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EMC Test Report

Application for FCC Grant of Equipment Authorization

FCC Part 15, Subpart E

Model: C61W-700 Wireless RVU Client

FCC ID:	PGRC61W
APPLICANT:	ARRIS 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-4, 2845B-7
REPORT DATE:	March 27, 2017
REISSUE DATE:	May 10, 2017
FINAL TEST DATES:	February 6, 28, March 1, 2, 3, 6, 7, 8, 13, 14, May 1, 2, and 10, 2017
TOTAL NUMBER OF PAGES:	247

A2LA ACCREDITED
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VALIDATING SIGNATORIES

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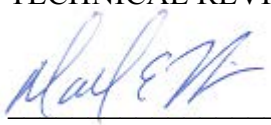

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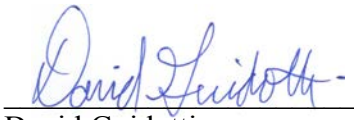

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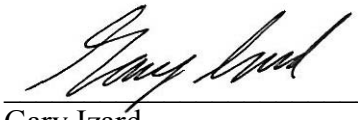

Gary Izard
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REVISION HISTORY

Rev#	Date	Comments	Modified By
-	March 27, 2017	First release	
1.0	May 10, 2017	Added 15.B data to demonstrate compliance with spurious emissions limits below 1GHz. Updated spurious emissions.	MEH
2.0	May 10, 2017	Updated spurious emissions	MEH
3.0	May 10, 2017	Added Frequency Stability results	MEH

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SCOPE

An electromagnetic emissions test has been performed on the ARRIS model C61W-700 Wireless RVU Client, 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:

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 ARRIS model C61W-700 Wireless RVU Client 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 ARRIS model C61W-700 Wireless RVU Client and therefore apply only to the tested sample. The sample was selected and prepared by Mark Rieger of ARRIS.

DEVIATIONS FROM THE STANDARDS

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

TEST RESULTS SUMMARY

UNII / LELAN DEVICES

OPERATION IN THE 5.15 – 5.25 GHZ BAND – MOBILE AND PORTABLE CLIENT DEVICE

FCC Rule Part	RSS Rule Part	Description	Measured Value / Comments	Limit / Requirement	Result
15.407 (a) (1) (iv)		Output Power	a: 21.7 dBm (147.8 mW) n20: 22 dBm (158.5 mW) n40: 23.4 dBm (217.6 mW) ac80: 21 dBm (126.2 mW)	24 dBm (250 mW)	Complies
15.407 (a) (1) (iv)		Power Spectral Density	a: 10.3 dBm/MHz n20: 10.3 dBm/MHz n40: 10 dBm/MHz ac80: 4.1 dBm/MHz	11 dBm/MHz	Complies
15.407(b) (1) / 15.209		Spurious Emissions	53.8 dBµV/m @ 5150.0 MHz (-0.2 dB)	Refer to the limits section for restricted bands, all others -27 dBm/MHz EIRP	Complies

OPERATION IN THE 5.25 – 5.35 GHZ BAND

FCC Rule Part	-	Description	Measured Value / Comments	Limit / Requirement	Result (margin)
15.407(a) (2)	-	26dB Bandwidth	> 20MHz for all modes	N/A – limits output power if < 20MHz	N/A
15.407(a) (2)	-	Output Power	a: 22.0 dBm (157 mW) n20: 22.2 dBm (165 mW) n40: 23.8 dBm (241.3 mW) ac80: 20.4 dBm (108.5 mW)	24 dBm (250 mW)	Complies
15.407(a) (2)	-	Power Spectral Density	a: 10.4 dBm/MHz n20: 10.4 dBm/MHz n40: 10.3 dBm/MHz ac80: 2.8 dBm/MHz	11 dBm/MHz	Complies
15.407(b) (2) / 15.209	-	Spurious Emissions	53.9 dBµV/m @ 5350.3 MHz (-0.1 dB)	Refer to the limits section for restricted bands, all others -27 dBm/MHz EIRP	Complies

OPERATION IN THE 5.47 – 5.725 GHZ BAND

FCC Rule Part	-	Description	Measured Value / Comments	Limit / Requirement	Result (margin)
15.407(a) (2)	-	26dB Bandwidth	Power limit reduced for those channels with 26dB BW < 20MHz	N/A – limits output power if < 20MHz	N/A
15.407(a) (2)	-	Output Power	a: 21.9 dBm (156 mW) n20: 22.4 dBm (173 mW) n40: 23.9 dBm (243 mW) ac80: 23.8 dBm (241 mW)	24 dBm (250 mW)	Complies
15.407(a) (2)	-	Power Spectral Density	a: 10.2 dBm/MHz n20: 10.1 dBm/MHz n40: 9.8 dBm/MHz ac80: 10 dBm/MHz	11 dBm/MHz	Complies
15.407(b) (3) / 15.209	-	Spurious Emissions	53.8 dBµV/m @ 5470.0 MHz (-0.2 dB)	Refer to the limits section for restricted bands, all others -27 dBm/MHz EIRP	Complies

OPERATION IN THE 5.725 – 5.85 GHZ BAND

FCC Rule Part	-	Description	Measured Value / Comments	Limit / Requirement	Result (margin)
15.407(e)	-	6dB Bandwidth	>500kHz for all modes	<= 500 kHz	Complies
15.407(a) (3)	-	Output Power (multipoint systems)	a: 28.5 dBm (709.2 mW) n20: 28.6 dBm (725 mW) n40: 28.5 dBm (707 mW) ac80: 25.3 dBm (342 mW)	30 dBm (1 W) EIRP <= 4W	Complies
15.407(a) (3)	-	Power Spectral Density	a: 17.4 dBm/MHz n20: 17.2 dBm/MHz n40: 14.1 dBm/MHz ac80: 7.9 dBm/MHz	30 dBm / 500 kHz	Complies
15.407(b) (4) (i) / 15.209	-	Spurious Emissions	68.2 dBµV/m @ 5633.1 MHz (-0.1 dB)	Refer to the limits section	Complies

REQUIREMENTS FOR ALL U-NII/LELAN BANDS

FCC Rule Part	-	Description	Measured Value / Comments	Limit / Requirement	Result
15.407	-	Modulation	Digital Modulation is used	Digital modulation is required	Complies
15.31 (m)	-	Channel Selection	Emissions tested at outermost and middle channels in each band	Device was tested on the top, bottom and center channels in each band	N/A
15.407 (c)	-	Operation in the absence of information to transmit	Operation is discontinued in the absence of information	Device shall automatically discontinue operation in the absence of information to transmit	Complies
15.407 (g)	-	Frequency Stability	Frequency stability is better than 20 ppm. Refer to operational description.	Signal shall remain within the allocated band	Complies
15.407 (h1)	-	Transmit Power Control	TCP mechanism is discussed in the Operational Description	The U-NII device shall have the capability to operate with a mean EIRP value lower than 24dBm (250mW)	Complies
15.407 (h2)	-	Dynamic frequency Selection (device without radar detection)	Refer to separate test report, reference R103981	Channel move time < 10s Channel closing transmission time < 260ms	Complies

GENERAL REQUIREMENTS APPLICABLE TO ALL BANDS

FCC Rule Part	RSS Rule part	Description	Measured Value / Comments	Limit / Requirement	Result (margin)
15.203	-	RF Connector	Antennas are internal	Unique or integral antenna required	Complies
15.407 (b) (6)	-	AC Conducted Emissions	46.3 dBµV @ 0.532 MHz (-9.7 dB)	Refer to page 22	Complies
15.247 (i) 15.407 (f)	-	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 ARRIS model C61W-700 Wireless RVU Client is a high definition set top box, with RF4CE. Since the EUT would be placed on a tabletop during operation, the EUT was treated as tabletop equipment during testing to simulate the end-user environment. The electrical rating of the EUT is 100-120 Volts, 60 Hz, 0.5 Amps.

The sample was received on January 25, 2017 and tested on February 6, 28, March 1, 2, 3, 6, 7, 8, 13, 14, May 1, 2, and 10, 2017. The EUT consisted of the following component(s):

Company	Model	Description	Serial Number	FCC ID
ARRIS	C61W-700	DirecTV Home Client	Refer to test results	PGAC61W
DirecTV	ESP10R4-15	AC/DC Power Supply	CL10G160R4900	

OTHER EUT DETAILS

5GHz radio – 802.11an/ac (20/40/80MHz)
Only transmits in 4Tx mode, supports 1 to 4 spatial streams
Beamforming supported for 11n/ac 20, 40, 80MHz operation
Simultaneous transmission of RF4CEand 5GHz supported.

ANTENNA SYSTEM

5GHz – four stamped metal antennas.

ENCLOSURE

The EUT enclosure is primarily constructed of plastic. It measures approximately 18 cm wide by 12 cm deep by 3 cm high.

MODIFICATIONS

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

SUPPORT EQUIPMENT

The following equipment was used as support equipment for testing:

Configuration #1

Company	Model	Description	Serial Number	FCC ID
JVC	EM39FT	TV	TA1SEI042503850	-

Configuration #2

Company	Model	Description	Serial Number	FCC ID
Toshiba	24SL415U	TV	B46193T06429C1	-

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

Configuration #1

Company	Model	Description	Serial Number	FCC ID
Dell	M4600	Precision laptop	F9N0MQ1	

Configuration #2

Company	Model	Description	Serial Number	FCC ID
Dell	Latitude	Precision laptop	E6540	

EUT INTERFACE PORTS

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

EUT

Port	Connected To	Cable(s)		
		Description	Shielded or Unshielded	Length(m)
Serial*	USB	Serial	Shielded	5
A/V	TV input	RCA	Shielded	1
HDMI	TV Input	HDMI	Shielded	1
Digital Audio (SPDIF)	75 Ohm Terminated	RCA	Shielded	1
USB	USB Stick	USB	Shielded	1
DC power Input	AC/DC power Output	2Wire	Unshielded	1
AC/DC Adapter	AC Mains	2Wire	Unshielded	0.8

* - temporary internal connection to allow for configuration of radios

Additional on Support Equipment

Port	Connected To	Cable(s)		
		Description	Shielded or Unshielded	Length(m)
DC to RF Adapter Input	AC/DC Output	2Wire	Unshielded	1
Laptop DC Input	AC/DC Output	2Wire	Unshielded	1
AC/DC Adapter (x2)	AC Mains	2Wire	Unshielded	1
TV AC input	AC Mains	2Wire	Unshielded	1.5

EUT OPERATION

The EUT was configured to transmit continuously at the maximum output power. For AC conducted emissions, the RF4CE radio was configured for transmit at 2450MHz, while the 802.11 radio was configured for transmit at 5200MHz, 20MHz, MCS0.

TEST SITE

GENERAL INFORMATION

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

Site	Designation / Registration Numbers		Location
	FCC	Canada	
Chamber 4	US0027	2845B-4	41039 Boyce Road Fremont, CA 94538-2435
Chamber 7	US0027	2845B-7	

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

CONDUCTED EMISSIONS CONSIDERATIONS

Conducted emissions testing is performed in conformance with ANSI C63.10. Measurements are made with the EUT connected to the public power network through a nominal, standardized RF impedance, which is provided by a line impedance stabilization network, known as a LISN. A LISN is inserted in series with each current-carrying conductor in the EUT power cord.

RADIATED EMISSIONS CONSIDERATIONS

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

MEASUREMENT INSTRUMENTATION

RECEIVER SYSTEM

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

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

INSTRUMENT CONTROL COMPUTER

Software is used to view and convert receiver measurements to the field strength at an antenna or voltage developed at the LISN measurement port, which is then compared directly with the appropriate specification limit. This provides faster, more accurate readings by performing the conversions described under Sample Calculations within the Test Procedures section of this report. Results are printed in a graphic and/or tabular format, as appropriate. A personal computer is used to record all measurements made with the receivers. The software used for radiated and conducted emissions measurements is NTS EMI Test Software (rev 2.10)

LINE IMPEDANCE STABILIZATION NETWORK (LISN)

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

FILTERS/ATTENUATORS

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

ANTENNAS

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

ANTENNA MAST AND EQUIPMENT TURNTABLE

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

ANSI C63.10 specifies that the test height above ground for table mounted devices shall be 80 centimeters for measurements below 1GHz, and 1.5m for measurements above 1GHz. Floor mounted equipment shall be placed on the ground plane if the device is normally used on a conductive floor or separated from the ground plane by insulating material from 3 to 12 mm if the device is normally used on a non-conductive floor as specified in ANSI C63.4. During radiated measurements, the EUT is positioned on a motorized turntable in conformance with this requirement.

INSTRUMENT CALIBRATION

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

TEST PROCEDURES

EUT AND CABLE PLACEMENT

The regulations require that interconnecting cables be connected to the available ports of the unit and that the placement of the unit and the attached cables simulate the worst case orientation that can be expected from a typical installation, so far as practicable. To this end, the position of the unit and associated cabling is varied within the guidelines of ANSI C63.10, and the worst-case orientation is used for final measurements.

CONDUCTED EMISSIONS

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

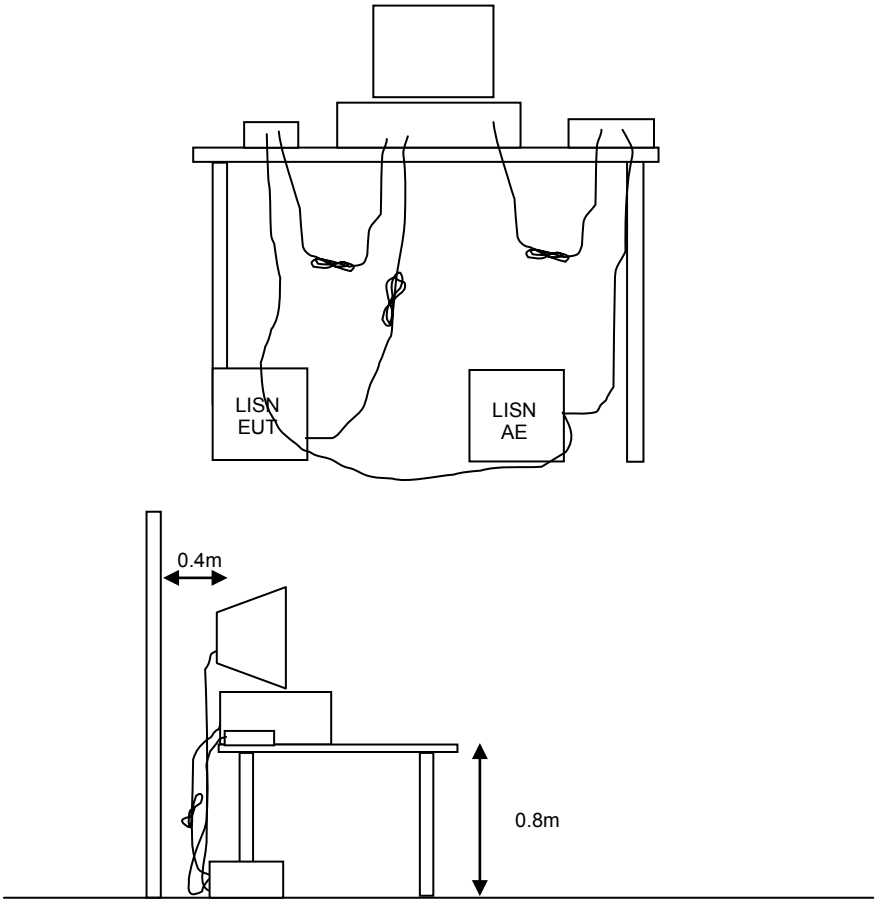


Figure 1 Typical Conducted Emissions Test Configuration

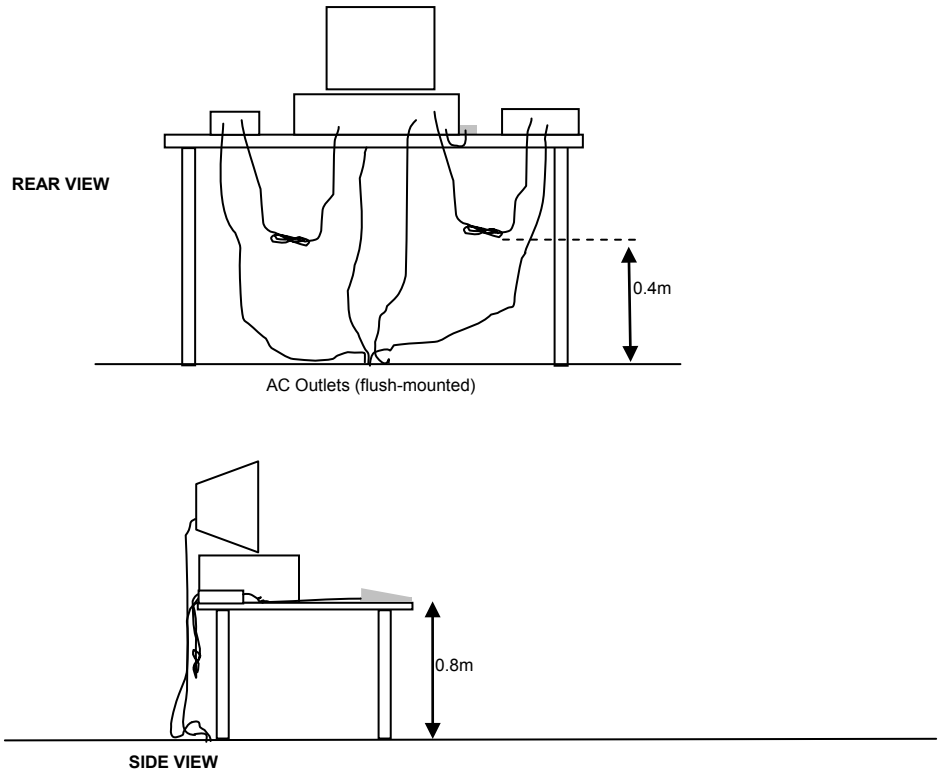
RADIATED EMISSIONS

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

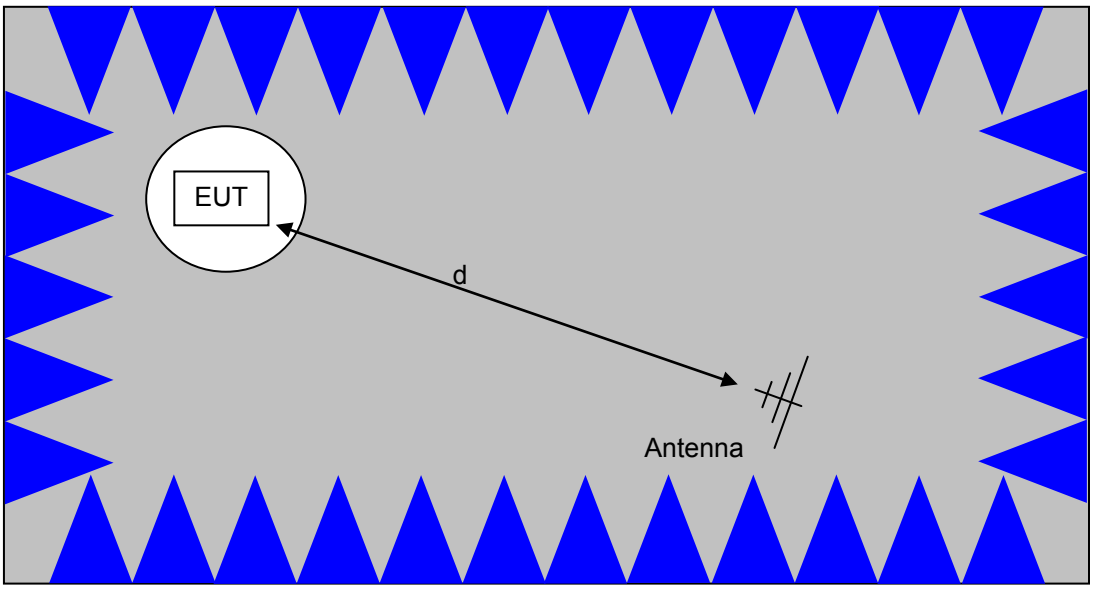
A speaker is provided in the receiver to aid in discriminating between EUT and ambient emissions. Other methods used during the preliminary scan for EUT emissions involve scanning with near field magnetic loops, monitoring I/O cables with RF current clamps, and cycling power to the EUT.

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

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

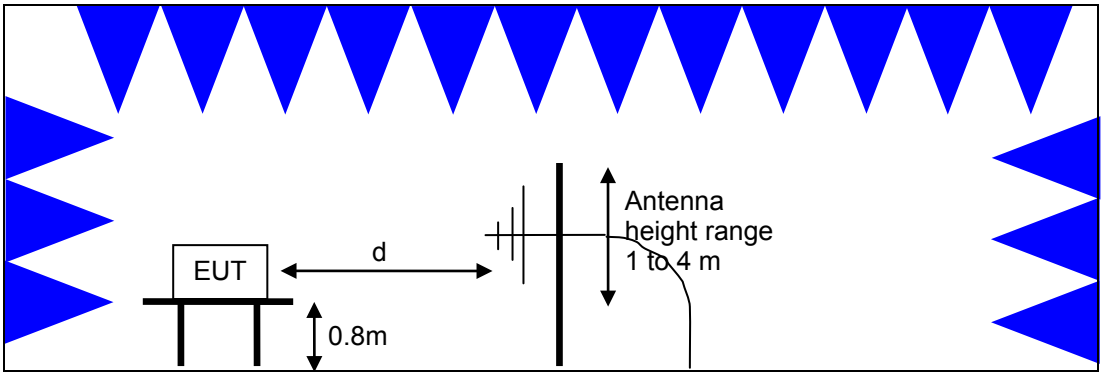


Typical Test Configuration for Radiated Field Strength Measurements



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

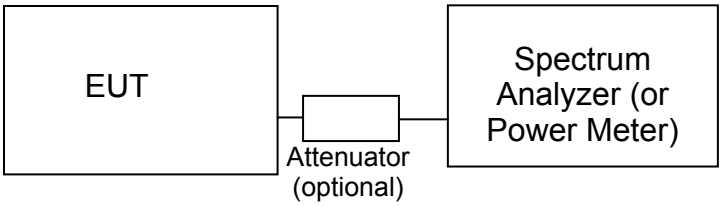
Floor-standing equipment is placed on the floor with insulating supports between the unit and the ground plane.



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

CONDUCTED EMISSIONS FROM ANTENNA PORT

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



Test Configuration for Antenna Port Measurements

Measurement bandwidths (video and resolution) are set in accordance with the relevant standards and NTS Silicon Valley's test procedures for the type of radio being tested. When power measurements are made using a resolution bandwidth less than the signal bandwidth the power is calculated by summing the power across the signal bandwidth using either the analyzer channel power function or by capturing the trace data and calculating the power using software. In both cases the summed power is corrected to account for the equivalent noise bandwidth (ENBW) of the resolution bandwidth used.

If power averaging is used (typically for certain digital modulation techniques), the EUT is configured to transmit continuously. Power averaging is performed using either the built-in function of the analyzer or, if the analyzer does not feature power averaging, using external software. In both cases the average power is calculated over a number of sweeps (typically 100). When the EUT cannot be configured to continuously transmit then either the analyzer is configured to perform a gated sweep to ensure that the power is averaged over periods that the device is transmitting or power averaging is disabled and a max-hold feature is used.

If a power meter is used to make output power measurements the sensor head type (peak or average) is stated in the test data table.

BANDWIDTH MEASUREMENTS

The 6dB, 20dB, 26dB and/or 99% signal bandwidth are measured using the bandwidths recommended by ANSI C63.10 and RSS GEN.

SPECIFICATION LIMITS AND SAMPLE CALCULATIONS

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

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

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

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

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

GENERAL TRANSMITTER RADIATED EMISSIONS SPECIFICATION LIMITS

The table below shows the limits for the spurious emissions from transmitters that fall in restricted bands[1].

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

[1] The restricted bands are detailed in FCC 15.205 and RSS-Gen Table 6

FCC 15.407 (a) OUTPUT POWER LIMITS

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

Operating Frequency (MHz)	Output Power	Power Spectral Density
5150 – 5250	250 mW (24 dBm)	11 dBm/MHz
5250 – 5350 and 5470-5725	250 mW (24 dBm)	11 dBm/MHz
5725 – 5825	1 Watt (30 dBm)	30 dBm/500kHz

For system using antennas with gains exceeding 6dBi, the output power and power spectral density limits are reduced by 1dB for every dB the antenna gain exceeds 6dBi.

SPURIOUS EMISSIONS LIMITS –UNII and LELAN DEVICES

The spurious emissions limits for signals below 1GHz are the FCC/RSS-Gen general limits. For emissions above 1GHz, signals in restricted bands are subject to the FCC/RSS-Gen general limits. All other signals have a limit of –27dBm/MHz, which is field strength of 68.3dBuV/m/MHz at a distance of 3m.

For devices operating in the 5725-5850 MHz bands under the LELAN/UNII rules, all emissions shall be limited to a level of −27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.

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
Conducted Emissions - AC Power Ports, 06-Feb-17					
NTS	NTS EMI Software (rev 2.10)	N/A	0		N/A
EMCO	LISN, 10 kHz-100 MHz	3825/2	1292	8/1/2016	8/1/2017
EMCO	LISN, 10 kHz-100 MHz	3825/2	1293	6/7/2016	6/7/2017
Rohde & Schwarz	Pulse Limiter	ESH3 Z2	1401	2/3/2017	2/3/2018
Rohde & Schwarz	EMI Test Receiver, 20 Hz-7 GHz	ESIB7	9482	10/28/2016	10/28/2017
Radiated Emissions, 1,000 - 40,000 MHz, 28-Feb-17					
National Technical Systems	NTS EMI Software (rev 2.10)	N/A	0		N/A
HP / Miteq	SA40 R Head HF preAmplifier, 18-40 GHz (w/1148)	TTA1840-45-5P-HG-S	1145	8/24/2016	8/24/2017
Hewlett Packard	Spectrum Analyzer (SA40) Red 30 Hz -40 GHz	8564E (84125C)	1148	10/31/2016	11/1/2017
A. H. Systems	Purple System Horn, 18-40GHz	SAS-574, p/n: 2581	2160	8/28/2014	8/28/2017
Micro-Tronics	Band Reject Filter, 5150-5350 MHz	BRC50703-02	2251	9/19/2016	9/19/2017
EMCO	Antenna, Horn, 1-18 GHz	3115	2870	8/31/2015	8/31/2017
Radiated Emissions, 1000 - 40,000 MHz, 01-Mar-17					
HP / Miteq	SA40 R Head HF preAmplifier, 18-40 GHz (w/1148)	TTA1840-45-5P-HG-S	1145	8/24/2016	8/24/2017
Hewlett Packard	Spectrum Analyzer (SA40) Red 30 Hz -40 GHz	8564E (84125C)	1148	10/31/2016	11/1/2017
Micro-Tronics	Band Reject Filter, 5725-5875 MHz 12GHz	BRC50705-02	1682	5/9/2016	5/9/2017
Hewlett Packard	Microwave Preamplifier, 1-26.5GHz	8449B	1780	9/30/2016	9/30/2017
A. H. Systems	Purple System Horn, 18-40GHz	SAS-574, p/n: 2581	2160	8/28/2014	8/28/2017
EMCO	Antenna, Horn, 1-18 GHz	3115	2870	8/31/2015	8/31/2017
Rohde & Schwarz	EMI Test Receiver, 20 Hz-7 GHz	ESIB 7	9482	10/28/2016	10/28/2017
Radiated Emissions , BE, 1,000 - 6,000 MHz, 02-Mar-17					
National Technical Systems	NTS EMI Software (rev 2.10)	N/A	0		N/A
Agilent Technologies	PSA, Spectrum Analyzer, (installed options, 111, 115, 123, 1DS, B7J, HYX,	E4446A	2139	6/24/2016	6/24/2017
Radiated Emissions, BE, 1,000 - 6,000 MHz, 06-Mar-17					
National Technical Systems	NTS EMI Software (rev 2.10)	N/A	0		N/A
EMCO	Antenna, Horn, 1-18 GHz	3115	2870	8/31/2015	8/31/2017
Rohde & Schwarz	EMI Test Receiver, 20 Hz-7 GHz	ESIB 7	9482	10/28/2016	10/28/2017

Manufacturer	Description	Model	Asset #	Calibrated	Cal Due
Radiated Emissions, BE, 1,000 - 6,000 MHz, 07-Mar-17					
National Technical Systems	NTS EMI Software (rev 2.10)	N/A	0		N/A
EMCO	Antenna, Horn, 1-18 GHz	3115	2870	8/31/2015	8/31/2017
Rohde & Schwarz	EMI Test Receiver, 20 Hz-7 GHz	ESIB 7	9482	10/28/2016	10/28/2017
Radiated Emissions, 30 - 1,000 MHz, 08-Mar-17					
Sunol Sciences	Biconilog, 30-3000 MHz	JB3	1549	6/2/2015	6/2/2017
Com-Power	Preamplifier, 30-1000 MHz	PA-103	1632	3/8/2017	3/8/2018
Rohde & Schwarz	EMI Test Receiver, 20 Hz-7 GHz	ESIB 7	9482	10/28/2016	10/28/2017
Radiated Emissions, 1000 - 40,000 MHz, 08-Mar-17					
HP / Miteq	SA40 R Head HF preAmplifier, 18-40 GHz (w/1148)	TTA1840-45-5P-HG-S	1145	8/24/2016	8/24/2017
Hewlett Packard	Spectrum Analyzer (SA40) Red 30 Hz -40 GHz	8564E (84125C)	1148	10/31/2016	11/1/2017
Micro-Tronics	Band Reject Filter, 5725-5875 MHz 12GHz	BRC50705-02	1682	5/9/2016	5/9/2017
Hewlett Packard	Microwave Preamplifier, 1-26.5GHz	8449B	1780	9/30/2016	9/30/2017
A. H. Systems	Purple System Horn, 18-40GHz	SAS-574, p/n: 2581	2160	8/28/2014	8/28/2017
Micro-Tronics	Band Reject Filter, 2400-2500 MHz 18GHz	BRM50702-02	2238	10/14/2016	10/14/2017
Micro-Tronics	Band Reject Filter, 5150-5350 MHz	BRC50703-02	2251	9/19/2016	9/19/2017
Micro-Tronics	High Pass Filter 6400 MHz - 18000 MHz	HPM50112	2739	10/7/2016	10/7/2017
EMCO	Antenna, Horn, 1-18 GHz	3115	2870	8/31/2015	8/31/2017
Radio Antenna Port (Power and Spurious Emissions), 13-Mar-17					
Rohde & Schwarz	Signal Analyzer 20 Hz - 26.5 GHz	FSQ26	2327	6/17/2016	6/17/2017
Agilent Technologies	USB Average Power Sensor	U2001A	2442	1/5/2017	1/5/2018
Radio Antenna Port (Power and Spurious Emissions), 14-Mar-17					
Rohde & Schwarz	Signal Analyzer 20 Hz - 26.5 GHz	FSQ26	2327	6/17/2016	6/17/2017
Agilent Technologies	USB Average Power Sensor	U2001A	2442	1/5/2017	1/5/2018
Radiated Emissions, 1000-6500 MHz, 01-May-17					
Rohde & Schwarz	EMI Test Receiver, 20 Hz-40 GHz	ESI 40	2493	17-Mar-17	17-Mar-18
EMCO	Antenna, Horn, 1-18 GHz	3115	2870	31-Aug-15	31-Aug-17
Radio Antenna Port (Power), 02-May-17					
Rohde & Schwarz	Signal Analyzer 20 Hz - 26.5 GHz	FSQ26	2327	17-Jun-16	17-Jun-17
Frequency Stability, 02-May-17					
Watlow	Temp Chamber (w/ F4 Watlow Controller)	F4	2170	08-Jul-16	08-Jul-17

Manufacturer	Description	Model	Asset #	Calibrated	Cal Due
Rohde & Schwarz	Signal Analyzer 20 Hz - 26.5 GHz	FSQ26	2327	17-Jun-16	17-Jun-17

Appendix B Test Data

T103891 Pages 31 – 246

Client:	ARRIS	Job Number:	JD102669
Product	C61W	T-Log Number:	T103891
System Configuration:	-	Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Emissions Standard(s):	FCC 15.B / FCC 15.247 / 15.E	Class:	B
Immunity Standard(s):	-	Environment:	-

EMC Test Data

For The

ARRIS

Product

C61W

Date of Last Test: 3/15/2017

Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	B

Conducted Emissions

(NTS Silicon Valley, Fremont Facility, Semi-Anechoic Chamber)

Test Specific Details

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

Date of Test: 2/6/2017
Test Engineer: Joseph Cadigal
Test Location: Fremont Chamber #4

Config. Used: 2
Config Change: none
EUT Voltage: 120V/60Hz

General Test Configuration

For tabletop equipment, the EUT was located on a wooden table inside the semi-anechoic chamber, 40 cm from a vertical coupling plane and 80cm from the LISN. A second LISN was used for all local support equipment. Remote support equipment was located outside of the semi-anechoic chamber. Any cables running to remote support equipment where routed through metal conduit and when possible passed through a ferrite clamp upon exiting the chamber.

Ambient Conditions:

Temperature: 25 °C
Rel. Humidity: 30 %

Summary of Results

Run #	Test Performed	Limit	Result	Margin
1	CE, AC Power,120V/60Hz	Class B	Pass	46.3 dBµV @ 0.532 MHz (-9.7 dB)

Modifications Made During Testing

No modifications were made to the EUT during testing

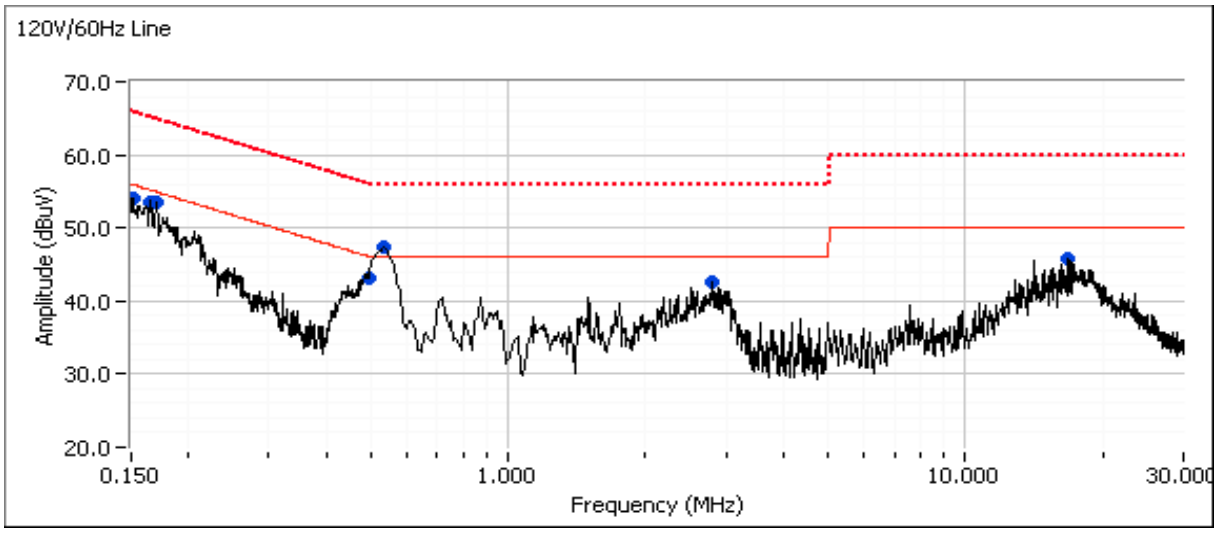
Deviations From The Standard

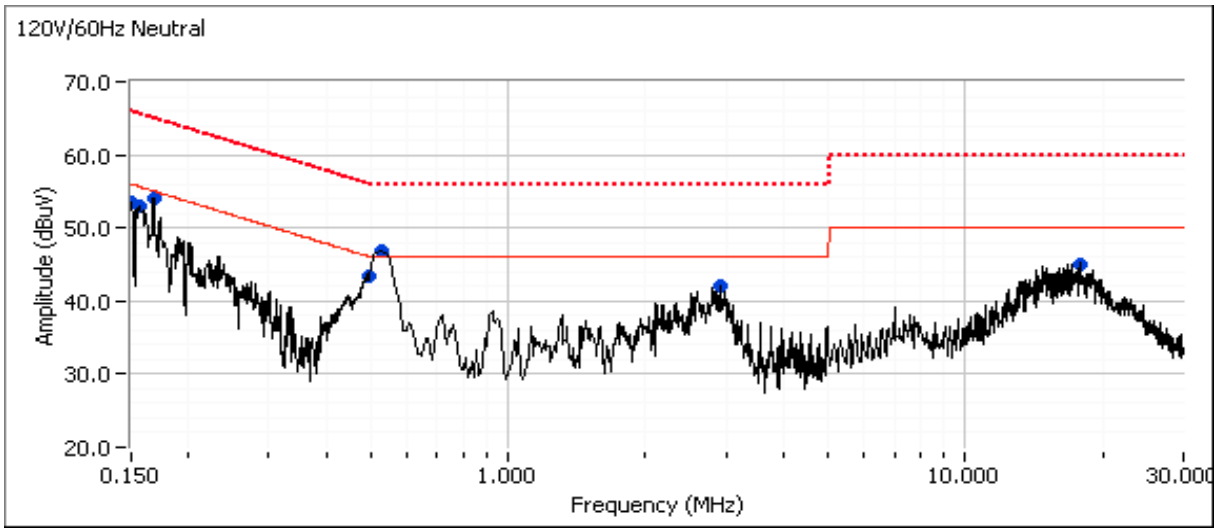
No deviations were made from the requirements of the standard.

Sample S/N: G62DATB200100
Driver: 20161214_c61w-bcm_v1.24.1.5
Antenna: Internal

Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	B

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





Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	B

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

Frequency	Level	AC	Class B		Detector	Comments
MHz	dBµV	Line	Limit	Margin	QP/Ave	
0.171	53.5	Line 1	54.9	-1.4	Peak	
0.165	53.6	Line 1	55.2	-1.6	Peak	
0.151	54.0	Line 1	55.9	-1.9	Peak	
0.494	43.2	Line 1	46.1	-2.9	Peak	
2.806	42.6	Line 1	46.0	-3.4	Peak	
0.532	47.4	Line 1	46.0	1.4	Peak	
16.810	45.8	Line 1	50.0	-4.2	Peak	
0.168	54.0	Neutral	55.0	-1.0	Peak	
0.151	53.4	Neutral	56.0	-2.6	Peak	
0.157	53.0	Neutral	55.7	-2.7	Peak	
0.494	43.5	Neutral	46.1	-2.6	Peak	
2.917	42.0	Neutral	46.0	-4.0	Peak	
0.525	46.8	Neutral	46.0	0.8	Peak	
17.772	44.9	Neutral	50.0	-5.1	Peak	

Final quasi-peak and average readings

Frequency	Level	AC	Class B		Detector	Comments
MHz	dBµV	Line	Limit	Margin	QP/Ave	
0.532	46.3	Line 1	56.0	-9.7	QP	QP (1.00s)
0.525	45.7	Neutral	56.0	-10.3	QP	QP (1.00s)
0.532	35.3	Line 1	46.0	-10.7	AVG	AVG (0.10s)
0.525	33.7	Neutral	46.0	-12.3	AVG	AVG (0.10s)
0.494	42.3	Line 1	56.1	-13.8	QP	QP (1.00s)
0.494	42.0	Neutral	56.1	-14.1	QP	QP (1.00s)
0.494	31.1	Neutral	46.1	-15.0	AVG	AVG (0.10s)
0.494	30.7	Line 1	46.1	-15.4	AVG	AVG (0.10s)
0.165	48.3	Line 1	65.2	-16.9	QP	QP (1.00s)
0.168	47.8	Neutral	65.1	-17.3	QP	QP (1.00s)
0.171	47.1	Line 1	64.9	-17.8	QP	QP (1.00s)
2.806	38.1	Line 1	56.0	-17.9	QP	QP (1.00s)
0.157	47.1	Neutral	65.6	-18.5	QP	QP (1.00s)
0.151	46.8	Neutral	65.9	-19.1	QP	QP (1.00s)
0.151	46.6	Line 1	65.9	-19.3	QP	QP (1.00s)
2.917	36.7	Neutral	56.0	-19.3	QP	QP (1.00s)
2.806	25.5	Line 1	46.0	-20.5	AVG	AVG (0.10s)
17.772	38.8	Neutral	60.0	-21.2	QP	QP (1.00s)
16.810	28.7	Line 1	50.0	-21.3	AVG	AVG (0.10s)
16.810	38.7	Line 1	60.0	-21.3	QP	QP (1.00s)
17.772	28.4	Neutral	50.0	-21.6	AVG	AVG (0.10s)

Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	B

Radiated Emissions

(NTS Silicon Valley, Fremont Facility, Semi-Anechoic Chamber)

Test Specific Details

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

Date of Test: 2/6/2017
Test Engineer: Joseph Cadigal
Test Location: Fremont Chamber #4
Config. Used: 2
Config Change: none
EUT Voltage: 120V/60Hz

General Test Configuration

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

Radiated emissions tests above 1 GHz to FCC Part 15 were performed with floor absorbers in place in accordance with the test methods of ANSI C63.4 and CISPR 16-1-4.

The test distance and extrapolation factor (if applicable) are detailed under each run description.

Note, preliminary testing indicates that the emissions were maximized by orientation of the EUT and elevation of the measurement antenna. Maximized testing indicated that the emissions were maximized by orientation of the EUT, elevation of the measurement antenna, and manipulation of the EUT's interface cables.

Ambient Conditions:

Temperature: 25 °C
Rel. Humidity: 30 %

Summary of Results

Run #	Test Performed	Limit	Result	Margin
1	Radiated Emissions 30 - 1000 MHz, Preliminary	Class B	Eval	Refer to individual runs
2	Radiated Emissions 30 - 1000 MHz, Maximized	Class B	Pass	38.0 dBµV/m @ 30.39 MHz (-2.0 dB)
3b	Radiated Emissions 1 GHz - 12 GHz Maximized	FCC Class B	Pass	50.6 dBµV/m @ 7373.4 MHz (-3.4 dB)

Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	B

Modifications Made During Testing

No modifications were made to the EUT during testing

Deviations From The Standard

No deviations were made from the requirements of the standard.

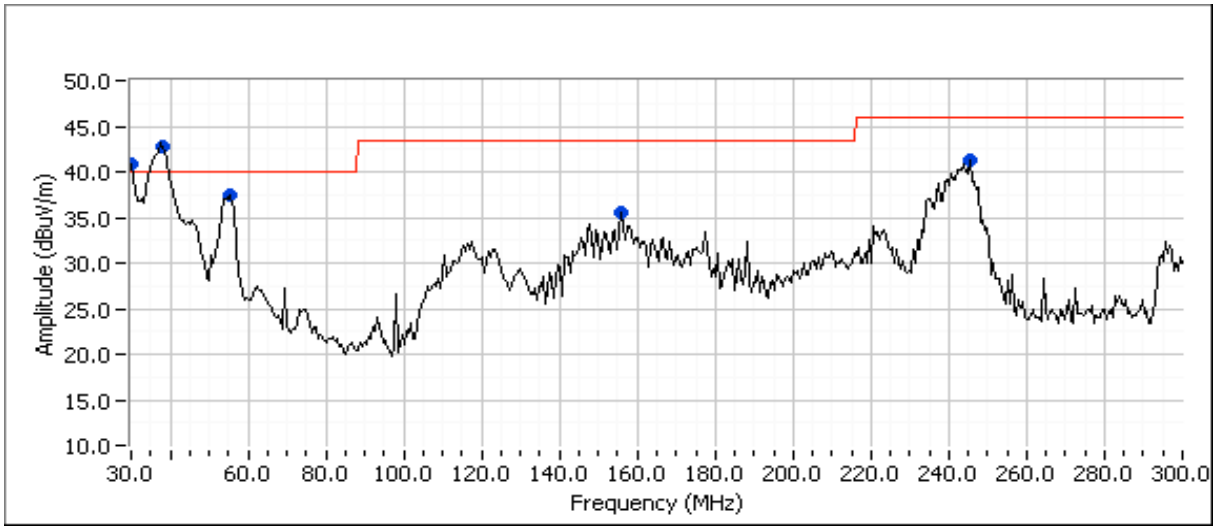
Sample Notes

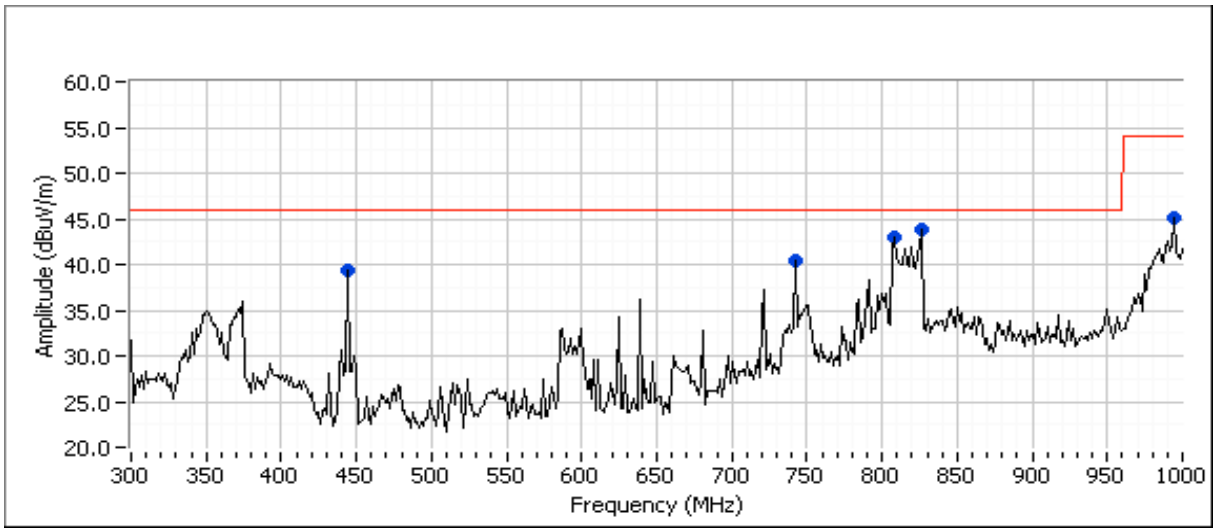
Sample S/N: G62DATB200100
Driver: 20161214_c61w-bcm_v1.24.1.5
Antenna: Internal

Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	B

Run #1: Preliminary Radiated Emissions, 30 - 1000 MHz

Test Parameters for Preliminary Scan(s)			
Frequency Range (MHz)	Prescan Distance (meters)	Limit Distance (meters)	Extrapolation Factor (dB, applied to data)
30 - 1000	3	3	0.0





Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	B

Preliminary peak readings captured during pre-scan

Frequency	Level	Pol	Class B		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
55.019	37.5	V	40.0	-2.5	Peak	114	1.0	
245.569	41.2	H	46.0	-4.8	Peak	198	1.0	
37.968	42.7	V	40.0	2.7	Peak	270	1.0	signal from TV
30.392	40.9	V	40.0	0.9	Peak	273	1.0	
155.772	35.6	H	43.5	-7.9	Peak	349	2.0	
825.151	43.9	V	46.0	-2.1	Peak	191	1.0	
806.668	43.0	V	46.0	-3.0	Peak	217	1.0	
993.909	45.1	H	54.0	-8.9	Peak	193	1.0	
741.769	40.5	H	46.0	-5.5	Peak	243	2.0	
445.053	39.4	H	46.0	-6.6	Peak	153	1.5	

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

Frequency	Level	Pol	Class B		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
55.019	35.3	V	40.0	-4.7	QP	114	1.0	QP (1.00s)
245.569	39.1	H	46.0	-6.9	QP	198	1.0	QP (1.00s)
37.968	41.8	V	40.0	1.8	QP	270	1.0	Signal from TV on
37.968	37.7	V	40.0	-2.3	QP	270	1.0	Signal from TV off
30.392	37.4	V	40.0	-2.6	QP	272	1.0	QP (1.00s)
155.772	27.8	H	43.5	-15.7	QP	349	2.0	QP (1.00s)
825.151	38.8	V	46.0	-7.2	QP	191	1.0	QP (1.00s)
806.668	38.0	V	46.0	-8.0	QP	217	1.0	QP (1.00s)
993.909	37.6	H	54.0	-16.4	QP	192	1.0	QP (1.00s)
741.769	34.3	H	46.0	-11.7	QP	242	2.0	QP (1.00s)
445.053	38.3	H	46.0	-7.7	QP	153	1.4	QP (1.00s)

Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	B

Run #2: Maximized Readings From Run #1

Test Parameters for Maximized Reading(s)			
Frequency Range (MHz)	Test Distance (meters)	Limit Distance (meters)	Extrapolation Factor (dB, applied to data)
30 - 1000	3	3	0.0

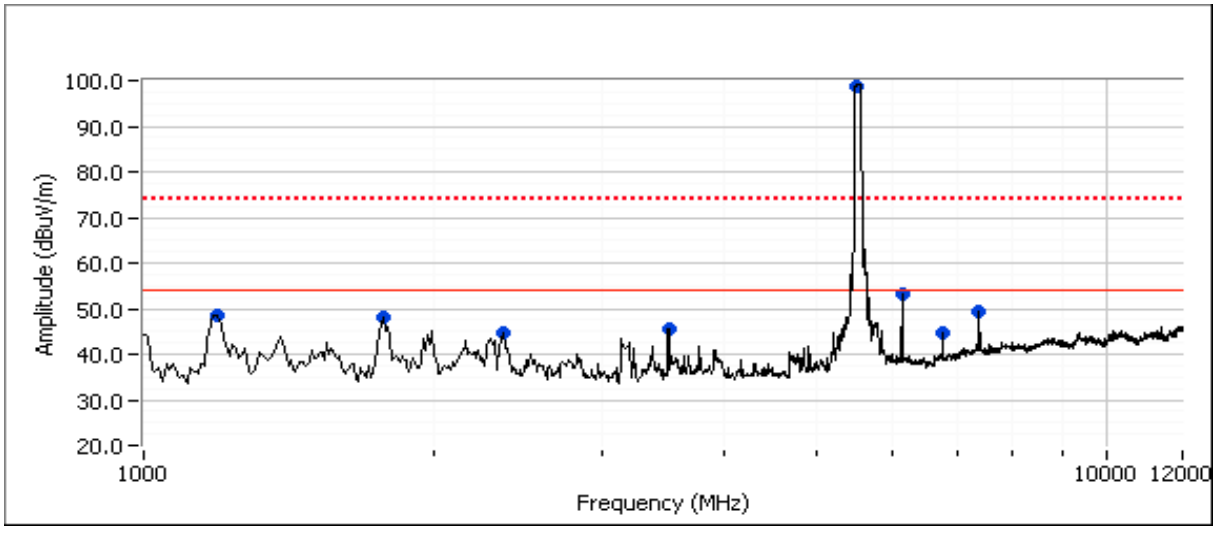
Maximized quasi-peak readings (includes manipulation of EUT interface cables)

Frequency	Level	Pol	Class B		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
30.392	38.0	V	40.0	-2.0	QP	273	1.0	QP (1.00s)
55.019	35.3	V	40.0	-4.7	QP	113	1.0	QP (1.00s)
245.569	39.1	H	46.0	-6.9	QP	198	1.0	QP (1.00s)
825.151	38.8	V	46.0	-7.2	QP	191	1.0	QP (1.00s)
445.053	38.3	H	46.0	-7.7	QP	153	1.4	QP (1.00s)
806.668	38.0	V	46.0	-8.0	QP	217	1.0	QP (1.00s)

Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	B

Run #3: Maximized Readings, 1000 - 12000 MHz
Single pre-scan covering both EN 55022 and FCC Part 15 requirements
Antenna height scan performed during pre-scan to satisfy FCC requirements
2.4GHz radio in receive mode and 5GHz radio in transmit mode

Test Parameters for Preliminary Scan(s)			
Frequency Range (MHz)	Prescan Distance (meters)	Limit Distance (meters)	Extrapolation Factor (dB, applied to data)
1000 - 12000	3	3	0.0



Preliminary peak readings captured during pre-scan (peak readings vs. average limit)
EN 55022 limit used for pre-scan (i.e. worst case of EN 55022 and FCC)

Frequency	Level	Pol	EN 55022 Class B		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5510.000	98.8	V	-	-	Peak	207	1.0	5GHz radio fundamental
6141.230	53.4	V	54.0	-0.6	Peak	340	1.6	
1766.610	48.0	H	54.0	-6.0	Peak	177	1.3	
1200.070	48.3	H	54.0	-5.7	Peak	221	1.6	
3519.510	45.6	V	54.0	-8.4	Peak	172	1.3	
2372.540	44.8	V	54.0	-9.2	Peak	217	1.6	
7382.750	49.3	H	54.0	-4.7	Peak	182	1.3	
6761.100	44.8	H	54.0	-9.2	Peak	190	1.3	

Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	B

Final peak and average readings (vs. FCC limits)

All final readings collected at 3 meters test distance, unless otherwise noted

**FCC Class B limit (when applicable) is by default a 3m limit*

Frequency	Level	Pol	FCC Class B		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
7373.390	50.6	V	54.0	-3.4	AVG	182	1.3	RB 1 MHz;VB 10 Hz;Peak
6144.760	50.0	V	54.0	-4.0	AVG	339	1.6	RB 1 MHz;VB 10 Hz;Peak
6144.860	49.9	V	54.0	-4.1	AVG	206	1.3	RB 1 MHz;VB 10 Hz;Peak
6758.980	41.2	V	54.0	-12.8	AVG	32	2.5	RB 1 MHz;VB 10 Hz;Peak
1199.350	40.2	H	54.0	-13.8	AVG	221	1.6	RB 1 MHz;VB 10 Hz;Peak
6759.680	38.3	H	54.0	-15.7	AVG	190	1.3	RB 1 MHz;VB 10 Hz;Peak
1768.090	38.1	H	54.0	-15.9	AVG	176	1.2	RB 1 MHz;VB 10 Hz;Peak
1200.360	57.7	H	74.0	-16.3	PK	221	1.6	RB 1 MHz;VB 3 MHz;Peak
2371.410	37.6	V	54.0	-16.4	AVG	217	1.6	RB 1 MHz;VB 10 Hz;Peak
2371.670	56.4	V	74.0	-17.6	PK	217	1.6	RB 1 MHz;VB 3 MHz;Peak
1766.570	55.7	H	74.0	-18.3	PK	176	1.2	RB 1 MHz;VB 3 MHz;Peak
3519.970	33.9	V	54.0	-20.1	AVG	172	1.2	RB 1 MHz;VB 10 Hz;Peak
7373.750	50.8	H	74.0	-23.2	PK	182	1.3	RB 1 MHz;VB 3 MHz;Peak
6759.720	48.6	V	74.0	-25.4	PK	32	2.5	RB 1 MHz;VB 3 MHz;Peak
6147.190	47.3	V	74.0	-26.7	PK	206	1.3	RB 1 MHz;VB 3 MHz;Peak
6143.400	47.0	V	74.0	-27.0	PK	339	1.6	RB 1 MHz;VB 3 MHz;Peak
3519.730	46.8	V	74.0	-27.2	PK	172	1.2	RB 1 MHz;VB 3 MHz;Peak

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

Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	N/A

RSS-247, FCC 15.247, FCC 15.407 Radiated Spurious Emissions

Test Specific Details

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

General Test Configuration

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

Ambient Conditions:

Temperature: 22.4 °C
Rel. Humidity: 41 %

Summary of Results

Run #	Mode	Channel	Target Power	Passing Power Setting	Test Performed	Limit	Result / Margin
Simultaneous Tx operation							
1	RF4CE a	2425MHz 40	3 90	3 90	Radiated Emissions, 30 - 1000MHz	FCC 15.209 / 15.247 / 15 E	42.5 dBµV/m @ 152.47 MHz (-1.0 dB)
	RF4CE a	2425MHz 40	3 90	3 86	Radiated Emissions, 1 - 40 GHz	FCC 15.209 / 15.247 / 15 E	67.5 dBµV/m @ 10399.0 MHz (-0.8 dB)
2	RF4CE a	2475MHz 157	3 90	3 90	Radiated Emissions, 30 - 1000MHz	FCC 15.209 / 15.247 / 15 E	42.0 dBµV/m @ 152.47 MHz (-1.5 dB)
	RF4CE a	2475MHz 157	3 90	3 90	Radiated Emissions, 1 - 40 GHz	FCC 15.209 / 15.247 / 15 E	52.7 dBµV/m @ 11567.8 MHz (-1.3 dB)

Modifications Made During Testing

No modifications were made to the EUT during testing

Deviations From The Standard

No deviations were made from the requirements of the standard.

Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	N/A

Procedure Comments:

Measurements performed in accordance with FCC KDB 558074
Peak measurements performed with: RBW=1MHz, VBW=3MHz, peak detector, max hold, auto sweep time
Unless otherwise stated/noted, emission has duty cycle ≥ 98% and was measured using RBW=1MHz, VBW=10Hz, peak detector, linear average mode, auto sweep time, max hold.

	Mode	Data Rate	Duty Cycle (x)	Constant DC?	T (ms)	Pwr Cor Factor*	Lin Volt Cor Factor**	Min VBW for FS (Hz)
	RF4CE	-	1.00	Yes	1	0	0	10
1SS	11a	6MB/s	0.99	Yes	1.952	0	0	10

Sample Notes

Sample S/N: G62DA7BU20005B
Driver: -
Antenna: Internal 4x4

Measurement Specific Notes:

Note 1:	For emissions outside of the restricted bands the limit is -27dBm/MHz eirp (68.3dBuV/m). The measurement method required is a peak measurement (RB=1MHz, VB≥3MHz, peak detector). Per KDB 789033 2) c) (i), compliance can be demonstrated by meeting the average and peak limits of 15.209, as an alternative.
Note 2:	Emission has constant duty cycle < 98%, average measurement performed: RBW=1MHz, VBW>1/T but not less than 10Hz, peak detector, linear averaging, auto sweep,max hold 50*1/DC traces (method VB of KDB 789033)

Notes:

Serial cable connected directly to the motherboard to configure the radio operation. Responsible for non-radio reltated emissions observed below 1GHz. Would not be present during normal use.

Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	N/A

Run #1: Radiated Spurious Emissions

Date of Test: 3/8/2017 0:00 Config. Used: 1
Test Engineer: Joseph Cadigal/R. Varelas Config Change: none
Test Location: FT Chamber#7 EUT Voltage: 120V/60Hz

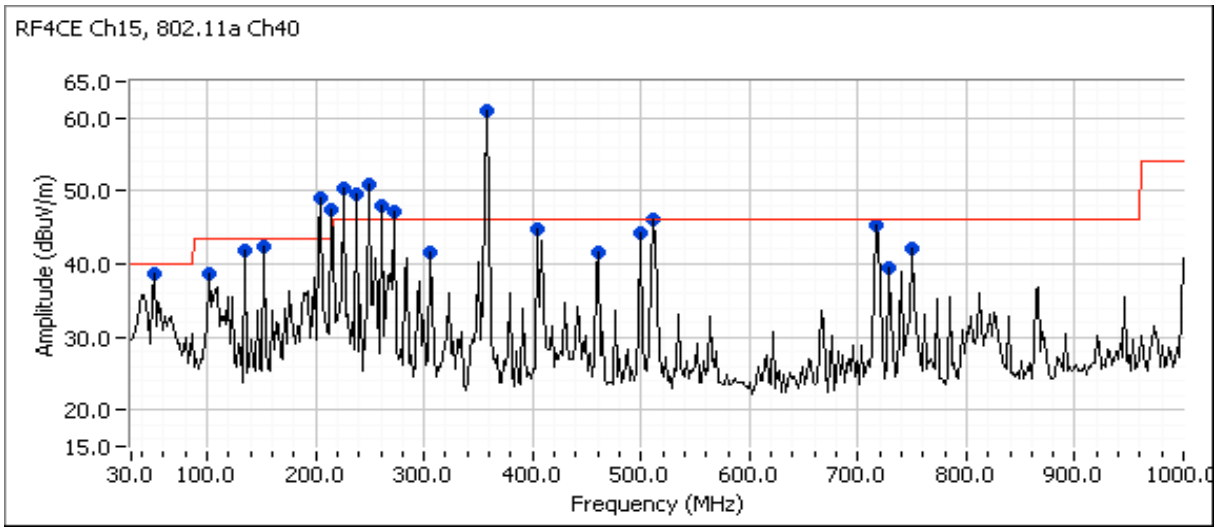
Channel: 2425MHz Mode: RF4CE
Tx Chain: Ant 0 Data Rate: -

Channel: 40 Mode: 11a
Tx Chain: 4Tx Data Rate: 6MB/s

Run #1a: 30-1000MHz

Frequency	Level	Pol	15.209 / 15.247 / 15E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
152.465	42.5	V	43.5	-1.0	Peak	324	1.0	
51.383	38.7	V	40.0	-1.3	Peak	136	1.0	
101.924	38.6	V	43.5	-4.9	Peak	274	1.0	
134.970	41.9	V	43.5	-1.6	Peak	234	1.0	
204.950	49.1	V	-	-	Peak	0	1.5	Not related to Radio
214.669	47.5	V	-	-	Peak	76	1.0	Not related to Radio
226.333	50.5	H	-	-	Peak	126	2.5	Not related to Radio
237.996	49.5	H	-	-	Peak	155	1.0	Not related to Radio
249.659	51.0	H	-	-	Peak	71	1.5	Not related to Radio
261.323	48.0	H	-	-	Peak	224	3.0	Not related to Radio
272.986	47.3	V	-	-	Peak	210	1.0	Not related to Radio
306.032	41.6	H	46.0	-4.4	Peak	338	1.5	
358.517	61.0	H	-	-	Peak	244	2.0	Not related to Radio
405.170	44.8	V	46.0	-1.2	Peak	225	1.0	
461.543	41.6	V	46.0	-4.4	Peak	309	1.0	
500.421	44.2	H	46.0	-1.8	Peak	220	1.5	
512.084	46.0	H	-	-	Peak	269	1.5	Not related to Radio
716.192	45.2	H	-	-	Peak	229	1.0	Not related to Radio
727.856	39.6	H	46.0	-6.4	Peak	230	1.5	
749.238	42.2	V	46.0	-3.8	Peak	269	1.0	

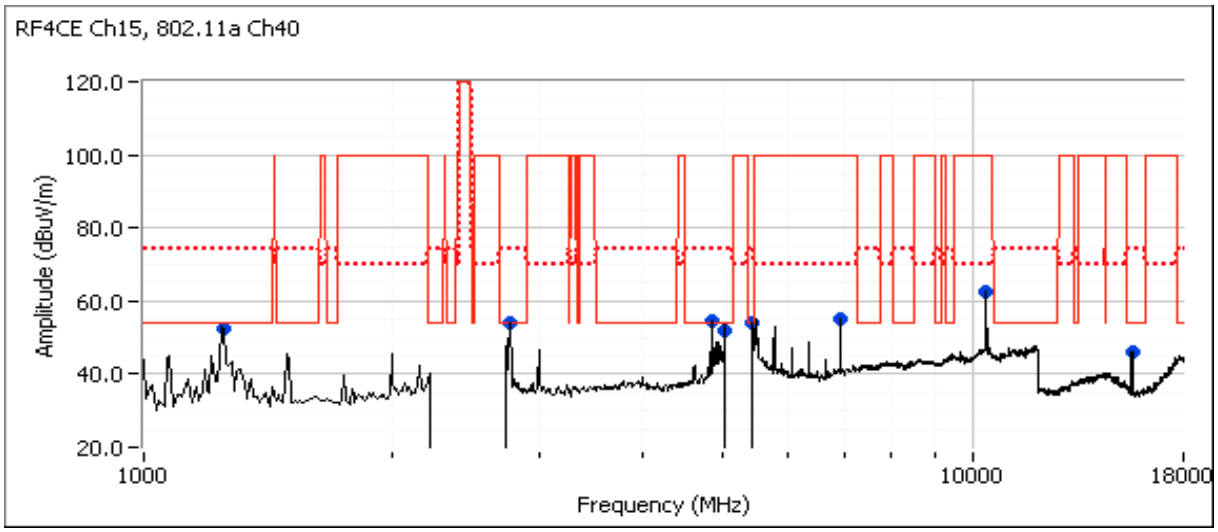
Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	N/A



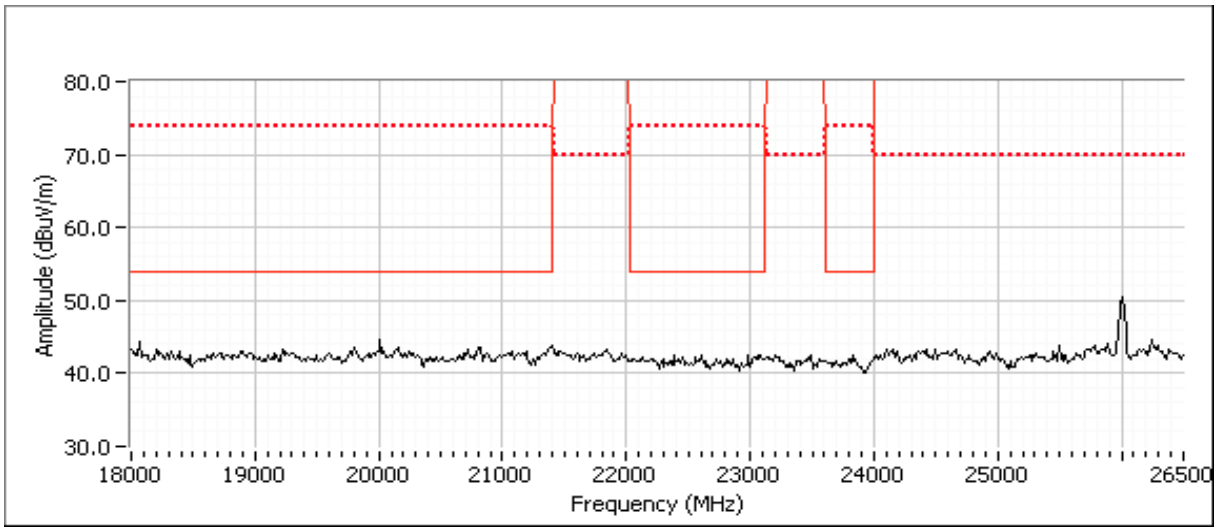
Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	N/A

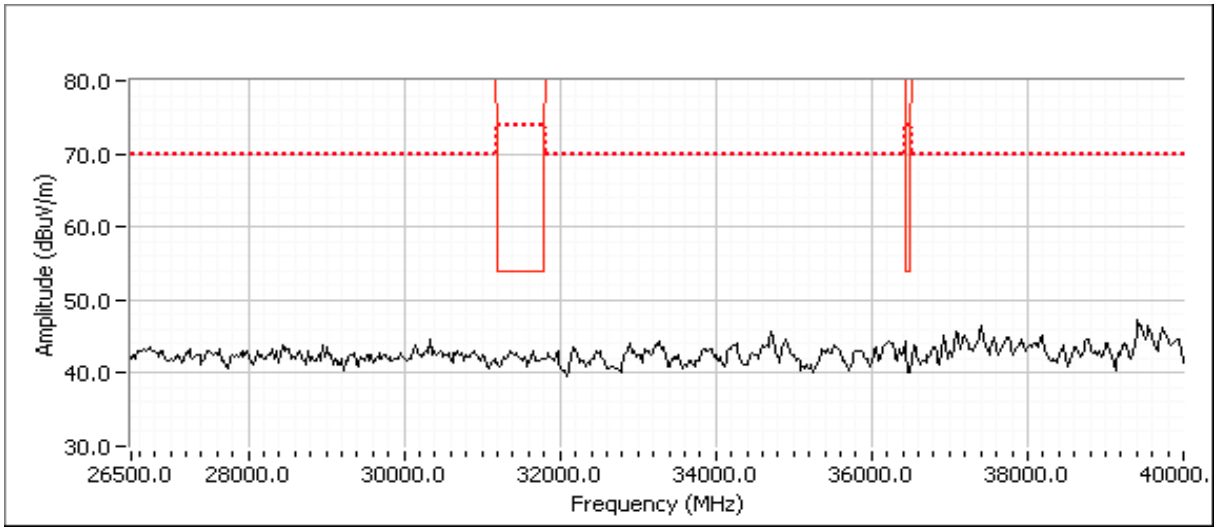
Run #1b: 1000-40000MHz

Frequency	Level	Pol	15.209 / 15E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
q90								
2772.430	51.3	H	54.0	-2.7	AVG	92	1.0	RB 1 MHz;VB 10 Hz;Peak
2772.100	60.9	H	74.0	-13.1	PK	92	1.0	RB 1 MHz;VB 3 MHz;Peak
1248.700	41.0	H	54.0	-13.0	AVG	186	2.4	RB 1 MHz;VB 10 Hz;Peak
1249.160	67.6	H	74.0	-6.4	PK	186	2.4	RB 1 MHz;VB 3 MHz;Peak
4850.960	51.1	V	54.0	-2.9	AVG	227	2.0	RB 1 MHz;VB 10 Hz;Peak
4851.180	58.5	V	74.0	-15.5	PK	227	2.0	RB 1 MHz;VB 3 MHz;Peak
5036.410	51.2	V	54.0	-2.8	AVG	254	1.5	RB 1 MHz;VB 10 Hz;Peak
5035.470	62.2	V	74.0	-11.8	PK	254	1.5	RB 1 MHz;VB 3 MHz;Peak
6933.300	58.1	V	68.3	-10.2	PK	336	1.0	RB 1 MHz;VB 3 MHz;Peak
5445.680	47.8	V	54.0	-6.2	AVG	342	1.0	RB 1 MHz;VB 10 Hz;Peak
5445.130	59.2	V	74.0	-14.8	PK	342	1.0	RB 1 MHz;VB 3 MHz;Peak
15592.560	48.5	V	54.0	-5.5	AVG	10	1.1	RB 1 MHz;VB 10 Hz;Peak
15589.160	60.4	V	74.0	-13.6	PK	10	1.1	RB 1 MHz;VB 3 MHz;Peak
10399.030	67.5	V	68.3	-0.8	PK	44	1.0	RB 1 MHz;VB 3 MHz;Peak



Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	N/A





Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	N/A

Run #2: Radiated Spurious Emissions

Date of Test: 3/8/2017 0:00 Config. Used: 1
Test Engineer: Rafael Varelas Config Change: none
Test Location: FT Chamber#7 EUT Voltage: 120V/60Hz

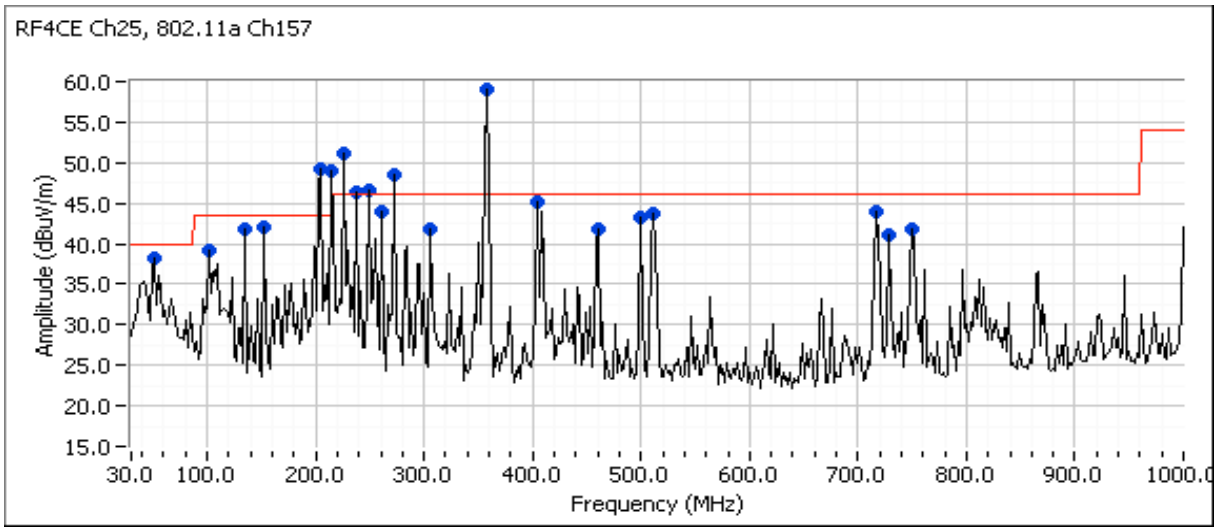
Channel: 2475MHz Mode: RF4CE
Tx Chain: Ant 0 Data Rate: -

Channel: 157 Mode: 11a
Tx Chain: 4Tx Data Rate: 6MB/s

Run #1a: 30-1000MHz

Frequency	Level	Pol	15.209 / 15.247 / 15E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
152.465	42.0	V	43.5	-1.5	Peak	299	1.0	
51.383	38.2	V	40.0	-1.8	Peak	126	1.0	
101.924	39.1	V	43.5	-4.4	Peak	348	1.0	
134.970	41.7	V	43.5	-1.8	Peak	259	1.0	
204.950	49.2	V	-	-	Peak	185	1.0	Not related to Radio
214.669	49.1	V	-	-	Peak	27	1.0	Not related to Radio
226.333	51.1	H	-	-	Peak	121	1.5	Not related to Radio
237.996	46.3	H	-	-	Peak	111	2.5	Not related to Radio
249.659	46.7	H	-	-	Peak	334	3.5	Not related to Radio
261.323	43.9	H	46.0	-2.1	Peak	313	2.0	
272.986	48.5	H	-	-	Peak	120	1.0	Not related to Radio
306.032	41.7	V	46.0	-4.3	Peak	224	1.5	
358.517	59.0	H	-	-	Peak	224	3.0	Not related to Radio
405.170	45.1	V	-	-	Peak	210	1.0	Not related to Radio
461.543	41.7	V	46.0	-4.3	Peak	289	1.0	
500.421	43.2	H	46.0	-2.8	Peak	215	1.5	
512.084	43.8	V	46.0	-2.2	Peak	304	1.0	
716.192	44.0	H	46.0	-2.0	Peak	254	1.0	
727.856	41.0	V	46.0	-5.0	Peak	353	1.0	
749.238	41.7	H	46.0	-4.3	Peak	224	1.0	

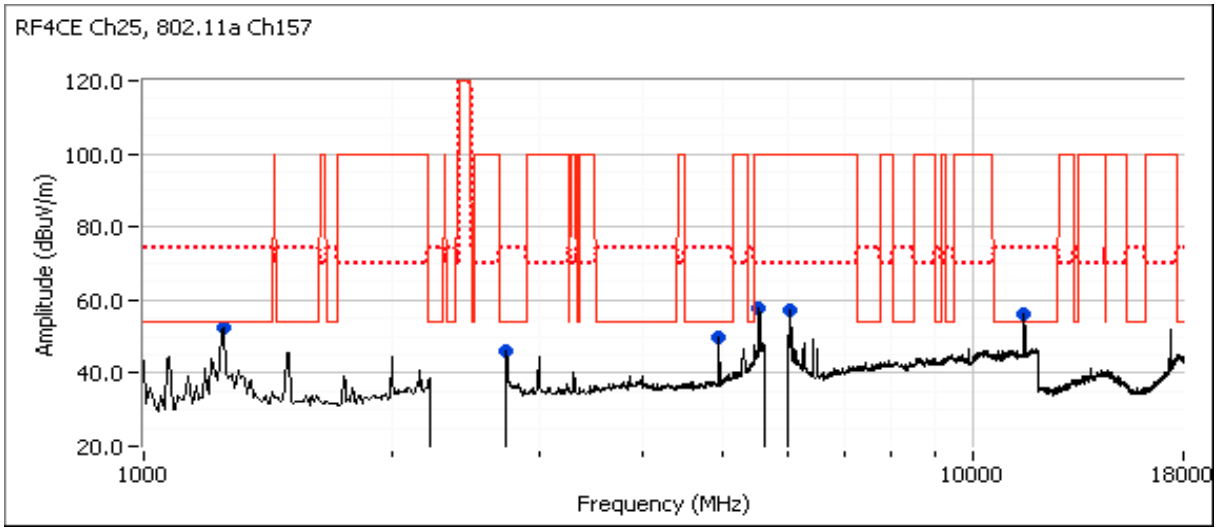
Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	N/A



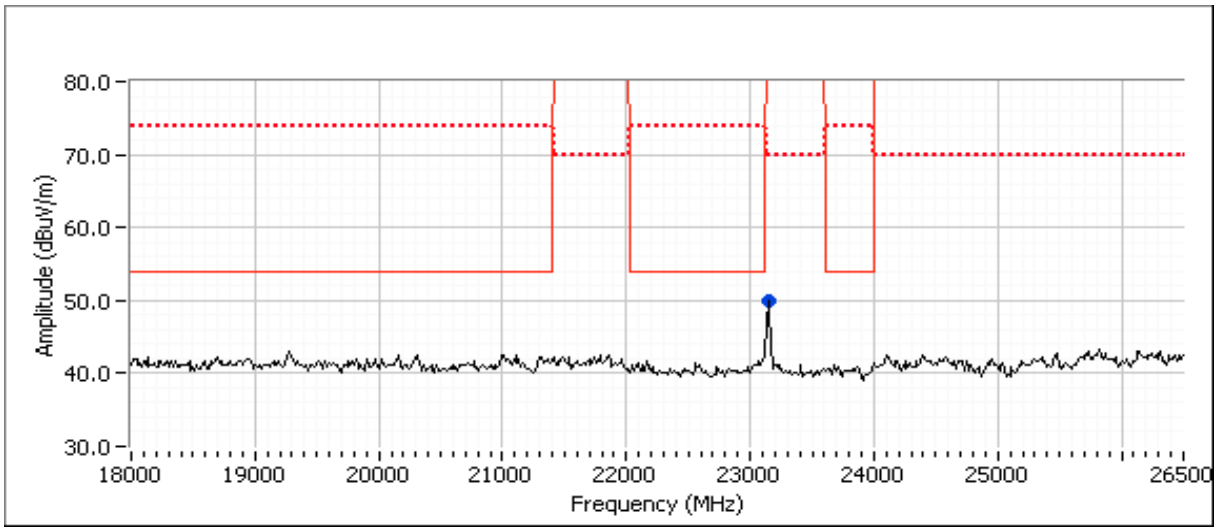
Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	N/A

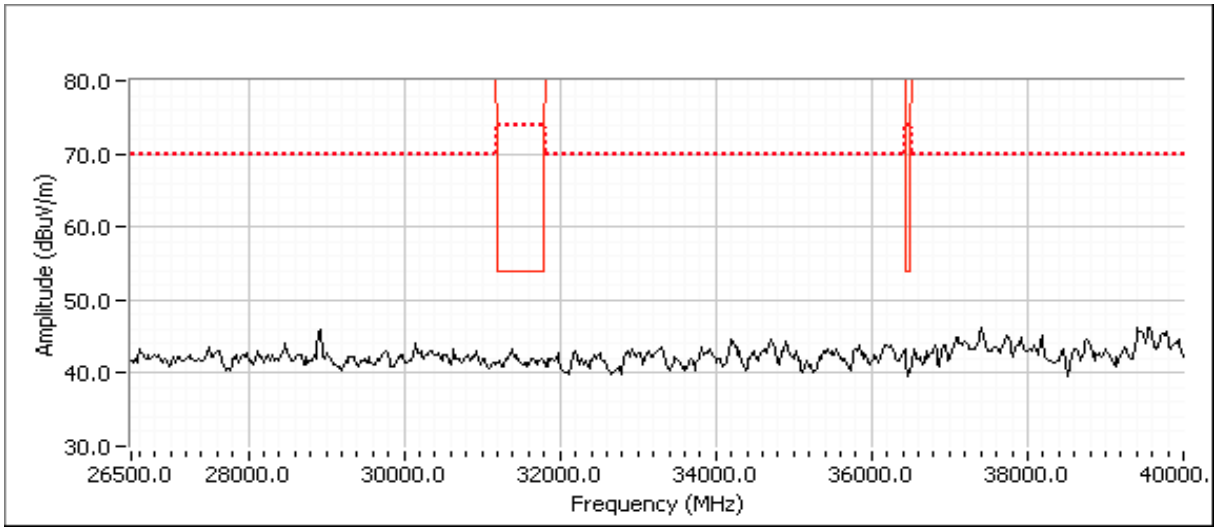
Run #1b: 1000-40000MHz

Frequency	Level	Pol	15.209 / 15E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
11567.750	52.7	V	54.0	-1.3	AVG	356	1.0	RB 1 MHz;VB 10 Hz;Peak
11568.850	66.2	V	74.0	-7.8	PK	356	1.0	RB 1 MHz;VB 3 MHz;Peak
4949.060	47.7	V	54.0	-6.3	AVG	228	1.7	RB 1 MHz;VB 10 Hz;Peak
4948.930	55.2	V	74.0	-18.8	PK	228	1.7	RB 1 MHz;VB 3 MHz;Peak
2722.240	39.6	H	54.0	-14.4	AVG	185	1.0	RB 1 MHz;VB 10 Hz;Peak
2722.510	51.7	H	74.0	-22.3	PK	185	1.0	RB 1 MHz;VB 3 MHz;Peak
1248.780	41.7	H	54.0	-12.3	AVG	169	1.6	RB 1 MHz;VB 10 Hz;Peak
1248.840	66.0	H	74.0	-8.0	PK	169	1.6	RB 1 MHz;VB 3 MHz;Peak
6032.760	66.3	V	68.3	-2.0	PK	162	1.6	RB 1 MHz;VB 3 MHz;Peak
5549.810	65.8	V	68.3	-2.5	PK	96	1.2	RB 1 MHz;VB 3 MHz;Peak
23142.260	62.6	V	68.3	-5.7	PK	4	1.8	RB 1 MHz;VB 3 MHz;Peak



Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	N/A





Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	N/A

FCC 15.407 (UNII) Radiated Spurious Emissions

Test Specific Details

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

General Test Configuration

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

Ambient Conditions:

Temperature: 21.3 °C
Rel. Humidity: 38 %

Summary of Results

Run #	Mode	Channel	# of SS	Passing Pwr Setting	Test Performed	Limit	Result / Margin
20MHz Bandwith Modes							
1	a	36 - 5180MHz	1	q74	Restricted Band Edge at 5150 MHz	15.209	53.6 dBµV/m @ 5146.8 MHz (-0.4 dB)
		40 - 5200MHz	1	q85	Restricted Band Edge at 5150 MHz	15.209	53.3 dBµV/m @ 5149.0 MHz (-0.7 dB)
2	a	64 - 5320MHz	1	q71	Restricted Band Edge at 5350 MHz	15.209	53.6 dBµV/m @ 5350.0 MHz (-0.4 dB)
		60 - 5300MHz	1	q85	Restricted Band Edge at 5350 MHz	15.209	53.6 dBµV/m @ 5350.0 MHz (-0.4 dB)
3	a	100 - 5500MHz	1	q70	Restricted Band Edge at 5460 MHz	15.209	46.5 dBµV/m @ 5456.2 MHz (-7.5 dB)
	a	100 - 5500MHz	1	q70	Band Edge 5460 - 5470 MHz	15E	68.0 dBµV/m @ 5469.5 MHz (-0.3 dB)
	a	104 - 5520MHz	1	q85	Restricted Band Edge at 5460 MHz	15.209	49.9 dBµV/m @ 5446.7 MHz (-4.1 dB)
	a	104 - 5520MHz	1	q85	Band Edge 5460 - 5470 MHz	15E	68.0 dBµV/m @ 5464.5 MHz (-0.2 dB)
	a	140 - 5700MHz	1	q65	Band Edge 5725MHz	15E	68.0 dBµV/m @ 5726.7 MHz (-0.3 dB)
	a	136 - 5680MHz	1	q83	Band Edge 5725MHz	15E	67.3 dBµV/m @ 5740.8 MHz (-1.0 dB)

Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	N/A

Run #	Mode	Channel	# of SS	Passing Pwr Setting	Test Performed	Limit	Result / Margin
4	a	149 - 5745MHz	1	q90	Band Edge 5725 MHz	15E	61.6 dBµV/m @ 5648.0 MHz (-6.7 dB)
	a	165 - 5825MHz	1	q90	Band Edge 5850MHz	15E	59.4 dBµV/m @ 5920.6 MHz (-12.1 dB)
5	n20	36 - 5180MHz	1	q69	Restricted Band Edge at 5150 MHz	15.209	53.3 dBµV/m @ 5148.7 MHz (-0.7 dB)
	n20	40 - 5200MHz	1	q84	Restricted Band Edge at 5150 MHz	15.209	53.0 dBµV/m @ 5148.9 MHz (-1.0 dB)
6	n20	64 - 5320MHz	1	q70	Restricted Band Edge at 5350 MHz	15.209	53.1 dBµV/m @ 5350.2 MHz (-0.9 dB)
	n20	60 - 5300MHz	1	q86	Restricted Band Edge at 5350 MHz	15.209	53.5 dBµV/m @ 5350.6 MHz (-0.5 dB)
7	n20	100 - 5500MHz	1	q68	Restricted Band Edge at 5460 MHz	15.209	47.8 dBµV/m @ 5459.9 MHz (-6.2 dB)
	n20	100 - 5500MHz	1	q68	Band Edge 5460 - 5470 MHz	15E	53.8 dBµV/m @ 5470.0 MHz (-0.2 dB)
	n20	104 - 5520MHz	1	q84	Restricted Band Edge at 5460 MHz	15.209	49.7 dBµV/m @ 5435.3 MHz (-4.3 dB)
	n20	104 - 5520MHz	1	q84	Band Edge 5460 - 5470 MHz	15E	53.0 dBµV/m @ 5470.0 MHz (-1.0 dB)
	n20	140 - 5700MHz	1	q57	Band Edge 5725MHz	15E	68.1 dBµV/m @ 5730.5 MHz (-0.2 dB)
8	n20	149 - 5745MHz	1	q90	Band Edge 5725 MHz	15E	117.8 dBµV/m @ 5749.4 MHz (-4.5 dB)
	n20	165 - 5825MHz	1	q90	Band Edge 5850MHz	15E	119.6 dBµV/m @ 5828.2 MHz (-2.7 dB)

Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	N/A

Run #	Mode	Channel	# of SS	Passing Pwr Setting	Test Performed	Limit	Result / Margin
40MHz Bandwith Modes							
9	n40	38 - 5190MHz	1	q57	Restricted Band Edge at 5150 MHz	15.209	73.9 dBµV/m @ 5149.6 MHz (-0.1 dB)
	n40	46 - 5230MHz	1	q80	Restricted Band Edge at 5150 MHz	15.209	53.0 dBµV/m @ 5148.4 MHz (-1.0 dB)
10	n40	62 - 5310MHz	1	q59	Restricted Band Edge at 5350 MHz	15.209	53.6 dBµV/m @ 5350.0 MHz (-0.4 dB)
	n40	54 - 5270MHz	1	q80	Restricted Band Edge at 5350 MHz	15.209	53.3 dBµV/m @ 5353.9 MHz (-0.7 dB)
11	n40	102 - 5510MHz	1	q56	Restricted Band Edge at 5460 MHz	15.209	47.9 dBµV/m @ 5455.7 MHz (-6.1 dB)
	n40	102 - 5510MHz	1	q56	Band Edge 5460 - 5470 MHz	15E	73.2 dBµV/m @ 5469.4 MHz (-0.8 dB)
	n40	110 - 5550MHz	1	q78	Restricted Band Edge at 5460 MHz	15.209	51.1 dBµV/m @ 5459.0 MHz (-2.9 dB)
	n40	110 - 5550MHz	1	q78	Band Edge 5460 - 5470 MHz	15E	53.5 dBµV/m @ 5468.6 MHz (-0.5 dB)
	n40	134 - 5670MHz	1	q67	Band Edge 5725MHz	15E	68.1 dBµV/m @ 5725.3 MHz (-0.2 dB)
12	n40	151 - 5755MHz	1	q83	Band Edge 5725 MHz	15E	67.9 dBµV/m @ 5645.2 MHz (-0.4 dB)
	n40	159 - 5795MHz	1	q90	Band Edge 5850MHz	15E	67.4 dBµV/m @ 5940.9 MHz (-0.9 dB)

Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	N/A

Run #	Mode	Channel	# of SS	Passing Pwr Setting	Test Performed	Limit	Result / Margin
80MHz Bandwith Modes							
13	ac80	42 - 5210MHz	1	q54	Restricted Band Edge at 5150 MHz	15.209	72.4 dBµV/m @ 5146.5 MHz (-1.6 dB)
14	ac80	58 - 5290MHz	1	q53	Restricted Band Edge at 5350 MHz	15.209	72.2 dBµV/m @ 5353.9 MHz (-1.8 dB)
15	ac80	106 - 5530MHz	1	q46	Restricted Band Edge at 5460 MHz	15.209	46.3 dBµV/m @ 5455.4 MHz (-7.7 dB)
	ac80	106 - 5530MHz	1	q46	Band Edge 5460 - 5470 MHz	15E	67.0 dBµV/m @ 5465.5 MHz (-1.3 dB)
16	ac80	155 - 5775MHz	1	q77	Band Edge 5725 MHz	15E	67.4 dBµV/m @ 5640.4 MHz (-0.9 dB)
	ac80	155 - 5775MHz	1	q77	Band Edge 5850MHz	15E	64.5 dBµV/m @ 5934.1 MHz (-3.8 dB)

Modifications Made During Testing

No modifications were made to the EUT during testing

Deviations From The Standard

No deviations were made from the requirements of the standard.

Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	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 50 traces. (method VB of KDB 789033)

	Mode	Data Rate	Duty Cycle (x)	Constant DC?	T (ms)	Pwr Cor Factor*	Lin Volt Cor Factor**	Min VBW for FS (Hz)
1SS	11a	6MB/s	0.99	Yes	1.952	0	0	10
1SS	n20	MCS0	0.99	Yes	1.953	0	0	10
1SS	n40	MCS0	0.9798	Yes	0.971	0.09	0.18	1030
1SS	ac80	VHT0	0.96	Yes	0.46	0.18	0.37	2174

Sample Notes

Sample S/N: G62DA7BU20005B
Driver: -
Antenna: Internal 4x4

Measurement Specific Notes:

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

Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	N/A

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

Date of Test: 3/2/2017 0:00
Test Engineer: Joseph Cadigal
Test Location: FT Chamber#7

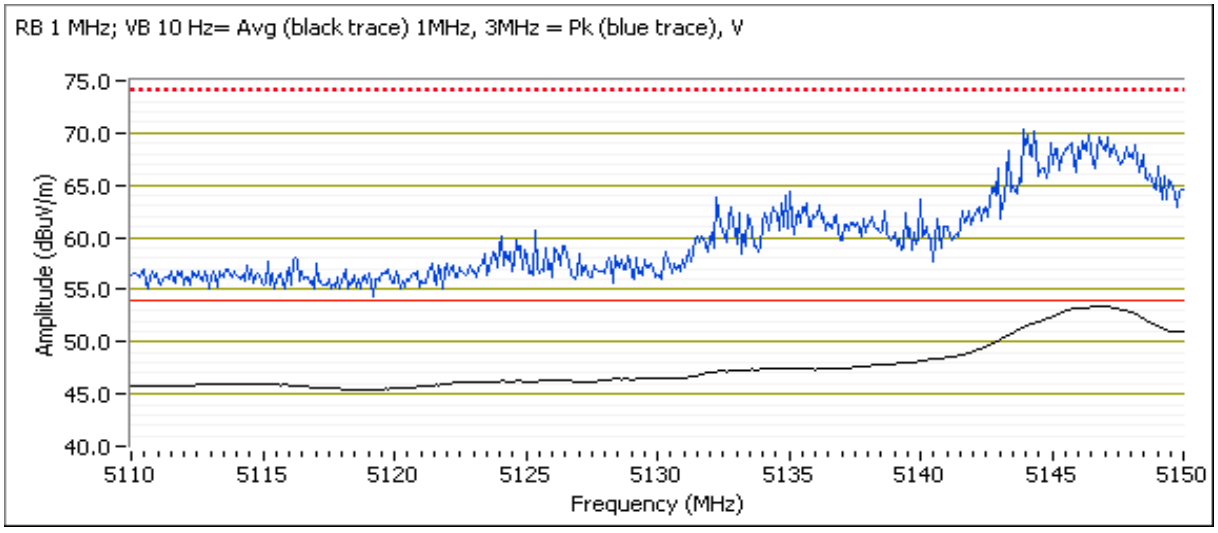
Config. Used: 1
Config Change: none
EUT Voltage: 120V/60Hz

Channel: 36 - 5180 MHz
Tx Chain: 4Tx
Mode: a
Data Rate: 6Mb/s

Power: q74
#of SS: 1

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	
q74								
5146.790	53.6	V	54.0	-0.4	AVG	90	1.0	POS; RB 1 MHz; VB: 10 Hz
5146.310	71.0	V	74.0	-3.0	PK	90	1.0	POS; RB 1 MHz; VB: 3 MHz
5150.000	44.4	H	54.0	-9.6	AVG	346	1.9	POS; RB 1 MHz; VB: 10 Hz
5149.120	56.7	H	74.0	-17.3	PK	346	1.9	POS; RB 1 MHz; VB: 3 MHz



Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	N/A

Date of Test: 3/2/2017 0:00
Test Engineer: Joseph Cadigal
Test Location: FT Chamber#7

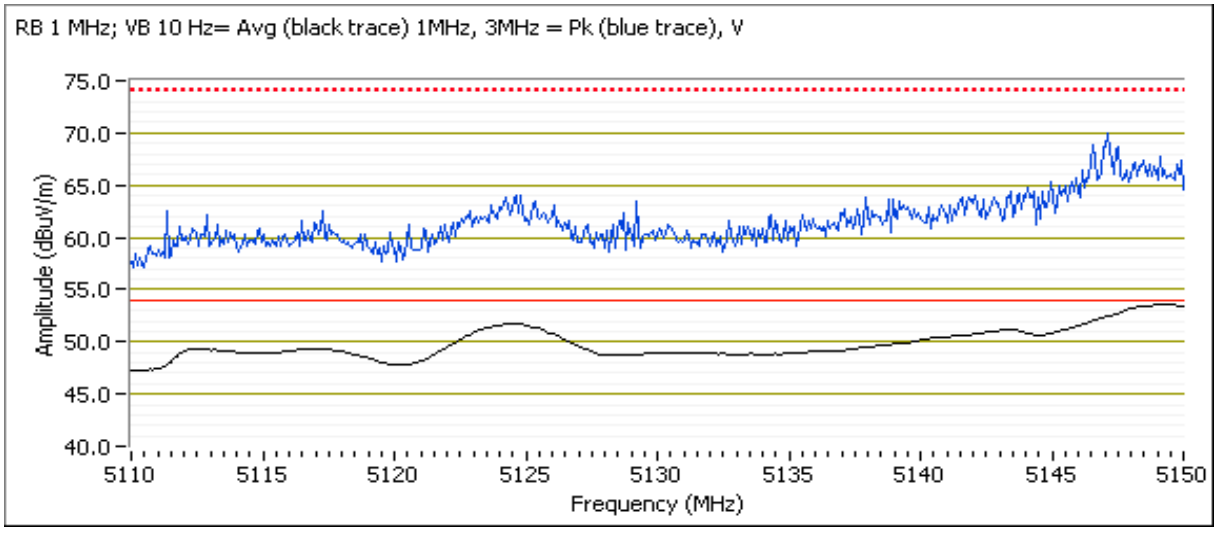
Config. Used: 1
Config Change: none
EUT Voltage: 120V/60Hz

Channel: 40 - 5200 MHz
Tx Chain: 4Tx
Mode: a
Data Rate: 6Mb/s

Power: q85
#of SS: 1

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	
q85								
5149.040	53.3	V	54.0	-0.7	AVG	97	1.2	POS; RB 1 MHz; VB: 10 Hz
5148.400	70.0	V	74.0	-4.0	PK	97	1.2	POS; RB 1 MHz; VB: 3 MHz
5146.870	44.5	H	54.0	-9.5	AVG	291	1.9	POS; RB 1 MHz; VB: 10 Hz
5148.080	57.6	H	74.0	-16.4	PK	291	1.9	POS; RB 1 MHz; VB: 3 MHz



Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	N/A

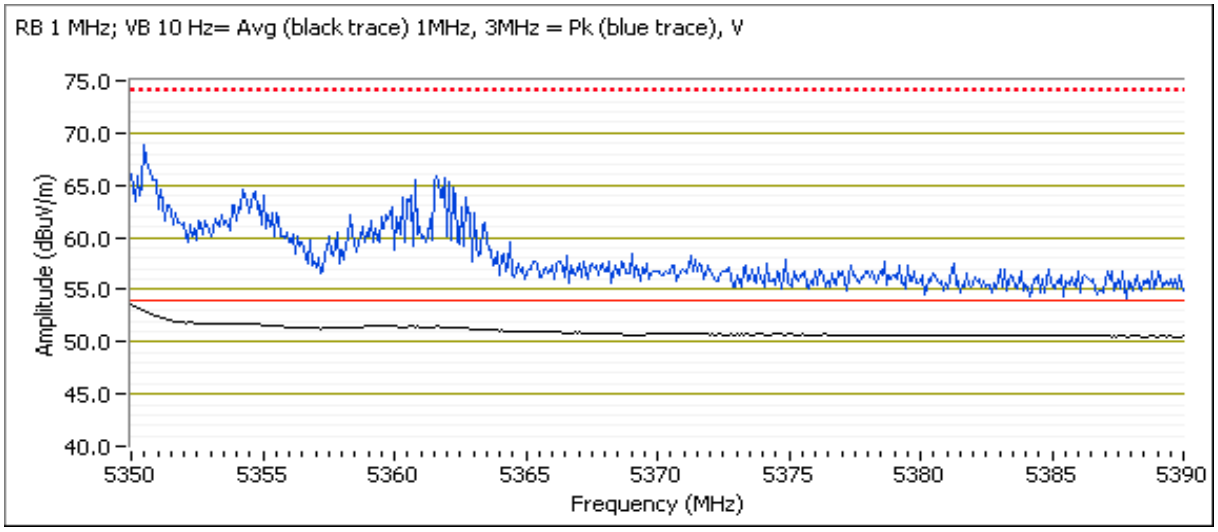
Run #2: Radiated Bandedge Measurements, 5250-5350MHz

Channel: 64 - 5320MHz
Tx Chain: 4Tx
Mode: a
Data Rate: 6Mb/s

Power: q71
#of SS: 1

5350 MHz Band Edge Signal Radiated Field Strength

Frequency	Level	Pol	FCC 15.209		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
q71								
5350.000	53.6	V	54.0	-0.4	AVG	85	1.4	POS; RB 1 MHz; VB: 10 Hz
5351.000	69.0	V	74.0	-5.0	PK	85	1.4	POS; RB 1 MHz; VB: 3 MHz
5350.000	45.1	H	54.0	-8.9	AVG	67	1.0	POS; RB 1 MHz; VB: 10 Hz
5350.240	58.2	H	74.0	-15.8	PK	67	1.0	POS; RB 1 MHz; VB: 3 MHz



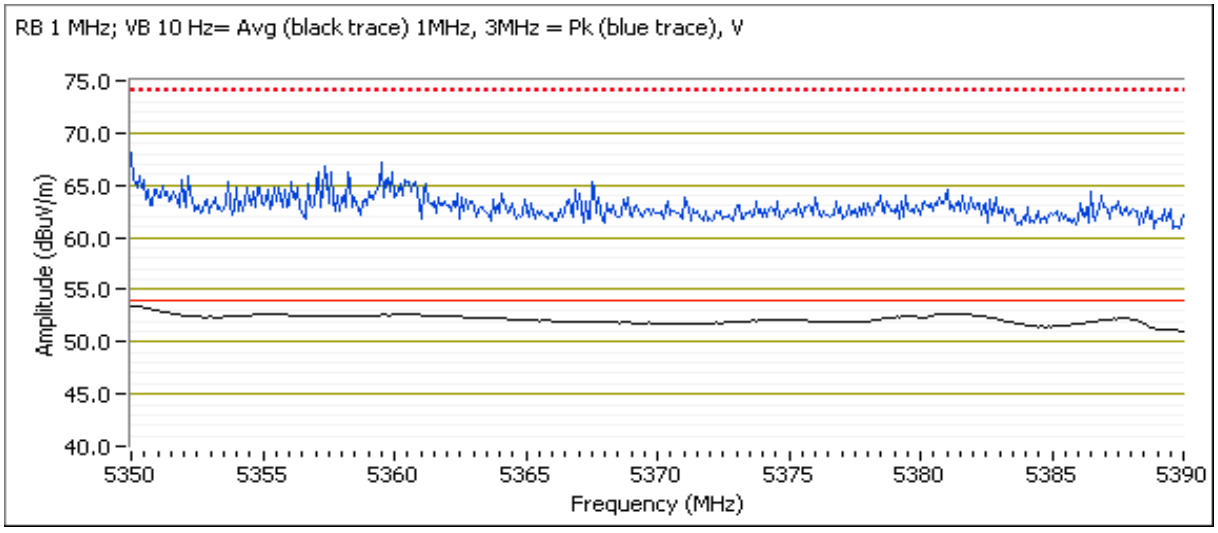
Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	N/A

Channel: 60 - 5300MHz
Tx Chain: 4Tx
Mode: a
Data Rate: 6Mb/s

Power: q85
#of SS: 1

5350 MHz Band Edge Signal Radiated Field Strength

Frequency	Level	Pol	FCC 15.209		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
q85								
5350.000	53.6	V	54.0	-0.4	AVG	86	1.3	POS; RB 1 MHz; VB: 10 Hz
5350.000	68.0	V	74.0	-6.0	PK	86	1.3	POS; RB 1 MHz; VB: 3 MHz
5350.480	46.1	H	54.0	-7.9	AVG	52	1.6	POS; RB 1 MHz; VB: 10 Hz
5352.160	59.5	H	74.0	-14.5	PK	52	1.6	POS; RB 1 MHz; VB: 3 MHz



Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	N/A

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

Date of Test: 3/2/2017 0:00
Test Engineer: Joseph Cadigal
Test Location: FT Chamber#7

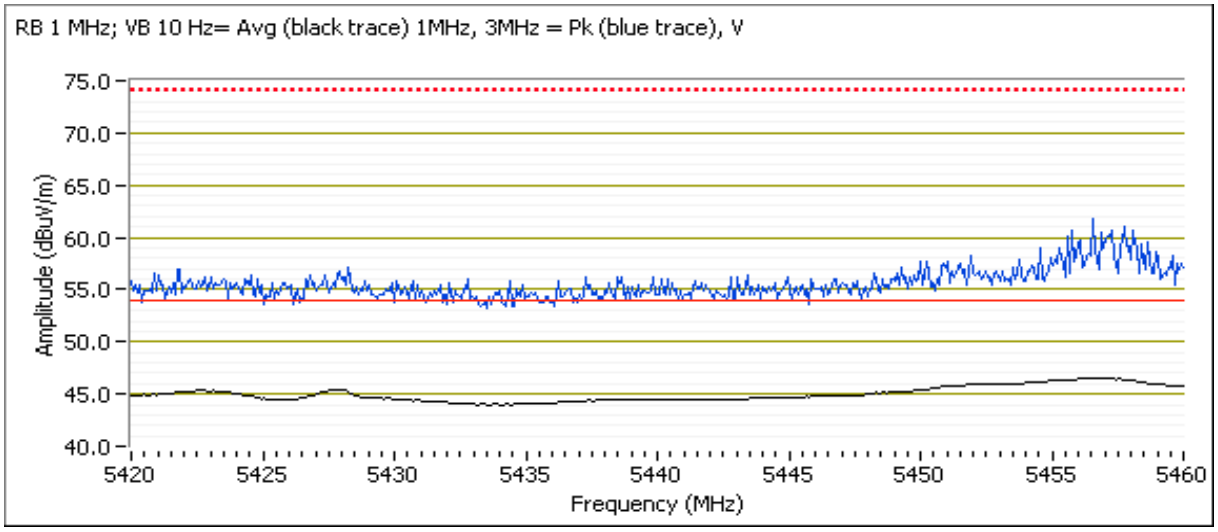
Config. Used: 1
Config Change: none
EUT Voltage: 120V/60Hz

Channel: 100 - 5500MHz
Tx Chain: 4Tx
Mode: a
Data Rate: 6Mb/s

Power: q70
#of SS: 1

5460 MHz Band Edge Signal Radiated Field Strength

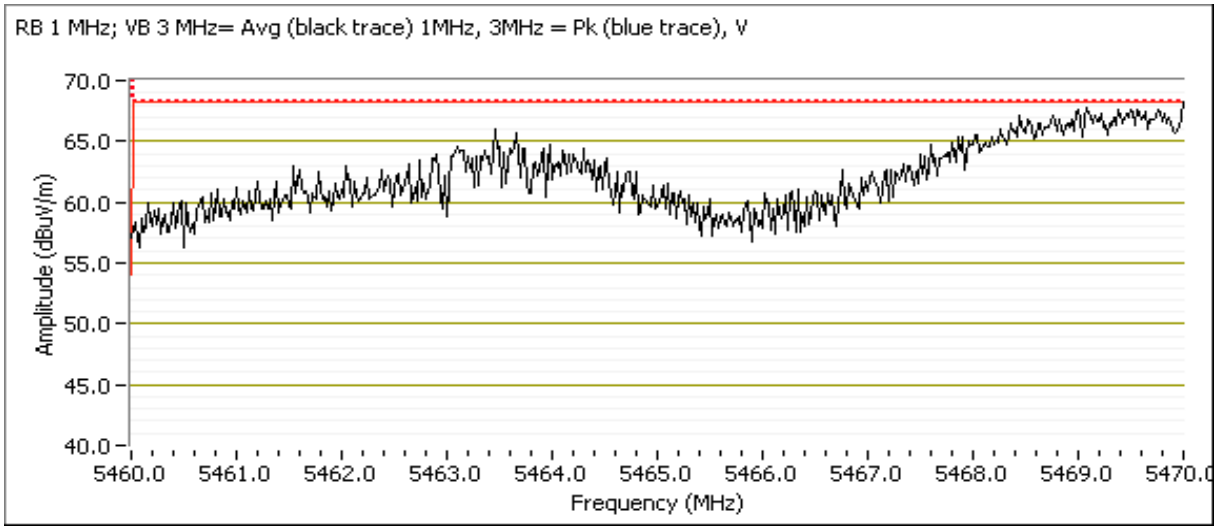
Frequency	Level	Pol	FCC 15.209		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5456.230	46.5	V	54.0	-7.5	AVG	336	1.0	POS; RB 1 MHz; VB: 10 Hz
5457.500	63.0	V	74.0	-11.0	PK	336	1.0	POS; RB 1 MHz; VB: 3 MHz
5457.920	41.0	H	54.0	-13.0	AVG	286	1.0	POS; RB 1 MHz; VB: 10 Hz
5457.350	54.2	H	74.0	-19.8	PK	286	1.0	POS; RB 1 MHz; VB: 3 MHz



Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	N/A

5470 MHz Band Edge Signal Radiated Field Strength

Frequency	Level	Pol	15.E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
q70								
5469.480	68.0	V	68.3	-0.3	PK	336	1.0	POS; RB 1 MHz; VB: 3 MHz
5469.600	59.7	H	68.3	-8.6	PK	286	1.0	POS; RB 1 MHz; VB: 3 MHz



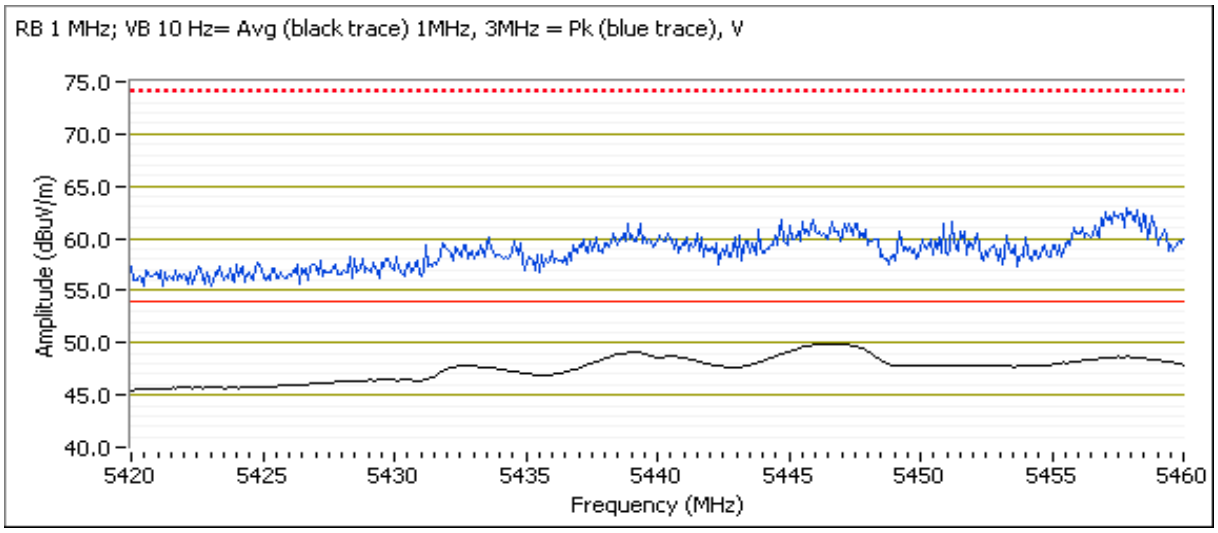
Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	N/A

Channel: 104 - 5520MHz
Tx Chain: 4Tx
Mode: a
Data Rate: 6Mb/s

Power: q85
#of SS: 1

5460 MHz Band Edge Signal Radiated Field Strength

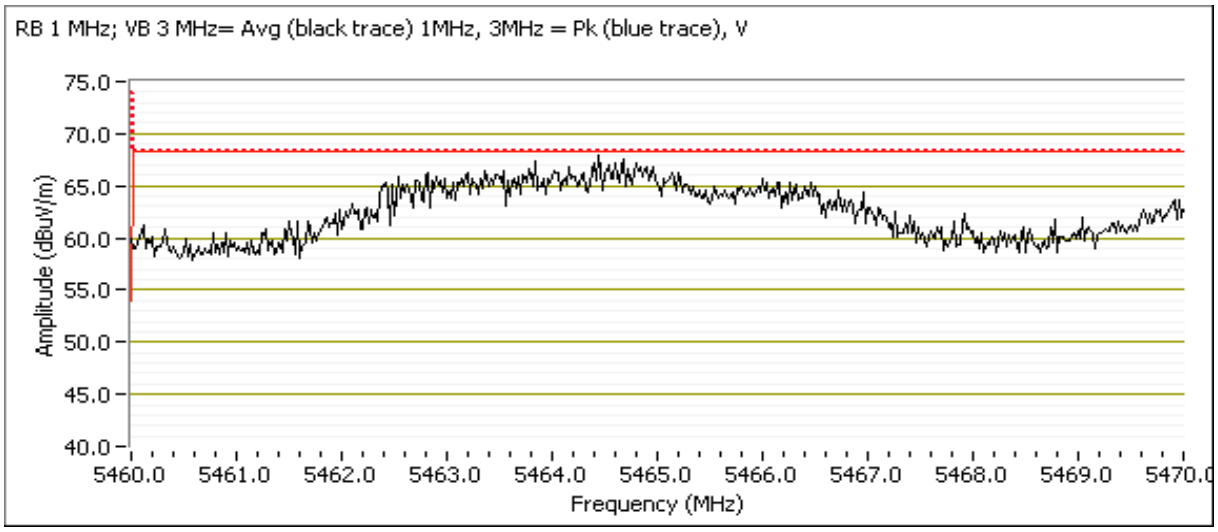
Frequency	Level	Pol	FCC 15.209		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5446.690	49.9	V	54.0	-4.1	AVG	92	1.0	POS; RB 1 MHz; VB: 10 Hz
5446.690	63.1	V	74.0	-10.9	PK	92	1.0	POS; RB 1 MHz; VB: 3 MHz
5437.800	44.8	H	54.0	-9.2	AVG	288	1.8	POS; RB 1 MHz; VB: 10 Hz
5454.710	56.6	H	74.0	-17.4	PK	288	1.8	POS; RB 1 MHz; VB: 3 MHz



Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	N/A

5470 MHz Band Edge Signal Radiated Field Strength

Frequency	Level	Pol	15.E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
q85								
5464.500	68.0	V	68.3	-0.3	PK	92	1.0	POS; RB 1 MHz; VB: 3 MHz
5469.680	61.8	H	68.3	-6.5	PK	288	1.8	POS; RB 1 MHz; VB: 3 MHz



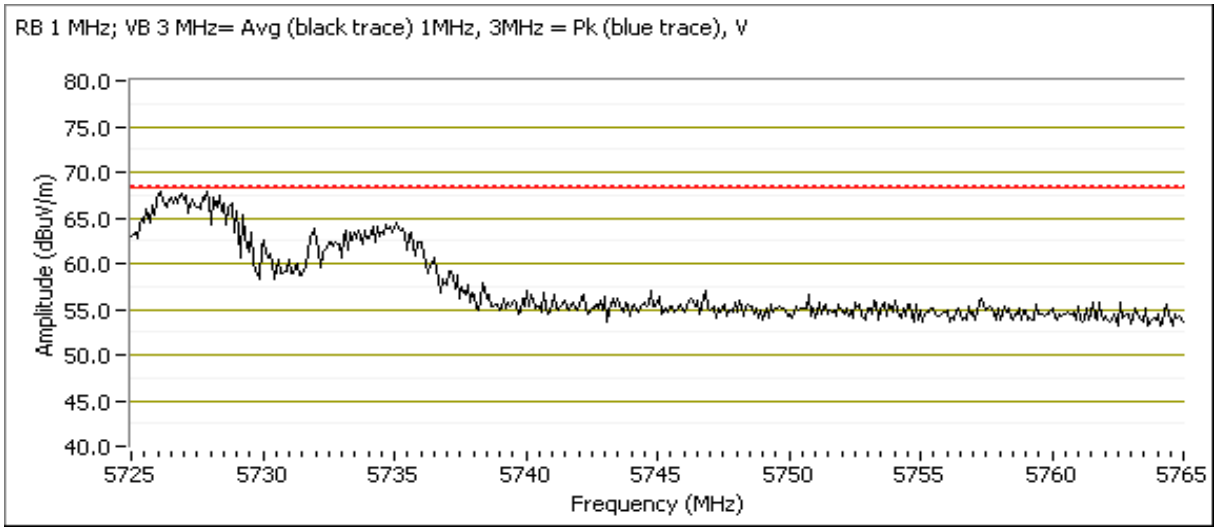
Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	N/A

Channel: 140 - 5700MHz
Tx Chain: 4Tx
Mode: a
Data Rate: 6Mb/s

Power: q65
#of SS: 1

5725 MHz Band Edge Signal Radiated Field Strength

Frequency	Level	Pol	15.E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
q65								
5726.680	68.0	V	68.3	-0.3	PK	322	1.2	POS; RB 1 MHz; VB: 3 MHz
5725.960	62.9	H	68.3	-5.4	PK	82	1.0	POS; RB 1 MHz; VB: 3 MHz



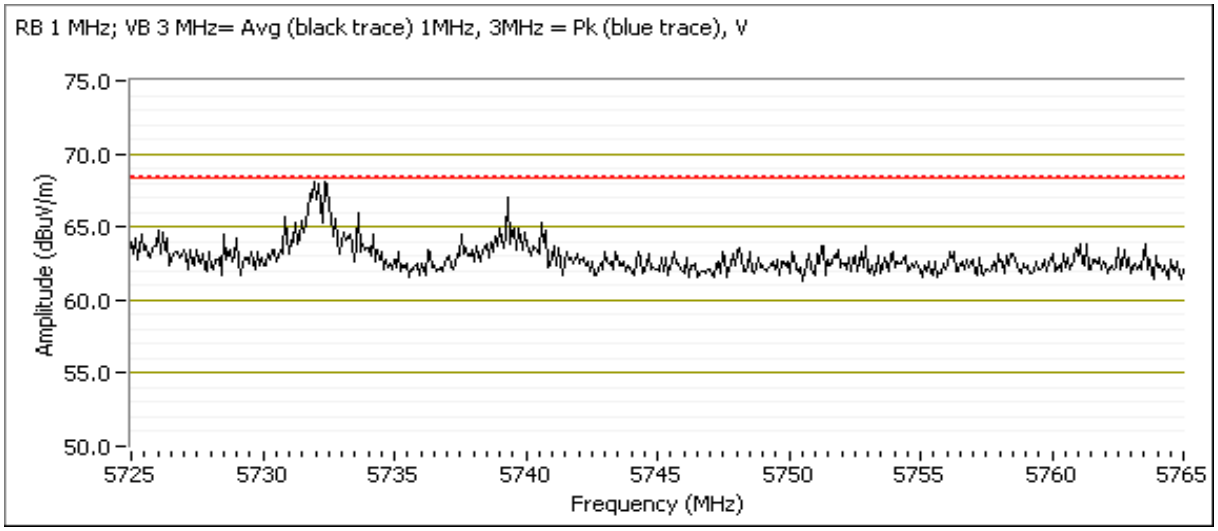
Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	N/A

Channel: 136 - 5680MHz
Tx Chain: 4Tx
Mode: a
Data Rate: 6Mb/s

Power: q83
#of SS: 1

5725 MHz Band Edge Signal Radiated Field Strength

Frequency	Level	Pol	15.E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
q83								
5732.500	68.0	V	68.3	-0.3	PK	0	1.0	POS; RB 1 MHz; VB: 3 MHz
5727.400	63.9	H	68.3	-4.4	PK	105	1.2	POS; RB 1 MHz; VB: 3 MHz



Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	N/A

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

Date of Test: 3/2/2017 0:00
Test Engineer: Rafael Varelas
Test Location: FT Chamber#7

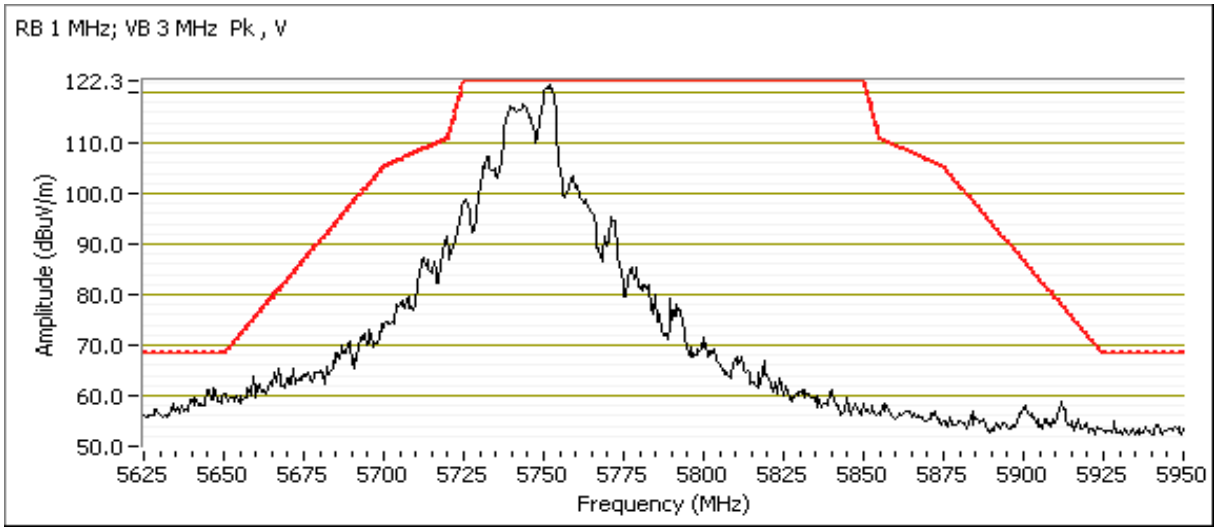
Config. Used: 1
Config Change: none
EUT Voltage: 120V/60Hz

Channel: 149 - 5745MHz
Tx Chain: 4Tx
Mode: a
Data Rate: 6Mb/s

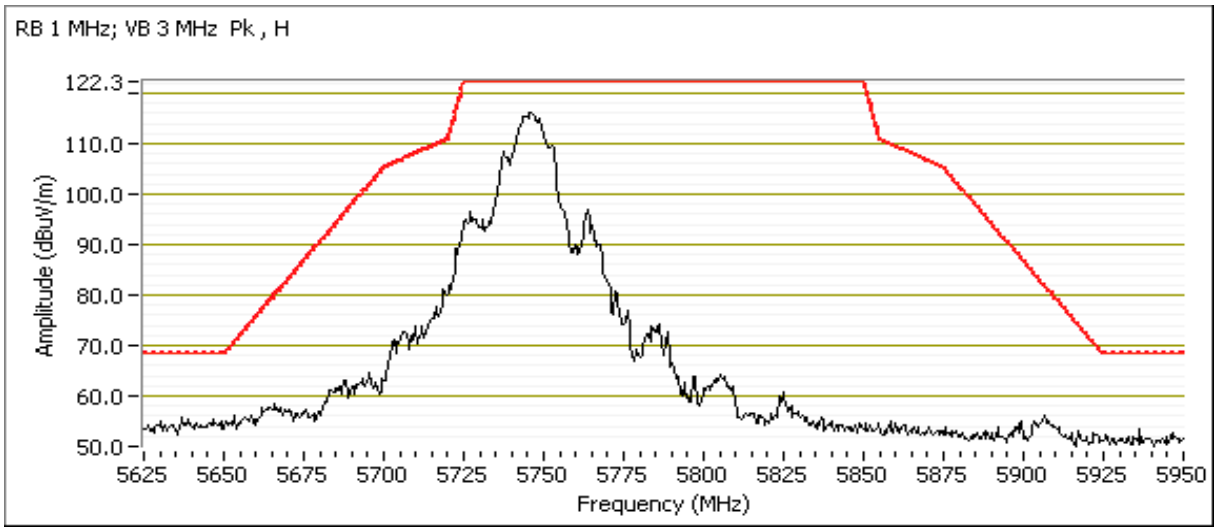
Power: q90
#of SS: 1

5725 MHz Band Edge Signal Radiated Field Strength

Frequency	Level	Pol	15.E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5647.970	61.6	V	68.3	-6.7	PK	304	1.0	PK -RB 1 MHz; VB: 3 MHz



Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	N/A

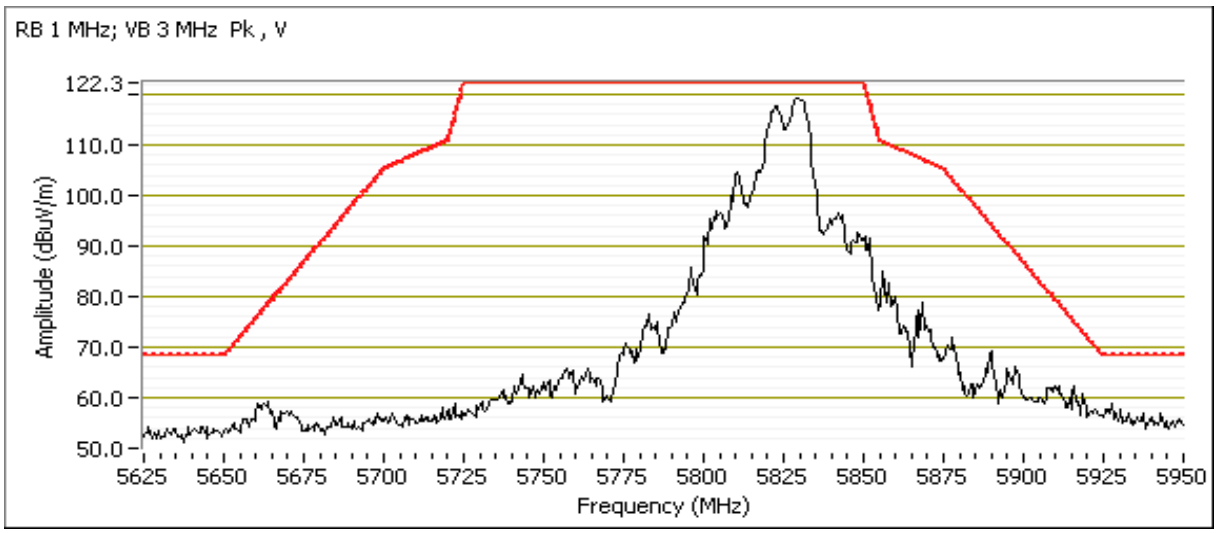


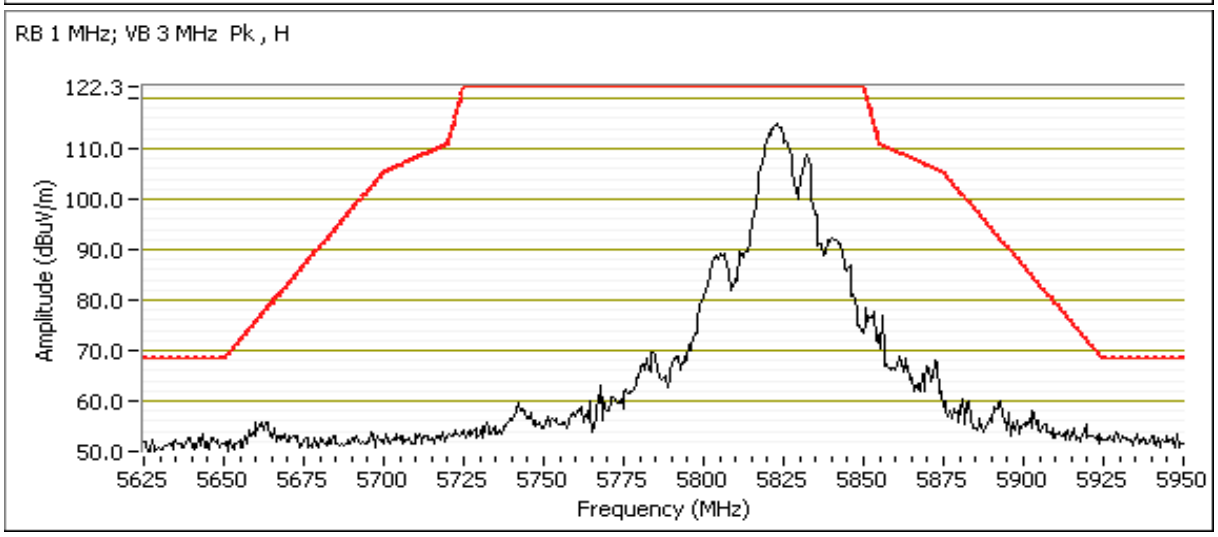
Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	N/A

Channel: 165 - 5825MHz
Power: q90
Tx Chain: 4Tx
#of SS: 1
Mode: a
Data Rate: 6Mb/s

5850 MHz Band Edge Signal Radiated Field Strength

Frequency	Level	Pol	15.E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5920.620	59.4	V	71.5	-12.1	PK	204	1.4	PK -RB 1 MHz; VB: 3 MHz





Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	N/A

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

Date of Test: 3/2/2017 0:00
Test Engineer: Rafael Varelas
Test Location: FT Chamber#7

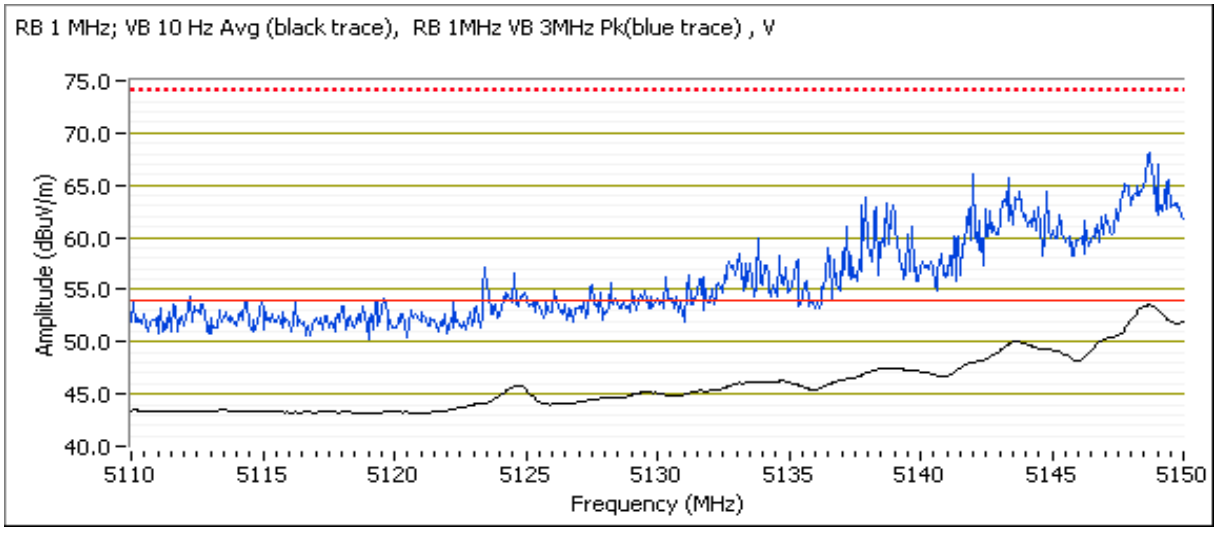
Config. Used: 1
Config Change: none
EUT Voltage: 120V/60Hz

Channel: 36 - 5180 MHz
Tx Chain: 4Tx
Mode: n20
Data Rate: MCS0

Power: q69
#of SS: 1

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	
q69								
5148.650	53.3	V	54.0	-0.7	AVG	86	1.0	AVG -RB 1 MHz; VB: 10 Hz
5149.750	68.2	V	74.0	-5.8	PK	86	1.0	PK -RB 1 MHz; VB: 3 MHz
5149.930	48.1	H	54.0	-5.9	Avg	68	1.6	AVG -RB 1 MHz; VB: 10 Hz
5148.530	60.4	H	74.0	-13.6	PK	68	1.6	PK -RB 1 MHz; VB: 3 MHz



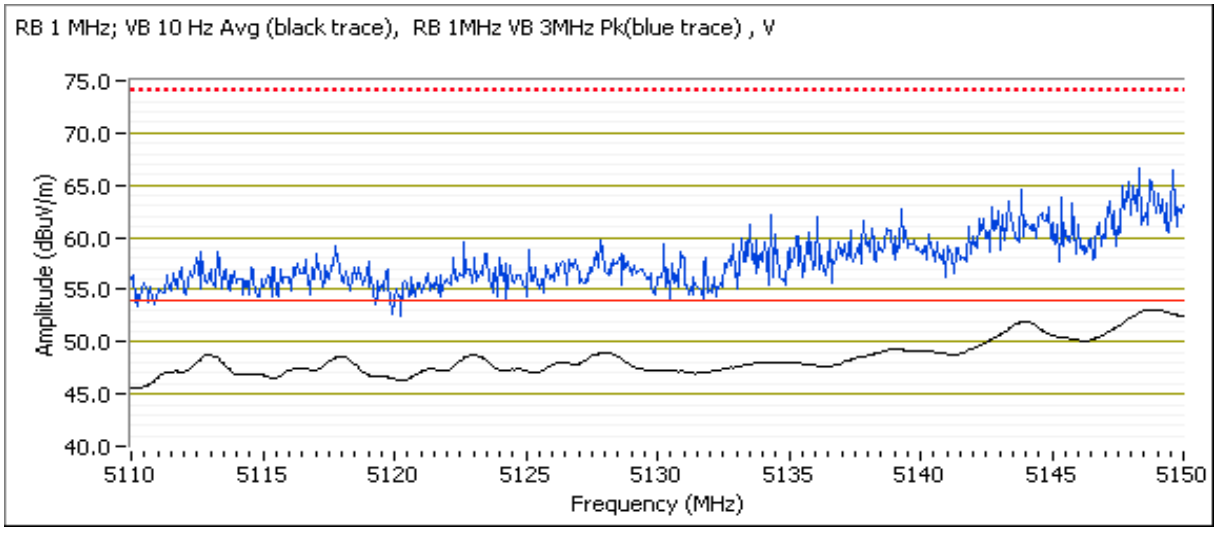
Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	N/A

Channel: 40 - 5200 MHz
Tx Chain: 4Tx
Mode: n20
Data Rate: MCS0

Power: q84
#of SS: 1

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	
q84								
5148.870	53.0	V	54.0	-1.0	AVG	92	1.0	AVG -RB 1 MHz; VB: 10 Hz
5148.370	67.0	V	74.0	-7.0	PK	92	1.0	PK -RB 1 MHz; VB: 3 MHz
5144.130	44.5	H	54.0	-9.5	AVG	68	1.0	AVG -RB 1 MHz; VB: 10 Hz
5142.930	58.8	H	74.0	-15.2	PK	68	1.0	PK -RB 1 MHz; VB: 3 MHz



Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	N/A

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

Date of Test: 3/2/2017 0:00
Test Engineer: Rafael Varelas
Test Location: FT Chamber#7

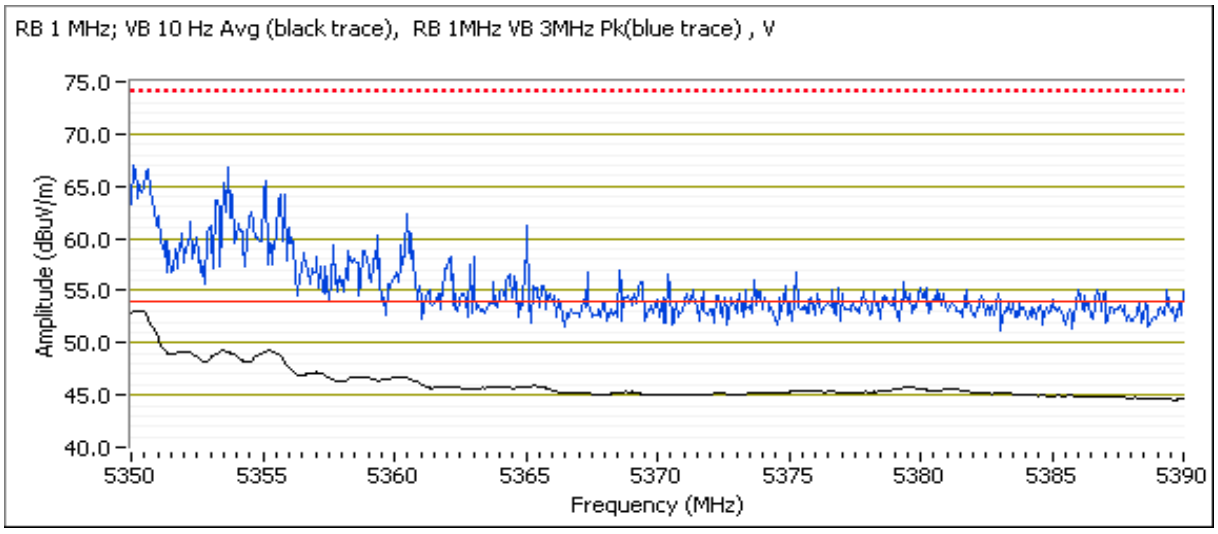
Config. Used: 1
Config Change: none
EUT Voltage: 120V/60Hz

Channel: 64 - 5320MHz
Tx Chain: 4Tx
Mode: n20
Data Rate: MCS0

Power: q70
#of SS: 1

5350 MHz Band Edge Signal Radiated Field Strength

Frequency	Level	Pol	FCC 15.209		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
q70								
5350.230	53.1	V	54.0	-0.9	AVG	86	1.2	AVG -RB 1 MHz; VB: 10 Hz
5350.370	67.7	V	74.0	-6.3	PK	86	1.2	PK -RB 1 MHz; VB: 3 MHz
5350.000	47.2	H	54.0	-6.8	AVG	73	1.6	AVG -RB 1 MHz; VB: 10 Hz
5355.270	58.2	H	74.0	-15.8	PK	73	1.6	PK -RB 1 MHz; VB: 3 MHz



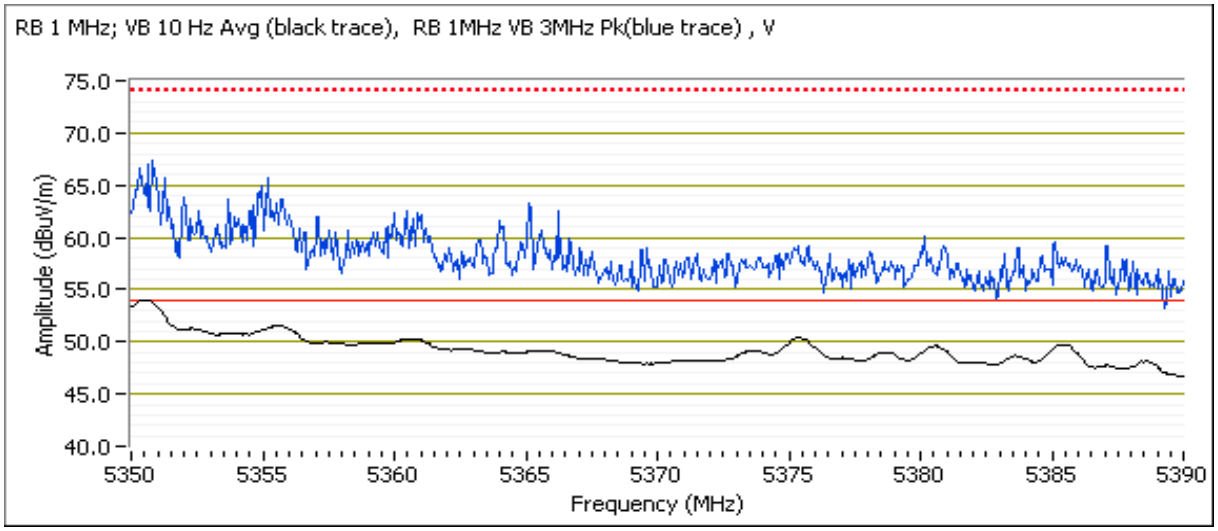
Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	N/A

Channel: 60 - 5300MHz
Tx Chain: 4Tx
Mode: n20
Data Rate: MCS0

Power: q86
#of SS: 1

5350 MHz Band Edge Signal Radiated Field Strength

Frequency	Level	Pol	FCC 15.209		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
q86								
5350.620	53.5	V	54.0	-0.5	AVG	86	1.5	AVG -RB 1 MHz; VB: 10 Hz
5350.730	68.7	V	74.0	-5.3	PK	86	1.5	PK -RB 1 MHz; VB: 3 MHz
5350.020	47.0	H	54.0	-7.0	AVG	72	1.6	AVG -RB 1 MHz; VB: 10 Hz
5354.870	60.0	H	74.0	-14.0	PK	72	1.6	PK -RB 1 MHz; VB: 8 MHz



Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	N/A

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

Date of Test: 3/2/2017 0:00 Config. Used: 1
Test Engineer: Rafael Varelas/ Joseph Cadigal Config Change: none
Test Location: FT Chamber#7 EUT Voltage: 120V/60Hz

Channel: 100 - 5500MHz Power: q68
Tx Chain: 4Tx #of SS: 1
Mode: n20
Data Rate: MCS0

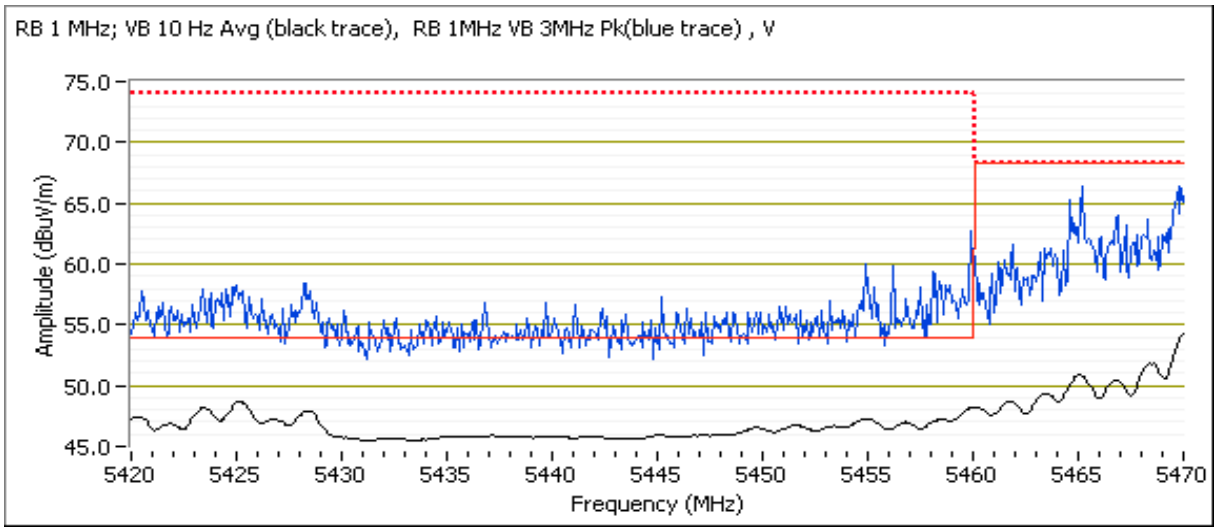
5460 MHz Band Edge Signal Radiated Field Strength

Frequency	Level	Pol	FCC 15.209		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
q68								
5459.930	47.8	V	54.0	-6.2	AVG	87	1.2	AVG -RB 1 MHz; VB: 10 Hz
5456.830	63.0	V	74.0	-11.0	PK	87	1.2	PK -RB 1 MHz; VB: 3 MHz
5459.870	41.1	H	54.0	-12.9	AVG	77	1.7	AVG -RB 1 MHz; VB: 10 Hz
5458.070	54.9	H	74.0	-19.1	PK	77	1.7	PK -RB 1 MHz; VB: 3 MHz

5470 MHz Band Edge Signal Radiated Field Strength

Frequency	Level	Pol	15.E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
q68								
5470.000	53.8	V	54.0	-0.2	AVG	87	1.2	AVG -RB 1 MHz; VB: 10 Hz
5469.950	69.8	V	74.0	-4.2	PK	87	1.2	PK -RB 1 MHz; VB: 3 MHz
5469.000	44.5	H	54.0	-9.5	AVG	77	1.7	AVG -RB 1 MHz; VB: 10 Hz
5469.020	59.8	H	74.0	-14.2	PK	77	1.7	PK -RB 1 MHz; VB: 3 MHz

Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	N/A



Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	N/A

Channel: 104 - 5520MHz
Tx Chain: 4Tx
Mode: n20
Data Rate:

Power: q84
#of SS: 1

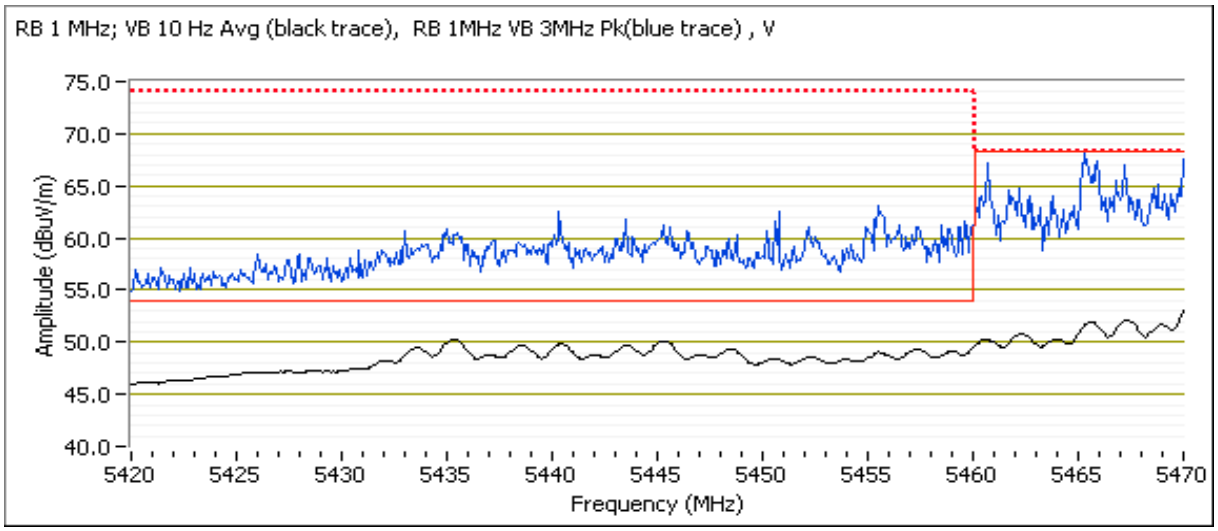
5460 MHz Band Edge Signal Radiated Field Strength

Frequency	Level	Pol	FCC 15.209		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
q84								
5435.270	49.7	V	54.0	-4.3	AVG	84	1.5	AVG -RB 1 MHz; VB: 10 Hz
5435.730	65.8	V	74.0	-8.2	PK	84	1.5	PK -RB 1 MHz; VB: 3 MHz
5443.470	42.8	H	54.0	-11.2	AVG	83	1.9	AVG -RB 1 MHz; VB: 10 Hz
5448.070	53.6	H	74.0	-20.4	PK	83	1.9	PK -RB 1 MHz; VB: 3 MHz

5470 MHz Band Edge Signal Radiated Field Strength

Frequency	Level	Pol	15.E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
q84								
5470.000	53.0	V	54.0	-1.0	AVG	84	1.5	AVG -RB 1 MHz; VB: 10 Hz
5465.730	68.9	V	74.0	-5.1	PK	84	1.5	PK -RB 1 MHz; VB: 3 MHz
5469.870	44.9	H	54.0	-9.1	AVG	83	1.9	AVG -RB 1 MHz; VB: 10 Hz
5468.170	60.4	H	74.0	-13.6	PK	83	1.9	PK -RB 1 MHz; VB: 3 MHz

Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	N/A



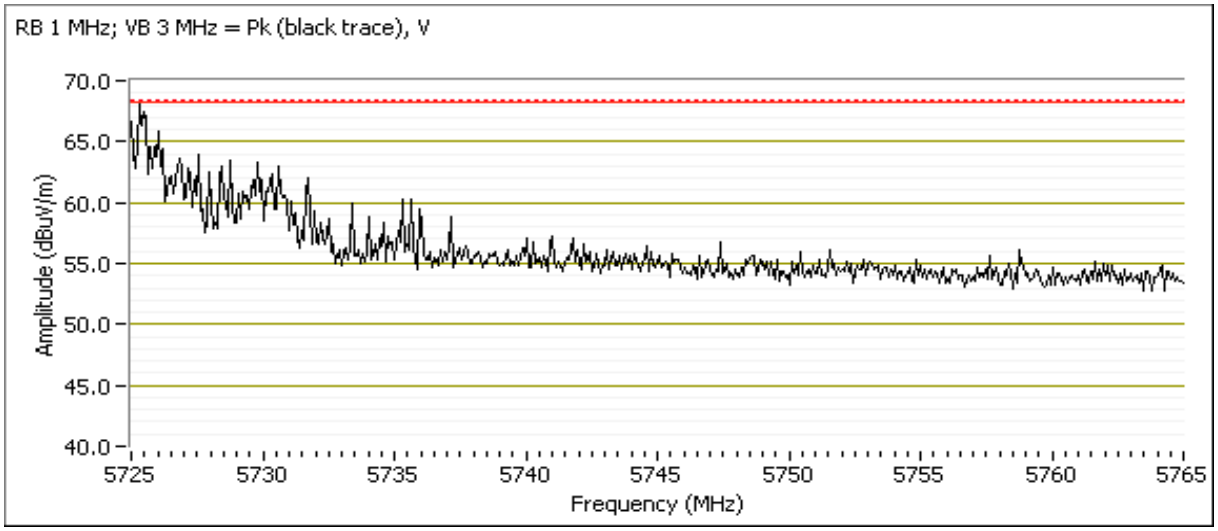
Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	N/A

Channel: 140 - 5700MHz
Tx Chain: 4Tx
Mode: n20
Data Rate: MCS0

Power: q57
#of SS: 1

5725 MHz Band Edge Signal Radiated Field Strength

Frequency	Level	Pol	15.E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
q57								
5730.450	68.1	V	68.3	-0.2	PK	307	1.0	POS; RB 1 MHz; VB: 3 MHz
5735.260	52.9	H	68.3	-15.4	PK	360	1.0	POS; RB 1 MHz; VB: 3 MHz



Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	N/A

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

Date of Test: 3/3/2017 0:00
Test Engineer: Joseph Cadigal
Test Location: FT Chamber#7

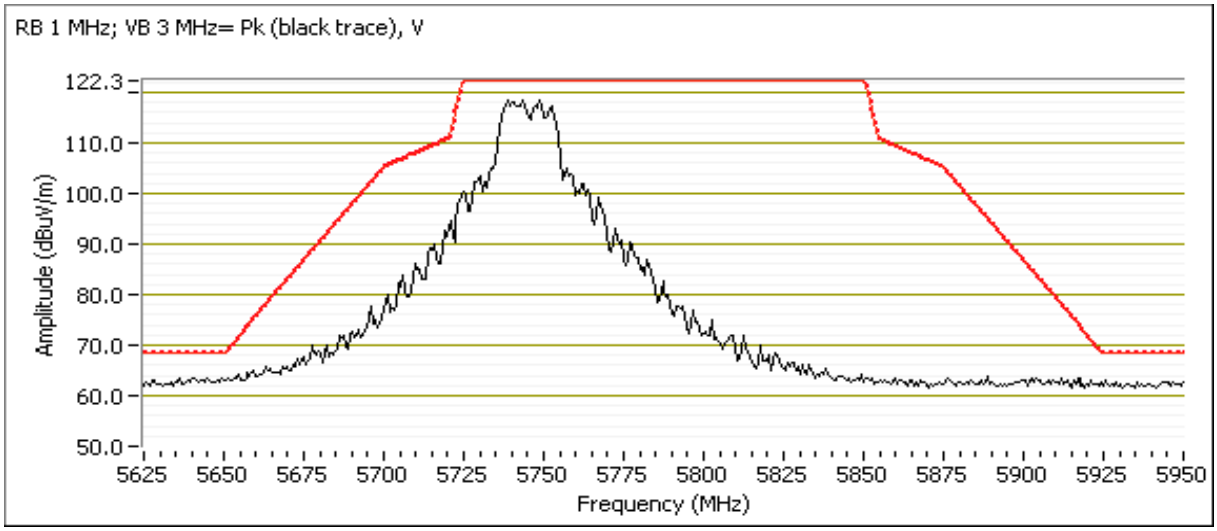
Config. Used: 1
Config Change: none
EUT Voltage: 120V/60Hz

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

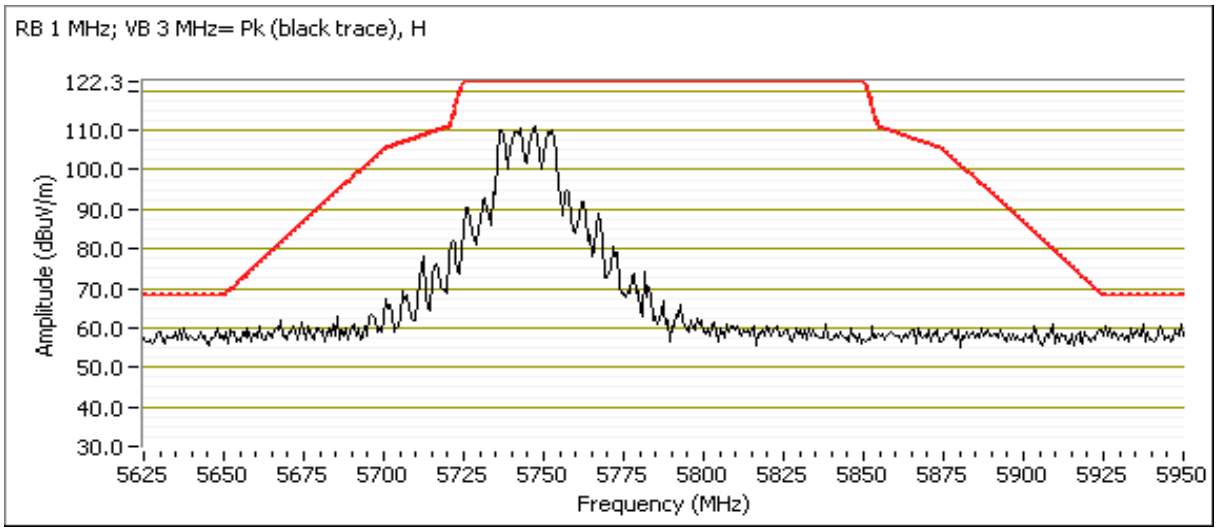
Power: q90
#of SS: 1

5725 MHz Band Edge Signal Radiated Field Strength

Frequency	Level	Pol	15.E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5749.400	117.8	V	122.3	-4.5	PK	324	1.0	POS; RB 1 MHz; VB: 3 MHz
5742.230	114.0	H	122.3	-8.3	PK	92	1.6	POS; RB 1 MHz; VB: 3 MHz



Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	N/A



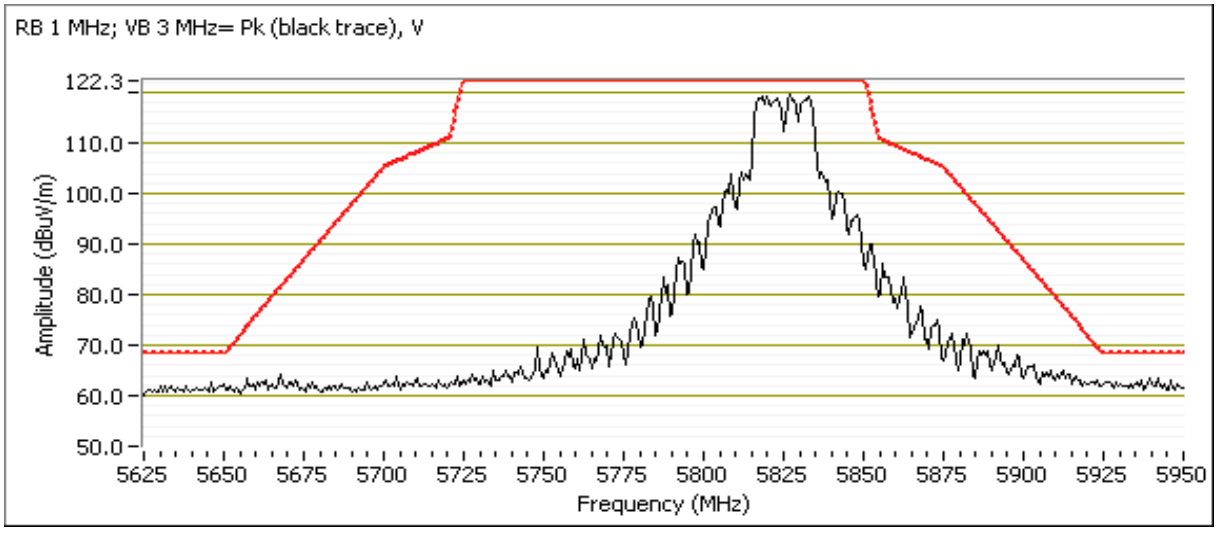
Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	N/A

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

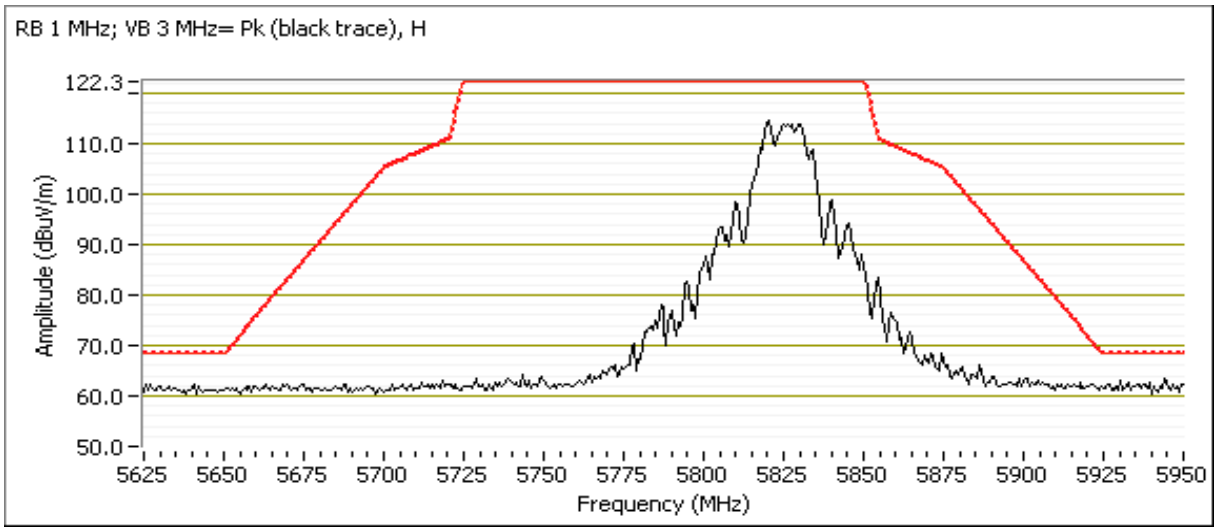
Power: q90
#of SS: 1

5850 MHz Band Edge Signal Radiated Field Strength

Frequency	Level	Pol	15.E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5828.210	119.6	V	122.3	-2.7	PK	301	1.0	POS; RB 1 MHz; VB: 3 MHz
5820.390	115.9	H	122.3	-6.4	PK	77	1.5	POS; RB 1 MHz; VB: 3 MHz



Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	N/A



Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	N/A

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

Date of Test: 3/3/2017 0:00
Test Engineer: Joseph Cadigal
Test Location: FT Chamber#7

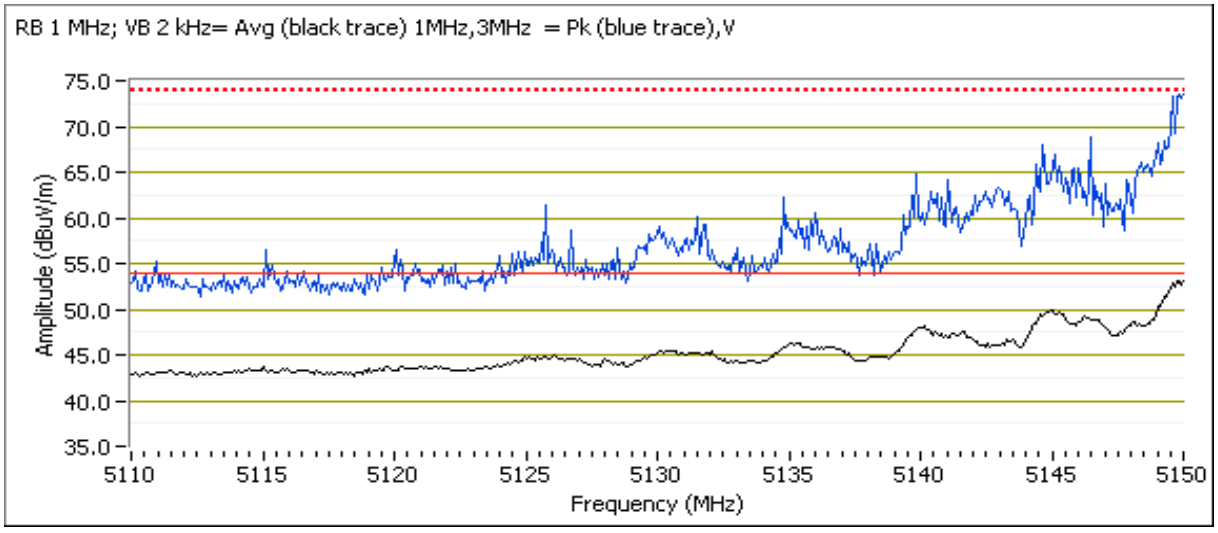
Config. Used: 1
Config Change: none
EUT Voltage: 120V/60Hz

Channel: 38 - 5190 MHz
Tx Chain: 4Tx
Mode: n40
Data Rate: MCS0

Power: q57
#of SS: 1

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	
q57								
5150.000	52.6	V	54.0	-1.4	Avg	301	1.0	POS; RB 1 MHz; VB: 2 kHz
5149.600	73.9	V	74.0	-0.1	PK	301	1.0	POS; RB 1 MHz; VB: 3 MHz
5149.040	45.2	H	54.0	-8.8	Avg	105	1.0	POS; RB 1 MHz; VB: 2 kHz
5148.720	61.7	H	74.0	-12.3	PK	105	1.0	POS; RB 1 MHz; VB: 3 MHz



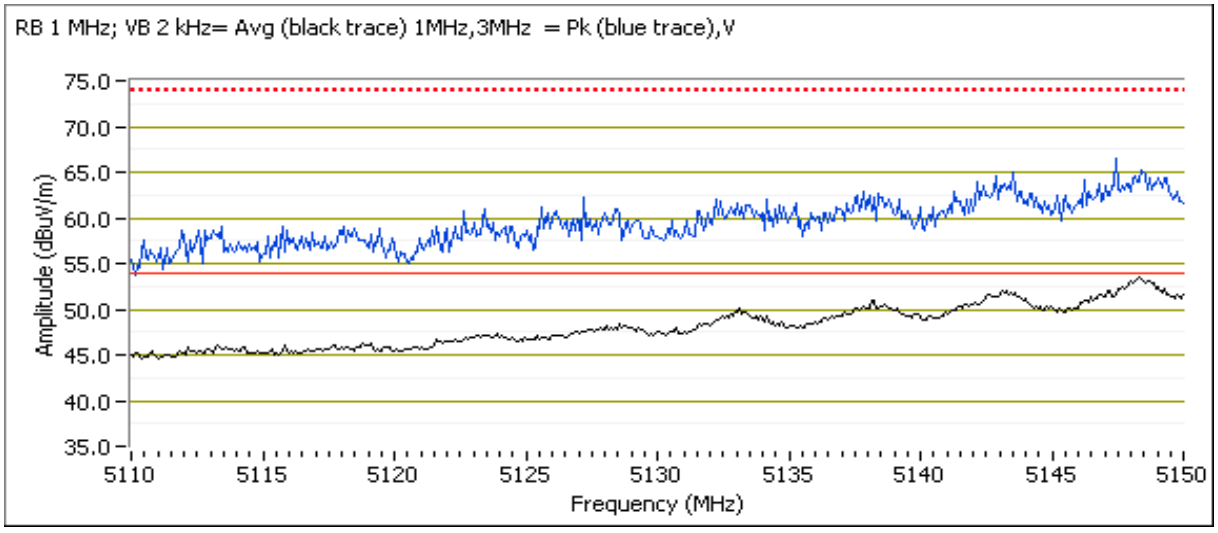
Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	N/A

Channel: 46 - 5230 MHz
Tx Chain: 4Tx
Mode: n40
Data Rate: MCS0

Power: q80
#of SS: 1

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	
q80								
5148.400	53.0	V	54.0	-1.0	Avg	92	1.0	POS; RB 1 MHz; VB: 2 kHz
5146.500	66.0	V	74.0	-8.0	PK	92	1.0	POS; RB 1 MHz; VB: 3 MHz
5149.280	47.9	H	54.0	-6.1	Avg	68	1.4	POS; RB 1 MHz; VB: 2 kHz
5139.420	60.3	H	74.0	-13.7	PK	68	1.4	POS; RB 1 MHz; VB: 3 MHz



Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	N/A

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

Date of Test: 3/3/2017 0:00
Test Engineer: Rafael Varelas
Test Location: FT Chamber#7

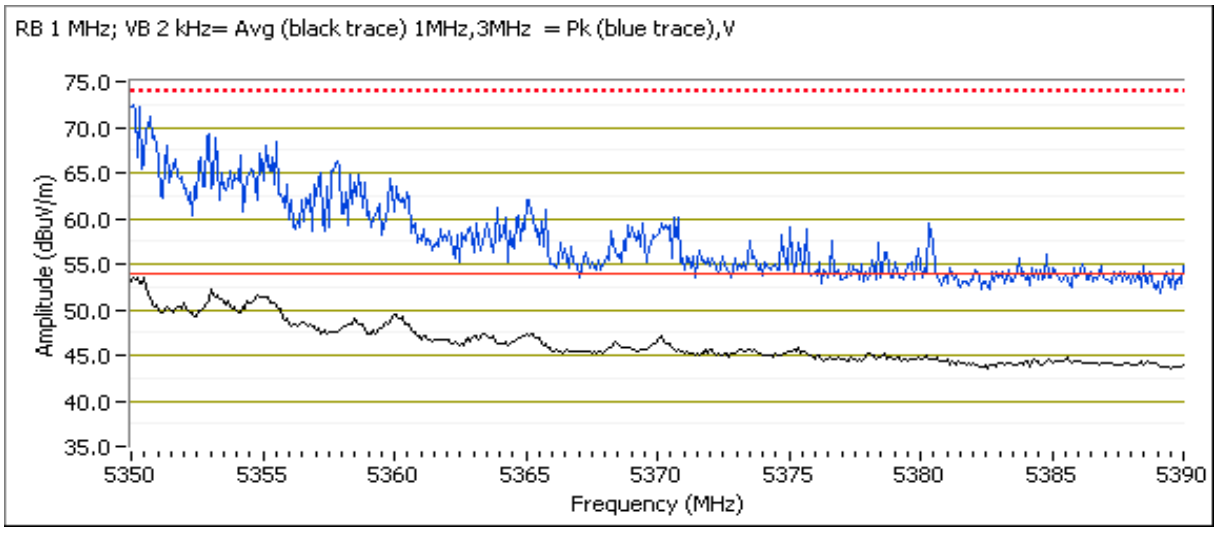
Config. Used: 1
Config Change: none
EUT Voltage: 120V/60Hz

Channel: 62 - 5310MHz
Tx Chain: 4Tx
Mode: n40
Data Rate: MCS0

Power: q59
#of SS: 1

5350 MHz Band Edge Signal Radiated Field Strength

Frequency	Level	Pol	FCC 15.209		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
q59								
5350.000	53.6	V	54.0	-0.4	Avg	88	1.0	POS; RB 1 MHz; VB: 2 kHz
5350.080	72.5	V	74.0	-1.5	PK	88	1.0	POS; RB 1 MHz; VB: 3 MHz
5350.240	49.6	H	54.0	-4.4	Avg	72	1.0	POS; RB 1 MHz; VB: 2 kHz
5350.480	70.4	H	74.0	-3.6	PK	72	1.0	POS; RB 1 MHz; VB: 3 MHz



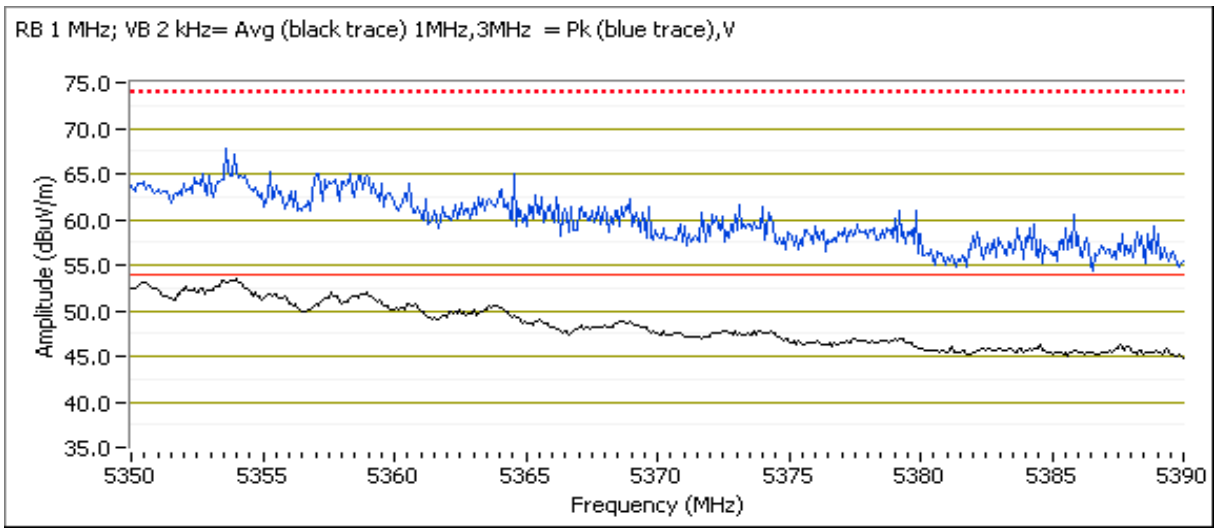
Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	N/A

Channel: 54 - 5270MHz
Tx Chain: 4Tx
Mode: n40
Data Rate:

Power: q80
#of SS: 1

5350 MHz Band Edge Signal Radiated Field Strength

Frequency	Level	Pol	FCC 15.209		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
q80								
5353.930	53.3	V	54.0	-0.7	Avg	86	1.0	POS; RB 1 MHz; VB: 2 kHz
5351.120	65.1	V	74.0	-8.9	PK	86	1.0	POS; RB 1 MHz; VB: 3 MHz
5350.720	49.5	H	54.0	-4.5	Avg	72	1.6	POS; RB 1 MHz; VB: 2 kHz
5351.520	61.5	H	74.0	-12.5	PK	72	1.6	POS; RB 1 MHz; VB: 3 MHz



Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	N/A

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

Date of Test: 3/3/2017 0:00
Test Engineer: Rafael Varelas
Test Location: FT Chamber#7

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

Channel: 102 - 5510MHz
Tx Chain: 4Tx
Mode: n40
Data Rate: MCS0

Power: q56
#of SS: 1

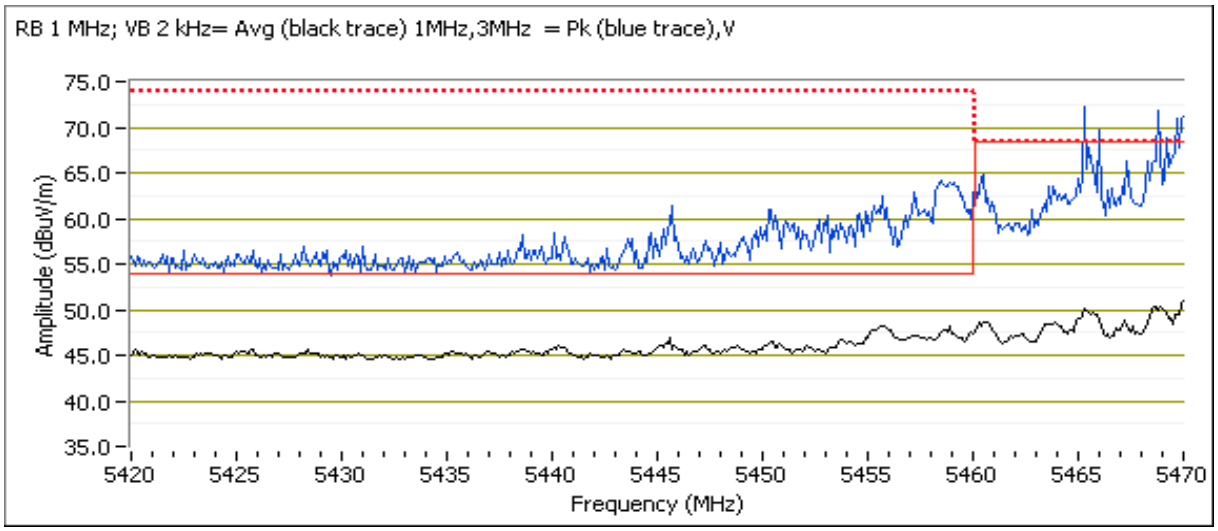
5460 MHz Band Edge Signal Radiated Field Strength

Frequency	Level	Pol	FCC 15.209		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
q56								
5455.670	47.9	V	54.0	-6.1	Avg	84	1.1	POS; RB 1 MHz; VB: 2 kHz
5458.480	63.8	V	74.0	-10.2	PK	84	1.1	POS; RB 1 MHz; VB: 3 MHz
5459.440	43.2	H	54.0	-10.8	Avg	77	1.9	POS; RB 1 MHz; VB: 2 kHz
5458.240	55.1	H	74.0	-18.9	PK	77	1.9	POS; RB 1 MHz; VB: 3 MHz

5470 MHz Band Edge Signal Radiated Field Strength

Frequency	Level	Pol	15.E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
q56								
5469.880	50.6	V	54.0	-3.4	Avg	84	1.1	POS; RB 1 MHz; VB: 2 kHz
5469.400	73.2	V	74.0	-0.8	PK	84	1.1	POS; RB 1 MHz; VB: 3 MHz
5469.900	45.2	H	54.0	-8.8	Avg	77	1.9	POS; RB 1 MHz; VB: 2 kHz
5468.640	63.6	H	74.0	-10.4	PK	77	1.9	POS; RB 1 MHz; VB: 3 MHz

Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	N/A



Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	N/A

Channel: 110 - 5550MHz
Tx Chain: 4Tx
Mode: n40
Data Rate: MCS0

Power: q78
#of SS: 1

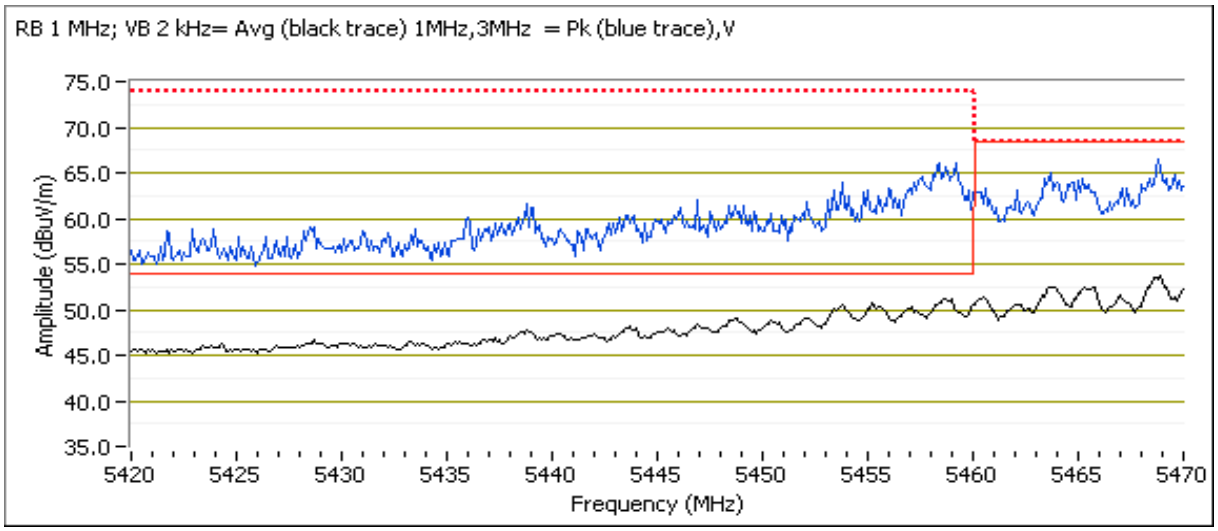
5460 MHz Band Edge Signal Radiated Field Strength

Frequency	Level	Pol	FCC 15.209		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
q78								
5458.960	51.1	V	54.0	-2.9	Avg	85	1.3	POS; RB 1 MHz; VB: 2 kHz
5457.600	65.3	V	74.0	-8.7	PK	85	1.3	POS; RB 1 MHz; VB: 3 MHz
5459.040	44.5	H	54.0	-9.5	Avg	62	1.5	POS; RB 1 MHz; VB: 2 kHz
5456.150	55.8	H	74.0	-18.2	PK	62	1.5	POS; RB 1 MHz; VB: 3 MHz

5470 MHz Band Edge Signal Radiated Field Strength

Frequency	Level	Pol	15.E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
q78								
5468.620	53.5	V	54.0	-0.5	Avg	85	1.3	POS; RB 1 MHz; VB: 2 kHz
5469.980	66.2	V	74.0	-7.8	PK	85	1.3	POS; RB 1 MHz; VB: 3 MHz
5469.980	66.2	V	68.3	-2.1	PK	85	1.3	POS; RB 1 MHz; VB: 3 MHz
5468.780	44.9	H	54.0	-9.1	Avg	62	1.5	POS; RB 1 MHz; VB: 2 kHz
5469.700	57.4	H	74.0	-16.6	PK	62	1.5	POS; RB 1 MHz; VB: 3 MHz
5469.700	57.4	H	68.3	-10.9	PK	62	1.5	POS; RB 1 MHz; VB: 3 MHz

Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	N/A



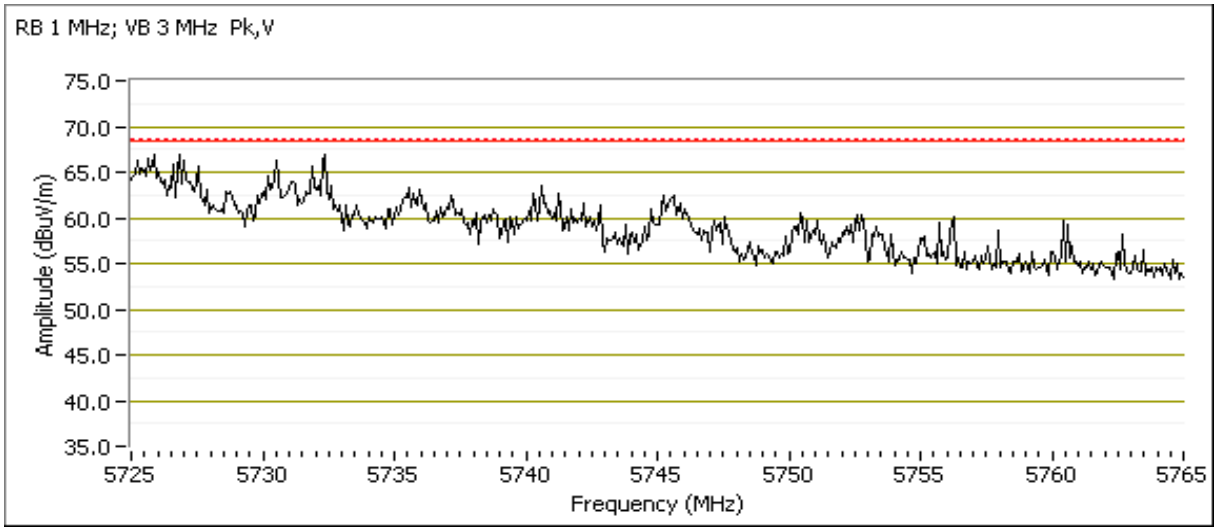
Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	N/A

Channel: 134 - 5670MHz
Tx Chain: 4Tx
Mode: n40
Data Rate: MCS0

Power: q67
#of SS: 1

5725 MHz Band Edge Signal Radiated Field Strength

Frequency	Level	Pol	15.E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
q67								
5725.320	68.1	V	68.3	-0.2	PK	311	1.0	POS; RB 1 MHz; VB: 3 MHz
5725.800	63.2	H	68.3	-5.1	PK	27	1.1	POS; RB 1 MHz; VB: 3 MHz



Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	N/A

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

Date of Test: 3/3/2017 0:00
Test Engineer: Rafael Varelas
Test Location: FT Chamber#7

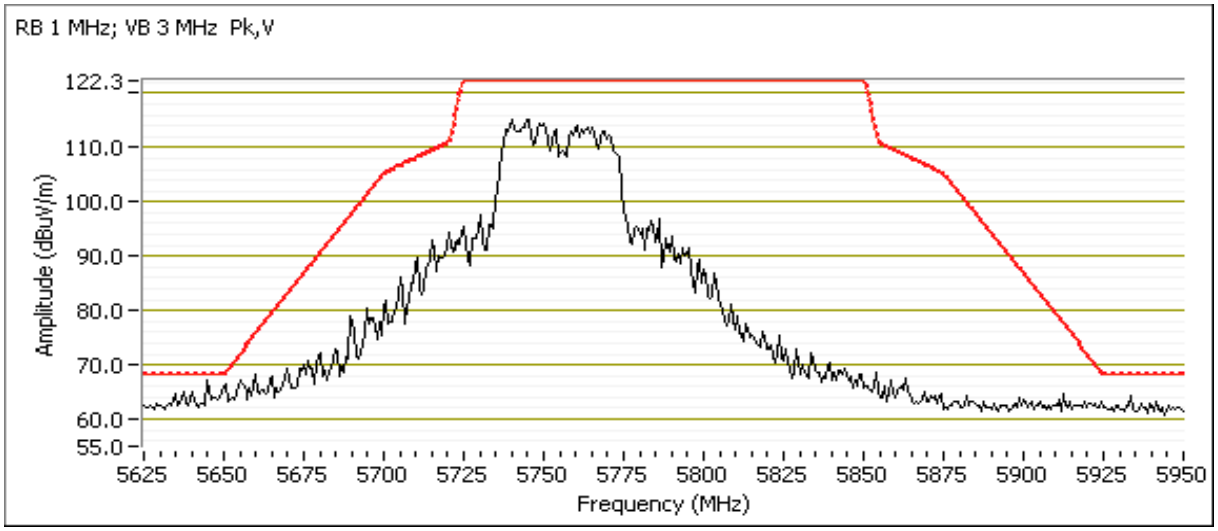
Config. Used: 1
Config Change: none
EUT Voltage: 120V/60Hz

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

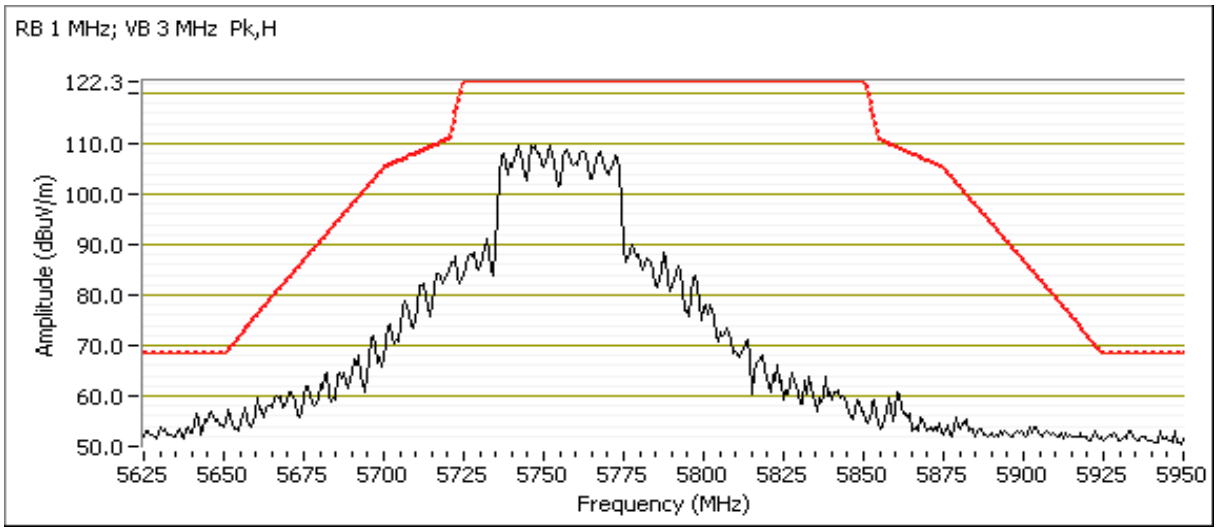
Power: q83
#of SS: 1

5725 MHz Band Edge Signal Radiated Field Strength

Frequency	Level	Pol	15.E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
q83								
5645.190	67.9	V	68.3	-0.4	PK	88	1.4	POS; RB 1 MHz; VB: 3 MHz



Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	N/A



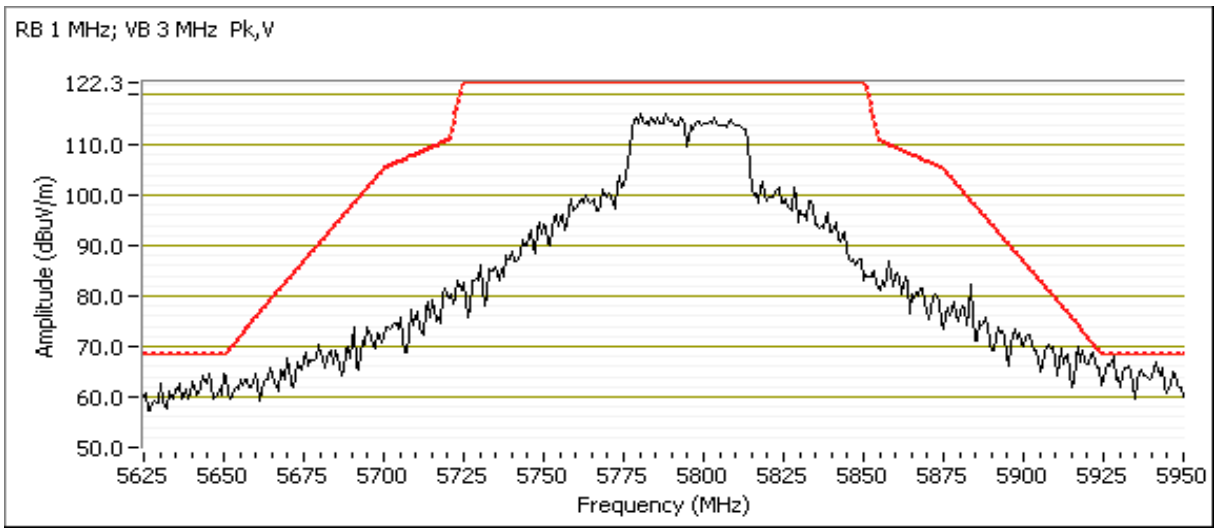
Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	N/A

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

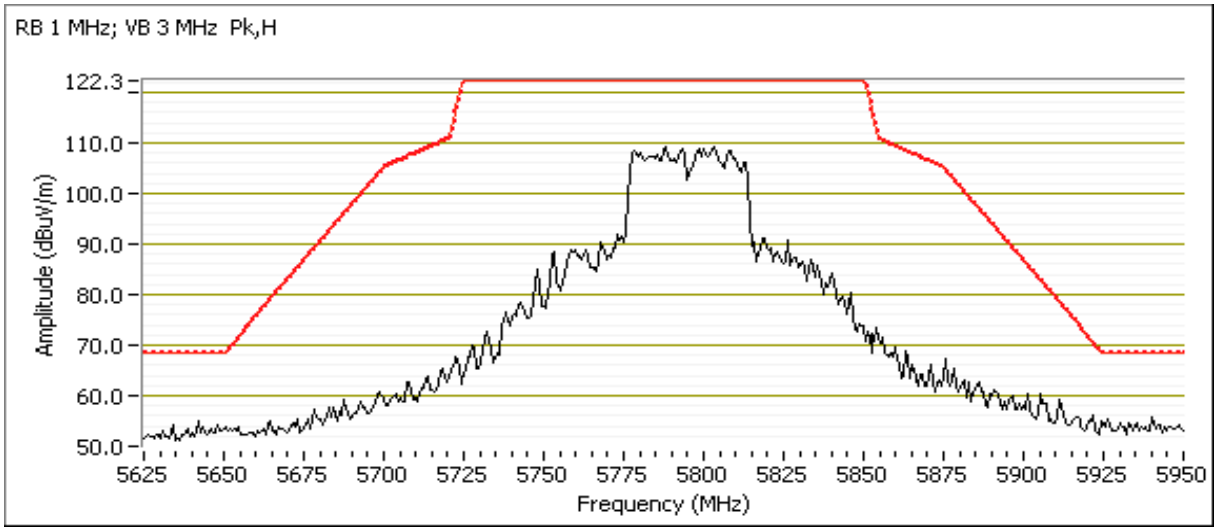
Power: q88
#of SS: 1

5850 MHz Band Edge Signal Radiated Field Strength

Frequency	Level	Pol	15.E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
q88								
5940.930	67.4	V	68.3	-0.9	PK	91	1.1	POS; RB 1 MHz; VB: 3 MHz



Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	N/A



Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	N/A

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

Date of Test: 5/1/17 Config. Used: 1

Test Engineer: M. Birgani Config Change: None

Test Location: FT Chamber#5 EUT Voltage: 120V/60Hz

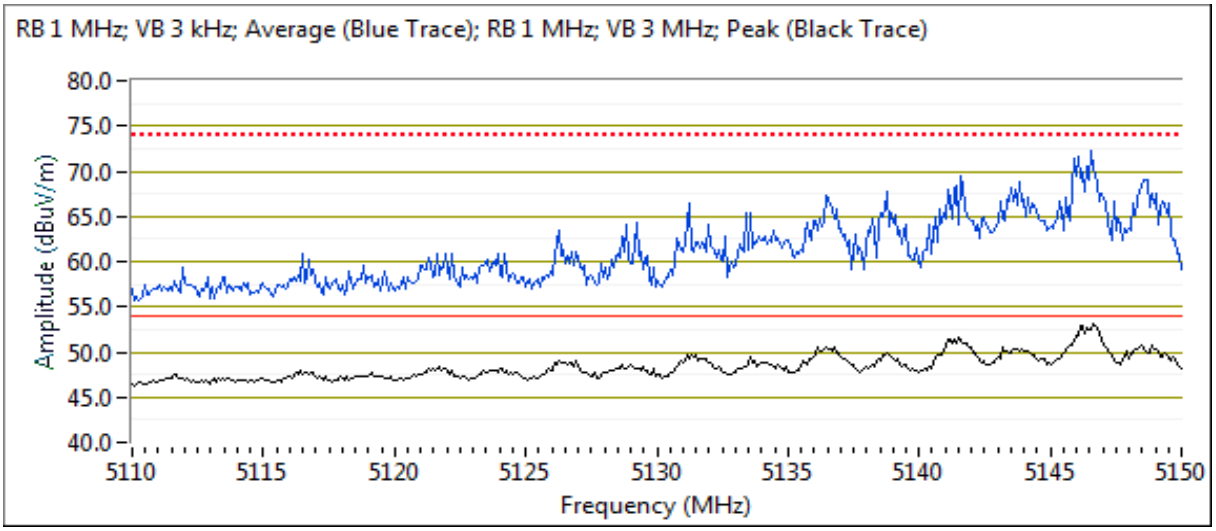
Channel: 42 - 5210MHz Power: q54

Tx Chain: 4Tx #of SS: 1

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	
q54								
5146.500	72.4	V	74.0	-1.6	PK	152	1.9	POS; RB 1 MHz; VB: 3 MHz
5146.430	52.3	V	54.0	-1.7	AVG	152	1.9	POS; RB 1 MHz; VB: 3 kHz
5143.910	50.6	H	54.0	-3.4	AVG	73	1.9	POS; RB 1 MHz; VB: 3 kHz
5148.880	68.4	H	74.0	-5.6	PK	73	1.9	POS; RB 1 MHz; VB: 3 MHz



Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	N/A

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

Date of Test: 5/1/17 Config. Used: 1

Test Engineer: M. Birgani Config Change: None

Test Location: FT Chamber#5 EUT Voltage: 120V/60Hz

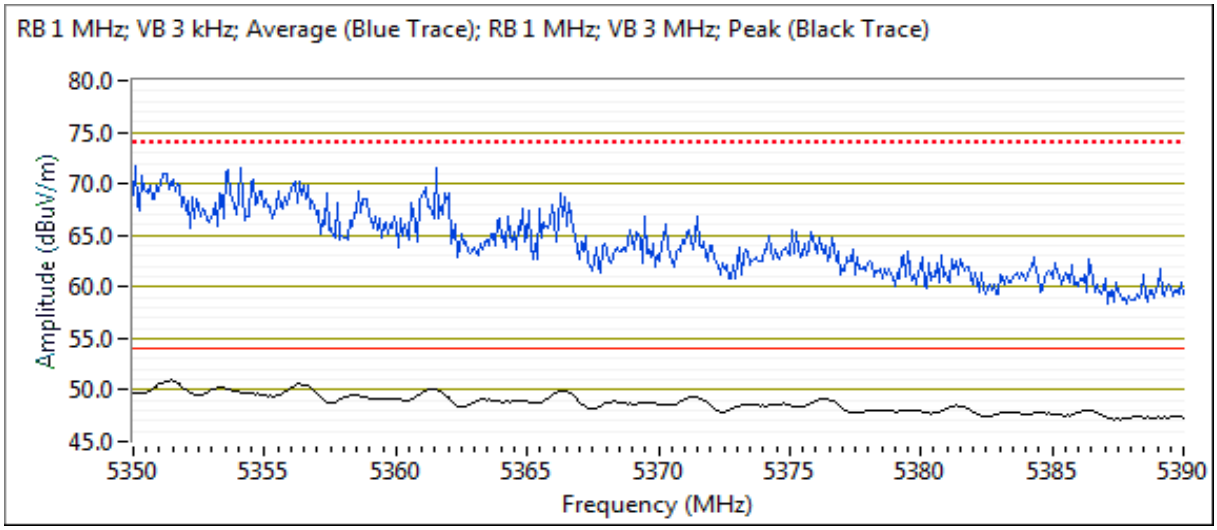
Channel: 58 - 5290MHz Power: q53

Tx Chain: 4Tx #of SS: 1

Mode: ac80 Data Rate: VHT0

5350 MHz Band Edge Signal Radiated Field Strength

Frequency	Level	Pol	FCC 15.209		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
q53								
5353.880	72.2	V	74.0	-1.8	PK	84	1.0	POS; RB 1 MHz; VB: 3 MHz
5353.110	71.3	H	74.0	-2.7	PK	60	1.3	POS; RB 1 MHz; VB: 3 MHz
5351.410	51.0	V	54.0	-3.0	RMS	84	1.0	RMS; RB 1 MHz; VB: 3 kHz
5353.370	48.9	H	54.0	-5.1	RMS	60	1.3	RMS; RB 1 MHz; VB: 3 kHz



Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	N/A

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

Date of Test: 3/6/2017 0:00
Test Engineer: Joseph Cadigal
Test Location: FT Chamber#7

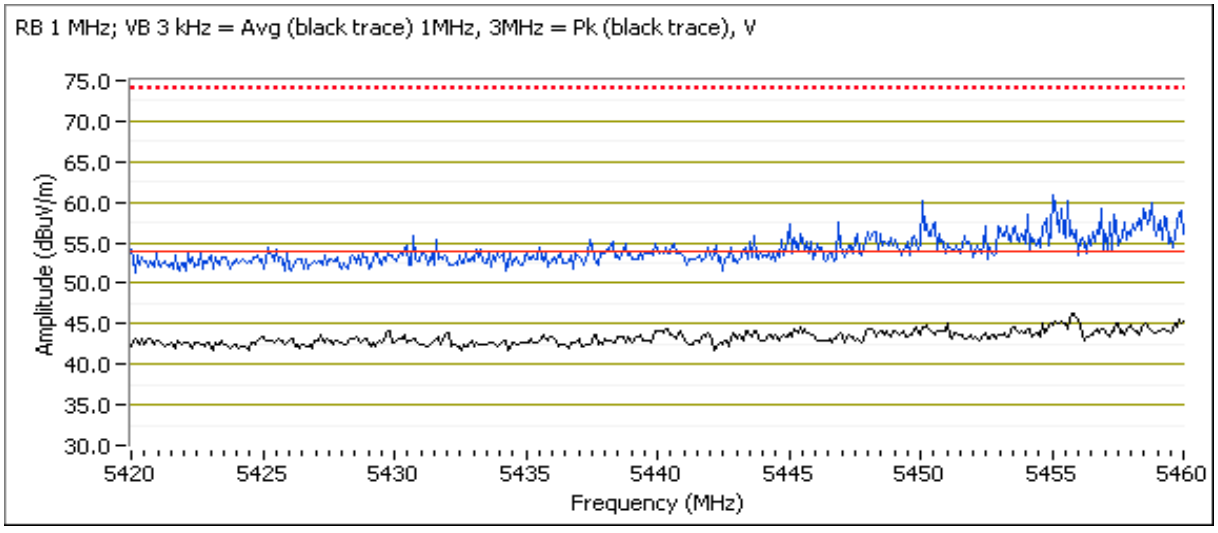
Config. Used: 1
Config Change: None
EUT Voltage: 120V/60Hz

Channel: 106 - 5530MHz
Tx Chain: 4Tx
Mode: ac80
Data Rate: VHT0

Power: q46
#of SS: 1

5460 MHz Band Edge Signal Radiated Field Strength

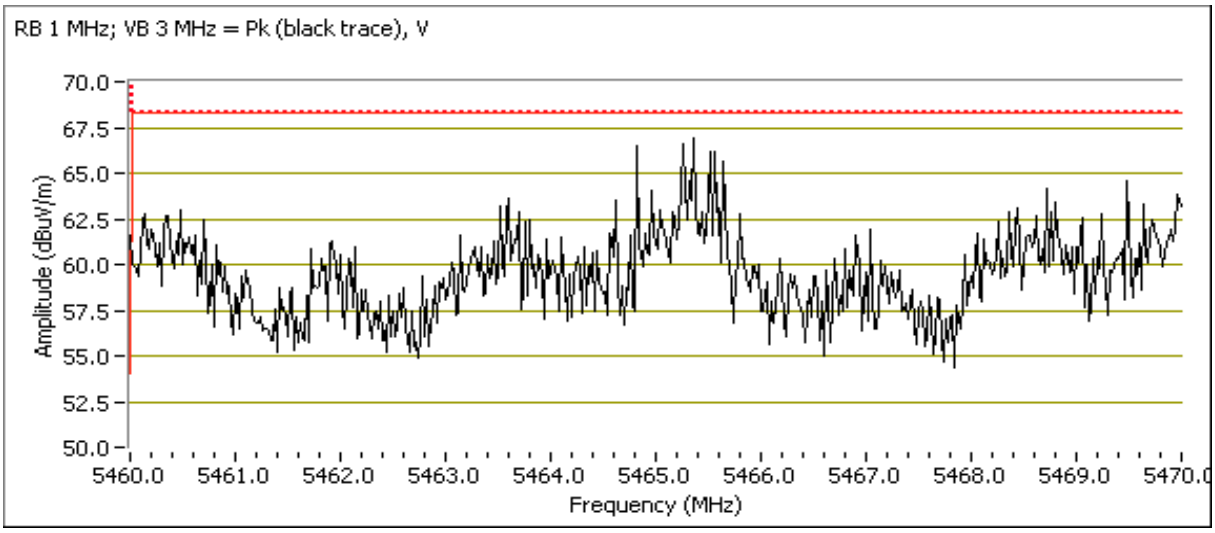
Frequency	Level	Pol	FCC 15.209		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5455.430	46.3	V	54.0	-7.7	Avg	86	1.0	POS; RB 1 MHz; VB: 3 kHz
5455.000	62.0	V	74.0	-12.0	Pk	86	1.0	POS; RB 1 MHz; VB: 3 MHz
5459.600	42.5	H	54.0	-11.5	Avg	290	1.7	POS; RB 1 MHz; VB: 3 kHz
5427.460	52.0	H	74.0	-22.0	Pk	290	1.7	POS; RB 1 MHz; VB: 3 MHz



Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	N/A

5470 MHz Band Edge Signal Radiated Field Strength

Frequency	Level	Pol	15.E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
q46								
5465.500	67.0	V	68.3	-1.3	Pk	86	1.0	POS; RB 1 MHz; VB: 3 MHz
5465.950	56.3	H	68.3	-12.0	Pk	290	1.7	POS; RB 1 MHz; VB: 3 MHz



Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	N/A

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

Date of Test: 3/6/2017 0:00
Test Engineer: Rafael Varelas
Test Location: FT Chamber#7

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

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

Power: q77
#of SS: 1

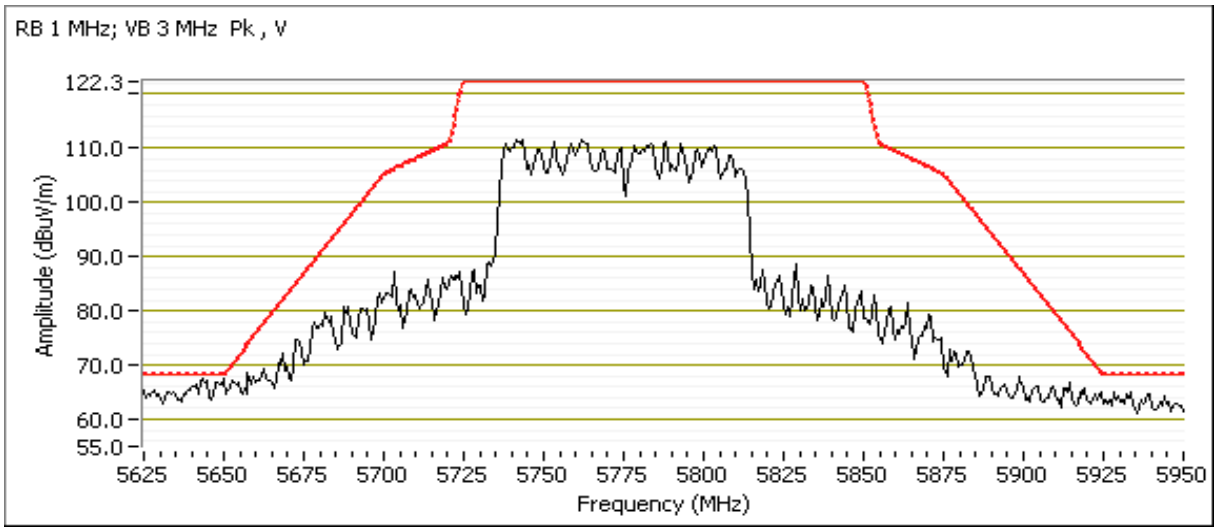
5725 MHz Band Edge Signal Radiated Field Strength

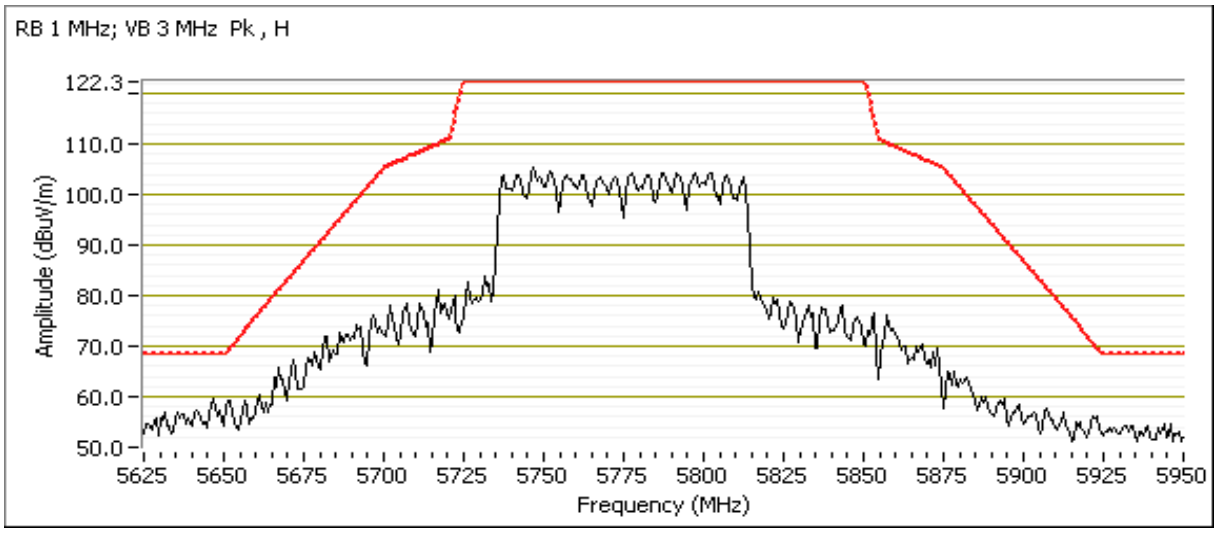
Frequency	Level	Pol	15.E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
q77								
5640.430	67.4	V	68.3	-0.9	PK	304	1.0	POS; RB 1 MHz; VB: 3 MHz

5850 MHz Band Edge Signal Radiated Field Strength

Frequency	Level	Pol	15.E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
q77								
5934.070	64.5	V	68.3	-3.8	PK	304	1.0	POS; RB 1 MHz; VB: 3 MHz

Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	N/A





Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	N/A

FCC 15.407 (UNII) Radiated Spurious Emissions

Test Specific Details

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

General Test Configuration

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

Ambient Conditions:

Temperature: 22.4 °C
Rel. Humidity: 40 %

Summary of Results

Run #	Mode	Channel	# of SS	Passing Pwr Setting	Test Performed	Limit	Result / Margin
20MHz Bandwith Modes							
5	n20	36 - 5180MHz	1	q69	Restricted Band Edge at 5150 MHz	15.209	53.8 dBµV/m @ 5150.0 MHz (-0.2 dB)
6	n20	64 - 5320MHz	1	q68	Restricted Band Edge at 5350 MHz	15.209	53.9 dBµV/m @ 5350.3 MHz (-0.1 dB)
7	n20	100 - 5500MHz	1	q70	Restricted Band Edge at 5460 MHz	15.209	49.1 dBµV/m @ 5459.4 MHz (-4.9 dB)
	n20	100 - 5500MHz	1	q70	Band Edge 5460 - 5470 MHz	15E	67.8 dBµV/m @ 5469.7 MHz (-0.5 dB)
	n20	140 - 5700MHz	1	q62	Band Edge 5725MHz	15E	67.4 dBµV/m @ 5727.0 MHz (-0.9 dB)
8	n20	149 - 5745MHz	1	q90	Band Edge 5725 MHz	15E	59.2 dBµV/m @ 5642.1 MHz (-9.1 dB)
	n20	165 - 5825MHz	1	q90	Band Edge 5850MHz	15E	59.4 dBµV/m @ 5932.3 MHz (-8.9 dB)

Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	N/A

Run #	Mode	Channel	# of SS	Passing Pwr Setting	Test Performed	Limit	Result / Margin
40MHz Bandwith Modes							
9	n40	38 - 5190MHz	1	q60	Restricted Band Edge at 5150 MHz	15.209	52.9 dBµV/m @ 5149.9 MHz (-1.1 dB)
10	n40	62 - 5310MHz	1	q62	Restricted Band Edge at 5350 MHz	15.209	53.3 dBµV/m @ 5350.6 MHz (-0.7 dB)
11	n40	102 - 5510MHz	1	q62	Restricted Band Edge at 5460 MHz	15.209	49.6 dBµV/m @ 5457.8 MHz (-4.4 dB)
	n40	102 - 5510MHz	1	q62	Band Edge 5460 - 5470 MHz	15E	53.2 dBµV/m @ 5469.9 MHz (-0.8 dB)
	n40	134 - 5670MHz	1	q70	Band Edge 5725MHz	15E	53.8 dBµV/m @ 5728.4 MHz (-0.2 dB)
12	n40	151 - 5755MHz	1	q88	Band Edge 5725 MHz	15E	67.9 dBµV/m @ 5649.4 MHz (-0.4 dB)
	n40	159 - 5795MHz	1	q90	Band Edge 5850MHz	15E	69.8 dBµV/m @ 5922.1 MHz (-0.6 dB)
80MHz Bandwith Modes							
13	ac80	42 - 5210MHz	1	q59	Restricted Band Edge at 5150 MHz	15.209	52.9 dBµV/m @ 5149.5 MHz (-1.1 dB)
14	ac80	58 - 5290MHz	1	q56	Restricted Band Edge at 5350 MHz	15.209	72.7 dBµV/m @ 5356.8 MHz (-1.3 dB)
15	ac80	106 - 5530MHz	1	q53	Restricted Band Edge at 5460 MHz	15.209	73.8 dBµV/m @ 5467.8 MHz (-0.2 dB)
	ac80	106 - 5530MHz	1	q53	Band Edge 5460 - 5470 MHz	15E	67.3 dBµV/m @ 5466.2 MHz (-1.0 dB)
16	ac80	155 - 5775MHz	1	q77	Band Edge 5725 MHz	15E	68.2 dBµV/m @ 5633.1 MHz (-0.1 dB)
	ac80	155 - 5775MHz	1	q77	Band Edge 5850MHz	15E	69.8 dBµV/m @ 5921.8 MHz (-0.8 dB)

Modifications Made During Testing

No modifications were made to the EUT during testing

Deviations From The Standard

No deviations were made from the requirements of the standard.

Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	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 50 traces. (method VB of KDB 789033)

	Mode	Data Rate	Duty Cycle (x)	Constant DC?	T (ms)	Pwr Cor Factor*	Lin Volt Cor Factor**	Min VBW for FS (Hz)
1SS	n20	MCS0	0.88	No	4.41	0.55	1.09	227
1SS	n40	MCS0	0.83	No	4.17	0.79	1.58	240
1SS	ac80	VHT0	0.58	No	2.92	2.34	4.68	342

Sample Notes

Sample S/N: G62DA7BU200058
Driver: -
Antenna: Internal 4x4

Measurement Specific Notes:

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

Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	N/A

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

Date of Test: 3/6/2017 0:00
Test Engineer: Joseph Cadigal
Test Location: FT Chamber#7

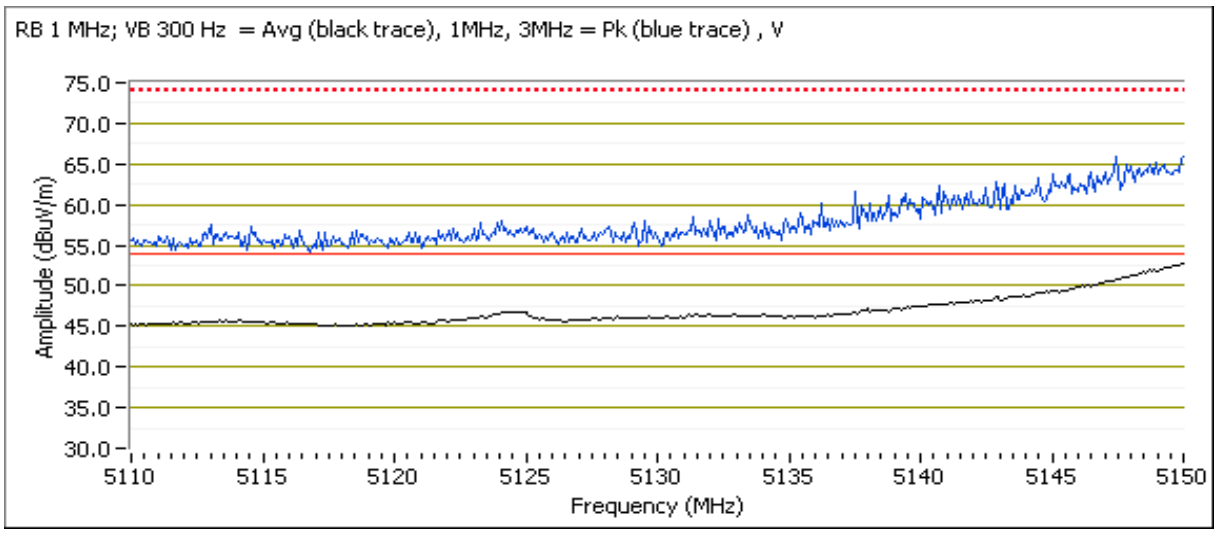
Config. Used: 1
Config Change: none
EUT Voltage: 120V/60Hz

Channel: 36 - 5180 MHz
Tx Chain: 4Tx
Mode: n20
Data Rate: MCS0

Power: q69
#of SS: 1

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	
q69								
5150.000	53.8	V	54.0	-0.2	Avg	93	1.0	POS; RB 1 MHz; VB: 300 Hz
5150.000	66.9	V	74.0	-7.1	Pk	93	1.0	POS; RB 1 MHz; VB: 3 MHz
5149.840	46.7	H	54.0	-7.3	Avg	71	1.3	POS; RB 1 MHz; VB: 300 Hz
5147.520	61.2	H	74.0	-12.8	Pk	71	1.3	POS; RB 1 MHz; VB: 3 MHz



Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	N/A

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

Date of Test: 3/7/2017 0:00
Test Engineer: Joseph Cadigal
Test Location: FT Chamber#7

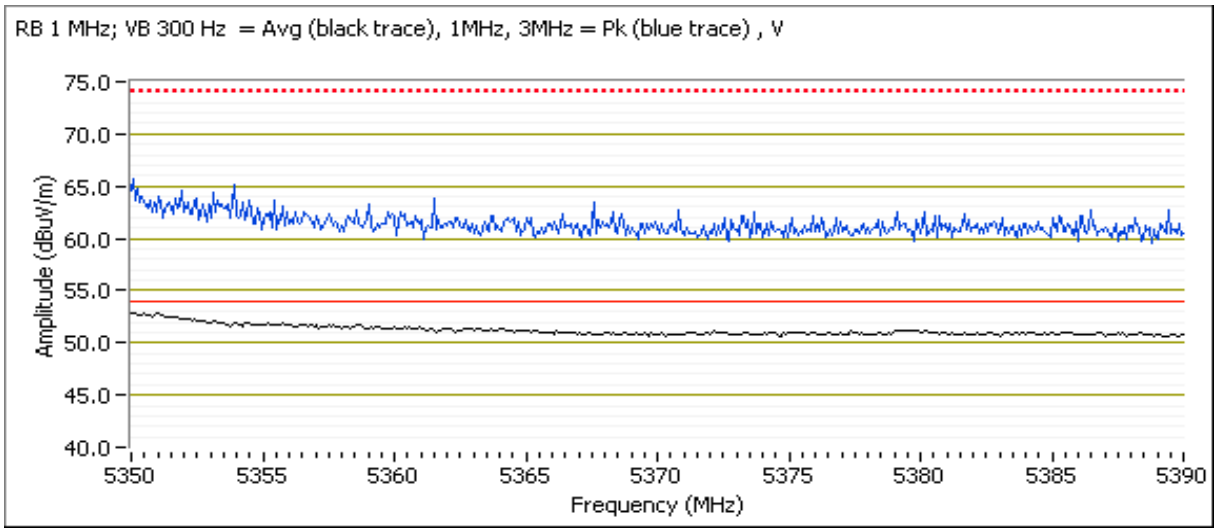
Config. Used: 1
Config Change: none
EUT Voltage: 120V/60Hz

Channel: 64 - 5320MHz
Tx Chain: 4Tx
Mode: n20
Data Rate: MCS0

Power: q68
#of SS: 1

5350 MHz Band Edge Signal Radiated Field Strength

Frequency	Level	Pol	FCC 15.209		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
q68								
Frequency	Level	Pol	FCC 15.209		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5350.320	53.9	V	54.0	-0.1	Avg	88	1.2	POS; RB 1 MHz; VB: 300 Hz
5350.000	65.9	V	74.0	-8.1	Pk	88	1.2	POS; RB 1 MHz; VB: 3 MHz
5350.880	44.9	H	54.0	-9.1	Avg	69	1.0	POS; RB 1 MHz; VB: 300 Hz
5350.880	59.5	H	74.0	-14.5	Pk	69	1.0	POS; RB 1 MHz; VB: 3 MHz



Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	N/A

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

Date of Test: 3/7/2017 0:00
Test Engineer: Joseph Cadigal
Test Location: FT Chamber#7

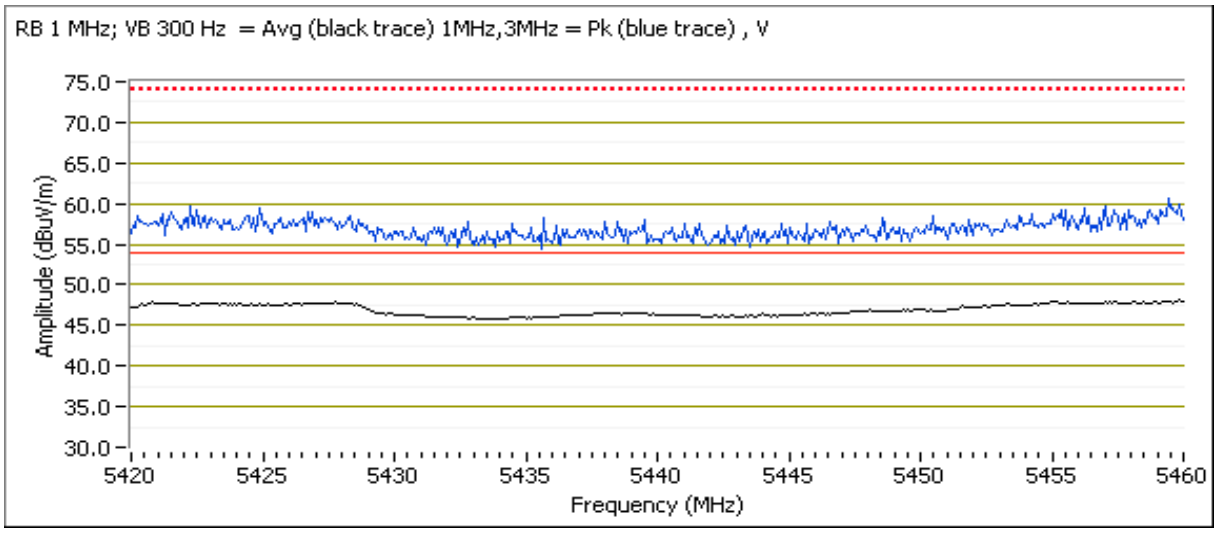
Config. Used: 1
Config Change: none
EUT Voltage: 120V/60Hz

Channel: 100 - 5500MHz
Tx Chain: 4Tx
Mode: n20
Data Rate:

Power: q70
#of SS: 1

5460 MHz Band Edge Signal Radiated Field Strength

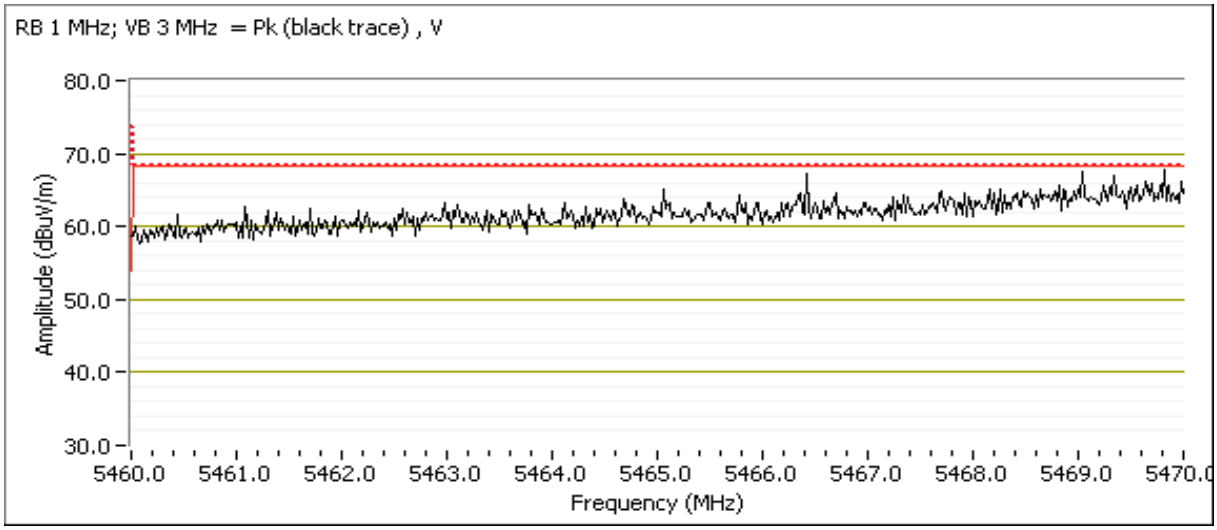
Frequency	Level	Pol	FCC 15.209		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5459.440	49.1	V	54.0	-4.9	Avg	86	1.3	POS; RB 1 MHz; VB: 300 Hz
5456.710	62.3	V	74.0	-11.7	Pk	86	1.3	POS; RB 1 MHz; VB: 3 MHz
5459.680	44.5	H	54.0	-9.5	Avg	290	2.0	POS; RB 1 MHz; VB: 300 Hz
5424.810	56.0	H	74.0	-18.0	Pk	290	2.0	POS; RB 1 MHz; VB: 3 MHz



Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	N/A

5470 MHz Band Edge Signal Radiated Field Strength

Frequency	Level	Pol	15.E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
q70								
5469.700	67.8	V	68.3	-0.5	Pk	86	1.3	POS; RB 1 MHz; VB: 3 MHz
5469.700	60.2	H	68.3	-8.1	Pk	290	2.0	POS; RB 1 MHz; VB: 3 MHz



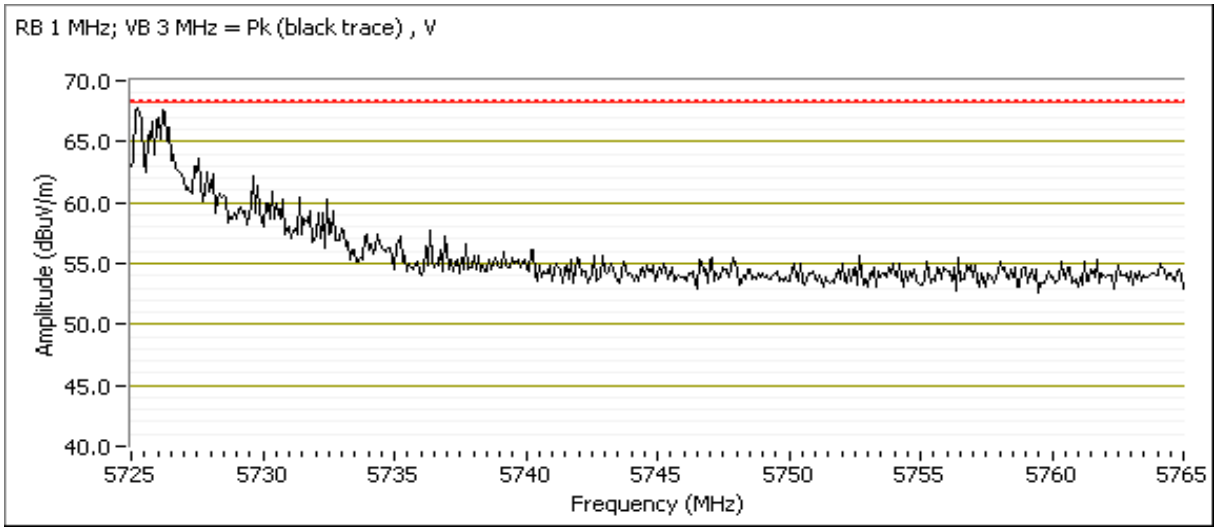
Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	N/A

Channel: 140 - 5700MHz
Tx Chain: 4Tx
Mode: n20
Data Rate: MCS0

Power: q62
#of SS: 1

5725 MHz Band Edge Signal Radiated Field Strength

Frequency	Level	Pol	15.E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
q62								
5727.000	67.4	V	68.3	-0.9	Pk	300	1.6	POS; RB 1 MHz; VB: 3 MHz
5728.450	59.4	H	68.3	-8.9	Pk	61	1.0	POS; RB 1 MHz; VB: 3 MHz



Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	N/A

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

Date of Test: 3/7/2017 0:00
Test Engineer: Rafael Varelas
Test Location: FT Chamber#7

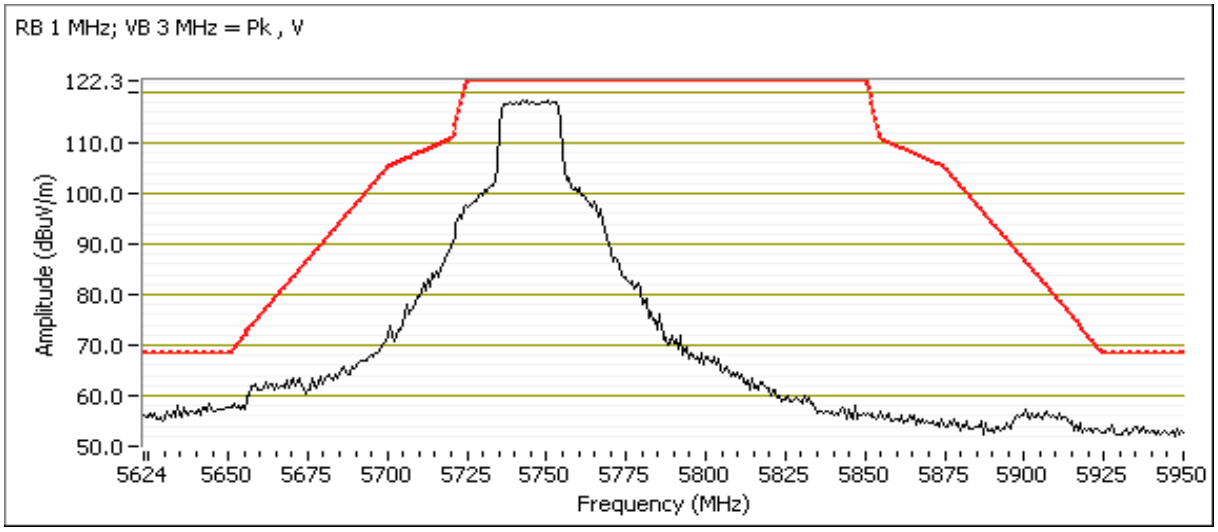
Config. Used: 1
Config Change: none
EUT Voltage: 120V/60Hz

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

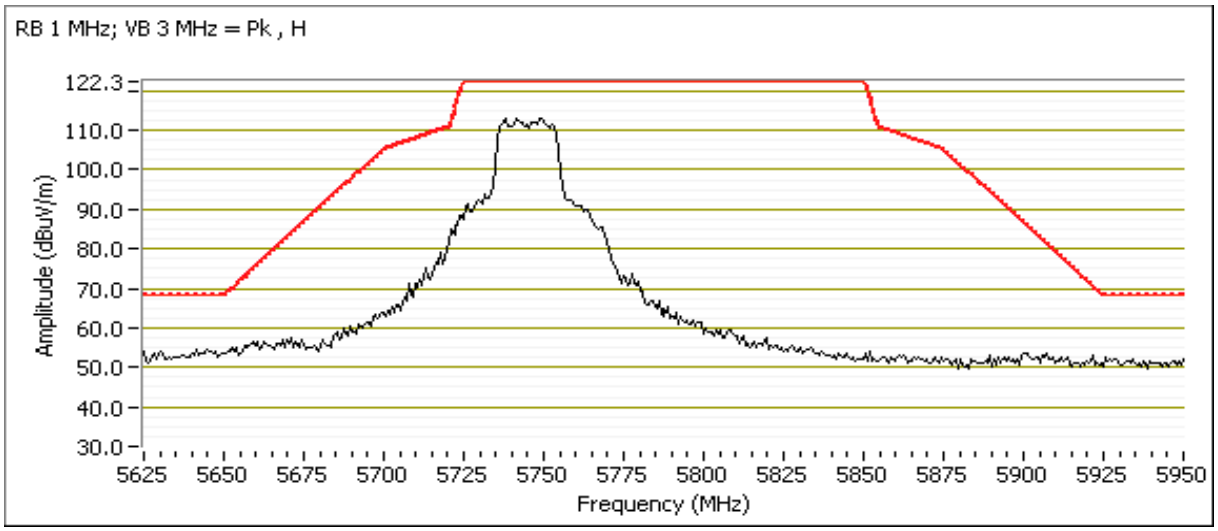
Power: q90
#of SS: 1

5725 MHz Band Edge Signal Radiated Field Strength

Frequency	Level	Pol	15.E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5642.100	59.2	V	68.3	-9.1	PK	328	1.1	POS; RB 1 MHz; VB: 3 MHz



Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	N/A



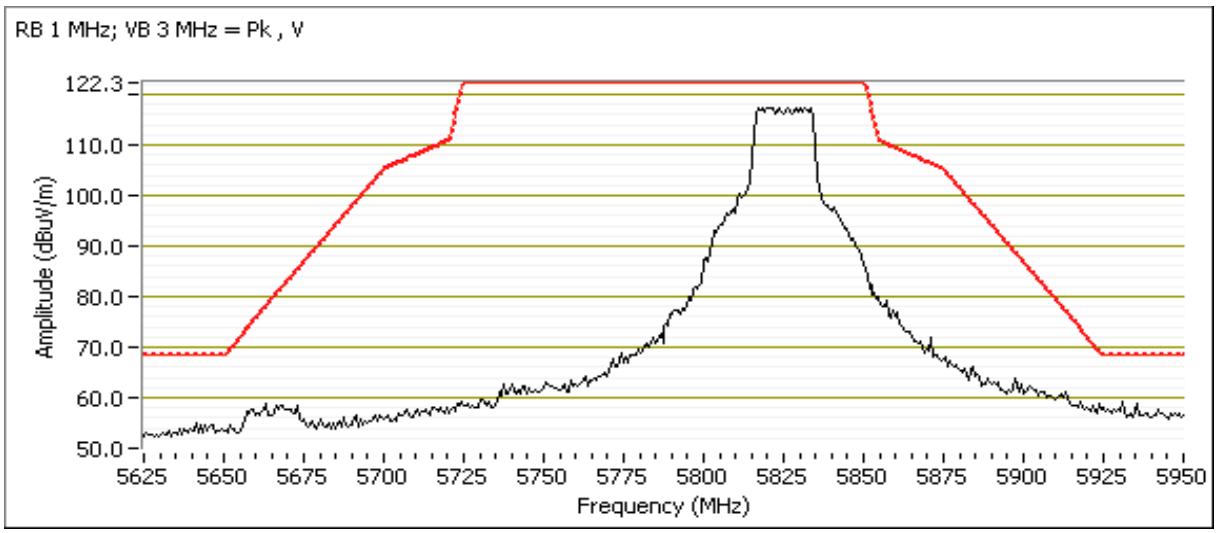
Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	N/A

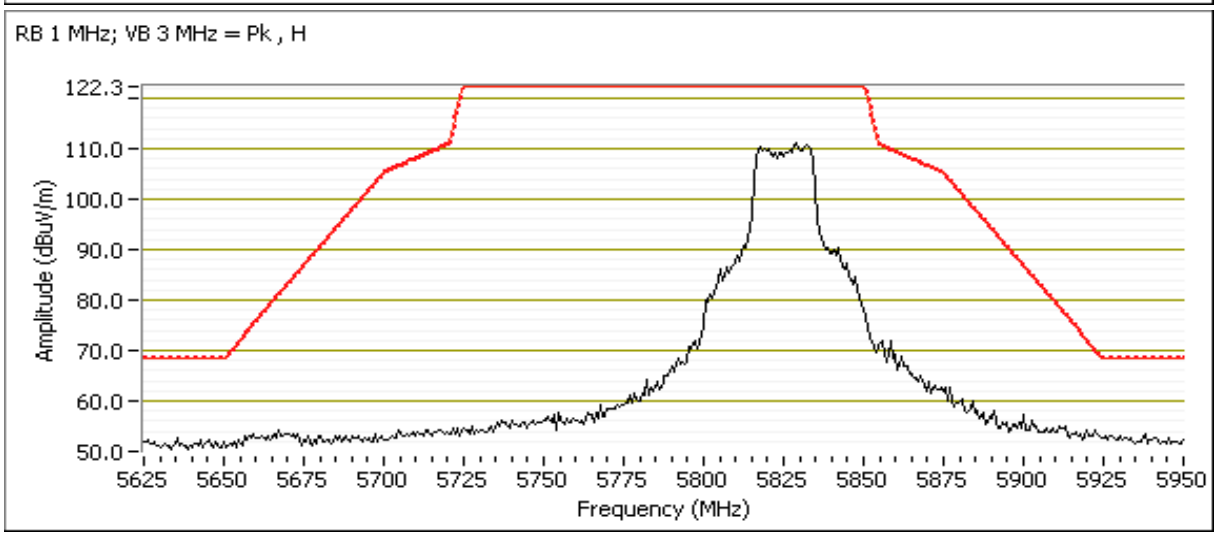
Channel: 165 - 5825MHz
Tx Chain: 4Tx
Mode: n20
Data Rate: MCS0

Power: q90
#of SS: 1

5850 MHz Band Edge Signal Radiated Field Strength

Frequency	Level	Pol	15.E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5932.310	59.4	V	68.3	-8.9	PK	90	1.3	POS; RB 1 MHz; VB: 3 MHz





Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	N/A

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

Date of Test: 3/7/2017 0:00
Test Engineer: Rafael Varelas
Test Location: FT Chamber#7

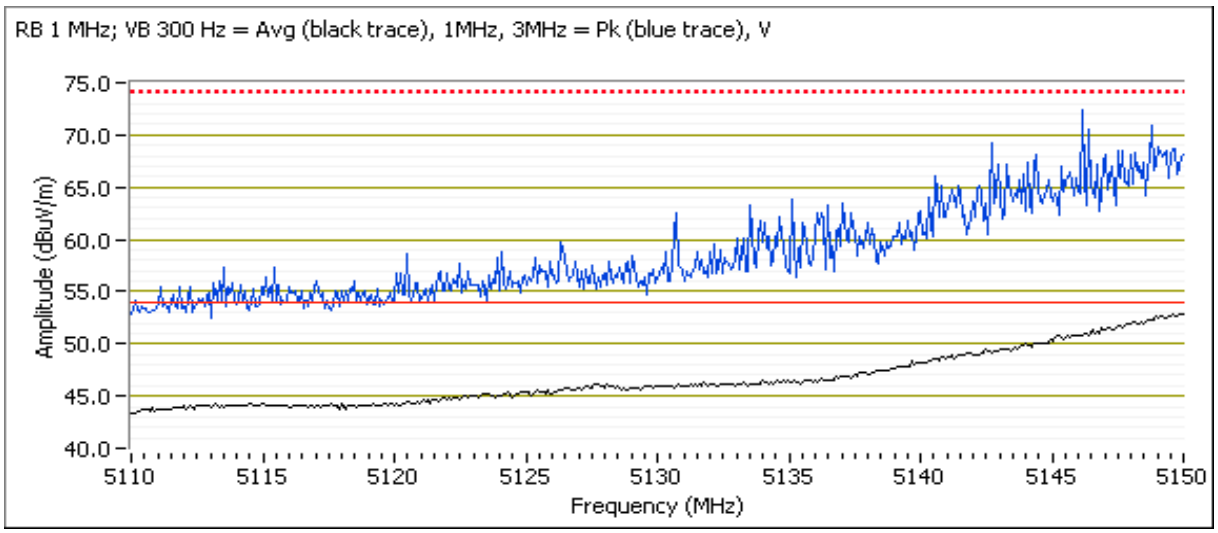
Config. Used: 1
Config Change: none
EUT Voltage: 120V/60Hz

Channel: 38 - 5190 MHz
Tx Chain: 4Tx
Mode: n40
Data Rate: MCS0

Power: q60
#of SS: 1

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	
q60								
5149.920	52.9	V	54.0	-1.1	Avg	94	1.0	POS; RB 1 MHz; VB: 300 Hz
5148.160	72.5	V	74.0	-1.5	PK	94	1.0	POS; RB 1 MHz; VB: 3 MHz
5149.980	45.6	H	54.0	-8.4	Avg	70	1.7	POS; RB 1 MHz; VB: 300 Hz
5146.730	64.5	H	74.0	-9.5	PK	70	1.7	POS; RB 1 MHz; VB: 3 MHz



Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	N/A

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

Date of Test: 3/7/2017 0:00
Test Engineer: Rafael Varelas
Test Location: FT Chamber#7

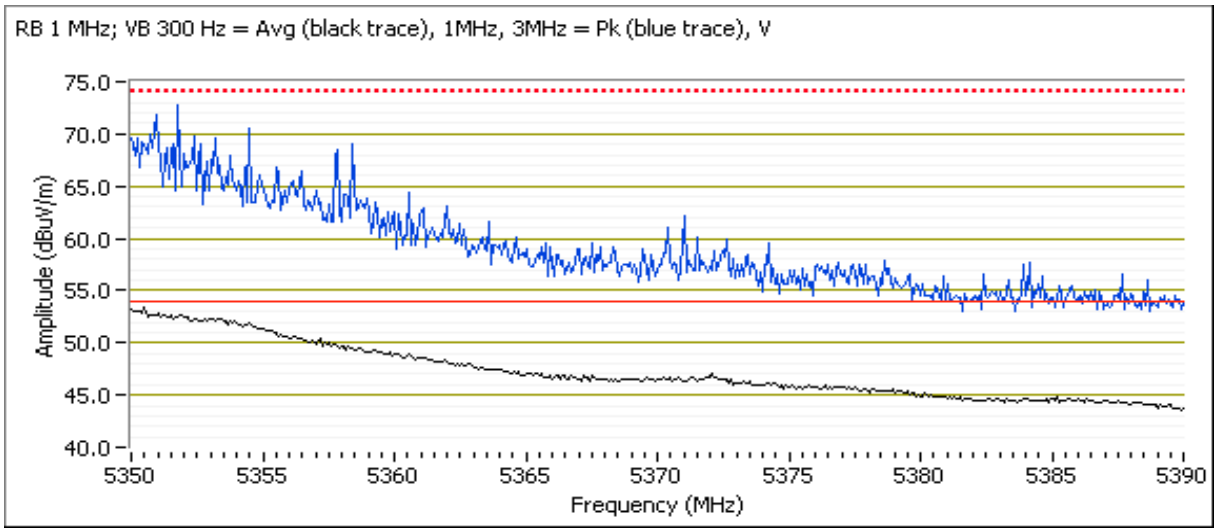
Config. Used: 1
Config Change: none
EUT Voltage: 120V/60Hz

Channel: 62 - 5310MHz
Tx Chain: 4Tx
Mode: n40
Data Rate: MCS0

Power: q62
#of SS: 1

5350 MHz Band Edge Signal Radiated Field Strength

Frequency	Level	Pol	FCC 15.209		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
q62								
5350.640	53.3	V	54.0	-0.7	Avg	88	1.3	POS; RB 1 MHz; VB: 300 Hz
5353.610	71.3	V	74.0	-2.7	PK	88	1.3	POS; RB 1 MHz; VB: 3 MHz
5350.680	49.5	H	54.0	-4.5	Avg	72	1.9	POS; RB 1 MHz; VB: 300 Hz
5353.130	69.1	H	74.0	-4.9	PK	72	1.9	POS; RB 1 MHz; VB: 3 MHz



Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	N/A

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

Date of Test: 3/7/2017 0:00
Test Engineer: Rafael Varelas
Test Location: FT Chamber#7

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

Channel: 102 - 5510MHz
Tx Chain: 4Tx
Mode: n40
Data Rate: MCS0

Power: q62
#of SS: 1

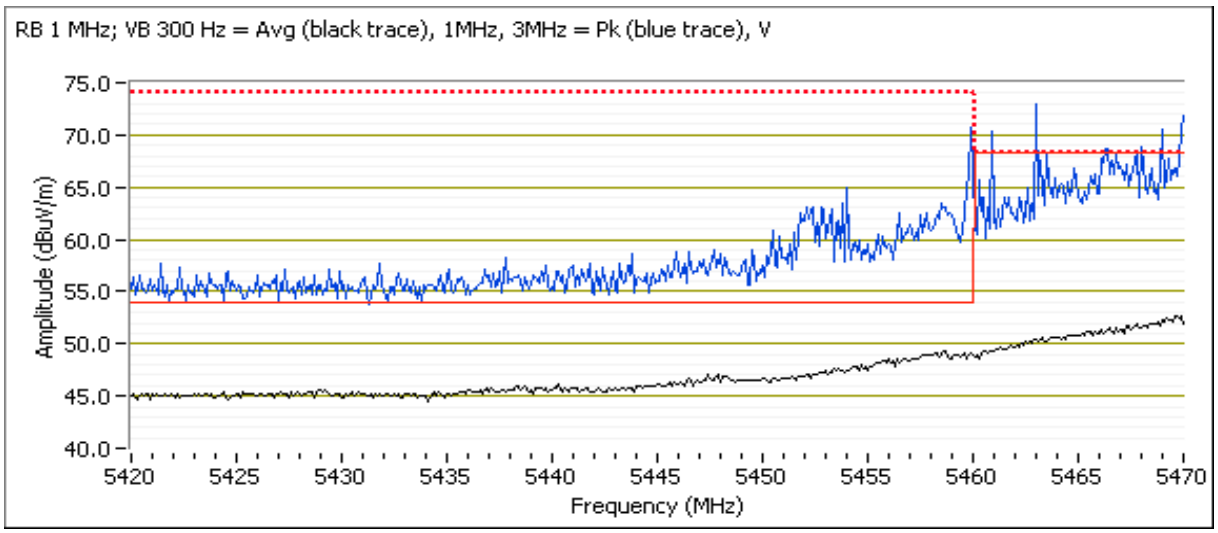
5460 MHz Band Edge Signal Radiated Field Strength

Frequency	Level	Pol	FCC 15.209		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
q62								
5457.840	49.6	V	54.0	-4.4	Avg	83	1.3	POS; RB 1 MHz; VB: 300 Hz
5457.190	67.9	V	74.0	-6.1	PK	83	1.3	POS; RB 1 MHz; VB: 3 MHz
5458.160	43.7	H	54.0	-10.3	Avg	61	1.4	POS; RB 1 MHz; VB: 300 Hz
5459.280	56.7	H	74.0	-17.3	PK	61	1.4	POS; RB 1 MHz; VB: 3 MHz

Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	N/A

5470 MHz Band Edge Signal Radiated Field Strength

Frequency	Level	Pol	15.E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
q62								
5469.920	53.2	V	54.0	-0.8	Avg	83	1.3	POS; RB 1 MHz; VB: 300 Hz
5469.900	72.1	V	74.0	-1.9	PK	83	1.3	POS; RB 1 MHz; VB: 3 MHz
5469.640	45.0	H	54.0	-9.0	Avg	61	1.4	POS; RB 1 MHz; VB: 300 Hz
5469.860	64.3	H	74.0	-9.7	PK	61	1.4	POS; RB 1 MHz; VB: 3 MHz



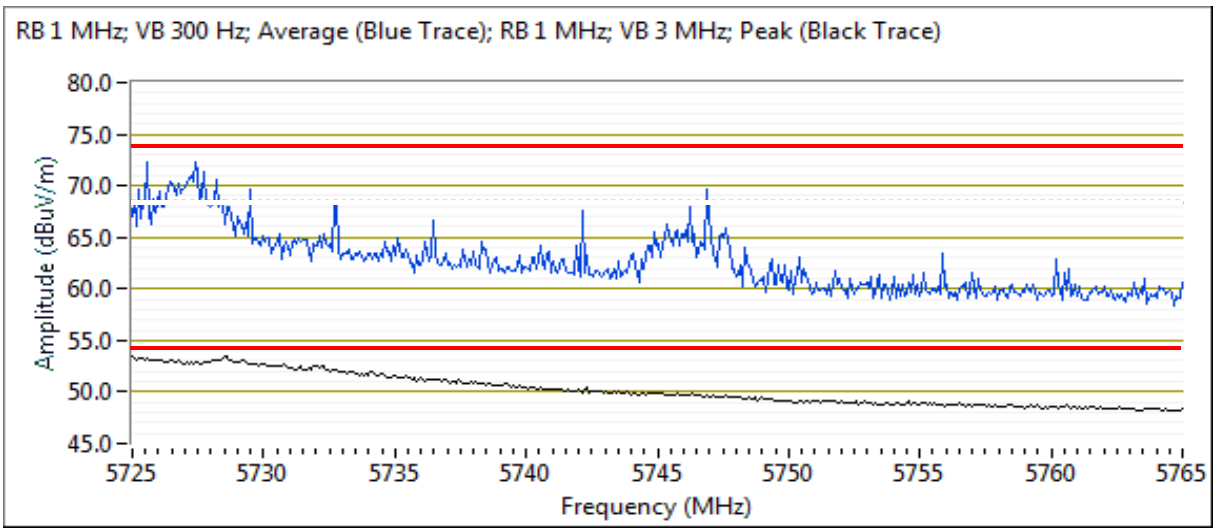
Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	N/A

Channel: 134 - 5670MHz
Tx Chain: 4Tx
Mode: n40
Data Rate: MCS0

Power: q70
#of SS: 1

5725 MHz Band Edge Signal Radiated Field Strength

Frequency	Level	Pol	15.E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
q70								
5728.370	53.8	V	54.0	-0.2	AVG	147	1.7	POS; RB 1 MHz; VB: 300 Hz
5726.480	72.9	V	74.0	-1.1	PK	147	1.7	POS; RB 1 MHz; VB: 3 MHz
5725.150	48.6	H	54.0	-5.4	Avg	38	1.5	POS; RB 1 MHz; VB: 300 Hz
5726.860	62.8	H	74.0	-11.2	PK	38	1.5	POS; RB 1 MHz; VB: 3 MHz



Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	N/A

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

Date of Test: 3/7/2017 0:00
Test Engineer: Rafael Varelas
Test Location: FT Chamber#7

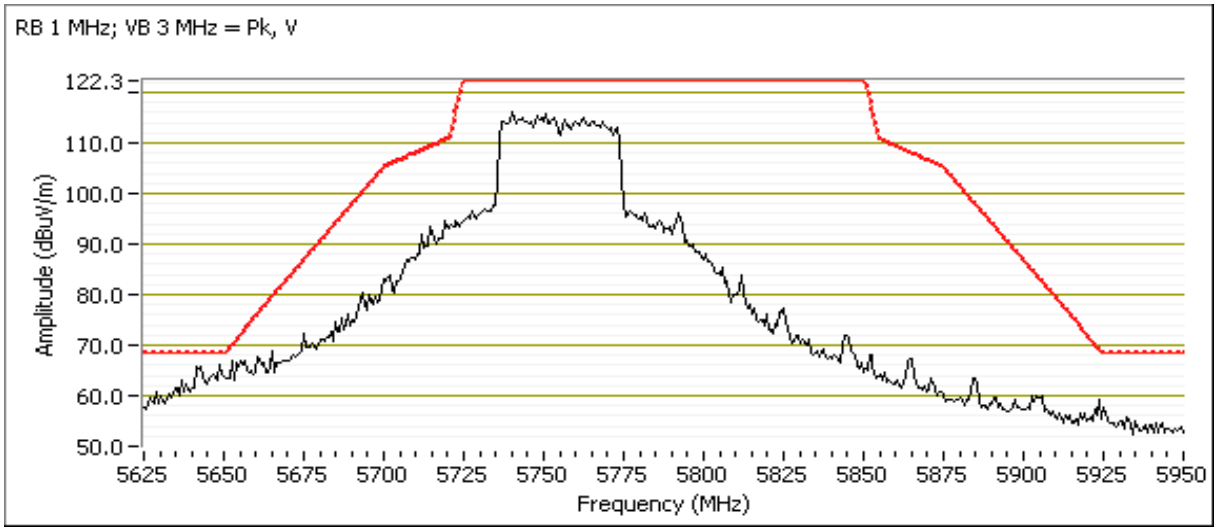
Config. Used: 1
Config Change: none
EUT Voltage: 120V/60Hz

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

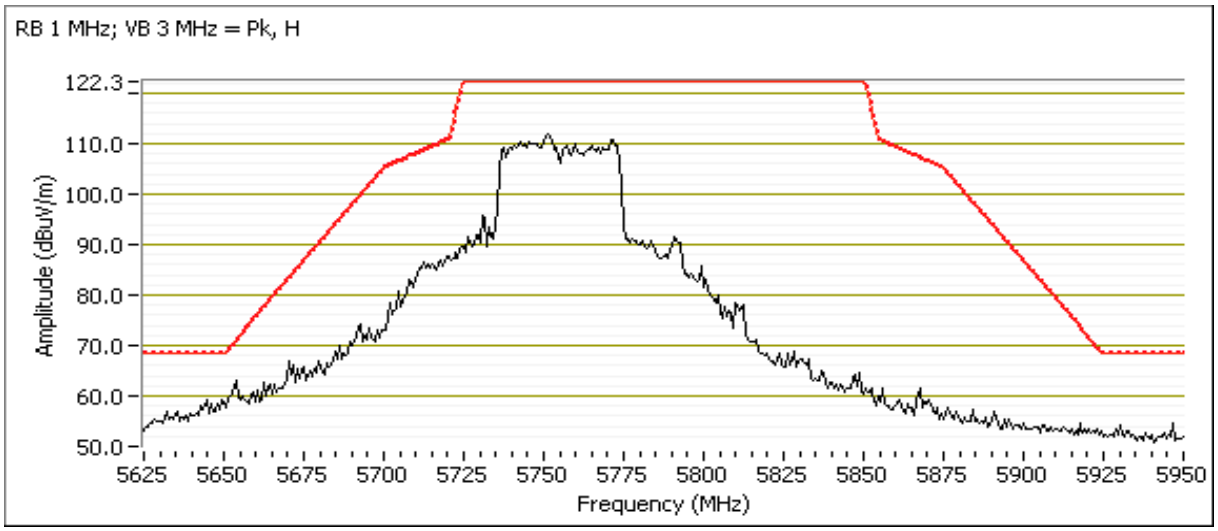
Power: q88
#of SS: 1

5725 MHz Band Edge Signal Radiated Field Strength

Frequency	Level	Pol	15.E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
q88								
5649.400	67.9	V	68.3	-0.4	PK	353	1.3	POS; RB 1 MHz; VB: 3 MHz



Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	N/A



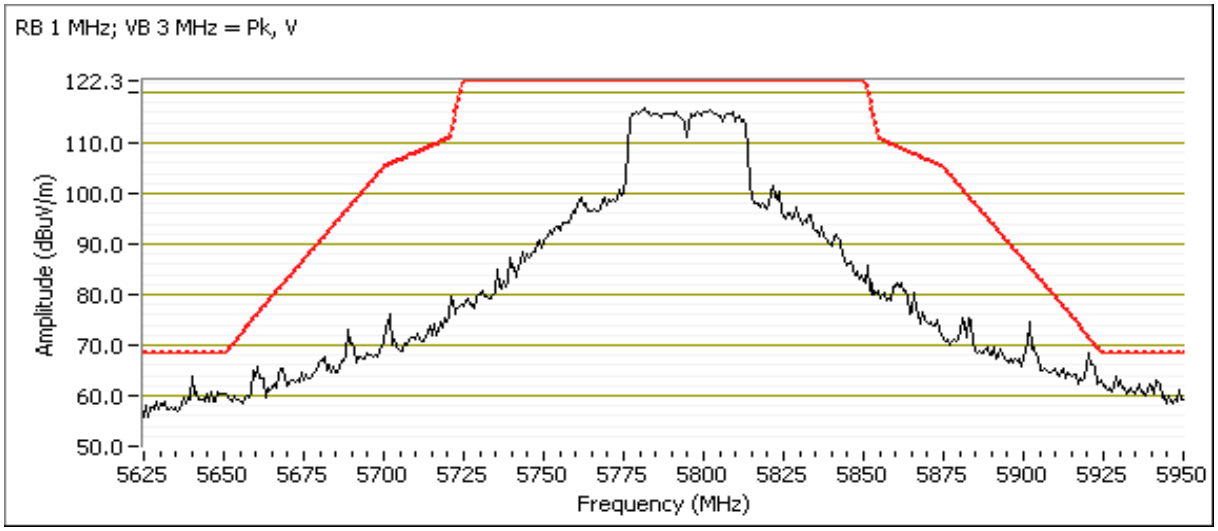
Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	N/A

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

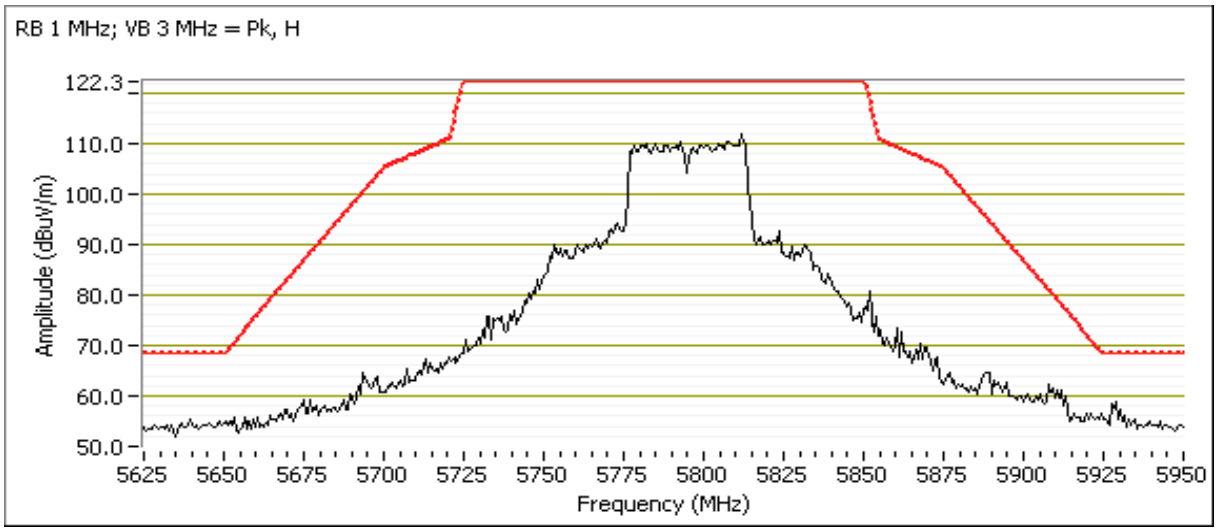
Power: q90
#of SS: 1

5850 MHz Band Edge Signal Radiated Field Strength

Frequency	Level	Pol	15.E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5922.130	69.8	V	70.4	-0.6	PK	303	1.0	POS; RB 1 MHz; VB: 3 MHz
5642.180	63.1	V	68.3	-5.2	PK	303	1.0	POS; RB 1 MHz; VB: 3 MHz



Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	N/A



Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	N/A

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

Date of Test: 3/7/2017 0:00
Test Engineer: Rafael Varelas
Test Location: FT Chamber#7

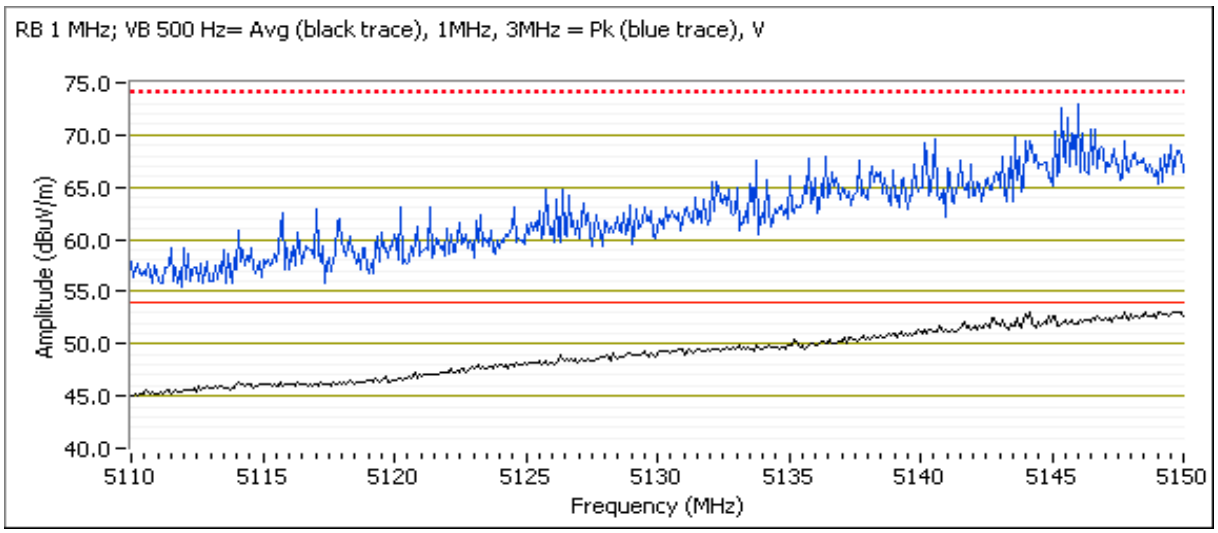
Config. Used: 1
Config Change: none
EUT Voltage: 120V/60Hz

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

Power: q59
#of SS: 1

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	
q59								
5149.520	52.9	V	54.0	-1.1	Avg	91	1.0	POS; RB 1 MHz; VB: 500 Hz
5144.070	72.2	V	74.0	-1.8	PK	91	1.0	POS; RB 1 MHz; VB: 3 MHz
5148.880	47.7	H	54.0	-6.3	Avg	70	1.4	POS; RB 1 MHz; VB: 500 Hz
5141.740	63.9	H	74.0	-10.1	PK	70	1.4	POS; RB 1 MHz; VB: 3 MHz



Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	N/A

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

Date of Test: 3/7/2017 0:00
Test Engineer: Rafael Varelas
Test Location: FT Chamber#7

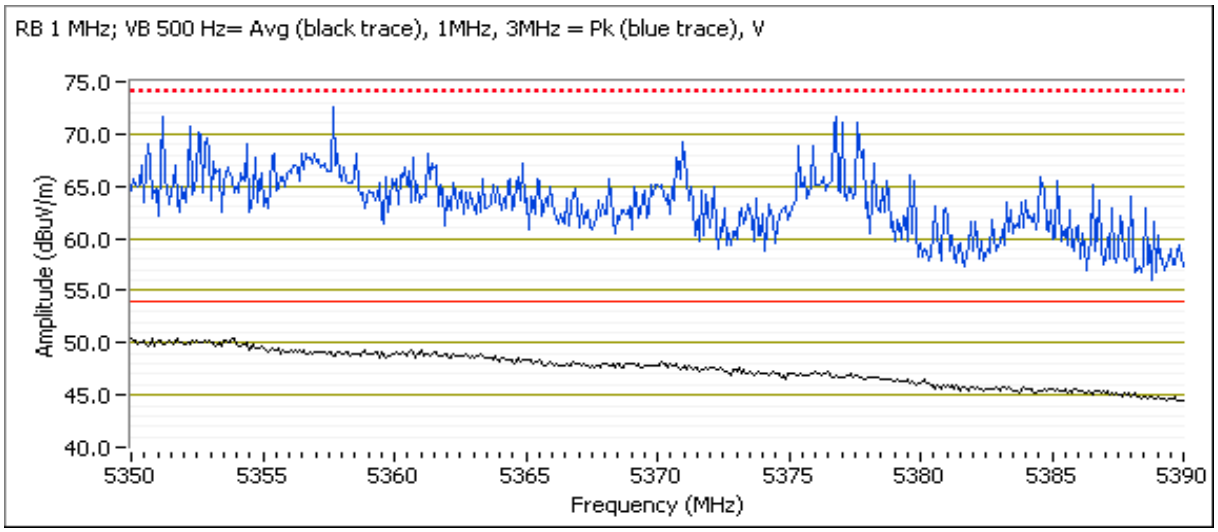
Config. Used: 1
Config Change: none
EUT Voltage: 120V/60Hz

Channel: 58 - 5290MHz
Tx Chain: 4Tx
Mode: ac80
Data Rate: VHT0

Power: q56
#of SS: 1

5350 MHz Band Edge Signal Radiated Field Strength

Frequency	Level	Pol	FCC 15.209		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
q56								
5351.360	50.2	V	54.0	-3.8	Avg	86	1.4	POS; RB 1 MHz; VB: 500 Hz
5356.810	72.7	V	74.0	-1.3	PK	86	1.4	POS; RB 1 MHz; VB: 3 MHz
5353.690	46.8	H	54.0	-7.2	Avg	70	1.8	POS; RB 1 MHz; VB: 500 Hz
5351.120	66.5	H	74.0	-7.5	PK	70	1.8	POS; RB 1 MHz; VB: 3 MHz



Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	N/A

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

Date of Test: 3/8/2017 0:00
Test Engineer: Joseph Cadigal
Test Location: FT Chamber#7

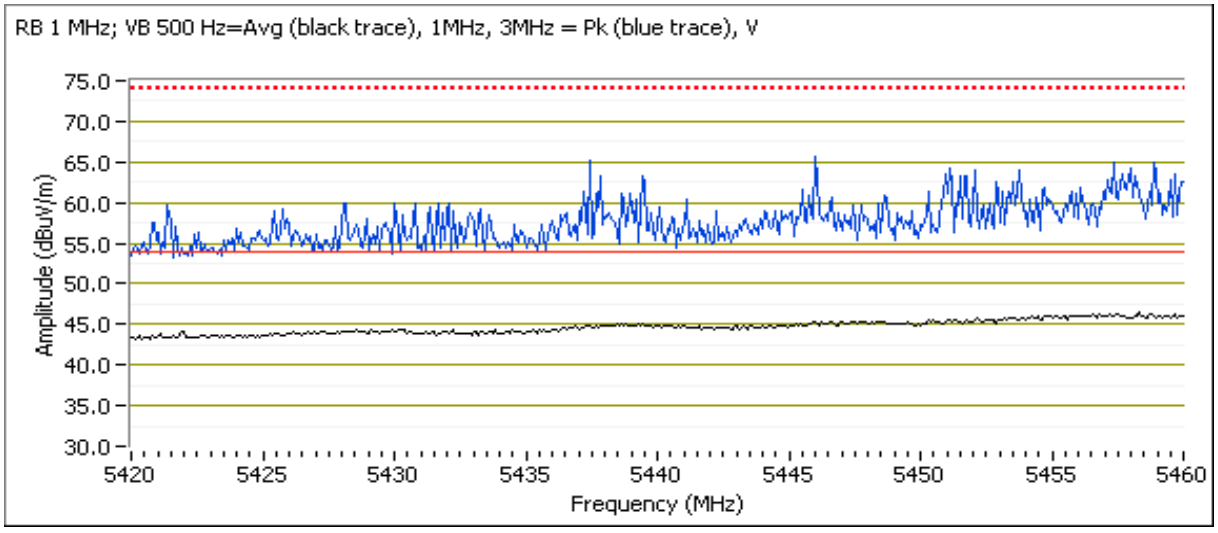
Config. Used: 1
Config Change: none
EUT Voltage: 120V/60Hz

Channel: 106 - 5530MHz
Tx Chain: 4Tx
Mode: ac80
Data Rate: VHT0

Power: q53
#of SS: 1

5460 MHz Band Edge Signal Radiated Field Strength

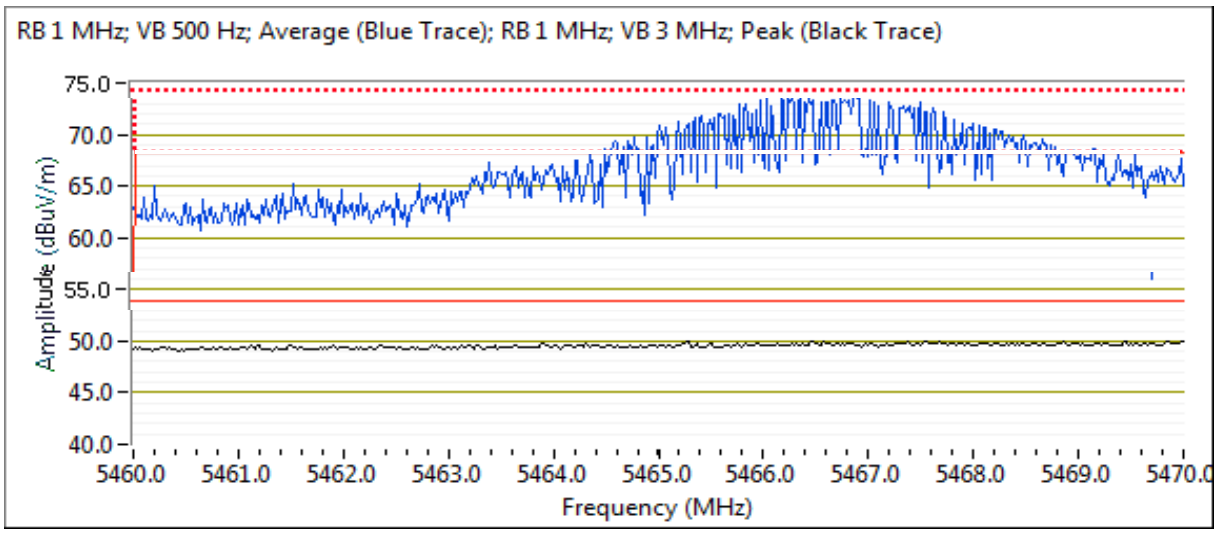
Frequency	Level	Pol	FCC 15.209		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5459.760	51.0	V	54.0	-3.0	Avg	84	1.3	POS; RB 1 MHz; VB: 500 Hz
5455.590	65.2	V	74.0	-8.8	Pk	84	1.3	POS; RB 1 MHz; VB: 3 MHz
5455.590	47.2	H	54.0	-6.8	Avg	65	1.0	POS; RB 1 MHz; VB: 500 Hz
5457.840	58.8	H	74.0	-15.2	Pk	65	1.0	POS; RB 1 MHz; VB: 3 MHz



Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	N/A

5470 MHz Band Edge Signal Radiated Field Strength

Frequency	Level	Pol	15.E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
q53								
5467.750	73.8	V	74.0	-0.2	PK	147	1.7	POS; RB 1 MHz; VB: 3 MHz
5467.270	52.5	V	54.0	-1.5	RMS	147	1.7	POS; RB 1 MHz; VB: 3 MHz, Note 4



Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	N/A

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

Date of Test: 3/8/2017 0:00
Test Engineer: Joseph Cadigal
Test Location: FT Chamber#7

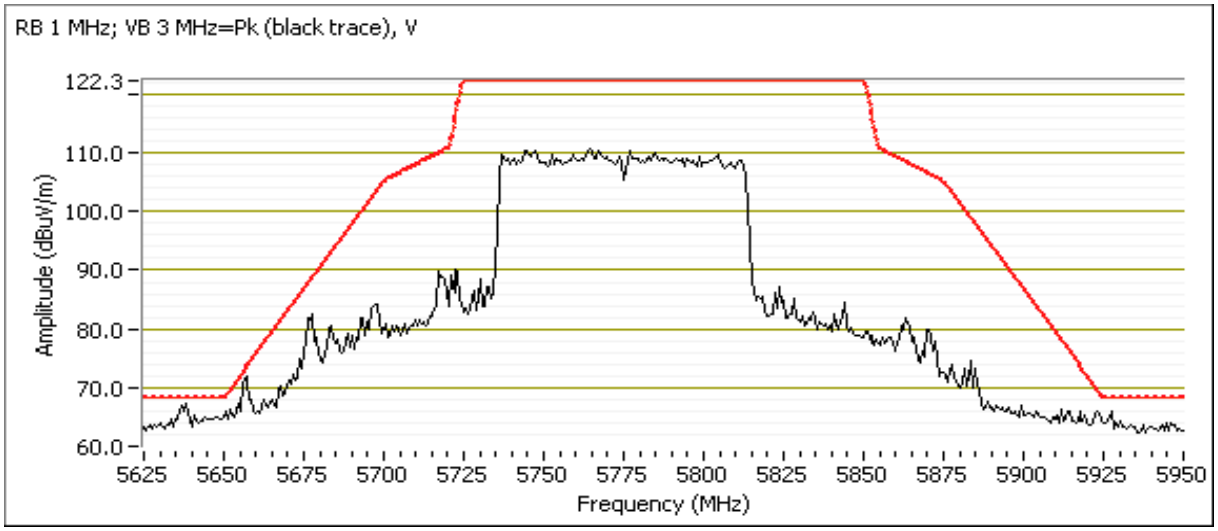
Config. Used: 1
Config Change: none
EUT Voltage: 120V/60Hz

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

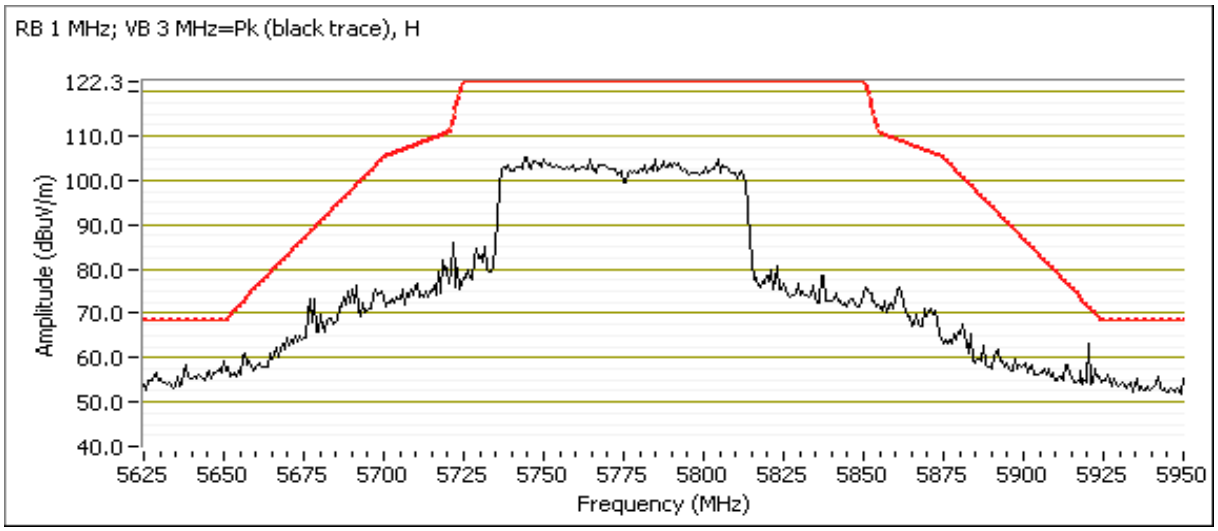
Power: q77
#of SS: 1

5725 MHz Band Edge Signal Radiated Field Strength

Frequency	Level	Pol	15.E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5633.070	68.2	V	68.3	-0.1	Pk	351	1.0	POS; RB 1 MHz; VB: 3 MHz
5659.090	60.6	H	75.0	-14.4	Pk	93	1.4	POS; RB 1 MHz; VB: 3 MHz



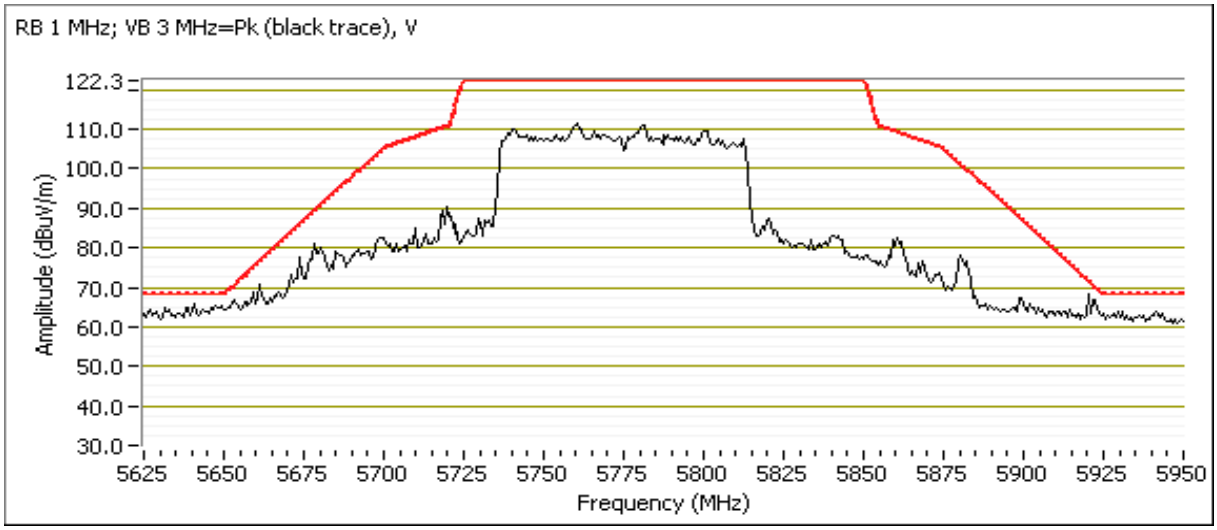
Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	N/A

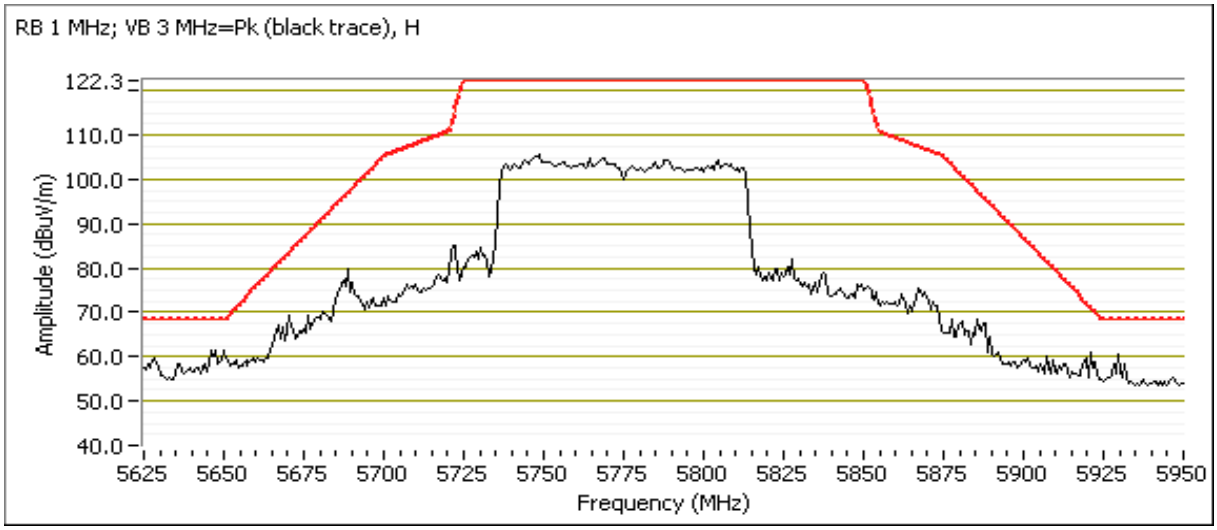


Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	N/A

5850 MHz Band Edge Signal Radiated Field Strength

Frequency	Level	Pol	15.E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5921.840	69.8	V	70.6	-0.8	Pk	351	1.0	POS; RB 1 MHz; VB: 3 MHz
5900.000	58.6	H	86.8	-28.2	Pk	93	1.4	POS; RB 1 MHz; VB: 3 MHz





Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	N/A

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

Test Specific Details

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

General Test Configuration

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

Ambient Conditions:

Temperature: 25 °C
Rel. Humidity: 30 %

Summary of Results

Run #	Mode	Channel	Power Setting	Passing Pwr Setting	Test Performed	Limit	Result / Margin
Scans on "center" channel in all four OFDM modes to determine the worst case mode.							
1	a	40 - 5200MHz	q90	q84	Radiated Emissions, 1 - 40 GHz	FCC 15.209 / 15 E	68.1 dBµV/m @ 10398.7 MHz (-0.2 dB)
	n20	40 - 5200MHz	q90	q87	Radiated Emissions, 1 - 40 GHz	FCC 15.209 / 15 E	67.8 dBµV/m @ 10398.2 MHz (-0.5 dB)
	n40	38 - 5190MHz	q90	q85	Radiated Emissions, 1 - 40 GHz	FCC 15.209 / 15 E	53.4 dBµV/m @ 5425.6 MHz (-0.6 dB)
	ac80	42 - 5210MHz	q90	q85	Radiated Emissions, 1 - 40 GHz	FCC 15.209 / 15 E	53.6 dBµV/m @ 5439.5 MHz (-0.3 dB)
Measurements on low and high channels in worst-case OFDM mode.							
2	a	36 - 5180MHz	q90	q86	Radiated Emissions, 1 - 40 GHz	FCC 15.209 / 15 E	67.9 dBµV/m @ 10359.2 MHz (-0.4 dB)
	a	48 - 5240MHz	q90	q90	Radiated Emissions, 1 - 40 GHz	FCC 15.209 / 15 E	67.7 dBµV/m @ 10481.9 MHz (-0.6 dB)

Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	N/A

Summary of Results

Run #	Mode	Channel	Power Setting	Passing Pwr Setting	Test Performed	Limit	Result / Margin
Scans on "center" channel in all four OFDM modes to determine the worst case mode.							
3	a	60 - 5300MHz	q90	q90	Radiated Emissions, 1 - 40 GHz	FCC 15.209 / 15 E	50.5 dBµV/m @ 10600.0 MHz (-3.5 dB)
	n20	60 - 5300MHz	q90	q90	Radiated Emissions, 1 - 40 GHz	FCC 15.209 / 15 E	53.9 dBµV/m @ 10601.6 MHz (-0.1 dB)
	n40	54 - 5270MHz	q90	q87	Radiated Emissions, 1 - 40 GHz	FCC 15.209 / 15 E	53.4 dBµV/m @ 5421.9 MHz (-0.6 dB)
	ac80	58 - 5290MHz	q90	q75	Radiated Emissions, 1 - 40 GHz	FCC 15.209 / 15 E	53.4 dBµV/m @ 5424.3 MHz (-0.6 dB)
Measurements on low and high channels in worst-case OFDM mode.							
4	n20	52 - 5260MHz	q90	q88	Radiated Emissions, 1 - 40 GHz	FCC 15.209 / 15 E	67.8 dBµV/m @ 10521.6 MHz (-0.5 dB)
	n20	64 - 5320MHz	q90	q90	Radiated Emissions, 1 - 40 GHz	FCC 15.209 / 15 E	51.5 dBµV/m @ 10641.6 MHz (-2.5 dB)
40MHz - use if worse case from 3 but must do highest 20 MHz channel also							
4	n40	62 - 5310MHz	q90	q90	Radiated Emissions, 1 - 40 GHz	FCC 15.209 / 15 E	52.6 dBµV/m @ 5440.7 MHz (-1.4 dB)
Scans on "center" channel in all four OFDM modes to determine the worst case mode.							
5	a	116 - 5580MHz	q90	q85	Radiated Emissions, 1 - 40 GHz	FCC 15.209 / 15 E	53.3 dBµV/m @ 5355.4 MHz (-0.7 dB)
	n20	116 - 5580MHz	q90	q75	Radiated Emissions, 1 - 40 GHz	FCC 15.209 / 15 E	53.6 dBµV/m @ 5355.7 MHz (-0.4 dB)
	n40	110 - 5550MHz	q90	q86	Radiated Emissions, 1 - 40 GHz	FCC 15.209 / 15 E	53.8 dBµV/m @ 5374.5 MHz (-0.2 dB)
	ac80	106 - 5530MHz	q90	q77	Radiated Emissions, 1 - 40 GHz	FCC 15.209 / 15 E	52.9 dBµV/m @ 5378.0 MHz (-1.1 dB)
Measurements on low and high channels in worst-case OFDM mode.							
6	n20	100 - 5500MHz	q90	q90	Radiated Emissions, 1 - 40 GHz	FCC 15.209 / 15 E	49.5 dBµV/m @ 11001.3 MHz (-4.5 dB)
	n20	144- 5720MHz	q90	q90	Radiated Emissions, 1 - 40 GHz	FCC 15.209 / 15 E	49.6 dBµV/m @ 11444.4 MHz (-4.4 dB)

Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	N/A

Summary of Results

Run #	Mode	Channel	Power Setting	Passing Pwr Setting	Test Performed	Limit	Result / Margin
Scans on "center" channel in all four OFDM modes to determine the worst case mode.							
7	a	157 - 5785MHz	q90	q90	Radiated Emissions, 1 - 40 GHz	FCC 15.209 / 15 E	53.2 dBµV/m @ 11568.1 MHz (-0.8 dB)
	n20	157 - 5785MHz	q90	q90	Radiated Emissions, 1 - 40 GHz	FCC 15.209 / 15 E	53.1 dBµV/m @ 11570.1 MHz (-0.9 dB)
	n40	159 - 5795MHz	q90	q90	Radiated Emissions, 1 - 40 GHz	FCC 15.209 / 15 E	51.9 dBµV/m @ 11591.6 MHz (-2.1 dB)
	ac80	155 - 5775MHz	q90	q82	Radiated Emissions, 1 - 40 GHz	FCC 15.209 / 15 E	67.2 dBµV/m @ 5611.1 MHz (-1.1 dB)
Measurements on low and high channels in worst-case OFDM mode.							
8	a	149 - 5745MHz	q90	q90	Radiated Emissions, 1 - 40 GHz	FCC 15.209 / 15 E	68.1 dBµV/m @ 5513.1 MHz (-0.2 dB)
	a	165- 5825MHz	q90	q90	Radiated Emissions, 1 - 40 GHz	FCC 15.209 / 15 E	53.7 dBµV/m @ 11648.4 MHz (-0.3 dB)

Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	N/A

Modifications Made During Testing

No modifications were made to the EUT during testing

Deviations From The Standard

No deviations were made from the requirements of the standard.

Procedure Comments:

Measurements performed in accordance with FCC KDB 789033
Peak measurements performed with: RBW=1MHz, VBW=3MHz, peak detector, max hold, auto sweep time
Unless otherwise stated/noted, emission has duty cycle ≥ 98% and was measured using RBW=1MHz, VBW=10Hz, peak detector, linear average mode, auto sweep time, max hold 50 traces. (method VB of KDB 789033)

	Mode	Data Rate	Duty Cycle (x)	Constant DC?	T (ms)	Pwr Cor Factor*	Lin Volt Cor Factor**	Min VBW for FS (Hz)
1SS	11a	6MB/s	0.99	Yes	1.952	0	0	10
1SS	11n20	MCS0	0.99	Yes	1.953	0	0	10
1SS	n40	MCS0	0.9798	Yes	0.971	0.0885442	0.2	1030
1SS	ac80	VHT0	0.96	Yes	0.46	0.1848341	0.4	2174

Sample Notes

Sample S/N: G62DA7BU20005B
Driver: -
Antenna: Internal 4x4

Measurement Specific Notes:

Note 1:	For emissions outside of the restricted bands the limit is -27dBm/MHz eirp (68.3dBuV/m). The measurement method required is a peak measurement (RB=1MHz, VB≥3MHz, peak detector). Per KDB 789033 2) c) (i), compliance can be demonstrated by meeting the average and peak limits of 15.209, as an alternative.
Note 2:	Emission has a duty cycle ≥ 98%, average measurement performed: RBW=1MHz, VBW=3MHz, RMS, Power averaging, auto sweep, trace average 100 traces (method AD of KDB 789033)
Note 3:	Emission has constant duty cycle < 98%, average measurement performed: RBW=1MHz, VBW>1/T but not less than 10Hz, peak detector, linear averaging, auto sweep,max hold 50*1/DC traces (method VB of KDB 789033)
Note 4:	Emission has a duty cycle < 98%, average measurement performed: RBW=1MHz, VBW=3MHz, RMS, Power averaging, auto sweep, trace average 100*1/DC traces, measurement corrected by Pwr correction factor (method AD of KDB 789033)

Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	N/A

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

Date of Test: 2/28/2017 0:00 Config. Used: 1

Test Engineer: Joseph Cadigal Config Change: none

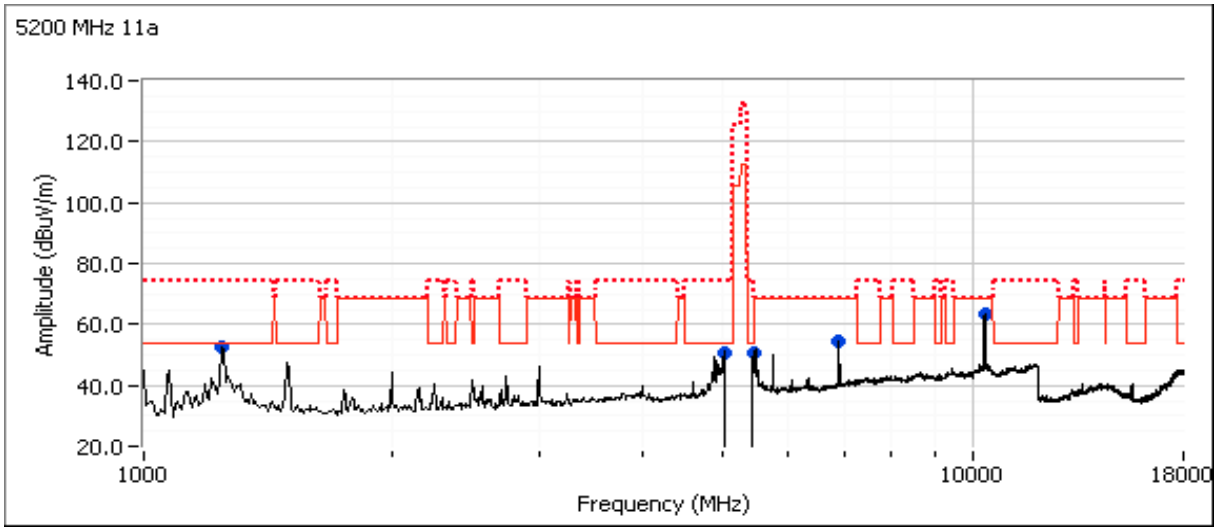
Test Location: FT Chamber#7 EUT Voltage: 120V/60Hz

Run #1a: Center Channel

Channel: 40 Mode: a

Tx Chain: 4Tx Data Rate: 6MB/s

Frequency	Level	Pol	15.209 / 15E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
10398.690	68.1	V	68.3	-0.2	PK	168	1.3	RB 1 MHz;VB 3 MHz;Peak, q 84
5432.610	48.4	V	54.0	-5.6	AVG	72	1.0	RB 1 MHz;VB 10 Hz;Peak
5432.690	59.0	V	74.0	-15.0	PK	72	1.0	RB 1 MHz;VB 3 MHz;Peak
5043.290	51.5	V	54.0	-2.5	AVG	102	1.3	RB 1 MHz;VB 10 Hz;Peak
5043.150	62.0	V	74.0	-12.0	PK	102	1.3	RB 1 MHz;VB 3 MHz;Peak
1249.130	41.0	H	54.0	-13.0	AVG	199	1.9	RB 1 MHz;VB 10 Hz;Peak
1248.430	67.7	H	74.0	-6.3	PK	199	1.9	RB 1 MHz;VB 3 MHz;Peak
6933.360	58.3	V	68.3	-10.0	PK	320	1.3	RB 1 MHz;VB 3 MHz;Peak



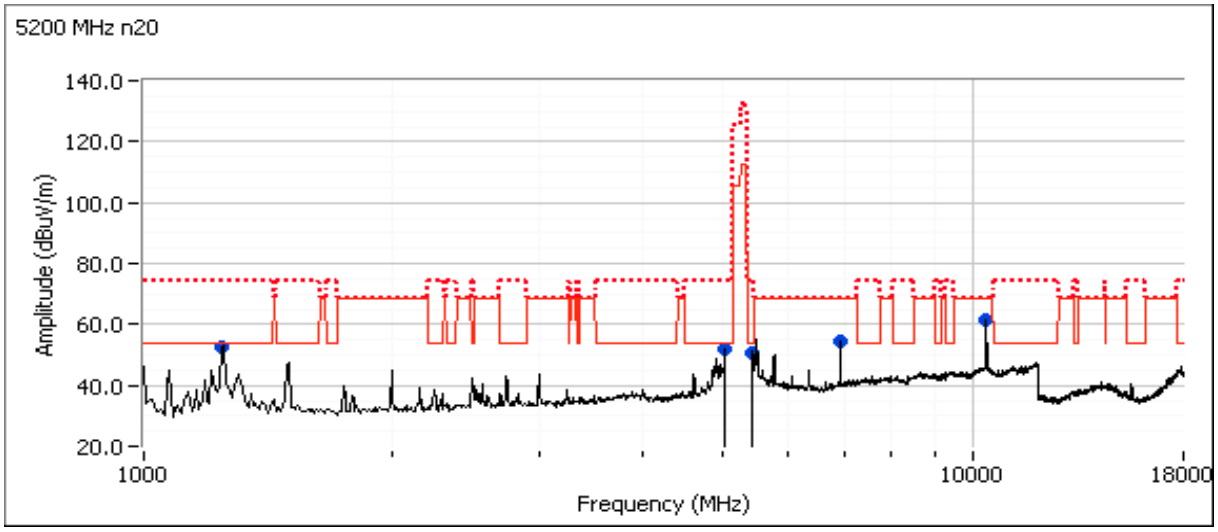
Note:	*Scans made between 18 - 40 GHz with the measurement antenna moved around the card and its antennas 20-50cm from the device indicated there were no significant emissions in this frequency range*
Note 1:	For emissions in restricted bands, the limit of 15.209 was used which requires average and peak 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:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	N/A

Run #1b: Center Channel

Channel: 40 Mode: 11n20
Tx Chain: 4Tx 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	
10398.220	67.8	V	68.3	-0.5	PK	215	1.3	RB 1 MHz;VB 3 MHz;Peak, q 87
5035.640	49.8	V	54.0	-4.2	AVG	16	1.5	RB 1 MHz;VB 10 Hz;Peak
5034.800	61.0	V	74.0	-13.0	PK	16	1.5	RB 1 MHz;VB 3 MHz;Peak
1248.730	41.8	H	54.0	-12.2	AVG	196	1.9	RB 1 MHz;VB 10 Hz;Peak
1248.830	68.1	H	74.0	-5.9	PK	196	1.9	RB 1 MHz;VB 3 MHz;Peak
5433.600	48.9	V	54.0	-5.1	AVG	200	1.6	RB 1 MHz;VB 10 Hz;Peak
5433.260	60.2	V	74.0	-13.8	PK	200	1.6	RB 1 MHz;VB 3 MHz;Peak
6933.500	57.8	V	68.3	-10.5	PK	336	1.0	RB 1 MHz;VB 3 MHz;Peak



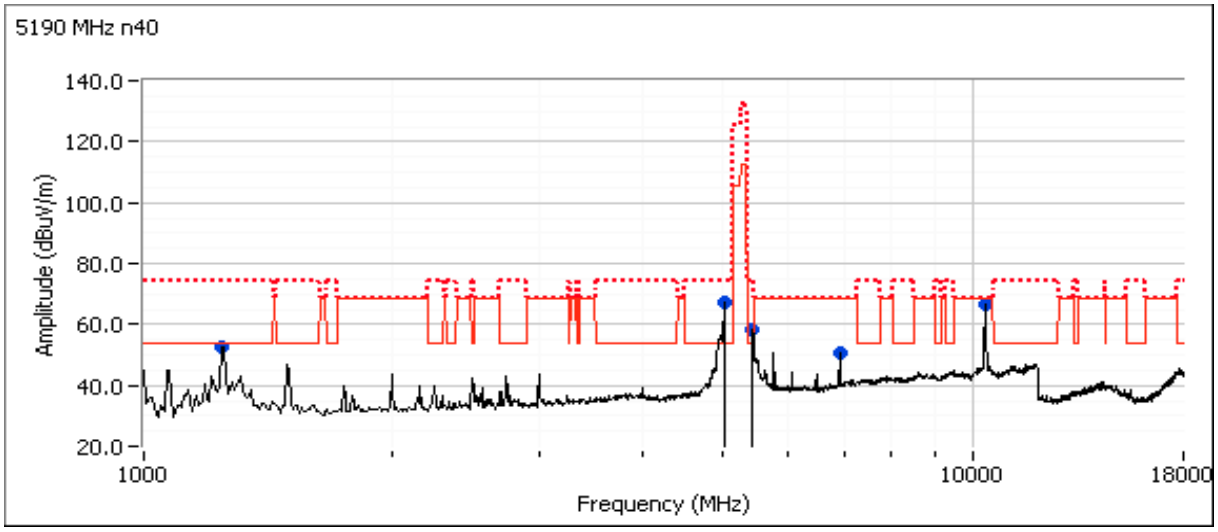
Note:	*Scans made between 18 - 40 GHz with the measurement antenna moved around the card and its antennas 20-50cm from the device indicated there were no significant emissions in this frequency range*
Note 1:	For emissions in restricted bands, the limit of 15.209 was used which requires average and peak 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:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	N/A

Run #1c: Center Channel

Channel: 38 Mode: 11n40
Tx Chain: 4Tx 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	
5425.570	53.4	V	54.0	-0.6	AVG	92	1.6	RB 1 MHz;VB 1kHz;Peak, q85
5031.340	72.1	V	74.0	-1.9	PK	20	1.6	RB 1 MHz;VB 3 MHz;Peak
5424.460	64.2	V	74.0	-9.8	PK	92	1.6	RB 1 MHz;VB 3 MHz;Peak
10381.230	59.3	V	68.3	-9.0	PK	166	1.3	RB 1 MHz;VB 3 MHz;Peak
1248.830	41.4	H	54.0	-12.6	AVG	177	1.6	RB 1 MHz;VB 10 Hz;Peak
1248.760	66.7	H	74.0	-7.3	PK	177	1.6	RB 1 MHz;VB 3 MHz;Peak
6920.100	50.1	V	68.3	-18.2	AVG	317	1.3	RB 1 MHz;VB 10 Hz;Peak
6919.900	55.1	V	68.3	-13.2	PK	317	1.3	RB 1 MHz;VB 3 MHz;Peak



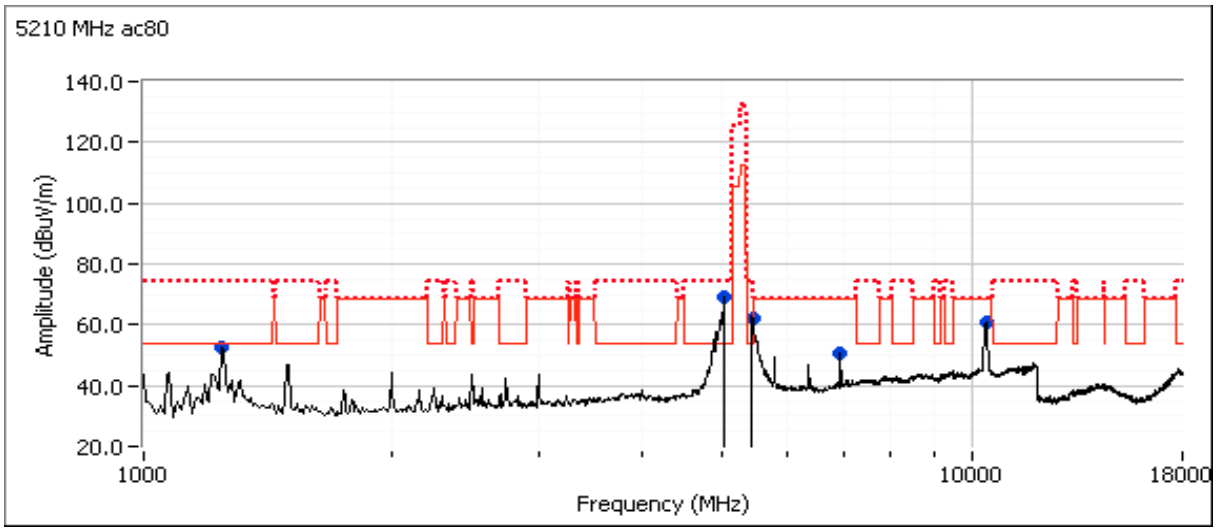
Note:	*Scans made between 18 - 40 GHz with the measurement antenna moved around the card and its antennas 20-50cm from the device indicated there were no significant emissions in this frequency range*
Note 1:	For emissions in restricted bands, the limit of 15.209 was used which requires average and peak 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).
Note 3:	Plot captured with the device operating at a higher output power than the final measurements in the table.

Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	N/A

Run #1d: Center Channel

Channel: 42 Mode: ac80
Tx Chain: 4Tx 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	
1249.250	41.8	V	54.0	-12.2	AVG	117	2.2	RB 1 MHz;VB 3 kHz;Peak
1248.840	61.8	V	74.0	-12.2	PK	117	2.2	RB 1 MHz;VB 3 MHz;Peak
5438.950	71.8	V	74.0	-2.2	PK	189	1.6	RB 1 MHz;VB 3 MHz;Peak
6946.760	55.1	V	68.3	-13.2	PK	322	1.3	RB 1 MHz;VB 3 MHz;Peak
10415.710	62.2	V	68.3	-6.1	AVG	47	1.0	RB 1 MHz;VB 3 MHz;Peak, q85
5046.790	52.0	V	54.0	-2.0	AVG	47	1.0	RB 1 MHz;VB 3 kHz;Peak, q85
1248.890	40.3	V	54.0	-13.7	AVG	117	2.2	RB 1 MHz;VB 3 kHz;Peak, q85
5439.490	53.6	V	54.0	-0.3	AVG	189	1.6	RB 1 MHz;VB 3 kHz;Peak, q85



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

Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	N/A

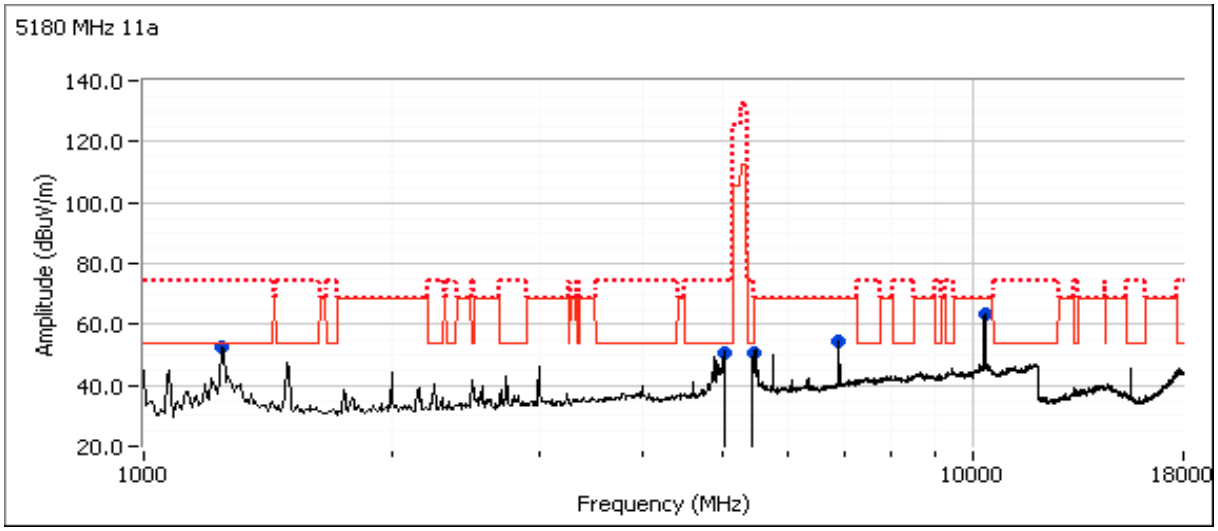
Run #2: Radiated Spurious Emissions, 1,000 - 40000 MHz. Operating Mode: Worse case from Run #1

Date of Test: 2/28/2017 0:00 Config. Used: 1
Test Engineer: Joseph Cadigal Config Change: None
Test Location: FT Chamber#7 EUT Voltage: 120V/60Hz

Run #2a: Low Channel

Channel: 36 Mode: 11a
Tx Chain: 4Tx Data Rate: 6Mb

Frequency	Level	Pol	15.209 / 15E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
6906.660	55.9	V	68.3	-12.4	PK	321	1.2	RB 1 MHz;VB 3 MHz;Peak
10359.230	67.9	V	68.3	-0.4	PK	166	1.3	RB 1 MHz;VB 3 MHz;Peak, q 86

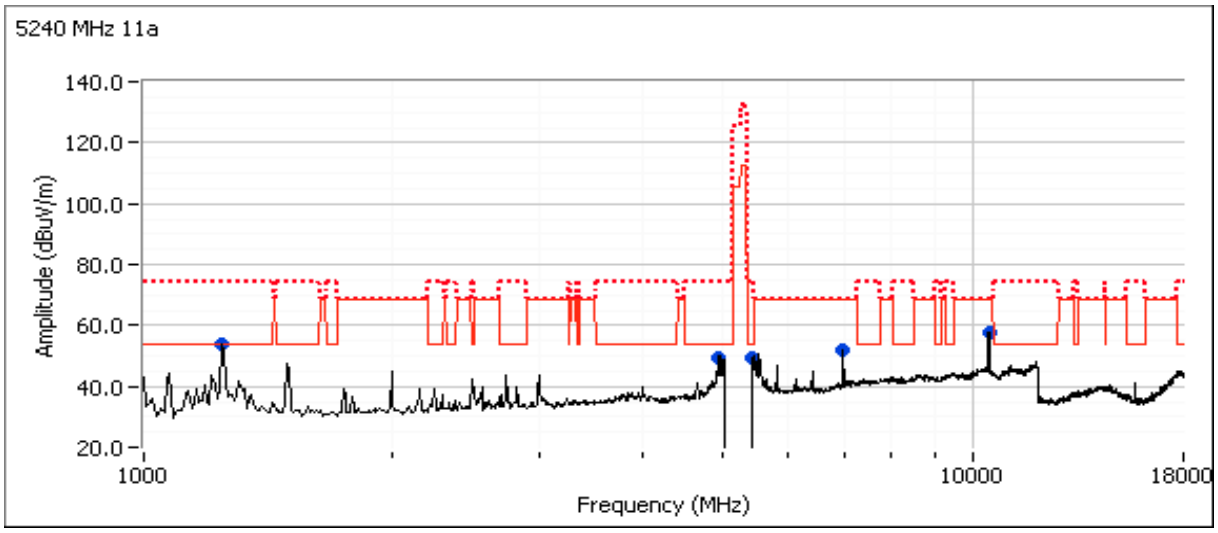


Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	N/A

Run #2b: High Channel

Channel: 48 Mode: 11a
Tx Chain: 4Tx Data Rate: 6Mb

Frequency	Level	Pol	15.209 / 15E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
10481.900	67.7	V	68.3	-0.6	PK	185	1.2	RB 1 MHz;VB 3 MHz;Peak
6986.730	57.1	V	68.3	-11.2	PK	324	1.0	RB 1 MHz;VB 3 MHz;Peak
4956.520	48.3	V	54.0	-5.7	AVG	304	1.4	RB 1 MHz;VB 10 Hz;Peak
4955.830	58.7	V	74.0	-15.3	PK	304	1.4	RB 1 MHz;VB 3 MHz;Peak
5436.800	46.9	V	54.0	-7.1	AVG	203	1.6	RB 1 MHz;VB 10 Hz;Peak
5435.160	58.8	V	74.0	-15.2	PK	203	1.6	RB 1 MHz;VB 3 MHz;Peak
1248.870	37.9	H	54.0	-16.1	AVG	173	1.0	RB 1 MHz;VB 10 Hz;Peak
1248.890	65.2	H	74.0	-8.8	PK	173	1.0	RB 1 MHz;VB 3 MHz;Peak



Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	N/A

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

Date of Test: 2/28/2017 0:00 Config. Used: 1

Test Engineer: Rafael Varelas Config Change: None

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

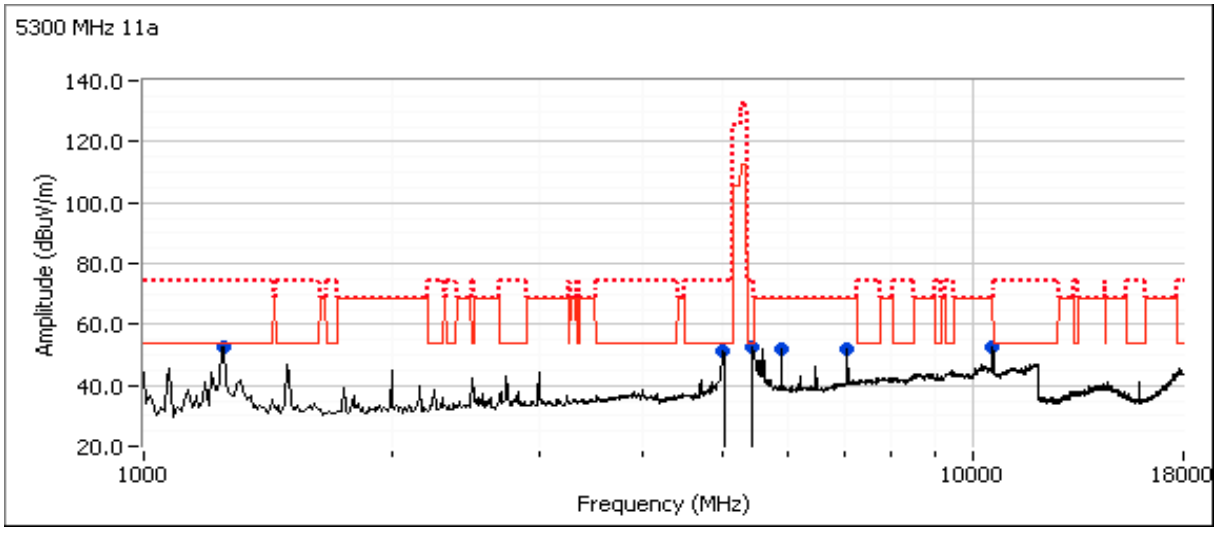
Run #3a: Center Channel

Channel: 60 Mode: a

Tx Chain: 4Tx Data Rate: 6MB/s

Frequency	Level	Pol	15.209 / 15E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
10600.000	50.5	V	54.0	-3.5	AVG	29	1.1	RB 1 MHz;VB 10 Hz;Peak
10611.400	62.5	V	74.0	-11.5	PK	29	1.1	RB 1 MHz;VB 3 MHz;Peak
5000.370	50.1	V	54.0	-3.9	AVG	176	1.7	RB 1 MHz;VB 10 Hz;Peak
5001.150	60.9	V	74.0	-13.1	PK	176	1.7	RB 1 MHz;VB 3 MHz;Peak
7066.670	56.8	V	68.3	-11.5	PK	326	1.0	RB 1 MHz;VB 3 MHz;Peak
5436.340	49.0	V	54.0	-5.0	AVG	200	1.4	RB 1 MHz;VB 10 Hz;Peak
5436.270	60.8	V	74.0	-13.2	PK	200	1.4	RB 1 MHz;VB 3 MHz;Peak
1248.990	38.6	H	54.0	-15.4	AVG	154	1.7	RB 1 MHz;VB 10 Hz;Peak
1248.750	60.7	H	74.0	-13.3	PK	154	1.7	RB 1 MHz;VB 3 MHz;Peak
5888.880	57.2	V	68.3	-11.1	PK	84	1.4	RB 1 MHz;VB 3 MHz;Peak

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



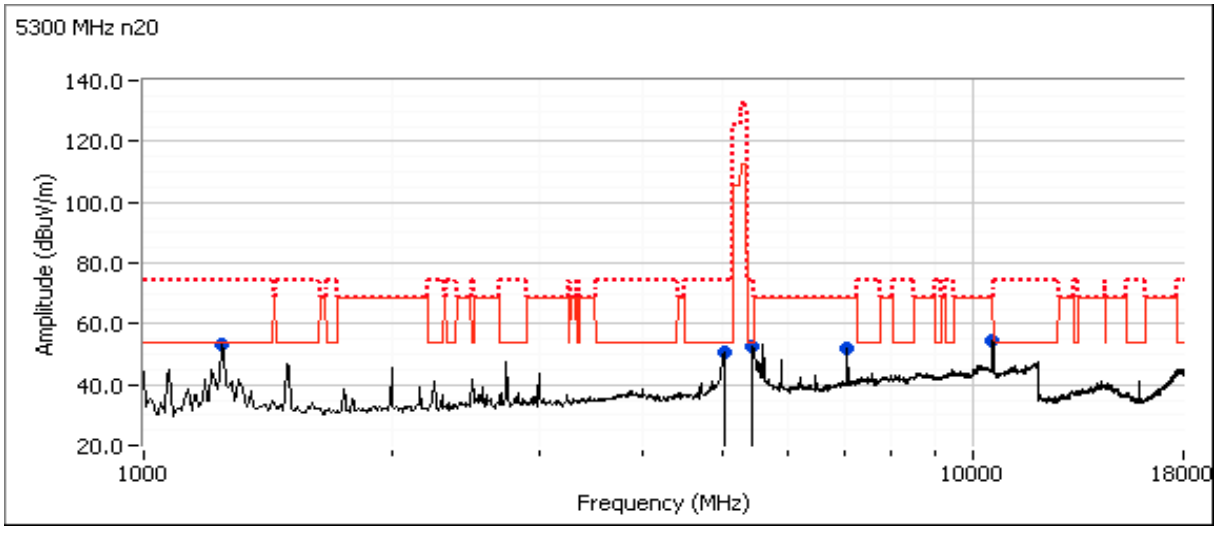
Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	N/A

Run #3b: Center Channel

Channel: 60 Mode: 11n20
Tx Chain: 4Tx 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	
10601.580	53.9	V	54.0	-0.1	AVG	27	1.0	RB 1 MHz;VB 10 Hz;Peak
10601.580	67.4	V	74.0	-6.6	PK	27	1.0	RB 1 MHz;VB 3 MHz;Peak
5431.440	49.1	V	54.0	-4.9	AVG	84	1.1	RB 1 MHz;VB 10 Hz;Peak
5430.280	61.2	V	74.0	-12.8	PK	84	1.1	RB 1 MHz;VB 3 MHz;Peak
5009.310	47.9	V	54.0	-6.1	AVG	168	1.8	RB 1 MHz;VB 10 Hz;Peak
5009.430	58.5	V	74.0	-15.5	PK	168	1.8	RB 1 MHz;VB 3 MHz;Peak
1249.010	36.0	H	54.0	-18.0	AVG	248	1.8	RB 1 MHz;VB 10 Hz;Peak
1248.980	63.4	H	74.0	-10.6	PK	248	1.8	RB 1 MHz;VB 3 MHz;Peak
7066.760	56.7	V	68.3	-11.6	PK	324	1.1	RB 1 MHz;VB 3 MHz;Peak

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



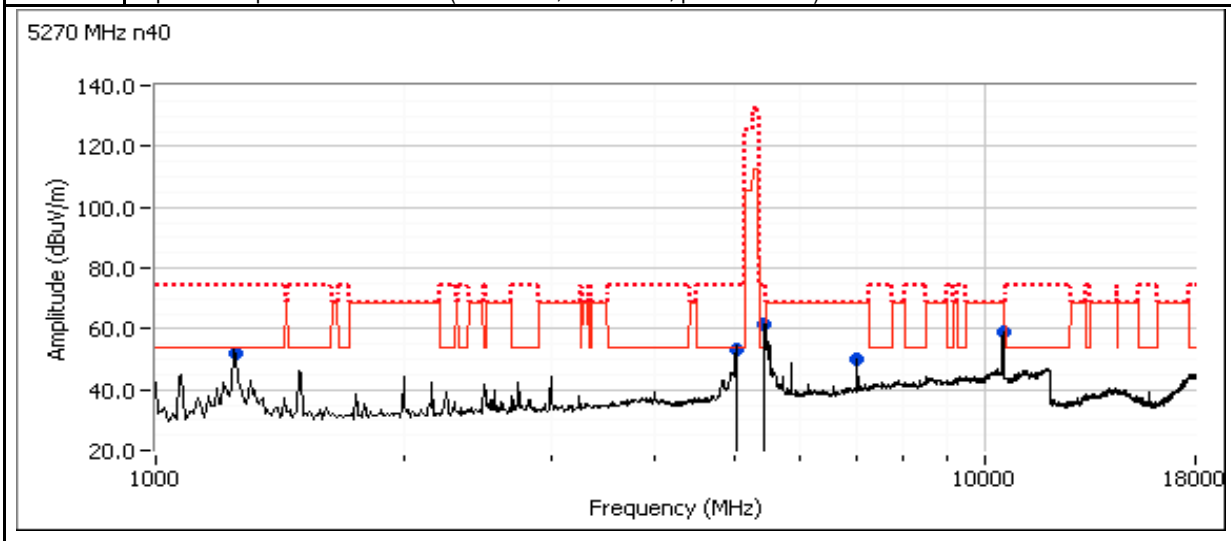
Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	N/A

Run #3c: Center Channel

Channel: 54 Mode: 11n40
Tx Chain: 4Tx 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	
5421.860	53.4	V	54.0	-0.6	Avg	203	1.7	POS; RB 1 MHz; VB: 3 kHz
q90								
10541.200	65.1	V	68.3	-3.2	PK	342	1.2	RB 1 MHz;VB 3 MHz;Peak
7026.840	55.7	V	68.3	-12.6	PK	324	1.1	RB 1 MHz;VB 3 MHz;Peak
5034.340	53.5	V	54.0	-0.5	Avg	260	1.4	RB 1 MHz;VB 3 kHz;Peak
5034.510	63.7	V	74.0	-10.3	PK	260	1.4	RB 1 MHz;VB 3 MHz;Peak
1247.590	43.7	H	54.0	-10.3	Avg	186	1.9	RB 1 MHz;VB 3 kHz;Peak
1249.110	66.9	H	74.0	-7.1	PK	186	1.9	RB 1 MHz;VB 3 MHz;Peak
q87								
5421.860	53.4	V	54.0	-0.6	Avg	203	1.7	POS; RB 1 MHz; VB: 3 kHz
5422.040	63.3	V	74.0	-10.7	PK	203	1.7	POS; RB 1 MHz; VB: 3 MHz

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



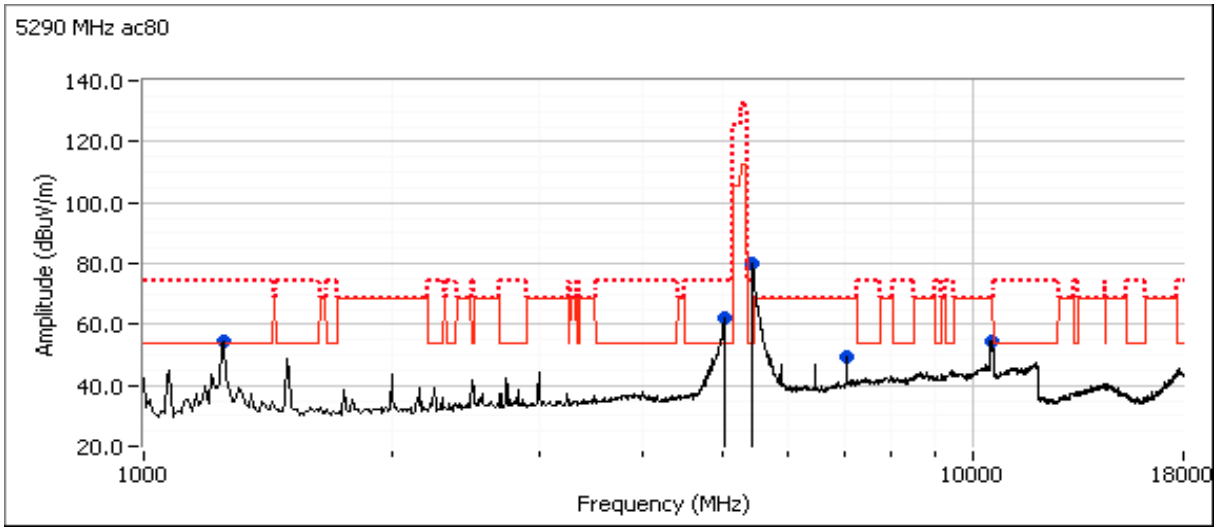
Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	N/A

Run #3d: Center Channel
Channel: 58 Mode: ac80
Tx Chain: 4Tx 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	
5424.310	53.4	V	54.0	-0.6	Avg	203	1.7	POS; RB 1 MHz; VB: 3 kHz
10601.300	49.4	V	54.0	-4.6	Avg	342	1.0	RB 1 MHz;VB 3 kHz;Peak
10601.650	60.3	V	74.0	-13.7	PK	342	1.0	RB 1 MHz;VB 3 MHz;Peak
1248.740	45.6	H	54.0	-8.4	Avg	193	2.4	RB 1 MHz;VB 3 kHz;Peak
1248.780	68.4	H	74.0	-5.6	PK	193	2.4	RB 1 MHz;VB 3 MHz;Peak
7053.510	55.1	V	68.3	-13.2	PK	326	1.1	RB 1 MHz;VB 3 MHz;Peak
10575.750	61.8	V	68.3	-6.5	PK	342	1.0	RB 1 MHz;VB 3 MHz;Peak
q75								
5424.310	53.4	V	54.0	-0.6	Avg	203	1.7	POS; RB 1 MHz; VB: 3 kHz
5424.450	64.8	V	74.0	-9.2	PK	203	1.7	POS; RB 1 MHz; VB: 3 MHz
5037.670	48.3	V	54.0	-5.7	Avg	94	1.5	RB 1 MHz;VB 3 kHz;Peak
5037.640	57.9	V	74.0	-16.1	PK	94	1.5	RB 1 MHz;VB 3 MHz;Peak

Note:	*Scans made between 18 - 40 GHz with the measurement antenna moved around the card and its antennas 20-50cm from the device indicated there were no significant emissions in this frequency range*
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:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	N/A



Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	N/A

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

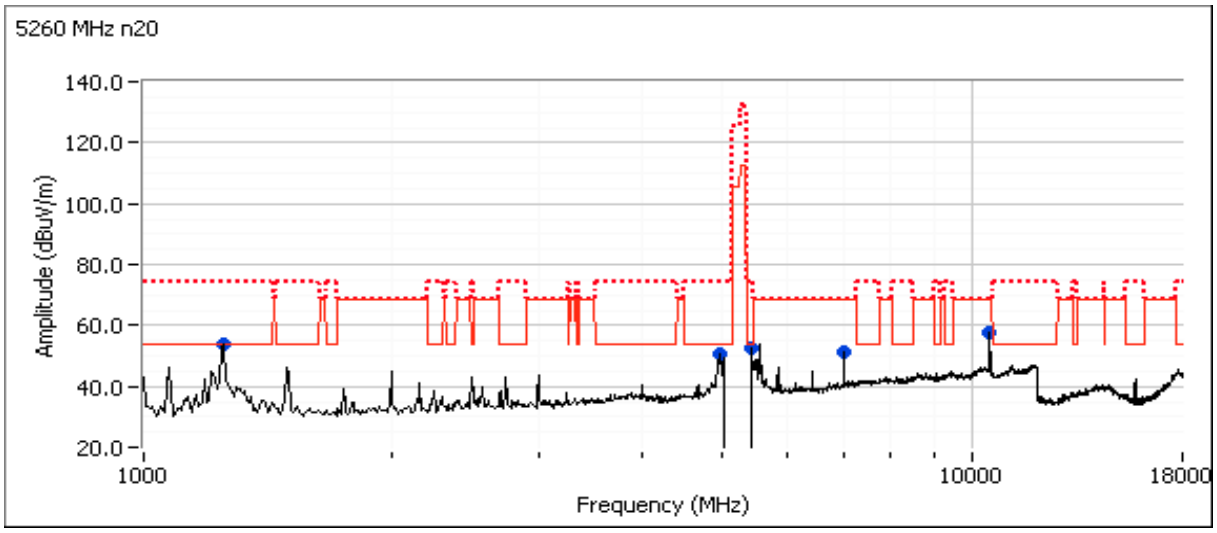
Date of Test: 2/28/2017 0:00 Config. Used: 1
Test Engineer: Rafael Varelas Config Change: None
Test Location: FT Chamber#7 EUT Voltage: 120V/60Hz

Run #4a: Low Channel

Channel: 52 Mode: n20
Tx Chain: 4Tx 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	
4963.090	47.8	V	54.0	-6.2	AVG	9	1.0	RB 1 MHz;VB 10 Hz;Peak
4963.590	57.7	V	74.0	-16.3	PK	9	1.0	RB 1 MHz;VB 3 MHz;Peak
1248.730	40.0	H	54.0	-14.0	AVG	199	1.7	RB 1 MHz;VB 10 Hz;Peak
1249.300	67.2	H	74.0	-6.8	PK	199	1.7	RB 1 MHz;VB 3 MHz;Peak
5426.540	48.6	V	54.0	-5.4	AVG	199	1.3	RB 1 MHz;VB 10 Hz;Peak
5426.710	59.7	V	74.0	-14.3	PK	199	1.3	RB 1 MHz;VB 3 MHz;Peak
7013.470	56.6	V	68.3	-11.7	PK	319	1.2	RB 1 MHz;VB 3 MHz;Peak
q88								
10521.600	67.8	V	68.3	-0.5	PK	28	1.0	RB 1 MHz;VB 3 MHz;Peak

Note:	*Scans made between 18 - 40 GHz with the measurement antenna moved around the card and its antennas 20-50cm from the device indicated there were no significant emissions in this frequency range*
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:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	N/A

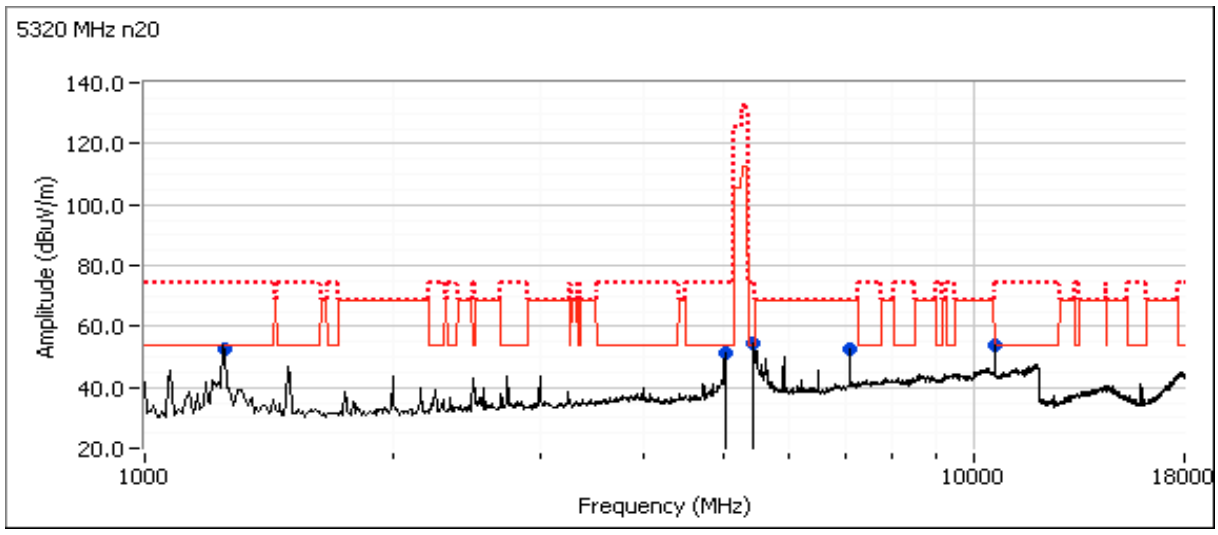
Run #4b: High Channel

Date of Test: 2/28/2017 0:00 — Config. Used: 1
Test Engineer: Rafael Varelas — Config Change: None
Test Location: FT Chamber#7 — EUT Voltage: 120V/60Hz

Channel: 64 — Mode: n20
Tx Chain: 4Tx — 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	
10641.640	51.5	V	54.0	-2.5	AVG	36	1.1	RB 1 MHz;VB 10 Hz;Peak
10641.540	63.8	V	74.0	-10.2	PK	36	1.1	RB 1 MHz;VB 3 MHz;Peak
7093.440	56.6	V	68.3	-11.7	PK	324	1.0	RB 1 MHz;VB 3 MHz;Peak
5016.200	49.6	V	54.0	-4.4	AVG	308	1.0	RB 1 MHz;VB 10 Hz;Peak
5016.490	61.2	V	74.0	-12.8	PK	308	1.0	RB 1 MHz;VB 3 MHz;Peak
1248.930	41.0	H	54.0	-13.0	AVG	195	2.2	RB 1 MHz;VB 10 Hz;Peak
1248.910	68.3	H	74.0	-5.7	PK	195	2.2	RB 1 MHz;VB 3 MHz;Peak
5425.570	50.8	V	54.0	-3.2	AVG	89	1.5	RB 1 MHz;VB 10 Hz;Peak
5425.220	63.8	V	74.0	-10.2	PK	89	1.5	RB 1 MHz;VB 3 MHz;Peak

Note:	*Scans made between 18 - 40 GHz with the measurement antenna moved around the card and its antennas 20-50cm from the device indicated there were no significant emissions in this frequency range*
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:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	N/A

Run #4c: High Channel

Date of Test: 2/28/2017 0:00 Config. Used: 1

Test Engineer: Rafael Varelas Config Change: None

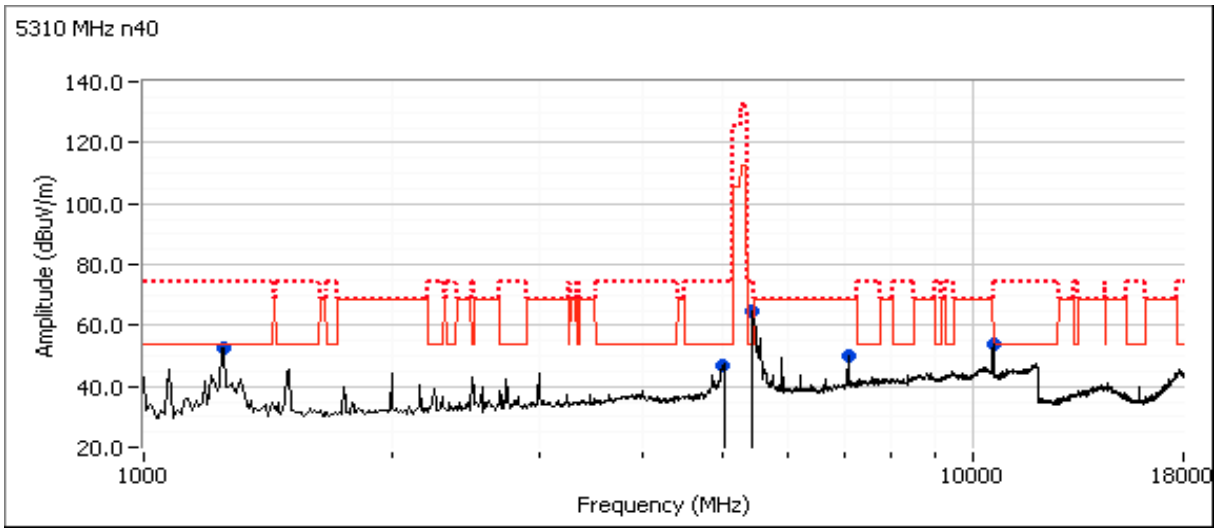
Test Location: FT Chamber#7 EUT Voltage: 120V/60Hz

Channel: 62 Mode: n40

Tx Chain: 4Tx 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	
5440.710	52.6	V	54.0	-1.4	Avg	215	1.6	POS; RB 1 MHz; VB: 3 kHz
5440.130	67.4	V	74.0	-6.6	PK	215	1.6	POS; RB 1 MHz; VB: 3 MHz
10616.870	52.2	V	54.0	-1.8	Avg	26	1.0	RB 1 MHz;VB 3 kHz;Peak
10621.570	63.9	V	74.0	-10.1	PK	26	1.0	RB 1 MHz;VB 3 MHz;Peak
5002.700	45.6	V	54.0	-8.4	Avg	93	1.5	RB 1 MHz;VB 3 kHz;Peak
4997.100	56.2	V	74.0	-17.8	PK	93	1.5	RB 1 MHz;VB 3 MHz;Peak
1248.530	44.9	H	54.0	-9.1	Avg	199	1.2	RB 1 MHz;VB 3 kHz;Peak
1248.910	67.4	H	74.0	-6.6	PK	199	1.2	RB 1 MHz;VB 3 MHz;Peak
7080.130	55.6	V	68.3	-12.7	PK	324	1.0	RB 1 MHz;VB 3 MHz;Peak

Note:	*Scans made between 18 - 40 GHz with the measurement antenna moved around the card and its antennas 20-50cm from the device indicated there were no significant emissions in this frequency range*
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:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	N/A

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

Date of Test: 3/1/2017 0:00 Config. Used: 1

Test Engineer: Joseph Cadigal Config Change: none

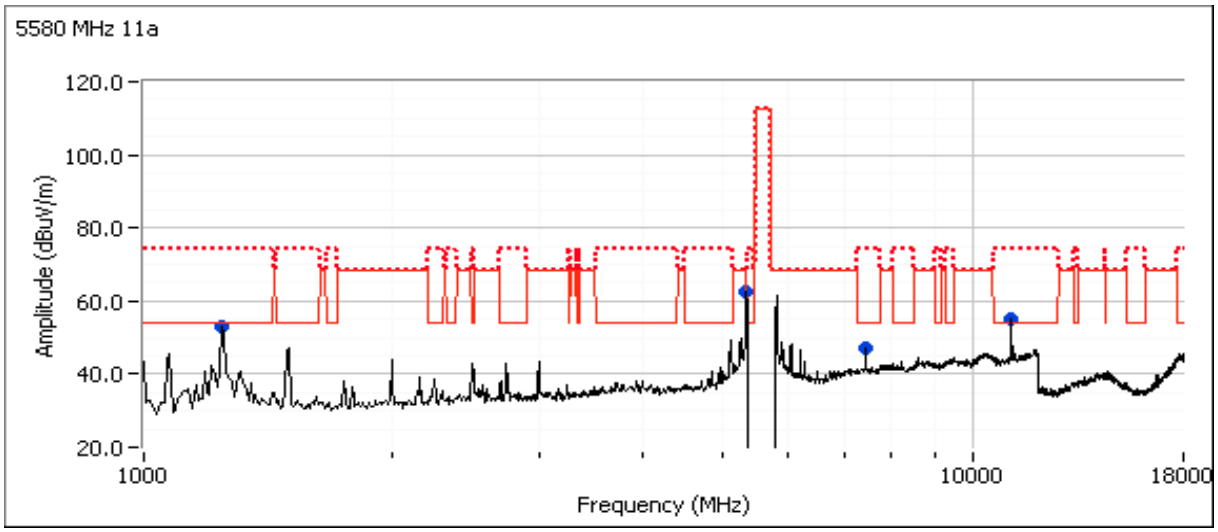
Test Location: FT Chamber#7 EUT Voltage: 120V/60Hz

Run #5a: Center Channel

Channel: 116 Mode: a

Tx Chain: 4Tx Data Rate: 6MB/s

Frequency	Level	Pol	15.209 / 15E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
7440.180	46.1	V	54.0	-7.9	AVG	41	1.3	RB 1 MHz;VB 10 Hz;Peak
7440.160	53.8	V	74.0	-20.2	PK	41	1.3	RB 1 MHz;VB 3 MHz;Peak
1248.960	40.9	H	54.0	-13.1	AVG	210	2.0	RB 1 MHz;VB 10 Hz;Peak
1248.330	67.5	H	74.0	-6.5	PK	210	2.0	RB 1 MHz;VB 3 MHz;Peak
11158.440	51.5	V	54.0	-2.5	AVG	341	1.0	RB 1 MHz;VB 10 Hz;Peak
11159.100	64.4	V	74.0	-9.6	PK	341	1.0	RB 1 MHz;VB 3 MHz;Peak
q85								
5355.410	53.3	V	54.0	-0.7	AVG	91	1.1	POS; RB 1 MHz; VB: 10 Hz
5355.050	63.1	V	74.0	-10.9	PK	91	1.1	POS; RB 1 MHz; VB: 3 MHz

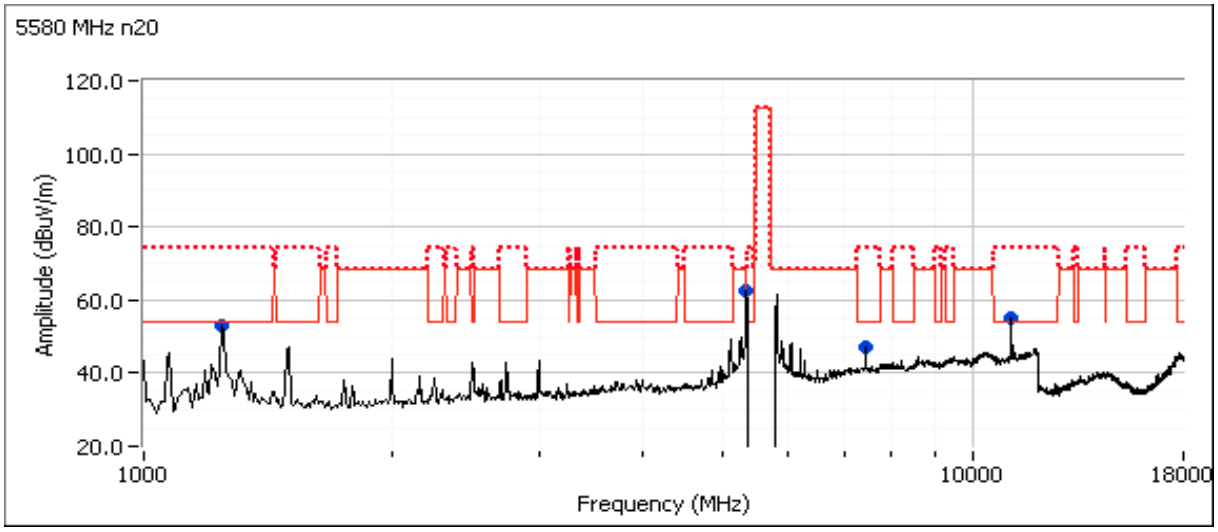


Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	N/A

Run #5b: Center Channel

Channel: 116 Mode: 11n20
Tx Chain: 4Tx Data Rate: MCS0

Frequency	Level	Pol	15.209 / 15E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
11160.280	51.9	V	54.0	-2.1	AVG	23	1.2	RB 1 MHz;VB 10 Hz;Peak
11160.280	64.4	V	74.0	-9.6	PK	23	1.2	RB 1 MHz;VB 3 MHz;Peak
1248.860	41.0	H	54.0	-13.0	AVG	195	2.0	RB 1 MHz;VB 10 Hz;Peak
1248.880	67.8	H	74.0	-6.2	PK	195	2.0	RB 1 MHz;VB 3 MHz;Peak
7440.060	46.1	V	54.0	-7.9	AVG	318	1.1	RB 1 MHz;VB 10 Hz;Peak
7440.250	53.3	V	74.0	-20.7	PK	318	1.1	RB 1 MHz;VB 3 MHz;Peak
q75								
5355.720	53.6	V	54.0	-0.4	AVG	201	1.8	POS; RB 1 MHz; VB: 10 Hz
5355.620	63.9	V	74.0	-10.1	PK	201	1.8	POS; RB 1 MHz; VB: 3 MHz



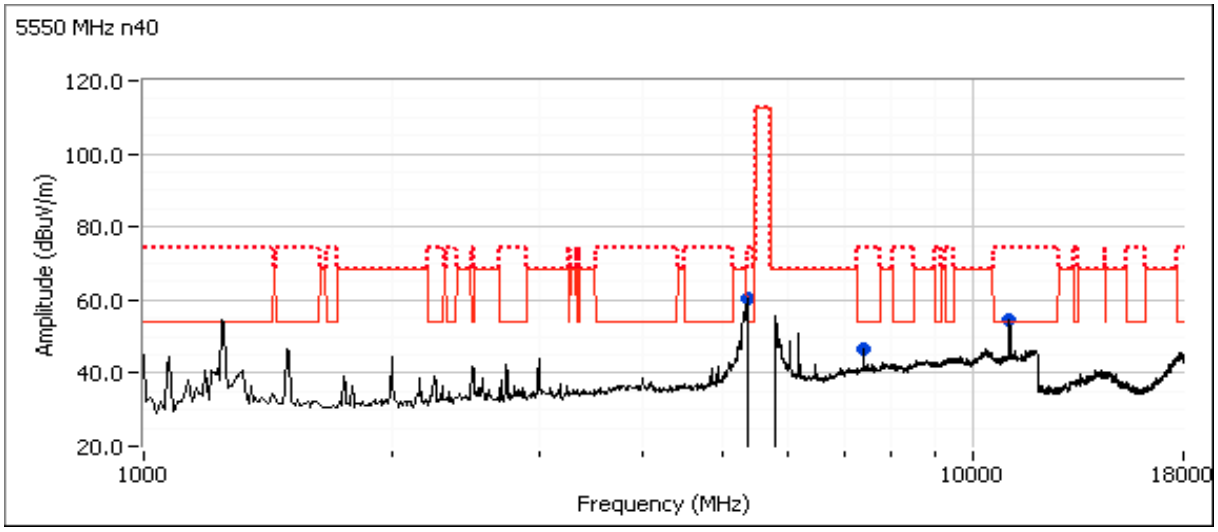
Note:	*Scans made between 18 - 40 GHz with the measurement antenna moved around the card and its antennas 20-50cm from the device indicated there were no significant emissions in this frequency range*
Note 1:	For emissions in restricted bands, the limit of 15.209 was used which requires average and peak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

Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	N/A

Run #5c: Center Channel

Channel: 110 Mode: 11n40
Tx Chain: 4Tx Data Rate: MCS0

Frequency	Level	Pol	15.209 / 15E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
11100.380	50.8	V	54.0	-3.2	AVG	23	2.0	RB 1 MHz;VB 10 kHz;Peak
11101.260	63.0	V	74.0	-11.0	PK	21	2.0	RB 1 MHz;VB 3 MHz;Peak
7400.030	45.6	V	54.0	-8.4	AVG	180	1.5	RB 1 MHz;VB 3 kHz;Peak
7400.460	52.9	V	74.0	-21.1	PK	181	1.5	RB 1 MHz;VB 3 MHz;Peak
1248.780	43.7	H	54.0	-10.3	AVG	188	2.0	RB 1 MHz;VB 3 kHz;Peak
1249.190	67.9	H	74.0	-6.1	PK	188	2.0	RB 1 MHz;VB 3 MHz;Peak
q86								
5374.530	53.8	V	54.0	-0.2	Avg	204	1.7	POS; RB 1 MHz; VB: 3 kHz
5374.610	63.4	V	74.0	-10.6	PK	204	1.7	POS; RB 1 MHz; VB: 3 MHz



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

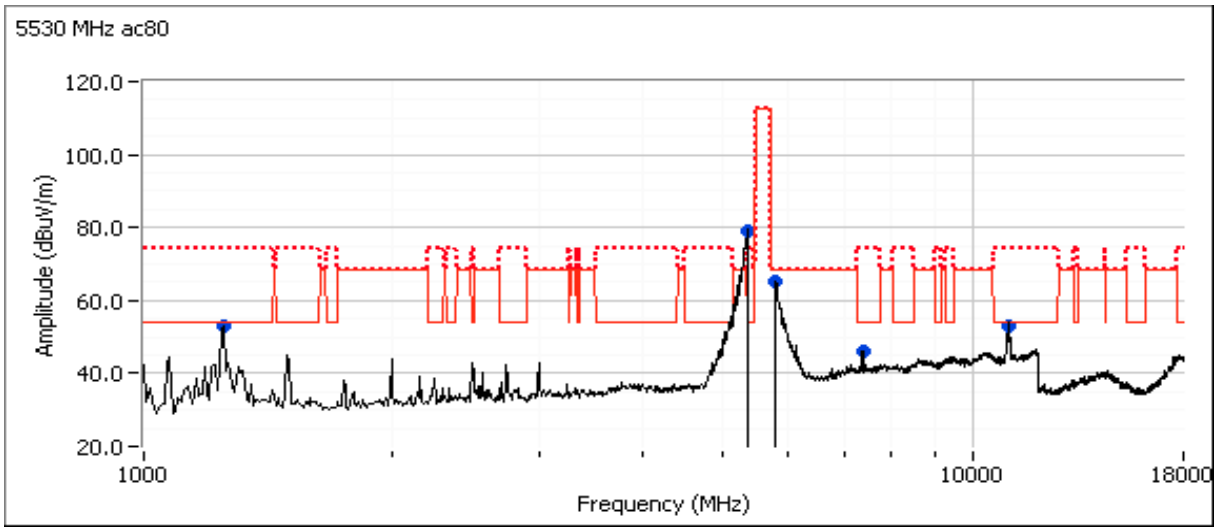
Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	N/A

Run #5d: Center Channel

Channel: 106 Mode: ac80

Tx Chain: 4Tx 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	
11075.170	46.7	V	54.0	-7.3	Avg	24	2.0	RB 1 MHz;VB 3 kHz;Peak
5797.550	59.6	V	68.3	-8.7	Avg	106	1.5	RB 1 MHz;VB 3 kHz;Peak
7373.520	45.4	V	54.0	-8.6	Avg	180	1.0	RB 1 MHz;VB 10 kHz;Peak
1248.700	43.3	H	54.0	-10.7	Avg	193	2.0	RB 1 MHz;VB 3 kHz;Peak
11075.120	59.7	V	74.0	-14.3	PK	24	2.0	RB 1 MHz;VB 3 MHz;Peak
5799.340	48.5	V	54.0	-5.5	AVG	151	1.0	RB 1 MHz; VB: 3 kHz, Note 3
5799.230	61.2	V	74.0	-12.8	PK	151	1.0	RB 1 MHz; VB: 3 MHz, Note 3
7373.230	53.1	V	74.0	-20.9	PK	182	1.0	RB 1 MHz;VB 3 MHz;Peak
1248.730	67.8	H	74.0	-6.2	PK	193	2.0	RB 1 MHz;VB 3 MHz;Peak
q77								
5378.020	52.9	V	54.0	-1.1	Avg	24	1.3	POS; RB 1 MHz; VB: 3 kHz
5378.260	63.5	V	74.0	-10.5	PK	24	1.3	POS; RB 1 MHz; VB: 3 MHz



Note:	*Scans made between 18 - 40 GHz with the measurement antenna moved around the card and its antennas 20-50cm from the device indicated there were no significant emissions in this frequency range*
Note 1:	For emissions in restricted bands, the limit of 15.209 was used which requires average and peak measurements.
Note 2:	For emissions outside of the restricted bands the limit is -27dBm/MHz eirp (68.3dBuV/m). The measurement method required is a peak measurement (RB=1MHz, VB≥3MHz, peak detector).
Note 3:	Final measurement was performed using band edge method. Not filter was used.

Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	N/A

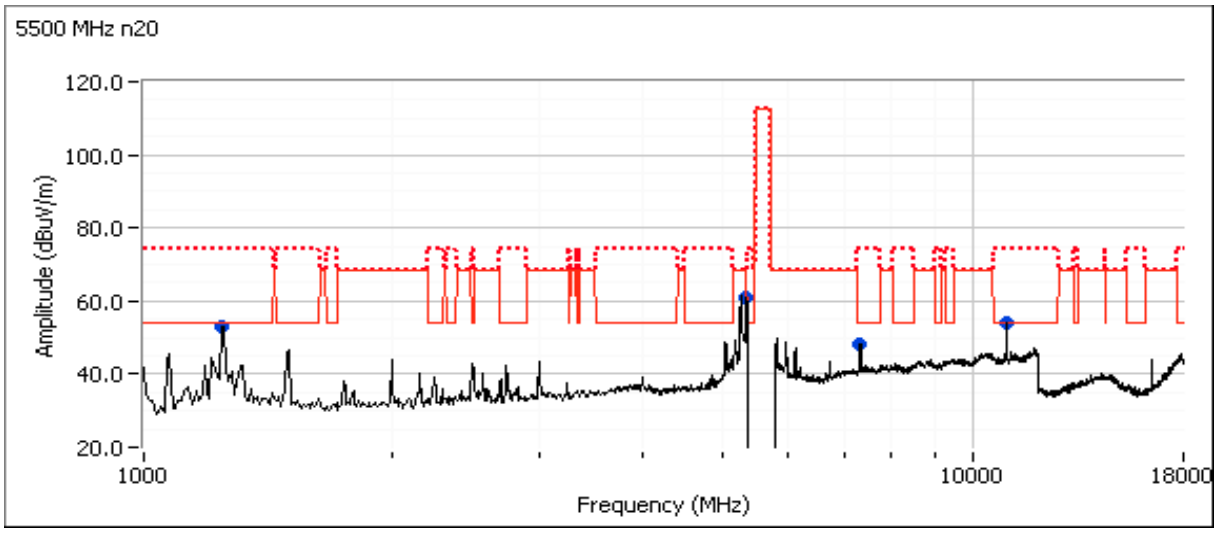
Run #6: Radiated Spurious Emissions, 1,000 - 40000 MHz. Operating Mode: Worse case from Run #5

Date of Test: 3/1/2017 0:00 Config. Used: 1
Test Engineer: Joseph Cadigal Config Change: None
Test Location: FT Chamber#7 EUT Voltage: 120V/60Hz

Run #6a: Low Channel

Channel: 100 Mode: n20
Tx Chain: 4Tx 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	
11001.310	49.5	V	54.0	-4.5	AVG	49	1.0	RB 1 MHz;VB 10 Hz;Peak
10999.920	60.7	V	74.0	-13.3	PK	49	1.0	RB 1 MHz;VB 3 MHz;Peak
7333.480	47.8	V	54.0	-6.2	AVG	182	1.5	RB 1 MHz;VB 10 Hz;Peak
7333.120	54.2	V	74.0	-19.8	PK	182	1.5	RB 1 MHz;VB 3 MHz;Peak
1248.730	41.4	H	54.0	-12.6	AVG	186	2.0	RB 1 MHz;VB 10 Hz;Peak
1248.800	67.7	H	74.0	-6.3	PK	186	2.0	RB 1 MHz;VB 3 MHz;Peak
5350.060	49.5	V	54.0	-4.5	Avg	247	2.0	RB 1 MHz;VB 3 kHz;Peak
5350.020	60.3	V	74.0	-13.7	PK	247	2.0	RB 1 MHz;VB 3 MHz;Peak

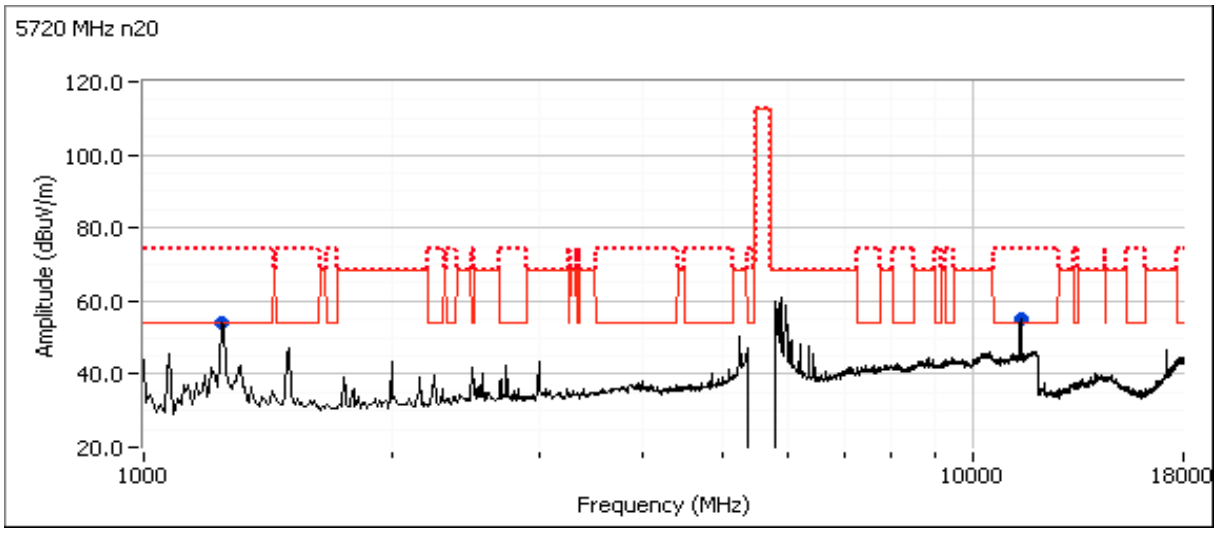


Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	N/A

Run #6b: High Channel

Channel: 144 Mode: n20
Tx Chain: 4Tx 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	
11444.420	49.6	V	54.0	-4.4	AVG	360	2.0	RB 1 MHz;VB 10 Hz;Peak
11444.440	62.1	V	74.0	-11.9	PK	360	2.0	RB 1 MHz;VB 3 MHz;Peak



Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	N/A

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

Date of Test: 3/1/2017 0:00
Test Engineer: Rafael Varelas
Test Location: FT Chamber#7

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

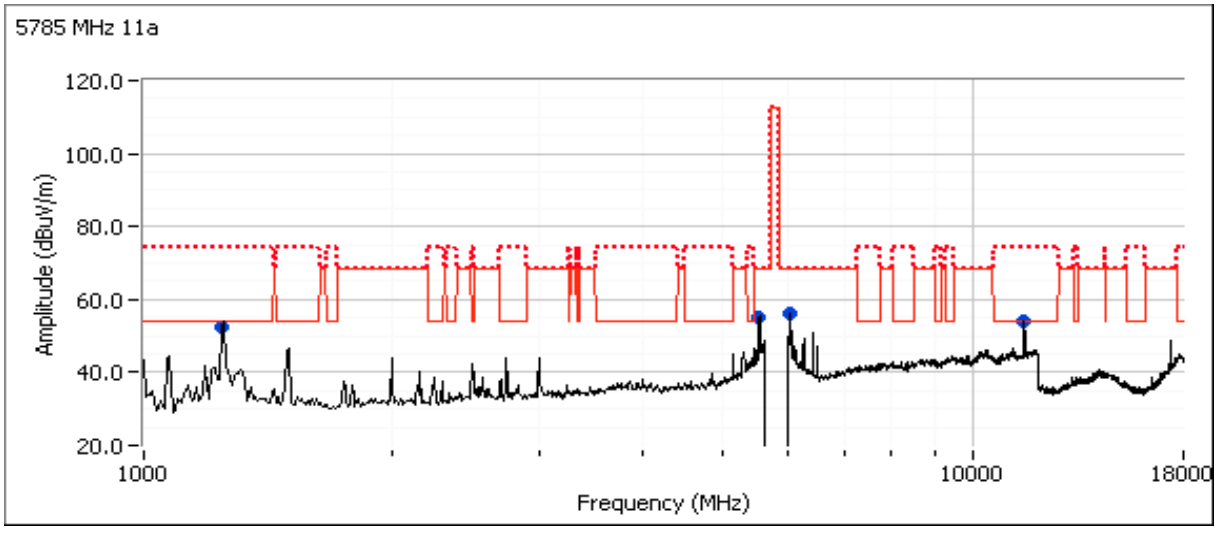
Run #7a: Center Channel

Channel: 157
Tx Chain: 4Tx

Mode: a
Data Rate: 6MB/s

Frequency	Level	Pol	15.209 / 15E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
11568.110	53.2	V	54.0	-0.8	AVG	29	1.0	RB 1 MHz;VB 10 Hz;Peak
11567.850	66.4	V	74.0	-7.6	PK	29	1.0	RB 1 MHz;VB 3 MHz;Peak
1248.950	41.0	H	54.0	-13.0	AVG	202	1.9	RB 1 MHz;VB 10 Hz;Peak
1248.890	69.2	H	74.0	-4.8	PK	202	1.9	RB 1 MHz;VB 3 MHz;Peak
5536.700	67.0	V	68.3	-1.3	PK	101	1.7	RB 1 MHz;VB 3 MHz;Peak
6019.730	63.4	V	68.3	-4.9	PK	94	1.1	RB 1 MHz;VB 3 MHz;Peak

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



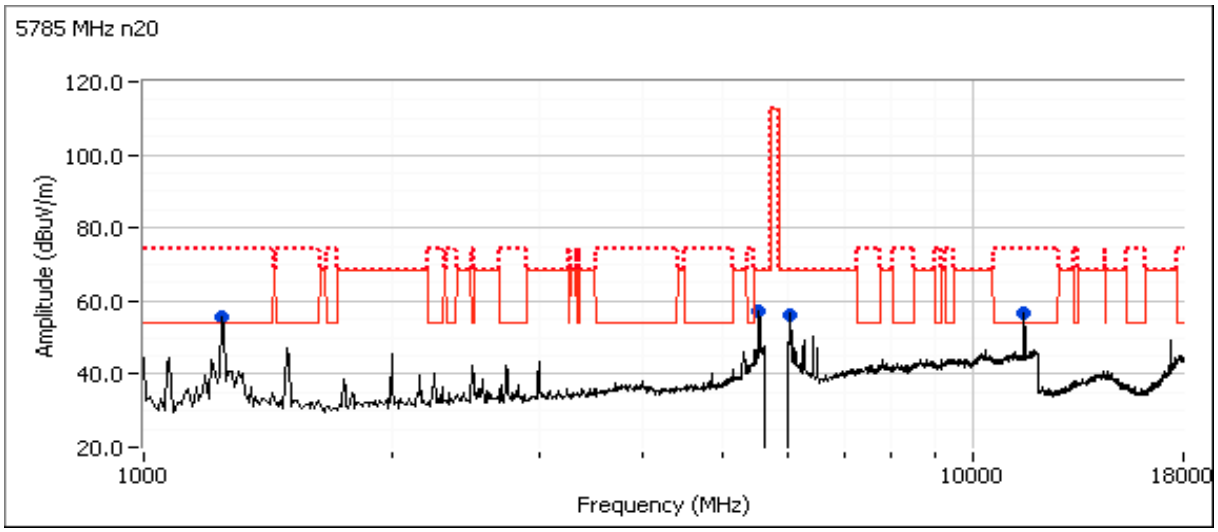
Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	N/A

Run #7b: Center Channel

Channel: 157 Mode: 11n20
Tx Chain: 4Tx Data Rate: MCS0

Frequency	Level	Pol	15.209 / 15E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
11570.110	53.1	V	54.0	-0.9	AVG	27	1.3	RB 1 MHz;VB 10 Hz;Peak
11570.450	64.8	V	74.0	-9.2	PK	27	1.3	RB 1 MHz;VB 3 MHz;Peak
5536.620	66.8	V	68.3	-1.5	PK	89	1.5	RB 1 MHz;VB 3 MHz;Peak
1248.810	41.3	H	54.0	-12.7	AVG	200	2.0	RB 1 MHz;VB 10 Hz;Peak
1248.920	68.8	H	74.0	-5.2	PK	200	2.0	RB 1 MHz;VB 3 MHz;Peak
6032.660	65.3	V	68.3	-3.0	PK	249	1.5	RB 1 MHz;VB 3 MHz;Peak

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



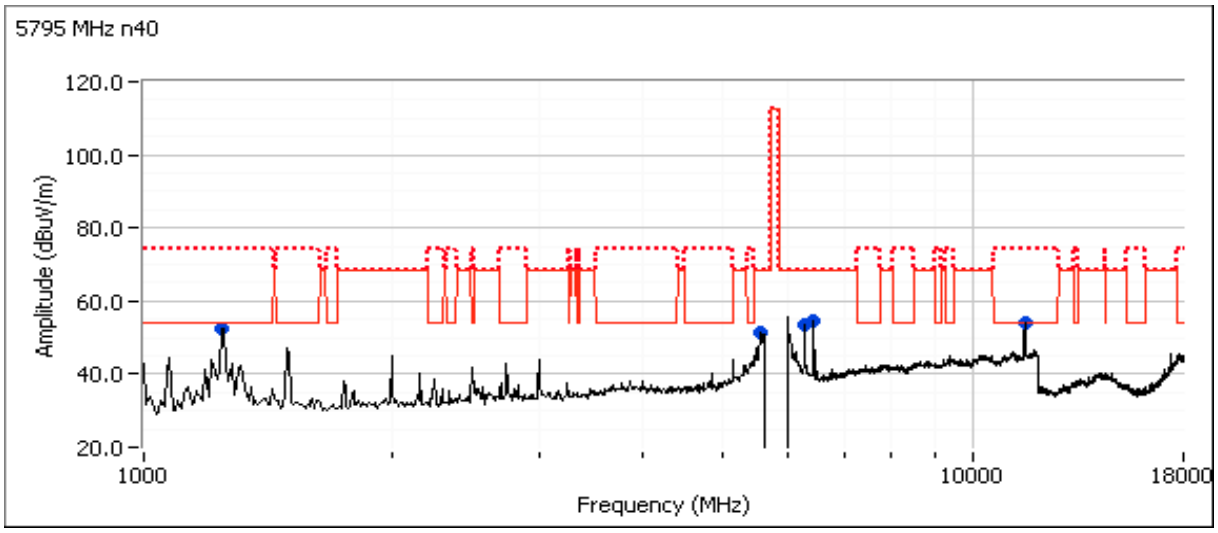
Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	N/A

Run #7c: Center Channel

Channel: 159 Mode: 11n40
Tx Chain: 4Tx 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	
11591.630	51.9	V	54.0	-2.1	Avg	6	1.2	RB 1 MHz;VB 3 kHz;Peak
11591.330	64.0	V	74.0	-10.0	PK	6	1.2	RB 1 MHz;VB 3 MHz;Peak
6439.080	59.2	V	68.3	-9.1	PK	330	1.1	RB 1 MHz;VB 3 MHz;Peak
5568.380	60.1	V	68.3	-8.2	PK	278	1.0	RB 1 MHz;VB 3 MHz;Peak
1248.910	41.3	H	54.0	-12.7	AVG	198	2.0	RB 1 MHz;VB 3 kHz;Peak
1249.110	68.6	H	74.0	-5.4	PK	198	2.0	RB 1 MHz;VB 3 MHz;Peak
6278.100	57.5	V	68.3	-10.8	PK	186	2.0	RB 1 MHz;VB 3 MHz;Peak

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



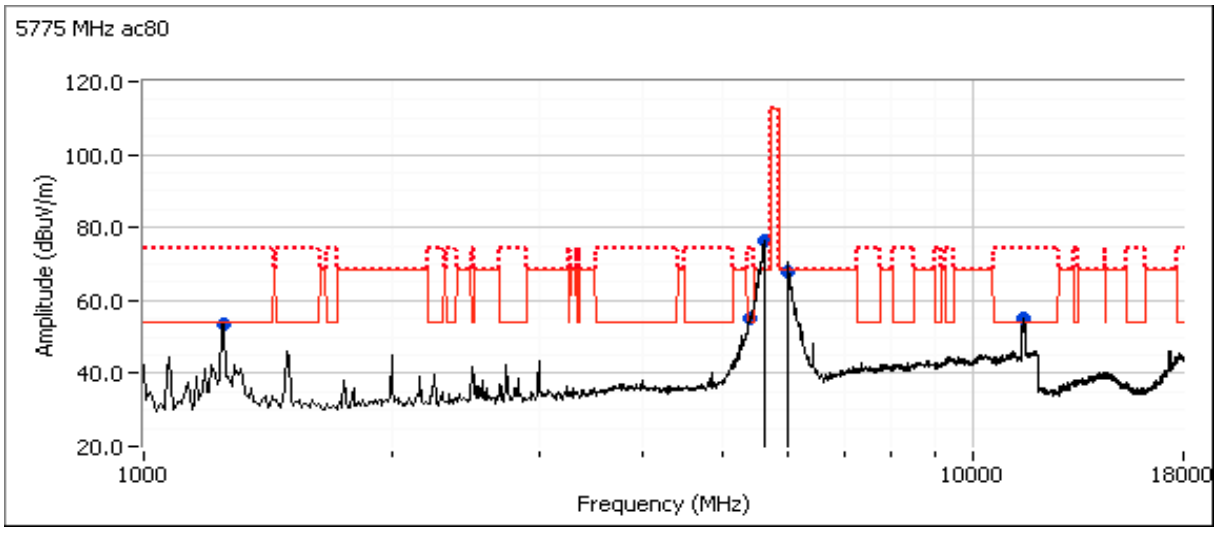
Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	N/A

Run #7d: Center Channel

Channel: 155 Mode: ac80
Tx Chain: 4Tx 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	
5611.130	67.2	V	68.3	-1.1	PK	84	1.2	POS; RB 1 MHz; VB: 3 MHz
11539.020	50.4	V	54.0	-3.6	Avg	305	1.0	RB 1 MHz;VB 3 kHz;Peak
11538.850	60.5	V	74.0	-13.5	PK	305	1.0	RB 1 MHz;VB 3 MHz;Peak
1249.050	45.4	H	54.0	-8.6	Avg	196	1.8	RB 1 MHz;VB 3 kHz;Peak
1249.370	67.0	H	74.0	-7.0	PK	196	1.8	RB 1 MHz;VB 3 MHz;Peak
q82								
5611.130	67.2	V	68.3	-1.1	PK	84	1.2	POS; RB 1 MHz; VB: 3 MHz
5984.020	61.6	V	68.3	-6.7	PK	81	1.0	RB 1 MHz;VB 3 MHz;Peak
5424.860	42.5	V	54.0	-11.5	Avg	86	1.2	RB 1 MHz;VB 3 kHz;Peak
5429.510	53.1	V	74.0	-20.9	PK	86	1.2	RB 1 MHz;VB 3 MHz;Peak

Note:	*Scans made between 18 - 40 GHz with the measurement antenna moved around the card and its antennas 20-50cm from the device indicated there were no significant emissions in this frequency range*
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:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	N/A

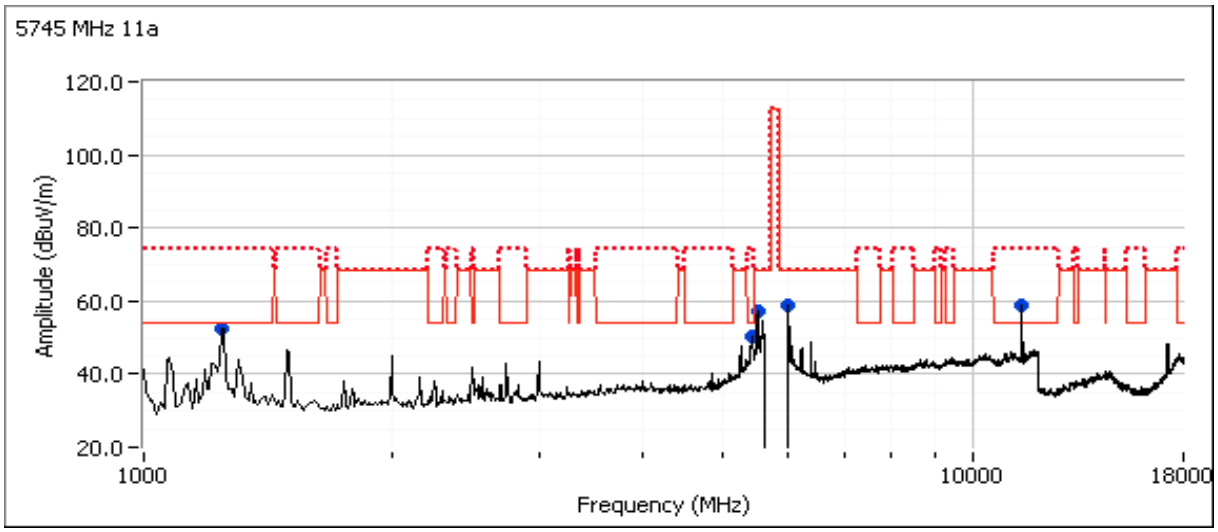
Run #8: Radiated Spurious Emissions, 1,000 - 40000 MHz. Operating Mode: Worse case from Run #7

Date of Test: 3/1/2017 0:00 Config. Used: 1
Test Engineer: Rafael Varelas Config Change: none
Test Location: FT Chamber#7 EUT Voltage: 120V/60Hz

Run #8a: Low Channel

Channel: 149 Mode: a
Tx Chain: 4Tx Data Rate: 6MB/s

Frequency	Level	Pol	15.209 / 15E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5513.080	68.1	V	68.3	-0.2	PK	95	1.8	RB 1 MHz;VB 3 MHz;Peak
5978.750	66.1	V	68.3	-2.2	PK	96	1.3	RB 1 MHz;VB 3 MHz;Peak
1248.940	41.4	H	54.0	-12.6	AVG	192	1.6	RB 1 MHz;VB 10 Hz;Peak
1248.800	68.3	H	74.0	-5.7	PK	192	1.6	RB 1 MHz;VB 3 MHz;Peak
5421.570	46.3	V	54.0	-7.7	AVG	332	1.0	RB 1 MHz;VB 10 Hz;Peak
5421.640	56.2	V	74.0	-17.8	PK	332	1.0	RB 1 MHz;VB 3 MHz;Peak
11491.870	53.5	V	54.0	-0.5	AVG	314	1.0	RB 1 MHz;VB 10 Hz;Peak
11492.170	65.3	V	74.0	-8.7	PK	314	1.0	RB 1 MHz;VB 3 MHz;Peak

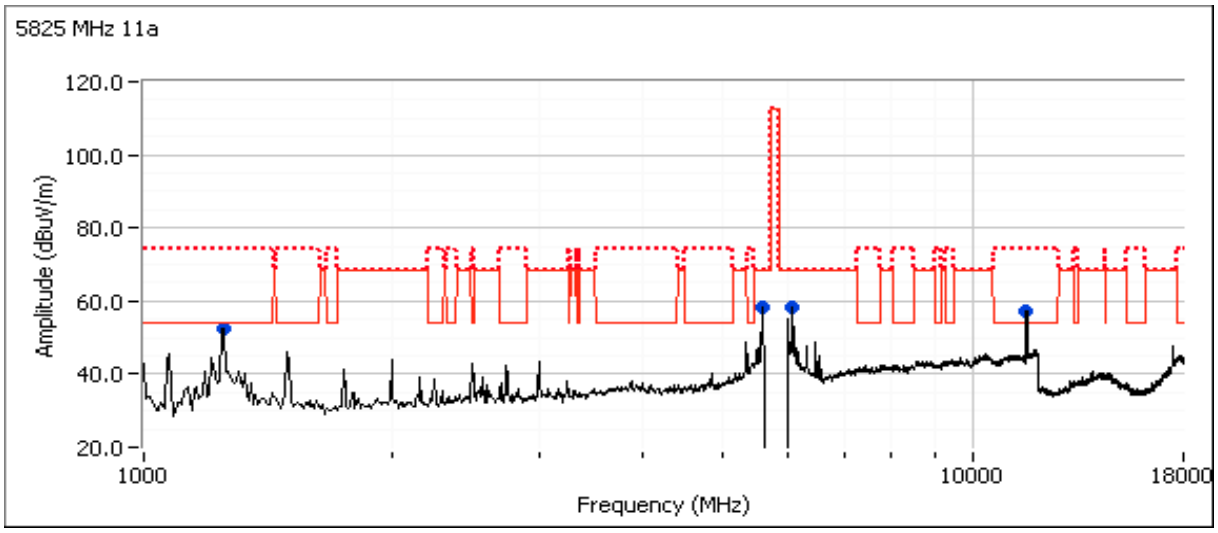


Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	N/A

Run #8b: High Channel

Channel: 165 Mode: a
Tx Chain: 4Tx Data Rate: 6MB/s

Frequency	Level	Pol	15.209 / 15E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
11648.390	53.7	V	54.0	-0.3	AVG	30	1.1	RB 1 MHz;VB 10 Hz;Peak
11649.220	67.2	V	74.0	-6.8	PK	30	1.1	RB 1 MHz;VB 3 MHz;Peak
6075.260	67.8	V	68.3	-0.5	PK	221	1.9	RB 1 MHz;VB 3 MHz;Peak
1248.840	39.2	H	54.0	-14.8	AVG	215	2.0	RB 1 MHz;VB 10 Hz;Peak
1248.630	66.3	H	74.0	-7.7	PK	215	2.0	RB 1 MHz;VB 3 MHz;Peak
5589.750	64.8	V	68.3	-3.5	PK	112	1.0	RB 1 MHz;VB 3 MHz;Peak



Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	N/A

FCC 15.407(UNII)
Antenna Port Measurements
Power, PSD, Bandwidth and Spurious Emissions

Test Specific Details

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

Summary of Results

Run #	Test Performed	Limit	Pass / Fail	Result / Margin
1	Power, 5150 - 5250MHz	15.407(a) (1) (iv)	Pass	a: 21.7 dBm (147.8 mW) n20: 21.9 dBm (156.6 mW) n40: 23.4 dBm (217.6 mW) ac80: 19.7 dBm (92.4 mW)
1	PSD, 5150 - 5250MHz	15.407(a) (1) (iv)	Pass	a: 10.3 dBm/MHz n20: 10.3 dBm/MHz n40: 10 dBm/MHz ac80: 3.0 dBm/MHz

General Test Configuration

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

Ambient Conditions:

Temperature:	25 °C
Rel. Humidity:	40 %

Modifications Made During Testing

No modifications were made to the EUT during testing

Deviations From The Standard

No deviations were made from the requirements of the standard.

Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	N/A

Procedure Comments:

Measurements performed in accordance with FCC KDB 789033 D01

	Mode	Data Rate	Duty Cycle (x)	Constant DC?	T (ms)	Pwr Cor Factor*	Lin Volt Cor Factor**	Min VBW for FS (Hz)
1SS	11a	6MB/s	0.99	Yes	1.952	0	0	10
1SS	11n20	MCS0	0.99	Yes	1.953	0	0	10
1SS	n40	MCS0	0.9798	Yes	0.971	0.0885442	0.2	1030
1SS	ac80	VHT0	0.96	Yes	0.46	0.1848341	0.4	2174

Sample Notes

Sample S/N: G62DA7BU20005B

Driver: -

Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	N/A

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

Date of Test: 3/8/2017 0:00 Config. Used: 1

Test Engineer: Joseph Cadigal Config Change: none

Test Location: FT Lab #4B EUT Voltage: 120V/60Hz

Note 1:	Power measured using a gated average power meter
Note 2:	PSD measured using a spectrum analyzer (see plots below). RBW=1MHz, VB=3 MHz, Span > OBW, # of points in sweep ≥ 2*span/RBW, RMS detector, trace average 100 traces, power averaging on. The measurements were adjusted corrected for duty cycle. This is based on 10log(1/x), where x is the duty cycle. (method SA-2 of ANSI C63.10)
Note 5:	For MIMO systems the total output power and total PSD are calculated from the sum of the powers of the individual chains (in linear terms). The antenna gain used to determine the EIRP and limits for PSD/Output power depends on the operating mode of the MIMO device. If the signals on the non-coherent between the transmit chains then the gain used to determine the limits is the highest gain of the individual chains and the EIRP is the sum of the products of gain and power on each chain. If the signals are coherent then the effective antenna gain is the sum (in linear terms) of the gains for each chain and the EIRP is the product of the effective gain and total power.

Antenna Gain Information

Freq	Antenna Gain (dBi) / Chain				BF	MultiChain Legacy	CDD	Sectorized / Xpol	Dir G (PWR)	Dir G (PSD)
	1	2	3	4						
5150-5250	Refer to Operational Description				No	Yes	Yes	No	0.70	6.70
5250-5350					No	Yes	Yes	No	0.60	6.50
5470-5725					No	Yes	Yes	No	1.00	6.80
5725-5825					No	Yes	Yes	No	0.70	6.60

For devices that support CDD modes

Min # of spatial streams: 1

Max # of spatial streams: 4

Note - for all power/psd measurements, testing performed using 1 spatial stream

Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	N/A

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.
Notes:	For systems with Beamforming and CDD, choose one the following options: Option 1: Delays are optimized for beamforming, rather than being selected from cyclic delay table of 802.11; Array gains calculated based on beamforming criteria. Option 2: Antennas are paired for beamforming, and the pairs are configured to use the cyclic delay diversity of 802.11; the array gain associated with beamforming with 2 antennas (3dB), and the array gain associated with CDD with two antennas (3dB for PSD and 0 dB for power)

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

Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	N/A

MIMO Device - 5150-5250 MHz Band - FCC

Mode: 11a Max EIRP (mW): 173.6

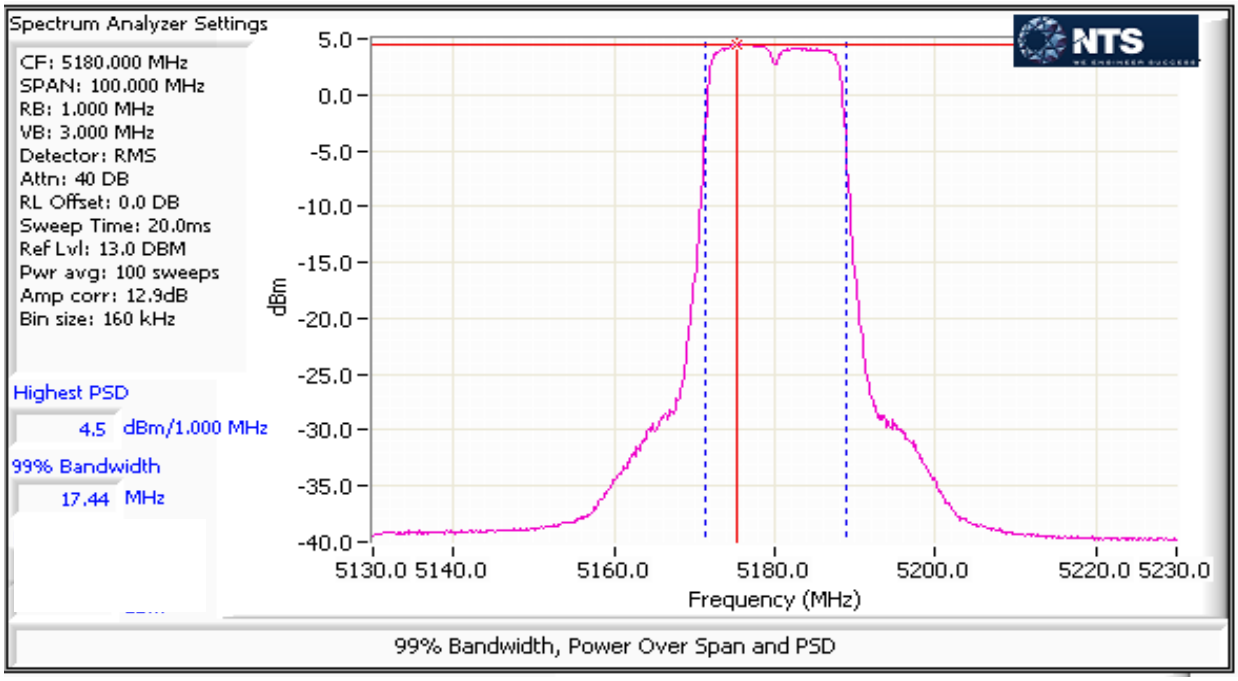
Frequency (MHz)	Chain	Software Setting	26dB BW (MHz)	Duty Cycle %	Power[1] dBm	Total Power mW	Total Power dBm	FCC Limit dBm	Max Power (W)	Result
5180	1	q62		100	15.7	147.8	21.7	24.0	0.148	Pass
	3				15.5					
	4				15.8					
	2				15.7					
5200	1	q62		100	15.5	146.1	21.6	24.0		Pass
	3				15.5					
	4				15.8					
	2				15.7					
5240	1	q62		100	15.3	142.0	21.5	24.0		Pass
	3				15.4					
	4				15.7					
	2				15.6					

5150-5250 PSD - FCC

Mode: 11a

Frequency (MHz)	Chain	Software Setting	99% BW (MHz)	Duty Cycle %	PSD dBm/MHz	Total PSD[2] mW/MHz	Total PSD[2] dBm/MHz	FCC Limit dBm/MHz	Result
5180	1	q62		99	4.1	10.5	10.2	10.3	Pass
	3				4.0				
	4				4.5				
	2				4.2				
5200	1	q62		99	4.1	10.6	10.3	10.3	Pass
	3				4.2				
	4				4.3				
	2				4.4				
5240	1	q62		99	4.1	10.5	10.2	10.3	Pass
	3				4.1				
	4				4.1				
	2				4.4				

Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	N/A



Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	N/A

MIMO Device - 5150-5250 MHz Band - FCC

Mode: n20 Max EIRP (mW): 184

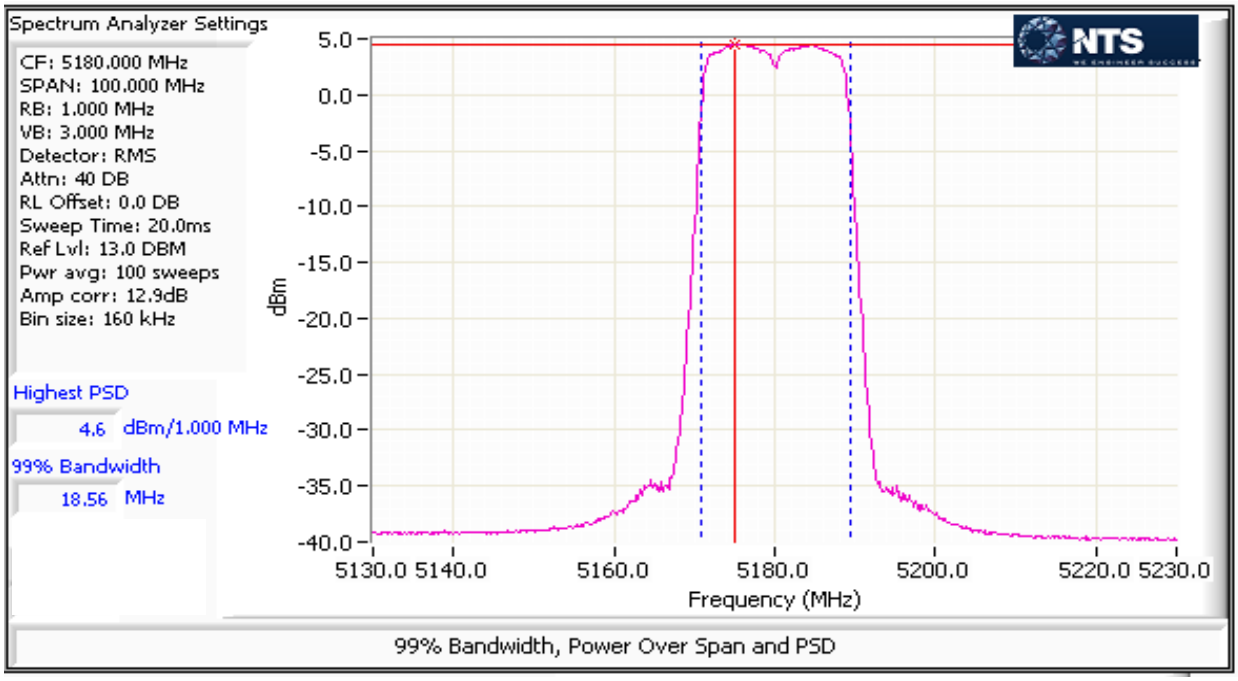
Frequency (MHz)	Chain	Software Setting	26dB BW (MHz)	Duty Cycle %	Power[1] dBm	Total Power mW	Total Power dBm	FCC Limit dBm	Max Power (W)	Result
5180	1	q63		100	15.7	151.2	21.8	24.0	0.157	Pass
	3				15.7					
	4				15.8					
	2				15.9					
5200	1	q63		100	15.9	156.6	21.9	24.0		Pass
	3				15.8					
	4				16.1					
	2				15.9					
5240	1	q63		100	15.6	149.5	21.7	24.0		Pass
	3				15.7					
	4				15.8					
	2				15.8					

5150-5250 PSD - FCC

Mode: n20

Frequency (MHz)	Chain	Software Setting	99% BW (MHz)	Duty Cycle %	PSD dBm/MHz	Total PSD[2] mW/MHz	Total PSD[2] dBm/MHz	FCC Limit dBm/MHz	Result
5180	1	q63		99	4.1	10.8	10.3	10.3	Pass
	3				4.1				
	4				4.5				
	2				4.6				
5200	1	q63		99	4.3	10.8	10.3	10.3	Pass
	3				4.1				
	4				4.2				
	2				4.6				
5240	1	q63		99	4.0	10.5	10.2	10.3	Pass
	3				4.2				
	4				4.0				
	2				4.6				

Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	N/A



Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	N/A

MIMO Device - 5150-5250 MHz Band - FCC

Mode: n40 Max EIRP (mW): 128.1

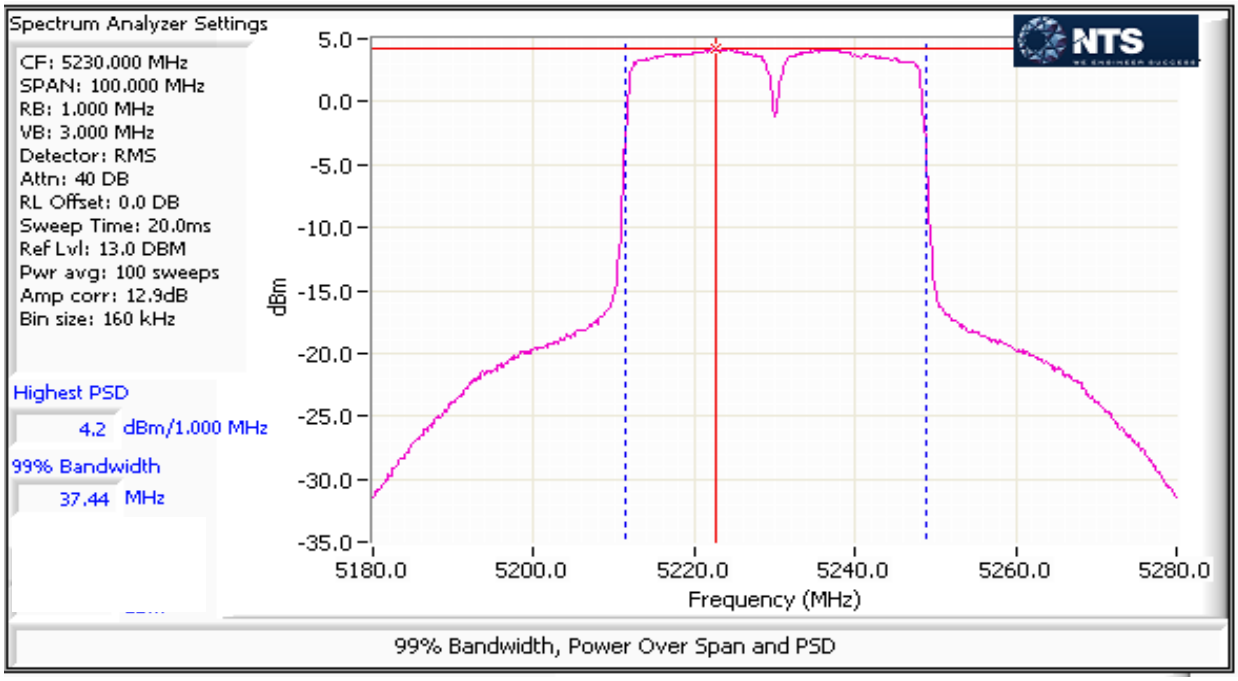
Frequency (MHz)	Chain	Software Setting	26dB BW (MHz)	Duty Cycle %	Power dBm	Total Power[1] mW	Total Power[1] dBm	FCC Limit dBm	Max Power (W)	Result
5190	1	q57		100	14.4	109.0	20.4	24.0	0.109	Pass
	3				14.1					
	4				14.3					
	2				14.6					
5230	1	q70		100	17.4	217.6	23.4	24.0		Pass
	3				17.1					
	4				17.7					
	2				17.2					

5150-5250 PSD - FCC

Mode: n40

Frequency (MHz)	Chain	Software Setting	99% BW (MHz)	Duty Cycle %	PSD dBm/MHz	Total PSD[2] mW/MHz	Total PSD[2] dBm/MHz	FCC Limit dBm/MHz	Result
5190	1	q57		98	-0.4	3.7	5.7	10.3	Pass
	3				-0.8				
	4				0.1				
	2				-0.3				
5230	1	q74		98	3.8	9.9	10.0	10.3	Pass
	3				3.6				
	4				4.2				
	2				4.1				

Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	N/A



Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	N/A

MIMO Device - 5150-5250 MHz Band - FCC

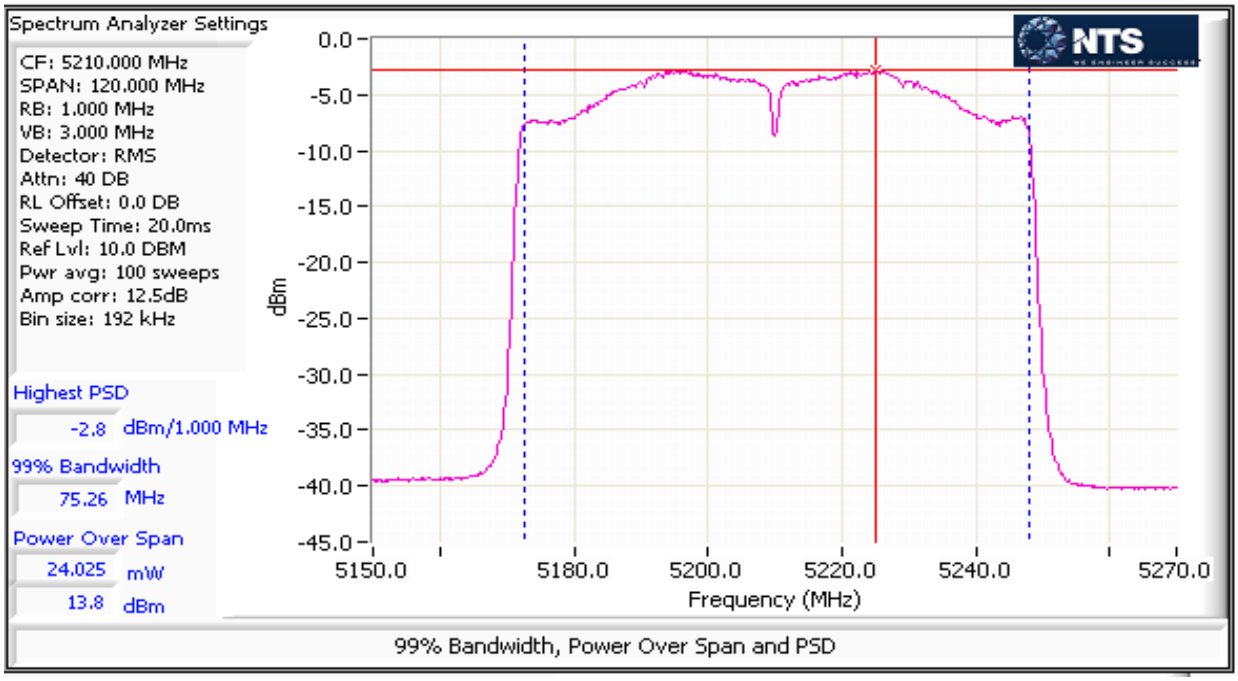
Mode: ac80 Max EIRP (mW): 108.6

Frequency (MHz)	Chain	Software Setting	26dB BW (MHz)	Duty Cycle %	Power dBm	Total Power[1] mW	Total Power[1] dBm	FCC Limit dBm	Max Power (W)	Result
5210	1	q54		96	13.1	92.4	19.7	24.0	0.092	Pass
	3				13.8					
	4				13.3					
	2				13.6					

5150-5250 PSD - FCC

Mode: ac80

Frequency (MHz)	Chain	Software Setting	99% BW (MHz)	Duty Cycle %	PSD dBm/MHz	Total PSD[2] mW/MHz	Total PSD[2] dBm/MHz	FCC Limit dBm/MHz	Result
5210	1	q54		96	-3.6	2.0	3.0	10.3	Pass
	3				-2.8				
	4				-3.4				
	2				-3.0				



Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	N/A

FCC 15.407(UNII)
Antenna Port Measurements
Power, PSD, Bandwidth and Spurious Emissions

Test Specific Details

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

Summary of Results

Run #	Test Performed	Limit	Pass / Fail	Result / Margin
1	Power, 5150 - 5250MHz	15.407(a) (1) (iv)	Pass	n20: 22 dBm (158.5 mW) n40: 23.3 dBm (215.1 mW) ac80: 21 dBm (126.2 mW)
1	PSD, 5150 - 5250MHz	15.407(a) (1) (iv)	Pass	n20: 10.3 dBm/MHz n40: 10 dBm/MHz ac80: 4.1 dBm/MHz

General Test Configuration

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

Ambient Conditions:

Temperature: 22.6 °C
Rel. Humidity: 41 %

Modifications Made During Testing

No modifications were made to the EUT during testing

Deviations From The Standard

No deviations were made from the requirements of the standard.

Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	N/A

Procedure Comments:

Measurements performed in accordance with FCC KDB 789033 D01

	Mode	Data Rate	Duty Cycle (x)	Constant DC?	T (ms)	Pwr Cor Factor*	Lin Volt Cor Factor**	Min VBW for FS (Hz)
1SS	11n20	MCS0	0.99	Yes	1.953	0	0	10
1SS	n40	MCS0	0.9798	Yes	0.971	0.0885442	0.2	1030
1SS	ac80	VHT0	0.96	Yes	0.46	0.1848341	0.4	2174

Note - for antenna port measurements, the EUT was operated in the non-TxBF mode

Sample Notes

Sample S/N: G62DA7BU20005B
Driver: -

Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	N/A

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

Date of Test: 3/10/2017 0:00 Config. Used: 1

Test Engineer: Rafael Varelas / Joseph Cadigal Config Change: none

Test Location: FT Lab #4B EUT Voltage: 120V/60Hz

Note 1:	Power measured using a gated average power meter. Power on channels that straddle the bandedge were measured using the power meter.
Note 2:	PSD measured using a spectrum analyzer (see plots below). RBW=1MHz, VB=3 MHz, Span > OBW, # of points in sweep ≥ 2*span/RBW, RMS detector, trace average 100 traces, power averaging on. The measurements were adjusted corrected for duty cycle. This is based on 10log(1/x), where x is the duty cycle. (method SA-2 of ANSI C63.10)
Note 5:	For MIMO systems the total output power and total PSD are calculated from the sum of the powers of the individual chains (in linear terms). The antenna gain used to determine the EIRP and limits for PSD/Output power depends on the operating mode of the MIMO device. If the signals on the non-coherent between the transmit chains then the gain used to determine the limits is the highest gain of the individual chains and the EIRP is the sum of the products of gain and power on each chain. If the signals are coherent then the effective antenna gain is the sum (in linear terms) of the gains for each chain and the EIRP is the product of the effective gain and total power.

Antenna Gain Information

Freq	Antenna Gain (dBi) / Chain				BF	MultiChain Legacy	CDD	Sectorized / Xpol	Dir G (PWR)	Dir G (PSD)
	1	2	3	4						
5150-5250	Refer to Operational Description				No	Yes	Yes	No	6.70	6.70
5250-5350					No	Yes	Yes	No	6.50	6.50
5470-5725					No	Yes	Yes	No	6.80	6.80
5725-5825					No	Yes	Yes	No	6.60	6.60

For devices that support CDD modes

Min # of spatial streams: 1

Max # of spatial streams: 4

Note - for all power/psd measurements, testing performed using 1 spatial stream

Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	N/A

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.
Notes:	For systems with Beamforming and CDD, choose one the following options: Option 1: Delays are optimized for beamforming, rather than being selected from cyclic delay table of 802.11; Array gains calculated based on beamforming criteria. Option 2: Antennas are paired for beamforming, and the pairs are configured to use the cyclic delay diversity of 802.11; the array gain associated with beamforming with 2 antennas (3dB), and the array gain associated with CDD with two antennas (3dB for PSD and 0 dB for power)

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

Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	N/A

MIMO Device - 5150-5250 MHz Band - FCC

Mode: n20 Max EIRP (mW): 736.7

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	q63		100	15.8	156.6	21.9	23.3	0.158	Pass
	3				15.8					
	4				16.0					
	2				16.1					
5200	1	q63		100	15.8	157.5	22.0	23.3		Pass
	3				15.9					
	4				16.1					
	2				16.0					
5240	1	q63		100	15.7	156.6	21.9	23.3		Pass
	3				15.9					
	4				16.2					
	2				15.9					

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	Result
5180	1	q63		99	4.1	10.8	10.3	10.3	Pass
	3				4.1				
	4				4.5				
	2				4.6				
5200	1	q63		99	4.3	10.8	10.3	10.3	Pass
	3				4.1				
	4				4.2				
	2				4.6				
5240	1	q63		99	4.0	10.5	10.2	10.3	Pass
	3				4.2				
	4				4.0				
	2				4.6				

All measurements are consistent with non-Tx BF operation, no plots provided.

Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	N/A

MIMO Device - 5150-5250 MHz Band - FCC

Mode: n40 Max EIRP (mW): 1006.1

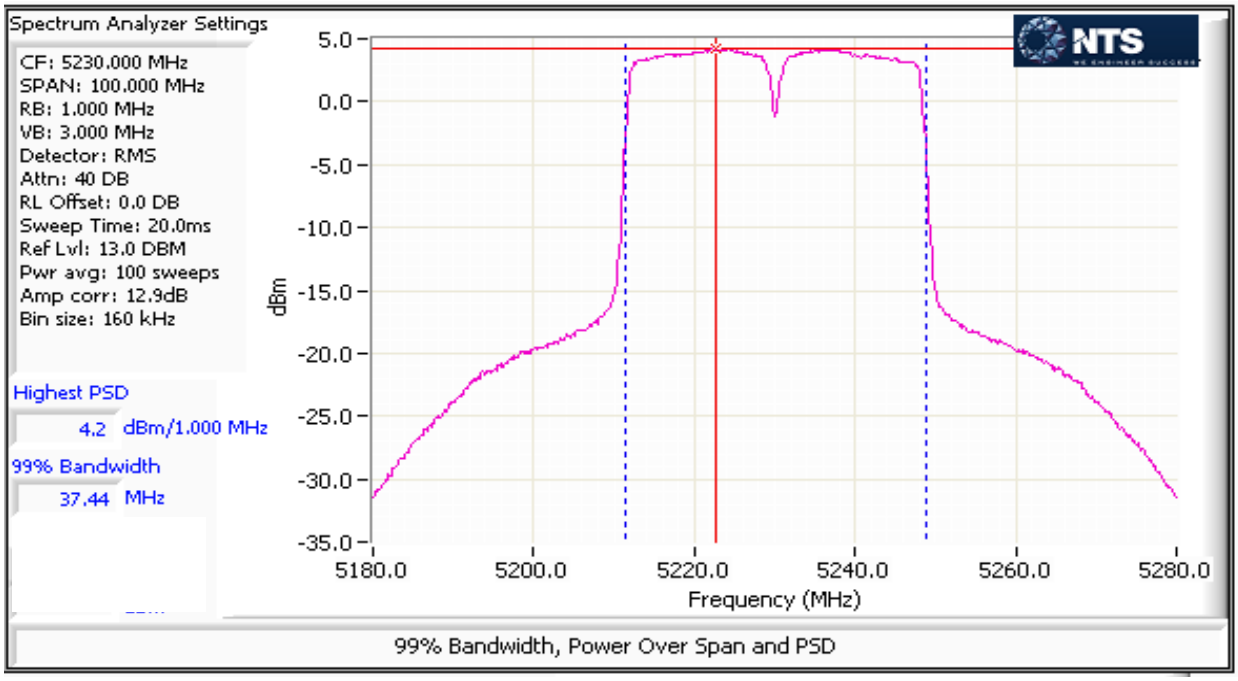
Frequency (MHz)	Chain	Software Setting	26dB BW (MHz)	Duty Cycle %	Power dBm	Total Power[1] mW	Total Power[1] dBm	FCC Limit dBm	Max Power (W)	Result
5190	1	q60		100	15.2	134.9	21.3	23.3	0.215	Pass
	3				15.0					
	4				15.6					
	2				15.3					
5230	1	q69		100	17.0	215.1	23.3	23.3		Pass
	3				17.2					
	4				17.6					
	2				17.4					

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	Result
5190	1	q60		98	0.6	4.2	6.2	10.3	Pass
	3				-0.5				
	4				0.4				
	2				0.4				
5230	1	q74		98	3.8	9.9	10.0	10.3	Pass
	3				3.6				
	4				4.2				
	2				4.1				

Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	N/A



Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	N/A

MIMO Device - 5150-5250 MHz Band - FCC

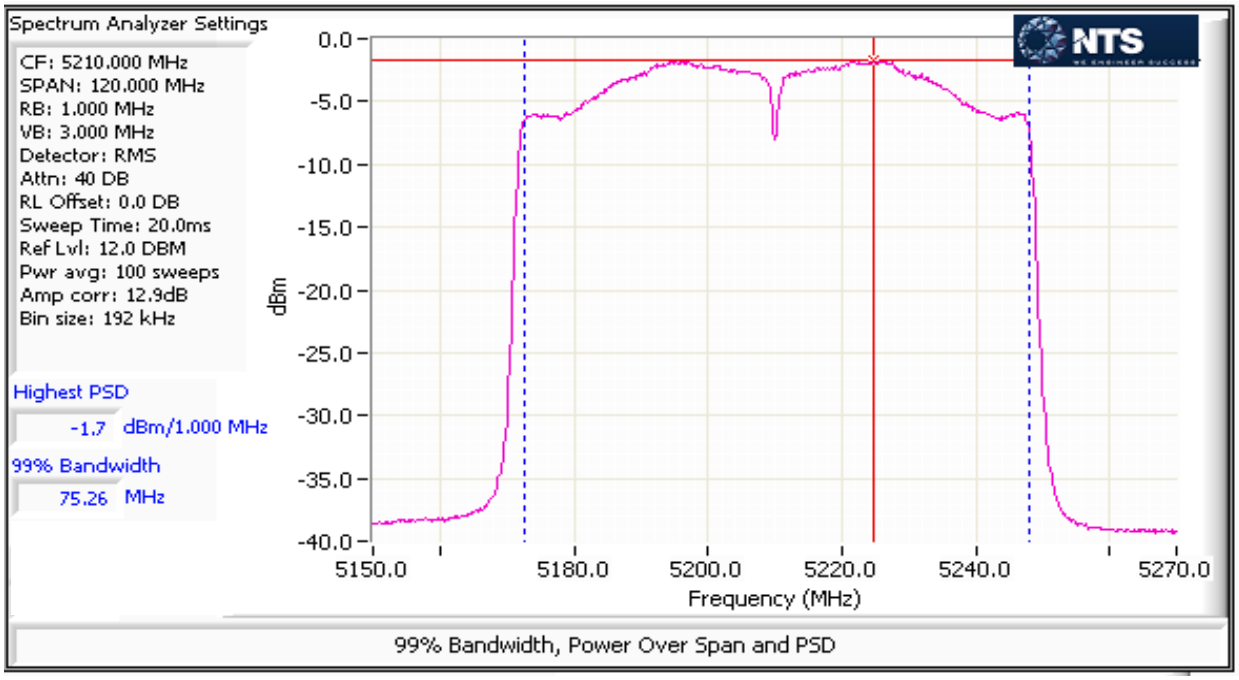
Mode: ac80 Max EIRP (mW): 590.3

Frequency (MHz)	Chain	Software Setting	26dB BW (MHz)	Duty Cycle %	Power dBm	Total Power[1] mW	Total Power[1] dBm	FCC Limit dBm	Max Power (W)	Result
5210	1	q59		100	14.5	126.2	21.0	23.3	0.126	Pass
	3				14.9					
	4				15.5					
	2				15.0					

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	Result
5210	1	q59		96	-2.1	2.6	4.1	10.3	Pass
	3				-2.1				
	4				-2.3				
	2				-1.7				



Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	N/A

FCC 15.407(UNII)
Antenna Port Measurements
Power, PSD, Bandwidth and Spurious Emissions

Test Specific Details

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

Summary of Results

Run #	Test Performed	Limit	Pass / Fail	Result / Margin
1	Power, 5250 - 5350MHz	15.407(a) (2)	Pass	a: 22.0 dBm (157 mW) n20: 22.2 dBm (165 mW) n40: 23.8 dBm (241.3 mW) ac80: 19.9 dBm (98.4 mW)
1	PSD, 5250 - 5350MHz	15.407(a) (2)	Pass	a: 10.4 dBm/MHz n20: 10.4 dBm/MHz n40: 10.3 dBm/MHz ac80: 2.3 dBm/MHz
1	Max EIRP 5250 - 5350MHz	TPC required if EIRP≥ 500mW (27dBm). EIRP ≥ 200mW (23dBm) DFS threshold = -64dBm.	Pass	EIRP = 24.4 dBm (277 mW)
1	26dB Bandwidth	15.407 (Information only)	-	> 20MHz for all modes

General Test Configuration

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

Ambient Conditions:

Temperature:	22.4 °C
Rel. Humidity:	39 %

Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	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 D01

	Mode	Data Rate	Duty Cycle (x)	Constant DC?	T (ms)	Pwr Cor Factor*	Lin Volt Cor Factor**	Min VBW for FS (Hz)
1SS	11a	6MB/s	0.99	Yes	1.952	0	0	10
1SS	11n20	MCS0	0.99	Yes	1.953	0	0	10
1SS	n40	MCS0	0.9798	Yes	0.971	0.0885442	0.2	1030
1SS	ac80	VHT0	0.96	Yes	0.46	0.1848341	0.4	2174

Sample Notes

Sample S/N: G62DA7BU20005B

Driver: -

Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	N/A

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

Date of Test: 3/9/2017 0:00 Config. Used: 1

Test Engineer: Rafael Varelas / Joseph Cadigal Config Change: none

Test Location: FT Lab #4B EUT Voltage: 120V/60Hz

Note 1:	Power measured using a gated average power meter
Note 2:	PSD measured using a spectrum analyzer (see plots below). RBW=1MHz, VB=3 MHz, Span > OBW, # of points in sweep ≥ 2*span/RBW, RMS detector, trace average 100 traces, power averaging on. The measurements were adjusted corrected for duty cycle. This is based on 10log(1/x), where x is the duty cycle. (method SA-2 of ANSI C63.10)
Note 4:	For MIMO systems the total output power and total PSD are calculated from the sum of the powers of the individual chains (in linear terms). The antenna gain used to determine the EIRP and limits for PSD/Output power depends on the operating mode of the MIMO device. If the signals on the non-coherent between the transmit chains then the gain used to determine the limits is the highest gain of the individual chains and the EIRP is the sum of the products of gain and power on each chain. If the signals are coherent then the effective antenna gain is the sum (in linear terms) of the gains for each chain and the EIRP is the product of the effective gain and total power.

Antenna Gain Information

Freq	Antenna Gain (dBi) / Chain				BF	MultiChain Legacy	CDD	Sectorized / Xpol	Dir G (PWR)	Dir G (PSD)
	1	2	3	4						
5150-5250	Refer to Operational Description				No	Yes	Yes	No	0.70	6.70
5250-5350					No	Yes	Yes	No	0.60	6.50
5470-5725					No	Yes	Yes	No	1.00	6.80
5725-5825					No	Yes	Yes	No	0.70	6.60

For devices that support CDD modes

Min # of spatial streams: 1

Max # of spatial streams: 4

Note - for all power/psd measurements, testing performed using 1 spatial stream

Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	N/A

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.
Notes:	For systems with Beamforming and CDD, choose one the following options: Option 1: Delays are optimized for beamforming, rather than being selected from cyclic delay table of 802.11; Array gains calculated based on beamforming criteria. Option 2: Antennas are paired for beamforming, and the pairs are configured to use the cyclic delay diversity of 802.11; the array gain associated with beamforming with 2 antennas (3dB), and the array gain associated with CDD with two antennas (3dB for PSD and 0 dB for power)

Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	N/A

MIMO Device - 5250-5350 MHz Band - FCC

Mode: 11a — Max EIRP (mW): 179.9

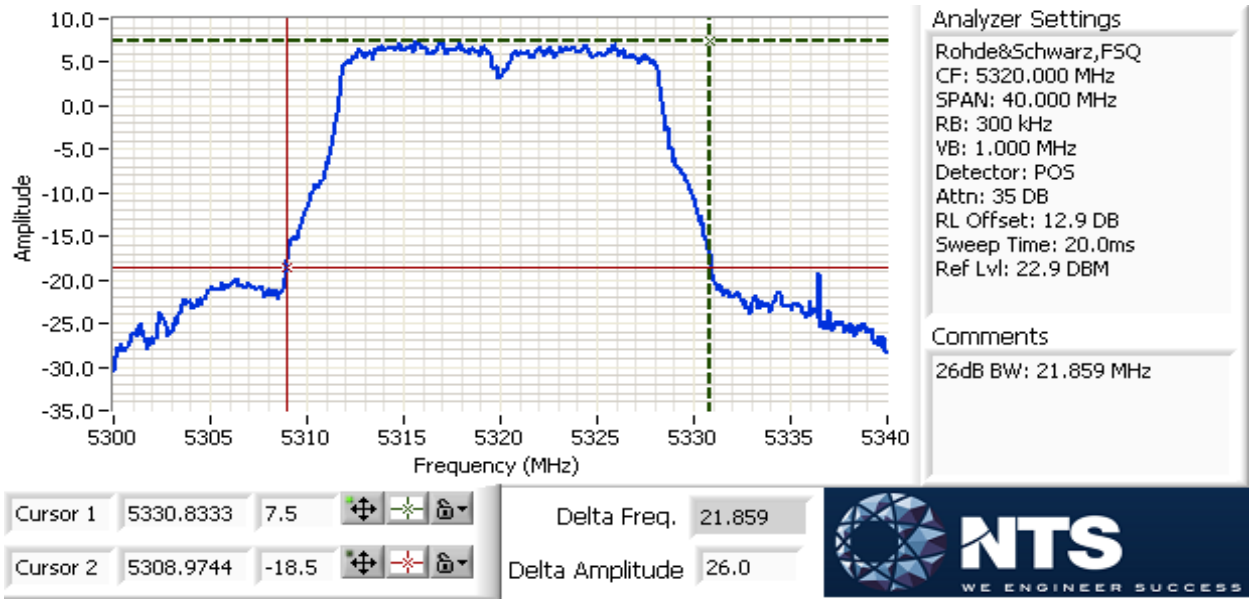
Frequency (MHz)	Chain	Software Setting	26dB BW (MHz)	Duty Cycle %	Power dBm	Total Power[1] mW	Total Power[1] dBm	FCC Limit dBm	Max Power (W)	Result
5260	1	q63	21.923	100	14.9	134.2	21.3	24.0	0.157	Pass
	3				15.2					
	4				15.5					
	2				15.4					
5300	1	q63	21.859	100	15.6	156.7	22.0	24.0		Pass
	3				16.0					
	4				15.9					
	2				16.2					
5320	1	q63	21.859	100	15.2	150.0	21.8	24.0		Pass
	3				15.7					
	4				15.8					
	2				16.2					

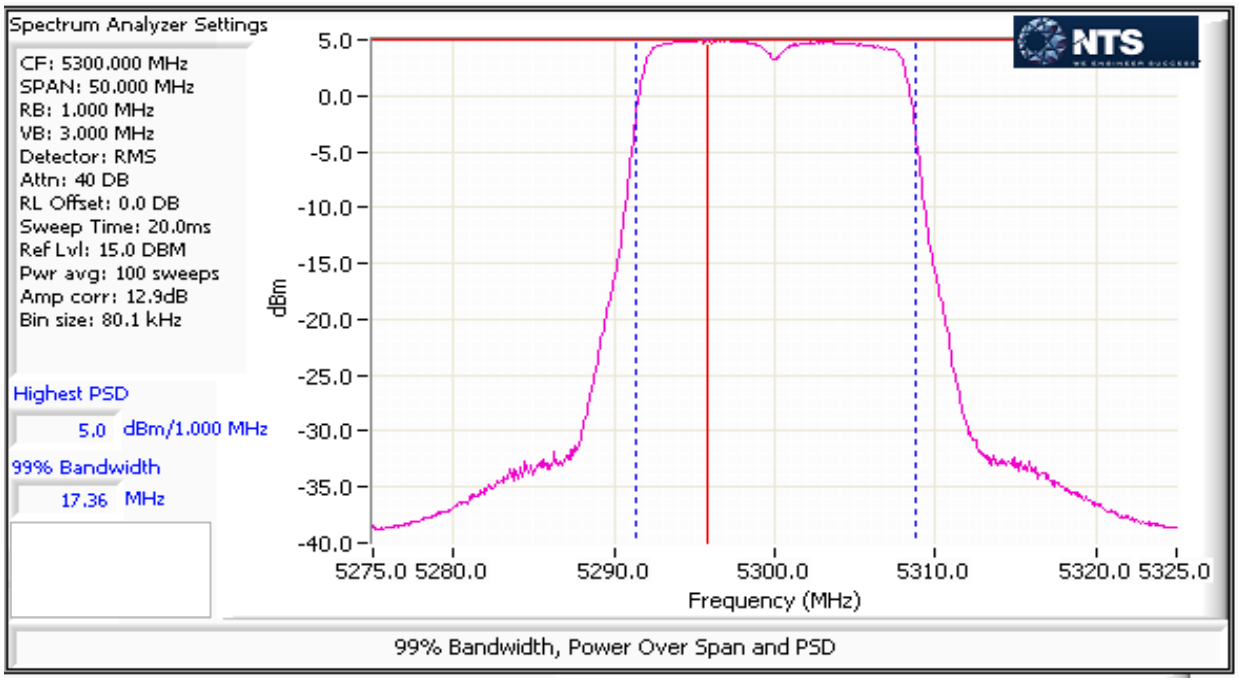
5250-5350 PSD - FCC/IC

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
5260	1	q63		99	3.7	11.0	10.4	10.5	11.0	Pass
	3				4.7					
	4				4.1					
	2				4.9					
5300	1	q63		99	3.5	10.9	10.4	10.5	11.0	Pass
	3				4.8					
	4				4.0					
	2				5.0					
5320	1	q63		99	3.3	10.5	10.2	10.5	11.0	Pass
	3				4.6					
	4				3.8					
	2				4.9					

Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	N/A





Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	N/A

MIMO Device - 5250-5350 MHz Band - FCC

Mode: n20 Max EIRP (mW): 189.7

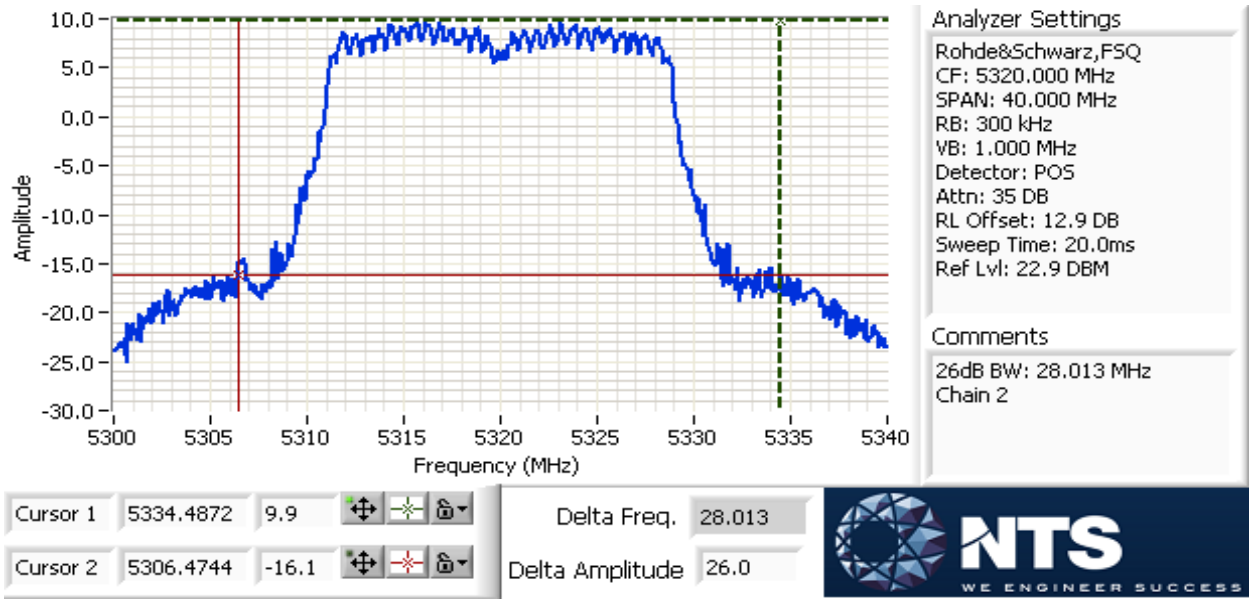
Frequency (MHz)	Chain	Software Setting	26dB BW (MHz)	Duty Cycle %	Power dBm	Total Power[1] mW	Total Power[1] dBm	FCC Limit dBm	Max Power (W)	Result
5260	1	q64	28.91	100	15.8	165.2	22.2	24.0	0.165	Pass
	3				16.0					
	4				16.3					
	2				16.5					
5300	1	q64	29.167	100	15.5	161.6	22.1	24.0		Pass
	3				16.0					
	4				16.3					
	2				16.4					
5320	1	q64	28.013	100	15.3	155.2	21.9	24.0		Pass
	3				16.0					
	4				16.0					
	2				16.2					

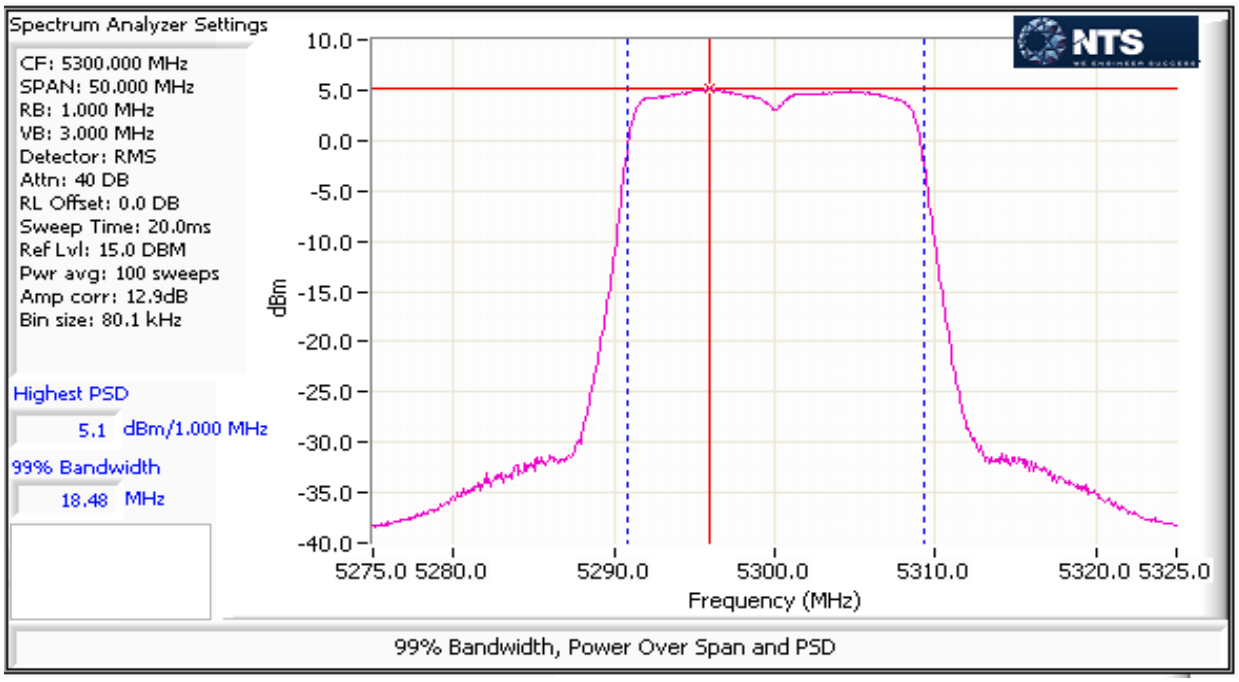
5250-5350 PSD - FCC/IC

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
5260	1	q64		99	3.9	10.7	10.3	10.5	11.0	Pass
	3				5.0					
	4				3.7					
	2				4.4					
5300	1	q64		99	3.4	10.9	10.4	10.5	11.0	Pass
	3				4.7					
	4				4.0					
	2				5.1					
5320	1	q64		99	3.3	10.6	10.3	10.5	11.0	Pass
	3				4.6					
	4				3.9					
	2				5.0					

Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	N/A





Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	N/A

MIMO Device - 5250-5350 MHz Band - FCC

Mode: n40 Max EIRP (mW): 277

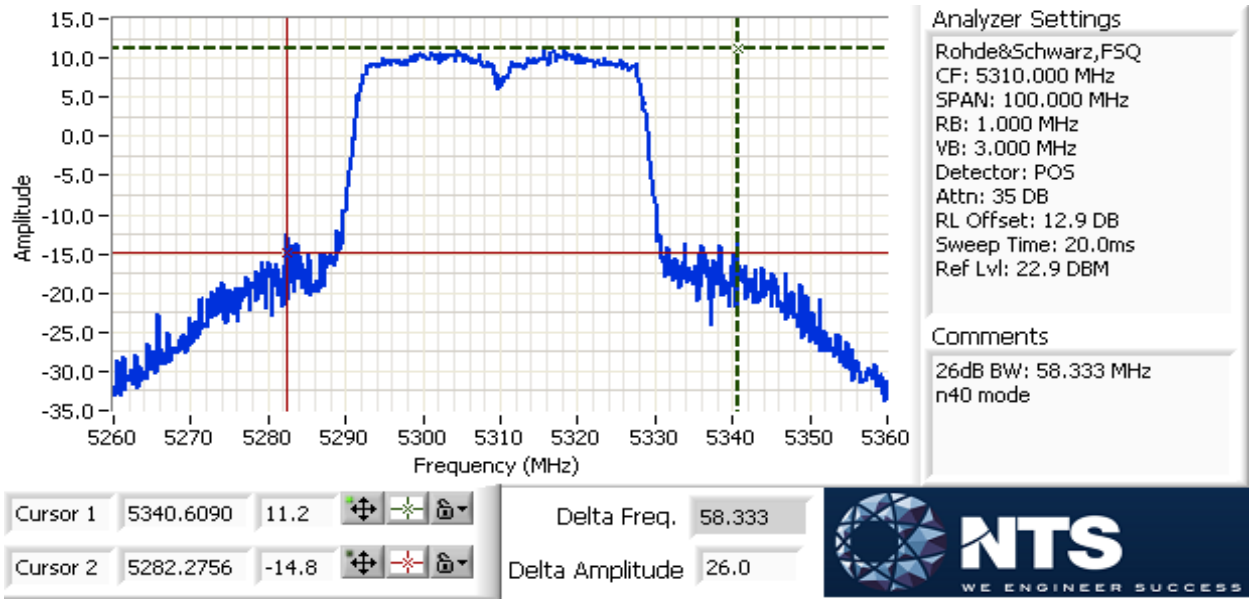
Frequency (MHz)	Chain	Software Setting	26dB BW (MHz)	Duty Cycle %	Power dBm	Total Power[1] mW	Total Power[1] dBm	FCC Limit dBm	Max Power (W)	Result
5270	1	q70	78.7	100	17.5	241.3	23.8	24.0	0.241	Pass
	3				17.7					
	4				18.0					
	2				18.0					
5310	1	q59	58.3	100	14.0	117.8	20.7	24.0		Pass
	3				14.8					
	4				14.9					
	2				15.0					

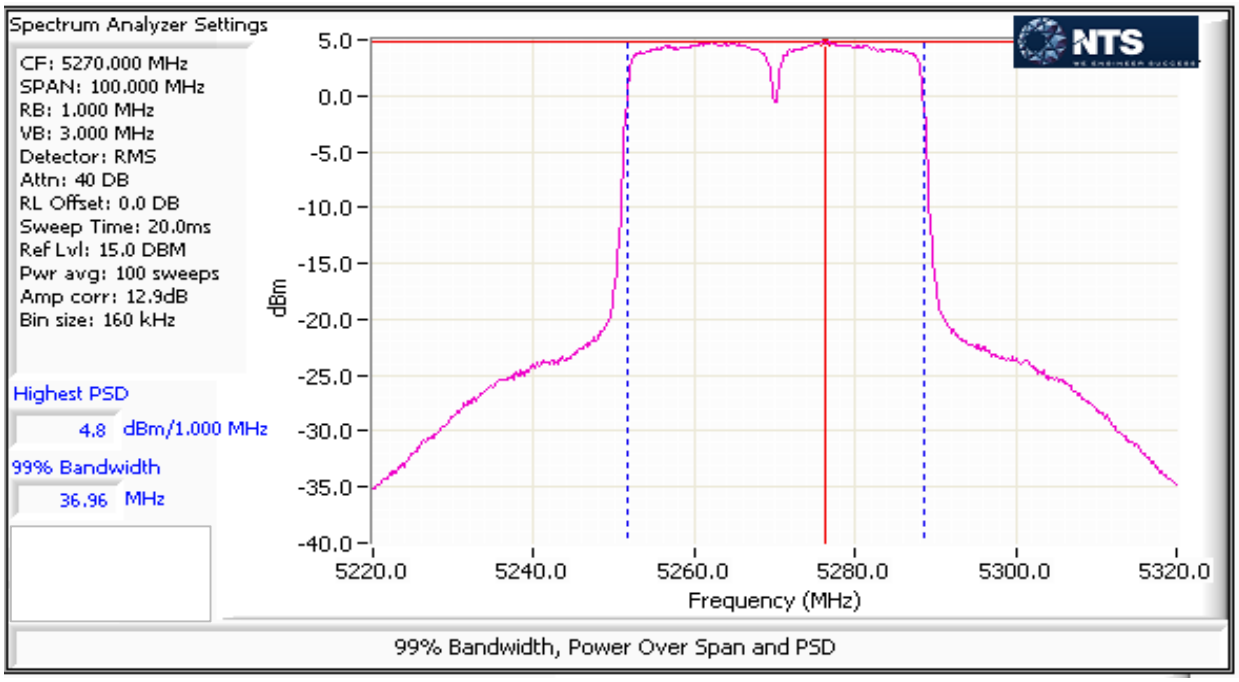
MIMO Device 5250-5350 PSD - FCC/IC

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
5270	1	q74		98	3.5	10.6	10.3	10.5	11.0	Pass
	3				4.3					
	4				4.2					
	2				4.8					
5310	1	q59		98	-0.7	4.2	6.2	10.5	11.0	Pass
	3				0.6					
	4				-0.1					
	2				0.9					

Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	N/A





Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	N/A

MIMO Device - 5250-5350 MHz Band - FCC

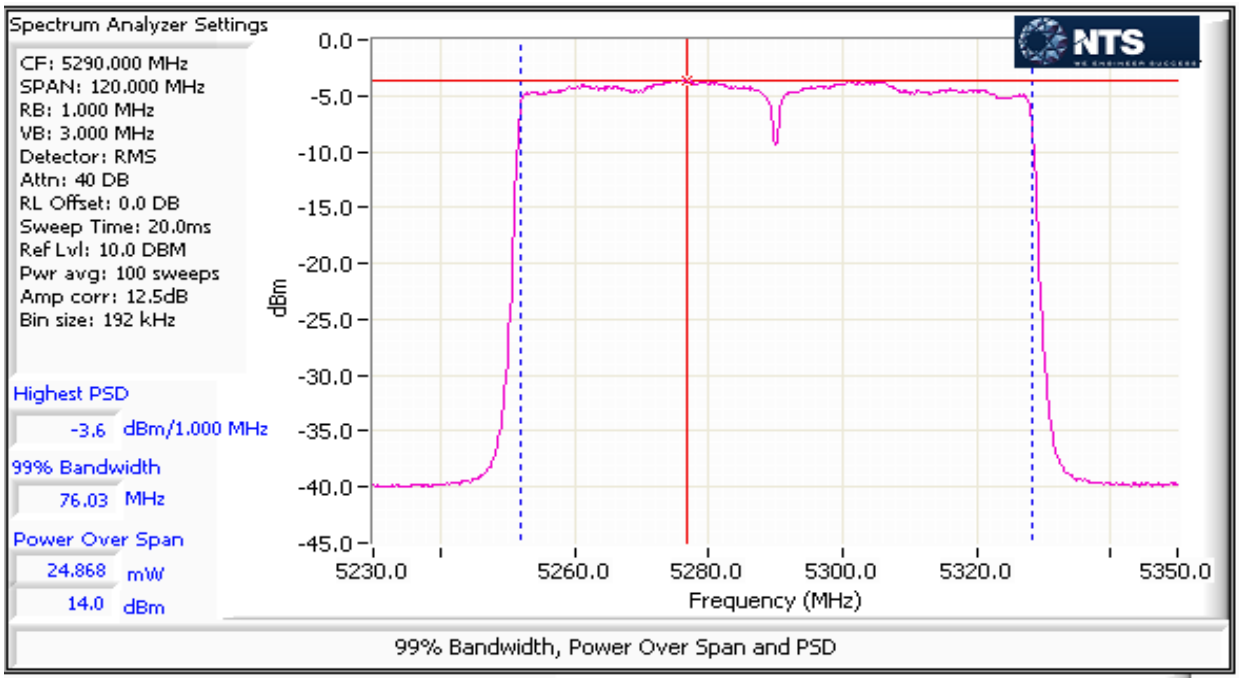
Mode: ac80 Max EIRP (mW): 113

Frequency (MHz)	Chain	Software Setting	26dB BW (MHz)	Duty Cycle %	Power dBm	Total Power[1] mW	Total Power[1] dBm	FCC Limit dBm	Max Power (W)	Result
5290	1	q53	82.1	96	13.5	98.4	19.9	24.0	0.098	Pass
	3				14.0					
	4				13.5					
	2				13.9					

MIMO Device 5250-5350 PSD - FCC/IC

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
5290	1	q53		96	-4.0	1.7	2.3	10.5	11.0	Pass
	3				-3.6					
	4				-3.9					
	2				-3.6					



Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	N/A

FCC 15.407(UNII)
Antenna Port Measurements
Power, PSD, Bandwidth and Spurious Emissions

Test Specific Details

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

Summary of Results

Run #	Test Performed	Limit	Pass / Fail	Result / Margin
1	Power, 5250 - 5350MHz	15.407(a) (2)	Pass	n20: 22.2 dBm (165.2 mW) n40: 23.4 dBm (220.4 mW) ac80: 20.4 dBm (108.5 mW)
1	PSD, 5250 - 5350MHz	15.407(a) (2)	Pass	n20: 10.4 dBm/MHz n40: 10.3 dBm/MHz ac80: 2.8 dBm/MHz
1	Max EIRP 5250 - 5350MHz	TPC required if EIRP≥ 500mW (27dBm). EIRP ≥ 200mW (23dBm) DFS threshold = -64dBm.	Pass	EIRP = 29.9 dBm (984.5 mW)
1	26dB Bandwidth	15.407 (Information only)	-	> 20MHz for all modes

General Test Configuration

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

Ambient Conditions:

Temperature:	22.6 °C
Rel. Humidity:	41 %

Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	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 D01

	Mode	Data Rate	Duty Cycle (x)	Constant DC?	T (ms)	Pwr Cor Factor*	Lin Volt Cor Factor**	Min VBW for FS (Hz)
1SS	11n20	MCS0	0.99	Yes	1.953	0	0	10
1SS	n40	MCS0	0.9798	Yes	0.971	0.0885442	0.2	1030
1SS	ac80	VHT0	0.96	Yes	0.46	0.1848341	0.4	2174

Note - for antenna port measurements, the EUT was operated in the non-TxBF mode

Sample Notes

Sample S/N: G62DA7BU20005B
Driver: -

Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	N/A

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

Date of Test: 3/10/2017 0:00 Config. Used: 1

Test Engineer: Rafael Varelas / Joseph Cadigal Config Change: none

Test Location: FT Lab #4B EUT Voltage: 120V/60Hz

Note 1:	Power measured using a gated average power meter. Power on channels that straddle the bandedge were measured using the power meter.
Note 2:	PSD measured using a spectrum analyzer (see plots below). RBW=1MHz, VB=3 MHz, Span > OBW, # of points in sweep ≥ 2*span/RBW, RMS detector, trace average 100 traces, power averaging on. The measurements were adjusted corrected for duty cycle. This is based on 10log(1/x), where x is the duty cycle. (method SA-2 of ANSI C63.10)
Note 4:	For MIMO systems the total output power and total PSD are calculated from the sum of the powers of the individual chains (in linear terms). The antenna gain used to determine the EIRP and limits for PSD/Output power depends on the operating mode of the MIMO device. If the signals on the non-coherent between the transmit chains then the gain used to determine the limits is the highest gain of the individual chains and the EIRP is the sum of the products of gain and power on each chain. If the signals are coherent then the effective antenna gain is the sum (in linear terms) of the gains for each chain and the EIRP is the product of the effective gain and total power.

Antenna Gain Information

Freq	Antenna Gain (dBi) / Chain				BF	MultiChain Legacy	CDD	Sectorized / Xpol	Dir G (PWR)	Dir G (PSD)
	1	2	3	4						
5150-5250	Refer to Operational Description				No	Yes	Yes	No	6.70	6.70
5250-5350					No	Yes	Yes	No	6.50	6.50
5470-5725					No	Yes	Yes	No	6.80	6.80
5725-5825					No	Yes	Yes	No	6.60	6.60

For devices that support CDD modes

Min # of spatial streams: 1

Max # of spatial streams: 4

Note - for all power/psd measurements, testing performed using 1 spatial stream

Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	N/A

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.
Notes:	For systems with Beamforming and CDD, choose one the following options: Option 1: Delays are optimized for beamforming, rather than being selected from cyclic delay table of 802.11; Array gains calculated based on beamforming criteria. Option 2: Antennas are paired for beamforming, and the pairs are configured to use the cyclic delay diversity of 802.11; the array gain associated with beamforming with 2 antennas (3dB), and the array gain associated with CDD with two antennas (3dB for PSD and 0 dB for power)

Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	N/A

MIMO Device - 5250-5350 MHz Band - FCC

Mode: n20 Max EIRP (mW): 737.9

Frequency (MHz)	Chain	Software Setting	26dB BW (MHz)	Duty Cycle %	Power dBm	Total Power[1] mW	Total Power[1] dBm	FCC Limit dBm	Max Power (W)	Result
5260	1	q64	28.91	100	15.8	165.2	22.2	23.5	0.165	Pass
	3				16.0					
	4				16.3					
	2				16.5					
5300	1	q64	29.167	100	15.5	161.6	22.1	23.5		Pass
	3				16.0					
	4				16.3					
	2				16.4					
5320	1	q64	28.013	100	15.3	155.2	21.9	23.5		Pass
	3				16.0					
	4				16.0					
	2				16.2					

5250-5350 PSD - FCC/IC

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
5260	1	q64		99	3.9	10.7	10.3	10.5	11.0	Pass
	3				5.0					
	4				3.7					
	2				4.4					
5300	1	q64		99	3.4	10.9	10.4	10.5	11.0	Pass
	3				4.7					
	4				4.0					
	2				5.1					
5320	1	q64		99	3.3	10.6	10.3	10.5	11.0	Pass
	3				4.6					
	4				3.9					
	2				5.0					

All measurements are consistent with non-Tx BF operation, no plots provided.

Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	N/A

MIMO Device - 5250-5350 MHz Band - FCC

Mode: n40 Max EIRP (mW): 984.5

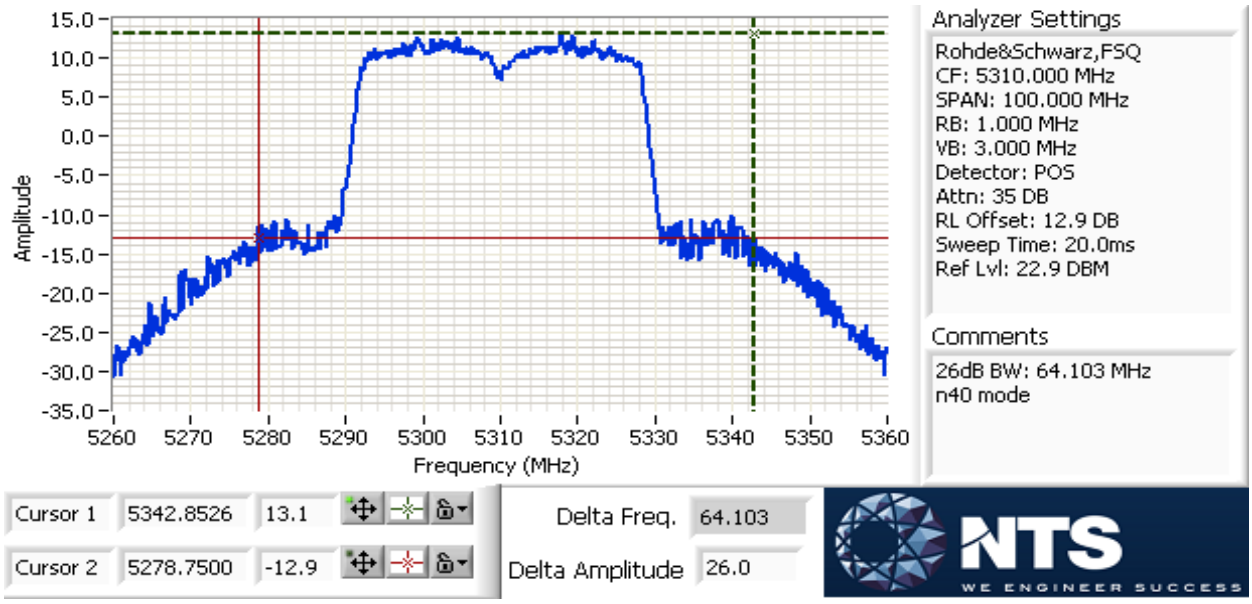
Frequency (MHz)	Chain	Software Setting	26dB BW (MHz)	Duty Cycle %	Power dBm	Total Power[1] mW	Total Power[1] dBm	FCC Limit dBm	Max Power (W)	Result
5270	1	q68	79.5	100	16.9	220.4	23.4	23.5	0.220	Pass
	3				17.3					
	4				17.7					
	2				17.7					
5310	1	q62	64.1	100	15.3	149.7	21.8	23.5		Pass
	3				15.8					
	4				15.9					
	2				15.9					

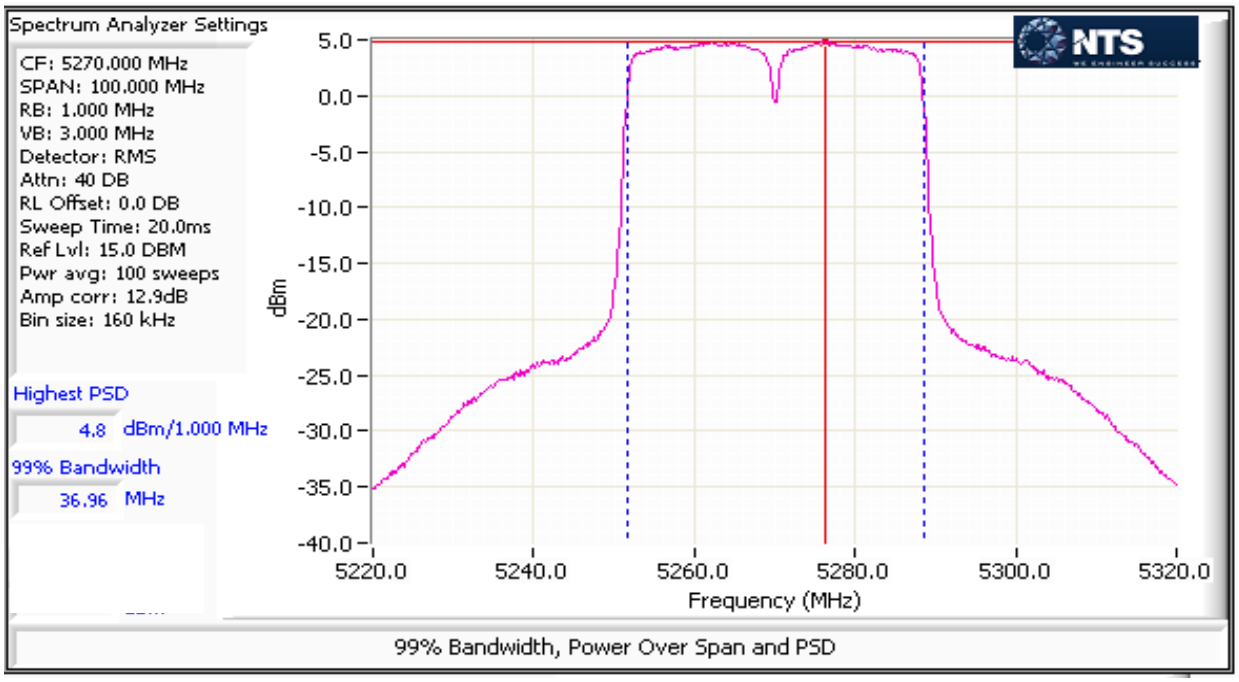
MIMO Device 5250-5350 PSD - FCC/IC

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
5270	1	q74		98	3.5	10.6	10.3	10.5	11.0	Pass
	3				4.3					
	4				4.2					
	2				4.8					
5310	1	q62		98	0.2	4.6	6.6	10.5	11.0	Pass
	3				1.5					
	4				-1.3					
	2				1.6					

Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	N/A





Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	N/A

MIMO Device - 5250-5350 MHz Band - FCC

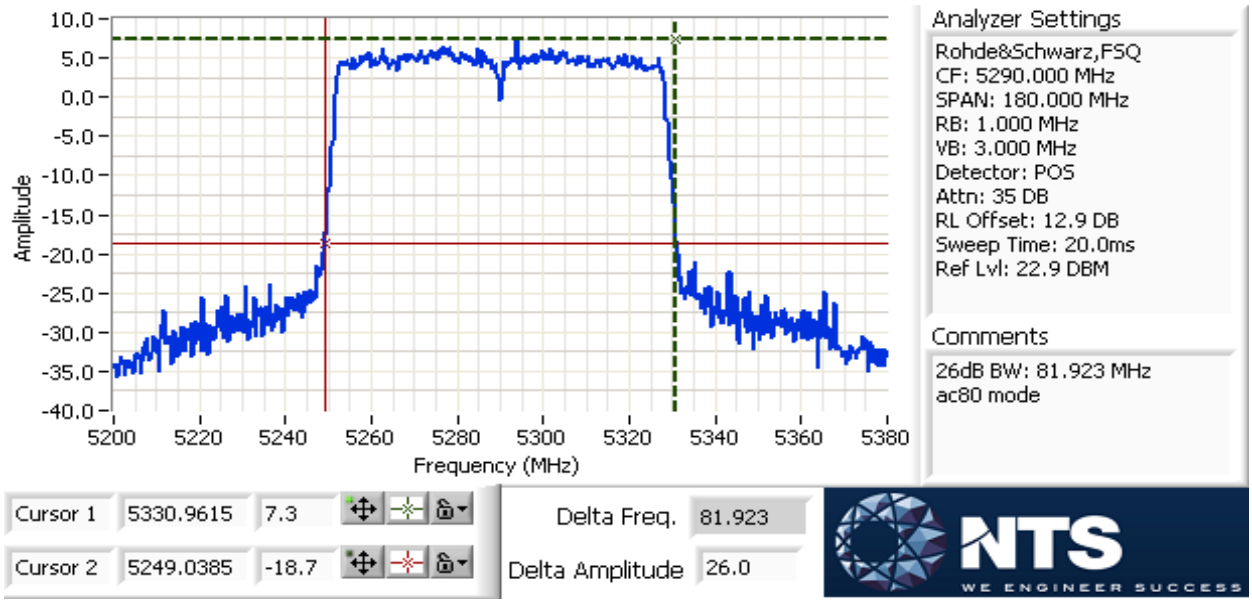
Mode: ac80 Max EIRP (mW): 484.7

Frequency (MHz)	Chain	Software Setting	26dB BW (MHz)	Duty Cycle %	Power dBm	Total Power[1] mW	Total Power[1] dBm	FCC Limit dBm	Max Power (W)	Result
5290	1	q56	81.9	100	14.0	108.5	20.4	23.5	0.109	Pass
	3				14.2					
	4				14.4					
	2				14.7					

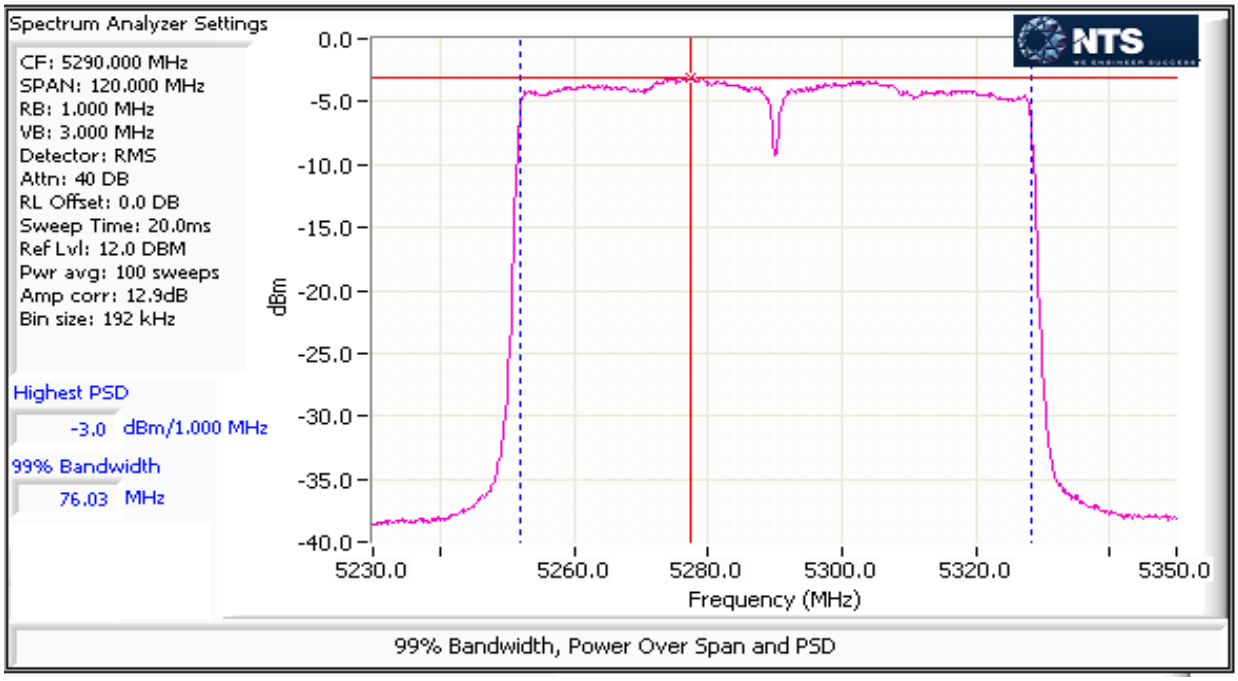
MIMO Device 5250-5350 PSD - FCC/IC

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
5290	1	q56		96	-3.6	1.9	2.8	10.5	11.0	Pass
	3				-3.0					
	4				-4.4					
	2				-3.1					



Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	N/A



Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	N/A

FCC 15.407(UNII)
Antenna Port Measurements
Power, PSD, Bandwidth and Spurious Emissions

Test Specific Details

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

Summary of Results

Run #	Test Performed	Limit	Pass / Fail	Result / Margin
1	Power, 5470 - 5725MHz	15.407(a) (2)	Pass	a: 21.9 dBm (156 mW) n20: 22.4 dBm (173 mW) n40: 23.9 dBm (243 mW) ac80: 23.8 dBm (241 mW)
1	PSD, 5470 - 5725MHz	15.407(a) (2)	Pass	a: 10.2 dBm/MHz n20: 10.1 dBm/MHz n40: 9.8 dBm/MHz ac80: 10 dBm/MHz
1	Max EIRP 5470 - 5725MHz	TPC required if EIRP≥ 500mW (27dBm). EIRP ≥ 200mW (23dBm) DFS threshold	Pass	EIRP = 24.8 dBm (300.4 mW)
1	26dB Bandwidth	15.407 (Information only)	-	Power limit reduced for those channels with 26dB BW < 20MHz

General Test Configuration

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

Ambient Conditions:

Temperature: 22.4 °C
Rel. Humidity: 39 %

Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	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 D01

	Mode	Data Rate	Duty Cycle (x)	Constant DC?	T (ms)	Pwr Cor Factor*	Lin Volt Cor Factor**	Min VBW for FS (Hz)
1SS	11a	6MB/s	0.99	Yes	1.952	0	0	10
1SS	11n20	MCS0	0.99	Yes	1.953	0	0	10
1SS	n40	MCS0	0.9798	Yes	0.971	0.0885442	0.2	1030
1SS	ac80	VHT0	0.96	Yes	0.46	0.1848341	0.4	2174

Sample Notes

Sample S/N: G62DA7BU20005B

Driver: -

Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	N/A

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

Date of Test: 3/9/2017 0:00 Config. Used: 1

Test Engineer: Rafael Varelas / Joseph Cadigal Config Change: none

Test Location: FT Lab #4B EUT Voltage: 120V/60Hz

Note 1:	Power measured using a gated average power meter. Power on channels that straddle the bandedge were measured using the power meter. The total was compared to the UNII2c limit, as this represented worse case condition.
Note 2:	PSD measured using a spectrum analyzer (see plots below). RBW=1MHz, VB=3 MHz, Span > OBW, # of points in sweep ≥ 2*span/RBW, RMS detector, trace average 100 traces, power averaging on. The measurements were adjusted corrected for duty cycle. This is based on 10log(1/x), where x is the duty cycle. (method SA-2 of ANSI C63.10)
Note 1:	Duty Cycle ≥ 98%. Output power measured using a spectrum analyzer (see plots below). RBW=1MHz, VB=3 MHz, Span > OBW, # of points in sweep ≥ 2*span/RBW, auto sweep, RMS detector, power averaging on (transmitted signal was continuous, duty cycle ≥ 98%) and power integration over the OBW (method SA-1 of ANSI C63.10).
Note 4:	For MIMO systems the total output power and total PSD are calculated from the sum of the powers of the individual chains (in linear terms). The antenna gain used to determine the EIRP and limits for PSD/Output power depends on the operating mode of the MIMO device. If the signals on the non-coherent between the transmit chains then the gain used to determine the limits is the highest gain of the individual chains and the EIRP is the sum of the products of gain and power on each chain. If the signals are coherent then the effective antenna gain is the sum (in linear terms) of the gains for each chain and the EIRP is the product of the effective gain and total power.

Antenna Gain Information

Freq	Antenna Gain (dBi) / Chain				BF	MultiChain Legacy	CDD	Sectorized / Xpol	Dir G (PWR)	Dir G (PSD)
	1	2	3	4						
5150-5250	Refer to Operational Description				No	Yes	Yes	No	0.70	6.70
5250-5350					No	Yes	Yes	No	0.60	6.50
5470-5725					No	Yes	Yes	No	1.00	6.80
5725-5825					No	Yes	Yes	No	0.70	6.60

For devices that support CDD modes

Min # of spatial streams: 1

Max # of spatial streams: 4

Note - for all power/psd measurements, testing performed using 1 spatial stream

Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	N/A

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.
Notes:	For systems with Beamforming and CDD, choose one the following options: Option 1: Delays are optimized for beamforming, rather than being selected from cyclic delay table of 802.11; Array gains calculated based on beamforming criteria. Option 2: Antennas are paired for beamforming, and the pairs are configured to use the cyclic delay diversity of 802.11; the array gain associated with beamforming with 2 antennas (3dB), and the array gain associated with CDD with two antennas (3dB for PSD and 0 dB for power)

Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	N/A

MIMO Device - 5470-5725 MHz Band - FCC

Mode: 11a Max EIRP (mW): 196.3

Frequency (MHz)	Chain	Software Setting	26dB BW (MHz)	Duty Cycle %	Power dBm	Total Power mW	Total Power dBm	FCC Limit dBm	Max Power (W)	Result
5500	1	q64	21.5	100	15.6	155.9	21.9	24.0	0.156	Pass
	3				15.7					
	4				16.1					
	2				16.2					
5580	1	q65	21.5	100	15.6	152.2	21.8	24.0		Pass
	3				15.9					
	4				15.7					
	2				16.0					
5700	1	q64	21.6	100	15.3	146.3	21.7	24.0		Pass
	3				15.5					
	4				15.7					
	2				16.0					
5720	1	q63	15.9	100	14.9	135.1	21.3	23.0		Pass
	3				15.1					
	4				15.4					
	2				15.7					

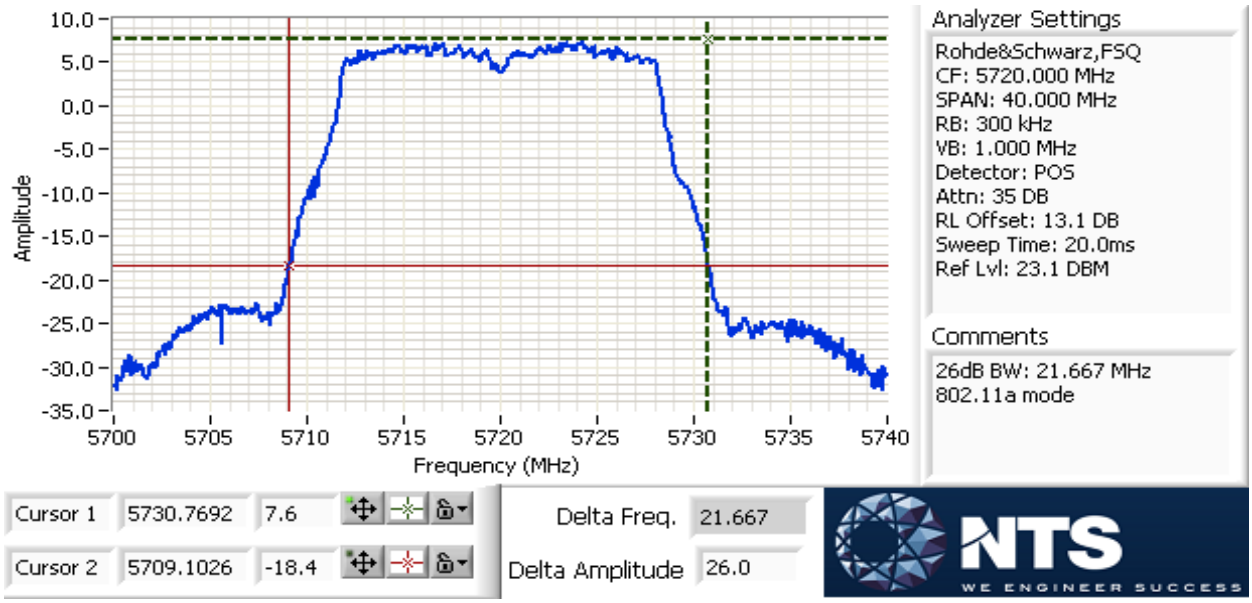
Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	N/A

5470-5700 PSD - FCC/IC

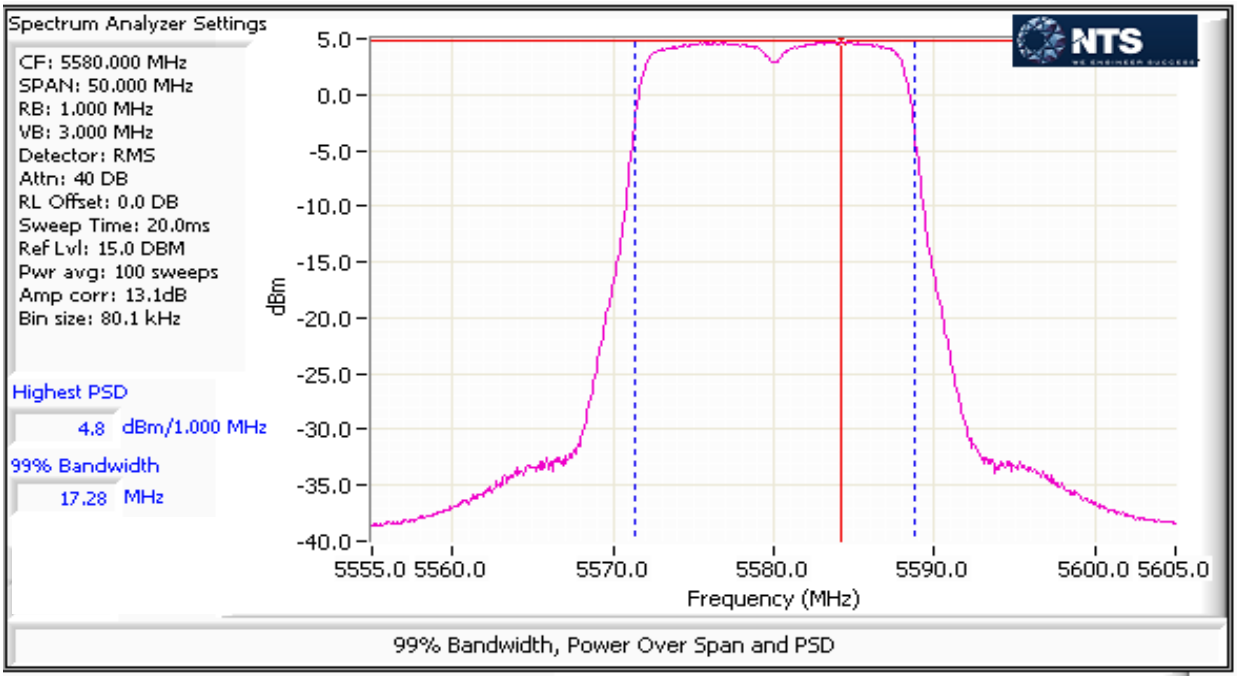
Mode: 11a

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
5500	1	q64		99	3.8	9.4	9.7	10.2	11.0	Pass
	3				3.8					
	4				3.1					
	2				4.1					
5580	1	q65		99	4.0	10.0	10.0	10.2	11.0	Pass
	3				3.2					
	4				4.8					
	2				3.7					
5700	1	q64		99	4.4	10.5	10.2	10.2	11.0	Pass
	3				3.3					
	4				4.8					
	2				4.1					
5720	1	q63		99	4.0	9.5	9.8	10.2	11.0	Pass
	3				2.7					
	4				4.4					
	2				3.7					
Portion within 5725-5850 MHz band (UNII-3)										
5720	1	q63		99	3.9	9.1	9.6	29.2	29.2	Pass
	3				2.8					
	4				3.9					
	2				3.6					

Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	N/A



26dB Bandwidth within the UNII2c = 5725-5709.1 = 15.9MHz



Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	N/A

MIMO Device - 5470-5725 MHz Band - FCC

Mode: n20 Max EIRP (mW): 217.4

Frequency (MHz)	Chain	Software Setting	26dB BW (MHz)	Duty Cycle %	Power dBm	Total Power mW	Total Power dBm	FCC Limit dBm	Max Power (W)	Result
5500	1	q65	21.7	100	16.0	166.9	22.2	24.0	0.173	Pass
	3				16.1					
	4				16.2					
	2				16.5					
5580	1	q67	21.9	100	16.2	172.7	22.4	24.0		Pass
	3				16.3					
	4				16.4					
	2				16.5					
5700	1	q64	25.1	100	15.2	148.3	21.7	24.0		Pass
	3				15.5					
	4				15.8					
	2				16.2					
5720	1	q64	18.1	100	15.2	143.0	21.6	23.6		Pass
	3				15.4					
	4				15.7					
	2				15.8					

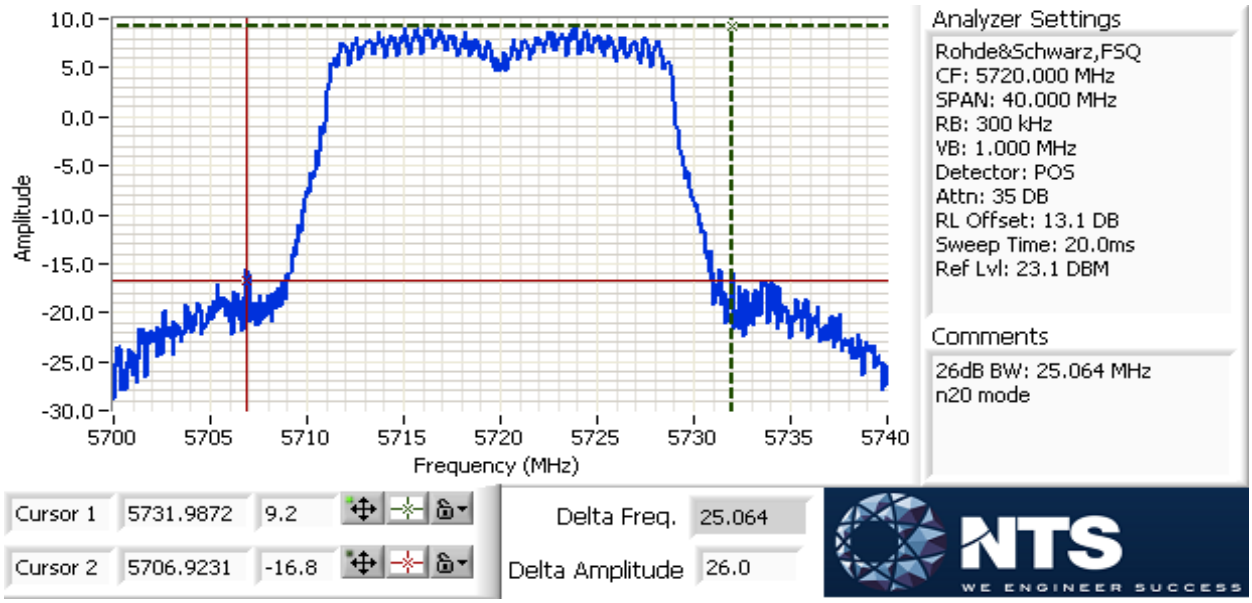
Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	N/A

5470-5725 PSD - FCC/IC

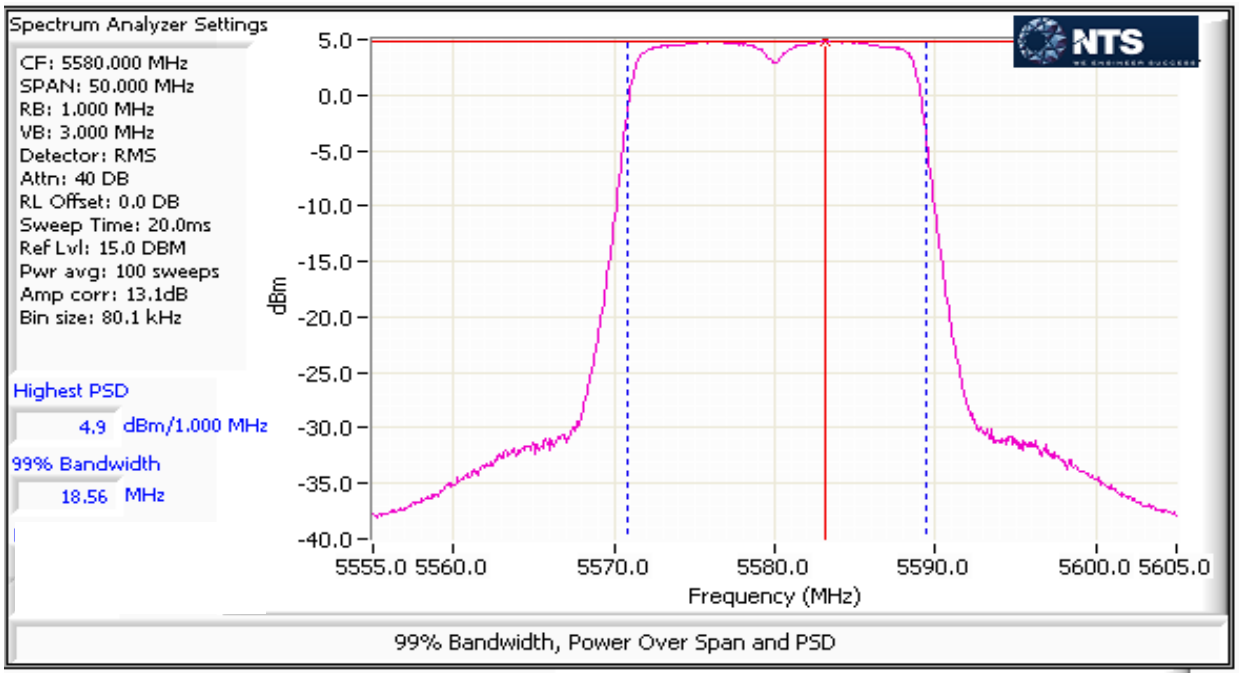
Mode: n20

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
5500	1	q65		99	3.5	9.1	9.6	10.2	11.0	Pass
	3				3.6					
	4				4.1					
	2				3.0					
5580	1	q67		99	3.9	9.0	9.5	10.2	11.0	Pass
	3				1.9					
	4				4.9					
	2				2.9					
5700	1	q64		99	4.5	10.5	10.2	10.2	11.0	Pass
	3				3.2					
	4				4.8					
	2				4.1					
5720	1	q64		99	4.4	10.2	10.1	10.2	11.0	Pass
	3				3.2					
	4				4.5					
	2				4.0					
Portion within 5725-5850 MHz band (UNII-3)										
5720	1	q64		99	4.0	9.4	9.7	29.2	29.2	Pass
	3				3.1					
	4				3.8					
	2				3.9					

Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	N/A



26dB Bandwidth within the UNII2c = 5725-5706.9 = 18.1MHz



Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	N/A

MIMO Device - 5470-5725 MHz Band - FCC

Mode: n40 Max EIRP (mW): 300.4

Frequency (MHz)	Chain	Software Setting	26dB BW (MHz)	Duty Cycle %	Power dBm	Total Power mW	Total Power dBm	FCC Limit dBm	Max Power (W)	Result
5510	1	q56	41.3	100	13.7	96.5	19.8	24.0	0.239	Pass
	3				13.9					
	4				13.8					
	2				13.9					
5550	1	q73	69.5	100	17.5	238.6	23.8	24.0		Pass
	3				17.6					
	4				17.8					
	2				18.1					
5670	1	q67	64.6	100	16.1	179.0	22.5	24.0		Pass
	3				16.5					
	4				16.6					
	2				16.8					
5710	1	q73	51.5	100	17.4	242.8	23.9	24.0		Pass
	3				17.9					
	4				17.9					
	2				18.1					

Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	N/A

MIMO Device 5470-5725 PSD - FCC/IC

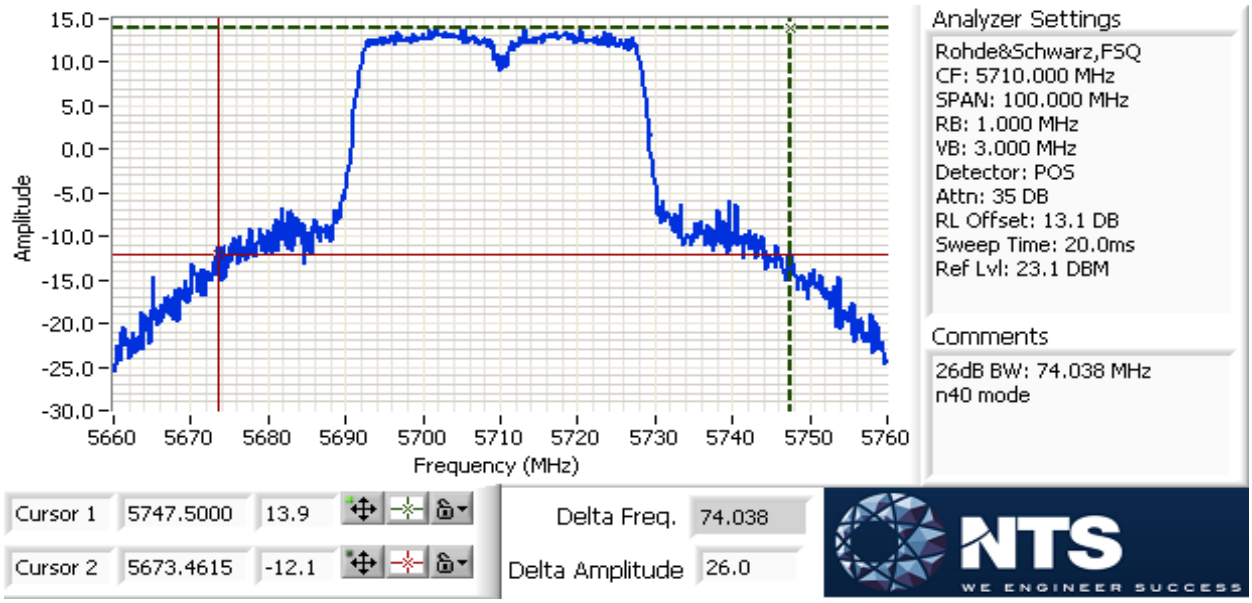
Mode: n40

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
5510	1	q56		98	-1.9	2.7	4.3	10.2	11.0	Pass
	3				-2.0					
	4				-1.1					
	2				-1.8					
5550	1	q78		98	3.4	9.1	9.6	10.2	11.0	Pass
	3				3.0					
	4				4.2					
	2				3.6					
5670	1	q67		98	2.1	6.0	7.8	10.2	11.0	Pass
	3				0.6					
	4				2.6					
	2				1.5					
5710	1	q76		98	4.2	9.6	9.8	10.2	11.0	Pass
	3				3.2					
	4				4.1					
	2				3.6					

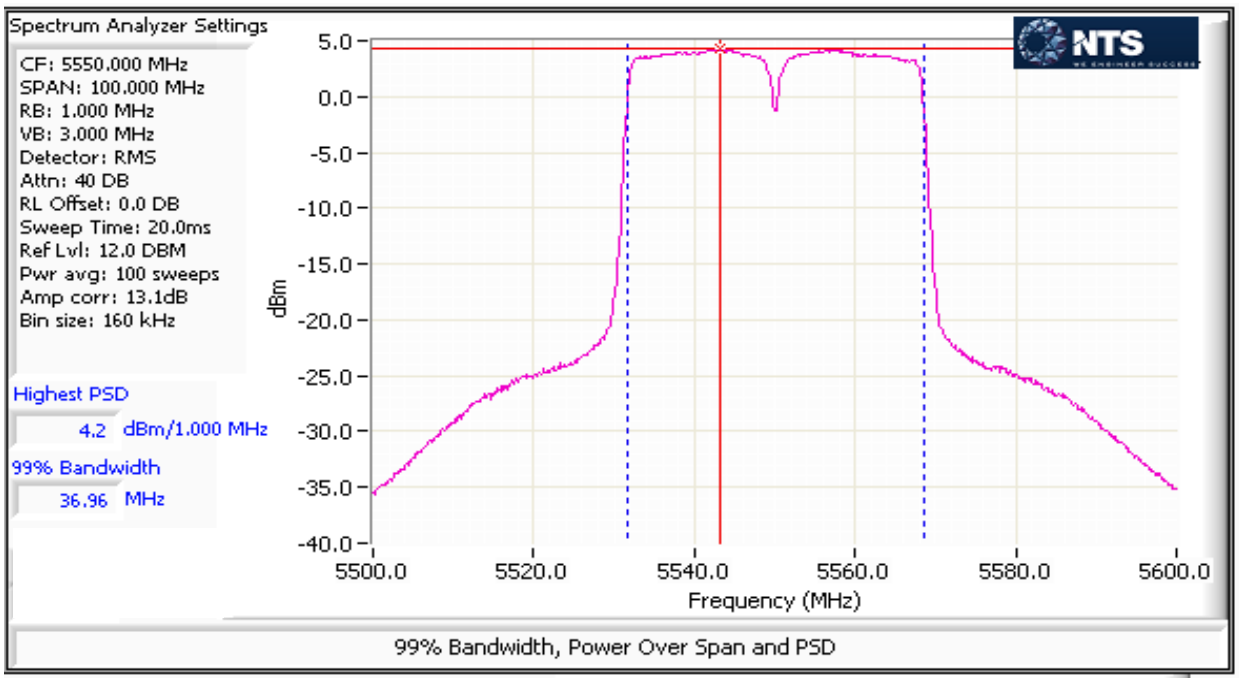
Portion within 5725-5850 MHz band (UNII-3)

5710	1	q76		98	3.1	8.0	9.0	29.2	29.2	Pass
	3				2.4					
	4				3.7					
	2				2.7					

Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	N/A



26dB Bandwidth within the UNII2c = 5725-5673.5 =51.5MHz



Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	N/A

MIMO Device - 5470-5725 MHz Band - FCC

Mode: ac80 Max EIRP (mW): 303.9

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
5530	1	q46	81.5	100	11.6	54.3	17.3	24.0	0.241	Pass
	3				11.2					
	4				11.1					
	2				11.4					
5610	1	q70	92.3	100	17.5	241.4	23.8	24.0		Pass
	3				18.0					
	4				17.6					
	2				18.1					
5690	1	q71	86.1	100	17.4	240.2	23.8	24.0		Pass
	3				18.0					
	4				17.6					
	2				18.1					

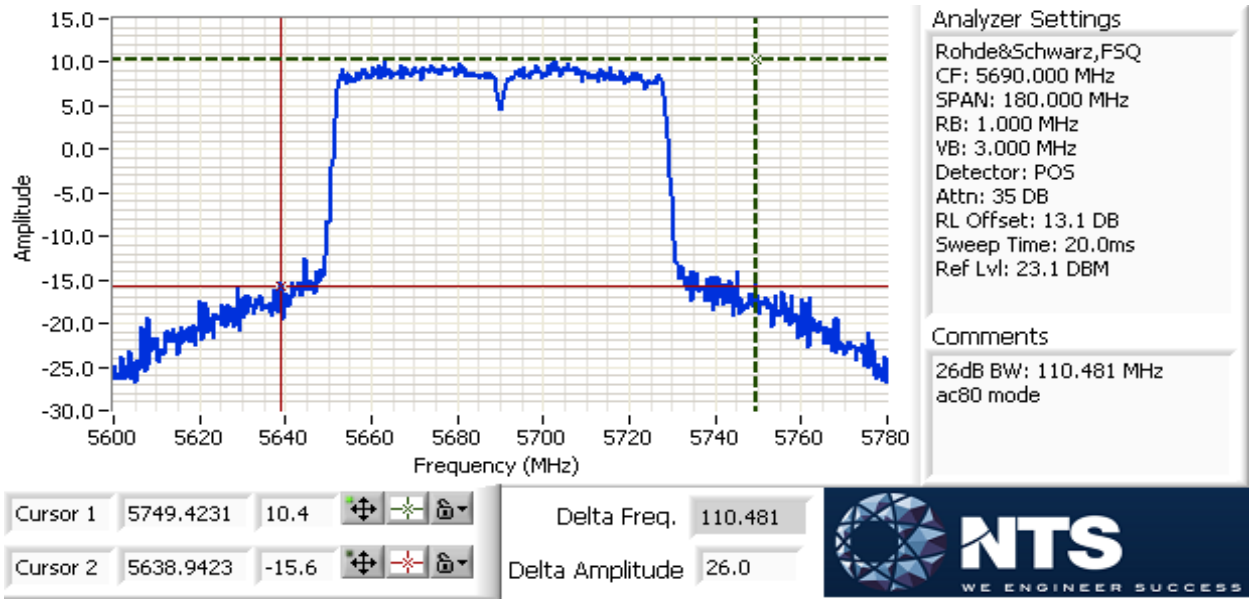
Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	N/A

5470-5725 PSD - FCC/IC

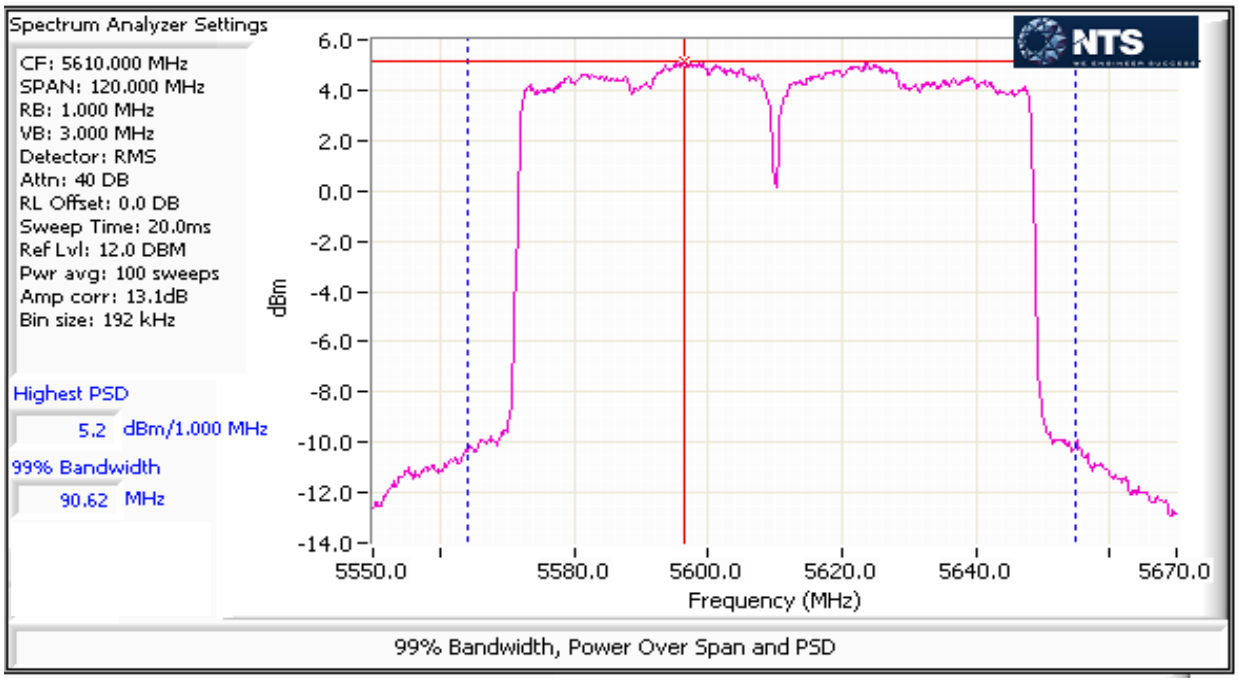
Mode: ac80

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
5530	1	q46		96	-7.1	0.8	-1.0	10.2	11.0	Pass
	3				-8.4					
	4				-6.7					
	2				-7.3					
5610	1	q87		96	3.5	10.0	10.0	10.2	11.0	Pass
	3				1.9					
	4				5.2					
	2				3.9					
5690	1	q85		96	3.9	9.5	9.8	10.2	11.0	Pass
	3				2.7					
	4				4.3					
	2				3.3					
Portion within 5725-5850 MHz band (UNII-3)										
5690	1	q85		96	2.3	6.8	8.3	29.2	29.2	Pass
	3				1.0					
	4				2.9					
	2				2.2					

Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	N/A



26dB Bandwidth within the UNII2c = 5725-5638.9 =86.1MHz



Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	N/A

FCC 15.407(UNII)
Antenna Port Measurements
Power, PSD, Bandwidth and Spurious Emissions

Test Specific Details

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

Summary of Results

Run #	Test Performed	Limit	Pass / Fail	Result / Margin
1	Power, 5470 - 5725MHz	15.407(a) (2)	Pass	n20: 22.4 dBm (172.7 mW) n40: 23.2 dBm (207 mW) ac80: 23.1 dBm (202 mW)
1	PSD, 5470 - 5725MHz	15.407(a) (2)	Pass	n20: 10.1 dBm/MHz n40: 9.8 dBm/MHz ac80: 10.0 dBm/MHz
1	Max EIRP 5470 - 5725MHz	TPC required if EIRP≥ 500mW (27dBm). EIRP ≥ 200mW (23dBm) DFS threshold	Pass	EIRP = 30.0 dBm (988.8 mW)
1	26dB Bandwidth	15.407 (Information only)	-	> 20MHz for all modes

General Test Configuration

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

Ambient Conditions:

Temperature:	22.6 °C
Rel. Humidity:	41 %

Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	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 D01

	Mode	Data Rate	Duty Cycle (x)	Constant DC?	T (ms)	Pwr Cor Factor*	Lin Volt Cor Factor**	Min VBW for FS (Hz)
1SS	11n20	MCS0	0.99	Yes	1.953	0	0	10
1SS	n40	MCS0	0.98	Yes	0.971	0.0885442	0.2	1030
1SS	ac80	VHT0	0.96	Yes	0.46	0.1848341	0.4	2174

Note - for antenna port measurements, the EUT was operated in the non-TxBF mode

Sample Notes

Sample S/N: G62DA7BU20005B
Driver: -

Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	N/A

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

Date of Test: 3/14/2017 0:00 Config. Used: 1

Test Engineer: Rafael Varelas / Joseph Cadigal Config Change: none

Test Location: FT Lab #4B EUT Voltage: 120V/60Hz

Note 1:	Power measured using a gated average power meter. Power on channels that straddle the bandedge were measured using the power meter. The total was compared to the UNII2c limit, as this represented worse case condition.
Note 2:	PSD measured using a spectrum analyzer (see plots below). RBW=1MHz, VB=3 MHz, Span > OBW, # of points in sweep ≥ 2*span/RBW, RMS detector, trace average 100 traces, power averaging on. The measurements were adjusted corrected for duty cycle. This is based on 10log(1/x), where x is the duty cycle. (method SA-2 of ANSI C63.10)
Note 3:	99% Bandwidth measured in accordance with C63.10 - RB between 1-5 % of OBW and VB ≥ 3*RB, Span between 1.5 and 5 times OBW.
Note 4:	For MIMO systems the total output power and total PSD are calculated from the sum of the powers of the individual chains (in linear terms). The antenna gain used to determine the EIRP and limits for PSD/Output power depends on the operating mode of the MIMO device. If the signals on the non-coherent between the transmit chains then the gain used to determine the limits is the highest gain of the individual chains and the EIRP is the sum of the products of gain and power on each chain. If the signals are coherent then the effective antenna gain is the sum (in linear terms) of the gains for each chain and the EIRP is the product of the effective gain and total power.

Antenna Gain Information

Freq	Antenna Gain (dBi) / Chain				BF	MultiChain Legacy	CDD	Sectorized / Xpol	Dir G (PWR)	Dir G (PSD)
	1	2	3	4						
5150-5250	Refer to Operational Description				No	Yes	Yes	No	6.70	6.70
5250-5350					No	Yes	Yes	No	6.50	6.50
5470-5725					No	Yes	Yes	No	6.80	6.80
5725-5825					No	Yes	Yes	No	6.60	6.60

For devices that support CDD modes

Min # of spatial streams: 1

Max # of spatial streams: 4

Note - for all power/psd measurements, testing performed using 1 spatial stream

Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	N/A

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.
Notes:	For systems with Beamforming and CDD, choose one the following options: Option 1: Delays are optimized for beamforming, rather than being selected from cyclic delay table of 802.11; Array gains calculated based on beamforming criteria. Option 2: Antennas are paired for beamforming, and the pairs are configured to use the cyclic delay diversity of 802.11; the array gain associated with beamforming with 2 antennas (3dB), and the array gain associated with CDD with two antennas (3dB for PSD and 0 dB for power)

Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	N/A

MIMO Device - 5470-5725 MHz Band - FCC

Mode: n20 Max EIRP (mW): 826.6

Frequency (MHz)	Chain	Software Setting	26dB BW (MHz)	Duty Cycle %	Power dBm	Total Power mW	Total Power dBm	FCC Limit dBm	Max Power (W)	Result
5500	1	q65	21.7	100	16.0	166.9	22.2	23.2	0.173	Pass
	3				16.1					
	4				16.2					
	2				16.5					
5580	1	q67	21.9	100	16.2	172.7	22.4	23.2		Pass
	3				16.3					
	4				16.4					
	2				16.5					
5700	1	q62	30.064	100	15.1	136.4	21.3	23.2		Pass
	3				15.3					
	4				15.3					
	2				15.6					
5720	1	q64	18.1	100	15.2	143.0	21.6	22.8		Pass
	3				15.4					
	4				15.7					
	2				15.8					

Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	N/A

5470-5725 PSD - FCC/IC

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
5500	1	q65		99	3.5	9.1	9.6	10.2	11.0	Pass
	3				3.6					
	4				4.1					
	2				3.0					
5580	1	q67		99	3.9	9.0	9.5	10.2	11.0	Pass
	3				1.9					
	4				4.9					
	2				2.9					
5700	1	q62		99	3.9	8.8	9.4	10.2	11.0	Pass
	3				2.6					
	4				3.6					
	2				3.4					
5720	1	q64		99	4.4	10.2	10.1	10.2	11.0	Pass
	3				3.2					
	4				4.5					
	2				4.0					
Portion within 5725-5850 MHz band (UNII-3)										
5720	1	q64		99	4.0	9.4	9.7	29.2	29.2	Pass
	3				3.1					
	4				3.8					
	2				3.9					

All measurements are consistent with non-Tx BF operation, no plots provided.

Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	N/A

MIMO Device - 5470-5725 MHz Band - FCC

Mode: n40 Max EIRP (mW): 988.8

Frequency (MHz)	Chain	Software Setting	26dB BW (MHz)	Duty Cycle %	Power dBm	Total Power mW	Total Power dBm	FCC Limit dBm	Max Power (W)	Result
5510	1	q62	43.1	100	15.3	138.8	21.4	23.2	0.207	Pass
	3				15.4					
	4				15.3					
	2				15.6					
5550	1	q70	66.2	100	16.9	206.6	23.2	23.2		Pass
	3				17.1					
	4				17.0					
	2				17.5					
5670	1	q68	62.5	100	16.5	196.3	22.9	23.2		Pass
	3				17.1					
	4				16.8					
	2				17.2					
5710	1	q69	52.3	100	16.7	203.1	23.1	23.2		Pass
	3				17.1					
	4				17.0					
	2				17.4					

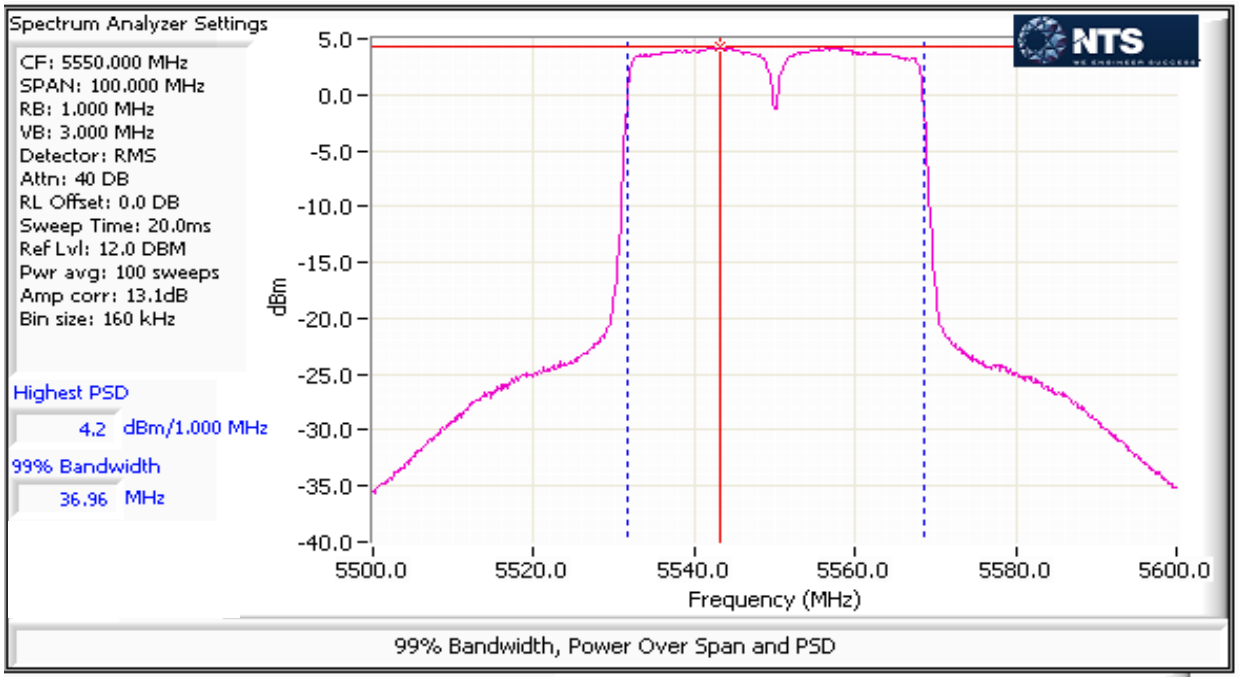
Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	N/A

MIMO Device 5470-5725 PSD - FCC/IC

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
5510	1	q62		98	-0.3	3.8	5.8	10.2	11.0	Pass
	3				-0.6					
	4				0.3					
	2				-0.2					
5550	1	q78		98	3.4	9.1	9.6	10.2	11.0	Pass
	3				3.0					
	4				4.2					
	2				3.6					
5670	1	q70		98	2.8	7.0	8.5	10.2	11.0	Pass
	3				1.5					
	4				3.3					
	2				1.9					
5710	1	q76		98	4.2	9.6	9.8	10.2	11.0	Pass
	3				3.2					
	4				4.1					
	2				3.6					
Portion within 5725-5850 MHz band (UNII-3)										
5710	1	q76		98	3.1	8.0	9.0	29.2	29.2	Pass
	3				2.4					
	4				3.7					
	2				2.7					

Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	N/A



Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	N/A

MIMO Device - 5470-5725 MHz Band - FCC

Mode: ac80 Max EIRP (mW): 966.4

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
5530	1	q50	82.5	100	12.2	67.6	18.3	23.2	0.202	Pass
	3				12.3					
	4				12.1					
	2				12.5					
5610	1	q67	81.3	100	16.8	201.9	23.1	23.2		Pass
	3				17.2					
	4				16.8					
	2				17.3					
5690	1	q68	77.1	100	16.3	186.7	22.7	23.2		Pass
	3				17.0					
	4				16.3					
	2				17.1					

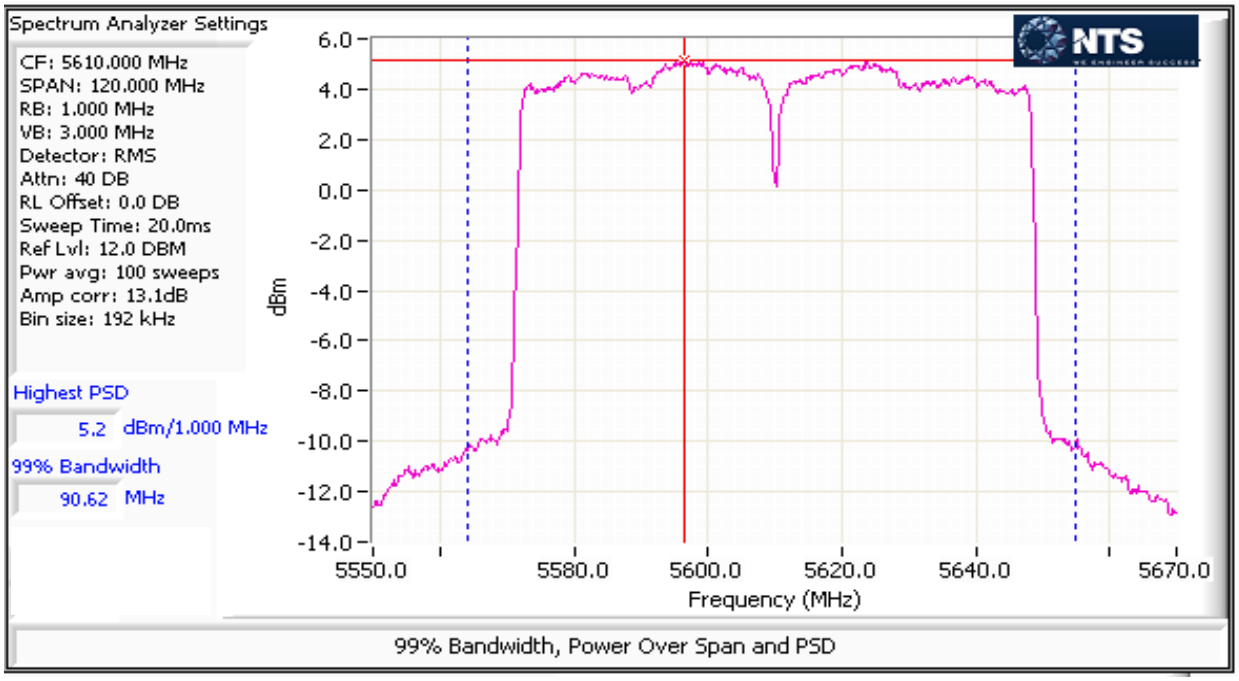
Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	N/A

5470-5725 PSD - FCC/IC

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
5530	1	q50		96	-5.9	1.0	0.0	10.2	11.0	Pass
	3				-6.8					
	4				-5.6					
	2				-6.1					
5610	1	q87		96	3.5	10.0	10.0	10.2	-	Pass
	3				1.9					
	4				5.2					
	2				3.9					
5690	1	q85		96	3.9	9.5	9.8	10.2	11.0	Pass
	3				2.7					
	4				4.3					
	2				3.3					
Portion within 5725-5850 MHz band (UNII-3)										
5690	1	q85		96	2.3	6.8	8.3	29.2	29.2	Pass
	3				1.0					
	4				2.9					
	2				2.2					

Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	N/A



Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	N/A

FCC 15.407(UNII)
Antenna Port Measurements
Power, PSD, Bandwidth and Spurious Emissions

Test Specific Details

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

Summary of Results

Run #	Test Performed	Limit	Pass / Fail	Result / Margin
1	Power, 5725 - 5850MHz	15.407(a) (3)	Pass	a: 28.5 dBm (709.2 mW) n20: 28.6 dBm (725 mW) n40: 28.5 dBm (707 mW) ac80: 25.2 dBm (328 mW)
1	PSD, 5725 - 5850MHz	15.407(a) (3)	Pass	a: 17.4 dBm/MHz n20: 17.2 dBm/MHz n40: 14.1 dBm/MHz ac80: 7.9 dBm/MHz

General Test Configuration

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

Ambient Conditions:

Temperature: 22.6 °C
Rel. Humidity: 41 %

Modifications Made During Testing

No modifications were made to the EUT during testing

Deviations From The Standard

No deviations were made from the requirements of the standard.

Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	N/A

Procedure Comments:

Measurements performed in accordance with FCC KDB 789033 D01

	Mode	Data Rate	Duty Cycle (x)	Constant DC?	T (ms)	Pwr Cor Factor*	Lin Volt Cor Factor**	Min VBW for FS (Hz)
1SS	11a	6MB/s	0.99	Yes	1.952	0	0	10
1SS	11n20	MCS0	0.99	Yes	1.953	0	0	10
1SS	n40	MCS0	0.9798	Yes	0.971	0.0885442	0.2	1030
1SS	ac80	VHT0	0.96	Yes	0.46	0.1848341	0.4	2174

Sample Notes

Sample S/N: G62DA7BU20005B

Driver: -

Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	N/A

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

Date of Test: 3/10/2017 0:00 Config. Used: 1

Test Engineer: Rafael Varelas Config Change: none

Test Location: FT Lab #4B EUT Voltage: 120V/60Hz

Note 1:	Power measured using a gated average power meter.
Note 2:	PSD measured using a spectrum analyzer (see plots below). RBW=1MHz, VB=3 MHz, Span > OBW, # of points in sweep ≥ 2*span/RBW, RMS detector, trace average 100 traces, power averaging on. The measurements were adjusted corrected for duty cycle. This is based on 10log(1/x), where x is the duty cycle. (method SA-2 of ANSI C63.10)
Note 3:	99% Bandwidth measured in accordance with C63.10 - RB between 1-5 % of OBW and VB ≥ 3*RB, Span between 1.5 and 5 times OBW.
Note 4:	For MIMO systems the total output power and total PSD are calculated from the sum of the powers of the individual chains (in linear terms). The antenna gain used to determine the EIRP and limits for PSD/Output power depends on the operating mode of the MIMO device. If the signals on the non-coherent between the transmit chains then the gain used to determine the limits is the highest gain of the individual chains and the EIRP is the sum of the products of gain and power on each chain. If the signals are coherent then the effective antenna gain is the sum (in linear terms) of the gains for each chain and the EIRP is the product of the effective gain and total power.

Antenna Gain Information

Freq	Antenna Gain (dBi) / Chain				BF	MultiChain Legacy	CDD	Sectorized / Xpol	Dir G (PWR)	Dir G (PSD)
	1	2	3	4						
5150-5250	Refer to Operational Description				No	Yes	Yes	No	0.70	6.70
5250-5350					No	Yes	Yes	No	0.60	6.50
5470-5725					No	Yes	Yes	No	1.00	6.80
5725-5825					No	Yes	Yes	No	0.70	6.60

For devices that support CDD modes

Min # of spatial streams: 1

Max # of spatial streams: 4

Note - for all power/psd measurements, testing performed using 1 spatial stream

Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	N/A

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.
Notes:	For systems with Beamforming and CDD, choose one the following options: Option 1: Delays are optimized for beamforming, rather than being selected from cyclic delay table of 802.11; Array gains calculated based on beamforming criteria. Option 2: Antennas are paired for beamforming, and the pairs are configured to use the cyclic delay diversity of 802.11; the array gain associated with beamforming with 2 antennas (3dB), and the array gain associated with CDD with two antennas (3dB for PSD and 0 dB for power)

Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	N/A

MIMO Device - 5725-5850 MHz Band - FCC/IC

Mode: 11a Max EIRP (mW): 833.2

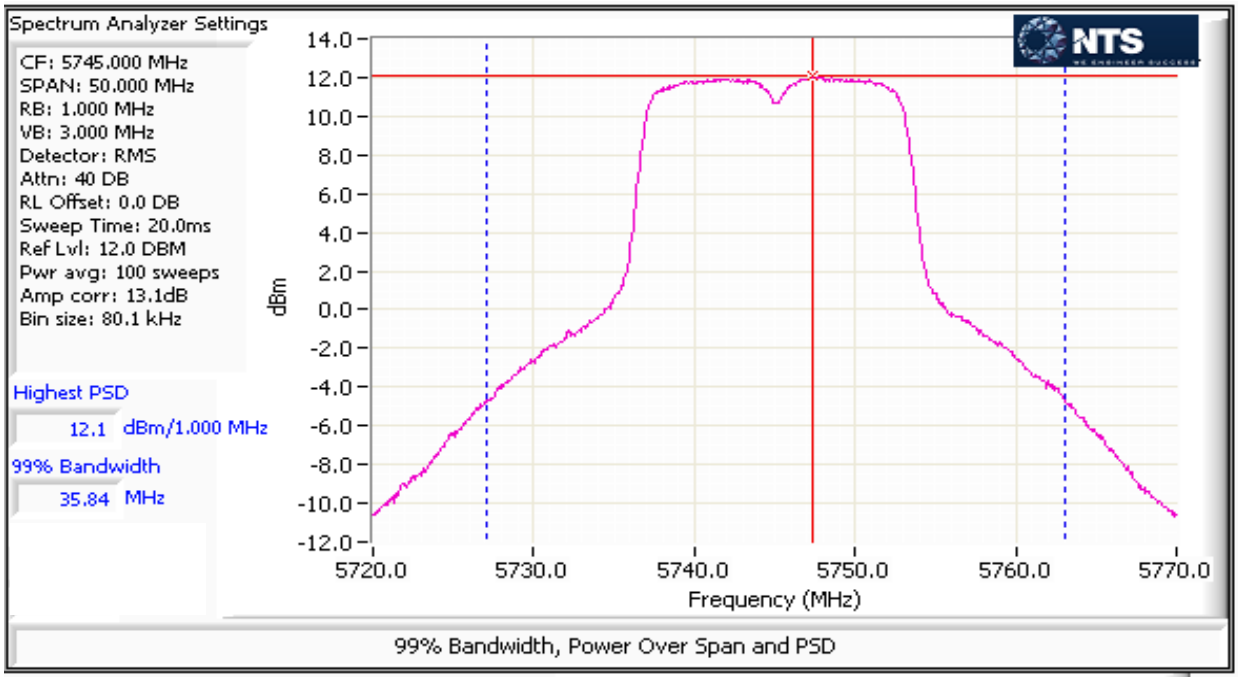
Frequency (MHz)	Chain	Software Setting	99% BW (MHz)	Duty Cycle %	Power dBm	Total Power[1] mW	Total Power[1] dBm	Limit dBm	Max Power (W)	Result
5745	1	q90	25.0	100	22.0	709.2	28.5	30.0	0.709	Pass
	3				22.4					
	4				22.9					
	2				22.6					
5785	1	q90	27.4	100	21.7	674.0	28.3	30.0		Pass
	3				22.1					
	4				22.6					
	2				22.6					
5825	1	q90	30.2	100	21.7	673.4	28.3	30.0		Pass
	3				22.3					
	4				22.5					
	2				22.5					

5725-5850 PSD - FCC/IC

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	q90		99	11.6	55.3	17.4	29.4	29.4	Pass
	3				10.6					
	4				12.1					
	2				11.2					
5785	1	q90		99	11.5	52.6	17.2	29.4	29.4	Pass
	3				10.3					
	4				11.8					
	2				11.0					
5825	1	q90		99	10.3	51.0	17.1	29.4	29.4	Pass
	3				10.8					
	4				11.7					
	2				11.3					

Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	N/A



Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	N/A

MIMO Device - 5725-5850 MHz Band - FCC/IC

Mode: n20 Max EIRP (mW): 851.7

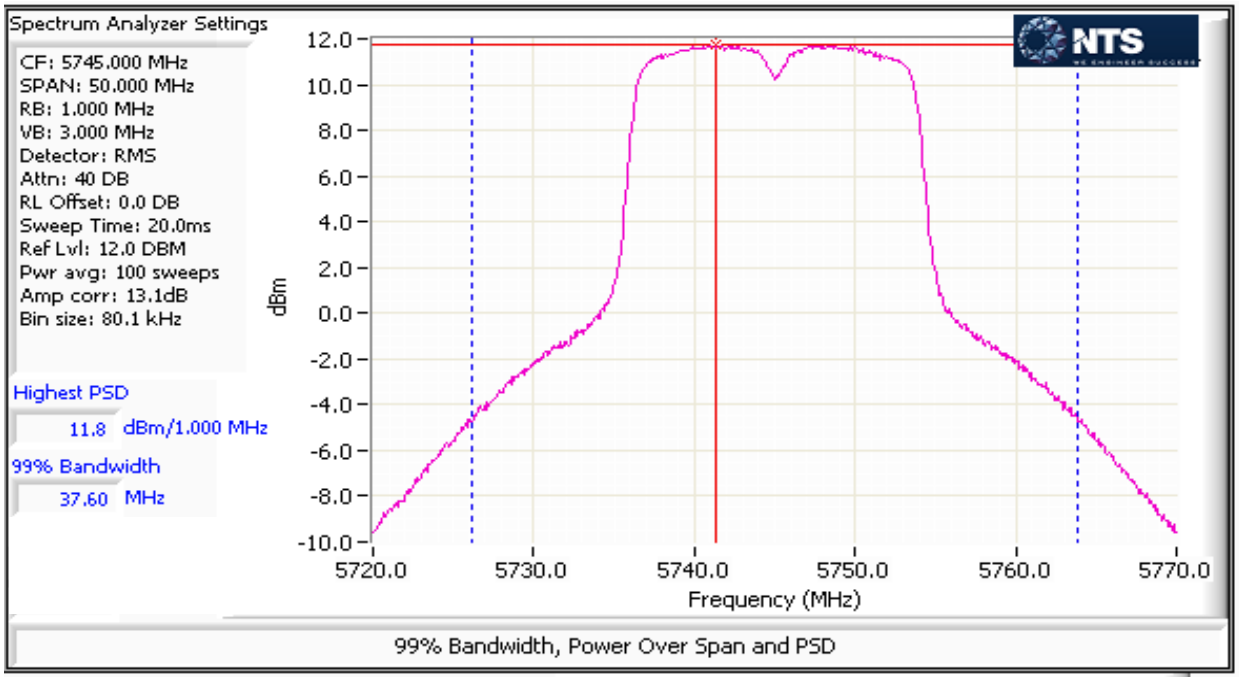
Frequency (MHz)	Chain	Software Setting	99% BW (MHz)	Duty Cycle %	Power dBm	Total Power[1] mW	Total Power[1] dBm	FCC Limit dBm	Max Power (W)	Result
5745	1	q90	24.0	100	22.2	724.9	28.6	30.0	0.725	Pass
	3				22.5					
	4				22.8					
	2				22.8					
5785	1	q90	27.8	100	21.9	692.9	28.4	30.0		Pass
	3				22.3					
	4				22.6					
	2				22.7					
5825	1	q90	31.4	100	21.7	669.5	28.3	30.0		Pass
	3				22.2					
	4				22.5					
	2				22.5					

5250-5350 PSD - FCC/IC

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
5745	1	q90		99	11.7	52.5	17.2	29.4	29.4	Pass
	3				10.1					
	4				11.8					
	2				10.9					
5785	1	q90		99	10.7	48.0	16.8	29.4	29.4	Pass
	3				10.2					
	4				11.4					
	2				10.8					
5825	1	q90		99	10.3	45.5	16.6	29.4	29.4	Pass
	3				10.5					
	4				10.5					
	2				10.9					

Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	N/A



Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	N/A

MIMO Device - 5725-5850 MHz Band - FCC/IC

Mode: n40 Max EIRP (mW): 831.1

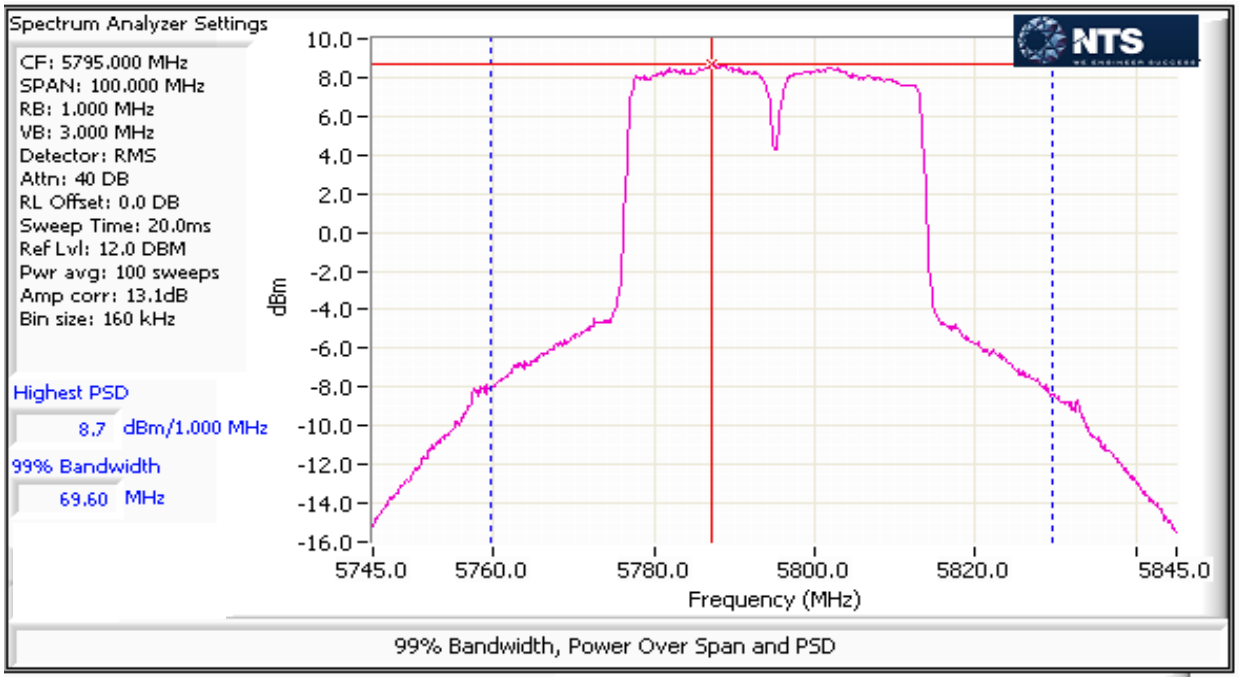
Frequency (MHz)	Chain	Software Setting	99% BW (MHz)	Duty Cycle %	Power dBm	Total Power[1] mW	Total Power[1] dBm	FCC Limit dBm	Max Power (W)	Result
5755	1	q83	37.4	100	20.1	452.4	26.6	30.0	0.707	Pass
	3				20.5					
	4				20.6					
	2				20.9					
5795	1	q90	69.6	100	21.9	707.4	28.5	30.0		Pass
	3				22.3					
	4				22.4					
	2				23.2					

MIMO Device 5250-5350 PSD - FCC/IC

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
5755	1	q83		98	6.3	16.1	12.1	29.4	29.4	Pass
	3				5.4					
	4				6.3					
	2				6.1					
5795	1	q90		98	8.1	25.5	14.1	29.4	29.4	Pass
	3				7.5					
	4				7.8					
	2				8.7					

Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	N/A



Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	N/A

MIMO Device - 5725-5850 MHz Band - FCC/IC

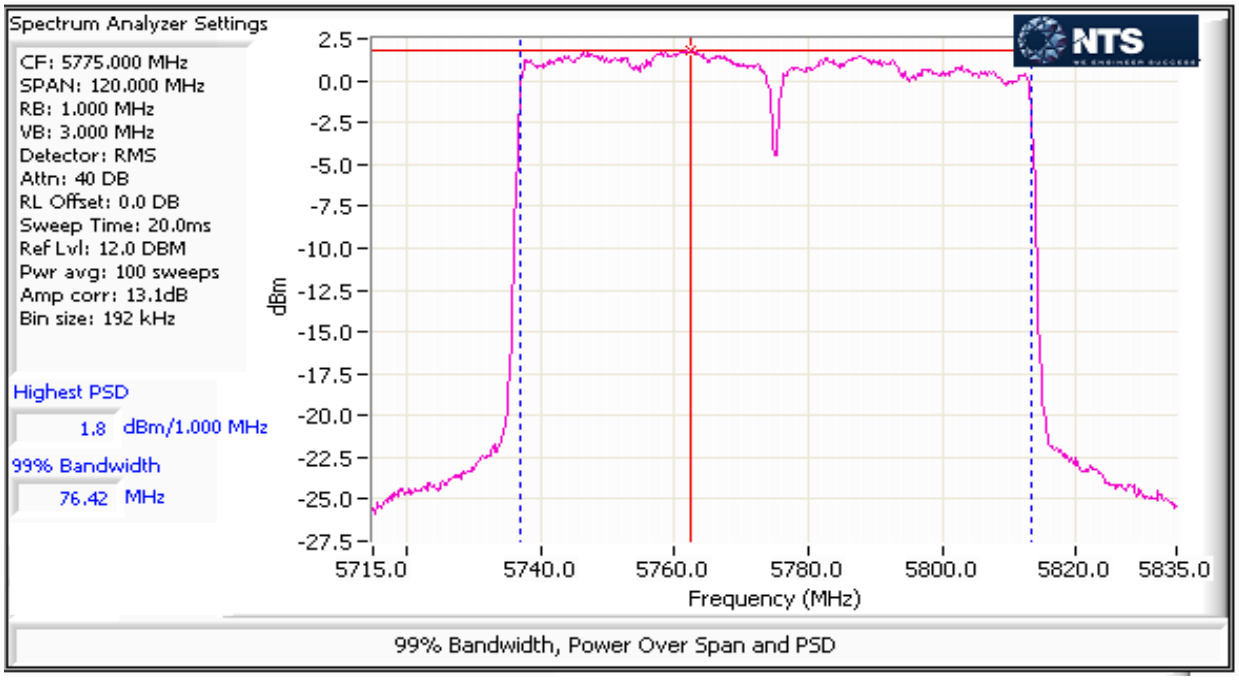
Mode: ac80 Max EIRP (mW): 385.1

Frequency (MHz)	Chain	Software Setting	99% BW (MHz)	Duty Cycle %	Power dBm	Total Power[1] mW	Total Power[1] dBm	FCC Limit dBm	Max Power (W)	Result
5775	1	q77	76.4	100	18.6	327.8	25.2	30.0	0.328	Pass
	3				19.3					
	4				19.2					
	2				19.4					

MIMO Device 5250-5350 PSD - FCC/IC

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
5775	1	q77		96	1.6	6.1	7.9	29.4	29.4	Pass
	3				1.6					
	4				1.7					
	2				1.8					



Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	N/A

FCC 15.407(UNII)
Antenna Port Measurements
Power, PSD, Bandwidth and Spurious Emissions

Test Specific Details

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

Summary of Results

Run #	Test Performed	Limit	Pass / Fail	Result / Margin
1	Power, 5725 - 5850MHz	15.407(a) (3)	Pass	n20: 28.6 dBm (725 mW) n40: 28.5 dBm (707 mW) ac80: 25.3 dBm (342 mW)
1	PSD, 5725 - 5850MHz	15.407(a) (3)	Pass	n20: 17.2 dBm/MHz n40: 14.1 dBm/MHz ac80: 7.9 dBm/MHz

General Test Configuration

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

Ambient Conditions:

Temperature: 22.6 °C
Rel. Humidity: 41 %

Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	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 D01

	Mode	Data Rate	Duty Cycle (x)	Constant DC?	T (ms)	Pwr Cor Factor*	Lin Volt Cor Factor**	Min VBW for FS (Hz)
1SS	11n20	MCS0	0.99	Yes	1.953	0	0	10
1SS	n40	MCS0	0.98	Yes	0.971	0.0885442	0.2	1030
1SS	ac80	VHT0	0.96	Yes	0.46	0.1848341	0.4	2174

Note - for antenna port measurements, the EUT was operated in the non-TxBF mode

Sample Notes

Sample S/N: G62DA7BU20005B
Driver: -

Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	N/A

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

Date of Test: 3/14/2017 0:00 Config. Used: 1

Test Engineer: Rafael Varelas Config Change: none

Test Location: FT Lab #4B EUT Voltage: 120V/60Hz

Note 1:	Power measured using a gated average power meter.
Note 2:	PSD measured using a spectrum analyzer (see plots below). RBW=1MHz, VB=3 MHz, Span > OBW, # of points in sweep ≥ 2*span/RBW, RMS detector, trace average 100 traces, power averaging on. The measurements were adjusted corrected for duty cycle. This is based on 10log(1/x), where x is the duty cycle. (method SA-2 of ANSI C63.10)
Note 3:	99% Bandwidth measured in accordance with C63.10 - RB between 1-5 % of OBW and VB ≥ 3*RB, Span between 1.5 and 5 times OBW.
Note 4:	For MIMO systems the total output power and total PSD are calculated from the sum of the powers of the individual chains (in linear terms). The antenna gain used to determine the EIRP and limits for PSD/Output power depends on the operating mode of the MIMO device. If the signals on the non-coherent between the transmit chains then the gain used to determine the limits is the highest gain of the individual chains and the EIRP is the sum of the products of gain and power on each chain. If the signals are coherent then the effective antenna gain is the sum (in linear terms) of the gains for each chain and the EIRP is the product of the effective gain and total power.

Antenna Gain Information

Freq	Antenna Gain (dBi) / Chain				BF	MultiChain Legacy	CDD	Sectorized / Xpol	Dir G (PWR)	Dir G (PSD)
	1	2	3	4						
5150-5250	Refer to Operational Description				No	Yes	Yes	No	6.70	6.70
5250-5350					No	Yes	Yes	No	6.50	6.50
5470-5725					No	Yes	Yes	No	6.80	6.80
5725-5825					No	Yes	Yes	No	6.60	6.60

For devices that support CDD modes

Min # of spatial streams: 1

Max # of spatial streams: 4

Note - for all power/psd measurements, testing performed using 1 spatial stream

Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	N/A

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.
Notes:	For systems with Beamforming and CDD, choose one the following options: Option 1: Delays are optimized for beamforming, rather than being selected from cyclic delay table of 802.11; Array gains calculated based on beamforming criteria. Option 2: Antennas are paired for beamforming, and the pairs are configured to use the cyclic delay diversity of 802.11; the array gain associated with beamforming with 2 antennas (3dB), and the array gain associated with CDD with two antennas (3dB for PSD and 0 dB for power)

Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	N/A

MIMO Device - 5725-5850 MHz Band - FCC/IC

Mode: n20 Max EIRP (mW): 3313.4

Frequency (MHz)	Chain	Software Setting	99% BW (MHz)	Duty Cycle %	Power dBm	Total Power[1] mW	Total Power[1] dBm	FCC Limit dBm	Max Power (W)	Result
5745	1	q90	24.0	100	22.2	724.9	28.6	29.4	0.725	Pass
	3				22.5					
	4				22.8					
	2				22.8					
5785	1	q90	27.8	100	21.9	692.9	28.4	29.4		Pass
	3				22.3					
	4				22.6					
	2				22.7					
5825	1	q90	31.4	100	21.7	669.5	28.3	29.4		Pass
	3				22.2					
	4				22.5					
	2				22.5					

5250-5350 PSD - FCC/IC

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
5745	1	q90		99	11.7	52.5	17.2	29.4	29.4	Pass
	3				10.1					
	4				11.8					
	2				10.9					
5785	1	q90		99	10.7	48.0	16.8	29.4	29.4	Pass
	3				10.2					
	4				11.4					
	2				10.8					
5825	1	q90		99	10.3	45.5	16.6	29.4	29.4	Pass
	3				10.5					
	4				10.5					
	2				10.9					

All measurements are consistent with non-Tx BF operation, no plots provided.

Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	N/A

MIMO Device - 5725-5850 MHz Band - FCC/IC

Mode: n40 Max EIRP (mW): 3233.4

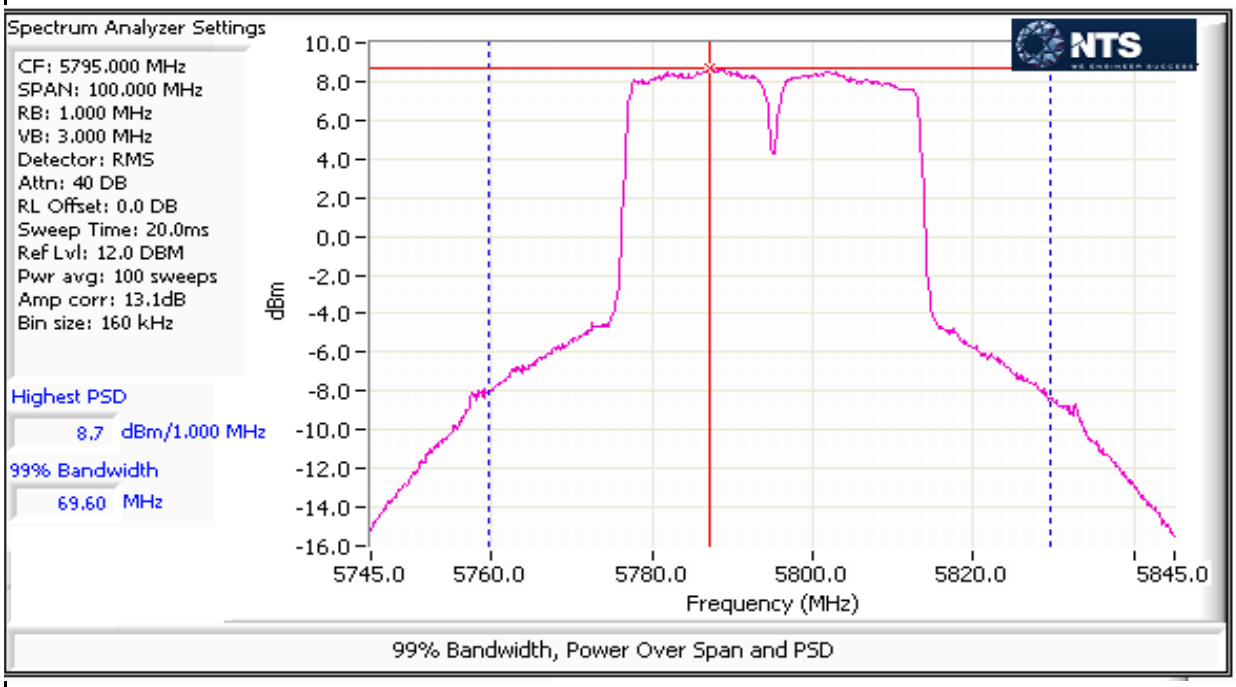
Frequency (MHz)	Chain	Software Setting	99% BW (MHz)	Duty Cycle %	Power dBm	Total Power[1] mW	Total Power[1] dBm	FCC Limit dBm	Max Power (W)	Result
5755	1	q88	37.4	100	21.3	615.5	27.9	29.4	0.707	Pass
	3				21.7					
	4				21.9					
	2				22.5					
5795	1	q90	69.6	100	21.9	707.4	28.5	29.4		Pass
	3				22.3					
	4				22.4					
	2				23.2					

MIMO Device 5250-5350 PSD - FCC/IC

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
5755	1	q88		98	7.8	21.5	13.3	29.4	29.4	Pass
	3				6.6					
	4				7.9					
	2				6.8					
5795	1	q90		98	8.1	25.5	14.1	29.4	29.4	Pass
	3				7.5					
	4				7.8					
	2				8.7					

Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	N/A



Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	N/A

MIMO Device - 5725-5850 MHz Band - FCC/IC

Mode: ac80 Max EIRP (mW): 1561

Frequency (MHz)	Chain	Software Setting	99% BW (MHz)	Duty Cycle %	Power dBm	Total Power[1] mW	Total Power[1] dBm	FCC Limit dBm	Max Power (W)	Result
5775	1	q77	76.4	96	18.6	341.5	25.3	29.4	0.342	Pass
	3				19.3					
	4				19.2					
	2				19.4					

MIMO Device 5250-5350 PSD - FCC/IC

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
5775	1	q77		96	1.6	6.1	7.9	29.4	29.4	Pass
	3				1.6					
	4				1.7					
	2				1.8					

All measurements are consistent with non-Tx BF operation, no plots provided.

Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	N/A

FCC Part 15
Frequency Stability

Test Specific Details

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

General Test Configuration

All measurements are made with the EUT's rf port connected to the measurement instrument via an attenuator. All amplitude measurements are adjusted to account for the attenuation between EUT and measuring instrument. For frequency stability measurements the EUT was placed inside an environmental chamber.

Ambient Conditions:

Temperature: 24 °C

Rel. Humidity: 38 %

Run #			Test Performed	Limit	Pass / Fail	
1			Frequency Stability	Stays in band	Pass	

Modifications Made During Testing

No modifications were made to the EUT during testing

Deviations From The Standard

No deviations were made from the requirements of the standard.

Client:	ARRIS	Job Number:	JD102669
Model:	C61W	T-Log Number:	T103891
		Project Manager:	Christine Krebill
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B / FCC 15.247 / 15.E	Class:	N/A

Run #1: Frequency Stability

Date of Test: 5/10/2017 Config. Used: 1

Test Engineer: Mark Hill Config Change: none

Test Location: Fremont EMC Lab #4 EUT Voltage: 120V/60Hz

Nominal Frequency: 5180 MHz

Frequency Stability Over Temperature

The EUT was soaked at each temperature for a minimum of 30 minutes prior to starting the transmitter and making the measurements to ensure the EUT and chamber had stabilized at that temperature.

Temperature	Frequency Measured	Drift	
(Celsius)	(MHz)	(Hz)	(ppm)
0	5180.0400	40000	7.7
10	5179.9600	-40000	-7.7
20	5179.9200	-80000	-15.4
30	5180.0000	0	0.0
40	5180.0000	0	0.0
50	5180.0000	0	0.0
	Worst case:	-80000	-15.4

Frequency Stability Over Input Voltage

Nominal Voltage is 120Vac.

Voltage	Frequency Measured	Drift	
(DC)	(MHz)	(Hz)	(ppm)
102.00	5179.920000	-80000	-15.4
138.00	5180.000000	0	0.0
	Worst case:	-80000	-15.4

End of Report

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