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EMC Test Report

Application for Grant of Equipment Authorization

FCC Part 15, Subpart E

Model: 5268AC

FCC ID:	PGR5200AC
APPLICANT:	Pace Americas Inc. 310 Providence Mine Road Nevada City, CA 95959
TEST SITE(S):	National Technical Systems - Silicon Valley 41039 Boyce Road. Fremont, CA. 94538-2435
IC SITE REGISTRATION #:	2845B-3; 2845B-4, 2845B-5, 2845B-7
REPORT DATE:	September 18, 2015
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REVISION HISTORY

Rev#	Date	Comments	Modified By
-	September 18, 2015	First release	
1.0	November 9, 2015	Clarified Radiated Spurious configuration and results	MEH

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SCOPE

An electromagnetic emissions test has been performed on the Pace Americas Inc. model 5268AC, pursuant to the following rules:

FCC Part 15, Subpart E requirements for UNII Devices

Conducted and radiated emissions data has been collected, reduced, and analyzed within this report in accordance with measurement guidelines set forth in the following reference standards and as outlined in National Technical Systems - Silicon Valley test procedures:

ANSI C63.10-2009
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.

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 Pace Americas Inc. model 5268AC complied with the requirements of the following regulations:

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 Pace Americas Inc. model 5268AC and therefore apply only to the tested sample. The sample was selected and prepared by Mark Rieger of Pace Americas 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

FCC Rule Part	RSS Rule Part	Description	Measured Value / Comments	Limit / Requirement	Result
15.407(a)(1) (ii)	-	Output Power	a: 27.8dBm (609mW) n20: 27.8dBm (603mW) n40: 26.1dBm (410mW) ac80: 19.4dBm (87mW) (Max eirp: 3.88W)	30dBm	Complies
15.407 (a) (1)	-	Power Spectral Density	a: 14.9 dBm/MHz n20: 14.8 dBm/MHz n40: 9.9 dBm/MHz ac80: 0.8 dBm/MHz	17 dBm/MHz	Complies

Operation in the 5.725 – 5.850 GHz Band

FCC Rule Part	RSS Rule Part	Description	Measured Value / Comments	Limit / Requirement	Result (margin)
15.407(e)	-	6dB Bandwidth	a: 16.4 MHz n20: 17.6 MHz n40: 36.4 MHz ac80: 75.0 MHz	<500kHz	N/A
15.407(a) (3)	-	Output Power	a: 27.4dBm (545mW) n20: 26.1dBm (410mW) n40: 23.1dBm (206mW) ac80:21.9dBm (155mW) (Max eirp: 3.47W)	30 dBm (eirp < 36dBm)	Complies
15.407(a) (3)		Power Spectral Density	a: 14.4 dBm/MHz n20: 13.1 dBm/MHz n40: 7.0 dBm/MHz ac80: 3.4 dBm/MHz	30 dBm/500kHz	Complies

Requirements for all U-NII/LELAN bands

FCC Rule Part	RSS Rule Part	Description	Measured Value / Comments	Limit / Requirement	Result
15.407	-	Modulation	Unchanged from original filing		
15.407(b) (5) / 15.209	-	Spurious Emissions	53.9 dBµV/m @ 5150.0 MHz (-0.1 dB)	Refer to page 20	Complies
15.407 (c)	-	Operation in the absence of information to transmit	Unchanged from original filing		
15.407 (g)	-	Frequency Stability			
15.407 (h1)	-	Transmit Power Control			
15.407 (h2)	-	Dynamic frequency Selection (device with radar detection)	Refer to separate test report, reference R98201	Threshold -62dBm (-64dBm if eirp > 200mW) Channel Availability Check > 60s Channel closing transmission time < 260ms Channel move time < 10s Non occupancy period > 30minutes	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	Unchanged from original filing		
15.207	RSS GEN Table 3	AC Conducted Emissions			
15.247 (b) (5) 15.407 (f)	RSS 102	RF Exposure Requirements	Refer to MPE calculations in separate exhibit	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 Pace Americas Inc. model 5268AC is a wireless residential gateway that provides an 802.11 a/b/g/n/ac Wi-Fi access point and Ethernet switch function for connecting personal computers and other in-home networked devices to the service provider's network.

The sample was received on March 17, 2015 and tested on March 17, 18, 24, 30, April 8, 9, 10, 28 and May 14, 2015. The EUT consisted of the following component(s):

Company	Model	Description	Serial Number	FCC ID
Pace Americas	5268AC	Residential Gateway	-	PGR5200AC

OTHER EUT DETAILS

5GHz 802.11n 4x4 MIMO Wi-Fi
Only operates in a 4x4 mode
2.4GHz 802.11n 2x2 MIMO Wi-Fi

ANTENNA SYSTEM

Antennas are internal fixed, stamped metal antennas.
Antenna 1: 1.95dBi
Antenna 2: 2.27dBi
Antenna 3: 1.83dBi
Antenna 4: 2.03dBi

ENCLOSURE

The EUT enclosure measures approximately 27 by 18 by 7 centimeters. It is primarily constructed of uncoated coated plastic.

MODIFICATIONS

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

SUPPORT EQUIPMENT

No local support equipment was used during testing.

The following equipment was used as remote support equipment for emissions testing:

Company	Model	Description	Serial Number	FCC ID
Dell	Latitude 131L	Laptop	-	-

EUT INTERFACE PORTS

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

Port	Connected To	Cable(s)		
		Description	Shielded or Unshielded	Length(m)
Ethernet	Laptop	Cat 5	Unshielded	10
DC power in	External pwr supply	2 wire	Unshielded	1
AC pwr (external supply)	AC mains	3 wire	Unshielded	2

EUT OPERATION

During emissions testing the EUT was transmitting on the channel and at the power level called out in the individual test.

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 3	US0027	2845B-3	41039 Boyce Road Fremont, CA 94538-2435
Chamber 4	US0027	2845B-4	
Chamber 5	US0027	2845B-5	
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.

RADIATED EMISSIONS CONSIDERATIONS

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

MEASUREMENT INSTRUMENTATION

RECEIVER SYSTEM

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

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

INSTRUMENT CONTROL COMPUTER

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

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

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.

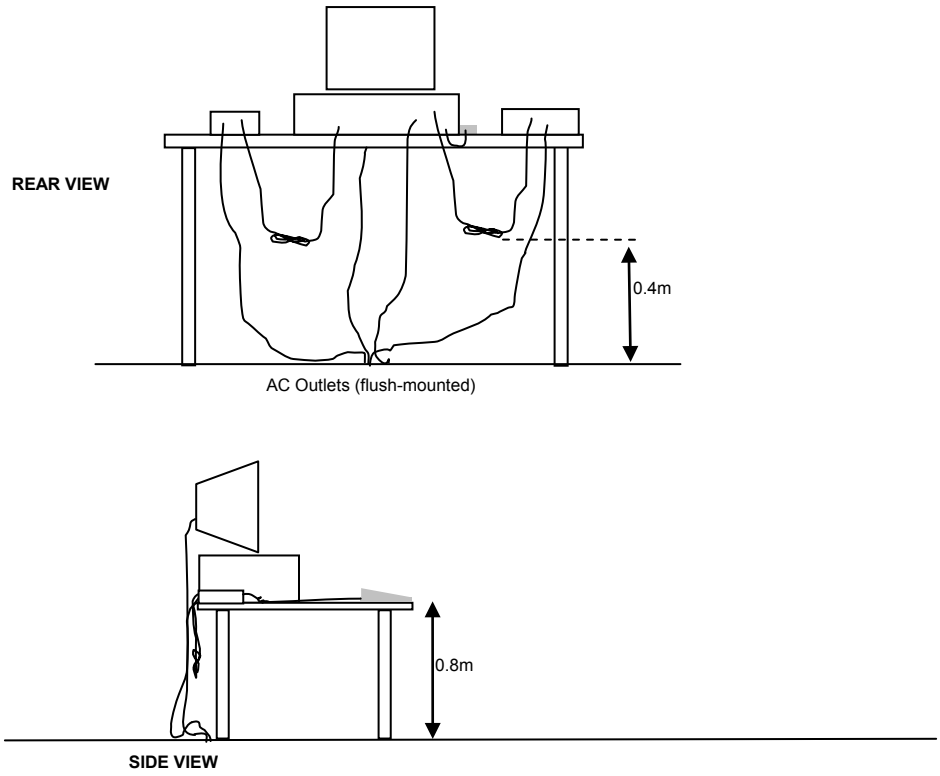
RADIATED EMISSIONS

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.

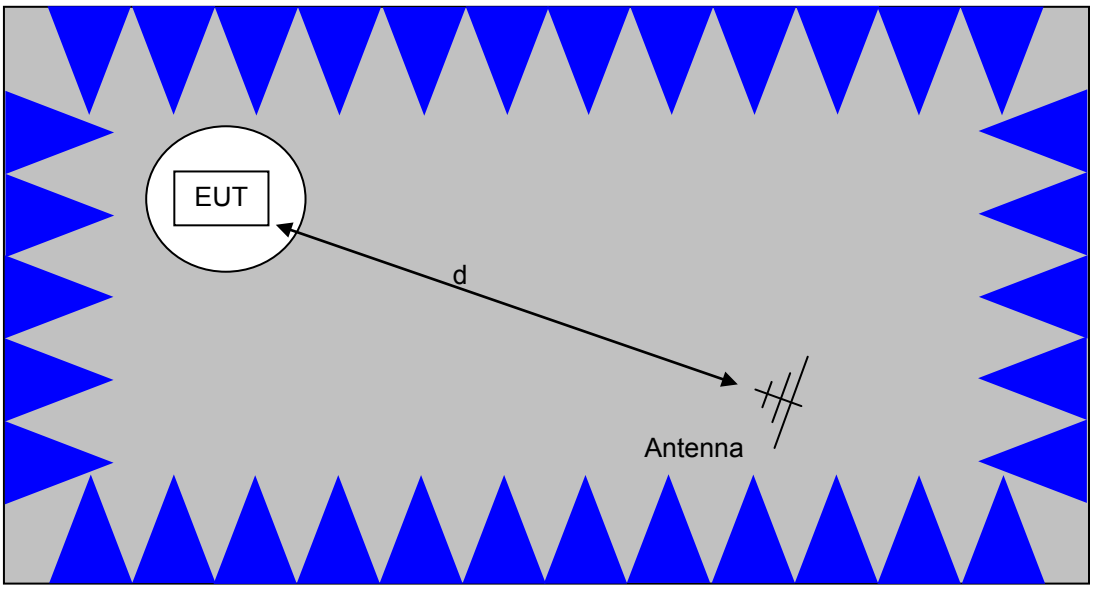
A speaker is provided in the receiver to aid in discriminating between EUT and ambient emissions. Other methods used during the preliminary scan for EUT emissions involve scanning with near field magnetic loops, monitoring I/O cables with RF current clamps, and cycling power to the EUT.

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.

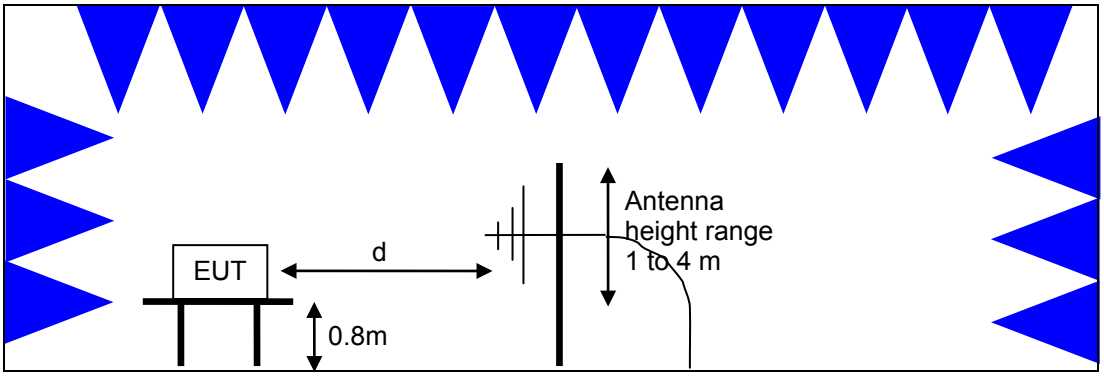


Typical Test Configuration for Radiated Field Strength Measurements



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.

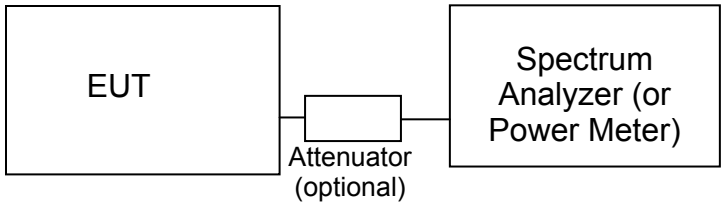
Floor-standing equipment is placed on the floor with insulating supports between the unit and the ground plane.



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. In the 5250-5350 and 5470-5725MHz bands, where the signal bandwidth is less than 20 MHz the maximum output power is reduced to the power spectral density limit plus 10 times the log of the bandwidth (in MHz).

Operating Frequency (MHz)	Output Power	Power Spectral Density
5150 – 5250	1 Watt (30 dBm)	17 dBm/MHz
5250 – 5350	250 mW (24 dBm)	11 dBm/MHz
5470 - 5725	250 mW (24 dBm)	11 dBm/MHz
5725 – 5850	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.

SPURIOUS EMISSIONS LIMITS –UNII and LELAN DEVICES

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

[1] The restricted bands are detailed in FCC 15.205, RSS 210 Table 1 and RSS 310 Table 2

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

Manufacturer	Description	Model	Asset #	Calibrated	Cal Due
Radio Antenna Port (Power and Spurious Emissions), 17-Mar-15					
Rohde & Schwarz	EMI Test Receiver, 20 Hz-7 GHz	ESIB7	1630	6/21/2014	6/21/2015
Agilent Technologies	USB Average Power Sensor	U2001A	2442	12/19/2014	12/19/2015
Radiated Emissions, BE, 1,000 - 6,000 MHz, 18-Mar-15					
Rohde & Schwarz	EMI Test Receiver, 20 Hz-7 GHz	ESIB7	1630	6/21/2014	6/21/2015
EMCO	Antenna, Horn, 1-18 GHz	3115	2870	8/20/2013	8/20/2015
Radiated Emissions, 1,000 - 6,500 MHz, 18-Mar-15					
EMCO	Antenna, Horn, 1-18 GHz	3115	1561	6/27/2014	6/27/2016
Rohde & Schwarz	EMI Test Receiver, 20 Hz-7 GHz	ESIB7	1630	6/21/2014	6/21/2015
Radiated Emissions, 1,000 - 6,500 MHz, 24-Mar-15					
EMCO	Antenna, Horn, 1-18 GHz	3115	487	7/29/2014	7/29/2016
Rohde & Schwarz	EMI Test Receiver, 20 Hz-40 GHz	ESIB40 (1088.7490.40)	2493	1/23/2015	1/23/2016
Radiated Emissions, 1,000 - 12,000 MHz, 30-Mar-15					
Hewlett Packard	Microwave Preamplifier, 1-26.5GHz	8449B	785	10/31/2014	10/31/2015
EMCO	Antenna, Horn, 1-18 GHz	3115	786	12/20/2013	12/20/2015
Hewlett Packard	Microwave Preamplifier, 1-26.5GHz	8449B	870	2/20/2015	2/20/2016
Hewlett Packard	SpecAn 9 kHz - 40 GHz, FT (SA40) Blue	8564E (84125C)	1393	5/6/2014	5/6/2015
National Technical Systems	ESD, Vertical Plane, 19-3/4 x 19-3/4	ESD, VP, 19-3/4 x 19-3/4	2351		N/A
Radiated Emissions, 1,000 - 6,500 MHz, 08-Apr-15					
EMCO	Antenna, Horn, 1-18 GHz	3115	1561	6/27/2014	6/27/2016
Rohde & Schwarz	EMI Test Receiver, 20 Hz-7 GHz	ESIB7	1630	6/21/2014	6/21/2015
Radiated Emissions, 1000 - 40,000 MHz, 09-Apr-15					
EMCO	Antenna, Horn, 1-18 GHz	3115	487	7/29/2014	7/29/2016
Hewlett Packard	Microwave Preamplifier, 1-26.5GHz	8449B	870	2/20/2015	2/20/2016
Hewlett Packard	SpecAn 30 Hz -40 GHz, SV (SA40) Red	8564E (84125C)	1148	9/20/2014	9/20/2015
Micro-Tronics	Band Reject Filter, 5725-5875 MHz	BRC50705-02	1682	7/15/2014	7/15/2015
Micro-Tronics	Band Reject Filter, 5150-5350 MHz	BRC50703-02	2251	10/3/2014	10/3/2015
Radiated Spurious Emissions, 1000 - 40,000 MHz, 10-Apr-15					
EMCO	Antenna, Horn, 1-18 GHz	3115	487	7/29/2014	7/29/2016
Narda West	High Pass Filter, 8 GHz	HPF 180	821	3/19/2015	3/19/2016
Hewlett Packard	Microwave Preamplifier, 1-26.5GHz	8449B	870	2/20/2015	2/20/2016

Manufacturer	Description	Model	Asset #	Calibrated	Cal Due
Hewlett Packard	Head (Inc flex cable, 1143, 2198) Red	84125C	1145	6/17/2014	6/17/2015
Hewlett Packard	SpecAn 30 Hz -40 GHz, SV (SA40) Red	8564E (84125C)	1148	9/20/2014	9/20/2015
Micro-Tronics	Band Reject Filter, 5725-5875 MHz	BRC50705-02	1682	7/15/2014	7/15/2015
A. H. Systems	Red System Horn, 18-40GHz	SAS-574, p/n: 2581	2161	7/9/2014	7/9/2015
Radiated Emissions, 30 - 1,000 MHz, 10-Apr-15					
Rohde & Schwarz	EMI Test Receiver, 20 Hz-7 GHz	ESIB7	1538	12/20/2014	12/20/2015
Sunol Sciences	Biconilog, 30-3000 MHz	JB3	2197	2/13/2014	2/13/2016
Hewlett Packard	9KHz-1300MHz pre-amp	8447F	2777	3/4/2015	3/5/2016
DFS, 17-Apr-15					
Hewlett Packard	EMC Spectrum Analyzer, 9 kHz - 6.5 GHz	8595EM	787	8/18/2014	8/18/2015
ETS Lindgren	Antenna, Horn, 1-18 GHz	3117	1662	6/4/2014	6/4/2016
Agilent Technologies	PSG, Vector Signal Generator, (250kHz - 20GHz)	E8267C	1877	6/19/2014	6/19/2015
Tektronix	500MHz, 2CH, 5GS/s Scope	TDS5052B	2118	10/30/2014	10/30/2015
Radiated Emissions, 1,000 - 6,000 MHz, 28-Apr-15					
EMCO	Antenna, Horn, 1-18 GHz	3115	1561	6/27/2014	6/27/2016
Hewlett Packard	Microwave Preamplifier, 1-26.5GHz	8449B	2199	2/20/2015	2/20/2016
Micro-Tronics	Band Reject Filter, 2400-2500 MHz	BRM50702-02	2238	9/16/2014	9/16/2015
Hewlett Packard	SpecAn 9 kHz - 40 GHz, (SA40) Purple	8564E (84125C)	2415	3/7/2015	3/7/2016
Radio Antenna Port (Power and Spurious Emissions), 14-May-15					
Agilent Technologies	PSA, Spectrum Analyzer, (installed options, 111, 115, 123, 1DS, B7J, HYX,	E4446A	2139	4/8/2015	4/8/2016

Appendix B Test Data

T97825 Pages 26 – 121

Client:	Pace Americas, Inc.	Job Number:	J97787
Product	5268AC (FCC ID: PGR5200AC)	T-Log Number:	T97825
		Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Emissions Standard(s):	FCC 15.407 (New Rules)	Class:	-
Immunity Standard(s):	-	Environment:	-

EMC Test Data

For The

Pace Americas, Inc.

Product

5268AC (FCC ID: PGR5200AC)

Date of Last Test: 7/23/2015

Client:	Pace Americas, Inc.	Job Number:	J97787
Model:	5268AC (FCC ID: PGR5200AC)	T-Log Number:	T97825
		Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.407 (New Rules)	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 redcued as the data rate increases, therefore testing was performed at the data rate in the mode wiht 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 3(SKT6) at the various data rates in each mode to verify the highest power mode:

Sample Notes

Sample S/N: 41141N098369
Driver:

Date of Test: 3/17/2015
Test Engineer: Jack Liu
Test Location: FT Chamber#4

Mode	Data Rate	Power (dBm)	Power setting
802.11a	6	23.2	24.0
	9	**23.3**	
	12	23.1	
	18	23.1	
	24	23.0	
	36	23.0	
	48	23.0	
	54	23.0	

Client:	Pace Americas, Inc.	Job Number:	J97787
Model:	5268AC (FCC ID: PGR5200AC)	T-Log Number:	T97825
		Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.407 (New Rules)	Class:	N/A

Mode	Data Rate	Power (dBm)	Power setting	
802.11n 20MHz	6.5	**23.3**	24.0	
	13	23.2		
	19.5	23.1		
	26	23.2		
	39	23.1		
	52	23.0		
	58.5	22.9		
	65	22.8		
	78	22.8		<<-11ac mode only
802.11n/ac 40MHz	13.5	**23.6**	24.0	
	27	23.3		
	40.5	23.2		
	54	23.1		
	81	23.0		
	108	23.0		
	121.5	23.0		
	135	22.9		
	162	22.6		<<-11ac mode only
	180	22.2		<<-11ac mode only
802.11ac 80MHz	29.3	**23.1**	24.0	
	58.5	23.1		
	87.8	23.0		
	117	22.9		
	175.5	22.7		
	234	22.6		
	266.3	22.5		
	292.5	22.3		
	351	22.3		
	390	21.7		

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

Client:	Pace Americas, Inc.	Job Number:	J97787
Model:	5268AC (FCC ID: PGR5200AC)	T-Log Number:	T97825
		Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.407 (New Rules)	Class:	N/A

Duty Cycle

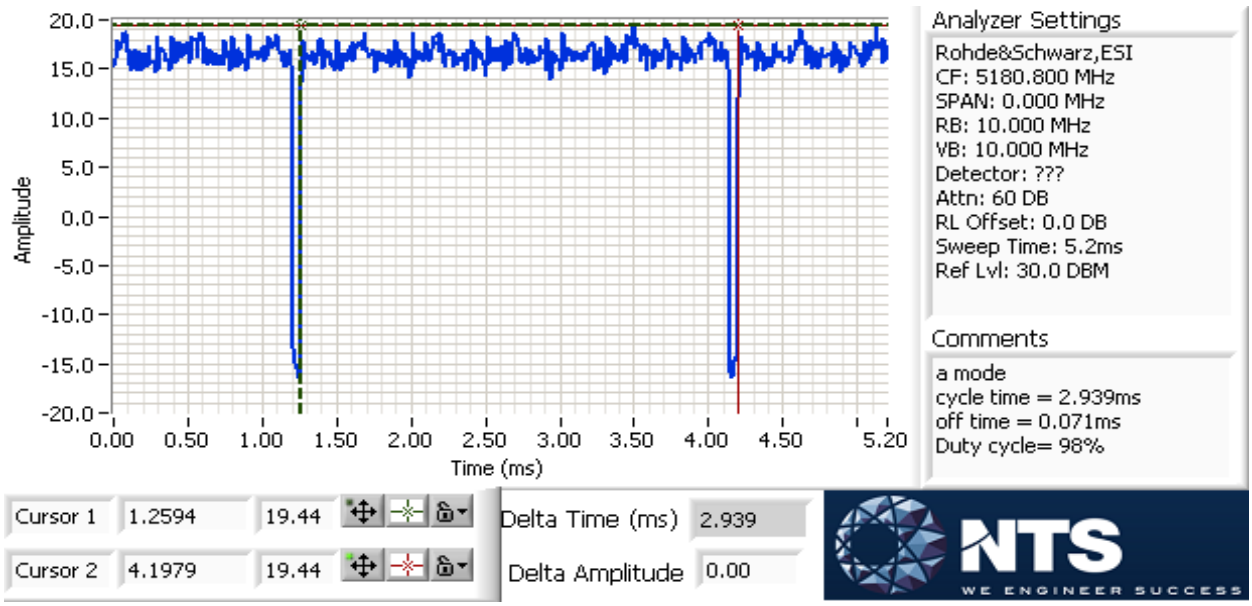
Date of Test: 3/17/2015
Test Engineer: Jack Liu
Test Location: FT Chamber#4

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

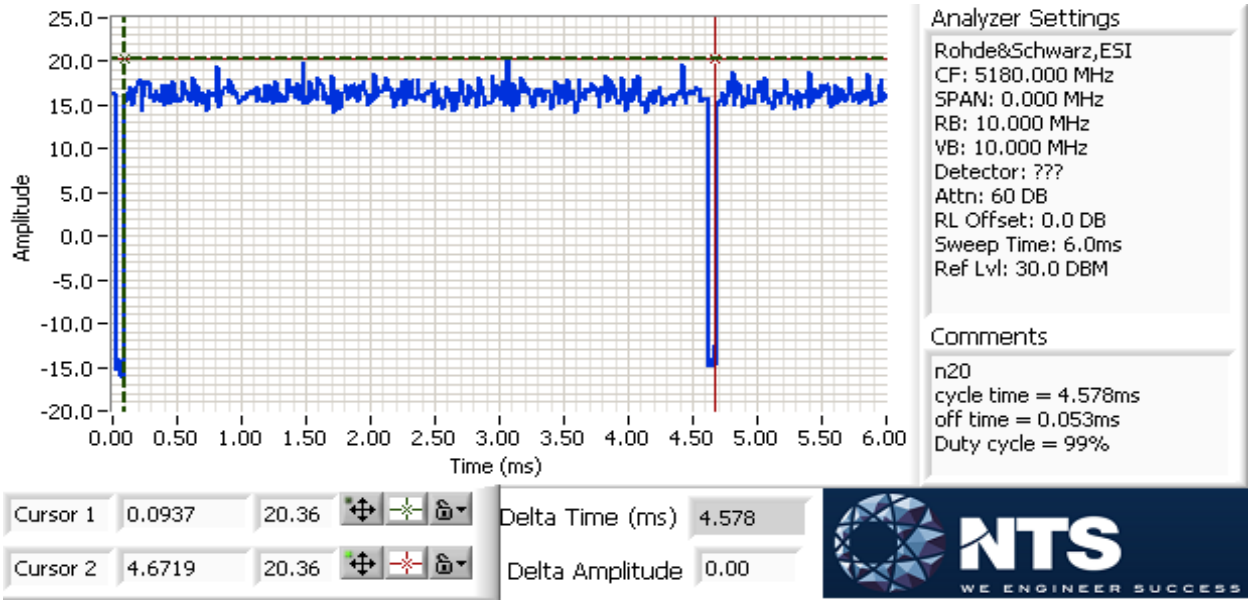
Notes: Measurements taken with maximum RBW/VBW settings allowed.

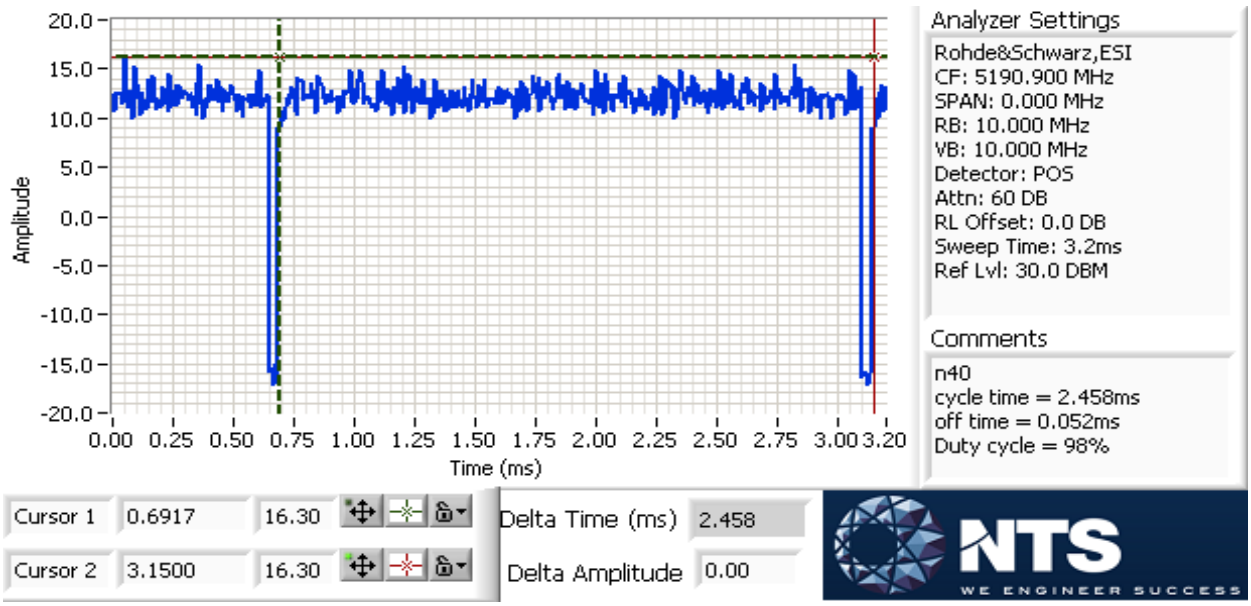
Mode	Data Rate	Duty Cycle (x)	Constant DC?	T (ms)	Pwr Cor Factor*	Lin Volt Cor Factor**	Min VBW for FS (Hz)
11a	9MB/s	0.98	Yes	5.2	0.00	0.00	192
n20	MCS0	0.99	Yes	6	0.00	0.00	167
n40	MCS0	0.98	Yes	3.2	0.00	0.00	313
ac80	VTH0	0.92	Yes	2.1	0.35	0.70	476

* 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

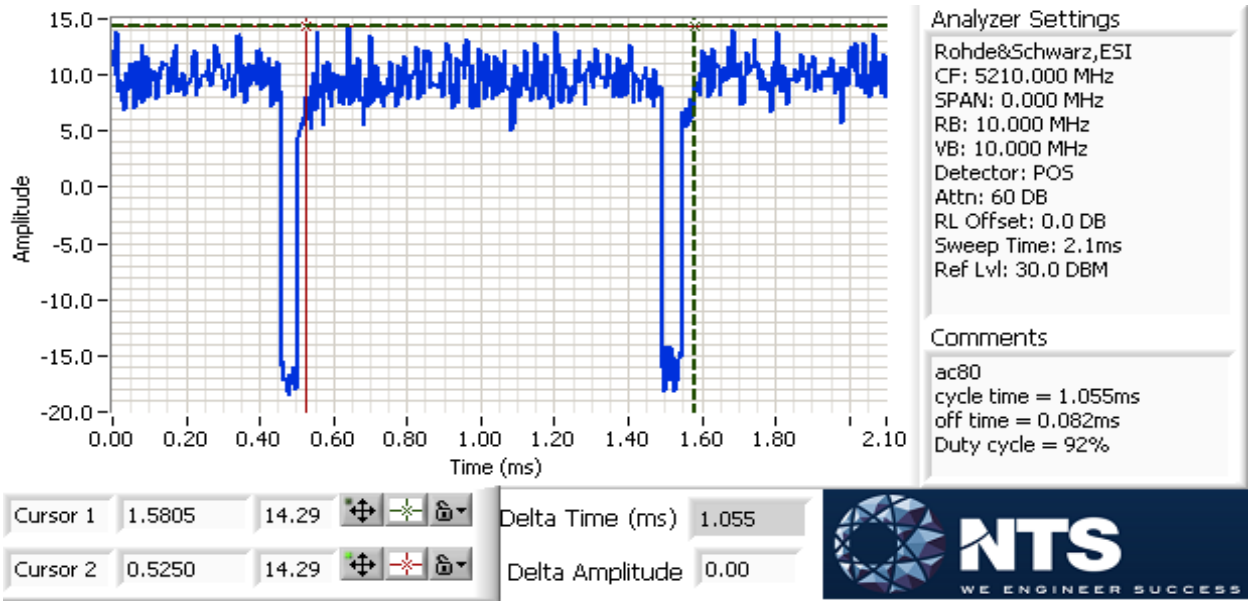


Client:	Pace Americas, Inc.	Job Number:	J97787
Model:	5268AC (FCC ID: PGR5200AC)	T-Log Number:	T97825
		Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.407 (New Rules)	Class:	N/A





Client:	Pace Americas, Inc.	Job Number:	J97787
Model:	5268AC (FCC ID: PGR5200AC)	T-Log Number:	T97825
		Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.407 (New Rules)	Class:	N/A



Client:	Pace Americas, Inc.	Job Number:	J97787
Model:	5268AC (FCC ID: PGR5200AC)	T-Log Number:	T97825
		Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.407 (New Rules)	Class:	N/A

RSS 210 and FCC 15.407 (UNII) Radiated Spurious Emissions

Test Specific Details

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

General Test Configuration

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

Ambient Conditions:

Temperature: 25 °C
Rel. Humidity: 30 %

Summary of Results

Run #	Mode	Channel	Target Power Setting	Passing Power Setting	Test Performed	Limit	Result / Margin
1	a (4x4)	36 - 5180MHz	24	18	Restricted Band Edge at 5150 MHz	15.209	52.5 dBµV/m @ 5150.0 MHz (-1.5 dB)
1 addtional	a (4x4)	40 - 5200MHz	24	19	Restricted Band Edge at 5150 MHz	15.209	53.9 dBµV/m @ 5150.0 MHz (-0.1 dB)
		44 - 5220MHz	24	21	Restricted Band Edge at 5150 MHz	15.209	51.7 dBµV/m @ 5140.1 MHz (-2.3 dB)
2	a (4x4)	149 - 5745MHz	24	20	Band Edge at 5715 MHz	15.209	63.5 dBµV/m @ 5711.9 MHz (-4.8 dB)
		149 - 5745MHz	24	20	Band Edge at 5725 MHz	15E	74.9 dBµV/m @ 5724.3 MHz (-3.4 dB)
		165 - 5825MHz	24	16	Band Edge 5850MHz	15E	69.7 dBµV/m @ 5850.0 MHz (-8.6 dB)
		165 - 5825MHz	24	16	Band Edge 5860MHz	15E	64.8 dBµV/m @ 5868.3 MHz (-3.5 dB)

Client:	Pace Americas, Inc.	Job Number:	J97787
Model:	5268AC (FCC ID: PGR5200AC)	T-Log Number:	T97825
		Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.407 (New Rules)	Class:	N/A

Run #	Mode	Channel	Target Power Setting	Passing Power Setting	Test Performed	Limit	Result / Margin
2 addtional	a (4x4)	153 - 5765MHz	24	20	Band Edge at 5715 MHz	15.209	66.3 dBµV/m @ 5711.5 MHz (-2.0 dB)
		153 - 5765MHz	24	20	Band Edge at 5725 MHz	15E	68.9 dBµV/m @ 5720.3 MHz (-9.4 dB)
		157 - 5785MHz	24	24	Band Edge at 5715 MHz	15.209	66.6 dBµV/m @ 5705.0 MHz (-1.7 dB)
		157 - 5785MHz	24	24	Band Edge at 5725 MHz	15E	70.1 dBµV/m @ 5721.2 MHz (-8.2 dB)
		161 - 5805MHz	24	22	Band Edge 5850MHz	15E	70.4 dBµV/m @ 5853.1 MHz (-7.9 dB)
		161 - 5805MHz	24	22	Band Edge 5860MHz	15E	67.7 dBµV/m @ 5864.5 MHz (-0.6 dB)
3	n20 (4x4)	36 - 5180MHz	24	18	Restricted Band Edge at 5150 MHz	15.209	52.6 dBµV/m @ 5150.0 MHz (-1.4 dB)
3 additional	n20 (4x4)	40 - 5200MHz	24	19	Restricted Band Edge at 5150 MHz	15.209	51.8 dBµV/m @ 5119.9 MHz (-2.2 dB)
		44 - 5220MHz	24	19	Restricted Band Edge at 5150 MHz	15.209	51.4 dBµV/m @ 5140.1 MHz (-2.6 dB)
		48 - 5240MHz	24	24	Restricted Band Edge at 5150 MHz	15.209	53.9 dBµV/m @ 5119.9 MHz (-0.1 dB)
4	n20 (4x4)	149 - 5745MHz	24	20	Band Edge at 5715 MHz	15.209	65.4 dBµV/m @ 5704.6 MHz (-2.9 dB)
		149 - 5745MHz	24	20	Band Edge at 5725 MHz	15E	76.0 dBµV/m @ 5724.1 MHz (-2.3 dB)
		165 - 5825MHz	24	20	Band Edge 5850MHz	15E	72.9 dBµV/m @ 5850.3 MHz (-5.4 dB)
		165 - 5825MHz	24	20	Band Edge 5860MHz	15E	63.8 dBµV/m @ 5870.0 MHz (-4.5 dB)
4 addtional	n20 (4x4)	153 - 5765MHz	24	21	Band Edge at 5715 MHz	15.209	66.9 dBµV/m @ 5709.6 MHz (-1.4 dB)
		153 - 5765MHz	24	21	Band Edge at 5725 MHz	15E	71.2 dBµV/m @ 5723.4 MHz (-7.1 dB)
		161 - 5805MHz	24	22	Band Edge 5850MHz	15E	66.1 dBµV/m @ 5851.2 MHz (-12.2 dB)
		161 - 5805MHz	24	22	Band Edge 5860MHz	15E	68.0 dBµV/m @ 5862.7 MHz (-0.3 dB)

Client:	Pace Americas, Inc.	Job Number:	J97787
Model:	5268AC (FCC ID: PGR5200AC)	T-Log Number:	T97825
		Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.407 (New Rules)	Class:	N/A

Run #	Mode	Channel	Target Power Setting	Passing Power Setting	Test Performed	Limit	Result / Margin
5	n40 (4x4)	38 - 5190MHz	24	14	Restricted Band Edge at 5150 MHz	15.209	53.8 dBµV/m @ 5145.6 MHz (-0.2 dB)
5 additional	n40 (4x4)	46 - 5230MHz	24	20	Restricted Band Edge at 5150 MHz	15.209	52.3 dBµV/m @ 5150.0 MHz (-1.7 dB)
6	n40 (4x4)	151 - 5755MHz	24	16	Band Edge at 5715 MHz	15E / 15.209	67.8 dBµV/m @ 5714.5 MHz (-0.5 dB)
					Band Edge at 5725 MHz		71.3 dBµV/m @ 5724.3 MHz (-7.0 dB)
		159 - 5795MHz	24	18	Band Edge 5850MHz	15E / 15.209	53.4 dBµV/m @ 5852.7 MHz (-0.6 dB)
					Band Edge 5860MHz		53.8 dBµV/m @ 5860.1 MHz (-0.2 dB)
6 additional	n40 (4x4)	159 - 5795MHz	24	18	Band Edge at 5715 MHz	15E / 15.209	49.8 dBµV/m @ 5715.0 MHz (-18.5 dB)
					Band Edge at 5725 MHz		63.9 dBµV/m @ 5719.7 MHz (-14.4 dB)
7	ac80 (4x4)	42 - 5210MHz	24	13	Restricted Band Edge at 5150 MHz	15.209	53.6 dBµV/m @ 5145.1 MHz (-0.4 dB)
8	ac80 (4x4)	155 - 5775MHz	24	16	Band Edge at 5715 MHz	15E	67.9 dBµV/m @ 5714.3 MHz (-0.4 dB)
			24		Band Edge at 5725 MHz	15E	71.9 dBµV/m @ 5722.9 MHz (-6.4 dB)
			24		Band Edge 5850MHz	15E	69.9 dBµV/m @ 5857.7 MHz (-8.4 dB)
			24		Band Edge 5860MHz	15E	63.3 dBµV/m @ 5862.7 MHz (-5.0 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.

Note: Preliminary testing showed that flat orientation was worse case

Client:	Pace Americas, Inc.	Job Number:	J97787
Model:	5268AC (FCC ID: PGR5200AC)	T-Log Number:	T97825
		Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.407 (New Rules)	Class:	N/A

Procedure Comments:

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

Mode	Data Rate	Duty Cycle (x)	Constant DC?	T (ms)	Pwr Cor Factor*	Lin Volt Cor Factor**	Min VBW for FS (Hz)
11a	9MB/s	0.98	Yes	5.2	0.00	0.00	10
n20	MCS0	0.99	Yes	6	0.00	0.00	10
n40	MCS0	0.98	Yes	3.2	0.00	0.00	10
ac80	VTH0	0.92	Yes	2.1	0.35	0.70	476

Sample Notes

Test Before 4/8/15

Sample S/N: 41141N098369
Driver:
Antenna: Internal

Test After 4/8/15

Sample S/N: 94151N013576
Driver:
Antenna: Internal

Measurement Specific Notes:

Note 1:	For emissions outside of the restricted bands the limit is -27dBm/MHz eirp (68.3dBuV/m) or -17dBm/MHz eirp (78.3dBuV/m) . The measurement method required is a peak measurement (RB=1MHz, VB≥3MHz, peak detector). Per KDB 789033 G 2) c) i) , compliance can be demonstrated by meeing the average and peak limits of 15.209, as an alternative.
Note 2:	Emission has duty cycle ≥ 98%, average measurement performed: RBW=1MHz, VBW=3MHz, RMS, Power averaging, auto sweep, trace average 100 traces
Note 3:	Emission has duty cycle < 98%, but constant, average measurement performed: RBW=1MHz, VBW=10Hz, peak detector, linear averaging, auto sweep, trace average 100 * 1/DC traces, measurement corrected by Linear Voltage correction factor
Note 4:	Emission has duty cycle < 98% and is NOT constant, average measurement performed: RBW=1MHz, VBW> 1/T, peak detector, linear average mode, sweep time auto, max hold. Max hold for 50*(1/DC) traces
Note 5:	Emission has duty cycle < 98%, but constant, average measurement performed: RBW=1MHz, VBW=3MHz, RMS, Power averaging, auto sweep, trace average 100 * 1/DC traces, measurement corrected by Pwr correction factor
Note 6:	Plots of the average and peak bandedge do not account for any duty cycle correction. Refer to the tabluar results for final measurements.

Client:	Pace Americas, Inc.	Job Number:	J97787
Model:	5268AC (FCC ID: PGR5200AC)	T-Log Number:	T97825
		Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.407 (New Rules)	Class:	N/A

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

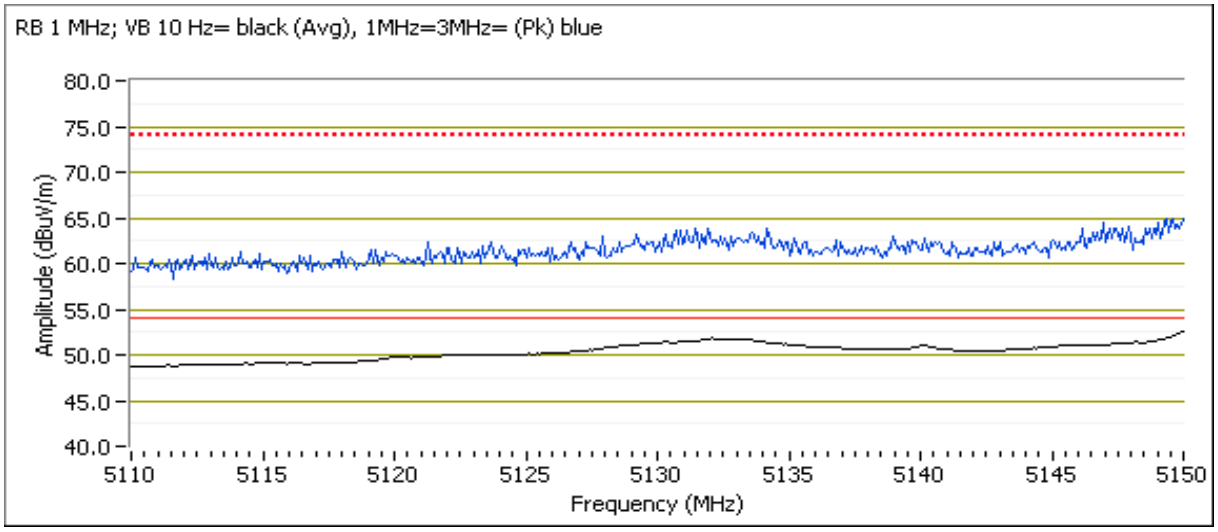
Date of Test: 3/17/2015 0:00
Test Engineer: Joseph Cadigal
Test Location: FT Chamber#4

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

Channel: 36 - 5180 MHz
Tx Chain: 4x4
Mode: a
Data Rate: 9MB/s

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	
5150.000	52.5	H	54.0	-1.5	AVG	287	1.0	pwr setting 18
5148.640	63.9	H	74.0	-10.1	PK	287	1.0	pwr setting 18
5147.190	48.2	V	54.0	-5.8	AVG	242	1.0	pwr setting 18
5146.630	61.0	V	74.0	-13.0	PK	242	1.0	pwr setting 18



Client:	Pace Americas, Inc.	Job Number:	J97787
Model:	5268AC (FCC ID: PGR5200AC)	T-Log Number:	T97825
		Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.407 (New Rules)	Class:	N/A

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

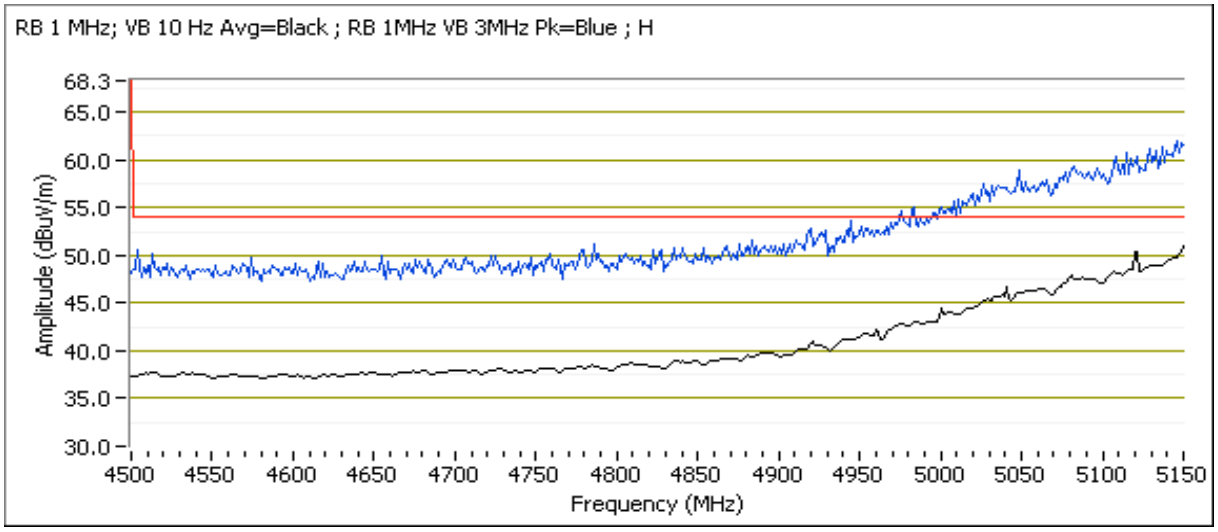
Date of Test: 4/8/2015 0:00
Test Engineer: Jack Liu
Test Location: FT Chamber#4

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

Channel: 40 - 5200 MHz
Tx Chain: 4x4
Mode: a
Data Rate: 9MB/s

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	
5150.000	53.9	H	54.0	-0.1	AVG	308	1.1	pwr setting 19
5042.990	65.8	H	74.0	-8.2	PK	308	1.1	pwr setting 19
5150.000	47.7	V	54.0	-6.3	AVG	101	1.0	pwr setting 19
5148.500	60.3	V	74.0	-13.7	PK	101	1.0	pwr setting 19

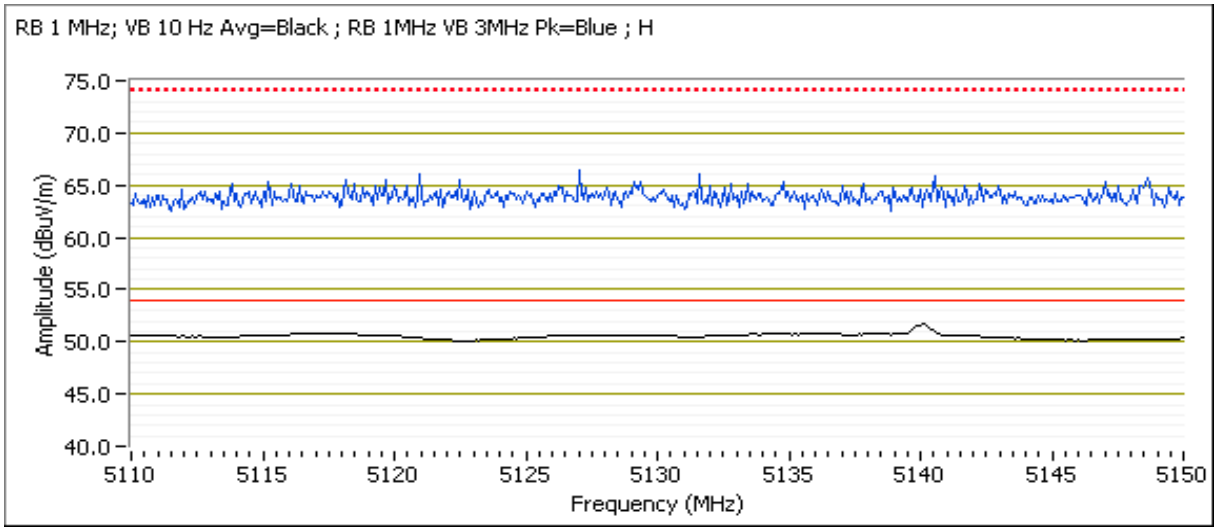


Client:	Pace Americas, Inc.	Job Number:	J97787
Model:	5268AC (FCC ID: PGR5200AC)	T-Log Number:	T97825
		Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.407 (New Rules)	Class:	N/A

Channel: 44 - 5220 MHz
Tx Chain: 4x4
Mode: a
Data Rate: 9MB/s

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	
5140.060	51.7	H	54.0	-2.3	AVG	313	1.0	pwr setting 21
5141.020	63.0	H	74.0	-11.0	PK	313	1.0	pwr setting 21



Client:	Pace Americas, Inc.	Job Number:	J97787
Model:	5268AC (FCC ID: PGR5200AC)	T-Log Number:	T97825
		Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.407 (New Rules)	Class:	N/A

Run #2: Radiated Bandedge Measurements, 5725-5850MHz

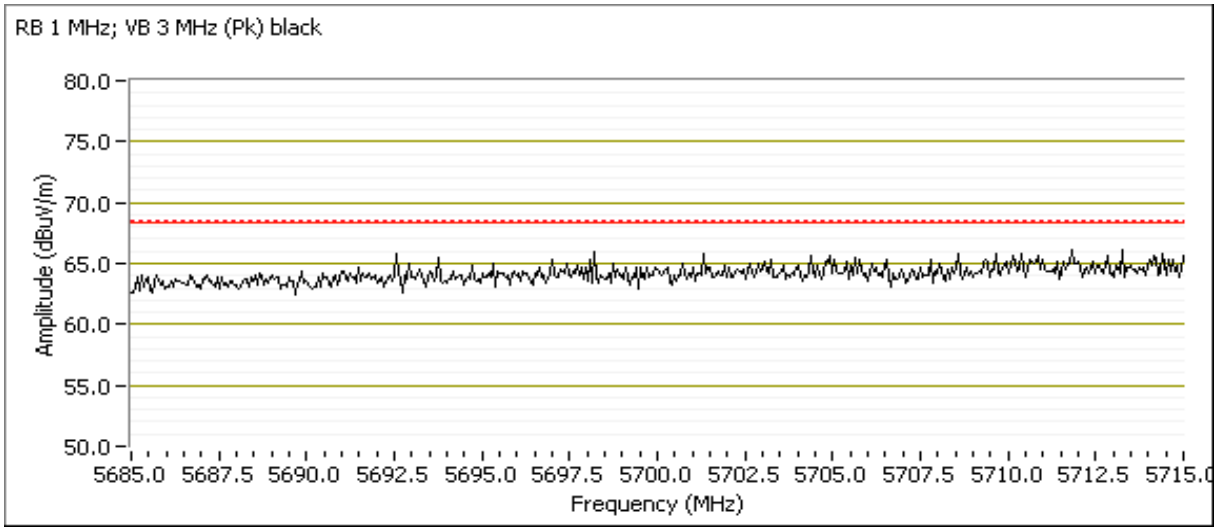
Date of Test: 3/17/2015 0:00
Test Engineer: Joseph Cadigal
Test Location: FT Chamber#4

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

Channel: 149 - 5745 MHz
Tx Chain: 4x4
Mode: a
Data Rate: 9MB/s

5715 MHz Band Edge Signal Radiated Field Strength

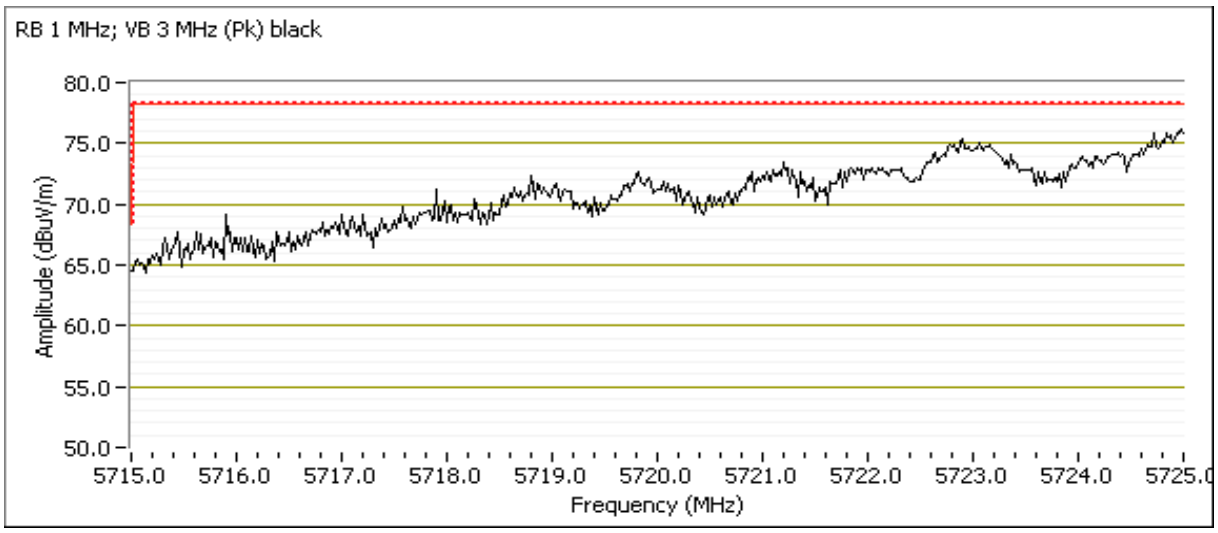
Frequency	Level	Pol	FCC 15.E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5711.930	63.5	H	68.3	-4.8	Pk	204	1.1	pwr setting 20



Client:	Pace Americas, Inc.	Job Number:	J97787
Model:	5268AC (FCC ID: PGR5200AC)	T-Log Number:	T97825
		Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.407 (New Rules)	Class:	N/A

5725 MHz Band Edge Signal Radiated Field Strength

Frequency	Level	Pol	FCC 15.E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5724.340	74.9	H	78.3	-3.4	Pk	204	1.1	pwr setting 20

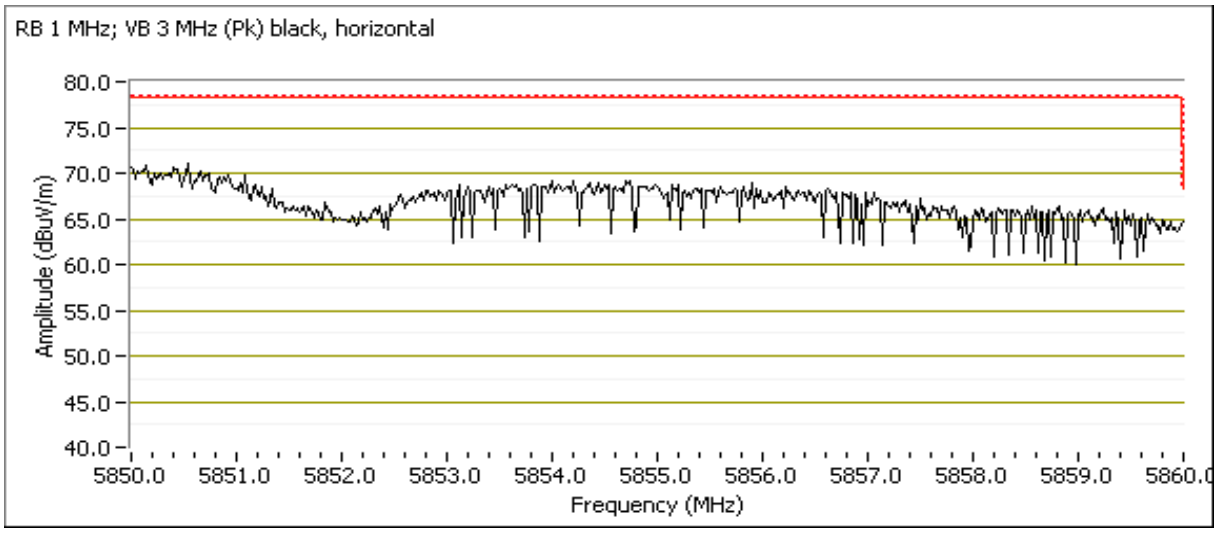


Client:	Pace Americas, Inc.	Job Number:	J97787
Model:	5268AC (FCC ID: PGR5200AC)	T-Log Number:	T97825
		Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.407 (New Rules)	Class:	N/A

Channel: 165 - 5825 MHz
Tx Chain: 4x4
Mode: a
Data Rate: 9MB/s

5850 MHz Band Edge Signal Radiated Field Strength

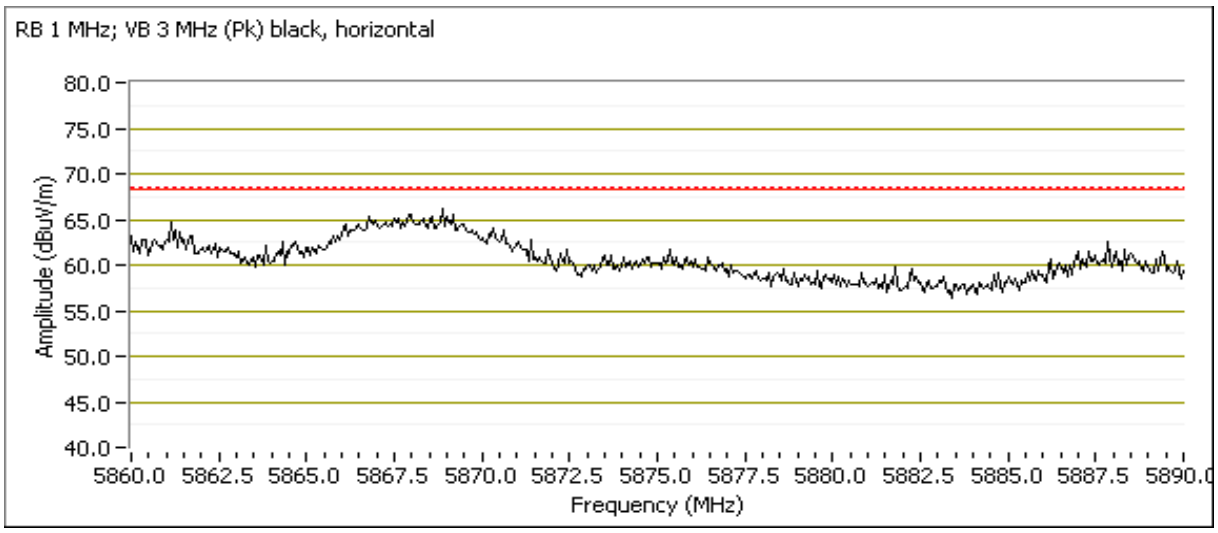
Frequency	Level	Pol	FCC 15.E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5850.020	69.7	H	78.3	-8.6	Pk	230	1.1	pwr setting 16



Client:	Pace Americas, Inc.	Job Number:	J97787
Model:	5268AC (FCC ID: PGR5200AC)	T-Log Number:	T97825
		Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.407 (New Rules)	Class:	N/A

5860 MHz Band Edge Signal Radiated Field Strength

Frequency	Level	Pol	FCC 15.E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5868.300	64.8	H	68.3	-3.5	Pk	230	1.1	pwr setting 16



Client:	Pace Americas, Inc.	Job Number:	J97787
Model:	5268AC (FCC ID: PGR5200AC)	T-Log Number:	T97825
		Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.407 (New Rules)	Class:	N/A

Run #2 additional: Radiated Bandedge Measurements, 5725-5850MHz

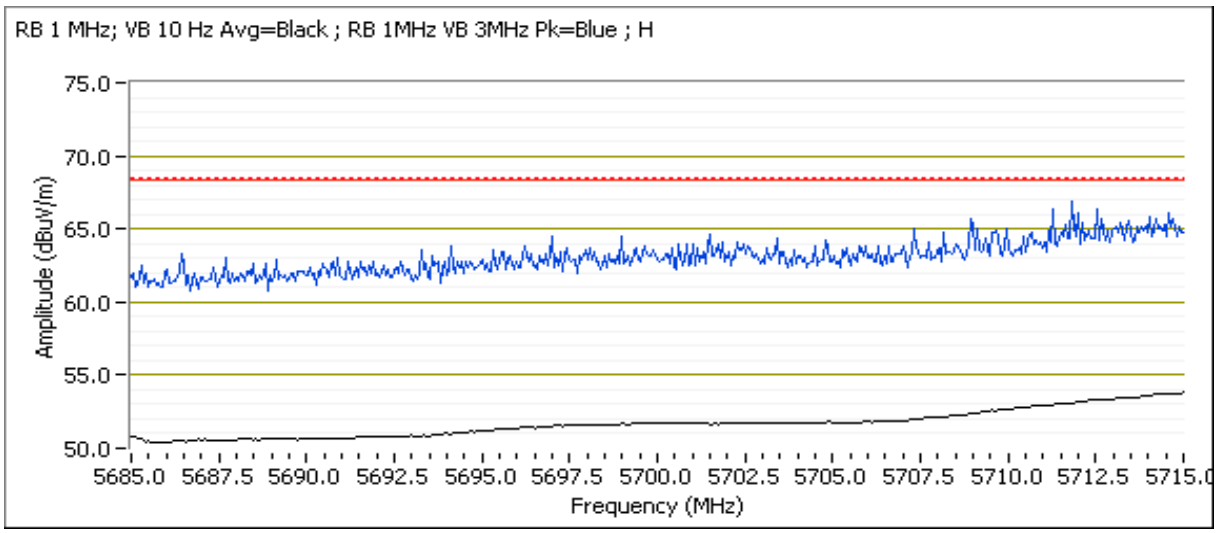
Date of Test: 4/8/2015 0:00
Test Engineer: Jack Liu
Test Location: FT Chamber#4

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

Channel: 153 - 5765 MHz
Tx Chain: 4x4
Mode: a
Data Rate: 9MB/s

5715 MHz Band Edge Signal Radiated Field Strength

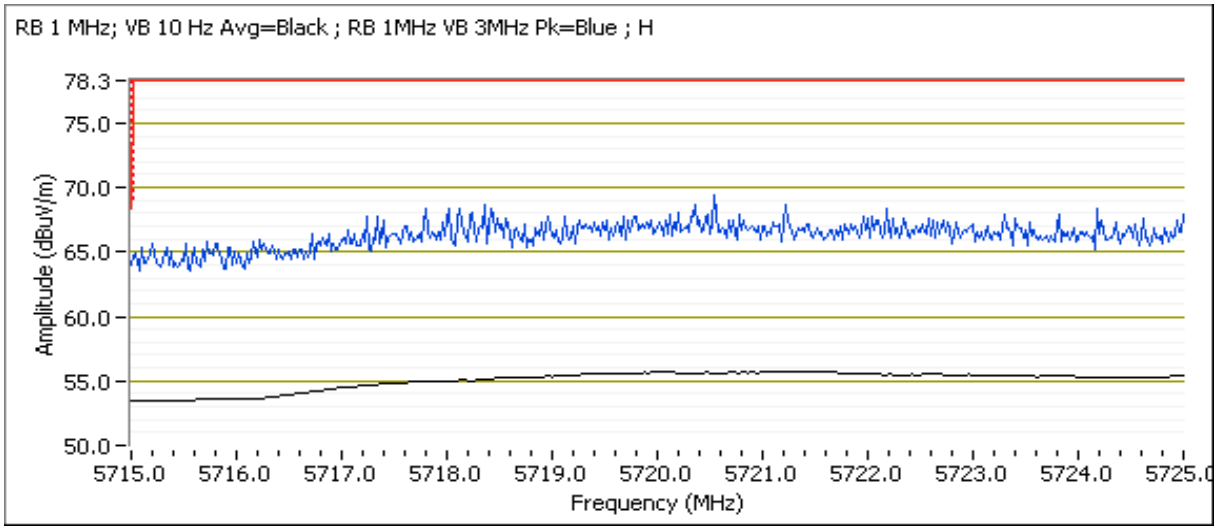
Frequency	Level	Pol	FCC 15.E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
Pwr setting 20								
5711.510	66.3	H	68.3	-2.0	PK	300	1.0	POS; RB 1 MHz; VB: 3 MHz



Client:	Pace Americas, Inc.	Job Number:	J97787
Model:	5268AC (FCC ID: PGR5200AC)	T-Log Number:	T97825
		Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.407 (New Rules)	Class:	N/A

5725 MHz Band Edge Signal Radiated Field Strength

Frequency	Level	Pol	FCC 15.E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5720.270	68.9	H	78.3	-9.4	PK	300	1.0	POS; RB 1 MHz; VB: 3 MHz

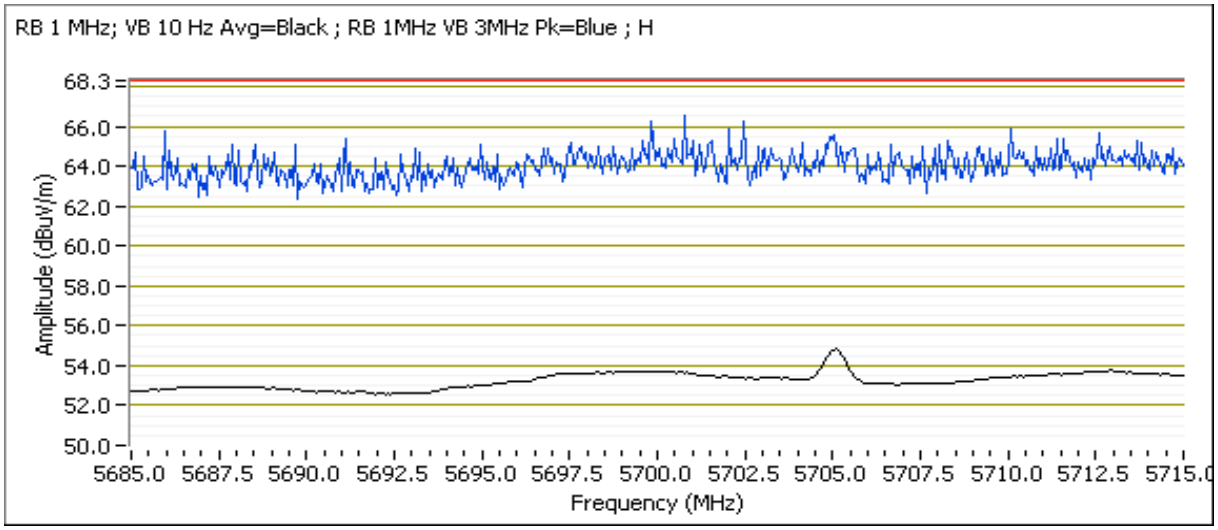


Client:	Pace Americas, Inc.	Job Number:	J97787
Model:	5268AC (FCC ID: PGR5200AC)	T-Log Number:	T97825
		Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.407 (New Rules)	Class:	N/A

Channel: 157 - 5785 MHz
Tx Chain: 4x4
Mode: a
Data Rate: 9MB/s

5715 MHz Band Edge Signal Radiated Field Strength

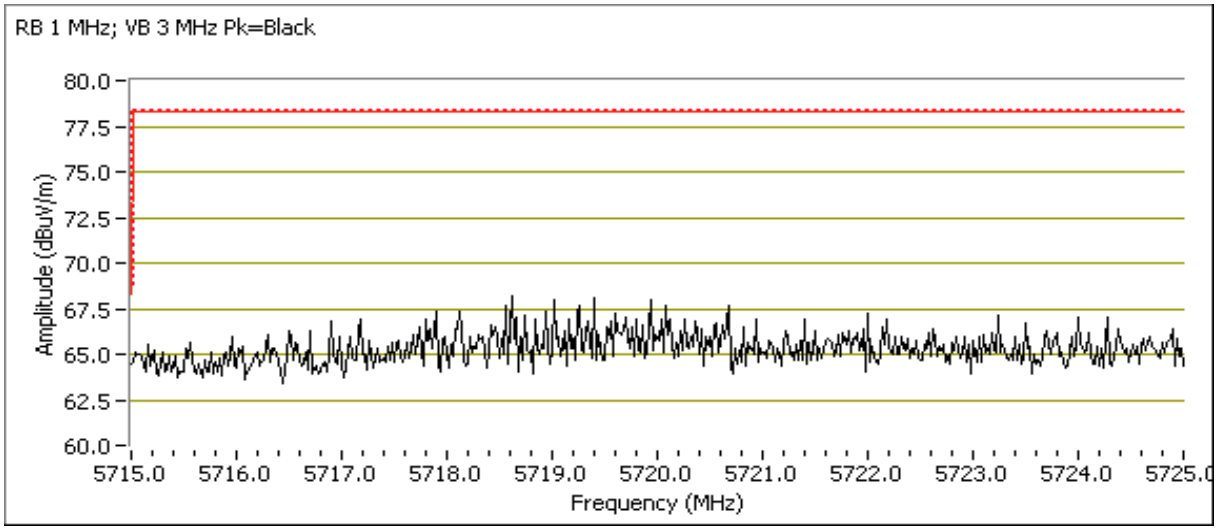
Frequency	Level	Pol	FCC 15.E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5704.960	66.6	H	68.3	-1.7	PK	303	1.0	POS; RB 1 MHz; VB: 3 MHz



Client:	Pace Americas, Inc.	Job Number:	J97787
Model:	5268AC (FCC ID: PGR5200AC)	T-Log Number:	T97825
		Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.407 (New Rules)	Class:	N/A

5725 MHz Band Edge Signal Radiated Field Strength

Frequency	Level	Pol	FCC 15.E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5721.170	70.1	H	78.3	-8.2	PK	302	1.0	POS; RB 1 MHz; VB: 3 MHz

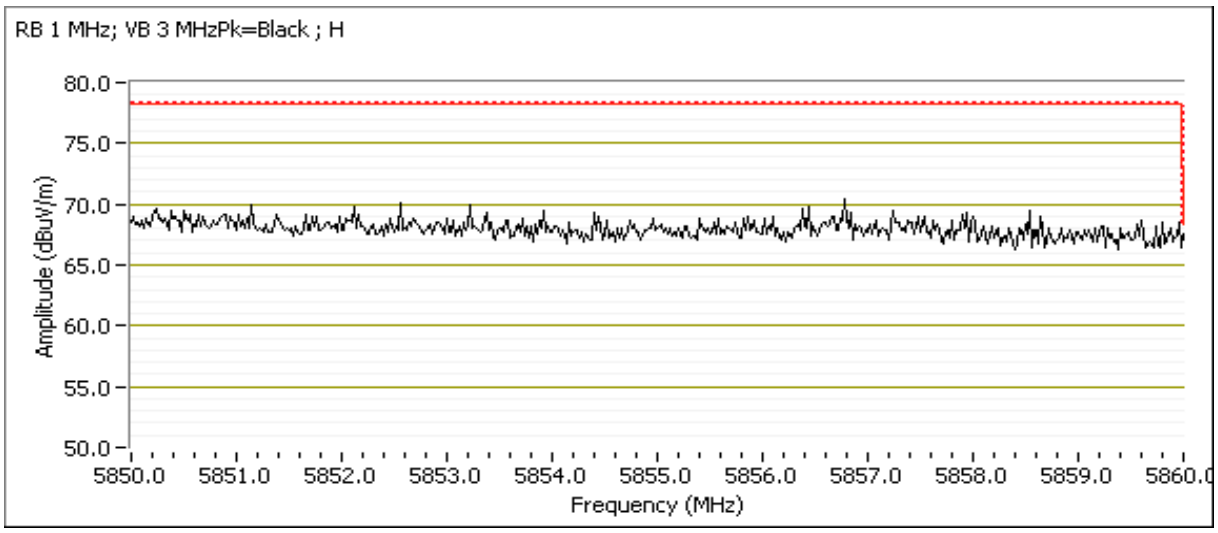


Client:	Pace Americas, Inc.	Job Number:	J97787
Model:	5268AC (FCC ID: PGR5200AC)	T-Log Number:	T97825
		Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.407 (New Rules)	Class:	N/A

Channel: 161 - 5805 MHz
Tx Chain: 4x4
Mode: a
Data Rate: 9MB/s

5850 MHz Band Edge Signal Radiated Field Strength

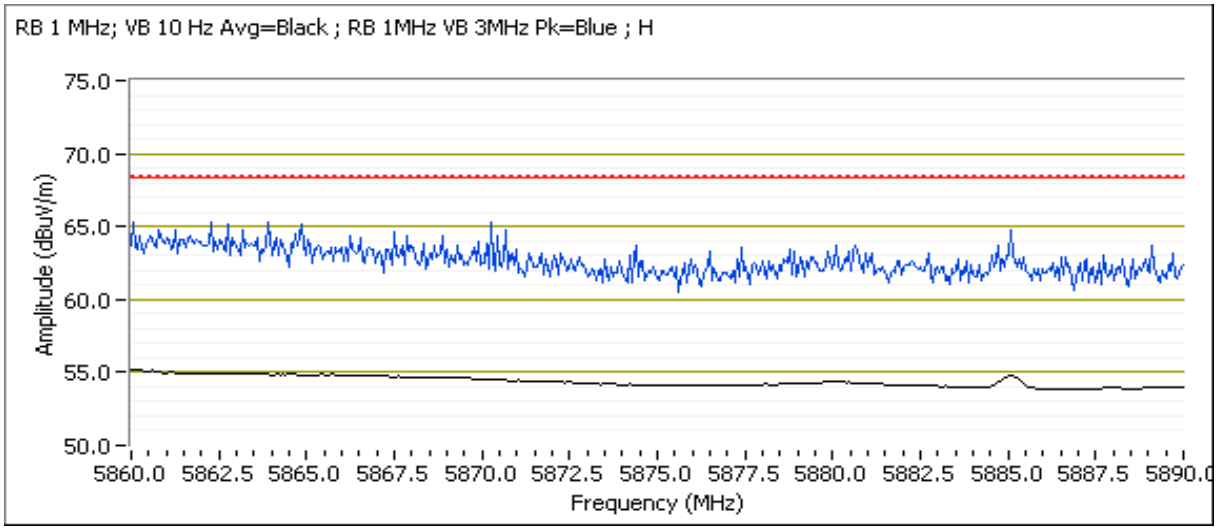
Frequency	Level	Pol	FCC 15.E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5853.090	70.4	H	78.3	-7.9	PK	302	1.1	POS; RB 1 MHz; VB: 3 MHz



Client:	Pace Americas, Inc.	Job Number:	J97787
Model:	5268AC (FCC ID: PGR5200AC)	T-Log Number:	T97825
		Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.407 (New Rules)	Class:	N/A

5860 MHz Band Edge Signal Radiated Field Strength

Frequency	Level	Pol	FCC 15.E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5864.510	67.7	H	68.3	-0.6	PK	308	1.1	POS; RB 1 MHz; VB: 3 MHz



Client:	Pace Americas, Inc.	Job Number:	J97787
Model:	5268AC (FCC ID: PGR5200AC)	T-Log Number:	T97825
		Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.407 (New Rules)	Class:	N/A

Run #3: Radiated Bandedge Measurements, 5150-5250MHz

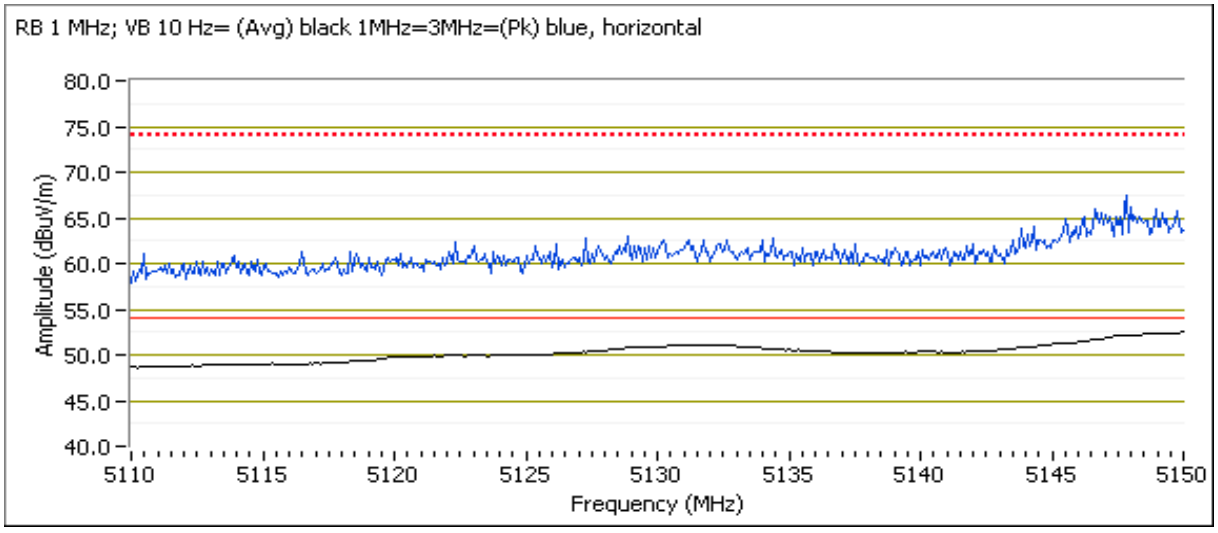
Date of Test: 3/17/2015 0:00
Test Engineer: Joseph Cadigal
Test Location: FT Chamber#4

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

Channel: 36 - 5180 MHz
Tx Chain: 4x4
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	
5150.000	52.6	H	54.0	-1.4	AVG	273	1.0	pwr setting 18
5145.750	64.5	H	74.0	-9.5	PK	273	1.0	pwr setting 18
5147.600	47.7	V	54.0	-6.3	AVG	285	1.3	pwr setting 18
5145.590	59.8	V	74.0	-14.2	PK	285	1.3	pwr setting 18



Client:	Pace Americas, Inc.	Job Number:	J97787
Model:	5268AC (FCC ID: PGR5200AC)	T-Log Number:	T97825
		Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.407 (New Rules)	Class:	N/A

Run #3 additional: Radiated Bandedge Measurements, 5150-5250MHz

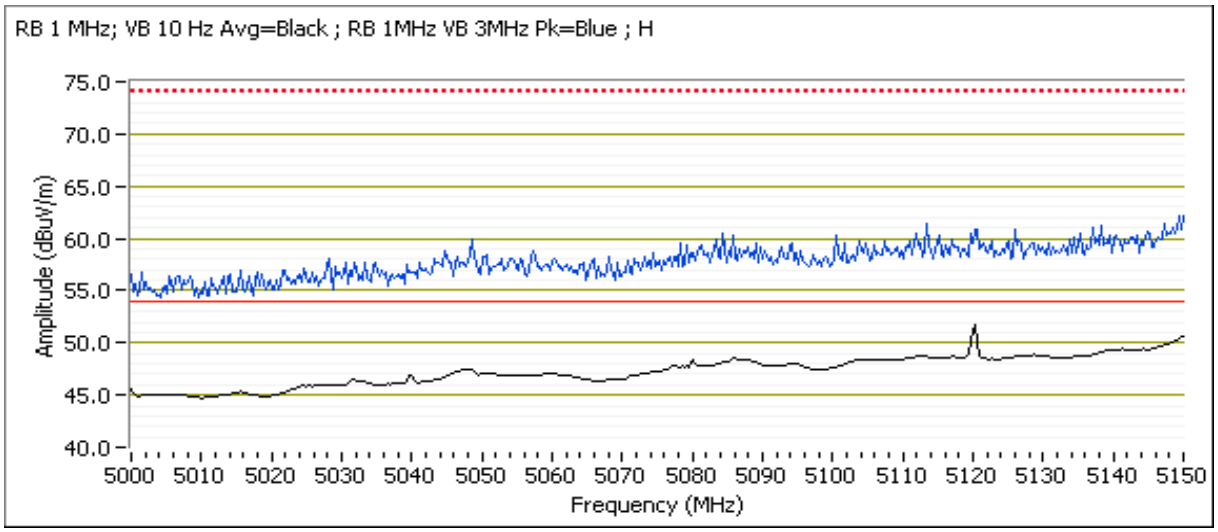
Date of Test: 4/8/2015 0:00
Test Engineer: Jack Liu
Test Location: FT Chamber#4

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

Channel: 40 - 5200 MHz
Tx Chain: 4x4
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 19								
5119.940	51.8	H	54.0	-2.2	AVG	285	1.0	POS; RB 1 MHz; VB: 10 Hz
5146.390	62.2	H	74.0	-11.8	PK	285	1.0	POS; RB 1 MHz; VB: 3 MHz

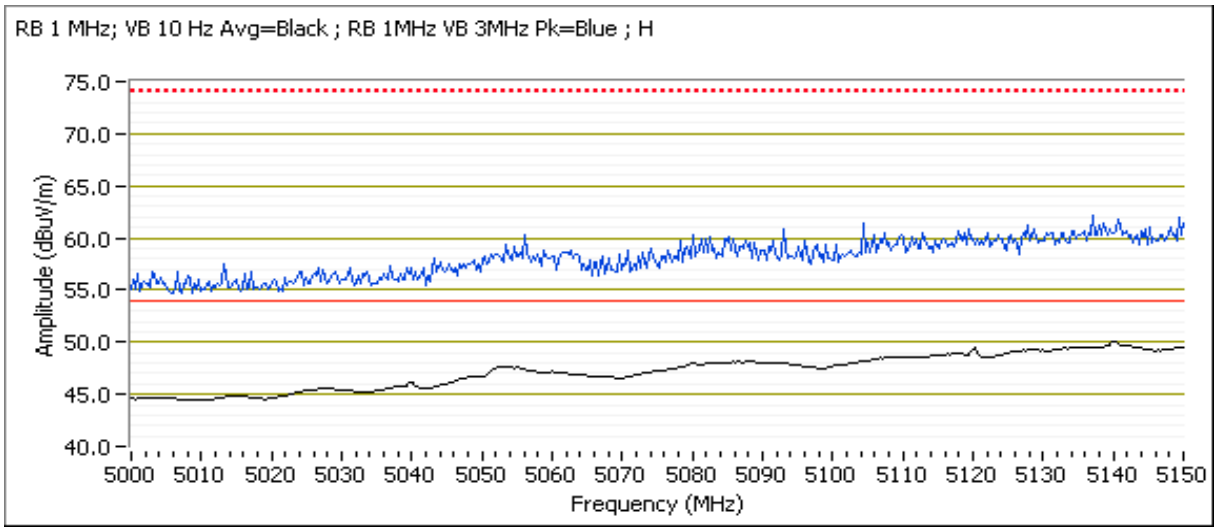


Client:	Pace Americas, Inc.	Job Number:	J97787
Model:	5268AC (FCC ID: PGR5200AC)	T-Log Number:	T97825
		Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.407 (New Rules)	Class:	N/A

Channel: 44 - 5220 MHz
Tx Chain: 4x4
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 19								
5140.080	51.4	H	54.0	-2.6	AVG	313	1.0	POS; RB 1 MHz; VB: 10 Hz
5137.980	63.2	H	74.0	-10.8	PK	313	1.0	POS; RB 1 MHz; VB: 3 MHz

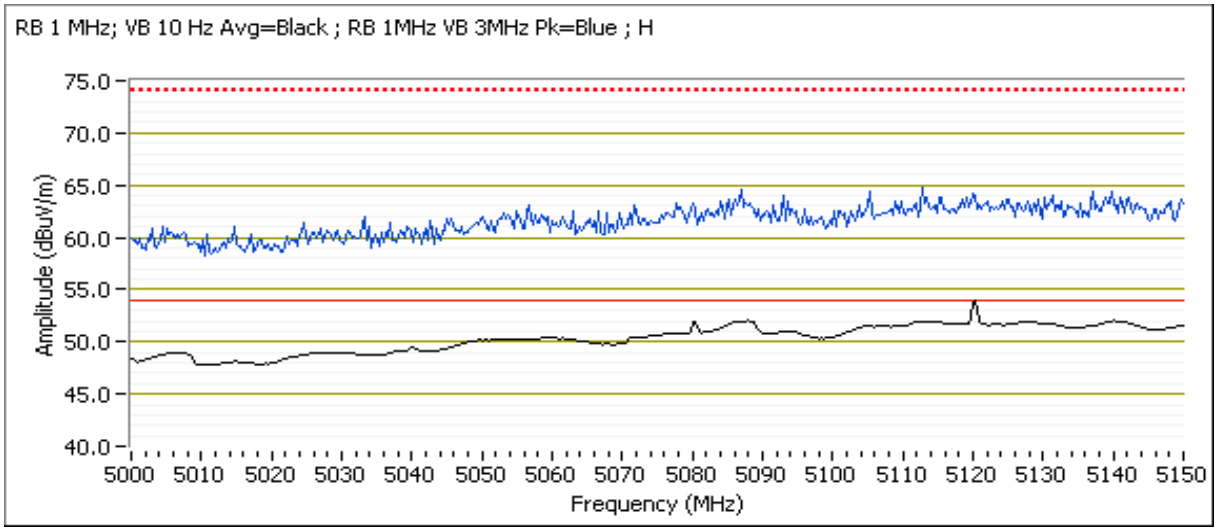


Client:	Pace Americas, Inc.	Job Number:	J97787
Model:	5268AC (FCC ID: PGR5200AC)	T-Log Number:	T97825
		Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.407 (New Rules)	Class:	N/A

Channel: 48 - 5240 MHz
Tx Chain: 4x4
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	
5119.940	53.9	H	54.0	-0.1	AVG	276	1.0	POS; RB 1 MHz; VB: 10 Hz
5084.770	64.4	H	74.0	-9.6	PK	276	1.0	POS; RB 1 MHz; VB: 3 MHz



Client:	Pace Americas, Inc.	Job Number:	J97787
Model:	5268AC (FCC ID: PGR5200AC)	T-Log Number:	T97825
		Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.407 (New Rules)	Class:	N/A

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

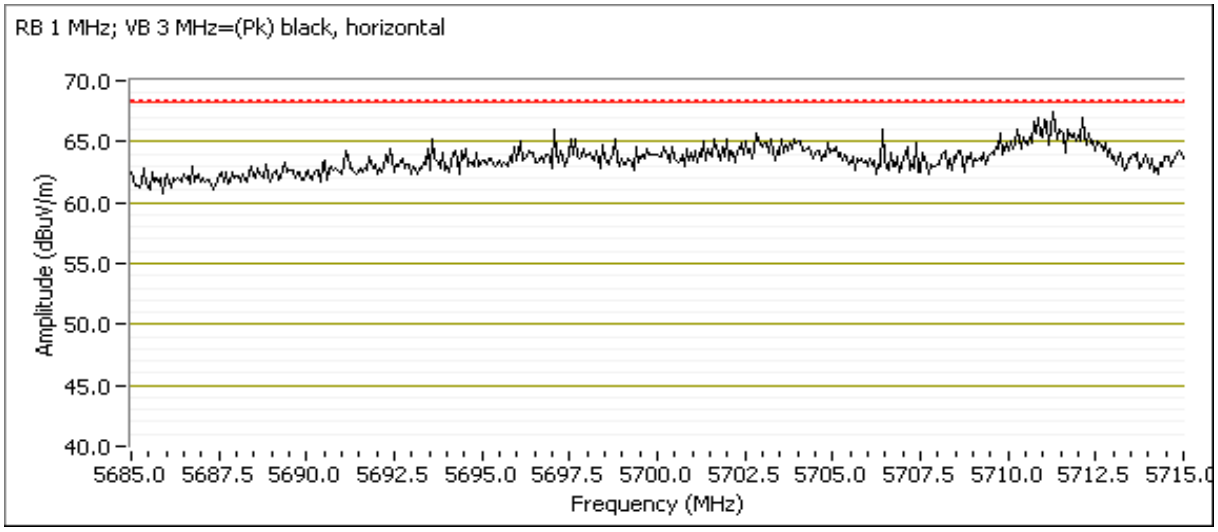
Date of Test: 3/17/2015 0:00
Test Engineer: Joseph Cadigal
Test Location: FT Chamber#4

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

Channel: 149 - 5745 MHz
Tx Chain: 4x4
Mode: n20
Data Rate: MCS0

5715 MHz Band Edge Signal Radiated Field Strength

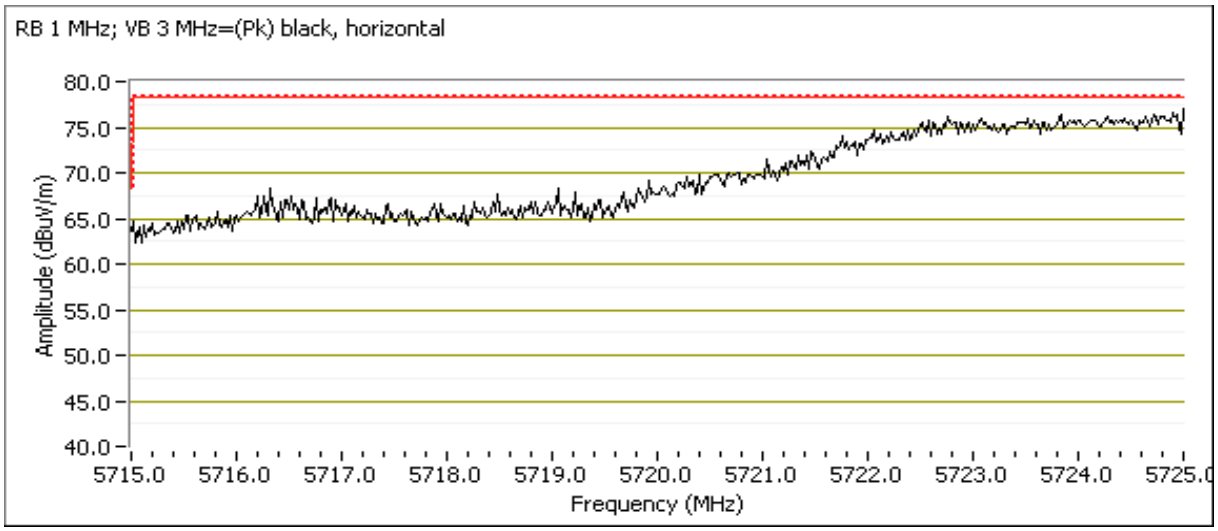
Frequency	Level	Pol	FCC 15.E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5704.600	65.4	H	68.3	-2.9	Pk	190	1.0	pwr setting 20



Client:	Pace Americas, Inc.	Job Number:	J97787
Model:	5268AC (FCC ID: PGR5200AC)	T-Log Number:	T97825
		Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.407 (New Rules)	Class:	N/A

5725 MHz Band Edge Signal Radiated Field Strength

Frequency	Level	Pol	FCC 15.E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5724.060	76.0	H	78.3	-2.3	Pk	190	1.0	pwr setting 20

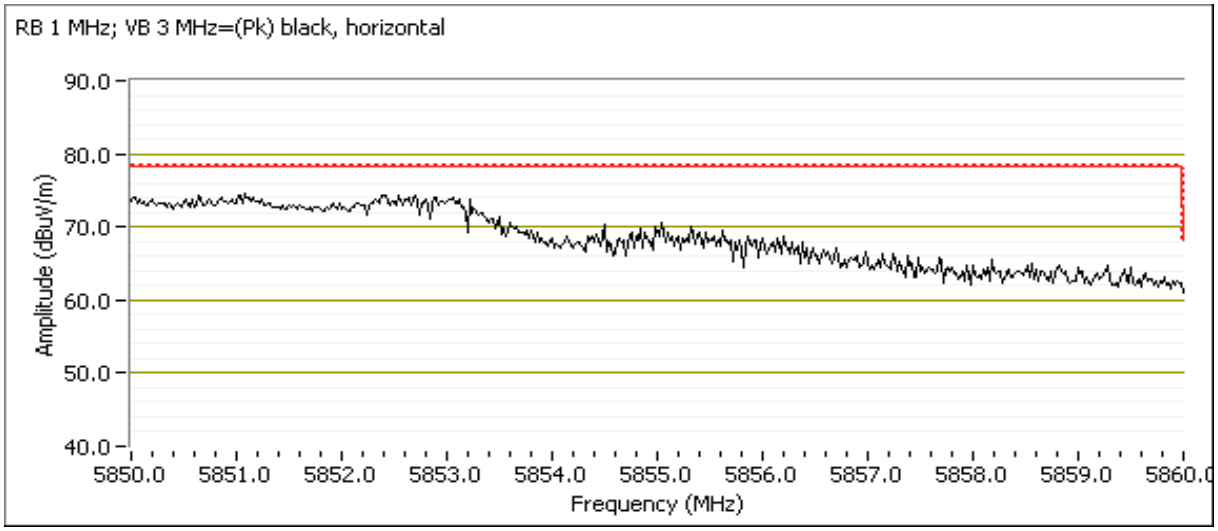


Client:	Pace Americas, Inc.	Job Number:	J97787
Model:	5268AC (FCC ID: PGR5200AC)	T-Log Number:	T97825
		Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.407 (New Rules)	Class:	N/A

Channel: 165 - 5825 MHz
Tx Chain: 4x4
Mode: n20
Data Rate: MCS0

5850 MHz Band Edge Signal Radiated Field Strength

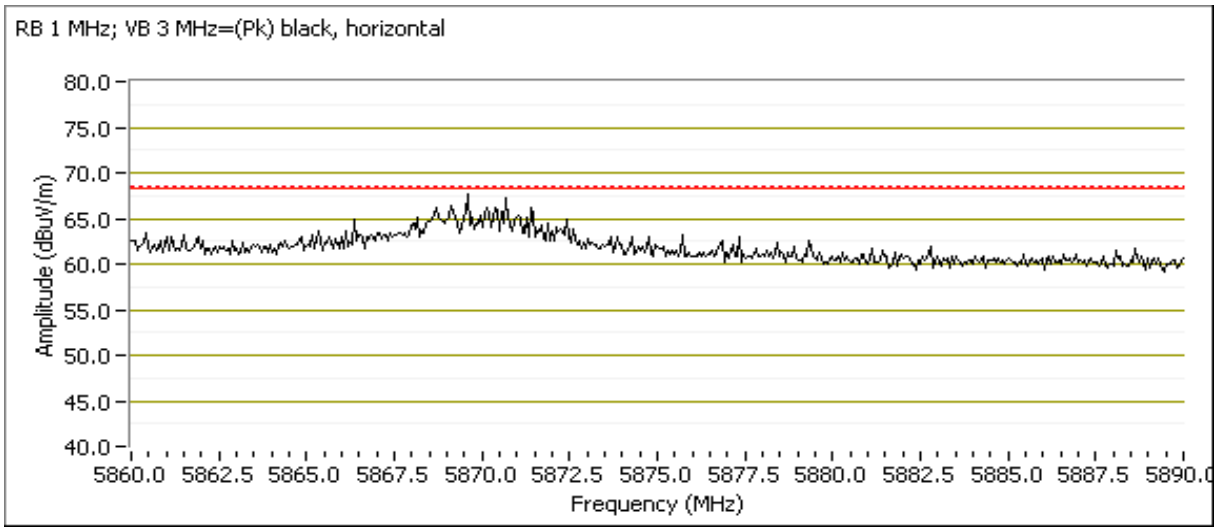
Frequency	Level	Pol	FCC 15.E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5850.340	72.9	H	78.3	-5.4	Pk	240	1.3	pwr setting 20



Client:	Pace Americas, Inc.	Job Number:	J97787
Model:	5268AC (FCC ID: PGR5200AC)	T-Log Number:	T97825
		Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.407 (New Rules)	Class:	N/A

5860 MHz Band Edge Signal Radiated Field Strength

Frequency	Level	Pol	FCC 15.E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5870.040	63.8	H	68.3	-4.5	Pk	240	1.3	pwr setting 20



Client:	Pace Americas, Inc.	Job Number:	J97787
Model:	5268AC (FCC ID: PGR5200AC)	T-Log Number:	T97825
		Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.407 (New Rules)	Class:	N/A

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

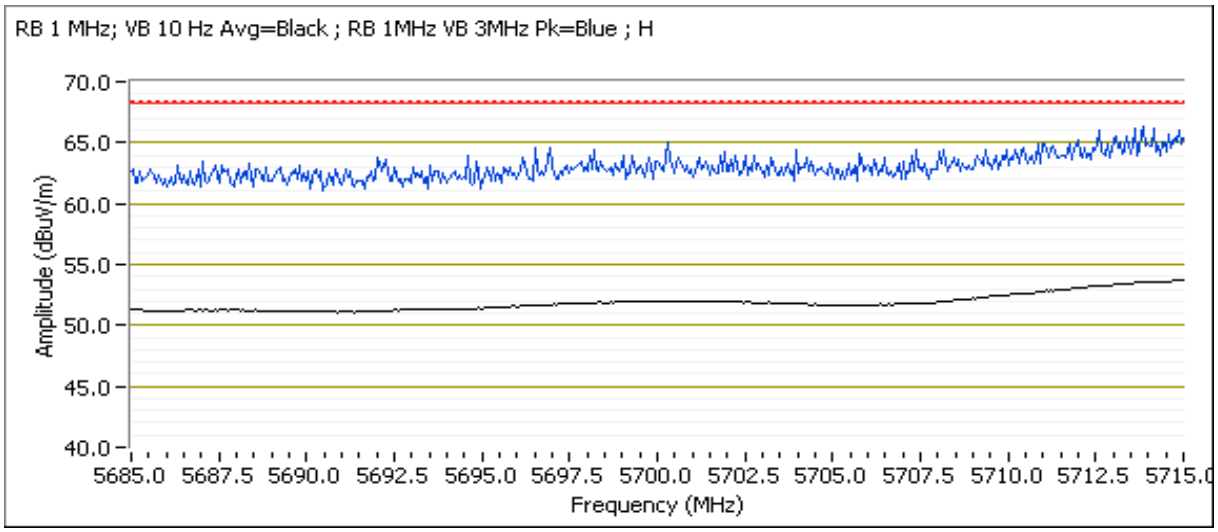
Date of Test: 4/8/2015 0:00
Test Engineer: Jack Liu
Test Location: FT Chamber#4

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

Channel: 153 - 5765 MHz
Tx Chain: 4x4
Mode: n20
Data Rate: MCS0

5715 MHz Band Edge Signal Radiated Field Strength

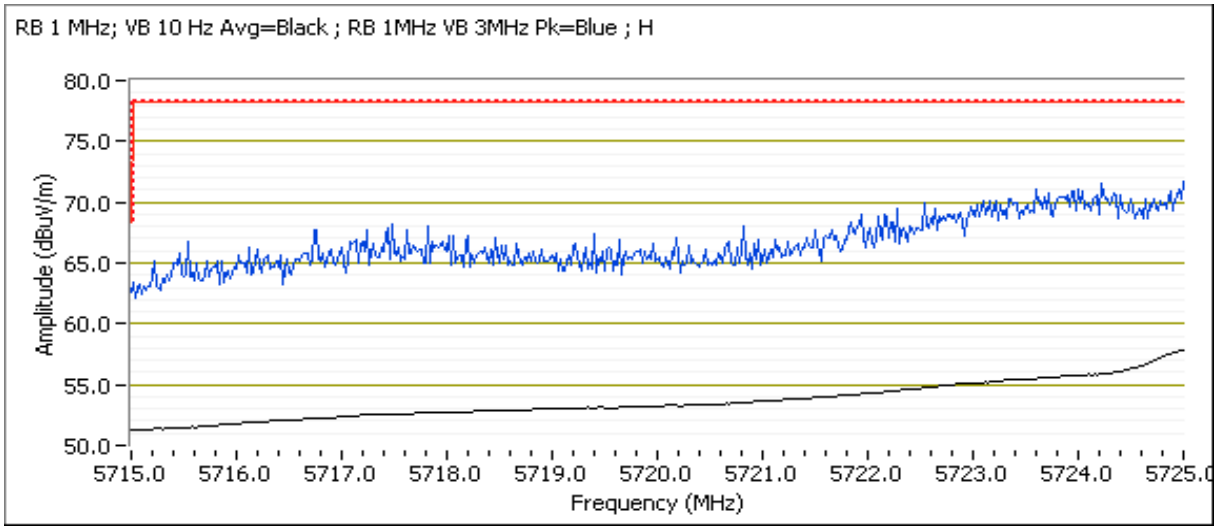
Frequency	Level	Pol	FCC 15.E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5709.590	66.9	H	68.3	-1.4	PK	301	1.0	POS; RB 1 MHz; VB: 3 MHz



Client:	Pace Americas, Inc.	Job Number:	J97787
Model:	5268AC (FCC ID: PGR5200AC)	T-Log Number:	T97825
		Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.407 (New Rules)	Class:	N/A

5725 MHz Band Edge Signal Radiated Field Strength

Frequency	Level	Pol	FCC 15.E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5723.420	71.2	H	78.3	-7.1	PK	204	1.0	POS; RB 1 MHz; VB: 3 MHz

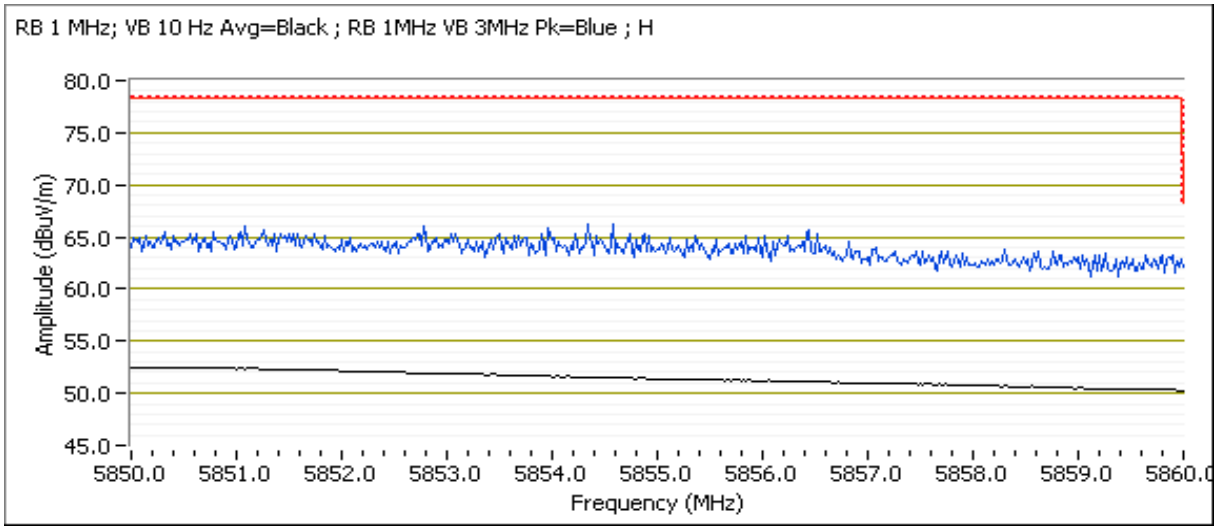


Client:	Pace Americas, Inc.	Job Number:	J97787
Model:	5268AC (FCC ID: PGR5200AC)	T-Log Number:	T97825
		Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.407 (New Rules)	Class:	N/A

Channel: 161 - 5805 MHz
Tx Chain: 4x4
Mode: n20
Data Rate: MCS0

5850 MHz Band Edge Signal Radiated Field Strength

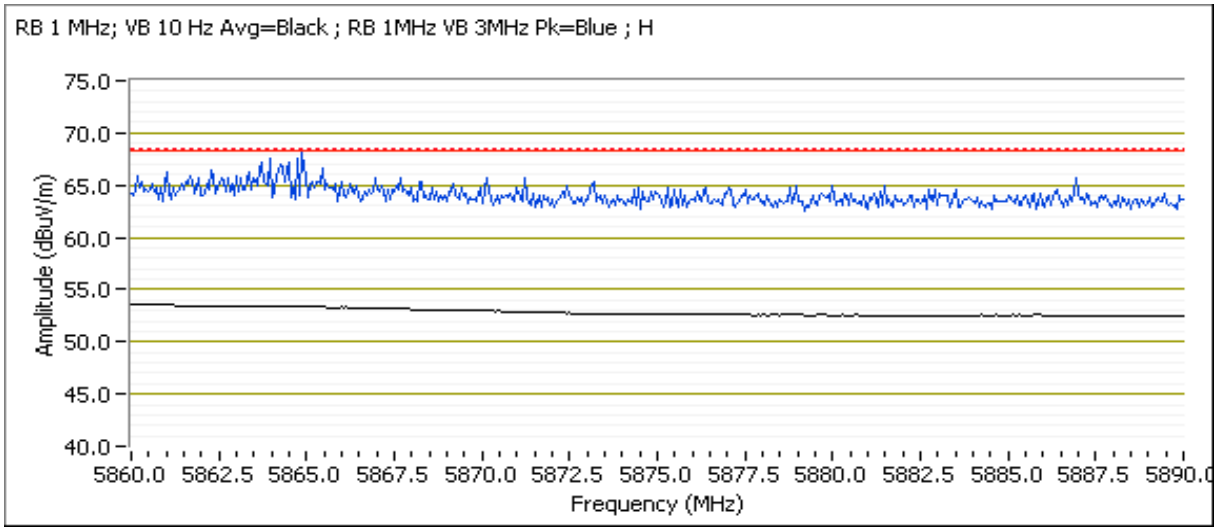
Frequency	Level	Pol	FCC 15.E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5851.160	66.1	H	78.3	-12.2	PK	188	1.0	POS; RB 1 MHz; VB: 3 MHz



Client:	Pace Americas, Inc.	Job Number:	J97787
Model:	5268AC (FCC ID: PGR5200AC)	T-Log Number:	T97825
		Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.407 (New Rules)	Class:	N/A

5860 MHz Band Edge Signal Radiated Field Strength

Frequency	Level	Pol	FCC 15.E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5862.650	68.0	H	68.3	-0.3	PK	199	1.0	POS; RB 1 MHz; VB: 3 MHz



Client:	Pace Americas, Inc.	Job Number:	J97787
Model:	5268AC (FCC ID: PGR5200AC)	T-Log Number:	T97825
		Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.407 (New Rules)	Class:	N/A

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

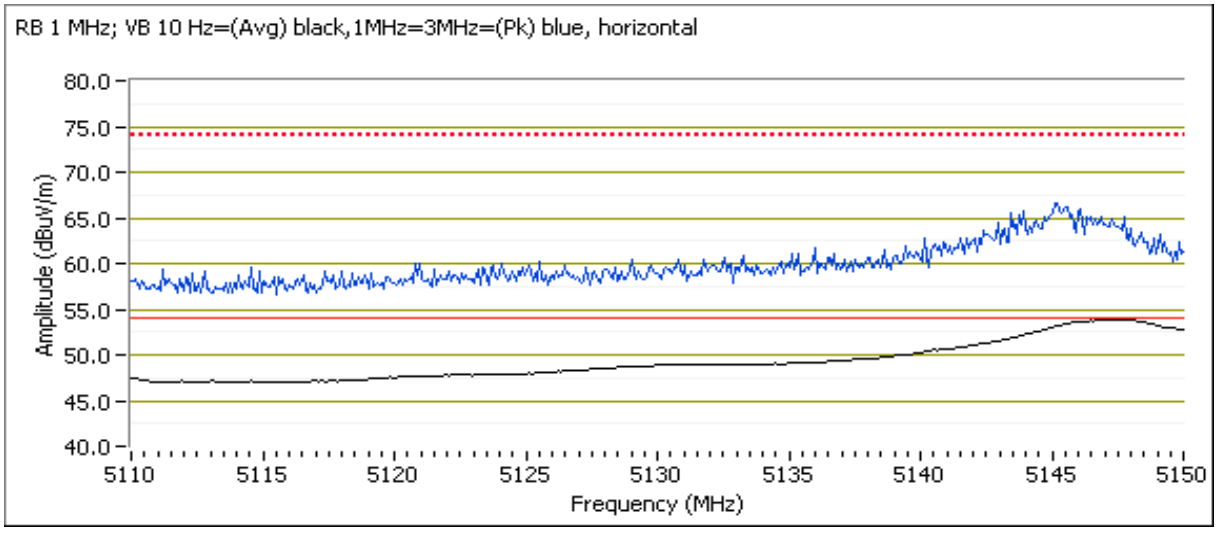
Date of Test: 3/17/2015 0:00
Test Engineer: Joseph Cadigal
Test Location: FT Chamber#4

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

Channel: 38 - 5190 MHz
Tx Chain: 4x4
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	
5145.590	53.8	H	54.0	-0.2	AVG	295	1.0	pwr setting 14
5145.350	65.6	H	74.0	-8.4	PK	295	1.0	pwr setting 14
5150.000	48.4	V	54.0	-5.6	AVG	161	1.2	pwr setting 14
5148.960	58.4	V	74.0	-15.6	PK	161	1.2	pwr setting 14



Client:	Pace Americas, Inc.	Job Number:	J97787
Model:	5268AC (FCC ID: PGR5200AC)	T-Log Number:	T97825
		Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.407 (New Rules)	Class:	N/A

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

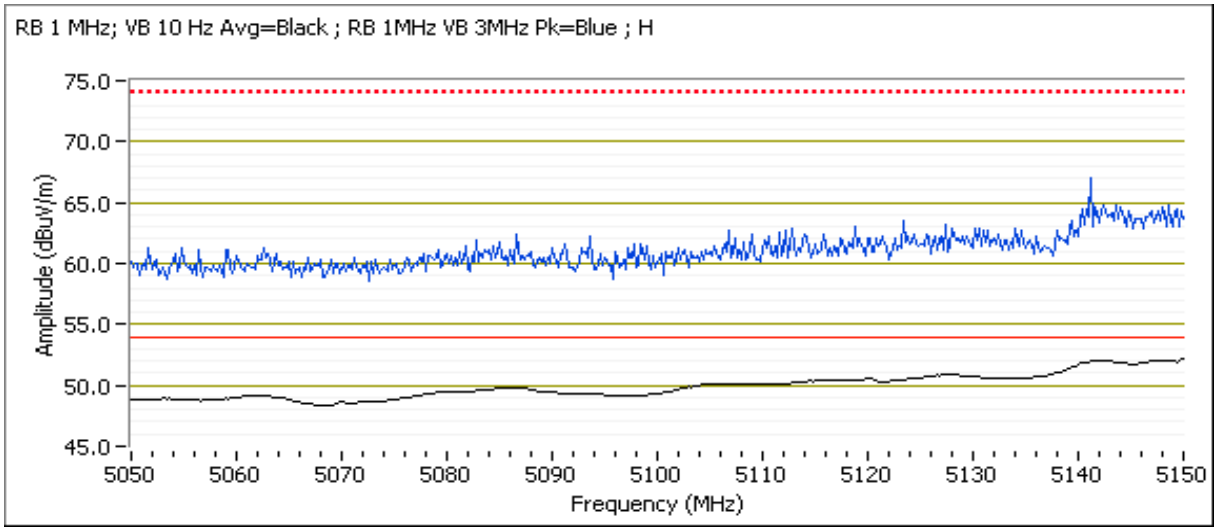
Date of Test: 4/8/2015 0:00
Test Engineer: Jack Liu
Test Location: FT Chamber#4

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

Channel: 46 - 5230 MHz
Tx Chain: 4x4
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	
5150.000	52.3	H	54.0	-1.7	AVG	310	1.0	POS; RB 1 MHz; VB: 10 Hz
5145.990	66.0	H	74.0	-8.0	PK	310	1.0	POS; RB 1 MHz; VB: 3 MHz



Client:	Pace Americas, Inc.	Job Number:	J97787
Model:	5268AC (FCC ID: PGR5200AC)	T-Log Number:	T97825
		Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.407 (New Rules)	Class:	N/A

Run #6: Radiated Bandedge Measurements, 5725-5850MHz

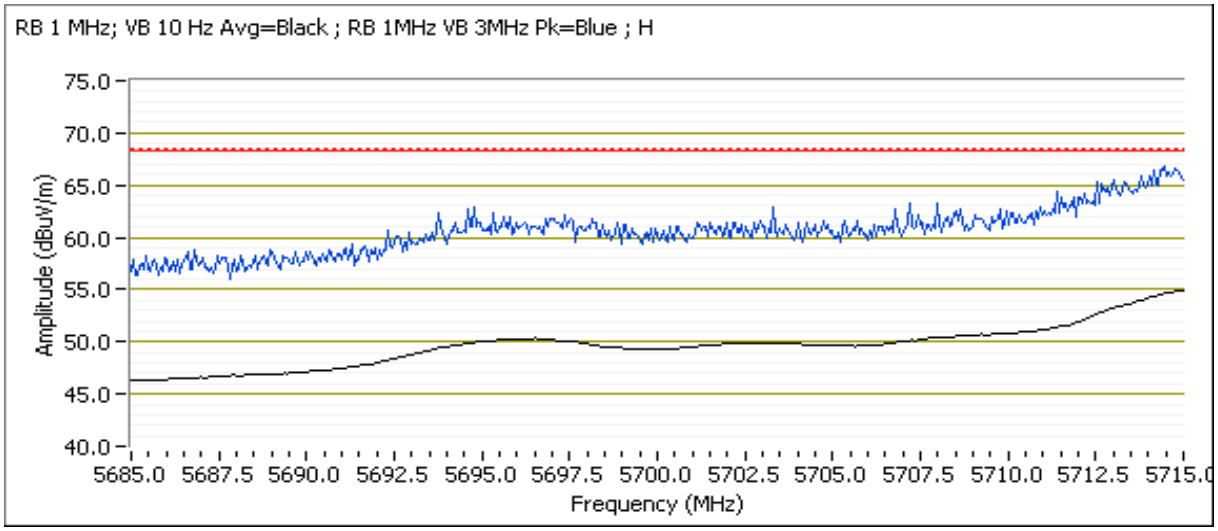
Date of Test: 3/18/2015 0:00
Test Engineer: Jack Liu
Test Location: FT Chamber4

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

Channel: 151 - 5755 MHz
Tx Chain: 4x4
Mode: n40
Data Rate: MCS0

5715 MHz Band Edge Signal Radiated Field Strength

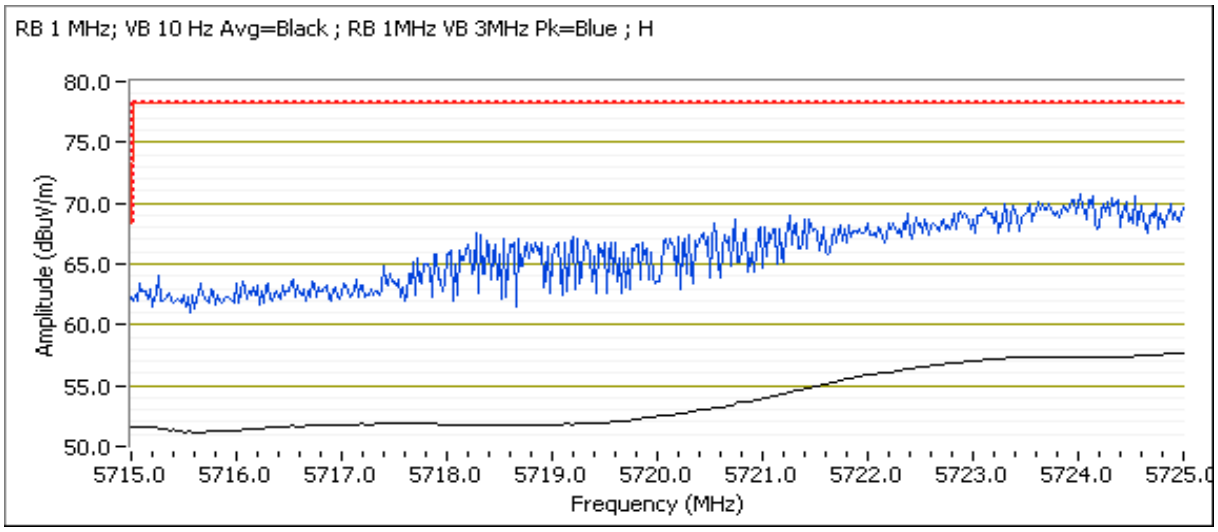
Frequency	Level	Pol	FCC 15.E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5714.460	67.8	H	68.3	-0.5	PK	211	1.0	POS; RB 1 MHz; VB: 3 MHz
5714.880	66.9	V	68.3	-1.4	PK	178	1.1	POS; RB 1 MHz; VB: 3 MHz



Client:	Pace Americas, Inc.	Job Number:	J97787
Model:	5268AC (FCC ID: PGR5200AC)	T-Log Number:	T97825
		Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.407 (New Rules)	Class:	N/A

5725 MHz Band Edge Signal Radiated Field Strength

Frequency	Level	Pol	FCC 15.E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5724.260	71.3	H	78.3	-7.0	PK	239	1.1	POS; RB 1 MHz; VB: 3 MHz
5723.760	70.7	V	78.3	-7.6	PK	75	1.2	POS; RB 1 MHz; VB: 3 MHz

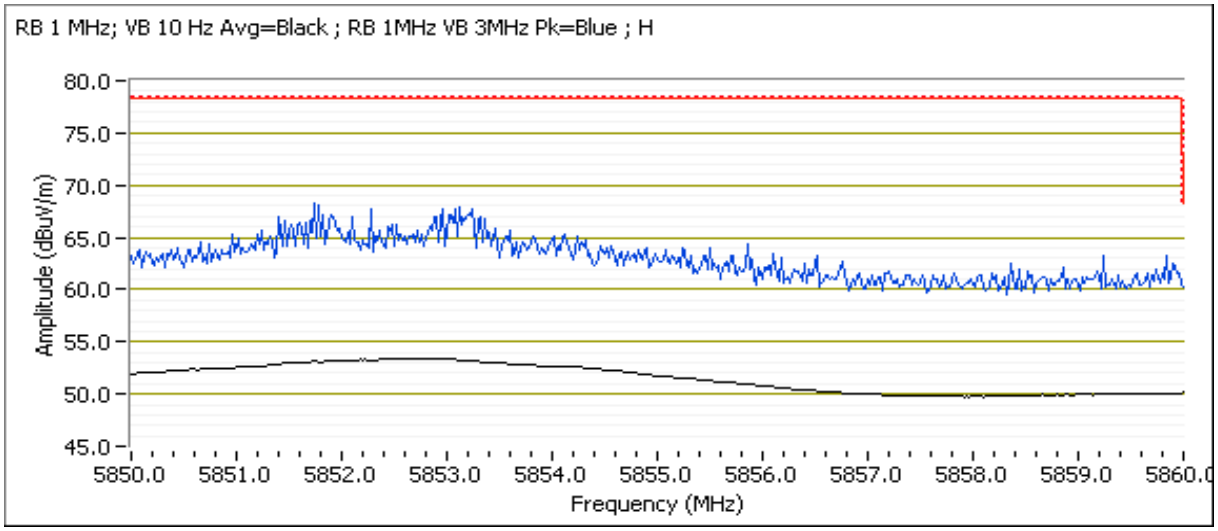


Client:	Pace Americas, Inc.	Job Number:	J97787
Model:	5268AC (FCC ID: PGR5200AC)	T-Log Number:	T97825
		Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.407 (New Rules)	Class:	N/A

Channel: 159 - 5795 MHz
Tx Chain: 4x4
Mode: n40
Data Rate: MCS0

5850 MHz Band Edge Signal Radiated Field Strength

Frequency	Level	Pol	FCC 15.E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
Pow = 18								
5852.670	53.4	H	54.0	-0.6	AVG	194	1.0	Note1;POS; RB 1 MHz; VB: 10 Hz
5851.660	68.8	H	74.0	-5.2	PK	194	1.0	Note1; POS; RB 1 MHz; VB: 3 MHz



Client:	Pace Americas, Inc.	Job Number:	J97787
Model:	5268AC (FCC ID: PGR5200AC)	T-Log Number:	T97825
		Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.407 (New Rules)	Class:	N/A

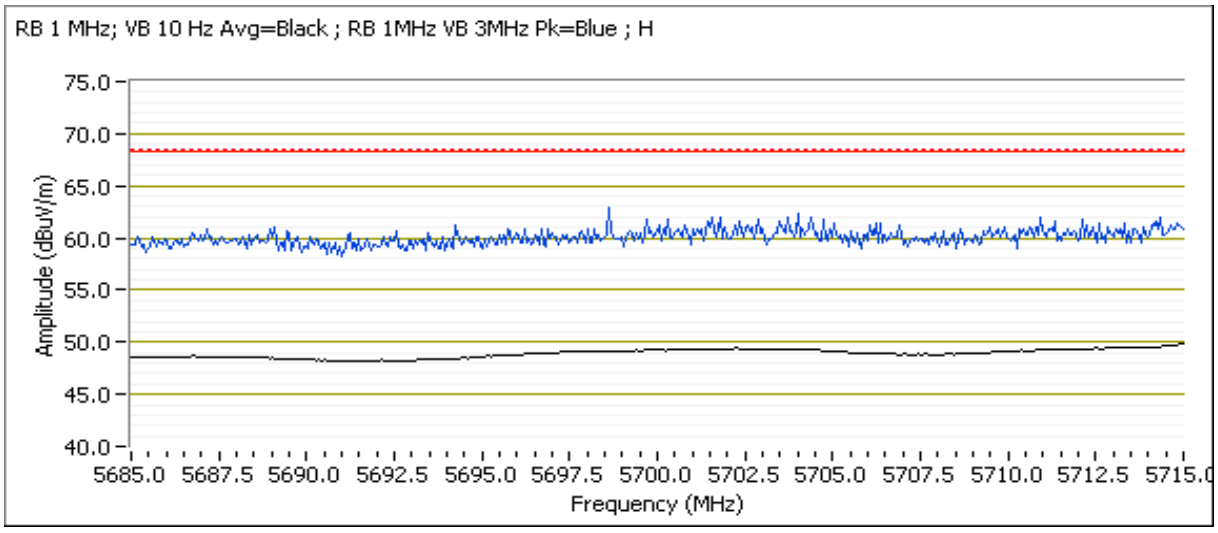
Run #6 additinoal: Radiated Bandedge Measurements, 5725-5850MHz

Date of Test: 4/8/2015 0:00 Config. Used: 1
Test Engineer: Jack Liu Config Change: none
Test Location: FT Chamber4 EUT Voltage: 120V/60Hz

Channel: 159 - 5795 MHz
Tx Chain: 4x4
Mode: n40
Data Rate: MCS0

5715 MHz Band Edge Signal Radiated Field Strength

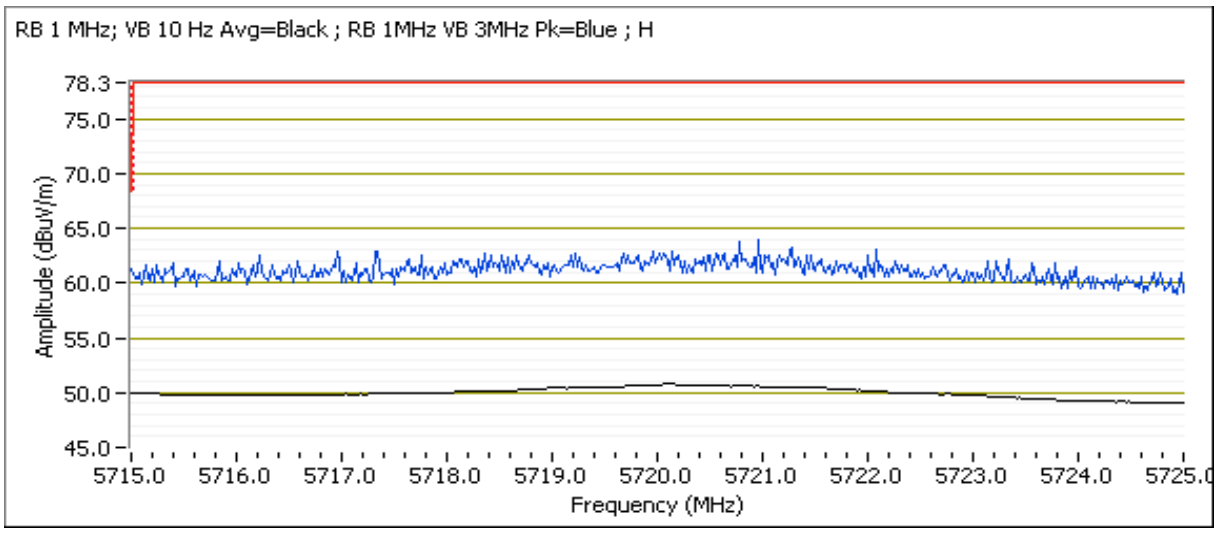
Frequency	Level	Pol	FCC 15.E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5715.000	49.8	H	68.3	-18.5	AVG	295	1.0	POS; RB 1 MHz; VB: 10 Hz



Client:	Pace Americas, Inc.	Job Number:	J97787
Model:	5268AC (FCC ID: PGR5200AC)	T-Log Number:	T97825
		Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.407 (New Rules)	Class:	N/A

5725 MHz Band Edge Signal Radiated Field Strength

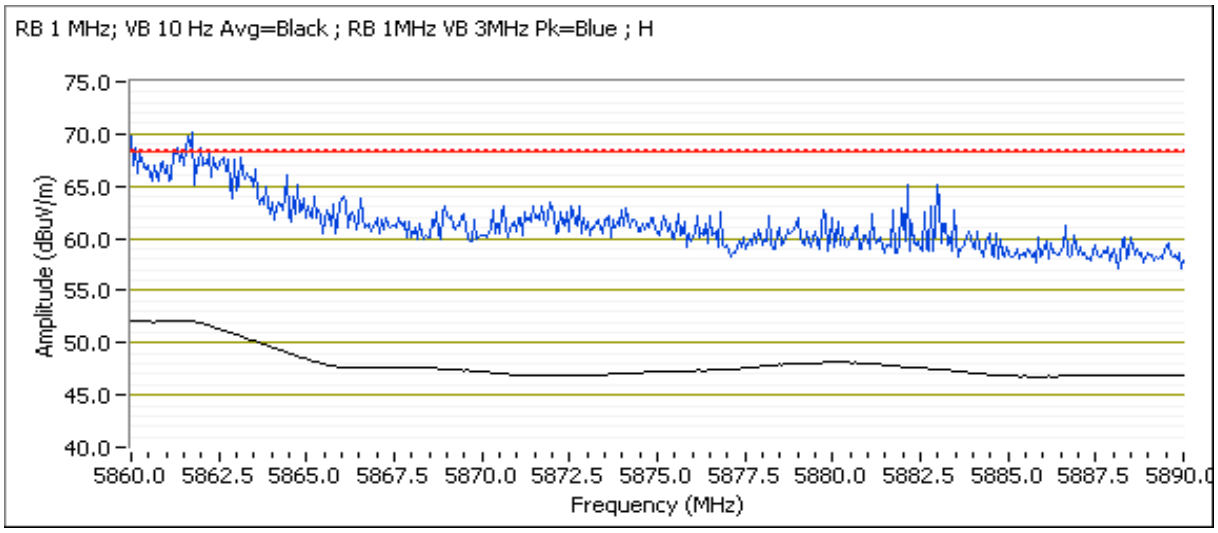
Frequency	Level	Pol	FCC 15.E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5719.650	63.9	H	78.3	-14.4	PK	300	1.0	POS; RB 1 MHz; VB: 3 MHz



Client:	Pace Americas, Inc.	Job Number:	J97787
Model:	5268AC (FCC ID: PGR5200AC)	T-Log Number:	T97825
		Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.407 (New Rules)	Class:	N/A

5860 MHz Band Edge Signal Radiated Field Strength

Frequency	Level	Pol	FCC 15.E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
Pow = 20								
5860.060	53.8	H	54.0	-0.2	AVG	253	1.1	Note1;POS; RB 1 MHz; VB: 10 Hz
5860.960	71.2	H	74.0	-2.8	PK	253	1.1	Note1; POS; RB 1 MHz; VB: 3 MHz
5861.620	51.8	V	54.0	-2.2	AVG	244	1.0	Note1;POS; RB 1 MHz; VB: 10 Hz
5860.480	68.3	V	74.0	-5.7	PK	244	1.0	Note1; POS; RB 1 MHz; VB: 3 MHz



Client:	Pace Americas, Inc.	Job Number:	J97787
Model:	5268AC (FCC ID: PGR5200AC)	T-Log Number:	T97825
		Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.407 (New Rules)	Class:	N/A

Run #7: Radiated Bandedge Measurements, 5150-5250MHz

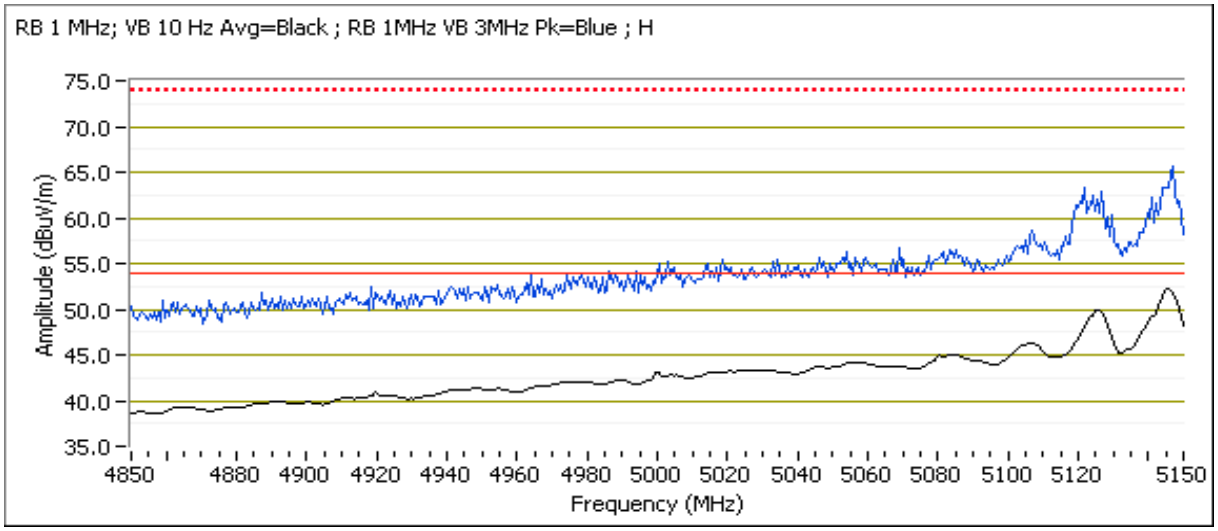
Date of Test: 3/18/2015 0:00
Test Engineer: Jack Liu
Test Location: FT Chamber4

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

Channel: 42 - 5210 MHz
Tx Chain: 4x4
Mode: ac80
Data Rate: VHT0

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	
5145.090	53.6	H	54.0	-0.4	AVG	302	1.3	Note3; POS; RB 1 MHz; VB: 1kHz
5146.590	67.2	H	74.0	-6.8	PK	302	1.3	POS; RB 1 MHz; VB: 3 MHz



Client:	Pace Americas, Inc.	Job Number:	J97787
Model:	5268AC (FCC ID: PGR5200AC)	T-Log Number:	T97825
		Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.407 (New Rules)	Class:	N/A

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

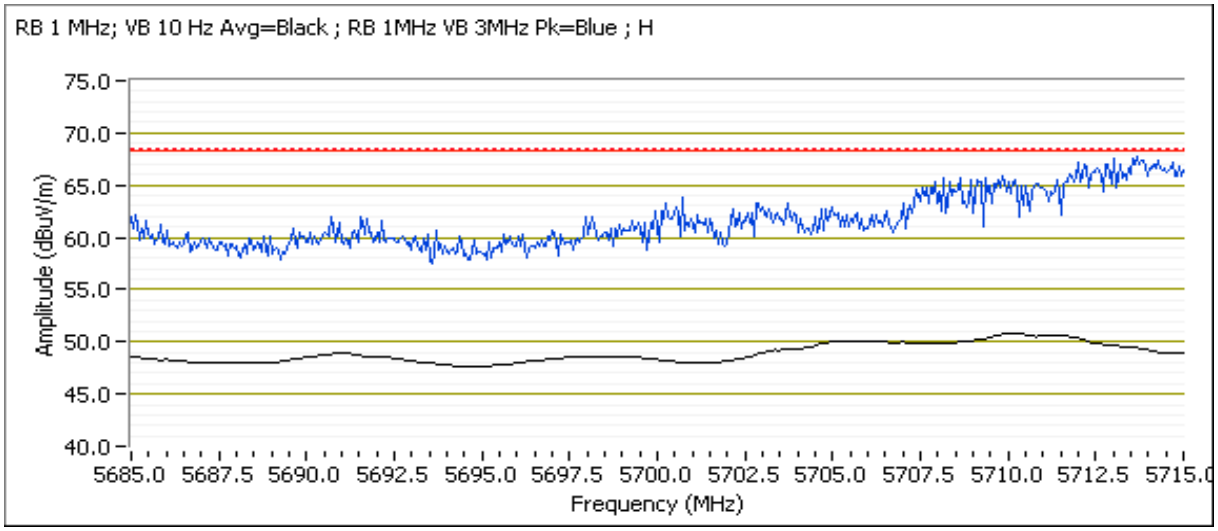
Date of Test: 3/24/2015 0:00
Test Engineer: Jack Liu
Test Location: FT Chamber 5

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

Channel: 155 - 5775 MHz
Tx Chain: 4x4
Mode: ac80
Data Rate: VHT0

5715 MHz Band Edge Signal Radiated Field Strength

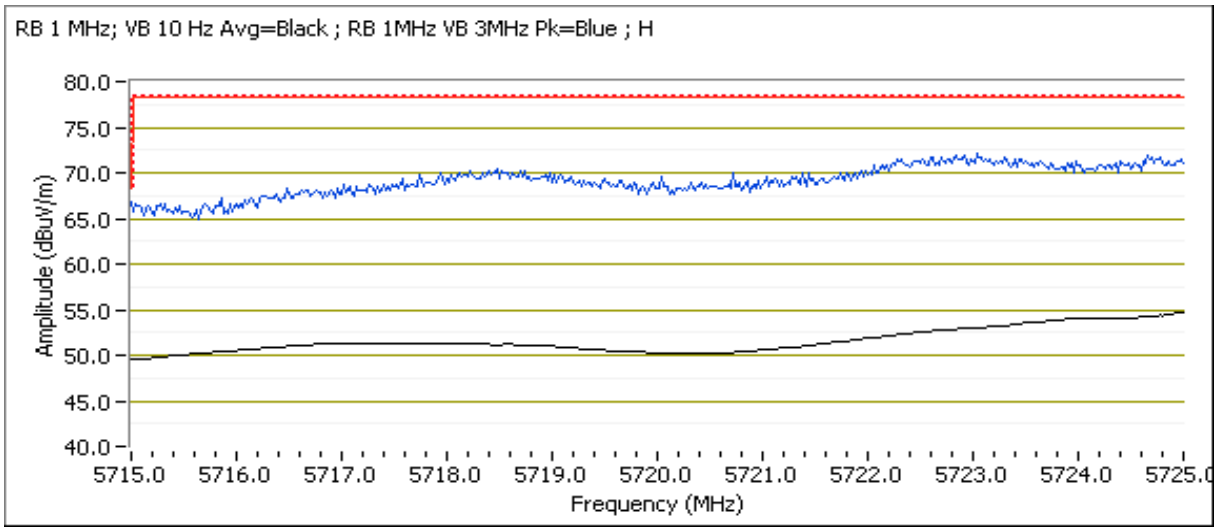
Frequency	Level	Pol	FCC 15.E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5714.280	67.9	V	68.3	-0.4	PK	186	1.4	POS; RB 1 MHz; VB: 3 MHz
5685.000	67.0	H	68.3	-1.3	PK	293	1.1	POS; RB 1 MHz; VB: 3 MHz



Client:	Pace Americas, Inc.	Job Number:	J97787
Model:	5268AC (FCC ID: PGR5200AC)	T-Log Number:	T97825
		Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.407 (New Rules)	Class:	N/A

5725 MHz Band Edge Signal Radiated Field Strength

Frequency	Level	Pol	FCC 15.E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5722.880	71.9	V	78.3	-6.4	PK	172	1.5	POS; RB 1 MHz; VB: 3 MHz

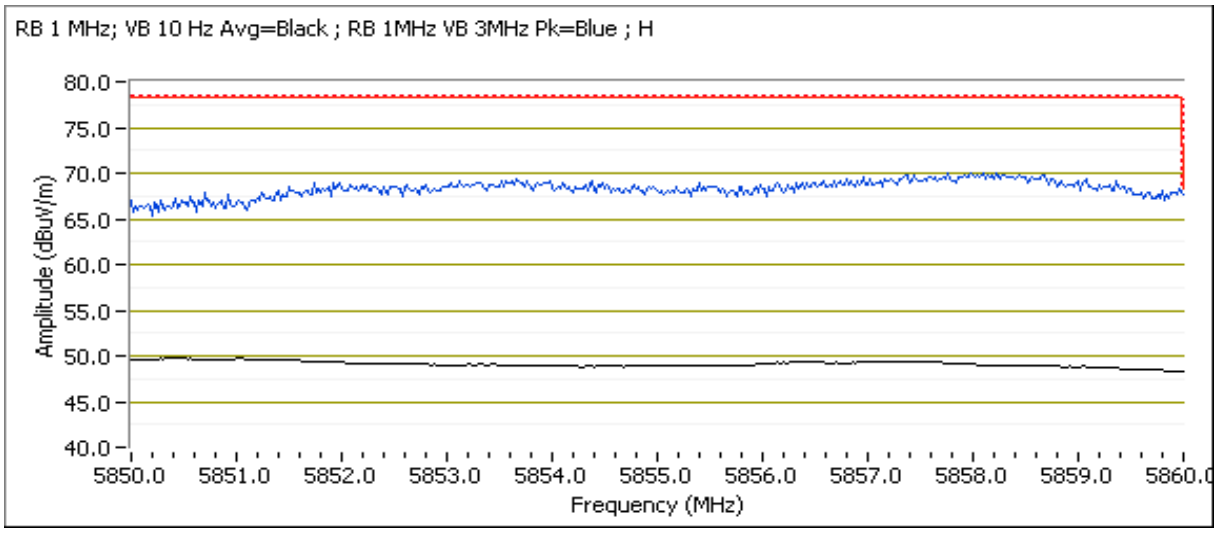


Client:	Pace Americas, Inc.	Job Number:	J97787
Model:	5268AC (FCC ID: PGR5200AC)	T-Log Number:	T97825
		Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.407 (New Rules)	Class:	N/A

Channel: 155 - 5775 MHz
Tx Chain: 4x4
Mode: ac80
Data Rate: VHT0

5850 MHz Band Edge Signal Radiated Field Strength

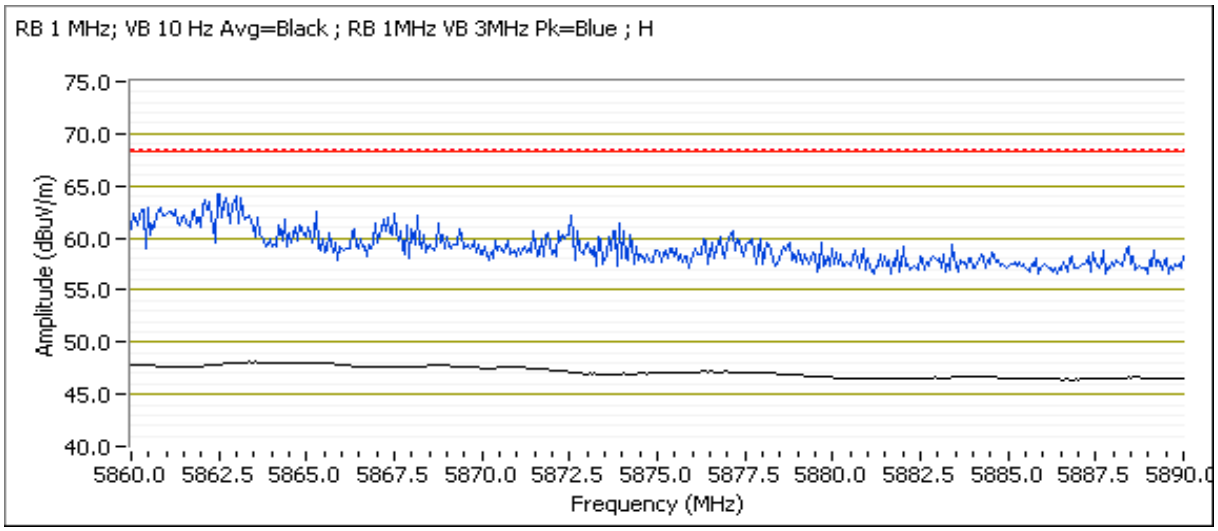
Frequency	Level	Pol	FCC 15.E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5857.740	69.9	V	78.3	-8.4	PK	172	1.0	POS; RB 1 MHz; VB: 3 MHz



Client:	Pace Americas, Inc.	Job Number:	J97787
Model:	5268AC (FCC ID: PGR5200AC)	T-Log Number:	T97825
		Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.407 (New Rules)	Class:	N/A

5860 MHz Band Edge Signal Radiated Field Strength

Frequency	Level	Pol	FCC 15.E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
Pow = 16								
5862.710	63.3	V	68.3	-5.0	PK	171	1.0	POS; RB 1 MHz; VB: 3 MHz



Client:	Pace Americas, Inc.	Job Number:	J97787
Model:	5268AC (FCC ID: PGR5200AC)	T-Log Number:	T97825
		Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.407 (New Rules)	Class:	N/A

RSS 210 and FCC 15.407 (UNII) Radiated Spurious Emissions

Test Specific Details

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

General Test Configuration

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

Ambient Conditions:

Temperature: 24 °C
Rel. Humidity: 33 %

Summary of Results

Run #	Mode	Channel	Power Setting	Measured Power	Test Performed	Limit	Result / Margin
Scans on "center" channel in all OFDM modes to determine the worst case mode.							
1	a	40 - 5200MHz	24	-	Radiated Emissions, 1 - 40 GHz	FCC 15.209 / 15 E	42.0 dBµV/m @ 20800.0 MHz (-12.0 dB)
	n20	40 - 5200MHz	24				48.5 dBµV/m @ 5439.9 MHz (-5.5 dB)
	n40	38 - 5190MHz	24				47.1 dBµV/m @ 5032.2 MHz (-6.9 dB)
	ac80	42 - 5210MHz	24				42.1 dBµV/m @ 20844.5 MHz (-11.9dB)
Measurements on low and high channels in worst-case OFDM mode.							
2	n20	36 - 5180MHz	24		Radiated Emissions, 1 - 40 GHz	FCC 15.209 / 15 E	52.1 dBµV/m @ 15544.8 MHz (-1.9 dB)
	n20	48 - 5240MHz	24				52.9 dBµV/m @ 15720.9 MHz (-1.1 dB)

Client:	Pace Americas, Inc.	Job Number:	J97787
Model:	5268AC (FCC ID: PGR5200AC)	T-Log Number:	T97825
		Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.407 (New Rules)	Class:	N/A

Summary of Results

Run #	Mode	Channel	Power Setting	Measured Power	Test Performed	Limit	Result / Margin
Scans on "center" channel in all four OFDM modes to determine the worst case mode.							
3	a	157 - 5785MHz	24		Radiated Emissions, 1 - 40 GHz	FCC 15.209 / 15 E	52.8 dBµV/m @ 11564.9 MHz (-1.2 dB)
	n20	157 - 5785MHz	24				52.8 dBµV/m @ 11564.7 MHz (-1.2 dB)
	n40	151 - 5755MHz	24				66.6 dBµV/m @ 5582.2 MHz (-1.7 dB)
	ac80	155 - 5775MHz	23				66.4 dBµV/m @ 5982.1 MHz (-1.9 dB)
The 80MHz operation represents the worse case condition. When operated at the same power as the 20/40MHz modes, the 80MHz channel had the highest spurious emission.							

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.

Mode	Data Rate	Duty Cycle (x)	Constant DC?	T (ms)	Pwr Cor Factor*	Lin Volt Cor Factor**	Min VBW for FS (Hz)
11a	9MB/s	0.98	Yes	5.2	0.00	0.00	10
n20	MCS0	0.99	Yes	6	0.00	0.00	10
n40	MCS0	0.98	Yes	3.2	0.00	0.00	10
ac80	VHT0	0.92	Yes	2.1	0.35	0.70	476

Note: Prelimininary testing showed that flat orientation was worse case

Client:	Pace Americas, Inc.	Job Number:	J97787
Model:	5268AC (FCC ID: PGR5200AC)	T-Log Number:	T97825
		Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.407 (New Rules)	Class:	N/A

Sample Notes

Sample S/N: 94151N013576
Driver: -
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 meeing the average and peak limits of 15.209, as an alternative.
Note 2	For emissions in restricted bands, the limit of 15.209 was used, which requires average and peak measurements.
Note 3:	Emission has duty cycle < 98%, but constant, average measurement performed: RBW=1MHz, VBW=10Hz, peak detector, linear averaging, auto sweep, trace average 100 * 1/DC traces, measurement corrected by Linear Voltage correction factor

Client:	Pace Americas, Inc.	Job Number:	J97787
Model:	5268AC (FCC ID: PGR5200AC)	T-Log Number:	T97825
		Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.407 (New Rules)	Class:	N/A

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

Date of Test: 3/30/2014 0:00
Test Engineer: Jack Liu
Test Location: FT Chamber#4

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

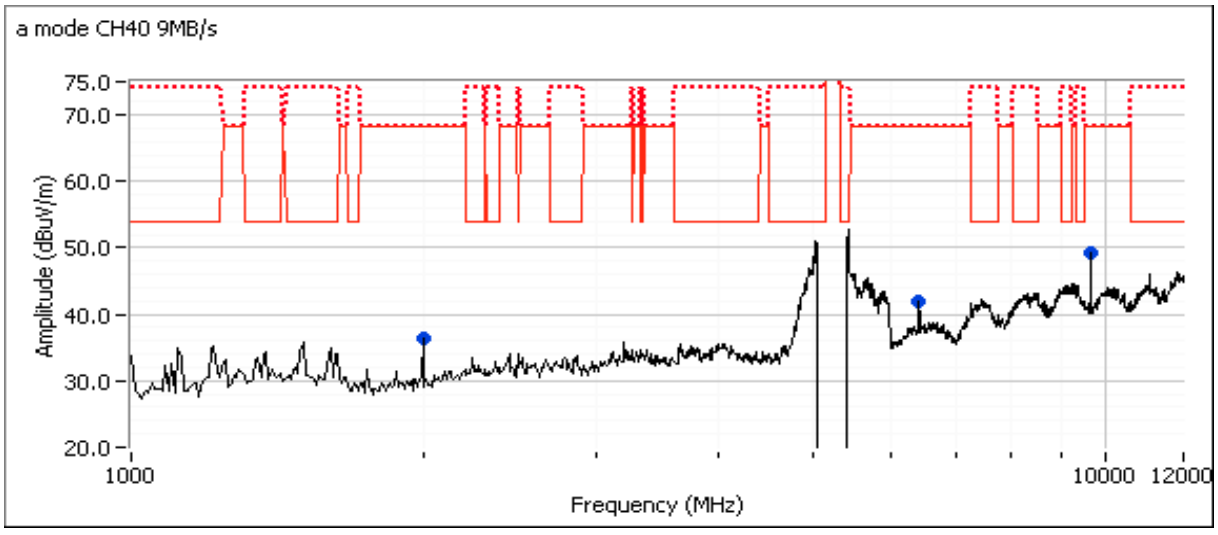
Run #1a: Center Channel

Channel: 40
Tx Chain: 4x4

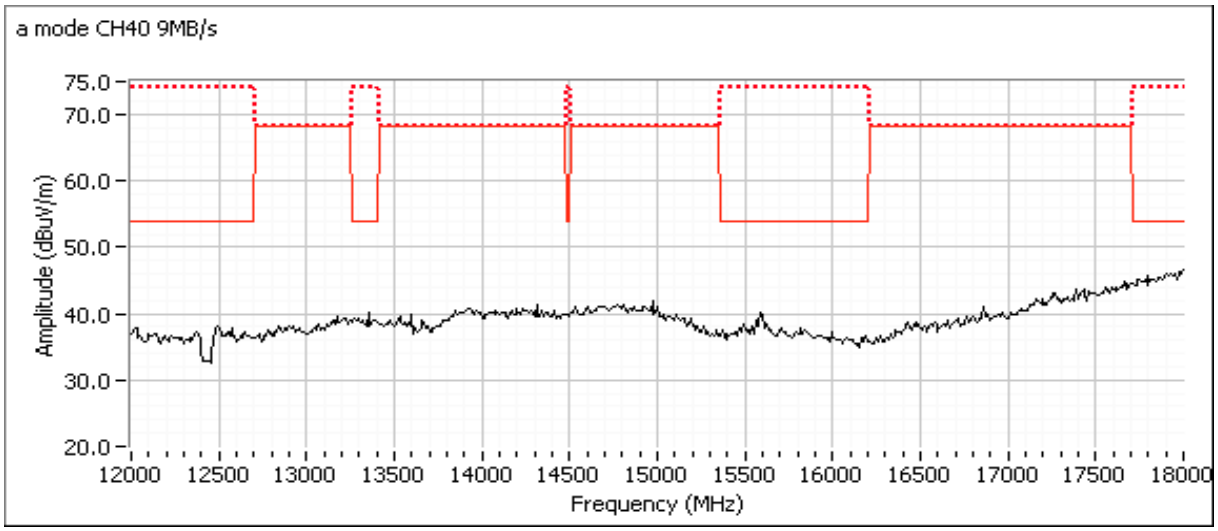
Mode: a
Data Rate: 9MB/s

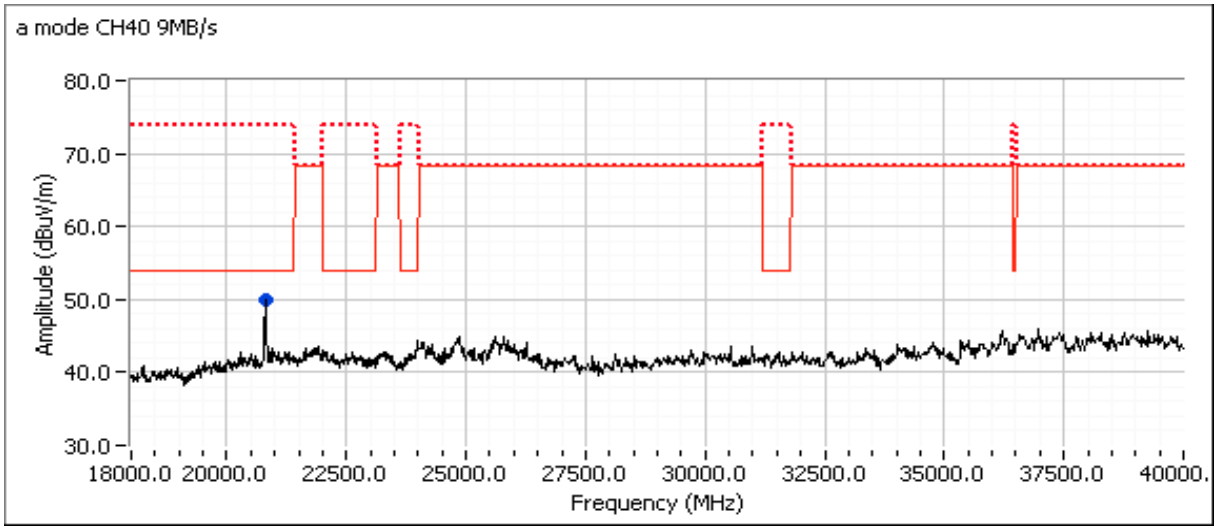
Frequency	Level	Pol	15.209 / 15E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
20799.970	42.0	V	54.0	-12.0	AVG	250	1.3	RB 1 MHz;VB 10 Hz;Peak
20802.570	56.4	V	74.0	-17.6	PK	250	1.3	RB 1 MHz;VB 3 MHz;Peak
6432.000	43.5	V	68.3	-24.8	PK	91	1.0	RB 1 MHz;VB 3 MHz;Peak
2000.120	39.7	V	68.3	-28.6	PK	124	1.8	RB 1 MHz;VB 3 MHz;Peak
9647.870	53.4	V	68.3	-14.9	PK	265	2.0	RB 1 MHz;VB 3 MHz;Peak

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



Client:	Pace Americas, Inc.	Job Number:	J97787
Model:	5268AC (FCC ID: PGR5200AC)	T-Log Number:	T97825
		Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.407 (New Rules)	Class:	N/A





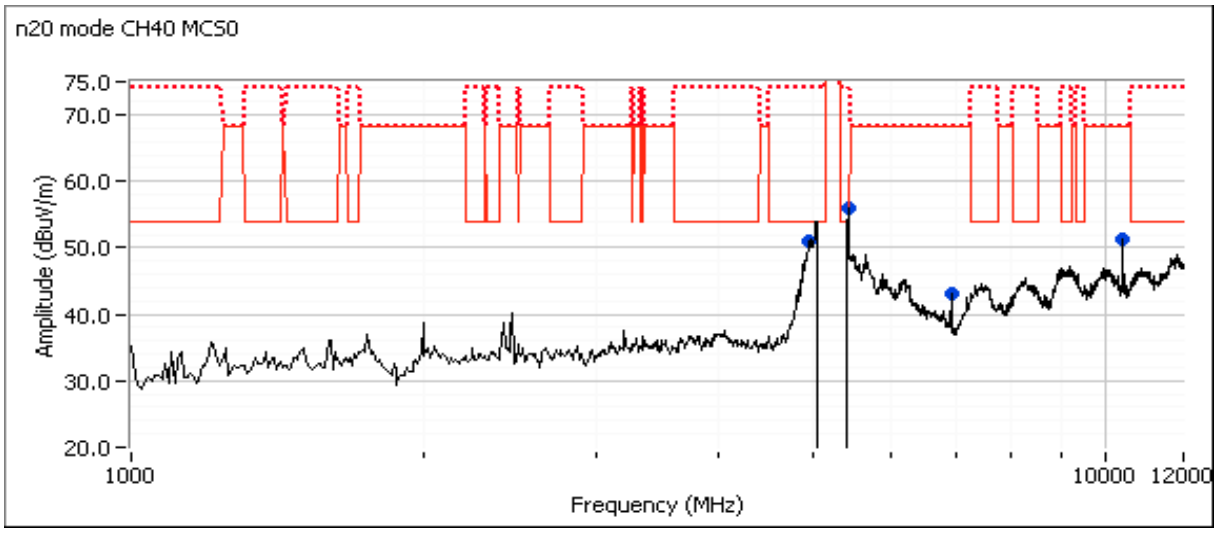
Client:	Pace Americas, Inc.	Job Number:	J97787
Model:	5268AC (FCC ID: PGR5200AC)	T-Log Number:	T97825
		Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.407 (New Rules)	Class:	N/A

Run #1b: Center Channel

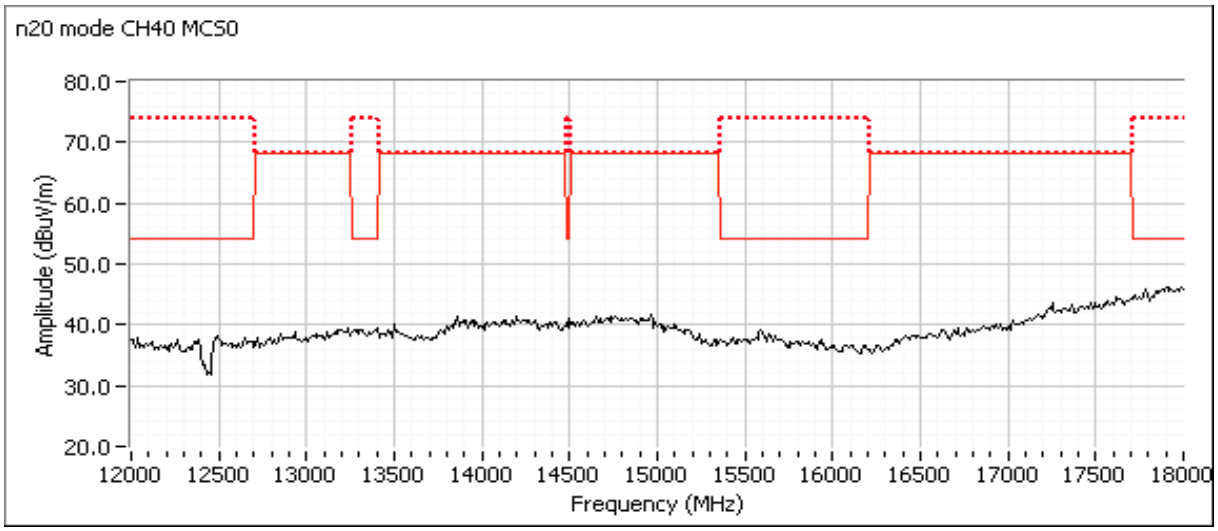
Channel: 40 Mode: 11n20
Tx Chain: 4x4 Data Rate: MCS0

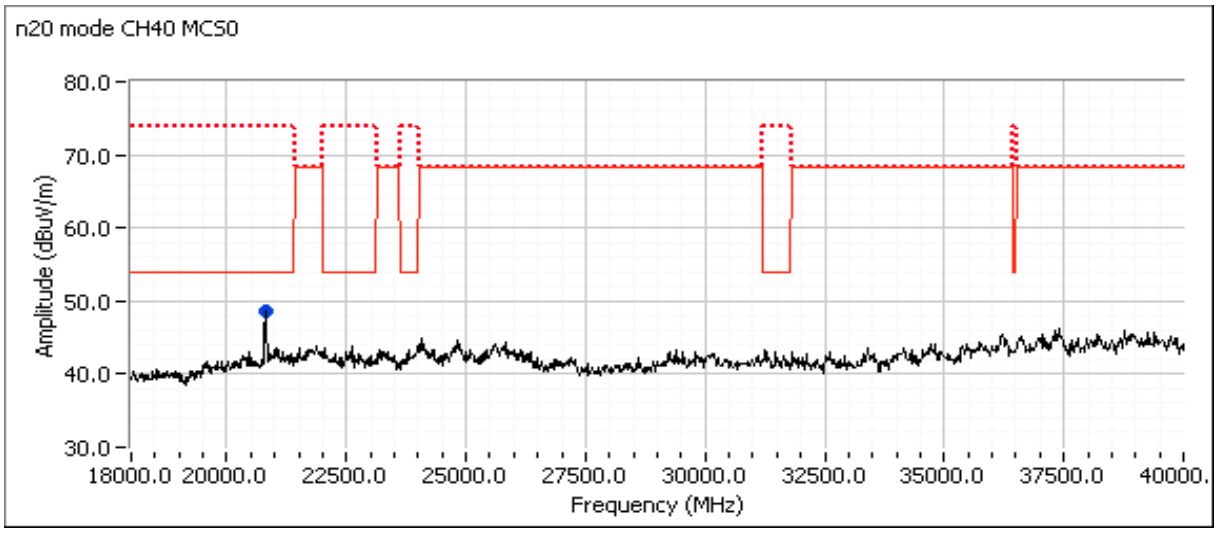
Frequency	Level	Pol	15.209 / 15E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5439.900	48.5	H	54.0	-5.5	AVG	335	1.4	RB 1 MHz;VB 10 Hz;Peak
5439.900	58.8	H	74.0	-15.2	PK	335	1.4	RB 1 MHz;VB 3 MHz;Peak
10399.980	61.0	V	68.3	-7.3	PK	99	1.7	RB 1 MHz;VB 3 MHz;Peak
6933.470	48.4	V	68.3	-19.9	PK	211	1.1	RB 1 MHz;VB 3 MHz;Peak
4967.230	44.7	H	54.0	-9.3	AVG	267	1.0	RB 1 MHz;VB 10 Hz;Peak
4986.350	58.9	H	74.0	-15.1	PK	267	1.0	RB 1 MHz;VB 3 MHz;Peak
20808.300	36.4	V	54.0	-17.6	AVG	337	1.6	RB 1 MHz;VB 10 Hz;Peak
20807.680	47.6	V	74.0	-26.4	PK	337	1.6	RB 1 MHz;VB 3 MHz;Peak

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



Client:	Pace Americas, Inc.	Job Number:	J97787
Model:	5268AC (FCC ID: PGR5200AC)	T-Log Number:	T97825
		Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.407 (New Rules)	Class:	N/A





Client:	Pace Americas, Inc.	Job Number:	J97787
Model:	5268AC (FCC ID: PGR5200AC)	T-Log Number:	T97825
		Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.407 (New Rules)	Class:	N/A

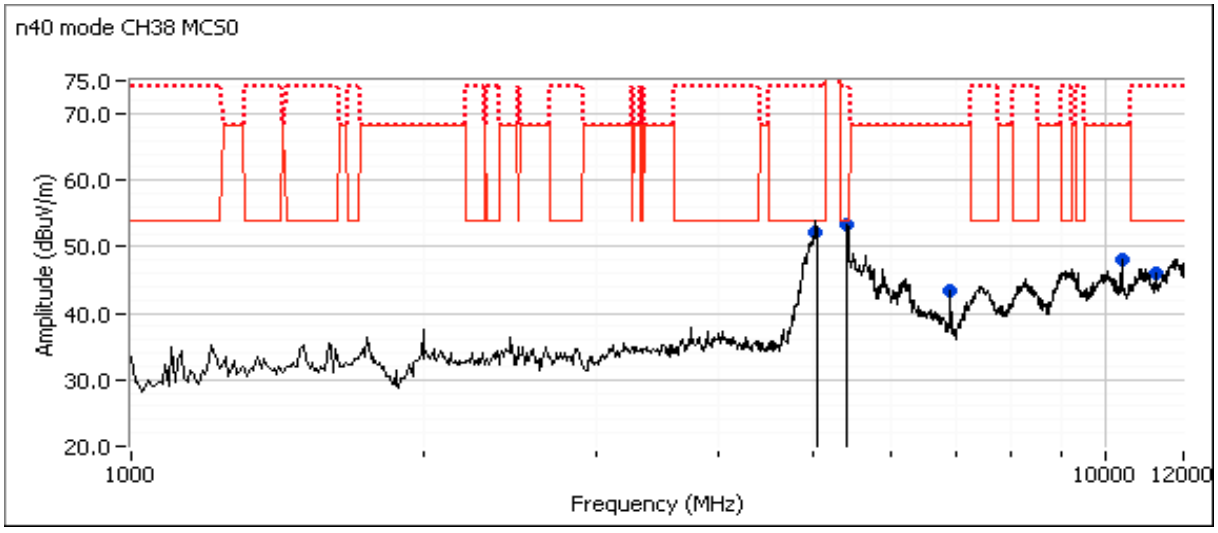
Run #1c: Center Channel

Date of Test: 3/30/2014 0:00 — Config. Used: 1
Test Engineer: Joseph Cadigal — Config Change: none
Test Location: FT CHamber#3 — EUT Voltage: 120V/60Hz

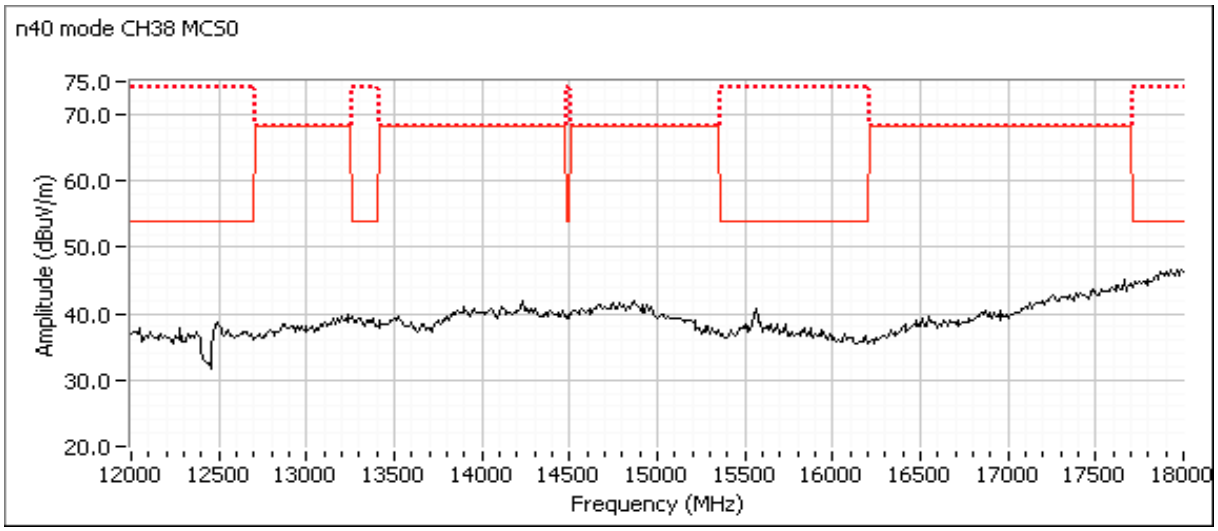
Channel: 38 — Mode: 11n40
Tx Chain: 4x4 — Data Rate: MCS0

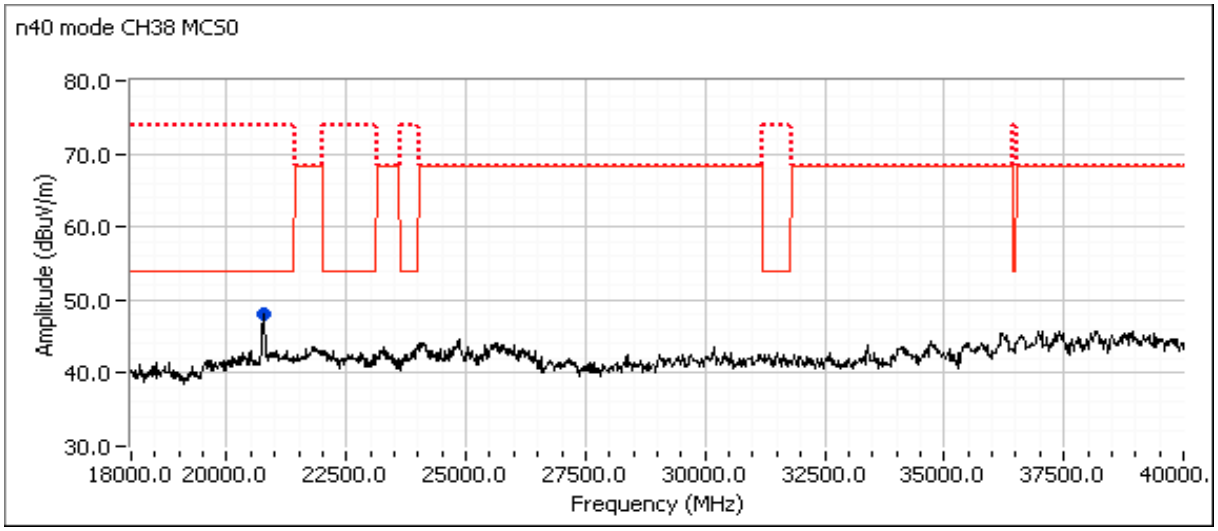
Frequency	Level	Pol	15.209 / 15E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5032.230	47.1	H	54.0	-6.9	AVG	293	1.0	RB 1 MHz;VB 10 Hz;Peak
5032.200	58.5	H	74.0	-15.5	PK	293	1.0	RB 1 MHz;VB 3 MHz;Peak
11266.370	40.9	H	54.0	-13.1	AVG	97	1.6	RB 1 MHz;VB 10 Hz;Peak
11268.880	51.4	H	74.0	-22.6	PK	97	1.6	RB 1 MHz;VB 3 MHz;Peak
10391.910	45.1	V	68.3	-23.2	AVG	99	2.2	RB 1 MHz;VB 10 Hz;Peak
10392.230	56.2	V	68.3	-12.1	PK	99	2.2	RB 1 MHz;VB 3 MHz;Peak
6919.970	41.6	V	68.3	-26.7	AVG	106	1.9	RB 1 MHz;VB 10 Hz;Peak
6920.060	48.9	V	68.3	-19.4	PK	106	1.9	RB 1 MHz;VB 3 MHz;Peak
20759.810	40.9	V	54.0	-13.1	AVG	333	1.3	RB 1 MHz;VB 10 Hz;Peak
20756.830	53.3	V	74.0	-20.7	PK	333	1.3	RB 1 MHz;VB 3 MHz;Peak
5430.060	43.9	H	54.0	-10.1	AVG	207	1.0	RB 1 MHz;VB 10 Hz;Peak
5430.750	54.5	H	74.0	-19.5	PK	207	1.0	RB 1 MHz;VB 3 MHz;Peak

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



Client:	Pace Americas, Inc.	Job Number:	J97787
Model:	5268AC (FCC ID: PGR5200AC)	T-Log Number:	T97825
		Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.407 (New Rules)	Class:	N/A





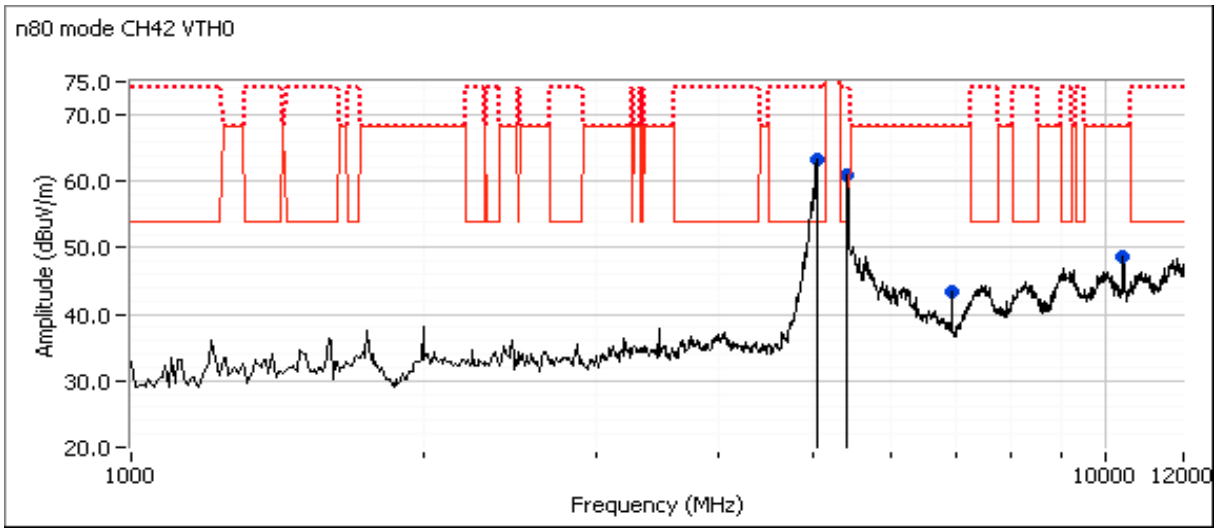
Client:	Pace Americas, Inc.	Job Number:	J97787
Model:	5268AC (FCC ID: PGR5200AC)	T-Log Number:	T97825
		Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.407 (New Rules)	Class:	N/A

Run #1d: Center Channel

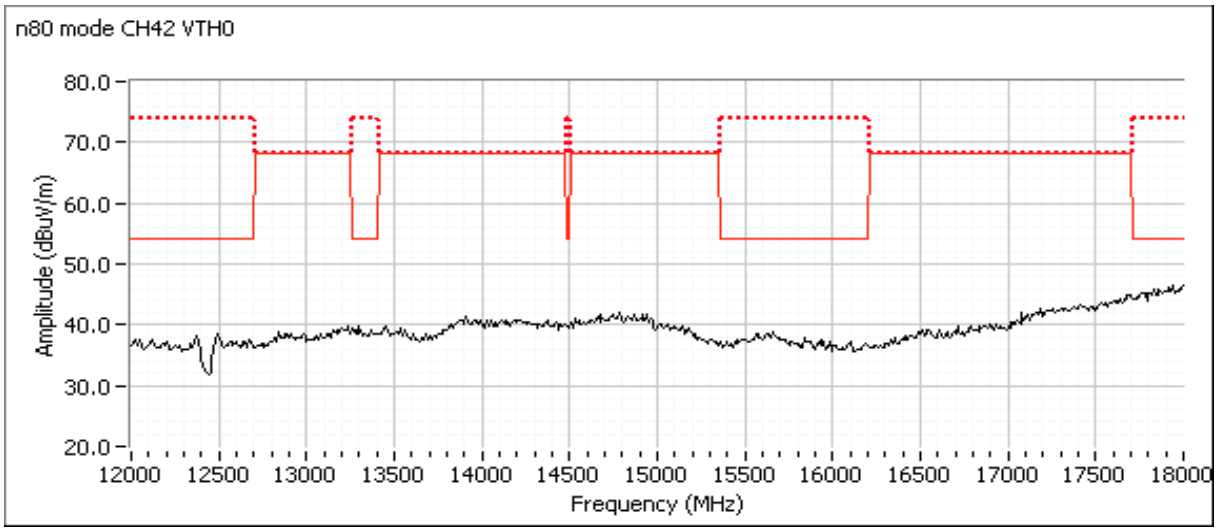
Channel: 42 Mode: ac80
Tx Chain: 4x4 Data Rate: VHT0

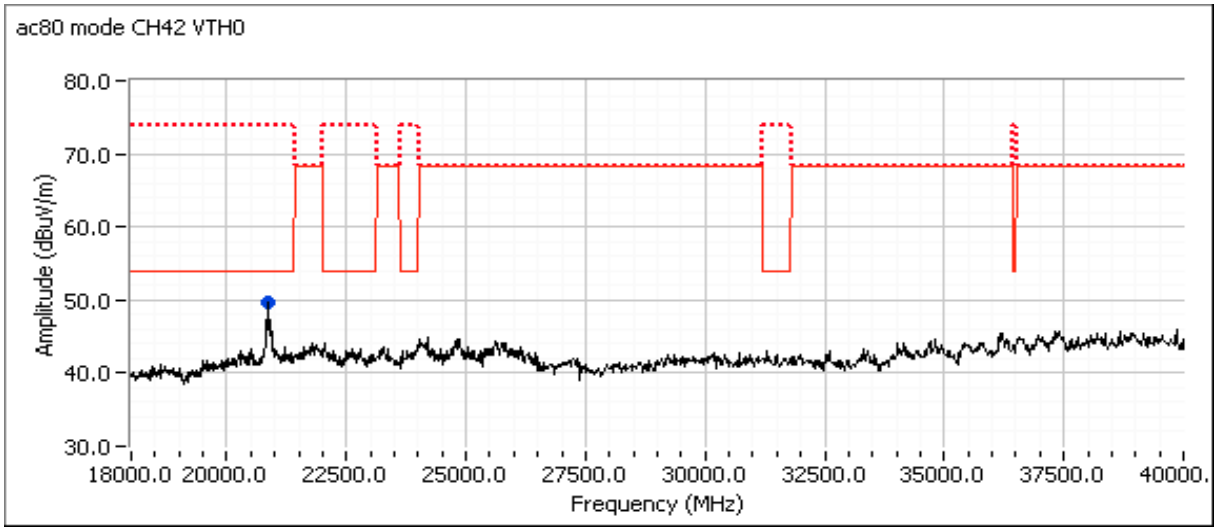
Frequency	Level	Pol	15.209 / 15E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
20844.500	42.1	V	54.0	-11.9	AVG	253	1.3	RB 1 MHz;VB 1kHz;Peak, note 3
20844.870	53.8	V	74.0	-20.2	PK	253	1.3	RB 1 MHz;VB 3 MHz;Peak
10419.610	50.7	V	68.3	-17.6	PK	100	1.9	RB 1 MHz;VB 3 MHz;Peak
6951.390	45.7	V	68.3	-22.6	PK	124	1.9	RB 1 MHz;VB 3 MHz;Peak
5425.520	40.9	H	54.0	-13.1	AVG	244	1.0	RB 1 MHz;VB 1kHz;Peak, note 3
5423.150	51.1	H	74.0	-22.9	PK	244	1.0	RB 1 MHz;VB 3 MHz;Peak
5048.140	40.2	H	54.0	-13.8	AVG	279	1.0	RB 1 MHz;VB 1kHz;Peak, note 3
5048.710	51.3	H	74.0	-22.7	PK	279	1.0	RB 1 MHz;VB 3 MHz;Peak

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



Client:	Pace Americas, Inc.	Job Number:	J97787
Model:	5268AC (FCC ID: PGR5200AC)	T-Log Number:	T97825
		Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.407 (New Rules)	Class:	N/A





Client:	Pace Americas, Inc.	Job Number:	J97787
Model:	5268AC (FCC ID: PGR5200AC)	T-Log Number:	T97825
		Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.407 (New Rules)	Class:	N/A

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

Date of Test: 4/3/2015, 4/9/15, 4/10/15
Test Engineer: Joseph Cadigal, J.Caizzi
Test Location: FT Chamber#4

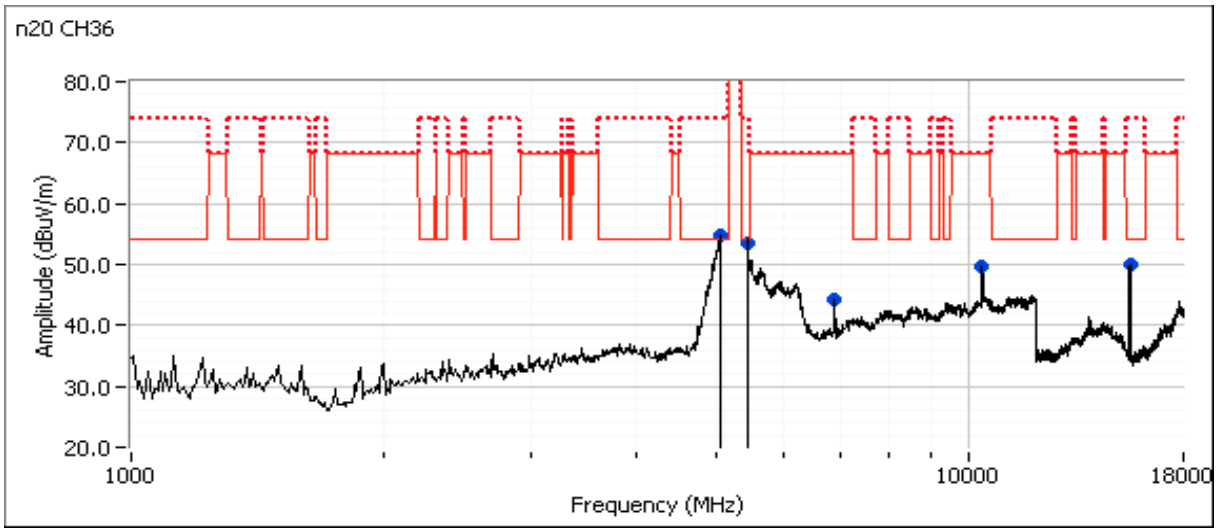
Config. Used: 1
Config Change: none
EUT Voltage: 120V/60Hz

Run #2a: Low Channel

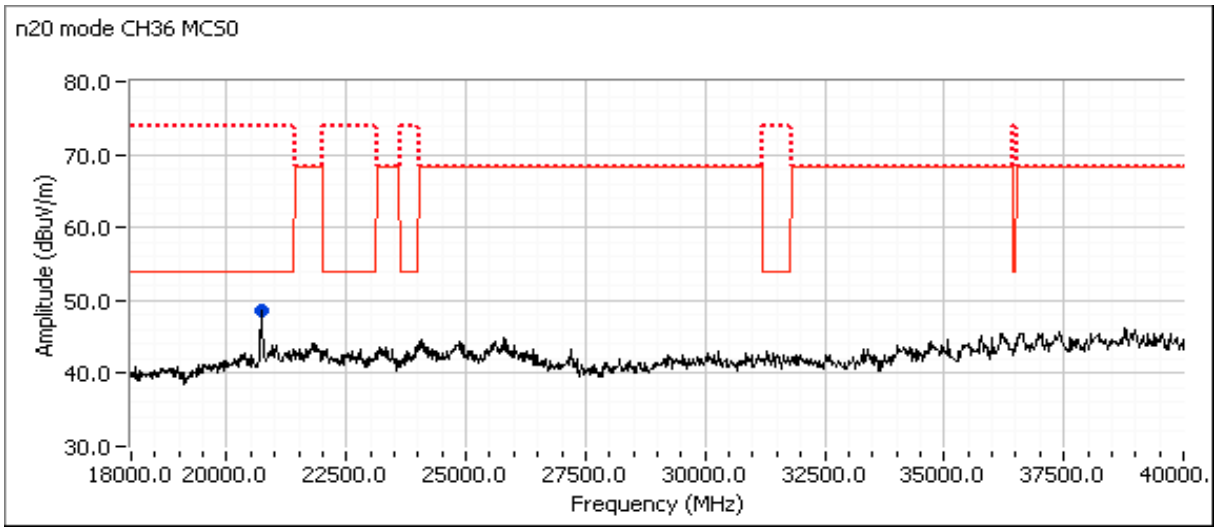
Channel: 36
Tx Chain: 4x4

Mode: n20
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	
5033.330	*54.8*	*H*	-	-	*Peak*	*262*	*1.0*	*Measured in bandedge sheet.*
5433.330	*53.4*	*H*	-	-	*Peak*	*201*	*1.0*	*Measured in bandedge sheet.*
6906.720	50.9	V	68.3	-17.4	PK	127	1.65	
10356.600	59.8	V	68.3	-8.5	PK	242	2.0	
15544.800	52.1	V	54.0	-1.9	AVG	39	1.1	RB 1 MHz;VB 10 Hz;Peak
15547.200	71.3	V	74.0	-2.7	PK	39	1.1	RB 1 MHz;VB 3 MHz;Peak
20725.280	43.5	V	54.0	-10.5	AVG	196	1.3	RB 1 MHz;VB 10 Hz;Peak
20723.790	58.7	V	74.0	-15.3	PK	196	1.3	RB 1 MHz;VB 3 MHz;Peak



Client:	Pace Americas, Inc.	Job Number:	J97787
Model:	5268AC (FCC ID: PGR5200AC)	T-Log Number:	T97825
		Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.407 (New Rules)	Class:	N/A

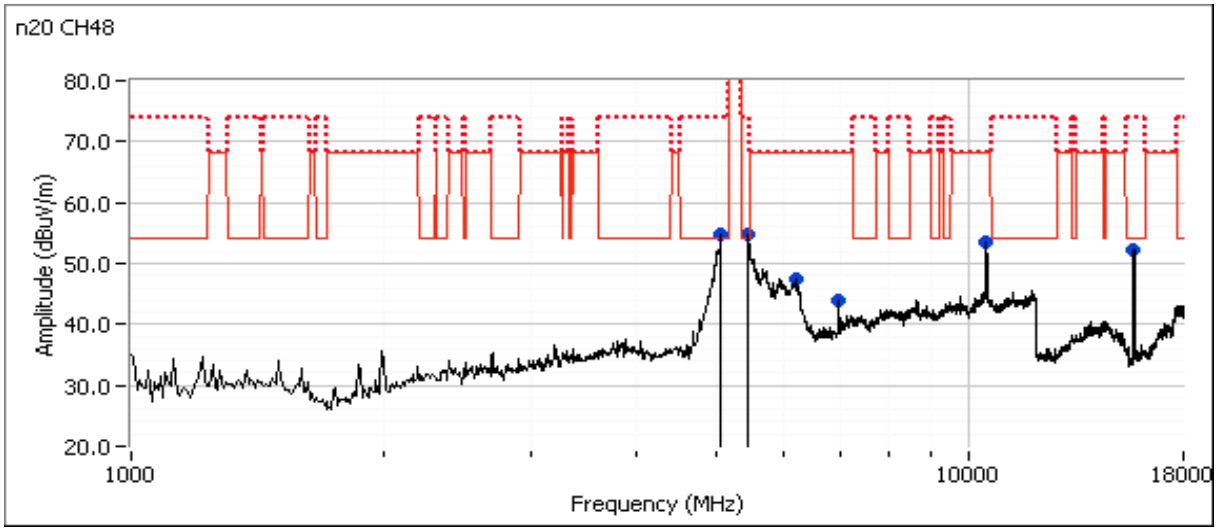


Client:	Pace Americas, Inc.	Job Number:	J97787
Model:	5268AC (FCC ID: PGR5200AC)	T-Log Number:	T97825
		Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.407 (New Rules)	Class:	N/A

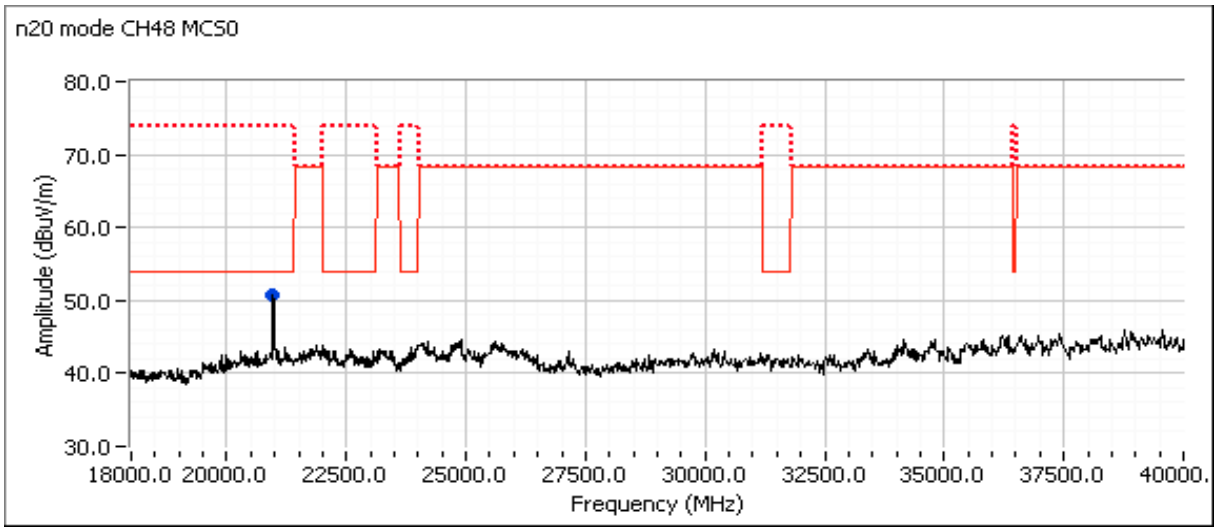
Run #2b: High Channel

Channel: 48 Mode: n20
Tx Chain: 4x4 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	
5041.670	*54.8*	*H*	-	-	*Peak*	*262*	*1.0*	*Measured in bandedge sheet.*
5425.000	*54.8*	*H*	-	-	*Peak*	*297*	*1.0*	*Measured in bandedge sheet.*
6986.300	49.3	V	68.3	-19.0	PK	216	1.00	
6189.400	56.3	H	68.3	-12.0	PK	269	1.00	
10480.330	62.9	V	68.3	-5.4	PK	100	2.50	
15720.930	52.9	V	54.0	-1.1	AVG	20	1.84	RB 1 MHz;VB 10 Hz;Peak
15726.870	69.5	V	74.0	-4.5	PK	20	1.84	
20959.870	45.9	V	54.0	-8.1	AVG	74	2.2	RB 1 MHz;VB 10 Hz;Peak
20958.570	58.7	V	74.0	-15.3	PK	74	2.2	RB 1 MHz;VB 3 MHz;Peak



Client:	Pace Americas, Inc.	Job Number:	J97787
Model:	5268AC (FCC ID: PGR5200AC)	T-Log Number:	T97825
		Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.407 (New Rules)	Class:	N/A



Client:	Pace Americas, Inc.	Job Number:	J97787
Model:	5268AC (FCC ID: PGR5200AC)	T-Log Number:	T97825
		Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.407 (New Rules)	Class:	N/A

Run #3, Radiated Spurious Emissions, 1,000 - 40,000 MHz. Operation in the 5725-5850 MHz Band

Date of Test: 4/9/2015 0:00
Test Engineer: John Caizzi / J. Liu
Test Location: Chamber 7

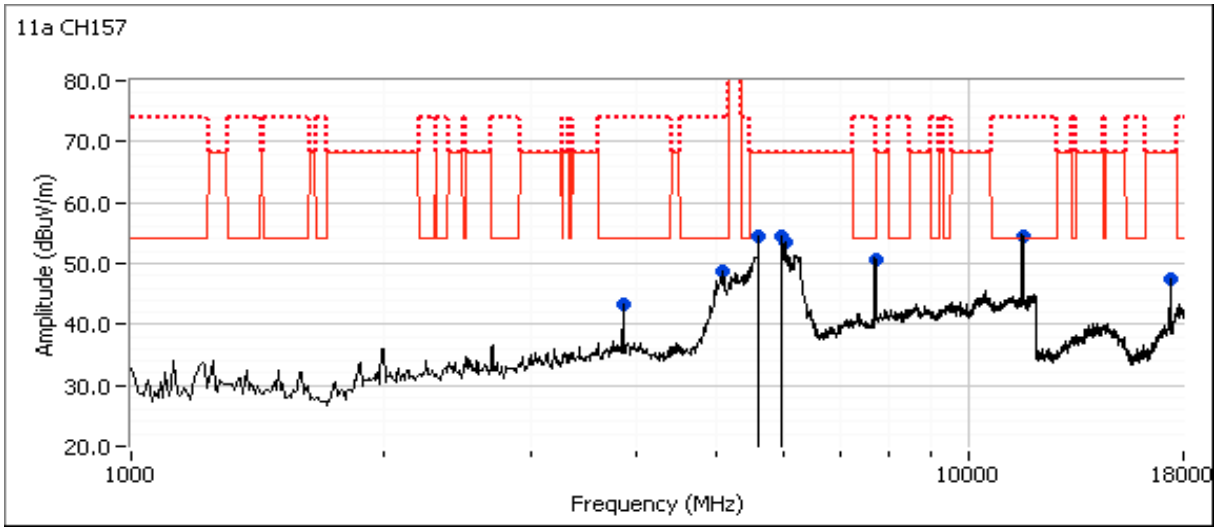
Config. Used: 1
Config Change: none
EUT Voltage: 120V / 60Hz

Run #3a: Center Channel

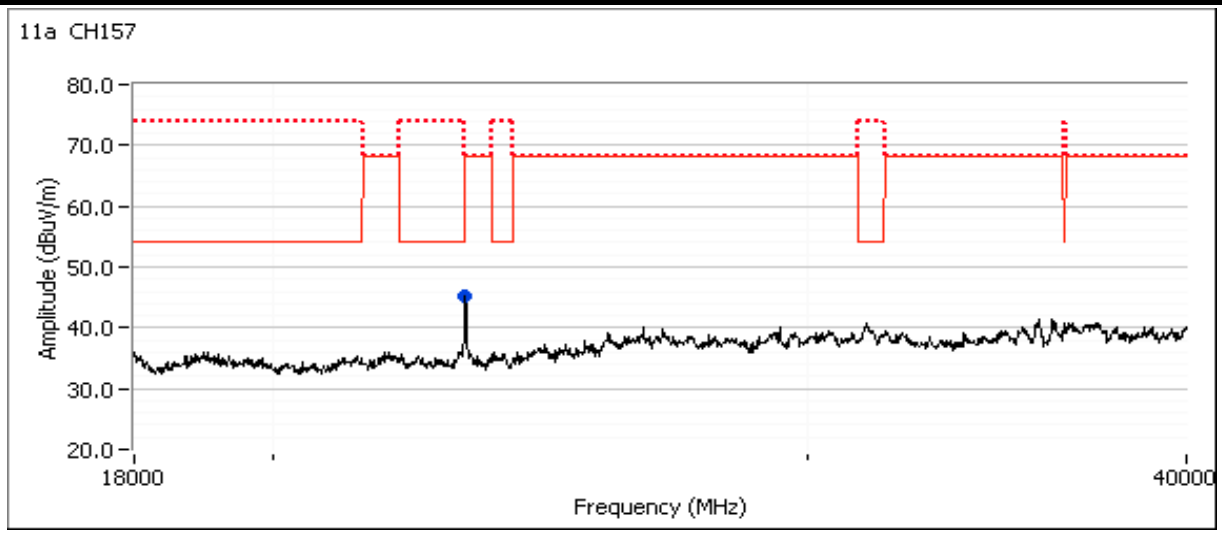
Channel: 157
Tx Chain: 4x4

Mode: a
Data Rate: 9MB/s

Frequency	Level	Pol	15.209 / 15E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
11564.930	52.8	V	54.0	-1.2	AVG	118	2.12	RB 1 MHz;VB 10 Hz;Peak
11564.800	64.3	V	74.0	-9.7	PK	118	2.12	
7713.420	49.7	V	54.0	-4.3	AVG	110	2.00	RB 1 MHz;VB 10 Hz;Peak
7713.300	55.3	V	74.0	-18.7	PK	110	2.00	
6025.530	62.9	H	68.3	-5.4	PK	226	1.00	
3856.650	46.0	V	74.0	-28.0	PK	226	2.49	
5057.270	44.6	H	54.0	-9.4	AVG	290	1.06	RB 1 MHz;VB 10 Hz;Peak
5060.540	56.9	H	74.0	-17.1	PK	290	1.06	
5579.000	66.2	H	68.3	-2.1	PK	305	1.09	
17355.930	61.6	V	68.3	-6.7	PK	8	1.11	
23138.700	59.1	V	68.3	-9.2	PK	182	1.00	



Client:	Pace Americas, Inc.	Job Number:	J97787
Model:	5268AC (FCC ID: PGR5200AC)	T-Log Number:	T97825
		Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.407 (New Rules)	Class:	N/A

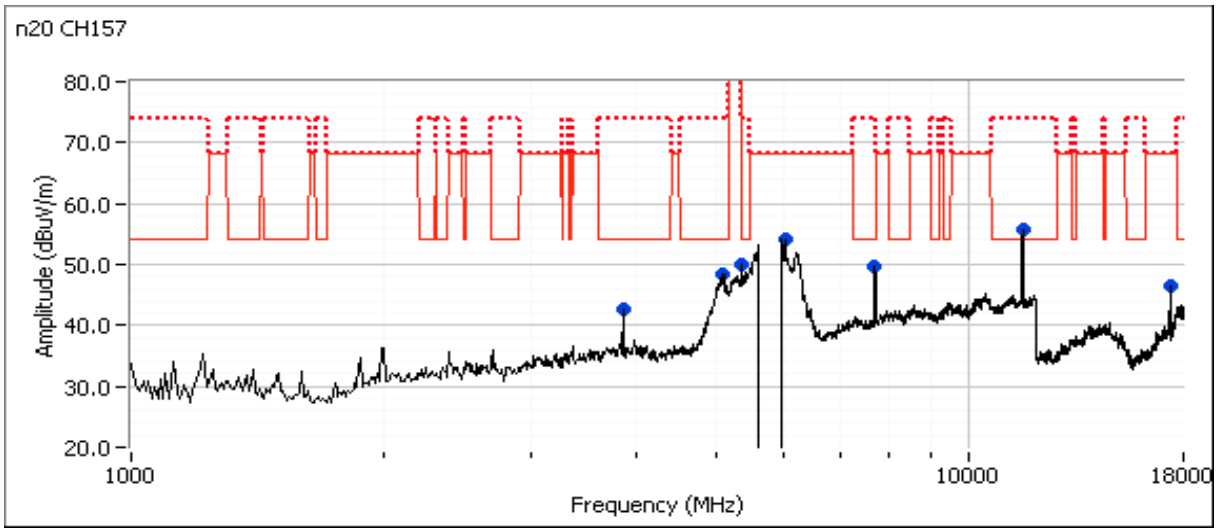


Client:	Pace Americas, Inc.	Job Number:	J97787
Model:	5268AC (FCC ID: PGR5200AC)	T-Log Number:	T97825
		Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.407 (New Rules)	Class:	N/A

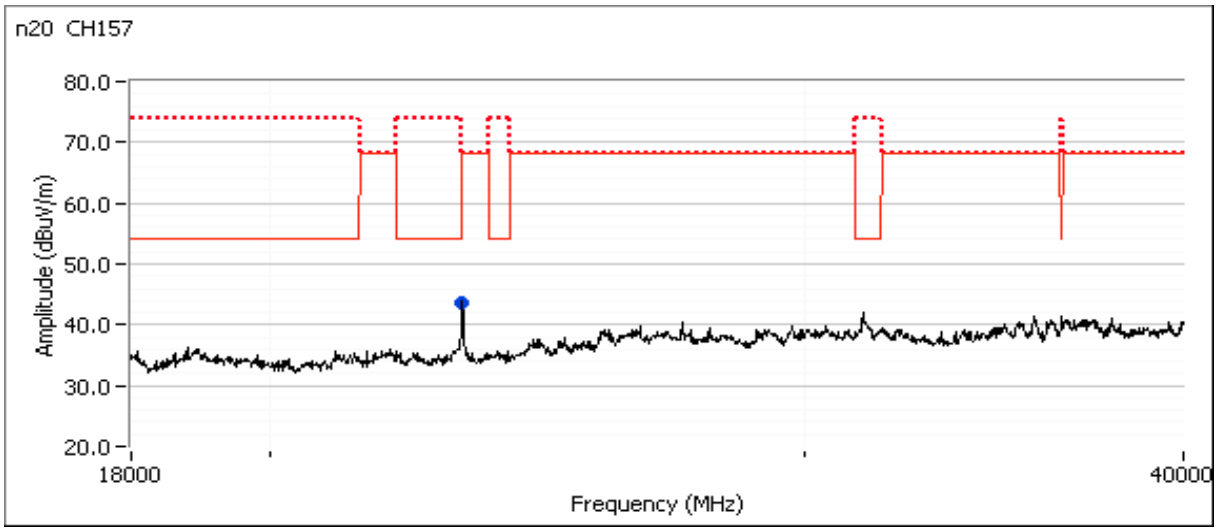
Run #3b: Center Channel

Channel: 157 Mode: 11n20
Tx Chain: 4x4 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	
3856.750	39.0	V	54.0	-15.0	AVG	230	1.80	RB 1 MHz;VB 10 Hz;Peak
3856.950	46.6	V	74.0	-27.4	PK	230	1.80	
5054.870	45.5	H	54.0	-8.5	AVG	266	1.00	RB 1 MHz;VB 10 Hz;Peak
5057.400	57.5	H	74.0	-16.5	PK	266	1.00	
5379.530	46.4	H	54.0	-7.6	AVG	301	1.00	RB 1 MHz;VB 10 Hz;Peak
5385.530	58.6	H	74.0	-15.4	PK	301	1.00	
6024.730	61.6	V	68.3	-6.7	PK	172	2.01	
7713.380	49.3	V	54.0	-4.7	AVG	106	2.50	RB 1 MHz;VB 10 Hz;Peak
7713.330	55.2	V	74.0	-18.8	PK	106	2.50	
11564.670	52.8	V	54.0	-1.2	AVG	117	2.22	RB 1 MHz;VB 10 Hz;Peak
11566.130	65.8	V	74.0	-8.2	PK	117	2.22	
17361.470	60.9	V	68.3	-7.4	PK	178	1.00	
23138.370	60.6	V	68.3	-7.7	PK	180	1.00	



Client:	Pace Americas, Inc.	Job Number:	J97787
Model:	5268AC (FCC ID: PGR5200AC)	T-Log Number:	T97825
		Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.407 (New Rules)	Class:	N/A

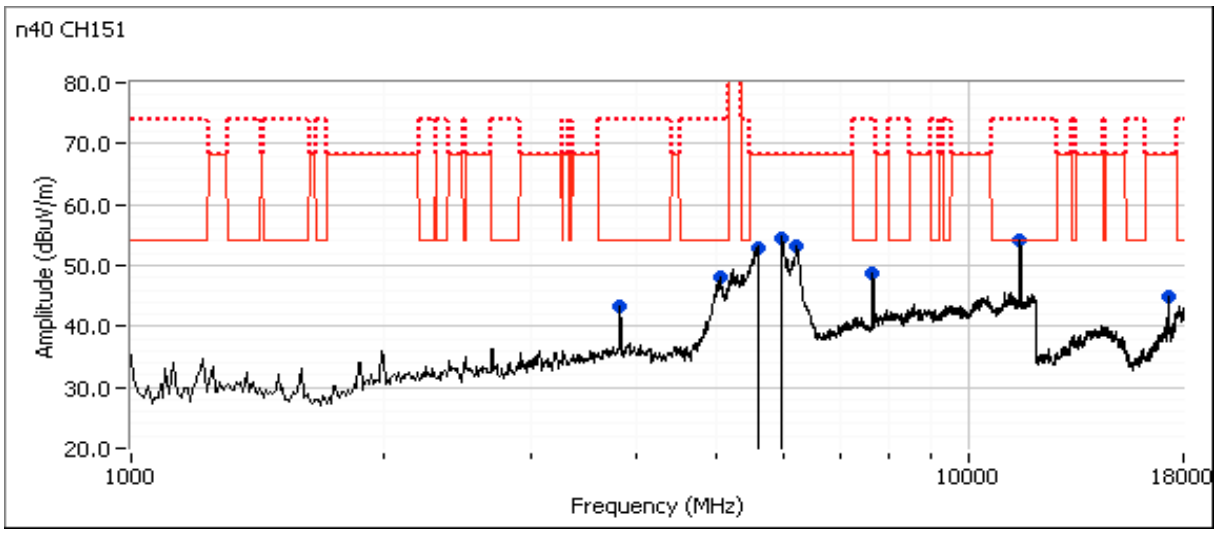


Client:	Pace Americas, Inc.	Job Number:	J97787
Model:	5268AC (FCC ID: PGR5200AC)	T-Log Number:	T97825
		Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.407 (New Rules)	Class:	N/A

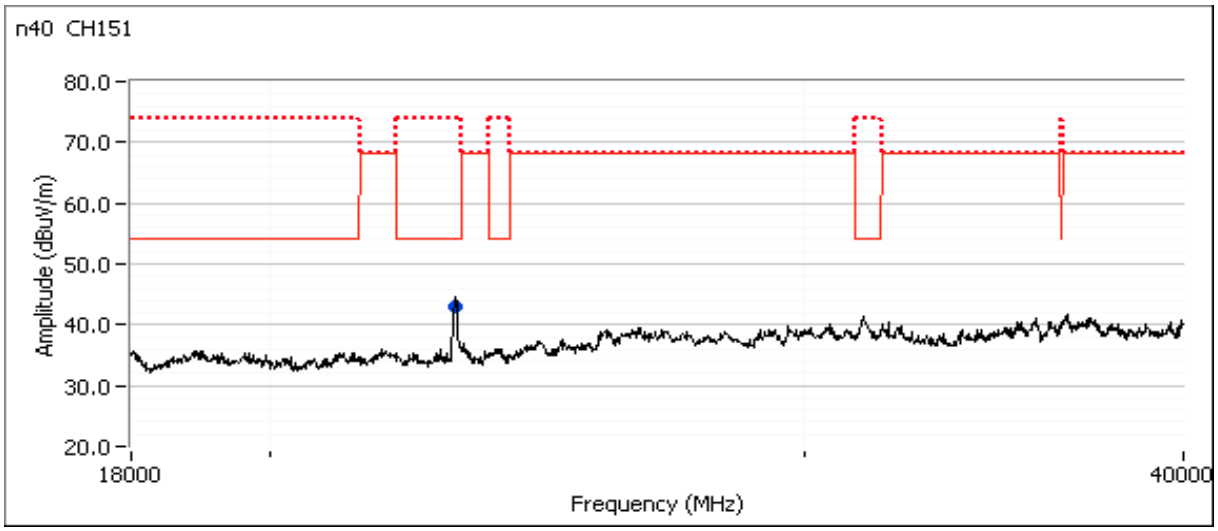
Run #3c: Center Channel

Channel: 151 Mode: 11n40
Tx Chain: 4x4 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	
3836.760	42.5	V	54.0	-11.5	AVG	72	1.5	RB 1 MHz;VB 10 Hz;Peak
3836.630	49.0	V	74.0	-25.0	PK	72	1.5	RB 1 MHz;VB 3 MHz;Peak
11502.800	51.8	V	54.0	-2.2	AVG	111	2.3	RB 1 MHz;VB 10 Hz;Peak
11502.870	62.8	V	74.0	-11.2	PK	111	2.3	RB 1 MHz;VB 3 MHz;Peak
7673.450	48.4	V	54.0	-5.6	AVG	121	2.0	RB 1 MHz;VB 10 Hz;Peak
7673.580	54.7	V	74.0	-19.3	PK	121	2.0	RB 1 MHz;VB 3 MHz;Peak
5055.830	44.4	H	54.0	-9.6	AVG	268	1.0	RB 1 MHz;VB 10 Hz;Peak
5053.170	56.9	H	74.0	-17.1	PK	268	1.0	RB 1 MHz;VB 3 MHz;Peak
6235.200	62.3	H	68.3	-6.0	PK	260	1.0	RB 1 MHz;VB 3 MHz;Peak
5582.200	66.6	H	68.3	-1.7	PK	310	1.5	RB 1 MHz;VB 3 MHz;Peak
5998.010	63.2	H	68.3	-5.1	PK	227	1.0	RB 1 MHz;VB 3 MHz;Peak
17263.730	59.9	V	68.3	-8.4	PK	33	1.10	RB 1 MHz;VB 3 MHz;Peak
23016.800	46.8	V	54.0	-7.2	AVG	181	1.00	RB 1 MHz;VB 10 Hz;Peak
23016.670	59.7	V	74.0	-14.3	PK	181	1.00	RB 1 MHz;VB 3 MHz;Peak



Client:	Pace Americas, Inc.	Job Number:	J97787
Model:	5268AC (FCC ID: PGR5200AC)	T-Log Number:	T97825
		Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.407 (New Rules)	Class:	N/A

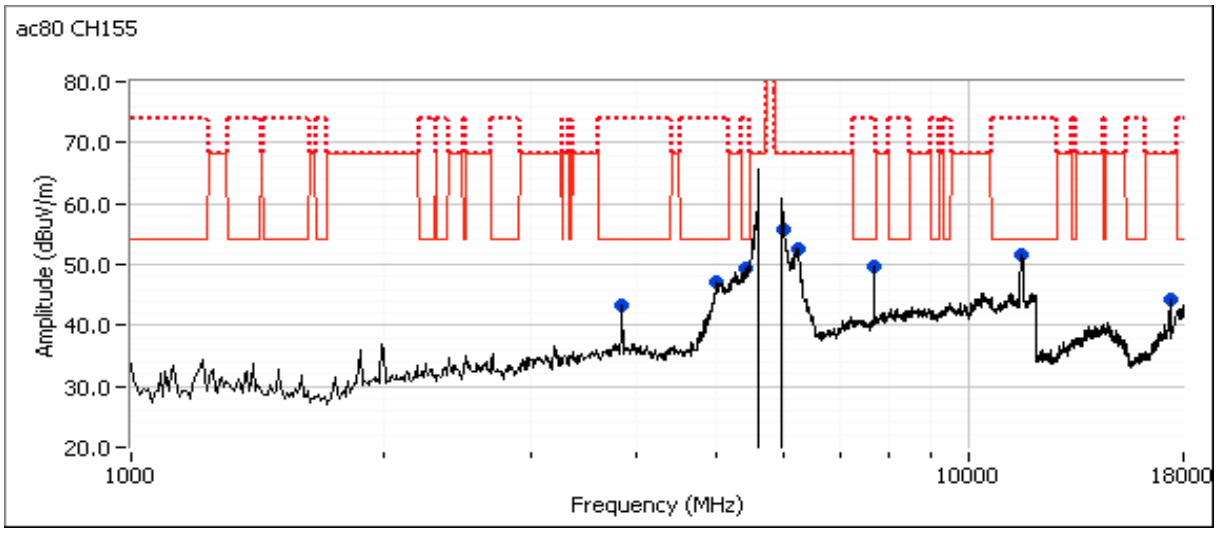


Client:	Pace Americas, Inc.	Job Number:	J97787
Model:	5268AC (FCC ID: PGR5200AC)	T-Log Number:	T97825
		Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.407 (New Rules)	Class:	N/A

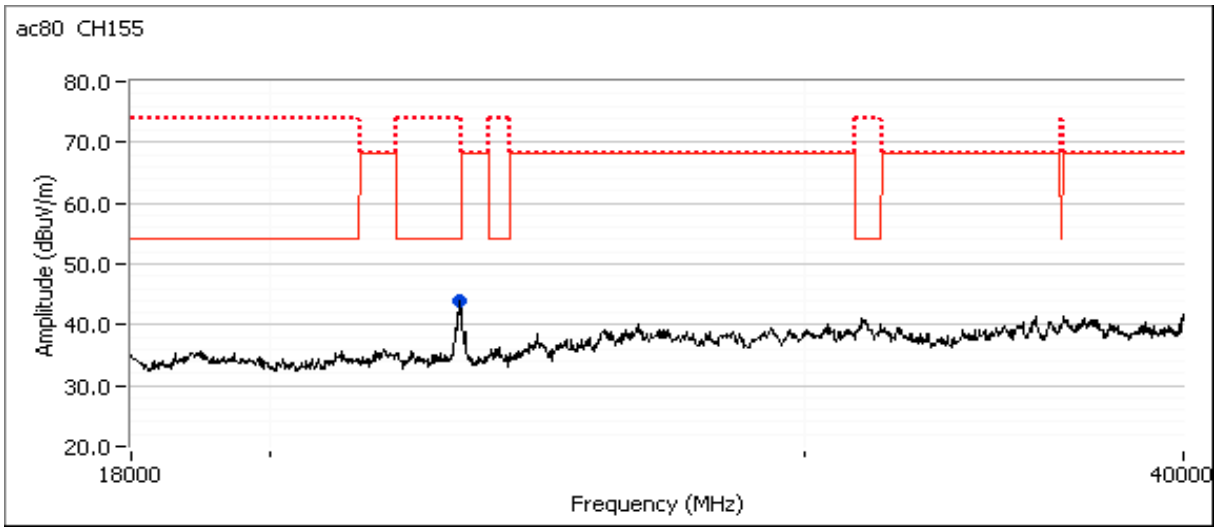
Run #3d: Center Channel

Channel: 155 Mode: ac80 23100
Tx Chain: 4x4 Data Rate: VHT0

Frequency	Level	Pol	15.209 / 15E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
Power setting 23								
5982.070	66.4	H	68.3	-1.9	PK	225	1.0	
3850.050	43.1	V	54.0	-10.9	AVG	68	1.5	RB 1 MHz;VB 1kHz;Peak, note 3
3849.780	50.1	V	74.0	-23.9	PK	68	1.5	
7700.080	49.6	V	54.0	-4.4	AVG	114	2.2	RB 1 MHz;VB 1kHz;Peak, note 3
7700.160	55.7	V	74.0	-18.3	PK	114	2.2	
11544.470	48.9	V	54.0	-5.1	AVG	119	2.1	RB 1 MHz;VB 1kHz;Peak, note 3
11543.440	60.7	V	74.0	-13.3	PK	119	2.1	
4979.830	42.0	H	54.0	-12.0	AVG	322	1.5	RB 1 MHz;VB 1kHz;Peak, note 3
4984.830	53.9	H	74.0	-20.1	PK	322	1.5	
5420.400	47.1	H	54.0	-6.9	AVG	303	1.0	RB 1 MHz;VB 1kHz;Peak, note 3
5390.330	59.8	H	74.0	-14.2	PK	303	1.0	
6232.130	61.9	H	68.3	-6.4	PK	318	1.6	
17300.330	58.2	V	68.3	-10.1	PK	178	2.25	
23100.270	45.3	V	54.0	-8.7	AVG	188	1.00	RB 1 MHz;VB 1kHz;Peak, note 3
23107.200	56.5	V	74.0	-17.5	PK	188	1.00	



Client:	Pace Americas, Inc.	Job Number:	J97787
Model:	5268AC (FCC ID: PGR5200AC)	T-Log Number:	T97825
		Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.407 (New Rules)	Class:	N/A



Client:	Pace Americas, Inc.	Job Number:	J97787
Model:	5268AC (FCC ID: PGR5200AC)	T-Log Number:	T97825
		Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.407 (New Rules)	Class:	N/A

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

Test Specific Details

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

Summary of Results

Run #	Test Performed	Limit	Pass / Fail	Result / Margin
1	Power, 5150 - 5250MHz	15.407(a)(1)(ii)	Pass	a: 27.8dBm (609mW) n20: 27.8dBm (603mW) n40: 26.1dBm (410mW) ac80: 19.4dBm (87mW)
1	PSD, 5150 - 5250MHz	15.407(a)(1)(ii)	Pass	a: 14.9 dBm/MHz n20: 14.8 dBm/MHz n40: 9.9 dBm/MHz ac80: 0.8 dBm/MHz
1	Power, 5725 - 5850MHz	15.407(a) (3)	Pass	a: 27.4dBm (545mW) n20: 26.1dBm (410mW) n40: 23.1dBm (206mW) ac80: 21.9dBm (155mW)
1	PSD, 5725 - 5850MHz	15.407(a) (3)	Pass	a: 14.4 dBm/MHz n20: 13.1 dBm/MHz n40: 7.0 dBm/MHz ac80: 3.4 dBm/MHz
3	6dB BW (UNII3)	15.407(e)	Pass	a: 16.4 MHz n20: 17.6 MHz n40: 36.4 MHz ac80: 75.0 MHz

General Test Configuration

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

Client:	Pace Americas, Inc.	Job Number:	J97787
Model:	5268AC (FCC ID: PGR5200AC)	T-Log Number:	T97825
		Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.407 (New Rules)	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 D02

Mode	Data Rate	Duty Cycle (x)	Constant DC?	T (ms)	Pwr Cor Factor*	Lin Volt Cor Factor**	Min VBW for FS (Hz)
11a	9MB/s	0.98	Yes	5.2	0.00	0.00	10
n20	MCS0	0.99	Yes	6	0.00	0.00	10
n40	MCS0	0.98	Yes	3.2	0.00	0.00	10
ac80	VTH0	0.92	Yes	2.1	0.35	0.70	476

Sample Notes

Sample S/N: 94151N013576
Driver: -

Ambient Conditions:

Temperature: 18-20 °C
Rel. Humidity: 30-35 %

Client:	Pace Americas, Inc.	Job Number:	J97787
Model:	5268AC (FCC ID: PGR5200AC)	T-Log Number:	T97825
		Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.407 (New Rules)	Class:	N/A

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

Date of Test: 5/1/2015, 5/5/2015 Config. Used: 1

Test Engineer: John Caizzi, Joseph Cadigal, R. Varelas Config Change: none

Test Location: Lab 4A EUT Voltage: 120V / 60Hz

Note 1:	Output power measured using a spectrum analyzer (see plots below). RBW=1MHz, VB=3 MHz, # of points in sweep ≥ 2*span/RBW, sample RMS detector, power averaging on (transmitted signal was continuous) and power integration over 20, 40, 150 MHz (method SA-1 of KDB 789033).
Note 2:	Measured using the same analyzer settings used for output power.
Note 3:	For RSS-210 the limit for the 5150 - 5250 MHz band accounts for the antenna gain as the maximum eirp allowed is 10dBm/MHz. The limits are also corrected for instances where the highest measured value of the PSD exceeds the average PSD (calculated from the measured power divided by the measured 99% bandwidth) by more than 3dB by the amount that the measured value exceeds the average by more than 3dB.
Note 4:	99% Bandwidth measured in accordance with RSS GEN - RB > 1% of span and VB >=3xRB
Note 5:	For MIMO systems the total output power and total PSD are calculated form the sum of the powers of the individual chains (in linear terms). The antenna gain used to determine the EIRP and limits for PSD/Output power depends on the operating mode of the MIMO device. If the signals on the non-coherent between the transmit chains then the gain used to determine the limits is the highest gain of the individual chains and the EIRP is the sum of the products of gain and power on each chain. If the signals are coherent then the effective antenna gain is the sum (in linear terms) of the gains for each chain and the EIRP is the product of the effective gain and total power.

Antenna Gain Information

Freq	Antenna Gain (dBi) / Chain				BF	MultiChain Legacy	CDD	Sectorized / Xpol	Dir G (PWR)	Dir G (PSD)
	1	2	3	4						
5150-5250	1.95	2.27	1.83	2.03	No	Yes	Yes	No	8.04	8.04
5250-5350	1.95	2.27	1.83	2.03	No	Yes	Yes	No	8.04	8.04
5470-5725	1.95	2.27	1.83	2.03	No	Yes	Yes	No	8.04	8.04
5725-5825	1.95	2.27	1.83	2.03	No	Yes	Yes	No	8.04	8.04

Client:	Pace Americas, Inc.	Job Number:	J97787
Model:	5268AC (FCC ID: PGR5200AC)	T-Log Number:	T97825
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Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.407 (New Rules)	Class:	N/A

For devices that support CDD modes

Min # of spatial streams: 1

Max # of spatial streams: 4

Notes:	BF = beamforming mode supported, Multichain Legacy = 802.11 legacy data rates supported for multichain transmissions, CDD = Cyclic Delay Diversity (or Cyclic Shift Diversity) modes supported, Sectorized / Xpol = antennas are sectorized or cross polarized.
Notes:	Dir G (PWR) = total gain (Gant + Array Gain) for power calculations; GA (PSD) = total gain for PSD calculations based on FCC KDB 662911. Depending on the modes supported, the Array Gain value for power could be different from the PSD value.
Notes:	Array gain for power/psd calculated per KDB 662911 D01. Spatial Multiplexing with Nant=4, Nss=1.
Notes:	For systems with Beamforming and CDD, choose one the following options: Option 1: Delays are optimized for beamforming, rather than being selected from cyclic delay table of 802.11; Array gains calculated based on beamforming criteria. Option 2: Antennas are paired for beamforming, and the pairs are configured to use the cyclic delay diversity of 802.11; the array gain assoicated with beamforming with 2 antennas (3dB), and the array gain assoicated with CDD with two antennas (3dB for PSD and 0 dB for power)

Client:	Pace Americas, Inc.	Job Number:	J97787
Model:	5268AC (FCC ID: PGR5200AC)	T-Log Number:	T97825
		Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.407 (New Rules)	Class:	N/A

MIMO Device - 5150-5250 MHz Band - FCC

Mode: 11a — Max EIRP (mW): 3880

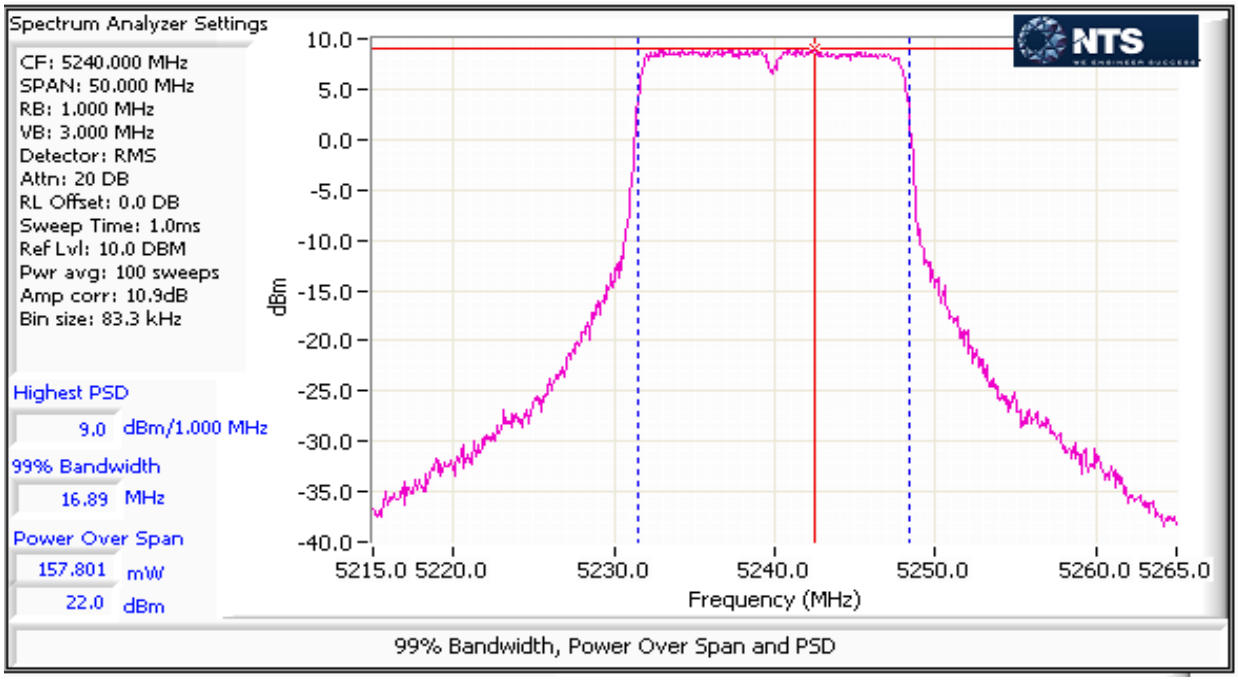
Frequency (MHz)	Chain	Software Setting	26dB BW (MHz)	Duty Cycle %	Power[1] dBm	Total Power mW	Total Power dBm	FCC Limit dBm	Max Power (W)	Result
5180	1	18		98	18.1	249.6	24.0	28.0	0.609	Pass
	3				17.8					
	4				17.9					
	2				18.0					
5200	1	19		98	19.3	316.6	25.0	28.0		Pass
	3				18.5					
	4				19.0					
	2				19.1					
5240	1	22		98	22.0	609.4	27.8	28.0		Pass
	3				21.7					
	4				22.0					
	2				21.6					

5150-5250 PSD - FCC

Mode: 11a

Frequency (MHz)	Chain	Software Setting	99% BW (MHz)	Duty Cycle %	PSD dBm/MHz	Total PSD[1] mW/MHz	Total PSD[1] dBm/MHz	FCC Limit dBm/MHz	IC Limit dBm/MHz	Result
5180	1	18	17.0	98	5.9	14.3	11.6	15.0	-	Pass
	3				4.9					
	4				6.0					
	2				5.2					
5200	1	19	17.0	98	6.5	17.6	12.5	15.0	-	Pass
	3				5.9					
	4				7.2					
	2				6.0					
5240	1	22	17.0	98	9.1	31.1	14.9	15.0	-	Pass
	3				8.7					
	4				9.0					
	2				8.8					

Client:	Pace Americas, Inc.	Job Number:	J97787
Model:	5268AC (FCC ID: PGR5200AC)	T-Log Number:	T97825
		Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.407 (New Rules)	Class:	N/A



Client:	Pace Americas, Inc.	Job Number:	J97787
Model:	5268AC (FCC ID: PGR5200AC)	T-Log Number:	T97825
		Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.407 (New Rules)	Class:	N/A

MIMO Device - 5150-5250 MHz Band - FCC

Mode: n20 Max EIRP (mW): 3841.7

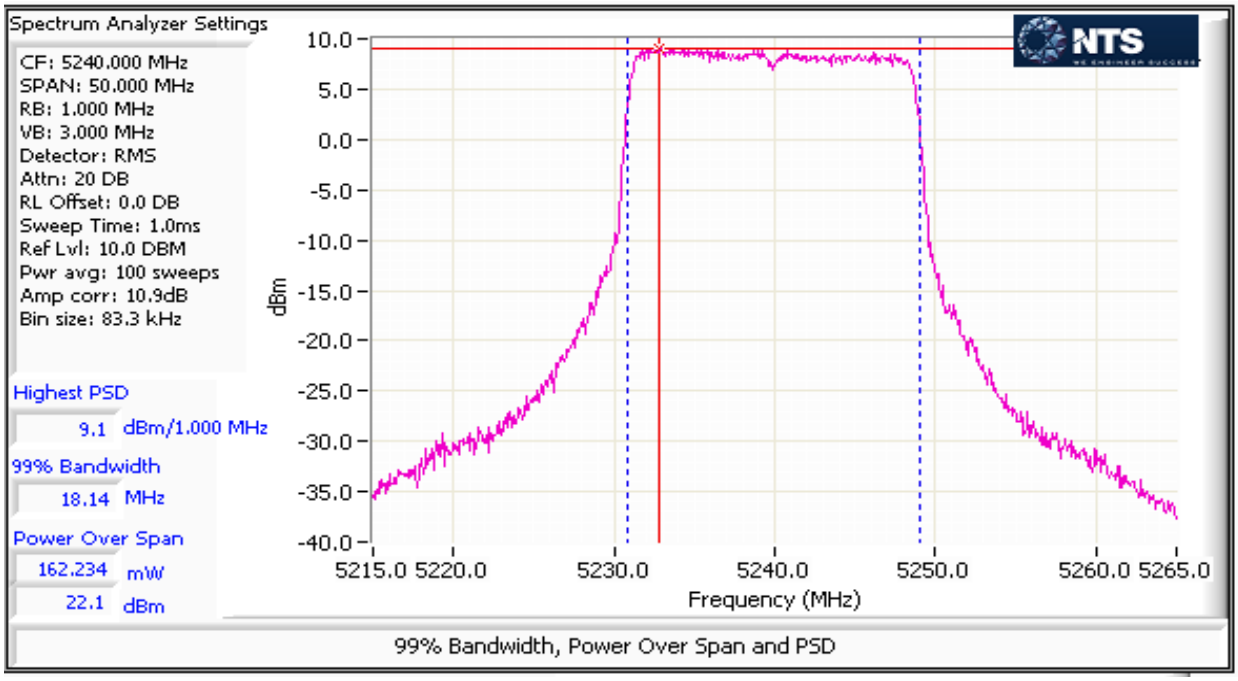
Frequency (MHz)	Chain	Software Setting	26dB BW (MHz)	Duty Cycle %	Power[1] dBm	Total Power mW	Total Power dBm	FCC Limit dBm	Max Power (W)	Result
5180	1	18		99	18.5	262.0	24.2	28.0	0.603	Pass
	3				18.4					
	4				17.7					
	2				18.0					
5200	1	19		99	19.3	312.7	25.0	28.0		Pass
	3				18.8					
	4				18.8					
	2				18.8					
5240	1	22		99	22.1	602.9	27.8	28.0		Pass
	3				21.5					
	4				21.6					
	2				21.9					

5150-5250 PSD - FCC

Mode: n20

Frequency (MHz)	Chain	Software Setting	99% BW (MHz)	Duty Cycle %	PSD dBm/MHz	Total PSD[1] mW/MHz	Total PSD[1] dBm/MHz	FCC Limit dBm/MHz	IC Limit dBm/MHz	Result
5180	1	18	18.1	99	5.3	13.1	11.2	15.0	-	Pass
	3				5.5					
	4				4.8					
	2				5.0					
5200	1	19	18.1	99	6.5	15.8	12.0	15.0	-	Pass
	3				5.7					
	4				5.8					
	2				5.8					
5240	1	22	18.14	99	9.1	30.2	14.8	15.0	-	Pass
	3				8.3					
	4				8.7					
	2				9.0					

Client:	Pace Americas, Inc.	Job Number:	J97787
Model:	5268AC (FCC ID: PGR5200AC)	T-Log Number:	T97825
		Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.407 (New Rules)	Class:	N/A



Client:	Pace Americas, Inc.	Job Number:	J97787
Model:	5268AC (FCC ID: PGR5200AC)	T-Log Number:	T97825
		Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.407 (New Rules)	Class:	N/A

MIMO Device - 5150-5250 MHz Band - FCC

Mode: n40 Max EIRP (mW): 2612.1

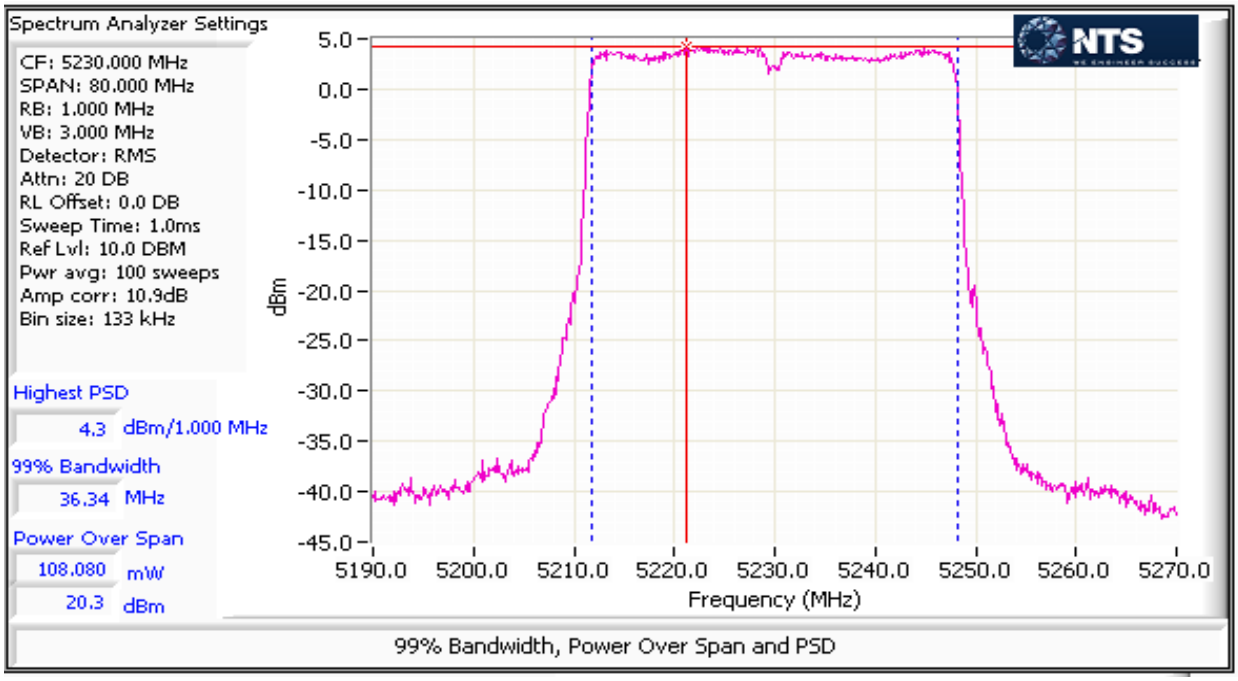
Frequency (MHz)	Chain	Software Setting	26dB BW (MHz)	Duty Cycle %	Power[1] dBm	Total Power mW	Total Power dBm	FCC Limit dBm	Max Power (W)	Result
5190	1	14		98	14.7	114.3	20.6	28.0	0.410	Pass
	3				14.9					
	4				14.1					
	2				14.5					
5230	1	20		98	20.3	409.5	26.1	28.0		Pass
	3				20.0					
	4				20.0					
	2				20.1					

5150-5250 PSD - FCC

Mode: n40

Frequency (MHz)	Chain	Software Setting	99% BW (MHz)	Duty Cycle %	PSD dBm/MHz	Total PSD[1] mW/MHz	Total PSD[1] dBm/MHz	FCC Limit dBm/MHz	IC Limit dBm/MHz	Result
5190	1	14	36.34	98	-1.4	2.8	4.5	15.0	-	Pass
	3				-1.1					
	4				-2.2					
	2				-1.7					
5230	1	20	36.34	98	4.3	9.8	9.9	15.0	-	Pass
	3				3.7					
	4				3.7					
	2				3.9					

Client:	Pace Americas, Inc.	Job Number:	J97787
Model:	5268AC (FCC ID: PGR5200AC)	T-Log Number:	T97825
		Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.407 (New Rules)	Class:	N/A



Client:	Pace Americas, Inc.	Job Number:	J97787
Model:	5268AC (FCC ID: PGR5200AC)	T-Log Number:	T97825
		Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.407 (New Rules)	Class:	N/A

MIMO Device - 5150-5250 MHz Band - FCC

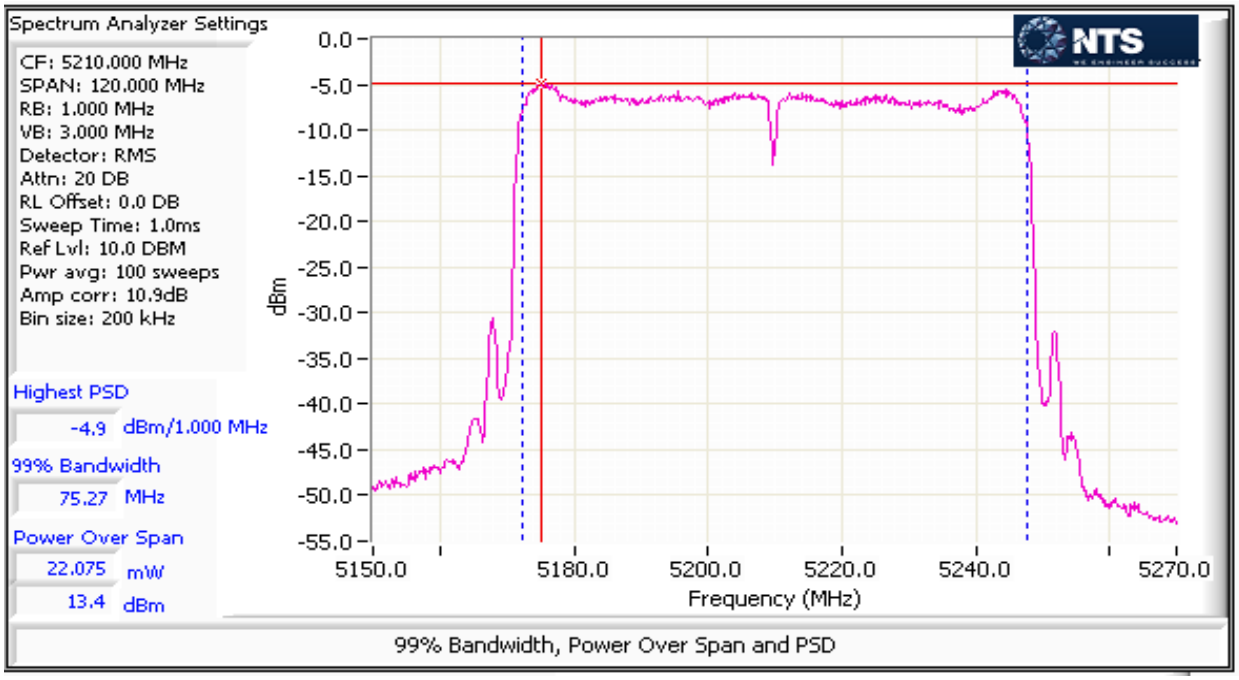
Mode: ac80 Max EIRP (mW): 554.3

Frequency (MHz)	Chain	Software Setting	26dB BW (MHz)	Duty Cycle %	Power[1] dBm	Total Power mW	Total Power dBm	FCC Limit dBm	Max Power (W)	Result
5210	1	13		92	13.2	87.4	19.4	28.0	0.087	Pass
	3				13.4					
	4				12.8					
	2				12.7					

5150-5250 PSD - FCC

Mode: ac80

Frequency (MHz)	Chain	Software Setting	99% BW (MHz)	Duty Cycle %	PSD dBm/MHz	Total PSD[1] mW/MHz	Total PSD[1] dBm/MHz	FCC Limit dBm/MHz	IC Limit dBm/MHz	Result
5210	1	13	75.27	92	-5.3	1.2	0.8	15.0	-	Pass
	3				-4.9					
	4				-5.7					
	2				-5.9					



Client:	Pace Americas, Inc.	Job Number:	J97787
Model:	5268AC (FCC ID: PGR5200AC)	T-Log Number:	T97825
		Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.407 (New Rules)	Class:	N/A

MIMO Device - 5725-5850 MHz Band - FCC

Mode: 11a — Max EIRP (mW): 3472.2

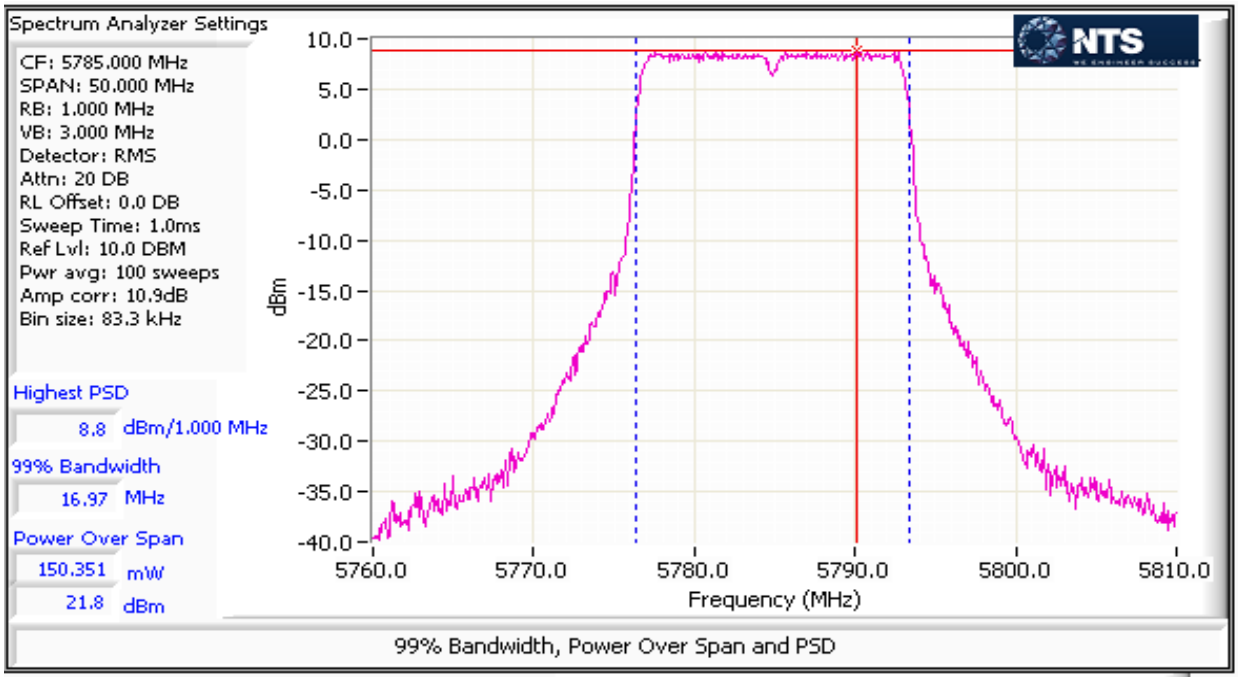
Frequency (MHz)	Chain	Software Setting	26dB BW (MHz)	Duty Cycle %	Power[1] dBm	Total Power mW	Total Power dBm	FCC Limit dBm	Max Power (W)	Result
5745	1	20		98	19.3	331.0	25.2	28.0	0.545	Pass
	3				19.3					
	4				18.9					
	2				19.2					
5785	1	22		98	21.1	544.5	27.4	28.0		Pass
	3				21.8					
	4				21.5					
	2				20.9					
5825	1	16		98	14.8	113.8	20.6	28.0		Pass
	3				14.2					
	4				15.0					
	2				14.1					

5725-5850 PSD - FCC

Mode: 11a

Frequency (MHz)	Chain	Software Setting	99% BW (MHz)	Duty Cycle %	PSD dBm/MHz	Total PSD[1] mW/MHz	Total PSD[1] dBm/MHz	FCC Limit dBm/500kHz	IC Limit dBm/500kHz	Result
5745	1	20	16.97	98	6.3	17.2	12.4	28.0	-	Pass
	3				6.4					
	4				6.4					
	2				6.2					
5785	1	22	16.97	98	8.2	27.8	14.4	28.0	-	Pass
	3				8.8					
	4				8.7					
	2				7.9					
5825	1	16	16.97	98	2.0	6.2	7.9	28.0	-	Pass
	3				1.4					
	4				2.5					
	2				1.5					

Client:	Pace Americas, Inc.	Job Number:	J97787
Model:	5268AC (FCC ID: PGR5200AC)	T-Log Number:	T97825
		Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.407 (New Rules)	Class:	N/A



Client:	Pace Americas, Inc.	Job Number:	J97787
Model:	5268AC (FCC ID: PGR5200AC)	T-Log Number:	T97825
		Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.407 (New Rules)	Class:	N/A

MIMO Device - 5725-5850 MHz Band - FCC

Mode: n20 Max EIRP (mW): 2612.1

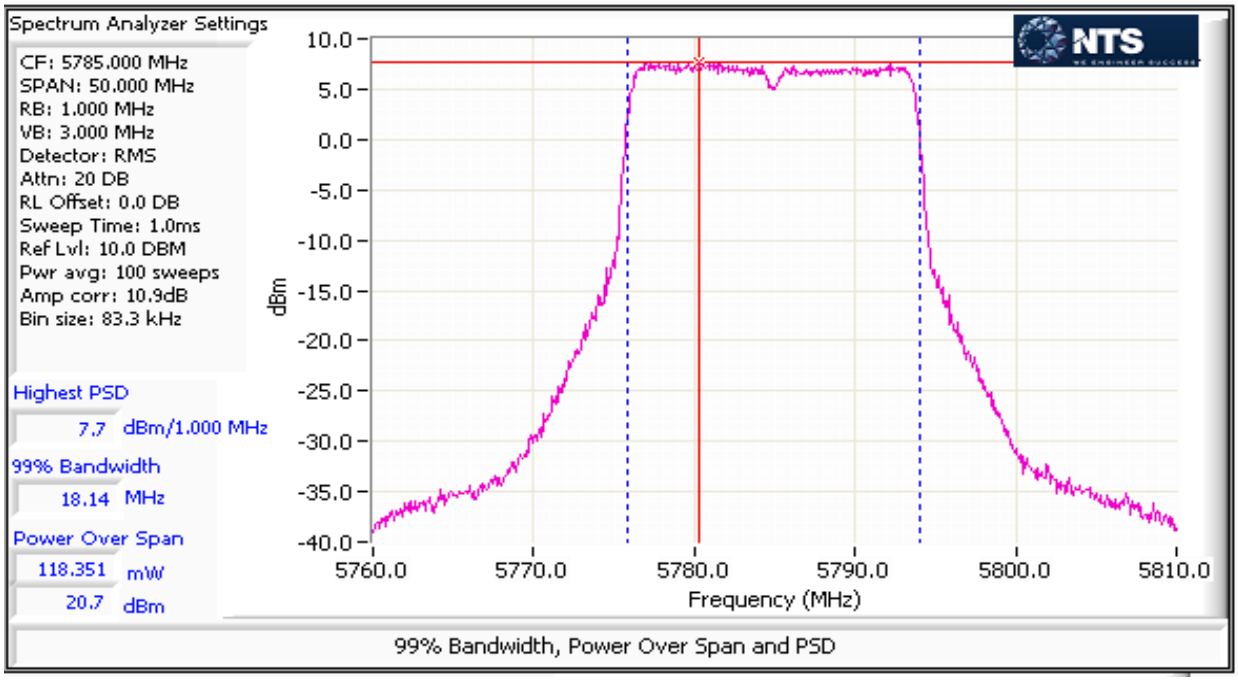
Frequency (MHz)	Chain	Software Setting	26dB BW (MHz)	Duty Cycle %	Power[1] dBm	Total Power mW	Total Power dBm	FCC Limit dBm	Max Power (W)	Result
5745	1	20		99	18.5	295.0	24.7	28.0	0.410	Pass
	3				18.9					
	4				18.6					
	2				18.7					
5785	1	22		99	20.4	410.1	26.1	28.0		Pass
	3				20.3					
	4				20.7					
	2				18.8					
5825	1	20		99	18.5	289.6	24.6	28.0		Pass
	3				19.3					
	4				18.2					
	2				18.3					

5725-5850 PSD - FCC

Mode: n20

Frequency (MHz)	Chain	Software Setting	99% BW (MHz)	Duty Cycle %	PSD dBm/MHz	Total PSD[1] mW/MHz	Total PSD[1] dBm/MHz	FCC Limit dBm/500kHz	IC Limit dBm/500kHz	Result
5745	1	20	18.14	99	5.5	14.7	11.7	28.0	-	Pass
	3				5.7					
	4				5.7					
	2				5.7					
5785	1	22	18.14	99	7.4	20.2	13.1	28.0	-	Pass
	3				7.1					
	4				7.7					
	2				5.7					
5825	1	20	18.14	99	5.6	14.8	11.7	28.0	-	Pass
	3				6.3					
	4				5.4					
	2				5.3					

Client:	Pace Americas, Inc.	Job Number:	J97787
Model:	5268AC (FCC ID: PGR5200AC)	T-Log Number:	T97825
		Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.407 (New Rules)	Class:	N/A



Client:	Pace Americas, Inc.	Job Number:	J97787
Model:	5268AC (FCC ID: PGR5200AC)	T-Log Number:	T97825
		Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.407 (New Rules)	Class:	N/A

MIMO Device - 5725-5850 MHz Band - FCC

Mode: n40 Max EIRP (mW): 1312.4

Frequency (MHz)	Chain	Software Setting	26dB BW (MHz)	Duty Cycle %	Power[1] dBm	Total Power mW	Total Power dBm	FCC Limit dBm	Max Power (W)	Result
5755	1	16		98	15.5	136.4	21.3	28.0	0.206	Pass
	3				15.4					
	4				15.1					
	2				15.3					
5795	1	18		98	17.0	206.0	23.1	28.0		Pass
	3				18.0					
	4				16.3					
	2				17.0					

5725-5850 PSD - FCC

Mode: n40

Frequency (MHz)	Chain	Software Setting	99% BW (MHz)	Duty Cycle %	PSD dBm/MHz	Total PSD[1] mW/MHz	Total PSD[1] dBm/MHz	FCC Limit dBm/500kHz	IC Limit dBm/500kHz	Result
5755	1	16	36.47	98	-0.3	3.0	4.8	28.0	-	Pass
	3				-4.0					
	4				-0.9					
	2				-0.9					
5795	1	18	36.47	98	0.9	5.0	7.0	28.0	-	Pass
	3				1.8					
	4				0.2					
	2				0.9					

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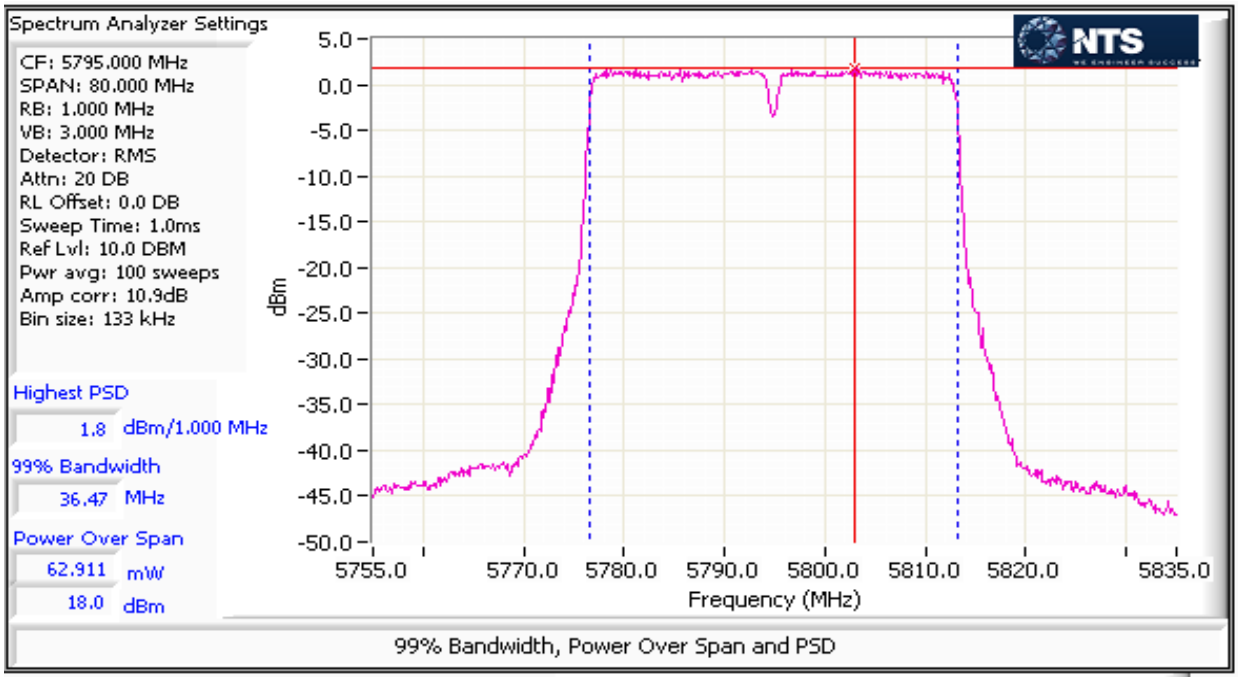
Model:	5268AC (FCC ID: PGR5200AC)	T-Log Number:	T97825
		Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.407 (New Rules)	Class:	N/A



Client:	Pace Americas, Inc.	Job Number:	J97787
Model:	5268AC (FCC ID: PGR5200AC)	T-Log Number:	T97825
		Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.407 (New Rules)	Class:	N/A

MIMO Device - 5725-5850 MHz Band - FCC

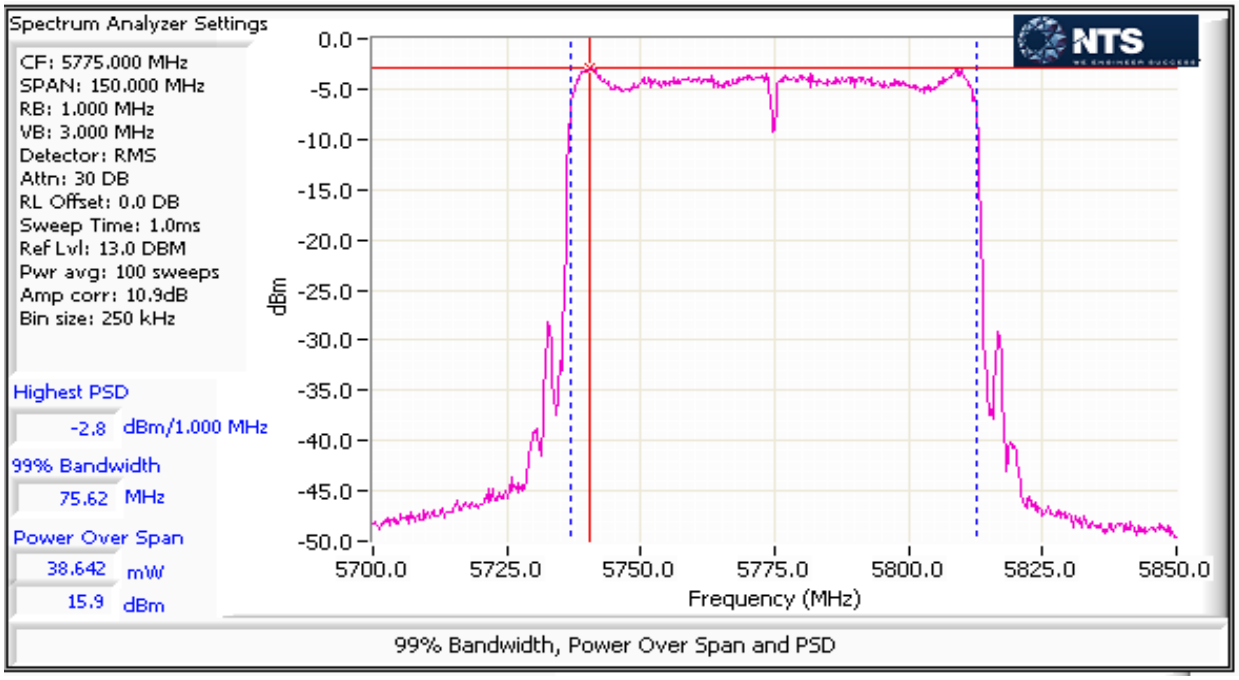
Mode: ac80 Max EIRP (mW): 987.5

Frequency (MHz)	Chain	Software Setting	26dB BW (MHz)	Duty Cycle %	Power[1] dBm	Total Power mW	Total Power dBm	FCC Limit dBm	Max Power (W)	Result
5775	1	16		92	15.4	155.4	21.9	28.0	0.155	Pass
	3				15.6					
	4				15.2					
	2				15.9					

5725-5850 PSD - FCC

Mode: ac80

Frequency (MHz)	Chain	Software Setting	99% BW (MHz)	Duty Cycle %	PSD dBm/MHz	Total PSD[1] mW/MHz	Total PSD[1] dBm/MHz	FCC Limit dBm/500kHz	IC Limit dBm/500kHz	Result
5775	1	16	75.6	92	-3.3	2.2	3.4	28.0	-	Pass
	3				-2.5					
	4				-3.6					
	2				-2.8					



Client:	Pace Americas, Inc.	Job Number:	J97787
Model:	5268AC (FCC ID: PGR5200AC)	T-Log Number:	T97825
		Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.407 (New Rules)	Class:	N/A

Run #2: Bandwidth Measurements

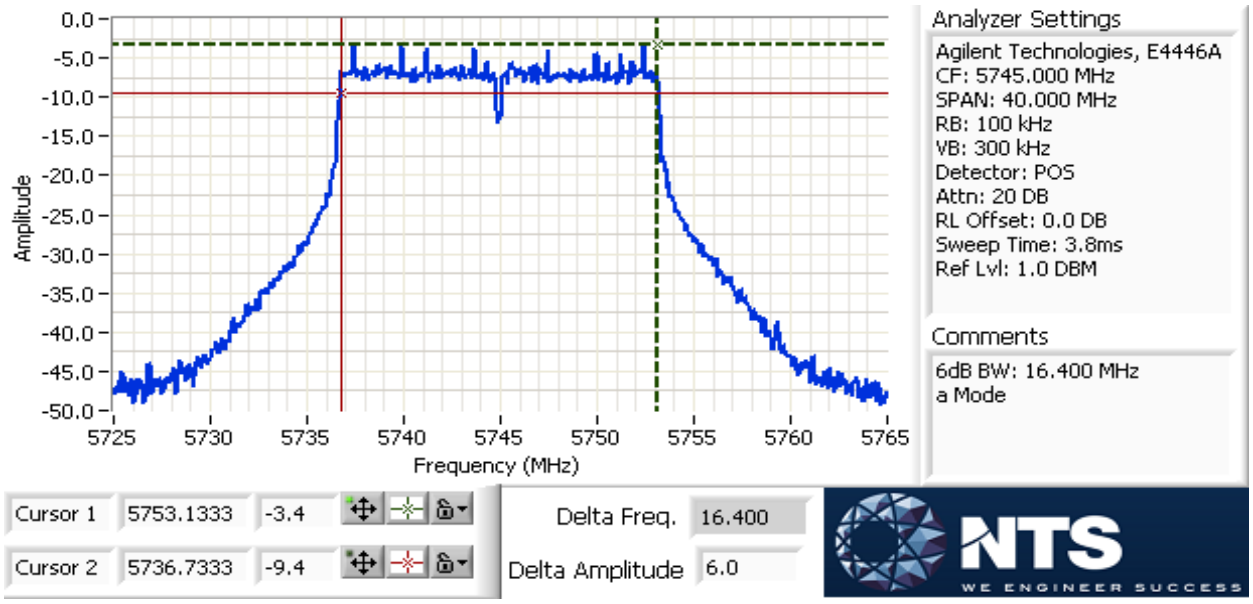
Mode: 11a

5725-5850MHz band (UNII3)

Testing performed on port: 1

Power Setting	Frequency (MHz)	Bandwidth (MHz)		RBW Setting (kHz)	
		6dB	99%	6dB	99%
20	5745	16.4	16.97	100	1000
22	5785	16.4	16.97	100	1000
16	5825	16.4	16.97	100	1000

Note 1:	6dB BW: RBW=100kHz, VBW ≥ 3*RBW, peak detector, max hold, auto sweep time. 99% BW: RBW=1-5% of of 99%BW, VBW ≥ 3*RBW, peak detector, max hold, auto sweep time.



Client:	Pace Americas, Inc.	Job Number:	J97787
Model:	5268AC (FCC ID: PGR5200AC)	T-Log Number:	T97825
		Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.407 (New Rules)	Class:	N/A

Mode: n20

5725-5850MHz band (UNII3)

Testing performed on port: 1

Power Setting	Frequency (MHz)	Bandwidth (MHz)		RBW Setting (kHz)	
		6dB	99%	6dB	99%
20	5745	17.6	18.14	100	1000
22	5785	17.6	18.14	100	1000
20	5825	17.6	18.14	100	1000

Note 1: 6dB BW: RBW=100kHz, VBW ≥ 3*RBW, peak detector, max hold, auto sweep time.
99% BW: RBW=1-5% of of 99%BW, VBW ≥ 3*RBW, peak detector, max hold, auto sweep time.

Mode: n40

5725-5850MHz band (UNII3)

Testing performed on port: 1

Power Setting	Frequency (MHz)	Bandwidth (MHz)		RBW Setting (kHz)	
		6dB	99%	6dB	99%
16	5755	36.4	36.47	100	1000
18	5795	36.4	36.47	100	1000

Note 1: 6dB BW: RBW=100kHz, VBW ≥ 3*RBW, peak detector, max hold, auto sweep time.
99% BW: RBW=1-5% of of 99%BW, VBW ≥ 3*RBW, peak detector, max hold, auto sweep time.

Mode: ac80

5725-5850MHz band (UNII3)

Testing performed on port: 1

Power Setting	Frequency (MHz)	Bandwidth (MHz)		RBW Setting (kHz)	
		6dB	99%	6dB	99%
20	5775	75.0	75.6	100	1000

Note 1: 6dB BW: RBW=100kHz, VBW ≥ 3*RBW, peak detector, max hold, auto sweep time.
99% BW: RBW=1-5% of of 99%BW, VBW ≥ 3*RBW, peak detector, max hold, auto sweep time.

Client:	Pace Americas, Inc.	Job Number:	J97787
Model:	5268AC (FCC ID: PGR5200AC)	T-Log Number:	T97825
		Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.407 (New Rules)	Class:	N/A

RSS 210 and FCC 15.247 (DTS) Radiated Spurious Emissions

Test Specific Details

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

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: 24 °C
Rel. Humidity: 33 %

Summary of Results

Run #	Mode	Channel	Target Power	Passing Power	Test Performed	Limit	Result / Margin
Test for intermodulation products when 2.4GHz and 5GHz radio are both transmitting							
1	ac80	155 - 5775MHz	24	-	Radiated Emissions, 30MHz - 40GHz	FCC 15.209 / 15 E	No change from single radio transmission
	b	6 - 2437MHz	26	-			

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 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.

Note: Preliminary testing showed that flat orientation was worse case

Client:	Pace Americas, Inc.	Job Number:	J97787
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Standard:	FCC 15.407 (New Rules)	Class:	N/A

Sample Notes

Sample S/N:
Driver:
Antenna:

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 3:	Emission has duty cycle < 98%, but constant, average measurement performed: RBW=1MHz, VBW=10Hz, peak detector, linear averaging, auto sweep, trace average 100 traces, measurement corrected by Linear Voltage correction factor
Note 4:	Emission has duty cycle < 98% and is NOT constant, average measurement performed: RBW=1MHz, VBW> 1/T, peak detector, linear average mode, sweep time auto, max hold. Max hold for 50*(1/DC) traces
Note 5:	Emission has duty cycle < 98%, but constant, average measurement performed: RBW=1MHz, VBW=3MHz, RMS, Power averaging, auto sweep, trace average 100 traces, measurement corrected by Pwr correction factor

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Standard:	FCC 15.407 (New Rules)	Class:	N/A

Run #1: Radiated Spurious Emissions, 30 - 40000 MHz

Date of Test: 4/10/2015 0:00 — Config. Used: 1
Test Engineer: John Caizzi — Config Change: none
Test Location: Chamber 7 — EUT Voltage: 120V / 60Hz

Channel:	155	Mode:	ac80
Tx Chain:	4x4	Data Rate:	VHT0
Channel:	6	Mode:	b
Tx Chain:	2x2	Data Rate:	1

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
17381.800	47.2	V	68.3	-21.1	AVG	155	1.0	RB 1 MHz;VB 10 Hz;Peak
17388.670	59.9	V	68.3	-8.4	PK	155	1.0	RB 1 MHz;VB 3 MHz;Peak
12181.380	41.2	V	54.0	-12.8	AVG	240	2.0	RB 1 MHz;VB 10 Hz;Peak
12180.070	52.6	V	74.0	-21.4	PK	240	2.0	RB 1 MHz;VB 3 MHz;Peak
23100.000	31.4	V	54.0	-22.6	AVG	207	1.0	RB 1 MHz;VB 10 Hz;Peak
23100.000	42.4	V	54.0	-11.6	PK	207	1.0	RB 1 MHz;VB 3 MHz;Peak
3850.030	43.7	V	54.0	-10.3	AVG	70	1.4	RB 1 MHz;VB 10 Hz;Peak
3849.970	49.5	V	74.0	-24.5	PK	70	1.4	RB 1 MHz;VB 3 MHz;Peak
7734.520	38.2	V	54.0	-15.8	AVG	80	2.5	RB 1 MHz;VB 10 Hz;Peak
7734.080	50.2	V	74.0	-23.8	PK	80	2.5	RB 1 MHz;VB 3 MHz;Peak
11544.780	48.9	V	54.0	-5.1	AVG	116	2.1	RB 1 MHz;VB 10 Hz;Peak
11544.010	60.2	V	74.0	-13.8	PK	116	2.1	RB 1 MHz;VB 3 MHz;Peak
625.028	32.8	V	46.0	-13.2	QP	18	1.9	QP (1.00s)
875.019	35.3	V	46.0	-10.7	QP	37	1.0	QP (1.00s)
374.951	32.7	V	46.0	-13.3	QP	172	1.5	QP (1.00s)
77.178	35.5	V	40.0	-4.5	QP	158	1.0	QP (1.00s)
571.058	28.7	V	46.0	-17.3	QP	325	1.5	QP (1.00s)
4874.090	53.9	V	54.0	-0.1	AVG	85	1.0	Power Setting: 26; 2nd Harmonics
4874.010	56.3	V	74.0	-17.7	PK	85	1.0	Power Setting: 26; 2nd Harmonics
4874.070	48.4	H	54.0	-5.6	AVG	254	1.0	Power Setting: 26; 2nd Harmonics
4874.140	52.8	H	74.0	-21.2	PK	254	1.0	Power Setting: 26; 2nd Harmonics
4874.090	53.3	V	54.0	-0.7	AVG	85	1.0	Power Setting: 25; 2nd Harmonics
4874.020	55.9	V	74.0	-18.1	PK	85	1.0	Power Setting: 25; 2nd Harmonics

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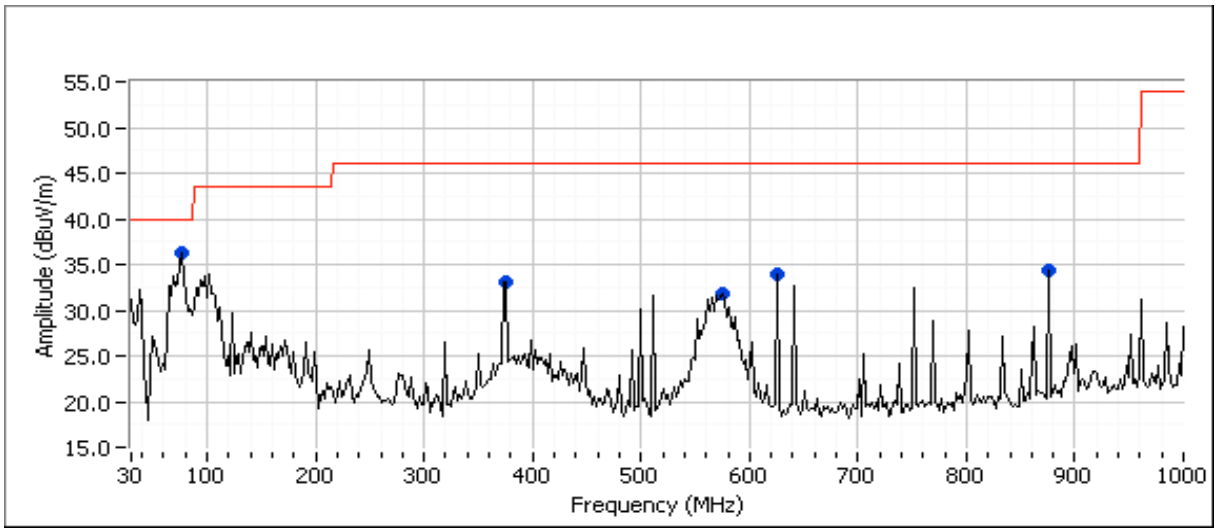
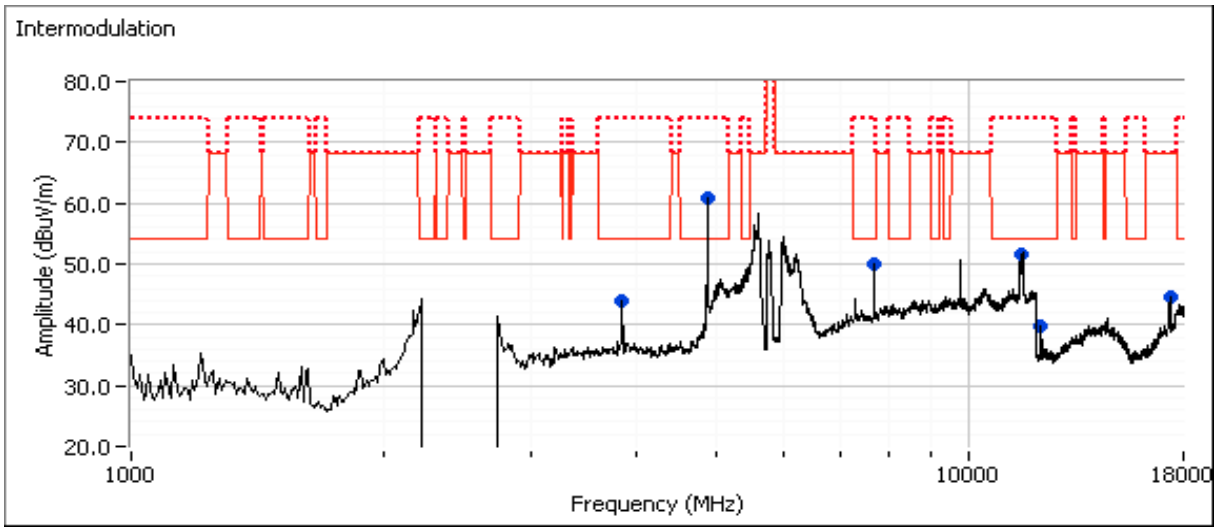
Standard:	FCC 15.407 (New Rules)	Class:	N/A





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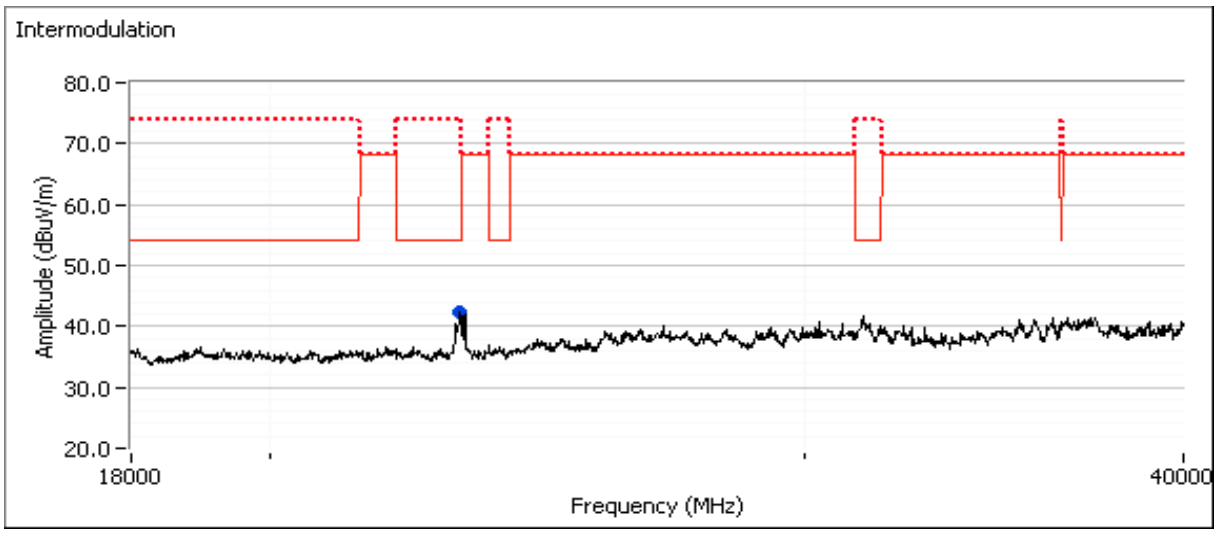

End of Report

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