EMC Test Report

Application for Grant of Equipment Authorization
Class II Permissive Change/Reassessment
Industry Canada RSS-Gen Issue 3 / RSS 210 Issue 8
FCC Part 15 Subpart C

1x1 802.11bgn Canyon Peak Model 105BNHU

IC CERTIFICATION #:	1000M-105BNHU
FCC ID:	PD9105BNHU
APPLICANT:	Intel Corporation 100 Center Point Circle Suite 200 Columbia, SC 29210
TEST SITE(S):	Elliott Laboratories 41039 Boyce Road. Fremont, CA. 94538-2435
IC SITE REGISTRATION #:	2845B-3 & 2845B-4
REPORT DATE:	May 2, 2012
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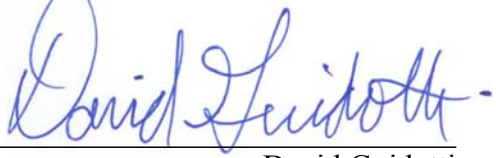

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REVISION HISTORY

Rev#	Date	Comments	Modified By
-	05-02-2012	First release	

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SCOPE

An electromagnetic emissions test has been performed on the Intel Corporation 1x1 802.11bgn Canyon Peak Model 105BNHU, pursuant to the following rules:

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

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

ANSI C63.4:2003
FCC DTS Measurement Procedure KDB558074

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

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

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

OBJECTIVE

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

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

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

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

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

STATEMENT OF COMPLIANCE

The tested sample of Intel Corporation 1x1 802.11bgn Canyon Peak Model 105BNHU complied with the requirements of the following regulations:

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

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

The test results recorded herein are based on a single type test of Intel Corporation 1x1 802.11bgn Canyon Peak Model 105BNHU and therefore apply only to the tested sample. The sample was selected and prepared by Steve Hackett of Intel Corporation.

DEVIATIONS FROM THE STANDARDS

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

TEST RESULTS SUMMARY

DIGITAL TRANSMISSION SYSTEMS (2400 – 2483.5MHz)

FCC Rule Part	RSS Rule Part	Description	Measured Value / Comments	Limit / Requirement	Result
15.247(a)	RSS 210 A8.2	Digital Modulation	Systems uses OFDM / DSSS techniques	System must utilize a digital transmission technology	Complies
15.247 (a) (2)	RSS 210 A8.2 (1)	6dB Bandwidth	No change from original filing	>500kHz	Complies
15.247 (b) (3)	RSS 210 A8.2 (4)	Output Power (multipoint systems)	No change from original filing except EIRP = 0.214 W Note 1	1Watt, EIRP limited to 4 Watts.	Complies
15.247(d)	RSS 210 A8.2 (2)	Power Spectral Density	No change from original filing	8dBm/3kHz	Complies
15.247(c)	RSS 210 A8.5	Antenna Port Spurious Emissions 30MHz – 25 GHz	No change from original filing	< -20dBc or < -30dBc Note 2	Complies
15.247(c) / 15.209	RSS 210 A8.5	Radiated Spurious Emissions 30MHz – 25 GHz	53.9 dBµV/m @ 2483.5 MHz (-0.1 dB)	15.207 in restricted bands, all others < -20dBc <-30dBc Note 2	Complies

Note 1: EIRP calculated using antenna gain of 2.2 dBi for the highest EIRP system.
Note 2: Limit of -20dBc or -30dBc used depending on mode as power was measured using peak detector or maximum power averaged over a transmission burst.

GENERAL REQUIREMENTS APPLICABLE TO ALL BANDS

FCC Rule Part	RSS Rule part	Description	Measured Value / Comments	Limit / Requirement	Result (margin)
15.203	-	RF Connector	Unique connector	Unique or integral antenna required	Complies
15.207	RSS GEN Table 2	AC Conducted Emissions	No change from original filing	Refer to page 17	Complies
15.247 (b) (5) 15.407 (f)	RSS 102	RF Exposure Requirements	Refer to MPE calculations, RSS 102 declaration and User Manual statements.	Refer to OET 65, FCC Part 1 and RSS 102	Complies
-	RSP 100 RSS GEN 7.1.5	User Manual	No change from original filing	Statement required regarding non-interference	Complies
-	RSP 100 RSS GEN 7.1.5	User Manual	No change from original filing	Statement for products with detachable antenna	Complies
-	RSP 100 RSS GEN 4.4.1	99% Bandwidth	No change from original filing	Information only	N/A

MEASUREMENT UNCERTAINTIES

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

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

EQUIPMENT UNDER TEST (EUT) DETAILS

GENERAL

The Intel Corporation model 1x1 802.11bgn Canyon Peak Model 105BNHU is a PCIe Half Mini Card form factor IEEE 802.11b/g/n wireless network adapter that supports 1x1 (SISO) operation.
Model numbers with FCC ID: PD9105BNHU and IC: 1000M-105BNHU are intended for end user installation and operate with a BiOS lock feature to ensure they can only be used in the appropriate host systems to prevent unauthorized operation.
For radio testing purposes the card was installed in a test fixture that exposed all sides of the card.

The sample was received on April 5, 2012 and tested on April 5, 8, 22, 24 and 25, 2012. The EUT consisted of the following component(s):

Company	Model	Description	Serial Number	FCC ID
Intel Corporation	105BNHMW 105BNHU	PCIe Half Mini Card form factor IEEE 802.11b/g/n wireless network adapter	DTS: 001500937004	PD9105BNHU 1000M-105BNHU

ANTENNA SYSTEM

The EUT antenna is a two-antenna PIFA antenna – Shanghai Universe Communication Electron Co., Ltd or Dipole antenna system – Luxshare Corporation for both chains for receive diversity. The dipole antenna is being added with this permissive change.
The antenna connects to the EUT via a non-standard antenna connector, thereby meeting the requirements of FCC 15.203.

Band	Antenna Gain	
	PiFA	Dipole
2400-2483.5	3.2 dBi	1.9 dBi

ENCLOSURE

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

MODIFICATIONS

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

SUPPORT EQUIPMENT

The following equipment was used as support equipment for testing:

Company	Model	Description	Serial Number	FCC ID
Intel Corporation	-	Test Fixture	-	N/A
Dell	PP17L	Laptop PC	CN-ONF743-48643-7B6-0727	N/A
Agilent	E3610A	DC Supply	100708	N/A

No remote support equipment was used during testing.

EUT INTERFACE PORTS

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

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

EUT OPERATION

The EUT was installed into a test fixture that exposed all sides of the card. The test fixture interfaced to a laptop computer and dc power supply. The laptop computer was used to configure the EUT to continuously transmit at a specified output power or continuously receive on the channel specified in the test data. For transmit mode measurements the system was configured to operate in each of the available operating modes – 802.11b, 802.11g, 802.11n (20 MHz channel bandwidth) and 802.11n (40MHz channel bandwidth).

The data rates used for all tests were the lowest data rates for each 802.11 mode – 1Mb/s for 802.11b, 6Mb/s for 802.11a and 802.11g, 6.5MB/s for 802.11n (20MHz), and 13 Mb/s for 802.11n (40MHz). The device operates at its maximum output power at the lowest data rate (this was confirmed through separate measurements – refer to test data for actual measurements).

The PC was using the Intel test utility DRTU Version 1.5.3-0320 and the device driver was version 15.0.0.51.

TEST SITE

GENERAL INFORMATION

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

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

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

CONDUCTED EMISSIONS CONSIDERATIONS

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

RADIATED EMISSIONS CONSIDERATIONS

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

MEASUREMENT INSTRUMENTATION

RECEIVER SYSTEM

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

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

INSTRUMENT CONTROL COMPUTER

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

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

LINE IMPEDANCE STABILIZATION NETWORK (LISN)

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

FILTERS/ATTENUATORS

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

ANTENNAS

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

ANTENNA MAST AND EQUIPMENT TURNTABLE

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

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

INSTRUMENT CALIBRATION

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

TEST PROCEDURES

EUT AND CABLE PLACEMENT

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

CONDUCTED EMISSIONS

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

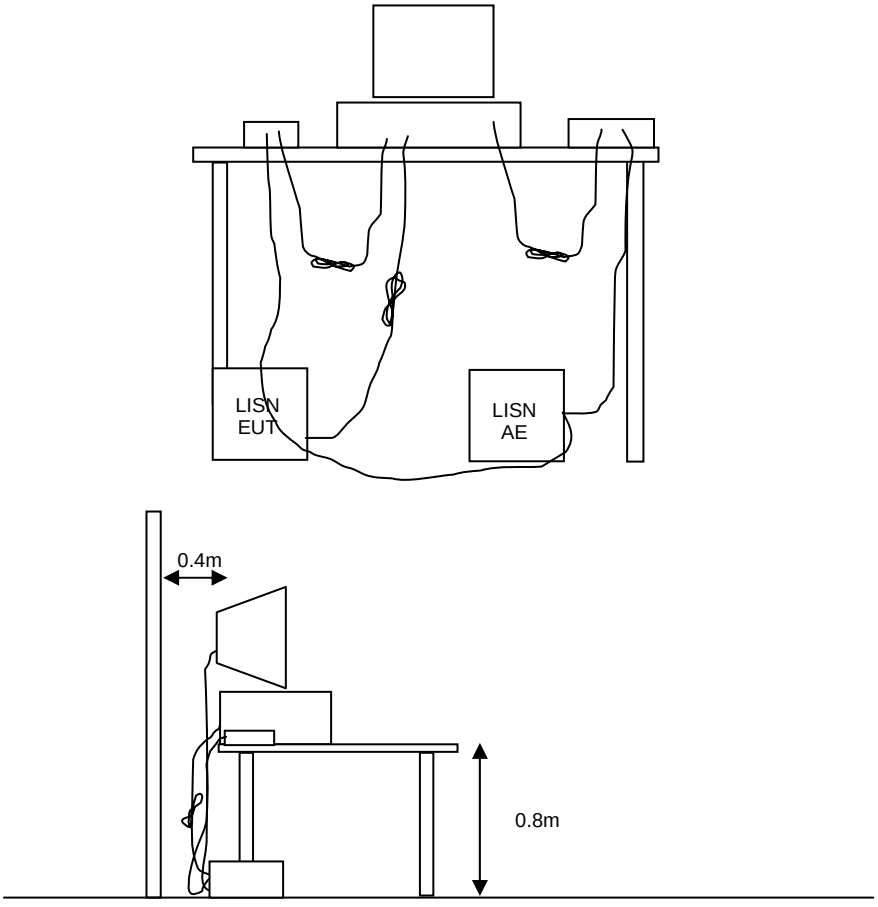


Figure 1 Typical Conducted Emissions Test Configuration

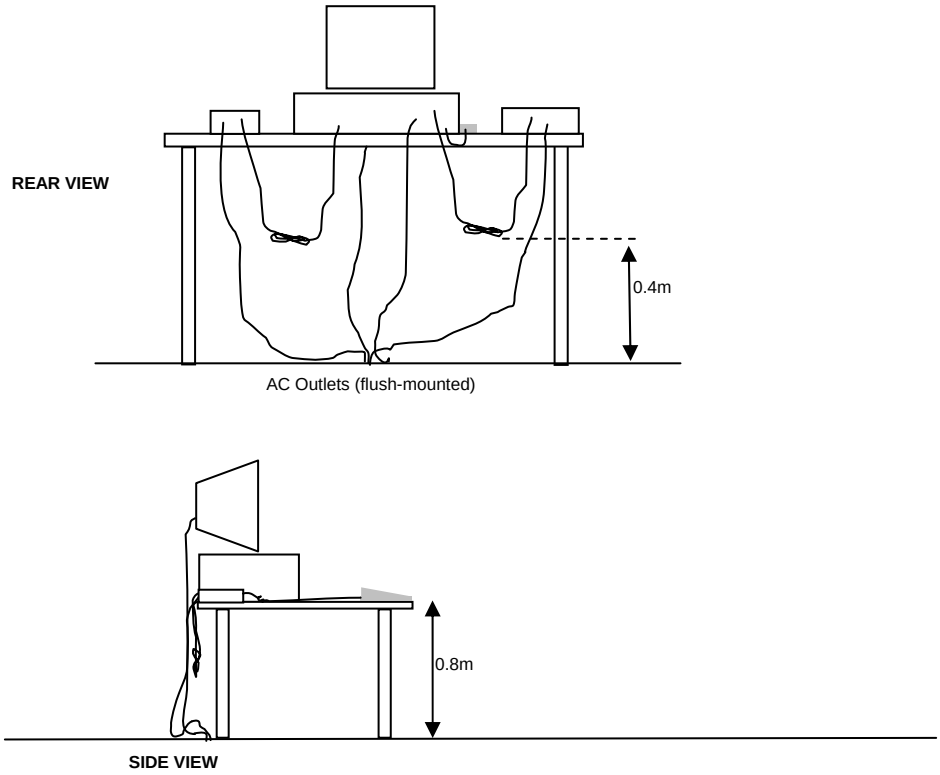
RADIATED EMISSIONS

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

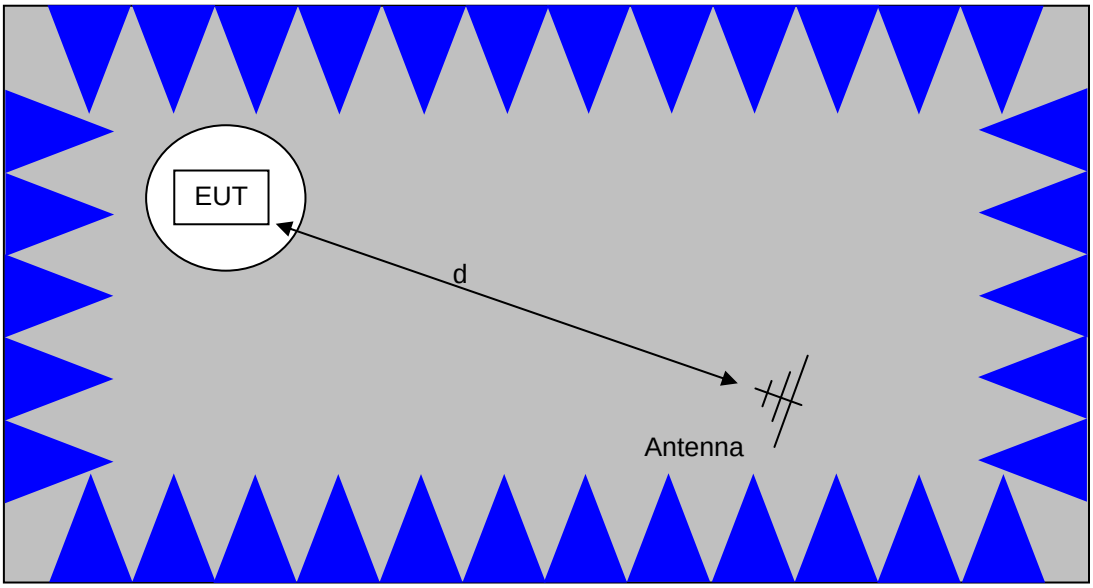
A speaker is provided in the receiver to aid in discriminating between EUT and ambient emissions. Other methods used during the preliminary scan for EUT emissions involve scanning with near field magnetic loops, monitoring I/O cables with RF current clamps, and cycling power to the EUT.

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

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

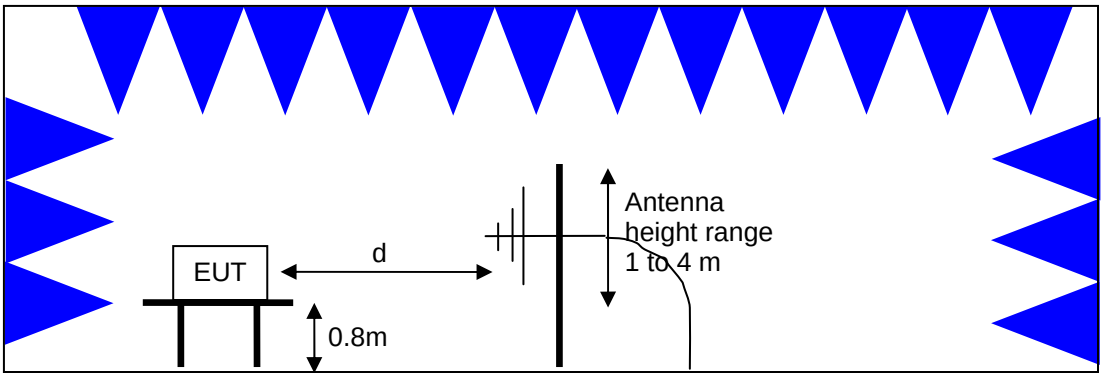


Typical Test Configuration for Radiated Field Strength Measurements



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.

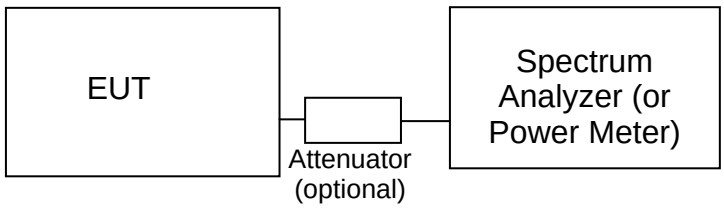
Floor-standing equipment is placed on the floor with insulating supports between the unit and the ground plane.



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:

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

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

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

GENERAL TRANSMITTER RADIATED EMISSIONS SPECIFICATION LIMITS

The table below shows the limits for the spurious emissions from transmitters that fall in restricted bands[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

RECEIVER RADIATED SPURIOUS EMISSIONS SPECIFICATION LIMITS

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

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

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

OUTPUT POWER LIMITS – DIGITAL TRANSMISSION SYSTEMS

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

Operating Frequency (MHz)	Output Power	Power Spectral Density
902 – 928	1 Watt (30 dBm)	8 dBm/3kHz
2400 – 2483.5	1 Watt (30 dBm)	8 dBm/3kHz
5725 – 5850	1 Watt (30 dBm)	8 dBm/3kHz

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

TRANSMIT MODE SPURIOUS RADIATED EMISSIONS LIMITS – FHSS and DTS SYSTEMS

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

SAMPLE CALCULATIONS - CONDUCTED EMISSIONS

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

$$R_r - S = M$$

where:

R_r = Receiver Reading in dBuV

S = Specification Limit in dBuV

M = Margin to Specification in +/- dB

SAMPLE CALCULATIONS - RADIATED EMISSIONS

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

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

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

where:

F_d = Distance Factor in dB

D_m = Measurement Distance in meters

D_s = Specification Distance in meters

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

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

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

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

$$R_c = R_r + F_d$$

and

$$M = R_c - L_s$$

where:

R_r = Receiver Reading in dBuV/m

F_d = Distance Factor in dB

R_c = Corrected Reading in dBuV/m

L_s = Specification Limit in dBuV/m

M = Margin in dB Relative to Spec

SAMPLE CALCULATIONS - FIELD STRENGTH TO EIRP CONVERSION

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

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

where P is the eirp (Watts)

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

Appendix A Test Equipment Calibration Data

Radio Spurious Emissions, 05-Apr-12

Manufacturer	Description	Model	Asset #	Cal Due
EMCO	Antenna, Horn, 1-18 GHz	3115	1561	6/22/2012
Rohde & Schwarz	EMI Test Receiver, 20 Hz-7 GHz	ESIB7	1630	4/13/2012

Radiated Emissions, 1000 - 6,500 MHz, 08-Apr-12

Manufacturer	Description	Model	Asset #	Cal Due
Rohde & Schwarz	EMI Test Receiver, 20 Hz-7 GHz	ESIB7	1538	12/6/2012
EMCO	Antenna, Horn, 1-18 GHz	3115	1561	6/22/2012

Radiated Emissions, 1000 - 26,500 MHz, 22, 24-Apr-12

Manufacturer	Description	Model	Asset #	Cal Due
EMCO	Antenna, Horn, 1-18 GHz (SA40-Red)	3115	1142	8/2/2012
Hewlett Packard	Head (Inc flex cable, 1143, 2198) Red	84125C	1145	4/4/2013
Hewlett Packard	SpecAn 30 Hz -40 GHz, SV (SA40) Red	8564E (84125C)	1148	8/15/2012
Micro-Tronics	Band Reject Filter, 2400-2500 MHz	BRM50702-02	1683	8/3/2012
Hewlett Packard	Microwave Preamplifier, 1-26.5GHz	8449B	1780	11/22/2012
A.H. Systems	Red System Horn, 18-40GHz	SAS-574, p/n: 2581	2161	3/20/2013

Radiated Emissions, 30 - 1,000 MHz, 25-Apr-12

Manufacturer	Description	Model	Asset #	Cal Due
Rohde & Schwarz	EMI Test Receiver, 20 Hz-7 GHz	ESIB7	1538	12/6/2012
Sunol Sciences	Biconilog, 30-3000 MHz	JB3	1548	6/24/2012
Hewlett Packard	9KHz-1300MHz pre-amp	8447F	2328 CG0177	3/16/2013

Appendix B Test Data

T86324 Pages 24 - 57

Client:	Intel Corporation	Job Number:	J86298
Model:	105BNHU	T-Log Number:	T86324
		Account Manager:	Christine Krebill
Contact:	Steve Hackett		-
Emissions Standard(s):	FCC Part 15, RSS-210	Class:	-
Immunity Standard(s):	-	Environment:	Radio

EMC Test Data

For The

Intel Corporation

Model

105BNHU

Date of Last Test: 4/24/2012

Client:	Intel Corporation	Job Number:	J86298
Model:	105BNHU	T-Log Number:	T86324
		Account Manager:	Christine Krebill
Contact:	Steve Hackett		
Standard:	FCC Part 15, RSS-210	Class:	N/A

RSS 210 and FCC 15.247 (DTS) Radiated Spurious Emissions

Test Specific Details

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

Summary of Results

MAC Address: 001500937004 DRTU Tool Version 1.5.3-320 Driver version 15.0.0.51

Run #	Mode	Channel	Target Power	Measured Power	Test Performed	Limit	Result / Margin
Run #1	802.11HT40 Chain A	#3 2422MHz	11.0	11.0	Restricted Band Edge at 2400 MHz	15.209	52.4 dBµV/m @ 2390.0 MHz (-1.6 dB)
		#9 2452MHz	10.5	10.8	Restricted Band Edge at 2483.5 MHz	15.209	51.2 dBµV/m @ 2483.5 MHz (-2.8 dB)
Run # 2	802.11HT20 Chain A	#1 2412MHz	14.0	14.3	Restricted Band Edge at 2400 MHz	15.209	53.0 dBµV/m @ 2390.0 MHz (-1.0 dB)
		#11 2462MHz	14.0	14.2	Restricted Band Edge at 2483.5 MHz	15.209	53.9 dBµV/m @ 2483.5 MHz (-0.1 dB)
Run # 3	802.11g Chain A	#1 2412MHz	14.5	14.8	Restricted Band Edge at 2400 MHz	15.209	52.0 dBµV/m @ 2390.0 MHz (-2.0 dB)
		#11 2462MHz	14.0	14.3	Restricted Band Edge at 2483.5 MHz	15.209	50.8 dBµV/m @ 2483.5 MHz (-3.2 dB)
Run # 4	802.11b Chain A	#1 2412MHz	16.5	16.8	Restricted Band Edge at 2400 MHz	15.209	46.5 dBµV/m @ 2388.3 MHz (-7.5 dB)
		#11 2462MHz	16.5	16.6	Restricted Band Edge at 2483.5 MHz	15.209	45.3 dBµV/m @ 2483.5 MHz (-8.7 dB)

Client:	Intel Corporation	Job Number:	J86298
Model:	105BNHU	T-Log Number:	T86324
		Account Manager:	Christine Krebill
Contact:	Steve Hackett		
Standard:	FCC Part 15, RSS-210	Class:	N/A

Run #	Mode	Channel	Target Power	Measured Power	Test Performed	Limit	Result / Margin
Run #5	802.11HT40 Chain A	#4 2427MHz	12.0	12.3	Restricted Band Edge at 2400 MHz	15.209	53.5dBµV/m @ 2390.0MHz (-0.5dB)
		#8 2447MHz	11.5	11.6	Restricted Band Edge at 2483.5 MHz	15.209	50.3dBµV/m @ 2483.5MHz (-3.7dB)
Run #6	802.11HT40 Chain A	#5 2432MHz	13.5	13.6	Restricted Band Edge at 2400 MHz	15.209	53.4dBµV/m @ 2390.0MHz (-0.6dB)
		#7 2442MHz	12.5	12.7	Restricted Band Edge at 2483.5 MHz	15.209	49.4dBµV/m @ 2483.5MHz (-4.6dB)
Run # 7	802.11HT20 Chain A	#2 2417MHz	16.5	16.8	Restricted Band Edge at 2400 MHz	15.209	53.7dBµV/m @ 2390.0MHz (-0.3dB)
		#10 2457MHz	16.5	16.6	Restricted Band Edge at 2483.5 MHz	15.209	50.9dBµV/m @ 2483.5MHz (-3.1dB)
Run # 8	HT40 Chain A	#6 2437MHz	13.0	13.3	Restricted Band Edge at 2400 MHz	15.209	48.6dBµV/m @ 2390.0MHz (-5.4dB)
			13.0	13.3	Restricted Band Edge at 2483.5 MHz	15.209	47.1dBµV/m @ 2483.5MHz (-6.9dB)

Note - the target and measured power are average powers (measured with average power sensor) and are used for reference purposes only.

Ambient Conditions:

Rel. Humidity: 15 - 55 %
Temperature: 18 - 25 °C

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:	J86298
Model:	105BNHU	T-Log Number:	T86324
		Account Manager:	Christine Krebill
Contact:	Steve Hackett		
Standard:	FCC Part 15, RSS-210	Class:	N/A

Run # 1, Band Edge Field Strength - 802.11HT40, Chain A

Date of Test: 4/5/2012 Test Location: FT3

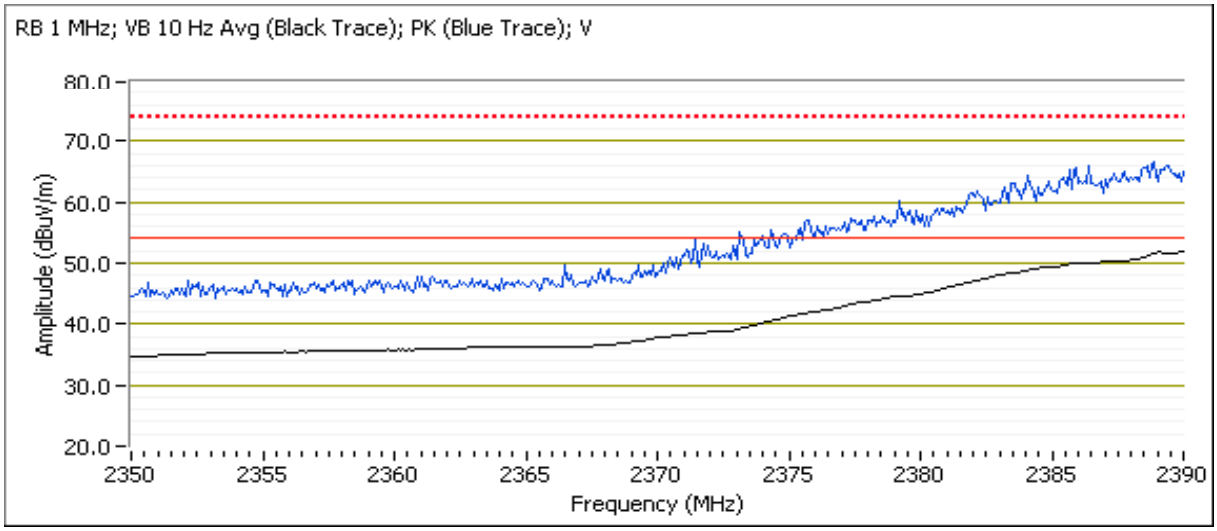
Test Engineer: Rafael Varelas Config Change: None

Run # 1a, EUT on Channel #3 2422MHz - 802.11HT40, Chain A

	Power Settings		
	Target (dBm)	Measured (dBm)	Software Setting
Chain A	11.0	11.0	20.5

2390 MHz 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	
2389.950	52.4	V	54.0	-1.6	AVG	294	1.0	POS; RB 1 MHz; VB: 10 Hz
2389.350	66.2	V	74.0	-7.8	PK	294	1.0	POS; RB 1 MHz; VB: 3 MHz
2390.000	42.1	H	54.0	-11.9	AVG	209	1.0	POS; RB 1 MHz; VB: 10 Hz
2388.960	56.3	H	74.0	-17.7	PK	209	1.0	POS; RB 1 MHz; VB: 3 MHz



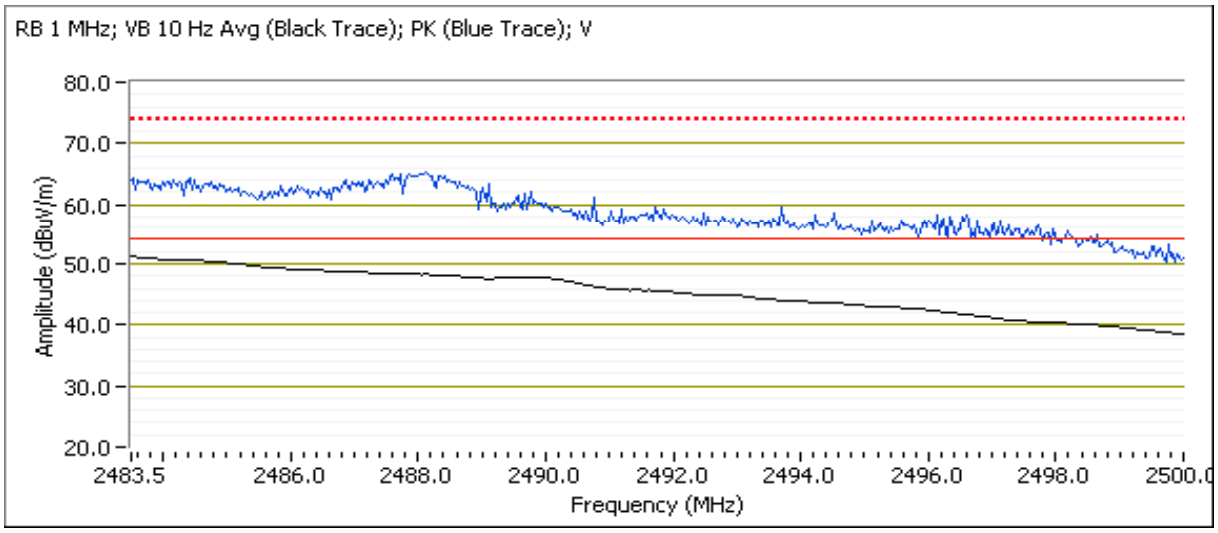
Client:	Intel Corporation	Job Number:	J86298
Model:	105BNHU	T-Log Number:	T86324
		Account Manager:	Christine Krebill
Contact:	Steve Hackett		
Standard:	FCC Part 15, RSS-210	Class:	N/A

Run # 1b, EUT on Channel #9 2452MHz - 802.11HT40, Chain A

	Power Settings		
	Target (dBm)	Measured (dBm)	Software Setting
Chain A	10.5	10.8	20.5

2483.5 MHz Band Edge Signal Radiated 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	
2483.500	51.2	V	54.0	-2.8	AVG	293	1.0	POS; RB 1 MHz; VB: 10 Hz
2488.100	64.9	V	74.0	-9.1	PK	293	1.0	POS; RB 1 MHz; VB: 3 MHz
2483.500	45.1	H	54.0	-8.9	AVG	210	1.0	POS; RB 1 MHz; VB: 10 Hz
2487.770	59.0	H	74.0	-15.0	PK	210	1.0	POS; RB 1 MHz; VB: 3 MHz



Client:	Intel Corporation	Job Number:	J86298
Model:	105BNHU	T-Log Number:	T86324
		Account Manager:	Christine Krebill
Contact:	Steve Hackett		
Standard:	FCC Part 15, RSS-210	Class:	N/A

Run # 2, Band Edge Field Strength - 802.11HT20, Chain A

Date of Test: 4/5/2012 Test Location: FT3

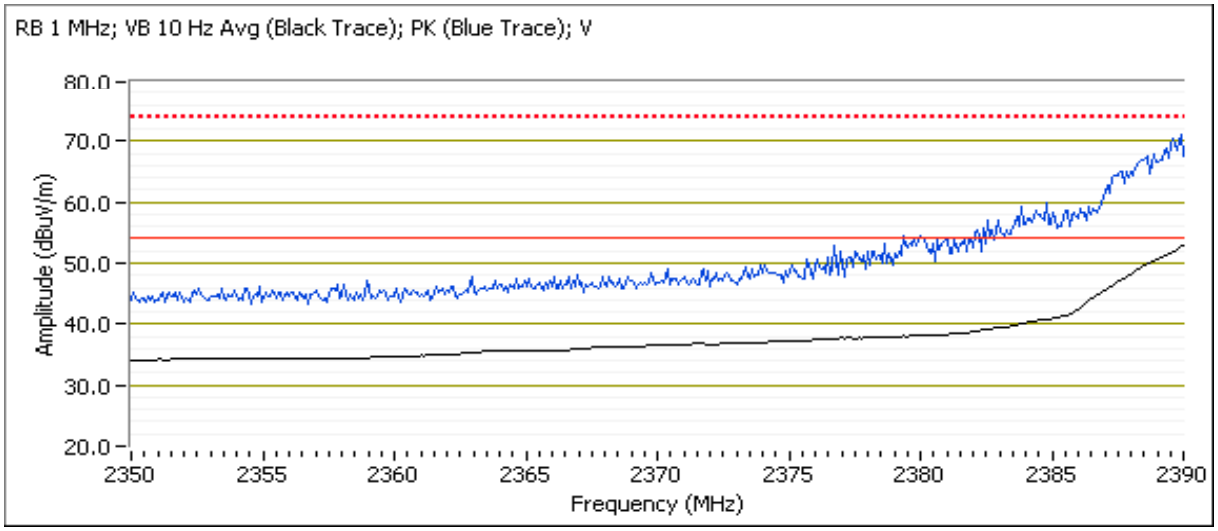
Test Engineer: Rafael Varelas Config Change: None

Run # 2a, EUT on Channel #1 2412MHz - 802.11HT20, Chain A

	Power Settings		
	Target (dBm)	Measured (dBm)	Software Setting
Chain A	14.0	14.3	24.5

2390 MHz 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	
2390.000	53.0	V	54.0	-1.0	AVG	294	1.2	POS; RB 1 MHz; VB: 10 Hz
2388.160	67.9	V	74.0	-6.1	PK	294	1.2	POS; RB 1 MHz; VB: 3 MHz
2390.000	45.9	H	54.0	-8.1	AVG	43	1.0	POS; RB 1 MHz; VB: 10 Hz
2389.920	61.0	H	74.0	-13.0	PK	43	1.0	POS; RB 1 MHz; VB: 3 MHz



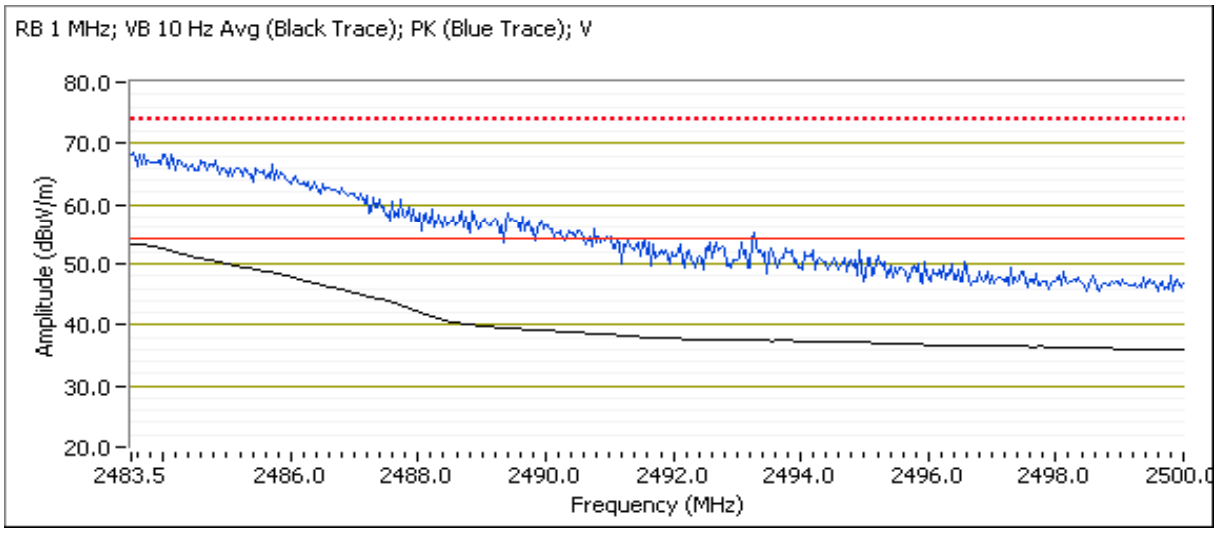
Client:	Intel Corporation	Job Number:	J86298
Model:	105BNHU	T-Log Number:	T86324
		Account Manager:	Christine Krebill
Contact:	Steve Hackett		
Standard:	FCC Part 15, RSS-210	Class:	N/A

Run # 2b, EUT on Channel #11 2462MHz - 802.11HT20, Chain A

	Power Settings		
	Target (dBm)	Measured (dBm)	Software Setting
Chain A	14.0	14.2	24.5

2483.5 MHz Band Edge Signal Radiated 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	
2483.500	53.9	V	54.0	-0.1	AVG	289	1.0	POS; RB 1 MHz; VB: 10 Hz
2484.190	67.7	V	74.0	-6.3	PK	289	1.0	POS; RB 1 MHz; VB: 3 MHz
2483.500	47.9	H	54.0	-6.1	AVG	211	1.3	POS; RB 1 MHz; VB: 10 Hz
2483.730	62.5	H	74.0	-11.5	PK	211	1.3	POS; RB 1 MHz; VB: 3 MHz



Client:	Intel Corporation	Job Number:	J86298
Model:	105BNHU	T-Log Number:	T86324
		Account Manager:	Christine Krebill
Contact:	Steve Hackett		
Standard:	FCC Part 15, RSS-210	Class:	N/A

Run # 3, Band Edge Field Strength - 802.11G, Chain A

Date of Test: 4/5/2012 Test Location: FT3

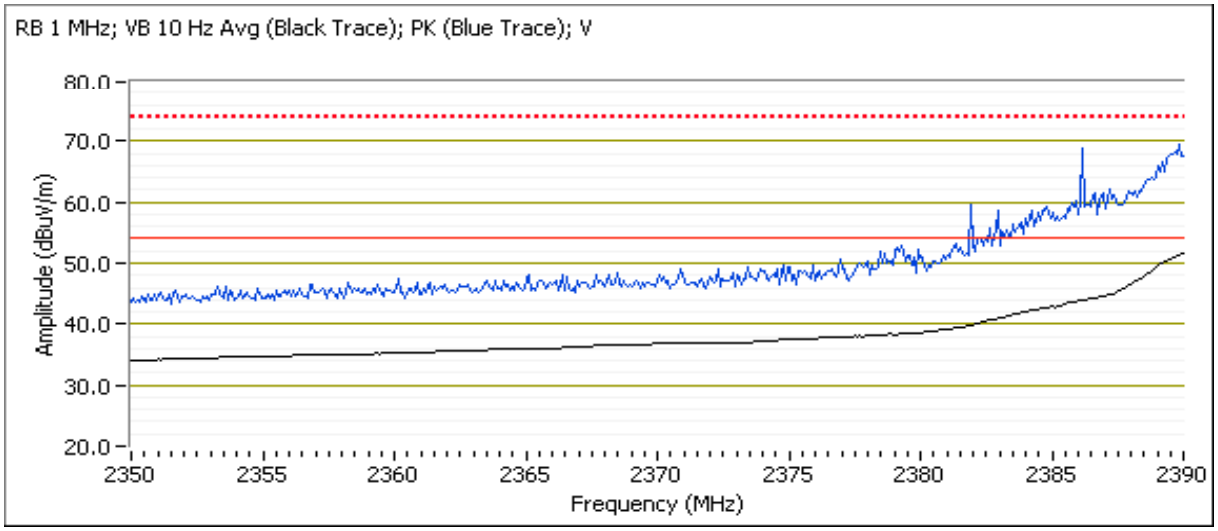
Test Engineer: Rafael Varelas Config Change: None

Run # 3a, EUT on Channel #1 2412MHz - 802.11G, Chain A

	Power Settings		
	Target (dBm)	Measured (dBm)	Software Setting
Chain A	14.5	14.8	25.0

2390 MHz 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	
2390.000	52.0	V	54.0	-2.0	AVG	297	1.0	POS; RB 1 MHz; VB: 10 Hz
2389.200	65.0	V	74.0	-9.0	PK	297	1.0	POS; RB 1 MHz; VB: 3 MHz
2390.000	45.4	H	54.0	-8.6	AVG	44	1.8	POS; RB 1 MHz; VB: 10 Hz
2389.360	60.2	H	74.0	-13.8	PK	44	1.8	POS; RB 1 MHz; VB: 3 MHz



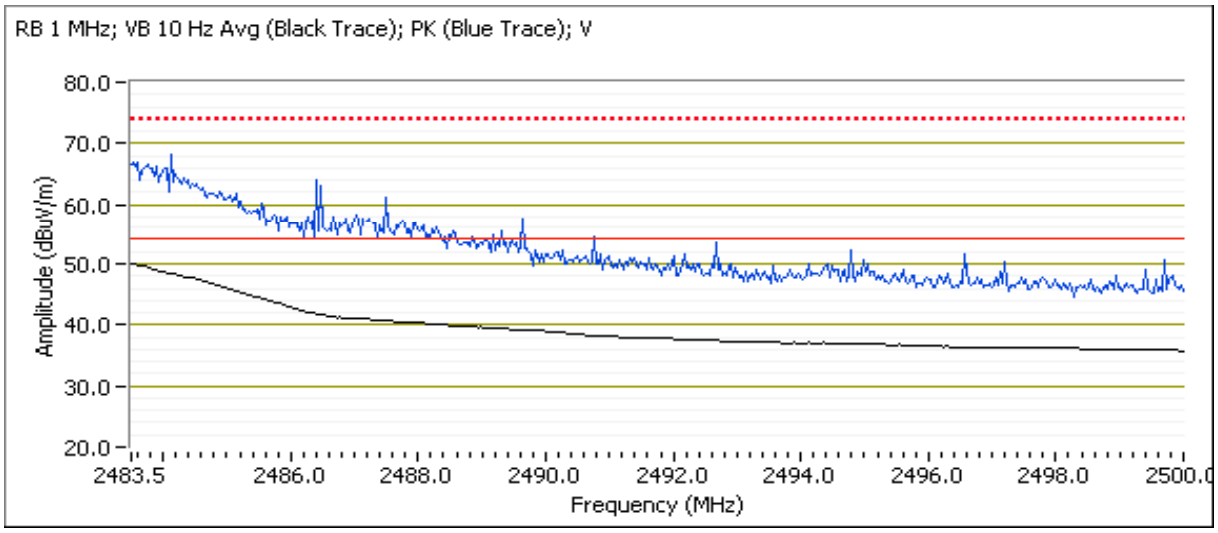
Client:	Intel Corporation	Job Number:	J86298
Model:	105BNHU	T-Log Number:	T86324
		Account Manager:	Christine Krebill
Contact:	Steve Hackett		
Standard:	FCC Part 15, RSS-210	Class:	N/A

Run # 3b, EUT on Channel #11 2462MHz - 802.11G, Chain A

	Power Settings		
	Target (dBm)	Measured (dBm)	Software Setting
Chain A	14.0	14.3	24.5

2483.5 MHz Band Edge Signal Radiated 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	
2483.500	50.8	V	54.0	-3.2	AVG	291	1.0	POS; RB 1 MHz; VB: 10 Hz
2483.900	66.6	V	74.0	-7.4	PK	291	1.0	POS; RB 1 MHz; VB: 3 MHz
2483.530	44.3	H	54.0	-9.7	AVG	209	1.0	POS; RB 1 MHz; VB: 10 Hz
2483.810	61.6	H	74.0	-12.4	PK	209	1.0	POS; RB 1 MHz; VB: 3 MHz



Client:	Intel Corporation	Job Number:	J86298
Model:	105BNHU	T-Log Number:	T86324
		Account Manager:	Christine Krebill
Contact:	Steve Hackett		
Standard:	FCC Part 15, RSS-210	Class:	N/A

Run # 4, Band Edge Field Strength - 802.11b, Chain A

Date of Test: 4/5/2012 Test Location: FT3

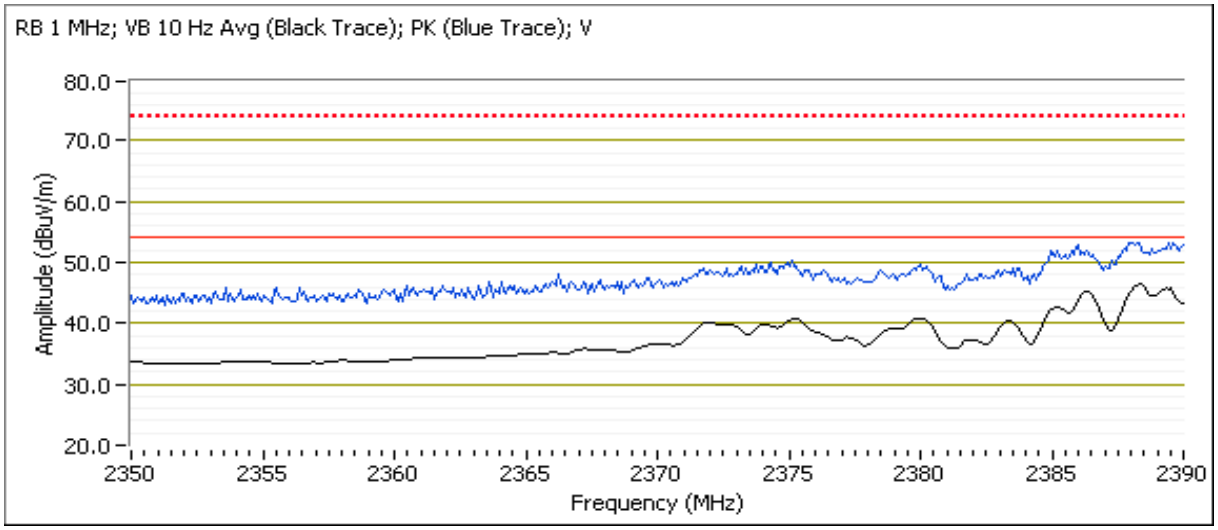
Test Engineer: Rafael Varelas Config Change: None

Run # 4a, EUT on Channel #1 2412MHz - 802.11b, Chain A

	Power Settings		
	Target (dBm)	Measured (dBm)	Software Setting
Chain A	16.5	16.8	22.0

2390 MHz 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	
2388.320	46.5	V	54.0	-7.5	AVG	296	1.1	POS; RB 1 MHz; VB: 10 Hz
2371.880	55.1	V	74.0	-18.9	PK	296	1.1	POS; RB 1 MHz; VB: 3 MHz
2388.320	35.7	H	54.0	-18.3	AVG	48	1.0	POS; RB 1 MHz; VB: 10 Hz
2388.560	44.8	H	74.0	-29.2	PK	48	1.0	POS; RB 1 MHz; VB: 3 MHz



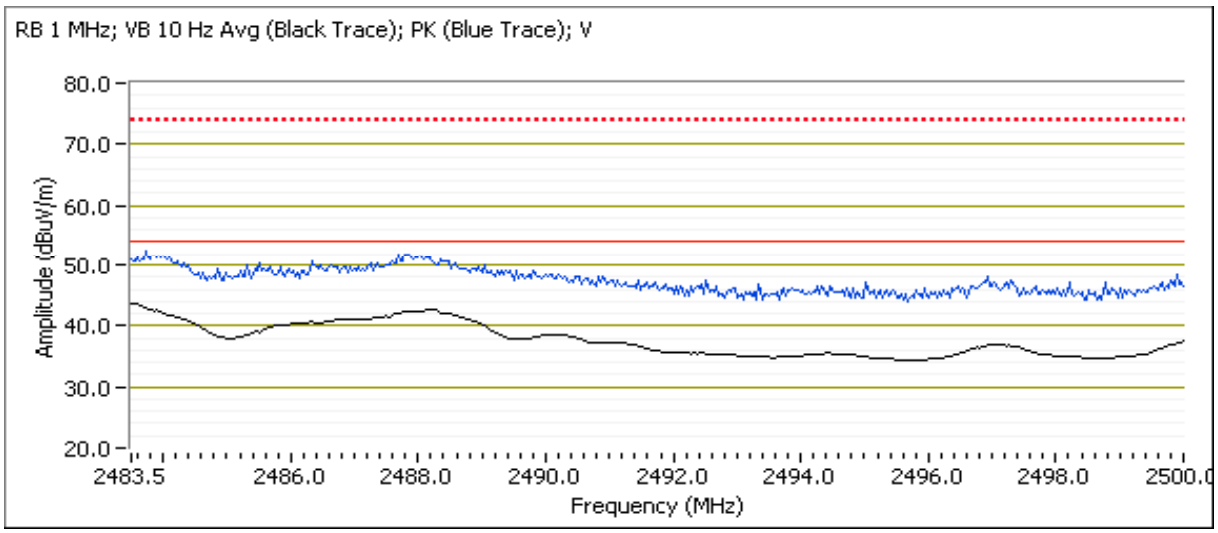
Client:	Intel Corporation	Job Number:	J86298
Model:	105BNHU	T-Log Number:	T86324
		Account Manager:	Christine Krebill
Contact:	Steve Hackett		
Standard:	FCC Part 15, RSS-210	Class:	N/A

Run # 4b, EUT on Channel #11 2462MHz - 802.11b, Chain A

	Power Settings		
	Target (dBm)	Measured (dBm)	Software Setting
Chain A	16.5	16.6	22.0

2483.5 MHz Band Edge Signal Radiated 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	
2483.500	45.3	V	54.0	-8.7	AVG	293	1.2	POS; RB 1 MHz; VB: 10 Hz
2483.700	55.1	V	74.0	-18.9	PK	293	1.2	POS; RB 1 MHz; VB: 3 MHz
2483.500	43.1	H	54.0	-10.9	AVG	212	1.0	POS; RB 1 MHz; VB: 10 Hz
2483.500	54.2	H	74.0	-19.8	PK	212	1.0	POS; RB 1 MHz; VB: 3 MHz



Client:	Intel Corporation	Job Number:	J86298
Model:	105BNHU	T-Log Number:	T86324
		Account Manager:	Christine Krebill
Contact:	Steve Hackett		
Standard:	FCC Part 15, RSS-210	Class:	N/A

Run # 5, Band Edge Field Strength - 802.11HT40, Chain A

Date of Test: 4/8/2012 Test Location: FT4

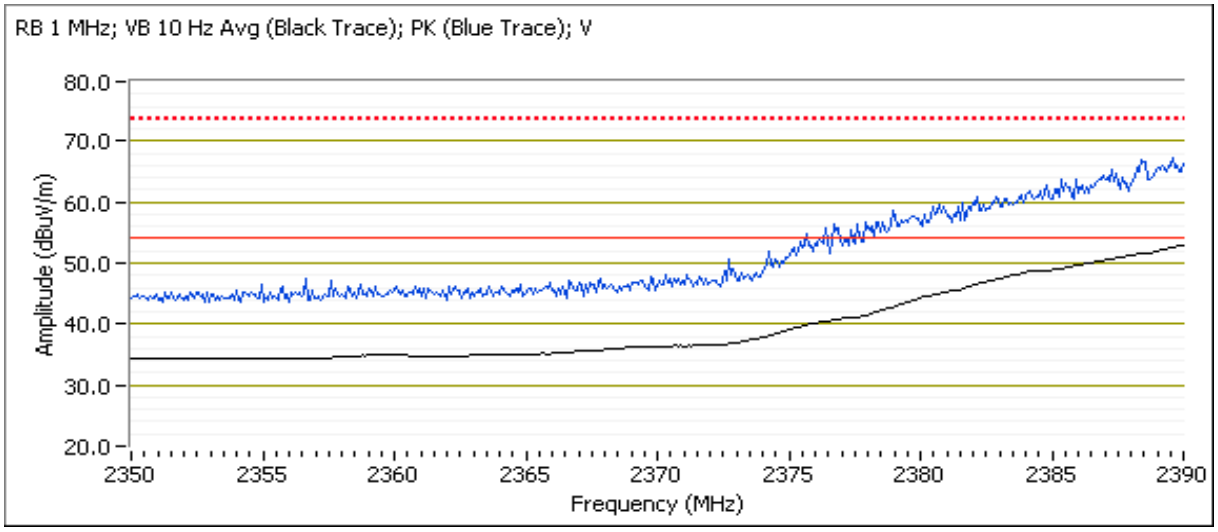
Test Engineer: Rafael Varelas Config Change: None

Run # 5a, EUT on Channel #4 2427MHz - 802.11HT40, Chain A

	Power Settings		
	Target (dBm)	Measured (dBm)	Software Setting
Chain A	12.0	12.3	22.0

2390 MHz 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	
2390.000	53.5	V	54.0	-0.5	AVG	294	1.1	POS; RB 1 MHz; VB: 10 Hz
2389.010	66.8	V	74.0	-7.2	PK	294	1.1	POS; RB 1 MHz; VB: 3 MHz
2390.000	46.6	H	54.0	-7.4	AVG	207	1.4	POS; RB 1 MHz; VB: 10 Hz
2388.480	58.2	H	74.0	-15.8	PK	207	1.4	POS; RB 1 MHz; VB: 3 MHz



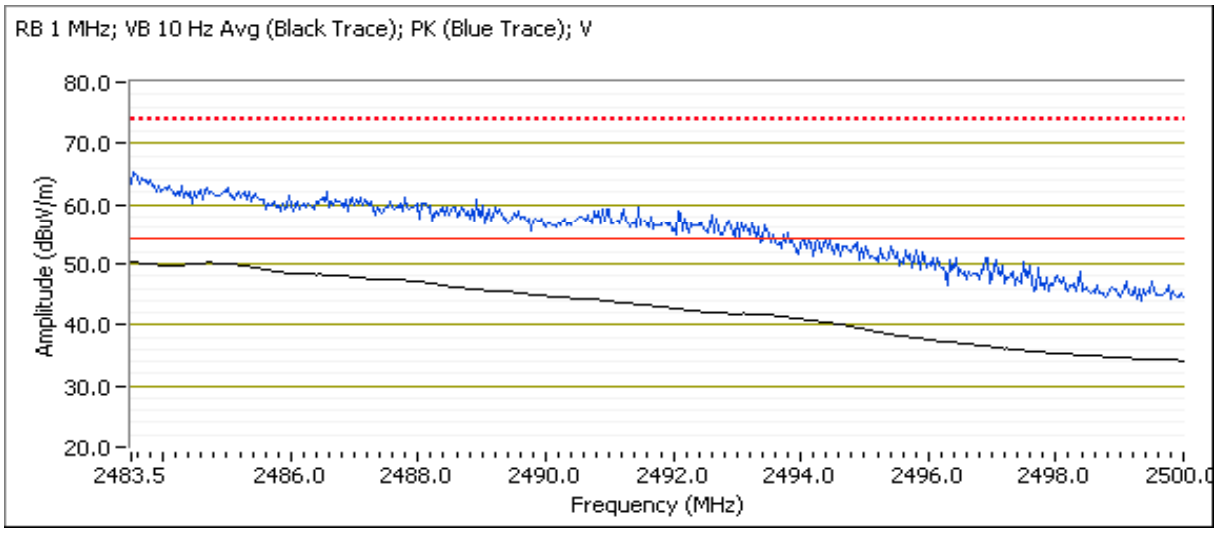
Client:	Intel Corporation	Job Number:	J86298
Model:	105BNHU	T-Log Number:	T86324
		Account Manager:	Christine Krebill
Contact:	Steve Hackett		
Standard:	FCC Part 15, RSS-210	Class:	N/A

Run # 5b, EUT on Channel #8 2447MHz - 802.11HT40, Chain A

	Power Settings		
	Target (dBm)	Measured (dBm)	Software Setting
Chain A	11.5	11.6	21.5

2483.5 MHz Band Edge Signal Radiated 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	
2483.500	50.3	V	54.0	-3.7	AVG	159	1.0	POS; RB 1 MHz; VB: 10 Hz
2483.700	63.5	V	74.0	-10.5	PK	159	1.0	POS; RB 1 MHz; VB: 3 MHz
2483.500	46.6	H	54.0	-7.4	AVG	75	1.0	POS; RB 1 MHz; VB: 10 Hz
2483.500	59.9	H	74.0	-14.1	PK	75	1.0	POS; RB 1 MHz; VB: 3 MHz



Client:	Intel Corporation	Job Number:	J86298
Model:	105BNHU	T-Log Number:	T86324
		Account Manager:	Christine Krebill
Contact:	Steve Hackett		
Standard:	FCC Part 15, RSS-210	Class:	N/A

Run # 6, Band Edge Field Strength - 802.11HT40, Chain A

Date of Test: 4/8/2012 Test Location: FT4

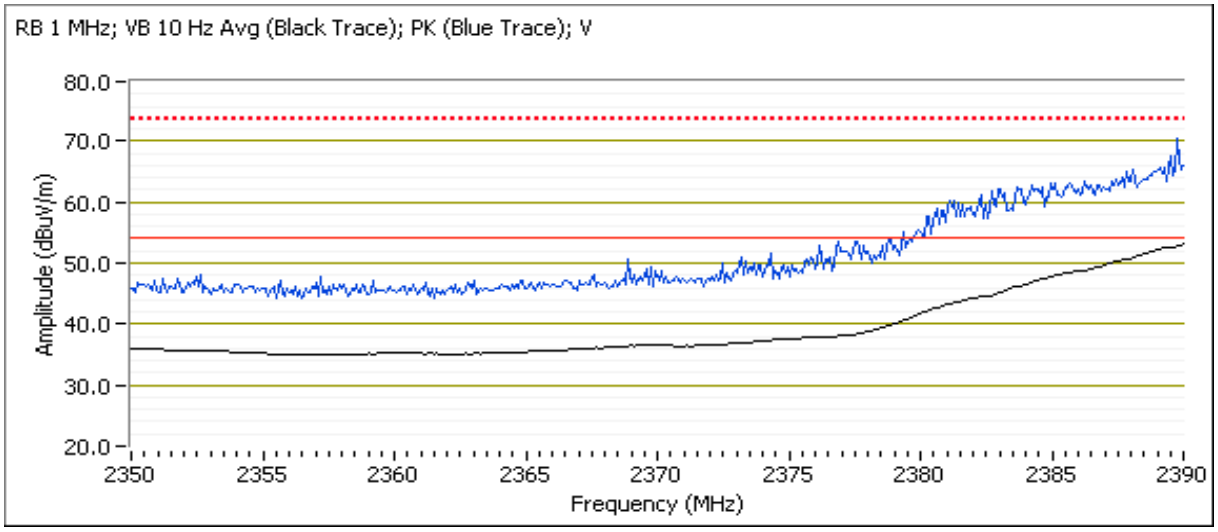
Test Engineer: Rafael Varelas Config Change: None

Run # 6a, EUT on Channel #5 2432MHz - 802.11HT40, Chain A

	Power Settings		
	Target (dBm)	Measured (dBm)	Software Setting
Chain A	13.5	13.6	23.5

2390 MHz 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	
2390.000	53.4	V	54.0	-0.6	AVG	248	1.0	POS; RB 1 MHz; VB: 10 Hz
2389.280	66.3	V	74.0	-7.7	PK	248	1.0	POS; RB 1 MHz; VB: 3 MHz
2390.000	48.0	H	54.0	-6.0	AVG	209	1.4	POS; RB 1 MHz; VB: 10 Hz
2389.280	59.1	H	74.0	-14.9	PK	209	1.4	POS; RB 1 MHz; VB: 3 MHz



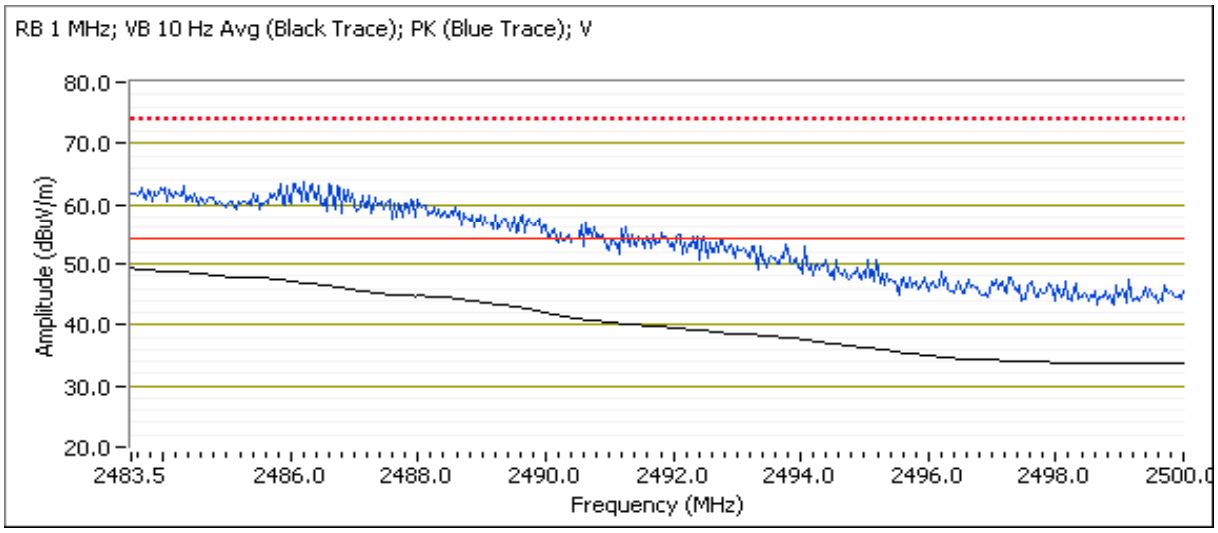
Client:	Intel Corporation	Job Number:	J86298
Model:	105BNHU	T-Log Number:	T86324
		Account Manager:	Christine Krebill
Contact:	Steve Hackett		
Standard:	FCC Part 15, RSS-210	Class:	N/A

Run # 6b, EUT on Channel #7 2442MHz - 802.11HT40, Chain A

	Power Settings		
	Target (dBm)	Measured (dBm)	Software Setting
Chain A	12.5	12.7	22.5

2483.5 MHz Band Edge Signal Radiated 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	
2483.530	49.4	V	54.0	-4.6	AVG	161	1.0	POS; RB 1 MHz; VB: 10 Hz
2483.600	63.5	V	74.0	-10.5	PK	161	1.0	POS; RB 1 MHz; VB: 3 MHz
2483.500	46.2	H	54.0	-7.8	AVG	77	1.0	POS; RB 1 MHz; VB: 10 Hz
2484.290	57.8	H	74.0	-16.2	PK	77	1.0	POS; RB 1 MHz; VB: 3 MHz



Client:	Intel Corporation	Job Number:	J86298
Model:	105BNHU	T-Log Number:	T86324
		Account Manager:	Christine Krebill
Contact:	Steve Hackett		
Standard:	FCC Part 15, RSS-210	Class:	N/A

Run # 7, Band Edge Field Strength - 802.11HT20, Chain A

Date of Test: 4/8/2012 Test Location: FT4

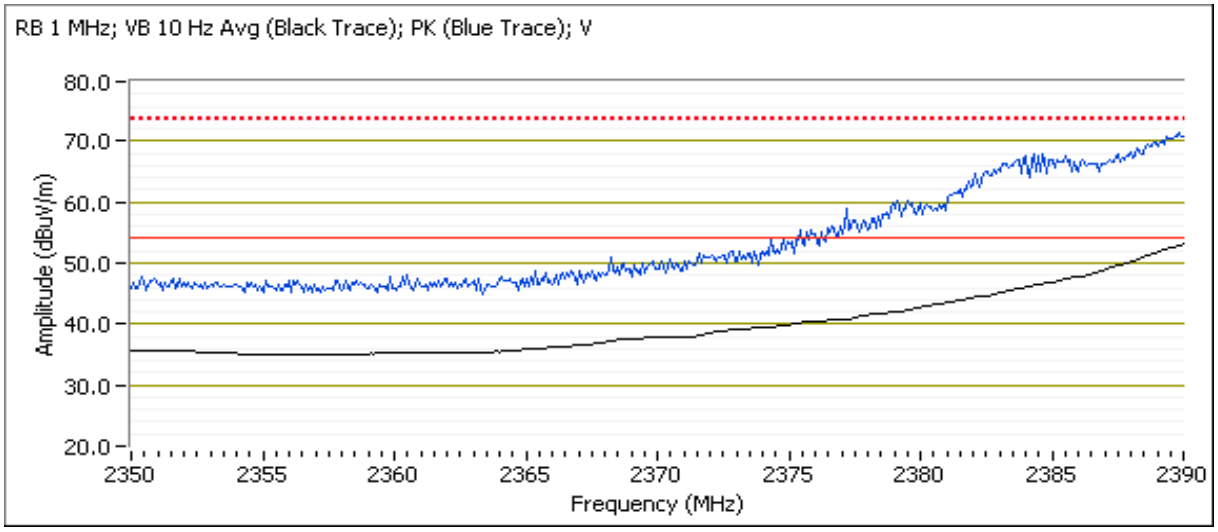
Test Engineer: Rafael Varelas Config Change: None

Run # 7a, EUT on Channel #2 2417MHz - 802.11HT20, Chain A

	Power Settings		
	Target (dBm)	Measured (dBm)	Software Setting
Chain A	16.5	16.8	28.0

2390 MHz 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	
2390.000	53.7	V	54.0	-0.3	AVG	251	1.0	POS; RB 1 MHz; VB: 10 Hz
2389.920	71.1	V	74.0	-2.9	PK	251	1.0	POS; RB 1 MHz; VB: 3 MHz
2390.000	44.4	H	54.0	-9.6	AVG	209	1.4	POS; RB 1 MHz; VB: 10 Hz
2389.360	62.2	H	74.0	-11.8	PK	209	1.4	POS; RB 1 MHz; VB: 3 MHz



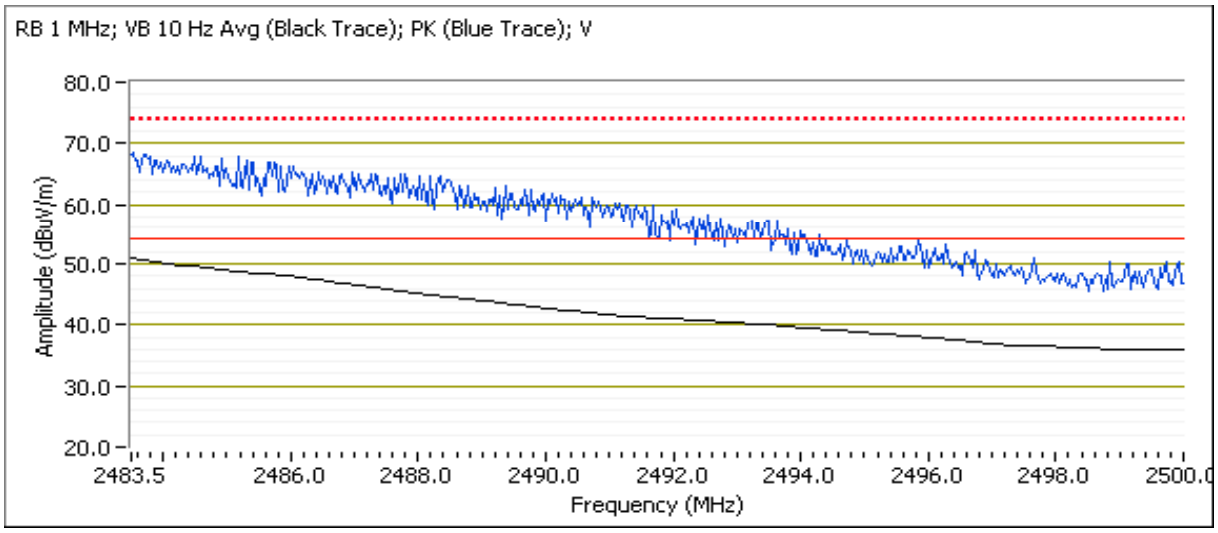
Client:	Intel Corporation	Job Number:	J86298
Model:	105BNHU	T-Log Number:	T86324
		Account Manager:	Christine Krebill
Contact:	Steve Hackett		
Standard:	FCC Part 15, RSS-210	Class:	N/A

Run # 7b, EUT on Channel #10 2457MHz - 802.11HT20, Chain A

	Power Settings		
	Target (dBm)	Measured (dBm)	Software Setting
Chain A	16.5	16.6	28.0

2483.5 MHz Band Edge Signal Radiated 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	
2483.530	50.9	V	54.0	-3.1	AVG	164	1.0	POS; RB 1 MHz; VB: 10 Hz
2483.500	67.9	V	74.0	-6.1	PK	164	1.0	POS; RB 1 MHz; VB: 3 MHz
2483.500	49.0	H	54.0	-5.0	AVG	107	1.1	POS; RB 1 MHz; VB: 10 Hz
2483.570	65.7	H	74.0	-8.3	PK	107	1.1	POS; RB 1 MHz; VB: 3 MHz



Client:	Intel Corporation	Job Number:	J86298
Model:	105BNHU	T-Log Number:	T86324
		Account Manager:	Christine Krebill
Contact:	Steve Hackett		
Standard:	FCC Part 15, RSS-210	Class:	N/A

Run # 8, Band Edge Field Strength - HT40, Chain A

Date of Test: 4/8/2012 Test Location: FT4

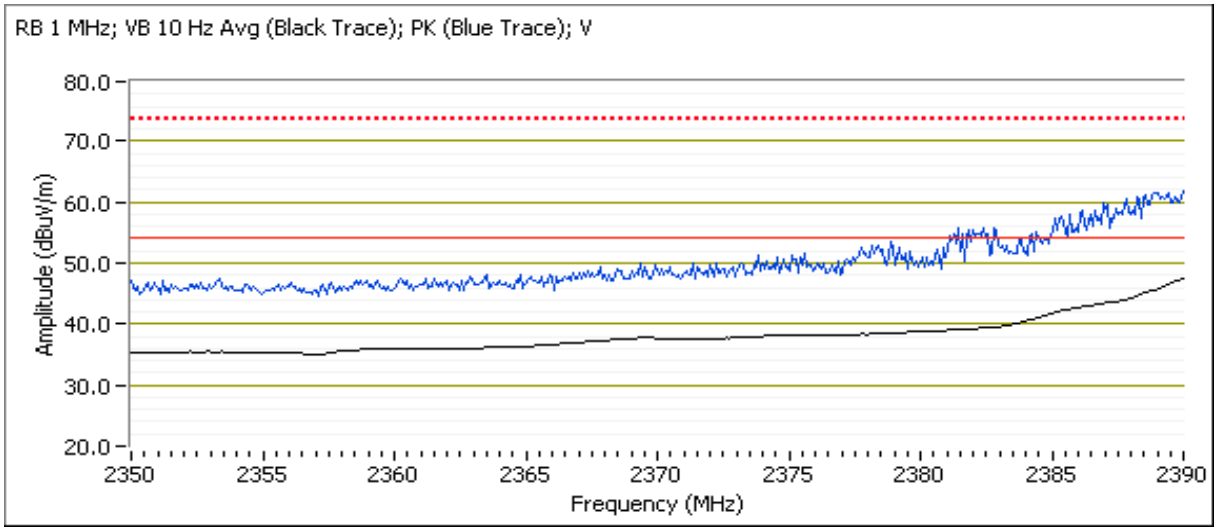
Test Engineer: Rafael Varelas Config Change: None

Run # 8a, EUT on Channel #6 2437MHz - HT40, Chain A

	Power Settings		
	Target (dBm)	Measured (dBm)	Software Setting
Chain A	13.0	13.3	23.5

2390 MHz 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	
2390.000	48.6	V	54.0	-5.4	AVG	295	1.1	POS; RB 1 MHz; VB: 10 Hz
2389.120	62.9	V	74.0	-11.1	PK	295	1.1	POS; RB 1 MHz; VB: 3 MHz
2390.000	38.9	H	54.0	-15.1	AVG	209	1.4	POS; RB 1 MHz; VB: 10 Hz
2389.920	51.3	H	74.0	-22.7	PK	209	1.4	POS; RB 1 MHz; VB: 3 MHz



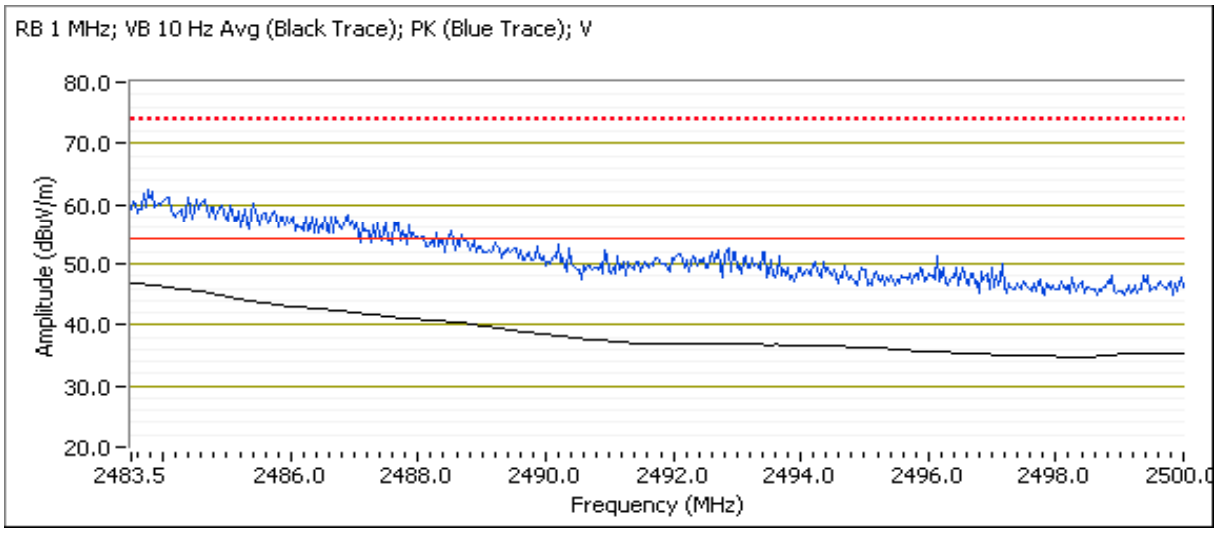
Client:	Intel Corporation	Job Number:	J86298
Model:	105BNHU	T-Log Number:	T86324
		Account Manager:	Christine Krebill
Contact:	Steve Hackett		
Standard:	FCC Part 15, RSS-210	Class:	N/A

Run # 8b, EUT on Channel #6 2437MHz - HT40, Chain A

	Power Settings		
	Target (dBm)	Measured (dBm)	Software Setting
Chain A	13.0	13.3	23.5

2483.5 MHz Band Edge Signal Radiated 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	
2483.500	47.1	V	54.0	-6.9	AVG	168	1.0	POS; RB 1 MHz; VB: 10 Hz
2483.670	62.1	V	74.0	-11.9	PK	168	1.0	POS; RB 1 MHz; VB: 3 MHz
2483.500	44.5	H	54.0	-9.5	AVG	74	1.0	POS; RB 1 MHz; VB: 10 Hz
2483.960	55.9	H	74.0	-18.1	PK	74	1.0	POS; RB 1 MHz; VB: 3 MHz



Client:	Intel Corporation	Job Number:	J86298
Model:	105BNHU	T-Log Number:	T86324
		Account Manager:	Christine Krebill
Contact:	Steve Hackett		
Standard:	FCC Part 15, RSS-210	Class:	N/A

RSS 210 and FCC 15.247 (DTS) Radiated Spurious Emissions

Test Specific Details

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

Summary of Results

MAC Address: 001500937004 DRTU Tool Version 1.5.3-320 Driver version 15.0.0.51

Run #	Mode	Channel	Target Power	Measured Power	Test Performed	Limit	Result / Margin
Run #1	802.11b Chain A	#1 2412MHz	16.5	16.7		FCC 15.209 / 15.247	49.7 dBµV/m @ 4824.0 MHz (-4.3 dB)
		#6 2437MHz	16.5	16.6			51.2 dBµV/m @ 4872.9 MHz (-2.8 dB)
		#11 2462MHz	16.5	16.6			44.3 dBµV/m @ 4923.9 MHz (-9.7 dB)
Preliminary measurements on center channel							
Run # 2	OFDM Chain A	#6 G	16.5	16.7	Radiated Emissions, 1 - 40 GHz	FCC 15.209 / 15.247	41.8 dBµV/m @ 7307.5 MHz (-12.2 dB)
		#6 HT20	16.5	16.6			41.7 dBµV/m @ 7309.1 MHz (-12.3 dB)
		#6 HT40	16.5	16.6			38.3 dBµV/m @ 4871.9 MHz (-15.7 dB)
Measurements on low and high channels in worst-case OFDM mode.							
Run # 3	OFDM Chain A	#1 2412 MHz (g)	16.5	16.8	Radiated Emissions, 1 - 40 GHz	FCC 15.209 / 15.247	39.9 dBµV/m @ 4824.0 MHz (-14.1 dB)
		#11 2462 MHz (g)	16.5	16.7			43.6 dBµV/m @ 1457.6 MHz (-10.4 dB)
Run # 4	Receive Chain A	#6 2437 MHz	-	-	Radiated Emissions, 1 - 40 GHz	FCC 15.209 / 15.247	39.2 dBµV/m @ 2324.8 MHz (-14.8 dB)

Note - the target and measured power are average powers (measured with average power sensor) and are used for reference purposes only. Power is set using " GAIN CONTROL" mode in the DRTU tool.

Use the Gain Control mode of adjusting power. Set power to within +/-0.2dB of target.

Ambient Conditions:

Rel. Humidity:	15 - 55 %
Temperature:	18 - 25 °C

Client:	Intel Corporation	Job Number:	J86298
Model:	105BNHU	T-Log Number:	T86324
		Account Manager:	Christine Krebill
Contact:	Steve Hackett		
Standard:	FCC Part 15, 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.

Client:	Intel Corporation	Job Number:	J86298
Model:	105BNHU	T-Log Number:	T86324
		Account Manager:	Christine Krebill
Contact:	Steve Hackett		
Standard:	FCC Part 15, RSS-210	Class:	N/A

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

Date of Test: 4/22/2012 Test Location: FT4

Test Engineer: Rafael Varelas Config Change: none

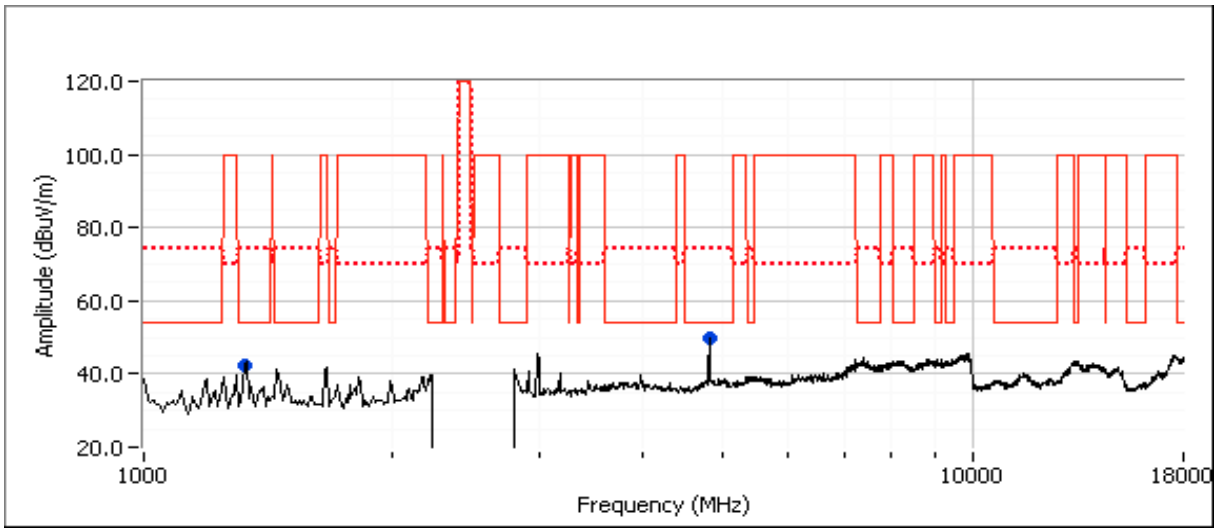
Run #1a, EUT on Channel #1 2412MHz - 802.11b, Chain A

	Power Settings		
	Target (dBm)	Measured (dBm)	Software Setting
Chain A	16.5	16.7	22.5

Spurious Radiated Emissions:

Frequency	Level	Pol	15.209/15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
4823.980	49.7	V	54.0	-4.3	AVG	342	1.0	RB 1 MHz;VB 10 Hz;Pk
4824.020	52.7	V	74.0	-21.3	PK	342	1.0	RB 1 MHz;VB 3 MHz;Pk
1329.750	35.7	V	54.0	-18.3	AVG	113	0.9	RB 1 MHz;VB 10 Hz;Pk
1328.800	50.9	V	74.0	-23.1	PK	113	0.9	RB 1 MHz;VB 3 MHz;Pk

Note 1:	For emissions in restricted bands, the limit of 15.209 was used. For all other emissions, the limit is -30dBc for peak measurements in a measurement bandwidth of 100kHz.



Client:	Intel Corporation	Job Number:	J86298
Model:	105BNHU	T-Log Number:	T86324
		Account Manager:	Christine Krebill
Contact:	Steve Hackett		
Standard:	FCC Part 15, RSS-210	Class:	N/A

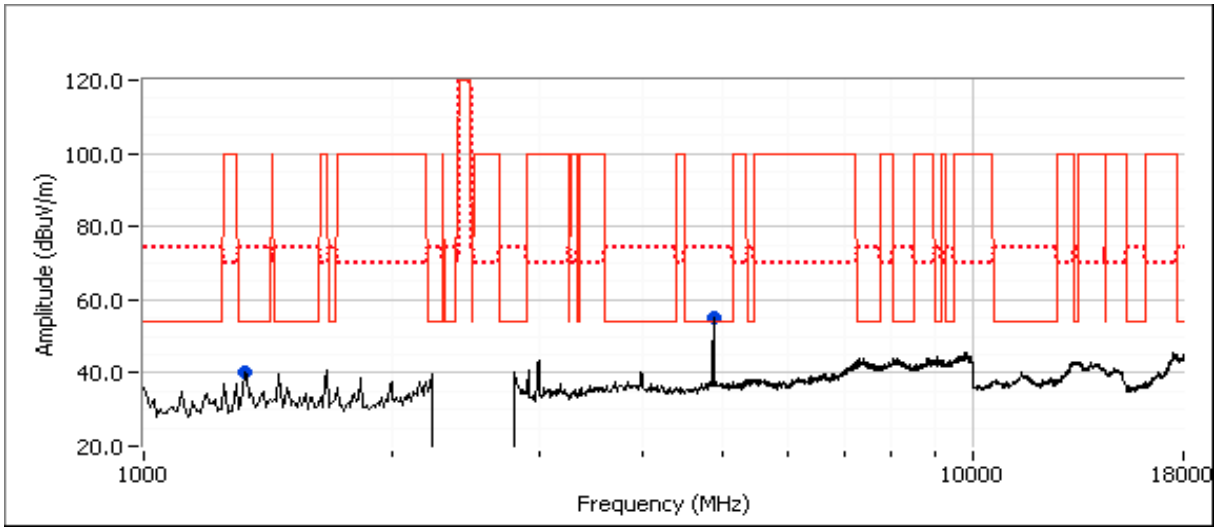
Run #1b: , EUT on Channel #6 2437MHz - 802.11b, Chain A

	Power Settings		
	Target (dBm)	Measured (dBm)	Software Setting
Chain A	16.5	16.6	22.5

Spurious Radiated Emissions:

Frequency	Level	Pol	15.209/15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
4872.850	51.2	V	54.0	-2.8	AVG	341	1.0	RB 1 MHz;VB 10 Hz;Pk
4873.370	56.7	V	74.0	-17.3	PK	341	1.0	RB 1 MHz;VB 3 MHz;Pk
1457.550	41.4	H	54.0	-12.6	AVG	134	1.2	RB 1 MHz;VB 10 Hz;Pk
1457.620	45.6	H	74.0	-28.4	PK	134	1.2	RB 1 MHz;VB 3 MHz;Pk

Note 1:	For emissions in restricted bands, the limit of 15.209 was used. For all other emissions, the limit is -30dBc for peak measurements in a measurement bandwidth of 100kHz.
Note 2:	Scans made between 18 - 40GHz with the measurement antenna moved around the card and its antennas 20-50cm from the device indicated there were no signifcant emissions in this frequency range



Client:	Intel Corporation	Job Number:	J86298
Model:	105BNHU	T-Log Number:	T86324
		Account Manager:	Christine Krebill
Contact:	Steve Hackett		
Standard:	FCC Part 15, RSS-210	Class:	N/A

Run #1c: , EUT on Channel #11 2462MHz - 802.11b, Chain A

Date of Test: 4/24/2012 Test Location: FT3

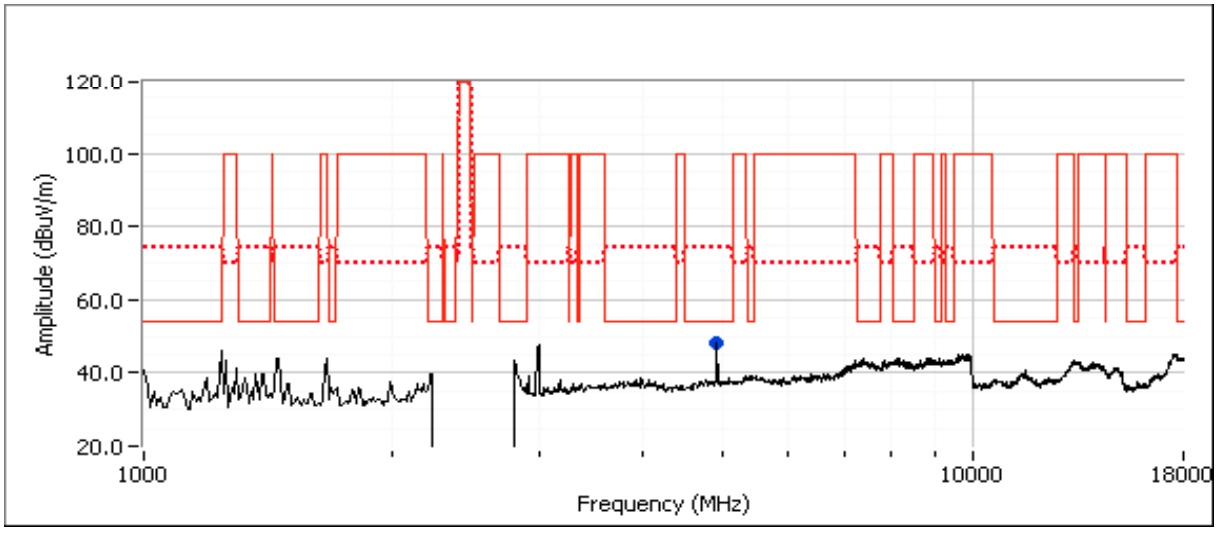
Test Engineer: Joseph Cadigal Config Change: none

	Power Settings		
	Target (dBm)	Measured (dBm)	Software Setting
Chain A	16.5	16.6	22.0

Spurious Radiated Emissions:

Frequency	Level	Pol	15.209/15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
4923.940	44.3	V	54.0	-9.7	AVG	291	1.3	RB 1 MHz;VB 10 Hz;Peak
4923.980	49.8	V	74.0	-24.2	PK	291	1.3	RB 1 MHz;VB 3 MHz;Peak

Note 1:	For emissions in restricted bands, the limit of 15.209 was used. For all other emissions, the limit is -30dBc for peak measurements in a measurement bandwidth of 100kHz.



Client:	Intel Corporation	Job Number:	J86298
Model:	105BNHU	T-Log Number:	T86324
		Account Manager:	Christine Krebill
Contact:	Steve Hackett		
Standard:	FCC Part 15, RSS-210	Class:	N/A

Run # 2, Radiated Spurious Emissions, 1-40GHz, 802.11OFDM, Chain A

Date of Test: 4/22/2012 Test Location: FT4

Test Engineer: Rafael Varelas Config Change: none

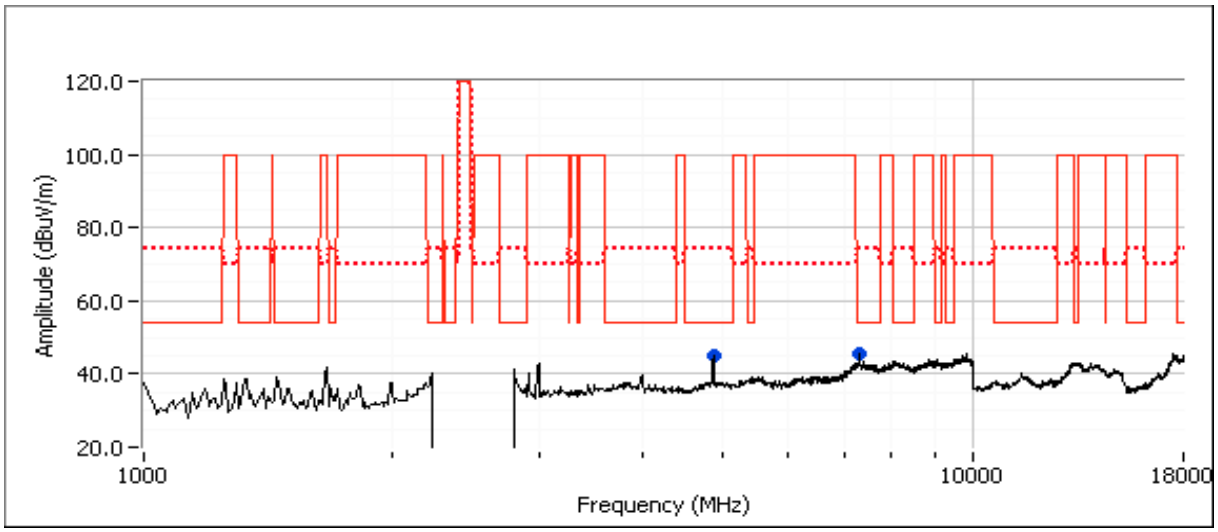
Run # 2a, EUT on Channel #6 G - 802.11OFDM, Chain A

	Power Settings		
	Target (dBm)	Measured (dBm)	Software Setting
Chain A	16.5	16.7	28.0

Spurious Radiated Emissions:

Frequency	Level	Pol	15.209/15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
7307.460	41.8	V	54.0	-12.2	AVG	78	1.8	RB 1 MHz;VB 10 Hz;Pk
7312.590	55.3	V	74.0	-18.7	PK	78	1.8	RB 1 MHz;VB 3 MHz;Pk
4871.480	41.2	V	54.0	-12.8	AVG	345	1.0	RB 1 MHz;VB 10 Hz;Pk
4870.180	52.4	V	74.0	-21.6	PK	345	1.0	RB 1 MHz;VB 3 MHz;Pk

Note 1:	For emissions in restricted bands, the limit of 15.209 was used. For all other emissions, the limit is -30dBc for peak measurements in a measurement bandwidth of 100kHz.



Client:	Intel Corporation	Job Number:	J86298
Model:	105BNHU	T-Log Number:	T86324
		Account Manager:	Christine Krebill
Contact:	Steve Hackett		
Standard:	FCC Part 15, RSS-210	Class:	N/A

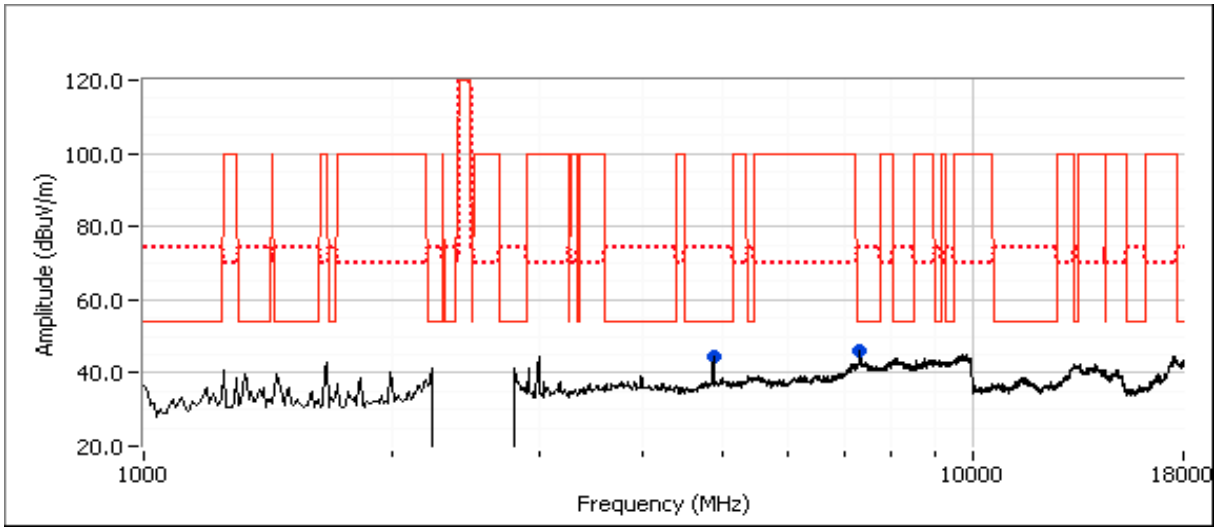
Run # 2b: , EUT on Channel #6 HT20 - 802.11OFDM, Chain A

	Power Settings		
	Target (dBm)	Measured (dBm)	Software Setting
Chain A	16.5	16.6	28.0

Spurious Radiated Emissions:

Frequency	Level	Pol	15.209/15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
7309.110	41.7	V	54.0	-12.3	AVG	69	1.7	RB 1 MHz;VB 10 Hz;Pk
7312.850	55.4	V	74.0	-18.6	PK	69	1.7	RB 1 MHz;VB 3 MHz;Pk
4871.900	39.7	V	54.0	-14.3	AVG	351	1.0	RB 1 MHz;VB 10 Hz;Pk
4870.600	51.3	V	74.0	-22.7	PK	351	1.0	RB 1 MHz;VB 3 MHz;Pk

Note 1:	For emissions in restricted bands, the limit of 15.209 was used. For all other emissions, the limit is -30dBc for peak measurements in a measurement bandwidth of 100kHz.
Note 2:	Scans made between 18 - 40GHz with the measurement antenna moved around the card and its antennas 20-50cm from the device indicated there were no signifcant emissions in this frequency range



Client:	Intel Corporation	Job Number:	J86298
Model:	105BNHU	T-Log Number:	T86324
		Account Manager:	Christine Krebill
Contact:	Steve Hackett		
Standard:	FCC Part 15, RSS-210	Class:	N/A

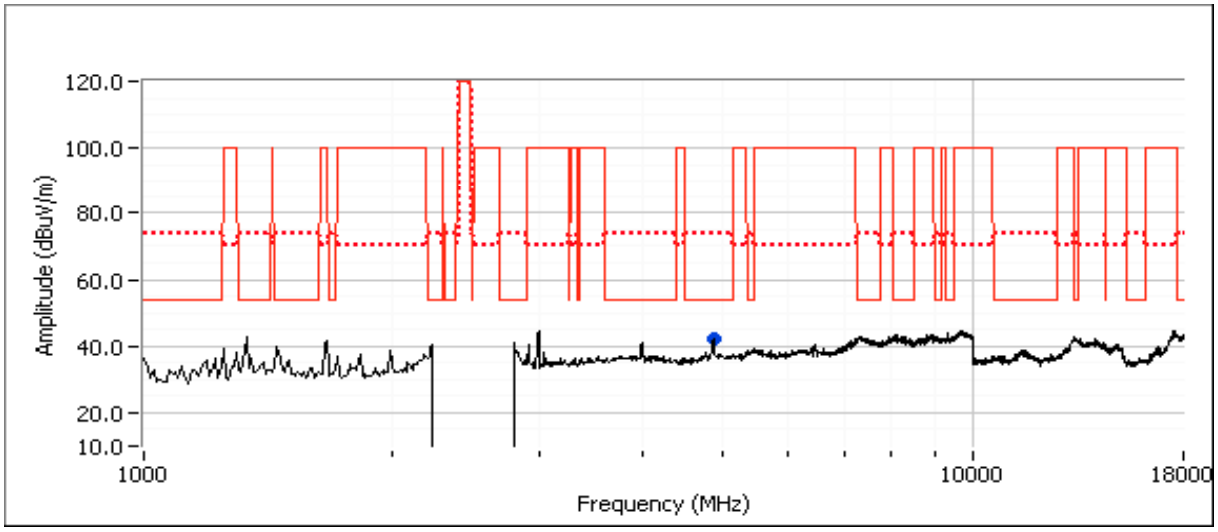
Run # 2c: , EUT on Channel #6 HT40 - 802.11OFDM, Chain A

	Power Settings		
	Target (dBm)	Measured (dBm)	Software Setting
Chain A	16.5	16.6	28.0

Spurious Radiated Emissions:

Frequency	Level	Pol	15.209/15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
4871.930	38.3	V	54.0	-15.7	AVG	353	1.0	RB 1 MHz;VB 10 Hz;Pk
4869.100	49.3	V	74.0	-24.7	PK	353	1.0	RB 1 MHz;VB 3 MHz;Pk

Note 1:	For emissions in restricted bands, the limit of 15.209 was used. For all other emissions, the limit is -30dBc for peak measurements in a measurement bandwidth of 100kHz.



Client:	Intel Corporation	Job Number:	J86298
Model:	105BNHU	T-Log Number:	T86324
		Account Manager:	Christine Krebill
Contact:	Steve Hackett		
Standard:	FCC Part 15, RSS-210	Class:	N/A

Run # 3, Radiated Spurious Emissions, 1-40GHz, 802.11OFDM, Chain A

Date of Test: 4/22/2012 Test Location: FT4

Test Engineer: Rafael Varelas Config Change: none

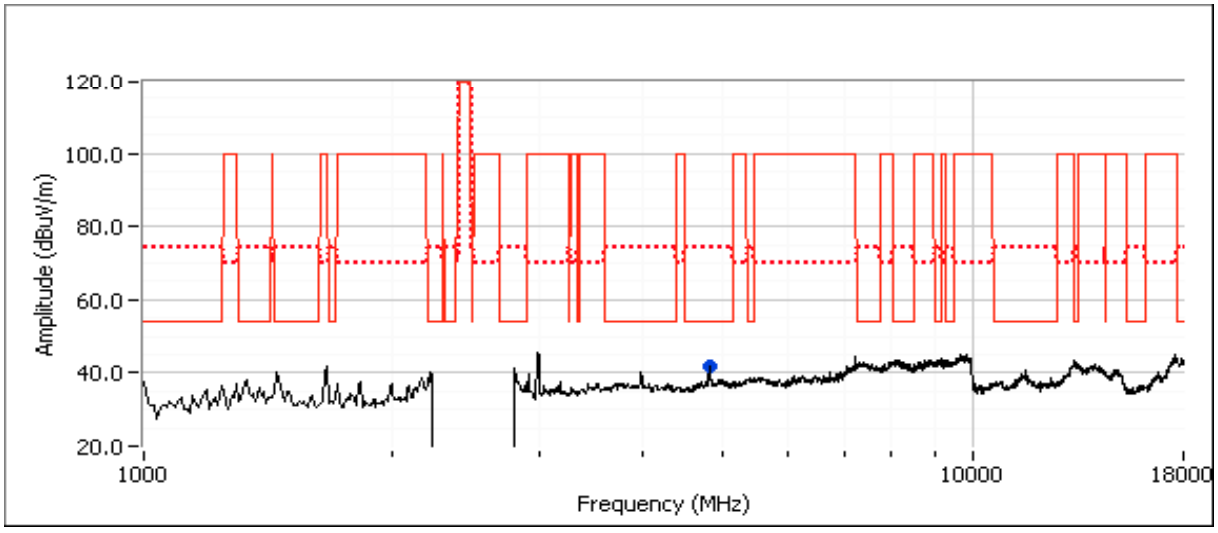
Run # 3a, EUT on Channel #1 2412 MHz - 802.11OFDM, Chain A

	Power Settings		
	Target (dBm)	Measured (dBm)	Software Setting
Chain A	16.5	16.8	28.0

Spurious Radiated Emissions:

Frequency	Level	Pol	15.209/15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
4824.040	39.9	V	54.0	-14.1	AVG	293	1.0	RB 1 MHz;VB 10 Hz;Pk
4825.710	50.8	V	74.0	-23.2	PK	293	1.0	RB 1 MHz;VB 3 MHz;Pk

Note 1:	For emissions in restricted bands, the limit of 15.209 was used. For all other emissions, the limit is -30dBc for peak measurements in a measurement bandwidth of 100kHz.



Client:	Intel Corporation	Job Number:	J86298
Model:	105BNHU	T-Log Number:	T86324
		Account Manager:	Christine Krebill
Contact:	Steve Hackett		
Standard:	FCC Part 15, RSS-210	Class:	N/A

Run # 3b: , EUT on Channel #11 2462 MHz - 802.11OFDM, Chain A

Date of Test: 4/24/2012 Test Location: FT #3

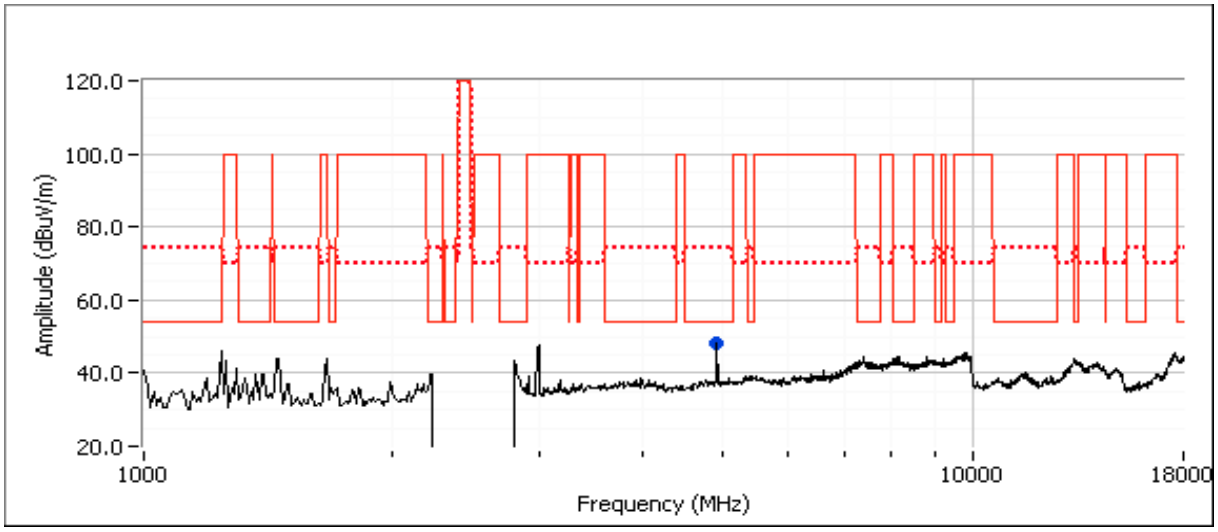
Test Engineer: Joseph Cadigal Config Change: none

	Power Settings		
	Target (dBm)	Measured (dBm)	Software Setting
Chain A	16.5	16.7	28.0

Spurious Radiated Emissions:

Frequency	Level	Pol	15.209/15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
1457.550	43.6	H	54.0	-10.4	AVG	245	1.3	RB 1 MHz;VB 10 Hz;Peak
1457.630	46.8	H	74.0	-27.2	PK	245	1.3	RB 1 MHz;VB 3 MHz;Peak
4927.500	37.3	V	54.0	-16.7	AVG	82	1.0	RB 1 MHz;VB 10 Hz;Peak
4927.750	48.6	V	74.0	-25.4	PK	82	1.0	RB 1 MHz;VB 3 MHz;Peak

Note 1:	For emissions in restricted bands, the limit of 15.209 was used. For all other emissions, the limit is -30dBc for peak measurements in a measurement bandwidth of 100kHz.
Note 2:	Scans made between 18 - 40GHz with the measurement antenna moved around the card and its antennas 20-50cm from the device indicated there were no signifcant emissions in this frequency range



Client:	Intel Corporation	Job Number:	J86298
Model:	105BNHU	T-Log Number:	T86324
		Account Manager:	Christine Krebill
Contact:	Steve Hackett		
Standard:	FCC Part 15, RSS-210	Class:	N/A

Run # 4, Radiated Spurious Emissions, 1-40GHz, Receive, Chain A

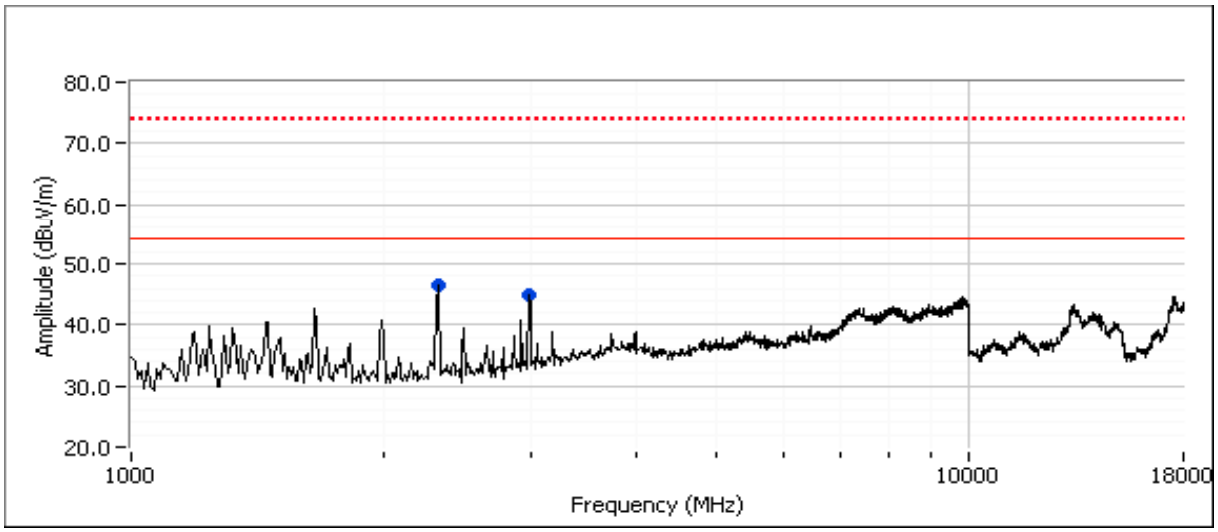
Date of Test: 4/22/2012 Test Location: FT4

Test Engineer: Rafael Varelas Config Change: none

Run # 4a, EUT on Channel #6 2437 MHz - Receive, Chain A

Spurious Radiated Emissions:

Frequency	Level	Pol	RSS-210		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
2324.830	39.2	V	54.0	-14.8	AVG	72	1.5	RB 1 MHz;VB 10 Hz;Pk
2322.960	55.2	V	74.0	-18.8	PK	72	1.5	RB 1 MHz;VB 3 MHz;Pk
2991.930	38.3	V	54.0	-15.7	AVG	158	1.0	RB 1 MHz;VB 10 Hz;Pk
2990.900	54.4	V	74.0	-19.6	PK	158	1.0	RB 1 MHz;VB 3 MHz;Pk



Client:	Intel Corporation	Job Number:	J86298
Model:	105BNHU	T-Log Number:	T86324
		Account Manager:	Christine Krebill
Contact:	Steve Hackett		
Standard:	FCC Part 15, RSS-210	Class:	-

Radiated Emissions

(Elliott Laboratories Fremont Facility, Semi-Anechoic Chamber)

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.

Date of Test: 4/25/2012
Test Engineer: Joseph Cadigal
Test Location: FT Chamber#4

Config. Used: 1
Config Change: none
EUT Voltage: 120V / 60Hz

General Test Configuration

The EUT and any local support equipment were located on the turntable for radiated emissions testing. Any remote support equipment was located outside the semi-anechoic chamber. Any cables running to remote support equipment where routed through metal conduit and when possible passed through a ferrite clamp upon exiting the chamber.

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: 15 - 55 °C
Rel. Humidity: 18 - 25 %

Summary of Results

Run #	Test Performed	Limit	Result	Margin
1	Radiated Emissions 30 - 1000 MHz, Preliminary	15.209 / 15.247 RSS 210	Eval	Refer to individual runs
2	Radiated Emissions 30 - 1000 MHz, Maximized	15.209 / 15.247 RSS 210	Pass	44.5 dBµV/m @ 662.52 MHz (-1.5 dB)

Modifications Made During Testing

No modifications were made to the EUT during testing

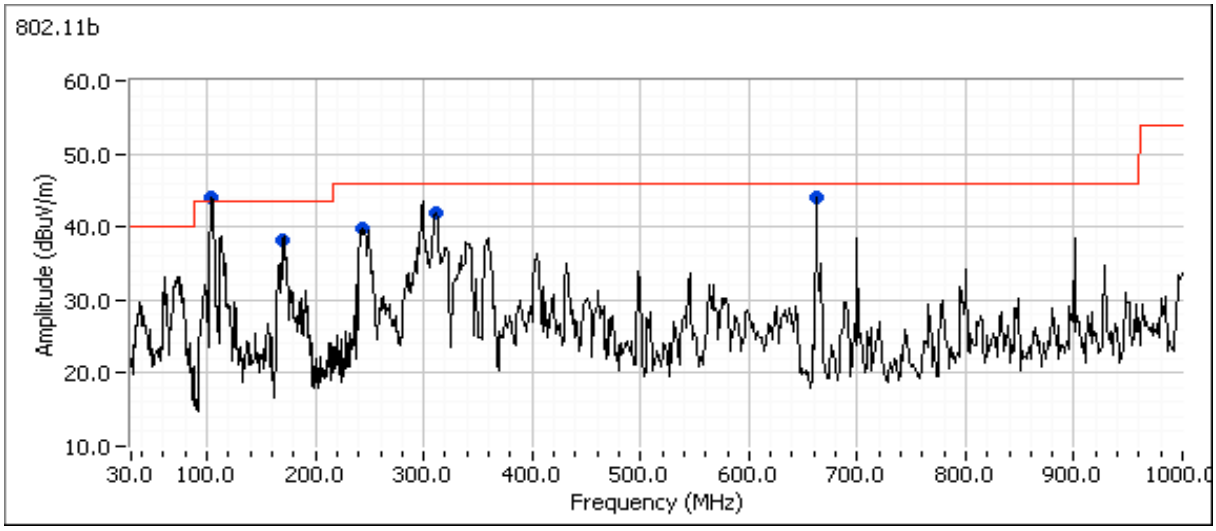
Deviations From The Standard

No deviations were made from the requirements of the standard.

Client:	Intel Corporation	Job Number:	J86298
Model:	105BNHU	T-Log Number:	T86324
		Account Manager:	Christine Krebill
Contact:	Steve Hackett		
Standard:	FCC Part 15, RSS-210	Class:	-

Run #1a: Preliminary Spurious Radiated Emissions, 30 - 1000 MHz, 802.11b

Frequency Range	Test Distance	Limit Distance	Extrapolation Factor
30 - 1000 MHz	3	3	0.0



Preliminary peak readings captured during pre-scan

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
299.666	43.2	V	46.0	-2.8	Peak	7	2.5	
242.505	39.7	V	46.0	-6.3	Peak	108	2.0	
311.219	41.9	V	46.0	-4.1	Peak	127	2.0	
104.984	44.0	V	43.5	0.5	Peak	190	1.5	
662.522	44.1	H	46.0	-1.9	Peak	228	1.0	
170.033	38.1	V	43.5	-5.4	Peak	333	1.5	

Preliminary quasi-peak readings (no manipulation of EUT interface cables)

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
662.522	44.5	H	46.0	-1.5	QP	229	1.0	QP (1.00s)
104.984	29.1	V	43.5	-14.4	QP	191	1.5	QP (1.00s)
170.033	26.1	V	43.5	-17.4	QP	334	1.5	QP (1.00s)
299.666	27.5	V	46.0	-18.5	QP	8	2.5	QP (1.00s)
311.219	25.8	V	46.0	-20.2	QP	128	2.0	QP (1.00s)
242.505	25.2	V	46.0	-20.8	QP	109	2.0	QP (1.00s)

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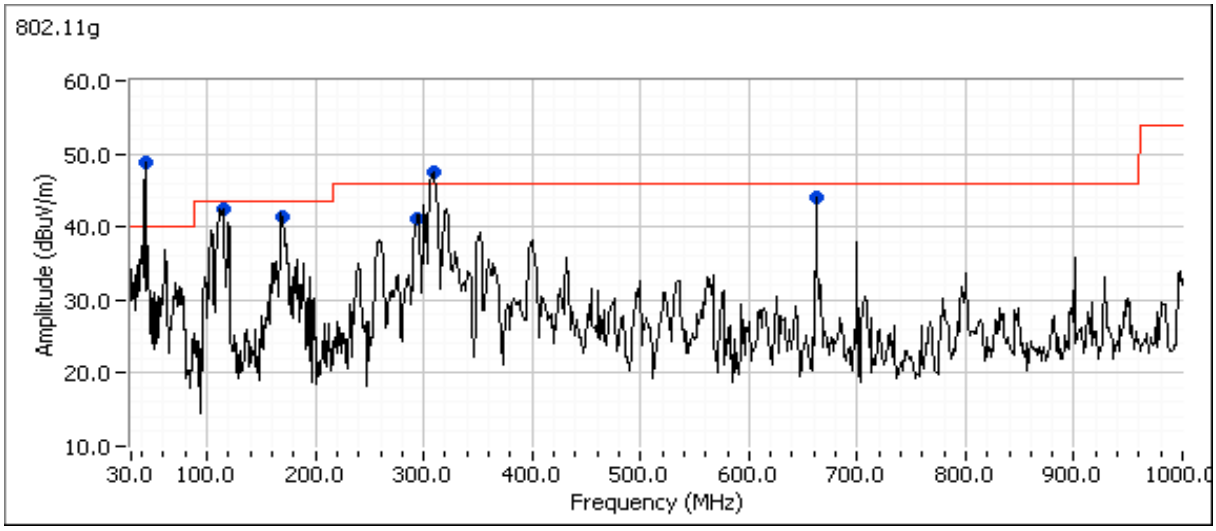
Standard:	FCC Part 15, RSS-210	Class:	-

Run #1b: Preliminary Spurious Radiated Emissions, 30 - 1000 MHz, 802.11g

Frequency Range	Test Distance	Limit Distance	Extrapolation Factor
30 - 1000 MHz	3	3	0.0



Preliminary peak readings captured during pre-scan

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
43.123	48.7	V	40.0	8.7	Peak	4	1.5	
309.200	47.4	V	46.0	1.4	Peak	18	1.5	
115.174	42.4	H	43.5	-1.1	Peak	112	3.5	
293.560	41.1	V	46.0	-4.9	Peak	127	1.5	
662.522	44.1	H	46.0	-1.9	Peak	228	1.0	
169.427	41.3	V	43.5	-2.2	Peak	295	1.5	

Preliminary quasi-peak readings (no manipulation of EUT interface cables)

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
43.123	18.0	V	40.0	-22.0	QP	5	1.5	QP (1.00s)
309.200	32.4	V	46.0	-13.6	QP	19	1.5	QP (1.00s)
115.174	26.9	H	43.5	-16.6	QP	113	3.5	QP (1.00s)
293.560	27.9	V	46.0	-18.1	QP	128	1.5	QP (1.00s)
662.522	43.8	H	46.0	-2.2	QP	229	1.0	QP (1.00s)
169.427	25.0	V	43.5	-18.5	QP	296	1.5	QP (1.00s)

Client:	Intel Corporation	Job Number:	J86298
Model:	105BNHU	T-Log Number:	T86324
		Account Manager:	Christine Krebill
Contact:	Steve Hackett		
Standard:	FCC Part 15, RSS-210	Class:	-

Run #2: Maximized Readings From Run #1 Worst Case Mode
Maximized quasi-peak readings (includes manipulation of EUT interface cables)

Frequency Range	Test Distance	Limit Distance	Extrapolation Factor
30 - 1000 MHz	3	3	0.0

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
662.522	44.5	H	46.0	-1.5	QP	229	1.0	QP (1.00s)
104.984	29.1	V	43.5	-14.4	QP	191	1.5	QP (1.00s)
170.033	26.1	V	43.5	-17.4	QP	334	1.5	QP (1.00s)
299.666	27.5	V	46.0	-18.5	QP	8	2.5	QP (1.00s)
311.219	25.8	V	46.0	-20.2	QP	128	2.0	QP (1.00s)
242.505	25.2	V	46.0	-20.8	QP	109	2.0	QP (1.00s)

End of Report

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