

EMC Test Report

Application for FCC Grant of Equipment Authorization Class III Permissive Change

FCC Part 15, Subpart E

Model: BGW210-700 ARRIS DSL Wireless Residential Gateway

FCC ID: PGRBGW210

APPLICANT: ARRIS

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IC SITE REGISTRATION #: 2845B-4, 2845B-7

REPORT DATE: March 14, 2017

REISSUE DATE: March 24, 2017

FINAL TEST DATES: September 28-30, October 3-11, November 3,

December 20-27, 2016 and January 5-6, 2017

TOTAL NUMBER OF PAGES: 209



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Report Date: March 14, 2017 Project number JD102271
Reissue Date: March 24, 2017

REVISION HISTORY

Rev#	Date	Comments	Modified By
-	March 14, 2017	First release	
1.0	March 22, 2017	Corrected frequency band reference in the limit section. Clarified 11a in UNII1. Clarified spurious emissions performed. Clarified # of Spatial Streams used for spurious emissions.	MEH



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SCOPE

An electromagnetic emissions test has been performed on the ARRIS model BGW210-700 ARRIS DSL Wireless Residential Gateway, pursuant to the following rules:

FCC Part 15, Subpart E requirements for UNII Devices

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

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

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

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

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

Testing included in this report: (1) increase power for bandedge channels in UNII1, and (2) add operation in the DFS bands. The increase power in UNII1 is done via software change, and evaluation of increased number of spatial streams. Bandedge testing in the DFS bands also included evaluation for spatial streams.

OBJECTIVE

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

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

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

Certification is a procedure where the manufacturer submits test data and technical information to a certification body and receives a certificate or grant of equipment



authorization upon successful completion of the certification body's review of the submitted documents. Once the equipment authorization has been obtained, the label indicating compliance must be attached to all identical units, which are subsequently manufactured.

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

STATEMENT OF COMPLIANCE

The tested sample of ARRIS model BGW210-700 ARRIS DSL Wireless Residential Gateway 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 BGW210-700 ARRIS DSL Wireless Residential Gateway 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 – ACCESS POINTS

FCC Rule Part	Description	Measured Value / Comments	Limit / Requirement	Result
15.407 (a) (1) (ii)	Output Power (Note 1)	n20: 26.9 dBm (495.4mW) n40: 23.1 dBm (205.4mW) ac80: 24.0 dBm (251mW)	30 dBm EIRP <= 4W	Complies
15.407 (a) (1) (ii)	Power Spectral Density	n20: 14.0 dBm/MHz n40: 7.4 dBm/MHz ac80: 5.1 dBm/MHz	17 dBm/MHz	Complies
15.407(b) (1) / 15.209	Spurious Emissions (Note 2)	53.9 dBµV/m @ 5149.4 MHz (-0.1 dB)	Refer to the limits section (p22) for restricted bands, all others -27 dBm/MHz EIRP	Complies

Note 1: No changes were made to the output power for the 11a mode. No testing was performed.

Note 2: Spurious emissions (non-bandedge) were not performed. The spurious emissions in the original filing were performed at higher output levels than the final power levels reported here.

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	N/A – limits output power if < 20MHz	N/A
15.407(a) (2)	Output Power	a: 21.1dBm (129.8mW) n20: 21.4dBm (137.3mW) n40: 23.7 dBm (232.1mW) ac80: 23.4 dBm (218.9mW) (Max eirp: 0.914W)	24 dBm (250 mW) EIRP <= 1W	Complies
15.407(a) (2)	Power Spectral Density	a: 10.0 dBm/MHz n20: 10.0 dBm/MHz n40: 8.7 dBm/MHz ac80: 6.6 dBm/MHz	11 dBm/MHz	Complies
15.407(b) (2) / 15.209	Spurious Emissions (Note 1)	53.8 dBµV/m @ 5350.0 MHz (-0.2 dB)	Refer to the limits section (p22) for restricted bands, all others -27 dBm/MHz EIRP	Complies

Note 1: Spurious emissions below 1GHz, and simultaneous transmission with the 2.4GHz radio was not performed, based on the results in the original filing. No spurious emissions below 1GHz or intermodulation products were observed.

Project number JD102271 Reissue Date: March 24, 2017

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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	>20MHz	N/A – limits output power if < 20MHz	N/A
15.407(a) (2)	Output Power	11a: 20.5dBm (112.2mW) n20: 20.5dBm (112.3mW) n40: 23.8dBm (238.9mW) ac80: 23.9 dBm (247mW)	24 dBm (250 mW) EIRP <= 1W	Complies
15.407(a) (2)	Power Spectral Density	11a: 9.9 dBm/MHz n20: 9.5 dBm/MHz n40: 9.6 dBm/MHz ac80: 8.5 dBm/MHz	11 dBm/MHz	Complies
15.407(b) (3) / 15.209	Spurious Emissions	53.6 dBµV/m @ 5459.5 MHz (-0.4 dB)	Refer to the limits section (p22) for restricted bands, all others -27 dBm/MHz EIRP	Complies

Note 1: Spurious emissions below 1GHz, and simultaneous transmission with the 2.4GHz radio was not performed, based on the results in the original filing. No spurious emissions below 1GHz or intermodulation products were observed.

REQUIREMENTS FOR ALL U-NII/LELAN BANDS

FCC Rule Part	Description	Measured Value / Comments	Limit / Requirement	Result
15.407	Modulation	Unchang	ged from original filing	
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	<u>'</u>		
15.407 (g)	Frequency Stability			
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 with radar detection)	Refer to separate test report, reference R103052	Threshold -62dBm (- 64dBm if eirp > 200mW) Channel Availability Check > 60s Channel closing transmission time < 260ms Channel move time < 10s Non occupancy period > 30minutes	Complies

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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 to the device	Unique or integral antenna required	Complies
15.407 (b) (6)	RSS-Gen Table 3	AC Conducted Emissions	Unchang	ged from original filing	
15.247 (i) 15.407 (f)	RSS 102	RF Exposure Requirements	Refer to MPE calculations in separate exhibit	Refer to OET 65, FCC Part 1 and RSS 102	Complies



MEASUREMENT UNCERTAINTIES

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

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



EQUIPMENT UNDER TEST (EUT) DETAILS

GENERAL

The ARRIS model BGW210-700 ARRIS DSL Wireless Residential Gateway is a uDSL Wireless Residential Gateway that is designed to connect to a PSTN Telecommunications network supporting a bonded VDSL2 connection. The electrical rating of the EUT is 12 Volts, 3 Amps DC. It is supplied by an external AC/DC power supply.

The sample was received on September 14, 2016 and tested on September 28-30, October 3-11, November 3, December 20-27, 2016 and January 5-6, 2017. The EUT consisted of the following component(s):

Company	Model	Description	Serial Number	FCC ID
ARRIS	BGW210-700	uDSL Wireless Residential Gateway	Refer to test data	PGRBGW210
DIRECTV	EPS36R0-16	AC/DC Adapter	D36HAKM001368	N/A

OTHER EUT DETAILS

2.4GHz radio -802.11bgn (20/40MHz)

Only transmits in 3Tx mode, supports 1 to 3 spatial streams Beamforming is supported for 11n 20 and 40MHz operation 5GHz radio – 802.11abgn/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 2.4 and 5GHz supported.

ANTENNA SYSTEM

2.4GHz – three stamped metal antennas. Two are mounted on the interior of the enclosure and one is mounted directly to the motherboard. Peak Gains: 3.11dBi, 3.665dBi, 3.653dBi.

5GHz – four stamped metal antennas. One is mounted on the interior of the enclosure and three are mounted directly to the motherboard.

ENCLOSURE

The EUT enclosure measures approximately 25cm by 20cm by 6cm. It is primarily constructed of uncoated plastic.

MODIFICATIONS

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

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SUPPORT EQUIPMENT

The following equipment was used as support equipment for testing:

Company	Model	Description	Serial Number	FCC ID
	-	None	-	-

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

Company	Model	Description	Serial Number	FCC ID
Dell	Latitude 1311	Laptop	-	-

EUT INTERFACE PORTS

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

Port	Connected To	Cable(s)			
1 OIL	Connected 10	Description	Shielded or Unshielded	Length(m)	
Ethernet 1	Laptop	RJ45	Unshielded	10.0	
Ethernet 2,3,4	Unterminated	RJ45	Unshielded	2.0	
USB 1,2	Unterminated	USB	Shielded	2.0	
Broadband	Unterminated	RJ11	Unshielded	2.0	
Phone Lines 1&2	Unterminated	RJ11	Unshielded	2.0	
DC In	Power Supply DC out	2-wire	Unshielded	1.0	
Power Supply AC in	AC mains	2-wire	Unshielded	1.5	

EUT OPERATION

During testing, the EUT was configured to continuously transmit at the maximum output power. Channel, data rate, and mode is detailed in the test results.

For radiated beamforming testing, the EUT was configured to establish a connection with a remote client located behind the measurement antenna and data was streamed from the EUT to the client.

Note, antenna port measurements for beamforming operation were performed using the test mode commands since the rf spectrum emissions are identical to non-beamforming transmissions.

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 / Reg	istration Numbers	Location
Sile	FCC	Canada	Location
Chamber 3	US0027	2845B-3	44020 Davisa Dand
Chamber 4	US0027	2845B-4	41039 Boyce Road
Chamber 5	US0027	2845B-5	
Chamber 7	US0027	2845B-7	OA 34000-2400

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.

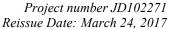
For measurements above the frequency range of the receivers, a spectrum analyzer is utilized because it provides visibility of the entire spectrum along with the precision and versatility required to support engineering analysis. Average measurements above 1000MHz are performed on the spectrum analyzer 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.

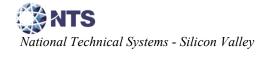
INSTRUMENT CONTROL COMPUTER

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 testing below 1GHz, and at 1.5m for testing 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.

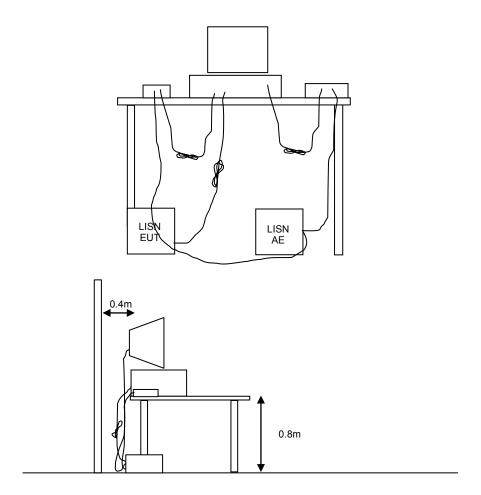
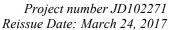


Figure 1 Typical Conducted Emissions Test Configuration





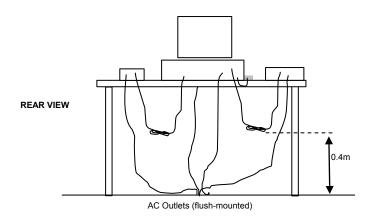
RADIATED EMISSIONS

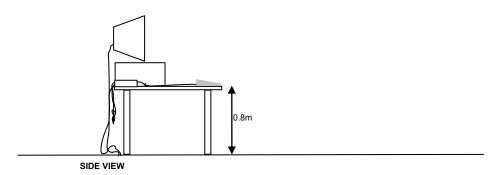
A preliminary scan of the radiated emissions is performed in which all significant EUT frequencies are identified with the system in a nominal configuration. At least two scans are performed, one scan for each antenna polarization (horizontal and vertical; loop parallel and perpendicular to the EUT). 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.

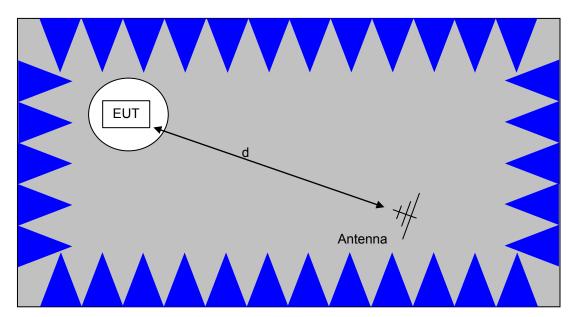
Final maximization is a phase in which the highest amplitude emissions identified in the spectral search are viewed while the EUT azimuth angle is varied from 0 to 360 degrees relative to the receiving antenna. The azimuth, which results in the highest emission is then maintained while varying the antenna 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.



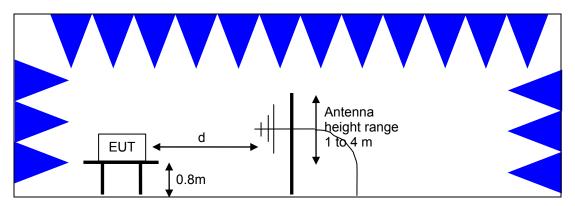


Typical Test Configuration for Radiated Field Strength Measurements



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.

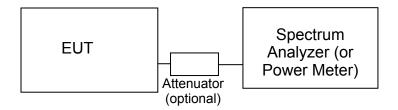
Floor-standing equipment is placed on the floor with insulating supports between the unit and the ground plane.



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

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.

National Technical Systems - Silicon Valley

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 bands¹.

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

RECEIVER RADIATED SPURIOUS EMISSIONS SPECIFICATION LIMITS

The table below shows the limits for the spurious emissions from receivers as detailed in FCC Part 15.109 and RSS GEN Table 2. Note that receivers operating outside of the frequency range 30 MHz – 960 MHz are exempt from the requirements of 15.109 and receivers that are not stand-alone are exempt from the ISED Canada requirements per RSS-GEN.

Frequency Range (MHz)	Limit (uV/m @ 3m)	Limit (dBuV/m @ 3m)
30 to 88	100	40
88 to 216	150	43.5
216 to 960	200	46.0
Above 960	500	54.0

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	1Watt (30 dBm)	17 dBm/MHz
5250 - 5350 and 5470-5725	250 mW (24 dBm)	11 dBm/MHz
5725 – 5850	1 Watt (30 dBm)	30 dBm/500kHz

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

SPURIOUS EMISSIONS LIMITS - UNII and LELAN DEVICES

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

SAMPLE CALCULATIONS - CONDUCTED EMISSIONS

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

$$R_r - S = M$$

where:

 R_r = Receiver Reading in dBuV

S = Specification Limit in dBuV

M = Margin to Specification in +/- dB

SAMPLE CALCULATIONS - RADIATED EMISSIONS

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

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

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

where:

 F_d = Distance Factor in dB

 D_m = Measurement Distance in meters

 D_S = Specification Distance in meters

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

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

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

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

$$R_c = R_r + F_d$$

and

$$M = R_c - L_s$$

where:

 R_r = Receiver Reading in dBuV/m

 F_d = Distance Factor in dB

 R_c = Corrected Reading in dBuV/m

 L_S = Specification Limit in dBuV/m

M = Margin in dB Relative to Spec

SAMPLE CALCULATIONS - FIELD STRENGTH TO EIRP CONVERSION

(dBuV/m) to an eirp power (dBm) is -95.3dB.

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 =
$$\frac{1000000 \sqrt{30 P}}{d}$$
 microvolts per meter
d
where P is the eirp (Watts)

For a measurement at 3m the conversion from a logarithmic value for field strength

Appendix A Test Equipment Calibration Data

T1	028	46
_ 1 1	020	TV

1102846					
Manufacturer Radiated Emissions	<u>Description</u> , 1 - 6 GHz, 28-Sep-16	<u>Model</u>	Asset #	<u>Calibrated</u>	Cal Due
NTS	NTS EMI Software (rev 2.10)	N/A	0		N/A
EMCO	Antenna, Horn, 1-18GHz	3115	868	6/30/2016	6/30/2018
Rohde & Schwarz	EMI Test Receiver, 20 Hz-7	ESIB7	1756	6/29/2016	6/29/2017
	GHz				
Padiated Spurious E	:missions, 1,000 - 40,000 MHz, 3	30 San 16			
NTS	NTS EMI Software (rev 2.10)	N/A	0		N/A
Hewlett Packard	Microwave Preamplifier, 1-	8449B	785	10/12/2015	10/12/2016
	26.5GHz				
EMCO	Antenna, Horn, 1-18GHz	3115	868	6/30/2016	6/30/2018
Hewlett Packard	Spectrum Analyzer (SA40)	8564E	1393	3/28/2016	3/28/2017
5	Blue 9 kHz - 40 GHz	(84125C)	4==0	0.100.100.40	0/00/00/
Rohde & Schwarz	EMI Test Receiver, 20 Hz-7 GHz	ESIB7	1756	6/29/2016	6/29/2017
Micro-Tronics	Band Reject Filter, 5150-5350	BRC50703-02	2251	9/19/2016	9/19/2017
	MHz			0, 10, 20 10	0 0. 20
NTS	, 1,000 - 40,000 MHz, 30-Sep-16	N/A	0		N/A
Micro-Tronics	NTS EMI Software (rev 2.10) Band Reject Filter, 5470-5725	BRC50704-02	0 2240	9/20/2016	9/20/2017
MICIO-TIONICS	MHz	DICO0704-02	2240	9/20/2010	3/20/2017
Hewlett Packard	Microwave Preamplifier, 1-	8449B	785	10/12/2015	10/12/2016
EN 100	26.5GHz	0445	000	0/00/0040	0/00/0040
EMCO	Antenna, Horn, 1-18GHz	3115	868	6/30/2016	6/30/2018
Hewlett Packard	Spectrum Analyzer (SA40) Blue 9 kHz - 40 GHz	8564E (84125C)	1393	3/28/2016	3/28/2017
Rohde & Schwarz	EMI Test Receiver, 20 Hz-7	ESIB7	1756	6/29/2016	6/29/2017
Nondo d Conwarz	GHz	20157	1700	0/20/2010	0/20/2017
Micro-Tronics	Band Reject Filter, 5150-5350	BRC50703-02	2251	9/19/2016	9/19/2017
	MHz				
Radiated Emissions	, 1,000 - 40,000 MHz, 03-Oct-16				
NTS	NTS EMI Software (rev 2.10)	N/A	0		N/A
Micro-Tronics	Band Reject Filter, 5470-5725	BRC50704-02	2240	9/20/2016	9/20/2017
	MHz				
Hewlett Packard	Microwave Preamplifier, 1-26.5GHz	8449B	785	10/12/2015	10/12/2016
EMCO	Antenna, Horn, 1-18GHz	3115	868	6/30/2016	6/30/2018
Hewlett Packard	Spectrum Analyzer (SA40)	8564E	1393	3/28/2016	3/28/2017
	Blue 9 kHz - 40 GHz	(84125C)			
Rohde & Schwarz	EMI Test Receiver, 20 Hz-7	ÈSIB7	1756	6/29/2016	6/29/2017
Missa Turnica	GHz	DD050700 00	0054	0/40/0040	0/40/0047
Micro-Tronics	Band Reject Filter, 5150-5350 MHz	BRC50703-02	2251	9/19/2016	9/19/2017
Hewlett Packard	High Pass filter, 8.2 GHz	P/N 84300-	1152	6/28/2016	6/28/2017
	3	80039			
HP / Miteq	SA40 Head (Blue)	TTA1840-45-5P-	1620	3/8/2016	3/8/2017
Missa Tas '	David Data 4 EW 5705 5075	HG-S	4000	E 10 100 1 0	E 10 100 17
Micro-Tronics	Band Reject Filter, 5725-5875 MHz	BRC50705-02	1682	5/9/2016	5/9/2017
A. H. Systems	Red System Horn, 18-40GHz	SAS-574, p/n:	2161	7/16/2015	7/16/2017
,	, , , , , , , , , , , , , , , , , , , ,	2581	-		

Report Date: March 14, 2017

Project number JD102271 Reissue Date: March 24, 2017

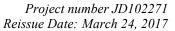
	Кероп	Duie. March 14, 20.	i / Keis	sue Duie. Marc	11 27, 2017
Manufacturer Micro-Tronics	<u>Description</u> Band Reject Filter, 5470-5725 MHz	Model BRC50704-02	<u>Asset #</u> 2240	<u>Calibrated</u> 9/20/2016	<u>Cal Due</u> 9/20/2017
Dadieted Fusicaione	4 000 40 000 MH - 04 0-4 40				
NTS	, 1,000 - 18,000 MHz, 04-Oct-16 NTS EMI Software (rev 2.10)	N/A	0		N/A
Hewlett Packard	Microwave Preamplifier, 1-	8449B	785	10/12/2015	11/12/2016
Tromour donard	26.5GHz	002			
EMCO	Antenna, Horn, 1-18GHz	3115	868	6/30/2016	6/30/2018
Hewlett Packard	High Pass filter, 8.2 GHz	P/N 84300-	1152	6/28/2016	6/28/2017
Hewlett Packard	Spectrum Apply (SA40)	80039 8564E	1393	3/28/2016	3/28/2017
TIEWIEII FACKATU	Spectrum Analyzer (SA40) Blue 9 kHz - 40 GHz	(84125C)	1393	3/20/2010	3/20/2017
Micro-Tronics	Band Reject Filter, 5725-5875	BRC50705-02	1682	5/9/2016	5/9/2017
	MHz				
Rohde & Schwarz	EMI Test Receiver, 20 Hz-7	ESIB7	1756	6/29/2016	6/29/2017
Miana Tuanias	GHz	DD050704 00	0040	0/00/0046	0/00/0047
Micro-Tronics	Band Reject Filter, 5470-5725 MHz	BRC50704-02	2240	9/20/2016	9/20/2017
	IVII IZ				
Radiated Emissions	, 30 - 1,000 MHz, 04-Oct-16				
Rohde & Schwarz	EMI Test Receiver, 20 Hz-7	ESIB7	1538	12/19/2015	12/19/2016
0 10:	GHz	IDO	0407	0/0/0045	0/0/0047
Sunol Sciences Com-Power	Biconilog, 30-3000 MHz Preamplifier, 30-1000 MHz	JB3 PA-103	2197 2465	9/9/2015 9/16/2016	9/9/2017 9/16/2017
Com-Power	Preamplifier, 30-1000 MHz	PA-103	2400	9/10/2010	9/10/2017
Radiated Emissions	, 1000 - 40,000 MHz, 04-Oct-16				
Hewlett Packard	Microwave Preamplifier, 1-	8449B	785	10/12/2015	11/12/2016
	26.5GHz				
EMCO	Antenna, Horn, 1-18GHz	3115 D/N 94300	868	6/30/2016	6/30/2018
Hewlett Packard	High Pass filter, 8.2 GHz	P/N 84300- 80039	1152	6/28/2016	6/28/2017
Hewlett Packard	Spectrum Analyzer (SA40)	8564E	1393	3/28/2016	3/28/2017
	Blue 9 kHz - 40 GHz	(84125C)			
HP / Miteq	SA40 Head (Blue)	TTA1840-45-5P-	1620	3/8/2016	3/8/2017
Miana Tuanias	Dand Daiset Filter 5705 5075	HG-S	4000	E/0/0040	E 10 10 0 4 7
Micro-Tronics	Band Reject Filter, 5725-5875 MHz	BRC50705-02	1682	5/9/2016	5/9/2017
A. H. Systems	Red System Horn, 18-40GHz	SAS-574, p/n:	2161	7/16/2015	7/16/2017
· · · · · · · · · · · · · · · · · · ·		2581			
Micro-Tronics	Band Reject Filter, 2400-2500	BRM50702-02	2238	9/19/2016	9/19/2017
Missa Tussias	MHz	DD050700 00	0054	0/40/0040	0/40/0047
Micro-Tronics	Band Reject Filter, 5150-5350 MHz	BRC50703-02	2251	9/19/2016	9/19/2017
	IVII IZ				
Radio Antenna Port	(Power and Spurious Emission	ns), 06-Oct-16 thru	12-Oct-16		
NTS	NTS UNII Power Software	N/A	0		N/A
NEO	(rev 3.8)		•		
NTS	NTS Capture Analyzer	N/A	0		N/A
Agilent	Software (rev 3.8) PSA, Spectrum Analyzer,	E4446A	2139	6/24/2016	6/24/2017
Technologies	(installed options, 111, 115,	L+++0/(2100	0/24/2010	0/24/2017
ÿ	123, 1DS, B7J, HYX,				
	(Power and Spurious Emission		2706	E/6/2016	E/6/2017
Agilent Technologies	3Hz -44GHz PSA Spectrum Analyzer	E4446A	2796	5/6/2016	5/6/2017
rediffologies	/ widiy201				

Report Date: March 14, 2017

Project number JD102271 Reissue Date: March 24, 2017

T103599

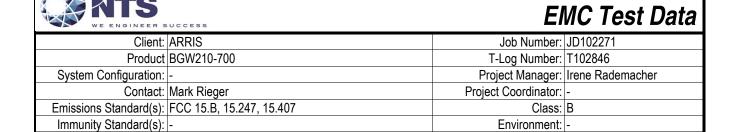
Manufacturer Radiated Spurious F	<u>Description</u> missions, 1000 - 6,000 MHz, 20	Model	Asset #	Calibrated	Cal Due
NTS	NTS EMI Software (rev 2.10)	N/A	0		N/A
EMCO	Antenna, Horn, 1-18 GHz (SA40-Red)	3115	1142	9/29/2016	9/29/2018
Rohde & Schwarz	EMI Test Receiver, 20 Hz-7 GHz	ESIB7	9482	10/28/2016	10/28/2017
Band Edge , 27-Dec-	16				
EMCO	Antenna, Horn, 1-18 GHz (SA40-Red)	3115	1142	9/29/2016	9/29/2018
Rohde & Schwarz	EMI Test Receiver, 20 Hz-7 GHz	ESIB7	9482	10/28/2016	10/28/2017
Radiated Emissions,	1000 - 6,000 MHz, 04-Jan-17				
EMCO	Antenna, Horn, 1-18 GHz (SA40-Red)	3115	1142	9/29/2016	9/29/2018
Rohde & Schwarz	ÈMI Test Receiver, 20 Hz-40 GHz	ESIB40 (1088.7490.40)	2493	2/20/2016	2/20/2017
Radiated Spurious E	missions, 1000 - 6,500 MHz, 05	-Jan-17			
NTS NTS	NTS EMI Software (rev 2.10) NTS Capture Analyzer	N/A N/A	0		N/A N/A
EMCO	Software (rev 3.8) Antenna, Horn, 1-18 GHz	3115	1142	9/29/2016	9/29/2018
Rohde & Schwarz	(SA40-Red) EMI Test Receiver, 20 Hz-40	ESIB40	2493	2/20/2016	2/20/2017
	GHz	(1088.7490.40)			
Radio Antenna Port (Power and Spurious Emission	s), 06-Jan-17			
Rohde & Schwarz	Signal Analyzer 20 Hz - 26.5 GHz	FSQ26	2327	6/17/2016	6/17/2017
Rohde & Schwarz	Open Switch and Control Unit, p/s	OSP120 with B157	3000	6/16/2016	6/16/2017





Appendix B Test Data

 $\begin{array}{ll} T102846 & Pages \ 30-115 \\ T103599 & Pages \ 116-208 \end{array}$



For The

ARRIS

Product

BGW210-700

Date of Last Test: 12/7/2016



Client:	ARRIS	Job Number:	JD102271
Model	BGW210-700	T-Log Number:	T102846
iviodei:	BGW210-700	Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B, 15.247, 15.407	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.

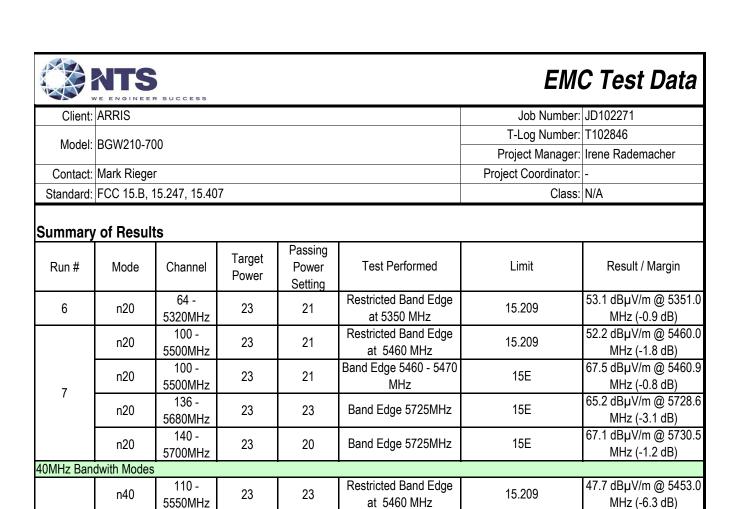
For radiated emissions testing the measurement antenna was located 3 meters from the EUT, unless otherwise noted.

Ambient Conditions:

Temperature: 21.9 °C Rel. Humidity: 52 %

Summary of Results

Journal y	oi ilesuii	.5					
Run#	Mode	Channel	Target Power	Passing Power Setting	Test Performed	Limit	Result / Margin
20MHz Ban	dwith Modes						
2	а	60 - 5300MHz	23	23	Restricted Band Edge at 5350 MHz	15.209	52.7 dBµV/m @ 5350.1 MHz (-1.3 dB)
2	а	64 - 5320MHz	23	19	Restricted Band Edge at 5350 MHz	15.209	53.3 dBµV/m @ 5351.0 MHz (-0.7 dB)
	а	100 - 5500MHz	23	23	Restricted Band Edge at 5460 MHz	15.209	52.3 dBµV/m @ 5455.6 MHz (-1.7 dB)
3	а	100 - 5500MHz	23	23	Band Edge 5460 - 5470 MHz	15E	66.6 dBµV/m @ 5469.8 MHz (-1.7 dB)
	а	136 - 5680MHz	23	23	Band Edge 5725MHz	15E	64.5 dBµV/m @ 5725.2 MHz (-3.8 dB)
	а	140 - 5700MHz	23	20	Band Edge 5725MHz	15E	66.7 dBµV/m @ 5725.2 MHz (-1.6 dB)



Band Edge 5460 - 5470

MHz

Band Edge 5725MHz

Restricted Band Edge

at 5460 MHz

Band Edge 5460 - 5470

MHz

15E

15E

15.209

15E

64.9 dBµV/m @ 5467.4

MHz (-3.4 dB)

66.3 dBµV/m @ 5729.3

MHz (-2.0 dB)

49.3 dBµV/m @ 5458.0

MHz (-4.7 dB)

62.0 dBµV/m @ 5460.4

MHz (-6.3 dB)

Modifications Made During Testing

No modifications were made to the EUT during testing

Deviations From The Standard

n40

n40

ac80

ac80

80MHz Bandwith Modes

11

16

No deviations were made from the requirements of the standard.

110 -

5550MHz

134 -

5670MHz

122 -

5610MHz

122 -

5610MHz

23

23

23

23

23

23

23

23



Client:	ARRIS	Job Number:	JD102271
Model	BGW210-700	T-Log Number:	T102846
iviodei:	BGW210-700	Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B, 15.247, 15.407	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)
11a	6Mbs	0.89	Yes	0.558	0.51	1.01	1792
n20	MSC0	0.99	Yes	4.96	0	0	10
n40	MCS0	0.97	Yes	2.408	0.11	0.22	415
ac80	VHT0	0.96	Yes	1.139	0.19	0.37	878

Sample Notes

Sample S/N: 184795206016480

Driver:

Antenna: 4x4 internal

Measurement Specific Notes:

	For emissions outside of the restricted bands the limit is -27dBm/MHz eirp (68.3dBuV/m). The measurement method
Note 1:	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 3:	Emission has constant duty cycle < 98%, average measurement performed: RBW=1MHz, VBW>1/T but not less than 10Hz,
Note 5.	peak detector, linear averaging, auto sweep,max hold 50*1/DC traces (method VB 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
Note 5.	measurements.



Client:	ARRIS	Job Number:	JD102271
Model	BGW210-700	T-Log Number:	T102846
Model.	DGVV210-700	Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B, 15.247, 15.407	Class:	N/A

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

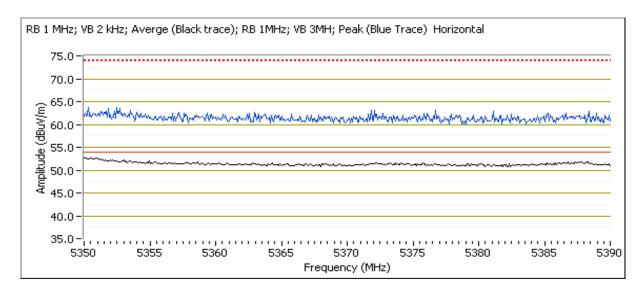
Date of Test: 9/29/2016 Config. Used: 1
Test Engineer: Rafael Varelas Config Change: None
Test Location: Fremont CH #7 EUT Voltage: 120V/60Hz

Channel: 60 - 5300MHz EUT Orientation: Flat Tx Chain: 4Tx Power setting: 23

Mode: a
Data Rate: 6 Mbs

5350 MHz Band Edge Signal Radiated Field Strength

3 3								
Frequency	Level	Pol	FCC 1	15.209	Detector	Azimuth	Height	Comments
MHz	dBμV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5350.090	52.7	Н	54.0	-1.3	Avg	360	1.2	POS; RB 1 MHz; VB: 2 kHz
5356.340	63.8	Н	74.0	-10.2	PK	360	1.2	POS; RB 1 MHz; VB: 3 MHz





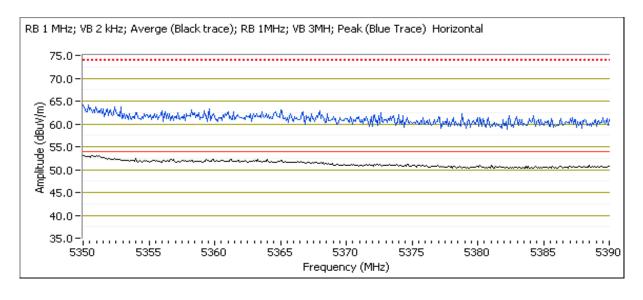
	COLOR MINISTERMAN PROGRAMMENT CONTRACTOR CON		
Client:	ARRIS	Job Number:	JD102271
Model:	BGW210-700	T-Log Number:	T102846
	DGVV210-700	Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B, 15.247, 15.407	Class:	N/A

Channel: 64 - 5320MHz EUT Orientation: Flat Tx Chain: 4Tx Power setting: 19

Mode: a Data Rate: 6 Mbs

5350 MHz Band Edge Signal Radiated Field Strength

	5000 III.i 2 aina 2 ago oigina maanatoa i isia oilongin								
Frequency	Level	Pol	FCC 1	15.209	Detector	Azimuth	Height	Comments	
MHz	dBμV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters		
5350.990	53.3	Н	54.0	-0.7	Avg	360	1.2	POS; RB 1 MHz; VB: 2 kHz	
5350.870	64.7	Н	74.0	-9.3	PK	360	1.2	POS; RB 1 MHz; VB: 3 MHz	





	COLOR MINISTERMAN PROGRAMMENT CONTRACTOR CON		
Client:	ARRIS	Job Number:	JD102271
Model:	BGW210-700	T-Log Number:	T102846
	DGVV210-700	Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B, 15.247, 15.407	Class:	N/A

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

Date of Test: 9/29/2016 Config. Used: 1
Test Engineer: Rafael Varelas Config Change: None
Test Location: Fremont CH #7 EUT Voltage: 120V/60Hz

Channel: 100 - 5500MHz EUT Orientation: Flat Tx Chain: 4Tx Power setting: 23

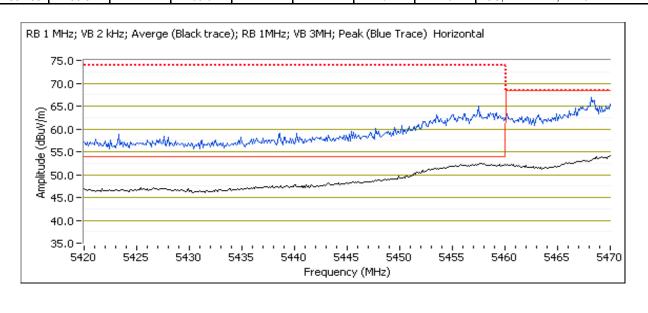
Mode: a
Data Rate: 6 Mbs

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			
5455.640	52.3	Н	54.0	-1.7	Avg	0	1.5	POS; RB 1 MHz; VB: 2 kHz		
5458.170	65.1	Н	74.0	-8.9	PK	0	1.5	POS; RB 1 MHz; VB: 3 MHz		

5470 MHz Band Edge Signal Radiated Field Strength

on our in a part a page or grant reasonant roll out on grant									
	Frequency	Level	Pol		5.E	Detector	Azimuth	Height	Comments
	MHz	dBμV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
	5469.760	66.6	Н	68.3	-1.7	PK	0	1.5	POS: RB 1 MHz: VB: 3 MHz



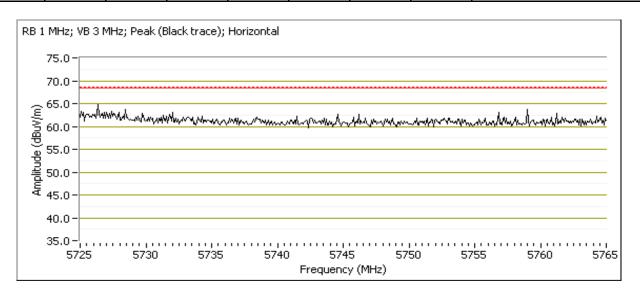


Client:	ARRIS	Job Number:	JD102271
Madal	BGW210-700	T-Log Number:	T102846
iviouei.	BGW210-700	Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B, 15.247, 15.407	Class:	N/A

Channel: 136 - 5680MHz EUT Orientation: Flat Tx Chain: 4Tx Power setting: 23

Mode: a Data Rate: 6 Mbs

0.202	or to mine but a buy or office reading of the buy of th									
Frequency	Level	Pol	15	5.E	Detector	Azimuth	Height	Comments		
MHz	dBμV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters			
5725.240	64.5	Н	68.3	-3.8	PK	350	1.6	POS; RB 1 MHz; VB: 3 MHz		



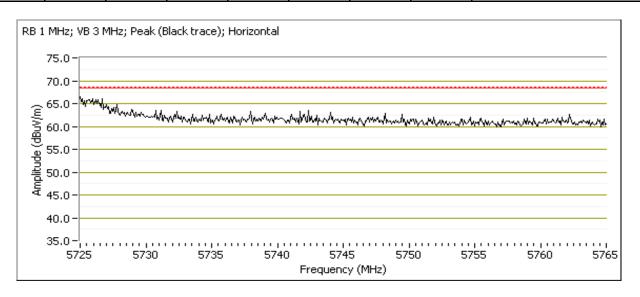


Client:	ARRIS	Job Number:	JD102271
Model:	BGW210-700	T-Log Number:	T102846
	DGW210-700	Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B, 15.247, 15.407	Class:	N/A

Channel: 140 - 5700MHz EUT Orientation: Flat Tx Chain: 4Tx Power setting: 20

Mode: a Data Rate: 6 Mbs

0.202	or 10 mm 2 Dana Lago Digitar Hadiatoa Flora Dirongin									
Frequency	Level	Pol	15	5.E	Detector	Azimuth	Height	Comments		
MHz	dBμV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters			
5725.160	66.7	Н	68.3	-1.6	PK	350	1.6	POS; RB 1 MHz; VB: 3 MHz		





	CONTROL MEDICAL MANAGEMENT AND		
Client:	ARRIS	Job Number:	JD102271
Model:	PCW210 700	T-Log Number:	T102846
	BGW210-700	Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B, 15.247, 15.407	Class:	N/A

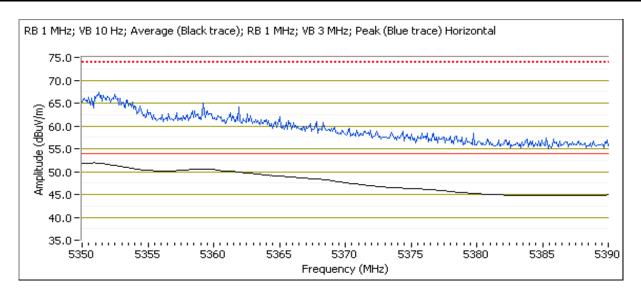
Run #6: Radiated Bandedge Measurements, 5250-5350MHz

Date of Test: 9/29/2016 Config. Used: 1
Test Engineer: Rafael Varelas Config Change: None
Test Location: Fremont CH #7 EUT Voltage: 120V/60Hz

Channel: 64 - 5320MHz EUT Orientation: Flat Tx Chain: 4Tx Power setting: 21

Mode: n20 Data Rate: MCS0

<u> </u>	puency Level Pol FCC 15.209 Detector Azimuth Height Comments							
Frequency	Level	Pol	FUU	15.209	Detector	Azimuth	Height	Comments
MHz	dBμV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5350.960	53.1	Н	54.0	-0.9	AVG	0	1.8	POS; RB 1 MHz; VB: 10 Hz
5351.200	67.8	Н	74.0	-6.2	PK	0	1.8	POS; RB 1 MHz; VB: 3 MHz





	COLUMN STATE OF THE STATE OF TH		
Client:	ARRIS	Job Number:	JD102271
Madal	BGW210-700	T-Log Number:	T102846
Model.	BGW210-700	Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B, 15.247, 15.407	Class:	N/A

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

Date of Test: 9/29/2016 Config. Used: 1
Test Engineer: Rafael Varelas Config Change: None
Test Location: Fremont CH #7 EUT Voltage: 120V/60Hz

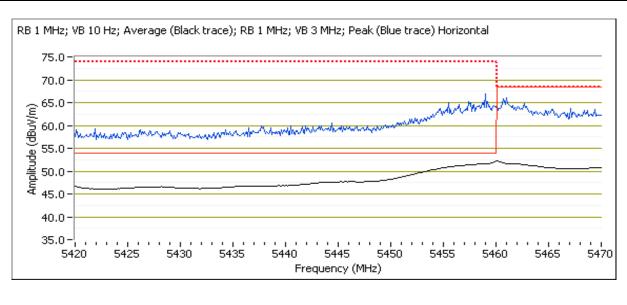
Channel: 100 - 5500MHz EUT Orientation: Flat Tx Chain: 4Tx Power setting: 21

Mode: n20 Data Rate: MCS0

5460 MHz Band Edge Signal Radiated Field Strength

STOO WILLS	7-00 Miliz Balla Lage Signal Hadiatea Field Strength									
Frequency	Level	Pol	FCC '	15.209	Detector	Azimuth	Height	Comments		
MHz	dBμV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters			
5460.000	52.2	Н	54.0	-1.8	AVG	154	1.7	POS; RB 1 MHz; VB: 10 Hz		
5459.120	65.3	Н	74.0	-8.7	PK	154	1.7	POS; RB 1 MHz; VB: 3 MHz		

Frequency	Level	Pol	15	5.E	Detector	Azimuth	Height	Comments
MHz	dBμV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5460.900	67.5	Н	68.3	-0.8	PK	154	1.7	POS; RB 1 MHz; VB: 3 MHz



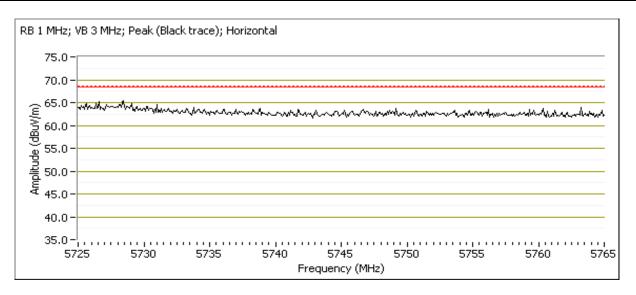


	COLUMN STATE OF THE STATE OF TH		
Client:	ARRIS	Job Number:	JD102271
Madal	BGW210-700	T-Log Number:	T102846
Model.	BGW210-700	Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B, 15.247, 15.407	Class:	N/A

Channel: 136 - 5680MHz EUT Orientation: Flat Tx Chain: 4Tx Power setting: 23

Mode: n20 Data Rate: MCS0

Frequency	Level	Pol		i.E	Detector	Azimuth	Height	Comments
MHz	dBμV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5728.610	65.2	Н	68.3	-3.1	PK	360	1.6	POS; RB 1 MHz; VB: 3 MHz



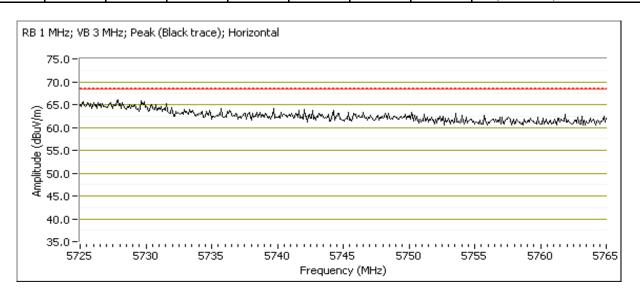


	COLUMN STATE OF THE STATE OF TH		
Client:	ARRIS	Job Number:	JD102271
Madal	BGW210-700	T-Log Number:	T102846
Model.	BGW210-700	Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B, 15.247, 15.407	Class:	N/A

Channel: 140 - 5700MHz EUT Orientation: Flat Tx Chain: 4Tx Power setting: 20

Mode: n20 Data Rate: MCS0

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Frequency	Level	Pol	1 -	5.E	Detector	Azimuth	Height	Comments		
MHz	dBμV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters			
5730.450	67.1	Н	68.3	-1.2	PK	360	1.6	POS; RB 1 MHz; VB: 3 MHz		





	180 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1							
Client:	ARRIS	Job Number:	JD102271					
Model:	BGW210-700	T-Log Number:	T102846					
wodei.	DGVV210-700	Project Manager:	Irene Rademacher					
Contact:	Mark Rieger	Project Coordinator:	-					
Standard:	FCC 15.B, 15.247, 15.407	Class:	N/A					

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

Date of Test: 9/29/2016 Config. Used: 1
Test Engineer: Rafael Varelas Config Change: None
Test Location: Fremont CH #7 EUT Voltage: 120V/60Hz

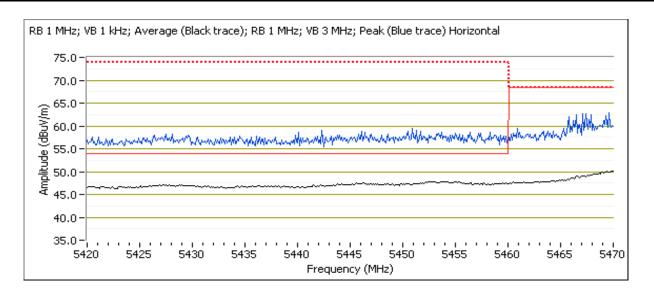
Channel: 110 - 5550MHz EUT Orientation: Flat Tx Chain: 4Tx Power setting: 23

Mode: n40 Data Rate: MCS0

5460 MHz Band Edge Signal Radiated Field Strength

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Frequency	Level	Pol	FCC 1	15.209	Detector	Azimuth	Height	Comments		
MHz	dBμV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters			
5452.950	47.7	Н	54.0	-6.3	Avg	158	1.7	POS; RB 1 MHz; VB: 1 kHz		
5455.670	59.5	Н	74.0	-14.5	PK	158	1.7	POS; RB 1 MHz; VB: 3 MHz		

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Frequency	Level	Pol		5.E	Detector	Azimuth	Height	Comments
MHz	dBμV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5467.370	64.9	Н	68.3	-3.4	PK	158	1.7	POS: RB 1 MHz: VB: 3 MHz





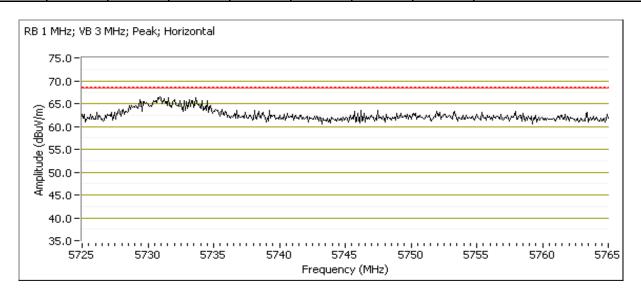
	COLUMN STATE OF THE STATE OF TH		
Client:	ARRIS	Job Number:	JD102271
Model	BGW210-700	T-Log Number:	T102846
Model.	BGW210-700	Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B, 15.247, 15.407	Class:	N/A

Channel: 134 - 5670MHz EUT Orientation: Flat Tx Chain: 4Tx Power setting: 23

Mode: n40

Data Rate:

0. 20 12 2	77 20 III 12 Dana 2 ago orgina riadiatou i lota oriongin									
Frequency	Level	Pol	15	i.E	Detector	Azimuth	Height	Comments		
MHz	dBμV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters			
5729.250	66.3	Н	68.3	-2.0	PK	163	1.5	POS; RB 1 MHz; VB: 3 MHz		





Client:	ARRIS	Job Number:	JD102271
Model:	BGW210-700	T-Log Number:	T102846
iviouei.	BGW210-700	Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B, 15.247, 15.407	Class:	N/A

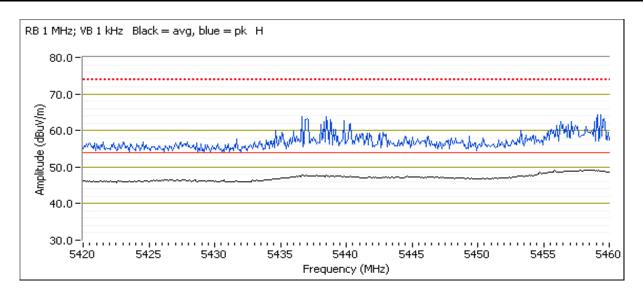
Run #15: Radiated Bandedge Measurements, 5470-5725MHz

Date of Test: 9/30/2016 0:00 Config. Used: 1
Test Engineer: John Caizzi & Kevin Wen Config Change: none
Test Location: Chamber 7 EUT Voltage: 120V / 60Hz

Channel: 122 - 5610 MHz EUT Orientation: Flat Tx Chain: 4Tx Power setting: 23

Mode: ac80 Data Rate: MCS0

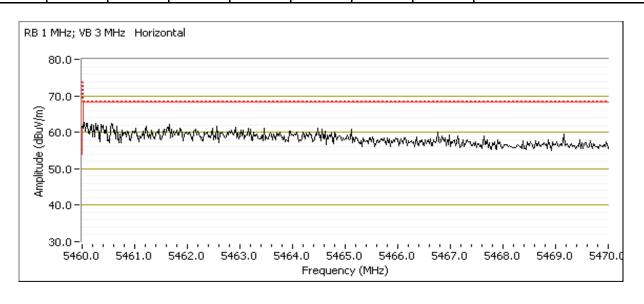
0.100 111112	o too minii Bana Bago orginar naalatoa i tota orrongin									
Frequency	Level	Pol	FCC 1	15.209	Detector	Azimuth	Height	Comments		
MHz	dBμV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters			
5458.000	49.3	Н	54.0	-4.7	Avg	6	1.21	RB 1 MHz, VB 1 kHz, note 3.		
5437.230	65.3	Н	74.0	-8.7	PK	6	1.21			





	1912年11日 19		
Client:	ARRIS	Job Number:	JD102271
Madal	BGW210-700	T-Log Number:	T102846
Model.	DGVV210-700	Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B, 15.247, 15.407	Class:	N/A

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Frequency	Level	Pol	15	5.E	Detector	Azimuth	Height	Comments		
MHz	dBμV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters			
5460.440	62.0	Н	68.3	-6.3	PK	360	1.21			





	Security Sec		
Client:	ARRIS	Job Number:	JD102271
Madal	BGW210-700	T-Log Number:	T102846
Model.	BGW210-700	Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B, 15.247, 15.407	Class:	N/A

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

Test Specific Details

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

General Test Configuration

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

Ambient Conditions:

Temperature: 22.6 °C Rel. Humidity: 37 %

Summary of Results

Mode	Channel	Target Power	Passing Power Setting	Test Performed	Limit	Result / Margin
dwith Modes						
n20	60 - 5300MHz	23	23	Restricted Band Edge at 5350 MHz	15.209	53.1 dBµV/m @ 5350.3 MHz (-0.9 dB)
n20	64 - 5320MHz	23	18	Restricted Band Edge at 5350 MHz	15.209	53.2 dBµV/m @ 5351.9 MHz (-0.8 dB)
n20	100 - 5500MHz	23	21	Restricted Band Edge at 5460 MHz	15.209	52.4 dBµV/m @ 5459.7 MHz (-1.6 dB)
n20	100 - 5500MHz	23	21	Band Edge 5460 - 5470 MHz	15E	67.7 dBµV/m @ 5469.1 MHz (-0.6 dB)
n20	140 - 5700MHz	23	21	Band Edge 5725MHz	15E	67.4 dBµV/m @ 5737.6 MHz (-0.9 dB)
dwith Modes						
n40	54 - 5270MHz	23	23	Restricted Band Edge at 5350 MHz	15.209	52.5 dBµV/m @ 5351.0 MHz (-1.5 dB)
n40	110 - 5550MHz	23	23	Restricted Band Edge at 5460 MHz	15.209	48.7 dBµV/m @ 5454.5 MHz (-5.3 dB)
n40	110 - 5550MHz	23	23	Band Edge 5460 - 5470 MHz	15E	61.6 dBµV/m @ 5461.9 MHz (-6.7 dB)
n40	134 - 5670MHz	23	21	Band Edge 5725MHz	15E	67.8 dBµV/m @ 5729.3 MHz (-0.5 dB)
	n20 n20 n20 n20 n20 n20 n40 n40	n20	Mode Channel Power dwith Modes 60 - 5300MHz 23 n20 64 - 5320MHz 23 n20 100 - 5500MHz 23 n20 100 - 5500MHz 23 n20 140 - 5700MHz 23 dwith Modes 54 - 5270MHz 23 n40 5550MHz 23 n40 110 - 5550MHz 23 n40 110 - 5550MHz 23 n40 134 - 23 23	Mode Channel Target Power Power Setting dwith Modes 60 - 5300MHz 23 23 n20 64 - 5320MHz 23 18 n20 100 - 5500MHz 23 21 n20 100 - 5500MHz 23 21 n20 140 - 5700MHz 23 21 dwith Modes 23 21 n40 54 - 5270MHz 23 23 n40 110 - 5550MHz 23 23 n40 110 - 5550MHz 23 23 n40 134 - 23 23 21	Mode Channel Target Power Power Setting Test Performed dwith Modes n20 60 - 5300MHz 23 23 Restricted Band Edge at 5350 MHz n20 64 - 5320MHz 23 18 Restricted Band Edge at 5350 MHz n20 100 - 5500MHz 23 21 Restricted Band Edge at 5460 MHz n20 100 - 5500MHz 23 21 Band Edge 5460 - 5470 MHz n20 140 - 5700MHz 23 21 Band Edge 5725MHz dwith Modes 23 23 Restricted Band Edge at 5350 MHz n40 54 - 5270MHz 23 23 Restricted Band Edge at 5350 MHz n40 110 - 5550MHz 23 23 Restricted Band Edge at 5460 MHz n40 110 - 5550MHz 23 23 Band Edge 5460 - 5470 MHz n40 134 - 23 23 Band Edge 5725MHz	Mode Channel Target Power Setting Power Setting Test Performed Limit dwith Modes n20 60 - 5300MHz 23 23 Restricted Band Edge at 5350 MHz 15.209 n20 64 - 5320MHz 23 18 Restricted Band Edge at 5350 MHz 15.209 n20 100 - 5500MHz 23 21 Restricted Band Edge at 5460 MHz 15.209 n20 100 - 5500MHz 23 21 Band Edge 5460 - 5470 MHz 15E n20 140 - 5700MHz 23 21 Band Edge 5725MHz 15E dwith Modes n40 54 - 5270MHz 23 23 Restricted Band Edge at 5350 MHz 15.209 n40 110 - 5550MHz 23 23 Restricted Band Edge at 5460 MHz 15.209 n40 110 - 5550MHz 23 23 Band Edge 5460 - 5470 MHz 15E n40 134 - 5550MHz 23 23 Band Edge 5725MHz 15E



Client:	ARRIS	Job Number:	JD102271
Madalı	BGW210-700	T-Log Number:	T102846
iviouei.	BGW210-700	Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B, 15.247, 15.407	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)
11n20	MCS0	83%	NO	4.17	0.79	1.58	240
11n40	MCS0	34%	NO	1.71	4.67	9.33	586
ac80	VHT0	17%	NO	0.84	7.75	15.49	1190

Sample Notes

Sample S/N: 184795206016480

Driver: -

Antenna: 4x4 internal

Measurement Specific Notes:

	For emissions outside of the restricted bands the limit is -27dBm/MHz eirp (68.3dBuV/m). The measurement method
Note 1:	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
Note 2.	sweep, trace average 100 traces (method AD of KDB 789033)
Note 3:	Emission has non constant duty cycle < 98%, average measurement performed: RBW=1MHz, VBW> 1/T, peak detector,
Note 3.	linear average mode, sweep time auto, max hold. Max hold for 50*(1/DC) traces
Note 5:	Plots of the average and peak bandedge do not account for any duty cycle correction. Refer to the tabular results for final
Note 5.	measurements.

Note - All testing performed using 1SS



	COLOR ALCO HISTORY CONTROL PRODUCTION OF PRODUCTION		
Client:	ARRIS	Job Number:	JD102271
Model	BGW210-700	T-Log Number:	T102846
iviodei.	BGW210-700	Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B, 15.247, 15.407	Class:	N/A

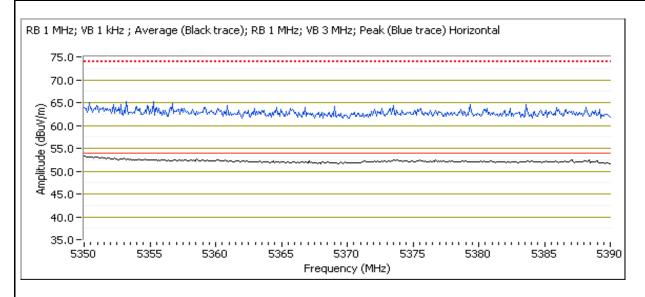
Run #6: Radiated Bandedge Measurements, 5250-5350MHz

Date of Test: 9/28/2016 Config. Used: 2
Test Engineer: Rafael Varelas Config Change: None
Test Location: Fremont CH #7 EUT Voltage: 120V/60Hz

Channel: 60 - 5300MHz EUT Orientation: Flat Tx Chain: 4Tx Power setting: 23

Mode: n20 Data Rate: MCS0

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Frequency	Level	Pol	FCC '	15.209	Detector	Azimuth	Height	Comments
MHz	dBμV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5350.320	53.1	Н	54.0	-0.9	Avg	1	1.5	POS; RB 1 MHz; VB: 1 kHz
5351.600	64.6	Н	74.0	-9.4	PK	1	1.5	POS; RB 1 MHz; VB: 3 MHz



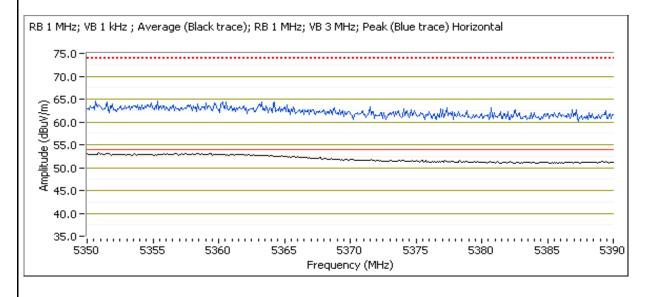


	COLOR MINISTERMAN PROGRAMMENT CONTRACTOR CON		
Client:	ARRIS	Job Number:	JD102271
Model:	BGW210-700	T-Log Number:	T102846
Model.	DGVV210-700	Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B, 15.247, 15.407	Class:	N/A

Channel: 64 - 5320MHz EUT Orientation: Flat Tx Chain: 4Tx Power setting: 18

Mode: n20 Data Rate: MCS0

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Frequency	Level	Pol	FCC 1	15.209	Detector	Azimuth	Height	Comments		
MHz	dBμV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters			
5351.920	53.2	Н	54.0	-0.8	Avg	1	1.5	POS; RB 1 MHz; VB: 1 kHz		
5351.600	65.8	Н	74.0	-8.2	PK	1	1.5	POS; RB 1 MHz; VB: 3 MHz		
5355.210	51.2	V	54.0	-2.8	Avg	148	1.5	POS; RB 1 MHz; VB: 1 kHz		
5359.780	63.2	V	74.0	-10.8	PK	148	1.5	POS; RB 1 MHz; VB: 3 MHz		





	COLOR MINISTERMAN PROGRAMMENT CONTRACTOR CON		
Client:	ARRIS	Job Number:	JD102271
Model:	BGW210-700	T-Log Number:	T102846
Model.	DGVV210-700	Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B, 15.247, 15.407	Class:	N/A

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

Date of Test: 9/28/2016 Config. Used: 2
Test Engineer: Rafael Varelas Config Change: None
Test Location: Fremont CH #7 EUT Voltage: 120V/60Hz

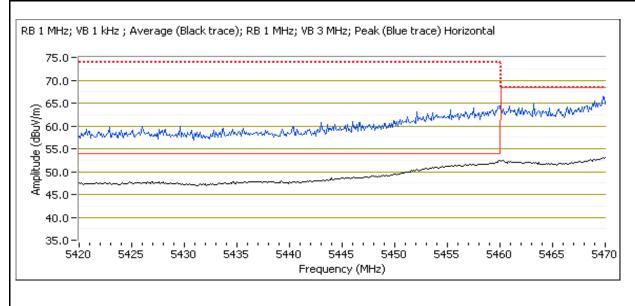
Channel: 100 - 5500MHz EUT Orientation: Flat Tx Chain: 4Tx Power setting: 21

Mode: n20 Data Rate: MCS0

5460 MHz Band Edge Signal Radiated Field Strength

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Frequency	Level	Pol	FCC '	15.209	Detector	Azimuth	Height	Comments		
MHz	dBμV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters			
5459.680	52.4	Н	54.0	-1.6	Avg	164	1.5	POS; RB 1 MHz; VB: 1 kHz		
5452.060	63.4	Н	74.0	-10.6	PK	164	1.5	POS; RB 1 MHz; VB: 3 MHz		

Frequency	Level	Pol		5.E	Detector	Azimuth	Height	Comments
MHz	dBμV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5469.100	67.7	Н	68.3	-0.6	PK	164	1.5	POS; RB 1 MHz; VB: 3 MHz



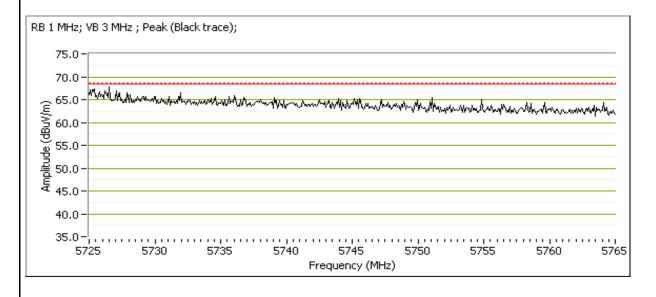


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Client:	ARRIS	Job Number:	JD102271
Model:	BGW210-700	T-Log Number:	T102846
Model.	BGW210-700	Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B, 15.247, 15.407	Class:	N/A

Channel: 140 - 5700MHz EUT Orientation: Flat Tx Chain: 4Tx Power setting: 21

Mode: n20 Data Rate: MCS0

0. 202	71 - 1111 - Dana Lago Orgina riasiatos riots otrorigir									
Frequency	Level	Pol	15	5.E	Detector	Azimuth	Height	Comments		
MHz	dBμV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters			
5737.580	67.4	Н	68.3	-0.9	PK	138	1.4	POS; RB 1 MHz; VB: 3 MHz		





	The state of the s		
Client:	ARRIS	Job Number:	JD102271
Madal	BGW210-700	T-Log Number:	T102846
Model.	BGW210-700	Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B, 15.247, 15.407	Class:	N/A

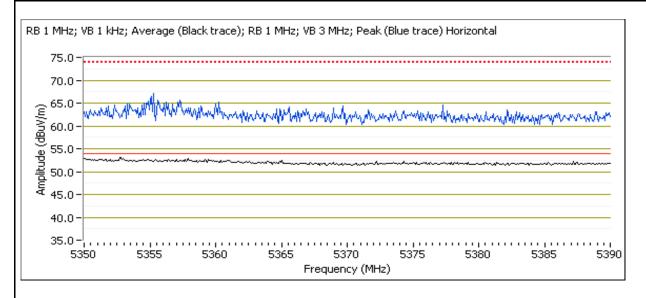
Run #10: Radiated Bandedge Measurements, 5250-5350MHz

Date of Test: 9/28/2016 Config. Used: 2
Test Engineer: Rafael Varelas Config Change: None
Test Location: Fremont CH #7 EUT Voltage: 120V/60Hz

Channel: 54 - 5270MHz EUT Orientation: Flat Tx Chain: 4Tx Power setting: 23

Mode: n40
Data Rate: MCS0

0000 111112 2	2000 III. 2 Zuna 2 ugo orgina riamatou riora on origin									
Frequency	Level	Pol	FCC 1	15.209	Detector	Azimuth	Height	Comments		
MHz	dBμV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters			
5351.040	52.5	Н	54.0	-1.5	Avg	360	1.4	POS; RB 1 MHz; VB: 1 kHz		
5358.180	66.7	Н	74.0	-7.3	PK	360	1.4	POS; RB 1 MHz; VB: 3 MHz		





Client:	ARRIS	Job Number:	JD102271
Model:	BGW210-700	T-Log Number:	T102846
Model.	DGVV210-700	Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B, 15.247, 15.407	Class:	N/A

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

Date of Test: 9/28/2016 Config. Used: 2
Test Engineer: Rafael Varelas Config Change: None
Test Location: Fremont CH #7 EUT Voltage: 120V/60Hz

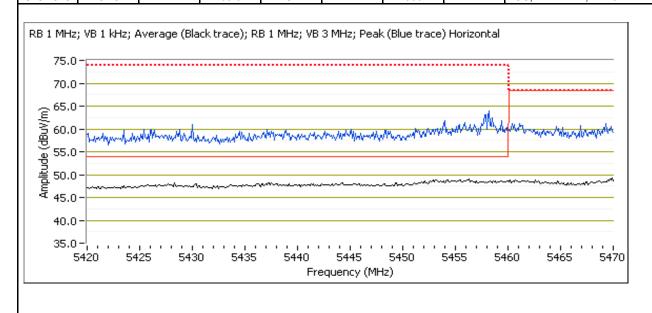
Channel: 110 - 5550MHz EUT Orientation: Flat Tx Chain: 4Tx Power setting: 23

Mode: n40 Data Rate: MCS0

5460 MHz Band Edge Signal Radiated Field Strength

0.00 111112	o too mile band bago orginar nadiatou i tota ortongur									
Frequency	Level	Pol	FCC 1	15.209	Detector	Azimuth	Height	Comments		
MHz	dBμV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters			
5454.470	48.7	Н	54.0	-5.3	Avg	360	1.1	POS; RB 1 MHz; VB: 1 kHz		
5457.520	63.1	Н	74.0	-10.9	PK	360	1.1	POS; RB 1 MHz; VB: 3 MHz		

• •	- uu u.g.	g		<u>-</u>				
Frequency	Level	Pol	15	5.E	Detector	Azimuth	Height	Comments
MHz	dBμV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5461.920	61.6	Н	68.3	-6.7	PK	360	1.1	POS: RB 1 MHz: VB: 3 MHz



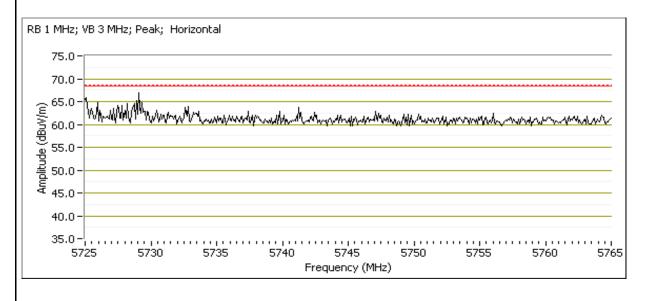


	COST DECIMENT HELICUMENTERS ENVIRONMENT AND LATER		
Client:	ARRIS	Job Number:	JD102271
Model:	BGW210-700	T-Log Number:	T102846
Model.	BGW210-700	Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B, 15.247, 15.407	Class:	N/A

Channel: 134 - 5670MHz EUT Orientation: Flat Tx Chain: 4Tx Power setting: 21

Mode: n40 Data Rate: MCS0

0. 202	710 mile 2 and 2 ago orginal realization riols of origin									
Frequency	Level	Pol	15	5.E	Detector	Azimuth	Height	Comments		
MHz	dBμV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters			
5729.330	67.8	Н	68.3	-0.5	PK	5	1.0	POS; RB 1 MHz; VB: 3 MHz		





Client:	ARRIS	Job Number:	JD102271
Model	BGW210-700	T-Log Number:	T102846
iviodei.	BGW210-700	Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B, 15.247, 15.407	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.

Date of Test: 9/30/2016, 10/3/2016, 10/4/2016 Config. Used: 1

Test Engineer: John Caizzi, Kevin Wen & Rafael V.

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

General Test Configuration

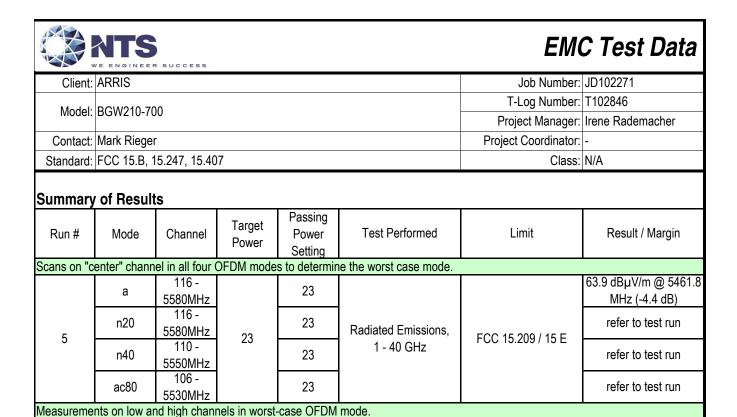
The EUT and all local support equipment were located on the turntable for radiated spurious emissions testing.
For radiated emissions testing the measurement antenna was located 3 meters from the EUT, unless otherwise noted.

Ambient Conditions:

Temperature: 23.8 °C Rel. Humidity: 46 %

Summary of Results

Run#	Mode	Channel	Target Power	Passing Power Setting	Test Performed	Limit	Result / Margin
Scans on "c	enter" chann	el in all four (OFDM mode	s to determin	e the worst case mode.		
	a 53			23			39.4 dBµV/m @ 21200 MHz(-14.6 dB)
3	n20	60 - 5300MHz	23	23	Radiated Emissions, 1 - 40 GHz	FCC 15.209 / 15 E	refer to test run
	n40	54 - 5270MHz	23	23			refer to test run
	ac80	58 - 5290MHz		23			refer to test run
Measureme	nts on low ar	nd high chanı	nels in worst	-case OFDM	mode.		
	а	52 - 5260MHz	23	23	Radiated Emissions,	FCC 15.209 / 15 E	49.4 dBµV/m @ 5420.3 MHz (-4.6 dB)
4	а	64 - 5320MHz	23	23	1 - 40 GHz	FOC 13.2097 13 E	43.5 dBµV/m @ 10905.1MHz(-10.5 dB)
	•	•	•	•			, , , , , , , , , , , , , , , , , , , ,



Radiated Emissions,

1 - 40 GHz

44.4 dBµV/m @ 7333.4

MHz (-9.6 dB)

47.1 dBµV/m @

11441.5 MHz (-6.9 dB)

FCC 15.209 / 15 E

Modifications Made During Testing

No modifications were made to the EUT during testing

Deviations From The Standard

а

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6

No deviations were made from the requirements of the standard.

100 -

5500MHz

144-

5720MHz

23

23

Procedure Comments:

Measurements performed in accordance with FCC KDB 789033

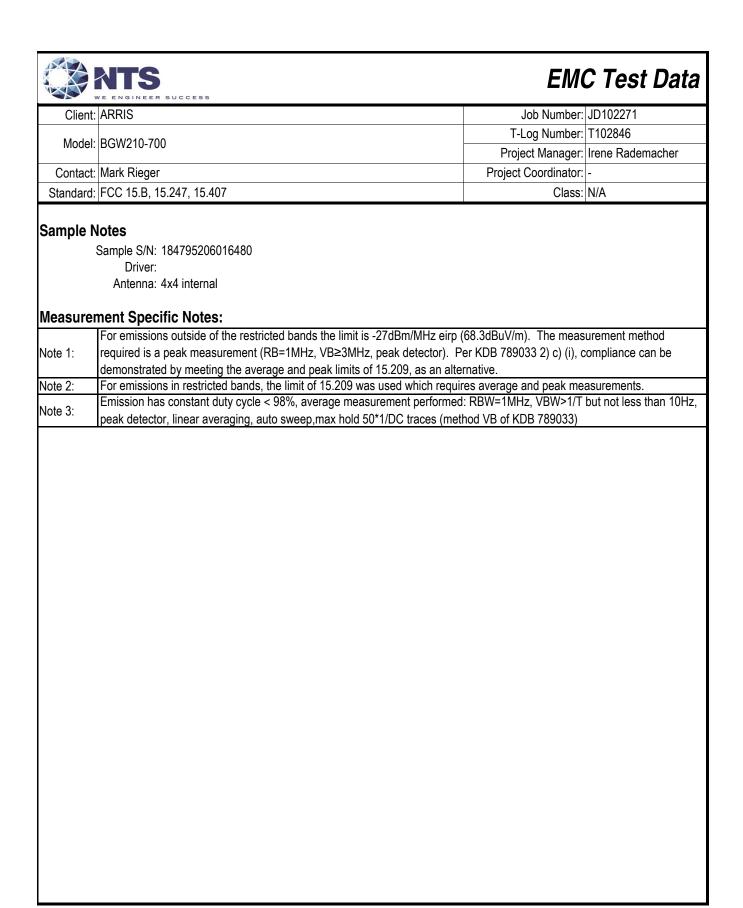
Peak measurements performed with: RBW=1MHz, VBW=3MHz, peak detector, max hold, auto sweep time

23

23

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

Mode	Data Rate	Duty Cycle (x)	Constant DC?	T (ms)	Pwr Cor Factor*	Lin Volt Cor Factor**	Min VBW for FS (Hz)
11a	6Mbs	0.89	Yes	0.558	0.51	1.01	1792
n20	MSC0	0.99	Yes	4.96	0	0	10
n40	MCS0	0.97	Yes	2.408	0.11	0.22	415
ac80	VHT0	0.96	Yes	1.139	0.19	0.37	878





	AL ENGINEER SOCIES		
Client:	ARRIS	Job Number:	JD102271
Model	BGW210-700	T-Log Number:	T102846
iviouei.	BGW210-700	Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B, 15.247, 15.407	Class:	N/A

Config. Used: 1

Config Change: none

EUT Voltage: 120V/60Hz

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

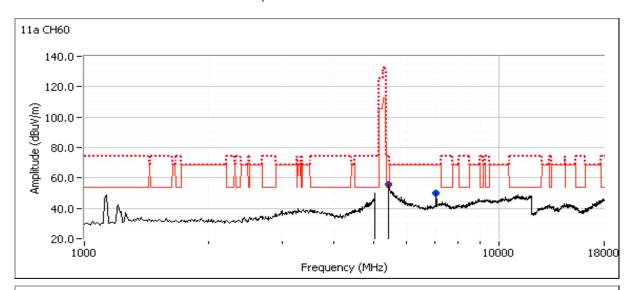
Date of Test: 9/30/2016, 10/3/2016

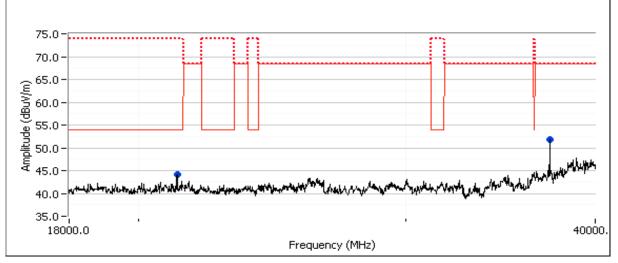
Test Engineer: John Caizzi, Kevin Wen & Rafael V.

Test Location: Chamber 7

Run #3a: Center Channel

Channel: 60 Mode: a
Tx Chain: 4Tx Data Rate: 6Mbps







	The state of the s		
Client:	ARRIS	Job Number:	JD102271
Madal	BGW210-700	T-Log Number:	T102846
Model.	BGW210-700	Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B, 15.247, 15.407	Class:	N/A

Run #3a: Center Channel

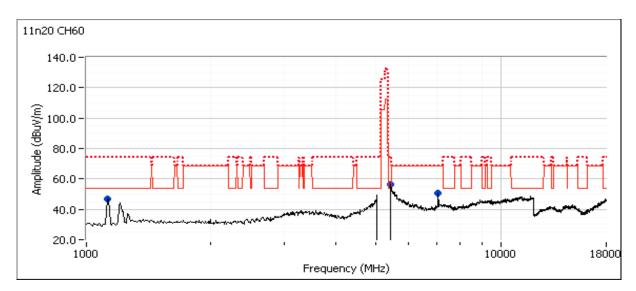
Frequency	Level	Pol	15.209) / 15E	Detector	Azimuth	Height	Comments
MHz	dBμV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
21200.040	39.4	V	54.0	-14.6	Avg	37	1.8	RB 1 MHz;VB 3 kHz;Peak
21200.270	50.7	V	74.0	-23.3	PK	37	1.8	RB 1 MHz;VB 3 MHz;Peak
7066.710	54.8	Н	68.3	-13.5	PK	172	1.5	RB 1 MHz;VB 3 MHz;Peak
37364.540	39.6	V	68.3	-28.7	Avg	71	1.0	RB 1 MHz;VB 3 kHz;Peak
37369.070	51.3	V	68.3	-17.0	PK	71	1.0	RB 1 MHz;VB 3 MHz;Peak
5425.000	-	Н	-	-	Peak	162	2.0	measured at Band Edge



Client:	ARRIS	Job Number:	JD102271
Madalı	BGW210-700	T-Log Number:	T102846
Model.	BGW210-700	Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B, 15.247, 15.407	Class:	N/A

Run #3b: Center Channel

Channel: 60 Mode: n20 Tx Chain: 4Tx Data Rate: MCS0



Frequency	Level	Pol	15.209	9 / 15E	Detector	Azimuth	Height	Comments
MHz	dBμV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5350.000	52.0	Н	54.0	-2.0	AVG	0	1.3	POS; RB 1 MHz; VB: 10 Hz, note 4
5386.310	63.6	Н	74.0	-10.4	PK	0	1.3	POS; RB 1 MHz; VB: 3 MHz, note 4
1125.000	46.9	Н	54.0	-7.1	Peak	262	1.5	not related to radio
7066.530	55.2	Н	68.3	-13.1	PK	174	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

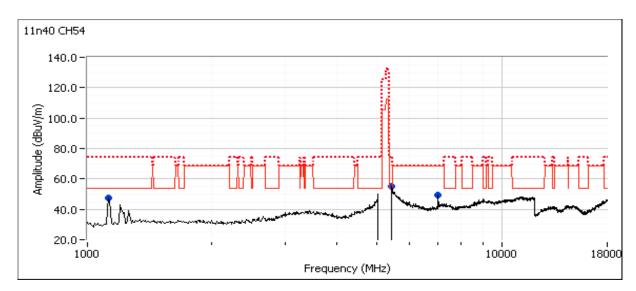
Note 4: Measured without bandstop filter with R&S analyzer. Signal is artifact of using filter.



	TO SECULAR SEC		
Client:	ARRIS	Job Number:	JD102271
Madalı	BGW210-700	T-Log Number:	T102846
Model.	BGW210-700	Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B, 15.247, 15.407	Class:	N/A

Run #3c: Center Channel

Channel: 54 Mode: n40
Tx Chain: 4Tx Data Rate: MCS0



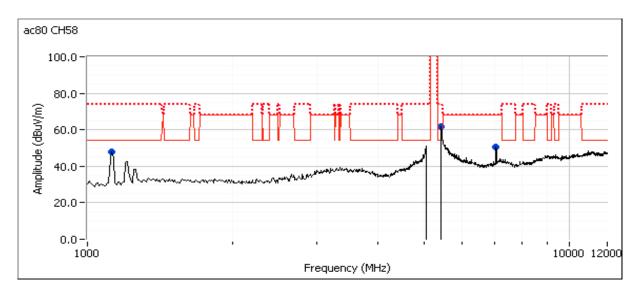
Frequency	Level	Pol	15.209 / 15E		Detector	Azimuth	Height	Comments
MHz	dBμV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
7026.780	55.2	Н	68.3	-13.1	PK	176	1.7	RB 1 MHz;VB 3 MHz;Peak
1125.000	47.6	Н	54.0	-6.4	Peak	6	1.0	not related to radio
5433.330	-	Н	-	-	Peak	49	1.0	measured at Band Edge



Client:	ARRIS	Job Number:	JD102271
Model	BGW210-700	T-Log Number:	T102846
iviouei.	BGW210-700	Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B, 15.247, 15.407	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	
7053.350	54.9	Н	68.3	-13.4	PK	192	1.7	RB 1 MHz;VB 3 MHz;Peak
1125.000	47.8	Н	54.0	-6.2	Peak	8	1.0	not related to radio
5350.050	-	Н	-	-	Avg	0	1.1	measured at Band Edge
5366.130	-	Н	-	-	PK	0	1.1	measured at Band Edge



Client:	ARRIS	Job Number:	JD102271
Model	BGW210-700	T-Log Number:	T102846
iviouei.	BGW210-700	Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B, 15.247, 15.407	Class:	N/A

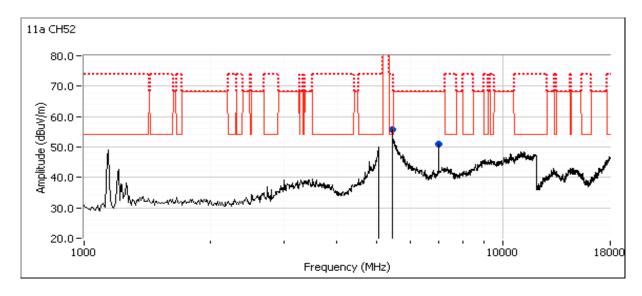
Run #4: Radiated Spurious Emissions, 1,000 - 40000 MHz. Operating Mode: Worse case from Run #3

Date of Test: 10/3/2016, 10/4/2016

Config. Used: 1 Test Engineer: Rafael V. Config Change: none Test Location: Chamber #7 EUT Voltage: 120V/60Hz

Run #4a: Low Channel

Channel: 52 11a Mode: Tx Chain: 4Tx Data Rate: 6Mbs



Frequency	Level	Pol	15.209	9 / 15E	Detector	Azimuth	Height	Comments
MHz	dBμV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5420.320	49.4	Н	54.0	-4.6	Avg	360	1.6	POS; RB 1 MHz; VB: 2 kHz, note 4
5416.570	60.2	Н	74.0	-13.8	PK	360	1.6	POS; RB 1 MHz; VB: 3 MHz, note 4
7013.290	55.3	Н	68.3	-13.0	PK	197	1.6	RB 1 MHz;VB 3 MHz;Peak

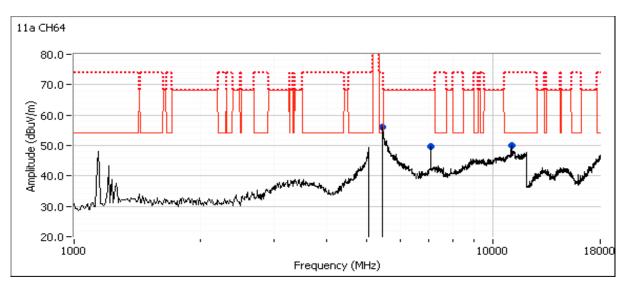
Measured without bandstop filter with R&S analyzer. Signal is artifact of using filter. Note 4:



Client:	ARRIS	Job Number:	JD102271
Madalı	BGW210-700	T-Log Number:	T102846
iviodei.	BGW210-700	Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B, 15.247, 15.407	Class:	N/A

Run #4b: High Channel

Channel: 64 Mode: 11a
Tx Chain: 4Tx Data Rate: 6Mbs



Frequency	Level	Pol	15.209) / 15E	Detector	Azimuth	Height	Comments
MHz	dBμV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
10905.100	43.5	Н	54.0	-10.5	Avg	300	1.0	RB 1 MHz;VB 3 kHz;Peak, note 3
10986.130	54.7	Н	74.0	-19.3	PK	300	1.0	RB 1 MHz;VB 3 MHz;Peak
7093.290	49.8	Н	68.3	-18.5	Peak	178	1.5	
5436.820	-	Н	-	-	Peak	163	1.5	Meausured at Band Edge



	TO SECULAR SEC		
Client:	ARRIS	Job Number:	JD102271
Madalı	BGW210-700	T-Log Number:	T102846
Model.	BGW210-700	Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B, 15.247, 15.407	Class:	N/A

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

Date of Test: 9/30/2016, 10/3/2016

Test Engineer: Rafael Varelas

Test Location: Fremont CH #7

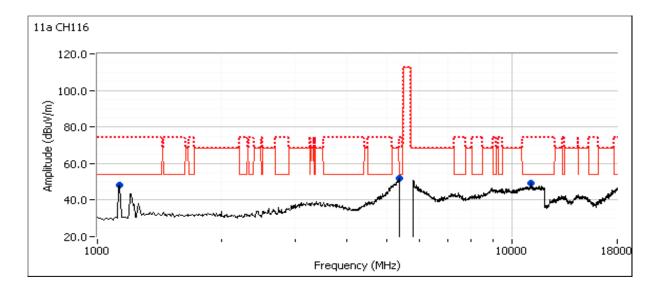
Config. Used: 1

Config Change: None

EUT Voltage: 120V/60Hz

Run #5a: Center Channel

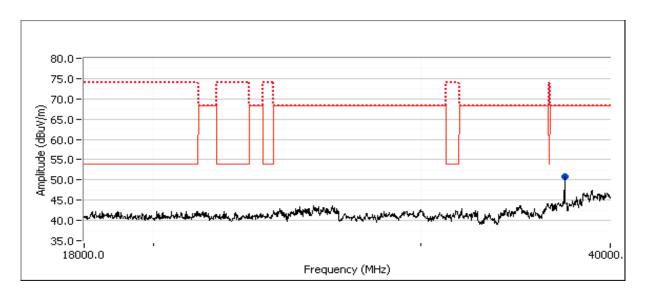
Channel: 116 Mode: a
Tx Chain: 4Tx Data Rate: 6Mbs





	774 30-980 HHD 3774 RES 3774 RES 3775 R		
Client:	ARRIS	Job Number:	JD102271
Madal	PCW210 700	T-Log Number:	T102846
wodei.	BGW210-700	Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B, 15.247, 15.407	Class:	N/A

Run #5a: Center Channel



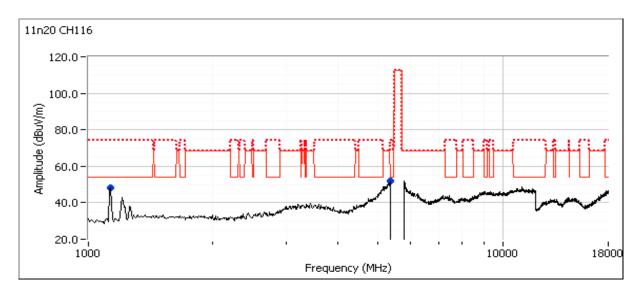
Frequency	Level	Pol	15.209	9 / 15E	Detector	Azimuth	Height	Comments
MHz	dBμV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5461.780	63.9	Н	68.3	-4.4	PK	165	1.1	POS; RB 1 MHz; VB: 3 MHz
11162.170	45.0	V	54.0	-9.0	Avg	122	2.2	RB 1 MHz;VB 3 kHz;Peak
11165.270	56.4	V	74.0	-17.6	PK	122	2.2	RB 1 MHz;VB 3 MHz;Peak
37030.000	50.5	V	68.3	-17.8	PK	110	1.0	RB 1 MHz;VB 3 MHz;Peak
1133.330	-	Н	-	-	Peak	5	1.0	not related to radio



	TO SECULAR SEC		
Client:	ARRIS	Job Number:	JD102271
Model	BGW210-700	T-Log Number:	T102846
Model.	BGW210-700	Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B, 15.247, 15.407	Class:	N/A

Run #5b: Center Channel

Channel: 116 Mode: n20
Tx Chain: 4Tx Data Rate: MSC0



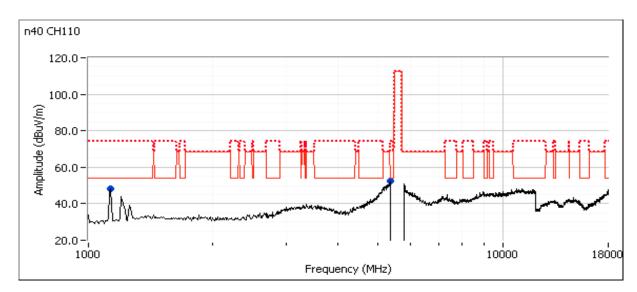
Frequency	Level	Pol	15.209) / 15E	Detector	Azimuth	Height	Comments
MHz	dBμV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5458.160	51.1	Н	54.0	-2.9	AVG	164	1.6	POS; RB 1 MHz; VB: 10 Hz
5439.960	63.1	Н	74.0	-10.9	PK	164	1.6	POS; RB 1 MHz; VB: 3 MHz
11162.830	43.5	V	54.0	-10.5	AVG	178	2.2	RB 1 MHz;VB 10 Hz;Peak
11162.800	55.6	V	74.0	-18.4	PK	178	2.2	RB 1 MHz;VB 3 MHz;Peak
1133.330	-	Н	-	•	Peak	2	1.0	not related to radio



	THE STATE OF THE S		
Client:	ARRIS	Job Number:	JD102271
Model	BGW210-700	T-Log Number:	T102846
Model.	BGW210-700	Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B, 15.247, 15.407	Class:	N/A

Run #5c: Center Channel

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



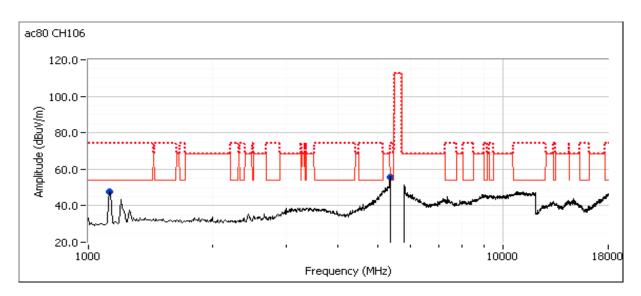
Frequency	Level	Pol	15.209	9 / 15E	Detector	Azimuth	Height	Comments
MHz	dBμV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
1133.330	-	Н	-	-	Peak	73	1.6	not related to radio
5366.670	-	Н	-	-	Peak	222	1.3	measured at Band Edge



Client:	ARRIS	Job Number:	JD102271
Model	BGW210-700	T-Log Number:	T102846
iviouei.	BGW210-700	Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B, 15.247, 15.407	Class:	N/A

Run #5d: Center Channel

Channel: 106 Mode: ac80
Tx Chain: 4Tx Data Rate: VHT0



Frequency	Level	Pol	15.209	9 / 15E	Detector	Azimuth	Height	Comments
MHz	dBμV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
1125.000	-	V	-	-	Peak	40	1.0	not related to radio
5358.330	-	Н	-	-	Peak	98	1.6	measured at Band Edge



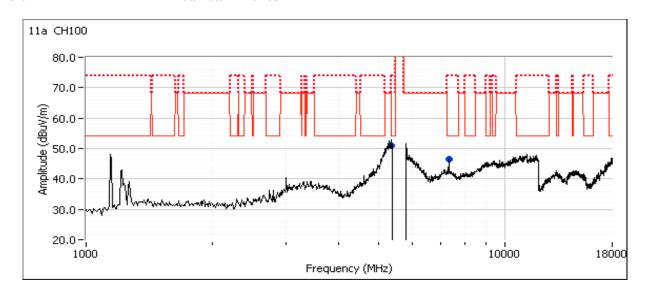
Client:	ARRIS	Job Number:	JD102271
Model	BGW210-700	T-Log Number:	T102846
iviouei.	BGW210-700	Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B, 15.247, 15.407	Class:	N/A

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

Date of Test: 10/4/2016 Test Engineer: John Caizzi, Kevin Wen Test Location: Fremont CH #7 Config. Used: 1 Config Change: None EUT Voltage: 120V/60Hz

Run #6a: Low Channel

Channel: 100 Mode: 11a Tx Chain: 4Tx Data Rate: 6Mbs



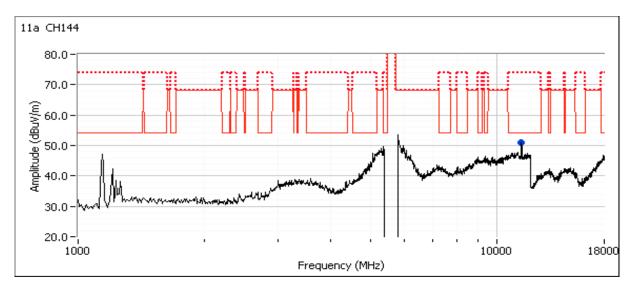
Frequency	Level	Pol	15.209) / 15E	Detector	Azimuth	Height	Comments
MHz	dBμV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
7333.400	44.4	Н	54.0	-9.6	Avg	171	1.2	RB 1 MHz, VB 3 kHz; note 3
7333.600	51.0	Н	74.0	-23.0	PK	171	1.2	RB 1 MHz, VB 3 MHz
5358.330	-	Н	-	-	Peak	157	1.5	measured at Band Edge



Client:	ARRIS	Job Number:	JD102271
Model	BGW210-700	T-Log Number:	T102846
iviodei.	BGW210-700	Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B, 15.247, 15.407	Class:	N/A

Run #6b: High Channel

Channel: 144 Mode: 11a
Tx Chain: 4Tx Data Rate: 6Mbs



Frequency	Level	Pol	15.209	9 / 15E	Detector	Azimuth	Height	Comments
MHz	dBμV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
11441.500	47.1	V	54.0	-6.9	Avg	126	2.5	RB 1 MHz, VB 3 kHz; note 3
11442.970	59.1	V	74.0	-14.9	PK	126	2.5	RB 1 MHz, VB 3 MHz



Client:	ARRIS	Job Number:	JD102271
Madalı	BGW210-700	T-Log Number:	T102846
iviouei.	BGW210-700	Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B, 15.247, 15.407	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

Summary of nesul				
Run #	Test Performed	Limit	Pass / Fail	Result / Margin
1	Power, 5250 - 5350MHz	15.407(a) (2)	Pass	a: 21.1dBm (129.8 mW) n20: 21.4dBm (137.3 mW) n40: 23.1dBm (203.2 mW)
1	PSD, 5250 - 5350MHz	15.407(a) (2)	Pass	a: 10.0 dBm/MHz n20: 10.0 dBm/MHz n40: 8.7 dBm/MHz
1	Max EIRP 5250 - 5350MHz	TPC required if EIRP≥ 500mW (27dBm). EIRP≥ 200mW (23dBm) DFS threshold = -64dBm.	Pass	EIRP = 24.0 dBm (250.0 mW)
1	26dB Bandwidth	15.407 (Information only)	-	> 20MHz for all modes
1	99% Bandwidth	RSS-247 (Information only)	N/A	a: 17.2 MHz n20: 18.2 MHz n40: 37.5 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: 23.2 °C Rel. Humidity: 41.5 %



Client:	ARRIS	Job Number:	JD102271
Madal	BGW210-700	T-Log Number:	T102846
iviodei.	BGW210-700	Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B, 15.247, 15.407	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)
11a	6Mbs	0.89	Yes	0.558	0.51	1.01	1792
n20	MSC0	0.99	Yes	4.96	0	0	10
n40	MCS0	0.97	Yes	2.408	0.11	0.22	415
ac80	VHT0	0.96	Yes	1.139	0.19	0.37	878

Sample Notes

Sample S/N: 184795206016480

Driver:



	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		
Client:	ARRIS	Job Number:	JD102271
Madalı	BGW210-700	T-Log Number:	T102846
iviouei.	BGW210-700	Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B, 15.247, 15.407	Class:	N/A

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

Date of Test: 10/6/2016 Config. Used: 1
Test Engineer: Rafael Varelas Config Change: None
Test Location: Fremont Lab 4A EUT Voltage: 120V/60Hz

Duty Cycle ≥ 98%. Output power measured using a spectrum analyzer (see plots below). RBW=1MHz, VB=3 MHz, Span > Note 1: OBW, # of points in sweep ≥ 2*span/RBW, auto sweep, **RMS** detector, power averaging on (transmitted signal was continuous, duty cycle ≥ 98%) and power integration over the OBW (method SA-1 of ANSI C63.10).

Note 2: Constant Duty Cycle < 98%. Output power measured using a spectrum analyzer (see plots below). RBW=1MHz, VB=3 MHz, Span > OBW, # of points in sweep \geq 2*span/RBW, RMS detector, trace average 100 traces, power averaging on and power integration over the OBW. Tthe measurements were adjusted for duty cycle. This is based on $10\log(1/x)$, where x is the duty cycle. (method SA-2 of ANSI C63.10)

Note 3: Measured using the same analyzer settings used for output power.

Note 4: 99% Bandwidth measured in accordance with C63.10 - RB between 1-5 % of OBW and VB ≥ 3*RB, Span between 1.5 and 5 times OBW.

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

Note 5:

Freq	I	Antenna Gaiı	n (dBi) / Chai	n	BF	MultiChain	CDD	Sectorized	Dir G	Dir G
	1	2	3	4	DI	Legacy	CDD	/ Xpol	(PWR)	(PSD)
5150-5250					No	Yes	Yes	No	0.90	6.50
5250-5350	Defer to an	tonna enoc i	n operationa	l description	No	Yes	Yes	No	0.90	6.90
5470-5725	Refer to antenna spec in operational description				No	Yes	Yes	No	1.10	7.10
5725-5825					No	Yes	Yes	No	0.80	6.50

Olimet	WE ENGINEER SUCCESS	lah Niveshaw	ID400074
Client:	ARRIS	Job Number:	
Model:	BGW210-700	T-Log Number:	
Comtont	Mark Diagon	Project Manager: Project Coordinator:	Irene Rademacher
	Mark Rieger	,	
Standard:	FCC 15.B, 15.247, 15.407	Class:	N/A
	IDE = hoomforming mode supported Multiphoin Laggey = 902.11 laggey	data ratas augnortad for mu	Itiahain transmissions
Notes:	BF = beamforming mode supported, Multichain Legacy = 802.11 legacy of CDD = Cyclic Delay Diversity (or Cyclic Shift Diversity) modes supported,		
	cross polarized. Dir G (PWR) = total gain (Gant + Array Gain) for power calculations; GA ((DCD) = total gain for DCD	aglaulations based on
Notes:	FCC KDB 662911. Depending on the modes supported, the Array Gain v	· ,	
110100.	value.	value for power could be all	
Notes:	Array gain for power/psd calculated per KDB 662911 D01.		
	For systems with Beamforming and CDD, choose one the following option		
	Option 1: Delays are optimized for beamforming, rather than being select calculated based on beamforming criteria.	ted from cyclic delay table of	of 802.11; Array gains
Notes:	Option 2: Antennas are paired for beamforming, and the pairs are config	ured to use the cyclic delay	diversity of 802.11: the
NULES.	array gain associated with beamforming with 2 antennas (3dB), and the a		



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Client:	ARRIS	Job Number:	JD102271
Madalı	BGW210-700	T-Log Number:	T102846
iviouei.	BGW210-700	Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B, 15.247, 15.407	Class:	N/A

MIMO Device - 5250-5350 MHz Band - FCC

Mode:	11a		Max EIRP (mW): 159.7							
Frequency	Chain	Software	26dB BW	Duty Cycle	Power ²	Total F	Power ⁵	FCC Limit	Max Power	Result
(MHz)	Onam	Setting	(MHz)	%	dBm	mW	dBm	dBm	(W)	Nesuit
	1				14.2					
5260	3	17	23.6	89	14.7	129.8	21.1	24.0		Pass
3200	4	17	25.0	03	14.9	123.0	21.1	24.0		1 033
	2				14.6					
	1				13.9					
5300	3	16	23.7	89	14.3	114.3	20.6	24.0	0.130	Pass
3300	4	10	20.1	03	14.1	114.5	20.0	24.0	0.130	1 033
	2				13.9					
	1				14.0					
5320	3	16	23.2	89	14.1	112.9	20.5	24.0		Pass
3320	4	10	20.2		13.8	112.3	20.0	24.0		1 433
	2				14.1					

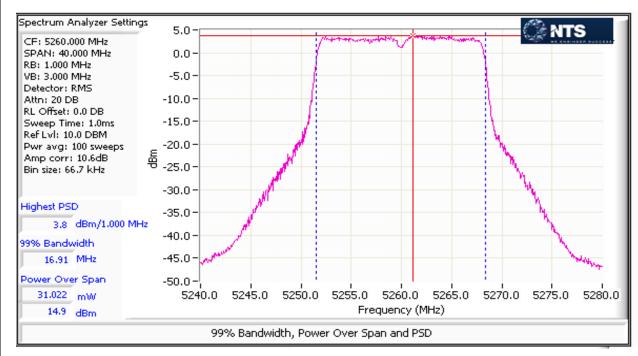
5250-5350 PSD - FCC/IC Mode: 11a

Mode:	11a									
Frequency	Chain	Software	99% BW ⁴	Duty Cycle	PSD^3	Total	PSD ⁵	FCC Limit	IC Limit	Result
(MHz)	Onam	Setting	(MHz)	%	dBm/MHz	mW/MHz	dBm/MHz	dBm/	MHz	rtosuit
	1				3.3					
5260	3	17	89	3.5	10.1	10.0	10.1	11.0	Pass	
3200	4	17		09	3.8	10.1	10.0	10.1	11.0	1 033
	2				3.4					
	1				2.6					
5300	3	16		89	3.3	9.0	9.5	10.1	11.0	Pass
3300	4	10		03	3.2	3.0	3.5	10.1	11.0	1 033
	2				2.9					
	1				2.9					
5320	3	16		89	3.1	8.8	9.4	10.1 11.0	Pass	
3320	4	10		09	2.7	0.0	J. 4	10.1	11.0	1 055
	2				3.0					



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Client:	ARRIS	Job Number:	JD102271
Model	BGW210-700	T-Log Number:	T102846
iviodei.	BGW210-700	Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B, 15.247, 15.407	Class:	N/A

MIMO Device - 5250-5350 MHz Band





	CONTROL OF THE CONTRO		
Client:	ARRIS	Job Number:	JD102271
Madalı	BGW210-700	T-Log Number:	T102846
Model.	BGW210-700	Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B, 15.247, 15.407	Class:	N/A

MIMO Device - 5250-5350 MHz Band - FCC

Mode:	n20		Max EIRP (mW): 168.9							
Frequency	Chain	Software	26dB BW	Duty Cycle	Power ¹	Total F	Power ⁵	FCC Limit	Max Power	Result
(MHz)	Chain	Setting	(MHz)	%	dBm	mW	dBm	dBm	(W)	Nesuit
	1			99	14.7		21.0		0.137	
5260	5260 3 17	17	24.3		15.2	125.9		24.0		Pass
3200	4	17	24.5		15.2					1 033
	2				14.8					
	1			99	15.4	137.3	21.4	24.0		
5300	3	17	26.5		15.0					Pass
3300	4	17	20.5		15.7					
	2				15.3					
	1				15.1					
5320	3	17	23.5	99	15.7	136.5	21.4	24.0		Pass
0020	4	17			15.2					
	2				15.3					

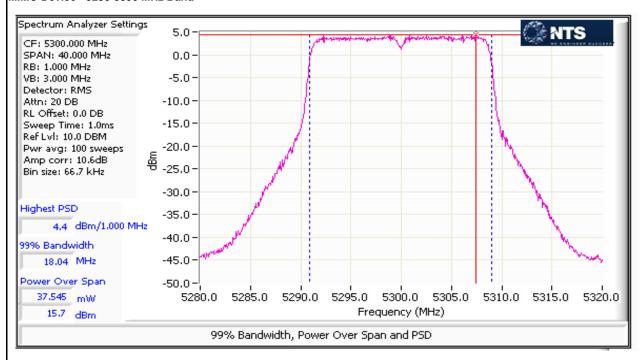
5250-5350 PSD - FCC/IC

Mode:	n20									
Frequency	Chain	Software	99% BW ⁴	Duty Cycle	PSD ³	Total	PSD ⁵	FCC Limit	IC Limit	Result
(MHz)	Onam	Setting	(MHz)	%	dBm/MHz	mW/MHz	dBm/MHz	dBm	MHz	103011
	1				3.4					
5260	3	17		99	3.6	9.0	9.5	10.1	11.0	Pass
3200	4	17			3.7	5.0	3.0	10.1	11.0	1 433
	2				3.3					
	1				4.0					
5300	3	17		99	3.6	10.1	10.0	10.1	11.0	Pass
0000	4	17		33	4.4	10.1	10.0	10.1	11.0	1 033
	2				4.0					
	1				3.7					
5320	3	17		99	4.3	9.8	9.9	10.1	11.0	Pass
0020	4	17		33	3.7	9.0	9.9	10.1	11.0	1 433
	2				3.8					



	The state of the s		
Client:	ARRIS	Job Number:	JD102271
Madal	BGW210-700	T-Log Number:	T102846
Model.	BGW210-700	Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B, 15.247, 15.407	Class:	N/A

MIMO Device - 5250-5350 MHz Band





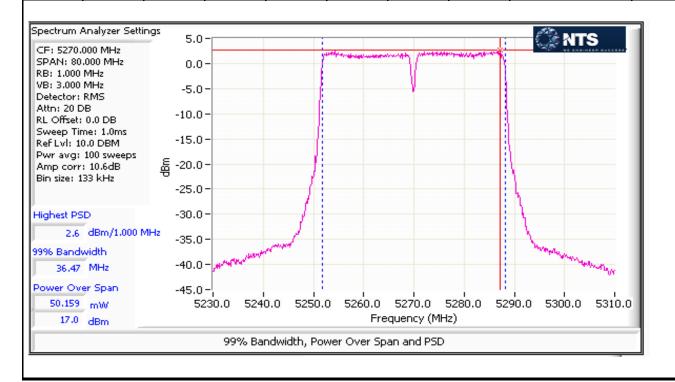
	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		
Client:	ARRIS	Job Number:	JD102271
Model:	BGW210-700	T-Log Number:	T102846
iviouei.	BGW210-700	Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B, 15.247, 15.407	Class:	N/A

MIMO Device - 5250-5350 MHz Band - FCC

Mode:	n40						Max	EIRP (mW):	250.0	
Frequency Chain		Software	26dB BW	Duty Cycle	Power ²	Total F	Power ⁵	FCC Limit	Max Power	Result
(MHz)	Cilalii	Setting	(MHz)	%	dBm	mW	dBm	dBm	(W)	Nesuit
	1	19	19 64.7	97	16.9	203.2	23.1	24.0	0.203	Pass
5270	3				16.8					
3210	4	19	04.7	31	17.0	203.2	23.1	24.0	0.203	1 033
	2				17.0					

MIMO Device 5250-5350 PSD - FCC/IC

Mode:	n40										
Frequency	Chain	Software	99% BW ⁴	Duty Cycle	PSD ³	Total	PSD ⁵	FCC Limit	IC Limit	Result	
(MHz)	Chain	Setting	(MHz)	%	dBm/MHz	mW/MHz	dBm/MHz	dBm	/MHz	Nesuit	
	1				2.6						
5270	3	19		97	2.5	7.4	8.7	10.1	11.0	Pass	
3210	4	13		31	2.5	7.4	0.7	10.1	11.0	1 055	
	2				26						





	Section (which emissions as a factor of the section		
Client:	ARRIS	Job Number:	JD102271
Model	BGW210-700	T-Log Number:	T102846
Model.	BGW210-700	Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B, 15.247, 15.407	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: 21.4dBm (137.3mW) n40: 22.4dBm (175.3mW)
1	PSD, 5250 - 5350MHz	15.407(a) (2)	Pass	n20: 10.0 dBm/MHz n40: 8.4dBm/MHz
1	Max EIRP 5250 - 5350MHz	TPC required if EIRP≥ 500mW (27dBm). EIRP ≥ 200mW (23dBm) DFS threshold = -64dBm.	Pass	EIRP = 29.3dBm (858.6 mW)
1	26dB Bandwidth	15.407 (Information only)	-	> 20MHz for all modes
1	99% Bandwidth	RSS-247 (Information only)	N/A	n20: 18.1 MHz n40: 37.0 MHz ac80: 75.4 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: 23.0 $^{\circ}$ C Rel. Humidity: 45.5 $^{\circ}$



Client:	ARRIS	Job Number:	JD102271
Model:	BGW210-700	T-Log Number:	T102846
iviouei.	BGW210-700	Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B, 15.247, 15.407	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)
11a	6Mbs	0.89	Yes	0.558	0.51	1.01	1792
n20	MSC0	0.99	Yes	4.96	0	0	10
n40	MCS0	0.97	Yes	2.408	0.11	0.22	415
ac80	VHT0	0.96	Yes	1.139	0.19	0.37	878

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

Sample Notes

Sample S/N: 184795206016480

Driver:

	NTS VE ENGINEER SUCCESS	EMO	C Test Data
Client:	ARRIS	Job Number:	JD102271
	DOMO40 700	T-Log Number:	T102846
Model:	BGW210-700	Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B, 15.247, 15.407	Class:	
] Te	ndwidth, Output Power and Power Spectral Density - MIMO Systems Date of Test: 10/11/2016 & 11/3/2016 Config. Used: st Engineer: Rafael Varelas Config Change: est Location: Fremont Lab 4A EUT Voltage:	None	
Note 1:	Duty Cycle \geq 98%. Output power measured using a spectrum analyzer (see OBW, # of points in sweep \geq 2*span/RBW, auto sweep, RMS detector, pow continuous, duty cycle \geq 98%) and power integration over the OBW (method	ver averaging on (transmit SA-1 of ANSI C63.10).	tted signal was
Note 2:	Constant Duty Cycle < 98%. Output power measured using a spectrum and Span > OBW, # of points in sweep ≥ 2*span/RBW, RMS detector, trace ave integration over the OBW. Tthe measurements were adjusted for duty cycle cycle. (method SA-2 of ANSI C63.10)	rage 100 traces, power a	veraging on and power
Note 3:	Measured using the same analyzer settings used for output power.		
Note 4:	99% Bandwidth measured in accordance with C63.10 - RB between 1-5 % of times OBW.	of OBW and VB ≥ 3*RB, \$	Span between 1.5 and 5
Note 5:	For MIMO systems the total output power and total PSD are calculated from (in linear terms). The antenna gain used to determine the EIRP and limits for mode of the MIMO device. If the signals on the non-coherent between the the limits is the highest gain of the individual chains and the EIRP is the sum chain. If the signals are coherent then the effective antenna gain is the sum the EIRP is the product of the effective gain and total power.	or PSD/Output power depransmit chains then the nof the products of gain a	pends on the operating gain used to determine and power on each

	WE ENGINEER SUCCESS				EMO	C Test	Data	
Client:	: ARRIS				Job Number:	JD102271		
				T-Log Number: T102846				
Modei:	: BGW210-700			Project Manager: Irene Rademacher				
Contact:	:: Mark Rieger	-		Projec	t Coordinator:	-		
	: FCC 15.B, 15.247, 15.407			·	Class:	N/A		
∆ntenna G	Gain Information							
Freq	Antenna Gain (dBi) / Chain	BF	MultiChain	CDD	Sectorized / Ynol	Dir G	Dir G (PSD)	
:=3.7050			Legacy		/ Xpol	(PWR)		
5150-5250]	Yes	Yes	Yes	No	6.50	6.50	
5250-5350	Refer to antenna spec in operational description -	Yes	Yes	Yes	No	6.90	6.90	
5470-5725	· · · ·	Yes	Yes	Yes	No	7.10	7.10	
5725-5825]	Yes	Yes	Yes	No	6.50	6.50	
	Min # of spatial streams: 1 Max # of spatial streams: 4	2005						
Notes:	BF = beamforming mode supported, Multichain Leg CDD = Cyclic Delay Diversity (or Cyclic Shift Divers cross polarized.	sity) modes	s supported, Se	ectorized / 2	Xpol = antenna	as are sector	rized or	
Notes:	Dir G (PWR) = total gain (Gant + Array Gain) for portion of FCC KDB 662911. Depending on the modes supporalue.	oorted, the A		,	•			
Notes:								
	value. Array gain for power/psd calculated per KDB 662911 D01. 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							



Client:	ARRIS	Job Number:	JD102271
Model:	BGW210-700	T-Log Number:	T102846
iviodei.	DGW210-700	Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B, 15.247, 15.407	Class:	N/A

MIMO Device - 5250-5350 MHz Band - FCC

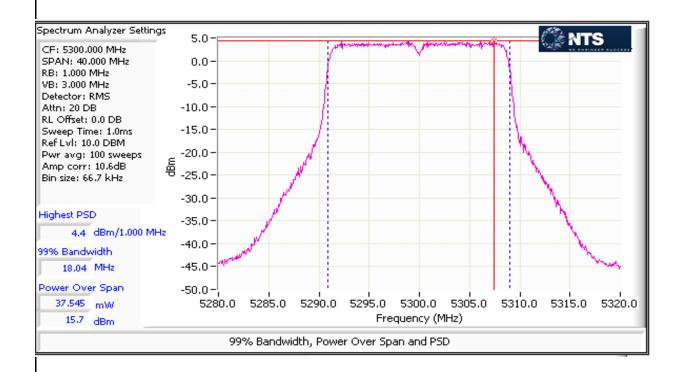
Mode:	n20						Max	EIRP (mW):	672.5	
Frequency	Chain	Software	26dB BW	Duty Cycle	Power	Total F	Power ¹	FCC Limit	Max Power	Result
(MHz)	Chain	Setting	(MHz)	%	dBm	mW	dBm	dBm	(W)	Nesuit
5260	1				14.7					
	3	17	24.3	99	15.2	125.9	21.0	23.1		Pass
	4	17		99	15.2	15.2 14.8		23.1	0.137	1 033
	2				14.8					
	1		26.5		15.4	137.3	21.4	23.1		
5300	3	17		99	15.0					Pass
3300	4	17	20.0	33	15.7	107.0	21.7	20.1	0.107	1 433
	2				15.3					
	1				15.1					
5320	3	17	23.5	99	15.7	136.5	21.4	23.1		Pass
0020	4	17	20.0		15.2	100.0	£1.T	20.1		1 433
	2				15.3					

5250-5350 PSD - FCC/IC

Mode:	n20									
Frequency	Chain	Software	99% BW	Duty Cycle	PSD	Total	PSD ¹	FCC Limit	IC Limit	Result
(MHz)	Onam	Setting	(MHz)	%	dBm/MHz	mW/MHz	dBm/MHz	dBm	MHz	Nesuit
	1				3.4					
5260	3	17		99	3.6	9.0	9.5	10.1	11.0	Pass
3200	4	17		33	3.7	3.0	3.5	10.1	11.0	1 055
	2				3.3					
	1				4.0					
5300	3	17		99	3.6	10.1	10.0	10.1	11.0	Pass
3300	4	17		33	4.4	10.1	10.0	10.1	11.0	1 055
	2				4.0					
	1				3.7					
5320	3	17		99	4.3	9.8	9.9	10.1	11.0	Pass
5520	4	17		33	3.7	9.0	3.3	10.1	11.0	1 033
	2				3.8					



- V	VE ENGINEER SUCCESS		
Client:	ARRIS	Job Number:	JD102271
Model:	BGW210-700	T-Log Number:	T102846
iviouei.	BGW210-700	Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B, 15.247, 15.407	Class:	N/A





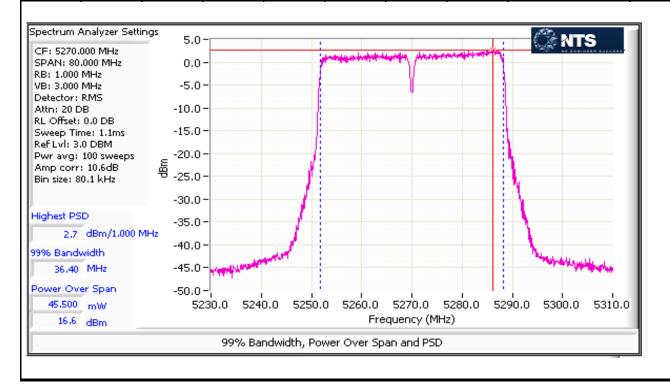
	CONTROL WILLIAM DESCRIPTION OF THE PROPERTY OF		
Client:	ARRIS	Job Number:	JD102271
Model:	BGW210-700	T-Log Number:	T102846
Model.	BGW210-700	Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B, 15.247, 15.407	Class:	N/A

MIMO Device - 5250-5350 MHz Band - FCC

Mode:	n40						Max	EIRP (mW):	858.6	
Frequency	Chain	Software	26dB BW	Duty Cycle	Power	Total F	Power ¹	FCC Limit	Max Power	Result
(MHz)	Onam	Setting	(MHz)	%	dBm	mW	dBm	dBm	(W)	Nesuit
	1				15.9					
5270	3	18	44.2	97	16.6	175.3	22.4	23.1	0.175	Pass
3270	4	10	44.2	31	16.5	175.5	22.4	23.1	0.175	F a 5 5
	2				16.1					

MIMO Device 5250-5350 PSD - FCC/IC

Mode:	n40									
Frequency	Chain	Software	99% BW	Duty Cycle	PSD	Total	PSD ¹	FCC Limit	IC Limit	Result
(MHz)	Chain	Setting	(MHz)	%	dBm/MHz	mW/MHz	dBm/MHz	dBm	/MHz	Nesuit
	1				1.9					
5270	3	18		97	2.7	6.9	8.4	10.1	11.0	Pass
3270	4	10		31	2.3	0.9	0.4	10.1	11.0	F 455
	2				2.1					





Client:	ARRIS	Job Number:	JD102271
Model:	BGW210-700	T-Log Number:	T102846
iviodei.	DGVV210-700	Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B, 15.247, 15.407	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	11a: 20.5dBm (112.2mW) n20: 20.5dBm (112.3 mW) n40: 23.8dBm (238.9 mW) ac80: 23.7dBm (234.6 mW)
1	PSD, 5470 - 5725MHz	15.407(a) (2)	Pass	11a: 9.9 dBm/MHz n20: 9.5 dBm/MHz n40: 9.6 dBm/MHz ac80: 7.3 dBm/MHz
1	Max EIRP 5470 - 5725MHz	TPC required if EIRP≥ 500mW (27dBm). EIRP ≥ 200mW (23dBm) DFS threshold	Pass	EIRP = 24.9 dBm (307.8 mW)
1	26dB Bandwidth	15.407 (Information only)	-	> 20MHz for all modes
1	99% Bandwidth	RSS-247 (Information only)	N/A	n20: 18.1 MHz n40: 37.2 MHz ac80: 75.4 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: 23.5 °C Rel. Humidity: 44.7 %



Client:	ARRIS	Job Number:	JD102271
Model:	BGW210-700	T-Log Number:	T102846
iviouei.	BGW210-700	Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B, 15.247, 15.407	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)
11a	6Mbs	0.89	Yes	0.558	0.51	1.01	1792
n20	MSC0	0.99	Yes	4.96	0	0	10
n40	MCS0	0.97	Yes	2.408	0.11	0.22	415
ac80	VHT0	0.96	Yes	1.139	0.19	0.37	878

Sample Notes

Sample S/N: 184795206016480

Driver:

	NTS VE ENGINEER SUCCESS	EMO	C Test Data
Client:	ARRIS	Job Number:	JD102271
Madali	DOMO40 700	T-Log Number:	T102846
Modei.	BGW210-700	Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B, 15.247, 15.407	Class:	N/A
Note 1:	Duty Cycle ≥ 98%. Output power measured using a spectrum analyzer (see OBW, # of points in sweep ≥ 2*span/RBW, auto sweep, RMS detector, power than the company of the cycle	ver averaging on (transm	•
Note 2:	continuous, duty cycle \geq 98%) and power integration over the OBW (method Constant Duty Cycle < 98%. Output power measured using a spectrum and Span > OBW, # of points in sweep \geq 2*span/RBW, RMS detector, trace ave integration over the OBW. Tthe measurements were adjusted for duty cycle cycle. (method SA-2 of ANSI C63.10)	alyzer (see plots below). Ferage 100 traces, power a e. This is based on 10log	everaging on and power $(1/x)$, where x is the dut
Note 3:	99% Bandwidth measured in accordance with C63.10 - RB between 1-5 $%$ times OBW.		
Note 4:	For MIMO systems the total output power and total PSD are calculated from (in linear terms). The antenna gain used to determine the EIRP and limits for mode of the MIMO device. If the signals on the non-coherent between the the limits is the highest gain of the individual chains and the EIRP is the sun chain. If the signals are coherent then the effective antenna gain is the sum the EIRP is the product of the effective gain and total power.	or PSD/Output power dep transmit chains then the n of the products of gain a	pends on the operating gain used to determine and power on each

	NE ENGINEER SUCCESS				EMO	C Test	Data '
Client:	ARRIS				Job Number:	JD102271	
Madal	2014040 700			T-	Log Number:	T102846	
Modei:	BGW210-700			Proj	ect Manager:	Irene Rader	nacher
Contact:	Mark Rieger			Projec	t Coordinator:	-	
Standard:	FCC 15.B, 15.247, 15.407				Class:	N/A	
Antenna Ga	ain Information						
	Antenna Gain (dBi) / Chain	BF	MultiChain	CDD	Sectorized	Dir G	Dir G
Freq	1 2 3 4	ВΓ	Legacy	CDD	/ Xpol	(PWR)	(PSD)
5150-5250		No	Yes	Yes	No	0.90	6.50
5250-5350	Refer to antenna spec in operational description	No	Yes	Yes	No	0.90	6.90
5470-5725	There to antonna spoot in operational accompact.	No	Yes	Yes	No	1.10	7.10
5725-5825		No	Yes	Yes	No	0.80	6.50
I	s that support CDD modes Min # of spatial streams: 1 Max # of spatial streams: 4	2000					
Notes:	BF = beamforming mode supported, Multichain Leg CDD = Cyclic Delay Diversity (or Cyclic Shift Divers cross polarized.	sity) modes	s supported, Se	ectorized / 2	Xpol = antenn	as are secto	rized or
Notes:	Dir G (PWR) = total gain (Gant + Array Gain) for portion FCC KDB 662911. Depending on the modes supportion.			,	•		
Notes:	Array gain for power/psd calculated per KDB 6629°						
Notes:	For systems with Beamforming and CDD, choose of Option 1: Delays are optimized for beamforming, realculated based on beamforming criteria.	ather than		•	•		

Notes:

(3dB for PSD and 0 dB for power)

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

	NTS WE ENGINEER	RSUCCESS						ЕМ	C Test	Data
Client:	: ARRIS						,	Job Number:	JD102271	
Model	DOMO10 70	10	-	_			T-l	Log Number:	T102846	-
Mouei.	: BGW210-70	0				ſ	Proj€	ect Manager:	Irene Radem	nacher
Contact:	: Mark Rieger	ſ						Coordinator:		
	: FCC 15.B, 1)7				-	Class:		
•		30 10.D, 10.ETI, 10.T01								
MIMO Devi	ice - 5470-572	25 MHz Ban	d - FCC							
Mode:		-					Max	EIRP (mW):	144.5	
Frequency		Software	26dB BW	Duty Cycle	Power	Total F			Max Power	Decult
(MHz)	Chain	Setting	(MHz)	%	dBm	mW	dBm	dBm	(W)	Result
,	1		·		14.0					·
5500	3	17	23.7	89	14.0	110.4	20.4	24.0		Pass
0000	4	1 " '			14.0	1.0	20	21.0		1 400
'	2	<u> </u>	 '	\longmapsto	13.6		<u> </u>	ļ		
,	1	1	1	}	14.0		1	!		
5580	<u>3</u>	17	23.7	89	14.1 13.8	109.2	20.4	24.0		Pass
,	2	1 '	1	1	13.5		1			
	1	$\overline{}$			14.1				0.112	
5700	3	1 47	00.7	00	14.5	140.0	00 E	04.0		D
5700	4	17	23.7	89	13.2	112.2	20.5	24.0		Pass
 	2	l!	l'		14.0	l	l			l
,	1	'	<u> </u>		12.1]	
5720	3	16	17.2	89	12.5	73.5	18.7	23.4		Pass
0,20	4	ı ' '	' '		11.7	, 5.5	10	20		1 465
	2	<u> </u>	<u> </u>		12.2	<u> </u>				

Portion within	5725-5850	MHz band	(UNII-3)	
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			(/							
	1				6.3					
5720	3	16		89	6.8	19.2	12.8	30.0	0.0192	Pass
3720	4	10		09	5.3	13.2	12.0	30.0	0.0192	F a 5 5
	2				6.7					ĺ

		NTS
(Client:	ARRIS
N	Model:	BGW210-700

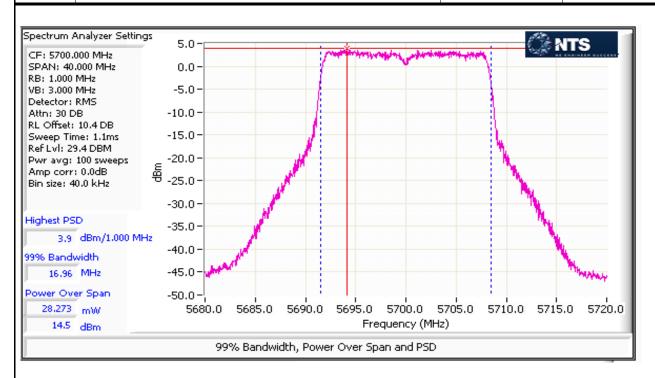
Client:	ARRIS	Job Number:	JD102271
Model:	BGW210-700	T-Log Number:	T102846
Model.	BGW210-700	Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B, 15.247, 15.407	Class:	N/A

5470-5725 PSD - FCC/IC Mode: 11a

Mode:	11a									
Frequency	Chain	Software	99% BW	Duty Cycle	PSD	Total	PSD ¹	FCC Limit	IC limit	Result
(MHz)	Onam	Setting	(MHz)	%	dBm/MHz	mW/MHz	dBm/MHz	dBm	/MHz	Nesuit
	1				3.6					
5500	3	17		89	3.5	9.7	9.9	9.9	11.0	Pass
0000	4	.,			3.5	0.1	0.0	0.0	11.0	1 400
	2				2.8					
	1				3.4					
5580	3	17		89	3.5	9.5	9.8	9.9	11.0	Pass
	4	• • •			3.3	0.0	0.0	0.0	11.0	1 400
	2				2.7					
	1				3.7					
5700	3	17		89	3.9	9.7	9.9	9.9	11.0	Pass
	4				2.5	•	0.0	0.0	•	. 466
	2				3.2					
	1				2.9					
5720	3	16		89	2.6	7.9	9.0	9.9	11.0	Pass
	4				2.0					
	2				2.3					
Portion with	nin 5725-585	i0 MHz band	l (UNII-3)							
	1				2.5					
5720	3	16		89	3.2	8.1	9.1	28.9	28.9	Pass
3120	4	10		09	1.7	0.1	J. I	20.5	20.3	газэ
	2				2.8					



	CONTROL OF THE CONTRO		
Client:	ARRIS	Job Number:	JD102271
Model	BGW210-700	T-Log Number:	T102846
Model.	BGW210-700	Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B, 15.247, 15.407	Class:	N/A



	NTS VE ENGINEER	SUCCESS						EM	C Test	Data
Client:	ARRIS							Job Number:	JD102271	
Madal	DOMO40 70	.0					T-	Log Number:	T102846	
Model:	BGW210-70	U					Proj	ect Manager:	Irene Raden	nacher
Contact:	Mark Rieger						Project	Coordinator:	-	
Standard:	FCC 15.B, 1	5.247, 15.40)7					Class:		
MIMO Device Mode: Frequency	ce - 5470-572 n20	Software	d - FCC 26dB BW	Duty Cycle	Power	Total	Max Power	EIRP (mW):		
(MHz)	Chain	Setting	(MHz)	%	dBm	mW	dBm	dBm	(W)	Result
, ,	1			, ,	14.6				. ,	
5500	3	17	23.8	99	14.8	112.3	20.5	24.0		Pass
0000	4		20.0		14.3	112.0	20.0	2		. 400
	2				14.2 14.0			+		
	3				14.8					_
5580	4	17	23.8	99	14.4	109.2	20.4	24.0		Pass
	2				14.2				0.112	
	1				14.2				0.112	
5700	3 4	17	23.4	99	14.7 13.7	108.1	20.3	24.0		Pass
	2				14.6					
	1				13.2					
					13.6	83.0	19.2	24.0		Pass
5720	3	17	25	ı qu i						
5720	3 4 2	17	25	99	12.5 13.3	03.0	19.2	24.0		1 055

Portion within	5725-5850 MHz b	and (UNII-3)
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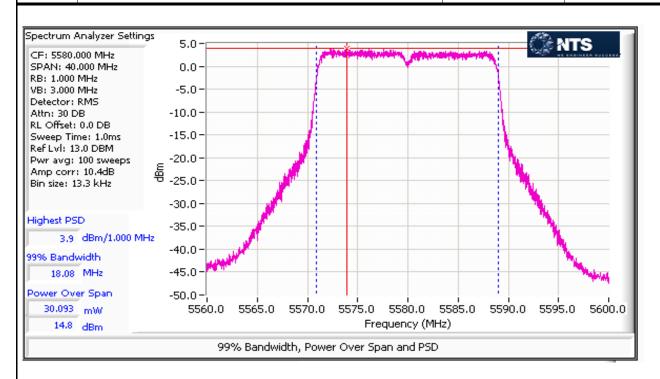
	1			7.5					
5720	3	17	99	8.0	22.2	12.7	30.0	0.0233	Daga
3720	4	17	99	6.9	23.3	13.7	30.0	0.0233	Pass
	2			8.1					

	NTS VE ENGINEER SUCCESS	EMC Test Dat
Client:	ARRIS	Job Number: JD102271
Madali	DCM240 700	T-Log Number: T102846
Model	BGW210-700	Project Manager: Irene Rademacher
Contact:	Mark Rieger	Project Coordinator: -
Standard:	FCC 15.B, 15.247, 15.407	Class: N/A
470-5725 I Mode:	PSD - FCC/IC	

Mode:	n20									
Frequency	Chain	Software	99% BW	Duty Cycle	PSD	Total	PSD ¹	FCC Limit	IC limit	Result
(MHz)	Chain	Setting	(MHz)	%	dBm/MHz	mW/MHz	dBm/MHz	dBm	MHz	Nesuit
	1				3.5					
5500	3	17		99	4.0	9.0	9.5	9.9	11.0	Pass
0000	4	17		3.3	5.0	0.0	0.0	11.0	1 033	
	2				3.3					
	1			L	3.1					
5580	3	17		99	3.9	9.0	9.5	9.9	11.0	Pass
	4				3.5		0.0	0.0	11.0	1 400
	2				3.5					
	1				3.5					
5700	3	17		99	3.9	8.8	9.4	9.9	11.0	Pass
	4				2.6					
	2				3.6					
	1				3.5					
5720	3	17		99	3.9	8.9	9.5	9.9	11.0	Pass
	2				2.5 3.9					
	Z				3.9					
Portion with	nin 5725-585	0 MHz band	l (UNII-3)							
	1				2.9					
5720	3	17		99	3.5	8.3	9.2	28.9	28.9	Pass
3120	4	17		33	2.3	0.5	J.Z	20.0	20.3	1 000
	2				3.8					



Client:	ARRIS	Job Number:	JD102271
Model	BGW210-700	T-Log Number:	T102846
Model.	BGW210-700	Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B, 15.247, 15.407	Class:	N/A



	NTS	SUCCESS						EM	C Test	Data
Client:	ARRIS							Job Number:	JD102271	
Madalı	BGW210-70	10					T-	Log Number:	T102846	
woder.	BGW210-70	10					Proj	ect Manager:	Irene Raden	nacher
Contact:	Mark Rieger	•					Project	Coordinator:	-	
Standard:	FCC 15.B, 1	5.247, 15.40)7				-	Class:	N/A	
Mode: Frequency		Software	26dB BW	Duty Cycle	D2	T-4-1 F		EIRP (mW):	307.8 Max Power	
Frequency	Ol i	Software	26dB BW	Duty Cyclo	D2	T-4-1 F				
	Chain				Power ²	Total F	rower			Result
(MHz)	Chain	Setting	(MHz)	%	dBm	mW	dBm	dBm	(W)	Result
(MHz)	1				dBm 17.8	1	i			Result
(MHz) 5550	1 3				dBm 17.8 17.8	1	i			Result Pass
,	1 3 4	Setting	(MHz)	%	dBm 17.8 17.8 17.4	mW	dBm	dBm		
,	1 3	Setting	(MHz)	%	dBm 17.8 17.8	mW	dBm	dBm		
5550	1 3 4 2 1 3	Setting 20	(MHz) 45.2	97	dBm 17.8 17.8 17.4 17.5 17.6	mW 238.9	dBm 23.8	24.0	(W)	Pass
,	1 3 4 2 1 3 4	Setting	(MHz)	%	dBm 17.8 17.8 17.4 17.5 17.6 17.7	mW	dBm	dBm		
5550	1 3 4 2 1 3 4 2	Setting 20	(MHz) 45.2	97	dBm 17.8 17.8 17.4 17.5 17.6 17.7 17.2	mW 238.9	dBm 23.8	24.0	(W)	Pass
5550	1 3 4 2 1 3 4 2	Setting 20 20	(MHz) 45.2	97	dBm 17.8 17.8 17.4 17.5 17.6 17.7 17.2 17.2	mW 238.9	dBm 23.8	24.0	(W)	Pass
5550	1 3 4 2 1 3 4 2	Setting 20	(MHz) 45.2	97	dBm 17.8 17.8 17.4 17.5 17.6 17.7 17.2	mW 238.9	dBm 23.8	24.0	(W)	Pass

9.6 10.3 9.0

10.6

40.5

16.1

97

3

2

19

5710

0.0405

Pass

30.0

	NTS	SUCCESS						EMO	C Test	Data
Client:	ARRIS						,	Job Number:	JD102271	
Model	BGW210-70	10					T-L	og Number:	T102846	
MOUEI.	BGVVZ IU-7U	U					Proje	ect Manager:	Irene Raden	nacher
Contact:	Mark Rieger	,					Project	Coordinator:	-	
Standard:	FCC 15.B, 1	5.247, 15.40	7					Class:	N/A	
IIMO Devid	ce 5470-5725	5 PSD - FCC	/IC							
Mode: Frequency		Software	99% BW	Duty Cycle	PSD		PSD ⁴	FCC Limit	IC limit	Result
Mode:	n40			Duty Cycle %	dBm/MHz	Total mW/MHz	PSD ⁴ dBm/MHz		IC limit /MHz	Result
Mode: Frequency	n40 Chain 1 3	Software	99% BW		3.7 3.6					Result Pass
Mode: Frequency (MHz)	n40 Chain	Software Setting	99% BW	%	dBm/MHz 3.7	mW/MHz	dBm/MHz	dBm	/MHz	
Mode: Frequency (MHz)	n40 Chain 1 3 4	Software Setting	99% BW	%	3.7 3.6 3.3 3.2 3.7	mW/MHz	dBm/MHz	dBm	/MHz	
Mode: -requency (MHz)	n40 Chain 1 3 4 2 1 3 3	Software Setting 20	99% BW	%	3.7 3.6 3.3 3.2 3.7 3.8	mW/MHz 9.1	dBm/MHz 9.6	dBm,	/MHz	
Mode: Frequency (MHz)	n40 Chain 1 3 4 2 1	Software Setting	99% BW	%	3.7 3.6 3.3 3.2 3.7	mW/MHz	dBm/MHz	dBm	/MHz	
Mode: Juency Hz)	n40 Chain 1 3 4 2 1	Software Setting	99% BW	97	3.7 3.6 3.3 3.2 3.7	mW/MHz	dBm/MHz	dBm	MHz 11.0	Pass

Portion within 5	5725-5850 MHz	band (UNII-3)
------------------	---------------	---------------

19

3

2

5710

	07 <u>20</u> 000	o mile balle	. (O.t.: 0)							
	1				5.7				28.9	Daga
5710	3	10		97	6.3	16.2	10 1	28.9		
37 10	4	19		91	5.3	10.2	12.1	20.9	20.9	Pass
	2				6.4					

3.3 1.9

2.8

97

7.7

8.9

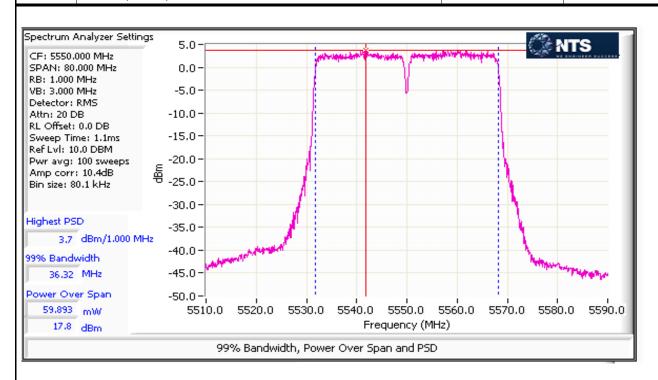
9.9

11.0

Pass



Client:	ARRIS	Job Number:	JD102271
Model	BGW210-700	T-Log Number:	T102846
Model.	BGW210-700	Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B, 15.247, 15.407	Class:	N/A

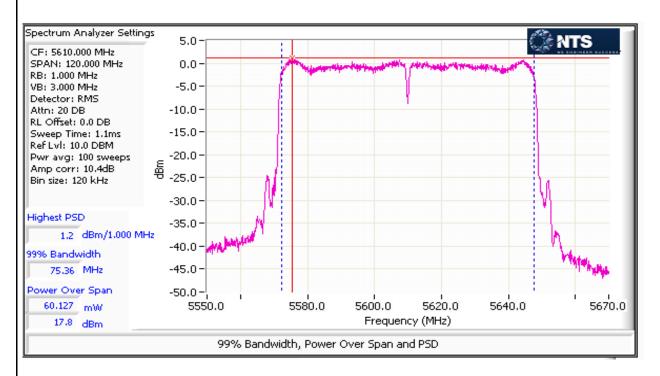


	NTS WE ENGINEER	SUCCESS							C Test	Data
Client:	ARRIS							Job Number:		
Model:	BGW210-70	0						og Number:		
							Project Manager: Irene Rademacher			
	Mark Rieger						Project	Coordinator:	-	
Standard:	FCC 15.B, 1	5.247, 15.40)7					Class:	N/A	
	ce - 5470-57	25 MHz Ban	d - FCC					FIDD (MA)	000.0	
Mode:	ac80	Software	26dB BW	Duty Cyala	D 2	T-4-11		EIRP (mW):	302.2 Max Power	
Frequency (MHz)	Chain	Setting	(MHz)	Duty Cycle	Power ²		Power⁴ I dBm		(W)	Resul
(IVII IZ)	1	Setting	(1011 12)	%	dBm 17.6	mW	abm	dBm	(())	
	3				17.8					_
5610	4	20	83.003	96	17.2	234.6	23.7	24.0		Pass
	2				17.4				0.235	
	1				17.2				0.233	
5690	3	20	78.18	96	17.2	217.5	23.4	24.0		Pass
ŀ	2				17.0 17.3					
		O MI I= bond	1 /1 NIII 2\		17.5					
ortion with	hin 5725-585	ou winz band	i (UNII-3)		3.5					
	3				3.8					_
5690	4	20		96	96 4.0 10.5	10.5	10.5 10.2	30.0 0.0105	Pass	
	2				4.6					
Mode: requency	PSD - FCC/IC ac80 Chain	Software	99% BW	Duty Cycle	PSD	Total	PSD ⁴	FCC Limit		Resul
(MHz)		Setting	(MHz)	%	dBm/MHz	mW/MHz	dBm/MHz	dBm	/MHz	rtcou
(MHz)	1				0.8					
	3				1 1 2					
5610	3 4	20		96	1.2 0.7	5.2	7.2	9.9	-	Pass
5610	3 4 2	20		96	1.2 0.7 1.0	5.2	7.2	9.9	-	Pass
5610	4 2 1	20		96	0.7 1.0 1.3	5.2	7.2	9.9	-	Pass
	4 2 1 3				0.7 1.0 1.3 1.1				11.0	
5610 5690	4 2 1 3 4	20		96 96	0.7 1.0 1.3 1.1 0.9	5.2	7.2	9.9	11.0	
5690	4 2 1 3 4 2	20			0.7 1.0 1.3 1.1				11.0	
5690	4 2 1 3 4	20	i (UNII-3)		0.7 1.0 1.3 1.1 0.9 1.2				11.0	
5690	4 2 1 3 4 2 hin 5725-585	20	1 (UNII-3)	96	0.7 1.0 1.3 1.1 0.9 1.2				11.0	
5690	4 2 1 3 4 2	20	I (UNII-3)		0.7 1.0 1.3 1.1 0.9 1.2				11.0	Pass Pass Pass



Client:	ARRIS	Job Number:	JD102271
Model	BGW210-700	T-Log Number:	T102846
iviouei.	BGW210-700	Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B, 15.247, 15.407	Class:	N/A

MIMO Device - 5470-5725 MHz Band





Client:	ARRIS	Job Number:	JD102271
Madal	BGW210-700	T-Log Number:	T102846
Model.	BGW210-700	Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B, 15.247, 15.407	Class:	N/A

RSS-247 (LELAN) and FCC 15.407(UNII) Antenna Port Measurements Power, PSD, Bandwidth and Spurious Emissions

Test Specific Details

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

specification listed above.

Summary of Results

Run #	Test Performed	Limit	Pass / Fail	Result / Margin
1	Power, 5470 - 5725MHz	15.407(a) (2)	Pass	n20: 20.5dBm (112.3mW) n40: 22.6dBm (182.4mW) ac80: 21.7dBm (148.9mW)
1	PSD, 5470 - 5725MHz	15.407(a) (2)	Pass	n20: 9.5 dBm/MHz n40: 8.9 dBm/MHz ac80: 5.4 dBm/MHz
1	Max EIRP 5470 - 5725MHz	TPC required if EIRP≥ 500mW (27dBm). EIRP ≥ 200mW (23dBm) DFS threshold		EIRP = 29.7 dBm (935.5 mW)
1	26dB Bandwidth	15.407 (Information only)	-	> 20MHz for all modes
1	99% Bandwidth	RSS-247 (Information only)	N/A	n20: 18.1 MHz n40: 36.4 MHz ac80: 83.5 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: 22.9 °C Rel. Humidity: 40 %



	Security Sec		
Client:	ARRIS	Job Number:	JD102271
Madal	BGW210-700	T-Log Number:	T102846
Model.	BGW210-700	Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B, 15.247, 15.407	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)
11a	6Mbs	0.89	Yes	0.558	0.51	1.01	1792
n20	MSC0	0.99	Yes	4.96	0	0	10
n40	MCS0	0.97	Yes	2.408	0.11	0.22	415
ac80	VHT0	0.96	Yes	1.139	0.19	0.37	878

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

Sample Notes

Sample S/N: 184795206016480

Driver:



	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		
Client:	ARRIS	Job Number:	JD102271
Model:	BGW210-700	T-Log Number:	T102846
	BGW210-700	Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B, 15.247, 15.407	Class:	N/A

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

Date of Test: 10/12/2016 0:00 Config. Used: 1

Test Engineer: Kevin Wen Config Change: None

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

Duty Cycle ≥ 98%. Output power measured using a spectrum analyzer (see plots below). RBW=1MHz, VB=3 MHz, Span > Note 1: OBW, # of points in sweep ≥ 2*span/RBW, auto sweep, RMS detector, power averaging on (transmitted signal was continuous, duty cycle ≥ 98%) and power integration over the OBW (method SA-1 of ANSI C63.10).

Note 2: Constant 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, RMS detector, trace average 100 traces, power averaging on and power integration over the OBW. The measurements were adjusted by correcting 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: Measured using the same analyzer settings used for output power.

Note 4: 99% Bandwidth measured in accordance with C63.10 - RB between 1-5 % of OBW and VB ≥ 3*RB, Span between 1.5 and 5 times OBW.

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	1 1	Antenna Gai 2	in (dBi) / Cha	ain 4	BF	MultiChain Legacy	CDD	Sectorized / Xpol	Dir G (PWR)	Dir G (PSD)
5150-5250					Yes	Yes	Yes	No	6.50	6.50
5250-5350	Defer to an	tanna anaa	in operation	al description	Yes	Yes	Yes	No	6.90	6.90
5470-5725	Relei (0 ali	енна ѕрес	п орегацоп	ai description	Yes	Yes	Yes	No	7.10	7.10
5725-5825					Yes	Yes	Yes	No	6.50	6.50

For devices that support CDD modes

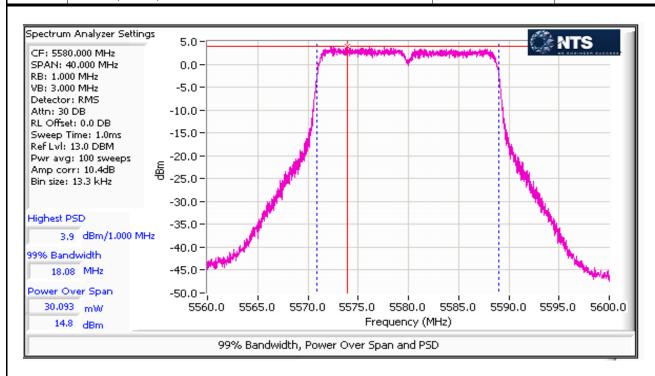
Min # of spatial streams: 1
Max # of spatial streams: 4

	NTS.	RSUCCESS						EM	C Test	Data
Client:	ARRIS			Job Number: JD102271						
Madali	DCM040 70	10		T-Log Number: T102846						
lviodei:	BGW210-70	10		Project Manager: Irene Rademacher						
Contact:	Mark Rieger	•		Project Coordinator: -						
Standard:	FCC 15.B, 1	5.247, 15.40)7					Class:	N/A	
MIMO Device - 5470-5725 MHz Band - FCC Mode: n20										
Frequency (MHz)	Chain	Software Setting	26dB BW (MHz)	Duty Cycle	Power		Power		Max Power (W)	Result
(IVITZ)	1	Setting	(IVITZ)	%	dBm 14.6	mW	dBm	dBm	(۷۷)	
5500	3	17	23.8	99	14.8	112.3	20.5	22.9		Pass
3300	4	17	23.0	99	14.3					
	2				14.2 14.0					
5580	3	17	23.8	99	14.8	109.2	20.4	22.9		Pass
	2				14.4 14.2					
	1				14.2				0.112	
5700	3 4	17	23.4	23.4 99	14.7 13.7	108.1	20.3	22.9		Pass
	2				14.6					
	1				13.2					
5720	3 4	17	25	99	13.6 12.5	83.0	19.2	22.9		Pass
	2				13.3					
Portion within 5725-5850 MHz band (UNII-3)										
5720	1 3 4 2	17		99	7.5 8.0 6.9 8.1	23.3	13.7	28.9	0.0233	Pass

	NTS	RSUCCESS						EMO	C Test	Data
Client:	ARRIS	3000		Job Number: JD102271						
		•		T-Log Number:						
Model:	BGW210-70	10		Project Manager:		Irene Rademacher				
Contact:	Mark Rieger	•					Project	Coordinator:	-	
Standard:	FCC 15.B, 1	5.247, 15.40	7					Class:	N/A	
Mode:	PSD - FCC/IC n20	Software	99% BW	D. A. O. ala	DOD	T.(.)	DOD ¹	F00 1 : '4	10 1:	
Frequency (MHz)	Chain	Software	99% BVV (MHz)	Duty Cycle %	PSD dBm/MHz	Total mW/MHz	dBm/MHz	FCC Limit dBm/		Result
5500	1 3 4 2	17	(WH 12)	99	3.5 4.0 3.3 3.3	9.0	9.5	9.9	11.0	Pass
5580	1 3 4 2	17		99	3.1 3.9 3.5 3.5	9.0	9.5	9.9	11.0	Pass
5700	1 3 4 2	17		99	3.5 3.7 2.6 3.6	8.7	9.4	9.9	11.0	Pass
5720	1 3 4 2	17		99	3.5 3.9 2.5 3.9	8.9	9.5	9.9	11.0	Pass
Portion wit	hin 5725-585	60 MHz band	I (UNII-3)							
5720	1 3 4 2	17		99	2.9 3.5 2.3 3.8	8.3	9.2	28.9	28.9	Pass



Client:	ARRIS	Job Number:	JD102271
Model:	BGW210-700	T-Log Number:	T102846
Model.	DGVV210-700	Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B, 15.247, 15.407	Class:	N/A



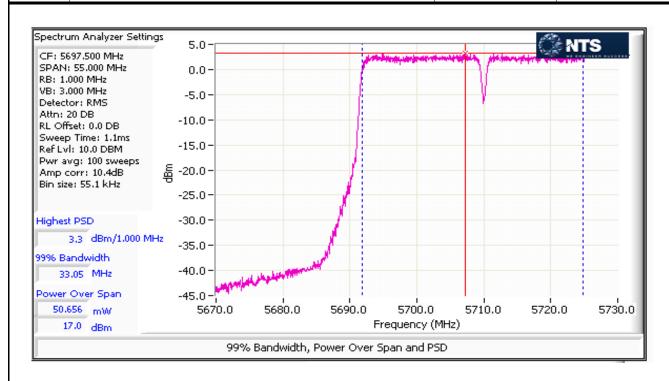
4.										
	NTS.	RSUCCESS						EM	C Test	Data
Client:	ARRIS						,	Job Number:	JD102271	
Martal	DOMO40 70	10					T-l	og Number:	T102846	
Model:	BGW210-70)()					Proje	ect Manager:	Irene Raden	nacher
Contact:	Mark Rieger	ſ					Project	Coordinator:	-	
	FCC 15.B, 1)7					Class:		
	,	·								
MIMO Devi	ce - 5470-57	25 MHz Ban	d - FCC							
Mode:	n40						Max	EIRP (mW):	935.5	
Frequency	Chain	Software	26dB BW	Duty Cycle	Power	Total	Power	FCC Limit	Max Power	Result
(MHz)	Onam	Setting	(MHz)	%	dBm	mW	dBm	dBm	(W)	rvesuit
	1				16.5					
5550	3	19	45.2	97	16.8	182.4	22.6	22.9		Pass
	4				16.1			22.0		
	2				16.4					
	3				16.3 16.4					
5670	4	19	44.0	97	15.8	173.2	22.4	22.9	0.182	Pass
	2				16.4					
	1				16.4					
5740	3	40	00.7	07	17.0	470.4	00.5	00.0		D
5710	4	19	36.7	97	15.6	179.1	22.5	22.9		Pass
	2				16.4					
Portion wit	hin 5725-58	50 MHz band	: (UNII-3)							
	1				9.6	_		_		_
5710	3	19		97	10.3	40.5	16.1	28.9	0.0405	Pass
0,10	4	'		l "	9.0	₹0.0	10.1	20.0	0.0400	1 400

10.6

	NTS WE ENGINEER	R SUCCESS						ЕМО	C Test	Data
Client:	: ARRIS						,	Job Number:	JD102271	
		·					T-l	_og Number:	T102846	
Modei	: BGW210-70	0				ļ	Proje	ect Manager:	Irene Raden	nacher
Contact:	: Mark Rieger	í	-				Project	Coordinator:	-	
Standard:	: FCC 15.B, 1	5.247, 15.40) 7					Class:	N/A	
MIMO Devid Mode:	ice 5470-5725 : n40									
Frequency	Chain	Software	99% BW	Duty Cycle	PSD		PSD ¹	FCC Limit		Result
(MHz)		Setting	(MHz)	%	dBm/MHz	mW/MHz	dBm/MHz	dBm/	/MHz	rtoodit
'	1	1 1		<u> </u>	2.1	'				
5550	3 4	19		97	2.5 2.0	6.9	8.4	9.9	11.0	Pass
	2	1			2.0	'				
	1			 	2.2					
5670	3	19		97	2.4	6.8	8.3	9.9	11.0	Pass
3070	4	ı ' '		٠, ١	1.7	0.0	0.0	5.5	11.0	1 435
	2			igwdard	2.3 2.7					
	3	1 '			3.3					
5710	4	19		97	1.9	7.7	8.9	9.9	11.0	Pass
'	2	1 '		1	2.8	'				
Portion wit	thin 5725-585	50 MHz band	d (UNII-3)							
	1	ı 			5.7					
5710	3	19		97	6.3	16.2	12.1	28.9	28.9	Pass
'	2	1 '			5.3 6.4	'				
					0.4	!	<u></u>			



Client:	ARRIS	Job Number:	JD102271
Model:	BGW210-700	T-Log Number:	T102846
Model.	DGVV210-700	Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B, 15.247, 15.407	Class:	N/A

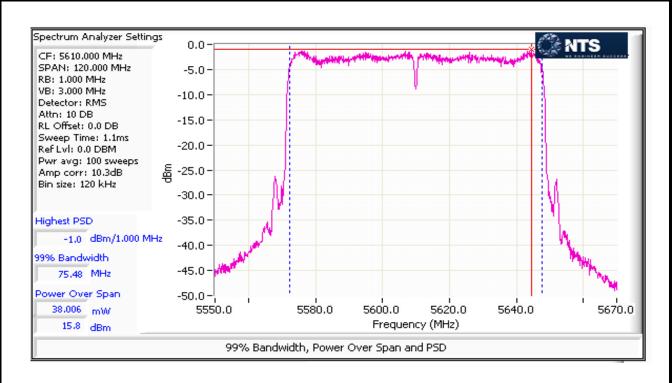


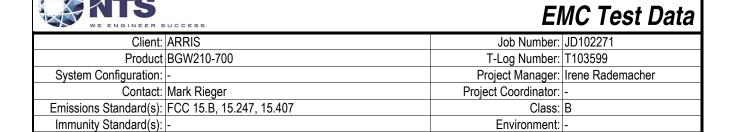
	ATS VE ENGINEER	SUCCESS						EMO	C Test	Data
Client:	ARRIS							Job Number:	JD102271	
Martal	DOMO40 70	10				T-L	og Number:	T102846		
Model:	BGW210-70	10					Proje	ect Manager:	Irene Raden	nacher
Contact:	Mark Rieger	•					Project	Coordinator:	-	
	FCC 15.B, 1)7				•	Class:		
	,	,							1	
MIMO Device	ce - 5470-57	25 MHz Ban	d - FCC							
Mode:	ac80						Max	EIRP (mW):	763.7	
Frequency	Chain	Software	26dB BW	Duty Cycle	Power ¹	Total	Power	FCC Limit	Max Power	Result
(MHz)	Chain	Setting	(MHz)	%	dBm	mW	dBm	dBm	(W)	Result
	1				15.1					
5610	3	19	83.00	96	15.8	145.6	21.6	22.9		Pass
	4				15.3					
	2				15.5				0.149	
	3				15.6 15.5					
5690	4	19	78.18	96	15.8	148.9	21.7	22.9		Pass
	2				15.2					
				<u>. </u>						
Portion with	hin 5725-585	0 MHz band	l (UNII-3)							
	1				2.1					
5690	3	19		96	2.2	7.2	8.6	28.9	0.0072	Pass
	4				2.4	-				
	2				2.7					

	NTS	SUCCESS						EMO	C Test	Data
Client:	ARRIS							Job Number:	JD102271	
Martal	DOMO40 70	10					T-L	og Number:	T102846	
Model:	BGW210-70	10					Proje	ect Manager:	Irene Rader	nacher
Contact:	Mark Rieger	•					Project	Coordinator:	-	
	FCC 15.B, 1		17				-	Class:		
	,	•					I		I	
5470-5725	PSD - FCC/IC									
Mode:	ac80									
Frequency	Chain	Software	99% BW	Duty Cycle	PSD	Total	PSD ¹	FCC Limit	IC limit	Result
(MHz)	Onam	Setting	(MHz)	%	dBm/MHz	mW/MHz	dBm/MHz	dBm	/MHz	rtoodit
	1				-0.8					
5610	3	19		96	-1.0	3.3	5.2	9.9	-	Pass
	4				-1.4					
	2				-1.1 -0.7					
	3				-0.7	_				_
5690	4	19		96	-0.5	3.5	5.4	9.9	-	Pass
	2				-1.0					
_										
Portion wit	hin 5725-585	0 MHz band	I (UNII-3)	1		· · · · · · · · · · · · · · · · · · ·		1	1	
	1				-0.5					
5690	3 4	19		96	-0.1 -0.5	3.9	5.9	28.9	-	Pass
	2				-0.5 -0.2					
					٧.٢					



Client:	ARRIS	Job Number:	JD102271
Model:	BGW210-700	T-Log Number:	T102846
Model.	DGVV210-700	Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B, 15.247, 15.407	Class:	N/A





For The

ARRIS

Product

BGW210-700

Date of Last Test: 1/6/2017

	L LNOTHELK SOCIES		
Client:	ARRIS	Job Number:	JD102271
Model:	BGW210-700	T-Log Number:	T103599
iviodei.	BGW210-700	Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B, 15.247, 15.407	Class:	N/A

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

Test Specific Details

The objective of this test session is to perform engineering evaluation testing of the EUT with respect to the Objective:

specification listed above.

Date of Test: 01/04/17 Config. Used: 1
Test Engineer: John Caizzi Config Change: -

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

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: 22.3 °C

Rel. Humidity: 40 %

Summary of Results

Run#	Mode	Channel	# of SS	Passing Pwr Setting Test Performed		Limit	Result / Margin	
80MHz Bandwith Modes								
		36 -	1	22	Restricted Band Edge at 5150 MHz	15.209	53.0 dBµV/m @ 5149.0	
1	ac20		'				MHz (-1.0 dB)	
'	aczu	5180MHz	4	22		13.209	53.1 dBµV/m @ 5149.9	
			4				MHz (-0.9 dB)	

Modifications Made During Testing

No modifications were made to the EUT during testing

Deviations From The Standard

No deviations were made from the requirements of the standard.

Procedure Comments:

Measurements performed in accordance with FCC KDB 789033

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

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



Client:	ARRIS	Job Number:	JD102271
Model:	BGW210-700	T-Log Number:	T103599
	BGW210-700	Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B, 15.247, 15.407	Class:	N/A

	Mode	Data Rate	Duty Cycle (x)	Constant DC?	T (ms)	Pwr Cor Factor*	Lin Volt Cor Factor**	Min VBW for FS (Hz)
1SS	ac20	MCS0	0.99	Yes	9.89	0.00	0.00	10
4SS	ac20	MCS0	0.96	Yes	2.49	0.18	0.36	402

52.137643

Sample Notes

Sample S/N: 184795206016304

Driver: d21

Antenna: internal 4x4

Measurement Specific Notes:

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.
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)
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:	JD102271
Model:	BGW210-700	T-Log Number:	T103599
iviouei.	DGW210-700	Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B, 15.247, 15.407	Class:	N/A

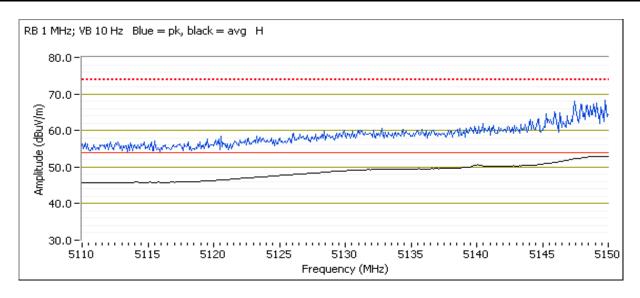
Run #1: Radiated Bandedge Measurements, 5150-5250MHz

Channel: 36 - 5180 MHz EUT Orientation: Flat
Mode: ac 20 Data Rate: VHT0

Tx Chain: 4Tx Power setting: 22

of SS: 1

Frequency	Level	Pol	FCC 1	15.209	Detector	Azimuth	Height	Comments
MHz	dBμV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5149.040	53.0	Н	54.0	-1.0	AVG	0	1.30	
5148.320	69.4	Н	74.0	-4.6	PK	0	1.30	





	COLOR DE VIEW PROPERTY DE LA COLOR DE LA C		
Client	ARRIS	Job Number:	JD102271
Model:	BGW210-700	T-Log Number:	T103599
iviodei	BGW210-700	Project Manager:	Irene Rademacher
Contact	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B, 15.247, 15.407	Class:	N/A

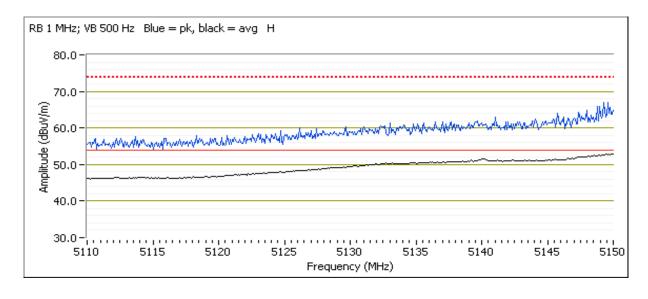
Tx Chain: 4Tx

Power setting:

22

of SS: 4

0.00	o roo minii											
Frequency	Level	Pol	FCC 1	15.209	Detector	Azimuth	Height	Comments				
MHz	dBμV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters					
5149.920	53.1	Н	54.0	-0.9	Avg	357	1.29	VB: 500 Hz, note 3.				
5148.800	66.0	Н	74.0	-8.0	PK	357	1.29					



Client:	ARRIS	Job Number:	JD102271
Madal	BGW210-700	T-Log Number:	T103599
iviodei.	BGW210-700	Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B, 15.247, 15.407	Class:	N/A

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

Test Specific Details

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

specification listed above.

Date of Test: 12/20/16 Config. Used: Test Engineer: M. Birgani Config Change: -

Test Location: Fremont Chamber #4 EUT Voltage: 120V/60Hz

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: 22.3 °C

Rel. Humidity: 40 %

Summary of Results

Run#	Mode	Channel	# of SS	Passing Pwr Setting	Test Performed	Limit	Result / Margin
			1 17			53.5 dBµV/m @ 5148.5 MHz (-0.5 dB)	
2	ac40	38 - 5190MHz	3	17	Restricted Band Edge at 5150 MHz	15.209	53.8 dBµV/m @ 5150.0 MHz (-0.2 dB)
			4	17			53.9 dBµV/m @ 5149.8 MHz (-0.1 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:	JD102271
Model	BGW210-700	T-Log Number:	T103599
iviodei.	BGW210-700	Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B, 15.247, 15.407	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	ac40	MCS0	0.99	Yes	5.29	0.00	0.00	10
3SS	ac40	MCS0	0.98	Yes	1.65	0.10	0.20	10
4SS	ac40	MCS0	0.96	Yes	1.25	0.16	0.33	803

Sample Notes

Sample S/N: 184795206016304

Driver: d21
Antenna: internal 4x4

Measurement Specific Notes:

	For emissions outside of the restricted bands the limit is -27dBm/MHz eirp (68.3dBuV/m). The measurement method
Note 1:	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 3:	Emission has constant duty cycle < 98%, average measurement performed: RBW=1MHz, VBW>1/T but not less than 10Hz,
Note 3.	peak detector, linear averaging, auto sweep,max hold 50*1/DC traces (method VB 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
Note 5.	measurements.



Client:	ARRIS	Job Number:	JD102271						
Model:	BGW210-700	T-Log Number:	T103599						
Model.	DGVV210-700	Project Manager:	Irene Rademacher						
Contact:	Mark Rieger	Project Coordinator:	-						
Standard:	FCC 15.B, 15.247, 15.407	Class:	N/A						

Run #2: Radiated Bandedge Measurements, 5150-5250MHz

Date of Test: 12/20/16 Config. Used: Test Engineer: M. Birgani Config Change: -

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

Channel: 38 - 5180 MHz EUT Orientation: Flat Mode: ac 40 Data Rate: VHT0

Tx Chain: 4Tx Power setting: 17
of SS: 1 (spatial mapping on - using BF config = 0)
5150 MHz Band Edge Signal Radiated Field Strength

	i i i i i i i i i i i i i i i i i i i										
Frequency	Level	Pol	FCC '	15.209	Detector	Azimuth	Height	Comments			
MHz	dBμV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters				
5148.480	53.5	Н	54.0	-0.5	AVG	93	1.5	POS; RB 1 MHz; VB: 300 Hz			
5148.520	68.2	Н	74.0	-5.8	PK	93	1.5	POS; RB 1 MHz; VB: 3 MHz			

Tx Chain: 4Tx Power setting: 17
of SS: 3 (spatial mapping on - using BF config = 2)
5150 MHz Band Edge Signal Radiated Field Strength

Frequency	Level	Pol	FCC '	15.209	Detector	Azimuth	Height	Comments
MHz	dBμV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5150.000	53.8	Н	54.0	-0.2	AVG	354	1.4	POS; RB 1 MHz; VB: 1 kHz
5148.160	65.9	Н	74.0	-8.1	PK	354	1.4	POS; RB 1 MHz; VB: 3 MHz

Tx Chain: 4Tx Power setting: 17
of SS: 4 (spatial mapping on - using BF config = 2)
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	
5149.760	53.9	Н	54.0	-0.1	AVG	357	1.5	POS; RB 1 MHz; VB: 1 kHz
5149.920	66.5	Н	74.0	-7.5	PK	357	1.5	POS; RB 1 MHz; VB: 3 MHz

	L LNOTHELK SOCIES		
Client:	ARRIS	Job Number:	JD102271
Madal	BGW210-700	T-Log Number:	T103599
iviodei.	BGW210-700	Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B, 15.247, 15.407	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.

Date of Test: 12/20/2016 0:00 Config. Used: Test Engineer: John Caizzi Config Change: -

Test Location: Fremont Chamber #4 EUT Voltage: 120V/60Hz

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: 22.3 °C Rel. Humidity: 40 %

Summary of Results

Run#	Mode	Channel	# of SS	Passing Pwr Setting	Test Performed	Limit	Result / Margin
80MHz Ban	dwith Modes						
			1	17			53.9 dBµV/m @ 5148.8
13	ac80	42 -	l	17	Restricted Band Edge	15.209	MHz (-0.1 dB)
13	5210 5210	5210MHz	1	10	at 5150 MHz	13.209	53.9 dBµV/m @ 5147.6
			4	18			MHz (-0.1 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:	JD102271
Model	BGW210-700	T-Log Number:	T103599
iviodei.	BGW210-700	Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B, 15.247, 15.407	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	ac80	VHT0	0.96	Yes	2.214	0.19	0.39	452
2SS	ac80	VHT0	0.97	Yes	2.236	0.11	0.23	447
3SS	ac80	VHT0	0.92	Yes	0.784	0.37	0.73	1276
4SS	ac80	VHT0	0.89	Yes	0.551	0.51	1.01	1815

Sample Notes

Sample S/N: 184795206016304

Driver: d21 Antenna: internal 4x4

Measurement Specific Notes:

	· ·
	For emissions outside of the restricted bands the limit is -27dBm/MHz eirp (68.3dBuV/m). The measurement method
Note 1:	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 3:	Emission has constant duty cycle < 98%, average measurement performed: RBW=1MHz, VBW>1/T but not less than 10Hz,
Note 3.	peak detector, linear averaging, auto sweep,max hold 50*1/DC traces (method VB 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
Note 5.	measurements.



Client:	ARRIS	Job Number:	JD102271
Model	BGW210-700	T-Log Number:	T103599
Model.	DGW210-700	Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B, 15.247, 15.407	Class:	N/A

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

Date of Test: 12/20/2016 0:00 Config. Used: Test Engineer: John Caizzi Config Change: -

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

Channel: 42 - 5210 MHz EUT Orientation: Flat

Tx Chain: 4Tx Power setting: 17, spatial mapping off

Mode: ac 80 Data Rate: VHT0

of SS: 1

O TOO MITTE	oro inne Bana Lago orgina riadiatoa riora otrongtir												
Frequency	Level	Pol	FCC '	15.209	Detector	Azimuth	Height	Comments					
MHz	dBμV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters						
5148.800	53.9	Н	54.0	-0.1	Avg	355	1.00	POS; RB 1 MHz; VB: 500 Hz					
5148.400	68.3	Н	74.0	-5.7	PK	355	1.00						



Client:	ARRIS	Job Number:	JD102271
Model	BGW210-700	T-Log Number:	T103599
Model.	DGW210-700	Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B, 15.247, 15.407	Class:	N/A

Channel: 42 - 5210 MHz

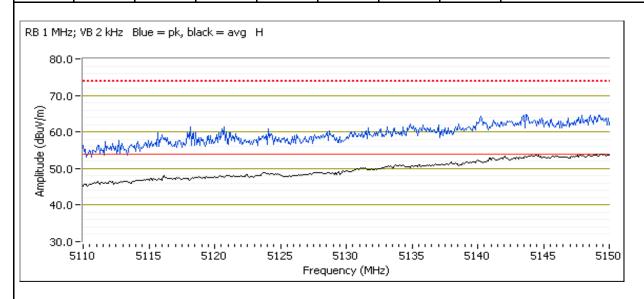
Tx Chain: 4Tx Power setting: 18, spatial mapping off

Mode: ac 80 # of SS: 4 Data Rate: VHT0

EUT Orientation:

Flat

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Frequency	Level	Pol	FCC ²	15.209	Detector	Azimuth	Height	Comments				
MHz	dBμV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters					
5147.600	53.9	Н	54.0	-0.1	Avg	350	1.24	POS; RB 1 MHz; VB: 2 kHz				
5149.360	65.3	Н	74.0	-8.7	PK	350	1.24					





Client:	ARRIS	Job Number:	JD102271
Model	BGW210-700	T-Log Number:	T103599
iviodei.	BGW210-700	Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B, 15.247, 15.407	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: 18 °C

Rel. Humidity: 45 %

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.

	NTS WE ENGINEER	R SUCCESS				EMO	C Test Data	
Client:	ARRIS					Job Number:	JD102271	
						T-Log Number:	T103599	
Model:	BGW210-70	10					Irene Rademacher	
Contact:	Mark Rieger	ſ				Project Coordinator:		
		15.247, 15.40)7			Class:	N/A	
Summary	of Result	ts						
Run#	Mode	Channel	Spatial Streams	Passing Power Setting	Test Performed	Limit	Result / Margin	
80MHz Ba	andwith Mode	es						
			1SS	16			53.2 dBµV/m @ 5148.7 MHz (-0.8 dB)	
1	ac 80	42 -	2SS	17	Restricted Band Edge	15.209	53.8 dBµV/m @ 5149.6 MHz (-0.2 dB)	
'	ac 00	5210MHz	5210MHz 3SS	3SS	18	at 5150 MHz	13.203	54.0 dBµV/m @ 5147.4 MHz (0.0 dB)
			4SS	18			53.3 dBµV/m @ 5149.5 MHz (-0.7 dB)	
40MHz Ba	andwith Mode	es			_			
			1SS	16			53.6 dBµV/m @ 5149.7 MHz (-0.4 dB)	
2	ac 40	38 -	2SS	18	Restricted Band Edge	15.209	53.6 dBµV/m @ 5149.7 MHz (-0.4 dB)	
	au 40	5190MHz	3SS	18	at 5150 MHz	13.203	53.5 dBµV/m @ 5149.9 MHz (-0.5 dB)	
			4SS	18			53.9 dBµV/m @ 5149.5 MHz (-0.1 dB)	
20MHz Ba	andwith Mode	es						
3	ac 20	36 -	1SS	21	Restricted Band Edge	15.209	53.9 dBµV/m @ 5149.4 MHz (-0.1 dB)	
3	ac 20	5180MHz	4SS	22	at 5150 MHz	13.209	53.6 dBµV/m @ 5149.7 MHz (-0.4 dB)	



Client:	ARRIS	Job Number:	JD102271
Model:	BGW210-700	T-Log Number:	T103599
	BGW210-700	Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B, 15.247, 15.407	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)
	Mode	Data Rate	Duty Cycle (x)	Constant DC?	T (ms)	Pwr Cor Factor*	Lin Volt Cor Factor**	Min VBW for FS (Hz)
1SS	ac20	MCS0	0.90	No	0.37	0.46	0.92	2732
2SS	ac20	MCS0	0.93	No	0.34	0.32	0.63	2985
3SS	ac20	MCS0	0.94	No	0.34	0.27	0.54	2941
4SS	ac20	MCS0	0.94	No	0.335	0.27	0.54	2985
1SS	ac40	MCS0	0.79	No	0.844	1.0	2.0	1185
2SS	ac40	MCS0	0.89	No	0.366	0.5	1.0	2732
3SS	ac40	MCS0	0.95	No	0.348	0.2	0.4	2874
4SS	ac40	MCS0	0.71	No	0.68	1.5	3.0	1471
1SS	ac80	VHT0	0.92	No	1.16	0.3	0.7	862
2SS	ac80	VHT0	0.70	No	0.31	1.5	3.0	3226
3SS	ac80	VHT0	0.82	No	0.49	0.9	1.8	2041
4SS	ac80	VHT0	0.82	No	0.54	0.9	1.7	1852

Sample Notes

Sample S/N: 184795206016304

Driver: d21 Antenna: internal 4x4

Measurement Specific Notes:

	For emissions outside of the restricted bands the limit is -27dBm/MHz eirp (68.3dBuV/m). The measurement method
Note 1:	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 3:	Emission has constant duty cycle < 98%, average measurement performed: RBW=1MHz, VBW>1/T but not less than 10Hz,
Note 3.	peak detector, linear averaging, auto sweep,max hold 50*1/DC traces (method VB 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
Note 5.	measurements.



	STATES HARDEN HARDEN MARKET STATES AND THE STATES A		
Client:	ARRIS	Job Number:	JD102271
Model:	BGW210-700	T-Log Number:	T103599
	DGVV210-700	Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B, 15.247, 15.407	Class:	N/A

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

Date of Test: 1/5/2017 Config. Used: 2
Test Engineer: John Caizzi Config Change: none
Test Location: Chamber 7 EUT Voltage: 120V / 60Hz

Channel: 42 - 5210 MHz

Tx Chain: 4Tx

Mode: ac 80

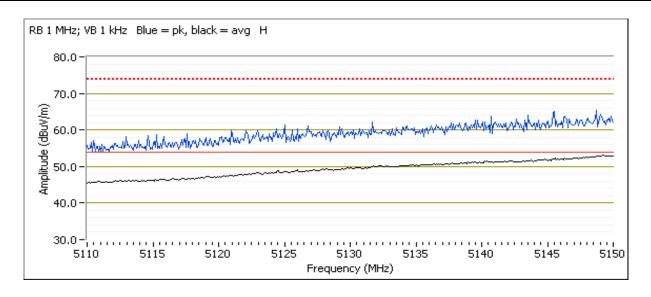
EUT Orientation: Flat

Power setting: 16

Data Rate: VHT0

Streams: 1SS

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Frequency	Level	Pol	FCC '	15.209	Detector	Azimuth	Height	Comments			
MHz	dBμV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters				
5148.720	53.2	Н	54.0	-0.8	Avg	358	1.28	VB: 1 kHz, note 3.			
5148 640	65.0	Н	74 0	-9.0	PK	358	1 28				





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Client:	ARRIS	Job Number:	JD102271
Model:	BGW210-700	T-Log Number:	T103599
	DGVV210-700	Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B, 15.247, 15.407	Class:	N/A

Channel: 42 - 5210 MHz

Tx Chain: 4Tx

Mode: ac 80

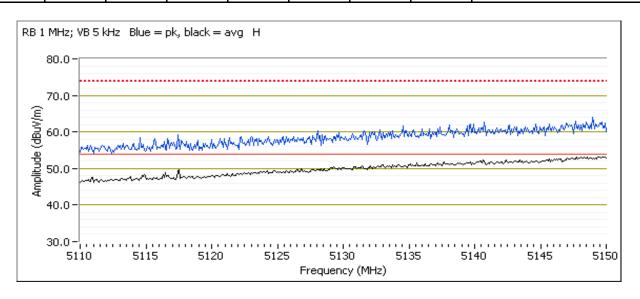
EUT Orientation: Flat

Power setting: 17

Data Rate: MCS 0

Streams: 2SS

0.002	ore mile zama zage ergina manateur i teta en en gun										
Frequency	Level	Pol	FCC 1	15.209	Detector	Azimuth	Height	Comments			
MHz	dBμV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters				
5149.560	53.8	Н	54.0	-0.2	Avg	0	1.38	VB: 5 kHz, note 3.			
5148.280	64.8	Н	74.0	-9.2	PK	0	1.38				





	A STATE OF THE STA		
Client:	ARRIS	Job Number:	JD102271
Model:	BGW210-700	T-Log Number:	T103599
	BGW210-700	Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B, 15.247, 15.407	Class:	N/A

Channel: 42 - 5210 MHz

Tx Chain: 4Tx

Mode: ac 80

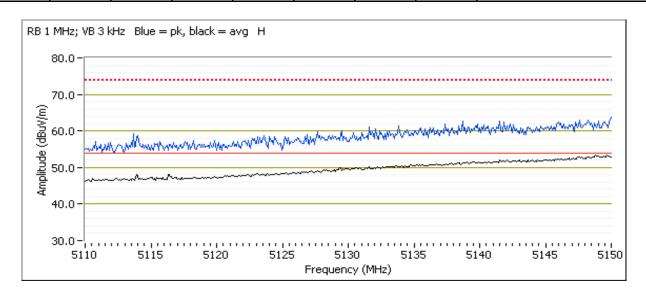
EUT Orientation: Flat

Power setting: 18

Data Rate: MCS 0

Streams: 3SS

JIJU WIIIZ L	5130 Will 2 Dana Lage Signal Hadiated Field Strength											
Frequency	Level	Pol	FCC ²	15.209	Detector	Azimuth	Height	Comments				
MHz	dBμV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters					
5147.350	54.0	Н	54.0	0.0	Avg	356	1.48	VB: 3 kHz, note 3.				
5148 720	64.5	Н	74 0	-9.5	PK	356	1 48					





	A STATE OF THE STA		
Client:	ARRIS	Job Number:	JD102271
Model:	BGW210-700	T-Log Number:	T103599
	BGW210-700	Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B, 15.247, 15.407	Class:	N/A

Channel: 42 - 5210 MHz

Tx Chain: 4Tx

Mode: ac 80

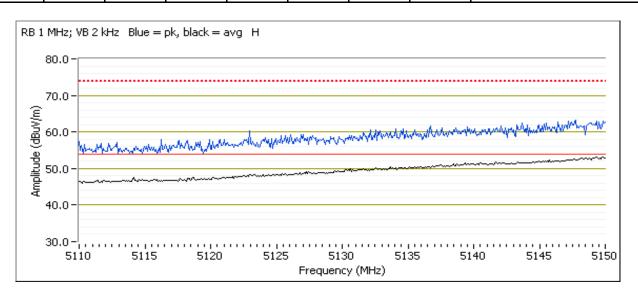
EUT Orientation: Flat

Power setting: 18

Data Rate: MCS 0

Streams: 4SS

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Frequency	Level	Pol	FCC ²	15.209	Detector	Azimuth	Height	Comments			
MHz	dBμV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters				
5149.520	53.3	Н	54.0	-0.7	Avg	357	1.49	VB: 2 kHz, note 3.			
5147.520	63.7	Н	74.0	-10.3	PK	357	1.49				





Client:	ARRIS	Job Number:	JD102271
Madal	BGW210-700	T-Log Number:	T103599
Model.	BGW210-700	Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B, 15.247, 15.407	Class:	N/A

Run #2: Radiated Bandedge Measurements, 5150-5250MHz

Date of Test: 1/5/2017 Config. Used: 2
Test Engineer: John Caizzi Config Change: none
Test Location: Chamber 7 EUT Voltage: 120V / 60Hz

Channel: 38 - 5190 MHz

Tx Chain: 4Tx

Mode: ac 40

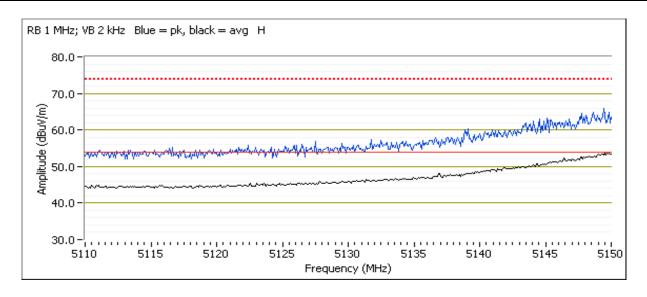
EUT Orientation: Flat

Power setting: 16

Data Rate: MCS 0

Streams: 1SS

Frequen	cy Level	Pol	FCC '	15.209	Detector	Azimuth	Height	Comments
MHz	dBμV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5149.68	53.6	Н	54.0	-0.4	Avg	357	1.31	VB: 2 kHz, note 3.
5148.96	65.4	Н	74.0	-8.6	PK	357	1.31	





	COLOR ALCO HISTORY CONTROL PRODUCTION OF PRODUCTION		
Client:	ARRIS	Job Number:	JD102271
Madal	BGW210-700	T-Log Number:	T103599
iviodei.	BGW210-700	Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B, 15.247, 15.407	Class:	N/A

Channel: 38 - 5190 MHz

Tx Chain: 4Tx

Mode: ac 40

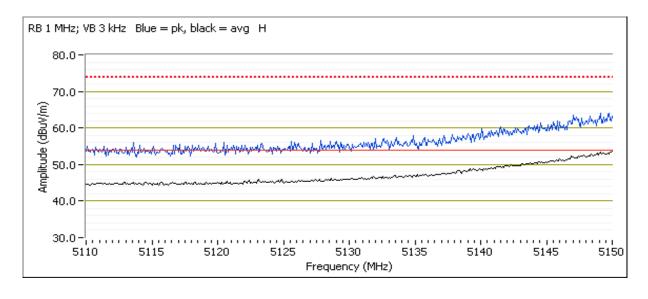
EUT Orientation: Flat

Power setting: 18

Data Rate: MCS 0

Streams: 2SS

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Frequency	Level	Pol	FCC ²	15.209	Detector	Azimuth	Height	Comments	
MHz	dBμV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters		
5149.640	53.6	Н	54.0	-0.4	??	355	1.30	VB: 3 kHz, note 3.	
5149.780	65.4	Н	74.0	-8.6	PK	355	1.30		





Client:	ARRIS	Job Number:	JD102271
Madal	BGW210-700	T-Log Number:	T103599
Model.	BGW210-700	Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B, 15.247, 15.407	Class:	N/A

Channel: 38 - 5190 MHz

Tx Chain: 4Tx

Mode: ac 40

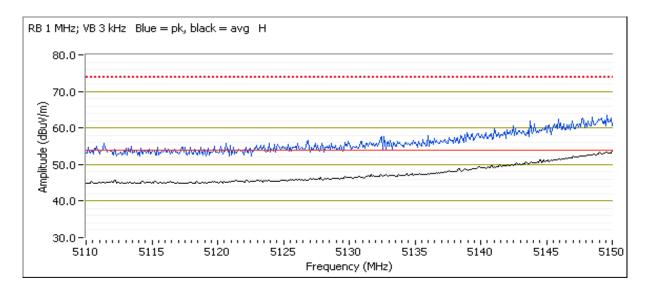
EUT Orientation: Flat

Power setting: 18

Data Rate: MCS 0

Streams: 3SS

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Frequency	Level	Pol	FCC ²	15.209	Detector	Azimuth	Height	Comments	
MHz	dBμV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters		
5149.920	53.5	Н	54.0	-0.5	Avg	356	1.31	VB: 3 kHz, note 3.	
5146.430	64.8	Н	74.0	-9.2	PK	356	1.31		



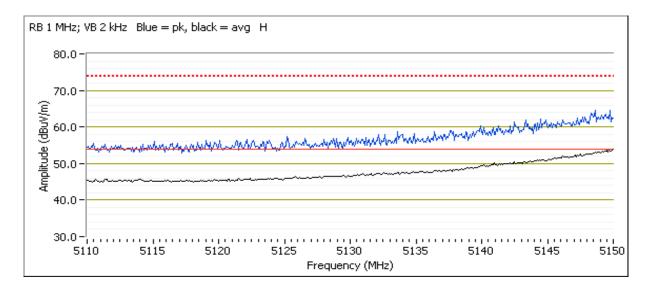


Client:	ARRIS	Job Number:	JD102271
Model	BGW210-700	T-Log Number:	T103599
iviouei.	DGW210-700	Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B, 15.247, 15.407	Class:	N/A

Channel: 38 - 5190 MHzEUT Orientation:FlatTx Chain:4TxPower setting:18Mode:ac 40Data Rate:MCS 0

Streams: 4SS

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Frequency	Level	Pol	FCC ²	15.209	Detector	Azimuth	Height	Comments	
MHz	dBμV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters		
5149.460	53.9	Н	54.0	-0.1	Avg	356	1.29	VB: 2 kHz, note 3.	
5149.980	67.3	Н	74.0	-6.7	PK	356	1.29		





	STATES HARDEN HARDEN MARKET STATES AND THE STATES A		
Client:	ARRIS	Job Number:	JD102271
Madal	BGW210-700	T-Log Number:	T103599
Model.	DGVV210-700	Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B, 15.247, 15.407	Class:	N/A

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

Date of Test: 1/5/2017 Config. Used: 2
Test Engineer: John Caizzi Config Change: none
Test Location: Chamber 7 EUT Voltage: 120V / 60Hz

Channel: 36 - 5180 MHz

Tx Chain: 4Tx

Mode: ac 20

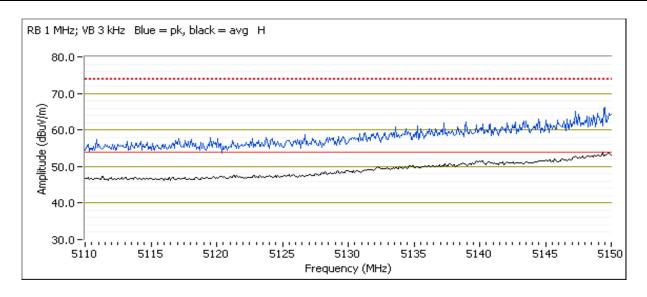
EUT Orientation: Flat

Power setting: 21

Data Rate: MCS 0

Streams: 1SS

F	requency	Level	Pol	FCC 1	5.209	Detector	Azimuth	Height	Comments
	MHz	dBμV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
	5149.360	53.9	Н	54.0	-0.1	Avg	18	1.28	VB: 3 kHz, note 3.
	5148.960	66.2	Н	74.0	-7.8	PK	18	1.28	





	Control of the Contro		
Client:	ARRIS	Job Number:	JD102271
Madalı	BGW210-700	T-Log Number:	T103599
iviodei.	BGW210-700	Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B, 15.247, 15.407	Class:	N/A

Channel: 36 - 5180 MHz

Tx Chain: 4Tx

Mode: ac 20

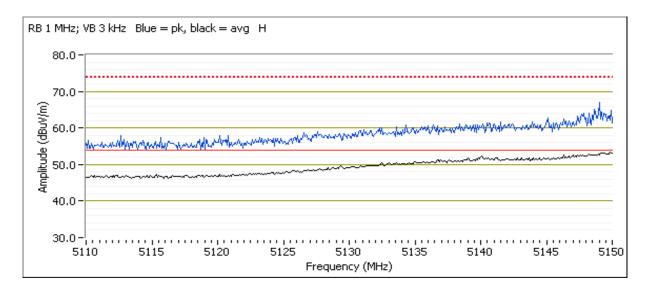
EUT Orientation: Flat

Power setting: 22

Data Rate: MCS 0

Streams: 4SS

0.100.1111.11	The same and the s								
Frequency	Level	Pol	FCC ²	15.209	Detector	Azimuth	Height	Comments	
MHz	dBμV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters		
5149.740	53.6	Н	54.0	-0.4	Avg	356	1.30	VB: 3 kHz, note 3.	
5149.300	67.0	Н	74.0	-7.0	PK	356	1.30		





	The state of the s		
Client:	ARRIS	Job Number:	JD102271
Madalı	BGW210-700	T-Log Number:	T103599
iviodei.	BGW210-700	Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B, 15.247, 15.407	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:20 °CRel. Humidity:30 %

Summary of Results

Run #	Mode	Channel	NSS	Passing Power Setting	Test Performed	Limit	Result / Margin			
40MHz Band	40MHz Bandwith Modes									
			100	10			53.8 dBµV/m @ 5350.0			
1	ac 40	62 -	1SS	18	Restricted Band Edge	15.209	MHz (-0.2 dB)			
1	ac 40	5310MHz	400	18	at 5350 MHz		53.7 dBµV/m @ 5351.0			
			4SS	10			MHz (-0.3 dB)			
			188	00	Restricted Band Edge	45 000	53.3 dBµV/m @ 5460.0			
				20	at 5460 MHz	15.209	MHz (-0.7 dB)			
	 			17	Band Edge 5460 - 5470	155	67.6 dBµV/m @ 5469.7			
					MHz	15E	MHz (-0.7 dB)			
			388	17	Restricted Band Edge	15 200	50.5 dBµV/m @ 5460.0			
2	00.40	102 -			at 5460 MHz	15.209	MHz (-3.7 dB)			
 	ac 40	ac 40 5510MHz			Band Edge 5460 - 5470	155	67.2 dBµV/m @ 5467.6			
					MHz	15E	MHz (-1.1 dB)			
			4SS		Restricted Band Edge	15.209	51.4 dBµV/m @ 5459.5			
				10	at 5460 MHz	15.209	MHz (-2.6 dB)			
				18	Band Edge 5460 - 5470	15E	67.4 dBµV/m @ 5468.2			
					MHz	IDE	MHz (-0.9 dB)			

	NTS VE ENGINEER	R SUCCESS				EMO	C Test Data	
Client:	ARRIS					Job Number: JD102271		
Martin	DOMO40 70	20				T-Log Number: T103599		
Model:	BGW210-70)()				Project Manager:	Project Manager: Irene Rademacher	
Contact:	Mark Riege	r				Project Coordinator: -		
		15.247, 15.40	7			Class:	N/A	
Run #	Mode Channel NSS Power Setting				Test Performed	Limit	Result / Margin	
80MHz Ban	dwith Modes			1	1		150 0 1D 1// 0 5050 4	
	ac80	ac80 58 - 5290MHz	1 299	17	Restricted Band Edge at 5350 MHz	15.209	53.3 dBµV/m @ 5350.1 MHz (-0.7 dB)	
3				19			51.4 dBµV/m @ 5350.6 MHz (-2.6 dB)	
			4SS	20			53.7 dBµV/m @ 5350.2 MHz (-0.3 dB)	
		ac80 106 - 5530MHz 3SS 4SS	100	S 16	Restricted Band Edge at 5460 MHz	15.209	53.1 dBµV/m @ 5459.0 MHz (-0.9 dB)	
			100		Band Edge 5460 - 5470 MHz	15E	66.2 dBµV/m @ 5466.6 MHz (-2.1 dB)	
4	2200		300		Restricted Band Edge at 5460 MHz	15.209	52.9 dBµV/m @ 5460.0 MHz (-1.1 dB)	
4	acou		Hz 355	17	Band Edge 5460 - 5470 MHz	15E	65.3 dBµV/m @ 5469.4 MHz (-3.0 dB)	
			400	40	Restricted Band Edge at 5460 MHz	15.209	53.0 dBµV/m @ 5459.4 MHz (-1.0 dB)	
			4SS 18	18	Band Edge 5460 - 5470 MHz	15E	65.6 dBµV/m @ 5467.3 MHz (-2.7 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.

Page 142



Client:	ARRIS	Job Number:	JD102271
Model:	BGW210-700	T-Log Number:	T103599
	BGW210-700	Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B, 15.247, 15.407	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	ac40	MCS0	0.99	Yes	5.29	0.00	0.0	10
2SS	ac40	MCS0	0.99	Yes	4.79	0.00	0.0	10
3SS	ac40	MCS0	0.98	Yes	1.65	0.10	0.2	10
4SS	ac40	MCS0	0.96	Yes	1.25	0.16	0.3	803
1SS	ac80	VHT0	0.96	Yes	2.214	0.19	0.4	452
2SS	ac80	VHT0	0.97	Yes	2.236	0.11	0.2	447
3SS	ac80	VHT0	0.92	Yes	0.784	0.37	0.7	1276
4SS	ac80	VHT0	0.89	Yes	0.551	0.51	1.0	1815

54.347826

Sample Notes

Sample S/N: 184795206016304

Driver: d21 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 3:	Emission has constant duty cycle < 98%, average measurement performed: RBW=1MHz, VBW>1/T but not less than 10Hz,					
Note 3:	peak detector, linear averaging, auto sweep,max hold 50*1/DC traces (method VB of KDB 789033)					
I 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:	JD102271
Model:	BGW210-700	T-Log Number:	T103599
	BGW210-700	Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B, 15.247, 15.407	Class:	N/A

Run #1: Radiated Bandedge Measurements, 5250-5350 MHz

Date of Test: 12/22/2016 Config. Used: 1
Test Engineer: John Caizzi Config Change: none
Test Location: Chamber 4 EUT Voltage: 120V / 60Hz

Channel: 62 - 5310 MHz

Tx Chain: 4Tx

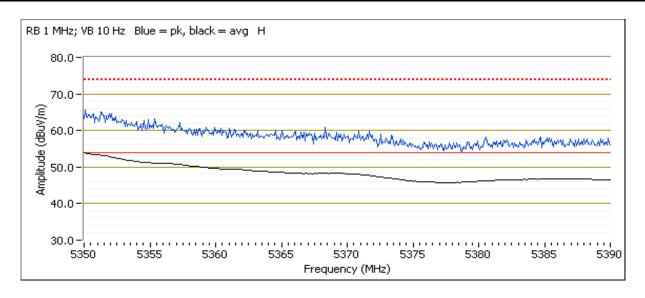
Mode: ac40

EUT Orientation: Flat
Power setting: 18

Data Rate: MCS 0

Streams: 1SS

		J		- 3				
Frequency	Level	Pol	FCC '	15.209	Detector	Azimuth	Height	Comments
MHz	dBμV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5350.000	53.8	Н	54.0	-0.2	AVG	344	1.39	
5351.200	66.6	Н	74.0	-7.4	PK	344	1.39	





Client:	ARRIS	Job Number:	JD102271
Model:	BGW210-700	T-Log Number:	T103599
	BGW210-700	Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B, 15.247, 15.407	Class:	N/A

Run #1: Radiated Bandedge Measurements, 5250-5350 MHz

Channel: 62 - 5310 MHz

Tx Chain: 4Tx

Mode: ac40

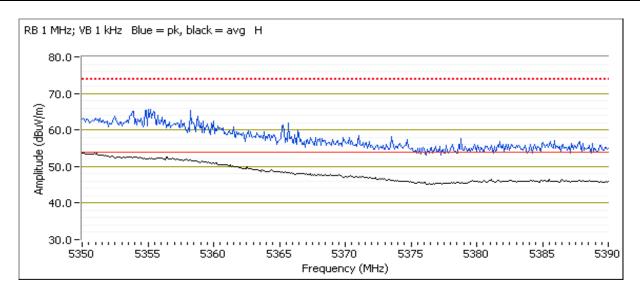
EUT Orientation: Flat

Power setting: 18

Data Rate: MCS 0

Streams: 4SS

0000 111112	5000 mile Dana Lago Dignar Radiatoa i lola Dirongin									
Frequency	Level	Pol	FCC 1	15.209	Detector	Azimuth	Height	Comments		
MHz	dBμV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters			
5350.960	53.7	Н	54.0	-0.3	Avg	78	1.39	VB: 1 kHz, note 3.		
5354.010	67.1	Н	74.0	-6.9	PK	78	1.39			





	Note: South Selection and Sele										
Client:	ARRIS	Job Number:	JD102271								
Model:	BGW210-700	T-Log Number:	T103599								
	BGW210-700	Project Manager:	Irene Rademacher								
Contact:	Mark Rieger	Project Coordinator:	-								
Standard:	FCC 15.B, 15.247, 15.407	Class:	N/A								

Config. Used: 1

Config Change: none

EUT Voltage: 120V / 60Hz

Run #2: Radiated Bandedge Measurements, 5470-5725 MHz

Date of Test: 1/5/2017
Test Engineer: John Caizzi
Test Location: Chamber 4

Channel: 102 - 5510 MHz

Tx Chain: 4Tx

Mode: ac40

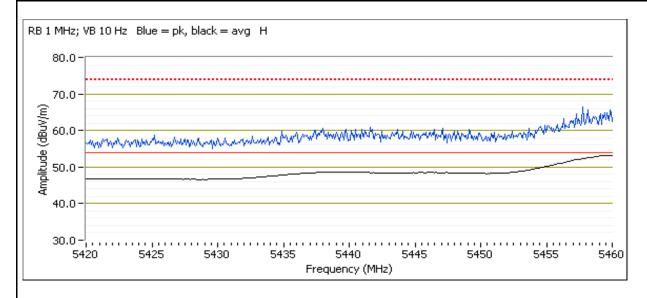
EUT Orientation: Flat

Power setting: 20

Data Rate: MCS 0

Streams: 1SS

0.00	o to o mining a surface of the control of the contr									
Frequency	Level	Pol	FCC 1	15.209	Detector	Azimuth	Height	Comments		
MHz	dBμV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters			
5460.000	53.3	Н	54.0	-0.7	AVG	3	1.43	Setting = 20		
5459.040	65.6	Н	74.0	-8.4	PK	3	1.43	Setting = 20		

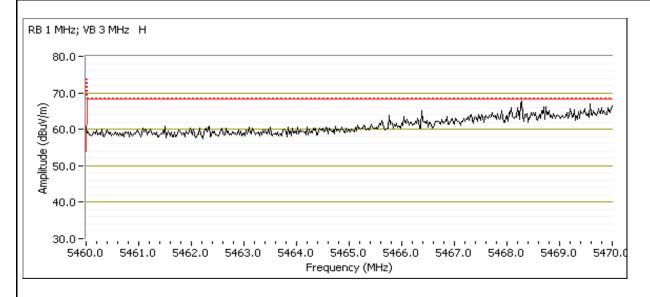




	Section 1995 Secti		
Client:	ARRIS	Job Number:	JD102271
Model:	BGW210-700	T-Log Number:	T103599
	BGW210-700	Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B, 15.247, 15.407	Class:	N/A

5470 MHz Band Edge Signal Radiated Field Strength, remeasured 1/5/17.

• • = =	The mine and a sign of the state of the stat									
Frequency	Level	Pol	15	5.E	Detector	Azimuth	Height	Comments		
MHz	dBμV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters			
5469.680	67.6	Н	68.3	-0.7	PK	158	1.49	Setting = 17		





	Note: South Selection and Sele										
Client:	ARRIS	Job Number:	JD102271								
Model:	BGW210-700	T-Log Number:	T103599								
	BGW210-700	Project Manager:	Irene Rademacher								
Contact:	Mark Rieger	Project Coordinator:	-								
Standard:	FCC 15.B, 15.247, 15.407	Class:	N/A								

Run #2: Radiated Bandedge Measurements, 5470-5725 MHz

Channel: 102 - 5510 MHz

Tx Chain: 4Tx

Mode: ac40

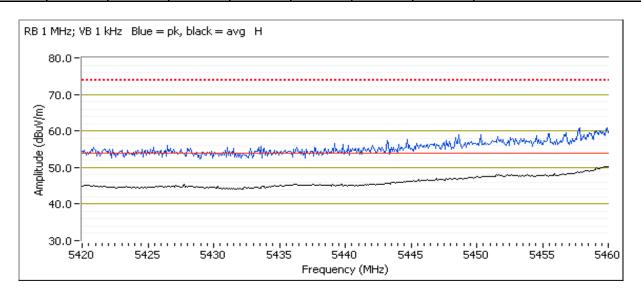
EUT Orientation: Flat

Power setting: 17

Data Rate: MCS 0

Streams: 3SS

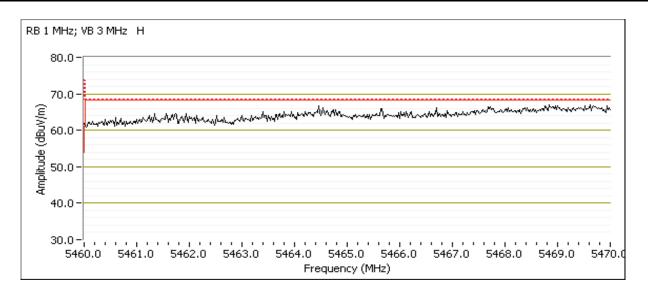
O TOO MITTE	o too miliz bana bago dignar nadiatoa ricia dirongin										
Frequency	Level	Pol	FCC 1	15.209	Detector	Azimuth	Height	Comments			
MHz	dBμV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters				
5460.000	50.5	Н	54.0	-3.7	Avg	359	1.48	VB: 1 kHz, note 3.			
5456.950	61.1	Н	74.0	-12.9	PK	359	1.48				





Client:	ARRIS	Job Number:	JD102271
Model:	BGW210-700	T-Log Number:	T103599
	BGW210-700	Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B, 15.247, 15.407	Class:	N/A

• •											
Frequency	Level	Pol	1 1 1 1 1	i.E	Detector	Azimuth	Height	Comments			
MHz	dBμV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters				
5467.620	67.2	Н	68.3	-1.1	PK	359	1.35				





	ACAC SECURITION OF THE PROPERTY OF THE PROPERT		
Client:	ARRIS	Job Number:	JD102271
Model:	BGW210-700	T-Log Number:	T103599
	DGVV210-700	Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B, 15.247, 15.407	Class:	N/A

Run #2: Radiated Bandedge Measurements, 5470-5725 MHz

Channel: 102 - 5510 MHz

Tx Chain: 4Tx

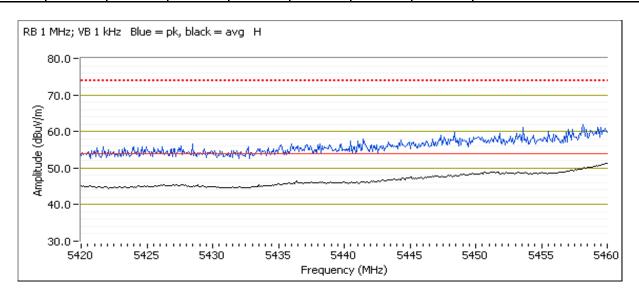
Mode: ac40

EUT Orientation: Flat
Power setting: 18

Data Rate: MCS 0

Streams: 4SS

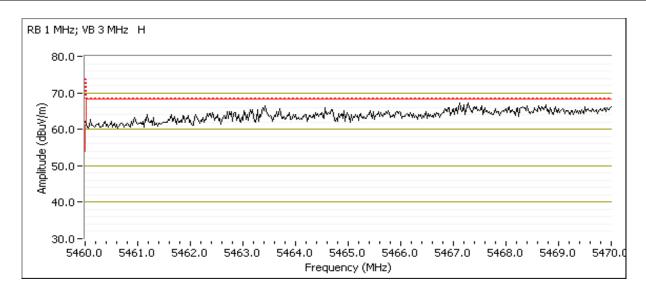
Frequency	Level	Pol	FCC '	15.209	Detector	Azimuth	Height	Comments
MHz	dBμV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5459.520	51.4	Н	54.0	-2.6	Avg	2	1.37	VB: 1 kHz, note 3.
5457.840	61.8	Н	74.0	-12.2	PK	2	1.37	





Client:	ARRIS	Job Number:	JD102271
Model:	BGW210-700	T-Log Number:	T103599
	BGW210-700	Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B, 15.247, 15.407	Class:	N/A

• •	mo mile zama zago orginar mataratea i rom ou origin										
Frequency	Level	Pol	1 -	5.E	Detector	Azimuth	Height	Comments			
MHz	dBμV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters				
5468.240	67.4	Н	68.3	-0.9	PK	1	1.35				





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Client:	ARRIS	Job Number:	JD102271
Model:	BGW210-700	T-Log Number:	T103599
	DGVV210-700	Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B, 15.247, 15.407	Class:	N/A

Run #3: Radiated Bandedge Measurements, 5250-5350 MHz

Date of Test: 1/4/2017 Config. Used: 1
Test Engineer: Rafael Varelas Config Change: none
Test Location: Chamber 7 EUT Voltage: 120V / 60Hz

Channel: 58 - 5290MHz

Tx Chain: 4Tx

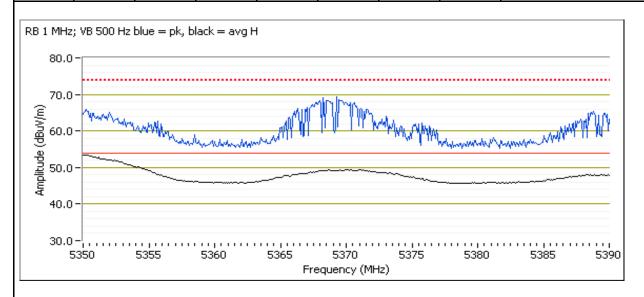
Mode: ac80

Streams: 1SS

EUT Orientation: Flat
Power setting: 17

Data Rate: MCS 0

COCC IIII IZ Z	oco III iz Bana Eago Cignar nadiatoa i iola Ottongan										
Frequency	Level	Pol	FCC 15.209		Detector	Azimuth	Height	Comments			
MHz	dBμV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters				
5350.120	53.3	Н	54.0	-0.7	Avg	165	1.7	VB: 500 Hz, note 3			
5352.710	65.7	Н	74.0	-8.3	PK	165	1.7	POS; RB 1 MHz; VB: 3 MHz			



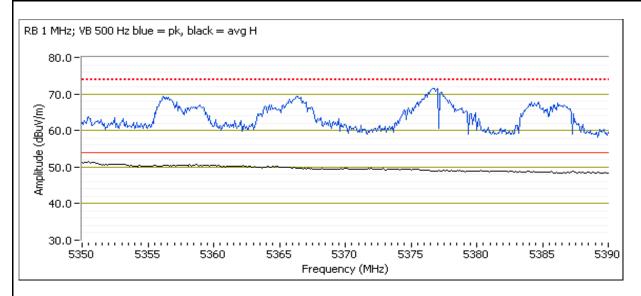


Client:	ARRIS	Job Number:	JD102271
Model:	BGW210-700	T-Log Number:	T103599
	BGW210-700	Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B, 15.247, 15.407	Class:	N/A

Channel: 58 - 5290MHzEUT Orientation: FlatTx Chain: 4TxPower setting: 19Mode: ac80Data Rate: MCS 0

Streams: 2SS

JUJU WITTE	5000 Miliz Bana Eage Signal Hadiated Field Strength										
Frequency	Level	Pol	FCC 1	15.209	Detector	Azimuth	Height	Comments			
MHz	dBμV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters				
5350.640	51.4	Н	54.0	-2.6	Avg	77	1.3	POS; RB 1 MHz; VB: 500 Hz			
5376.930	71.3	Н	74.0	-2.7	PK	77	1.3	POS; RB 1 MHz; VB: 3 MHz			





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Client:	ARRIS	Job Number:	JD102271							
Model:	BGW210-700	T-Log Number:	T103599							
	BGW210-700	Project Manager:	Irene Rademacher							
Contact:	Mark Rieger	Project Coordinator:	-							
Standard:	FCC 15.B, 15.247, 15.407	Class:	N/A							

Config. Used: 1

Config Change: none

EUT Voltage: 120V / 60Hz

Date of Test: 1/4/2017 Test Engineer: Rafael Varelas Test Location: Chamber 7

Channel: 58 - 5290MHz

Tx Chain: 4Tx

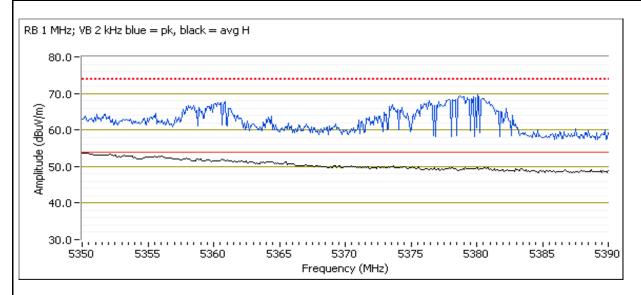
Mode: ac80

EUT Orientation: Flat
Power setting: 20

Data Rate: MCS 0

Streams: 4SS

Frequency	Level	Pol	FCC '	15.209	Detector	Azimuth	Height	Comments	
MHz	dBμV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters		
5350.240	53.7	Н	54.0	-0.3	Avg	36	1.0	POS; RB 1 MHz; VB: 2 kHz	
5379.660	68.9	Н	74.0	-5.1	PK	36	1.0	POS; RB 1 MHz; VB: 3 MHz	





L				
	Client:	ARRIS	Job Number:	JD102271
Model	BGW210-700	T-Log Number:	T103599	
	Model.	BGW210-700	Project Manager:	Irene Rademacher
	Contact:	Mark Rieger	Project Coordinator:	-
	Standard:	FCC 15.B, 15.247, 15.407	Class:	N/A

Run #4: Radiated Bandedge Measurements, 5470-5725 MHz

Date of Test: 12/27/2016 Config. Used: 1
Test Engineer: John Caizzi Config Change: none
Test Location: Chamber 4 EUT Voltage: 120V / 60Hz

Channel: 106 - 5530 MHz

Tx Chain: 4Tx

Mode: ac80

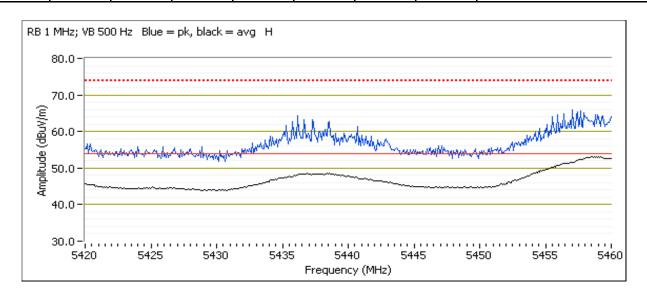
Streams: 1SS

EUT Orientation: Flat

Power setting: 16

Data Rate: MCS 0

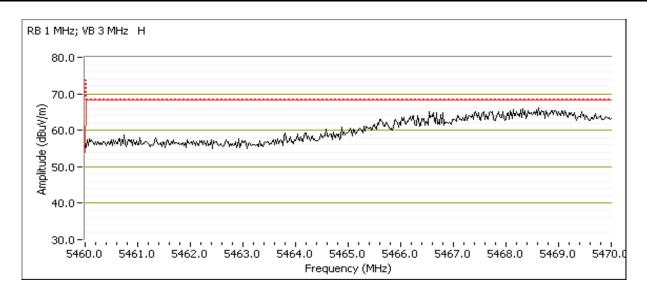
OTOU IVI	0400 Miliz Band Lage Olynai nadiated i icid Ottength										
Freque	ncy Level	Pol	FCC '	15.209	Detector	Azimuth	Height	Comments			
MHz	z dBμV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters				
5458.9	960 53.1	Н	54.0	-0.9	Avg	360	1.28	VB: 500 Hz, note 3.			
5457.2	270 66.3	Н	74.0	-7.7	PK	360	1.28				





	Control of the Contro		
Client:	ARRIS	Job Number:	JD102271
Model:	BGW210-700	T-Log Number:	T103599
	BGW210-700	Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B, 15.247, 15.407	Class:	N/A

• •	mo mile zama zago orginar mataratea i rom ou origin										
Frequency	Level	Pol	1 -	i.E	Detector	Azimuth	Height	Comments			
MHz	dBμV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters				
5466.630	66.2	Н	68.3	-2.1	PK	159	1.45				





Client:	ARRIS	Job Number:	JD102271
Model:	BGW210-700	T-Log Number:	T103599
Model.	DGVV210-700	Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B, 15.247, 15.407	Class:	N/A

Channel: 106 - 5530 MHz

Tx Chain: 4Tx

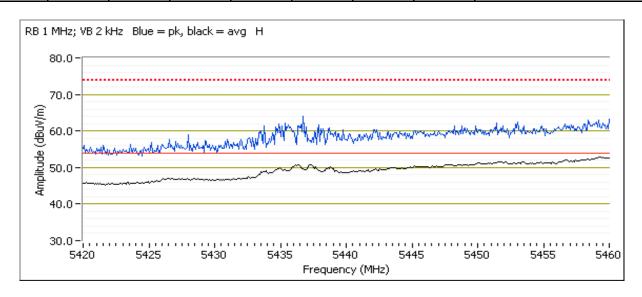
Mode: ac80

EUT Orientation: Flat
Power setting: 17

Data Rate: MCS 0

Streams: 3SS

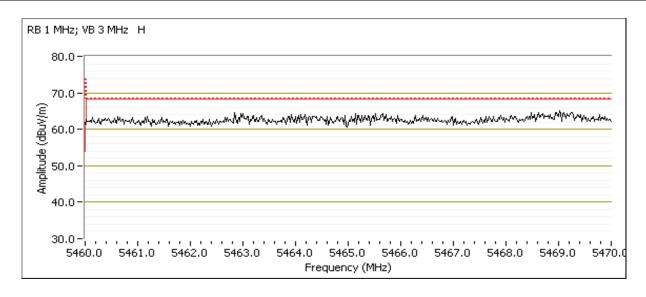
0.00	o to o mini = 2 and = 2 ago orgina radiated i tota out origin									
Frequency	Level	Pol	FCC 1	15.209	Detector	Azimuth	Height	Comments		
MHz	dBμV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters			
5460.000	52.9	Н	54.0	-1.1	Avg	0	1.07	VB: 2 kHz, note 3.		
5458.480	64.3	Н	74.0	-9.7	PK	0	1.07			





	1912年11日 19		
Client:	ARRIS	Job Number:	JD102271
Madal	BGW210-700	T-Log Number:	T103599
Model.	DGVV210-700	Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B, 15.247, 15.407	Class:	N/A

• •	The initial duality and an analysis									
Frequency	Level	Pol	15.E		Detector	Azimuth	Height	Comments		
MHz	dBμV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters			
5469.440	65.3	Н	68.3	-3.0	PK	354	1.07			





	COLOR MINISTERMAN PROGRAMMENT CONTRACTOR CON		
Client:	ARRIS	Job Number:	JD102271
Madal	BGW210-700	T-Log Number:	T103599
Model.	DGVV210-700	Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B, 15.247, 15.407	Class:	N/A

Channel: 106 - 5530 MHz

Tx Chain: 4Tx

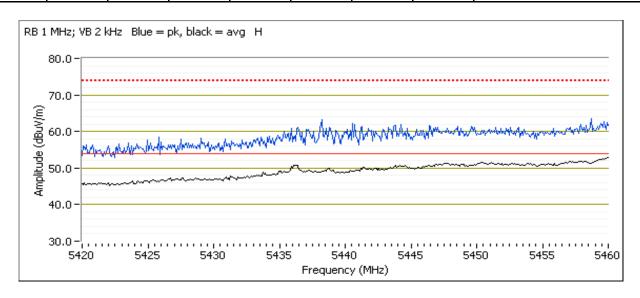
Mode: ac80

EUT Orientation: Flat
Power setting: 18

Data Rate: MCS 0

Streams: 4SS

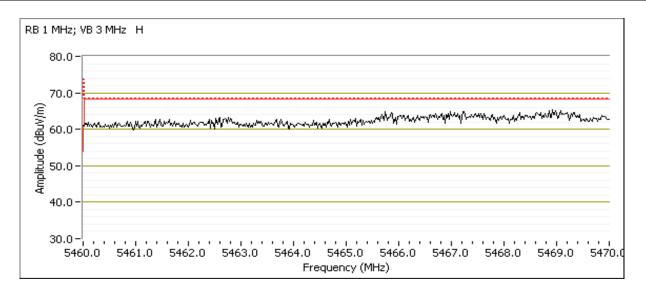
OTOO MILIE E	0400 Mills Bulla Eage Signal Hadiated Field Otterigth										
Frequency	Level	Pol	FCC 1	15.209	Detector	Azimuth	Height	Comments			
MHz	dBμV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters				
5459.360	53.0	Н	54.0	-1.0	Avg	0	1.06	VB: 2 kHz, note 3.			
5447.330	63.6	Н	74.0	-10.4	PK	0	1.06				





	Section 1995 Secti		
Client:	ARRIS	Job Number:	JD102271
Madal	BGW210-700	T-Log Number:	T103599
Model:	BGW210-700	Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B, 15.247, 15.407	Class:	N/A

• •	The initial desired and the desired and the initial de									
Frequency	Level	Pol	15.E		Detector	Azimuth	Height	Comments		
MHz	dBμV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters			
5467.310	65.6	Н	68.3	-2.7	PK	11	1.06			





	CARLS WARRANTS CONTRACTOR CONTRAC		
Client:	ARRIS	Job Number:	JD102271
Model:	BGW210-700	T-Log Number:	T103599
iviouei.	BGW210-700	Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B, 15.247, 15.407	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: 15-18 °C

Rel. Humidity: 30-35 %

Modifications Made During Testing

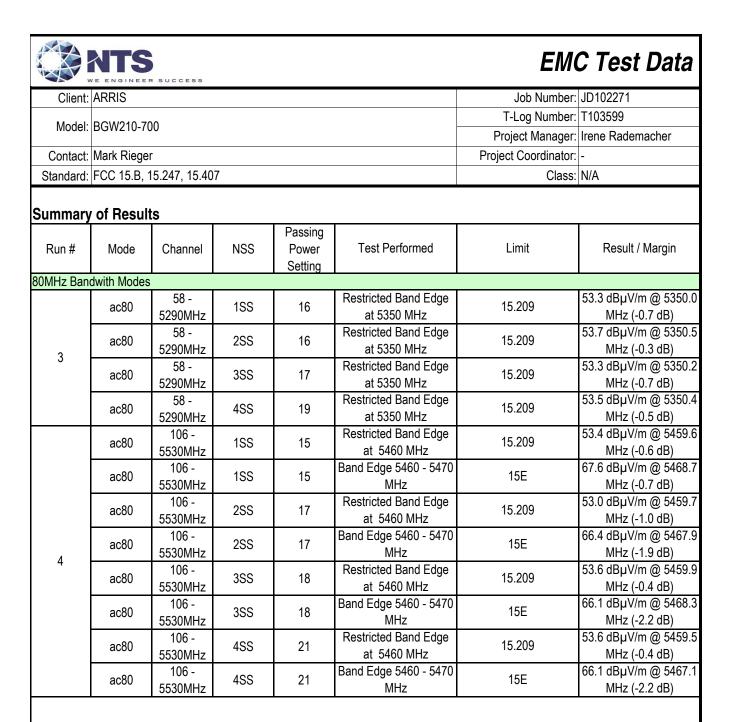
No modifications were made to the EUT during testing

Deviations From The Standard

No deviations were made from the requirements of the standard.

Summary of Results

Run#	Mode	Channel	NSS	Passing Power Setting	Test Performed	Limit	Result / Margin						
40MHz Bandwith Modes													
4	62 -	62 - 1SS 18 Restricted Band Edge		15.209	53.2 dBµV/m @ 5350.1 MHz (-0.8 dB)								
'		5310MHz	4SS	19	at 5350 MHz	15.209	53.7 dBµV/m @ 5351.0 MHz (-0.3 dB)						
	0040	ac40 102 -							1SS	17	Restricted Band Edge at 5460 MHz	15.209	50.7 dBµV/m @ 5459.8 MHz (-3.3 dB)
2	a040							155	17	Band Edge 5460 - 5470 MHz	15E	67.3 dBµV/m @ 5469.4 MHz (-1.0 dB)	
2			5510MHz	4SS	18	Restricted Band Edge at 5460 MHz	15.209	50.5 dBµV/m @ 5458.5 MHz (-3.5 dB)					
			400	18	Band Edge 5460 - 5470 MHz	15E	66.2 dBµV/m @ 5468.0 MHz (-2.1 dB)						
		_											





	The state of the s		
Client:	ARRIS	Job Number:	JD102271
Model:	BGW210-700	T-Log Number:	T103599
Model.	BGW210-700	Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B, 15.247, 15.407	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	ac40	MCS0	0.79	No	0.844	1.0	2.0	1185
4SS	ac40	MCS0	0.71	No	0.68	1.5	3	1471
1SS	ac80	VHT0	0.92	No	1.16	0.3	0.7	862
2SS	ac80	VHT0	0.70	No	0.31	1.5	3.0	3226
3SS	ac80	VHT0	0.82	No	0.49	0.9	1.8	2041
4SS	ac80	VHT0	0.82	No	0.54	0.9	1.7	1852

Sample Notes

Sample S/N: 184795206016304

Driver: d21
Antenna: internal 4x4

Measurement Specific Notes:

	For emissions outside of the restricted bands the limit is -27dBm/MHz eirp (68.3dBuV/m). The measurement method
Note 1:	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 3:	Emission has non-constant duty cycle < 98%, average measurement performed: RBW=1MHz, VBW>1/T but not less than
Note 5.	10Hz, peak detector, linear averaging, auto sweep, max hold 50*1/DC traces (method VB of KDB 789033)
Note E	Plots of the average and peak bandedge do not account for any duty cycle correction. Refer to the tabular results for final
Note 5:	measurements.



	COLOR ALCO HISTORY (COLOR ED ALCO ACTIVITY)		
Client:	ARRIS	Job Number:	JD102271
Madalı	BGW210-700	T-Log Number:	T103599
iviodei.	BGW210-700	Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B, 15.247, 15.407	Class:	N/A

Run #1: Radiated Bandedge Measurements, 5250-5350MHz

Date of Test: 01/04/17 Config. Used: 2
Test Engineer: John Caizzi Config Change: none
Test Location: Chamber 7 EUT Voltage: 120V / 60Hz

Channel: 62 - 5310 MHz

Tx Chain: 4Tx

Mode: n40

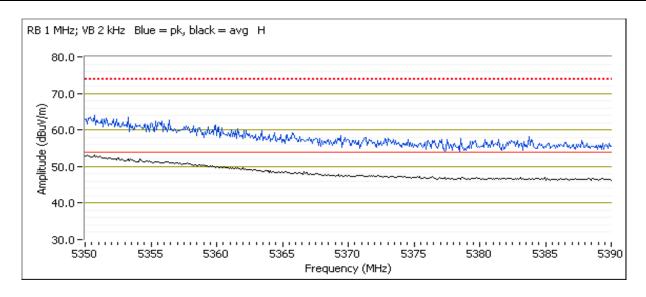
Steams: 1SS

EUT Orientation: Flat

Power setting: 18

Data Rate: MCS 0

Frequency	Level	Pol	FCC '	15.209	Detector	Azimuth	Height	Comments
MHz	dBμV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5350.080	53.2	Н	54.0	-0.8	Avg	360	1.49	VB: 2 kHz, note 3.
5350.880	64.1	Н	74.0	-9.9	PK	360	1.49	





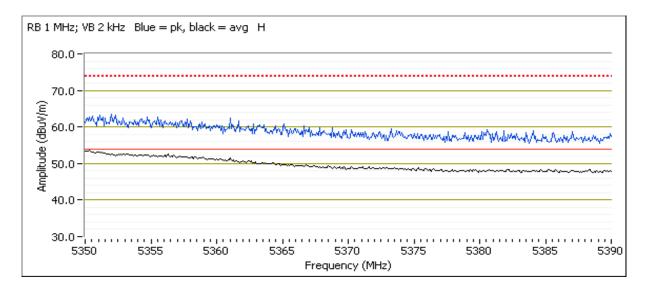
Steams:

EMC Test Data

	COLOR MINISTERMAN PROGRAMMENT CONTRACTOR CON		
Client:	ARRIS	Job Number:	JD102271
Model	BGW210-700	T-Log Number:	T103599
Model.	DGVV210-700	Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B, 15.247, 15.407	Class:	N/A

EUT Orientation: Channel: 62 - 5310 MHz Flat Tx Chain: 4Tx Power setting: 19 Mode: n40 Data Rate: MCS 0 **4SS**

	see init 2 and 2 age organic realistics for one of one										
Frequency	Level	Pol	FCC 1	15.209	Detector	Azimuth	Height	Comments			
MHz	dBμV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters				
5350.960	53.7	Н	54.0	-0.3	Avg	0	1.49	VB: 2 kHz, note 3.			
5355.690	65.3	Н	74.0	-8.7	PK	0	1.49				





	CARLS WARRANTS CONTRACTOR CONTRAC		
Client:	ARRIS	Job Number:	JD102271
Madalı	BGW210-700	T-Log Number:	T103599
iviouei.	BGW210-700	Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B, 15.247, 15.407	Class:	N/A

Run #2: Radiated Bandedge Measurements, 5470-5725MHz

Date of Test: 01/04/17 Config. Used: 2
Test Engineer: Rafael Varelas Config Change: none
Test Location: Chamber 7 EUT Voltage: 120V / 60Hz

Channel: 102 - 5510 MHz

Tx Chain: 4Tx

Mode: n40

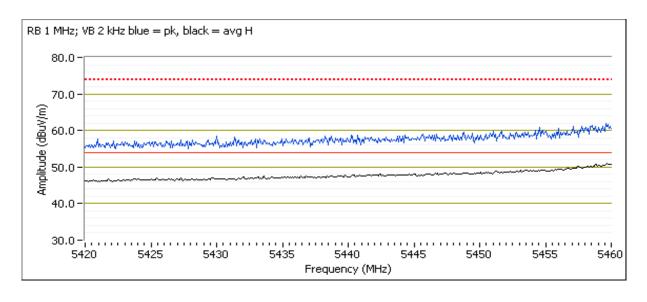
EUT Orientation: Flat

Power setting: 17

Data Rate: MCS 0

Steams: 1SS

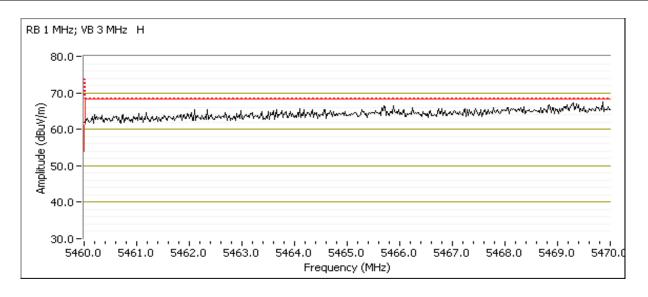
0.100 111112	7 TO MILE Build Edge digital Fluidation Flora Ottorigin										
Frequency	Level	Pol	FCC 1	15.209	Detector	Azimuth	Height	Comments			
MHz	dBμV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters				
5459.760	50.7	Н	54.0	-3.3	Avg	42	1.1	POS; RB 1 MHz; VB: 2 kHz			
5459.280	61.6	Н	74.0	-12.4	PK	42	1.1	POS; RB 1 MHz; VB: 3 MHz			





	272 (C-1989) HED CONTROL OF CONTR		
Client:	ARRIS	Job Number:	JD102271
Madal	BGW210-700	T-Log Number:	T103599
wodei.	BGW210-700	Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B, 15.247, 15.407	Class:	N/A

	70 mile band bago orgina ridulation riord outrigui											
Frequency	Level	Pol	15	i.E	Detector	Azimuth	Height	Comments				
MHz	dBμV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters					
5469.440	67.3	Н	68.3	-1.0	PK	42	1.1	POS; RB 1 MHz; VB: 3 MHz				





	COLOR ALCO HISTORY (COLOR ED ALCO ACTIVITY)		
Client:	ARRIS	Job Number:	JD102271
Madalı	BGW210-700	T-Log Number:	T103599
iviodei.	BGW210-700	Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B, 15.247, 15.407	Class:	N/A

Channel: 102 - 5510 MHz

Tx Chain: 4Tx

Mode: n40

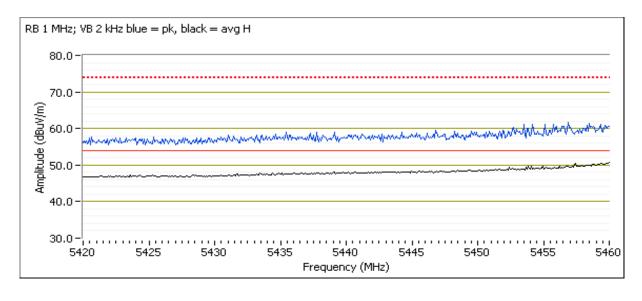
EUT Orientation: Flat

Power setting: 18

Data Rate: MCS 0

Steams: 4SS

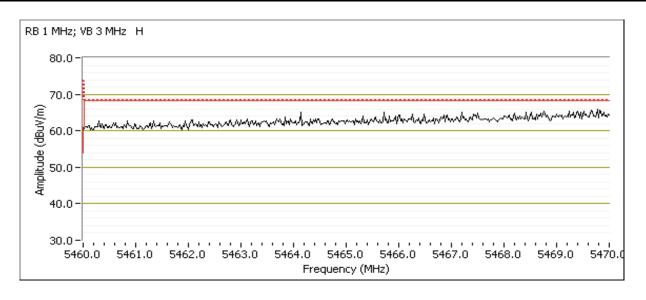
Frequency	Level	Pol	FCC '	15.209	Detector	Azimuth	Height	Comments
MHz	dBμV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5458.520	50.5	Н	54.0	-3.5	Avg	355	1.6	POS; RB 1 MHz; VB: 2 kHz
5458.540	63.2	Н	74.0	-10.8	PK	355	1.6	POS; RB 1 MHz; VB: 3 MHz





Client:	ARRIS	Job Number:	JD102271
Madal	BGW210-700	T-Log Number:	T103599
iviodei.	BGW210-700	Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B, 15.247, 15.407	Class:	N/A

	7 7 7 1111 I Dania Lago Orgina Manatou 7 1014 Ortongth										
Frequency	Level	Pol	15.E		Detector	Azimuth	Height	Comments			
MHz	dBμV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters				
5468.040	66.2	Н	68.3	-2.1	PK	355	1.6	POS; RB 1 MHz; VB: 3 MHz			





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Client:	ARRIS	Job Number:	JD102271						
Madal	BGW210-700	T-Log Number:	T103599						
iviodei.	BGW210-700	Project Manager:	Irene Rademacher						
Contact:	Mark Rieger	Project Coordinator:	-						
Standard:	FCC 15.B, 15.247, 15.407	Class:	N/A						

Run #3: Radiated Bandedge Measurements, 5250-5350 MHz

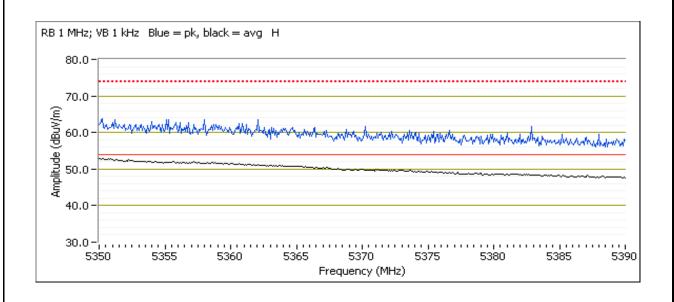
Date of Test: 01/04/17
Test Engineer: John Caizzi
Test Location: Chamber 7

Channel: 58 - 5290MHz
Tx Chain: 4Tx
Mode: ac80
Steams: 1SS

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

EUT Orientation: Flat
Power setting: 16
Data Rate: MCS 0

		J		- 3				
Frequency	Level	Pol	FCC 15.209		Detector	Azimuth	Height	Comments
MHz	dBμV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5350.000	53.3	Н	54.0	-0.7	Avg	161	1.72	VB: 1 kHz, note 3.
5350.000	63.7	Н	74.0	-10.3	PK	161	1.72	





THE STATE OF THE S									
Client:	ARRIS	Job Number:	JD102271						
Model	BGW210-700	T-Log Number:	T103599						
iviouei.	BGW210-700	Project Manager:	Irene Rademacher						
Contact:	Mark Rieger	Project Coordinator:	-						
Standard:	FCC 15.B, 15.247, 15.407	Class:	N/A						

Date of Test: 12/27/16 Test Engineer: Mehran Birgani Test Location: Chamber 4

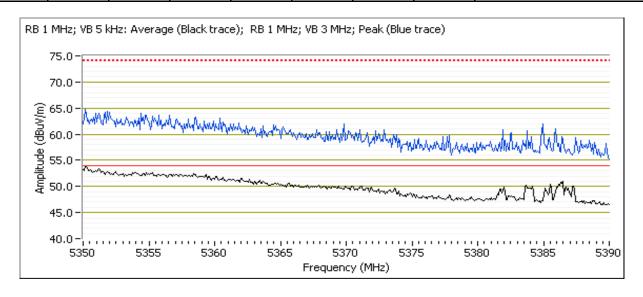
Config. Used: 2 Config Change: none EUT Voltage: 120V / 60Hz

Channel: 58 - 5290MHz Tx Chain: 4Tx Mode: ac80

EUT Orientation: Flat Power setting: 16 Data Rate: MCS 0

2SS Steams:

Frequency	Level	Pol	FCC ²	15.209	Detector	Azimuth	Heiaht	Comments
MHz	dBμV/m	v/h	Limit	Margin	Pk/QP/Avg			
IVII IZ	ασμν/ΙΙΙ	V/11	LIIIII	Maryin	FNQFIAVY	degrees	meters	
5350.540	53.7	Н	54.0	-0.3	AVG	2	1.2	POS; RB 1 MHz; VB: 5 kHz; note 3
5357.940	65.1	Н	74.0	-8.9	PK	2	1.2	POS; RB 1 MHz; VB: 3 MHz





	CONTROL WILLIAM DESCRIPTION OF THE PROPERTY OF		
Client:	ARRIS	Job Number:	JD102271
Madal	BGW210-700	T-Log Number:	T103599
Model.	DGVV210-700	Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B, 15.247, 15.407	Class:	N/A

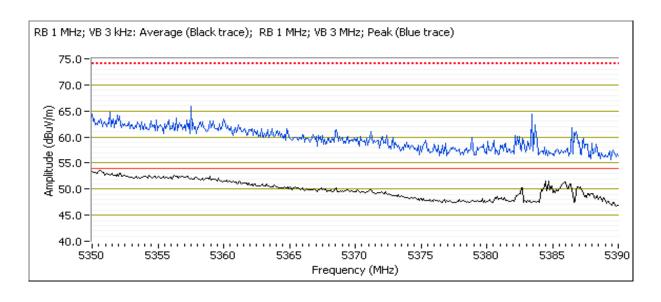
Date of Test: 12/27/16
Test Engineer: Mehran Birgani
Test Location: Chamber 4

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

Channel: 58 - 5290MHz
Tx Chain: 4Tx
Mode: ac80
Steams: 3SS

EUT Orientation: Flat Power setting: 17 Data Rate: MCS 0

Frequency	Level	Pol	FCC [*]	15.209	Detector	Azimuth	Height	Comments
MHz	dBμV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5350.160	53.3	Н	54.0	-0.7	AVG	1	1.2	POS; RB 1 MHz; VB: 3 kHz; note 3
5351.290	65.7	Н	74.0	-8.3	PK	1	1.2	POS; RB 1 MHz; VB: 3 MHz





THE STATE OF THE S									
Client:	ARRIS	Job Number:	JD102271						
Model	BGW210-700	T-Log Number:	T103599						
iviouei.	BGW210-700	Project Manager:	Irene Rademacher						
Contact:	Mark Rieger	Project Coordinator:	-						
Standard:	FCC 15.B, 15.247, 15.407	Class:	N/A						

Config. Used: 2

Config Change: none

EUT Voltage: 120V / 60Hz

Date of Test: 01/04/17 Test Engineer: John Caizzi Test Location: Chamber 7

Channel: 58 - 5290MHz

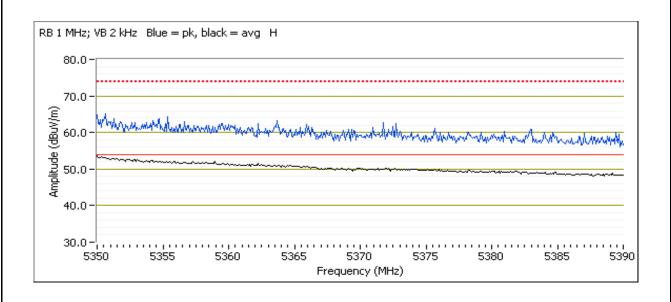
Tx Chain: 4Tx

Mode: ac80

EUT Orientation: Flat
Power setting: 19
Data Rate: MCS 0

Steams: 4SS

Frequency	Level	Pol	FCC '	15.209	Detector	Azimuth	Height	Comments
MHz	dBμV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5350.400	53.5	Н	54.0	-0.5	Avg	159	1.60	VB: 2 kHz, note 3.
5350.560	69.3	Н	74.0	-4.7	PK	159	1.60	





	ACT STATES AND COMPANY ASSOCIATION OF BUILDING		
Client:	ARRIS	Job Number:	JD102271
Model	BGW210-700	T-Log Number:	T103599
iviodei.	BGW210-700	Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B, 15.247, 15.407	Class:	N/A

Run #4: Radiated Bandedge Measurements, 5470-5725MHz

Date of Test: 12/27/16 Config. Used: 2
Test Engineer: Mehran Birgani Config Change: none
Test Location: Chamber 4 EUT Voltage: 120V / 60Hz

Channel: 106 - 5530 MHz

Tx Chain: 4Tx

Mode: ac80

EUT Orientation: Flat

Power setting: 15

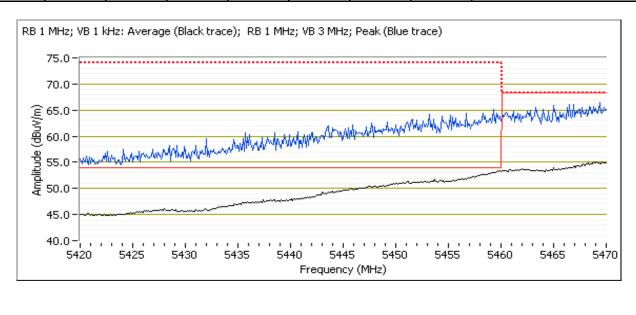
Data Rate: MCS 0

Steams: 1SS

5460 MHz Band Edge Signal Radiated Field Strength

Frequency	Level	Pol	FCC 1	15.209	Detector	Azimuth	Height	Comments
MHz	dBμV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5459.560	53.4	Н	54.0	-0.6	AVG	155	1.4	POS; RB 1 MHz; VB: 1 kHz
5458.770	66.9	Н	74.0	-7.1	PK	155	1.4	POS; RB 1 MHz; VB: 3 MHz

Frequency	Level	Pol	15.E		Detector	Azimuth	Height	Comments
MHz	dBμV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5468.680	67.6	Н	68.3	-0.7	PK	155	1.4	POS; RB 1 MHz; VB: 3 MHz





	CONTROL WILLIAM DESCRIPTION OF THE PROPERTY OF		
Client:	ARRIS	Job Number:	JD102271
Modal:	BGW210-700	T-Log Number:	T103599
Model.	DGVV210-700	Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B, 15.247, 15.407	Class:	N/A

Date of Test: 12/27/16 Config. Used: 2
Test Engineer: Mehran Birgani Config Change: none
Test Location: Chamber 4 EUT Voltage: 120V / 60Hz

Channel: 106 - 5530 MHz

Tx Chain: 4Tx

Mode: ac80

EUT Orientation: Flat

Power setting: 17

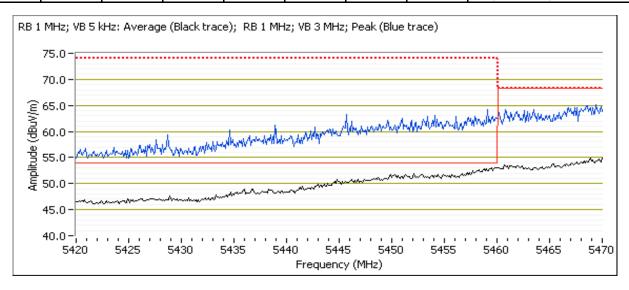
Data Rate: MCS 0

Steams: 2SS

5460 MHz Band Edge Signal Radiated Field Strength

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Frequency	Level	Pol	FCC 1	15.209	Detector	Azimuth	Height	Comments	
MHz	dBμV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters		
5459.730	53.0	Н	54.0	-1.0	AVG	153	1.4	POS; RB 1 MHz; VB: 5 kHz	
5457.500	64.5	Н	74.0	-9.5	PK	153	1.4	POS; RB 1 MHz; VB: 3 MHz	

Frequency	Level	Pol		i.E	Detector	Azimuth	Height	Comments
MHz	dBμV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5467.900	66.4	Н	68.3	-1.9	PK	153	1.4	POS; RB 1 MHz; VB: 3 MHz





Client:	ARRIS	Job Number:	JD102271
Modal:	BGW210-700	T-Log Number:	T103599
Model.	DGVV210-700	Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B, 15.247, 15.407	Class:	N/A

Date of Test: 12/27/16
Test Engineer: Mehran Birgani
Test Location: Chamber 4

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

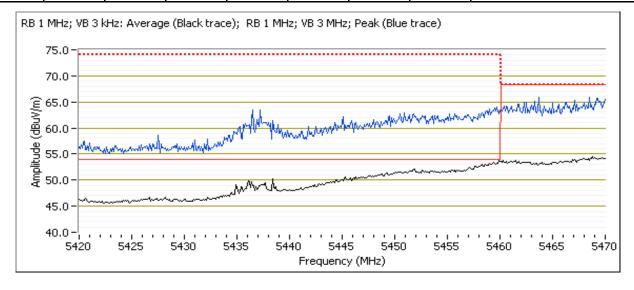
Channel: 106 - 5530 MHz
Tx Chain: 4Tx
Mode: ac80
Steams: 3SS

EUT Orientation: Flat
Power setting: 18
Data Rate: MCS 0

5460 MHz Band Edge Signal Radiated Field Strength

Frequency	Level	Pol	FCC ²	15.209	Detector	Azimuth	Height	Comments
MHz	dBμV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5459.900	53.6	Н	54.0	-0.4	AVG	357	1.4	POS; RB 1 MHz; VB: 3 kHz; note 3
5458.850	65.6	Н	74.0	-8.4	PK	357	1.4	POS; RB 1 MHz; VB: 3 MHz

Frequency	Level	Pol	15	i.E	Detector	Azimuth	Height	Comments
MHz	dBμV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5468.320	66.1	Н	68.3	-2.2	PK	357	1.4	POS; RB 1 MHz; VB: 3 MHz





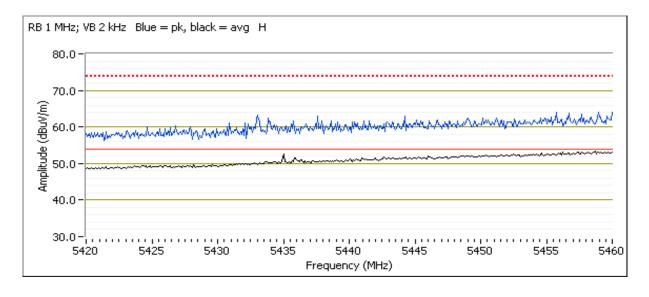
	COLOR MINISTERMAN PROGRAMMENT CONTRACTOR CON		
Client:	ARRIS	Job Number:	JD102271
Madal	BGW210-700	T-Log Number:	T103599
Model.	DGVV210-700	Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B, 15.247, 15.407	Class:	N/A

Date of Test: 01/03/17 Test Engineer: John Caizzi Test Location: Chamber 7 Config. Used: 2 Config Change: none EUT Voltage: 120V / 60Hz

Channel: 106 - 5530 MHz
Tx Chain: 4Tx
Mode: ac80
Steams: 4SS

EUT Orientation: Flat Power setting: 21 Data Rate: MCS 0

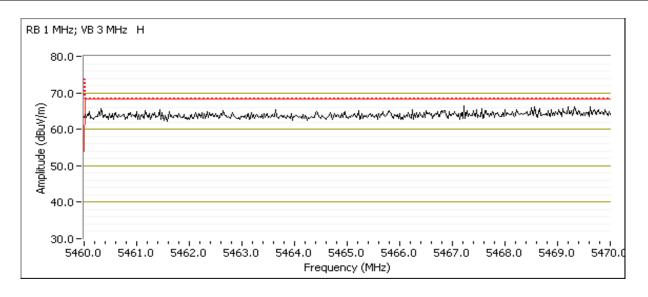
Frequency	Level	Pol	FCC 1	15.209	Detector	Azimuth	Height	Comments
MHz	dBμV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5459.530	53.6	Н	54.0	-0.4	Avg	355	1.47	VB: 2 kHz, note 3.
5454.220	65.4	Н	74.0	-8.6	PK	355	1.47	





Client:	ARRIS	Job Number:	JD102271
Madal	BGW210-700	T-Log Number:	T103599
iviodei.	BGW210-700	Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B, 15.247, 15.407	Class:	N/A

• • = =	The same and the s									
Frequency	Level	Pol	15	5.E	Detector	Azimuth	Height	Comments		
MHz	dBμV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters			
5467.110	66.1	Н	68.3	-2.2	PK	72	1.52			





Client:	ARRIS	Job Number:	JD102271
Madal	BGW210-700	T-Log Number:	T103599
iviodei.	BGW210-700	Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B, 15.247, 15.407	Class:	N/A

RSS-247 (LELAN) and FCC 15.407(UNII) Antenna Port Measurements Power, PSD, Bandwidth and Spurious Emissions

Test Specific Details

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

specification listed above.

Summary of Results

Run #	Test Performed	Limit	Pass / Fail	Result / Margin	
1	Power, 5150 - 5250MHz	15.407(a) (1) (ii)	Pass	n20: 26.9 dBm (495.4mW) n40: 22.7 dBm (184.1mW) ac80: 24.0 dBm (251mW)	
1	PSD, 5150 - 5250MHz	15.407(a) (1) (ii)	Pass	n20: 14.0 dBm/MHz n40: 7.4 dBm/MHz ac80: 5.1 dBm/MHz	
1	99% Bandwidth	RSS-247 (Information only)		n20: 18.6 MHz n40: 36.8 MHz ac80: 75.8 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: 23.9 °C Rel. Humidity: 41.2 %

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.



WE ENGINEER SOCCESS								
Client:	ARRIS	Job Number:	JD102271					
Model:	BGW210-700	T-Log Number:	T103599					
		Project Manager:	Irene Rademacher					
Contact:	Mark Rieger	Project Coordinator:	-					
Standard:	FCC 15.B, 15.247, 15.407	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	ac20	MCS0	0.99	Yes	9.89	0.00	0.00	10
4SS	ac20	MCS0	0.96	Yes	2.49	0.18	0.36	402
1SS	ac40	MCS0	0.99	Yes	5.29	0.00	0.00	10
3SS	ac40	MCS0	0.98	Yes	1.65	0.10	0.20	10
4SS	ac40	MCS0	0.96	Yes	1.25	0.16	0.33	803
1SS	ac80	VHT0	0.96	Yes	2.214	0.19	0.39	452
2SS	ac80	VHT0	0.97	Yes	2.236	0.11	0.23	447
3SS	ac80	VHT0	0.92	Yes	0.784	0.37	0.73	1276
4SS	ac80	VHT0	0.89	Yes	0.551	0.51	1.01	1815

Sample Notes

Sample S/N: 184795206016304

Driver: d21 Antenna: 4x4 internal

	NTS ve engineer success	EMO	C Test Data
Client:	ARRIS	Job Number:	JD102271
Madalı	DOMO40 700	T-Log Number:	T103599
Modei.	BGW210-700	Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B, 15.247, 15.407	Class:	N/A
[Te	ndwidth, Output Power and Power Spectral Density - MIMO Systems Date of Test: 1/6/2017 0:00 St Engineer: J. Caizzi / R. Varelas Est Location: FT Lab #4B Config Change EUT Voltage	: None	
Note 1:	Power measurements performed using a gated averge power meter.		
Note 1:	PSD measurements - Duty Cycle ≥ 98%. RBW=1MHz, VB=3 MHz, Span sweep, RMS detector, power averaging on (transmitted signal was continu	•	ep ≥ 2*span/RBW, auto
Note 2:	PSD measurements - Duty Cycle < 98%. RBW=1MHz, VB=3 MHz, Span > detector, trace average 100 traces, power averaging on. The measuremen (method SA-2 of ANSI C63.10)	•	
	99% Bandwidth measured in accordance with C63.10 - RB between 1-5 $%$ times OBW.		
Note 6:	For MIMO systems the total output power and total PSD are calculated from (in linear terms). The antenna gain used to determine the EIRP and limits mode of the MIMO device. If the signals on the non-coherent between the the limits is the highest gain of the individual chains and the EIRP is the su chain. If the signals are coherent then the effective antenna gain is the sur the EIRP is the product of the effective gain and total power.	for PSD/Output power dep transmit chains then the m of the products of gain a	pends on the operating gain used to determine and power on each



Client:	ARRIS	Job Number:	JD102271
Model:	BGW210-700	T-Log Number:	T103599
iviodei.	DGW210-700	Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B, 15.247, 15.407	Class:	N/A

Antenna Gain Information

Antenna at	2 o ac									
Freq	Antenna Gain (dBi) / Chain				BF	MultiChain	CDD	Sectorized	Dir G	Dir G
rieq	1 2 3 4				DI	Legacy	CDD	/ Xpol	(PWR)	(PSD)
5150-5250					No	Yes	Yes	No	0.90	6.50
5250-5350	Pofor to an	utonna snoo i	n operationa	l description	No	Yes	Yes	No	0.90	6.90
5470-5725	ivelei to all	iterina speci	порегацина	i description	No	Yes	Yes	No	1.10	7.10
5725-5825					No	Yes	Yes	No	0.80	6.50

For devices that support CDD modes

Notes:

Min # of spatial streams: 1
Max # of spatial streams: 4

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.

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 taken from antenna spec in operational description. As the device operates using CDD, the Dir G (PWR) used the "Uncorrelated" value provided; PSD used the "Correlated". This is per KDB 662911 F)2)f).

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
Х	Indoor AP	30	17
	Station (e.g. Client)	24	11
	Outdoor AP (>30° Elv.)	21	-



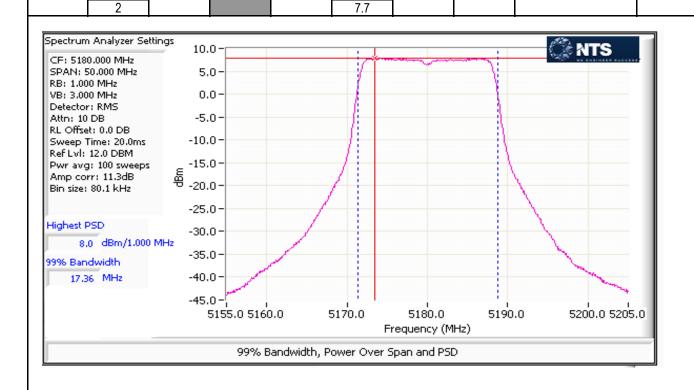
L											
	Client:	ARRIS	Job Number:	JD102271							
	Model	BGW210-700	T-Log Number:	T103599							
	Model.	BGW210-700	Project Manager:	Irene Rademacher							
	Contact:	Mark Rieger	Project Coordinator:	-							
	Standard:	FCC 15.B, 15.247, 15.407	Class:	N/A							

MIMO Device - 5150-5250 MHz Band - FCC, 4SS

Mode:	ac 20						Max	EIRP (mW):	609.5	
Frequency	Chain	Software	26dB BW	Duty Cycle Pow	Power ²	Total F	Total Power ⁶		Max Power	Result
(MHz)	Onam	Setting	(MHz)	%	dBm	mW	dBm	dBm	(W)	Nesuit
	1	22			20.8	495.4	26.9		0.495	
5180	3				21.1			30.0		Pass
5100	4	22			20.7	433.4				
	2				21.1					

5150-5250 PSD - FCC, 4SS

ac 20 Mode: Frequency Software 99% BW **Duty Cycle** PSD³ Total PSD⁶ FCC Limit Chain Result (MHz) Setting (MHz) dBm/MHz % dBm/MHz mW/MHz dBm/MHz 1 7.7 3 8.0 95.9 5180 22 24.9 14.0 16.5 Pass 4 7.6





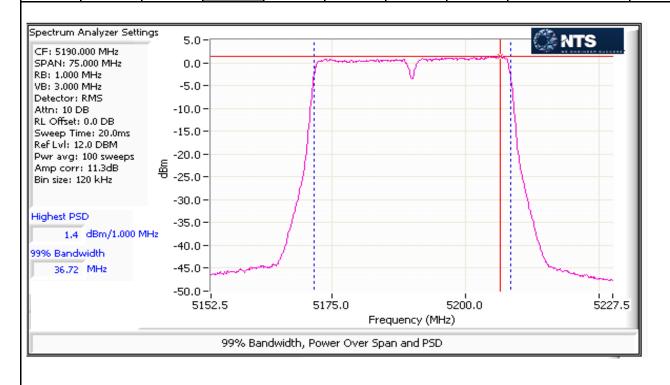
Client:	ARRIS	Job Number:	JD102271						
Model: E	DCW210 700	T-Log Number:	T103599						
Model.	DGVV210-700	Project Manager:	Irene Rademacher						
Contact:	Mark Rieger	Project Coordinator:	-						
Standard:	FCC 15.B, 15.247, 15.407	Class:	N/A						

MIMO Device - 5150-5250 MHz Band - FCC, 4SS

Mode:	ac 40						Max	EIRP (mW):	226.5	
Frequency	Chain	Software	26dB BW	Duty Cycle Power	Power ¹	Total Power ⁶		FCC Limit	Max Power	Result
(MHz)	Chain	Setting	(MHz)	%	dBm	mW	dBm	dBm	(W)	Nesuit
	1	17			16.8	184.1	22.7	30.0	0.184	
5190	3				16.7					Pass
3130	4	17			16.3					
	2				16.7					

5150-5250 PSD - FCC, 4SS

WOUC.	ac +0								
Frequency	Chain	Software	99% BW	Duty Cycle	PSD ³	Total PSD ⁶		FCC Limit	Result
(MHz)	Ollalli	Setting	(MHz)	%	dBm/MHz	mW/MHz	dBm/MHz	dBm/MHz	Nesuit
	1		18	96.3	0.9	5.5	7.4	16.5	
5190	3	18			1.4				Pass
3190	4	10			1.3				
	2				13				





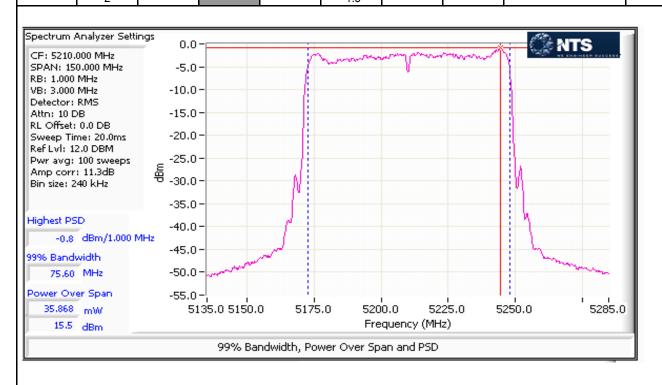
Client:	ARRIS	Job Number:	JD102271
Model: E	DCW210 700	T-Log Number:	T103599
	BGW210-700	Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B, 15.247, 15.407	Class:	N/A

MIMO Device - 5150-5250 MHz Band - FCC, 4SS

Mode:	ac 80						Max	EIRP (mW):	308.8	
Frequency	Chain	Software	Software 26dB BW	Duty Cycle	Power ²	Total Power ⁶		FCC Limit	Max Power	Result
(MHz)	Onam	Setting	(MHz)	%	dBm	mW	dBm	dBm	(W)	Nesuit
	1	18			18.2	251.0	24.0		0.251	
5210	3				17.9			30.0		Pass
5210	4	10			17.9					
	2				17.9					

5150-5250 PSD - FCC, 4SS

WOUC.	ac 00								
Frequency	Chain	Software	99% BW	Duty Cycle	PSD ³	Total PSD ⁶		FCC Limit	Result
(MHz)	Chain	Setting	(MHz)	%	dBm/MHz	mW/MHz	dBm/MHz	dBm/MHz	Nesuit
	1	18			-1.6				
5210	3		89.0	-0.8	3.2	5.1	16.5	Pass	
3210	4	10		09.0	-1.8	5.2	3.1	10.5	1 433
	2				-18				





Client:	ARRIS	Job Number:	JD102271
Madal	BGW210-700	T-Log Number:	T103599
iviodei.	BGW210-700	Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B, 15.247, 15.407	Class:	N/A

RSS-247 (LELAN) and FCC 15.407(UNII) Antenna Port Measurements Power, PSD, Bandwidth and Spurious Emissions

Test Specific Details

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

specification listed above.

Summary of Results

Run #	Test Performed	Limit	Pass / Fail	Result / Margin
1	Power, 5150 - 5250MHz	15.407(a) (1) (ii)	Pass	n20: 26.9 dBm (495.4mW) n40: 23.1 dBm (205.4mW) ac80: 24.0 dBm (251mW)
1	PSD, 5150 - 5250MHz	15.407(a) (1) (ii)	Pass	n20: 14.0 dBm/MHz n40: 7.4 dBm/MHz ac80: 5.1 dBm/MHz
1	99% Bandwidth	RSS-247 (Information only)	N/A	n20: 17.4 MHz n40: 36.7 MHz ac80: 75.6 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: 23.9 °C Rel. Humidity: 41.2 %

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:	JD102271
Model	BGW210-700	T-Log Number:	T103599
Model.	BGW210-700	Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B, 15.247, 15.407	Class:	N/A

Procedure Comments:

Measurements performed in accordance with FCC KDB 789033 D01

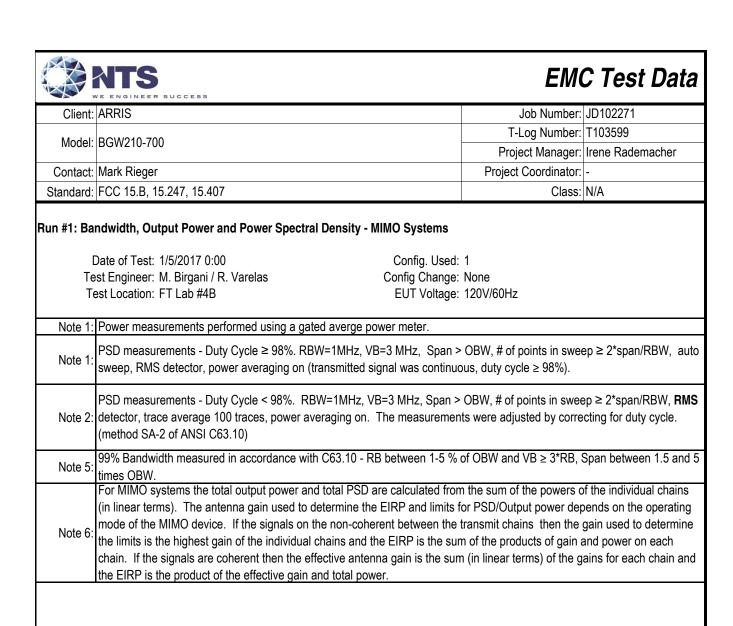
	Mode	Data Rate	Duty Cycle (x)	Constant DC?	T (ms)	Pwr Cor Factor*	Lin Volt Cor Factor**	Min VBW for FS (Hz)
1SS	ac20	MCS0	0.99	Yes	9.89	0.00	0.00	10
4SS	ac20	MCS0	0.96	Yes	2.49	0.18	0.36	402
1SS	ac40	MCS0	0.99	Yes	5.29	0.00	0.00	10
3SS	ac40	MCS0	0.98	Yes	1.65	0.10	0.20	10
4SS	ac40	MCS0	0.96	Yes	1.25	0.16	0.33	803
1SS	ac80	VHT0	0.96	Yes	2.214	0.19	0.39	452
2SS	ac80	VHT0	0.97	Yes	2.236	0.11	0.23	447
3SS	ac80	VHT0	0.92	Yes	0.784	0.37	0.73	1276
4SS	ac80	VHT0	0.89	Yes	0.551	0.51	1.01	1815

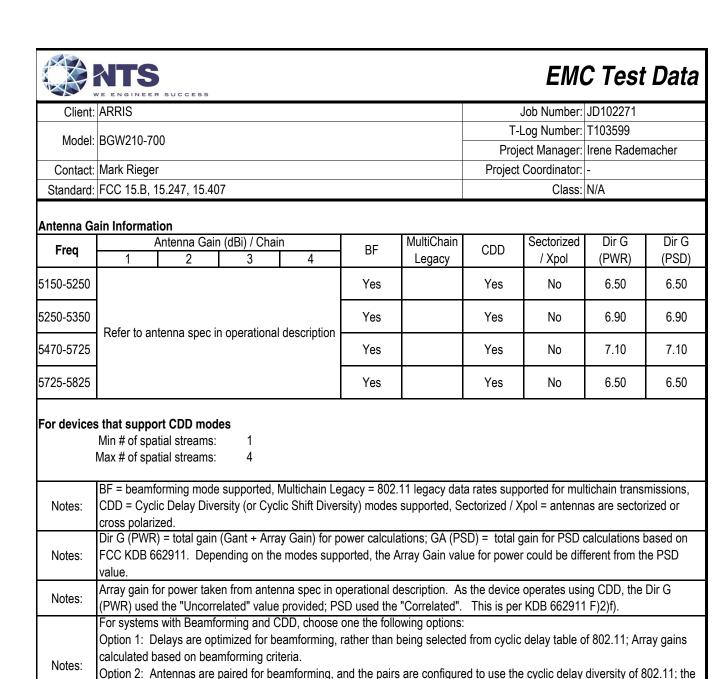
Note - for antenna port measurements, the EUT was operated in the non-TxBF mode

Sample Notes

Sample S/N: 184795206016304

Driver: d21 Antenna: 4x4 internal





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

(3dB for PSD and 0 dB for power)

array gain associated with beamforming with 2 antennas (3dB), and the array gain associated with CDD with two antennas



Client:	ARRIS	Job Number:	JD102271
Model:	BGW210-700	T-Log Number:	T103599
iviodei.	BGW210-700	Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B, 15.247, 15.407	Class:	N/A

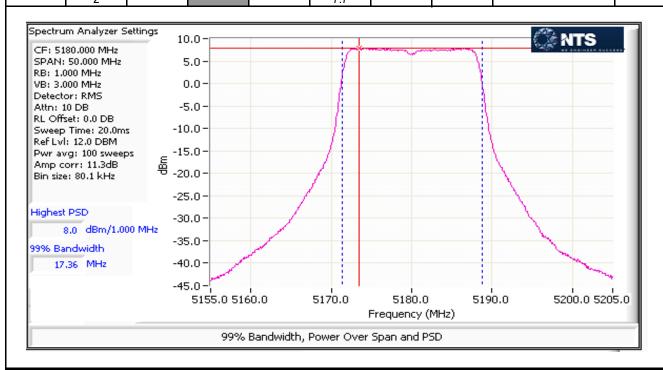
Power measurements performed at the highest power setting from the bandedge measurements for any number of SS.

MIMO Device - 5150-5250 MHz Band - FCC, 4SS

Mode:	ac 20						Max	EIRP (mW):	2212.9	
Frequency	Chain	Software	26dB BW	Duty Cycle	Power ²	Total F	Power ⁶	FCC Limit	Max Power	Result
(MHz)	Onam	Setting	(MHz)	%	dBm	mW	dBm	dBm	(W)	Mesuit
	1				20.8					
5180	3	22			21.1	495.4	26.9	29.5	0.495	Pass
5160	4	22			20.7			29.5		
	2				21.1					

5150-5250 PSD - FCC, 4SS

110	40 20								
Frequency	Chain	Software	99% BW	Duty Cycle	PSD ³	Total PSD ⁶		FCC Limit	Result
(MHz)	Onam	Setting	(MHz)	%	dBm/MHz	mW/MHz	dBm/MHz	dBm/MHz	Nesuit
	1				7.7				
5180	3	22		95.9	8.0	24.9	14.0	16.5	Pass
3100	4	22		33.3	7.6	24.3	14.0	10.5	1 033
	2				77				





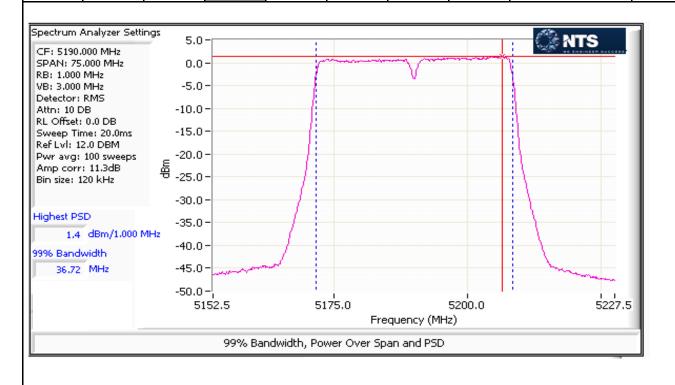
The State Control of the State									
Client:	ARRIS	Job Number:	JD102271						
Model:	BGW210-700	T-Log Number:	T103599						
	BGW210-700	Project Manager:	Irene Rademacher						
Contact:	Mark Rieger	Project Coordinator:	-						
Standard:	FCC 15.B, 15.247, 15.407	Class:	N/A						

MIMO Device - 5150-5250 MHz Band - FCC, 4SS

Mode:	ac 40						Max	EIRP (mW):	917.5	
Frequency	Chain	Software	26dB BW	Duty Cycle	Power ¹	Total F	Power ⁶	FCC Limit	Max Power	Result
(MHz)	Chain	Setting	(MHz)	%	dBm	mW	dBm	dBm	(W)	Nesult
	1				17.3					
5190	3	18			17.2	205.4	23.1	29.5	0.205	Pass
5190	4	10			16.7	200.4	23.1	29.5	0.205	F 455
	2				17.2					

5150-5250 PSD - FCC, 4SS

model	u0 10								
Frequency	Chain	Software	99% BW	99% BW Duty Cycle PSD ³ Total PSD ⁶ FCC Limit		Total PSD ⁶		FCC Limit	Result
(MHz)	Orialii	Setting	(MHz)	%	dBm/MHz	mW/MHz	dBm/MHz	dBm/MHz	Nesuit
	1	18	96.3	0.9	5.5	7.4	16.5		
5190	3			1.4				Pass	
	4	10		30.3	1.3	5.5	7.4	10.5	1 033
	2				13				





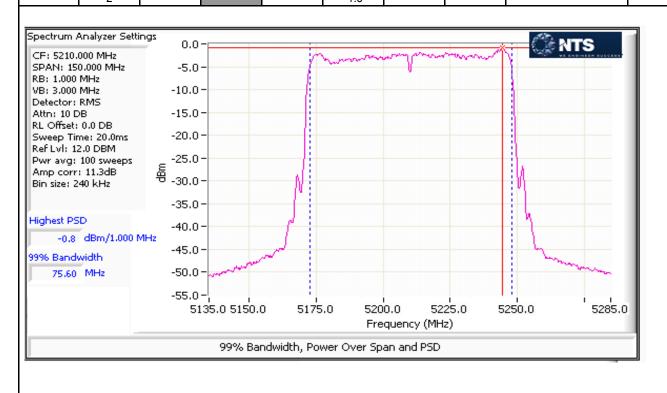
	The state of the s		
Client:	ARRIS	Job Number:	JD102271
Model:	BGW210-700	T-Log Number:	T103599
iviouei.	BGW210-700	Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B, 15.247, 15.407	Class:	N/A

MIMO Device - 5150-5250 MHz Band - FCC, 4SS

Mode:	ac 80						Max	EIRP (mW):	1121.2	
Frequency	Frequency Chain		26dB BW	Duty Cycle	Power ²	Total F	Power ⁶	FCC Limit	Max Power	Result
(MHz)	Cilalii	Setting	(MHz)	%	dBm	mW	dBm	dBm	(W)	Nesuit
5210	1	18			18.2		24.0	29.5	0.251	
	3				17.9	251.0				Pass
3210	4	10			17.9	251.0	24.0	29.5	0.231	F 455
	2				17.9					

5150-5250 PSD - FCC, 4SS

WOUC.	ac 00									
Frequency	Chain	Software	99% BW	Duty Cycle	PSD ³	Total PSD ⁶		FCC Limit	Result	
(MHz)	Onam	Setting	(MHz)	%	dBm/MHz	mW/MHz	dBm/MHz	dBm/MHz	Nesuit	
	1				-1.6					
5210	3	18		89.0	-0.8	3.2	5.1	16.5	Pass	
5210	4	10		09.0	-1.8	J.Z	3.1	10.5	1 055	
	2				-18					





Client:	ARRIS	Job Number:	JD102271
Model:	BGW210-700	T-Log Number:	T103599
	BGW210-700	Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B, 15.247, 15.407	Class:	N/A

RSS-247 (LELAN) and FCC 15.407(UNII) Antenna Port Measurements Power, PSD, Bandwidth and Spurious Emissions

Test Specific Details

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

specification listed above.

Summary of Results

Run #	Test Performed	Limit	Pass / Fail	Result / Margin
1	Power, 5250 - 5350MHz	15.407 (a)(2)	Pass	n40: 23.7 dBm (232.1mW)
•		(-/(-/		ac80: 23.4 dBm (218.9mW)
1	PSD 5250 - 5350MHz	15.407 (a)(2)	Pass	n40: 8.1 dBm/MHz
•		(-/(-/		ac80: 6.6 dBm/MHz
1	Power, 5470 - 5725MHz	15.407 (a)(2)	Pass	n40: 23.6 dBm (229.1 mW)
	,	(-)(-)		ac80: 23.9 dBm (247 mW)
1	PSD, 5470 - 5725MHz	15.407 (a)(2)	Pass	n40: 7.9 dBm/MHz
•		(-/(-/		ac80: 8.5 dBm/MHz
1	99% Bandwidth	RSS-247 (Information only)	N/A	n40: 36.8 MHz ac80: 75.8 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: 23.9 °C Rel. Humidity: 41.2 %

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:	JD102271
Model:	BGW210-700	T-Log Number:	T103599
	BGW210-700	Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B, 15.247, 15.407	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	ac20	MCS0	0.99	Yes	9.89	0.00	0.00	10
4SS	ac20	MCS0	0.96	Yes	2.49	0.18	0.36	402
1SS	ac40	MCS0	0.99	Yes	5.29	0.00	0.00	10
3SS	ac40	MCS0	0.98	Yes	1.65	0.10	0.20	10
4SS	ac40	MCS0	0.96	Yes	1.25	0.16	0.33	803
1SS	ac80	VHT0	0.96	Yes	2.214	0.19	0.39	452
2SS	ac80	VHT0	0.97	Yes	2.236	0.11	0.23	447
3SS	ac80	VHT0	0.92	Yes	0.784	0.37	0.73	1276
4SS	ac80	VHT0	0.89	Yes	0.551	0.51	1.01	1815

Sample Notes

Sample S/N: 184795206016304

Driver: d21 Antenna: 4x4 internal



Client:	ARRIS	Job Number:	JD102271
Model:	BGW210-700	T-Log Number:	T103599
	BGW210-700	Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B, 15.247, 15.407	Class:	N/A

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

Date of Test: 1/6/2017 0:00 Config. Used: 1
Test Engineer: J. Caizzi / R. Varelas Config Change: None
Test Location: FT Lab #4B EUT Voltage: 120V/60Hz

Note 1:	Power measurements performed using a gated averge power meter.
Note 1:	PSD measurements - Duty Cycle ≥ 98%. RBW=1MHz, VB=3 MHz, Span > OBW, # of points in sweep ≥ 2*span/RBW, auto
NOLE 1.	sweep, RMS detector, power averaging on (transmitted signal was continuous, duty cycle ≥ 98%).
	PSD measurements - Duty Cycle < 98%. RBW=1MHz, VB=3 MHz, Span > OBW, # of points in sweep ≥ 2*span/RBW, RMS
Note 2:	detector, trace average 100 traces, power averaging on. The measurements were adjusted by correcting for duty cycle.
	(method SA-2 of ANSI C63.10)
Nata C.	99% Bandwidth measured in accordance with C63.10 - RB between 1-5 % of OBW and VB ≥ 3*RB, Span between 1.5 and 5
Note 5:	times OBW.
	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
Note 6:	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.

	NTS	R SUCCESS						ЕМ	C Test	Data
Client:	ARRIS							Job Number:	JD102271	
Model:	BGW210-70	nΛ					T-Log Number: T103599			
MUUGI.	DG VV 2 10-7 C	JU					Pro	ect Manager:	Irene Rader	nacher
Contact:	Mark Rieger	r					Projec	t Coordinator:	-	
Standard:	FCC 15.B, 1	C 15.B, 15.247, 15.407						Class:	N/A	
Antenna Ga	ain Informat	ion								
Freq		Antenna Gair	_ ` _ /		BF	MultiChain	CDD	Sectorized	Dir G	Dir G
	1	2	3	4		Legacy		/ Xpol	(PWR)	(PSD)
5150-5250					No	Yes	Yes	No	0.90	6.50
5250-5350	Defer to an	tonno onno i	o operations	l description	No	Yes	Yes	No	0.90	6.90
5470-5725	Relei to all	Refer to antenna spec in operational description				Yes	Yes	No	1.10	7.10
5725-5825					No	Yes	Yes	No	0.80	6.50
	Min # of spa Max # of spa BF = beamf CDD = Cycl cross polariz	ic Delay Dive zed.	1 4 supported, ersity (or Cyc	lic Shift Diver	sity) modes	.11 legacy data s supported, Se	ectorized / 2	Xpol = antenn	as are secto	rized or
Notes:	•		•	•		ations; GA (PS Array Gain valu	•	-		
Notes:	(PWR) used	the "Uncorr	elated" value	provided; PS	D used the					Dir G
Notes:	Option 1: D calculated b Option 2: A array gain a	PWR) used the "Uncorrelated" value provided; PSD used the "Correlated". This is per KDB 662911 F)2)f). For systems with Beamforming and CDD, choose one the following options: Inpution 1: Delays are optimized for beamforming, rather than being selected from cyclic delay table of 802.11; Array gains calculated based on beamforming criteria. Inpution 2: Antennas are paired for beamforming, and the pairs are configured to use the cyclic delay diversity of 802.11; the crray 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)



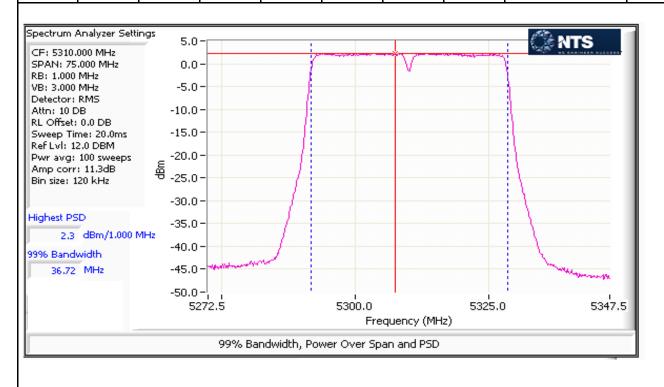
	CONTROL OF THE CONTRO		
Client:	ARRIS	Job Number:	JD102271
Model:	BGW210-700	T-Log Number:	T103599
	BGW210-700	Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B, 15.247, 15.407	Class:	N/A

MIMO Device - 5250-5350 MHz Band - FCC, 4SS

Mode:	ac 40						Max	EIRP (mW):	285.5	
Frequency		Software	26dB BW	Duty Cycle	Power ¹	Total F	Power ⁶	FCC Limit	Max Power	Result
(MHz)	Onam	Setting	(MHz)	%	dBm	mW	dBm	dBm	(W)	Nesuit
5310	1	18	43.9		18.1	232.1	23.7	24.0	0.232	Pass
	3				17.6					
3310	4	10	45.5	-	17.6	202.1	25.1	24.0	0.232	1 033
	2				17.2					

5250-5350 PSD - FCC, 4SS

	40 .0									
Frequency	Chain	Software	99% BW	Duty Cycle	PSD ³	Total	PSD ⁶	FCC Limit	Result	
(MHz)	Oridin	Setting	(MHz)	%	dBm/MHz	mW/MHz	dBm/MHz	dBm/MHz	Nesuit	
	1				2.3					
5310	3	19	36.8	96.3	2.1	6.5	8.1	10.1	Pass	
3310	4	13	30.0	30.5	1.7	0.5	0.1	10.1	1 055	
	2				1.7					





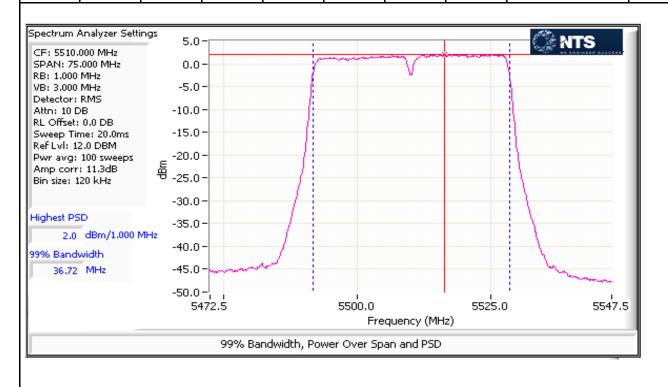
	STATES INTERESTINATION OF THE STATES OF THE		
Client:	ARRIS	Job Number:	JD102271
Model:	BGW210-700	T-Log Number:	T103599
	DGVV210-700	Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B, 15.247, 15.407	Class:	N/A

MIMO Device - 5470-5725 MHz Band - FCC, 4SS

Mode:	ac 40						Max	EIRP (mW):	295.1		
Frequency	Chain	Software	26dB BW	Duty Cycle	Power ¹	Total F	Power ⁶	FCC Limit	Max Power	Result	
(MHz)	Onam	Setting	(MHz)	%	dBm	mW	dBm	dBm	(W)	Nesuit	
	1					17.9					
5510	3	18	44.1		17.6	229.1	23.6	24.0	0.229	Pass	
5510	4	10	44.1	-	17.5	229.1	25.0	24.0	0.229	Fa55	
	2				17.3						

5470-5725 PSD - FCC, 4SS

Wode.	ac +0										
Frequency	Chain	Software	99% BW	Duty Cycle	PSD ³	Total PSD ⁶		FCC Limit	Result		
(MHz)	Chain	Setting	(MHz)	%	dBm/MHz	mW/MHz	dBm/MHz	dBm/MHz	Nesuit		
	1				2.0						
5510	3	18	36.7	96.3	1.9	6.1	7.9	9.9	Pass		
3310	4	10	50.1	30.3	1.3	1.3	1.3	0.1	1.5	3.3	1 033
	2				1.5						





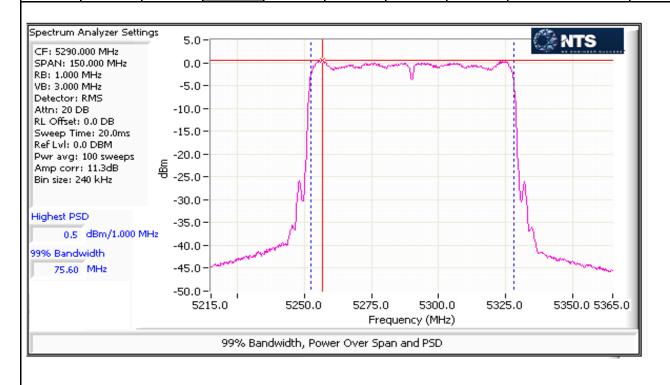
	CONTROL OF THE CONTRO		
Client:	ARRIS	Job Number:	JD102271
Model:	BGW210-700	T-Log Number:	T103599
iviouei.	BGW210-700	Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B, 15.247, 15.407	Class:	N/A

MIMO Device - 5250-5350 MHz Band - FCC, 4SS

Mode:	ac 80						Max	EIRP (mW):	269.3		
Frequency	Chain	Software	26dB BW	Duty Cycle	Power ²	Total F	Power ⁶	FCC Limit	Max Power	Result	
(MHz)	Orialii	Setting	(MHz)	%	dBm	mW	dBm	dBm	(W)	Mesuit	
	1					17.7					
5290	3	18	82.4		17.5	218.9	23.4	24.0	0.219	Pass	
5290	4	10	02.4	-	17.2	210.9	25.4	24.0	0.219	F a 5 5	
	2				17.1						

5250-5350 PSD - FCC, 4SS

WOUC.	ac 00								
Frequency	Chain	Software	99% BW	Duty Cycle	uty Cycle PSD ³ Total PSD ⁶ FCC Limi		Total PSD ⁶ FCC Limit		Result
(MHz)	Ollalli	Setting	(MHz)	%	dBm/MHz	mW/MHz	dBm/MHz	dBm/MHz	Nesuit
	1				0.5				
5290	3	20		89.0	0.1	4.6	6.6	10.1	Pass
3290	4	20		03.0	0.1	4.0	0.0	10.1	1 433
	2				-0.5				





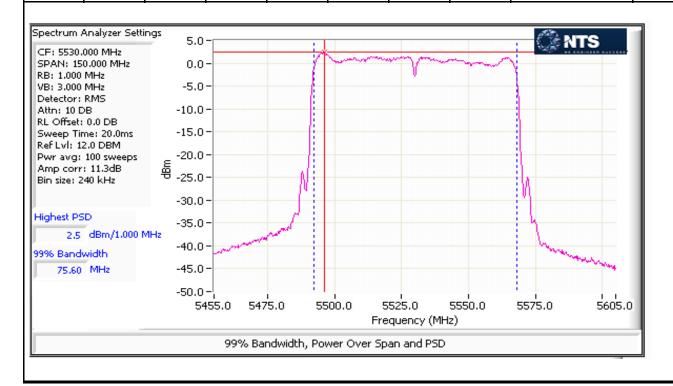
	STATES INTERESTINATION OF THE STATES OF THE		
Client:	ARRIS	Job Number:	JD102271
Model:	BGW210-700	T-Log Number:	T103599
	DGVV210-700	Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B, 15.247, 15.407	Class:	N/A

MIMO Device - 5470-5725 MHz Band - FCC, 4SS

Mode:	ac 80						Max	EIRP (mW):	318.2		
Frequency	Chain	Software	26dB BW	Duty Cycle	Power ²	Total F	Power ⁶	FCC Limit	Max Power	Result	
(MHz)	Orialii	Setting	(MHz)	%	dBm	mW	dBm	dBm	(W)	Mesuit	
	1					18.1					
5530	3	18	82.4		18.0	247.0	23.9	24.0	0.247	Pass	
3330	4	10	02.4	-	18.0	241.0	25.5	24.0	0.241	1 055	
	2				17.5						

5470-5725 PSD - FCC, 4SS

Mode:	ac 80								
Frequency	Chain	Software	99% BW	Duty Cycle	PSD ³	Total	PSD ⁶	FCC Limit	Result
(MHz)	Cilalii	Setting	(MHz)	%	dBm/MHz	mW/MHz	dBm/MHz	dBm/MHz	Nesuit
	1				1.9				
5530	3	21	75.6	89.0	2.5	7.0	8.5	9.9	Pass
3330	4	21	21 /3.0	03.0	1.7	1.0	0.5	3.3	F d 5 5
	2				1 4				





Client:	ARRIS	Job Number:	JD102271
Model:	BGW210-700	T-Log Number:	T103599
	BGW210-700	Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B, 15.247, 15.407	Class:	N/A

RSS-247 (LELAN) and FCC 15.407(UNII) Antenna Port Measurements Power, PSD, Bandwidth and Spurious Emissions

Test Specific Details

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

specification listed above.

Summary of Results

outilitially of ficau				
Run #	Test Performed	Limit	Pass / Fail	Result / Margin
1	Power, 5250 - 5350MHz	15.407 (a)(2)	Pass	n40: 22.7 dBm (186.6 mW)
I	Fower, 3230 - 3330WHZ	15.407 (a)(2)	Fass	ac80: 22.4 dBm (173.1 mW)
1	PSD, 5250 - 5350MHz	15.407 (a)(2)	Pass	n40: 8.1 dBm/MHz
I	F 3D, 3230 - 3330WH IZ	13.407 (a)(2)	F a 3 3	ac80: 6.6 dBm/MHz
1	Power, 5470 - 5725MHz	15.407 (a)(2)	Pass	n40: 22.7 dBm (188.3 mW)
ı	F 6Wei , 3470 - 3723Wii iz	13.407 (a)(2)	F a 5 5	ac80: 22.0 dBm (157.6 mW)
1	PSD, 5470 - 5725MHz	15.407 (a)(2)	Pass	n40: 7.9 dBm/MHz
I	F 3D, 3470 - 3723WII IZ	13.407 (a)(2)	F a 3 3	ac80: 8.5 dBm/MHz
		RSS-247		n20: 18.6 MHz
1	99% Bandwidth	(Information only)	N/A	n40: 36.8 MHz
		(initormation only)		ac80: 75.8 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: 23.9 °C Rel. Humidity: 41.2 %

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:	JD102271
Model:	BGW210-700	T-Log Number:	T103599
	BGW210-700	Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B, 15.247, 15.407	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	ac20	MCS0	0.99	Yes	9.89	0.00	0.00	10
4SS	ac20	MCS0	0.96	Yes	2.49	0.18	0.36	402
1SS	ac40	MCS0	0.99	Yes	5.29	0.00	0.00	10
3SS	ac40	MCS0	0.98	Yes	1.65	0.10	0.20	10
4SS	ac40	MCS0	0.96	Yes	1.25	0.16	0.33	803
1SS	ac80	VHT0	0.96	Yes	2.214	0.19	0.39	452
2SS	ac80	VHT0	0.97	Yes	2.236	0.11	0.23	447
3SS	ac80	VHT0	0.92	Yes	0.784	0.37	0.73	1276
4SS	ac80	VHT0	0.89	Yes	0.551	0.51	1.01	1815

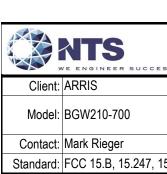
Note - for antenna port measurements, the EUT was operated in the non-TxBF mode

Sample Notes

Sample S/N: 184795206016304

Driver: d21 Antenna: 4x4 internal

	NTS VE ENGINEER SUCCESS	EMC Test Data					
Client:	ARRIS	Job Number: JD102271					
Madali	DCIM040 700	T-Log Number: T103599					
Model:	BGW210-700	Project Manager: Irene Rademacher					
Contact:	Mark Rieger	Project Coordinator: -					
Standard:	FCC 15.B, 15.247, 15.407	Class: N/A					
Run #1: Bandwidth, Output Power and Power Spectral Density - MIMO Systems Date of Test: 1/5/2017 0:00 Config. Used: 1 Test Engineer: M. Birgani / R. Varelas Config Change: None Test Location: FT Lab #4B EUT Voltage: 120V/60Hz							
	Power measurements performed using a gated averge power meter. PSD measurements - Duty Cycle ≥ 98%. RBW=1MHz, VB=3 MHz, Span >	OBW, # of points in sweep ≥ 2*span/RBW, auto					
Note 2:	sweep, RMS detector, power averaging on (transmitted signal was continue						
Note 2:	PSD measurements - Duty Cycle < 98%. RBW=1MHz, VB=3 MHz, Span > detector, trace average 100 traces, power averaging on. The measuremen (method SA-2 of ANSI C63.10)	ts were adjusted by correcting for duty cycle.					
Note 5:	99% Bandwidth measured in accordance with C63.10 - RB between 1-5 $%$ times OBW.						



Client:	ARRIS	Job Number:	JD102271
Model:	BGW210-700	T-Log Number:	T103599
iviodei.	BGW210-700	Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B, 15.247, 15.407	Class:	N/A

Antenna Gain Information

	Antenna Gain (dBi) / Chain				DE	MultiChain	n CDD	Sectorized	Dir G	Dir G
Freq	1	2	3	4	BF	Legacy	CDD	/ Xpol	(PWR)	(PSD)
5150-5250					Yes		Yes	No	6.50	6.50
5250-5350	Dofor to an	itenna spec i	n anarationa	l description	Yes		Yes	No	6.90	6.90
5470-5725	Neiei lu aii	iterina speci	порегацина	i description	Yes		Yes	No	7.10	7.10
5725-5825					Yes		Yes	No	6.50	6.50

For devices that support CDD modes

Notes:

Min # of spatial streams: 1 Max # of spatial streams: 4

Notes:	BF = beamforming mode supported, Multichain Legacy = 802.11 legacy data rates supported for multichain transmissions, CDD = Cyclic Delay Diversity (or Cyclic Shift Diversity) modes supported, Sectorized / Xpol = antennas are sectorized or cross polarized.
	Dir G (PWR) = total gain (Gant + Array Gain) for power calculations; GA (PSD) = total gain for PSD calculations based on ECC KDB 662911. Depending on the modes supported the Array Gain value for power could be different from the PSD.
MUTAG.	TELL, KIJB NOZYLI. Depending on the modes supported the array Gain value for nower could be different from the PSIJ

662911. Depending on the modes supported, the Array Gain value for power could be different from the PSD

Array gain for power taken from antenna spec in operational description. As the device operates using CDD, the Dir G Notes: (PWR) used the "Uncorrelated" value provided; PSD used the "Correlated". This is per KDB 662911 F)2)f).

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
Х	Indoor AP	30	17
	Station (e.g. Client)	24	11
	Outdoor AP (>30° Elv.)	21	-



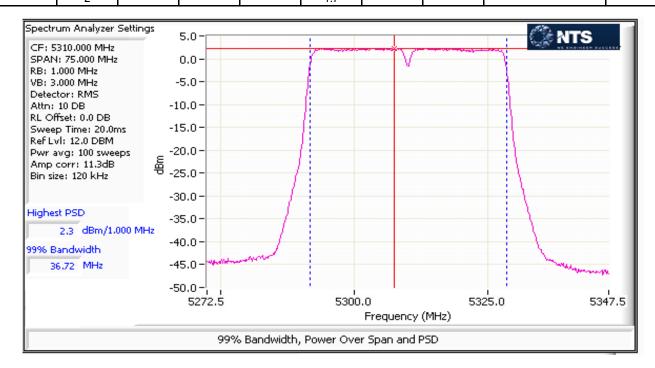
Client:	ARRIS	Job Number:	JD102271
Model: F	BGW210-700	T-Log Number:	T103599
iviouei.	BGW210-700	Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B, 15.247, 15.407	Class:	N/A

MIMO Device - 5250-5350 MHz Band - FCC, 4SS

Mode:	ac 40						Max	EIRP (mW):	913.9	
Frequency	Chain	Software	26dB BW	Duty Cycle	Power ¹	Total Power ⁶		FCC Limit	Max Power	Result
(MHz)	Onam	Setting	(MHz)	%	dBm	mW	dBm	dBm	(W)	Nesuit
	1	17	17 43.9	-	17.1	186.6	22.7	23.1	0.187	Pass
5310	3				16.9					
3310	4	17	45.5		16.5					
	2				16.2					

5250-5350 PSD - FCC, 4SS

Wode.	ac +0									
Frequency	Chain	Software	99% BW	Duty Cycle	PSD ³	Total	PSD ⁶	FCC Limit	Result	
(MHz)	Orialii	Setting	(MHz)	%	dBm/MHz	mW/MHz	dBm/MHz	dBm/MHz	Nesuit	
	1	19	36.8	96.3	2.3	6.5	8.1	10.1		
5310	3				2.1				Pass	
3310	4	13	30.0		1.7					
	2				17					





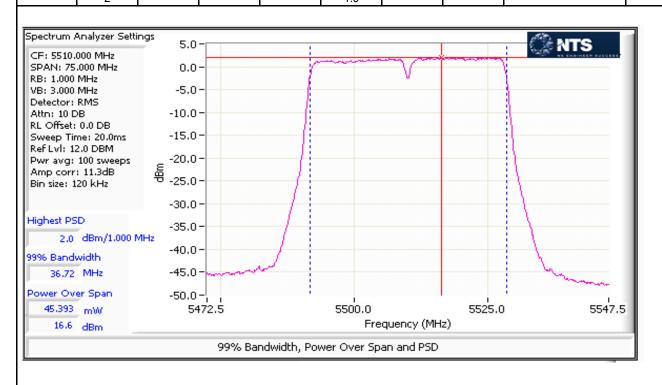
Client:	ARRIS	Job Number:	JD102271
Model: F	BGW210-700	T-Log Number:	T103599
iviouei.	BGW210-700	Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B, 15.247, 15.407	Class:	N/A

MIMO Device - 5470-5725 MHz Band - FCC, 4SS

Mode:	ac 40						Max	EIRP (mW):	965.7	
Frequency	Chain	Software	Software 26dB BW		Power ¹	Total Power ⁶		FCC Limit	Max Power	Result
(MHz)	Ollalli	Setting	(MHz)	%	dBm	mW	dBm	dBm	(W)	Nesuit
	1	17			16.7	188.3	22.7	22.9	0.188	Pass
5510	3		44.1		16.5					
3310	4	44.1	-	16.8	100.5	22.1	22.9	0.100	r a 5 5	
	2				16.9					

5470-5725 PSD - FCC, 4SS

WOUC.	ac +0									
Frequency	Chain	Software	99% BW	Duty Cycle	PSD ³	Total	PSD ⁶	FCC Limit	Result	
(MHz)	Chain	Setting	(MHz)	%	dBm/MHz	mW/MHz	dBm/MHz	dBm/MHz	Nesuit	
	1		36.7	96.3	2.0	6.1	7.9	9.9		
5510	3	18			1.9				Pass	
5510	4	10	30.1	30.3	1.3					
	2				1.5					





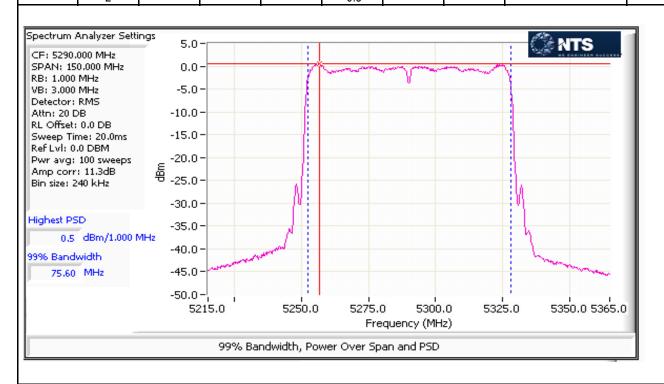
	CONTROL HER CONTROL CO		
Client:	ARRIS	Job Number:	JD102271
Model:	BGW210-700	T-Log Number:	T103599
	BGW210-700	Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B, 15.247, 15.407	Class:	N/A

MIMO Device - 5250-5350 MHz Band - FCC, 4SS

Mode:	ac 80						Max	EIRP (mW):	847.8	
Frequency	Chain	Software	26dB BW	Duty Cycle	Power ²	Total F	Power ⁶	FCC Limit	Max Power	Result
(MHz)	Ollalli	Setting	(MHz)	%	dBm	mW	dBm	dBm	(W)	Nesuit
5290	1	17	82.4		16.9	173.1	22.4	23.1	0.173	Pass
	3				16.1					
	4	17	02.4		16.2		22.4			
	2				16.2					

5250-5350 PSD - FCC, 4SS

Wode.	ac oo									
Frequency	Chain	Software	99% BW	Duty Cycle	PSD ³	Total	PSD ⁶	FCC Limit	Result	
(MHz)	Ollalli	Setting	(MHz)	%	dBm/MHz	mW/MHz	dBm/MHz	dBm/MHz	Nesuit	
5290	1	20 75	75.6	89.0	0.5	4.6	6.6 1	10.1	Pass	
	3 4				0.1					
		20	75.0		0.1			10.1		
	2				-0.5					





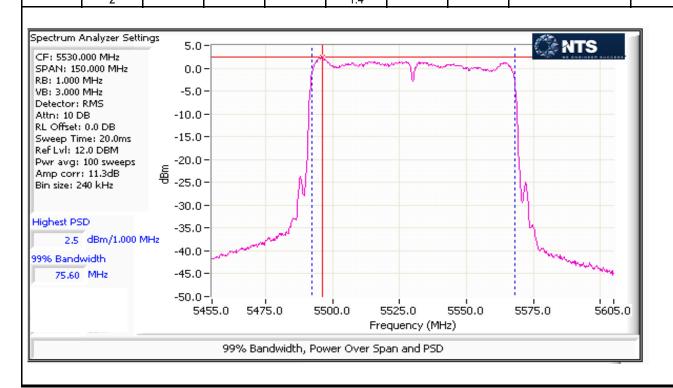
Client:	ARRIS	Job Number:	JD102271
Model:	BGW210-700	T-Log Number:	T103599
	DGVV210-700	Project Manager:	Irene Rademacher
Contact:	Mark Rieger	Project Coordinator:	-
Standard:	FCC 15.B, 15.247, 15.407	Class:	N/A

MIMO Device - 5470-5725 MHz Band - FCC, 4SS

Mode:	ac 80						Max	EIRP (mW):	808.3	
Frequency	Chain	Software	26dB BW	Duty Cycle	Power ²	Total F	Power ⁶	FCC Limit	Max Power	Result
(MHz)	Onam	Setting	(MHz)	%	dBm	mW	dBm	dBm	(W)	Nesuit
5530	1	1 3 16	82.4	2.4 -	16.2	157.6	22.0 22.9	22.0	0.158	Pass
	3				16.1					
	4	10	02.4		15.7			0.100	r a55	
	2				15.8					

5470-5725 PSD - FCC, 4SS

Mode:	ac 80									
Frequency	Chain	Software	99% BW	Duty Cycle	PSD ³	Total	PSD ⁶	FCC Limit	Result	
(MHz)	Glialli	Setting	(MHz)	%	dBm/MHz	mW/MHz	dBm/MHz	dBm/MHz	Nesuit	
	1				1.9					
5530	3	21	75.6	89.0	2.5	2.5	7.0	8.5	9.9	Pass
3330	4	21	75.0	03.0	1.7	7.0	0.5	9.9	1 433	
	0				4.4					



End of Report

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