Elliott Laboratories Inc.
www.elliottlabs.com
684 West Maude Avenue
Sunnyvale, CA 94085-3518
408-245-7800 Phone
408-245-3499 Fax

Electromagnetic Emissions Test Report and Application for Grant of Equipment Authorization pursuant to Industry Canada RSS-Gen Issue 2 / RSS 210 Issue 7 FCC Part 15, Subpart E on the Intel Corporation Transmitter Model: 512AN_HMW

UPN:	1000M-512ANH 1514B-512ANHMW
FCC ID:	PD9512ANH E2K512ANHMW
GRANTEE:	Intel Corporation 2111 N.E. 25th Ave. Hillsboro, OR 97124
TEST SITE:	Elliott Laboratories, Inc. 684 W. Maude Ave Sunnyvale, CA 94086
REPORT DATE:	March 20, 2008
REISSUE DATE:	June 12, 2008
FINAL TEST DATES:	February 13 to March 15, 2008 June 2 to June 5, 2008

AUTHORIZED SIGNATORY: Mark Briggs

Mark Briggs
Principal Engineer

ACCREDITED

Testing Cert #2016-01

REVISION HISTORY

Rev #	Date	Comments	Modified By
1	4/28/08	Initial Release	David Guidotti
2	6/12/08	Changed contact information in the scope section of the report to Robert Paxman. Corrected value of eirp from 2.8 to 23.8 in the TCP section of the results table. Updated the information in the results table related to content of user manual (previously stated "Not evaluated at this time" Updated cover page with UPN and FCC ID (previously stated "not yet available") Updated test report with test data for a second antenna (Universe PIFA antenna)	Mark Briggs

TABLE OF CONTENTS

TABLE OF CONTENTS (Continued)

SCOPE

An electromagnetic emissions test has been performed on the Intel Corporation model 512AN_HMW 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:

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 512AN_HMW and therefore apply only to the tested sample. The sample was selected and prepared under the authority of Robert Paxman of Intel.

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 512AN_HMW 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

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	Intended for use in indoor devices only	May only be designed for indoor use	Complies
15.407(a) (1)	A9.2(1)	Output Power	**a: 16.6dBm** n20: 15.3 dBm n40: 16.0dBm **(0.046W)**	17 dBm	Complies
15.407(a) (2))		Power Spectral Density 802.11a Mode	3.8 dBm/MHz	4 dBm/MHz	Complies
	A9.2(2) / A9.5 (2)			5 dBm / MHz	Complies
15.407(a) (2))		Power Spectral Density 802.11n20 Mode	2.6 dBm/MHz	4 dBm/MHz	Complies
	A9.2(2) / A9.5 (2)			5 dBm / MHz	Complies
15.407(a) (2))		Power Spectral Density 802.11n40 Mode	1.2 dBm/MHz	4 dBm/MHz	Complies
	A9.2(2) / A9.5 (2)			5 dBm / MHz	Complies

Operation in the 5.25 – 5.35 GHz Band

Note: The device is restricted to indoor use only, therefore the spectral density of spurious emissions in the 5.15 – 5.25 GHz band were limited to the power spectral limits for intentional signals detailed in FCC 15.407(a)(1) and RSS 210 6.2.2 q1 (i)

FCC Rule Part	RSS Rule Part	Description	Measured Value / Comments	Limit / Requirement	Result (margin)
15.407(a) (2)	A9.2(2)	Output Power	**a: 16.2dBm** n20: 14.2 dBm n40: 15.9 dBm **(0.042W)**	24 dBm	Complies
15.407(a) (2))		Power Spectral Density 802.11a Mode	3.5 dBm/MHz	11 dBm/MHz	Complies
	A9.2(2) / A9.5 (2)			11 dBm / MHz	Complies
15.407(a) (2))		Power Spectral Density 802.11n20 Mode	1.6 dBm/MHz	11 dBm/MHz	Complies
	A9.2(2) / A9.5 (2)			11 dBm / MHz	Complies
15.407(a) (2))		Power Spectral Density 802.11n40 Mode	0.7 dBm/MHz	11 dBm/MHz	Complies
	A9.2(2) / A9.5 (2)			10.7 dBm / MHz[1]	Complies

Operation in the 5.47 – 5.725 GHz Band

FCC Rule Part	RSS Rule Part	Description	Measured Value / Comments	Limit / Requirement	Result (margin)
15.407(a) (2)	A9.2(2)	Output Power	**a: 18.5 dBm** n20: 15.6 dBm n40: 16.0 dBm **(0.071W)**	24 dBm / 250mW (eirp < 30dBm)	Complies
15.407(a) (2))		Power Spectral Density 802.11a Mode	6.0 dBm/MHz	11 dBm/MHz	Complies
	A9.2(2) / A9.5 (2)			11 dBm / MHz	Complies
15.407(a) (2))		Power Spectral Density 802.11n20 Mode	2.8 dBm/MHz	11 dBm/MHz	Complies
	A9.2(2) / A9.5 (2)			11 dBm/MHz	Complies
15.407(a) (2))		Power Spectral Density 802.11n40 Mode	0.9 dBm/MHz	11 dBm/MHz	Complies
	A9.2(2) / A9.5 (2)			11 dBm/MHz	Complies
N/A	??	Non-operation in 5600 – 5650 MHz sub band	Device cannot operate in the 5600 – 5650 MHz band –refer to Operational Description		Complies

[1] Reduced from 11dBm because highest value exceeded the average value by more than 3dB

General requirements for all U-NII/LELAN bands

FCC Rule Part	RSS Rule Part	Description	Measured Value / Comments	Limit / Requirement	Result
	A9.5a	Modulation	Digital Modulation is used in all modes	Digital modulation is required	Complies
	RSP 100	99% bandwidth	a: 17.6 MHz n20: 18.3 MHz n40: 36.6 MHz	Information only	N/A
15.407(b) (5) / 15.209	A9.3	Spurious Emissions below 1GHz	36.1dBµV/m @ 58.328MHz [1]	Refer to limits section	Complies (-3.9dB)
15.407(b) (2)	A9.3	Spurious Emissions above 1GHz	53.3dBµV/m @ 5460.0MHz (Universe Antenna, 802.11a)	15.207 in restricted bands, all others <-27dBm eirp	Complies (-0.7dB)
15.407(a) (6)	-	Peak Excursion Ratio	12.7 dB (802.11 n40 mode)	< 13dB	Complies
	A9.5 (3)	Channel Selection	Spurious emissions tested at outermost channels in each band	Device was tested on the top, bottom and center channels in each of the three bands band	N/A
15			Measurements on three channels in each band		N/A
15.407 (c)	A9.5(4)	Operation in the absence of information to transmit	Operation is discontinued in the absence of information	Device shall automatically discontinue operation in the absence of information to transmit	Complies
15.407 (g)	A9.5 (5)	Frequency Stability	Frequency stability is better than 10ppm	-	Complies
15.407 (h1)	A9.4	Transmit Power Control	TPC is not required as the highest eirp is 23.8dBm	The U-NII device shall have the capability to operate with a mean EIRP value lower than 24dBm (250mW)	Complies
15.407 (h2)	A9.4	Dynamic frequency Selection (device without radar detection)	DFS evaluation covered in a separate test report (Elliott R71303)	Channel move time < 10s Channel closing transmission time < 260ms	Refer to Elliott R71303

[1] Spurious emissions below 1 GHz were independent of operating mode (transmit vs receive) and operating channel. Value reported is taken from the receiver spurious emissions data.

GENERAL REQUIREMENTS APPLICABLE TO ALL BANDS

FCC Rule Part	RSS Rule part	Description	Measured Value / Comments	Limit / Requirement	Result (margin)
15.203	-	RF Connector	Module uses a unique connector	Unique connector	Complies
15.109	RSS GEN 7.2.3	Receiver spurious emissions	51.9dBµV/m @ 3000.4MHz Ethertronics Antenna	RSS GEN Table 1	Complies (-2.1dB)
15.207	RSS GEN Table 2	AC Conducted Emissions	23.0dBµV @ 11.069MHz	Refer to standard	Complies (-27.0dB)
15.247 (b) (5) 15.407 (f)	RSS 102	RF Exposure Requirements	Refer to MPE calculations in Exhibit 11, 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	Statements included	Statement required regarding non-interference	Complies
	RSP 100 RSS GEN 7.1.5	User Manual	Not applicable, antenna will be integrated into the host device.	Statement required regarding detachable antenna	Complies

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 512AN_HMW is a 2x1 MISO 802.11abgn radio module that is designed to be installed in laptops. The module supports 802.11b, 802.11g and 802.11n protocols in the 2400 – 2483.5 MHz band and 802.11a and 802.11n in the 5150 – 5250 MHz, 5250 – 5350 MHz, 5470 – 5725 MHz and 5725 – 5850 MHz bands. In 802.11n mode it supports both 20-MHz and 40-MHz channels. It can operate in SISO (1x1) and MISO (2x1) configurations.

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

The sample was received on February 9, 2008 and tested between February 13 and March 16, 2008. The EUT consisted of the following component(s):

Manufacturer	Model	Description	Serial Number	FCC ID
Intel Corporation	512AN_HMW	Wireless LAN Card		PD9512ANH

ANTENNA SYSTEM

The antenna connects to the EUT via a non-standard U.FL antenna connector, thereby meeting the requirements of FCC 15.203. The EUT was evaluated with each transceiver chain connected to the following antennas:

- Ethertronics MPCI-8 Module antenna which is based on a magnetic dipole design. The nominal antenna gain is 3dBi in the 2.4GHz band and 5dBi in the 5GHz bands
- Universe Technology antenna which is based on a PIFA design. The nominal antenna gain is 3.2 dBi in the 2.4GHz band, 3.6dBi in the 5150-5250 MHz band, 3.7dBi in 5250-5350MHz band, 4.8dBi in the 5470 – 5725 MHz band and 5dBi in the 5725 – 5850MHz band.

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(2)	Antennas(2)	Coax(2)	Shielded	0.3
DC Power	Board	3.3V dc	Unshielded	0.3

EUT OPERATION

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

Mode \ Active Chains	1 Chain	2 Chains
802.11a	6 Mb/s	Not applicable, second chain is receive only
802.11n (20MHz channel)	HT 0 (6Mbps)	
802.11n (40MHz channel)	HT 0 (15Mbps)	

Spurious emissions at frequencies removed by more than 50MHz from the band edges for 802.11n 20MHz and 40MHz channels were made on the 20MHz channel mode as this mode had the higher power spectral density of the two modes.

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

TEST SITE

GENERAL INFORMATION

Final test measurements were taken on February 26, February 28, March 7, June 2, June 3, June 4, and June 5, 2008 at the Elliott Laboratories semi anechoic chambers 3, 4 and 5 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.

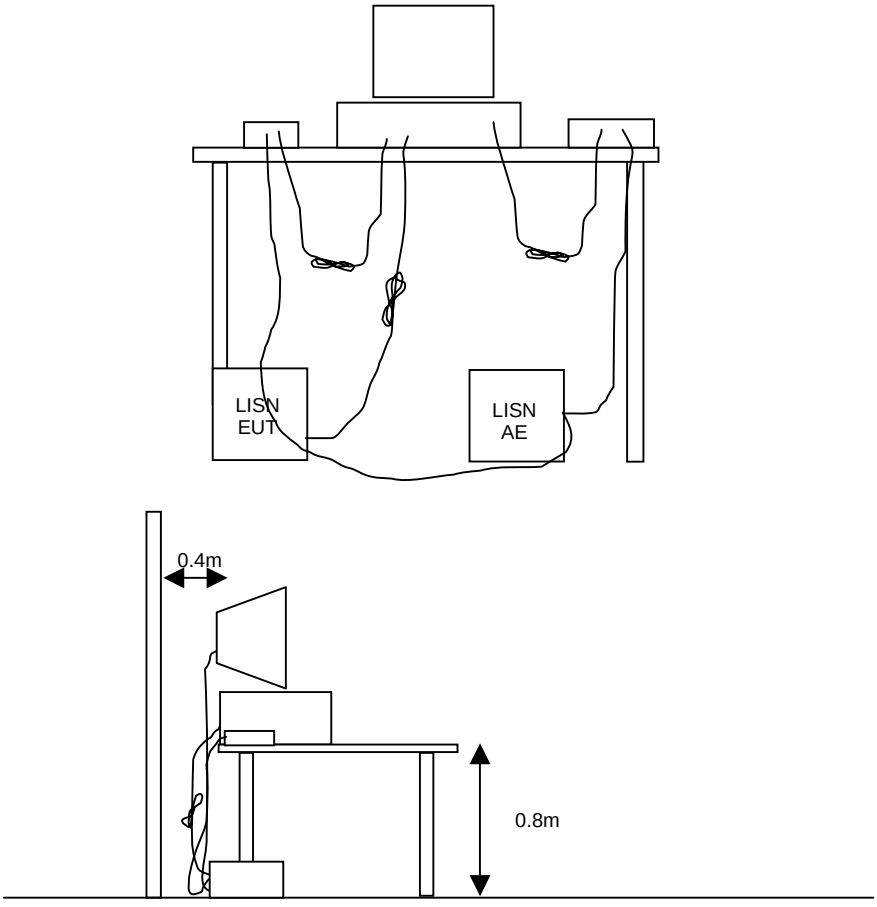
TEST PROCEDURES

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.



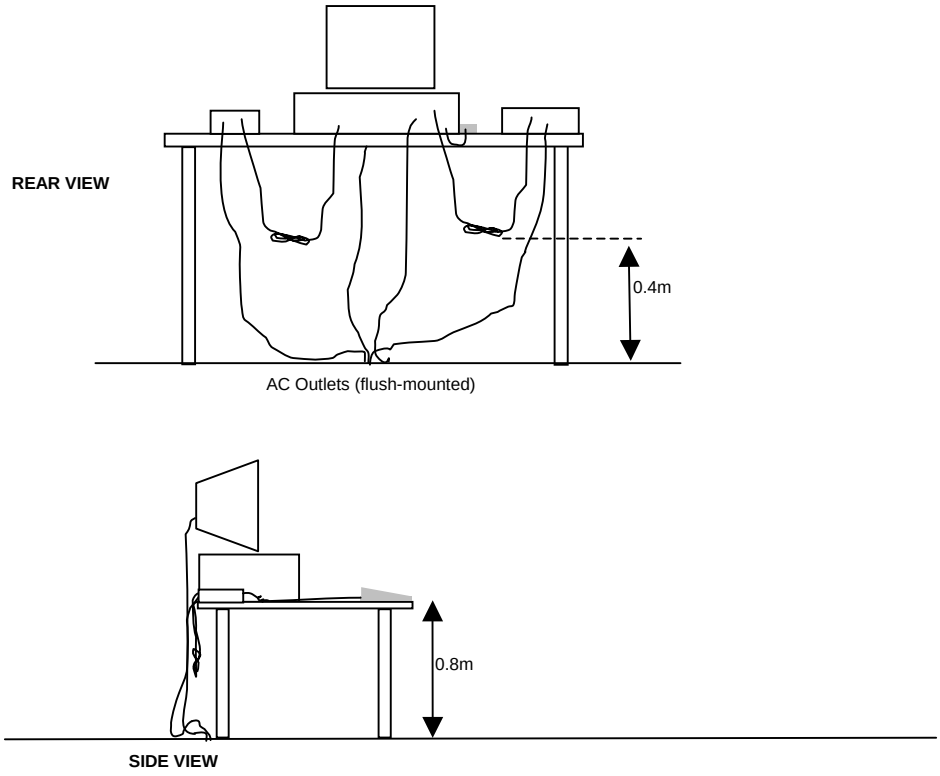
RADIATED EMISSIONS

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.

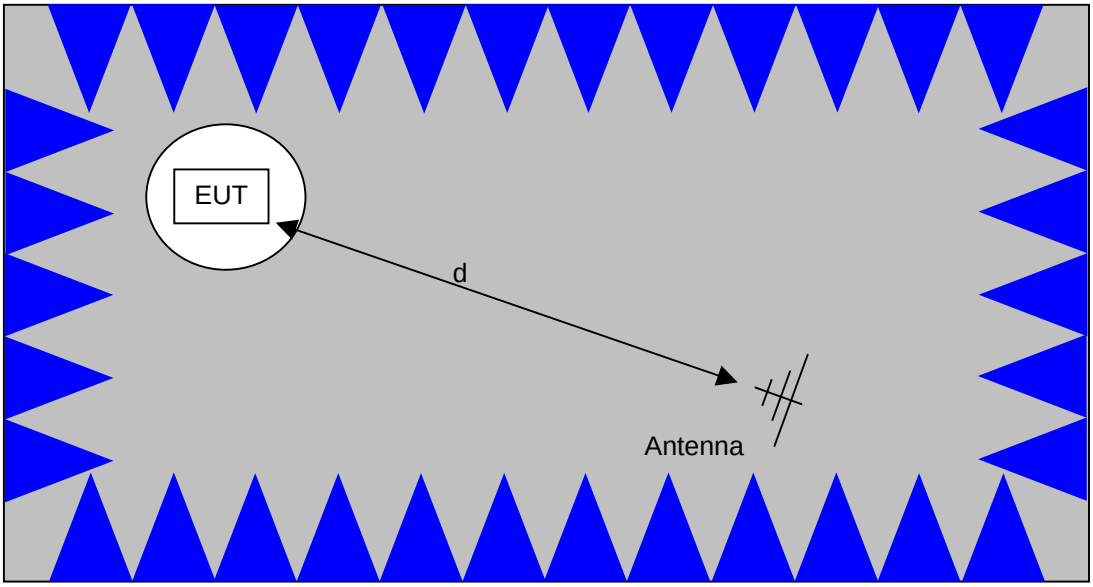
A speaker is provided in the receiver to aid in discriminating between EUT and ambient emissions. Other methods used during the preliminary scan for EUT emissions involve scanning with near field magnetic loops, monitoring I/O cables with RF current clamps, and cycling power to the EUT.

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.

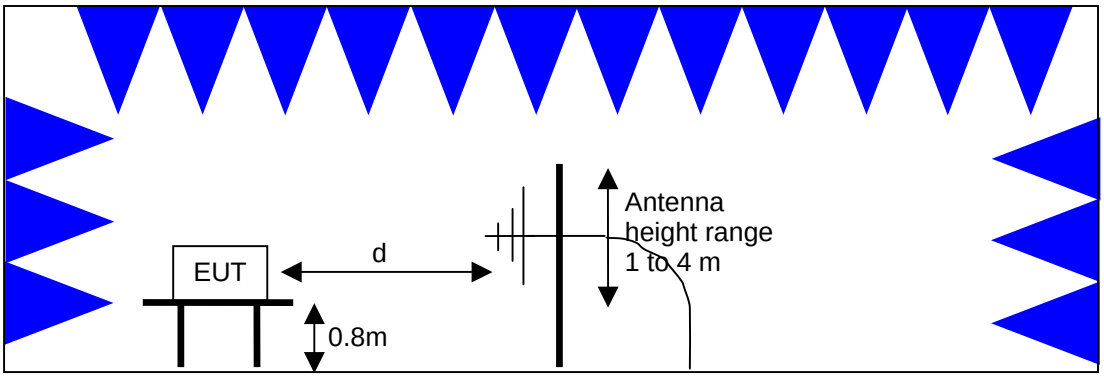


Typical Test Configuration for Radiated Field Strength Measurements



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.

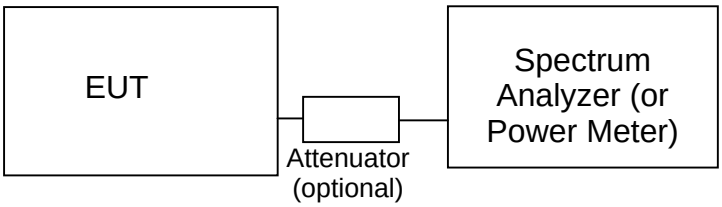
Floor-standing equipment is placed on the floor with insulating supports between the unit and the ground plane.



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

FCC 15.407 (a) OUTPUT POWER LIMITS

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

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

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

[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

Measurements Made February 13 to March 15, 2008

Manufacturer	Description	Model #	Asset #	Cal Due
Hewlett Packard	Microwave Preamplifier, 1-26.5GHz	8449B	263	16-May-08
Hewlett Packard	Microwave Preamplifier, 1-26.5GHz	8449B	785	29-May-08
Rohde & Schwarz	Power Meter, Dual Channel	NRVD	1071	11-Jun-08
EMCO	Antenna, Horn, 1-18 GHz (SA40-Red)	3115	1142	07-Jun-08
Hewlett Packard	Spectrum Analyzer 30 Hz -40 GHz, SV (SA40) Red	8564E (84125C)	1148	24-Aug-08
EMCO	LISN, 10 kHz-100 MHz	3825/2	1293	19-Feb-09
Rohde & Schwarz	Test Receiver, 0.009-30 MHz	ESH3	1316	24-Oct-08
Hewlett Packard	EMC Spectrum Analyzer, 9 KHz - 22 GHz	8593EM	1319	18-May-08
EMCO	Antenna, Horn, 1-18 GHz (SA40-Blu)	3115	1386	11-Jul-08
Hewlett Packard	Spectrum Analyzer 9 kHz - 40 GHz, FT (SA40) Blue	8564E (84125C)	1393	15-Jan-09
Sunol Sciences	Biconilog, 30-3000 MHz	JB3	1548	15-May-08
EMCO	Antenna, Horn, 1-18 GHz	3115	1561	10-May-08
Rohde& Schwarz	Pulse Limiter	ESH3 Z2	1594	11-May-08
Com-Power Corp.	Preamplifier, 30-1000 MHz	PA-103	1632	25-May-08
Micro-Tronics	Band Reject Filter, 2400-2500 MHz	BRM50702-02	1731	17-Oct-08
Hewlett Packard	SpecAn 9 kHz - 40 GHz, (SA40) Purple	8564E (84125C)	1771	17-Dec-08
Hewlett Packard	Head (Inc W1-W4, 1946, 1947) Purple	84125C	1772	20-Dec-08
EMCO	Antenna, Horn, 18-26.5 GHz (SA40-Purple)	3160-09 (84125C)	1773	19-Dec-08
EMCO	Antenna, Horn, 26.5-40 GHz (SA40-Purple)	3160-10 (84125C)	1774	19-Dec-08
Fischer Custom Comm	LISN, 25A, 150kHz to 30MHz, 25 Amp,	FCC-LISN-50-25-2-09	2000	12-Oct-08

Measurements Made June 2008

Manufacturer	Description	Model #	Asset #	Cal Due
Hewlett Packard	Microwave Preamplifier, 1-26.5GHz	8449B	263	28-May-09
Hewlett Packard	Microwave Preamplifier, 1-26.5GHz	8449B	785	27-May-09
EMCO	Antenna, Horn, 1-18 GHz	3115	786	07-Dec-08
EMCO	Antenna, Horn, 1-18 GHz (SA40-Red)	3115	1142	07-Jul-08
Hewlett Packard	Spectrum Analyzer 30 Hz -40 GHz, SV (SA40) Red	8564E (84125C)	1148	24-Aug-08
Hewlett Packard	Spectrum Analyzer 9 kHz - 40 GHz, FT (SA40) Blue	8564E (84125C)	1393	15-Jan-09
Micro-Tronics	Band Reject Filter, 5725-5875 MHz	BRC50705-02	1728	17-Oct-08
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
Hewlett Packard	SpecAn 9 kHz - 40 GHz, (SA40) Purple	8564E (84125C)	1771	17-Dec-08
EMCO	Antenna, Horn, 1-18 GHz (SA40-Purple)	3115	1779	19-Mar-10
Hewlett Packard	Microwave Preamplifier, 1-26.5GHz	8449B	1780	06-Nov-08

EXHIBIT 2: Test Measurement Data

T71017 (U-NII rf port measurements)	80 Pages
T71374 (Radiated emissions with Ethertronics antenna, AC conducted emissions measurements)	43 Pages
T71849 (Radiated emissions, Universe PIFA Antenna)	64 Pages

Client:	Intel Corporation	Job Number:	J70762
Model:	512AN_HMW(Formal)	T-Log Number:	T70766
		Account Manager:	Richard Gencev
Contact:	Robert Paxman		-
Emissions Standard(s):	FCC	Class:	B
Immunity Standard(s):	-	Environment:	-

EMC Test Data

For The

Intel Corporation

Model

512AN_HMW(Formal)

Date of Last Test: 3/20/2008

Client:	Intel Corporation	Job Number:	J70762
Model:	512AN_HMW(Formal)	T-Log Number:	T70766
		Account Manager:	Richard Gencev
Contact:	Robert Paxman		
Standard:	FCC	Class:	N/A

RSS 210 and FCC 15.E Power Measurement Summary

The table below compares the measured output power (measured using the UNII test method) with the power measured using an average power meter (Pavg) and is for reference purposes.

802.11a

Frequency	Software	Bandwidth		Output Power[1] dBm		Power	PSD[2] dBm/MHz			Pavg
(MHz)	Setting	26dB	99%[4]	Measured	Limit	(Watts)	Measured	FCC Limit	RSS Limit[3]	
5180	26.5	22.2	17.0	13.7	17.0	0.023	1.1	4.0	5.0	14.7
5200	29.0	35.3	17.1	16.1	17.0	0.041	3.5	4.0	5.0	17.5
5240	29.0	37.5	17.1	16.6	17.0	0.045	3.8	4.0	5.0	17.4
5260	28.5	37.0	17.1	16.1	24.0	0.040	3.4	11.0	11.0	17.0
5280	28.5	34.5	17.1	16.2	24.0	0.042	3.5	11.0	11.0	17.3
5320	25.5	22.2	17.1	14.0	24.0	0.025	1.4	11.0	11.0	14.6
5500	26.5	35.8	17.1	16.4	24.0	0.044	3.6	11.0	11.0	17.5
5600	29.0	40.7	17.6	18.5	24.0	0.071	6.0	11.0	11.0	17.8
5700	26.5	29.8	17.1	15.0	24.0	0.031	2.2	11.0	11.0	17.2

802.11n20MHz

Frequency	Software	Bandwidth		Output Power[1] dBm		Power	PSD[2] dBm/MHz			Pavg
(MHz)	Setting	26dB	99%[4]	Measured	Limit	(Watts)	Measured	FCC Limit	RSS Limit[3]	
5180	26.5	25.6	18.1	12.3	17.0	0.017	-0.2	4.0	5.0	14.5
5200	29.0	44.7	18.1	15.0	17.0	0.031	2.2	4.0	5.0	17.5
5240	29.0	44.9	18.2	15.3	17.0	0.034	2.6	4.0	5.0	17.4
5260	27.5	40.8	18.1	14.2	24.0	0.026	1.6	11.0	11.0	16.5
5280	27.0	41.1	18.1	13.8	24.0	0.024	1.0	11.0	11.0	17.5
5320	25.5	30.4	18.2	12.8	24.0	0.019	0.0	11.0	11.0	14.5
5500	22.0	44.8	18.2	12.9	24.0	0.019	0.1	11.0	11.0	17.5
5600	27.0	44.7	18.3	15.6	24.0	0.036	2.8	11.0	11.0	16.5
5700	25.0	43.9	18.2	14.1	24.0	0.026	1.2	11.0	11.0	16.5

802.11n40MHz

Frequency	Software	Bandwidth		Output Power[1] dBm		Power	PSD[2] dBm/MHz			Pavg
(MHz)	Setting	26dB	99%[4]	Measured	Limit	(Watts)	Measured	FCC Limit	RSS Limit[3]	
5190	20.0	40.5	36.3	5.9	17.0	0.004	-8.7	4.0	5.0	10.1
5230	30.5	78.7	36.6	16.0	17.0	0.040	1.2	4.0	5.0	16.4
5270	30.5	82.2	36.6	15.9	24.0	0.038	0.7	11.0	11.0	16.5
5310	20.0	40.7	36.3	7.1	24.0	0.005	-7.9	11.0	11.0	10.3
5510	21.5	40.8	36.4	10.4	24.0	0.011	-4.7	11.0	11.0	13.5
5590	25.5	48.7	36.1	15.4	24.0	0.035	0.2	11.0	11.0	16.6
5670	26.5	56.7	36.4	16.0	24.0	0.040	0.9	11.0	11.0	16.5
With universe antenna										
5190	22.5									12.3
5310	21.5									11.8
5510	23.5									15.0

Client:	Intel Corporation	Job Number:	J70762
Model:	512AN_HMW(Formal)	T-Log Number:	T70766
		Account Manager:	Richard Gencev
Contact:	Robert Paxman		
Standard:	FCC	Class:	N/A

RSS-210 (LELAN) and FCC 15.407(UNII)
Antenna Port Measurements
Power, PSD, Peak Excursion, Bandwidth and 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.

Date of Test: 2/26/2008 16:45
Test Engineer: Suhaila Khushzad
Test Location: Fremont EMC Lab

Config. Used: 1
Config Change: None
EUT Voltage: Powered From Host System

General Test Configuration

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

Ambient Conditions:

Temperature:	22.7	°C
Rel. Humidity:	37	%

Summary of Results

Run #	Test Performed	Limit	Pass / Fail	Result / Margin
1	Power, 5150 - 5250MHz	15.407(a) (1), (2)	Pass	16.6 dBm(45.203mW)
1	Power, 5250 - 5350MHz	15.407(a) (1), (2)	Pass	16.2 dBm(41.987mW)
1	Power, 5470 - 5725MHz	15.407(a) (1), (2)	Pass	18.5 dBm(70.814mW)
1	PSD, 5150 - 5250MHz	15.407(a) (1), (2)	Pass	3.8 dBm/MHz
1	PSD, 5250 - 5350MHz	15.407(a) (1), (2)	Pass	3.5 dBm/MHz
1	PSD, 5470 - 5725MHz	15.407(a) (1), (2)	Pass	6 dBm/MHz
1	26dB Bandwidth	15.407	-	40.7 MHz
1	99% Bandwidth	RSS 210	-	17.6 MHz
2	Peak Excursion Envelope	15.407(a) (6)	Pass	10.4dB
3	Antenna Conducted - Out of Band Spurious	15.407(b)	Pass	All emissions below the -27dBm/MHz limit

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:	J70762
Model:	512AN_HMW(Formal)	T-Log Number:	T70766
		Account Manager:	Richard Gencev
Contact:	Robert Paxman		
Standard:	FCC	Class:	N/A

Run #1: Bandwidth, Output Power and Power spectral Density

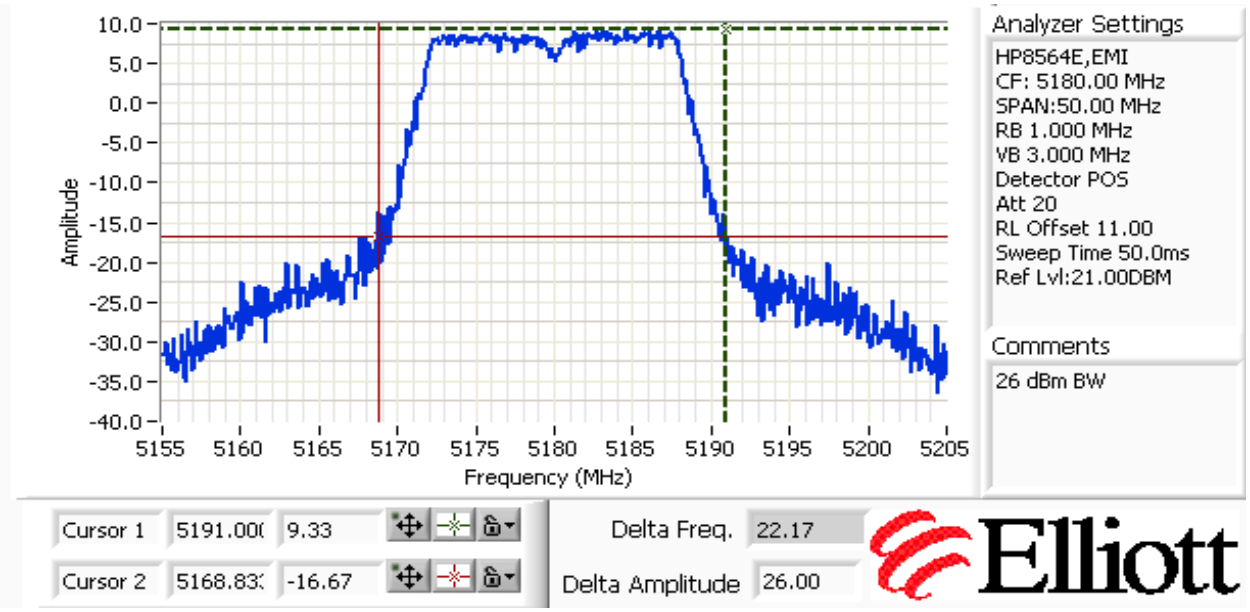
Antenna Gain (dBi): 5

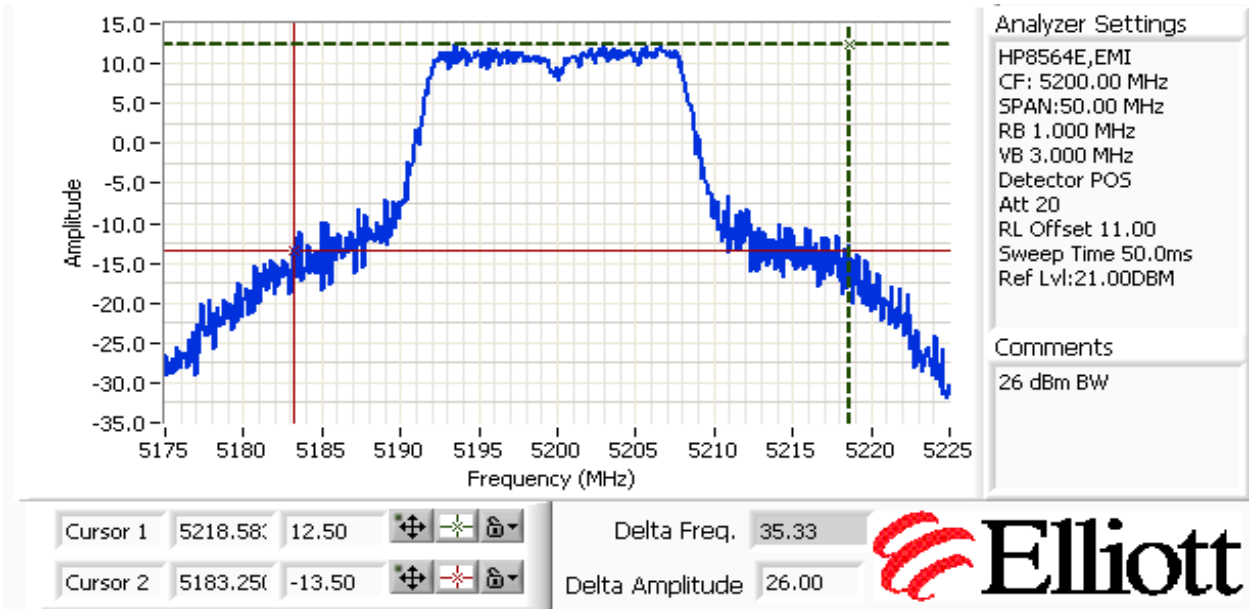
Frequency (MHz)	Software Setting	Bandwidth		Output Power[1] dBm		Power (Watts)	PSD[2] dBm/MHz			Result
		26dB	99%[4]	Measured	Limit		Measured	FCC Limit	RSS Limit[3]	
5180	26.5	22.2	17.0	13.7	17.0	0.023	1.1	4.0	5.0	Pass
5200	29.0	35.3	17.1	16.1	17.0	0.041	3.5	4.0	5.0	Pass
5240	29.0	37.5	17.1	16.6	17.0	0.045	3.8	4.0	5.0	Pass
5260	28.5	37.0	17.1	16.1	24.0	0.040	3.4	11.0	11.0	Pass
5280	28.5	34.5	17.1	16.2	24.0	0.042	3.5	11.0	11.0	Pass
5320	25.5	22.2	17.1	14.0	24.0	0.025	1.4	11.0	11.0	Pass
5500	26.5	35.8	17.1	16.4	24.0	0.044	3.6	11.0	11.0	Pass
5600	29.0	40.7	17.6	18.5	24.0	0.071	6.0	11.0	11.0	Pass
5700	26.5	29.8	17.1	15.0	24.0	0.031	2.2	11.0	11.0	Pass

Note 1:	Output power measured using a spectrum analyzer (see plots below): RBW=1MHz, VB=3 MHz, sample detector, power averaging on (transmitted signal was continuous) and power integration over 50 MHz
Note 2:	Measured using the same analyzer settings used for output power.
Note 3:	For RSS-210 the limit for the 5150 - 5250 MHz band accounts for the antenna gain as the maximum eirp allowed is 10dBm/MHz. The limits are also corrected for instances where the highest measured value of the PSD exceeds the average PSD (calculated from the measured power divided by the measured 99% bandwidth) by more than 3dB by the amount that the measured value exceeds the average by more than 3dB.
Note 4:	99% Bandwidth measured in accordance with RSS GEN - RB > 1% of span and VB >=3xRB

Client:	Intel Corporation	Job Number:	J70762
Model:	512AN_HMW(Formal)	T-Log Number:	T70766
		Account Manager:	Richard Gencev
Contact:	Robert Paxman		
Standard:	FCC	Class:	N/A

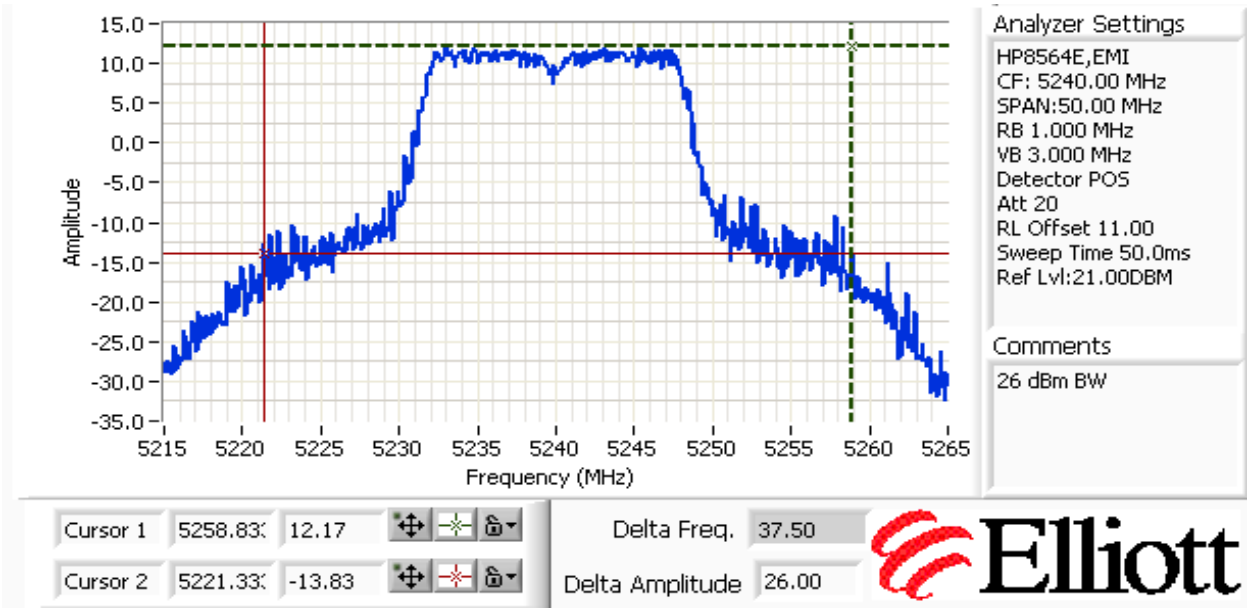
Run #1: Bandwidth, Output Power and Power spectral Density

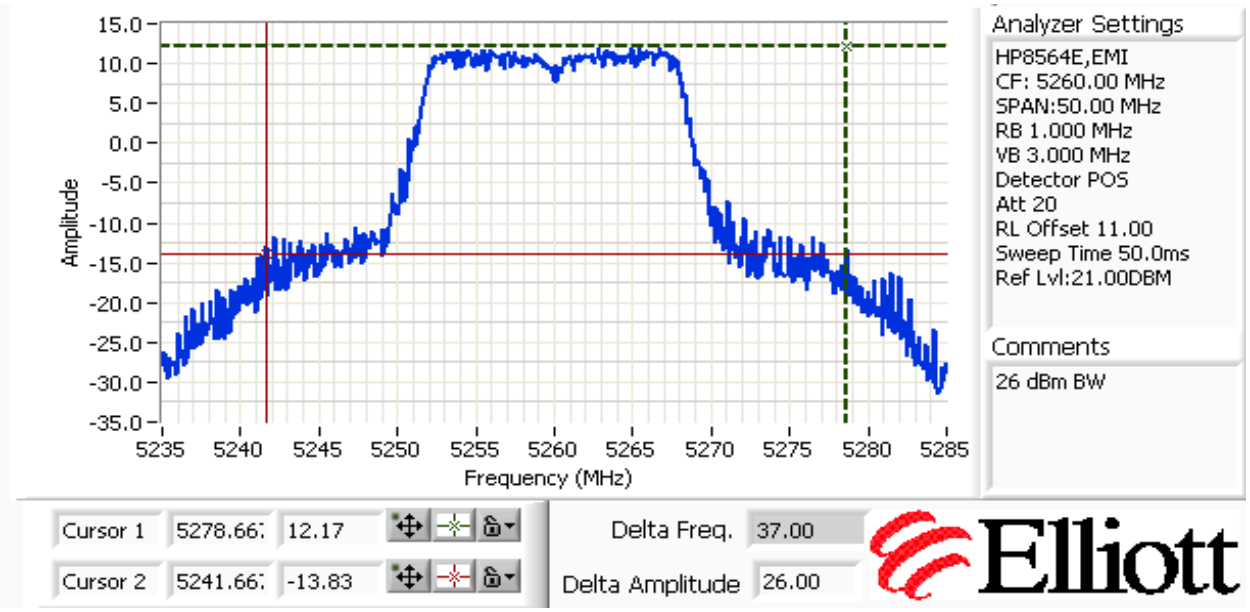




Client:	Intel Corporation	Job Number:	J70762
Model:	512AN_HMW(Formal)	T-Log Number:	T70766
		Account Manager:	Richard Gencev
Contact:	Robert Paxman		
Standard:	FCC	Class:	N/A

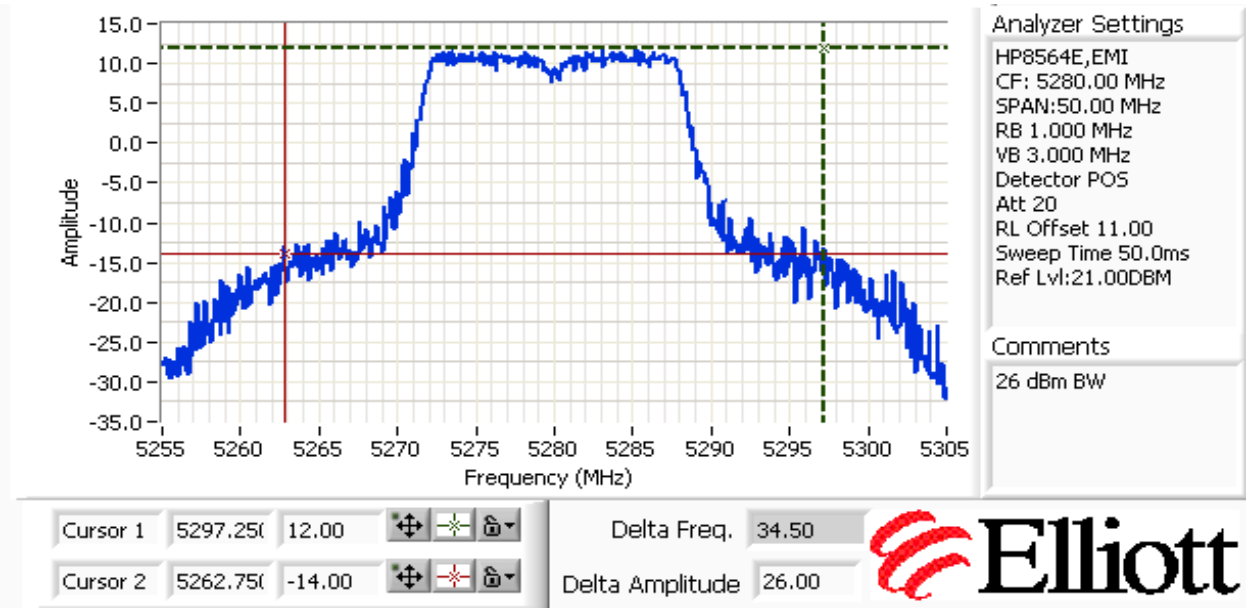
Run #1: Bandwidth, Output Power and Power spectral Density

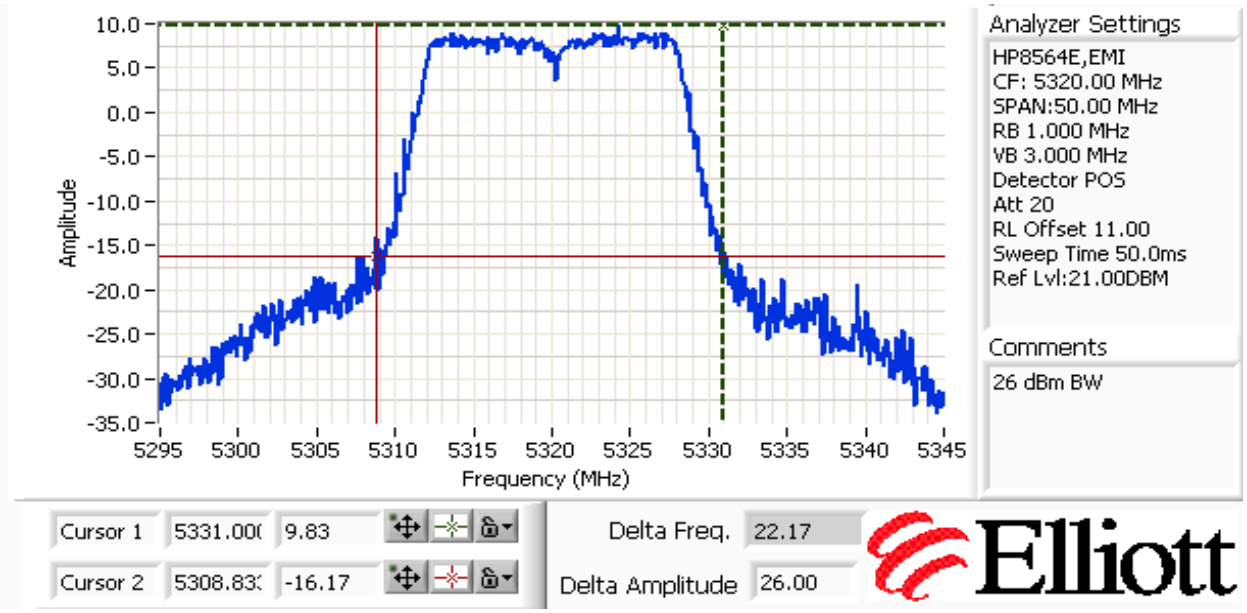




Client:	Intel Corporation	Job Number:	J70762
Model:	512AN_HMW(Formal)	T-Log Number:	T70766
		Account Manager:	Richard Gencev
Contact:	Robert Paxman		
Standard:	FCC	Class:	N/A

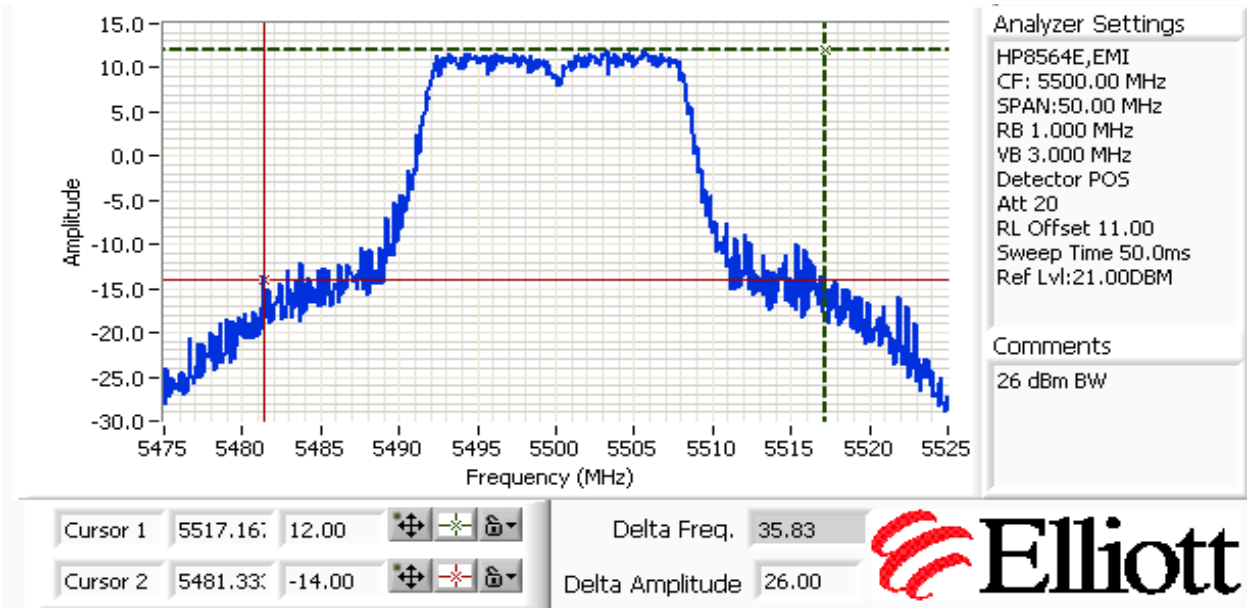
Run #1: Bandwidth, Output Power and Power spectral Density

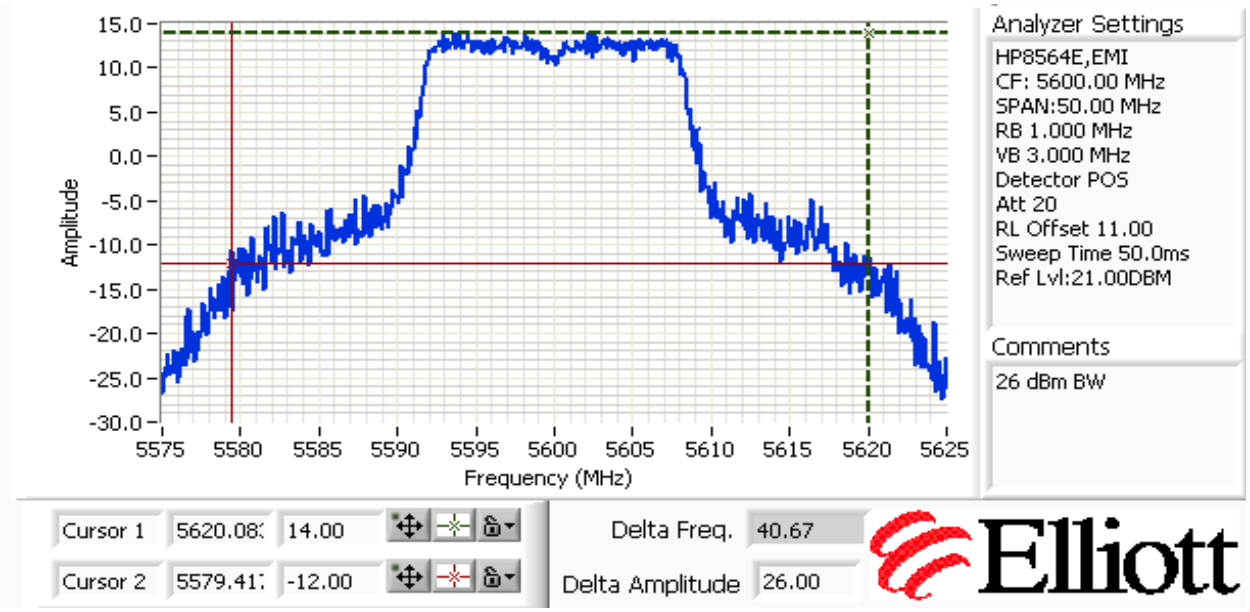




Client:	Intel Corporation	Job Number:	J70762
Model:	512AN_HMW(Formal)	T-Log Number:	T70766
		Account Manager:	Richard Gencev
Contact:	Robert Paxman		
Standard:	FCC	Class:	N/A

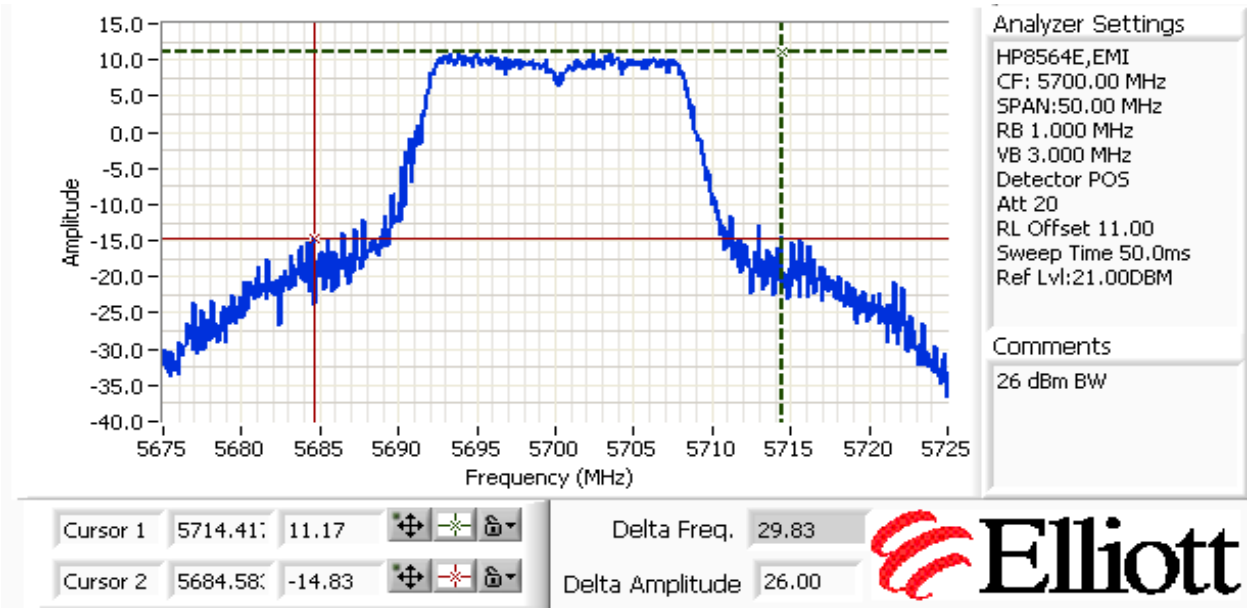
Run #1: Bandwidth, Output Power and Power spectral Density

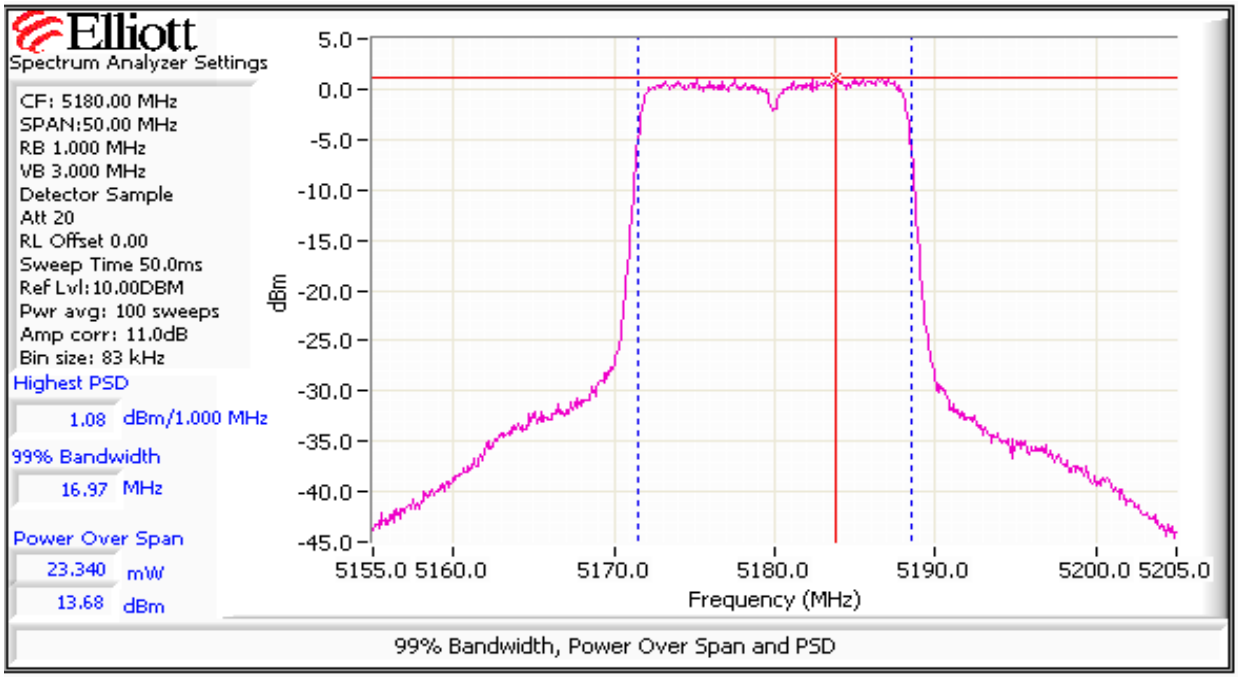




Client:	Intel Corporation	Job Number:	J70762
Model:	512AN_HMW(Formal)	T-Log Number:	T70766
		Account Manager:	Richard Gencev
Contact:	Robert Paxman		
Standard:	FCC	Class:	N/A

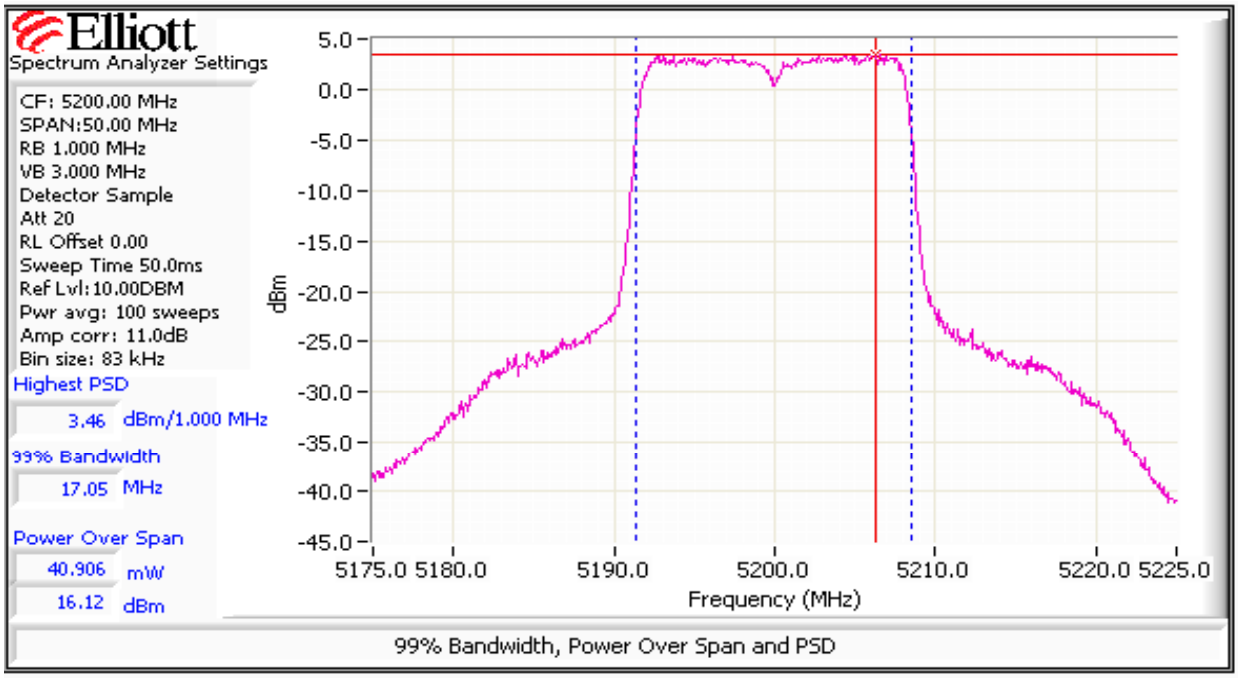
Run #1: Bandwidth, Output Power and Power spectral Density

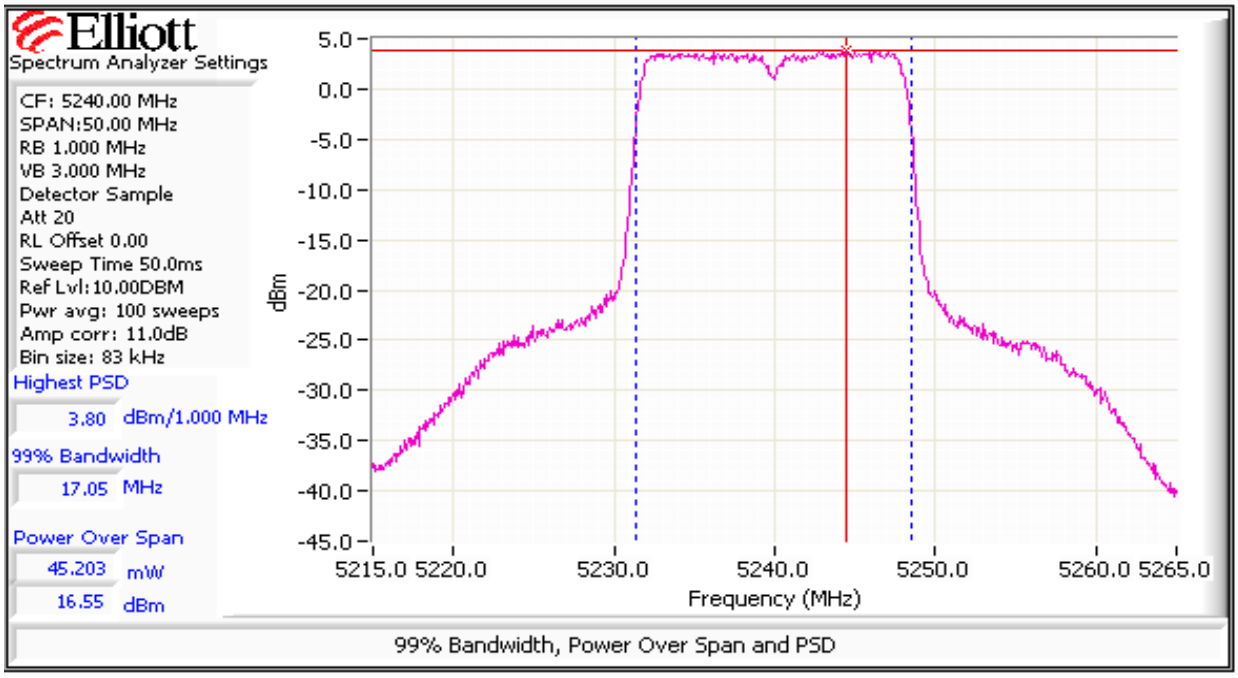




Client:	Intel Corporation	Job Number:	J70762
Model:	512AN_HMW(Formal)	T-Log Number:	T70766
		Account Manager:	Richard Gencev
Contact:	Robert Paxman		
Standard:	FCC	Class:	N/A

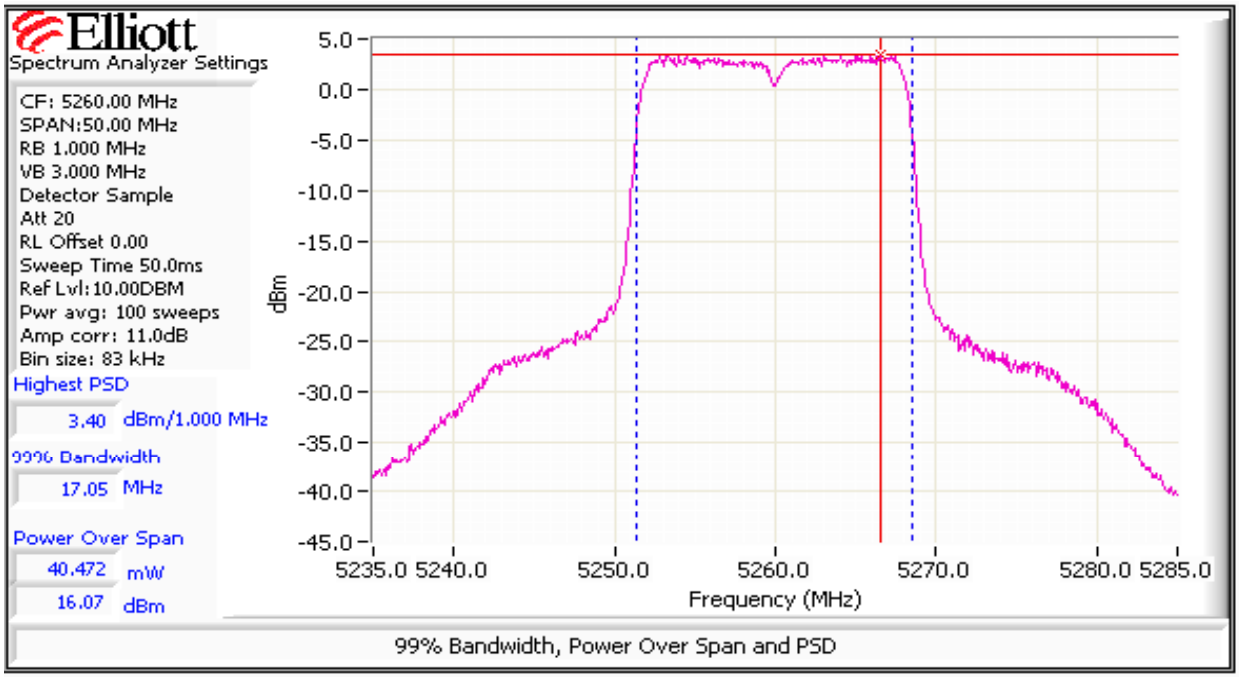
Run #1: Bandwidth, Output Power and Power spectral Density

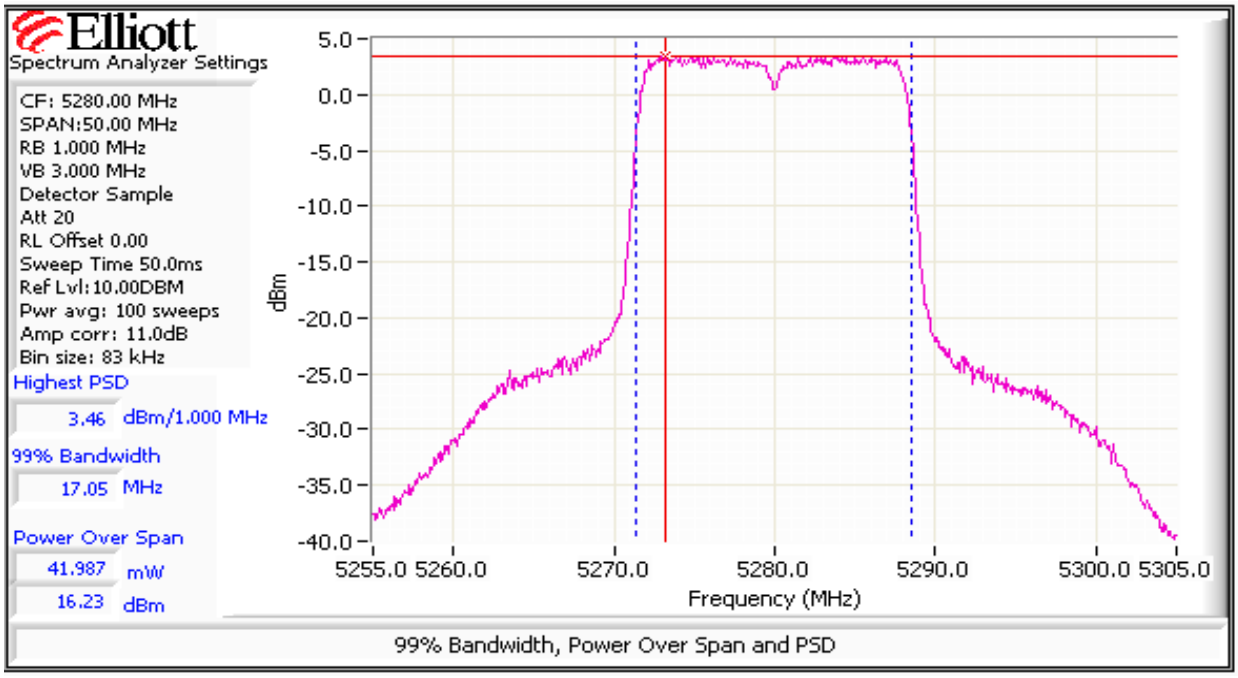




Client:	Intel Corporation	Job Number:	J70762
Model:	512AN_HMW(Formal)	T-Log Number:	T70766
		Account Manager:	Richard Gencev
Contact:	Robert Paxman		
Standard:	FCC	Class:	N/A

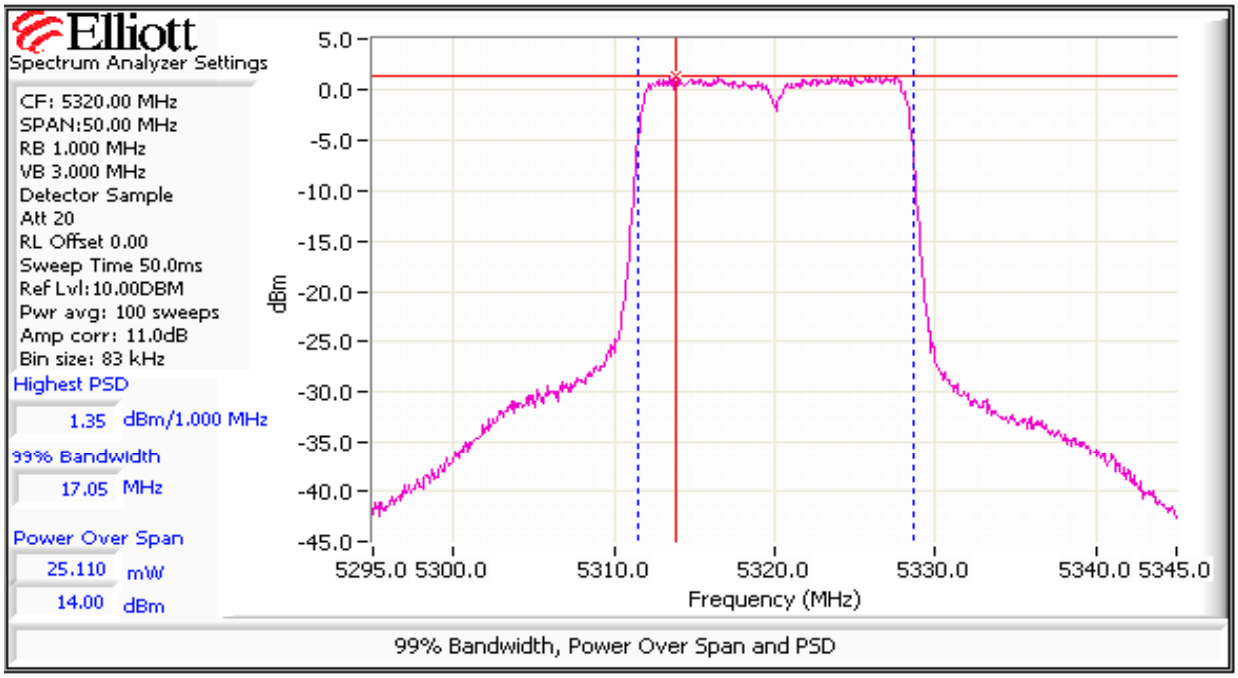
Run #1: Bandwidth, Output Power and Power spectral Density

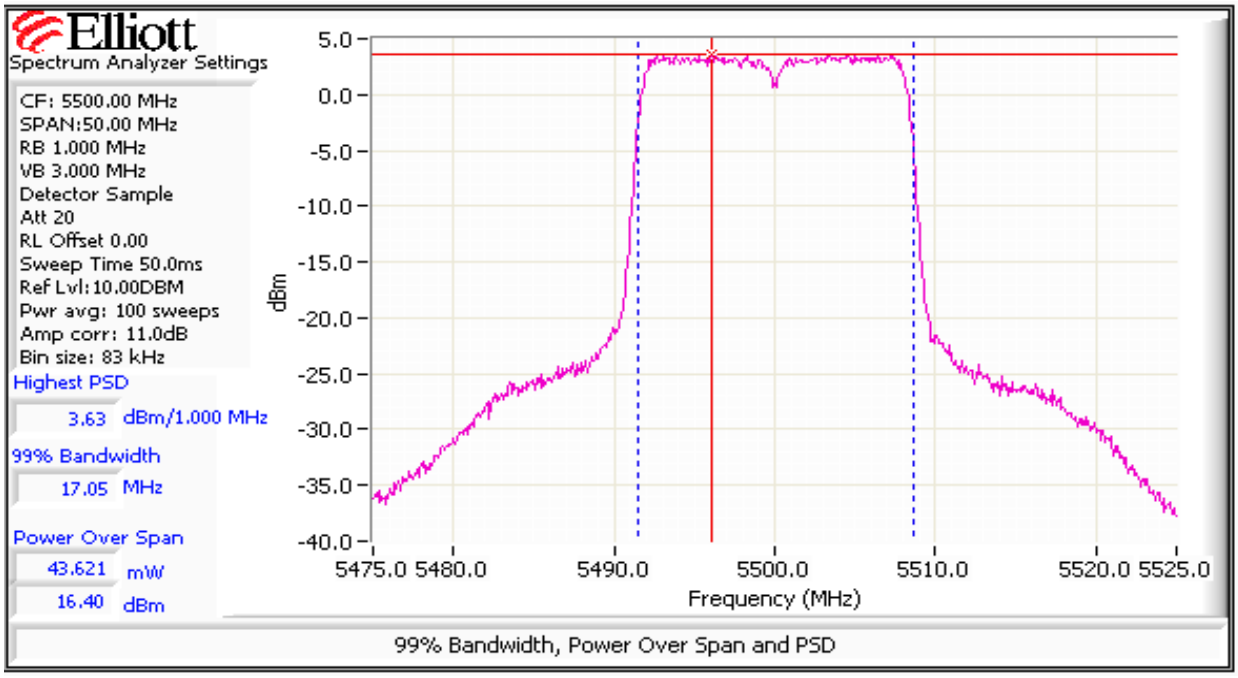




Client:	Intel Corporation	Job Number:	J70762
Model:	512AN_HMW(Formal)	T-Log Number:	T70766
		Account Manager:	Richard Gencev
Contact:	Robert Paxman		
Standard:	FCC	Class:	N/A

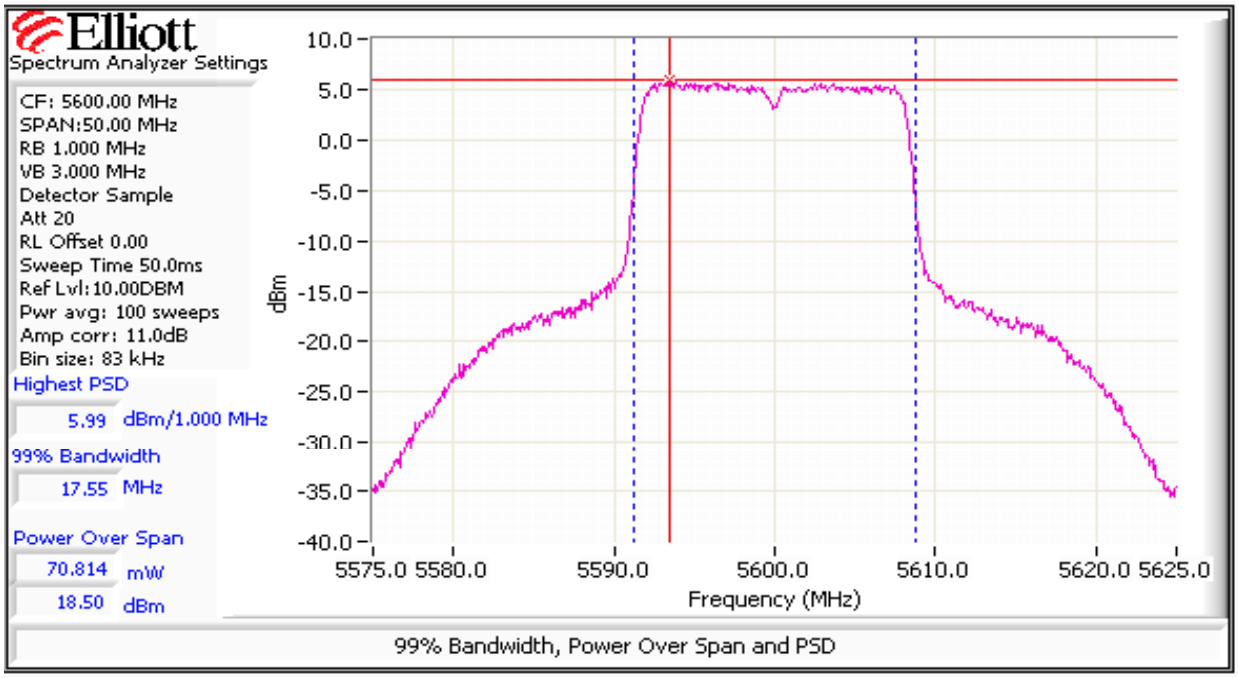
Run #1: Bandwidth, Output Power and Power spectral Density

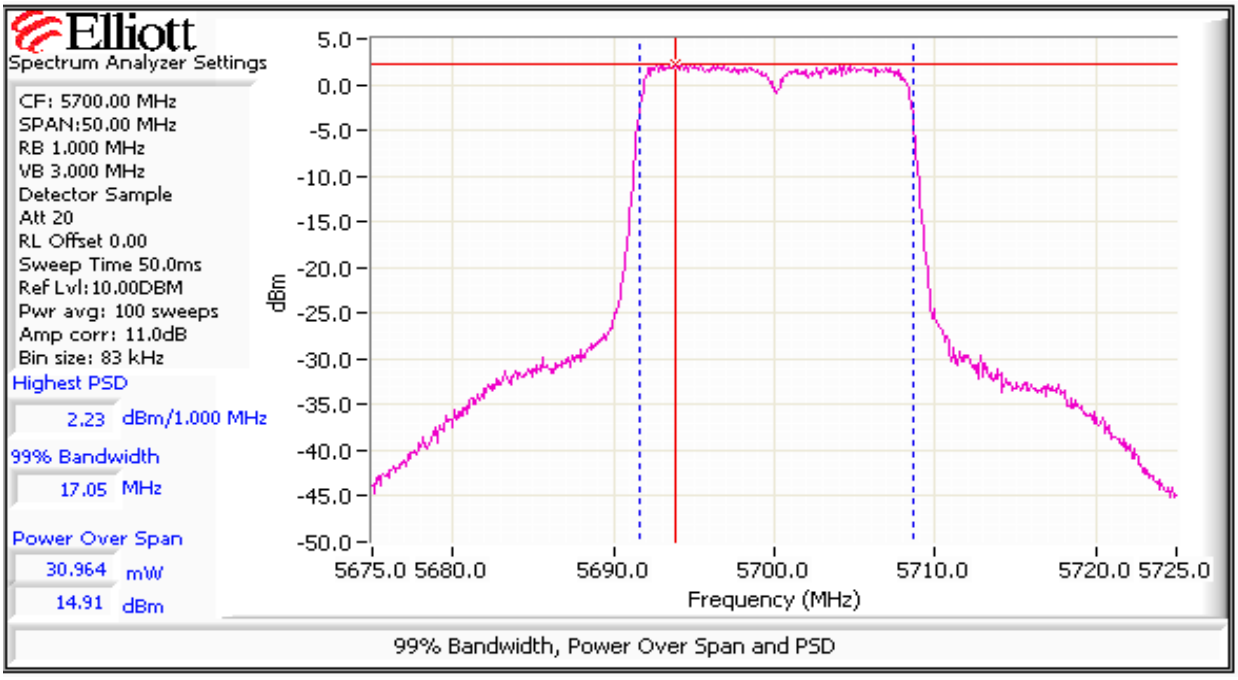




Client:	Intel Corporation	Job Number:	J70762
Model:	512AN_HMW(Formal)	T-Log Number:	T70766
		Account Manager:	Richard Gencev
Contact:	Robert Paxman		
Standard:	FCC	Class:	N/A

Run #1: Bandwidth, Output Power and Power spectral Density





Client:	Intel Corporation	Job Number:	J70762
Model:	512AN_HMW(Formal)	T-Log Number:	T70766
		Account Manager:	Richard Gencev
Contact:	Robert Paxman		
Standard:	FCC	Class:	N/A

Run #2: Peak Excursion Measurement

Device meets the requirement for the peak excursion

Freq	Peak Excursion(dB)		Freq	Peak Excursion(dB)		Freq	Peak Excursion(dB)	
(MHz)	Value	Limit	(MHz)	Value	Limit	(MHz)	Value	Limit
5180	10.3	13.0	5260	10.1	13.0	5500	9.8	13.0
5200	10.0	13.0	5280	9.7	13.0	5600	9.7	13.0
5240	10.4	13.0	5320	9.9	13.0	5700	10.4	13.0

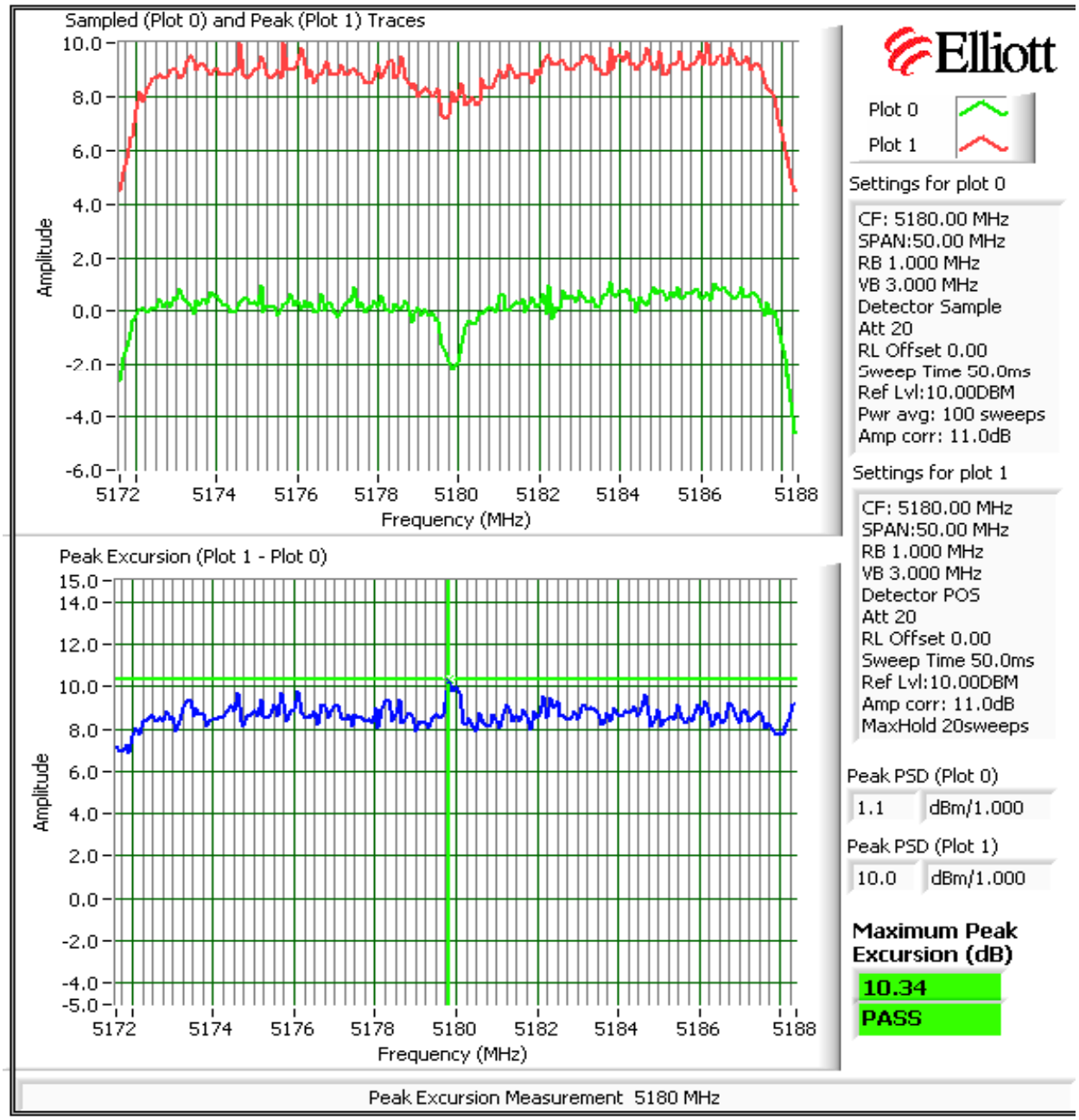
Plots Showing Peak Excursion

Trace A: RBW = VBW = 3MHz, Peak hold

Trace B: RBW = 1 MHz, VBW = 3MHz, Integrated average power

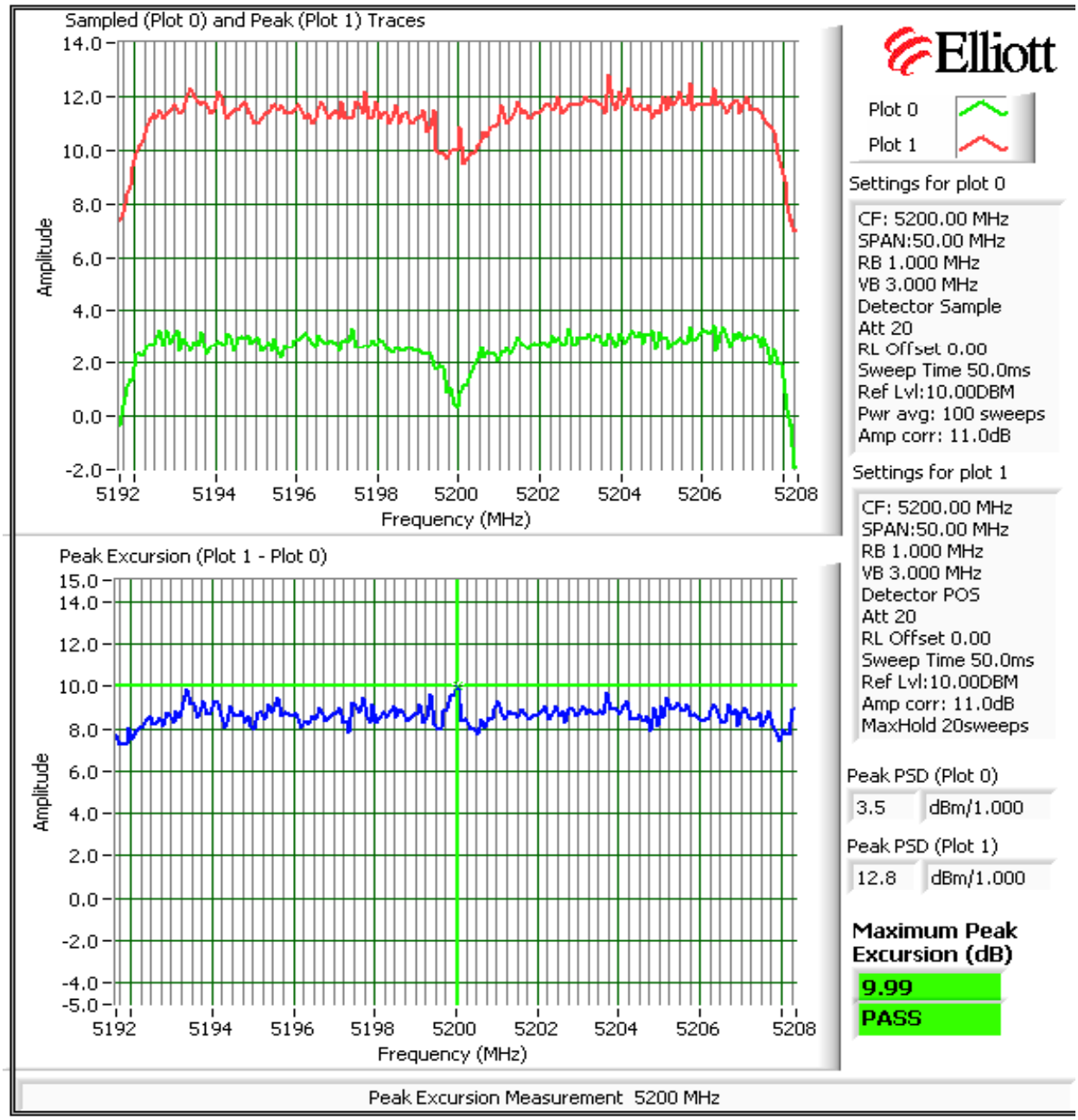
Client:	Intel Corporation	Job Number:	J70762
Model:	512AN_HMW(Formal)	T-Log Number:	T70766
		Account Manager:	Richard Gencev
Contact:	Robert Paxman		
Standard:	FCC	Class:	N/A

Run #2: Peak Excursion Measurement



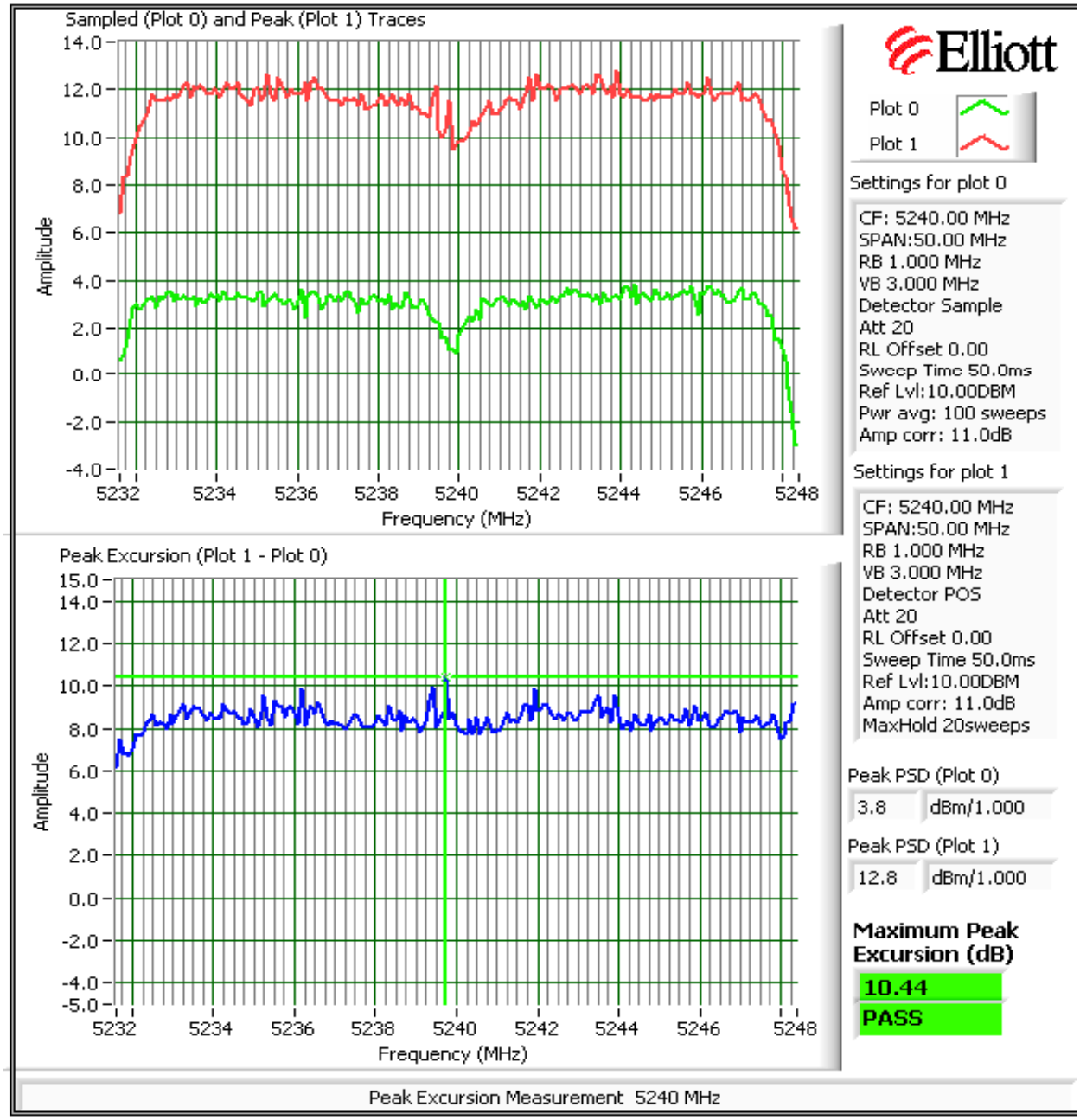
Client:	Intel Corporation	Job Number:	J70762
Model:	512AN_HMW(Formal)	T-Log Number:	T70766
		Account Manager:	Richard Gencev
Contact:	Robert Paxman		
Standard:	FCC	Class:	N/A

Run #2: Peak Excursion Measurement



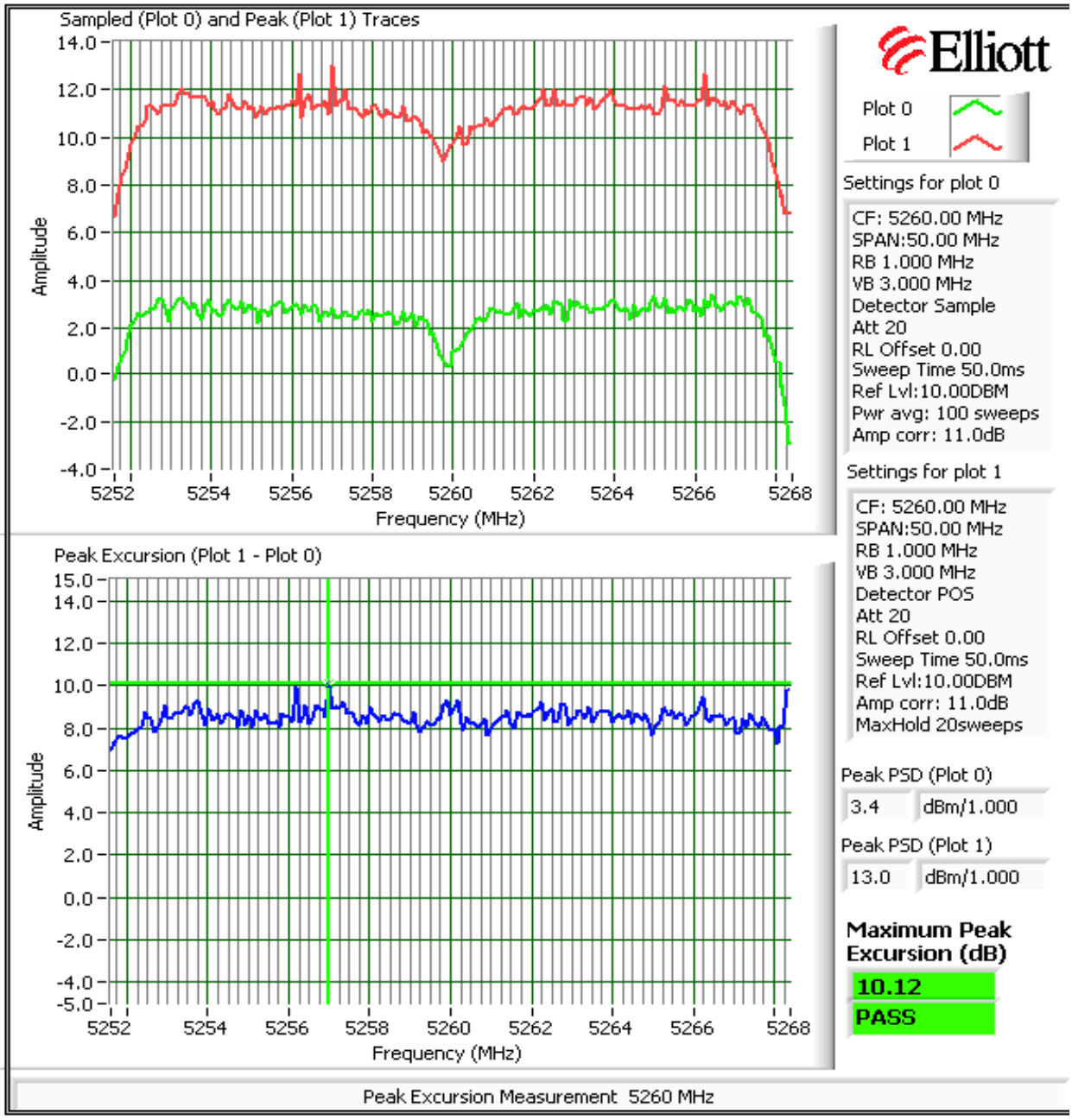
Client:	Intel Corporation	Job Number:	J70762
Model:	512AN_HMW(Formal)	T-Log Number:	T70766
		Account Manager:	Richard Gencev
Contact:	Robert Paxman		
Standard:	FCC	Class:	N/A

Run #2: Peak Excursion Measurement



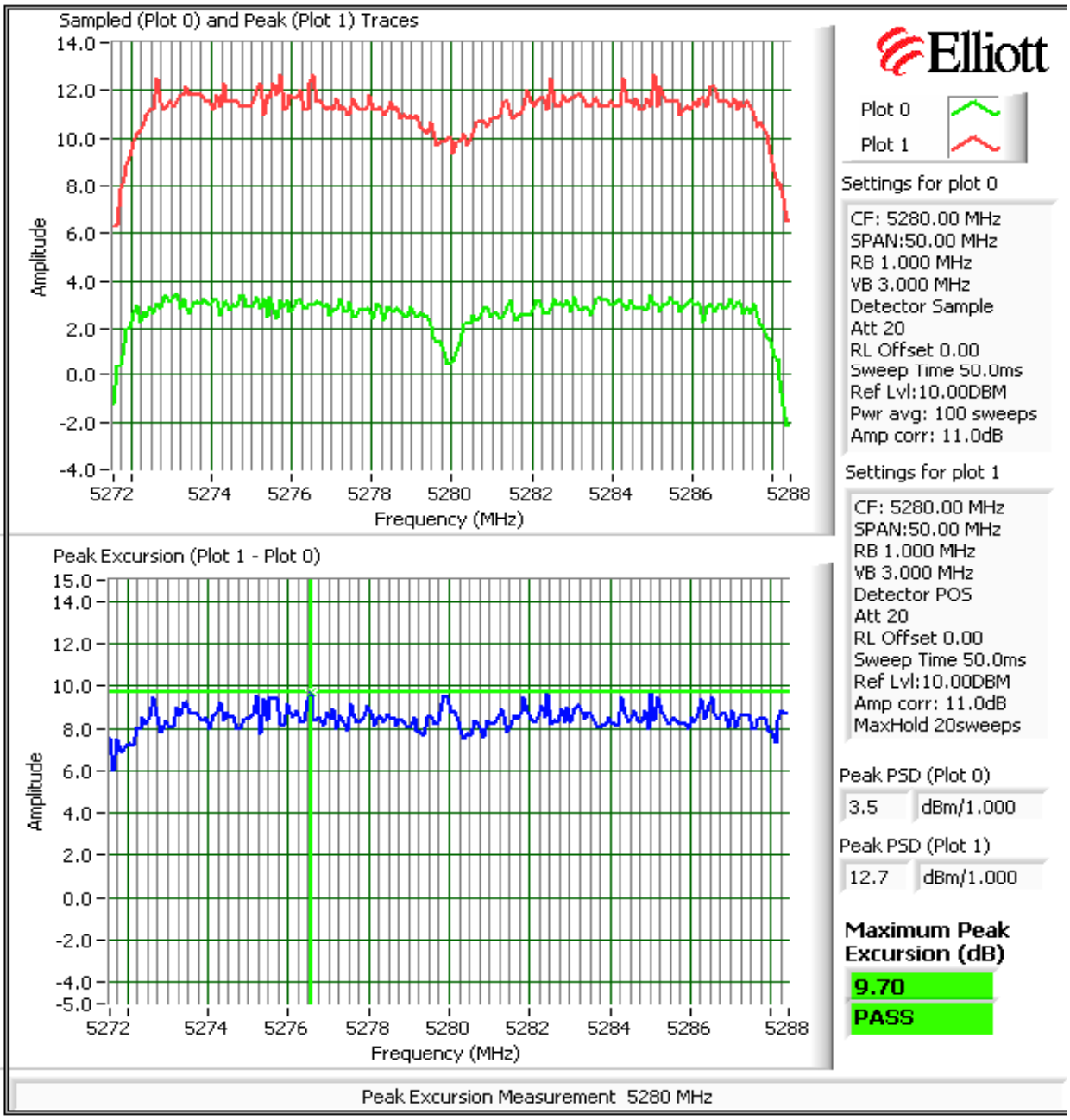
Client:	Intel Corporation	Job Number:	J70762
Model:	512AN_HMW(Formal)	T-Log Number:	T70766
		Account Manager:	Richard Gencev
Contact:	Robert Paxman		
Standard:	FCC	Class:	N/A

Run #2: Peak Excursion Measurement



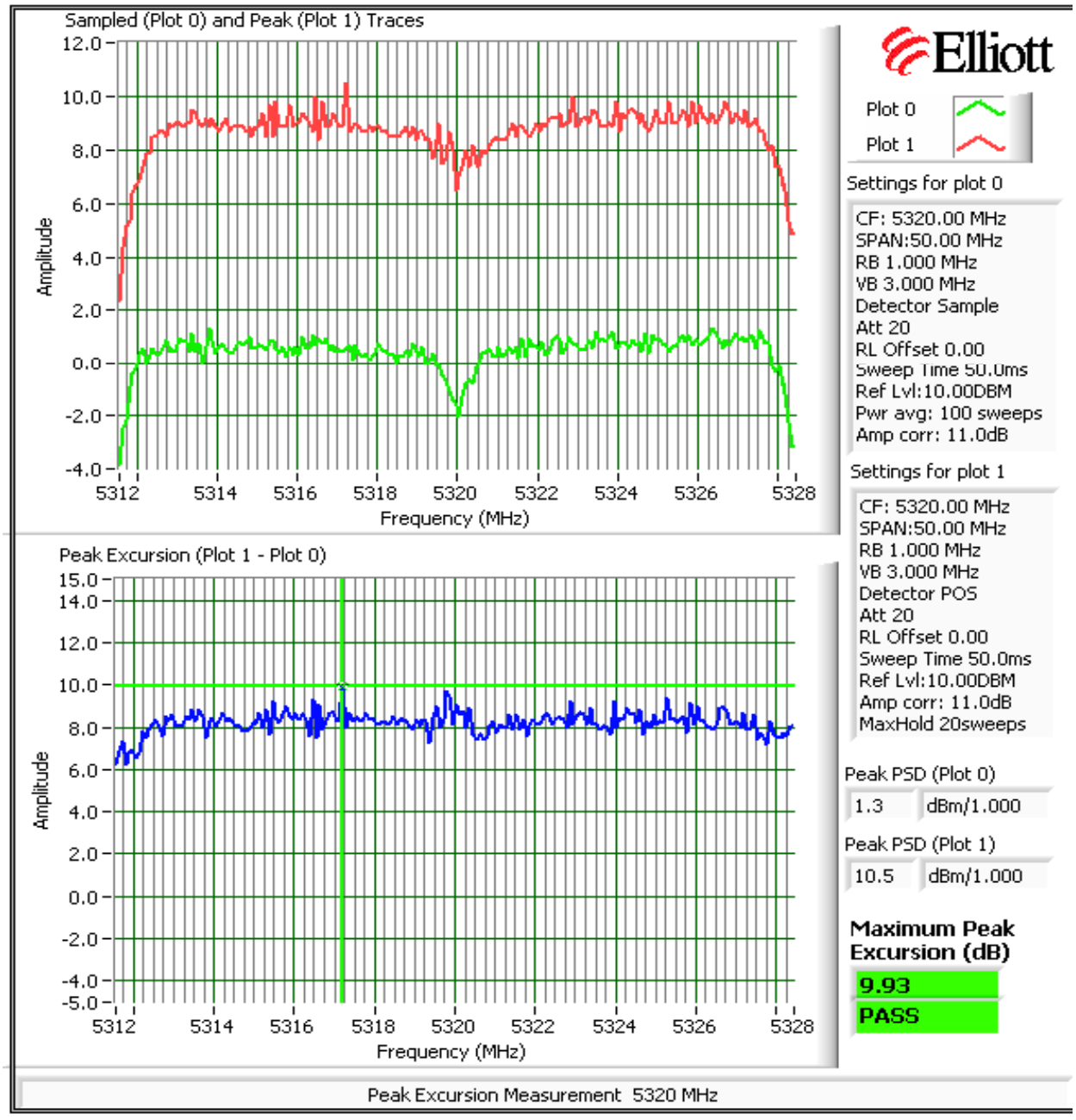
Client:	Intel Corporation	Job Number:	J70762
Model:	512AN_HMW(Formal)	T-Log Number:	T70766
		Account Manager:	Richard Gencev
Contact:	Robert Paxman		
Standard:	FCC	Class:	N/A

Run #2: Peak Excursion Measurement



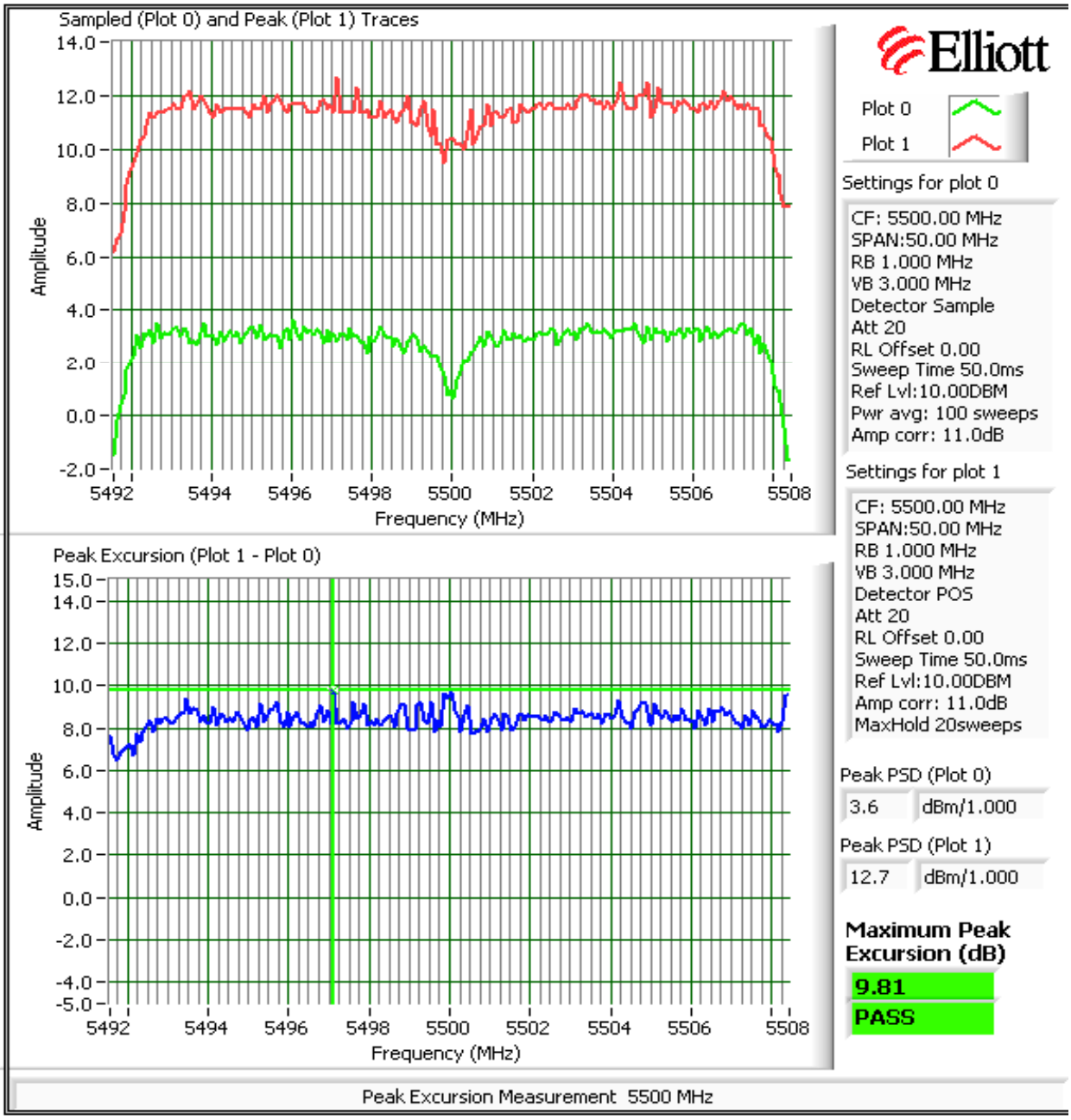
Client:	Intel Corporation	Job Number:	J70762
Model:	512AN_HMW(Formal)	T-Log Number:	T70766
		Account Manager:	Richard Gencev
Contact:	Robert Paxman		
Standard:	FCC	Class:	N/A

Run #2: Peak Excursion Measurement



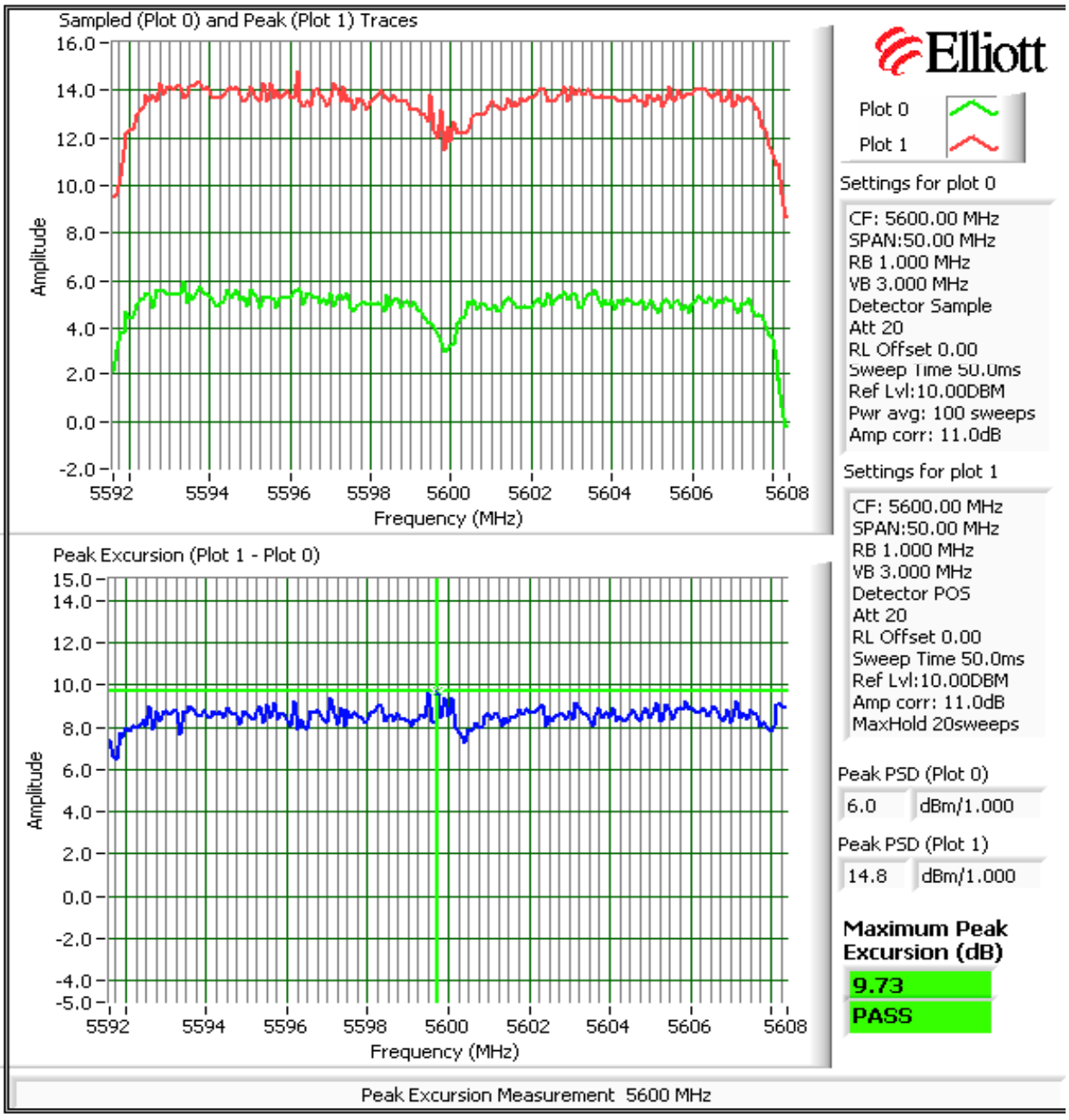
Client:	Intel Corporation	Job Number:	J70762
Model:	512AN_HMW(Formal)	T-Log Number:	T70766
		Account Manager:	Richard Gencev
Contact:	Robert Paxman		
Standard:	FCC	Class:	N/A

Run #2: Peak Excursion Measurement



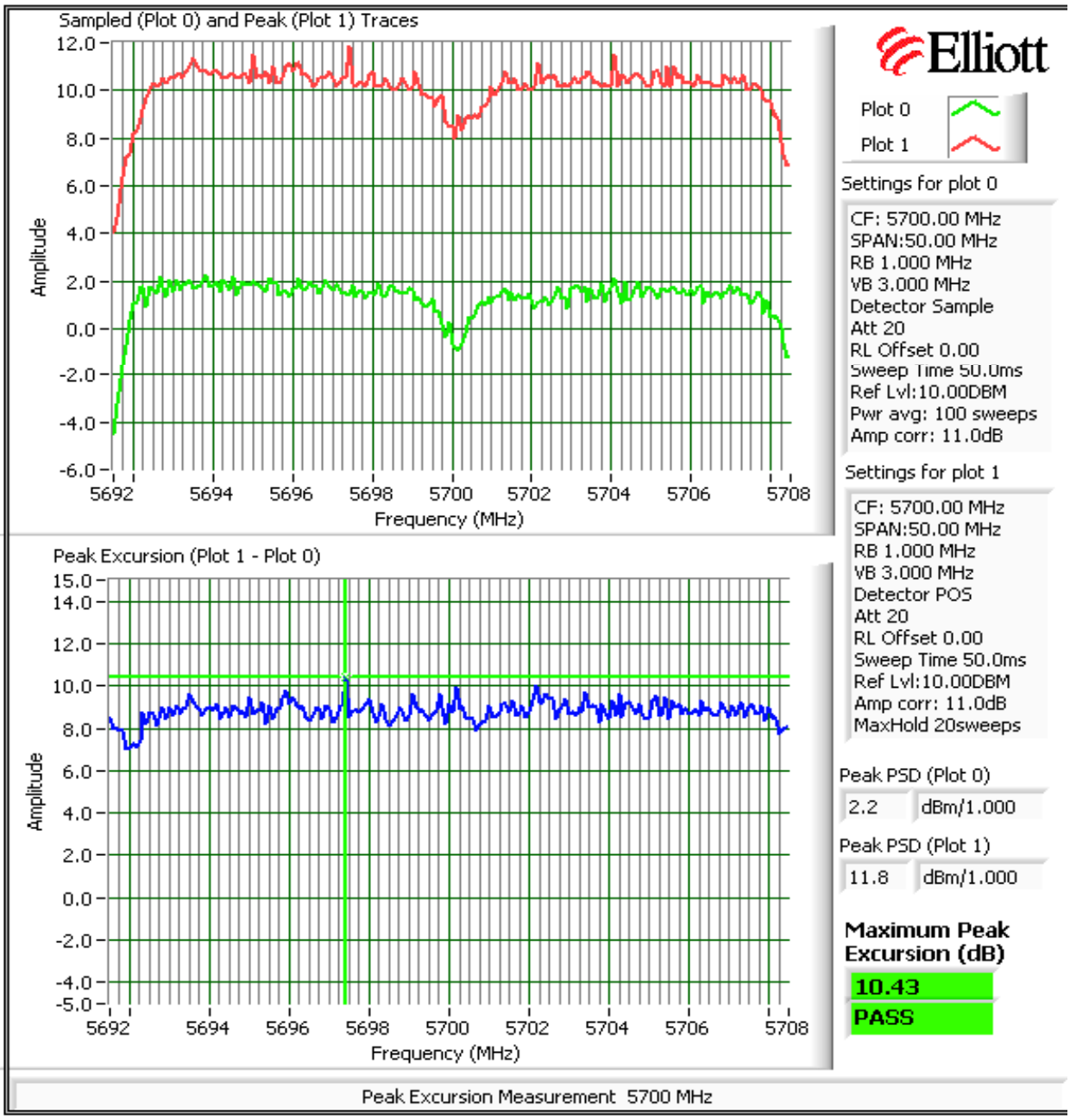
Client:	Intel Corporation	Job Number:	J70762
Model:	512AN_HMW(Formal)	T-Log Number:	T70766
		Account Manager:	Richard Gencev
Contact:	Robert Paxman		
Standard:	FCC	Class:	N/A

Run #2: Peak Excursion Measurement



Client:	Intel Corporation	Job Number:	J70762
Model:	512AN_HMW(Formal)	T-Log Number:	T70766
		Account Manager:	Richard Gencev
Contact:	Robert Paxman		
Standard:	FCC	Class:	N/A

Run #2: Peak Excursion Measurement



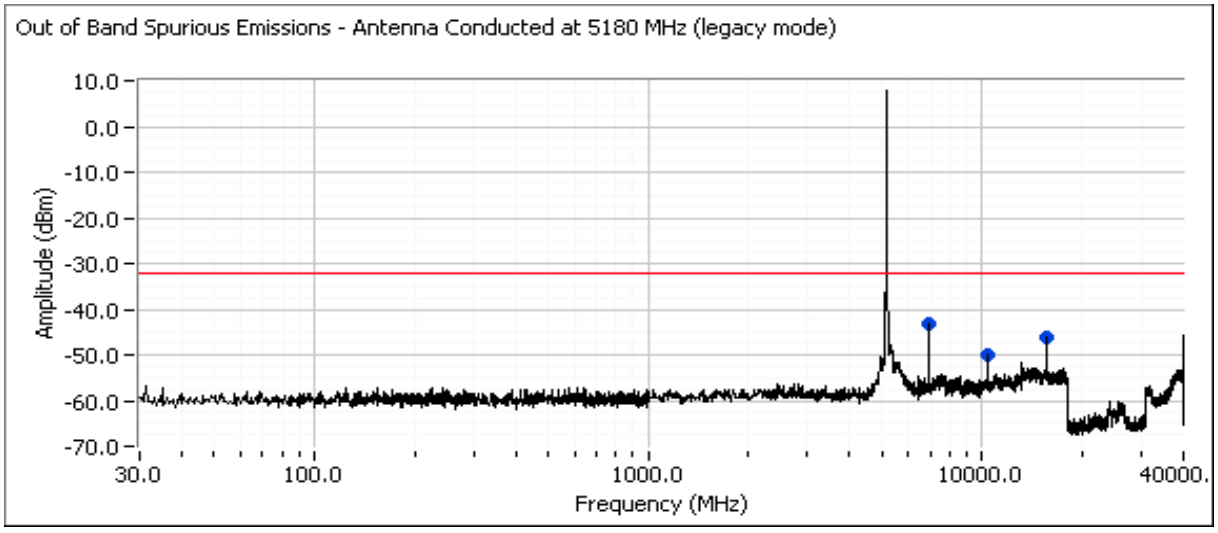
Client:	Intel Corporation	Job Number:	J70762
Model:	512AN_HMW(Formal)	T-Log Number:	T70766
		Account Manager:	Richard Gencev
Contact:	Robert Paxman		
Standard:	FCC	Class:	N/A

Run #3: Out Of Band Spurious Emissions - Antenna Conducted

Maximum Antenna Gain:	5	dBi
Spurious Limit:	-27	dBm/MHz eirp
Limit Used On Plots [Note 1]:	-32	dBm/MHz

Note 1:	The -27dBm/MHz limit is an eirp limit. The limit for antenna port conducted measurements is adjusted to take into consideration the maximum antenna gain (limit = -27dBm - antenna gain). Radiated field strength measurements for signals more than 50MHz from the bands and that are close to the limit are made to determine compliance as the antenna gain is not known at these frequencies.
Note 2:	All spurious signals below 1GHz are measured during digital device radiated emissions test.
Note 3:	Signals within 10MHz of the 5.725 or 5.825 Band edge are subject to a limit of -17dBm EIRP
Note 4:	If the device is for outdoor use then the -27dBm eirp limit also applies in the 5150 - 5250 MHz band.
Note 5:	Signals that fall in the restricted bands of 15.205 are subject to the limit of 15.209.
Note 6:	30 -18000 MHz 20 dB attenuation was use and above 18 GHz 10 dB attenuation was used.

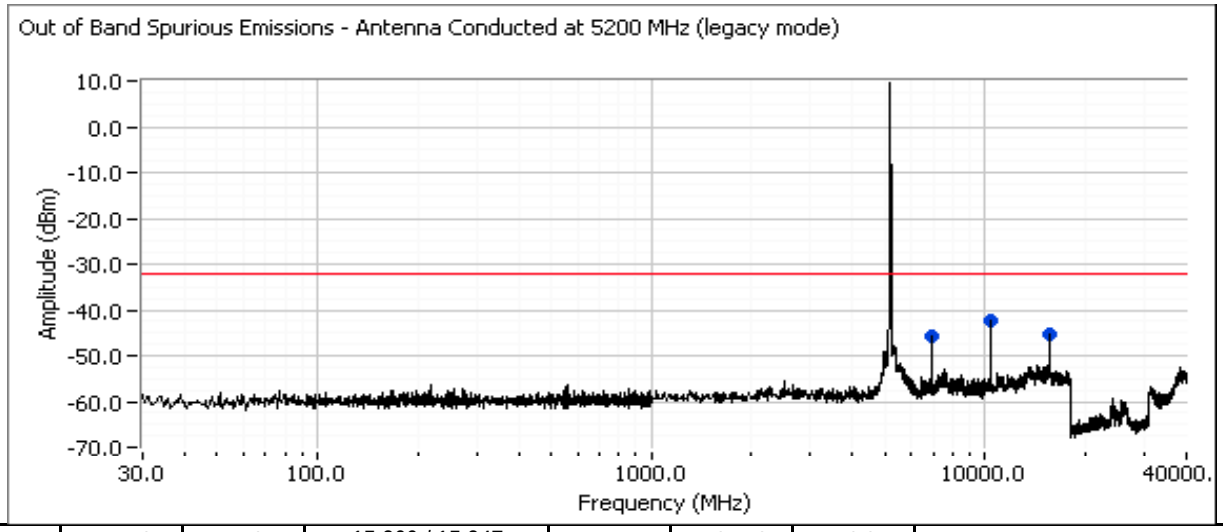
Plots Showing Out-Of-Band Emissions (RBW=VBW=1MHz)



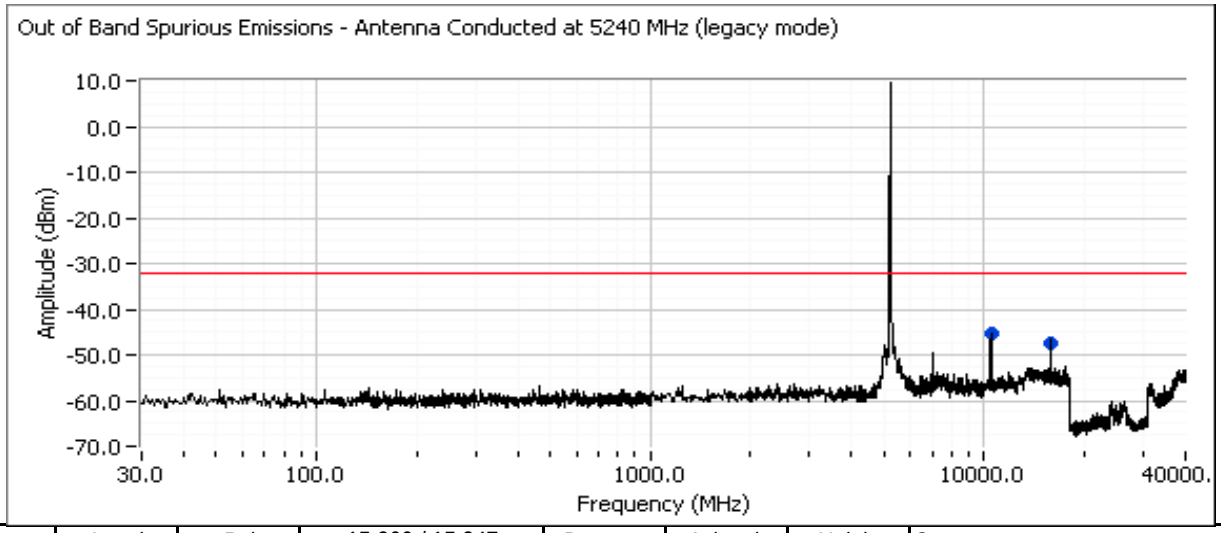
Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBm/MHz	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
6906.700	-43.2	-	-32.0	-11.2	Peak			
10363.180	-50.0	-	-32.0	-18.0	Peak			
15536.020	-46.2	-	-32.0	-14.2	Peak			

Client:	Intel Corporation	Job Number:	J70762
Model:	512AN_HMW(Formal)	T-Log Number:	T70766
		Account Manager:	Richard Gencev
Contact:	Robert Paxman		
Standard:	FCC	Class:	N/A

Run #3: Out Of Band Spurious Emissions - Antenna Conducted



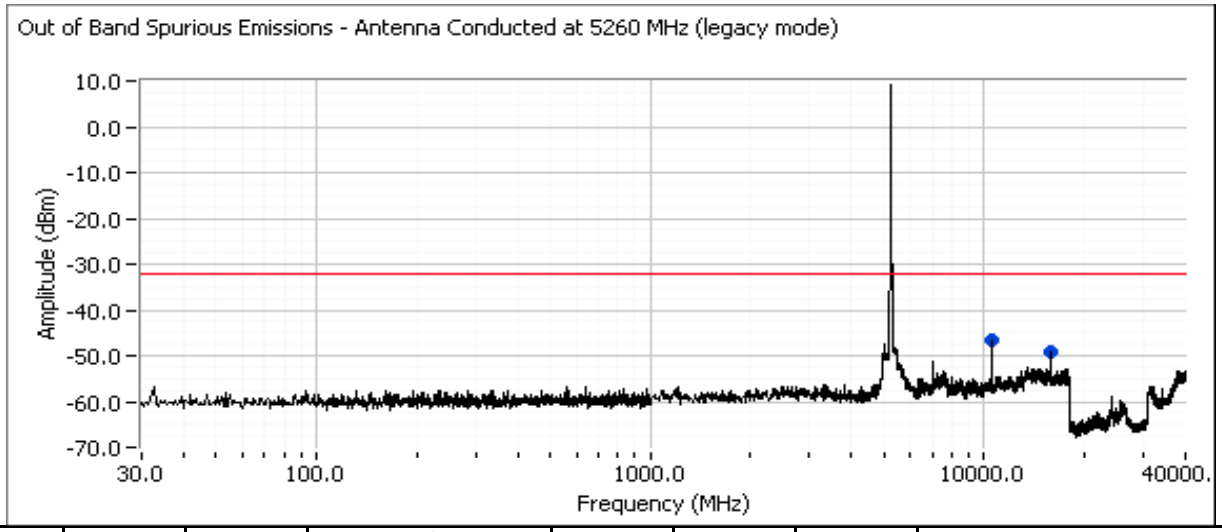
Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBm/MHz	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
6933.450	-45.7	-	-32.0	-13.7	Peak			
10396.390	-42.3	-	-32.0	-10.3	Peak			
15601.680	-45.3	-	-32.0	-13.3	Peak			



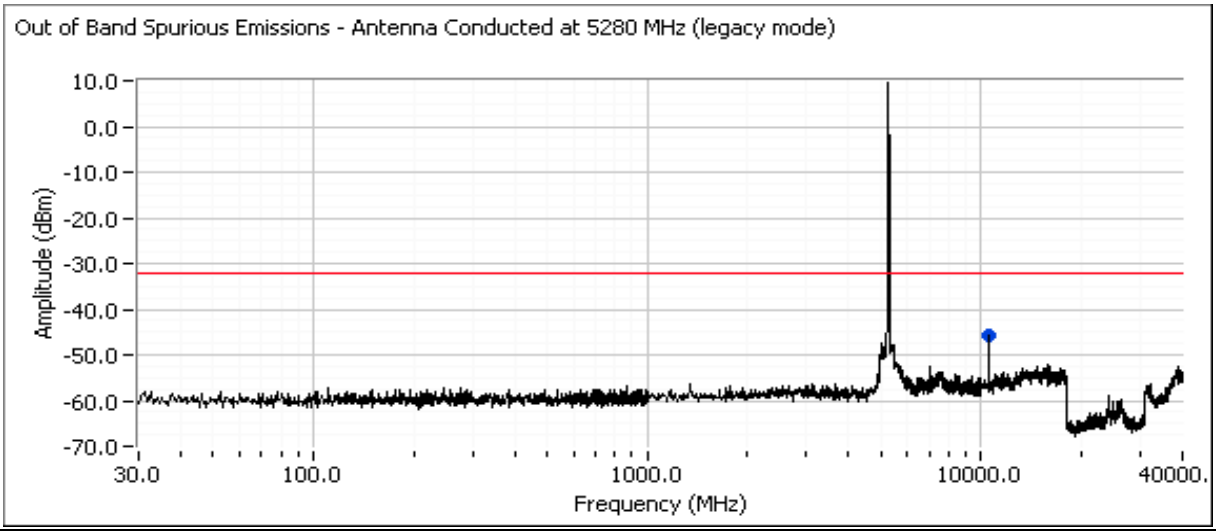
Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBm/MHz	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
10476.720	-45.2	-	-32.0	-13.2	Peak			
15716.560	-47.3	-	-32.0	-15.3	Peak			

Client:	Intel Corporation	Job Number:	J70762
Model:	512AN_HMW(Formal)	T-Log Number:	T70766
		Account Manager:	Richard Gencev
Contact:	Robert Paxman		
Standard:	FCC	Class:	N/A

Run #3: Out Of Band Spurious Emissions - Antenna Conducted



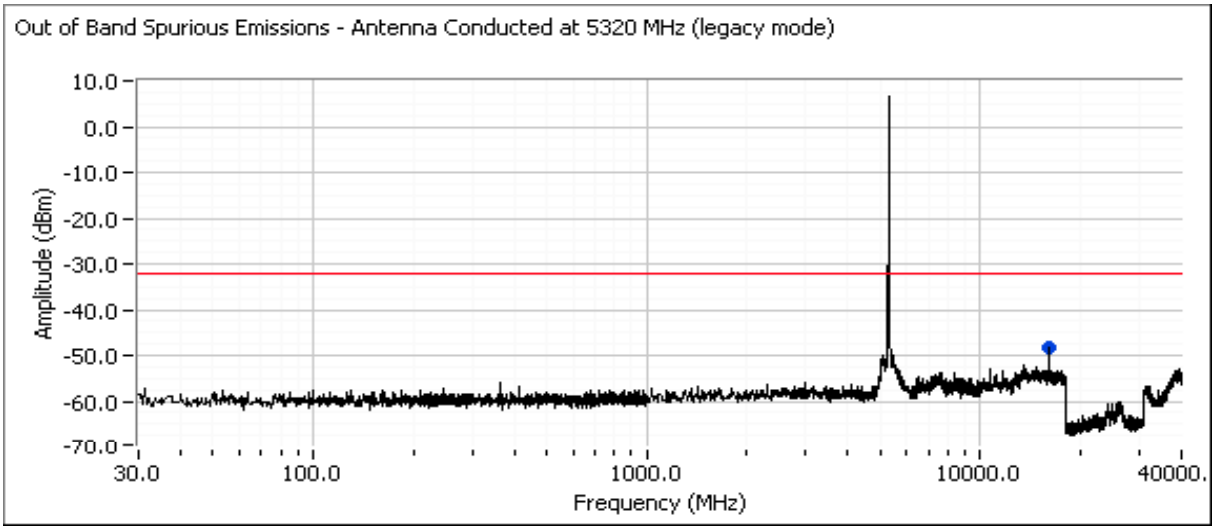
Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBm/MHz	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
10511.170	-46.5	-	-32.0	-14.5	Peak			
15775.060	-46.5	-	-32.0	-14.5	Peak			



Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBm/MHz	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
10560.180	-45.8	-	-32.0	-13.8	Peak			

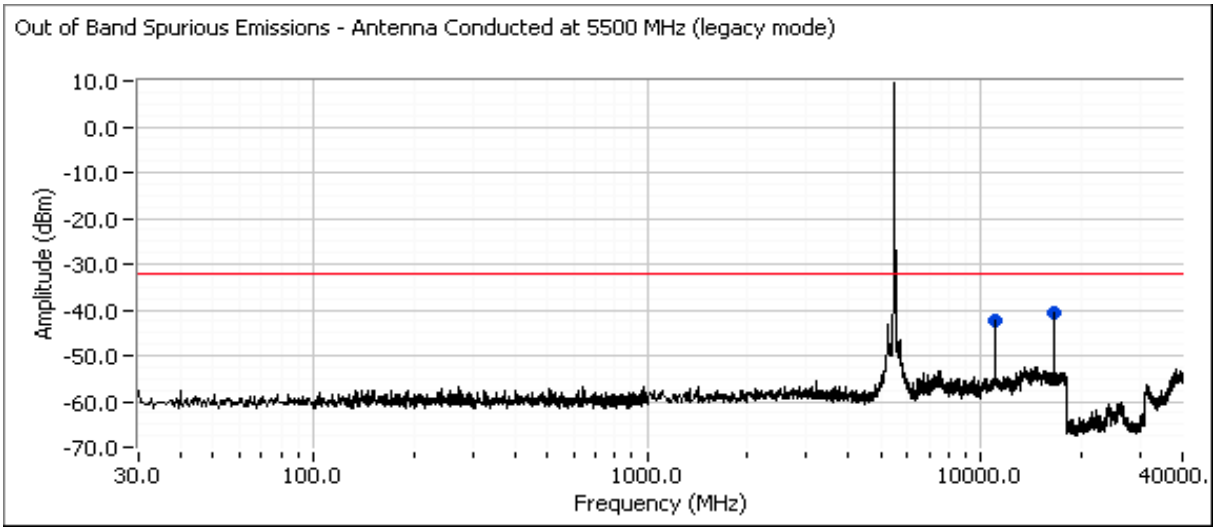
Client:	Intel Corporation	Job Number:	J70762
Model:	512AN_HMW(Formal)	T-Log Number:	T70766
		Account Manager:	Richard Gencev
Contact:	Robert Paxman		
Standard:	FCC	Class:	N/A

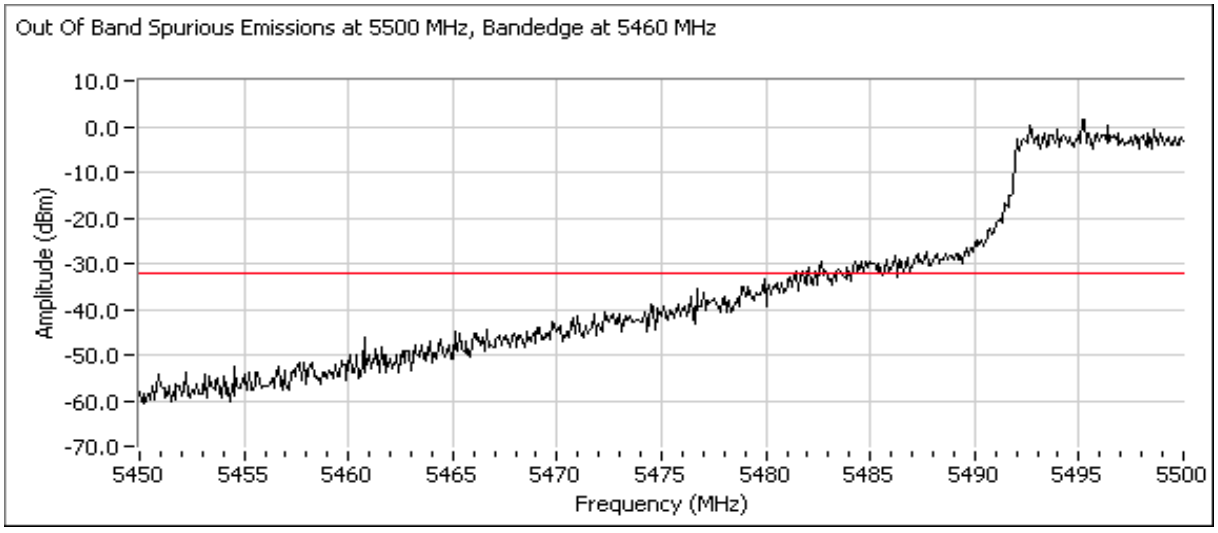
Run #3: Out Of Band Spurious Emissions - Antenna Conducted



Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBm/MHz	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
15956.870	-48.2	-	-32.0	-16.2	Peak			

Client:	Intel Corporation	Job Number:	J70762
Model:	512AN_HMW(Formal)	T-Log Number:	T70766
		Account Manager:	Richard Gencev
Contact:	Robert Paxman		
Standard:	FCC	Class:	N/A

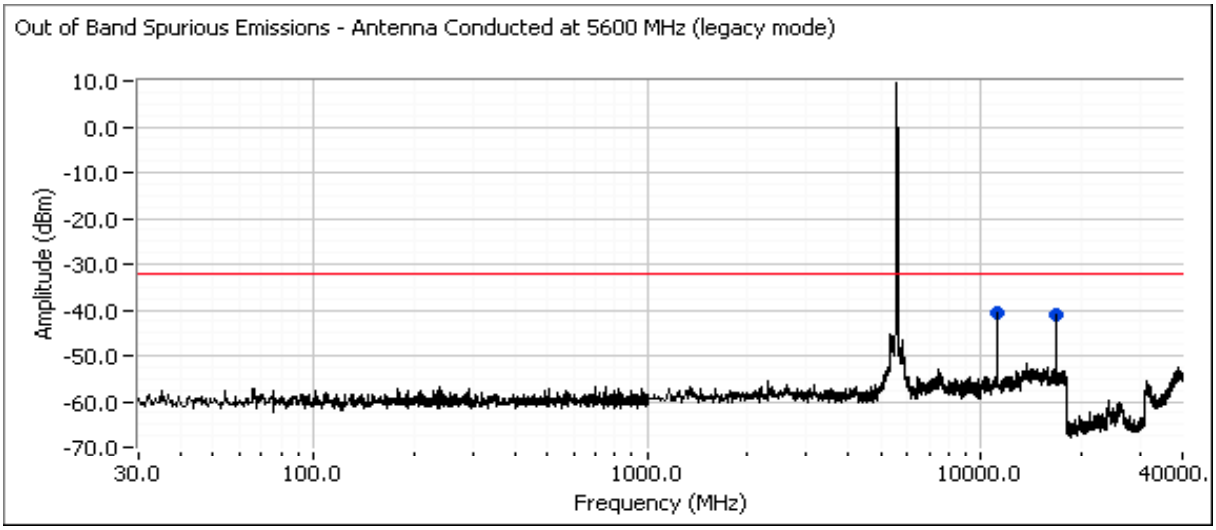




Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBm/MHz	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
10998.980	-42.5	-	-32.0	-10.5	Peak			
16497.820	-40.7	-	-32.0	-8.7	Peak			

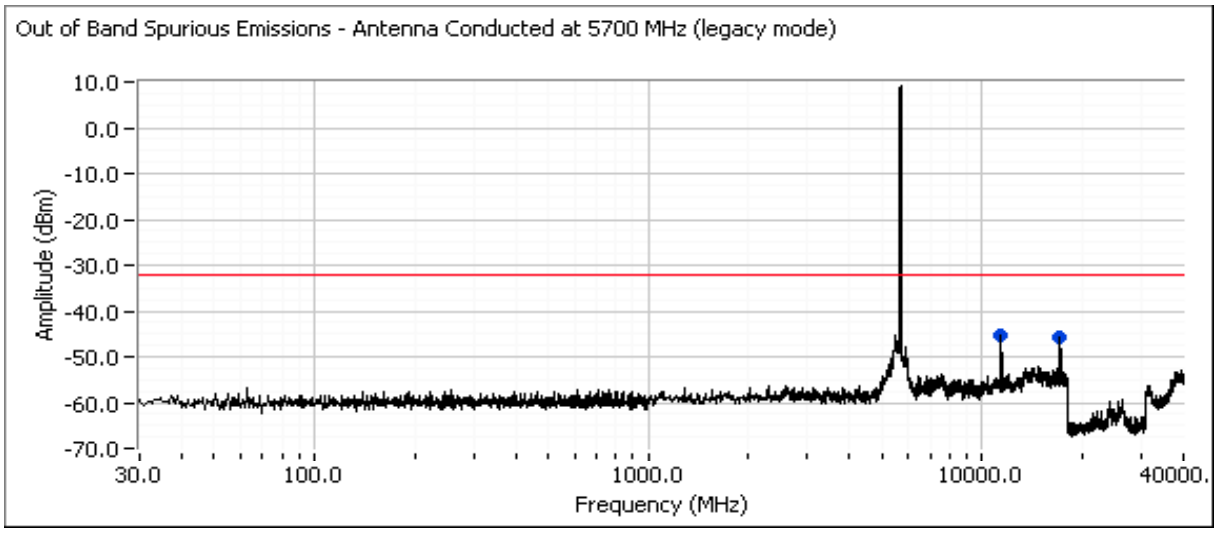
Client:	Intel Corporation	Job Number:	J70762
Model:	512AN_HMW(Formal)	T-Log Number:	T70766
		Account Manager:	Richard Gencev
Contact:	Robert Paxman		
Standard:	FCC	Class:	N/A

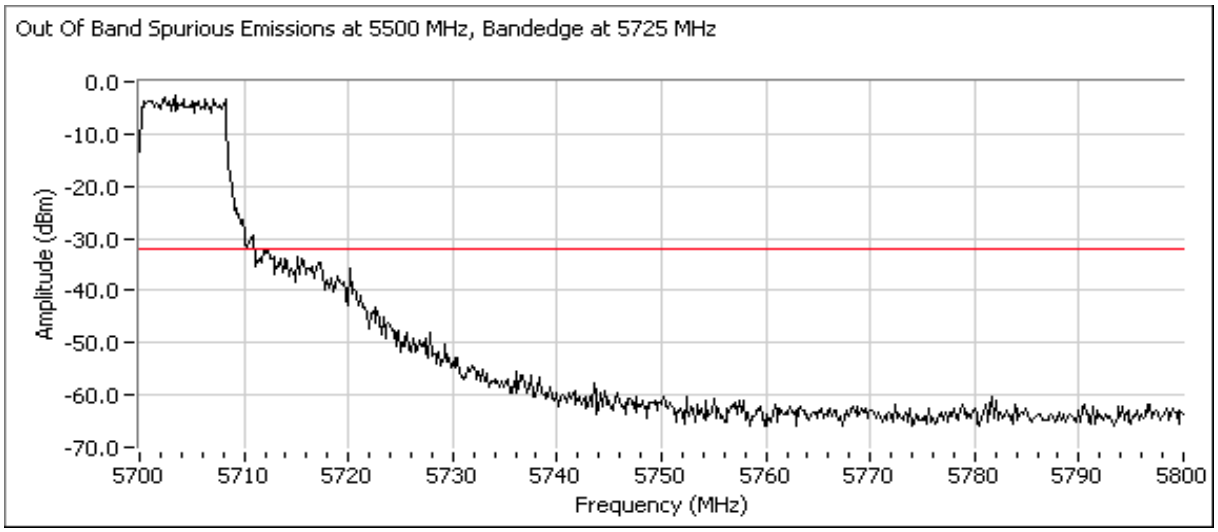
Run #3: Out Of Band Spurious Emissions - Antenna Conducted



Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBm/MHz	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
11198.380	-40.8	-	-32.0	-8.8	Peak			
16803.730	-41.2	-	-32.0	-9.2	Peak			

Client:	Intel Corporation	Job Number:	J70762
Model:	512AN_HMW(Formal)	T-Log Number:	T70766
		Account Manager:	Richard Gencev
Contact:	Robert Paxman		
Standard:	FCC	Class:	N/A





Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBm/MHz	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
11401.110	-45.2	-	-32.0	-13.2	Peak			
17101.880	-40.7	-	-32.0	-8.7	Peak			

Client:	Intel Corporation	Job Number:	J70762
Model:	512AN_HMW(Formal)	T-Log Number:	T70766
		Account Manager:	Richard Gencev
Contact:	Robert Paxman		
Standard:	FCC	Class:	N/A

RSS-210 (LELAN) and FCC 15.407(UNII)
Antenna Port Measurements
Power, PSD, Peak Excursion, Bandwidth and 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.

Date of Test: 2/28/2008 14:00
Test Engineer: Suhaila Khushzad
Test Location: Fremont EMC Lab

Config. Used: 1
Config Change: None
EUT Voltage: Powered From Host System

General Test Configuration

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

Ambient Conditions:

Temperature: 23 °C
Rel. Humidity: 35 %

Summary of Results

Run #	Test Performed	Limit	Pass / Fail	Result / Margin
1	Power, 5150 - 5250MHz	15.407(a) (1), (2)	Pass	15.3dBm (34mW)
1	Power, 5250 - 5350MHz	15.407(a) (1), (2)	Pass	14.21dBm (26.38mW)
1	Power, 5470 - 5725MHz	15.407(a) (1), (2)	Pass	15.6dBm (35.984mW)
1	PSD, 5150 - 5250MHz	15.407(a) (1), (2)	Pass	2.6dBm/MHz
1	PSD, 5250 - 5350MHz	15.407(a) (1), (2)	Pass	1.6dBm/MHz
1	PSD, 5470 - 5725MHz	15.407(a) (1), (2)	Pass	2.8dBm/MHz
1	26dB Bandwidth	15.407	-	44.9 MHz
1	99% Bandwidth	RSS 210	-	18.3 MHz
2	Peak Excursion Envelope	15.407(a) (6)	Pass	10.9dB
3	Antenna Conducted - Out of Band Spurious	15.407(b)	Pass	All emissions below the -27dBm/MHz limit

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:	J70762
Model:	512AN_HMW(Formal)	T-Log Number:	T70766
		Account Manager:	Richard Gencev
Contact:	Robert Paxman		
Standard:	FCC	Class:	N/A

Run #1: Bandwidth, Output Power and Power spectral Density

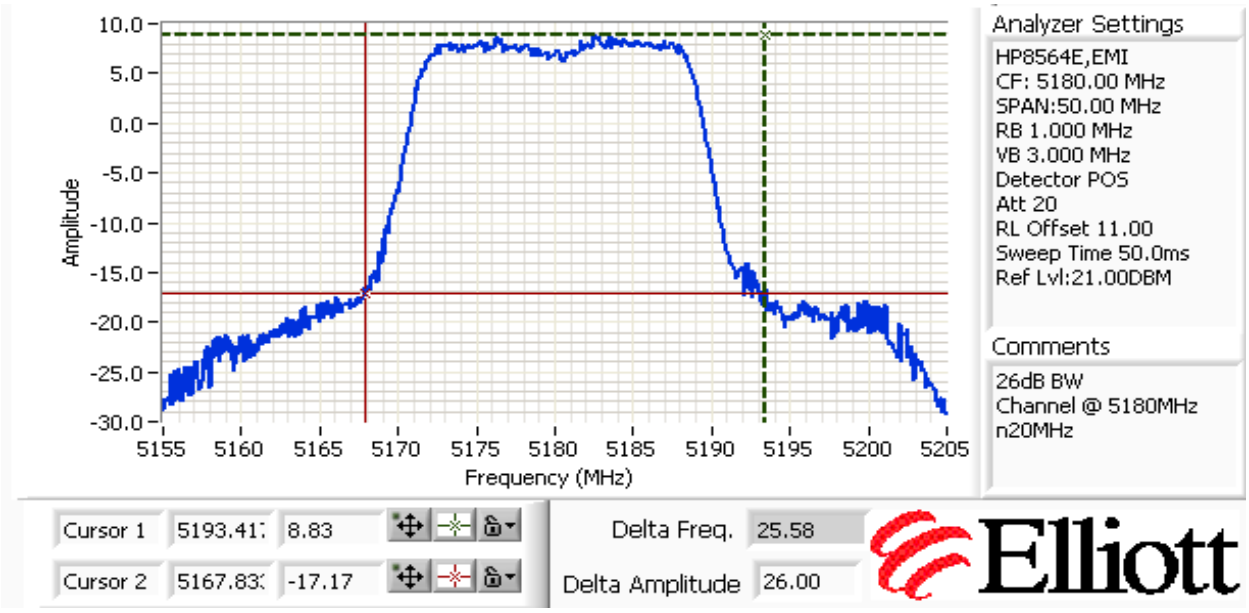
Antenna Gain (dBi): 5

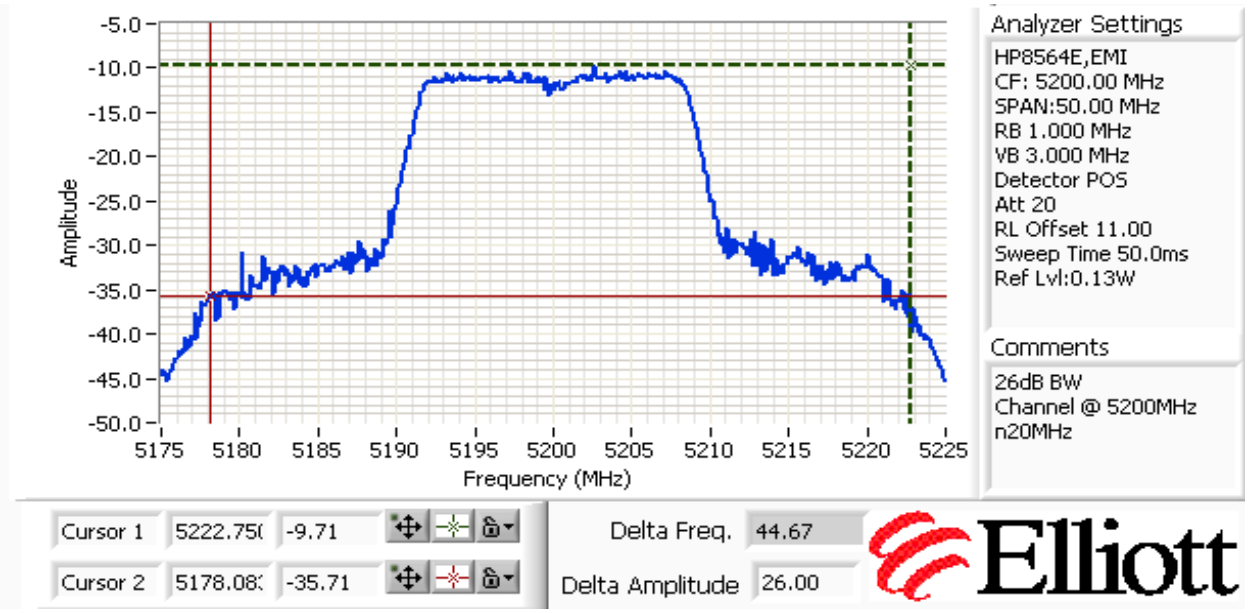
Frequency (MHz)	Software Setting	Bandwidth		Output Power[1] dBm		Power (Watts)	PSD[2] dBm/MHz			Result
		26dB	99%[4]	Measured	Limit		Measured	FCC Limit	RSS Limit[3]	
5180	26.5	25.6	18.1	12.3	17.0	0.017	-0.2	4.0	5.0	Pass
5200	29.0	44.7	18.1	15.0	17.0	0.031	2.2	4.0	5.0	Pass
5240	29.0	44.9	18.2	15.3	17.0	0.034	2.6	4.0	5.0	Pass
5260	27.5	40.8	18.1	14.2	24.0	0.026	1.6	11.0	11.0	Pass
5280	27.0	41.1	18.1	13.8	24.0	0.024	1.0	11.0	11.0	Pass
5320	25.5	30.4	18.2	12.8	24.0	0.019	0.0	11.0	11.0	Pass
5500	22.0	44.8	18.2	12.9	24.0	0.019	0.1	11.0	11.0	Pass
5600	27.0	44.7	18.3	15.6	24.0	0.036	2.8	11.0	11.0	Pass
5700	25.0	43.9	18.2	14.1	24.0	0.026	1.2	11.0	11.0	Pass

Note 1:	Output power measured using a spectrum analyzer (see plots below): RBW=1MHz, VB=3 MHz, sample detector, power averaging on (transmitted signal was continuous) and power integration over 50 MHz
Note 2:	Measured using the same analyzer settings used for output power.
Note 3:	For RSS-210 the limit for the 5150 - 5250 MHz band accounts for the antenna gain as the maximum eirp allowed is 10dBm/MHz. The limits are also corrected for instances where the highest measured value of the PSD exceeds the average PSD (calculated from the measured power divided by the measured 99% bandwidth) by more than 3dB by the amount that the measured value exceeds the average by more than 3dB.
Note 4:	99% Bandwidth measured in accordance with RSS GEN - RB > 1% of span and VB >=3xRB

Client:	Intel Corporation	Job Number:	J70762
Model:	512AN_HMW(Formal)	T-Log Number:	T70766
		Account Manager:	Richard Gencev
Contact:	Robert Paxman		
Standard:	FCC	Class:	N/A

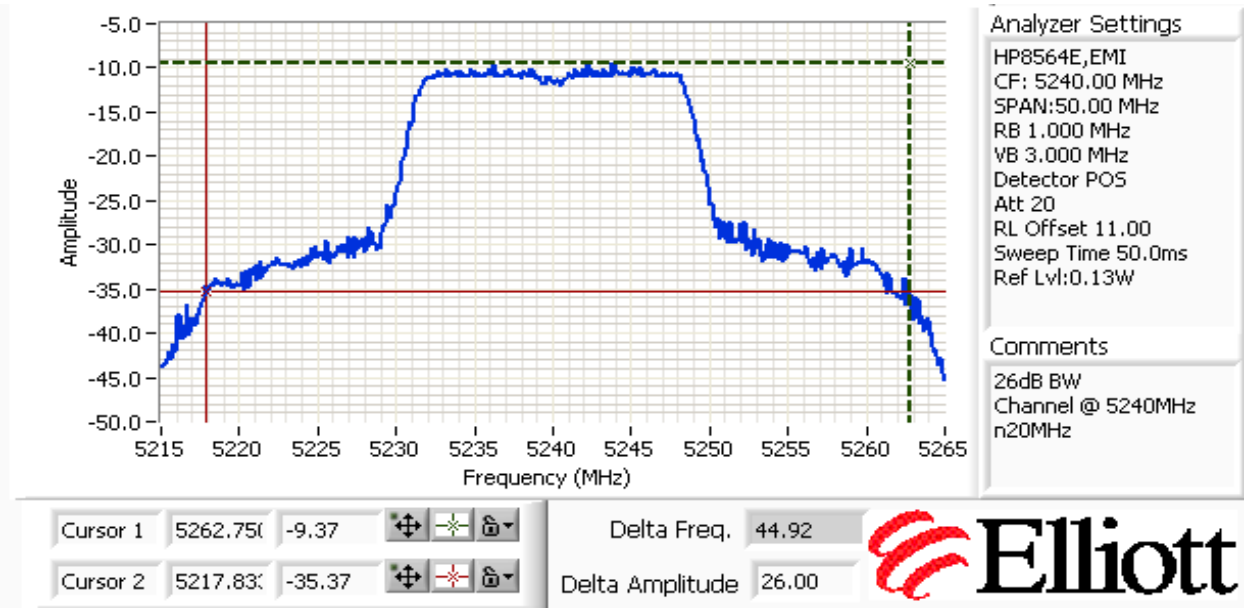
Run #1: Bandwidth, Output Power and Power spectral Density

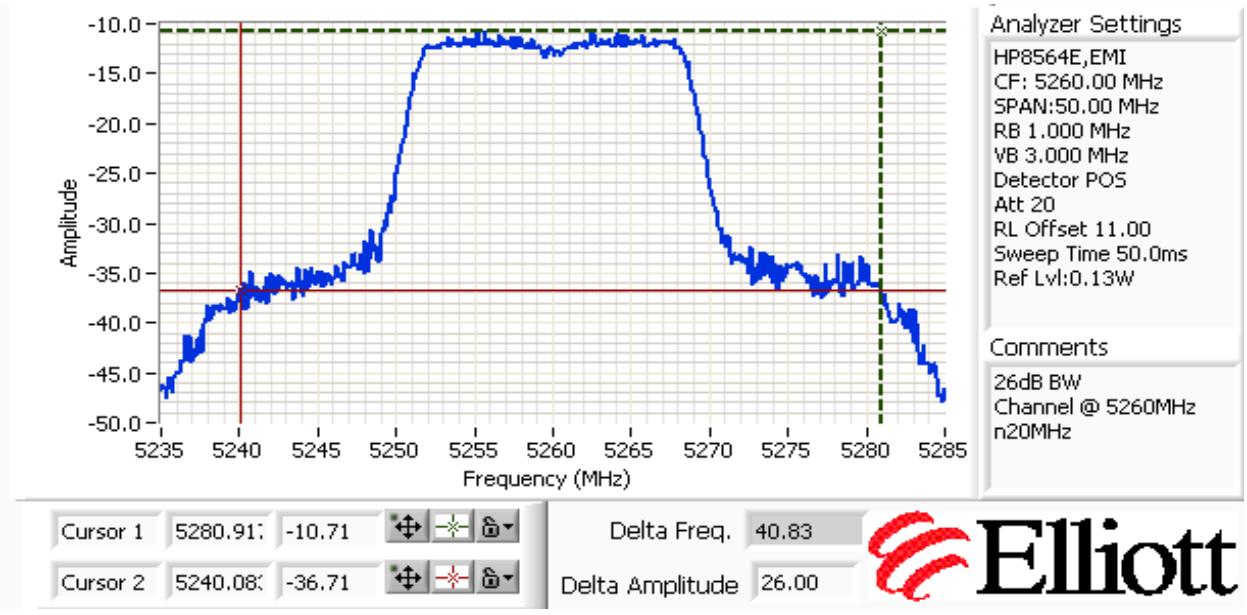




Client:	Intel Corporation	Job Number:	J70762
Model:	512AN_HMW(Formal)	T-Log Number:	T70766
		Account Manager:	Richard Gencev
Contact:	Robert Paxman		
Standard:	FCC	Class:	N/A

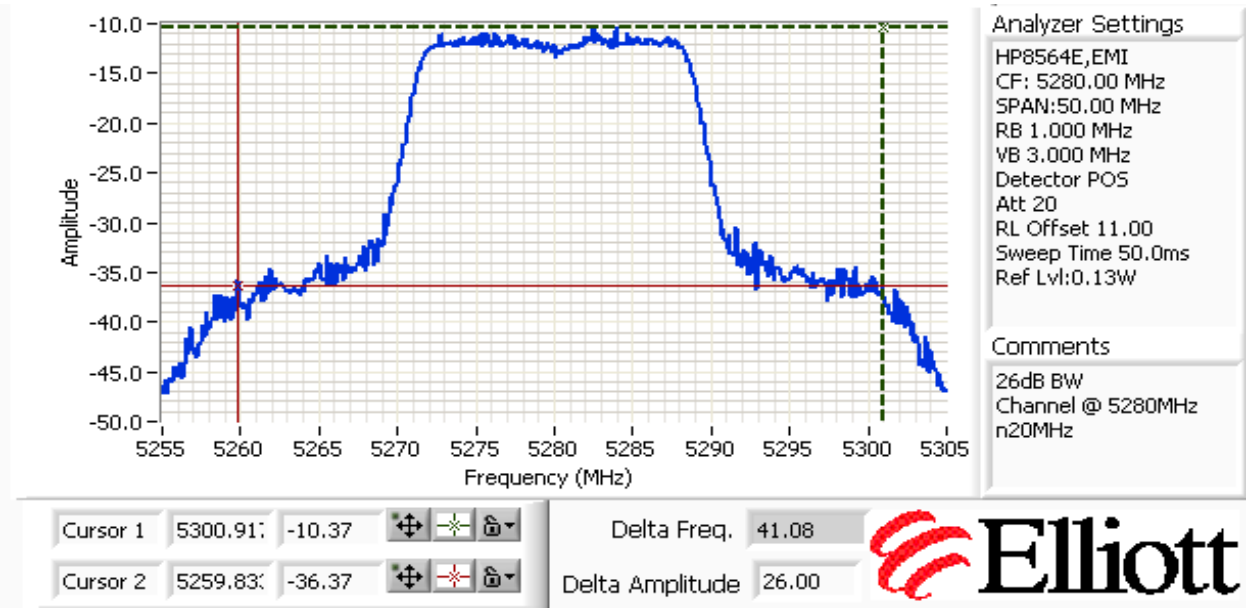
Run #1: Bandwidth, Output Power and Power spectral Density

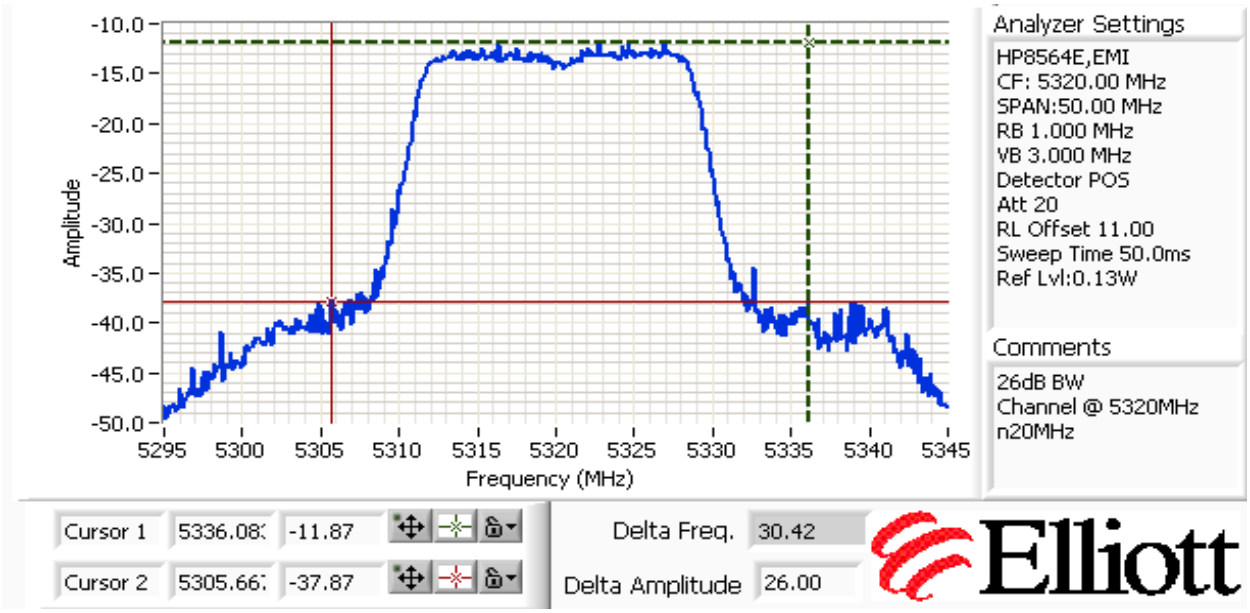




Elliott	EMC Test Data		
Client:	Intel Corporation	Job Number:	J70762
Model:	512AN_HMW(Formal)	T-Log Number:	T70766
		Account Manager:	Richard Gencev
Contact:	Robert Paxman		
Standard:	FCC	Class:	N/A

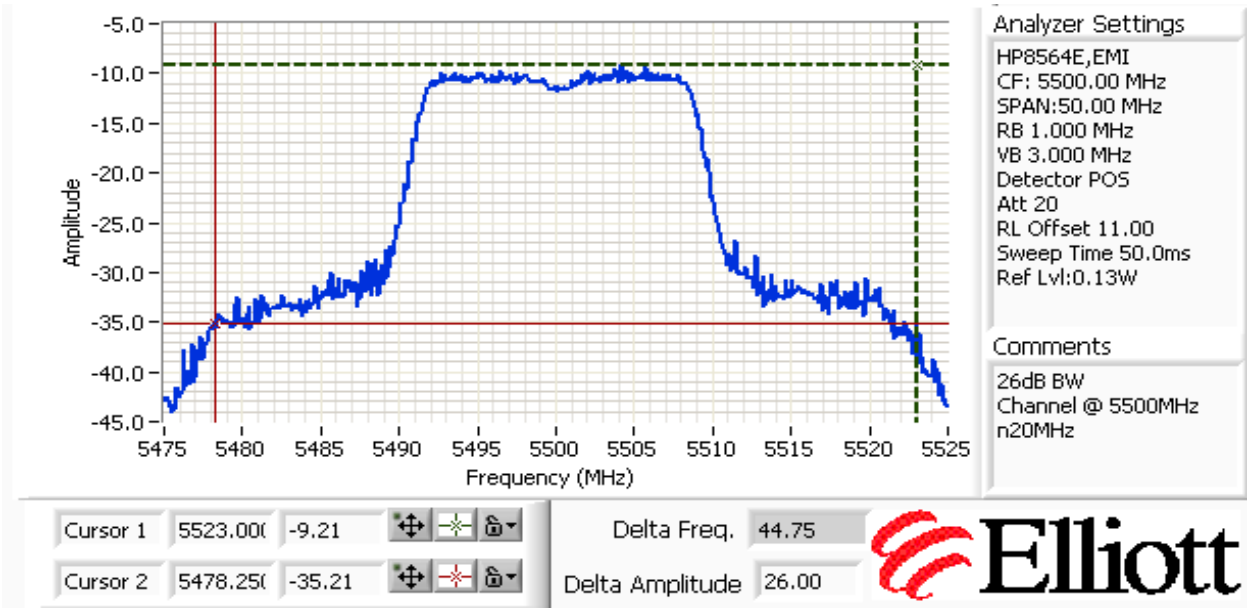
Run #1: Bandwidth, Output Power and Power spectral Density

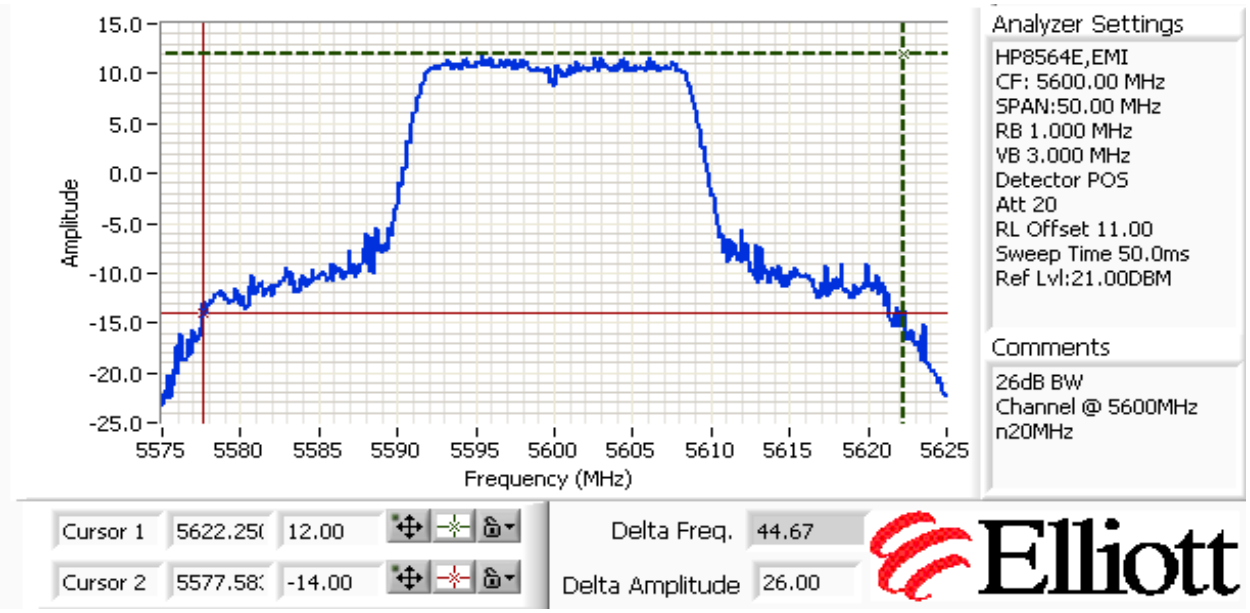




Client:	Intel Corporation	Job Number:	J70762
Model:	512AN_HMW(Formal)	T-Log Number:	T70766
		Account Manager:	Richard Gencev
Contact:	Robert Paxman		
Standard:	FCC	Class:	N/A

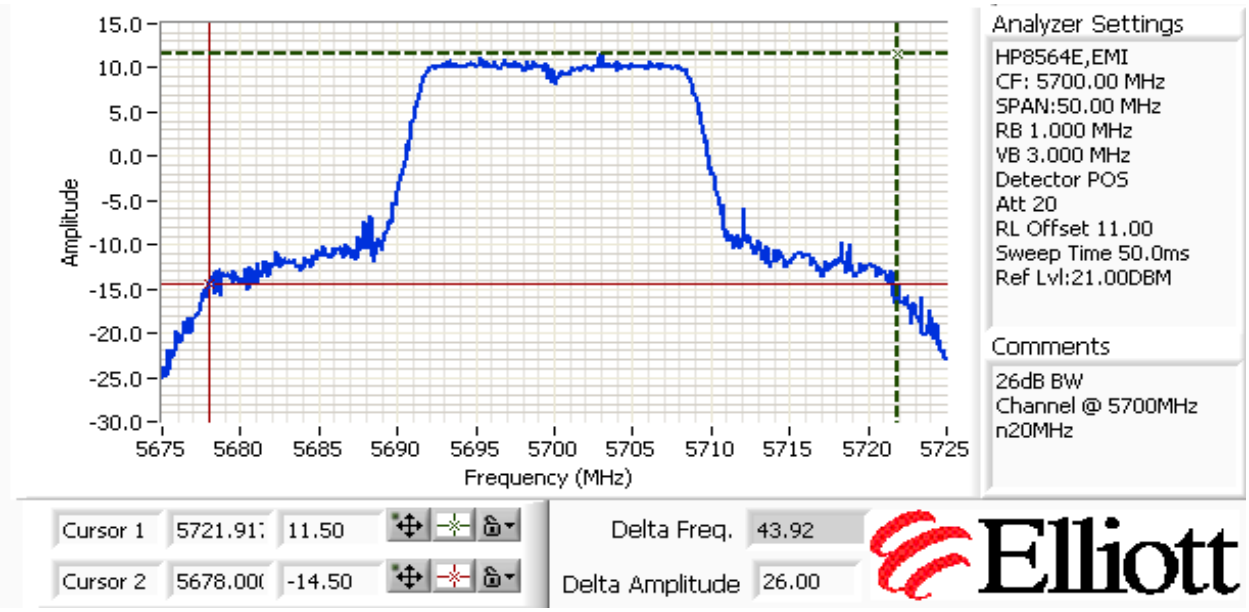
Run #1: Bandwidth, Output Power and Power spectral Density

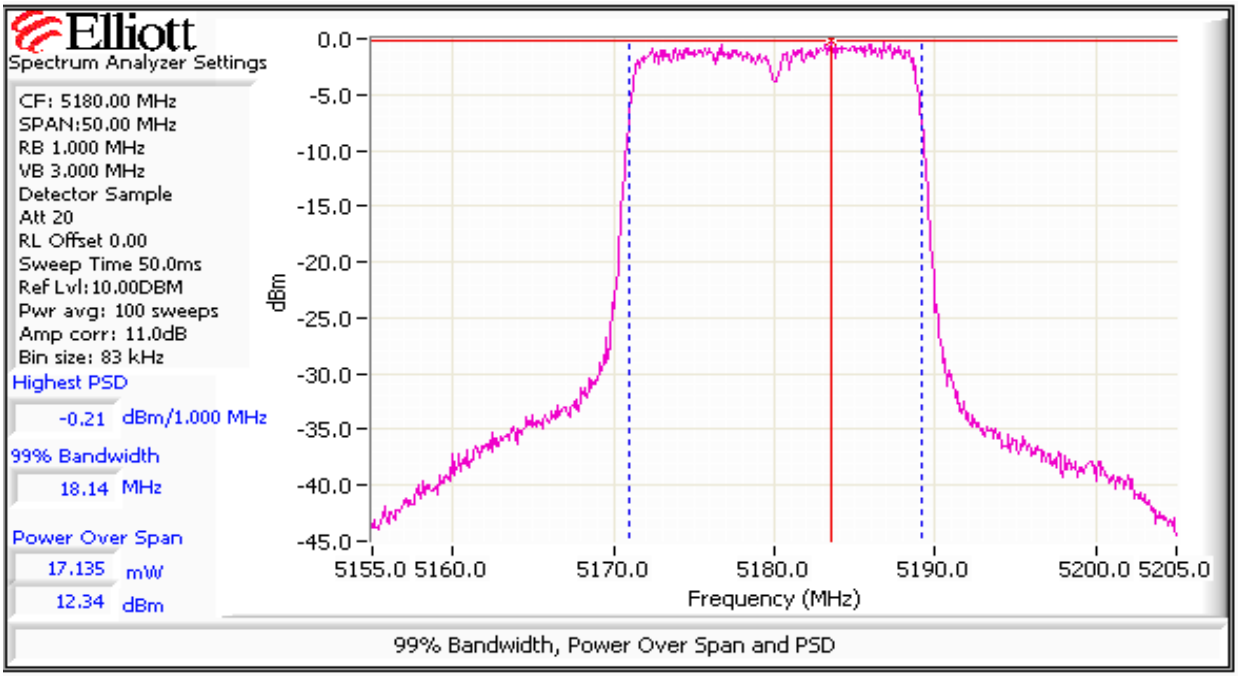




Client:	Intel Corporation	Job Number:	J70762
Model:	512AN_HMW(Formal)	T-Log Number:	T70766
		Account Manager:	Richard Gencev
Contact:	Robert Paxman		
Standard:	FCC	Class:	N/A

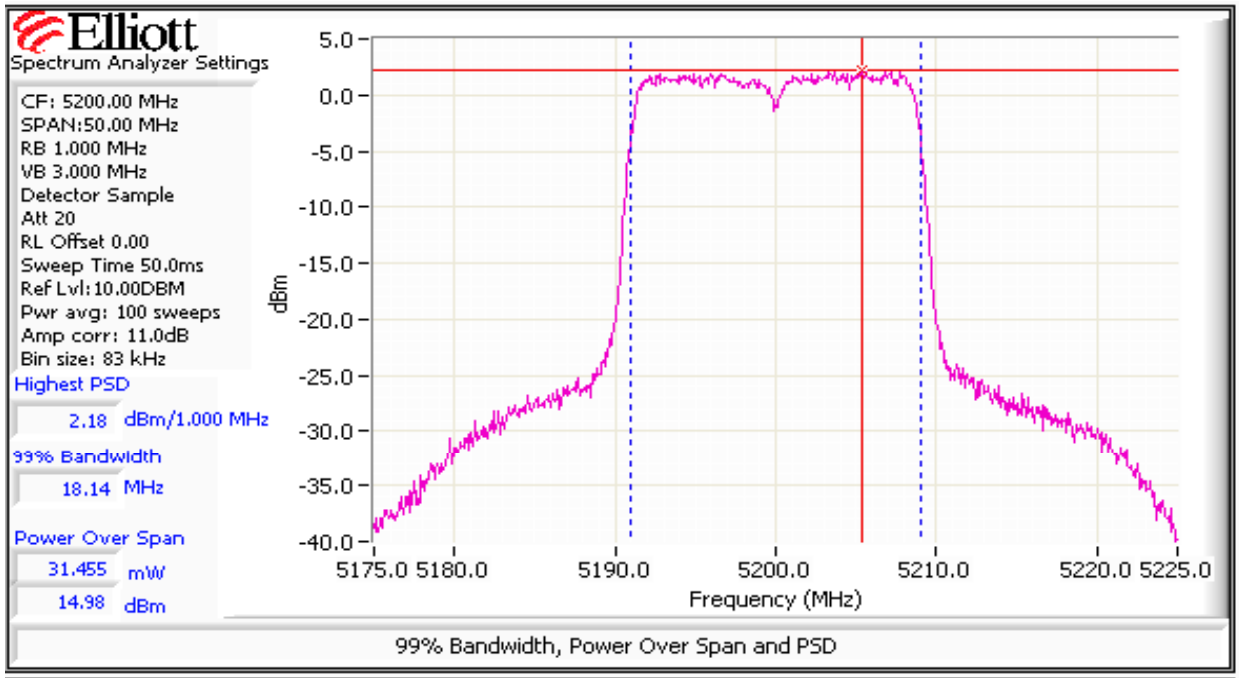
Run #1: Bandwidth, Output Power and Power spectral Density

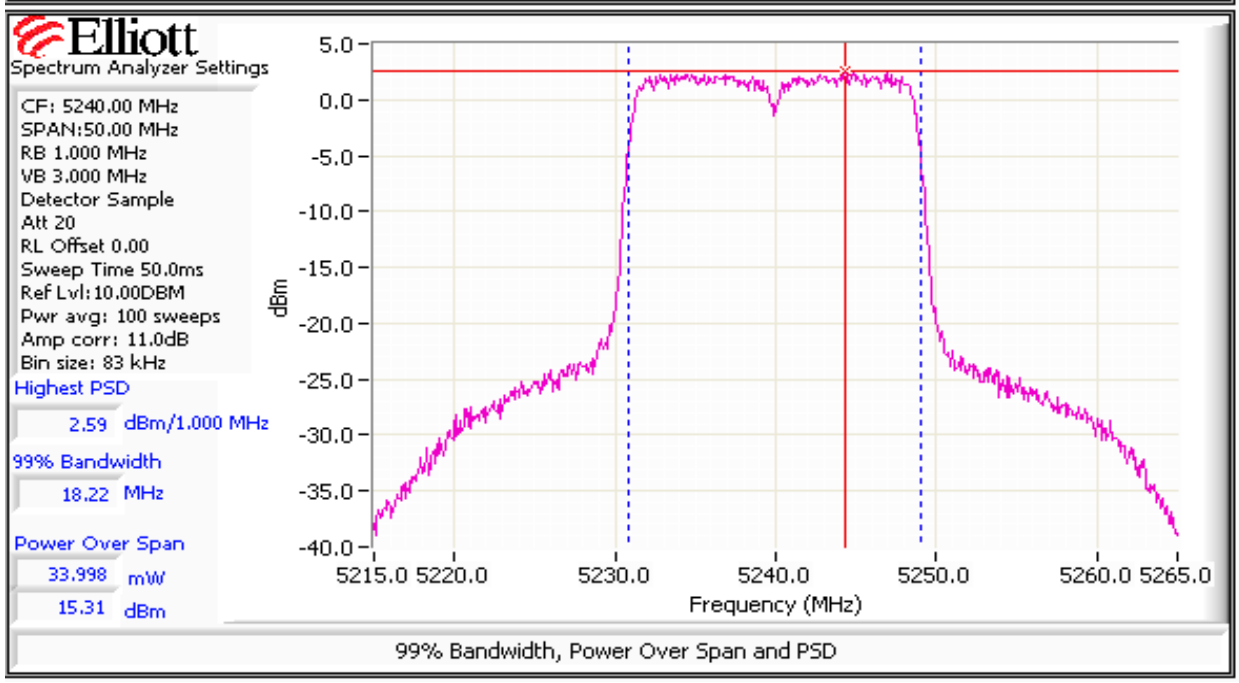




Client:	Intel Corporation	Job Number:	J70762
Model:	512AN_HMW(Formal)	T-Log Number:	T70766
		Account Manager:	Richard Gencev
Contact:	Robert Paxman		
Standard:	FCC	Class:	N/A

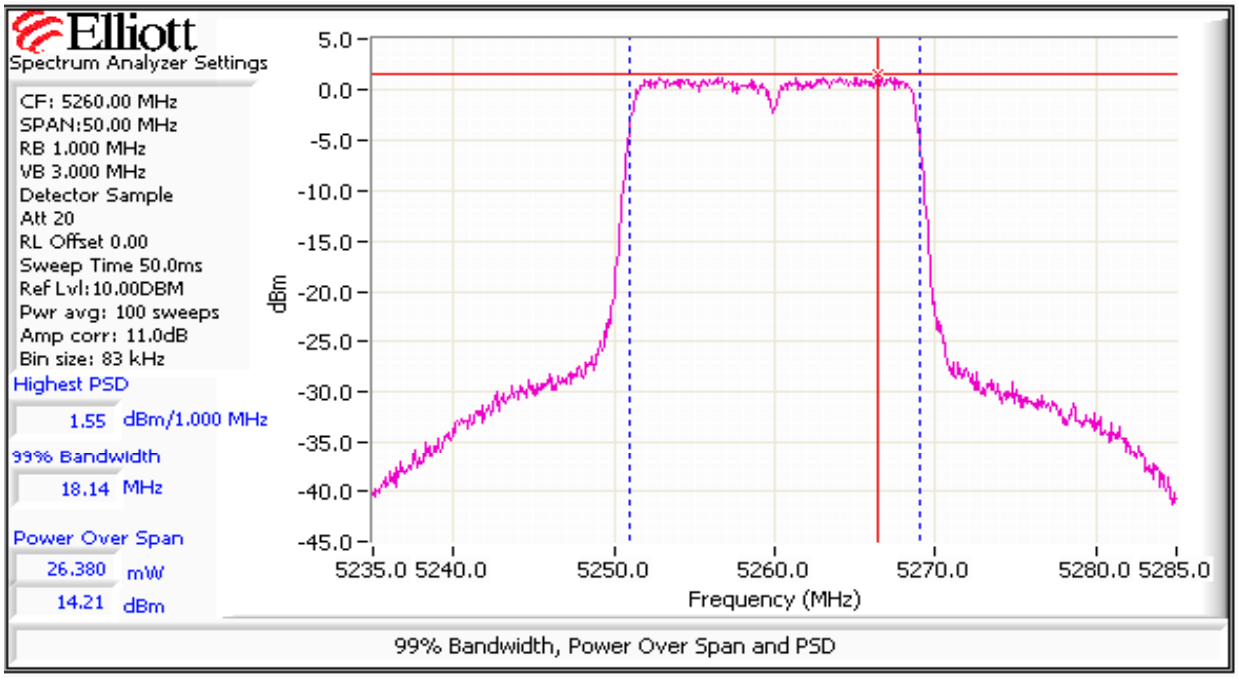
Run #1: Bandwidth, Output Power and Power spectral Density

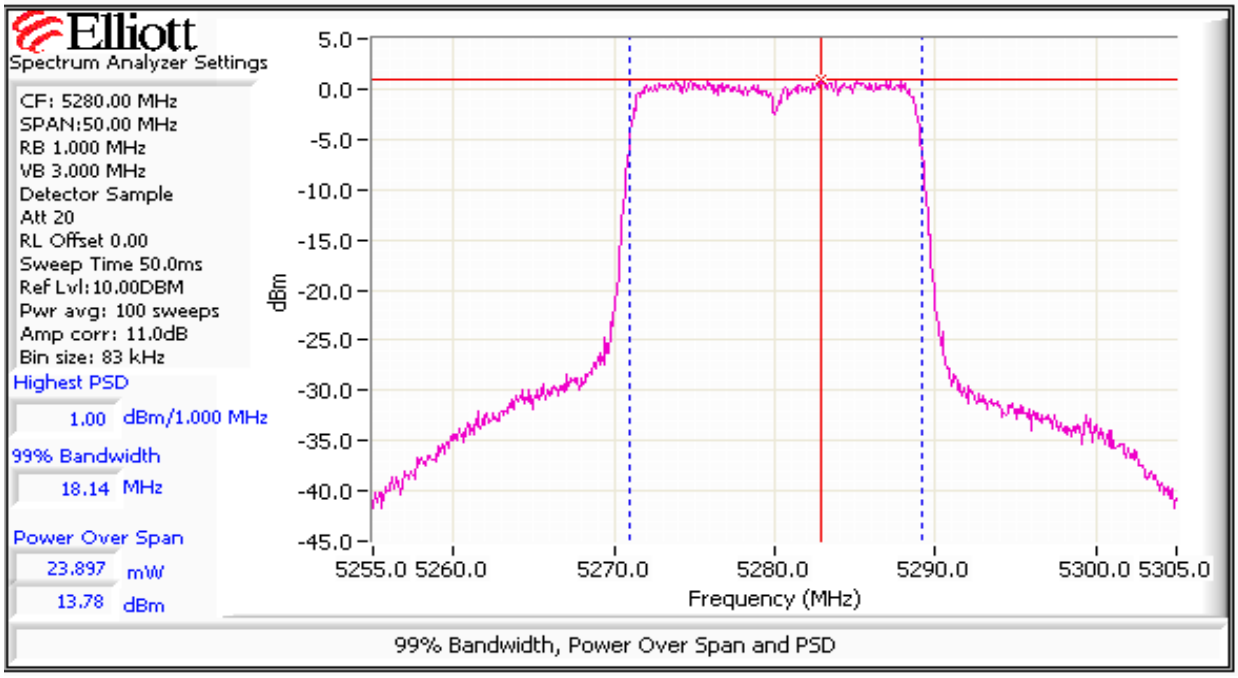




Client:	Intel Corporation	Job Number:	J70762
Model:	512AN_HMW(Formal)	T-Log Number:	T70766
		Account Manager:	Richard Gencev
Contact:	Robert Paxman		
Standard:	FCC	Class:	N/A

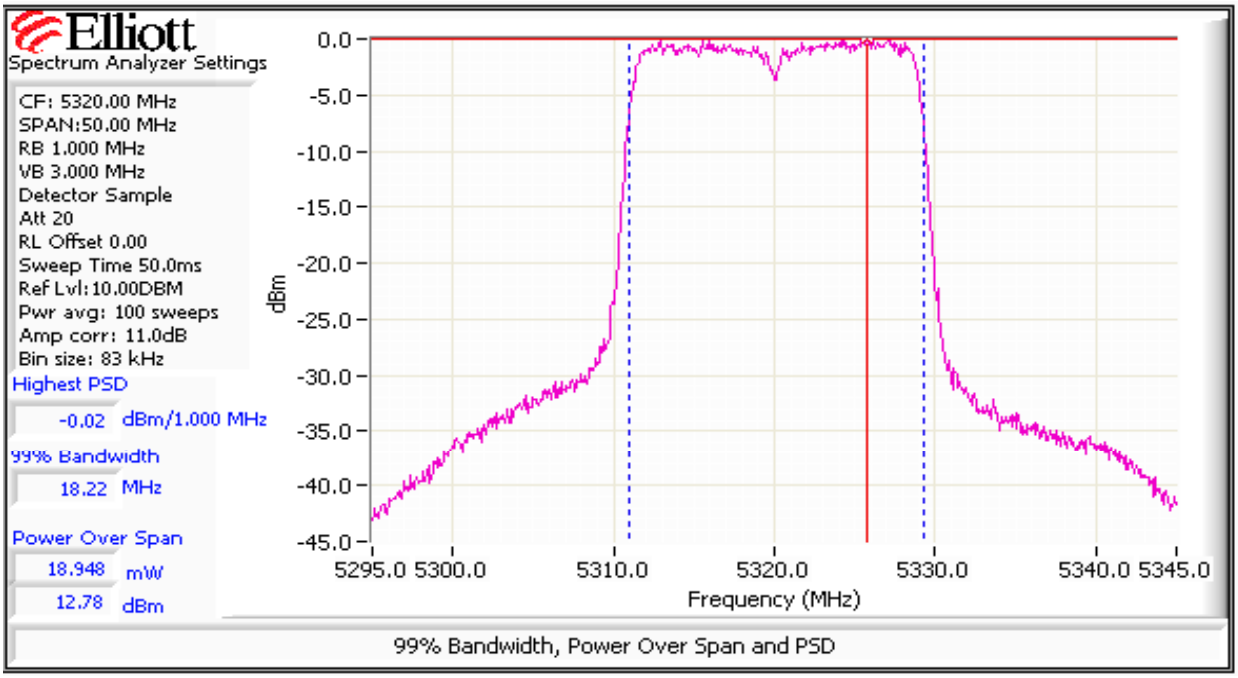
Run #1: Bandwidth, Output Power and Power spectral Density

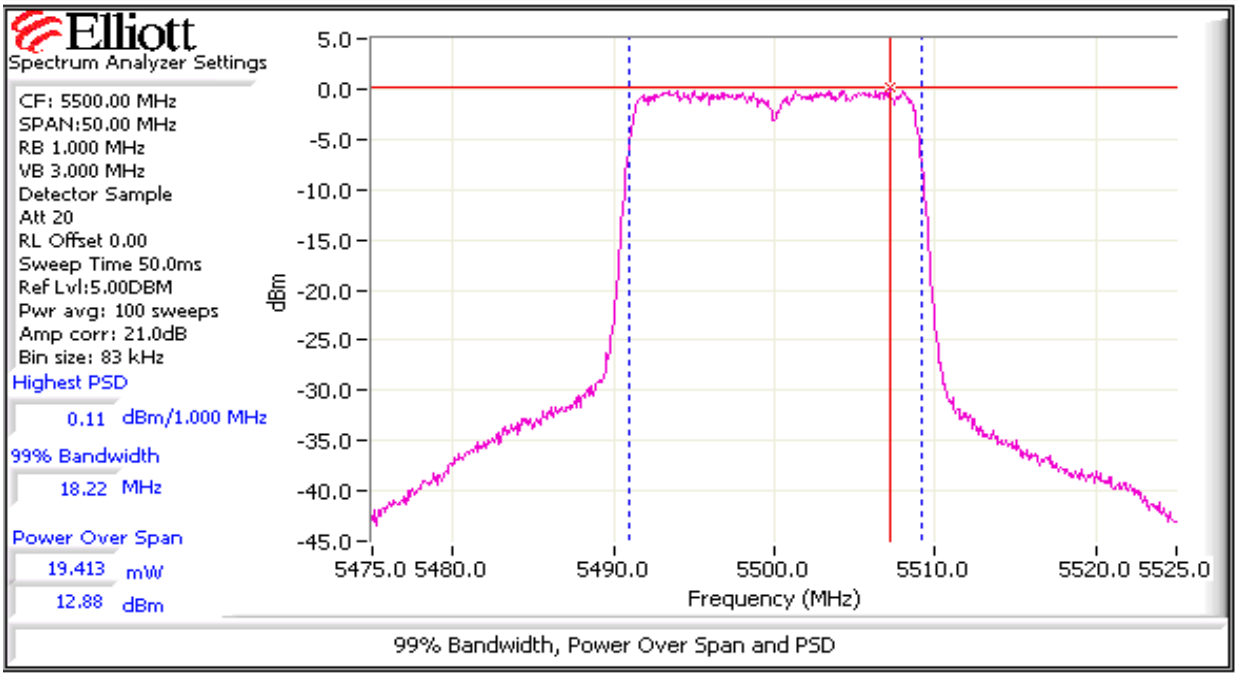




Client:	Intel Corporation	Job Number:	J70762
Model:	512AN_HMW(Formal)	T-Log Number:	T70766
		Account Manager:	Richard Gencev
Contact:	Robert Paxman		
Standard:	FCC	Class:	N/A

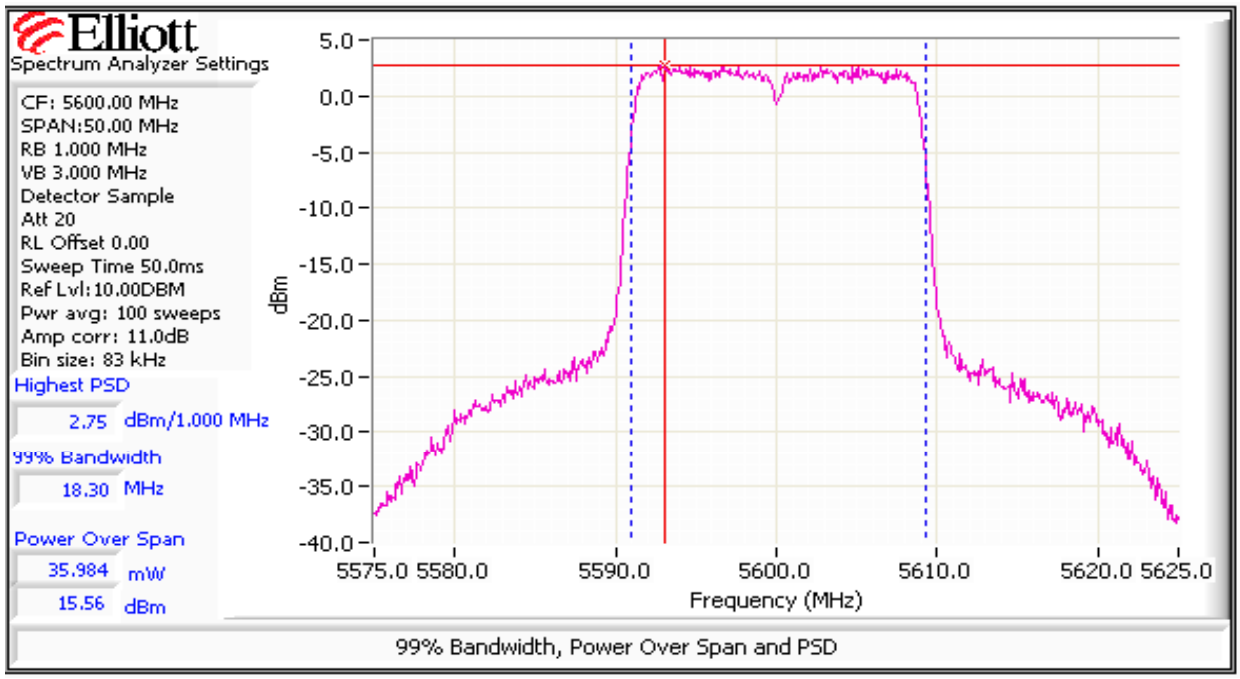
Run #1: Bandwidth, Output Power and Power spectral Density

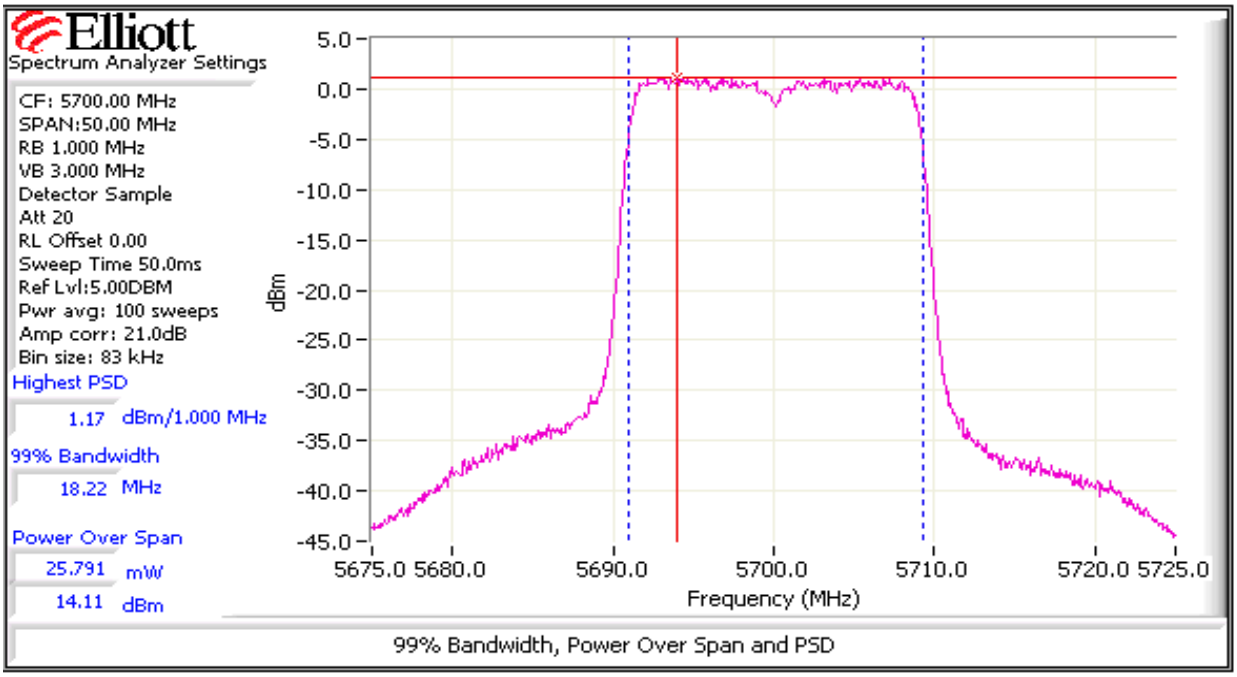




Client:	Intel Corporation	Job Number:	J70762
Model:	512AN_HMW(Formal)	T-Log Number:	T70766
		Account Manager:	Richard Gencev
Contact:	Robert Paxman		
Standard:	FCC	Class:	N/A

Run #1: Bandwidth, Output Power and Power spectral Density





Client:	Intel Corporation	Job Number:	J70762
Model:	512AN_HMW(Formal)	T-Log Number:	T70766
		Account Manager:	Richard Gencev
Contact:	Robert Paxman		
Standard:	FCC	Class:	N/A

Run #2: Peak Excursion Measurements

Device meets the requirement for the peak excursion

Freq	Peak Excursion(dB)		Freq	Peak Excursion(dB)		Freq	Peak Excursion(dB)	
(MHz)	Value	Limit	(MHz)	Value	Limit	(MHz)	Value	Limit
5180	9.8	13.0	5260	9.8	13.0	5500	10.0	13.0
5200	9.8	13.0	5280	10.3	13.0	5600	10.0	13.0
5240	9.9	13.0	5320	10.9	13.0	5700	11.0	13.0

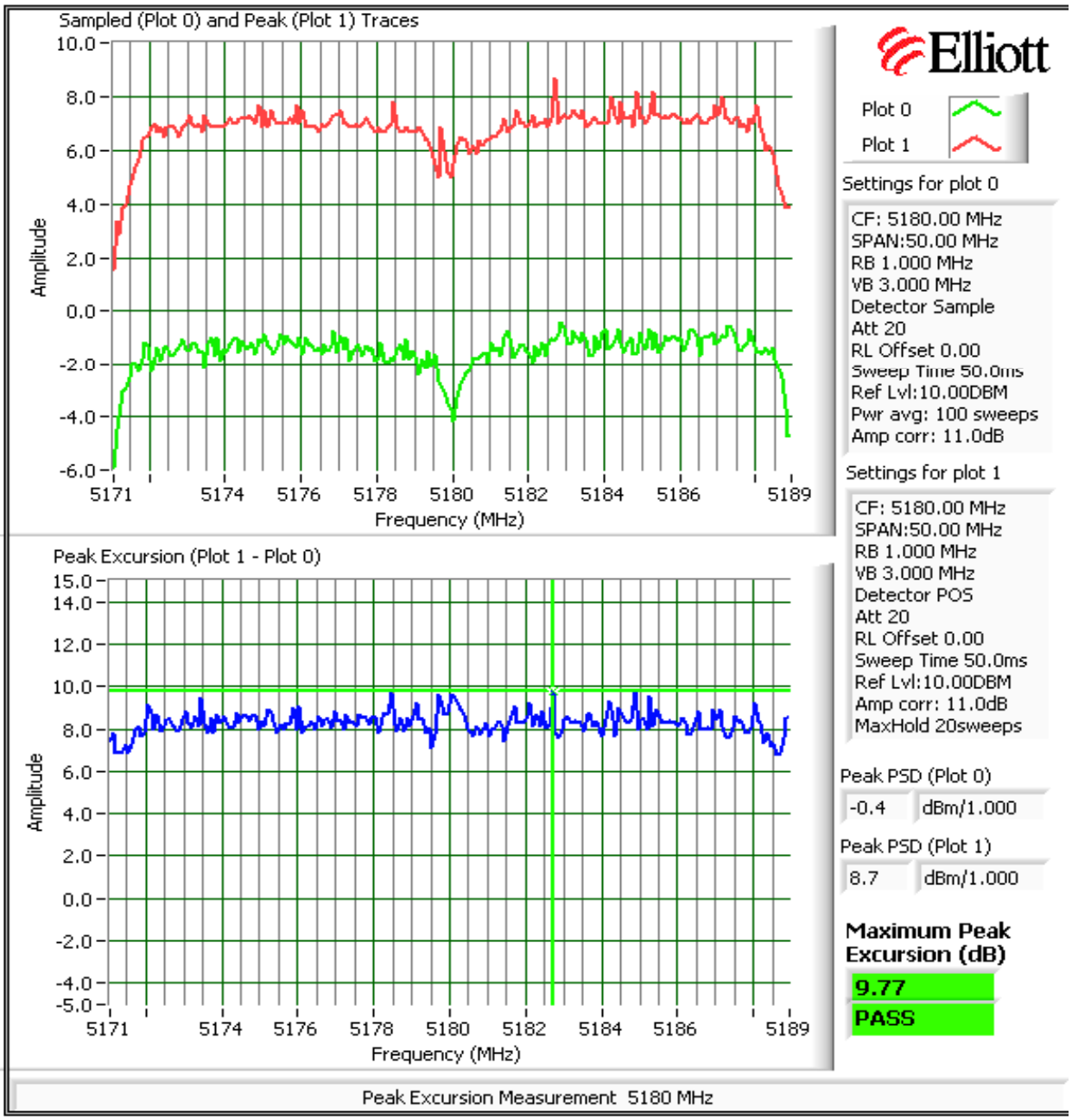
Plots Showing Peak Excursion

Trace A: RBW = VBW = 3MHz, Peak hold

Trace B: RBW = 1 MHz, VBW = 3MHz, Integrated average power

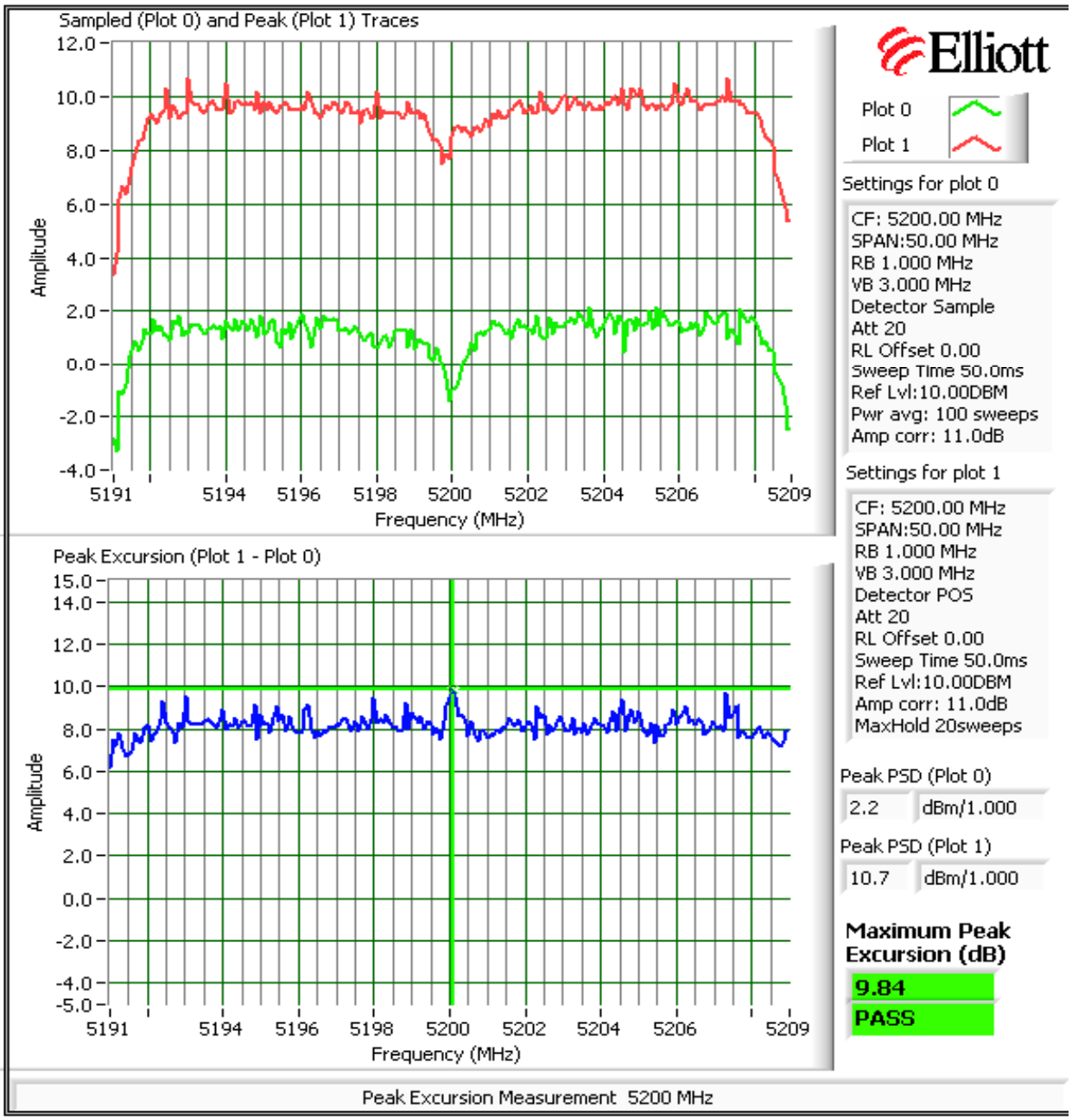
Client:	Intel Corporation	Job Number:	J70762
Model:	512AN_HMW(Formal)	T-Log Number:	T70766
		Account Manager:	Richard Gencev
Contact:	Robert Paxman		
Standard:	FCC	Class:	N/A

Run #2: Peak Excursion Measurement



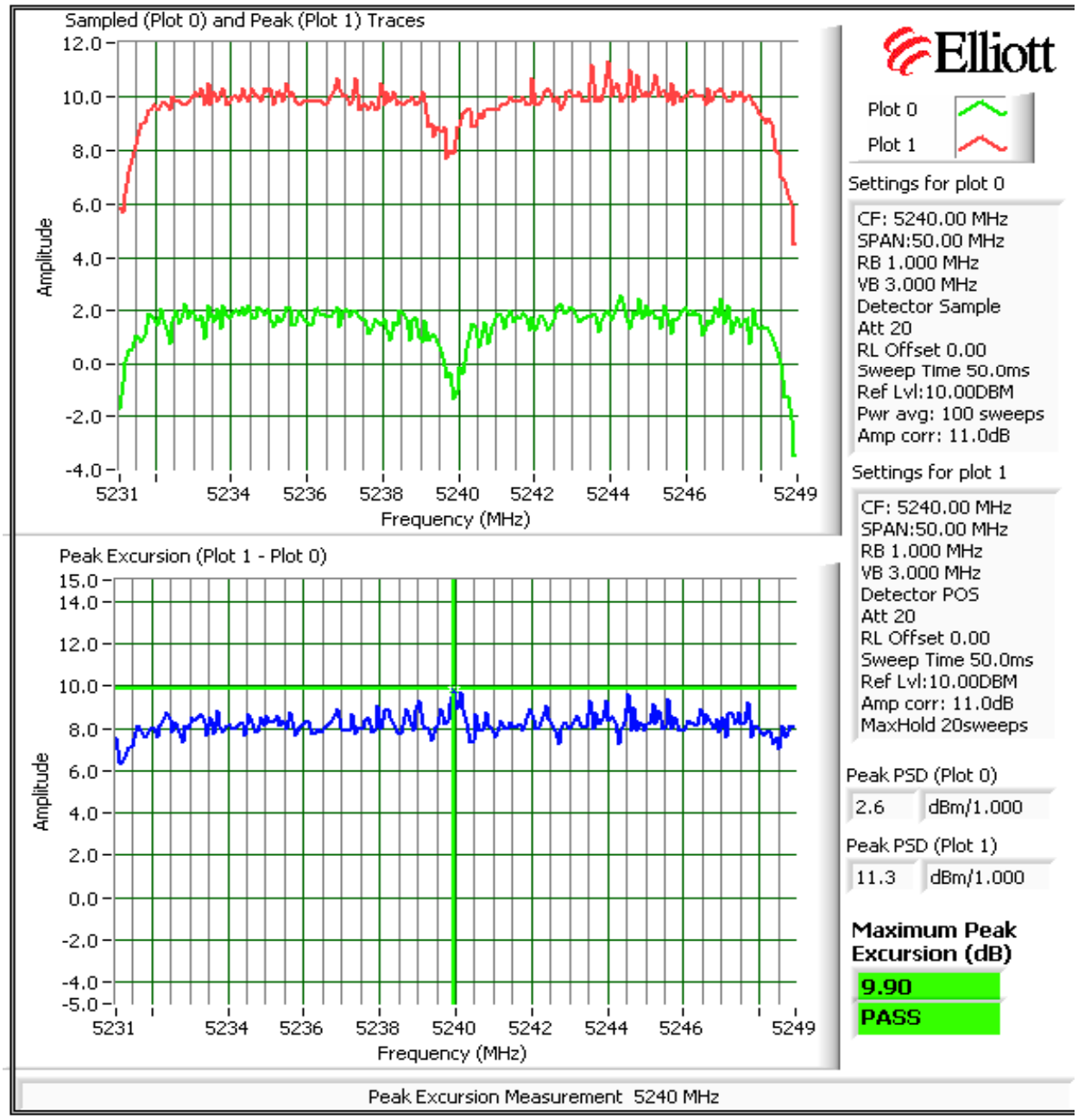
Client:	Intel Corporation	Job Number:	J70762
Model:	512AN_HMW(Formal)	T-Log Number:	T70766
		Account Manager:	Richard Gencev
Contact:	Robert Paxman		
Standard:	FCC	Class:	N/A

Run #2: Peak Excursion Measurement



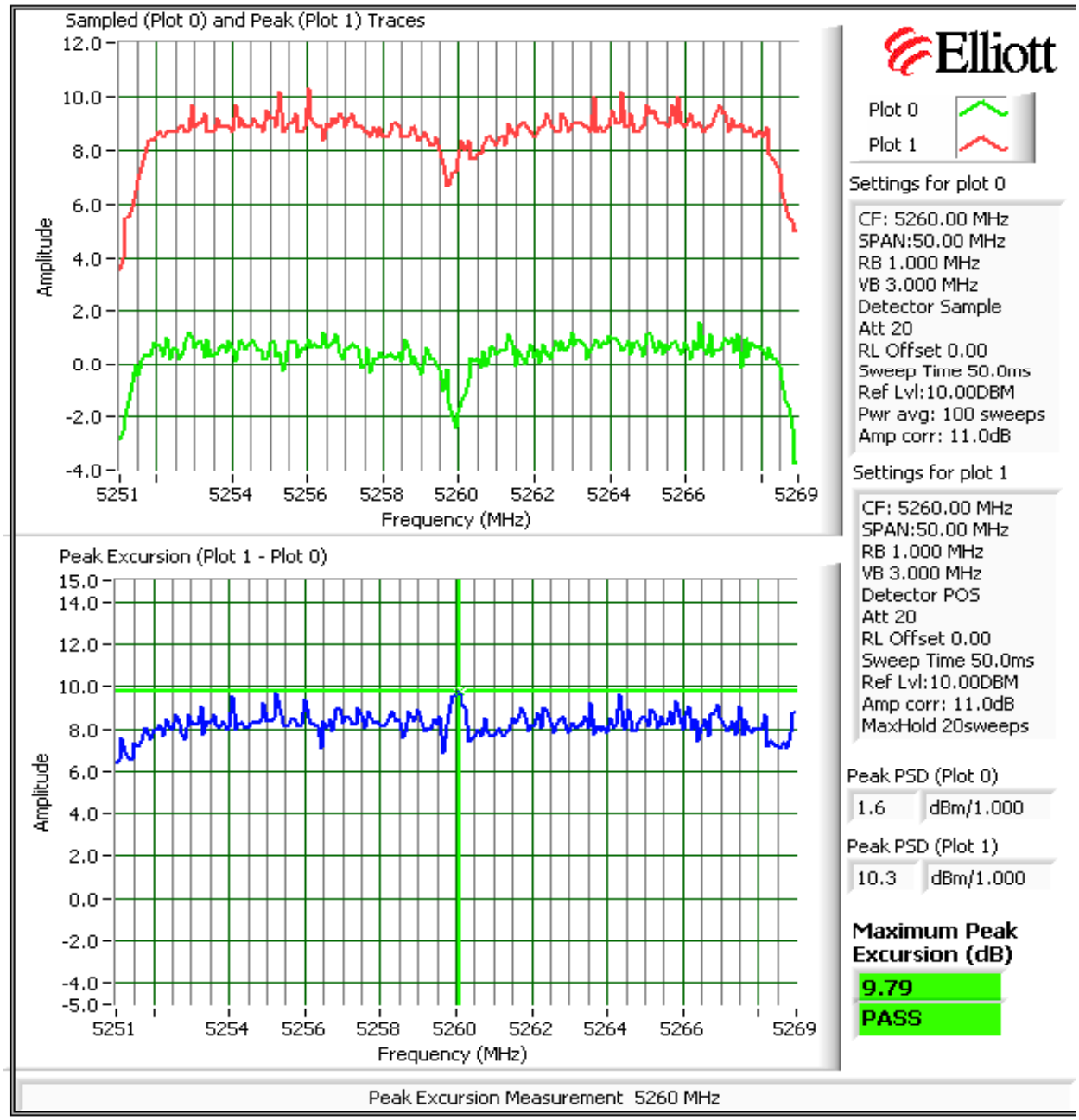
Client:	Intel Corporation	Job Number:	J70762
Model:	512AN_HMW(Formal)	T-Log Number:	T70766
		Account Manager:	Richard Gencev
Contact:	Robert Paxman		
Standard:	FCC	Class:	N/A

Run #2: Peak Excursion Measurement



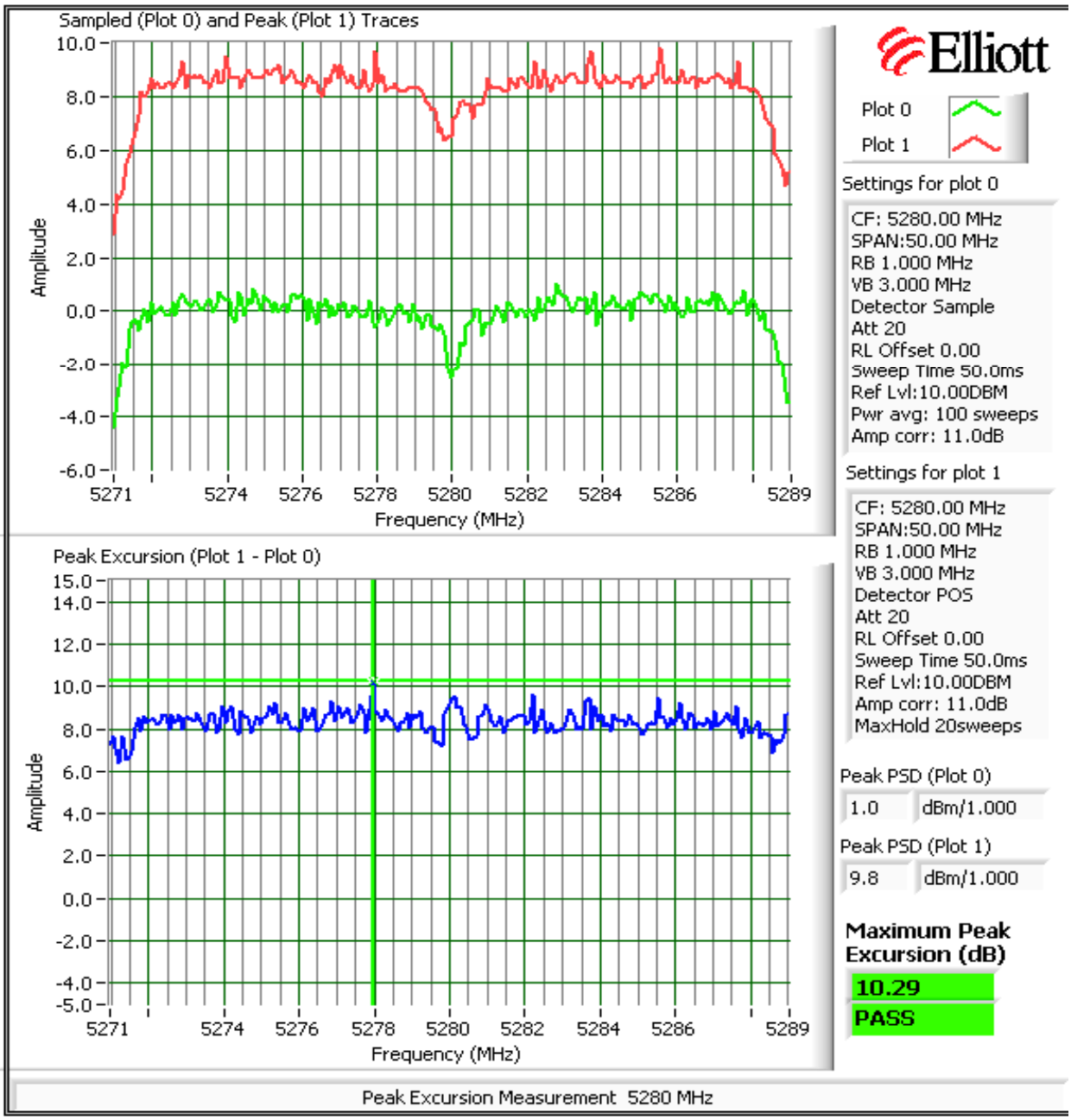
Client:	Intel Corporation	Job Number:	J70762
Model:	512AN_HMW(Formal)	T-Log Number:	T70766
		Account Manager:	Richard Gencev
Contact:	Robert Paxman		
Standard:	FCC	Class:	N/A

Run #2: Peak Excursion Measurement



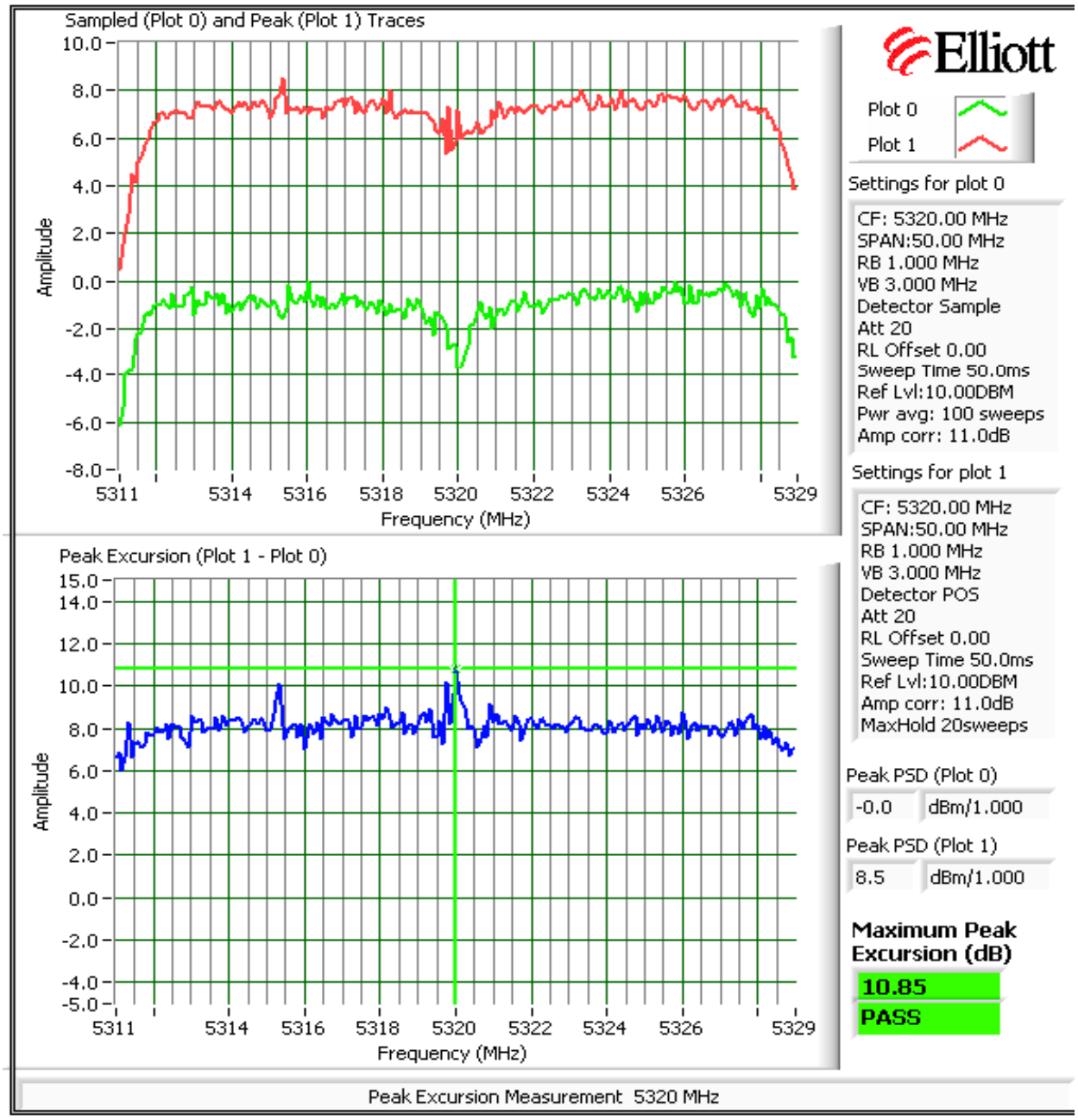
Client:	Intel Corporation	Job Number:	J70762
Model:	512AN_HMW(Formal)	T-Log Number:	T70766
		Account Manager:	Richard Gencev
Contact:	Robert Paxman		
Standard:	FCC	Class:	N/A

Run #2: Peak Excursion Measurement



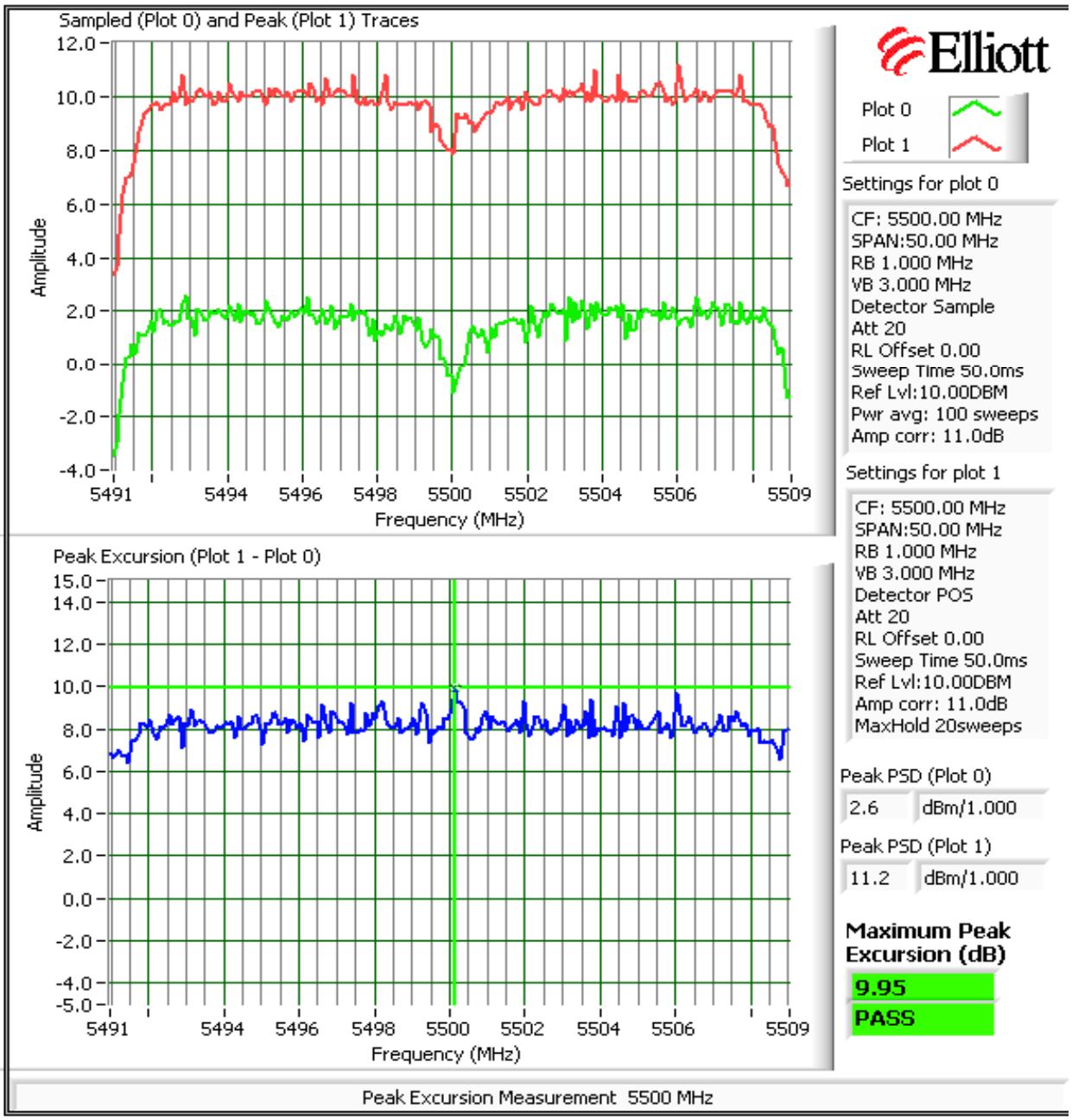
Client:	Intel Corporation	Job Number:	J70762
Model:	512AN_HMW(Formal)	T-Log Number:	T70766
		Account Manager:	Richard Gencev
Contact:	Robert Paxman		
Standard:	FCC	Class:	N/A

Run #2: Peak Excursion Measurement



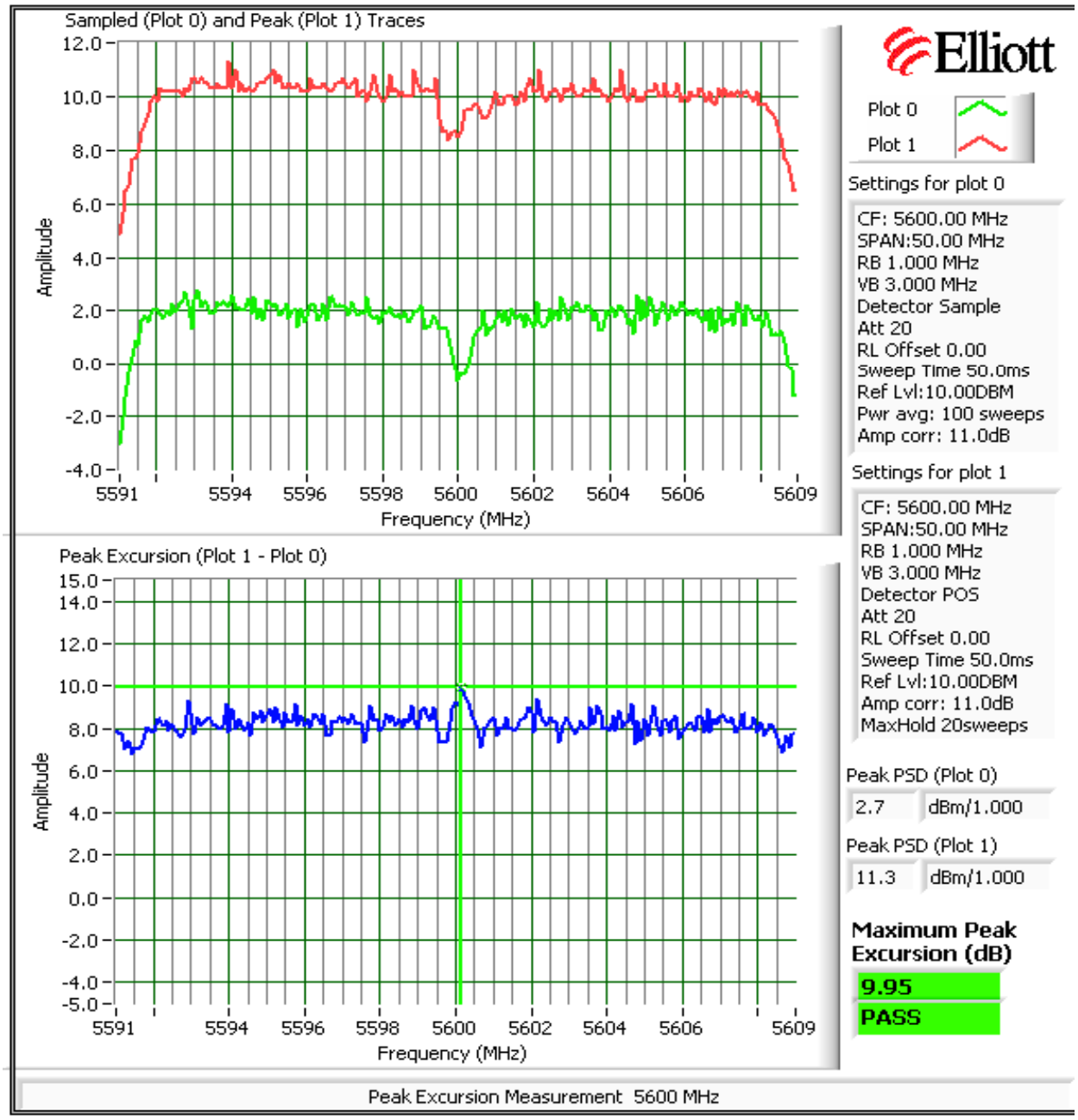
Client:	Intel Corporation	Job Number:	J70762
Model:	512AN_HMW(Formal)	T-Log Number:	T70766
		Account Manager:	Richard Gencev
Contact:	Robert Paxman		
Standard:	FCC	Class:	N/A

Run #2: Peak Excursion Measurement



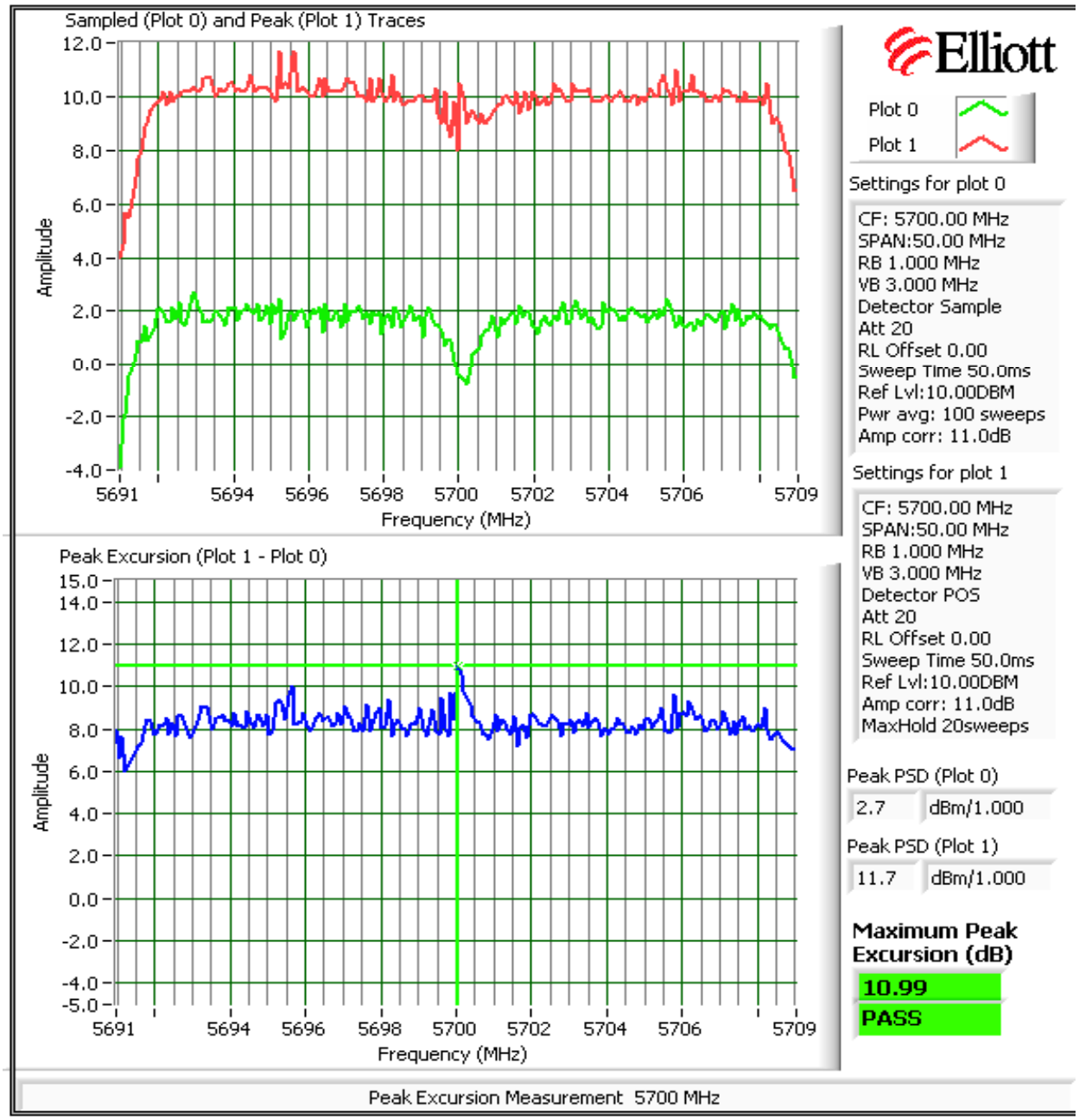
Client:	Intel Corporation	Job Number:	J70762
Model:	512AN_HMW(Formal)	T-Log Number:	T70766
		Account Manager:	Richard Gencev
Contact:	Robert Paxman		
Standard:	FCC	Class:	N/A

Run #2: Peak Excursion Measurement



Client:	Intel Corporation	Job Number:	J70762
Model:	512AN_HMW(Formal)	T-Log Number:	T70766
		Account Manager:	Richard Gencev
Contact:	Robert Paxman		
Standard:	FCC	Class:	N/A

Run #2: Peak Excursion Measurement



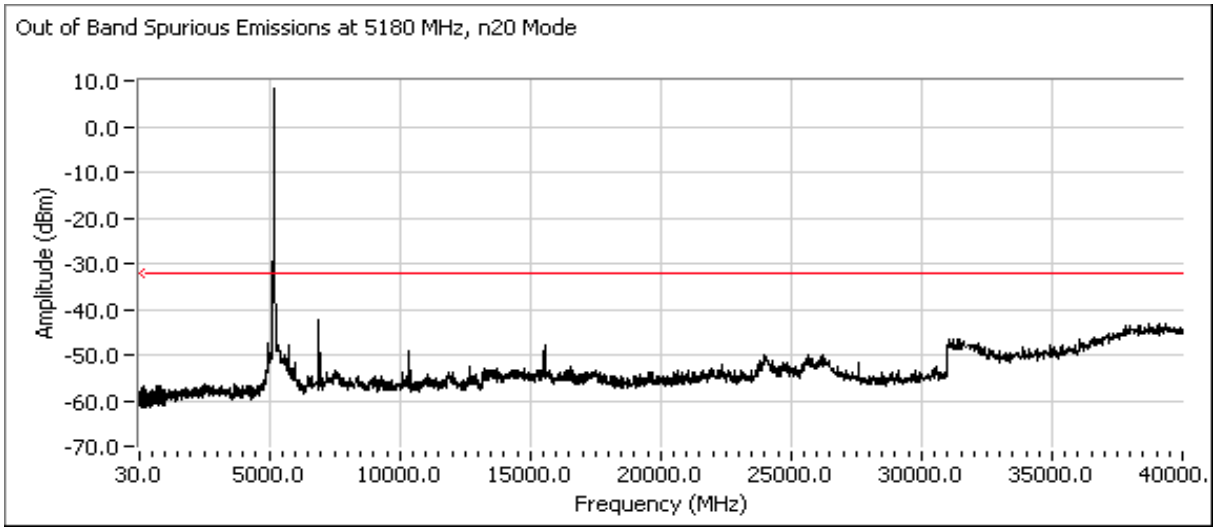
Client:	Intel Corporation	Job Number:	J70762
Model:	512AN_HMW(Formal)	T-Log Number:	T70766
		Account Manager:	Richard Gencev
Contact:	Robert Paxman		
Standard:	FCC	Class:	N/A

Run #3: Out Of Band Spurious Emissions - Antenna Conducted

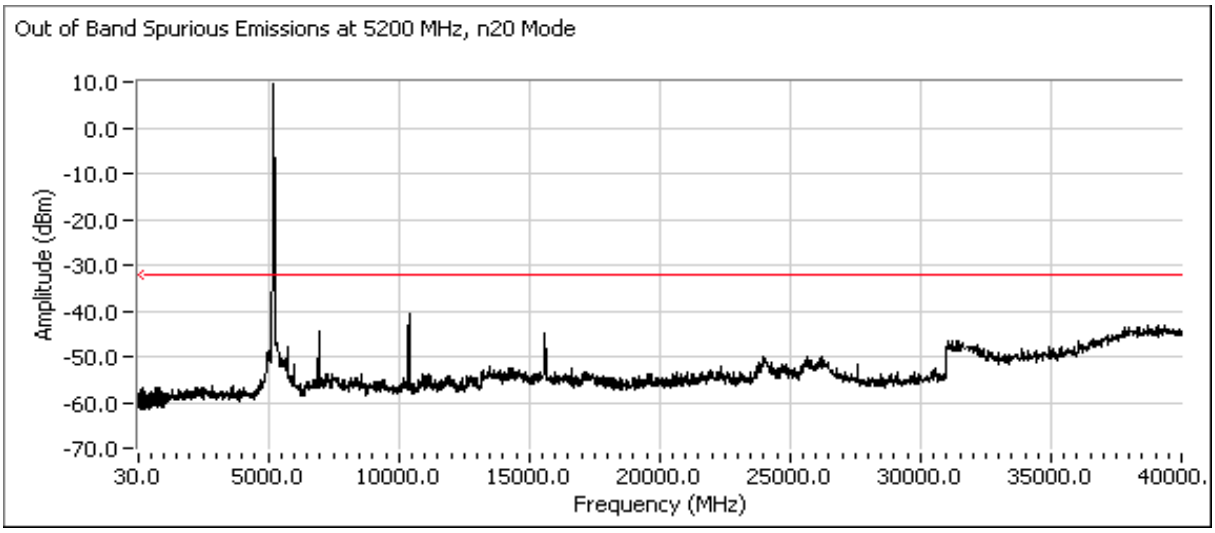
Maximum Antenna Gain:	5	dBi
Spurious Limit:	-27	dBm/MHz eirp
Limit Used On Plots [Note 1]:	-32	dBm/MHz

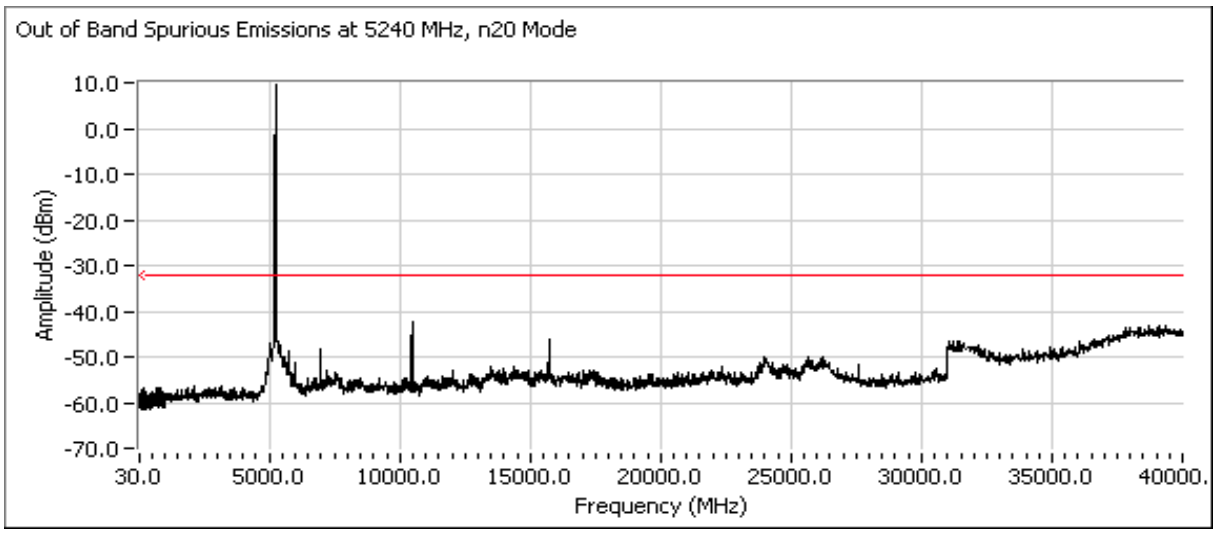
Note 1:	The -27dBm/MHz limit is an eirp limit. The limit for antenna port conducted measurements is adjusted to take into consideration the maximum antenna gain (limit = -27dBm - antenna gain). Radiated field strength measurements for signals more than 50MHz from the bands and that are close to the limit are made to determine compliance as the antenna gain is not known at these frequencies.
Note 2:	All spurious signals below 1GHz are measured during digital device radiated emissions test.
Note 3:	Signals within 10MHz of the 5.725 or 5.825 Band edge are subject to a limit of -17dBm EIRP
Note 4:	If the device is for outdoor use then the -27dBm eirp limit also applies in the 5150 - 5250 MHz band.
Note 5:	Signals that fall in the restricted bands of 15.205 are subject to the limit of 15.209.

Plots Showing Out-Of-Band Emissions (RBW=VBW=1MHz)

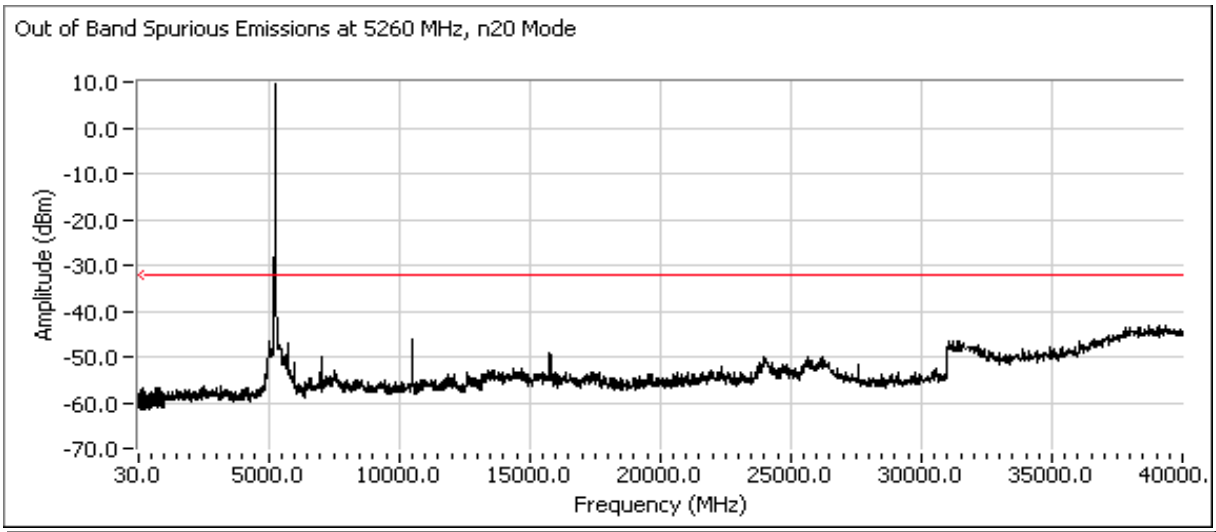


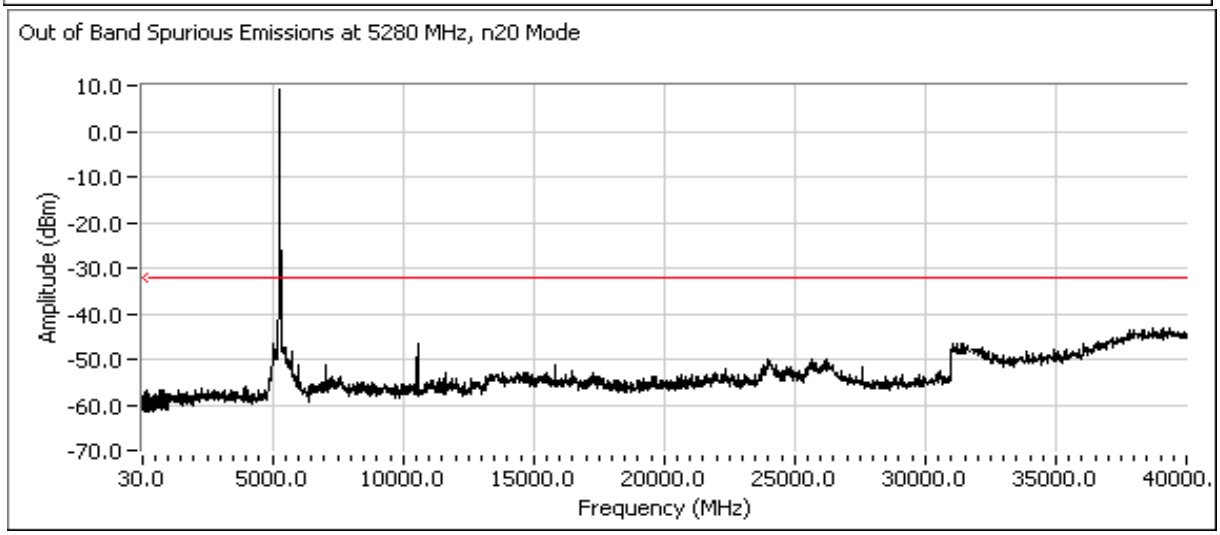
Client:	Intel Corporation	Job Number:	J70762
Model:	512AN_HMW(Formal)	T-Log Number:	T70766
		Account Manager:	Richard Gencev
Contact:	Robert Paxman		
Standard:	FCC	Class:	N/A



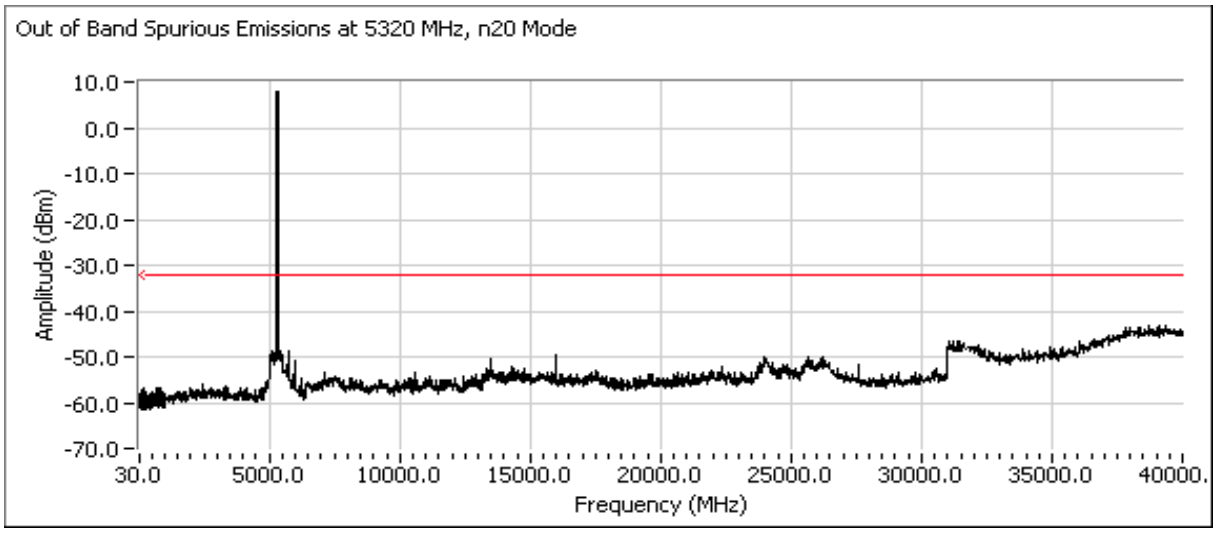


Client:	Intel Corporation	Job Number:	J70762
Model:	512AN_HMW(Formal)	T-Log Number:	T70766
		Account Manager:	Richard Gencev
Contact:	Robert Paxman		
Standard:	FCC	Class:	N/A

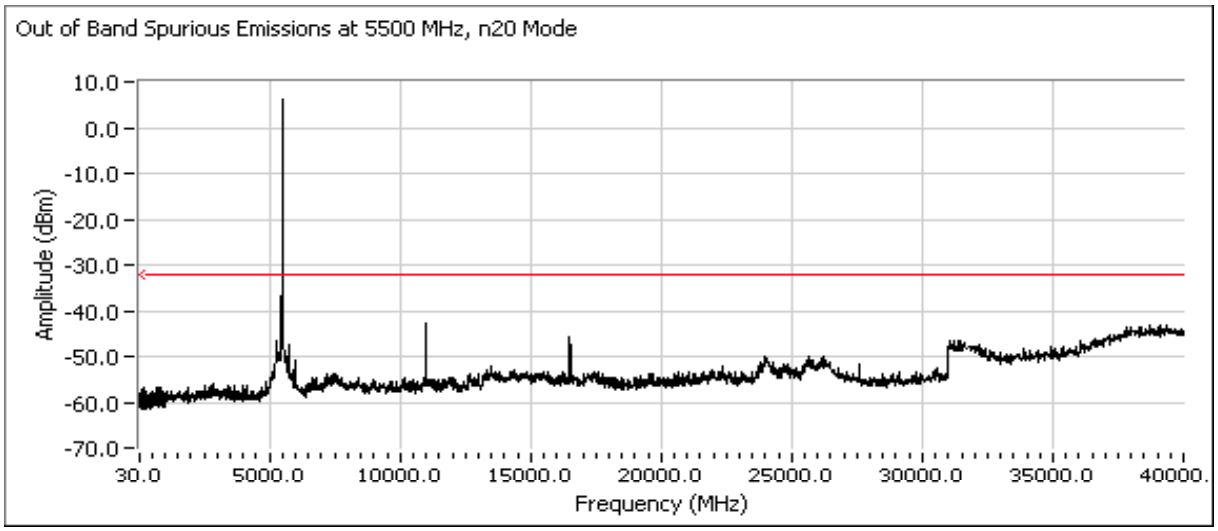


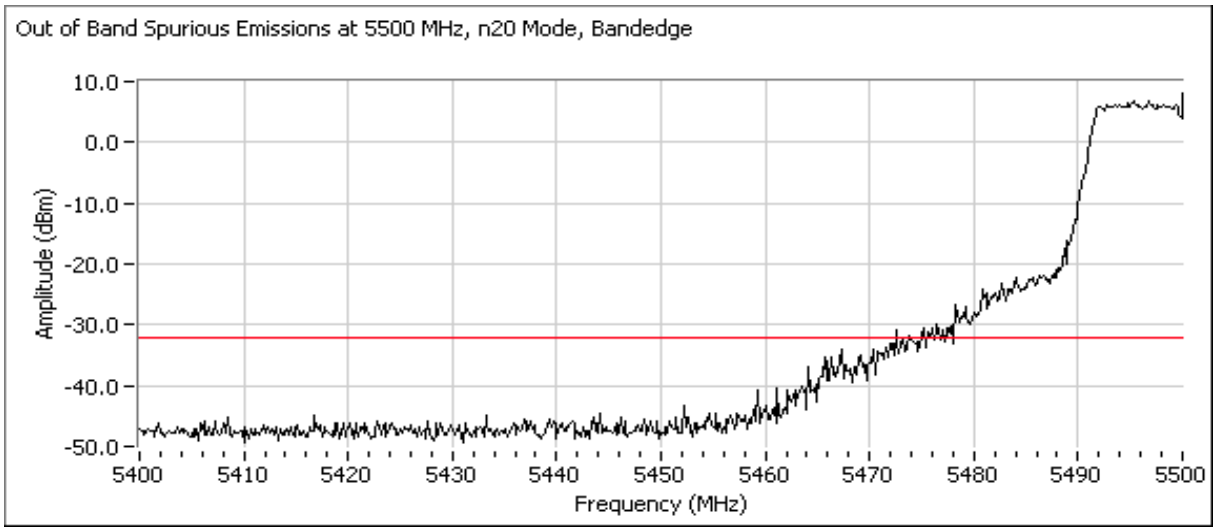


Client:	Intel Corporation	Job Number:	J70762
Model:	512AN_HMW(Formal)	T-Log Number:	T70766
		Account Manager:	Richard Gencev
Contact:	Robert Paxman		
Standard:	FCC	Class:	N/A

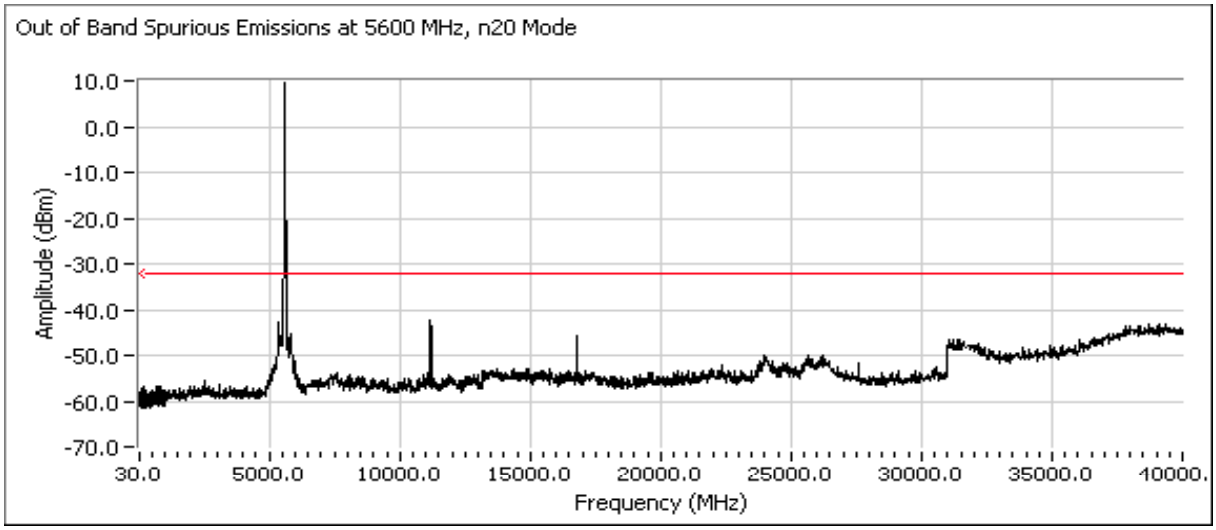


Client:	Intel Corporation	Job Number:	J70762
Model:	512AN_HMW(Formal)	T-Log Number:	T70766
		Account Manager:	Richard Gencev
Contact:	Robert Paxman		
Standard:	FCC	Class:	N/A

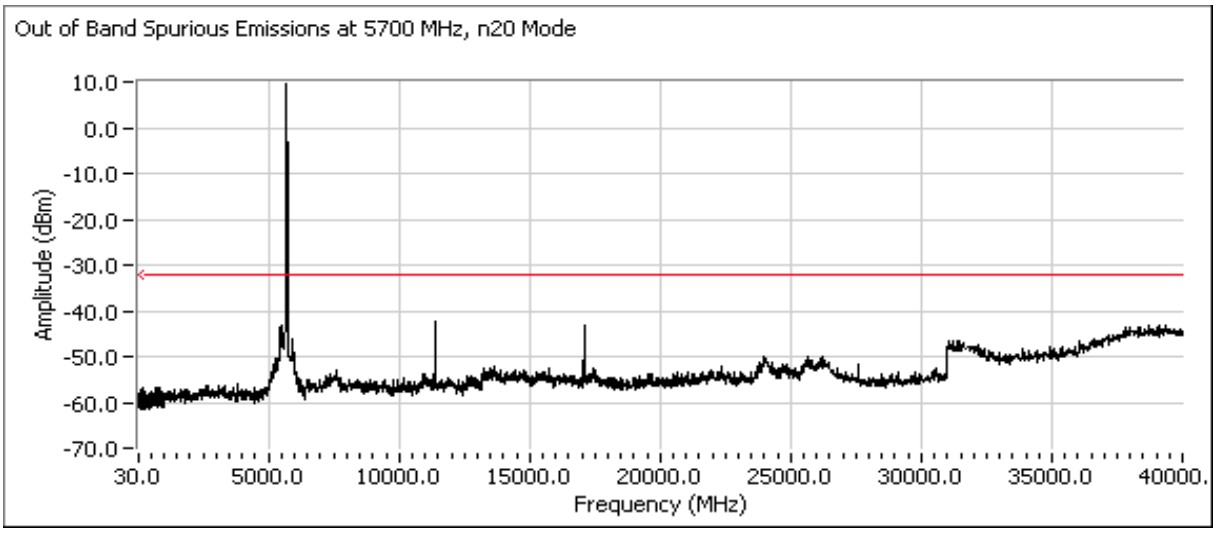


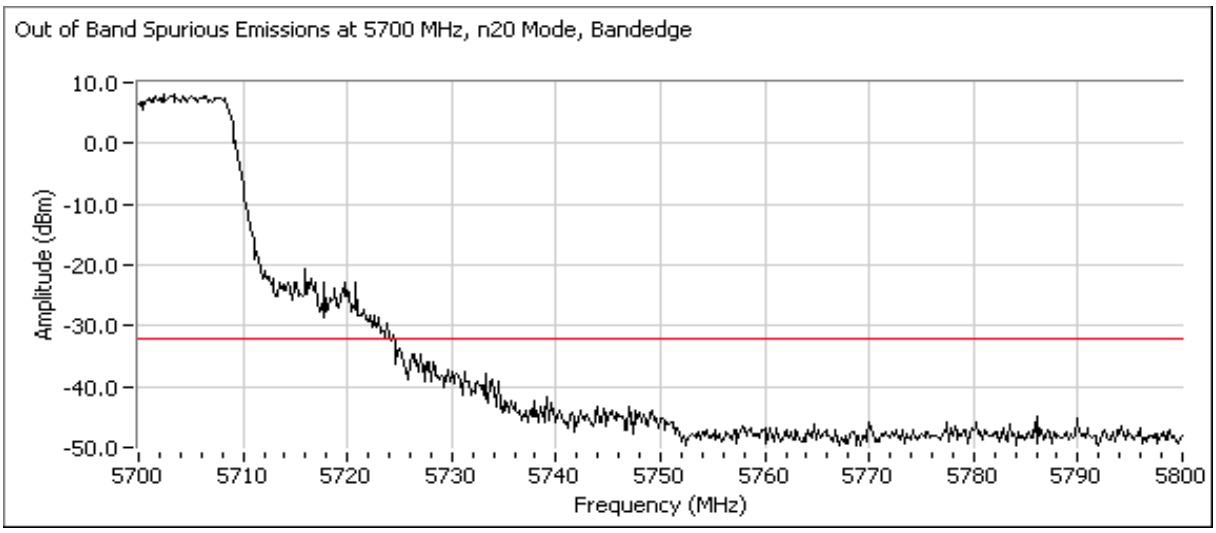


Client:	Intel Corporation	Job Number:	J70762
Model:	512AN_HMW(Formal)	T-Log Number:	T70766
		Account Manager:	Richard Gencev
Contact:	Robert Paxman		
Standard:	FCC	Class:	N/A



Client:	Intel Corporation	Job Number:	J70762
Model:	512AN_HMW(Formal)	T-Log Number:	T70766
		Account Manager:	Richard Gencev
Contact:	Robert Paxman		
Standard:	FCC	Class:	N/A





Client:	Intel Corporation	Job Number:	J70762
Model:	512AN_HMW(Formal)	T-Log Number:	T70766
		Account Manager:	Richard Gencev
Contact:	Robert Paxman		
Standard:	FCC	Class:	N/A

RSS-210 (LELAN) and FCC 15.407(UNII)
Antenna Port Measurements
Power, PSD, Peak Excursion, Bandwidth and 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.

Date of Test: 3/7/2008 23:54
Test Engineer: Rafael Varelas
Test Location: Fremont Chamber #4
Config. Used: 1
Config Change: None
EUT Voltage: Powered From Host System

General Test Configuration

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

Ambient Conditions:

Temperature: 18.4 °C
Rel. Humidity: 41 %

Summary of Results

41.686938

Run #	Test Performed	Limit	Pass / Fail	Result / Margin
1	Power, 5150 - 5250MHz	15.407(a) (1), (2)	Pass	16 dBm(40mW)
1	Power, 5250 - 5350MHz	15.407(a) (1), (2)	Pass	15.9 dBm(38mW)
1	Power, 5470 - 5725MHz	15.407(a) (1), (2)	Pass	16.0 dBm(40mW)
1	PSD, 5150 - 5250MHz	15.407(a) (1), (2)	Pass	1.2 dBm/MHz
1	PSD, 5250 - 5350MHz	15.407(a) (1), (2)	Pass	0.7 dBm/MHz
1	PSD, 5470 - 5725MHz	15.407(a) (1), (2)	Pass	0.9 dBm/MHz
1	26dB Bandwidth	15.407	-	82.2 MHz
1	99% Bandwidth	RSS 210	-	36.6 MHz
2	Peak Excursion Envelope	15.407(a) (6)		12.7 dB
3	Antenna Conducted - Out of Band Spurious	15.407(b)	Pass	All emissions below the -27dBm/MHz limit

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:	J70762
Model:	512AN_HMW(Formal)	T-Log Number:	T70766
		Account Manager:	Richard Gencev
Contact:	Robert Paxman		
Standard:	FCC	Class:	N/A

Run #1: Bandwidth, Output Power and Power spectral Density

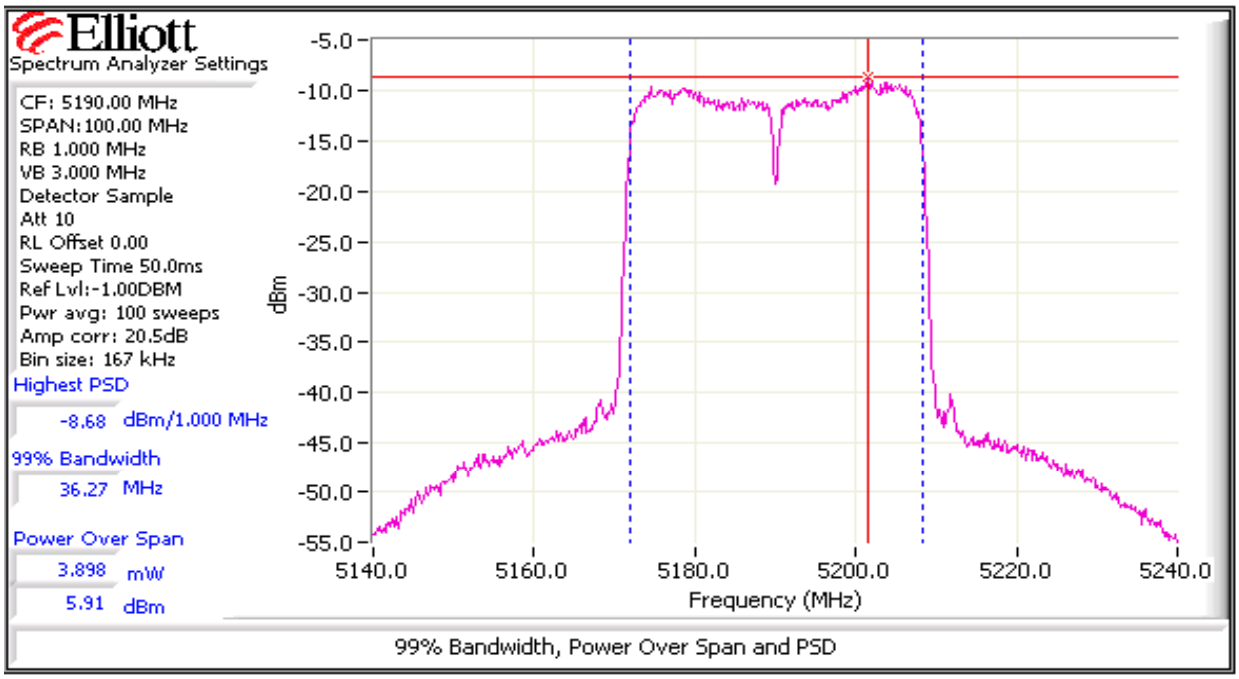
Antenna Gain (dBi): 5

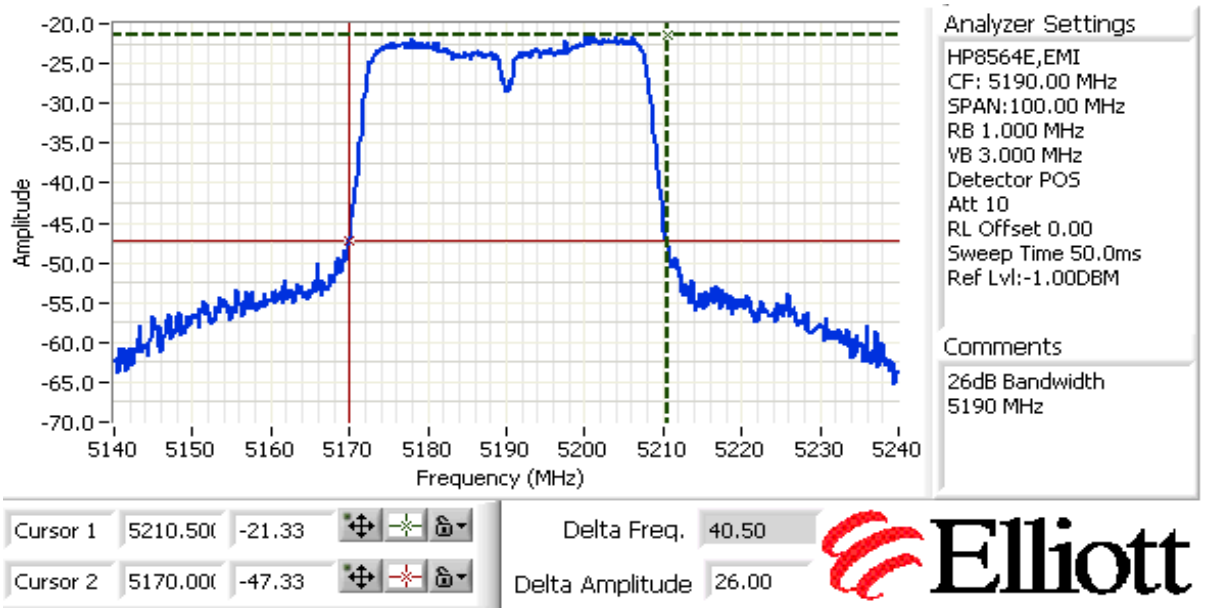
Frequency (MHz)	Software Setting	Bandwidth		Output Power[1] dBm		Power (Watts)	PSD[2] dBm/MHz			Result
		26dB	99%[4]	Measured	Limit		Measured	FCC Limit	RSS Limit[3]	
5190	20.0	40.5	36.3	5.9	17.0	0.004	-8.7	4.0	5.0	Pass
5230	30.5	78.7	36.6	16.0	17.0	0.040	1.2	4.0	5.0	Pass
5270	30.5	82.2	36.6	15.9	24.0	0.038	0.7	11.0	11.0	Pass
5310	20.0	40.7	36.3	7.1	24.0	0.005	-7.9	11.0	11.0	Pass
5510	21.5	40.8	36.4	10.4	24.0	0.011	-4.7	11.0	11.0	Pass
5590	25.5	48.7	36.1	15.4	24.0	0.035	0.2	11.0	11.0	Pass
5670	26.5	56.7	36.4	16.0	24.0	0.040	0.9	11.0	11.0	Pass

Note 1:	Output power measured using a spectrum analyzer (see plots below): RBW=1MHz, VB=3 MHz, sample detector, power averaging on (transmitted signal was continuous) and power integration over 100 MHz
Note 2:	Measured using the same analyzer settings used for output power.
Note 3:	For RSS-210 the limit for the 5150 - 5250 MHz band accounts for the antenna gain as the maximum eirp allowed is 10dBm/MHz. The limits are also corrected for instances where the highest measured value of the PSD exceeds the average PSD (calculated from the measured power divided by the measured 99% bandwidth) by more than 3dB by the amount that the measured value exceeds the average by more than 3dB.
Note 4:	99% Bandwidth measured in accordance with RSS GEN - RB > 1% of span and VB >=3xRB

Client:	Intel Corporation	Job Number:	J70762
Model:	512AN_HMW(Formal)	T-Log Number:	T70766
		Account Manager:	Richard Gencev
Contact:	Robert Paxman		
Standard:	FCC	Class:	N/A

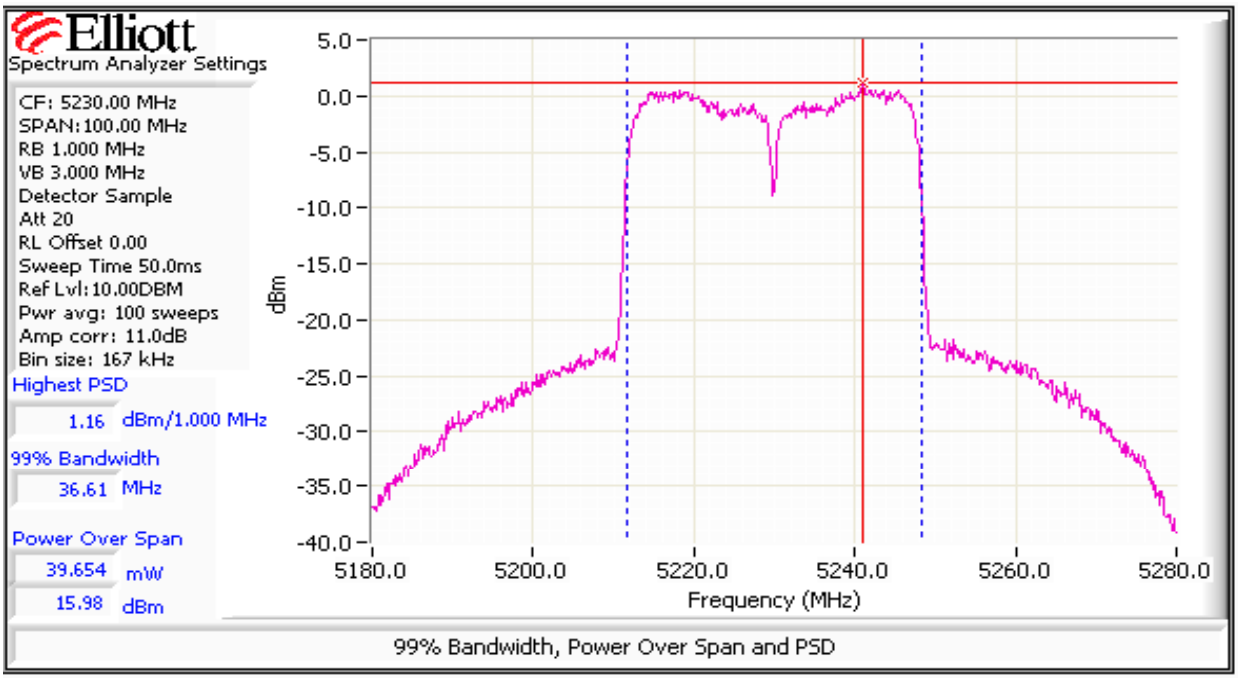
Run #1: Bandwidth, Output Power and Power spectral Density

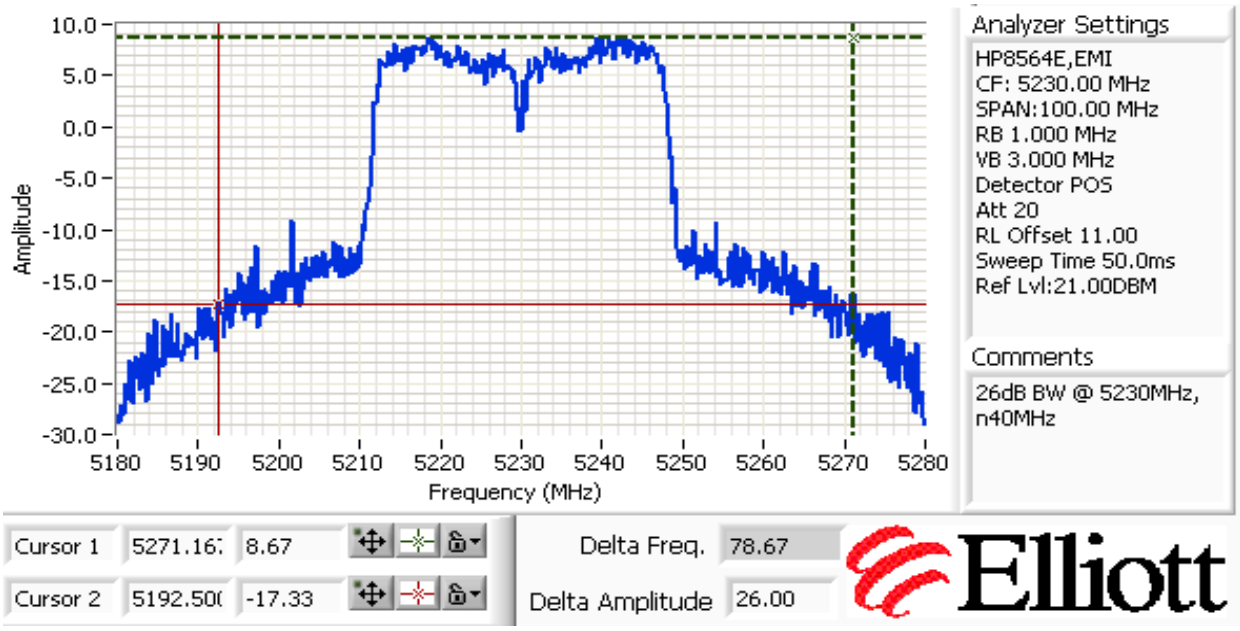




Client:	Intel Corporation	Job Number:	J70762
Model:	512AN_HMW(Formal)	T-Log Number:	T70766
		Account Manager:	Richard Gencev
Contact:	Robert Paxman		
Standard:	FCC	Class:	N/A

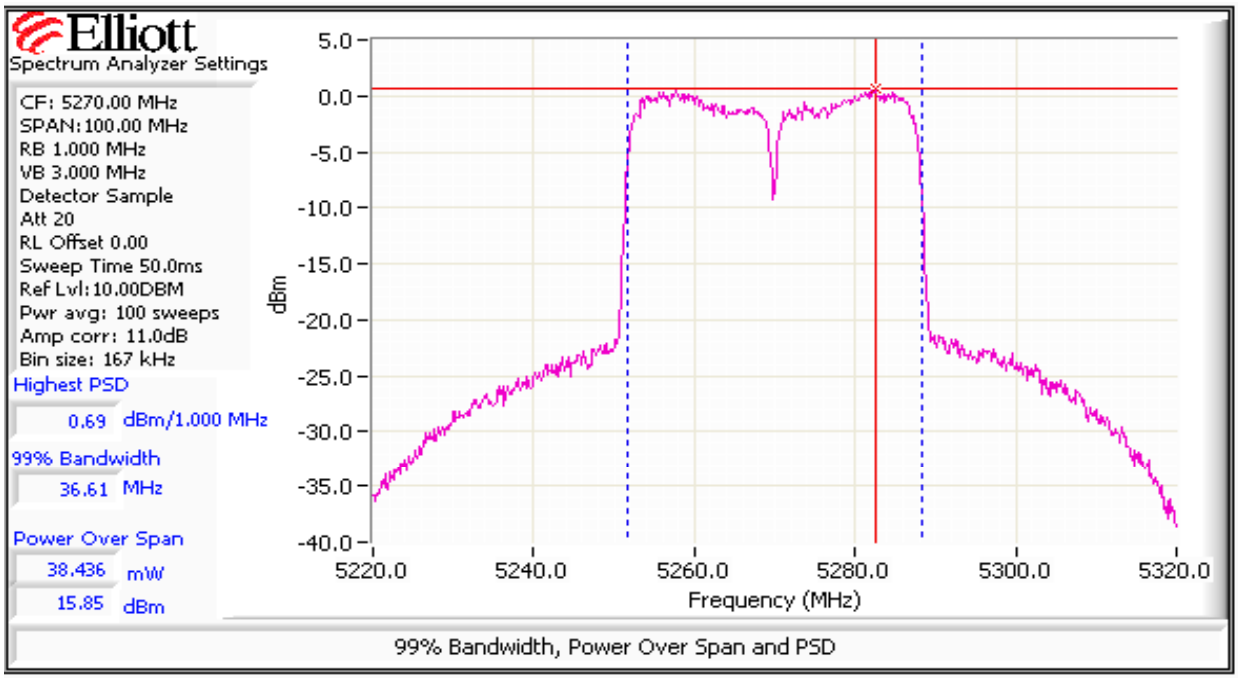
Run #1: Bandwidth, Output Power and Power spectral Density

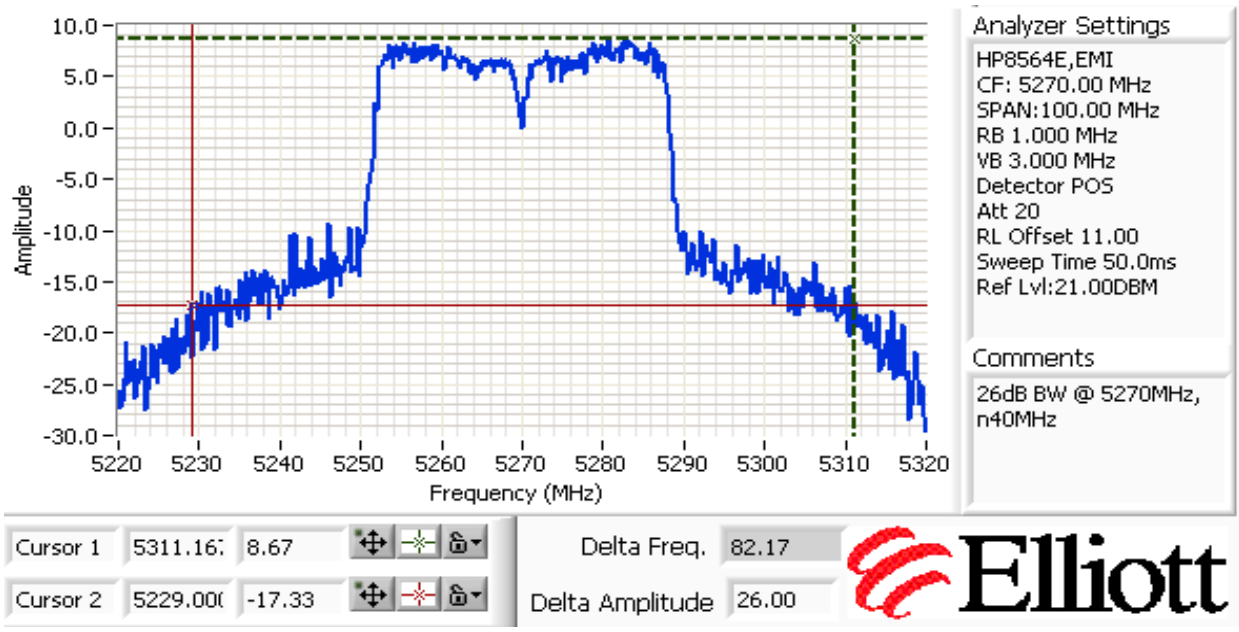




Client:	Intel Corporation	Job Number:	J70762
Model:	512AN_HMW(Formal)	T-Log Number:	T70766
		Account Manager:	Richard Gencev
Contact:	Robert Paxman		
Standard:	FCC	Class:	N/A

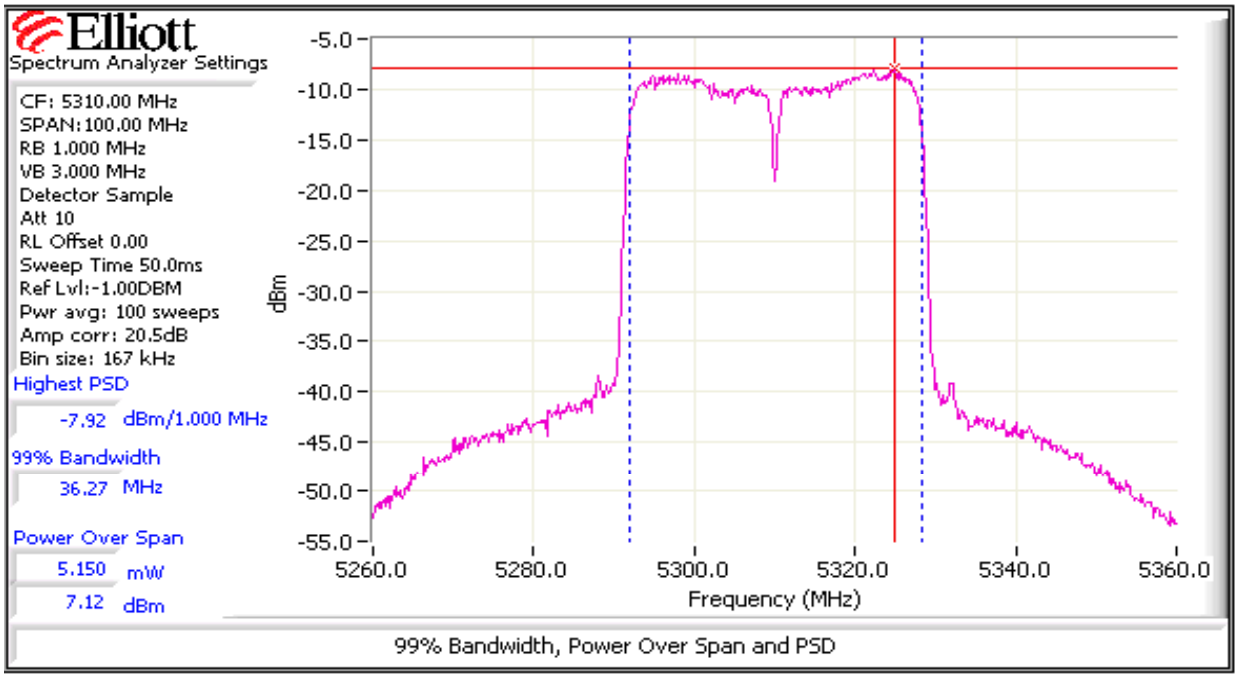
Run #1: Bandwidth, Output Power and Power spectral Density

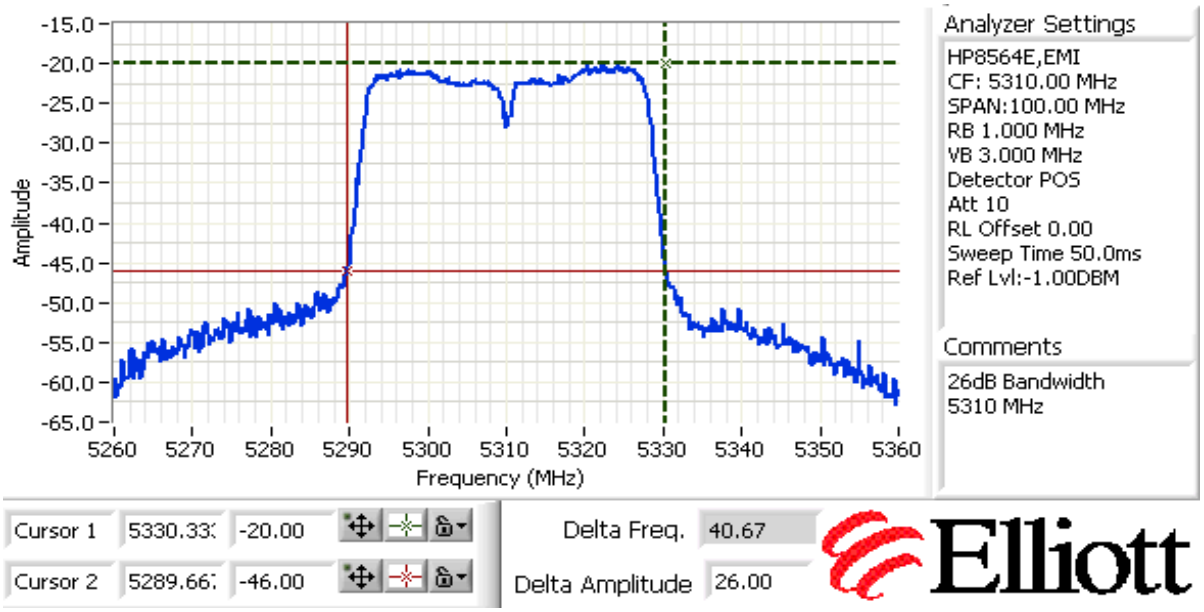




Client:	Intel Corporation	Job Number:	J70762
Model:	512AN_HMW(Formal)	T-Log Number:	T70766
		Account Manager:	Richard Gencev
Contact:	Robert Paxman		
Standard:	FCC	Class:	N/A

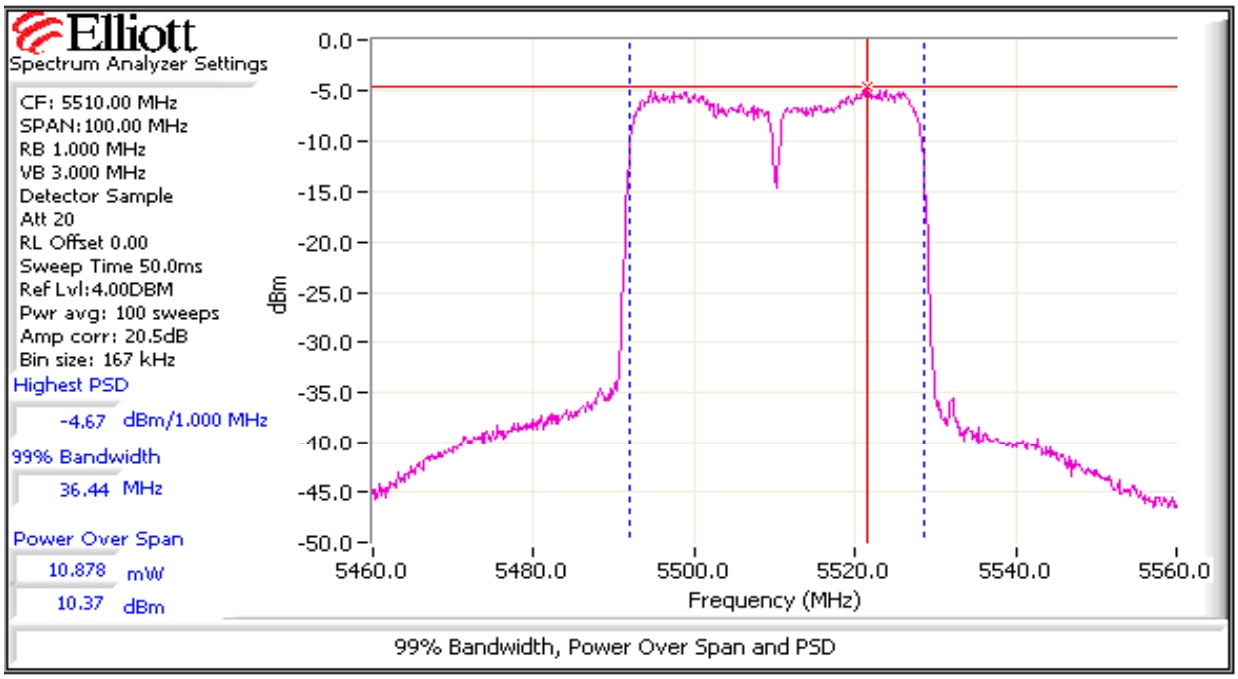
Run #1: Bandwidth, Output Power and Power spectral Density

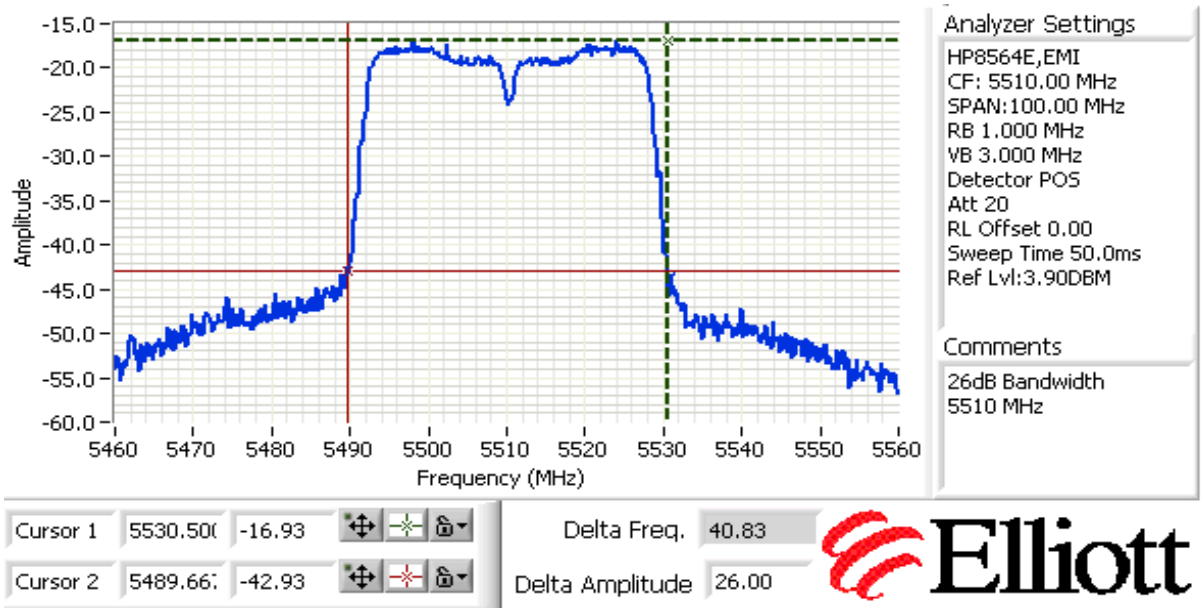




Client:	Intel Corporation	Job Number:	J70762
Model:	512AN_HMW(Formal)	T-Log Number:	T70766
		Account Manager:	Richard Gencev
Contact:	Robert Paxman		
Standard:	FCC	Class:	N/A

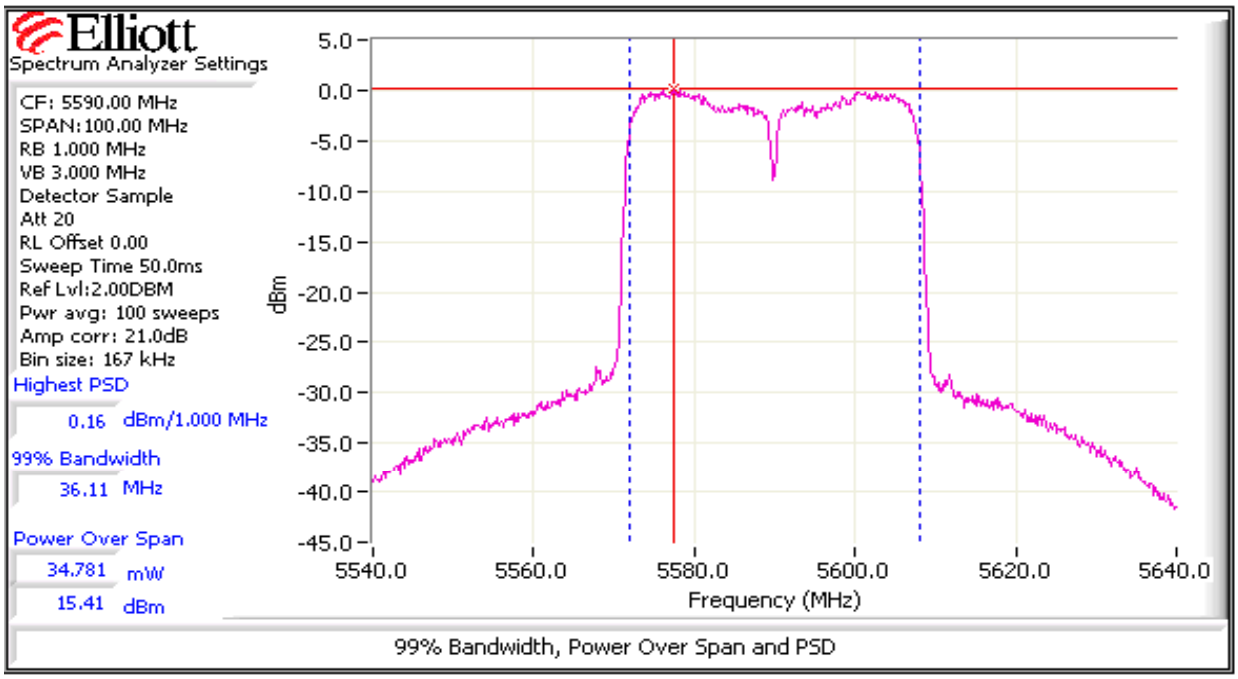
Run #1: Bandwidth, Output Power and Power spectral Density

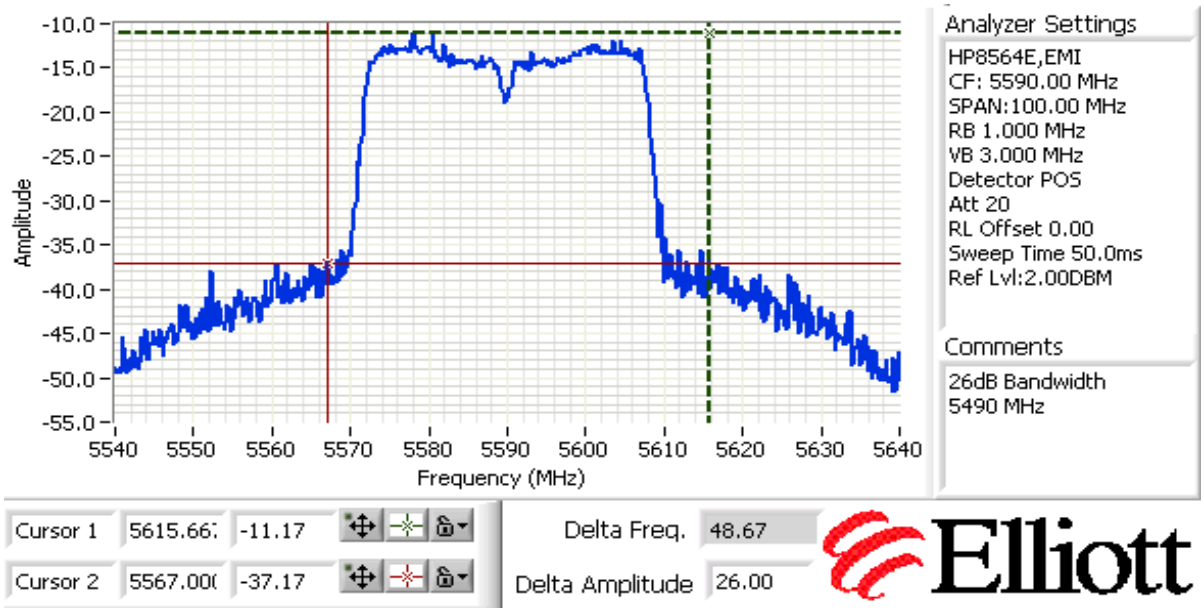




Client:	Intel Corporation	Job Number:	J70762
Model:	512AN_HMW(Formal)	T-Log Number:	T70766
		Account Manager:	Richard Gencev
Contact:	Robert Paxman		
Standard:	FCC	Class:	N/A

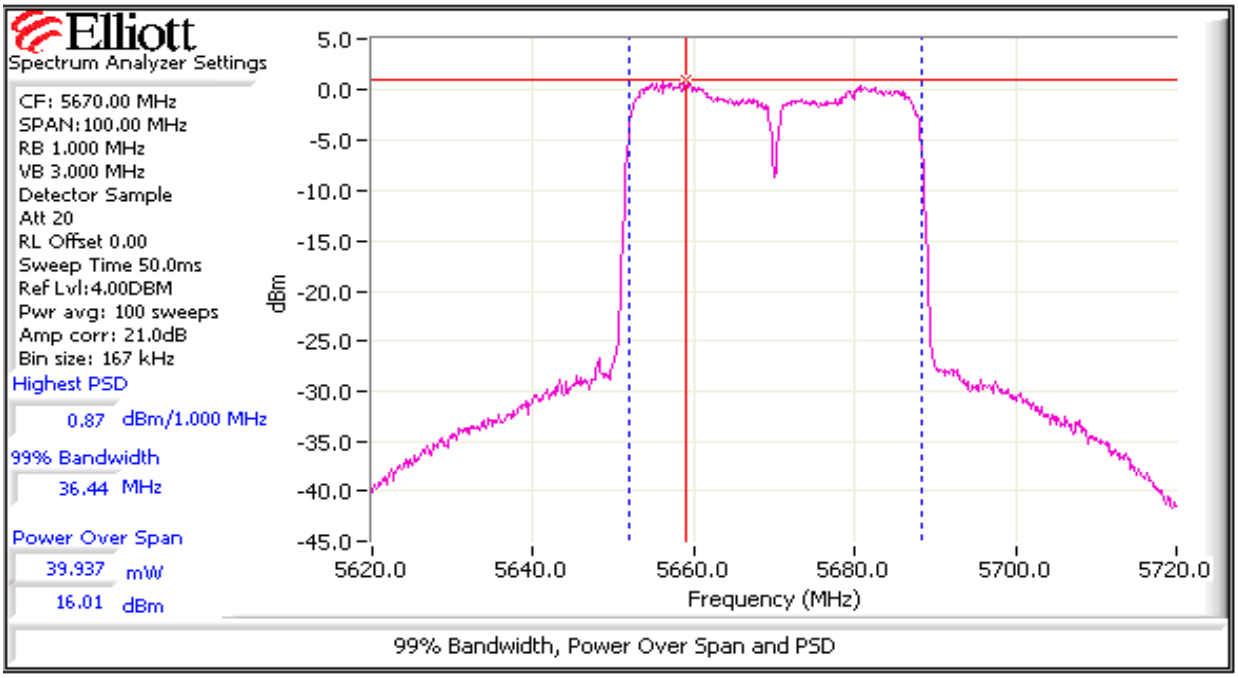
Run #1: Bandwidth, Output Power and Power spectral Density

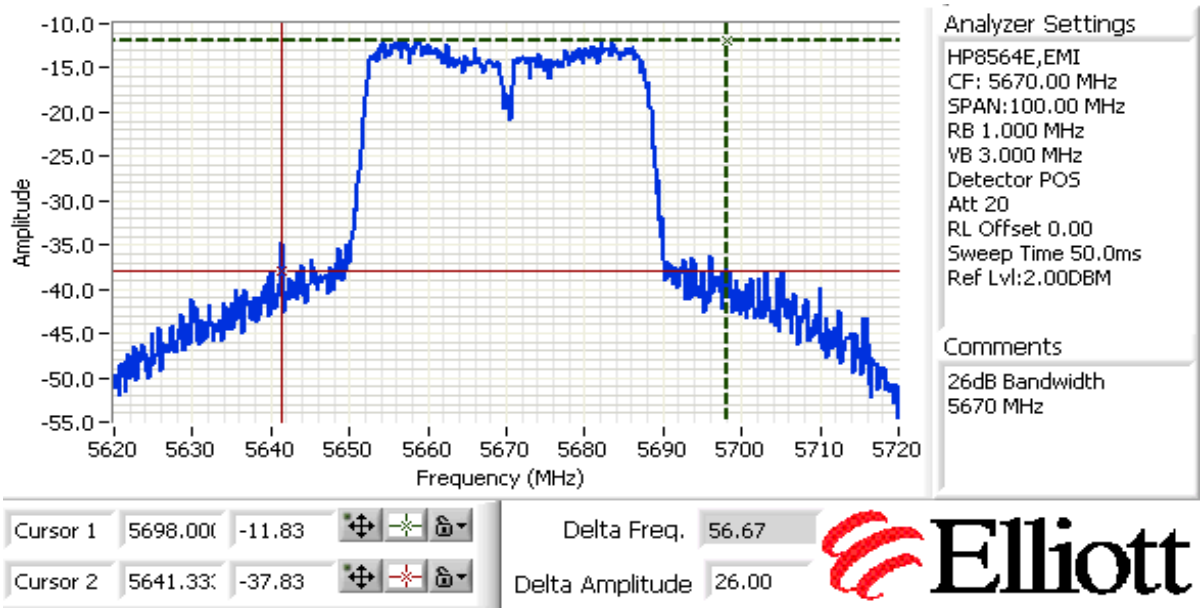




Client:	Intel Corporation	Job Number:	J70762
Model:	512AN_HMW(Formal)	T-Log Number:	T70766
		Account Manager:	Richard Gencev
Contact:	Robert Paxman		
Standard:	FCC	Class:	N/A

Run #1: Bandwidth, Output Power and Power spectral Density





Client:	Intel Corporation	Job Number:	J70762
Model:	512AN_HMW(Formal)	T-Log Number:	T70766
		Account Manager:	Richard Gencev
Contact:	Robert Paxman		
Standard:	FCC	Class:	N/A

Run #2: Peak Excursion Measurement

Device meets the requirement for the peak excursion

Freq	Peak Excursion(dB)		Freq	Peak Excursion(dB)		Freq	Peak Excursion(dB)	
(MHz)	Value	Limit	(MHz)	Value	Limit	(MHz)	Value	Limit
5190	12.7	13.0	5260		13.0	5510	11.4	13.0
5230	11.4	13.0	5270	12.4	13.0	5590	12.5	13.0
5240		13.0	5310	12.9	13.0	5670	12.3	13.0

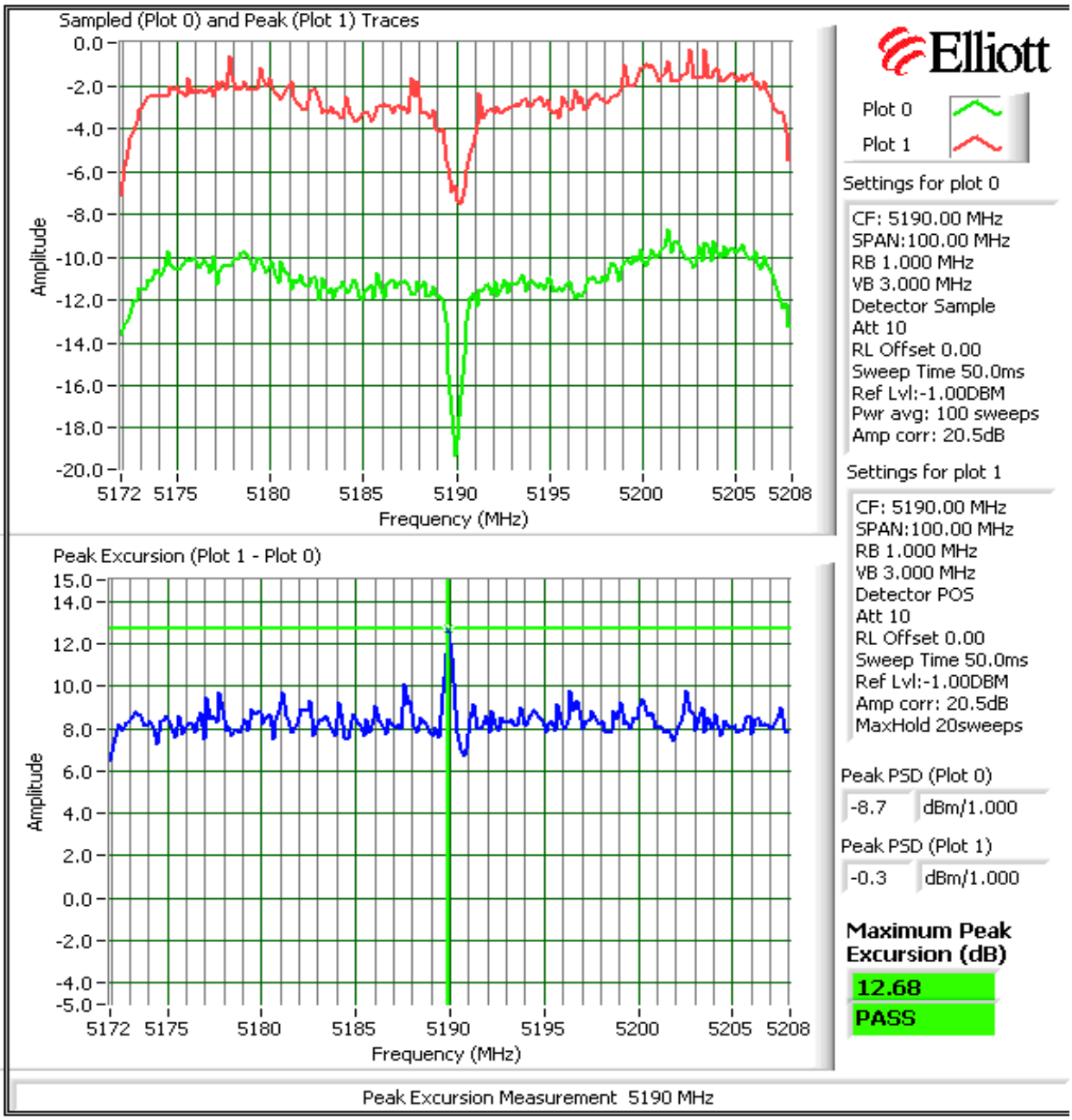
Plots Showing Peak Excursion

Trace A: RBW = VBW = 3MHz, Peak hold

Trace B: RBW = 1 MHz, VBW = 3MHz, Integrated average power

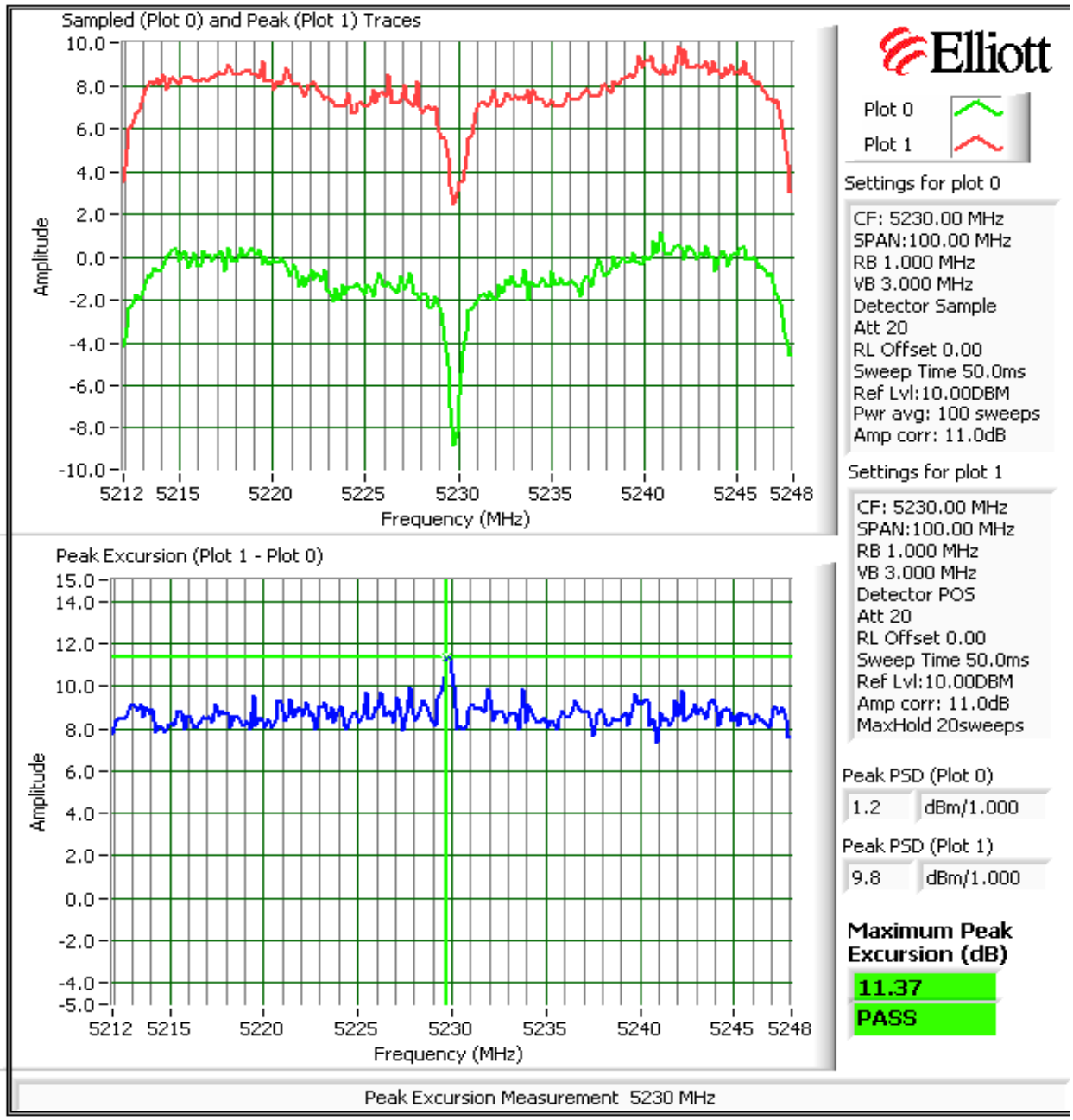
Client:	Intel Corporation	Job Number:	J70762
Model:	512AN_HMW(Formal)	T-Log Number:	T70766
		Account Manager:	Richard Gencev
Contact:	Robert Paxman		
Standard:	FCC	Class:	N/A

Run #2: Peak Excursion Measurement



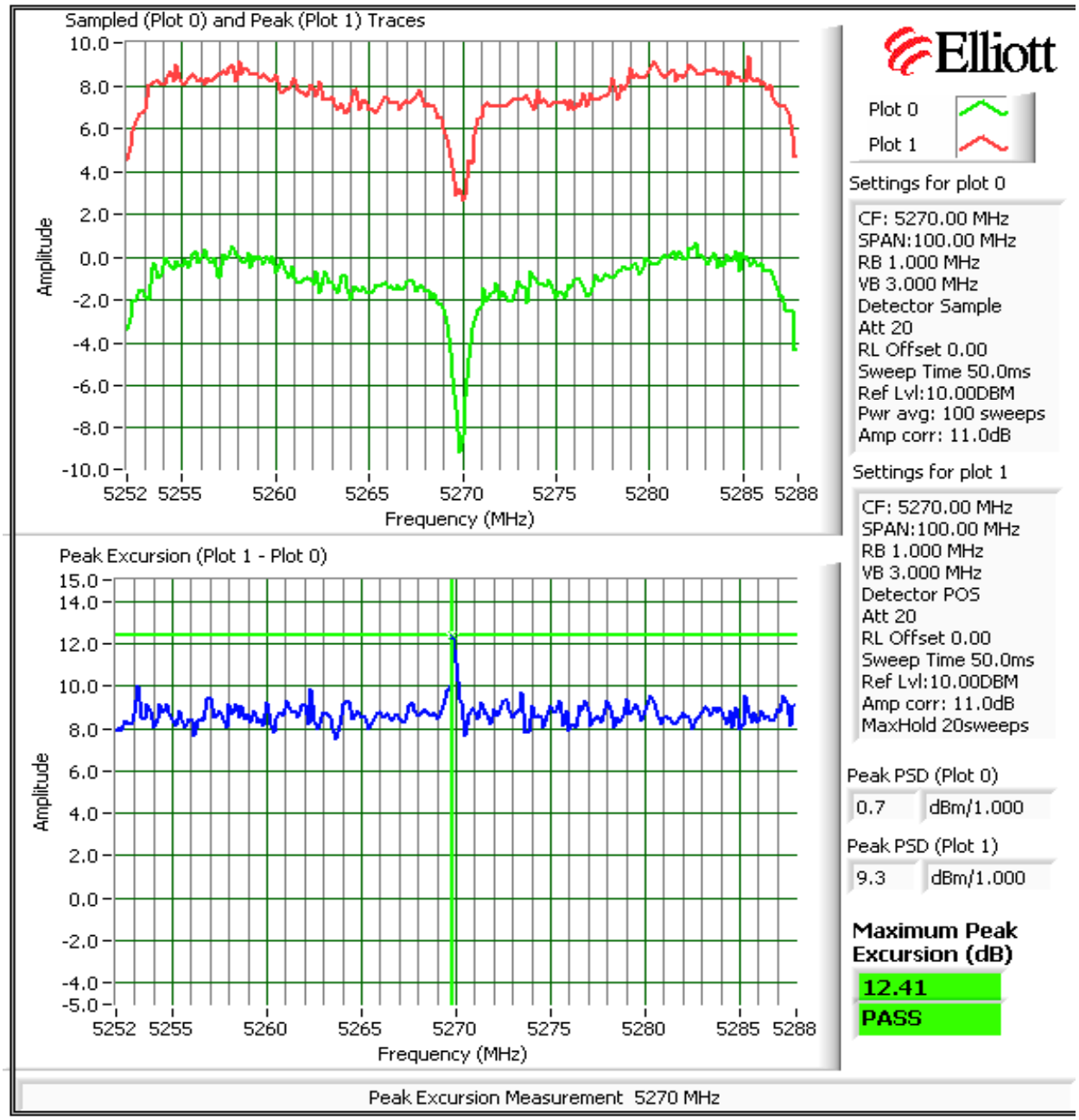
Client:	Intel Corporation	Job Number:	J70762
Model:	512AN_HMW(Formal)	T-Log Number:	T70766
		Account Manager:	Richard Gencev
Contact:	Robert Paxman		
Standard:	FCC	Class:	N/A

Run #2: Peak Excursion Measurement



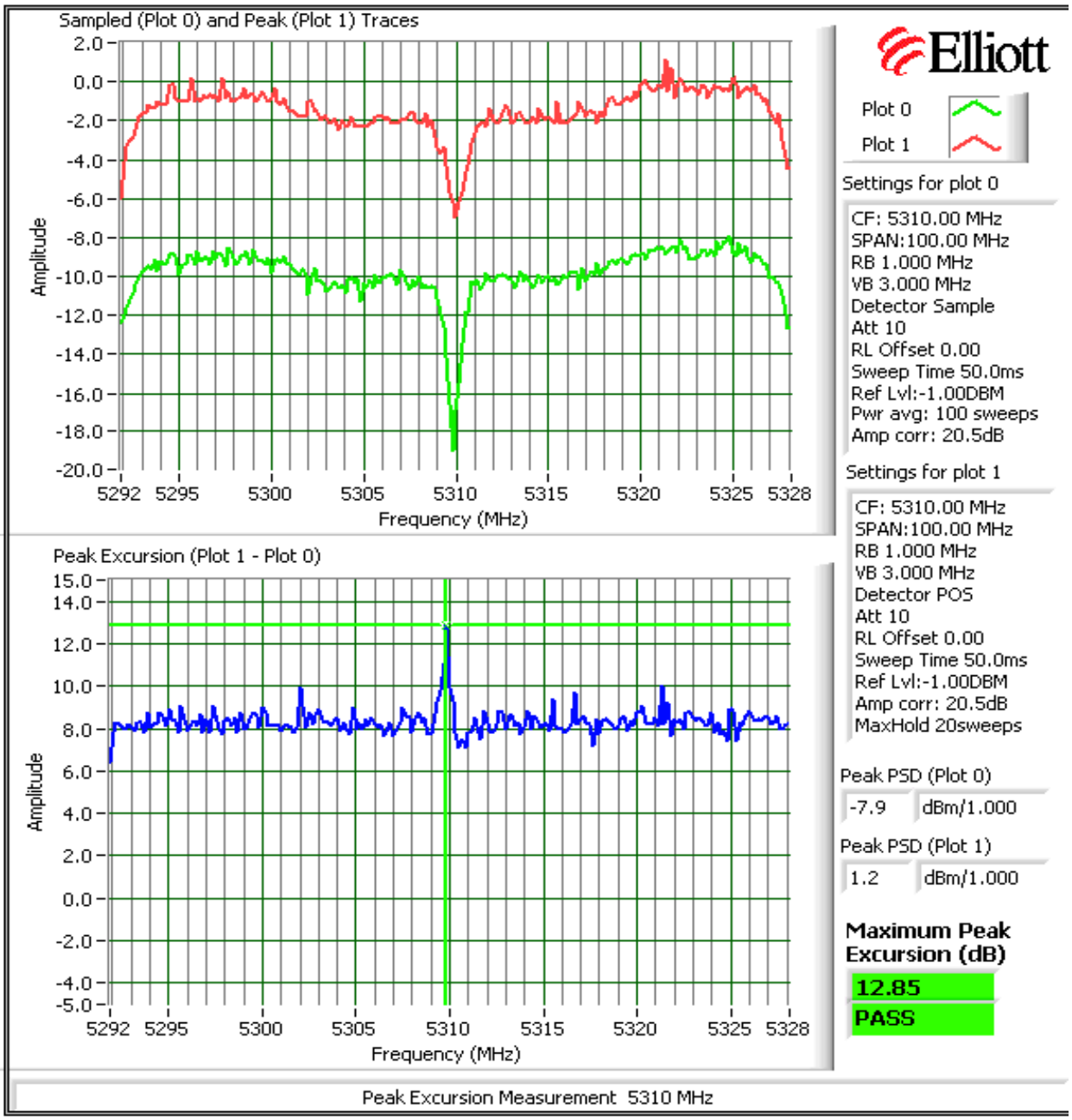
Client:	Intel Corporation	Job Number:	J70762
Model:	512AN_HMW(Formal)	T-Log Number:	T70766
		Account Manager:	Richard Gencev
Contact:	Robert Paxman		
Standard:	FCC	Class:	N/A

Run #2: Peak Excursion Measurement



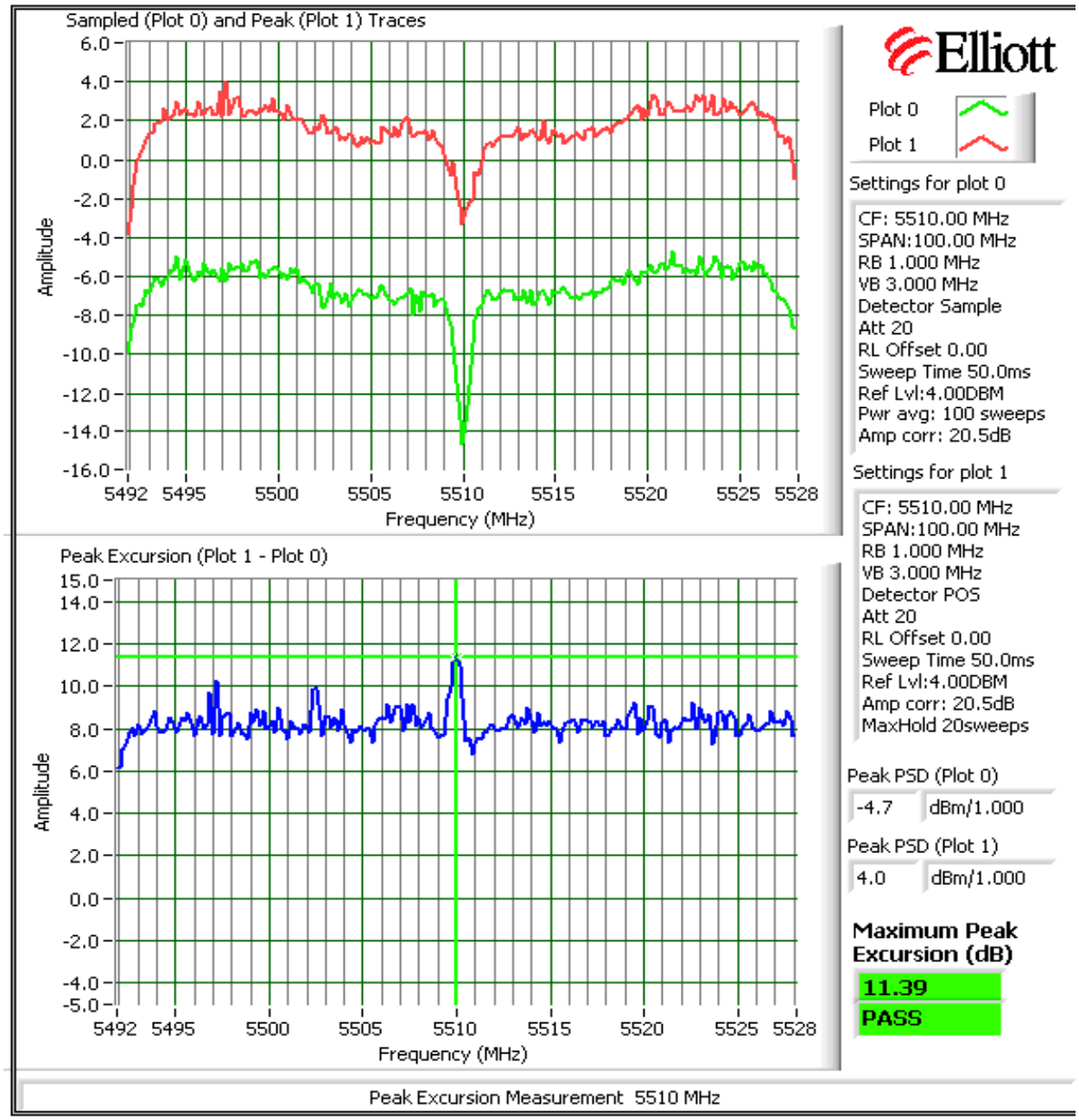
Client:	Intel Corporation	Job Number:	J70762
Model:	512AN_HMW(Formal)	T-Log Number:	T70766
		Account Manager:	Richard Gencev
Contact:	Robert Paxman		
Standard:	FCC	Class:	N/A

Run #2: Peak Excursion Measurement



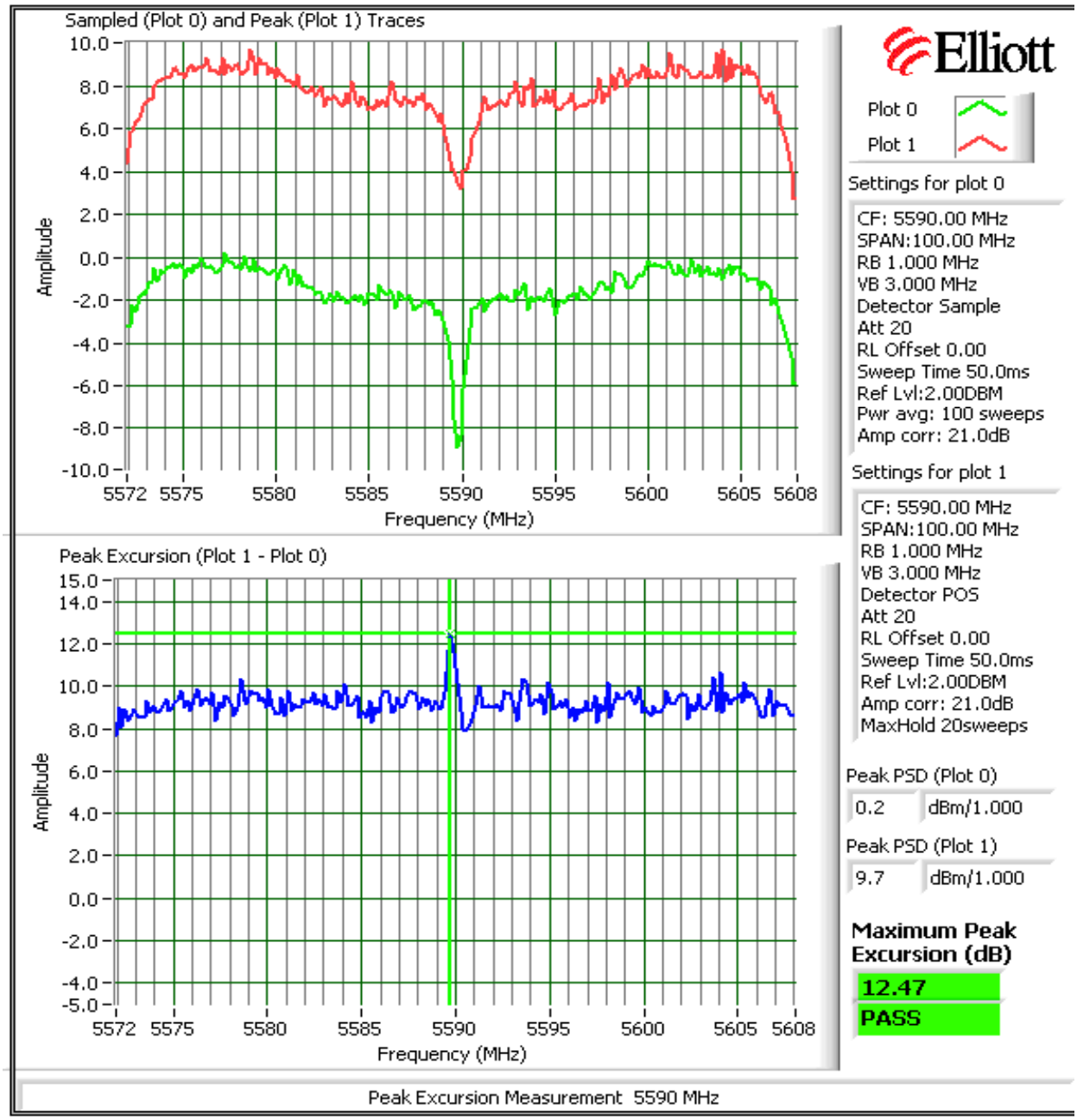
Client:	Intel Corporation	Job Number:	J70762
Model:	512AN_HMW(Formal)	T-Log Number:	T70766
		Account Manager:	Richard Gencev
Contact:	Robert Paxman		
Standard:	FCC	Class:	N/A

Run #2: Peak Excursion Measurement



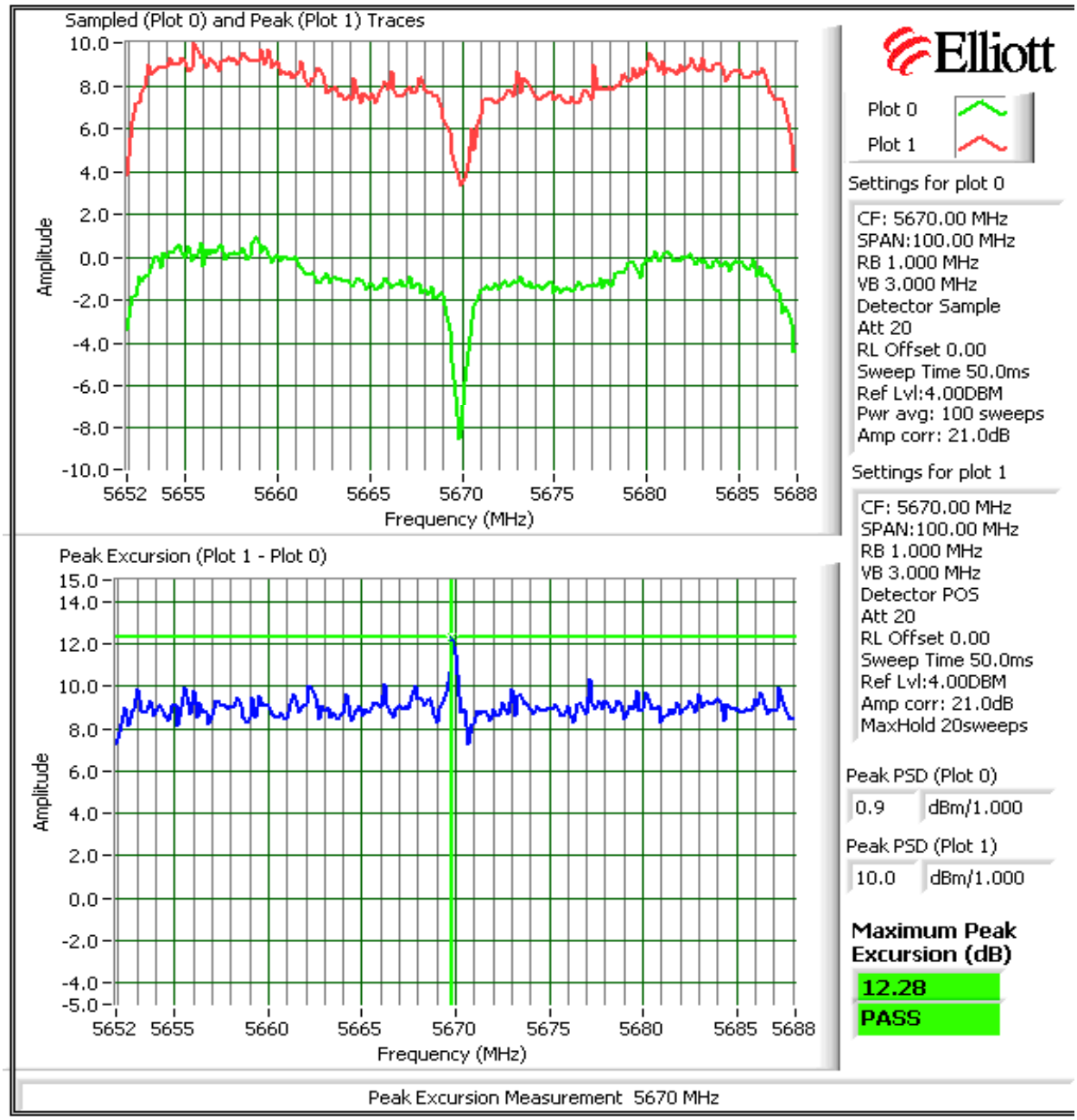
Client:	Intel Corporation	Job Number:	J70762
Model:	512AN_HMW(Formal)	T-Log Number:	T70766
		Account Manager:	Richard Gencev
Contact:	Robert Paxman		
Standard:	FCC	Class:	N/A

Run #2: Peak Excursion Measurement



Client:	Intel Corporation	Job Number:	J70762
Model:	512AN_HMW(Formal)	T-Log Number:	T70766
		Account Manager:	Richard Gencev
Contact:	Robert Paxman		
Standard:	FCC	Class:	N/A

Run #2: Peak Excursion Measurement



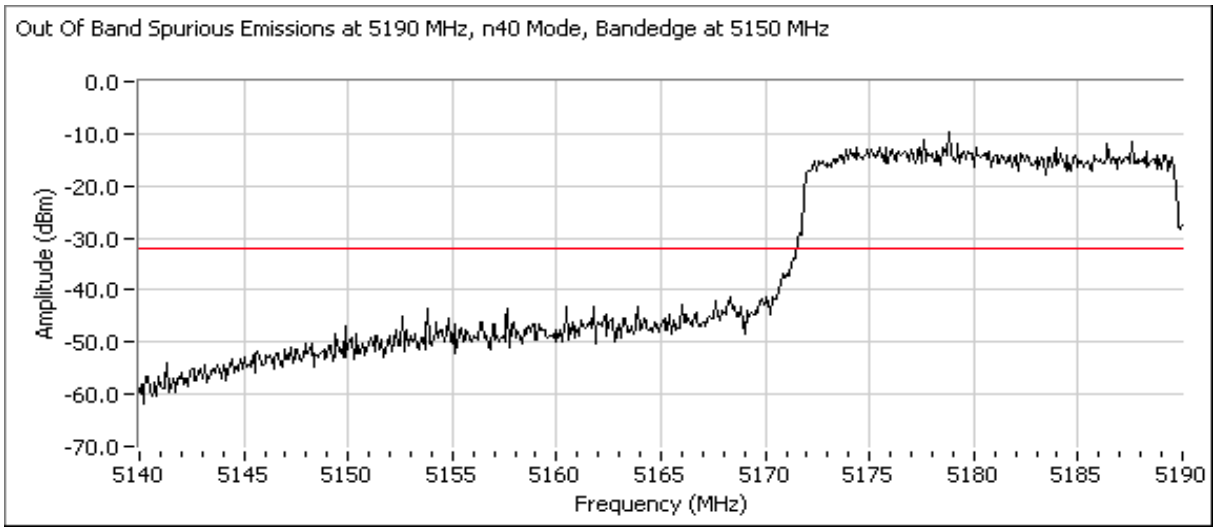
Client:	Intel Corporation	Job Number:	J70762
Model:	512AN_HMW(Formal)	T-Log Number:	T70766
		Account Manager:	Richard Gencev
Contact:	Robert Paxman		
Standard:	FCC	Class:	N/A

Run #3: Out Of Band Spurious Emissions - Antenna Conducted

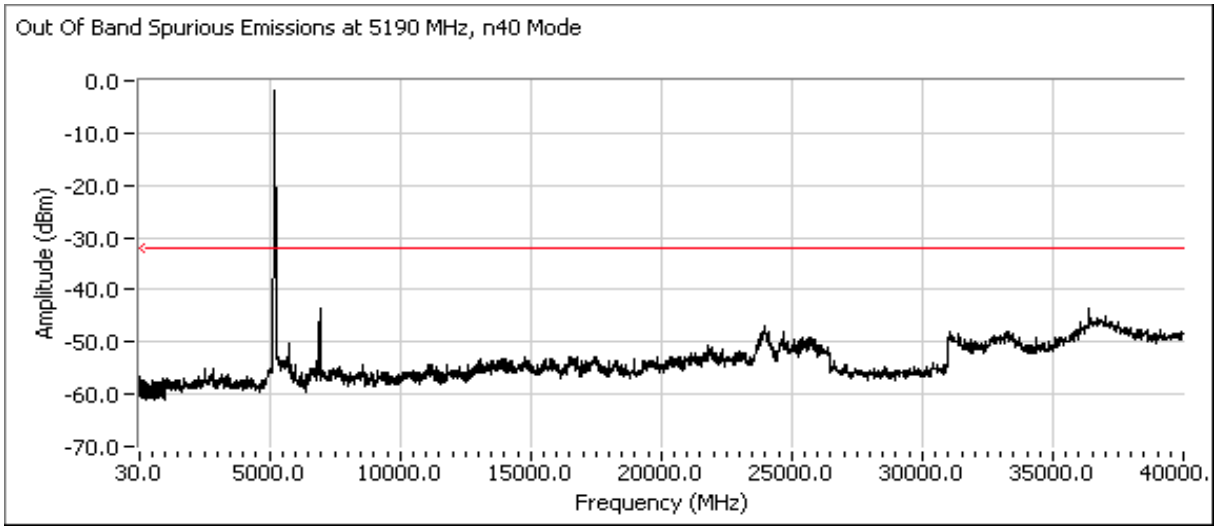
Maximum Antenna Gain:	5	dBi
Spurious Limit:	-27	dBm/MHz eirp
Limit Used On Plots [Note 1]:	-32	dBm/MHz

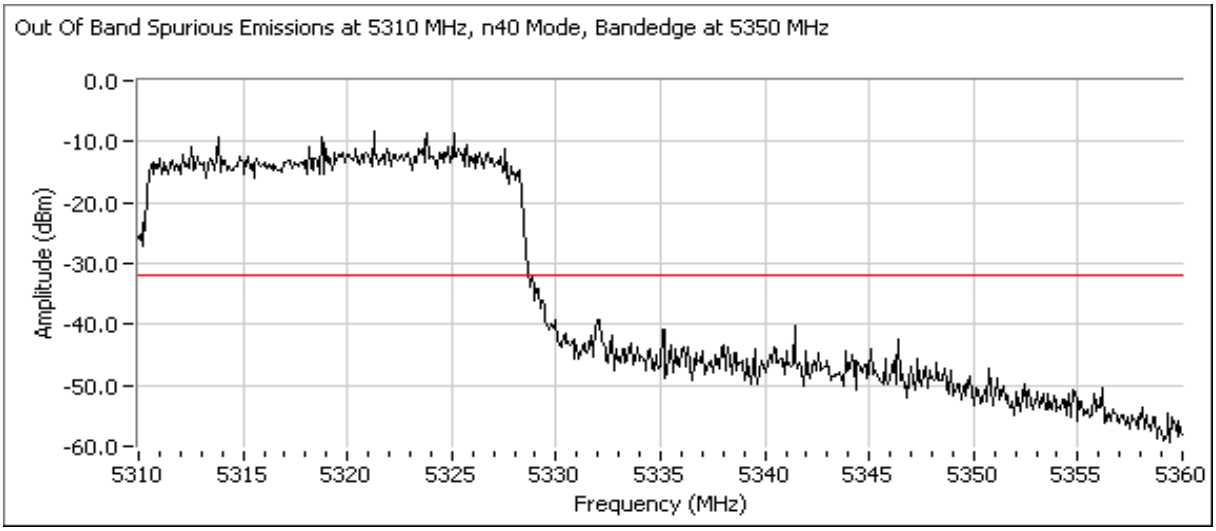
Note 1:	The -27dBm/MHz limit is an eirp limit. The limit for antenna port conducted measurements is adjusted to take into consideration the maximum antenna gain (limit = -27dBm - antenna gain). Radiated field strength measurements for signals more than 50MHz from the bands and that are close to the limit are made to determine compliance as the antenna gain is not known at these frequencies.
Note 2:	All spurious signals below 1GHz are measured during digital device radiated emissions test.
Note 3:	Signals within 10MHz of the 5.725 or 5.825 Band edge are subject to a limit of -17dBm EIRP
Note 4:	If the device is for outdoor use then the -27dBm eirp limit also applies in the 5150 - 5250 MHz band.
Note 5:	Signals that fall in the restricted bands of 15.205 are subject to the limit of 15.209.

Plots Showing Out-Of-Band Emissions (RBW=VBW=1MHz)

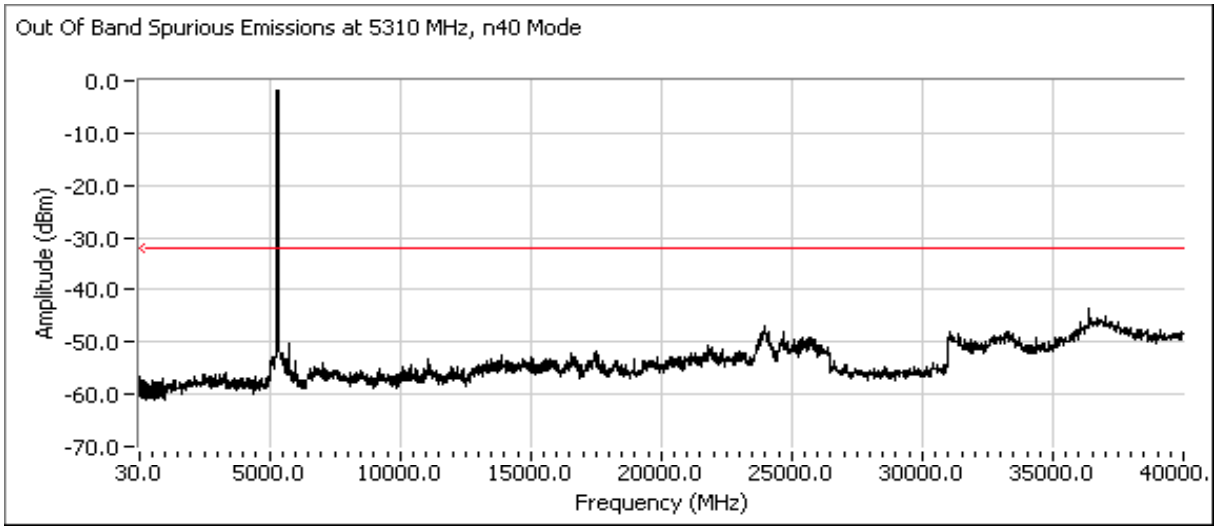


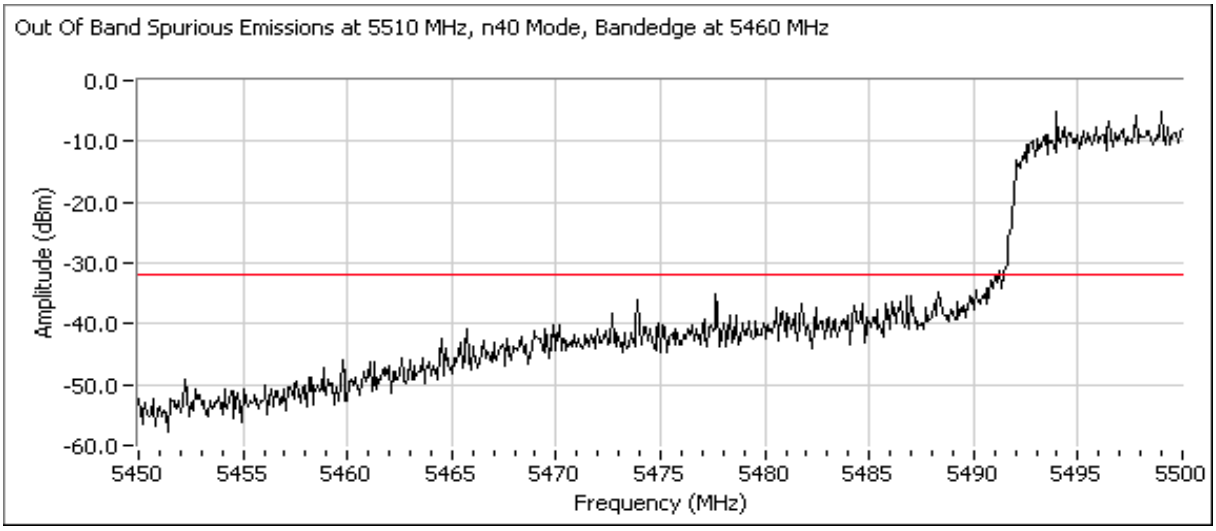
Client:	Intel Corporation	Job Number:	J70762
Model:	512AN_HMW(Formal)	T-Log Number:	T70766
		Account Manager:	Richard Gencev
Contact:	Robert Paxman		
Standard:	FCC	Class:	N/A



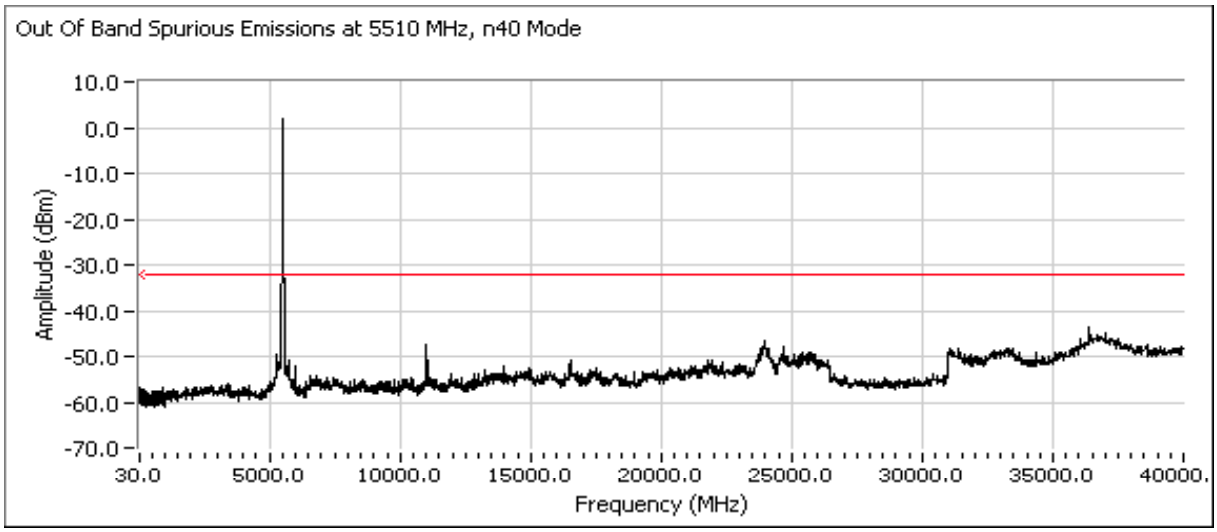


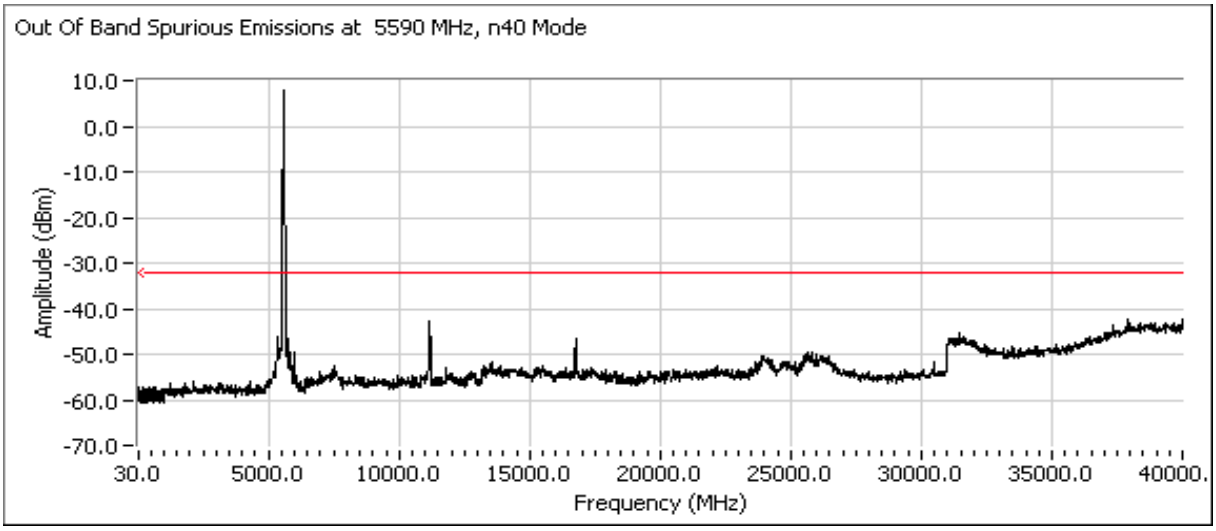
Client:	Intel Corporation	Job Number:	J70762
Model:	512AN_HMW(Formal)	T-Log Number:	T70766
		Account Manager:	Richard Gencev
Contact:	Robert Paxman		
Standard:	FCC	Class:	N/A



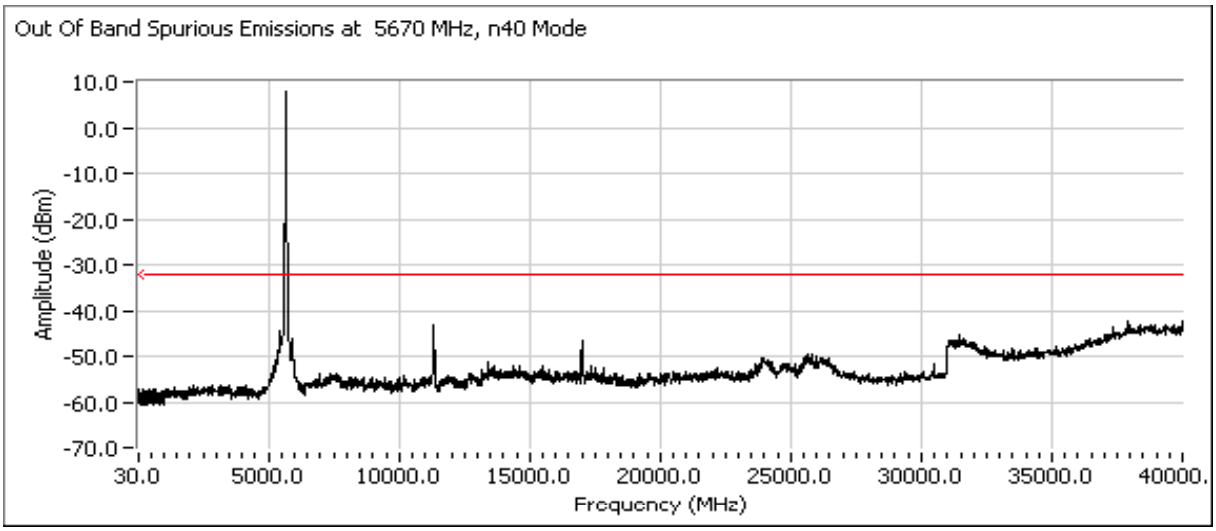


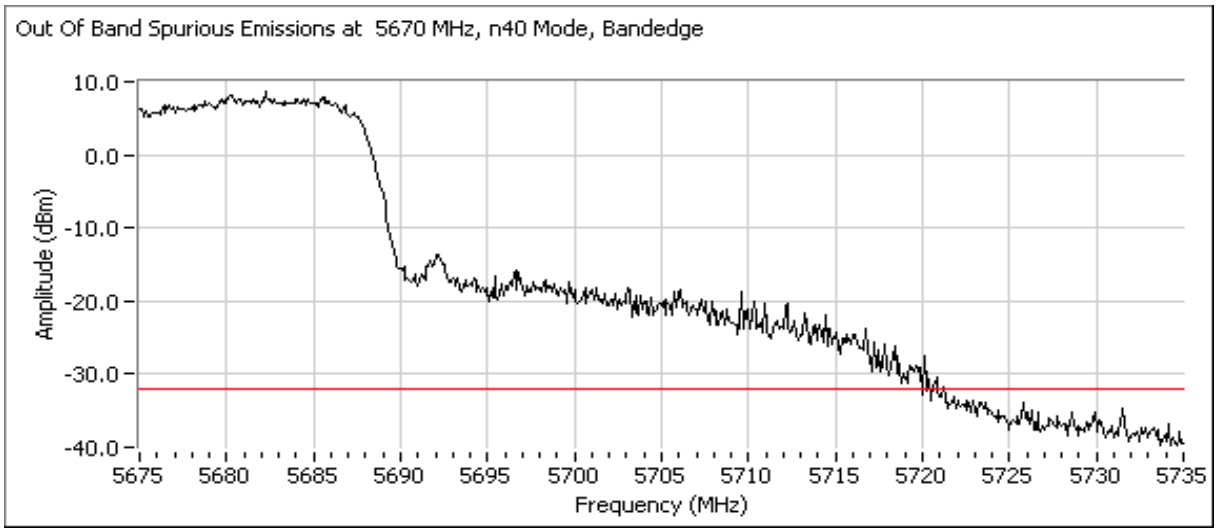
Client:	Intel Corporation	Job Number:	J70762
Model:	512AN_HMW(Formal)	T-Log Number:	T70766
		Account Manager:	Richard Gencev
Contact:	Robert Paxman		
Standard:	FCC	Class:	N/A





Client:	Intel Corporation	Job Number:	J70762
Model:	512AN_HMW(Formal)	T-Log Number:	T70766
		Account Manager:	Richard Gencev
Contact:	Robert Paxman		
Standard:	FCC	Class:	N/A





Client:	Intel	Job Number:	J70762
Model:	512an HMW	T-Log Number:	T71374
		Account Manager:	Briggs / Eriksen
Contact:	Robert Paxman		-
Emissions Standard(s):	RSS 210 / FCC 15.407 UNII (Radiated)	Class:	NII
Immunity Standard(s):	-	Environment:	-

EMC Test Data

For The

Intel

Model

512an HMW

Date of Last Test: 3/27/2008

Client:	Intel	Job Number:	J70762
Model:	512an HMW	T-Log Number:	T71374
		Account Manager:	Briggs / Eriksen
Contact:	Robert Paxman		
Standard:	RSS 210 / FCC 15.407 UNII (Radiated)	Class:	NII

Conducted 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: 3/7/2008
Test Engineer: Peter Sales
Test Location: Fremont Chamber #3

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

General Test Configuration

For tabletop equipment, the EUT was located on a wooden table inside the semi-anechoic chamber, 40 cm from a vertical coupling plane and 80cm from the LISN. A second LISN was used for all local support equipment. Remote support equipment was located outside of 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.

Ambient Conditions:

Temperature: 20 °C
Rel. Humidity: 43 %

Summary of Results

Run #	Test Performed	Limit	Result	Margin
1	CE, AC Power,120V/60Hz	FCC 15.207 / RSS 210	Pass	23.0dBµV @ 11.069MHz (-27.0dB)

Modifications Made During Testing

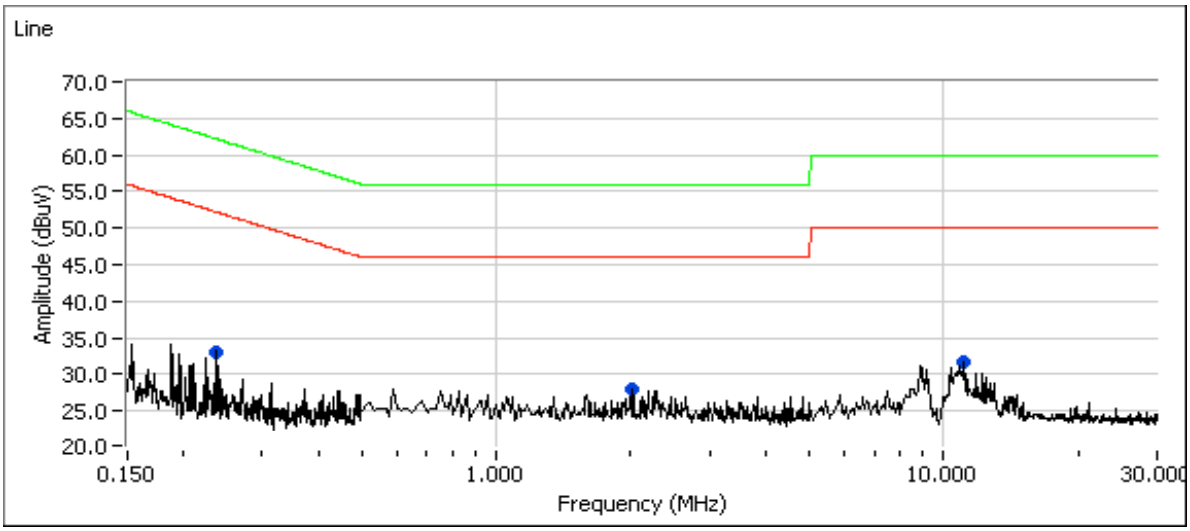
No modifications were made to the EUT during testing

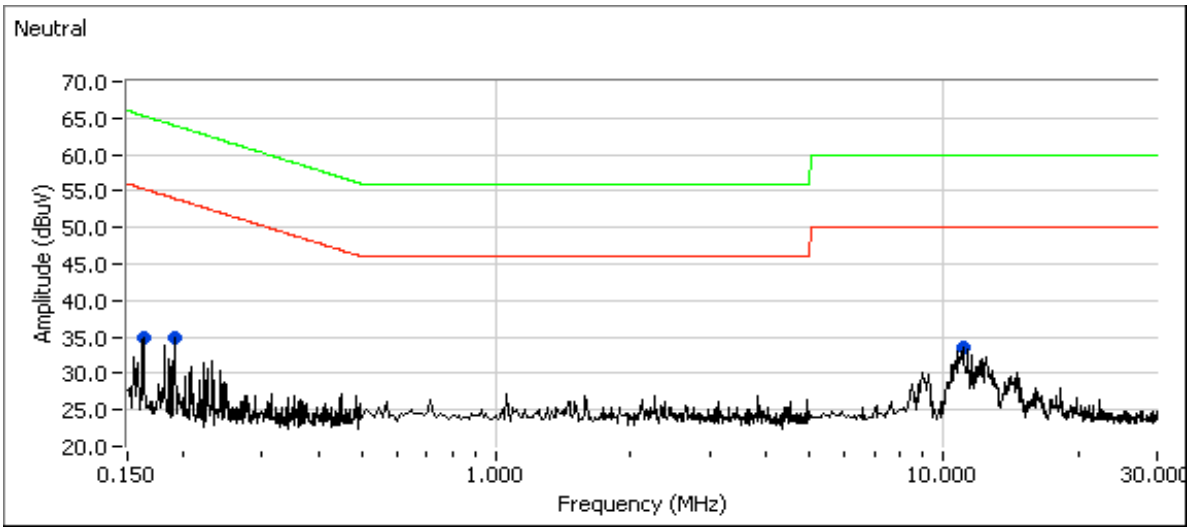
Deviations From The Standard

No deviations were made from the requirements of the standard.

Client:	Intel	Job Number:	J70762
Model:	512an HMW	T-Log Number:	T71374
		Account Manager:	Briggs / Eriksen
Contact:	Robert Paxman		
Standard:	RSS 210 / FCC 15.407 UNII (Radiated)	Class:	NII

Run #1: AC Power Port Conducted Emissions, 0.15 - 30MHz, 120V/60Hz
Chain A Rx





Run #1: AC Power Port Conducted Emissions, 0.15 - 30MHz, 120V/60Hz Continued Next Page...

Client:	Intel	Job Number:	J70762
Model:	512an HMW	T-Log Number:	T71374
		Account Manager:	Briggs / Eriksen
Contact:	Robert Paxman		
Standard:	RSS 210 / FCC 15.407 UNII (Radiated)	Class:	NII

Preliminary peak readings captured during pre-scan (peak readings vs. average limit)

Frequency	Level	AC	RSS GEN/15.207		Detector	Comments
MHz	dBµV	Line	Limit	Margin	QP/Ave	
11.069	33.5	Neutral	50.0	-16.5	Peak	
2.011	28.1	Line 1	46.0	-17.9	Peak	
11.121	31.8	Line 1	50.0	-18.2	Peak	
0.191	34.9	Neutral	54.0	-19.1	Peak	
0.237	33.1	Line 1	52.2	-19.1	Peak	
0.163	35.0	Neutral	55.3	-20.3	Peak	

Final quasi-peak and average readings

Frequency	Level	AC	RSS GEN/15.207		Detector	Comments
MHz	dBµV	Line	Limit	Margin	QP/Ave	
11.069	23.0	Neutral	50.0	-27.0	AVG	
11.121	21.5	Line 1	50.0	-28.5	AVG	
11.069	29.3	Neutral	60.0	-30.7	QP	
11.121	25.2	Line 1	60.0	-34.8	QP	
0.163	29.1	Neutral	65.3	-36.2	QP	
0.191	26.9	Neutral	64.0	-37.1	QP	
0.237	24.1	Line 1	62.2	-38.1	QP	
2.011	7.7	Line 1	46.0	-38.3	AVG	
0.237	9.2	Line 1	52.2	-43.0	AVG	
0.191	10.0	Neutral	54.0	-44.0	AVG	
0.163	10.7	Neutral	55.3	-44.6	AVG	
2.011	9.5	Line 1	56.0	-46.5	QP	

Client:	Intel	Job Number:	J70762
Model:	512an HMW	T-Log Number:	T71374
		Account Manager:	Briggs / Eriksen
Contact:	Robert Paxman		
Standard:	RSS 210 / FCC 15.407 UNII (Radiated)	Class:	NII

Radiated Emissions - Receive Mode Ethertronics

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 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: 15 - 25 °C

Rel. Humidity: 35-55 %

Summary of Results

Run #	Channel	Chain	Test Performed	Limit	Result	Margin
1	-	-	RE, 30 - 1000MHz, Maximized Emissions	RSS GEN / FCC 15.107	Pass	36.1dBµV/m @ 58.328MHz (-3.9dB)
2a	5200 MHz	A	RE, 1000 - 18000 MHz, Maximized Emissions	RSS GEN	Pass	51.8dBµV/m @ 3000.4MHz (-2.2dB)
2b	5280 MHz	A	RE, 1000 - 18000 MHz, Maximized Emissions	RSS GEN	Pass	51.7dBµV/m @ 3000.4MHz (-2.3dB)
2c	5600 MHz	A	RE, 1000 - 18000 MHz, Maximized Emissions	RSS GEN	Pass	51.7dBµV/m @ 3000.4MHz (-2.3dB)
3a	5200 MHz	B	RE, 1000 - 18000 MHz, Maximized Emissions	RSS GEN	Pass	51.7dBµV/m @ 3000.4MHz (-2.3dB)
3b	5280 MHz	B	RE, 1000 - 18000 MHz, Maximized Emissions	RSS GEN	Pass	51.8dBµV/m @ 3000.4MHz (-2.2dB)
3c	5600 MHz	B	RE, 1000 - 18000 MHz, Maximized Emissions	RSS GEN	Pass	51.7dBµV/m @ 3000.4MHz (-2.3dB)
4a	5200 MHz	A+B	RE, 1000 - 18000 MHz, Maximized Emissions	RSS GEN	Pass	51.9dBµV/m @ 3000.4MHz (-2.1dB)
4b	5280 MHz	A+B	RE, 1000 - 18000 MHz, Maximized Emissions	RSS GEN	Pass	51.9dBµV/m @ 3000.4MHz (-2.1dB)
4c	5600 MHz	A+B	RE, 1000 - 18000 MHz, Maximized Emissions	RSS GEN	Pass	51.5dBµV/m @ 3000.4MHz (-2.5dB)

Client:	Intel	Job Number:	J70762
Model:	512an HMW	T-Log Number:	T71374
		Account Manager:	Briggs / Eriksen
Contact:	Robert Paxman		
Standard:	RSS 210 / FCC 15.407 UNII (Radiated)	Class:	NII

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: Preliminary Radiated Emissions, 30-1000 MHz

Date of Test: 3/7/2008 Config. Used: #1
Test Engineer: Peter Sales Config Change: -
Test Location: Fremont Chamber #3 Host Unit Voltage 120V/60Hz

Scans indicated no significant difference in the emissions from 30 - 1000 MHz for transmit mode versus receive mode and were independent of channel of operation. Final measurements performed in receive mode with Chain A active and tuned to 2437 MHz as representing the worst-case.

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	FCC 15.109/15.209		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
58.328	44.1	H	40.0	4.1	Peak	168	3.5	
62.656	42.3	H	40.0	2.3	Peak	176	2.5	
113.538	42.0	H	43.5	-1.5	Peak	43	2.5	
111.660	41.7	H	43.5	-1.8	Peak	351	2.0	
48.452	37.8	V	40.0	-2.2	Peak	201	1.0	
748.786	40.2	H	46.0	-5.8	Peak	212	1.0	

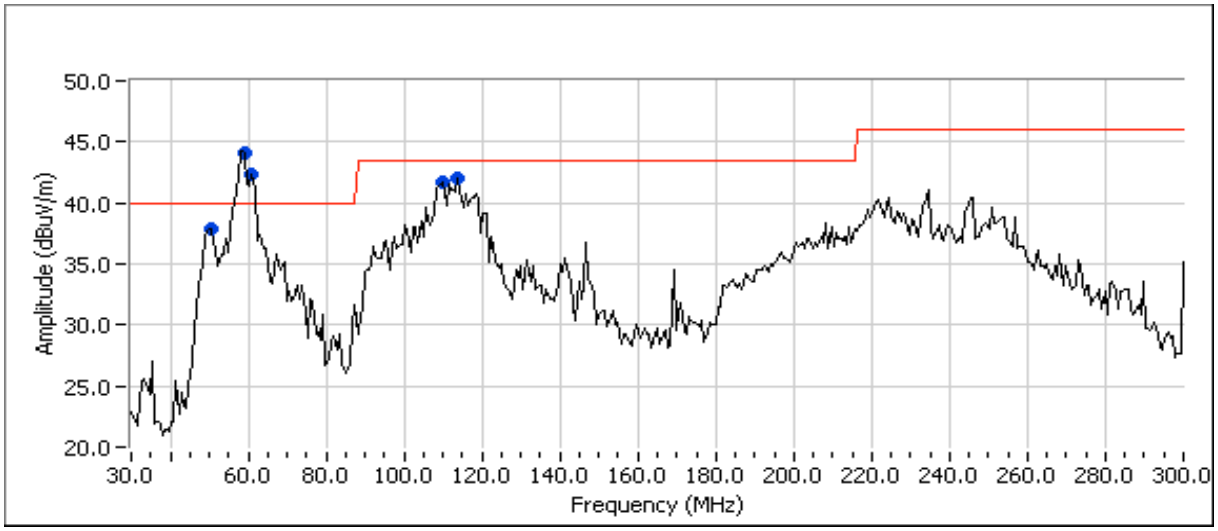
Preliminary quasi-peak readings (no manipulation of EUT interface cables)

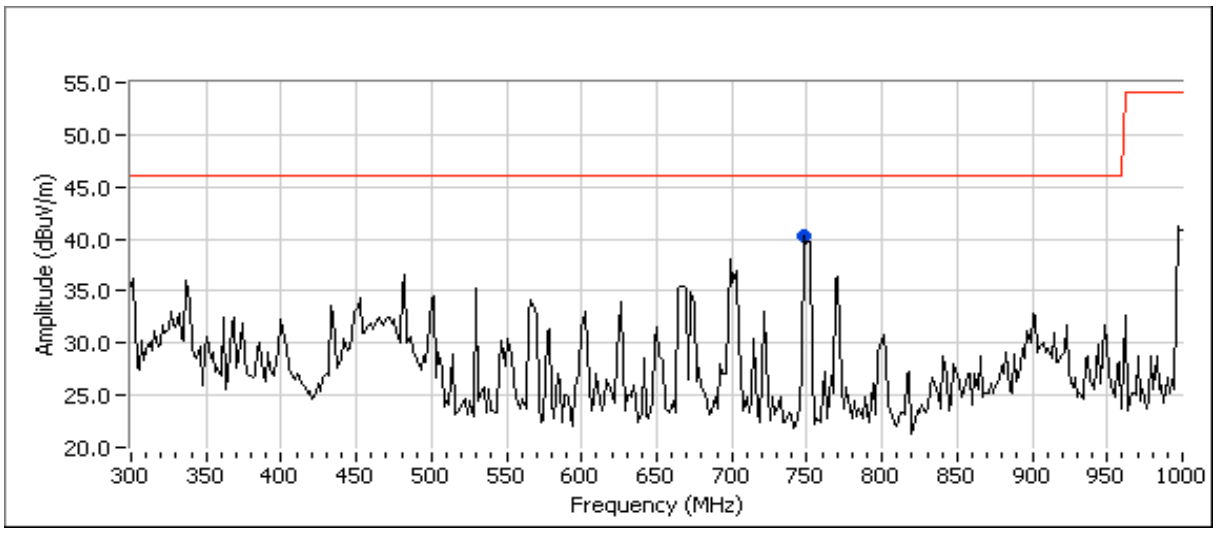
Frequency	Level	Pol	FCC B		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
58.328	36.1	H	40.0	-3.9	QP	168	3.5	
62.656	35.2	H	40.0	-4.8	QP	176	2.5	
48.452	31.0	V	40.0	-9.0	QP	201	1.0	
111.660	32.4	H	43.5	-11.1	QP	351	2.0	
748.786	32.4	H	46.0	-13.6	QP	212	1.0	
113.538	29.1	H	43.5	-14.4	QP	42	2.5	

Maximized quasi-peak readings (includes manipulation of EUT interface cables)

Frequency	Level	Pol	FCC B		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
48.452	31.0	V	40.0	-9.0	QP	201	1.0	
58.328	36.1	H	40.0	-3.9	QP	168	3.5	
62.656	35.2	H	40.0	-4.8	QP	176	2.5	
111.660	32.4	H	43.5	-11.1	QP	351	2.0	
113.538	29.1	H	43.5	-14.4	QP	42	2.5	
748.786	32.4	H	46.0	-13.6	QP	212	1.0	

Client:	Intel	Job Number:	J70762
Model:	512an HMW	T-Log Number:	T71374
		Account Manager:	Briggs / Eriksen
Contact:	Robert Paxman		
Standard:	RSS 210 / FCC 15.407 UNII (Radiated)	Class:	NII





Client:	Intel	Job Number:	J70762
Model:	512an HMW	T-Log Number:	T71374
		Account Manager:	Briggs / Eriksen
Contact:	Robert Paxman		
Standard:	RSS 210 / FCC 15.407 UNII (Radiated)	Class:	NII

Run #2 and Run #3: Maximized readings, 1000 - 18000 MHz, Single Receiver Active

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

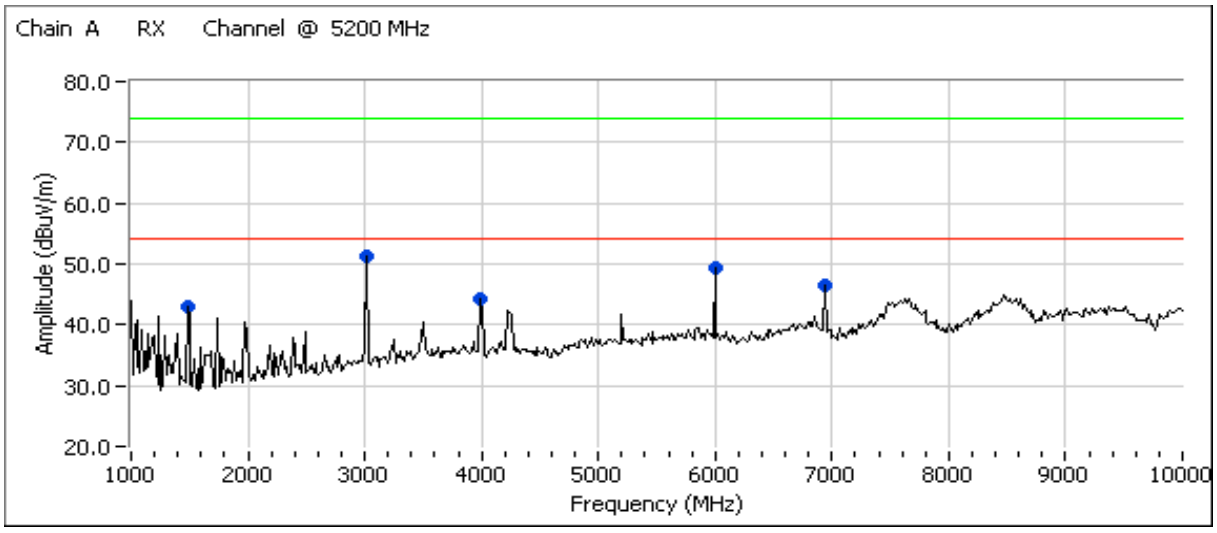
Date of Test: 4/18/2008
Test Engineer: Ben Jing
Test Location: FT Chamber # 4

Config. Used: 1
Config Change: None
EUT Voltage: Powered From Host System

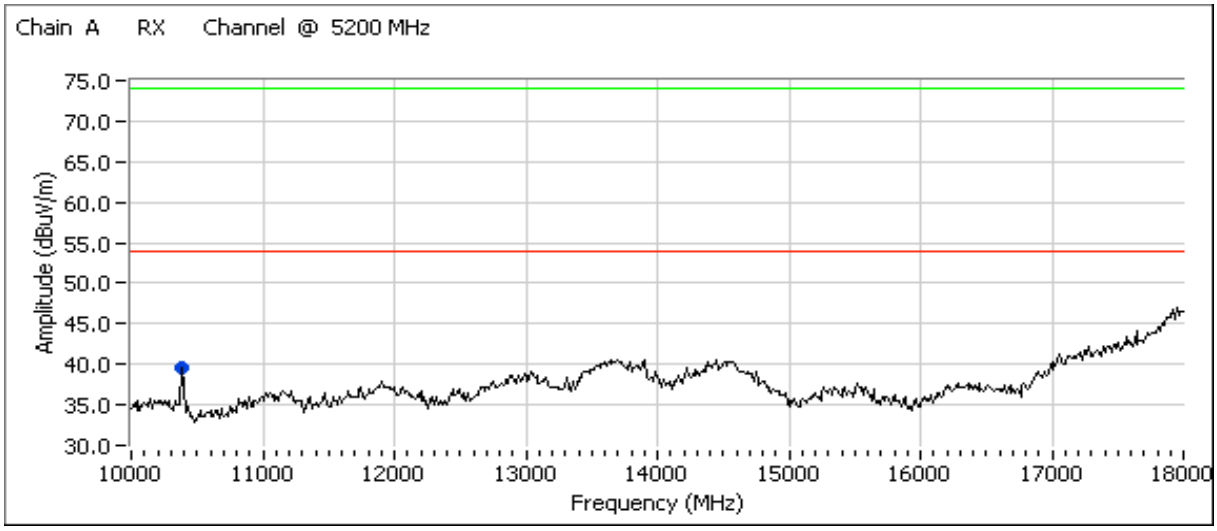
Frequency Range	Test Distance	Limit Distance	Extrapolation Factor
1000 - 10000 MHz	3	3	0.0
10000 - 18000 MHz	1	3	-9.5

Run #2: Maximized readings, 1000 - 18000 MHz, Chain A Receiver Active
Run #2a : Receiver Tuned to 5200 MHz - Chain A active

Frequency	Level	Pol	RSS GEN		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
3000.380	51.8	V	54.0	-2.2	AVG	262	1.0	
6000.770	48.5	V	54.0	-5.5	AVG	269	1.5	
6933.360	46.9	V	54.0	-7.1	AVG	167	1.0	
10399.900	37.0	V	54.0	-17.0	AVG	167	1.0	
3000.380	55.1	V	74.0	-18.9	PK	262	1.0	
1494.500	33.3	V	54.0	-20.7	AVG	122	1.0	
6000.770	52.0	V	74.0	-22.0	PK	269	1.5	
3996.470	31.9	H	54.0	-22.1	AVG	209	1.0	
6933.360	51.0	V	74.0	-23.0	PK	167	1.0	
1494.500	50.5	V	74.0	-23.5	PK	122	1.0	
3996.470	49.2	H	74.0	-24.8	PK	209	1.0	
10399.900	43.4	V	74.0	-30.6	PK	167	1.0	

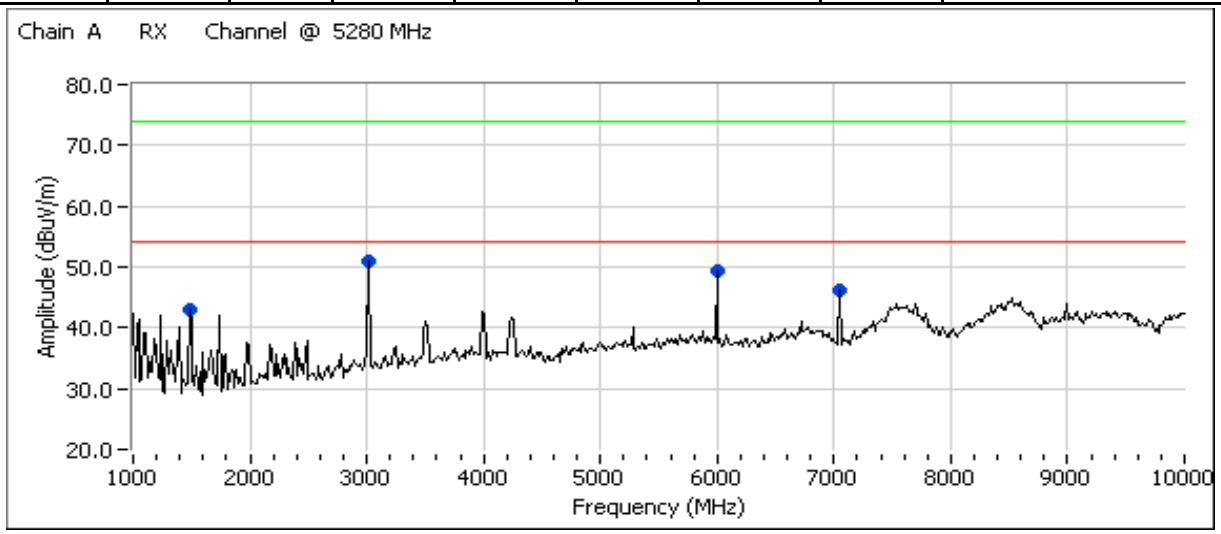


Client:	Intel	Job Number:	J70762
Model:	512an HMW	T-Log Number:	T71374
		Account Manager:	Briggs / Eriksen
Contact:	Robert Paxman		
Standard:	RSS 210 / FCC 15.407 UNII (Radiated)	Class:	NII

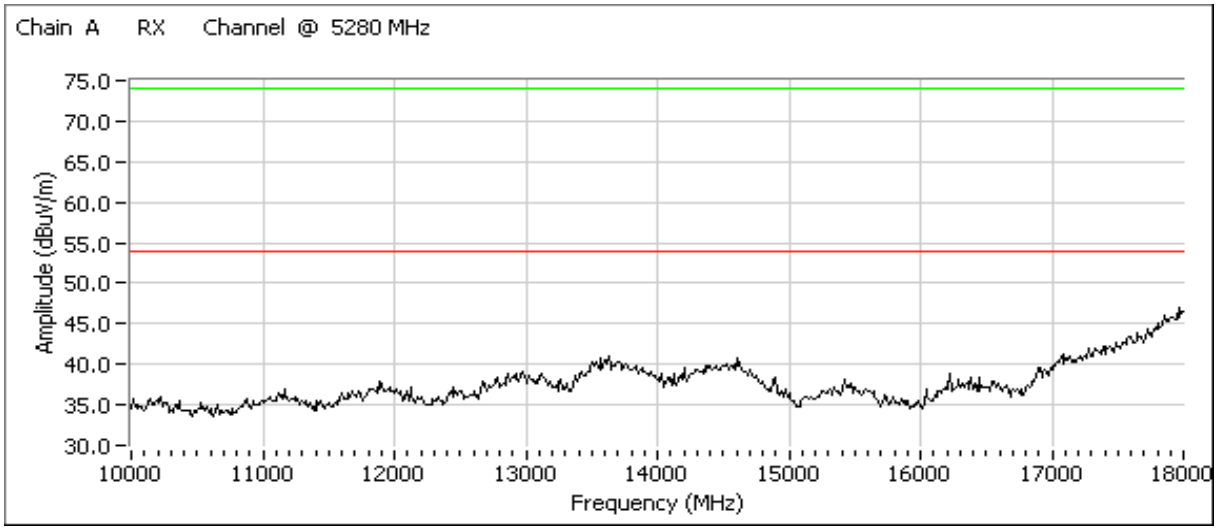


Run #2b : Receiver Tuned to 5280 MHz - Chain A active

Frequency	Level	Pol	RSS GEN		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
3000.360	51.7	V	54.0	-2.3	AVG	261	1.0	
6000.710	47.2	V	54.0	-6.8	AVG	125	1.0	
7039.900	45.8	V	54.0	-8.2	AVG	181	1.5	
3000.360	55.0	V	74.0	-19.0	PK	261	1.0	
1494.110	32.6	V	54.0	-21.4	AVG	121	1.0	
6000.710	51.9	V	74.0	-22.1	PK	125	1.0	
1494.110	51.6	V	74.0	-22.4	PK	121	1.0	
7039.900	49.9	V	74.0	-24.1	PK	181	1.5	

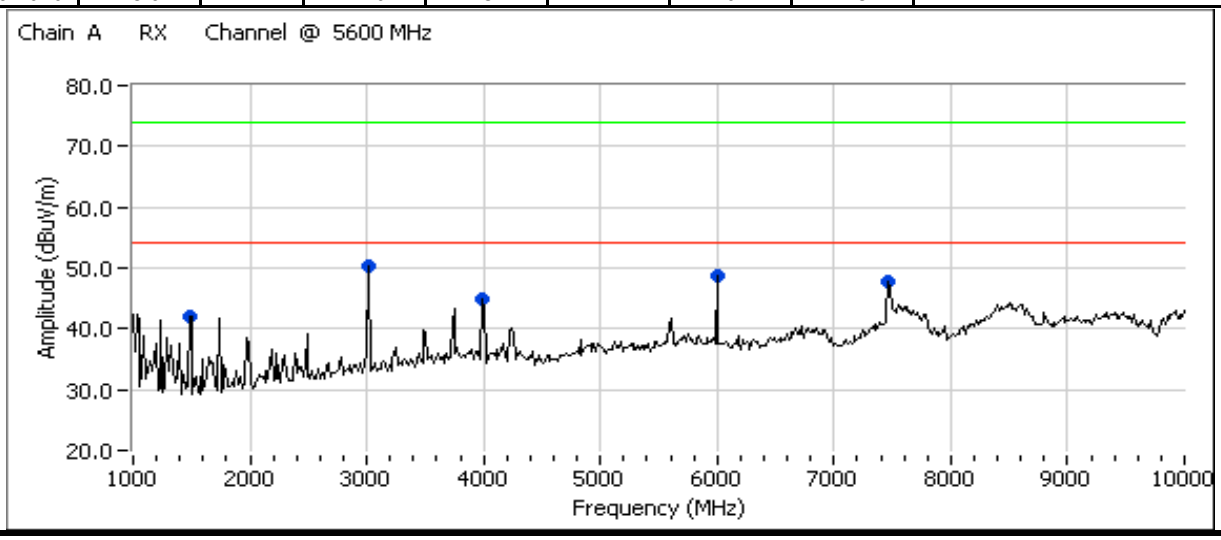


Client:	Intel	Job Number:	J70762
Model:	512an HMW	T-Log Number:	T71374
		Account Manager:	Briggs / Eriksen
Contact:	Robert Paxman		
Standard:	RSS 210 / FCC 15.407 UNII (Radiated)	Class:	NII

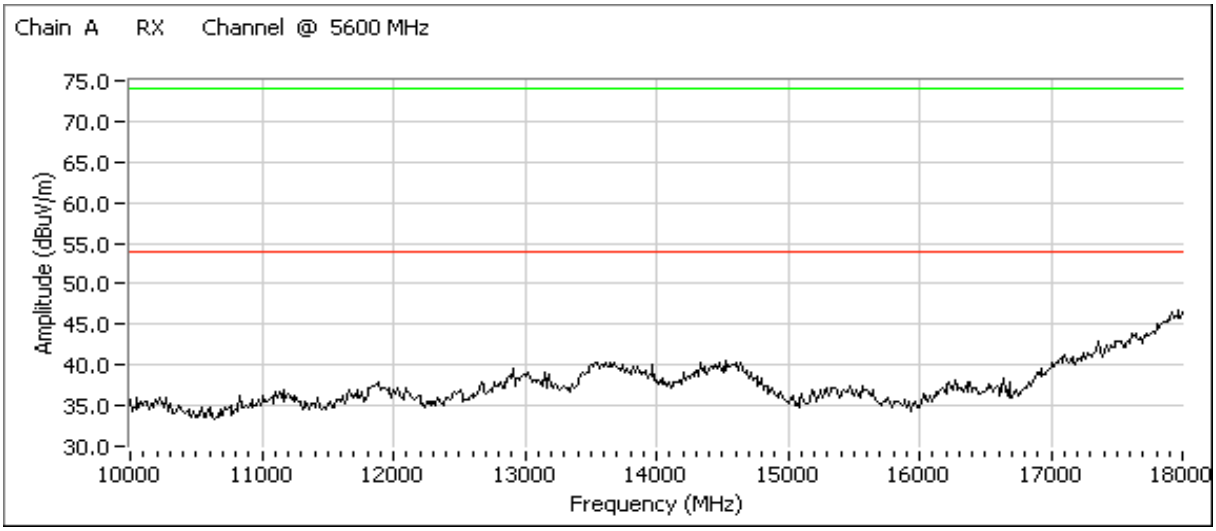


Run #2c : Receiver Tuned to 5600 MHz - Chain A active

Frequency	Level	Pol	RSS GEN		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
3000.380	51.7	V	54.0	-2.3	AVG	263	1.0	
6000.740	50.2	V	54.0	-3.8	AVG	270	1.5	
7466.600	47.7	V	54.0	-6.3	AVG	226	1.5	
3000.380	55.1	V	74.0	-18.9	PK	263	1.0	
6000.740	54.7	V	74.0	-19.3	PK	270	1.5	
3995.830	53.2	V	74.0	-20.8	PK	209	1.0	
7466.600	53.2	V	74.0	-20.8	PK	226	1.5	
3995.830	32.2	V	54.0	-21.8	AVG	209	1.0	
1497.020	28.0	H	54.0	-26.0	AVG	0	1.5	
1497.020	45.9	H	74.0	-28.1	PK	0	1.5	



Client:	Intel	Job Number:	J70762
Model:	512an HMW	T-Log Number:	T71374
		Account Manager:	Briggs / Eriksen
Contact:	Robert Paxman		
Standard:	RSS 210 / FCC 15.407 UNII (Radiated)	Class:	NII



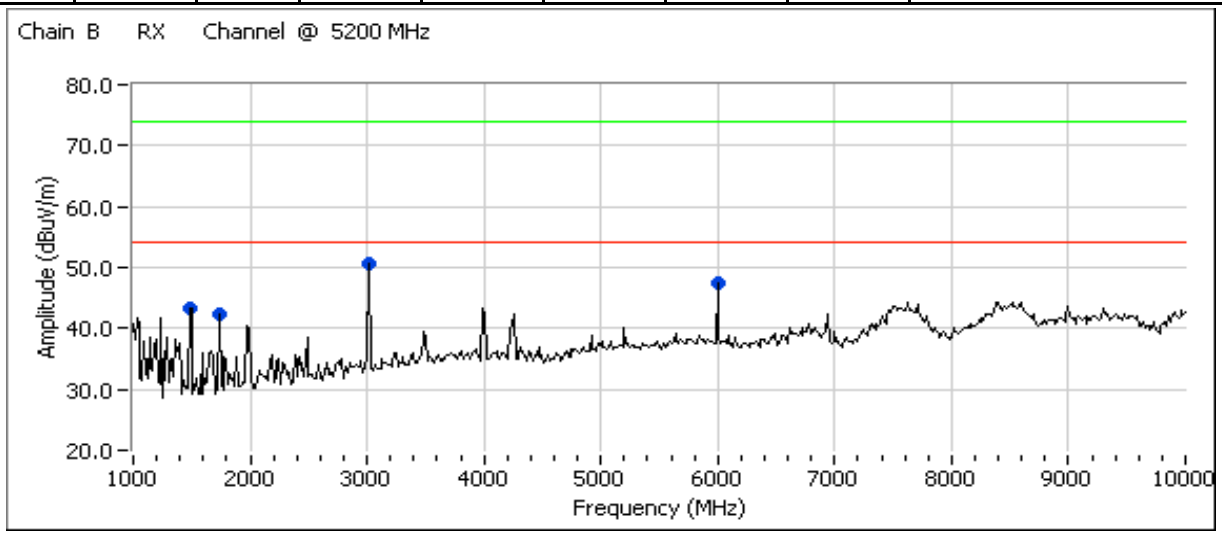
Client:	Intel	Job Number:	J70762
Model:	512an HMW	T-Log Number:	T71374
		Account Manager:	Briggs / Eriksen
Contact:	Robert Paxman		
Standard:	RSS 210 / FCC 15.407 UNII (Radiated)	Class:	NII

Run #3: Maximized readings, 1000 - 18000 MHz, Chain B Active

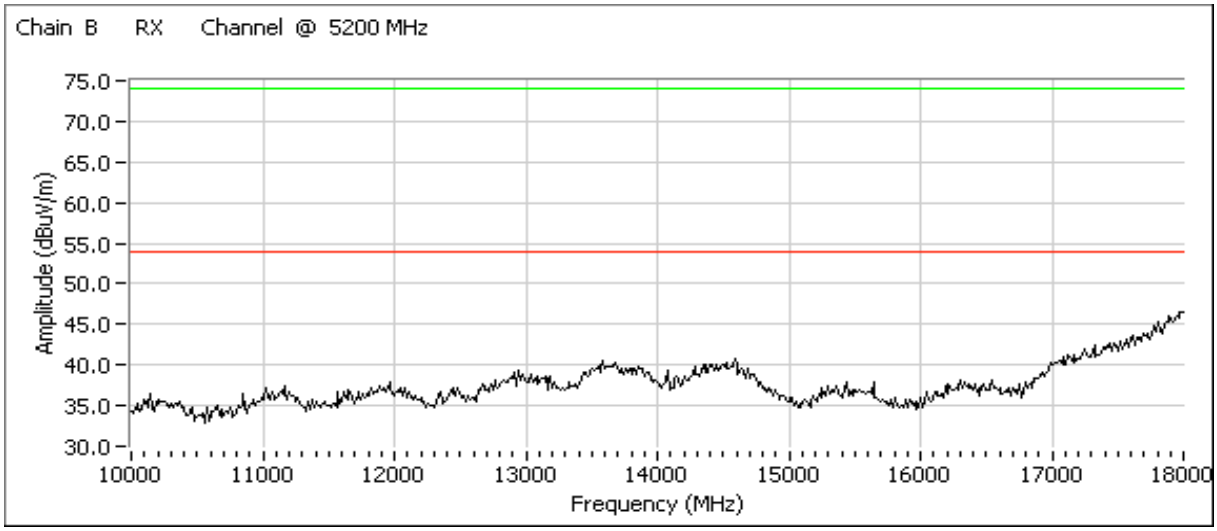
Frequency Range	Test Distance	Limit Distance	Extrapolation Factor
1000 - 10000 MHz	3	3	0.0
10000 - 18000 MHz	1	3	-9.5

Run #3a : Receiver Tuned to 5200 MHz - Chain B active

Frequency	Level	Pol	RSS GEN		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
3000.390	51.7	V	54.0	-2.3	AVG	263	1.0	
6000.770	51.1	V	54.0	-2.9	AVG	268	1.5	
3000.390	55.1	V	74.0	-18.9	PK	263	1.0	
6000.770	54.5	V	74.0	-19.5	PK	268	1.5	
1494.120	32.8	V	54.0	-21.2	AVG	121	1.0	
1494.120	52.1	V	74.0	-21.9	PK	121	1.0	
1747.800	29.8	V	54.0	-24.2	AVG	291	1.5	
1747.800	47.9	V	74.0	-26.1	PK	291	1.5	

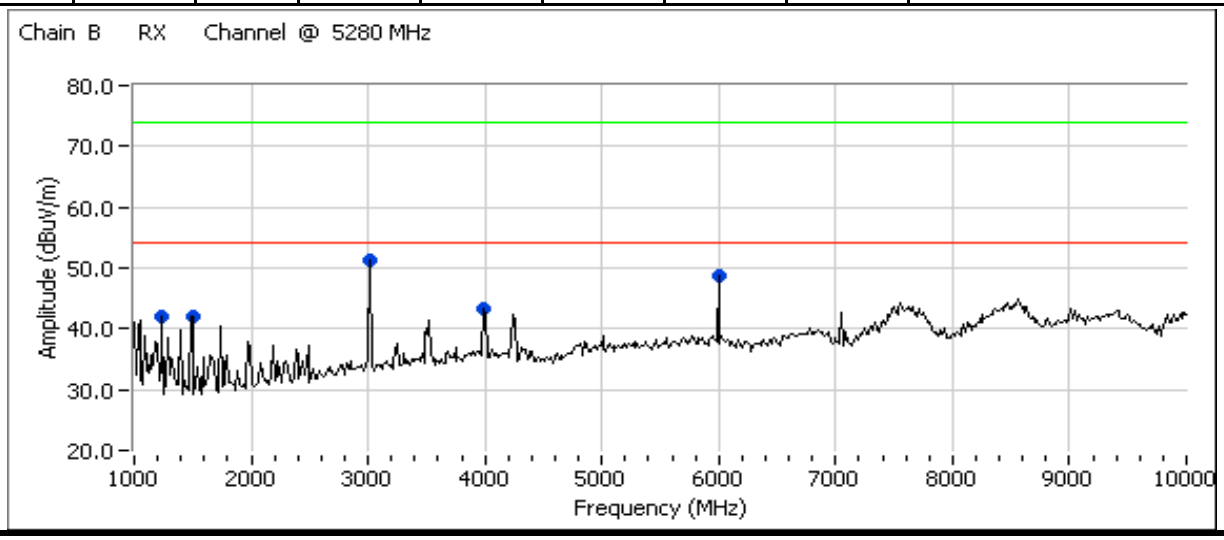


Client:	Intel	Job Number:	J70762
Model:	512an HMW	T-Log Number:	T71374
		Account Manager:	Briggs / Eriksen
Contact:	Robert Paxman		
Standard:	RSS 210 / FCC 15.407 UNII (Radiated)	Class:	NII

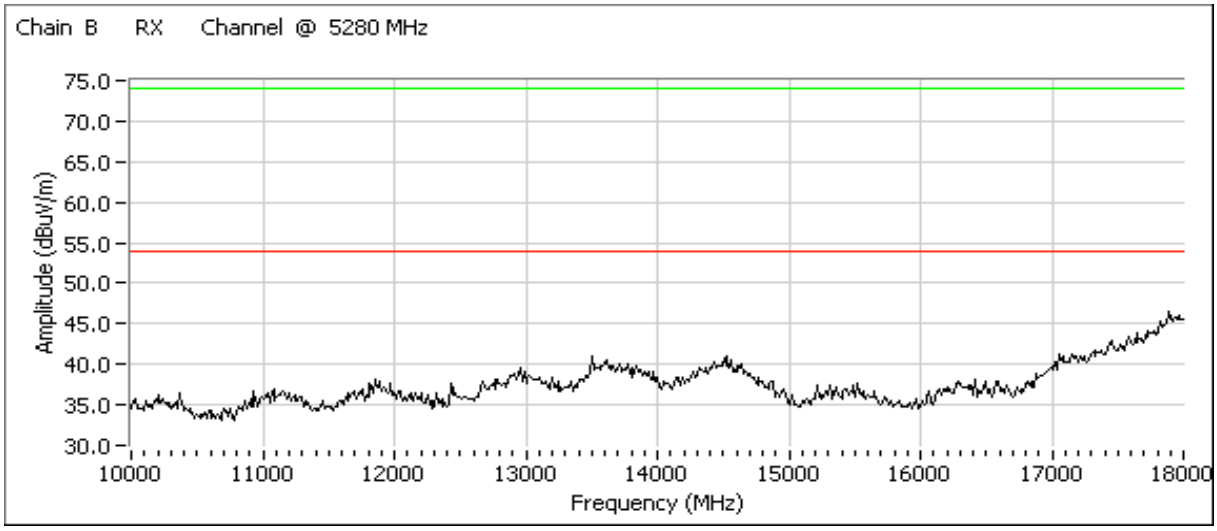


Run #3b : Receiver Tuned to 5280 MHz - Chain B active

Frequency	Level	Pol	RSS GEN		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
3000.390	51.8	V	54.0	-2.2	AVG	261	1.0	
6000.690	49.5	V	54.0	-4.5	AVG	262	1.5	
3000.390	55.0	V	74.0	-19.0	PK	261	1.0	
6000.690	53.3	V	74.0	-20.7	PK	262	1.5	
1248.050	32.7	V	54.0	-21.3	AVG	18	1.0	
3997.100	32.2	V	54.0	-21.8	AVG	202	1.0	
3997.100	51.0	V	74.0	-23.0	PK	202	1.0	
1248.050	48.9	V	74.0	-25.1	PK	18	1.0	
1494.590	27.9	H	54.0	-26.1	AVG	0	1.5	
1494.590	44.8	H	74.0	-29.2	PK	0	1.5	



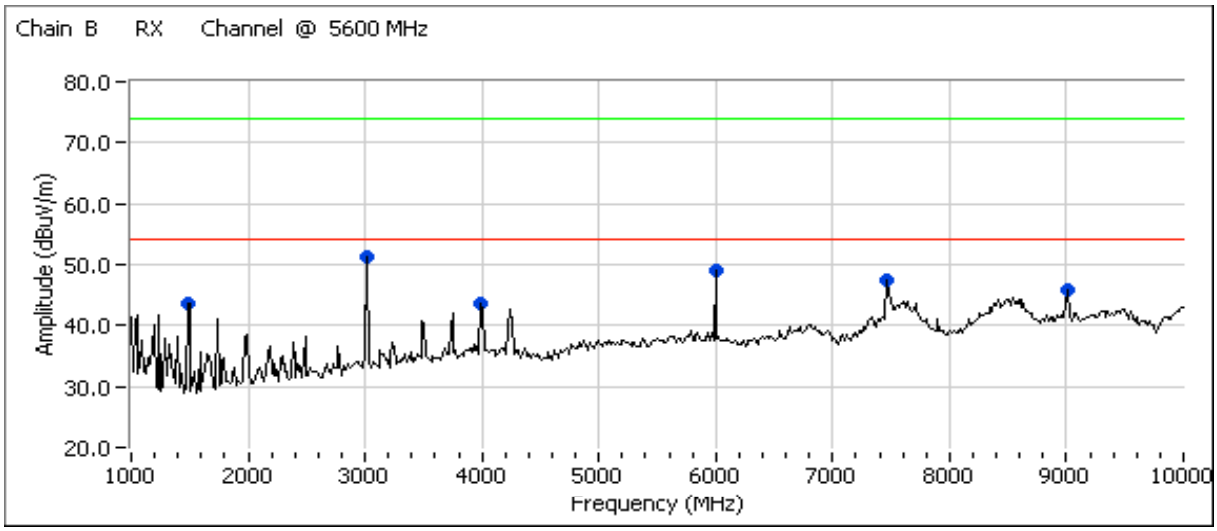
Client:	Intel	Job Number:	J70762
Model:	512an HMW	T-Log Number:	T71374
		Account Manager:	Briggs / Eriksen
Contact:	Robert Paxman		
Standard:	RSS 210 / FCC 15.407 UNII (Radiated)	Class:	NII

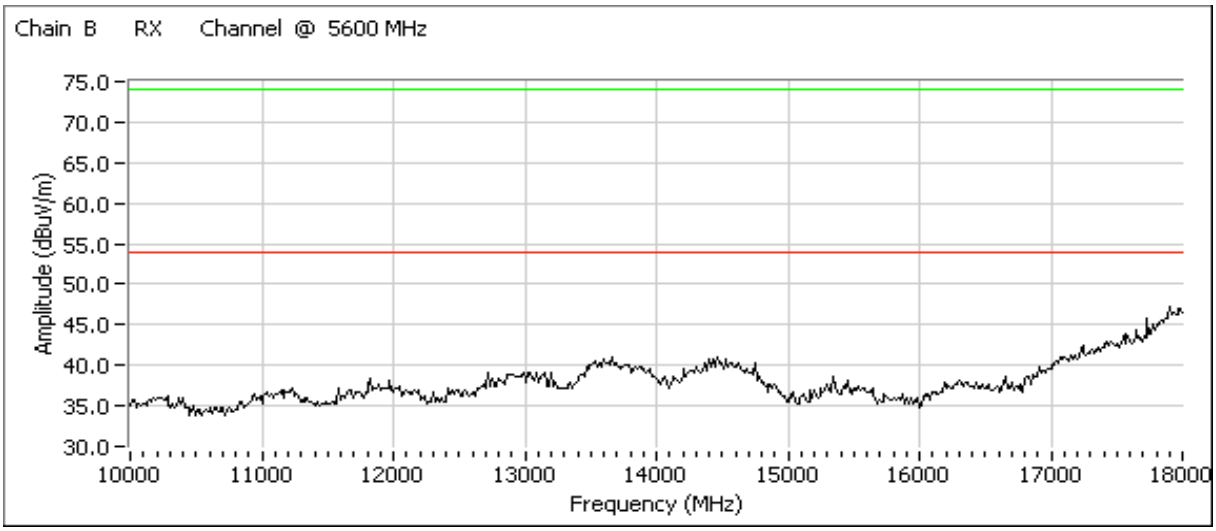


Run #3c : Receiver Tuned to 5600 MHz - Chain B active

Frequency	Level	Pol	RSS GEN		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
3000.370	51.7	V	54.0	-2.3	AVG	262	1.0	
6000.750	51.1	V	54.0	-2.9	AVG	267	1.5	
7466.600	45.3	V	54.0	-8.7	AVG	127	1.5	
9001.080	43.6	V	54.0	-10.4	AVG	191	1.0	
3000.370	55.2	V	74.0	-18.8	PK	262	1.0	
6000.750	54.4	V	74.0	-19.6	PK	267	1.5	
1494.300	33.2	V	54.0	-20.8	AVG	121	1.0	
3985.850	52.3	V	74.0	-21.7	PK	188	1.5	
7466.600	51.8	V	74.0	-22.2	PK	127	1.5	
3985.850	31.5	V	54.0	-22.5	AVG	188	1.5	
1494.300	51.4	V	74.0	-22.6	PK	121	1.0	
9001.080	49.9	V	74.0	-24.1	PK	191	1.0	

Client:	Intel	Job Number:	J70762
Model:	512an HMW	T-Log Number:	T71374
		Account Manager:	Briggs / Eriksen
Contact:	Robert Paxman		
Standard:	RSS 210 / FCC 15.407 UNII (Radiated)	Class:	NII





Client:	Intel	Job Number:	J70762
Model:	512an HMW	T-Log Number:	T71374
		Account Manager:	Briggs / Eriksen
Contact:	Robert Paxman		
Standard:	RSS 210 / FCC 15.407 UNII (Radiated)	Class:	NII

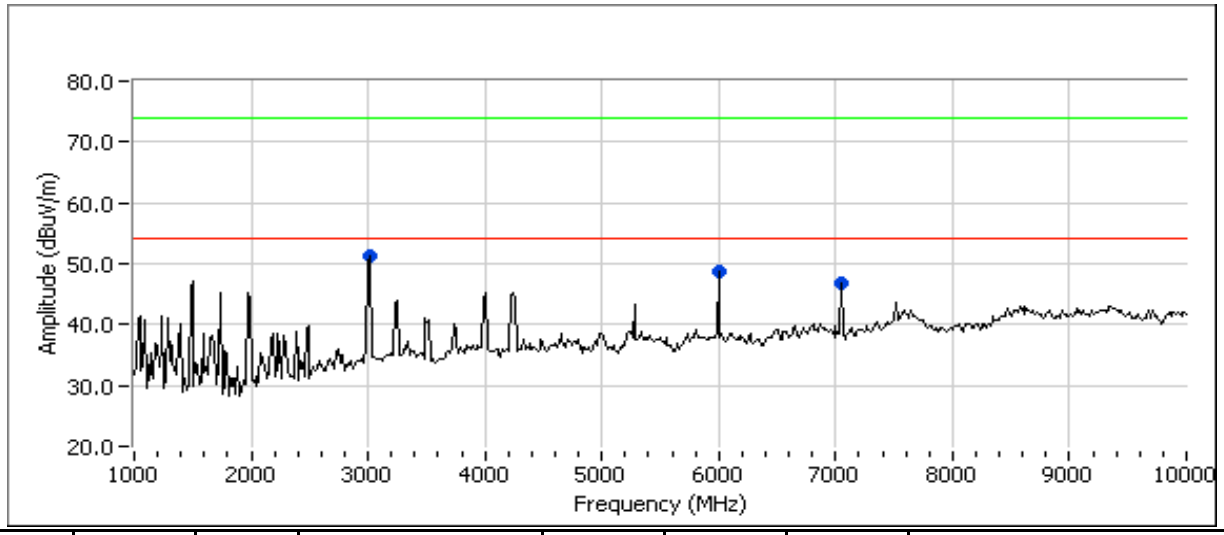
Run #4: Maximized readings, 1000 - 18000 MHz, All Receivers Active
Note - plot provided for center channel only

Date of Test: 3/3/2008 Config. Used: 1
Test Engineer: Rafael Varelas Config Change: None
Test Location: Fremont Chamber #3 EUT Voltage: Powered From Host System

Receiver Tuned to 5200 MHz - All chains active

Frequency	Level	Pol	RSS GEN		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
3000.360	51.9	V	54.0	-2.1	AVG	261	1.0	
6000.740	48.5	V	54.0	-5.5	AVG	97	1.0	
7040.020	47.4	V	54.0	-6.6	AVG	177	1.0	
3000.360	54.9	V	74.0	-19.1	PK	261	1.0	
6000.740	51.3	V	74.0	-22.7	PK	97	1.0	
7040.020	50.9	V	74.0	-23.1	PK	177	1.0	

Receiver Tuned to 5280 MHz - All chains active



Frequency	Level	Pol	RSS GEN		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
3000.370	51.9	V	54.0	-2.1	AVG	261	1.0	
6000.760	47.7	V	54.0	-6.3	AVG	100	1.0	
7040.000	47.5	V	54.0	-6.5	AVG	176	1.0	
3000.370	54.8	V	74.0	-19.2	PK	261	1.0	
6000.760	50.4	V	74.0	-23.6	PK	100	1.0	
7040.000	50.9	V	74.0	-23.1	PK	176	1.0	

Client:	Intel	Job Number:	J70762
Model:	512an HMW	T-Log Number:	T71374
		Account Manager:	Briggs / Eriksen
Contact:	Robert Paxman		
Standard:	RSS 210 / FCC 15.407 UNII (Radiated)	Class:	NII

Receiver Tuned to 5500 MHz - All chains active

Frequency	Level	Pol	RSS GEN		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
3000.360	51.5	V	54.0	-2.5	AVG	259	1.0	
6000.690	48.5	V	54.0	-5.5	AVG	98	1.0	
7466.640	46.4	H	54.0	-7.6	AVG	320	1.0	
3000.360	54.4	V	74.0	-19.6	PK	259	1.0	
6000.690	51.1	V	74.0	-22.9	PK	98	1.0	
7466.640	50.5	H	74.0	-23.5	PK	320	1.0	

Client:	Intel	Job Number:	J70762
Model:	512an HMW	T-Log Number:	T71374
		Account Manager:	Briggs / Eriksen
Contact:	Robert Paxman		
Standard:	RSS 210 / FCC 15.407 UNII (Radiated)	Class:	N/A

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

Radiated Spurious - Band Edge 802.11a Ethertronics 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.

Date of Test: 2/14/2008
Test Engineer: Rafael Varelas
Test Location: Fremont Chamber #3

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 spurious emissions testing. All remote support equipment was located approximately 30 meters from the EUT with all I/O connections running on top of the groundplane.

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

Ambient Conditions:

Temperature: 20 °C
Rel. Humidity: 39 %

Summary of Results

Run #	Mode	Channel	Power Setting	Measured Power	Test Performed	Limit	Result / Margin
1	802.11a Chain A	5180MHz	26.5	14.7	Band Edge radiated field strength	FCC Part 15.209	52.3dBµV/m @ 5149.9MHz (-1.7dB)
1	802.11a Chain A	5320MHz	25.5	14.6	Band Edge radiated field strength	FCC Part 15.209	52.5dBµV/m @ 5350.1MHz (-1.5dB)
1	802.11a Chain A	5500MHz	26.5	17.5	Band Edge radiated field strength	FCC Part 15.209 / 15E	51.3dBµV/m @ 5459.8MHz (-2.7dB)

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	Job Number:	J70762
Model:	512an HMW	T-Log Number:	T71374
		Account Manager:	Briggs / Eriksen
Contact:	Robert Paxman		
Standard:	RSS 210 / FCC 15.407 UNII (Radiated)	Class:	N/A

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

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

Power Setting: 26.5 Average power: 14.7 (for reference purposes)

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

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5185.830	100.4	H	-	-	AVG	252	1.0	RB = 1MHz, VB = 10Hz
5185.830	108.8	H	-	-	PK	252	1.0	RB = VB = 1MHz
5181.310	96.8	H	-	-	AVG	107	1.0	RB = 1MHz, VB = 10Hz
5181.310	105.0	H	-	-	PK	107	1.0	RB = VB = 1MHz

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	
5149.910	52.3	H	54.0	-1.7	Avg	255	1.0	
5149.980	50.6	V	54.0	-3.4	Avg	103	1.0	
5149.590	66.0	V	74.0	-8.0	PK	103	1.0	
5149.970	69.7	H	74.0	-4.3	PK	255	1.0	

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

Power Setting: 25.5 Average power: 14.6 (for reference purposes)

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

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5324.400	99.1	V	-	-	AVG	133	1.6	RB = 1MHz, VB = 10Hz
5324.400	107.5	V	-	-	PK	133	1.6	RB = VB = 1MHz
5315.270	97.2	H	-	-	AVG	256	1.0	RB = 1MHz, VB = 10Hz
5315.270	105.3	H	-	-	PK	256	1.0	RB = VB = 1MHz

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	
5350.000	50.5	H	54.0	-3.5	Avg	256	1.0	
5350.050	52.5	V	54.0	-1.5	Avg	133	1.6	
5350.430	68.5	V	74.0	-5.5	PK	133	1.6	
5352.960	64.8	H	74.0	-9.2	PK	256	1.0	

Client:	Intel	Job Number:	J70762
Model:	512an HMW	T-Log Number:	T71374
		Account Manager:	Briggs / Eriksen
Contact:	Robert Paxman		
Standard:	RSS 210 / FCC 15.407 UNII (Radiated)	Class:	N/A

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

Power Setting: 26.5 Average power: 17.5 (for reference purposes)

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

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5501.260	100.2	H	74.0	26.2	pk	76	1.0	RB = VB = 1MHz
5499.690	110.1	V	74.0	36.1	pk	151	1.0	RB = VB = 1MHz
5501.330	90.8	H	54.0	36.8	Avg	76	1.0	RB = 1MHz, VB = 10Hz
5498.500	100.7	V	54.0	46.7	Avg	151	1.0	RB = 1MHz, VB = 10Hz

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

5460 - 5470 MHz, Limit is -27dBm eirp - verified via conducted measurement at antenna port

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5458.700	49.2	H	54.0	-4.8	Avg	76	1.0	
5459.790	51.3	V	54.0	-2.7	Avg	151	1.0	
5457.870	61.9	H	74.0	-12.1	Pk	76	1.0	
5459.370	69.9	V	74.0	-4.1	PK	151	1.0	

Client:	Intel	Job Number:	J70762
Model:	512an HMW	T-Log Number:	T71374
		Account Manager:	Briggs / Eriksen
Contact:	Robert Paxman		
Standard:	RSS 210 / FCC 15.407 UNII (Radiated)	Class:	N/A

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

Radiated Spurious - 802.11a Ethertronics Antenna

Test Specific Details

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

General Test Configuration

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

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

Ambient Conditions:

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

Summary of Results

Run #	Mode	Channel	Power Setting	Measured Power	Test Performed	Limit	Result / Margin
1a	802.11a Chain A	5180	26.5	14.7	Radiated Emissions, 1 - 26 GHz	FCC Part 15.209 / 15 E(c)	51.6dBµV/m @ 6906.7MHz (-16.7dB)
1b	802.11a Chain A	5200	29.0	17.5	Radiated Emissions, 1 - 26 GHz	FCC Part 15.209 / 15 E(c)	49.1dBµV/m @ 3000.4MHz (-19.2dB)
1c	802.11a Chain A	5240	29.0	17.4	Radiated Emissions, 1 - 26 GHz	FCC Part 15.209 / 15 E(c)	49.1dBµV/m @ 3000.4MHz (-19.2dB)
2a	802.11a Chain A	5260	28.5	17.0	Radiated Emissions, 1 - 26 GHz	FCC Part 15.209 / 15 E(c)	37.3dBµV/m @ 35062.1MHz (-16.7dB)
2b	802.11a Chain A	5280	28.5	17.3	Radiated Emissions, 1 - 26 GHz	FCC Part 15.209 / 15 E(c)	48.7dBµV/m @ 10559.9MHz (-19.6dB)
2c	802.11a Chain A	5320	25.5	14.6	Radiated Emissions, 1 - 26 GHz	FCC Part 15.209 / 15 E(c)	45.9dBµV/m @ 10640.1MHz (-8.1dB)
3a	802.11a Chain A	5500	26.5	17.5	Radiated Emissions, 1 - 26 GHz	FCC Part 15.209 / 15 E(c)	38.8dBµV/m @ 11000.9MHz (-15.2dB)
3b	802.11a Chain A	5600	29.0	17.8	Radiated Emissions, 1 - 26 GHz	FCC Part 15.209 / 15 E(c)	41.9dBµV/m @ 11198.5MHz (-12.1dB)
3c	802.11a Chain A	5700	26.5	17.2	Radiated Emissions, 1 - 26 GHz	FCC Part 15.209 / 15 E(c)	41.7dBµV/m @ 11402.0MHz (-12.3dB)

Modifications Made During Testing

No modifications were made to the EUT during testing

Deviations From The Standard

No deviations were made from the requirements of the standard.

Client:	Intel	Job Number:	J70762
Model:	512an HMW	T-Log Number:	T71374
		Account Manager:	Briggs / Eriksen
Contact:	Robert Paxman		
Standard:	RSS 210 / FCC 15.407 UNII (Radiated)	Class:	N/A

Run #1: Radiated Spurious Emissions, 1000 - 40000 MHz. Operating Mode: 802.11a Chain A
Run #1a: Low Channel @ 5180 MHz

Date of Test: 2/14/2008
Test Engineer: Rafael Varelas
Test Location: Fremont Chamber #3

Power Setting: 26.5 Average power: 14.7 (for reference purposes)

Spurious Emissions

Frequency	Level	Pol	15.209 / 15 E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
3000.350	49.0	V	68.3	-19.3	AVG	259	1.3	Not in a restricted band
6906.670	51.6	V	68.3	-16.7	AVG	207	1.0	Not in a restricted band
10359.900	43.4	H	68.3	-24.9	AVG	342	1.0	Not in a restricted band
3000.350	52.6	V	88.3	-35.7	PK	259	1.3	Not in a restricted band
6906.670	53.7	V	88.3	-34.6	PK	207	1.0	Not in a restricted band
10359.900	55.3	H	88.3	-33.0	PK	342	1.0	Not in a restricted band

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)

Run #1b: Center Channel @ 5200 MHz

Date of Test: 2/14/2008
Test Engineer: Rafael Varelas
Test Location: Fremont Chamber #3

Power Setting: 29.0 Average power: 17.5 (for reference purposes)

Spurious Emissions

Frequency	Level	Pol	15.209 / 15 E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
3000.410	49.1	V	68.3	-19.2	AVG	261	1.3	Note 2
6933.340	48.3	V	68.3	-20.0	AVG	129	1.6	Note 2
10399.630	48.6	H	68.3	-19.7	AVG	315	1.0	Note 2
27331.150	34.4	H	68.3	-33.9	AVG	72	1.3	Note 2
35102.940	37.4	H	68.3	-30.9	AVG	100	1.6	Note 2
3000.410	53.0	V	88.3	-35.3	PK	261	1.3	Note 2
6933.340	51.6	V	88.3	-36.7	PK	129	1.6	Note 2
10399.630	60.9	H	88.3	-27.4	PK	315	1.0	Note 2
27331.150	45.7	H	88.3	-42.6	PK	72	1.3	Note 2
35102.940	48.9	H	88.3	-39.4	PK	100	1.6	Note 2

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

Client:	Intel	Job Number:	J70762
Model:	512an HMW	T-Log Number:	T71374
		Account Manager:	Briggs / Eriksen
Contact:	Robert Paxman		
Standard:	RSS 210 / FCC 15.407 UNII (Radiated)	Class:	N/A

Run #1c: High Channel @ 5240 MHz

Date of Test: 2/14/2008
Test Engineer: Rafael Varelas
Test Location: Fremont Chamber #3

Power Setting: 29.0 Average power: 17.4 (for reference purposes)

Spurious Emissions

Frequency	Level	Pol	15.209 / 15 E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
3000.360	49.1	V	68.3	-19.2	AVG	253	1.0	Note 2
10480.100	45.8	H	68.3	-22.5	AVG	327	1.0	Note 2
20959.960	32.9	V	54.0	-21.1	AVG	174	1.0	
24731.250	28.3	V	68.3	-40.0	AVG	181	1.0	Note 2
28078.820	34.9	V	68.3	-33.4	AVG	107	2.2	Note 2
38323.800	36.9	V	68.3	-31.4	AVG	104	1.3	Note 2
6000.940	45.0	V	68.3	-23.3	Peak	90	1.0	Note 2 Pk reading, avg limit
3000.360	52.6	V	88.3	-35.7	PK	253	1.0	Note 2
10480.100	58.7	H	88.3	-29.6	PK	327	1.0	Note 2
20959.960	43.3	V	74.0	-30.7	PK	174	1.0	
24731.250	40.0	V	88.3	-48.3	PK	181	1.0	Note 2
28078.820	46.5	V	88.3	-41.8	PK	107	2.2	Note 2
38323.800	49.0	V	88.3	-39.3	PK	104	1.3	Note 2

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

Client:	Intel	Job Number:	J70762
Model:	512an HMW	T-Log Number:	T71374
		Account Manager:	Briggs / Eriksen
Contact:	Robert Paxman		
Standard:	RSS 210 / FCC 15.407 UNII (Radiated)	Class:	N/A

Run #2: Radiated Spurious Emissions, 1000 - 40000 MHz. Operating Mode: 802.11a Chain A

Date of Test: 2/14/2008
Test Engineer: Rafael Varelas
Test Location: Fremont Chamber #3

Run #2a: Low Channel @ 5260 MHz

Power Setting: 28.5 Average power: 17.0 (for reference purposes)

Frequency	Level	Pol	15.209 / 15 E		Detector	Azimuth	Height	Comments	
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters		
3000.390	47.7	V	68.3	-20.6	AVG	265	1.0	Note 2	
10521.850	47.3	H	68.3	-21.0	AVG	5	1.0	Note 2	
35062.090	37.3	H	54.0	-16.7	AVG	176	1.6		
6000.420	46.0	V	68.3	-22.3	Peak	92	1.0	Note 2	Pk reading, avg limit
3000.390	51.5	V	88.3	-36.8	PK	265	1.0	Note 2	
10521.850	60.5	H	88.3	-27.8	PK	5	1.0	Note 2	
35062.090	49.4	H	74.0	-24.6	PK	176	1.6		

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

Run #2b: Center Channel @ 5280 MHz

Power Setting: 28.5 Average power: 17.3 (for reference purposes)

Frequency	Level	Pol	15.209 / 15 E		Detector	Azimuth	Height	Comments	
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters		
3000.450	46.7	V	68.3	-21.6	AVG	257	1.0	Note 2	
10559.910	48.7	H	68.3	-19.6	AVG	5	1.0	Note 2	
21119.790	31.5	H	54.0	-22.5	AVG	250	1.0		
35117.500	37.3	V	68.3	-31.0	AVG	214	1.6	Note 2	
37900.540	35.7	V	68.3	-32.6	AVG	229	1.0	Note 2	
3000.450	50.6	V	88.3	-37.7	PK	257	1.0	Note 2	
6000.770	45.5	V	68.3	-22.8	Pk	92	1.0	Note 2	Pk Reading, avg limit
10559.910	61.1	H	88.3	-27.2	PK	5	1.0	Note 2	
21119.790	42.1	H	74.0	-31.9	PK	250	1.0		
35117.500	48.6	V	88.3	-39.7	PK	214	1.6	Note 2	
37900.540	46.8	V	88.3	-41.5	PK	229	1.0	Note 2	

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

Client:	Intel	Job Number:	J70762
Model:	512an HMW	T-Log Number:	T71374
		Account Manager:	Briggs / Eriksen
Contact:	Robert Paxman		
Standard:	RSS 210 / FCC 15.407 UNII (Radiated)	Class:	N/A

Run #2c: High Channel @ 5320 MHz

Power Setting: 25.5 Average power: 14.6 (for reference purposes)

Frequency	Level	Pol	15.209 / 15 E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
3000.300	48.3	V	68.3	-20.0	AVG	259	1.3	Note 2
10640.060	45.9	H	54.0	-8.1	AVG	354	1.0	
21270.950	32.7	V	54.0	-21.3	AVG	152	1.0	
27341.890	34.6	V	68.3	-33.7	AVG	157	1.0	Note 2
35035.250	37.3	V	68.3	-31.0	AVG	71	1.6	Note 2
39649.620	36.2	H	68.3	-32.1	AVG	183	1.6	Note 2
6000.000	45.9	V	68.3	-22.4	Peak	92	1.0	Note 2 Pk Reading, avg limit
3000.300	52.0	V	88.3	-36.3	PK	259	1.3	Note 2
10640.060	59.9	H	74.0	-14.1	PK	354	1.0	
21270.950	44.7	V	74.0	-29.3	PK	152	1.0	
27341.890	46.5	V	88.3	-41.8	PK	157	1.0	Note 2
35035.250	48.9	V	88.3	-39.4	PK	71	1.6	Note 2
39649.620	48.0	H	88.3	-40.3	PK	183	1.6	Note 2

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

Client:	Intel	Job Number:	J70762
Model:	512an HMW	T-Log Number:	T71374
		Account Manager:	Briggs / Eriksen
Contact:	Robert Paxman		
Standard:	RSS 210 / FCC 15.407 UNII (Radiated)	Class:	N/A

Run #3: Radiated Spurious Emissions, 1000 - 40000 MHz. Operating Mode: 802.11a Chain A

Run #3a: Low Channel @ 5500 MHz

Power Setting: 26.5 Average power: 17.5 (for reference purposes)

Frequency	Level	Pol	15.209 / 15 E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
1195.730	31.6	V	54.0	-22.4	AVG	294	1.0	
1661.920	32.3	V	54.0	-21.7	AVG	236	1.0	
3000.310	47.1	V	68.3	-21.2	AVG	261	1.5	Note 2
5252.650	40.2	V	68.3	-28.1	AVG	141	2.0	Note 2
6000.810	46.3	V	68.3	-22.0	AVG	272	1.5	Note 2
11000.920	38.8	V	54.0	-15.2	AVG	182	1.0	
22004.820	43.9	V	68.3	-24.4	AVG	0	1.0	Note 2
1195.730	47.0	V	74.0	-27.0	PK	294	1.0	
1661.920	45.7	V	74.0	-28.3	PK	236	1.0	
3000.310	51.0	V	88.3	-37.3	PK	261	1.5	Note 2
5252.650	52.2	V	88.3	-36.1	PK	141	2.0	Note 2
6000.810	50.6	V	88.3	-37.7	PK	272	1.5	Note 2
11000.920	51.3	V	74.0	-22.7	PK	182	1.0	
22004.820	55.5	V	88.3	-32.8	PK	0	1.0	Note 2

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

Run #3b: Center Channel @ 5600 MHz

Power Setting: 29.0 Average power: 17.8 (for reference purposes)

Frequency	Level	Pol	15.209 / 15 E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
3000.420	51.2	V	68.3	-17.1	AVG	268	1.0	Note 2
6000.730	44.8	V	68.3	-23.5	AVG	266	1.5	Note 2
11198.530	41.9	V	54.0	-12.1	AVG	324	1.0	
22394.360	41.3	V	54.0	-12.7	AVG	353	1.0	
3000.420	54.3	V	88.3	-34.0	PK	268	1.0	Note 2
6000.730	49.4	V	88.3	-38.9	PK	266	1.5	Note 2
11198.530	54.0	V	74.0	-20.0	PK	324	1.0	
22394.360	53.6	V	74.0	-20.4	PK	353	1.0	

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

Client:	Intel	Job Number:	J70762
Model:	512an HMW	T-Log Number:	T71374
		Account Manager:	Briggs / Eriksen
Contact:	Robert Paxman		
Standard:	RSS 210 / FCC 15.407 UNII (Radiated)	Class:	N/A

Run #3c: High Channel @ 5700 MHz

Power Setting: 26.5 Average power: 17.2 (for reference purposes)

Frequency	Level	Pol	15.209 / 15 E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
1196.680	31.1	V	54.0	-22.9	AVG	290	1.0	
3000.370	47.9	V	68.3	-20.4	AVG	251	1.0	Note 2
11401.980	41.7	V	54.0	-12.3	AVG	315	1.0	
22798.060	40.9	V	54.0	-13.1	AVG	315	1.0	
1196.680	47.9	V	74.0	-26.1	PK	290	1.0	
3000.370	51.3	V	88.3	-37.0	PK	251	1.0	Note 2
11401.980	53.4	V	74.0	-20.6	PK	315	1.0	
22798.060	53.5	V	74.0	-20.5	PK	315	1.0	

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

Client:	Intel	Job Number:	J70762
Model:	512an HMW	T-Log Number:	T71374
		Account Manager:	Briggs / Eriksen
Contact:	Robert Paxman		
Standard:	RSS 210 / FCC 15.407 UNII (Radiated)	Class:	N/A

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

Radiated Spurious - Band Edge 802.11n 20MHz Ethertronics 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 spurious emissions testing. All remote support equipment was located approximately 30 meters from the EUT with all I/O connections running on top of the groundplane.

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

Ambient Conditions:

Temperature: 20 °C
Rel. Humidity: 39 %

Summary of Results

Run #	Mode	Channel	Power Setting	Measured Power	Test Performed	Limit	Result / Margin
1a	802.11n20 Chain A	5180MHz	26.5	14.5	Band Edge radiated field strength	FCC Part 15.209	52.7dBµV/m @ 5149.9MHz (-1.3dB)
1b	802.11n20 Chain A	5320MHz	25.5	14.5	Band Edge radiated field strength	FCC Part 15.209	52.7dBµV/m @ 5350.0MHz (-1.3dB)
1c	802.11n20 Chain A	5500MHz	26.5	17.5	Band Edge radiated field strength	FCC Part 15.209	51.4dBµV/m @ 5460.0MHz (-2.6dB)

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	Job Number:	J70762
Model:	512an HMW	T-Log Number:	T71374
		Account Manager:	Briggs / Eriksen
Contact:	Robert Paxman		
Standard:	RSS 210 / FCC 15.407 UNII (Radiated)	Class:	N/A

Run #1: Radiated Spurious Emissions, Band Edges. Operating Mode: 802.11n20 - Chain A

Date of Test: 2/14/2008
Test Engineer: Rafael Varelas
Test Location: Fremont Chamber #3

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

Power Setting: 26.5 Average power: 14.5 (for reference purposes)

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

Frequency	Level	Pol	15.209 / 15 E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5183.130	100.1	H	-	-	AVG	254	1.1	RB = 1MHz, VB = 10Hz
5183.130	108.9	H	-	-	PK	254	1.1	RB = VB = 1MHz
5185.700	96.7	V	-	-	AVG	103	1.0	RB = 1MHz, VB = 10Hz
5185.700	104.8	V	-	-	PK	103	1.0	RB = VB = 1MHz

Band Edge Signal Field Strength

Frequency	Level	Pol	15.209 / 15 E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5149.860	52.7	H	54.0	-1.3	Avg	254	1.0	
5149.900	50.8	V	54.0	-3.2	Avg	103	1.0	
5147.080	68.2	H	74.0	-5.8	PK	254	1.0	
5147.600	64.9	V	74.0	-9.1	PK	103	1.0	

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

Power Setting: 25.5 Average power: 14.5 (for reference purposes)

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

Frequency	Level	Pol	15.209 / 15 E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5324.370	98.9	V	-	-	AVG	132	1.6	RB = 1MHz, VB = 10Hz
5324.370	108.2	V	-	-	PK	132	1.6	RB = VB = 1MHz
5314.730	97.7	H	-	-	AVG	249	1.0	RB = 1MHz, VB = 10Hz
5314.730	106.0	H	-	-	PK	249	1.0	RB = VB = 1MHz

Band Edge Signal Field Strength

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

Frequency	Level	Pol	15.209 / 15 E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5350.000	52.7	V	54.0	-1.3	Avg	132	1.6	
5350.000	50.7	H	54.0	-3.3	Avg	249	1.0	
5351.550	64.5	H	74.0	-9.5	PK	249	1.0	
5352.230	68.9	V	74.0	-5.1	PK	132	1.6	

Client:	Intel	Job Number:	J70762
Model:	512an HMW	T-Log Number:	T71374
		Account Manager:	Briggs / Eriksen
Contact:	Robert Paxman		
Standard:	RSS 210 / FCC 15.407 UNII (Radiated)	Class:	N/A

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

Power Setting: Average power: (for reference purposes)

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

Frequency	Level	Pol	15.209 / 15 E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5500.980	101.2	V	54.0	47.2	AVG	135	1.0	RB = 1MHz, VB = 10Hz
5500.980	109.6	V	74.0	35.6	PK	135	1.0	RB = VB = 1MHz
5498.710	92.4	H	54.0	38.4	AVG	249	1.0	RB = 1MHz, VB = 10Hz
5498.710	101.1	H	74.0	27.1	PK	249	1.0	RB = VB = 1MHz

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

5460 - 5470 MHz, Limit is -27dBm eirp - verified via conducted measurement at antenna port

Frequency	Level	Pol	15.209 / 15 E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5459.560	49.6	H	54.0	-4.4	Avg	249	1.0	
5459.980	51.4	V	54.0	-2.6	Avg	134	1.0	
5457.400	64.4	H	74.0	-9.6	Pk	249	1.0	
5459.860	69.5	V	74.0	-4.5	PK	134	1.0	

Client:	Intel	Job Number:	J70762
Model:	512an HMW	T-Log Number:	T71374
		Account Manager:	Briggs / Eriksen
Contact:	Robert Paxman		
Standard:	RSS 210 / FCC 15.407 UNII (Radiated)	Class:	N/A

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

Radiated Spurious - 802.11n 20MHz Ethertronics Antenna

Test Specific Details

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

General Test Configuration

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

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

Ambient Conditions:

Temperature: 15-25 °C

Rel. Humidity: 35-55 %

Summary of Results

Run #	Mode	Channel	Power Setting	Measured Power	Test Performed	Limit	Result / Margin
1a	802.11n20 Chain A	5180	26.5	14.5	Radiated Emissions, 1 - 26 GHz	FCC Part 15.209 / 15 E(c)	48.7dBµV/m @ 3000.4MHz (-19.6dB)
1b	802.11n20 Chain A	5200	29.0	17.5	Radiated Emissions, 1 - 26 GHz	FCC Part 15.209 / 15 E(c)	47.6dBµV/m @ 6933.3MHz (-20.7dB)
1c	802.11n20 Chain A	5240	29.0	17.4	Radiated Emissions, 1 - 26 GHz	FCC Part 15.209 / 15 E(c)	48.5dBµV/m @ 3000.4MHz (-19.8dB)
2a	802.11n20 Chain A	5260	27.5	16.5	Radiated Emissions, 1 - 26 GHz	FCC Part 15.209 / 15 E(c)	40.4dBµV/m @ 21031.7MHz (-13.6dB)
2b	802.11n20 Chain A	5280	27.0	17.5	Radiated Emissions, 1 - 26 GHz	FCC Part 15.209 / 15 E(c)	41.7dBµV/m @ 21116.7MHz (-12.3dB)
2c	802.11n20 Chain A	5320	25.5	14.5	Radiated Emissions, 1 - 26 GHz	FCC Part 15.209 / 15 E(c)	44.4dBµV/m @ 10637.3MHz (-9.6dB)
3a	802.11n20 Chain A	5500	26.5	17.5	Radiated Emissions, 1 - 26 GHz	FCC Part 15.209 / 15 E(c)	39.5dBµV/m @ 10993.6MHz (-14.5dB)
3b	802.11n20 Chain A	5600	25.0	16.5	Radiated Emissions, 1 - 26 GHz	FCC Part 15.209 / 15 E(c)	44.8dBµV/m @ 7466.6MHz (-9.2dB)
3c	802.11n20 Chain A	5700	26.0	16.5	Radiated Emissions, 1 - 26 GHz	FCC Part 15.209 / 15 E(c)	47.3dBµV/m @ 11397.5MHz (-6.7dB)

Modifications Made During Testing

No modifications were made to the EUT during testing

Client:	Intel	Job Number:	J70762
Model:	512an HMW	T-Log Number:	T71374
		Account Manager:	Briggs / Eriksen
Contact:	Robert Paxman		
Standard:	RSS 210 / FCC 15.407 UNII (Radiated)	Class:	N/A

Deviations From The Standard

No deviations were made from the requirements of the standard.

Run #1: Radiated Spurious Emissions, 1000 - 40000 MHz. Operating Mode: 802.11n20 Chain A

Date of Test: 2/14/2008
Test Engineer: Rafael Varelas
Test Location: Fremont Chamber #3

Run #1a: Low Channel @ 5180 MHz

Frequency	Level	Pol	15.209 / 15 E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
3000.390	48.7	V	68.3	-19.6	AVG	263	1.0	Note 2
6000.690	43.7	V	68.3	-24.6	AVG	96	1.0	Note 2
10360.130	43.0	V	68.3	-25.3	AVG	155	1.0	Note 2
20725.500	32.2	V	54.0	-21.8	AVG	13	1.0	
3000.390	52.3	V	88.3	-36.0	PK	263	1.0	Note 2
6000.690	48.7	V	88.3	-39.6	PK	96	1.0	Note 2
10360.130	54.9	V	88.3	-33.4	PK	155	1.0	Note 2
20725.500	44.4	V	74.0	-29.6	PK	13	1.0	

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

Run #1b: Center Channel @ 5200 MHz

Frequency	Level	Pol	15.209 / 15 E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
3000.440	43.5	V	68.3	-24.8	AVG	302	1.0	Note 2
6933.330	47.6	V	68.3	-20.7	AVG	135	1.5	Note 2
10400.570	36.2	V	68.3	-32.1	AVG	344	1.5	Note 2
3000.440	48.2	V	88.3	-40.1	PK	302	1.0	Note 2
6933.330	50.9	V	88.3	-37.4	PK	135	1.5	Note 2
10400.570	48.2	V	88.3	-40.1	PK	344	1.5	Note 2

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

Client:	Intel	Job Number:	J70762
Model:	512an HMW	T-Log Number:	T71374
		Account Manager:	Briggs / Eriksen
Contact:	Robert Paxman		
Standard:	RSS 210 / FCC 15.407 UNII (Radiated)	Class:	N/A

Run #1c: High Channel @ 5240 MHz

Frequency	Level	Pol	15.209 / 15 E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
3000.400	48.5	V	68.3	-19.8	AVG	264	1.0	Note 2
10481.930	44.0	V	68.3	-24.3	AVG	194	1.0	Note 3
3000.400	52.4	V	88.3	-35.9	PK	264	1.0	Note 5
10481.930	55.7	V	88.3	-32.6	PK	194	1.0	Note 4

Note 1:	For emissions in restricted bands, the limit of 15.209 was used. For all other emissions, the limit was set to -27dBm eirp (68.3dBuV/m average, 88.3dBuV/m peak)
Note 2:	

Run #2: Radiated Spurious Emissions, 1000 - 40000 MHz. Operating Mode: 802.11n20 Chain A

Date of Test: 2/14/2008
Test Engineer: Rafael Varelas
Test Location: Fremont Chamber #3

Run #2a: Low Channel @ 5260 MHz

Frequency	Level	Pol	15.209 / 15 E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
3000.320	47.6	V	68.3	-20.7	AVG	258	1.0	Note 2
10519.700	46.0	H	68.3	-22.3	AVG	0	1.0	Note 2
6000.240	45.7	V	88.3	-42.6	Peak	91	1.0	Note 2
21031.670	40.4	V	54.0	-13.6	Peak	148	1.0	Peak reading, average limit
3000.320	51.3	V	88.3	-37.0	PK	258	1.0	Note 2
10519.700	58.2	H	88.3	-30.1	PK	0	1.0	Note 2

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

Run #2b: Center Channel @ 5280 MHz

Frequency	Level	Pol	15.209 / 15 E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
3000.420	49.7	V	68.3	-18.6	AVG	261	1.0	Note 2
10560.640	46.5	H	68.3	-21.8	AVG	356	1.0	Note 2
6000.000	45.5	V	68.3	-22.8	Peak	263	1.9	Note 2 Pk reading, avg limit
21116.670	41.7	V	54.0	-12.3	Peak	137	1.0	Pk reading, avg limit
3000.420	53.6	V	88.3	-34.7	PK	261	1.0	Note 2
10560.640	59.4	H	88.3	-28.9	PK	356	1.0	Note 2

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

Client:	Intel	Job Number:	J70762
Model:	512an HMW	T-Log Number:	T71374
		Account Manager:	Briggs / Eriksen
Contact:	Robert Paxman		
Standard:	RSS 210 / FCC 15.407 UNII (Radiated)	Class:	N/A

Run #2c: High Channel @ 5320 MHz

Frequency	Level	Pol	15.209 / 15 E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
3000.420	47.5	V	68.3	-20.8	AVG	267	1.0	Note 2
10637.250	44.4	H	54.0	-9.6	AVG	348	1.0	
21281.460	37.9	V	54.0	-16.1	AVG	145	1.0	
6000.000	45.2	V	68.3	-23.1	Peak	94	1.0	Note 2 Pk reading, avg limit
3000.420	51.2	V	88.3	-37.1	PK	267	1.0	Note 2
10637.250	56.9	H	74.0	-17.1	PK	348	1.0	
21281.460	49.6	V	74.0	-24.4	PK	145	1.0	

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

Run #3: Radiated Spurious Emissions, 1000 - 40000 MHz. Operating Mode: 802.11n20 Chain A
Run #3a: Low Channel @ 5500 MHz

Date of Test: 2/14/2008
Test Engineer: Rafael Varelas
Test Location: Fremont Chamber #3

Frequency	Level	Pol	15.209 / 15 E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
1194.490	31.0	V	54.0	-23.0	AVG	294	1.0	
1663.120	33.1	V	54.0	-20.9	AVG	104	1.5	
3000.270	46.2	V	68.3	-22.1	AVG	281	1.0	Note 2
5256.420	40.6	V	68.3	-27.7	AVG	139	2.0	Note 2
6000.760	45.8	V	68.3	-22.5	AVG	271	1.5	Note 2
10993.600	39.5	V	54.0	-14.5	AVG	327	1.0	
1194.490	45.3	V	74.0	-28.7	PK	294	1.0	
1663.120	47.8	V	74.0	-26.2	PK	104	1.5	
3000.270	50.4	V	88.3	-37.9	PK	281	1.0	Note 2
5256.420	52.5	V	88.3	-35.8	PK	139	2.0	Note 2
6000.760	50.6	V	88.3	-37.7	PK	271	1.5	Note 2
10993.600	52.3	V	74.0	-21.7	PK	327	1.0	

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

Client:	Intel	Job Number:	J70762
Model:	512an HMW	T-Log Number:	T71374
		Account Manager:	Briggs / Eriksen
Contact:	Robert Paxman		
Standard:	RSS 210 / FCC 15.407 UNII (Radiated)	Class:	N/A

Run #3b: Center Channel @ 5600 MHz

Date of Test: 2/17/2008
Test Engineer: Ben Jing
Test Location: Fremont Chamber #3

Frequency	Level	Pol	15.209 / 15 E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
1497.350	31.7	H	54.0	-22.3	AVG	229	1.5	
3000.380	52.5	V	68.3	-15.8	AVG	275	1.0	Not in a restricted band
6000.700	50.6	V	68.3	-17.7	AVG	268	1.5	Not in a restricted band
7466.610	44.8	V	54.0	-9.2	AVG	281	1.5	
11200.180	42.3	V	54.0	-11.7	AVG	83	1.0	
1497.350	52.5	H	74.0	-21.5	PK	229	1.5	
3000.380	55.6	V	88.3	-32.7	PK	275	1.0	Not in a restricted band
6000.700	53.9	V	88.3	-34.4	PK	268	1.5	Not in a restricted band
7466.610	52.1	V	74.0	-21.9	PK	281	1.5	
11200.180	54.6	V	74.0	-19.4	PK	83	1.0	

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

Run #3c: High Channel @ 5700 MHz

Date of Test: 2/17/2008
Test Engineer: Ben Jing
Test Location: Fremont Chamber #3

Frequency	Level	Pol	15.209 / 15 E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
1495.200	28.4	H	54.0	-25.6	AVG	124	1.4	
3000.440	52.3	V	68.3	-16.0	AVG	271	1.0	Not in a restricted band
6000.770	50.6	V	68.3	-17.7	AVG	268	1.5	Not in a restricted band
7599.960	44.6	V	54.0	-9.4	AVG	128	1.5	
11397.510	47.3	V	54.0	-6.7	AVG	145	1.0	
1495.200	49.4	H	74.0	-24.6	PK	124	1.4	
3000.440	55.2	V	88.3	-33.1	PK	271	1.0	Not in a restricted band
6000.770	54.2	V	88.3	-34.1	PK	268	1.5	Not in a restricted band
7599.960	51.4	V	74.0	-22.6	PK	128	1.5	
11397.510	59.7	V	74.0	-14.3	PK	145	1.0	

Note 1:	For emissions in restricted bands, the limit of 15.209 was used. For all other emissions, the limit was set to -27dBm eirp (68.3dBuV/m average, 88.3dBuV/m peak)
Note 2:	

Client:	Intel	Job Number:	J70762
Model:	512an HMW	T-Log Number:	T71374
		Account Manager:	Briggs / Eriksen
Contact:	Robert Paxman		
Standard:	RSS 210 / FCC 15.407 UNII (Radiated)	Class:	N/A

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

Radiated Spurious - Band Edge 802.11n 40MHz Ethertronics 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 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: 19 °C
Rel. Humidity: 44 %

Summary of Results

Run #	Mode	Channel	Power Setting	Measured Power	Test Performed	Limit	Measurement (Margin)
1a	802.11n40 Chain A	5190MHz	20.0	10.1	Band Edge radiated field strength	FCC Part 15.209	52.3dBµV/m @ 5150.0MHz (-1.7dB)
1b	802.11n40 Chain A	5310MHz	20.0	10.3	Band Edge radiated field strength	FCC Part 15.209	52.7dBµV/m @ 5350.0MHz (-1.3dB)
1c	802.11n40 Chain A	5510MHz	21.5	13.5	Band Edge radiated field strength	FCC Part 15.209 / 15E	52.8dBµV/m @ 5460.0MHz (-1.2dB)

Modifications Made During Testing

No modifications were made to the EUT during testing

Deviations From The Standard

No deviations were made from the requirements of the standard.

Client:	Intel	Job Number:	J70762
Model:	512an HMW	T-Log Number:	T71374
		Account Manager:	Briggs / Eriksen
Contact:	Robert Paxman		
Standard:	RSS 210 / FCC 15.407 UNII (Radiated)	Class:	N/A

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

Date of Test: 2/14/2008
Test Engineer: Rafael Varelas
Test Location: Fremont Chamber #3

Run #1a: Low Channel @ 5190 MHz (band edge at 5150 MHz)
Power Setting: 20.0 Average power: 10.1 (for reference purposes)

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

Frequency	Level	Pol	15.209 / 15 E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5201.330	92.4	H	-	-	AVG	253	1.0	RB = 1MHz, VB = 10Hz
5201.330	101.7	H	-	-	PK	253	1.0	RB = VB = 1MHz
5201.530	89.8	V	-	-	AVG	122	1.8	RB = 1MHz, VB = 10Hz
5201.530	98.2	V	-	-	PK	122	1.8	RB = VB = 1MHz

Band Edge Signal Field Strength

Frequency	Level	Pol	15.209 / 15 E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5149.270	50.4	V	54.0	-3.6	Avg	122	1.7	
5149.950	52.3	H	54.0	-1.7	Avg	254	1.0	
5149.350	66.0	H	74.0	-8.0	PK	254	1.0	
5149.910	63.2	V	74.0	-10.8	PK	122	1.7	

Run #1b: High Channel @ 5310 MHz (band edge at 5350 MHz)
Power Setting: 20.0 Average power: 10.3 (for reference purposes)

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

Frequency	Level	Pol	15.209 / 15 E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5321.600	91.9	V	-	-	AVG	134	1.6	RB = 1MHz, VB = 10Hz
5321.600	100.6	V	-	-	PK	134	1.6	RB = VB = 1MHz
5299.400	90.4	H	-	-	AVG	251	1.0	RB = 1MHz, VB = 10Hz
5299.400	98.7	H	-	-	PK	251	1.0	RB = VB = 1MHz

Band Edge Signal Field Strength

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

Frequency	Level	Pol	15.209 / 15 E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5350.000	52.7	V	54.0	-1.3	Avg	131	1.6	
5350.010	50.9	H	54.0	-3.1	Avg	251	1.0	
5350.400	65.7	V	74.0	-8.3	PK	133	1.6	
5350.930	64.7	H	74.0	-9.3	PK	251	1.0	

Client:	Intel	Job Number:	J70762
Model:	512an HMW	T-Log Number:	T71374
		Account Manager:	Briggs / Eriksen
Contact:	Robert Paxman		
Standard:	RSS 210 / FCC 15.407 UNII (Radiated)	Class:	N/A

Run #1c: Low Channel @ 5510 MHz (restricted band edge at 5460 MHz, allocated band edge at 5470MHz)

Power Setting: 21.5 Average power: 13.5 (for reference purposes)

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

Frequency	Level	Pol	15.209 / 15 E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5508.580	99.1	V	54.0	45.1	AVG	155	1.0	RB = 1MHz, VB = 10Hz
5508.580	107.8	V	74.0	33.8	PK	155	1.0	RB = VB = 1MHz
5511.300	88.8	H	54.0	34.8	AVG	250	1.0	RB = 1MHz, VB = 10Hz
5511.300	97.0	H	74.0	23.0	PK	250	1.0	RB = VB = 1MHz

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

5460 - 5470 MHz, Limit is -27dBm eirp - verified via conducted measurement at antenna port

Frequency	Level	Pol	15.209 / 15 E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5460.000	52.8	V	54.0	-1.2	Avg	155	1.0	
5460.000	49.5	H	54.0	-4.5	Avg	75	1.0	
5460.000	67.6	V	74.0	-6.4	Pk	155	1.0	
5460.000	62.5	H	74.0	-11.5	Pk	75	1.0	

Client:	Intel	Job Number:	J70762
Model:	512an HMW	T-Log Number:	T71374
		Account Manager:	Briggs / Eriksen
Contact:	Robert Paxman		
Standard:	RSS 210 / FCC 15.407 UNII (Radiated)	Class:	N/A

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

Radiated Spurious - 802.11n 40MHz Ethertronics 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.

Date of Test: 2/14/2008
Test Engineer: Rafael Varelas
Test Location: Fremont Chamber #3

Config. Used: 1
Config Change: -
Host Unit Voltage 120V/60Hz

General Test Configuration

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

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

Ambient Conditions:

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

Summary of Results

Run #	Mode	Channel	Power Setting	Measured Power	Test Performed	Limit	Result / Margin
1	802.11n40 Chain A	5190 5230	20.0 27.0	10.1 16.4	Radiated Emissions, 1 - 40 GHz	FCC Part 15.209 / 15 E(c)	52.7dBµV/m @ 6920.0MHz (-15.6dB)
2	802.11n40 Chain A	5270 5310	27.5 20.0	16.5 10.3	Radiated Emissions, 1 - 40 GHz	FCC Part 15.209 / 15 E(c)	45.1dBµV/m @ 10613.3MHz (-8.9dB)
3	802.11n40 Chain A	5510 5590 5670	21.5 24.5 25.5	13.5 16.6 16.5	Radiated Emissions, 1 - 40 GHz	FCC Part 15.209 / 15 E(c)	46.9dBµV/m @ 7559.9MHz (-7.1dB)

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	Job Number:	J70762
Model:	512an HMW	T-Log Number:	T71374
		Account Manager:	Briggs / Eriksen
Contact:	Robert Paxman		
Standard:	RSS 210 / FCC 15.407 UNII (Radiated)	Class:	N/A

Run #1: Radiated Spurious Emissions, 1000 - 40000 MHz. Operating Mode: 802.11n 40MHz Chain A
Run #1a: Low Channel @ 5190 MHz

Date of Test: 2/14/2008
Test Engineer: Rafael Varelas
Test Location: Fremont Chamber #3

Spurious Emissions

Frequency	Level	Pol	15.209 / 15 E		Detector	Azimuth	Height	Comments	
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters		
3000.370	49.1	V	68.3	-19.2	AVG	257	1.7	Note 2	
6920.000	52.7	V	68.3	-15.6	AVG	189	1.3	Note 2	
6000.590	45.5	V	68.3	-22.8	Peak	96	1.0	Note 2	Pk reading, avg limit
3000.370	52.7	V	88.3	-35.6	PK	257	1.7	Note 2	
6920.000	54.8	V	88.3	-33.5	PK	189	1.3	Note 2	

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

Run #1b: High Channel @ 5230 MHz

Date of Test: 3/13/2008
Test Engineer: Joseph Cadigal
Test Location: Fremont Chamber #5

Frequency	Level	Pol	15.209 / 15 E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
1498.140	34.0	V	54.0	-20.0	AVG	165	1.0	
1770.360	28.6	V	68.3	-39.7	AVG	239	1.0	Note 2
3013.800	29.8	H	68.3	-38.5	AVG	48	1.0	Note 2
5999.890	42.6	V	68.3	-25.7	AVG	272	1.3	Note 2
10459.820	50.5	H	68.3	-17.8	AVG	24	1.3	Note 2
1498.140	51.8	V	74.0	-22.2	PK	165	1.0	
1770.360	39.1	V	88.3	-49.2	PK	239	1.0	Note 2
3013.800	41.4	H	88.3	-46.9	PK	48	1.0	Note 2
5999.890	50.3	V	88.3	-38.0	PK	272	1.3	Note 2
10459.820	62.3	H	88.3	-26.0	PK	24	1.3	Note 2

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

Client:	Intel	Job Number:	J70762
Model:	512an HMW	T-Log Number:	T71374
		Account Manager:	Briggs / Eriksen
Contact:	Robert Paxman		
Standard:	RSS 210 / FCC 15.407 UNII (Radiated)	Class:	N/A

Run #2: Radiated Spurious Emissions, 1000 - 40000 MHz. Operating Mode: 802.11n40 Chain A
Run #2a: Low Channel @ 5270 MHz

Date of Test: 3/13/2008
Test Engineer: Joseph Cadigal
Test Location: Fremont Chamber #5

Frequency	Level	Pol	15.209 / 15 E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
1505.180	26.3	H	54.0	-27.7	AVG	169	1.6	
1770.430	28.7	V	68.3	-39.6	AVG	246	1.0	Note 2
3020.180	29.9	V	68.3	-38.4	AVG	42	1.3	Note 2
6000.640	45.7	V	68.3	-22.6	AVG	270	1.3	Note 2
10528.110	46.9	H	68.3	-21.4	AVG	30	1.3	Note 2
1505.180	37.3	H	74.0	-36.7	PK	169	1.6	
1770.430	39.2	V	88.3	-49.1	PK	246	1.0	Note 2
3020.180	41.5	V	88.3	-46.8	PK	42	1.3	Note 2
6000.640	51.1	V	88.3	-37.2	PK	270	1.3	Note 2
10528.110	59.1	H	88.3	-29.2	PK	30	1.3	Note 2

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

Run #2b: High Channel @ 5310 MHz

Date of Test: 2/14/2008
Test Engineer: Rafael Varelas
Test Location: Fremont Chamber #3

Frequency	Level	Pol	15.209 / 15 E		Detector	Azimuth	Height	Comments	
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters		
3000.330	49.6	V	68.3	-18.7	AVG	265	1.3		
5293.470	46.5	V	68.3	-21.8	Peak	150	1.9		
6010.000	45.4	V	68.3	-22.9	Peak	260	1.9	Note 2	Pk reading, avg limit
10613.330	45.1	H	54.0	-8.9	Peak	35	1.0		Pk reading, avg limit
3000.330	53.0	V	88.3	-35.3	PK	265	1.3		

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

Client:	Intel	Job Number:	J70762
Model:	512an HMW	T-Log Number:	T71374
		Account Manager:	Briggs / Eriksen
Contact:	Robert Paxman		
Standard:	RSS 210 / FCC 15.407 UNII (Radiated)	Class:	N/A

Run #3: Radiated Spurious Emissions, 1000 - 40000 MHz. Operating Mode: 802.11n40 Chain A
Run #3a: Low Channel @ 5510 MHz

Date of Test: 2/14/2008
Test Engineer: Rafael Varelas
Test Location: Fremont Chamber #3

Frequency	Level	Pol	15.209 / 15 E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
3000.300	46.0	V	68.3	-22.3	AVG	291	1.0	Note 2
7346.620	46.4	H	54.0	-7.6	AVG	83	1.0	
11016.680	37.1	V	54.0	-16.9	AVG	170	1.0	
3000.300	50.6	V	88.3	-37.7	PK	291	1.0	Note 2
7346.620	51.2	H	74.0	-22.8	PK	83	1.0	
11016.680	49.5	V	74.0	-24.5	PK	170	1.0	

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

Run #3b: Center Channel @ 5590 MHz

Date of Test: 2/17/2008
Test Engineer: Ben Jing
Test Location: Fremont Chamber #3

Frequency	Level	Pol	15.209 / 15 E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
1494.850	31.2	H	54.0	-22.8	AVG	241	1.5	
3000.370	52.4	V	68.3	-15.9	AVG	272	1.0	Not in a restricted band
6000.710	49.4	V	68.3	-18.9	AVG	267	1.5	Not in a restricted band
7453.320	43.4	V	54.0	-10.6	AVG	144	1.5	
11177.030	44.1	V	54.0	-9.9	AVG	85	1.0	
1494.850	52.4	H	74.0	-21.6	PK	241	1.5	
3000.370	56.0	V	88.3	-32.3	PK	272	1.0	Not in a restricted band
6000.710	53.6	V	88.3	-34.7	PK	267	1.5	Not in a restricted band
7453.320	50.6	V	74.0	-23.4	PK	144	1.5	
11177.030	56.1	V	74.0	-17.9	PK	85	1.0	

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

Client:	Intel	Job Number:	J70762
Model:	512an HMW	T-Log Number:	T71374
		Account Manager:	Briggs / Eriksen
Contact:	Robert Paxman		
Standard:	RSS 210 / FCC 15.407 UNII (Radiated)	Class:	N/A

Run #3c: High Channel @ 5670 MHz

Date of Test: 2/17/2008
Test Engineer: Ben Jing
Test Location: Fremont Chamber #3

Frequency	Level	Pol	15.209 / 15 E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
1497.870	32.3	V	54.0	-21.7	AVG	189	1.0	
3000.400	52.2	V	68.3	-16.1	AVG	271	1.0	Not in a restricted band
6000.710	50.4	V	68.3	-17.9	AVG	268	1.5	Not in a restricted band
7559.920	46.9	V	54.0	-7.1	AVG	129	1.5	
11339.970	44.4	V	54.0	-9.6	AVG	157	1.0	
1497.870	52.0	V	74.0	-22.0	PK	189	1.0	
3000.400	55.6	V	88.3	-32.7	PK	271	1.0	Not in a restricted band
6000.710	53.9	V	88.3	-34.4	PK	268	1.5	Not in a restricted band
7559.920	52.5	V	74.0	-21.5	PK	129	1.5	
11339.970	56.2	V	74.0	-17.8	PK	157	1.0	

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

Elliott	EMC Test Data		
Client:	Intel	Job Number:	J70762
Model:	512AN HMW	T-Log Number:	T71849
		Account Manager:	Briggs / Eriksen
Contact:	Robert Paxman		-
Emissions Standard(s):	RSS 210 / FCC 15.407 UNII (Radiated)	Class:	NII
Immunity Standard(s):	-	Environment:	-

EMC Test Data - NII Radiated, Universe Antenna

For The

Intel

Model

512AN HMW

Date of Last Test: 6/5/2008

Client:	Intel	Job Number:	J70762
Model:	512AN HMW	T-Log Number:	T71849
		Account Manager:	Briggs / Eriksen
Contact:	Robert Paxman		
Standard:	RSS 210 / FCC 15.407 UNII (Radiated)	Class:	N/A

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

Radiated Spurious Emissions - Band Edge 802.11a Mode

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: 6/2/2008
Test Engineer: Joseph Cadigal, Peter Sales
Test Location: Fremont Chamber #3
Config. Used: 1
Config Change: None
Host Unit Voltage: Powered From Host System

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: 23 °C
Rel. Humidity: 42 %

Summary of Results

Run #	Mode	Channel	Power Setting	Measured Power	Test Performed	Limit	Result / Margin
1	802.11a Chain A	5180MHz	26.5	14.7	Band Edge radiated field strength	FCC Part 15.209	50.5dBµV/m @ 5130.5MHz (-3.5dB)
1	802.11a Chain A	5320MHz	25.5	14.6	Band Edge radiated field strength	FCC Part 15.209	50.8dBµV/m @ 5350.0MHz (-3.2dB)
1	802.11a Chain A	5500MHz	26.5	17.5	Band Edge radiated field strength	FCC Part 15.209 / 15E	53.3dBµV/m @ 5460.0MHz (-0.7dB)

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	Job Number:	J70762
Model:	512AN HMW	T-Log Number:	T71849
		Account Manager:	Briggs / Eriksen
Contact:	Robert Paxman		
Standard:	RSS 210 / FCC 15.407 UNII (Radiated)	Class:	N/A

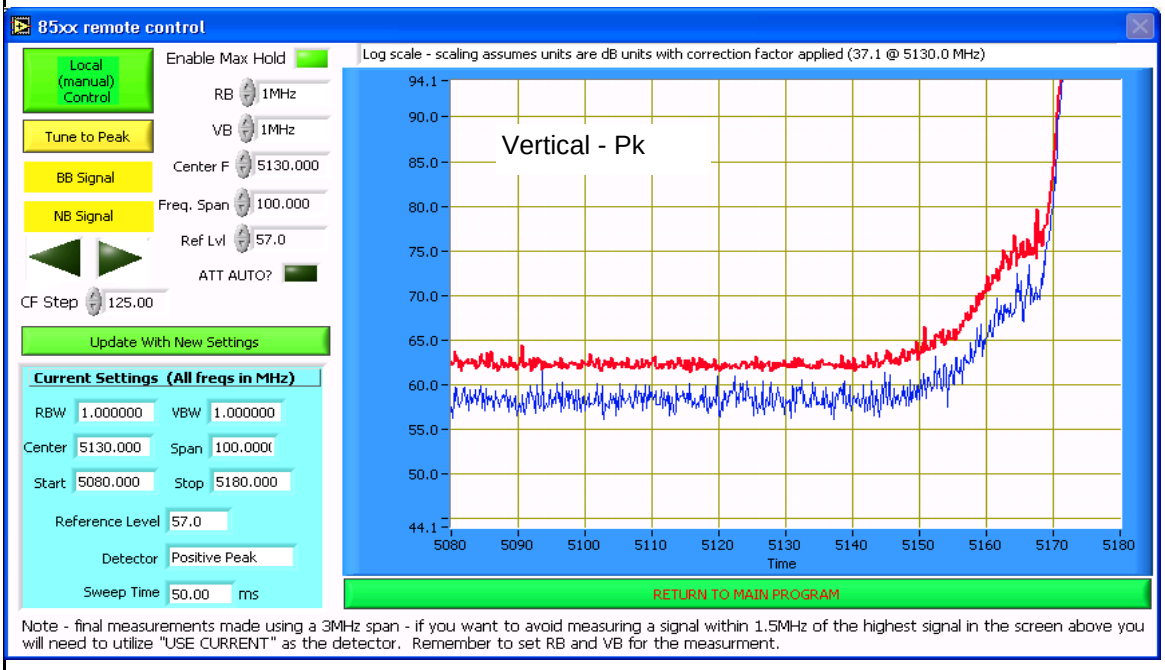
Note 1:	For emissions in restricted bands, the limit of 15.209 was used. For all other emissions, the limit was set 30dB below the level of the fundamental and measured in 100kHz.
Note 2:	Signal is not in a restricted band.

Run #1: Radiated Spurious Emissions, Band Edges. Operating Mode: 802.11a - Chain A
Run #1a: Low Channel @ 5180 MHz (band edge at 5150 MHz)
Power Setting: 15.0 Average power: 14.7 (for reference purposes)
Fundamental Signal Field Strength: Peak and average values measured in 1 MHz, for reference only

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5185.170	95.9	V	-	-	AVG	196	1.0	RB = 1MHz, VB = 10Hz
5185.170	105.1	V	-	-	PK	196	1.0	RB = VB = 1MHz
5181.210	104.2	V	-	-	PK	196	1.0	RB = VB = 100KHz
5187.000	101.1	H	-	-	AVG	258	1.4	RB = 1MHz, VB = 10Hz
5187.000	110.4	H	-	-	PK	258	1.4	RB = VB = 1MHz
5181.220	109.0	H	-	-	PK	258	1.4	RB = VB = 100KHz

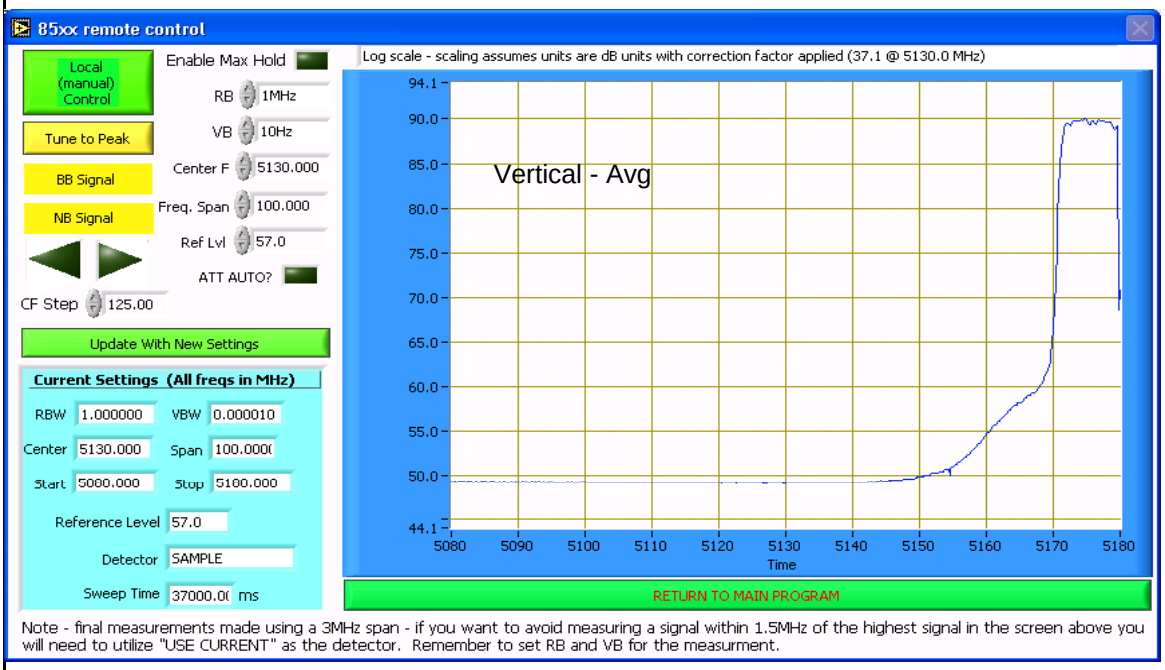
Band Edge Signal Field Strength

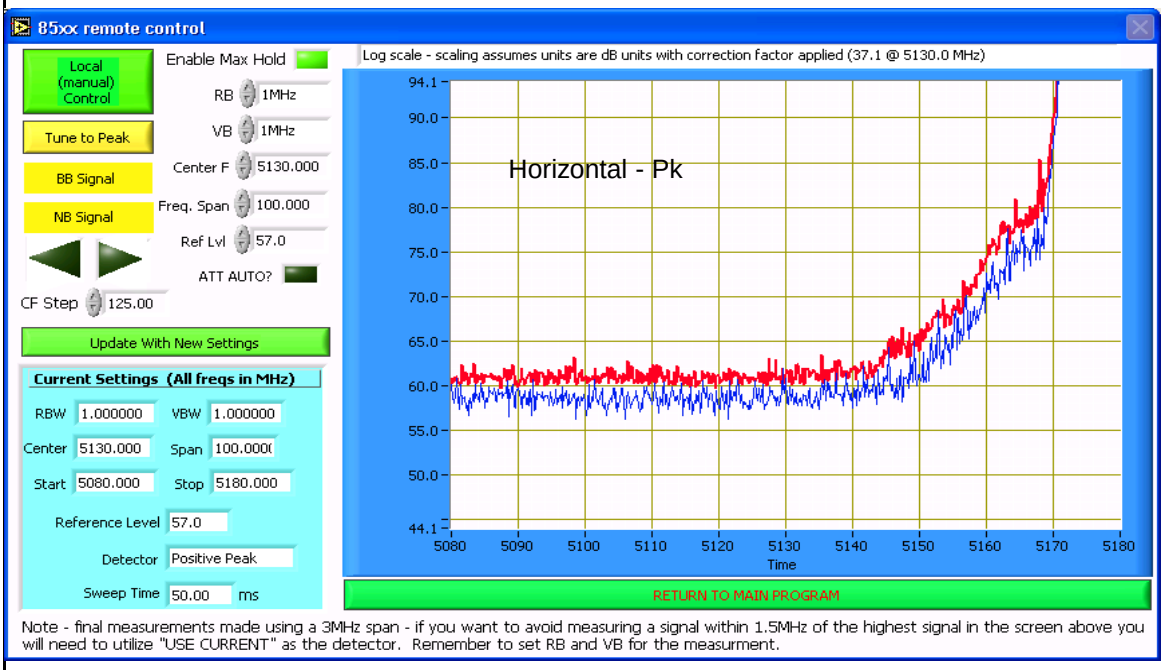
Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5130.540	50.5	H	54.0	-3.5	AVG	255	1.4	
5128.520	50.2	V	54.0	-3.8	AVG	170	1.0	
5130.540	62.2	H	74.0	-11.8	PK	255	1.4	
5128.520	61.6	V	74.0	-12.4	PK	170	1.0	



Client:	Intel	Job Number:	J70762
Model:	512AN HMW	T-Log Number:	T71849
		Account Manager:	Briggs / Eriksen
Contact:	Robert Paxman		
Standard:	RSS 210 / FCC 15.407 UNII (Radiated)	Class:	N/A

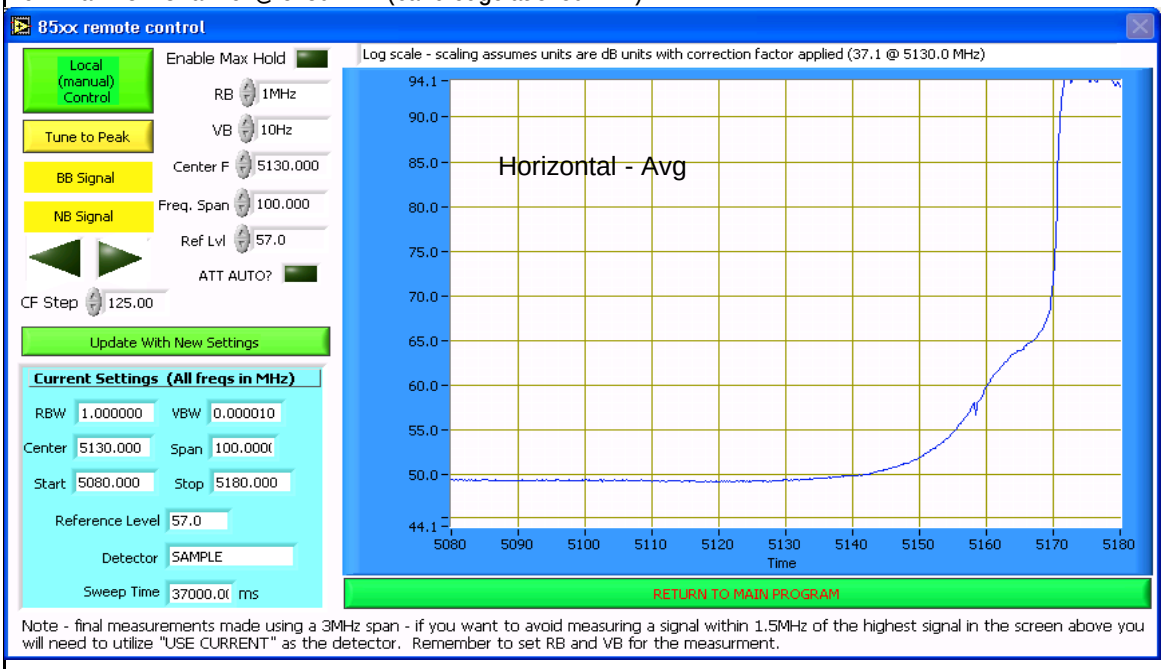
Run #1a: Low Channel @ 5180 MHz (band edge at 5150 MHz)





Client:	Intel	Job Number:	J70762
Model:	512AN HMW	T-Log Number:	T71849
		Account Manager:	Briggs / Eriksen
Contact:	Robert Paxman		
Standard:	RSS 210 / FCC 15.407 UNII (Radiated)	Class:	N/A

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



Note - final measurements made using a 3MHz span - if you want to avoid measuring a signal within 1.5MHz of the highest signal in the screen above you will need to utilize "USE CURRENT" as the detector. Remember to set RB and VB for the measurment.

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

Power Setting: 15.0 Average power: 14.6 (for reference purposes)

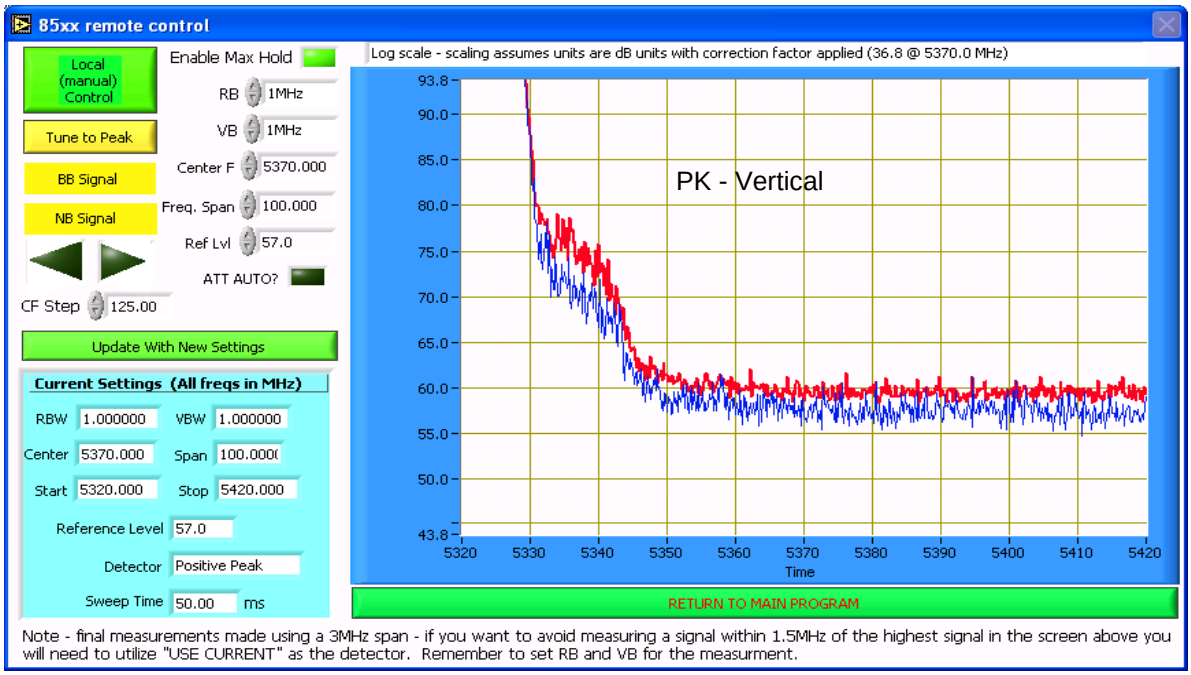
Fundamental Signal Field Strength: Peak and average values measured in 1 MHz, for reference only

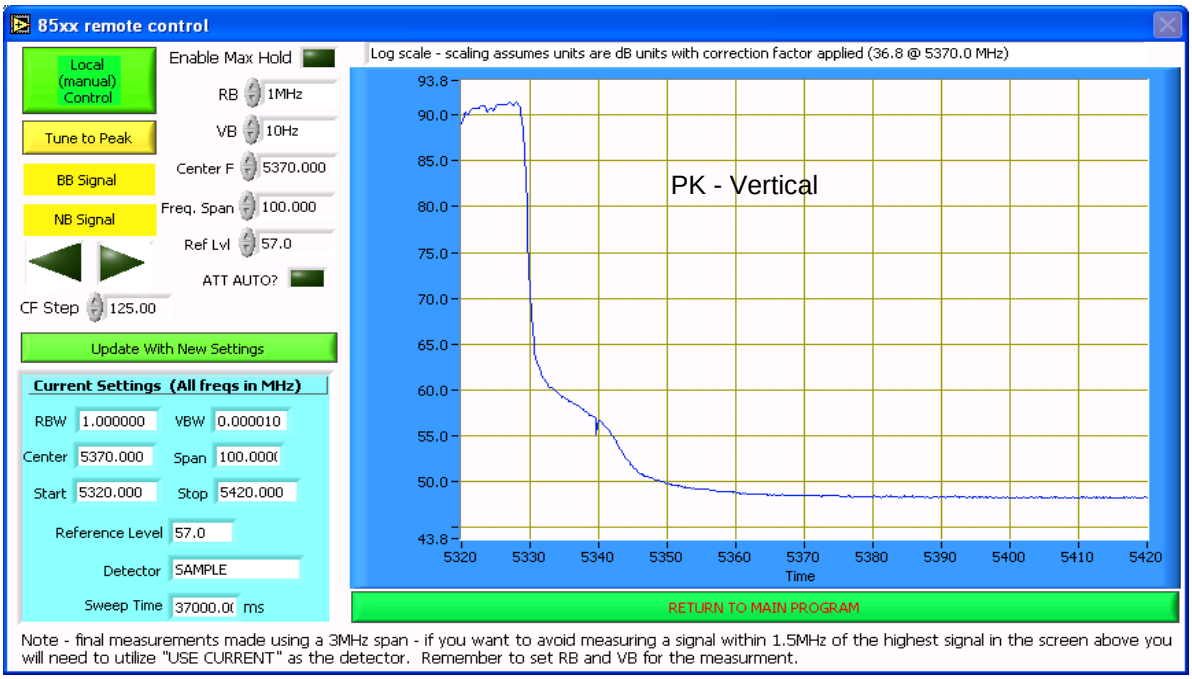
Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5312.000	94.0	V	-	-	AVG	193	1.0	RB = 1MHz, VB = 10Hz
5312.000	102.2	V	-	-	PK	193	1.0	RB = VB = 1MHz
5325.830	94.6	V	-	-	PK	193	1.0	RB = VB = 100KHz
5325.830	98.3	H	-	-	AVG	233	1.1	RB = 1MHz, VB = 10Hz
5325.830	107.4	H	-	-	PK	233	1.1	RB = VB = 1MHz
5321.290	99.6	H	-	-	PK	233	1.0	RB = VB = 100KHz

Band Edge Signal Field Strength

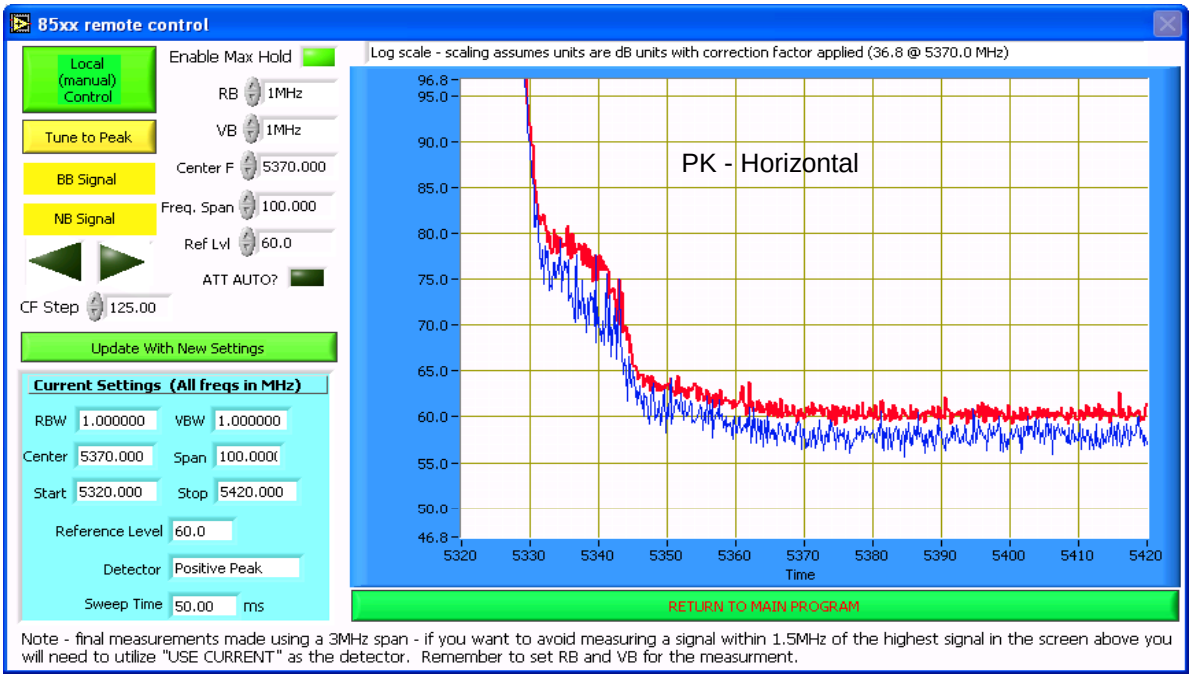
Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5351.060	54.2	H	74.0	-19.8	PK	233	1.0	
5350.000	50.8	H	54.0	-3.2	AVG	233	1.0	
5351.370	63.2	V	74.0	-10.8	PK	192	1.0	
5350.000	50.0	V	54.0	-4.0	AVG	192	1.0	

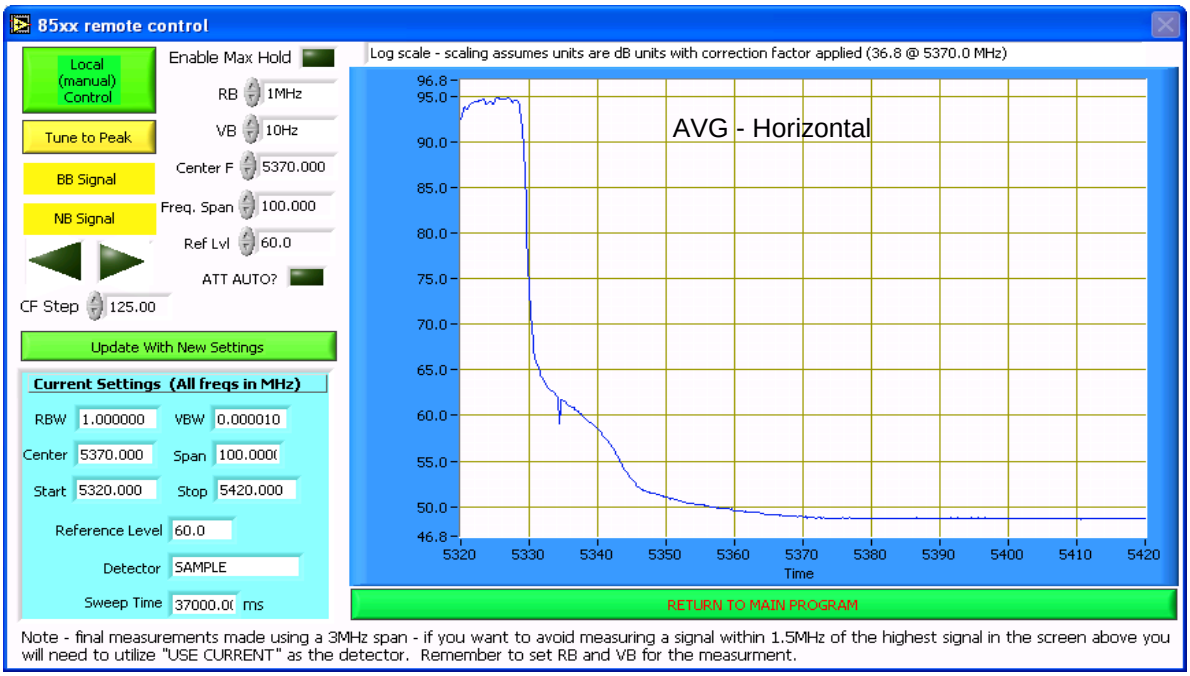
Client:	Intel	Job Number:	J70762
Model:	512AN HMW	T-Log Number:	T71849
		Account Manager:	Briggs / Eriksen
Contact:	Robert Paxman		
Standard:	RSS 210 / FCC 15.407 UNII (Radiated)	Class:	N/A





Client:	Intel	Job Number:	J70762
Model:	512AN HMW	T-Log Number:	T71849
		Account Manager:	Briggs / Eriksen
Contact:	Robert Paxman		
Standard:	RSS 210 / FCC 15.407 UNII (Radiated)	Class:	N/A





Client:	Intel	Job Number:	J70762
Model:	512AN HMW	T-Log Number:	T71849
		Account Manager:	Briggs / Eriksen
Contact:	Robert Paxman		
Standard:	RSS 210 / FCC 15.407 UNII (Radiated)	Class:	N/A

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

Power Setting: 18.5 Average power: 17.5 (for reference purposes)

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

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5502.470	97.8	V	-	-	AVG	130	1.9	RB = 1MHz, VB = 10Hz
5502.470	105.9	V	-	-	PK	130	1.9	RB = VB = 1MHz
5506.370	97.9	V	-	-	PK	130	1.9	RB = VB = 100KHz
5502.470	101.0	H	-	-	AVG	255	1.3	RB = 1MHz, VB = 10Hz
5502.470	109.6	H	-	-	PK	255	1.3	RB = VB = 1MHz
5494.970	101.6	H	-	-	PK	255	1.3	RB = VB = 100KHz

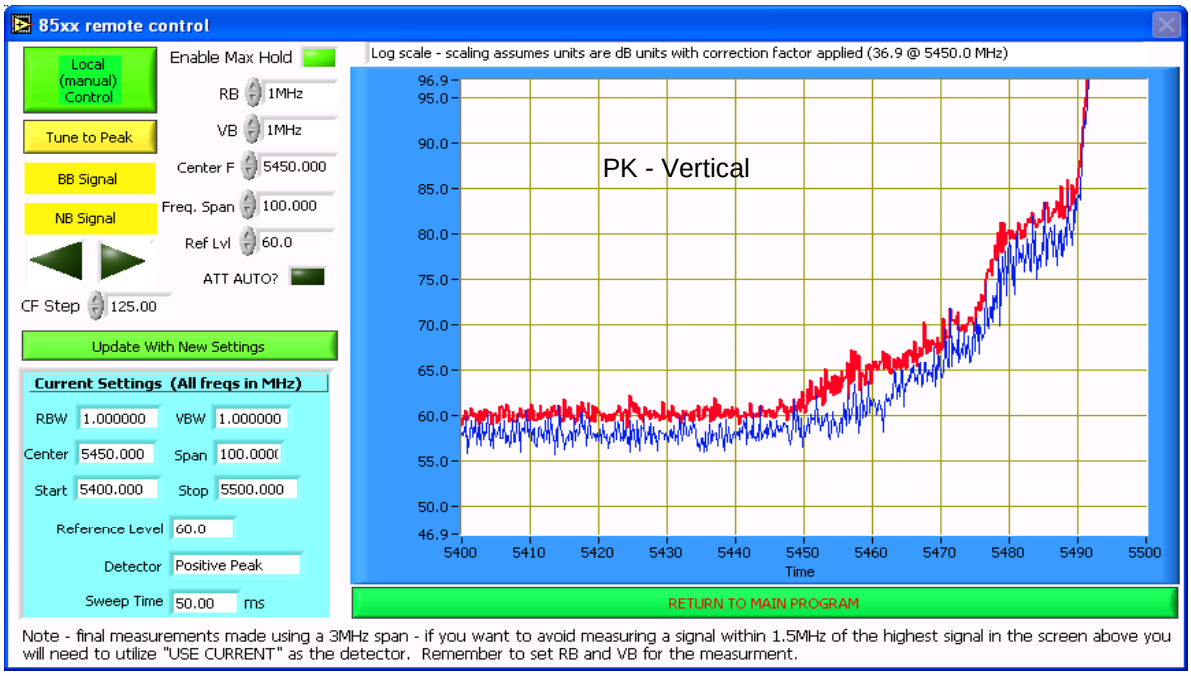
5460 - 5470 MHz, Limit is -27dBm eirp (68.3dBuV/m average, 88.3dBuV/m peak at 3m)

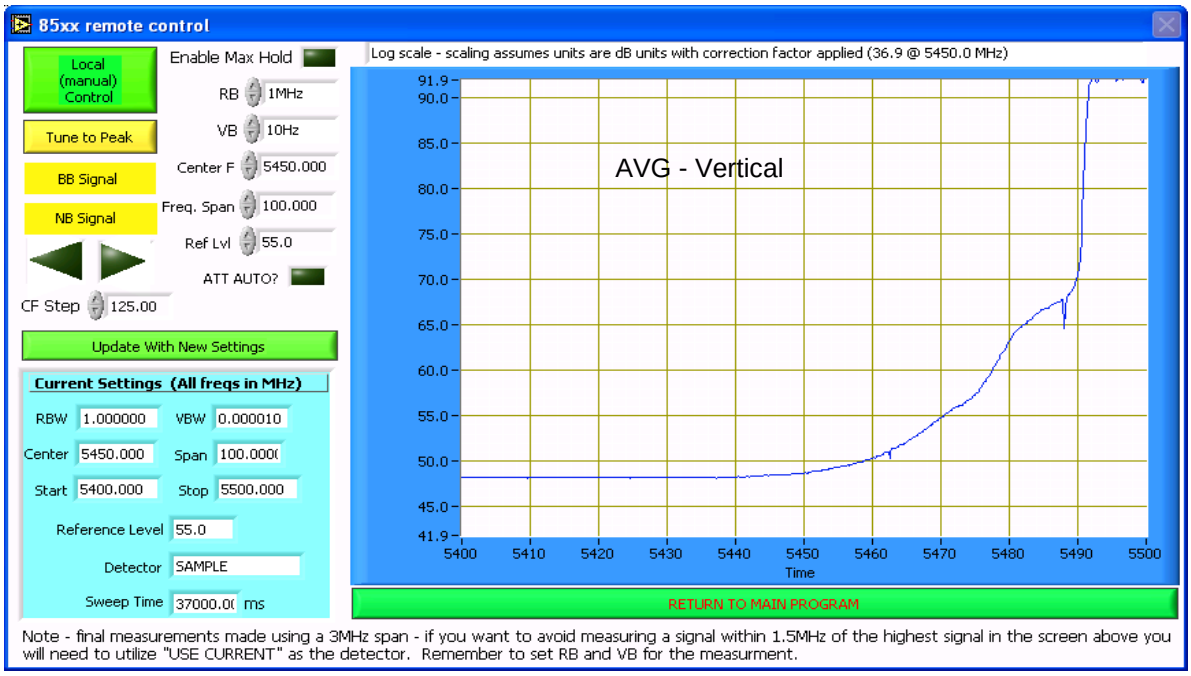
Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5469.600	59.4	V	88.3	-28.9	PK	128	1.9	
5469.930	55.9	V	68.3	-12.4	AVG	128	1.9	
5469.960	56.0	H	88.3	-32.3	PK	232	1.0	
5469.930	53.0	H	68.3	-15.3	AVG	232	1.0	

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

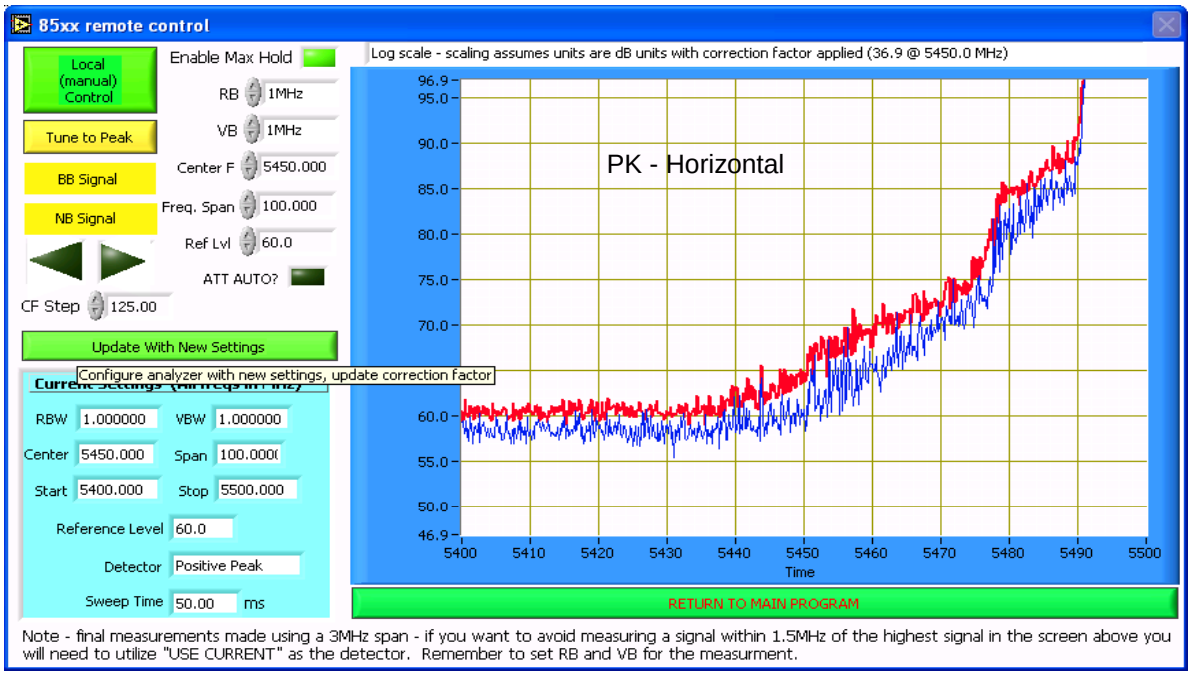
Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5457.310	67.5	V	74.0	-6.5	PK	130	1.9	
5458.370	50.6	V	54.0	-3.4	AVG	130	1.9	
5457.620	71.6	H	74.0	-2.4	PK	255	1.3	
5460.000	53.3	H	54.0	-0.7	AVG	255	1.3	

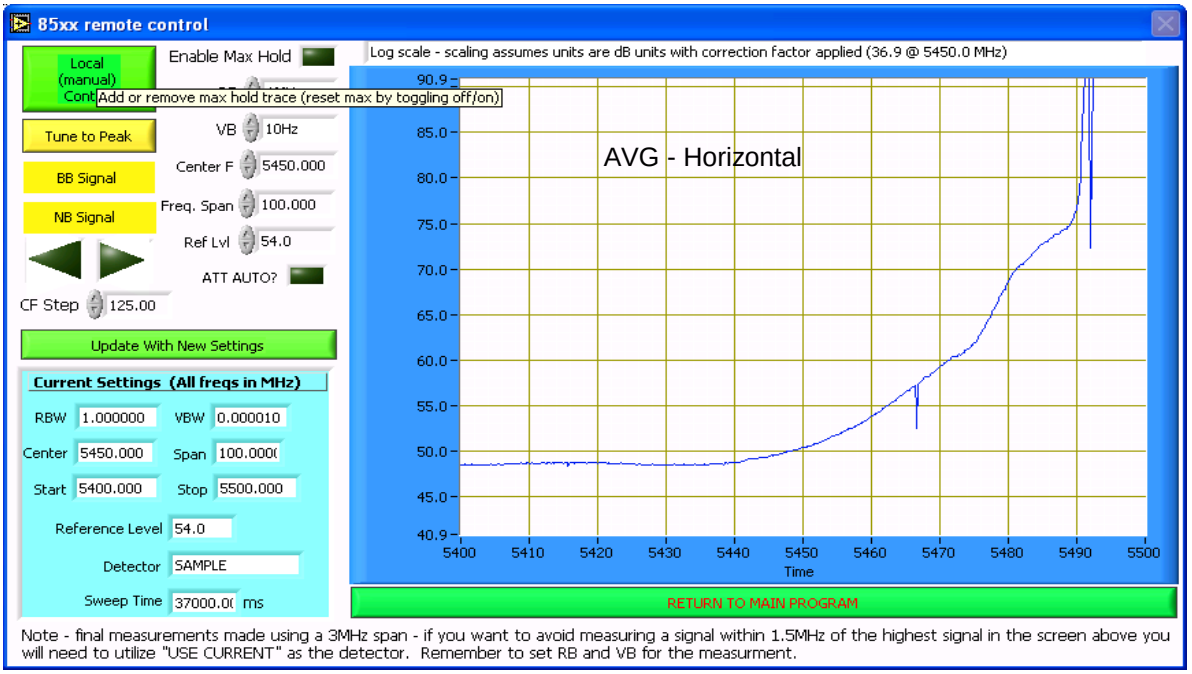
Client:	Intel	Job Number:	J70762
Model:	512AN HMW	T-Log Number:	T71849
		Account Manager:	Briggs / Eriksen
Contact:	Robert Paxman		
Standard:	RSS 210 / FCC 15.407 UNII (Radiated)	Class:	N/A





Client:	Intel	Job Number:	J70762
Model:	512AN HMW	T-Log Number:	T71849
		Account Manager:	Briggs / Eriksen
Contact:	Robert Paxman		
Standard:	RSS 210 / FCC 15.407 UNII (Radiated)	Class:	N/A





Client:	Intel	Job Number:	J70762
Model:	512AN HMW	T-Log Number:	T71849
		Account Manager:	Briggs / Eriksen
Contact:	Robert Paxman		
Standard:	RSS 210 / FCC 15.407 UNII (Radiated)	Class:	N/A

RSS 210 and FCC 15.E (U-NII, 5150- 550/5250-5350/5460-5725MHz) Radiated Spurious Emissions - Band Edge 802.11n20 Mode

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 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: 23 °C
Rel. Humidity: 42 %

Summary of Results

Run #	Mode	Channel	Power Setting	Measured Power	Test Performed	Limit	Result / Margin
1a	802.11n20 Chain A	5180MHz	26.5	14.5	Band Edge radiated field strength	FCC Part 15.209	50.2dBmV/m @ 5149.9MHz (-3.8dB)
1b	802.11n20 Chain A	5320MHz	25.0	14.8	Band Edge radiated field strength	FCC Part 15.209	50.9dBmV/m @ 5350.0MHz (-3.1dB)
1c	802.11n20 Chain A	5500MHz	26.0	17.5	Band Edge radiated field strength	FCC Part 15.209	49.4dBmV/m @ 5459.5MHz (-4.6dB)

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	Job Number:	J70762
Model:	512AN HMW	T-Log Number:	T71849
		Account Manager:	Briggs / Eriksen
Contact:	Robert Paxman		
Standard:	RSS 210 / FCC 15.407 UNII (Radiated)	Class:	N/A

Run #1: Radiated Spurious Emissions, Band Edges. Operating Mode: 802.11n20 - Chain A

Date of Test: 6/2/2008
Test Engineer: Peter Sales
Test Location: Fremont Chamber #3

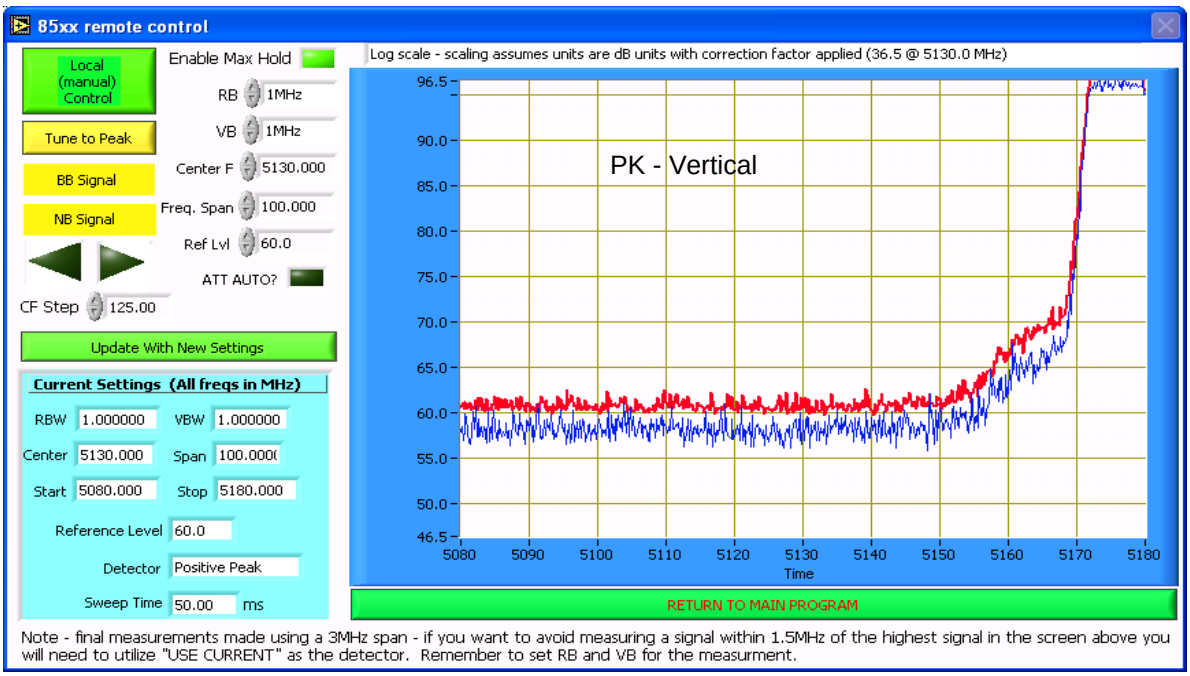
Run #1a: Low Channel @ 5180 MHz (band edge at 5150 MHz)
Power Setting: 26.0 Average power: 14.5 (for reference purposes)

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

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5181.300	87.7	V	74.0	13.7	AVG	177	1.0	RB = 1MHz, VB = 10Hz
5181.300	95.8	V	74.0	21.8	PK	177	1.0	RB = VB = 1MHz
5178.920	96.4	H	74.0	22.4	AVG	259	1.4	RB = 1MHz, VB = 10Hz
5178.920	104.4	H	74.0	30.4	PK	259	1.4	RB = VB = 1MHz

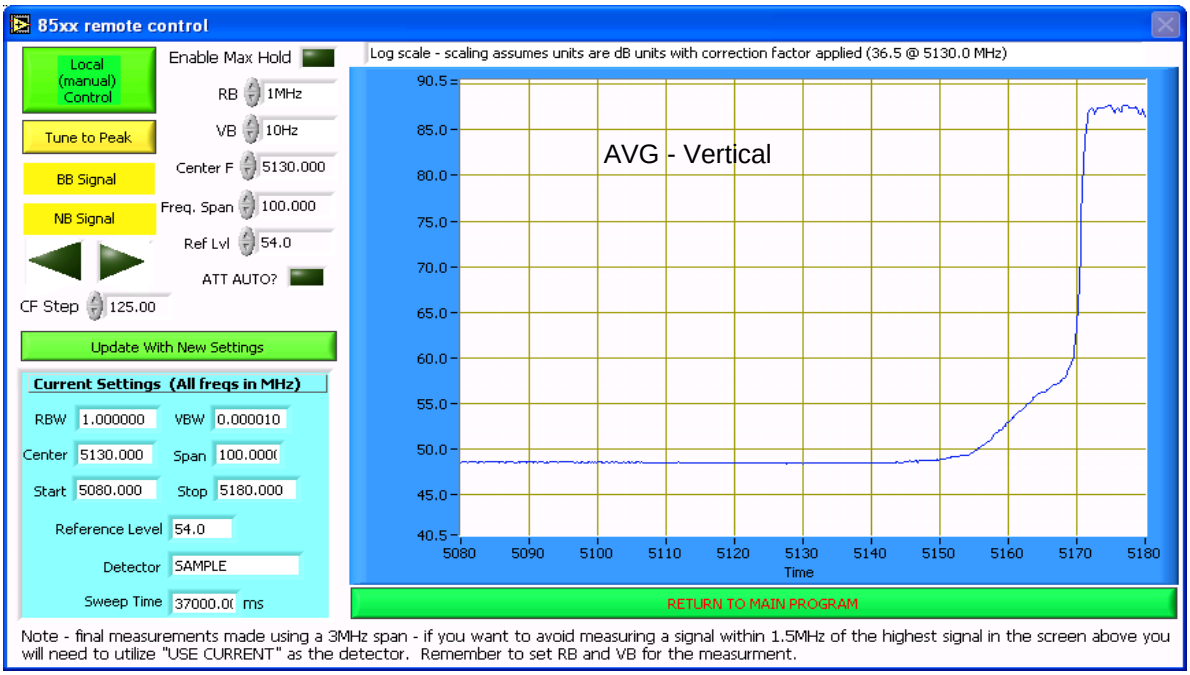
Band Edge Signal Field Strength

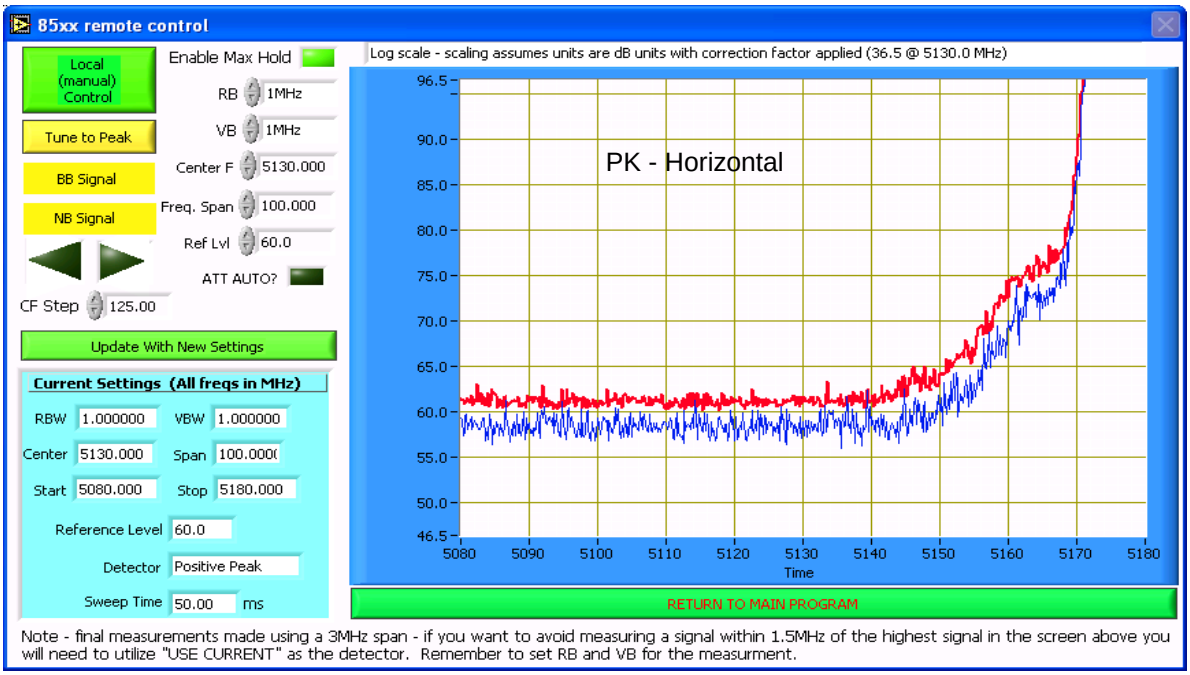
Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5147.810	62.9	V	74.0	-11.1	PK	176	1.0	
5149.960	49.1	V	54.0	-4.9	AVG	176	1.0	
5147.550	66.6	H	74.0	-7.4	PK	259	1.4	
5149.860	50.2	H	54.0	-3.8	AVG	259	1.4	



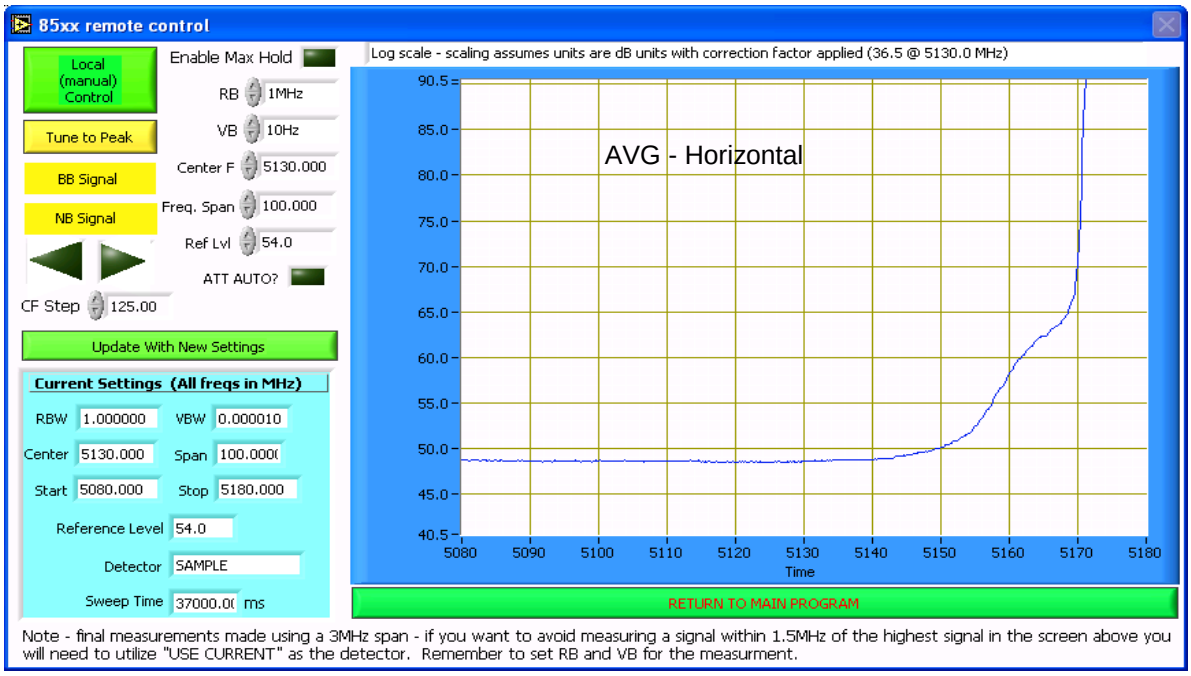
Note - final measurements made using a 3MHz span - if you want to avoid measuring a signal within 1.5MHz of the highest signal in the screen above you will need to utilize "USE CURRENT" as the detector. Remember to set RB and VB for the measurment.

Client:	Intel	Job Number:	J70762
Model:	512AN HMW	T-Log Number:	T71849
		Account Manager:	Briggs / Eriksen
Contact:	Robert Paxman		
Standard:	RSS 210 / FCC 15.407 UNII (Radiated)	Class:	N/A





Client:	Intel	Job Number:	J70762
Model:	512AN HMW	T-Log Number:	T71849
		Account Manager:	Briggs / Eriksen
Contact:	Robert Paxman		
Standard:	RSS 210 / FCC 15.407 UNII (Radiated)	Class:	N/A



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

Power Setting: 25.0 Average power: 14.8 (for reference purposes)

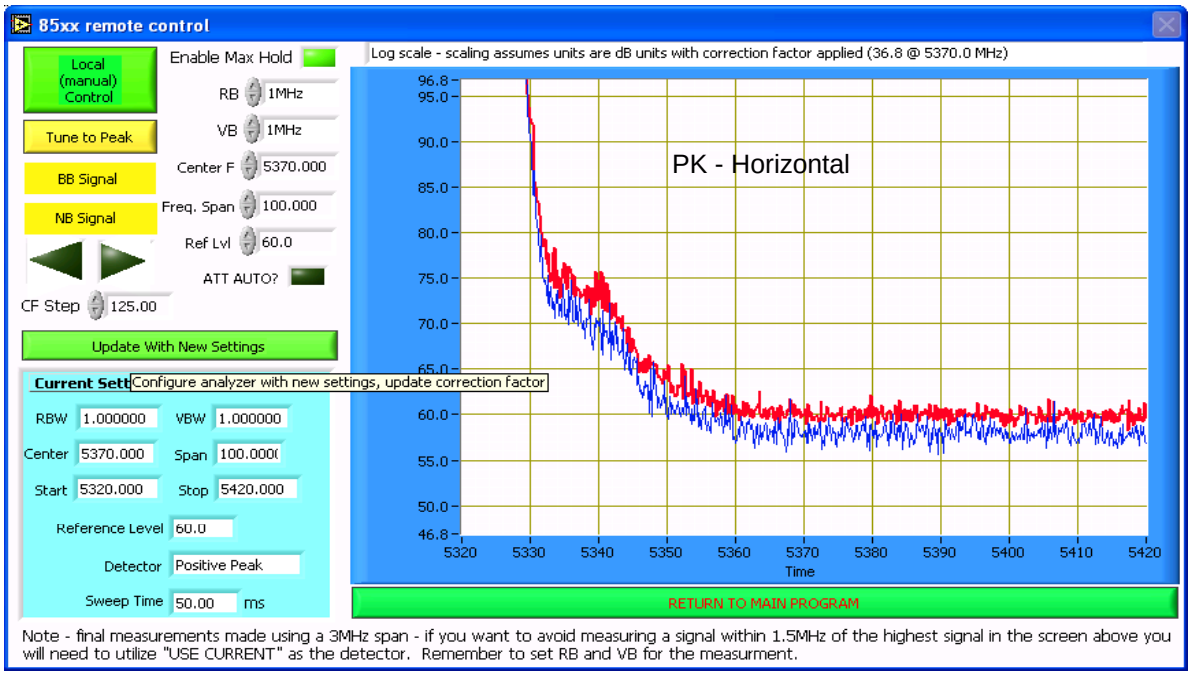
Fundamental Signal Field Strength: Peak and average values measured in 1 MHz, for reference only

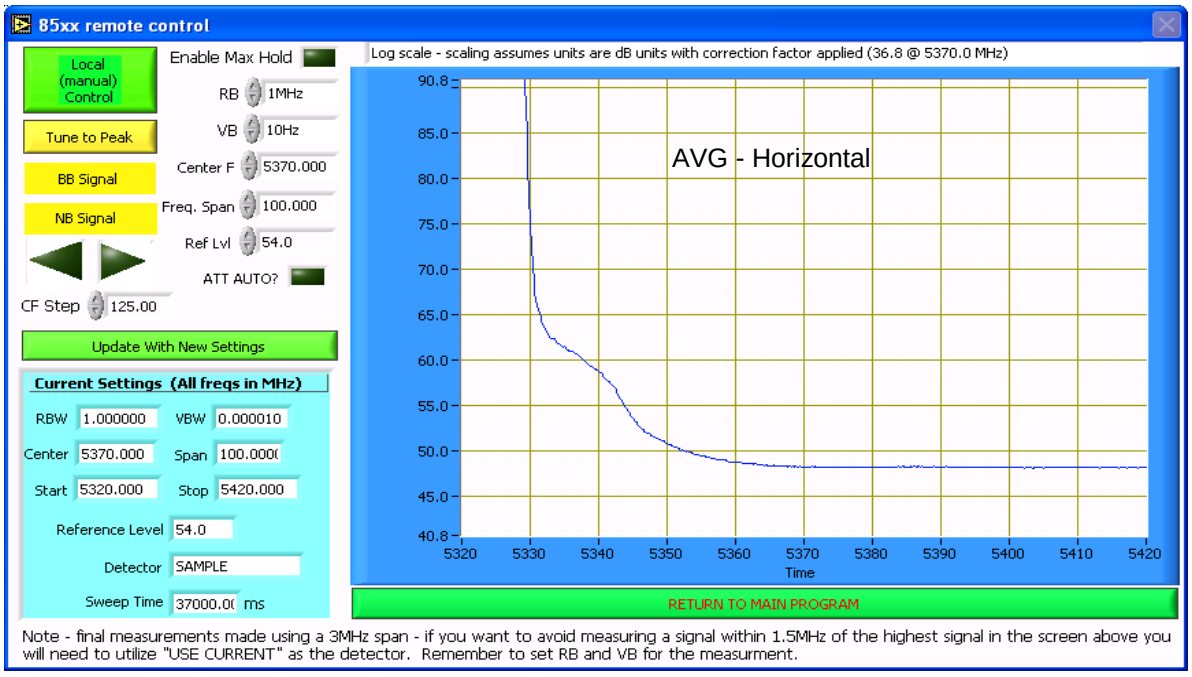
Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5327.270	91.5	V	-	-	AVG	195	2.2	RB = 1MHz, VB = 10Hz
5327.270	99.5	V	-	-	PK	195	2.2	RB = VB = 1MHz
5318.600	97.0	H	-	-	AVG	259	1.4	RB = 1MHz, VB = 10Hz
5318.600	106.2	H	-	-	PK	259	1.4	RB = VB = 1MHz

Band Edge Signal Field Strength

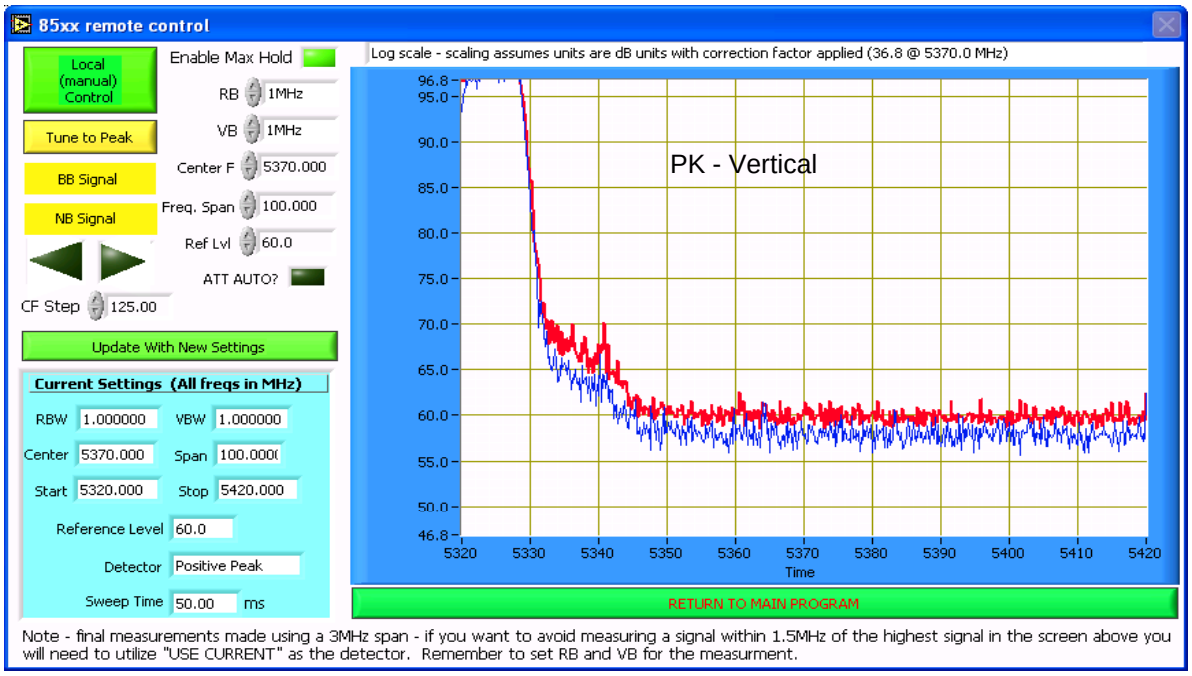
Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5351.600	61.9	V	74.0	-12.1	PK	194	2.2	
5350.060	48.7	V	54.0	-5.3	AVG	194	2.2	
5350.510	64.5	H	74.0	-9.5	PK	259	1.4	
5350.030	50.9	H	54.0	-3.1	AVG	259	1.4	

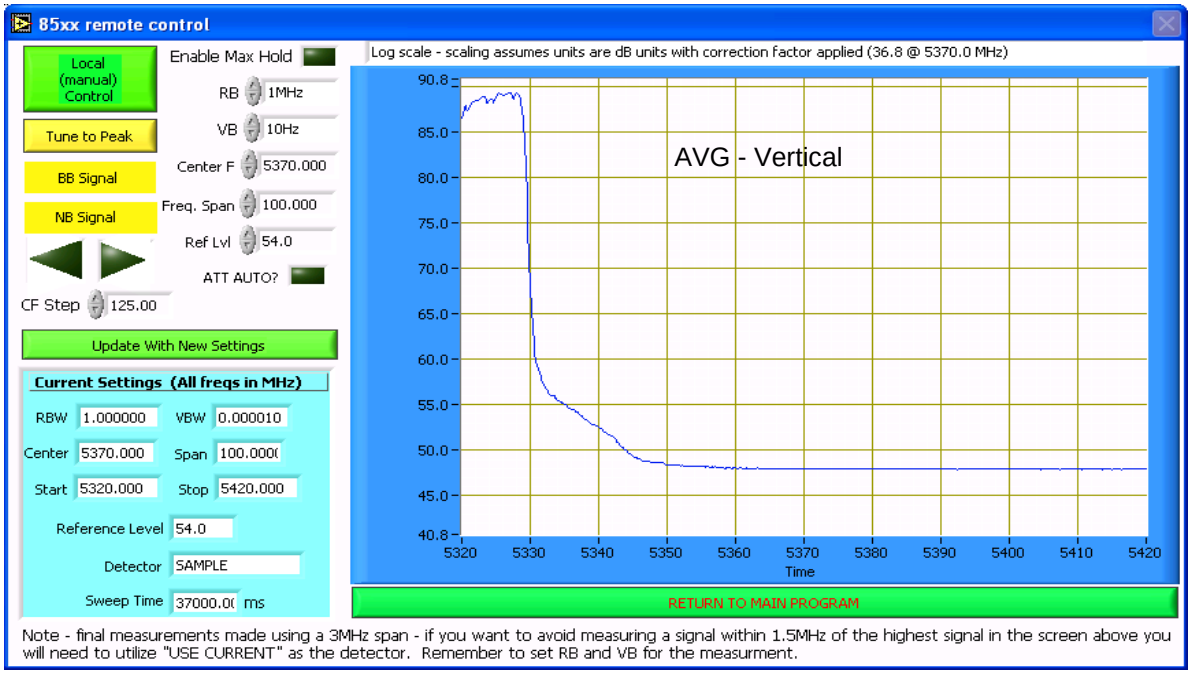
Client:	Intel	Job Number:	J70762
Model:	512AN HMW	T-Log Number:	T71849
		Account Manager:	Briggs / Eriksen
Contact:	Robert Paxman		
Standard:	RSS 210 / FCC 15.407 UNII (Radiated)	Class:	N/A





Client:	Intel	Job Number:	J70762
Model:	512AN HMW	T-Log Number:	T71849
		Account Manager:	Briggs / Eriksen
Contact:	Robert Paxman		
Standard:	RSS 210 / FCC 15.407 UNII (Radiated)	Class:	N/A





Client:	Intel	Job Number:	J70762
Model:	512AN HMW	T-Log Number:	T71849
		Account Manager:	Briggs / Eriksen
Contact:	Robert Paxman		
Standard:	RSS 210 / FCC 15.407 UNII (Radiated)	Class:	N/A

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

Power Setting: 26.0 Average power: 17.5 (for reference purposes)

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

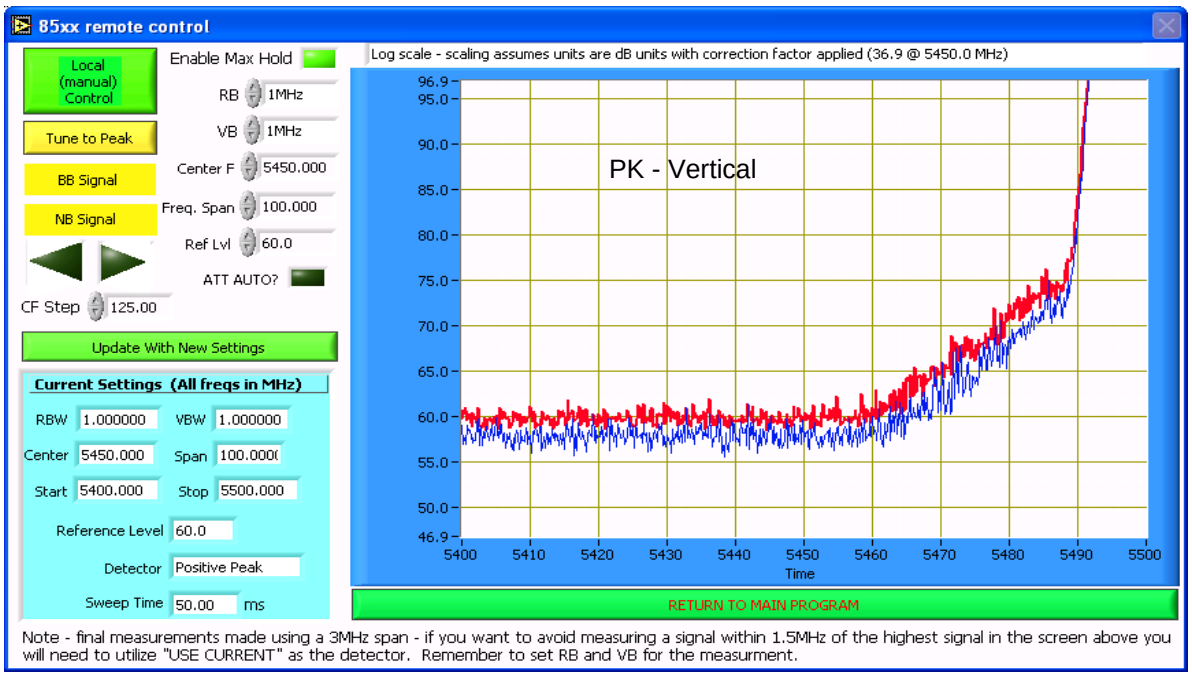
Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5501.230	93.2	V	74.0	19.2	AVG	160	1.6	RB = 1MHz, VB = 10Hz
5501.230	101.3	V	74.0	27.3	PK	160	1.6	RB = VB = 1MHz
5501.350	98.4	H	74.0	24.4	AVG	266	1.4	RB = 1MHz, VB = 10Hz
5501.350	106.8	H	74.0	32.8	PK	266	1.4	RB = VB = 1MHz

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

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5467.710	68.1	V	88.3	-20.2	PK	130	1.9	
5469.980	52.1	V	68.3	-16.2	AVG	130	1.9	
5469.710	64.1	H	88.3	-24.2	PK	232	1.0	
5469.980	50.1	H	68.3	-18.2	AVG	232	1.0	

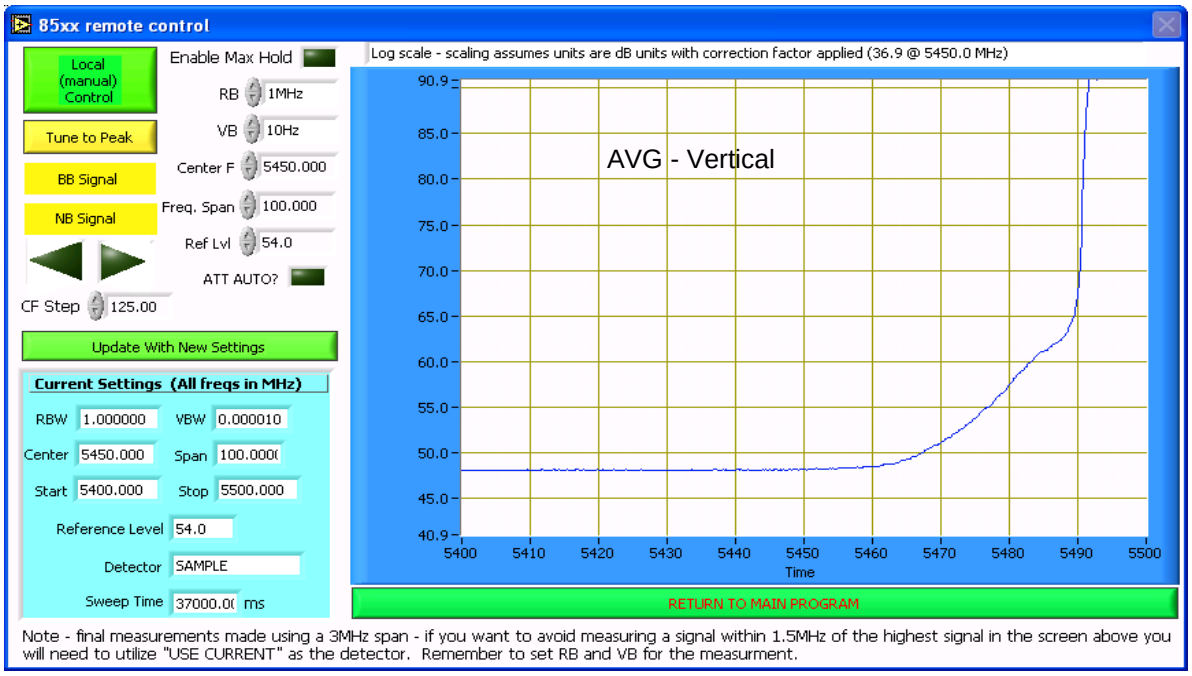
5460 Restricted Band Feld strength limit = 54dBuV/m avg, 74dBuV/m peak at 3m

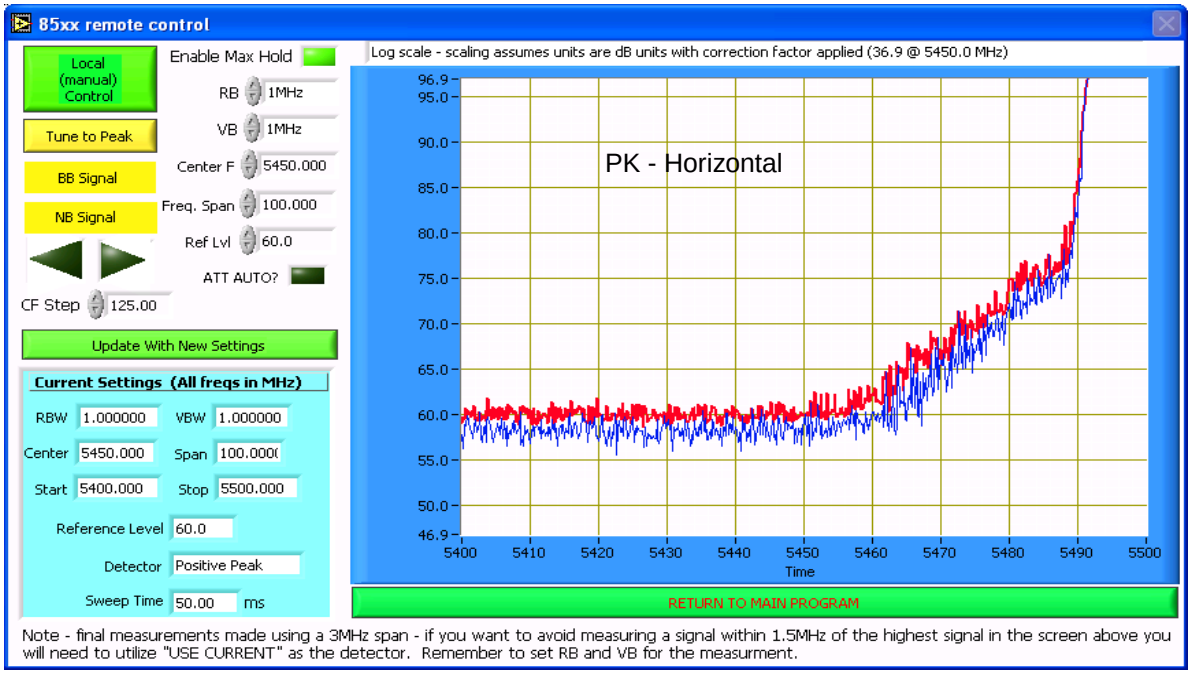
Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5457.510	63.6	V	74.0	-10.4	PK	160	1.6	
5459.990	48.8	V	54.0	-5.2	AVG	160	1.6	
5459.200	64.3	H	74.0	-9.7	PK	266	1.4	
5459.500	49.4	H	54.0	-4.6	AVG	266	1.4	



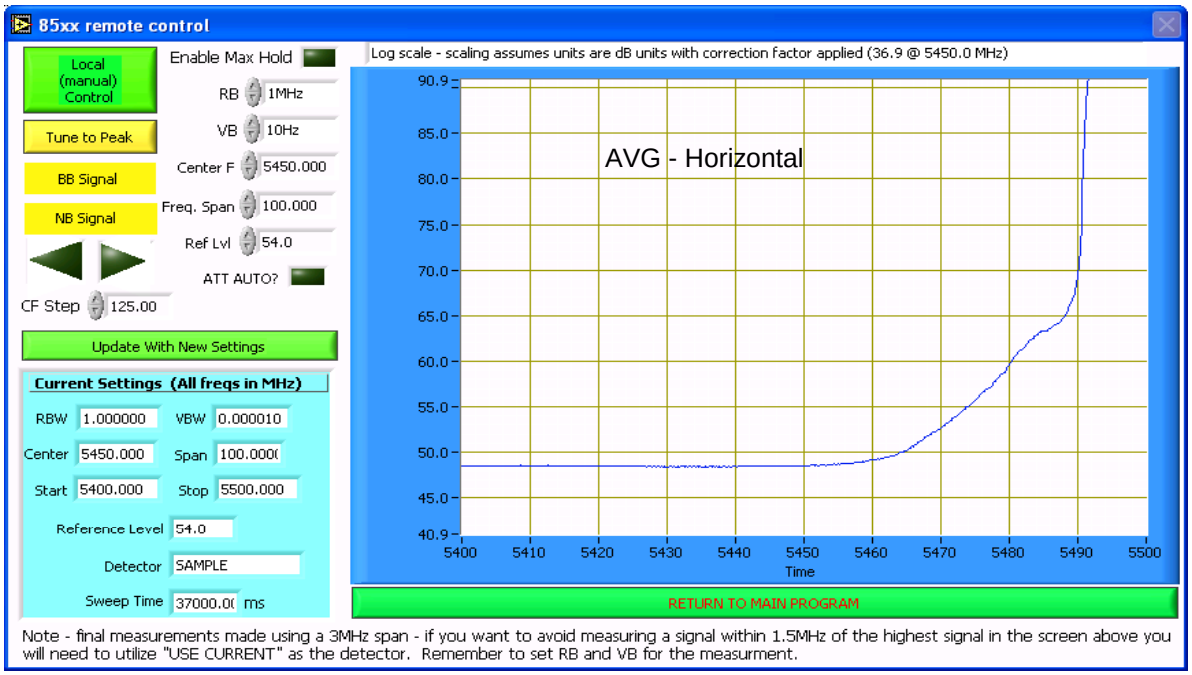
Note - final measurements made using a 3MHz span - if you want to avoid measuring a signal within 1.5MHz of the highest signal in the screen above you will need to utilize "USE CURRENT" as the detector. Remember to set RB and VB for the measurment.

Client:	Intel	Job Number:	J70762
Model:	512AN HMW	T-Log Number:	T71849
		Account Manager:	Briggs / Eriksen
Contact:	Robert Paxman		
Standard:	RSS 210 / FCC 15.407 UNII (Radiated)	Class:	N/A





Client:	Intel	Job Number:	J70762
Model:	512AN HMW	T-Log Number:	T71849
		Account Manager:	Briggs / Eriksen
Contact:	Robert Paxman		
Standard:	RSS 210 / FCC 15.407 UNII (Radiated)	Class:	N/A



Client:	Intel	Job Number:	J70762
Model:	512AN HMW	T-Log Number:	T71849
		Account Manager:	Briggs / Eriksen
Contact:	Robert Paxman		
Standard:	RSS 210 / FCC 15.407 UNII (Radiated)	Class:	N/A

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

Radiated Spurious Emissions - Band Edge 802.11n 40MHz Mode

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 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: 19 °C
Rel. Humidity: 45 %

Summary of Results

Run #	Mode	Channel	Power Setting	Measured Power	Test Performed	Limit	Measurement (Margin)
1a	802.11n40 Chain A	5190MHz	22.5	12.3	Band Edge radiated field strength	FCC Part 15.209	52.9dBµV/m @ 5149.9MHz (-1.1dB)
1b	802.11n40 Chain A	5310MHz	21.5	11.8	Band Edge radiated field strength	FCC Part 15.209	52.9dBµV/m @ 5350.1MHz (-1.1dB)
1c	802.11n40 Chain A	5510MHz	23.5	15.0	Band Edge radiated field strength	FCC Part 15.209 / 15E	52.5dBµV/m @ 5459.9MHz (-1.5dB)

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	Job Number:	J70762
Model:	512AN HMW	T-Log Number:	T71849
		Account Manager:	Briggs / Eriksen
Contact:	Robert Paxman		
Standard:	RSS 210 / FCC 15.407 UNII (Radiated)	Class:	N/A

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

Date of Test: 6/3/2008
Test Engineer: Suhaila Khushzad
Test Location: Chamber # 3

Run #1a: Low Channel @ 5190 MHz (band edge at 5150 MHz)
Power Setting: 22.5 Average power: 12.3 (for reference purposes)

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

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5191.440	89.4	H	-	-	AVG	234	1.0	RB = 1MHz, VB = 10Hz
5191.440	97.9	H	-	-	PK	234	1.0	RB = VB = 1MHz
5199.920	86.2	V	-	-	AVG	202	1.0	RB = 1MHz, VB = 10Hz
5199.920	94.8	V	-	-	PK	202	1.0	RB = VB = 1MHz

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	
5149.880	52.9	H	54.0	-1.1	AVG	234	1.0	Note 1
5148.060	67.8	H	74.0	-6.2	PK	234	1.0	Note 1
5149.500	62.7	V	74.0	-11.3	PK	202	1.0	Note 1
5149.930	50.0	V	54.0	-4.0	AVG	202	1.0	Note 1

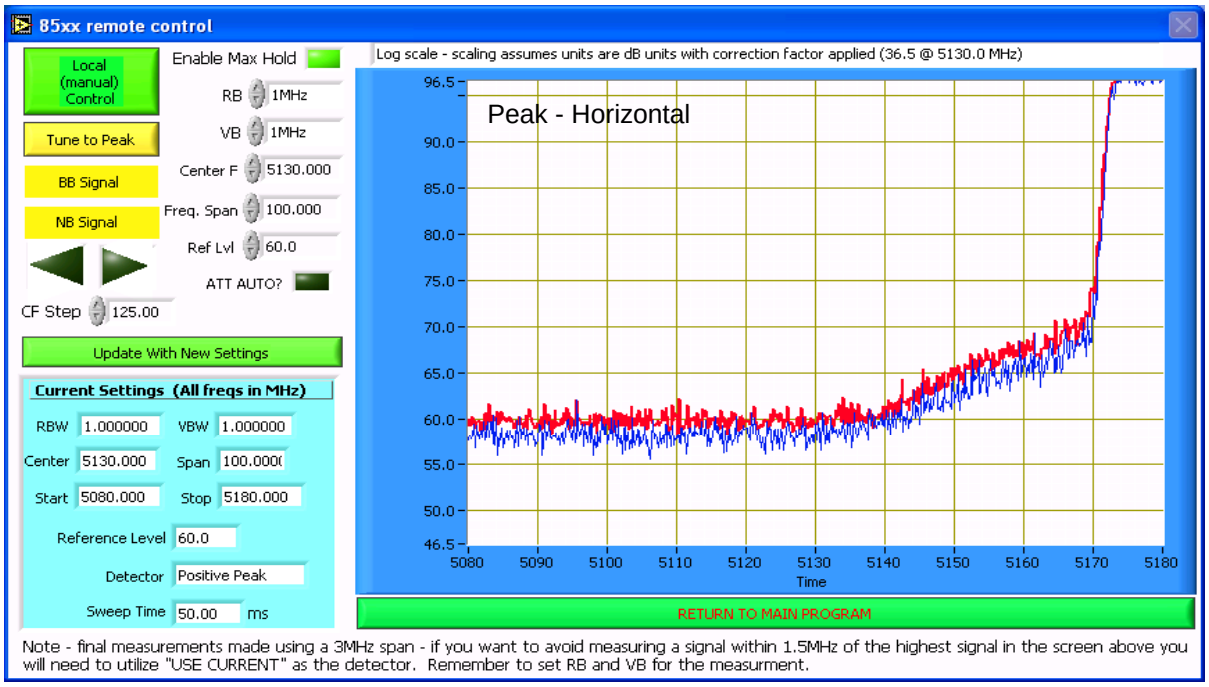
Note 1:	Target power setting was 20, passing power setting is 22.5 and average power is 12.3 dBm.

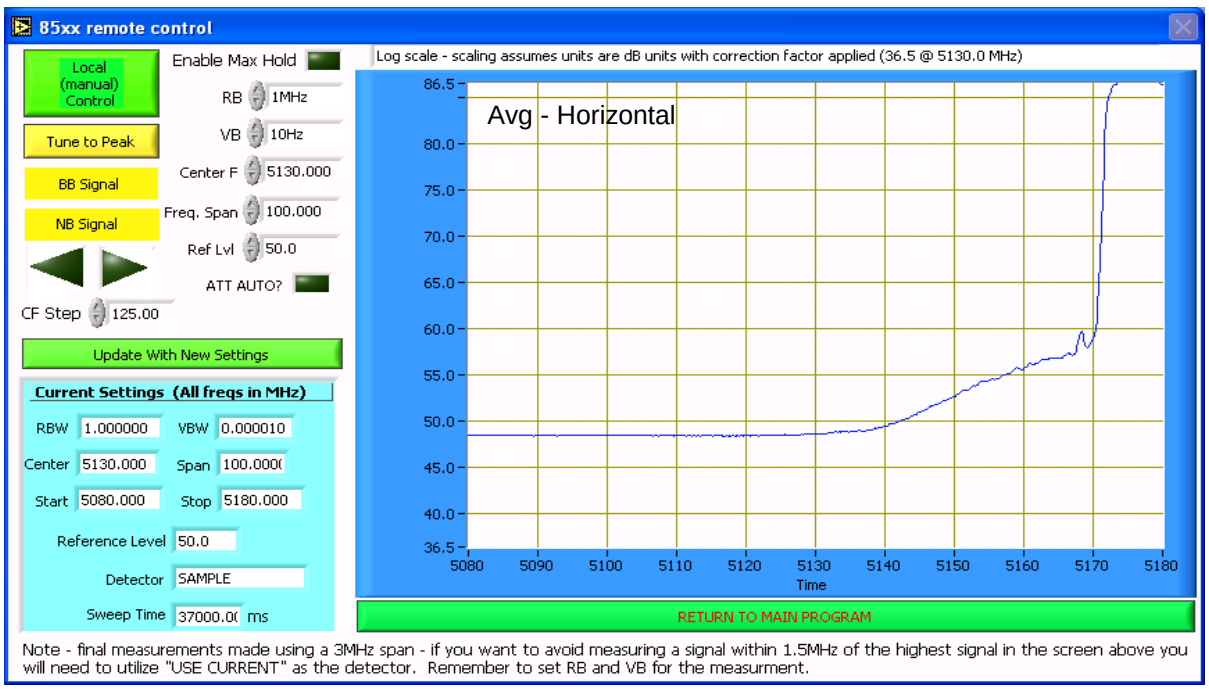
Client:	Intel	Job Number:	J70762
Model:	512AN HMW	T-Log Number:	T71849
		Account Manager:	Briggs / Eriksen
Contact:	Robert Paxman		
Standard:	RSS 210 / FCC 15.407 UNII (Radiated)	Class:	N/A

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

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

Power Setting: 22.5 Average power: 12.3 (for reference purposes)



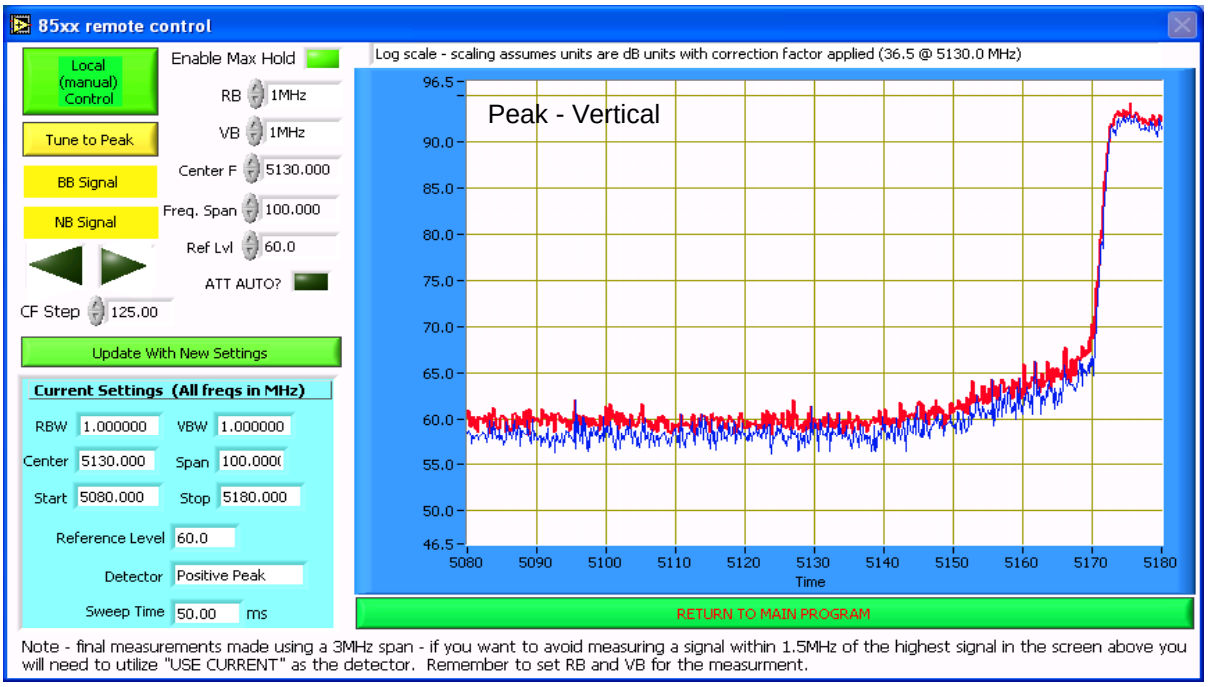


Client:	Intel	Job Number:	J70762
Model:	512AN HMW	T-Log Number:	T71849
		Account Manager:	Briggs / Eriksen
Contact:	Robert Paxman		
Standard:	RSS 210 / FCC 15.407 UNII (Radiated)	Class:	N/A

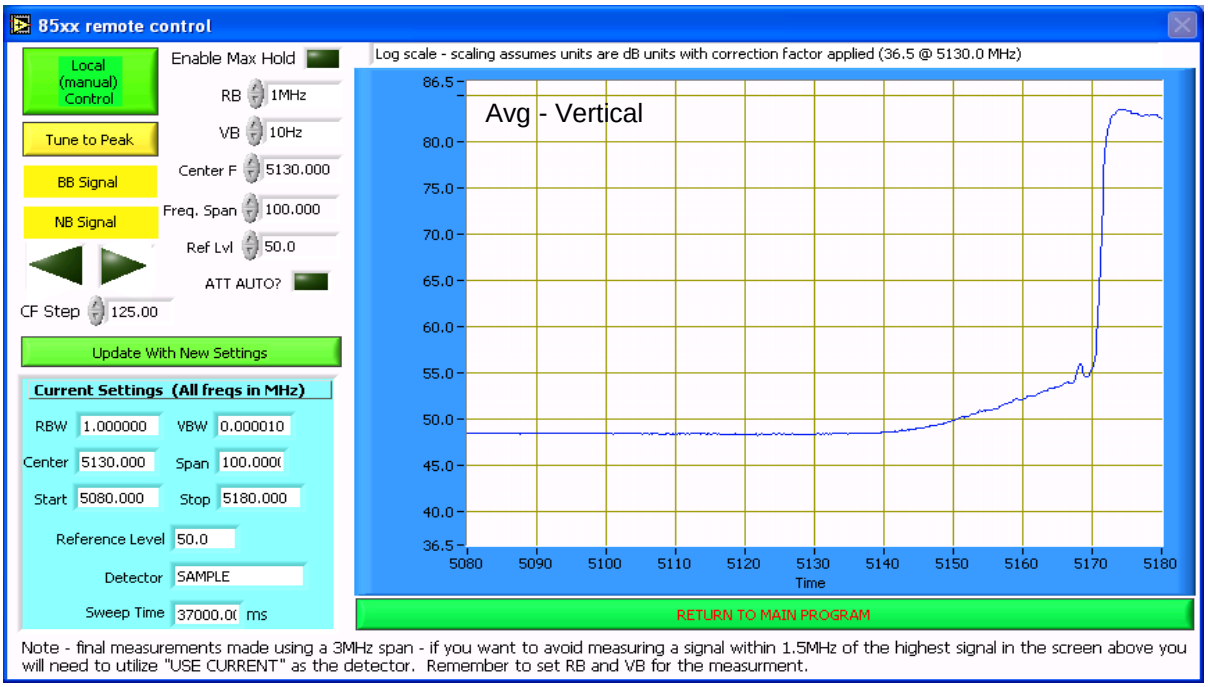
Run #1: Radiated Spurious Emissions, Band Edges. Operating Mode: 802.11n 40MHz - Chain A

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

Power Setting: 22.5 Average power: 12.3 (for reference purposes)



Note - final measurements made using a 3MHz span - if you want to avoid measuring a signal within 1.5MHz of the highest signal in the screen above you will need to utilize "USE CURRENT" as the detector. Remember to set RB and VB for the measurment.



Note - final measurements made using a 3MHz span - if you want to avoid measuring a signal within 1.5MHz of the highest signal in the screen above you will need to utilize "USE CURRENT" as the detector. Remember to set RB and VB for the measurment.

Client:	Intel	Job Number:	J70762
Model:	512AN HMW	T-Log Number:	T71849
		Account Manager:	Briggs / Eriksen
Contact:	Robert Paxman		
Standard:	RSS 210 / FCC 15.407 UNII (Radiated)	Class:	N/A

Run #1: Radiated Spurious Emissions, Band Edges. Operating Mode: 802.11n 40MHz - Chain A
Run #1b: High Channel @ 5310 MHz (band edge at 5350 MHz)
Power Setting: 21.5 Average power: 11.8 (for reference purposes)
Fundamental Signal Field Strength: Peak and average values measured in 1 MHz, for reference only

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5325.330	92.7	H	-	-	AVG	262	1.3	RB = 1MHz, VB = 10Hz
5325.330	101.1	H	-	-	PK	262	1.3	RB = VB = 1MHz
5326.080	87.7	V	-	-	AVG	199	2.0	RB = 1MHz, VB = 10Hz
5326.080	96.4	V	-	-	PK	199	2.0	RB = VB = 1MHz

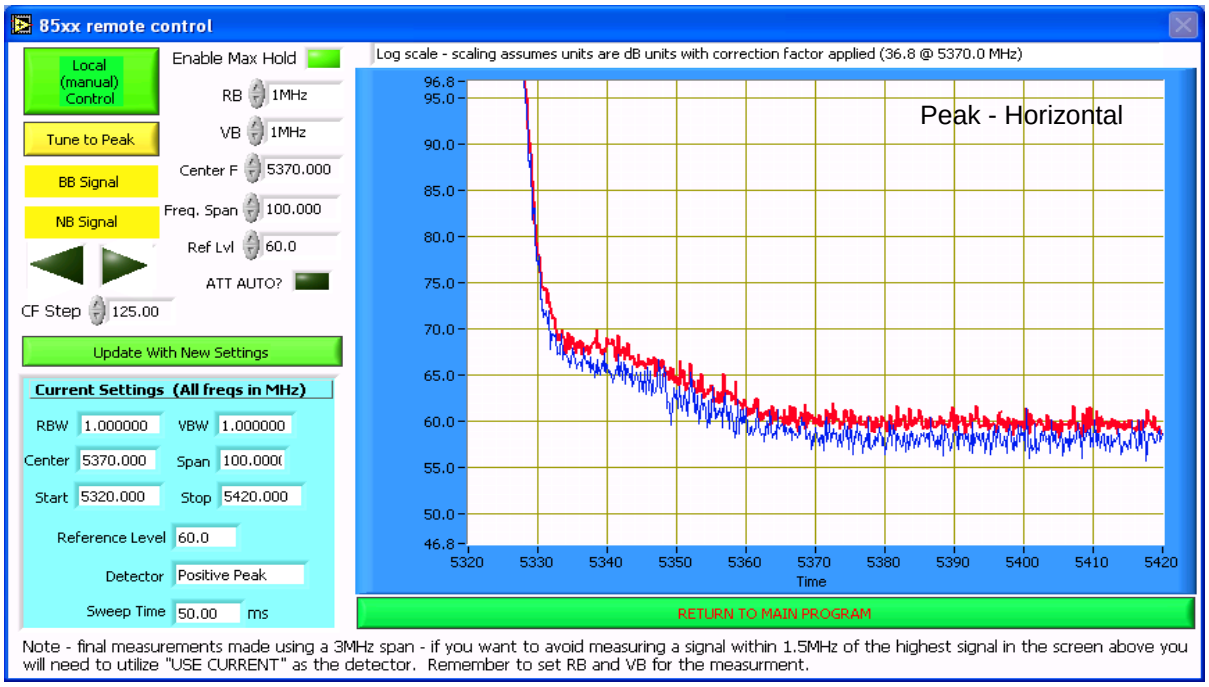
Band Edge Signal Field Strength

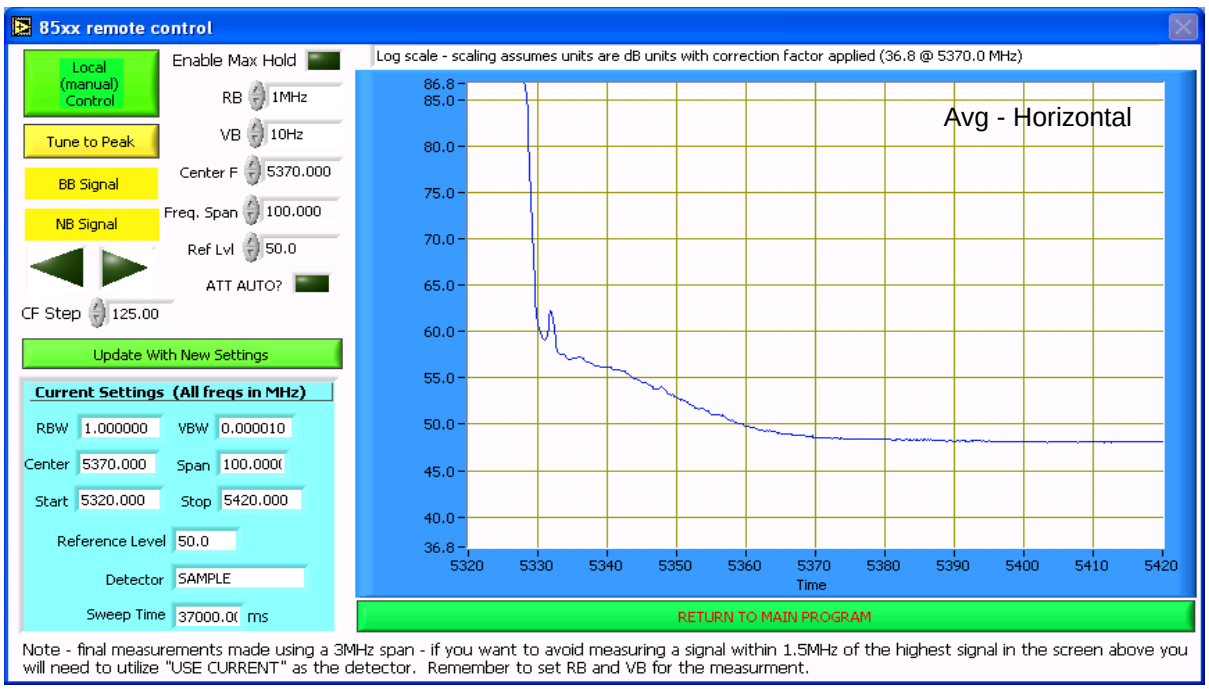
Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5350.070	52.9	H	54.0	-1.1	AVG	262	1.3	Note 2
5350.090	68.4	H	74.0	-5.6	PK	262	1.3	Note 2
5352.670	63.0	V	74.0	-11.0	PK	199	2.0	Note 2
5350.000	50.5	V	54.0	-3.5	AVG	199	2.0	Note 2

Note 2:	Target power setting was 20, passing power setting is 21.5 and average power is 11.8 dBm.

Client:	Intel	Job Number:	J70762
Model:	512AN HMW	T-Log Number:	T71849
		Account Manager:	Briggs / Eriksen
Contact:	Robert Paxman		
Standard:	RSS 210 / FCC 15.407 UNII (Radiated)	Class:	N/A

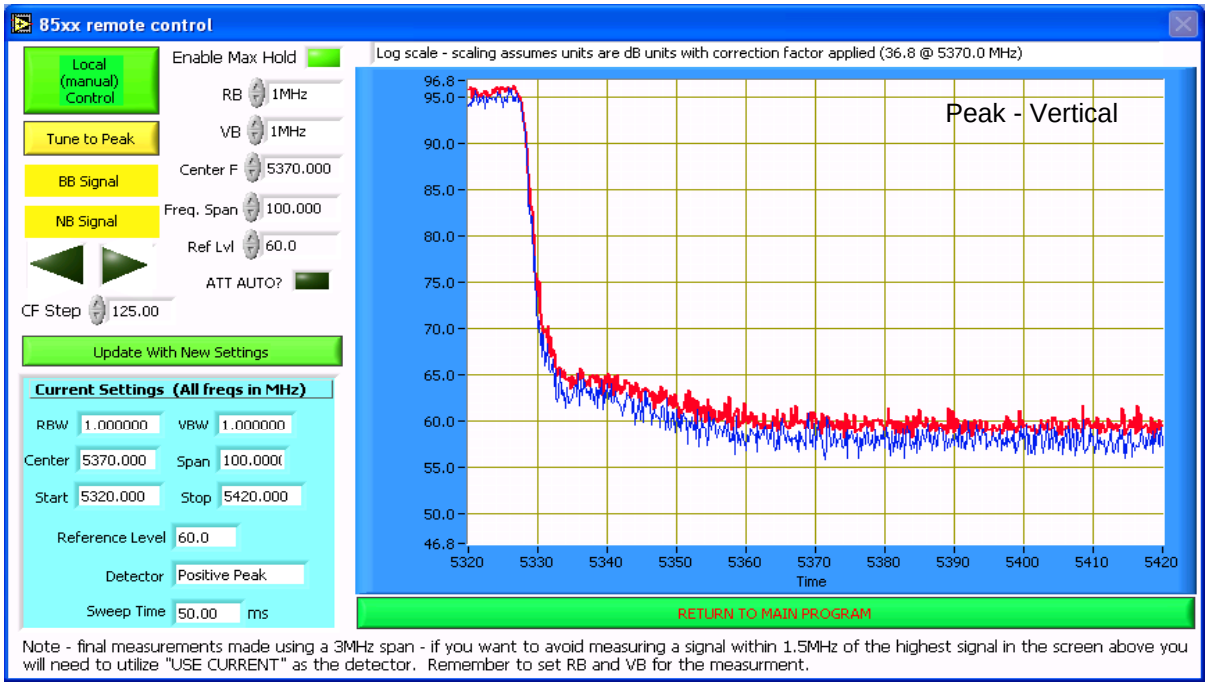
Run #1: Radiated Spurious Emissions, Band Edges. Operating Mode: 802.11n 40MHz - Chain A
Run #1b: High Channel @ 5310 MHz (band edge at 5350 MHz)
Power Setting: 21.5 Average power: 11.8 (for reference purposes)

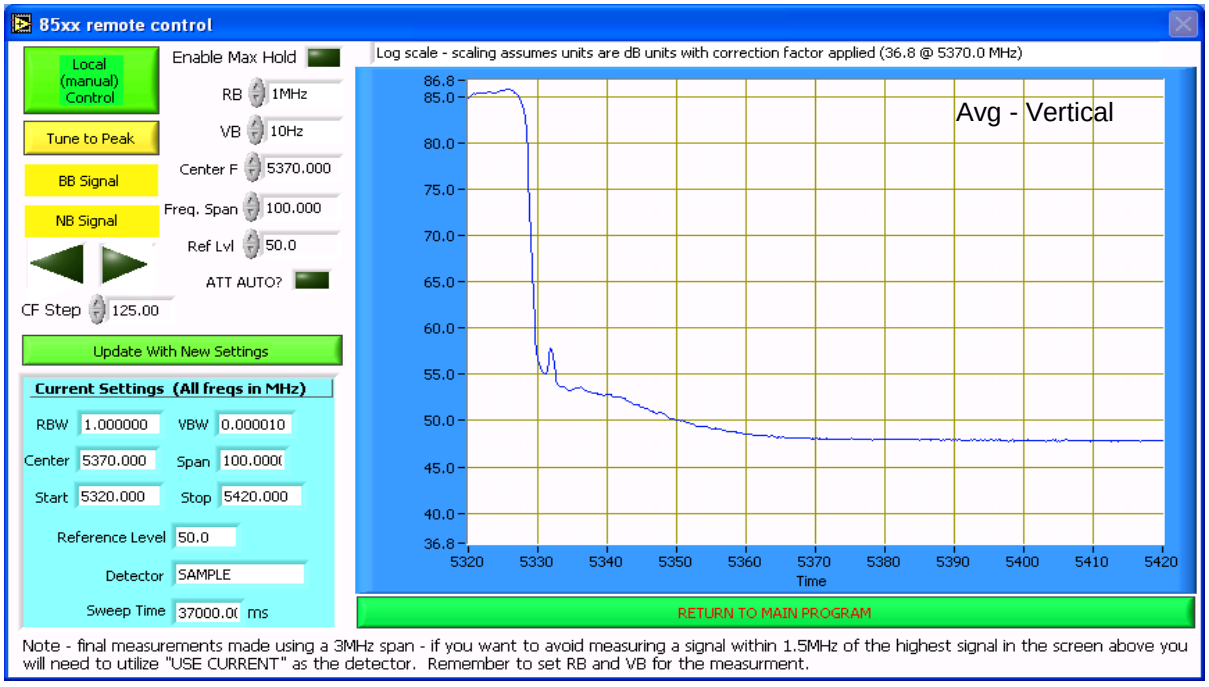




Client:	Intel	Job Number:	J70762
Model:	512AN HMW	T-Log Number:	T71849
		Account Manager:	Briggs / Eriksen
Contact:	Robert Paxman		
Standard:	RSS 210 / FCC 15.407 UNII (Radiated)	Class:	N/A

Run #1: Radiated Spurious Emissions, Band Edges. Operating Mode: 802.11n 40MHz - Chain A
Run #1b: High Channel @ 5310 MHz (band edge at 5350 MHz)
Power Setting: 21.5 Average power: 11.8 (for reference purposes)





Client:	Intel	Job Number:	J70762
Model:	512AN HMW	T-Log Number:	T71849
		Account Manager:	Briggs / Eriksen
Contact:	Robert Paxman		
Standard:	RSS 210 / FCC 15.407 UNII (Radiated)	Class:	N/A

Run #1: Radiated Spurious Emissions, Band Edges. Operating Mode: 802.11n 40MHz - Chain A
Run #1c: Low Channel @ 5510 MHz (restricted band edge at 5460 MHz, allocated band edge at 5470MHz)
Power Setting: 23.5 Average power: 15 (for reference purposes)
Fundamental Signal Field Strength: Peak and average values measured in 1 MHz, for reference only

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5526.330	93.6	H	-	-	AVG	264	1.0	RB = 1MHz, VB = 10Hz
5526.330	101.6	H	-	-	PK	264	1.0	RB = VB = 1MHz
5524.080	91.6	V	-	-	AVG	148	1.9	RB = 1MHz, VB = 10Hz
5524.080	99.8	V	-	-	PK	148	1.9	RB = VB = 1MHz

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

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5459.920	52.5	H	54.0	-1.5	AVG	264	1.0	Note 3
5459.810	66.6	H	74.0	-7.4	PK	264	1.0	Note 3
5459.670	64.0	V	74.0	-10.0	PK	148	1.9	Note 3
5459.850	50.9	V	54.0	-3.1	AVG	148	1.9	Note 3

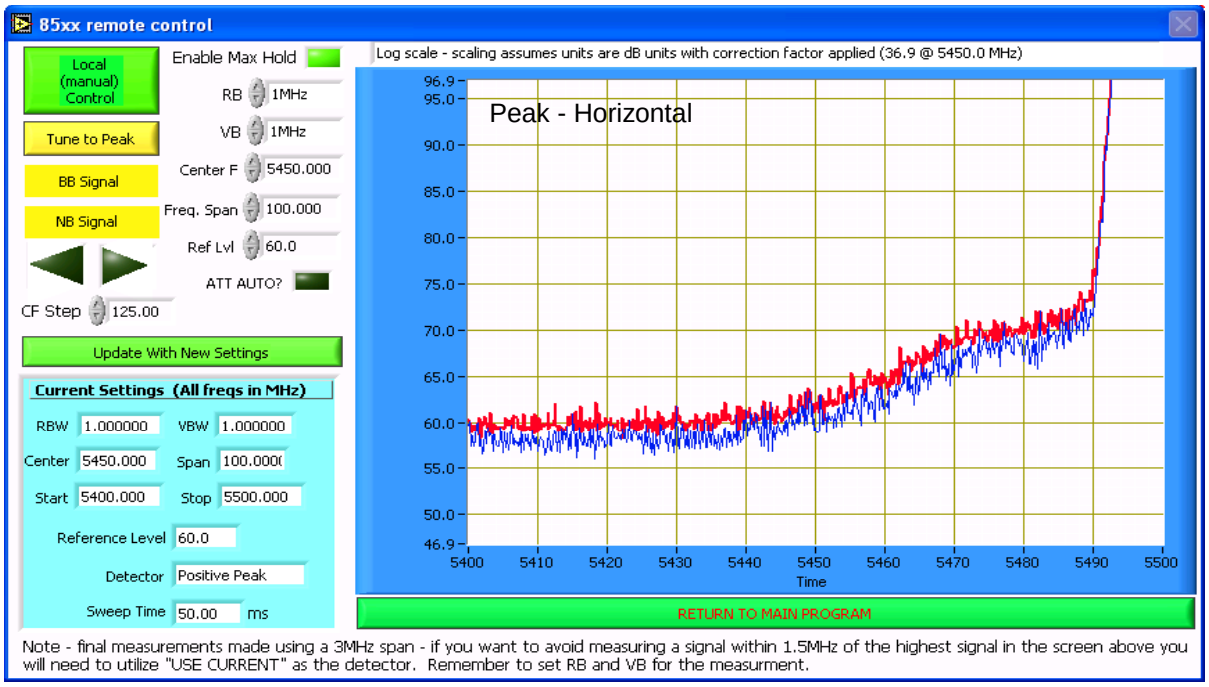
5460 - 5470 MHz, Limit is -27dBm eirp (68.3dBuV/m average, 88.3dBuV/m peak at 3m)

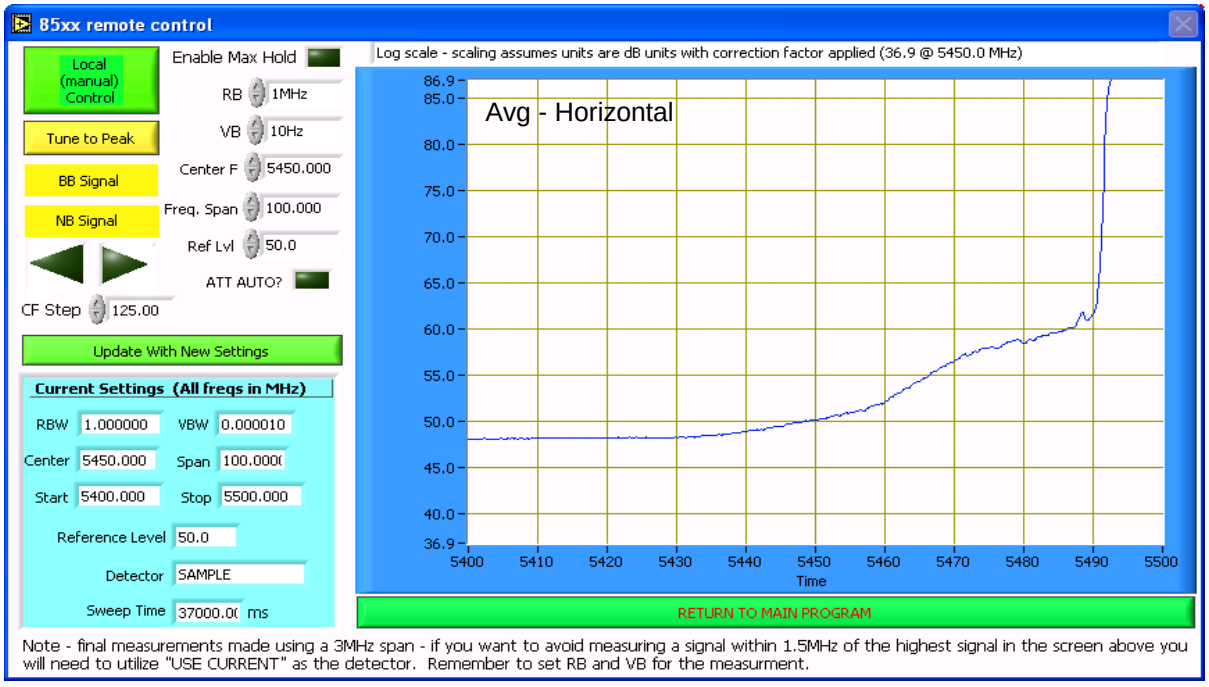
Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5469.840	56.7	H	68.3	-11.6	AVG	264	1.0	Note 3
5467.630	71.0	H	88.3	-17.3	PK	264	1.0	Note 3
5469.900	55.3	V	68.3	-13.0	AVG	148	1.9	Note 3
5468.250	68.6	V	88.3	-19.7	PK	148	1.9	Note 3

Note 3:	Target power setting was 21.5, passing power setting is 23.5 and average power is 15 dBm.

Client:	Intel	Job Number:	J70762
Model:	512AN HMW	T-Log Number:	T71849
		Account Manager:	Briggs / Eriksen
Contact:	Robert Paxman		
Standard:	RSS 210 / FCC 15.407 UNII (Radiated)	Class:	N/A

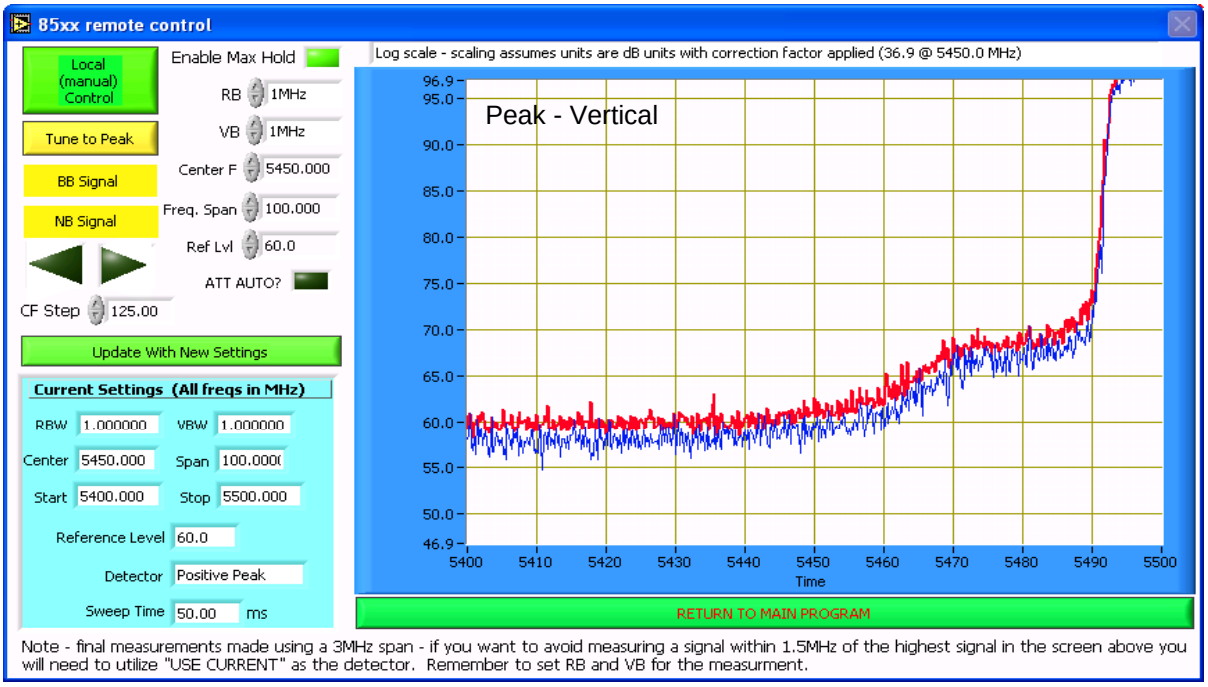
Run #1: Radiated Spurious Emissions, Band Edges. Operating Mode: 802.11n 40MHz - Chain A
Run #1c: Low Channel @ 5510 MHz (restricted band edge at 5460 MHz, allocated band edge at 5470MHz)
Power Setting: 23.5 Average power: 15 (for reference purposes)

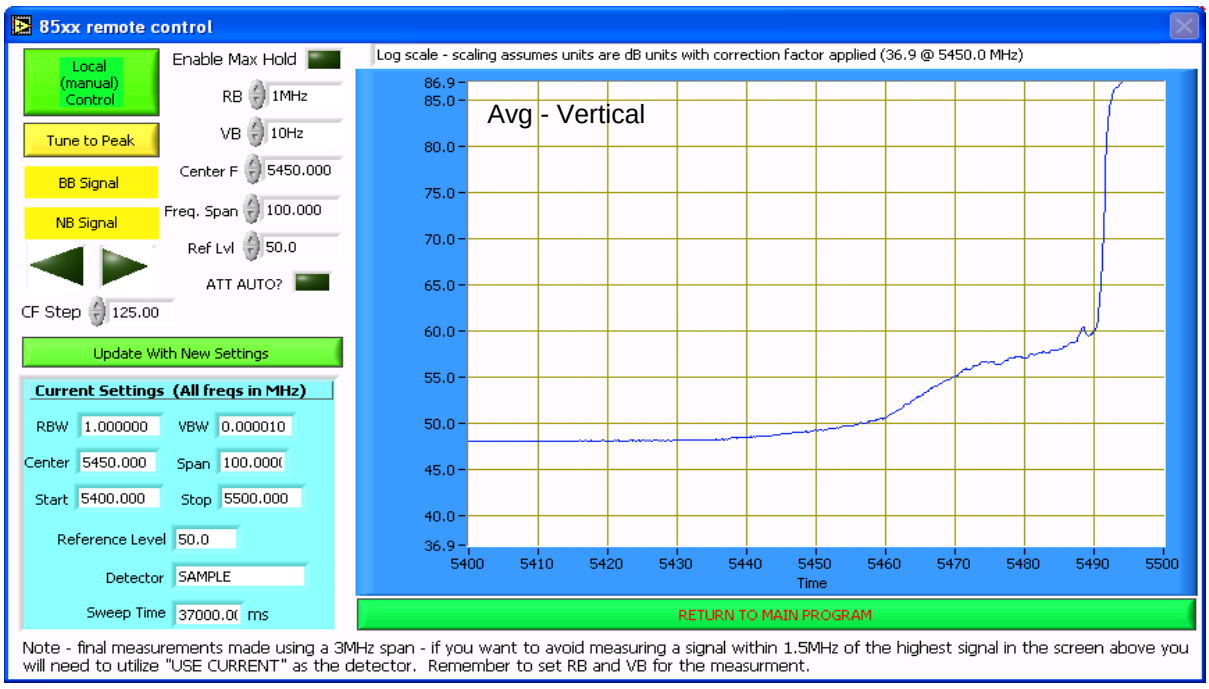




Client:	Intel	Job Number:	J70762
Model:	512AN HMW	T-Log Number:	T71849
		Account Manager:	Briggs / Eriksen
Contact:	Robert Paxman		
Standard:	RSS 210 / FCC 15.407 UNII (Radiated)	Class:	N/A

Run #1: Radiated Spurious Emissions, Band Edges. Operating Mode: 802.11n 40MHz - Chain A
Run #1c: Low Channel @ 5510 MHz (restricted band edge at 5460 MHz, allocated band edge at 5470MHz)
Power Setting: 23.5 Average power: 15 (for reference purposes)





Client:	Intel	Job Number:	J70762
Model:	512AN HMW	T-Log Number:	T71849
		Account Manager:	Briggs / Eriksen
Contact:	Robert Paxman		
Standard:	RSS 210 / FCC 15.407 UNII (Radiated)	Class:	N/A

RSS 210 and FCC 15 E
Radiated Spurious Emissions, 1 - 40GHz 802.11a Mode

Test Specific Details

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

General Test Configuration

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

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

Ambient Conditions:

Temperature: 20 °C
Rel. Humidity: 50 %

Summary of Results

Run #	Mode	Channel	Power Setting	Measured Power	Test Performed	Limit	Result / Margin
1a	802.11a Chain A	5180	26.5	15.0	Radiated Emissions, 1 - 26 GHz	FCC Part 15.209 / 15 E(c)	46.7dBµV/m @ 6906.6MHz (-21.6dB)
1b	802.11a Chain A	5200	29.0	17.4	Radiated Emissions, 1 - 26 GHz	FCC Part 15.209 / 15 E(c)	45.9dBµV/m @ 6933.4MHz (-22.4dB)
1c	802.11a Chain A	5240	29.0	17.4	Radiated Emissions, 1 - 26 GHz	FCC Part 15.209 / 15 E(c)	41.6dBµV/m @ 10485.1MHz (-26.7dB)
2a	802.11a Chain A	5260	28.5	17.4	Radiated Emissions, 1 - 26 GHz	FCC Part 15.209 / 15 E(c)	43.2dBµV/m @ 10519.3MHz (-25.1dB)
2b	802.11a Chain A	5280	28.0	17.3	Radiated Emissions, 1 - 26 GHz	FCC Part 15.209 / 15 E(c)	32.5dBµV/m@ 1495.3MHz (-21.5dB)
2c	802.11a Chain A	5320	25.5	14.6	Radiated Emissions, 1 - 26 GHz	FCC Part 15.209 / 15 E(c)	37.9dBµV/m @ 10639.9MHz (-16.1dB)
3a	802.11a Chain A	5500	31.5	17.5	Radiated Emissions, 1 - 26 GHz	FCC Part 15.209 / 15 E(c)	48.4dBµV/m @ 11000.1MHz (-5.6dB)
3b	802.11a Chain A	5600	28.0	17.8	Radiated Emissions, 1 - 26 GHz	FCC Part 15.209 / 15 E(c)	47.3dBµV/m @ 11200.2MHz (-6.7dB)
3c	802.11a Chain A	5700	28.5	17.2	Radiated Emissions, 1 - 26 GHz	FCC Part 15.209 / 15 E(c)	44.8dBµV/m @ 7600.0MHz (-9.2dB)

Modifications Made During Testing

No modifications were made to the EUT during testing

Deviations From The Standard

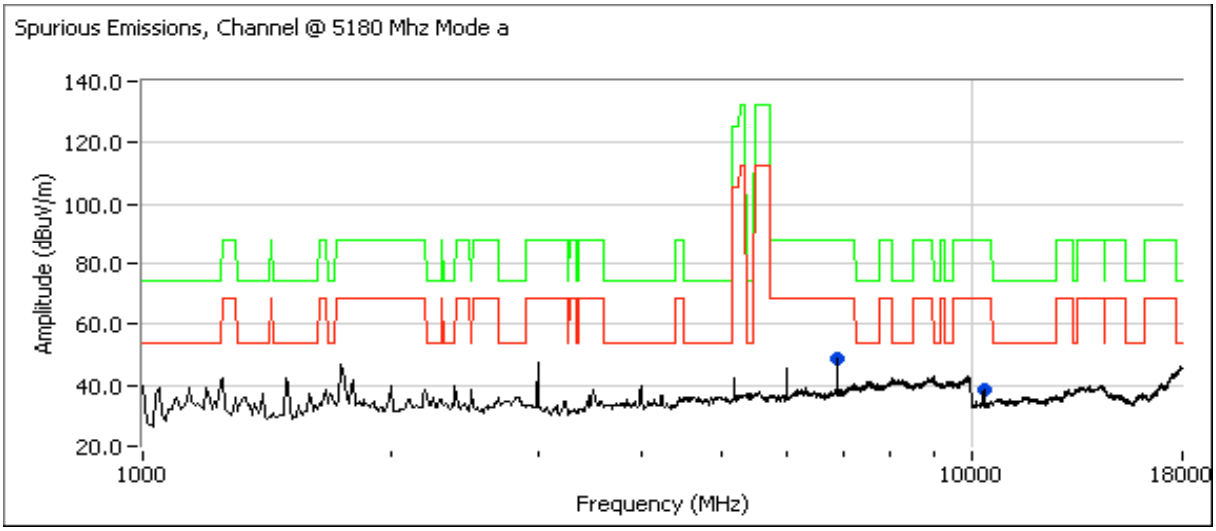
No deviations were made from the requirements of the standard.

Client:	Intel	Job Number:	J70762
Model:	512AN HMW	T-Log Number:	T71849
		Account Manager:	Briggs / Eriksen
Contact:	Robert Paxman		
Standard:	RSS 210 / FCC 15.407 UNII (Radiated)	Class:	N/A

Run #1: Radiated Spurious Emissions, 1000 - 40000 MHz. Operating Mode: 802.11a Chain A
Run #1a: Low Channel @ 5180 MHz

Date of Test: 6/3/2008
Test Engineer: Suhaila Khushzad
Peter Sales
Test Location: Chamber # 3

Power Setting: 26.5 Average power: 15.0 (for reference purposes)



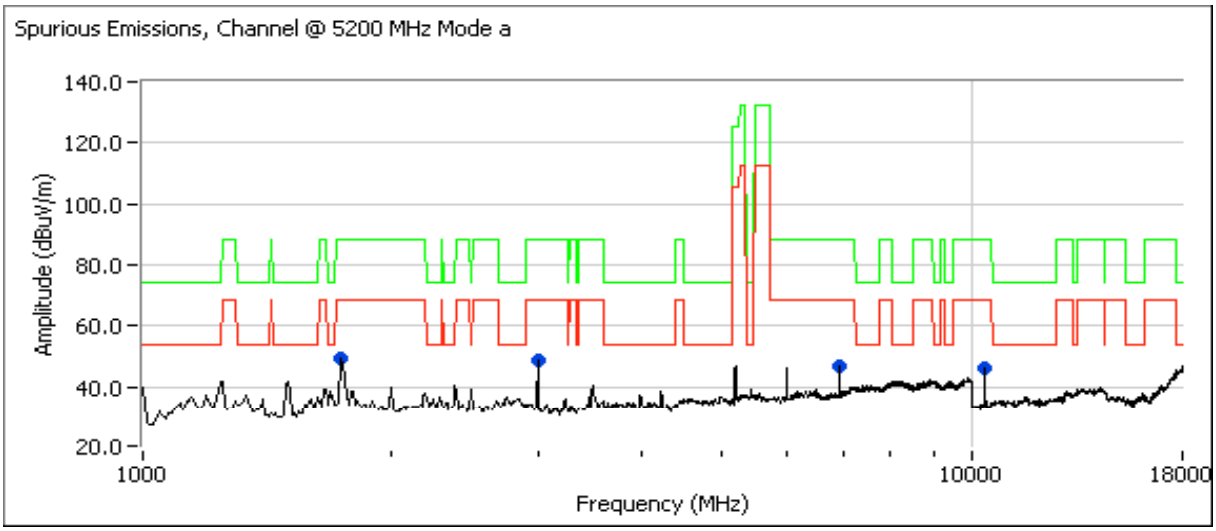
Spurious Emissions

Frequency	Level	Pol	15.209 / 15 E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
6906.640	46.7	H	68.3	-21.6	AVG	193	1.0	Note 2
6906.640	49.9	H	88.3	-38.4	PK	193	1.0	Note 2
6906.770	34.8	V	68.3	-33.5	AVG	2	1.0	Note 2
6906.770	44.1	V	88.3	-44.2	PK	2	1.0	Note 2
10362.030	35.5	V	68.3	-32.8	AVG	196	1.0	Note 2
10362.030	47.9	V	88.3	-40.4	PK	196	1.0	Note 2
10360.450	30.6	H	68.3	-37.7	AVG	255	1.0	Note 2
10360.450	43.5	H	88.3	-44.8	PK	255	1.0	Note 2

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

Client:	Intel	Job Number:	J70762
Model:	512AN HMW	T-Log Number:	T71849
		Account Manager:	Briggs / Eriksen
Contact:	Robert Paxman		
Standard:	RSS 210 / FCC 15.407 UNII (Radiated)	Class:	N/A

Run #1: Radiated Spurious Emissions, 1000 - 40000 MHz. Operating Mode: 802.11a Chain A
Run #1b: Center Channel @ 5200 MHz
Power Setting: 29.0 Average power: 17.4 (for reference purposes)



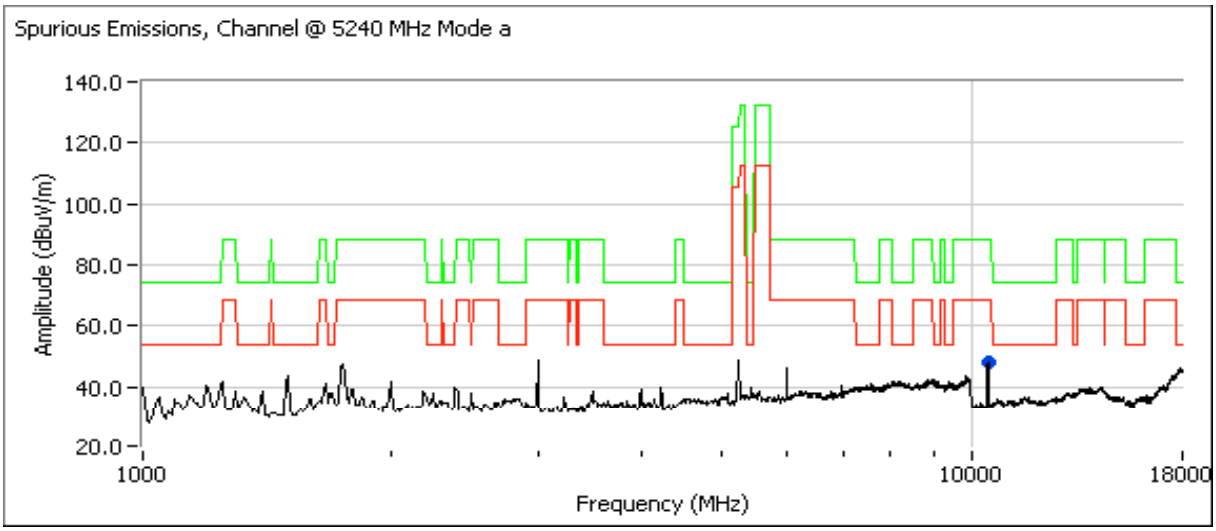
Spurious Emissions

Frequency	Level	Pol	15.209 / 15 E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
6933.390	45.9	H	68.3	-22.4	AVG	203	1.0	Note 2
6933.390	49.5	H	88.3	-38.8	PK	203	1.0	Note 2
6933.550	41.9	V	68.3	-26.4	AVG	144	1.7	Note 2
6933.550	47.6	V	88.3	-40.7	PK	144	1.7	Note 2
3000.190	48.7	V	68.3	-19.6	AVG	243	1.3	Note 2
3000.190	52.2	V	88.3	-36.1	PK	243	1.3	Note 2
3000.280	44.5	H	68.3	-23.8	AVG	190	1.0	Note 2
3000.280	49.9	H	88.3	-38.4	PK	190	1.0	Note 2
1745.510	38.4	V	68.3	-29.9	AVG	235	1.0	Note 2
1745.510	55.4	V	88.3	-32.9	PK	235	1.0	Note 2
1741.840	34.4	H	68.3	-33.9	AVG	66	1.0	Note 2
1741.840	51.2	H	88.3	-37.1	PK	66	1.0	Note 2
10400.360	40.4	V	68.3	-27.9	AVG	192	1.1	Note 2
10400.360	52.1	V	88.3	-36.2	PK	192	1.1	Note 2
10402.030	36.6	H	68.3	-31.7	AVG	265	1.0	Note 2
10402.030	50.4	H	88.3	-37.9	PK	265	1.0	Note 2

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

Client:	Intel	Job Number:	J70762
Model:	512AN HMW	T-Log Number:	T71849
		Account Manager:	Briggs / Eriksen
Contact:	Robert Paxman		
Standard:	RSS 210 / FCC 15.407 UNII (Radiated)	Class:	N/A

Run #1: Radiated Spurious Emissions, 1000 - 40000 MHz. Operating Mode: 802.11a Chain A
Run #1c: High Channel @ 5240 MHz
Power Setting: 29 Average power: 17.7 (for reference purposes)



Spurious Emissions

Frequency	Level	Pol	15.209 / 15 E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
10485.080	41.6	V	68.3	-26.7	AVG	177	1.0	Note 2
10485.080	53.7	V	88.3	-34.6	PK	177	1.0	Note 2
10478.580	38.9	H	68.3	-29.4	AVG	265	1.0	Note 2
10478.580	51.3	H	88.3	-37.0	PK	265	1.0	Note 2

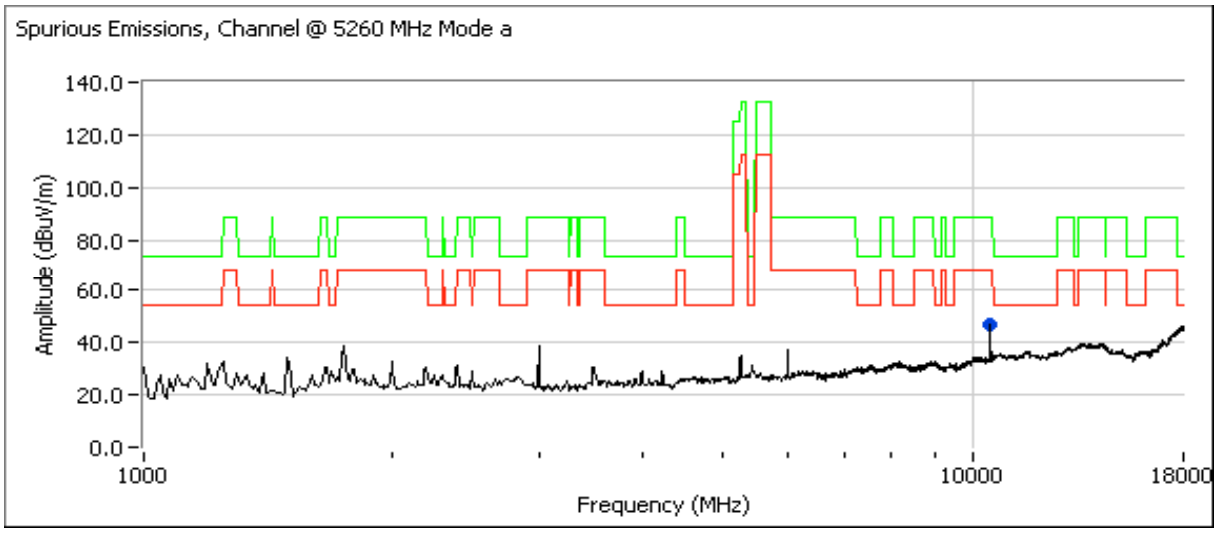
Note 1:	For emissions in restricted bands, the limit of 15.209 was used. For all other emissions, the limit was set to -27dBm eirp (68.3dBuV/m average, 88.3dBuV/m peak)
Note 2:	Not in a restricted band

Client:	Intel	Job Number:	J70762
Model:	512AN HMW	T-Log Number:	T71849
		Account Manager:	Briggs / Eriksen
Contact:	Robert Paxman		
Standard:	RSS 210 / FCC 15.407 UNII (Radiated)	Class:	N/A

Run #2: Radiated Spurious Emissions, 1000 - 40000 MHz. Operating Mode: 802.11a Chain A

Date of Test: 6/3/2008
Test Engineer: Suhaila Khushzad
Test Location: Chamber # 3

Run #2a: Low Channel @ 5260 MHz
Power Setting: 28.500 Average power: 17.4 (for reference purposes)



Spurious Emissions

Frequency	Level	Pol	15.209 / 15 E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
10519.300	43.2	V	68.3	-25.1	AVG	187	1.1	Note 2
10519.300	54.3	V	88.3	-34.0	PK	187	1.1	Note 2
10520.970	37.9	H	68.3	-30.4	AVG	244	1.0	Note 2
10520.970	49.6	H	88.3	-38.7	PK	244	1.0	Note 2

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

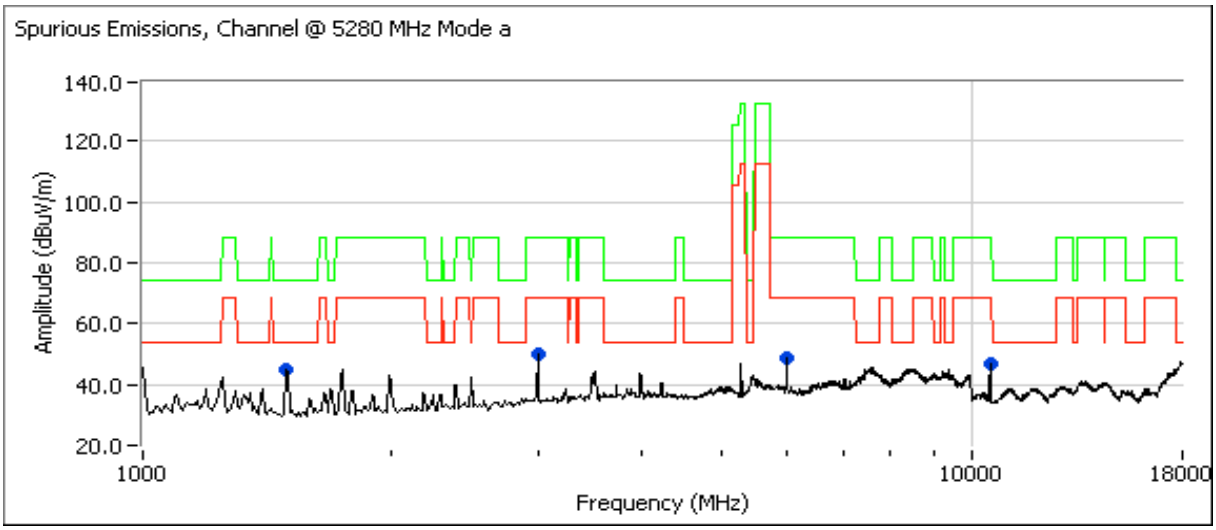
Client:	Intel	Job Number:	J70762
Model:	512AN HMW	T-Log Number:	T71849
		Account Manager:	Briggs / Eriksen
Contact:	Robert Paxman		
Standard:	RSS 210 / FCC 15.407 UNII (Radiated)	Class:	N/A

Run #2b: Center Channel @ 5280 MHz

Power Setting: 28.0 Average power: 17.3 (for reference purposes)

Frequency	Level	Pol	15.209 / 15 E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
10562.130	47.1	V	68.3	-21.2	Peak	353	1.0	
1495.300	32.5	V	54.0	-21.5	AVG	337	1.3	
1495.300	50.6	V	74.0	-23.4	PK	337	1.3	
3000.300	50.3	V	68.3	-18.0	Peak	78	1.3	Note 2
6000.860	48.6	V	68.3	-19.7	Peak	293	1.0	Note 2

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



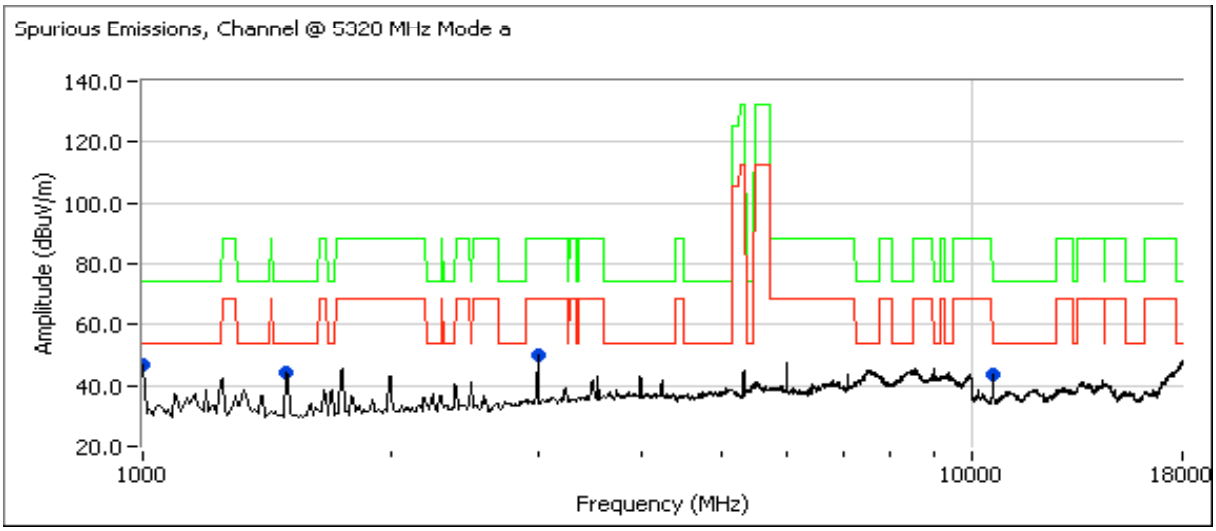
Client:	Intel	Job Number:	J70762
Model:	512AN HMW	T-Log Number:	T71849
		Account Manager:	Briggs / Eriksen
Contact:	Robert Paxman		
Standard:	RSS 210 / FCC 15.407 UNII (Radiated)	Class:	N/A

Run #2c: High Channel @ 5320 MHz

Power Setting: 25.5 Average power: 14.6 (for reference purposes)

Frequency	Level	Pol	15.209 / 15 E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
1494.720	31.9	H	54.0	-22.1	AVG	347	1.0	
1494.720	51.1	H	74.0	-22.9	PK	347	1.0	
999.860	26.7	V	54.0	-27.3	AVG	342	1.3	
999.860	42.3	V	74.0	-31.7	PK	342	1.3	
3000.160	50.3	V	68.3	-18.0	Peak	12	1.0	Note 2
10639.860	37.9	V	54.0	-16.1	AVG	20	1.0	
10639.860	49.4	V	74.0	-24.6	PK	20	1.0	

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



Client:	Intel	Job Number:	J70762
Model:	512AN HMW	T-Log Number:	T71849
		Account Manager:	Briggs / Eriksen
Contact:	Robert Paxman		
Standard:	RSS 210 / FCC 15.407 UNII (Radiated)	Class:	N/A

Run #3: Radiated Spurious Emissions, 1000 - 40000 MHz. Operating Mode: 802.11a Chain A

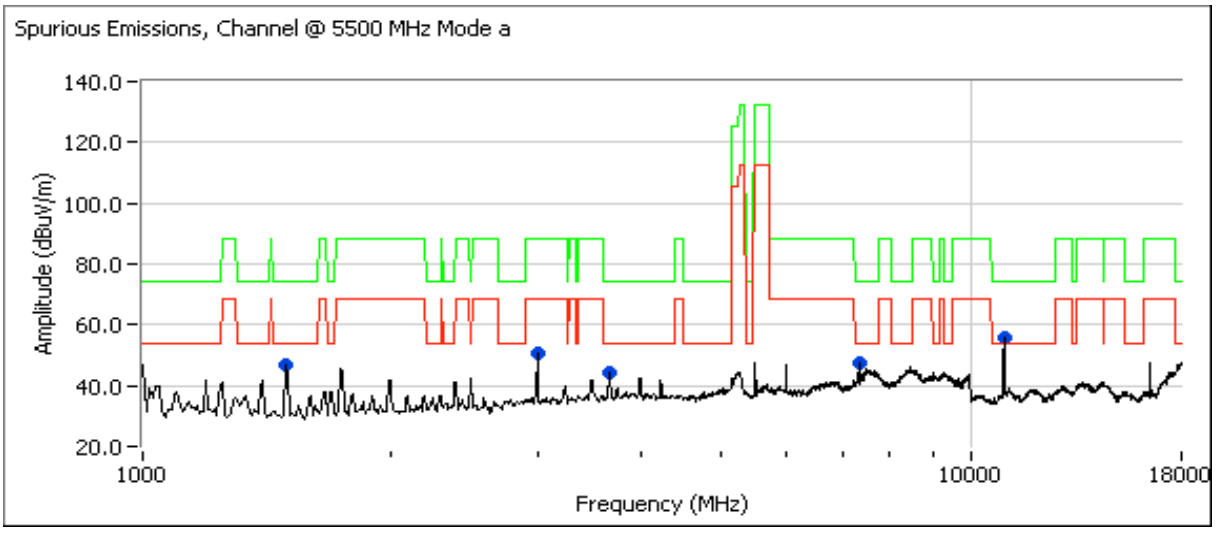
Date of Test: 6/4/2008
Test Engineer: Peter Sales
Test Location: Fremont Chamber #4

Run #3a: Low Channel @ 5500 MHz

Power Setting: 31.5 Average power: 17.5 (for reference purposes)

Frequency	Level	Pol	15.209 / 15 E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
3000.160	50.9	V	68.3	-17.4	Peak	83	1.0	
3666.870	44.0	V	54.0	-10.0	Peak	0	1.0	
7333.290	45.3	V	54.0	-8.7	AVG	2	1.6	
7333.290	50.6	V	74.0	-23.4	PK	2	1.6	
1494.880	32.5	H	54.0	-21.5	AVG	349	1.0	
1494.880	51.4	H	74.0	-22.6	PK	349	1.0	
11000.100	48.4	V	54.0	-5.6	AVG	0	1.0	
11000.100	60.6	V	74.0	-13.4	PK	0	1.0	

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



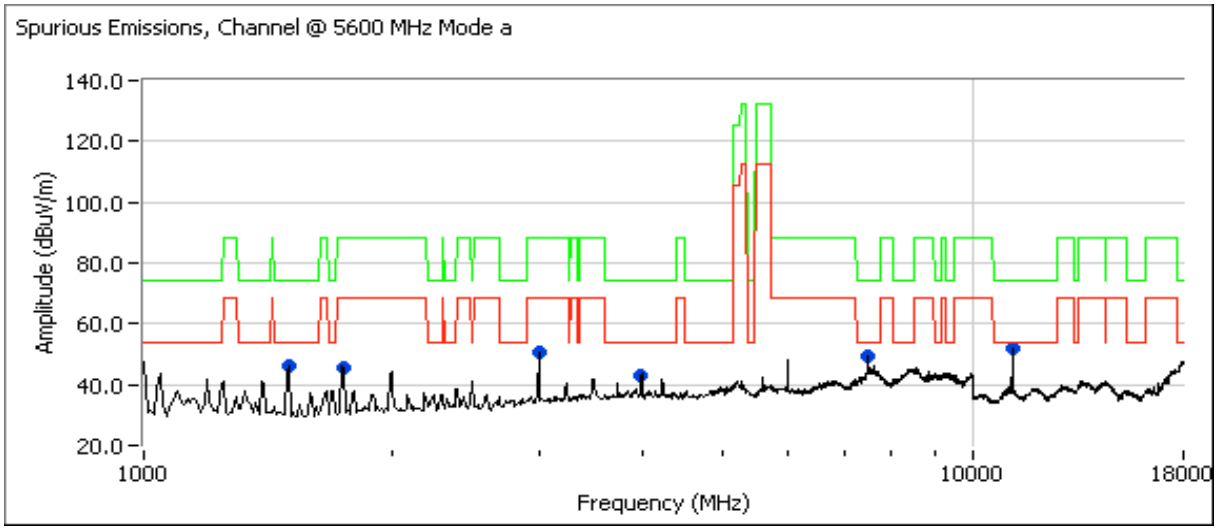
Client:	Intel	Job Number:	J70762
Model:	512AN HMW	T-Log Number:	T71849
		Account Manager:	Briggs / Eriksen
Contact:	Robert Paxman		
Standard:	RSS 210 / FCC 15.407 UNII (Radiated)	Class:	N/A

Run #3b: Center Channel @ 5600 MHz

Power Setting: 28.0 Average power: 17.8 (for reference purposes)

Frequency	Level	Pol	15.209 / 15 E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
7466.630	46.2	V	54.0	-7.8	AVG	21	1.3	
7466.630	53.1	V	74.0	-20.9	PK	21	1.3	
3994.840	33.4	V	54.0	-20.6	AVG	323	1.0	
3994.840	51.5	V	74.0	-22.5	PK	323	1.0	
11200.190	47.3	V	54.0	-6.7	AVG	357	1.0	
11200.190	58.7	V	74.0	-15.3	PK	357	1.0	
3000.010	50.6	V	68.3	-17.7	Peak	84	1.3	Note 2
1741.890	45.5	V	68.3	-22.8	Peak	330	1.9	Note 2

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



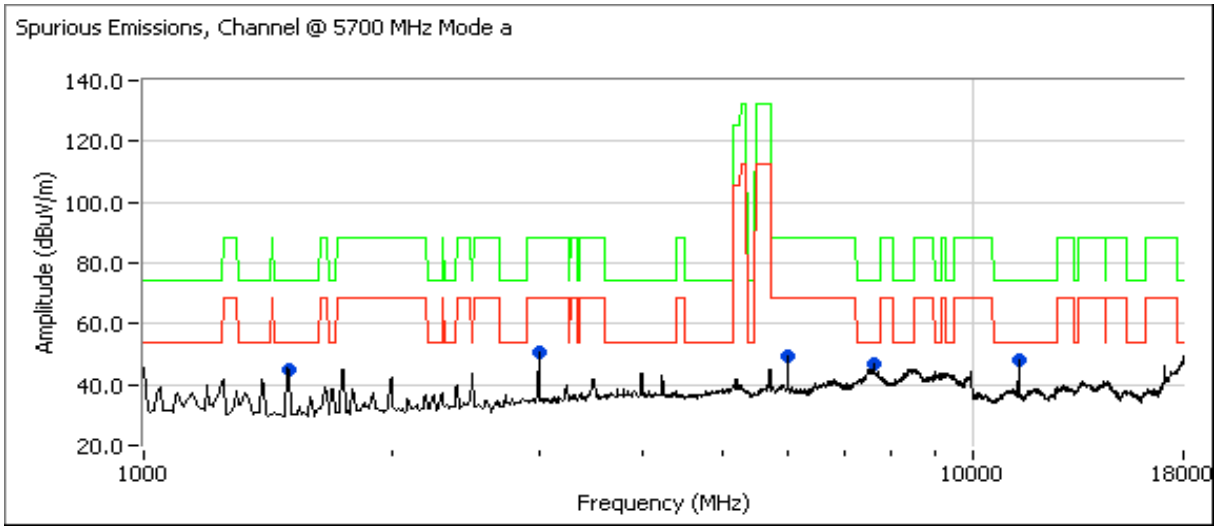
Client:	Intel	Job Number:	J70762
Model:	512AN HMW	T-Log Number:	T71849
		Account Manager:	Briggs / Eriksen
Contact:	Robert Paxman		
Standard:	RSS 210 / FCC 15.407 UNII (Radiated)	Class:	N/A

Run #3c: High Channel @ 5700 MHz

Power Setting: 28.5 Average power: 17.2 (for reference purposes)

Frequency	Level	Pol	15.209 / 15 E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
1494.320	32.6	V	54.0	-21.4	AVG	245	1.0	
1494.320	52.8	V	74.0	-21.2	PK	245	1.0	
7599.960	44.8	V	54.0	-9.2	AVG	334	1.0	
7599.960	52.5	V	74.0	-21.5	PK	334	1.0	
3000.010	50.4	V	68.3	-17.9	Peak	83	1.0	Note 2
6001.020	49.6	V	68.3	-18.7	Peak	281	1.0	Note 2
11400.740	43.6	V	54.0	-10.4	AVG	66	1.0	
11400.740	54.3	V	74.0	-19.7	PK	66	1.0	

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



Client:	Intel	Job Number:	J70762
Model:	512AN HMW	T-Log Number:	T71849
		Account Manager:	Briggs / Eriksen
Contact:	Robert Paxman		
Standard:	RSS 210 / FCC 15.407 UNII (Radiated)	Class:	N/A

RSS 210 and FCC 15 E
Radiated Spurious Emissions, 1 - 40GHz 802.11n20 Mode

Test Specific Details

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

General Test Configuration

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

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

Ambient Conditions:

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

Summary of Results

Run #	Mode	Channel	Power Setting	Measured Power	Test Performed	Limit	Result / Margin
1a	802.11n20 Chain A	5180	26.5	14.5	Radiated Emissions, 1 - 26 GHz	FCC Part 15.209 / 15 E(c)	802.11a mode has higher emissions when operating in this sub-band
1b	802.11n20 Chain A	5200	29.0	17.5	Radiated Emissions, 1 - 26 GHz	FCC Part 15.209 / 15 E(c)	
1c	802.11n20 Chain A	5240	29.0	17.4	Radiated Emissions, 1 - 26 GHz	FCC Part 15.209 / 15 E(c)	
2a	802.11n20 Chain A	5260	27.5	16.5	Radiated Emissions, 1 - 26 GHz	FCC Part 15.209 / 15 E(c)	802.11a mode has higher emissions when operating in this sub-band
2b	802.11n20 Chain A	5280	27.0	17.5	Radiated Emissions, 1 - 26 GHz	FCC Part 15.209 / 15 E(c)	
2c	802.11n20 Chain A	5320	25.5	14.5	Radiated Emissions, 1 - 26 GHz	FCC Part 15.209 / 15 E(c)	
3a	802.11n20 Chain A	5500	26.5	17.5	Radiated Emissions, 1 - 26 GHz	FCC Part 15.209 / 15 E(c)	37.1dBµV/m @ 10999.4MHz (-16.9dB)
3b	802.11n20 Chain A	5600	25.0	16.5	Radiated Emissions, 1 - 26 GHz	FCC Part 15.209 / 15 E(c)	38.8dBµV/m @ 11203.3MHz (-15.2dB)
3c	802.11n20 Chain A	5700	26.0	16.5	Radiated Emissions, 1 - 26 GHz	FCC Part 15.209 / 15 E(c)	47.1dBµV/m @ 11401.2MHz (-6.9dB)

Modifications Made During Testing

No modifications were made to the EUT during testing

Client:	Intel	Job Number:	J70762
Model:	512AN HMW	T-Log Number:	T71849
		Account Manager:	Briggs / Eriksen
Contact:	Robert Paxman		
Standard:	RSS 210 / FCC 15.407 UNII (Radiated)	Class:	N/A

Deviations From The Standard

No deviations were made from the requirements of the standard.

Run #1: Radiated Spurious Emissions, 1000 - 40000 MHz. Operating Mode: 802.11n20 Chain A

Testing on the Etherntronics antenna dindicated the worst case mode for emissions when operatin in this sub band were 802.11a and 802.11n40

Run #2: Radiated Spurious Emissions, 1000 - 40000 MHz. Operating Mode: 802.11n20 Chain A

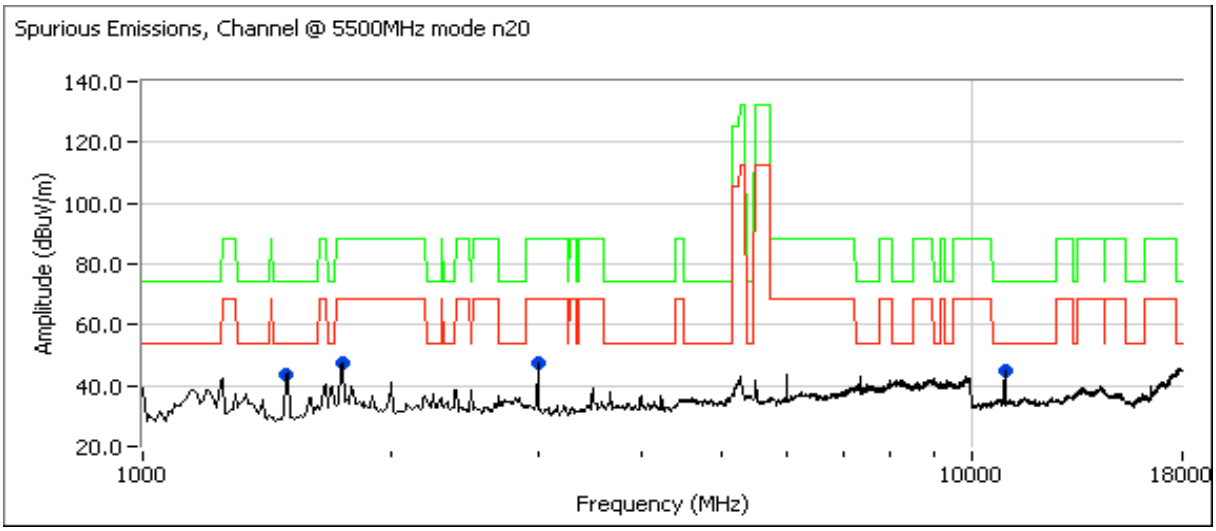
Testing on the Etherntronics antenna dindicated the worst case mode for emissions when operatin in this sub band were 802.11a and 802.11n40

Run #3: Radiated Spurious Emissions, 1000 - 40000 MHz. Operating Mode: 802.11n20 Chain A

Date of Test: 6/4/2008
Test Engineer: Joseph Cadigal
Test Location: Chamber # 3

Run #3a: Low Channel @ 5500 MHz

Power Setting: 26.5 Average power: 17.5 (for reference purposes)



Client:	Intel	Job Number:	J70762
Model:	512AN HMW	T-Log Number:	T71849
		Account Manager:	Briggs / Eriksen
Contact:	Robert Paxman		
Standard:	RSS 210 / FCC 15.407 UNII (Radiated)	Class:	N/A

Run #3a: Low Channel @ 5500 MHz

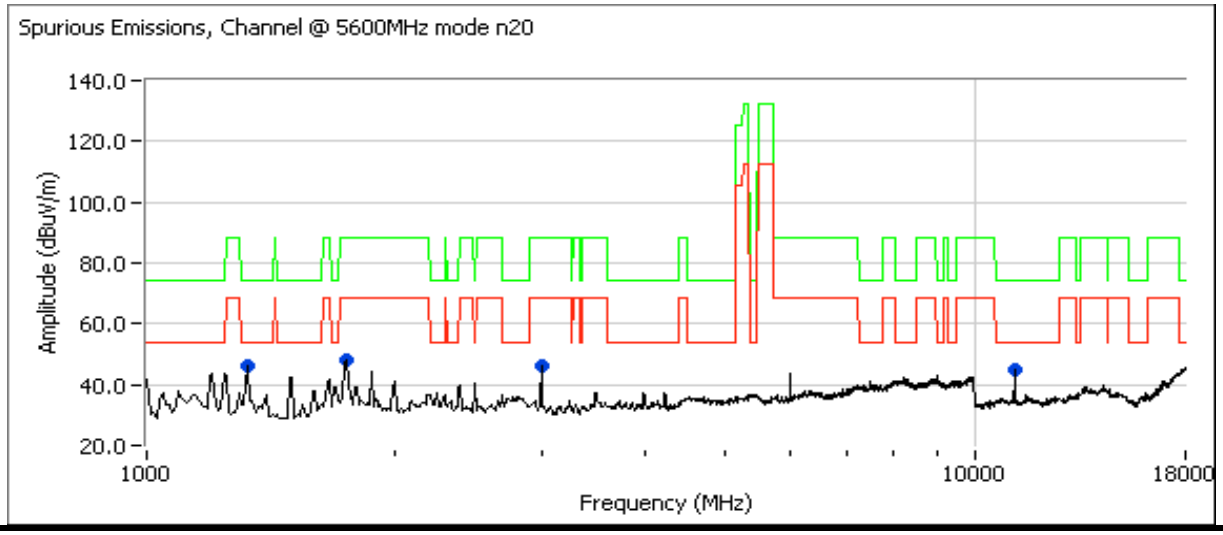
Spurious Emissions

Frequency	Level	Pol	15.209 / 15 E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
10999.380	37.1	V	54.0	-16.9	AVG	14	1.9	
11001.620	33.2	H	54.0	-20.8	AVG	321	1.9	
10999.380	49.6	V	74.0	-24.4	PK	14	1.9	
11001.620	46.3	H	74.0	-27.7	PK	321	1.9	
3000.360	38.0	V	68.3	-30.3	AVG	73	1.3	Note 2
1498.300	20.9	V	54.0	-33.1	AVG	264	1.3	
1498.300	40.7	V	74.0	-33.3	PK	264	1.3	
1497.870	20.6	H	54.0	-33.4	AVG	297	1.3	
3000.450	34.8	H	68.3	-33.5	AVG	82	1.3	Note 2
1497.870	38.5	H	74.0	-35.5	PK	297	1.3	
1744.200	24.9	V	68.3	-43.4	AVG	73	1.6	Note 2
1744.200	44.7	V	88.3	-43.6	PK	73	1.6	Note 2
1748.010	24.2	H	68.3	-44.1	AVG	119	1.6	Note 2
3000.360	41.4	V	88.3	-46.9	PK	73	1.3	Note 2
1748.010	41.4	H	88.3	-46.9	PK	119	1.6	Note 2
3000.450	39.2	H	88.3	-49.1	PK	82	1.3	Note 2

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

Run #3b: Center Channel @ 5600 MHz

Power Setting: 25.0 Average power: 16.5 (for reference purposes)



Client:	Intel	Job Number:	J70762
Model:	512AN HMW	T-Log Number:	T71849
		Account Manager:	Briggs / Eriksen
Contact:	Robert Paxman		
Standard:	RSS 210 / FCC 15.407 UNII (Radiated)	Class:	N/A

Run #3b: Center Channel @ 5600 MHz

Spurious Emissions

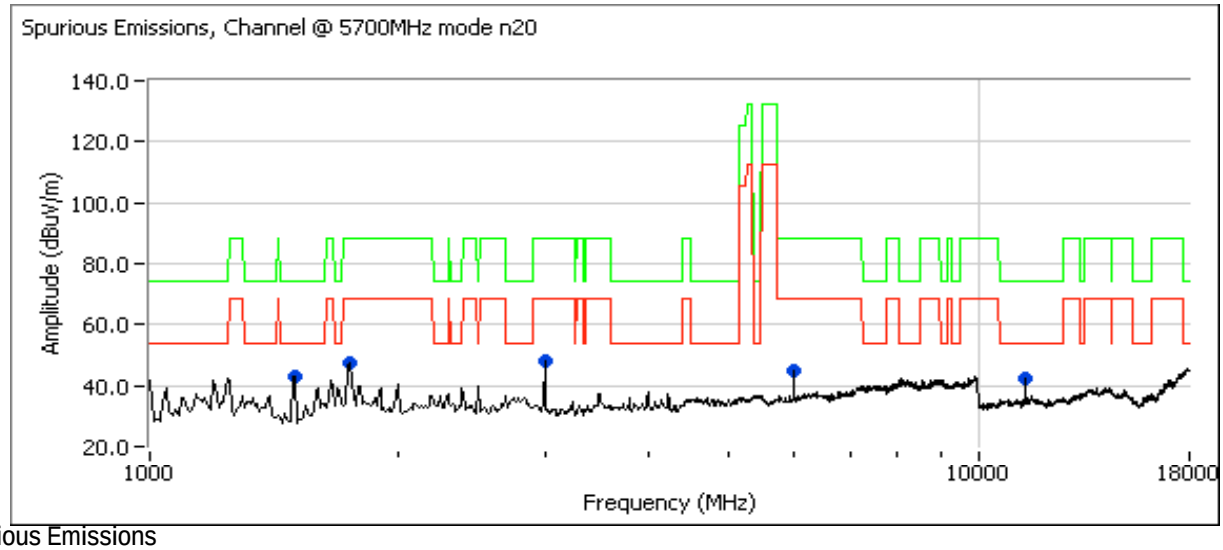
Frequency	Level	Pol	15.209 / 15 E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
11203.270	38.8	V	54.0	-15.2	AVG	39	1.6	
11200.330	34.3	H	54.0	-19.7	AVG	92	1.6	
11203.270	51.1	V	74.0	-22.9	PK	39	1.6	
7466.650	28.7	V	54.0	-25.3	AVG	7	2.0	
7466.650	28.7	V	54.0	-25.3	AVG	7	2.0	
11200.330	46.4	H	74.0	-27.6	PK	92	1.6	
7466.620	23.6	H	54.0	-30.4	AVG	21	1.0	
3000.370	36.8	V	68.3	-31.5	AVG	282	1.0	Note 2
3000.300	35.0	H	68.3	-33.3	AVG	9	1.0	Note 2
5999.940	33.6	V	68.3	-34.7	AVG	21	1.0	Note 2
1314.160	19.1	V	54.0	-34.9	AVG	260	1.0	
7466.650	36.7	V	74.0	-37.3	PK	7	2.0	
7466.650	36.7	V	74.0	-37.3	PK	7	2.0	
1314.760	15.5	H	54.0	-38.5	AVG	32	1.0	
7466.620	35.4	H	74.0	-38.6	PK	21	1.0	
6000.810	28.6	H	68.3	-39.7	AVG	230	1.0	Note 2
1314.160	33.2	V	74.0	-40.8	PK	260	1.0	
1747.370	25.6	V	68.3	-42.7	AVG	298	1.6	Note 2
1747.370	45.0	V	88.3	-43.3	PK	298	1.6	Note 2
1747.850	24.7	H	68.3	-43.6	AVG	117	1.7	Note 2
1747.850	42.5	H	88.3	-45.8	PK	117	1.7	Note 2
1314.760	27.6	H	74.0	-46.4	PK	32	1.0	
3000.370	41.5	V	88.3	-46.8	PK	282	1.0	Note 2
3000.300	40.4	H	88.3	-47.9	PK	9	1.0	Note 2
5999.940	39.2	V	88.3	-49.1	PK	21	1.0	Note 2
6000.810	35.3	H	88.3	-53.0	PK	230	1.0	Note 2

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

Client:	Intel	Job Number:	J70762
Model:	512AN HMW	T-Log Number:	T71849
		Account Manager:	Briggs / Eriksen
Contact:	Robert Paxman		
Standard:	RSS 210 / FCC 15.407 UNII (Radiated)	Class:	N/A

Run #3c: High Channel @ 5700 MHz

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



Spurious Emissions

Frequency	Level	Pol	15.209 / 15 E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
11401.180	47.1	V	54.0	-6.9	AVG	32	1.9	
11402.350	40.7	H	54.0	-13.3	AVG	41	1.9	
11401.180	60.5	V	74.0	-13.5	PK	32	1.9	
7599.950	36.7	V	54.0	-17.3	AVG	342	1.0	
3000.430	47.8	V	68.3	-20.5	AVG	73	1.3	Note 2
11402.350	53.1	H	74.0	-20.9	PK	41	1.9	
7600.270	32.5	H	54.0	-21.5	AVG	62	1.0	
1493.900	31.5	V	54.0	-22.5	AVG	258	1.3	
1493.900	51.4	V	74.0	-22.6	PK	258	1.3	
3000.320	44.8	H	68.3	-23.5	AVG	79	1.3	Note 2
6000.750	43.5	V	68.3	-24.8	AVG	92	1.3	Note 2
1495.070	26.5	H	54.0	-27.5	AVG	264	1.3	
7599.950	45.6	V	74.0	-28.4	PK	342	1.0	
7600.270	44.5	H	74.0	-29.5	PK	62	1.0	
1495.070	43.5	H	74.0	-30.5	PK	264	1.3	
5999.840	36.5	H	68.3	-31.8	AVG	237	1.3	Note 2
1748.390	35.3	H	68.3	-33.0	AVG	302	1.0	Note 2
1748.220	35.2	V	68.3	-33.1	AVG	294	1.0	Note 2
1748.390	53.2	H	88.3	-35.1	PK	302	1.0	Note 2
1748.220	52.9	V	88.3	-35.4	PK	294	1.0	Note 2
3000.430	51.6	V	88.3	-36.7	PK	73	1.3	Note 2
3000.320	49.2	H	88.3	-39.1	PK	79	1.3	Note 2
6000.750	48.0	V	88.3	-40.3	PK	92	1.3	Note 2
5999.840	44.4	H	88.3	-43.9	PK	237	1.3	Note 2

Client:	Intel	Job Number:	J70762
Model:	512AN HMW	T-Log Number:	T71849
		Account Manager:	Briggs / Eriksen
Contact:	Robert Paxman		
Standard:	RSS 210 / FCC 15.407 UNII (Radiated)	Class:	N/A

Run #3c: High Channel @ 5700 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)
Note 2:	Not in a restricted band

Client:	Intel	Job Number:	J70762
Model:	512AN HMW	T-Log Number:	T71849
		Account Manager:	Briggs / Eriksen
Contact:	Robert Paxman		
Standard:	RSS 210 / FCC 15.407 UNII (Radiated)	Class:	N/A

RSS 210 and FCC 15.E (U-NII, 5150- 550/5250-5350/5460-5725MHz)
Radiated Spurious Emissions, 1 - 40GHz 802.11n 40MHz Mode

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: -
Host Unit Voltage 120V/60Hz

General Test Configuration

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

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

Ambient Conditions:

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

Summary of Results

Run #	Mode	Channel	Power Setting	Measured Power	Test Performed	Limit	Result / Margin
1	802.11n40 Chain A	5190	20.0	10.1	Radiated Emissions, 1 - 40 GHz	FCC Part 15.209 / 15 E(c)	41.1dBµV/m @ 6919.9MHz (-27.2dB)
1	802.11n40 Chain A	5230	27.0	16.4	Radiated Emissions, 1 - 40 GHz	FCC Part 15.209 / 15 E(c)	37.1dBµV/m @ 3000.4MHz (-31.2dB)
2	802.11n40 Chain A	5270 5310	27.5 20.0	16.5 10.3	Radiated Emissions, 1 - 40 GHz	FCC Part 15.209 / 15 E(c)	33.5dBµV/m @ 1494.3MHz (-20.5dB)
3	802.11n40 Chain A	5510 5590 5670	21.5 24.5 25.5	13.5 16.6 16.5	Radiated Emissions, 1 - 40 GHz	FCC Part 15.209 / 15 E(c)	40.5dBµV/m @ 11180MHz (-13.5dB)

Modifications Made During Testing

No modifications were made to the EUT during testing

Deviations From The Standard

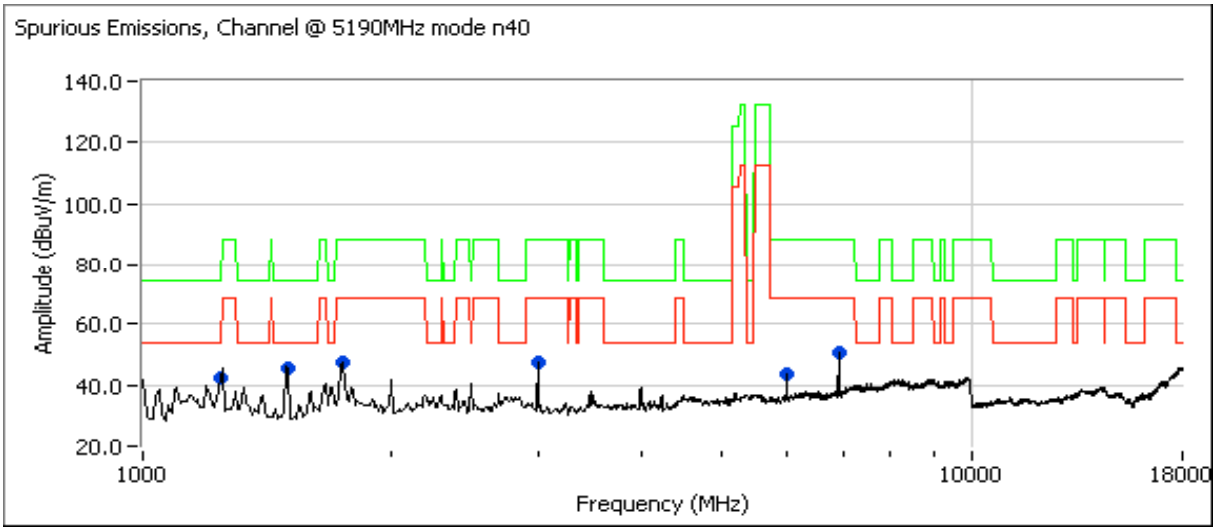
No deviations were made from the requirements of the standard.

Client:	Intel	Job Number:	J70762
Model:	512AN HMW	T-Log Number:	T71849
		Account Manager:	Briggs / Eriksen
Contact:	Robert Paxman		
Standard:	RSS 210 / FCC 15.407 UNII (Radiated)	Class:	N/A

Run #1: Radiated Spurious Emissions, 1000 - 40000 MHz. Operating Mode: 802.11n 40MHz Chain A

Date of Test: 6/4/2008
Test Engineer: Joseph Cadigal
Test Location: Chamber # 3

Run #1a: Low Channel @ 5190 MHz
Power Setting: 20.0 Average power: 10.1 (for reference purposes)



Spurious Emissions

Frequency	Level	Pol	15.209 / 15 E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
6919.930	41.1	H	68.3	-27.2	AVG	20	1.0	Note 2
3000.340	38.0	V	68.3	-30.3	AVG	284	1.0	Note 2
1497.920	43.0	V	74.0	-31.0	PK	95	1.0	
1497.920	21.2	V	54.0	-32.8	AVG	95	1.0	
6000.770	34.4	V	68.3	-33.9	AVG	91	1.3	Note 2
6919.970	34.3	V	68.3	-34.0	AVG	35	1.0	Note 2
3000.390	33.8	H	68.3	-34.5	AVG	358	1.0	Note 2
1497.040	15.6	H	54.0	-38.4	AVG	96	1.0	
6000.730	27.9	H	68.3	-40.4	AVG	232	1.3	Note 2
1743.430	25.5	V	68.3	-42.8	AVG	58	1.6	Note 2
1497.040	30.5	H	74.0	-43.5	PK	96	1.0	
1743.430	44.3	V	88.3	-44.0	PK	58	1.6	Note 2
6919.930	43.5	H	88.3	-44.8	PK	20	1.0	Note 2
1248.320	22.6	V	68.3	-45.7	AVG	248	1.0	Note 2
3000.340	42.3	V	88.3	-46.0	PK	284	1.0	Note 2
1743.970	21.2	H	68.3	-47.1	AVG	58	1.6	Note 2

Client:	Intel	Job Number:	J70762
Model:	512AN HMW	T-Log Number:	T71849
		Account Manager:	Briggs / Eriksen
Contact:	Robert Paxman		
Standard:	RSS 210 / FCC 15.407 UNII (Radiated)	Class:	N/A

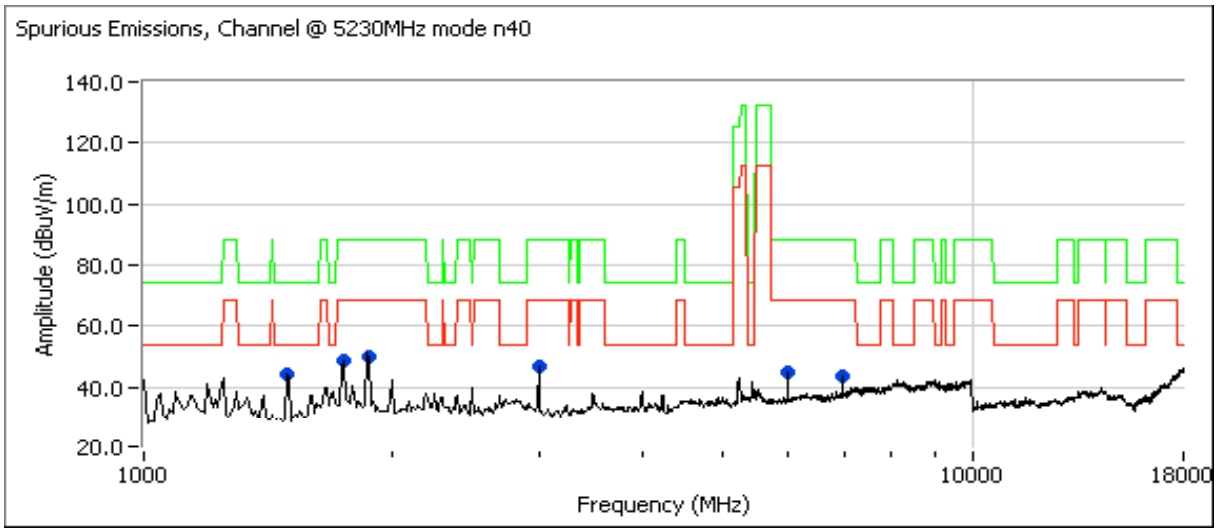
1248.320	39.3	V	88.3	-49.0	PK	248	1.0	Note 2
3000.390	39.0	H	88.3	-49.3	PK	358	1.0	Note 2
6000.770	38.9	V	88.3	-49.4	PK	91	1.3	Note 2
6919.970	38.6	V	88.3	-49.7	PK	35	1.0	Note 2
1743.970	37.1	H	88.3	-51.2	PK	58	1.6	Note 2
1248.440	16.8	H	68.3	-51.5	AVG	248	1.0	Note 2
6000.730	34.8	H	88.3	-53.5	PK	232	1.3	Note 2
1248.440	31.0	H	88.3	-57.3	PK	248	1.0	Note 2

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

Client:	Intel	Job Number:	J70762
Model:	512AN HMW	T-Log Number:	T71849
		Account Manager:	Briggs / Eriksen
Contact:	Robert Paxman		
Standard:	RSS 210 / FCC 15.407 UNII (Radiated)	Class:	N/A

Run #1b: High Channel @ 5230 MHz

Power Setting: 27.0 Average power: 16.4 (for reference purposes)



Spurious Emissions

Frequency	Level	Pol	15.209 / 15 E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
3000.380	37.1	V	68.3	-31.2	AVG	281	1.0	
1494.970	20.8	V	54.0	-33.2	AVG	262	1.3	
6000.750	34.5	V	68.3	-33.8	AVG	91	1.3	
1494.970	39.6	V	74.0	-34.4	PK	262	1.3	
6973.310	31.7	H	68.3	-36.6	AVG	24	1.0	
1742.900	25.9	V	68.3	-42.4	AVG	69	1.6	
1742.900	45.8	V	88.3	-42.5	PK	69	1.6	
3000.380	41.2	V	88.3	-47.1	PK	281	1.0	
6000.750	39.4	V	88.3	-48.9	PK	91	1.3	
6973.310	37.4	H	88.3	-50.9	PK	24	1.0	
1881.110	17.3	V	68.3	-51.0	AVG	334	2.5	
1881.110	30.7	V	88.3	-57.6	PK	334	2.5	

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

Client:	Intel	Job Number:	J70762
Model:	512AN HMW	T-Log Number:	T71849
		Account Manager:	Briggs / Eriksen
Contact:	Robert Paxman		
Standard:	RSS 210 / FCC 15.407 UNII (Radiated)	Class:	N/A

Run #2: Radiated Spurious Emissions, 1000 - 40000 MHz. Operating Mode: 802.11n40 Chain A

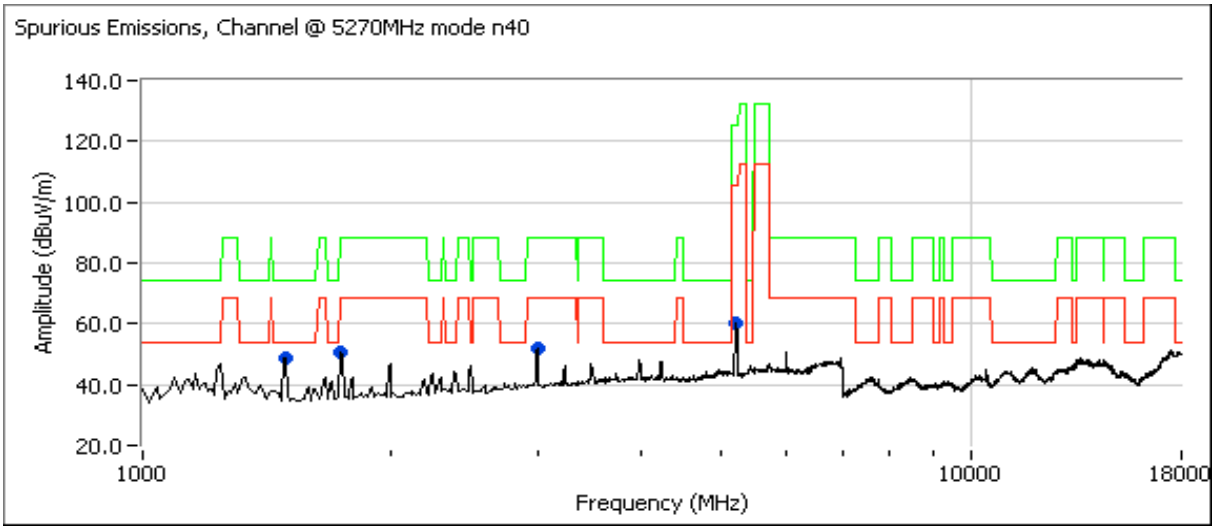
Date of Test: 6/4/2008
Test Engineer: Peter Sales
Test Location: Fremont Chamber #4

Run #2a: Low Channel @ 5270 MHz

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

Frequency	Level	Pol	15.209 / 15 E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
1744.710	31.4	V	68.3	-36.9	AVG	62	1.0	
1744.710	51.8	V	88.3	-36.5	PK	62	1.0	
1494.210	32.2	V	54.0	-21.8	AVG	238	1.0	
1494.210	51.3	V	74.0	-22.7	PK	238	1.0	
3000.300	52.1	V	68.3	20.0	Peak	81	1.3	Note 2
5214.990	60.3	V	105.3	-45.0	Peak	93	1.9	Note 2

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



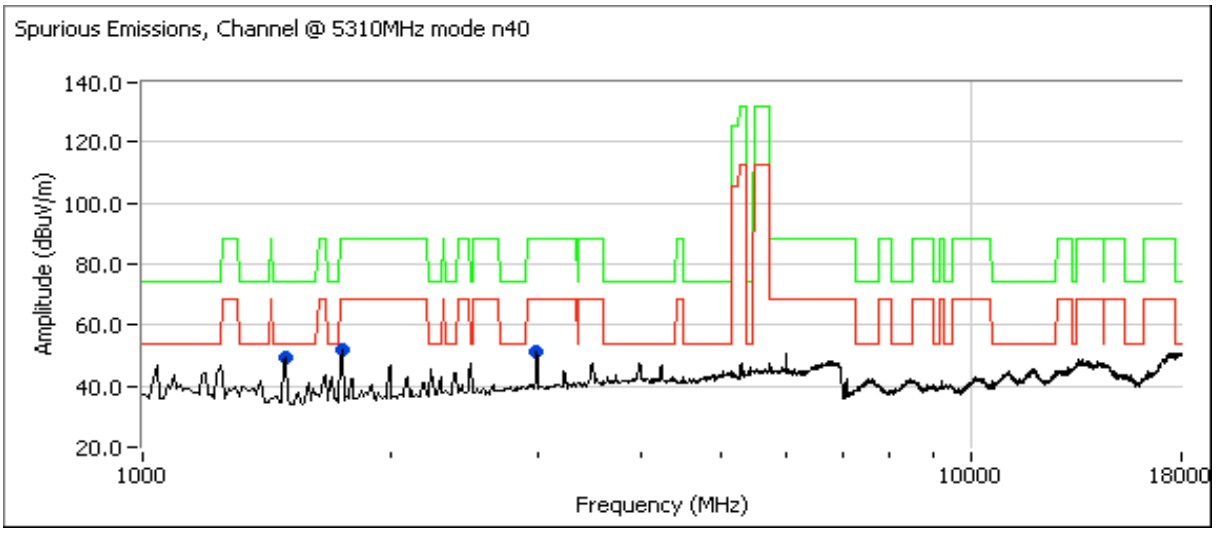
Client:	Intel	Job Number:	J70762
Model:	512AN HMW	T-Log Number:	T71849
		Account Manager:	Briggs / Eriksen
Contact:	Robert Paxman		
Standard:	RSS 210 / FCC 15.407 UNII (Radiated)	Class:	N/A

Run #2b: High Channel @ 5310 MHz

Power Setting: 20.0 Average power: 10.3 (for reference purposes)

Frequency	Level	Pol	15.209 / 15 E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
1494.270	33.5	V	54.0	-20.5	AVG	258	1.0	
1494.270	52.3	V	74.0	-21.7	PK	258	1.0	
3000.180	51.2	V	68.3	-17.1	Peak	85	1.3	Note 2
1750.030	51.6	V	68.3	-16.7	Peak	59	1.0	Note 2

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



Elliott — EMC Test Data

Client:	Intel	Job Number:	J70762
Model:	512AN HMW	T-Log Number:	T71849
		Account Manager:	Briggs / Eriksen
Contact:	Robert Paxman		
Standard:	RSS 210 / FCC 15.407 UNII (Radiated)	Class:	N/A

Run #3: Radiated Spurious Emissions, 1000 - 40000 MHz. Operating Mode: 802.11n40 Chain A

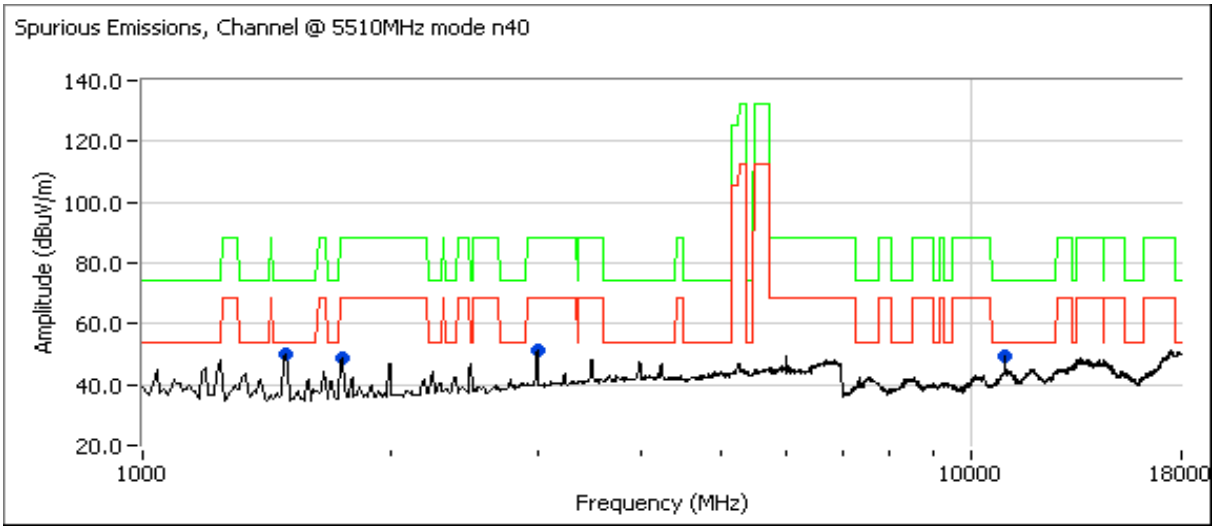
Date of Test: 6/4/2008
Test Engineer: Peter Sales
Test Location: Fremont Chamber #4

Run #3a: Low Channel @ 5510 MHz

Power Setting: 20.5 Average power: 13.5 (for reference purposes)

Frequency	Level	Pol	15.209 / 15 E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
11019.880	40.7	V	54.0	-13.3	AVG	337	1.3	
11019.880	52.9	V	74.0	-21.1	PK	337	1.3	
1494.150	33.5	V	54.0	-20.5	AVG	257	1.0	
1494.150	52.2	V	74.0	-21.8	PK	257	1.0	
1749.880	48.7	H	68.3	-19.6	Peak	354	1.3	
3000.250	51.1	V	68.3	-17.2	Peak	84	1.0	

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



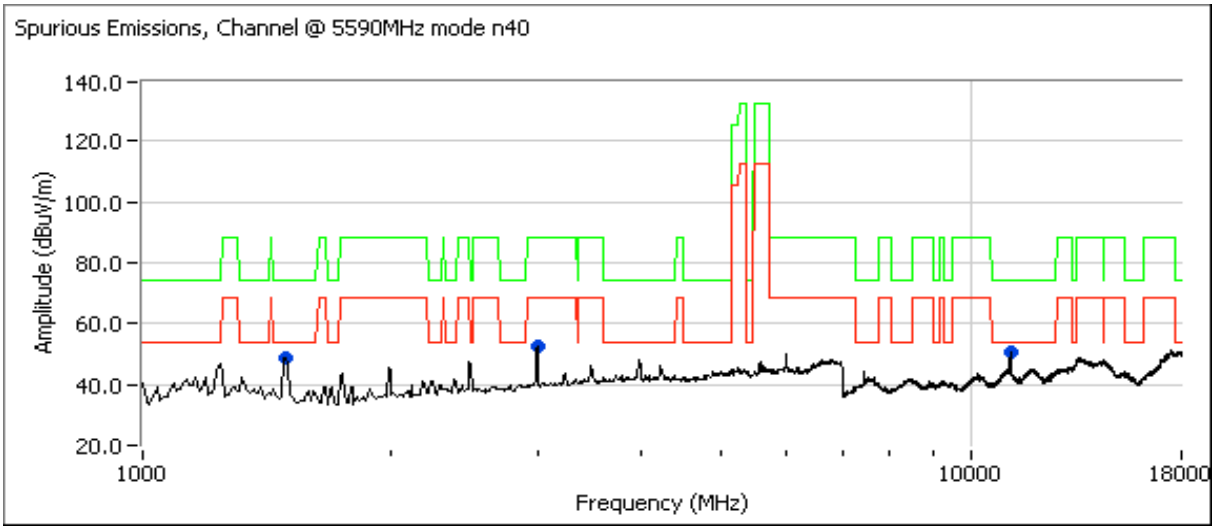
Client:	Intel	Job Number:	J70762
Model:	512AN HMW	T-Log Number:	T71849
		Account Manager:	Briggs / Eriksen
Contact:	Robert Paxman		
Standard:	RSS 210 / FCC 15.407 UNII (Radiated)	Class:	N/A

Run #3b: Center Channel @ 5590 MHz

Power Setting: 24.5 Average power: 16.6 (for reference purposes)

Frequency	Level	Pol	15.209 / 15 E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
1496.040	33.2	V	54.0	-20.8	AVG	259	1.0	
1496.040	52.5	V	74.0	-21.5	PK	259	1.0	
11179.990	40.5	V	54.0	-13.5	AVG	360	1.3	
11179.990	51.7	V	74.0	-22.3	PK	360	1.3	
3000.250	52.4	V	68.3	-15.9	Peak	85	1.0	Note 2

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



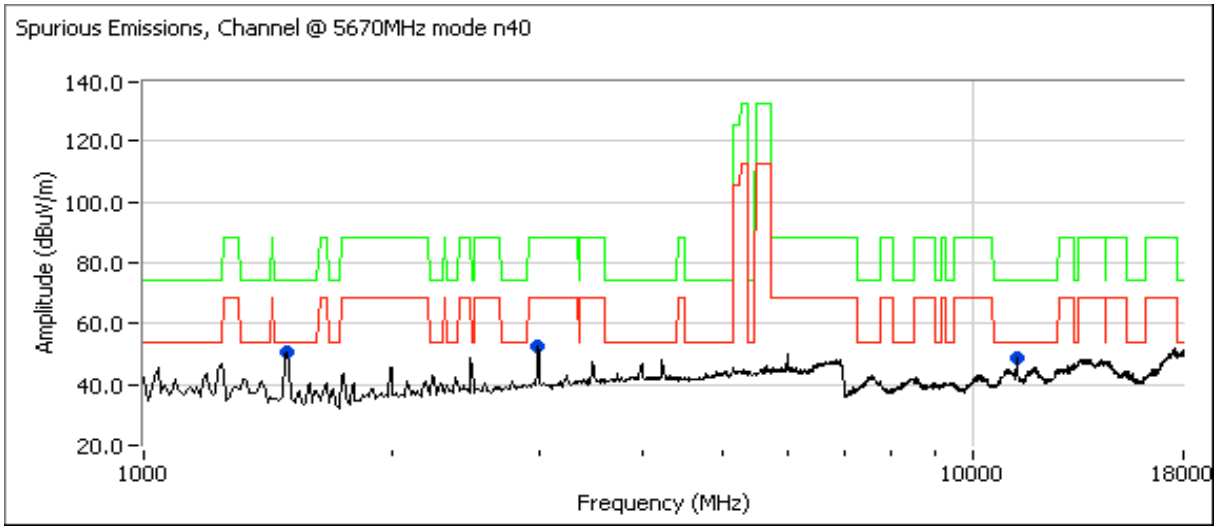
Client:	Intel	Job Number:	J70762
Model:	512AN HMW	T-Log Number:	T71849
		Account Manager:	Briggs / Eriksen
Contact:	Robert Paxman		
Standard:	RSS 210 / FCC 15.407 UNII (Radiated)	Class:	N/A

Run #3c: High Channel @ 5670 MHz

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

Frequency	Level	Pol	15.209 / 15 E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
11339.600	39.6	V	54.0	-14.4	AVG	96	1.3	
11339.600	51.0	V	74.0	-23.0	PK	96	1.3	
1494.550	34.0	V	54.0	-20.0	AVG	258	1.0	
1494.550	52.3	V	74.0	-21.7	PK	258	1.0	
3000.180	52.7	V	68.3	-15.6	Peak	85	1.0	Note 2

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



Client:	Intel	Job Number:	J70762
Model:	512AN HMW	T-Log Number:	T71849
		Account Manager:	Briggs / Eriksen
Contact:	Robert Paxman		
Standard:	RSS 210 / FCC 15.407 UNII (Radiated)	Class:	NII

Radiated Emissions - Receive Mode

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 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: 15 - 25 °C

Rel. Humidity: 35-55 %

Summary of Results

Run #	Channel	Chain	Test Performed	Limit	Result	Margin
1a	5200 MHz	A	RE, 1000 - 18000 MHz, Maximized Emissions	RSS GEN	Pass	51.8dBµV/m @ 3000.4MHz (-2.2dB)
1b	5280 MHz	A	RE, 1000 - 18000 MHz, Maximized Emissions	RSS GEN	Pass	51.5dBµV/m @ 3000.3MHz (-2.5dB)
1c	5600 MHz	A	RE, 1000 - 18000 MHz, Maximized Emissions	RSS GEN	Pass	50.4 dBuV/m @ 3000.4 MHz (-3.6dB)
2a	5200 MHz	B	RE, 1000 - 18000 MHz, Maximized Emissions	RSS GEN	Pass	50.6dBµV/m @ 3000.4MHz (-3.4dB)
2b	5280 MHz	B	RE, 1000 - 18000 MHz, Maximized Emissions	RSS GEN	Pass	49.9dBµV/m @ 3000.4MHz (-4.1dB)
2c	5600 MHz	B	RE, 1000 - 18000 MHz, Maximized Emissions	RSS GEN	Pass	50.0dBµV/m @ 3000.4MHz (-4.0dB)
3a	5200 MHz	A+B	RE, 1000 - 18000 MHz, Maximized Emissions	RSS GEN	Pass	51.2dBµV/m @ 3000.5MHz (-2.8dB)
3b	5280 MHz	A+B	RE, 1000 - 18000 MHz, Maximized Emissions	RSS GEN	Pass	50.8dBµV/m @ 3000.4MHz (-3.2dB)
3c	5600 MHz	A+B	RE, 1000 - 18000 MHz, Maximized Emissions	RSS GEN	Pass	50.4dBµV/m @ 3000.4MHz (-3.6dB)

Client:	Intel	Job Number:	J70762
Model:	512AN HMW	T-Log Number:	T71849
		Account Manager:	Briggs / Eriksen
Contact:	Robert Paxman		
Standard:	RSS 210 / FCC 15.407 UNII (Radiated)	Class:	NII

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 and Run #2: Maximized readings, 1000 - 18000 MHz, Single Receiver Active

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

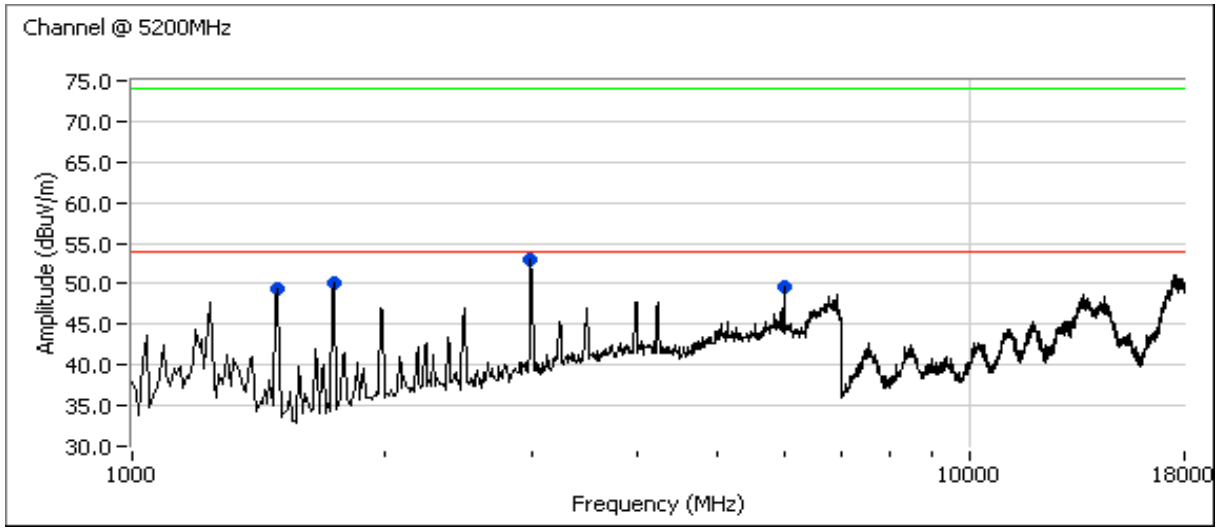
Date of Test: 6/5/2008
Test Engineer: Peter Sales
Test Location: Fremont Chamber #4

Config. Used: 1
Config Change: None
EUT Voltage: Powered From Host System

Frequency Range	Test Distance	Limit Distance	Extrapolation Factor
1000 - 7000 MHz	3	3	0.0
7000 - 18000 MHz	1	3	-9.5

Run #1: Maximized readings, 1000 - 18000 MHz, Chain A Receiver Active
Run #1a : Receiver Tuned to 5200 MHz - Chain A active

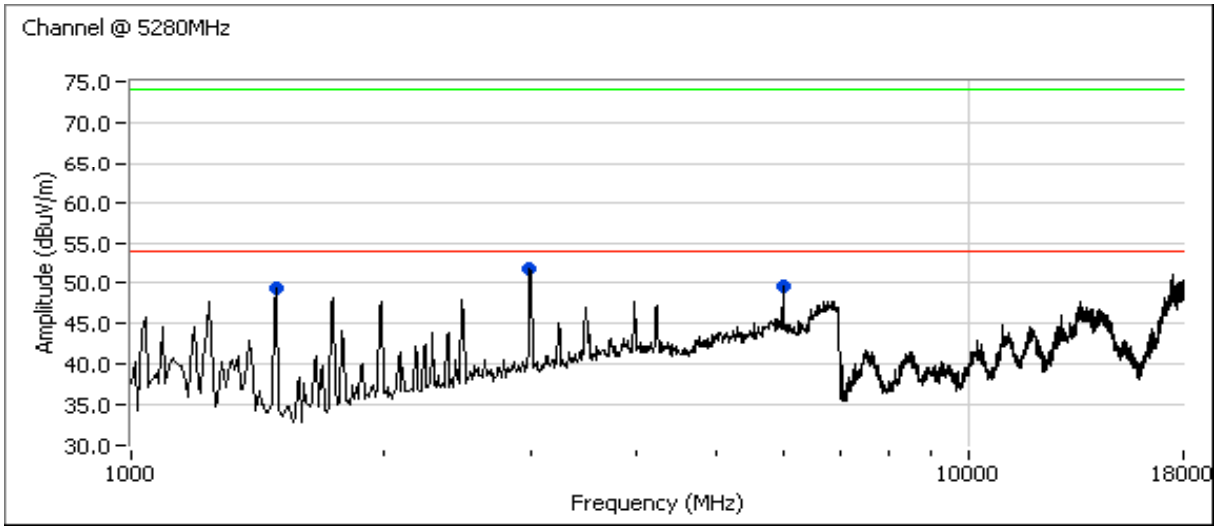
Frequency	Level	Pol	RSS GEN		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
3000.410	51.8	V	54.0	-2.2	AVG	84	1.0	
6000.730	48.9	V	54.0	-5.1	AVG	275	1.0	
3000.410	55.0	V	74.0	-19.0	PK	84	1.0	
1494.310	33.4	V	54.0	-20.6	AVG	258	1.0	
6000.730	52.7	V	74.0	-21.3	PK	275	1.0	
1747.640	51.9	V	74.0	-22.1	PK	60	1.0	
1494.310	51.8	V	74.0	-22.2	PK	258	1.0	
1747.640	30.3	V	54.0	-23.7	AVG	60	1.0	



Client:	Intel	Job Number:	J70762
Model:	512AN HMW	T-Log Number:	T71849
		Account Manager:	Briggs / Eriksen
Contact:	Robert Paxman		
Standard:	RSS 210 / FCC 15.407 UNII (Radiated)	Class:	NII

Run #1b : Receiver Tuned to 5280 MHz - Chain A active

Frequency	Level	Pol	RSS GEN		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
3000.320	51.5	V	54.0	-2.5	AVG	80	1.3	
6000.670	48.5	V	54.0	-5.5	AVG	276	1.0	
3000.320	54.8	V	74.0	-19.2	PK	80	1.3	
1494.530	32.8	V	54.0	-21.2	AVG	256	1.0	
6000.670	51.9	V	74.0	-22.1	PK	276	1.0	
1494.530	51.1	V	74.0	-22.9	PK	256	1.0	



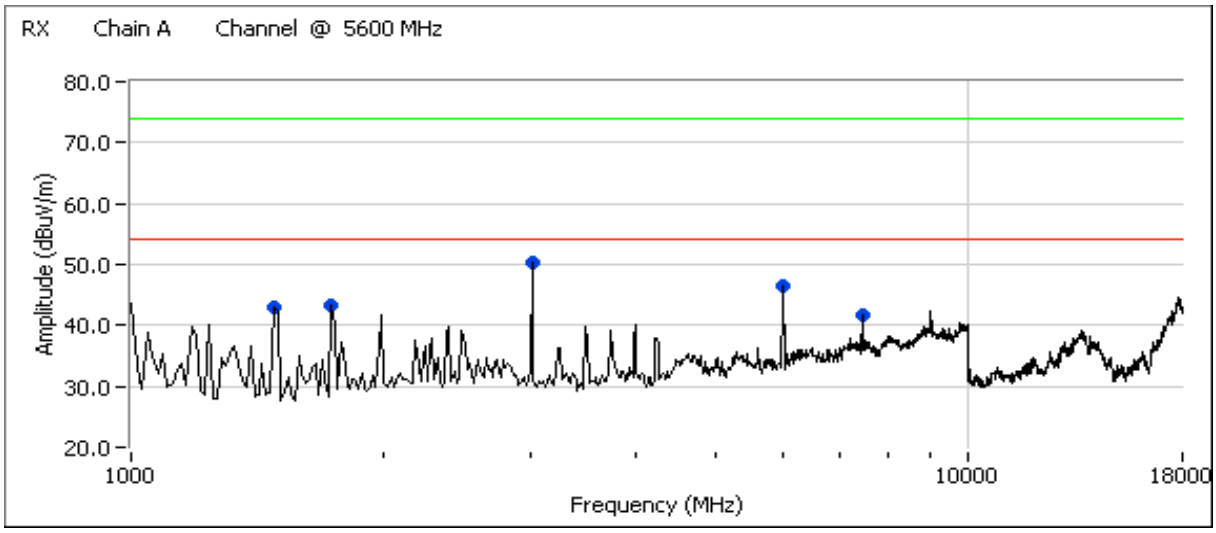
Client:	Intel	Job Number:	J70762
Model:	512AN HMW	T-Log Number:	T71849
		Account Manager:	Briggs / Eriksen
Contact:	Robert Paxman		
Standard:	RSS 210 / FCC 15.407 UNII (Radiated)	Class:	NII

Date of Test: 6/5/2008
Test Engineer: Ben Jing
Test Location: Fremont Chamber # 5

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

Run #1c : Receiver Tuned to 5600 MHz - Chain A active

Frequency	Level	Pol	RSS GEN		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
1493.860	31.7	V	54.0	-22.3	AVG	272	1.0	
1493.860	49.8	V	74.0	-24.2	PK	272	1.0	
1748.200	50.6	V	74.0	-23.4	PK	163	1.3	
1748.200	29.2	V	54.0	-24.8	AVG	163	1.3	
3000.360	50.4	V	54.0	-3.6	AVG	271	1.0	
3000.360	53.9	V	74.0	-20.1	PK	271	1.0	
6000.760	46.3	V	54.0	-7.7	AVG	272	1.6	
6000.760	49.5	V	74.0	-24.5	PK	272	1.6	
7466.650	42.1	V	54.0	-11.9	AVG	160	1.6	
7466.650	46.7	V	74.0	-27.3	PK	160	1.6	



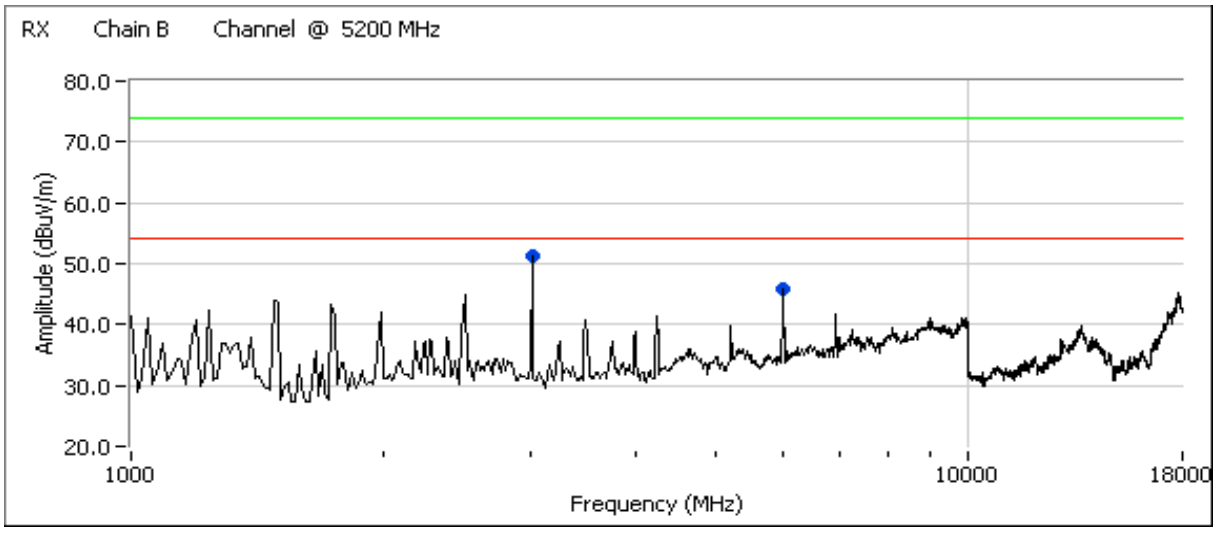
Client:	Intel	Job Number:	J70762
Model:	512AN HMW	T-Log Number:	T71849
		Account Manager:	Briggs / Eriksen
Contact:	Robert Paxman		
Standard:	RSS 210 / FCC 15.407 UNII (Radiated)	Class:	NII

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

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

Run #2a : Receiver Tuned to 5200 MHz - Chain B active

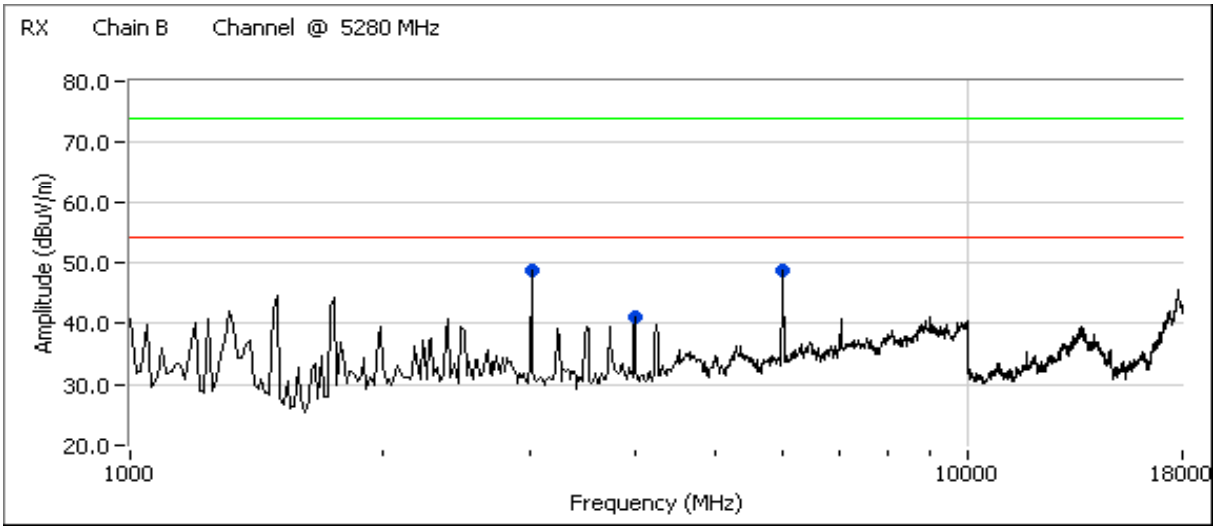
Frequency	Level	Pol	RSS GEN		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
3000.350	50.6	V	54.0	-3.4	AVG	271	1.0	
3000.350	54.0	V	74.0	-20.0	PK	271	1.0	
6000.750	46.5	V	54.0	-7.5	AVG	104	1.0	
6000.750	49.7	V	74.0	-24.3	PK	104	1.0	



Client:	Intel	Job Number:	J70762
Model:	512AN HMW	T-Log Number:	T71849
		Account Manager:	Briggs / Eriksen
Contact:	Robert Paxman		
Standard:	RSS 210 / FCC 15.407 UNII (Radiated)	Class:	NII

Run #2b : Receiver Tuned to 5280 MHz - Chain B active

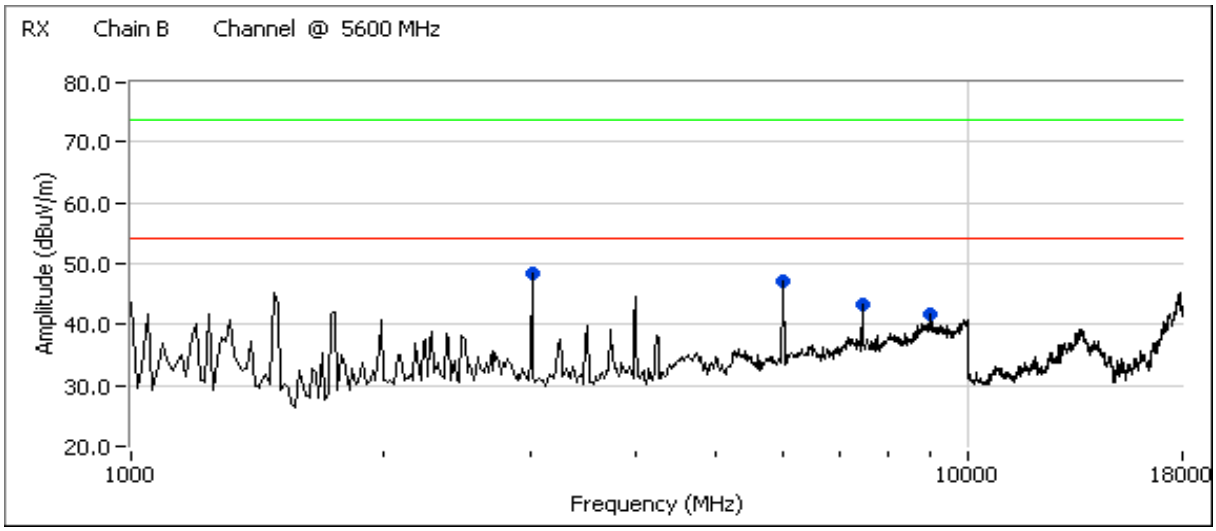
Frequency	Level	Pol	RSS GEN		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
3000.370	49.9	V	54.0	-4.1	AVG	270	1.0	
3000.370	53.9	V	74.0	-20.1	PK	270	1.0	
3998.640	28.6	V	54.0	-25.4	AVG	188	1.0	
3998.640	49.8	V	74.0	-24.2	PK	188	1.0	
6000.850	48.8	V	54.0	-5.2	AVG	270	1.3	
6000.850	52.2	V	74.0	-21.8	PK	270	1.3	



Client:	Intel	Job Number:	J70762
Model:	512AN HMW	T-Log Number:	T71849
		Account Manager:	Briggs / Eriksen
Contact:	Robert Paxman		
Standard:	RSS 210 / FCC 15.407 UNII (Radiated)	Class:	NII

Run #2c : Receiver Tuned to 5600 MHz - Chain B active

Frequency	Level	Pol	RSS GEN		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
3000.440	50.0	V	54.0	-4.0	AVG	270	1.0	
3000.440	53.6	V	74.0	-20.4	PK	270	1.0	
6000.750	48.4	V	54.0	-5.6	AVG	273	1.3	
6000.750	51.2	V	74.0	-22.8	PK	273	1.3	
7466.700	41.5	V	54.0	-12.5	AVG	209	1.6	
7466.700	47.3	V	74.0	-26.7	PK	209	1.6	
9001.120	40.0	V	54.0	-14.0	AVG	148	1.0	
9001.120	47.6	V	74.0	-26.4	PK	148	1.0	



Client:	Intel	Job Number:	J70762
Model:	512AN HMW	T-Log Number:	T71849
		Account Manager:	Briggs / Eriksen
Contact:	Robert Paxman		
Standard:	RSS 210 / FCC 15.407 UNII (Radiated)	Class:	NII

Run #3: Maximized readings, 1000 - 18000 MHz, All Receivers Active

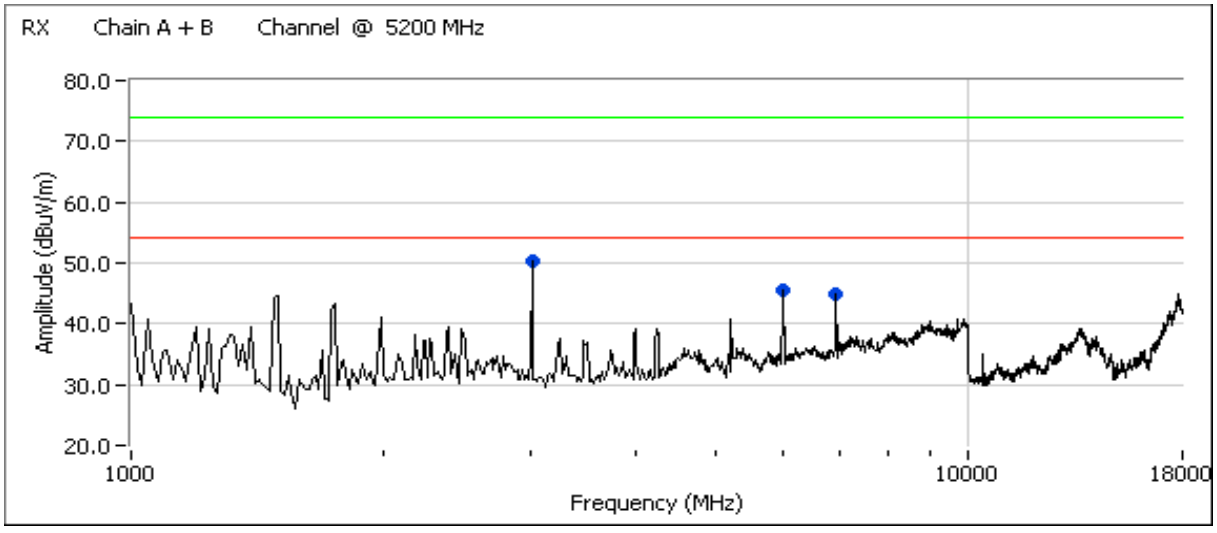
Note 1:	Above 1 GHz, the limit is for an average measurement. In addition, the peak reading of any emission above 1 GHz, can not exceed the average limit by more than 20 dB.

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

Run #3a : Receiver Tuned to 5200 MHz - Chain A + B active

Receiver Tuned to 5200 MHz - All chains active

Frequency	Level	Pol	RSS GEN		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
3000.460	51.2	V	54.0	-2.8	AVG	267	1.0	
3000.460	54.6	V	74.0	-19.4	PK	267	1.0	
6000.730	47.3	V	54.0	-6.7	AVG	273	1.6	
6000.730	50.8	V	74.0	-23.2	PK	273	1.6	
6933.320	44.1	V	54.0	-9.9	AVG	150	1.6	
6933.320	47.7	V	74.0	-26.3	PK	150	1.6	

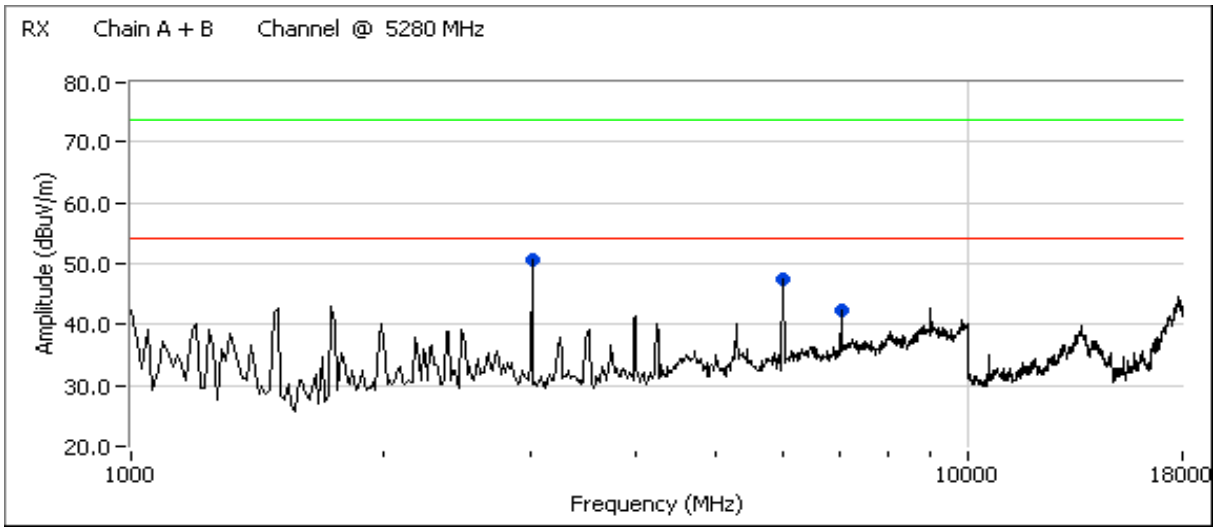


Client:	Intel	Job Number:	J70762
Model:	512AN HMW	T-Log Number:	T71849
		Account Manager:	Briggs / Eriksen
Contact:	Robert Paxman		
Standard:	RSS 210 / FCC 15.407 UNII (Radiated)	Class:	NII

Run #3b : Receiver Tuned to 5280 MHz - Chain A + B active

Receiver Tuned to 5280 MHz - All chains active

Frequency	Level	Pol	RSS GEN		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
3000.360	50.8	V	54.0	-3.2	AVG	272	1.0	
3000.360	54.2	V	74.0	-19.8	PK	272	1.0	
6000.690	47.8	V	54.0	-6.2	AVG	266	1.3	
6000.690	52.0	V	74.0	-22.0	PK	266	1.3	
7039.940	43.1	V	54.0	-10.9	AVG	163	1.6	
7039.940	47.2	V	74.0	-26.8	PK	163	1.6	



Client:	Intel	Job Number:	J70762
Model:	512AN HMW	T-Log Number:	T71849
		Account Manager:	Briggs / Eriksen
Contact:	Robert Paxman		
Standard:	RSS 210 / FCC 15.407 UNII (Radiated)	Class:	NII

Run #3c : Receiver Tuned to 5600 MHz - Chain A + B active

Receiver Tuned to 5500 MHz - All chains active

Frequency	Level	Pol	RSS GEN		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
3000.380	50.4	V	54.0	-3.6	AVG	269	1.0	
3000.380	53.8	V	74.0	-20.2	PK	269	1.0	
6000.800	47.6	V	54.0	-6.4	AVG	266	1.3	
6000.800	51.1	V	74.0	-22.9	PK	266	1.3	
7466.700	40.3	V	54.0	-13.7	AVG	161	1.6	
7466.700	46.1	V	74.0	-27.9	PK	161	1.6