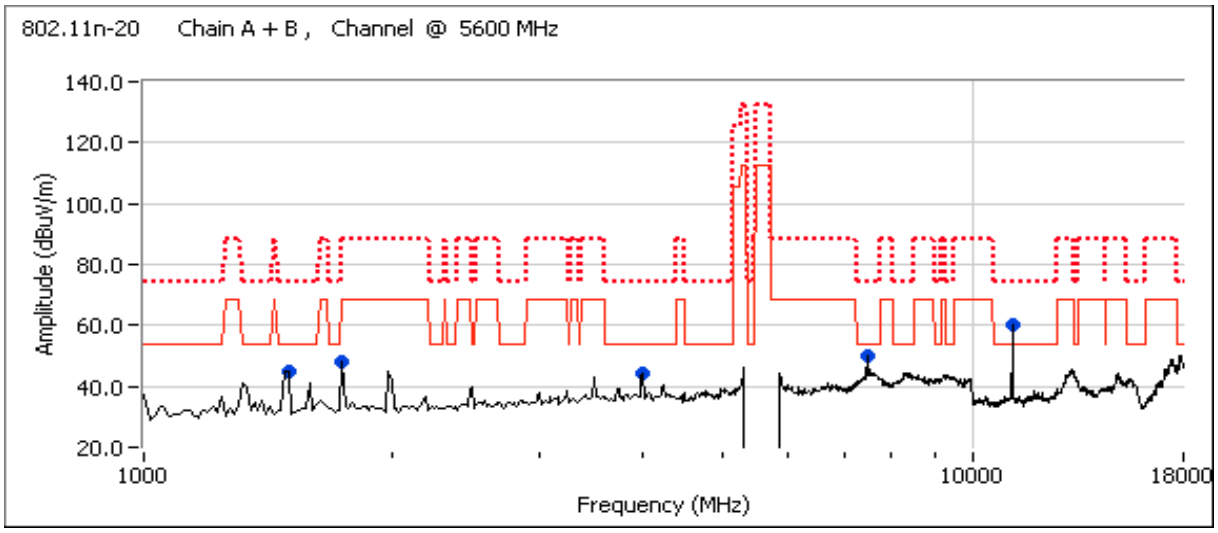
Run #5b: Center Channel @ 5600 MHz

Power Setting and average measurement (for reference)					
Chain A		Chain B		Chain C	
Setting	Avg	Setting	Avg	Setting	Avg
24.5	16.4	26.0	15.8		

Spurious Emissions

Frequency	Level	Pol	15.209 / 15.407		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
11199.720	49.2	V	54.0	-4.8	AVG	242	1.0	RB 1.000 MHz; VB: 10 Hz
7466.660	48.3	V	54.0	-5.7	AVG	212	1.3	RB 1.000 MHz; VB: 1.000 MHz
11200.530	61.2	V	74.0	-12.8	PK	242	1.0	RB 1.000 MHz; VB: 1.000 MHz
1497.540	37.1	V	54.0	-16.9	AVG	69	1.3	RB 1.000 MHz; VB: 10 Hz
3986.140	35.1	V	54.0	-18.9	AVG	219	1.3	RB 1.000 MHz; VB: 10 Hz
7466.690	53.9	V	74.0	-20.1	PK	212	1.3	RB 1.000 MHz; VB: 1.000 MHz
3994.860	53.4	V	74.0	-20.6	PK	219	1.3	RB 1.000 MHz; VB: 1.000 MHz
1497.580	53.0	V	74.0	-21.0	PK	69	1.3	RB 1.000 MHz; VB: 10 Hz
1747.160	37.4	V	68.3	-30.9	AVG	188	1.0	RB 1.000 MHz; VB: 1.000 MHz
1745.690	53.9	V	88.3	-34.4	PK	188	1.0	RB 1.000 MHz; VB: 10 Hz

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:	J72725
Model:	533AN-MMW with SL-300 Boxter Antenna	T-Log Number:	T72736
		Account Manager:	Dean Eriksen
Contact:	Robert Paxman		
Standard:	FCC Part 15E/RSS 210	Class:	N/A

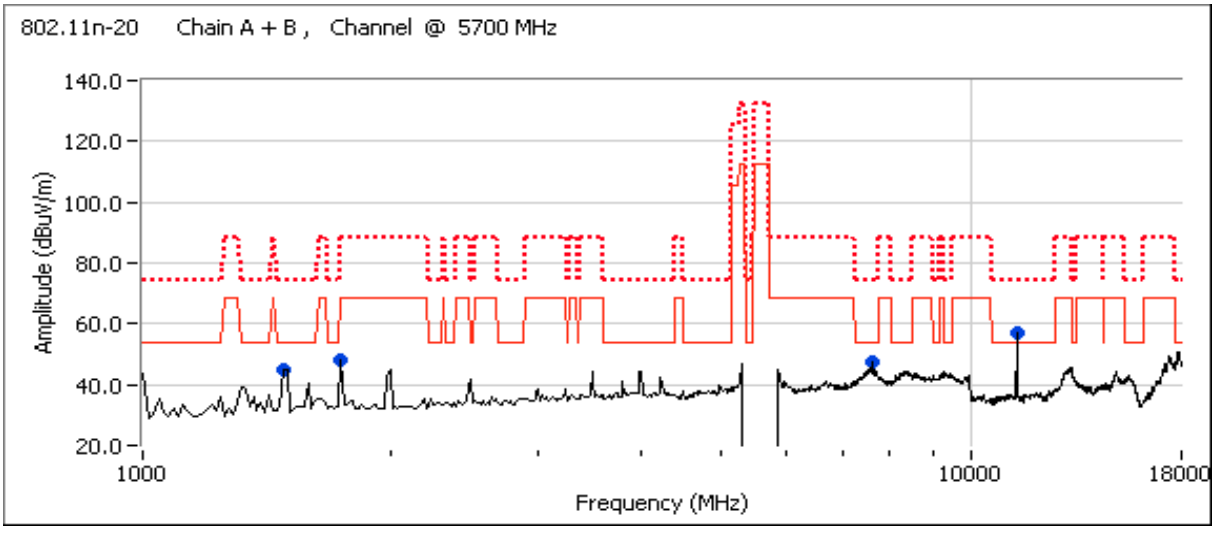
Run #5c: High Channel @ 5700 MHz

Power Setting and average measurement (for reference)					
Chain A		Chain B		Chain C	
Setting	Avg	Setting	Avg	Setting	Avg
23.5	15.2	26.5	16.0		

Spurious Emissions

Frequency	Level	Pol	15.209 / 15.407		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
11399.790	51.7	V	54.0	-2.3	AVG	198	1.0	RB 1.000 MHz; VB: 10 Hz
7600.000	48.8	V	54.0	-5.2	AVG	216	1.1	RB 1.000 MHz; VB: 10 Hz
11400.000	64.4	V	74.0	-9.6	PK	198	1.0	RB 1.000 MHz; VB: 10 Hz
1497.550	38.2	H	54.0	-15.8	AVG	130	1.0	RB 1.000 MHz; VB: 10 Hz
7600.020	54.3	V	74.0	-19.7	PK	216	1.1	RB 1.000 MHz; VB: 10 Hz
1497.540	52.9	H	74.0	-21.1	PK	130	1.0	RB 1.000 MHz; VB: 10 Hz
1747.170	37.5	V	68.3	-30.8	AVG	168	1.6	RB 1.000 MHz; VB: 10 Hz
1747.160	55.3	V	88.3	-33.0	PK	168	1.6	RB 1.000 MHz; VB: 10 Hz

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:	J72725
Model:	533AN-MMW with SL-300 Boxter Antenna	T-Log Number:	T72736
		Account Manager:	Dean Eriksen
Contact:	Robert Paxman		
Standard:	FCC Part 15E/RSS 210	Class:	NII

Radiated Emissions - Receiver Spurious, SL-300 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.

Config. Used: 1
Config Change: None
Host Unit Voltage 120V/60Hz

General Test Configuration

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

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

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

Ambient Conditions:

Temperature: 23 °C
Rel. Humidity: 34 %

Summary of Results

Run #	Test Performed	Limit	Result	Margin
1 - Receive Chain A	RE, 1000 - 18000 MHz, Maximized Emissions	RSS GEN	Pass	47.3dBµV/m @ 6933.3MHz (-6.7dB)
2 - Receive Chain B	RE, 1000 - 18000 MHz, Maximized Emissions	RSS GEN	Pass	48.3dBµV/m @ 7466.7MHz (-5.7dB)
All Receiver chains	Emissions were significantly higher with only a single receive chain active than with multiple chains active. Worst case mode is the single-chain mode.			

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:	J72725
Model:	533AN-MMW with SL-300 Boxter Antenna	T-Log Number:	T72736
		Account Manager:	Dean Eriksen
Contact:	Robert Paxman		
Standard:	FCC Part 15E/RSS 210	Class:	NII

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

Date of Test: 9/2/2008

Test Engineer: Ben Jing

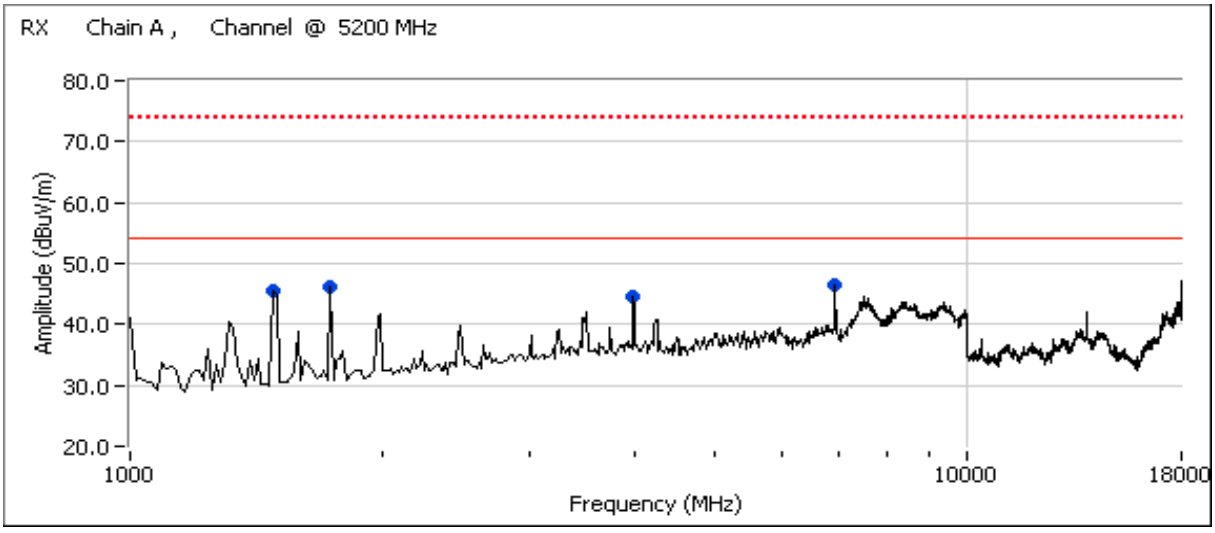
Test Location: Chamber # 4

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	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
6933.340	47.3	V	54.0	-6.7	AVG	227	1.6	RB 1.000 MHz; VB: 10 Hz
1497.640	37.4	H	54.0	-16.6	AVG	125	1.0	RB 1.000 MHz; VB: 10 Hz
1747.770	36.6	V	54.0	-17.4	AVG	85	1.0	RB 1.000 MHz; VB: 10 Hz
3991.680	35.1	V	54.0	-18.9	AVG	219	1.3	RB 1.000 MHz; VB: 10 Hz
1747.050	54.9	V	74.0	-19.1	PK	85	1.0	RB 1.000 MHz; VB: 1.000 MHz
3991.780	53.8	V	74.0	-20.2	PK	219	1.3	RB 1.000 MHz; VB: 1.000 MHz
1497.740	52.0	H	74.0	-22.0	PK	125	1.0	RB 1.000 MHz; VB: 1.000 MHz
6933.340	51.2	V	74.0	-22.8	PK	227	1.6	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.

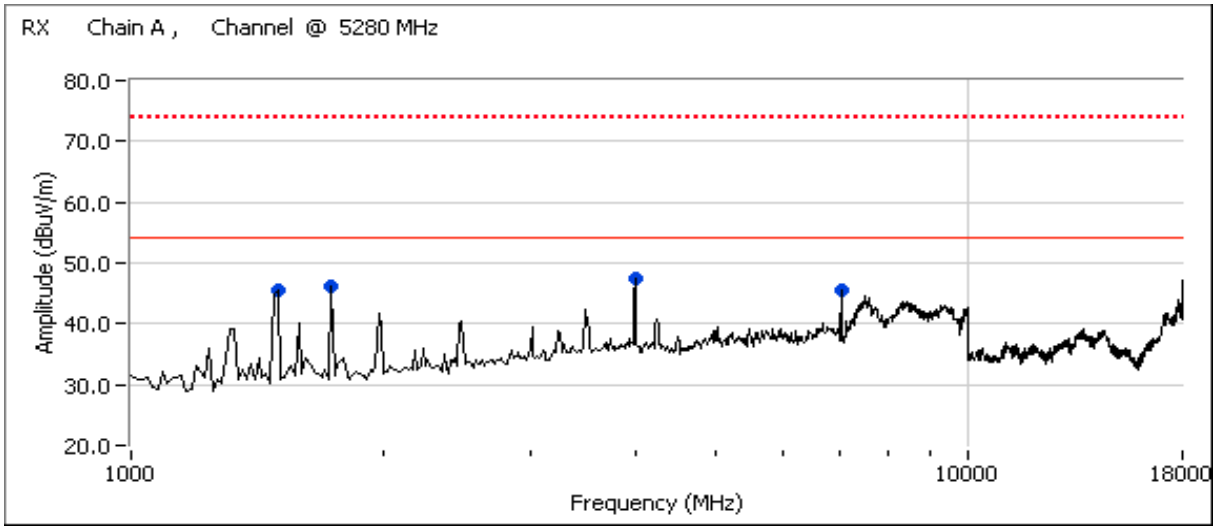


Client:	Intel Corporation	Job Number:	J72725
Model:	533AN-MMW with SL-300 Boxter Antenna	T-Log Number:	T72736
		Account Manager:	Dean Eriksen
Contact:	Robert Paxman		
Standard:	FCC Part 15E/RSS 210	Class:	NII

Receiver Tuned to 5280 MHz - Chain A

Frequency	Level	Pol	RSS GEN		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
7039.990	45.1	V	54.0	-8.9	AVG	231	1.4	RB 1.000 MHz; VB: 10 Hz
1497.540	36.1	V	54.0	-17.9	AVG	69	1.3	RB 1.000 MHz; VB: 10 Hz
1747.190	34.7	V	54.0	-19.3	AVG	162	1.6	RB 1.000 MHz; VB: 10 Hz
3986.000	34.2	V	54.0	-19.8	AVG	212	1.3	RB 1.000 MHz; VB: 10 Hz
1747.900	52.5	V	74.0	-21.5	PK	162	1.6	RB 1.000 MHz; VB: 1.000 MHz
1497.650	52.1	V	74.0	-21.9	PK	69	1.3	RB 1.000 MHz; VB: 1.000 MHz
3986.910	52.1	V	74.0	-21.9	PK	212	1.3	RB 1.000 MHz; VB: 1.000 MHz
7039.940	49.7	V	74.0	-24.3	PK	231	1.4	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.

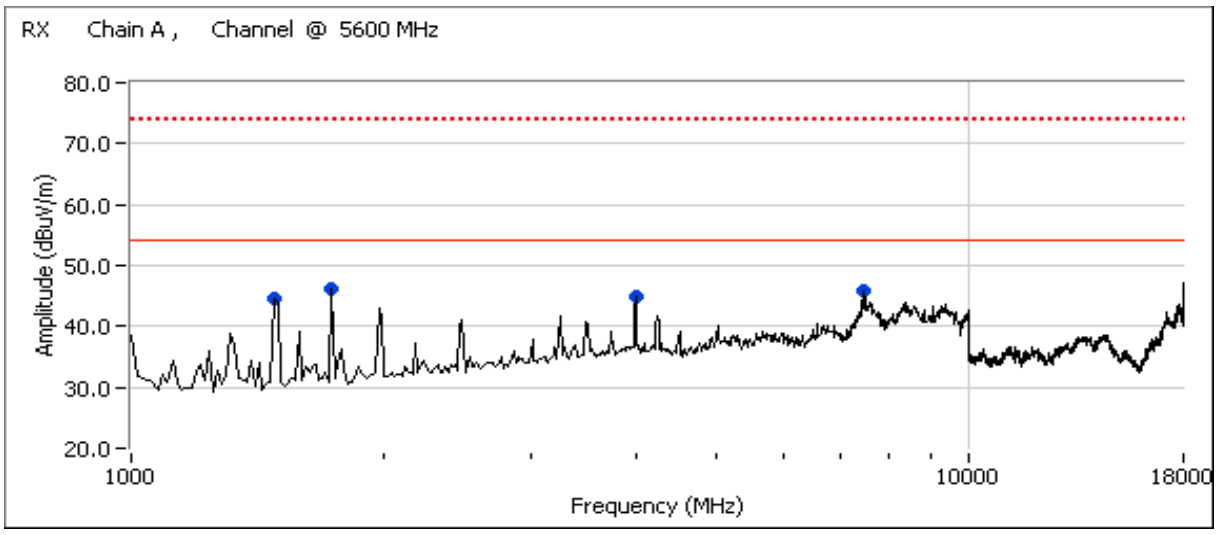


Client:	Intel Corporation	Job Number:	J72725
Model:	533AN-MMW with SL-300 Boxter Antenna	T-Log Number:	T72736
		Account Manager:	Dean Eriksen
Contact:	Robert Paxman		
Standard:	FCC Part 15E/RSS 210	Class:	NII

Receiver Tuned to 5600 MHz - Chain A

Frequency	Level	Pol	RSS GEN		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
7466.650	44.7	V	54.0	-9.3	AVG	211	1.2	RB 1.000 MHz; VB: 10 Hz
1497.590	36.4	H	54.0	-17.6	AVG	145	1.0	RB 1.000 MHz; VB: 10 Hz
3989.690	34.4	V	54.0	-19.6	AVG	217	1.3	RB 1.000 MHz; VB: 10 Hz
1745.580	34.2	V	54.0	-19.8	AVG	147	1.9	RB 1.000 MHz; VB: 10 Hz
3989.450	52.7	V	74.0	-21.3	PK	217	1.3	RB 1.000 MHz; VB: 1.000 MHz
1497.210	52.1	H	74.0	-21.9	PK	145	1.0	RB 1.000 MHz; VB: 1.000 MHz
1745.370	51.9	V	74.0	-22.1	PK	147	1.9	RB 1.000 MHz; VB: 1.000 MHz
7466.800	51.4	V	74.0	-22.6	PK	211	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.



Client:	Intel Corporation	Job Number:	J72725
Model:	533AN-MMW with SL-300 Boxter Antenna	T-Log Number:	T72736
		Account Manager:	Dean Eriksen
Contact:	Robert Paxman		
Standard:	FCC Part 15E/RSS 210	Class:	NII

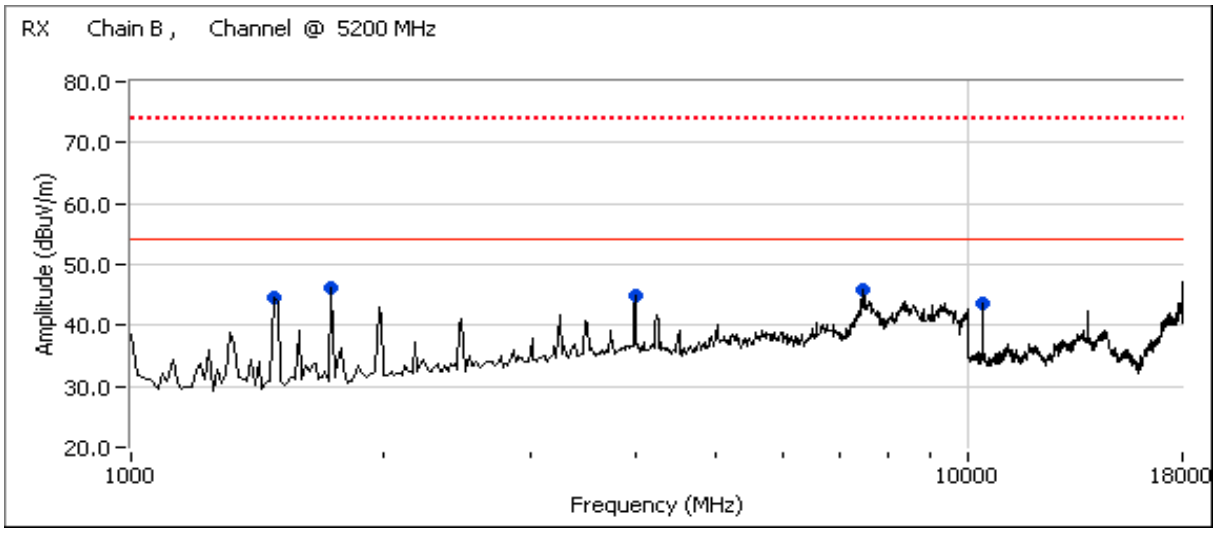
Run #2: Maximized readings, 1000 - 18000 MHz, Receive Chain B

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	Level	Pol	RSS GEN		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
6933.320	48.7	V	54.0	-5.3	AVG	236	1.6	RB 1.000 MHz; VB: 10 Hz
10399.980	41.9	V	54.0	-12.1	AVG	239	1.0	RB 1.000 MHz; VB: 10 Hz
1747.770	36.5	V	54.0	-17.5	AVG	85	1.1	RB 1.000 MHz; VB: 10 Hz
3986.230	35.4	V	54.0	-18.6	AVG	216	1.0	RB 1.000 MHz; VB: 10 Hz
1499.990	35.0	V	54.0	-19.0	AVG	84	1.0	RB 1.000 MHz; VB: 10 Hz
1748.320	54.9	V	74.0	-19.1	PK	85	1.1	RB 1.000 MHz; VB: 1.000 MHz
3988.940	54.4	V	74.0	-19.6	PK	216	1.0	RB 1.000 MHz; VB: 1.000 MHz
6933.120	52.4	V	74.0	-21.6	PK	236	1.6	RB 1.000 MHz; VB: 1.000 MHz
1499.450	51.8	V	74.0	-22.2	PK	84	1.0	RB 1.000 MHz; VB: 1.000 MHz
10400.110	46.5	V	74.0	-27.5	PK	239	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.

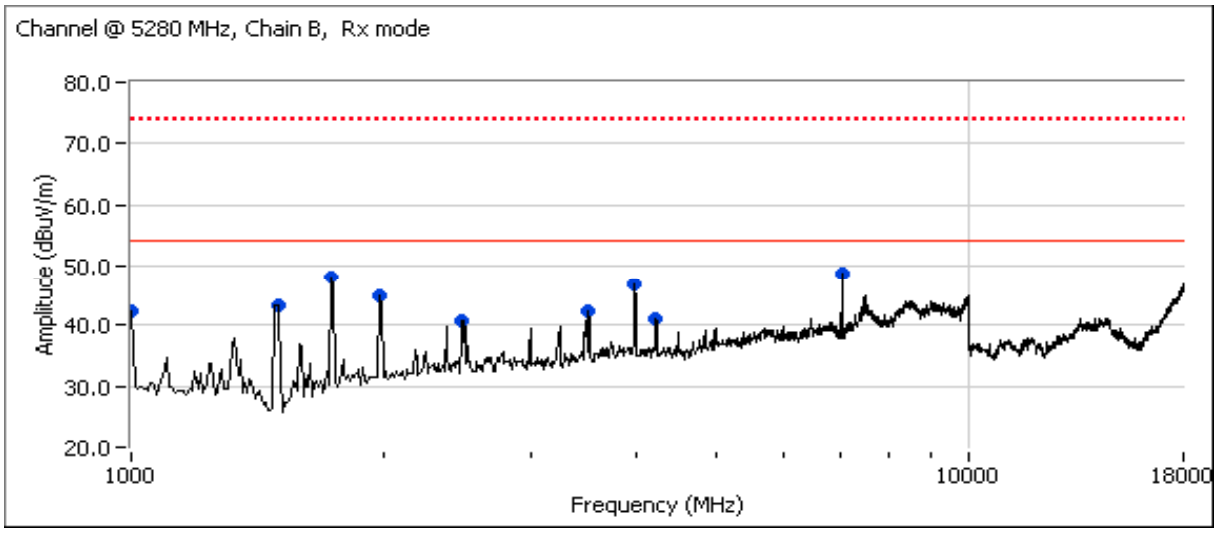


Client:	Intel Corporation	Job Number:	J72725
Model:	533AN-MMW with SL-300 Boxter Antenna	T-Log Number:	T72736
		Account Manager:	Dean Eriksen
Contact:	Robert Paxman		
Standard:	FCC Part 15E/RSS 210	Class:	NII

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

Date of Test: 9/3/2008
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



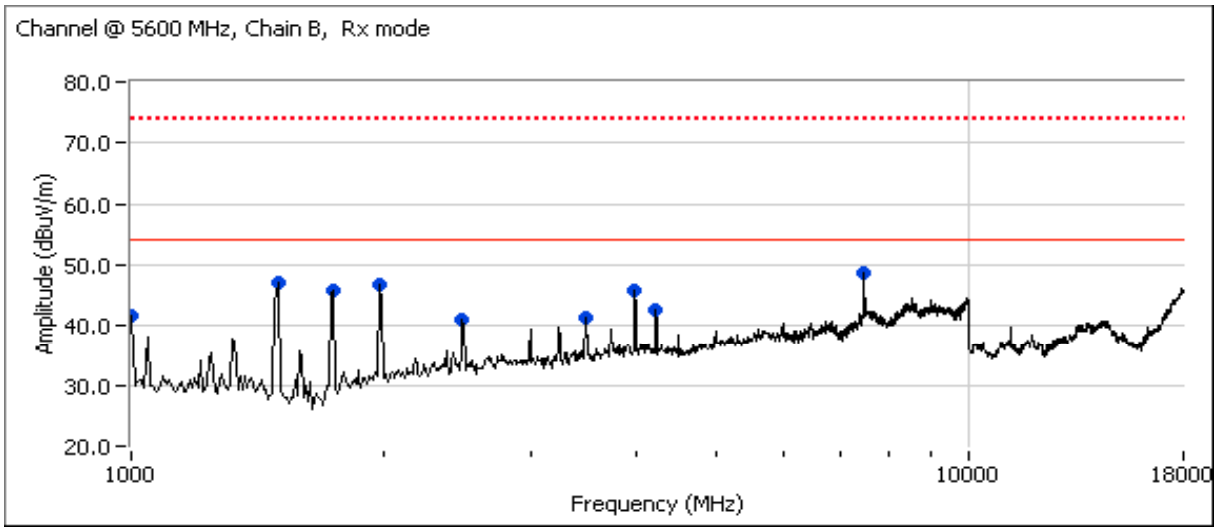
Receiver Tuned to 5280 MHz - Chain B

Frequency	Level	Pol	RSS GEN		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
7040.130	47.6	V	54.0	-6.4	AVG	203	1.3	RB 1.000 MHz; VB: 10 Hz
7040.130	51.1	V	74.0	-22.9	PK	203	1.3	RB 1.000 MHz; VB: 1.000 MHz
1497.660	36.5	V	54.0	-17.5	AVG	61	1.0	RB 1.000 MHz; VB: 10 Hz
1495.900	51.3	V	74.0	-22.7	PK	61	1.0	RB 1.000 MHz; VB: 1.000 MHz
1747.330	41.8	V	54.0	-12.2	AVG	77	1.1	RB 1.000 MHz; VB: 10 Hz
1748.980	57.5	V	74.0	-16.5	PK	77	1.1	RB 1.000 MHz; VB: 1.000 MHz
998.500	26.8	H	54.0	-27.2	AVG	47	1.0	RB 100 kHz; VB: 10 Hz
999.350	37.6	H	74.0	-36.4	PK	47	1.0	RB 100 kHz; VB: 100 kHz
1992.330	38.9	V	54.0	-15.1	AVG	71	1.0	RB 1.000 MHz; VB: 10 Hz
1996.770	53.1	V	74.0	-20.9	PK	71	1.0	RB 1.000 MHz; VB: 1.000 MHz
2497.210	35.4	V	54.0	-18.6	AVG	74	1.7	RB 1.000 MHz; VB: 10 Hz
2497.930	49.2	V	74.0	-24.8	PK	74	1.7	RB 1.000 MHz; VB: 1.000 MHz
3520.070	41.7	V	54.0	-12.3	AVG	189	1.2	RB 1.000 MHz; VB: 10 Hz
3520.250	46.9	V	74.0	-27.1	PK	189	1.2	RB 1.000 MHz; VB: 1.000 MHz
3989.510	38.1	V	54.0	-15.9	AVG	86	1.3	RB 1.000 MHz; VB: 10 Hz
3984.530	56.7	V	74.0	-17.3	PK	86	1.3	RB 1.000 MHz; VB: 1.000 MHz
4231.990	35.7	V	54.0	-18.3	AVG	86	1.6	RB 1.000 MHz; VB: 10 Hz
4231.250	51.1	V	74.0	-22.9	PK	86	1.6	RB 1.000 MHz; VB: 1.000 MHz

Client:	Intel Corporation	Job Number:	J72725
Model:	533AN-MMW with SL-300 Boxter Antenna	T-Log Number:	T72736
		Account Manager:	Dean Eriksen
Contact:	Robert Paxman		
Standard:	FCC Part 15E/RSS 210	Class:	NII

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

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 5600 MHz - Chain B

Frequency	Level	Pol	RSS GEN		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
7466.670	48.3	V	54.0	-5.7	AVG	209	1.3	RB 1.000 MHz; VB: 10 Hz
7466.760	54.5	V	74.0	-19.5	PK	209	1.3	RB 1.000 MHz; VB: 1.000 MHz
998.546	22.0	V	54.0	-32.0	AVG	13	1.1	RB 100 kHz; VB: 10 Hz
999.281	36.5	V	74.0	-37.5	PK	13	1.1	RB 100 kHz; VB: 100 kHz
1497.560	38.6	V	54.0	-15.4	AVG	59	1.0	RB 1.000 MHz; VB: 10 Hz
1499.320	52.9	V	74.0	-21.1	PK	59	1.0	RB 1.000 MHz; VB: 1.000 MHz
1747.580	41.1	V	54.0	-12.9	AVG	76	1.1	RB 1.000 MHz; VB: 10 Hz
1742.170	56.1	V	74.0	-17.9	PK	76	1.1	RB 1.000 MHz; VB: 1.000 MHz
1992.520	38.8	V	54.0	-15.2	AVG	74	1.0	RB 1.000 MHz; VB: 10 Hz
1991.140	53.2	V	74.0	-20.8	PK	74	1.0	RB 1.000 MHz; VB: 1.000 MHz
2496.900	37.1	V	54.0	-16.9	AVG	78	1.5	RB 1.000 MHz; VB: 10 Hz
2499.090	51.2	V	74.0	-22.8	PK	78	1.5	RB 1.000 MHz; VB: 1.000 MHz
3497.190	33.3	V	54.0	-20.7	AVG	243	1.9	RB 1.000 MHz; VB: 10 Hz
3486.740	48.8	V	74.0	-25.2	PK	243	1.9	RB 1.000 MHz; VB: 1.000 MHz
3989.770	38.3	V	54.0	-15.7	AVG	85	1.0	RB 1.000 MHz; VB: 10 Hz
3995.820	55.5	V	74.0	-18.5	PK	85	1.0	RB 1.000 MHz; VB: 1.000 MHz
4232.440	35.8	V	54.0	-18.2	AVG	86	1.6	RB 1.000 MHz; VB: 10 Hz
4233.550	51.1	V	74.0	-22.9	PK	86	1.6	RB 1.000 MHz; VB: 1.000 MHz

EXHIBIT 3: Photographs of Test Configurations