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EMC Test Report

Application for FCC Grant of Equipment Authorization
Canada Certification

Innovation, Science and Economic Development Canada
RSS-Gen Issue 4 / RSS 247 Issue 1
FCC Part 15, Subpart E

Model: H0ME

IC CERTIFICATION #:	10395A-H0ME
FCC ID:	A4RH0ME
APPLICANT:	Google Inc. 1600 Amphitheatre Pky Mountain View, CA 94043
TEST SITE(S):	National Technical Systems - Silicon Valley 41039 Boyce Road. Fremont, CA. 94538-2435
IC SITE REGISTRATION #:	2845B-7
REPORT DATE:	September 13, 2016
REISSUE DATE:	September 22, 2016
FINAL TEST DATES:	July 8, 12, 13, 15, 18, 19, 20, 21, 25, 26, 27, 28 and August 10, 2016
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ACCREDITED
Testing Cert #0214.26

REVISION HISTORY

Rev#	Date	Comments	Modified By
-	September 13, 2016	First release	
1.0	September 19, 2016	Clarified power vs. data rate and duty cycle information. Corrected power for HT20 in UNII2c.	MEH
2.0	September 22, 2016	Corrected power for HT40 in UNII2c for ISED results. Updated plot for duty cycle for HT20. Updated reference to HT20/AC20 in power vs data rate.	MEH

TABLE OF CONTENTS

SCOPE

An electromagnetic emissions test has been performed on the Google Inc. model H0ME, pursuant to the following rules:

RSS-Gen Issue 4 "General Requirements for Compliance of Radio Apparatus"
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:

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.).

STATEMENT OF COMPLIANCE

The tested sample of Google Inc. model H0ME complied with the requirements of the following regulations:

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 Google Inc. model H0ME and therefore apply only to the tested sample. The sample was selected and prepared by Dominik Mente of Google Inc.

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 – MOBILE AND PORTABLE CLIENT DEVICE - FCC

FCC Rule Part	RSS Rule Part	Description	Measured Value / Comments	Limit / Requirement	Result
15.407 (a) (1) (iv)		Output Power	a: 18.1dBm (64.6 mW) n20: 18.1dBm (64.6 mW) n40: 13.1dBm (20.4 mW) ac80: 8.4dBm (6.9 mW)	24 dBm (250 mW)	Complies
15.407 (a) (1) (iv)		Power Spectral Density	a: 6.6 dBm/MHz n20: 6.4 dBm/MHz n40: -2.4 dBm/MHz ac80: -12.0 dBm/MHz	11 dBm/MHz	Complies
15.407(b) (1) / 15.209		Spurious Emissions	53.8 dBµV/m @ 5150.0 MHz (-0.2 dB)	Refer to the limits section (p24) for restricted bands, all others -27 dBm/MHz EIRP	Complies

OPERATION IN THE 5.15 – 5.25 GHZ BAND – ISED Canada

	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
	RSS-247 6.2.1 (1)	99% Bandwidth	a: 17.3MHz n20: 18.6MHz n40: 36.8MHz ac80: 77.3MHz	N/A – limits output power if < 20MHz	N/A
	RSS-247 6.2.1 (1)	EIRP Output Power	a: 16.0dBm (39.8mW) n20: 16.0dBm (39.8mW) n40: 13.1dBm (20.4mW) ac80: 8.4dBm (6.9mW) EIRP: a: 21.7dBm (128.8mW) n20: 21.7dBm (128.8mW) n40: 18.8dBm (75.9mW) ac80: 14.1dBm (25.7mW)	23 dBm (200 mW) EIRP	Complies
	RSS-247 6.2.1 (1)	Power Spectral Density	a: 4.3 dBm/MHz n20: 4.0 dBm/MHz n40: -2.4 dBm/MHz ac80: -12.0 dBm/MHz EIRP: 11a: 10.0dBm/MHz n20: 9.7dBm/MHz n40: 3.3dBm/MHz ac80: -6.3dBm/MHz	10 dBm/MHz EIRP	Complies
	RSS-247 6.2.1 (2)	Spurious Emissions	53.8 dBµV/m @ 5150.0 MHz (-0.2 dB)	Refer to the limits section (p24) for restricted bands, all others -27 dBm/MHz EIRP	Complies

OPERATION IN THE 5.25 – 5.35 GHZ BAND – FCC/ISED Canada

FCC Rule Part	RSS Rule Part	Description	Measured Value / Comments	Limit / Requirement	Result (margin)
15.407(a) (2)		26dB Bandwidth	a: 29.5MHz n20: 29.1MHz n40: 40.6MHz ac80: 142.4MHz	N/A – limits output power if < 20MHz	N/A
	RSS-247 6.2.2 (1)	99% Bandwidth	a: 17.0MHz n20: 18.1MHz n40: 36.2MHz ac80: 76.4MHz	N/A – limits EIRP if < 20MHz	N/A
15.407(a) (2)	RSS-247 6.2.1 (2)	Output Power	a: 17.8dBm (60.3mW) n20: 17.7dBm (58.9mW) n40: 15.8dBm (38.0mW) ac80: 9.1dBm (8.1mW) (Max eirp: 23.5 dBm (223.9 mW))	24 dBm (250 mW) EIRP <= 1W	Complies
15.407(a) (2)	RSS-247 6.2.2 (1)	Power Spectral Density	a: 4.8 dBm/MHz n20: 4.6 dBm/MHz n40: -0.9 dBm/MHz ac80: -11.1 dBm/MHz	11 dBm/MHz	Complies
15.407(b) (2) / 15.209	RSS-247 6.2.2 (2)	Spurious Emissions	53.1 dBµV/m @ 5350.0 MHz (-0.9 dB)	Refer to the limits section (p24) for restricted bands, all others -27 dBm/MHz EIRP	Complies
-	RSS-247 6.2.2 (3)	EIRP Above Horizon	Device is intended for indoor operation only	Depends on angle	N/A

OPERATION IN THE 5.47 – 5.725 GHZ BAND – FCC

FCC Rule Part	RSS Rule Part	Description	Measured Value / Comments	Limit / Requirement	Result (margin)
15.407(a) (2)	-	26dB Bandwidth	a: 24.2MHz n20: 22.8MHz n40: 40.6MHz ac80: 82.0MHz	N/A – limits output power if < 20MHz	N/A
15.407(a) (2)	-	Output Power	a: 16.4dBm (43.7mW) n20: 16.5dBm (44.7mW) n40: 14.9dBm (30.9mW) ac80: 12.2dBm (16.6mW) (Max eirp: 0.166W)	24 dBm (250 mW) EIRP <= 1W	Complies
15.407(a) (2)	-	Power Spectral Density	a: 4.9 dBm/MHz n20: 4.3 dBm/MHz n40: 0.4 dBm/MHz ac80: -6.6 dBm/MHz	11 dBm/MHz	Complies
15.407(b) (3) / 15.209	-	Spurious Emissions	53.4 dBµV/m @ 5469.9 MHz (-0.6 dB)	Refer to the limits section (p24) for restricted bands, all others -27 dBm/MHz EIRP	Complies

OPERATION IN THE 5.47 – 5.725 GHZ BAND – ISED Canada

FCC Rule Part	RSS Rule Part	Description	Measured Value / Comments	Limit / Requirement	Result (margin)
-	RSS-247 6.2.3 (1)	99% Bandwidth	a: 16.8MHz n20: 17.9MHz n40: 36.3MHz ac80: 76.3MHz	N/A – limits EIRP if < 20MHz	N/A
-	RSS-247 6.2.3 (1)	Output Power	a: 16.4dBm (43.7mW) n20: 16.5dBm (44.7mW) n40: 14.9dBm (30.9mW) ac80: 10.5dBm (11.3mW) (Max eirp: 0.166W)	24 dBm (250 mW) EIRP <= 1W	Complies
-	RSS-247 6.2.3 (1)	Power Spectral Density	a: 4.9 dBm/MHz n20: 4.3 dBm/MHz n40: 0.4 dBm/MHz ac80: -6.6 dBm/MHz	11 dBm/MHz	Complies
-	RSS-247 6.2.3 (2)	Spurious Emissions	53.4 dBµV/m @ 5469.9 MHz (-0.6 dB)	Refer to the limits section (p24) for restricted bands, all others -27 dBm/MHz EIRP	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 – 5.85 GHZ BAND – FCC/ISED Canada

FCC Rule Part	RSS Rule Part	Description	Measured Value / Comments	Limit / Requirement	Result (margin)
15.407(e)	RSS-247 6.2.4 (1)	6dB Bandwidth	>500kHz	<= 500 kHz	Complies
15.407(a) (3)	RSS-210 A9.2(2)	Output Power (multipoint systems)	a: 17.7dBm (58.9mW) n20: 17.4dBm (55.0mW) n40: 15.3dBm (33.9mW) ac80: 12.3dBm (17.0mW)	30 dBm (1 W) EIRP <= 4W	Complies
15.407(a) (3)	RSS-247 6.2.3 (1)	Power Spectral Density	a: 4.1 dBm/MHz n20: 3.8 dBm/MHz n40: -1.0 dBm/MHz ac80: -7.1 dBm/MHz	30 dBm / 500 kHz	Complies
15.407(b) (4) / 15.209	RSS-247 6.2.4 (2)	Spurious Emissions	68.4 dBµV/m @ 5653.8 MHz (-2.7 dB)	Refer to the limits section (p24) for restricted bands, all others -17 dBm/MHz EIRP bandedge and -27 dBm/MHz EIRP	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
15.31 (m)	RSS-247 6.4 (1) RSS-Gen 6.8	Channel Selection	Emissions tested at outermost and middle channels in each band	Device was tested on the top, bottom and center channels in each band	N/A
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	Refer to operational description	Signal shall remain within the allocated band	Complies
15.407 (h1)	RSS-247 6.2.2 (1) 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 R102507	Channel move time < 10s Channel closing transmission time < 260ms	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	Antennas are internal	Unique or integral antenna required	Complies
15.407 (b) (6)	RSS-Gen Table 3	AC Conducted Emissions	Chicony: 38.6 dBµV @ 0.358 MHz (-10.2 dB) TenPao: 44.4 dBµV @ 0.156 MHz (-21.3 dB)	Refer to page 23	Complies
15.247 (i) 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

MEASUREMENT UNCERTAINTIES

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

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

EQUIPMENT UNDER TEST (EUT) DETAILS

GENERAL

The Google Inc. H0ME is an interactive media streaming device. Since the EUT would be placed on a tabletop during operation, the EUT was treated as tabletop equipment during testing to simulate the end-user environment. The electrical rating of the EUT is 100-240 Volts, 50-60 Hz, 1.1 Amps.

The sample was received on July 8, 2016 and tested on July 8, 12, 13, 15, 18, 19, 20, 21, 25, 26, 27, 28 and August 10, 2016. The EUT consisted of the following component(s):

Company	Model	Description	Serial Number	FCC ID
Google	H0ME	Streaming Media Device (RF conducted)	6629AZZB6W	A4RH0ME
Google	H0ME	Streaming Media Device (radiated)	6629AZZB75	A4RH0ME
Chicony	W16-033N1A	External power supply	F185081624001224	-
TenPao	S033BU1650200	External power supply	prototype	-

ANTENNA SYSTEM

Two Internal Antennas: 2.7dBi and 3.3dBi max @ 2.4GHz, 5.3dBi and 5.7dBi @ 5GHz. Tx/Rx diversity.

ENCLOSURE

The EUT enclosure is primarily constructed of plastic. It measures approximately 10 cm in diameter by 14 cm high.

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	Latitude	Laptop	27175981753	-
-	PA-12FAMILY	Laptop Power Supply	-	-
Google	Chromecast	USB AC/DC Adapter	-	-

No remote support equipment was used during testing.

EUT INTERFACE PORTS

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

EUT

Port	Connected To	Cable(s)		
		Description	Shielded or Unshielded	Length(m)
DC power	External power supply	2 wire	Unshielded	2
AC in (external supply)	AC mains	Direct plug in	NA	NA
USB	USB splitter	Multiwire	Shielded	0.3

Additional on Support Equipment

Port	Connected To	Cable(s)		
		Description	Shielded or Unshielded	Length(m)
USB charger out	USB splitter	Multiwire	Shielded	0.3
USB charger, AC in	AC mains	Direct plug in	NA	NA
USB splitter	USB-serial adaptor cable			

EUT OPERATION

The EUT was configured to transmit continuously at the maximum output power setting. Specifics for the channel and mode are described in the test data.

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 4	US0027	2845B-4	41039 Boyce Road Fremont, CA 94538-2435
Chamber 7	US0027	2845B-7	

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

Software is used to view and convert 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 software used for radiated and conducted emissions measurements is NTS EMI Test Software (rev 2.10)

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.

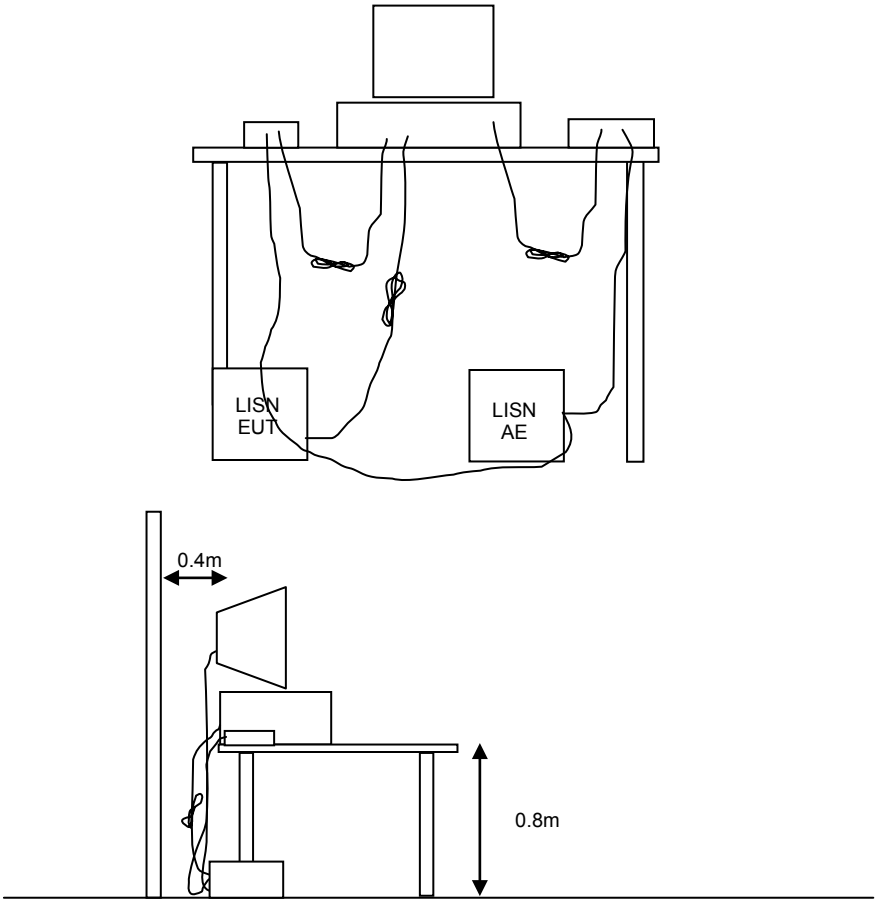


Figure 1 Typical Conducted Emissions Test Configuration

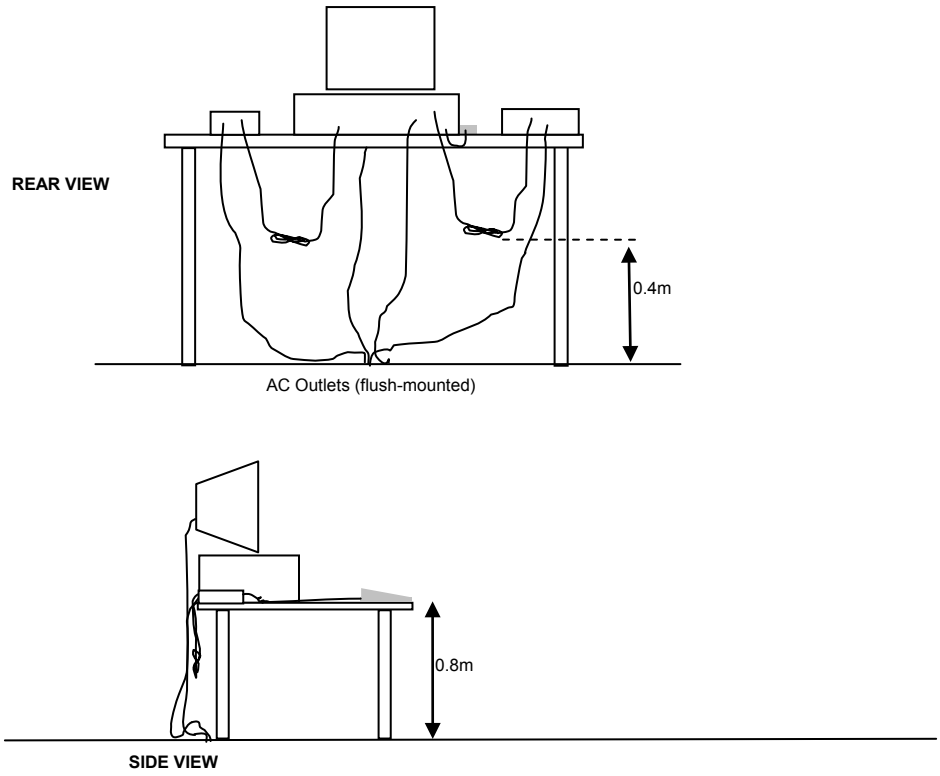
RADIATED EMISSIONS

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.

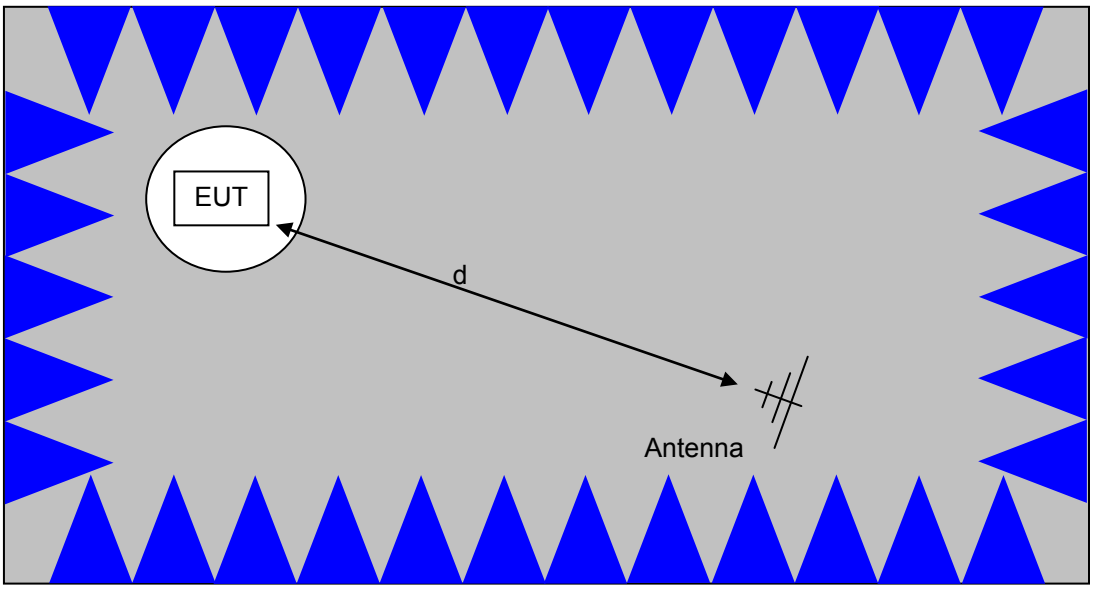
A speaker is provided in the receiver to aid in discriminating between EUT and ambient emissions. Other methods used during the preliminary scan for EUT emissions involve scanning with near field magnetic loops, monitoring I/O cables with RF current clamps, and cycling power to the EUT.

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.

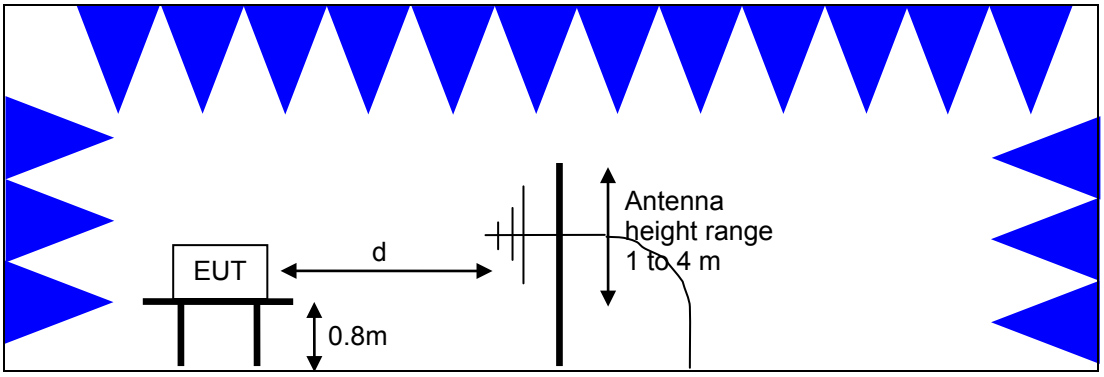


Typical Test Configuration for Radiated Field Strength Measurements



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.

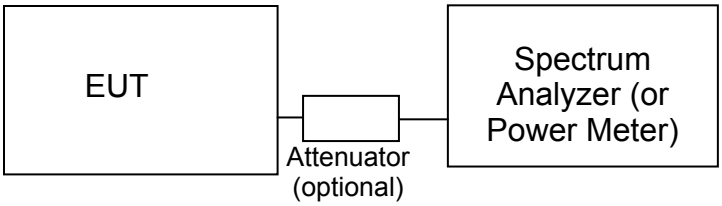
Floor-standing equipment is placed on the floor with insulating supports between the unit and the ground plane.



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[1].

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

FCC 15.407 (a) OUTPUT POWER LIMITS

The table below shows the limits for output power and output power density. For the 5250-5350 and 5470-5725 MHz 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	250Watt (24 dBm)	11 dBm/MHz
5250 – 5350 and 5470-5725	250 mW (24 dBm)	11 dBm/MHz
5725 – 5825	1 Watt (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.

OUTPUT POWER LIMITS –LELAN DEVICES

The table below shows the limits for output power and output power density defined by RSS 247. 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 and 5470 - 5725	250 mW (24 dBm)2 1W (30dBm) eirp	11 dBm/MHz
5725 – 5825	1 Watt (30 dBm) 4W eirp	30 dBm/500kHz

[1] The restricted bands are detailed in FCC 15.205 and RSS-Gen Table 6
[2] If EIRP exceeds 500mW the device must employ TPC

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 field strength of 68.3dBuV/m/MHz at a distance of 3m. For devices operating in the 5725-5850 MHz bands under the LELAN/UNII rules, the limit within 10MHz of the allocated band is increased to –17dBm/MHz.

SAMPLE CALCULATIONS - CONDUCTED EMISSIONS

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

$$R_r - S = M$$

where:
R_r = Receiver Reading in dBuV
S = Specification Limit in dBuV
M = Margin to Specification in +/- dB

SAMPLE CALCULATIONS - RADIATED EMISSIONS

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

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

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

where:
F_d = Distance Factor in dB
D_m = Measurement Distance in meters
D_s = Specification Distance in meters

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

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

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

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

$$R_c = R_r + F_d$$

and

$$M = R_c - L_s$$

where:
R_r = Receiver Reading in dBuV/m
F_d = Distance Factor in dB
R_c = Corrected Reading in dBuV/m
L_s = Specification Limit in dBuV/m
M = Margin in dB Relative to Spec

SAMPLE CALCULATIONS - FIELD STRENGTH TO EIRP CONVERSION

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

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

where P is the eirp (Watts)

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

Appendix A Test Equipment Calibration Data

T101744

Manufacturer	Description	Model	Asset #	Calibrated	Cal Due
Radiated Emissions, 1000 - 6,500 MHz, 08-Jul-16					
Hewlett Packard	Spectrum Analyzer (SA40) Red 30 Hz -40 GHz	8564E (84125C)	1148	10/17/2015	10/17/2016
EMCO	Antenna, Horn, 1-18 GHz	3115	2733	11/18/2014	11/18/2016
Radiated Emissions, 1000 - 25,000 MHz, 12-Jul-16					
Hewlett Packard	Microwave Preamplifier, 1-26.5GHz	8449B	870	1/21/2016	1/21/2017
HP / Miteq	SA40 Head (Red)	TTA1840-45-5P-HG-S	1145	7/17/2015	8/17/2016
Hewlett Packard	Spectrum Analyzer (SA40) Red 30 Hz -40 GHz	8564E (84125C)	1148	10/17/2015	10/17/2016
Micro-Tronics	Band Reject Filter, 2400-2500 MHz	BRM50702-02	1683	6/29/2016	6/29/2017
A. H. Systems	Purple System Horn, 18-40GHz	SAS-574, p/n: 2581	2160	8/28/2014	8/28/2017
EMCO	Antenna, Horn, 1-18 GHz	3115	2733	11/18/2014	11/18/2016
Radiated Spurious Emissions, 1000 - 40,000 MHz, 12-Jul-16					
NTS	NTS EMI Software (rev 2.10)	N/A	0		N/A
Narda West	High Pass Filter, 8 GHz	HPF 180	821	1/27/2016	1/27/2017
Hewlett Packard	Microwave Preamplifier, 1-26.5GHz	8449B	870	1/21/2016	1/21/2017
HP / Miteq	SA40 Head (Red)	TTA1840-45-5P-HG-S	1145	7/17/2015	8/17/2016
Hewlett Packard	Spectrum Analyzer (SA40) Red 30 Hz -40 GHz	8564E (84125C)	1148	10/17/2015	10/17/2016
Micro-Tronics	Band Reject Filter, 5470-5725 MHz	BRC50704-02	1681	5/11/2016	5/11/2017
A. H. Systems	Purple System Horn, 18-40GHz	SAS-574, p/n: 2581	2160	8/28/2014	8/28/2017
Micro-Tronics	Band Reject Filter, 5725-5875 MHz	BRC50705-02	2241	9/16/2015	9/16/2016
Micro-Tronics	Band Reject Filter, 5150-5350 MHz	BRC50703-02	2251	9/16/2015	9/16/2016
EMCO	Antenna, Horn, 1-18 GHz	3115	2733	11/18/2014	11/18/2016
Radiated Emissions, 1000 - 6,000 MHz, 13-Jul-16					
Rohde & Schwarz	EMI Test Receiver, 20 Hz-7 GHz	ESIB7	1538	12/19/2015	12/19/2016
EMCO	Antenna, Horn, 1-18 GHz	3115	2733	11/18/2014	11/18/2016
Radiated Emissions, 1000 - 40,000 MHz, 20-Jul-16					
NTS	NTS EMI Software (rev 2.10)	N/A	0		N/A
Narda West	High Pass Filter, 8 GHz	HPF 180	821	1/27/2016	1/27/2017
Hewlett Packard	Microwave Preamplifier, 1-26.5GHz	8449B	870	1/21/2016	1/21/2017
HP / Miteq	SA40 Head (Red)	TTA1840-45-5P-HG-S	1145	7/17/2015	8/17/2016
Hewlett Packard	Spectrum Analyzer (SA40) Red 30 Hz -40 GHz	8564E (84125C)	1148	10/17/2015	10/17/2016

Manufacturer	Description	Model	Asset #	Calibrated	Cal Due
Micro-Tronics	Band Reject Filter, 5470-5725 MHz	BRC50704-02	1730	5/9/2016	5/9/2017
A. H. Systems	Purple System Horn, 18-40GHz	SAS-574, p/n: 2581	2160	8/28/2014	8/28/2017
Micro-Tronics	Band Reject Filter, 5150-5350 MHz	BRC50703-02	2239	9/16/2015	9/16/2016
Micro-Tronics	Band Reject Filter, 5725-5875 MHz	BRC50705-02	2241	9/16/2015	9/16/2016
EMCO	Antenna, Horn, 1-18 GHz	3115	2733	11/18/2014	11/18/2016
Radiated Emissions, 1000 - 40,000 MHz, 20-Jul-16					
Narda West	High Pass Filter, 8 GHz	HPF 180	821	1/27/2016	1/27/2017
Hewlett Packard	Microwave Preamplifier, 1-26.5GHz	8449B	870	1/21/2016	1/21/2017
HP / Miteq	SA40 Head (Red)	TTA1840-45-5P-HG-S	1145	7/17/2015	8/17/2016
Hewlett Packard	Spectrum Analyzer (SA40) Red 30 Hz -40 GHz	8564E (84125C)	1148	10/17/2015	10/17/2016
Rohde & Schwarz	EMI Test Receiver, 20 Hz-7 GHz	ESIB7	1538	12/19/2015	12/19/2016
A. H. Systems	Purple System Horn, 18-40GHz	SAS-574, p/n: 2581	2160	8/28/2014	8/28/2017
EMCO	Antenna, Horn, 1-18 GHz	3115	2733	11/18/2014	11/18/2016
Radiated Emissions, 1000 - 25,000 MHz, 26-Jul-16					
Hewlett Packard	Microwave Preamplifier, 1-26.5GHz	8449B	870	1/21/2016	1/21/2017
HP / Miteq	SA40 Head (Red)	TTA1840-45-5P-HG-S	1145	7/17/2015	8/17/2016
Hewlett Packard	Spectrum Analyzer (SA40) Red 30 Hz -40 GHz	8564E (84125C)	1148	10/17/2015	10/17/2016
Micro-Tronics	Band Reject Filter, 2400-2500 MHz	BRM50702-02	1683	6/29/2016	6/29/2017
A. H. Systems	Purple System Horn, 18-40GHz	SAS-574, p/n: 2581	2160	8/28/2014	8/28/2017
EMCO	Antenna, Horn, 1-18 GHz	3115	2733	11/18/2014	11/18/2016
Micro-Tronics	Band Reject Filter, 5150-5350 MHz	BRC50703-02	2251	9/16/2015	9/16/2016
Radiated Spurious Emissions, 12 - 25 GHz, 27-Jul-16					
NTS	NTS EMI Software (rev 2.10)	N/A	0		N/A
Narda West	High Pass Filter, 8 GHz	HPF 180	821	1/27/2016	1/27/2017
Hewlett Packard	Microwave Preamplifier, 1-26.5GHz	8449B	870	1/21/2016	1/21/2017
HP / Miteq	SA40 Head (Red)	TTA1840-45-5P-HG-S	1145	7/17/2015	8/17/2016
Hewlett Packard	Spectrum Analyzer (SA40) Red 30 Hz -40 GHz	8564E (84125C)	1148	10/17/2015	10/17/2016
A. H. Systems	Purple System Horn, 18-40GHz	SAS-574, p/n: 2581	2160	8/28/2014	8/28/2017
EMCO	Antenna, Horn, 1-18 GHz	3115	2733	11/18/2014	11/18/2016
Conducted Emissions - AC Power Ports, 10-Aug-16					
NTS	NTS EMI Software (rev 2.10)	N/A	0		N/A
EMCO	LISN, 10 kHz-100 MHz	3825/2	1292	8/1/2016	8/1/2017
Rohde & Schwarz	Pulse Limiter	ESH3 Z2	1401	4/26/2016	4/26/2017
Rohde & Schwarz	EMI Test Receiver, 20 Hz-7 GHz	ESIB7	1538	12/19/2015	12/19/2016

T102213

Manufacturer	Description	Model	Asset #	Calibrated	Cal Due
Radio Antenna Port (Power and Spurious Emissions), 25-Jul-16					
Rohde & Schwarz	Power Sensor, 1 uW-100 mW, DC-18 GHz, 50ohms	NRV-Z51	1070	8/3/2015	8/3/2016
Rohde & Schwarz	Power Meter, Single Channel, +1795+1796	NRVS	1534	7/22/2016	7/22/2017
Rohde & Schwarz	Signal Analyzer 20 Hz - 26.5 GHz	FSQ26	2327	6/17/2016	6/17/2017
Radio Antenna Port (Power and Spurious Emissions), 26-Jul-16					
Agilent Technologies	PSA, Spectrum Analyzer, (installed options, 111, 115, 123, 1DS, B7J, HYX,	E4446A	2139	6/24/2016	6/24/2017
Radio Antenna Port (Power and Spurious Emissions), 27-Jul-16					
Rohde & Schwarz	Power Sensor, 1 uW-100 mW, DC-18 GHz, 50ohms	NRV-Z51	1070	8/3/2015	8/3/2016
Rohde & Schwarz	Power Meter, Single Channel, +1795+1796	NRVS	1534	7/22/2016	7/22/2017
Agilent Technologies	PSA, Spectrum Analyzer, (installed options, 111, 115, 123, 1DS, B7J, HYX,	E4446A	2139	6/24/2016	6/24/2017

Appendix B Test Data

T101744 Pages 32 – 129
T102213 Pages 130 – 148

Client:	Google Inc	Job Number:	JD101591
Product	H0ME	T-Log Number:	T101744
System Configuration:	-	Project Manager:	Deepa Shetty
Contact:	Dominik Mente	Project Coordinator:	-
Emissions Standard(s):	FCC 15.247/15.407/RSS-247	Class:	B
Immunity Standard(s):	-	Environment:	-

EMC Test Data

For The

Google Inc

Product

H0ME

Date of Last Test: 9/9/2016

Client:	Google Inc	Job Number:	JD101591
Model:	H0ME	T-Log Number:	T101744
		Project Manager:	Deepa Shetty
Contact:	Dominik Mente	Project Coordinator:	-
Standard:	FCC 15.247/15.407/RSS-247	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: 6629AZZB75
Driver: 1.21

Date of Test: 7/8/2016
Test Engineer: Rafael Varelas
Test Location: FT Chamber #7

Mode	Data Rate	Power (dBm)	Power setting	
802.11n/ac 20MHz	6.5	**12.0**	15	
	13	11.8		
	19.5	11.8		
	26	11.7		
	39	11.7		
	52	11.7		
	58.5	11.8		
	65	11.8		
	78	10.5		<<-11ac mode only
802.11n/ac 40MHz	13.5	**9.9**	13	
	27	9.9		
	40.5	9.9		
	54	9.9		
	81	9.8		
	108	9.8		
	121.5	9.8		
	135	9.8		
	162	9.7		<<-11ac mode only
	180	9.6		<<-11ac mode only

Client:	Google Inc	Job Number:	JD101591
Model:	H0ME	T-Log Number:	T101744
		Project Manager:	Deepa Shetty
Contact:	Dominik Mente	Project Coordinator:	-
Standard:	FCC 15.247/15.407/RSS-247	Class:	N/A

Mode	Data Rate	Power (dBm)	Power setting
802.11ac 80MHz	29.3	**6.9**	10
	58.5	6.7	
	87.8	6.7	
	117	6.6	
	175.5	6.5	
	234	6.4	
	266.3	6.4	
	292.5	6.4	
	351	6.3	
	390	6.3	

Note :	Power setting - the software power setting used during testing, included for reference only.
Note :	All measurements performed on antenna 1

Client:	Google Inc	Job Number:	JD101591
Model:	H0ME	T-Log Number:	T101744
		Project Manager:	Deepa Shetty
Contact:	Dominik Mente	Project Coordinator:	-
Standard:	FCC 15.247/15.407/RSS-247	Class:	N/A

Duty Cycle

Date of Test: 7/11/2016
Test Engineer: John Caizzi
Test Location: Lab 4A

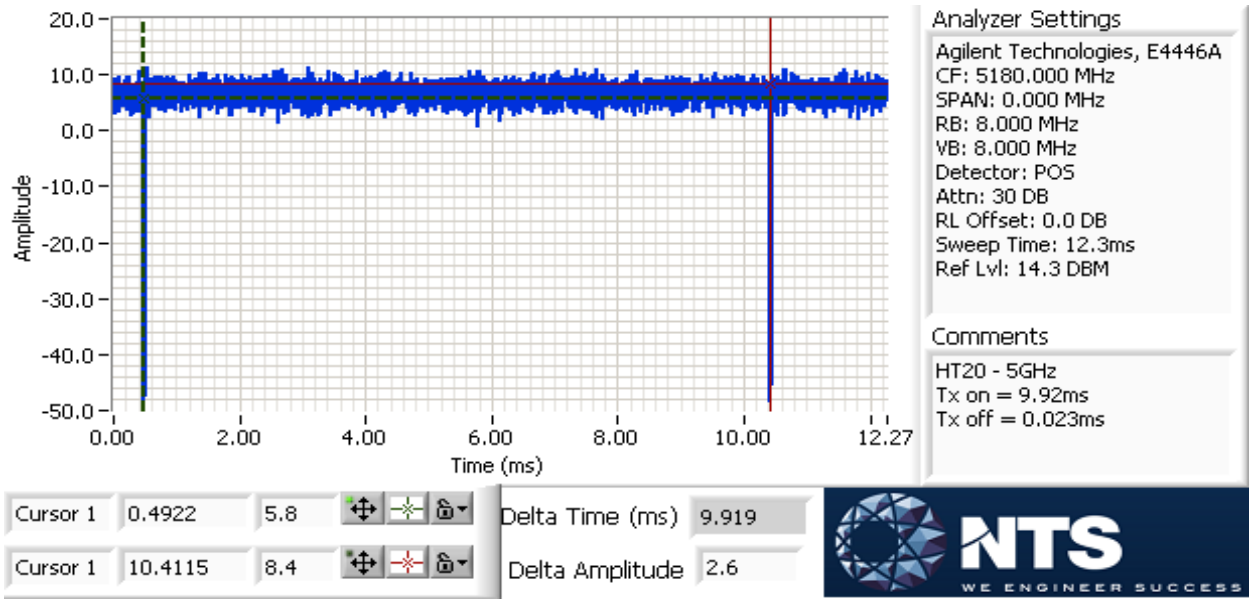
Duty cycle measurements performed on the worse case data rate for power.

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

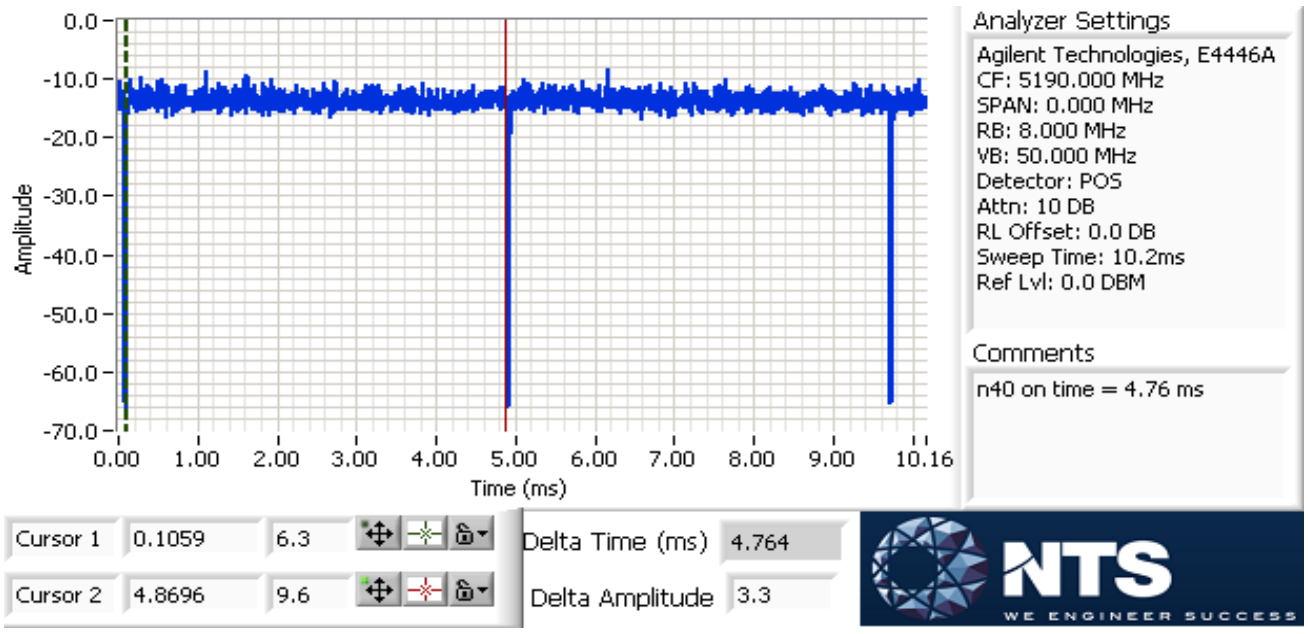
Mode	Data Rate	Duty Cycle (x)	Constant DC?	T (ms)	Pwr Cor Factor*	Lin Volt Cor Factor**	Min VBW for FS (Hz)
n20	MCS0	1.00	Yes	9.92	0	0	101
n40	MCS0	1.00	Yes	4.76	0	0	210
ac80	VHT SS1	0.99	Yes	2.25	0	0	444

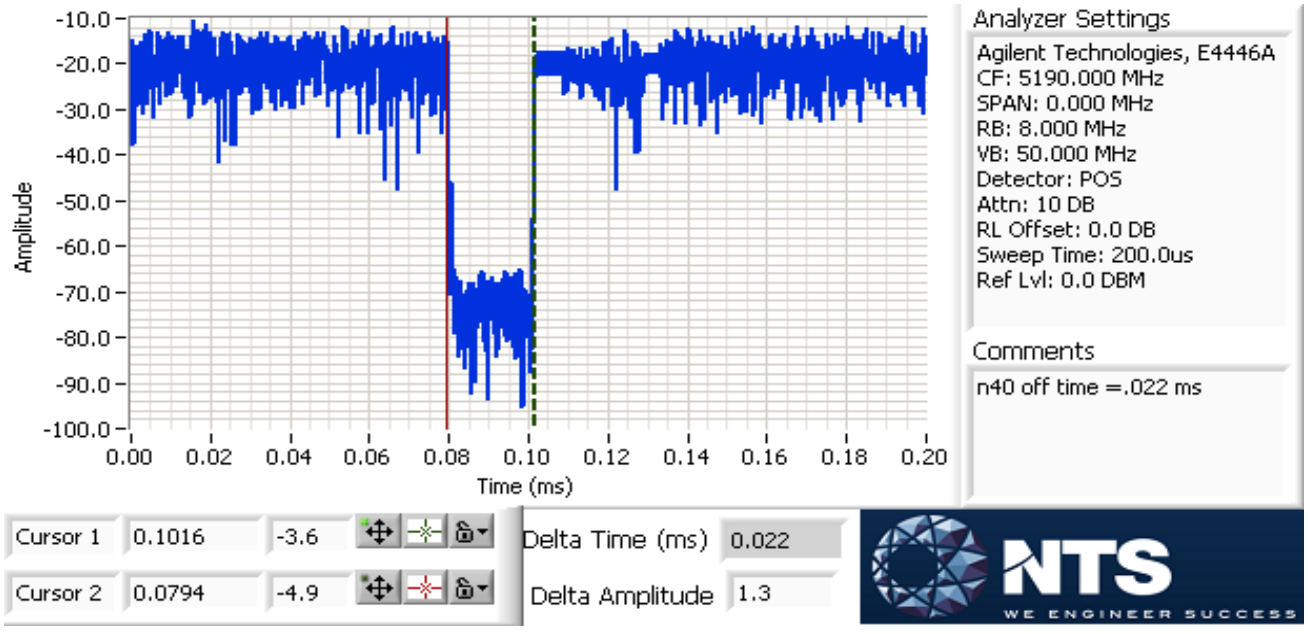
* Correction factor when using RMS/Power averaging - 10*log(1/x)
** Correction factor when using linear voltage average - 20*log(1/x)
T = Minimum transmission duration

Client:	Google Inc	Job Number:	JD101591
Model:	H0ME	T-Log Number:	T101744
		Project Manager:	Deepa Shetty
Contact:	Dominik Mente	Project Coordinator:	-
Standard:	FCC 15.247/15.407/RSS-247	Class:	N/A

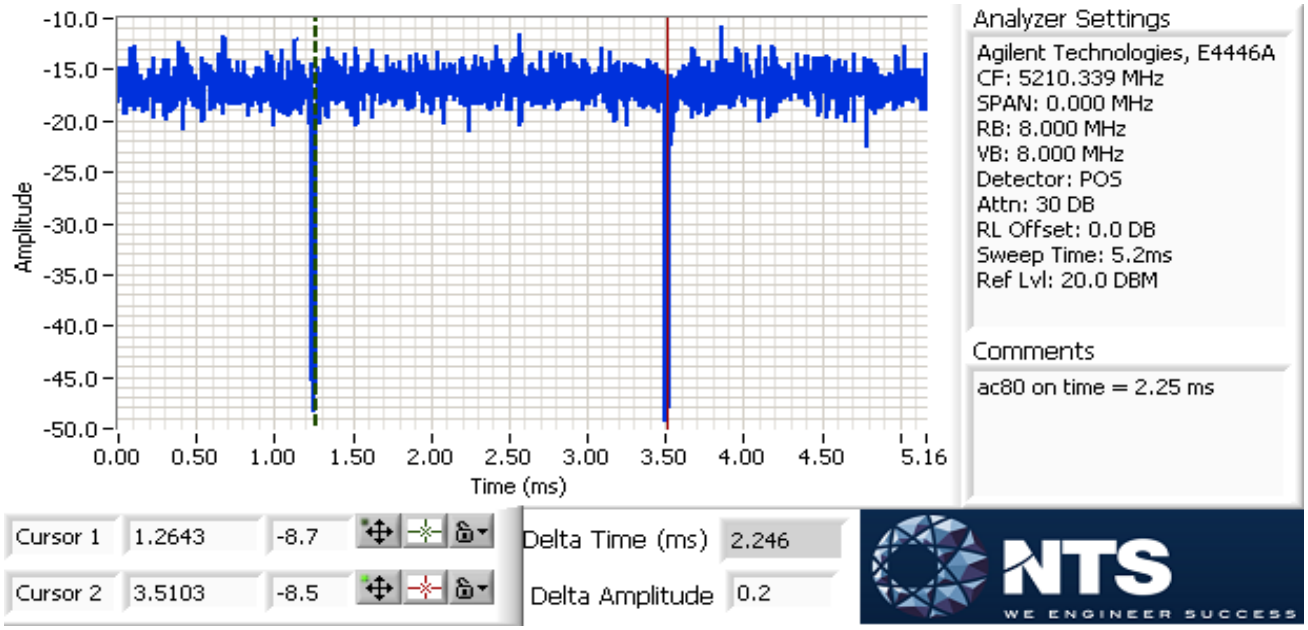


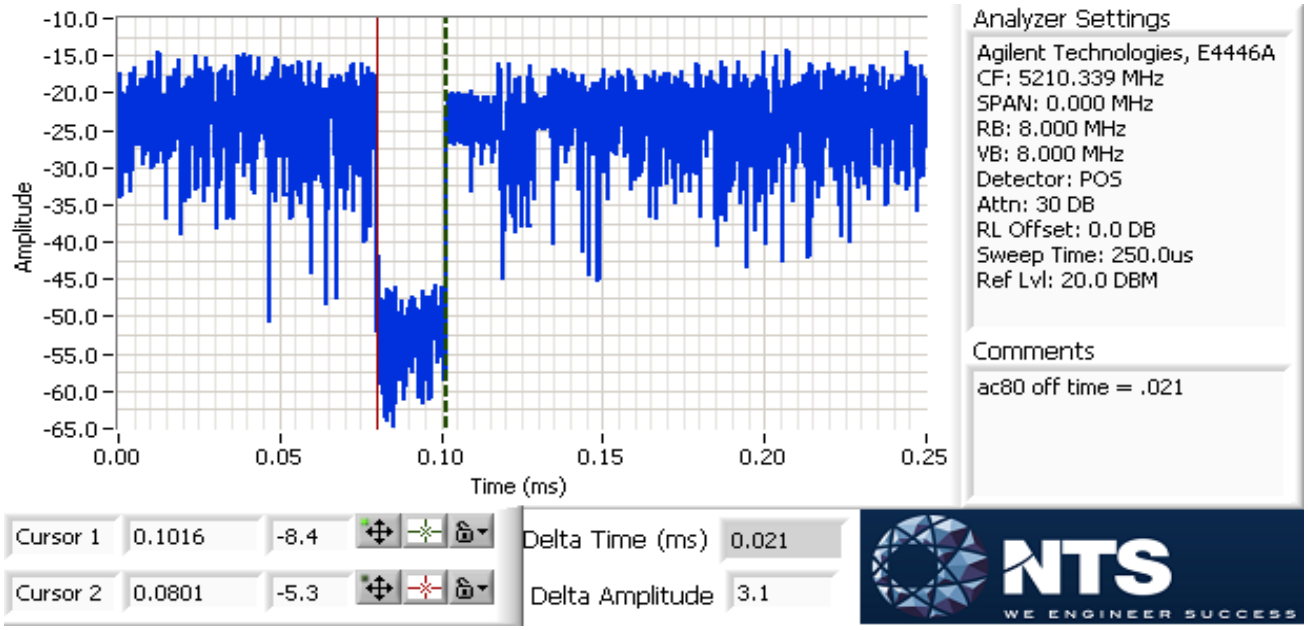
Client:	Google Inc	Job Number:	JD101591
Model:	H0ME	T-Log Number:	T101744
		Project Manager:	Deepa Shetty
Contact:	Dominik Mente	Project Coordinator:	-
Standard:	FCC 15.247/15.407/RSS-247	Class:	N/A





Client:	Google Inc	Job Number:	JD101591
Model:	H0ME	T-Log Number:	T101744
		Project Manager:	Deepa Shetty
Contact:	Dominik Mente	Project Coordinator:	-
Standard:	FCC 15.247/15.407/RSS-247	Class:	N/A





Client:	Google Inc	Job Number:	JD101591
Model:	H0ME	T-Log Number:	T101744
		Project Manager:	Deepa Shetty
Contact:	Dominik Mente	Project Coordinator:	-
Standard:	FCC 15.247/15.407/RSS-247	Class:	B

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: 8/10/2016
Test Engineer: John Caizzi
Test Location: Fremont Chamber #7

Config. Used: 1
Config Change: No support equipment.
EUT Voltage: 120V/60Hz

General Test Configuration

For tabletop equipment, the EUT was located on a wooden table inside the semi-anechoic chamber, 40 cm from a vertical coupling plane and 80cm from the LISN.

Ambient Conditions:

Temperature: 23 °C
Rel. Humidity: 40 %

Summary of Results

Run #	Test Performed	Limit	Result	Margin
2a	CE, AC Power, 120V/60Hz	Class B	Pass	38.6 dBµV @ 0.358 MHz (-10.2 dB)
2b	CE, AC Power, 120V/60Hz	Class B	Pass	44.4 dBµV @ 0.156 MHz (-21.3 dB)

Modifications Made During Testing

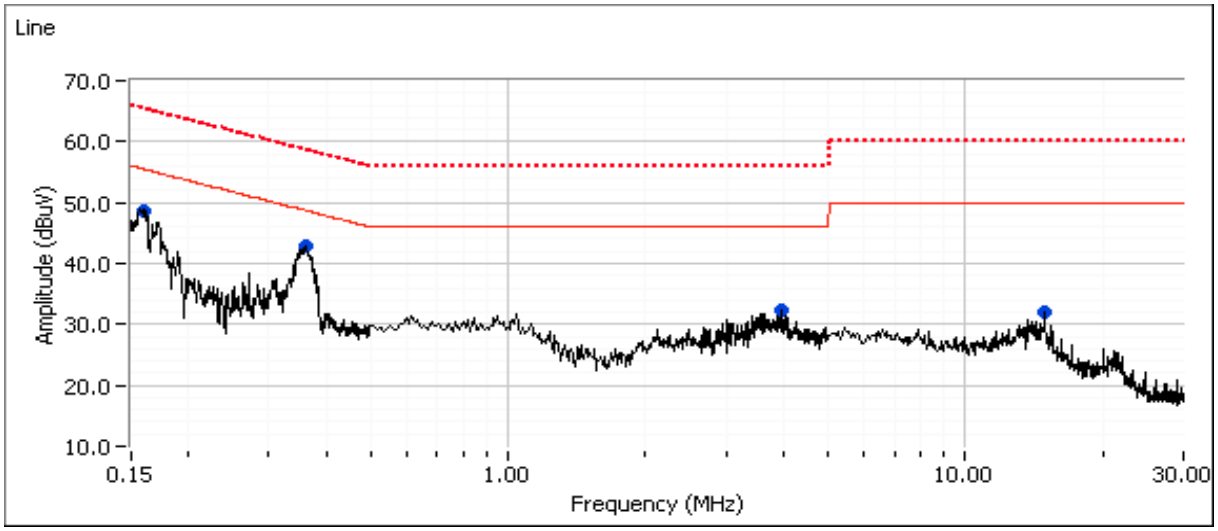
No modifications were made to the EUT during testing

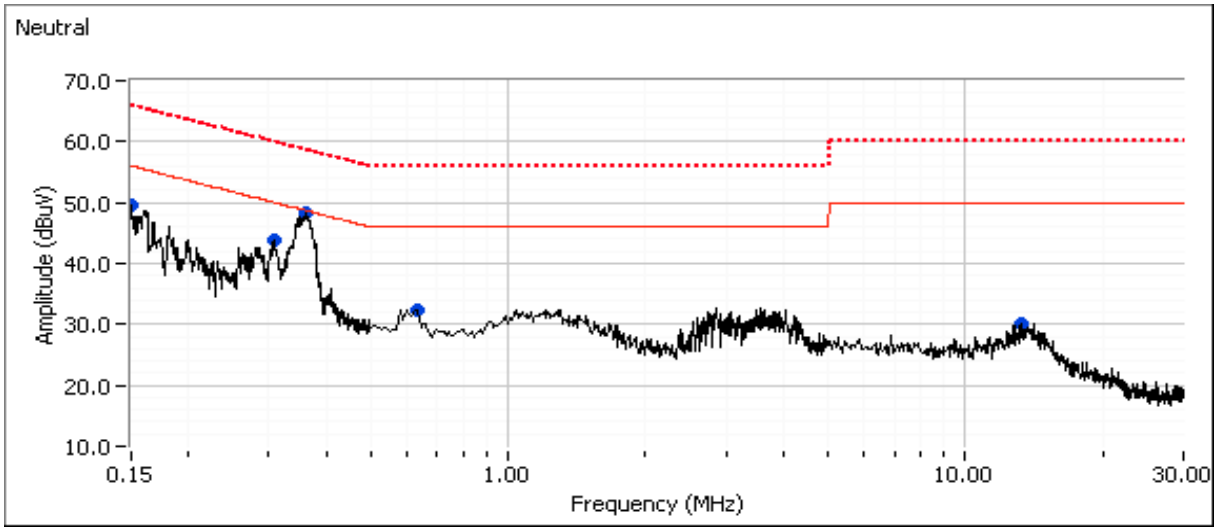
Deviations From The Standard

No deviations were made from the requirements of the standard.

Client:	Google Inc	Job Number:	JD101591
Model:	H0ME	T-Log Number:	T101744
		Project Manager:	Deepa Shetty
Contact:	Dominik Mente	Project Coordinator:	-
Standard:	FCC 15.247/15.407/RSS-247	Class:	B

Run #2a: AC Power Port Conducted Emissions, 0.15 - 30MHz, 120V/60Hz. Chicony W16-033N1A power supply.





Client:	Google Inc	Job Number:	JD101591
Model:	H0ME	T-Log Number:	T101744
		Project Manager:	Deepa Shetty
Contact:	Dominik Mente	Project Coordinator:	-
Standard:	FCC 15.247/15.407/RSS-247	Class:	B

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

Frequency	Level	AC	Class B		Detector	Comments
MHz	dBµV	Line	Limit	Margin	QP/Ave	
0.161	48.7	Line	55.4	-6.7	Peak	
0.361	42.9	Line	48.7	-5.8	Peak	
3.958	32.4	Line	46.0	-13.6	Peak	
14.920	*32.0*	*Line*	*50.0*	*-18.0*	*Peak*	
0.152	49.7	Neutral	56.0	-6.3	Peak	
0.306	43.8	Neutral	50.0	-6.2	Peak	
0.358	48.2	Neutral	48.7	-0.5	Peak	
0.635	*32.4*	*Neutral*	*46.0*	*-13.6*	*Peak*	
13.317	*30.1*	*Neutral*	*50.0*	*-19.9*	*Peak*	

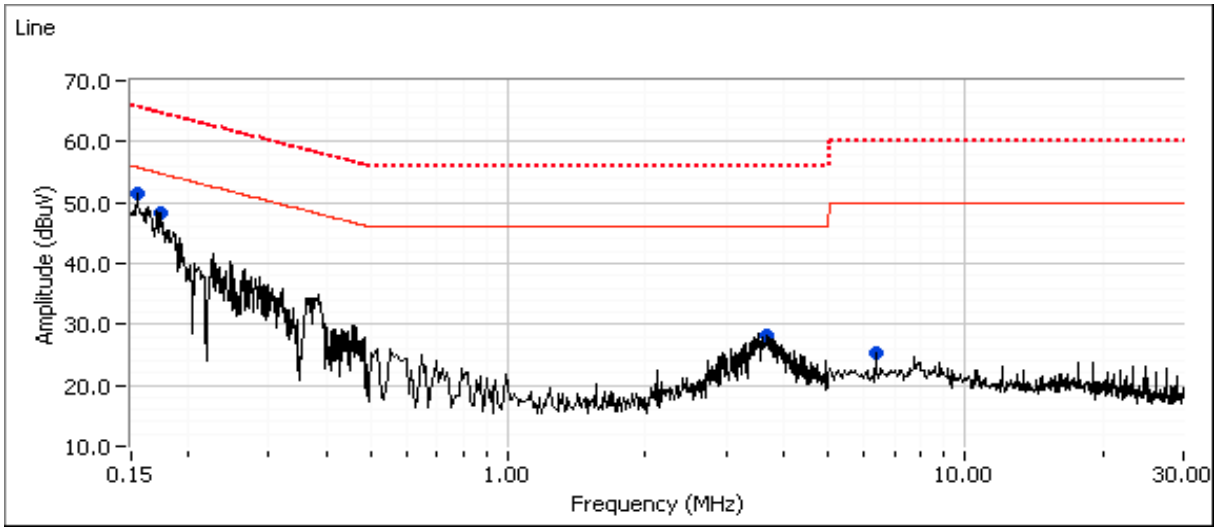
Final quasi-peak and average readings

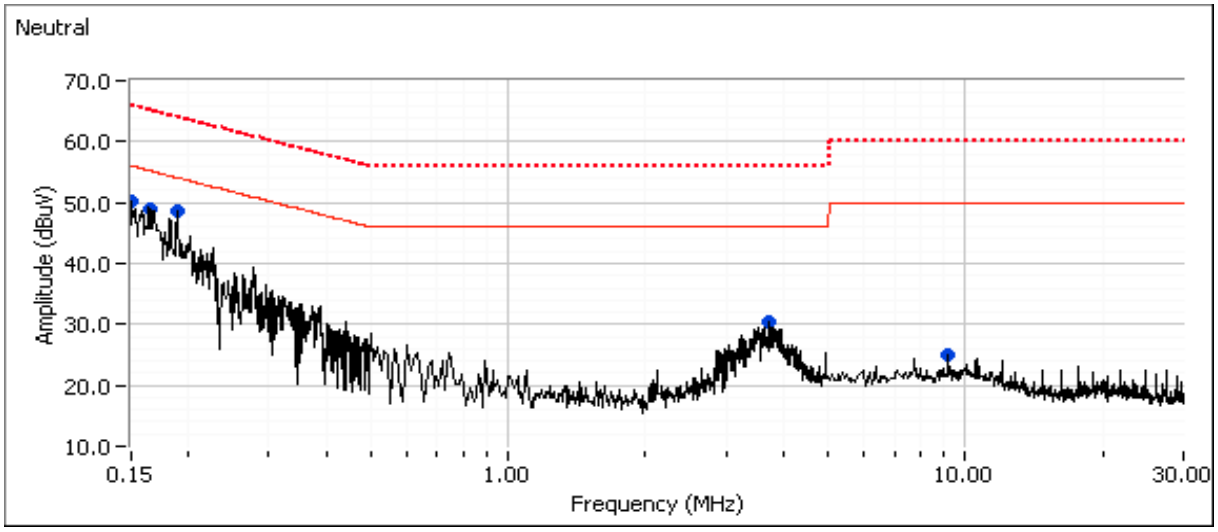
Frequency	Level	AC	Class B		Detector	Comments
MHz	dBµV	Line	Limit	Margin	QP/Ave	
0.161	27.4	Line	55.4	-28.0	AVG	
0.161	43.0	Line	65.4	-22.4	QP	
0.361	33.1	Line	48.7	-15.6	AVG	
0.361	40.5	Line	58.7	-18.2	QP	
3.958	16.2	Line	46.0	-29.8	AVG	
3.958	25.5	Line	56.0	-30.5	QP	
0.152	43.3	Neutral	65.9	-22.6	QP	
0.152	27.9	Neutral	55.9	-28.0	AVG	
0.306	31.6	Neutral	50.1	-18.5	AVG	
0.306	40.4	Neutral	60.1	-19.7	QP	
0.358	38.6	Neutral	48.8	-10.2	AVG	
0.358	45.3	Neutral	58.8	-13.5	QP	

Note 1:	EUT transmitting on CH6, power setting = 19 dBm, 11b mode at 1 Mbps.

Client:	Google Inc	Job Number:	JD101591
Model:	H0ME	T-Log Number:	T101744
		Project Manager:	Deepa Shetty
Contact:	Dominik Mente	Project Coordinator:	-
Standard:	FCC 15.247/15.407/RSS-247	Class:	B

Run #2b: AC Power Port Conducted Emissions, 0.15 - 30MHz, 120V/60Hz. TenPao S033BU1650200 power supply, sample 2.





Client:	Google Inc	Job Number:	JD101591
Model:	H0ME	T-Log Number:	T101744
		Project Manager:	Deepa Shetty
Contact:	Dominik Mente	Project Coordinator:	-
Standard:	FCC 15.247/15.407/RSS-247	Class:	B

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

Frequency	Level	AC	Class B		Detector	Comments
MHz	dBµV	Line	Limit	Margin	QP/Ave	
0.156	51.4	Line	55.7	-4.3	Peak	
0.172	48.4	Line	54.8	-6.4	Peak	
3.630	28.2	Line	46.0	-17.8	Peak	
6.353	*25.4*	*Line*	*50.0*	*-24.6*	*Peak*	
0.151	50.1	Neutral	56.0	-5.9	Peak	
0.166	49.0	Neutral	55.2	-6.2	Peak	
0.184	48.5	Neutral	54.1	-5.6	Peak	
3.737	*30.4*	*Neutral*	*46.0*	*-15.6*	*Peak*	
9.158	*24.9*	*Neutral*	*50.0*	*-25.1*	*Peak*	

Final quasi-peak and average readings

Frequency	Level	AC	Class B		Detector	Comments
MHz	dBµV	Line	Limit	Margin	QP/Ave	
0.156	26.7	Line	55.7	-29.0	AVG	
0.156	44.4	Line	65.7	-21.3	QP	
0.172	24.5	Line	54.9	-30.4	AVG	
0.172	41.3	Line	64.9	-23.6	QP	
3.630	12.7	Line	46.0	-33.3	AVG	
3.630	23.3	Line	56.0	-32.7	QP	
0.151	25.6	Neutral	55.9	-30.3	AVG	
0.151	44.6	Neutral	65.9	-21.3	QP	
0.166	25.0	Neutral	55.2	-30.2	AVG	
0.166	42.2	Neutral	65.2	-23.0	QP	
0.184	22.3	Neutral	54.3	-32.0	AVG	
0.184	39.2	Neutral	64.3	-25.1	QP	

Note 1:	EUT transmitting on CH6, power setting = 19 dBm, 11b mode at 1 Mbps.

Client:	Google Inc	Job Number:	JD101591
Model:	H0ME	T-Log Number:	T101744
		Project Manager:	Deepa Shetty
Contact:	Dominik Mente	Project Coordinator:	-
Standard:	FCC 15.247/15.407/RSS-247	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: 23.4 °C
Rel. Humidity: 35 %

Summary of Results

Run #	Mode	Channel	Target Power (dBm)	Passing Power Setting	Test Performed	Limit	Result / Margin
20MHz Bandwith Modes							
1	a	36 - 5180MHz	-	16	Restricted Band Edge at 5150 MHz	15.209	51.9 dBµV/m @ 5150.0 MHz (-2.1 dB)
2	a	64 - 5320MHz	-	16	Restricted Band Edge at 5350 MHz	15.209	53.1 dBµV/m @ 5350.0 MHz (-0.9 dB)
3	a	100 - 5500MHz	-	14	Restricted Band Edge at 5460 MHz	15.209	44.5 dBµV/m @ 5427.7 MHz (-9.5 dB)
	a	100 - 5500MHz	-	14	Band Edge 5460 - 5470 MHz	15E	50.3 dBµV/m @ 5470.0 MHz (-3.7 dB)
	a	140 - 5700MHz	-	14	Band Edge 5725MHz	15E	52.7 dBµV/m @ 5725.0 MHz (-1.3 dB)
4	a	149 - 5745MHz	-	18	Band Edge 5725MHz	15.407(b)(4)(i)	64.2 dBµV/m @ 5649.8 MHz (-4.1 dB)
	a	165 - 5825MHz	-	18	Band Edge 5850MHz	15.407(b)(4)(i)	64.7 dBµV/m @ 5926.9 MHz (-3.6 dB)

Client:	Google Inc	Job Number:	JD101591
Model:	H0ME	T-Log Number:	T101744
		Project Manager:	Deepa Shetty
Contact:	Dominik Mente	Project Coordinator:	-
Standard:	FCC 15.247/15.407/RSS-247	Class:	N/A

5	n20	36 - 5180MHz	-	16	Restricted Band Edge at 5150 MHz	15.209	53.8 dBµV/m @ 5150.0 MHz (-0.2 dB)
6	n20	64 - 5320MHz	-	16	Restricted Band Edge at 5350 MHz	15.209	52.0 dBµV/m @ 5350.0 MHz (-2.0 dB)
7	n20	100 - 5500MHz	-	15	Restricted Band Edge at 5460 MHz	15.209	47.4 dBµV/m @ 5459.9 MHz (-6.6 dB)
	n20	100 - 5500MHz	-	15	Band Edge 5460 - 5470 MHz	15E	53.2 dBµV/m @ 5470.0 MHz (-0.8 dB)
	n20	136 - 5680MHz	-	16	Band Edge 5725MHz	15E	69.5 dBµV/m @ 5725.9 MHz (-4.5 dB)
	n20	140 - 5700MHz	-	13	Band Edge 5725MHz	15E	50.0 dBµV/m @ 5725.0 MHz (-4.0 dB)
8	n20	149 - 5745MHz	-	18	Band Edge 5725MHz	15.407(b)(4)(i)	68.4 dBµV/m @ 5653.8 MHz (-2.7 dB)
	n20	165 - 5825MHz	-	17	Band Edge 5850MHz	15.407(b)(4)(i)	60.1 dBµV/m @ 5930.9 MHz (-8.2 dB)
40MHz Bandwith Modes							
9	n40	38 - 5190MHz	-	13	Restricted Band Edge at 5150 MHz	15.209	53.1 dBµV/m @ 5149.9 MHz (-0.9 dB)
10	n40	62 - 5310MHz	-	13	Restricted Band Edge at 5350 MHz	15.209	52.9 dBµV/m @ 5350.0 MHz (-1.1 dB)
11	n40	102 - 5510MHz	-	14	Restricted Band Edge at 5460 MHz	15.209	53.2 dBµV/m @ 5460.0 MHz (-0.8 dB)
	n40	102 - 5510MHz	-	12	Band Edge 5460 - 5470 MHz	15E	53.4 dBµV/m @ 5469.9 MHz (-0.6 dB)
	n40	134 - 5670MHz	-	14	Band Edge 5725MHz	15E	51.8 dBµV/m @ 5725.0 MHz (-2.2 dB)
12	n40	151 - 5755MHz	-	16	Band Edge 5725MHz	15.407(b)(4)(i)	64.1 dBµV/m @ 5643.4 MHz (-4.2 dB)
	n40	159 - 5795MHz	-	16	Band Edge 5850MHz	15.407(b)(4)(i)	63.5 dBµV/m @ 5927.3 MHz (-4.8 dB)

Client:	Google Inc	Job Number:	JD101591
Model:	H0ME	T-Log Number:	T101744
		Project Manager:	Deepa Shetty
Contact:	Dominik Mente	Project Coordinator:	-
Standard:	FCC 15.247/15.407/RSS-247	Class:	N/A

80MHz Bandwith Modes

13	ac80	42 - 5210MHz	-	9	Restricted Band Edge at 5150 MHz	15.209	50.9 dBµV/m @ 5139.5 MHz (-3.1 dB)
14	ac80	58 - 5290MHz	-	10	Restricted Band Edge at 5350 MHz	15.209	51.8 dBµV/m @ 5359.5 MHz (-2.2 dB)
15	ac80	106 - 5530MHz	-	8	Restricted Band Edge at 5460 MHz	15.209	51.4 dBµV/m @ 5459.3 MHz (-2.6 dB)
	ac80	106 - 5530MHz	-	8	Band Edge 5460 - 5470 MHz	15E	51.4 dBµV/m @ 5460.2 MHz (-2.6 dB)
16	ac80	155 - 5775MHz	-	13	Band Edge 5725MHz	15.407(b)(4)(i)	65.4 dBµV/m @ 5642.3 MHz (-2.9 dB)
	ac80	155 - 5775MHz	-	13	Band Edge 5850MHz	15.407(b)(4)(i)	64.0 dBµV/m @ 5922.9 MHz (-5.9 dB)

Client:	Google Inc	Job Number:	JD101591
Model:	H0ME	T-Log Number:	T101744
		Project Manager:	Deepa Shetty
Contact:	Dominik Mente	Project Coordinator:	-
Standard:	FCC 15.247/15.407/RSS-247	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.

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 ≥ 98% and was measured using RBW=1MHz, VBW=10Hz, peak detector, linear average mode, auto sweep time, max hold 50 traces. (method VB of KDB 789033)

Mode	Data Rate	Duty Cycle (x)	Constant DC?	T (ms)	Pwr Cor Factor*	Lin Volt Cor Factor**	Min VBW for FS (Hz)
11a	6 Mbps	0.99	Yes	3.13	0	0	319
n20	MCS0	1.00	Yes	9.92	0	0	101
n40	MCS0	1.00	Yes	4.76	0	0	210
ac80	VHT SS1	0.99	Yes	2.25	0	0	444

Sample Notes

Sample S/N: 6629AZZB75
Driver: 1.21
Antenna: Internal

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: All testing performed on the Antenna 2 port (wifi set to 10 2 2), as this was worse case from preliminary measurements.

Client:	Google Inc	Job Number:	JD101591
Model:	H0ME	T-Log Number:	T101744
		Project Manager:	Deepa Shetty
Contact:	Dominik Mente	Project Coordinator:	-
Standard:	FCC 15.247/15.407/RSS-247	Class:	N/A

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

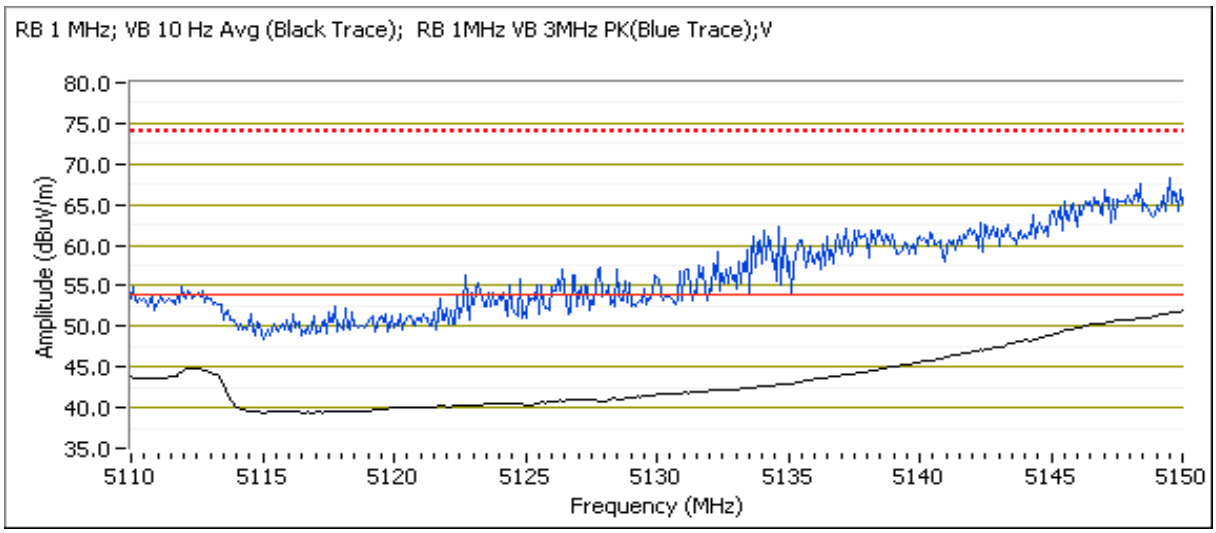
Date of Test: 7/12/2016 0:00
Test Engineer: Rafael Varelas
Test Location: Chamber 7

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

Channel: 36 - 5180 MHz
Tx Chain: Antenna 2
Mode: a
Data Rate: 6 Mbps

5150 MHz Band Edge Signal Radiated Field Strength

Frequency	Level	Pol	FCC 15.209		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
Power setting = 16								
5150.000	51.9	V	54.0	-2.1	AVG	52	1.0	
5148.560	67.8	V	74.0	-6.2	PK	52	1.0	
5150.000	50.9	H	54.0	-3.1	AVG	232	1.6	
5149.280	65.7	H	74.0	-8.3	PK	232	1.6	



Client:	Google Inc	Job Number:	JD101591
Model:	H0ME	T-Log Number:	T101744
		Project Manager:	Deepa Shetty
Contact:	Dominik Mente	Project Coordinator:	-
Standard:	FCC 15.247/15.407/RSS-247	Class:	N/A

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

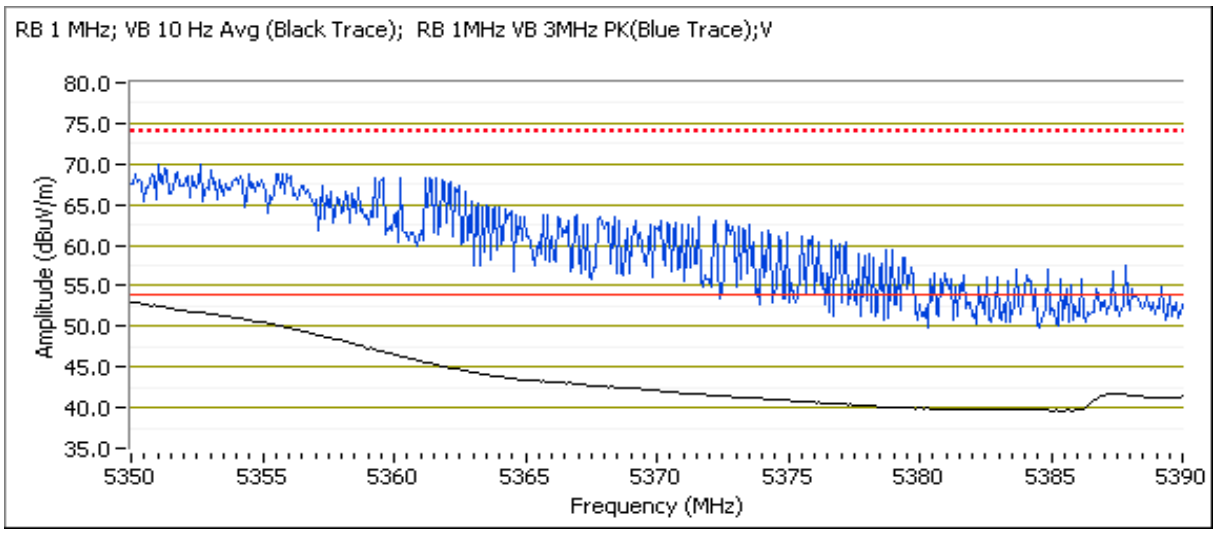
Date of Test: 7/12/2016 0:00
Test Engineer: Rafael Varelas
Test Location: Chamber 7

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

Channel: 64 - 5320MHz
Tx Chain: Antenna 2
Mode: a
Data Rate: 6 Mbps

5350 MHz Band Edge Signal Radiated Field Strength

Frequency	Level	Pol	FCC 15.209		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
Power setting = 16								
5350.000	53.1	V	54.0	-0.9	AVG	47	1.8	
5351.840	70.0	V	74.0	-4.0	PK	47	1.8	
5350.080	51.1	H	54.0	-2.9	AVG	230	1.4	
5355.210	69.6	H	74.0	-4.4	PK	230	1.4	



Client:	Google Inc	Job Number:	JD101591
Model:	H0ME	T-Log Number:	T101744
		Project Manager:	Deepa Shetty
Contact:	Dominik Mente	Project Coordinator:	-
Standard:	FCC 15.247/15.407/RSS-247	Class:	N/A

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

Date of Test: 7/12/2016 0:00
Test Engineer: Rafael Varelas
Test Location: Chamber 7

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

Channel: 100 - 5500MHz
Tx Chain: Antenna 2
Mode: a
Data Rate: 6 Mbps

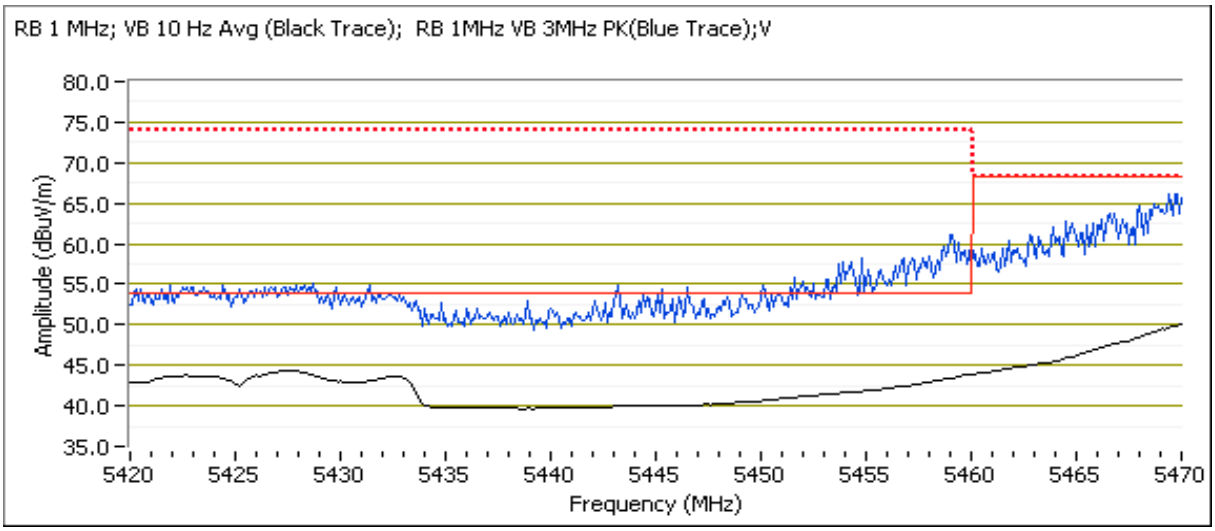
5460 MHz Band Edge Signal Radiated Field Strength

Frequency	Level	Pol	FCC 15.209		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
Power setting = 14								
5460.000	44.1	V	54.0	-9.9	AVG	56	1.9	
5458.800	61.7	V	74.0	-12.3	PK	56	1.9	
5427.700	44.2	V	54.0	-9.8	AVG	56	1.9	
5431.740	54.9	V	74.0	-19.1	PK	56	1.9	
5427.670	44.5	H	54.0	-9.5	AVG	226	1.0	
5427.420	56.0	H	74.0	-18.0	PK	226	1.0	

5470 MHz Band Edge Signal Radiated Field Strength

Frequency	Level	Pol	15.E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
Power setting = 14								
5470.000	50.3	V	54.0	-3.7	AVG	56	1.9	
5469.820	67.2	V	74.0	-6.8	PK	56	1.9	
5469.820	67.2	V	68.3	-1.1	PK	56	1.9	
5469.920	49.8	H	54.0	-4.2	AVG	226	1.0	
5468.460	66.8	H	74.0	-7.2	PK	226	1.0	
5468.460	66.8	H	68.3	-1.5	PK	226	1.0	

Client:	Google Inc	Job Number:	JD101591
Model:	H0ME	T-Log Number:	T101744
		Project Manager:	Deepa Shetty
Contact:	Dominik Mente	Project Coordinator:	-
Standard:	FCC 15.247/15.407/RSS-247	Class:	N/A

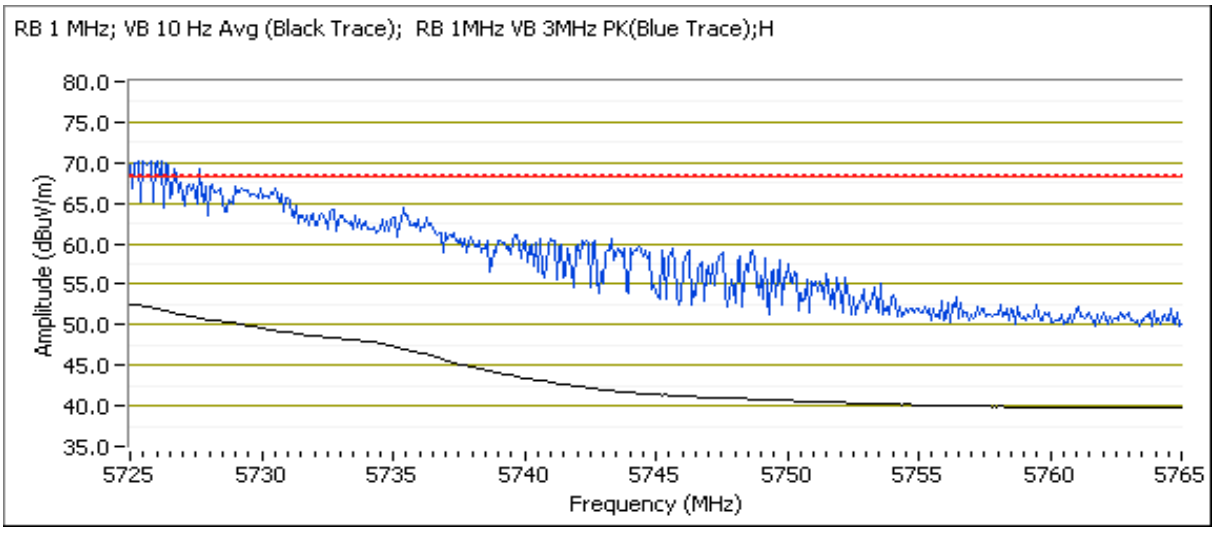


Client:	Google Inc	Job Number:	JD101591
Model:	H0ME	T-Log Number:	T101744
		Project Manager:	Deepa Shetty
Contact:	Dominik Mente	Project Coordinator:	-
Standard:	FCC 15.247/15.407/RSS-247	Class:	N/A

Channel: 140 - 5700MHz
Tx Chain: Antenna 2
Mode: a
Data Rate: 6 Mbps

5725 MHz Band Edge Signal Radiated Field Strength

Frequency	Level	Pol	15.E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
Power setting = 14								
5725.080	51.7	V	54.0	-2.3	AVG	62	1.7	Note 1
5727.080	69.5	V	74.0	-4.5	PK	62	1.7	Note 1
5725.000	52.7	H	54.0	-1.3	AVG	232	1.3	Note 1
5731.250	70.4	H	74.0	-3.6	PK	232	1.3	Note 1



Client:	Google Inc	Job Number:	JD101591
Model:	H0ME	T-Log Number:	T101744
		Project Manager:	Deepa Shetty
Contact:	Dominik Mente	Project Coordinator:	-
Standard:	FCC 15.247/15.407/RSS-247	Class:	N/A

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

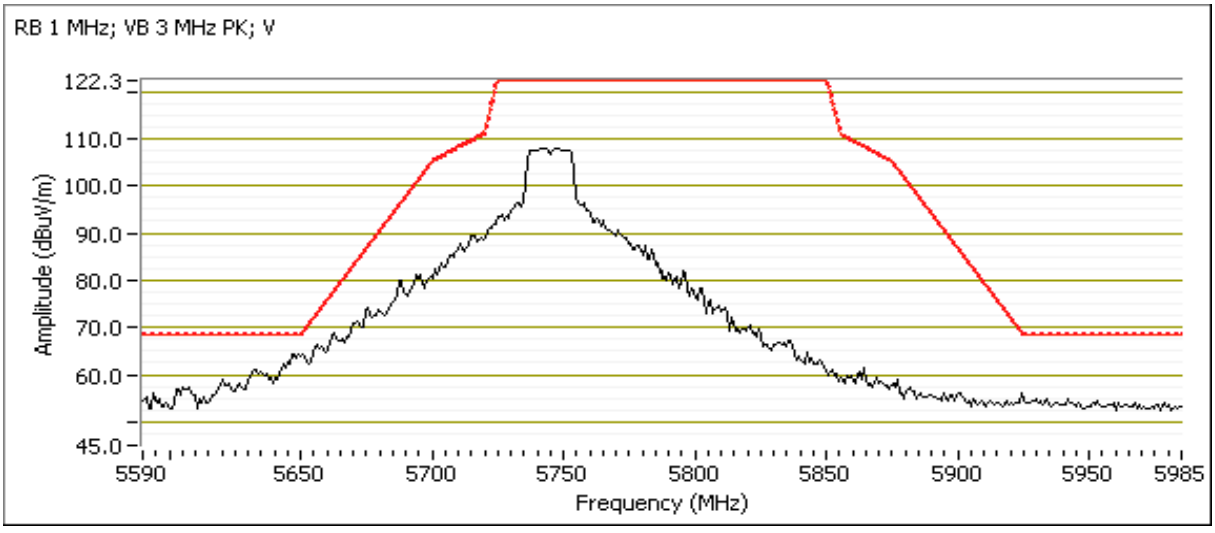
Date of Test: 7/13 & 7/20/16
Test Engineer: Rafael Varelas
Test Location: Chamber 7

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

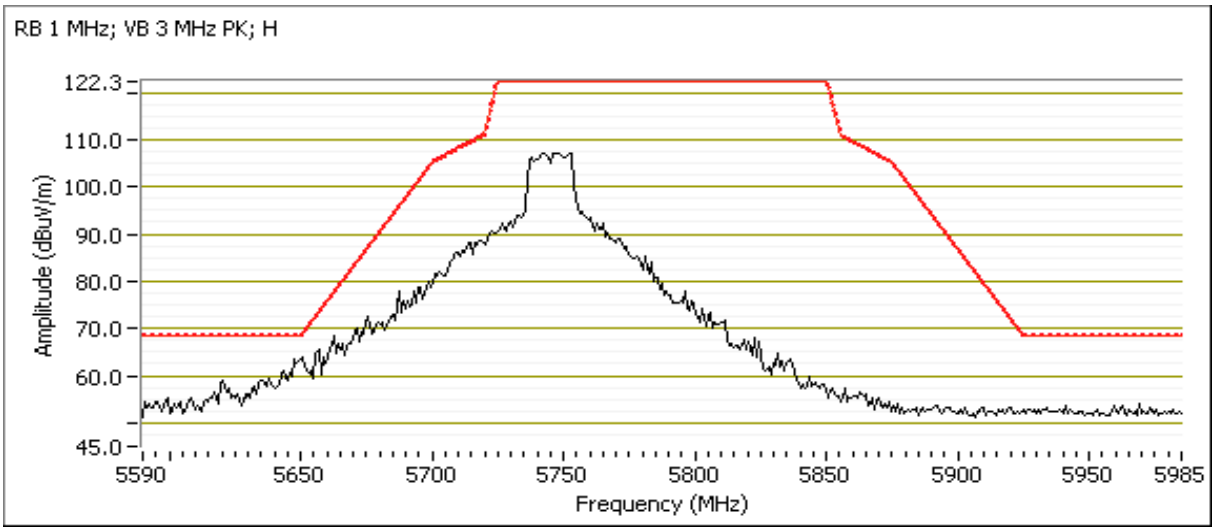
Channel: 149 - 5745MHz
Tx Chain: Antenna 2
Mode: a
Data Rate: 6 Mbps

Power setting = 18

Frequency	Level	Pol	15.E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5649.840	64.2	V	68.3	-4.1	PK	50	1.7	POS; RB 1 MHz; VB: 3 MHz
5649.660	63.1	H	68.3	-5.2	PK	233	1.1	POS; RB 1 MHz; VB: 3 MHz



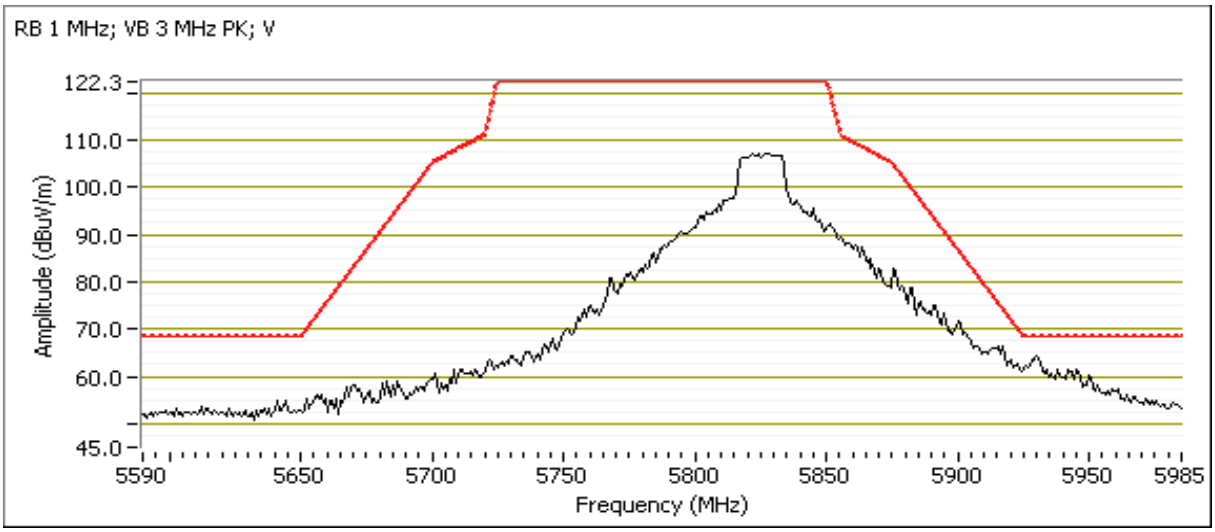
Client:	Google Inc	Job Number:	JD101591
Model:	H0ME	T-Log Number:	T101744
		Project Manager:	Deepa Shetty
Contact:	Dominik Mente	Project Coordinator:	-
Standard:	FCC 15.247/15.407/RSS-247	Class:	N/A

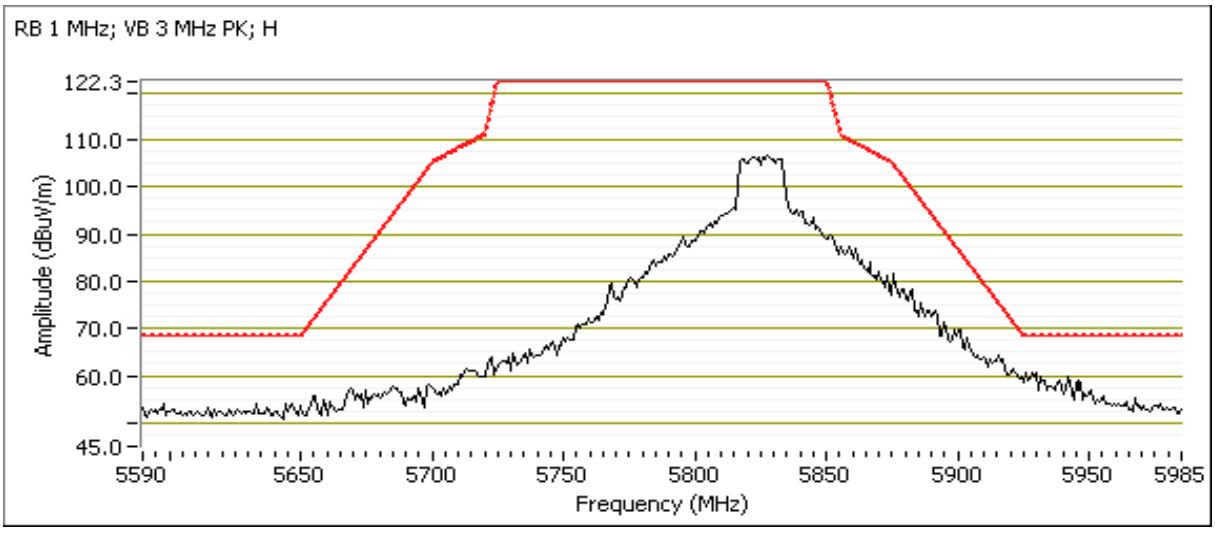


Client:	Google Inc	Job Number:	JD101591
Model:	H0ME	T-Log Number:	T101744
		Project Manager:	Deepa Shetty
Contact:	Dominik Mente	Project Coordinator:	-
Standard:	FCC 15.247/15.407/RSS-247	Class:	N/A

Channel: 165 - 5825MHz Power setting = 18
Tx Chain: Antenna 2
Mode: a
Data Rate: 6 Mbps

Frequency	Level	Pol	15.E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5926.920	64.7	V	68.3	-3.6	PK	56	1.8	POS; RB 1 MHz; VB: 3 MHz
5929.090	62.1	H	68.3	-6.2	PK	232	1.0	POS; RB 1 MHz; VB: 3 MHz





Client:	Google Inc	Job Number:	JD101591
Model:	H0ME	T-Log Number:	T101744
		Project Manager:	Deepa Shetty
Contact:	Dominik Mente	Project Coordinator:	-
Standard:	FCC 15.247/15.407/RSS-247	Class:	N/A

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

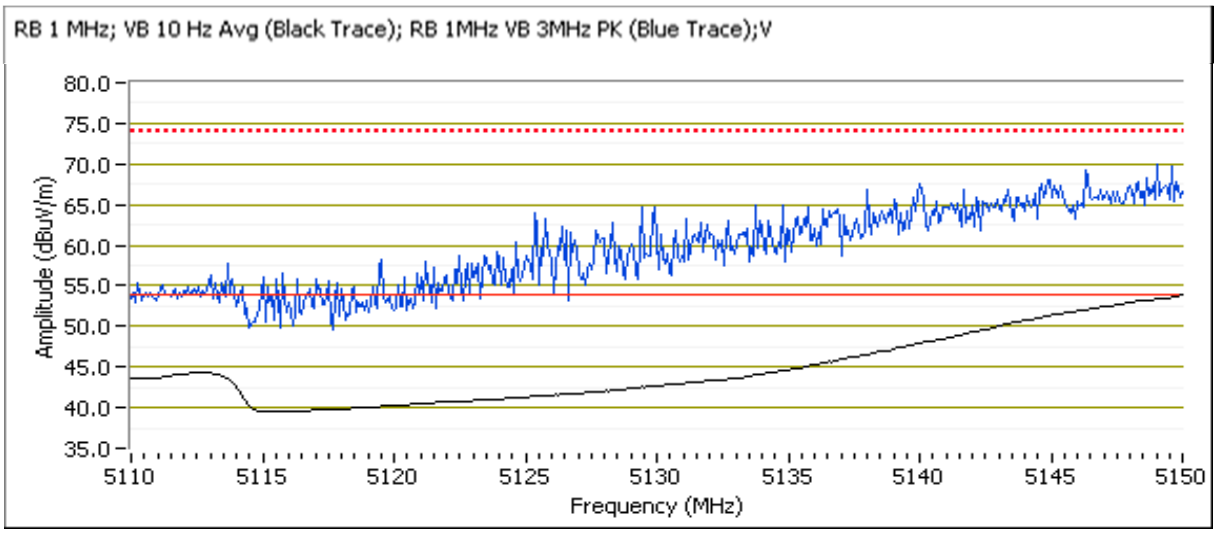
Date of Test: 7/13/2016 0:00
Test Engineer: Rafael Varelas
Test Location: Chamber 7

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

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

5150 MHz Band Edge Signal Radiated Field Strength

Frequency	Level	Pol	FCC 15.209		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
Power setting = 16								
5150.000	53.8	V	54.0	-0.2	AVG	169	1.6	
5149.920	70.6	V	74.0	-3.4	PK	169	1.6	
5150.000	48.5	H	54.0	-5.5	AVG	305	1.1	
5145.430	65.5	H	74.0	-8.5	PK	305	1.1	



Client:	Google Inc	Job Number:	JD101591
Model:	H0ME	T-Log Number:	T101744
		Project Manager:	Deepa Shetty
Contact:	Dominik Mente	Project Coordinator:	-
Standard:	FCC 15.247/15.407/RSS-247	Class:	N/A

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

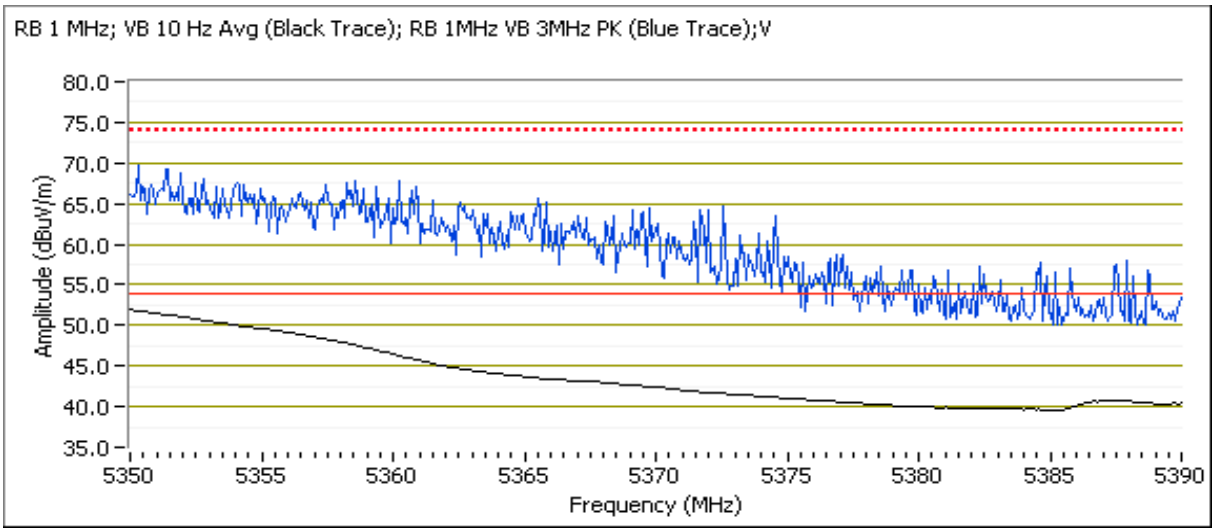
Date of Test: 7/13/2016 0:00
Test Engineer: Rafael Varelas
Test Location: Chamber 7

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

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

5350 MHz Band Edge Signal Radiated Field Strength

Frequency	Level	Pol	FCC 15.209		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
Power setting = 16								
5350.000	52.0	V	54.0	-2.0	AVG	178	1.3	
5352.240	69.4	V	74.0	-4.6	PK	178	1.3	
5350.080	51.0	H	54.0	-3.0	AVG	236	1.7	
5350.960	67.8	H	74.0	-6.2	PK	236	1.7	



Client:	Google Inc	Job Number:	JD101591
Model:	H0ME	T-Log Number:	T101744
		Project Manager:	Deepa Shetty
Contact:	Dominik Mente	Project Coordinator:	-
Standard:	FCC 15.247/15.407/RSS-247	Class:	N/A

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

Date of Test: 7/13/2016 0:00
Test Engineer: Rafael Varelas
Test Location: Chamber 7

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

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

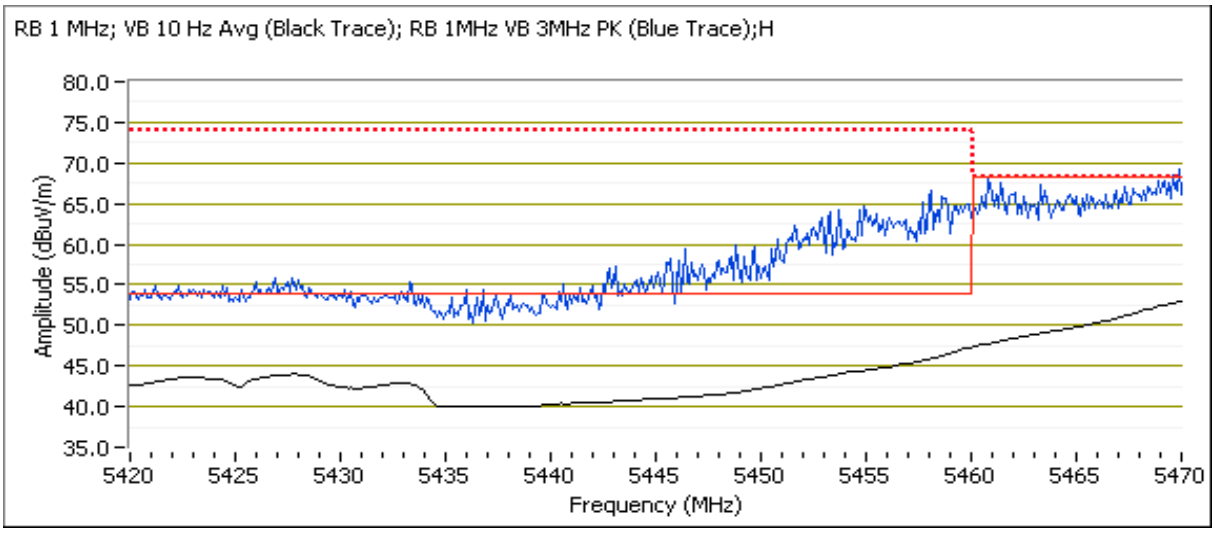
5460 MHz Band Edge Signal Radiated Field Strength

Frequency	Level	Pol	FCC 15.209		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
Power setting = 15								
5460.000	45.9	V	54.0	-8.1	AVG	180	2.3	
5452.870	65.4	V	74.0	-8.6	PK	180	2.3	
5459.920	47.4	H	54.0	-6.6	AVG	238	1.6	
5460.000	66.5	H	74.0	-7.5	PK	238	1.6	

Client:	Google Inc	Job Number:	JD101591
Model:	H0ME	T-Log Number:	T101744
		Project Manager:	Deepa Shetty
Contact:	Dominik Mente	Project Coordinator:	-
Standard:	FCC 15.247/15.407/RSS-247	Class:	N/A

5470 MHz Band Edge Signal Radiated Field Strength

Frequency	Level	Pol	15.E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
Power setting = 15								
5470.000	51.4	V	54.0	-2.6	AVG	180	2.3	Note 1
5469.020	67.9	V	74.0	-6.1	PK	180	2.3	Note 1
5470.000	53.2	H	54.0	-0.8	AVG	238	1.6	Note 1
5469.000	69.5	H	74.0	-4.5	PK	238	1.6	Note 1

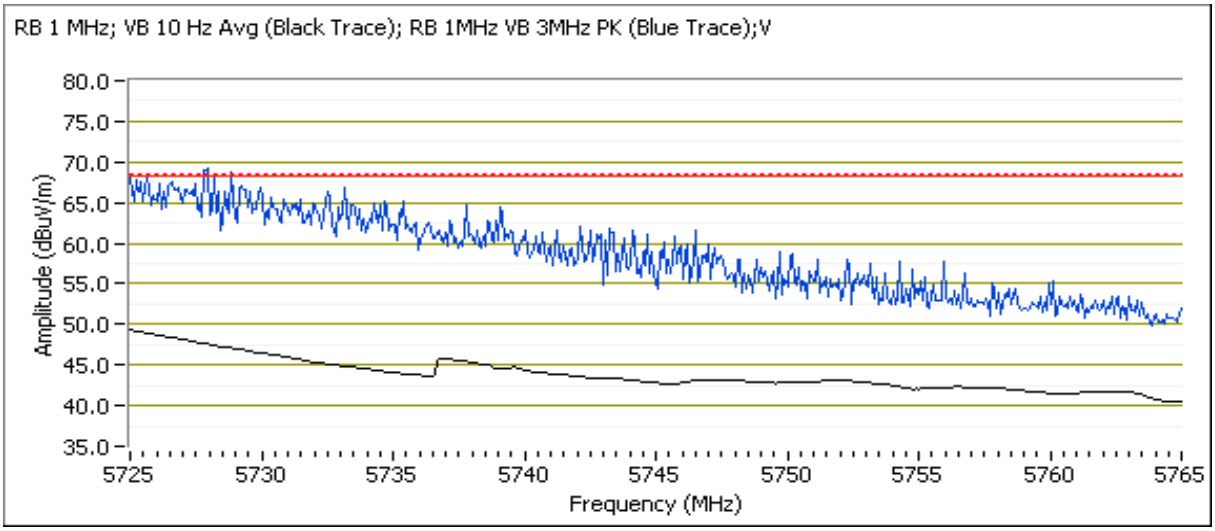


Client:	Google Inc	Job Number:	JD101591
Model:	H0ME	T-Log Number:	T101744
		Project Manager:	Deepa Shetty
Contact:	Dominik Mente	Project Coordinator:	-
Standard:	FCC 15.247/15.407/RSS-247	Class:	N/A

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

5725 MHz Band Edge Signal Radiated Field Strength

Frequency	Level	Pol	15.E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
Power setting = 16								
5725.000	48.1	V	54.0	-5.9	AVG	44	1.8	
5725.880	69.5	V	74.0	-4.5	PK	44	1.8	
5725.080	46.8	H	54.0	-7.2	AVG	226	1.2	
5725.240	68.6	H	74.0	-5.4	PK	226	1.2	

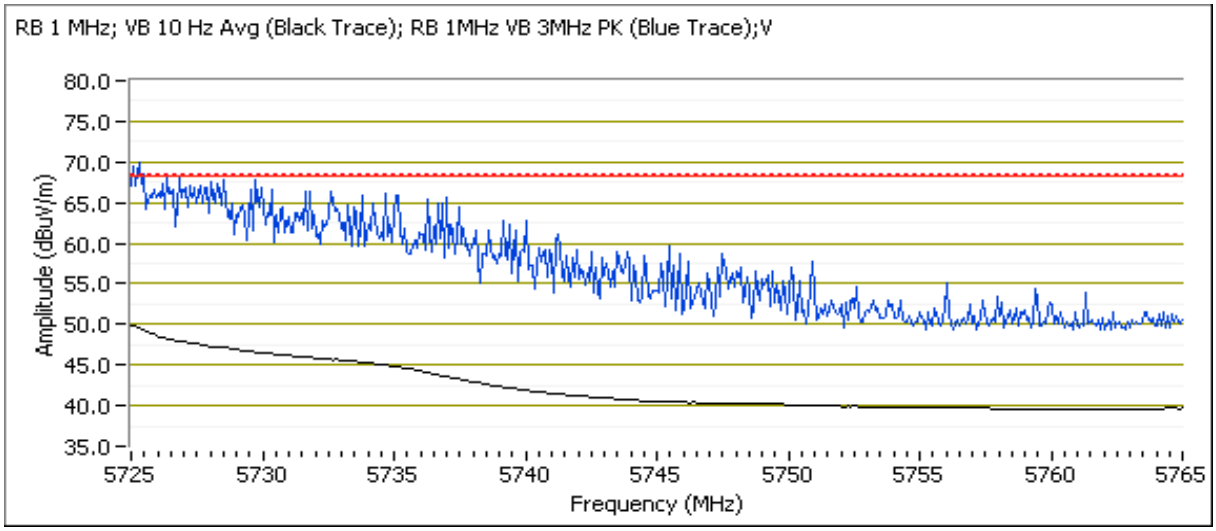


Client:	Google Inc	Job Number:	JD101591
Model:	H0ME	T-Log Number:	T101744
		Project Manager:	Deepa Shetty
Contact:	Dominik Mente	Project Coordinator:	-
Standard:	FCC 15.247/15.407/RSS-247	Class:	N/A

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

5725 MHz Band Edge Signal Radiated Field Strength

Frequency	Level	Pol	15.E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
Power setting = 13								
5725.000	50.0	V	54.0	-4.0	AVG	63	1.7	
5732.540	69.6	V	74.0	-4.4	PK	63	1.7	
5725.000	48.0	H	54.0	-6.0	AVG	251	1.3	
5726.280	67.0	H	74.0	-7.0	PK	251	1.3	



Client:	Google Inc	Job Number:	JD101591
Model:	H0ME	T-Log Number:	T101744
		Project Manager:	Deepa Shetty
Contact:	Dominik Mente	Project Coordinator:	-
Standard:	FCC 15.247/15.407/RSS-247	Class:	N/A

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

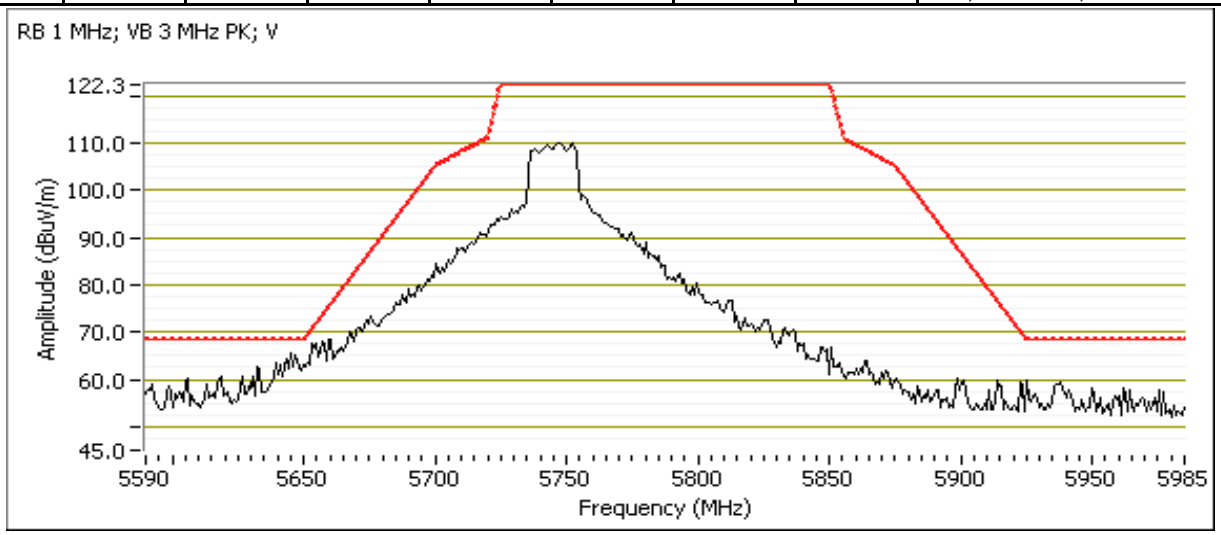
Date of Test: 7/13/ & 7/20/16
Test Engineer: Rafael Varelas
Test Location: Chamber 7

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

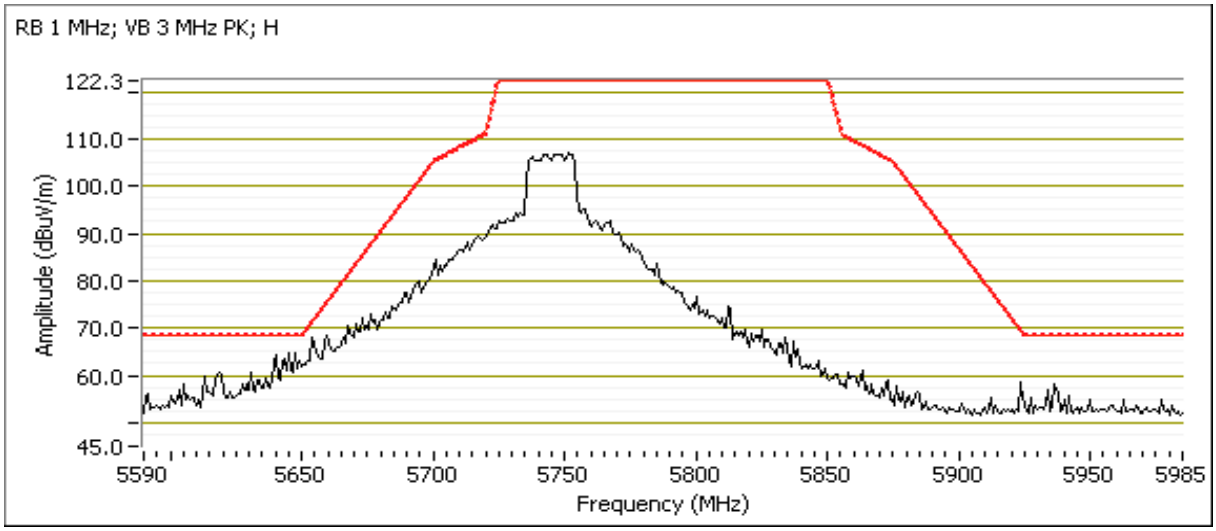
Channel: 149 - 5745MHz
Tx Chain: Antenna 2
Mode: n20
Data Rate: MCS0

Power setting = 18

Frequency	Level	Pol	15.E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5653.770	68.4	H	71.1	-2.7	PK	231	1.1	POS; RB 1 MHz; VB: 3 MHz
5653.350	67.9	V	70.8	-2.9	PK	55	1.5	POS; RB 1 MHz; VB: 3 MHz



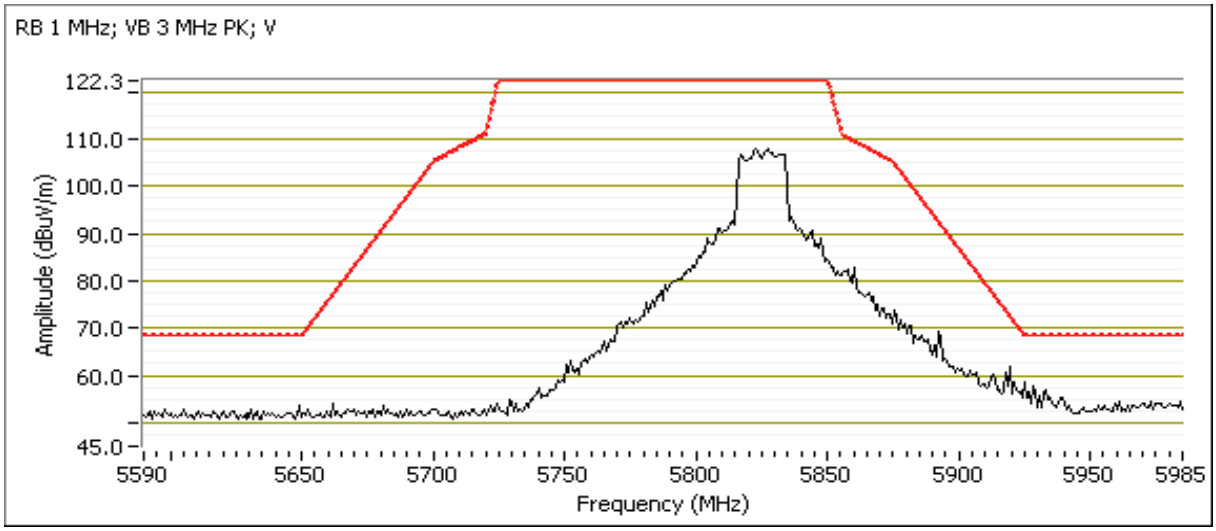
Client:	Google Inc	Job Number:	JD101591
Model:	H0ME	T-Log Number:	T101744
		Project Manager:	Deepa Shetty
Contact:	Dominik Mente	Project Coordinator:	-
Standard:	FCC 15.247/15.407/RSS-247	Class:	N/A



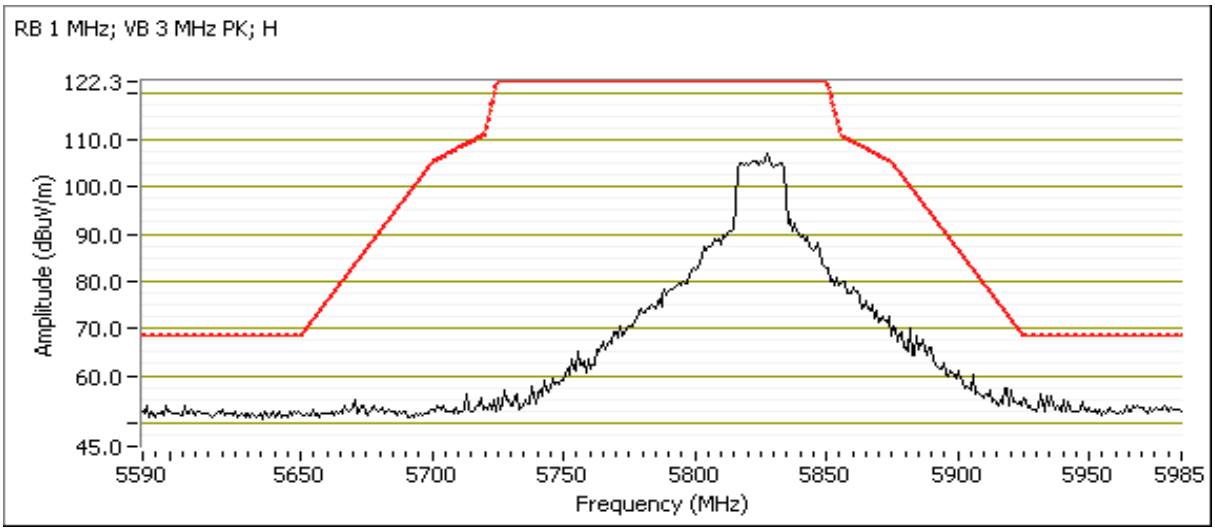
Client:	Google Inc	Job Number:	JD101591
Model:	H0ME	T-Log Number:	T101744
		Project Manager:	Deepa Shetty
Contact:	Dominik Mente	Project Coordinator:	-
Standard:	FCC 15.247/15.407/RSS-247	Class:	N/A

Channel: 165 - 5825MHz Power setting = 17
Tx Chain: Antenna 2
Mode: n20
Data Rate: MCS0

Frequency	Level	Pol	15.E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
Power setting 17								
5930.930	60.1	V	68.3	-8.2	PK	60	1.3	POS; RB 1 MHz; VB: 3 MHz
5926.170	57.8	H	68.3	-10.5	PK	232	1.0	POS; RB 1 MHz; VB: 3 MHz



Client:	Google Inc	Job Number:	JD101591
Model:	H0ME	T-Log Number:	T101744
		Project Manager:	Deepa Shetty
Contact:	Dominik Mente	Project Coordinator:	-
Standard:	FCC 15.247/15.407/RSS-247	Class:	N/A



Client:	Google Inc	Job Number:	JD101591
Model:	H0ME	T-Log Number:	T101744
		Project Manager:	Deepa Shetty
Contact:	Dominik Mente	Project Coordinator:	-
Standard:	FCC 15.247/15.407/RSS-247	Class:	N/A

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

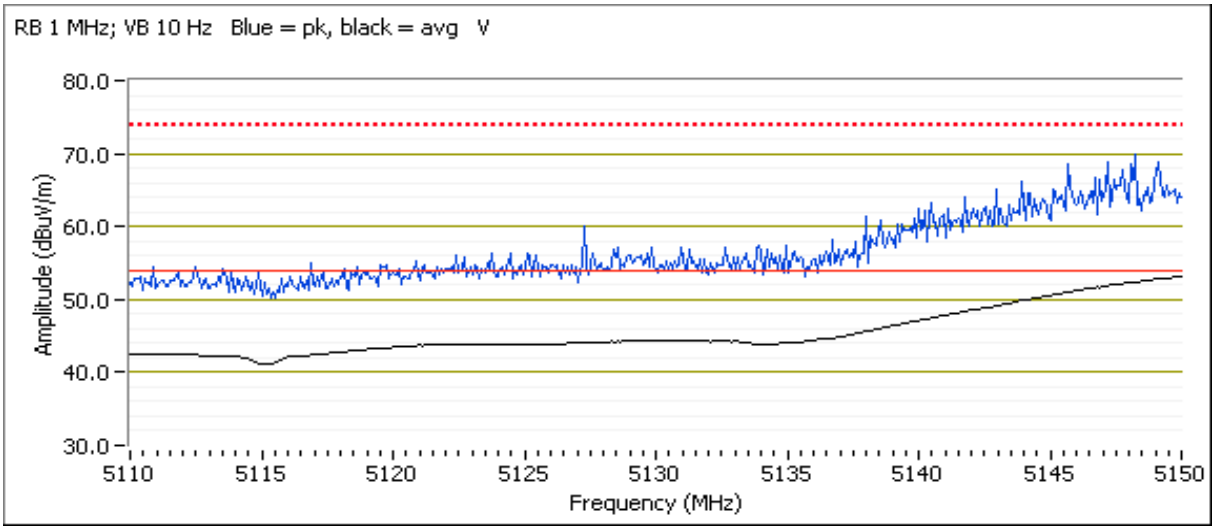
Date of Test: 7/14/2016 0:00
Test Engineer: John Caizzi / R. Varelas
Test Location: Chamber 7

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

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

5150 MHz Band Edge Signal Radiated Field Strength

Frequency	Level	Pol	FCC 15.209		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
Power setting = 13								
5149.920	53.1	V	54.0	-0.9	AVG	158	1.49	
5149.440	71.5	V	74.0	-2.5	PK	158	1.49	
5150.000	50.8	H	54.0	-3.2	AVG	228	1.57	
5146.710	66.7	H	74.0	-7.3	PK	228	1.57	



Client:	Google Inc	Job Number:	JD101591
Model:	H0ME	T-Log Number:	T101744
		Project Manager:	Deepa Shetty
Contact:	Dominik Mente	Project Coordinator:	-
Standard:	FCC 15.247/15.407/RSS-247	Class:	N/A

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

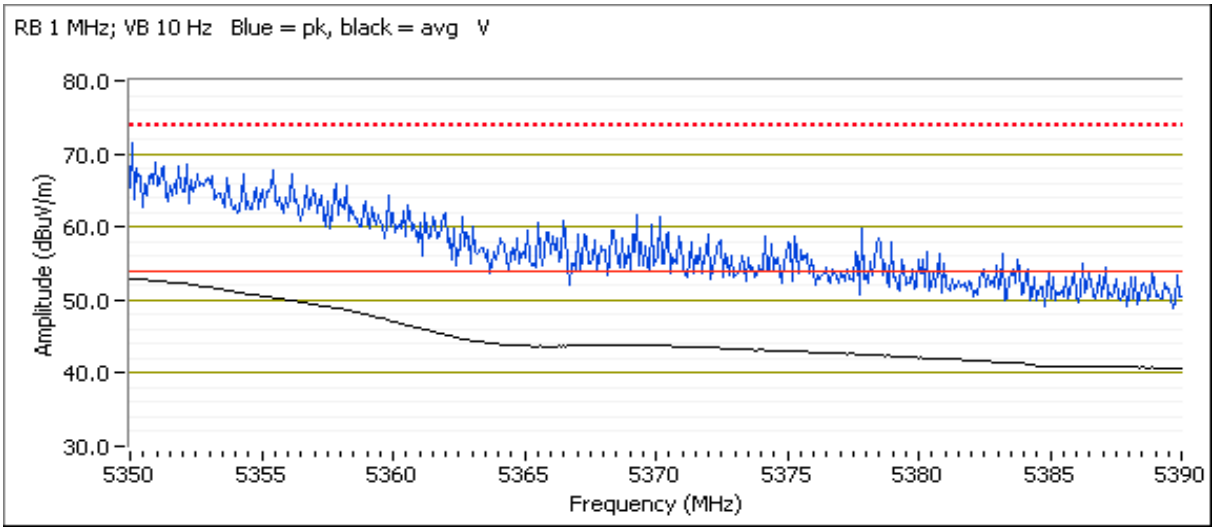
Date of Test: 7/14/2016 0:00
Test Engineer: John Caizzi / R. Varelas
Test Location: Chamber 7

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

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

5350 MHz Band Edge Signal Radiated Field Strength

Frequency	Level	Pol	FCC 15.209		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
Power setting = 13								
5350.000	52.9	V	54.0	-1.1	AVG	50	1.86	
5352.080	71.4	V	74.0	-2.6	PK	50	1.86	
5350.080	51.8	H	54.0	-2.2	AVG	229	1.26	
5351.840	70.0	H	74.0	-4.0	PK	229	1.26	



Client:	Google Inc	Job Number:	JD101591
Model:	H0ME	T-Log Number:	T101744
		Project Manager:	Deepa Shetty
Contact:	Dominik Mente	Project Coordinator:	-
Standard:	FCC 15.247/15.407/RSS-247	Class:	N/A

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

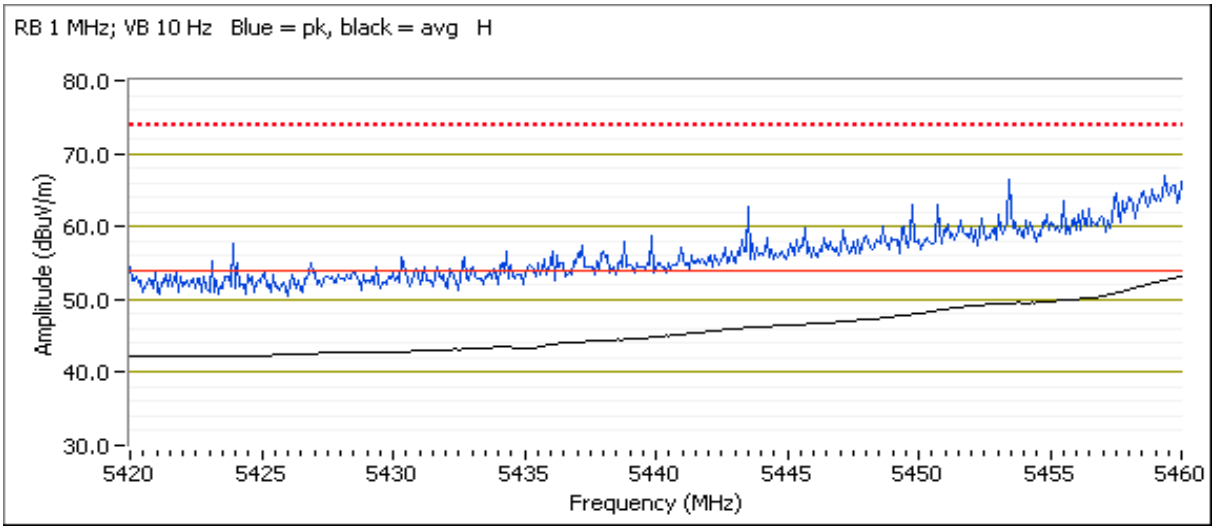
Date of Test: 7/14/2016 0:00
Test Engineer: John Caizzi / R. Varelas
Test Location: Chamber 7

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

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

5460 MHz Band Edge Signal Radiated Field Strength

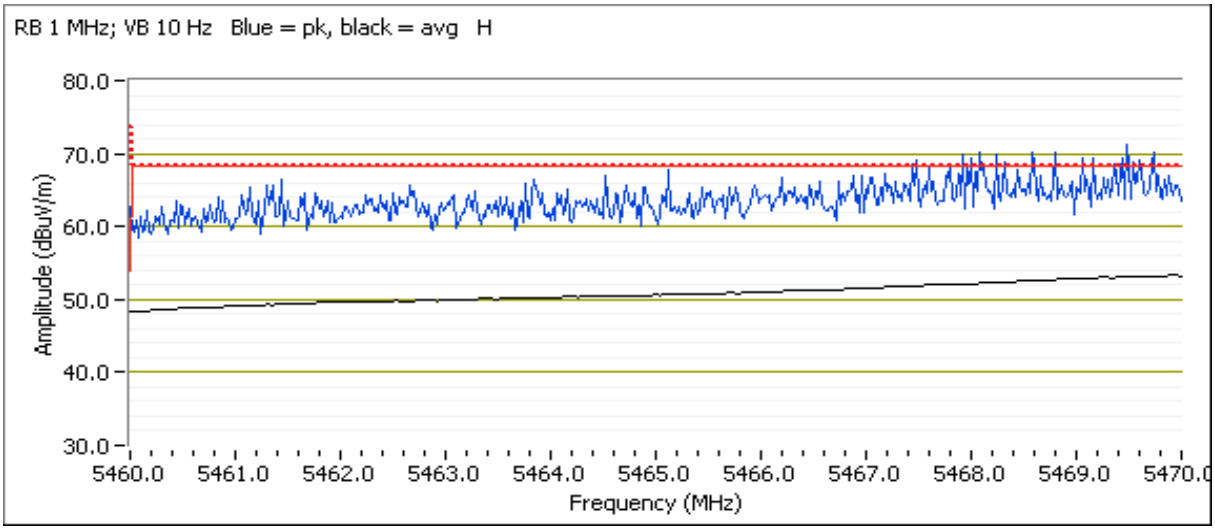
Frequency	Level	Pol	FCC 15.209		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
Power setting = 14								
5460.000	53.2	H	54.0	-0.8	AVG	228	1.23	
5459.520	67.8	H	74.0	-6.2	PK	228	1.23	
5460.000	51.6	V	54.0	-2.4	AVG	174	2.31	
5460.000	66.4	V	74.0	-7.6	PK	174	2.31	



Client:	Google Inc	Job Number:	JD101591
Model:	H0ME	T-Log Number:	T101744
		Project Manager:	Deepa Shetty
Contact:	Dominik Mente	Project Coordinator:	-
Standard:	FCC 15.247/15.407/RSS-247	Class:	N/A

5470 MHz Band Edge Signal Radiated Field Strength

Frequency	Level	Pol	15.E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
Power setting = 12								
5469.880	53.4	H	54.0	-0.6	AVG	230	1.2	Note 1
5468.140	71.7	H	74.0	-2.3	PK	230	1.2	Note 1

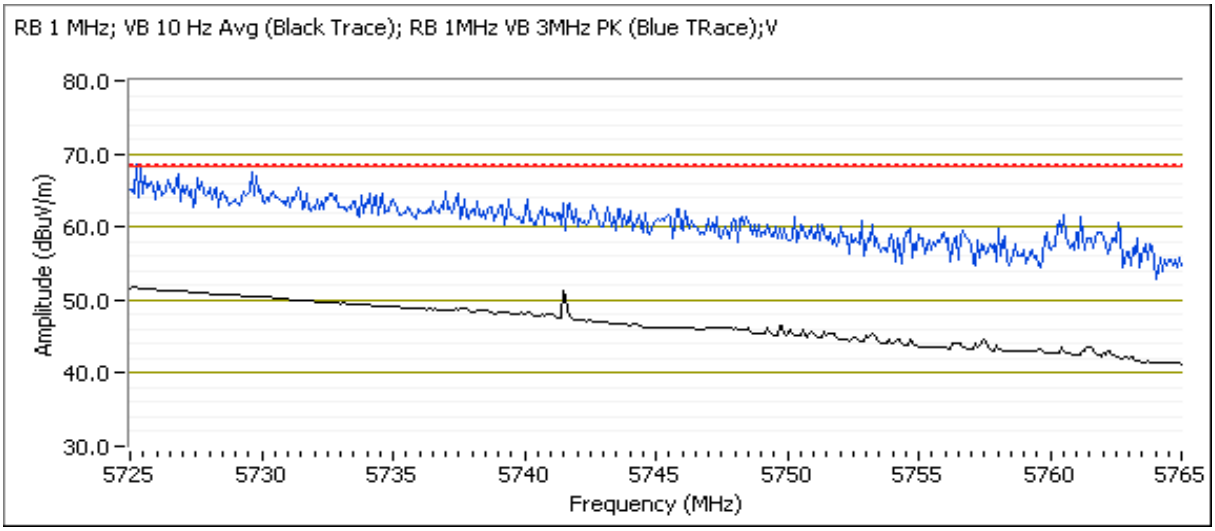


Client:	Google Inc	Job Number:	JD101591
Model:	H0ME	T-Log Number:	T101744
		Project Manager:	Deepa Shetty
Contact:	Dominik Mente	Project Coordinator:	-
Standard:	FCC 15.247/15.407/RSS-247	Class:	N/A

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

5725 MHz Band Edge Signal Radiated Field Strength

Frequency	Level	Pol	15.E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
Power setting = 14								
5725.000	51.8	V	54.0	-2.2	AVG	306	1.4	Note 1
5731.010	68.5	V	74.0	-5.5	PK	306	1.4	Note 1
5725.000	50.3	H	54.0	-3.7	AVG	227	1.1	Note 1
5725.560	66.1	H	74.0	-7.9	PK	227	1.1	Note 1



Client:	Google Inc	Job Number:	JD101591
Model:	H0ME	T-Log Number:	T101744
		Project Manager:	Deepa Shetty
Contact:	Dominik Mente	Project Coordinator:	-
Standard:	FCC 15.247/15.407/RSS-247	Class:	N/A

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

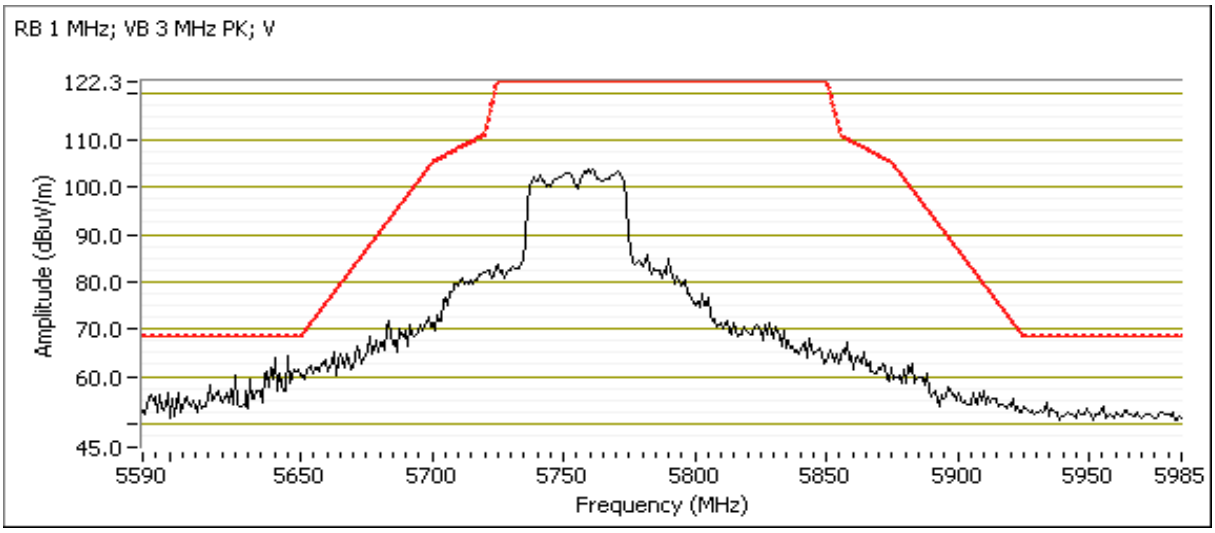
Date of Test: 7/14 & 7/20/16
Test Engineer: Rafael Varelas
Test Location: Chamber 7

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

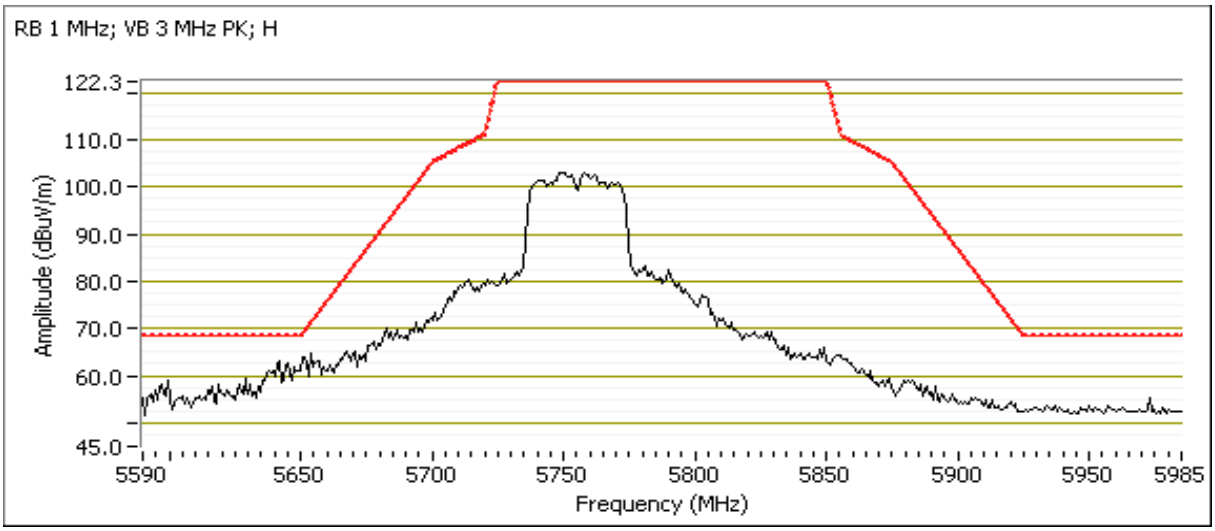
Channel: 151 - 5755MHz
Tx Chain: Antenna 2
Mode: n40
Data Rate: MCS0

Power setting = 16

Frequency	Level	Pol	15.E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5643.440	64.1	V	68.3	-4.2	PK	50	1.7	POS; RB 1 MHz; VB: 3 MHz
5645.940	62.4	H	68.3	-5.9	PK	233	1.3	POS; RB 1 MHz; VB: 3 MHz



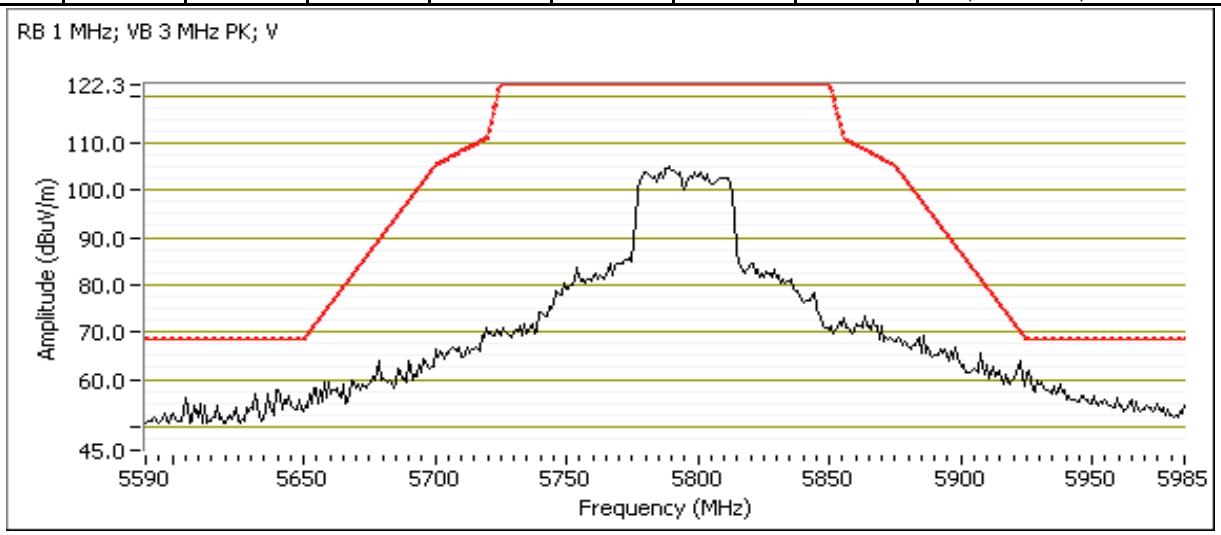
Client:	Google Inc	Job Number:	JD101591
Model:	H0ME	T-Log Number:	T101744
		Project Manager:	Deepa Shetty
Contact:	Dominik Mente	Project Coordinator:	-
Standard:	FCC 15.247/15.407/RSS-247	Class:	N/A

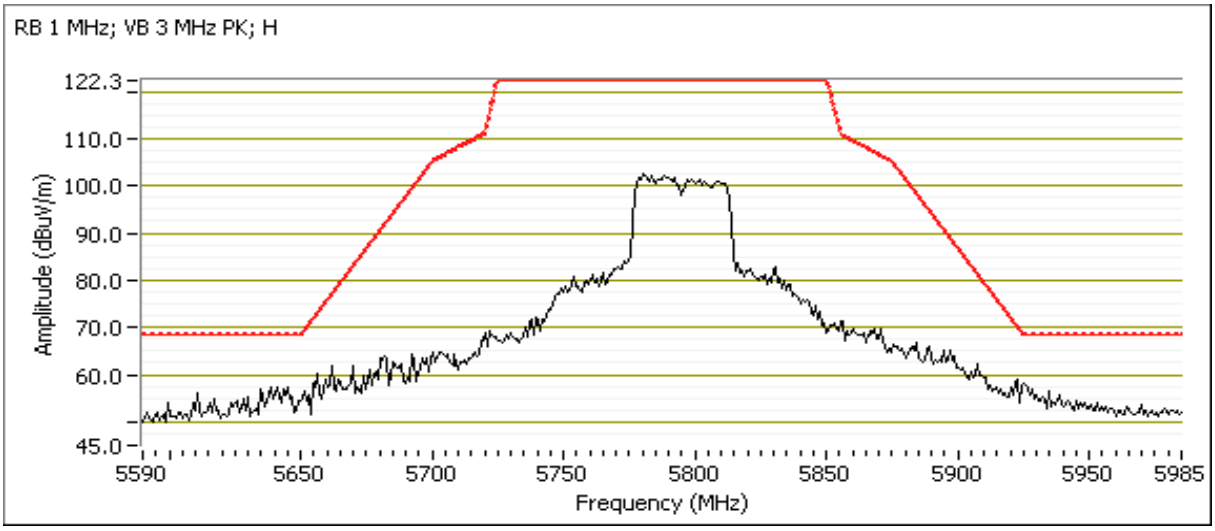


Client:	Google Inc	Job Number:	JD101591
Model:	H0ME	T-Log Number:	T101744
		Project Manager:	Deepa Shetty
Contact:	Dominik Mente	Project Coordinator:	-
Standard:	FCC 15.247/15.407/RSS-247	Class:	N/A

Channel: 159 - 5795MHz Power setting = 16
Tx Chain: Antenna 2
Mode: n40
Data Rate: MCS0

Frequency	Level	Pol	15.E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5927.310	63.5	V	68.3	-4.8	PK	55	1.6	POS; RB 1 MHz; VB: 3 MHz
5921.880	60.3	H	70.6	-10.3	PK	230	1.0	POS; RB 1 MHz; VB: 3 MHz





Client:	Google Inc	Job Number:	JD101591
Model:	H0ME	T-Log Number:	T101744
		Project Manager:	Deepa Shetty
Contact:	Dominik Mente	Project Coordinator:	-
Standard:	FCC 15.247/15.407/RSS-247	Class:	N/A

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

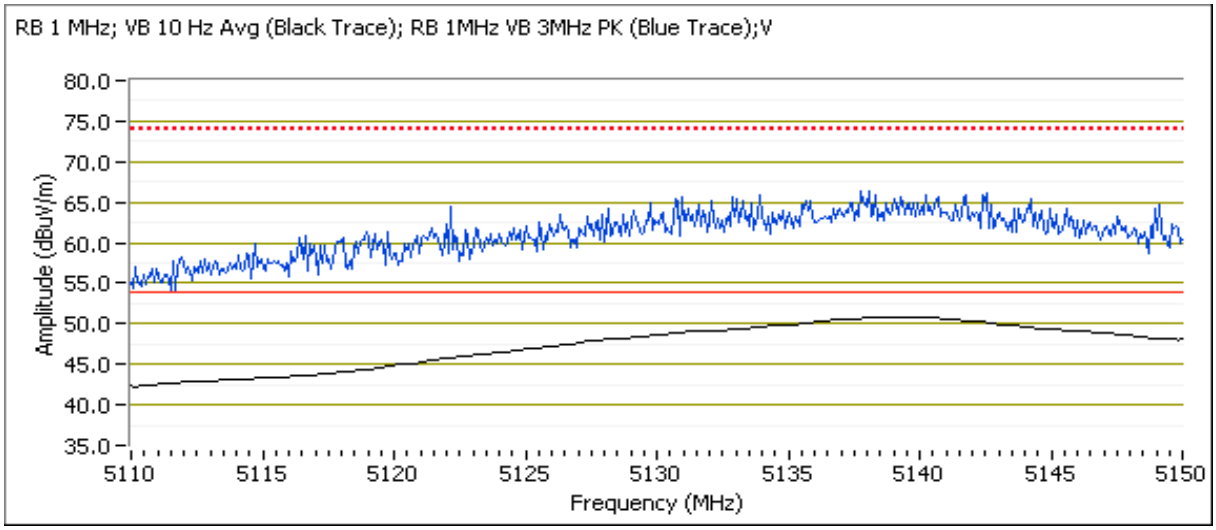
Date of Test: 7/14/2016 0:00
Test Engineer: Rafael Varelas
Test Location: Chamber 7

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

Channel: 42 - 5210MHz
Tx Chain: Antenna 2
Mode: ac80
Data Rate: VHT SS1

5150 MHz Band Edge Signal Radiated Field Strength

Frequency	Level	Pol	FCC 15.209		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
Power setting = 9								
5139.500	50.9	V	54.0	-3.1	AVG	56	1.9	
5139.740	66.0	V	74.0	-8.0	PK	56	1.9	
5139.500	45.7	H	54.0	-8.3	AVG	303	1.0	
5137.740	60.2	H	74.0	-13.8	PK	303	1.0	



Client:	Google Inc	Job Number:	JD101591
Model:	H0ME	T-Log Number:	T101744
		Project Manager:	Deepa Shetty
Contact:	Dominik Mente	Project Coordinator:	-
Standard:	FCC 15.247/15.407/RSS-247	Class:	N/A

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

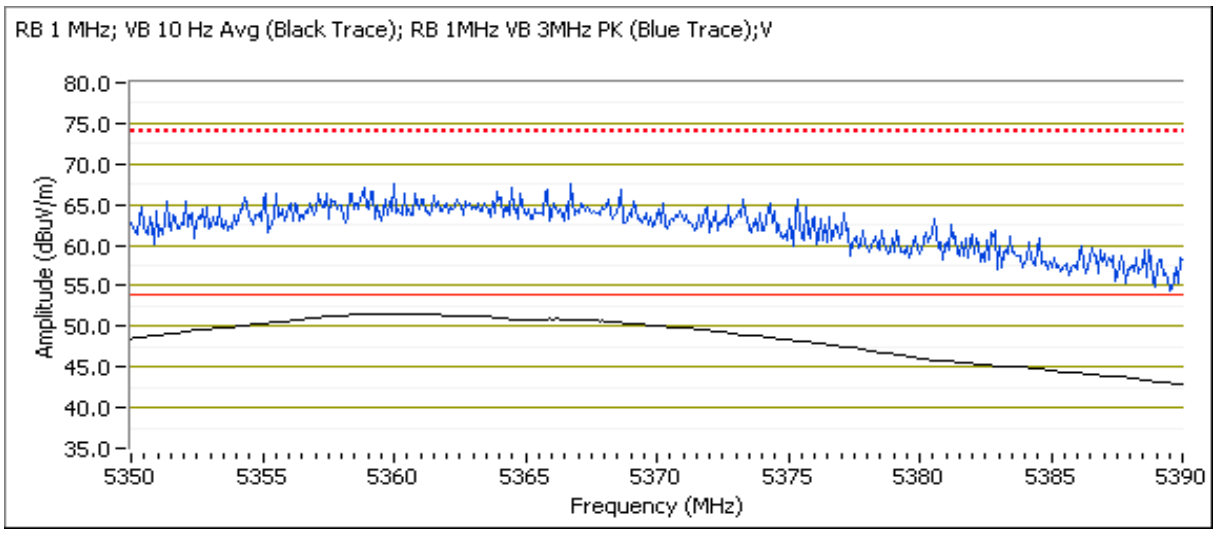
Date of Test: 7/14/2016 0:00
Test Engineer: Rafael Varelas
Test Location: Chamber 7

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

Channel: 58 - 5290MHz
Tx Chain: Antenna 2
Mode: ac80
Data Rate: VHT SS1

5350 MHz Band Edge Signal Radiated Field Strength

Frequency	Level	Pol	FCC 15.209		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
Power setting = 10								
5359.540	51.8	V	54.0	-2.2	AVG	175	1.3	
5360.260	69.3	V	74.0	-4.7	PK	175	1.3	
5360.100	51.0	H	54.0	-3.0	AVG	223	1.9	
5359.060	67.9	H	74.0	-6.1	PK	223	1.9	



Client:	Google Inc	Job Number:	JD101591
Model:	H0ME	T-Log Number:	T101744
		Project Manager:	Deepa Shetty
Contact:	Dominik Mente	Project Coordinator:	-
Standard:	FCC 15.247/15.407/RSS-247	Class:	N/A

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

Date of Test: 7/14/2016 0:00
Test Engineer: Rafael Varelas
Test Location: Chamber 7

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

Channel: 106 - 5530MHz
Tx Chain: Antenna 2
Mode: ac80
Data Rate: VHT SS1

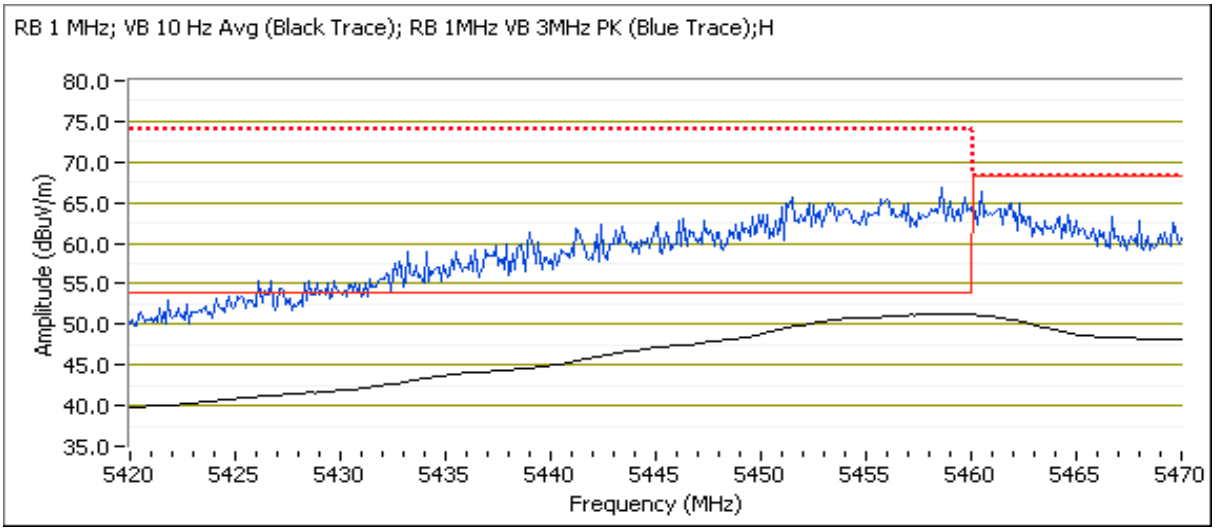
5460 MHz Band Edge Signal Radiated Field Strength

Frequency	Level	Pol	FCC 15.209		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
Power setting = 8								
5459.440	51.4	V	54.0	-2.6	AVG	41	2.0	
5457.270	66.0	V	74.0	-8.0	PK	41	2.0	
5459.280	51.4	H	54.0	-2.6	AVG	224	1.2	
5456.470	66.6	H	74.0	-7.4	PK	224	1.2	

5470 MHz Band Edge Signal Radiated Field Strength

Frequency	Level	Pol	15.E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
Power setting = 8								
5460.020	51.2	V	54.0	-2.8	AVG	41	2.0	note 1
5460.100	66.5	V	74.0	-7.5	PK	41	2.0	note 1
5460.240	51.4	H	54.0	-2.6	AVG	224	1.2	note 1
5460.280	66.8	H	74.0	-7.2	PK	224	1.2	note 1

Client:	Google Inc	Job Number:	JD101591
Model:	H0ME	T-Log Number:	T101744
		Project Manager:	Deepa Shetty
Contact:	Dominik Mente	Project Coordinator:	-
Standard:	FCC 15.247/15.407/RSS-247	Class:	N/A



Client:	Google Inc	Job Number:	JD101591
Model:	H0ME	T-Log Number:	T101744
		Project Manager:	Deepa Shetty
Contact:	Dominik Mente	Project Coordinator:	-
Standard:	FCC 15.247/15.407/RSS-247	Class:	N/A

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

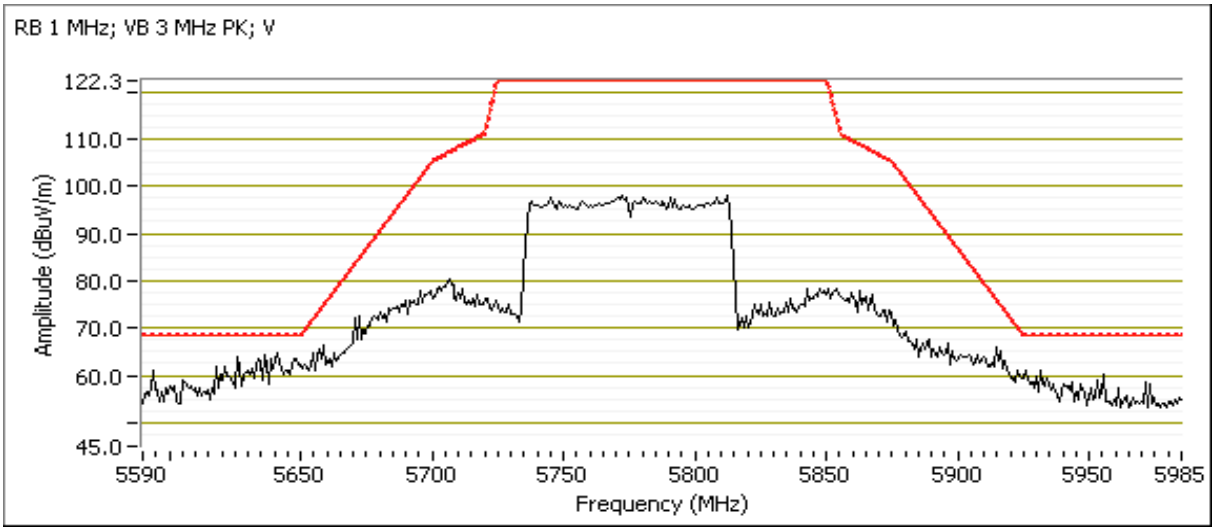
Date of Test: 7/14 & 7/20/16
Test Engineer: Rafael Varelas
Test Location: Chamber 7

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

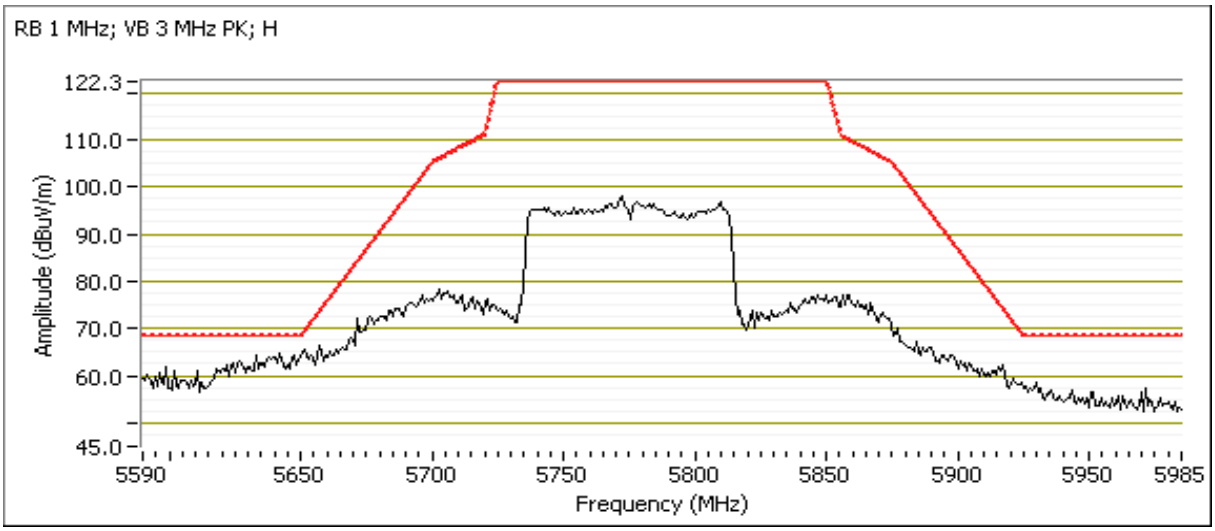
Channel: 155 - 5775MHz
Tx Chain: Antenna 2
Mode: ac80
Data Rate: VHT SS1

Power setting = 13

Frequency	Level	Pol	15.E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5641.530	64.8	V	68.3	-3.5	PK	54	1.8	
5922.890	64.0	V	69.9	-5.9	PK	54	1.8	
5642.280	65.4	H	68.3	-2.9	PK	232	1.0	
5922.740	60.8	H	70.0	-9.2	PK	232	1.0	



Client:	Google Inc	Job Number:	JD101591
Model:	H0ME	T-Log Number:	T101744
		Project Manager:	Deepa Shetty
Contact:	Dominik Mente	Project Coordinator:	-
Standard:	FCC 15.247/15.407/RSS-247	Class:	N/A



Client:	Google Inc	Job Number:	JD101591
Model:	H0ME	T-Log Number:	T101744
		Project Manager:	Deepa Shetty
Contact:	Dominik Mente	Project Coordinator:	-
Standard:	FCC 15.247/15.407/RSS-247	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: 23.4 °C
Rel. Humidity: 35 %

Summary of Results

Run #	Mode	Channel	Target Power (dBm)	Passing Power Setting	Test Performed	Limit	Result / Margin
Scans on "center" channel in all four OFDM modes to determine the worst case mode.							
1	a	40 - 5200MHz	-	19	Radiated Emissions, 1 - 40 GHz	FCC 15.209 / 15 E	45.9 dBµV/m @ 20800.1 MHz (-8.1 dB)
	n20	40 - 5200MHz	-	19			44.5 dBµV/m @ 20800.0 MHz (-9.5 dB)
	n40	38 - 5190MHz	-	16			44.0 dBµV/m @ 20760.0 MHz (-10.0 dB)
	ac80	42 - 5210MHz	-	13			45.3 dBµV/m @ 20840.0 MHz (-8.7 dB)
Measurements on low and high channels in worst-case OFDM mode.							
2	a	36 - 5180MHz	-	17	Radiated Emissions, 1 - 40 GHz	FCC 15.209 / 15 E	45.7 dBµV/m @ 20720.0 MHz (-8.3 dB)
	a	48 - 5240MHz	-	19			56.5 dBµV/m @ 10484.9 MHz (-11.8 dB)

Client:	Google Inc	Job Number:	JD101591
Model:	H0ME	T-Log Number:	T101744
		Project Manager:	Deepa Shetty
Contact:	Dominik Mente	Project Coordinator:	-
Standard:	FCC 15.247/15.407/RSS-247	Class:	N/A

Scans on "center" channel in all four OFDM modes to determine the worst case mode.							
3	a	60 - 5300MHz	-	19	Radiated Emissions, 1 - 40 GHz	FCC 15.209 / 15 E	40.9 dBµV/m @ 10601 MHz (-13.1 dB)
	n20	60 - 5300MHz	-	19			44.0 dBµV/m @ 10600.5 MHz (-10.0 dB)
	n40	54 - 5270MHz	-	17			38.2 dBµV/m @ 21101.1 MHz (-15.8 dB)
	ac80	58 - 5290MHz	-	14			41.0 dBµV/m @ 2880.0 MHz (-13.0 dB)
Measurements on low and high channels in worst-case OFDM mode.							
4	n20	52 - 5260MHz	-	19	Radiated Emissions, 1 - 40 GHz	FCC 15.209 / 15 E	57.0 dBµV/m @ 10514.3 MHz (-11.3 dB)
	n20	64 - 5320MHz	-	17			42.4 dBµV/m @ 10640.5 MHz (-11.6 dB)
Scans on "center" channel in all four OFDM modes to determine the worst case mode.							
5	a	116 - 5580MHz	-	19	Radiated Emissions, 1 - 40 GHz	FCC 15.209 / 15 E	47.3 dBµV/m @ 11160.1 MHz (-6.7 dB)
	n20	116 - 5580MHz	-	19			46.1 dBµV/m @ 11160.1 MHz (-7.9 dB)
	n40	110 - 5550MHz	-	17			45.5 dBµV/m @ 11100.0 MHz (-8.5 dB)
	ac80	106 - 5530MHz	-	14			44.3 dBµV/m @ 11060.0 MHz (-9.7 dB)
Measurements on low and high channels in worst-case OFDM mode.							
6	a	100 - 5500MHz	-	19	Radiated Emissions, 1 - 40 GHz	FCC 15.209 / 15 E	41.5 dBµV/m @ 10999.9 MHz (-12.5 dB)
	a	144- 5720MHz	-	19			44.8 dBµV/m @ 11440.0 MHz (-9.2 dB)

Client:	Google Inc	Job Number:	JD101591
Model:	H0ME	T-Log Number:	T101744
		Project Manager:	Deepa Shetty
Contact:	Dominik Mente	Project Coordinator:	-
Standard:	FCC 15.247/15.407/RSS-247	Class:	N/A

Scans on "center" channel in all four OFDM modes to determine the worst case mode.							
7	a	157 - 5785MHz	-	18	Radiated Emissions, 1 - 40 GHz	FCC 15.209 / 15 E	45.0 dBµV/m @ 11570.0 MHz (-9.0 dB)
	n20	157 - 5785MHz	-	18			44.2 dBµV/m @ 11570.0 MHz (-9.8 dB)
	n40	151 - 5755MHz	-	16			43.8 dBµV/m @ 11590.1 MHz(-10.2 dB)
	ac80	155 - 5775MHz	-	13			43.7 dBµV/m @ 11550.1 MHz (-10.3 dB)
Measurements on low and high channels in worst-case OFDM mode.							
8	a	149 - 5745MHz	-	18	Radiated Emissions, 1 - 40 GHz	FCC 15.209 / 15 E	44.7 dBµV/m @ 11490.0 MHz (-9.3 dB)
	a	165 - 5825MHz	-	18			43.3 dBµV/m @ 11650.2 MHz (-10.7 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.

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 ≥ 98% and was measured using RBW=1MHz, VBW=10Hz, peak detector, linear average mode, auto sweep time, max hold 50 traces. (method VB of KDB 789033)

Mode	Data Rate	Duty Cycle (x)	Constant DC?	T (ms)	Pwr Cor Factor*	Lin Volt Cor Factor**	Min VBW for FS (Hz)
11a	6 Mbps	0.99	Yes	3.13	0	0	319
n20	MCS0	1.00	Yes	9.92	0	0	101
n40	MCS0	1.00	Yes	4.76	0	0	210
ac80	VHT SS1	0.99	Yes	2.25	0	0	444

Sample Notes

Sample S/N: 6629AZZB75

Driver: 1.21

Antenna: Internal

Client:	Google Inc	Job Number:	JD101591
Model:	H0ME	T-Log Number:	T101744
		Project Manager:	Deepa Shetty
Contact:	Dominik Mente	Project Coordinator:	-
Standard:	FCC 15.247/15.407/RSS-247	Class:	N/A

Measurement Specific Notes:

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≥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: All testing performed on the Antenna 2 port (wifi set to 10 2 2), as this was worse case from preliminary measurements.

Preliminary measurement demonstrated no spurious emissions below 1GHz.

Client:	Google Inc	Job Number:	JD101591
Model:	H0ME	T-Log Number:	T101744
		Project Manager:	Deepa Shetty
Contact:	Dominik Mente	Project Coordinator:	-
Standard:	FCC 15.247/15.407/RSS-247	Class:	N/A

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

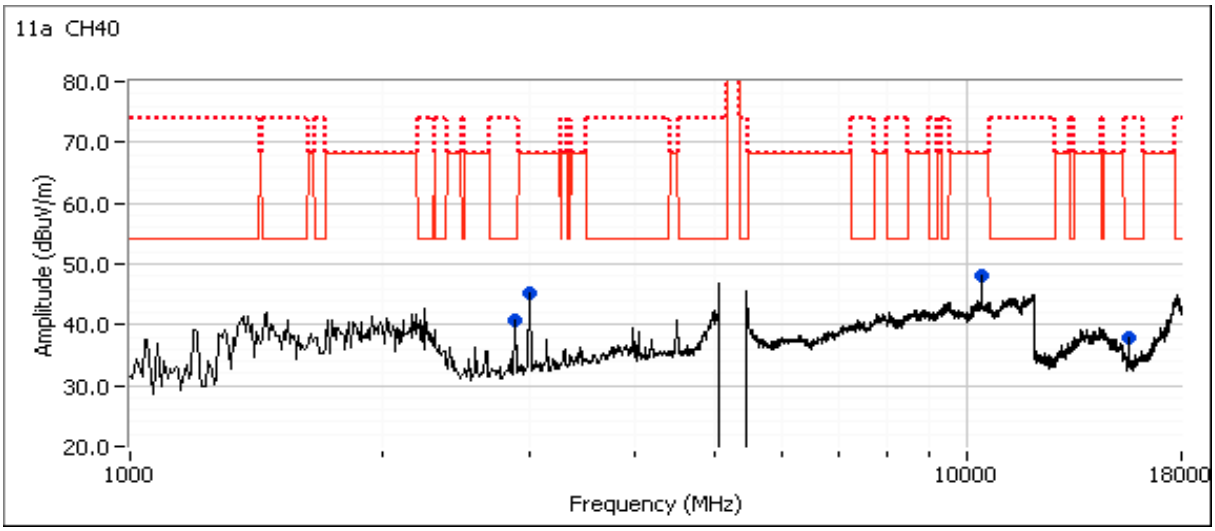
Date of Test: 7/20/2016 0:00 Config. Used: 1
Test Engineer: John Caizzi / R. Varelas Config Change: none
Test Location: Chamber 7 EUT Voltage: 120V / 60Hz

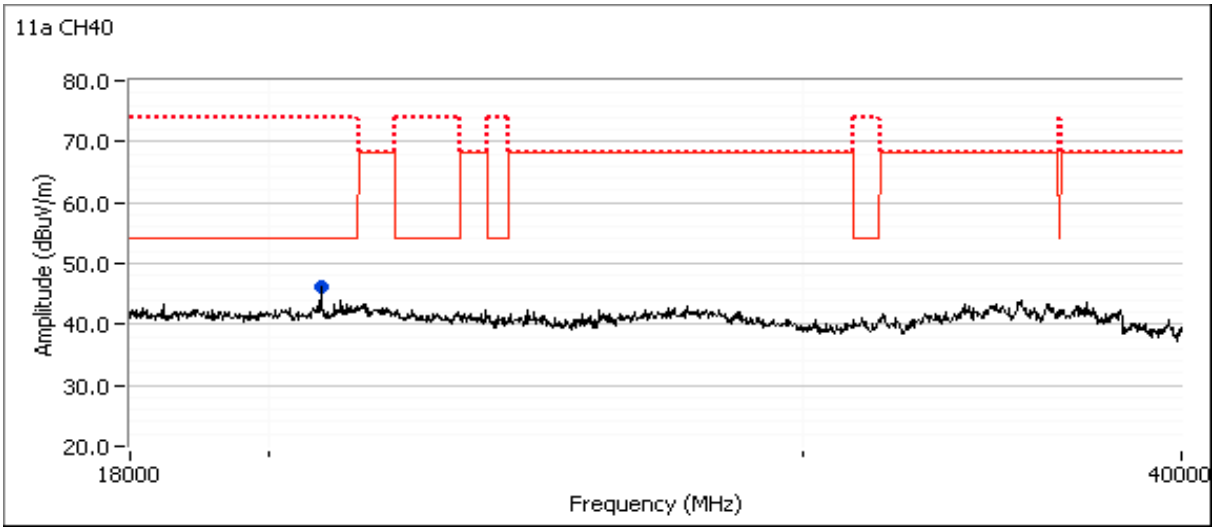
Run #1a: Center Channel

Channel: 40 Mode: a
Tx Chain: Antenna 2 Data Rate: 6 Mbps

Frequency	Level	Pol	15.209 / 15E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
Power setting 19								
10396.800	56.2	H	68.3	-12.1	PK	258	1.3	
15598.600	43.4	H	54.0	-10.6	AVG	327	1.7	
15594.270	54.7	H	74.0	-19.3	PK	327	1.7	
20800.050	43.7	H	54.0	-10.3	AVG	342	1.7	
20800.200	52.1	H	74.0	-21.9	PK	342	1.7	

Client:	Google Inc	Job Number:	JD101591
Model:	H0ME	T-Log Number:	T101744
		Project Manager:	Deepa Shetty
Contact:	Dominik Mente	Project Coordinator:	-
Standard:	FCC 15.247/15.407/RSS-247	Class:	N/A





Client:	Google Inc	Job Number:	JD101591
Model:	H0ME	T-Log Number:	T101744
		Project Manager:	Deepa Shetty
Contact:	Dominik Mente	Project Coordinator:	-
Standard:	FCC 15.247/15.407/RSS-247	Class:	N/A

Run #1b: Center Channel

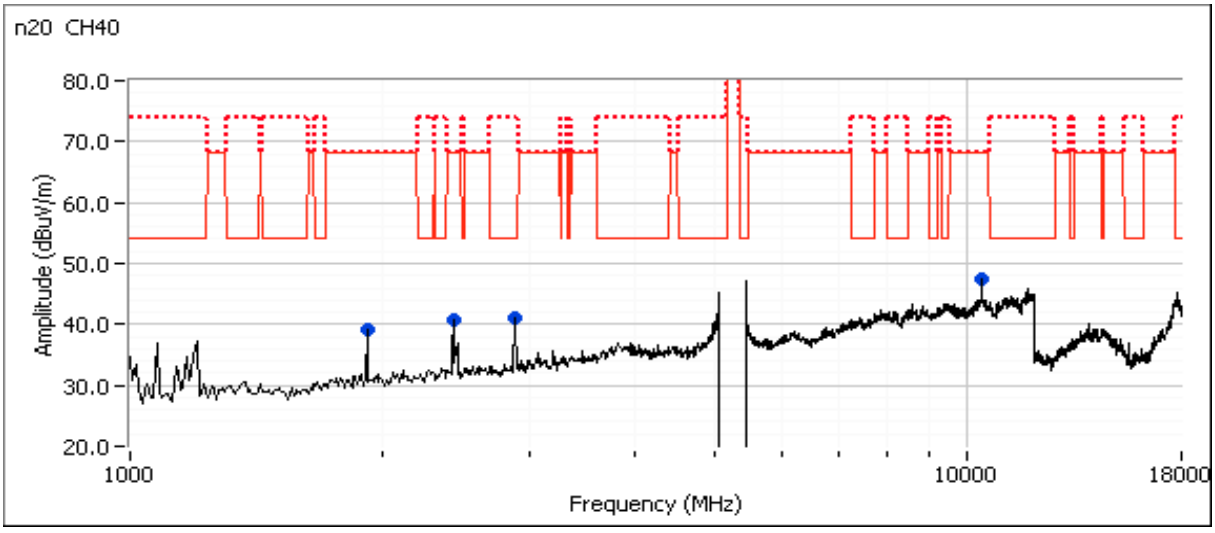
Date of Test: 7/12/2016 0:00
Test Engineer: John Caizzi / R. Varelas
Test Location: Chamber 7

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

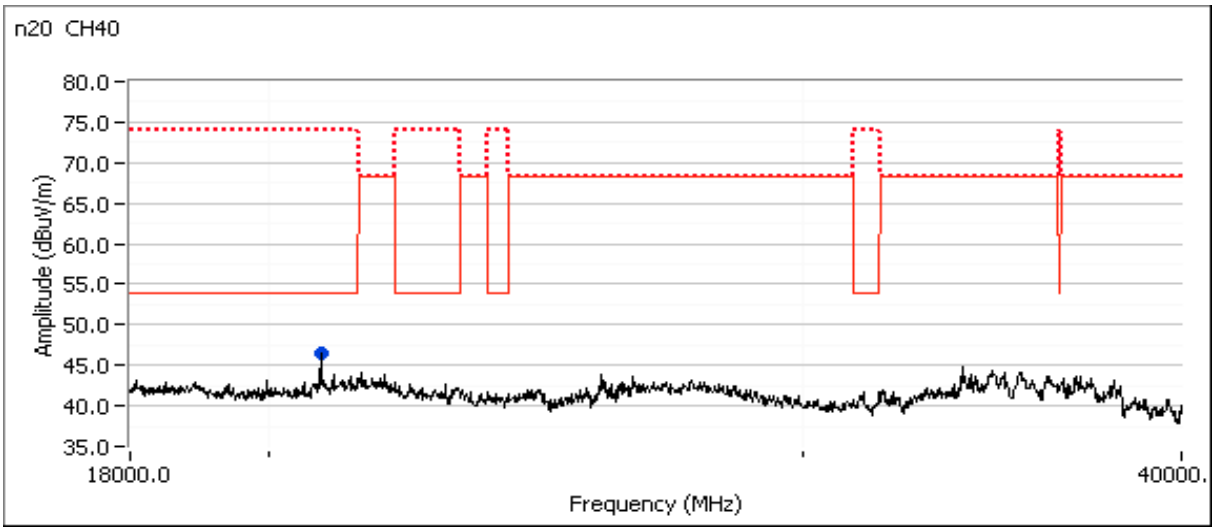
Channel: 40
Tx Chain: Antenna 2

Mode: 11n20
Data Rate: MCS0

Frequency	Level	Pol	15.209 / 15E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
20799.960	44.5	H	54.0	-9.5	AVG	333	1.77	
20799.890	51.4	H	74.0	-22.6	PK	333	1.77	
1920.500	44.4	V	68.3	-23.9	PK	315	1.58	
2435.300	47.8	V	68.3	-20.5	PK	270	1.00	
2880.000	41.0	V	54.0	-13.0	AVG	222	1.51	
2880.200	46.2	V	74.0	-27.8	PK	222	1.51	
10399.120	56.0	H	68.3	-12.3	PK	282	1.55	



Client:	Google Inc	Job Number:	JD101591
Model:	H0ME	T-Log Number:	T101744
		Project Manager:	Deepa Shetty
Contact:	Dominik Mente	Project Coordinator:	-
Standard:	FCC 15.247/15.407/RSS-247	Class:	N/A

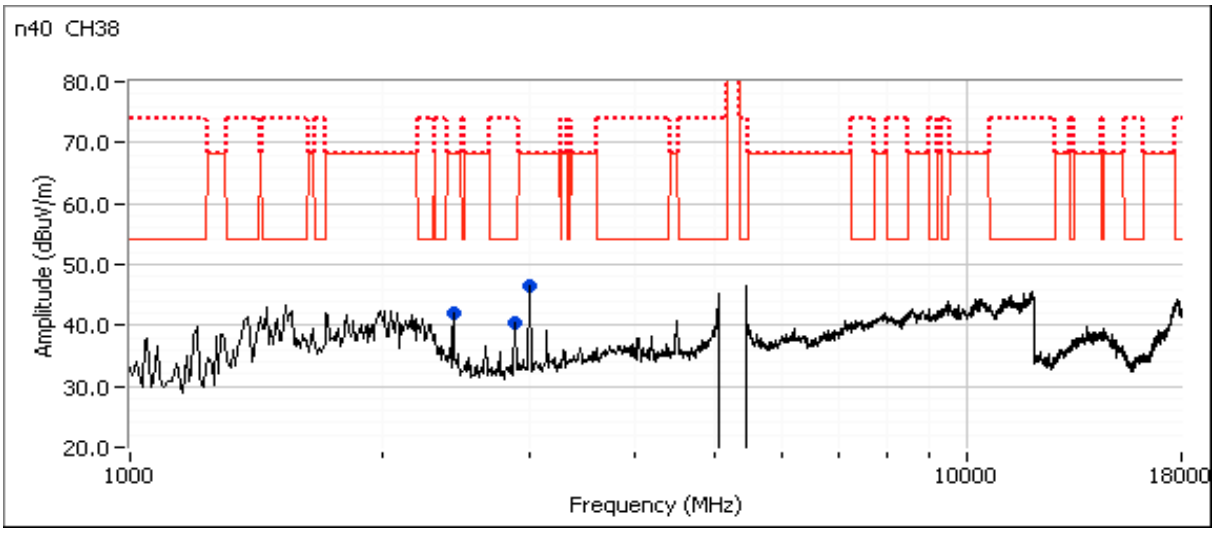


Client:	Google Inc	Job Number:	JD101591
Model:	H0ME	T-Log Number:	T101744
		Project Manager:	Deepa Shetty
Contact:	Dominik Mente	Project Coordinator:	-
Standard:	FCC 15.247/15.407/RSS-247	Class:	N/A

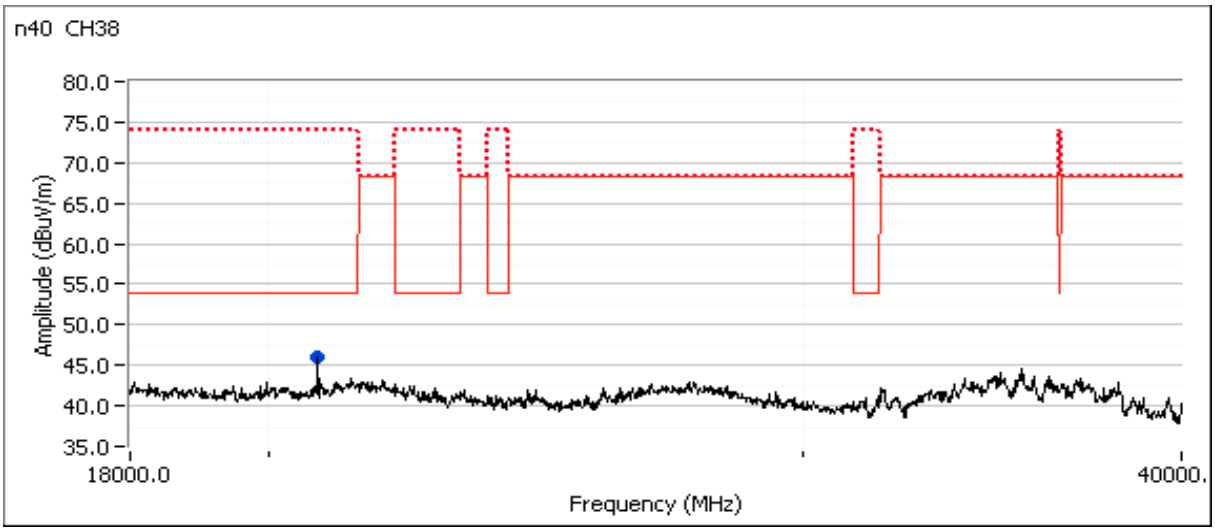
Run #1c: Center Channel

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

Frequency	Level	Pol	15.209 / 15E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
20759.960	44.0	H	54.0	-10.0	AVG	332	1.80	
20759.860	52.5	H	74.0	-21.5	PK	332	1.80	
2433.330	*42.1*	*V*	*68.3*	*-26.2*	*Peak*	*140*	*1.50*	*Not from EUT.*
2879.950	41.9	V	54.0	-12.1	AVG	248	1.24	
2880.110	46.8	V	74.0	-27.2	PK	248	1.24	
2992.630	54.1	V	68.3	-14.2	PK	244	1.00	



Client:	Google Inc	Job Number:	JD101591
Model:	H0ME	T-Log Number:	T101744
		Project Manager:	Deepa Shetty
Contact:	Dominik Mente	Project Coordinator:	-
Standard:	FCC 15.247/15.407/RSS-247	Class:	N/A

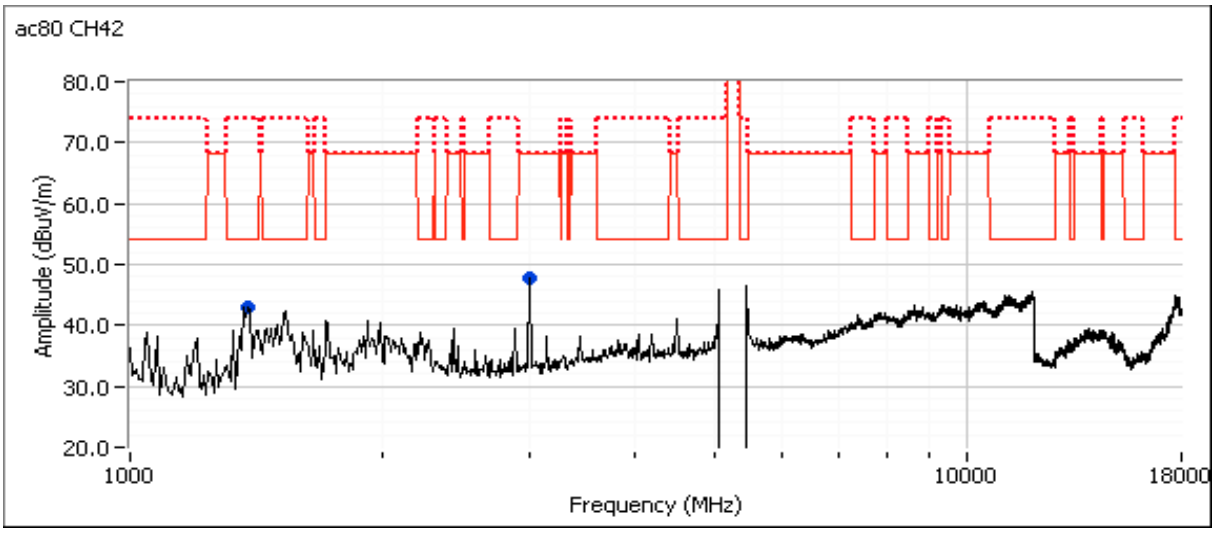


Client:	Google Inc	Job Number:	JD101591
Model:	H0ME	T-Log Number:	T101744
		Project Manager:	Deepa Shetty
Contact:	Dominik Mente	Project Coordinator:	-
Standard:	FCC 15.247/15.407/RSS-247	Class:	N/A

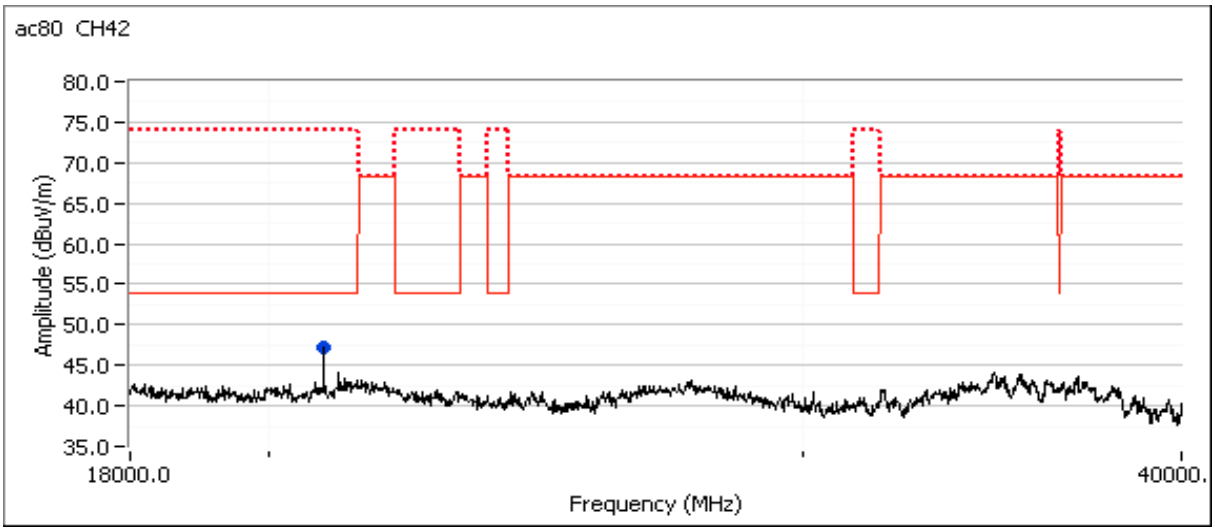
Run #1d: Center Channel

Channel: 42 Mode: ac80
Tx Chain: Antenna 2 Data Rate: VHT SS1

Frequency	Level	Pol	15.209 / 15E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
20839.980	45.3	H	54.0	-8.7	AVG	336	1.8	
20839.930	52.4	H	74.0	-21.6	PK	336	1.8	
1383.330	43.1	V	54.0	-10.9	Peak	282	1.0	Not a radio signal.
3000.000	47.8	V	68.3	-20.5	Peak	256	1.0	Not a radio signal.



Client:	Google Inc	Job Number:	JD101591
Model:	H0ME	T-Log Number:	T101744
		Project Manager:	Deepa Shetty
Contact:	Dominik Mente	Project Coordinator:	-
Standard:	FCC 15.247/15.407/RSS-247	Class:	N/A



Client:	Google Inc	Job Number:	JD101591
Model:	H0ME	T-Log Number:	T101744
		Project Manager:	Deepa Shetty
Contact:	Dominik Mente	Project Coordinator:	-
Standard:	FCC 15.247/15.407/RSS-247	Class:	N/A

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

Date of Test: 7/20/2016 0:00
Test Engineer: R. Varelas
Test Location: Chamber 7

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

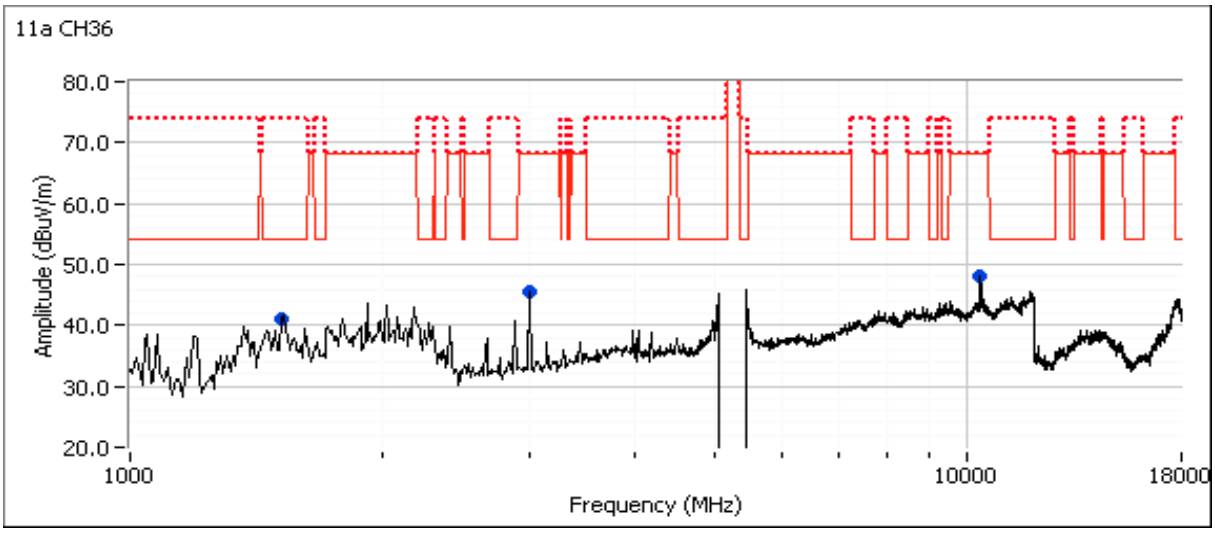
Run #2a: Low Channel

Channel: 36
Tx Chain: Antenna 2

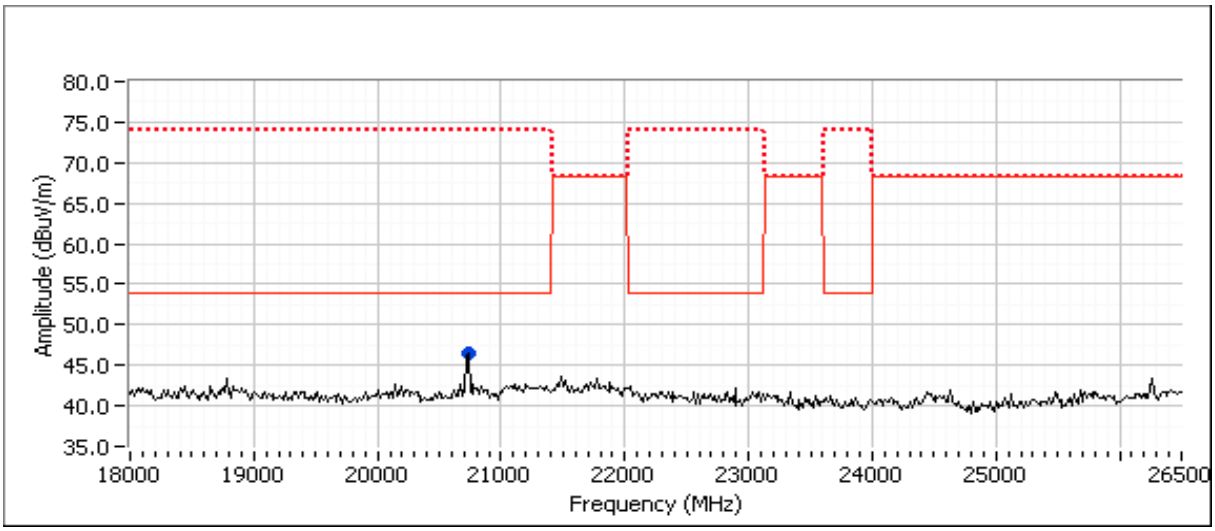
Mode: a
Data Rate: 6 Mbps

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
20720.010	45.7	H	54.0	-8.3	AVG	330	1.8	
20719.660	52.6	H	74.0	-21.4	PK	330	1.8	
10358.970	55.0	H	68.3	-13.3	PK	102	1.1	
3000.000	45.3	V	68.3	-23.0	Peak	256	1.0	Not a radio signal.

Note: Scans made between 26.5 - 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:	Google Inc	Job Number:	JD101591
Model:	H0ME	T-Log Number:	T101744
		Project Manager:	Deepa Shetty
Contact:	Dominik Mente	Project Coordinator:	-
Standard:	FCC 15.247/15.407/RSS-247	Class:	N/A



Client:	Google Inc	Job Number:	JD101591
Model:	H0ME	T-Log Number:	T101744
		Project Manager:	Deepa Shetty
Contact:	Dominik Mente	Project Coordinator:	-
Standard:	FCC 15.247/15.407/RSS-247	Class:	N/A

Run #2b: High Channel

Channel: 48 Mode: a
Tx Chain: Antenna 2 Data Rate: 6 Mbps

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
Power setting 19								
10484.930	56.5	H	68.3	-11.8	PK	258	1.2	
20960.120	41.7	H	54.0	-12.3	AVG	314	1.5	
20960.300	51.7	H	74.0	-22.3	PK	314	1.5	

Client:	Google Inc	Job Number:	JD101591
Model:	H0ME	T-Log Number:	T101744
		Project Manager:	Deepa Shetty
Contact:	Dominik Mente	Project Coordinator:	-
Standard:	FCC 15.247/15.407/RSS-247	Class:	N/A

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

Date of Test: 7/12/2016 0:00
Test Engineer: John Caizzi / R. Varelas
Test Location: Chamber 7

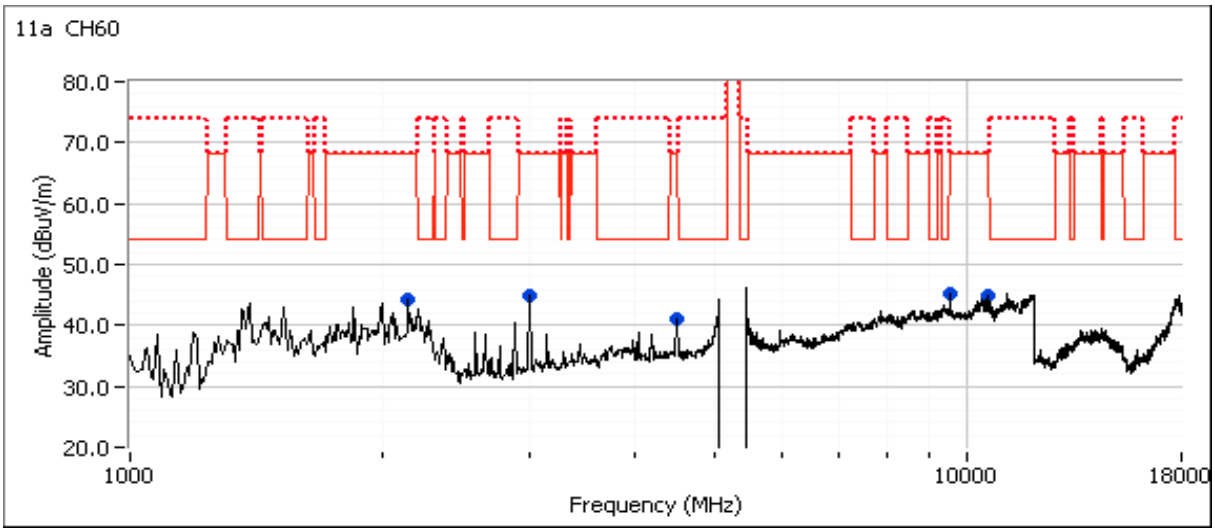
Config. Used: 1
Config Change: none
EUT Voltage: 120V / 60Hz

Run #3a: Center Channel

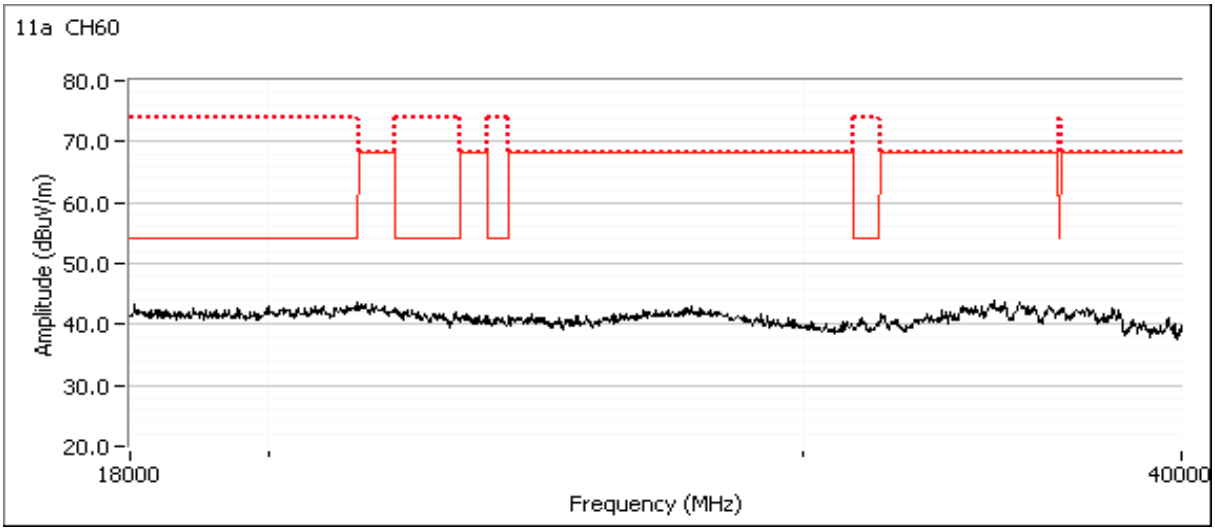
Channel: 60
Tx Chain: Antenna 2

Mode: a
Data Rate: 6 Mbps

Frequency	Level	Pol	15.209 / 15E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
10600.070	40.9	V	54.0	-13.1	AVG	290	1.60	
10601.170	52.5	V	74.0	-21.5	PK	290	1.60	
2128.130	39.2	V	68.3	-29.1	PK	226	1.00	Not a radio signal.
2991.670	45.0	V	68.3	-23.3	Peak	262	1.0	Not a radio signal.
4475.800	43.4	V	68.3	-24.9	PK	251	1.00	Not a radio signal.
9522.130	50.3	V	68.3	-18.0	PK	273	2.50	Not a radio signal.



Client:	Google Inc	Job Number:	JD101591
Model:	H0ME	T-Log Number:	T101744
		Project Manager:	Deepa Shetty
Contact:	Dominik Mente	Project Coordinator:	-
Standard:	FCC 15.247/15.407/RSS-247	Class:	N/A



Client:	Google Inc	Job Number:	JD101591
Model:	H0ME	T-Log Number:	T101744
		Project Manager:	Deepa Shetty
Contact:	Dominik Mente	Project Coordinator:	-
Standard:	FCC 15.247/15.407/RSS-247	Class:	N/A

Run #3b: Center Channel

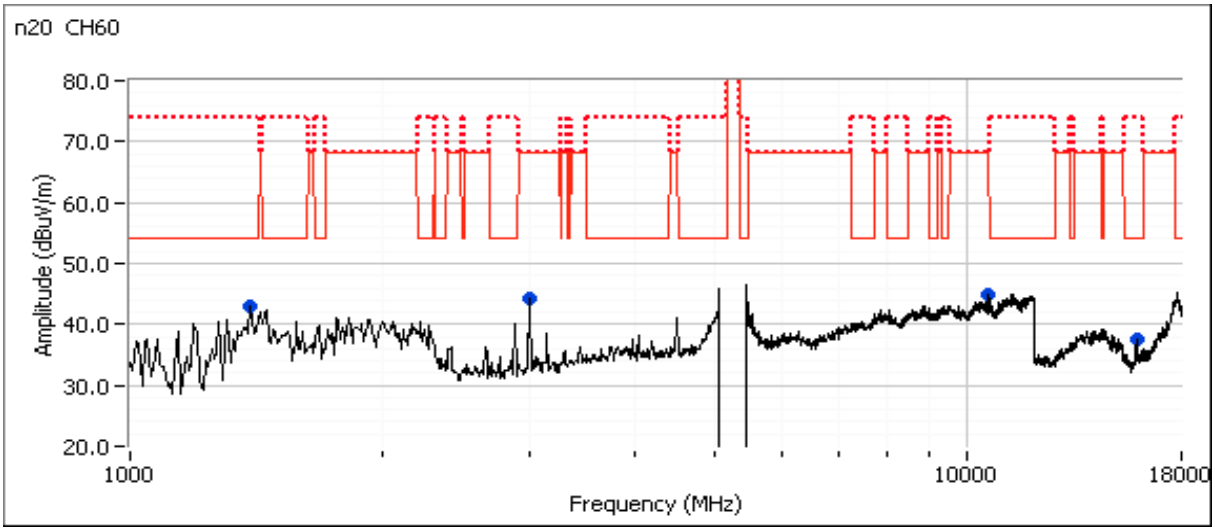
Date of Test: 7/20/2016 0:00
Test Engineer: John Caizzi / R. Varelas
Test Location: Chamber 7

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

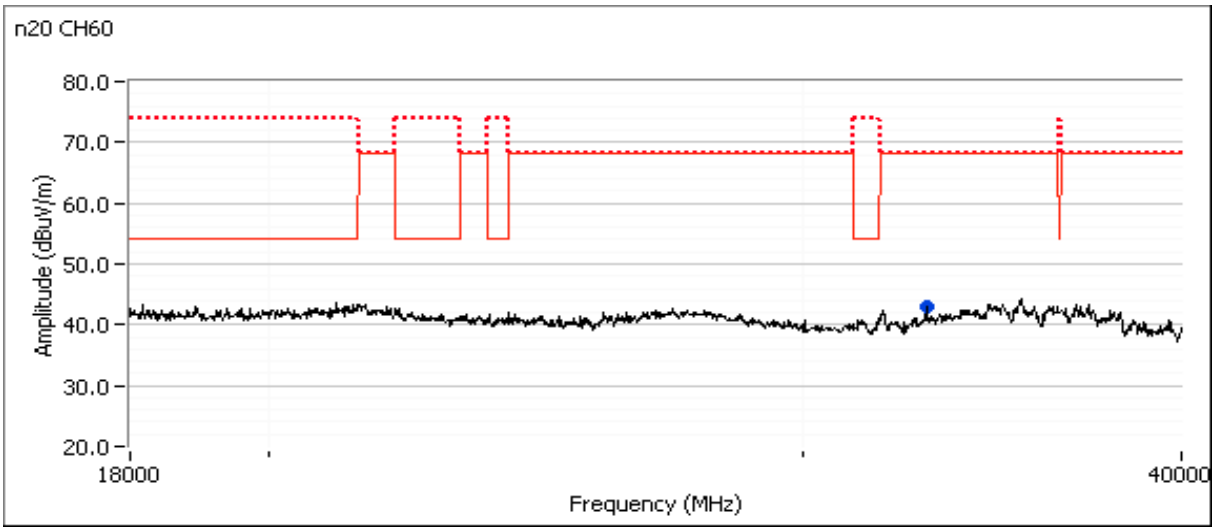
Channel: 60
Tx Chain: Antenna 2

Mode: 11n20
Data Rate: MCS0

Frequency	Level	Pol	15.209 / 15E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
Power setting 19								
10600.450	44.0	H	54.0	-10.0	AVG	258	1.1	
10600.350	55.6	H	74.0	-18.4	PK	258	1.1	
15898.530	43.5	H	54.0	-10.5	AVG	328	1.6	
15899.130	56.6	H	74.0	-17.4	PK	328	1.6	



Client:	Google Inc	Job Number:	JD101591
Model:	H0ME	T-Log Number:	T101744
		Project Manager:	Deepa Shetty
Contact:	Dominik Mente	Project Coordinator:	-
Standard:	FCC 15.247/15.407/RSS-247	Class:	N/A



Client:	Google Inc	Job Number:	JD101591
Model:	H0ME	T-Log Number:	T101744
		Project Manager:	Deepa Shetty
Contact:	Dominik Mente	Project Coordinator:	-
Standard:	FCC 15.247/15.407/RSS-247	Class:	N/A

Run #3c: Center Channel

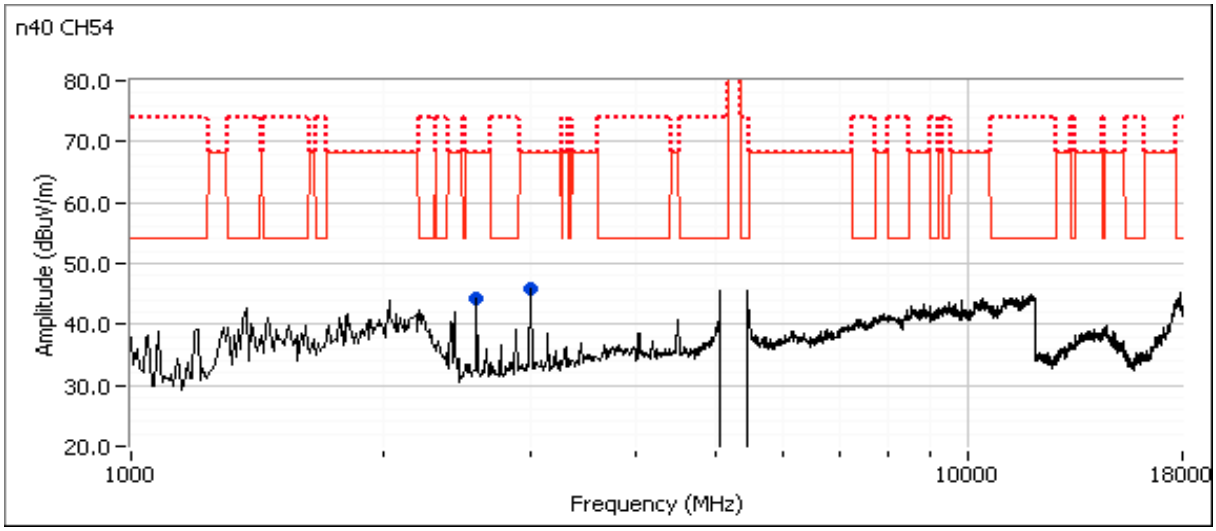
Date of Test: 7/12/2016 0:00
Test Engineer: John Caizzi / R. Varelas
Test Location: Chamber 7

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

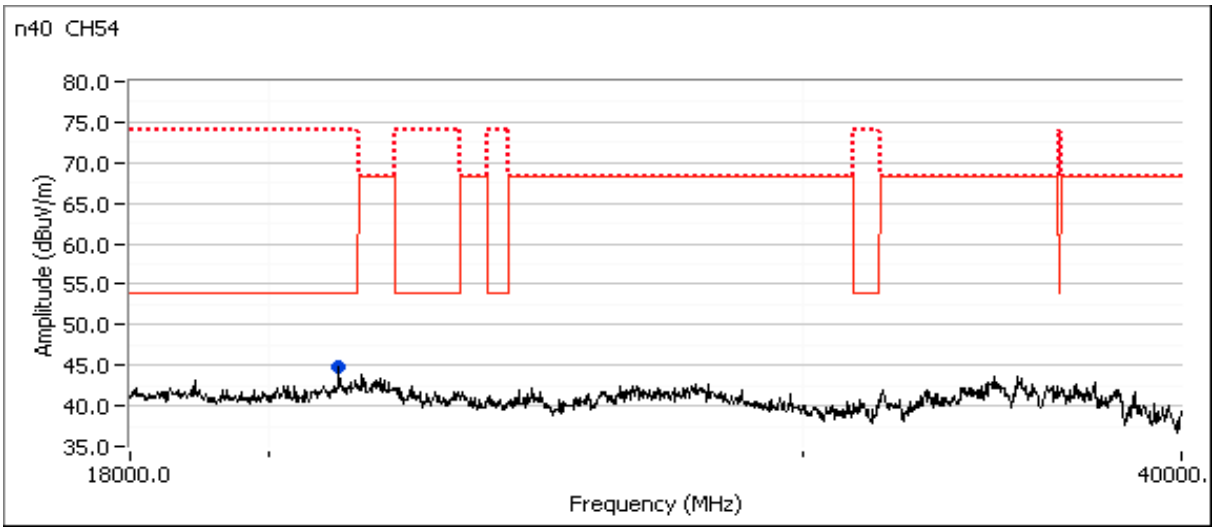
Channel: 54
Tx Chain: Antenna 2

Mode: 11n40
Data Rate: MCS0

Frequency	Level	Pol	15.209 / 15E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
21101.090	38.2	H	54.0	-15.8	AVG	262	1.01	
21105.950	50.5	H	74.0	-23.5	PK	262	1.01	
2576.530	52.3	V	68.3	-16.0	PK	295	1.00	
2991.670	46.0	V	68.3	-22.3	Peak	246	1.00	Not a radio signal.



Client:	Google Inc	Job Number:	JD101591
Model:	H0ME	T-Log Number:	T101744
		Project Manager:	Deepa Shetty
Contact:	Dominik Mente	Project Coordinator:	-
Standard:	FCC 15.247/15.407/RSS-247	Class:	N/A

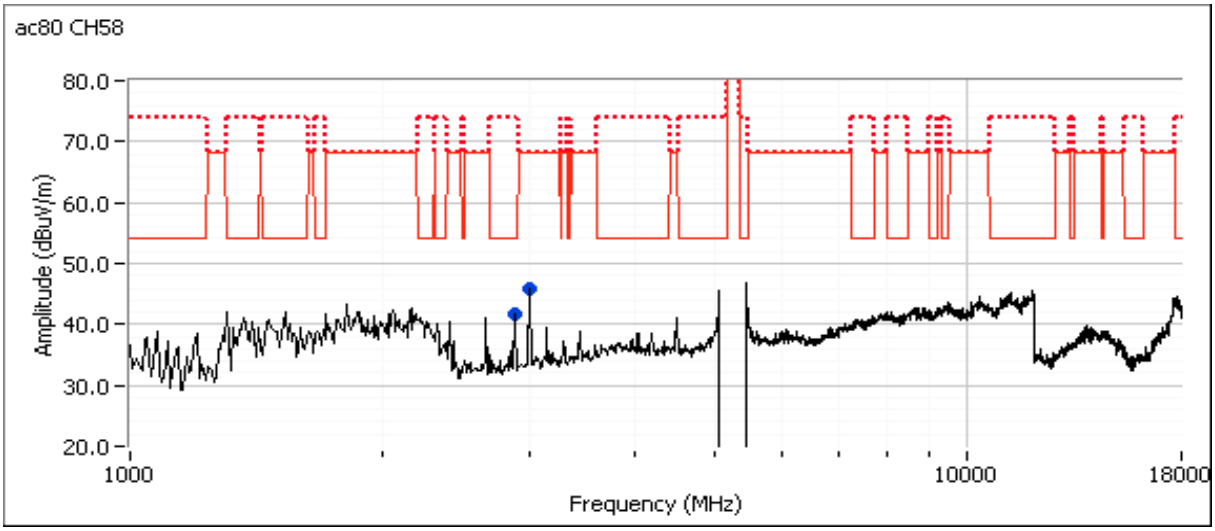


Client:	Google Inc	Job Number:	JD101591
Model:	H0ME	T-Log Number:	T101744
		Project Manager:	Deepa Shetty
Contact:	Dominik Mente	Project Coordinator:	-
Standard:	FCC 15.247/15.407/RSS-247	Class:	N/A

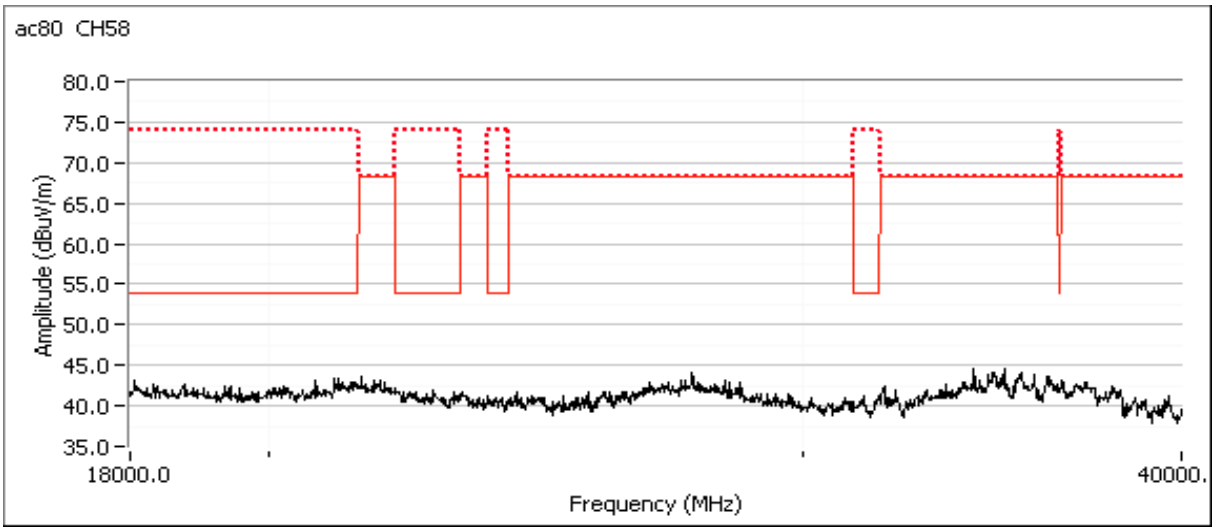
Run #3d: Center Channel

Channel: 58 Mode: ac80
Tx Chain: Antenna 2 Data Rate: VHT SS1

Frequency	Level	Pol	15.209 / 15E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
2879.980	41.0	H	54.0	-13.0	AVG	248	1.90	
2880.300	46.0	H	74.0	-28.0	PK	248	1.90	
2991.670	46.0	V	68.3	-22.3	Peak	249	1.0	Not a radio signal.



Client:	Google Inc	Job Number:	JD101591
Model:	H0ME	T-Log Number:	T101744
		Project Manager:	Deepa Shetty
Contact:	Dominik Mente	Project Coordinator:	-
Standard:	FCC 15.247/15.407/RSS-247	Class:	N/A



Client:	Google Inc	Job Number:	JD101591
Model:	H0ME	T-Log Number:	T101744
		Project Manager:	Deepa Shetty
Contact:	Dominik Mente	Project Coordinator:	-
Standard:	FCC 15.247/15.407/RSS-247	Class:	N/A

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

Date of Test: 7/20/2016 0:00 Config. Used: 1
Test Engineer: Rafael Varelas Config Change: none
Test Location: Chamber 7 EUT Voltage: 120V / 60Hz

Run #4a: Low Channel

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

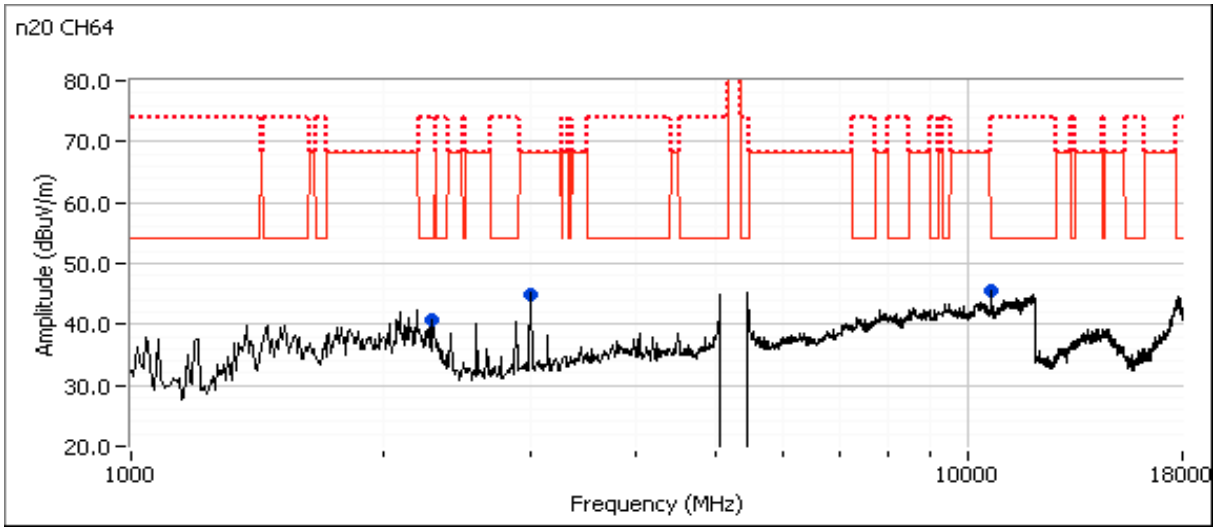
Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
Power setting 19								
10514.300	57.0	H	68.3	-11.3	PK	258	1.1	
21040.100	39.5	H	54.0	-14.5	AVG	315	1.5	RB 1 MHz;VB 10 Hz;Peak
21039.450	50.4	H	74.0	-23.6	PK	315	1.5	RB 1 MHz;VB 3 MHz;Peak

Client:	Google Inc	Job Number:	JD101591
Model:	H0ME	T-Log Number:	T101744
		Project Manager:	Deepa Shetty
Contact:	Dominik Mente	Project Coordinator:	-
Standard:	FCC 15.247/15.407/RSS-247	Class:	N/A

Run #4b: High Channel

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

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
10640.470	42.4	H	54.0	-11.6	AVG	256	1.2	
10639.870	55.2	H	74.0	-18.8	PK	256	1.2	
2283.330	40.7	V	54.0	-13.3	Peak	180	1.0	Not a radio signal.
2991.670	44.9	V	68.3	-23.4	Peak	231	1.0	Not a radio signal.
21279.970	40.7	H	54.0	-13.3	AVG	360	1.6	
21280.650	50.7	H	74.0	-23.3	PK	360	1.6	



Client:	Google Inc	Job Number:	JD101591
Model:	H0ME	T-Log Number:	T101744
		Project Manager:	Deepa Shetty
Contact:	Dominik Mente	Project Coordinator:	-
Standard:	FCC 15.247/15.407/RSS-247	Class:	N/A

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

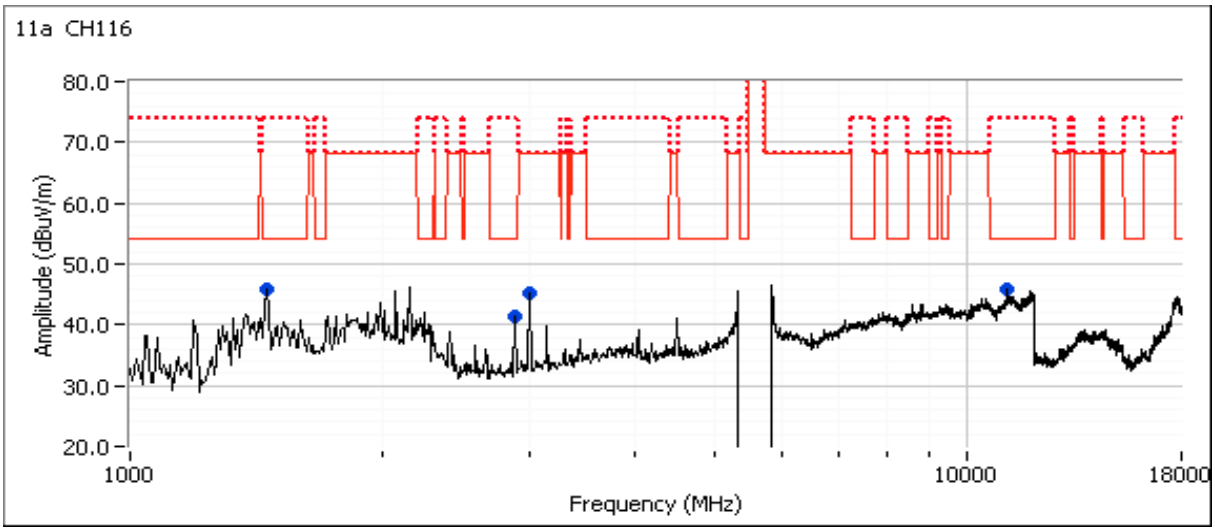
Date of Test: 7/20/2016 0:00 Config. Used: 1
Test Engineer: John Caizzi / R. Varelas Config Change: none
Test Location: Chamber 7 EUT Voltage: 120V / 60Hz

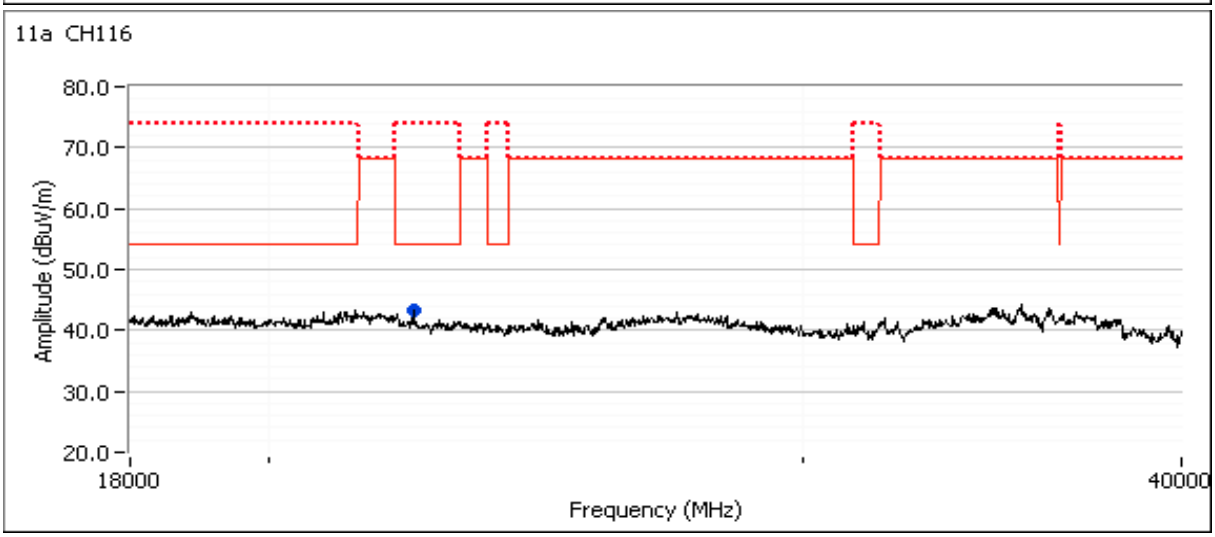
Run #5a: Center Channel

Channel: 116 Mode: a
Tx Chain: Antenna 2 Data Rate: 6 Mbps

Frequency	Level	Pol	15.209 / 15E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
Power setting 19								
11160.130	42.3	H	54.0	-11.7	AVG	247	1.0	
11157.070	54.8	H	74.0	-19.2	PK	247	1.0	
22320.170	40.6	H	54.0	-13.4	AVG	166	1.1	
22319.950	50.2	H	74.0	-23.8	PK	166	1.1	

Client:	Google Inc	Job Number:	JD101591
Model:	H0ME	T-Log Number:	T101744
		Project Manager:	Deepa Shetty
Contact:	Dominik Mente	Project Coordinator:	-
Standard:	FCC 15.247/15.407/RSS-247	Class:	N/A





Client:	Google Inc	Job Number:	JD101591
Model:	H0ME	T-Log Number:	T101744
		Project Manager:	Deepa Shetty
Contact:	Dominik Mente	Project Coordinator:	-
Standard:	FCC 15.247/15.407/RSS-247	Class:	N/A

Run #5b: Center Channel

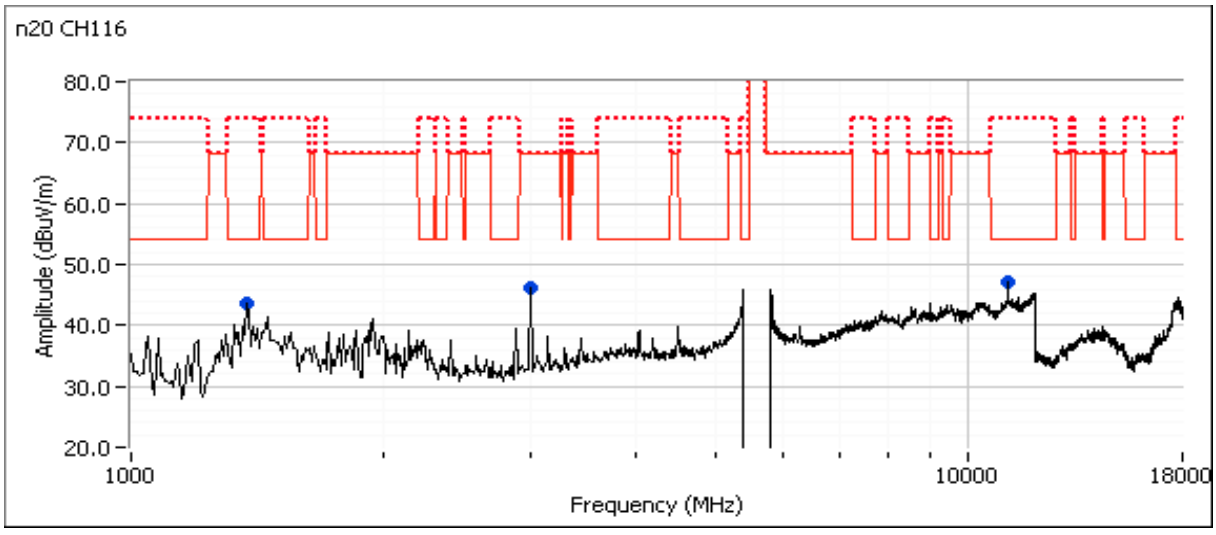
Date of Test: 7/12/2016 0:00
Test Engineer: John Caizzi / R. Varelas
Test Location: Chamber 7

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

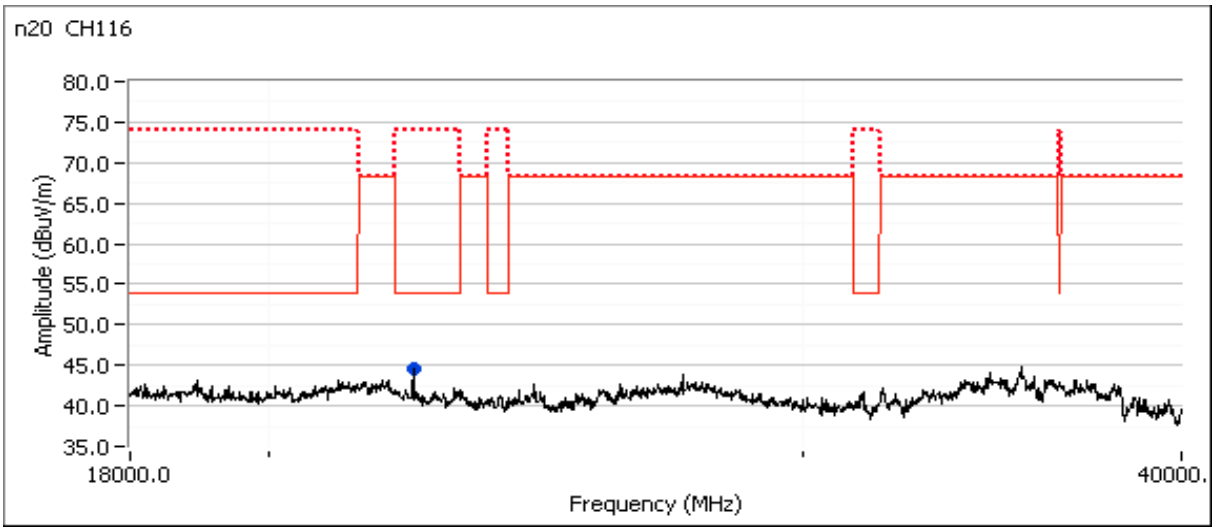
Channel: 116
Tx Chain: Antenna 2

Mode: 11n20
Data Rate: MCS0

Frequency	Level	Pol	15.209 / 15E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
11160.050	46.1	H	54.0	-7.9	AVG	47	1.85	
11160.300	54.6	H	74.0	-19.4	PK	47	1.85	
1375.000	43.7	V	54.0	-10.3	Peak	265	1.0	Not a radio signal.
2991.670	46.2	V	68.3	-22.1	Peak	243	1.0	Not a radio signal.
22320.110	39.4	H	54.0	-14.6	AVG	0	1.32	
22324.410	49.9	H	74.0	-24.1	PK	0	1.32	



Client:	Google Inc	Job Number:	JD101591
Model:	H0ME	T-Log Number:	T101744
		Project Manager:	Deepa Shetty
Contact:	Dominik Mente	Project Coordinator:	-
Standard:	FCC 15.247/15.407/RSS-247	Class:	N/A

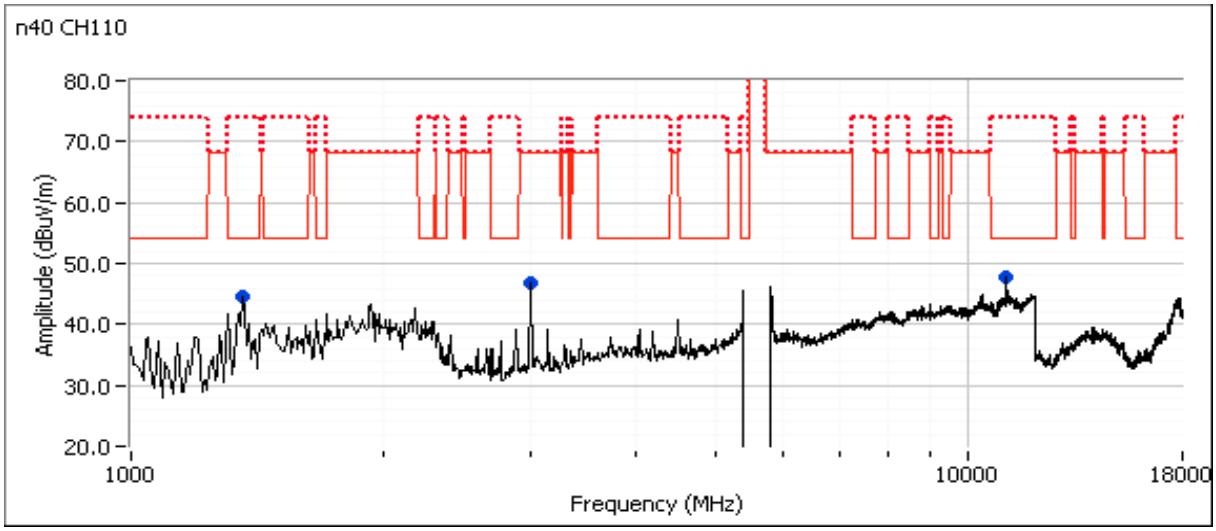


Client:	Google Inc	Job Number:	JD101591
Model:	H0ME	T-Log Number:	T101744
		Project Manager:	Deepa Shetty
Contact:	Dominik Mente	Project Coordinator:	-
Standard:	FCC 15.247/15.407/RSS-247	Class:	N/A

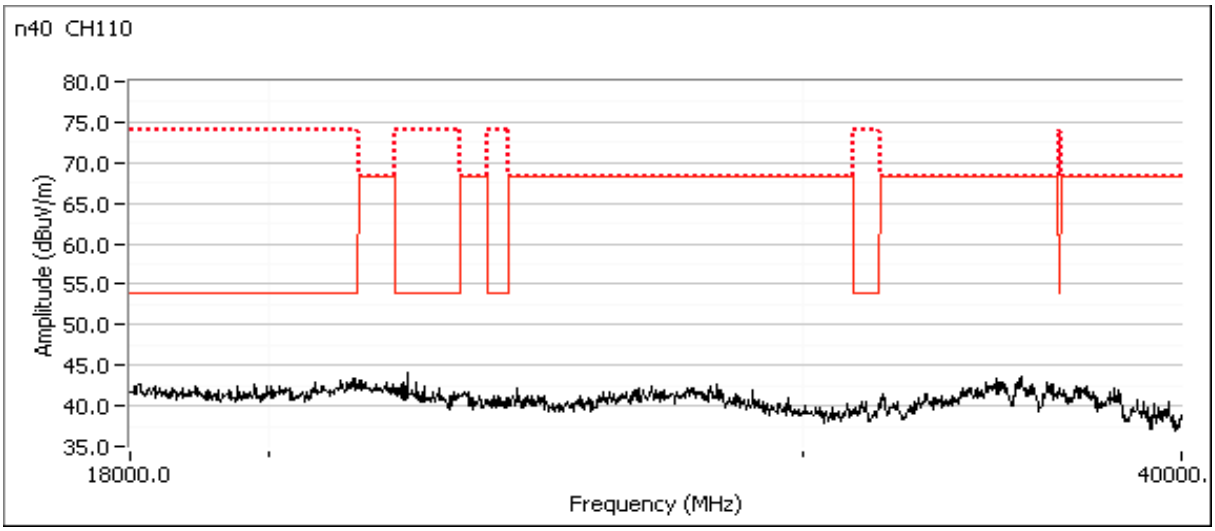
Run #5c: Center Channel

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

Frequency	Level	Pol	15.209 / 15E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
11100.020	45.5	H	54.0	-8.5	AVG	49	1.83	
11100.020	54.0	H	74.0	-20.0	PK	49	1.83	
1358.330	44.7	V	54.0	-9.3	Peak	278	1.0	Not a radio signal.
3000.000	46.8	V	68.3	-21.5	Peak	246	1.0	Not a radio signal.



Client:	Google Inc	Job Number:	JD101591
Model:	H0ME	T-Log Number:	T101744
		Project Manager:	Deepa Shetty
Contact:	Dominik Mente	Project Coordinator:	-
Standard:	FCC 15.247/15.407/RSS-247	Class:	N/A

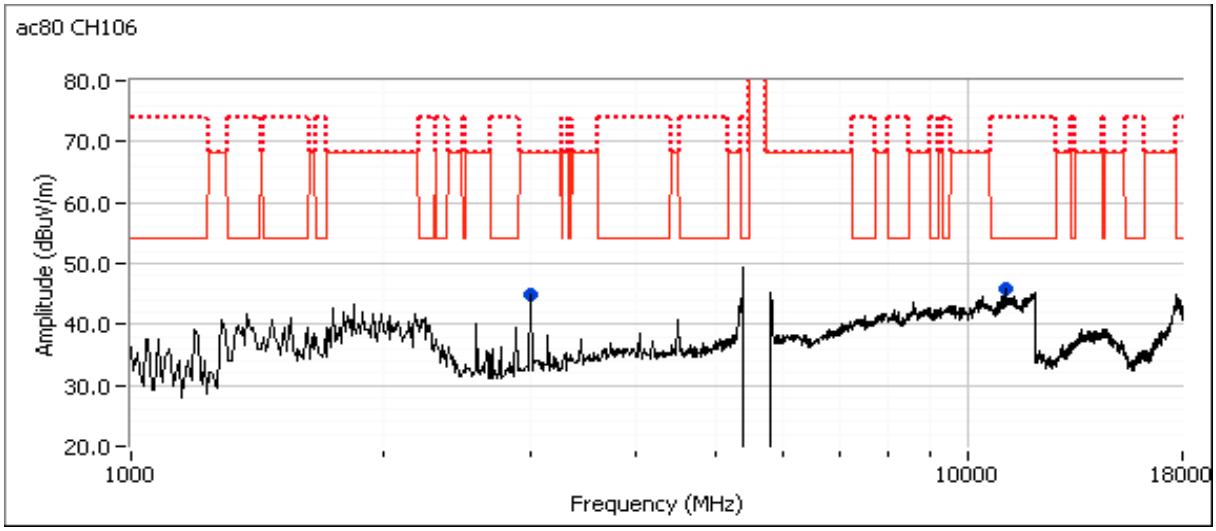


Client:	Google Inc	Job Number:	JD101591
Model:	H0ME	T-Log Number:	T101744
		Project Manager:	Deepa Shetty
Contact:	Dominik Mente	Project Coordinator:	-
Standard:	FCC 15.247/15.407/RSS-247	Class:	N/A

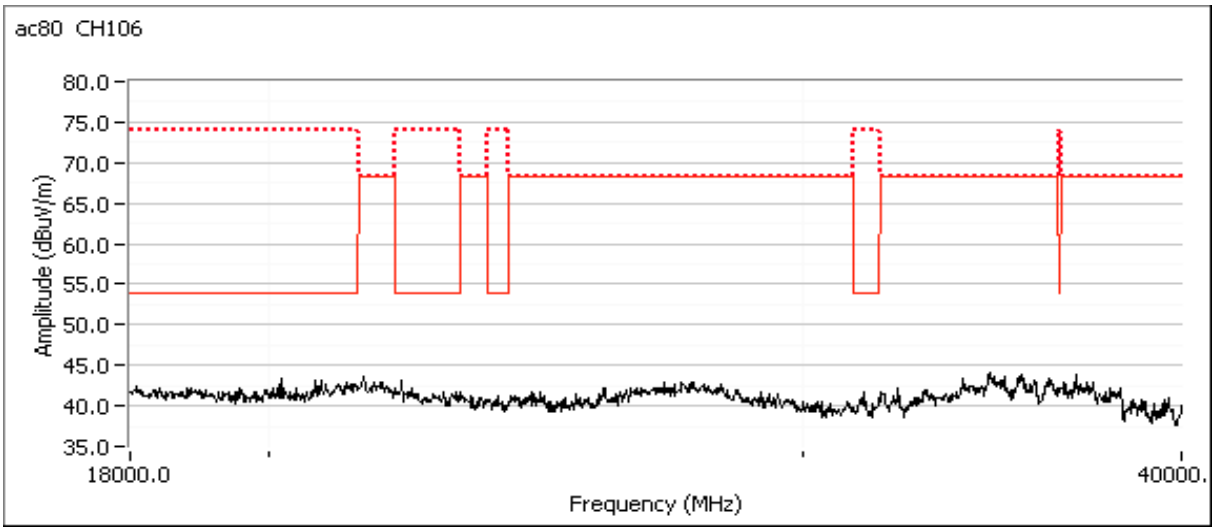
Run #5d: Center Channel

Channel: 106 Mode: ac80
Tx Chain: Antenna 2 Data Rate: VHT SS1

Frequency	Level	Pol	15.209 / 15E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
11060.000	44.3	H	54.0	-9.7	AVG	48	2.17	
11060.020	52.9	H	74.0	-21.1	PK	48	2.17	
3000.000	44.9	V	68.3	-23.4	Peak	255	1.0	Not a radio signal.



Client:	Google Inc	Job Number:	JD101591
Model:	H0ME	T-Log Number:	T101744
		Project Manager:	Deepa Shetty
Contact:	Dominik Mente	Project Coordinator:	-
Standard:	FCC 15.247/15.407/RSS-247	Class:	N/A



Client:	Google Inc	Job Number:	JD101591
Model:	H0ME	T-Log Number:	T101744
		Project Manager:	Deepa Shetty
Contact:	Dominik Mente	Project Coordinator:	-
Standard:	FCC 15.247/15.407/RSS-247	Class:	N/A

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

Date of Test: 7/20/2016 0:00
Test Engineer: Rafael Varelas
Test Location: Chamber 7

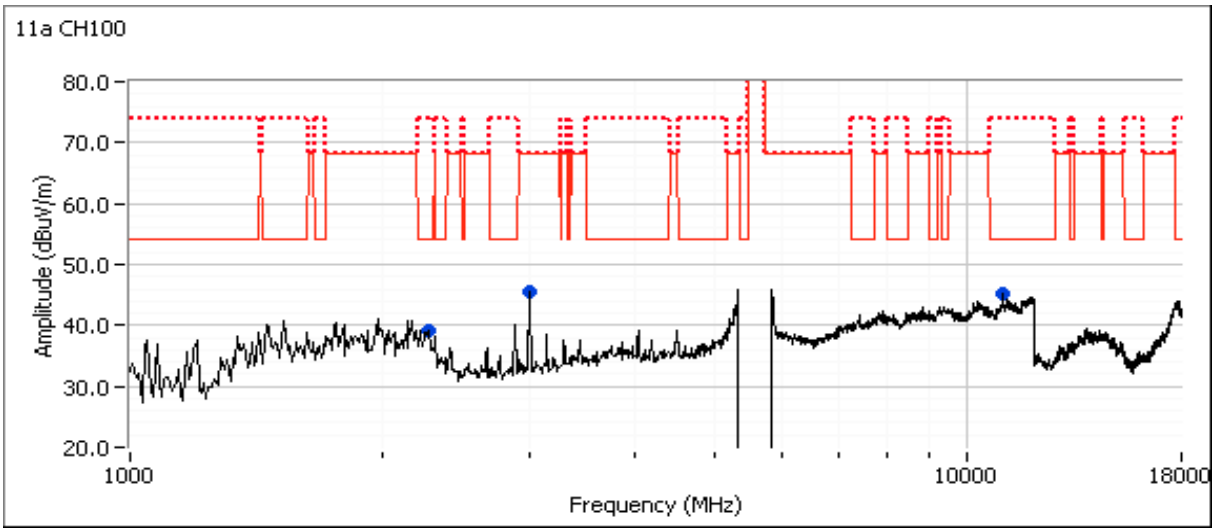
Config. Used: 1
Config Change: none
EUT Voltage: 120V / 60Hz

Run #6a: Low Channel

Channel: 100
Tx Chain: Antenna 2

Mode: a
Data Rate: 6 Mbps

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
10999.870	41.5	H	54.0	-12.5	AVG	266	1.0	
11004.420	52.6	H	74.0	-21.4	PK	266	1.0	
2266.670	39.1	V	54.0	-14.9	Peak	169	1.0	Not a radio signal.
2991.670	45.4	V	68.3	-22.9	Peak	230	1.0	Not a radio signal.
22000.370	50.4	H	68.3	-17.9	PK	12	1.9	



Client:	Google Inc	Job Number:	JD101591
Model:	H0ME	T-Log Number:	T101744
		Project Manager:	Deepa Shetty
Contact:	Dominik Mente	Project Coordinator:	-
Standard:	FCC 15.247/15.407/RSS-247	Class:	N/A

Run #6b: High Channel

Channel: 144 Mode: a
Tx Chain: Antenna 2 Data Rate: 6 Mbps

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
Power setting 19								
11440.000	44.8	H	54.0	-9.2	AVG	317	1.0	
11439.870	54.8	H	74.0	-19.2	PK	317	1.0	
22880.150	43.4	H	54.0	-10.6	AVG	64	1.2	
22879.900	51.3	H	74.0	-22.7	PK	64	1.2	

Client:	Google Inc	Job Number:	JD101591
Model:	H0ME	T-Log Number:	T101744
		Project Manager:	Deepa Shetty
Contact:	Dominik Mente	Project Coordinator:	-
Standard:	FCC 15.247/15.407/RSS-247	Class:	N/A

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

Date of Test: 7/20/2016 0:00
Test Engineer: John Caizzi / R. Varelas
Test Location: Chamber 7

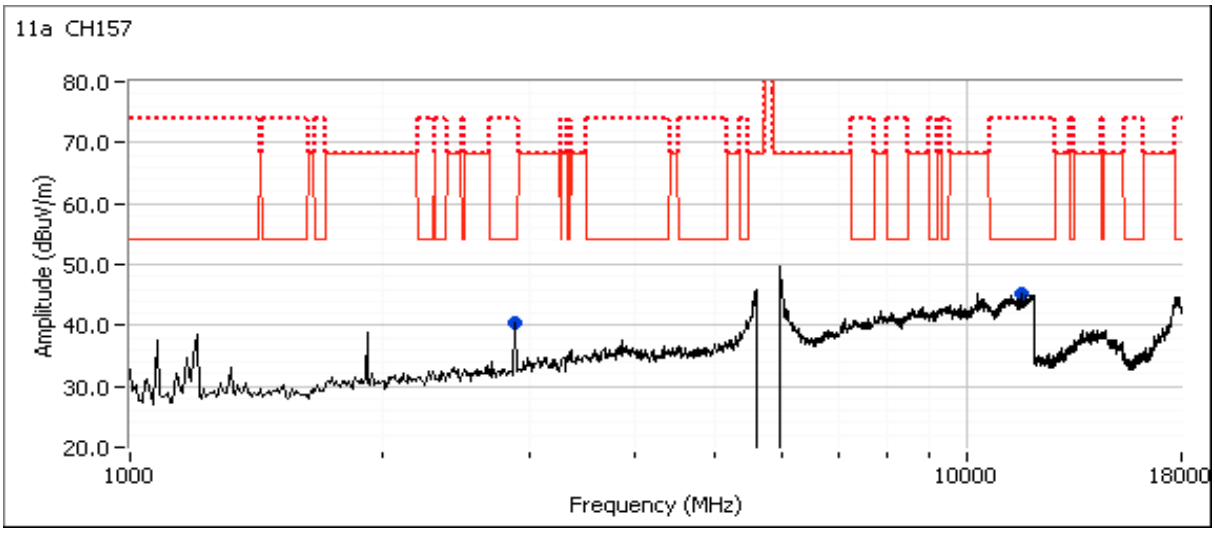
Config. Used: 1
Config Change: none
EUT Voltage: 120V / 60Hz

Run #7a: Center Channel

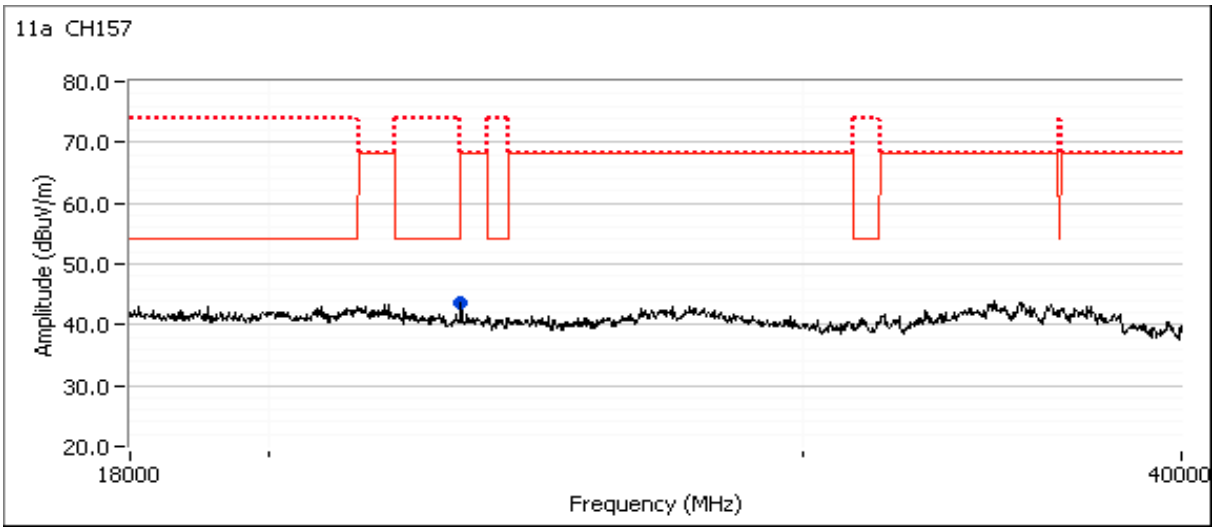
Channel: 157
Tx Chain: Antenna 2

Mode: a
Data Rate: 6 Mbps

Frequency	Level	Pol	15.209 / 15E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
Power setting 18								
11570.100	43.7	H	54.0	-10.3	AVG	321	1.0	
11568.370	53.9	H	74.0	-20.1	PK	321	1.0	
23140.630	50.2	H	68.3	-18.1	PK	54	1.4	



Client:	Google Inc	Job Number:	JD101591
Model:	H0ME	T-Log Number:	T101744
		Project Manager:	Deepa Shetty
Contact:	Dominik Mente	Project Coordinator:	-
Standard:	FCC 15.247/15.407/RSS-247	Class:	N/A



Client:	Google Inc	Job Number:	JD101591
Model:	H0ME	T-Log Number:	T101744
		Project Manager:	Deepa Shetty
Contact:	Dominik Mente	Project Coordinator:	-
Standard:	FCC 15.247/15.407/RSS-247	Class:	N/A

Run #7b: Center Channel

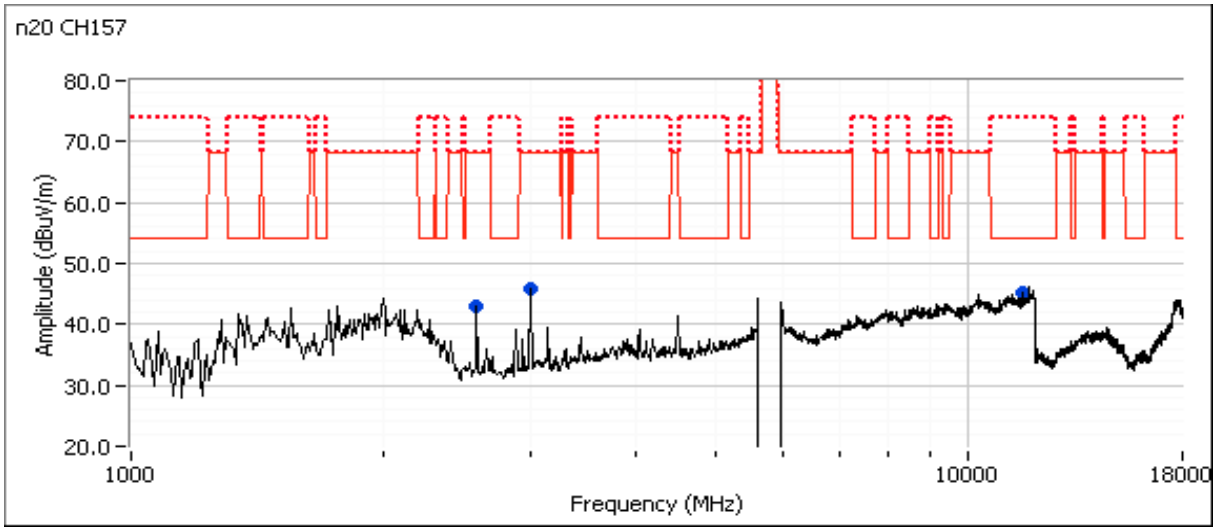
Date of Test: 7/12/2016 0:00
Test Engineer: John Caizzi / R. Varelas
Test Location: Chamber 7

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

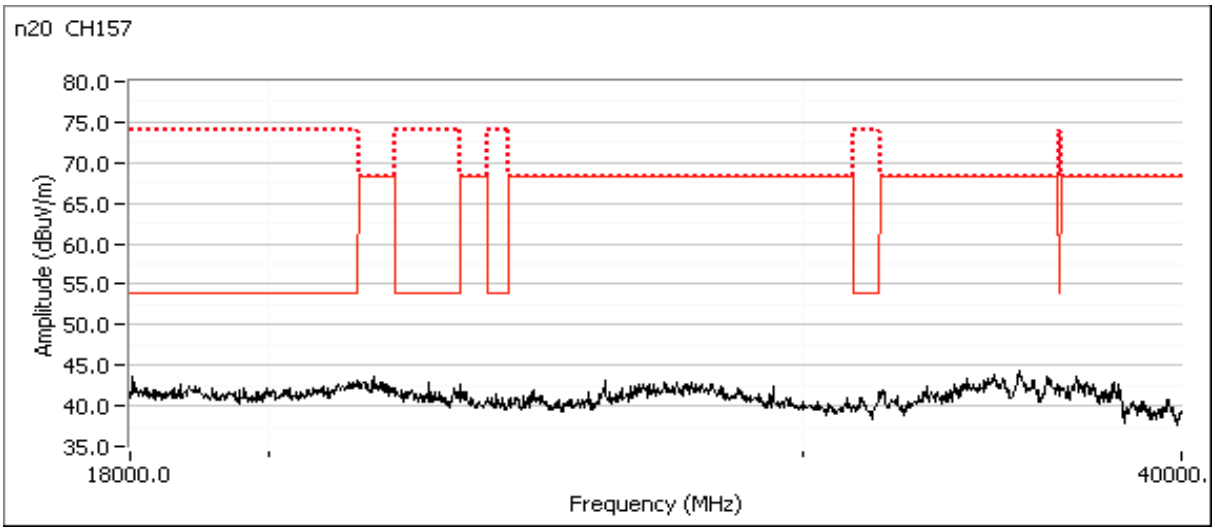
Channel: 157
Tx Chain: Antenna 2

Mode: 11n20
Data Rate: MCS0

Frequency	Level	Pol	15.209 / 15E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
11570.000	44.2	H	54.0	-9.8	AVG	44	1.00	
11565.180	54.5	H	74.0	-19.5	PK	44	1.00	
2583.330	43.0	V	68.3	-25.3	Peak	296	1.0	Not a radio signal.
2991.670	45.7	V	68.3	-22.6	Peak	247	1.5	Not a radio signal.



Client:	Google Inc	Job Number:	JD101591
Model:	H0ME	T-Log Number:	T101744
		Project Manager:	Deepa Shetty
Contact:	Dominik Mente	Project Coordinator:	-
Standard:	FCC 15.247/15.407/RSS-247	Class:	N/A

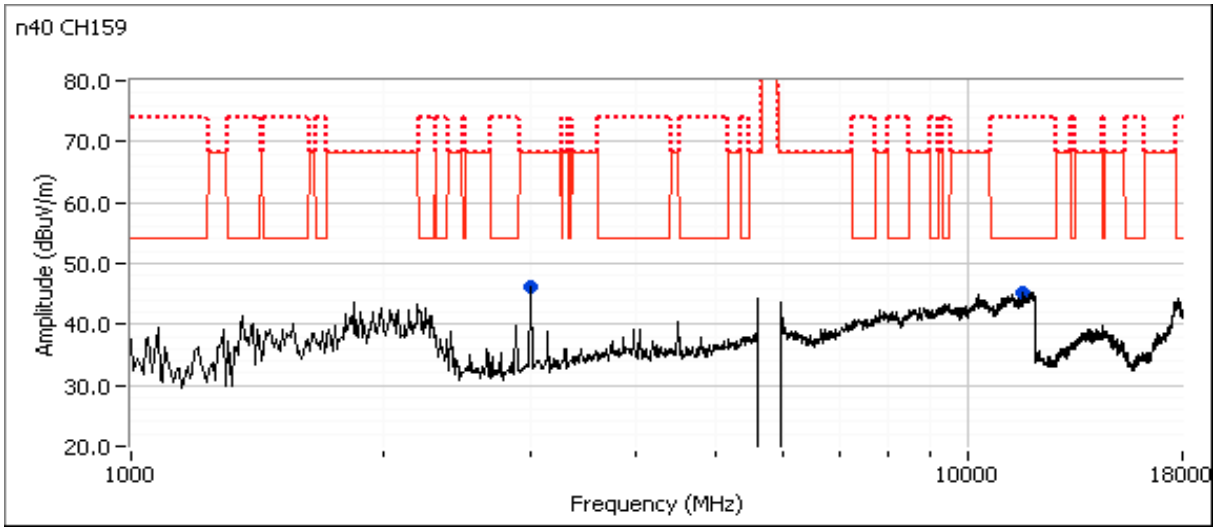


Client:	Google Inc	Job Number:	JD101591
Model:	H0ME	T-Log Number:	T101744
		Project Manager:	Deepa Shetty
Contact:	Dominik Mente	Project Coordinator:	-
Standard:	FCC 15.247/15.407/RSS-247	Class:	N/A

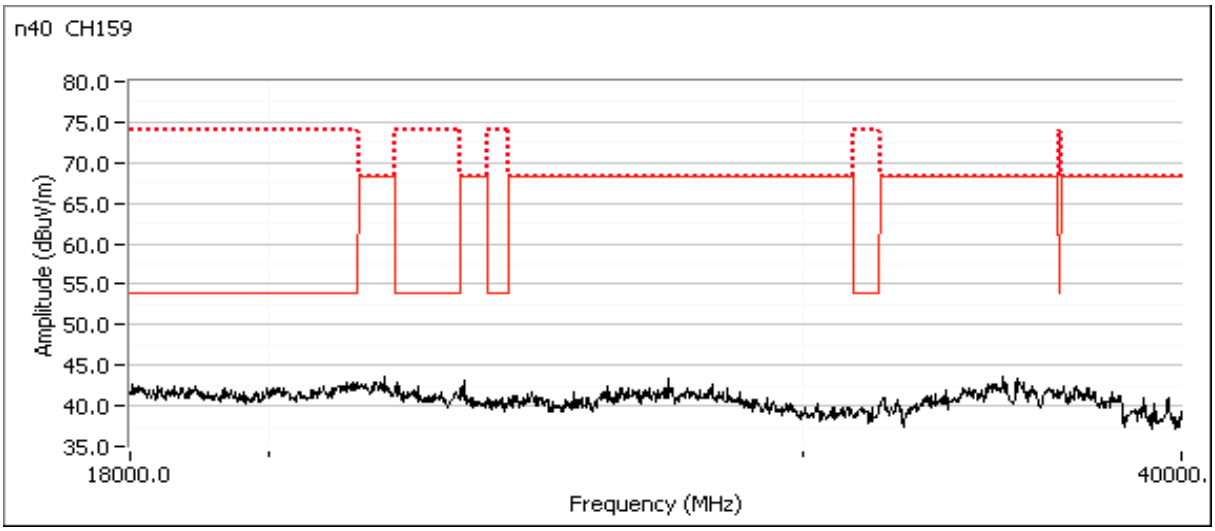
Run #7c: Center Channel

Channel: 159 Mode: 11n40
Tx Chain: Antenna 2 Data Rate: MCS0

Frequency	Level	Pol	15.209 / 15E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
11590.080	43.8	H	54.0	-10.2	AVG	313	1.2	
11589.970	54.5	H	74.0	-19.5	PK	313	1.2	
3000.000	46.3	V	68.3	-22.0	Peak	263	1.0	Not a radio signal.



Client:	Google Inc	Job Number:	JD101591
Model:	H0ME	T-Log Number:	T101744
		Project Manager:	Deepa Shetty
Contact:	Dominik Mente	Project Coordinator:	-
Standard:	FCC 15.247/15.407/RSS-247	Class:	N/A

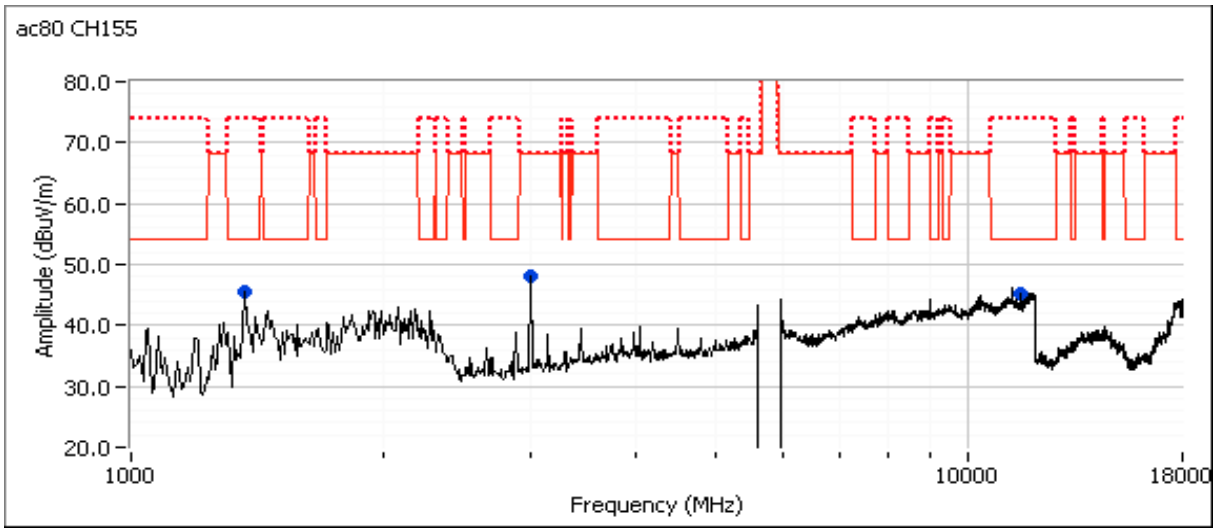


Client:	Google Inc	Job Number:	JD101591
Model:	H0ME	T-Log Number:	T101744
		Project Manager:	Deepa Shetty
Contact:	Dominik Mente	Project Coordinator:	-
Standard:	FCC 15.247/15.407/RSS-247	Class:	N/A

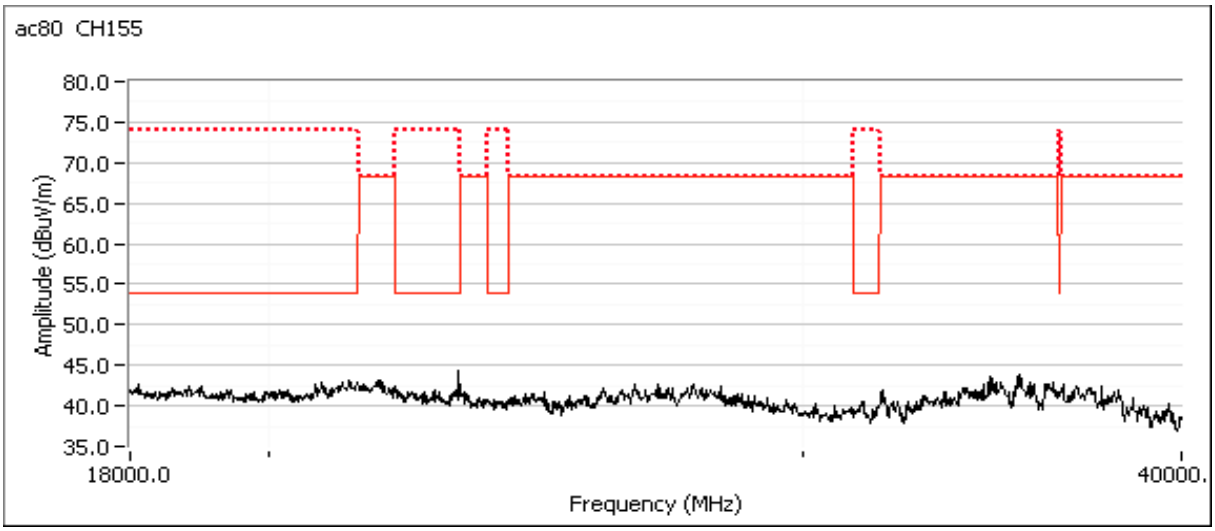
Run #7d: Center Channel

Channel: 155 Mode: ac80
Tx Chain: Antenna 2 Data Rate: VHT SS1

Frequency	Level	Pol	15.209 / 15E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
11550.070	43.7	H	54.0	-10.3	AVG	46	1.08	
11550.150	52.9	H	74.0	-21.1	PK	46	1.08	
1366.670	45.4	V	54.0	-8.6	Peak	256	1.0	Not a radio signal.
2991.670	48.2	V	68.3	-20.1	Peak	247	1.0	Not a radio signal.



Client:	Google Inc	Job Number:	JD101591
Model:	H0ME	T-Log Number:	T101744
		Project Manager:	Deepa Shetty
Contact:	Dominik Mente	Project Coordinator:	-
Standard:	FCC 15.247/15.407/RSS-247	Class:	N/A



Client:	Google Inc	Job Number:	JD101591
Model:	H0ME	T-Log Number:	T101744
		Project Manager:	Deepa Shetty
Contact:	Dominik Mente	Project Coordinator:	-
Standard:	FCC 15.247/15.407/RSS-247	Class:	N/A

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

Date of Test: 7/20/2016 0:00
Test Engineer: Rafael Varelas
Test Location: Chamber 7

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

Run #8a: Low Channel

Channel: 149
Tx Chain: Antenna 2

Mode: a
Data Rate: 6 Mbps

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
Power setting 18								
11490.030	44.7	H	54.0	-9.3	AVG	55	1.0	
11490.000	54.7	H	74.0	-19.3	PK	55	1.0	
22980.170	42.7	H	54.0	-11.3	AVG	64	1.4	
22980.070	50.6	H	74.0	-23.4	PK	64	1.4	

Run #8b: High Channel

Channel: 165
Tx Chain: Antenna 2

Mode: a
Data Rate: 6 Mbps

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
Power setting 18								
11650.200	43.3	H	54.0	-10.7	AVG	23	1.1	
11650.230	53.6	H	74.0	-20.4	PK	23	1.1	
23299.800	50.2	H	68.3	-18.1	PK	42	1.5	

Client:	Google Inc	Job Number:	JD101591
Model:	H0ME	T-Log Number:	T101744
		Project Manager:	Deepa Shetty
Contact:	Dominik Mente	Project Coordinator:	-
Standard:	FCC 15.247/15.407/RSS-247	Class:	N/A

RSS-247 and FCC 15.247 (DTS) Radiated Spurious Emissions

Test Specific Details

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

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: 35 %

Summary of Results - Device Operating in the 2400-2483.5 MHz Band

Run #	Mode	Channel	Target Power (dBm)	Passing Power Setting	Test Performed	Limit	Result / Margin
1	BLE + 11b	2402MHz 2462MHz	-	6 18	Radiated Emissions, 1 - 25 GHz	FCC Part 15.209 / 15.247(c)	49.4 dBµV/m @ 4924.0 MHz (-4.6 dB)
	BLE + 11a	2480MHz 5200MHz	-	6 19	Radiated Emissions, 1 - 25 GHz	FCC Part 15.209 / 15.247(c)	46.5 dBµV/m @ 20800.1 MHz (-7.5 dB)

Modifications Made During Testing

No modifications were made to the EUT during testing

Deviations From The Standard

No deviations were made from the requirements of the standard.

Sample Notes

Sample S/N: 6629AZZB75
Driver: 1.21
Antenna: Internal

Client:	Google Inc	Job Number:	JD101591
Model:	H0ME	T-Log Number:	T101744
		Project Manager:	Deepa Shetty
Contact:	Dominik Mente	Project Coordinator:	-
Standard:	FCC 15.247/15.407/RSS-247	Class:	N/A

Procedure Comments:

Measurements performed in accordance with FCC KDB 558074
Peak measurements performed with: RBW=1MHz, VBW=3MHz, peak detector, max hold, auto sweep time
Unless otherwise stated/noted, emission has duty cycle ≥ 98% and was measured using RBW=1MHz, VBW=10Hz, peak detector, linear average mode, auto sweep time, max hold.
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)
BLE	1Mbps	0.61	Yes	0.383	2.2	4.3	2611
11b	1 Mbps	1.00	Yes	18.95	0	0	53
11g/a	6 Mbps	0.99	Yes	3.13	0	0	319

Measurement Specific Notes:

Note 1:	Emission in non-restricted band, but limit of 15.209 used.
Note 2:	Emission in non-restricted band, the limit was set 30dB below the level of the fundamental and measured in 100kHz.
Note 4:	Emission has constant duty cycle < 98%, average measurement performed: RBW=1MHz, VBW>1/T but not less than 10Hz, peak detector, linear averaging, auto sweep, trace average 100 traces, measurement corrected by Linear voltage correction factor
Note 6:	Emission has non constant 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

Client:	Google Inc	Job Number:	JD101591
Model:	H0ME	T-Log Number:	T101744
		Project Manager:	Deepa Shetty
Contact:	Dominik Mente	Project Coordinator:	-
Standard:	FCC 15.247/15.407/RSS-247	Class:	N/A

Run #1: Radiated Spurious Emissions, 1,000 - 25000 MHz

Date of Test: 7/26/2016 & 7/27/16 — Config. Used: 1

Test Engineer: Rafael Varelas & John Caizzi — Config Change: None

Test Location: FT Chamber #7 — EUT Voltage: 120V/60Hz

Run #1a: Radiated Spurious Emissions

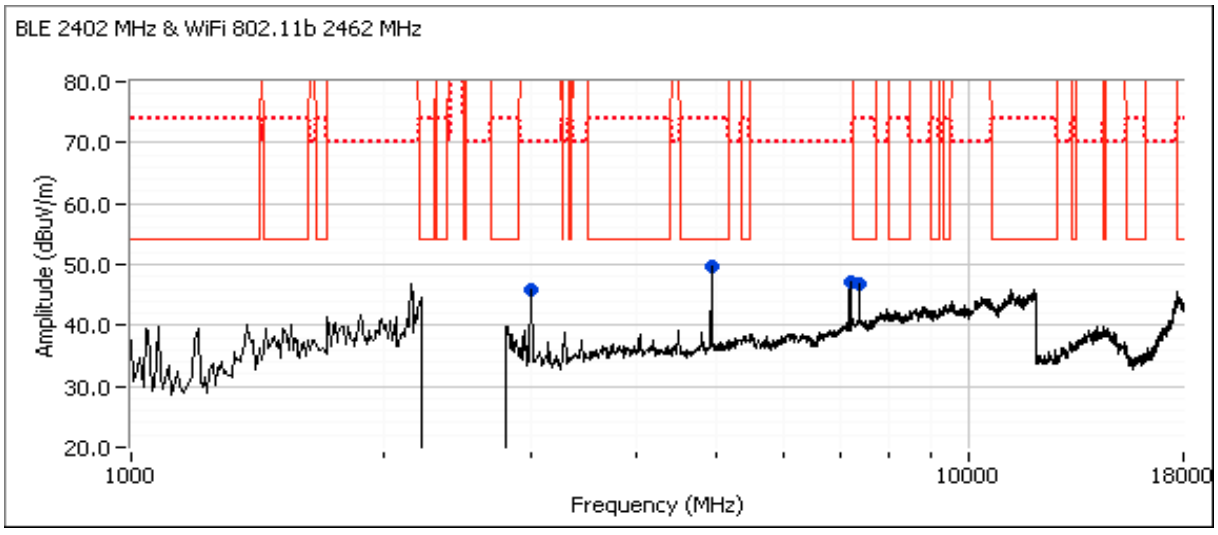
Channel: 2402MHz — Mode: BLE

Tx Chain: Aux — Data Rate: 1Mbps

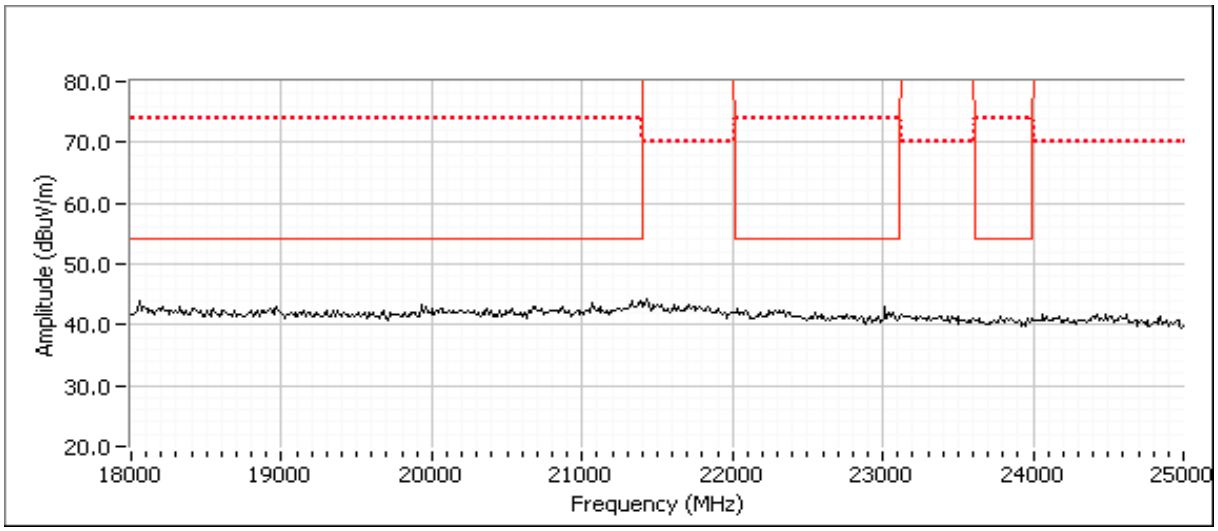
Channel: 2462 MHz — Mode: b

Tx Chain: Aux — Data Rate: 1Mbps

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
7385.180	46.3	V	54.0	-7.7	AVG	32	1.0	RB 1 MHz;VB 10 Hz;Peak
7384.840	53.9	V	74.0	-20.1	PK	32	1.0	RB 1 MHz;VB 3 MHz;Peak
4924.010	49.4	V	54.0	-4.6	AVG	33	1.6	RB 1 MHz;VB 10 Hz;Peak
4924.150	53.0	V	74.0	-21.0	PK	33	1.6	RB 1 MHz;VB 3 MHz;Peak
7205.460	47.3	V	54.0	-6.7	Avg	334	1.6	Note 4,1, VB 3 kHz;Peak VAVG 100
7206.670	52.5	V	74.0	-21.5	PK	334	1.6	RB 1 MHz;VB 3 MHz;Peak
2991.670	45.9	V	-	-	Peak	254	1.0	Not radio signal



Client:	Google Inc	Job Number:	JD101591
Model:	H0ME	T-Log Number:	T101744
		Project Manager:	Deepa Shetty
Contact:	Dominik Mente	Project Coordinator:	-
Standard:	FCC 15.247/15.407/RSS-247	Class:	N/A



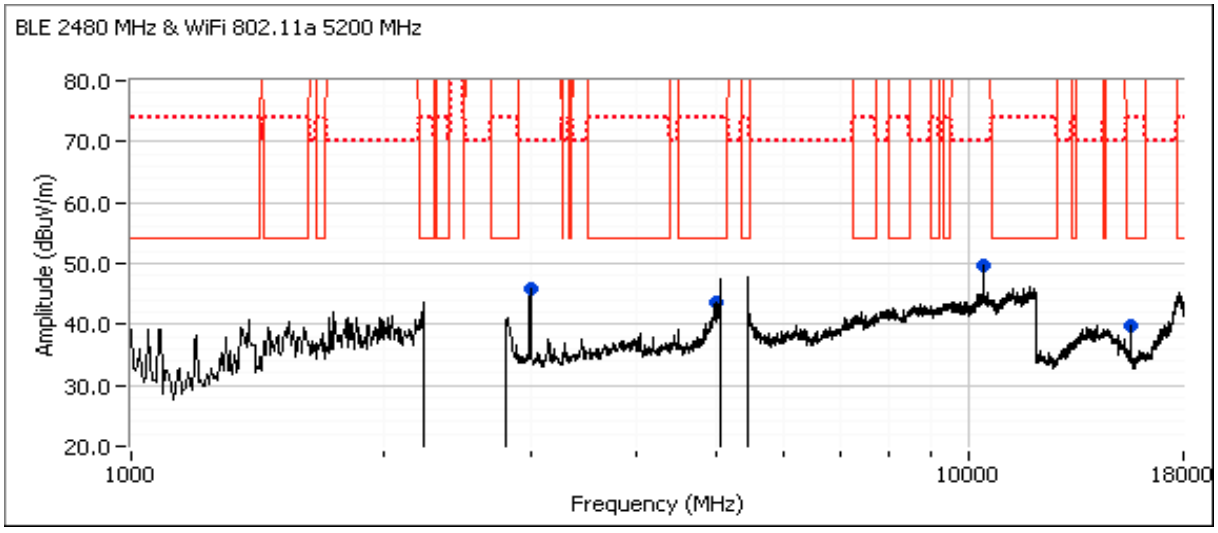
Client:	Google Inc	Job Number:	JD101591
Model:	H0ME	T-Log Number:	T101744
		Project Manager:	Deepa Shetty
Contact:	Dominik Mente	Project Coordinator:	-
Standard:	FCC 15.247/15.407/RSS-247	Class:	N/A

Run #1b: Radiated Spurious Emissions

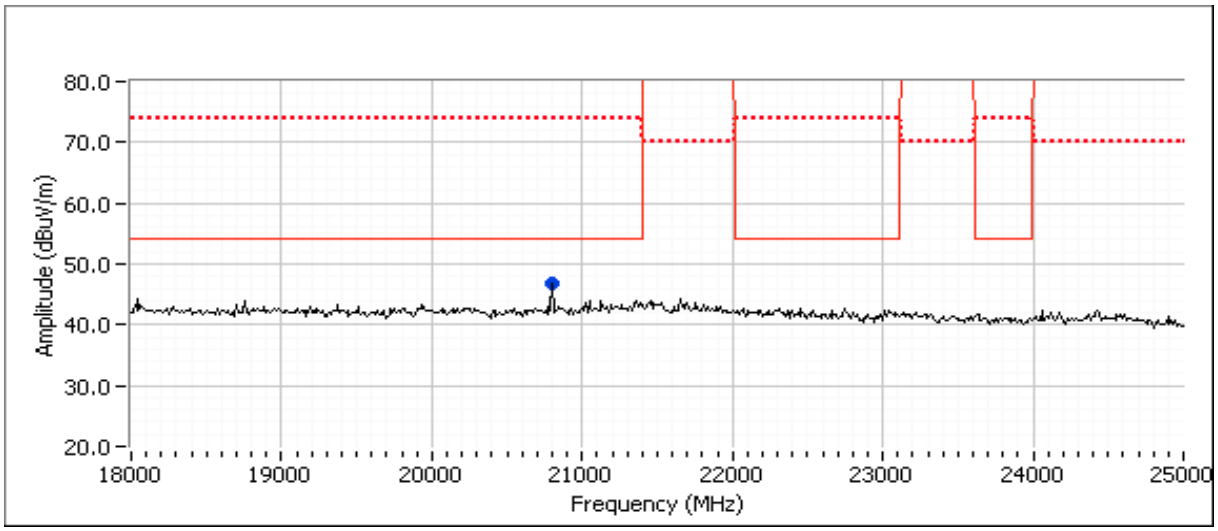
Channel: 2480MHz Mode: BLE
Tx Chain: Aux Data Rate: 1Mbps

Channel: 5200 MHz Mode: 11a
Tx Chain: Aux Data Rate: 6 Mbps

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
2996.160	45.9	V	-	-	Peak	244	1.0	Not radio signal
4973.200	43.9	V	54.0	-10.1	Avg	254	1.9	Note 4;VB 3 kHz;Peak VAVG 100
4973.470	51.8	V	74.0	-22.2	PK	254	1.9	RB 1 MHz;VB 3 MHz;Peak
10406.440	57.4	H	68.3	-10.9	PK	94	1.1	RB 1 MHz;VB 3 MHz;Peak
15600.130	42.8	V	54.0	-11.2	AVG	55	1.8	
15602.800	54.8	V	74.0	-19.2	PK	55	1.8	
20800.120	46.5	H	54.0	-7.5	AVG	266	1.6	
20800.070	52.9	H	74.0	-21.1	PK	266	1.6	



Client:	Google Inc	Job Number:	JD101591
Model:	H0ME	T-Log Number:	T101744
		Project Manager:	Deepa Shetty
Contact:	Dominik Mente	Project Coordinator:	-
Standard:	FCC 15.247/15.407/RSS-247	Class:	N/A



Client:	Google Inc	Job Number:	JD101591
Product	H0ME	T-Log Number:	T102213
System Configuration:	-	Project Manager:	Deepa Shetty
Contact:	Dominik Mente	Project Coordinator:	-
Emissions Standard(s):	FCC 15.247/15.407/RSS-247	Class:	B
Immunity Standard(s):	-	Environment:	-

EMC Test Data

For The

Google Inc

Product

H0ME

Date of Last Test: 8/1/2016

Client:	Google Inc	Job Number:	JD101591
Model:	H0ME	T-Log Number:	T102213
		Project Manager:	Deepa Shetty
Contact:	Dominik Mente	Project Coordinator:	-
Standard:	FCC 15.247/15.407/RSS-247	Class:	N/A

RSS-247 (LELAN) 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	a: 18.1dBm (64.6 mW) n20: 18.1dBm (64.6 mW) n40: 13.1dBm (20.4 mW) ac80: 8.4dBm (6.9 mW)
1	PSD, 5150 - 5250MHz	15.407(a) (1) (iv)	Pass	a: 6.6 dBm/MHz n20: 6.4 dBm/MHz n40: -2.4 dBm/MHz ac80: -12.0 dBm/MHz
1	Power, 5150 - 5250MHz	RSS-247 6.2.1 (1)	Pass	a: 16.0dBm (39.8 mW) n20: 16.0dBm (39.8mW) n40: 13.1dBm (20.4 mW) ac80: 8.4dBm (6.9 mW)
1	PSD, 5150 - 5250MHz	RSS-247 6.2.1 (1)	Pass	a: 4.3 dBm/MHz n20: 4.0 dBm/MHz n40: -2.4 dBm/MHz ac80: -12.0 dBm/MHz
1	Power, 5250 - 5350MHz	15.407(a) (2), RSS-247 6.2.2 (1)	Pass	a: 17.8dBm (60.3 mW) n20: 17.7dBm (58.9 mW) n40: 15.8dBm (38.0 mW) ac80: 9.1dBm (8.1 mW)
1	PSD, 5250 - 5350MHz	15.407(a) (2), RSS-247 6.2.2 (1)	Pass	a: 4.8 dBm/MHz n20: 4.6 dBm/MHz n40: -0.9 dBm/MHz ac80: -11.1 dBm/MHz
1	Max EIRP 5250 - 5350MHz	TPC required if EIRP≥ 500mW (27dBm). EIRP ≥ 200mW (23dBm) DFS threshold = -64dBm.	Pass	EIRP = 23.5 dBm (223.9 mW)

Client:	Google Inc	Job Number:	JD101591
Model:	H0ME	T-Log Number:	T102213
		Project Manager:	Deepa Shetty
Contact:	Dominik Mente	Project Coordinator:	-
Standard:	FCC 15.247/15.407/RSS-247	Class:	N/A

Run #	Test Performed	Limit	Pass / Fail	Result / Margin
1	Power, 5470 - 5725MHz	15.407(a) (2)	Pass	a: 16.4dBm (43.7 mW) n20: 16.5dBm (44.7 mW) n40: 14.9dBm (30.9 mW) ac80: 12.2dBm (16.6 mW)
1	PSD, 5470 - 5725MHz	15.407(a) (2)	Pass	a: 4.9 dBm/MHz n20: 4.3 dBm/MHz n40: 0.4 dBm/MHz ac80: -6.6 dBm/MHz
1	Power, 5470 - 5725MHz	RSS-247 6.2.3 (1)	Pass	a: 16.4dBm (43.7 mW) n20: 16.5dBm (44.7 mW) n40: 14.9dBm (30.9 mW) ac80: 10.5dBm (11.3 mW)
1	PSD, 5470 - 5725MHz	RSS-247 6.2.3 (1)	Pass	a: 4.9 dBm/MHz n20: 4.3 dBm/MHz n40: 0.4 dBm/MHz ac80: -6.6 dBm/MHz
1	Max EIRP 5470 - 5725MHz	TPC required if EIRP≥ 500mW (27dBm). EIRP ≥ 200mW (23dBm) DFS threshold = -64dBm.	Pass	EIRP = 23.4 dBm (218.8 mW)
1	Power, 5725 - 5850MHz	15.407(a) (3) RSS-247 6.2.4 (1)	Pass	a: 17.7dBm (58.9 mW) n20: 17.4dBm (55.0 mW) n40: 15.3dBm (33.9 mW) ac80: 12.3dVm (17.0 mW)
1	PSD, 5725 - 5850MHz	15.407(a) (3) RSS-247 6.2.4 (1)	Pass	a: 4.1 dBm/MHz n20: 3.8 dBm/MHz n40: -1.0 dBm/MHz ac80: -7.1 dBm/MHz
1	26dB Bandwidth	15.407 (Information only)	-	> 20MHz for all modes
1	99% Bandwidth	RSS 210 (Information only)	N/A	a: 64.0 MHz n20: 62.7 MHz n40: 56.9 MHz ac80: 140.6 MHz
2	Antenna Conducted - Out of Band Spurious	15.407(b) -27dBm/MHz		All emissions below the -27dBm/MHz limit

Client:	Google Inc	Job Number:	JD101591
Model:	H0ME	T-Log Number:	T102213
		Project Manager:	Deepa Shetty
Contact:	Dominik Mente	Project Coordinator:	-
Standard:	FCC 15.247/15.407/RSS-247	Class:	N/A

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: 43 %

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

Mode	Data Rate	Duty Cycle (x)	Constant DC?	T (ms)	Pwr Cor Factor*	Lin Volt Cor Factor**	Min VBW for FS (Hz)
11a	6	0.99	Yes	3.13	0	0	319
n20	MCS0	1.00	Yes	9.92	0	0	101
n40	MCS0	1.00	Yes	4.76	0	0	210
ac80	VHT SS1	0.99	Yes	2.25	0	0	444

Sample Notes

Sample S/N: 6629AZZB6W

Driver: 1.21

Measurements performed on the worse case output (Antenna 2) based on preliminary measurements. All calculations using the

Note: Only plots of the worse case results are provided

Client:	Google Inc	Job Number:	JD101591
Model:	H0ME	T-Log Number:	T102213
		Project Manager:	Deepa Shetty
Contact:	Dominik Mente	Project Coordinator:	-
Standard:	FCC 15.247/15.407/RSS-247	Class:	N/A

Run #1: Bandwidth, Output Power and Power Spectral Density - MIMO Systems

Date of Test: 07/25/16
Test Engineer: Rafael Varelas
Test Location: Lab 3

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

Note 1:	Power measured using average power meter, except for channels that span across 5725MHz. Those channels were measured using: RBW=1MHz, VB=3 MHz, Span > OBW, # of points in sweep ≥ 2*span/RBW, auto sweep, RMS detector, power averaging on (transmitted signal was continuous, duty cycle ≥ 98%) and power integration over the OBW (method SA-1 of ANSI C63.10).
Note 2:	RBW=1MHz, VB=3 MHz, Span > OBW, # of points in sweep ≥ 2*span/RBW, auto sweep, RMS detector, power averaging on (transmitted signal was continuous, duty cycle ≥ 98%)
Note 4:	99% Bandwidth measured in accordance with C63.10 - RB between 1-5 % of OBW and VB ≥ 3*RB, Span between 1.5 and 5 times OBW.

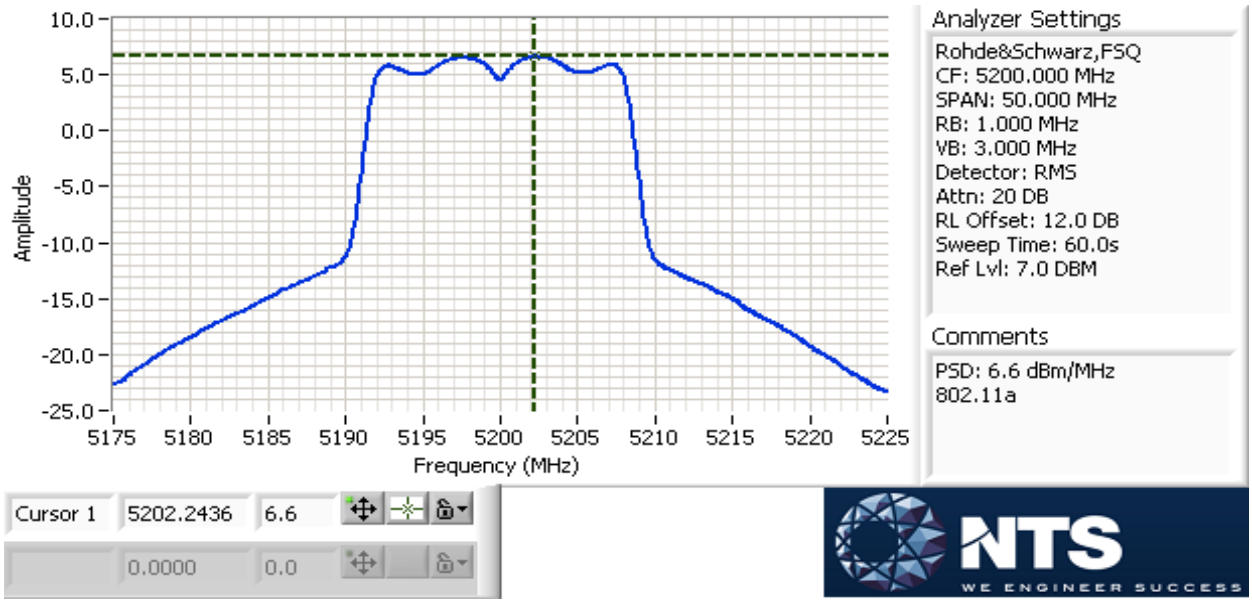
FCC UNII-1 Limits		Pwr	PSD	
	Outdoor AP	30	17	FCC only
	Indoor AP	30	17	
X	Station (e.g. Client)	24	11	
	Outdoor AP (>30° Elv.)	21	-	EIRP

Client:	Google Inc	Job Number:	JD101591
Model:	H0ME	T-Log Number:	T102213
		Project Manager:	Deepa Shetty
Contact:	Dominik Mente	Project Coordinator:	-
Standard:	FCC 15.247/15.407/RSS-247	Class:	N/A

SISO Device - 5150-5250 MHz Band - FCC

Antenna Gain (dBi): 5.7 Max EIRP: 239.9 mW 23.8 dBm

Frequency (MHz)	Software Setting	26dB BW (MHz)	Duty Cycle %	Output Power[1] dBm			PSD[2] dBm/MHz			Result
				Measured	Calculated	Limit	Measured	Calculated	Limit	
802.11a										
5180	16.0		99.0	15.3	15.3	24.0	4.0	4.0	11.0	Pass
5200	19.0		99.0	18.1	18.1	24.0	6.6	6.6	11.0	Pass
5240	19.0		99.0	18.0	18.0	24.0	6.2	6.2	11.0	Pass
802.11n 20MHz										
5180	16.0		100.0	15.4	15.4	24.0	3.8	3.8	11.0	Pass
5200	19.0		100.0	18.1	18.1	24.0	6.4	6.4	11.0	Pass
5240	19.0		100.0	18.0	18.0	24.0	5.9	5.9	11.0	Pass
802.11n 40MHz										
5190	13.0		100.0	12.2	12.2	24.0	-2.4	-2.4	11.0	Pass
5230	14.0		100.0	13.1	13.1	24.0	-2.4	-2.4	11.0	Pass
802.11ac 80MHz										
5210	9.0		99.0	8.4	8.4	24.0	-12.0	-12.0	11.0	Pass

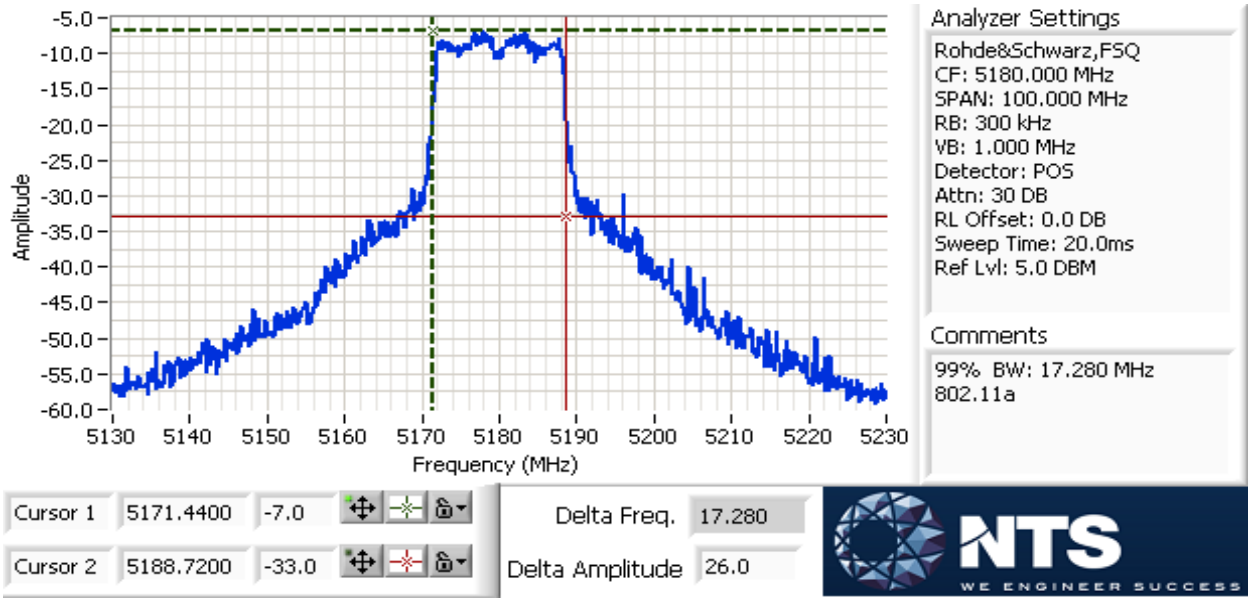


Client:	Google Inc	Job Number:	JD101591
Model:	H0ME	T-Log Number:	T102213
		Project Manager:	Deepa Shetty
Contact:	Dominik Mente	Project Coordinator:	-
Standard:	FCC 15.247/15.407/RSS-247	Class:	N/A

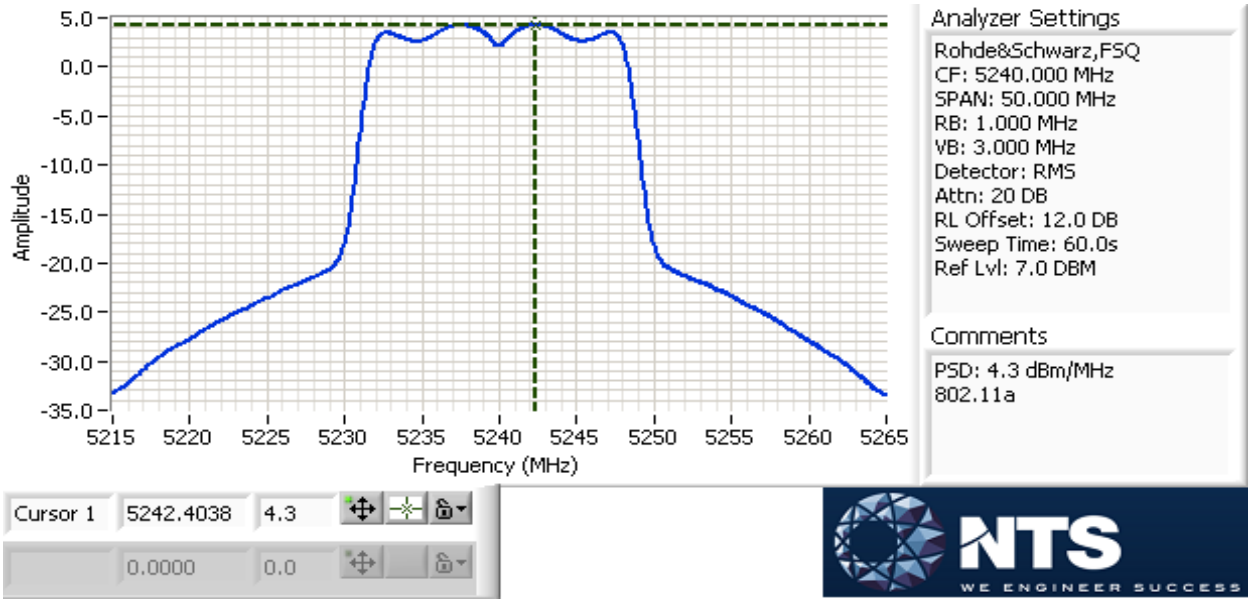
SISO Device - 5150-5250 MHz Band - Industry Canada

Antenna Gain (dBi): 5.7 Max EIRP: 549.5 mW 27.4 dBm

Frequency (MHz)	Software Setting	99% BW (MHz)	Duty Cycle %	Output Power[1] dBm (EIRP) Measured (conducted)	Calculated (EIRP)	Limit	PSD[2] dBm/MHz (EIRP) Measured (conducted)	Calculated (EIRP)	Limit[3]	Result
802.11a										
5180	16.0	17.3	99.0	15.3	21.0	22.4	4.0	4.0	4.3	Pass
5200	16.0	28.5	99.0	15.2	20.9	23.0	3.9	3.9	4.3	Pass
5240	17.0	29.8	99.0	16.0	21.7	23.0	4.3	4.3	4.3	Pass
802.11n 20MHz										
5180	16.0	18.6	100.0	15.4	21.1	22.7	3.8	3.8	4.3	Pass
5200	16.0	33.6	100.0	15.2	20.9	23.0	3.7	3.7	4.3	Pass
5240	17.0	35.0	100.0	16.0	21.7	23.0	4.0	4.0	4.3	Pass
802.11n 40MHz										
5190	13.0	41.3	100.0	12.2	17.9	23.0	-2.4	-2.4	4.3	Pass
5230	14.0	36.8	100.0	13.1	18.8	23.0	-2.4	-2.4	4.3	Pass
802.11ac 80MHz										
5210	9.0	77.3	99.0	8.4	14.1	23.0	-12.0	-12.0	4.3	Pass



Client:	Google Inc	Job Number:	JD101591
Model:	H0ME	T-Log Number:	T102213
		Project Manager:	Deepa Shetty
Contact:	Dominik Mente	Project Coordinator:	-
Standard:	FCC 15.247/15.407/RSS-247	Class:	N/A

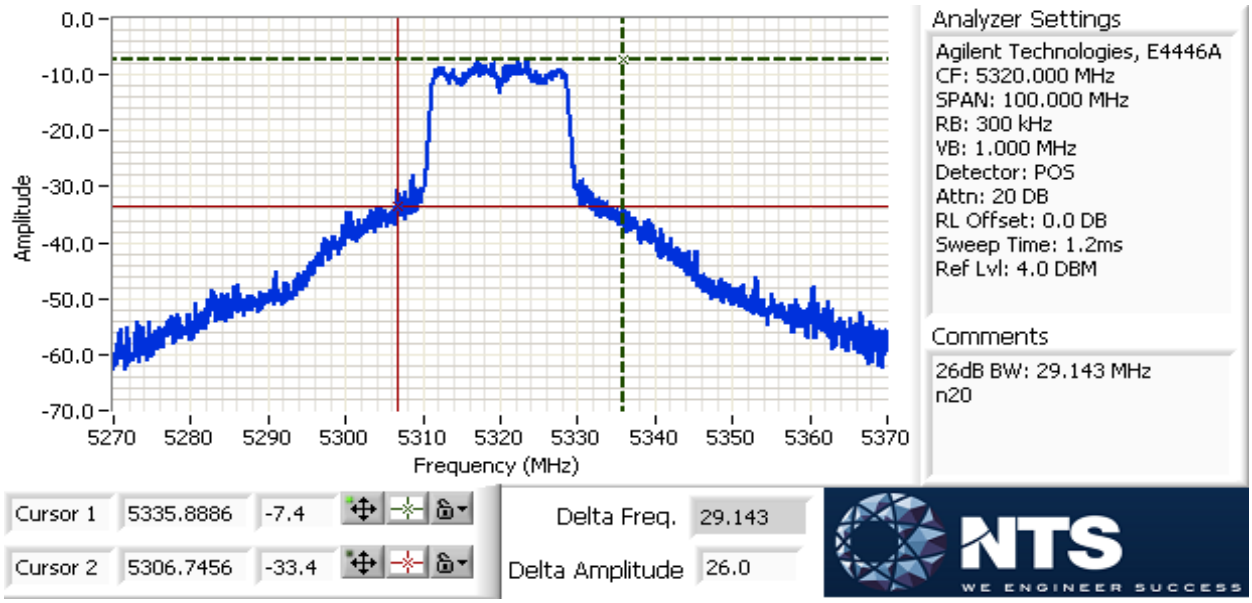


Client:	Google Inc	Job Number:	JD101591
Model:	H0ME	T-Log Number:	T102213
		Project Manager:	Deepa Shetty
Contact:	Dominik Mente	Project Coordinator:	-
Standard:	FCC 15.247/15.407/RSS-247	Class:	N/A

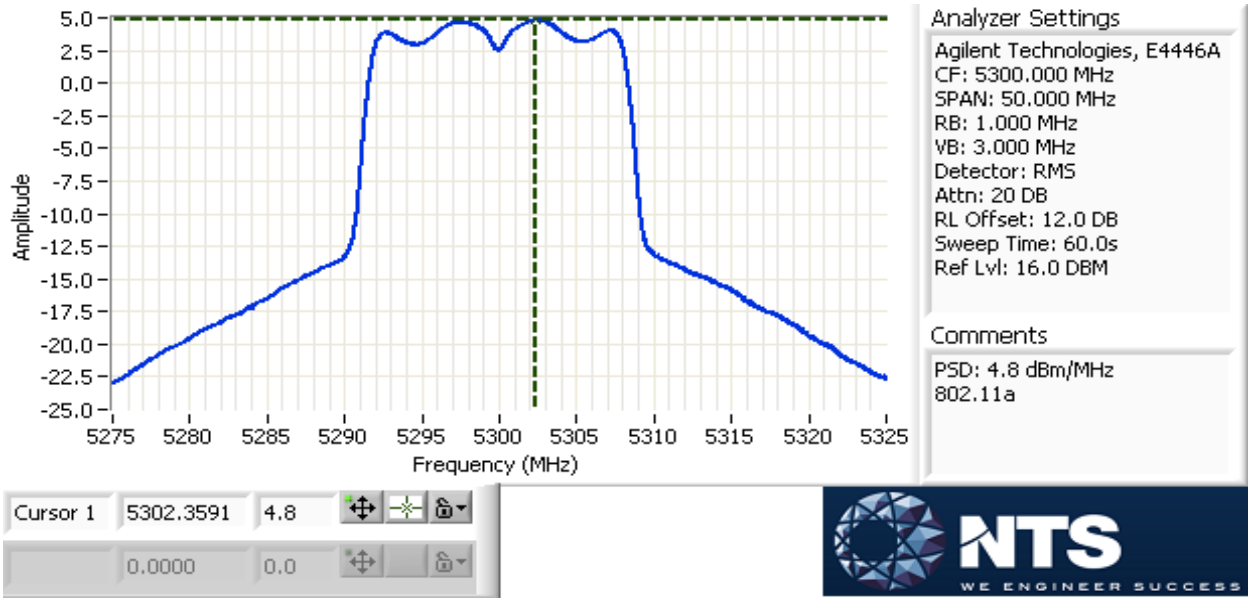
SISO Device - 5250-5350 MHz Band - FCC

Antenna Gain (dBi): 5.7 Max EIRP: 223.9 mW 23.5 dBm

Frequency (MHz)	Software Setting	26dB BW (MHz)	Duty Cycle %	Output Power[1] dBm			PSD[2] dBm/MHz			Result
				Measured	Calculated	Limit	Measured	Calculated	Limit	
802.11a										
5260	19.0	66.4	99.0	17.8	17.8	24.0	4.2	4.2	11.0	Pass
5300	19.0	43.3	99.0	17.5	17.5	24.0	4.8	4.8	11.0	Pass
5320	16.0	29.5	99.0	14.5	14.5	24.0	2.0	2.0	11.0	Pass
802.11n 20MHz										
5260	19.0	48.2	100.0	17.7	17.7	24.0	3.9	3.9	11.0	Pass
5300	19.0	48.9	100.0	17.5	17.5	24.0	4.6	4.6	11.0	Pass
5320	16.0	29.1	100.0	14.5	14.5	24.0	1.7	1.7	11.0	Pass
802.11n 40MHz										
5270	17.0	87.5	100.0	15.8	15.8	24.0	-0.9	-0.9	11.0	Pass
5310	13.0	40.6	100.0	11.8	11.8	24.0	-4.0	-4.0	11.0	Pass
802.11ac 80MHz										
5290	10.0	142.4	99.0	9.1	9.1	24.0	-11.1	-11.1	11.0	Pass



Client:	Google Inc	Job Number:	JD101591
Model:	H0ME	T-Log Number:	T102213
		Project Manager:	Deepa Shetty
Contact:	Dominik Mente	Project Coordinator:	-
Standard:	FCC 15.247/15.407/RSS-247	Class:	N/A

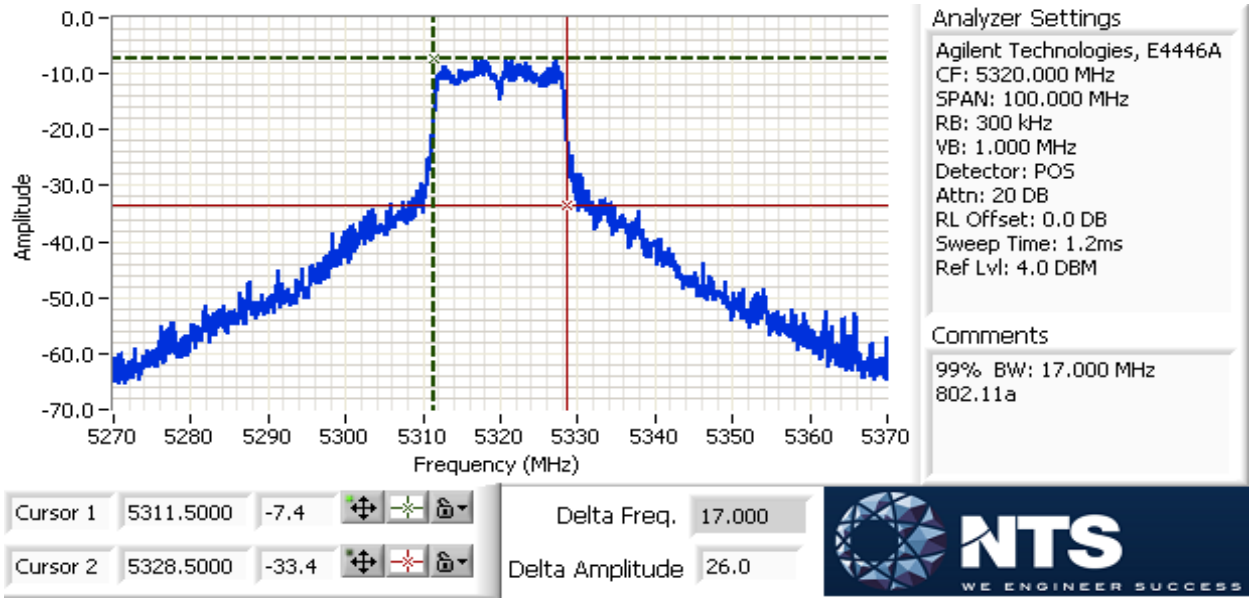


Client:	Google Inc	Job Number:	JD101591
Model:	H0ME	T-Log Number:	T102213
		Project Manager:	Deepa Shetty
Contact:	Dominik Mente	Project Coordinator:	-
Standard:	FCC 15.247/15.407/RSS-247	Class:	N/A

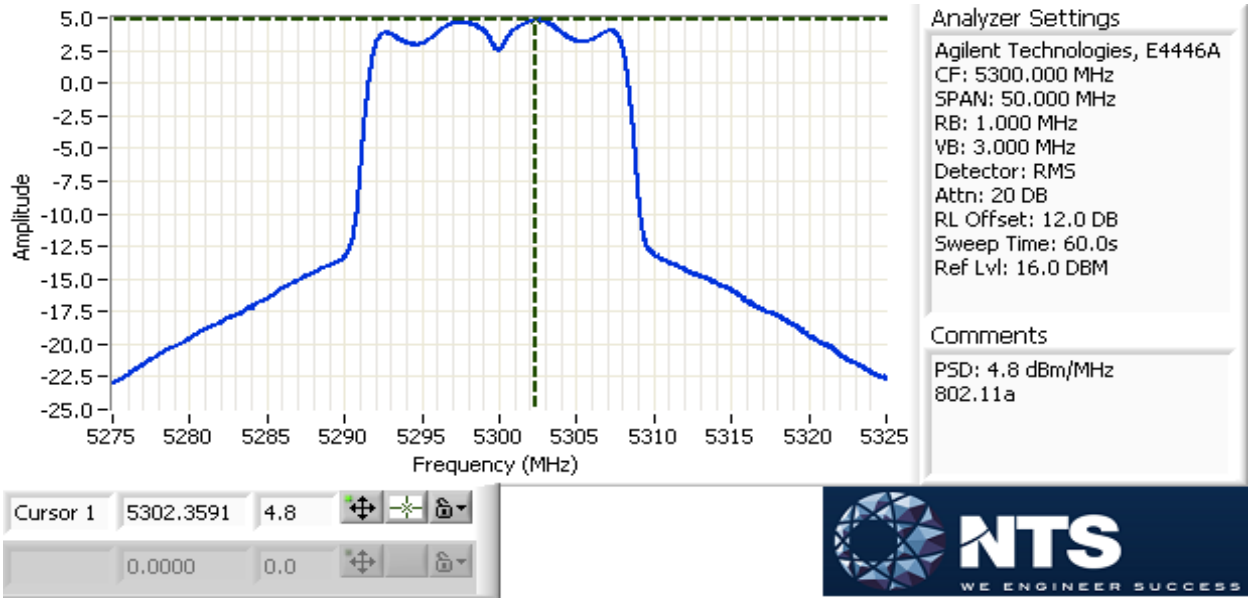
SISO Device - 5250-5350 MHz Band - Industry Canada

Antenna Gain (dBi): 5.7 Max EIRP: 223.9 mW 23.5 dBm

Frequency (MHz)	Software Setting	99% BW (MHz)	Duty Cycle %	Output Power[1] dBm			PSD[2] dBm/MHz			Result
				Measured	Calculated	Limit	Measured	Calculated	Limit[3]	
802.11a										
5260	19.0	41.2	99.0	17.8	17.8	24.0	4.2	4.2	11.0	Pass
5300	19.0	28.3	99.0	17.5	17.5	24.0	4.8	4.8	11.0	Pass
5320	16.0	17.0	99.0	14.5	14.5	23.3	2.0	2.0	11.0	Pass
802.11n 20MHz										
5260	19.0	32.3	100.0	17.7	17.7	24.0	3.9	3.9	11.0	Pass
5300	19.0	30.1	100.0	17.5	17.5	24.0	4.6	4.6	11.0	Pass
5320	16.0	18.1	100.0	14.5	14.5	23.6	1.7	1.7	11.0	Pass
802.11n 40MHz										
5270	17.0	39.0	100.0	15.8	15.8	24.0	-0.9	-0.9	11.0	Pass
5310	13.0	36.2	100.0	11.8	11.8	24.0	-4.0	-4.0	11.0	Pass
802.11ac 80MHz										
5290	10.0	76.4	99.0	9.1	9.1	24.0	-11.1	-11.1	11.0	Pass



Client:	Google Inc	Job Number:	JD101591
Model:	H0ME	T-Log Number:	T102213
		Project Manager:	Deepa Shetty
Contact:	Dominik Mente	Project Coordinator:	-
Standard:	FCC 15.247/15.407/RSS-247	Class:	N/A



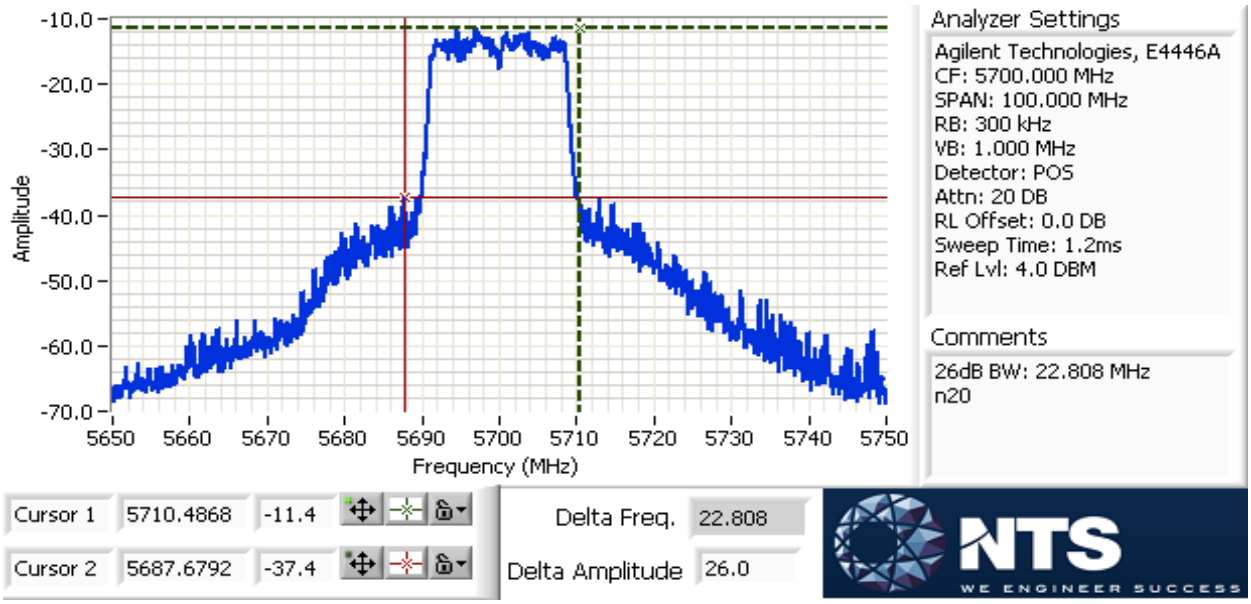
Client:	Google Inc	Job Number:	JD101591
Model:	H0ME	T-Log Number:	T102213
		Project Manager:	Deepa Shetty
Contact:	Dominik Mente	Project Coordinator:	-
Standard:	FCC 15.247/15.407/RSS-247	Class:	N/A

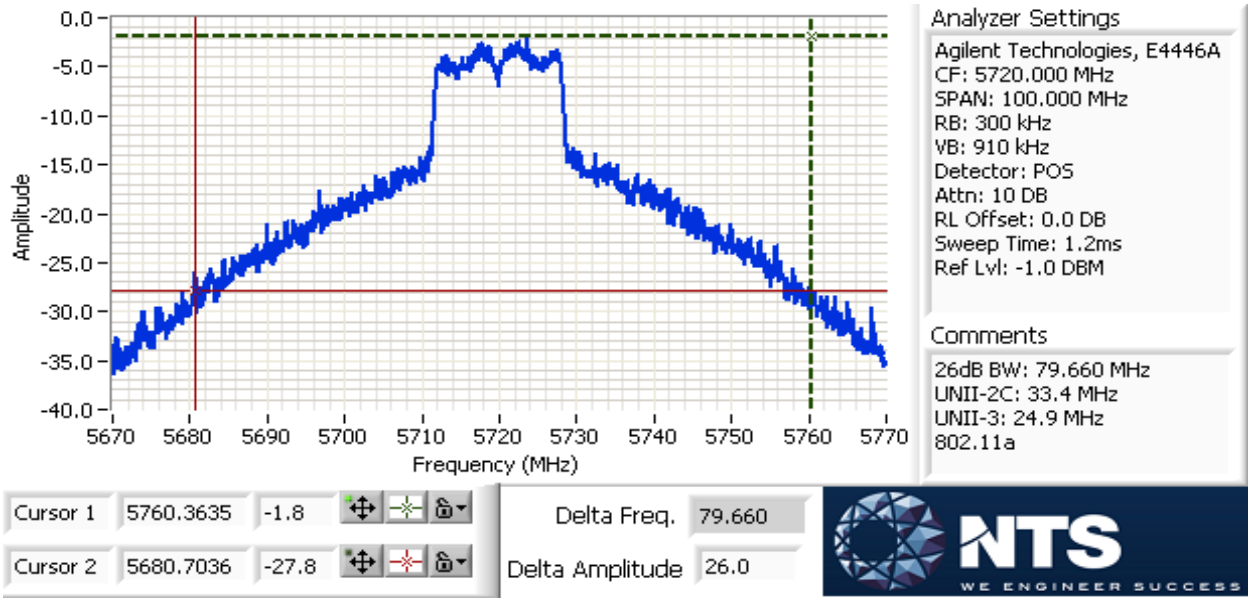
SISO Device - 5470-5725 MHz Band - FCC

Antenna Gain (dBi): 5.7 Max EIRP: 166.0 mW 22.2 dBm

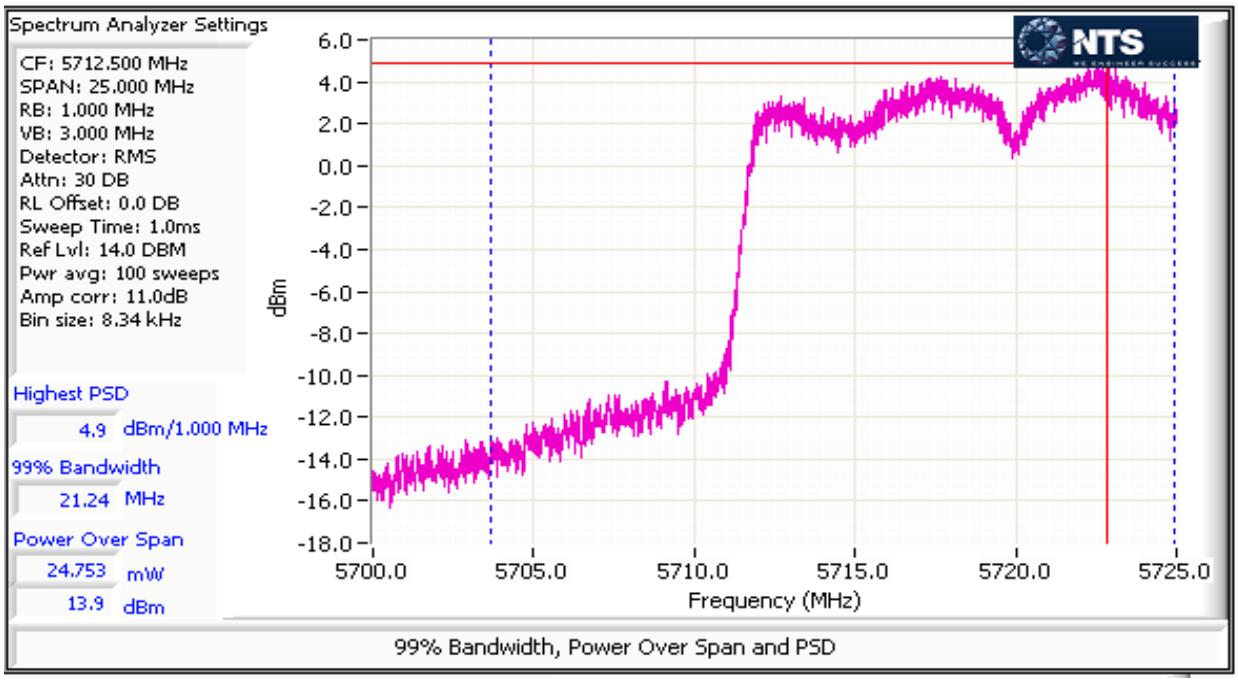
Frequency (MHz)	Software Setting	26dB BW (MHz)	Duty Cycle %	Output Power[1] dBm			PSD[2] dBm/MHz			Result
				Measured	Calculated	Limit	Measured	Calculated	Limit	
802.11a										
5500	14.0	24.2	99.0	12.2	12.2	24.0	-0.2	-0.2	11.0	Pass
5580	19.0	80.3	99.0	16.4	16.4	24.0	2.7	2.7	11.0	Pass
5700	14.0	26.8	99.0	12.8	12.8	24.0	-1.0	-1.0	11.0	Pass
Portion within 5470-5725MHz (UNII-2C)										
5720	19.0	33.4	99.0	13.9	13.9	24.0	4.9	4.9	11.0	Pass
Portion within 5725-5850 MHz band (UNII-3)										
5720	19.0	-	99.0	8.1	8.1	30.0	3.0	3.0	30.0	Pass
802.11n 20MHz										
5500	15.0	30.8	100.0	13.1	13.1	24.0	0.5	0.5	11.0	Pass
5580	19.0	84.8	100.0	16.5	16.5	24.0	2.4	2.4	11.0	Pass
5700	13.0	22.8	100.0	11.7	11.7	24.0	-2.4	-2.4	11.0	Pass
Portion within 5470-5725MHz (UNII-2C)										
5720	19.0	45.9	100.0	13.8	13.8	24.0	4.3	4.3	11.0	Pass
Portion within 5725-5850 MHz band (UNII-3)										
5720	19.0	-	100.0	8.5	8.5	30.0	4.1	4.1	30.0	Pass
802.11n 40MHz										
5510	12.0	40.6	100.0	10.4	10.4	24.0	-5.8	-5.8	11.0	Pass
5550	17.0	97.9	100.0	14.9	14.9	24.0	-1.8	-1.8	11.0	Pass
5670	14.0	96.9	100.0	12.4	12.4	24.0	-1.8	-1.8	11.0	Pass
Portion within 5470-5725MHz (UNII-2C)										
5710	17.0	67.0	100.0	13.5	13.5	24.0	0.4	0.4	11.0	Pass
Portion within 5725-5850 MHz band (UNII-3)										
5710	17.0	-	100.0	3.8	3.8	30.0	0.3	0.3	30.0	Pass
802.11ac 80MHz										
5530	8.0	82.0	99.0	6.7	6.7	24.0	-13.4	-13.4	11.0	Pass
5610	14.0	196.7	99.0	12.2	12.2	24.0	-8.3	-8.3	11.0	Pass
Portion within 5470-5725MHz (UNII-2C)										
5690	14.0	132.2	99.0	10.5	10.5	24.0	-6.6	-6.6	11.0	Pass
Portion within 5725-5850 MHz band (UNII-3)										
5690	14.0	-	99.0	-2.3	-2.3	30.0	-6.9	-6.9	30.0	Pass

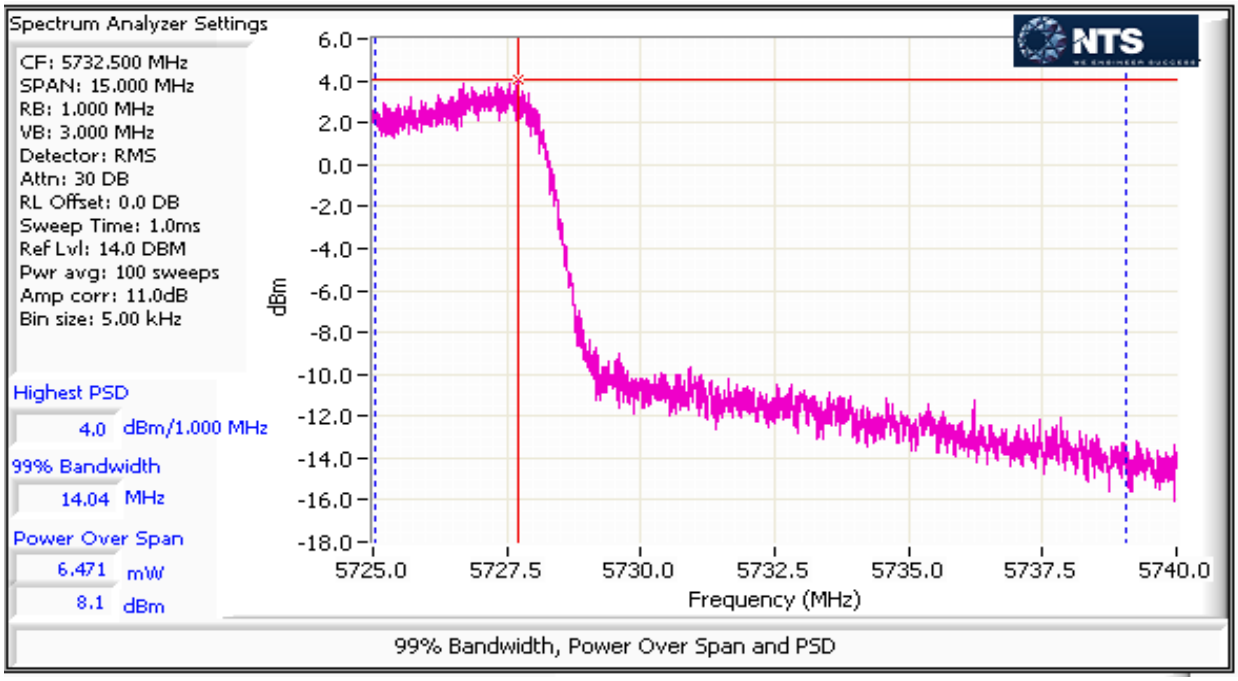
Client:	Google Inc	Job Number:	JD101591
Model:	H0ME	T-Log Number:	T102213
		Project Manager:	Deepa Shetty
Contact:	Dominik Mente	Project Coordinator:	-
Standard:	FCC 15.247/15.407/RSS-247	Class:	N/A





Client:	Google Inc	Job Number:	JD101591
Model:	H0ME	T-Log Number:	T102213
		Project Manager:	Deepa Shetty
Contact:	Dominik Mente	Project Coordinator:	-
Standard:	FCC 15.247/15.407/RSS-247	Class:	N/A





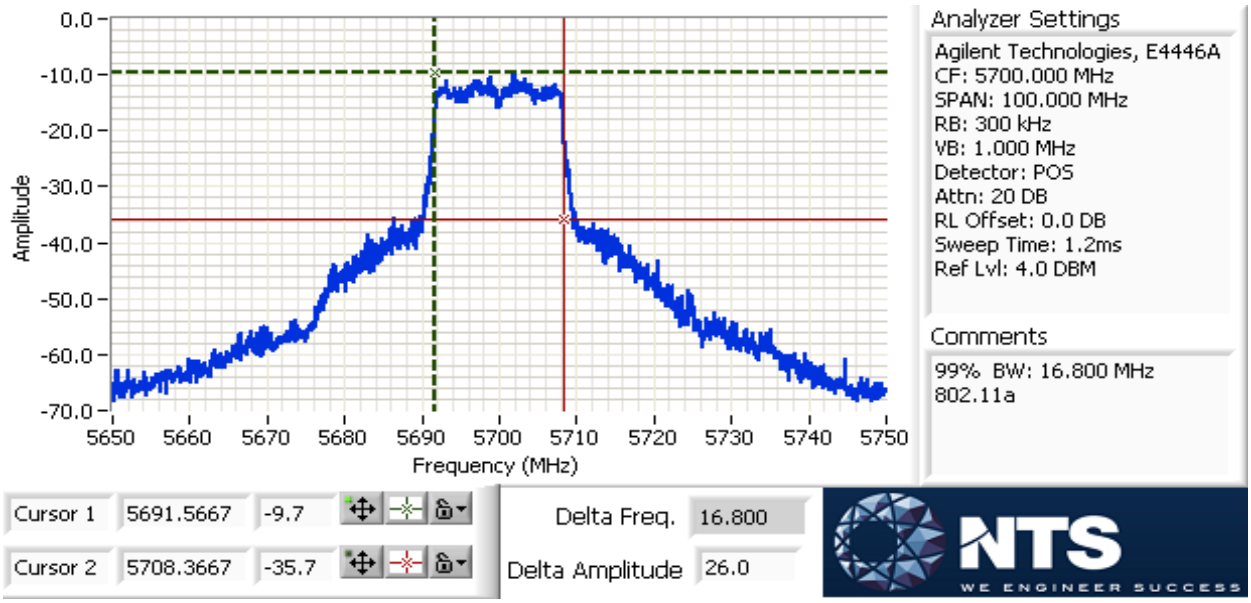
Client:	Google Inc	Job Number:	JD101591
Model:	H0ME	T-Log Number:	T102213
		Project Manager:	Deepa Shetty
Contact:	Dominik Mente	Project Coordinator:	-
Standard:	FCC 15.247/15.407/RSS-247	Class:	N/A

SISO Device - 5470-5725 MHz Band - Industry Canada

Antenna Gain (dBi): 5.7 Max EIRP: 166.0 mW 22.2 dBm

Frequency (MHz)	Software Setting	99% BW (MHz)	Duty Cycle %	Output Power[1] dBm			PSD[2] dBm/MHz			Result
				Measured	Calculated	Limit	Measured	Calculated	Limit[3]	
802.11a										
5500	14.0	16.9	99.0	12.2	12.2	23.3	-0.2	-0.2	11.0	Pass
5580	19.0	57.1	99.0	16.4	16.4	24.0	2.7	2.7	11.0	Pass
5700	14.0	16.8	99.0	12.8	12.8	23.3	-1.0	-1.0	11.0	Pass
Portion within 5470-5725MHz (UNII-2C)										
5720	19.0	33.4	99.0	13.9	13.9	24.0	4.9	4.9	11.0	Pass
Portion within 5725-5850 MHz band (UNII-3)										
5720	19.0	24.9	99.0	8.1	8.1	30.0	4.0	4.0	30.0	Pass
802.11n 20MHz										
5500	15.0	18.0	100.0	13.1	13.1	23.6	0.5	0.5	11.0	Pass
5580	19.0	57.9	100.0	16.5	16.5	24.0	2.4	2.4	11.0	Pass
5700	13.0	17.9	100.0	11.7	11.7	23.5	-2.4	-2.4	11.0	Pass
Portion within 5470-5725MHz (UNII-2C)										
5720	19.0	35.3	100.0	13.8	13.8	24.0	4.3	4.3	11.0	Pass
Portion within 5725-5850 MHz band (UNII-3)										
5720	19.0	26.8	100.0	8.5	8.5	30.0	4.1	4.1	30.0	Pass
802.11n 40MHz										
5510	12.0	36.3	100.0	10.4	10.4	24.0	-5.8	-5.8	11.0	Pass
5550	17.0	44.0	100.0	14.9	14.9	24.0	-1.8	-1.8	11.0	Pass
5670	17.0	56.9	100.0	15.4	15.4	24.0	-1.8	-1.8	11.0	Pass
Portion within 5470-5725MHz (UNII-2C)										
5710	17.0	50.4	100.0	13.5	13.5	24.0	0.4	0.4	11.0	Pass
Portion within 5725-5850 MHz band (UNII-3)										
5710	17.0	19.8	100.0	3.8	3.8	30.0	0.3	0.3	30.0	Pass
802.11ac 80MHz										
5530	8.0	76.3	99.0	6.7	6.7	24.0	-13.4	-13.4	11.0	Pass
Portion within 5470-5725MHz (UNII-2C)										
5690	14.0	90.6	99.0	10.5	10.5	24.0	-6.6	-6.6	11.0	Pass
Portion within 5725-5850 MHz band (UNII-3)										
5690	14.0	20.1	99.0	-2.3	-2.3	30.0	-6.9	-6.9	30.0	Pass

Client:	Google Inc	Job Number:	JD101591
Model:	H0ME	T-Log Number:	T102213
		Project Manager:	Deepa Shetty
Contact:	Dominik Mente	Project Coordinator:	-
Standard:	FCC 15.247/15.407/RSS-247	Class:	N/A



Client:	Google Inc	Job Number:	JD101591
Model:	H0ME	T-Log Number:	T102213
		Project Manager:	Deepa Shetty
Contact:	Dominik Mente	Project Coordinator:	-
Standard:	FCC 15.247/15.407/RSS-247	Class:	N/A

SISO Device - 5725-5850 MHz Band - FCC

Antenna Gain (dBi): 5.7 Max EIRP: 218.8 mW 23.4 dBm

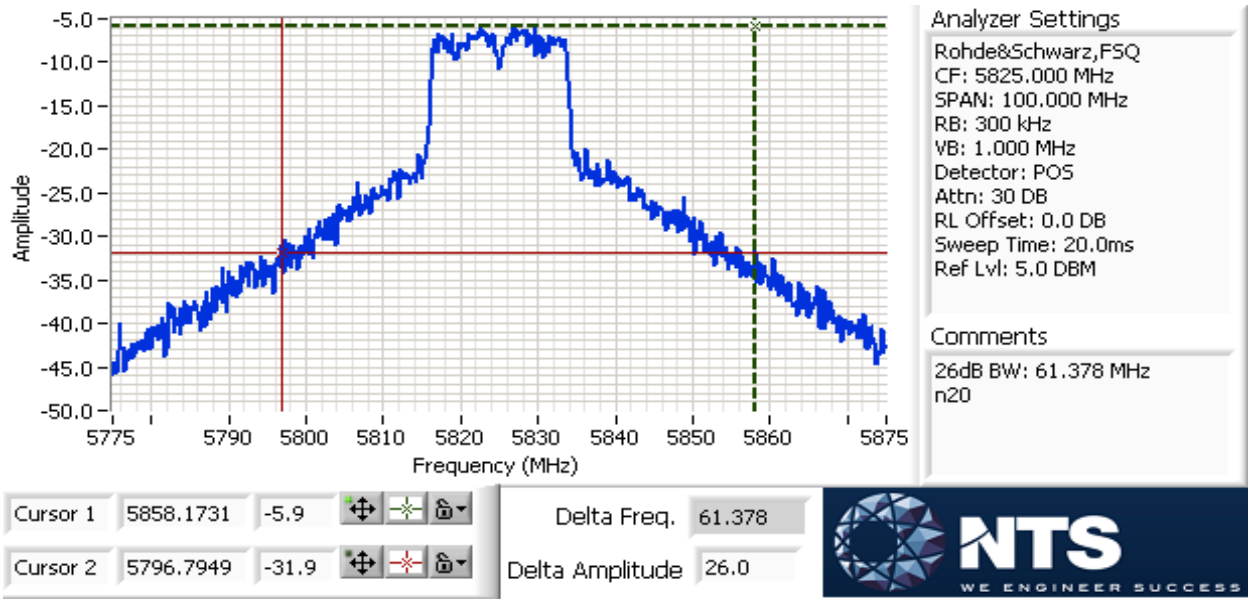
Frequency (MHz)	Software Setting	26dB BW (MHz)	Duty Cycle %	Output Power[1] dBm			PSD[2] dBm/MHz			Result
				Measured	Calculated	Limit	Measured	Calculated	Limit	
802.11a										
5745	18	89.7	99	17.1	17.1	30.0	3.7	3.7	17.0	Pass
5785	18	89.6	99	17.5	17.5	30.0	3.9	3.9	17.0	Pass
5825	18	87.8	99	17.7	17.7	30.0	4.1	4.1	17.0	Pass
802.11n 20MHz										
5745	18	80.8	100	17.1	17.1	30.0	3.5	3.5	17.0	Pass
5785	18	89.7	100	17.4	17.4	30.0	3.8	3.8	17.0	Pass
5825	17	61.4	100	16.5	16.5	30.0	3.4	3.4	17.0	Pass
802.11n 40MHz										
5755	16	91.3	100	15.1	15.1	30.0	-1.2	-1.2	17.0	Pass
5795	16	93.1	100	15.3	15.3	30.0	-1.0	-1.0	17.0	Pass
802.11ac 80MHz										
5775	13	200.9	99	12.3	12.3	30.0	-7.1	-7.1	17.0	Pass

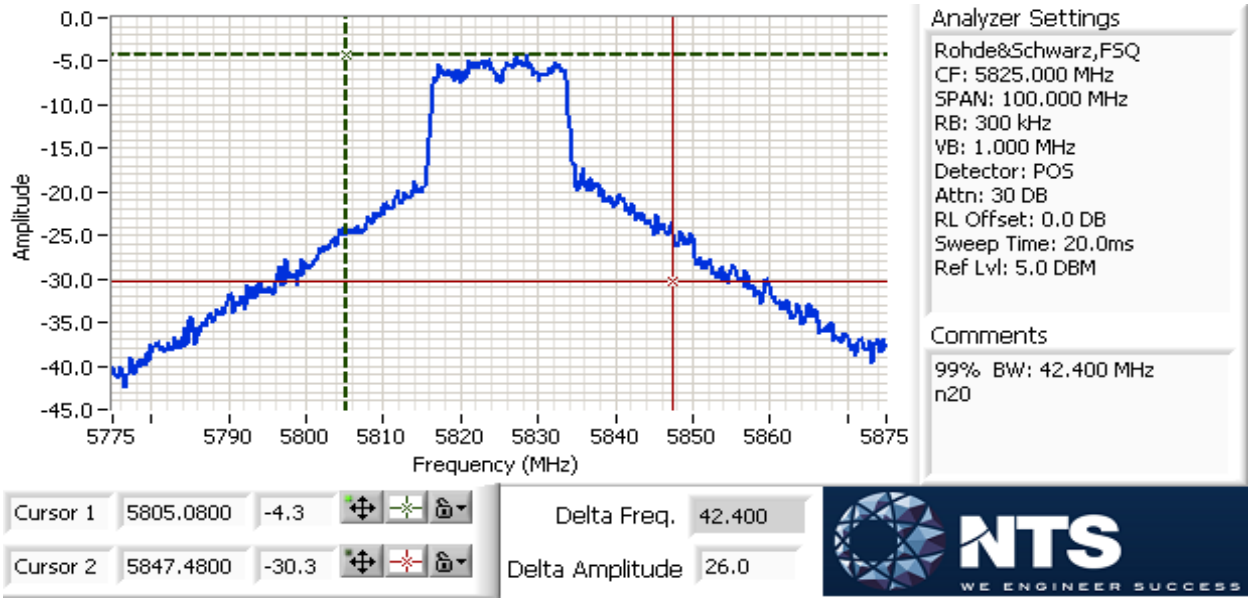
SISO Device - 5725-5850 MHz Band - Industry Canada

Antenna Gain (dBi): 5.7 Max EIRP: 221.0 mW 23.4 dBm

Frequency (MHz)	Software Setting	99% BW (MHz)	Duty Cycle %	Output Power[1] dBm			PSD[2] dBm/MHz			Result
				Measured	Calculated	Limit	Measured	Calculated	Limit[3]	
802.11a										
5745	18	58.7	99	17.1	17.1	30.0	3.7	3.7	17.0	Pass
5785	18	64.0	99	17.5	17.5	30.0	3.9	3.9	17.0	Pass
5825	18	62.6	99	17.7	17.7	30.0	4.1	4.1	17.0	Pass
802.11n 20MHz										
5745	18	57.6	100	17.1	17.1	30.0	3.5	3.5	17.0	Pass
5785	18	62.7	100	17.4	17.4	30.0	3.8	3.8	17.0	Pass
5825	17	42.4	100	16.5	16.5	30.0	3.4	3.4	17.0	Pass
802.11n 40MHz										
5755	16	44.0	100	15.1	15.1	30.0	-1.2	-1.2	17.0	Pass
5795	16	50.2	100	15.3	15.3	30.0	-1.0	-1.0	17.0	Pass
802.11ac 80MHz										
5775	13	140.6	99	12.3	12.3	30.0	-7.1	-7.1	17.0	Pass

Client:	Google Inc	Job Number:	JD101591
Model:	H0ME	T-Log Number:	T102213
		Project Manager:	Deepa Shetty
Contact:	Dominik Mente	Project Coordinator:	-
Standard:	FCC 15.247/15.407/RSS-247	Class:	N/A





End of Report

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