

## **EMC Test Report**

### **Application for Grant of Equipment Authorization**

### **Industry Canada RSS-Gen Issue 4 / RSS 247 Issue 1 FCC Part 15, Subpart E**

### **Model: SDGOB-1506 and SDGOB-1505**

IC CERTIFICATION #: 466D-SDGOB1505 and 466D-SDGOB1506  
FCC ID: B94SDGOB1505 and B94SDGOB1506

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IC SITE REGISTRATION #: 2845B-3; 2845B-4, 2845B-5, 2845B-7

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and 31 and August 4, 5, 6, 10 and 12, 2015

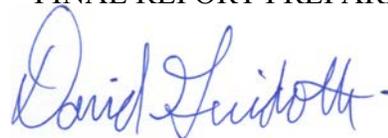
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**REVISION HISTORY**

Rev#	Date	Comments	Modified By
-	August 27, 2015	First release	
1	September 23, 2015	Updated IC number	MEH
2	November 17, 2015	Updated power vs data rate results Added Appendix for justification of test reductions taken	MEH

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## **SCOPE**

An electromagnetic emissions test has been performed on the Hewlett Packard Company model SDGOB-1506 and SDGOB-1505, pursuant to the following rules:

Industry Canada RSS-Gen Issue 4  
RSS 247 Issue 1 “Digital Transmission Systems (DTSS), Frequency Hopping Systems (FHSs) and Licence-Exempt Local Area Network (LE-LAN) Devices”  
FCC Part 15, Subpart E requirements for UNII Devices

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 National Technical Systems - Silicon Valley test procedures:

ANSI C63.10-2013  
FCC General UNII Test Procedures KDB789033

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

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

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

## **OBJECTIVE**

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

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

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

Certification is a procedure where the manufacturer submits test data and technical information to a certification body and receives a certificate or grant of equipment authorization upon successful completion of the certification body’s review of the submitted documents. Once the equipment authorization has been obtained, the label

indicating compliance must be attached to all identical units, which are subsequently manufactured.

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

Testing for the 802.11 operation was performed only on model SDGOB-1505. This model was considered representative of the SDGOB-1506.

Only results for the 5GHz 802.11 operation are presented in this report.

### **STATEMENT OF COMPLIANCE**

The tested sample of Hewlett Packard Company model SDGOB-1506 and SDGOB-1505 complied with the requirements of the following regulations:

Industry Canada RSS-Gen Issue 4

RSS 247 Issue 1 “Digital Transmission Systems (DTSs), Frequency Hopping Systems (FHSs) and Licence-Exempt Local Area Network (LE-LAN) Devices”

FCC Part 15, Subpart E requirements for UNII Devices

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

The test results recorded herein are based on a single type test of Hewlett Packard Company model SDGOB-1506 and SDGOB-1505 and therefore apply only to the tested sample. The sample was selected and prepared by Tarandeep Kaur of Broadcom Corporation on behalf of Hewlett Packard Company.

### **DEVIATIONS FROM THE STANDARDS**

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

**TEST RESULTS SUMMARY**

**UNII / LELAN DEVICES**

**Operation in the 5.15 – 5.25 GHz Band**

FCC Rule Part	RSS Rule Part	Description	Measured Value / Comments	Limit / Requirement	Result
-	RSS 247 6.2.1	Indoor operation only	Refer to user's manual	N/A	Complies
15.407 (a) (1) (iv)	-	Output Power	n20: 19.4 dBm (86mW) n40: 20.0 dBm (100mW)  (Max eirp: 224mW)	24dBm	Complies
-	RSS 247 6.2.1 (1)		n20: 22.4dBm eirp n40: 22.96dBm eirp	23dBm eirp	Complies
15.407 (a) (1)	-	Power Spectral Density	n20: 7.0 dBm/MHz n40: 5.7 dBm/MHz	11 dBm/MHz	Complies
-	RSS 247 6.2.1 (1)			10 dBm/MHz eirp	Complies

**Operation in the 5.25 – 5.35 GHz Band**

FCC Rule Part	RSS Rule Part	Description	Measured Value / Comments	Limit / Requirement	Result (margin)
15.407(a) (2)	-	26dB Bandwidth	19.7MHz minimum	N/A – limits output power if < 20MHz	N/A
-	RSS 247 6.2.2 (1)	99% Bandwidth	17.6MHz minimum	N/A – limits output power if < 20MHz	N/A
15.407(a) (2)	RSS 247 6.2.2 (1)	Output Power	n20: 19.8 dBm (96mW) n40: 19.8 dBm (95mW)  (Max eirp: 23.3 dBm (215mW))	24 dBm / 250mW (eirp < 30dBm)	Complies
15.407(a) (2)	RSS 247 6.2.2 (1)-	Power Spectral Density	n20: 7.4 dBm/MHz n40: 5.3 dBm/MHz	11 dBm/MHz	Complies

**Operation in the 5.47 – 5.725 GHz Band**

FCC Rule Part	RSS Rule Part	Description	Measured Value / Comments	Limit / Requirement	Result (margin)
15.407(a) (2)	-	26dB Bandwidth	20.0MHz minimum	N/A – limits output power if < 20MHz	N/A
-	RSS 247 6.2.3 (1)	99% Bandwidth	17.6MHz minimum	N/A – limits output power if < 20MHz	N/A
15.407(a) (2)	RSS 247 6.2.3 (1)	Output Power	n20: 18.9 dBm (77mW) n40: 19.0 dBm (80mW)  (Max eirp: 22.5 dBm (178mW))	24 dBm / 250mW (eirp < 30dBm)	Complies
15.407(a) (2))	RSS 247 6.2.3 (1)	Power Spectral Density	n20: 6.6 dBm/MHz n40: 4.6 dBm/MHz	11 dBm/MHz	Complies
-	RSS 247 6.2.3	Non-operation in 5600 – 5650 MHz sub band	Device cannot operate in the 5600 – 5650 MHz band –refer to Operational Description		Complies

**Operation in the 5.725 – 5.850 GHz Band**

FCC Rule Part	RSS Rule Part	Description	Measured Value / Comments	Limit / Requirement	Result (margin)
15.407 (e)	RSS 247 6.2.4 (1)	6dBm bandwidth	14.3MHz minimum	>500kHz	Complies
15.407(a) (3)	RSS 247 6.2.4 (1)	Output Power	n20: 18.7 dBm (74mW) n40: 17.7 dBm (59mW)  (Max eirp: 21.2 dBm (165mW))	30 dBm / 1000mW (eirp < 36dBm)	Complies
15.407(a) (3)	RSS 247 6.2.4 (1)	Power Spectral Density	n20: 6.3 dBm/MHz n40: 3.2 dBm/MHz	30 dBm/ 500kHz	Complies

**Requirements for all U-NII/LELAN bands**

FCC Rule Part	RSS Rule Part	Description	Measured Value / Comments	Limit / Requirement	Result
15.407	RSS 247 6.1	Modulation	Digital Modulation is used	Digital modulation is required	Complies
15.407(b) / 15.209	RSS 247 6.0	Spurious Emissions	74.0 dBμV/m @ 5149.8 MHz (0.0 dB)	Refer to page 21	Complies
	RSS 247 6.4 (1)	Channel Selection	Outermost carrier frequencies used for unwanted emissions	Device was tested on the top, bottom and center channels in each band	N/A
15			Measurements on three channels in each band		Complies
15.407 (c)	RSS 247 6.4 (2)	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)	-	Frequency Stability	Frequency stability is better than 10ppm	Signal shall remain within the allocated band	Complies
15.407 (h1)	RSS 247 6.2.2 (1) and 6.2.3 (1)	Transmit Power Control	TPC is not required as the device operates at below 500mW eirp	The U-NII device shall have the capability to operate with a mean EIRP value lower than 24dBm (250mW)	Complies
15.407 (h2)	RSS 247 6.3	Dynamic frequency Selection (device without radar detection)	Refer to separate test report, reference R99021	Channel move time < 10s Channel closing transmission time < 260ms	Complies
15.407 (i)	RSS 247 6.4 (4)	Device Security	Refer to Software Security Exhibit	Prevents modifications by unauthorized parties	Complies
	RSS 247 6.4 (5) and (6)	User manual information	Refer to manual for details	Warning regarding interference from Satellite Systems	Complies

**GENERAL REQUIREMENTS APPLICABLE TO ALL BANDS**

FCC Rule Part	RSS Rule part	Description	Measured Value / Comments	Limit / Requirement	Result (margin)
15.203	-	RF Connector	Uses u.FL connector for external antenna	Unique or integral antenna required	Complies
15.207	RSS GEN Table 3	AC Conducted Emissions	40.3 dB $\mu$ V @ 0.176 MHz (-14.4 dB)	Refer to page 19	Complies
15.247 (b) (5) 15.407 (f)	RSS 102	RF Exposure Requirements	Refer to MPE calculations in separate exhibit, RSS 102 declaration and User Manual statements.	Refer to OET 65, FCC Part 1 and RSS 102	Complies
-	RSS GEN 8.3	User Manual		Statement for products with detachable antenna	Complies
-	RSP 100 RSS GEN 6.6	Occupied Bandwidth	a: 17.5 MHz n20: 18.3 MHz n40: 37.3 MHz	Information only	N/A

**MEASUREMENT UNCERTAINTIES**

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

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

## **EQUIPMENT UNDER TEST (EUT) DETAILS**

### **GENERAL**

The Hewlett Packard Company model SDGOB-1505 is an IEEE 802.11 a/b/g/n wireless network adapter that operates in both the 2.4GHz and 5GHz bands. Model SDGOB-1506 adds BLE functionality. The card supports 802.11n modes in 20MHz and 40MHz.

The sample was received on July 13, 2015 and tested on July 14, 15, 16, 20, 21, 22, 23, 24, 27, 28, 29, 30 and 31 and August 4, 5, 6, 10 and 12, 2015. The EUT consisted of the following component(s):

Company	Model	Description	Serial Number	FCC ID
Hewlett Packard Company	SDGOB-1505	802.11abgn	707781772513	B94SDGOB1505
Hewlett Packard Company	SDGOB-1505	802.11abgn	D85DE2000005	B94SDGOB1505
Hewlett Packard Company	SDGOB-1505	802.11abgn	707781772509	B94SDGOB1505

### **OTHER EUT DETAILS**

#### **SDGOB-1505**

USB interface

Wifi operation 2.4GHz and 5GHz bands

802.11 a/b/g/n20 2x2 operation

40MHz bandwidths supported in 5GHz bands only

Two configurations: one using fixed internal/onboard antennas, and one with u.FL connectors to allow for external antennas.

SDGOB-1505 is identical to the SDGOB-1506, except that the BLE function is disabled via a resistor change.

### **ANTENNA SYSTEM**

There are two antenna options:

PCB trace antenna – 2.5dBi @ 2.4GHz, 3.5dBi @ 5GHz

External antenna, Yageo, ANTX300P002B24553, 0.7dBi @ 2.4GHz, 1.9dBi @ 5GHz

### **ENCLOSURE**

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

### **MODIFICATIONS**

No modifications were made to the EUT during the time the product was at NTS Silicon Valley.

**SUPPORT EQUIPMENT**

The following equipment was used as support equipment for testing:

Company	Model	Description	Serial Number	FCC ID
Dell	E6400	Laptop	FN4XJK1	-

No remote support equipment was used during testing.

**EUT INTERFACE PORTS**

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

Port	Connected To	Cable(s)		
		Description	Shielded or Unshielded	Length(m)
Laptop USB	USB Card Adapter	USB	Shielded	1
Card Adapter	EUT Module	-	-	-

**Additional on Support Equipment**

Port	Connected To	Cable(s)		
		Description	Shielded or Unshielded	Length(m)
Laptop Ethernet	Switch	Cat-5	Unshielded	10
Laptop DC input	AC/DC Output	2Wire	Unshielded	1
AC/DC Adapter	AC Mains	3Wire	Unshielded	0.8

**EUT OPERATION**

During testing, the EUT was configured to continuously transmit at maximum output power and noted data rate on the channel indicated.

**TEST SITE****GENERAL INFORMATION**

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

Site	Designation / Registration Numbers		Location
	FCC	Canada	
Chamber 5	US0027	2845B-5	41039 Boyce Road Fremont, CA 94538-2435

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

**CONDUCTED EMISSIONS CONSIDERATIONS**

Conducted emissions testing is performed in conformance with ANSI C63.10. 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 guidelines and meet the Normalized Site Attenuation (NSA) requirements of ANSI C63.4.

## **MEASUREMENT INSTRUMENTATION**

### **RECEIVER SYSTEM**

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

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

### **INSTRUMENT CONTROL COMPUTER**

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

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

### **LINE IMPEDANCE STABILIZATION NETWORK (LISN)**

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

**FILTERS/ATTENUATORS**

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

**ANTENNAS**

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

**ANTENNA MAST AND EQUIPMENT TURNTABLE**

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

ANSI C63.10 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 as specified in ANSI C63.4. 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 C63.10, and the worst-case orientation is used for final measurements.

### CONDUCTED EMISSIONS

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

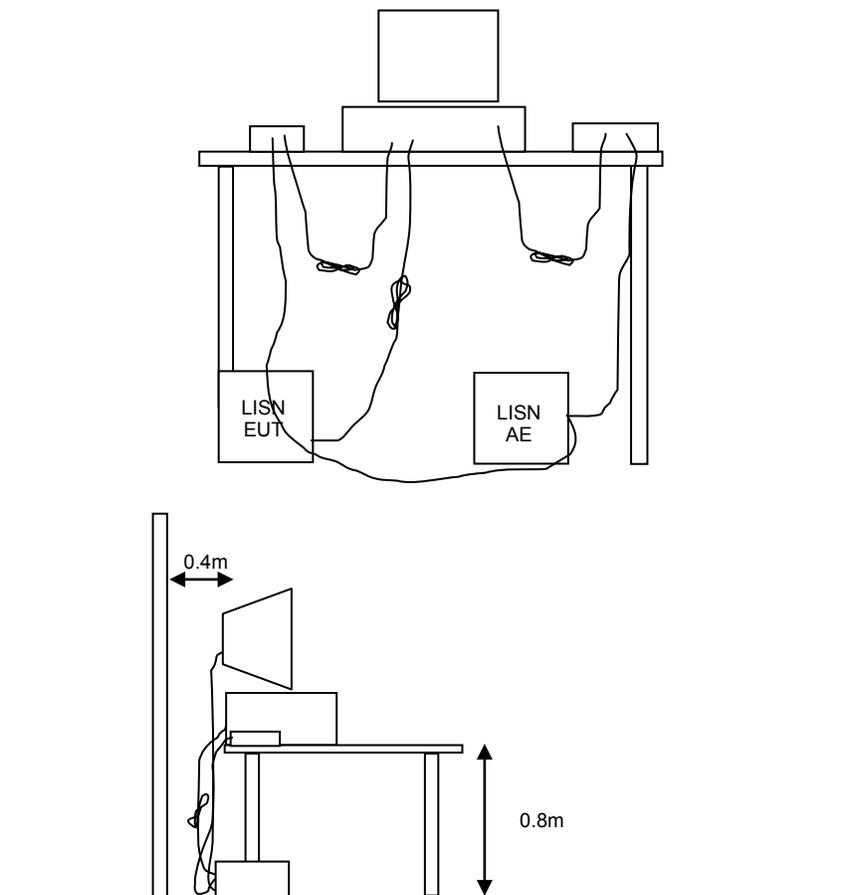


Figure 1 Typical Conducted Emissions Test Configuration

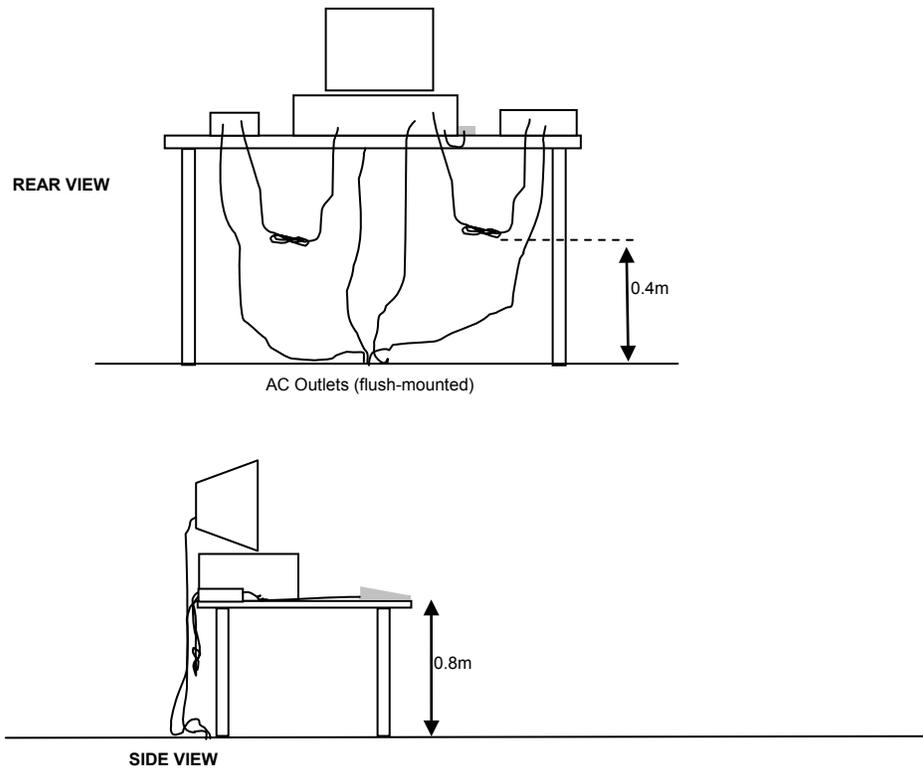
**RADIATED EMISSIONS**

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

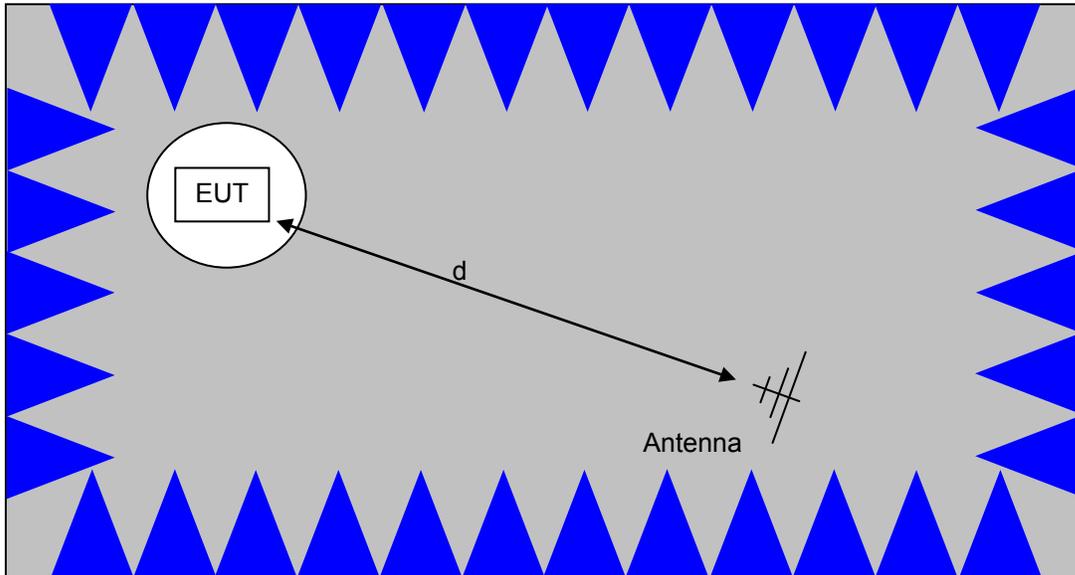
A speaker is provided in the receiver to aid in discriminating between EUT and ambient emissions. Other methods used during the preliminary scan for EUT emissions involve scanning with near field magnetic loops, monitoring I/O cables with RF current clamps, and cycling power to the EUT.

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

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

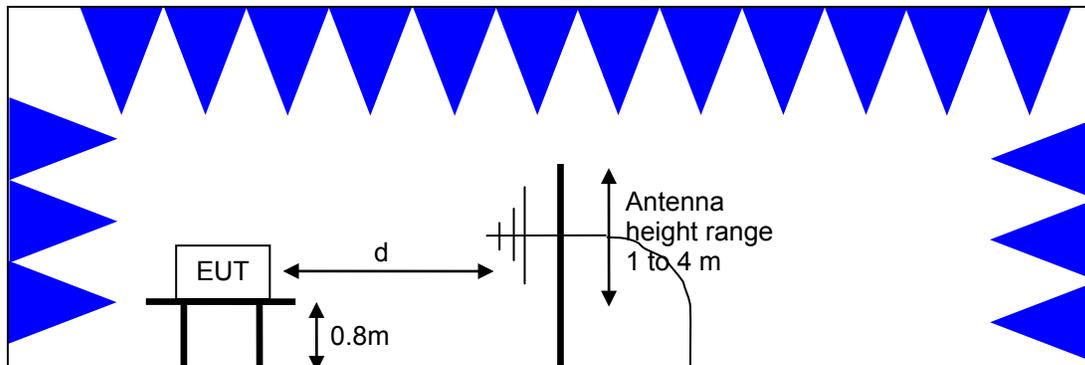


Typical Test Configuration for Radiated Field Strength Measurements



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

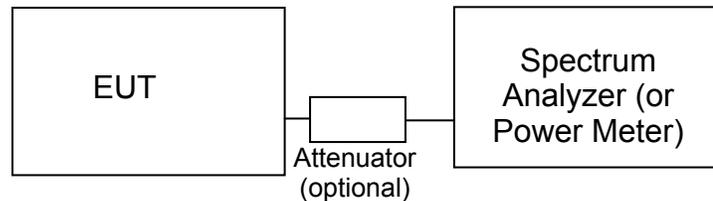
Floor-standing equipment is placed on the floor with insulating supports between the unit and the ground plane.



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

**CONDUCTED EMISSIONS FROM ANTENNA PORT**

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

Test Configuration for Antenna Port Measurements

Measurement bandwidths (video and resolution) are set in accordance with the relevant standards and NTS Silicon Valley'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, 26dB and/or 99% signal bandwidth are measured using the bandwidths recommended by ANSI C63.10 and RSS GEN.

**SPECIFICATION LIMITS AND SAMPLE CALCULATIONS**

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

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

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

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

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

**GENERAL TRANSMITTER RADIATED EMISSIONS SPECIFICATION LIMITS**

The table below shows the limits for the spurious emissions from transmitters that fall in restricted bands<sup>1</sup>.

Frequency Range (MHz)	Limit (uV/m)	Limit (dBuV/m @ 3m)
0.009-0.490	2400/F <sub>KHz</sub> @ 300m	67.6-20*log <sub>10</sub> (F <sub>KHz</sub> ) @ 300m
0.490-1.705	24000/F <sub>KHz</sub> @ 30m	87.6-20*log <sub>10</sub> (F <sub>KHz</sub> ) @ 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. In the 5250-5350MHz and 5470-5725MHz bands, 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	250 mW (24 dBm)	11 dBm/MHz
5250 – 5350	250 mW (24 dBm)	11 dBm/MHz
5745 – 5725	250 mW (24 dBm)	11 dBm/MHz
5725 – 5850	1 Watts (30 dBm)	30 dBm/500kHz

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.

<sup>1</sup> The restricted bands are detailed in FCC 15.205, RSS-GEN Table 3

### **OUTPUT POWER LIMITS –LELAN DEVICES**

The table below shows the limits for output power and output power density defined by RSS 247. In the 5250-5350MHz and 5470-5725MHz bands, 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) <sup>2</sup> 1W (30dBm) eirp	11 dBm/MHz
5470 – 5725	250 mW (24 dBm) <sup>3</sup> 1W (30dBm) eirp	11 dBm/MHz
5725 – 5850	1 Watts (30 dBm) 4W eirp	30 dBm/ 500KHz

### **SPURIOUS EMISSIONS LIMITS –UNII and LELAN DEVICES**

The spurious emissions limits for signals below 1GHz are the FCC/RSS-GEN general limits. For emissions above 1GHz, signals in restricted bands are subject to the FCC/RSS GEN general limits. All other signals have a limit of –27dBm/MHz, which is a field strength of 68.3dBuV/m/MHz at a distance of 3m. For devices operating in the 5725-5850Mhz bands under the LELAN/UNII rules, the limit within 10MHz of the allocated band is increased to –17dBm/MHz.

<sup>2</sup> If EIRP exceeds 500mW the device must employ TPC

<sup>3</sup> If EIRP exceeds 500mW the device must employ TPC

**SAMPLE CALCULATIONS - CONDUCTED EMISSIONS**

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

$$R_r - S = M$$

where:

$R_r$  = Receiver Reading in dBuV

$S$  = Specification Limit in dBuV

$M$  = Margin to Specification in +/- dB

**SAMPLE CALCULATIONS - RADIATED EMISSIONS**

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

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

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

where:

$F_d$  = Distance Factor in dB

$D_m$  = Measurement Distance in meters

$D_s$  = Specification Distance in meters

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

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

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

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

$$R_c = R_r + F_d$$

and

$$M = R_c - L_s$$

where:

$R_r$  = Receiver Reading in dBuV/m

$F_d$  = Distance Factor in dB

$R_C$  = Corrected Reading in dBuV/m

$L_S$  = Specification Limit in dBuV/m

$M$  = Margin in dB Relative to Spec

#### **SAMPLE CALCULATIONS - FIELD STRENGTH TO EIRP CONVERSION**

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

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

where  $P$  is the eirp (Watts)

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

### Appendix A Test Equipment Calibration Data

<u>Manufacturer</u>	<u>Description</u>	<u>Model</u>	<u>Asset #</u>	<u>Calibrated</u>	<u>Cal Due</u>
<b>Radiated Emissions, 1000 - 6,000 MHz, 13-Jul-15</b>					
EMCO	Antenna, Horn, 1-18 GHz	3115	1561	6/27/2014	6/27/2016
Rohde & Schwarz	EMI Test Receiver, 20 Hz-40 GHz	ESIB40 (1088.7490.40)	2493	1/23/2015	1/23/2016
<b>Radiated Emissions, 1000 - 6,000 MHz, 14-Jul-15</b>					
EMCO	Antenna, Horn, 1-18 GHz	3115	1561	6/27/2014	6/27/2016
Rohde & Schwarz	EMI Test Receiver, 20 Hz-40 GHz	ESIB40 (1088.7490.40)	2493	1/23/2015	1/23/2016
<b>Radiated Emissions, 1000 - 6,000 MHz, 15-Jul-15</b>					
EMCO	Antenna, Horn, 1-18 GHz	3115	1561	6/27/2014	6/27/2016
Rohde & Schwarz	EMI Test Receiver, 20 Hz-40 GHz	ESIB40 (1088.7490.40)	2493	1/23/2015	1/23/2016
<b>Radiated Emissions, 1000 - 6,000 MHz, 16-Jul-15</b>					
EMCO	Antenna, Horn, 1-18 GHz	3115	2870	8/20/2013	8/20/2015
Rohde & Schwarz	EMI Test Receiver, 20 Hz-40 GHz	ESIB40 (1088.7490.40)	2493	1/23/2015	1/23/2016
<b>Radiated Emissions, 1000 - 6,000 MHz, 17-Jul-15</b>					
EMCO	Antenna, Horn, 1-18 GHz	3115	2870	8/20/2013	8/20/2015
Rohde & Schwarz	EMI Test Receiver, 20 Hz-40 GHz	ESIB40 (1088.7490.40)	2493	1/23/2015	1/23/2016
<b>Radiated Emissions, 1,000 - 6,000 MHz, 20-Jul-15</b>					
Rohde & Schwarz	EMI Test Receiver, 20 Hz-40 GHz	ESIB40 (1088.7490.40)	2493	1/23/2015	1/23/2016
EMCO	Antenna, Horn, 1-18 GHz	3115	2870	8/20/2013	8/20/2015
<b>Radiated Emissions, 1000 - 12,000 MHz, 20-Jul-15</b>					
Hewlett Packard	Microwave Preamplifier, 1-26.5GHz	8449B	785	10/31/2014	10/31/2015
Hewlett Packard	SpecAn 9 kHz - 40 GHz, FT (SA40) Blue	8564E (84125C)	1393	5/2/2015	5/2/2016
Micro-Tronics	Band Reject Filter, 2400-2500 MHz	BRM50702-02	1683	7/13/2015	7/13/2016
Rohde & Schwarz	EMI Test Receiver, 20 Hz-40 GHz	ESIB40 (1088.7490.40)	2493	1/23/2015	1/23/2016
EMCO	Antenna, Horn, 1-18 GHz	3115	2870	8/20/2013	8/20/2015
<b>Radiated Emissions, 1000 - 12,000 MHz, 21-Jul-15</b>					
Hewlett Packard	Microwave Preamplifier, 1-26.5GHz	8449B	785	10/31/2014	10/31/2015
Hewlett Packard	SpecAn 9 kHz - 40 GHz, FT (SA40) Blue	8564E (84125C)	1393	5/2/2015	5/2/2016
Micro-Tronics	Band Reject Filter, 2400-2500 MHz	BRM50702-02	1683	7/13/2015	7/13/2016
Rohde & Schwarz	EMI Test Receiver, 20 Hz-40 GHz	ESIB40 (1088.7490.40)	2493	1/23/2015	1/23/2016
EMCO	Antenna, Horn, 1-18 GHz	3115	2870	8/20/2013	8/20/2015



<u>Manufacturer</u>	<u>Description</u>	<u>Model</u>	<u>Asset #</u>	<u>Calibrated</u>	<u>Cal Due</u>
<b>Radiated Spurious Emissions, 1,000 - 25,000 MHz, 22-Jul-15</b>					
Hewlett Packard	Microwave Preamplifier, 1-26.5GHz	8449B	785	10/31/2014	10/31/2015
Miteq	Preamplifier, 1-18 GHz	AFS44	1346	1/16/2015	1/16/2016
Hewlett Packard	SpecAn 9 kHz - 40 GHz, FT (SA40) Blue	8564E (84125C)	1393	5/2/2015	5/2/2016
Hewlett Packard	Head (Inc flex cable, (1742,1743) Blue)	84125C	1620	6/5/2015	6/5/2016
Micro-Tronics	Band Reject Filter, 2400-2500 MHz	BRM50702-02	1683	7/13/2015	7/13/2016
A. H. Systems	Red System Horn, 18-40GHz	SAS-574, p/n: 2581	2161	7/16/2015	7/16/2017
EMCO	Antenna, Horn, 1-18 GHz	3115	2870	8/20/2013	8/20/2015
<b>Radiated Emissions, 1000 - 25,000 MHz, 22-Jul-15</b>					
Miteq	Preamplifier, 1-18 GHz	AFS44	1346	1/16/2015	1/16/2016
Hewlett Packard	SpecAn 9 kHz - 40 GHz, FT (SA40) Blue	8564E (84125C)	1393	5/2/2015	5/2/2016
Hewlett Packard	Head (Inc flex cable, (1742,1743) Blue)	84125C	1620	6/5/2015	6/5/2016
Micro-Tronics	Band Reject Filter, 2400-2500 MHz	BRM50702-02	1683	7/13/2015	7/13/2016
Hewlett Packard	High Pass filter, 8.2 GHz (Purple System)	P/N 84300-80039	1767	11/14/2014	11/14/2015
A. H. Systems	Red System Horn, 18-40GHz	SAS-574, p/n: 2581	2161	7/16/2015	7/16/2017
Rohde & Schwarz	EMI Test Receiver, 20 Hz-40 GHz	ESIB40 (1088.7490.40)	2493	1/23/2015	1/23/2016
EMCO	Antenna, Horn, 1-18 GHz	3115	2870	8/20/2013	8/20/2015
<b>Radiated Emissions, 1000 - 25,000 MHz, 23-Jul-15</b>					
Miteq	Preamplifier, 1-18 GHz	AFS44	1346	1/16/2015	1/16/2016
Hewlett Packard	SpecAn 9 kHz - 40 GHz, FT (SA40) Blue	8564E (84125C)	1393	5/2/2015	5/2/2016
Hewlett Packard	Head (Inc flex cable, (1742,1743) Blue)	84125C	1620	6/5/2015	6/5/2016
Micro-Tronics	Band Reject Filter, 2400-2500 MHz	BRM50702-02	1683	7/13/2015	7/13/2016
Hewlett Packard	High Pass filter, 8.2 GHz (Purple System)	P/N 84300-80039	1767	11/14/2014	11/14/2015
A. H. Systems	Red System Horn, 18-40GHz	SAS-574, p/n: 2581	2161	7/16/2015	7/16/2017
EMCO	Antenna, Horn, 1-18 GHz	3115	2870	8/20/2013	8/20/2015
Micro-Tronics	Band Reject Filter, 5150-5350 MHz	BRC50703-02	1729	7/8/2015	7/8/2016
Micro-Tronics	Band Reject Filter, 5470-5725 MHz	BRC50704-02	1730	7/10/2015	7/10/2016
<b>Radiated Emissions, 1000 - 25,000 MHz, 24-Jul-15</b>					
Miteq	Preamplifier, 1-18 GHz	AFS44	1346	1/16/2015	1/16/2016
Hewlett Packard	SpecAn 9 kHz - 40 GHz, FT (SA40) Blue	8564E (84125C)	1393	5/2/2015	5/2/2016
Hewlett Packard	Head (Inc flex cable, (1742,1743) Blue)	84125C	1620	6/5/2015	6/5/2016
Hewlett Packard	High Pass filter, 8.2 GHz (Purple System)	P/N 84300-80039	1767	11/14/2014	11/14/2015

<u>Manufacturer</u>	<u>Description</u>	<u>Model</u>	<u>Asset #</u>	<u>Calibrated</u>	<u>Cal Due</u>
A. H. Systems	Red System Horn, 18-40GHz	SAS-574, p/n: 2581	2161	7/16/2015	7/16/2017
EMCO	Antenna, Horn, 1-18 GHz	3115	2870	8/20/2013	8/20/2015
Micro-Tronics	Band Reject Filter, 5150-5350 MHz	BRC50703-02	1729	7/8/2015	7/8/2016
Micro-Tronics	Band Reject Filter, 5470-5725 MHz	BRC50704-02	1730	7/10/2015	7/10/2016
Micro-Tronics	Band Reject Filter, 5725-5875 MHz	BRC50705-02	1682	7/8/2015	7/8/2016
<b>Radiated Emissions, 1000 - 25,000 MHz, 27-Jul-15</b>					
Miteq	Preamplifier, 1-18 GHz	AFS44	1346	1/16/2015	1/16/2016
Hewlett Packard	SpecAn 9 kHz - 40 GHz, FT (SA40) Blue	8564E (84125C)	1393	5/2/2015	5/2/2016
Hewlett Packard	Head (Inc flex cable, (1742,1743) Blue)	84125C	1620	6/5/2015	6/5/2016
Hewlett Packard	High Pass filter, 8.2 GHz (Purple System)	P/N 84300-80039	1767	11/14/2014	11/14/2015
A. H. Systems	Red System Horn, 18-40GHz	SAS-574, p/n: 2581	2161	7/16/2015	7/16/2017
EMCO	Antenna, Horn, 1-18 GHz	3115	2870	8/20/2013	8/20/2015
Micro-Tronics	Band Reject Filter, 5150-5350 MHz	BRC50703-02	1729	7/8/2015	7/8/2016
Micro-Tronics	Band Reject Filter, 5470-5725 MHz	BRC50704-02	1730	7/10/2015	7/10/2016
Micro-Tronics	Band Reject Filter, 5725-5875 MHz	BRC50705-02	1682	7/8/2015	7/8/2016
<b>Radiated Spurious Emissions, 1000 - 40,000 MHz, 29-Jul-15</b>					
Hewlett Packard	Microwave Preamplifier, 1-26.5GHz	8449B	785	10/31/2014	10/31/2015
Hewlett Packard	SpecAn 9 kHz - 40 GHz, FT (SA40) Blue	8564E (84125C)	1393	5/2/2015	5/2/2016
Hewlett Packard	Head (Inc flex cable, (1742,1743) Blue)	84125C	1620	6/5/2015	6/5/2016
Hewlett Packard	High Pass filter, 8.2 GHz (Purple System)	P/N 84300-80039	1767	11/14/2014	11/14/2015
A. H. Systems	Red System Horn, 18-40GHz	SAS-574, p/n: 2581	2161	7/16/2015	7/16/2017
EMCO	Antenna, Horn, 1-18 GHz	3115	2870	8/20/2013	8/20/2015
<b>Radiated Emissions, 1000 - 25,000 MHz, 29-Jul-15</b>					
Hewlett Packard	Microwave Preamplifier, 1-26.5GHz	8449B	785	10/31/2014	10/31/2015
Hewlett Packard	SpecAn 9 kHz - 40 GHz, FT (SA40) Blue	8564E (84125C)	1393	5/2/2015	5/2/2016
Hewlett Packard	Head (Inc flex cable, (1742,1743) Blue)	84125C	1620	6/5/2015	6/5/2016
Hewlett Packard	High Pass filter, 8.2 GHz (Purple System)	P/N 84300-80039	1767	11/14/2014	11/14/2015
A. H. Systems	Red System Horn, 18-40GHz	SAS-574, p/n: 2581	2161	7/16/2015	7/16/2017
EMCO	Antenna, Horn, 1-18 GHz	3115	2870	8/20/2013	8/20/2015
Micro-Tronics	Band Reject Filter, 5150-5350 MHz	BRC50703-02	1729	7/8/2015	7/8/2016
Micro-Tronics	Band Reject Filter, 5470-5725 MHz	BRC50704-02	1730	7/10/2015	7/10/2016



<u>Manufacturer</u>	<u>Description</u>	<u>Model</u>	<u>Asset #</u>	<u>Calibrated</u>	<u>Cal Due</u>
Micro-Tronics	Band Reject Filter, 5725-5875 MHz	BRC50705-02	1682	7/8/2015	7/8/2016
<b>Radiated Emissions, 1000 - 18,000 MHz, 30-Jul-15</b>					
Hewlett Packard	Microwave Preamplifier, 1-26.5GHz	8449B	785	10/31/2014	10/31/2015
Hewlett Packard	SpecAn 9 kHz - 40 GHz, FT (SA40) Blue	8564E (84125C)	1393	5/2/2015	5/2/2016
EMCO	Antenna, Horn, 1-18 GHz	3115	2870	8/20/2013	8/20/2015
<b>Radiated Emissions, 30 - 1,000 MHz, 30-Jul-15</b>					
Sunol Sciences	Biconilog, 30-3000 MHz	JB3	1548	9/17/2014	9/17/2016
Com-Power	Preamplifier, 30-1000 MHz	PA-103A	2359	12/22/2014	12/22/2015
Rohde & Schwarz	EMI Test Receiver, 20 Hz-40 GHz	ESIB40 (1088.7490.40)	2493	1/23/2015	1/23/2016
<b>Conducted Emissions - AC Power Ports, 31-Jul-15</b>					
EMCO	LISN, 10 kHz-100 MHz, 25A	3825/2	1292	7/24/2015	7/24/2016
Rohde & Schwarz	Pulse Limiter	ESH3 Z2	1401	5/14/2015	5/14/2016
Rohde & Schwarz	EMI Test Receiver, 20 Hz-7 GHz	ESIB7	1630	7/6/2015	7/6/2016
<b>Radiated Emissions, 30 - 1,000 MHz, 04-Aug-15</b>					
Sunol Sciences	Biconilog, 30-3000 MHz	JB3	1548	9/17/2014	9/17/2016
Com-Power	Preamplifier, 30-1000 MHz	PA-103A	2359	12/22/2014	12/22/2015
Rohde & Schwarz	EMI Test Receiver, 20 Hz-40 GHz	ESIB40 (1088.7490.40)	2493	1/23/2015	1/23/2016
<b>Radio Antenna Port (Power and Spurious Emissions), 05-Aug-15</b>					
Agilent Technologies	3Hz -44GHz PSA Spectrum Analyzer	E4446A	2796	3/31/2015	3/31/2016
<b>Radio Antenna Port (Power and Spurious Emissions), 06-Aug-15</b>					
Agilent Technologies	3Hz -44GHz PSA Spectrum Analyzer	E4446A	2796	3/31/2015	3/31/2016
<b>Radio Antenna Port (Power), 11-Aug-15</b>					
Agilent Technologies	3Hz -44GHz PSA Spectrum Analyzer	E4446A	2796	3/31/2015	3/31/2016
<b>Radio Antenna Port (Power and Spurious Emissions), 12-Aug-15</b>					
Agilent Technologies	3Hz -44GHz PSA Spectrum Analyzer	E4446A	2796	3/31/2015	3/31/2016
<b>Radio Antenna Port (Frequency Stability), 12-Aug-15</b>					
Watlow	Temp Chamber (w/ F4 Watlow Controller)	F4	2170	7/14/2015	7/14/2016
Agilent Technologies	3Hz -44GHz PSA Spectrum Analyzer	E4446A	2796	3/31/2015	3/31/2016



## **Appendix B Test Data**

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## *EMC Test Data*

Client:	Hewlett Packard Company	Job Number:	J98746
Product	SDGOB-1505	T-Log Number:	T98753
System Configuration:	-	Project Manager:	Sheareen Jacobs
Contact:	Tarandeep Kaur	Project Coordinator:	Irene Rademacher
Emissions Standard(s):	FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Class:	-
Immunity Standard(s):	-	Environment:	-

# **EMC Test Data**

For The

## **Hewlett Packard Company**

Product

**SDGOB-1505**

Date of Last Test: 8/14/2015



# EMC Test Data

Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
	Project Manager: Sheareen Jacobs
Contact: Tarandeep Kaur	Project Coordinator: Irene Rademacher
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Class: N/A

## Power vs. Data Rate

In normal operating modes the card uses power settings stored on EEPROM to set the output power. For a given nominal output power the actual transmit power normally is reduced as the data rate increases, therefore testing was performed at the data rate in the mode with highest power to determine compliance with the requirements.

The following power measurements were made using a GATED average power meter and with the device configured in a continuous transmit mode on Chain 1 at the various data rates in each mode to verify the highest power mode:

### Sample Notes

Sample S/N: 707781772509

Driver: 6.37 RC214 .12

Date of Test: 7/13/2015

Test Engineer: Rafael Varelas

Test Location: FT Chamber #5

Mode	Data Rate	Power (dBm)	Power setting
802.11b	1	<b>18.3</b>	q72
	2	18.3	
	5.5	18.2	
	11	18.2	
802.11g	6	<b>17.0</b>	q67
	9	17.0	
	12	17.0	
	18	16.9	
	24	16.9	
	36	16.8	
	48	16.8	
	54	16.7	



# EMC Test Data

Client:	Hewlett Packard Company	Job Number:	J98746
Model:	SDGOB-1505	T-Log Number:	T98753
Contact:	Tarandeep Kaur	Project Manager:	Sheareen Jacobs
Standard:	FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator:	Irene Rademacher
		Class:	N/A

Mode	Data Rate	Power (dBm)	Power setting
802.11n 20MHz	6.5	<b>18.8</b>	q72
	13	18.8	
	19.5	18.7	
	26	18.6	
	39	18.6	
	52	18.6	
	58.5	18.5	
	65	18.5	
	78	N/A	
<<-11ac mode only			
802.11n/ac 40MHz	13.5	<b>17.0</b>	q66
	27	17.0	
	40.5	16.9	
	54	16.9	
	81	16.8	
	108	16.8	
	121.5	16.7	
	135	16.6	
	162	N/A	
	180	N/A	
<<-11ac mode only <<-11ac mode only			

Note : Power setting - the software power setting used during testing, included for reference only.

Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
Contact: Tarandeep Kaur	Project Manager: Sheareen Jacobs
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator: Irene Rademacher
	Class: N/A

## Duty Cycle

Date of Test: 7/13/2015  
 Test Engineer: Rafael Varelas  
 Test Location: FT Chamber #5

Duty cycle measurements performed on the worse case data rate for power.

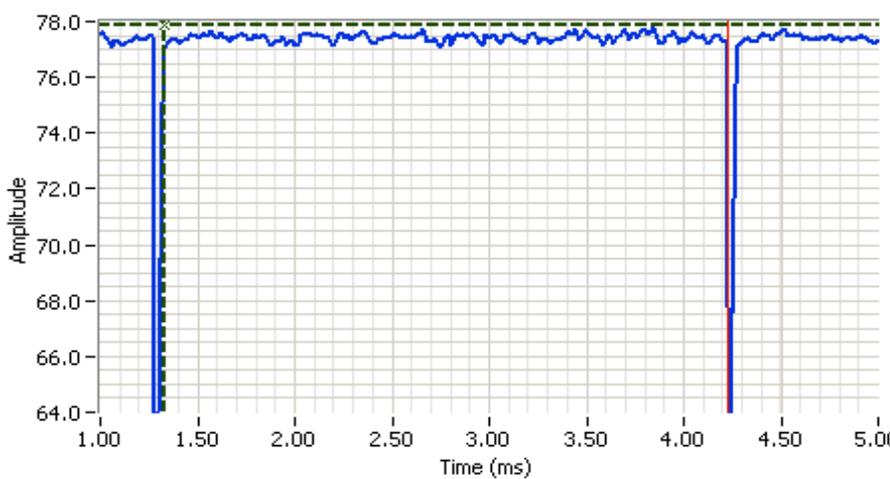
Notes: Measurements taken with maximum RBW/VBW settings allowed.

Mode	Data Rate	Duty Cycle (x)	Constant DC?	T (ms)	Pwr Cor Factor*	Lin Volt Cor Factor**	Min VBW for FS (Hz)
11b	1Mb/s	98.2%	Yes	2.897	0	0	345
11g	6Mb/s	98.2%	Yes	1.405	0	0	712
n20	MCS0	98.1%	Yes	1.309	0	0	764
n40	MCS0	98.0%	Yes	0.932	0	0	1073
n40	MCS0	98.4%	Yes	0.932	0	0	1073

\* Correction factor when using RMS/Power averaging -  $10 \cdot \log(1/x)$

\*\* Correction factor when using linear voltage average -  $20 \cdot \log(1/x)$

T = Minimum transmission duration

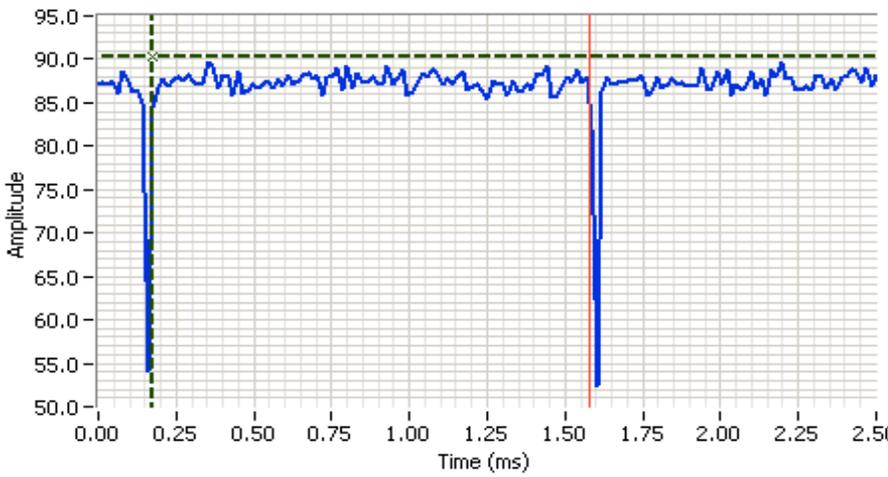


**Analyzer Settings**  
 Rohde&Schwarz,ESI  
 CF: 2411.500 MHz  
 SPAN: 0.000 MHz  
 RB: 10.000 MHz  
 VB: 20.0 kHz  
 Detector: POS  
 Attn: 20 DB  
 RL Offset: 0.0 DB  
 Sweep Time: 8.0ms  
 Ref Lvl: 102.0 DBUV

**Comments**  
 802.11b  
 Tx On = 2.897ms  
 Tx Off = 0.052ms  
 Duty Cycle = 98.2%

Cursor 1 1.3299 77.8 Delta Time (ms) 2.897  
 Cursor 1 4.2268 0.0 Delta Amplitude 77.8

Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
Contact: Tarandeep Kaur	Project Manager: Sheareen Jacobs
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator: Irene Rademacher
	Class: N/A

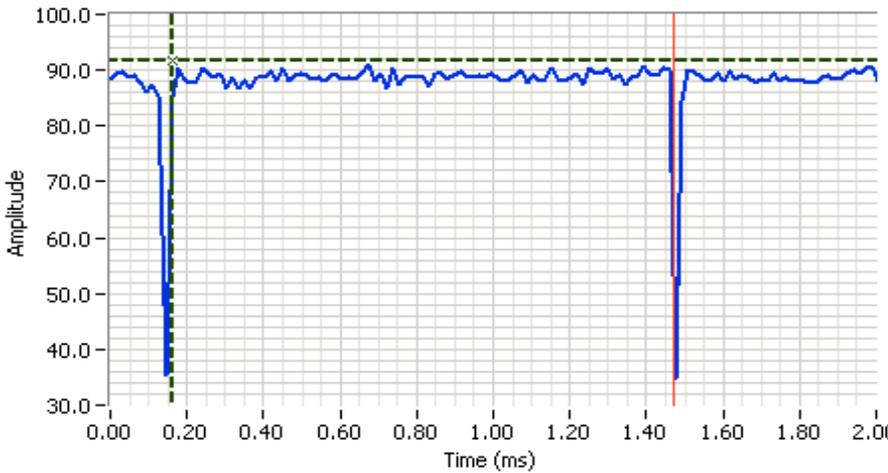


**Analyzer Settings**  
 Rohde&Schwarz,ESI  
 CF: 2411.500 MHz  
 SPAN: 0.000 MHz  
 RB: 10.000 MHz  
 VB: 10.000 MHz  
 Detector: POS  
 Attn: 20 DB  
 RL Offset: 0.0 DB  
 Sweep Time: 8.0ms  
 Ref Lvl: 102.0 DBUV

**Comments**  
 802.11g  
 Tx On = 1.405ms  
 Tx Off = 0.026ms  
 Duty Cycle = 98.2%

Cursor 1 0.1740 90.2  Delta Time (ms) 1.405

Cursor 1 1.5786 0.0  Delta Amplitude 90.2



**Analyzer Settings**  
 Rohde&Schwarz,ESI  
 CF: 2462.000 MHz  
 SPAN: 0.000 MHz  
 RB: 10.000 MHz  
 VB: 10.000 MHz  
 Detector: POS  
 Attn: 0 DB  
 RL Offset: 0.0 DB  
 Sweep Time: 8.0ms  
 Ref Lvl: 92.0 DBUV

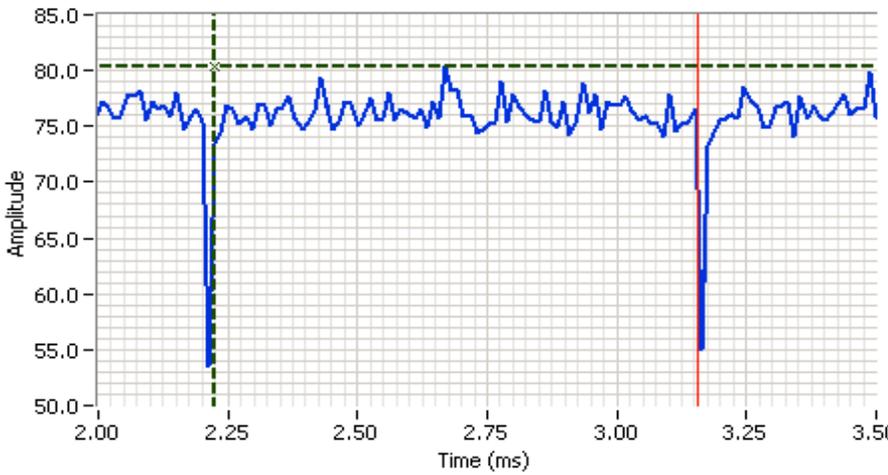
**Comments**  
 802.11 n20  
 Tx On = 1.309ms  
 Tx Off = 0.026ms  
 Duty Cycle = 98.1%

Cursor 1 0.1623 91.6  Delta Time (ms) 1.309

Cursor 1 1.4712 0.0  Delta Amplitude 91.6



Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
Contact: Tarandeep Kaur	Project Manager: Sheareen Jacobs
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator: Irene Rademacher
	Class: N/A



**Analyzer Settings**

Rohde&Schwarz,ESI  
 CF: 5180.000 MHz  
 SPAN: 0.000 MHz  
 RB: 10.000 MHz  
 VB: 10.000 MHz  
 Detector: POS  
 Attn: 20 DB  
 RL Offset: 0.0 DB  
 Sweep Time: 6.0ms  
 Ref Lvl: 102.0 DBUV

**Comments**

802.11n40  
 Tx On = 0.932ms  
 Tx Off = 0.019ms  
 Duty Cycle = 98.0%

Cursor 1	2.2242	80.3		Delta Time (ms)	0.932
Cursor 1	3.1559	0.0		Delta Amplitude	80.3

Client:	Hewlett Packard Company	Job Number:	J98746
Model:	SDGOB-1505	T-Log Number:	T98753
Contact:	Tarandeep Kaur	Project Manager:	Sheareen Jacobs
Standard:	FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator:	Irene Rademacher
		Class:	N/A

## RSS 247 and FCC 15.407 (UNII) Radiated Spurious Emissions

### Test Specific Details

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

### General Test Configuration

The EUT and all local support equipment were located on the turntable for radiated spurious emissions testing. For radiated emissions testing the measurement antenna was located 3 meters from the EUT, unless otherwise noted.

### Ambient Conditions:

Temperature: 22.6 °C  
Rel. Humidity: 38 %

### Summary of Results

Run #	Mode	Channel	Power Setting	Measured Power	Test Performed	Limit	Result / Margin
20MHz Bandwith Modes							
1	a (1Tx)	36 - 5180MHz	-	-	Restricted Band Edge at 5150 MHz	15.209	53.0 dBµV/m @ 5150.0 MHz (-1.0 dB)
2	a (1Tx)	64 - 5320MHz	-	-	Restricted Band Edge at 5350 MHz	15.209	53.6 dBµV/m @ 5350.0 MHz (-0.4 dB)
3	a (1Tx)	100 - 5500MHz	-	-	Restricted Band Edge at 5460 MHz	15.209	47.4 dBµV/m @ 5460.0 MHz (-6.6 dB)
	a (1Tx)	100 - 5500MHz	-	-	Band Edge 5460 - 5470 MHz	15E	50.8 dBµV/m @ 5470.0 MHz (-3.2 dB)
	a (1Tx)	140 - 5700MHz	-	-	Band Edge 5725MHz	15E	53.9 dBµV/m @ 5725.0 MHz (-0.1 dB)
4	a (1Tx)	149 - 5745MHz	-	-	Band Edge at 5715 MHz	15E	66.9 dBµV/m @ 5713.4 MHz (-1.4 dB)
	a (1Tx)	149 - 5745MHz	-	-	Band Edge 5715 - 5725 MHz	15E	78.0 dBµV/m @ 5724.8 MHz (-0.3 dB)
	a (1Tx)	165 - 5825MHz	-	-	Band Edge at 5860MHz	15E	66.5 dBµV/m @ 5864.0 MHz (-1.8 dB)
	a (1Tx)	165 - 5825MHz	-	-	Band Edge at 5850MHz	15E	75.7 dBµV/m @ 5853.2 MHz (-2.6 dB)



# EMC Test Data

Client:	Hewlett Packard Company	Job Number:	J98746
Model:	SDGOB-1505	T-Log Number:	T98753
Contact:	Tarandeep Kaur	Project Manager:	Sheareen Jacobs
Standard:	FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator:	Irene Rademacher
		Class:	N/A

Run #	Mode	Channel	Power Setting	Measured Power	Test Performed	Limit	Result / Margin
5	n20 (1Tx)	36 - 5180MHz	-	-	Restricted Band Edge at 5150 MHz	15.209	53.7 dBµV/m @ 5150.0 MHz (-0.3 dB)
6	n20 (1Tx)	64 - 5320MHz	-	-	Restricted Band Edge at 5350 MHz	15.209	52.6 dBµV/m @ 5350.0 MHz (-1.4 dB)
7	n20 (1Tx)	100 - 5500MHz	-	-	Restricted Band Edge at 5460 MHz	15.209	48.0 dBµV/m @ 5460.0 MHz (-6.0 dB)
	n20 (1Tx)	100 - 5500MHz	-	-	Band Edge 5460 - 5470 MHz	15E	51.7 dBµV/m @ 5470.0 MHz (-2.3 dB)
	n20 (1Tx)	140 - 5700MHz	-	-	Band Edge 5725MHz	15E	53.4 dBµV/m @ 5725.0 MHz (-0.6 dB)
8	n20 (1Tx)	149 - 5745MHz	-	-	Band Edge at 5715 MHz	15E	71.2 dBµV/m @ 5712.2 MHz (-2.8 dB)
	n20 (1Tx)	149 - 5745MHz	-	-	Band Edge 5715 - 5725 MHz	15E	77.6 dBµV/m @ 5724.3 MHz (-0.7 dB)
	n20 (1Tx)	165 - 5825MHz	-	-	Band Edge at 5860MHz	15E	53.6 dBµV/m @ 5860.2 MHz (-0.4 dB)
	n20 (1Tx)	165 - 5825MHz	-	-	Band Edge at 5850MHz	15E	77.9 dBµV/m @ 5851.0 MHz (-0.4 dB)
9	n20 (2Tx)	36 - 5180MHz	-	-	Restricted Band Edge at 5150 MHz	15.209	53.2 dBµV/m @ 5150.0 MHz (-0.8 dB)
	n20 (2Tx)	40 - 5200MHz	-	-	Restricted Band Edge at 5150 MHz	15.209	53.7 dBµV/m @ 5150.0 MHz (-0.3 dB)
10	n20 (2Tx)	60 - 5300MHz	-	-	Restricted Band Edge at 5350 MHz	15.209	53.7 dBµV/m @ 5350.2 MHz (-0.3 dB)
	n20 (2Tx)	64 - 5320MHz	-	-	Restricted Band Edge at 5350 MHz	15.209	53.6 dBµV/m @ 5350.1 MHz (-0.4 dB)
11	n20 (2Tx)	100 - 5500MHz	-	-	Restricted Band Edge at 5460 MHz	15.209	53.4 dBµV/m @ 5460.0 MHz (-0.6 dB)
	n20 (2Tx)	100 - 5500MHz	-	-	Band Edge 5460 - 5470 MHz	15E	73.8 dBµV/m @ 5468.3 MHz (-0.2 dB)
	n20 (2Tx)	136 - 5680MHz	-	-	Band Edge 5725MHz	15E	53.1 dBµV/m @ 5725.0 MHz (-0.9 dB)
	n20 (2Tx)	140 - 5700MHz	-	-	Band Edge 5725MHz	15E	52.6 dBµV/m @ 5725.0 MHz (-1.4 dB)



# EMC Test Data

Client:	Hewlett Packard Company	Job Number:	J98746
Model:	SDGOB-1505	T-Log Number:	T98753
Contact:	Tarandeep Kaur	Project Manager:	Sheareen Jacobs
Standard:	FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator:	Irene Rademacher
		Class:	N/A

Run #	Mode	Channel	Power Setting	Measured Power	Test Performed	Limit	Result / Margin
12	n20 (2Tx)	149 - 5745MHz	-	-	Band Edge at 5715 MHz	15E	52.3 dBµV/m @ 5714.9 MHz (-1.7 dB)
	n20 (2Tx)	149 - 5745MHz	-	-	Band Edge 5715 - 5725 MHz	15E	77.6 dBµV/m @ 5724.2 MHz (-0.7 dB)
	n20 (2Tx)	153 - 5765MHz	-	-	Band Edge at 5715 MHz	15E	53.6 dBµV/m @ 5715.0 MHz (-0.4 dB)
	n20 (2Tx)	153 - 5765MHz	-	-	Band Edge 5715 - 5725 MHz	15E	72.2 dBµV/m @ 5722.3 MHz (-7.4 dB)
	n20 (2Tx)	161 - 5805MHz	-	-	Band Edge at 5860MHz	15E	53.2 dBµV/m @ 5860.1 MHz (-0.8 dB)
	n20 (2Tx)	161 - 5805MHz	-	-	Band Edge at 5850MHz	15E	75.2 dBµV/m @ 5855.2 MHz (-3.1 dB)
	n20 (2Tx)	165 - 5825MHz	-	-	Band Edge at 5860MHz	15E	53.6 dBµV/m @ 5860.1 MHz (-0.4 dB)
	n20 (2Tx)	165 - 5825MHz	-	-	Band Edge at 5850MHz	15E	76.9 dBµV/m @ 5852.3 MHz (-1.4 dB)

**40MHz Bandwith Modes**

13	n40 (1Tx)	38 - 5190MHz	-	-	Restricted Band Edge at 5150 MHz	15.209	53.5 dBµV/m @ 5150.0 MHz (-0.5 dB)
	n40 (1Tx)	46 - 5230MHz	-	-	Restricted Band Edge at 5150 MHz	15.209	49.9 dBµV/m @ 5150.0 MHz (-4.1 dB)
14	n40 (1Tx)	62 - 5310MHz	-	-	Restricted Band Edge at 5350 MHz	15.209	53.8 dBµV/m @ 5350.0 MHz (-0.2 dB)
15	n40 (1Tx)	102 - 5510MHz	-	-	Restricted Band Edge at 5460 MHz	15.209	48.9 dBµV/m @ 5459.9 MHz (-5.1 dB)
	n40 (1Tx)	102 - 5510MHz	-	-	Band Edge 5460 - 5470 MHz	15E	53.4 dBµV/m @ 5470.0 MHz (-0.6 dB)
	n40 (1Tx)	134 - 5670MHz	-	-	Band Edge 5725MHz	15E	53.9 dBµV/m @ 5725.0 MHz (-0.1 dB)
16	n40 (1Tx)	151 - 5755MHz	-	-	Band Edge at 5715 MHz	15E	53.7 dBµV/m @ 5715.0 MHz (-0.3 dB)
	n40 (1Tx)	151 - 5755MHz	-	-	Band Edge 5715 - 5725 MHz	15E	75.9 dBµV/m @ 5723.2 MHz (-2.4 dB)
	n40 (1Tx)	159 - 5795MHz	-	-	Band Edge at 5860MHz	15E	53.1 dBµV/m @ 5860.1 MHz (-0.9 dB)
	n40 (1Tx)	159 - 5795MHz	-	-	Band Edge at 5850MHz	15E	72.9 dBµV/m @ 5854.8 MHz (-5.4 dB)



# EMC Test Data

Client:	Hewlett Packard Company	Job Number:	J98746
Model:	SDGOB-1505	T-Log Number:	T98753
Contact:	Tarandeep Kaur	Project Manager:	Sheareen Jacobs
Standard:	FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator:	Irene Rademacher
		Class:	N/A

Run #	Mode	Channel	Power Setting	Measured Power	Test Performed	Limit	Result / Margin
17	n40 (2Tx)	38 - 5190MHz	-	-	Restricted Band Edge at 5150 MHz	15.209	53.3 dBµV/m @ 5149.0 MHz (-0.7 dB)
	n40 (2Tx)	46 - 5230MHz	-	-	Restricted Band Edge at 5150 MHz	15.209	53.0 dBµV/m @ 5148.8 MHz (-1.0 dB)
18	n40 (2Tx)	54 - 5270MHz	-	-	Restricted Band Edge at 5350 MHz	15.209	53.7 dBµV/m @ 5350.0 MHz (-0.3 dB)
	n40 (2Tx)	62 - 5310MHz	-	-	Restricted Band Edge at 5350 MHz	15.209	53.3 dBµV/m @ 5351.0 MHz (-0.7 dB)
19	n40 (2Tx)	102 - 5510MHz	-	-	Restricted Band Edge at 5460 MHz	15.209	49.7 dBµV/m @ 5460.0 MHz (-4.3 dB)
	n40 (2Tx)	102 - 5510MHz	-	-	Band Edge 5460 - 5470 MHz	15E	53.5 dBµV/m @ 5470.0 MHz (-0.5 dB)
	n40 (2Tx)	110 - 5550MHz	-	-	Restricted Band Edge at 5460 MHz	15.209	48.6 dBµV/m @ 5459.0 MHz (-5.4 dB)
	n40 (2Tx)	110 - 5550MHz	-	-	Band Edge 5460 - 5470 MHz	15E	67.6 dBµV/m @ 5465.9 MHz (-0.7 dB)
	n40 (2Tx)	126 - 5630MHz	-	-	Band Edge 5725MHz	15E	51.4 dBµV/m @ 5726.9 MHz (-2.6 dB)
	n40 (2Tx)	134 - 5670MHz	-	-	Band Edge 5725MHz	15E	53.3 dBµV/m @ 5726.4 MHz (-0.7 dB)
20	n40 (2Tx)	151 - 5755MHz	-	-	Band Edge at 5715 MHz	15E	53.0 dBµV/m @ 5714.0 MHz (-1.0 dB)
	n40 (2Tx)	151 - 5755MHz	-	-	Band Edge 5715 - 5725 MHz	15E	73.4 dBµV/m @ 5724.1 MHz (-4.9 dB)
	n40 (2Tx)	159 - 5795MHz	-	-	Band Edge at 5860MHz	15E	53.1 dBµV/m @ 5860.2 MHz (-0.9 dB)
	n40 (2Tx)	159 - 5795MHz	-	-	Band Edge at 5850MHz	15E	74.5 dBµV/m @ 5850.3 MHz (-3.8 dB)

### Modifications Made During Testing

No modifications were made to the EUT during testing

### Deviations From The Standard

No deviations were made from the requirements of the standard.



# EMC Test Data

Client:	Hewlett Packard Company	Job Number:	J98746
Model:	SDGOB-1505	T-Log Number:	T98753
Contact:	Tarandeep Kaur	Project Manager:	Sheareen Jacobs
Standard:	FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator:	Irene Rademacher
		Class:	N/A

## Sample Notes

Sample S/N: D85DE2000005 (MAC #)  
 Driver: 6.37 RC214 .12  
 Antenna: Internal

## Notes

Testing performed at 1.5m per C63.10  
 n20 2Tx was tested as representative of 11a 2Tx  
 n20 / n40 tested in CDD mode as representative of STBC operation  
 Worse case chain for 1Tx operation was determined from preliminary testing

## Procedure Comments:

Measurements performed in accordance with FCC KDB 789033  
 Peak measurements performed with: RBW=1MHz, VBW=3MHz, peak detector, max hold, auto sweep time  
 Unless otherwise stated/noted, emission has duty cycle  $\geq 98\%$  and was measured using RBW=1MHz, VBW=10Hz, peak detector, linear average mode, auto sweep time, max hold.

Mode	Data Rate	Duty Cycle (x)	Constant DC?	T (ms)	Pwr Cor Factor*	Lin Volt Cor Factor**	Min VBW for FS (Hz)
11a	6MB/s	0.982	Yes	1.405	0	0	10
11n20	MCS0	0.981	Yes	1.309	0	0	10
11n40	MCS0	0.98	Yes	0.932	0	0	10

## Measurement Specific Notes:

Note 1:	For emissions outside of the restricted bands the limit is -27dBm/MHz eirp (68.3dBuV/m). The measurement method required is a peak measurement (RB=1MHz, VB $\geq$ 3MHz, peak detector). Per KDB 789033 2) c) (i), compliance can be demonstrated by meeting the average and peak limits of 15.209, as an alternative.
Note 6:	Plots of the average and peak bandedge do not account for any duty cycle correction. Refer to the tabular results for final measurements.



# EMC Test Data

Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
	Project Manager: Sheareen Jacobs
Contact: Tarandeep Kaur	Project Coordinator: Irene Rademacher
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Class: N/A

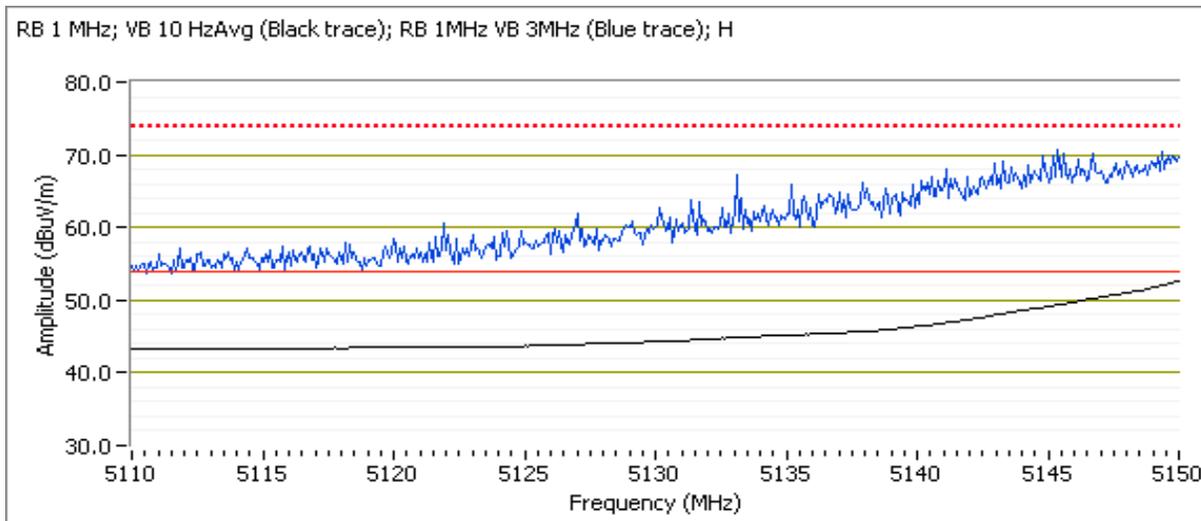
## Run #1: Radiated Bandedge Measurements, 5150-5250MHz

Date of Test: 7/20/2015 0:00  
 Test Engineer: Eddie Mariscal/John Caizzi  
 Test Location: FT Chamber #5  
 Config. Used: 1  
 Config Change: None  
 EUT Voltage: USB

Channel: 36 - 5180 MHz  
 Tx Chain: Main  
 Mode: a  
 Data Rate: 6Mbps

### 5150 MHz Band Edge Signal Radiated Field Strength

Frequency MHz	Level dB $\mu$ V/m	Pol v/h	FCC 15.209		Detector Pk/QP/Avg	Azimuth degrees	Height meters	Comments
			Limit	Margin				
5150.000	53.0	H	54.0	-1.0	AVG	156	1.1	POS; RB 1 MHz; VB: 10 Hz
5149.440	69.0	H	74.0	-5.0	PK	156	1.1	POS; RB 1 MHz; VB: 3 MHz





# EMC Test Data

Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
Contact: Tarandeep Kaur	Project Manager: Sheareen Jacobs
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator: Irene Rademacher
	Class: N/A

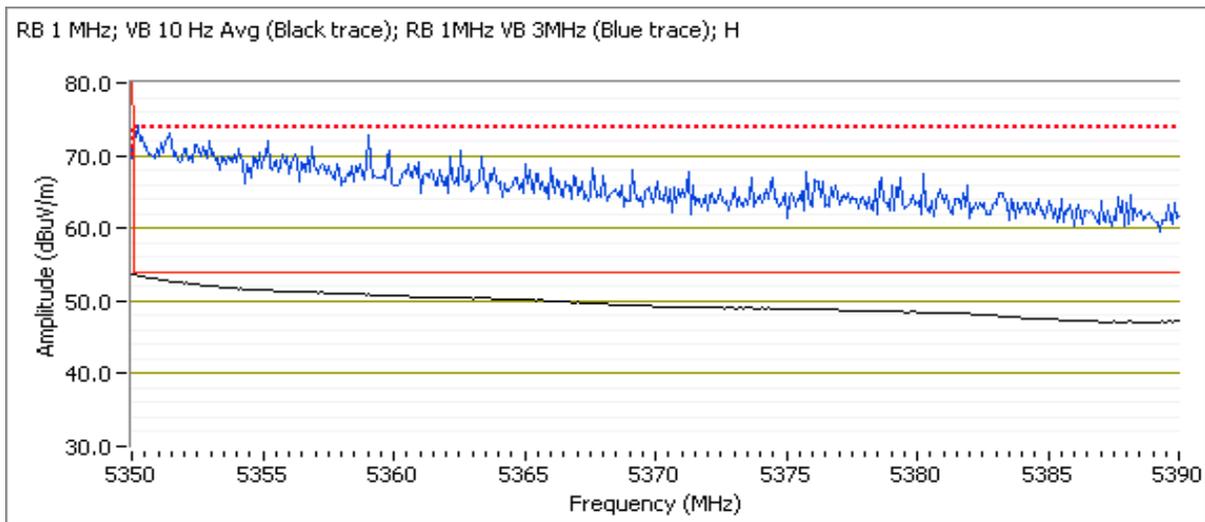
## Run #2: Radiated Bandedge Measurements, 5250-5350MHz

Date of Test: 7/20/2015 0:00  
 Test Engineer: Eddie Mariscal/John Caizzi  
 Test Location: FT Chamber #5  
 Config. Used: 1  
 Config Change: None  
 EUT Voltage: USB

Channel: 64 - 5320MHz  
 Tx Chain: Main  
 Mode: a  
 Data Rate: 6Mbps

### 5350 MHz Band Edge Signal Radiated Field Strength

Frequency	Level	Pol	FCC 15.209		Detector	Azimuth	Height	Comments
MHz	dB $\mu$ V/m	v/h	Limit	Margin	PK/QP/Avg	degrees	meters	
5350.000	53.6	H	54.0	-0.4	AVG	256	1.0	POS; RB 1 MHz; VB: 10 Hz
5350.240	72.9	H	74.0	-1.1	PK	256	1.0	POS; RB 1 MHz; VB: 3 MHz





# EMC Test Data

Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
Contact: Tarandeep Kaur	Project Manager: Sheareen Jacobs
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator: Irene Rademacher
	Class: N/A

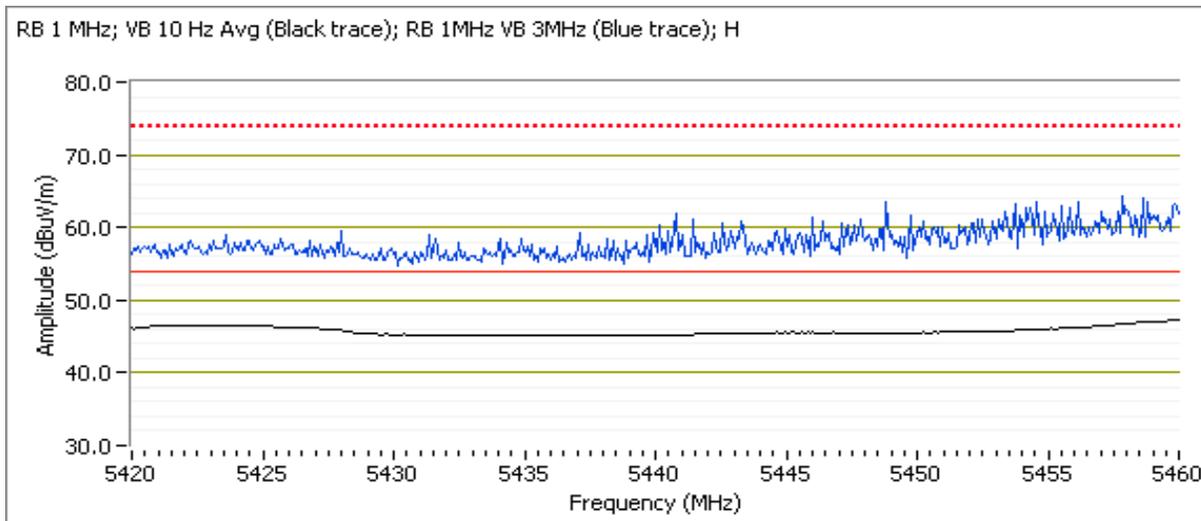
## Run #3: Radiated Bandedge Measurements, 5470-5725MHz

Date of Test: 7/20/2015 0:00  
 Test Engineer: Eddie Mariscal/John Caizzi  
 Test Location: FT Chamber #5  
 Config. Used: 1  
 Config Change: None  
 EUT Voltage: USB

Channel: 100 - 5500MHz  
 Tx Chain: Main  
 Mode: a  
 Data Rate: 6 Mbps

### 5460 MHz Band Edge Signal Radiated Field Strength

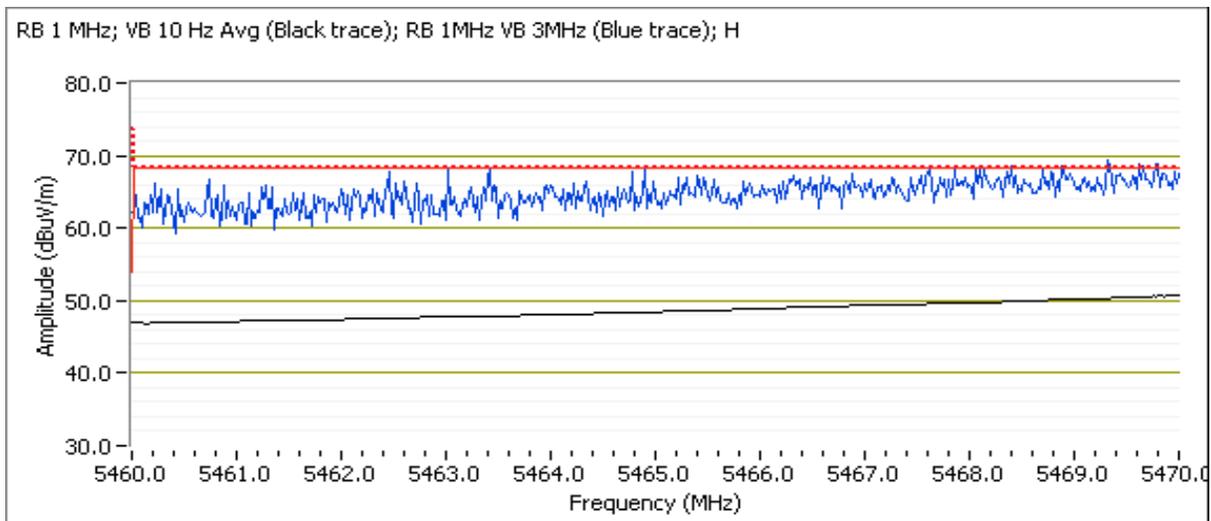
Frequency	Level	Pol	FCC 15.209		Detector	Azimuth	Height	Comments
MHz	dB $\mu$ V/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5460.000	47.4	H	54.0	-6.6	AVG	217	1.0	POS; RB 1 MHz; VB: 10 Hz
5459.840	63.7	H	74.0	-10.3	PK	217	1.0	POS; RB 1 MHz; VB: 3 MHz



Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
Contact: Tarandeep Kaur	Project Manager: Sheareen Jacobs
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator: Irene Rademacher
	Class: N/A

### 5470 MHz Band Edge Signal Radiated Field Strength

Frequency MHz	Level dB $\mu$ V/m	Pol v/h	15.E		Detector PK/QP/Avg	Azimuth degrees	Height meters	Comments
			Limit	Margin				
5470.000	50.8	H	54.0	-3.2	AVG	209	1.0	POS; RB 1 MHz; VB: 10 Hz
5469.280	68.6	H	74.0	-5.4	PK	209	1.0	POS; RB 1 MHz; VB: 3 MHz





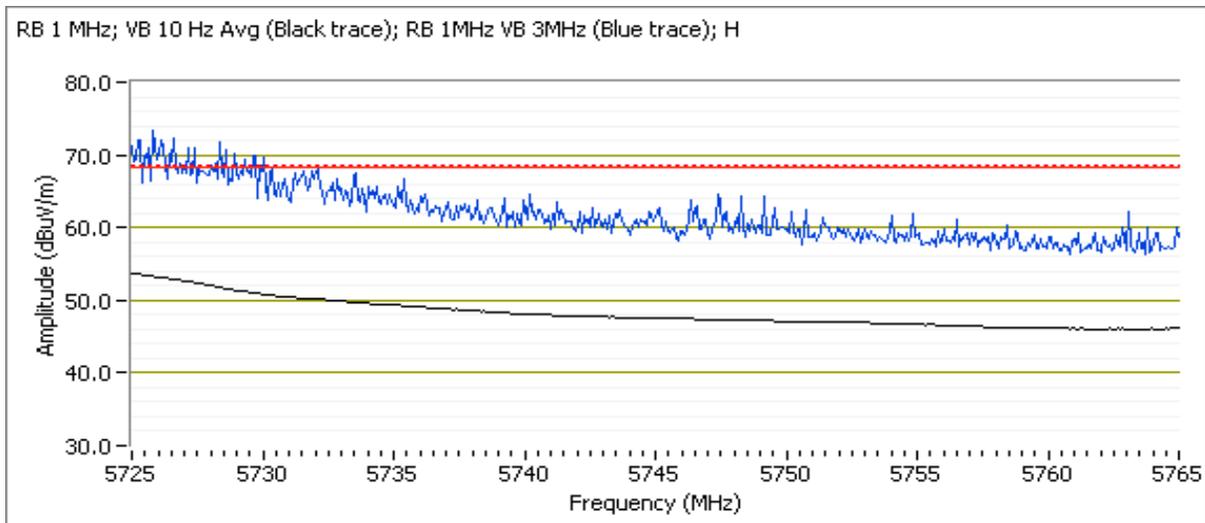
# EMC Test Data

Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
Contact: Tarandeep Kaur	Project Manager: Sheareen Jacobs
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator: Irene Rademacher
	Class: N/A

Channel: 140 - 5700MHz  
 Tx Chain: Main  
 Mode: a  
 Data Rate: 6Mbps

### 5725 MHz Band Edge Signal Radiated Field Strength

Frequency MHz	Level dB $\mu$ V/m	Pol v/h	15.E		Detector Pk/QP/Avg	Azimuth degrees	Height meters	Comments
			Limit	Margin				
5725.000	53.9	H	54.0	-0.1	AVG	252	1.4	POS; RB 1 MHz; VB: 10 Hz
5729.010	70.6	H	74.0	-3.4	PK	252	1.4	POS; RB 1 MHz; VB: 3 MHz





# EMC Test Data

Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
Contact: Tarandeep Kaur	Project Manager: Sheareen Jacobs
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator: Irene Rademacher
	Class: N/A

## Run #4: Radiated Bandedge Measurements, 5725-5850MHz

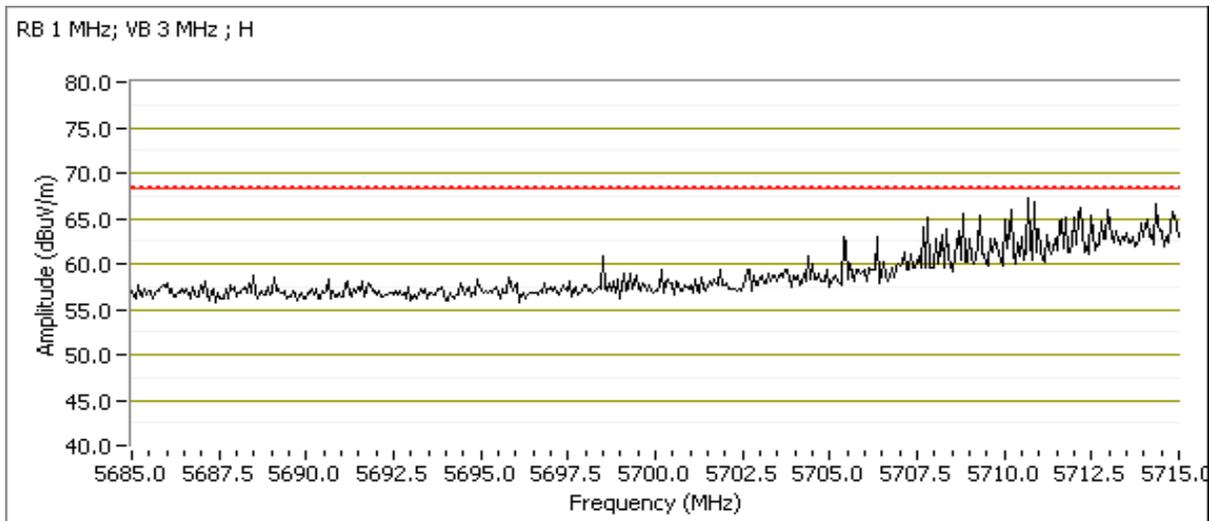
Date of Test: 7/21/2015 0:00  
 Test Engineer: Rafael Varelas  
 Test Location: FT Chamber #5

Config. Used: 1  
 Config Change: None  
 EUT Voltage: USB

Channel: 149 - 5745MHz  
 Tx Chain: Main  
 Mode: a  
 Data Rate: 6 Mbps

### 5715 MHz Band Edge Signal Radiated Field Strength

Frequency	Level	Pol	15.E		Detector	Azimuth	Height	Comments
MHz	dB $\mu$ V/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5713.440	66.9	H	68.3	-1.4	PK	173	1.8	POS; RB 1 MHz; VB: 3 MHz
5691.730	59.3	V	68.3	-9.0	PK	76	2.7	POS; RB 1 MHz; VB: 3 MHz



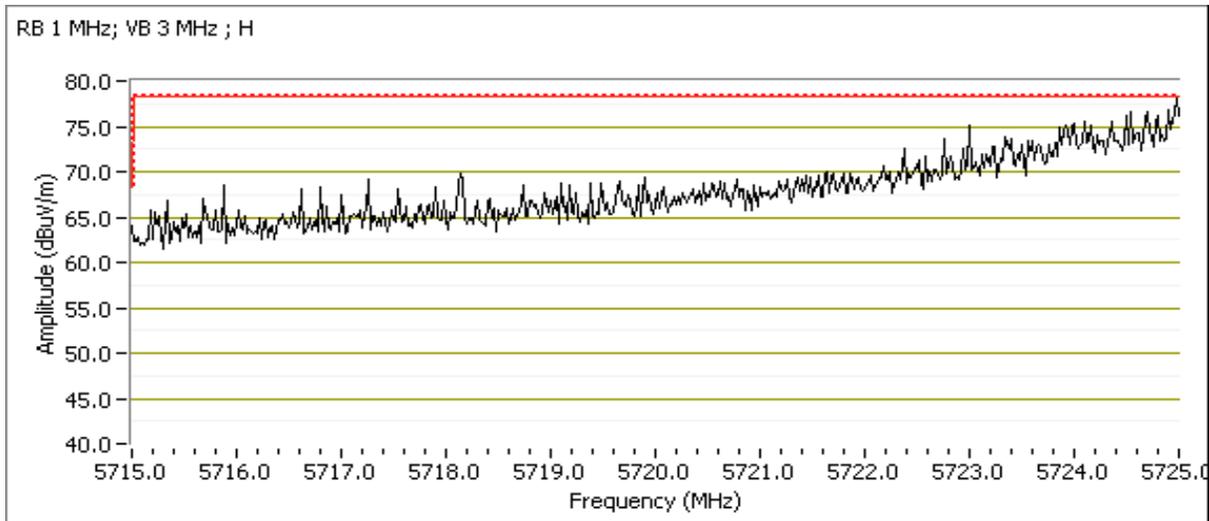


# EMC Test Data

Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
Contact: Tarandeep Kaur	Project Manager: Sheareen Jacobs
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator: Irene Rademacher
	Class: N/A

## 5715-5725 MHz Band Edge Signal Radiated Field Strength

Frequency MHz	Level dB $\mu$ V/m	Pol v/h	15.E		Detector Pk/QP/Avg	Azimuth degrees	Height meters	Comments
			Limit	Margin				
5724.760	78.0	H	78.3	-0.3	PK	173	1.8	POS; RB 1 MHz; VB: 3 MHz
5724.960	70.9	V	78.3	-7.4	PK	76	2.7	POS; RB 1 MHz; VB: 3 MHz





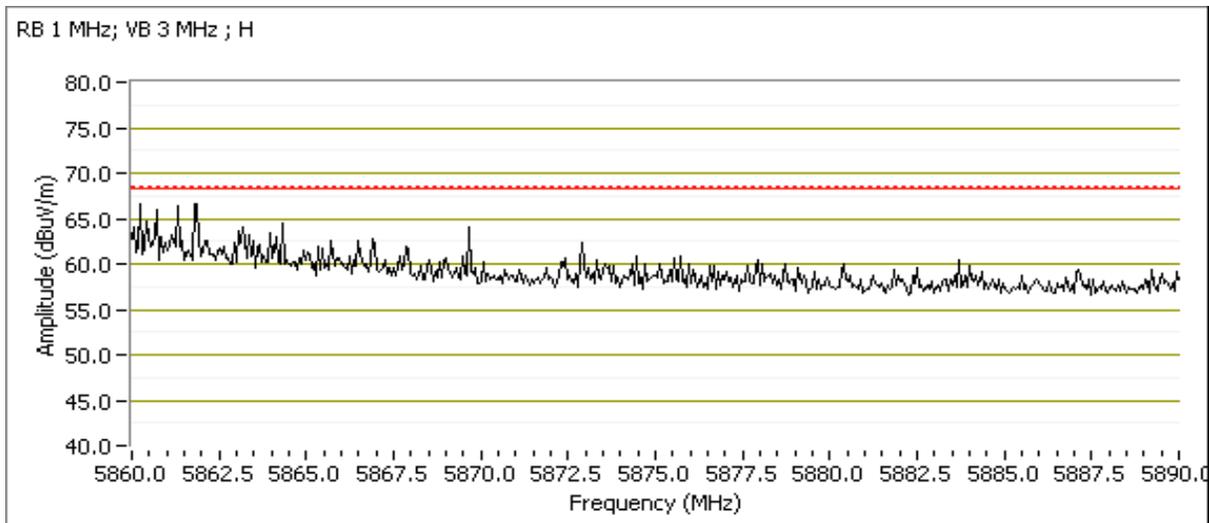
# EMC Test Data

Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
Contact: Tarandeep Kaur	Project Manager: Sheareen Jacobs
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator: Irene Rademacher
	Class: N/A

Channel: 165 - 5825MHz  
 Tx Chain: Main  
 Mode: a  
 Data Rate: 6 Mbps

### 5860 MHz Band Edge Signal Radiated Field Strength

Frequency MHz	Level dB $\mu$ V/m	Pol v/h	15.E		Detector Pk/QP/Avg	Azimuth degrees	Height meters	Comments
			Limit	Margin				
5863.970	66.5	H	68.3	-1.8	PK	158	1.8	POS; RB 1 MHz; VB: 3 MHz
5861.800	58.1	V	68.3	-10.2	PK	33	1.2	POS; RB 1 MHz; VB: 3 MHz



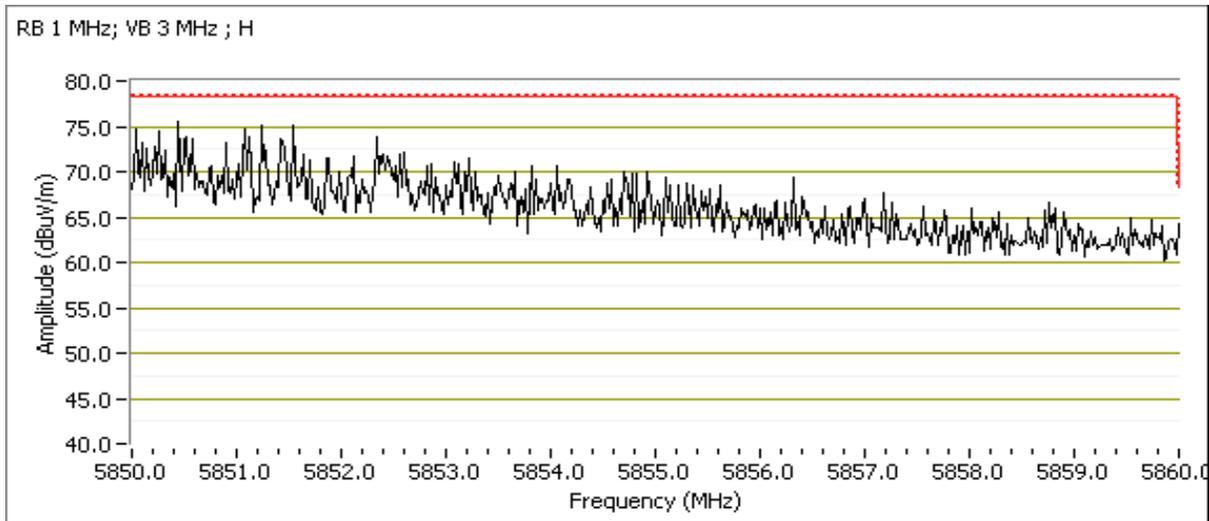


# EMC Test Data

Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
Contact: Tarandeep Kaur	Project Manager: Sheareen Jacobs
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator: Irene Rademacher
	Class: N/A

## 5850-5860 MHz Band Edge Signal Radiated Field Strength

Frequency MHz	Level dB $\mu$ V/m	Pol v/h	15.E		Detector Pk/QP/Avg	Azimuth degrees	Height meters	Comments
			Limit	Margin				
5853.210	75.7	H	78.3	-2.6	PK	158	1.8	POS; RB 1 MHz; VB: 3 MHz
5851.500	65.0	V	78.3	-13.3	PK	33	1.2	POS; RB 1 MHz; VB: 3 MHz





# EMC Test Data

Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
Contact: Tarandeep Kaur	Project Manager: Sheareen Jacobs
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator: Irene Rademacher
	Class: N/A

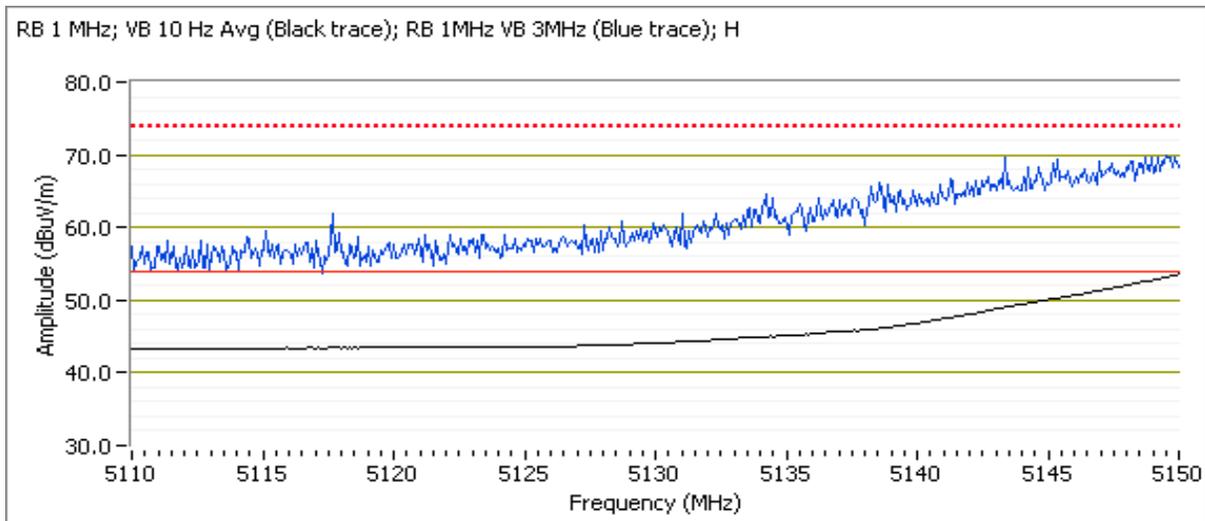
## Run #5: Radiated Bandedge Measurements, 5150-5250MHz

Date of Test: 7/20/2015 0:00  
 Test Engineer: Eddie Mariscal/John Caizzi  
 Test Location: FT Chamber #5  
 Config. Used: 1  
 Config Change: None  
 EUT Voltage: USB

Channel: 36 - 5180 MHz  
 Tx Chain: Main  
 Mode: n20  
 Data Rate: MCS0

### 5150 MHz Band Edge Signal Radiated Field Strength

Frequency	Level	Pol	FCC 15.209		Detector	Azimuth	Height	Comments
MHz	dB $\mu$ V/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5150.000	53.7	H	54.0	-0.3	AVG	160	1.1	POS; RB 1 MHz; VB: 10 Hz
5141.740	69.0	H	74.0	-5.0	PK	160	1.1	POS; RB 1 MHz; VB: 3 MHz





# EMC Test Data

Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
Contact: Tarandeep Kaur	Project Manager: Sheareen Jacobs
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator: Irene Rademacher
	Class: N/A

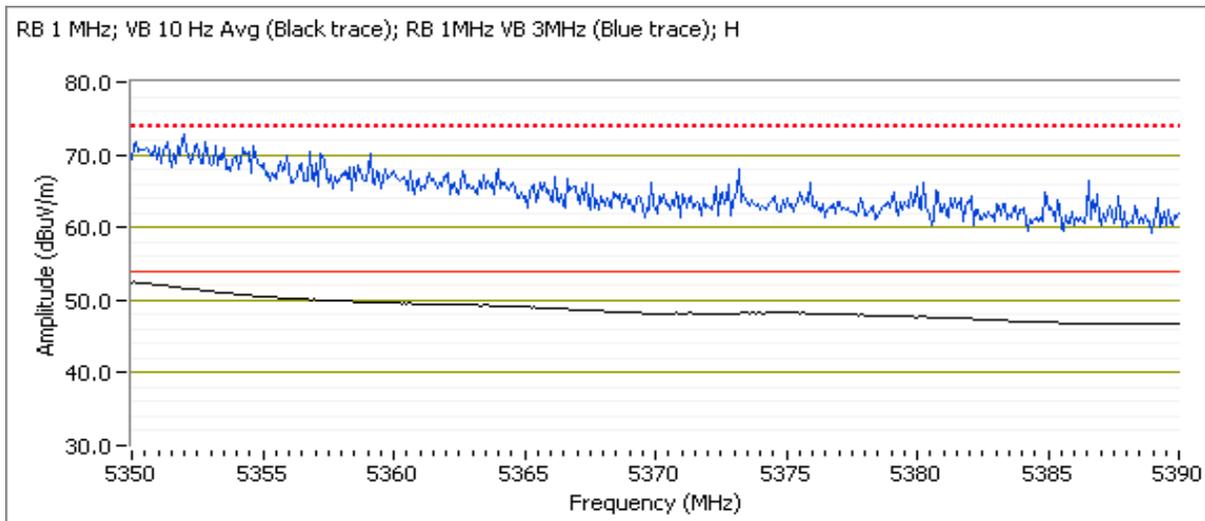
## Run #6: Radiated Bandedge Measurements, 5250-5350MHz

Date of Test: 7/20/2015 0:00  
 Test Engineer: Eddie Mariscal/John Caizzi  
 Test Location: FT Chamber #5  
 Config. Used: 1  
 Config Change: None  
 EUT Voltage: USB

Channel: 64 - 5320MHz  
 Tx Chain: Main  
 Mode: n20  
 Data Rate: MCS0

### 5350 MHz Band Edge Signal Radiated Field Strength

Frequency MHz	Level dB $\mu$ V/m	Pol v/h	FCC 15.209		Detector Pk/QP/Avg	Azimuth degrees	Height meters	Comments
			Limit	Margin				
5350.000	52.6	H	54.0	-1.4	AVG	261	1.4	POS; RB 1 MHz; VB: 10 Hz
5352.650	72.2	H	74.0	-1.8	PK	261	1.4	POS; RB 1 MHz; VB: 3 MHz





# EMC Test Data

Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
	Project Manager: Sheareen Jacobs
Contact: Tarandeep Kaur	Project Coordinator: Irene Rademacher
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Class: N/A

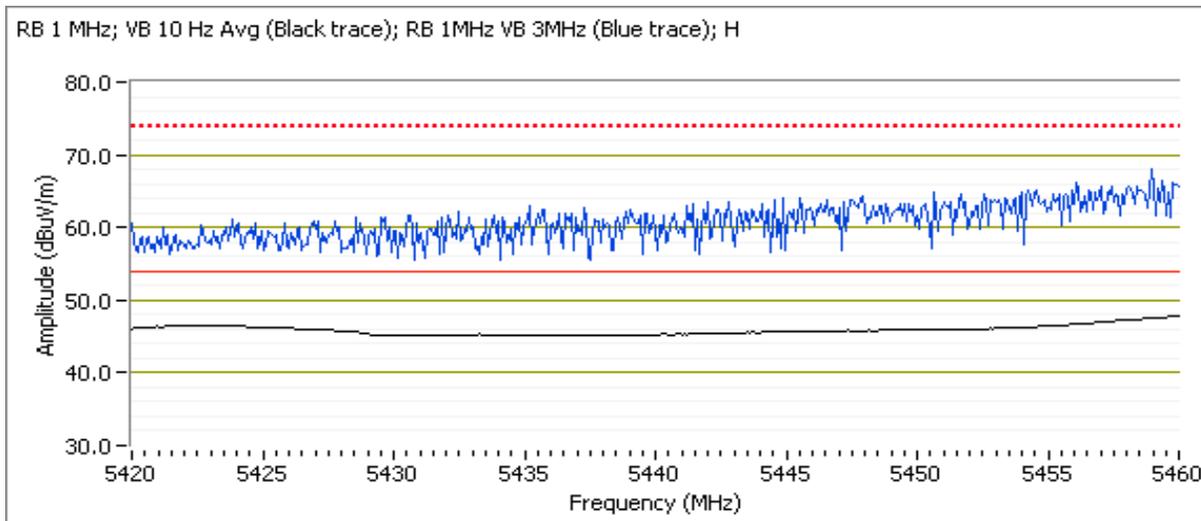
## Run #7: Radiated Bandedge Measurements, 5470-5725MHz

Date of Test: 7/20/2015 0:00  
 Test Engineer: Eddie Mariscal/John Caizzi  
 Test Location: FT Chamber #5  
 Config. Used: 1  
 Config Change: None  
 EUT Voltage: USB

Channel: 100 - 5500MHz  
 Tx Chain: Main  
 Mode: n20  
 Data Rate: MCS0

### 5460 MHz Band Edge Signal Radiated Field Strength

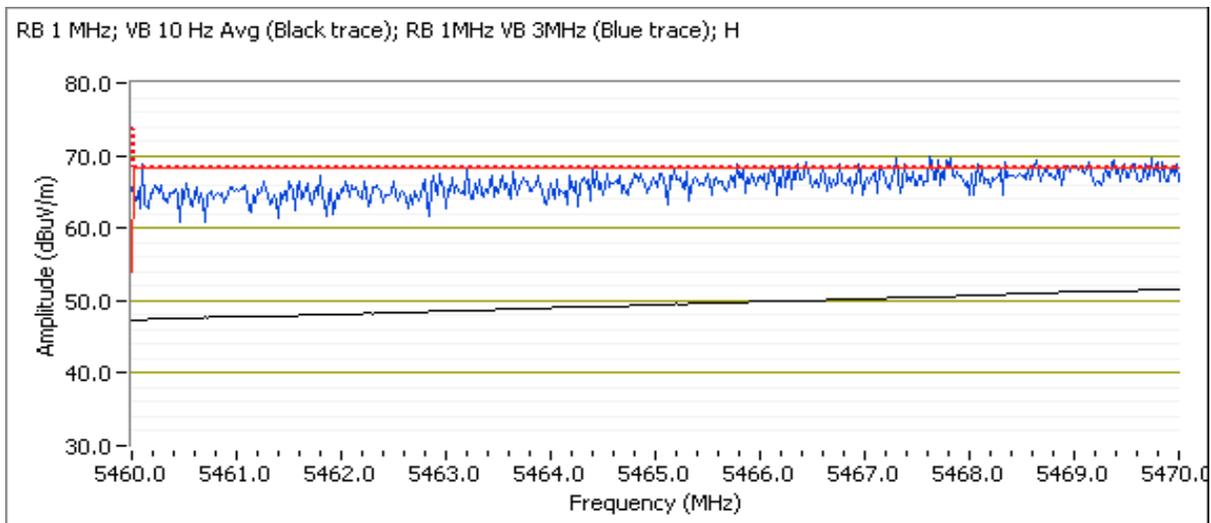
Frequency	Level	Pol	FCC 15.209		Detector	Azimuth	Height	Comments
MHz	dB $\mu$ V/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5460.000	48.0	H	54.0	-6.0	AVG	161	1.3	POS; RB 1 MHz; VB: 10 Hz
5458.480	66.7	H	74.0	-7.3	PK	161	1.3	POS; RB 1 MHz; VB: 3 MHz



Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
Contact: Tarandeep Kaur	Project Manager: Sheareen Jacobs
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator: Irene Rademacher
	Class: N/A

### 5470 MHz Band Edge Signal Radiated Field Strength

Frequency MHz	Level dB $\mu$ V/m	Pol v/h	15.E		Detector Pk/QP/Avg	Azimuth degrees	Height meters	Comments
			Limit	Margin				
5469.980	51.7	H	54.0	-2.3	AVG	162	1.2	POS; RB 1 MHz; VB: 10 Hz
5469.940	69.3	H	74.0	-4.7	PK	162	1.2	POS; RB 1 MHz; VB: 3 MHz





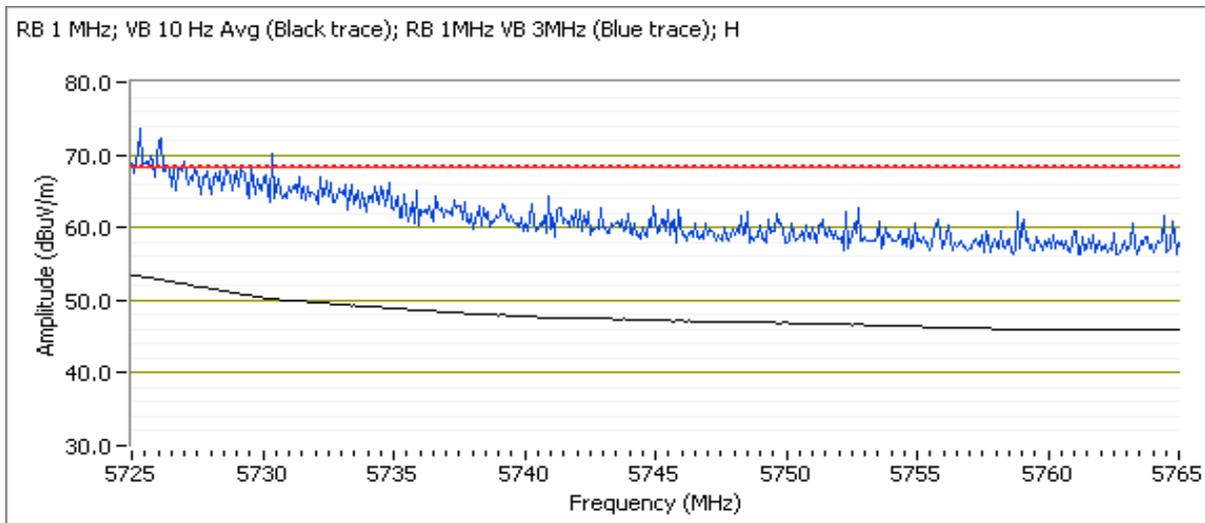
# EMC Test Data

Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
Contact: Tarandeep Kaur	Project Manager: Sheareen Jacobs
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator: Irene Rademacher
	Class: N/A

Channel: 140 - 5700MHz  
 Tx Chain: Main  
 Mode: n20  
 Data Rate: MCS0

### 5725 MHz Band Edge Signal Radiated Field Strength

Frequency	Level	Pol	15.E		Detector	Azimuth	Height	Comments
MHz	dB $\mu$ V/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5725.000	53.4	H	54.0	-0.6	AVG	257	1.2	POS; RB 1 MHz; VB: 10 Hz
5725.240	70.3	H	74.0	-3.7	PK	257	1.2	POS; RB 1 MHz; VB: 3 MHz





# EMC Test Data

Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
Contact: Tarandeep Kaur	Project Manager: Sheareen Jacobs
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator: Irene Rademacher
	Class: N/A

## Run #8: Radiated Bandedge Measurements, 5725-5850MHz

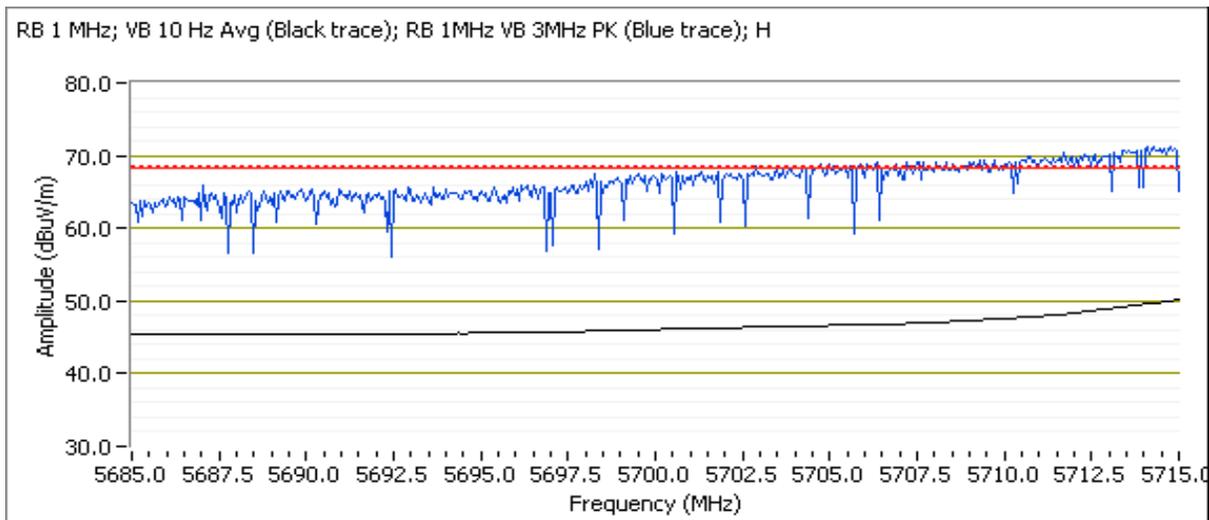
Date of Test: 7/21/2015 0:00  
 Test Engineer: Rafael Varelas  
 Test Location: FT Chamber #5

Config. Used: 1  
 Config Change: None  
 EUT Voltage: USB

Channel: 149 - 5745MHz  
 Tx Chain: Main  
 Mode: n20  
 Data Rate: MCS0

### 5715 MHz Band Edge Signal Radiated Field Strength

Frequency MHz	Level dB $\mu$ V/m	Pol v/h	15.E		Detector PK/QP/Avg	Azimuth degrees	Height meters	Comments
			Limit	Margin				
5715.000	50.0	H	54.0	-4.0	AVG	226	1.0	Note 1, POS; RB 1 MHz; VB: 10 Hz
5712.230	71.2	H	74.0	-2.8	PK	226	1.0	Note 1, POS; RB 1 MHz; VB: 3 MHz



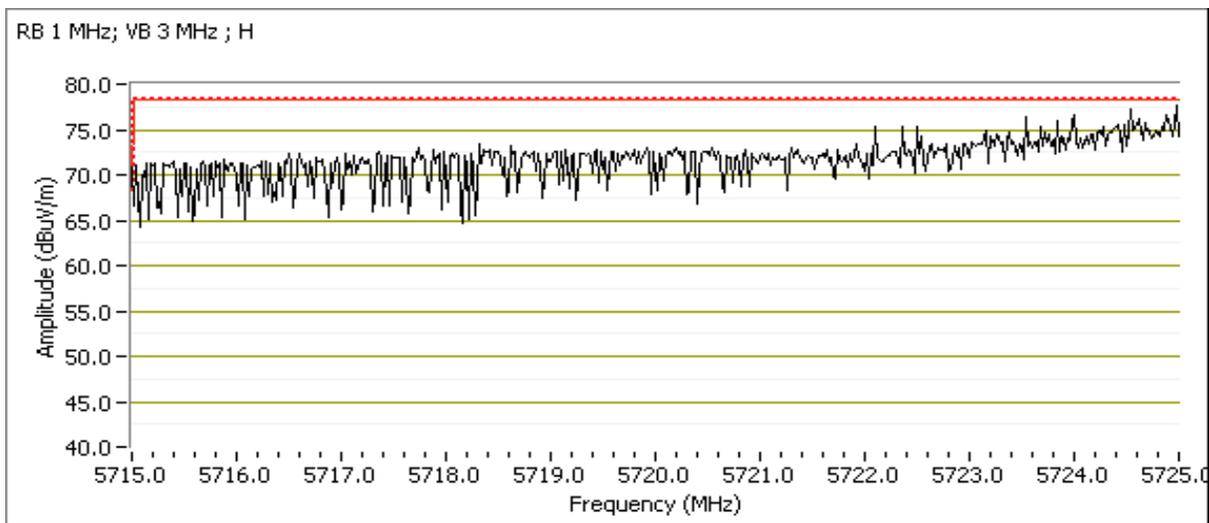


# EMC Test Data

Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
Contact: Tarandeep Kaur	Project Manager: Sheareen Jacobs
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator: Irene Rademacher
	Class: N/A

## 5715-5725 MHz Band Edge Signal Radiated Field Strength

Frequency	Level	Pol	15.E		Detector	Azimuth	Height	Comments
MHz	dB $\mu$ V/m	v/h	Limit	Margin	PK/QP/Avg	degrees	meters	
5724.320	77.6	H	78.3	-0.7	PK	226	1.0	POS; RB 1 MHz; VB: 3 MHz





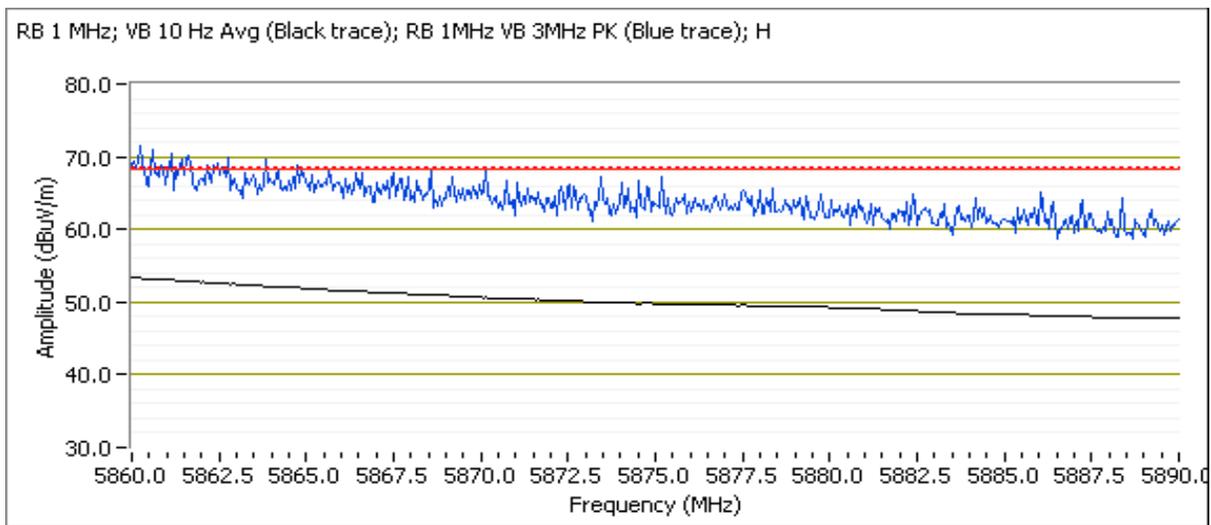
# EMC Test Data

Client:	Hewlett Packard Company	Job Number:	J98746
Model:	SDGOB-1505	T-Log Number:	T98753
Contact:	Tarandeep Kaur	Project Manager:	Sheareen Jacobs
Standard:	FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator:	Irene Rademacher
		Class:	N/A

Channel: 165 - 5825MHz  
 Tx Chain: Main  
 Mode: n20  
 Data Rate: MCS0

### 5860 MHz Band Edge Signal Radiated Field Strength

Frequency	Level	Pol	15.E		Detector	Azimuth	Height	Comments
MHz	dB $\mu$ V/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5860.180	53.6	H	54.0	-0.4	AVG	253	1.4	POS; RB 1 MHz; VB: 10 Hz
5862.950	72.3	H	74.0	-1.7	PK	253	1.4	POS; RB 1 MHz; VB: 3 MHz



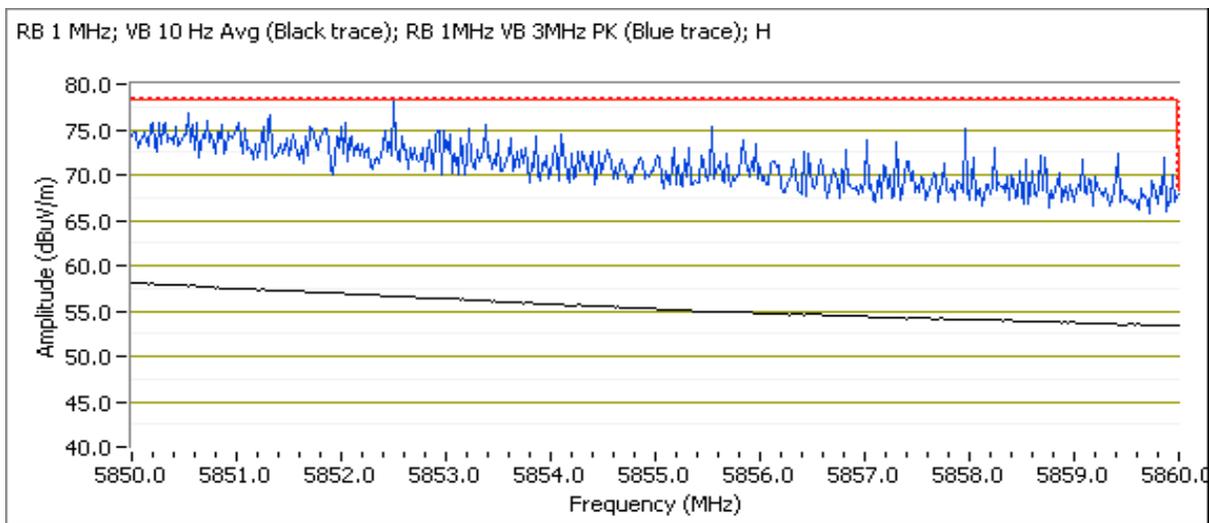


# EMC Test Data

Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
Contact: Tarandeep Kaur	Project Manager: Sheareen Jacobs
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator: Irene Rademacher
	Class: N/A

## 5850-5860 MHz Band Edge Signal Radiated Field Strength

Frequency	Level	Pol	15.E		Detector	Azimuth	Height	Comments
MHz	dB $\mu$ V/m	v/h	Limit	Margin	PK/QP/Avg	degrees	meters	
5851.020	77.9	H	78.3	-0.4	PK	253	1.4	POS; RB 1 MHz; VB: 3 MHz





# EMC Test Data

Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
Contact: Tarandeep Kaur	Project Manager: Sheareen Jacobs
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator: Irene Rademacher
	Class: N/A

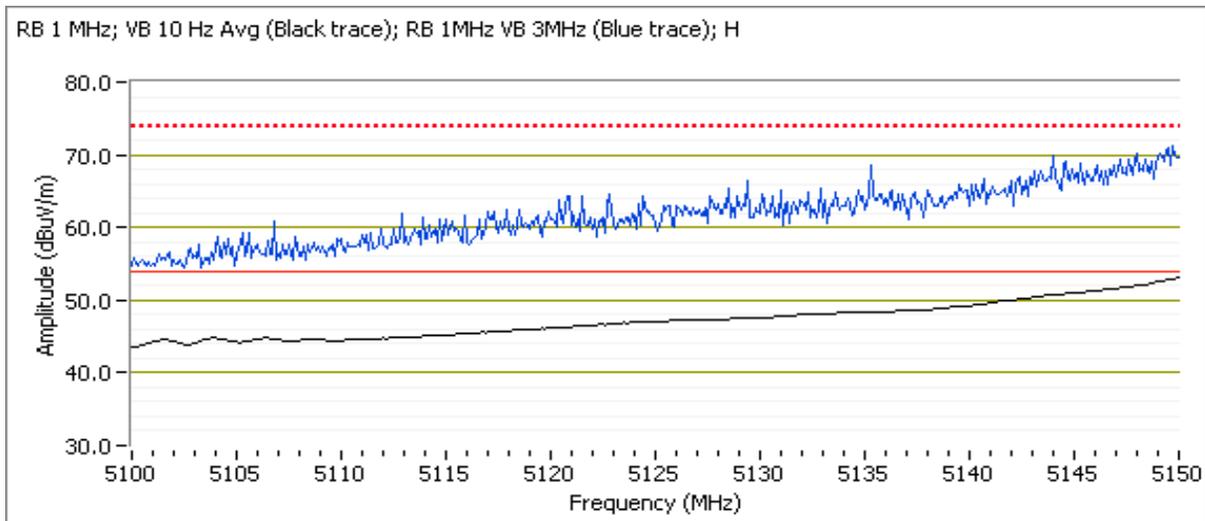
## Run #9: Radiated Bandedge Measurements, 5150-5250MHz

Date of Test: 7/20/2015 0:00  
 Test Engineer: Eddie Mariscal/John Caizzi  
 Test Location: FT Chamber #5  
 Config. Used: 1  
 Config Change: None  
 EUT Voltage: USB

Channel: 36 - 5180 MHz  
 Tx Chain: 2Tx  
 Mode: n20  
 Data Rate: MCS0

### 5150 MHz Band Edge Signal Radiated Field Strength

Frequency	Level	Pol	FCC 15.209		Detector	Azimuth	Height	Comments
MHz	dB $\mu$ V/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5150.000	53.2	H	54.0	-0.8	AVG	259	1.7	POS; RB 1 MHz; VB: 10 Hz
5141.780	71.0	H	74.0	-3.0	PK	259	1.7	POS; RB 1 MHz; VB: 3 MHz





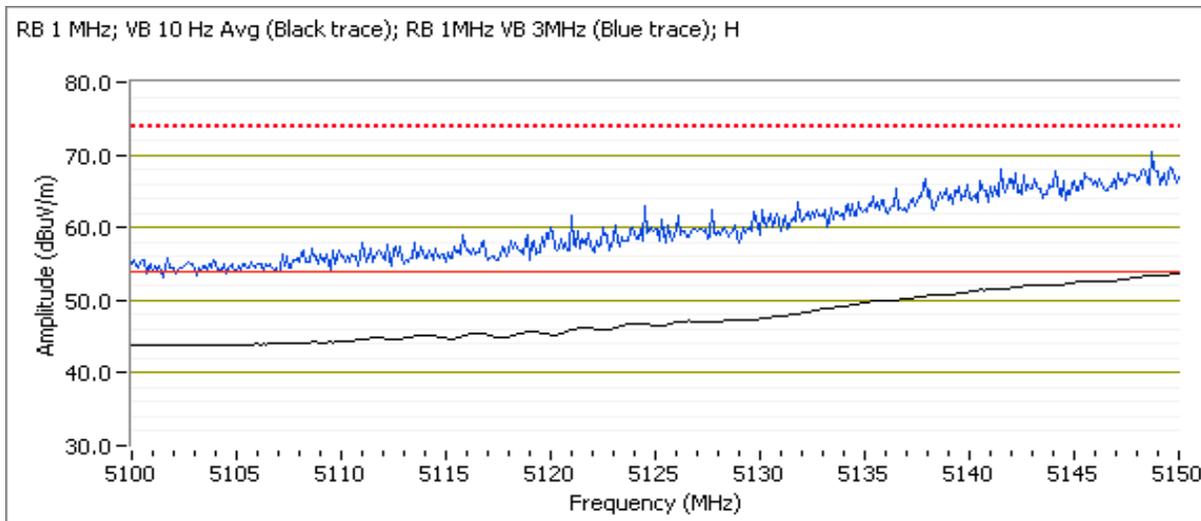
# EMC Test Data

Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
Contact: Tarandeep Kaur	Project Manager: Sheareen Jacobs
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator: Irene Rademacher
	Class: N/A

Channel: 40 - 5200 MHz  
 Tx Chain: 2Tx  
 Mode: n20  
 Data Rate: MCS0

### 5150 MHz Band Edge Signal Radiated Field Strength

Frequency	Level	Pol	FCC 15.209		Detector	Azimuth	Height	Comments
MHz	dB $\mu$ V/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5150.000	53.7	H	54.0	-0.3	AVG	265	1.4	POS; RB 1 MHz; VB: 10 Hz
5143.790	68.9	H	74.0	-5.1	PK	265	1.4	POS; RB 1 MHz; VB: 3 MHz





# EMC Test Data

Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
Contact: Tarandeep Kaur	Project Manager: Sheareen Jacobs
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator: Irene Rademacher
	Class: N/A

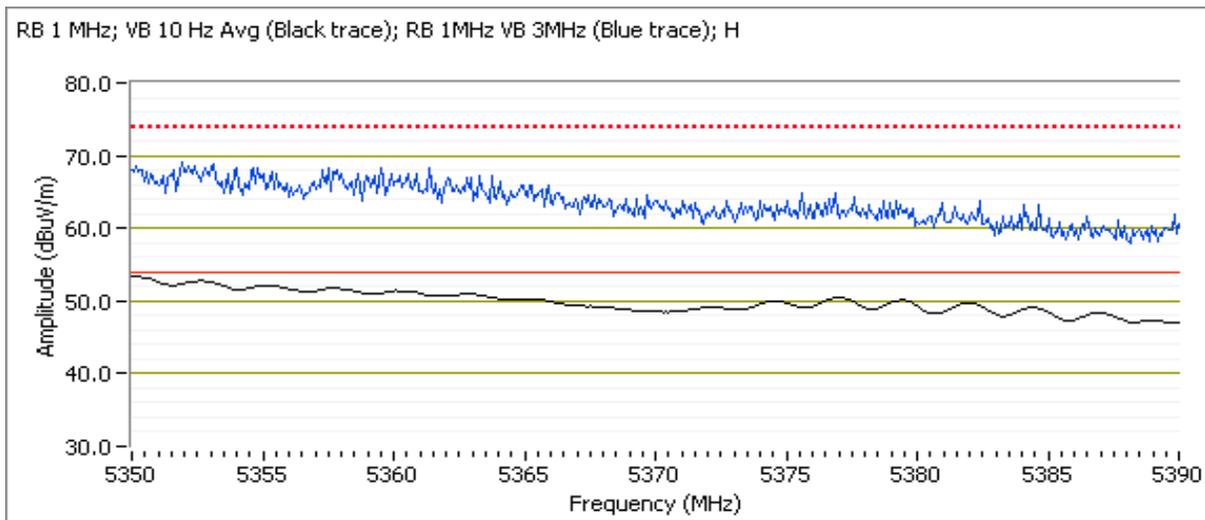
## Run #10: Radiated Bandedge Measurements, 5250-5350MHz

Date of Test: 7/20/2015 0:00  
 Test Engineer: Eddie Mariscal/John Caizzi  
 Test Location: FT Chamber #5  
 Config. Used: 1  
 Config Change: None  
 EUT Voltage: USB

Channel: 60 - 5300MHz  
 Tx Chain: 2Tx  
 Mode: n20  
 Data Rate: MCS0

### 5350 MHz Band Edge Signal Radiated Field Strength

Frequency	Level	Pol	FCC 15.209		Detector	Azimuth	Height	Comments
MHz	dB $\mu$ V/m	v/h	Limit	Margin	PK/QP/Avg	degrees	meters	
5350.160	53.7	H	54.0	-0.3	AVG	219	1.1	POS; RB 1 MHz; VB: 10 Hz
5352.890	69.0	H	74.0	-5.0	PK	219	1.1	POS; RB 1 MHz; VB: 3 MHz





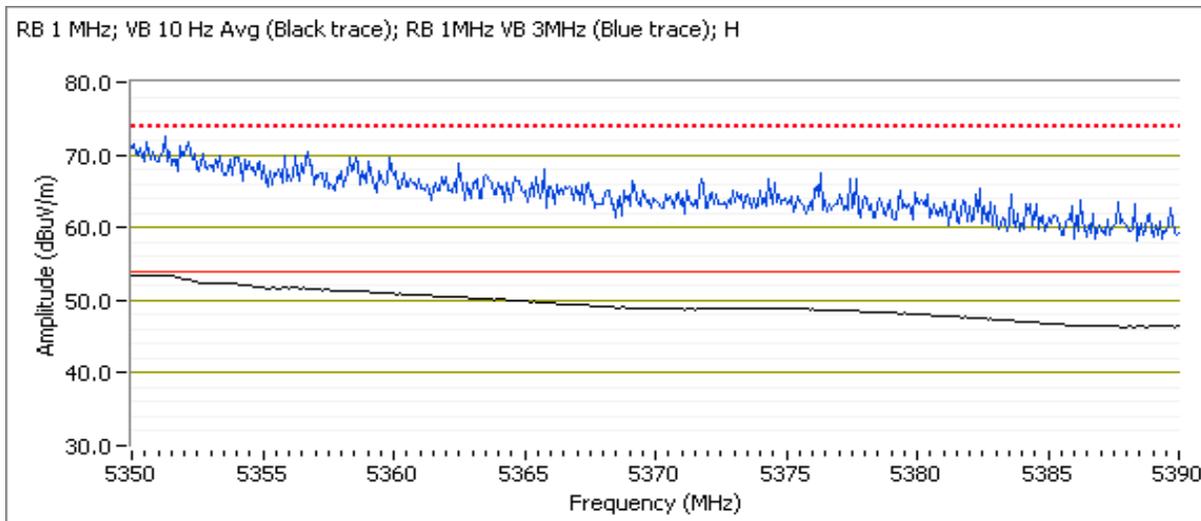
# EMC Test Data

Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
Contact: Tarandeep Kaur	Project Manager: Sheareen Jacobs
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator: Irene Rademacher
	Class: N/A

Channel: 64 - 5320MHz  
 Tx Chain: 2Tx  
 Mode: n20  
 Data Rate: MCS0

### 5350 MHz Band Edge Signal Radiated Field Strength

Frequency	Level	Pol	FCC 15.209		Detector	Azimuth	Height	Comments
MHz	dB $\mu$ V/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5350.080	53.6	H	54.0	-0.4	AVG	270	1.2	POS; RB 1 MHz; VB: 10 Hz
5350.880	72.1	H	74.0	-1.9	PK	270	1.2	POS; RB 1 MHz; VB: 3 MHz





# EMC Test Data

Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
	Project Manager: Sheareen Jacobs
Contact: Tarandeep Kaur	Project Coordinator: Irene Rademacher
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Class: N/A

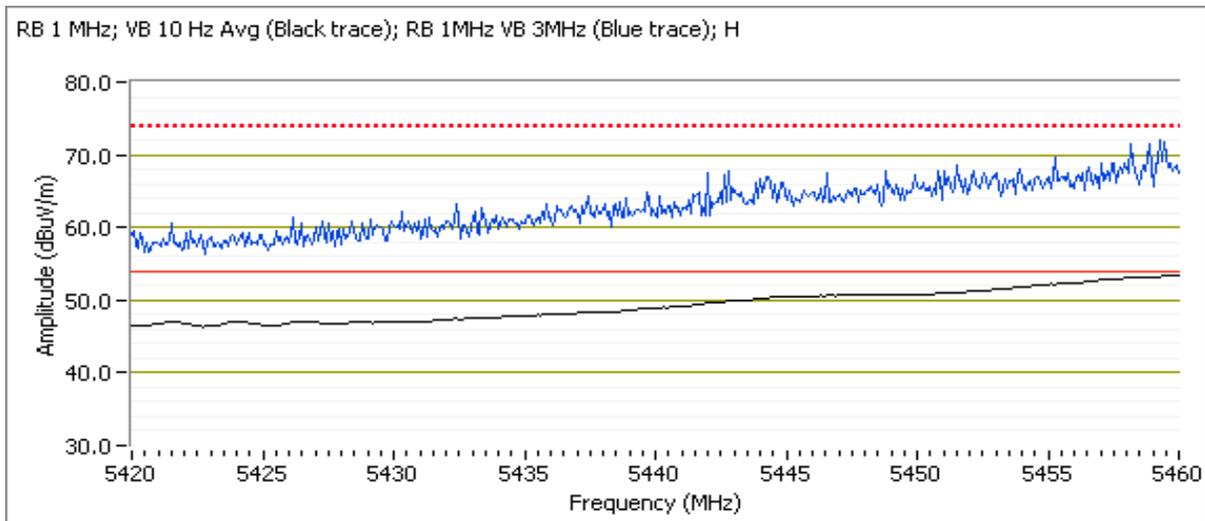
## Run #11: Radiated Bandedge Measurements, 5470-5725MHz

Date of Test: 7/20/2015 0:00  
 Test Engineer: Eddie Mariscal/John Caizzi  
 Test Location: FT Chamber #5  
 Config. Used: 1  
 Config Change: None  
 EUT Voltage: USB

Channel: 100 - 5500MHz  
 Tx Chain: 2Tx  
 Mode: n20  
 Data Rate: MCS0

### 5460 MHz Band Edge Signal Radiated Field Strength

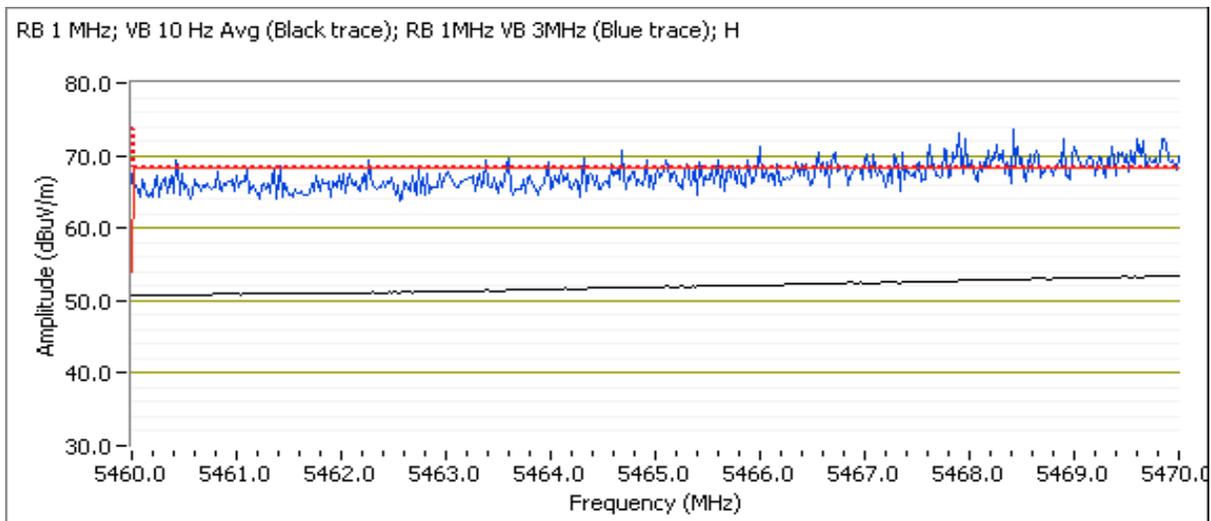
Frequency	Level	Pol	FCC 15.209		Detector	Azimuth	Height	Comments
MHz	dB $\mu$ V/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5460.000	53.4	H	54.0	-0.6	AVG	264	1.0	POS; RB 1 MHz; VB: 10 Hz
5443.970	69.6	H	74.0	-4.4	PK	264	1.0	POS; RB 1 MHz; VB: 3 MHz



Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
Contact: Tarandeep Kaur	Project Manager: Sheareen Jacobs
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator: Irene Rademacher
	Class: N/A

### 5470 MHz Band Edge Signal Radiated Field Strength

Frequency MHz	Level dB $\mu$ V/m	Pol v/h	15.E		Detector Pk/QP/Avg	Azimuth degrees	Height meters	Comments
			Limit	Margin				
5469.980	53.4	H	54.0	-0.6	AVG	266	1.6	POS; RB 1 MHz; VB: 10 Hz
5468.260	73.8	H	74.0	-0.2	PK	266	1.6	POS; RB 1 MHz; VB: 3 MHz





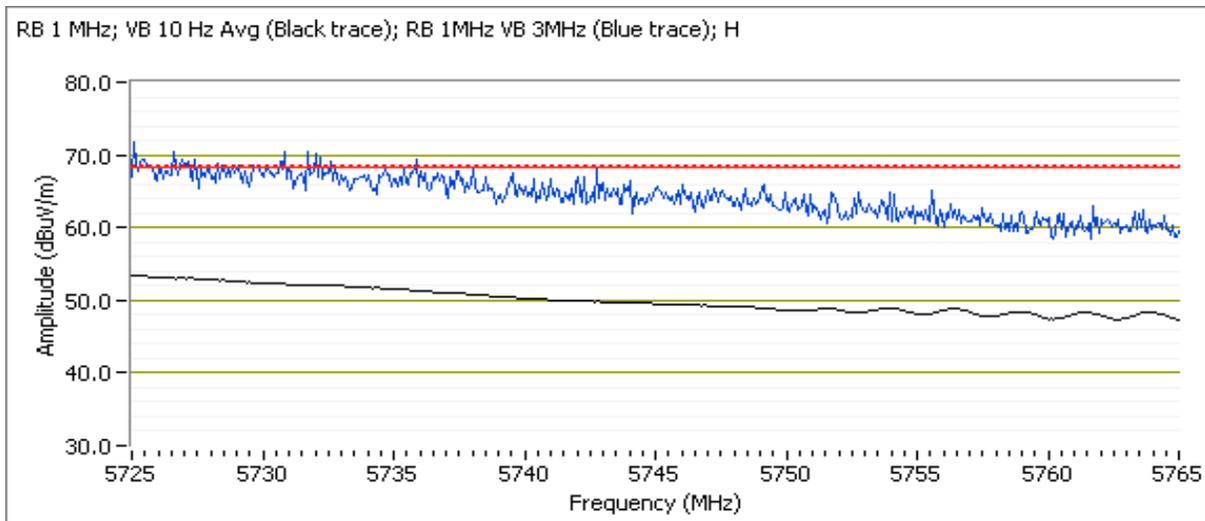
# EMC Test Data

Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
	Project Manager: Sheareen Jacobs
Contact: Tarandeep Kaur	Project Coordinator: Irene Rademacher
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Class: N/A

Channel: 136 - 5680MHz  
 Tx Chain: 2Tx  
 Mode: n20  
 Data Rate: MCS0

### 5725 MHz Band Edge Signal Radiated Field Strength

Frequency MHz	Level dB $\mu$ V/m	Pol v/h	15.E		Detector Pk/QP/Avg	Azimuth degrees	Height meters	Comments
			Limit	Margin				
5725.000	53.1	H	54.0	-0.9	AVG	246	1.4	POS; RB 1 MHz; VB: 10 Hz
5726.600	69.8	H	74.0	-4.2	PK	246	1.4	POS; RB 1 MHz; VB: 3 MHz





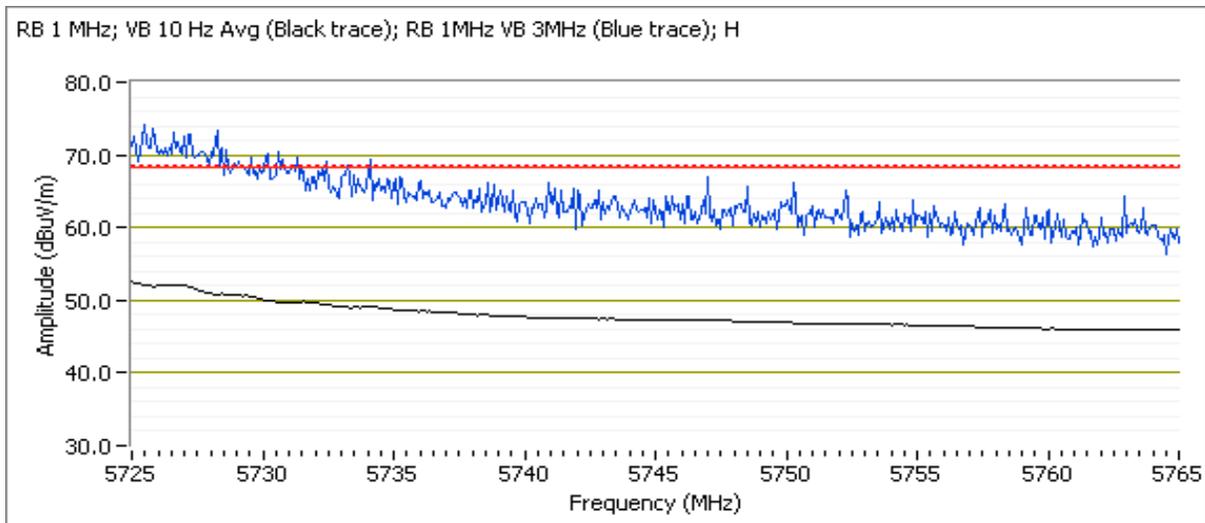
# EMC Test Data

Client:	Hewlett Packard Company	Job Number:	J98746
Model:	SDGOB-1505	T-Log Number:	T98753
Contact:	Tarandeep Kaur	Project Manager:	Sheareen Jacobs
Standard:	FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator:	Irene Rademacher
		Class:	N/A

Channel: 140 - 5700MHz  
 Tx Chain: 2Tx  
 Mode: n20  
 Data Rate: MCS0

### 5725 MHz Band Edge Signal Radiated Field Strength

Frequency	Level	Pol	15.E		Detector	Azimuth	Height	Comments
MHz	dB $\mu$ V/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5725.000	52.6	H	54.0	-1.4	AVG	253	1.4	POS; RB 1 MHz; VB: 10 Hz
5726.680	72.4	H	74.0	-1.6	PK	253	1.4	POS; RB 1 MHz; VB: 3 MHz





# EMC Test Data

Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
Contact: Tarandeep Kaur	Project Manager: Sheareen Jacobs
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator: Irene Rademacher
	Class: N/A

## Run #12: Radiated Bandedge Measurements, 5725-5850MHz

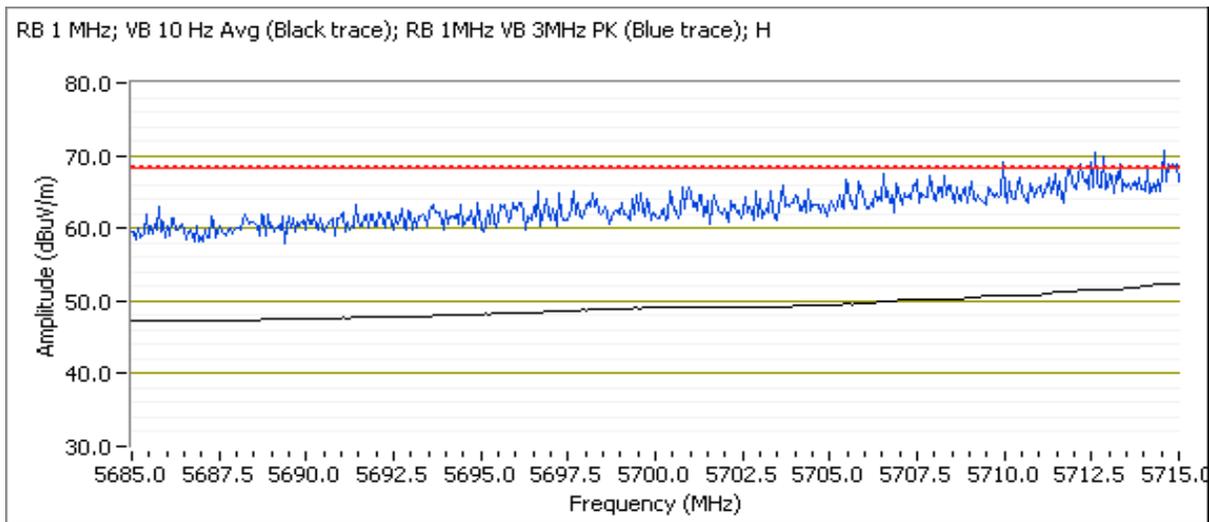
Date of Test: 7/21/2015 0:00  
 Test Engineer: Rafael Varelas  
 Test Location: FT Chamber #5

Config. Used: 1  
 Config Change: None  
 EUT Voltage: USB

Channel: 149 - 5745MHz  
 Tx Chain: 2Tx  
 Mode: n20  
 Data Rate: MCS0

### 5715 MHz Band Edge Signal Radiated Field Strength

Frequency MHz	Level dB $\mu$ V/m	Pol v/h	15.E		Detector Pk/QP/Avg	Azimuth degrees	Height meters	Comments
			Limit	Margin				
5714.940	52.3	H	54.0	-1.7	AVG	245	1.2	POS; RB 1 MHz; VB: 10 Hz
5712.720	71.2	H	74.0	-2.8	PK	245	1.2	POS; RB 1 MHz; VB: 3 MHz



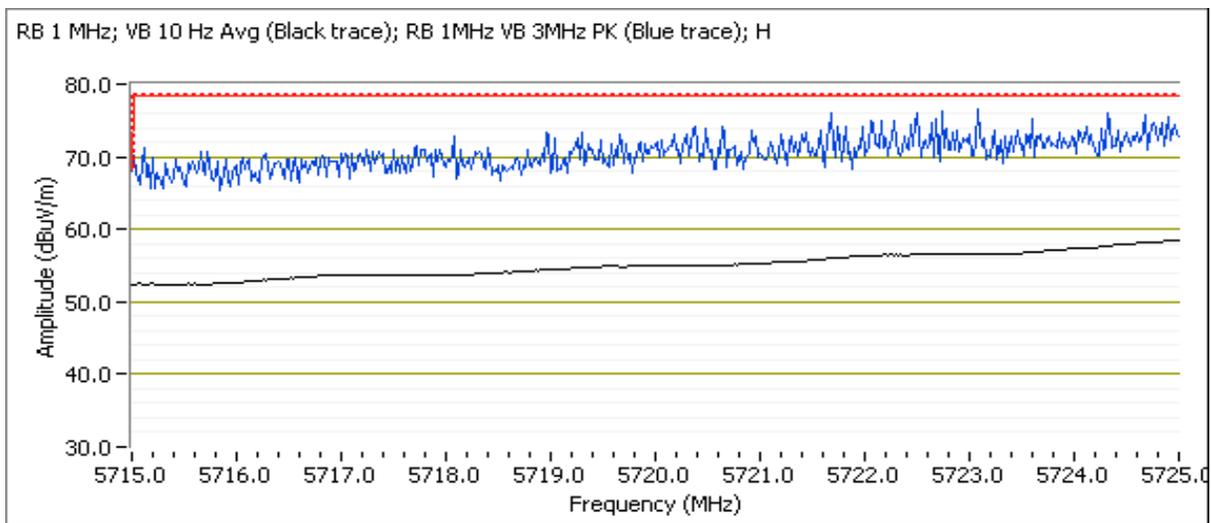


# EMC Test Data

Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
Contact: Tarandeep Kaur	Project Manager: Sheareen Jacobs
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator: Irene Rademacher
	Class: N/A

## 5715-5725 MHz Band Edge Signal Radiated Field Strength

Frequency	Level	Pol	15.E		Detector	Azimuth	Height	Comments
MHz	dB $\mu$ V/m	v/h	Limit	Margin	PK/QP/Avg	degrees	meters	
5724.160	77.6	H	78.3	-0.7	PK	245	1.2	POS; RB 1 MHz; VB: 3 MHz





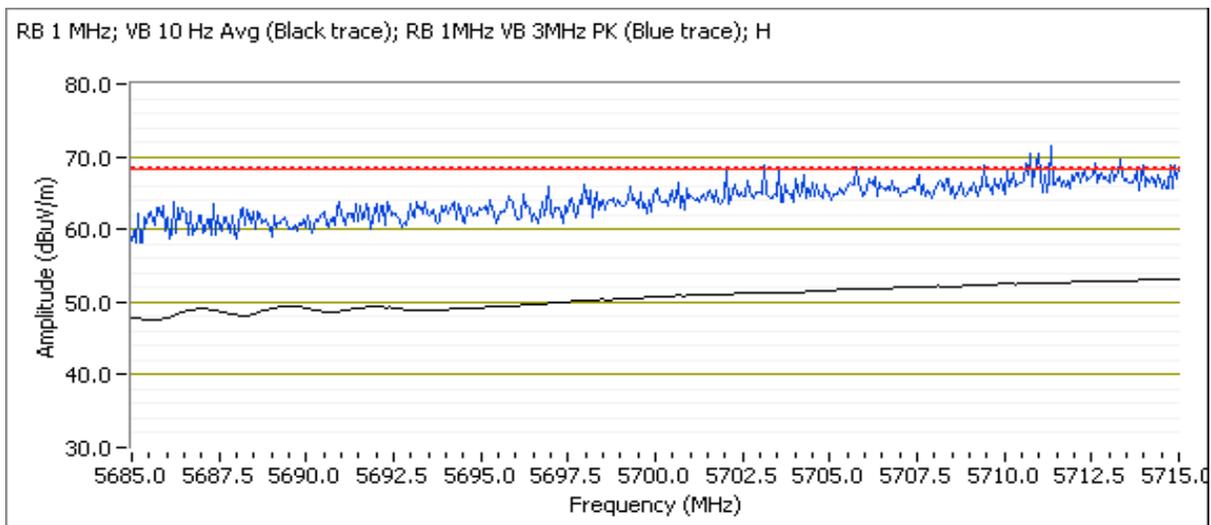
# EMC Test Data

Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
Contact: Tarandeep Kaur	Project Manager: Sheareen Jacobs
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator: Irene Rademacher
	Class: N/A

Channel: 153 - 5765MHz  
 Tx Chain: 2Tx  
 Mode: n20  
 Data Rate: MCS0

### 5715 MHz Band Edge Signal Radiated Field Strength

Frequency	Level	Pol	15.E		Detector	Azimuth	Height	Comments
MHz	dB $\mu$ V/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5715.000	53.6	H	54.0	-0.4	AVG	230	1.4	POS; RB 1 MHz; VB: 10 Hz
5713.200	71.4	H	74.0	-2.6	PK	230	1.4	POS; RB 1 MHz; VB: 3 MHz



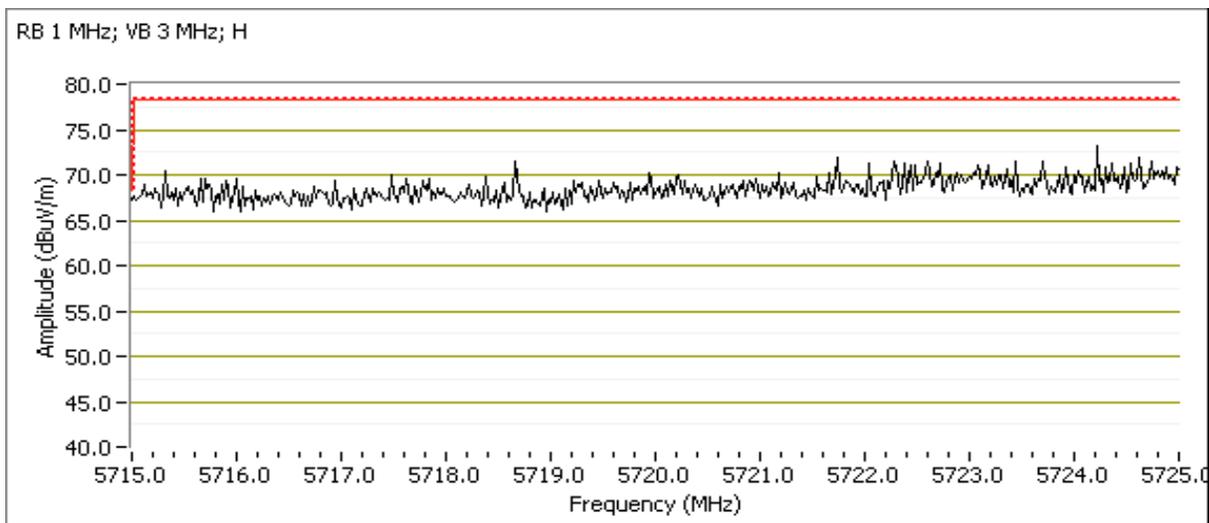


# EMC Test Data

Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
Contact: Tarandeep Kaur	Project Manager: Sheareen Jacobs
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator: Irene Rademacher
	Class: N/A

## 5715-5725 MHz Band Edge Signal Radiated Field Strength

Frequency	Level	Pol	15.E		Detector	Azimuth	Height	Comments
MHz	dB $\mu$ V/m	v/h	Limit	Margin	PK/QP/Avg	degrees	meters	
5722.330	72.2	H	78.3	-7.4	PK	230	1.4	POS; RB 1 MHz; VB: 3 MHz





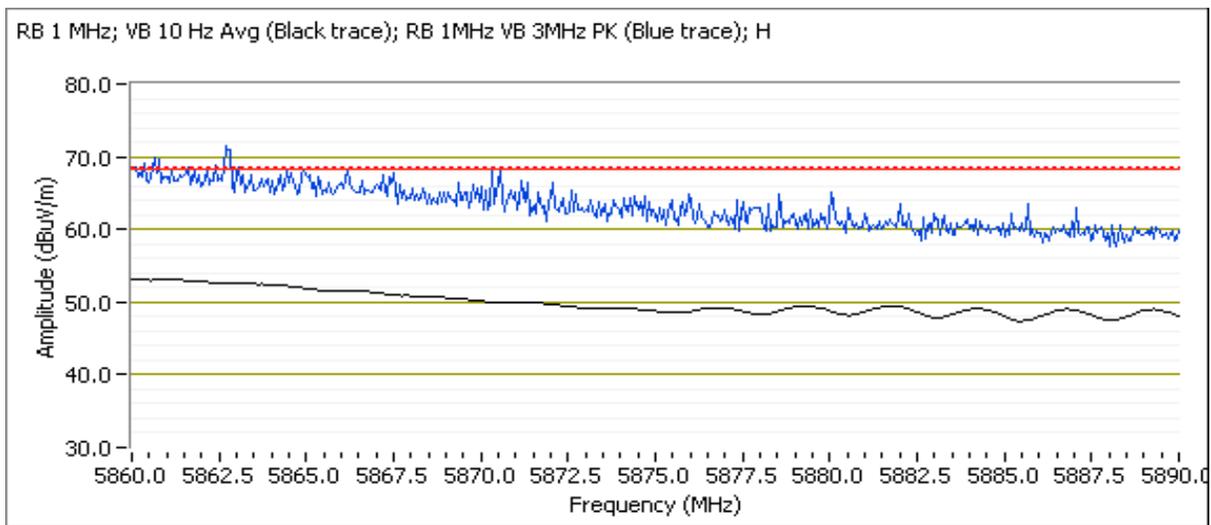
# EMC Test Data

Client:	Hewlett Packard Company	Job Number:	J98746
Model:	SDGOB-1505	T-Log Number:	T98753
Contact:	Tarandeep Kaur	Project Manager:	Sheareen Jacobs
Standard:	FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator:	Irene Rademacher
		Class:	N/A

Channel: 161 - 5805MHz  
 Tx Chain: 2Tx  
 Mode: n20  
 Data Rate: MCS0

### 5860 MHz Band Edge Signal Radiated Field Strength

Frequency	Level	Pol	15.E		Detector	Azimuth	Height	Comments
MHz	dB $\mu$ V/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5860.060	53.2	H	54.0	-0.8	AVG	225	1.6	POS; RB 1 MHz; VB: 10 Hz
5863.790	71.5	H	74.0	-2.5	PK	225	1.6	POS; RB 1 MHz; VB: 3 MHz



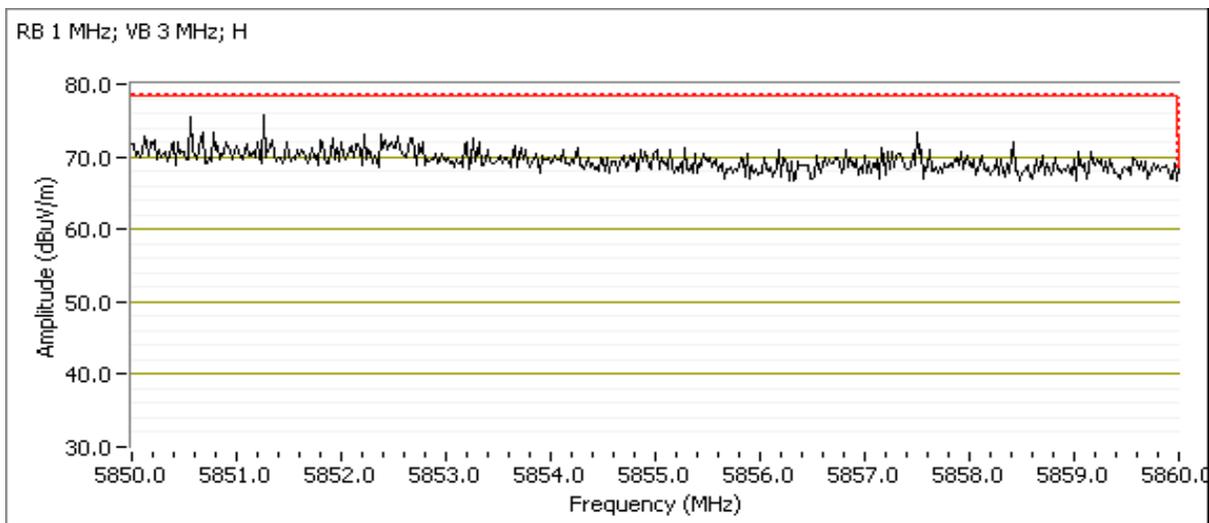


# EMC Test Data

Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
Contact: Tarandeep Kaur	Project Manager: Sheareen Jacobs
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator: Irene Rademacher
	Class: N/A

### 5850-5860 MHz Band Edge Signal Radiated Field Strength

Frequency	Level	Pol	15.E		Detector	Azimuth	Height	Comments
MHz	dB $\mu$ V/m	v/h	Limit	Margin	PK/QP/Avg	degrees	meters	
5855.190	75.2	H	78.3	-3.1	PK	225	1.6	POS; RB 1 MHz; VB: 3 MHz





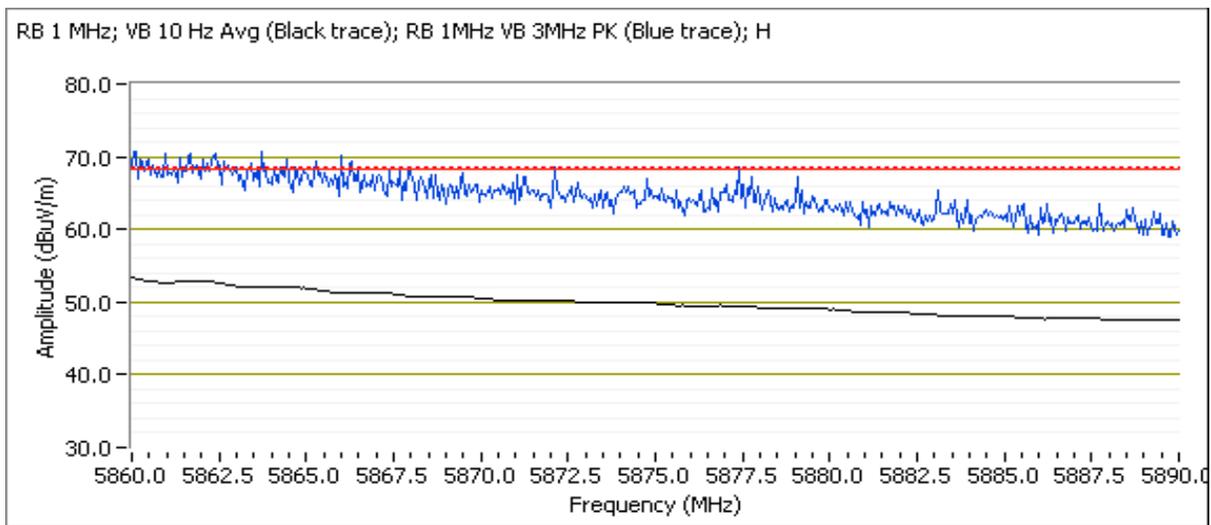
# EMC Test Data

Client:	Hewlett Packard Company	Job Number:	J98746
Model:	SDGOB-1505	T-Log Number:	T98753
Contact:	Tarandeep Kaur	Project Manager:	Sheareen Jacobs
Standard:	FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator:	Irene Rademacher
		Class:	N/A

Channel: 165 - 5825MHz  
 Tx Chain: 2Tx  
 Mode: n20  
 Data Rate: MCS0

### 5860 MHz Band Edge Signal Radiated Field Strength

Frequency	Level	Pol	15.E		Detector	Azimuth	Height	Comments
MHz	dB $\mu$ V/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5860.060	53.6	H	54.0	-0.4	AVG	229	1.6	POS; RB 1 MHz; VB: 10 Hz
5865.530	73.2	H	74.0	-0.8	PK	229	1.6	POS; RB 1 MHz; VB: 3 MHz



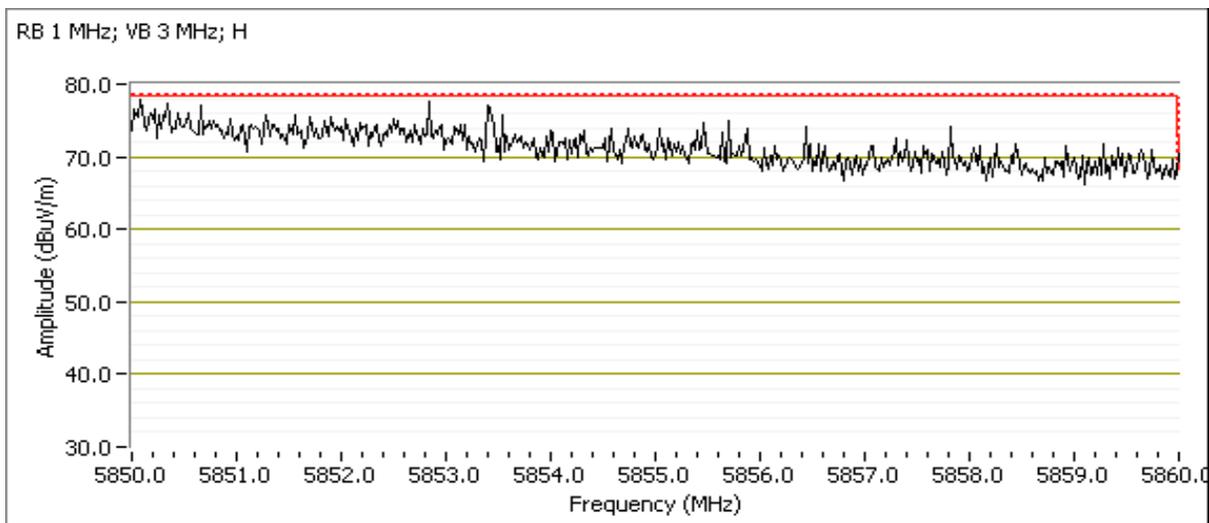


# EMC Test Data

Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
Contact: Tarandeep Kaur	Project Manager: Sheareen Jacobs
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator: Irene Rademacher
	Class: N/A

### 5850-5860 MHz Band Edge Signal Radiated Field Strength

Frequency	Level	Pol	15.E		Detector	Azimuth	Height	Comments
MHz	dB $\mu$ V/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5852.280	76.9	H	78.3	-1.4	PK	229	1.6	POS; RB 1 MHz; VB: 3 MHz





# EMC Test Data

Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
Contact: Tarandeep Kaur	Project Manager: Sheareen Jacobs
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator: Irene Rademacher
	Class: N/A

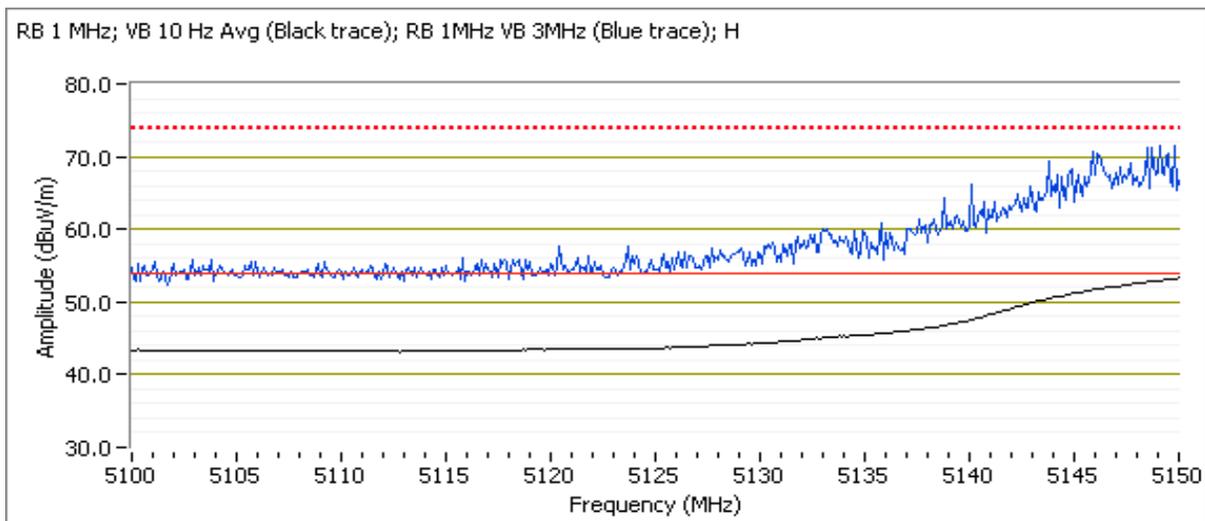
## Run #13: Radiated Bandedge Measurements, 5150-5250MHz

Date of Test: 7/20/2015 0:00  
 Test Engineer: Eddie Mariscal/John Caizzi  
 Test Location: FT Chamber# 5  
 Config. Used: 1  
 Config Change: none  
 EUT Voltage: USB

Channel: 38 - 5190 MHz  
 Tx Chain: Main  
 Mode: n40  
 Data Rate: MCS0

### 5150 MHz Band Edge Signal Radiated Field Strength

Frequency	Level	Pol	FCC 15.209		Detector	Azimuth	Height	Comments
MHz	dB $\mu$ V/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5150.000	53.5	H	54.0	-0.5	AVG	162	1.1	POS; RB 1 MHz; VB: 10 Hz
5149.000	69.9	H	74.0	-4.1	PK	162	1.1	POS; RB 1 MHz; VB: 3 MHz





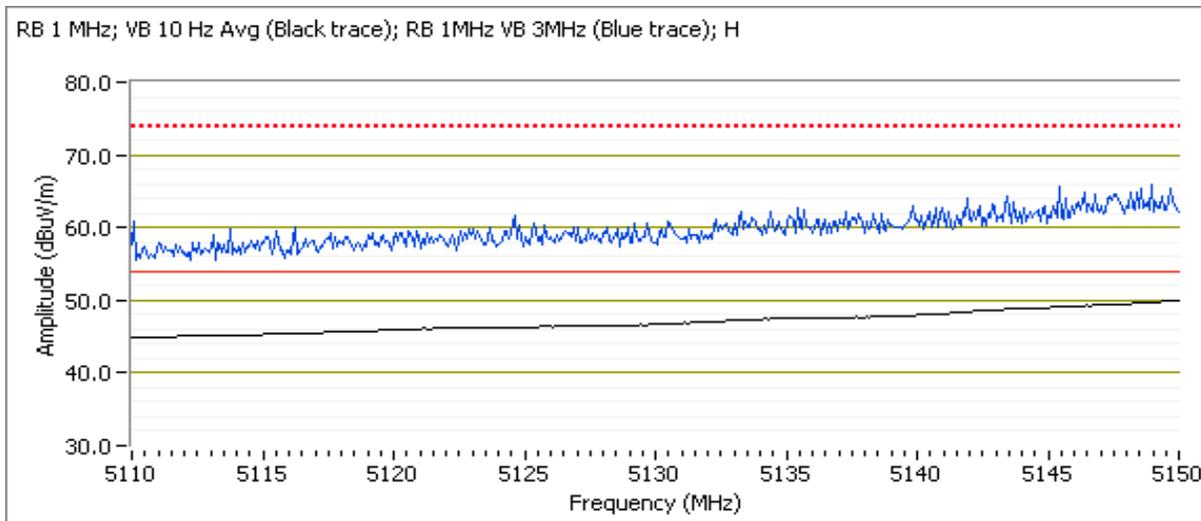
# EMC Test Data

Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
Contact: Tarandeep Kaur	Project Manager: Sheareen Jacobs
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator: Irene Rademacher
	Class: N/A

Channel: 46 - 5230 MHz  
 Tx Chain: Main  
 Mode: n40  
 Data Rate: MCS0

### 5150 MHz Band Edge Signal Radiated Field Strength

Frequency	Level	Pol	FCC 15.209		Detector	Azimuth	Height	Comments
MHz	dB $\mu$ V/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5150.000	49.9	H	54.0	-4.1	AVG	196	1.5	POS; RB 1 MHz; VB: 10 Hz
5149.360	64.8	H	74.0	-9.2	PK	196	1.5	POS; RB 1 MHz; VB: 3 MHz





# EMC Test Data

Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
Contact: Tarandeep Kaur	Project Manager: Sheareen Jacobs
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator: Irene Rademacher
	Class: N/A

## Run #14: Radiated Bandedge Measurements, 5250-5350MHz

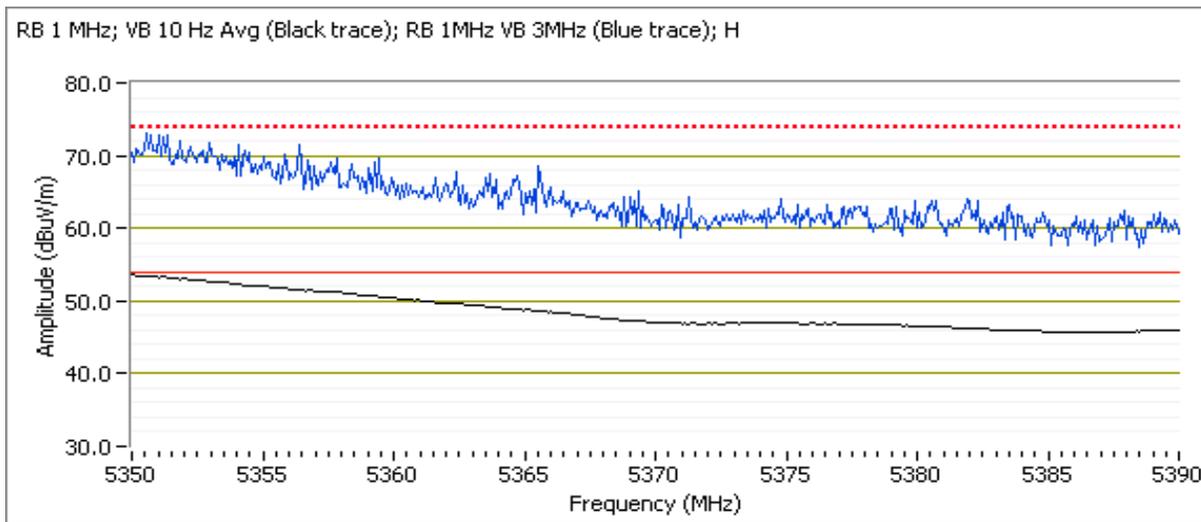
Date of Test: 7/20/2015 0:00  
 Test Engineer: Eddie Mariscal/John Caizzi  
 Test Location: FT Chamber# 5

Config. Used: 1  
 Config Change: none  
 EUT Voltage: USB

Channel: 62 - 5310MHz  
 Tx Chain: Main  
 Mode: n40  
 Data Rate: MCS0

### 5350 MHz Band Edge Signal Radiated Field Strength

Frequency	Level	Pol	FCC 15.209		Detector	Azimuth	Height	Comments
MHz	dB $\mu$ V/m	v/h	Limit	Margin	PK/QP/Avg	degrees	meters	
5350.000	53.8	H	54.0	-0.2	AVG	207	1.1	POS; RB 1 MHz; VB: 10 Hz
5355.290	73.6	H	74.0	-0.4	PK	207	1.1	POS; RB 1 MHz; VB: 3 MHz





# EMC Test Data

Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
Contact: Tarandeep Kaur	Project Manager: Sheareen Jacobs
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator: Irene Rademacher
	Class: N/A

## Run #15: Radiated Bandedge Measurements, 5470-5725MHz

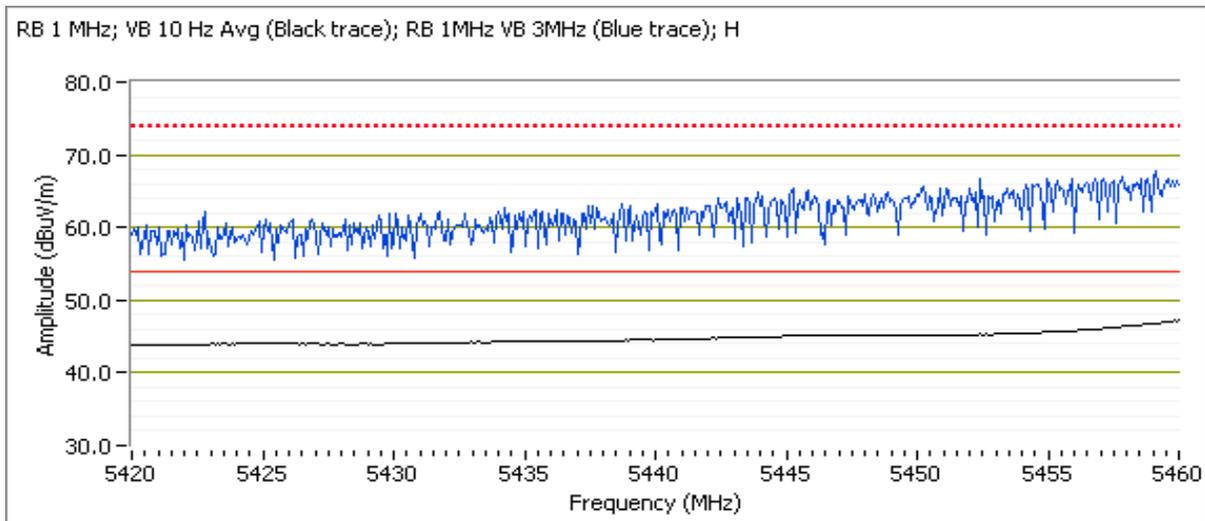
Date of Test: 7/20/2015 0:00  
 Test Engineer: Rafael Varelas  
 Test Location: FT Chamber# 5

Config. Used: 1  
 Config Change: none  
 EUT Voltage: USB

Channel: 102 - 5510MHz  
 Tx Chain: Main  
 Mode: n40  
 Data Rate: MCS0

### 5460 MHz Band Edge Signal Radiated Field Strength

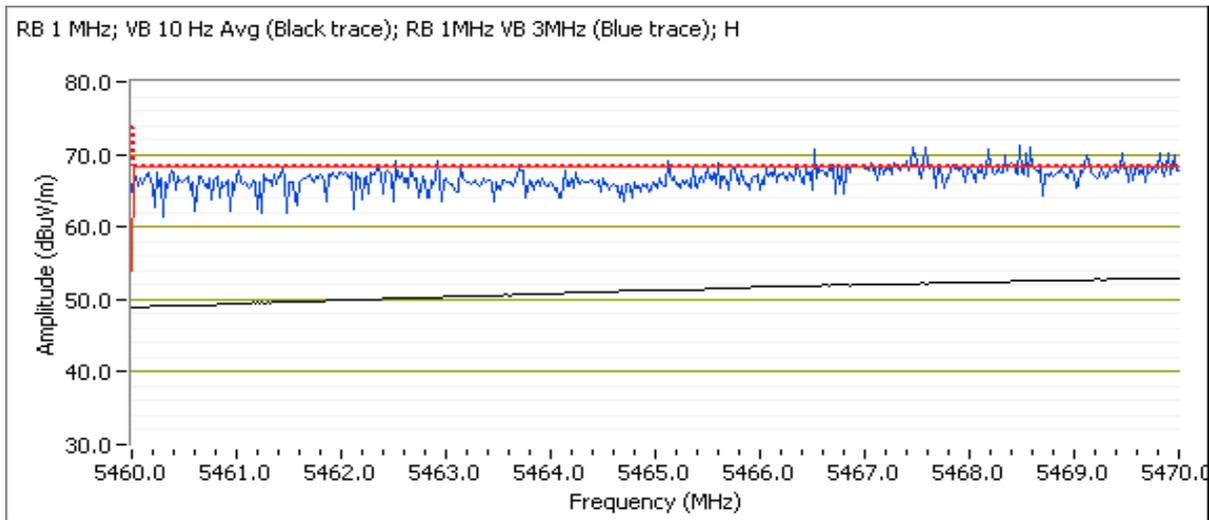
Frequency	Level	Pol	FCC 15.209		Detector	Azimuth	Height	Comments
MHz	dB $\mu$ V/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5459.920	48.9	H	54.0	-5.1	AVG	162	1.3	POS; RB 1 MHz; VB: 10 Hz
5457.920	67.3	H	74.0	-6.7	PK	162	1.3	POS; RB 1 MHz; VB: 3 MHz



Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
Contact: Tarandeep Kaur	Project Manager: Sheareen Jacobs
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator: Irene Rademacher
	Class: N/A

### 5470 MHz Band Edge Signal Radiated Field Strength

Frequency	Level	Pol	15.E		Detector	Azimuth	Height	Comments
MHz	dB $\mu$ V/m	v/h	Limit	Margin	PK/QP/Avg	degrees	meters	
5470.000	53.4	H	54.0	-0.6	AVG	162	1.3	Note 1, POS; RB 1 MHz; VB: 10 Hz
5468.000	68.3	H	74.0	-5.7	PK	162	1.3	Note 1, POS; RB 1 MHz; VB: 3 MHz





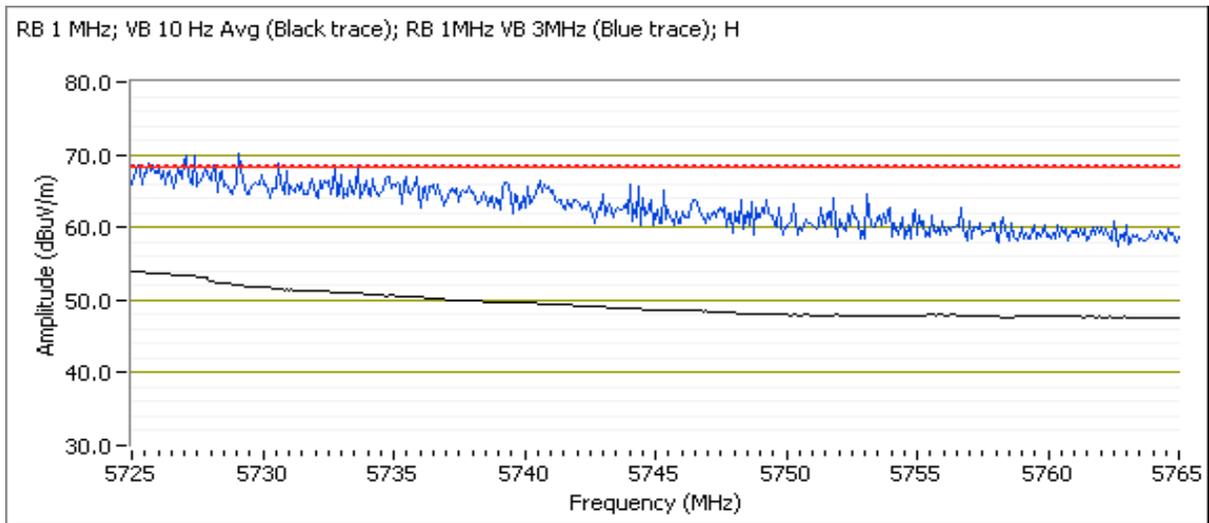
# EMC Test Data

Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
Contact: Tarandeep Kaur	Project Manager: Sheareen Jacobs
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator: Irene Rademacher
	Class: N/A

Channel: 134 - 5670MHz  
 Tx Chain: Main  
 Mode: n40  
 Data Rate: MCS0

### 5725 MHz Band Edge Signal Radiated Field Strength

Frequency	Level	Pol	15.E		Detector	Azimuth	Height	Comments
MHz	dB $\mu$ V/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5725.000	53.9	H	54.0	-0.1	AVG	249	1.5	POS; RB 1 MHz; VB: 10 Hz
5738.550	70.5	H	74.0	-3.5	PK	249	1.5	POS; RB 1 MHz; VB: 3 MHz





# EMC Test Data

Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
Contact: Tarandeep Kaur	Project Manager: Sheareen Jacobs
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator: Irene Rademacher
	Class: N/A

## Run #16: Radiated Bandedge Measurements, 5725-5850MHz

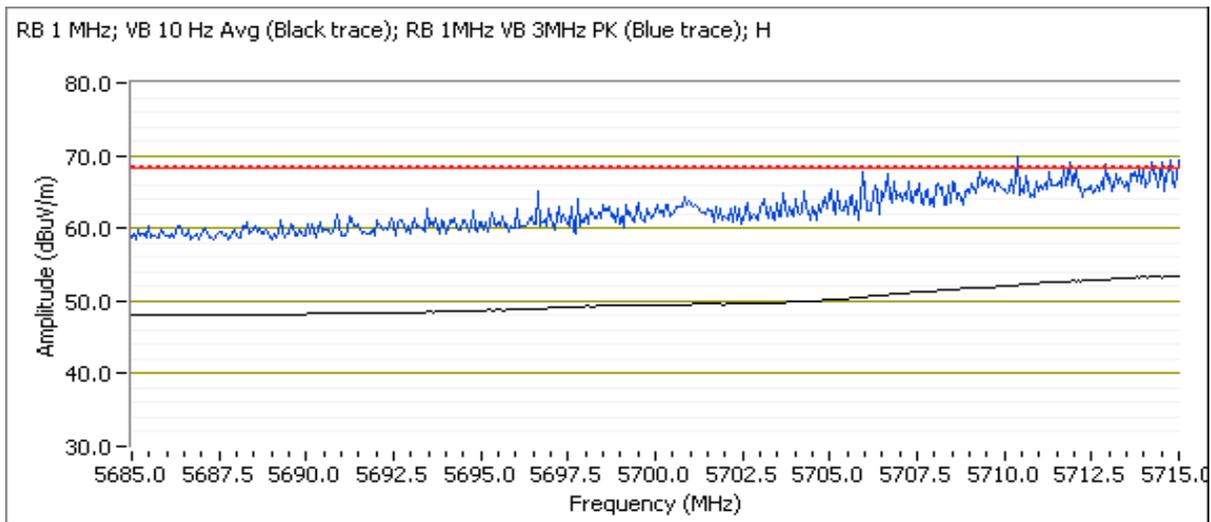
Date of Test: 7/21/2015 0:00  
 Test Engineer: Rafael Varelas  
 Test Location: FT Chamber #5

Config. Used: 1  
 Config Change: None  
 EUT Voltage: USB

Channel: 151 - 5755MHz  
 Tx Chain: Main  
 Mode: n40  
 Data Rate: MCS0

### 5715 MHz Band Edge Signal Radiated Field Strength

Frequency MHz	Level dB $\mu$ V/m	Pol v/h	15.E		Detector Pk/QP/Avg	Azimuth degrees	Height meters	Comments
			Limit	Margin				
5715.000	53.7	H	54.0	-0.3	AVG	248	1.2	POS; RB 1 MHz; VB: 10 Hz
5712.350	71.0	H	74.0	-3.0	PK	248	1.2	POS; RB 1 MHz; VB: 3 MHz



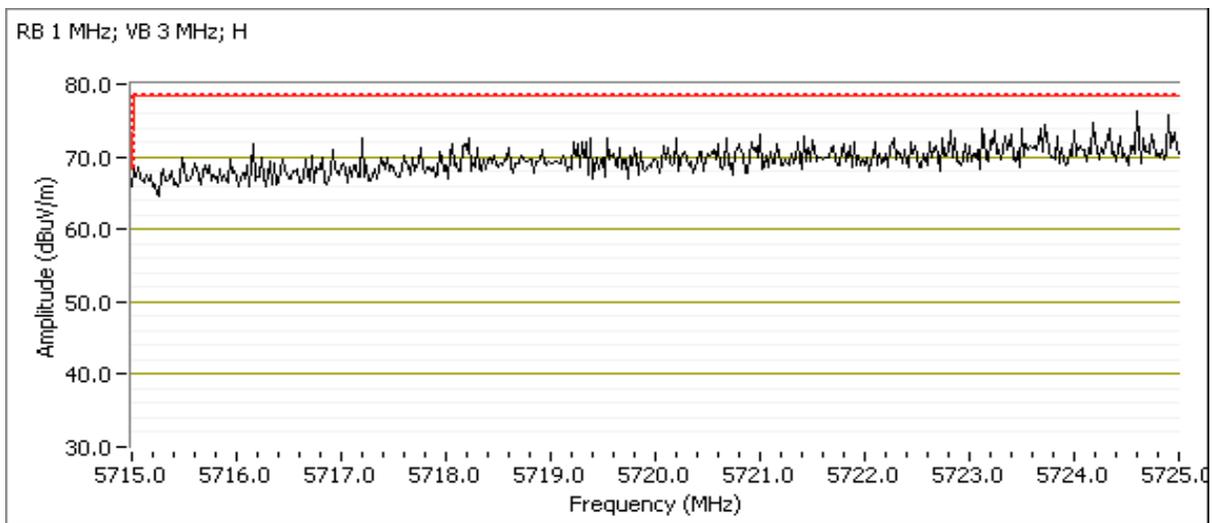


# EMC Test Data

Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
Contact: Tarandeep Kaur	Project Manager: Sheareen Jacobs
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator: Irene Rademacher
	Class: N/A

## 5715-5725 MHz Band Edge Signal Radiated Field Strength

Frequency	Level	Pol	15.E		Detector	Azimuth	Height	Comments
MHz	dB $\mu$ V/m	v/h	Limit	Margin	PK/QP/Avg	degrees	meters	
5723.220	75.9	H	78.3	-2.4	PK	248	1.2	POS; RB 1 MHz; VB: 3 MHz





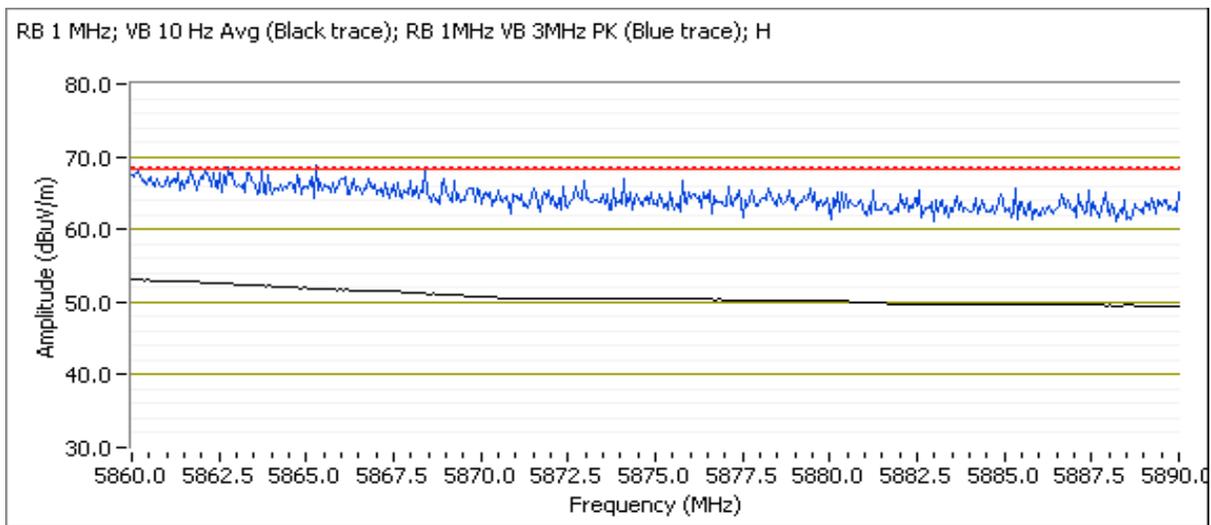
# EMC Test Data

Client:	Hewlett Packard Company	Job Number:	J98746
Model:	SDGOB-1505	T-Log Number:	T98753
Contact:	Tarandeep Kaur	Project Manager:	Sheareen Jacobs
Standard:	FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator:	Irene Rademacher
		Class:	N/A

Channel: 159 - 5795MHz  
 Tx Chain: Main  
 Mode: n40  
 Data Rate: MCS0

### 5860 MHz Band Edge Signal Radiated Field Strength

Frequency	Level	Pol	15.E		Detector	Azimuth	Height	Comments
MHz	dB $\mu$ V/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5860.120	53.1	H	54.0	-0.9	AVG	170	1.8	POS; RB 1 MHz; VB: 10 Hz
5862.040	69.1	H	74.0	-4.9	PK	170	1.8	POS; RB 1 MHz; VB: 3 MHz



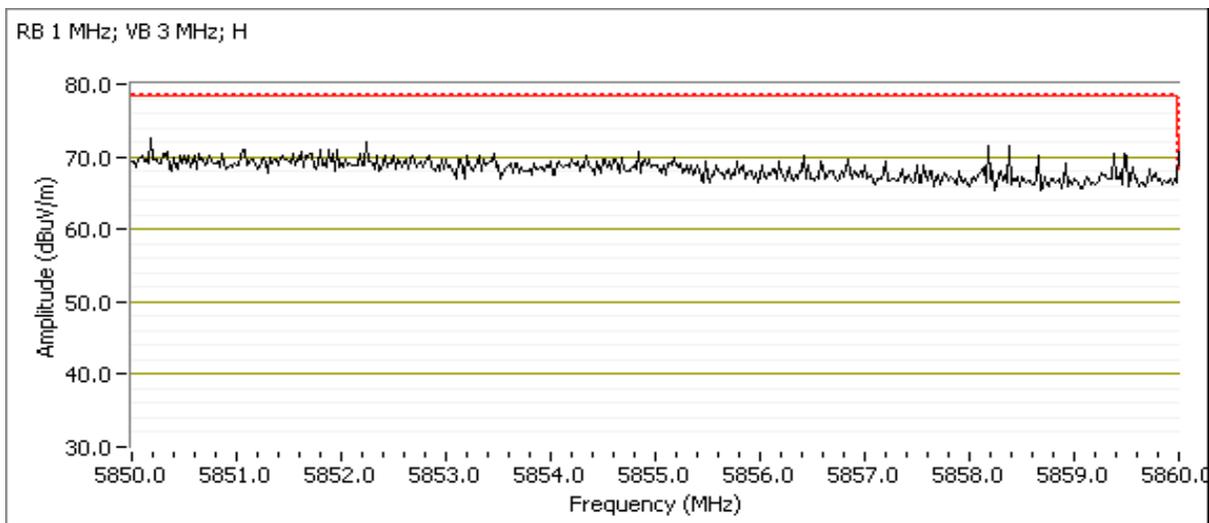


# EMC Test Data

Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
Contact: Tarandeep Kaur	Project Manager: Sheareen Jacobs
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator: Irene Rademacher
	Class: N/A

## 5850-5860 MHz Band Edge Signal Radiated Field Strength

Frequency	Level	Pol	15.E		Detector	Azimuth	Height	Comments
MHz	dB $\mu$ V/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5854.750	72.9	H	78.3	-5.4	PK	170	1.8	POS; RB 1 MHz; VB: 3 MHz





# EMC Test Data

Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
Contact: Tarandeep Kaur	Project Manager: Sheareen Jacobs
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator: Irene Rademacher
	Class: N/A

## Run #17: Radiated Bandedge Measurements, 5150-5250MHz

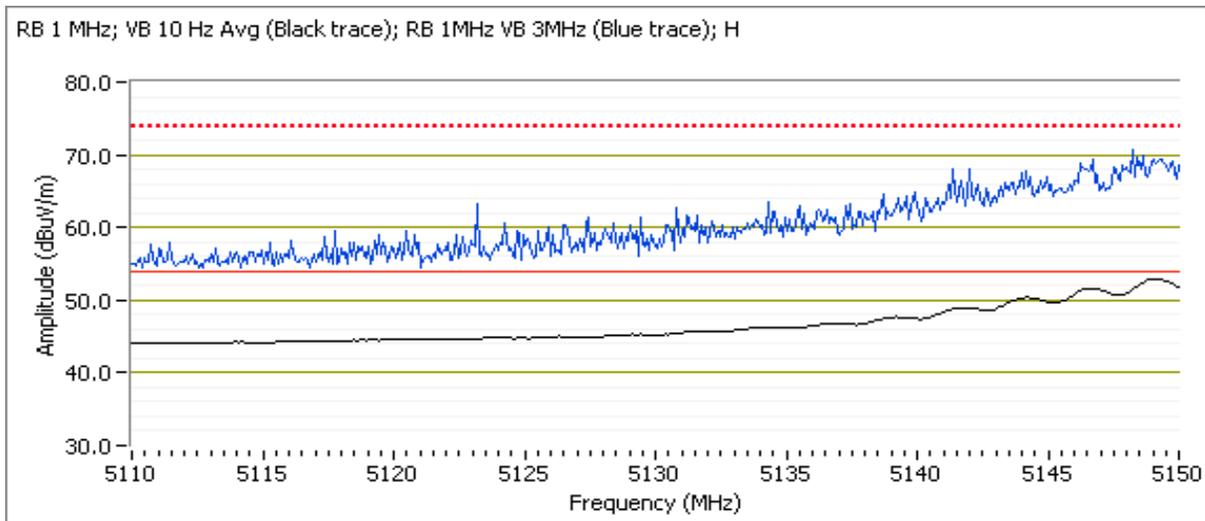
Date of Test: 7/20/2015 0:00  
 Test Engineer: Rafael Varelas  
 Test Location: FT Chamber# 5

Config. Used: 1  
 Config Change: none  
 EUT Voltage: USB

Channel: 38 - 5190 MHz  
 Tx Chain: 2Tx  
 Mode: n40  
 Data Rate: MCS0

### 5150 MHz Band Edge Signal Radiated Field Strength

Frequency	Level	Pol	FCC 15.209		Detector	Azimuth	Height	Comments
MHz	dB $\mu$ V/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5149.040	53.3	H	54.0	-0.7	AVG	260	1.6	POS; RB 1 MHz; VB: 10 Hz
5149.120	70.9	H	74.0	-3.1	PK	260	1.6	POS; RB 1 MHz; VB: 3 MHz





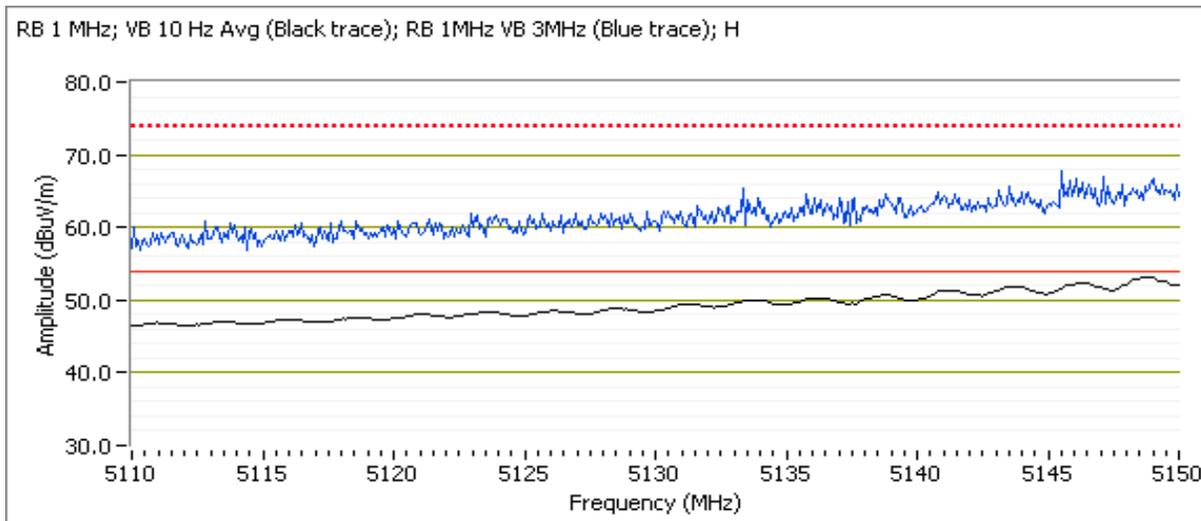
# EMC Test Data

Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
Contact: Tarandeep Kaur	Project Manager: Sheareen Jacobs
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator: Irene Rademacher
	Class: N/A

Channel: 46 - 5230 MHz  
 Tx Chain: 2Tx  
 Mode: n40  
 Data Rate: MCS0

### 5150 MHz Band Edge Signal Radiated Field Strength

Frequency	Level	Pol	FCC 15.209		Detector	Azimuth	Height	Comments
MHz	dB $\mu$ V/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5148.800	53.0	H	54.0	-1.0	AVG	272	1.0	POS; RB 1 MHz; VB: 10 Hz
5148.960	67.5	H	74.0	-6.5	PK	272	1.0	POS; RB 1 MHz; VB: 3 MHz





# EMC Test Data

Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
Contact: Tarandeep Kaur	Project Manager: Sheareen Jacobs
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator: Irene Rademacher
	Class: N/A

## Run #18: Radiated Bandedge Measurements, 5250-5350MHz

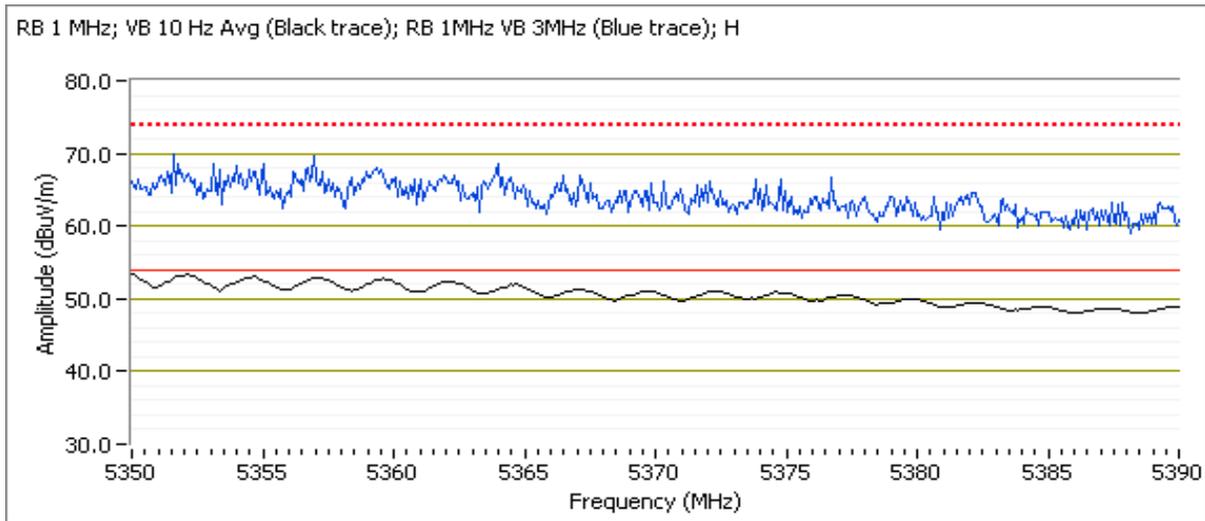
Date of Test: 7/20/2015 0:00  
 Test Engineer: Rafael Varelas  
 Test Location: FT Chamber# 5

Config. Used: 1  
 Config Change: none  
 EUT Voltage: USB

Channel: 54 - 5270MHz  
 Tx Chain: 2Tx  
 Mode: n40  
 Data Rate: MCS0

### 5350 MHz Band Edge Signal Radiated Field Strength

Frequency MHz	Level dB $\mu$ V/m	Pol v/h	FCC 15.209		Detector Pk/QP/Avg	Azimuth degrees	Height meters	Comments
			Limit	Margin				
5350.000	53.7	H	54.0	-0.3	AVG	229	1.3	POS; RB 1 MHz; VB: 10 Hz
5355.850	69.6	H	74.0	-4.4	PK	229	1.3	POS; RB 1 MHz; VB: 3 MHz





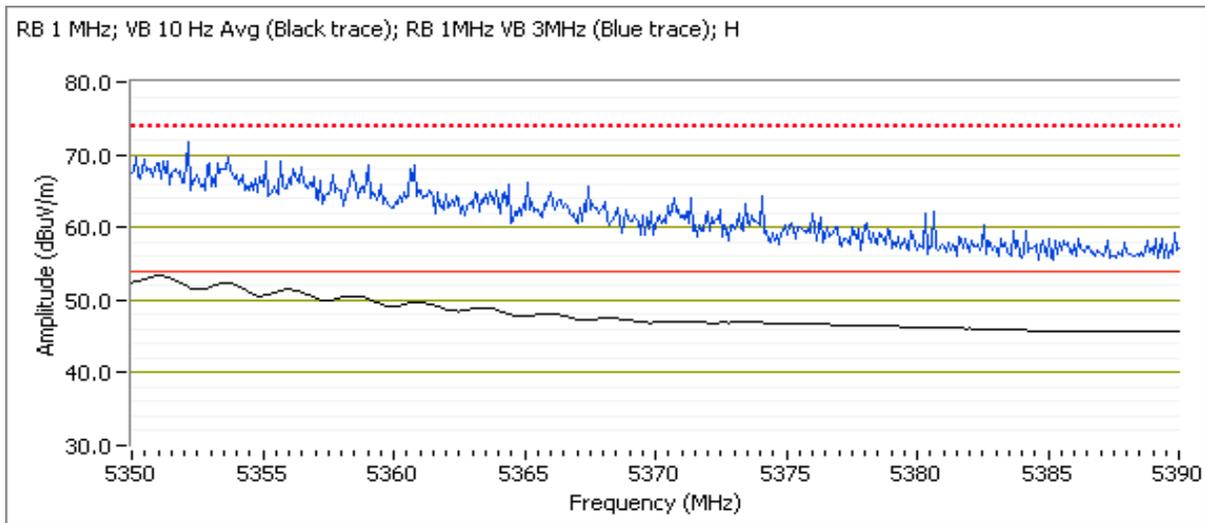
# EMC Test Data

Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
Contact: Tarandeep Kaur	Project Manager: Sheareen Jacobs
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator: Irene Rademacher
	Class: N/A

Channel: 62 - 5310MHz  
 Tx Chain: 2Tx  
 Mode: n40  
 Data Rate: MCS0

### 5350 MHz Band Edge Signal Radiated Field Strength

Frequency	Level	Pol	FCC 15.209		Detector	Azimuth	Height	Comments
MHz	dB $\mu$ V/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5351.040	53.3	H	54.0	-0.7	AVG	267	1.3	POS; RB 1 MHz; VB: 10 Hz
5353.930	71.2	H	74.0	-2.8	PK	267	1.3	POS; RB 1 MHz; VB: 3 MHz





# EMC Test Data

Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
Contact: Tarandeep Kaur	Project Manager: Sheareen Jacobs
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator: Irene Rademacher
	Class: N/A

## Run #19: Radiated Bandedge Measurements, 5470-5725MHz

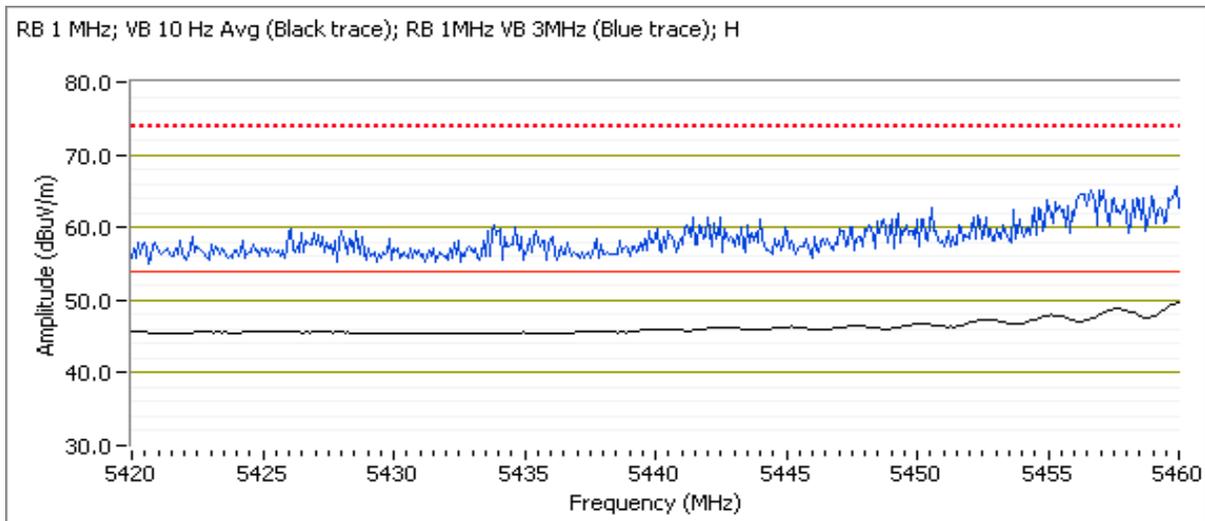
Date of Test: 7/20/2015 0:00  
 Test Engineer: Rafael Varelas  
 Test Location: FT Chamber# 5

Config. Used: 1  
 Config Change: none  
 EUT Voltage: USB

Channel: 102 - 5510MHz  
 Tx Chain: 2Tx  
 Mode: n40  
 Data Rate: MCS0

### 5460 MHz Band Edge Signal Radiated Field Strength

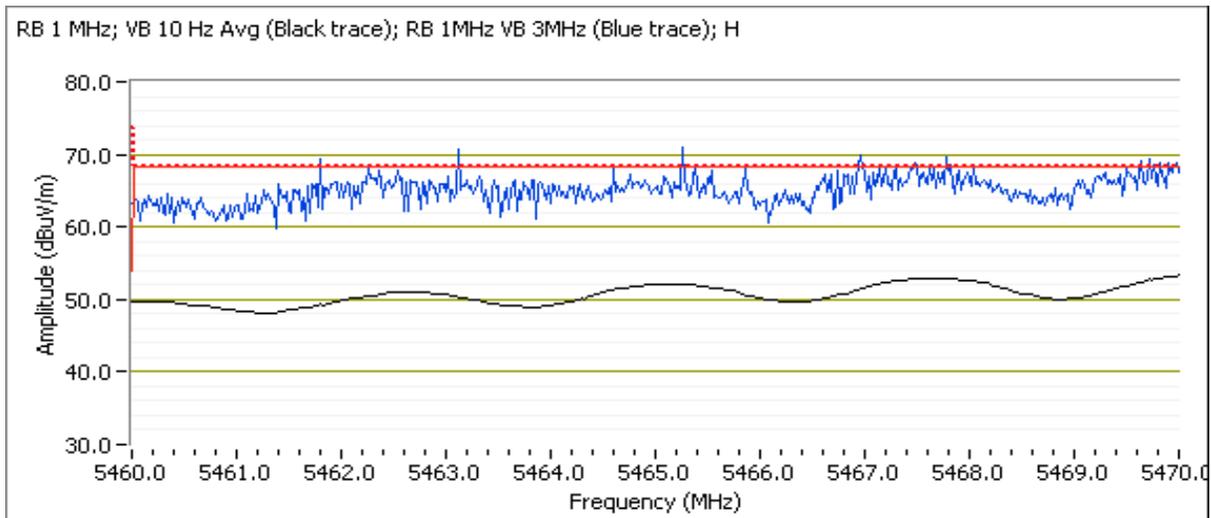
Frequency	Level	Pol	FCC 15.209		Detector	Azimuth	Height	Comments
MHz	dB $\mu$ V/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5460.000	49.7	H	54.0	-4.3	AVG	181	1.2	POS; RB 1 MHz; VB: 10 Hz
5456.870	66.3	H	74.0	-7.7	PK	181	1.2	POS; RB 1 MHz; VB: 3 MHz



Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
Contact: Tarandeep Kaur	Project Manager: Sheareen Jacobs
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator: Irene Rademacher
	Class: N/A

### 5470 MHz Band Edge Signal Radiated Field Strength

Frequency	Level	Pol	15.E		Detector	Azimuth	Height	Comments
MHz	dB $\mu$ V/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5470.000	53.5	H	54.0	-0.5	AVG	181	1.2	Note 1, POS; RB 1 MHz; VB: 10 Hz
5467.110	70.3	H	74.0	-3.7	PK	181	1.2	Note 1, POS; RB 1 MHz; VB: 3 MHz





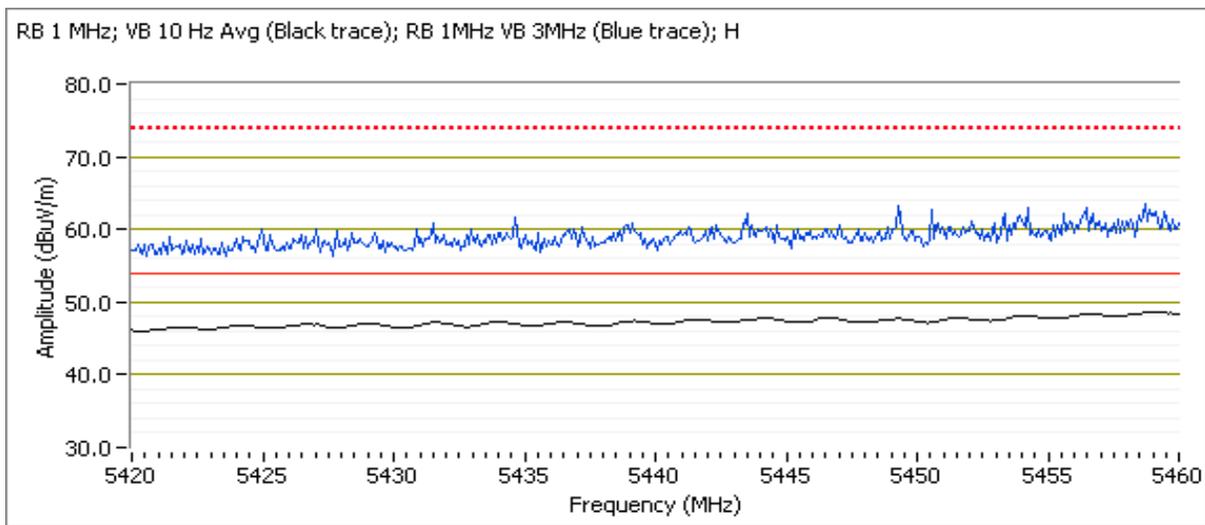
# EMC Test Data

Client:	Hewlett Packard Company	Job Number:	J98746
Model:	SDGOB-1505	T-Log Number:	T98753
Contact:	Tarandeep Kaur	Project Manager:	Sheareen Jacobs
Standard:	FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator:	Irene Rademacher
		Class:	N/A

Channel: 110 - 5550MHz  
 Tx Chain: 2Tx  
 Mode: n40  
 Data Rate: MCS0

### 5460 MHz Band Edge Signal Radiated Field Strength

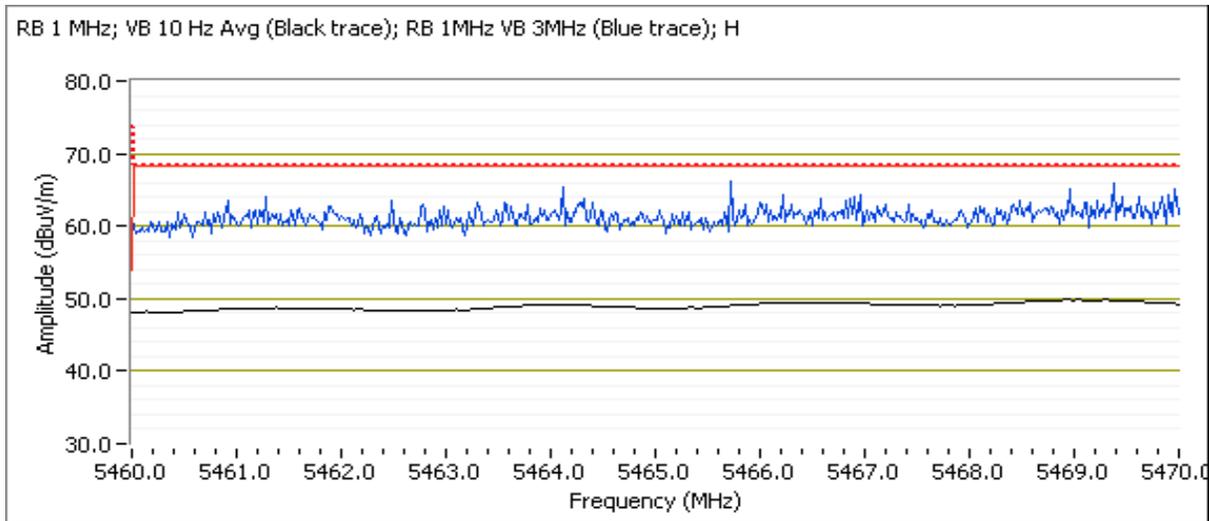
Frequency	Level	Pol	FCC 15.209		Detector	Azimuth	Height	Comments
MHz	dB $\mu$ V/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5458.960	48.6	H	54.0	-5.4	AVG	233	1.0	POS; RB 1 MHz; VB: 10 Hz
5455.590	64.4	H	74.0	-9.6	PK	233	1.0	POS; RB 1 MHz; VB: 3 MHz



Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
Contact: Tarandeep Kaur	Project Manager: Sheareen Jacobs
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator: Irene Rademacher
	Class: N/A

### 5470 MHz Band Edge Signal Radiated Field Strength

Frequency	Level	Pol	15.E		Detector	Azimuth	Height	Comments
MHz	dB $\mu$ V/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5465.930	67.6	H	68.3	-0.7	PK	233	1.0	POS; RB 1 MHz; VB: 3 MHz





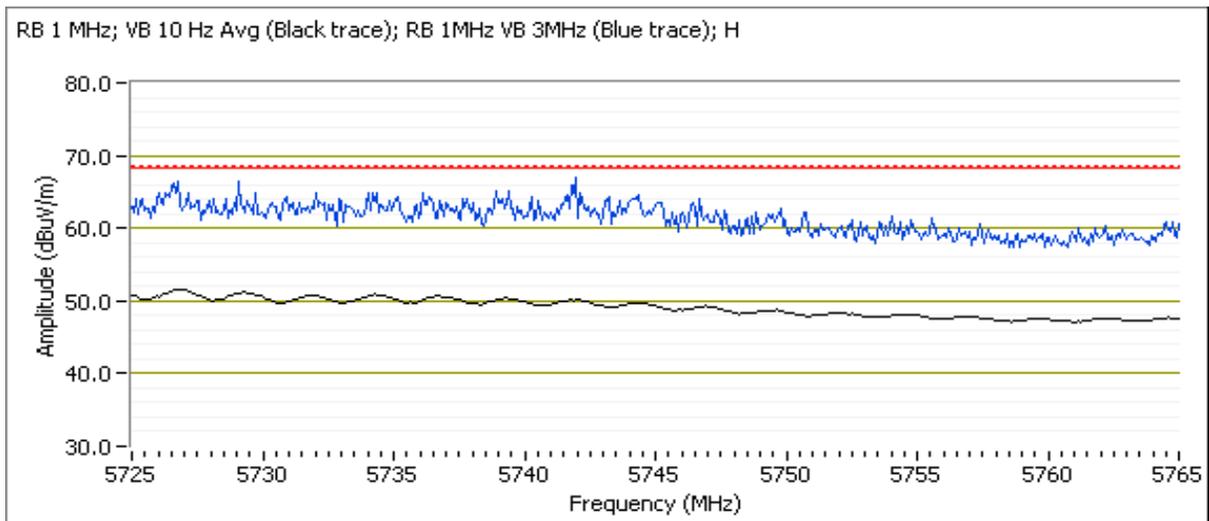
# EMC Test Data

Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
Contact: Tarandeep Kaur	Project Manager: Sheareen Jacobs
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator: Irene Rademacher
	Class: N/A

Channel: 126 - 5630MHz  
 Tx Chain: 2Tx  
 Mode: n40  
 Data Rate: MCS0

### 5725 MHz Band Edge Signal Radiated Field Strength

Frequency	Level	Pol	15.E		Detector	Azimuth	Height	Comments
MHz	dB $\mu$ V/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5726.920	51.4	H	54.0	-2.6	AVG	234	1.4	Note 1, POS; RB 1 MHz; VB: 10 Hz
5731.090	66.3	H	74.0	-7.7	PK	234	1.4	Note 1, POS; RB 1 MHz; VB: 3 MHz
5731.090	66.3	H	68.3	-2.0	PK	234	1.4	POS; RB 1 MHz; VB: 3 MHz

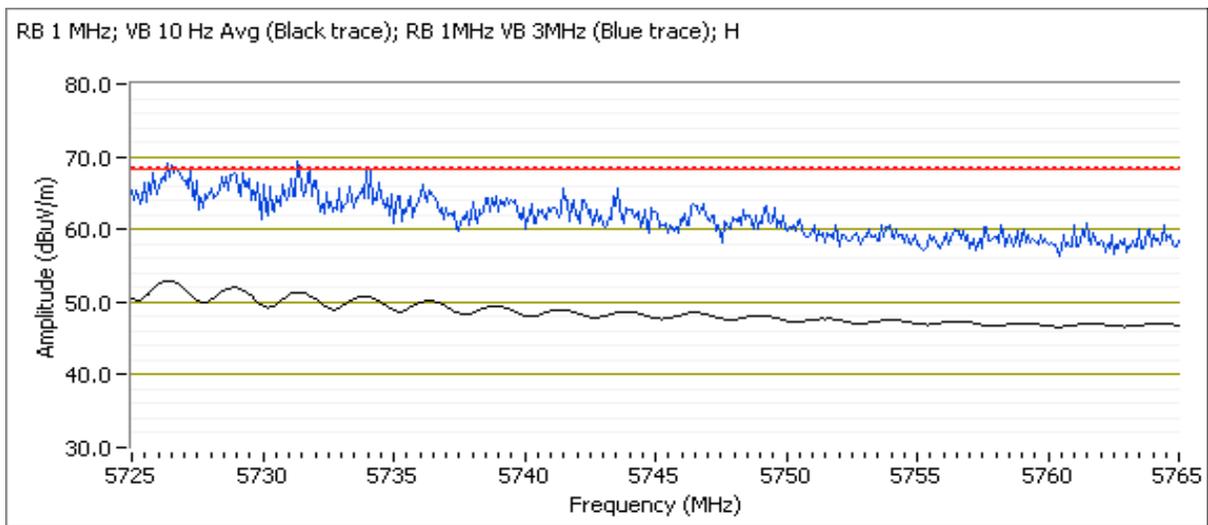


Client:	Hewlett Packard Company	Job Number:	J98746
Model:	SDGOB-1505	T-Log Number:	T98753
Contact:	Tarandeep Kaur	Project Manager:	Sheareen Jacobs
Standard:	FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator:	Irene Rademacher
		Class:	N/A

Channel: 134 - 5670MHz  
 Tx Chain: 2Tx  
 Mode: n40  
 Data Rate: MCS0

### 5725 MHz Band Edge Signal Radiated Field Strength

Frequency	Level	Pol	15.E		Detector	Azimuth	Height	Comments
MHz	dB $\mu$ V/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5726.360	53.3	H	54.0	-0.7	AVG	233	1.4	Note 1, POS; RB 1 MHz; VB: 10 Hz
5726.440	70.3	H	74.0	-3.7	PK	233	1.4	Note 1, POS; RB 1 MHz; VB: 3 MHz





# EMC Test Data

Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
Contact: Tarandeep Kaur	Project Manager: Sheareen Jacobs
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator: Irene Rademacher
	Class: N/A

## Run #20: Radiated Bandedge Measurements, 5725-5850MHz

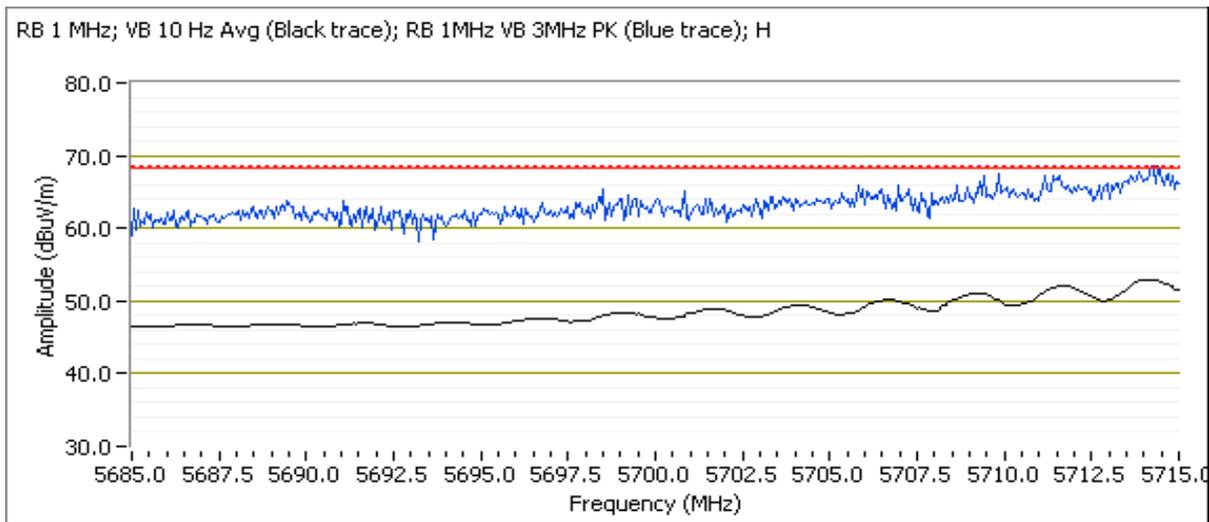
Date of Test: 7/21/2015 0:00  
 Test Engineer: Rafael Varelas  
 Test Location: FT Chamber #5

Config. Used: 1  
 Config Change: None  
 EUT Voltage: USB

Channel: 151 - 5755MHz  
 Tx Chain: 2Tx  
 Mode: n40  
 Data Rate: MCS0

### 5715 MHz Band Edge Signal Radiated Field Strength

Frequency	Level	Pol	15.E		Detector	Azimuth	Height	Comments
MHz	dB $\mu$ V/m	v/h	Limit	Margin	PK/QP/Avg	degrees	meters	
5714.040	53.0	H	54.0	-1.0	AVG	224	1.6	POS; RB 1 MHz; VB: 10 Hz
5714.880	68.9	H	74.0	-5.1	PK	224	1.6	POS; RB 1 MHz; VB: 3 MHz



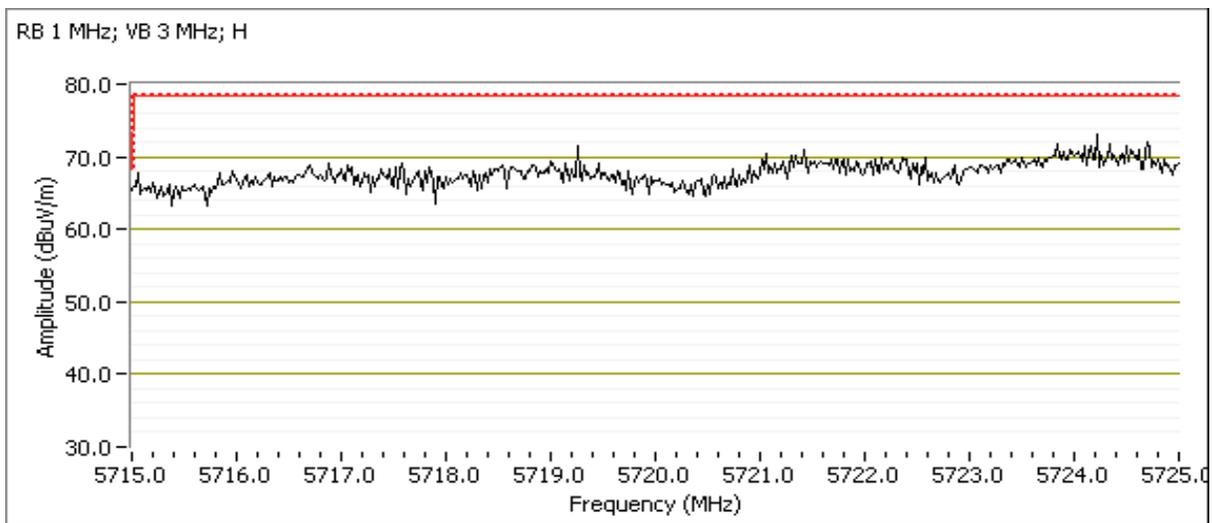


# EMC Test Data

Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
Contact: Tarandeep Kaur	Project Manager: Sheareen Jacobs
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator: Irene Rademacher
	Class: N/A

## 5715-5725 MHz Band Edge Signal Radiated Field Strength

Frequency	Level	Pol	15.E		Detector	Azimuth	Height	Comments
MHz	dB $\mu$ V/m	v/h	Limit	Margin	PK/QP/Avg	degrees	meters	
5724.060	73.4	H	78.3	-4.9	PK	224	1.6	POS; RB 1 MHz; VB: 3 MHz





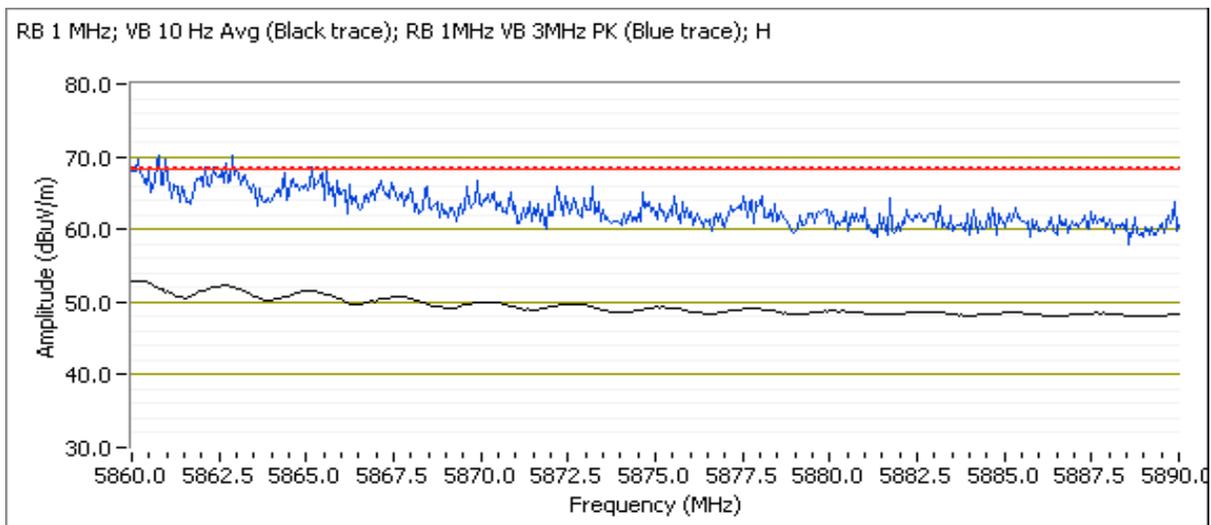
# EMC Test Data

Client:	Hewlett Packard Company	Job Number:	J98746
Model:	SDGOB-1505	T-Log Number:	T98753
Contact:	Tarandeep Kaur	Project Manager:	Sheareen Jacobs
Standard:	FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator:	Irene Rademacher
		Class:	N/A

Channel: 159 - 5795MHz  
 Tx Chain: 2Tx  
 Mode: n40  
 Data Rate: MCS0

### 5860 MHz Band Edge Signal Radiated Field Strength

Frequency	Level	Pol	15.E		Detector	Azimuth	Height	Comments
MHz	dB $\mu$ V/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5860.180	53.1	H	54.0	-0.9	AVG	181	1.5	POS; RB 1 MHz; VB: 10 Hz
5865.950	71.1	H	74.0	-2.9	PK	181	1.5	POS; RB 1 MHz; VB: 3 MHz



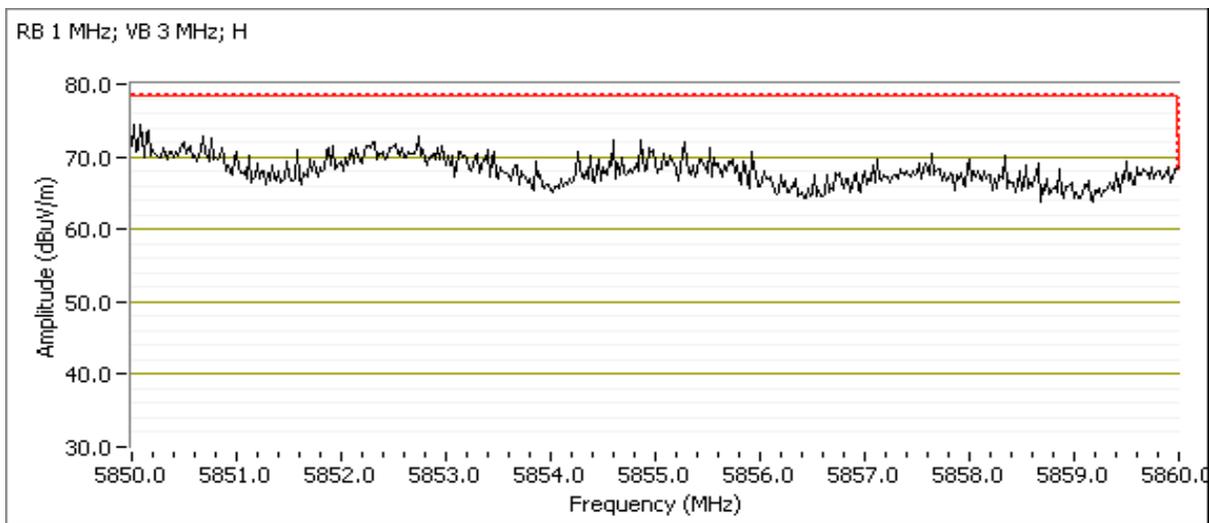


# EMC Test Data

Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
Contact: Tarandeep Kaur	Project Manager: Sheareen Jacobs
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator: Irene Rademacher
	Class: N/A

## 5850-5860 MHz Band Edge Signal Radiated Field Strength

Frequency	Level	Pol	15.E		Detector	Azimuth	Height	Comments
MHz	dB $\mu$ V/m	v/h	Limit	Margin	PK/QP/Avg	degrees	meters	
5850.300	74.5	H	78.3	-3.8	PK	181	1.5	POS; RB 1 MHz; VB: 3 MHz





# EMC Test Data

Client:	Hewlett Packard Company	Job Number:	J98746
Model:	SDGOB-1505	T-Log Number:	T98753
Contact:	Tarandeep Kaur	Project Manager:	Sheareen Jacobs
Standard:	FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator:	Irene Rademacher
		Class:	N/A

## RSS 210 and FCC 15.407 (UNII) Radiated Spurious Emissions

### Test Specific Details

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

### General Test Configuration

The EUT and all local support equipment were located on the turntable for radiated spurious emissions testing. For radiated emissions testing the measurement antenna was located 3 meters from the EUT, unless otherwise noted.

### Ambient Conditions:

Temperature: 22.7 °C  
Rel. Humidity: 36 %

### Summary of Results

Run #	Mode	Channel	Target Power	Power Setting	Test Performed	Limit	Result / Margin
Scans on "center" channel in all OFDM modes to determine the worst case mode.							
1	a (1Tx)	40 - 5200MHz	-	-	Radiated Emissions, 1 - 40 GHz	FCC 15.209 / 15 E	43.8 dBµV/m @ 5420.1 MHz (-10.2 dB)
	n20 (2Tx)	40 - 5200MHz		-			57.3 dBµV/m @ 10398 MHz (-11.0 dB)
	n40 (2Tx)	38 - 5190MHz		-			46.1 dBµV/m @ 5039.1 MHz (-7.9 dB)
Measurements on low and high channels in worst-case OFDM mode (high channel only if worst case is n40).							
2	n40 (2Tx)	46 - 5230MHz	-	-	Radiated Emissions, 1 - 40 GHz	FCC 15.209 / 15 E	46.6 dBµV/m @ 5456.7 MHz (-7.4 dB)
Scans on "center" channel in all OFDM modes to determine the worst case mode.							
3	a (1Tx)	60 - 5300MHz	-	-	Radiated Emissions, 1 - 40 GHz	FCC 15.209 / 15 E	42.8 dBµV/m @ 5419.8 MHz (-11.2 dB)
	n20 (2Tx)	60 - 5300MHz		-			48.6 dBµV/m @ 5454.1 MHz (-5.4 dB)
	n40 (2Tx)	54 - 5270MHz		-			51.0 dBµV/m @ 5428.7 MHz (-3.0 dB)
Measurements on low and high channels in worst-case OFDM mode (high channel only if worst case is n40).							
4	n40 (2Tx)	62 - 5310MHz	-	-	Radiated Emissions, 1 - 40 GHz	FCC 15.209 / 15 E	48.7 dBµV/m @ 5434.3 MHz (-5.3 dB)



# EMC Test Data

Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
Contact: Tarandeep Kaur	Project Manager: Sheareen Jacobs
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator: Irene Rademacher
	Class: N/A

Run #	Mode	Channel	Target Power	Power Setting	Test Performed	Limit	Result / Margin
Scans on "center" channel in all OFDM modes to determine the worst case mode.							
5	a (1Tx)	116 - 5580MHz	-	-	Radiated Emissions, 1 - 40 GHz	FCC 15.209 / 15 E	51.0 dBµV/m @ 5318.1 MHz (-17.3 dB)
	n20 (2Tx)	116 - 5580MHz		-			47.5 dBµV/m @ 11159.4 MHz (-6.5 dB)
	n40 (2Tx)	110 - 5550MHz		-			45.5 dBµV/m @ 11099.7 MHz (-8.5 dB)
Measurements on low and high channels in worst-case OFDM mode.							
6	n20 (2Tx)	100 - 5500MHz	-	-	Radiated Emissions, 1 - 40 GHz	FCC 15.209 / 15 E	47.0 dBµV/m @ 10999.9 MHz (-7.0 dB)
		140 - 5720MHz		-			60.9 dBµV/m @ 5926.2 MHz (-7.4 dB)
Scans on "center" channel in all OFDM modes to determine the worst case mode.							
7	a (1Tx)	157 - 5785MHz	-	-	Radiated Emissions, 1 - 40 GHz	FCC 15.209 / 15 E	46.0 dBµV/m @ 11570.4 MHz (-8.0 dB)
	n20 (2Tx)	157 - 5785MHz		-			48.5 dBµV/m @ 11570.2 MHz (-5.5 dB)
	n40 (2Tx)	151 - 5755MHz		-			45.7 dBµV/m @ 11510.5 MHz (-8.3 dB)
Measurements on low and high channels in worst-case OFDM mode.							
8	n20 (2Tx)	149 - 5745MHz	-	-	Radiated Emissions, 1 - 40 GHz	FCC 15.209 / 15 E	48.0 dBµV/m @ 11489.2 MHz (-6.0 dB)
		165 - 5825MHz		-			50.7 dBµV/m @ 11649.4 MHz (-3.3 dB)

### Modifications Made During Testing

No modifications were made to the EUT during testing

### Deviations From The Standard

No deviations were made from the requirements of the standard.

### Sample Notes

Sample S/N: D85DE2000005 (MAC ID)  
 Driver: 6.37 RC214 .12  
 Antenna: Internal

Client:	Hewlett Packard Company	Job Number:	J98746
Model:	SDGOB-1505	T-Log Number:	T98753
Contact:	Tarandeep Kaur	Project Manager:	Sheareen Jacobs
Standard:	FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator:	Irene Rademacher
		Class:	N/A

### Notes

Testing performed at 1.5m per C63.10  
 All testing was performed in 2Tx mode using worse case 1Tx power levels

### Procedure Comments:

Measurements performed in accordance with FCC KDB 789033  
 Peak measurements performed with: RBW=1MHz, VBW=3MHz, peak detector, max hold, auto sweep time  
 Unless otherwise stated/noted, emission has duty cycle  $\geq 98\%$  and was measured using RBW=1MHz, VBW=10Hz, peak detector, linear average mode, auto sweep time, max hold.

Mode	Data Rate	Duty Cycle (x)	Constant DC?	T (ms)	Pwr Cor Factor*	Lin Volt Cor Factor**	Min VBW for FS (Hz)
11a	6Mb/s	98.2%	Yes	1.405	0	0	10
n20	MCS0	98.1%	Yes	1.309	0	0	10
n40	MCS0	98.0%	Yes	0.932	0	0	10

### Measurement Specific Notes:

Note 2:	For emissions outside of the restricted bands the limit is -27dBm/MHz eirp (68.3dBuV/m). The measurement method required is a peak measurement (RB=1MHz, VB $\geq$ 3MHz, peak detector). Per KDB 789033 2) c) (i), compliance can be demonstrated by meeting the average and peak limits of 15.209, as an alternative.
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# EMC Test Data

Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
Contact: Tarandeep Kaur	Project Manager: Sheareen Jacobs
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator: Irene Rademacher
	Class: N/A

## Run #1, Radiated Spurious Emissions, 1,000 - 40,000 MHz. Operation in the 5150-5250 MHz Band

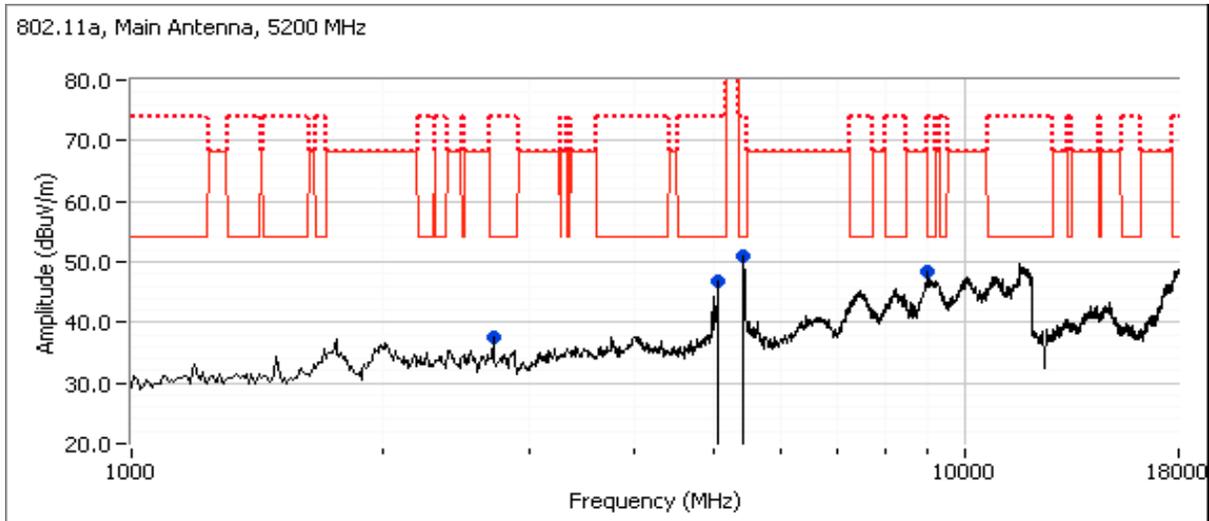
Date of Test: 7/28/2015 & 7/29/15  
 Test Engineer: Rafael Varelas & J. Caizzi  
 Test Location: FT Chamber #5  
 Config. Used: 1  
 Config Change: None  
 EUT Voltage: USB

### Run #1a: Center Channel

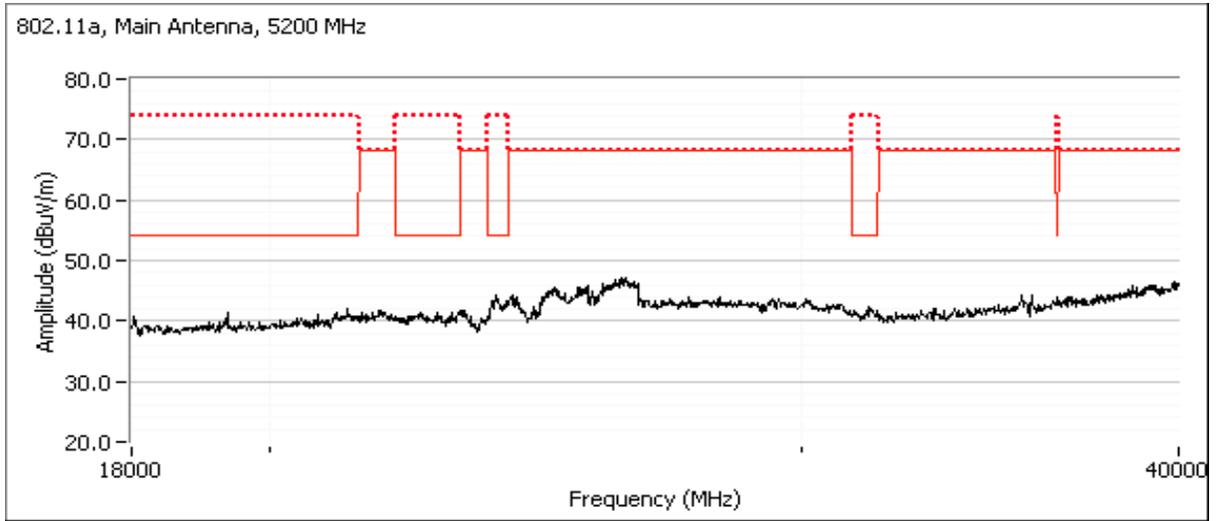
Channel: 40                      Mode: a  
 Tx Chain: Main                  Data Rate: 6Mb/s

Frequency MHz	Level dB $\mu$ V/m	Pol v/h	15.209 / 15E		Detector Pk/QP/Avg	Azimuth degrees	Height meters	Comments
			Limit	Margin				
5420.070	43.8	H	54.0	-10.2	AVG	222	1.4	RB 1 MHz;VB 10 Hz;Peak
5419.570	53.6	H	74.0	-20.4	PK	222	1.4	RB 1 MHz;VB 3 MHz;Peak
5050.350	39.9	V	54.0	-14.1	AVG	207	1.3	RB 1 MHz;VB 10 Hz;Peak
5034.420	51.2	V	74.0	-22.8	PK	207	1.3	RB 1 MHz;VB 3 MHz;Peak
9023.800	42.0	V	54.0	-12.0	AVG	268	2.1	RB 1 MHz;VB 10 Hz;Peak
9017.730	52.9	V	74.0	-21.1	PK	268	2.1	RB 1 MHz;VB 3 MHz;Peak

Note 1: For emissions in restricted bands, the limit of 15.209 was used which requires average and peak measurements.



Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
	Project Manager: Sheareen Jacobs
Contact: Tarandeep Kaur	Project Coordinator: Irene Rademacher
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Class: N/A





# EMC Test Data

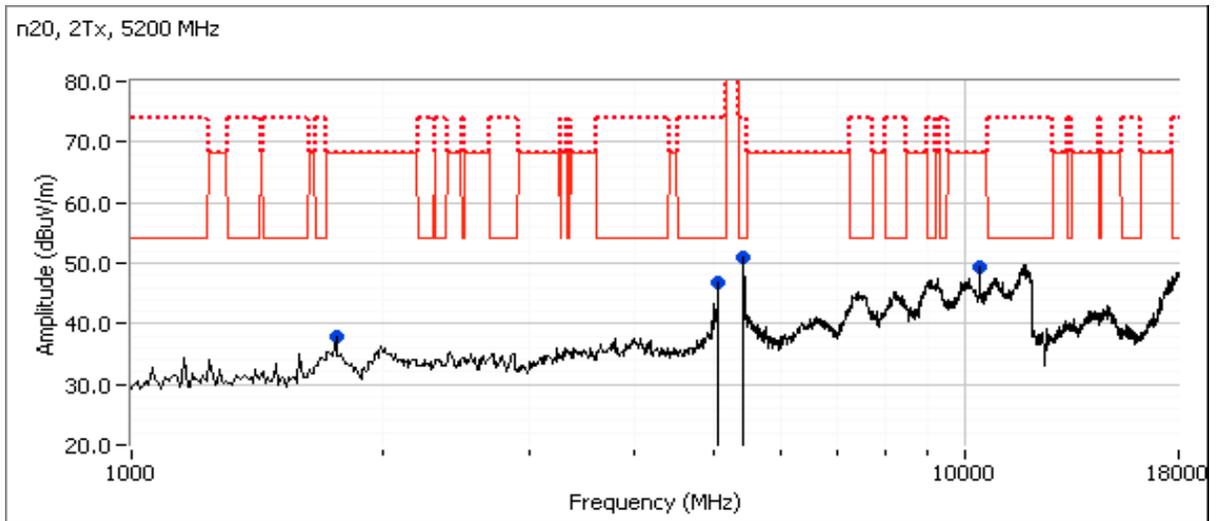
Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
Contact: Tarandeep Kaur	Project Manager: Sheareen Jacobs
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator: Irene Rademacher
	Class: N/A

## Run #1b: Center Channel

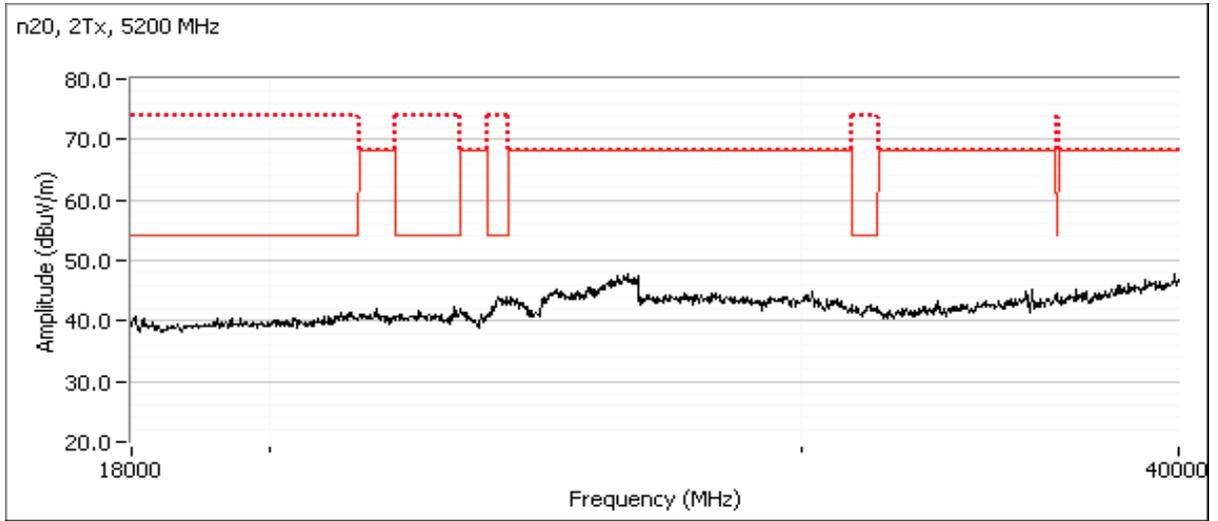
Channel: 40                      Mode: 11n20  
 Tx Chain: 2Tx                      Data Rate: MCS0

Frequency MHz	Level dB $\mu$ V/m	Pol v/h	15.209 / 15E		Detector Pk/QP/Avg	Azimuth degrees	Height meters	Comments
			Limit	Margin				
5421.220	42.7	H	54.0	-11.3	AVG	210	1.0	RB 1 MHz;VB 10 Hz;Peak
5418.850	52.8	H	74.0	-21.2	PK	210	1.0	RB 1 MHz;VB 3 MHz;Peak
5044.690	39.3	H	54.0	-14.7	AVG	264	1.0	RB 1 MHz;VB 10 Hz;Peak
5044.690	49.6	H	74.0	-24.4	PK	264	1.0	RB 1 MHz;VB 3 MHz;Peak
10397.960	57.3	V	68.3	-11.0	PK	256	1.9	RB 1 MHz;VB 3 MHz;Peak

Note 1: For emissions in restricted bands, the limit of 15.209 was used which requires average and peak measurements.



Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
	Project Manager: Sheareen Jacobs
Contact: Tarandeep Kaur	Project Coordinator: Irene Rademacher
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Class: N/A





# EMC Test Data

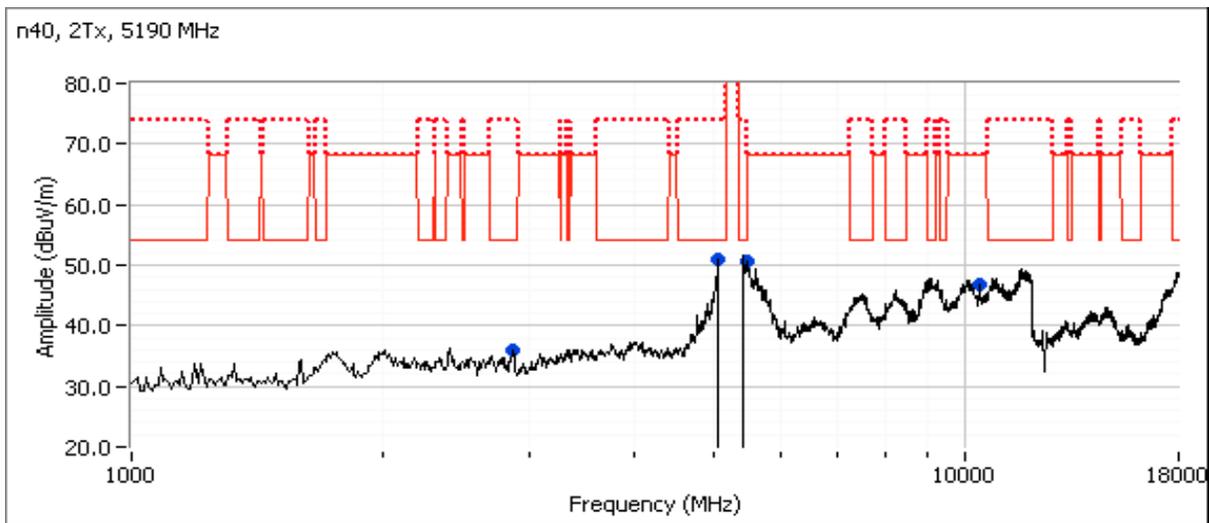
Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
Contact: Tarandeep Kaur	Project Manager: Sheareen Jacobs
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator: Irene Rademacher
	Class: N/A

## Run #1c: Center Channel

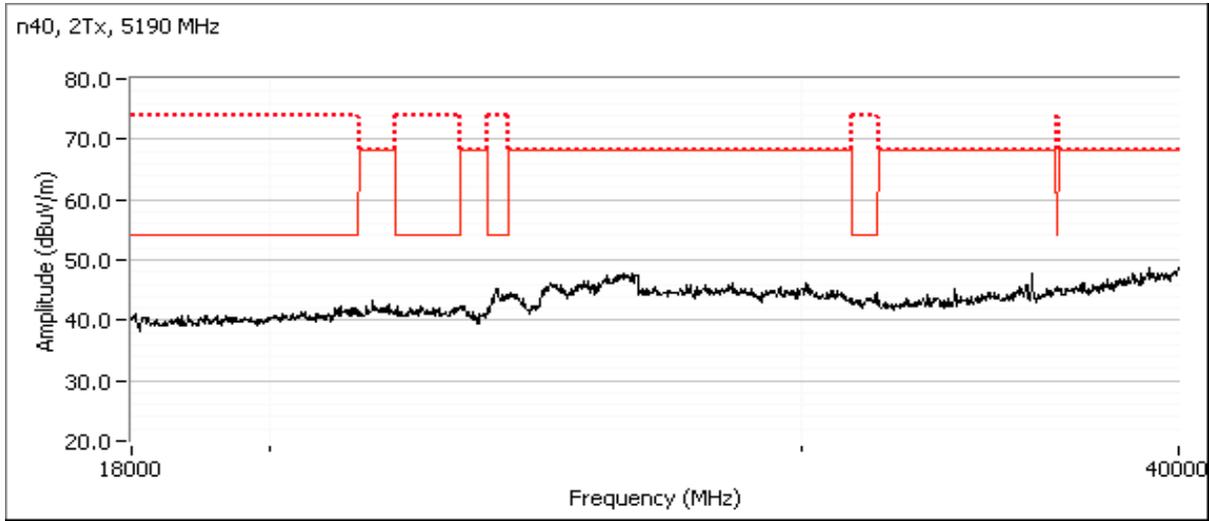
Channel: 38                      Mode: 11n40  
 Tx Chain: 2Tx                      Data Rate: MCS0

Frequency MHz	Level dB $\mu$ V/m	Pol v/h	15.209 / 15E		Detector Pk/QP/Avg	Azimuth degrees	Height meters	Comments
			Limit	Margin				
10384.430	53.8	V	68.3	-14.5	PK	127	1.0	RB 1 MHz;VB 3 MHz;Peak
5456.330	43.7	H	54.0	-10.3	AVG	252	1.5	RB 1 MHz;VB 10 Hz;Peak
5459.170	54.4	H	74.0	-19.6	PK	252	1.5	RB 1 MHz;VB 3 MHz;Peak
5039.140	46.1	H	54.0	-7.9	AVG	272	1.5	RB 1 MHz;VB 10 Hz;Peak
5038.540	57.4	H	74.0	-16.6	PK	272	1.5	RB 1 MHz;VB 3 MHz;Peak

Note 1: For emissions in restricted bands, the limit of 15.209 was used which requires average and peak measurements.



Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
	Project Manager: Sheareen Jacobs
Contact: Tarandeep Kaur	Project Coordinator: Irene Rademacher
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Class: N/A





# EMC Test Data

Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
Contact: Tarandeep Kaur	Project Manager: Sheareen Jacobs
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator: Irene Rademacher
	Class: N/A

Run #2: Radiated Spurious Emissions, 1,000 - 40000 MHz. Operating Mode: Worse case from Run #1

Date of Test: 7/29/2015 0:00  
 Test Engineer: John Caizzi / R. Varelas  
 Test Location: Chamber 5

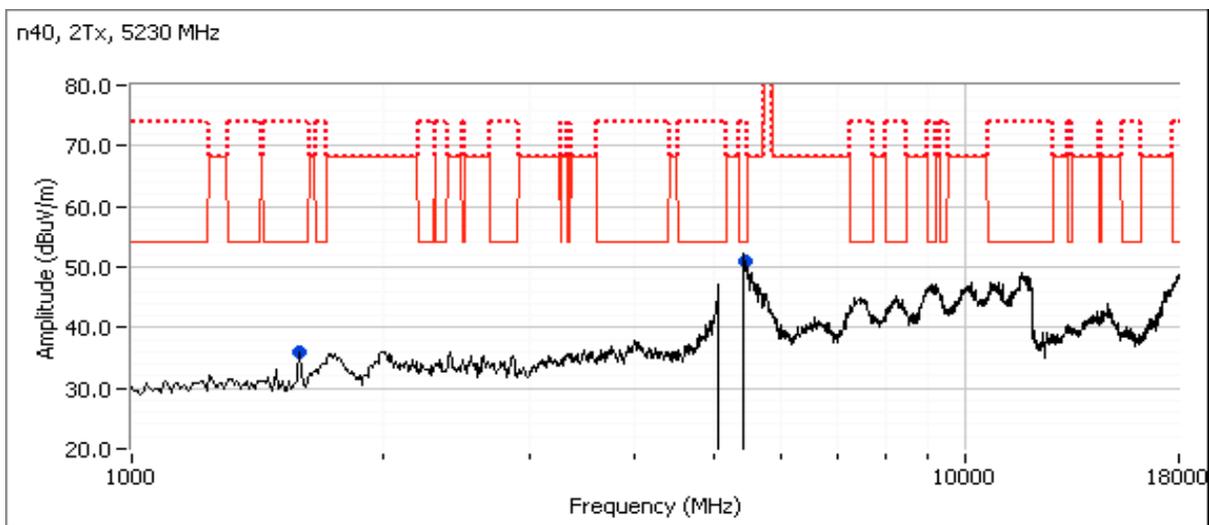
Config. Used: 1  
 Config Change: None  
 Host Voltage: USB

Run #2b: High Channel

Channel: 46 Mode: n40  
 Tx Chain: 2Tx Data Rate: MCS0

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dB $\mu$ V/m	v/h	Limit	Margin	PK/QP/Avg	degrees	meters	
5456.650	46.6	H	54.0	-7.4	AVG	260	1.2	RB 1 MHz;VB 10 Hz;Peak
5455.600	57.7	H	74.0	-16.3	PK	260	1.2	RB 1 MHz;VB 3 MHz;Peak
1606.650	36.1	V	54.0	-17.9	Peak	226	1.0	

- Note 1: For emissions in restricted bands, the limit of 15.209 was used which requires average and peak measurements.
- Note 3: Scans made between 18 - 40 GHz with the measurement antenna moved around the card and its antennas 20-50cm from the device indicated there were no significant emissions in this frequency range.





# EMC Test Data

Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
Contact: Tarandeep Kaur	Project Manager: Sheareen Jacobs
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator: Irene Rademacher
	Class: N/A

## Run #3, Radiated Spurious Emissions, 1,000 - 40,000 MHz. Operation in the 5250-5350 MHz Band

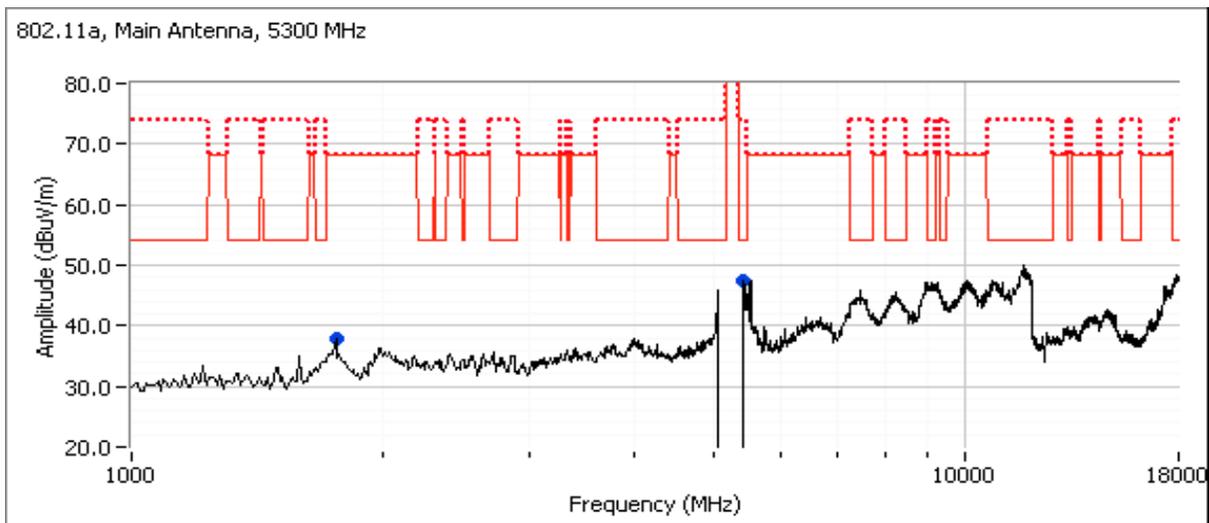
Date of Test: 7/28/2015 & 7/29/15  
 Test Engineer: Rafael Varelas & J. Caizzi  
 Test Location: FT Chamber #5  
 Config. Used: 1  
 Config Change: None  
 EUT Voltage: USB

### Run #3a: Center Channel

Channel: 60                      Mode: a  
 Tx Chain: Main                      Data Rate: 6Mb/s

Frequency	Level	Pol	15.209 / 15E		Detector	Azimuth	Height	Comments
MHz	dB $\mu$ V/m	v/h	Limit	Margin	PK/QP/Avg	degrees	meters	
5419.760	42.8	H	54.0	-11.2	AVG	255	1.0	RB 1 MHz;VB 10 Hz;Peak
5418.960	53.9	H	74.0	-20.1	PK	255	1.0	RB 1 MHz;VB 3 MHz;Peak

- Note 1: For emissions in restricted bands, the limit of 15.209 was used which requires average and peak measurements.
- Note 3: Scans made between 18 - 40 GHz with the measurement antenna moved around the card and its antennas 20-50cm from the device indicated there were no significant emissions in this frequency range.





# EMC Test Data

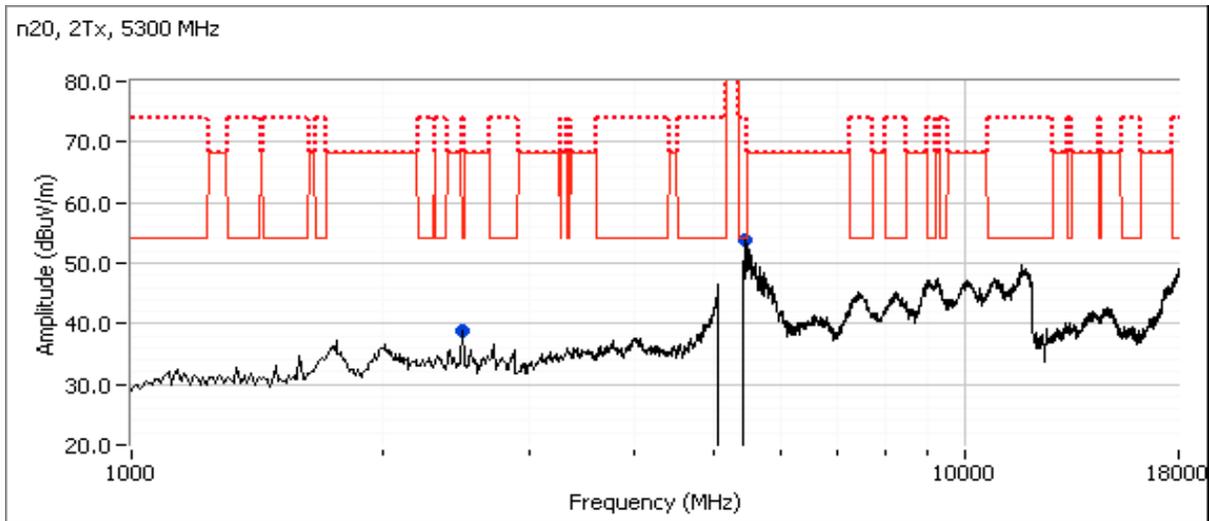
Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
Contact: Tarandeep Kaur	Project Manager: Sheareen Jacobs
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator: Irene Rademacher
	Class: N/A

## Run #3b: Center Channel

Channel: 60                      Mode: 11n20  
 Tx Chain: 2Tx                      Data Rate: MCS0

Frequency	Level	Pol	15.209 / 15E		Detector	Azimuth	Height	Comments
MHz	dB $\mu$ V/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5454.080	48.6	H	54.0	-5.4	AVG	247	1.0	RB 1 MHz;VB 10 Hz;Peak
5453.960	58.8	H	74.0	-15.2	PK	247	1.0	RB 1 MHz;VB 3 MHz;Peak
2496.500	38.8	V	54.0	-15.2	Peak	307	1.6	

- Note 1: For emissions in restricted bands, the limit of 15.209 was used which requires average and peak measurements.
- Note 3: Scans made between 18 - 40 GHz with the measurement antenna moved around the card and its antennas 20-50cm from the device indicated there were no significant emissions in this frequency range.





# EMC Test Data

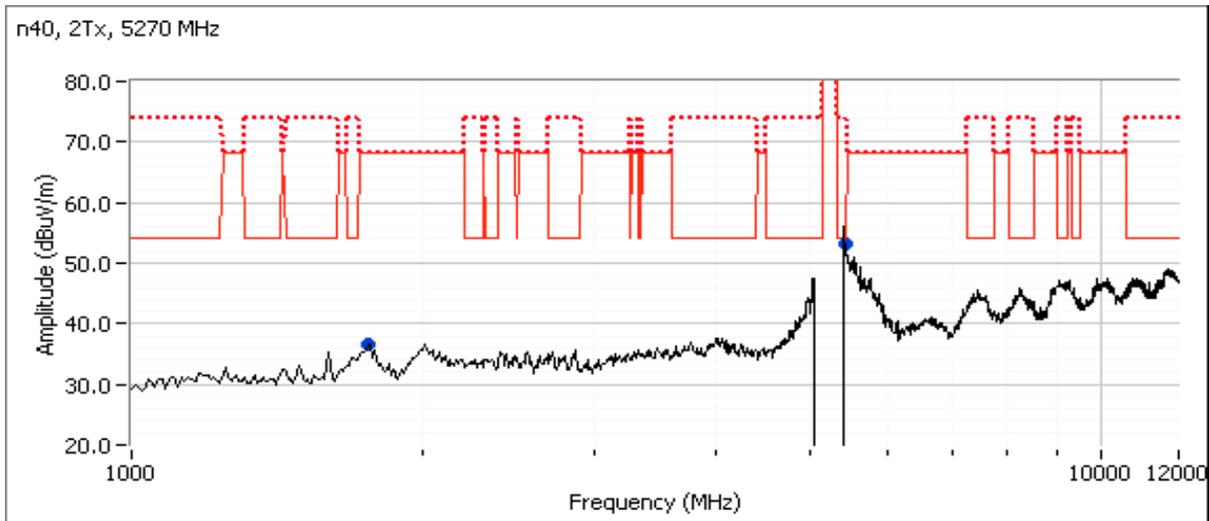
Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
Contact: Tarandeep Kaur	Project Manager: Sheareen Jacobs
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator: Irene Rademacher
	Class: N/A

## Run #3c: Center Channel

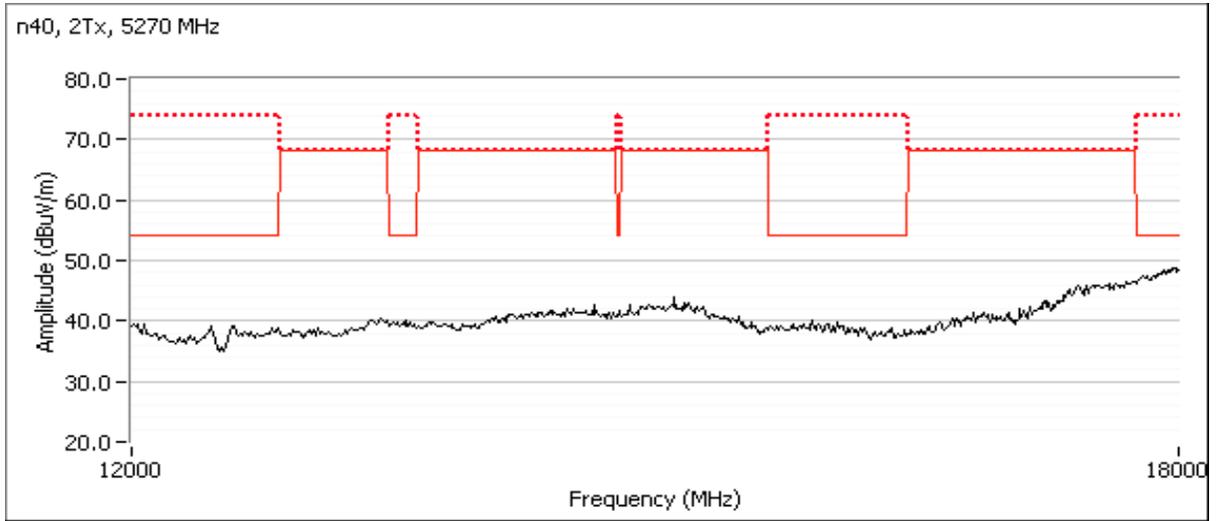
Channel: 54                      Mode: 11n40  
 Tx Chain: 2Tx                      Data Rate: MCS0

Frequency MHz	Level dB $\mu$ V/m	Pol v/h	15.209 / 15E		Detector Pk/QP/Avg	Azimuth degrees	Height meters	Comments
			Limit	Margin				
5428.720	51.0	H	54.0	-3.0	AVG	266	1.0	RB 1 MHz;VB 10 Hz;Peak
5417.990	61.0	H	74.0	-13.0	PK	266	1.0	RB 1 MHz;VB 3 MHz;Peak
1752.910	36.7	V	68.3	-31.6	Peak	39	1.9	

- Note 1: For emissions in restricted bands, the limit of 15.209 was used which requires average and peak measurements.
- Note 3: Scans made between 18 - 40 GHz with the measurement antenna moved around the card and its antennas 20-50cm from the device indicated there were no significant emissions in this frequency range.



Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
	Project Manager: Sheareen Jacobs
Contact: Tarandeep Kaur	Project Coordinator: Irene Rademacher
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Class: N/A





# EMC Test Data

Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
Contact: Tarandeep Kaur	Project Manager: Sheareen Jacobs
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator: Irene Rademacher
	Class: N/A

Run #4: Radiated Spurious Emissions, 1,000 - 40000 MHz. Operating Mode: Worse case from Run #3

Date of Test: 7/29/2015 0:00  
 Test Engineer: John Caizzi / R. Varelas  
 Test Location: Chamber 5

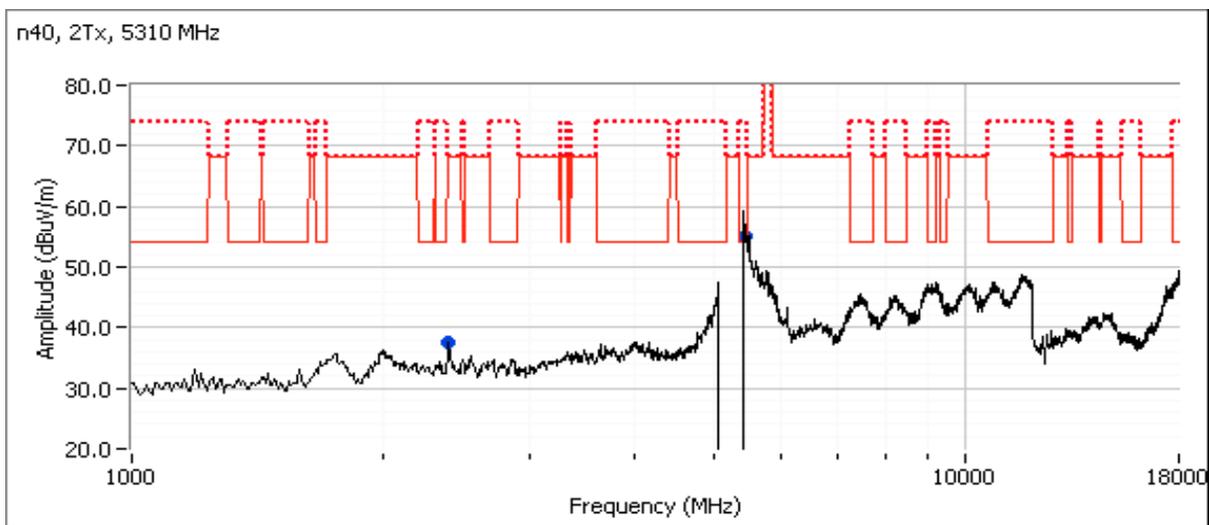
Config. Used: 1  
 Config Change: None  
 Host Voltage: USB

Run #4b: High Channel

Channel: 62 Mode: n40  
 Tx Chain: 2Tx Data Rate: MCS0

Frequency MHz	Level dB $\mu$ V/m	Pol v/h	15.209 / 15.247		Detector PK/QP/Avg	Azimuth degrees	Height meters	Comments
			Limit	Margin				
5434.340	48.7	H	54.0	-5.3	AVG	276	1.0	RB 1 MHz;VB 10 Hz;Peak
5432.110	62.4	H	74.0	-11.6	PK	276	1.0	RB 1 MHz;VB 3 MHz;Peak
2406.160	37.5	V	68.3	-30.8	Peak	193	1.0	

- Note 1: For emissions in restricted bands, the limit of 15.209 was used which requires average and peak measurements.
- Note 3: Scans made between 18 - 40 GHz with the measurement antenna moved around the card and its antennas 20-50cm from the device indicated there were no significant emissions in this frequency range.





# EMC Test Data

Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
Contact: Tarandeep Kaur	Project Manager: Sheareen Jacobs
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator: Irene Rademacher
	Class: N/A

## Run #5, Radiated Spurious Emissions, 1,000 - 40,000 MHz. Operation in the 5470-5725 MHz Band

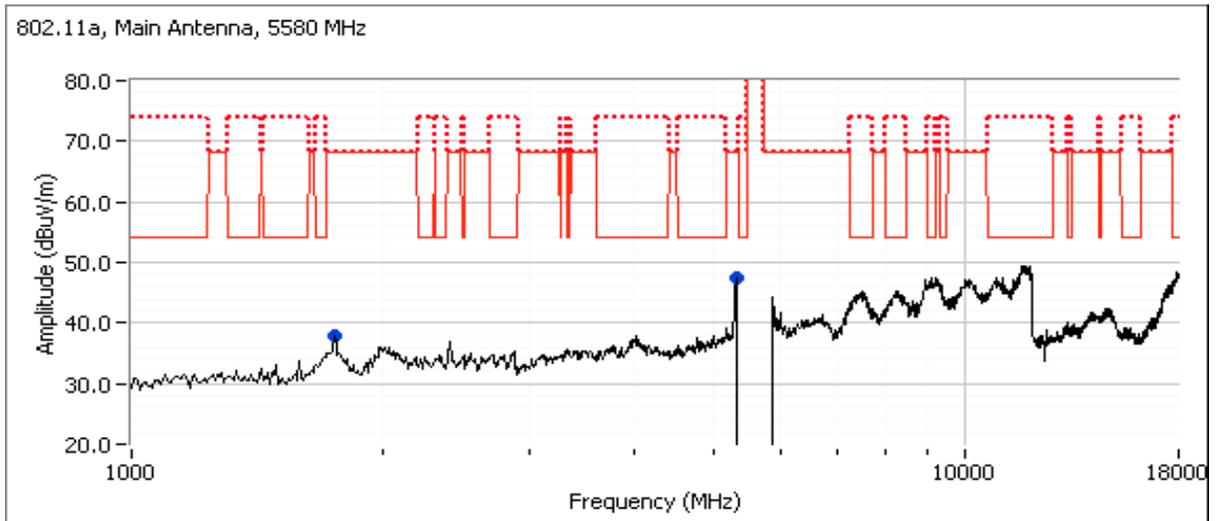
Date of Test: 7/28/2015 & 7/29/15  
 Test Engineer: Rafael Varelas & J. Caizzi  
 Test Location: FT Chamber #5  
 Config. Used: 1  
 Config Change: None  
 EUT Voltage: USB

### Run #5a: Center Channel

Channel: 116                      Mode: a  
 Tx Chain: Main                      Data Rate: 6Mb/s

Frequency	Level	Pol	15.209 / 15E		Detector	Azimuth	Height	Comments
MHz	dB $\mu$ V/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5318.120	51.0	H	68.3	-17.3	PK	308	1.0	RB 1 MHz;VB 3 MHz;Peak

- Note 1: For emissions in restricted bands, the limit of 15.209 was used which requires average and peak measurements.
- Note 3: Scans made between 18 - 40 GHz with the measurement antenna moved around the card and its antennas 20-50cm from the device indicated there were no significant emissions in this frequency range.



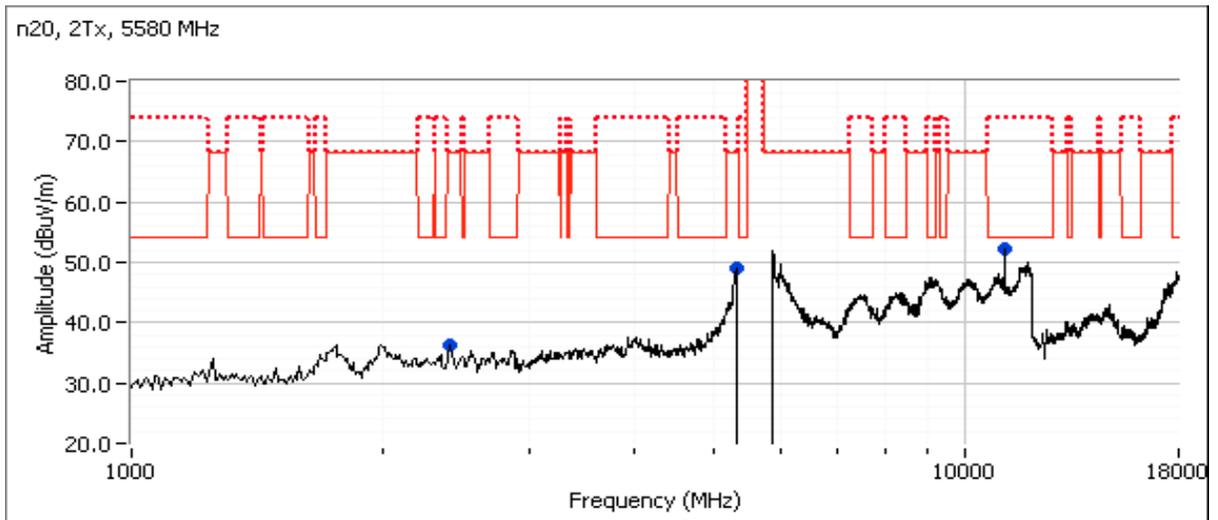
Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
Contact: Tarandeep Kaur	Project Manager: Sheareen Jacobs
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator: Irene Rademacher
	Class: N/A

Run #5b: Center Channel

Channel: 116                      Mode: 11n20  
 Tx Chain: 2Tx                      Data Rate: MCS0

Frequency	Level	Pol	15.209 / 15E		Detector	Azimuth	Height	Comments
MHz	dB $\mu$ V/m	v/h	Limit	Margin	PK/QP/Avg	degrees	meters	
11159.420	47.5	V	54.0	-6.5	AVG	250	1.1	RB 1 MHz;VB 10 Hz;Peak
11158.890	60.1	V	74.0	-13.9	PK	250	1.1	RB 1 MHz;VB 3 MHz;Peak

- Note 1: For emissions in restricted bands, the limit of 15.209 was used which requires average and peak measurements.
- Note 3: Scans made between 18 - 40 GHz with the measurement antenna moved around the card and its antennas 20-50cm from the device indicated there were no significant emissions in this frequency range.





# EMC Test Data

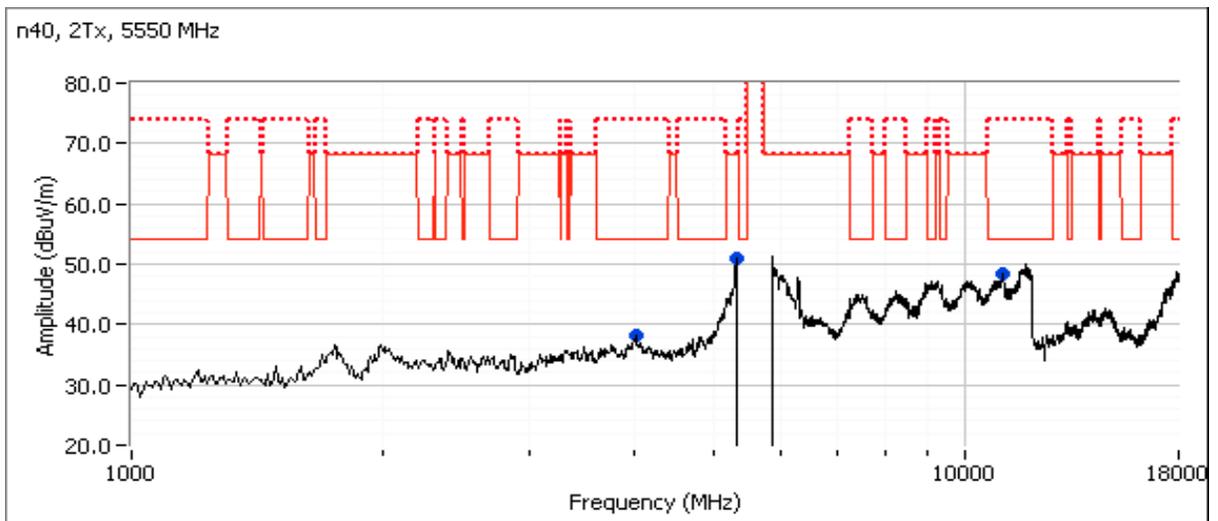
Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
Contact: Tarandeep Kaur	Project Manager: Sheareen Jacobs
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator: Irene Rademacher
	Class: N/A

## Run #5c: Center Channel

Channel: 110                      Mode: 11n40  
 Tx Chain: 2Tx                      Data Rate: MCS0

Frequency	Level	Pol	15.209 / 15E		Detector	Azimuth	Height	Comments
MHz	dB $\mu$ V/m	v/h	Limit	Margin	PK/QP/Avg	degrees	meters	
11099.730	45.5	V	54.0	-8.5	AVG	260	1.0	RB 1 MHz;VB 10 Hz;Peak
11082.330	56.9	V	74.0	-17.1	PK	260	1.0	RB 1 MHz;VB 3 MHz;Peak
5308.160	51.1	H	68.3	-17.2	Peak	209	2.5	

- Note 1: For emissions in restricted bands, the limit of 15.209 was used which requires average and peak measurements.
- Note 3: Scans made between 18 - 40 GHz with the measurement antenna moved around the card and its antennas 20-50cm from the device indicated there were no significant emissions in this frequency range.





# EMC Test Data

Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
Contact: Tarandeep Kaur	Project Manager: Sheareen Jacobs
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator: Irene Rademacher
	Class: N/A

Run #6: Radiated Spurious Emissions, 1,000 - 40000 MHz. Operating Mode: Worse case from Run #5

Date of Test: 7/29/2015 0:00  
 Test Engineer: John Caizzi / R. Varelas  
 Test Location: Chamber 5

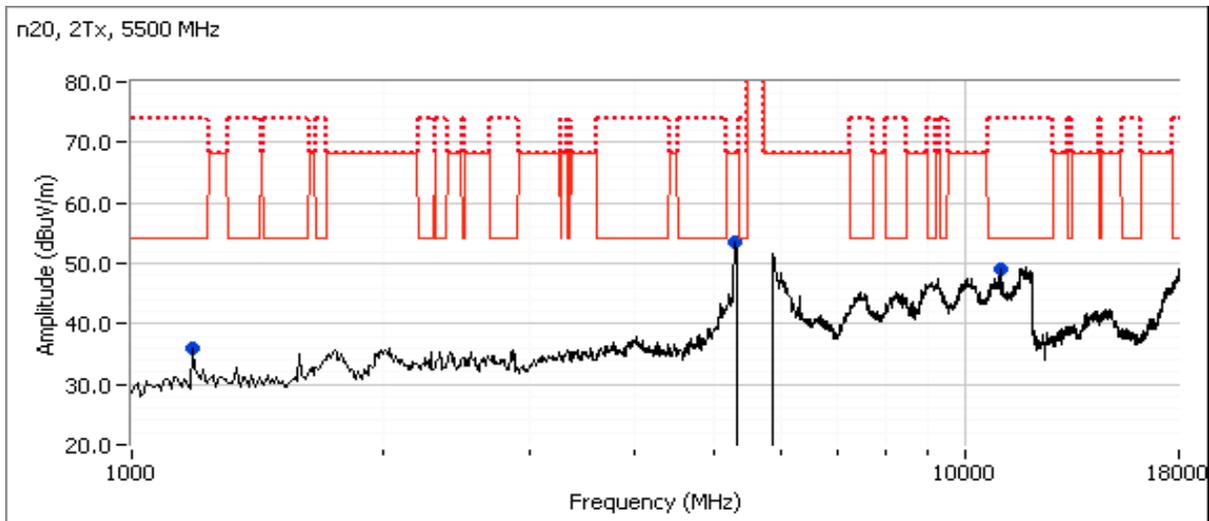
Config. Used: 1  
 Config Change: None  
 Host Voltage: USB

Run #6a: Low Channel

Channel: 100 Mode: n20  
 Tx Chain: 2 Tx Data Rate: MCS0

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dB $\mu$ V/m	v/h	Limit	Margin	PK/QP/Avg	degrees	meters	
10999.890	47.0	V	54.0	-7.0	AVG	252	1.2	RB 1 MHz;VB 10 Hz;Peak
10999.920	59.7	V	74.0	-14.3	PK	252	1.2	RB 1 MHz;VB 3 MHz;Peak
5298.040	57.7	H	68.3	-10.6	PK	215	1.5	RB 1 MHz;VB 3 MHz;Peak
1192.480	35.8	V	54.0	-18.2	Peak	151	1.0	

- Note 1: For emissions in restricted bands, the limit of 15.209 was used which requires average and peak measurements.
- Note 3: Scans made between 18 - 40 GHz with the measurement antenna moved around the card and its antennas 20-50cm from the device indicated there were no significant emissions in this frequency range.





# EMC Test Data

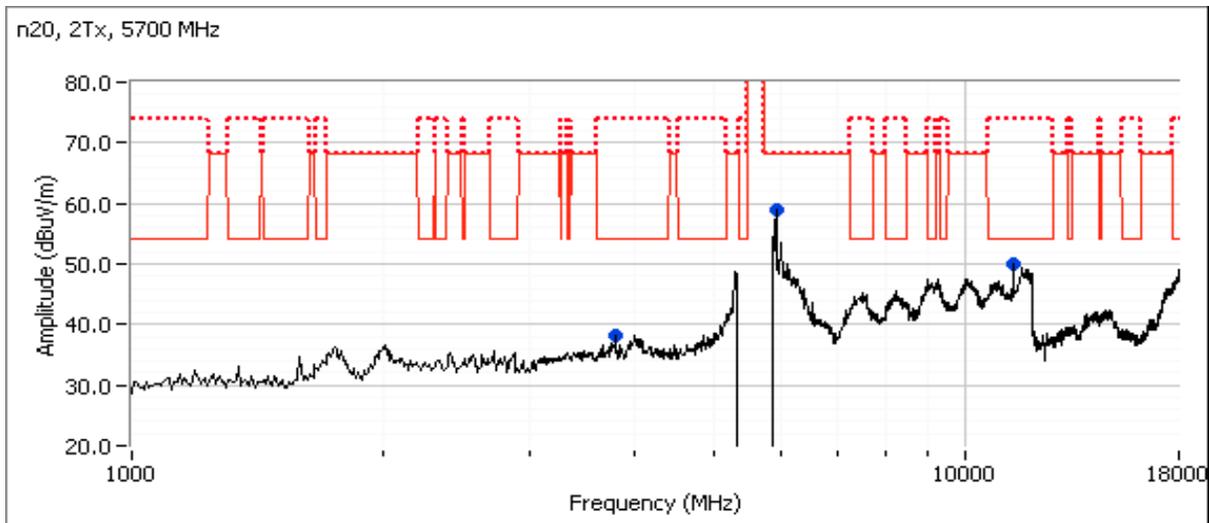
Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
Contact: Tarandeep Kaur	Project Manager: Sheareen Jacobs
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator: Irene Rademacher
	Class: N/A

## Run #6b: High Channel

Channel: 140                      Mode: n20  
 Tx Chain: 2 Tx                      Data Rate: MCS0

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dB $\mu$ V/m	v/h	Limit	Margin	PK/QP/Avg	degrees	meters	
5926.190	60.9	H	68.3	-7.4	PK	225	1.1	RB 1 MHz;VB 3 MHz;Peak
11400.630	45.8	H	54.0	-8.2	AVG	218	2.2	RB 1 MHz;VB 10 Hz;Peak
11400.730	57.6	H	74.0	-16.4	PK	218	2.2	RB 1 MHz;VB 3 MHz;Peak
3800.080	38.3	H	54.0	-15.7	Peak	243	1.0	

- Note 1: For emissions in restricted bands, the limit of 15.209 was used which requires average and peak measurements.
- Note 3: Scans made between 18 - 40 GHz with the measurement antenna moved around the card and its antennas 20-50cm from the device indicated there were no significant emissions in this frequency range.





# EMC Test Data

Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
Contact: Tarandeep Kaur	Project Manager: Sheareen Jacobs
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator: Irene Rademacher
	Class: N/A

## Run #7, Radiated Spurious Emissions, 1,000 - 40,000 MHz. Operation in the 5725-5850 MHz Band

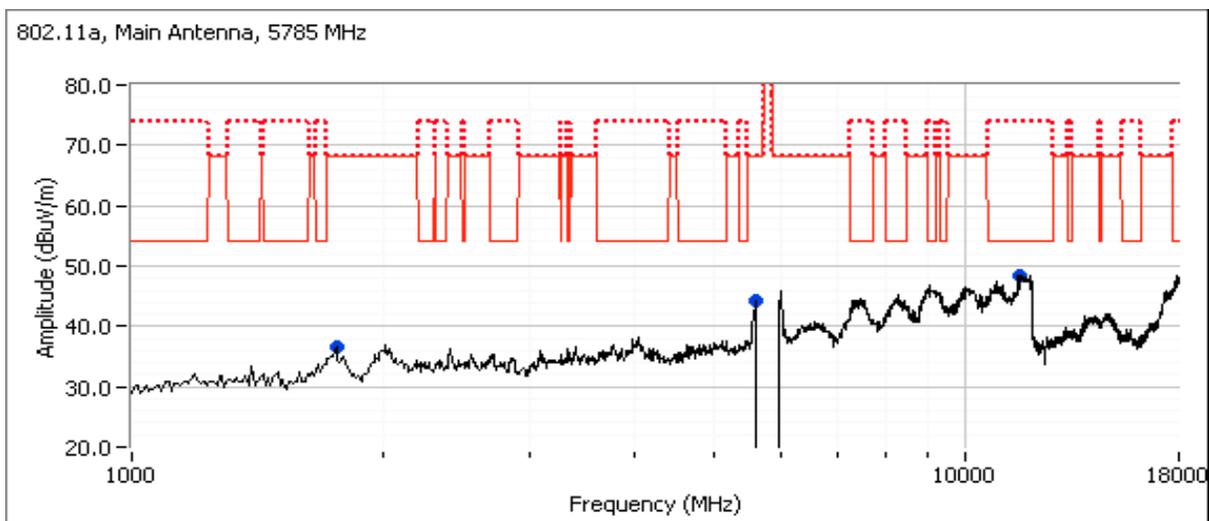
Date of Test: 7/28/2015 & 7/29/15  
 Test Engineer: Rafael Varelas & J. Caizzi  
 Test Location: FT Chamber #5  
 Config. Used: 1  
 Config Change: None  
 EUT Voltage: USB

### Run #7a: Center Channel

Channel: 157 Mode: a  
 Tx Chain: Main Data Rate: 6Mb/s

Frequency MHz	Level dB $\mu$ V/m	Pol v/h	15.209 / 15E		Detector PK/QP/Avg	Azimuth degrees	Height meters	Comments
			Limit	Margin				
11570.440	46.0	H	54.0	-8.0	AVG	118	1.0	RB 1 MHz;VB 10 Hz;Peak
11575.780	57.6	H	74.0	-16.4	PK	118	1.0	RB 1 MHz;VB 3 MHz;Peak
5611.160	44.4	H	68.3	-23.9	Peak	215	1.0	

- Note 1: For emissions in restricted bands, the limit of 15.209 was used which requires average and peak measurements.
- Note 3: Scans made between 18 - 40 GHz with the measurement antenna moved around the card and its antennas 20-50cm from the device indicated there were no significant emissions in this frequency range.





# EMC Test Data

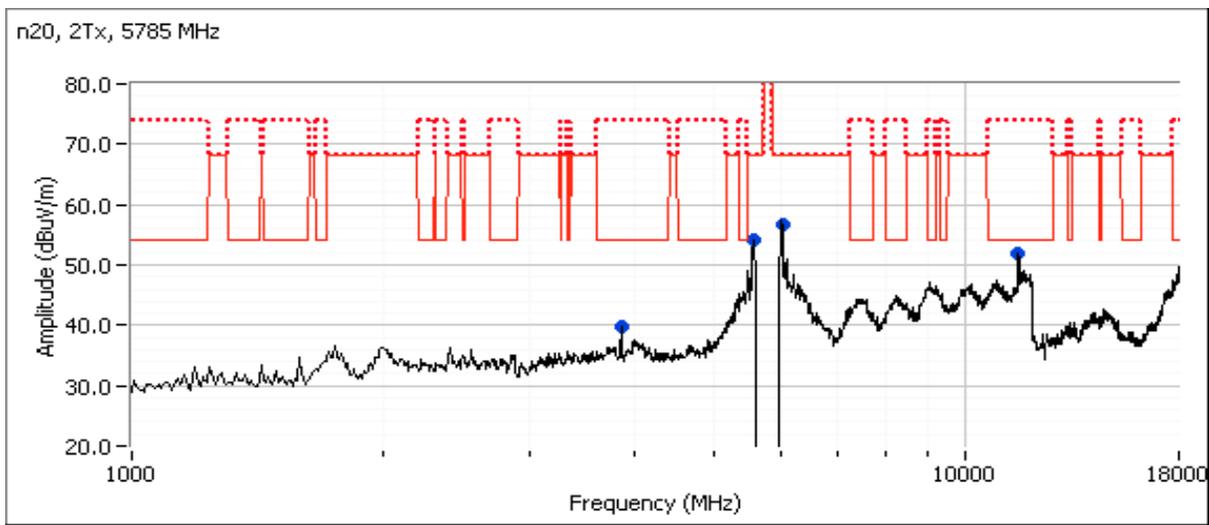
Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
Contact: Tarandeep Kaur	Project Manager: Sheareen Jacobs
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator: Irene Rademacher
	Class: N/A

## Run #7b: Center Channel

Channel: 157                      Mode: 11n20  
 Tx Chain: 2Tx                      Data Rate: MCS0

Frequency MHz	Level dB $\mu$ V/m	Pol v/h	15.209 / 15E		Detector Pk/QP/Avg	Azimuth degrees	Height meters	Comments
			Limit	Margin				
6008.530	59.6	H	68.3	-8.7	PK	241	1.2	RB 1 MHz;VB 3 MHz;Peak
11570.180	48.5	V	54.0	-5.5	AVG	246	1.0	RB 1 MHz;VB 10 Hz;Peak
11576.010	61.0	V	74.0	-13.0	PK	246	1.0	RB 1 MHz;VB 3 MHz;Peak
5568.400	54.0	H	68.3	-14.3	Peak	237	1.0	

- Note 1: For emissions in restricted bands, the limit of 15.209 was used which requires average and peak measurements.
- Note 3: Scans made between 18 - 40 GHz with the measurement antenna moved around the card and its antennas 20-50cm from the device indicated there were no significant emissions in this frequency range.





# EMC Test Data

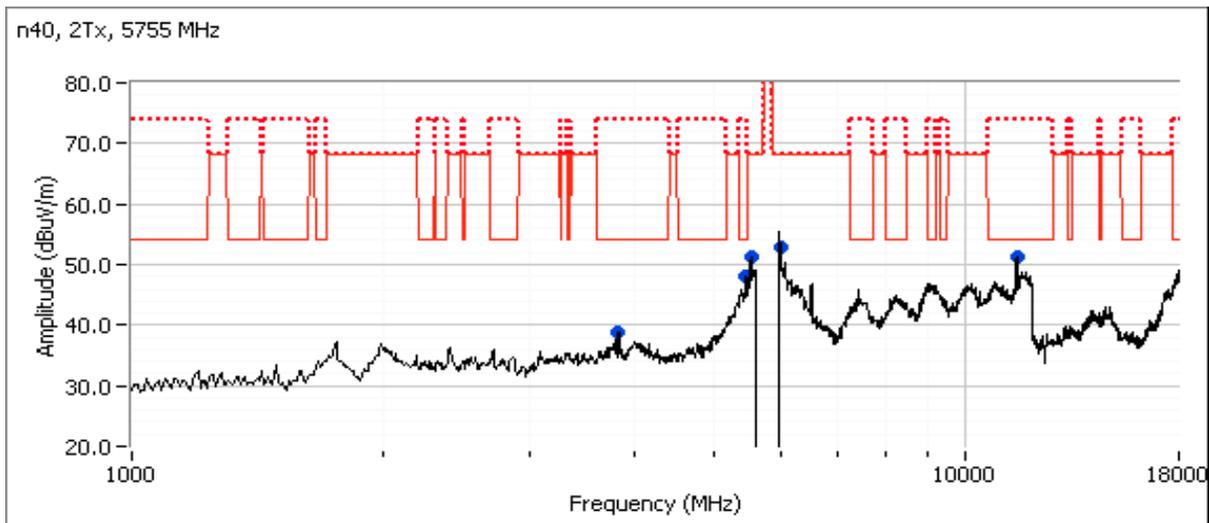
Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
Contact: Tarandeep Kaur	Project Manager: Sheareen Jacobs
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator: Irene Rademacher
	Class: N/A

## Run #7c: Center Channel

Channel: 151                      Mode: 11n40  
 Tx Chain: 2Tx                      Data Rate: MCS0

Frequency MHz	Level dB $\mu$ V/m	Pol v/h	15.209 / 15E		Detector Pk/QP/Avg	Azimuth degrees	Height meters	Comments
			Limit	Margin				
5457.400	42.1	H	54.0	-11.9	AVG	232	1.0	RB 1 MHz;VB 10 Hz;Peak
5459.200	53.1	H	74.0	-20.9	PK	232	1.0	RB 1 MHz;VB 3 MHz;Peak
5992.890	57.2	H	68.3	-11.1	PK	182	1.4	RB 1 MHz;VB 3 MHz;Peak
11510.520	45.7	H	54.0	-8.3	AVG	58	1.0	RB 1 MHz;VB 10 Hz;Peak
11515.490	56.3	H	74.0	-17.7	PK	58	1.0	RB 1 MHz;VB 3 MHz;Peak
5547.460	51.3	H	68.3	-17.0	Peak	249	1.9	

- Note 1: For emissions in restricted bands, the limit of 15.209 was used which requires average and peak measurements.
- Note 3: Scans made between 18 - 40 GHz with the measurement antenna moved around the card and its antennas 20-50cm from the device indicated there were no significant emissions in this frequency range.





# EMC Test Data

Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
Contact: Tarandeep Kaur	Project Manager: Sheareen Jacobs
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator: Irene Rademacher
	Class: N/A

Run #8: Radiated Spurious Emissions, 1,000 - 40000 MHz. Operating Mode: Worse case from Run #7

Date of Test: 7/29/2015 0:00  
 Test Engineer: John Caizzi / R. Varelas  
 Test Location: Chamber 5

Config. Used: 1  
 Config Change: None  
 Host Voltage: USB

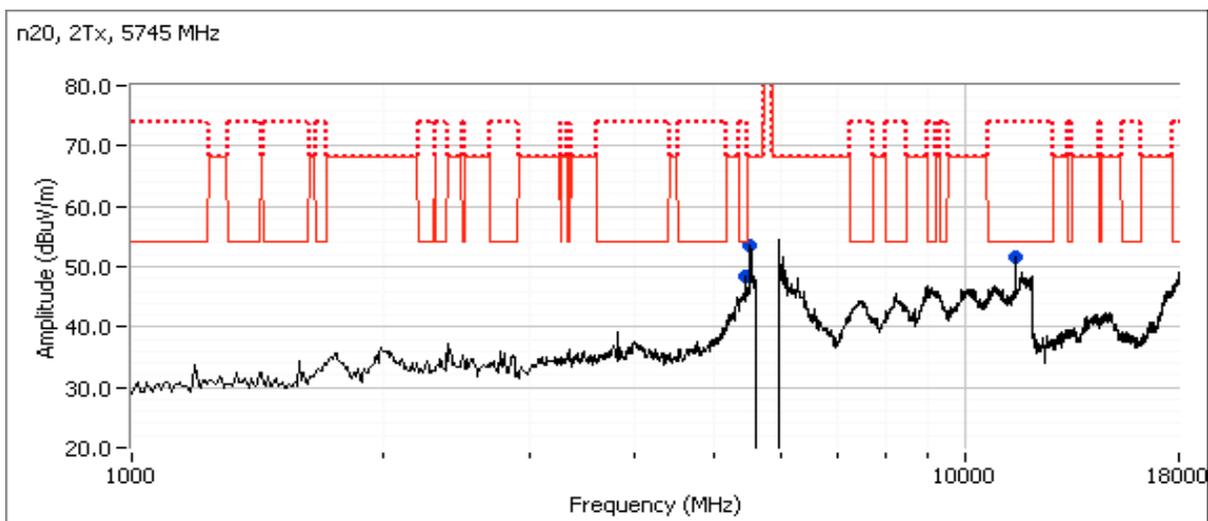
Run #8a: Low Channel

Channel: 149 Mode: n20  
 Tx Chain: 2Tx Data Rate: MCS0

Frequency MHz	Level dB $\mu$ V/m	Pol v/h	15.209 / 15.247		Detector Pk/QP/Avg	Azimuth degrees	Height meters	Comments
			Limit	Margin				
11489.190	48.0	V	54.0	-6.0	AVG	252	2.3	RB 1 MHz;VB 10 Hz;Peak
11491.890	59.7	V	74.0	-14.3	PK	252	2.3	RB 1 MHz;VB 3 MHz;Peak
5449.050	41.0	H	54.0	-13.0	AVG	267	1.0	RB 1 MHz;VB 10 Hz;Peak
5450.320	51.0	H	74.0	-23.0	PK	267	1.0	RB 1 MHz;VB 3 MHz;Peak
5527.160	57.8	H	68.3	-10.5	PK	270	1.0	RB 1 MHz;VB 3 MHz;Peak

Note 1: For emissions in restricted bands, the limit of 15.209 was used which requires average and peak measurements.

Note 3: Scans made between 18 - 40 GHz with the measurement antenna moved around the card and its antennas 20-50cm from the device indicated there were no significant emissions in this frequency range.





# EMC Test Data

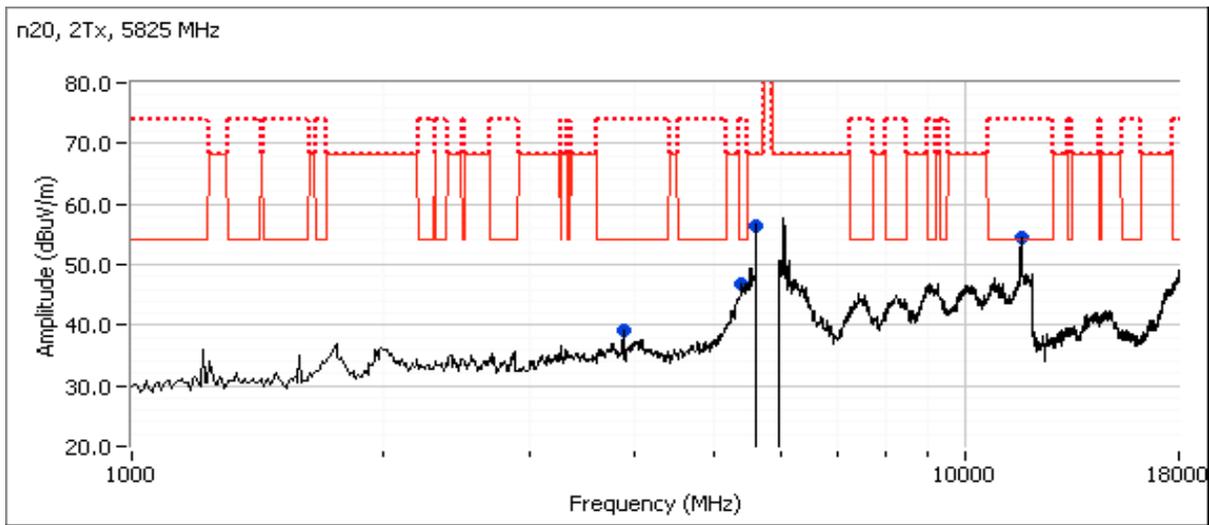
Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
Contact: Tarandeep Kaur	Project Manager: Sheareen Jacobs
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator: Irene Rademacher
	Class: N/A

## Run #8b: High Channel

Channel: 165                      Mode: n20  
 Tx Chain: 2Tx                    Data Rate: MCS0

Frequency MHz	Level dB $\mu$ V/m	Pol v/h	15.209 / 15.247		Detector Pk/QP/Avg	Azimuth degrees	Height meters	Comments
			Limit	Margin				
11649.390	50.7	V	54.0	-3.3	AVG	249	2.4	RB 1 MHz;VB 10 Hz;Peak
11648.820	63.6	V	74.0	-10.4	PK	249	2.4	RB 1 MHz;VB 3 MHz;Peak
5600.000	61.1	H	68.3	-7.2	PK	228	1.7	RB 1 MHz;VB 3 MHz;Peak
5398.580	41.3	H	54.0	-12.7	AVG	269	1.3	RB 1 MHz;VB 10 Hz;Peak
5396.280	53.0	H	74.0	-21.0	PK	269	1.3	RB 1 MHz;VB 3 MHz;Peak
3883.410	39.3	H	54.0	-14.7	Peak	180	2.5	

- Note 1: For emissions in restricted bands, the limit of 15.209 was used which requires average and peak measurements.
- Note 3: Scans made between 18 - 40 GHz with the measurement antenna moved around the card and its antennas 20-50cm from the device indicated there were no significant emissions in this frequency range.



Client:	Hewlett Packard Company	Job Number:	J98746
Model:	SDGOB-1505	T-Log Number:	T98753
Contact:	Tarandeep Kaur	Project Manager:	Sheareen Jacobs
Standard:	FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator:	Irene Rademacher
		Class:	N/A

## RSS 247 and FCC 15.407 (UNII) Radiated Spurious Emissions

### Test Specific Details

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

### General Test Configuration

The EUT and all local support equipment were located on the turntable for radiated spurious emissions testing. For radiated emissions testing the measurement antenna was located 3 meters from the EUT, unless otherwise noted.

### Ambient Conditions:

Temperature: 22.4 °C  
Rel. Humidity: 38 %

### Summary of Results

Run #	Mode	Channel	Target Power	Final Setting	Test Performed	Limit	Result / Margin
20MHz Bandwith Modes							
1	a (1Tx)	36 - 5180MHz	-	-	Restricted Band Edge at 5150 MHz	15.209	53.7 dBµV/m @ 5150.0 MHz (-0.3 dB)
2	a (1Tx)	64 - 5320MHz	-	-	Restricted Band Edge at 5350 MHz	15.209	53.0 dBµV/m @ 5350.0 MHz (-1.0 dB)
3	a (1Tx)	100 - 5500MHz	-	-	Restricted Band Edge at 5460 MHz	15.209	48.8 dBµV/m @ 5460.0 MHz (-5.2 dB)
	a (1Tx)	100 - 5500MHz	-	-	Band Edge 5460 - 5470 MHz	15E	53.5 dBµV/m @ 5470.0 MHz (-0.5 dB)
	a (1Tx)	136 - 5680MHz	-	-	Band Edge 5725MHz	15E	47.6 dBµV/m @ 5760.1 MHz (-6.4 dB)
	a (1Tx)	140 - 5700MHz	-	-	Band Edge 5725MHz	15E	53.8 dBµV/m @ 5725.0 MHz (-0.2 dB)
4	a (1Tx)	149 - 5745MHz	-	-	Band Edge at 5715 MHz	15E	53.4 dBµV/m @ 5715.0 MHz (-0.6 dB)
	a (1Tx)	149 - 5745MHz	-	-	Band Edge 5715 - 5725 MHz	15E	77.6 dBµV/m @ 5724.9 MHz (-0.7 dB)
	a (1Tx)	165 - 5825MHz	-	-	Band Edge at 5860MHz	15E	65.6 dBµV/m @ 5862.7 MHz (-2.7 dB)
	a (1Tx)	165 - 5825MHz	-	-	Band Edge at 5850MHz	15E	74.0 dBµV/m @ 5853.6 MHz (-4.3 dB)



# EMC Test Data

Client:	Hewlett Packard Company	Job Number:	J98746
Model:	SDGOB-1505	T-Log Number:	T98753
Contact:	Tarandeep Kaur	Project Manager:	Sheareen Jacobs
Standard:	FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator:	Irene Rademacher
		Class:	N/A

Run #	Mode	Channel	Target Power	Final Setting	Test Performed	Limit	Result / Margin
5	n20 (1Tx)	36 - 5180MHz	-	-	Restricted Band Edge at 5150 MHz	15.209	53.5 dBµV/m @ 5150.0 MHz (-0.5 dB)
6	n20 (1Tx)	64 - 5320MHz	-	-	Restricted Band Edge at 5350 MHz	15.209	52.4 dBµV/m @ 5350.0 MHz (-1.6 dB)
7	n20 (1Tx)	100 - 5500MHz	-	-	Restricted Band Edge at 5460 MHz	15.209	49.1 dBµV/m @ 5459.8 MHz (-4.9 dB)
	n20 (1Tx)	100 - 5500MHz	-	-	Band Edge 5460 - 5470 MHz	15E	53.4 dBµV/m @ 5470.0 MHz (-0.6 dB)
	n20 (1Tx)	136 - 5680MHz	-	-	Band Edge 5460 - 5470 MHz	15E	68.8 dBµV/m @ 5728.1 MHz (-5.2 dB)
	n20 (1Tx)	140 - 5700MHz	-	-	Band Edge 5725MHz	15E	53.9 dBµV/m @ 5725.0 MHz (-0.1 dB)
8	n20 (1Tx)	149 - 5745MHz	-	-	Band Edge at 5715 MHz	15E	53.4 dBµV/m @ 5715.0 MHz (-0.6 dB)
	n20 (1Tx)	149 - 5745MHz	-	-	Band Edge 5715 - 5725 MHz	15E	77.6 dBµV/m @ 5724.4 MHz (-0.7 dB)
	n20 (1Tx)	153 - 5765MHz	-	-	Band Edge at 5715 MHz	15E	50.2 dBµV/m @ 5715.0 MHz (-3.8 dB)
	n20 (1Tx)	153 - 5765MHz	-	-	Band Edge 5715 - 5725 MHz	15E	71.2 dBµV/m @ 5715.3 MHz (-7.1 dB)
	n20 (1Tx)	165 - 5825MHz	-	-	Band Edge at 5860MHz	15E	71.4 dBµV/m @ 5862.8 MHz (-2.6 dB)
	n20 (1Tx)	165 - 5825MHz	-	-	Band Edge at 5850MHz	15E	74.9 dBµV/m @ 5850.9 MHz (-3.4 dB)
9	n20 (2Tx)	36 - 5180MHz	-	-	Restricted Band Edge at 5150 MHz	15.209	74.0 dBµV/m @ 5149.8 MHz (0.0 dB)
	n20 (2Tx)	40 - 5200MHz	-	-	Restricted Band Edge at 5150 MHz	15.209	53.6 dBµV/m @ 5148.4 MHz (-0.4 dB)
10	n20 (2Tx)	60 - 5300MHz	-	-	Restricted Band Edge at 5350 MHz	15.209	49.7 dBµV/m @ 5383.8 MHz (-4.3 dB)
	n20 (2Tx)	64 - 5320MHz	-	-	Restricted Band Edge at 5350 MHz	15.209	53.5 dBµV/m @ 5351.4 MHz (-0.5 dB)



# EMC Test Data

Client:	Hewlett Packard Company	Job Number:	J98746
Model:	SDGOB-1505	T-Log Number:	T98753
Contact:	Tarandeep Kaur	Project Manager:	Sheareen Jacobs
Standard:	FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator:	Irene Rademacher
		Class:	N/A

Run #	Mode	Channel	Target Power	Final Setting	Test Performed	Limit	Result / Margin
11	n20 (2Tx)	100 - 5500MHz	-	-	Restricted Band Edge at 5460 MHz	15.209	49.4 dBµV/m @ 5459.0 MHz (-4.6 dB)
	n20 (2Tx)	100 - 5500MHz	-	-	Band Edge 5460 - 5470 MHz	15E	53.8 dBµV/m @ 5469.3 MHz (-0.2 dB)
	n20 (2Tx)	136 - 5680MHz	-	-	Band Edge 5725MHz	15E	53.9 dBµV/m @ 5725.0 MHz (-0.1 dB)
	n20 (2Tx)	140 - 5700MHz	-	-	Band Edge 5725MHz	15E	53.5 dBµV/m @ 5725.1 MHz (-0.5 dB)
12	n20 (2Tx)	149 - 5745MHz	-	-	Band Edge at 5715 MHz	15E	53.7 dBµV/m @ 5714.0 MHz (-0.3 dB)
	n20 (2Tx)	149 - 5745MHz	-	-	Band Edge 5715 - 5725 MHz	15E	77.9 dBµV/m @ 5724.5 MHz (-0.4 dB)
	n20 (2Tx)	153 - 5765MHz	-	-	Band Edge at 5715 MHz	15E	53.7 dBµV/m @ 5713.4 MHz (-0.3 dB)
	n20 (2Tx)	153 - 5765MHz	-	-	Band Edge 5715 - 5725 MHz	15E	73.6 dBµV/m @ 5723.2 MHz (-4.7 dB)
	n20 (2Tx)	165 - 5825MHz	-	-	Band Edge at 5860MHz	15E	53.6 dBµV/m @ 5860.1 MHz (-0.4 dB)
	n20 (2Tx)	165 - 5825MHz	-	-	Band Edge at 5850MHz	15E	75.3 dBµV/m @ 5855.1 MHz (-3.0 dB)

**40MHz Bandwith Modes**

13	n40 (1Tx)	38 - 5190MHz	-	-	Restricted Band Edge at 5150 MHz	15.209	53.7 dBµV/m @ 5150.0 MHz (-0.3 dB)
	n40 (1Tx)	46 - 5230MHz	-	-	Restricted Band Edge at 5150 MHz	15.209	49.3 dBµV/m @ 5148.6 MHz (-4.7 dB)
14	n40 (1Tx)	62 - 5310MHz	-	-	Restricted Band Edge at 5350 MHz	15.209	53.7 dBµV/m @ 5350.0 MHz (-0.3 dB)
15	n40 (1Tx)	102 - 5510MHz	-	-	Restricted Band Edge at 5460 MHz	15.209	48.7 dBµV/m @ 5459.9 MHz (-5.3 dB)
	n40 (1Tx)	102 - 5510MHz	-	-	Band Edge 5460 - 5470 MHz	15E	53.3 dBµV/m @ 5469.9 MHz (-0.7 dB)
	n40 (1Tx)	110 - 5550MHz	-	-	Restricted Band Edge at 5460 MHz	15.209	46.6 dBµV/m @ 5458.2 MHz (-7.4 dB)
	n40 (1Tx)	110 - 5550MHz	-	-	Band Edge 5460 - 5470 MHz	15E	46.7 dBµV/m @ 5465.8 MHz (-7.3 dB)
	n40 (1Tx)	134 - 5670MHz	-	-	Band Edge 5725MHz	15E	50.4 dBµV/m @ 5725.0 MHz (-3.6 dB)



# EMC Test Data

Client:	Hewlett Packard Company	Job Number:	J98746
Model:	SDGOB-1505	T-Log Number:	T98753
Contact:	Tarandeep Kaur	Project Manager:	Sheareen Jacobs
Standard:	FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator:	Irene Rademacher
		Class:	N/A

Run #	Mode	Channel	Target Power	Final Setting	Test Performed	Limit	Result / Margin
16	n40 (1Tx)	151 - 5755MHz	-	-	Band Edge at 5715 MHz	15E	53.3 dBµV/m @ 5715.0 MHz (-0.7 dB)
	n40 (1Tx)	151 - 5755MHz	-	-	Band Edge 5715 - 5725 MHz	15E	75.6 dBµV/m @ 5723.9 MHz (-2.7 dB)
	n40 (1Tx)	159 - 5795MHz	-	-	Band Edge at 5860MHz	15E	53.7 dBµV/m @ 5860.1 MHz (-0.3 dB)
	n40 (1Tx)	159 - 5795MHz	-	-	Band Edge at 5850MHz	15E	72.1 dBµV/m @ 5851.0 MHz (-6.2 dB)
17	n40 (2Tx)	38 - 5190MHz	-	-	Restricted Band Edge at 5150 MHz	15.209	53.7 dBµV/m @ 5150.0 MHz (-0.3 dB)
	n40 (2Tx)	46 - 5230MHz	-	-	Restricted Band Edge at 5150 MHz	15.209	52.7 dBµV/m @ 5149.9 MHz (-1.3 dB)
18	n40 (2Tx)	54 - 5270MHz	-	-	Restricted Band Edge at 5350 MHz	15.209	50.3 dBµV/m @ 5350.0 MHz (-3.7 dB)
	n40 (2Tx)	62 - 5310MHz	-	-	Restricted Band Edge at 5350 MHz	15.209	53.4 dBµV/m @ 5351.3 MHz (-0.6 dB)
19	n40 (2Tx)	102 - 5510MHz	-	-	Restricted Band Edge at 5460 MHz	15.209	48.7 dBµV/m @ 5459.8 MHz (-5.3 dB)
	n40 (2Tx)	102 - 5510MHz	-	-	Band Edge 5460 - 5470 MHz	15E	53.9 dBµV/m @ 5469.8 MHz (-0.1 dB)
	n40 (2Tx)	110 - 5550MHz	-	-	Restricted Band Edge at 5460 MHz	15.209	46.1 dBµV/m @ 5459.0 MHz (-7.9 dB)
	n40 (2Tx)	110 - 5550MHz	-	-	Band Edge 5460 - 5470 MHz	15E	61.8 dBµV/m @ 5460.5 MHz (-6.5 dB)
	n40 (2Tx)	134 - 5670MHz	-	-	Band Edge 5725MHz	15E	53.2 dBµV/m @ 5725.5 MHz (-0.8 dB)
20	n40 (2Tx)	151 - 5755MHz	-	-	Band Edge at 5715 MHz	15E	53.6 dBµV/m @ 5713.9 MHz (-0.4 dB)
	n40 (2Tx)	151 - 5755MHz	-	-	Band Edge 5715 - 5725 MHz	15E	73.6 dBµV/m @ 5717.5 MHz (-4.7 dB)
	n40 (2Tx)	159 - 5795MHz	-	-	Band Edge at 5860MHz	15E	53.2 dBµV/m @ 5861.6 MHz (-0.8 dB)
	n40 (2Tx)	159 - 5795MHz	-	-	Band Edge at 5850MHz	15E	72.7 dBµV/m @ 5851.8 MHz (-5.6 dB)



# EMC Test Data

Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
	Project Manager: Sheareen Jacobs
Contact: Tarandeep Kaur	Project Coordinator: Irene Rademacher
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Class: N/A

## Modifications Made During Testing

No modifications were made to the EUT during testing

## Deviations From The Standard

No deviations were made from the requirements of the standard.

## Notes

Testing performed at 1.5m per C63.10  
 n20 2Tx was tested as representative of 11a 2Tx  
 n20 / n40 tested in CDD mode as representative of STBC operation  
 Worse case chain for 1Tx operation was determined from preliminary testing

## Procedure Comments:

Measurements performed in accordance with FCC KDB 789033  
 Peak measurements performed with: RBW=1MHz, VBW=3MHz, peak detector, max hold, auto sweep time  
 Unless otherwise stated/noted, emission has duty cycle  $\geq 98\%$  and was measured using RBW=1MHz, VBW=10Hz, peak detector, linear average mode, auto sweep time, max hold.

Mode	Data Rate	Duty Cycle (x)	Constant DC?	T (ms)	Pwr Cor Factor*	Lin Volt Cor Factor**	Min VBW for FS (Hz)
11a	6Mb/s	98.2%	Yes	1.405	0	0	10
n20	MCS0	98.1%	Yes	1.309	0	0	10
n40	MCS0	98.0%	Yes	0.932	0	0	10

## Sample Notes

Sample S/N: 707781772509  
 Driver: 6.37 RC214 .12  
 Antenna: External



## EMC Test Data

Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
	Project Manager: Sheareen Jacobs
Contact: Tarandeep Kaur	Project Coordinator: Irene Rademacher
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Class: N/A

### Measurement Specific Notes:

Note 1:	For emissions outside of the restricted bands the limit is -27dBm/MHz eirp (68.3dBuV/m). The measurement method required is a peak measurement (RB=1MHz, VB≥3MHz, peak detector). Per KDB 789033 2) c) (i), compliance can be demonstrated by meeting the average and peak limits of 15.209, as an alternative.
Note 2:	Emission has duty cycle ≥ 98%, average measurement performed: RBW=1MHz, VBW=3MHz, RMS, Power averaging, auto sweep, trace average 100 traces
Note 4:	Emission has duty cycle < 98%, average measurement performed: RBW=1MHz, VBW> 1/T, peak detector, linear average mode, sweep time auto, max hold. Max hold for 50*(1/DC) traces
Note 5:	Emission has duty cycle < 98%, but constant, average measurement performed: RBW=1MHz, VBW=3MHz, RMS, Power averaging, auto sweep, trace average 100 * 1/DC traces, measurement corrected by Pwr correction factor
Note 6:	Plots of the average and peak bandedge do not account for any duty cycle correction. Refer to the tabular results for final measurements.



# EMC Test Data

Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
Contact: Tarandeep Kaur	Project Manager: Sheareen Jacobs
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator: Irene Rademacher
	Class: N/A

## Run #1: Radiated Bandedge Measurements, 5150-5250MHz

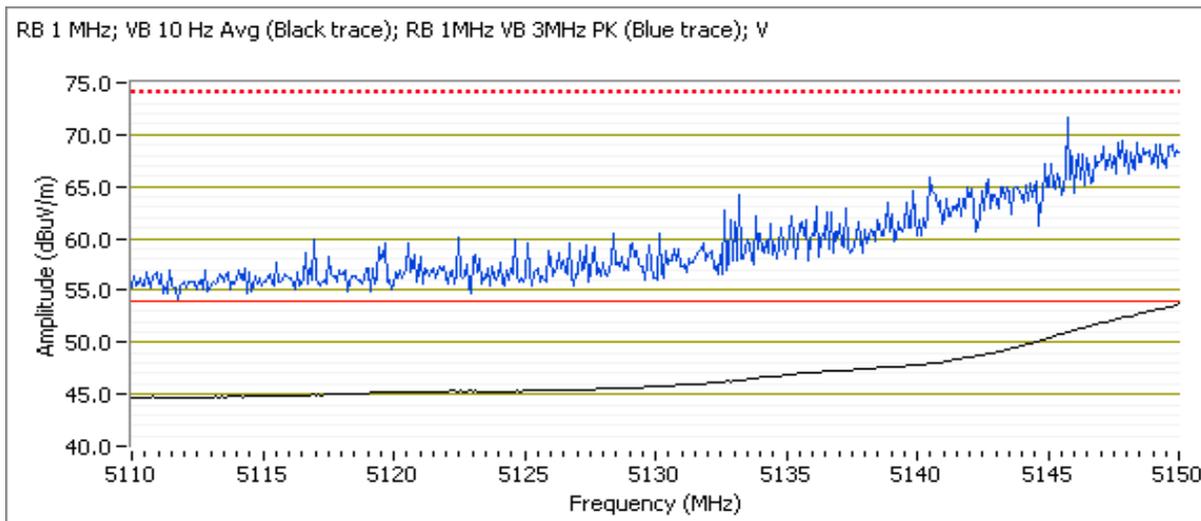
Date of Test: 7/14/2015 0:00  
 Test Engineer: Rafael Varelas  
 Test Location: FT Chamber #5

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

Channel: 36 - 5180 MHz  
 Tx Chain: Main  
 Mode: a  
 Data Rate: 6Mb/s

### 5150 MHz Band Edge Signal Radiated Field Strength

Frequency	Level	Pol	FCC 15.209		Detector	Azimuth	Height	Comments
MHz	dB $\mu$ V/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5150.000	53.7	V	54.0	-0.3	AVG	201	1.1	POS; RB 1 MHz; VB: 10 Hz
5147.350	72.5	V	74.0	-1.5	PK	201	1.1	POS; RB 1 MHz; VB: 3 MHz
5150.000	48.6	H	54.0	-5.4	AVG	131	1.0	POS; RB 1 MHz; VB: 10 Hz
5148.320	62.7	H	74.0	-11.3	PK	131	1.0	POS; RB 1 MHz; VB: 3 MHz





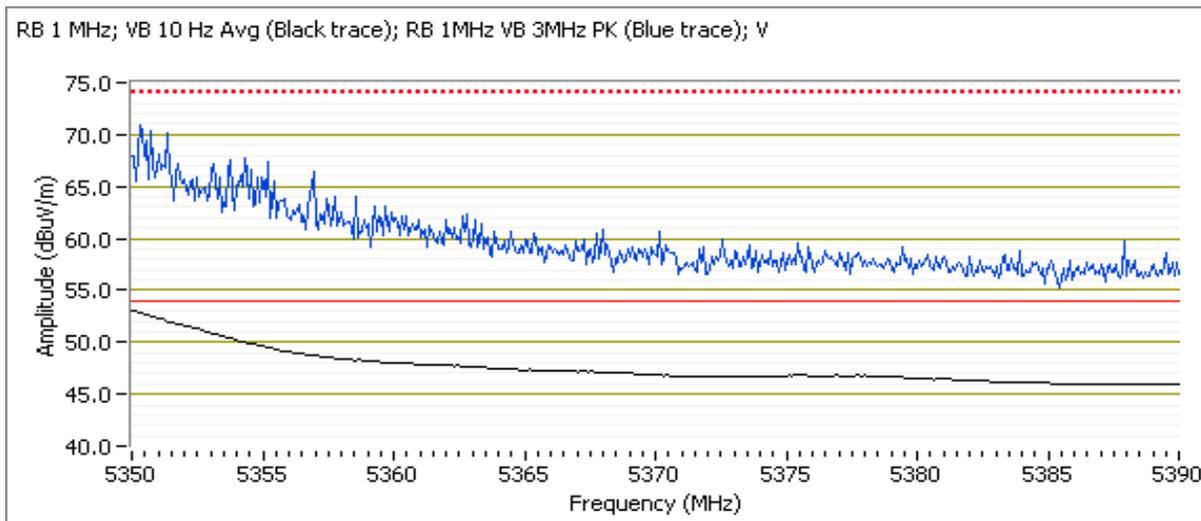
# EMC Test Data

Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
	Project Manager: Sheareen Jacobs
Contact: Tarandeep Kaur	Project Coordinator: Irene Rademacher
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Class: N/A

Channel: 64 - 5320MHz  
 Tx Chain: Main  
 Mode: a  
 Data Rate: 6Mb/s

### 5350 MHz Band Edge Signal Radiated Field Strength

Frequency	Level	Pol	FCC 15.209		Detector	Azimuth	Height	Comments
MHz	dB $\mu$ V/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5350.000	53.0	V	54.0	-1.0	AVG	152	1.2	POS; RB 1 MHz; VB: 10 Hz
5350.320	69.6	V	74.0	-4.4	PK	152	1.2	POS; RB 1 MHz; VB: 3 MHz
5350.000	48.6	H	54.0	-5.4	AVG	203	1.1	POS; RB 1 MHz; VB: 10 Hz
5355.130	64.5	H	74.0	-9.5	PK	203	1.1	POS; RB 1 MHz; VB: 3 MHz





# EMC Test Data

Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
Contact: Tarandeep Kaur	Project Manager: Sheareen Jacobs
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator: Irene Rademacher
	Class: N/A

### Run #3: Radiated Bandedge Measurements, 5470-5725MHz

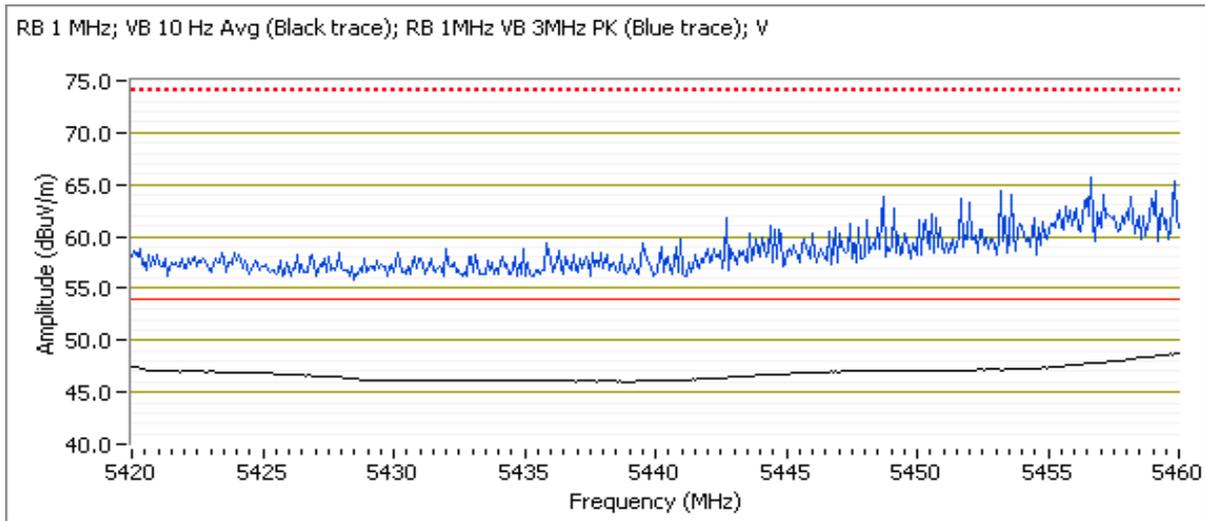
Date of Test: 7/14/2015 0:00  
 Test Engineer: Rafael Varelas  
 Test Location: FT Chamber #5

Config. Used: 1  
 Config Change: None  
 EUT Voltage: USB

Channel: 100 - 5500MHz  
 Tx Chain: Main  
 Mode: a  
 Data Rate: 6Mb/s

### 5460 MHz Band Edge Signal Radiated Field Strength

Frequency MHz	Level dB $\mu$ V/m	Pol v/h	FCC 15.209		Detector Pk/QP/Avg	Azimuth degrees	Height meters	Comments
			Limit	Margin				
5460.000	48.8	V	54.0	-5.2	AVG	152	1.1	POS; RB 1 MHz; VB: 10 Hz
5458.240	65.3	V	74.0	-8.7	PK	152	1.1	POS; RB 1 MHz; VB: 3 MHz
5459.920	46.4	H	54.0	-7.6	AVG	63	1.2	POS; RB 1 MHz; VB: 10 Hz
5457.270	63.7	H	74.0	-10.3	PK	63	1.2	POS; RB 1 MHz; VB: 3 MHz



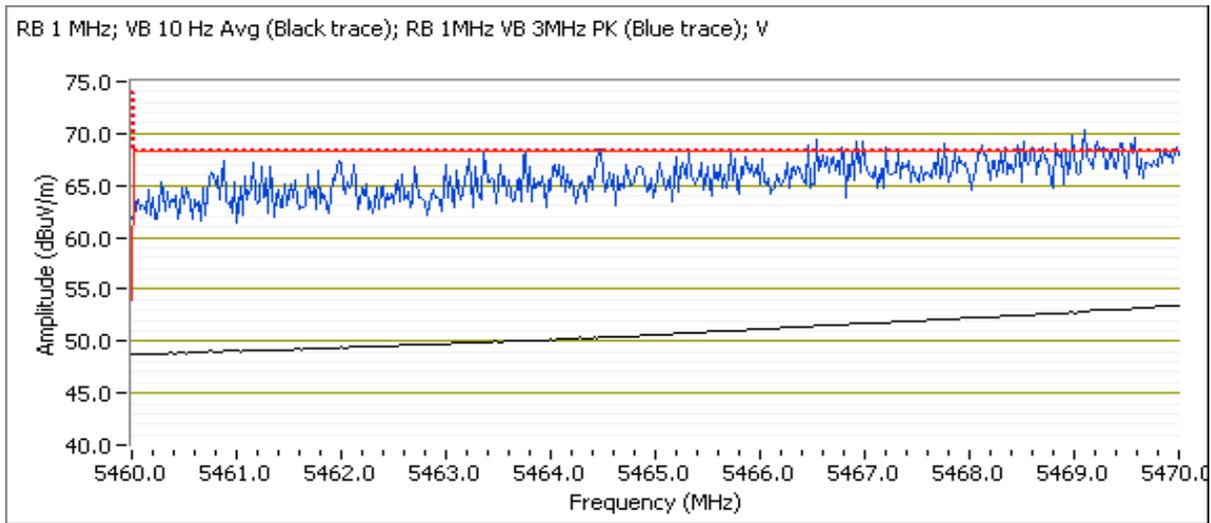


# EMC Test Data

Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
Contact: Tarandeep Kaur	Project Manager: Sheareen Jacobs
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator: Irene Rademacher
	Class: N/A

### 5470 MHz Band Edge Signal Radiated Field Strength

Frequency MHz	Level dB $\mu$ V/m	Pol v/h	15.E		Detector Pk/QP/Avg	Azimuth degrees	Height meters	Comments
			Limit	Margin				
5469.960	53.5	V	54.0	-0.5	AVG	152	1.1	Note 1,POS; RB 1 MHz; VB: 10 Hz
5468.140	70.5	V	74.0	-3.5	PK	152	1.1	Note 1,POS; RB 1 MHz; VB: 3 MHz
5470.000	50.9	H	54.0	-3.1	AVG	63	1.2	Note 1,POS; RB 1 MHz; VB: 10 Hz
5466.270	67.5	H	74.0	-6.5	PK	63	1.2	Note 1,POS; RB 1 MHz; VB: 3 MHz

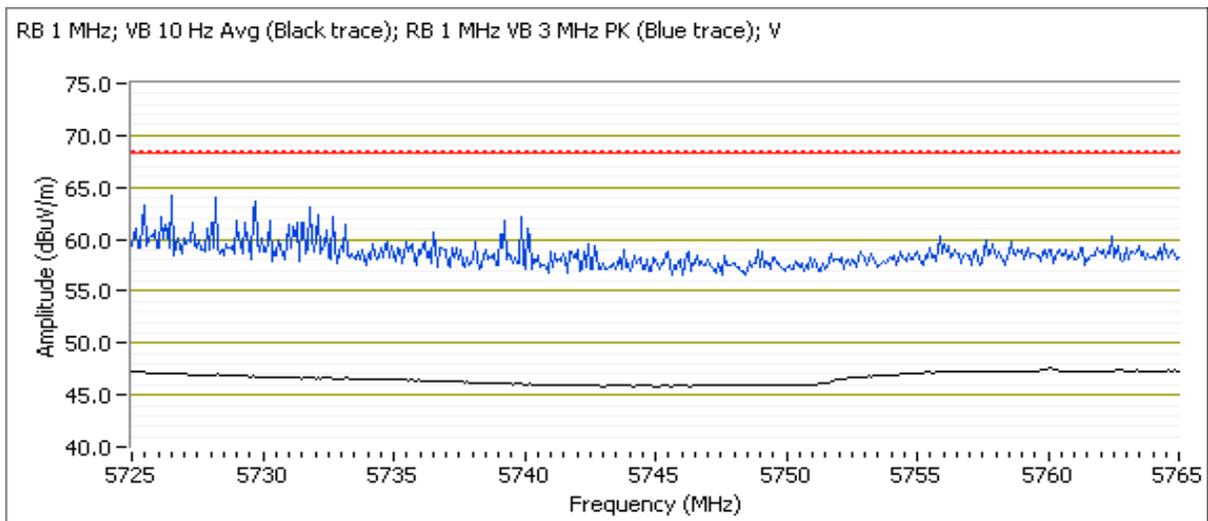


Client:	Hewlett Packard Company	Job Number:	J98746
Model:	SDGOB-1505	T-Log Number:	T98753
Contact:	Tarandeep Kaur	Project Manager:	Sheareen Jacobs
Standard:	FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator:	Irene Rademacher
		Class:	N/A

Channel: 136 - 5680MHz  
 Tx Chain: Main  
 Mode: a  
 Data Rate: 6Mb/s

### 5725 MHz Band Edge Signal Radiated Field Strength

Frequency	Level	Pol	15.E		Detector	Azimuth	Height	Comments
MHz	dB $\mu$ V/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5760.110	47.6	V	54.0	-6.4	AVG	199	1.0	Note 1, POS; RB 1 MHz; VB: 10 Hz
5732.860	64.7	V	74.0	-9.3	PK	199	1.0	Note 1, POS; RB 1 MHz; VB: 3 MHz
5725.400	44.7	H	54.0	-9.3	AVG	76	1.0	Note 1, POS; RB 1 MHz; VB: 10 Hz
5740.150	56.8	H	74.0	-17.2	PK	76	1.0	Note 1, POS; RB 1 MHz; VB: 3 MHz
5740.150	56.8	H	68.3	-11.5	PK	76	1.0	POS; RB 1 MHz; VB: 3 MHz





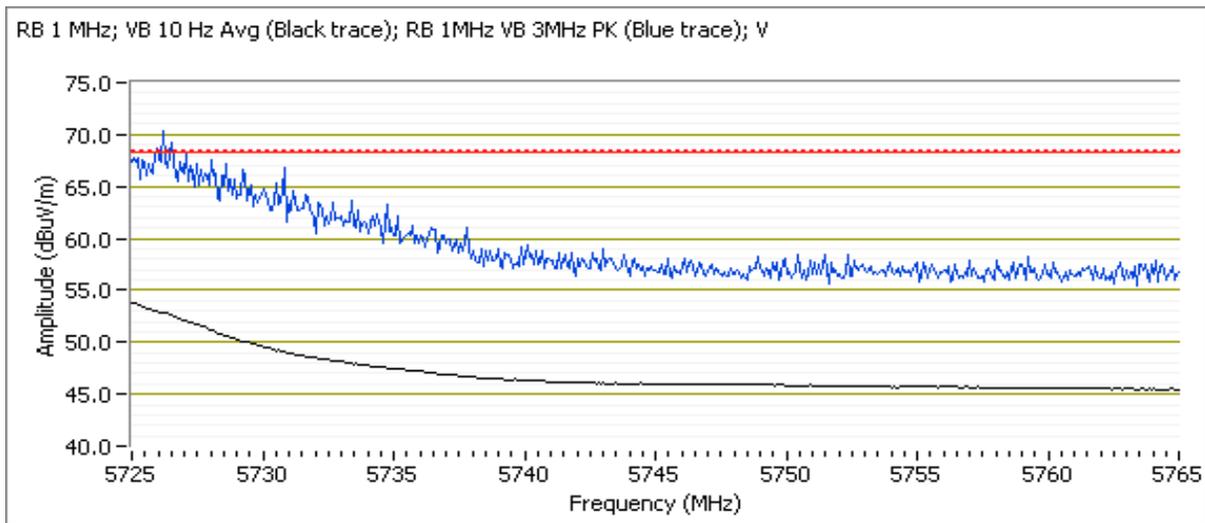
# EMC Test Data

Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
	Project Manager: Sheareen Jacobs
Contact: Tarandeep Kaur	Project Coordinator: Irene Rademacher
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Class: N/A

Channel: 140 - 5700MHz  
 Tx Chain: Main  
 Mode: a  
 Data Rate: 6Mb/s

### 5725 MHz Band Edge Signal Radiated Field Strength

Frequency MHz	Level dB $\mu$ V/m	Pol v/h	15.E		Detector Pk/QP/Avg	Azimuth degrees	Height meters	Comments
			Limit	Margin				
5725.000	53.8	V	54.0	-0.2	AVG	168	1.4	Note 1,POS; RB 1 MHz; VB: 10 Hz
5727.480	70.2	V	74.0	-3.8	PK	168	1.4	Note 1,POS; RB 1 MHz; VB: 3 MHz
5725.000	49.5	H	54.0	-4.5	AVG	220	2.4	Note 1,POS; RB 1 MHz; VB: 10 Hz
5727.240	65.3	H	74.0	-8.7	PK	220	2.4	Note 1,POS; RB 1 MHz; VB: 3 MHz





# EMC Test Data

Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
	Project Manager: Sheareen Jacobs
Contact: Tarandeep Kaur	Project Coordinator: Irene Rademacher
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Class: N/A

## Run #4: Radiated Bandedge Measurements, 5725-5850MHz

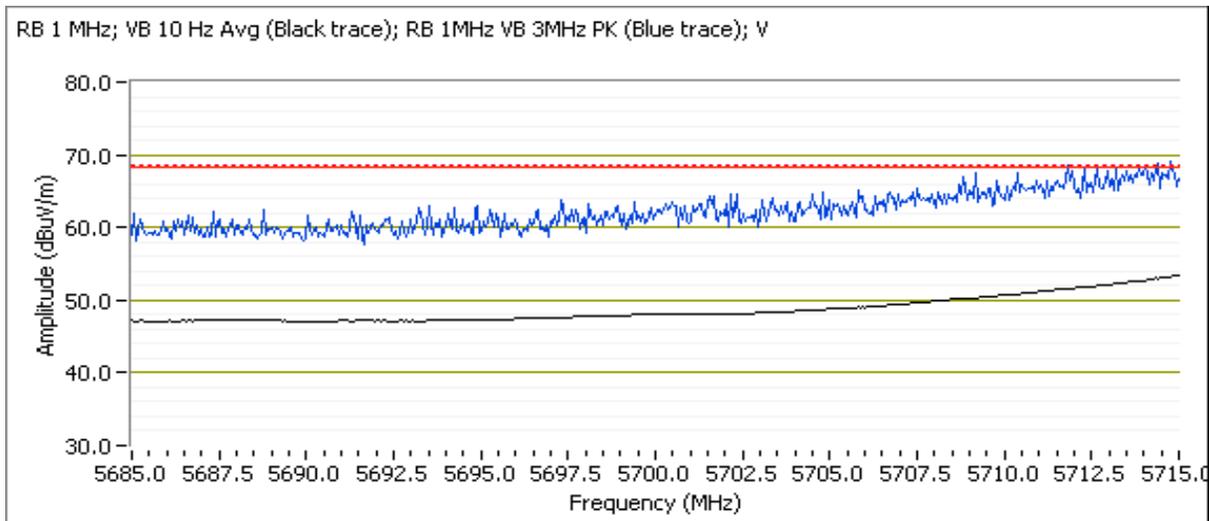
Date of Test: 7/21/2015 0:00  
 Test Engineer: Rafael Varelas  
 Test Location: FT Chamber #5

Config. Used: 1  
 Config Change: None  
 EUT Voltage: USB

Channel: 149 - 5745MHz  
 Tx Chain: Main  
 Mode: a  
 Data Rate: 6 Mbps

### 5715 MHz Band Edge Signal Radiated Field Strength

Frequency MHz	Level dB $\mu$ V/m	Pol v/h	15.E		Detector Pk/QP/Avg	Azimuth degrees	Height meters	Comments
			Limit	Margin				
5715.000	53.4	V	54.0	-0.6	AVG	172	1.3	POS; RB 1 MHz; VB: 10 Hz
5714.760	69.5	V	74.0	-4.5	PK	172	1.3	POS; RB 1 MHz; VB: 3 MHz



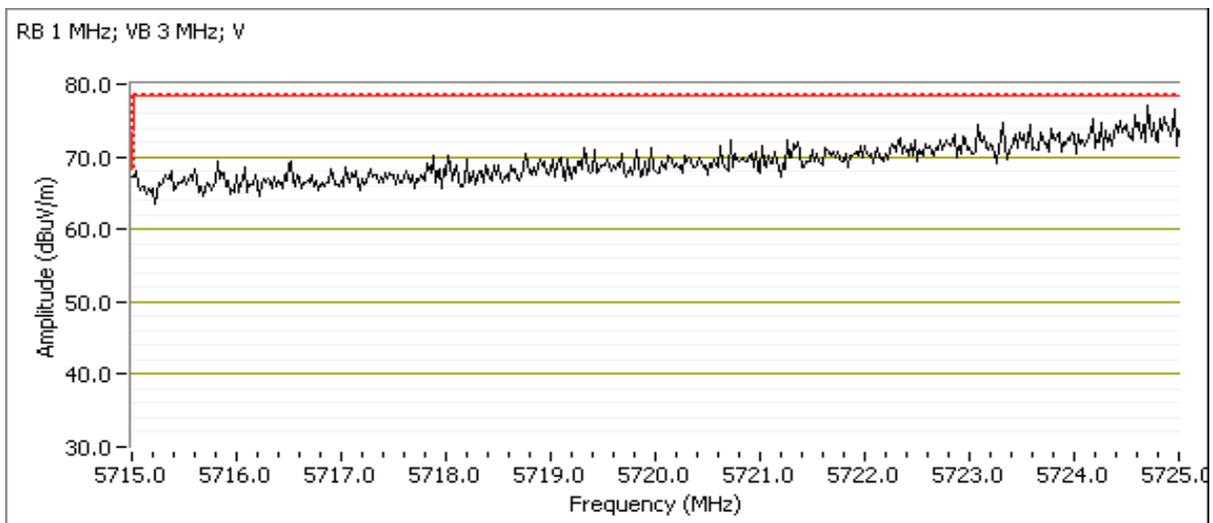


# EMC Test Data

Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
Contact: Tarandeep Kaur	Project Manager: Sheareen Jacobs
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator: Irene Rademacher
	Class: N/A

## 5715-5725 MHz Band Edge Signal Radiated Field Strength

Frequency	Level	Pol	15.E		Detector	Azimuth	Height	Comments
MHz	dB $\mu$ V/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5724.880	77.6	V	78.3	-0.7	PK	172	1.3	POS; RB 1 MHz; VB: 3 MHz





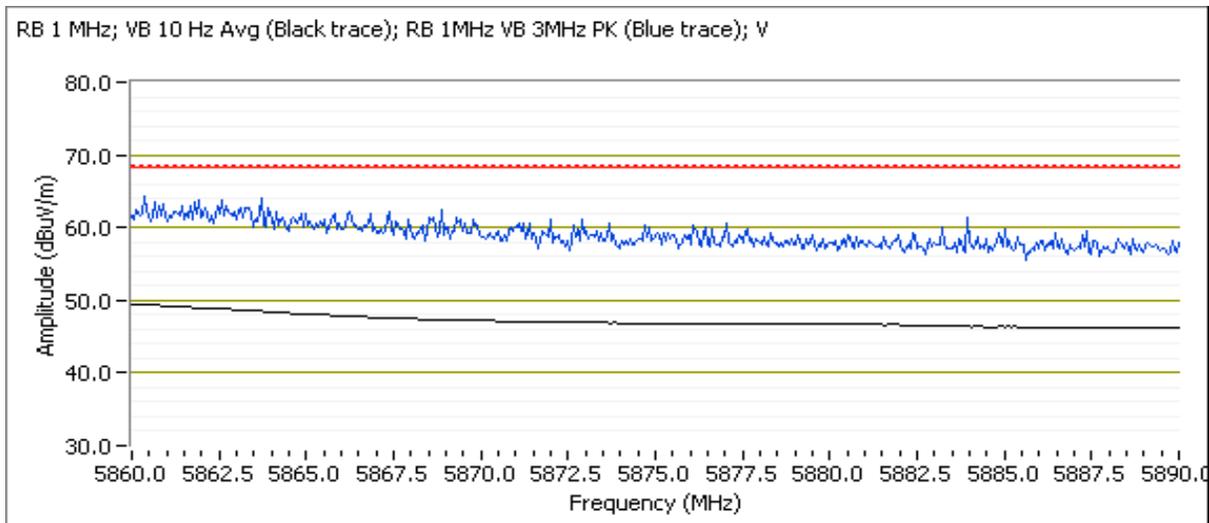
# EMC Test Data

Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
	Project Manager: Sheareen Jacobs
Contact: Tarandeep Kaur	Project Coordinator: Irene Rademacher
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Class: N/A

Channel: 165 - 5825MHz  
 Tx Chain: Main  
 Mode: a  
 Data Rate: 6 Mbps

### 5860 MHz Band Edge Signal Radiated Field Strength

Frequency	Level	Pol	15.E		Detector	Azimuth	Height	Comments
MHz	dB $\mu$ V/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5862.650	65.6	V	68.3	-2.7	PK	197	1.0	POS; RB 1 MHz; VB: 3 MHz



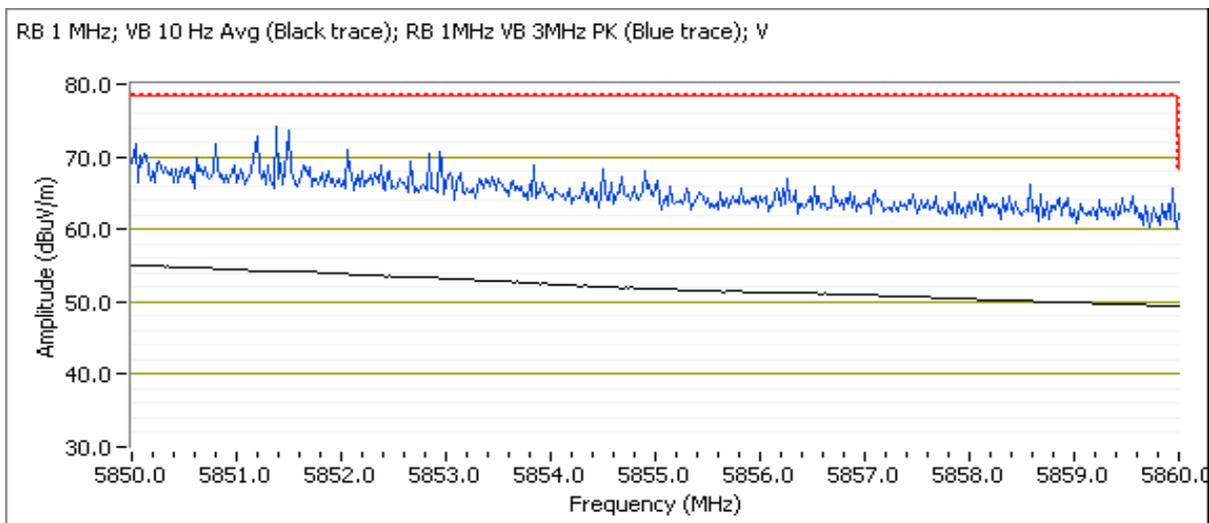


# EMC Test Data

Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
Contact: Tarandeep Kaur	Project Manager: Sheareen Jacobs
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator: Irene Rademacher
	Class: N/A

## 5850-5860 MHz Band Edge Signal Radiated Field Strength

Frequency	Level	Pol	15.E		Detector	Azimuth	Height	Comments
MHz	dB $\mu$ V/m	v/h	Limit	Margin	PK/QP/Avg	degrees	meters	
5853.630	74.0	V	78.3	-4.3	PK	197	1.0	POS; RB 1 MHz; VB: 3 MHz





# EMC Test Data

Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
Contact: Tarandeep Kaur	Project Manager: Sheareen Jacobs
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator: Irene Rademacher
	Class: N/A

## Run #5: Radiated Bandedge Measurements, 5150-5250MHz

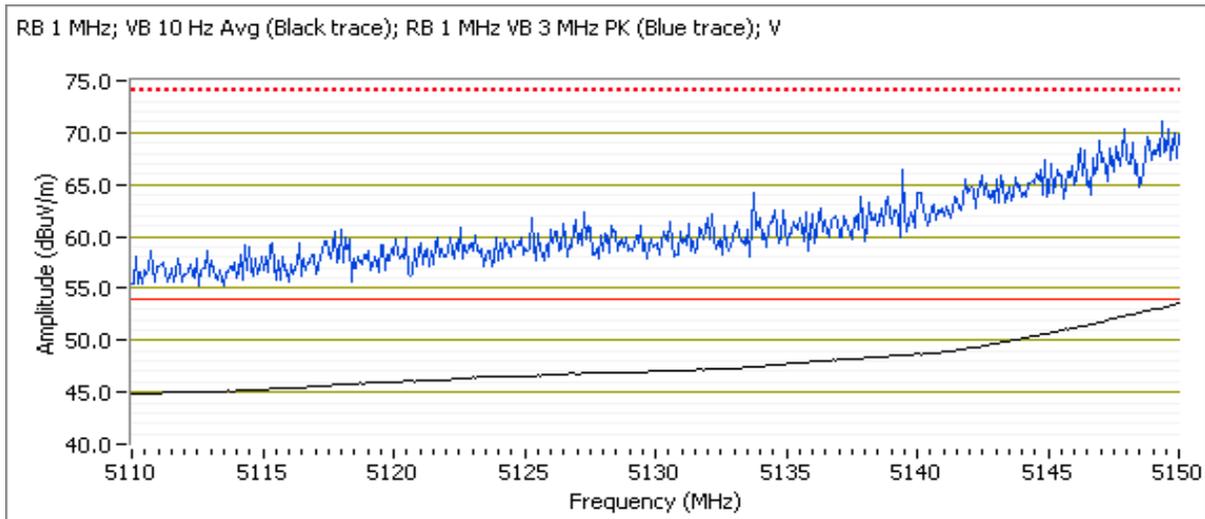
Date of Test: 7/15/2015 0:00  
 Test Engineer: Rafael Varelas  
 Test Location: FT Chamber #5

Config. Used: 1  
 Config Change: None  
 EUT Voltage: USB

Channel: 36 - 5180 MHz  
 Tx Chain: Main  
 Mode: n20  
 Data Rate: MCS0

### 5150 MHz Band Edge Signal Radiated Field Strength

Frequency MHz	Level dB $\mu$ V/m	Pol v/h	FCC 15.209		Detector Pk/QP/Avg	Azimuth degrees	Height meters	Comments
			Limit	Margin				
5150.000	53.5	V	54.0	-0.5	AVG	157	1.1	POS; RB 1 MHz; VB: 10 Hz
5145.350	72.0	V	74.0	-2.0	PK	157	1.1	POS; RB 1 MHz; VB: 3 MHz
5150.000	50.4	H	54.0	-3.6	AVG	73	1.4	POS; RB 1 MHz; VB: 10 Hz
5148.960	66.3	H	74.0	-7.7	PK	73	1.4	POS; RB 1 MHz; VB: 3 MHz





# EMC Test Data

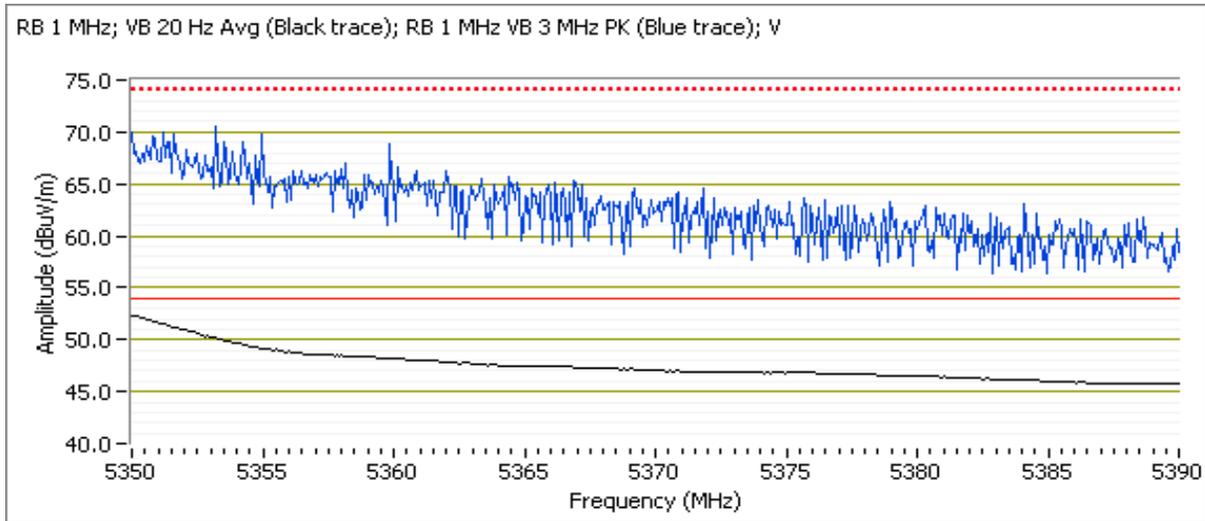
Client:	Hewlett Packard Company	Job Number:	J98746
Model:	SDGOB-1505	T-Log Number:	T98753
Contact:	Tarandeep Kaur	Project Manager:	Sheareen Jacobs
Standard:	FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator:	Irene Rademacher
		Class:	N/A

## Run #6: Radiated Bandedge Measurements, 5250-5350MHz

Channel: 64 - 5320MHz  
 Tx Chain: Main  
 Mode: n20  
 Data Rate: MCS0

### 5350 MHz Band Edge Signal Radiated Field Strength

Frequency MHz	Level dB $\mu$ V/m	Pol v/h	FCC 15.209		Detector Pk/QP/Avg	Azimuth degrees	Height meters	Comments
			Limit	Margin				
5350.000	52.4	V	54.0	-1.6	AVG	172	1.3	POS; RB 1 MHz; VB: 10 Hz
5351.120	70.4	V	74.0	-3.6	PK	172	1.3	POS; RB 1 MHz; VB: 3 MHz
5350.000	49.3	H	54.0	-4.7	AVG	210	1.1	POS; RB 1 MHz; VB: 10 Hz
5350.800	63.6	H	74.0	-10.4	PK	210	1.1	POS; RB 1 MHz; VB: 3 MHz





# EMC Test Data

Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
Contact: Tarandeep Kaur	Project Manager: Sheareen Jacobs
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator: Irene Rademacher
	Class: N/A

## Run #7: Radiated Bandedge Measurements, 5470-5725MHz

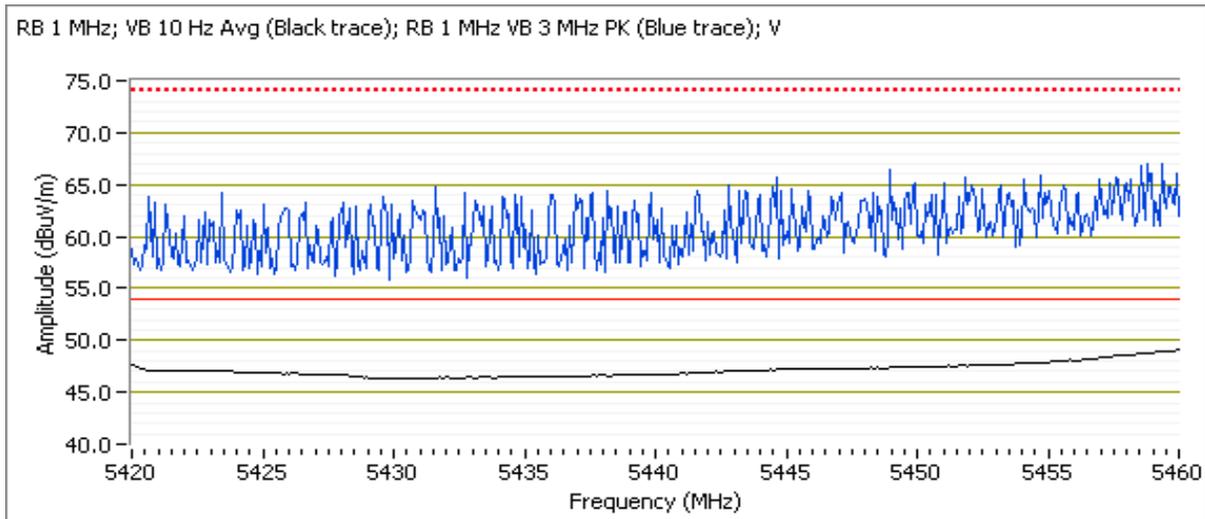
Date of Test: 7/15/2015 0:00  
 Test Engineer: Rafael Varelas  
 Test Location: FT Chamber #5

Config. Used: 1  
 Config Change: None  
 EUT Voltage: USB

Channel: 100 - 5500MHz  
 Tx Chain: Main  
 Mode: n20  
 Data Rate: MCS0

### 5460 MHz Band Edge Signal Radiated Field Strength

Frequency MHz	Level dB $\mu$ V/m	Pol v/h	FCC 15.209		Detector Pk/QP/Avg	Azimuth degrees	Height meters	Comments
			Limit	Margin				
5459.840	49.1	V	54.0	-4.9	AVG	172	1.4	POS; RB 1 MHz; VB: 10 Hz
5458.880	66.7	V	74.0	-7.3	PK	172	1.4	POS; RB 1 MHz; VB: 3 MHz
5460.000	46.0	H	54.0	-8.0	AVG	57	2.6	POS; RB 1 MHz; VB: 10 Hz
5460.000	61.7	H	74.0	-12.3	PK	57	2.6	POS; RB 1 MHz; VB: 3 MHz

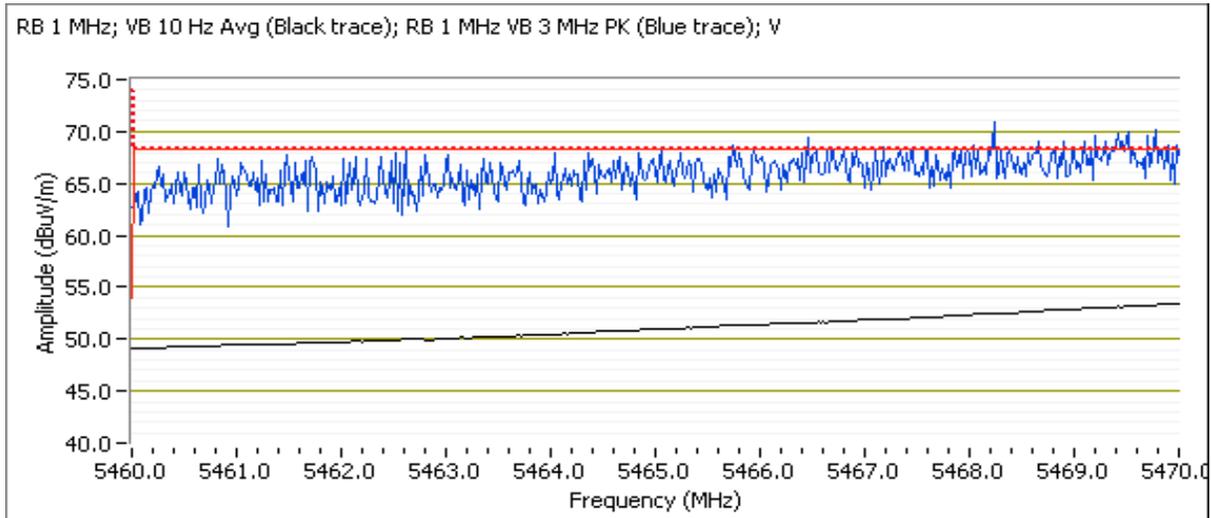


Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
Contact: Tarandeep Kaur	Project Manager: Sheareen Jacobs
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator: Irene Rademacher
	Class: N/A

### 5470 MHz Band Edge Signal Radiated Field Strength

Frequency MHz	Level dB $\mu$ V/m	Pol v/h	15.E		Detector Pk/QP/Avg	Azimuth degrees	Height meters	Comments
			Limit	Margin				
5470.000	53.4	V	54.0	-0.6	AVG	172	1.4	Note 1, POS; RB 1 MHz; VB: 10 Hz
5469.860	71.5	V	74.0	-2.5	PK	172	1.4	Note 1, POS; RB 1 MHz; VB: 3 MHz
5469.960	49.0	H	54.0	-5.0	AVG	57	2.6	Note 1, POS; RB 1 MHz; VB: 10 Hz
5468.660	65.8	H	74.0	-8.2	PK	57	2.6	Note 1, POS; RB 1 MHz; VB: 3 MHz

RB 1 MHz; VB 10 Hz Avg (Black trace); RB 1 MHz VB 3 MHz PK (Blue trace); V





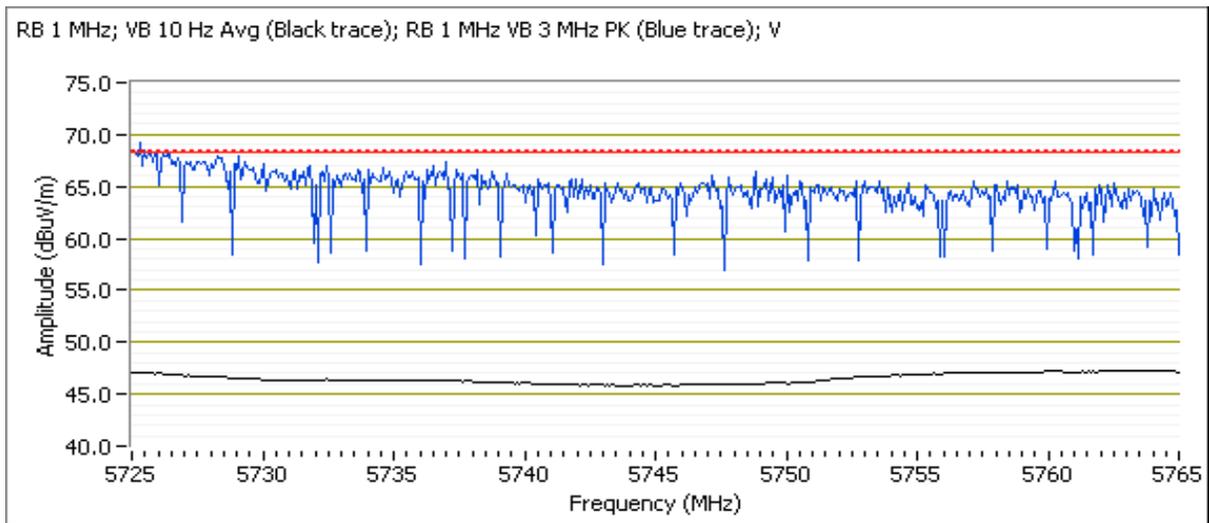
# EMC Test Data

Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
Contact: Tarandeep Kaur	Project Manager: Sheareen Jacobs
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator: Irene Rademacher
	Class: N/A

Channel: 136 - 5680MHz  
 Tx Chain: Main  
 Mode: n20  
 Data Rate: MCS0

### 5725 MHz Band Edge Signal Radiated Field Strength

Frequency MHz	Level dB $\mu$ V/m	Pol v/h	15.E		Detector Pk/QP/Avg	Azimuth degrees	Height meters	Comments
			Limit	Margin				
5762.350	47.3	V	54.0	-6.7	AVG	175	1.2	Note 1, POS; RB 1 MHz; VB: 10 Hz
5728.050	68.8	V	74.0	-5.2	PK	175	1.2	Note 1, POS; RB 1 MHz; VB: 3 MHz
5725.320	44.9	H	54.0	-9.1	AVG	177	1.6	Note 1, POS; RB 1 MHz; VB: 10 Hz
5738.310	60.9	H	74.0	-13.1	PK	177	1.6	Note 1, POS; RB 1 MHz; VB: 3 MHz





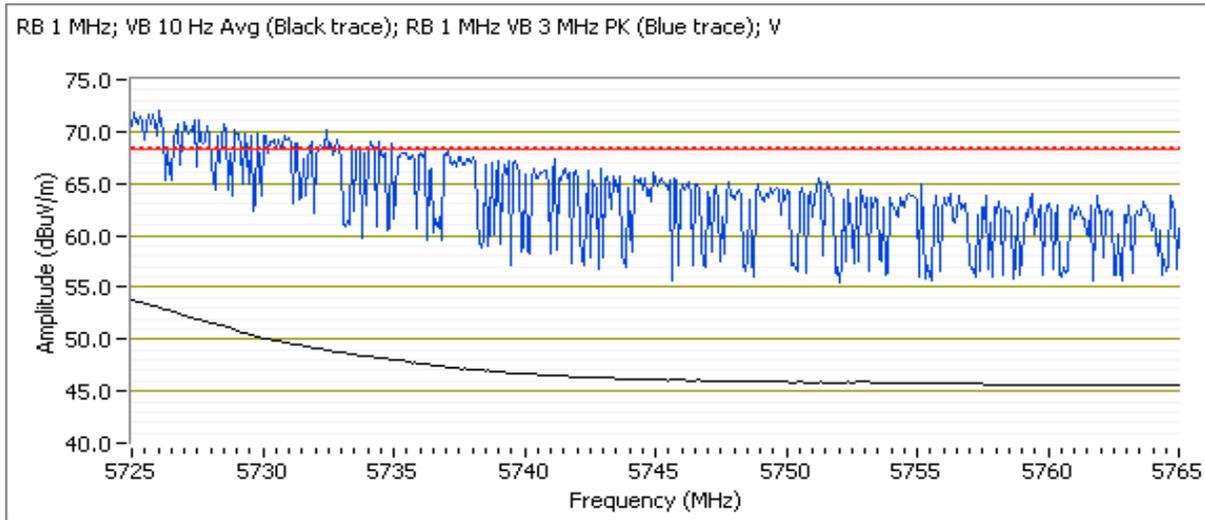
# EMC Test Data

Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
Contact: Tarandeep Kaur	Project Manager: Sheareen Jacobs
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator: Irene Rademacher
	Class: N/A

Channel: 140 - 5700MHz  
 Tx Chain: Main  
 Mode: n20  
 Data Rate: MCS0

### 5725 MHz Band Edge Signal Radiated Field Strength

Frequency	Level	Pol	15.E		Detector	Azimuth	Height	Comments
MHz	dB $\mu$ V/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5725.000	53.9	V	54.0	-0.1	AVG	197	2.0	Note 1, POS; RB 1 MHz; VB: 10 Hz
5727.730	71.7	V	74.0	-2.3	PK	197	2.0	Note 1, POS; RB 1 MHz; VB: 3 MHz
5725.000	48.9	H	54.0	-5.1	AVG	228	1.0	POS; RB 1 MHz; VB: 10 Hz
5727.890	65.7	H	74.0	-8.3	PK	228	1.0	POS; RB 1 MHz; VB: 3 MHz





# EMC Test Data

Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
Contact: Tarandeep Kaur	Project Manager: Sheareen Jacobs
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator: Irene Rademacher
	Class: N/A

## Run #8: Radiated Bandedge Measurements, 5725-5850MHz

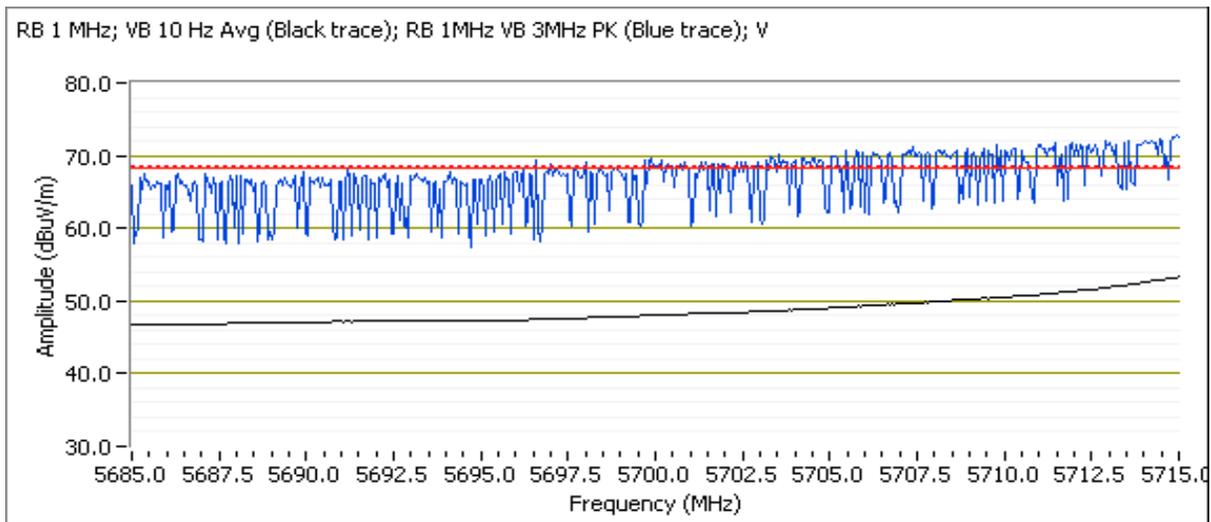
Date of Test: 7/22/2015 0:00  
 Test Engineer: Rafael Varelas  
 Test Location: FT Chamber #5

Config. Used: 1  
 Config Change: None  
 EUT Voltage: USB

Channel: 149 - 5745MHz  
 Tx Chain: Main  
 Mode: n20  
 Data Rate: MCS0

### 5715 MHz Band Edge Signal Radiated Field Strength

Frequency	Level	Pol	15.E		Detector	Azimuth	Height	Comments
MHz	dB $\mu$ V/m	v/h	Limit	Margin	PK/QP/Avg	degrees	meters	
5715.000	53.4	V	54.0	-0.6	AVG	192	1.0	POS; RB 1 MHz; VB: 10 Hz
5714.700	72.7	V	74.0	-1.3	PK	192	1.0	POS; RB 1 MHz; VB: 3 MHz



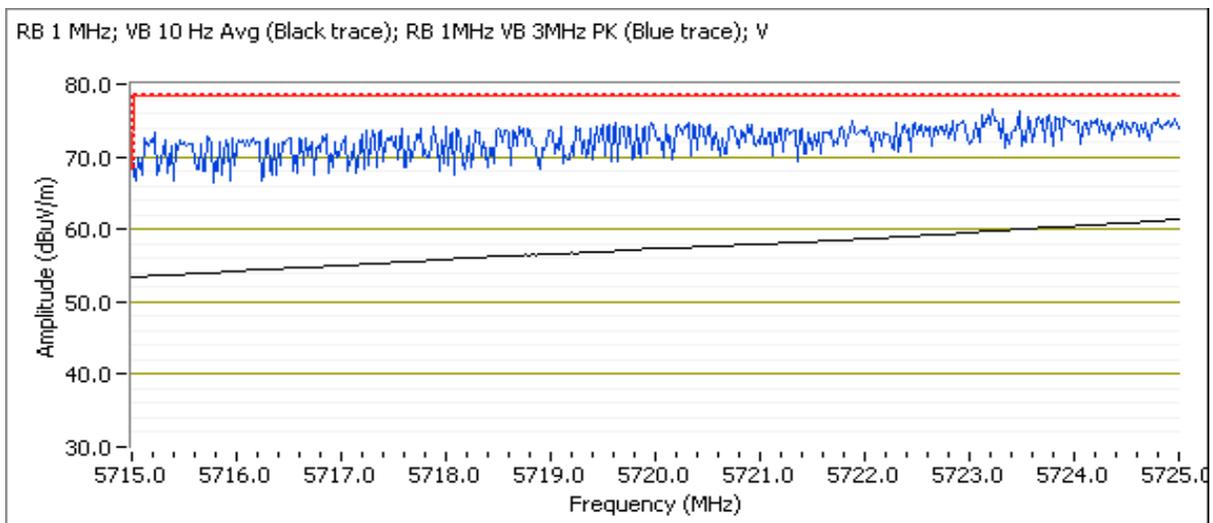


# EMC Test Data

Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
Contact: Tarandeep Kaur	Project Manager: Sheareen Jacobs
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator: Irene Rademacher
	Class: N/A

## 5715-5725 MHz Band Edge Signal Radiated Field Strength

Frequency	Level	Pol	15.E		Detector	Azimuth	Height	Comments
MHz	dB $\mu$ V/m	v/h	Limit	Margin	PK/QP/Avg	degrees	meters	
5724.420	77.6	V	78.3	-0.7	PK	192	1.0	POS; RB 1 MHz; VB: 3 MHz





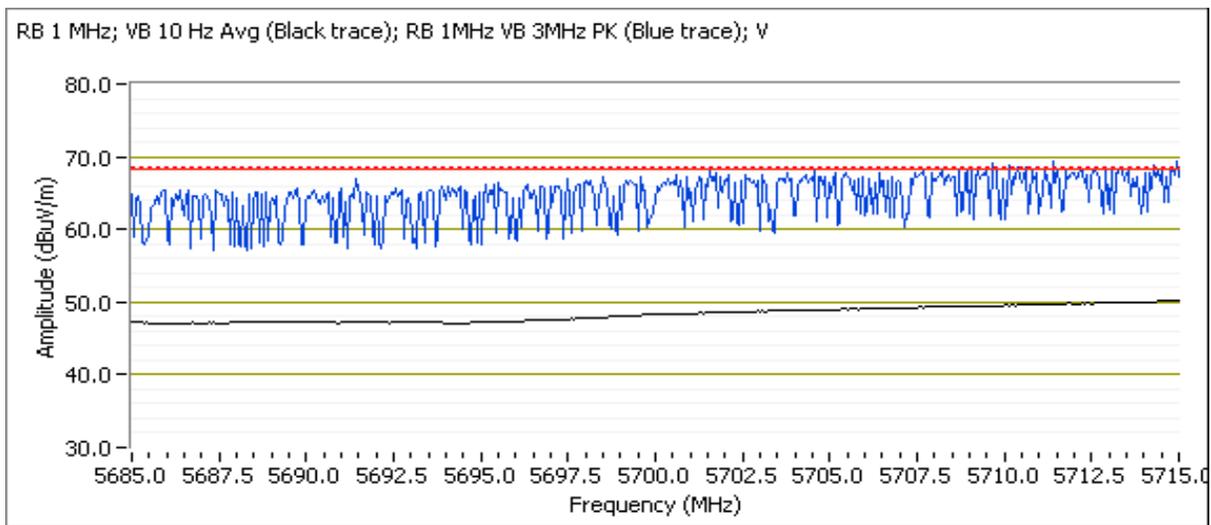
# EMC Test Data

Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
Contact: Tarandeep Kaur	Project Manager: Sheareen Jacobs
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator: Irene Rademacher
	Class: N/A

Channel: 153 - 5765MHz  
 Tx Chain: Main  
 Mode: n20  
 Data Rate: MCS0

### 5715 MHz Band Edge Signal Radiated Field Strength

Frequency	Level	Pol	15.E		Detector	Azimuth	Height	Comments
MHz	dB $\mu$ V/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5715.000	50.2	V	54.0	-3.8	AVG	177	1.0	POS; RB 1 MHz; VB: 10 Hz
5700.990	68.9	V	74.0	-5.1	PK	177	1.0	POS; RB 1 MHz; VB: 3 MHz



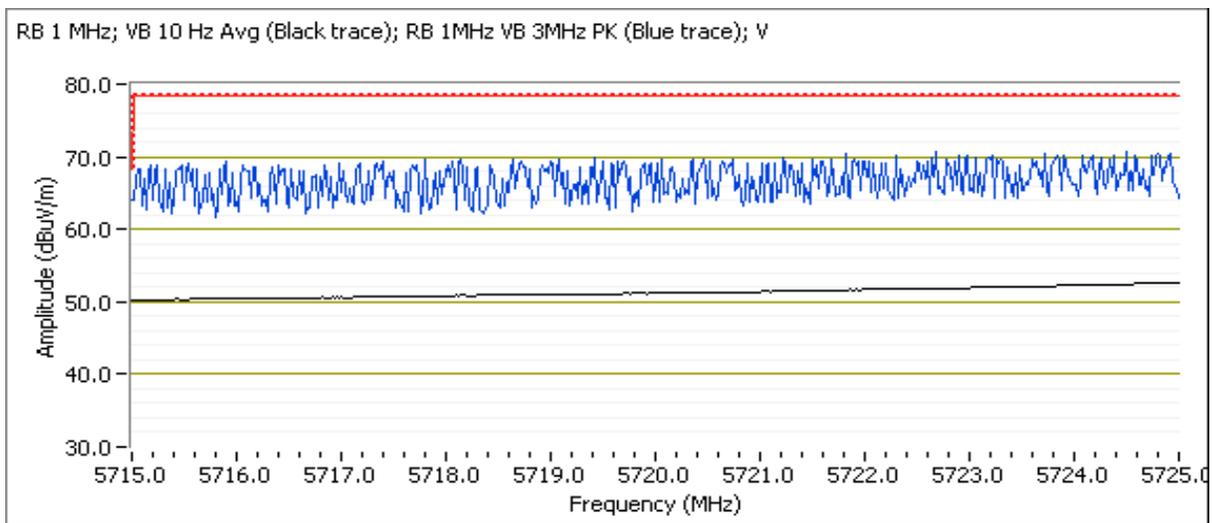


# EMC Test Data

Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
Contact: Tarandeep Kaur	Project Manager: Sheareen Jacobs
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator: Irene Rademacher
	Class: N/A

## 5715-5725 MHz Band Edge Signal Radiated Field Strength

Frequency	Level	Pol	15.E		Detector	Azimuth	Height	Comments
MHz	dB $\mu$ V/m	v/h	Limit	Margin	PK/QP/Avg	degrees	meters	
5715.260	71.2	V	78.3	-7.1	PK	177	1.0	POS; RB 1 MHz; VB: 3 MHz





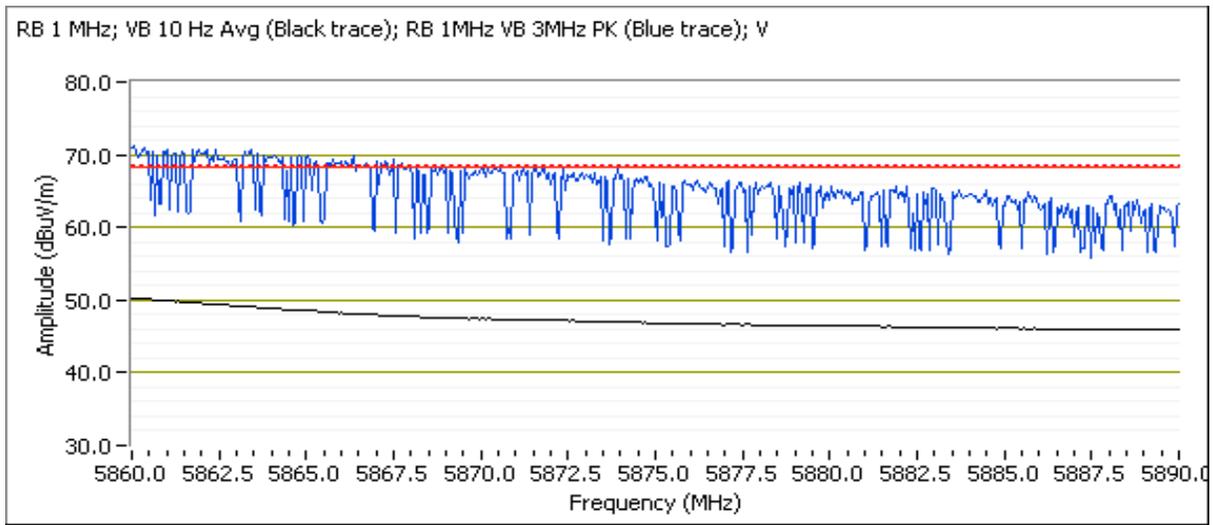
# EMC Test Data

Client:	Hewlett Packard Company	Job Number:	J98746
Model:	SDGOB-1505	T-Log Number:	T98753
Contact:	Tarandeep Kaur	Project Manager:	Sheareen Jacobs
Standard:	FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator:	Irene Rademacher
		Class:	N/A

Channel: 165 - 5825MHz  
 Tx Chain: Main  
 Mode: n20  
 Data Rate: MCS0

### 5860 MHz Band Edge Signal Radiated Field Strength

Frequency	Level	Pol	15.E		Detector	Azimuth	Height	Comments
MHz	dB $\mu$ V/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5860.000	50.4	V	54.0	-3.6	AVG	195	1.1	POS; RB 1 MHz; VB: 10 Hz
5862.830	71.4	V	74.0	-2.6	PK	195	1.1	POS; RB 1 MHz; VB: 3 MHz



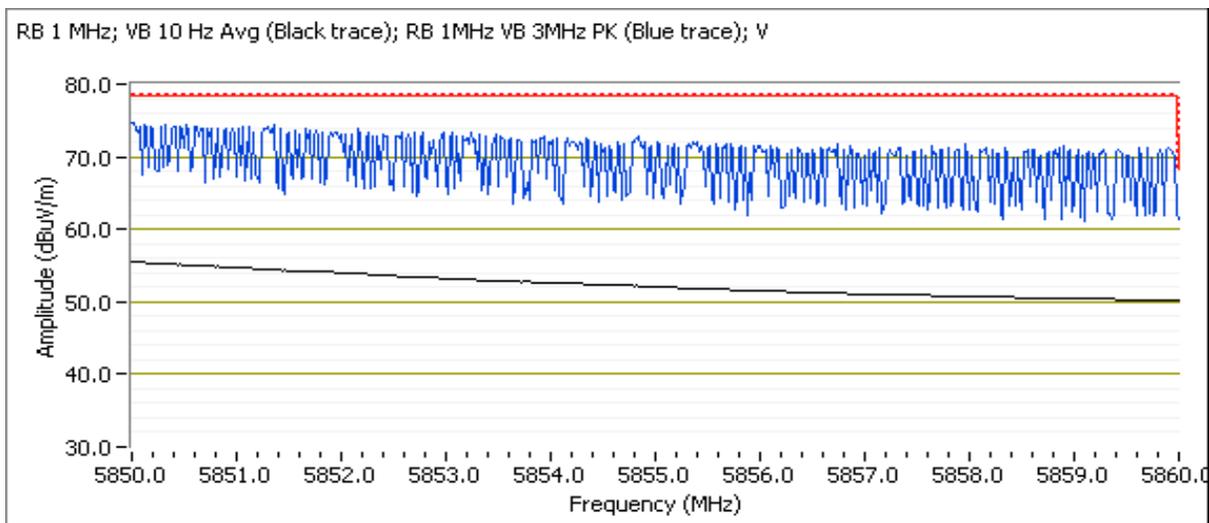


# EMC Test Data

Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
Contact: Tarandeep Kaur	Project Manager: Sheareen Jacobs
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator: Irene Rademacher
	Class: N/A

## 5850-5860 MHz Band Edge Signal Radiated Field Strength

Frequency	Level	Pol	15.E		Detector	Azimuth	Height	Comments
MHz	dB $\mu$ V/m	v/h	Limit	Margin	PK/QP/Avg	degrees	meters	
5850.920	74.9	V	78.3	-3.4	PK	195	1.1	POS; RB 1 MHz; VB: 3 MHz





# EMC Test Data

Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
Contact: Tarandeep Kaur	Project Manager: Sheareen Jacobs
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator: Irene Rademacher
	Class: N/A

## Run #9: Radiated Bandedge Measurements, 5150-5250MHz

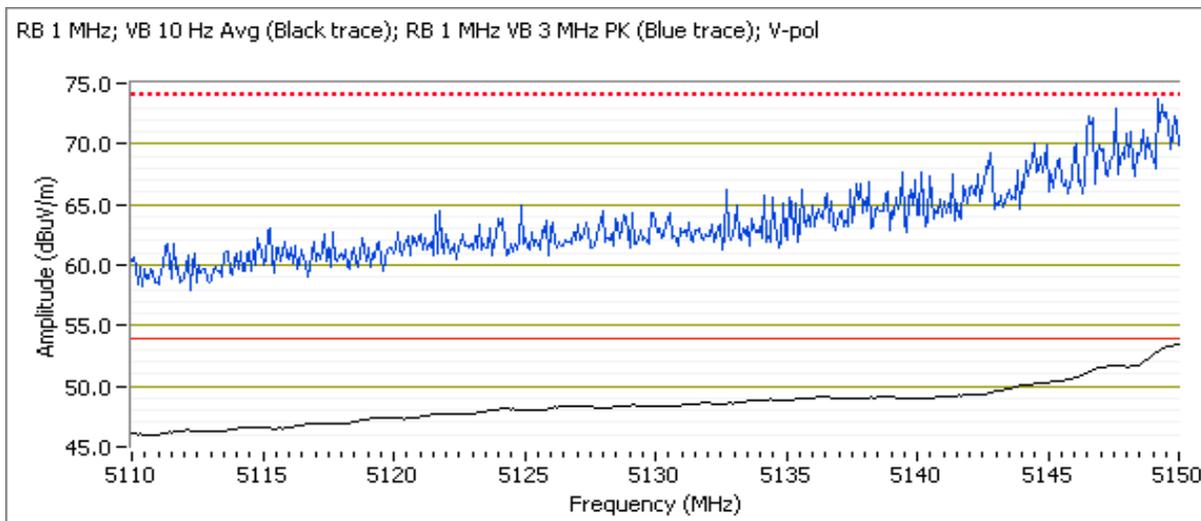
Date of Test: 7/15/2015 0:00  
 Test Engineer: Eddie Mariscal  
 Test Location: FT Chamber #5

Config. Used: 1  
 Config Change: none  
 EUT Voltage: USB

Channel: 36 - 5180 MHz  
 Tx Chain: 2Tx  
 Mode: n20  
 Data Rate: MCS0

### 5150 MHz Band Edge Signal Radiated Field Strength

Frequency MHz	Level dB $\mu$ V/m	Pol v/h	FCC 15.209		Detector Pk/QP/Avg	Azimuth degrees	Height meters	Comments
			Limit	Margin				
5149.830	74.0	V	74.0	0.0	PK	134	1.4	POS; RB 1 MHz; VB: 3 MHz
5149.790	53.4	V	54.0	-0.6	AVG	134	1.4	POS; RB 1 MHz; VB: 10 Hz
5149.110	49.9	H	54.0	-4.1	AVG	128	1.2	POS; RB 1 MHz; VB: 10 Hz
5148.180	70.2	H	74.0	-3.8	PK	128	1.2	POS; RB 1 MHz; VB: 3 MHz
5032.540	50.1	V	54.0	-3.9	AVG	135	1.5	POS; RB 1 MHz; VB: 10 Hz
5027.620	61.9	V	74.0	-12.1	PK	135	1.5	POS; RB 1 MHz; VB: 3 MHz





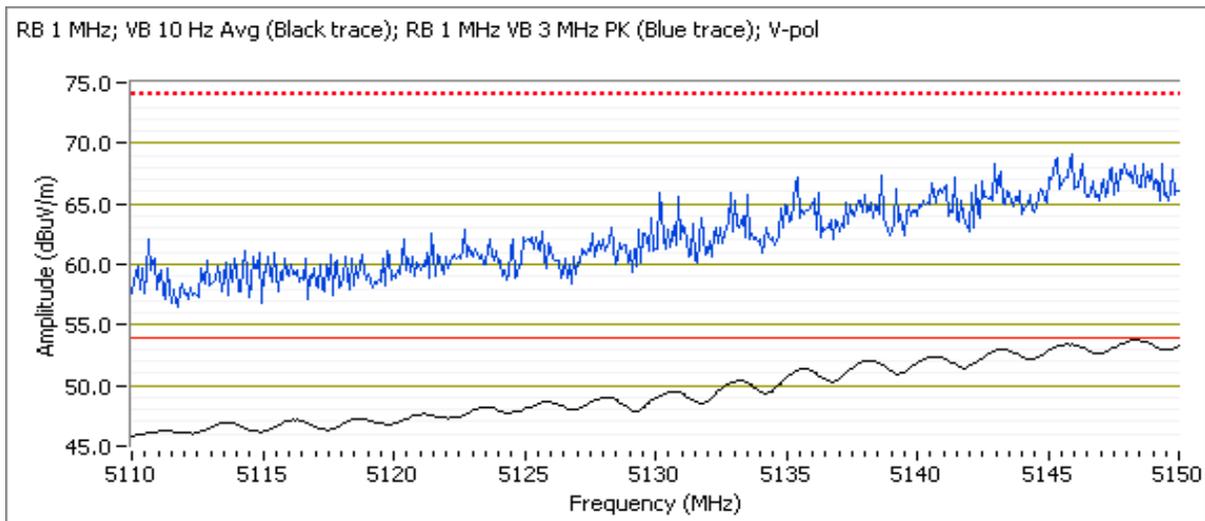
# EMC Test Data

Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
Contact: Tarandeep Kaur	Project Manager: Sheareen Jacobs
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator: Irene Rademacher
	Class: N/A

Channel: 40 - 5200 MHz  
 Tx Chain: 2Tx  
 Mode: n20  
 Data Rate:

### 5150 MHz Band Edge Signal Radiated Field Strength

Frequency	Level	Pol	FCC 15.209		Detector	Azimuth	Height	Comments
MHz	dB $\mu$ V/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5148.410	53.6	V	54.0	-0.4	AVG	177	1.7	POS; RB 1 MHz; VB: 10 Hz
5148.490	71.0	V	74.0	-3.0	PK	177	1.7	POS; RB 1 MHz; VB: 3 MHz
5148.340	50.5	H	54.0	-3.5	AVG	71	1.5	POS; RB 1 MHz; VB: 10 Hz
5148.060	67.0	H	74.0	-7.0	PK	71	1.5	POS; RB 1 MHz; VB: 3 MHz





# EMC Test Data

Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
Contact: Tarandeep Kaur	Project Manager: Sheareen Jacobs
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator: Irene Rademacher
	Class: N/A

## Run #10: Radiated Bandedge Measurements, 5250-5350MHz

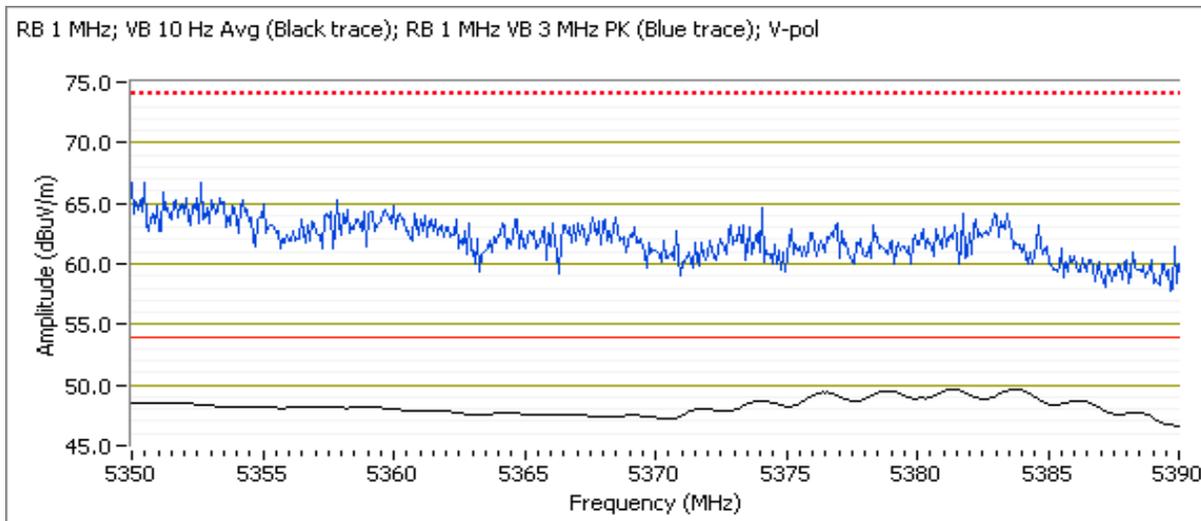
Date of Test: 7/15/2015 0:00  
 Test Engineer: Alika Hirano  
 Test Location: FT Chamber #5

Config. Used: 1  
 Config Change: None  
 EUT Voltage: USB

Channel: 60 - 5300MHz  
 Tx Chain: 2Tx  
 Mode: n20  
 Data Rate:

### 5350 MHz Band Edge Signal Radiated Field Strength

Frequency MHz	Level dB $\mu$ V/m	Pol v/h	FCC 15.209		Detector Pk/QP/Avg	Azimuth degrees	Height meters	Comments
			Limit	Margin				
5383.750	49.7	V	54.0	-4.3	AVG	175	1.5	POS; RB 1 MHz; VB: 10 Hz
5381.940	46.5	H	54.0	-7.5	AVG	133	1.2	POS; RB 1 MHz; VB: 10 Hz
5376.410	64.6	V	74.0	-9.4	PK	175	1.5	POS; RB 1 MHz; VB: 3 MHz
5378.820	59.8	H	74.0	-14.2	PK	133	1.2	POS; RB 1 MHz; VB: 3 MHz





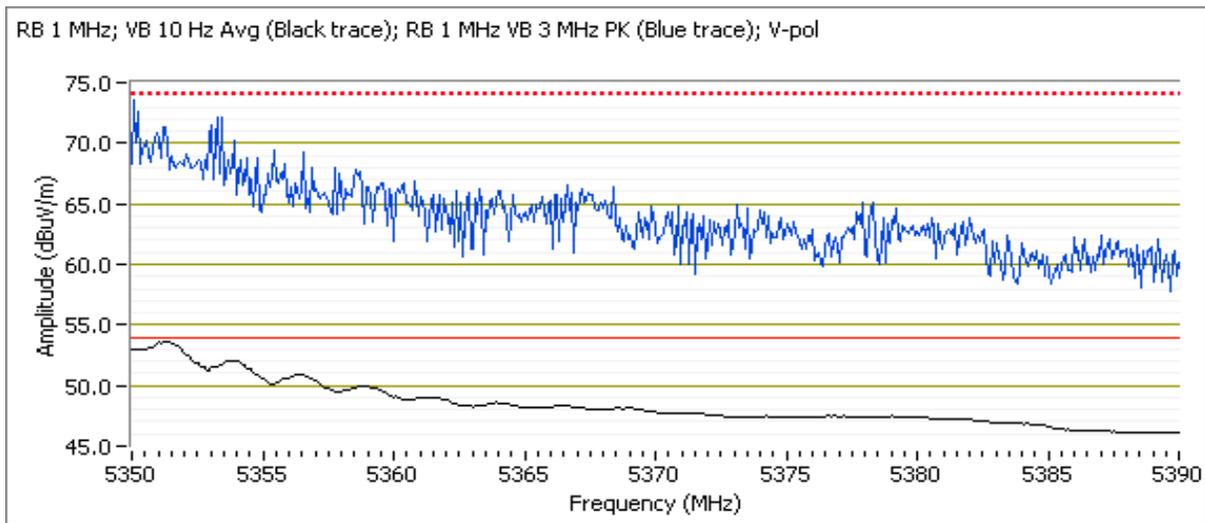
# EMC Test Data

Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
	Project Manager: Sheareen Jacobs
Contact: Tarandeep Kaur	Project Coordinator: Irene Rademacher
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Class: N/A

Channel: 64 - 5320MHz  
 Tx Chain: 2Tx  
 Mode: n20  
 Data Rate:

### 5350 MHz Band Edge Signal Radiated Field Strength

Frequency	Level	Pol	FCC 15.209		Detector	Azimuth	Height	Comments
MHz	dB $\mu$ V/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5351.440	53.5	V	54.0	-0.5	AVG	193	1.5	POS; RB 1 MHz; VB: 10 Hz
5350.650	72.4	V	74.0	-1.6	PK	193	1.5	POS; RB 1 MHz; VB: 3 MHz
5350.040	50.7	H	54.0	-3.3	AVG	134	1.5	POS; RB 1 MHz; VB: 10 Hz
5350.160	67.6	H	74.0	-6.4	PK	134	1.5	POS; RB 1 MHz; VB: 3 MHz





# EMC Test Data

Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
Contact: Tarandeep Kaur	Project Manager: Sheareen Jacobs
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator: Irene Rademacher
	Class: N/A

## Run #11: Radiated Bandedge Measurements, 5470-5725MHz

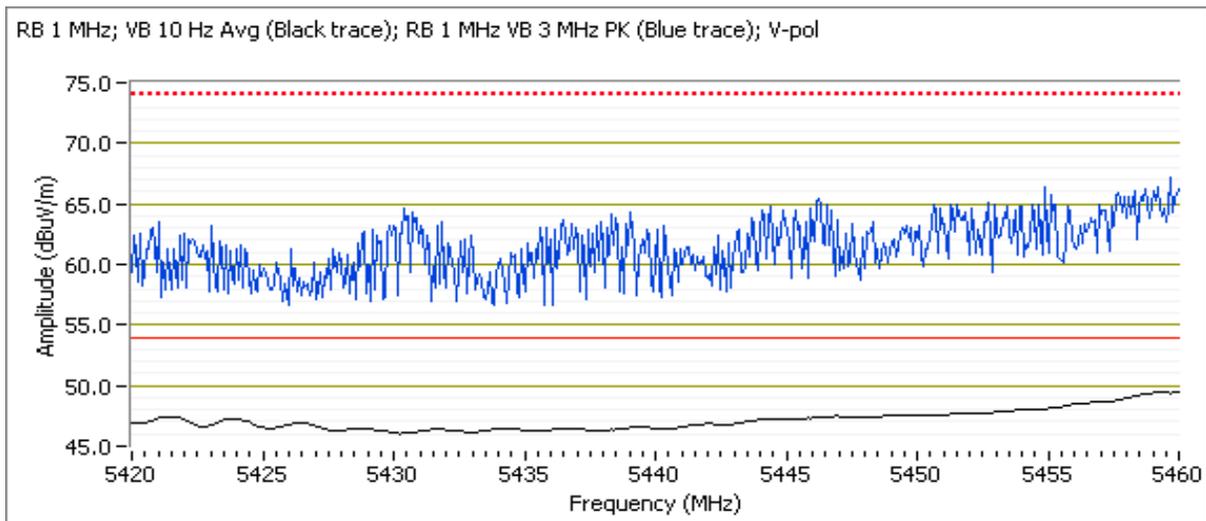
Date of Test: 7/15/2015 0:00  
 Test Engineer: Eddie Mariscal  
 Test Location: FT Chamber #5

Config. Used: 1  
 Config Change: None  
 EUT Voltage: USB

Channel: 100 - 5500MHz  
 Tx Chain: 2Tx  
 Mode: n20  
 Data Rate:

### 5460 MHz Band Edge Signal Radiated Field Strength

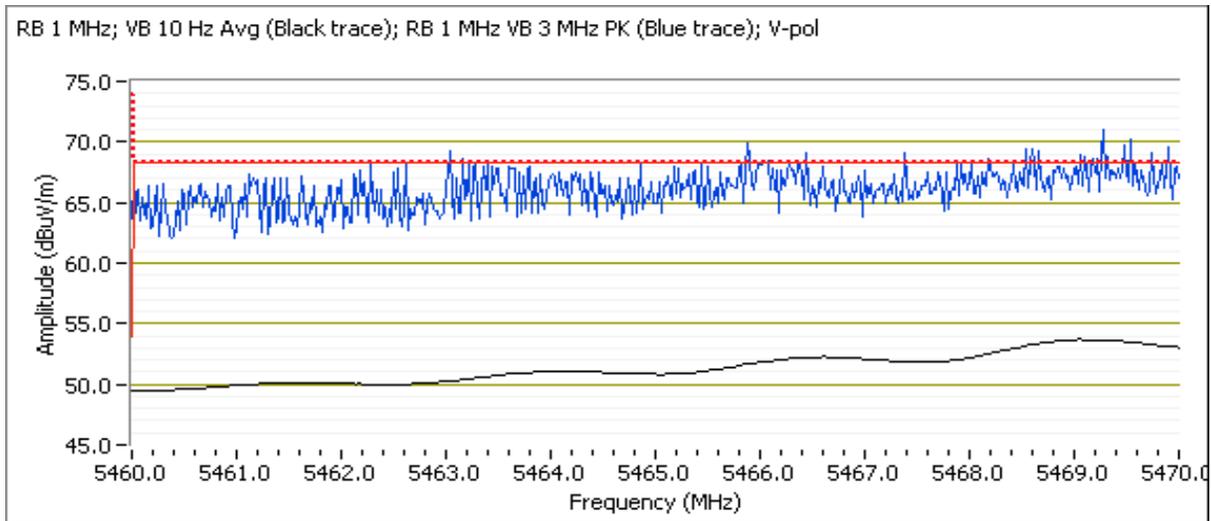
Frequency MHz	Level dB $\mu$ V/m	Pol v/h	FCC 15.209		Detector Pk/QP/Avg	Azimuth degrees	Height meters	Comments
			Limit	Margin				
5459.040	49.4	V	54.0	-4.6	AVG	188	1.8	POS; RB 1 MHz; VB: 10 Hz
5458.400	66.0	V	74.0	-8.0	PK	188	1.8	POS; RB 1 MHz; VB: 3 MHz
5460.000	46.9	H	54.0	-7.1	AVG	34	1.6	POS; RB 1 MHz; VB: 10 Hz
5458.320	62.5	H	74.0	-11.5	PK	34	1.6	POS; RB 1 MHz; VB: 3 MHz



Client:	Hewlett Packard Company	Job Number:	J98746
Model:	SDGOB-1505	T-Log Number:	T98753
Contact:	Tarandeep Kaur	Project Manager:	Sheareen Jacobs
Standard:	FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator:	Irene Rademacher
		Class:	N/A

### 5470 MHz Band Edge Signal Radiated Field Strength

Frequency MHz	Level dB $\mu$ V/m	Pol v/h	15.E		Detector Pk/QP/Avg	Azimuth degrees	Height meters	Comments
			Limit	Margin				
5469.280	53.8	V	54.0	-0.2	AVG	188	1.8	Note 1
5468.280	70.2	V	74.0	-3.8	PK	188	1.8	Note 1
5470.000	50.9	H	54.0	-3.1	AVG	34	1.6	Note 1
5467.210	66.8	H	74.0	-7.2	PK	34	1.6	Note 1





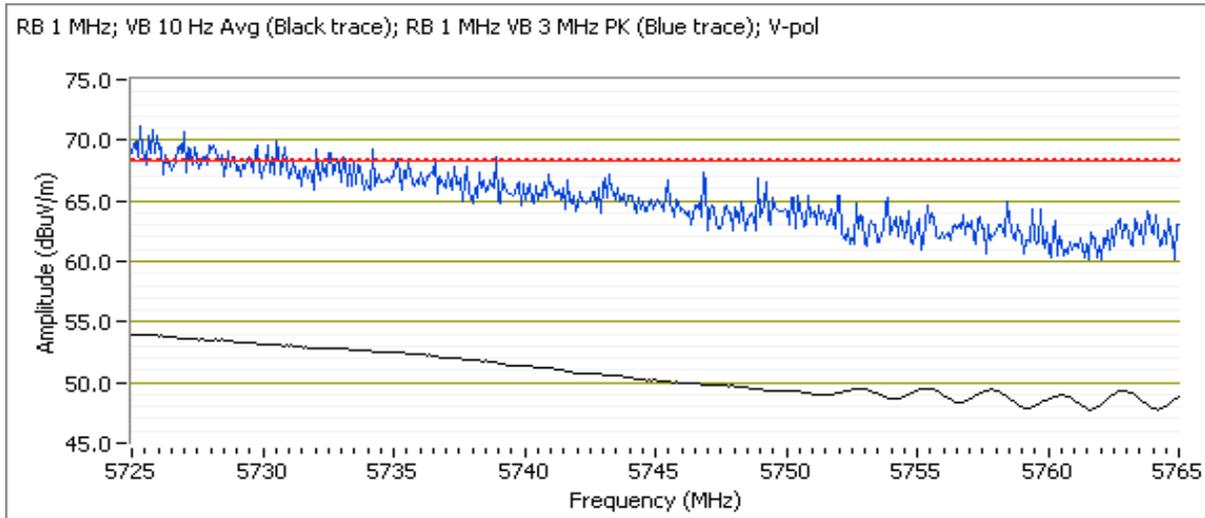
# EMC Test Data

Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
Contact: Tarandeep Kaur	Project Manager: Sheareen Jacobs
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator: Irene Rademacher
	Class: N/A

Channel: 136 - 5180MHz  
 Tx Chain: 2Tx  
 Mode: n20  
 Data Rate:

### 5725 MHz Band Edge Signal Radiated Field Strength

Frequency MHz	Level dB $\mu$ V/m	Pol v/h	15.E		Detector Pk/QP/Avg	Azimuth degrees	Height meters	Comments
			Limit	Margin				
5725.000	53.9	V	54.0	-0.1	AVG	140	1.3	POS; RB 1 MHz; VB: 10 Hz
5726.120	71.1	V	74.0	-2.9	PK	140	1.3	POS; RB 1 MHz; VB: 3 MHz
5725.080	50.3	H	54.0	-3.7	AVG	60	1.5	POS; RB 1 MHz; VB: 10 Hz
5726.540	68.3	H	74.0	-5.7	PK	60	1.5	POS; RB 1 MHz; VB: 3 MHz





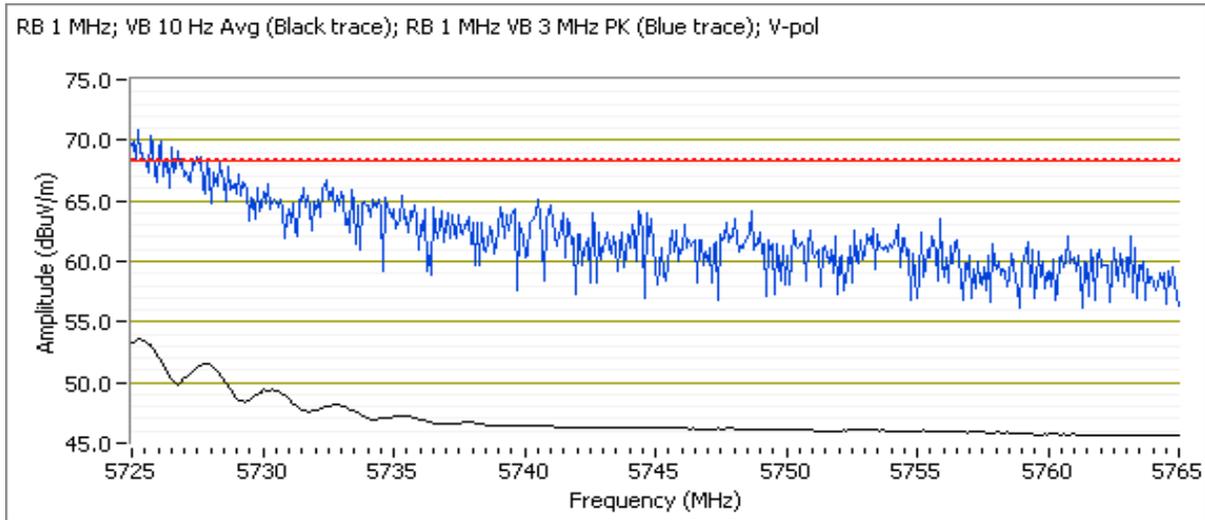
# EMC Test Data

Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
Contact: Tarandeep Kaur	Project Manager: Sheareen Jacobs
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator: Irene Rademacher
	Class: N/A

Channel: 140 - 5700MHz  
 Tx Chain: 2Tx  
 Mode: n20  
 Data Rate:

### 5725 MHz Band Edge Signal Radiated Field Strength

Frequency	Level	Pol	15.E		Detector	Azimuth	Height	Comments
MHz	dB $\mu$ V/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5725.120	53.5	V	54.0	-0.5	AVG	139	1.2	Note 1
5725.210	70.8	V	74.0	-3.2	PK	139	1.2	Note 1
5725.310	50.5	H	54.0	-3.5	AVG	139	1.7	Note 1
5725.510	66.9	H	74.0	-7.1	PK	139	1.7	Note 1





# EMC Test Data

Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
Contact: Tarandeep Kaur	Project Manager: Sheareen Jacobs
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator: Irene Rademacher
	Class: N/A

## Run #12: Radiated Bandedge Measurements, 5725-5850MHz

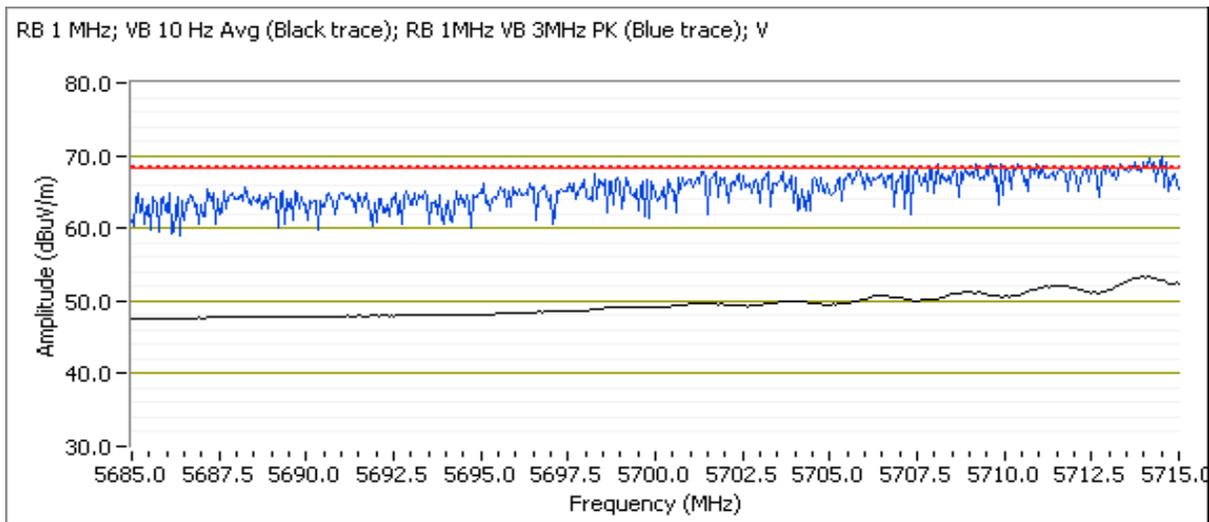
Date of Test: 7/22/2015 0:00  
 Test Engineer: Rafael Varelas  
 Test Location: FT Chamber #5

Config. Used: 1  
 Config Change: None  
 EUT Voltage: USB

Channel: 149 - 5745MHz  
 Tx Chain: 2Tx  
 Mode: n20  
 Data Rate: MCS0

### 5715 MHz Band Edge Signal Radiated Field Strength

Frequency	Level	Pol	15.E		Detector	Azimuth	Height	Comments
MHz	dB $\mu$ V/m	v/h	Limit	Margin	PK/QP/Avg	degrees	meters	
5713.980	53.7	V	54.0	-0.3	AVG	188	1.0	POS; RB 1 MHz; VB: 10 Hz
5713.620	70.6	V	74.0	-3.4	PK	188	1.0	POS; RB 1 MHz; VB: 3 MHz



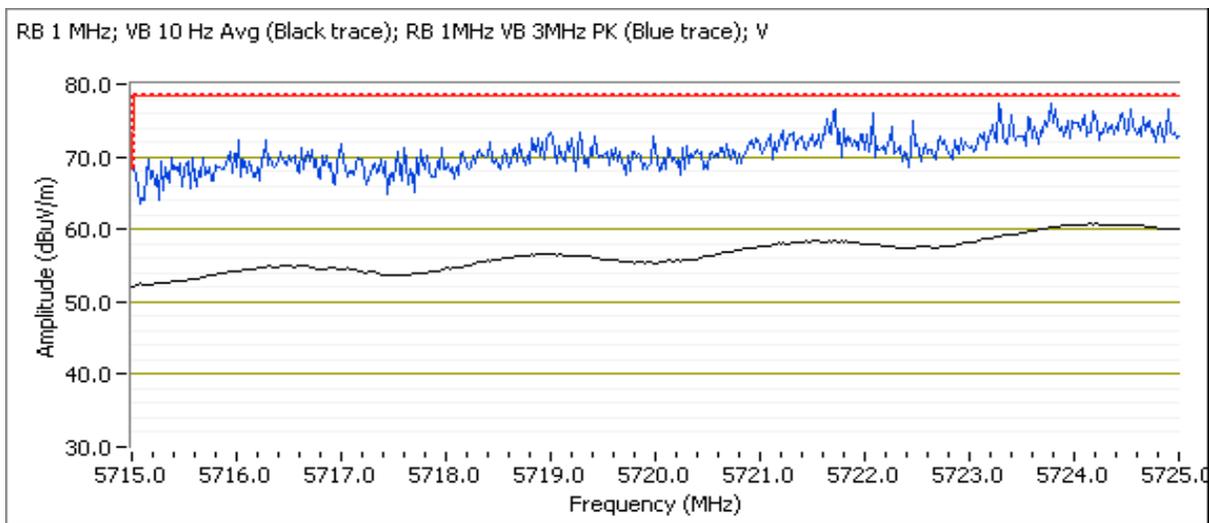


# EMC Test Data

Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
Contact: Tarandeep Kaur	Project Manager: Sheareen Jacobs
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator: Irene Rademacher
	Class: N/A

## 5715-5725 MHz Band Edge Signal Radiated Field Strength

Frequency	Level	Pol	15.E		Detector	Azimuth	Height	Comments
MHz	dB $\mu$ V/m	v/h	Limit	Margin	PK/QP/Avg	degrees	meters	
5724.540	77.9	V	78.3	-0.4	PK	188	1.0	POS; RB 1 MHz; VB: 3 MHz





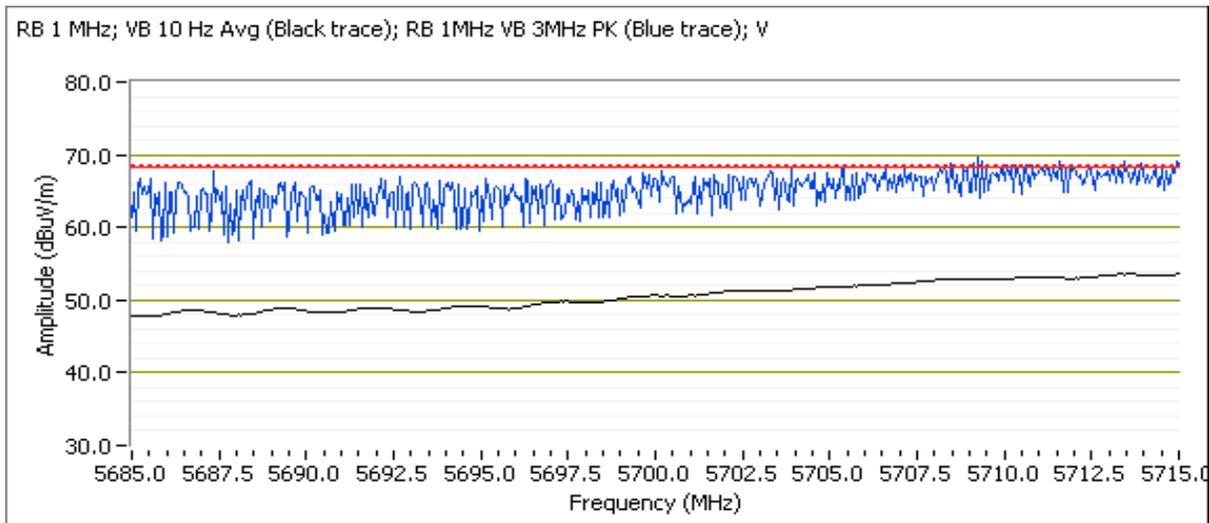
# EMC Test Data

Client:	Hewlett Packard Company	Job Number:	J98746
Model:	SDGOB-1505	T-Log Number:	T98753
Contact:	Tarandeep Kaur	Project Manager:	Sheareen Jacobs
Standard:	FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator:	Irene Rademacher
		Class:	N/A

Channel: 153 - 5765MHz  
 Tx Chain: 2Tx  
 Mode: n20  
 Data Rate: MCS0

### 5715 MHz Band Edge Signal Radiated Field Strength

Frequency	Level	Pol	15.E		Detector	Azimuth	Height	Comments
MHz	dB $\mu$ V/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5713.380	53.7	V	54.0	-0.3	AVG	193	1.0	POS; RB 1 MHz; VB: 10 Hz
5714.580	69.1	V	74.0	-4.9	PK	193	1.0	POS; RB 1 MHz; VB: 3 MHz



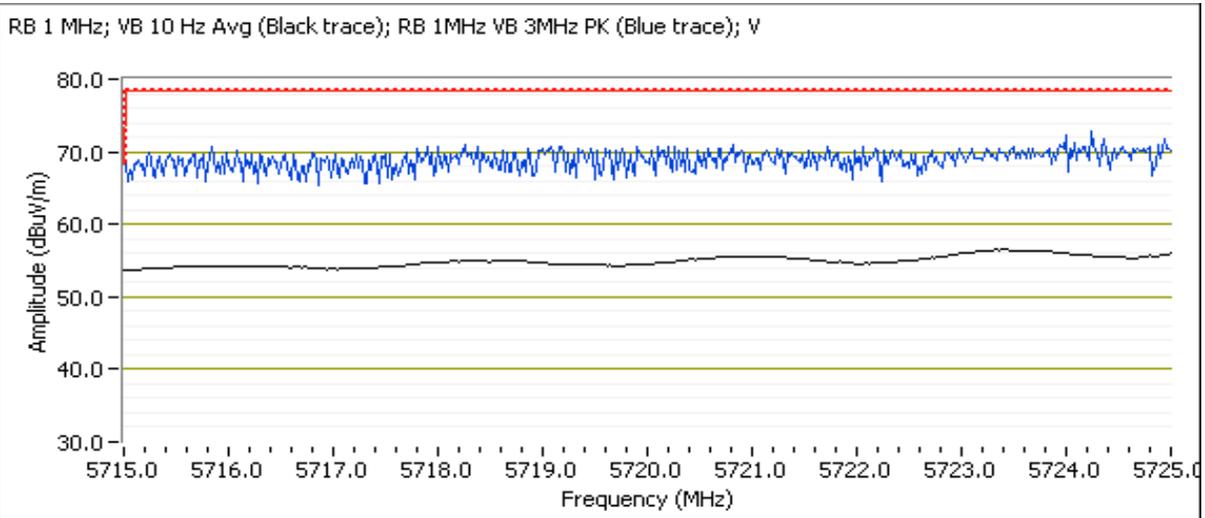


# EMC Test Data

Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
Contact: Tarandeep Kaur	Project Manager: Sheareen Jacobs
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator: Irene Rademacher
	Class: N/A

## 5715-5725 MHz Band Edge Signal Radiated Field Strength

Frequency	Level	Pol	15.E		Detector	Azimuth	Height	Comments
MHz	dB $\mu$ V/m	v/h	Limit	Margin	PK/QP/Avg	degrees	meters	
5723.240	73.6	V	78.3	-4.7	PK	193	1.0	POS; RB 1 MHz; VB: 3 MHz





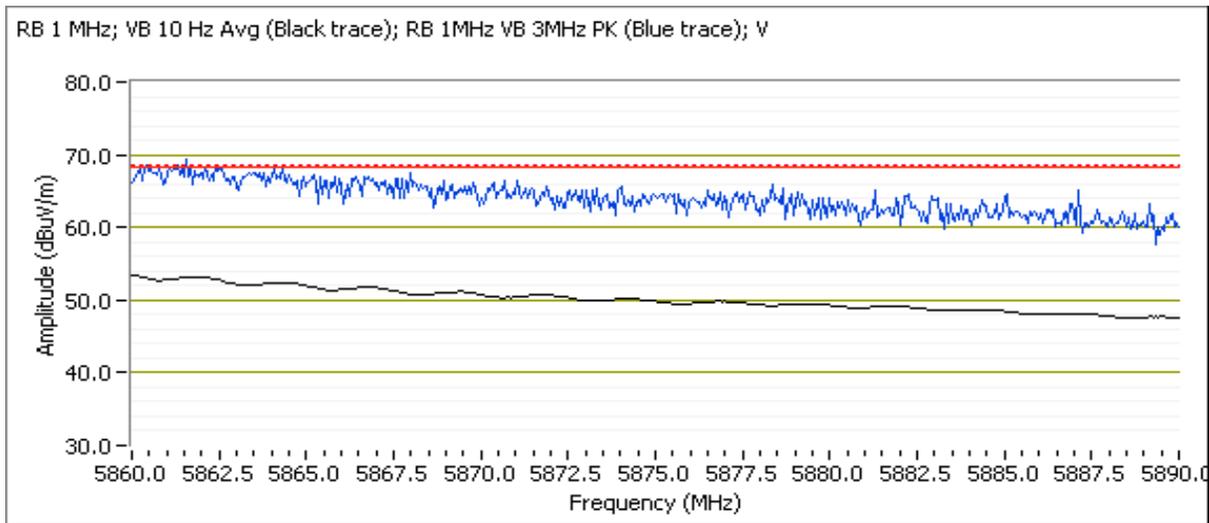
# EMC Test Data

Client:	Hewlett Packard Company	Job Number:	J98746
Model:	SDGOB-1505	T-Log Number:	T98753
Contact:	Tarandeep Kaur	Project Manager:	Sheareen Jacobs
Standard:	FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator:	Irene Rademacher
		Class:	N/A

Channel: 165 - 5825MHz  
 Tx Chain: 2Tx  
 Mode: n20  
 Data Rate: MCS0

### 5860 MHz Band Edge Signal Radiated Field Strength

Frequency	Level	Pol	15.E		Detector	Azimuth	Height	Comments
MHz	dB $\mu$ V/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5860.060	53.6	V	54.0	-0.4	AVG	193	2.1	POS; RB 1 MHz; VB: 10 Hz
5862.340	69.8	V	74.0	-4.2	PK	193	2.1	POS; RB 1 MHz; VB: 3 MHz



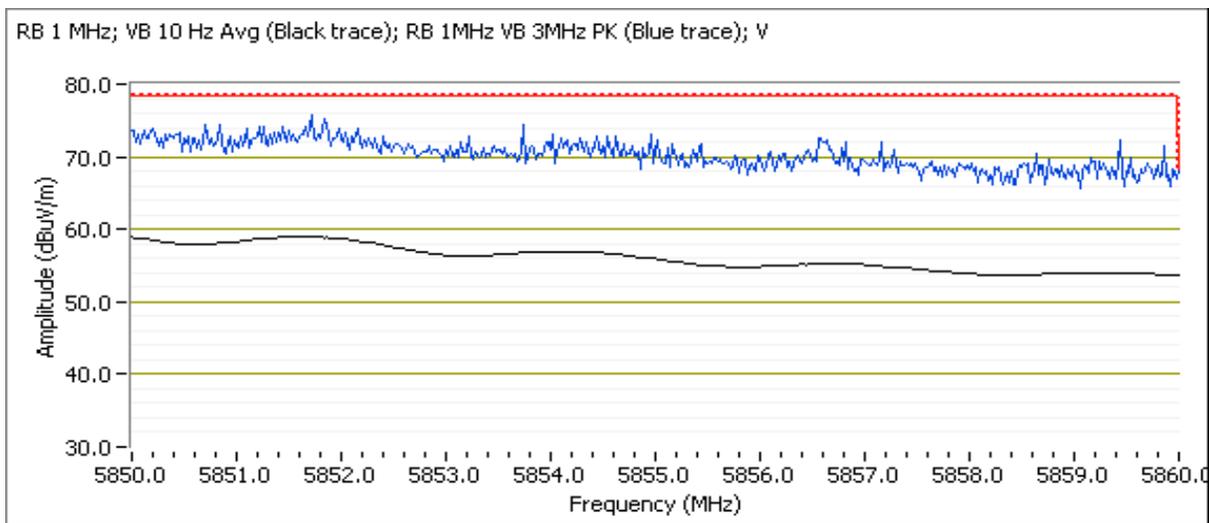


# EMC Test Data

Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
Contact: Tarandeep Kaur	Project Manager: Sheareen Jacobs
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator: Irene Rademacher
	Class: N/A

## 5850-5860 MHz Band Edge Signal Radiated Field Strength

Frequency	Level	Pol	15.E		Detector	Azimuth	Height	Comments
MHz	dB $\mu$ V/m	v/h	Limit	Margin	PK/QP/Avg	degrees	meters	
5855.090	75.3	V	78.3	-3.0	PK	193	2.1	POS; RB 1 MHz; VB: 3 MHz





# EMC Test Data

Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
Contact: Tarandeep Kaur	Project Manager: Sheareen Jacobs
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator: Irene Rademacher
	Class: N/A

## Run #13: Radiated Bandedge Measurements, 5150-5250MHz

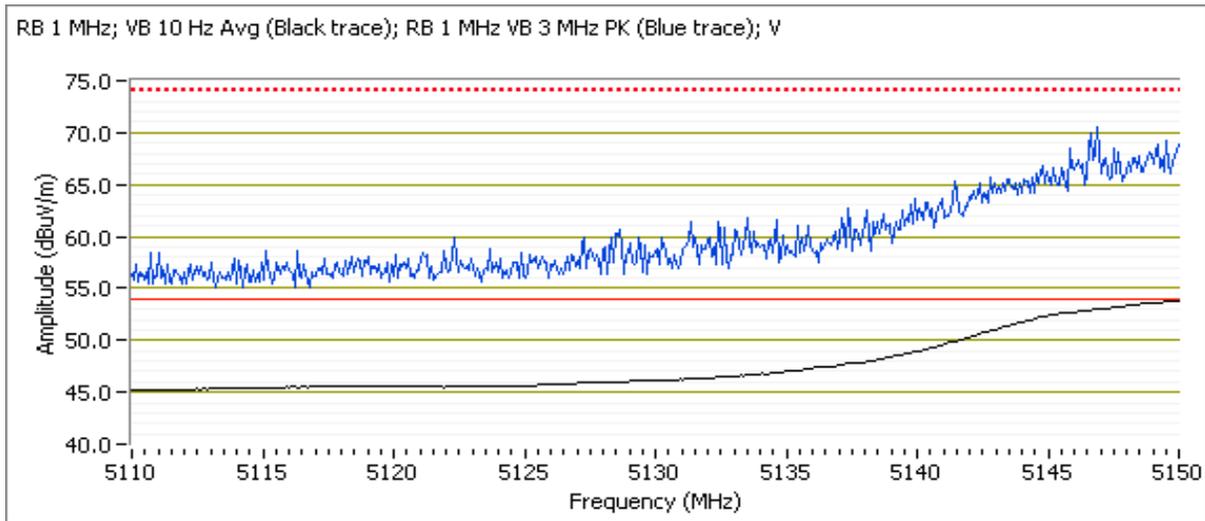
Date of Test: 7/15/2015 0:00  
 Test Engineer: Rafael Varelas  
 Test Location: FT Chamber #5

Config. Used: 1  
 Config Change: None  
 EUT Voltage: USB

Channel: 38 - 5190 MHz  
 Tx Chain: Main  
 Mode: n40  
 Data Rate: MCS0

### 5150 MHz Band Edge Signal Radiated Field Strength

Frequency MHz	Level dB $\mu$ V/m	Pol v/h	FCC 15.209		Detector Pk/QP/Avg	Azimuth degrees	Height meters	Comments
			Limit	Margin				
5150.000	53.7	V	54.0	-0.3	AVG	208	1.2	POS; RB 1 MHz; VB: 10 Hz
5149.360	71.4	V	74.0	-2.6	PK	208	1.2	POS; RB 1 MHz; VB: 3 MHz
5150.000	51.0	H	54.0	-3.0	AVG	74	1.4	POS; RB 1 MHz; VB: 10 Hz
5148.240	67.4	H	74.0	-6.6	PK	74	1.4	POS; RB 1 MHz; VB: 3 MHz





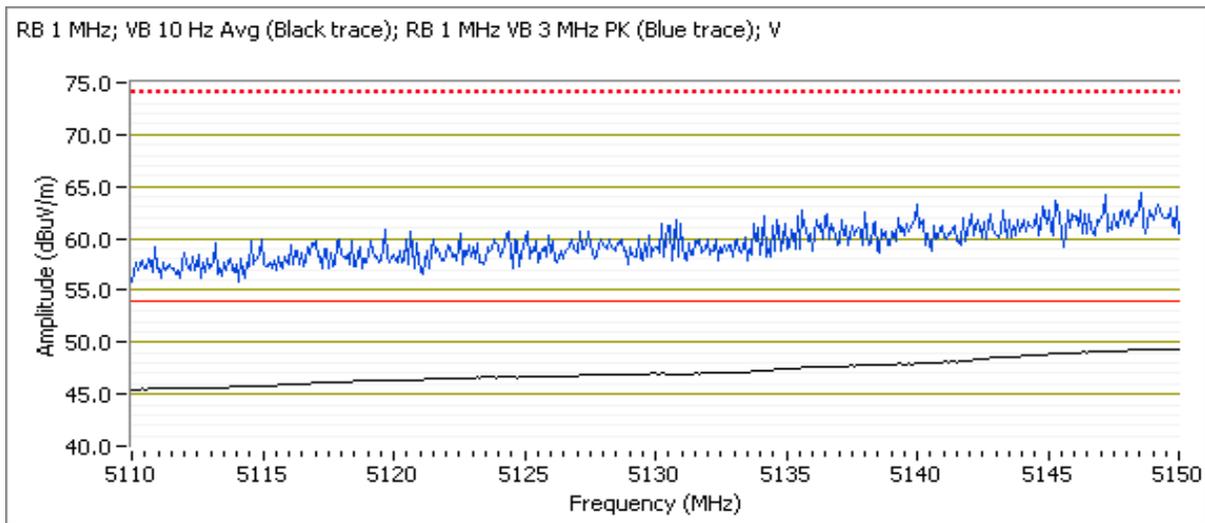
# EMC Test Data

Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
Contact: Tarandeep Kaur	Project Manager: Sheareen Jacobs
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator: Irene Rademacher
	Class: N/A

Channel: 46 - 5230 MHz  
 Tx Chain: Main  
 Mode: n40  
 Data Rate: MCS0

### 5150 MHz Band Edge Signal Radiated Field Strength

Frequency	Level	Pol	FCC 15.209		Detector	Azimuth	Height	Comments
MHz	dB $\mu$ V/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5148.560	49.3	V	54.0	-4.7	AVG	160	1.1	POS; RB 1 MHz; VB: 10 Hz
5143.030	63.7	V	74.0	-10.3	PK	160	1.1	POS; RB 1 MHz; VB: 3 MHz
5149.920	45.4	H	54.0	-8.6	AVG	56	2.5	POS; RB 1 MHz; VB: 10 Hz
5142.060	58.1	H	74.0	-15.9	PK	56	2.5	POS; RB 1 MHz; VB: 3 MHz





# EMC Test Data

Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
Contact: Tarandeep Kaur	Project Manager: Sheareen Jacobs
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator: Irene Rademacher
	Class: N/A

## Run #14: Radiated Bandedge Measurements, 5250-5350MHz

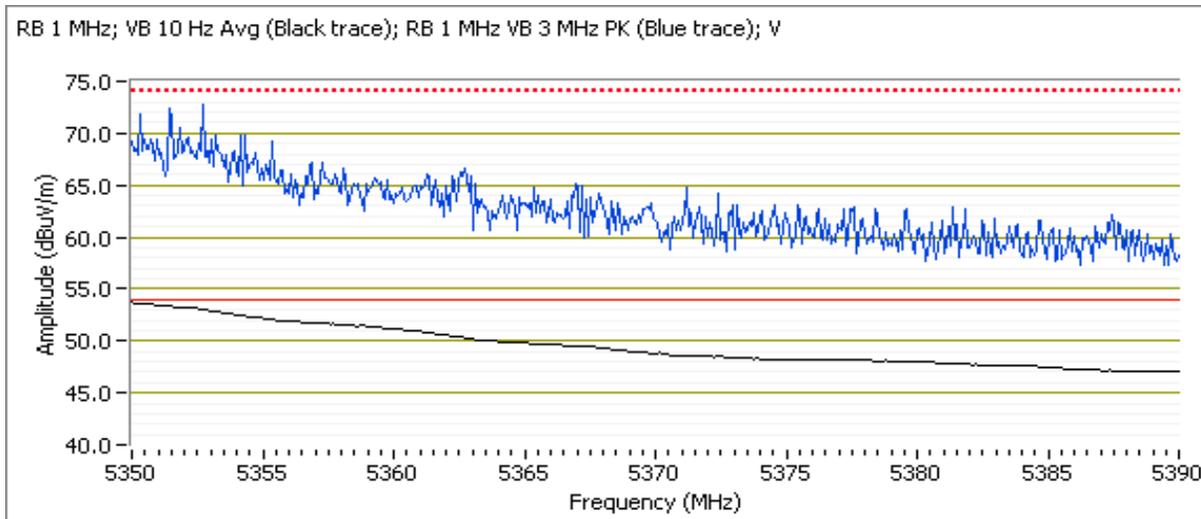
Date of Test: 7/15/2015 0:00  
 Test Engineer: Rafael Varelas  
 Test Location: FT Chamber #5

Config. Used: 1  
 Config Change: None  
 EUT Voltage: USB

Channel: 62 - 5310MHz  
 Tx Chain: Main  
 Mode: n40  
 Data Rate: MCS0

### 5350 MHz Band Edge Signal Radiated Field Strength

Frequency MHz	Level dB $\mu$ V/m	Pol v/h	FCC 15.209		Detector Pk/QP/Avg	Azimuth degrees	Height meters	Comments
			Limit	Margin				
5350.000	53.7	V	54.0	-0.3	AVG	174	1.0	POS; RB 1 MHz; VB: 10 Hz
5350.560	73.7	V	74.0	-0.3	PK	174	1.0	POS; RB 1 MHz; VB: 3 MHz
5350.000	50.2	H	54.0	-3.8	AVG	203	1.1	POS; RB 1 MHz; VB: 10 Hz
5350.320	68.9	H	74.0	-5.1	PK	203	1.1	POS; RB 1 MHz; VB: 3 MHz





# EMC Test Data

Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
Contact: Tarandeep Kaur	Project Manager: Sheareen Jacobs
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator: Irene Rademacher
	Class: N/A

## Run #15: Radiated Bandedge Measurements, 5470-5725MHz

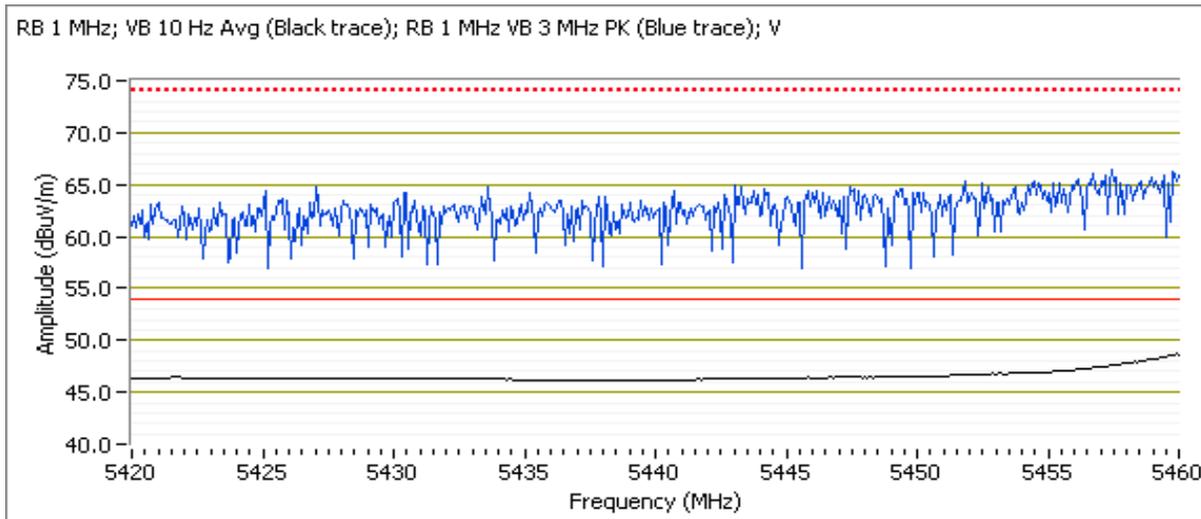
Date of Test: 7/15/2015 0:00  
 Test Engineer: Rafael Varelas  
 Test Location: FT Chamber #5

Config. Used: 1  
 Config Change: None  
 EUT Voltage: USB

Channel: 102 - 5510MHz  
 Tx Chain: Main  
 Mode: n40  
 Data Rate: MCS0

### 5460 MHz Band Edge Signal Radiated Field Strength

Frequency	Level	Pol	FCC 15.209		Detector	Azimuth	Height	Comments
MHz	dB $\mu$ V/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5459.920	48.7	V	54.0	-5.3	AVG	170	1.3	POS; RB 1 MHz; VB: 10 Hz
5441.640	67.3	V	74.0	-6.7	PK	170	1.3	POS; RB 1 MHz; VB: 3 MHz
5460.000	45.7	H	54.0	-8.3	AVG	74	1.2	POS; RB 1 MHz; VB: 10 Hz
5456.870	59.9	H	74.0	-14.1	PK	74	1.2	POS; RB 1 MHz; VB: 3 MHz





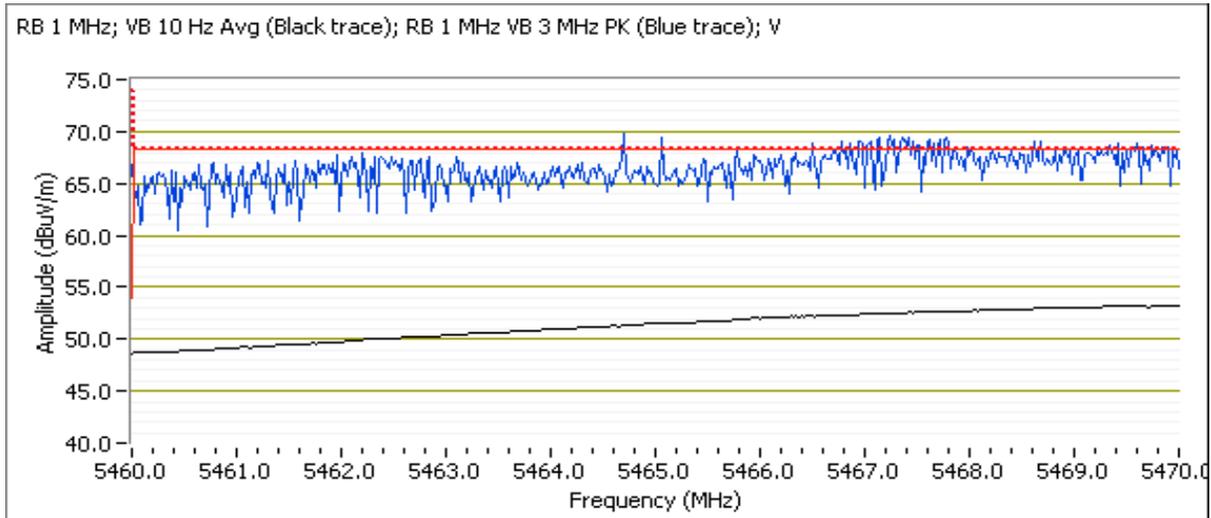
# EMC Test Data

Client:	Hewlett Packard Company	Job Number:	J98746
Model:	SDGOB-1505	T-Log Number:	T98753
Contact:	Tarandeep Kaur	Project Manager:	Sheareen Jacobs
Standard:	FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator:	Irene Rademacher
		Class:	N/A

## 5470 MHz Band Edge Signal Radiated Field Strength

Frequency MHz	Level dB $\mu$ V/m	Pol v/h	15.E		Detector Pk/QP/Avg	Azimuth degrees	Height meters	Comments
			Limit	Margin				
5469.860	53.3	V	54.0	-0.7	AVG	170	1.3	Note 1, POS; RB 1 MHz; VB: 10 Hz
5462.280	70.4	V	74.0	-3.6	PK	170	1.3	Note 1, POS; RB 1 MHz; VB: 3 MHz
5469.980	49.5	H	54.0	-4.5	AVG	74	1.2	Note 1, POS; RB 1 MHz; VB: 10 Hz
5469.060	65.5	H	74.0	-8.5	PK	74	1.2	Note 1, POS; RB 1 MHz; VB: 3 MHz

RB 1 MHz; VB 10 Hz Avg (Black trace); RB 1 MHz VB 3 MHz PK (Blue trace); V





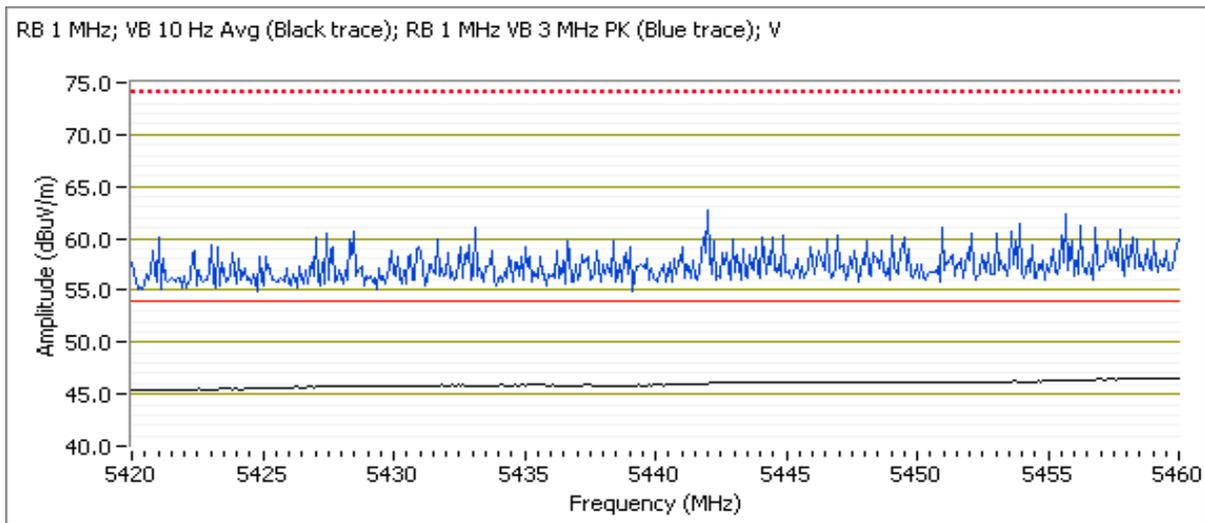
# EMC Test Data

Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
	Project Manager: Sheareen Jacobs
Contact: Tarandeep Kaur	Project Coordinator: Irene Rademacher
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Class: N/A

Channel: 110 - 5550MHz  
 Tx Chain: Main  
 Mode: n40  
 Data Rate: MCS0

### 5460 MHz Band Edge Signal Radiated Field Strength

Frequency	Level	Pol	FCC 15.209		Detector	Azimuth	Height	Comments
MHz	dB $\mu$ V/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5458.240	46.6	V	54.0	-7.4	AVG	165	2.1	POS; RB 1 MHz; VB: 10 Hz
5430.420	61.3	V	74.0	-12.7	PK	165	2.1	POS; RB 1 MHz; VB: 3 MHz
5459.440	44.7	H	54.0	-9.3	AVG	58	1.0	POS; RB 1 MHz; VB: 10 Hz
5446.610	56.2	H	74.0	-17.8	PK	58	1.0	POS; RB 1 MHz; VB: 3 MHz





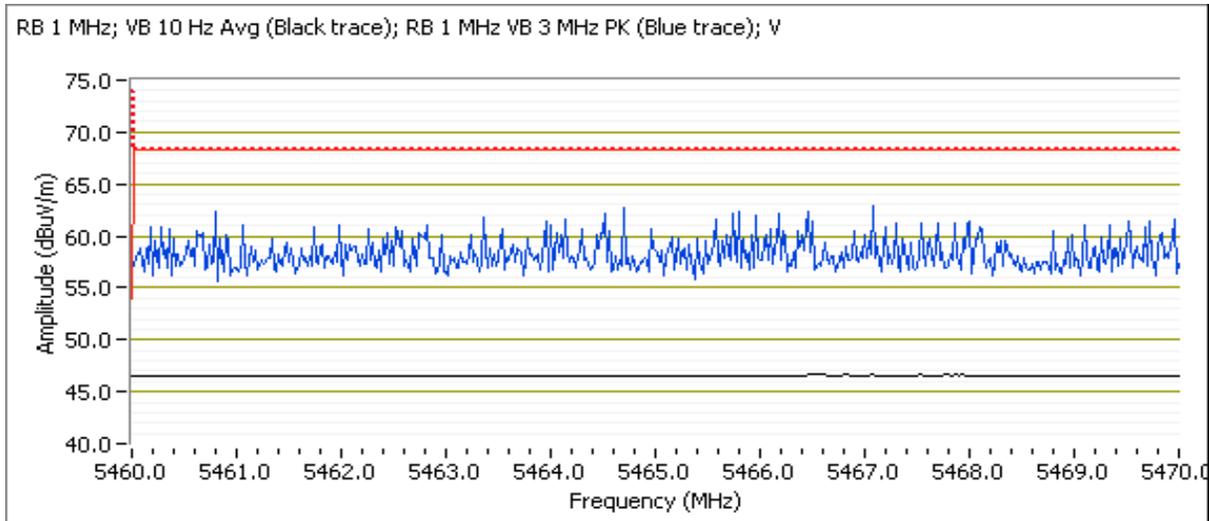
# EMC Test Data

Client:	Hewlett Packard Company	Job Number:	J98746
Model:	SDGOB-1505	T-Log Number:	T98753
Contact:	Tarandeep Kaur	Project Manager:	Sheareen Jacobs
Standard:	FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator:	Irene Rademacher
		Class:	N/A

### 5470 MHz Band Edge Signal Radiated Field Strength

Frequency MHz	Level dB $\mu$ V/m	Pol v/h	15.E		Detector Pk/QP/Avg	Azimuth degrees	Height meters	Comments
			Limit	Margin				
5465.790	46.7	V	54.0	-7.3	AVG	165	2.1	Note 1,POS; RB 1 MHz; VB: 10 Hz
5467.210	62.4	V	74.0	-11.6	PK	165	2.1	Note 1, POS; RB 1 MHz; VB: 3 MHz
5467.210	62.4	V	68.3	-5.9	PK	165	2.1	POS; RB 1 MHz; VB: 3 MHz
5464.790	45.0	H	54.0	-9.0	AVG	58	1.0	Note 1,POS; RB 1 MHz; VB: 10 Hz
5468.480	57.8	H	74.0	-16.2	PK	58	1.0	Note 1, POS; RB 1 MHz; VB: 3 MHz
5468.480	57.8	H	68.3	-10.5	PK	58	1.0	POS; RB 1 MHz; VB: 3 MHz

RB 1 MHz; VB 10 Hz Avg (Black trace); RB 1 MHz VB 3 MHz PK (Blue trace); V





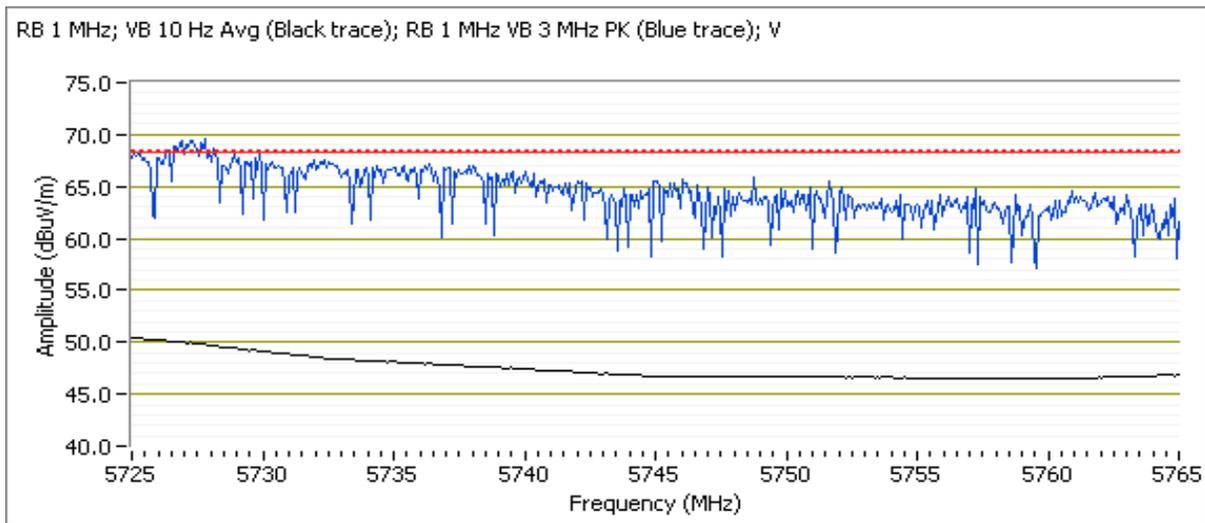
# EMC Test Data

Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
Contact: Tarandeep Kaur	Project Manager: Sheareen Jacobs
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator: Irene Rademacher
	Class: N/A

Channel: 134 - 5670MHz  
 Tx Chain: Main  
 Mode: n40  
 Data Rate: MCS0

### 5725 MHz Band Edge Signal Radiated Field Strength

Frequency	Level	Pol	15.E		Detector	Azimuth	Height	Comments
MHz	dB $\mu$ V/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5725.000	50.4	V	54.0	-3.6	AVG	163	1.2	Note 1, POS; RB 1 MHz; VB: 10 Hz
5729.330	69.4	V	74.0	-4.6	PK	163	1.2	Note 1, POS; RB 1 MHz; VB: 3 MHz
5725.160	46.6	H	54.0	-7.4	AVG	215	1.4	Note 1, POS; RB 1 MHz; VB: 10 Hz
5728.770	63.2	H	74.0	-10.8	PK	215	1.4	Note 1, POS; RB 1 MHz; VB: 3 MHz





# EMC Test Data

Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
Contact: Tarandeep Kaur	Project Manager: Sheareen Jacobs
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator: Irene Rademacher
	Class: N/A

## Run #16: Radiated Bandedge Measurements, 5725-5850MHz

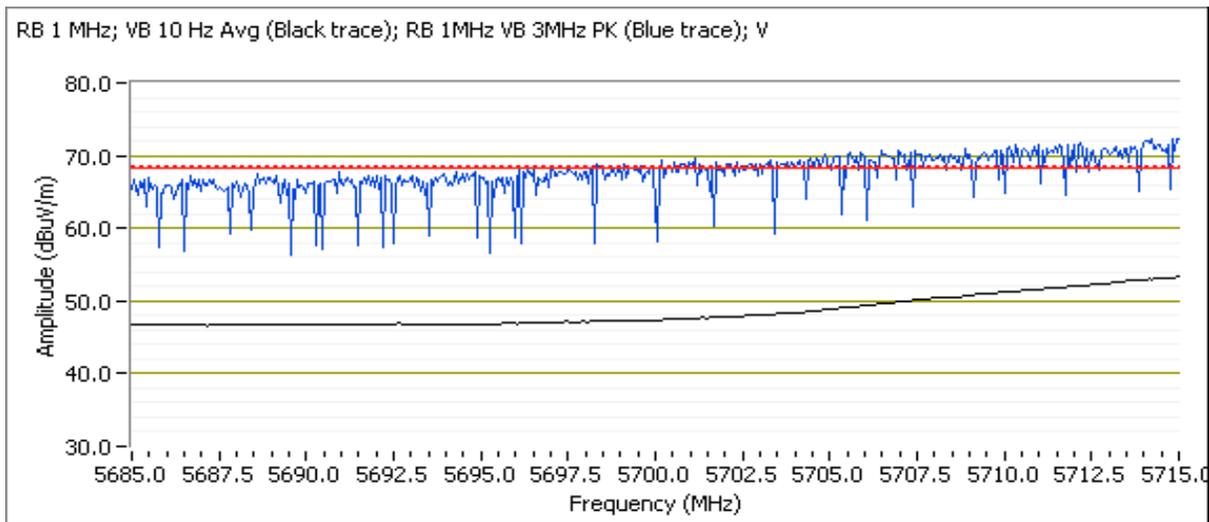
Date of Test: 7/22/2015 0:00  
 Test Engineer: Rafael Varelas  
 Test Location: FT Chamber #5

Config. Used: 1  
 Config Change: None  
 EUT Voltage: USB

Channel: 151 - 5755MHz  
 Tx Chain: Main  
 Mode: n40  
 Data Rate: MCS0

### 5715 MHz Band Edge Signal Radiated Field Strength

Frequency	Level	Pol	15.E		Detector	Azimuth	Height	Comments
MHz	dB $\mu$ V/m	v/h	Limit	Margin	PK/QP/Avg	degrees	meters	
5715.000	53.3	V	54.0	-0.7	AVG	192	1.0	POS; RB 1 MHz; VB: 10 Hz
5708.270	72.6	V	74.0	-1.4	PK	192	1.0	POS; RB 1 MHz; VB: 3 MHz



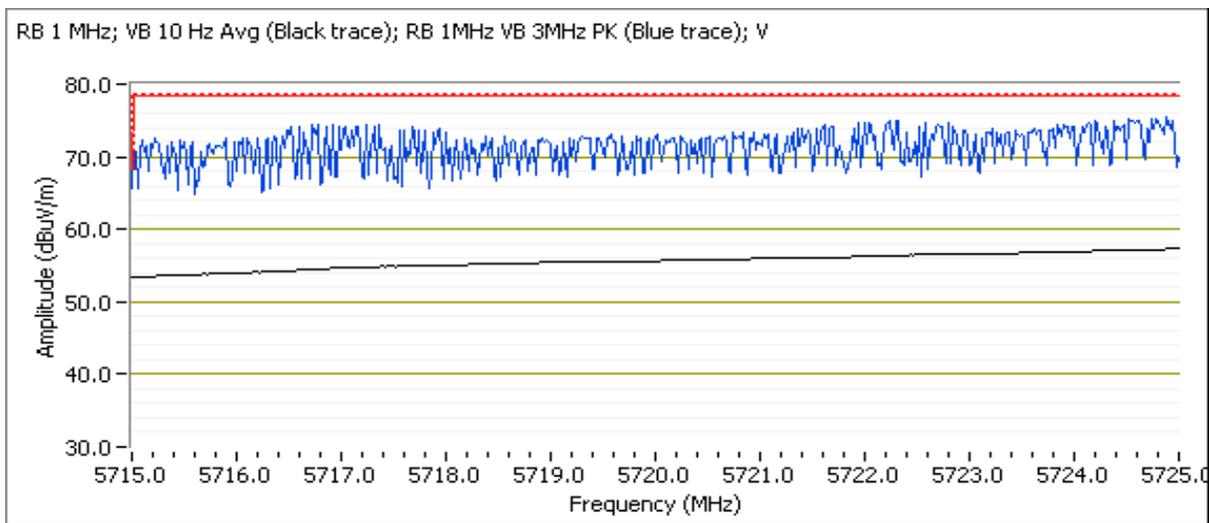


# EMC Test Data

Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
Contact: Tarandeep Kaur	Project Manager: Sheareen Jacobs
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator: Irene Rademacher
	Class: N/A

## 5715-5725 MHz Band Edge Signal Radiated Field Strength

Frequency	Level	Pol	15.E		Detector	Azimuth	Height	Comments
MHz	dB $\mu$ V/m	v/h	Limit	Margin	PK/QP/Avg	degrees	meters	
5723.900	75.6	V	78.3	-2.7	PK	192	1.0	POS; RB 1 MHz; VB: 3 MHz





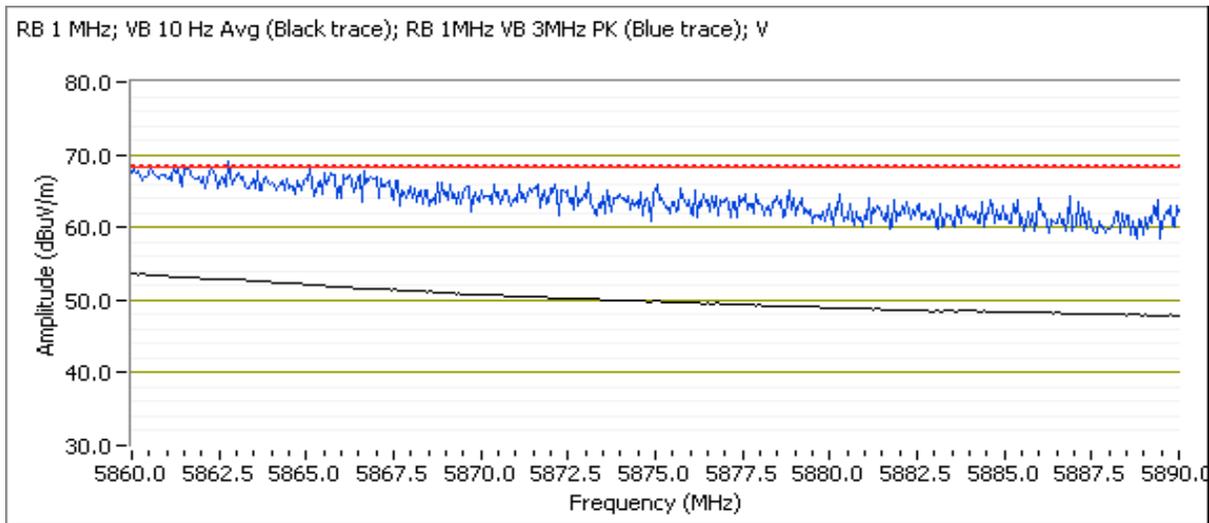
# EMC Test Data

Client:	Hewlett Packard Company	Job Number:	J98746
Model:	SDGOB-1505	T-Log Number:	T98753
Contact:	Tarandeep Kaur	Project Manager:	Sheareen Jacobs
Standard:	FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator:	Irene Rademacher
		Class:	N/A

Channel: 159 - 5795MHz  
 Tx Chain: Main  
 Mode: n40  
 Data Rate: MCS0

### 5860 MHz Band Edge Signal Radiated Field Strength

Frequency	Level	Pol	15.E		Detector	Azimuth	Height	Comments
MHz	dB $\mu$ V/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5860.120	53.7	V	54.0	-0.3	AVG	201	1.1	POS; RB 1 MHz; VB: 10 Hz
5866.250	69.0	V	74.0	-5.0	PK	201	1.1	POS; RB 1 MHz; VB: 3 MHz



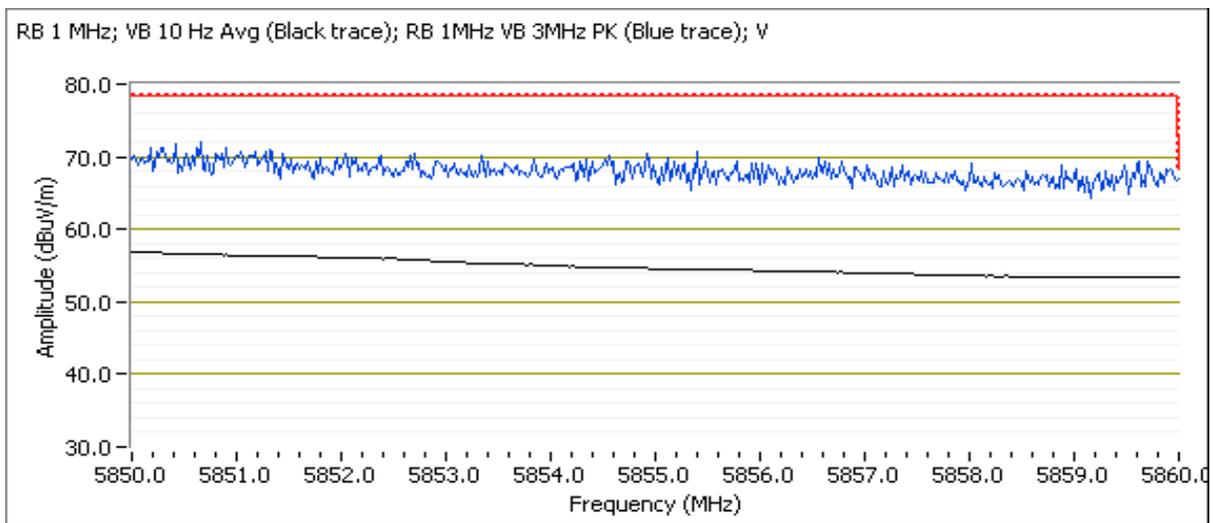


# EMC Test Data

Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
Contact: Tarandeep Kaur	Project Manager: Sheareen Jacobs
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator: Irene Rademacher
	Class: N/A

## 5850-5860 MHz Band Edge Signal Radiated Field Strength

Frequency	Level	Pol	15.E		Detector	Azimuth	Height	Comments
MHz	dB $\mu$ V/m	v/h	Limit	Margin	PK/QP/Avg	degrees	meters	
5851.000	72.1	V	78.3	-6.2	PK	201	1.1	POS; RB 1 MHz; VB: 3 MHz





# EMC Test Data

Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
Contact: Tarandeep Kaur	Project Manager: Sheareen Jacobs
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator: Irene Rademacher
	Class: N/A

## Run #17: Radiated Bandedge Measurements, 5150-5250MHz

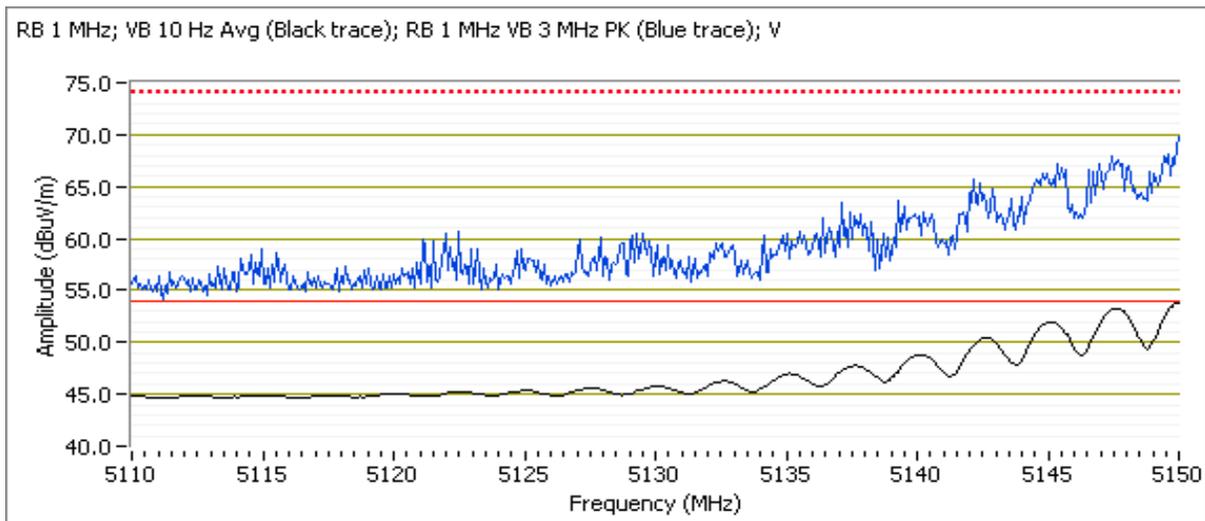
Date of Test: 7/15/2015 0:00  
 Test Engineer: Rafael Varelas  
 Test Location: FT Chamber #5

Config. Used: 1  
 Config Change: None  
 EUT Voltage: USB

Channel: 38 - 5190 MHz  
 Tx Chain: 2Tx  
 Mode: n40  
 Data Rate: MCS0

### 5150 MHz Band Edge Signal Radiated Field Strength

Frequency MHz	Level dB $\mu$ V/m	Pol v/h	FCC 15.209		Detector Pk/QP/Avg	Azimuth degrees	Height meters	Comments
			Limit	Margin				
5150.000	53.7	V	54.0	-0.3	AVG	214	1.0	POS; RB 1 MHz; VB: 10 Hz
5147.840	70.9	V	74.0	-3.1	PK	214	1.0	POS; RB 1 MHz; VB: 3 MHz
5149.520	50.9	H	54.0	-3.1	AVG	134	1.4	POS; RB 1 MHz; VB: 10 Hz
5149.120	65.8	H	74.0	-8.2	PK	134	1.4	POS; RB 1 MHz; VB: 3 MHz





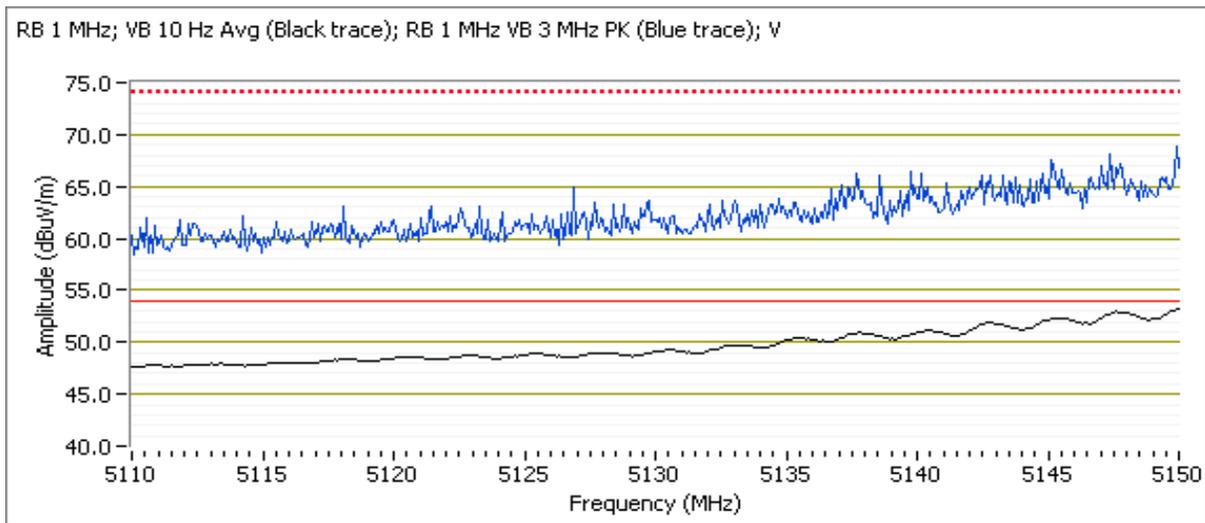
# EMC Test Data

Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
Contact: Tarandeep Kaur	Project Manager: Sheareen Jacobs
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator: Irene Rademacher
	Class: N/A

Channel: 46 - 5230 MHz  
 Tx Chain: 2Tx  
 Mode: n40  
 Data Rate: MCS0

### 5150 MHz Band Edge Signal Radiated Field Strength

Frequency	Level	Pol	FCC 15.209		Detector	Azimuth	Height	Comments
MHz	dB $\mu$ V/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5149.920	52.7	V	54.0	-1.3	AVG	212	1.0	POS; RB 1 MHz; VB: 10 Hz
5144.630	67.8	V	74.0	-6.2	PK	212	1.0	POS; RB 1 MHz; VB: 3 MHz
5148.480	49.1	H	54.0	-4.9	AVG	23	1.0	POS; RB 1 MHz; VB: 10 Hz
5146.310	62.5	H	74.0	-11.5	PK	23	1.0	POS; RB 1 MHz; VB: 3 MHz





# EMC Test Data

Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
Contact: Tarandeep Kaur	Project Manager: Sheareen Jacobs
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator: Irene Rademacher
	Class: N/A

## Run #18: Radiated Bandedge Measurements, 5250-5350MHz

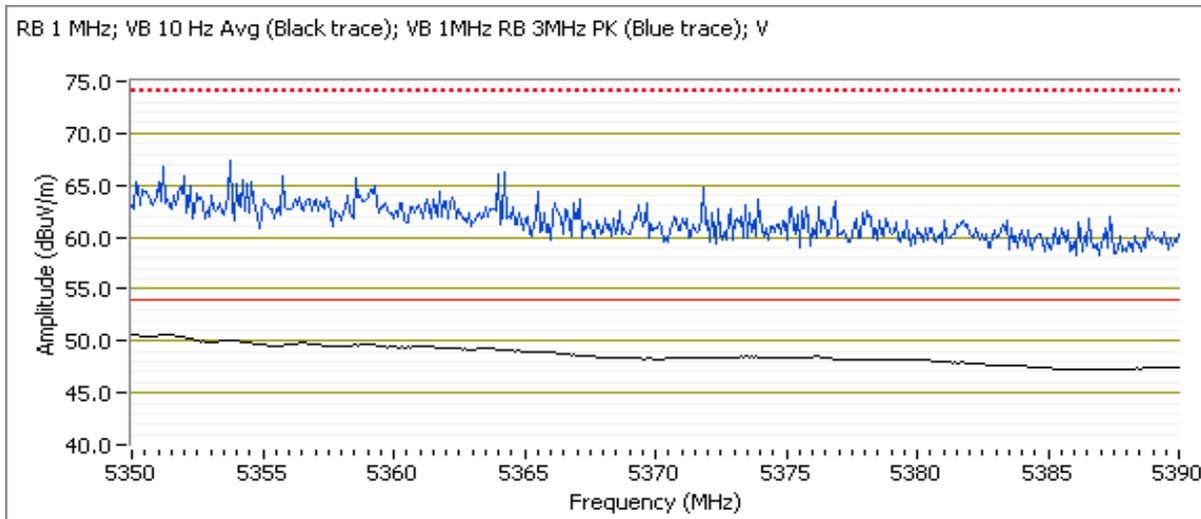
Date of Test: 7/15/2015 0:00  
 Test Engineer: Rafael Varelas  
 Test Location: FT Chamber #5

Config. Used: 1  
 Config Change: None  
 EUT Voltage: USB

Channel: 54 - 5270MHz  
 Tx Chain: 2Tx  
 Mode: n40  
 Data Rate: MCS0

### 5460 MHz Band Edge Signal Radiated Field Strength

Frequency MHz	Level dB $\mu$ V/m	Pol v/h	FCC 15.209		Detector Pk/QP/Avg	Azimuth degrees	Height meters	Comments
			Limit	Margin				
5350.000	50.3	V	54.0	-3.7	AVG	232	1.0	POS; RB 1 MHz; VB: 10 Hz
5356.890	67.5	V	74.0	-6.5	PK	232	1.0	POS; RB 1 MHz; VB: 3 MHz
5350.160	49.5	H	54.0	-4.5	AVG	49	1.3	POS; RB 1 MHz; VB: 10 Hz
5353.690	63.7	H	74.0	-10.3	PK	49	1.3	POS; RB 1 MHz; VB: 3 MHz





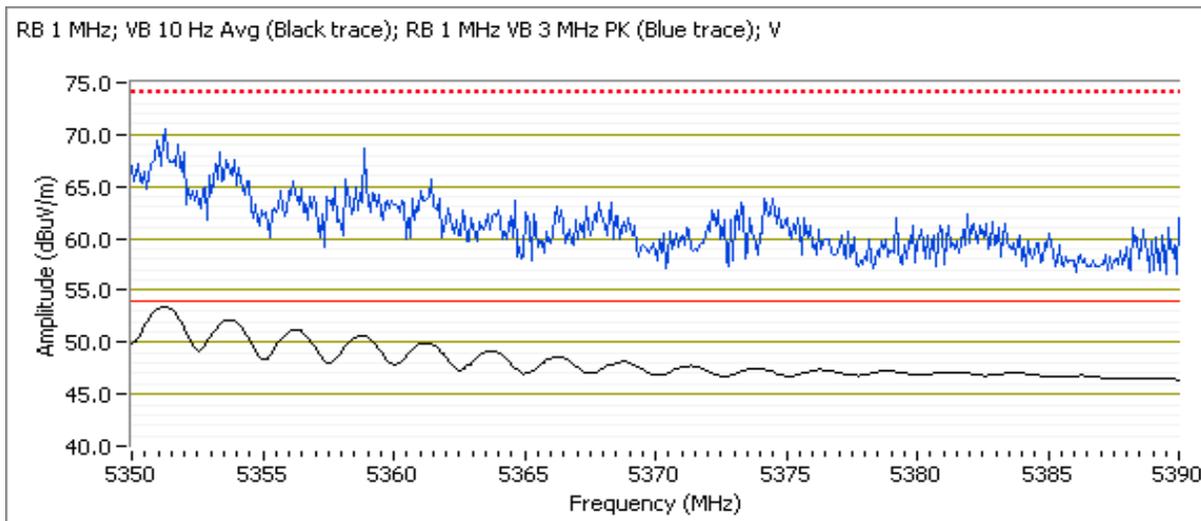
# EMC Test Data

Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
	Project Manager: Sheareen Jacobs
Contact: Tarandeep Kaur	Project Coordinator: Irene Rademacher
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Class: N/A

Channel: 62 - 5310MHz  
 Tx Chain: 2Tx  
 Mode: n40  
 Data Rate: MCS0

### 5350 MHz Band Edge Signal Radiated Field Strength

Frequency	Level	Pol	FCC 15.209		Detector	Azimuth	Height	Comments
MHz	dB $\mu$ V/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5351.280	53.4	V	54.0	-0.6	AVG	175	2.0	POS; RB 1 MHz; VB: 10 Hz
5350.960	72.6	V	74.0	-1.4	PK	175	2.0	POS; RB 1 MHz; VB: 3 MHz
5350.240	48.9	H	54.0	-5.1	AVG	206	1.0	POS; RB 1 MHz; VB: 10 Hz
5350.640	61.4	H	74.0	-12.6	PK	206	1.0	POS; RB 1 MHz; VB: 3 MHz





# EMC Test Data

Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
Contact: Tarandeep Kaur	Project Manager: Sheareen Jacobs
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator: Irene Rademacher
	Class: N/A

## Run #19: Radiated Bandedge Measurements, 5470-5725MHz

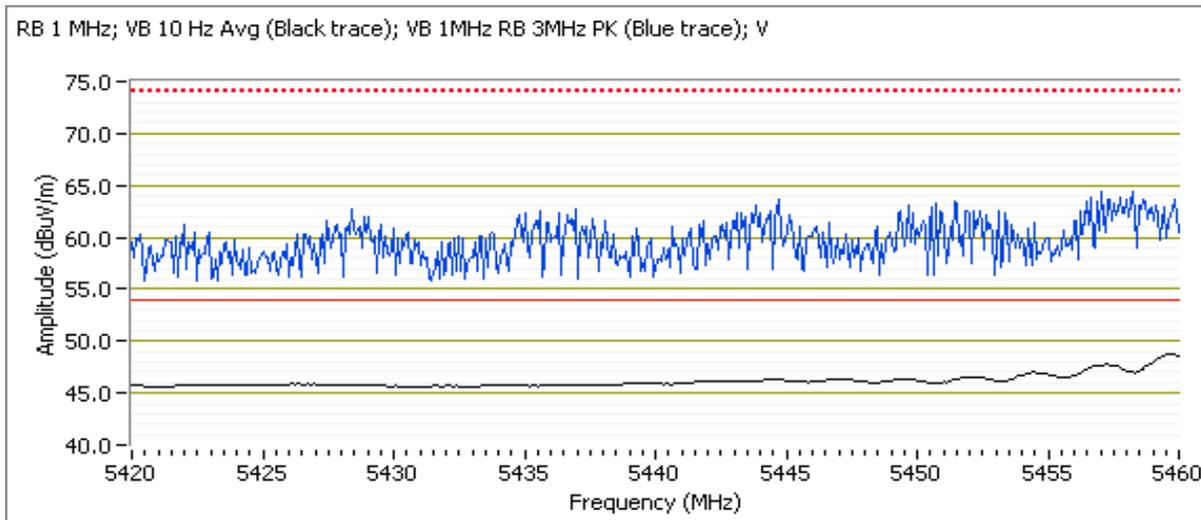
Date of Test: 7/16/2015 0:00  
 Test Engineer: Rafael Varelas  
 Test Location: FT Chamber #5

Config. Used: 1  
 Config Change: None  
 EUT Voltage: USB

Channel: 102 - 5510MHz  
 Tx Chain: 2Tx  
 Mode: n40  
 Data Rate: MCS0

### 5460 MHz Band Edge Signal Radiated Field Strength

Frequency	Level	Pol	FCC 15.209		Detector	Azimuth	Height	Comments
MHz	dB $\mu$ V/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5459.840	48.7	V	54.0	-5.3	AVG	226	1.0	POS; RB 1 MHz; VB: 10 Hz
5449.820	64.1	V	74.0	-9.9	PK	226	1.0	POS; RB 1 MHz; VB: 3 MHz
5458.960	48.1	H	54.0	-5.9	AVG	54	1.2	POS; RB 1 MHz; VB: 10 Hz
5458.080	63.1	H	74.0	-10.9	PK	54	1.2	POS; RB 1 MHz; VB: 3 MHz



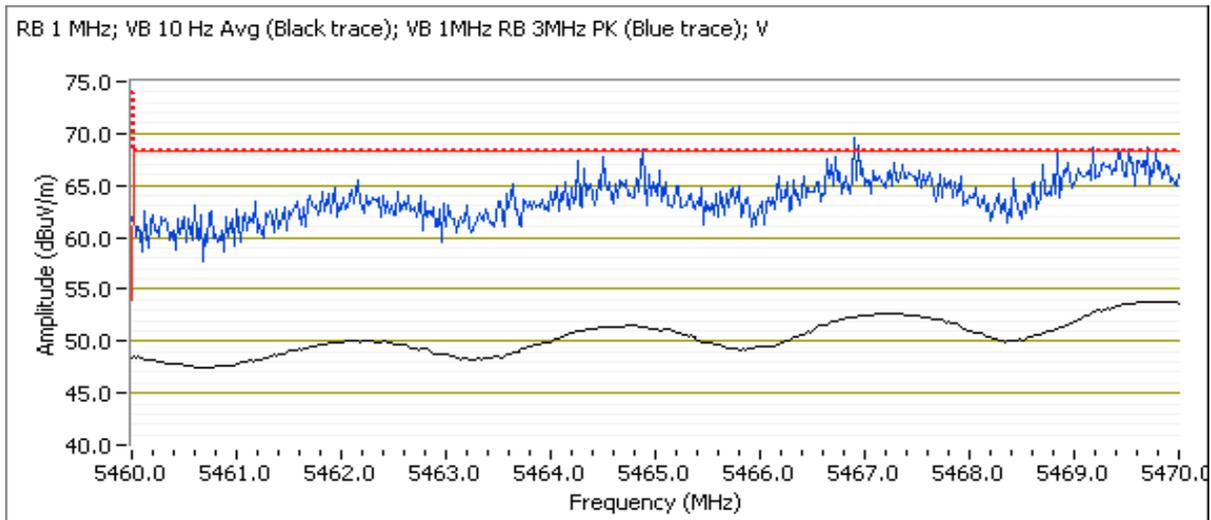


# EMC Test Data

Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
Contact: Tarandeep Kaur	Project Manager: Sheareen Jacobs
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator: Irene Rademacher
	Class: N/A

### 5470 MHz Band Edge Signal Radiated Field Strength

Frequency MHz	Level dB $\mu$ V/m	Pol v/h	15.E		Detector Pk/QP/Avg	Azimuth degrees	Height meters	Comments
			Limit	Margin				
5469.800	53.9	V	54.0	-0.1	AVG	226	1.0	Note 1, POS; RB 1 MHz; VB: 10 Hz
5469.180	69.8	V	74.0	-4.2	PK	226	1.0	Note 1, POS; RB 1 MHz; VB: 3 MHz
5468.800	53.0	H	54.0	-1.0	AVG	54	1.2	Note 1, POS; RB 1 MHz; VB: 10 Hz
5467.070	68.3	H	74.0	-5.7	PK	54	1.2	Note 1, POS; RB 1 MHz; VB: 3 MHz





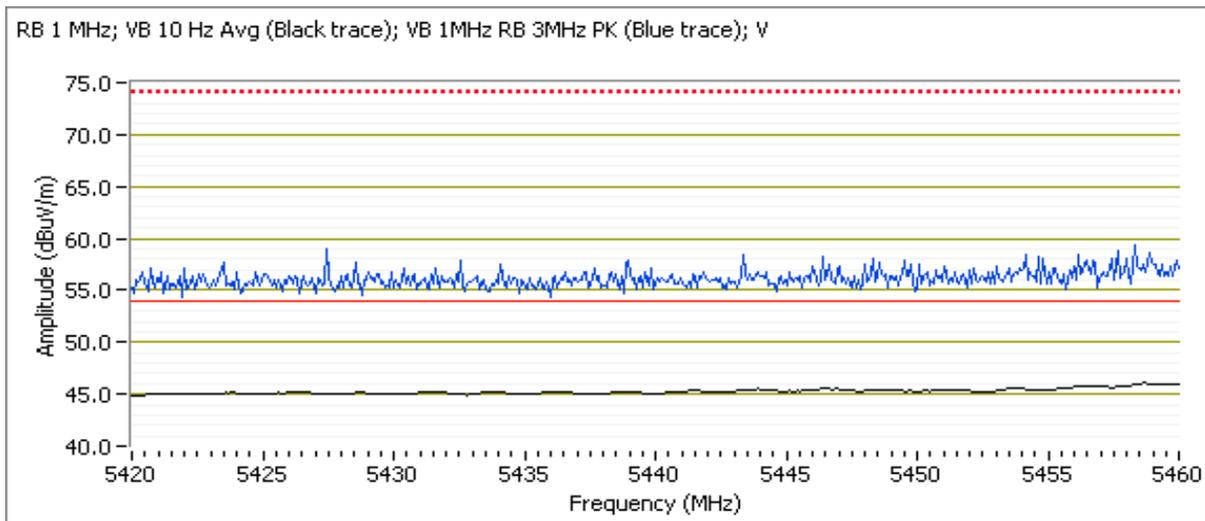
# EMC Test Data

Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
	Project Manager: Sheareen Jacobs
Contact: Tarandeep Kaur	Project Coordinator: Irene Rademacher
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Class: N/A

Channel: 110 - 5550MHz  
 Tx Chain: 2Tx  
 Mode: n40  
 Data Rate: MCS0

### 5460 MHz Band Edge Signal Radiated Field Strength

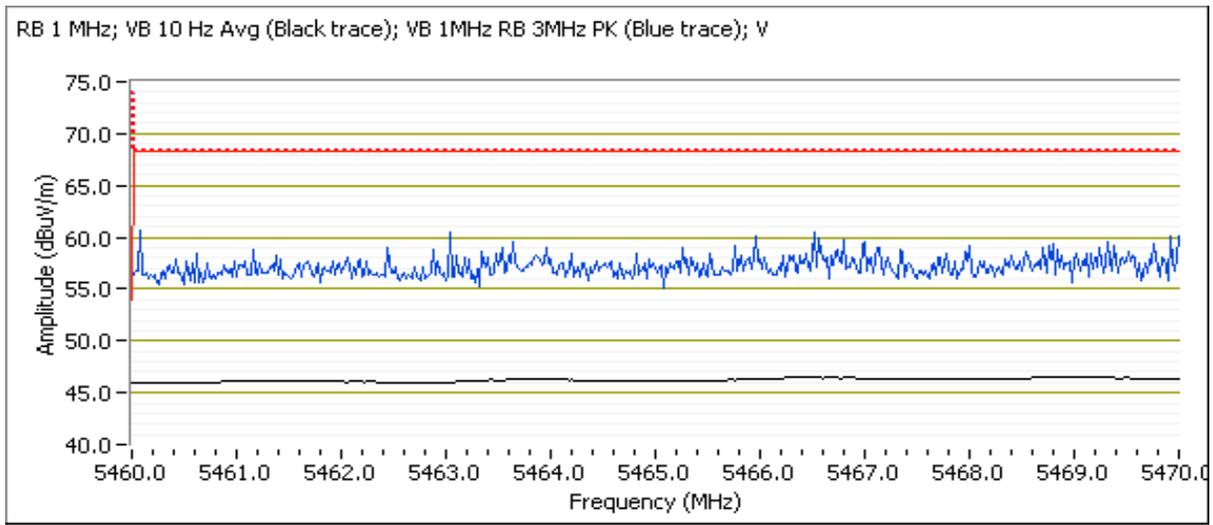
Frequency	Level	Pol	FCC 15.209		Detector	Azimuth	Height	Comments
MHz	dB $\mu$ V/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5458.960	46.1	V	54.0	-7.9	AVG	127	1.0	POS; RB 1 MHz; VB: 10 Hz
5459.360	59.8	V	74.0	-14.2	PK	127	1.0	POS; RB 1 MHz; VB: 3 MHz
5458.080	45.8	H	54.0	-8.2	AVG	39	1.2	POS; RB 1 MHz; VB: 10 Hz
5447.820	58.0	H	74.0	-16.0	PK	39	1.2	POS; RB 1 MHz; VB: 3 MHz



Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
Contact: Tarandeep Kaur	Project Manager: Sheareen Jacobs
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator: Irene Rademacher
	Class: N/A

### 5470 MHz Band Edge Signal Radiated Field Strength

Frequency	Level	Pol	15.E		Detector	Azimuth	Height	Comments
MHz	dB $\mu$ V/m	v/h	Limit	Margin	PK/QP/Avg	degrees	meters	
5460.540	61.8	V	68.3	-6.5	PK	127	1.0	POS; RB 1 MHz; VB: 3 MHz
5466.870	60.1	H	68.3	-8.2	PK	39	1.2	POS; RB 1 MHz; VB: 3 MHz





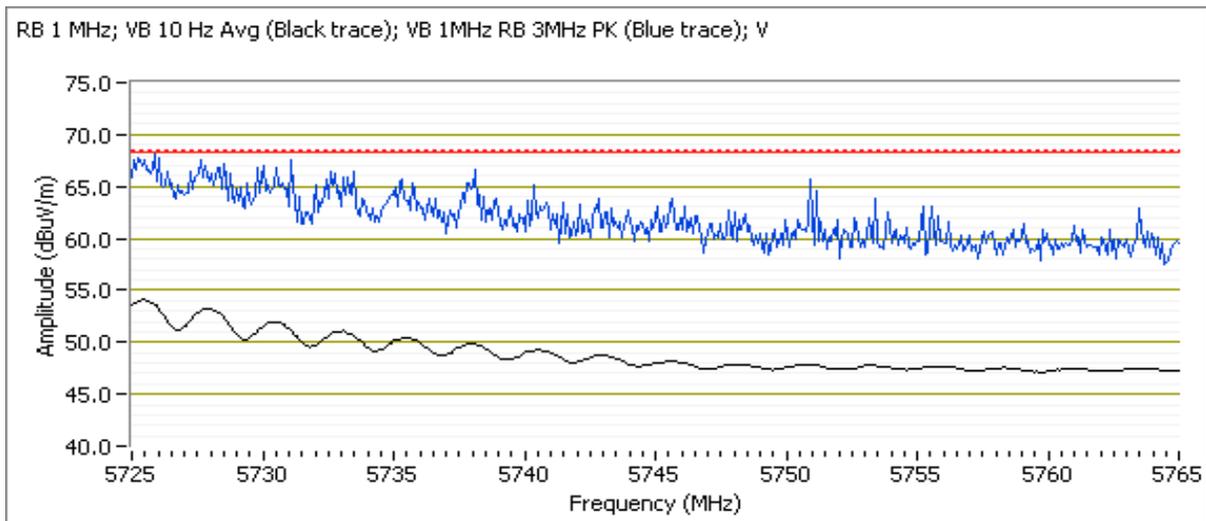
# EMC Test Data

Client:	Hewlett Packard Company	Job Number:	J98746
Model:	SDGOB-1505	T-Log Number:	T98753
Contact:	Tarandeep Kaur	Project Manager:	Sheareen Jacobs
Standard:	FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator:	Irene Rademacher
		Class:	N/A

Channel: 134 - 5670MHz  
 Tx Chain: 2Tx  
 Mode: n40  
 Data Rate: MCS0

### 5725 MHz Band Edge Signal Radiated Field Strength

Frequency MHz	Level dB $\mu$ V/m	Pol v/h	15.E		Detector Pk/QP/Avg	Azimuth degrees	Height meters	Comments
			Limit	Margin				
5725.480	53.2	V	54.0	-0.8	AVG	143	1.2	Note 1,POS; RB 1 MHz; VB: 10 Hz
5730.130	68.9	V	74.0	-5.1	PK	143	1.2	Note 1,POS; RB 1 MHz; VB: 3 MHz
5725.720	50.8	H	54.0	-3.2	AVG	205	1.0	Note 1,POS; RB 1 MHz; VB: 10 Hz
5727.730	65.2	H	74.0	-8.8	PK	205	1.0	Note 1,POS; RB 1 MHz; VB: 3 MHz





# EMC Test Data

Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
Contact: Tarandeep Kaur	Project Manager: Sheareen Jacobs
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator: Irene Rademacher
	Class: N/A

## Run #20: Radiated Bandedge Measurements, 5725-5850MHz

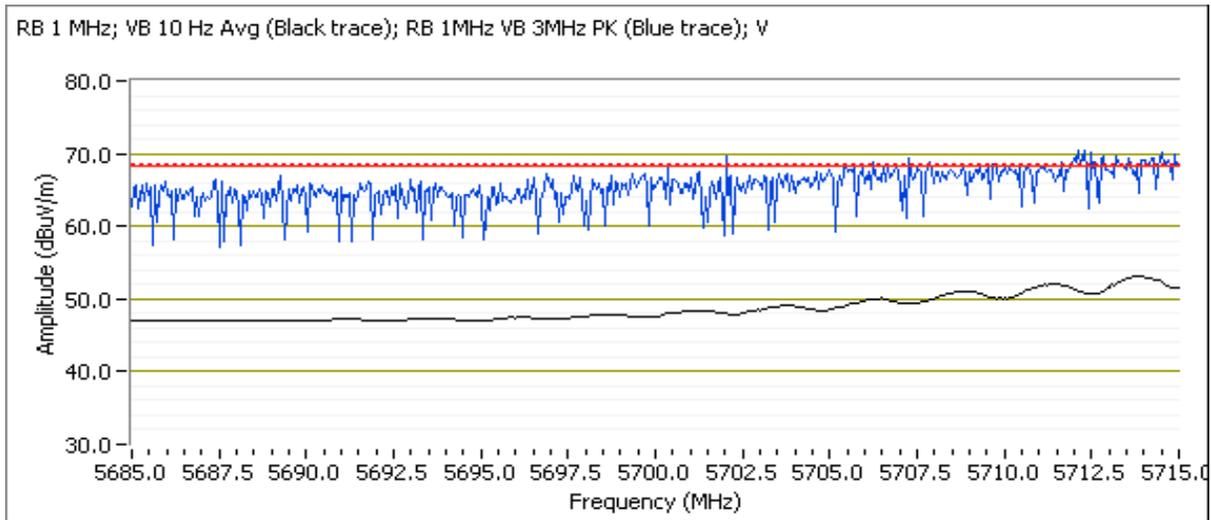
Date of Test: 7/22/2015 0:00  
 Test Engineer: Rafael Varelas  
 Test Location: FT Chamber #5

Config. Used: 1  
 Config Change: None  
 EUT Voltage: USB

Channel: 151 - 5755MHz  
 Tx Chain: 2Tx  
 Mode: n40  
 Data Rate: MCS0

### 5715 MHz Band Edge Signal Radiated Field Strength

Frequency MHz	Level dB $\mu$ V/m	Pol v/h	15.E		Detector Pk/QP/Avg	Azimuth degrees	Height meters	Comments
			Limit	Margin				
5713.860	53.6	V	54.0	-0.4	AVG	202	1.0	POS; RB 1 MHz; VB: 10 Hz
5712.230	70.6	V	74.0	-3.4	PK	202	1.0	POS; RB 1 MHz; VB: 3 MHz



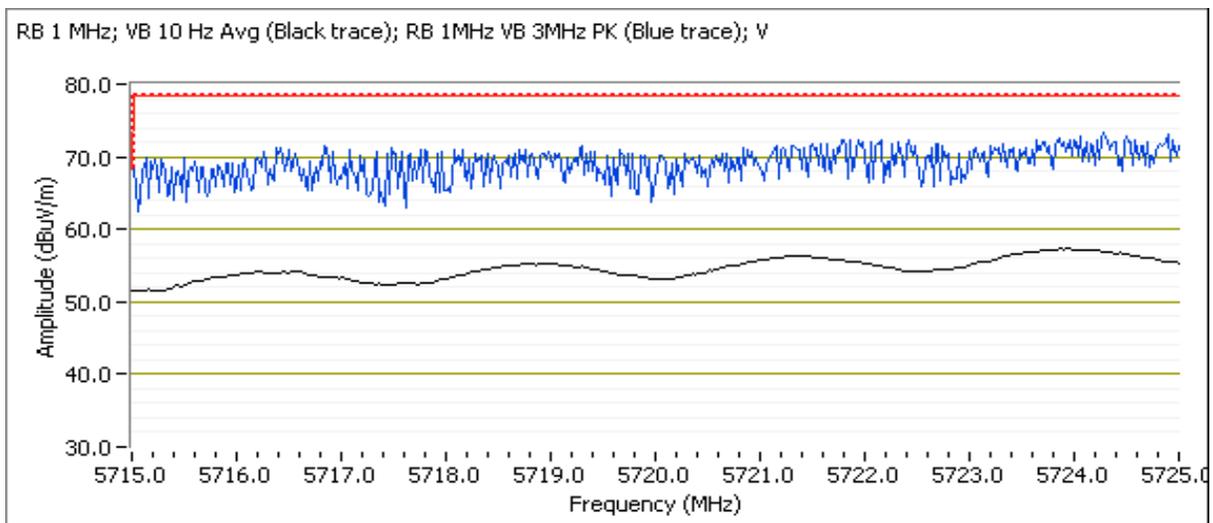


# EMC Test Data

Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
Contact: Tarandeep Kaur	Project Manager: Sheareen Jacobs
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator: Irene Rademacher
	Class: N/A

### 5715-5725 MHz Band Edge Signal Radiated Field Strength

Frequency	Level	Pol	15.E		Detector	Azimuth	Height	Comments
MHz	dB $\mu$ V/m	v/h	Limit	Margin	PK/QP/Avg	degrees	meters	
5717.540	73.6	V	78.3	-4.7	PK	202	1.0	POS; RB 1 MHz; VB: 3 MHz





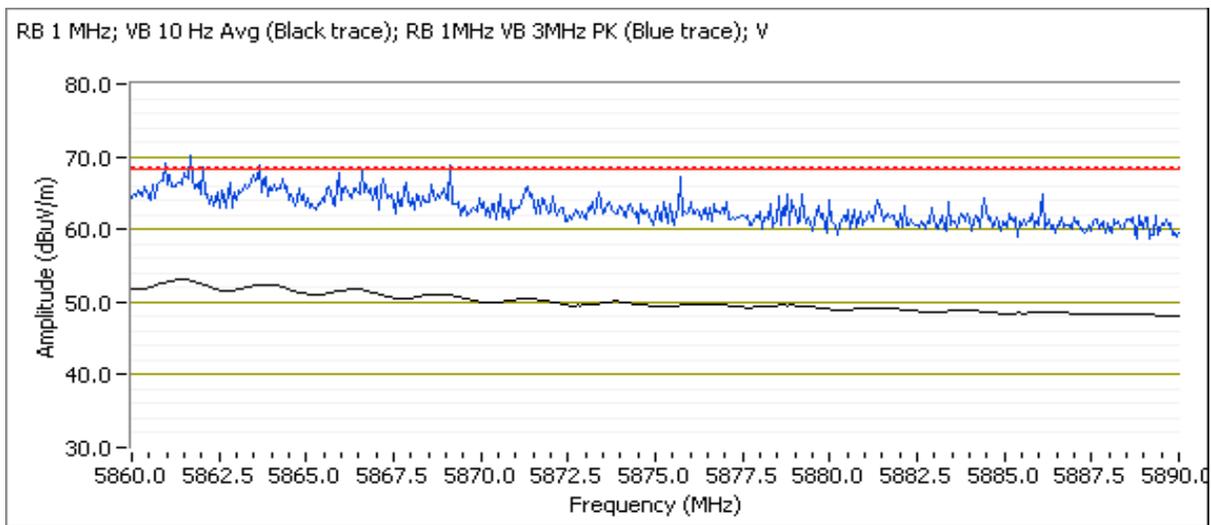
# EMC Test Data

Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
Contact: Tarandeep Kaur	Project Manager: Sheareen Jacobs
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator: Irene Rademacher
	Class: N/A

Channel: 159 - 5795MHz  
 Tx Chain: 2Tx  
 Mode: n40  
 Data Rate: MCS0

### 5860 MHz Band Edge Signal Radiated Field Strength

Frequency	Level	Pol	15.E		Detector	Azimuth	Height	Comments
MHz	dB $\mu$ V/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5861.560	53.2	V	54.0	-0.8	AVG	197	1.0	POS; RB 1 MHz; VB: 10 Hz
5863.910	69.6	V	74.0	-4.4	PK	197	1.0	POS; RB 1 MHz; VB: 3 MHz



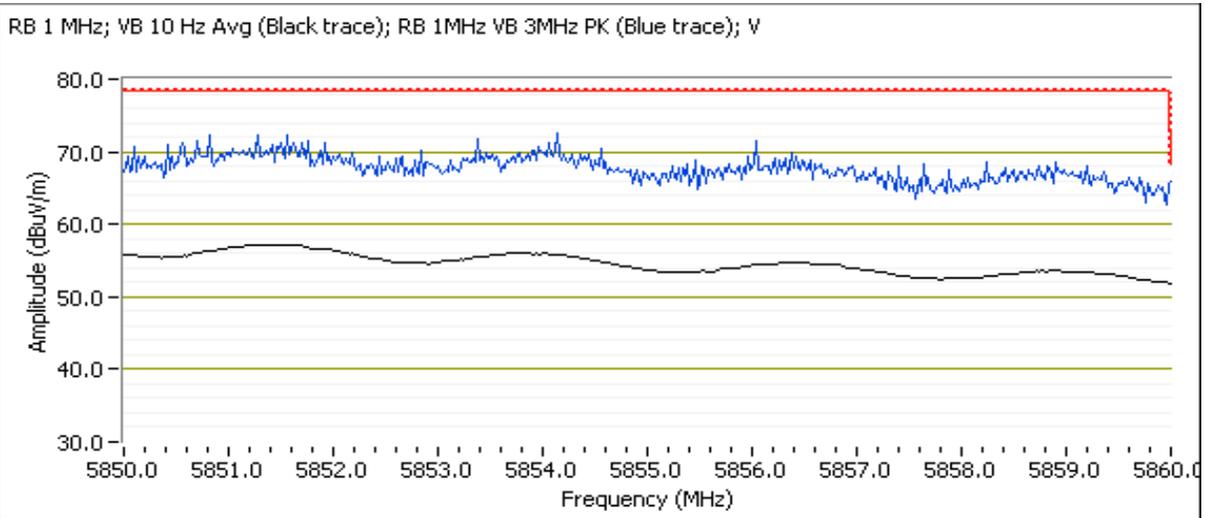


# EMC Test Data

Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
Contact: Tarandeep Kaur	Project Manager: Sheareen Jacobs
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator: Irene Rademacher
	Class: N/A

### 5850-5860 MHz Band Edge Signal Radiated Field Strength

Frequency	Level	Pol	15.E		Detector	Azimuth	Height	Comments
MHz	dB $\mu$ V/m	v/h	Limit	Margin	PK/QP/Avg	degrees	meters	
5851.800	72.7	V	78.3	-5.6	PK	197	1.0	POS; RB 1 MHz; VB: 3 MHz





# EMC Test Data

Client:	Hewlett Packard Company	Job Number:	J98746
Model:	SDGOB-1505	T-Log Number:	T98753
Contact:	Tarandeep Kaur	Project Manager:	Sheareen Jacobs
Standard:	FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator:	Irene Rademacher
		Class:	N/A

## RSS 210 and FCC 15.407 (UNII) Radiated Spurious Emissions

### Test Specific Details

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

### General Test Configuration

The EUT and all local support equipment were located on the turntable for radiated spurious emissions testing. For radiated emissions testing the measurement antenna was located 3 meters from the EUT, unless otherwise noted.

### Ambient Conditions:

Temperature: 21.6 °C  
Rel. Humidity: 38 %

### Summary of Results

Run #	Mode	Channel	Target Power	Power Setting	Test Performed	Limit	Result / Margin
Scans on "center" channel in all OFDM modes to determine the worst case mode.							
1	a (1Tx)	40 - 5200MHz	-	-	Radiated Emissions, 1 - 40 GHz	FCC 15.209 / 15 E	40.3 dBµV/m @ 5050.3 MHz (-13.7 dB)
	n20 (2Tx)	40 - 5200MHz	-	-	Radiated Emissions, 1 - 40 GHz	FCC 15.209 / 15 E	46.1 dBµV/m @ 5046.7 MHz (-7.9 dB)
	n40 (2Tx)	38 - 5190MHz	-	-	Radiated Emissions, 1 - 40 GHz	FCC 15.209 / 15 E	47.4 dBµV/m @ 5039.4 MHz (-6.6 dB)
40MHz - use if worse case from 1							
2	n40 (2Tx)	46 - 5230MHz	-	-	Radiated Emissions, 1 - 40 GHz	FCC 15.209 / 15 E	40.3 dBµV/m @ 5037.6 MHz (-13.7 dB)
Scans on "center" channel in all OFDM modes to determine the worst case mode.							
3	a (1Tx)	60 - 5300MHz	-	-	Radiated Emissions, 1 - 40 GHz	FCC 15.209 / 15 E	42.5 dBµV/m @ 5418.1 MHz (-11.5 dB)
	n20 (2Tx)	60 - 5300MHz	-	-	Radiated Emissions, 1 - 40 GHz	FCC 15.209 / 15 E	45.2 dBµV/m @ 10600.1 MHz (-8.8 dB)
	n40 (2Tx)	54 - 5270MHz	-	-	Radiated Emissions, 1 - 40 GHz	FCC 15.209 / 15 E	41.5 dBµV/m @ 5041.6 MHz (-12.5 dB)
Measurements on low and high channels in worst-case OFDM mode.							
4	n20 (2Tx)	52 - 5260MHz	-	-	Radiated Emissions, 1 - 40 GHz	FCC 15.209 / 15 E	57.6 dBµV/m @ 10518.6 MHz (-10.7 dB)
	n20 (2Tx)	64 - 5320MHz	-	-	Radiated Emissions, 1 - 40 GHz	FCC 15.209 / 15 E	45.7 dBµV/m @ 10640.1 MHz (-8.3 dB)



# EMC Test Data

Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
Contact: Tarandeep Kaur	Project Manager: Sheareen Jacobs
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator: Irene Rademacher
	Class: N/A

Run #	Mode	Channel	Target Power	Power Setting	Test Performed	Limit	Result / Margin
Scans on "center" channel in all OFDM modes to determine the worst case mode.							
5	a (1Tx)	116 - 5580MHz	-	-	Radiated Emissions, 1 - 40 GHz	FCC 15.209 / 15 E	50.8 dBµV/m @ 5325.9 MHz (-17.5 dB)
	n20 (2Tx)	116 - 5580MHz	-	-	Radiated Emissions, 1 - 40 GHz	FCC 15.209 / 15 E	47.8 dBµV/m @ 11160.0 MHz (-6.2 dB)
	n40 (2Tx)	110 - 5550MHz	-	-	Radiated Emissions, 1 - 40 GHz	FCC 15.209 / 15 E	46.1 dBµV/m @ 11100.3 MHz (-7.9 dB)
Measurements on low and high channels in worst-case OFDM mode.							
6	n20 (2Tx)	100 - 5500MHz	-	-	Radiated Emissions, 1 - 40 GHz	FCC 15.209 / 15 E	47.9 dBµV/m @ 11000.5 MHz (-6.1 dB)
	n20 (2Tx)	140 - 5700MHz	-	-	Radiated Emissions, 1 - 40 GHz	FCC 15.209 / 15 E	54.7 dBµV/m @ 5921.4 MHz (-13.6 dB)
Scans on "center" channel in all OFDM modes to determine the worst case mode.							
7	a (1Tx)	157 - 5785MHz	-	-	Radiated Emissions, 1 - 40 GHz	FCC 15.209 / 15 E	44.7 dBµV/m @ 11569.1 MHz (-9.3 dB)
	n20 (2Tx)	157 - 5785MHz	-	-	Radiated Emissions, 1 - 40 GHz	FCC 15.209 / 15 E	49.4 dBµV/m @ 11569.9 MHz (-4.6 dB)
	n40 (2Tx)	151 - 5755MHz	-	-	Radiated Emissions, 1 - 40 GHz	FCC 15.209 / 15 E	46.6 dBµV/m @ 11515.2 MHz (-7.4 dB)
Measurements on low and high channels in worst-case OFDM mode.							
8	n20 (2Tx)	149 - 5745MHz	-	-	Radiated Emissions, 1 - 40 GHz	FCC 15.209 / 15 E	49.3 dBµV/m @ 11490.2 MHz (-4.7 dB)
	n20 (2Tx)	165 - 5825MHz	-	-	Radiated Emissions, 1 - 40 GHz	FCC 15.209 / 15 E	50.2 dBµV/m @ 11649.7 MHz (-3.8 dB)



# EMC Test Data

Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
	Project Manager: Sheareen Jacobs
Contact: Tarandeep Kaur	Project Coordinator: Irene Rademacher
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Class: N/A

### Modifications Made During Testing

No modifications were made to the EUT during testing

### Deviations From The Standard

No deviations were made from the requirements of the standard.

### Sample Notes

Sample S/N: 707781772509

Driver: 6.37 RC214 .12

Antenna: External

### Notes

Testing performed at 1.5m per C63.10

All testing was performed in 2Tx mode using worse case 1Tx power levels

Client:	Hewlett Packard Company	Job Number:	J98746
Model:	SDGOB-1505	T-Log Number:	T98753
Contact:	Tarandeep Kaur	Project Manager:	Sheareen Jacobs
Standard:	FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator:	Irene Rademacher
		Class:	N/A

### Procedure Comments:

Measurements performed in accordance with FCC KDB 789033

Peak measurements performed with: RBW=1MHz, VBW=3MHz, peak detector, max hold, auto sweep time

Unless otherwise stated/noted, emission has duty cycle  $\geq 98\%$  and was measured using RBW=1MHz, VBW=10Hz, peak detector, linear average mode, auto sweep time, max hold.

Mode	Data Rate	Duty Cycle (x)	Constant DC?	T (ms)	Pwr Cor Factor*	Lin Volt Cor Factor**	Min VBW for FS (Hz)
11a	6Mb/s	98.2%	Yes	1.405	0	0	10
n20	MCS0	98.1%	Yes	1.309	0	0	10
n40	MCS0	98.0%	Yes	0.932	0	0	10

### Measurement Specific Notes:

Note 1:	For emissions outside of the restricted bands the limit is -27dBm/MHz eirp (68.3dBuV/m). The measurement method required is a peak measurement (RB=1MHz, VB $\geq$ 3MHz, peak detector). Per KDB 789033 2) c) (i), compliance can be demonstrated by meeting the average and peak limits of 15.209, as an alternative.
Note 2:	Emission has duty cycle $\geq 98\%$ , average measurement performed: RBW=1MHz, VBW=3MHz, RMS, Power averaging, auto sweep, trace average 100 traces
Note 4:	Emission has duty cycle $< 98\%$ , average measurement performed: RBW=1MHz, VBW $> 1/T$ , peak detector, linear average mode, sweep time auto, max hold. Max hold for $50*(1/DC)$ traces
Note 5:	Emission has duty cycle $< 98\%$ , but constant, average measurement performed: RBW=1MHz, VBW=3MHz, RMS, Power averaging, auto sweep, trace average $100 * 1/DC$ traces, measurement corrected by Pwr correction factor
Note 6:	Plots of the average and peak bandedge do not account for any duty cycle correction. Refer to the tabular results for final measurements.



# EMC Test Data

Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
Contact: Tarandeep Kaur	Project Manager: Sheareen Jacobs
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator: Irene Rademacher
	Class: N/A

## Run #1, Radiated Spurious Emissions, 1,000 - 40,000 MHz. Operation in the 5150-5250 MHz Band

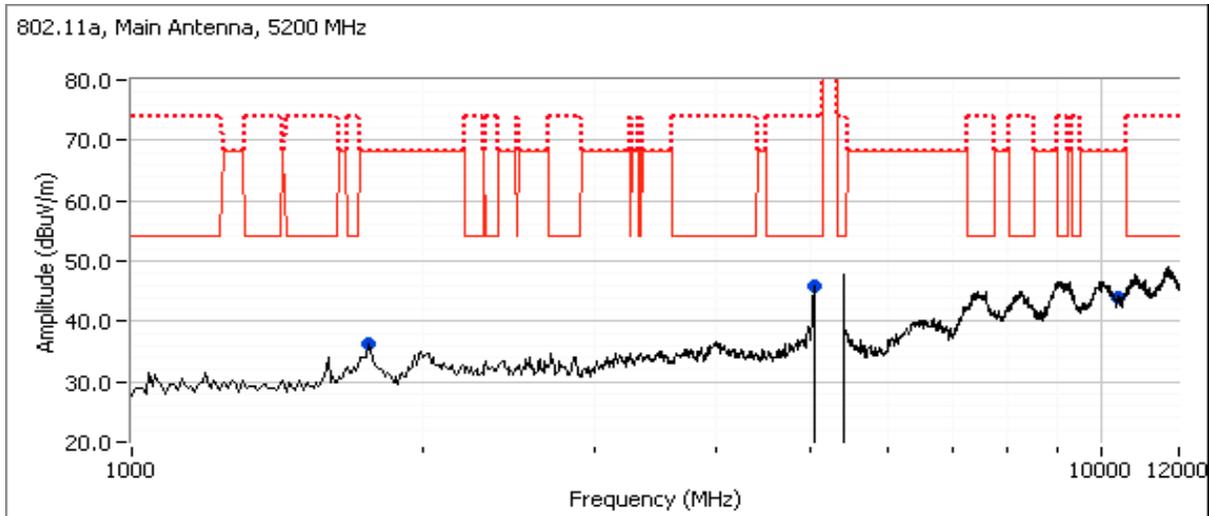
Date of Test: 7/23 & 7/24/2015 12:00:00 AM      Config. Used: 1  
 Test Engineer: Rafael Varelas      Config Change: None  
 Test Location: FT Chamber #5      EUT Voltage: USB

### Run #1a: Center Channel

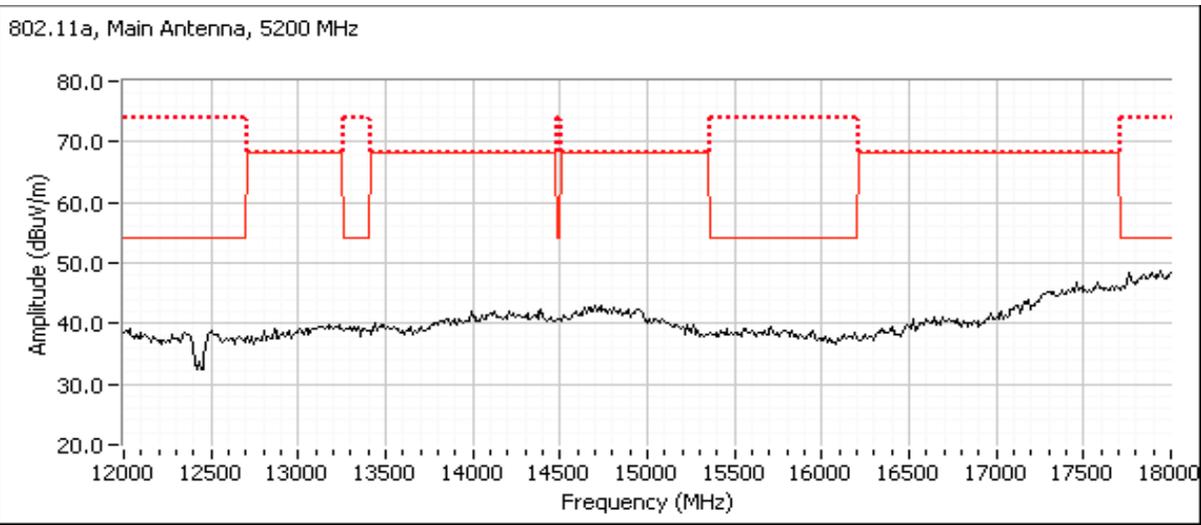
Channel: 40      Mode: a  
 Tx Chain: Main      Data Rate: 6Mb/s

Frequency	Level	Pol	15.209 / 15E		Detector	Azimuth	Height	Comments
MHz	dB $\mu$ V/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5050.340	40.3	H	54.0	-13.7	AVG	347	1.0	RB 1 MHz;VB 10 Hz;Peak
5044.440	51.7	H	74.0	-22.3	PK	347	1.0	RB 1 MHz;VB 3 MHz;Peak
10390.000	43.9	V	68.3	-24.4	Peak	111	2.2	
1750.000	36.2	V	68.3	-32.1	Peak	253	1.0	

- Note: Scans made between 18 - 40 GHz with the measurement antenna moved around the card and its antennas 20-50cm from the device indicated there were no significant emissions in this frequency range
- Note 1: For emissions in restricted bands, the limit of 15.209 was used which requires average and peak measurements.
- Note 2: For emissions outside of the restricted bands the limit is -27dBm/MHz eirp (68.3dBuV/m). The measurement method required is a peak measurement (RB=1MHz, VB $\geq$ 3MHz, peak detector).



Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
	Project Manager: Sheareen Jacobs
Contact: Tarandeep Kaur	Project Coordinator: Irene Rademacher
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Class: N/A





# EMC Test Data

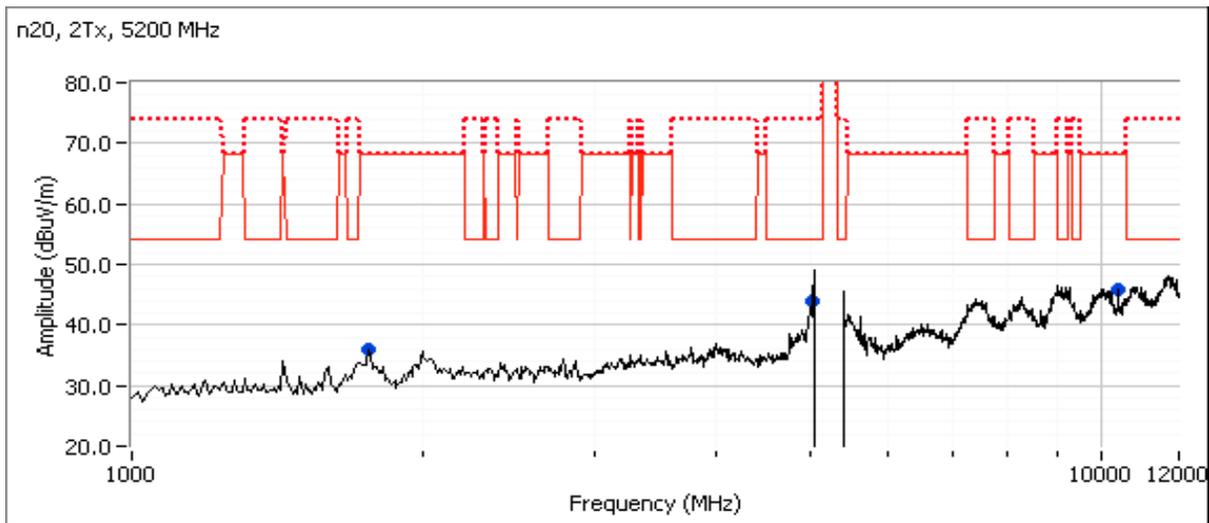
Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
Contact: Tarandeep Kaur	Project Manager: Sheareen Jacobs
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator: Irene Rademacher
	Class: N/A

## Run #1b: Center Channel

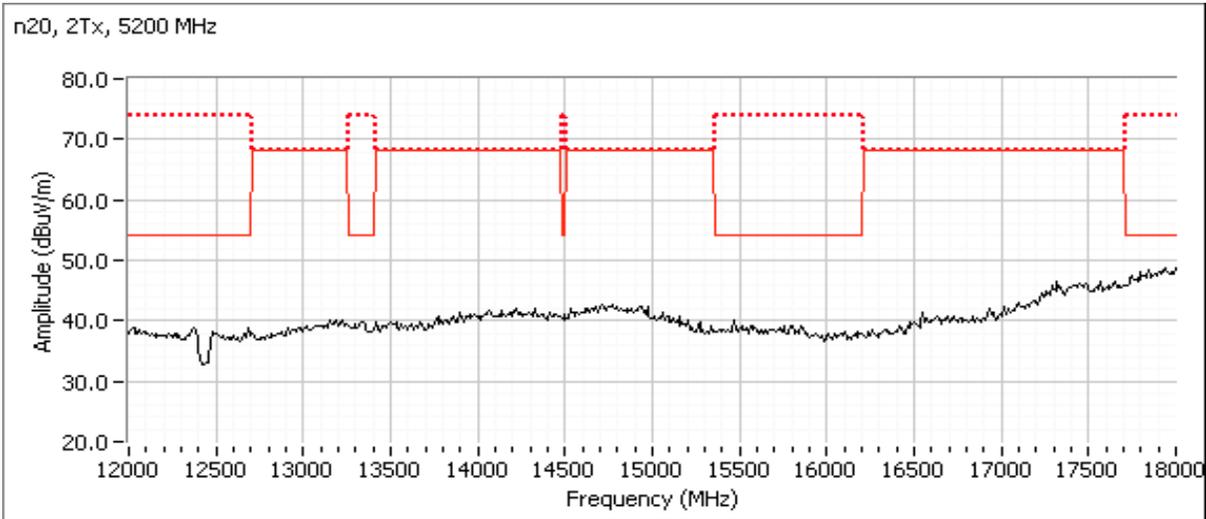
Channel: 40                      Mode: 11n20  
 Tx Chain: 2Tx                      Data Rate: MCS0

Frequency	Level	Pol	15.209 / 15E		Detector	Azimuth	Height	Comments
MHz	dB $\mu$ V/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5046.700	46.1	V	54.0	-7.9	AVG	188	1.4	RB 1 MHz;VB 10 Hz;Peak
5044.800	55.7	V	74.0	-18.3	PK	188	1.4	RB 1 MHz;VB 3 MHz;Peak
10401.300	53.4	V	68.3	-14.9	PK	97	1.0	RB 1 MHz;VB 3 MHz;Peak
1750.500	35.8	V	68.3	-32.5	Peak	177	1.0	

- Note: Scans made between 18 - 40 GHz with the measurement antenna moved around the card and its antennas 20-50cm from the device indicated there were no significant emissions in this frequency range
- Note 1: For emissions in restricted bands, the limit of 15.209 was used which requires average and peak measurements.
- Note 2: For emissions outside of the restricted bands the limit is -27dBm/MHz eirp (68.3dBuV/m). The measurement method required is a peak measurement (RB=1MHz, VB $\geq$ 3MHz, peak detector).



Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
	Project Manager: Sheareen Jacobs
Contact: Tarandeep Kaur	Project Coordinator: Irene Rademacher
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Class: N/A



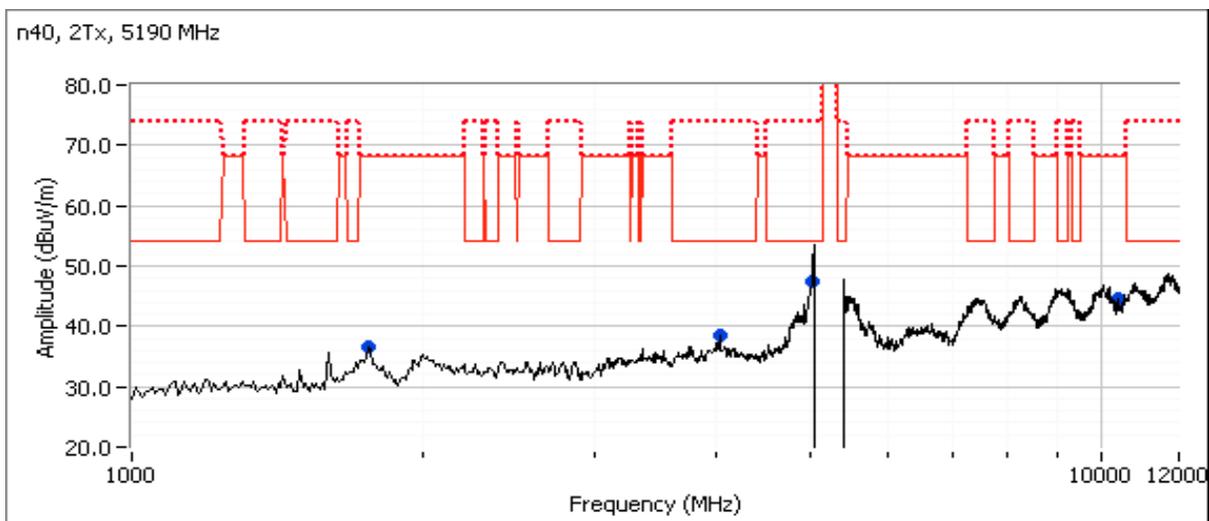
Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
Contact: Tarandeep Kaur	Project Manager: Sheareen Jacobs
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator: Irene Rademacher
	Class: N/A

Run #1c: Center Channel

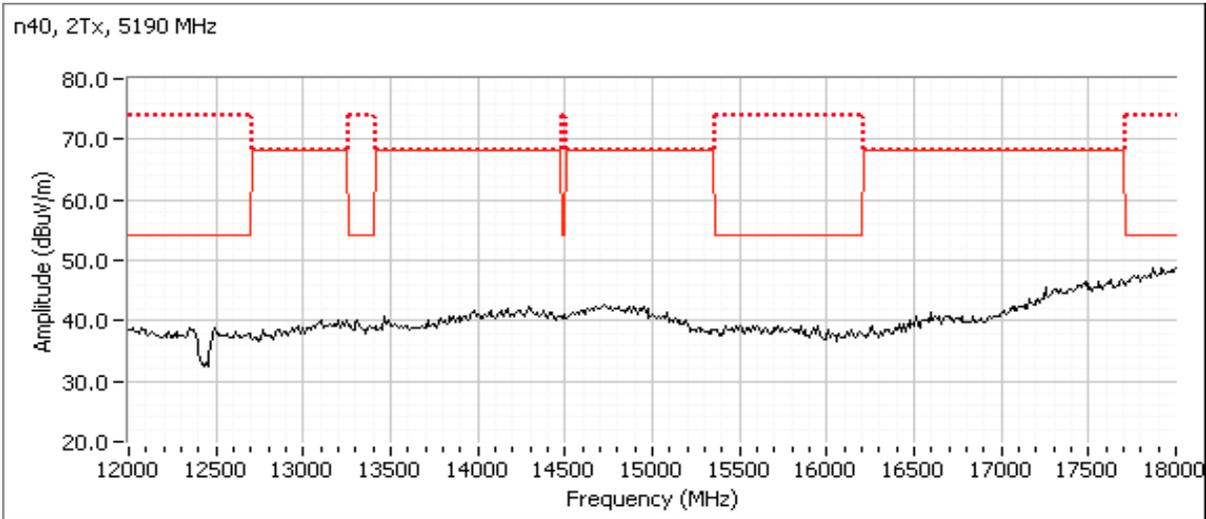
Channel: 38                      Mode: 11n40  
 Tx Chain: 2Tx                      Data Rate: MCS0

Frequency	Level	Pol	15.209 / 15E		Detector	Azimuth	Height	Comments
MHz	dB $\mu$ V/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5039.400	47.4	V	54.0	-6.6	AVG	229	1.1	RB 1 MHz;VB 10 Hz;Peak
5039.800	57.1	V	74.0	-16.9	PK	229	1.1	RB 1 MHz;VB 3 MHz;Peak
4042.310	31.3	V	54.0	-22.7	AVG	98	1.0	RB 1 MHz;VB 10 Hz;Peak
4036.870	43.4	V	74.0	-30.6	PK	98	1.0	RB 1 MHz;VB 3 MHz;Peak
1749.920	36.5	V	68.3	-31.8	Peak	207	1.0	
10400.480	44.6	V	68.3	-23.7	Peak	13	1.6	

- Note: Scans made between 18 - 40 GHz with the measurement antenna moved around the card and its antennas 20-50cm from the device indicated there were no significant emissions in this frequency range
- Note 1: For emissions in restricted bands, the limit of 15.209 was used which requires average and peak measurements.
- Note 2: For emissions outside of the restricted bands the limit is -27dBm/MHz eirp (68.3dBuV/m). The measurement method required is a peak measurement (RB=1MHz, VB $\geq$ 3MHz, peak detector).



Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
Contact: Tarandeep Kaur	Project Manager: Sheareen Jacobs
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator: Irene Rademacher
	Class: N/A





# EMC Test Data

Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
Contact: Tarandeep Kaur	Project Manager: Sheareen Jacobs
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator: Irene Rademacher
	Class: N/A

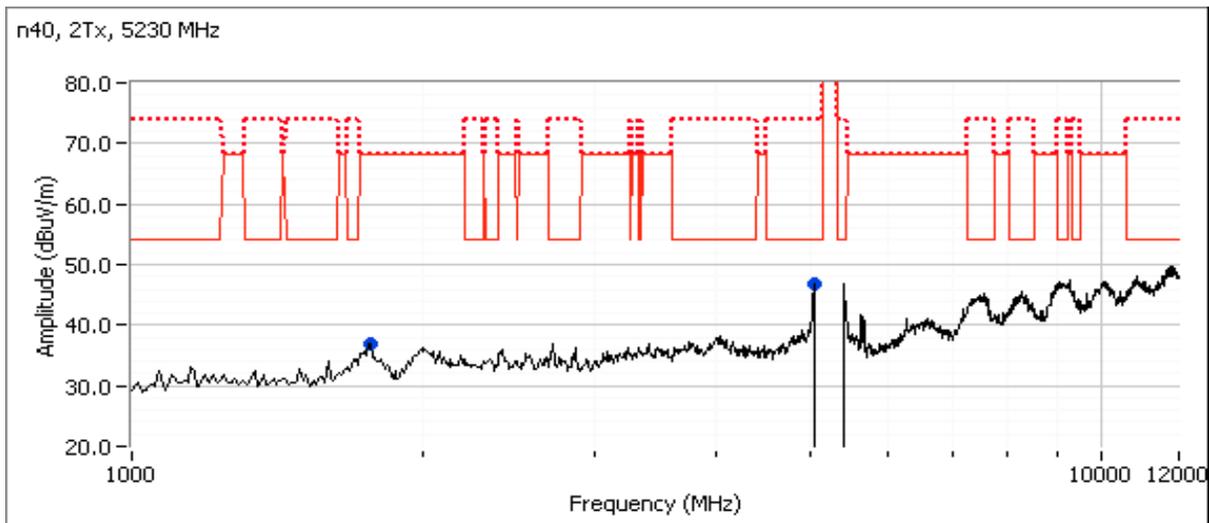
Run #2: Radiated Spurious Emissions, 1,000 - 40000 MHz. Operating Mode: Worse case from Run #1  
 Date of Test: 7/27/2015 0:00 Config. Used: 1  
 Test Engineer: Rafael Varelas Config Change: None  
 Test Location: FT Chamber #5 EUT Voltage: USB

### Run #2a: High Channel

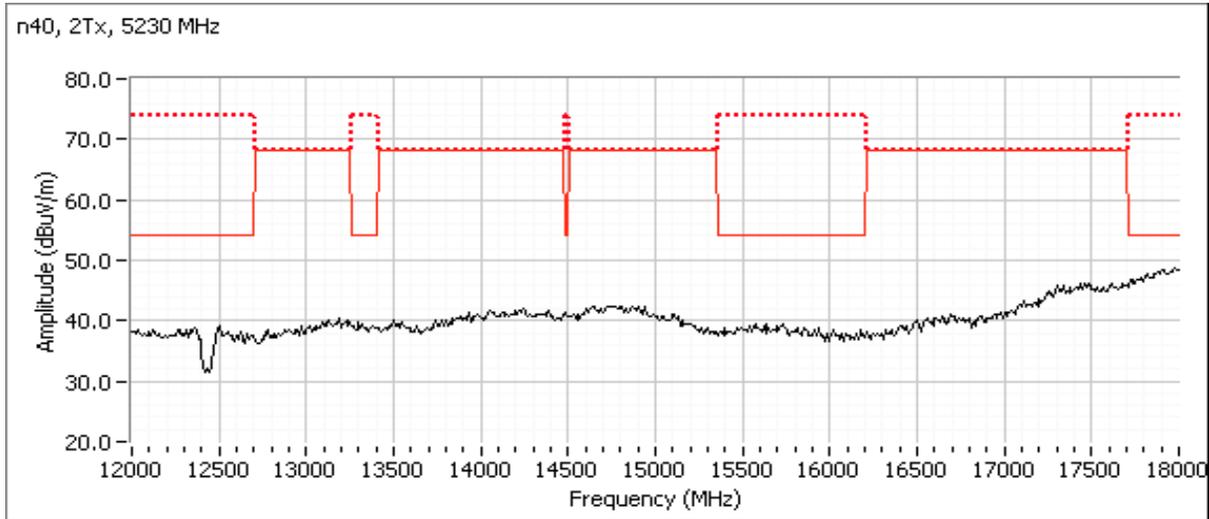
Channel: 46 Mode: n40  
 Tx Chain: 2Tx Data Rate: MCS0

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dB $\mu$ V/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5037.620	40.3	V	54.0	-13.7	AVG	178	1.0	RB 1 MHz;VB 10 Hz;Peak
5038.730	51.7	V	74.0	-22.3	PK	178	1.0	RB 1 MHz;VB 3 MHz;Peak
1752.590	37.0	V	68.3	-31.3	Peak	354	1.9	

Note: Scans made between 18 - 40 GHz with the measurement antenna moved around the card and its antennas 20-50cm from the device indicated there were no significant emissions in this frequency range



Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
	Project Manager: Sheareen Jacobs
Contact: Tarandeep Kaur	Project Coordinator: Irene Rademacher
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Class: N/A





# EMC Test Data

Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
Contact: Tarandeep Kaur	Project Manager: Sheareen Jacobs
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator: Irene Rademacher
	Class: N/A

**Run #3, Radiated Spurious Emissions, 1,000 - 40,000 MHz. Operation in the 5250-5350 MHz Band**

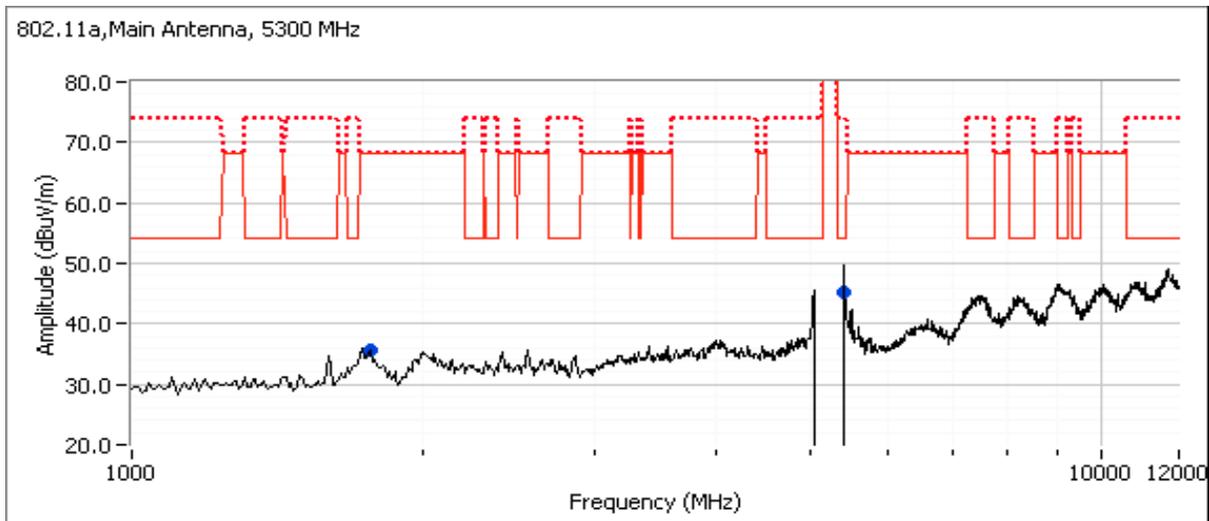
Date of Test: 7/23 & 7/24/2015 12:00:00 AM      Config. Used: 1  
 Test Engineer: Rafael Varelas      Config Change: None  
 Test Location: FT Chamber #5      EUT Voltage: USB

**Run #3a: Center Channel**

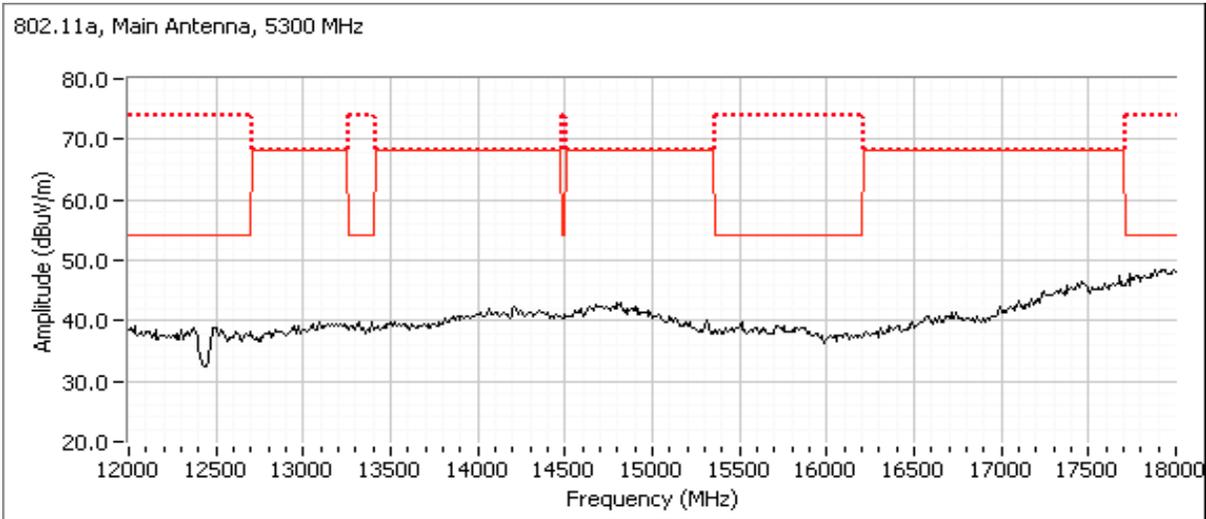
Channel: 60      Mode: a  
 Tx Chain: Main      Data Rate: 6Mb/s

Frequency	Level	Pol	15.209 / 15E		Detector	Azimuth	Height	Comments
MHz	dB $\mu$ V/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5418.080	42.5	V	54.0	-11.5	AVG	171	1.0	RB 1 MHz;VB 10 Hz;Peak
5416.540	52.7	V	74.0	-21.3	PK	171	1.0	RB 1 MHz;VB 3 MHz;Peak
1760.490	35.7	V	68.3	-32.6	Peak	174	1.3	

- Note: Scans made between 18 - 40 GHz with the measurement antenna moved around the card and its antennas 20-50cm from the device indicated there were no significant emissions in this frequency range
- Note 1: For emissions in restricted bands, the limit of 15.209 was used which requires average and peak measurements.
- Note 2: For emissions outside of the restricted bands the limit is -27dBm/MHz eirp (68.3dBuV/m). The measurement method required is a peak measurement (RB=1MHz, VB $\geq$ 3MHz, peak detector).



Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
	Project Manager: Sheareen Jacobs
Contact: Tarandeep Kaur	Project Coordinator: Irene Rademacher
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Class: N/A



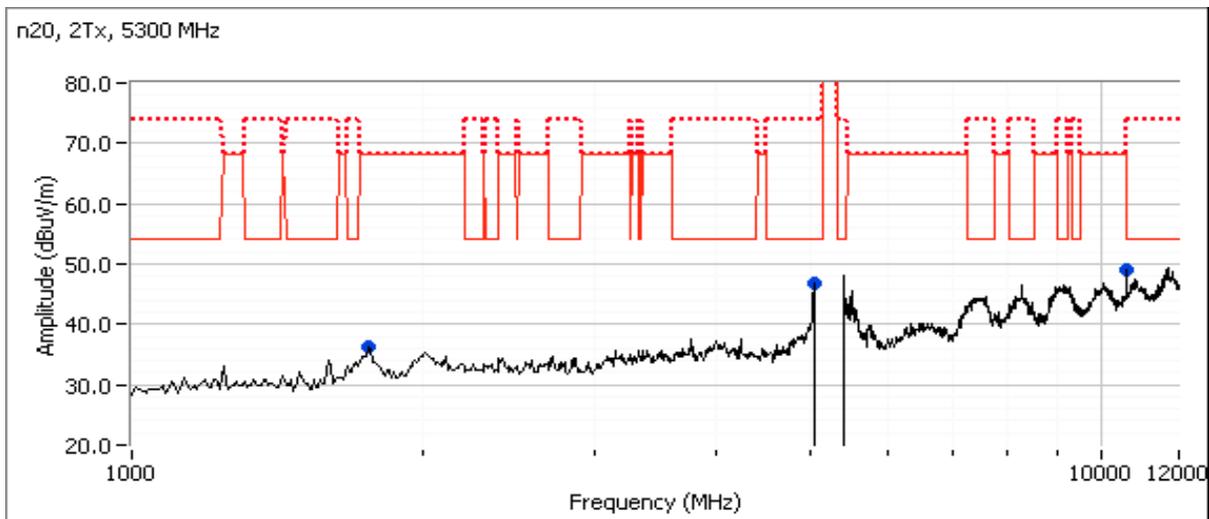
Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
Contact: Tarandeep Kaur	Project Manager: Sheareen Jacobs
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator: Irene Rademacher
	Class: N/A

Run #3b: Center Channel

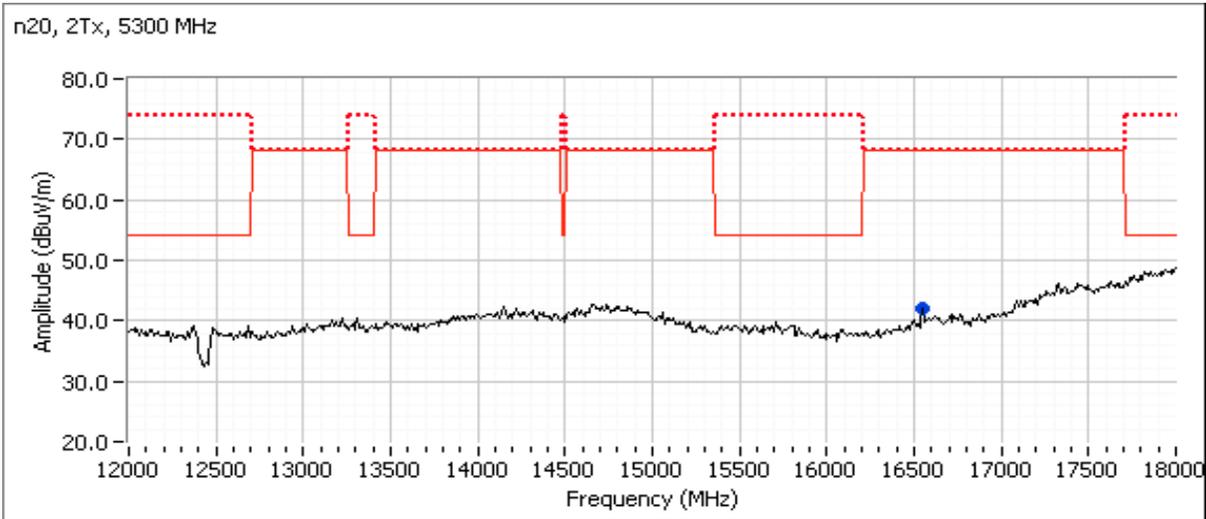
Channel: 60                      Mode: 11n20  
 Tx Chain: 2Tx                      Data Rate: MCS0

Frequency	Level	Pol	15.209 / 15E		Detector	Azimuth	Height	Comments
MHz	dB $\mu$ V/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
10600.130	45.2	V	54.0	-8.8	AVG	240	2.3	RB 1 MHz;VB 10 Hz;Peak
10603.000	57.9	V	74.0	-16.1	PK	240	2.3	RB 1 MHz;VB 3 MHz;Peak
5037.490	39.7	V	54.0	-14.3	AVG	147	1.1	RB 1 MHz;VB 10 Hz;Peak
5022.290	50.5	V	74.0	-23.5	PK	147	1.1	RB 1 MHz;VB 3 MHz;Peak
1749.830	36.2	V	68.3	-32.1	Peak	208	1.0	
16550.000	41.9	H	68.3	-26.4	Peak	272	1.3	

- Note: Scans made between 18 - 40 GHz with the measurement antenna moved around the card and its antennas 20-50cm from the device indicated there were no significant emissions in this frequency range
- Note 1: For emissions in restricted bands, the limit of 15.209 was used which requires average and peak measurements.
- Note 2: For emissions outside of the restricted bands the limit is -27dBm/MHz eirp (68.3dBuV/m). The measurement method required is a peak measurement (RB=1MHz, VB $\geq$ 3MHz, peak detector).



Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
Contact: Tarandeep Kaur	Project Manager: Sheareen Jacobs
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator: Irene Rademacher
	Class: N/A



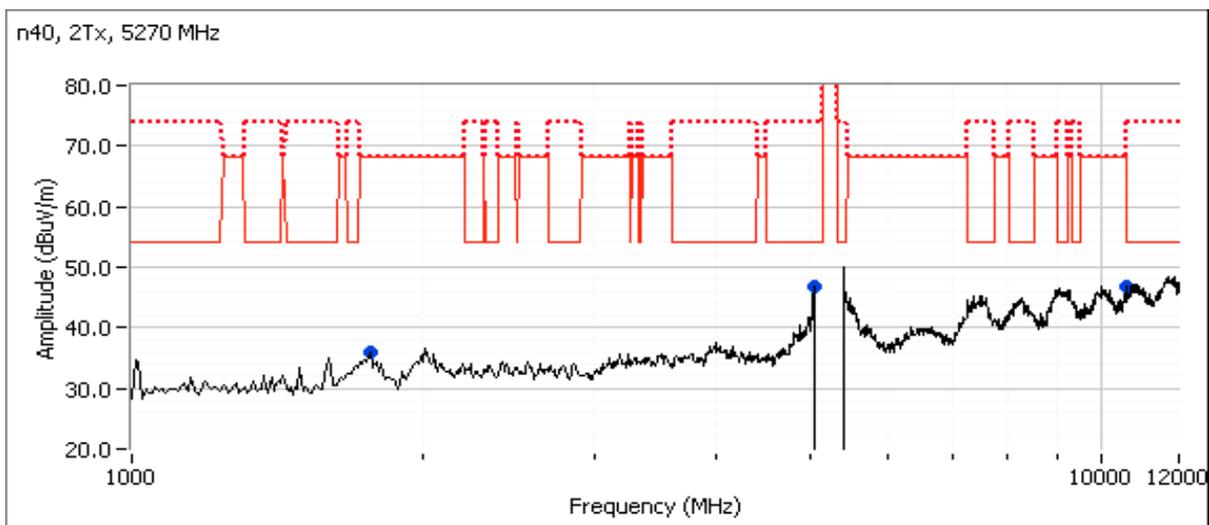
Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
Contact: Tarandeep Kaur	Project Manager: Sheareen Jacobs
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator: Irene Rademacher
	Class: N/A

Run #3c: Center Channel

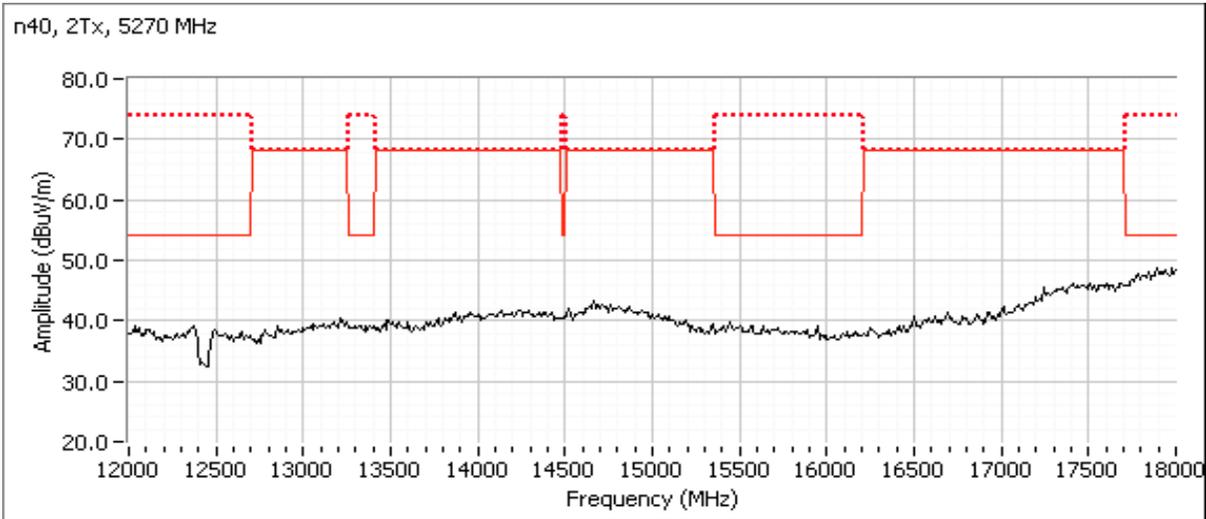
Channel: 54                      Mode: 11n40  
 Tx Chain: 2Tx                      Data Rate: MCS0

Frequency	Level	Pol	15.209 / 15E		Detector	Azimuth	Height	Comments
MHz	dB $\mu$ V/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5041.620	41.5	V	54.0	-12.5	AVG	127	2.0	RB 1 MHz;VB 10 Hz;Peak
5044.150	52.0	V	74.0	-22.0	PK	127	2.0	RB 1 MHz;VB 3 MHz;Peak
10617.180	41.0	H	54.0	-13.0	AVG	360	1.0	RB 1 MHz;VB 10 Hz;Peak
10610.270	52.4	H	74.0	-21.6	PK	360	1.0	RB 1 MHz;VB 3 MHz;Peak
1750.260	36.0	V	68.3	-32.3	Peak	24	1.3	

- Note: Scans made between 18 - 40 GHz with the measurement antenna moved around the card and its antennas 20-50cm from the device indicated there were no significant emissions in this frequency range
- Note 1: For emissions in restricted bands, the limit of 15.209 was used which requires average and peak measurements.
- Note 2: For emissions outside of the restricted bands the limit is -27dBm/MHz eirp (68.3dB $\mu$ V/m). The measurement method required is a peak measurement (RB=1MHz, VB $\geq$ 3MHz, peak detector).



Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
Contact: Tarandeep Kaur	Project Manager: Sheareen Jacobs
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator: Irene Rademacher
	Class: N/A





# EMC Test Data

Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
Contact: Tarandeep Kaur	Project Manager: Sheareen Jacobs
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator: Irene Rademacher
	Class: N/A

Run #4: Radiated Spurious Emissions, 1,000 - 40000 MHz. Operating Mode: Worse case from Run #3

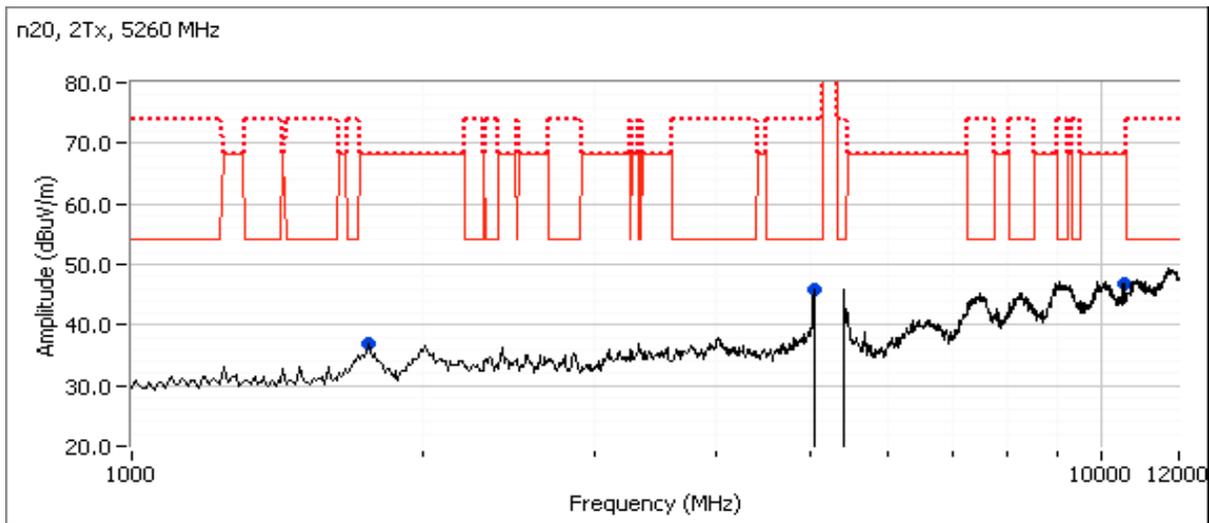
Date of Test: 7/27/2015 0:00      Config. Used: 1  
 Test Engineer: Rafael Varelas      Config Change: None  
 Test Location: FT Chamber #5      EUT Voltage: USB

Run #4a: Low Channel

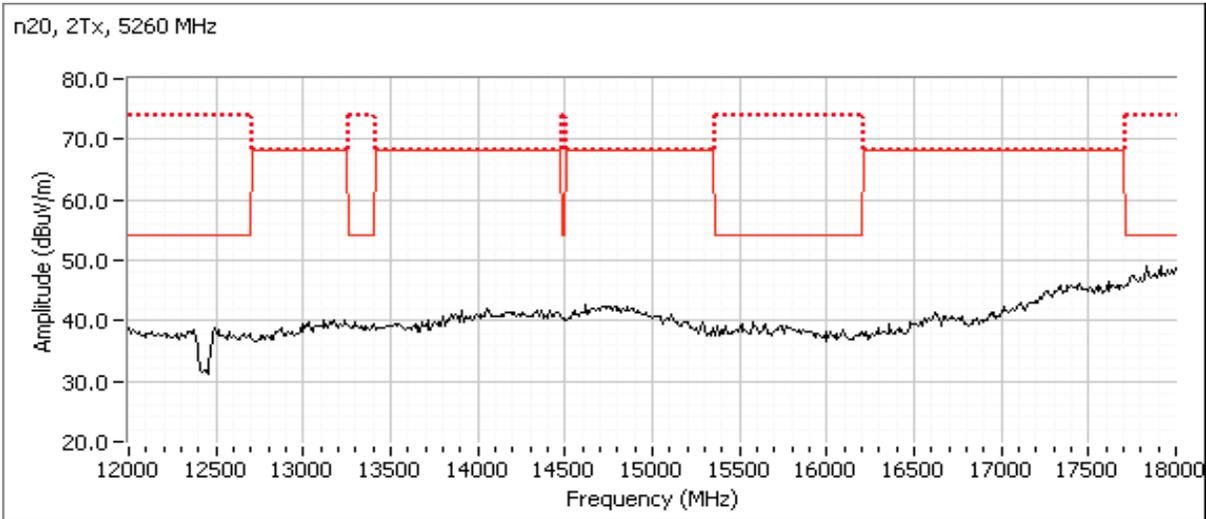
Channel: 52      Mode: n20  
 Tx Chain: 2Tx      Data Rate: MCS0

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dB $\mu$ V/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
10518.620	57.6	V	68.3	-10.7	PK	239	1.1	RB 1 MHz;VB 3 MHz;Peak
5045.450	39.5	V	54.0	-14.5	AVG	191	1.0	RB 1 MHz;VB 10 Hz;Peak
5039.080	51.2	V	74.0	-22.8	PK	191	1.0	RB 1 MHz;VB 3 MHz;Peak
1752.500	36.8	V	68.3	-31.5	Peak	181	1.3	

Note: Scans made between 18 - 40 GHz with the measurement antenna moved around the card and its antennas 20-50cm from the device indicated there were no significant emissions in this frequency range



Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
Contact: Tarandeep Kaur	Project Manager: Sheareen Jacobs
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator: Irene Rademacher
	Class: N/A





# EMC Test Data

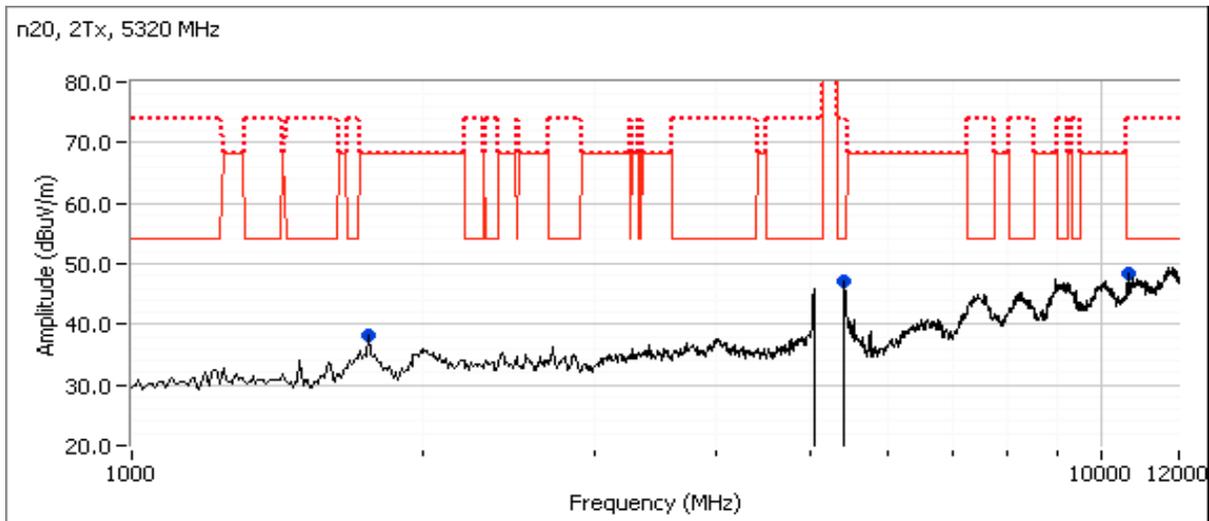
Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
Contact: Tarandeep Kaur	Project Manager: Sheareen Jacobs
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator: Irene Rademacher
	Class: N/A

## Run #4b: High Channel

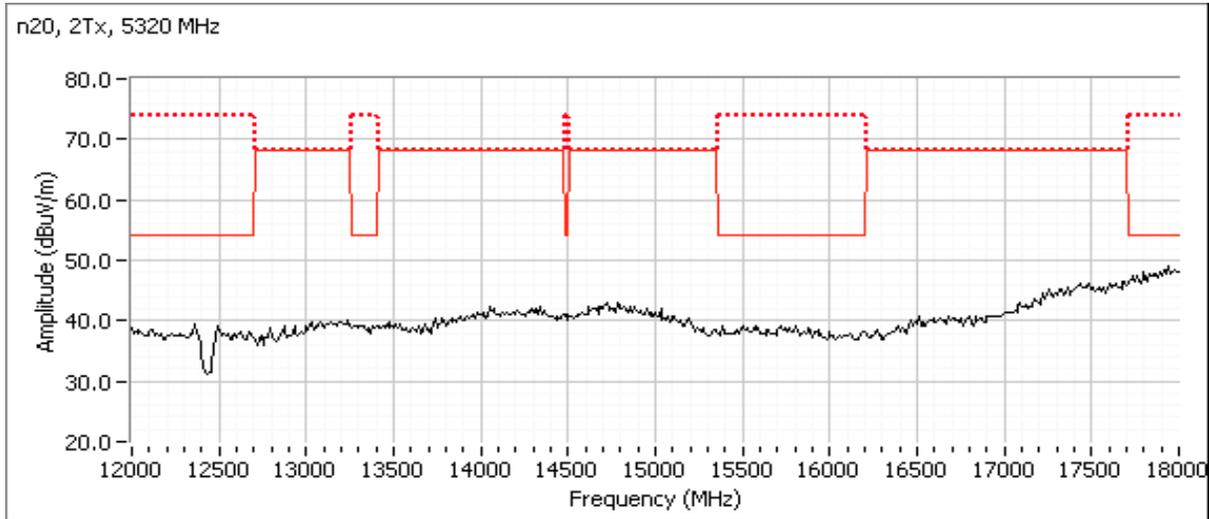
Channel: 64                      Mode: n20  
 Tx Chain: 2Tx                  Data Rate: MCS0

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dB $\mu$ V/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
10640.100	45.7	V	54.0	-8.3	AVG	244	1.2	RB 1 MHz;VB 10 Hz;Peak
10638.250	59.1	V	74.0	-14.9	PK	244	1.2	RB 1 MHz;VB 3 MHz;Peak
5414.960	42.4	V	54.0	-11.6	AVG	204	1.2	RB 1 MHz;VB 10 Hz;Peak
5414.960	54.5	V	74.0	-19.5	PK	204	1.2	RB 1 MHz;VB 3 MHz;Peak
1749.170	38.3	V	68.3	-30.0	Peak	14	1.3	

Note: Scans made between 18 - 40 GHz with the measurement antenna moved around the card and its antennas 20-50cm from the device indicated there were no significant emissions in this frequency range



Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
Contact: Tarandeep Kaur	Project Manager: Sheareen Jacobs
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator: Irene Rademacher
	Class: N/A





# EMC Test Data

Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
Contact: Tarandeep Kaur	Project Manager: Sheareen Jacobs
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator: Irene Rademacher
	Class: N/A

**Run #5, Radiated Spurious Emissions, 1,000 - 40,000 MHz. Operation in the 5470-5725 MHz Band**

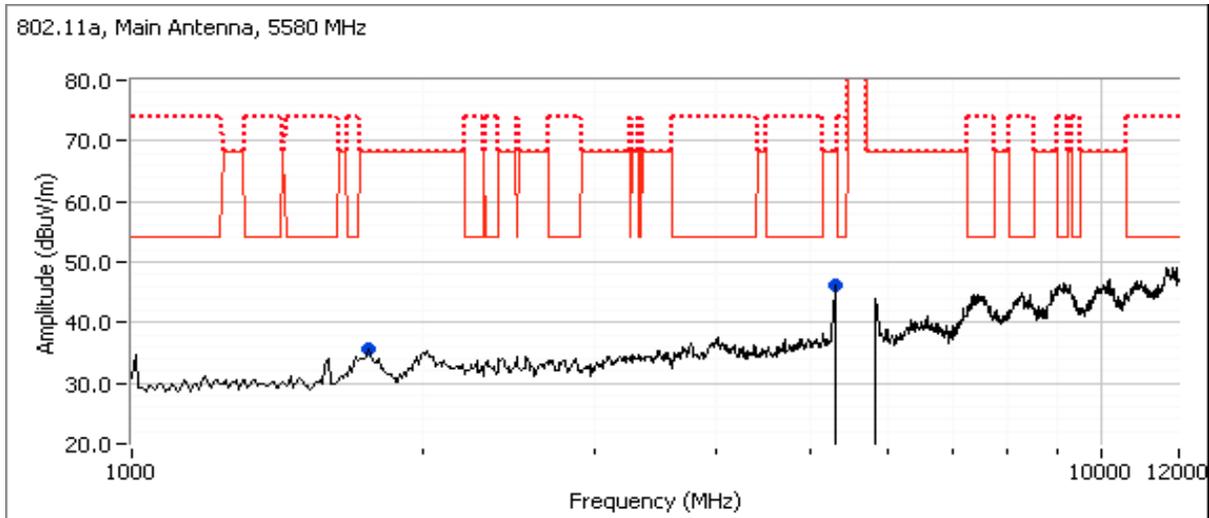
Date of Test: 7/23 & 7/24/2015 12:00:00 AM      Config. Used: 1  
 Test Engineer: Rafael Varelas      Config Change: None  
 Test Location: FT Chamber #5      EUT Voltage: USB

**Run #5a: Center Channel**

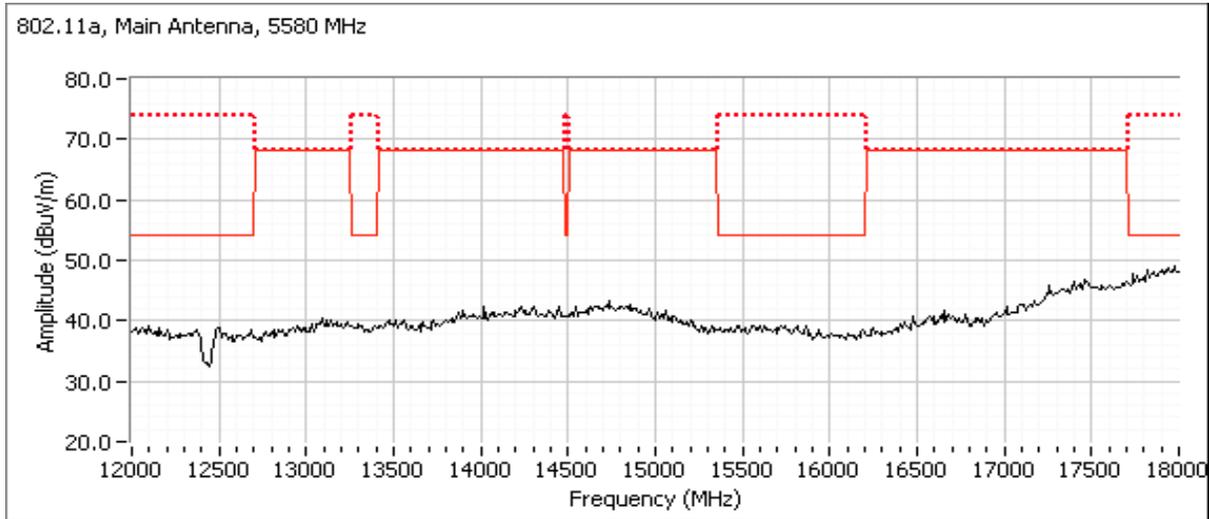
Channel: 116      Mode: a  
 Tx Chain: Main      Data Rate: 6Mb/s

Frequency	Level	Pol	15.209 / 15E		Detector	Azimuth	Height	Comments
MHz	dB $\mu$ V/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5325.930	50.8	V	68.3	-17.5	PK	87	1.0	RB 1 MHz;VB 3 MHz;Peak
1750.000	35.5	V	68.3	-32.8	Peak	18	1.3	

- Note: Scans made between 18 - 40 GHz with the measurement antenna moved around the card and its antennas 20-50cm from the device indicated there were no significant emissions in this frequency range
- Note 1: For emissions in restricted bands, the limit of 15.209 was used which requires average and peak measurements.
- Note 2: For emissions outside of the restricted bands the limit is -27dBm/MHz eirp (68.3dBuV/m). The measurement method required is a peak measurement (RB=1MHz, VB $\geq$ 3MHz, peak detector).



Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
Contact: Tarandeep Kaur	Project Manager: Sheareen Jacobs
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator: Irene Rademacher
	Class: N/A



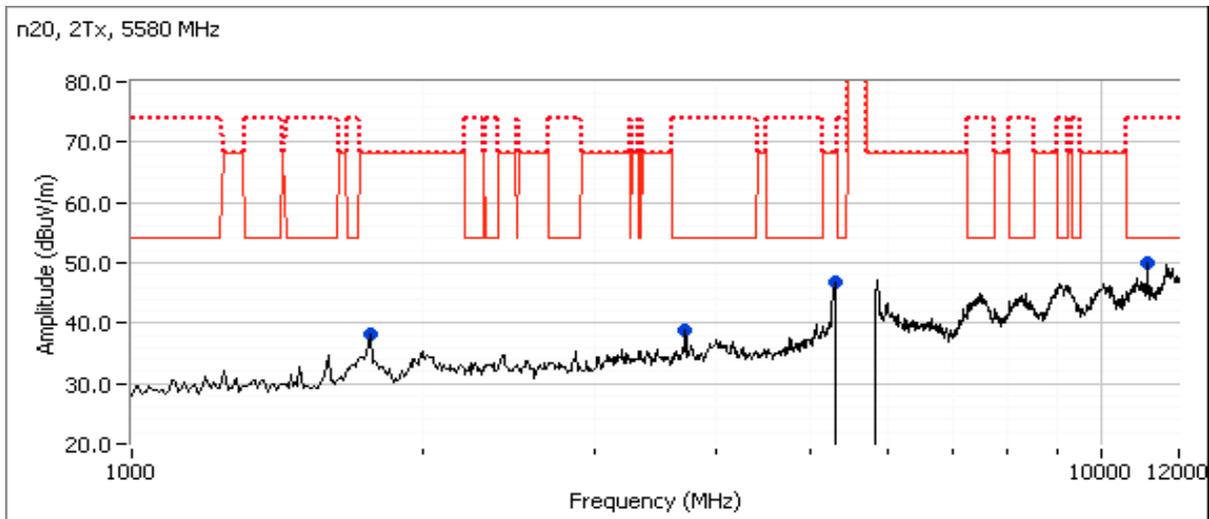
Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
Contact: Tarandeep Kaur	Project Manager: Sheareen Jacobs
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator: Irene Rademacher
	Class: N/A

### Run #5b: Center Channel

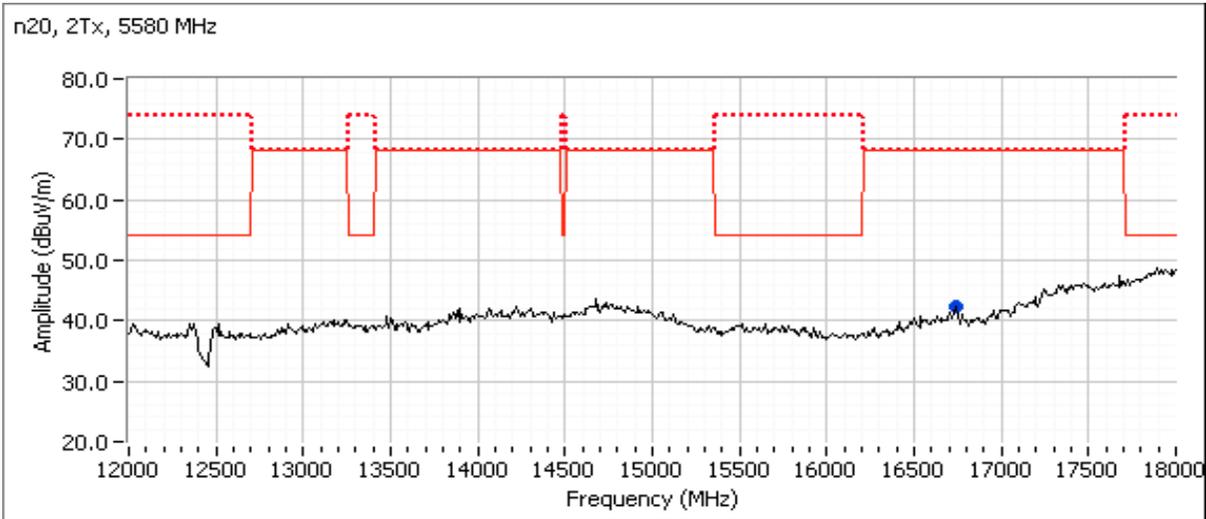
Channel: 116                      Mode: 11n20  
 Tx Chain: 2Tx                    Data Rate: MCS0

Frequency	Level	Pol	15.209 / 15E		Detector	Azimuth	Height	Comments
MHz	dB $\mu$ V/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
11160.040	47.8	V	54.0	-6.2	AVG	252	1.5	RB 1 MHz;VB 10 Hz;Peak
11162.500	60.3	V	74.0	-13.7	PK	252	1.5	RB 1 MHz;VB 3 MHz;Peak
3720.000	34.9	V	54.0	-19.1	AVG	263	1.8	RB 1 MHz;VB 10 Hz;Peak
3720.170	43.0	V	74.0	-31.0	PK	263	1.8	RB 1 MHz;VB 3 MHz;Peak
1757.660	38.2	V	68.3	-30.1	Peak	357	1.3	
5309.250	46.8	H	68.3	-21.5	Peak	298	1.6	
16740.000	42.3	V	68.3	-26.0	Peak	209	1.6	

- Note: Scans made between 18 - 40 GHz with the measurement antenna moved around the card and its antennas 20-50cm from the device indicated there were no significant emissions in this frequency range
- Note 1: For emissions in restricted bands, the limit of 15.209 was used which requires average and peak measurements.
- Note 2: For emissions outside of the restricted bands the limit is -27dBm/MHz eirp (68.3dBuV/m). The measurement method required is a peak measurement (RB=1MHz, VB $\geq$ 3MHz, peak detector).



Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
Contact: Tarandeep Kaur	Project Manager: Sheareen Jacobs
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator: Irene Rademacher
	Class: N/A





# EMC Test Data

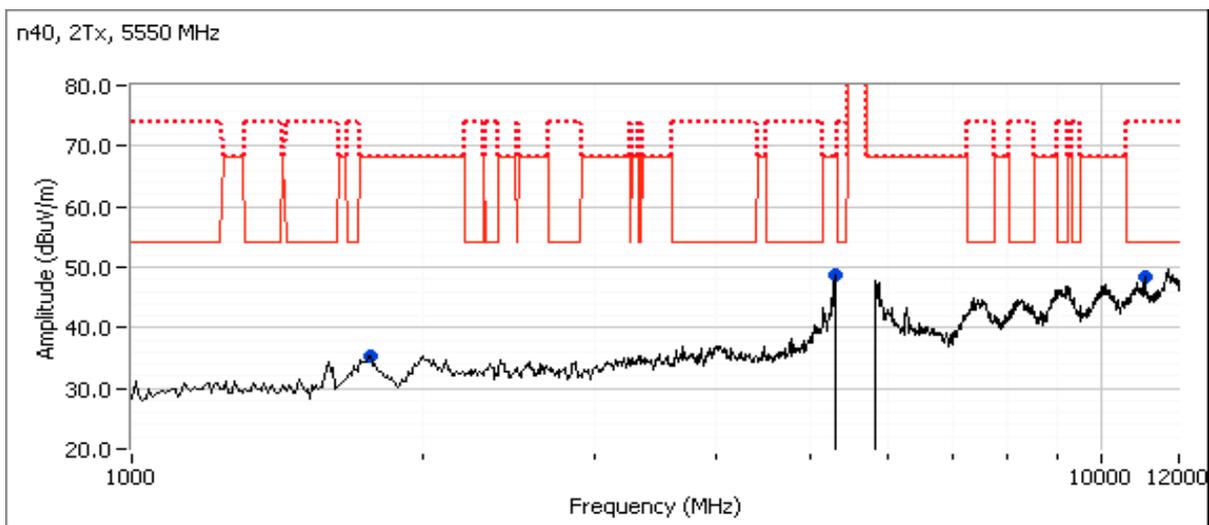
Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
Contact: Tarandeep Kaur	Project Manager: Sheareen Jacobs
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator: Irene Rademacher
	Class: N/A

## Run #5c: Center Channel

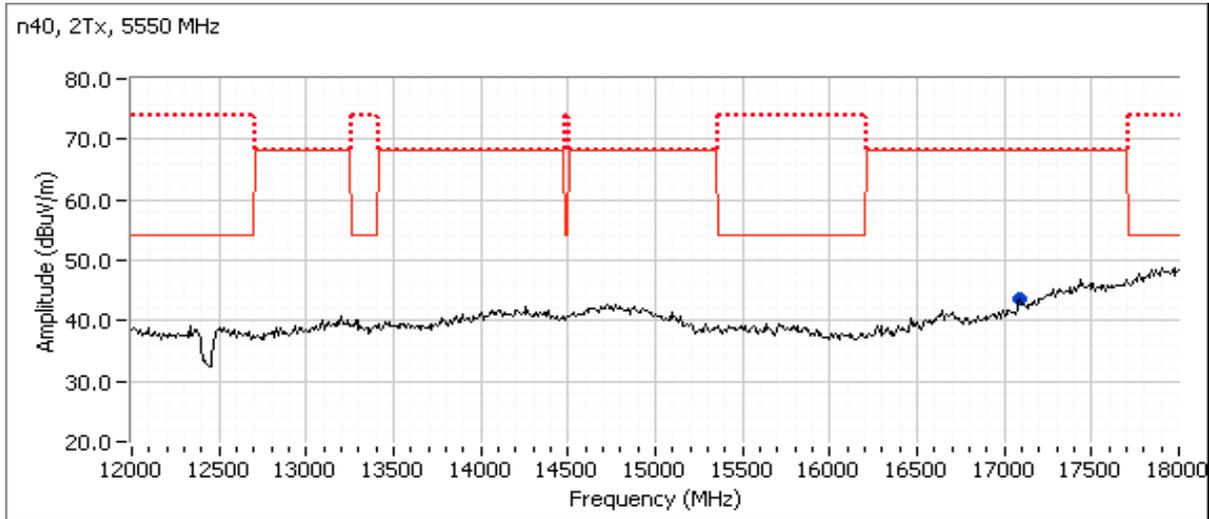
Channel: 110                      Mode: 11n40  
 Tx Chain: 2Tx                    Data Rate: MCS0

Frequency	Level	Pol	15.209 / 15E		Detector	Azimuth	Height	Comments
MHz	dB $\mu$ V/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
11100.310	46.1	V	54.0	-7.9	AVG	243	2.4	RB 1 MHz;VB 10 Hz;Peak
11103.410	57.8	V	74.0	-16.2	PK	243	2.4	RB 1 MHz;VB 3 MHz;Peak
1759.990	35.2	V	68.3	-33.1	Peak	11	1.3	
5308.160	48.6	V	68.3	-19.7	Peak	179	2.5	
17090.000	43.6	V	68.3	-24.7	Peak	46	1.3	

- Note: Scans made between 18 - 40 GHz with the measurement antenna moved around the card and its antennas 20-50cm from the device indicated there were no significant emissions in this frequency range
- Note 1: For emissions in restricted bands, the limit of 15.209 was used which requires average and peak measurements.
- Note 2: For emissions outside of the restricted bands the limit is -27dBm/MHz eirp (68.3dBuV/m). The measurement method required is a peak measurement (RB=1MHz, VB $\geq$ 3MHz, peak detector).



Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
	Project Manager: Sheareen Jacobs
Contact: Tarandeep Kaur	Project Coordinator: Irene Rademacher
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Class: N/A





# EMC Test Data

Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
	Project Manager: Sheareen Jacobs
Contact: Tarandeep Kaur	Project Coordinator: Irene Rademacher
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Class: N/A

Run #6: Radiated Spurious Emissions, 1,000 - 40000 MHz. Operating Mode: Worse case from Run #5

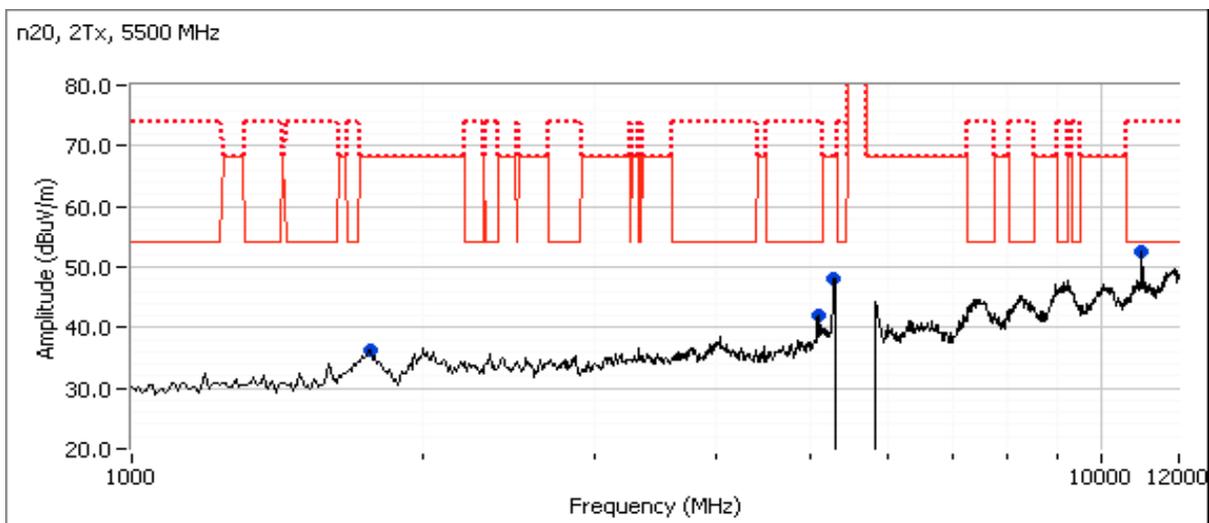
Date of Test: 7/27/2015 0:00      Config. Used: 1  
 Test Engineer: Rafael Varelas      Config Change: None  
 Test Location: FT Chamber #5      EUT Voltage: USB

Run #6a: Low Channel

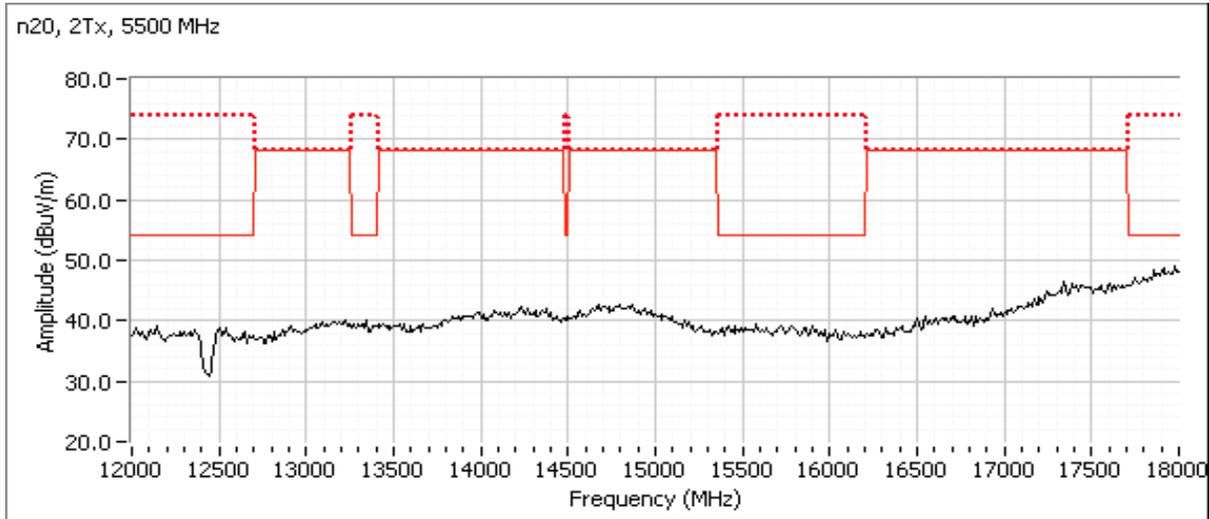
Channel: 100      Mode: n20  
 Tx Chain: 2Tx      Data Rate: MCS0

Frequency MHz	Level dB $\mu$ V/m	Pol v/h	15.209 / 15.247		Detector Pk/QP/Avg	Azimuth degrees	Height meters	Comments
			Limit	Margin				
11000.530	47.9	V	54.0	-6.1	AVG	258	1.0	RB 1 MHz;VB 10 Hz;Peak
11003.750	60.7	V	74.0	-13.3	PK	258	1.0	RB 1 MHz;VB 3 MHz;Peak
5111.180	31.1	V	54.0	-22.9	AVG	256	1.0	RB 1 MHz;VB 10 Hz;Peak
5110.490	42.4	V	74.0	-31.6	PK	256	1.0	RB 1 MHz;VB 3 MHz;Peak
1754.750	36.2	V	68.3	-32.1	Peak	180	1.3	
5309.060	48.2	V	68.3	-20.1	Peak	194	1.6	

Note: Scans made between 18 - 40 GHz with the measurement antenna moved around the card and its antennas 20-50cm from the device indicated there were no significant emissions in this frequency range



Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
	Project Manager: Sheareen Jacobs
Contact: Tarandeep Kaur	Project Coordinator: Irene Rademacher
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Class: N/A





# EMC Test Data

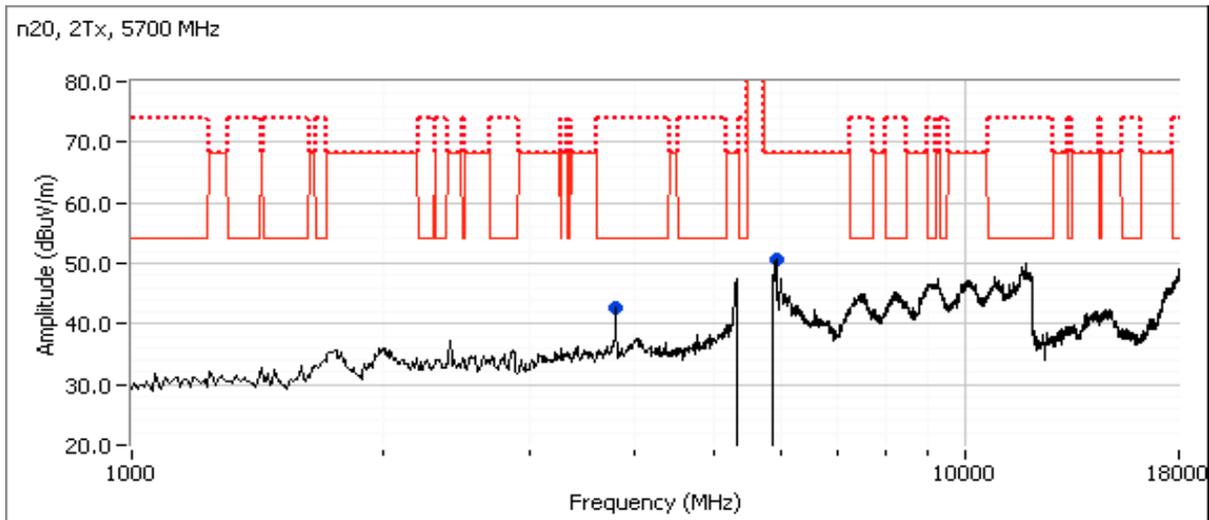
Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
Contact: Tarandeep Kaur	Project Manager: Sheareen Jacobs
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator: Irene Rademacher
	Class: N/A

## Run #6b: High Channel

Channel: 140                      Mode: n20  
 Tx Chain: 2Tx                    Data Rate: MCS0

Frequency MHz	Level dB $\mu$ V/m	Pol v/h	15.209 / 15.247		Detector Pk/QP/Avg	Azimuth degrees	Height meters	Comments
			Limit	Margin				
5921.370	54.7	V	68.3	-13.6	PK	191	2.3	RB 1 MHz;VB 3 MHz;Peak
3800.060	38.3	V	54.0	-15.7	AVG	310	1.0	RB 1 MHz;VB 10 Hz;Peak
3800.350	45.4	V	74.0	-28.6	PK	310	1.0	RB 1 MHz;VB 3 MHz;Peak

Note: Scans made between 18 - 40 GHz with the measurement antenna moved around the card and its antennas 20-50cm from the device indicated there were no significant emissions in this frequency range





# EMC Test Data

Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
Contact: Tarandeep Kaur	Project Manager: Sheareen Jacobs
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator: Irene Rademacher
	Class: N/A

### Run #7, Radiated Spurious Emissions, 1,000 - 40,000 MHz. Operation in the 5725-5850 MHz Band

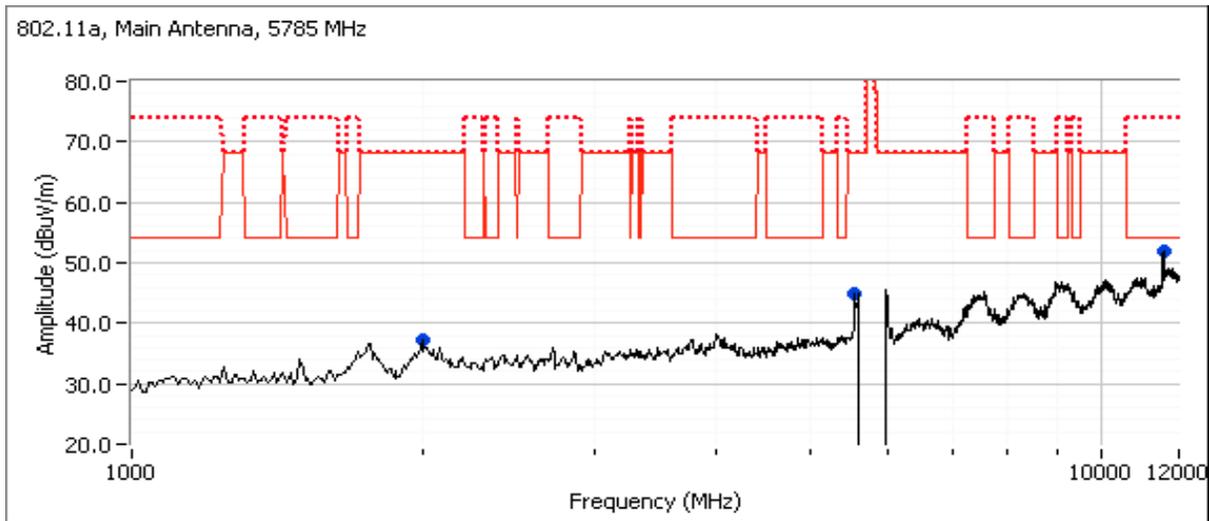
Date of Test: 7/24/2015 0:00      Config. Used: 1  
 Test Engineer: Rafael Varelas      Config Change: None  
 Test Location: FT Chamber #5      EUT Voltage: USB

### Run #7a: Center Channel

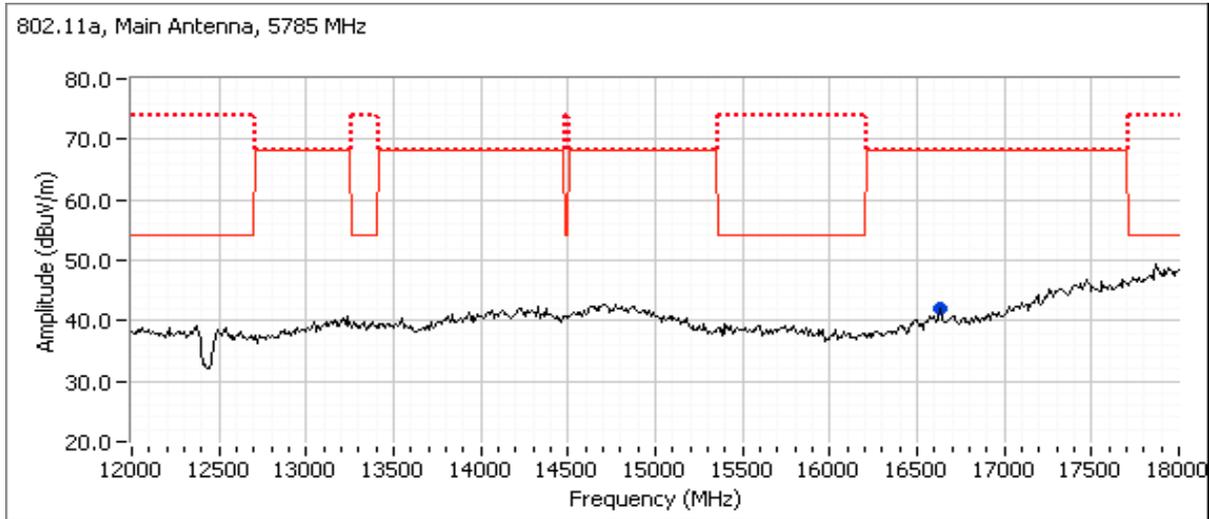
Channel: 157      Mode: a  
 Tx Chain: Main      Data Rate: 6Mb/s

Frequency MHz	Level dB $\mu$ V/m	Pol v/h	15.209 / 15E		Detector Pk/QP/Avg	Azimuth degrees	Height meters	Comments
			Limit	Margin				
11569.080	44.7	V	54.0	-9.3	AVG	26	1.0	RB 1 MHz;VB 10 Hz;Peak
11575.950	55.8	V	74.0	-18.2	PK	26	1.0	RB 1 MHz;VB 3 MHz;Peak
1995.500	37.2	V	68.3	-31.1	Peak	111	2.5	
5573.800	44.8	V	68.3	-23.5	Peak	194	1.6	
16630.000	42.1	V	68.3	-26.2	Peak	220	1.9	

- Note: Scans made between 18 - 40 GHz with the measurement antenna moved around the card and its antennas 20-50cm from the device indicated there were no significant emissions in this frequency range
- Note 1: For emissions in restricted bands, the limit of 15.209 was used which requires average and peak measurements.
- Note 2: For emissions outside of the restricted bands the limit is -27dBm/MHz eirp (68.3dBuV/m). The measurement method required is a peak measurement (RB=1MHz, VB $\geq$ 3MHz, peak detector).



Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
Contact: Tarandeep Kaur	Project Manager: Sheareen Jacobs
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator: Irene Rademacher
	Class: N/A



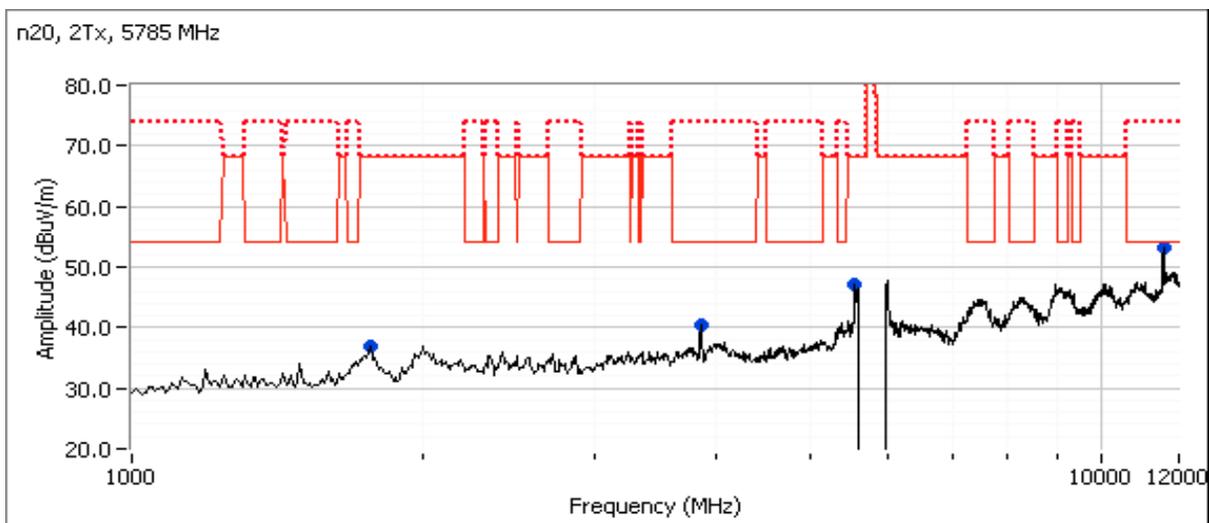
Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
Contact: Tarandeep Kaur	Project Manager: Sheareen Jacobs
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator: Irene Rademacher
	Class: N/A

### Run #7b: Center Channel

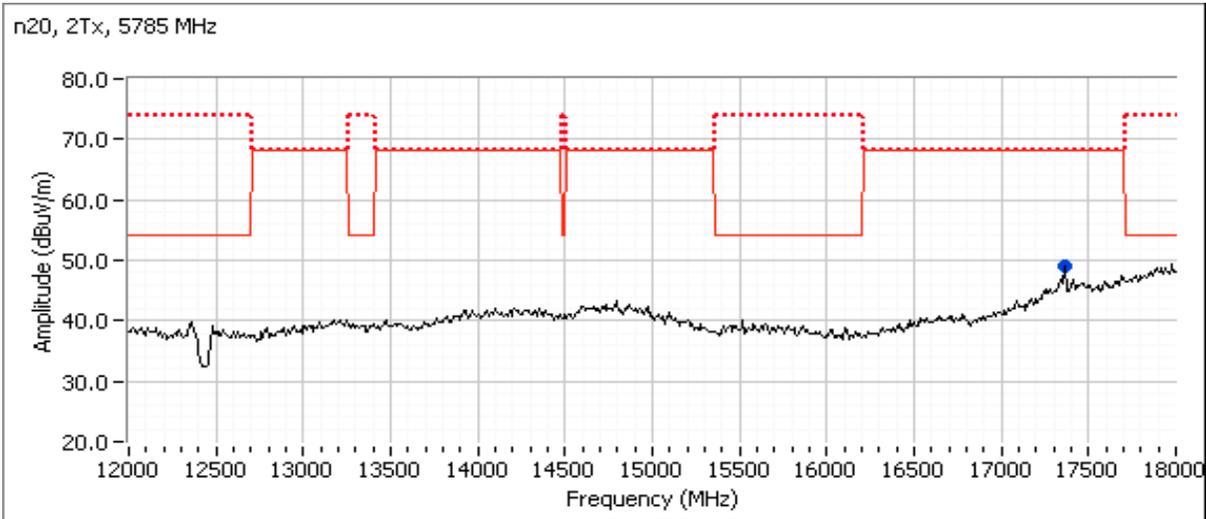
Channel: 157                      Mode: 11n20  
 Tx Chain: 2Tx                      Data Rate: MCS0

Frequency	Level	Pol	15.209 / 15E		Detector	Azimuth	Height	Comments
MHz	dB $\mu$ V/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
11569.930	49.4	V	54.0	-4.6	AVG	190	1.2	RB 1 MHz;VB 10 Hz;Peak
11570.200	60.7	V	74.0	-13.3	PK	190	1.2	RB 1 MHz;VB 3 MHz;Peak
1759.660	37.0	V	68.3	-31.3	Peak	212	1.0	
3863.160	40.5	V	54.0	-13.5	Peak	177	1.6	
5590.550	47.2	V	68.3	-21.1	Peak	175	1.9	
17361.200	49.1	V	68.3	-19.2	Peak	229	1.6	

- Note: Scans made between 18 - 40 GHz with the measurement antenna moved around the card and its antennas 20-50cm from the device indicated there were no significant emissions in this frequency range
- Note 1: For emissions in restricted bands, the limit of 15.209 was used which requires average and peak measurements.
- Note 2: For emissions outside of the restricted bands the limit is -27dBm/MHz eirp (68.3dBuV/m). The measurement method required is a peak measurement (RB=1MHz, VB $\geq$ 3MHz, peak detector).



Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
Contact: Tarandeep Kaur	Project Manager: Sheareen Jacobs
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator: Irene Rademacher
	Class: N/A



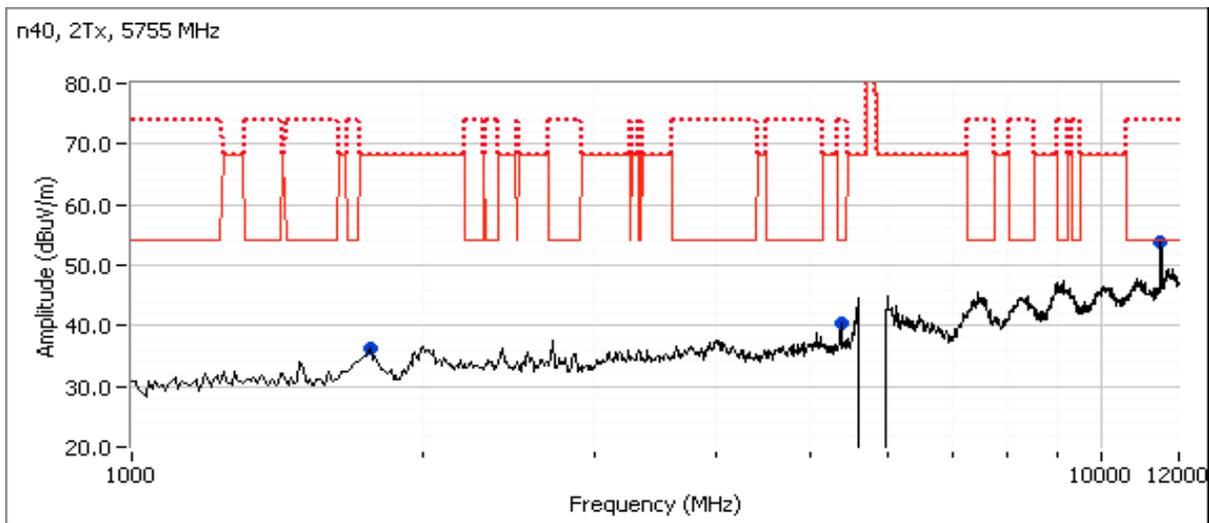
Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
Contact: Tarandeep Kaur	Project Manager: Sheareen Jacobs
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator: Irene Rademacher
	Class: N/A

Run #7c: Center Channel

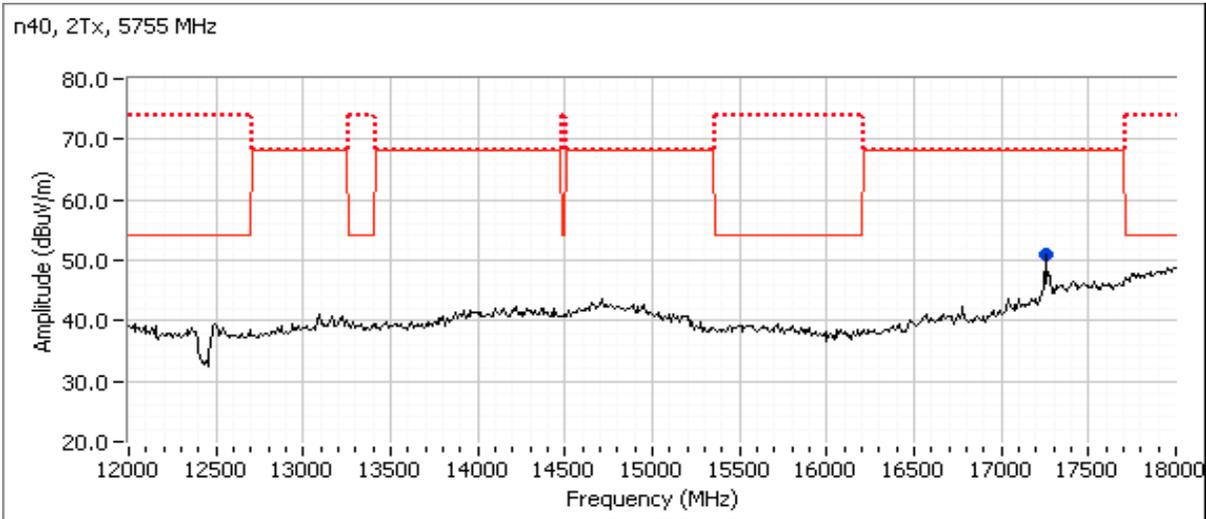
Channel: 151                      Mode: 11n40  
 Tx Chain: 2Tx                    Data Rate: MCS0

Frequency	Level	Pol	15.209 / 15E		Detector	Azimuth	Height	Comments
MHz	dB $\mu$ V/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
11515.180	46.6	V	54.0	-7.4	AVG	281	2.4	RB 1 MHz;VB 10 Hz;Peak
11506.910	57.3	V	74.0	-16.7	PK	281	2.4	RB 1 MHz;VB 3 MHz;Peak
5388.490	40.4	H	54.0	-13.6	Peak	230	1.6	
1758.500	36.3	V	68.3	-32.0	Peak	26	1.9	
17252.700	50.8	V	68.3	-17.5	Peak	195	1.6	

- Note: Scans made between 18 - 40 GHz with the measurement antenna moved around the card and its antennas 20-50cm from the device indicated there were no significant emissions in this frequency range
- Note 1: For emissions in restricted bands, the limit of 15.209 was used which requires average and peak measurements.
- Note 2: For emissions outside of the restricted bands the limit is -27dBm/MHz eirp (68.3dBuV/m). The measurement method required is a peak measurement (RB=1MHz, VB $\geq$ 3MHz, peak detector).



Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
Contact: Tarandeep Kaur	Project Manager: Sheareen Jacobs
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator: Irene Rademacher
	Class: N/A





# EMC Test Data

Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
Contact: Tarandeep Kaur	Project Manager: Sheareen Jacobs
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator: Irene Rademacher
	Class: N/A

Run #8: Radiated Spurious Emissions, 1,000 - 40000 MHz. Operating Mode: Worse case from Run #7

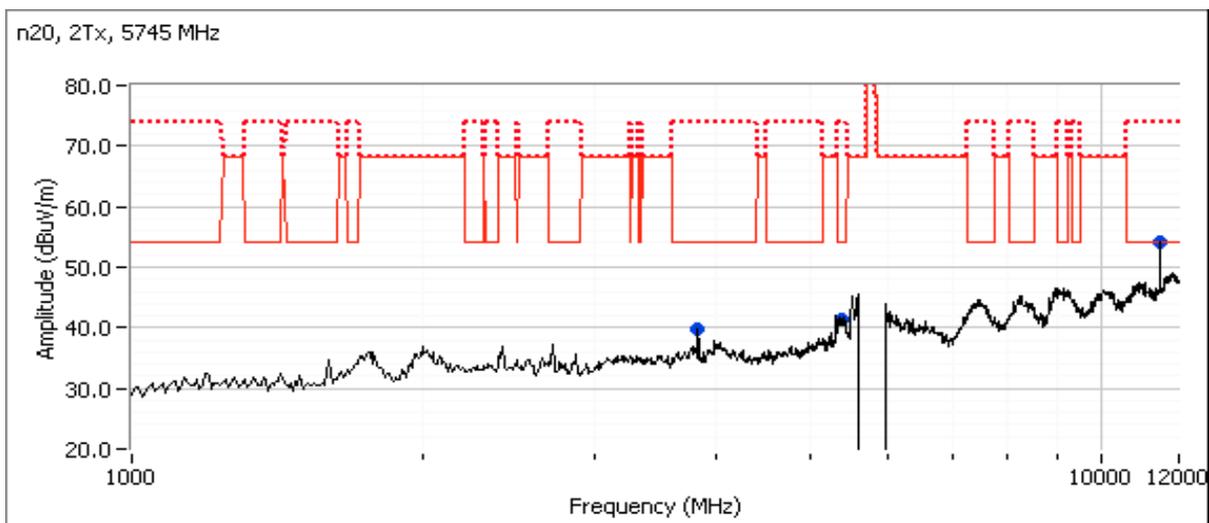
Date of Test: 7/27/2015 0:00      Config. Used: 1  
 Test Engineer: Rafael Varelas      Config Change: None  
 Test Location: FT Chamber #5      EUT Voltage: USB

Run #8a: Low Channel

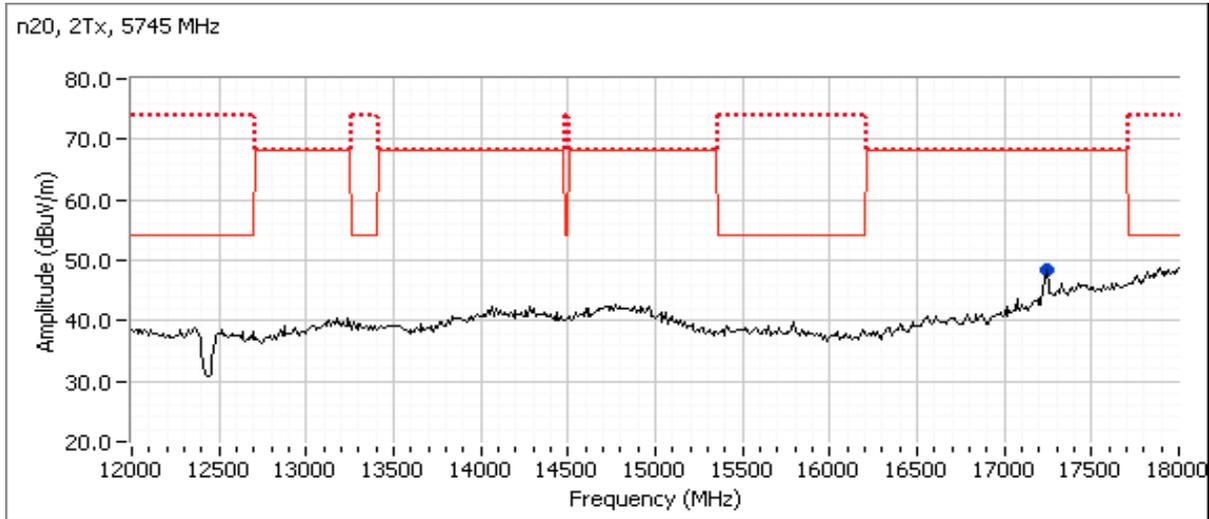
Channel: 149      Mode: n20  
 Tx Chain: 2Tx      Data Rate: MCS0

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dB $\mu$ V/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
11490.220	49.3	V	54.0	-4.7	AVG	255	1.4	RB 1 MHz;VB 10 Hz;Peak
11492.760	60.0	V	74.0	-14.0	PK	255	1.4	RB 1 MHz;VB 3 MHz;Peak
3830.160	39.9	V	54.0	-14.1	Peak	141	1.9	
5406.890	41.4	V	54.0	-12.6	Peak	189	1.3	
17240.000	48.3	H	68.3	-20.0	Peak	170	1.9	

Note: Scans made between 18 - 40 GHz with the measurement antenna moved around the card and its antennas 20-50cm from the device indicated there were no significant emissions in this frequency range



Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
	Project Manager: Sheareen Jacobs
Contact: Tarandeep Kaur	Project Coordinator: Irene Rademacher
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Class: N/A



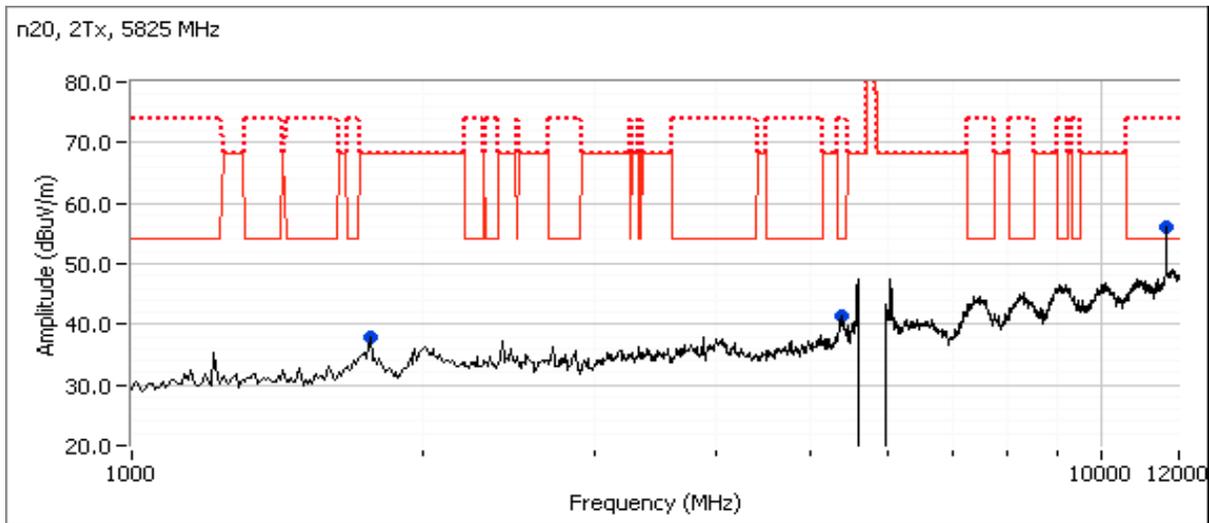
Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
Contact: Tarandeep Kaur	Project Manager: Sheareen Jacobs
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator: Irene Rademacher
	Class: N/A

### Run #8b: High Channel

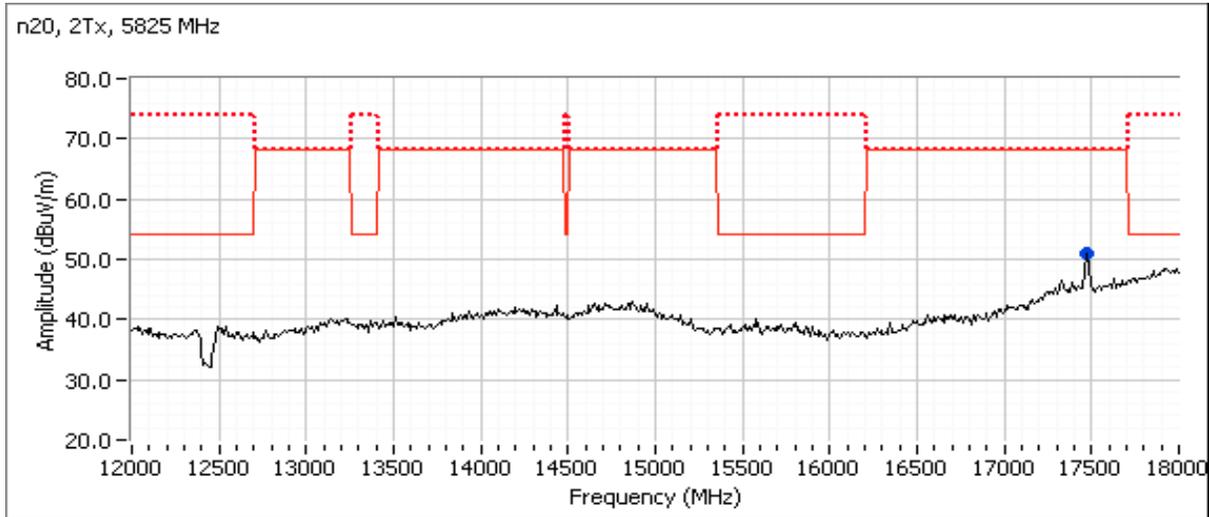
Channel: 165                      Mode: n20  
 Tx Chain: 2Tx                    Data Rate: MCS0

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dB $\mu$ V/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
11649.680	50.2	V	54.0	-3.8	AVG	196	1.1	RB 1 MHz;VB 10 Hz;Peak
11654.850	61.9	V	74.0	-12.1	PK	196	1.1	RB 1 MHz;VB 3 MHz;Peak
1757.910	37.8	V	68.3	-30.5	Peak	224	1.0	
5381.830	41.3	V	54.0	-12.7	Peak	185	1.3	
17470.000	50.9	V	68.3	-17.4	Peak	234	1.6	

Note: Scans made between 18 - 40 GHz with the measurement antenna moved around the card and its antennas 20-50cm from the device indicated there were no significant emissions in this frequency range



Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
Contact: Tarandeep Kaur	Project Manager: Sheareen Jacobs
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator: Irene Rademacher
	Class: N/A



Client:	Hewlett Packard Company	Job Number:	J98746
Model:	SDGOB-1505	T-Log Number:	T98753
Contact:	Tarandeep Kaur	Project Manager:	Sheareen Jacobs
Standard:	FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator:	Irene Rademacher
		Class:	N/A

## RSS-247 and FCC 15.407(UNII) Antenna Port Measurements Power, PSD, 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.

### Summary of Results

Run #	Test Performed	Limit	Pass / Fail	Result / Margin
1	Power, 5150 - 5250MHz	15.407(a) (1) (iv)	Pass	n20: 18.9 dBm (77.8mW) n40: 20.0 dBm (100mW)
1	PSD, 5150 - 5250MHz	15.407(a) (1) (iv)	Pass	n20: 6.4 dBm/MHz n40: 5.7 dBm/MHz
1	Power, 5150 - 5250MHz	RSS-247, 6.2.1 (1)	Pass	n20: 22.4dBm eirp n40: 22.96dBm eirp
1	PSD, 5150 - 5250MHz	RSS-247, 6.2.1 (1)	Pass	n20: 6.4 dBm/MHz n40: 5.0 dBm/MHz
1	Power, 5250 - 5350MHz	15.407(a) (2) / RSS-247, 6.2.2 (1)	Pass	n20: 19.8 dBm (96mW) n40: 18.8 dBm (76mW)
1	PSD, 5250 - 5350MHz	15.407(a) (2) / RSS-247, 6.2.2 (1)	Pass	n20: 7.4 dBm/MHz n40: 4.4 dBm/MHz
1	Max EIRP 5250 - 5350MHz	TPC required if EIRP ≥ 500mW (27dBm). EIRP ≥ 200mW (23dBm) DFS threshold = -64dBm.	Pass	EIRP = 23.3 dBm (215mW)
1	Power, 5470 - 5725MHz	15.407(a) (2) / RSS-247, 6.2.3 (1)	Pass	n20: 18.5 dBm (71mW) n40: 19.0 dBm (80mW)
1	PSD, 5470 - 5725MHz	15.407(a) (2) / RSS-247, 6.2.3 (1)	Pass	n20: 6.2 dBm/MHz n40: 4.6 dBm/MHz
1	Max EIRP 5470 - 5725MHz	TPC required if EIRP ≥ 500mW (27dBm). EIRP ≥ 200mW (23dBm) DFS threshold	Pass	EIRP = 22.5 dBm (178mW)
1	Power, 5725 - 5850MHz	15.407(a)(3) / RSS-247, 6.2.4 (1)	Pass	n20: 18.7 dBm (74 mW) n40: 16.4 dBm (44 mW)
1	PSD, 5725 - 5850MHz	15.407(a)(3) / RSS-247, 6.2.4 (1)	Pass	n20: 6.3 dBm/MHz n40: 2.0 dBm/MHz



# EMC Test Data

Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
Contact: Tarandeep Kaur	Project Manager: Sheareen Jacobs
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator: Irene Rademacher
	Class: N/A

Run #	Test Performed	Limit	Pass / Fail	Result / Margin
2	6dB Bandwidth - UNII3	15.407(e)	Pass	14.3 MHz minimum
1	99% Bandwidth	RSS 210 (Information only)	N/A	n20: 17.6 MHz n40: 36.3 MHz

### 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: 25 °C  
Rel. Humidity: 31 %

### 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.

### Procedure Comments:

Measurements performed in accordance with FCC KDB 789033 D01 v01r03, dated April 8, 2013

Mode	Data Rate	Duty Cycle (x)	Constant DC?	T (ms)	Pwr Cor Factor*	Lin Volt Cor Factor**	Min VBW for FS (Hz)
11a	6MB/s	0.982	Yes	1.405	0	0	10
11n20	MCS0	0.981	Yes	1.309	0	0	10
11n40	MCS0	0.98	Yes	0.932	0	0	10

### Sample Notes

Sample S/N: MAC ID# 707781772509

Driver: 6.37 RC214 .12



## EMC Test Data

Client:	Hewlett Packard Company	Job Number:	J98746
Model:	SDGOB-1505	T-Log Number:	T98753
Contact:	Tarandeep Kaur	Project Manager:	Sheareen Jacobs
Standard:	FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator:	Irene Rademacher
		Class:	N/A

### Test Reduction Notes:

Power/PSD for 11a and n20 (1Tx) was not performed. Covered by n20 2Tx, total power not to exceed 2Tx power levels.  
Power/PSD for n40 (1Tx) was not performed. Covered by n40 2Tx, total power not to exceed 2Tx power levels.



# EMC Test Data

Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
	Project Manager: Sheareen Jacobs
Contact: Tarandeep Kaur	Project Coordinator: Irene Rademacher
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Class: N/A

## Run #1: Bandwidth, Output Power and Power Spectral Density - MIMO Systems

Date of Test: 8/5, 8/10/15, 8/12/15  
 Test Engineer: J.Caizzi / E. Mariscal / R. Varelas  
 Test Location: Lab 4A

Config. Used: 1  
 Config Change: None  
 EUT Voltage: USB

- Note 1: Output power measured using a spectrum analyzer (see plots below). RBW=1MHz, VB=3 MHz, # of points in sweep  $\geq 2 \times \text{span/RBW}$ , RMS detector, power averaging on (transmitted signal was continuous) and power integration over 50 MHz (method SA-1 of KDB 789033).
- 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  $\geq 3 \times \text{RB}$
- Note 5: For MIMO systems the total output power and total PSD are calculated from the sum of the powers of the individual chains (in linear terms). The antenna gain used to determine the EIRP and limits for PSD/Output power depends on the operating mode of the MIMO device. If the signals are non-coherent between the transmit chains then the gain used to determine the limits is the highest gain of the individual chains and the EIRP is the sum of the products of gain and power on each chain. If the signals are coherent then the effective antenna gain is the sum (in linear terms) of the gains for each chain and the EIRP is the product of the effective gain and total power.

## Antenna Gain Information - CDD Operation

Freq	Antenna Gain (dBi) / Chain				BF	MultiChain Legacy	CDD	Sectorized / Xpol	Dir G (PWR)	Dir G (PSD)
	1	2	3	4						
5150-5250	3.5	3.5			No	Yes	Yes	No	3.50	6.51
5250-5350	3.5	3.5			No	Yes	Yes	No	3.50	6.51
5470-5725	3.5	3.5			No	Yes	Yes	No	3.50	6.51
5725-5825	3.5	3.5			No	Yes	Yes	No	3.50	6.51

## For devices that support CDD modes

Min # of spatial streams: 1  
 Max # of spatial streams: 2



# EMC Test Data

Client:	Hewlett Packard Company	Job Number:	J98746
Model:	SDGOB-1505	T-Log Number:	T98753
Contact:	Tarandeep Kaur	Project Manager:	Sheareen Jacobs
Standard:	FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator:	Irene Rademacher
		Class:	N/A

## Antenna Gain Information - STBC Operation

Freq	Antenna Gain (dBi) / Chain				BF	MultiChain Legacy	CDD	Sectorized / Xpol	Dir G (PWR)	Dir G (PSD)
	1	2	3	4						
5150-5250	3.5	3.5			No	Yes	Yes	No	3.50	3.50
5250-5350	3.5	3.5			No	Yes	Yes	No	3.50	3.50
5470-5725	3.5	3.5			No	Yes	Yes	No	3.50	3.50
5725-5825	3.5	3.5			No	Yes	Yes	No	3.50	3.50

Notes:	BF = beamforming mode supported, Multichain Legacy = 802.11 legacy data rates supported for multichain transmissions, CDD = Cyclic Delay Diversity (or Cyclic Shift Diversity) modes supported, Sectorized / Xpol = antennas are sectorized or cross polarized.
Notes:	Dir G (PWR) = total gain (Gant + Array Gain) for power calculations; GA (PSD) = total gain for PSD calculations based on FCC KDB 662911. Depending on the modes supported, the Array Gain value for power could be different from the PSD value.
Notes:	Array gain for power/psd calculated per DKB 662911 D01, v01r02. Spatial Multiplexing with Nant=4, Nss=2, for worse case condition. Array gain = $10 \cdot \log(4/2) = 3\text{dB}$ .
Notes:	For systems with Beamforming and CDD, choose one the following options: Option 1: Delays are optimized for beamforming, rather than being selected from cyclic delay table of 802.11; Array gains calculated based on beamforming criteria. Option 2: Antennas are paired for beamforming, and the pairs are configured to use the cyclic delay diversity of 802.11; the array gain associated with beamforming with 2 antennas (3dB), and the array gain associated with CDD with two antennas (3dB for PSD and 0 dB for power)



# EMC Test Data

Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
	Project Manager: Sheareen Jacobs
Contact: Tarandeep Kaur	Project Coordinator: Irene Rademacher
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Class: N/A

## MIMO Device - 5150-5250 MHz Band - FCC

Mode: n20 (CDD)

Max EIRP (mW): 174.2

Frequency (MHz)	Chain	Software Setting	26dB BW (MHz)	Duty Cycle %	Power <sup>1</sup> dBm	Total Power mW	Total Power dBm	FCC Limit dBm	Max Power (W)	Result
5180	1	-	19.6	98	12.4	33.2	15.2	24.0	0.078	Pass
	3									
	4									
	2				12.0					
5200	1	-	21.3	98	15.0	64.0	18.1	24.0		Pass
	3									
	4									
	2				15.1					
5240	1	-	22.1	98	15.8	77.8	18.9	24.0		Pass
	3									
	4									
	2				16.0					

## MIMO Device - 5150-5250 MHz Band - Industry Canada

Mode: n20 (CDD)

Max EIRP (mW): 85.1

Frequency (MHz)	Chain	Software Setting	99% BW (MHz)	Duty Cycle %	Power <sup>1</sup> dBm	Total Power dBm	Total Power dBm (eirp)	IC limit dBm (eirp)	Max Power (W)	Result
5180	1	-	17.6	98	12.4	15.2	18.7	22.5	0.038	Pass
	3									
	4									
	2				12.0					
5200	1	-	17.6	98	12.8	15.8	19.3	22.5		Pass
	3									
	4									
	2				12.8					
5240	1	-	17.6	98	12.3	15.4	18.9	22.5		Pass
	3									
	4									
	2				12.5					



# EMC Test Data

Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
Contact: Tarandeep Kaur	Project Manager: Sheareen Jacobs
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator: Irene Rademacher
	Class: N/A

## 5150-5250 PSD - FCC Mode: n20 (CDD)

Frequency (MHz)	Chain	Software Setting	26dB BW (MHz)	Duty Cycle %	PSD dBm/MHz	Total PSD <sup>1</sup> mW/MHz	Total PSD <sup>1</sup> dBm/MHz	FCC Limit dBm/MHz	IC Limit dBm/MHz	Result
5180	1	-	19.6	98	0.0	1.9	2.8	10.5		Pass
	3									
	4									
	2				-0.5					
5200	1	-	21.3	98	2.6	3.6	5.6	10.5		Pass
	3									
	4									
	2				2.6					
5240	1	-	22.1	98	3.3	4.4	6.4	10.5		Pass
	3									
	4									
	2				3.5					

## 5150-5250 PSD - IC Mode: n20 (CDD)

Frequency (MHz)	Chain	Software Setting	99% BW (MHz)	Duty Cycle %	PSD dBm/MHz	Total PSD <sup>1</sup> mW/MHz	Total PSD <sup>1</sup> dBm/MHz	FCC Limit dBm/MHz	IC Limit dBm/MHz	Result
5180	1	-	17.6	98	0.0	1.9	2.8		3.5	Pass
	3									
	4									
	2				-0.5					
5200	1	-	17.6	98	0.4	2.2	3.4		3.5	Pass
	3									
	4									
	2				0.3					
5240	1	-	17.6	98	0.0	2.1	3.3		3.5	Pass
	3									
	4									
	2				0.5					



# EMC Test Data

Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
	Project Manager: Sheareen Jacobs
Contact: Tarandeep Kaur	Project Coordinator: Irene Rademacher
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Class: N/A

## MIMO Device - 5150-5250 MHz Band - Industry Canada

Mode: n20 (STBC)

Max EIRP (mW): 174.2

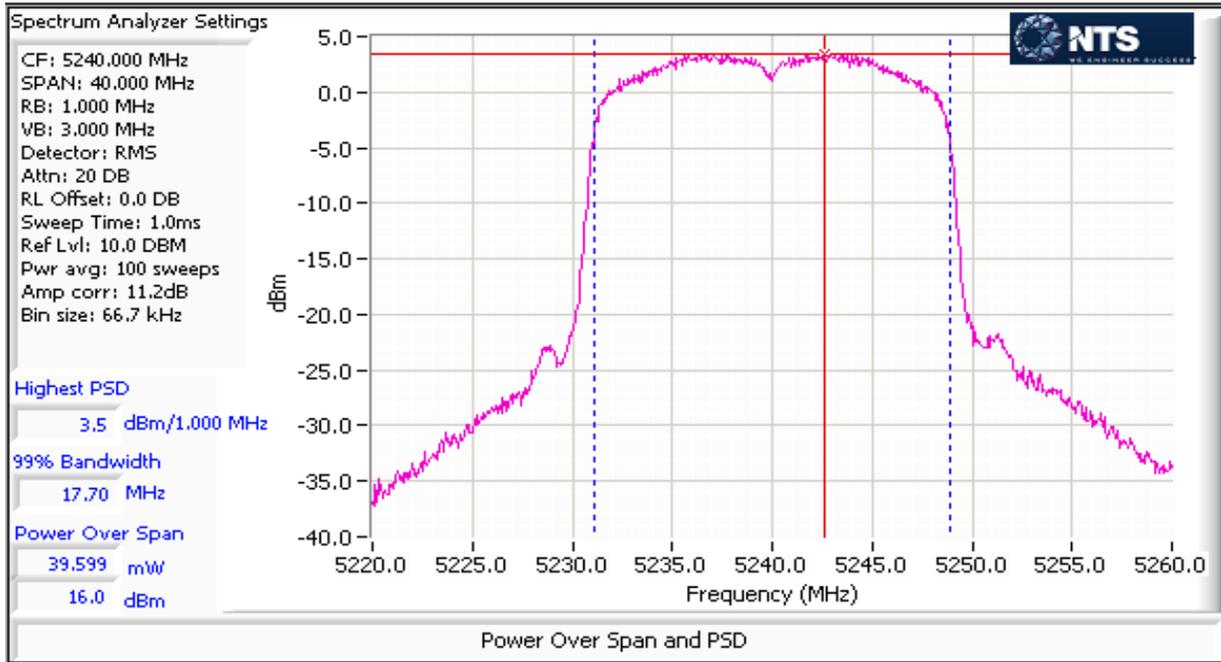
Frequency (MHz)	Chain	Software Setting	99% BW (MHz)	Duty Cycle %	Power <sup>1</sup> dBm	Total Power dBm	Total Power dBm (eirp)	IC limit dBm (eirp)	Max Power (W)	Result		
5180	1	-	17.6	98	12.4	15.2	18.7	22.5	0.078	Pass		
	3											
	4											
	2											
5200	1	-	17.6	98	15.0	18.1	21.6	22.5		0.078	Pass	
	3											
	4											
	2											
5240	1	-	17.7	98	15.8	18.9	22.4	22.5			0.078	Pass
	3											
	4											
	2											

## 5150-5250 PSD - IC

Mode: n20 (STBC)

Frequency (MHz)	Chain	Software Setting	99% BW (MHz)	Duty Cycle %	PSD dBm/MHz	Total PSD <sup>1</sup> mW/MHz	Total PSD <sup>1</sup> dBm/MHz	FCC Limit dBm/MHz	IC Limit dBm/MHz	Result
5180	1	-	17.6	98	0.0	1.9	2.8		6.5	Pass
	3									
	4									
	2									
5200	1	-	17.6	98	2.6	3.6	5.6		6.5	Pass
	3									
	4									
	2									
5240	1	-	17.7	98	3.3	4.4	6.4		6.5	Pass
	3									
	4									
	2									

Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
Contact: Tarandeep Kaur	Project Manager: Sheareen Jacobs
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator: Irene Rademacher
	Class: N/A





# EMC Test Data

Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
	Project Manager: Sheareen Jacobs
Contact: Tarandeep Kaur	Project Coordinator: Irene Rademacher
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Class: N/A

MIMO Device - 5150-5250 MHz Band - FCC  
 Mode: n40 (CDD) Max EIRP (mW): 224.5

Frequency (MHz)	Chain	Software Setting	26dB BW (MHz)	Duty Cycle %	Power dBm	Total Power <sup>1</sup>		FCC Limit dBm	Max Power (W)	Result	
						mW	dBm				
5190	1	-	39.6	98	12.4	34.0	15.3	24.0	0.100	Pass	
	3										
	4										
	2										
5230	1	-	52.9	98	17.1	100.3	20.0	24.0			Pass
	3										
	4										
	2										

MIMO Device - 5150-5250 MHz Band - Industry Canada  
 Mode: n40 (CDD) Max EIRP (mW): 130.8

Frequency (MHz)	Chain	Software Setting	99% BW (MHz)	Duty Cycle %	Power <sup>1</sup> dBm	Total Power		IC limit dBm (eirp)	Max Power (W)	Result	
						dBm	dBm (eirp)				
5190	1	-	36.3	98	12.4	15.3	18.8	23.0	0.058	Pass	
	3										
	4										
	2										
5230	1	-	36.5	98	14.9	17.7	21.2	23.0			Pass
	3										
	4										
	2										



# EMC Test Data

Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
	Project Manager: Sheareen Jacobs
Contact: Tarandeep Kaur	Project Coordinator: Irene Rademacher
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Class: N/A

## 5150-5250 PSD - FCC Mode: n40 (CDD)

Frequency (MHz)	Chain	Software Setting	26dB BW (MHz)	Duty Cycle %	PSD dBm/MHz	Total PSD <sup>1</sup> mW/MHz   dBm/MHz		FCC Limit dBm/MHz	IC Limit	Result
5190	1	-	39.6	98	-2.0	1.2	0.9	10.5		Pass
	3									
	4									
	2				-2.2					
5230	1	-	52.9	98	2.8	3.7	5.7	10.5		Pass
	3									
	4									
	2				2.6					

## 5150-5250 PSD - IC Mode: n40 (CDD)

Frequency (MHz)	Chain	Software Setting	99% BW (MHz)	Duty Cycle %	PSD dBm/MHz	Total PSD <sup>1</sup> mW/MHz   dBm/MHz		FCC Limit dBm/MHz	IC Limit	Result
5190	1	-	36.3	98	-2.0	1.2	0.9		3.5	Pass
	3									
	4									
	2				-2.2					
5230	1	-	36.5	98	0.6	2.1	3.2		3.5	Pass
	3									
	4									
	2				-0.2					



# EMC Test Data

Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
	Project Manager: Sheareen Jacobs
Contact: Tarandeep Kaur	Project Coordinator: Irene Rademacher
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Class: N/A

MIMO Device - 5150-5250 MHz Band - Industry Canada  
 Mode: n40 (STBC)

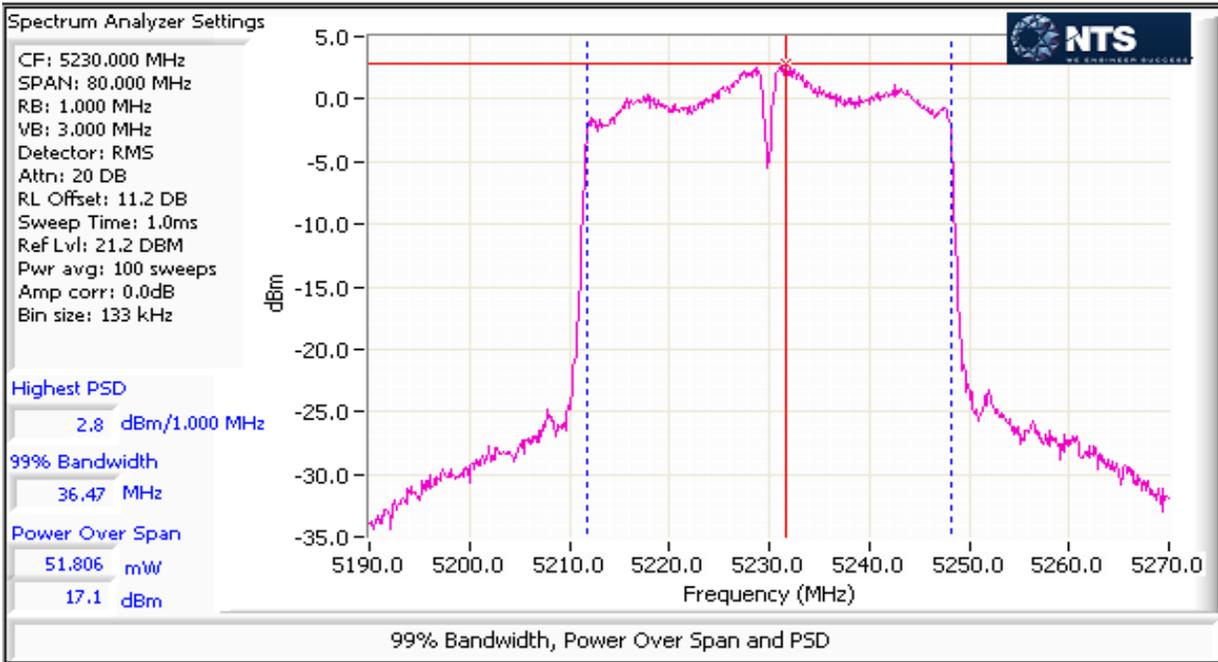
Max EIRP (mW): 197.7

Frequency (MHz)	Chain	Software Setting	99% BW (MHz)	Duty Cycle %	Power <sup>1</sup> dBm	Total Power dBm	Total Power dBm (eirp)	IC limit dBm (eirp)	Max Power (W)	Result
5190	1	-	36.3	98	12.4	15.3	18.8	23.0	0.088	Pass
	3									
	4									
	2									
5230	1	-	36.5	98	16.4	19.5	22.96	23.0		
	3									
	4									
	2									
					12.2					
					16.5					

5150-5250 PSD - IC  
 Mode: n40 (STBC)

Frequency (MHz)	Chain	Software Setting	99% BW (MHz)	Duty Cycle %	PSD dBm/MHz	Total PSD <sup>1</sup> mW/MHz	Total PSD <sup>1</sup> dBm/MHz	FCC Limit dBm/MHz	IC Limit dBm/MHz	Result
5190	1	-	36.3	98	-2.0	1.2	0.9		6.5	Pass
	3									
	4									
	2									
5230	1	-	36.5	98	1.9	3.1	5.0		6.5	Pass
	3									
	4									
	2									
					-2.2					
					2.0					

Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
Contact: Tarandeep Kaur	Project Manager: Sheareen Jacobs
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator: Irene Rademacher
	Class: N/A





# EMC Test Data

Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
	Project Manager: Sheareen Jacobs
Contact: Tarandeep Kaur	Project Coordinator: Irene Rademacher
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Class: N/A

### MIMO Device - 5250-5350 MHz Band - FCC

Mode: n20 (CDD)

Max EIRP (mW): 214.8

Frequency (MHz)	Chain	Software Setting	26dB BW (MHz)	Duty Cycle %	Power dBm	Total Power <sup>1</sup> mW	FCC Limit dBm	Max Power (W)	Result	
5260	1	-	21.8	98	16.5	96.0	19.8	0.096	Pass	
	3									
	4									
	2				17.1					
5300	1	-	21.0	98	15.3	68.6	18.4		24.0	Pass
	3									
	4									
	2				15.4					
5320	1	-	19.7	98	13.5	45.3	16.6		23.9	Pass
	3									
	4									
	2				13.6					

### MIMO Device - 5250-5350 MHz Band - Industry Canada

Mode: n20 (CDD)

Max EIRP (mW): 214.8

Frequency (MHz)	Chain	Software Setting	99% BW (MHz)	Duty Cycle %	Power <sup>1</sup> dBm	Total Power dBm	dBm (eirp)	IC limit dBm	Max Power (W)	Result
5260	1	-	17.7	98	16.5	19.8	23.3	23.5	0.096	Pass
	3									
	4									
	2				17.1					
5300	1	-	17.6	98	15.3	18.4	21.9	23.5		Pass
	3									
	4									
	2				15.4					
5320	1	-	17.6	98	13.5	16.6	20.1	23.5		Pass
	3									
	4									
	2				13.6					



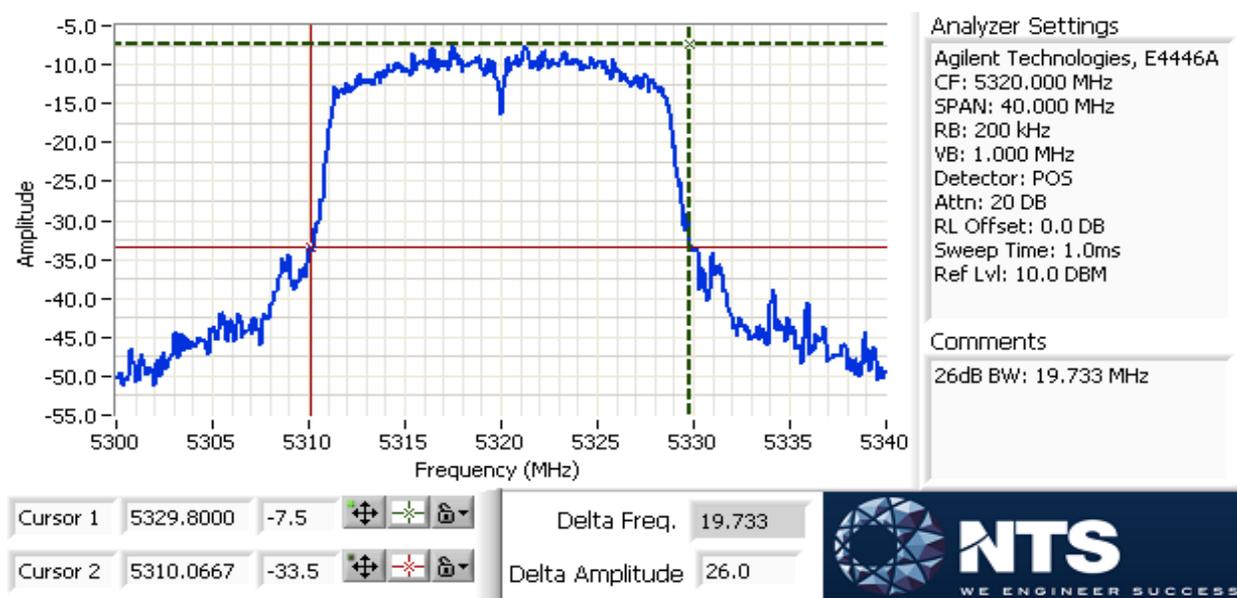
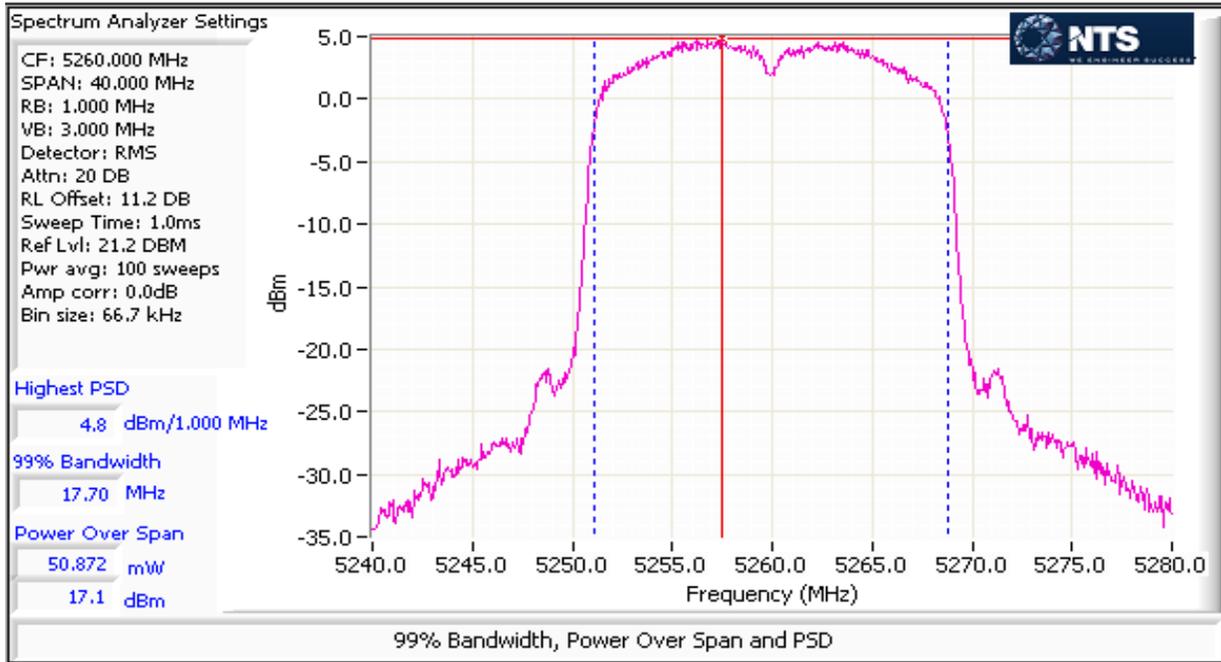
# EMC Test Data

Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
	Project Manager: Sheareen Jacobs
Contact: Tarandeep Kaur	Project Coordinator: Irene Rademacher
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Class: N/A

5250-5350 PSD - FCC/IC  
Mode: n20 (CDD)

Frequency (MHz)	Chain	Software Setting	99% BW (MHz)	Duty Cycle %	PSD dBm/MHz	Total PSD <sup>1</sup> mW/MHz   dBm/MHz		FCC Limit dBm/MHz	IC Limit dBm/MHz	Result
5260	1	-	17.7	98	4.0	5.5	7.4	10.5	11.0	Pass
	3									
	4									
	2				4.8					
5300	1	-	17.6	98	3.1	4.0	6.0	10.5	11.0	Pass
	3									
	4									
	2				2.9					
5320	1	-	17.6	98	1.1	2.6	4.2	10.5	11.0	Pass
	3									
	4									
	2				1.3					

Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
Contact: Tarandeep Kaur	Project Manager: Sheareen Jacobs
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator: Irene Rademacher
	Class: N/A





# EMC Test Data

Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
Contact: Tarandeep Kaur	Project Manager: Sheareen Jacobs
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator: Irene Rademacher
	Class: N/A

## MIMO Device - 5250-5350 MHz Band - FCC

Mode: n40 (CDD)

Max EIRP (mW): 170.2

Frequency (MHz)	Chain	Software Setting	26dB BW (MHz)	Duty Cycle %	Power dBm	Total Power <sup>1</sup> mW	dBm	FCC Limit dBm	Max Power (W)	Result
5270	1	-	38.9	98	15.8	76.0	18.8	24.0	0.076	Pass
	3									
	4									
	2				15.8					
5310	1	-	39.1	98	12.4	34.0	15.3	24.0		
	3									
	4									
	2				12.2					

## MIMO Device - 5250-5350 MHz Band - Industry Canada

Mode: n40 (CDD)

Max EIRP (mW): 170.2

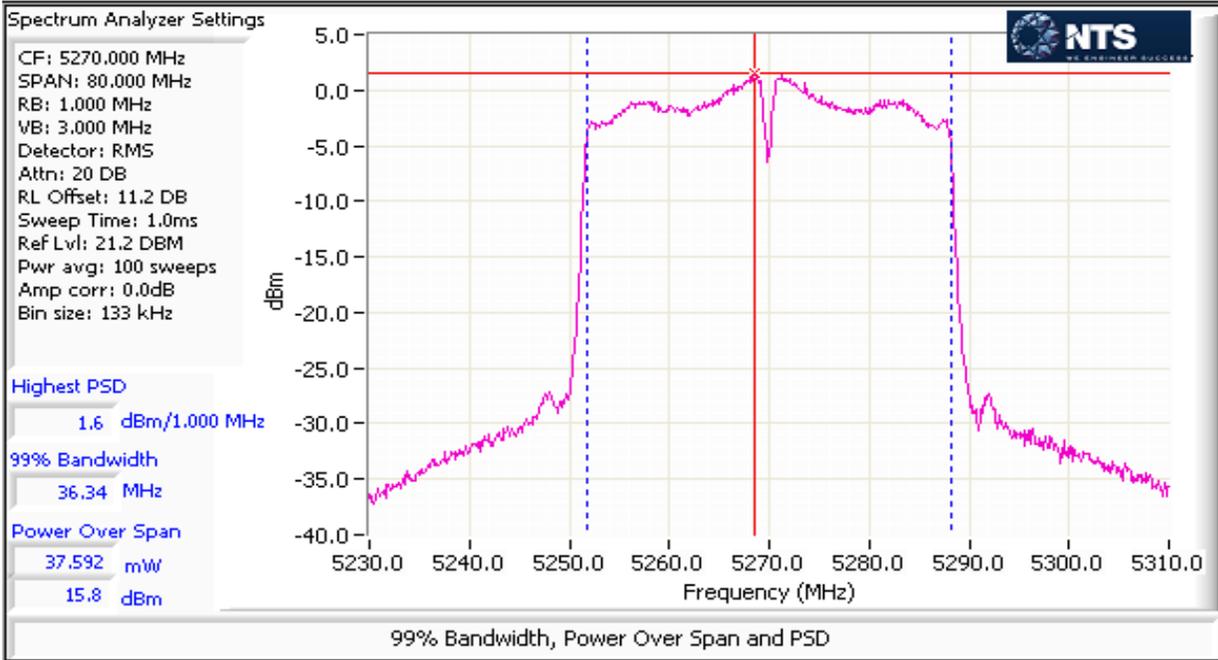
Frequency (MHz)	Chain	Software Setting	99% BW (MHz)	Duty Cycle %	Power <sup>1</sup> dBm	Total Power dBm	dBm (eirp)	IC limit dBm	Max Power (W)	Result
5270	1	-	36.5	98	15.8	18.8	22.3	24.0	0.076	Pass
	3									
	4									
	2				15.8					
5310	1	-	36.3	98	12.4	15.3	18.8	24.0		
	3									
	4									
	2				12.2					

## 5250-5350 PSD - FCC/IC

Mode: n40 (CDD)

Frequency (MHz)	Chain	Software Setting	99% BW (MHz)	Duty Cycle %	PSD dBm/MHz	Total PSD <sup>1</sup> mW/MHz	dBm/MHz	FCC Limit dBm/MHz	IC Limit dBm/MHz	Result
5270	1	-	36.5	98	1.6	2.8	4.4	10.5	11.0	Pass
	3									
	4									
	2				1.2					
5310	1	-	36.3	98	-2.0	1.2	0.9	10.5	11.0	
	3									
	4									
	2				-2.3					

Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
Contact: Tarandeep Kaur	Project Manager: Sheareen Jacobs
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator: Irene Rademacher
	Class: N/A





# EMC Test Data

Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
	Project Manager: Sheareen Jacobs
Contact: Tarandeep Kaur	Project Coordinator: Irene Rademacher
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Class: N/A

### MIMO Device - 5470-5725 MHz Band - FCC

Mode: n20 (CDD)

Max EIRP (mW): 159.0

Frequency (MHz)	Chain	Software Setting	26dB BW (MHz)	Duty Cycle %	Power dBm	Total Power <sup>1</sup>		FCC Limit dBm	Max Power (W)	Result
						mW	dBm			
5500	1	-	23.1	98	14.5	52.2	17.2	24.0	0.071	Pass
	3									
	4									
	2				13.8					
5580	1	-	22.7	98	15.1	59.9	17.8	24.0		Pass
	3									
	4									
	2				14.4					
5700	1	-	23.2	98	15.7	71.0	18.5	24.0		Pass
	3									
	4									
	2				15.3					

### MIMO Device - 5470-5725 MHz Band - Industry Canada

Mode: n20 (CDD)

Max EIRP (mW): 158.5

Frequency (MHz)	Chain	Software Setting	99% BW (MHz)	Duty Cycle %	Power <sup>1</sup> dBm	Total Power		IC limit dBm	Max Power (W)	Result
						dBm	dBm (eirp)			
5500	1	-	17.6	98	14.5	17.2	20.7	23.5	0.071	Pass
	3									
	4									
	2				13.8					
5580	1	-	17.7	98	15.1	17.8	21.3	23.5		Pass
	3									
	4									
	2				14.4					
5700	1	-	17.8	98	15.7	18.5	22.0	23.5		Pass
	3									
	4									
	2				15.3					

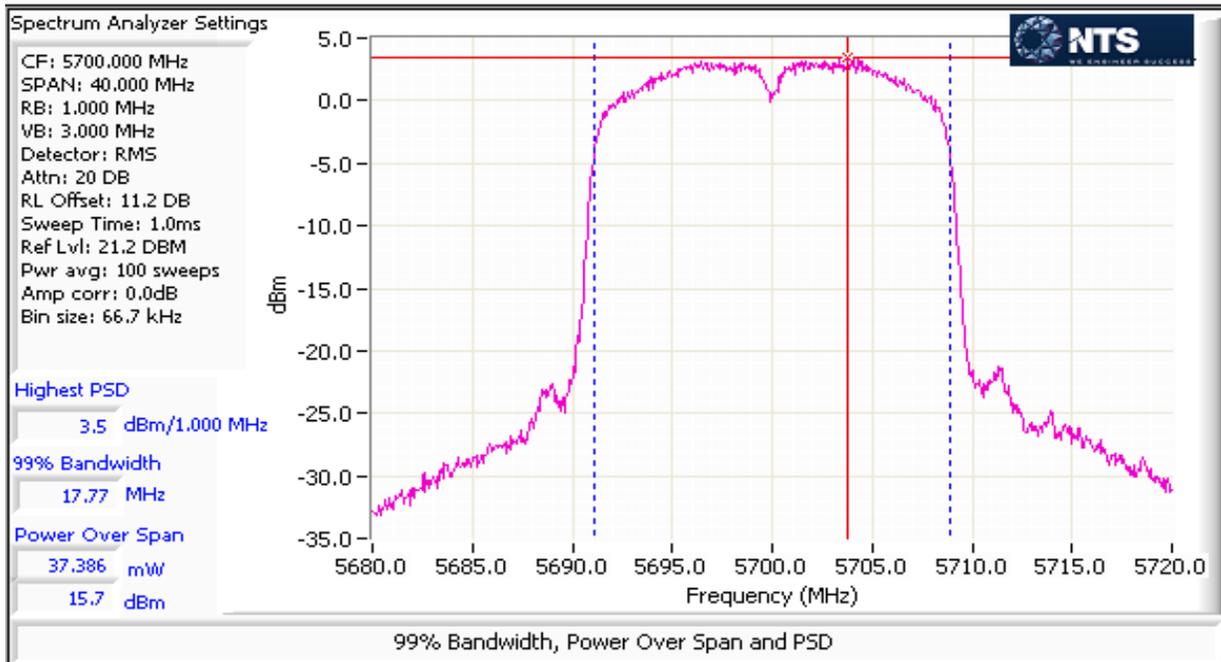


# EMC Test Data

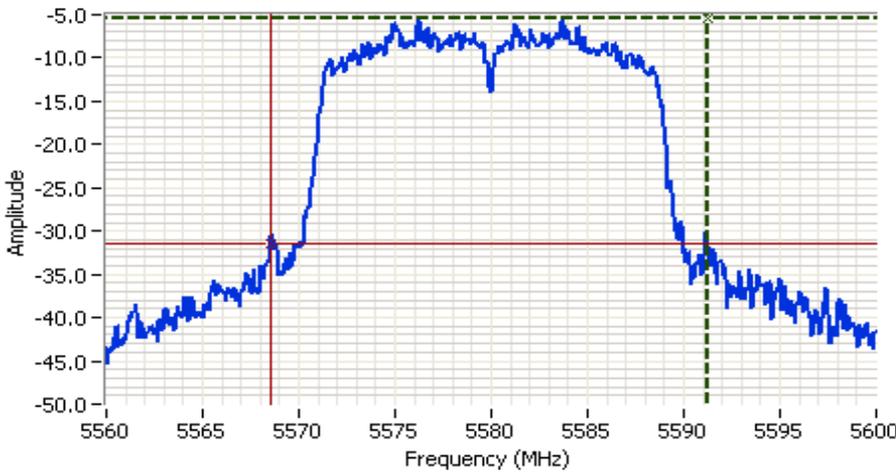
Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
Contact: Tarandeep Kaur	Project Manager: Sheareen Jacobs
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator: Irene Rademacher
	Class: N/A

## 5470-5725 PSD - FCC/IC Mode: n20 (CDD)

Frequency (MHz)	Chain	Software Setting	99% BW (MHz)	Duty Cycle %	PSD dBm/MHz	Total PSD <sup>1</sup> mW/MHz	Total PSD <sup>1</sup> dBm/MHz	FCC Limit dBm/MHz	IC Limit dBm/MHz	Result
5500	1	-	17.6	98	2.0	2.9	4.7	10.5	11.0	Pass
	3									
	4									
	2									
5580	1	-	17.7	98	2.9	3.5	5.5	10.5	11.0	Pass
	3									
	4									
	2									
5700	1	-	17.8	98	3.5	4.2	6.2	10.5	11.0	Pass
	3									
	4									
	2									



Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
Contact: Tarandeep Kaur	Project Manager: Sheareen Jacobs
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator: Irene Rademacher
	Class: N/A



**Analyzer Settings**

Agilent Technologies, E4446A  
 CF: 5580.000 MHz  
 SPAN: 40.000 MHz  
 RB: 200 kHz  
 VB: 1.000 MHz  
 Detector: POS  
 Attn: 20 DB  
 RL Offset: 0.0 DB  
 Sweep Time: 1.0ms  
 Ref Lvl: 10.0 DBM

**Comments**

26dB BW: 22.667 MHz

Cursor 1	5591.2000	-5.5	
Cursor 2	5568.5333	-31.5	

Delta Freq.	22.667
Delta Amplitude	26.0



# EMC Test Data

Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
	Project Manager: Sheareen Jacobs
Contact: Tarandeep Kaur	Project Coordinator: Irene Rademacher
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Class: N/A

MIMO Device - 5470-5725 MHz Band - FCC										
Mode: n40 (CDD)										Max EIRP (mW): 178.4
Frequency (MHz)	Chain	Software Setting	26dB BW (MHz)	Duty Cycle %	Power dBm	Total Power <sup>1</sup>		FCC Limit dBm	Max Power (W)	Result
5510	1	-	42	98	12.6	33.7	15.3	24.0	0.080	Pass
	3									
	4									
	2									
5550	1	-	47.9	98	16.2	79.7	19.0	24.0		Pass
	3									
	4									
	2									
5670	1	-	39.6	98	13.7	41.6	16.2	24.0		Pass
	3									
	4									
	2									

MIMO Device - 5470-5725 MHz Band - Industry Canada										
Mode: n40 (CDD)										Max EIRP (mW): 178.4
Frequency (MHz)	Chain	Software Setting	99% BW (MHz)	Duty Cycle %	Power <sup>1</sup> dBm	Total Power		IC limit dBm	Max Power (W)	Result
5510	1	-	36.4	98	12.6	15.3	18.8	24.0	0.080	Pass
	3									
	4									
	2									
5550	1	-	36.5	98	16.2	19.0	22.5	24.0		Pass
	3									
	4									
	2									
5670	1	-	36.4	98	13.7	16.2	19.7	24.0		Pass
	3									
	4									
	2									

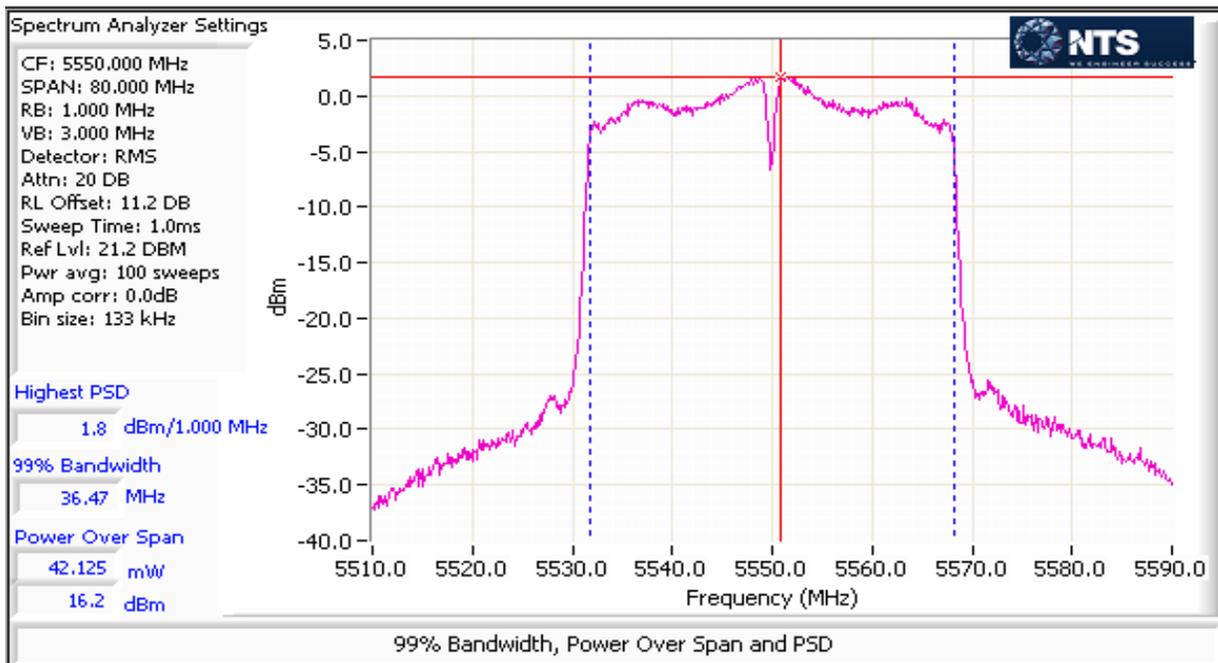


# EMC Test Data

Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
Contact: Tarandeep Kaur	Project Manager: Sheareen Jacobs
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator: Irene Rademacher
	Class: N/A

5470-5725 PSD - FCC/IC  
Mode: n40 (CDD)

Frequency (MHz)	Chain	Software Setting	99% BW (MHz)	Duty Cycle %	PSD dBm/MHz	Total PSD <sup>1</sup> mW/MHz	Total PSD <sup>1</sup> dBm/MHz	FCC Limit dBm/MHz	IC Limit dBm/MHz	Result
5510	1	-	36.4	98	-1.9	1.2	0.9	10.5	11.0	Pass
	3									
	4									
	2									
5550	1	-	36.5	98	1.8	2.9	4.6	10.5	11.0	Pass
	3									
	4									
	2									
5670	1	-	36.4	98	-0.9	1.5	1.6	10.5	11.0	Pass
	3									
	4									
	2									





# EMC Test Data

Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
	Project Manager: Sheareen Jacobs
Contact: Tarandeep Kaur	Project Coordinator: Irene Rademacher
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Class: N/A

## MIMO Device - 5725-5850 MHz Band - FCC/IC

Mode: n20 (CDD)

Max EIRP (mW): 165.0

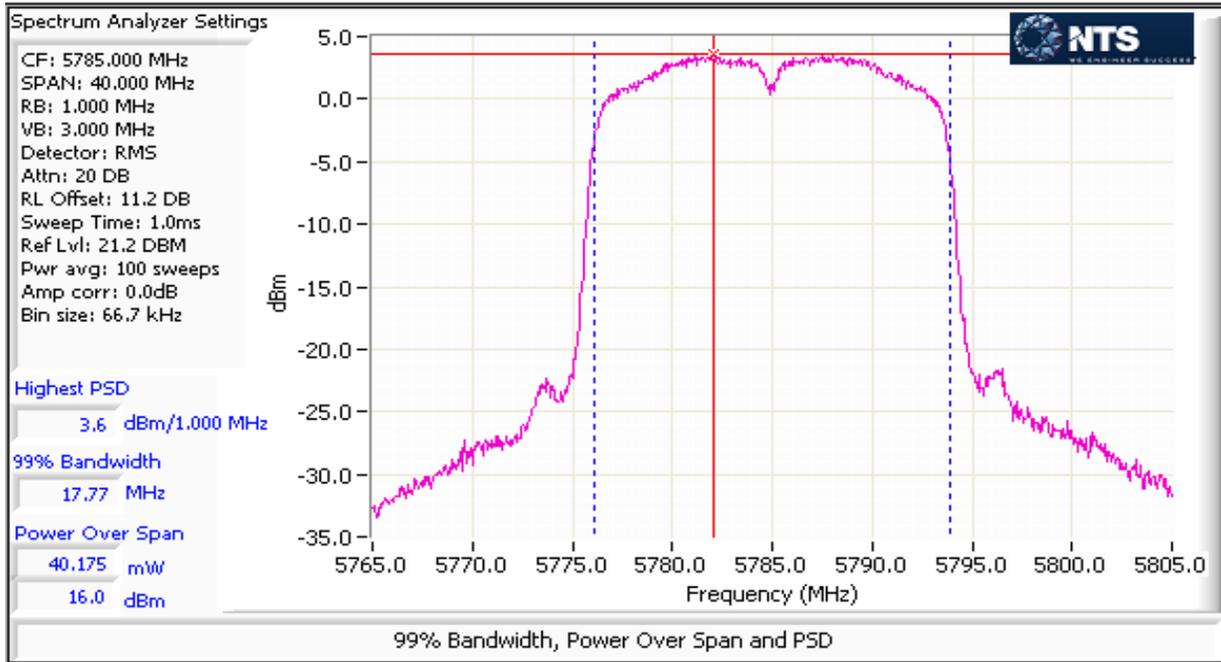
Frequency (MHz)	Chain	Software Setting		Duty Cycle %	Power dBm	Total Power <sup>1</sup>		Limit dBm	Max Power (W)	Result
						mW	dBm			
5745	1	-		98	11.8	29.6	14.7	30.0	0.074	Pass
	3									
	4									
	2				11.6					
5785	1	-		98	16.0	73.7	18.7	30.0		Pass
	3									
	4									
	2				15.3					
5825	1	-		98	13.2	38.7	15.9	30.0		Pass
	3									
	4									
	2				12.5					

## 5725-5850 PSD - FCC/IC

Mode: n20 (CDD)

Frequency (MHz)	Chain	Software Setting	99% BW (MHz)	Duty Cycle %	PSD dBm/MHz	Total PSD <sup>1</sup>		FCC Limit dBm/500kHz	IC Limit	Result
						mW/MHz	dBm/MHz			
5745	1	-	17.2	98	-0.6	1.7	2.3	30.0	30.0	Pass
	3									
	4									
	2				-0.9					
5785	1	-	17.8	98	3.6	4.2	6.3	30.0	30.0	Pass
	3									
	4									
	2				2.9					
5825	1	-	17.2	98	0.9	2.3	3.7	30.0	30.0	Pass
	3									
	4									
	2				0.4					

Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
Contact: Tarandeep Kaur	Project Manager: Sheareen Jacobs
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator: Irene Rademacher
	Class: N/A





# EMC Test Data

Client:	Hewlett Packard Company	Job Number:	J98746
Model:	SDGOB-1505	T-Log Number:	T98753
Contact:	Tarandeep Kaur	Project Manager:	Sheareen Jacobs
Standard:	FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator:	Irene Rademacher
		Class:	N/A

## MIMO Device - 5725-5850 MHz Band - FCC/IC

Mode: n40 (CDD)

Max EIRP (mW): 98.4

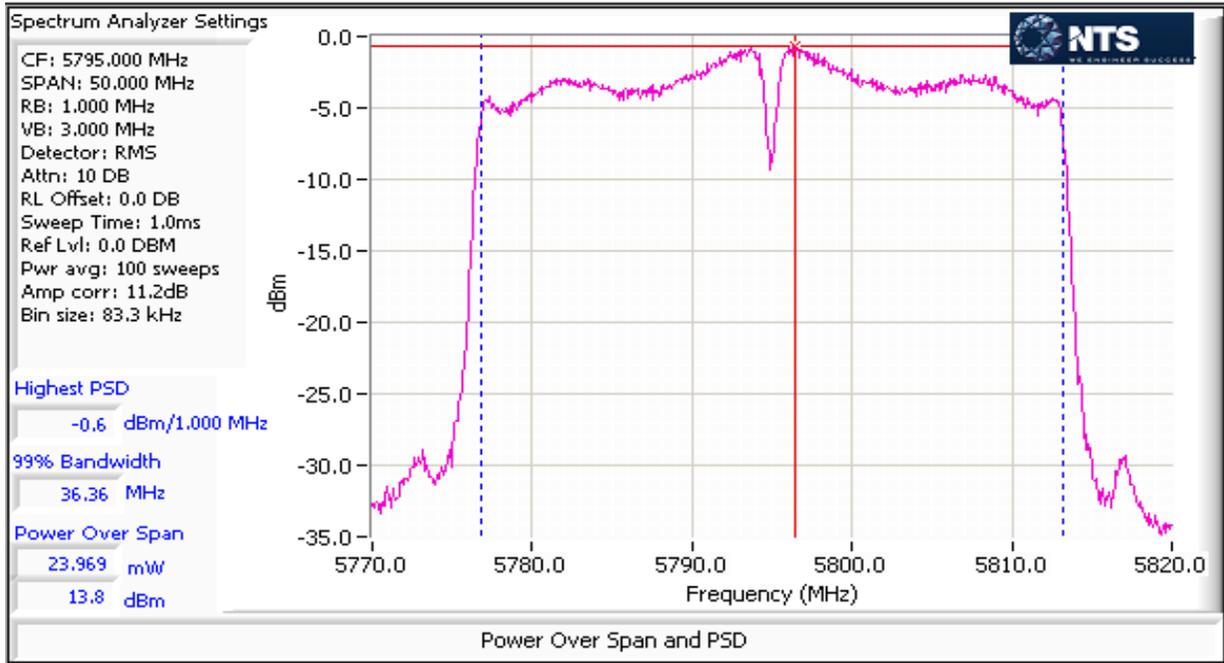
Frequency (MHz)	Chain	Software Setting		Duty Cycle %	Power dBm	Total Power <sup>1</sup>		Limit dBm	Max Power (W)	Result		
						mW	dBm					
5755	1	-		98	9.7	18.0	12.6	30.0	0.044	Pass		
	3											
	4											
	2				9.4							
5795	1	-		98	13.8	43.9	16.4	30.0			0.044	Pass
	3											
	4											
	2				13.0							

## 5725-5850 PSD - FCC/IC

Mode: n40 (CDD)

Frequency (MHz)	Chain	Software Setting	99% BW (MHz)	Duty Cycle %	PSD dBm/MHz	Total PSD <sup>1</sup>		FCC Limit dBm/500kHz	IC Limit dBm/500kHz	Result
						mW/MHz	dBm/MHz			
5755	1	-	37.3	98	-4.7	0.6	-2.0	30.0	30.0	Pass
	3									
	4									
	2				-5.3					
5795	1	-	37.3	98	-0.6	1.6	2.0	30.0	30.0	Pass
	3									
	4									
	2				-1.5					

Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
	Project Manager: Sheareen Jacobs
Contact: Tarandeep Kaur	Project Coordinator: Irene Rademacher
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Class: N/A





# EMC Test Data

Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
	Project Manager: Sheareen Jacobs
Contact: Tarandeep Kaur	Project Coordinator: Irene Rademacher
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Class: N/A

## Run #2: Bandwidth Measurements

Date of Test: 8/12/2015 0:00  
 Test Engineer: John Caizzi  
 Test Location: Lab 4A

Config. Used: 1  
 Config Change: none  
 EUT Voltage: USB

Mode: 11a  
 5725-5850MHz band (UNII3)  
 Testing performed on port: main

Power Setting	Frequency (MHz)	Bandwidth (MHz)		RBW Setting (kHz)	
		6dB	99%	6dB	99%
-	5745	14.7	17.2	100	750
	5785	15.3	17.4		
	5825	14.3	17.2		

Mode: n20  
 5725-5850MHz band (UNII3)  
 Testing performed on port: main

Power Setting	Frequency (MHz)	Bandwidth (MHz)		RBW Setting (kHz)	
		6dB	99%	6dB	99%
-	5745	15.1	18.4	100	750
	5785	15.5	18.2		
	5825	14.6	18.4		

Mode: n40  
 5725-5850MHz band (UNII3)  
 Testing performed on port: main

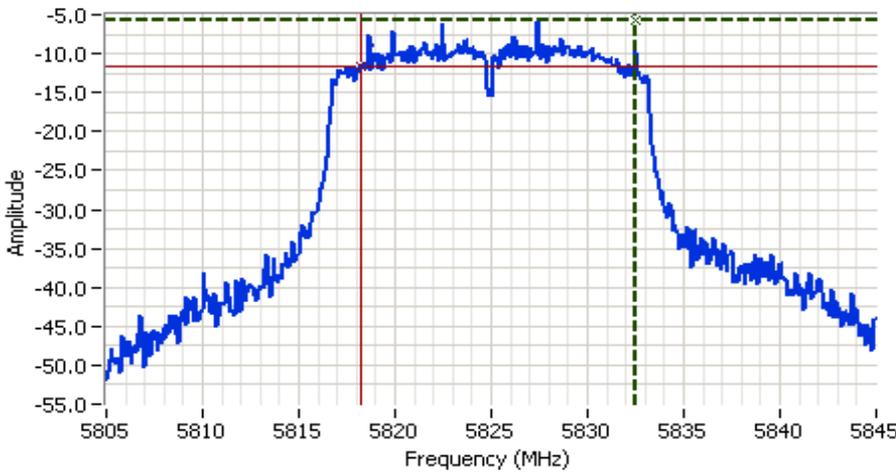
Power Setting	Frequency (MHz)	Bandwidth (MHz)		RBW Setting (kHz)	
		6dB	99%	6dB	99%
-	5755	35.5	37.3	100	750
	5795	35.0	37.3		

Note 1: 6dB BW: RBW=100kHz, VBW ≥ 3\*RBW, peak detector, max hold, auto sweep time.  
 99% BW: RBW=1-5% of of 99%BW, VBW ≥ 3\*RBW, peak detector, max hold, auto sweep time.



# EMC Test Data

Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
Contact: Tarandeep Kaur	Project Manager: Sheareen Jacobs
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator: Irene Rademacher
	Class: N/A



**Analyzer Settings**  
 Agilent Technologies, E4446A  
 CF: 5825.000 MHz  
 SPAN: 40.000 MHz  
 RB: 100 kHz  
 VB: 300 kHz  
 Detector: POS  
 Attn: 10 DB  
 RL Offset: 0.0 DB  
 Sweep Time: 3.8ms  
 Ref Lvl: 0.0 DBM

**Comments**  
 6dB BW: 14.267 MHz

Cursor 1	5832.5333	-5.7	
Cursor 2	5818.2667	-11.7	

Delta Freq.	14.267
Delta Amplitude	6.0





# EMC Test Data

Client:	Hewlett Packard Company	Job Number:	J98746
Model:	SDGOB-1505	T-Log Number:	T98753
Contact:	Tarandeep Kaur	Project Manager:	Sheareen Jacobs
Standard:	FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator:	Irene Rademacher
		Class:	N/A

## RSS-247 and FCC 15.407(UNII) Antenna Port Measurements Power, PSD, 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.

### Summary of Results

Run #	Test Performed	Limit	Pass / Fail	Result / Margin
1	Power, 5150 - 5250MHz	15.407(a) (1) (iv)	Pass	n20: 19.4 dBm (86mW) n40: 19.5 dBm (88mW)
1	PSD, 5150 - 5250MHz	15.407(a) (1) (iv)	Pass	n20: 7.0 dBm/MHz n40: 5.1 dBm/MHz
1	Power, 5150 - 5250MHz	RSS-247, 6.2.1 (1)	Pass	n20: 21.3 dBm eirp n40: 21.4 dBm eirp
1	PSD, 5150 - 5250MHz	RSS-247, 6.2.1 (1)	Pass	n20: 7.0 dBm/MHz n40: 5.1 dBm/MHz
1	Power, 5250 - 5350MHz	15.407(a) (2) / RSS-247, 6.2.2 (1)	Pass	n20: 19.3 dBm (84mW) n40: 19.8 dBm (95mW)
1	PSD, 5250 - 5350MHz	15.407(a) (2) / RSS-247, 6.2.2 (1)	Pass	n20: 7.0 dBm/MHz n40: 5.3 dBm/MHz
1	Max EIRP 5250 - 5350MHz	TPC required if EIRP ≥ 500mW (27dBm). EIRP ≥ 200mW (23dBm) DFS threshold = -64dBm.	Pass	EIRP = 21.7 dBm (147mW)
1	Power, 5470 - 5725MHz	15.407(a) (2) / RSS-247, 6.2.3 (1)	Pass	n20: 18.9 dBm (77mW) n40: 19.0 dBm (80mW)
1	PSD, 5470 - 5725MHz	15.407(a) (2) / RSS-247, 6.2.3 (1)	Pass	n20: 6.6 dBm/MHz n40: 4.6 dBm/MHz
1	Max EIRP 5470 - 5725MHz	TPC required if EIRP ≥ 500mW (27dBm). EIRP ≥ 200mW (23dBm) DFS threshold	Pass	EIRP = 20.9 dBm (124mW)



# EMC Test Data

Client:	Hewlett Packard Company	Job Number:	J98746
Model:	SDGOB-1505	T-Log Number:	T98753
Contact:	Tarandeep Kaur	Project Manager:	Sheareen Jacobs
Standard:	FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator:	Irene Rademacher
		Class:	N/A

Run #	Test Performed	Limit	Pass / Fail	Result / Margin
1	Power, 5725 - 5850MHz	15.407(a)(3) / RSS-247, 6.2.4 (1)	Pass	n20: 18.7 dBm (74mW) n40: 17.7 dBm (59mW)
1	PSD, 5725 - 5850MHz	15.407(a)(3) / RSS-247, 6.2.4 (1)	Pass	n20: 6.3 dBm/MHz n40: 3.2 dBm/MHz
2	6dB Bandwidth - UNII3	15.407(e)	Pass	a: 15.1 MHz n20: 15.1 MHz n40: 35.1 MHz
1	99% Bandwidth	RSS 210 (Information only)	N/A	a: 17.5 MHz n20: 18.3 MHz n40: 37.3 MHz

## 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: 25 °C  
Rel. Humidity: 31 %

## 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.



# EMC Test Data

Client:	Hewlett Packard Company	Job Number:	J98746
Model:	SDGOB-1505	T-Log Number:	T98753
Contact:	Tarandeep Kaur	Project Manager:	Sheareen Jacobs
Standard:	FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator:	Irene Rademacher
		Class:	N/A

## Procedure Comments:

Measurements performed in accordance with FCC KDB 789033 D01 v01r03, dated April 8, 2013

Mode	Data Rate	Duty Cycle (x)	Constant DC?	T (ms)	Pwr Cor Factor*	Lin Volt Cor Factor**	Min VBW for FS (Hz)
11a	6MB/s	0.982	Yes	1.405	0	0	10
11n20	MCS0	0.981	Yes	1.309	0	0	10
11n40	MCS0	0.980	Yes	0.932	0	0	10

## Sample Notes

Sample S/N: MAC ID# 707781772509

Driver: 6.37 RC214 .12

## Test Reduction Notes:

Power/PSD for 11a and n20 (1Tx) was not performed. Covered by n20 2Tx, total power not to exceed 2Tx power levels.

Power/PSD for n40 (1Tx) was not performed. Covered by n40 2Tx, total power not to exceed 2Tx power levels.



# EMC Test Data

Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
	Project Manager: Sheareen Jacobs
Contact: Tarandeep Kaur	Project Coordinator: Irene Rademacher
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Class: N/A

## Run #1: Bandwidth, Output Power and Power Spectral Density - MIMO Systems

Date of Test: 8/5, 8/6/2015, and 8/10/15      Config. Used: 1  
 Test Engineer: J.Caizzi & E. Mariscal, J. Cadigal, R. Varelas      Config Change: None  
 Test Location: Lab 4A      EUT Voltage: USB

- Note 1: Output power measured using a spectrum analyzer (see plots below). RBW=1MHz, VB=3 MHz, # of points in sweep  $\geq 2 \times \text{span/RBW}$ , RMS detector, power averaging on (transmitted signal was continuous) and power integration over 50 MHz (method SA-1 of KDB 789033).
- 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  $\geq 3 \times \text{RB}$
- Note 5: For MIMO systems the total output power and total PSD are calculated from the sum of the powers of the individual chains (in linear terms). The antenna gain used to determine the EIRP and limits for PSD/Output power depends on the operating mode of the MIMO device. If the signals on the non-coherent between the transmit chains then the gain used to determine the limits is the highest gain of the individual chains and the EIRP is the sum of the products of gain and power on each chain. If the signals are coherent then the effective antenna gain is the sum (in linear terms) of the gains for each chain and the EIRP is the product of the effective gain and total power.

## Antenna Gain Information - CDD Operation

Freq	Antenna Gain (dBi) / Chain				BF	MultiChain Legacy	CDD	Sectorized / Xpol	Dir G (PWR)	Dir G (PSD)
	1	2	3	4						
5150-5250	1.9	1.9			No	Yes	Yes	No	1.90	4.91
5250-5350	1.9	1.9			No	Yes	Yes	No	1.90	4.91
5470-5725	1.9	1.9			No	Yes	Yes	No	1.90	4.91
5725-5825	1.9	1.9			No	Yes	Yes	No	1.90	4.91

## For devices that support CDD modes

Min # of spatial streams: 1  
 Max # of spatial streams: 2



# EMC Test Data

Client:	Hewlett Packard Company	Job Number:	J98746
Model:	SDGOB-1505	T-Log Number:	T98753
Contact:	Tarandeep Kaur	Project Manager:	Sheareen Jacobs
Standard:	FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator:	Irene Rademacher
		Class:	N/A

## Antenna Gain Information - STBC Operation

Freq	Antenna Gain (dBi) / Chain				BF	MultiChain Legacy	CDD	Sectorized / Xpol	Dir G (PWR)	Dir G (PSD)
	1	2	3	4						
5150-5250	1.9	1.9			No	Yes	Yes	No	1.90	1.90
5250-5350	1.9	1.9			No	Yes	Yes	No	1.90	1.90
5470-5725	1.9	1.9			No	Yes	Yes	No	1.90	1.90
5725-5825	1.9	1.9			No	Yes	Yes	No	1.90	1.90

Notes:	BF = beamforming mode supported, Multichain Legacy = 802.11 legacy data rates supported for multichain transmissions, CDD = Cyclic Delay Diversity (or Cyclic Shift Diversity) modes supported, Sectorized / Xpol = antennas are sectorized or cross polarized.
Notes:	Dir G (PWR) = total gain (Gant + Array Gain) for power calculations; GA (PSD) = total gain for PSD calculations based on FCC KDB 662911. Depending on the modes supported, the Array Gain value for power could be different from the PSD value.
Notes:	Array gain for power/psd calculated per DKB 662911 D01, v01r02. Spatial Multiplexing with Nant=4, Nss=2, for worse case condition. Array gain = $10 \cdot \log(4/2) = 3\text{dB}$ .
Notes:	For systems with Beamforming and CDD, choose one the following options: Option 1: Delays are optimized for beamforming, rather than being selected from cyclic delay table of 802.11; Array gains calculated based on beamforming criteria. Option 2: Antennas are paired for beamforming, and the pairs are configured to use the cyclic delay diversity of 802.11; the array gain associated with beamforming with 2 antennas (3dB), and the array gain associated with CDD with two antennas (3dB for PSD and 0 dB for power)



# EMC Test Data

Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
	Project Manager: Sheareen Jacobs
Contact: Tarandeep Kaur	Project Coordinator: Irene Rademacher
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Class: N/A

## MIMO Device - 5150-5250 MHz Band - FCC

Mode: n20 (CDD)

Max EIRP (mW): 133.7

Frequency (MHz)	Chain	Software Setting	26dB BW (MHz)	Duty Cycle %	Power <sup>1</sup> dBm	Total Power mW	Total Power dBm	FCC Limit dBm	Max Power (W)	Result		
5180	1	-	20.13	98	13.3	44.3	16.5	24.0	0.0863	Pass		
	3											
	4											
	2											
5200	1	-	26.07		16.3	85.3	19.3	24.0		24.0	0.0863	Pass
	3											
	4											
	2											
5240	1	-	29.07		16.3	86.3	19.4	24.0		24.0	0.0863	Pass
	3											
	4											
	2											

## MIMO Device - 5150-5250 MHz Band - Industry Canada

Mode: n20 (CDD)

Max EIRP (mW): 87.1

Frequency (MHz)	Chain	Software Setting	99% BW (MHz)	Duty Cycle %	Power <sup>1</sup> dBm	Total Power dBm	Total Power dBm (eirp)	IC limit dBm (eirp)	Max Power (W)	Result		
5180	1	-	17.64	98	13.3	16.5	18.4	22.5	0.056	Pass		
	3											
	4											
	2											
5200	1	-	17.64		14.6	17.5	19.4	22.5		22.5	0.056	Pass
	3											
	4											
	2											
5240	1	-	17.7		14.2	17.2	19.1	22.5		22.5	0.056	Pass
	3											
	4											
	2											



# EMC Test Data

Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
	Project Manager: Sheareen Jacobs
Contact: Tarandeep Kaur	Project Coordinator: Irene Rademacher
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Class: N/A

## 5150-5250 PSD - FCC Mode: n20 (CDD)

Frequency (MHz)	Chain	Software Setting	99% BW (MHz)	Duty Cycle %	PSD dBm/MHz	Total PSD <sup>1</sup> mW/MHz	Total PSD <sup>1</sup> dBm/MHz	FCC Limit dBm/MHz	IC Limit dBm/MHz	Result
5180	1	-	17.64	98	0.9	2.5	4.0	11.0		Pass
	3									
	4									
	2									
5200	1	-	17.7		3.8	4.9	6.9	11.0		Pass
	3									
	4									
	2									
5240	1	-	17.7		4.0	5.0	7.0	11.0		Pass
	3									
	4									
	2									
					3.9					

## 5150-5250 PSD - IC Mode: n20 (CDD)

Frequency (MHz)	Chain	Software Setting	99% BW (MHz)	Duty Cycle %	PSD dBm/MHz	Total PSD <sup>1</sup> mW/MHz	Total PSD <sup>1</sup> dBm/MHz	FCC Limit dBm/MHz	IC Limit dBm/MHz	Result
5180	1	-	17.64	98	0.9	2.5	4.0		5.1	Pass
	3									
	4									
	2									
5200	1	-	17.7		2.1	3.2	5.0		5.1	Pass
	3									
	4									
	2									
5240	1	-	17.7		1.7	3.0	4.7		5.1	Pass
	3									
	4									
	2									
					1.7					



# EMC Test Data

Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
	Project Manager: Sheareen Jacobs
Contact: Tarandeep Kaur	Project Coordinator: Irene Rademacher
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Class: N/A

Mode: n20 (STBC)		Max EIRP (mW): 133.7										
Frequency (MHz)	Chain	Software Setting	26dB BW (MHz)	Duty Cycle %	Power <sup>1</sup> dBm	Total Power mW	dBm	FCC Limit dBm	Max Power (W)	Result		
5180	1	-	20.133	98	13.3	44.3	16.5	24.0	0.086	Pass		
	3											
	4											
	2											
5200	1	-	26.067	98	16.3	85.3	19.3	24.0		0.086	Pass	
	3											
	4											
	2											
5240	1	-	26.067	98	16.3	86.3	19.4	24.0			0.086	Pass
	3											
	4											
	2											

MIMO Device - 5150-5250 MHz Band - Industry Canada

Mode: n20 (STBC)		Max EIRP (mW): 134.9										
Frequency (MHz)	Chain	Software Setting	99% BW (MHz)	Duty Cycle %	Power <sup>1</sup> dBm	Total Power dBm	dBm (eirp)	IC limit dBm (eirp)	Max Power (W)	Result		
5180	1	-	17.64	98	13.3	16.5	18.4	22.5	0.086	Pass		
	3											
	4											
	2											
5200	1	-	26.067	98	16.3	19.3	21.2	23.0		0.086	Pass	
	3											
	4											
	2											
5240	1	-	26.067	98	16.3	19.4	21.3	23.0			0.086	Pass
	3											
	4											
	2											



# EMC Test Data

Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
	Project Manager: Sheareen Jacobs
Contact: Tarandeep Kaur	Project Coordinator: Irene Rademacher
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Class: N/A

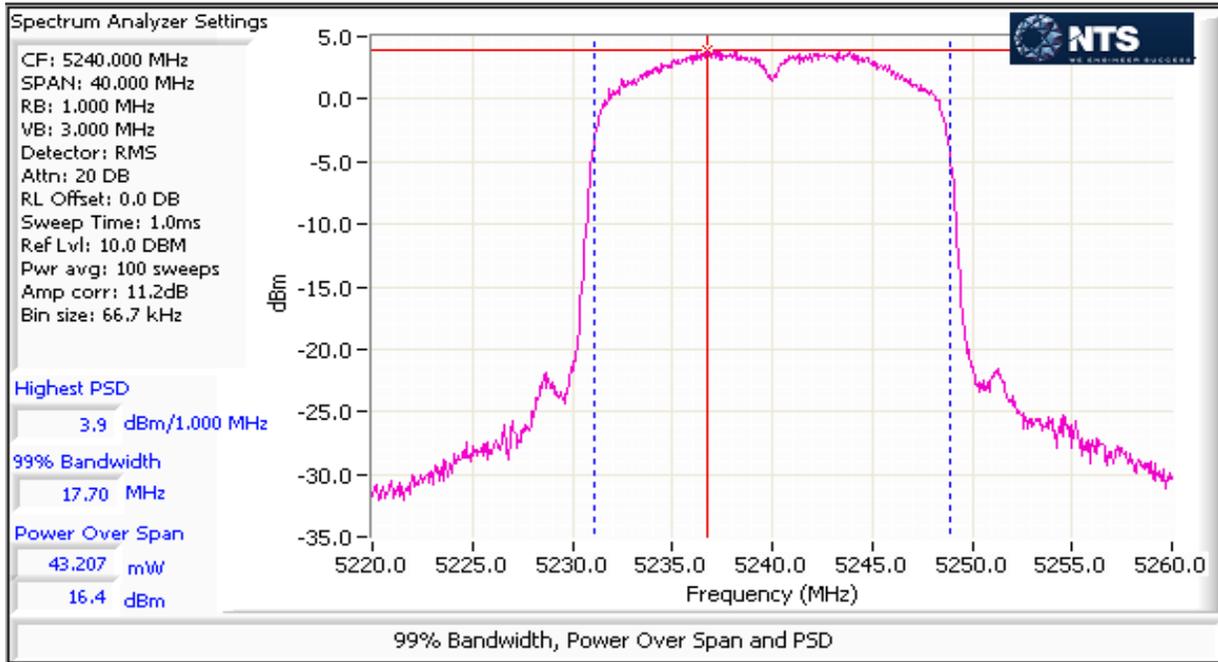
## 5150-5250 PSD - FCC Mode: n20 (STBC)

Frequency (MHz)	Chain	Software Setting	99% BW (MHz)	Duty Cycle %	PSD dBm/MHz	Total PSD <sup>1</sup> mW/MHz	Total PSD <sup>1</sup> dBm/MHz	FCC Limit dBm/MHz	IC Limit dBm/MHz	Result
5180	1	-	17.64	98	0.9	2.5	4.0	11.0		Pass
	3									
	4									
	2									
5200	1	-	17.7	98	3.8	4.9	6.9	11.0		Pass
	3									
	4									
	2									
5240	1	-	17.7	98	4.0	5.0	7.0	11.0		Pass
	3									
	4									
	2									

## 5150-5250 PSD - IC Mode: n20 (STBC)

Frequency (MHz)	Chain	Software Setting	99% BW (MHz)	Duty Cycle %	PSD dBm/MHz	Total PSD <sup>1</sup> mW/MHz	Total PSD <sup>1</sup> dBm/MHz	FCC Limit dBm/MHz	IC Limit dBm/MHz	Result
5180	1	-	17.64	98	0.9	2.5	4.0		8.1	Pass
	3									
	4									
	2									
5200	1	-	17.7	98	3.8	4.9	6.9		8.1	Pass
	3									
	4									
	2									
5240	1	-	17.7	98	4.0	5.0	7.0		8.1	Pass
	3									
	4									
	2									

Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
Contact: Tarandeep Kaur	Project Manager: Sheareen Jacobs
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator: Irene Rademacher
	Class: N/A





# EMC Test Data

Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
	Project Manager: Sheareen Jacobs
Contact: Tarandeep Kaur	Project Coordinator: Irene Rademacher
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Class: N/A

### MIMO Device - 5150-5250 MHz Band - FCC

Mode: n40 (CDD)

Max EIRP (mW): 136.9

Frequency (MHz)	Chain	Software Setting	26dB BW (MHz)	Duty Cycle %	Power dBm	Total Power <sup>1</sup> mW	FCC Limit dBm	Max Power (W)	Result		
5190	1	-	40.1	98	12.3	34.8	15.4	0.0884	Pass		
	3										
	4										
	2				12.5						
5230	1	-	42.3	98	16.6	88.4	19.5			24.0	Pass
	3										
	4										
	2				16.3						

### MIMO Device - 5150-5250 MHz Band - Industry Canada

Mode: n40 (CDD)

Max EIRP (mW): 138.0

Frequency (MHz)	Chain	Software Setting	99% BW (MHz)	Duty Cycle %	Power <sup>1</sup> dBm	Total Power dBm	dBm (eirp)	IC limit dBm (eirp)	Max Power (W)	Result	
5190	1	-	36.34	98	12.3	15.4	17.3	23.0	0.088	Pass	
	3										
	4										
	2				12.5						
5230	1	-	36.61	98	16.6	19.5	21.4	23.0			Pass
	3										
	4										
	2				16.3						



# EMC Test Data

Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
	Project Manager: Sheareen Jacobs
Contact: Tarandeep Kaur	Project Coordinator: Irene Rademacher
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Class: N/A

## 5150-5250 PSD - FCC Mode: n40 (CDD)

Frequency (MHz)	Chain	Software Setting	99% BW (MHz)	Duty Cycle %	PSD dBm/MHz	Total PSD <sup>1</sup> mW/MHz   dBm/MHz		FCC Limit dBm/MHz	IC Limit dBm/MHz	Result
5190	1	-	36.34	98	-2.0	1.3	1.1	11.0		Pass
	3									
	4									
	2									
5230	1	-	36.61	98	2.2	3.2	5.1	11.0		Pass
	3									
	4									
	2									

## 5150-5250 PSD - IC Mode: n40 (CDD)

Frequency (MHz)	Chain	Software Setting	99% BW (MHz)	Duty Cycle %	PSD dBm/MHz	Total PSD <sup>1</sup> mW/MHz   dBm/MHz		FCC Limit dBm/MHz	IC Limit dBm/MHz	Result
5190	1	-	36.34	98	-2.0	1.3	1.1		5.1	Pass
	3									
	4									
	2									
5230	1	-	36.61	98	2.2	3.2	5.1		5.1	Pass
	3									
	4									
	2									



# EMC Test Data

Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
	Project Manager: Sheareen Jacobs
Contact: Tarandeep Kaur	Project Coordinator: Irene Rademacher
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Class: N/A

MIMO Device - 5150-5250 MHz Band - FCC  
 Mode: n40 (STBC) Max EIRP (mW): 136.9

Frequency (MHz)	Chain	Software Setting	26dB BW (MHz)	Duty Cycle %	Power dBm	Total Power <sup>1</sup>		FCC Limit dBm	Max Power (W)	Result	
						mW	dBm				
5190	1	-	40.1	98	12.3	34.8	15.4	24.0	0.088	Pass	
	3										
	4										
	2										
5230	1	-	42.3	98	16.6	88.4	19.5	24.0			Pass
	3										
	4										
	2										

MIMO Device - 5150-5250 MHz Band - Industry Canada  
 Mode: n40 (STBC) Max EIRP (mW): 138.0

Frequency (MHz)	Chain	Software Setting	99% BW (MHz)	Duty Cycle %	Power <sup>1</sup> dBm	Total Power		IC limit dBm (eirp)	Max Power (W)	Result	
						dBm	dBm (eirp)				
5190	1	-	36.34	98	12.3	15.4	17.3	23.0	0.088	Pass	
	3										
	4										
	2										
5230	1	-	36.61	98	16.6	19.5	21.4	23.0			Pass
	3										
	4										
	2										

5150-5250 PSD - FCC  
 Mode: n40 (STBC)

Frequency (MHz)	Chain	Software Setting	99% BW (MHz)	Duty Cycle %	PSD dBm/MHz	Total PSD <sup>1</sup>		FCC Limit dBm/MHz	IC Limit dBm/MHz	Result
						mW/MHz	dBm/MHz			
5190	1	-	36.34	98	-2.0	1.3	1.1	11.0	Pass	
	3									
	4									
	2									
5230	1	-	36.61	98	2.2	3.2	5.1	11.0		Pass
	3									
	4									
	2									

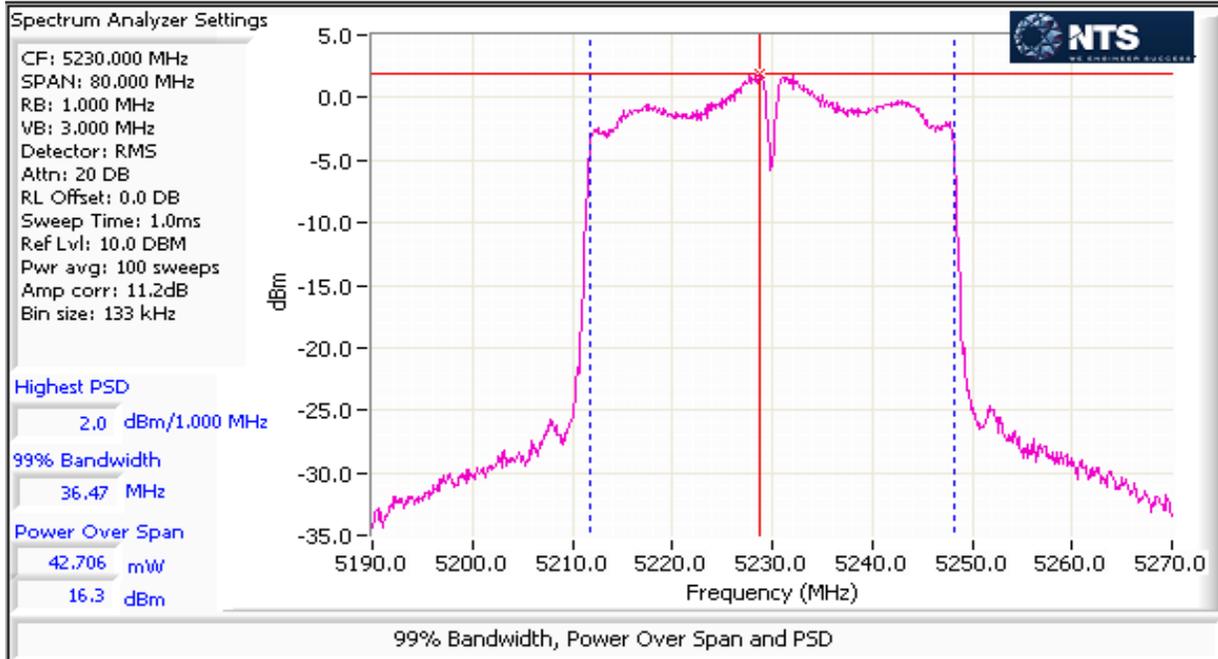


# EMC Test Data

Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
Contact: Tarandeep Kaur	Project Manager: Sheareen Jacobs
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator: Irene Rademacher
	Class: N/A

5150-5250 PSD - IC  
Mode: n40 (STBC)

Frequency (MHz)	Chain	Software Setting	99% BW (MHz)	Duty Cycle %	PSD dBm/MHz	Total PSD <sup>1</sup> mW/MHz	Total PSD <sup>1</sup> dBm/MHz	FCC Limit dBm/MHz	IC Limit dBm/MHz	Result
5190	1	-	36.34	98	-2.0	1.3	1.1		8.1	Pass
	3									
	4									
	2									
5230	1	-	36.61	98	2.2	3.2	5.1		8.1	Pass
	3									
	4									
	2									





# EMC Test Data

Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
	Project Manager: Sheareen Jacobs
Contact: Tarandeep Kaur	Project Coordinator: Irene Rademacher
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Class: N/A

## MIMO Device - 5250-5350 MHz Band - FCC

Mode: n20 (CDD)

Max EIRP (mW): 130.6

Frequency (MHz)	Chain	Software Setting	26dB BW (MHz)	Duty Cycle %	Power dBm	Total Power <sup>1</sup> mW	FCC Limit dBm	Max Power (W)	Result	
5260	1	-	23.3	98	16.2	84.3	19.3	0.0843	Pass	
	3									
	4									
	2				16.3					
5300	1	-	21.7	98	15.8	78.8	19.0		0.0843	Pass
	3									
	4									
	2				16.1					
5320	1	-	20.1	98	15.6	73.5	18.7		0.0843	Pass
	3									
	4									
	2				15.7					

## MIMO Device - 5250-5350 MHz Band - Industry Canada

Mode: n20 (CDD)

Max EIRP (mW): 130.6

Frequency (MHz)	Chain	Software Setting	99% BW (MHz)	Duty Cycle %	Power <sup>1</sup> dBm	Total Power dBm	dBm (eirp)	IC limit dBm	Max Power (W)	Result		
5260	1	-	17.7	98	16.2	19.3	21.2	23.5	0.0843	Pass		
	3											
	4											
	2				16.3							
5300	1	-	17.7	98	15.8	19.0	20.9			23.5	0.0843	Pass
	3											
	4											
	2				16.1							
5320	1	-	17.6	98	15.6	18.7	20.6			23.5	0.0843	Pass
	3											
	4											
	2				15.7							

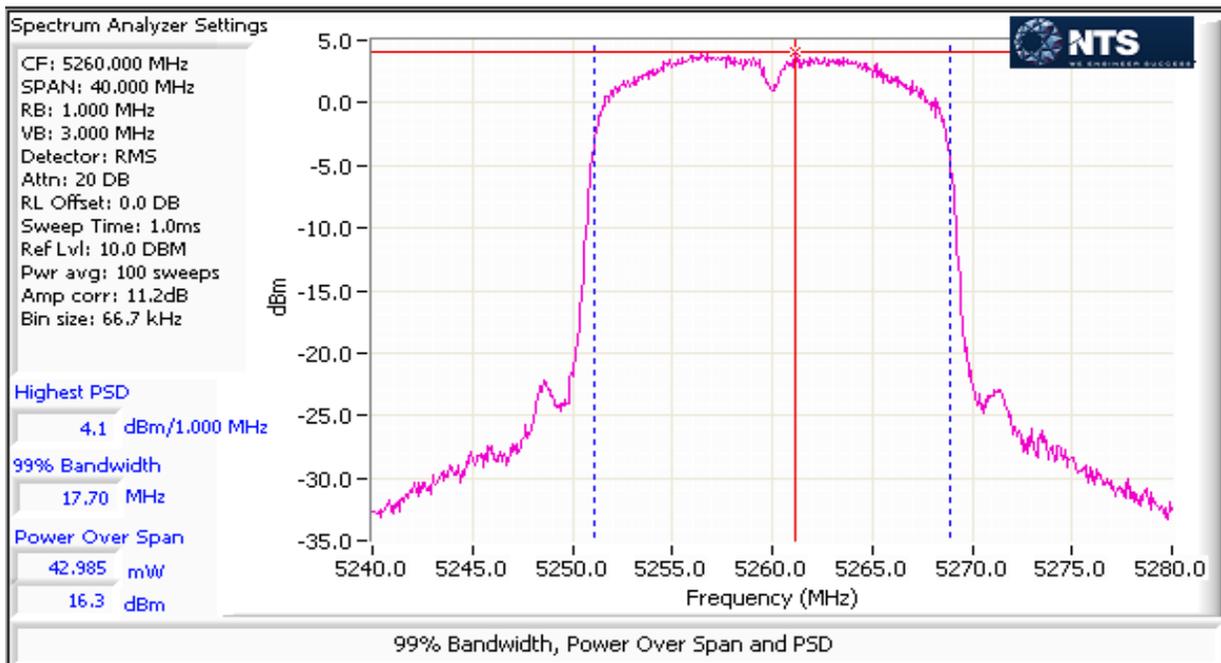


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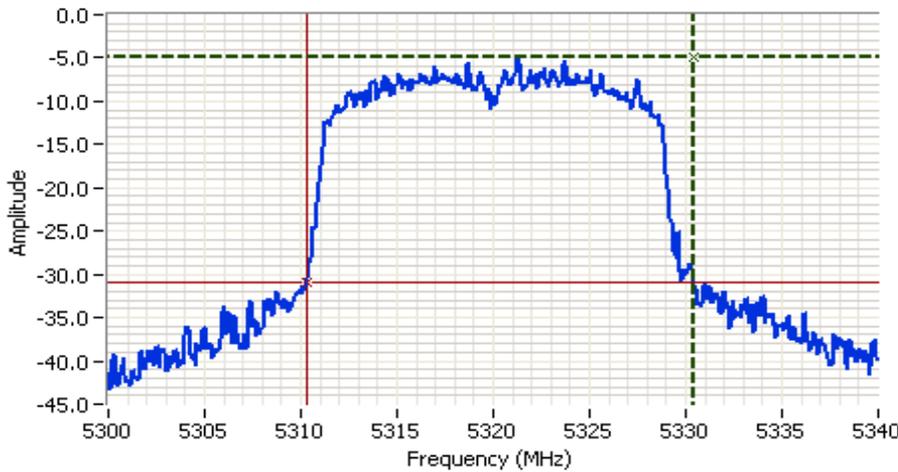
Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
Contact: Tarandeep Kaur	Project Manager: Sheareen Jacobs
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator: Irene Rademacher
	Class: N/A

## 5250-5350 PSD - FCC/IC Mode: n20 (CDD)

Frequency (MHz)	Chain	Software Setting	99% BW (MHz)	Duty Cycle %	PSD dBm/MHz	Total PSD <sup>1</sup> mW/MHz	Total PSD <sup>1</sup> dBm/MHz	FCC Limit dBm/MHz	IC Limit dBm/MHz	Result
5260	1	-	17.7	98	3.9	5.0	7.0	11.0	11.0	Pass
	3									
	4									
	2									
5300	1	-	17.7	98	3.4	4.5	6.5	11.0	11.0	Pass
	3									
	4									
	2									
5320	1	-	17.6	98	3.4	4.4	6.5	11.0	11.0	Pass
	3									
	4									
	2									



Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
Contact: Tarandeep Kaur	Project Manager: Sheareen Jacobs
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator: Irene Rademacher
	Class: N/A



**Analyzer Settings**

Agilent Technologies, E4446A  
 CF: 5320.000 MHz  
 SPAN: 40.000 MHz  
 RB: 200 kHz  
 VB: 1.000 MHz  
 Detector: POS  
 Attn: 20 DB  
 RL Offset: 0.0 DB  
 Sweep Time: 1.0ms  
 Ref Lvl: 9.0 DBM

**Comments**

26dB BW: 20.133 MHz

Cursor 1	5330.4000	-4.9	
Cursor 2	5310.2667	-30.9	

Delta Freq.	20.133
Delta Amplitude	26.0



# EMC Test Data

Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
	Project Manager: Sheareen Jacobs
Contact: Tarandeep Kaur	Project Coordinator: Irene Rademacher
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Class: N/A

MIMO Device - 5250-5350 MHz Band - FCC  
 Mode: n40 (CDD) Max EIRP (mW): 146.6

Frequency (MHz)	Chain	Software Setting	26dB BW (MHz)	Duty Cycle %	Power dBm	Total Power <sup>1</sup> mW	FCC Limit dBm	Max Power (W)	Result	
5270	1	-	41.7	98	16.7	94.6	19.8	0.0946	Pass	
	3									
	4									
	2									
5310	1	-	39.9	98	13.3	45.4	16.6			24.0
	3									
	4									
	2									

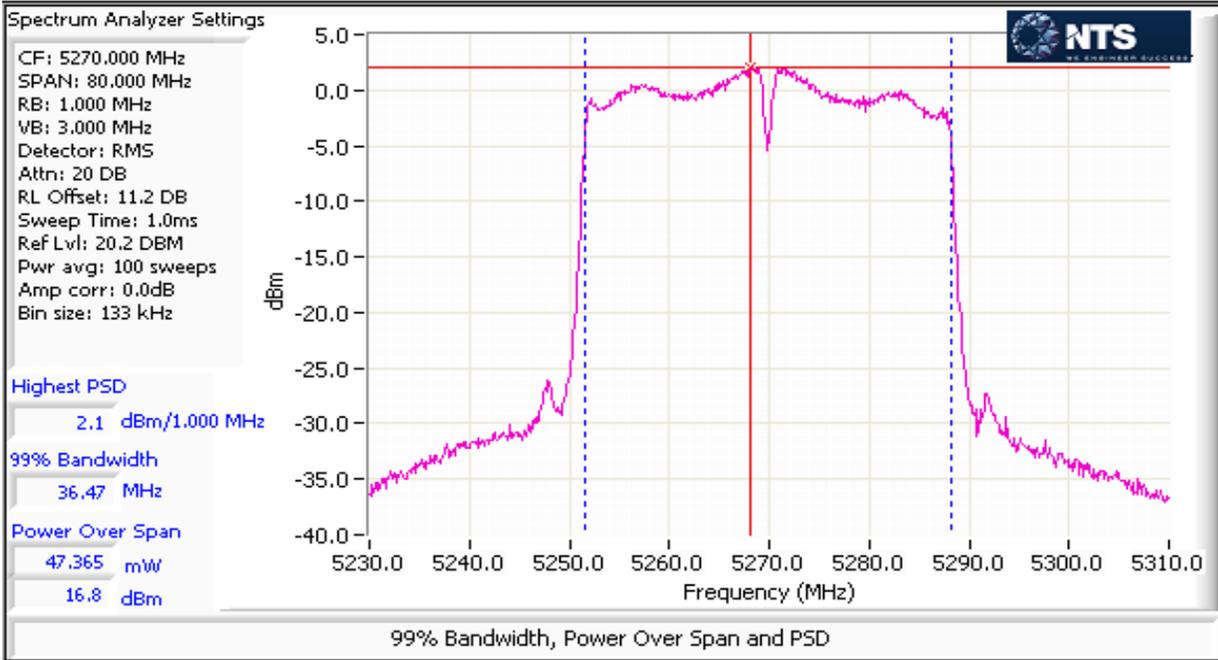
MIMO Device - 5250-5350 MHz Band - Industry Canada  
 Mode: n40 (CDD) Max EIRP (mW): 146.6

Frequency (MHz)	Chain	Software Setting	99% BW (MHz)	Duty Cycle %	Power <sup>1</sup> dBm	Total Power dBm	dBm (eirp)	IC limit dBm	Max Power (W)	Result
5270	1	-	36.47	98	16.7	19.8	21.7	24.0	0.095	Pass
	3									
	4									
	2									
5310	1	-	36.34	98	13.3	16.6	18.5	24.0		
	3									
	4									
	2									

5250-5350 PSD - FCC/IC  
 Mode: n40 (CDD)

Frequency (MHz)	Chain	Software Setting	99% BW (MHz)	Duty Cycle %	PSD dBm/MHz	Total PSD <sup>1</sup> mW/MHz	dBm/MHz	FCC Limit dBm/MHz	IC Limit dBm/MHz	Result
5270	1	-	36.47	98	2.5	3.4	5.3	11.0	11.0	Pass
	3									
	4									
	2									
5310	1	-	36.34	98	-1.1	1.7	2.2	11.0	11.0	Pass
	3									
	4									
	2									

Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
Contact: Tarandeep Kaur	Project Manager: Sheareen Jacobs
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator: Irene Rademacher
	Class: N/A





# EMC Test Data

Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
Contact: Tarandeep Kaur	Project Manager: Sheareen Jacobs
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator: Irene Rademacher
	Class: N/A

### MIMO Device - 5470-5725 MHz Band - FCC

Mode: n20 (CDD)

Max EIRP (mW): 119.3

Frequency (MHz)	Chain	Software Setting	26dB BW (MHz)	Duty Cycle %	Power dBm	Total Power <sup>1</sup>		FCC Limit dBm	Max Power (W)	Result
						mW	dBm			
5500	1	-	20	98	14.9	59.1	17.7	24.0	0.077	Pass
	3									
	4									
	2				14.5					
5580	1	-	22.3	98	16.2	77.2	18.9	24.0		Pass
	3									
	4									
	2				15.5					
5700	1	-	20.1	98	11.7	28.3	14.5	24.0		Pass
	3									
	4									
	2				11.3					

### MIMO Device - 5470-5725 MHz Band - Industry Canada

Mode: n20 (CDD)

Max EIRP (mW): 120.2

Frequency (MHz)	Chain	Software Setting	99% BW (MHz)	Duty Cycle %	Power <sup>1</sup> dBm	Total Power		IC limit dBm	Max Power (W)	Result
						dBm	dBm (eirp)			
5500	1	-	17.8	98	14.9	17.7	19.6	23.5	0.077	Pass
	3									
	4									
	2				14.5					
5580	1	-	17.8	98	16.2	18.9	20.8	23.5		Pass
	3									
	4									
	2				15.5					
5700	1	-	17.8	98	11.7	14.5	16.4	23.5		Pass
	3									
	4									
	2				11.3					

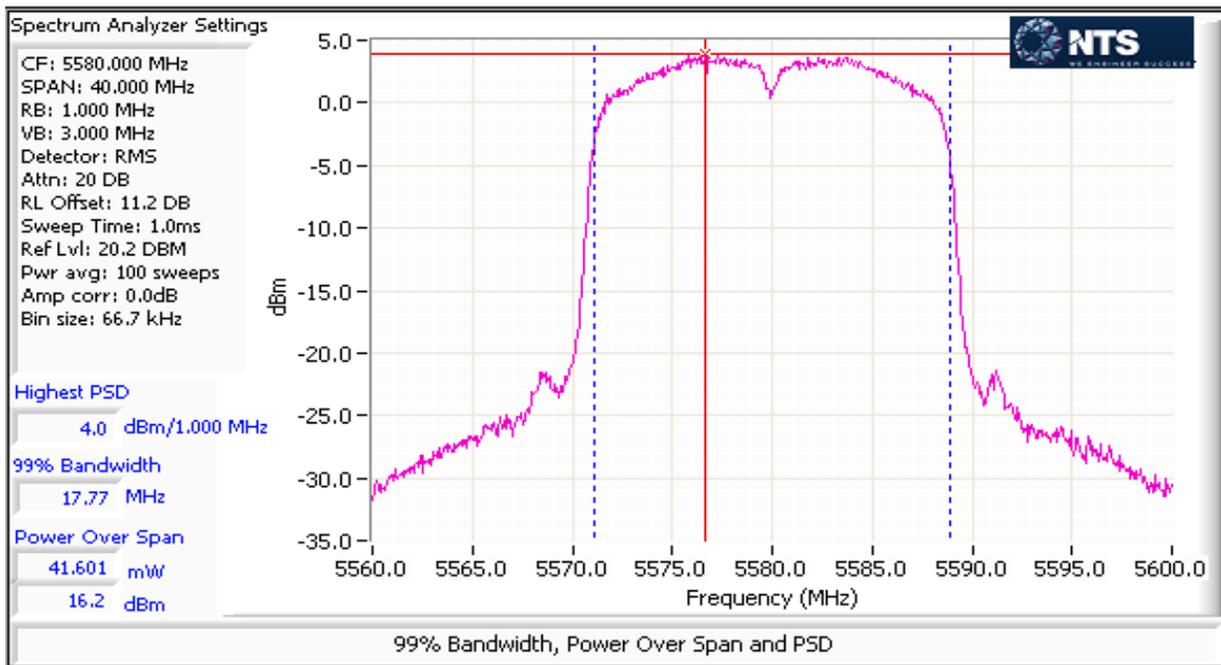


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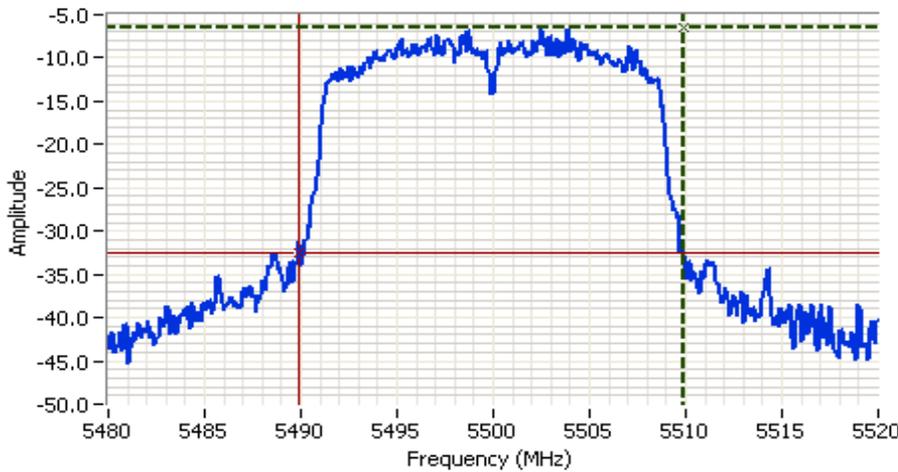
Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
Contact: Tarandeep Kaur	Project Manager: Sheareen Jacobs
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator: Irene Rademacher
	Class: N/A

5470-5725 PSD - FCC/IC  
Mode: n20 (CDD)

Frequency (MHz)	Chain	Software Setting	99% BW (MHz)	Duty Cycle %	PSD dBm/MHz	Total PSD <sup>1</sup> mW/MHz	Total PSD <sup>1</sup> dBm/MHz	FCC Limit dBm/MHz	IC Limit dBm/MHz	Result
5500	1	-	17.8	98	2.4	3.4	5.3	11.0	11.0	Pass
	3									
	4									
	2									
5580	1	-	17.8	98	4.0	4.6	6.6	11.0	11.0	Pass
	3									
	4									
	2									
5700	1	-	17.8	98	-0.7	1.6	2.1	11.0	11.0	Pass
	3									
	4									
	2									



Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
Contact: Tarandeep Kaur	Project Manager: Sheareen Jacobs
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator: Irene Rademacher
	Class: N/A



**Analyzer Settings**

Agilent Technologies, E4446A  
 CF: 5500.000 MHz  
 SPAN: 40.000 MHz  
 RB: 200 kHz  
 VB: 1.000 MHz  
 Detector: POS  
 Attn: 20 DB  
 RL Offset: 0.0 DB  
 Sweep Time: 1.0ms  
 Ref Lvl: 9.0 DBM

**Comments**

26dB BW: 20.000 MHz

Cursor 1	5509.8667	-6.5	
Cursor 2	5489.8667	-32.5	

Delta Freq.	20.000
Delta Amplitude	26.0



# EMC Test Data

Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
	Project Manager: Sheareen Jacobs
Contact: Tarandeep Kaur	Project Coordinator: Irene Rademacher
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Class: N/A

## MIMO Device - 5470-5725 MHz Band - FCC

Mode: n40 (CDD)

Max EIRP (mW): 123.9

Frequency (MHz)	Chain	Software Setting	26dB BW (MHz)	Duty Cycle %	Power dBm	Total Power <sup>1</sup> mW	dBm	FCC Limit dBm	Max Power (W)	Result
5510	1	-	41.5	98	13.7	44.8	16.5	24.0	0.080	Pass
	3									
	4									
	2				13.3					
5550	1	-	47.9	98	16.2	79.7	19.0	24.0		Pass
	3									
	4									
	2				15.8					
5670	1	-	44.1	98	14.3	50.9	17.1	24.0		Pass
	3									
	4									
	2				13.8					

## MIMO Device - 5470-5725 MHz Band - Industry Canada

Mode: n40 (CDD)

Max EIRP (mW): 123.0

Frequency (MHz)	Chain	Software Setting	99% BW (MHz)	Duty Cycle %	Power <sup>1</sup> dBm	Total Power dBm	dBm (eirp)	IC limit dBm	Max Power (W)	Result
5510	1	-	36.5	98	13.7	16.5	18.4	24.0	0.080	Pass
	3									
	4									
	2				13.3					
5550	1	-	36.5	98	16.2	19.0	20.9	24.0		Pass
	3									
	4									
	2				15.8					
5670	1	-	36.5	98	14.3	17.1	19.0	24.0		Pass
	3									
	4									
	2				13.8					

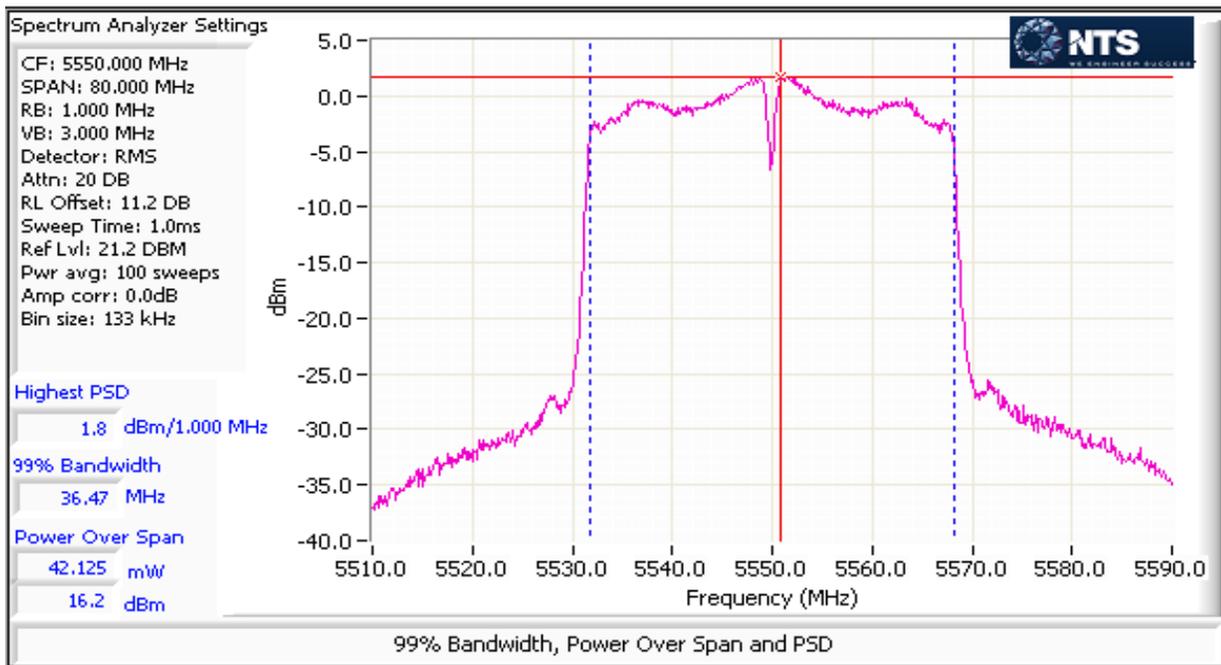


# EMC Test Data

Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
Contact: Tarandeep Kaur	Project Manager: Sheareen Jacobs
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator: Irene Rademacher
	Class: N/A

5470-5725 PSD - FCC/IC  
Mode: n40 (CDD)

Frequency (MHz)	Chain	Software Setting	99% BW (MHz)	Duty Cycle %	PSD dBm/MHz	Total PSD <sup>1</sup> mW/MHz	Total PSD <sup>1</sup> dBm/MHz	FCC Limit dBm/MHz	IC Limit dBm/MHz	Result
5510	1	-	36.5	98	-0.7	1.6	2.2	11.0	11.0	Pass
	3									
	4									
	2									
5550	1	-	36.5	98	1.8	2.9	4.6	11.0	11.0	Pass
	3									
	4									
	2									
5670	1	-	36.5	98	-0.1	1.8	2.6	11.0	11.0	Pass
	3									
	4									
	2									





# EMC Test Data

Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
	Project Manager: Sheareen Jacobs
Contact: Tarandeep Kaur	Project Coordinator: Irene Rademacher
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Class: N/A

## MIMO Device - 5725-5850 MHz Band - FCC/IC

Mode: n20 (CDD)

Max EIRP (mW): 114.6

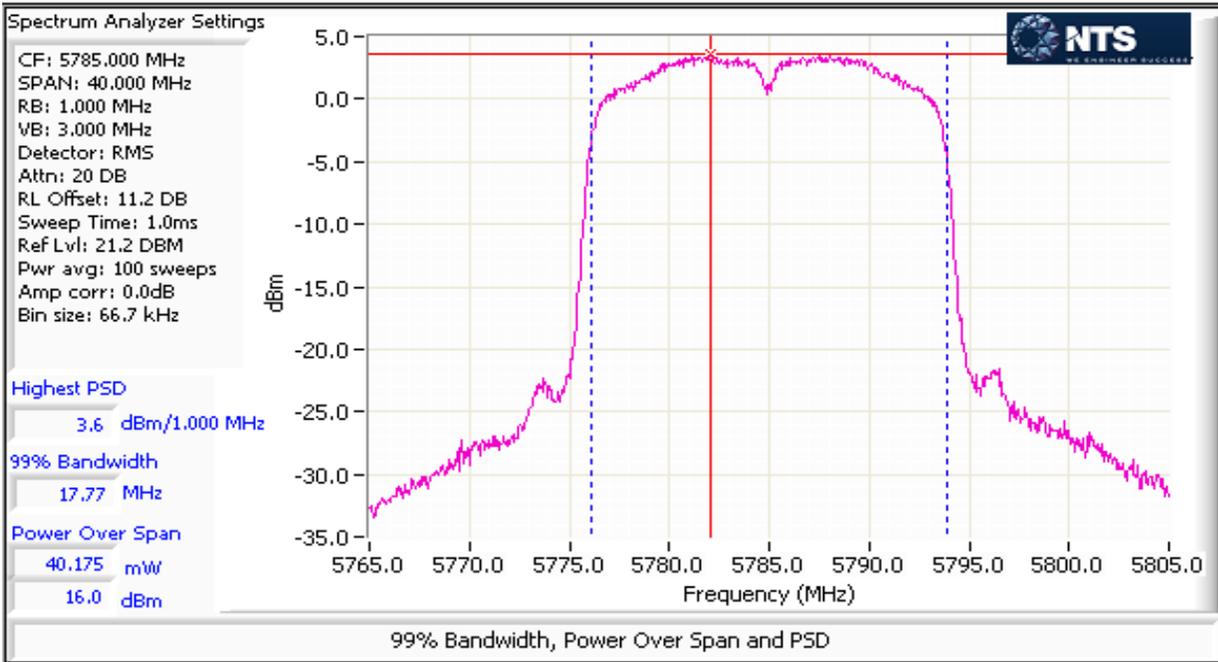
Frequency (MHz)	Chain	Software Setting		Duty Cycle %	Power dBm	Total Power <sup>1</sup> mW	dBm	Limit dBm	Max Power (W)	Result
5745	1	-		98	12.6	36.0	15.6	30.0	0.074	Pass
	3									
	4									
	2				12.5					
5785	1	-		98	16.0	73.7	18.7	30.0		Pass
	3									
	4									
	2				15.3					
5825	1	-		98	14.8	58.4	17.7	30.0		Pass
	3									
	4									
	2				14.5					

## 5725-5850 PSD - FCC/IC

Mode: n20 (CDD)

Frequency (MHz)	Chain	Software Setting	99% BW (MHz)	Duty Cycle %	PSD dBm/MHz	Total PSD <sup>1</sup> mW/MHz	dBm/MHz	FCC Limit dBm/500kHz	IC Limit	Result
5745	1	-	17.6	98	0.1	2.0	3.1	30.0	30.0	Pass
	3									
	4									
	2				0.1					
5785	1	-	17.8	98	3.6	4.2	6.3	30.0	30.0	Pass
	3									
	4									
	2				2.9					
5825	1	-	17.6	98	2.4	3.4	5.3	30.0	30.0	Pass
	3									
	4									
	2				2.1					

Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
Contact: Tarandeep Kaur	Project Manager: Sheareen Jacobs
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator: Irene Rademacher
	Class: N/A





# EMC Test Data

Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
Contact: Tarandeep Kaur	Project Manager: Sheareen Jacobs
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator: Irene Rademacher
	Class: N/A

## MIMO Device - 5725-5850 MHz Band - FCC/IC

Mode: n40 (CDD)

Max EIRP (mW): 91.4

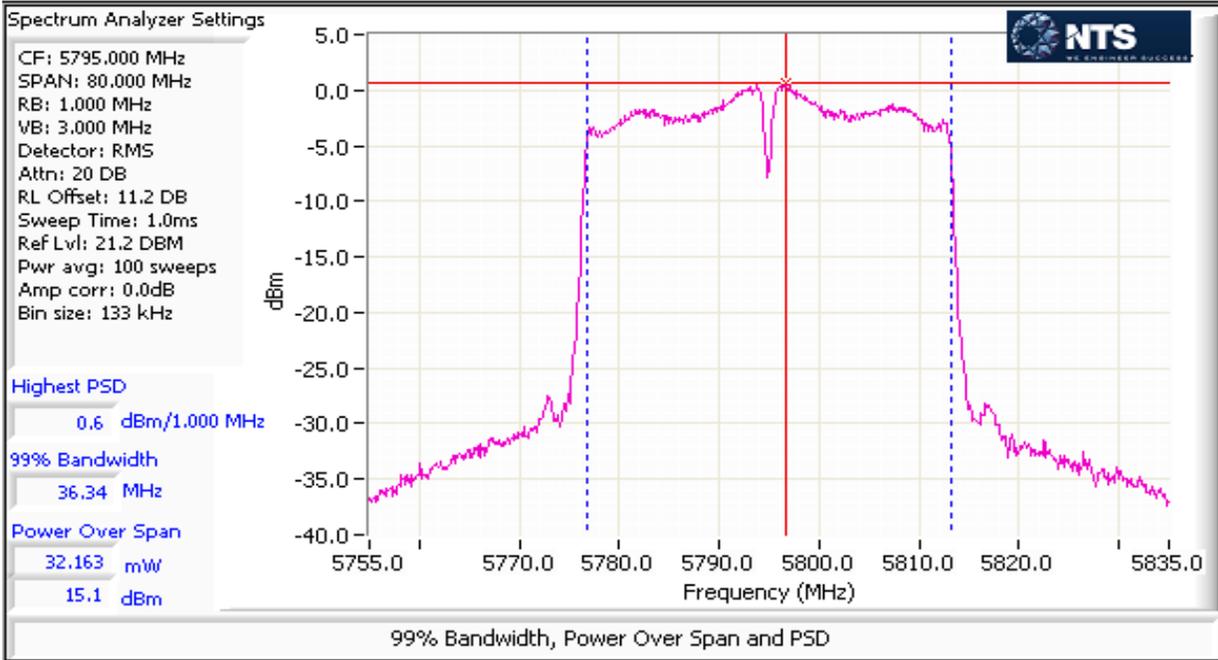
Frequency (MHz)	Chain	Software Setting		Duty Cycle %	Power dBm	Total Power <sup>1</sup>		Limit dBm	Max Power (W)	Result		
						mW	dBm					
5755	1	-		98	10.1	20.0	13.0	30.0	0.059	Pass		
	3											
	4											
	2				9.9							
5795	1	-		98	15.1	59.3	17.7	30.0			0.059	Pass
	3											
	4											
	2				14.3							

## 5725-5850 PSD - FCC/IC

Mode: n40 (CDD)

Frequency (MHz)	Chain	Software Setting	99% BW (MHz)	Duty Cycle %	PSD dBm/MHz	Total PSD <sup>1</sup>		FCC Limit dBm/500kHz	IC Limit dBm/500kHz	Result
						mW/MHz	dBm/MHz			
5755	1	-	36.3	98	-4.5	0.7	-1.6	30.0	30.0	Pass
	3									
	4									
	2				-4.7					
5795	1	-	36.5	98	0.6	2.1	3.2	30.0	30.0	Pass
	3									
	4									
	2				-0.3					

Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
Contact: Tarandeep Kaur	Project Manager: Sheareen Jacobs
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator: Irene Rademacher
	Class: N/A





# EMC Test Data

Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
	Project Manager: Sheareen Jacobs
Contact: Tarandeep Kaur	Project Coordinator: Irene Rademacher
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Class: N/A

**Run #2: Bandwidth Measurements**

Date of Test: 8/10/2015 0:00  
 Test Engineer: Rafael Varelas  
 Test Location: FT Lab #4A  
 Config. Used: 1  
 Config Change: None  
 EUT Voltage: USB

Mode: 11a  
 5725-5850MHz band (UNII3)  
 Testing performed on port: 1

Power Setting	Frequency (MHz)	Bandwidth (MHz)		RBW Setting (MHz)	
		6dB	99%	6dB	99%
q66	5745	15.5	17.4	100kHz	1MHz
q66	5785	15.3	17.5	100kHz	1MHz
q66	5825	15.1	17.4	100kHz	1MHz

Mode: n20  
 5725-5850MHz band (UNII3)  
 Testing performed on port: 1

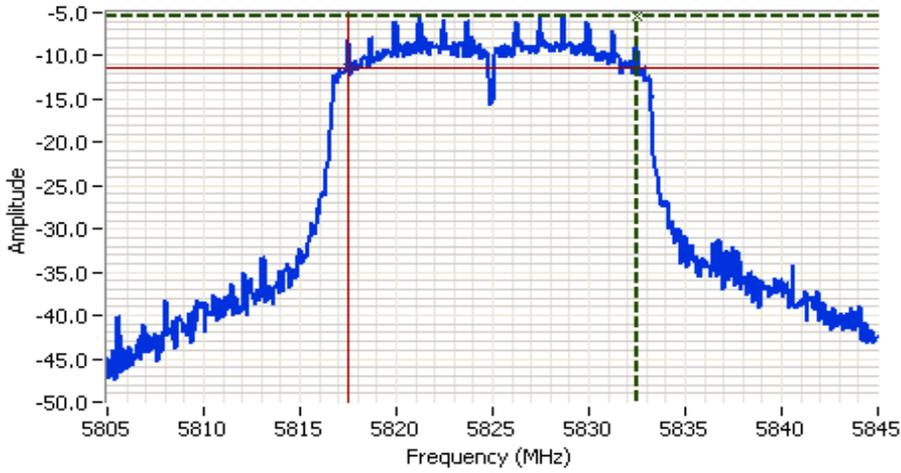
Power Setting	Frequency (MHz)	Bandwidth (MHz)		RBW Setting (MHz)	
		6dB	99%	6dB	99%
q66	5745	15.1	18.2	100kHz	1MHz
q66	5785	15.1	18.3	100kHz	1MHz
q66	5825	15.1	18.2	100kHz	1MHz

Mode: n40  
 5725-5850MHz band (UNII3)  
 Testing performed on port: 1

Power Setting	Frequency (MHz)	Bandwidth (MHz)		RBW Setting (MHz)	
		6dB	99%	6dB	99%
q66	5755	35.1	37.1	100kHz	1MHz
q66	5795	35.1	37.3	100kHz	1MHz

Note 1: 6dB BW: RBW=100kHz, VBW ≥ 3\*RBW, peak detector, max hold, auto sweep time.  
 99% BW: RBW=1-5% of of 99%BW, VBW ≥ 3\*RBW, peak detector, max hold, auto sweep time.

Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
Contact: Tarandeep Kaur	Project Manager: Sheareen Jacobs
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator: Irene Rademacher
	Class: N/A



**Analyzer Settings**

- Agilent Technologies, E4446A
- CF: 5825.000 MHz
- SPAN: 40.000 MHz
- RB: 100 kHz
- VB: 300 kHz
- Detector: POS
- Attn: 20 DB
- RL Offset: 0.0 DB
- Sweep Time: 3.8ms
- Ref Lvl: 10.0 DBM

**Comments**

- 6dB BW: 15.067 MHz

Cursor 1: 5832.5333 MHz, -5.3 dBm

Cursor 2: 5817.4667 MHz, -11.3 dBm

Delta Freq. 15.067 MHz

Delta Amplitude 6.0 dB



# EMC Test Data

Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
	Project Manager: Sheareen Jacobs
Contact: Tarandeep Kaur	Project Coordinator: Irene Rademacher
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Class: N/A

## FCC Part 15 Frequency Stability

### 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

All measurements are made with the EUT's rf port connected to the measurement instrument via an attenuator. All amplitude measurements are adjusted to account for the attenuation between EUT and measuring instrument. For frequency stability measurements the EUT was placed inside an environmental chamber.

Ambient Conditions:                      Temperature:            24 °C  
    Rel. Humidity:            38 %

Run #	Test Performed	Limit	Pass / Fail
1	Frequency Stability	Stays in band	Pass

### 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.





# EMC Test Data

Client:	Hewlett Packard Company	Job Number:	J98746
Model:	SDGOB-1505	T-Log Number:	T98753
		Project Manager:	Sheareen Jacobs
Contact:	Tarandeep Kaur	Project Coordinator:	Irene Rademacher
Standard:	FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Class:	-

## Radiated Emissions

(NTS Silicon Valley, 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: 7/30 & 8/4/15  
 Test Engineer: Rafael Varelas  
 Test Location: FT Chamber #5

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

### General Test Configuration

The EUT and any local support equipment were located on the turntable for radiated emissions testing. 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.

<b>Ambient Conditions:</b>	7/30/2015	8/4/2015
Temperature:	20.6 °C	21.4 °C
Rel. Humidity:	38 %	40 %

### Summary of Results (ANSI C63.4:2009)

Run #	Test Performed	Limit	Result	Margin
1	Radiated Emissions 30 - 1000 MHz, Transmit	FCC 15.209	Pass	26.0 dBμV/m @ 37.95 MHz (-14.0 dB)
2	Radiated Emissions 30 - 1000 MHz, Transmit	FCC 15.209	Pass	26.1 dBμV/m @ 37.92 MHz (-13.9 dB)
3	Radiated Emissions 30 - 1000 MHz, Receive	LP 0002	Pass	36.2 dBμV/m @ 41.16 MHz (-3.8 dB)
4	Radiated Emissions 30 - 1000 MHz, Receive	LP 0002	Pass	36.5 dBμV/m @ 41.40 MHz (-3.5 dB)

Client:	Hewlett Packard Company	Job Number:	J98746
Model:	SDGOB-1505	T-Log Number:	T98753
Contact:	Tarandeep Kaur	Project Manager:	Sheareen Jacobs
Standard:	FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator:	Irene Rademacher
		Class:	-

### 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.

### Sample Notes

Sample S/N: D85DE2000005 (MAC ID)

Driver: 6.37 RC214 .12

Antenna: Internal

### Notes

Testing performed at 0.8m per C63.10

All testing was performed in 2Tx mode using worse case 1Tx power levels

### Procedure Comments:

Measurements performed in accordance with FCC KDB 558074

2.4GHz band reject filter used

Mode	Data Rate	Duty Cycle (x)	Constant DC?	T (ms)	Pwr Cor Factor*	Lin Volt Cor Factor**	Min VBW for FS (Hz)
11b	1Mb/s	98.2%	Yes	2.897	0	0	10
11a	6Mb/s	98.2%	Yes	1.405	0	0	10
n20	MCS0	98.1%	Yes	1.309	0	0	10
n40	MCS0	98.0%	Yes	0.932	0	0	10

Client:	Hewlett Packard Company	Job Number:	J98746
Model:	SDGOB-1505	T-Log Number:	T98753
Contact:	Tarandeep Kaur	Project Manager:	Sheareen Jacobs
Standard:	FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator:	Irene Rademacher
		Class:	-

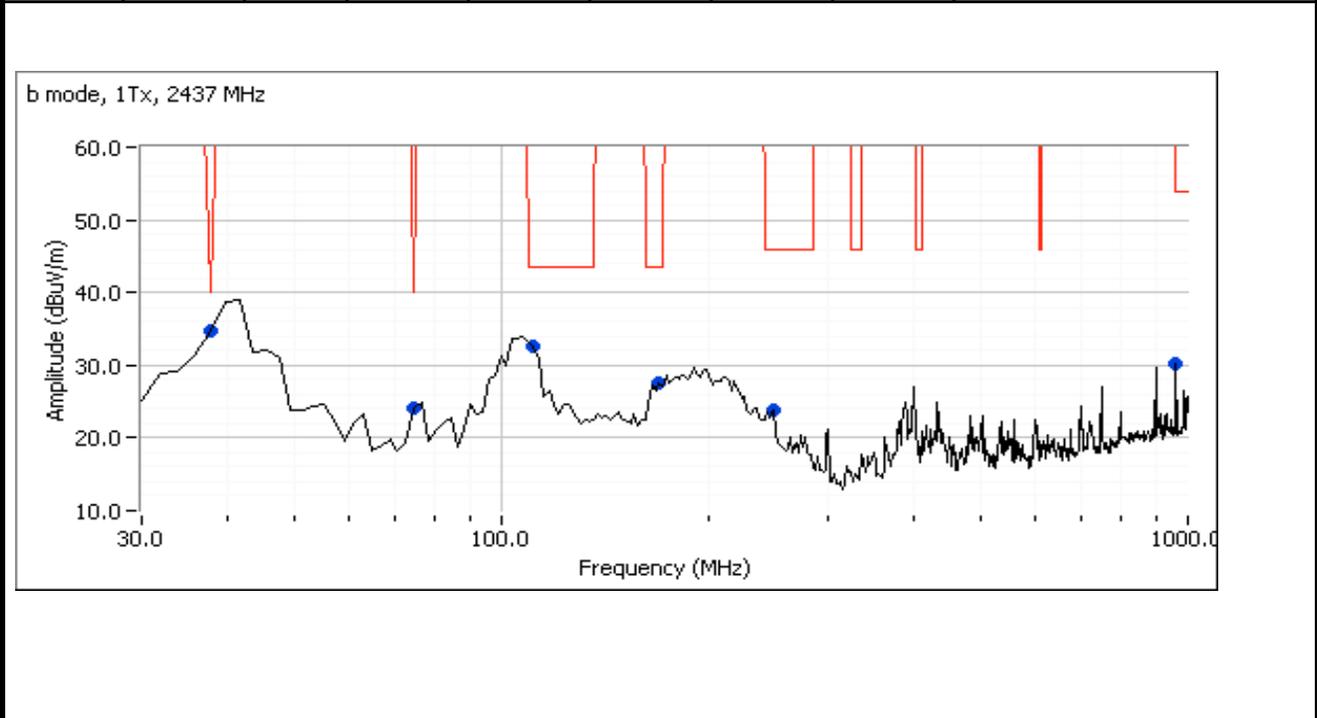
Run #1: Radiated Spurious Emissions, 30 - 1000 MHz

Test Parameters for Preliminary Scan(s)			
Frequency Range (MHz)	Prescan Distance (meters)	Limit Distance (meters)	Extrapolation Factor (dB, applied to data)
30 - 1000	3	3	0.0

Channel: 6                      Mode: 802.11b                      Power: -  
 Tx Chain: 1Tx                      Data Rate: 1Mb/s

Preliminary peak readings captured during pre-scan

Frequency MHz	Level dB $\mu$ V/m	Pol v/h	FCC 15.209		Detector Pk/QP/Avg	Azimuth degrees	Height meters	Comments
			Limit	Margin				
37.946	34.7	V	40.0	-5.3	Peak	7	1.0	
74.982	24.2	V	40.0	-15.8	Peak	227	1.0	
112.208	32.7	V	43.5	-10.8	Peak	306	1.0	
170.071	27.6	V	43.5	-15.9	Peak	238	1.0	
249.683	23.7	H	46.0	-22.3	Peak	114	1.0	
960.004	30.2	V	54.0	-23.8	Peak	215	1.0	

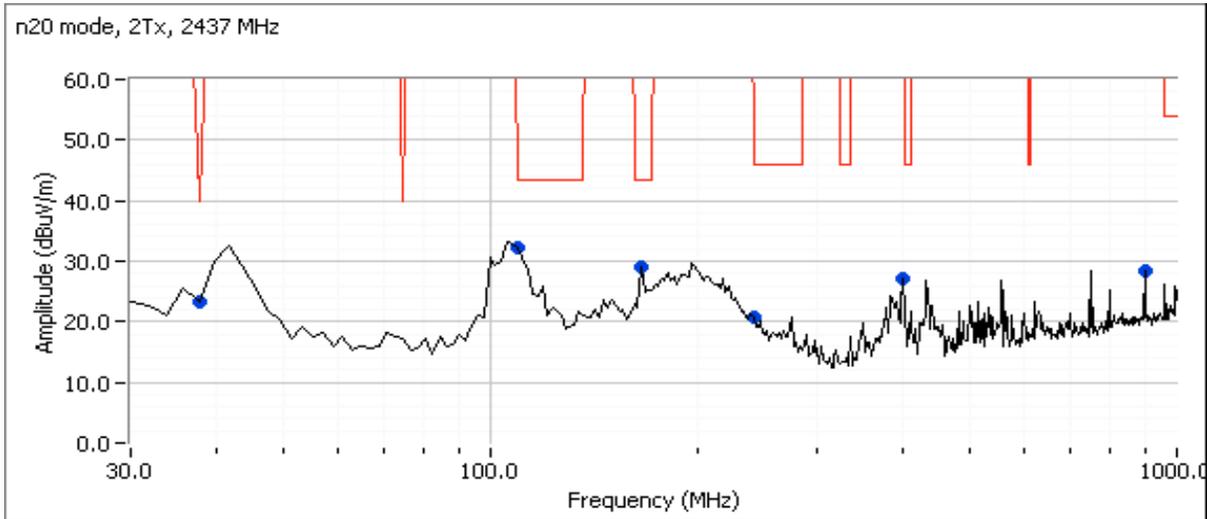


Client:	Hewlett Packard Company	Job Number:	J98746
Model:	SDGOB-1505	T-Log Number:	T98753
Contact:	Tarandeep Kaur	Project Manager:	Sheareen Jacobs
Standard:	FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator:	Irene Rademacher
		Class:	-

Channel: 6                      Mode: n20                      Power: -  
 Tx Chain: 2Tx                      Data Rate: MCS0

**Preliminary peak readings captured during pre-scan**

Frequency MHz	Level dB $\mu$ V/m	Pol v/h	FCC 15.209		Detector Pk/QP/Avg	Azimuth degrees	Height meters	Comments
			Limit	Margin				
37.776	23.3	V	40.0	-16.7	Peak	326	1.0	
109.699	32.2	V	43.5	-11.3	Peak	140	1.0	
166.072	28.9	H	43.5	-14.6	Peak	282	2.0	
241.884	20.9	V	46.0	-25.1	Peak	245	1.0	
399.339	27.0	V	100.0	-73.0	Peak	346	1.0	
898.918	28.5	V	100.0	-71.5	Peak	221	1.0	





# EMC Test Data

Client:	Hewlett Packard Company	Job Number:	J98746
Model:	SDGOB-1505	T-Log Number:	T98753
Contact:	Tarandeep Kaur	Project Manager:	Sheareen Jacobs
Standard:	FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator:	Irene Rademacher
		Class:	-

**Maximized quasi-peak readings (includes manipulation of EUT interface cables), Worse case from above runs**

Frequency	Level	Pol	FCC 15.209		Detector	Azimuth	Height	Comments
			Limit	Margin				
MHz	dB $\mu$ V/m	v/h			Pk/QP/Avg	degrees	meters	
37.946	26.0	V	40.0	-14.0	QP	4	1.0	QP (1.00s)
170.071	23.5	V	43.5	-20.0	QP	235	1.0	QP (1.00s)
74.982	18.9	V	40.0	-21.1	QP	222	1.0	QP (1.00s)
112.208	22.3	V	43.5	-21.2	QP	304	1.0	QP (1.00s)
960.004	30.1	V	54.0	-23.9	QP	212	1.0	QP (1.00s)
249.683	20.1	H	46.0	-25.9	QP	110	1.0	QP (1.00s)



# EMC Test Data

Client:	Hewlett Packard Company	Job Number:	J98746
Model:	SDGOB-1505	T-Log Number:	T98753
Contact:	Tarandeep Kaur	Project Manager:	Sheareen Jacobs
Standard:	FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator:	Irene Rademacher
		Class:	-

## Run #2: Radiated Spurious Emissions, 30 - 1000 MHz

Test Parameters for Preliminary Scan(s)			
Frequency Range (MHz)	Prescan Distance (meters)	Limit Distance (meters)	Extrapolation Factor (dB, applied to data)
30 - 1000	3	3	0.0

Channel: 157                      Mode: n20                      Power: -  
 Tx Chain: 2Tx                      Data Rate: MCS0

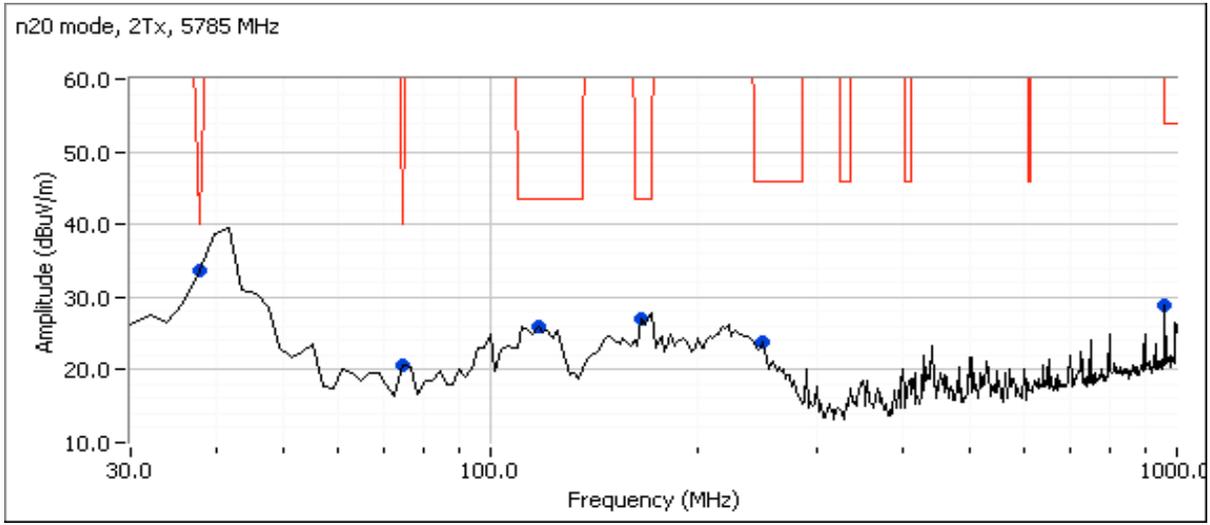
### Preliminary peak readings captured during pre-scan

Frequency MHz	Level dB $\mu$ V/m	Pol v/h	FCC 15.209		Detector Pk/QP/Avg	Azimuth degrees	Height meters	Comments
			Limit	Margin				
37.922	33.8	V	40.0	-6.2	Peak	326	1.0	
74.972	20.7	V	40.0	-19.3	Peak	200	2.0	
116.712	26.0	H	43.5	-17.5	Peak	100	3.0	
166.328	27.1	H	43.5	-16.4	Peak	272	1.5	
249.727	23.7	H	46.0	-22.3	Peak	305	2.0	
959.991	28.9	V	54.0	-25.1	Peak	209	1.0	

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

Frequency MHz	Level dB $\mu$ V/m	Pol v/h	FCC 15.209		Detector Pk/QP/Avg	Azimuth degrees	Height meters	Comments
			Limit	Margin				
37.922	26.1	V	40.0	-13.9	QP	327	1.0	QP (1.00s)
166.328	25.0	H	43.5	-18.5	QP	273	1.7	QP (1.00s)
74.972	16.7	V	40.0	-23.3	QP	201	1.0	QP (1.00s)
249.727	21.7	H	46.0	-24.3	QP	305	1.3	QP (1.00s)
959.991	28.4	V	54.0	-25.6	QP	210	1.0	QP (1.00s)
116.712	15.3	H	43.5	-28.2	QP	103	1.0	QP (1.00s)

Client:	Hewlett Packard Company	Job Number:	J98746
Model:	SDGOB-1505	T-Log Number:	T98753
Contact:	Tarandeep Kaur	Project Manager:	Sheareen Jacobs
Standard:	FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator:	Irene Rademacher
		Class:	-





# EMC Test Data

Client:	Hewlett Packard Company	Job Number:	J98746
Model:	SDGOB-1505	T-Log Number:	T98753
Contact:	Tarandeep Kaur	Project Manager:	Sheareen Jacobs
Standard:	FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator:	Irene Rademacher
		Class:	-

## Run #3: Radiated Spurious Emissions, 30 - 1000 MHz

Test Parameters for Preliminary Scan(s)			
Frequency Range (MHz)	Prescan Distance (meters)	Limit Distance (meters)	Extrapolation Factor (dB, applied to data)
30 - 1000	3	3	0.0

Channel: 6                      Mode: Rx                      Power: N/A  
 Tx Chain: 2Tx                      Data Rate: N/A

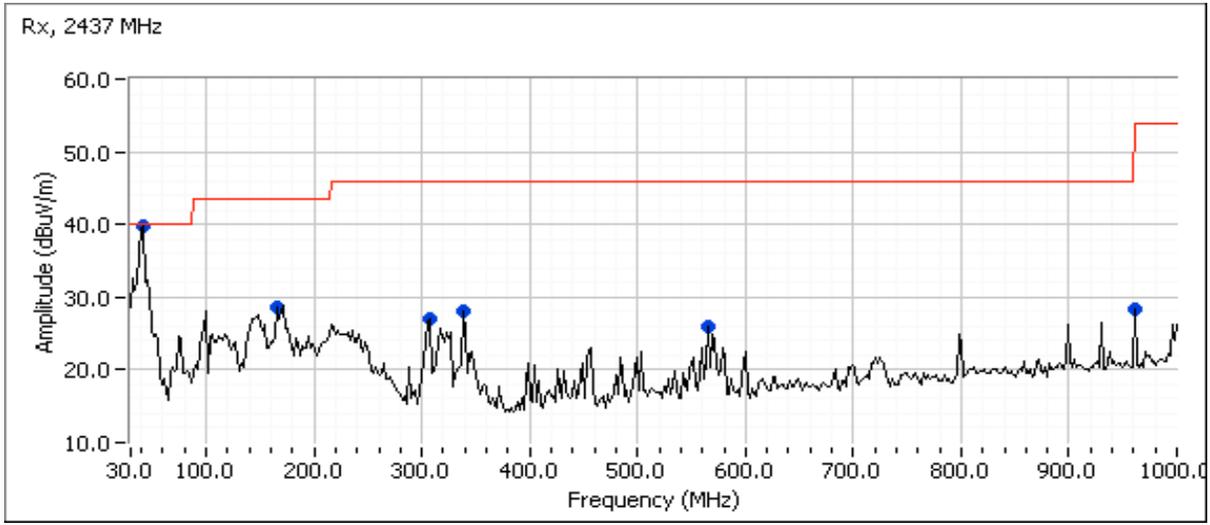
### Preliminary peak readings captured during pre-scan

Frequency MHz	Level dB $\mu$ V/m	Pol v/h	LP0002 2.8		Detector Pk/QP/Avg	Azimuth degrees	Height meters	Comments
			Limit	Margin				
41.160	39.7	V	40.0	-0.3	Peak	360	1.5	
165.971	28.6	H	43.5	-14.9	Peak	283	1.5	
306.331	27.0	V	46.0	-19.0	Peak	96	2.0	
342.005	28.0	V	46.0	-18.0	Peak	130	3.5	
563.134	25.9	V	46.0	-20.1	Peak	266	1.5	
960.014	28.3	V	54.0	-25.7	Peak	209	1.0	

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

Frequency MHz	Level dB $\mu$ V/m	Pol v/h	LP0002 2.8		Detector Pk/QP/Avg	Azimuth degrees	Height meters	Comments
			Limit	Margin				
41.160	36.2	V	40.0	-3.8	QP	360	1.0	QP (1.00s)
165.971	26.4	H	43.5	-17.1	QP	286	1.7	QP (1.00s)
342.005	21.1	V	46.0	-24.9	QP	133	1.0	QP (1.00s)
960.014	28.8	V	54.0	-25.2	QP	211	1.0	QP (1.00s)
563.134	14.2	V	46.0	-31.8	QP	270	1.0	QP (1.00s)
306.331	8.9	V	46.0	-37.1	QP	99	1.0	QP (1.00s)

Client:	Hewlett Packard Company	Job Number:	J98746
Model:	SDGOB-1505	T-Log Number:	T98753
Contact:	Tarandeep Kaur	Project Manager:	Sheareen Jacobs
Standard:	FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator:	Irene Rademacher
		Class:	-





# EMC Test Data

Client:	Hewlett Packard Company	Job Number:	J98746
Model:	SDGOB-1505	T-Log Number:	T98753
Contact:	Tarandeep Kaur	Project Manager:	Sheareen Jacobs
Standard:	FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator:	Irene Rademacher
		Class:	-

## Run #4: Radiated Spurious Emissions, 30 - 1000 MHz

Test Parameters for Preliminary Scan(s)			
Frequency Range (MHz)	Prescan Distance (meters)	Limit Distance (meters)	Extrapolation Factor (dB, applied to data)
30 - 1000	3	3	0.0

Channel: 157                      Mode: Rx                      Power: N/A  
 Tx Chain: 2Tx                      Data Rate: N/A

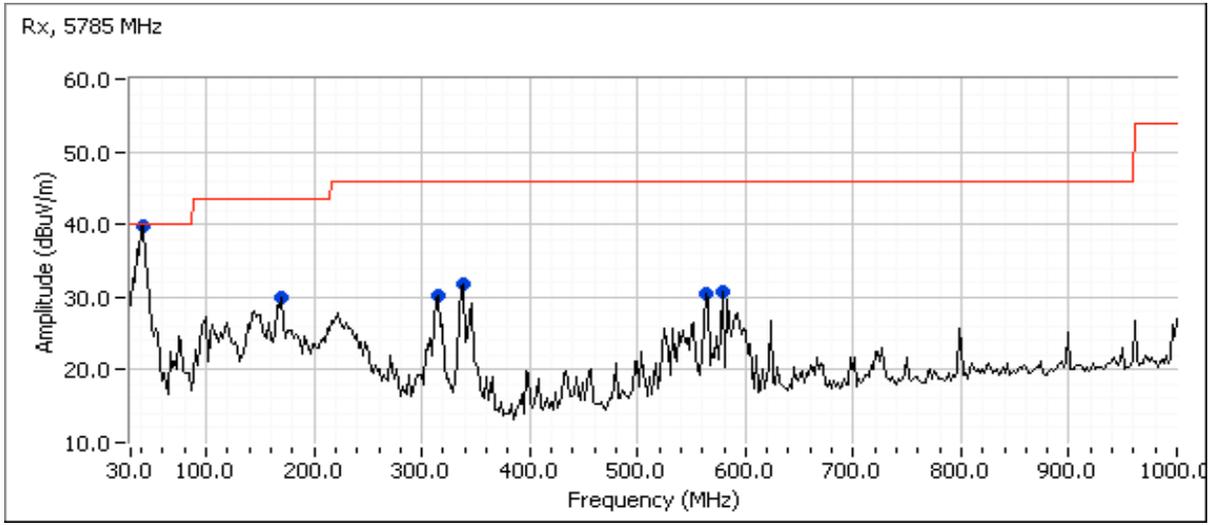
### Preliminary peak readings captured during pre-scan

Frequency MHz	Level dB $\mu$ V/m	Pol v/h	LP0002 2.8		Detector Pk/QP/Avg	Azimuth degrees	Height meters	Comments
			Limit	Margin				
41.400	39.8	V	40.0	-0.2	Peak	324	1.0	
170.093	29.9	H	43.5	-13.6	Peak	285	2.5	
315.996	30.1	V	46.0	-15.9	Peak	185	2.0	
340.489	31.9	V	46.0	-14.1	Peak	17	2.0	
561.214	30.5	V	46.0	-15.5	Peak	212	1.0	
575.995	30.8	V	46.0	-15.2	Peak	212	1.0	

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

Frequency MHz	Level dB $\mu$ V/m	Pol v/h	LP0002 2.8		Detector Pk/QP/Avg	Azimuth degrees	Height meters	Comments
			Limit	Margin				
41.400	36.5	V	40.0	-3.5	QP	319	1.0	QP (1.00s)
170.093	26.0	H	43.5	-17.5	QP	279	1.6	QP (1.00s)
340.489	22.0	V	46.0	-24.0	QP	15	1.0	QP (1.00s)
575.995	19.9	V	46.0	-26.1	QP	210	1.0	QP (1.00s)
315.996	17.0	V	46.0	-29.0	QP	181	1.0	QP (1.00s)
561.214	13.3	V	46.0	-32.7	QP	215	1.6	QP (1.00s)

Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
Contact: Tarandeep Kaur	Project Manager: Sheareen Jacobs
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator: Irene Rademacher
	Class: -





# EMC Test Data

Client:	Hewlett Packard Company	Job Number:	J98746
Model:	SDGOB-1505	T-Log Number:	T98753
Contact:	Tarandeep Kaur	Project Manager:	Sheareen Jacobs
Standard:	FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Project Coordinator:	Irene Rademacher
		Class:	-

## Conducted Emissions

*(NTS Silicon Valley, 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: 7/31/2015	Config. Used: 2
Test Engineer: Rafael Varelas	Config Change: None
Test Location: FT Chamber #4	EUT Voltage: Laptop USB

### 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. Remote support equipment was located outside of the semi-anechoic chamber. Any cables running to remote support equipment were routed through metal conduit and when possible passed through a ferrite clamp upon exiting the chamber.

<b>Ambient Conditions:</b>	Temperature:	22.5 °C
	Rel. Humidity:	38 %

### Summary of Results

Run #	Test Performed	Limit	Result	Margin
1	CE, AC Power, 120V/60Hz	FCC 15.207	Pass	40.3 dBµV @ 0.176 MHz(-14.4 dB)

### Modifications Made During Testing

No modifications were made to the EUT during testing

### Deviations From The Standard

No deviations were made from the requirements of the standard.

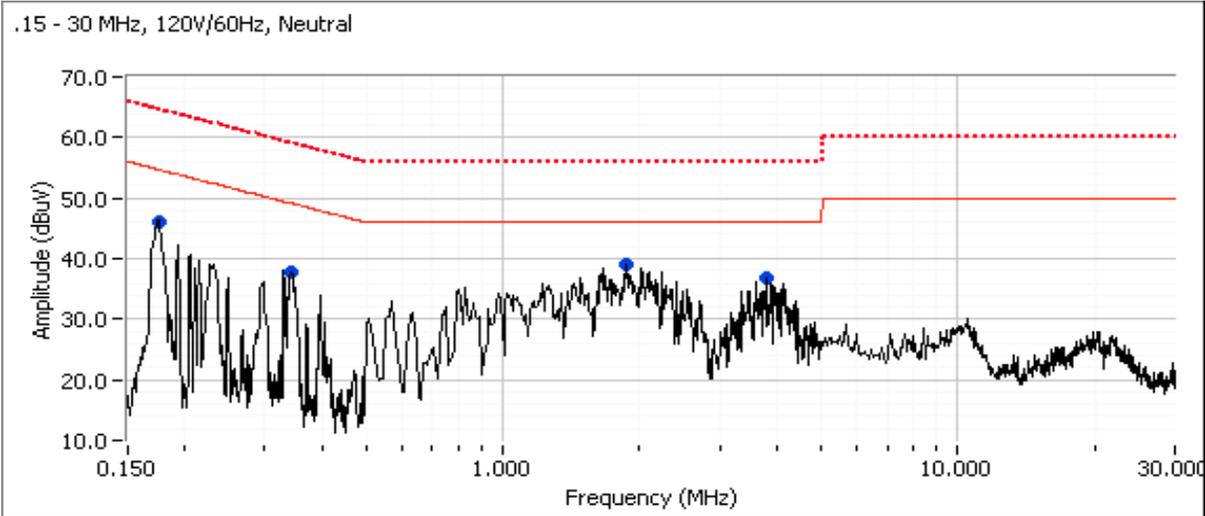
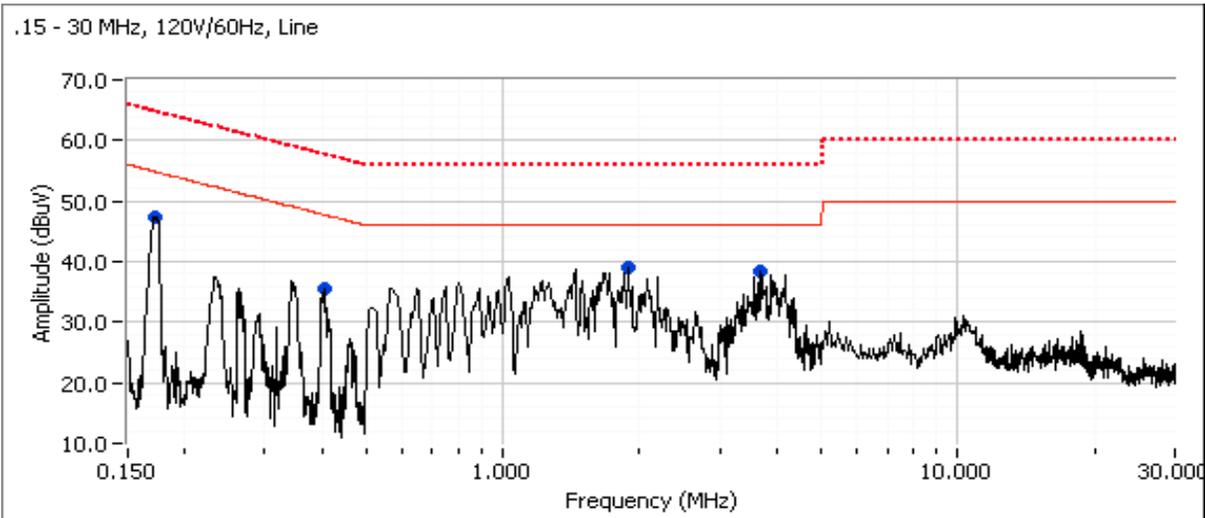
### Sample Notes

Sample S/N: D85DE2000005 (MAC ID)  
 Driver: 6.37 RC214 .12  
 Antenna: Internal

Channel:	6 - 2437MHz	Power Setting:	max 1Tx setting
Tx Chain:	2Tx		
Mode:	n20		
Data Rate:	MCS0		

Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
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	Class: -

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





# EMC Test Data

Client: Hewlett Packard Company	Job Number: J98746
Model: SDGOB-1505	T-Log Number: T98753
	Project Manager: Sheareen Jacobs
Contact: Tarandeep Kaur	Project Coordinator: Irene Rademacher
Standard: FCC 15.247 / FCC 15.E / RSS-247 / LP0002	Class: -

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

Frequency MHz	Level dB $\mu$ V	AC Line	FCC 15.207		Detector QP/Ave	Comments
			Limit	Margin		
0.172	47.5	Line 1	54.9	-7.4	Peak	
0.405	35.5	Line 1	47.7	-12.2	Peak	
1.888	39.0	Line 1	46.0	-7.0	Peak	
3.661	38.5	Line 1	46.0	-7.5	Peak	
0.176	46.0	Neutral	54.7	-8.7	Peak	
0.344	37.9	Neutral	49.1	-11.2	Peak	
1.855	38.9	Neutral	46.0	-7.1	Peak	
3.817	36.8	Neutral	46.0	-9.2	Peak	

**Final quasi-peak and average readings**

Frequency MHz	Level dB $\mu$ V	AC Line	FCC 15.207		Detector QP/Ave	Comments
			Limit	Margin		
0.176	40.3	Neutral	54.7	-14.4	AVG	AVG (0.10s)
0.172	40.2	Line 1	54.9	-14.7	AVG	AVG (0.10s)
0.172	47.7	Line 1	64.9	-17.2	QP	QP (1.00s)
1.855	27.6	Neutral	46.0	-18.4	AVG	AVG (0.10s)
0.344	30.3	Neutral	49.1	-18.8	AVG	AVG (0.10s)
0.405	28.6	Line 1	47.8	-19.2	AVG	AVG (0.10s)
0.176	45.5	Neutral	64.7	-19.2	QP	QP (1.00s)
1.888	26.1	Line 1	46.0	-19.9	AVG	AVG (0.10s)
1.888	36.0	Line 1	56.0	-20.0	QP	QP (1.00s)
1.855	36.0	Neutral	56.0	-20.0	QP	QP (1.00s)
3.661	32.9	Line 1	56.0	-23.1	QP	QP (1.00s)
0.344	35.7	Neutral	59.1	-23.4	QP	QP (1.00s)
0.405	34.0	Line 1	57.8	-23.8	QP	QP (1.00s)
3.661	21.5	Line 1	46.0	-24.5	AVG	AVG (0.10s)
3.817	28.4	Neutral	56.0	-27.6	QP	QP (1.00s)
3.817	18.3	Neutral	46.0	-27.7	AVG	AVG (0.10s)

### Appendix C Test Reductions

Test Reduction Taken	Justification/Comment
Radiated bandedge and radiated and conducted spurious emissions – n20 2Tx was tested as representative of 11g/11a 2Tx	Total EIRP would be the same given the same output power, as both use CDD. The OBW of n20 is wider. 11g/11a results would be equal to or better than n20.
Power/PSD for 11g/11a and n20 1Tx operation not performed. Output power is based on 2Tx n20.	Power for 1Tx 11a/n20 operation is based on the results from 2Tx and the bandedge results. The power for 1Tx will not exceed the total power from 2Tx, the compliant power from bandedge, or board limitations.
Power/PSD for n40 1Tx operation not performed. Output power is based on n40 2Tx	Power for the 1Tx n40 operation is based on the results from 2Tx and the bandedge results. The power for 1Tx will not exceed the total power from 2Tx, the compliant power from the bandage, or board limitations.
Radiated Spurious performed 2Tx using worse case 1Tx power settings	Testing performed in a worse case condition of power and number of transmitting antennas
Radiated spurious – testing was performed on the center channel for all OFDM modes (11g/a, n20, n40) within a band. Worse case mode tested for low and high channels	Spurious response would be consistent across the different OFDM modes within a given band

***End of Report***

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