NTS Silicon Valley
www.nts.com
41039 Boyce Road
Fremont, CA 94538
510-578-3500 Phone
510-440-9525 Fax

EMC Test Report

Application for Grant of Equipment Authorization

Industry Canada RSS-Gen Issue 4 / RSS 210 Issue 8
FCC Part 15 Subpart C

Model: APINH205 2x2:2 MIMO 802.11a/b/g/n/ac Wireless Access Points

IC CERTIFICATION #:	4675A-APINH205
FCC ID:	Q9DAPINH205
APPLICANT:	Aruba Networks 1344 Crossman Ave Sunnyvale, CA 94089
TEST SITE(S):	National Technical Systems - Silicon Valley 41039 Boyce Road. Fremont, CA. 94538-2435
IC SITE REGISTRATION #:	2845B-3; 2845B-4, 2845B-5, 2845B-7
REPORT DATE:	January 26, 2015
REISSUE DATE:	February 9, 2015
FINAL TEST DATES:	December 10, 12, 15, 17, 18 and 29, 2014
TOTAL NUMBER OF PAGES:	166

PROGRAM MGR /
TECHNICAL REVIEWER:

Mark E Hill
Staff Engineer

QUALITY ASSURANCE DELEGATE /
FINAL REPORT PREPARER:

David Guidotti
Senior Technical Writer

ACCREDITED
Testing Cert #0214.26

REVISION HISTORY

Rev#	Date	Comments	Modified By
-	January 26, 2015	First release	
1	February 9, 2015	Revised to correct model name	David Guidotti

TABLE OF CONTENTS

SCOPE

An electromagnetic emissions test has been performed on the Aruba Networks model APINH205 2x2:2 MIMO 802.11a/b/g/n/ac Wireless Access Points, pursuant to the following rules:

Industry Canada RSS-Gen Issue 4
RSS 210 Issue 8 "Low-power Licence-exempt Radiocommunication Devices (All Frequency Bands): Category I Equipment"
FCC Part 15 Subpart C

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

ANSI C63.10-2009
FCC DTS Measurement Guidance KDB558074

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

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

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

OBJECTIVE

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

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

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

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

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

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

STATEMENT OF COMPLIANCE

The tested sample of Aruba Networks model APINH205 2x2:2 MIMO 802.11a/b/g/n/ac Wireless Access Points complied with the requirements of the following regulations:

Industry Canada RSS-Gen Issue 4
RSS 210 Issue 8 "Low-power Licence-exempt Radiocommunication Devices (All Frequency Bands): Category I Equipment"
FCC Part 15 Subpart C

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 Aruba Networks model APINH205 2x2:2 MIMO 802.11a/b/g/n/ac Wireless Access Points and therefore apply only to the tested sample. The samples were selected and prepared by Tian Mendez of Aruba Networks.

DEVIATIONS FROM THE STANDARDS

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

TEST RESULTS SUMMARY

DIGITAL TRANSMISSION SYSTEMS (2400 – 2483.5MHz)

Results for FCC and Industry Canada

FCC Rule Part	RSS Rule Part	Description	Measured Value / Comments	Limit / Requirement	Result
15.247(a)	RSS 210 A8.2	Digital Modulation	Systems uses OFDM / DSSS techniques	System must utilize a digital transmission technology	Complies
15.247 (a) (2)	RSS 210 A8.2 (1)	6dB Bandwidth	b: 8.26MHz g: 16.34MHz n20: 17.58MHz n40: 36.31MHz	>500kHz	Complies
15.247 (b) (3)	RSS 210 A8.2 (4)	Output Power (multipoint systems)	b: 22.5dBm (179mW) g: 21.5dBm (143mW) n20: 21.5dBm (142mW) n40: 17.6dBm (58mW) EIRP = 0.449W Note 1	1Watt, EIRP limited to 4 Watts.	Complies
15.247(d)	RSS 210 A8.2 (2)	Power Spectral Density	b: 5.6dBm/10kHz g: 2.5dBm/10kHz n20: 2.8dBm/10kHz n40: 3.4dBm/30kHz	8dBm/3kHz	Complies
15.247(c)	RSS 210 A8.5	Antenna Port Spurious Emissions 30MHz – 25 GHz	All emissions are 30dBc below the limit	< -30dBc Note 2	Complies
15.247(c) / 15.209	RSS 210 A8.5	Radiated Spurious Emissions 30MHz – 25 GHz	53.9 dBµV/m @ 2483.5 MHz (-0.1 dB)	15.207 in restricted bands, all others <-30dBc Note 2	Complies

Note 1: EIRP calculated using antenna gain of 4 dBi for the highest EIRP system.
Note 2: Limit of -30dBc used because the power was measured using the UNII test procedure (maximum power averaged over a transmission burst).

DIGITAL TRANSMISSION SYSTEMS (5725 –5850 MHz)

Results for Industry Canada only

FCC Rule Part	RSS Rule Part	Description	Measured Value / Comments	Limit / Requirement	Result
	RSS 210 A8.2	Digital Modulation	Systems uses OFDM techniques	System must utilize a digital transmission technology	Complies
	RSS 210 A8.2 (1)	6dB Bandwidth	a: 16.3MHz n20: 17.6MHz n40: 36.0MHz ac80: 75.71MHz	>500kHz	Complies
	RSS 210 A8.2 (4)	Output Power (multipoint systems)	11a:20.7dBm(118mW) n20:20.6dBm (115mW) n40:20.5dBm (111mW) ac80:22.0dBm (160mW) EIRP = 0.637 W Note 1	1Watt, EIRP limited to 4 Watts.	Complies
	RSS 210 A8.2 (2)	Power Spectral Density	11a: 1.9dBm/10kHz n20: 7.8dBm/1MHz n40: 4.1dBm/1MHz ac80:0.9dBm/1MHz	Maximum permitted is 8dBm/3kHz	Complies
	RSS 210 A8.5	Antenna Port Spurious Emissions –30MHz – 40 GHz	All spurious emissions < -30dBc	< -30dBc Note 2	Complies
	RSS 210 A8.5 Table 2, 3	Radiated Spurious Emissions 30MHz – 40 GHz	68.2 dBµV/m @ 5725.3 MHz (-0.1 dB)	15.207 in restricted bands, all others <-30dBc Note 2	Complies

Note 1: EIRP calculated using antenna gain of 6 dBi for the highest EIRP system multi-point system.
Note 2: Limit of -30dBc used because the power was measured using the UNII test procedure (maximum power averaged over a transmission burst).

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 and integral to the device	Unique or integral antenna required	Complies
15.207	RSS GEN Table 3	AC Conducted Emissions	40.0 dBµV @ 0.455 MHz (-6.8 dB)		Complies
15.247 (b) (5) 15.407 (f)	RSS 102	RF Exposure Requirements	Refer to MPE calculations in separate exhibit, RSS 102 declaration and User Manual statements.	Refer to OET 65, FCC Part 1 and RSS 102	Complies
-	RSP 100 RSS GEN 6.6	Occupied Bandwidth	2.4GHz band - b: 11.67MHz g: 17.21MHz n20: 18.07MHz n40: 36.50MHz 5.8GHz band – a: 17.0MHz n20: 18.0MHz n40: 36.3MHz ac80: 76.4MHz	Information only	N/A

MEASUREMENT UNCERTAINTIES

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

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

EQUIPMENT UNDER TEST (EUT) DETAILS

GENERAL

The Aruba Networks model APINH205 2x2:2 MIMO 802.11a/b/g/n/ac Wireless Access Points is a high-performance dual radio wireless and wired access point for hospitality and branch deployments.

The sample were received on December 10, 2014 and tested on December 10, 12, 15, 17, 18 and 29, 2014. The EUT consisted of the following component(s):

Company	Model	Description	Serial Number	FCC ID
Aruba	APINH205	2.4GHz/5GHz AP	L.AYM4A30030 (NTS Sample: 2014-2977)	Q9DAPINH205
Aruba	APINH205	2.4GHz/5GHz AP	L.AYM4A30017 (NTS Sample: 2014-2981)	Q9DAPINH205
Aruba	APINH205	2.4GHz/5GHz AP	Prototype (NTS Sample: 2014-2278)	Q9DAPINH205
Aruba	APINH205	2.4GHz/5GHz AP	Prototype (NTS Sample: 2273)	Q9DAPINH205

OTHER EUT DETAILS

802.11AC 2x2 dual radio access point
One radio fixed 2.4GHz, second radio fixed 5GHz
Radios can transmit simultaneous
Each radio is 2x2, does not support 1Tx modes
2.4GHz radio supports 11b/11g/n20/n40 data rates
5GHz radio supports 11a/n20/n40/VHT20/VHT40/VHT80 data rates
Operation on CH144 (20MHz), CH142 (40MHz), CH138 (80MHz) is supported
DFS Master Device
Indoor Use only
Internal antennas

ANTENNA SYSTEM

The antenna system consists of: Metal Sheet with 4dBi Gain Antennas for 2.4GHz Band and 6dBi Antenna for 5GHz Band

ENCLOSURE

The EUT enclosure measures approximately 15.5 by 9 by 4.3 centimeters. 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.

SUPPORT EQUIPMENT

The following equipment was used as support equipment for testing:

Company	Model	Description	Serial Number	FCC ID
LTE LI TONE Electronics	LTE36E-S5-1	AC/DC Power Supply	-	-
IBM	Thinkpad T43	Laptop Computer	2669UYP	
-	-	USB/Serial Adapter		

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

Company	Model	Description	Serial Number	FCC ID
IBM	Thinkpad T43	Laptop Computer*	2669UYP	

* - Laptop was located remotely during the AC conducted emissions test.

EUT INTERFACE PORTS

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

Port	Connected To	Cable(s)		
		Description	Shielded or Unshielded	Length(m)
DC Power In	AC/DC Adapter	2Wire	Unshielded	1.9
Serial	USB/Serial Adapter / Remote Laptop	Multiconductor	Shielded	5.0
USB	Not connected	-	-	-
Ethernet (x4) Bottom	Not connected	-	-	-
ENET0 (back)	Not connected	-	-	-
Pass Through (back)	Not connected	-	-	-

AC Conducted Emissions

Port	Connected To	Cable(s)		
		Description	Shielded or Unshielded	Length(m)
DC Power In	AC/DC Adapter	2Wire	Unshielded	1.9
Serial	USB/Serial Adapter	Multiconductor	Shielded	5.0
USB	Not connected	-	-	-
Ethernet (x3) Bottom	Not connected	-	-	-
Ethernet Bottom	Remote laptop	CAT5	Unshielded	5.0
ENET0 (back)	Not connected	-	-	-
Pass Through (back)	Not connected	-	-	-

Note – preliminary testing showed that the addition of cables did not affect the radio related emissions.

Serial cable would not be used in normal operation. It was connected to allow for control of the radio for testing purposes.

EUT OPERATION

The laptop computer was used to configure the system for continuous transmission via the serial connection. The EUT was configured to transmit continuously at the channel noted at the worse case data rate for the mode under test. Power was set to the maximum. In some cases, the test was performed at a higher output level than the final regulatory power. The results for output power are the final regulatory powers.

TEST SITE

GENERAL INFORMATION

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

Site	Designation / Registration Numbers		Location
	FCC	Canada	
Chamber 3	US0027	2845B-3	41039 Boyce Road Fremont, CA 94538-2435
Chamber 4	US0027	2845B-4	
Chamber 5	US0027	2845B-5	
Chamber 7	US0027	2845B-7	

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

CONDUCTED EMISSIONS CONSIDERATIONS

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

RADIATED EMISSIONS CONSIDERATIONS

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

MEASUREMENT INSTRUMENTATION

RECEIVER SYSTEM

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

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

INSTRUMENT CONTROL COMPUTER

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

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

LINE IMPEDANCE STABILIZATION NETWORK (LISN)

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

FILTERS/ATTENUATORS

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

ANTENNAS

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

ANTENNA MAST AND EQUIPMENT TURNTABLE

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

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

INSTRUMENT CALIBRATION

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

TEST PROCEDURES

EUT AND CABLE PLACEMENT

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

CONDUCTED EMISSIONS

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

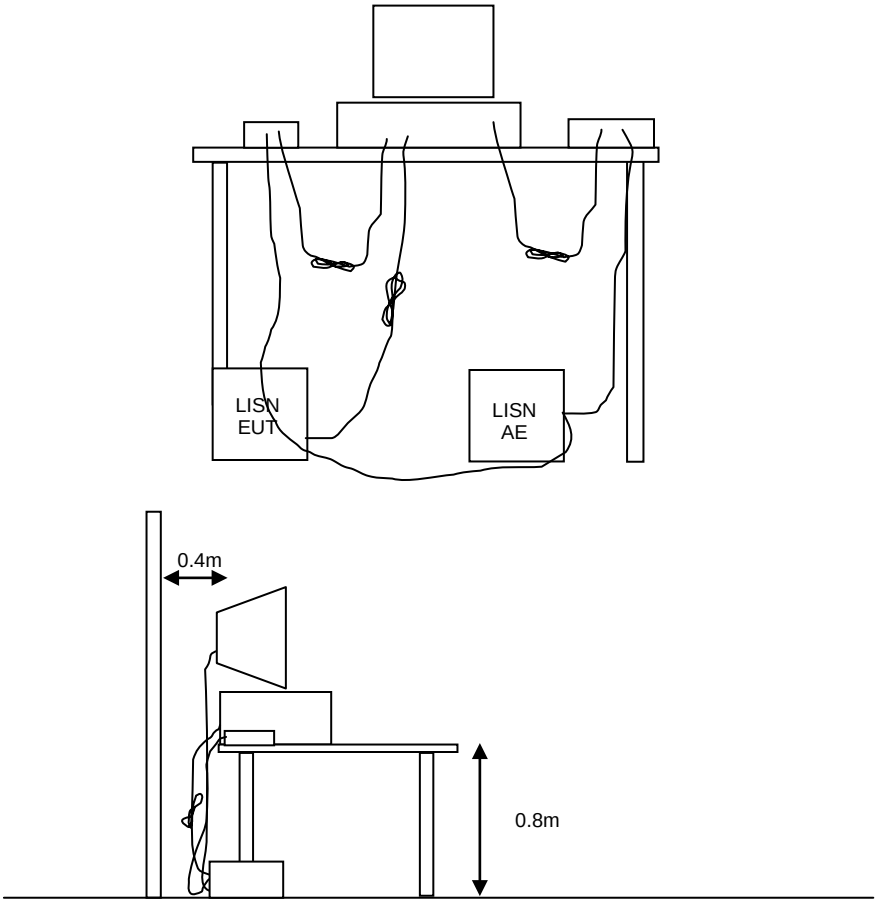


Figure 1 Typical Conducted Emissions Test Configuration

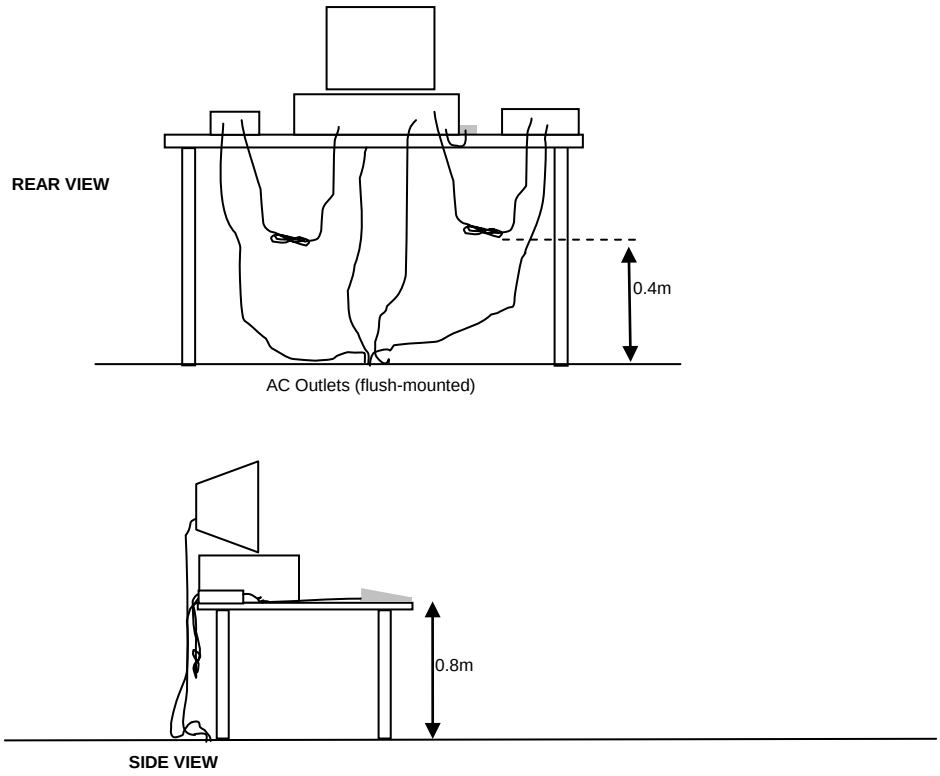
RADIATED EMISSIONS

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

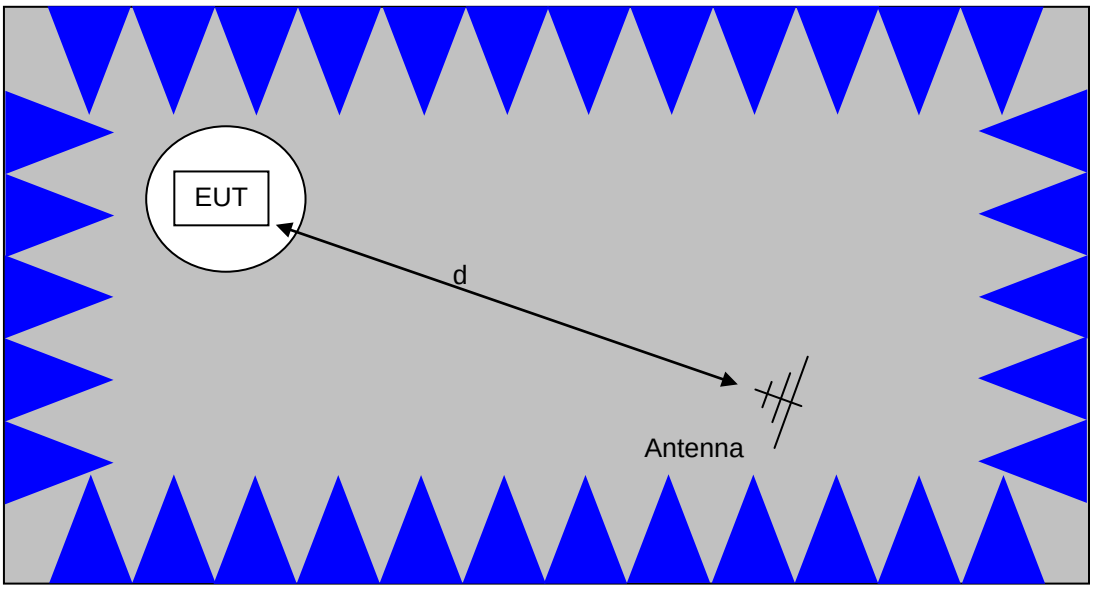
A speaker is provided in the receiver to aid in discriminating between EUT and ambient emissions. Other methods used during the preliminary scan for EUT emissions involve scanning with near field magnetic loops, monitoring I/O cables with RF current clamps, and cycling power to the EUT.

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

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

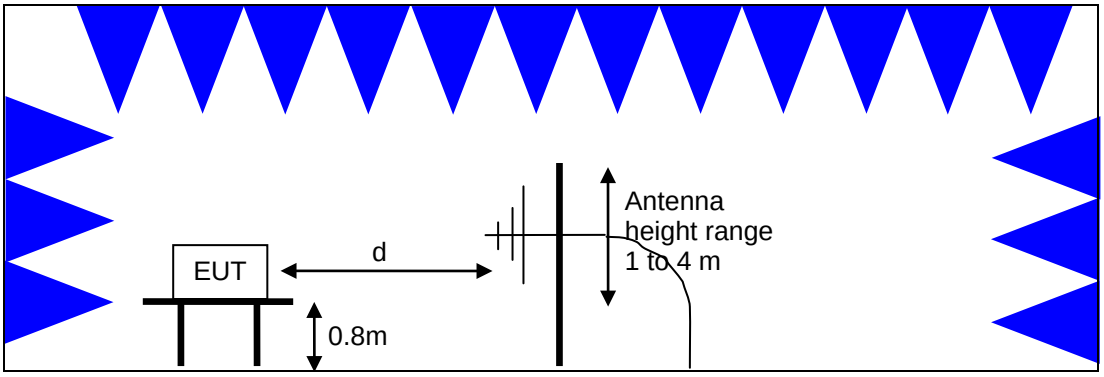


Typical Test Configuration for Radiated Field Strength Measurements



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

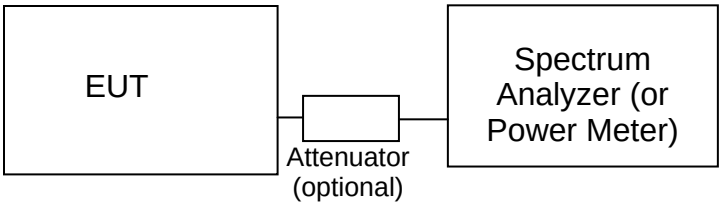
Floor-standing equipment is placed on the floor with insulating supports between the unit and the ground plane.



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

CONDUCTED EMISSIONS FROM ANTENNA PORT

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



Test Configuration for Antenna Port Measurements

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

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

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

BANDWIDTH MEASUREMENTS

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

SPECIFICATION LIMITS AND SAMPLE CALCULATIONS

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

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

GENERAL TRANSMITTER RADIATED EMISSIONS SPECIFICATION LIMITS

The table below shows the limits for the spurious emissions from transmitters that fall in restricted bands[1] (with the exception of transmitters operating under FCC Part 15 Subpart D and RSS 210 Annex 9), the limits for all emissions from a low power device operating under the general rules of RSS 310 (tables 3 and 4), RSS 210 (table 2) and FCC Part 15 Subpart C section 15.209.

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

OUTPUT POWER LIMITS – DIGITAL TRANSMISSION SYSTEMS

The table below shows the limits for output power and output power density. 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
902 – 928	1 Watt (30 dBm)	8 dBm/3kHz
2400 – 2483.5	1 Watt (30 dBm)	8 dBm/3kHz
5725 – 5850	1 Watt (30 dBm)	8 dBm/3kHz

The maximum permitted output power is reduced by 1dB for every dB the antenna gain exceeds 6dBi. Fixed point-to-point applications using the 5725 – 5850 MHz band are not subject to this restriction.

TRANSMIT MODE SPURIOUS RADIATED EMISSIONS LIMITS – FHSS and DTS SYSTEMS

The limits for unwanted (spurious) emissions from the transmitter falling in the restricted bands are those specified in the general limits sections of FCC Part 15 and RSS 210. All other unwanted (spurious) emissions shall be at least 20dB below the level of the highest in-band signal level (30dB if the power is measured using the sample detector/power averaging method).

[1] The restricted bands are detailed in FCC 15.203, RSS 210 Table 1 and RSS 310 Table 2

SAMPLE CALCULATIONS - CONDUCTED EMISSIONS

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

$$R_r - S = M$$

where:

R_r = Receiver Reading in dBuV

S = Specification Limit in dBuV

M = Margin to Specification in +/- dB

SAMPLE CALCULATIONS - RADIATED EMISSIONS

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

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

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

where:

F_d = Distance Factor in dB

D_m = Measurement Distance in meters

D_s = Specification Distance in meters

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

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

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

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

$$R_c = R_r + F_d$$

and

$$M = R_c - L_s$$

where:

R_r = Receiver Reading in dBuV/m

F_d = Distance Factor in dB

R_C = Corrected Reading in dBuV/m

L_S = Specification Limit in dBuV/m

M = Margin in dB Relative to Spec

SAMPLE CALCULATIONS - FIELD STRENGTH TO EIRP CONVERSION

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

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

where P is the eirp (Watts)

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

Appendix A Test Equipment Calibration Data

T96888

Radiated Emissions, 1,000 - 6,500 MHz, 15-Dec-14

Manufacturer	Description	Model	Asset #	Calibrated	Cal Due
EMCO	Antenna, Horn, 1-18 GHz	3115	786	12/20/2013	12/20/2015
Rohde & Schwarz	EMI Test Receiver, 20 Hz-7 GHz	ESIB7	1756	6/14/2014	6/14/2015

Radiated Emissions, 1,000 - 18,000 MHz, 17-Dec-14

Manufacturer	Description	Model	Asset #	Calibrated	Cal Due
Hewlett Packard	Microwave Preamplifier, 1-26.5GHz	8449B	263	3/25/2014	3/25/2015
EMCO	Antenna, Horn, 1-18 GHz	3115	487	7/29/2014	7/29/2016
Hewlett Packard	SpecAn 30 Hz -40 GHz, SV (SA40) Red	8564E (84125C)	1148	9/20/2014	9/20/2015
Rohde & Schwarz	EMI Test Receiver, 20 Hz-7 GHz	ESIB7	1756	6/14/2014	6/14/2015

Radiated Emissions, 1,000 - 12,000 MHz, 18-Dec-14

Manufacturer	Description	Model	Asset #	Calibrated	Cal Due
EMCO	Antenna, Horn, 1-18 GHz	3115	786	12/20/2013	12/20/2015
Micro-Tronics	Band Reject Filter, 2400-2500 MHz	BRM50702-02	1683	8/4/2014	8/4/2015
Hewlett Packard	Microwave Preamplifier, 1-26.5GHz	8449B	2199	2/20/2014	2/20/2015
Hewlett Packard	SpecAn 9 kHz - 40 GHz, (SA40) Purple	8564E (84125C)	2415	2/27/2014	2/27/2015

T96922

Radio Antenna Port (Power and Spurious Emissions), 12 and 29-Dec-14

Manufacturer	Description	Model	Asset #	Calibrated	Cal Due
Agilent Technologies	PSA, Spectrum Analyzer, (installed options, 111, 115, 123, 1DS, B7J, HYX,	E4446A	2139	4/8/2014	4/8/2015

T96923

Radiated Emissions, 1 - 18 GHz, 19-Dec-14

Manufacturer	Description	Model	Asset #	Calibrated	Cal Due
EMCO	Antenna, Horn, 1-18 GHz	3115	786	12/20/2013	12/20/2015
Hewlett Packard	High Pass filter, 8.2 GHz (Red System)	P/N 84300-80039 (84125C)	1152	8/1/2014	8/1/2015
Hewlett Packard	Microwave Preamplifier, 1-26.5GHz	8449B	2199	2/20/2014	2/20/2015
Micro-Tronics	Band Reject Filter, 5150-5350 MHz	BRC50703-02	2239	9/16/2014	9/16/2015
Micro-Tronics	Band Reject Filter, 5470-5725 MHz	BRC50704-02	2240	9/16/2014	9/16/2015
Hewlett Packard	SpecAn 9 kHz - 40 GHz, (SA40) Purple	8564E (84125C)	2415	2/27/2014	2/27/2015

Radiated Emissions, 1000 - 12,000 MHz, 19-Dec-14

Manufacturer	Description	Model	Asset #	Calibrated	Cal Due
EMCO	Antenna, Horn, 1-18 GHz	3115	786	12/20/2013	12/20/2015
Hewlett Packard	Microwave Preamplifier, 1-26.5GHz	8449B	2199	2/20/2014	2/20/2015
Micro-Tronics	Band Reject Filter, 5725-5875 MHz	BRC50705-02	2241	9/16/2014	9/16/2015
Hewlett Packard	SpecAn 9 kHz - 40 GHz, (SA40) Purple	8564E (84125C)	2415	2/27/2014	2/27/2015

T96924

Conducted Emissions - AC Power Ports, 06-Jan-15

Manufacturer	Description	Model	Asset #	Calibrated	Cal Due
EMCO	LISN, 10 kHz-100 MHz	3825/2	1293	2/13/2014	2/13/2015
Rohde & Schwarz	Pulse Limiter	ESH3 Z2	1401	5/15/2014	5/15/2015
Rohde & Schwarz	EMI Test Receiver, 20 Hz-7 GHz	ESIB7	1756	6/14/2014	6/14/2015

Radio Antenna Port (Power and Spurious Emissions), 11-Dec-14 to 12-Dec-14

Manufacturer	Description	Model	Asset #	Calibrated	Cal Due
Agilent Technologies	3Hz -44GHz PSA Spectrum Analyzer	E4446A	2796	2/6/2014	2/6/2015

Radio Antenna Port (Power and Spurious Emissions), 29-Dec-14

Manufacturer	Description	Model	Asset #	Calibrated	Cal Due
Agilent Technologies	PSA, Spectrum Analyzer, (installed options, 111, 115, 123, 1DS, B7J, HYX,	E4446A	2139	4/8/2014	4/8/2015

Appendix B Test Data

Client:	Aruba Networks	Job Number:	J96879
Product	APINH205-2x2:2 MIMO 802.11a/b/g/n/ac Wireless Access Points	T-Log Number:	T96922
		Project Manager:	Christine Krebill
Contact:	Tian Mendez	Project Coordinator:	
Emissions Standard(s):	FCC 15.247/FCC 15.407/RSS-210/LP0002	Class:	-
Immunity Standard(s):	-	Environment:	-

EMC Test Data

For The

Aruba Networks

Product

APINH205-2x2:2 MIMO 802.11a/b/g/n/ac Wireless Access Points

Date of Last Test: 12/29/2014

Client:	Aruba Networks	Job Number:	J96879
Model:	APINH205-2x2:2 MIMO 802.11a/b/g/n/ac Wireless Access Points	T-Log Number:	T96922
		Project Manager:	Christine Krebill
Contact:	Tian Mendez	Project Coordinator:	-
Standard:	FCC 15.247/FCC 15.407/RSS-210/LP0002	Class:	N/A

Power vs. Data Rate

In normal operating modes the card uses power settings stored on EEPROM to set the output power. For a given nominal output power the actual transmit power normally is reduced as the data rate increases, therefore testing was performed at the data rate in the mode wiht highest power to determine compliance with the requirements.
The following power measurements were made using a GATED average power meter and with the device configured in a continuous transmit mode on Chain 1 at the various data rates in each mode to verify the highest power mode:

Sample Notes

Sample S/N: L.AYM4A30017 (970AYM0KP00N016)
Driver: 6.37 RC14.54, Version 6.37.14.54e (r425351 WLTEST)

Date of Test: 12/10/2014
Test Engineer: Mark Hill
Test Location: Lab#4

Mode	Data Rate	Power (dBm)	Power setting
802.11b	1	20.4	-q 78
	2	20.8	
	5.5	**21.1**	
	11	20.9	
802.11g	6	**17.1**	-q 72
	9	17.1	
	12	17.0	
	18	17.1	
	24	16.9	
	36	16.9	
	48	16.9	
	54	16.8	

Client:	Aruba Networks	Job Number:	J96879
Model:	APINH205-2x2:2 MIMO 802.11a/b/g/n/ac Wireless Access Points	T-Log Number:	T96922
		Project Manager:	Christine Krebill
Contact:	Tian Mendez	Project Coordinator:	-
Standard:	FCC 15.247/FCC 15.407/RSS-210/LP0002	Class:	N/A

Mode	Data Rate	Power (dBm)	Power setting	
802.11n 20MHz	6.5	**17.1**	-q 72	
	13	17.0		
	19.5	16.9		
	26	16.9		
	39	16.9		
	52	16.7		
	58.5	16.6		
	65	16.7		
	78	17.1		<<-11ac mode only
802.11n/ac 40MHz	13.5	**16.5**	-q 72	
	27	16.4		
	40.5	16.1		
	54	16.1		
	81	15.9		
	108	15.7		
	121.5	15.8		
	135	15.8		
	162	16.3		<<-11ac mode only
	180	16.3		<<-11ac mode only

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

Client:	Aruba Networks	Job Number:	J96879
Model:	APINH205-2x2:2 MIMO 802.11a/b/g/n/ac Wireless Access Points	T-Log Number:	T96922
		Project Manager:	Christine Krebill
Contact:	Tian Mendez	Project Coordinator:	-
Standard:	FCC 15.247/FCC 15.407/RSS-210/LP0002	Class:	N/A

Duty Cycle

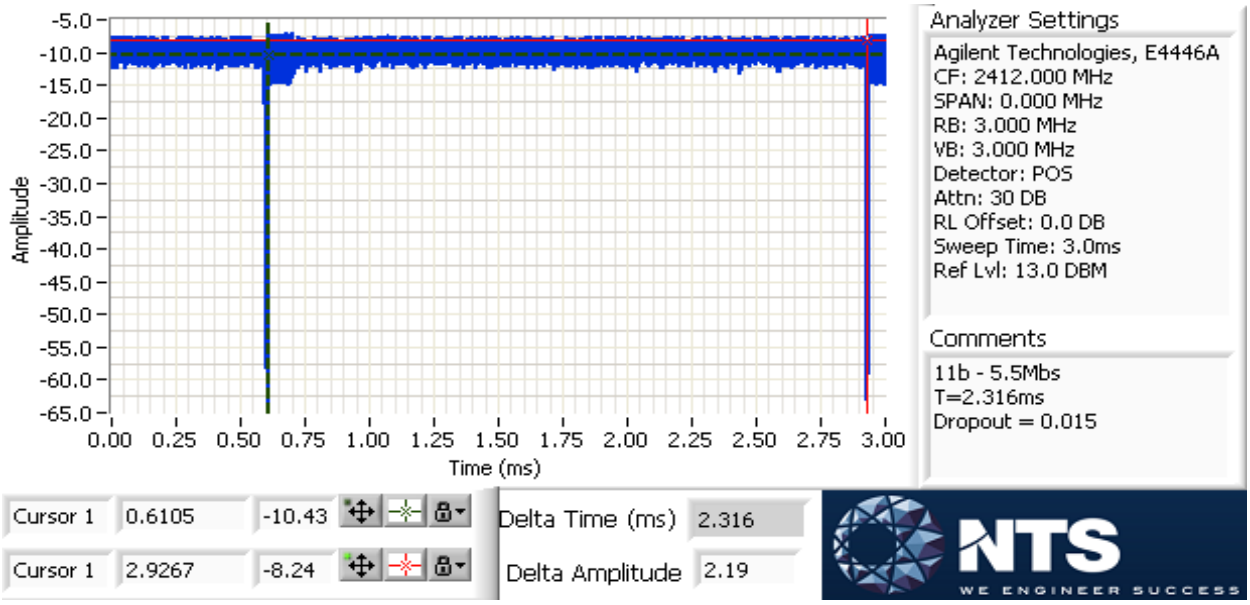
Date of Test: 12/10/2014
Test Engineer: Mark Hill
Test Location: Lab#4

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

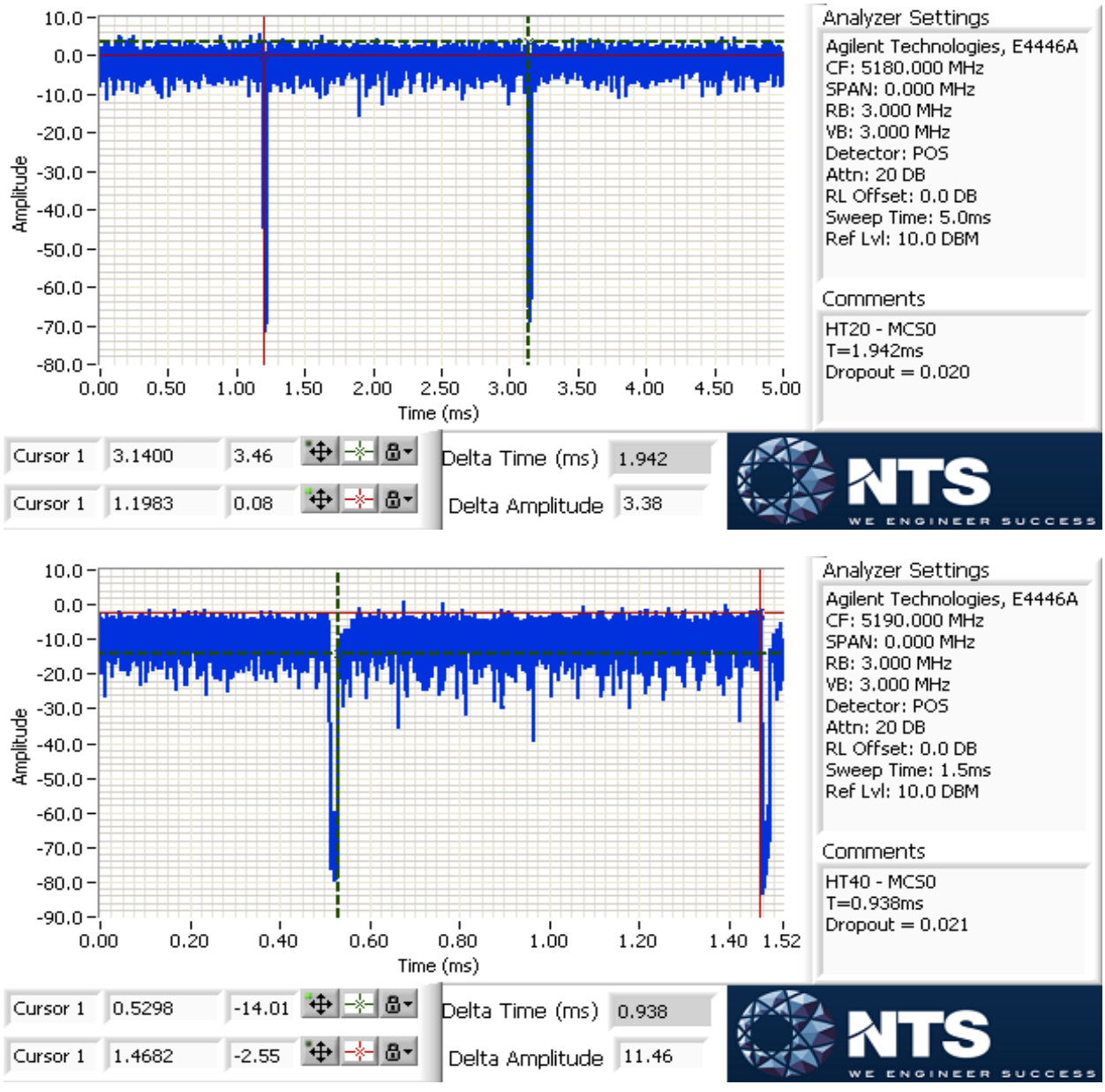
Notes: Measurements taken with maximum RBW/VBW settings allowed.

Mode	Data Rate	Duty Cycle (x)	Constant DC?	T (ms)	Pwr Cor Factor*	Lin Volt Cor Factor**	Min VBW for FS (Hz)
11b	5.5Mbs	0.99	Yes	2.316	0.00	0.00	432
11g	6Mbs	0.99	Yes	2.063	0.00	0.00	485
n20	MCS8	0.99	Yes	1.942	0.00	0.00	515
n40	MCS0	0.82	Yes	0.938	0.88	1.75	1066

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



Client:	Aruba Networks	Job Number:	J96879
Model:	APINH205-2x2:2 MIMO 802.11a/b/g/n/ac Wireless Access Points	T-Log Number:	T96922
		Project Manager:	Christine Krebill
Contact:	Tian Mendez	Project Coordinator:	-
Standard:	FCC 15.247/FCC 15.407/RSS-210/LP0002	Class:	N/A



Client:	Aruba Networks	Job Number:	J96879
Model:	APINH205-2x2:2 MIMO 802.11a/b/g/n/ac Wireless Access Points	T-Log Number:	T96922
		Project Manager:	Christine Krebill
Contact:	Tian Mendez	Project Coordinator:	-
Standard:	FCC 15.247/FCC 15.407/RSS-210/LP0002	Class:	N/A

RSS 210 and FCC 15.247 (DTS) Antenna Port Measurements
MIMO and Smart Antenna Systems
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.

Date of Test: 12/12/14, 12/29/14
Test Engineer: John Caizzi / Jack Liu
Test Location: Lab 4A
Config. Used: 1
Config Change: None
Host Voltage: 120V/60Hz

General Test Configuration

The EUT was connected to the spectrum analyzer or power meter via a suitable attenuator. All measurements were made on a single chain.

All measurements have been corrected to allow for the external attenuators used.

Ambient Conditions:

Temperature: 20-23 °C
Rel. Humidity: 35-45 %

Summary of Results

Run #	Pwr setting	Avg Pwr	Test Performed	Limit	Pass / Fail	Result / Margin
1	-	-	Output Power	15.247(b)	Pass	b: 22.5dBm g: 21.5dBm n20: 21.5dBm n40: 17.6dBm
2	-	-	Power spectral Density (PSD)	15.247(d)	Pass	b: 5.6dBm/10kHz g: 2.5dBm/10kHz n20: 2.8dBm/10kHz n40: 3.4dBm/30kHz
3	-	-	Minimum 6dB Bandwidth	15.247(a)	Pass	b: 8.26MHz g: 16.34MHz n20: 17.58MHz n40: 36.31MHz

Client:	Aruba Networks	Job Number:	J96879
Model:	APINH205-2x2:2 MIMO 802.11a/b/g/n/ac Wireless Access Points	T-Log Number:	T96922
		Project Manager:	Christine Krebill
Contact:	Tian Mendez	Project Coordinator:	-
Standard:	FCC 15.247/FCC 15.407/RSS-210/LP0002	Class:	N/A

Summary of Results (continued)

Run #	Pwr setting	Avg Pwr	Test Performed	Limit	Pass / Fail	Result / Margin
3	-	-	99% Bandwidth	RSS GEN	-	b: 11.67MHz g: 17.21MHz n20: 18.07MHz n40: 36.50MHz
4	-	-	Spurious emissions	15.247(b)	Pass	All emissions are 30dBc below the limit

Modifications Made During Testing

No modifications were made to the EUT during testing

Deviations From The Standard

No deviations were made from the requirements of the standard.

Procedure Comments:

Measurements performed in accordance with FCC KDB 558074

Mode	Data Rate	Duty Cycle (x)	Constant DC?	T (ms)	Pwr Cor Factor*	Lin Volt Cor Factor**	Min VBW for FS (Hz)
11b	5.5 Mb/s	0.99	Yes	2.316	0	0	432
11g	6 Mb/s	0.99	Yes	2.063	0	0	485
n20	MCS8	0.99	Yes	1.942	0	0	515
n40	MCS8	0.82	Yes	0.938	0.88	1.75	1066

Sample Notes

Sample S/N: L.AYM4A30030
Driver: 6.37 RC14.54
Pkteng …… tx 20 1500 0

Client:	Aruba Networks	Job Number:	J96879
Model:	APINH205-2x2:2 MIMO 802.11a/b/g/n/ac Wireless Access Points	T-Log Number:	T96922
		Project Manager:	Christine Krebill
Contact:	Tian Mendez	Project Coordinator:	-
Standard:	FCC 15.247/FCC 15.407/RSS-210/LP0002	Class:	N/A

Antenna Gain Information

Freq	Antenna Gain (dBi) / Chain				BF	MultiChain Legacy	CDD	Sectorized / Xpol	Dir G (PWR)	Dir G (PSD)
	1	2	3	4						
2400-2438.5	4.0	4.0			No	Yes	Yes	No	4.0	7.0

For devices that support CDD modes

Min # of spatial streams: 1

Max # of spatial streams: 2

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

Client:	Aruba Networks	Job Number:	J96879
Model:	APINH205-2x2:2 MIMO 802.11a/b/g/n/ac Wireless Access Points	T-Log Number:	T96922
		Project Manager:	Christine Krebill
Contact:	Tian Mendez	Project Coordinator:	-
Standard:	FCC 15.247/FCC 15.407/RSS-210/LP0002	Class:	N/A

Run #1: Output Power

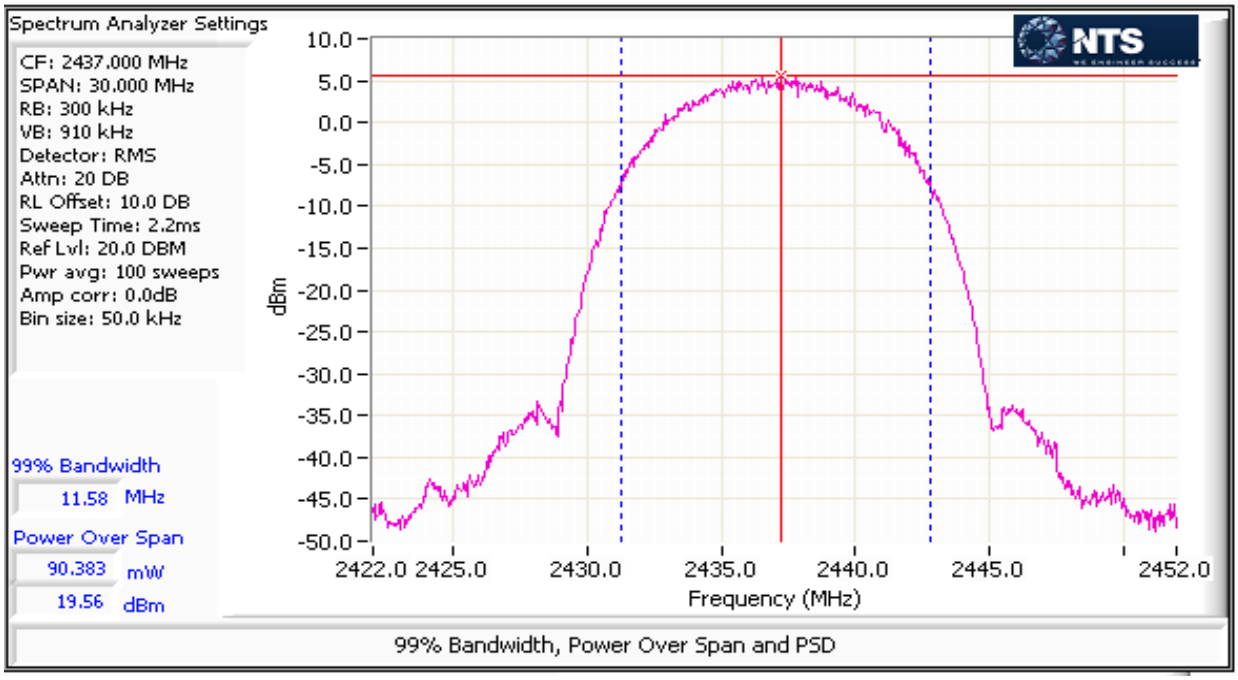
Operating Mode: 11b

Directional Gain (dBi): 4.0

Max EIRP (mW): 448.80613

Frequency (MHz)	Chain	Software Setting	Power[1] dBm	Power[1] mW	Total mW	Total dBm	Max Power (W)	Limit dBm	Result	Power (dBm)
2412	Port 3	q78	19.0	78.5	162.5	22.1	0.179	30.0	Pass	
	Port 4		19.2	83.9						
2437	Port 3	q78	19.5	88.3	178.7	22.5		30.0	Pass	
	Port 4		19.6	90.4						
2462	Port 3	q78	19.3	84.7	167.5	22.2		30.0	Pass	
	Port 4		19.2	82.8						

Note 1:	Duty Cycle ≥ 98%. Output power measured using a spectrum analyzer (see plots below) with RBW= 1-5% of OBW, VB≥3* RBW, RMS detector, power averaging on, and power integration over the OBW, trace average 100 traces (option AVGSA-1, in KDB 558074). Spurious limit becomes -30dBc.
Note 2:	Power setting - if a single number the same power setting was used for each chain. If multiple numbers the power setting for each chain is separated by a comma (e.g. x,y would indicate power setting x for chain 1, power setting y for chain 2.



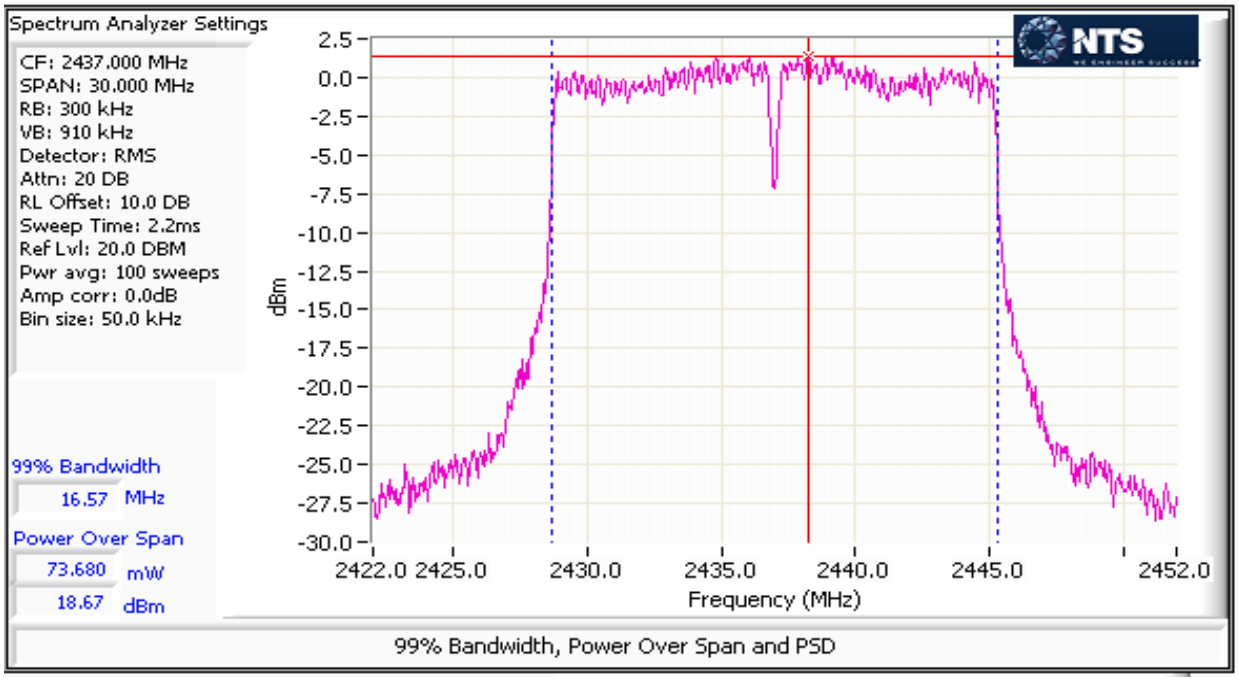
Client:	Aruba Networks	Job Number:	J96879
Model:	APINH205-2x2:2 MIMO 802.11a/b/g/n/ac Wireless Access Points	T-Log Number:	T96922
		Project Manager:	Christine Krebill
Contact:	Tian Mendez	Project Coordinator:	-
Standard:	FCC 15.247/FCC 15.407/RSS-210/LP0002	Class:	N/A

Operating Mode: 11g
Directional Gain (dBi): 4.0

Max EIRP (mW): 358.70694

Frequency (MHz)	Chain	Software Setting	Power[1] dBm	Power[1] mW	Total mW	Total dBm	Max Power (W)	Limit dBm	Result	Power (dBm)
2412	Port 3	q59	13.1	20.3	40.7	16.1	0.143	30.0	Pass	
	Port 4		13.1	20.4						
2437	Port 3	q78	18.7	73.6	142.8	21.5		30.0	Pass	
	Port 4		18.4	69.2						
2462	Port 3	q58	12.7	18.5	37.7	15.8		30.0	Pass	
	Port 4		12.8	19.2						

Note 1:	Duty Cycle ≥ 98%. Output power measured using a spectrum analyzer (see plots below) with RBW= 1-5% of OBW, VB≥3* RBW, RMS detector, power averaging on, and power integration over the OBW, trace average 100 traces (option AVGSA-1, in KDB 558074). Spurious limit becomes -30dBc.
Note 2:	Power setting - if a single number the same power setting was used for each chain. If multiple numbers the power setting for each chain is separated by a comma (e.g. x,y would indicate power setting x for chain 1, power setting y for chain 2.



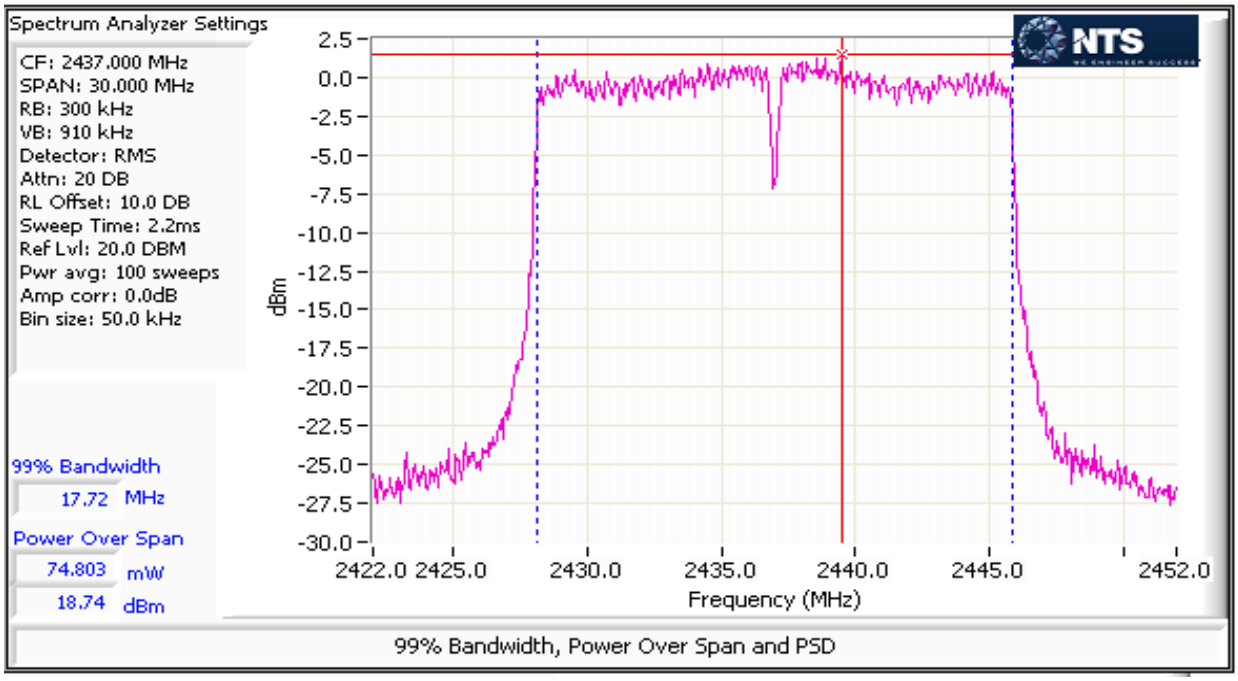
Client:	Aruba Networks	Job Number:	J96879
Model:	APINH205-2x2:2 MIMO 802.11a/b/g/n/ac Wireless Access Points	T-Log Number:	T96922
		Project Manager:	Christine Krebill
Contact:	Tian Mendez	Project Coordinator:	-
Standard:	FCC 15.247/FCC 15.407/RSS-210/LP0002	Class:	N/A

Operating Mode: n20
Directional Gain (dBi): 4.0

Max EIRP (mW): 357.36546

Frequency (MHz)	Chain	Software Setting	Power[1] dBm	Power[1] mW	Total mW	Total dBm	Max Power (W)	Limit dBm	Result	Power (dBm)
2412	Port 3	q57	12.3	16.8	34.0	15.3	0.142	30.0	Pass	
	Port 4		12.4	17.2						
2437	Port 3	q78	18.7	74.8	142.3	21.5		30.0	Pass	
	Port 4		18.3	67.5						
2462	Port 3	q57	12.2	16.6	33.6	15.3		30.0	Pass	
	Port 4		12.3	17.1						

Note 1:	Duty Cycle ≥ 98%. Output power measured using a spectrum analyzer (see plots below) with RBW= 1-5% of OBW, VB≥3* RBW, RMS detector, power averaging on, and power integration over the OBW, trace average 100 traces (option AVGSA-1, in KDB 558074). Spurious limit becomes -30dBc.
Note 2:	Power setting - if a single number the same power setting was used for each chain. If multiple numbers the power setting for each chain is separated by a comma (e.g. x,y would indicate power setting x for chain 1, power setting y for chain 2.



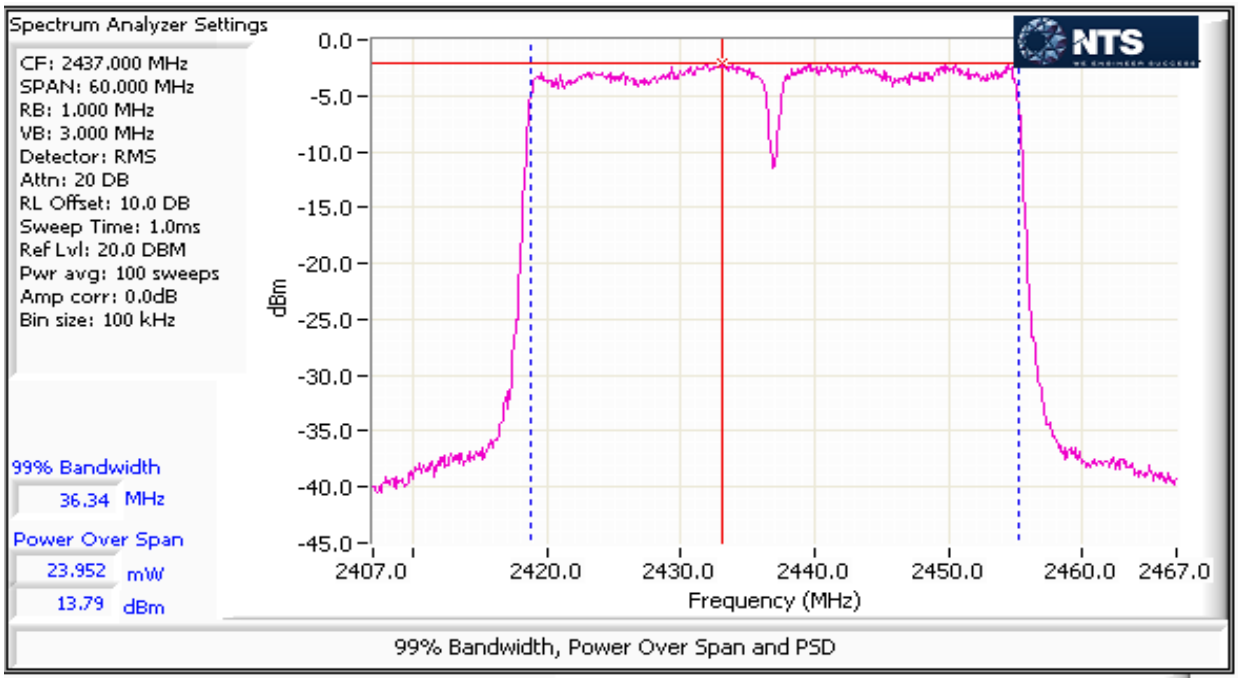
Client:	Aruba Networks	Job Number:	J96879
Model:	APINH205-2x2:2 MIMO 802.11a/b/g/n/ac Wireless Access Points	T-Log Number:	T96922
		Project Manager:	Christine Krebill
Contact:	Tian Mendez	Project Coordinator:	-
Standard:	FCC 15.247/FCC 15.407/RSS-210/LP0002	Class:	N/A

Operating Mode: n40
Directional Gain (dBi): 4.0

Max EIRP (mW): 145.56561

Frequency (MHz)	Chain	Software Setting	Power[1] dBm	Power[1] mW	Total mW	Total dBm	Max Power (W)	Limit dBm	Result	Power (dBm)
2422	Port 3	q45	10.8	12.0	24.0	13.8	0.058	30.0	Pass	
	Port 4		10.8	12.0						
2437	Port 3	q59	14.7	29.3	58.0	17.6		30.0	Pass	
	Port 4		14.6	28.6						
2452	Port 3	q44	10.4	11.0	22.3	13.5		30.0	Pass	
	Port 4		10.5	11.3						

Note 1:	Duty Cycle < 98%, constant duty cycle. Output power measured using a spectrum analyzer (see plots below) with RBW= 1-5% of OBW, VB≥3* RBW, RMS detector, power averaging on, and power integration over the OBW, trace average 100 traces (option AVGSA-1, in KDB 558074). Measurement corrected by Pwr Cor Factor. Spurious limit becomes -30dBc.
Note 2:	Power setting - if a single number the same power setting was used for each chain. If multiple numbers the power setting for each chain is separated by a comma (e.g. x,y would indicate power setting x for chain 1, power setting y for chain 2.

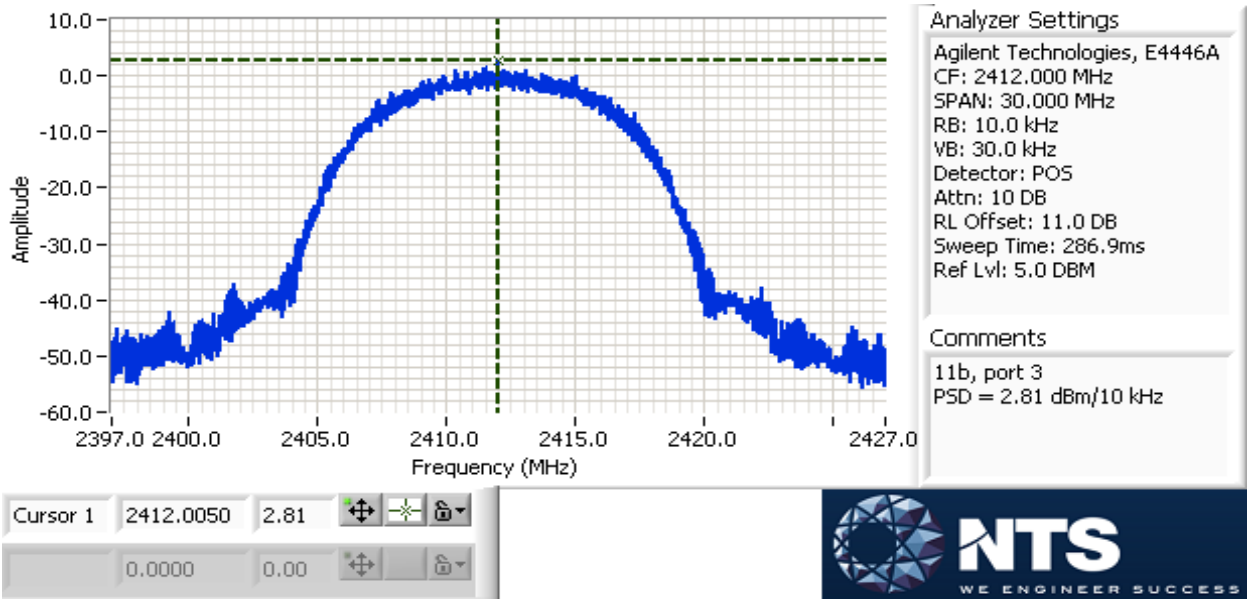


Client:	Aruba Networks	Job Number:	J96879
Model:	APINH205-2x2:2 MIMO 802.11a/b/g/n/ac Wireless Access Points	T-Log Number:	T96922
		Project Manager:	Christine Krebill
Contact:	Tian Mendez	Project Coordinator:	-
Standard:	FCC 15.247/FCC 15.407/RSS-210/LP0002	Class:	N/A

Run #2: Power spectral Density

Mode: 11b

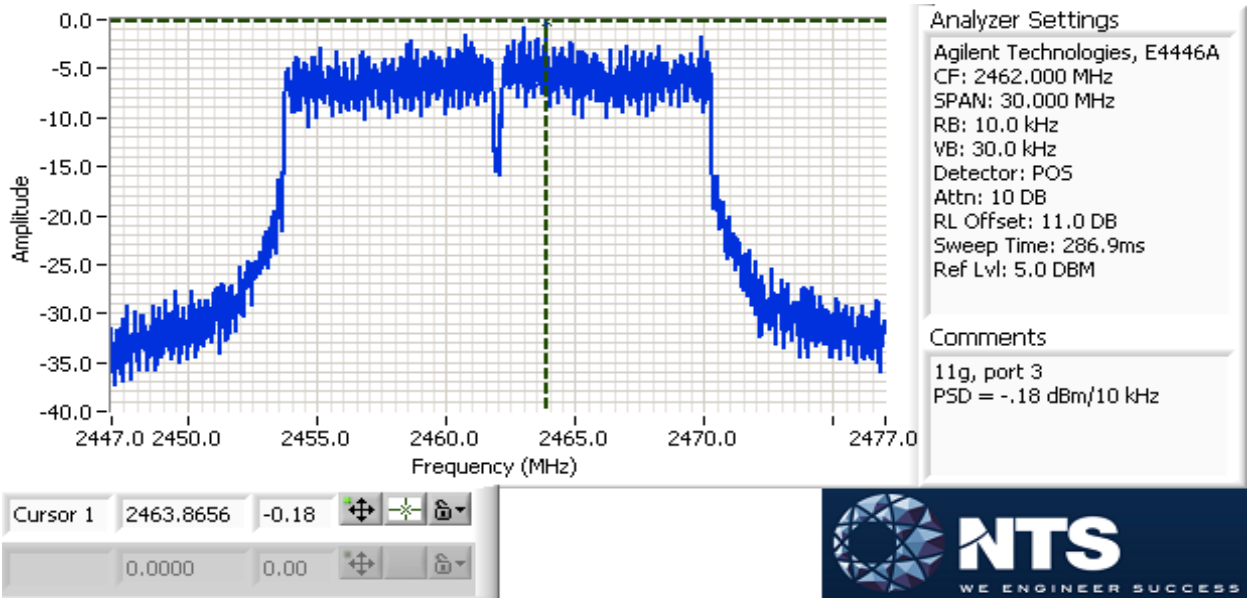
Power Setting	Frequency (MHz)	PSD (dBm/10kHz) Note 1					Limit dBm/3kHz	Result
		Port 3	Port 4	Chain 3	Chain 4	Total		
q78	2412	2.8	2.5			5.6	8.0	Pass
	2437	1.3	2.6			5.0	8.0	Pass
	2462	2.0	2.8			5.4	8.0	Pass



Client:	Aruba Networks	Job Number:	J96879
Model:	APINH205-2x2:2 MIMO 802.11a/b/g/n/ac Wireless Access Points	T-Log Number:	T96922
		Project Manager:	Christine Krebill
Contact:	Tian Mendez	Project Coordinator:	-
Standard:	FCC 15.247/FCC 15.407/RSS-210/LP0002	Class:	N/A

Mode: 11g

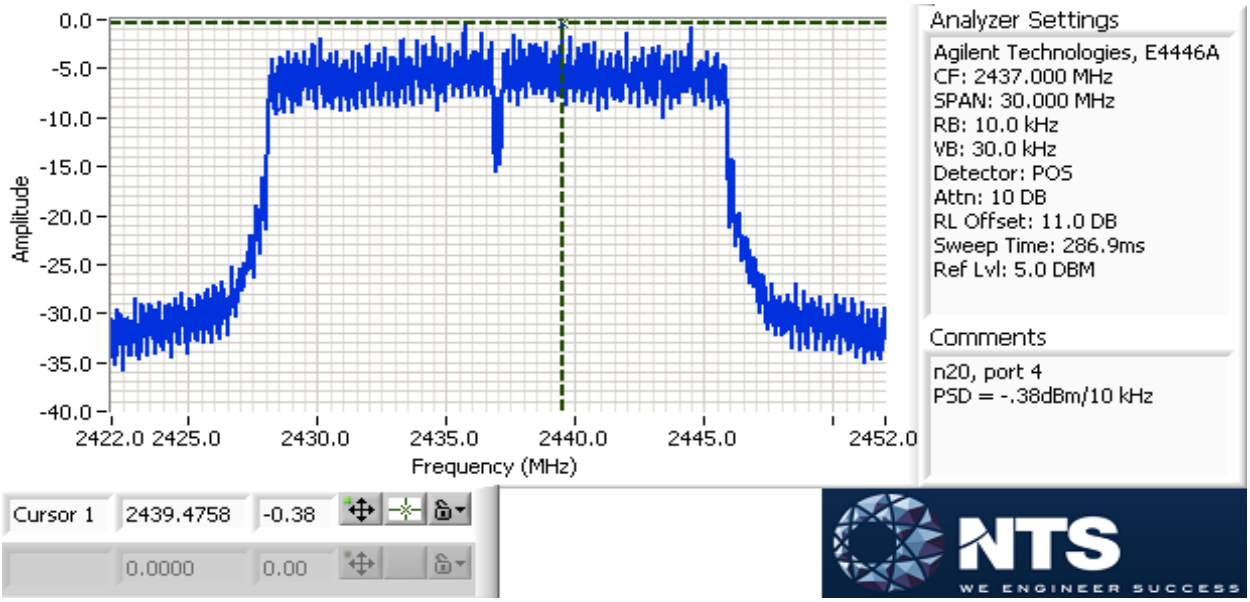
Power Setting	Frequency (MHz)	PSD (dBm/10kHz) Note 1					Limit dBm/3kHz	Result
		Port 3	Port 4	Chain 3	Chain 4	Total		
q78	2412	-0.6	-0.9			2.3	8.0	Pass
	2437	-1.4	-1.1			1.8	8.0	Pass
	2462	-0.2	-0.9			2.5	8.0	Pass



Client:	Aruba Networks	Job Number:	J96879
Model:	APINH205-2x2:2 MIMO 802.11a/b/g/n/ac Wireless Access Points	T-Log Number:	T96922
		Project Manager:	Christine Krebill
Contact:	Tian Mendez	Project Coordinator:	-
Standard:	FCC 15.247/FCC 15.407/RSS-210/LP0002	Class:	N/A

Mode: n20

Power Setting	Frequency (MHz)	PSD (dBm/10kHz) Note 1					Limit dBm/3kHz	Result
		Port 3	Port 4	Chain 3	Chain 4	Total		
q78	2412	-1.2	0.7			2.8	8.0	Pass
	2437	-0.7	-0.4			2.5	8.0	Pass
	2462	-1.5	-0.7			1.9	8.0	Pass

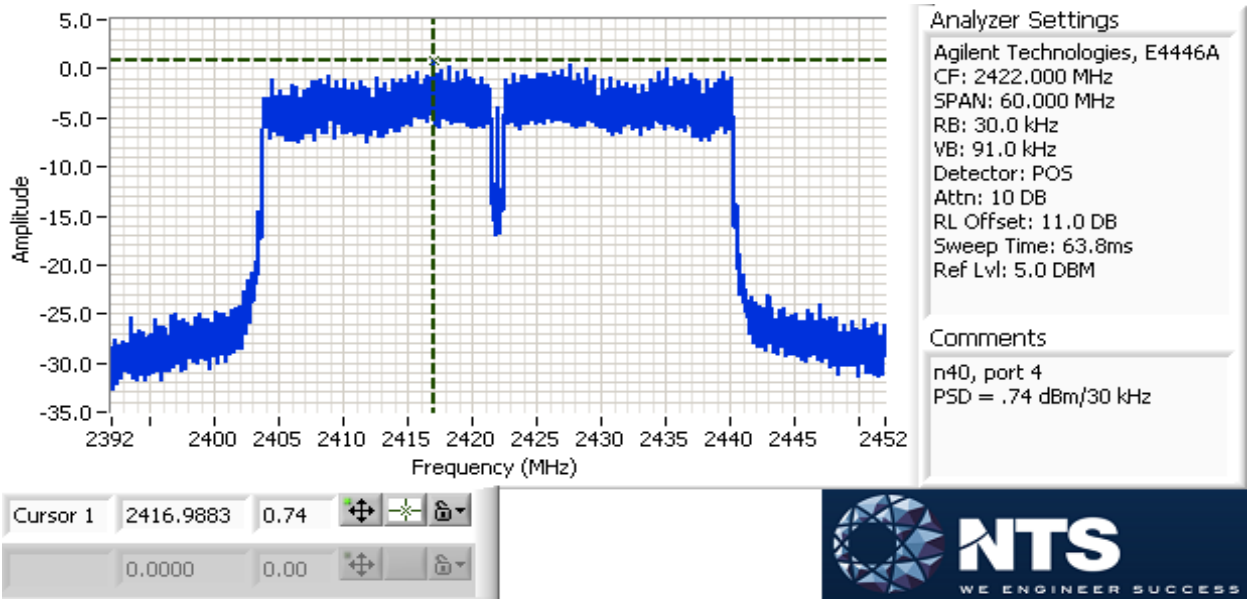


Client:	Aruba Networks	Job Number:	J96879
Model:	APINH205-2x2:2 MIMO 802.11a/b/g/n/ac Wireless Access Points	T-Log Number:	T96922
		Project Manager:	Christine Krebill
Contact:	Tian Mendez	Project Coordinator:	-
Standard:	FCC 15.247/FCC 15.407/RSS-210/LP0002	Class:	N/A

Mode: n40

Power Setting	Frequency (MHz)	PSD (dBm/30kHz) Note 1					Limit dBm/3kHz	Result
		Port 3	Port 4	Chain 3	Chain 4	Total		
q78	2422	0.0	0.7			3.4	8.0	Pass
	2437	-0.2	0.4			3.1	8.0	Pass
	2452	-0.2	0.6			3.2	8.0	Pass

Note 1:	Test performed per method PKSPD, in KDB 558074. Power spectral density measured using: 3kHz ≤ RBW ≤ 100kHz, VBW=3*RBW, peak detector, span = 1.5*DTS BW, auto sweep time, max hold.



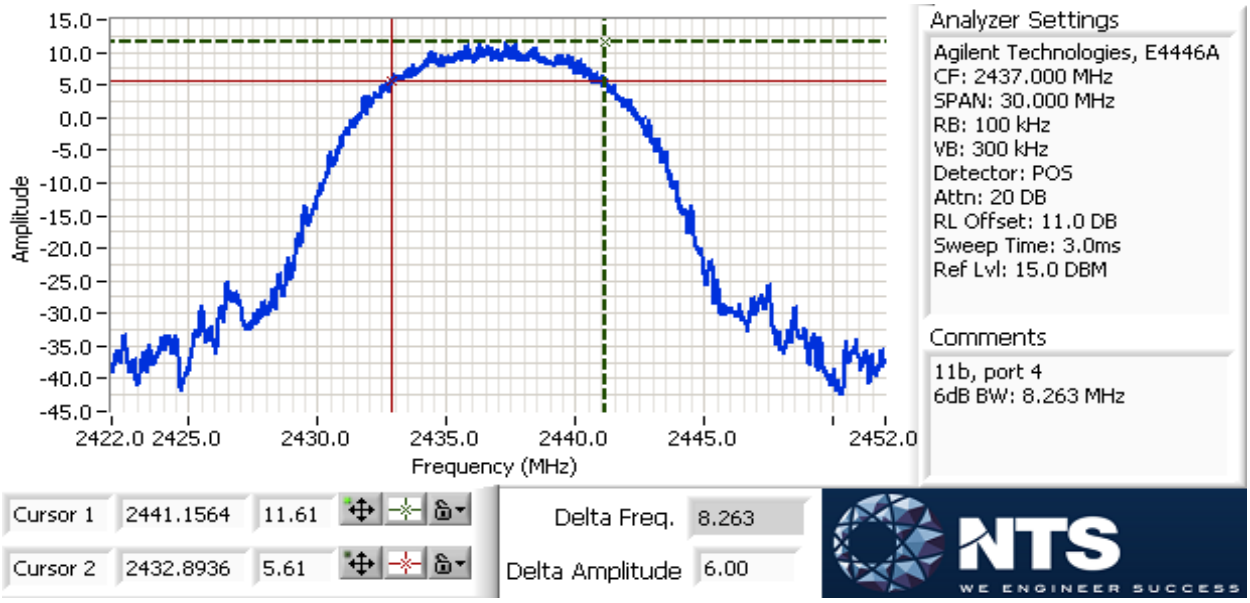
Client:	Aruba Networks	Job Number:	J96879
Model:	APINH205-2x2:2 MIMO 802.11a/b/g/n/ac Wireless Access Points	T-Log Number:	T96922
		Project Manager:	Christine Krebill
Contact:	Tian Mendez	Project Coordinator:	-
Standard:	FCC 15.247/FCC 15.407/RSS-210/LP0002	Class:	N/A

Run #3: Signal Bandwidth

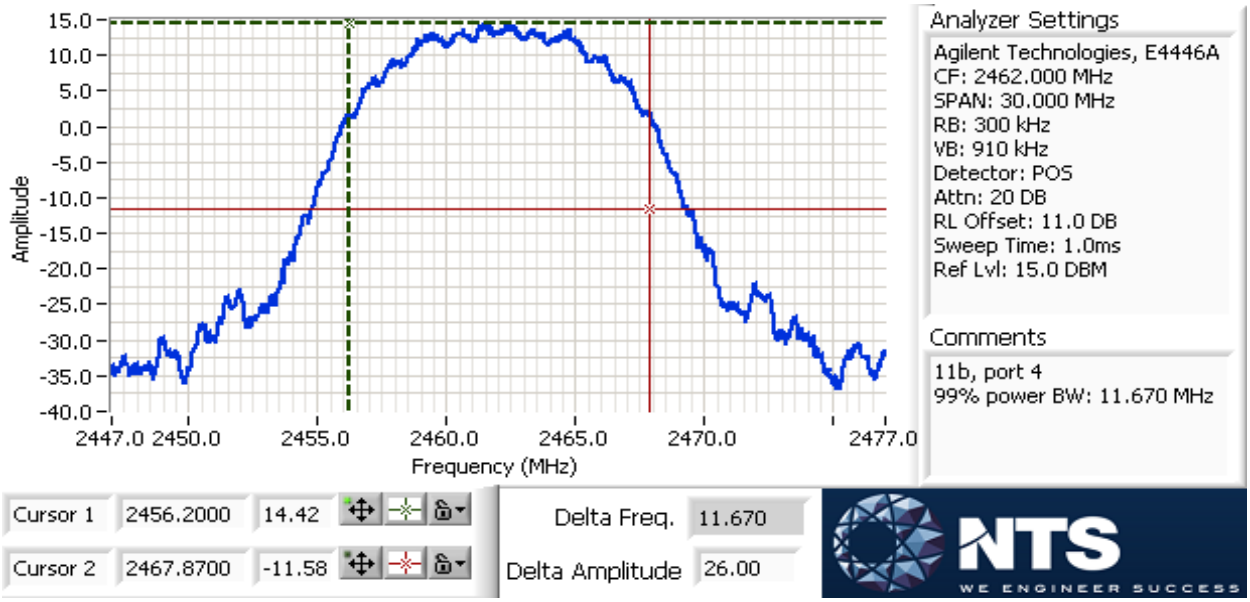
Mode: 11b

Power Setting	Frequency (MHz)	Bandwidth (MHz)		RBW Setting (kHz)	
		6dB	99%	6dB	99%
q78	2412	8.34	11.65	100	300
	2437	8.26	11.65		
	2462	8.50	11.67		

Note 1:	DTS BW: RBW=100kHz, VBW ≥ 3*RBW, peak detector, max hold, auto sweep time. 99% BW: RBW=1-5% of of 99%BW, VBW ≥ 3*RBW, peak detector, max hold, auto sweep time.
Note 2:	Measurements performed on port 4.



Client:	Aruba Networks	Job Number:	J96879
Model:	APINH205-2x2:2 MIMO 802.11a/b/g/n/ac Wireless Access Points	T-Log Number:	T96922
		Project Manager:	Christine Krebill
Contact:	Tian Mendez	Project Coordinator:	-
Standard:	FCC 15.247/FCC 15.407/RSS-210/LP0002	Class:	N/A

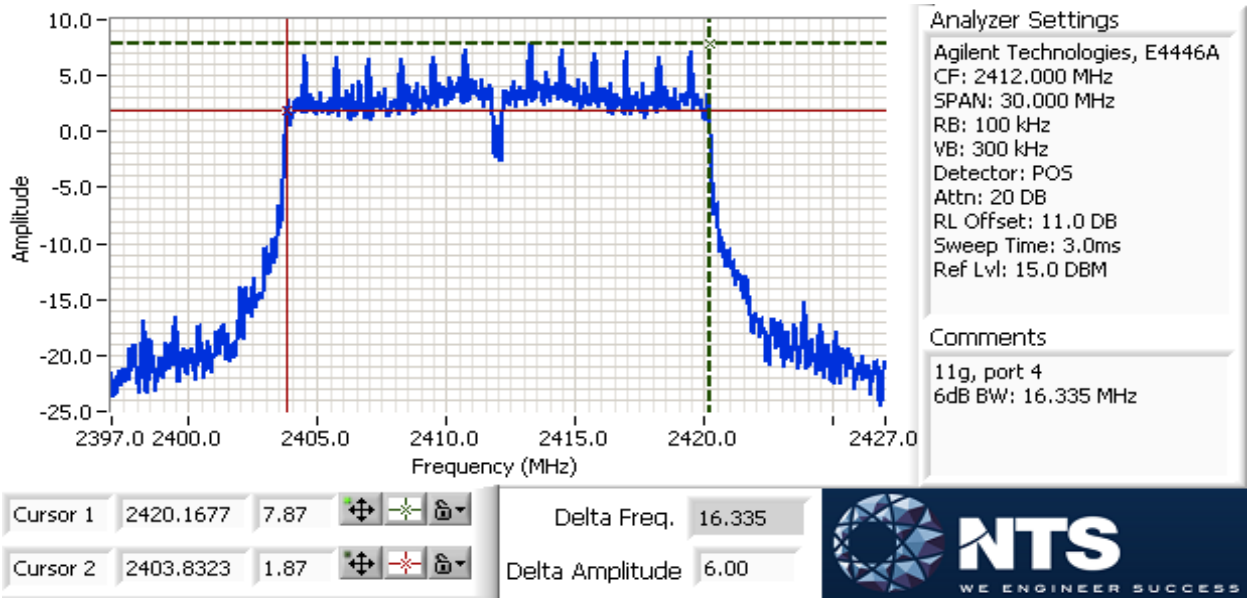


Client:	Aruba Networks	Job Number:	J96879
Model:	APINH205-2x2:2 MIMO 802.11a/b/g/n/ac Wireless Access Points	T-Log Number:	T96922
		Project Manager:	Christine Krebill
Contact:	Tian Mendez	Project Coordinator:	-
Standard:	FCC 15.247/FCC 15.407/RSS-210/LP0002	Class:	N/A

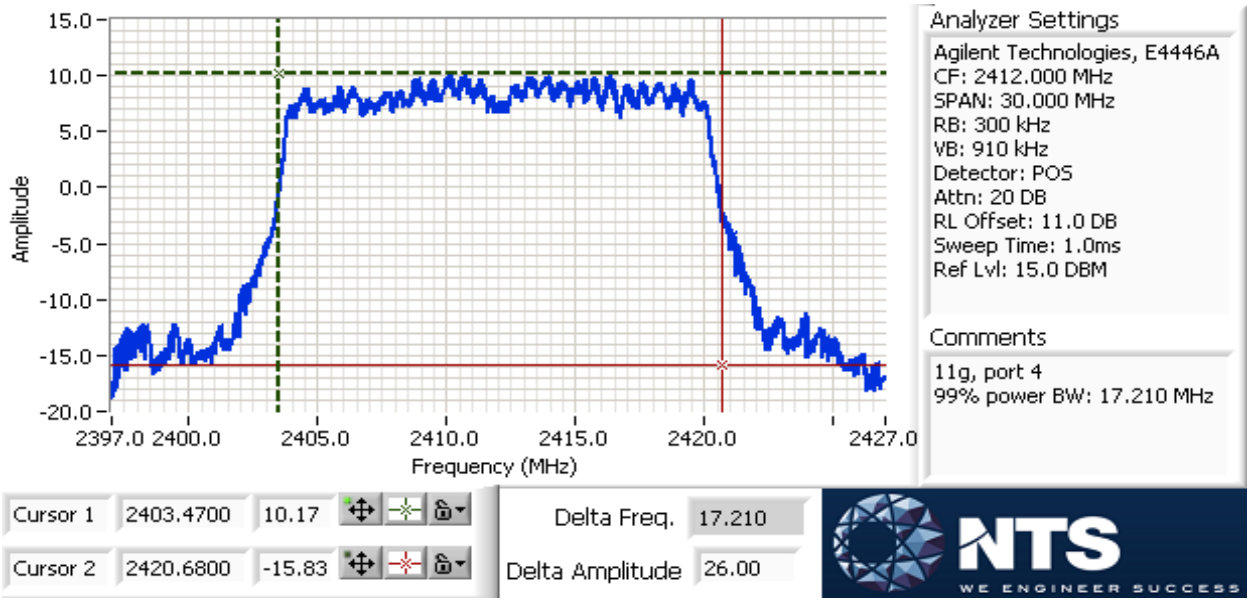
Mode: 11g

Power Setting	Frequency (MHz)	Bandwidth (MHz)		RBW Setting (kHz)	
		6dB	99%	6dB	99%
q78	2412	16.34	17.21	100	300
	2437	16.36	17.17		
	2462	16.36	17.14		

Note 1:	DTS BW: RBW=100kHz, VBW ≥ 3*RBW, peak detector, max hold, auto sweep time. 99% BW: RBW=1-5% of of 99%BW, VBW ≥ 3*RBW, peak detector, max hold, auto sweep time.
Note 2:	Measurements performed on port 4.



Client:	Aruba Networks	Job Number:	J96879
Model:	APINH205-2x2:2 MIMO 802.11a/b/g/n/ac Wireless Access Points	T-Log Number:	T96922
		Project Manager:	Christine Krebill
Contact:	Tian Mendez	Project Coordinator:	-
Standard:	FCC 15.247/FCC 15.407/RSS-210/LP0002	Class:	N/A

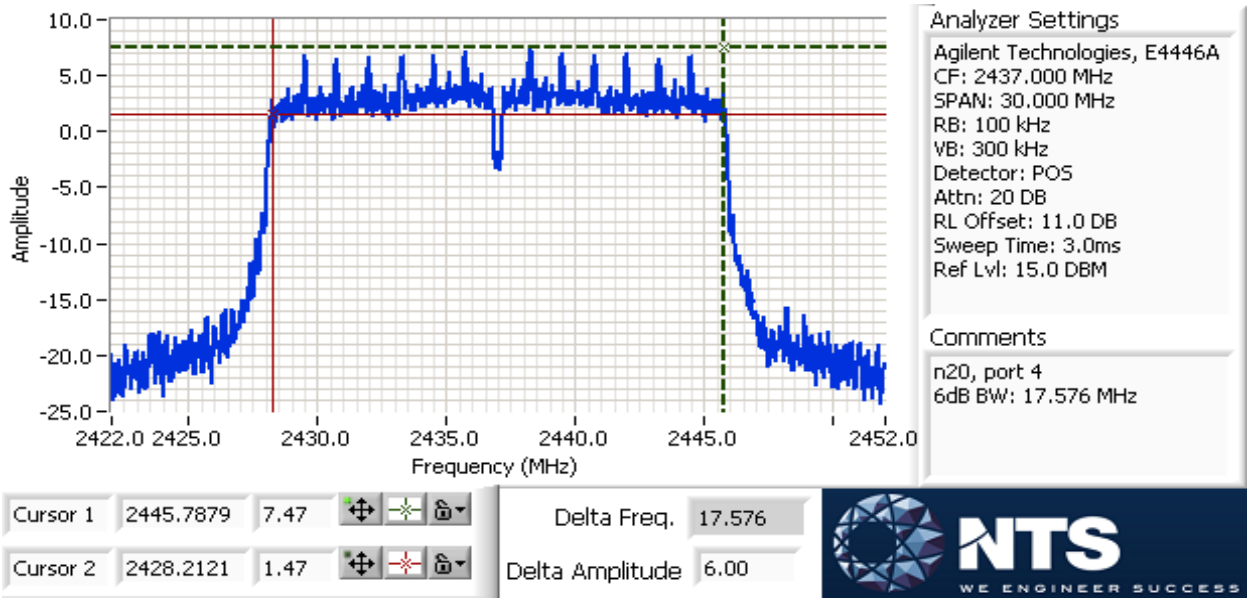


Client:	Aruba Networks	Job Number:	J96879
Model:	APINH205-2x2:2 MIMO 802.11a/b/g/n/ac Wireless Access Points	T-Log Number:	T96922
		Project Manager:	Christine Krebill
Contact:	Tian Mendez	Project Coordinator:	-
Standard:	FCC 15.247/FCC 15.407/RSS-210/LP0002	Class:	N/A

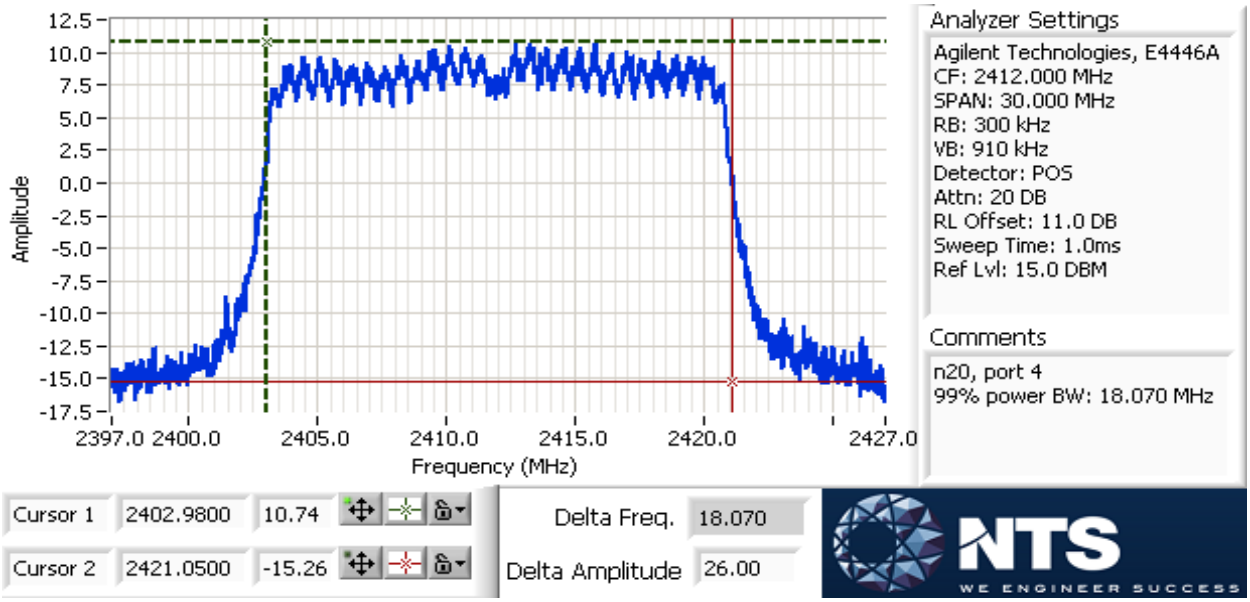
Mode: n20

Power Setting	Frequency (MHz)	Bandwidth (MHz)		RBW Setting (kHz)	
		6dB	99%	6dB	99%
q78	2412	17.59	18.07	100	300
	2437	17.58	18.03		
	2462	17.58	18.02		

Note 1:	DTS BW: RBW=100kHz, VBW ≥ 3*RBW, peak detector, max hold, auto sweep time. 99% BW: RBW=1-5% of of 99%BW, VBW ≥ 3*RBW, peak detector, max hold, auto sweep time.
Note 2:	Measurements performed on port 4.



Client:	Aruba Networks	Job Number:	J96879
Model:	APINH205-2x2:2 MIMO 802.11a/b/g/n/ac Wireless Access Points	T-Log Number:	T96922
		Project Manager:	Christine Krebill
Contact:	Tian Mendez	Project Coordinator:	-
Standard:	FCC 15.247/FCC 15.407/RSS-210/LP0002	Class:	N/A

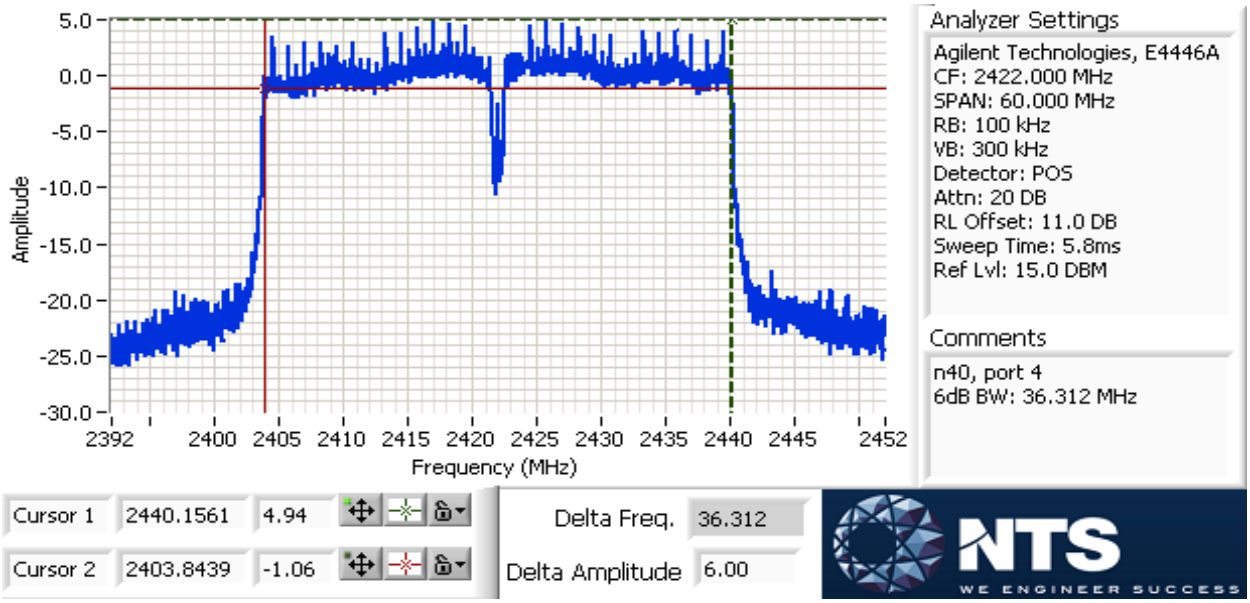


Client:	Aruba Networks	Job Number:	J96879
Model:	APINH205-2x2:2 MIMO 802.11a/b/g/n/ac Wireless Access Points	T-Log Number:	T96922
		Project Manager:	Christine Krebill
Contact:	Tian Mendez	Project Coordinator:	-
Standard:	FCC 15.247/FCC 15.407/RSS-210/LP0002	Class:	N/A

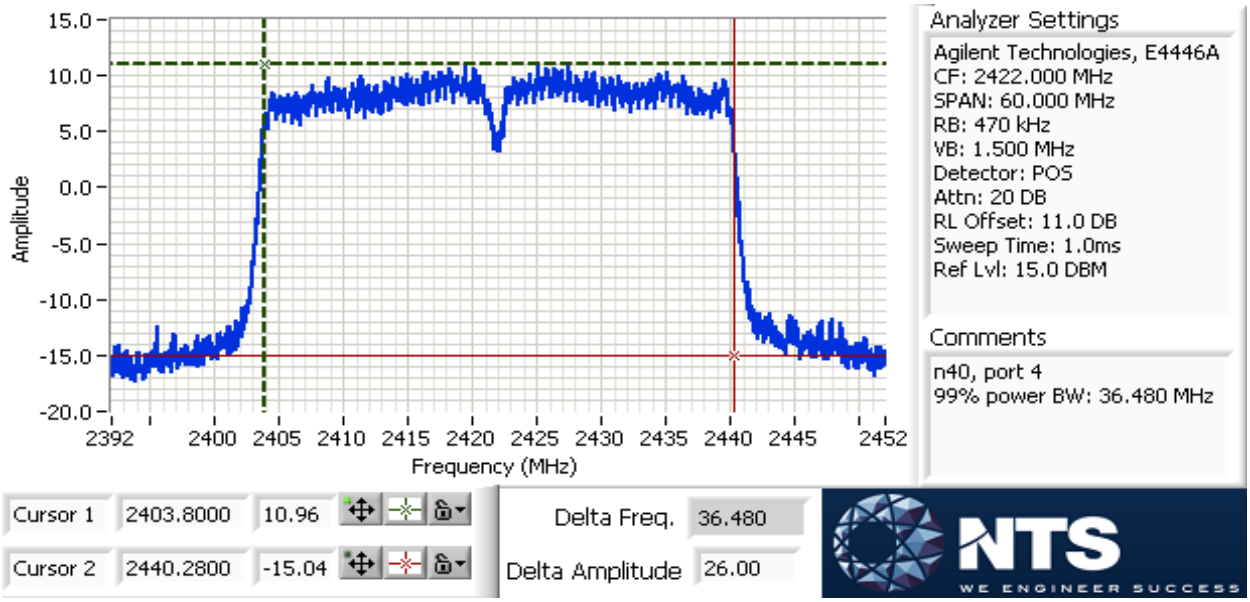
Mode: n40

Power Setting	Frequency (MHz)	Bandwidth (MHz)		RBW Setting (kHz)	
		6dB	99%	6dB	99%
q78	2422	36.31	36.48	100	470
	2437	36.33	36.48		
	2452	36.35	36.50		

Note 1:	DTS BW: RBW=100kHz, VBW ≥ 3*RBW, peak detector, max hold, auto sweep time. 99% BW: RBW=1-5% of of 99%BW, VBW ≥ 3*RBW, peak detector, max hold, auto sweep time.
Note 2:	Measurements performed on port 4.



Client:	Aruba Networks	Job Number:	J96879
Model:	APINH205-2x2:2 MIMO 802.11a/b/g/n/ac Wireless Access Points	T-Log Number:	T96922
		Project Manager:	Christine Krebill
Contact:	Tian Mendez	Project Coordinator:	-
Standard:	FCC 15.247/FCC 15.407/RSS-210/LP0002	Class:	N/A



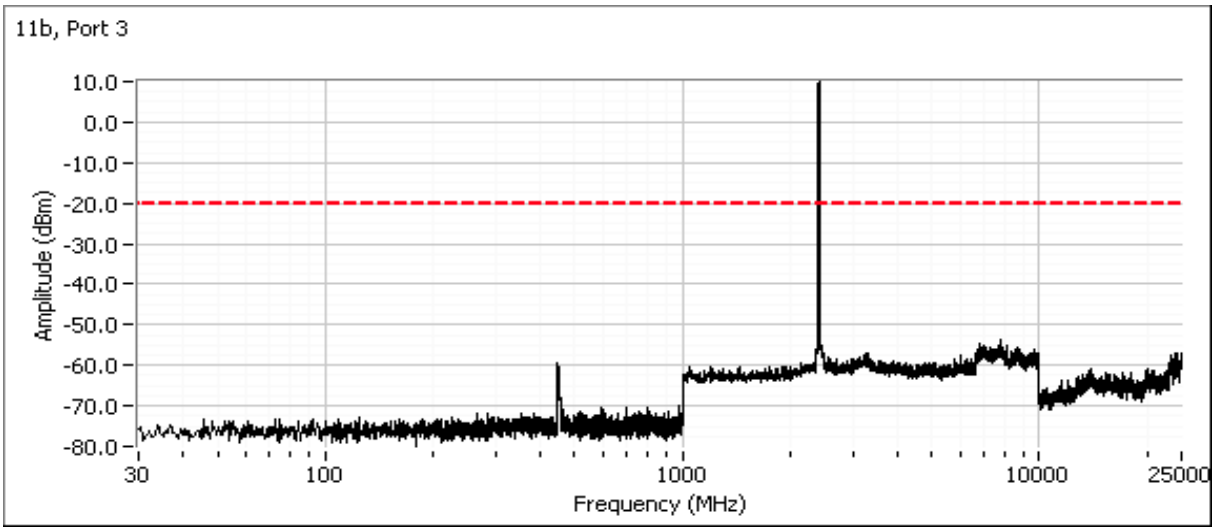
Client:	Aruba Networks	Job Number:	J96879
Model:	APINH205-2x2:2 MIMO 802.11a/b/g/n/ac Wireless Access Points	T-Log Number:	T96922
		Project Manager:	Christine Krebill
Contact:	Tian Mendez	Project Coordinator:	-
Standard:	FCC 15.247/FCC 15.407/RSS-210/LP0002	Class:	N/A

Run #4a: Out of Band Spurious Emissions

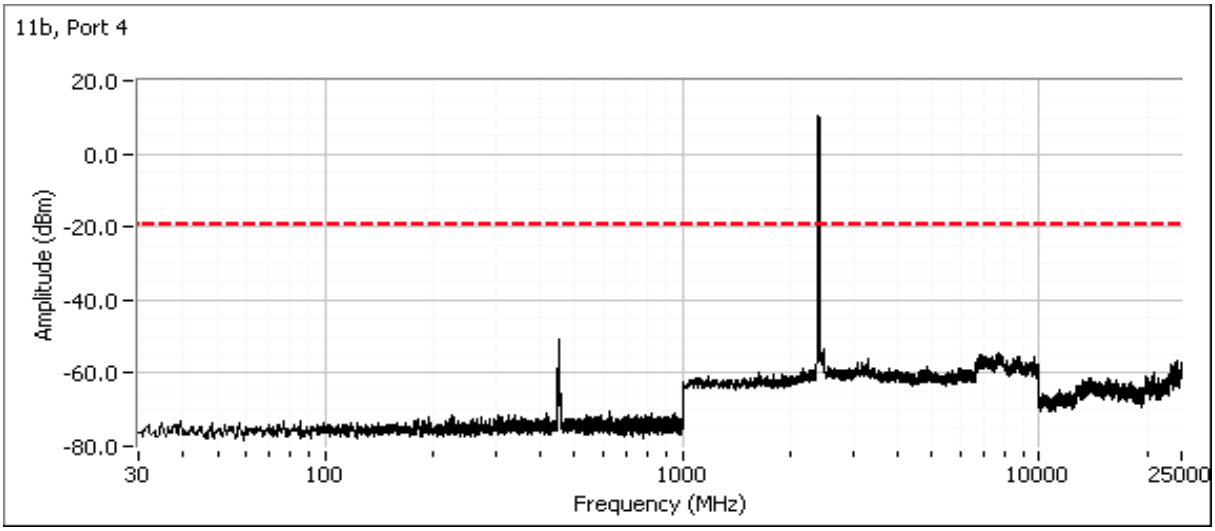
Power Setting Per Chain				Mode	Frequency (MHz)	Limit	Result
Port 3	Port 4	#3	#4				
q78	q78			b	2412	-30 dBc	Pass
q78	q78				2437		Pass
q78	q78				2462		Pass

Note 1:	Measured on each chain individually

Plots for low channel

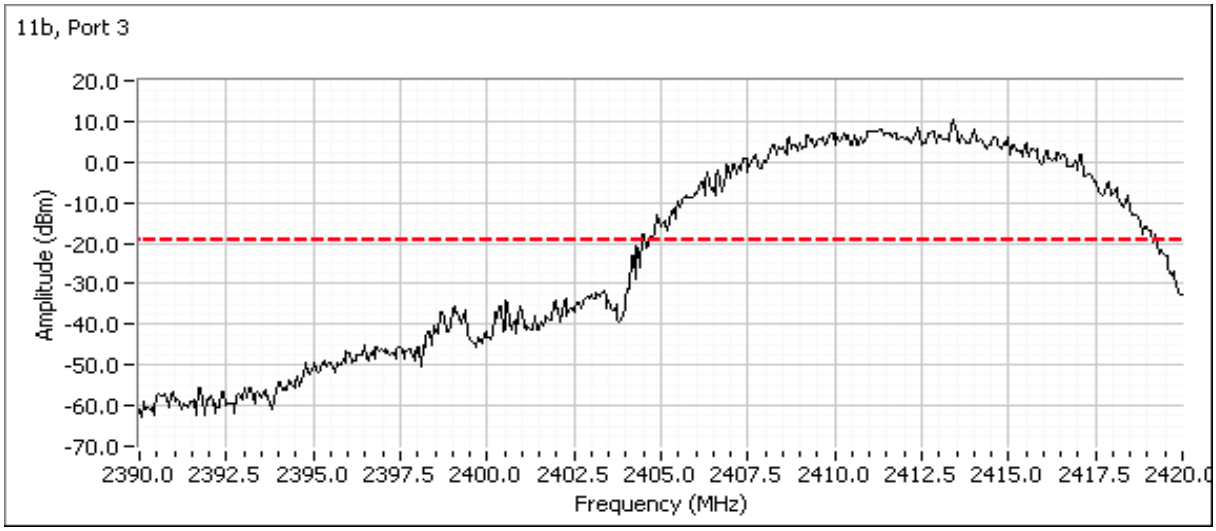


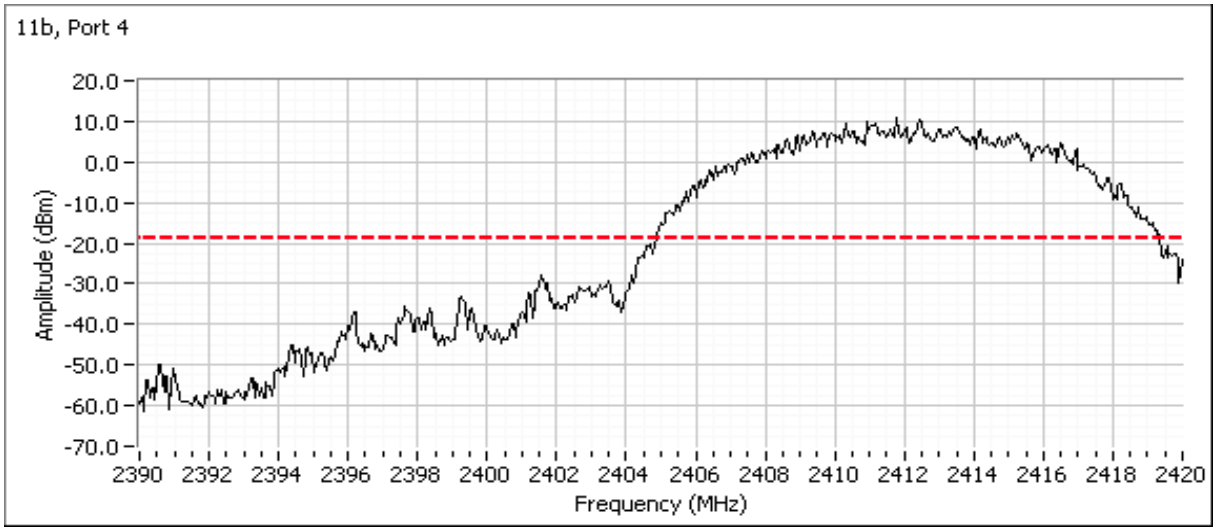
Client:	Aruba Networks	Job Number:	J96879
Model:	APINH205-2x2:2 MIMO 802.11a/b/g/n/ac Wireless Access Points	T-Log Number:	T96922
		Project Manager:	Christine Krebill
Contact:	Tian Mendez	Project Coordinator:	-
Standard:	FCC 15.247/FCC 15.407/RSS-210/LP0002	Class:	N/A



Client:	Aruba Networks	Job Number:	J96879
Model:	APINH205-2x2:2 MIMO 802.11a/b/g/n/ac Wireless Access Points	T-Log Number:	T96922
		Project Manager:	Christine Krebill
Contact:	Tian Mendez	Project Coordinator:	-
Standard:	FCC 15.247/FCC 15.407/RSS-210/LP0002	Class:	N/A

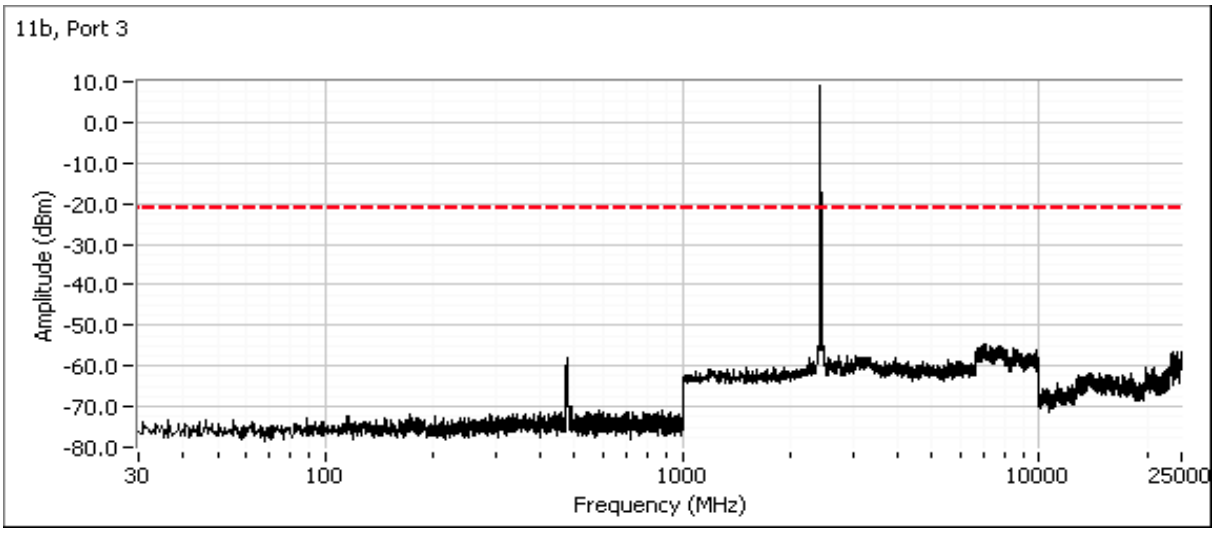
Additional plot showing compliance with -30dBc limit from 2390 MHz to 2400 MHz. Radiated measurements used to show compliance with the limits in the restricted band below 2390 MHz.

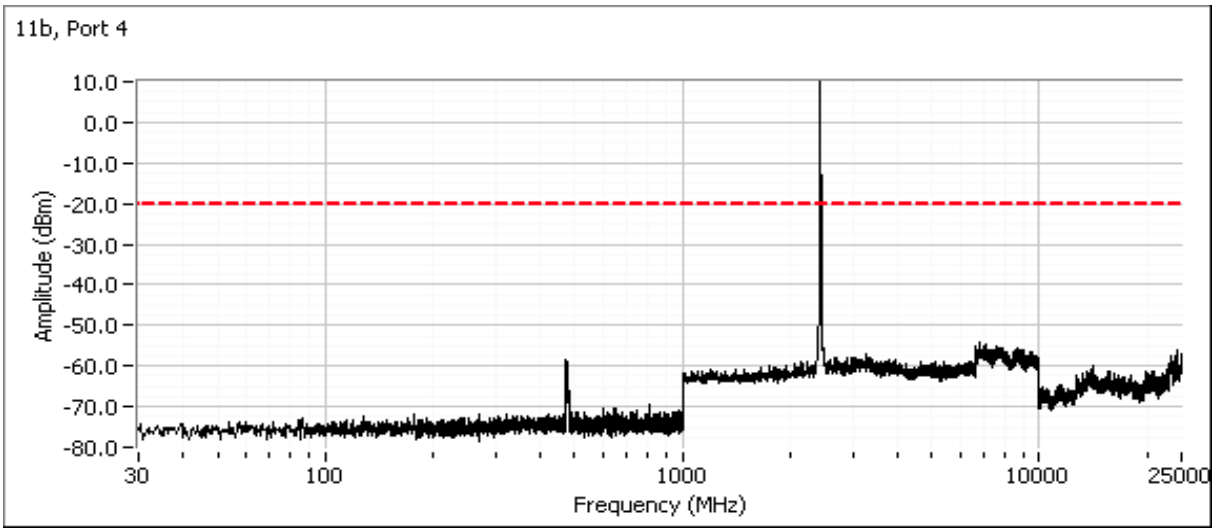




Client:	Aruba Networks	Job Number:	J96879
Model:	APINH205-2x2:2 MIMO 802.11a/b/g/n/ac Wireless Access Points	T-Log Number:	T96922
		Project Manager:	Christine Krebill
Contact:	Tian Mendez	Project Coordinator:	-
Standard:	FCC 15.247/FCC 15.407/RSS-210/LP0002	Class:	N/A

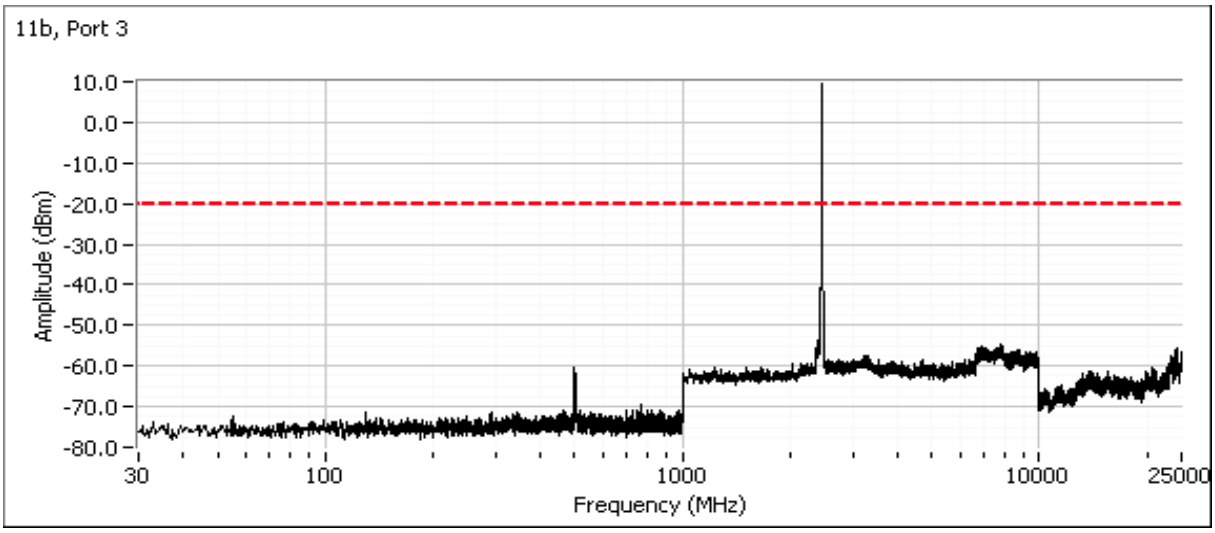
Plots for center channel

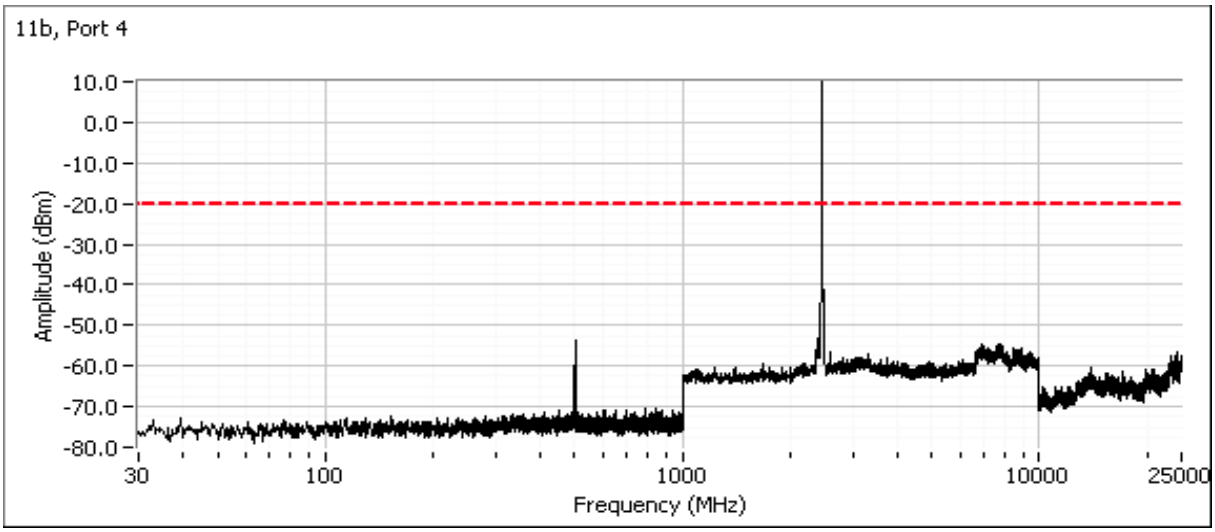




Client:	Aruba Networks	Job Number:	J96879
Model:	APINH205-2x2:2 MIMO 802.11a/b/g/n/ac Wireless Access Points	T-Log Number:	T96922
		Project Manager:	Christine Krebill
Contact:	Tian Mendez	Project Coordinator:	-
Standard:	FCC 15.247/FCC 15.407/RSS-210/LP0002	Class:	N/A

Plots for high channel





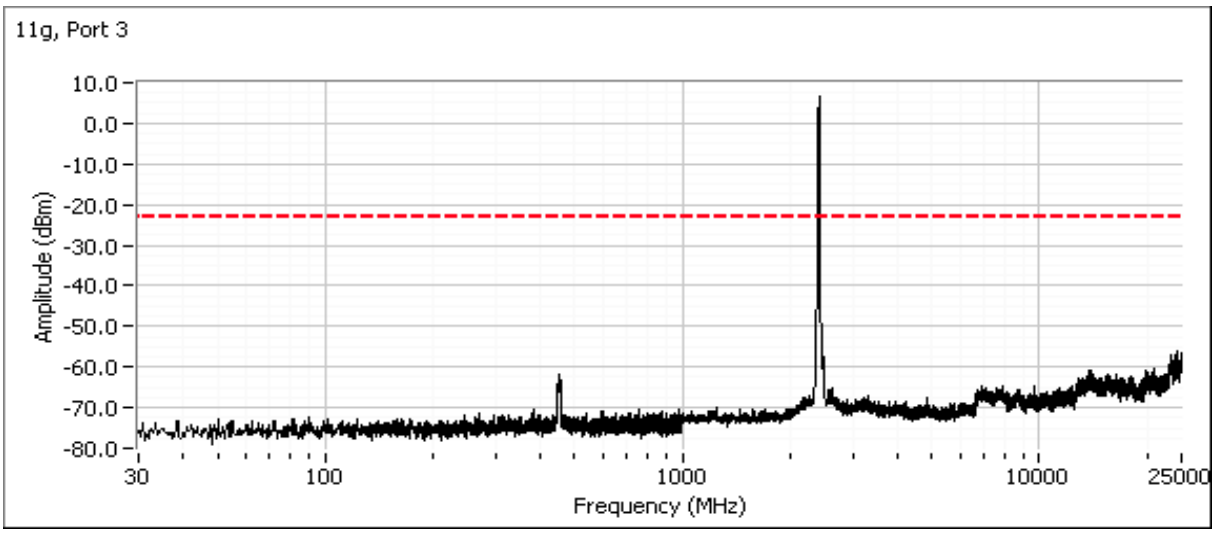
Client:	Aruba Networks	Job Number:	J96879
Model:	APINH205-2x2:2 MIMO 802.11a/b/g/n/ac Wireless Access Points	T-Log Number:	T96922
		Project Manager:	Christine Krebill
Contact:	Tian Mendez	Project Coordinator:	-
Standard:	FCC 15.247/FCC 15.407/RSS-210/LP0002	Class:	N/A

Power Setting Per Chain				Mode	Frequency (MHz)	Limit	Result
Port 3	Port 4	#3	#4				
q78	q78			g	2412	-30 dBc	Pass
q78	q78				2437		Pass
q78	q78				2462		Pass

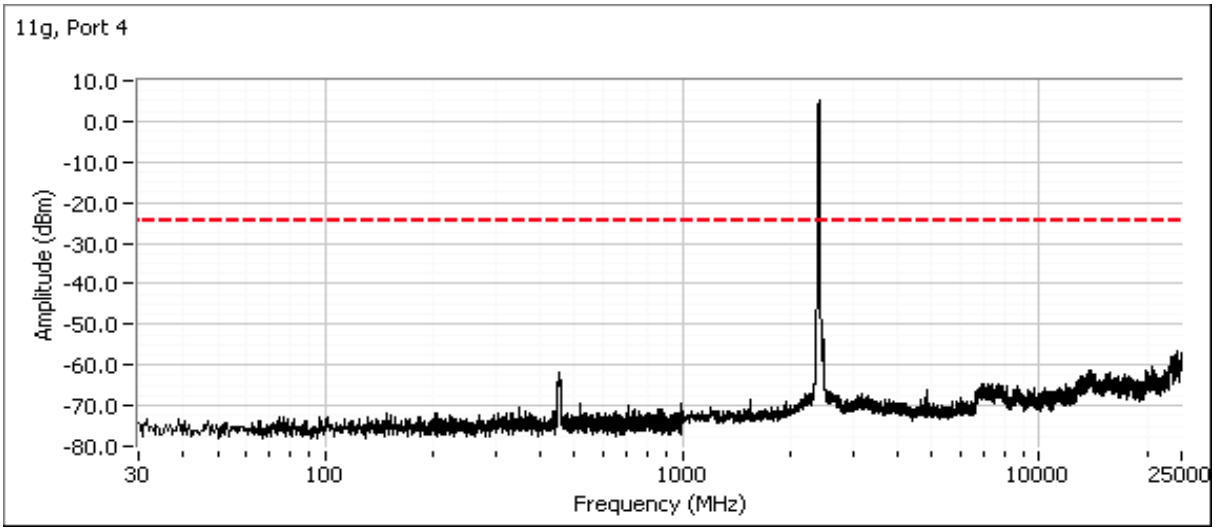
Note 1:	Measured on each chain individually
Note 2:	Broadband plots done at worse case power settings. Bandedge compliance at low channel done at final power settings.

Power Setting Per		Band Edge Frequency (MHz)	Frequency (MHz)	In band Level (dBm)	Outside the band Level (dBm)	Delta dBc	Limit dBc	Result
Port 3	Port 4							
g mode								
q59		2400	2412	2.68	-31.04	33.72	30	Pass
	q59	2400	2412	2.50	-31.47	33.97	30	Pass

Plots for low channel

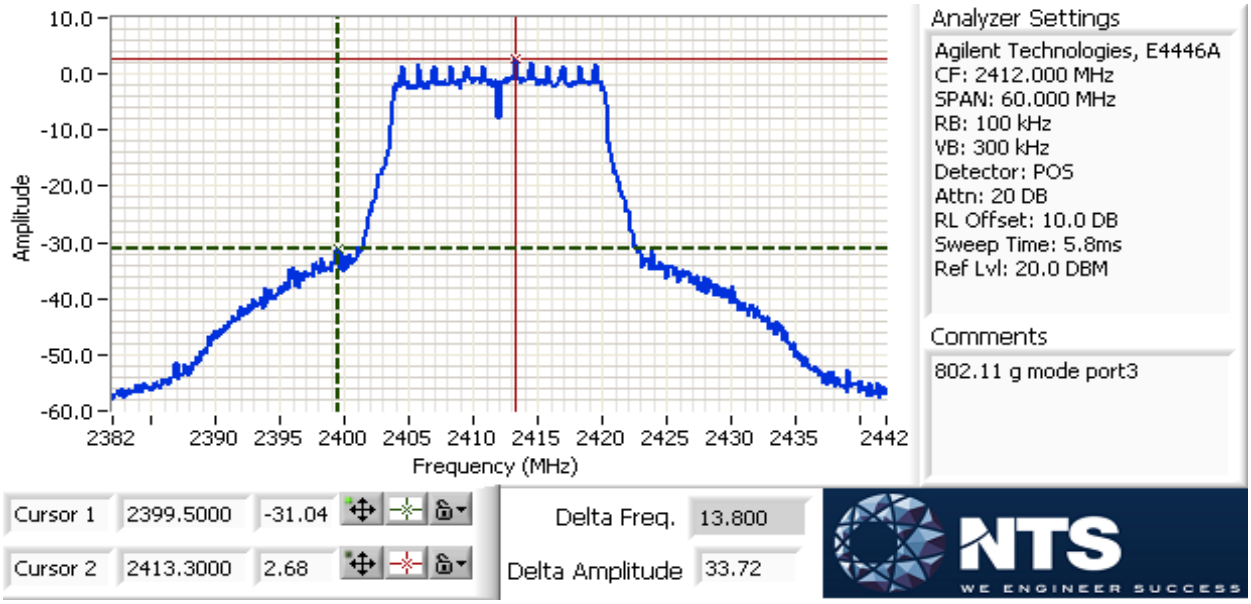


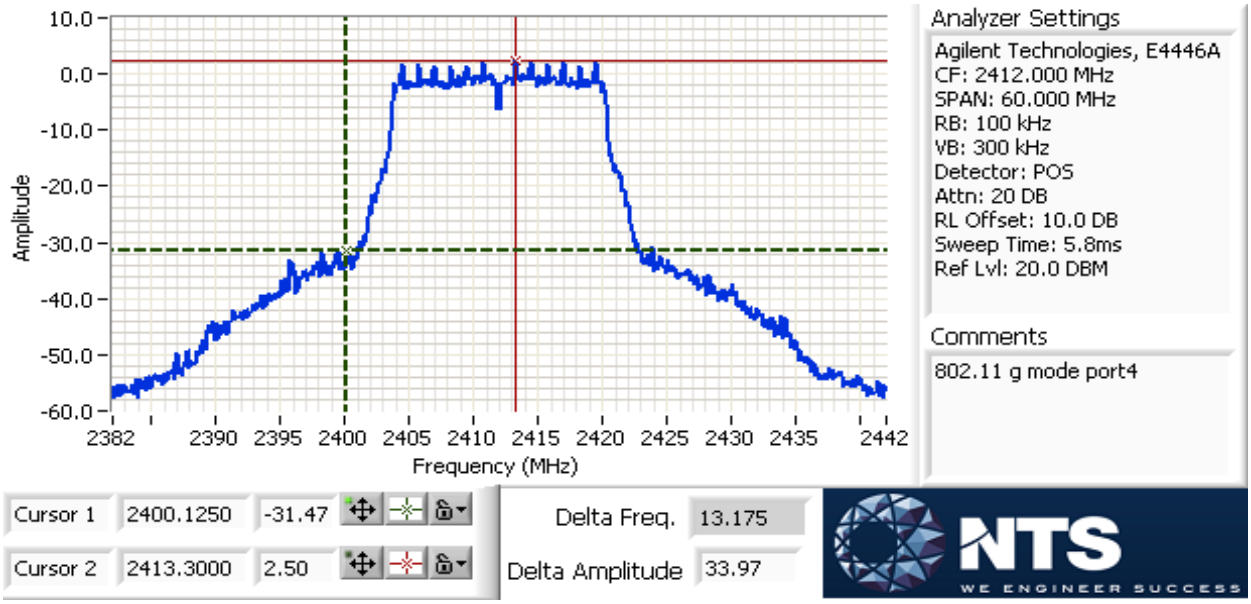
Client:	Aruba Networks	Job Number:	J96879
Model:	APINH205-2x2:2 MIMO 802.11a/b/g/n/ac Wireless Access Points	T-Log Number:	T96922
		Project Manager:	Christine Krebill
Contact:	Tian Mendez	Project Coordinator:	-
Standard:	FCC 15.247/FCC 15.407/RSS-210/LP0002	Class:	N/A



Client:	Aruba Networks	Job Number:	J96879
Model:	APINH205-2x2:2 MIMO 802.11a/b/g/n/ac Wireless Access Points	T-Log Number:	T96922
		Project Manager:	Christine Krebill
Contact:	Tian Mendez	Project Coordinator:	-
Standard:	FCC 15.247/FCC 15.407/RSS-210/LP0002	Class:	N/A

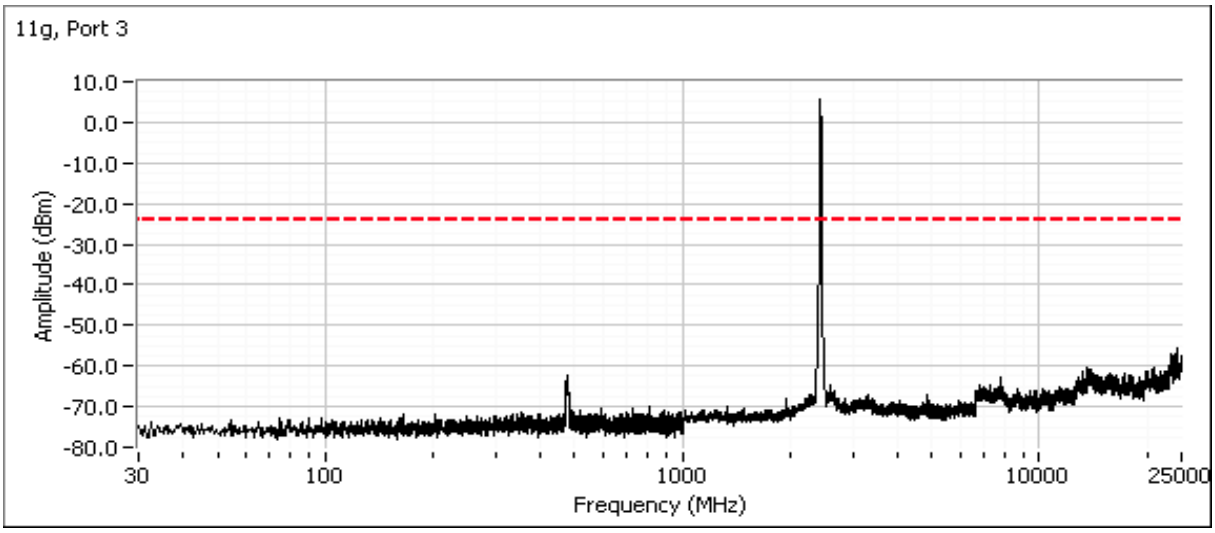
Additional plot showing compliance with -30dBc limit from 2390 MHz to 2400 MHz. Radiated measurements used to show compliance with the limits in the restricted band below 2390 MHz.

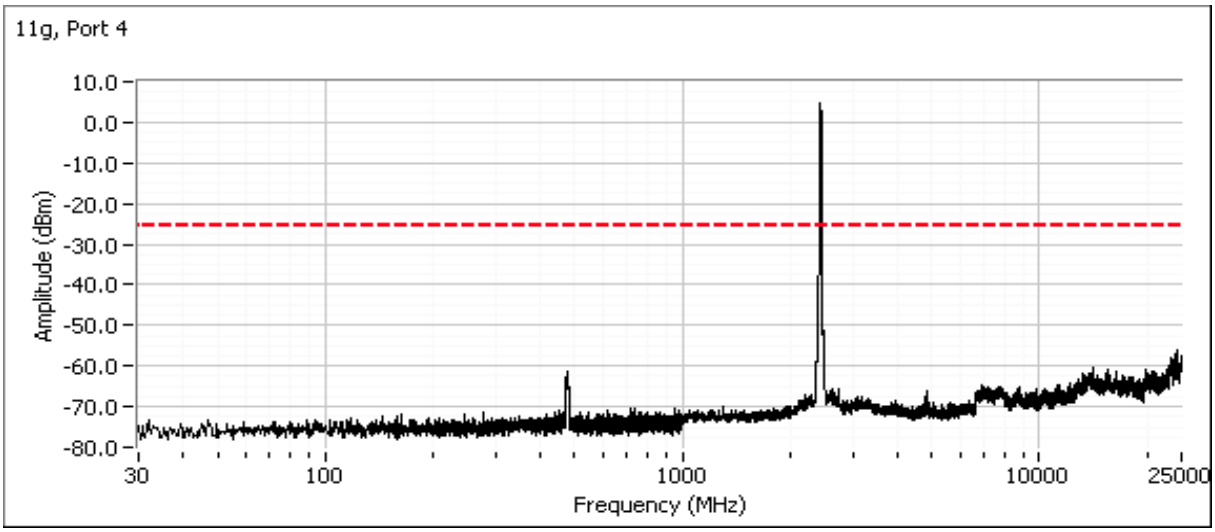




Client:	Aruba Networks	Job Number:	J96879
Model:	APINH205-2x2:2 MIMO 802.11a/b/g/n/ac Wireless Access Points	T-Log Number:	T96922
		Project Manager:	Christine Krebill
Contact:	Tian Mendez	Project Coordinator:	-
Standard:	FCC 15.247/FCC 15.407/RSS-210/LP0002	Class:	N/A

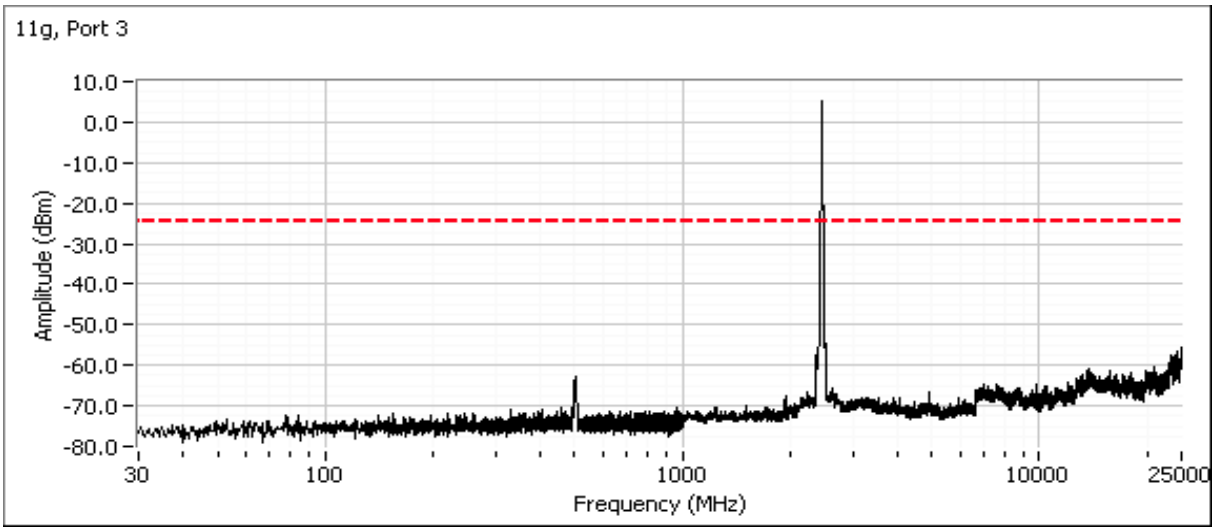
Plots for center channel

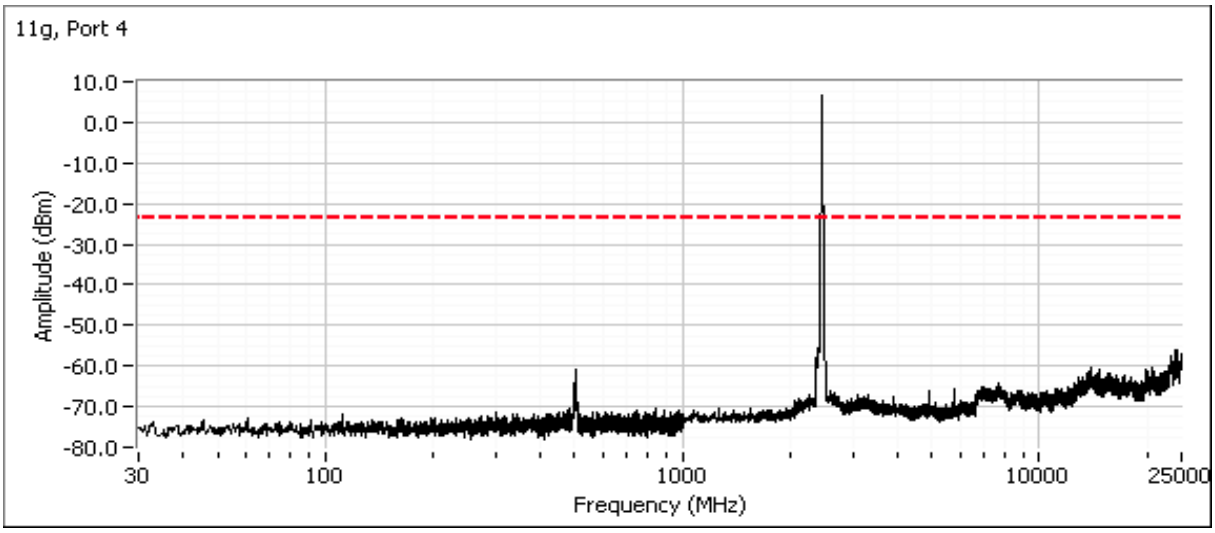




Client:	Aruba Networks	Job Number:	J96879
Model:	APINH205-2x2:2 MIMO 802.11a/b/g/n/ac Wireless Access Points	T-Log Number:	T96922
		Project Manager:	Christine Krebill
Contact:	Tian Mendez	Project Coordinator:	-
Standard:	FCC 15.247/FCC 15.407/RSS-210/LP0002	Class:	N/A

Plots for high channel





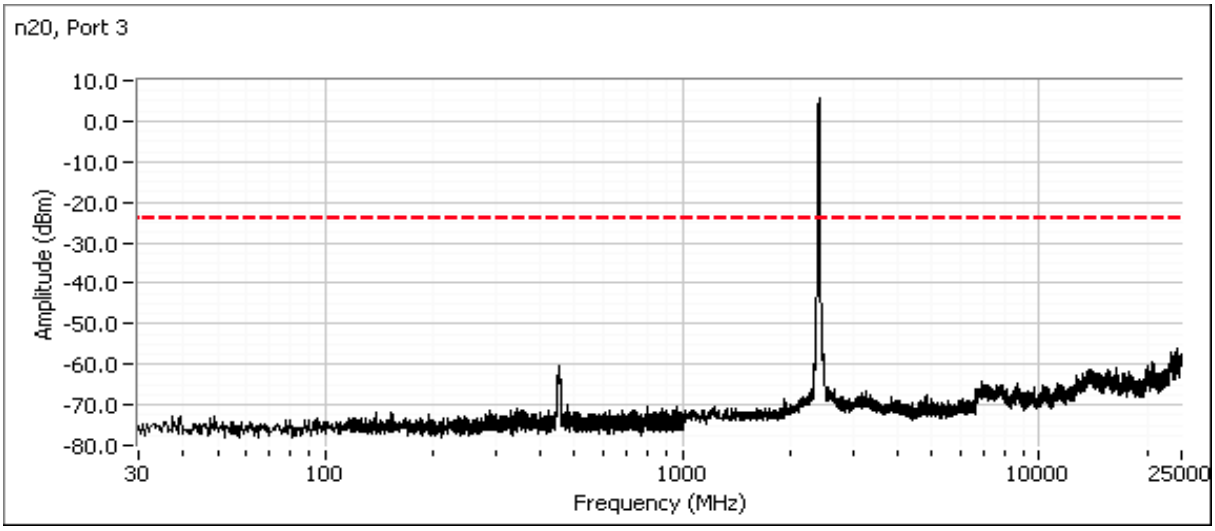
Client:	Aruba Networks	Job Number:	J96879
Model:	APINH205-2x2:2 MIMO 802.11a/b/g/n/ac Wireless Access Points	T-Log Number:	T96922
		Project Manager:	Christine Krebill
Contact:	Tian Mendez	Project Coordinator:	-
Standard:	FCC 15.247/FCC 15.407/RSS-210/LP0002	Class:	N/A

Power Setting Per Chain				Mode	Frequency (MHz)	Limit	Result
Port 3	Port 4	#3	#4				
q78	q78			n20	2412	-30 dBc	
q78	q78				2437		Pass
q78	q78				2462		Pass

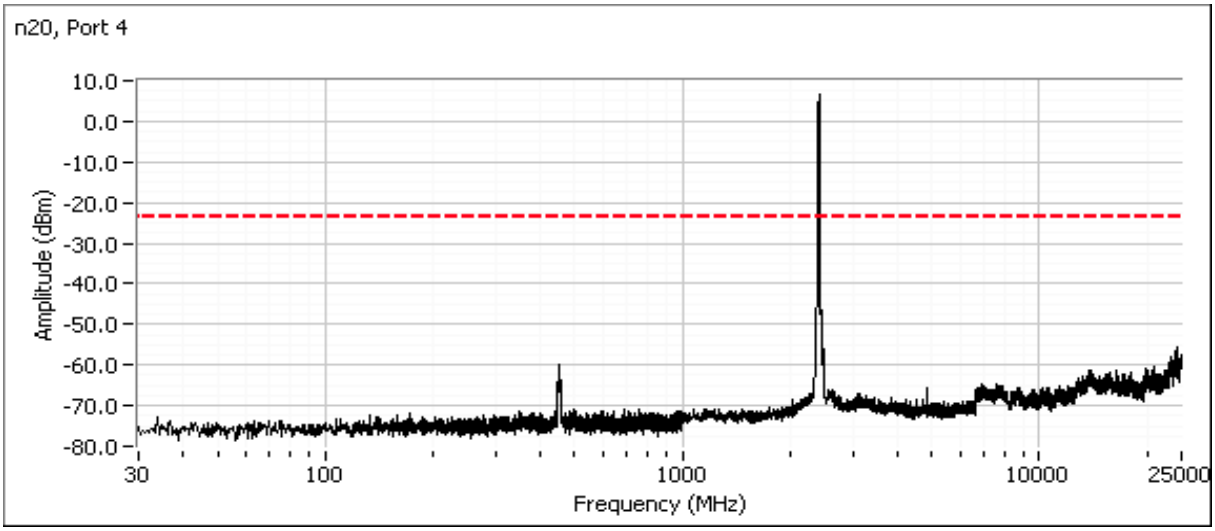
Note 1:	Measured on each chain individually
Note 2:	Broadband plots done at worse case power settings. Bandedge compliance at low channel done at final power settings.

Power Setting Per		Band Edge Frequency (MHz)	Frequency (MHz)	In band Level (dBm)	Outside the band Level (dBm)	Delta dBc	Limit dBc	Result
Port 3	Port 4							
n20								
q57		2400	2412	1.91	-33.84	35.75	30	Pass
	q57	2400	2412	2.05	-31.74	33.79	30	Pass

Plots for low channel

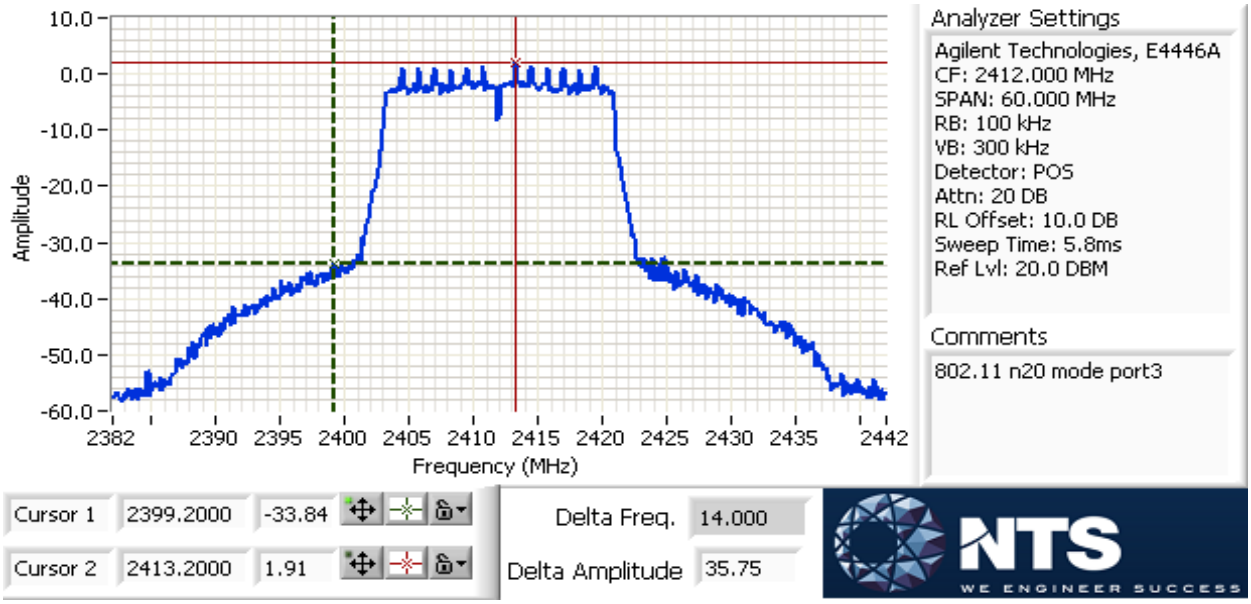


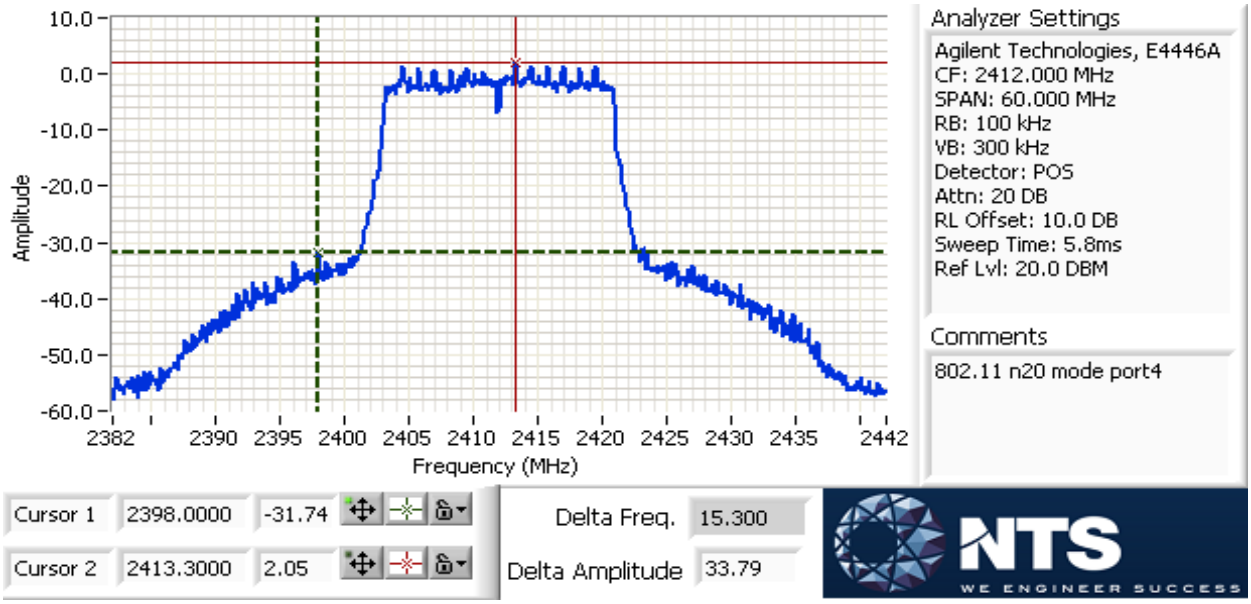
Client:	Aruba Networks	Job Number:	J96879
Model:	APINH205-2x2:2 MIMO 802.11a/b/g/n/ac Wireless Access Points	T-Log Number:	T96922
		Project Manager:	Christine Krebill
Contact:	Tian Mendez	Project Coordinator:	-
Standard:	FCC 15.247/FCC 15.407/RSS-210/LP0002	Class:	N/A



Client:	Aruba Networks	Job Number:	J96879
Model:	APINH205-2x2:2 MIMO 802.11a/b/g/n/ac Wireless Access Points	T-Log Number:	T96922
		Project Manager:	Christine Krebill
Contact:	Tian Mendez	Project Coordinator:	-
Standard:	FCC 15.247/FCC 15.407/RSS-210/LP0002	Class:	N/A

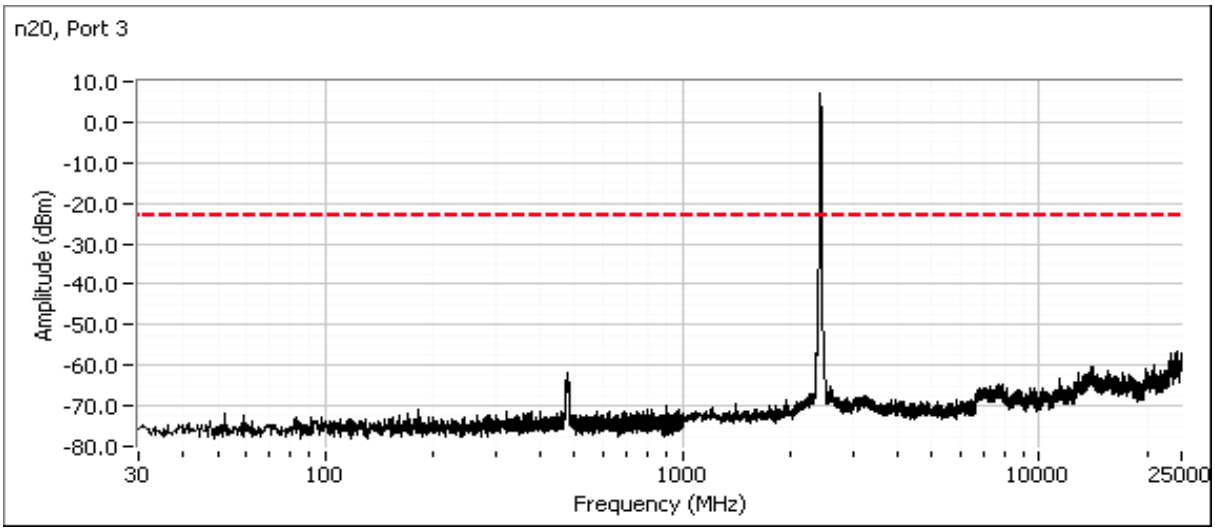
Additional plot showing compliance with -30dBc limit from 2390 MHz to 2400 MHz. Radiated measurements used to show compliance with the limits in the restricted band below 2390 MHz.

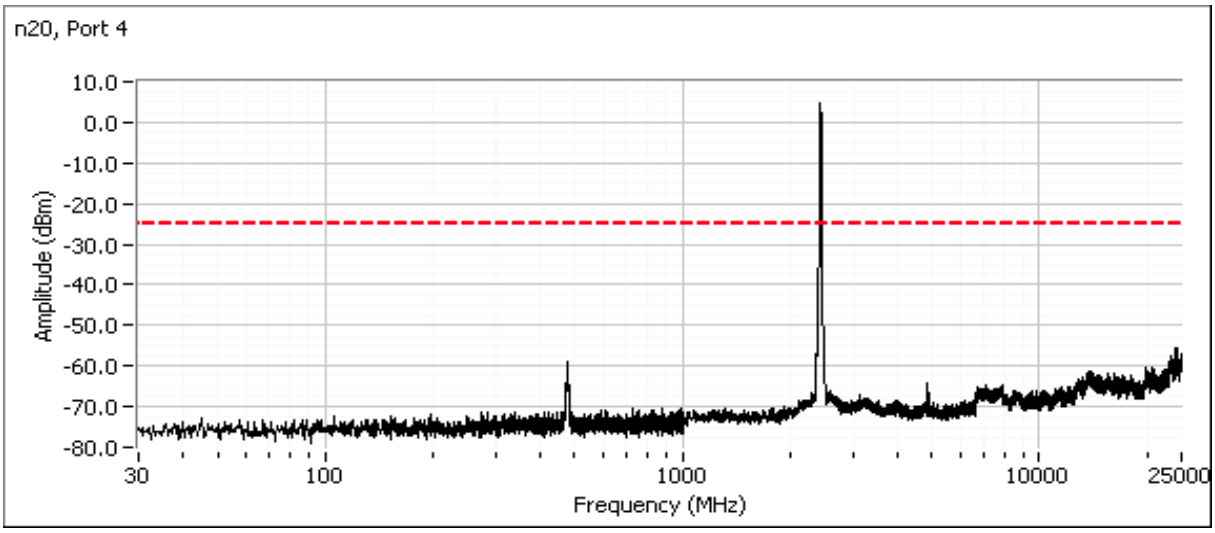




Client:	Aruba Networks	Job Number:	J96879
Model:	APINH205-2x2:2 MIMO 802.11a/b/g/n/ac Wireless Access Points	T-Log Number:	T96922
		Project Manager:	Christine Krebill
Contact:	Tian Mendez	Project Coordinator:	-
Standard:	FCC 15.247/FCC 15.407/RSS-210/LP0002	Class:	N/A

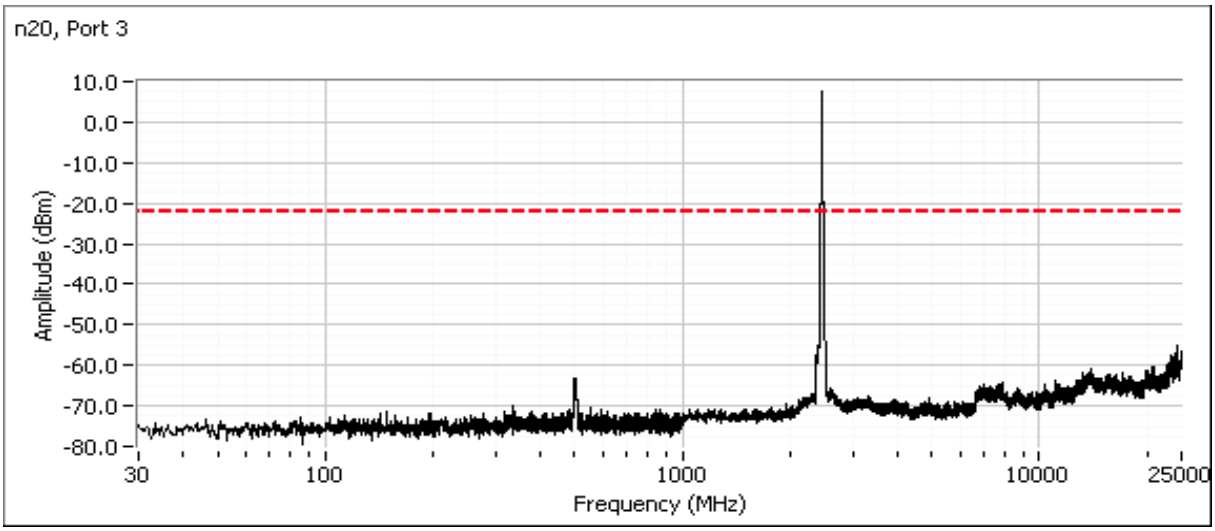
Plots for center channel

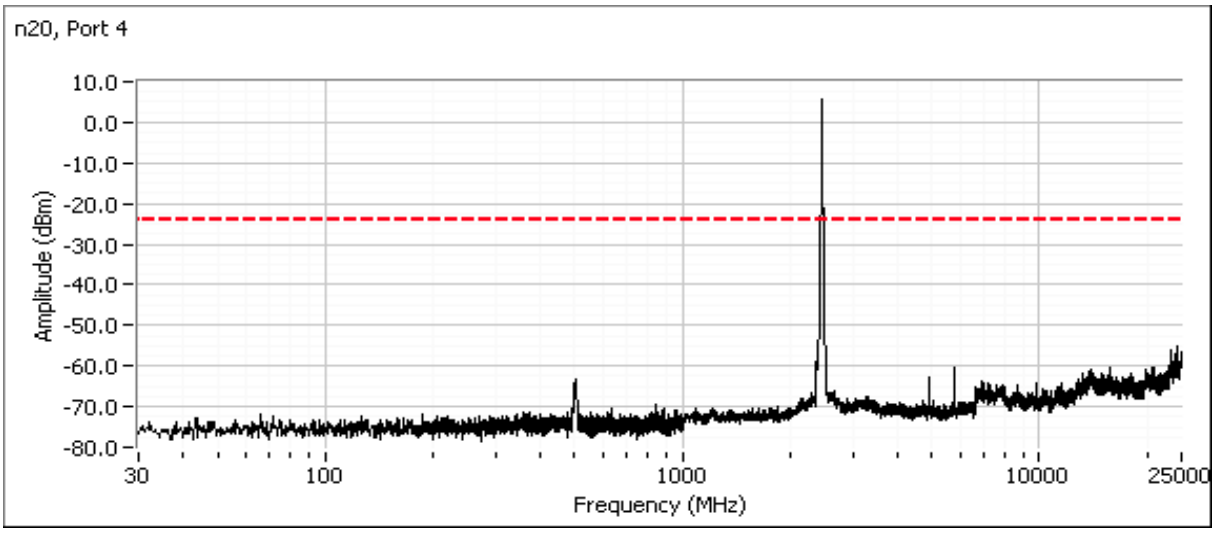




Client:	Aruba Networks	Job Number:	J96879
Model:	APINH205-2x2:2 MIMO 802.11a/b/g/n/ac Wireless Access Points	T-Log Number:	T96922
		Project Manager:	Christine Krebill
Contact:	Tian Mendez	Project Coordinator:	-
Standard:	FCC 15.247/FCC 15.407/RSS-210/LP0002	Class:	N/A

Plots for high channel





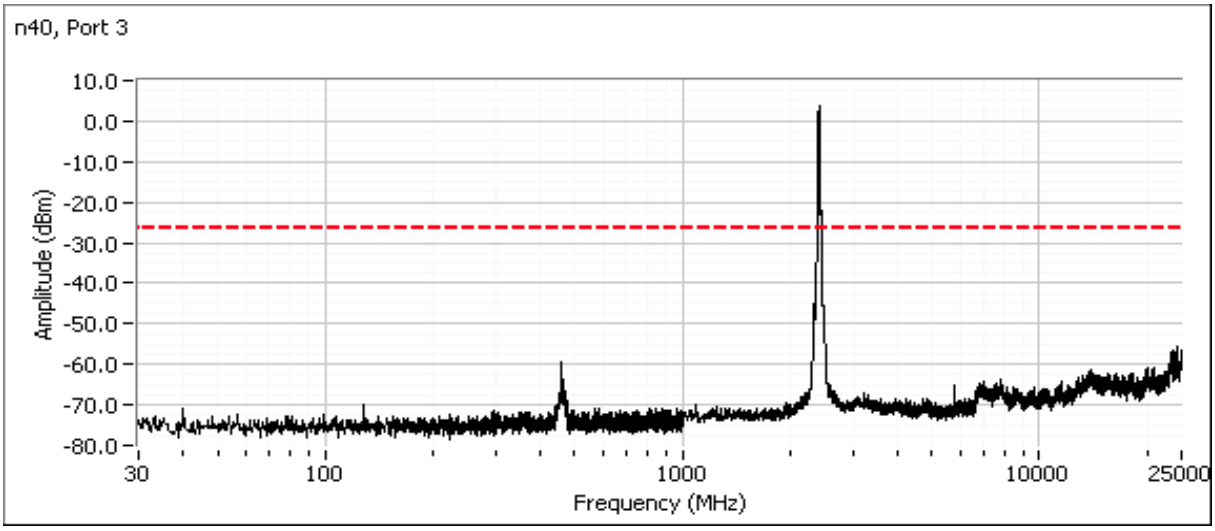
Client:	Aruba Networks	Job Number:	J96879
Model:	APINH205-2x2:2 MIMO 802.11a/b/g/n/ac Wireless Access Points	T-Log Number:	T96922
		Project Manager:	Christine Krebill
Contact:	Tian Mendez	Project Coordinator:	-
Standard:	FCC 15.247/FCC 15.407/RSS-210/LP0002	Class:	N/A

Power Setting Per Chain				Mode	Frequency (MHz)	Limit	Result
Port 3	Port 4	#3	#4				
q78	q78			n40	2422	-30 dBc	Pass
q78	q78				2437		Pass
q78	q78				2452		Pass

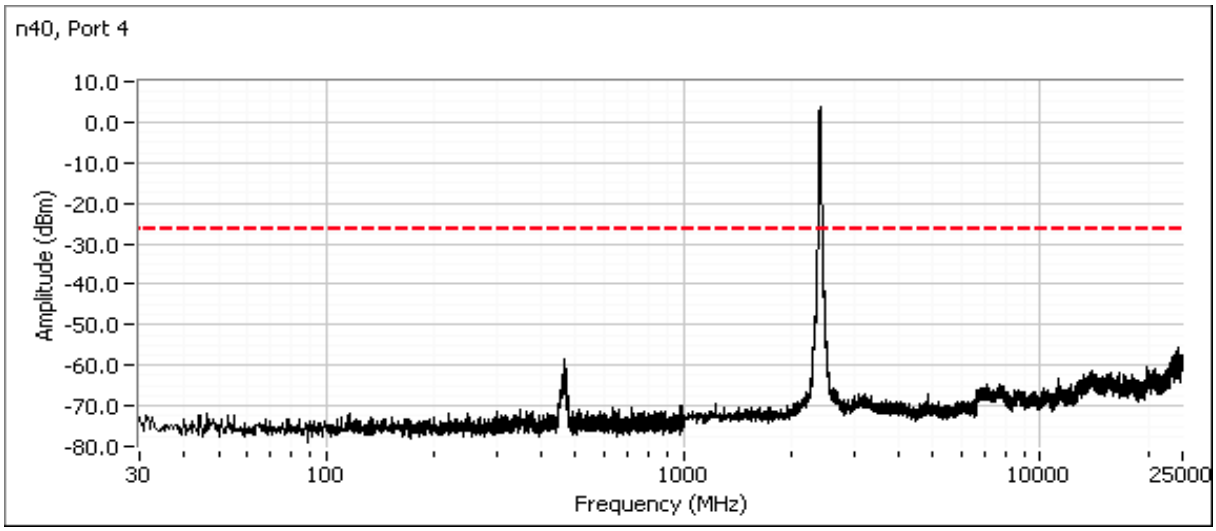
Note 1:	Measured on each chain individually
Note 2:	Broadband plots done at worse case power settings. Bandedge compliance at low channel done at final power settings.

Power Setting Per		Band Edge Frequency (MHz)	Frequency (MHz)	In band Level (dBm)	Outside the band Level (dBm)	Delta dBc	Limit dBc	Result
Port 3	Port 4							
n40								
q45		2400	2422	-3.32	-41.23	37.91	30	Pass
	q45	2400	2422	-3.34	-40.27	36.93	30	Pass

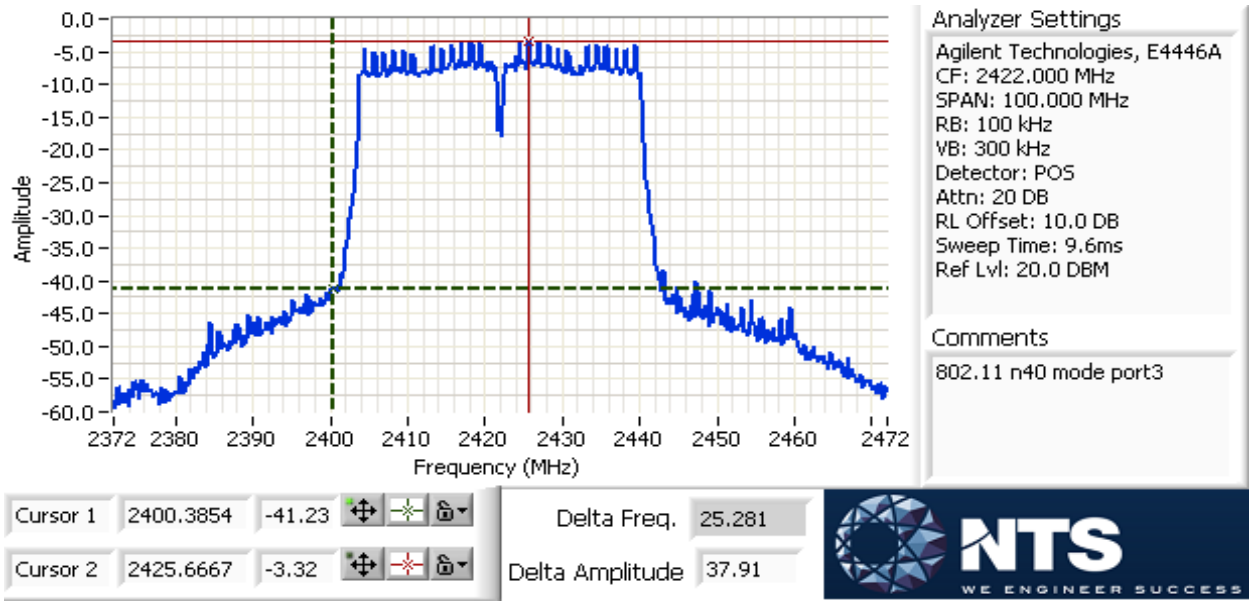
Plots for low channel



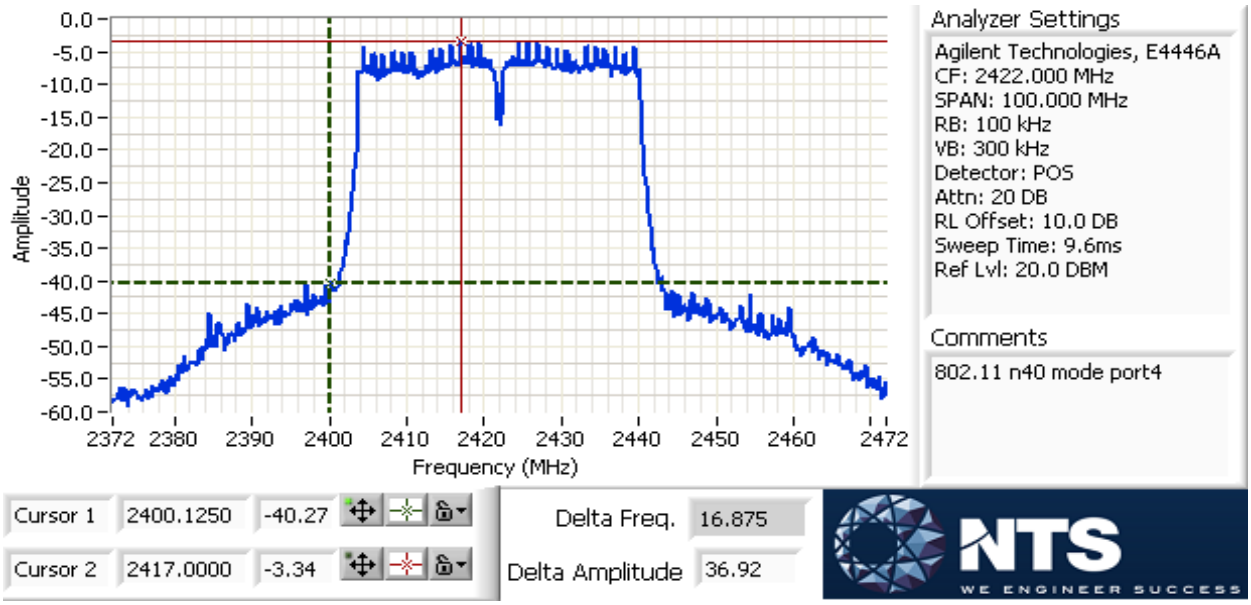
Client:	Aruba Networks	Job Number:	J96879
Model:	APINH205-2x2:2 MIMO 802.11a/b/g/n/ac Wireless Access Points	T-Log Number:	T96922
		Project Manager:	Christine Krebill
Contact:	Tian Mendez	Project Coordinator:	-
Standard:	FCC 15.247/FCC 15.407/RSS-210/LP0002	Class:	N/A



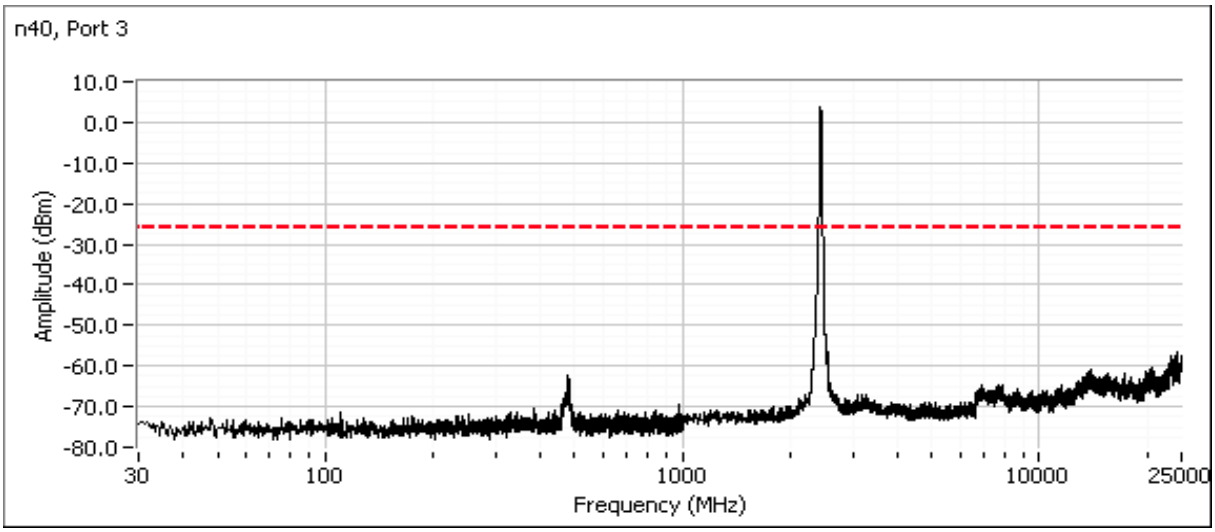
Additional plot showing compliance with -30dBc limit from 2390 MHz to 2400 MHz. Radiated measurements used to show compliance with the limits in the restricted band below 2390 MHz.



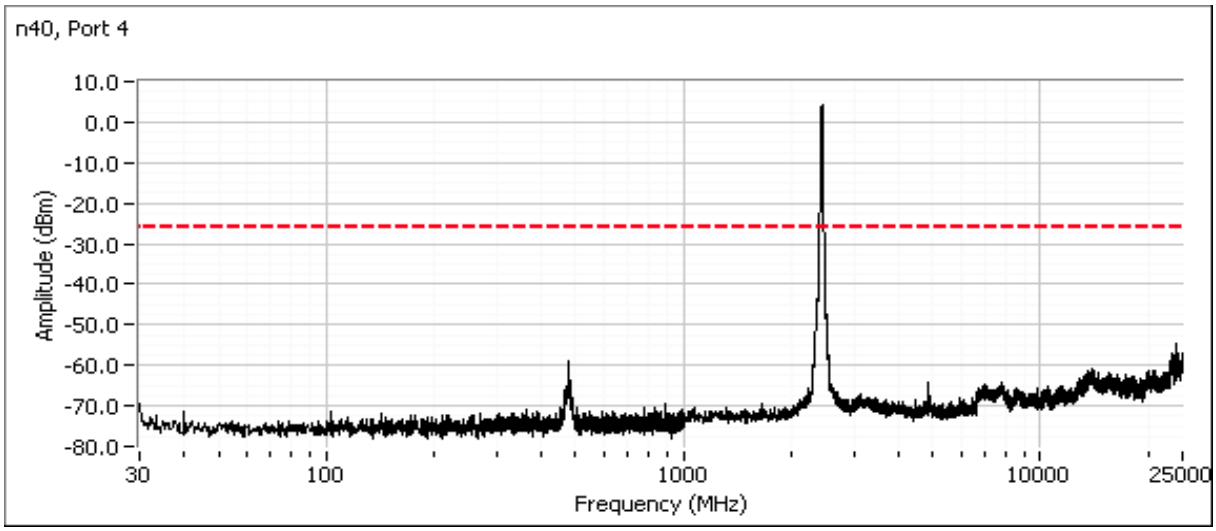
Client:	Aruba Networks	Job Number:	J96879
Model:	APINH205-2x2:2 MIMO 802.11a/b/g/n/ac Wireless Access Points	T-Log Number:	T96922
		Project Manager:	Christine Krebill
Contact:	Tian Mendez	Project Coordinator:	-
Standard:	FCC 15.247/FCC 15.407/RSS-210/LP0002	Class:	N/A



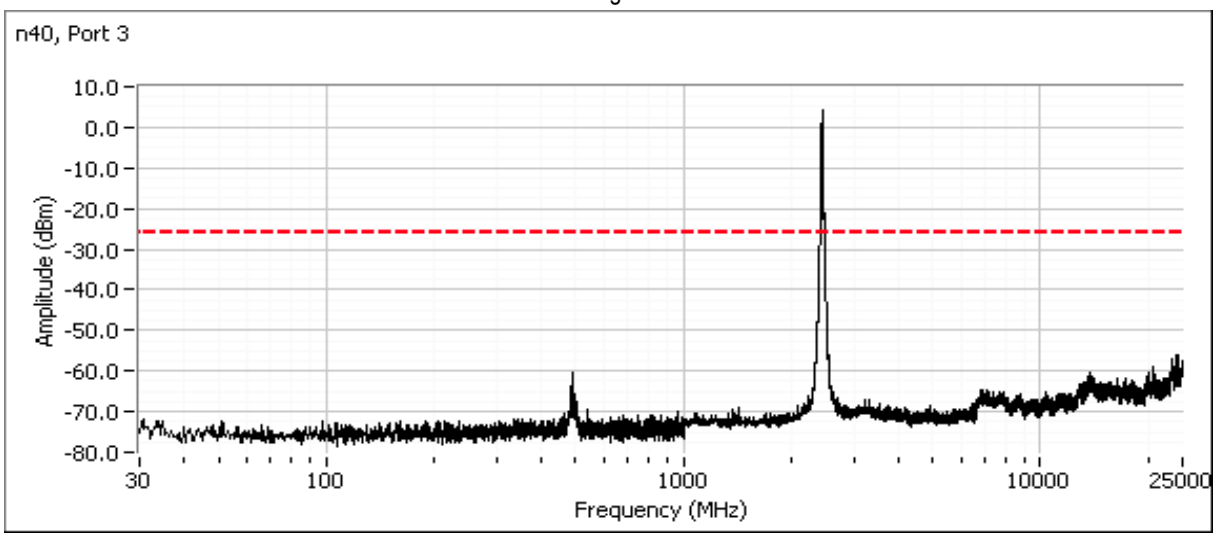
Plots for center channel



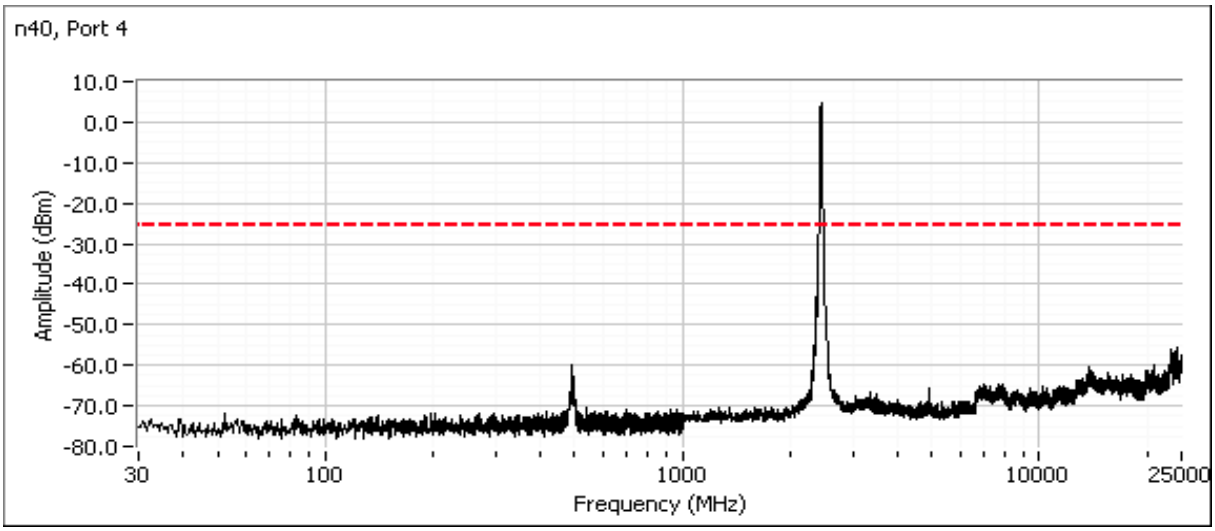
Client:	Aruba Networks	Job Number:	J96879
Model:	APINH205-2x2:2 MIMO 802.11a/b/g/n/ac Wireless Access Points	T-Log Number:	T96922
		Project Manager:	Christine Krebill
Contact:	Tian Mendez	Project Coordinator:	-
Standard:	FCC 15.247/FCC 15.407/RSS-210/LP0002	Class:	N/A



Plots for high channel



Client:	Aruba Networks	Job Number:	J96879
Model:	APINH205-2x2:2 MIMO 802.11a/b/g/n/ac Wireless Access Points	T-Log Number:	T96922
		Project Manager:	Christine Krebill
Contact:	Tian Mendez	Project Coordinator:	-
Standard:	FCC 15.247/FCC 15.407/RSS-210/LP0002	Class:	N/A



Client:	Aruba Networks	Job Number:	J96879
Product	APINH205-2x2:2 MIMO 802.11a/b/g/n/ac Wireless Access Points	T-Log Number:	T96888
		Project Manager:	Christine Krebill
Contact:	Tian Mendez	Project Coordinator:	
Emissions Standard(s):	FCC 15.247/FCC 15.407/RSS-210/LP0002	Class:	-
Immunity Standard(s):	-	Environment:	-

EMC Test Data

For The

Aruba Networks

Product

APINH205-2x2:2 MIMO 802.11a/b/g/n/ac Wireless Access Points

Date of Last Test: 12/19/2014

Client:	Aruba Networks	Job Number:	J96879
Model:	APINH205-2x2:2 MIMO 802.11a/b/g/n/ac Wireless Access Points	T-Log Number:	T96888
		Project Manager:	Christine Krebill
Contact:	Tian Mendez	Project Coordinator:	-
Standard:	FCC 15.247/FCC 15.407/RSS-210/LP0002	Class:	N/A

RSS 210 and FCC 15.247 (DTS) Radiated Spurious Emissions

Test Specific Details

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

General Test Configuration

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

Ambient Conditions:

Temperature: 18-22 °C
Rel. Humidity: 35-45 %

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.

Sample Notes

Sample S/N: Prototype (NTS Sample: 2014-2278)
Driver: 6.37 RC 14.54
Pkteng …… tx 20 1500 0
Antenna: Internal

Client:	Aruba Networks	Job Number:	J96879
Model:	APINH205-2x2:2 MIMO 802.11a/b/g/n/ac Wireless Access Points	T-Log Number:	T96888
		Project Manager:	Christine Krebill
Contact:	Tian Mendez	Project Coordinator:	-
Standard:	FCC 15.247/FCC 15.407/RSS-210/LP0002	Class:	N/A

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

Run #	Mode	Channel	Target Power	Passing Power Setting	Test Performed	Limit	Result / Margin
1	b	1 - 2412MHz	-q 78	-q 78	Restricted Band Edge (2390 MHz)	FCC Part 15.209 / 15.247(c)	45.1 dBµV/m @ 2390.0 MHz (-8.9 dB)
		11 - 2462MHz	-q 78	-q 78	Restricted Band Edge (2483.5 MHz)	FCC Part 15.209 / 15.247(c)	44.7 dBµV/m @ 2483.6 MHz (-9.3 dB)
2	g	1 - 2412MHz	-q 78	-q 59	Restricted Band Edge (2390 MHz)	FCC Part 15.209 / 15.247(c)	53.6 dBµV/m @ 2390.0 MHz (-0.4 dB)
	g	2 - 2417MHz	-q 78	-q 71	Restricted Band Edge (2390 MHz)	FCC Part 15.209 / 15.247(c)	53.4 dBµV/m @ 2390.0 MHz (-0.6 dB)
	g	10 - 2457MHz	-q 78	-q 72	Restricted Band Edge (2483.5 MHz)	FCC Part 15.209 / 15.247(c)	53.6 dBµV/m @ 2483.5 MHz (-0.4 dB)
	g	11 - 2462MHz	-q 78	-q 58	Restricted Band Edge (2483.5 MHz)	FCC Part 15.209 / 15.247(c)	53.3 dBµV/m @ 2483.5 MHz (-0.7 dB)
3	n20	1 - 2412MHz	-q 78	-q 57	Restricted Band Edge (2390 MHz)	FCC Part 15.209 / 15.247(c)	53.4 dBµV/m @ 2390.0 MHz (-0.6 dB)
	n20	2 - 2417MHz	-q 78	-q 72	Restricted Band Edge (2390 MHz)	FCC Part 15.209 / 15.247(c)	53.2 dBµV/m @ 2390.0 MHz (-0.8 dB)
	n20	10 - 2457MHz	-q 78	-q 72	Restricted Band Edge (2483.5 MHz)	FCC Part 15.209 / 15.247(c)	53.4 dBµV/m @ 2483.5 MHz (-0.6 dB)
	n20	11 - 2462MHz	-q 78	-q 57	Restricted Band Edge (2483.5 MHz)	FCC Part 15.209 / 15.247(c)	53.8 dBµV/m @ 2483.5 MHz (-0.2 dB)
4	n40	3 - 2422MHz	-q 78	-q 45	Restricted Band Edge (2390 MHz)	FCC Part 15.209 / 15.247(c)	53.8 dBµV/m @ 2390.0 MHz (-0.3 dB)
	n40	4 - 2427MHz	-q 78	-q 50	Restricted Band Edge (2390 MHz)	FCC Part 15.209 / 15.247(c)	53.6 dBµV/m @ 2389.9 MHz (-0.5 dB)
	n40	5 - 2432MHz	-q 78	-q 58	Restricted Band Edge (2390 MHz)	FCC Part 15.209 / 15.247(c)	53.3 dBµV/m @ 2390.0 MHz (-0.8 dB)
	n40	6 - 2437MHz	-q 78	-q 59	Restricted Band Edge (2390 MHz)	FCC Part 15.209 / 15.247(c)	51.7 dBµV/m @ 2390.0 MHz (-2.4 dB)
	n40				Restricted Band Edge (2483.5 MHz)	FCC Part 15.209 / 15.247(c)	53.9 dBµV/m @ 2483.5 MHz (-0.1 dB)
	n40	7 - 2442MHz	-q 78	-q 52	Restricted Band Edge (2483.5 MHz)	FCC Part 15.209 / 15.247(c)	53.9 dBµV/m @ 2483.5 MHz (-0.1 dB)
	n40	8 - 2447MHz	-q 78	-q 46	Restricted Band Edge (2483.5 MHz)	FCC Part 15.209 / 15.247(c)	53.7 dBµV/m @ 2484.6 MHz (-0.4 dB)
	n40	9 - 2452MHz	-q 78	-q 44	Restricted Band Edge (2483.5 MHz)	FCC Part 15.209 / 15.247(c)	53.9 dBµV/m @ 2484.4 MHz (-0.1 dB)

Client:	Aruba Networks	Job Number:	J96879
Model:	APINH205-2x2:2 MIMO 802.11a/b/g/n/ac Wireless Access Points	T-Log Number:	T96888
		Project Manager:	Christine Krebill
Contact:	Tian Mendez	Project Coordinator:	-
Standard:	FCC 15.247/FCC 15.407/RSS-210/LP0002	Class:	N/A

Procedure Comments:

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

Mode	Data Rate	Duty Cycle (x)	Constant DC?	T (ms)	Pwr Cor Factor*	Lin Volt Cor Factor**	Min VBW for FS (Hz)
11b	5.5Mbs	0.99	Yes	2.316	0.00	0.00	432
11g	6Mbs	0.99	Yes	2.063	0.00	0.00	485
n20	MCS8	0.99	Yes	1.942	0.00	0.00	515
n40	MCS0	0.82	Yes	0.938	0.88	1.75	1066

Measurement Specific Notes:

Note 1a:	Emission in non-restricted band, but limit of 15.209 used.
Note 1b:	Emission in non-restricted band, the limit was set 30dB below the level of the fundamental and measured in 100kHz.
Note 2:	Emission has duty cycle ≥ 98%, average measurement performed: RBW=1MHz, VBW=3MHz, RMS, Power averaging, auto sweep, trace average 100 traces
Note 3:	Emission has duty cycle < 98%, but constant, average measurement performed: RBW=1MHz, VBW=10Hz, peak detector, linear averaging, auto sweep, trace average 100 traces, measurement corrected by Linear Voltage correction factor
Note 4:	Emission has duty cycle < 98% and is NOT constant, average measurement performed: RBW=1MHz, VBW> 1/T, peak detector, linear average mode, sweep time auto, max hold. Max hold for 50*(1/DC) traces
Note 5:	Emission has duty cycle < 98%, but constant, average measurement performed: RBW=1MHz, VBW=3MHz, RMS, Power averaging, auto sweep, trace average 100 traces, measurement corrected by Pwr correction factor
Note 6:	Plots of the average and peak bandedge do not account for any duty cycle correction. Refer to the tabular results for final measurements.

Client:	Aruba Networks	Job Number:	J96879
Model:	APINH205-2x2:2 MIMO 802.11a/b/g/n/ac Wireless Access Points	T-Log Number:	T96888
		Project Manager:	Christine Krebill
Contact:	Tian Mendez	Project Coordinator:	-
Standard:	FCC 15.247/FCC 15.407/RSS-210/LP0002	Class:	N/A

Run #1: Radiated Bandedge Measurements

Date of Test: 12/15/14 Config. Used: 1

Test Engineer: Jack Liu Config Change: None

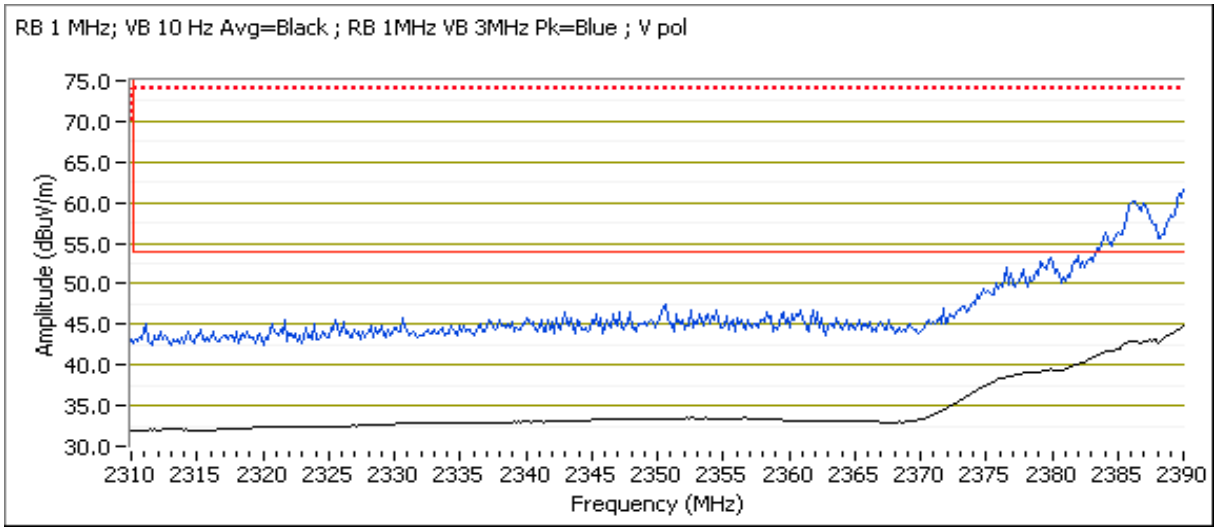
Test Location: FT chamber# 3 EUT Voltage: 120V/60Hz

Channel: 1 Mode: b

Tx Chain: 2Tx Data Rate: 5.5Mbs

Band Edge Signal Field Strength - Direct measurement of field strength

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
2390.000	45.1	V	54.0	-8.9	AVG	359	1.1	POS; RB 1 MHz; VB: 10 Hz
2384.710	62.1	V	74.0	-11.9	PK	359	1.1	POS; RB 1 MHz; VB: 3 MHz
2389.800	42.3	H	54.0	-11.7	AVG	2	1.4	POS; RB 1 MHz; VB: 10 Hz
2386.790	59.1	H	74.0	-14.9	PK	2	1.4	POS; RB 1 MHz; VB: 3 MHz

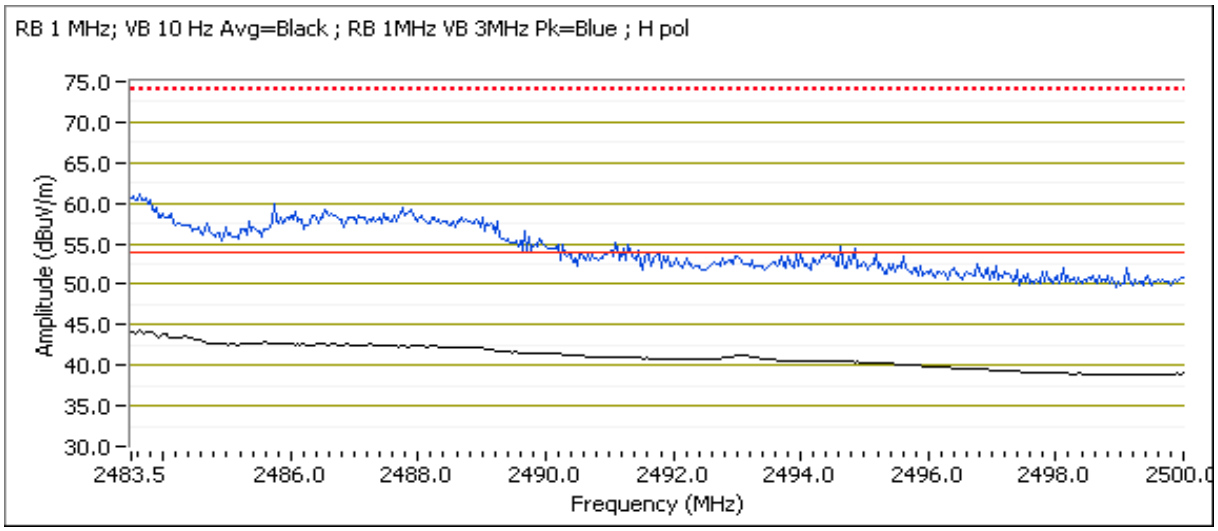


Client:	Aruba Networks	Job Number:	J96879
Model:	APINH205-2x2:2 MIMO 802.11a/b/g/n/ac Wireless Access Points	T-Log Number:	T96888
		Project Manager:	Christine Krebill
Contact:	Tian Mendez	Project Coordinator:	-
Standard:	FCC 15.247/FCC 15.407/RSS-210/LP0002	Class:	N/A

Channel: 11 Mode: b
Tx Chain: 2Tx Data Rate: 5.5Mbs

Band Edge Signal Field Strength - Direct measurement of field strength

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
2483.630	44.7	H	54.0	-9.3	AVG	0	1.0	POS; RB 1 MHz; VB: 10 Hz
2483.600	60.8	H	74.0	-13.2	PK	0	1.0	POS; RB 1 MHz; VB: 3 MHz
2483.570	44.2	V	54.0	-9.8	AVG	353	1.1	POS; RB 1 MHz; VB: 10 Hz
2484.130	61.0	V	74.0	-13.0	PK	353	1.1	POS; RB 1 MHz; VB: 3 MHz



Client:	Aruba Networks	Job Number:	J96879
Model:	APINH205-2x2:2 MIMO 802.11a/b/g/n/ac Wireless Access Points	T-Log Number:	T96888
		Project Manager:	Christine Krebill
Contact:	Tian Mendez	Project Coordinator:	-
Standard:	FCC 15.247/FCC 15.407/RSS-210/LP0002	Class:	N/A

Run #2: Radiated Bandedge Measurements

Date of Test: 12/15/2014 0:00 Config. Used: 1

Test Engineer: Jack Liu Config Change: None

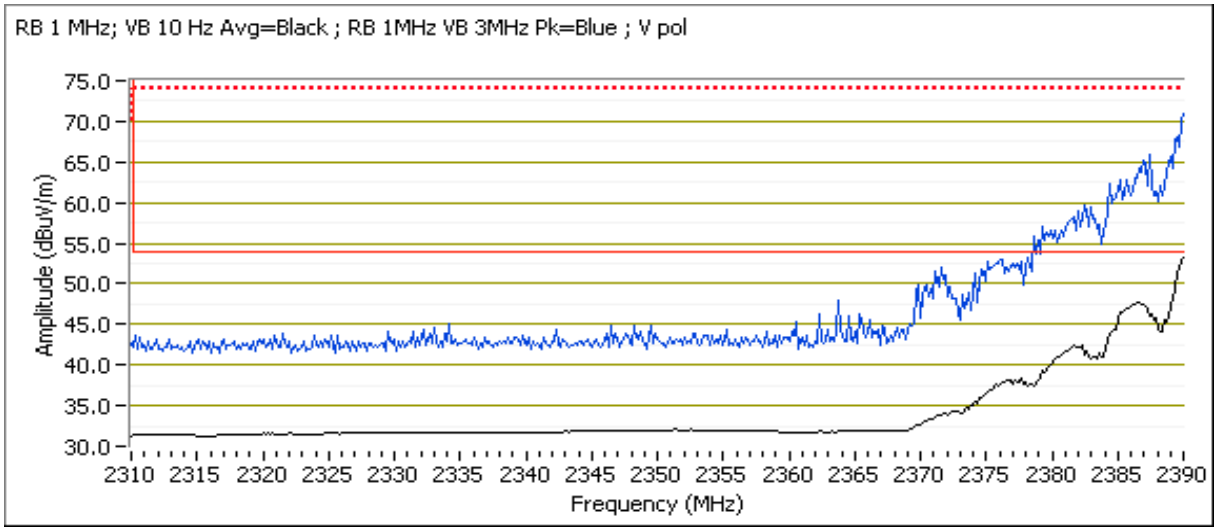
Test Location: FT chamber# 3 EUT Voltage: 120V/60Hz

Channel: 1 Mode: g

Tx Chain: 2Tx Data Rate: 6Mbs

Band Edge Signal Field Strength - Direct measurement of field strength

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
2389.960	53.6	V	54.0	-0.4	AVG	352	1.2	POS; RB 1 MHz; VB: 10 Hz
2389.320	71.6	V	74.0	-2.4	PK	352	1.2	POS; RB 1 MHz; VB: 3 MHz
2389.920	50.4	H	54.0	-3.6	AVG	8	1.4	POS; RB 1 MHz; VB: 10 Hz
2389.280	67.3	H	74.0	-6.7	PK	8	1.4	POS; RB 1 MHz; VB: 3 MHz

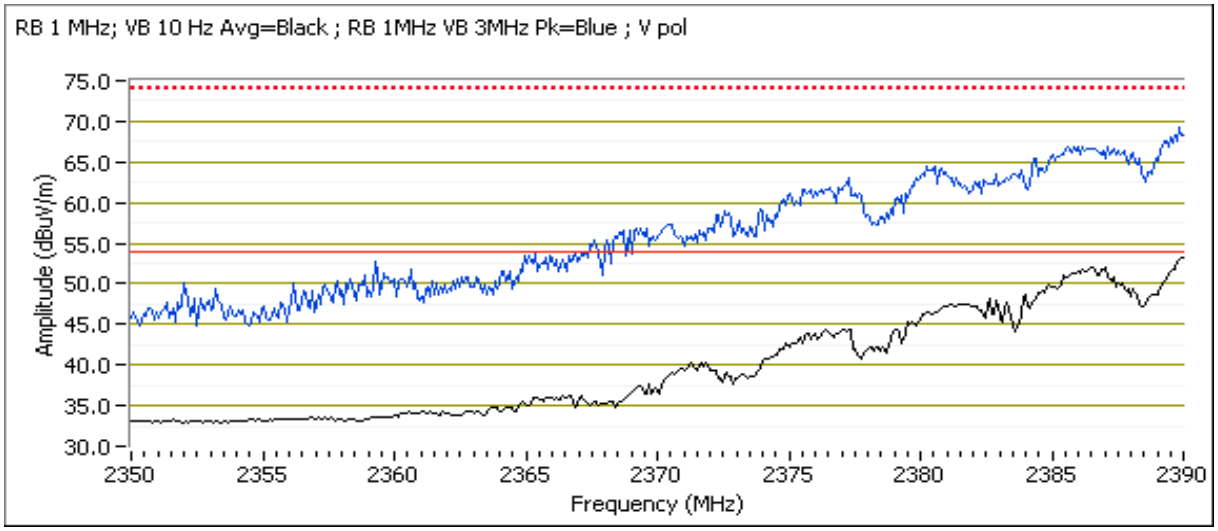


Client:	Aruba Networks	Job Number:	J96879
Model:	APINH205-2x2:2 MIMO 802.11a/b/g/n/ac Wireless Access Points	T-Log Number:	T96888
		Project Manager:	Christine Krebill
Contact:	Tian Mendez	Project Coordinator:	-
Standard:	FCC 15.247/FCC 15.407/RSS-210/LP0002	Class:	N/A

Channel: 2 Mode: g
Tx Chain: 2Tx Data Rate: 6Mbs

Band Edge Signal Field Strength - Direct measurement of field strength

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
2390.000	53.4	V	54.0	-0.6	AVG	358	1.2	POS; RB 1 MHz; VB: 10 Hz
2390.000	69.6	V	74.0	-4.4	PK	358	1.2	POS; RB 1 MHz; VB: 3 MHz
2389.120	50.1	H	54.0	-3.9	AVG	5	1.3	POS; RB 1 MHz; VB: 10 Hz
2389.920	66.6	H	74.0	-7.4	PK	5	1.3	POS; RB 1 MHz; VB: 3 MHz

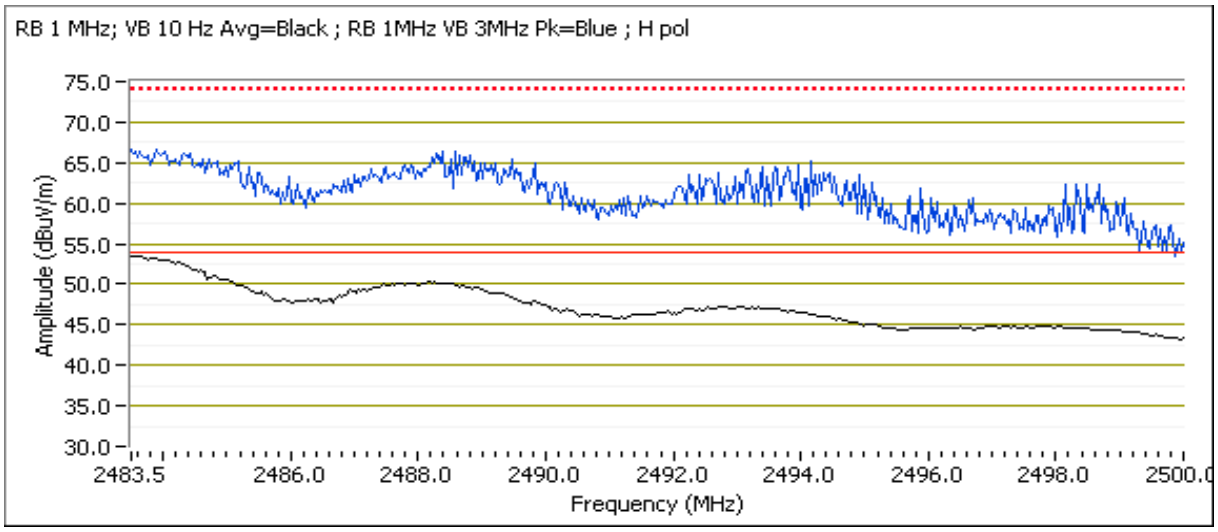


Client:	Aruba Networks	Job Number:	J96879
Model:	APINH205-2x2:2 MIMO 802.11a/b/g/n/ac Wireless Access Points	T-Log Number:	T96888
		Project Manager:	Christine Krebill
Contact:	Tian Mendez	Project Coordinator:	-
Standard:	FCC 15.247/FCC 15.407/RSS-210/LP0002	Class:	N/A

Channel: 10 Mode: g
Tx Chain: 2Tx Data Rate: 6Mbs

Band Edge Signal Field Strength - Direct measurement of field strength

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
2483.500	53.6	H	54.0	-0.4	AVG	6	1.0	POS; RB 1 MHz; VB: 10 Hz
2483.530	67.5	H	74.0	-6.5	PK	6	1.0	POS; RB 1 MHz; VB: 3 MHz
2485.480	53.4	V	54.0	-0.6	AVG	359	1.1	POS; RB 1 MHz; VB: 10 Hz
2485.480	69.6	V	74.0	-4.4	PK	359	1.1	POS; RB 1 MHz; VB: 3 MHz

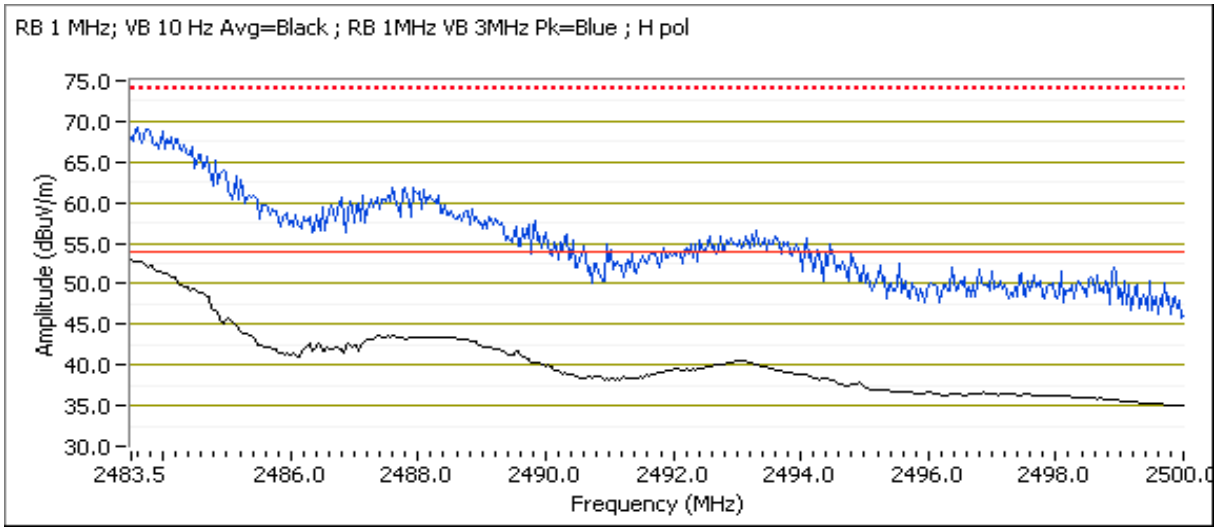


Client:	Aruba Networks	Job Number:	J96879
Model:	APINH205-2x2:2 MIMO 802.11a/b/g/n/ac Wireless Access Points	T-Log Number:	T96888
		Project Manager:	Christine Krebill
Contact:	Tian Mendez	Project Coordinator:	-
Standard:	FCC 15.247/FCC 15.407/RSS-210/LP0002	Class:	N/A

Channel: 11 Mode: g
Tx Chain: 2Tx Data Rate: 6Mbs

Band Edge Signal Field Strength - Direct measurement of field strength

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
2483.500	53.3	H	54.0	-0.7	AVG	2	1.0	POS; RB 1 MHz; VB: 10 Hz
2483.860	69.3	H	74.0	-4.7	PK	2	1.0	POS; RB 1 MHz; VB: 3 MHz
2484.160	51.0	V	54.0	-3.0	AVG	340	1.4	POS; RB 1 MHz; VB: 10 Hz
2484.820	69.1	V	74.0	-4.9	PK	340	1.4	POS; RB 1 MHz; VB: 3 MHz



Client:	Aruba Networks	Job Number:	J96879
Model:	APINH205-2x2:2 MIMO 802.11a/b/g/n/ac Wireless Access Points	T-Log Number:	T96888
		Project Manager:	Christine Krebill
Contact:	Tian Mendez	Project Coordinator:	-
Standard:	FCC 15.247/FCC 15.407/RSS-210/LP0002	Class:	N/A

Run #3: Radiated Bandedge Measurements

Date of Test: 12/15/2014 0:00 Config. Used: 1

Test Engineer: Jack Liu Config Change: None

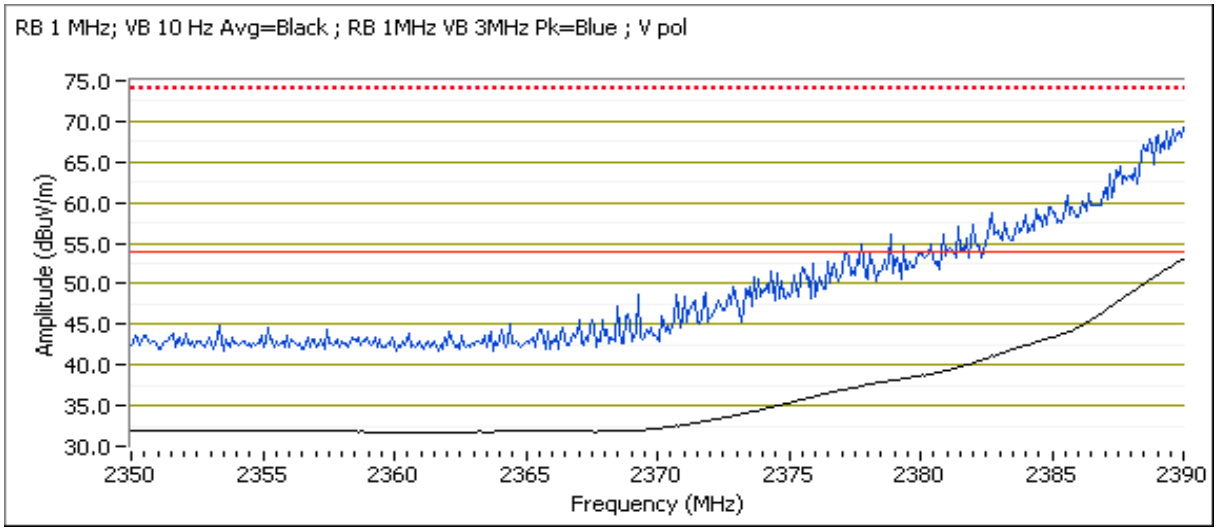
Test Location: FT chamber# 3 EUT Voltage: 120V/60Hz

Channel: 1 Mode: n20

Tx Chain: 2Tx Data Rate: MCS8

Band Edge Signal Field Strength - Direct measurement of field strength

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
2390.000	53.4	V	54.0	-0.6	AVG	10	1.2	POS; RB 1 MHz; VB: 10 Hz
2390.000	69.2	V	74.0	-4.8	PK	10	1.2	POS; RB 1 MHz; VB: 3 MHz
2390.000	50.5	H	54.0	-3.5	AVG	0	1.3	POS; RB 1 MHz; VB: 10 Hz
2389.360	66.6	H	74.0	-7.4	PK	0	1.3	POS; RB 1 MHz; VB: 3 MHz

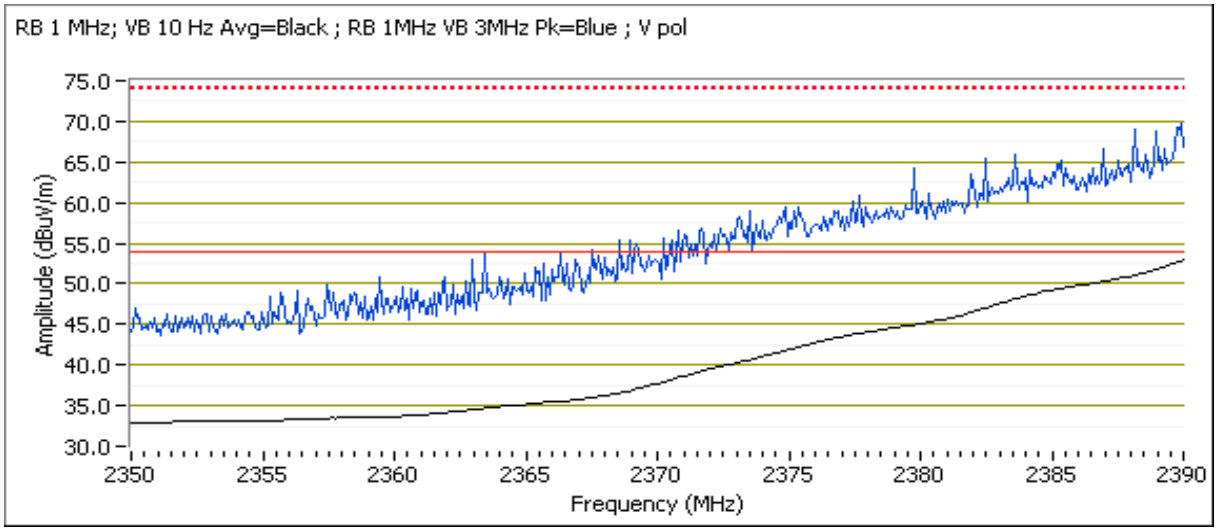


Client:	Aruba Networks	Job Number:	J96879
Model:	APINH205-2x2:2 MIMO 802.11a/b/g/n/ac Wireless Access Points	T-Log Number:	T96888
		Project Manager:	Christine Krebill
Contact:	Tian Mendez	Project Coordinator:	-
Standard:	FCC 15.247/FCC 15.407/RSS-210/LP0002	Class:	N/A

Channel: 2 Mode: n20
Tx Chain: 2Tx Data Rate: MCS8

Band Edge Signal Field Strength - Direct measurement of field strength

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
2390.000	53.2	V	54.0	-0.8	AVG	0	1.2	POS; RB 1 MHz; VB: 10 Hz
2389.600	68.1	V	74.0	-5.9	PK	0	1.2	POS; RB 1 MHz; VB: 3 MHz
2390.000	50.9	H	54.0	-3.1	AVG	3	1.3	POS; RB 1 MHz; VB: 10 Hz
2389.600	66.0	H	74.0	-8.0	PK	3	1.3	POS; RB 1 MHz; VB: 3 MHz

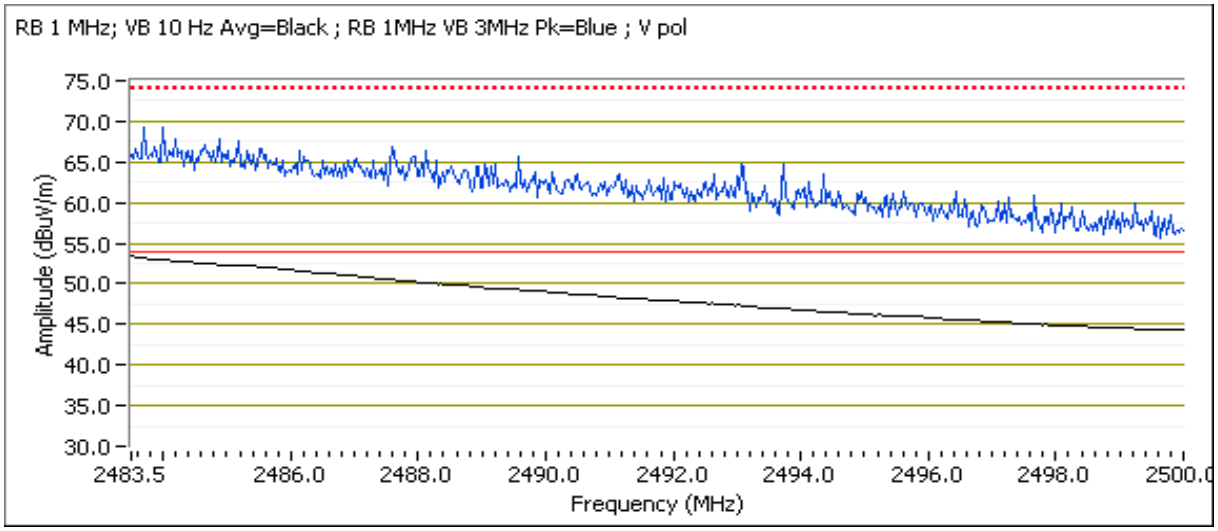


Client:	Aruba Networks	Job Number:	J96879
Model:	APINH205-2x2:2 MIMO 802.11a/b/g/n/ac Wireless Access Points	T-Log Number:	T96888
		Project Manager:	Christine Krebill
Contact:	Tian Mendez	Project Coordinator:	-
Standard:	FCC 15.247/FCC 15.407/RSS-210/LP0002	Class:	N/A

Channel: 10 Mode: n20
Tx Chain: 2Tx Data Rate: MCS8

Band Edge Signal Field Strength - Direct measurement of field strength

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
2483.500	53.4	V	54.0	-0.6	AVG	359	1.1	POS; RB 1 MHz; VB: 10 Hz
2484.100	68.7	V	74.0	-5.3	PK	359	1.1	POS; RB 1 MHz; VB: 3 MHz
2483.500	52.6	H	54.0	-1.4	AVG	360	1.0	POS; RB 1 MHz; VB: 10 Hz
2483.830	68.9	H	74.0	-5.1	PK	360	1.0	POS; RB 1 MHz; VB: 3 MHz

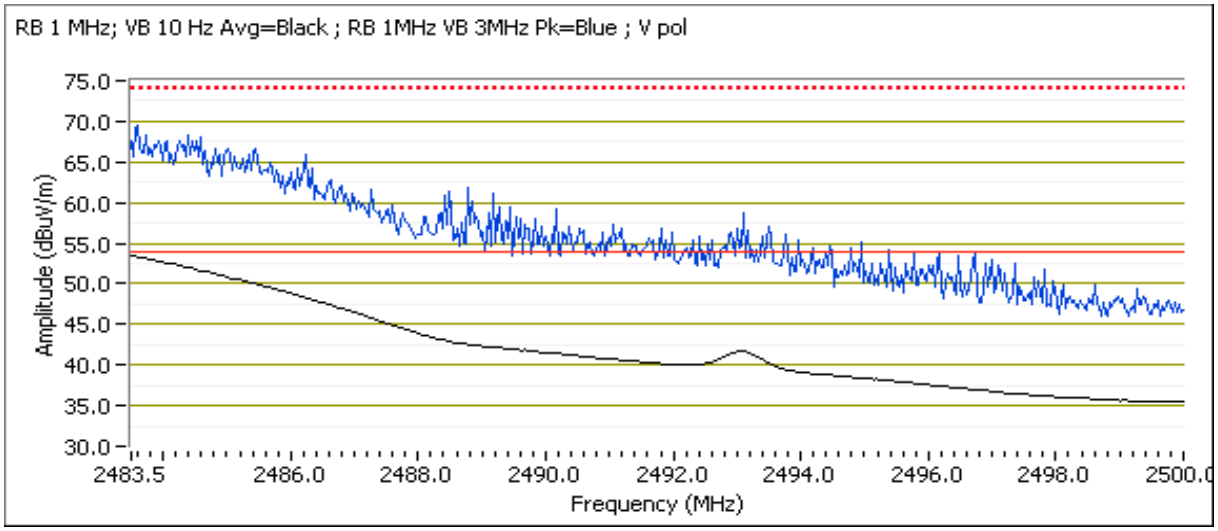


Client:	Aruba Networks	Job Number:	J96879
Model:	APINH205-2x2:2 MIMO 802.11a/b/g/n/ac Wireless Access Points	T-Log Number:	T96888
		Project Manager:	Christine Krebill
Contact:	Tian Mendez	Project Coordinator:	-
Standard:	FCC 15.247/FCC 15.407/RSS-210/LP0002	Class:	N/A

Channel: 11 Mode: n20
Tx Chain: 2Tx Data Rate: MCS8

Band Edge Signal Field Strength - Direct measurement of field strength

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
2483.500	53.8	V	54.0	-0.2	AVG	360	1.1	Pwr-q 57;POS; RB 1 MHz; VB: 10 Hz
2483.670	68.8	V	74.0	-5.2	PK	360	1.1	Pwr-q 57;POS; RB 1 MHz; VB: 3 MH
2483.500	53.3	H	54.0	-0.7	AVG	0	1.0	Pwr-q 58;POS; RB 1 MHz; VB: 10 Hz
2483.500	68.8	H	74.0	-5.2	PK	0	1.0	Pwr-q 58;POS; RB 1 MHz; VB: 3 MH



Client:	Aruba Networks	Job Number:	J96879
Model:	APINH205-2x2:2 MIMO 802.11a/b/g/n/ac Wireless Access Points	T-Log Number:	T96888
		Project Manager:	Christine Krebill
Contact:	Tian Mendez	Project Coordinator:	-
Standard:	FCC 15.247/FCC 15.407/RSS-210/LP0002	Class:	N/A

Run #4: Radiated Bandedge Measurements

Date of Test: 12/15/2014 0:00 Config. Used: 1

Test Engineer: Jack Liu Config Change: None

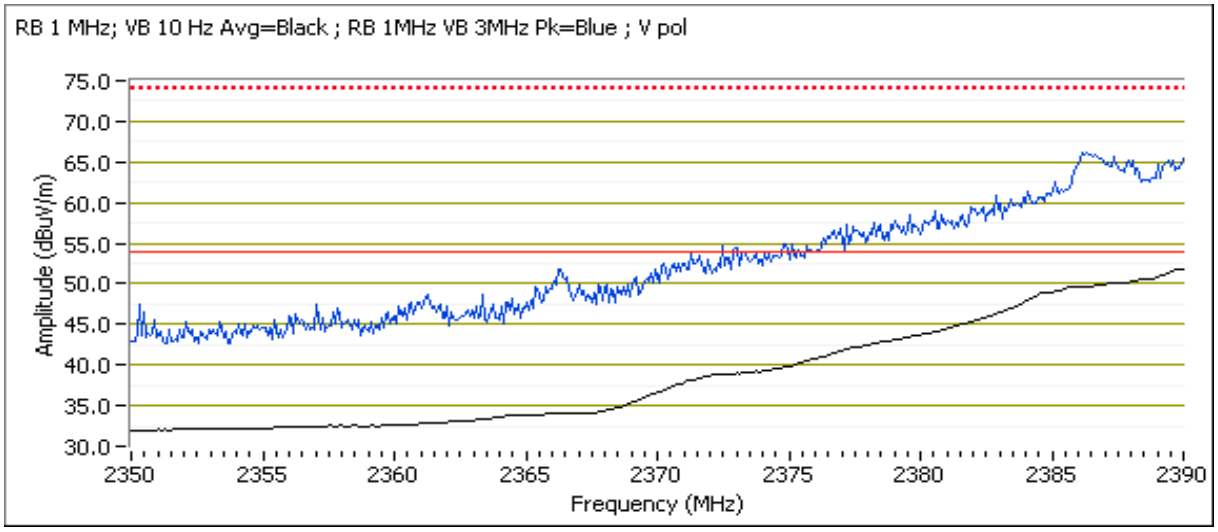
Test Location: FT chamber# 3 EUT Voltage: 120V/60Hz

Channel: 3 Mode: n40

Tx Chain: 2Tx Data Rate: MCS8

Band Edge Signal Field Strength - Direct measurement of field strength

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
2390.000	53.8	V	54.0	-0.3	AVG	359	1.5	Pwr-q45; Note 3; POS; RB 1 MHz; VB
2387.350	66.2	V	74.0	-7.8	PK	359	1.5	Pwr-q45;POS; RB 1 MHz; VB: 3 MHz
2389.760	52.1	H	54.0	-2.0	AVG	0	1.3	Pwr-q48; Note 3; POS; RB 1 MHz; VB
2388.960	64.1	H	74.0	-9.9	PK	0	1.3	Pwr-q48;POS; RB 1 MHz; VB: 3 MHz

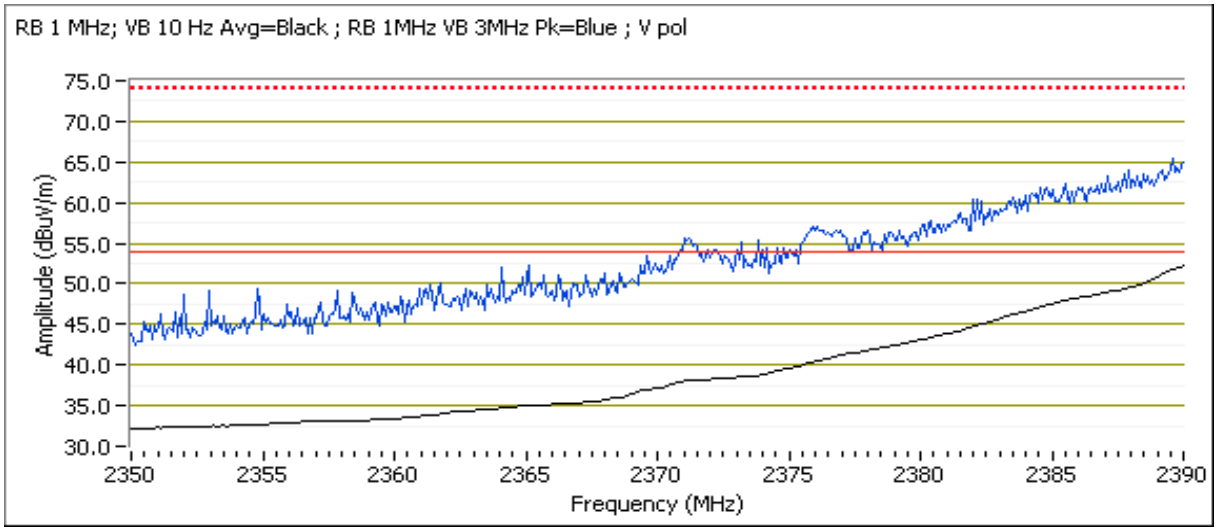


Client:	Aruba Networks	Job Number:	J96879
Model:	APINH205-2x2:2 MIMO 802.11a/b/g/n/ac Wireless Access Points	T-Log Number:	T96888
		Project Manager:	Christine Krebill
Contact:	Tian Mendez	Project Coordinator:	-
Standard:	FCC 15.247/FCC 15.407/RSS-210/LP0002	Class:	N/A

Channel: 4 Mode: n40
Tx Chain: 2Tx Data Rate: MCS8

Band Edge Signal Field Strength - Direct measurement of field strength

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
2389.920	53.6	V	54.0	-0.5	AVG	360	1.5	Note3; POS; RB 1 MHz; VB: 10 Hz
2390.000	64.4	V	74.0	-9.6	PK	360	1.5	POS; RB 1 MHz; VB: 3 MHz
2389.680	51.1	H	54.0	-3.0	AVG	360	1.3	Note3; POS; RB 1 MHz; VB: 10 Hz
2389.200	63.7	H	74.0	-10.3	PK	360	1.3	POS; RB 1 MHz; VB: 3 MHz



Client:	Aruba Networks	Job Number:	J96879
Model:	APINH205-2x2:2 MIMO 802.11a/b/g/n/ac Wireless Access Points	T-Log Number:	T96888
		Project Manager:	Christine Krebill
Contact:	Tian Mendez	Project Coordinator:	-
Standard:	FCC 15.247/FCC 15.407/RSS-210/LP0002	Class:	N/A

Date of Test: 12/15/14
Test Engineer: Mehran Birgani
Test Location: FT chamber# 3

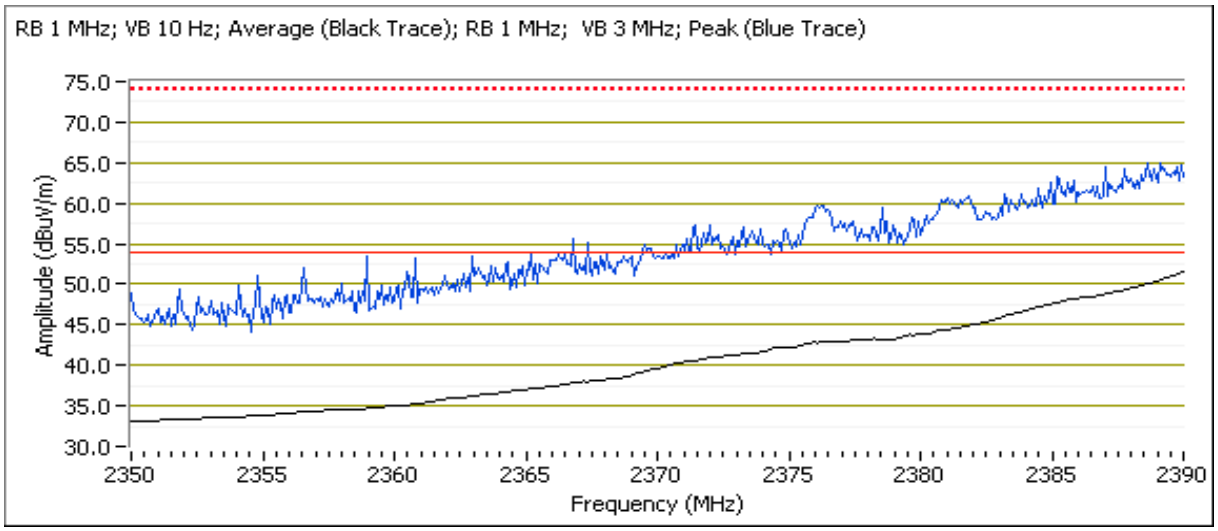
Config. Used: 1
Config Change: None
EUT Voltage: 120V/60Hz

Channel: 5
Tx Chain: 2Tx

Mode: n40
Data Rate: MCS8

Band Edge Signal Field Strength - Direct measurement of field strength

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
2390.000	53.3	V	54.0	-0.8	AVG	360	1.2	POS; RB 1MHz; VB: 10Hz, Note 3
2390.000	50.1	H	54.0	-4.0	AVG	360	1.1	POS; RB 1 MHz; VB: 10 Hz
2389.840	65.9	V	74.0	-8.1	PK	360	1.2	POS; RB 1 MHz; VB: 3 MHz
2387.680	64.2	H	74.0	-9.8	PK	360	1.1	POS; RB 1 MHz; VB: 3 MHz



Client:	Aruba Networks	Job Number:	J96879
Model:	APINH205-2x2:2 MIMO 802.11a/b/g/n/ac Wireless Access Points	T-Log Number:	T96888
		Project Manager:	Christine Krebill
Contact:	Tian Mendez	Project Coordinator:	-
Standard:	FCC 15.247/FCC 15.407/RSS-210/LP0002	Class:	N/A

Date of Test: 12/15/14
Test Engineer: Mehran Birgani
Test Location: FT chamber# 3

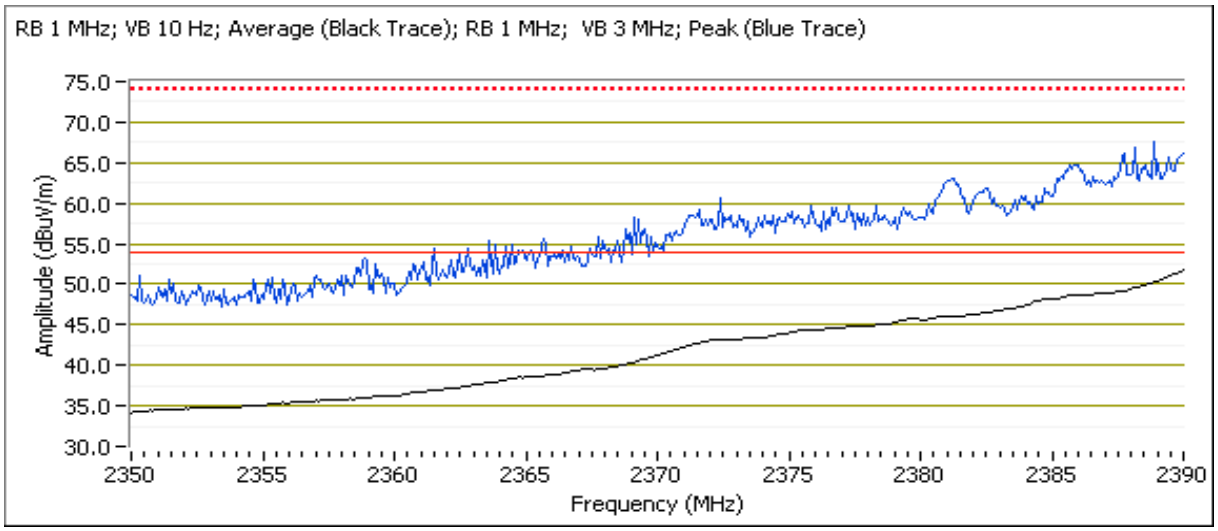
Config. Used: 1
Config Change: None
EUT Voltage: 120V/60Hz

Channel: 6
Tx Chain: 2Tx

Mode: n40
Data Rate: MCS8

Band Edge Signal Field Strength - Direct measurement of field strength

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
2390.000	51.7	V	54.0	-2.4	AVG	360	1.2	POS; RB 1 MHz; VB: 10 Hz, Note 3
2390.000	48.0	H	54.0	-6.1	AVG	360	1.4	POS; RB 1 MHz; VB: 10 Hz, Note 3
2386.150	63.9	V	74.0	-10.1	PK	360	1.2	POS; RB 1 MHz; VB: 3 MHz
2389.040	59.7	H	74.0	-14.3	PK	360	1.4	POS; RB 1 MHz; VB: 3 MHz



Client:	Aruba Networks	Job Number:	J96879
Model:	APINH205-2x2:2 MIMO 802.11a/b/g/n/ac Wireless Access Points	T-Log Number:	T96888
		Project Manager:	Christine Krebill
Contact:	Tian Mendez	Project Coordinator:	-
Standard:	FCC 15.247/FCC 15.407/RSS-210/LP0002	Class:	N/A

Date of Test: 12/15/14
Test Engineer: Mehran Birgani
Test Location: FT chamber# 3

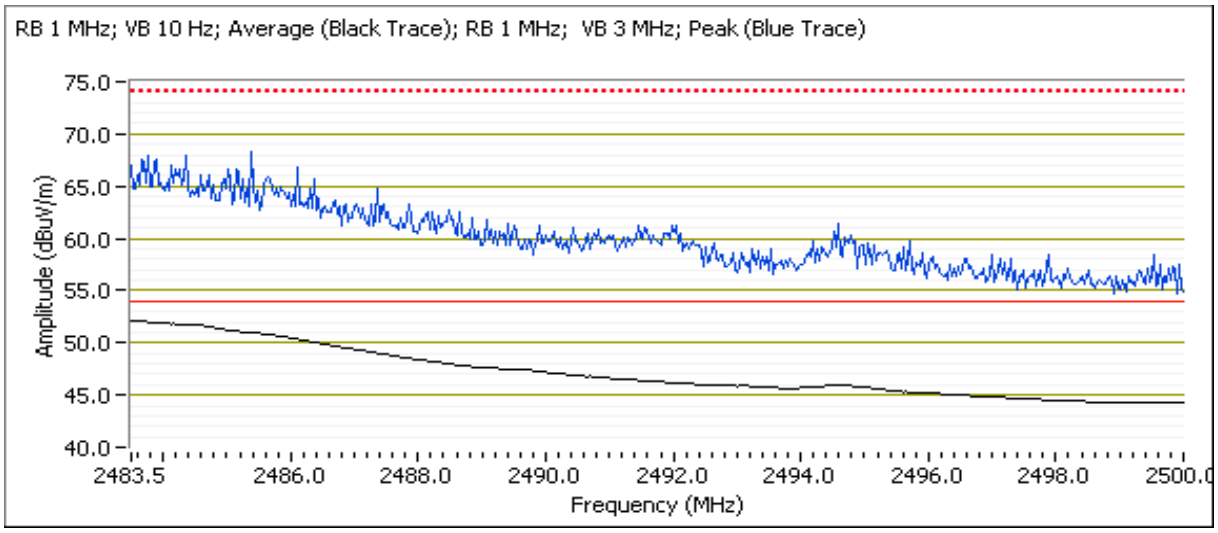
Config. Used: 1
Config Change: None
EUT Voltage: 120V/60Hz

Channel: 6
Tx Chain: 2Tx

Mode: n40
Data Rate: MCS8

Band Edge Signal Field Strength - Direct measurement of field strength

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
2483.500	53.9	V	54.0	-0.1	AVG	360	1.2	POS; RB 1 MHz; VB: 10 Hz, Note 3
2483.500	51.8	H	54.0	-2.3	AVG	360	1.4	POS; RB 1 MHz; VB: 10 Hz, Note 3
2485.620	67.9	V	74.0	-6.1	PK	360	1.2	POS; RB 1 MHz; VB: 3 MHz
2484.390	66.7	H	74.0	-7.3	PK	360	1.4	POS; RB 1 MHz; VB: 3 MHz



Client:	Aruba Networks	Job Number:	J96879
Model:	APINH205-2x2:2 MIMO 802.11a/b/g/n/ac Wireless Access Points	T-Log Number:	T96888
		Project Manager:	Christine Krebill
Contact:	Tian Mendez	Project Coordinator:	-
Standard:	FCC 15.247/FCC 15.407/RSS-210/LP0002	Class:	N/A

Date of Test: 12/15/14
Test Engineer: Mehran Birgani
Test Location: FT chamber# 3

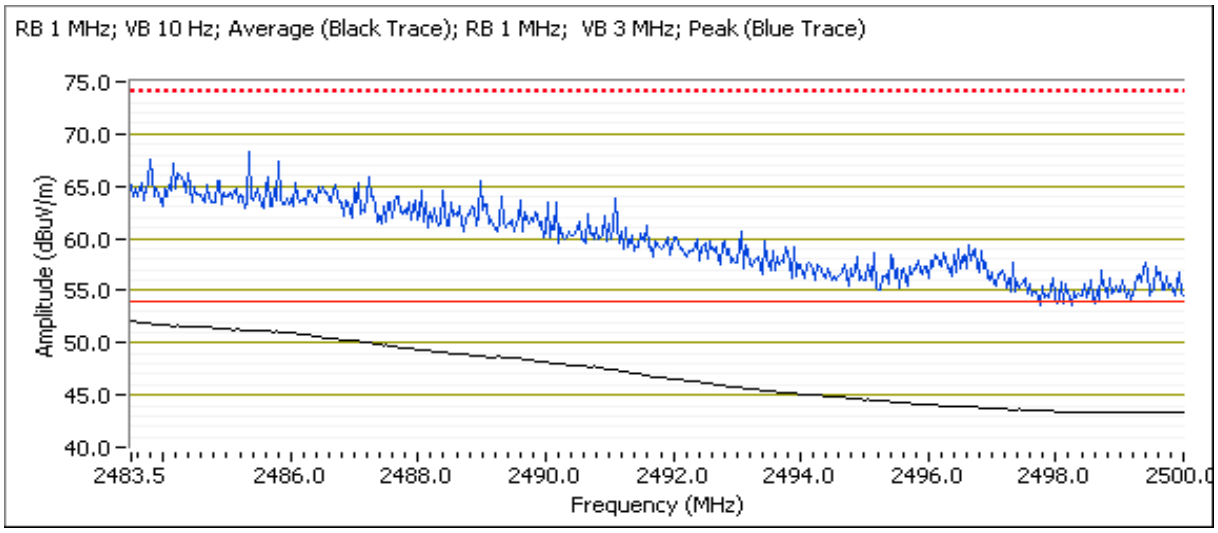
Config. Used: 1
Config Change: None
EUT Voltage: 120V/60Hz

Channel: 7
Tx Chain: 2Tx

Mode: n40
Data Rate: MCS8

Band Edge Signal Field Strength - Direct measurement of field strength

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
2483.530	53.9	V	54.0	-0.1	AVG	2	1.1	POS; RB 1 MHz; VB: 10 Hz, Note 3
2483.500	52.7	H	54.0	-1.4	AVG	360	1.6	POS; RB 1 MHz; VB: 10 Hz, Note 3
2484.530	67.3	V	74.0	-6.7	PK	2	1.1	POS; RB 1 MHz; VB: 3 MHz
2483.500	65.3	H	74.0	-8.7	PK	360	1.6	POS; RB 1 MHz; VB: 3 MHz



Client:	Aruba Networks	Job Number:	J96879
Model:	APINH205-2x2:2 MIMO 802.11a/b/g/n/ac Wireless Access Points	T-Log Number:	T96888
		Project Manager:	Christine Krebill
Contact:	Tian Mendez	Project Coordinator:	-
Standard:	FCC 15.247/FCC 15.407/RSS-210/LP0002	Class:	N/A

Date of Test: 12/15/14
Test Engineer: Mehran Birgani
Test Location: FT chamber# 3

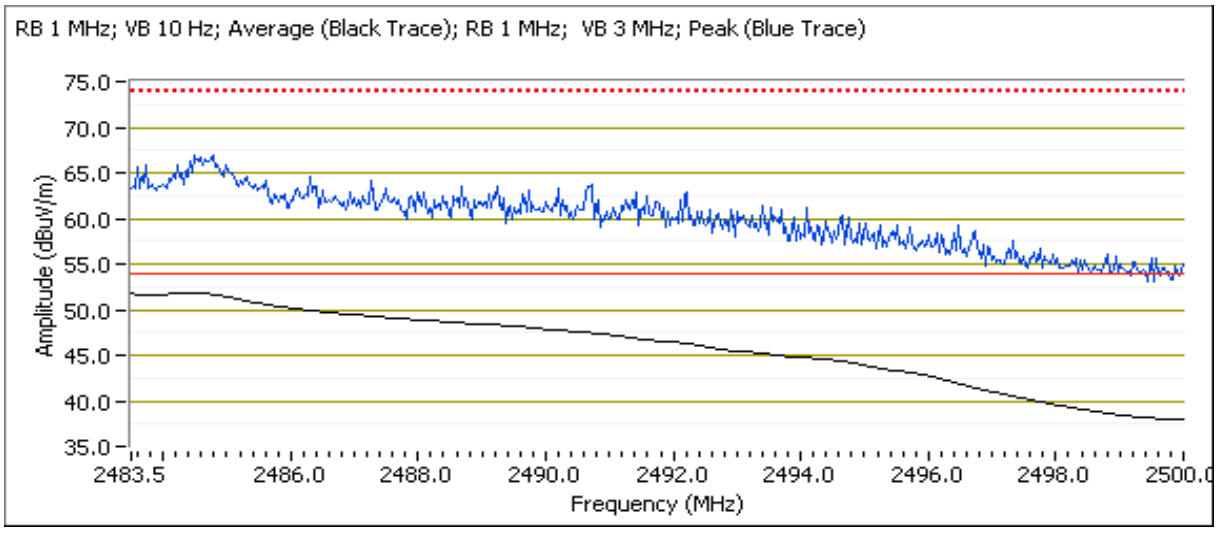
Config. Used: 1
Config Change: None
EUT Voltage: 120V/60Hz

Channel: 8
Tx Chain: 2Tx

Mode: n40
Data Rate: MCS8

Band Edge Signal Field Strength - Direct measurement of field strength

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
2484.560	53.7	V	54.0	-0.4	AVG	360	1.1	POS; RB 1 MHz; VB: 10 Hz, Note 3
2483.570	52.7	H	54.0	-1.4	AVG	360	1.6	POS; RB 1 MHz; VB: 10 Hz, Note 3
2483.700	67.8	H	74.0	-6.2	PK	360	1.6	POS; RB 1 MHz; VB: 3 MHz
2484.790	67.1	V	74.0	-6.9	PK	360	1.1	POS; RB 1 MHz; VB: 3 MHz

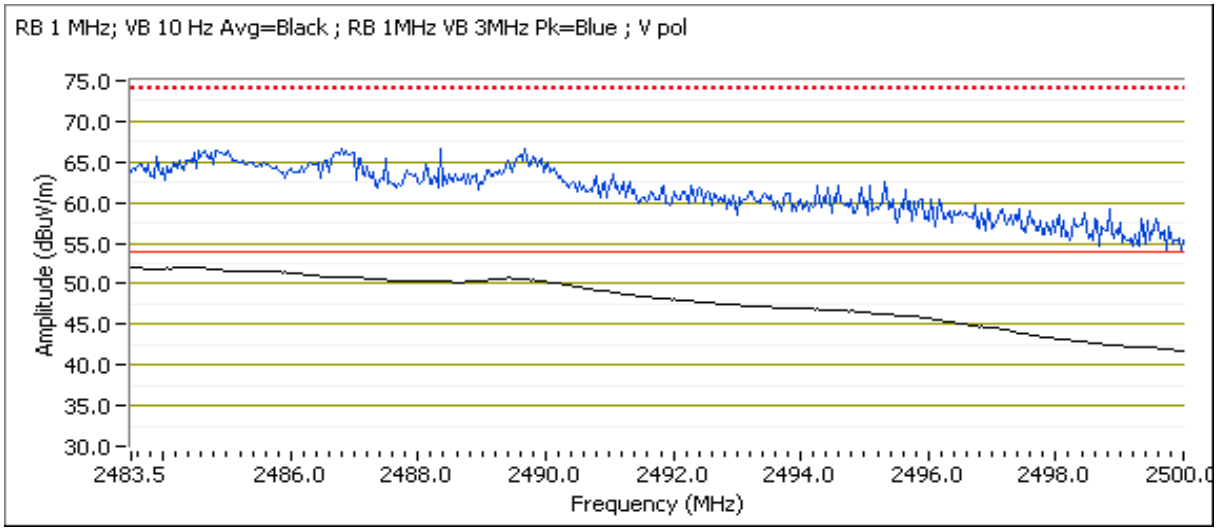


Client:	Aruba Networks	Job Number:	J96879
Model:	APINH205-2x2:2 MIMO 802.11a/b/g/n/ac Wireless Access Points	T-Log Number:	T96888
		Project Manager:	Christine Krebill
Contact:	Tian Mendez	Project Coordinator:	-
Standard:	FCC 15.247/FCC 15.407/RSS-210/LP0002	Class:	N/A

Channel: 9 Mode: n40
Tx Chain: 2Tx Data Rate: MCS8

Band Edge Signal Field Strength - Direct measurement of field strength

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
2484.430	53.9	V	54.0	-0.1	AVG	360	1.4	Note3; POS; RB 1 MHz; VB: 10 Hz
2486.740	66.9	V	74.0	-7.1	PK	360	1.4	POS; RB 1 MHz; VB: 3 MHz
2483.530	53.3	H	54.0	-0.8	AVG	4	1.0	Note3; POS; RB 1 MHz; VB: 10 Hz
2488.360	65.5	H	74.0	-8.5	PK	4	1.0	POS; RB 1 MHz; VB: 3 MHz



Client:	Aruba Networks	Job Number:	J96879
Model:	APINH205-2x2:2 MIMO 802.11a/b/g/n/ac Wireless Access Points	T-Log Number:	T96888
		Project Manager:	Christine Krebill
Contact:	Tian Mendez	Project Coordinator:	-
Standard:	FCC 15.247/FCC 15.407/RSS-210/LP0002	Class:	N/A

RSS 210 and FCC 15.247 (DTS) Radiated Spurious Emissions

Test Specific Details

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

General Test Configuration

The EUT and all local support equipment were located on the turntable for radiated spurious emissions testing.

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

Ambient Conditions:

Temperature: 18-22 °C

Rel. Humidity: 30-40 %

Modifications Made During Testing

No modifications were made to the EUT during testing

Deviations From The Standard

No deviations were made from the requirements of the standard.

Client:	Aruba Networks	Job Number:	J96879
Model:	APINH205-2x2:2 MIMO 802.11a/b/g/n/ac Wireless Access Points	T-Log Number:	T96888
		Project Manager:	Christine Krebill
Contact:	Tian Mendez	Project Coordinator:	-
Standard:	FCC 15.247/FCC 15.407/RSS-210/LP0002	Class:	N/A

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

Run #	Mode	Channel	Target Power	Power Setting	Test Performed	Limit	Result / Margin
1	b	1 - 2412MHz	q78	q78	Radiated Emissions, 1 - 25 GHz	FCC Part 15.209 / 15.247(c)	43.5 dBµV/m @ 3720.0 MHz (-10.5 dB)
	b	6 - 2437MHz	q78	q78	Radiated Emissions, 1 - 25 GHz	FCC Part 15.209 / 15.247(c)	44.6 dBµV/m @ 3720.0 MHz (-9.4 dB)
	b	11 - 2462MHz	q78	q78	Radiated Emissions, 1 - 25 GHz	FCC Part 15.209 / 15.247(c)	42.9 dBµV/m @ 3720.0 MHz (-11.1 dB)
Scans on center channel in all three OFDM modes to determine the worst case mode.							
2	g	6 - 2437MHz	q78	q78	Radiated Emissions, 1 - 25 GHz	FCC Part 15.209 / 15.247(c)	45.2 dBµV/m @ 3850.0 MHz (-8.8 dB)
	n20	6 - 2437MHz	q78	q78	Radiated Emissions, 1 - 25 GHz	FCC Part 15.209 / 15.247(c)	45.3 dBµV/m @ 3850.0 MHz (-8.7 dB)
	n40	6 - 2437MHz	q78	q78	Radiated Emissions, 1 - 25 GHz	FCC Part 15.209 / 15.247(c)	45.3 dBµV/m @ 3850.0 MHz (-8.7 dB)
Measurements on low and high channels in worst-case OFDM mode.							
3	n20	1 - 2412MHz	q78	q78	Radiated Emissions, 1 - 25 GHz	FCC Part 15.209 / 15.247(c)	44.9 dBµV/m @ 3850.0 MHz (-9.1 dB)
	n20	11 - 2462MHz	q78	q78	Radiated Emissions, 1 - 25 GHz	FCC Part 15.209 / 15.247(c)	45.5 dBµV/m @ 3850.0 MHz (-8.5 dB)

Sample Notes

Sample S/N: Prototype (NTS Sample: 2014-2278)
Driver: 6.37 RC 14.54
Pkteng …… tx 20 1500 0
Antenna: Internal

Client:	Aruba Networks	Job Number:	J96879
Model:	APINH205-2x2:2 MIMO 802.11a/b/g/n/ac Wireless Access Points	T-Log Number:	T96888
		Project Manager:	Christine Krebill
Contact:	Tian Mendez	Project Coordinator:	-
Standard:	FCC 15.247/FCC 15.407/RSS-210/LP0002	Class:	N/A

Procedure Comments:

Measurements performed in accordance with FCC KDB 558074
Peak measurements performed with: RBW=1MHz, VBW=3MHz, peak detector, max hold, auto sweep time
Unless otherwise stated/noted, emission has duty cycle ≥ 98% and was measured using RBW=1MHz, VBW=10Hz, peak detector, linear average mode, auto sweep time, max hold.
2.4GHz band reject filter used
No radio related emissions were observed below 1GHz in preliminary testing.

Mode	Data Rate	Duty Cycle (x)	Constant DC?	T (ms)	Pwr Cor Factor*	Lin Volt Cor Factor**	Min VBW for FS (Hz)
11b	5.5Mbs	0.99	Yes	2.316	0.00	0.00	432
11g	6Mbs	0.99	Yes	2.063	0.00	0.00	485
n20	MCS8	0.99	Yes	1.942	0.00	0.00	515
n40	MCS8	0.82	Yes	0.938	0.88	1.75	1066

Measurement Specific Notes:

Note 1:	Emission in non-restricted band, but limit of 15.209 used.
Note 2:	Emission in non-restricted band, the limit was set 30dB below the level of the fundamental and measured in 100kHz.
Note 2:	Emission has duty cycle ≥ 98%, average measurement performed: RBW=1MHz, VBW=3MHz, RMS, Power averaging, auto sweep, trace average 100 traces
Note 3:	Emission has duty cycle < 98%, but constant, average measurement performed: RBW=1MHz, VBW=10Hz, peak detector, linear averaging, auto sweep, trace average 100 traces, measurement corrected by Linear Voltage correction factor
Note 4:	Emission has duty cycle < 98% and is NOT constant, average measurement performed: RBW=1MHz, VBW> 1/T, peak detector, linear average mode, sweep time auto, max hold. Max hold for 50*(1/DC) traces
Note 5:	Emission has duty cycle < 98%, but constant, average measurement performed: RBW=1MHz, VBW=3MHz, RMS, Power averaging, auto sweep, trace average 100 traces, measurement corrected by Pwr correction factor
Note 6:	Plots of the average and peak bandedge do not account for any duty cycle correction. Refer to the tabular results for final measurements.

Client:	Aruba Networks	Job Number:	J96879
Model:	APINH205-2x2:2 MIMO 802.11a/b/g/n/ac Wireless Access Points	T-Log Number:	T96888
		Project Manager:	Christine Krebill
Contact:	Tian Mendez	Project Coordinator:	-
Standard:	FCC 15.247/FCC 15.407/RSS-210/LP0002	Class:	N/A

Run #1: Radiated Spurious Emissions, 1,000 - 25000 MHz. Operating Mode: 802.11b

Date of Test: 12/17/14 Test Location: Chamber #3

Test Engineer: M. Birgani EUT Voltage: 120V/ 60Hz

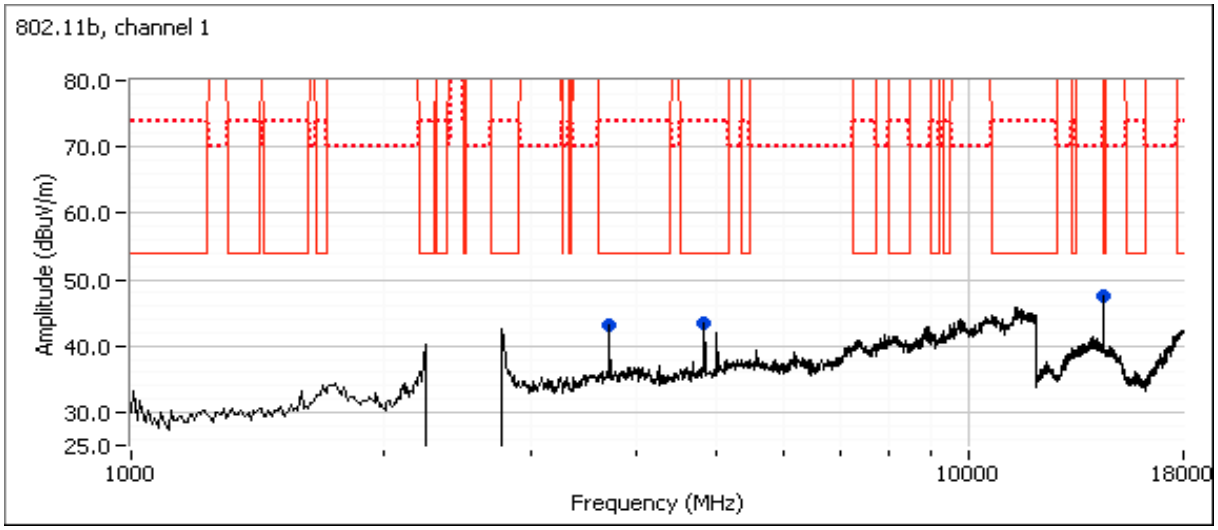
Run #1a: Low Channel

Channel: 1 Mode: b

Tx Chain: 2Tx Data Rate: 5.5Mbs

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
3720.020	43.5	H	54.0	-10.5	AVG	341	1.5	RB 1 MHz;VB 10 Hz;Peak
4834.140	32.6	H	54.0	-21.4	AVG	196	1.0	RB 1 MHz;VB 10 Hz;Peak
3719.910	48.8	H	74.0	-25.2	PK	341	1.5	RB 1 MHz;VB 3 MHz;Peak
4833.510	44.2	H	74.0	-29.8	PK	196	1.0	RB 1 MHz;VB 3 MHz;Peak
14470.000	47.4	H	54.0	-6.6	PK	73	1.0	Note 1, Pk reading with avg limit

Note:	Scans made between 18 - 25 GHz with the measurement antenna moved around the card and its antennas 20-50cm from the device indicated there were no significant emissions in this frequency range



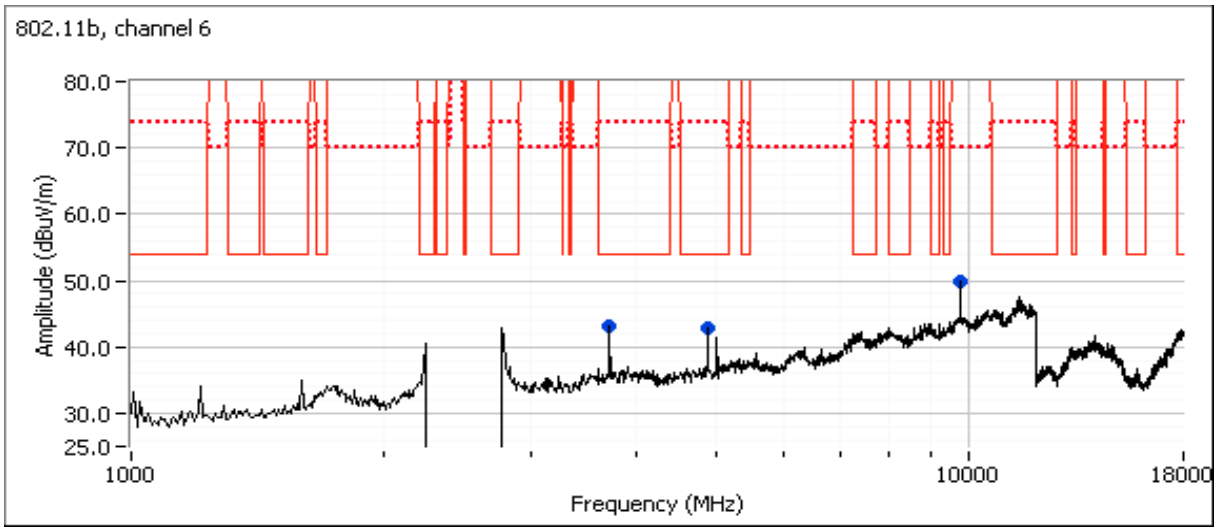
Client:	Aruba Networks	Job Number:	J96879
Model:	APINH205-2x2:2 MIMO 802.11a/b/g/n/ac Wireless Access Points	T-Log Number:	T96888
		Project Manager:	Christine Krebill
Contact:	Tian Mendez	Project Coordinator:	-
Standard:	FCC 15.247/FCC 15.407/RSS-210/LP0002	Class:	N/A

Run #1b: Center Channel

Channel: 6 Mode: b
Tx Chain: 2Tx Data Rate: 5.5Mbs

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
3720.010	44.6	H	54.0	-9.4	AVG	37	1.1	RB 1 MHz;VB 10 Hz;Peak
4879.270	37.2	V	54.0	-16.8	AVG	343	1.0	RB 1 MHz;VB 10 Hz;Peak
3719.940	49.2	H	74.0	-24.8	PK	37	1.1	RB 1 MHz;VB 3 MHz;Peak
4874.470	47.1	V	74.0	-26.9	PK	343	1.0	RB 1 MHz;VB 3 MHz;Peak
9750.000	49.8	H	54.0	-4.2	Peak	333	1.0	Note 1, Pk reading with avg limit

Note:	Scans made between 18 - 25 GHz with the measurement antenna moved around the card and its antennas 20-50cm from the device indicated there were no significant emissions in this frequency range



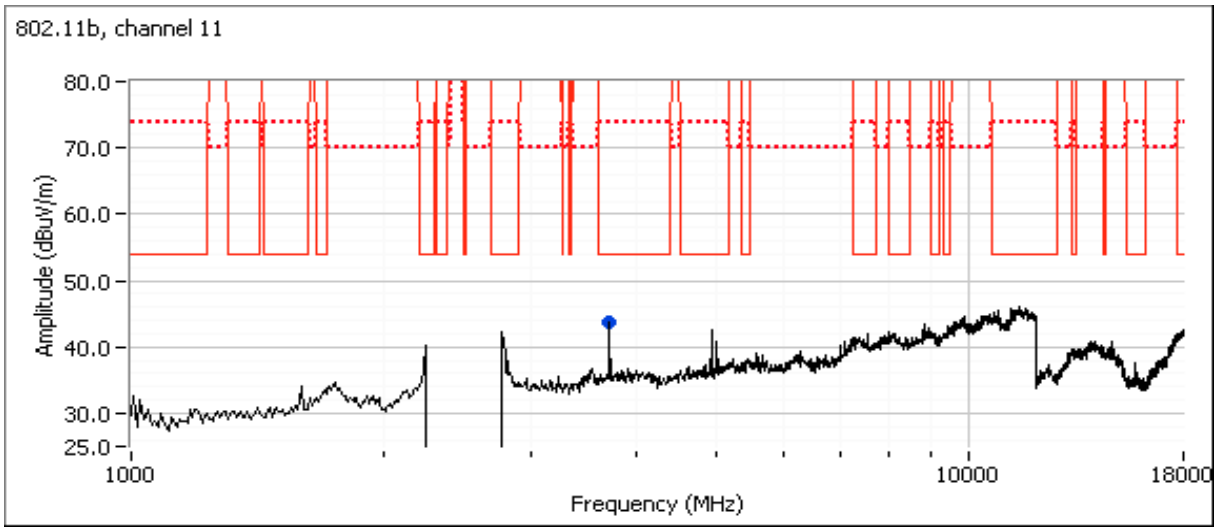
Client:	Aruba Networks	Job Number:	J96879
Model:	APINH205-2x2:2 MIMO 802.11a/b/g/n/ac Wireless Access Points	T-Log Number:	T96888
		Project Manager:	Christine Krebill
Contact:	Tian Mendez	Project Coordinator:	-
Standard:	FCC 15.247/FCC 15.407/RSS-210/LP0002	Class:	N/A

Run #1c: High Channel

Channel: 11 Mode: b
Tx Chain: 2Tx Data Rate: 5.5Mbs

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
3720.010	42.9	H	54.0	-11.1	AVG	0	1.3	RB 1 MHz;VB 10 Hz;Peak
3720.200	48.1	H	74.0	-25.9	PK	0	1.3	RB 1 MHz;VB 3 MHz;Peak

Note:	Scans made between 12 - 25 GHz with the measurement antenna moved around the card and its antennas 20-50cm from the device indicated there were no significant emissions in this frequency range



Client:	Aruba Networks	Job Number:	J96879
Model:	APINH205-2x2:2 MIMO 802.11a/b/g/n/ac Wireless Access Points	T-Log Number:	T96888
		Project Manager:	Christine Krebill
Contact:	Tian Mendez	Project Coordinator:	-
Standard:	FCC 15.247/FCC 15.407/RSS-210/LP0002	Class:	N/A

Run #2: Radiated Spurious Emissions, 1,000 - 25000 MHz. Operating Mode: OFDM

Date of Test: 12/18/14 Test Location: Chamber #4

Test Engineer: Jack Liu EUT Voltage: 120V/ 60Hz

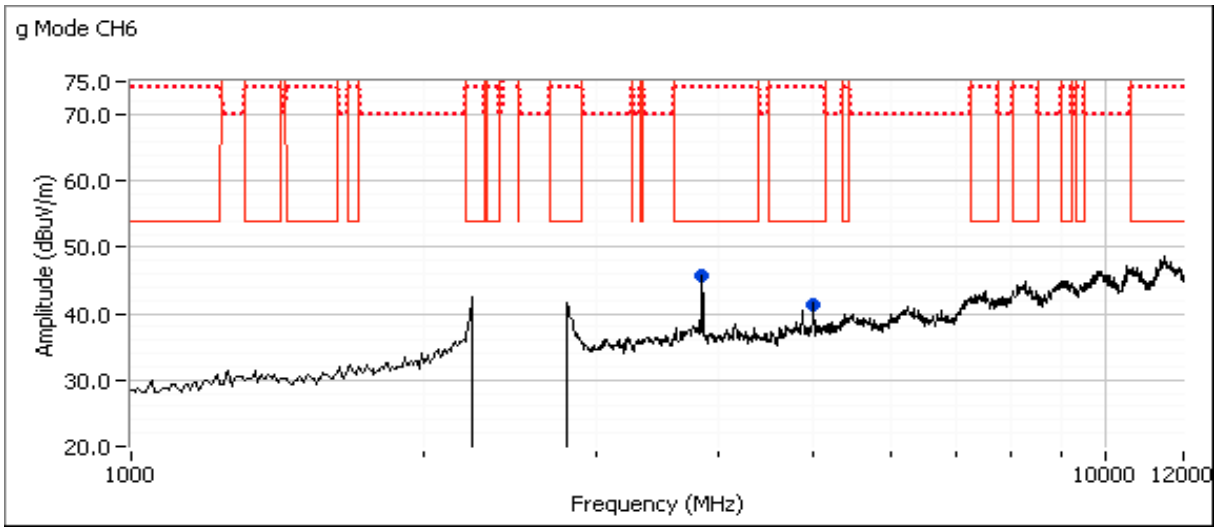
Run #2a: Center Channel

Channel: 6 Mode: g

Tx Chain: 2Tx Data Rate: 6Mbs

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
3850.000	45.2	H	54.0	-8.8	AVG	332	1.2	RB 1 MHz;VB 10 Hz;Peak
5000.050	40.3	H	54.0	-13.7	AVG	336	1.2	RB 1 MHz;VB 10 Hz;Peak
3849.950	49.3	H	74.0	-24.7	PK	332	1.2	RB 1 MHz;VB 3 MHz;Peak
5000.310	47.1	H	74.0	-26.9	PK	336	1.2	RB 1 MHz;VB 3 MHz;Peak

Note:	Scans made between 12 - 25 GHz with the measurement antenna moved around the card and its antennas 20-50cm from the device indicated there were no significant emissions in this frequency range



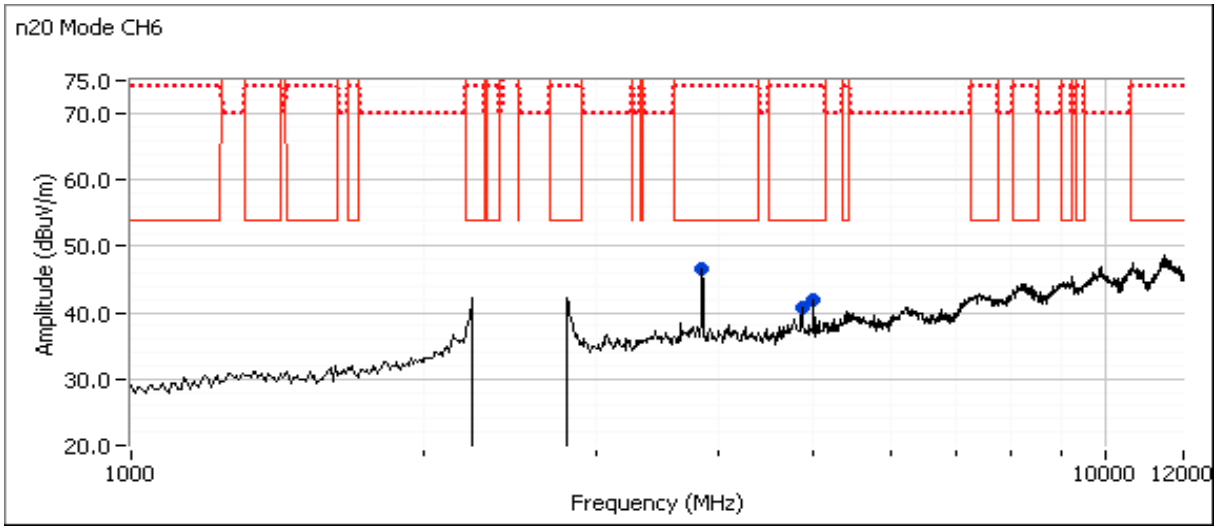
Client:	Aruba Networks	Job Number:	J96879
Model:	APINH205-2x2:2 MIMO 802.11a/b/g/n/ac Wireless Access Points	T-Log Number:	T96888
		Project Manager:	Christine Krebill
Contact:	Tian Mendez	Project Coordinator:	-
Standard:	FCC 15.247/FCC 15.407/RSS-210/LP0002	Class:	N/A

Run #2b: Center Channel

Channel: 6 Mode: n20
Tx Chain: 2Tx Data Rate: MCS8

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
3849.960	45.3	H	54.0	-8.7	AVG	333	1.3	RB 1 MHz;VB 10 Hz;Peak
5000.050	40.8	H	54.0	-13.2	AVG	330	1.3	RB 1 MHz;VB 10 Hz;Peak
4874.130	35.3	H	54.0	-18.7	AVG	0	1.2	RB 1 MHz;VB 10 Hz;Peak
3849.980	49.3	H	74.0	-24.7	PK	333	1.3	RB 1 MHz;VB 3 MHz;Peak
4870.400	48.5	H	74.0	-25.5	PK	0	1.2	RB 1 MHz;VB 3 MHz;Peak
4999.950	46.8	H	74.0	-27.2	PK	330	1.3	RB 1 MHz;VB 3 MHz;Peak

Note:	Scans made between 12 - 25 GHz with the measurement antenna moved around the card and its antennas 20-50cm from the device indicated there were no significant emissions in this frequency range



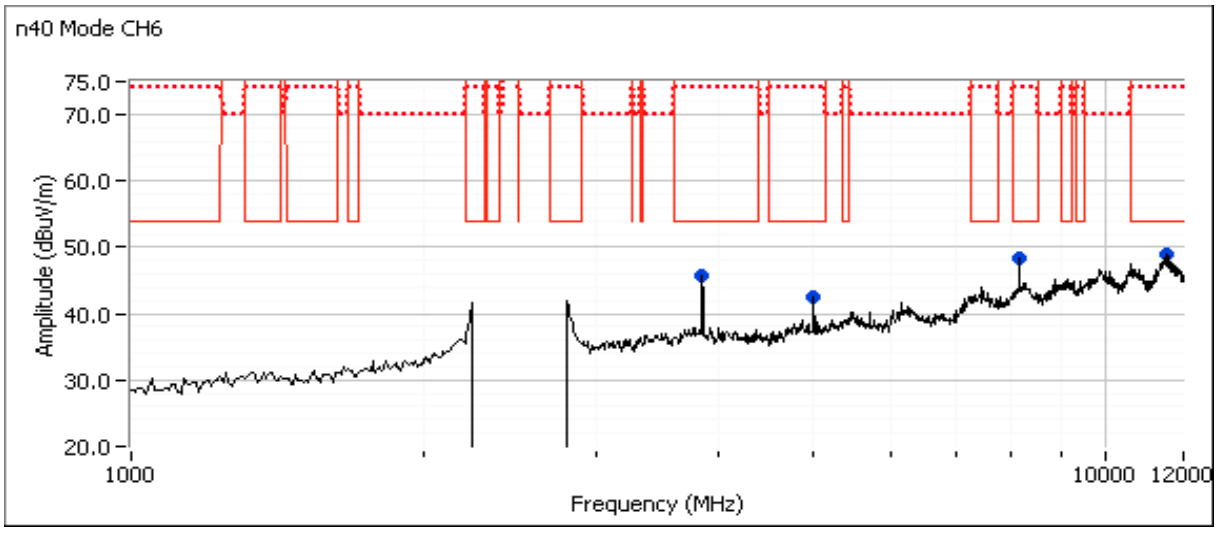
Client:	Aruba Networks	Job Number:	J96879
Model:	APINH205-2x2:2 MIMO 802.11a/b/g/n/ac Wireless Access Points	T-Log Number:	T96888
		Project Manager:	Christine Krebill
Contact:	Tian Mendez	Project Coordinator:	-
Standard:	FCC 15.247/FCC 15.407/RSS-210/LP0002	Class:	N/A

Run #2c: Center Channel

Channel: 6 Mode: n40
Tx Chain: 2Tx Data Rate: MCS8

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
3850.030	45.3	H	54.0	-8.7	AVG	330	1.2	RB 1 MHz;VB 10 Hz;Peak
11496.730	41.9	V	54.0	-12.1	AVG	360	1.5	RB 1 MHz;VB 10 Hz;Peak
5000.050	40.0	H	54.0	-14.0	AVG	287	1.0	RB 1 MHz;VB 10 Hz;Peak
8168.530	37.8	H	54.0	-16.2	AVG	360	2.5	RB 1 MHz;VB 10 Hz;Peak
11524.000	54.5	V	74.0	-19.5	PK	360	1.5	RB 1 MHz;VB 3 MHz;Peak
8139.930	50.1	H	74.0	-23.9	PK	360	2.5	RB 1 MHz;VB 3 MHz;Peak
3849.950	49.3	H	74.0	-24.7	PK	330	1.2	RB 1 MHz;VB 3 MHz;Peak
5000.330	46.6	H	74.0	-27.4	PK	287	1.0	RB 1 MHz;VB 3 MHz;Peak

Note:	Scans made between 12 - 25 GHz with the measurement antenna moved around the card and its antennas 20-50cm from the device indicated there were no significant emissions in this frequency range



Client:	Aruba Networks	Job Number:	J96879
Model:	APINH205-2x2:2 MIMO 802.11a/b/g/n/ac Wireless Access Points	T-Log Number:	T96888
		Project Manager:	Christine Krebill
Contact:	Tian Mendez	Project Coordinator:	-
Standard:	FCC 15.247/FCC 15.407/RSS-210/LP0002	Class:	N/A

Run #3: Radiated Spurious Emissions, 1,000 - 25000 MHz. Operating Mode: Worse case from Run #2

Date of Test: 12/18/14 Test Location: Chamber #4

Test Engineer: Jack Liu EUT Voltage: 120V/ 60Hz

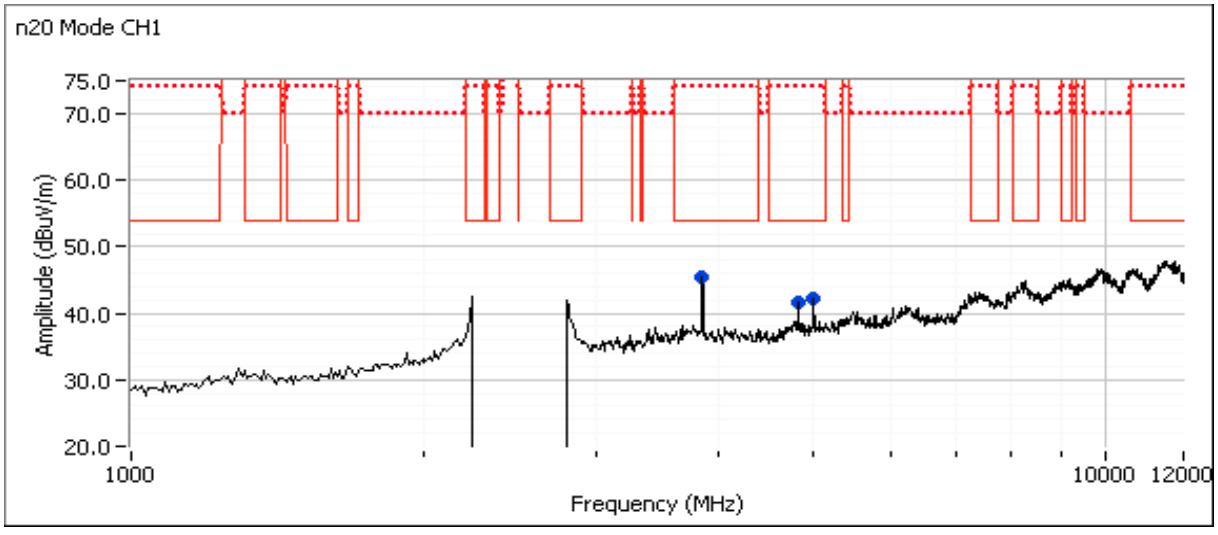
Run #3a: Low Channel

Channel: 1 Mode: n20

Tx Chain: 2Tx Data Rate: MCS8

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
3850.020	44.9	H	54.0	-9.1	AVG	330	1.3	RB 1 MHz;VB 10 Hz;Peak
5000.050	40.1	H	54.0	-13.9	AVG	339	1.0	RB 1 MHz;VB 10 Hz;Peak
4824.200	36.7	H	54.0	-17.3	AVG	1	1.1	RB 1 MHz;VB 10 Hz;Peak
3849.910	48.9	H	74.0	-25.1	PK	330	1.3	RB 1 MHz;VB 3 MHz;Peak
4823.330	48.6	H	74.0	-25.4	PK	1	1.1	RB 1 MHz;VB 3 MHz;Peak
5000.330	46.7	H	74.0	-27.3	PK	339	1.0	RB 1 MHz;VB 3 MHz;Peak

Note:	Scans made between 12 - 25 GHz with the measurement antenna moved around the card and its antennas 20-50cm from the device indicated there were no significant emissions in this frequency range



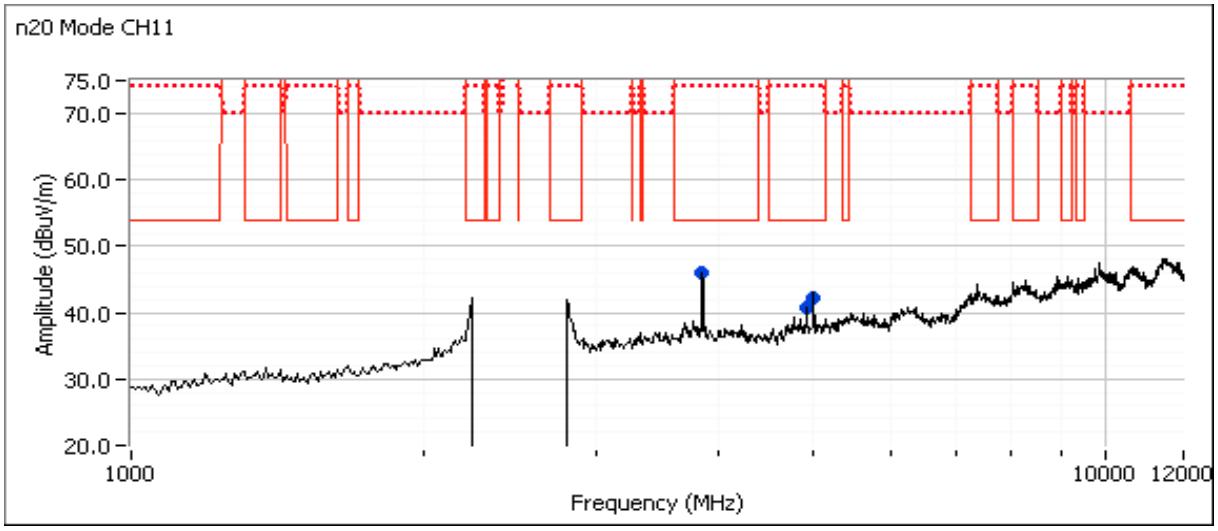
Client:	Aruba Networks	Job Number:	J96879
Model:	APINH205-2x2:2 MIMO 802.11a/b/g/n/ac Wireless Access Points	T-Log Number:	T96888
		Project Manager:	Christine Krebill
Contact:	Tian Mendez	Project Coordinator:	-
Standard:	FCC 15.247/FCC 15.407/RSS-210/LP0002	Class:	N/A

Run #3b: High Channel

Channel: 11 Mode: n20
Tx Chain: 2Tx Data Rate: MCS8

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
3850.020	45.5	H	54.0	-8.5	AVG	335	1.3	RB 1 MHz;VB 10 Hz;Peak
5000.100	40.4	H	54.0	-13.6	AVG	337	1.1	RB 1 MHz;VB 10 Hz;Peak
4923.830	34.5	H	54.0	-19.5	AVG	61	1.0	RB 1 MHz;VB 10 Hz;Peak
3849.790	49.6	H	74.0	-24.4	PK	335	1.3	RB 1 MHz;VB 3 MHz;Peak
5000.450	46.6	H	74.0	-27.4	PK	337	1.1	RB 1 MHz;VB 3 MHz;Peak
4921.310	45.8	H	74.0	-28.2	PK	61	1.0	RB 1 MHz;VB 3 MHz;Peak

Note:	Scans made between 12 - 25 GHz with the measurement antenna moved around the card and its antennas 20-50cm from the device indicated there were no significant emissions in this frequency range



Client:	Aruba Networks	Job Number:	J96879
Product	APINH205-2x2:2 MIMO 802.11a/b/g/n/ac Wireless Access Points	T-Log Number:	T96924
		Project Manager:	Christine Krebill
Contact:	Tian Mendez	Project Coordinator:	
Emissions Standard(s):	FCC 15.247/FCC 15.407/RSS-210/LP0002	Class:	-
Immunity Standard(s):	-	Environment:	-

EMC Test Data

For The

Aruba Networks

Product

APINH205-2x2:2 MIMO 802.11a/b/g/n/ac Wireless Access Points

Date of Last Test: 12/30/2014

Client:	Aruba Networks	Job Number:	J96879
Model:	APINH205-2x2:2 MIMO 802.11a/b/g/n/ac Wireless Access Points	T-Log Number:	T96924
		Project Manager:	Christine Krebill
Contact:	Tian Mendez	Project Coordinator:	-
Standard:	FCC 15.247/FCC 15.407/RSS-210/LP0002	Class:	N/A

RSS 210 / LP0002 Antenna Port Measurements
MIMO and Smart Antenna Systems
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.

Date of Test: 12/11/14 , 12/12/14 , 12/29/14
Test Engineer: Jack Liu
Test Location: FT Lab #4B, 4A

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

General Test Configuration

The EUT was connected to the spectrum analyzer or power meter via a suitable attenuator. All measurements were made on a single chain.

All measurements have been corrected to allow for the external attenuators used.

Ambient Conditions:

Temperature: 21 °C
Rel. Humidity: 40 %

Summary of Results

Run #	Pwr setting	Avg Pwr	Test Performed	Limit	Pass / Fail	Result / Margin
1	-	-	Output Power	A8.4(4) / 3.10.1 (2.3)	Pass	11a:20.7dBm(118mW) n20:20.6dBm (115mW) n40:20.5dBm (111mW) ac80:22.0dBm (160mW)
2	-	-	Power spectral Density (PSD)	A8.2(b) / 3.10.1 (6.2.2)	Pass	11a: 1.9dBm/10kHz n20: 7.8dBm/1MHz n40: 4.1dBm/1MHz ac80:0.9dBm/1MHz
3	-	-	Minimum 6dB Bandwidth	A8.2(a) / 3.10.1 (6.2.1)	Pass	a: 16.3MHz n20: 17.6MHz n40: 36.0MHz ac80: 75.71MHz

Client:	Aruba Networks	Job Number:	J96879
Model:	APINH205-2x2:2 MIMO 802.11a/b/g/n/ac Wireless Access Points	T-Log Number:	T96924
		Project Manager:	Christine Krebill
Contact:	Tian Mendez	Project Coordinator:	-
Standard:	FCC 15.247/FCC 15.407/RSS-210/LP0002	Class:	N/A

Summary of Results

Run #	Pwr setting	Avg Pwr	Test Performed	Limit	Pass / Fail	Result / Margin
3	-	-	99% Bandwidth	RSS GEN	-	a: 17.0MHz n20: 18.0MHz n40: 36.3MHz ac80: 76.4MHz
4	-	-	Spurious emissions	A8.5 / 3.10.1 (5.2)	Pass	All emissions are 30dBc below the limit

Modifications Made During Testing

No modifications were made to the EUT during testing

Deviations From The Standard

No deviations were made from the requirements of the standard.

Procedure Comments:

Measurements performed in accordance with FCC KDB 558074

Mode	Data Rate	Duty Cycle (x)	Constant DC?	T (ms)	Pwr Cor Factor*	Lin Volt Cor Factor**	Min VBW for FS (Hz)
11a	6Mbs	0.99	Yes	2.063	0.0	0.0	485
n20	MCS8	0.99	Yes	1.942	0.0	0.0	515
n40	MCS0	0.82	Yes	0.938	0.9	1.8	1066
ac80	VHT0	0.59	Yes	0.256	2.3	4.6	3906

Sample Notes

Sample S/N: L.AYM4A30017
Driver: 6.37 RC14.54
Tab6- Ant 1 (txchain 1)
Tab5- Ant 2 (txchain 2)
Pkteng …… tx 20 1500 0
0.8dB Cable loss added

Client:	Aruba Networks	Job Number:	J96879
Model:	APINH205-2x2:2 MIMO 802.11a/b/g/n/ac Wireless Access Points	T-Log Number:	T96924
		Project Manager:	Christine Krebill
Contact:	Tian Mendez	Project Coordinator:	-
Standard:	FCC 15.247/FCC 15.407/RSS-210/LP0002	Class:	N/A

Antenna Gain Information
Legacy Modes (11a)

Freq	Antenna Gain (dBi) / Chain				BF	MultiChain Legacy	CDD	Sectorized / Xpol	Dir G (PWR)	Dir G (PSD)
	1	2	3	4						
5150-5250	6.0	6.0			No	Yes	Yes	No	6.0	9.0
5250-5350	6.0	6.0			No	Yes	Yes	No	6.0	9.0
5470-5725	6.0	6.0			No	Yes	Yes	No	6.0	9.0
5725-5825	6.0	6.0			No	Yes	Yes	No	6.0	9.0

Client:	Aruba Networks	Job Number:	J96879
Model:	APINH205-2x2:2 MIMO 802.11a/b/g/n/ac Wireless Access Points	T-Log Number:	T96924
		Project Manager:	Christine Krebill
Contact:	Tian Mendez	Project Coordinator:	-
Standard:	FCC 15.247/FCC 15.407/RSS-210/LP0002	Class:	N/A

11n/ac modes (n20/n40/ac80)

Freq	Antenna Gain (dBi) / Chain				BF	MultiChain Legacy	CDD	Sectorized / Xpol	Dir G (PWR)	Dir G (PSD)
	1	2	3	4						
5150-5250	6.0	6.0			No	N/A	Yes	No	6.0	9.0
5250-5350	6.0	6.0			No	N/A	Yes	No	6.0	9.0
5470-5725	6.0	6.0			No	N/A	Yes	No	6.0	9.0
5725-5825	6.0	6.0			No	N/A	Yes	No	6.0	9.0

For devices that support CDD modes

Min # of spatial streams: 1

Max # of spatial streams: 2

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

Client:	Aruba Networks	Job Number:	J96879
Model:	APINH205-2x2:2 MIMO 802.11a/b/g/n/ac Wireless Access Points	T-Log Number:	T96924
		Project Manager:	Christine Krebill
Contact:	Tian Mendez	Project Coordinator:	-
Standard:	FCC 15.247/FCC 15.407/RSS-210/LP0002	Class:	N/A

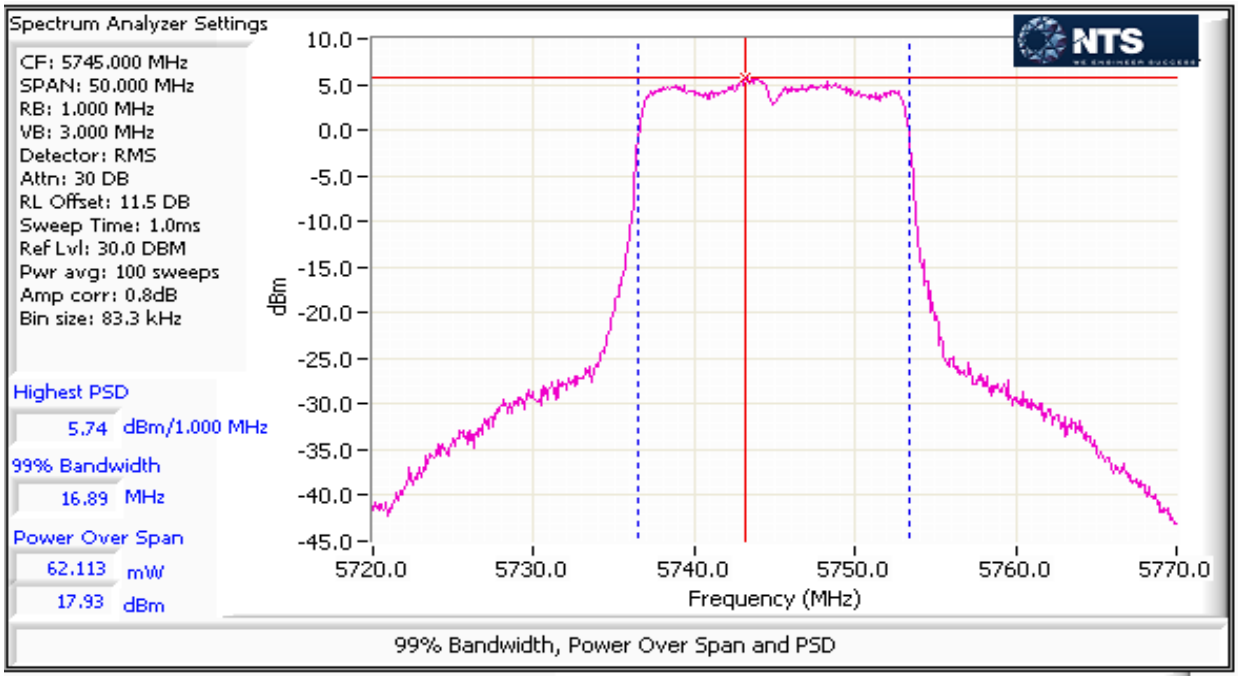
Run #1: Output Power

Operating Mode: 11a
Directional Gain (dBi): 6.0

Max EIRP (mW): 469.96481

Frequency (MHz)	Chain	Software Setting	Power[1] dBm	Power[1] mW	Total mW	Total dBm	Max Power (W)	Limit dBm	Result	Power (dBm)[3]
5745	1	-q72	17.3	53.7	115.4	20.6	0.118	30.0	Pass	
	2		17.9	61.7						
5785	1	-q70	16.8	48.1	104.3	20.2		30.0	Pass	
	2		17.5	56.2						
5825	1	-q72	17.4	55.0	118.0	20.7		30.0	Pass	
	2		18.0	63.1						

Note 1:	Duty Cycle ≥ 98%. Output power measured using a spectrum analyzer (see plots below) with RBW= 1-5% of OBW, VB≥3* RBW, RMS detector, power averaging on, and power integration over the OBW, trace average 100 traces (option AVGSA-1, in KDB 558074). Spurious limit becomes -30dBc.
Note 2:	Power setting - if a single number the same power setting was used for each chain. If multiple numbers the power setting for each chain is separated by a comma (e.g. x,y would indicate power setting x for chain 1, power setting y for chain 2.
Note 3:	Power measured using average power meter (non-gated) and is included for reference only.



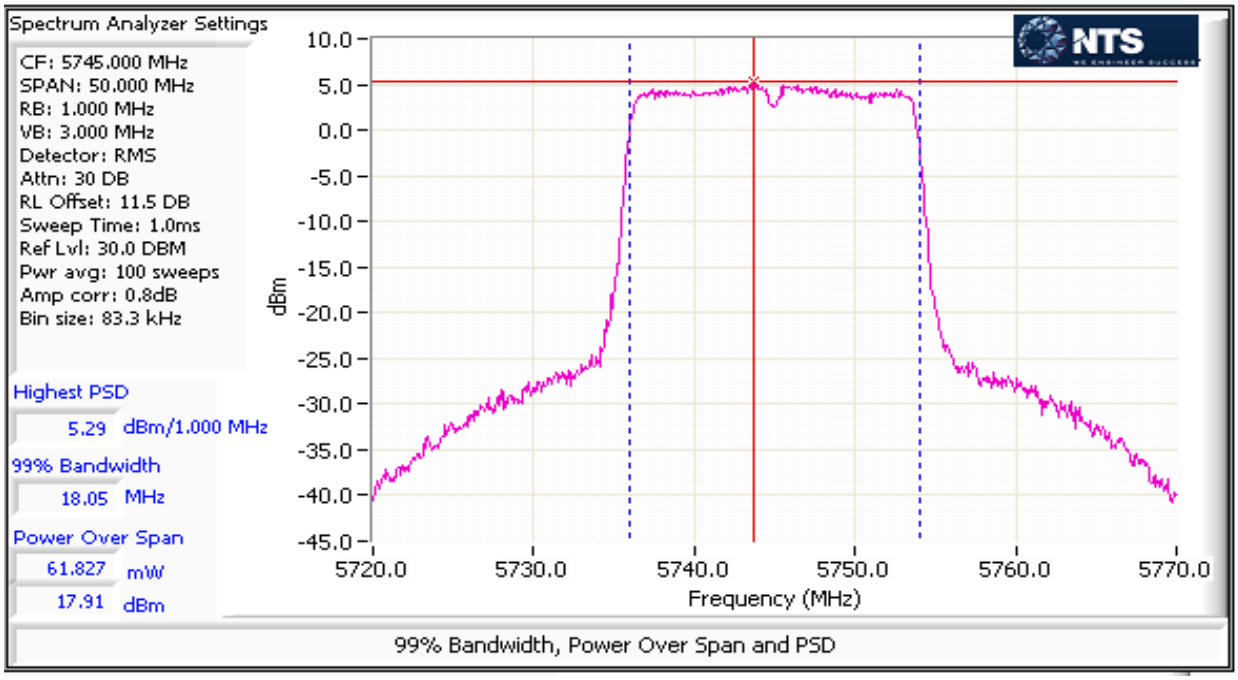
Client:	Aruba Networks	Job Number:	J96879
Model:	APINH205-2x2:2 MIMO 802.11a/b/g/n/ac Wireless Access Points	T-Log Number:	T96924
		Project Manager:	Christine Krebill
Contact:	Tian Mendez	Project Coordinator:	-
Standard:	FCC 15.247/FCC 15.407/RSS-210/LP0002	Class:	N/A

Operating Mode: n20
Directional Gain (dBi): 6.0

Max EIRP (mW): 459.2671

Frequency (MHz)	Chain	Software Setting	Power[1] dBm	Power[1] mW	Total mW	Total dBm	Max Power (W)	Limit dBm	Result	Power (dBm)[3]
5745	1	-q72	17.3	53.7	115.4	20.6	0.115	30.0	Pass	
	2		17.9	61.7						
5785	1	-q72	17.1	51.3	108.8	20.4		30.0	Pass	
	2		17.6	57.5						
5825	1	-q72	17.1	51.3	112.9	20.5		30.0	Pass	
	2		17.9	61.7						

Note 1:	Duty Cycle ≥ 98%. Output power measured using a spectrum analyzer (see plots below) with RBW= 1-5% of OBW, VB≥3* RBW, RMS detector, power averaging on, and power integration over the OBW, trace average 100 traces (option AVGSA-1, in KDB 558074). Spurious limit becomes -30dBc.
Note 2:	Power setting - if a single number the same power setting was used for each chain. If multiple numbers the power setting for each chain is separated by a comma (e.g. x,y would indicate power setting x for chain 1, power setting y for chain 2.
Note 3:	Power measured using average power meter (non-gated) and is included for reference only.



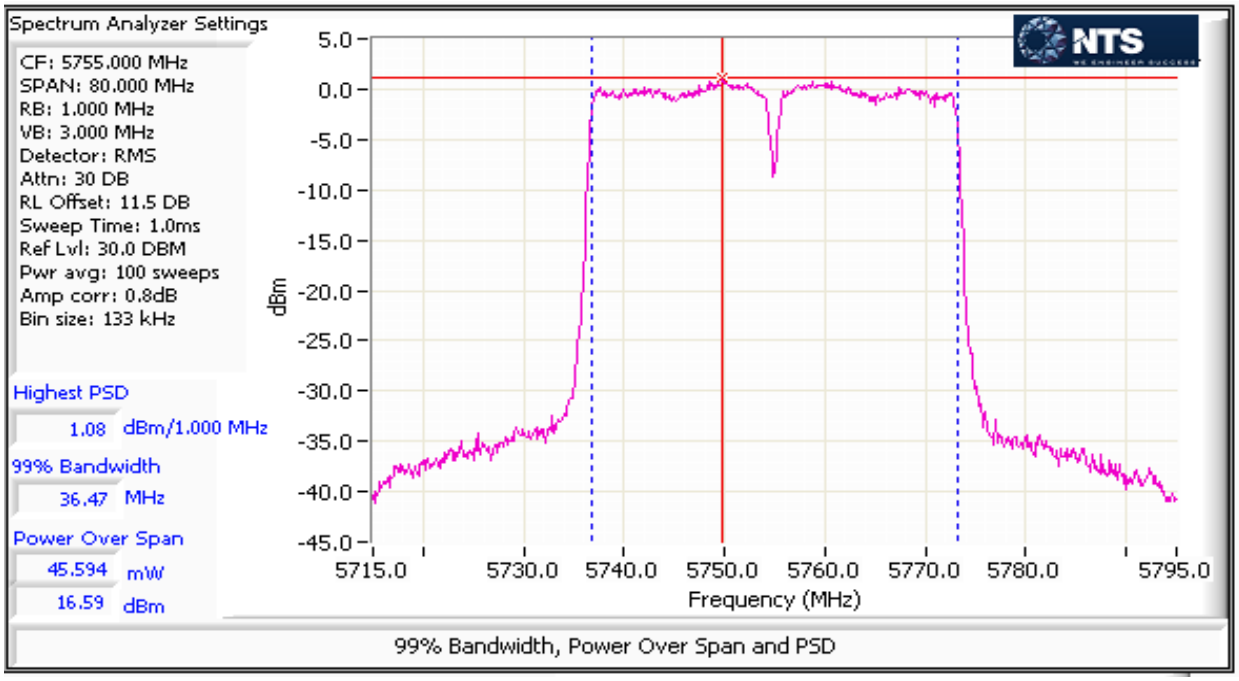
Client:	Aruba Networks	Job Number:	J96879
Model:	APINH205-2x2:2 MIMO 802.11a/b/g/n/ac Wireless Access Points	T-Log Number:	T96924
		Project Manager:	Christine Krebill
Contact:	Tian Mendez	Project Coordinator:	-
Standard:	FCC 15.247/FCC 15.407/RSS-210/LP0002	Class:	N/A

Operating Mode: n40
Directional Gain (dBi): 6.0

Max EIRP (mW): 442.64828

Frequency (MHz)	Chain	Software Setting	Power[1] dBm	Power[1] mW	Total mW	Total dBm	Max Power (W)	Limit dBm	Result	Power (dBm)[3]
5755	1	-q72	17.5	56.2	111.2	20.5	0.111	30.0	Pass	
	2		17.4	55.0						
5795	1	-q72	17.2	52.5	106.2	20.3		30.0	Pass	
	2		17.3	53.7						

Note 1:	Duty Cycle < 98%, constant duty cycle. Output power measured using a spectrum analyzer (see plots below) with RBW= 1-5% of OBW, VB≥3* RBW, RMS detector, power averaging on, and power integration over the OBW, trace average 100 traces (option AVGSA-1, in KDB 558074). Measurement corrected by Pwr Cor Factor. Spurious limit becomes -30dBc. Pwr Cor Factor is not included in the plots.
Note 2:	Power setting - if a single number the same power setting was used for each chain. If multiple numbers the power setting for each chain is separated by a comma (e.g. x,y would indicate power setting x for chain 1, power setting y for chain 2.
Note 3:	Power measured using average power meter (non-gated) and is included for reference only.



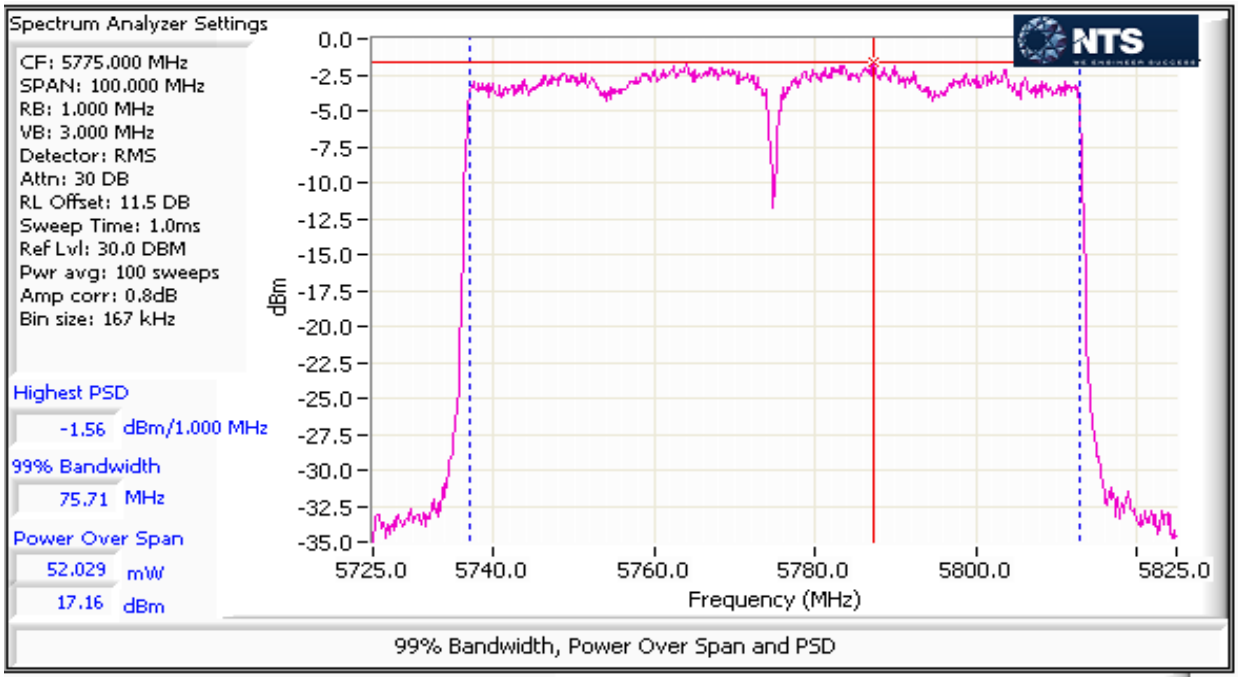
Client:	Aruba Networks	Job Number:	J96879
Model:	APINH205-2x2:2 MIMO 802.11a/b/g/n/ac Wireless Access Points	T-Log Number:	T96924
		Project Manager:	Christine Krebill
Contact:	Tian Mendez	Project Coordinator:	-
Standard:	FCC 15.247/FCC 15.407/RSS-210/LP0002	Class:	N/A

Operating Mode: ac80
Directional Gain (dBi): 6.0

Max EIRP (mW): 636.65168

Frequency (MHz)	Chain	Software Setting	Power[1] dBm	Power[1] mW	Total mW	Total dBm	Max Power (W)	Limit dBm	Result	Power (dBm)[3]
5775	1	-q72	18.5	70.8	159.9	22.0	0.160	30.0	Pass	
	2		19.5	89.1						

Note 1:	Duty Cycle < 98%, constant duty cycle. Output power measured using a spectrum analyzer (see plots below) with RBW= 1-5% of OBW, VB≥3* RBW, RMS detector, power averaging on, and power integration over the OBW, trace average 100 traces (option AVGSA-1, in KDB 558074). Measurement corrected by Pwr Cor Factor. Spurious limit becomes -30dBc. Pwr Cor Factor is not included in the plots
Note 2:	Power setting - if a single number the same power setting was used for each chain. If multiple numbers the power setting for each chain is separated by a comma (e.g. x,y would indicate power setting x for chain 1, power setting y for chain 2.
Note 3:	Power measured using average power meter (non-gated) and is included for reference only.

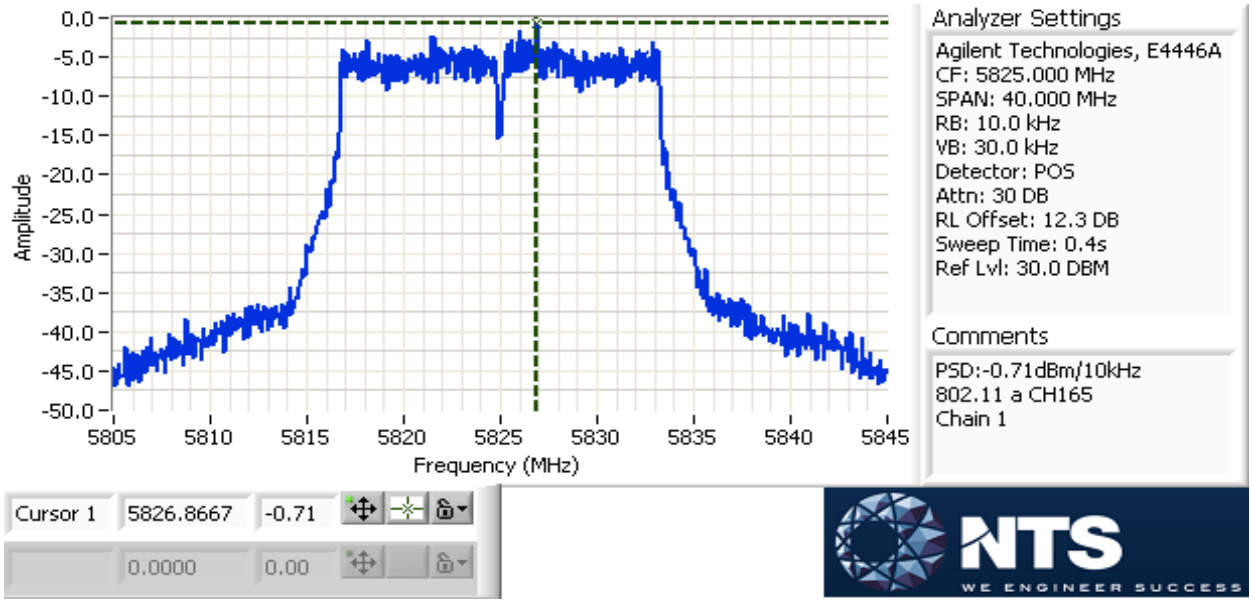


Client:	Aruba Networks	Job Number:	J96879
Model:	APINH205-2x2:2 MIMO 802.11a/b/g/n/ac Wireless Access Points	T-Log Number:	T96924
		Project Manager:	Christine Krebill
Contact:	Tian Mendez	Project Coordinator:	-
Standard:	FCC 15.247/FCC 15.407/RSS-210/LP0002	Class:	N/A

Run #2: Power spectral Density

Mode: 11a

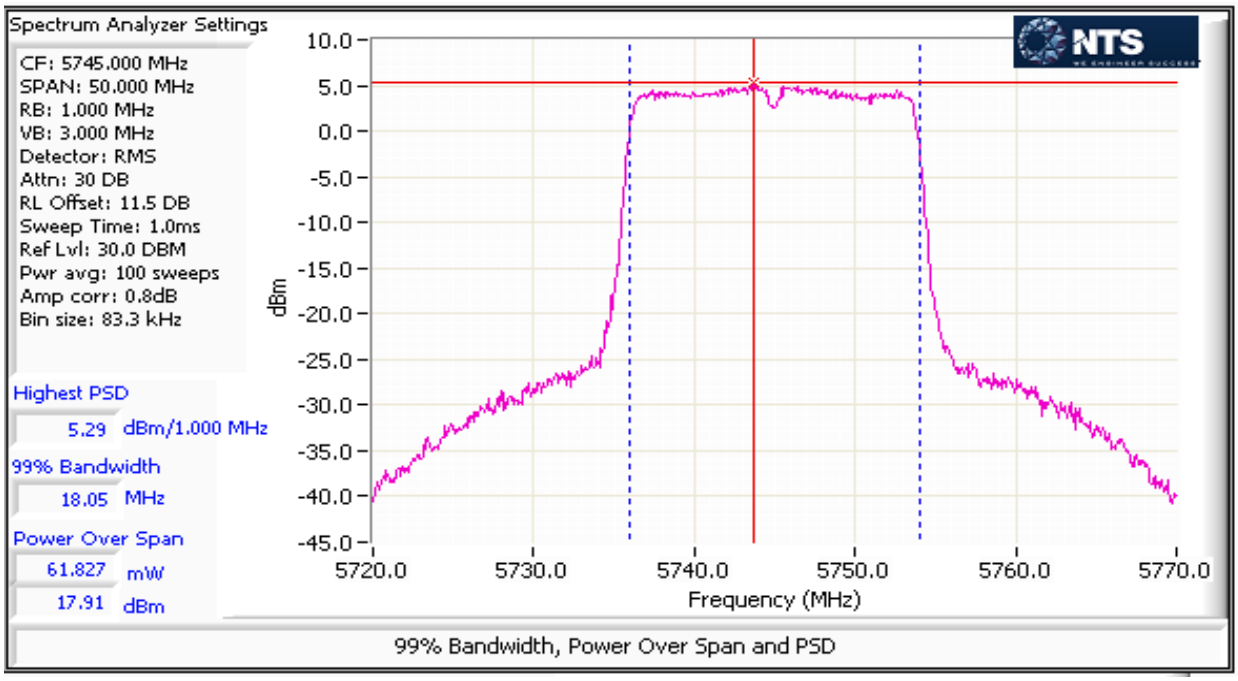
Power Setting	Frequency (MHz)	PSD (dBm/10kHz) Note 1					Limit dBm/3kHz	Result
		Chain 1	Chain 2	Chain 3	Chain 4	Total		
-q72	5745	-1.1	-1.7			1.6	8.0	Pass
-q72	5785	-1.0	-2.0			1.6	8.0	Pass
-q72	5825	-0.7	-1.5			1.9	8.0	Pass



Client:	Aruba Networks	Job Number:	J96879
Model:	APINH205-2x2:2 MIMO 802.11a/b/g/n/ac Wireless Access Points	T-Log Number:	T96924
		Project Manager:	Christine Krebill
Contact:	Tian Mendez	Project Coordinator:	-
Standard:	FCC 15.247/FCC 15.407/RSS-210/LP0002	Class:	N/A

Mode: n20

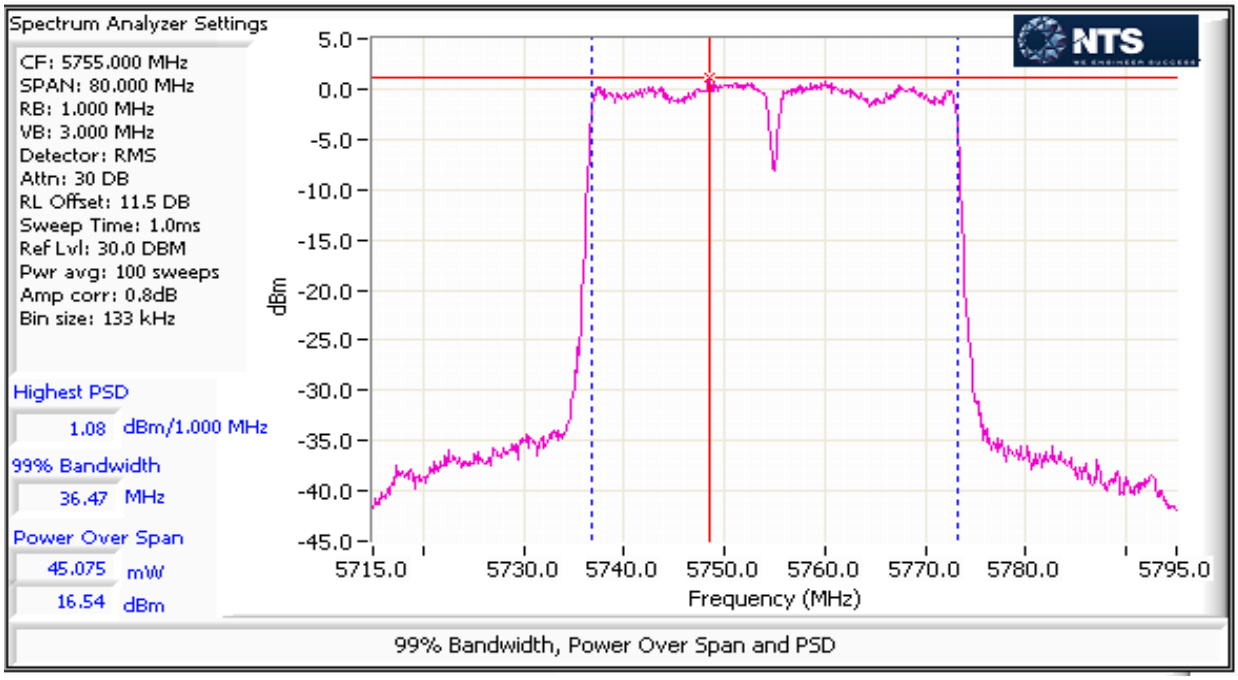
Power Setting	Frequency (MHz)	PSD (dBm/1000kHz) Note 1					Limit dBm/3kHz	Result
		Chain 1	Chain 2	Chain 3	Chain 4	Total		
-q72	5745	4.2	5.3			7.8	8.0	Pass
-q72	5785	4.3	5.0			7.7	8.0	Pass
-q72	5825	4.3	5.1			7.7	8.0	Pass



Client:	Aruba Networks	Job Number:	J96879
Model:	APINH205-2x2:2 MIMO 802.11a/b/g/n/ac Wireless Access Points	T-Log Number:	T96924
		Project Manager:	Christine Krebill
Contact:	Tian Mendez	Project Coordinator:	-
Standard:	FCC 15.247/FCC 15.407/RSS-210/LP0002	Class:	N/A

Mode: n40

Power Setting	Frequency (MHz)	PSD (dBm/1000kHz) Note 1					Limit dBm/3kHz	Result
		Chain 1	Chain 2	Chain 3	Chain 4	Total		
-q72	5755	1.1	1.1			4.1	8.0	Pass
-q72	5795	0.7	0.8			3.8	8.0	Pass

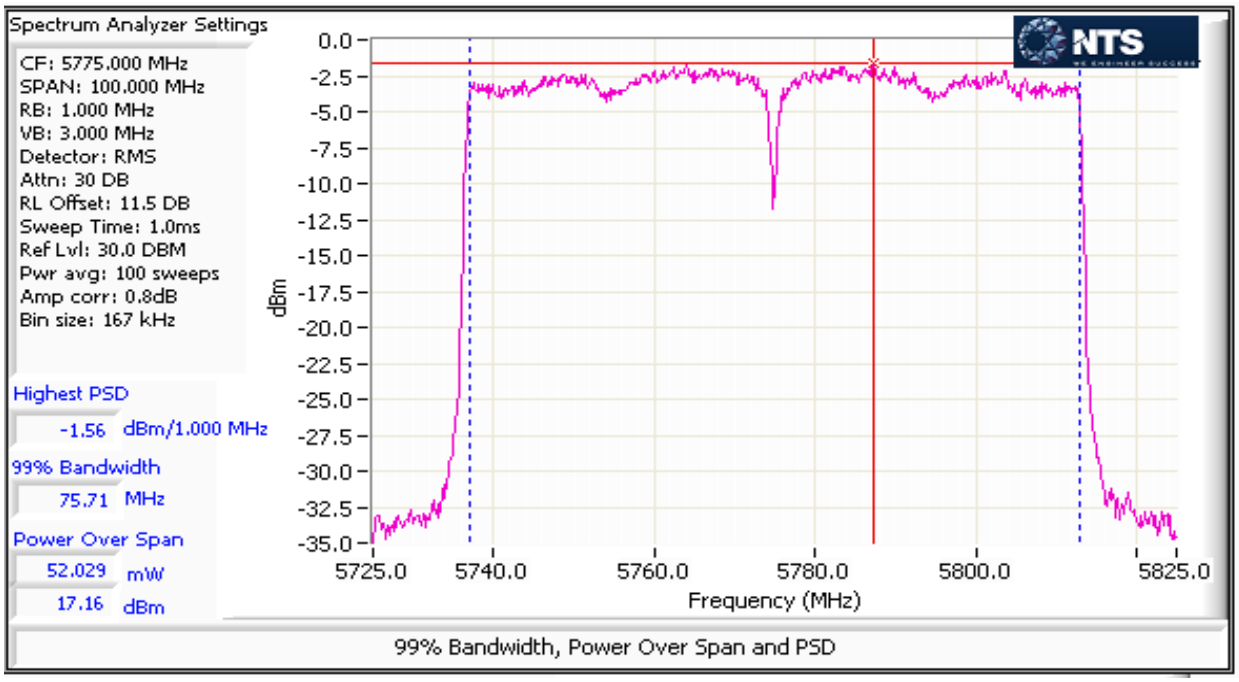


Client:	Aruba Networks	Job Number:	J96879
Model:	APINH205-2x2:2 MIMO 802.11a/b/g/n/ac Wireless Access Points	T-Log Number:	T96924
		Project Manager:	Christine Krebill
Contact:	Tian Mendez	Project Coordinator:	-
Standard:	FCC 15.247/FCC 15.407/RSS-210/LP0002	Class:	N/A

Mode: ac80

Power Setting	Frequency (MHz)	PSD (dBm/1000kHz) Note 1					Limit dBm/3kHz	Result
		Chain 1	Chain 2	Chain 3	Chain 4	Total		
-q72	5775	-2.7	-1.6			0.9	8.0	Pass

Note 1:	Test performed per method PKSPD, in KDB 558074. Power spectral density measured using: 3kHz ≤ RBW ≤ 100kHz, VBW=3*RBW, peak detector, span = 1.5*DTS BW, auto sweep time, max hold.



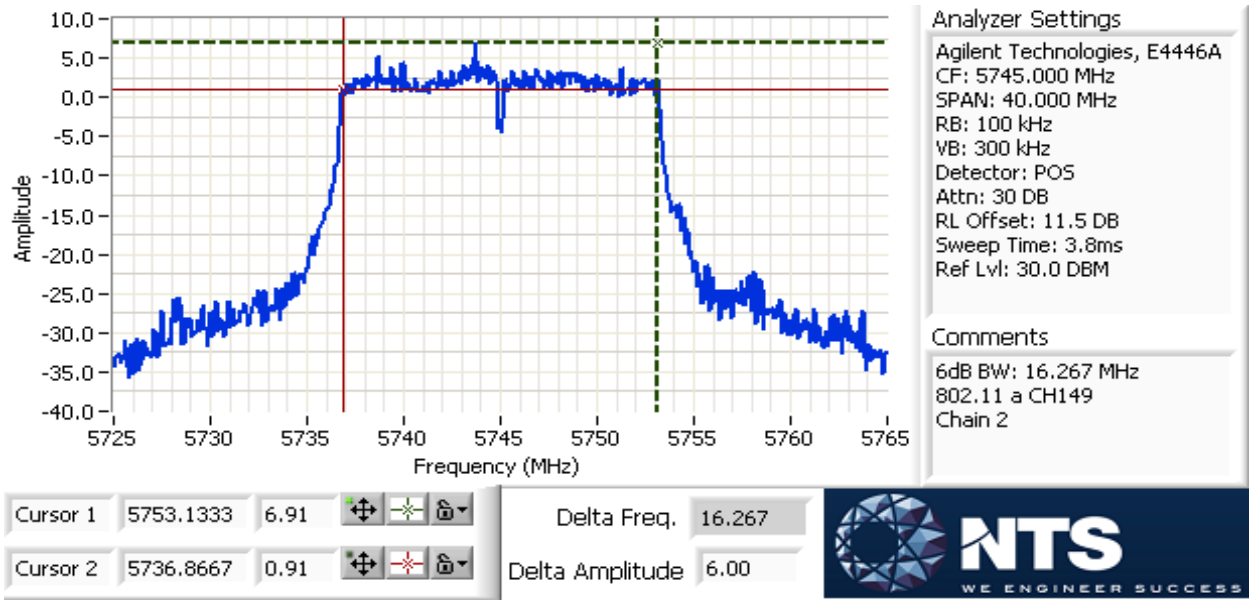
Client:	Aruba Networks	Job Number:	J96879
Model:	APINH205-2x2:2 MIMO 802.11a/b/g/n/ac Wireless Access Points	T-Log Number:	T96924
		Project Manager:	Christine Krebill
Contact:	Tian Mendez	Project Coordinator:	-
Standard:	FCC 15.247/FCC 15.407/RSS-210/LP0002	Class:	N/A

Run #3: Signal Bandwidth

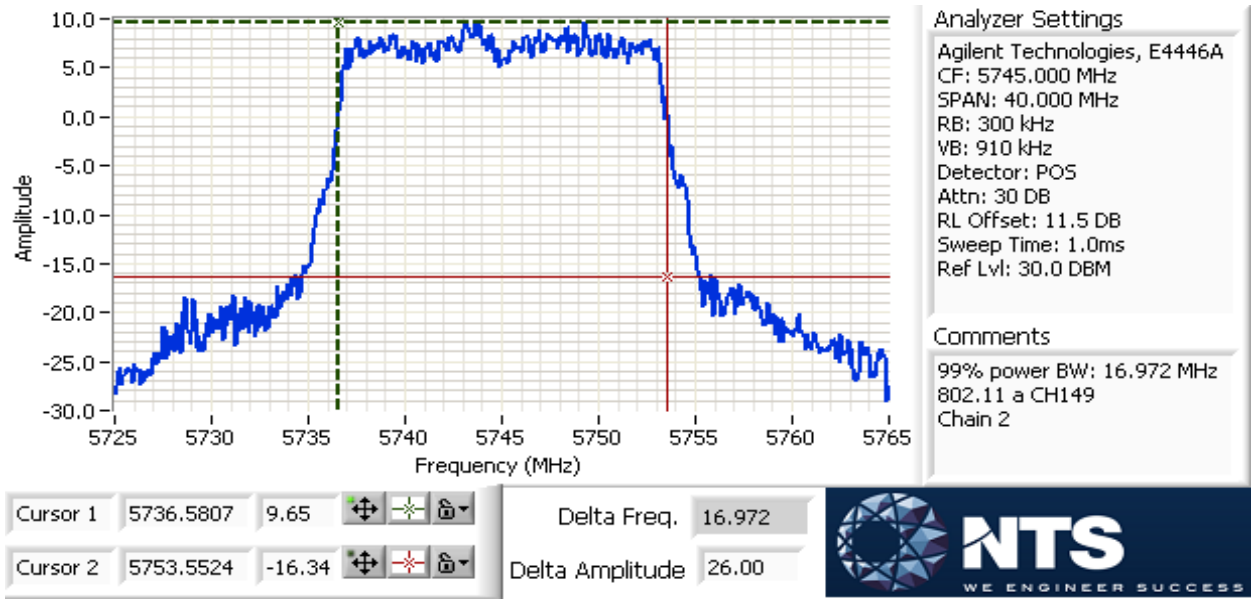
Mode: 11a

Power Setting	Frequency (MHz)	Bandwidth (MHz)		RBW Setting (MHz)	
		6dB	99%	6dB	99%
-q72	5745	16.3	17.0	0.1	0.3
-q72	5785	16.4	17.0	0.1	0.3
-q72	5825	16.4	17.0	0.1	0.3

Note 1:	DTS BW: RBW=100kHz, VBW ≥ 3*RBW, peak detector, max hold, auto sweep time. 99% BW: RBW=1-5% of of 99%BW, VBW ≥ 3*RBW, peak detector, max hold, auto sweep time.
Note 2:	Measurements performed on chain 2



Client:	Aruba Networks	Job Number:	J96879
Model:	APINH205-2x2:2 MIMO 802.11a/b/g/n/ac Wireless Access Points	T-Log Number:	T96924
		Project Manager:	Christine Krebill
Contact:	Tian Mendez	Project Coordinator:	-
Standard:	FCC 15.247/FCC 15.407/RSS-210/LP0002	Class:	N/A

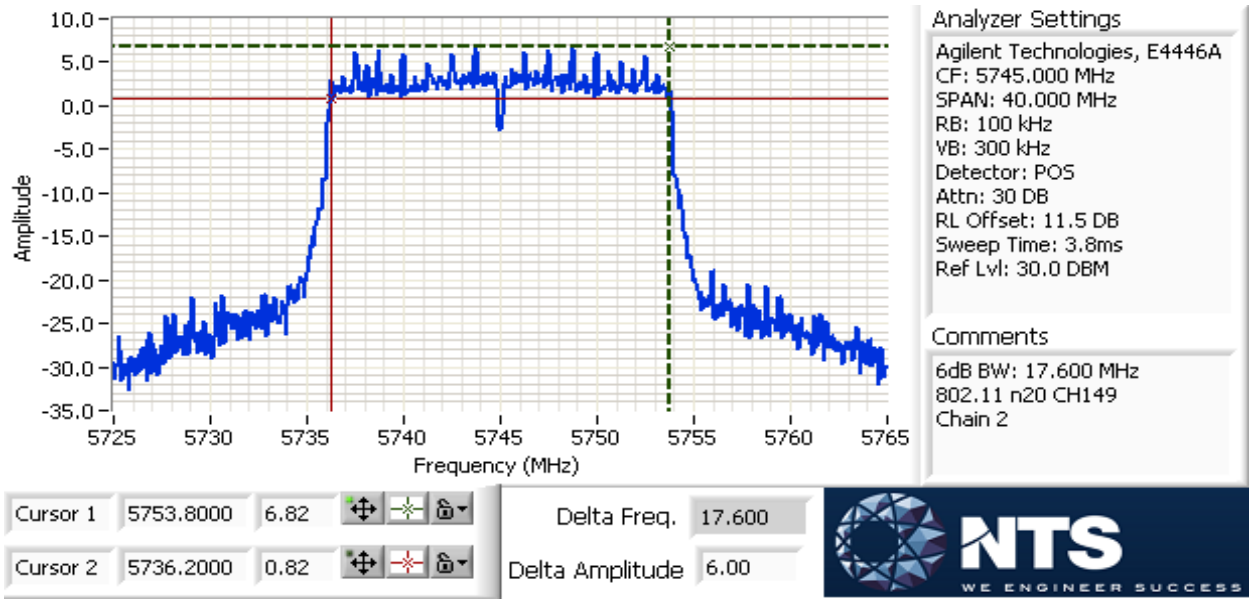


Client:	Aruba Networks	Job Number:	J96879
Model:	APINH205-2x2:2 MIMO 802.11a/b/g/n/ac Wireless Access Points	T-Log Number:	T96924
		Project Manager:	Christine Krebill
Contact:	Tian Mendez	Project Coordinator:	-
Standard:	FCC 15.247/FCC 15.407/RSS-210/LP0002	Class:	N/A

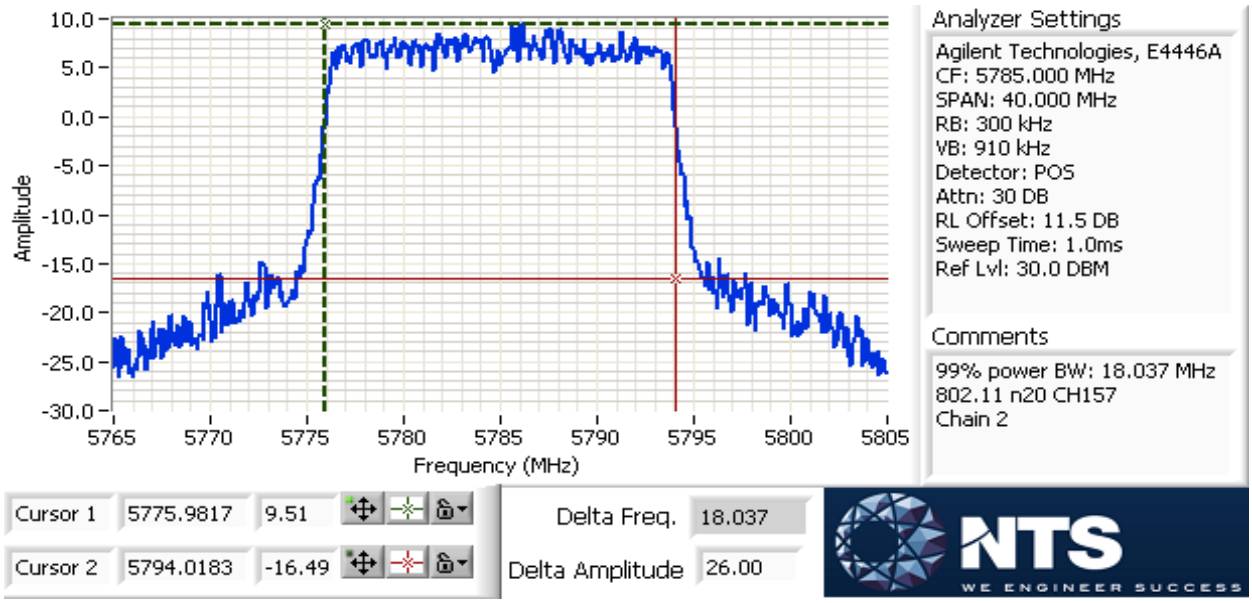
Mode: n20

Power Setting	Frequency (MHz)	Bandwidth (MHz)		RBW Setting (MHz)	
		6dB	99%	6dB	99%
-q72	5745	17.6	17.9	0.1	0.3
-q72	5785	17.6	18.0	0.1	0.3
-q72	5825	17.6	18.0	0.1	0.3

Note 1:	DTS BW: RBW=100kHz, VBW ≥ 3*RBW, peak detector, max hold, auto sweep time. 99% BW: RBW=1-5% of of 99%BW, VBW ≥ 3*RBW, peak detector, max hold, auto sweep time.
Note 2:	Measurements performed on chain 2



Client:	Aruba Networks	Job Number:	J96879
Model:	APINH205-2x2:2 MIMO 802.11a/b/g/n/ac Wireless Access Points	T-Log Number:	T96924
		Project Manager:	Christine Krebill
Contact:	Tian Mendez	Project Coordinator:	-
Standard:	FCC 15.247/FCC 15.407/RSS-210/LP0002	Class:	N/A

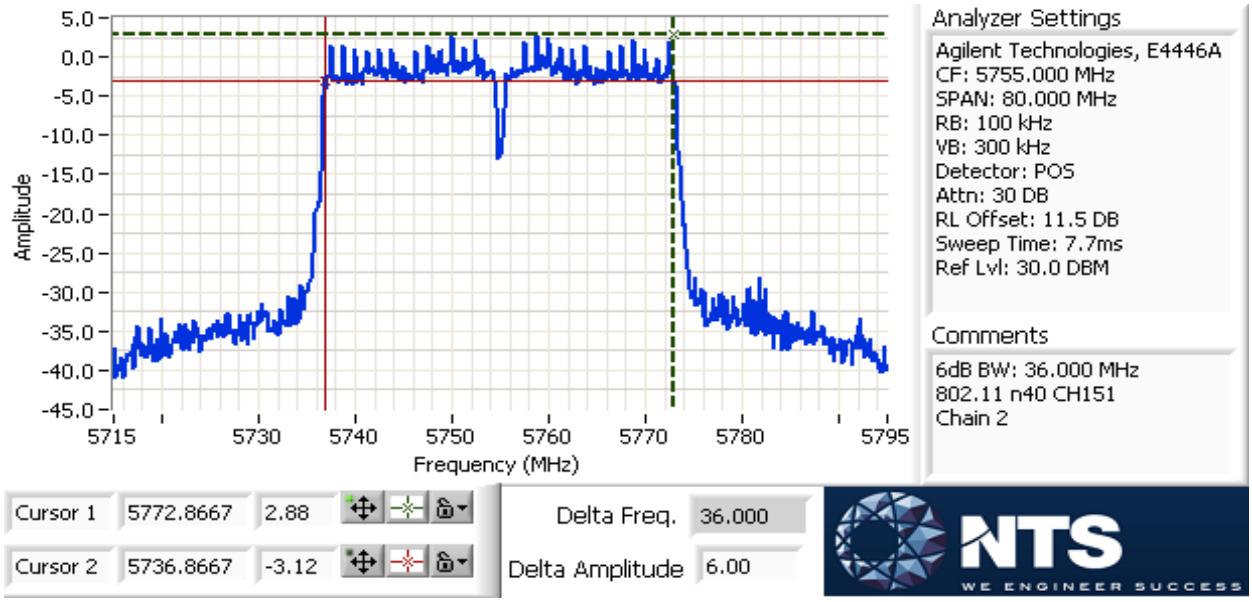


Client:	Aruba Networks	Job Number:	J96879
Model:	APINH205-2x2:2 MIMO 802.11a/b/g/n/ac Wireless Access Points	T-Log Number:	T96924
		Project Manager:	Christine Krebill
Contact:	Tian Mendez	Project Coordinator:	-
Standard:	FCC 15.247/FCC 15.407/RSS-210/LP0002	Class:	N/A

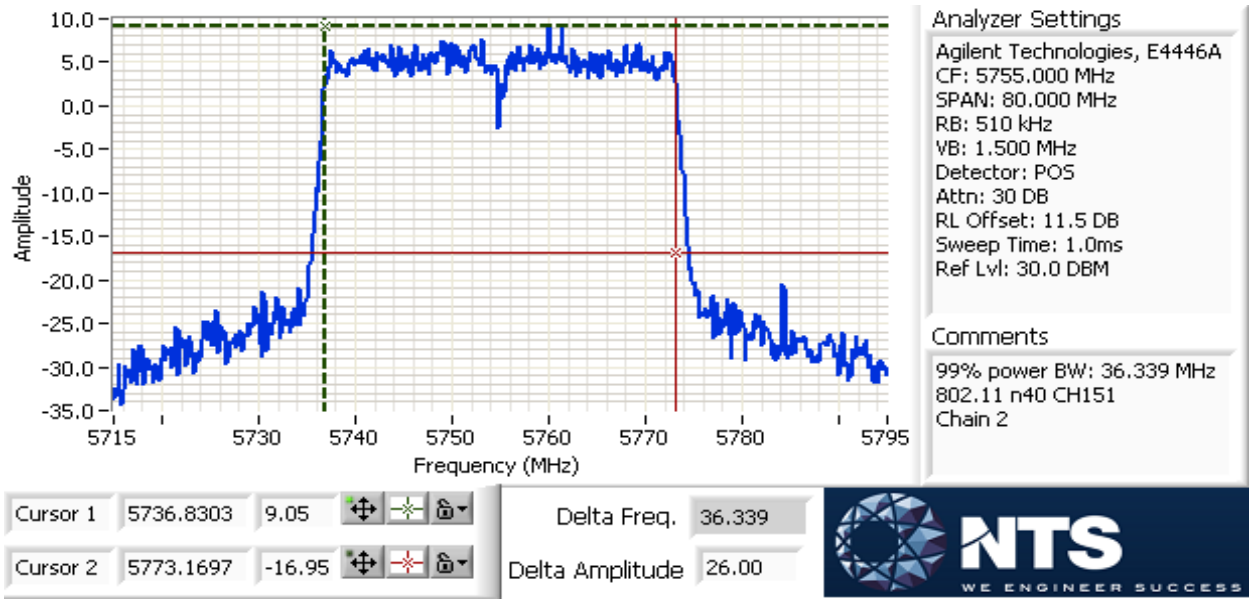
Mode: n40

Power Setting	Frequency (MHz)	Bandwidth (MHz)		RBW Setting (MHz)	
		6dB	99%	6dB	99%
-q72	5755	36.0	36.3	0.1	0.51
-q72	5795	36.3	36.3	0.1	0.51

Note 1:	DTS BW: RBW=100kHz, VBW ≥ 3*RBW, peak detector, max hold, auto sweep time. 99% BW: RBW=1-5% of of 99%BW, VBW ≥ 3*RBW, peak detector, max hold, auto sweep time.
Note 2:	Measurements performed on chain 2



Client:	Aruba Networks	Job Number:	J96879
Model:	APINH205-2x2:2 MIMO 802.11a/b/g/n/ac Wireless Access Points	T-Log Number:	T96924
		Project Manager:	Christine Krebill
Contact:	Tian Mendez	Project Coordinator:	-
Standard:	FCC 15.247/FCC 15.407/RSS-210/LP0002	Class:	N/A

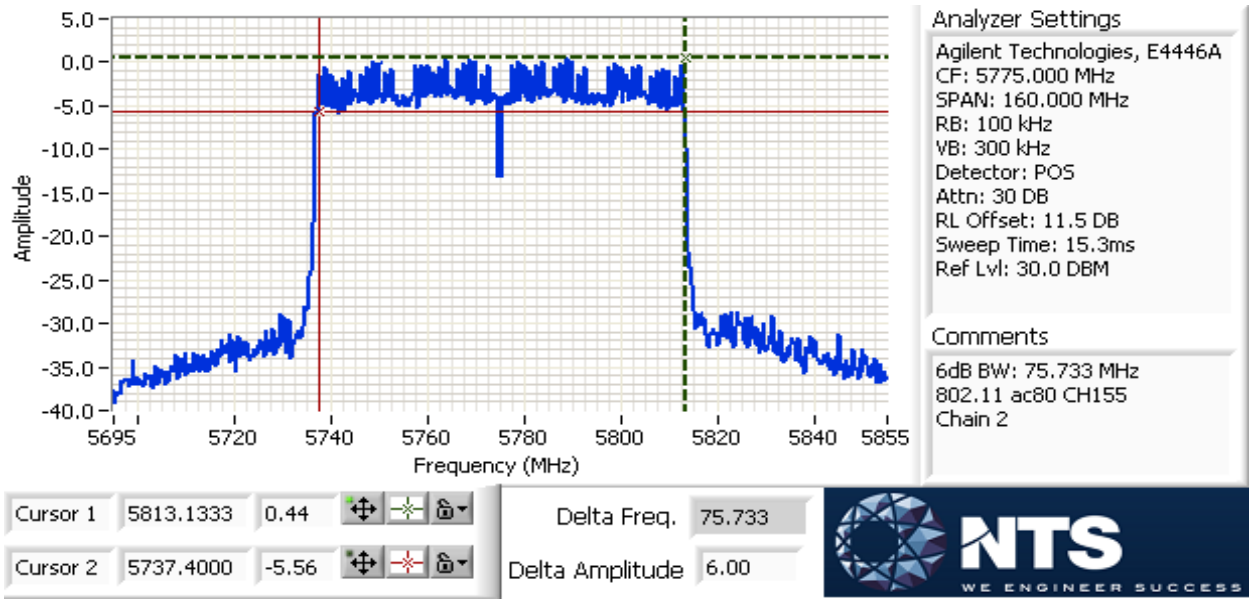


Client:	Aruba Networks	Job Number:	J96879
Model:	APINH205-2x2:2 MIMO 802.11a/b/g/n/ac Wireless Access Points	T-Log Number:	T96924
		Project Manager:	Christine Krebill
Contact:	Tian Mendez	Project Coordinator:	-
Standard:	FCC 15.247/FCC 15.407/RSS-210/LP0002	Class:	N/A

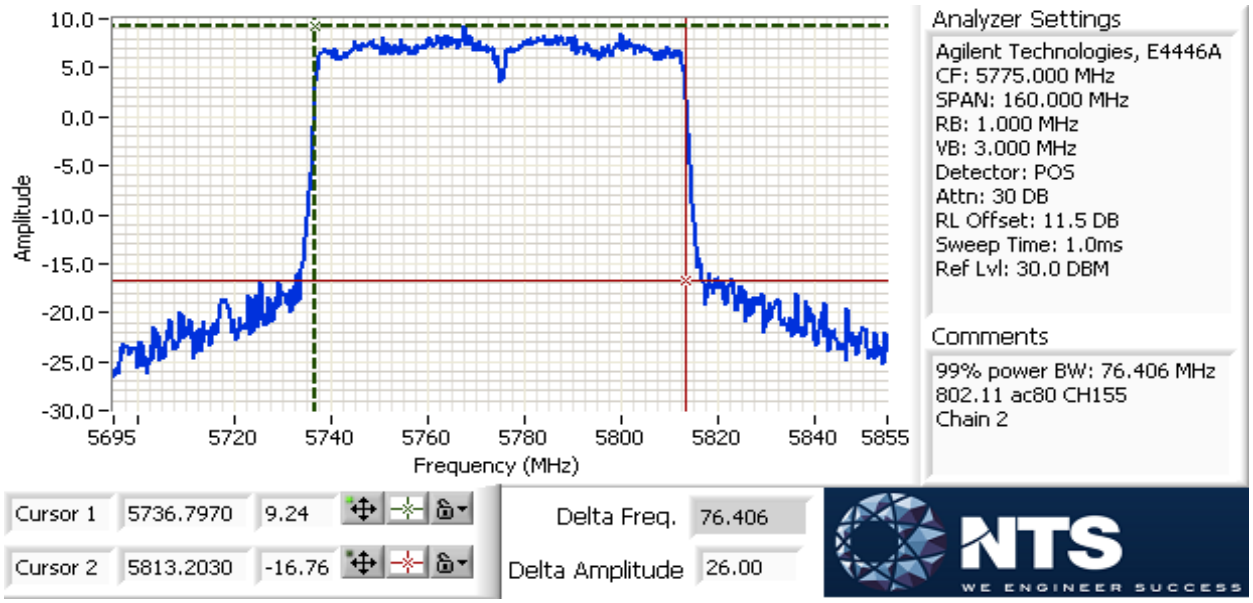
Mode: ac80

Power Setting	Frequency (MHz)	Bandwidth (MHz)		RBW Setting (MHz)	
		6dB	99%	6dB	99%
-q72	5775	75.7	76.4	0.1	1

Note 1:	DTS BW: RBW=100kHz, VBW ≥ 3*RBW, peak detector, max hold, auto sweep time. 99% BW: RBW=1-5% of of 99%BW, VBW ≥ 3*RBW, peak detector, max hold, auto sweep time.
Note 2:	Measurements performed on chain 2



Client:	Aruba Networks	Job Number:	J96879
Model:	APINH205-2x2:2 MIMO 802.11a/b/g/n/ac Wireless Access Points	T-Log Number:	T96924
		Project Manager:	Christine Krebill
Contact:	Tian Mendez	Project Coordinator:	-
Standard:	FCC 15.247/FCC 15.407/RSS-210/LP0002	Class:	N/A



Client:	Aruba Networks	Job Number:	J96879
Model:	APINH205-2x2:2 MIMO 802.11a/b/g/n/ac Wireless Access Points	T-Log Number:	T96924
		Project Manager:	Christine Krebill
Contact:	Tian Mendez	Project Coordinator:	-
Standard:	FCC 15.247/FCC 15.407/RSS-210/LP0002	Class:	N/A

Run #4a: Out of Band Spurious Emissions

Power Setting Per Chain #1	#2	#3	#4	Mode	Frequency (MHz)	Limit	Result
-q72				11a	5745	-30	Pass
-q72				11a	5785	-30	Pass
-q72				11a	5825	-30	Pass
-q72				n20	5745	-30	Pass
-q72				n20	5785	-30	Pass
-q72				n20	5825	-30	Pass
-q72				n40	5755	-30	Pass
-q72				n40	5795	-30	Pass
-q72				ac80	5775	-30	Pass

Note 1:	Measured on each chain individually
Note:	All measurements/plots performed using RBW=100kHz, VBW=300kHz, peak detector, max hold

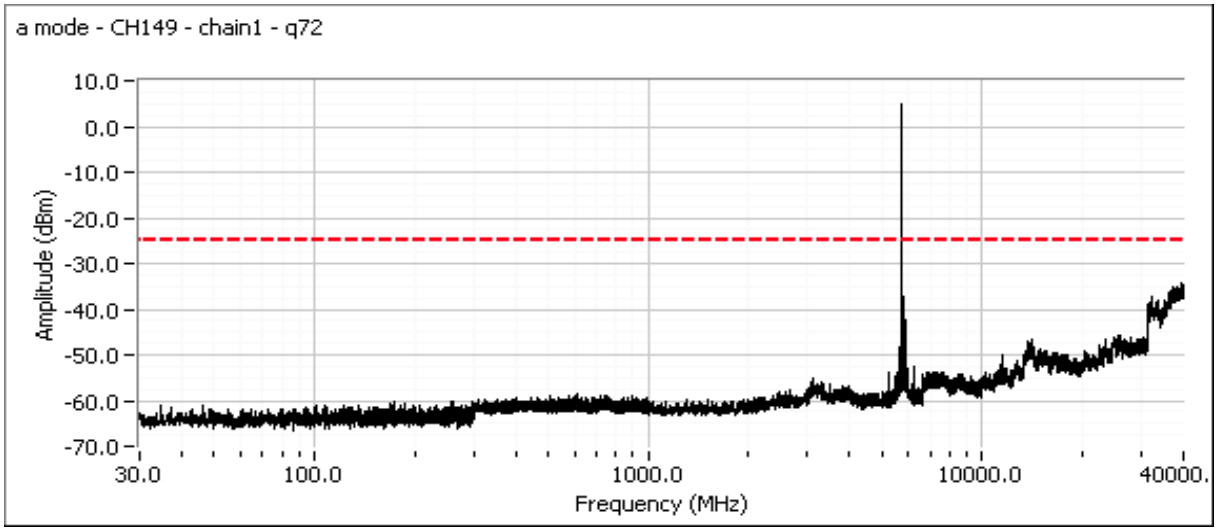
Client:	Aruba Networks	Job Number:	J96879
Model:	APINH205-2x2:2 MIMO 802.11a/b/g/n/ac Wireless Access Points	T-Log Number:	T96924
		Project Manager:	Christine Krebill
Contact:	Tian Mendez	Project Coordinator:	-
Standard:	FCC 15.247/FCC 15.407/RSS-210/LP0002	Class:	N/A

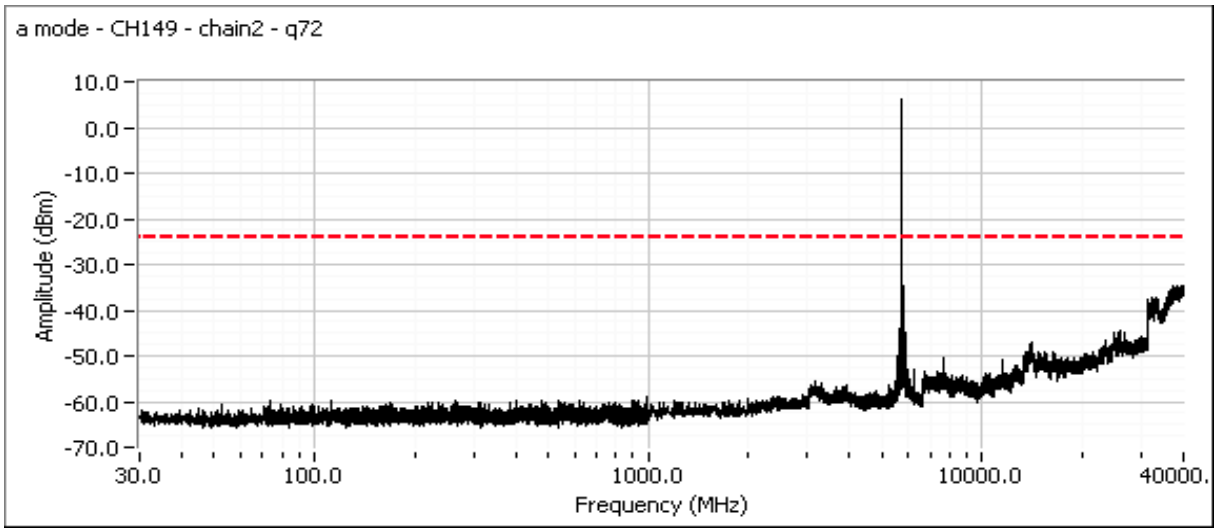
Power Setting Per #1	Power Setting Per #2	Band Edge Frequency (MHz)	Frequency (MHz)	In band Level (dBm)	Outside the band Level (dBm)	Delta dBc	Limit dBc	Result
a mode								
-q72		5725	5745	7.1	-33.1	40.2	30	Pass
-q72		-	5785	7.0				
-q72		5850	5825	7.0	-38.2	45.3	30	Pass
	-q72	5725	5745	7.8	-29.5	37.3	30	Pass
	-q72	-	5785	7.4				
	-q72	5850	5825	7.6	-37.4	45.3	30	Pass
n20 mode								
-q72		5725	5745	6.9	-28.1	35.4	30	Pass
-q72		-	5785	6.9				
-q72		5850	5825	7.3	-39.0	46.3	30	Pass
	-q72	5725	5745	7.3	-29.7	37.5	30	Pass
	-q72	-	5785	7.6				
	-q72	5850	5825	7.7	-36.4	44.2	30	Pass
n40 mode								
-q72		5725	5755	3.0	-32.1	35.1	30	Pass
-q72		5850	5795	2.9	-43.0	46.0	30	Pass
	-q72	5725	5755	3.7	-31.8	35.4	30	Pass
	-q72	5850	5795	3.4	-43.2	46.8	30	Pass
ac80 mode								
-q72		5725	5775	0.6	-32.3	33.0	30	Pass
-q72		5850	5775	0.6	-35.6	36.3	30	Pass
	-q72	5725	5775	1.1	-30.1	31.3	30	Pass
	-q72	5850	5775	1.1	-31.8	32.9	30	Pass

Note: Delta calculated from the maximum in-band level across all channels for a particular mode minus the out-of-band level observed.

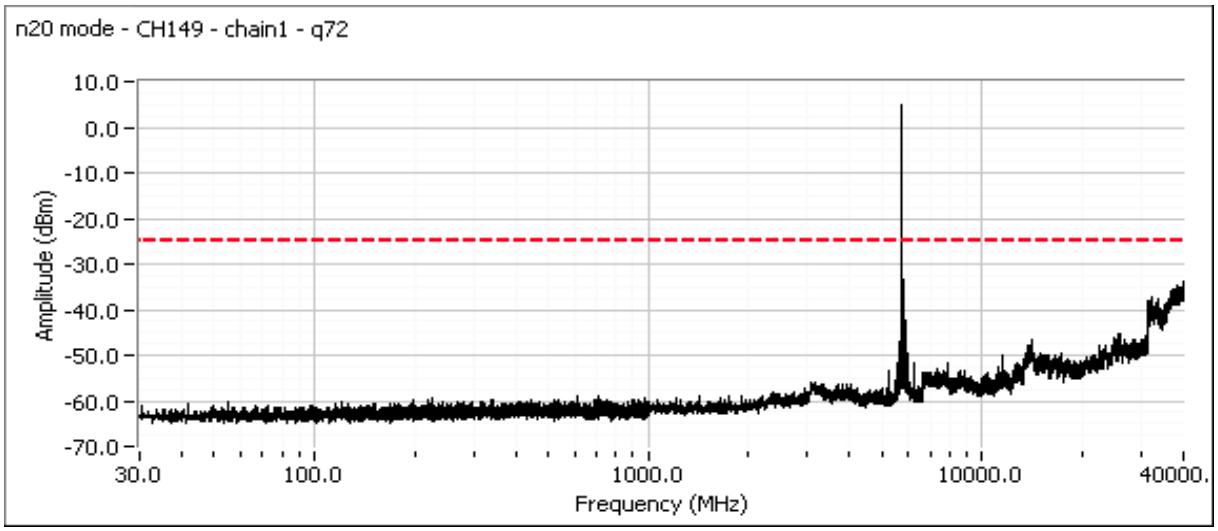
Client:	Aruba Networks	Job Number:	J96879
Model:	APINH205-2x2:2 MIMO 802.11a/b/g/n/ac Wireless Access Points	T-Log Number:	T96924
		Project Manager:	Christine Krebill
Contact:	Tian Mendez	Project Coordinator:	-
Standard:	FCC 15.247/FCC 15.407/RSS-210/LP0002	Class:	N/A

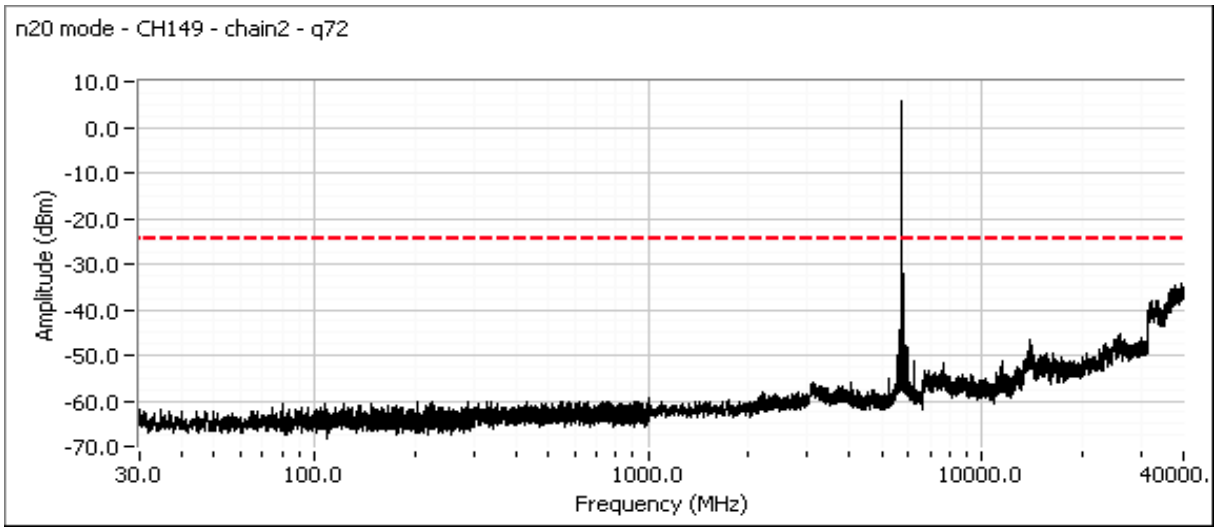
Plots for low channel



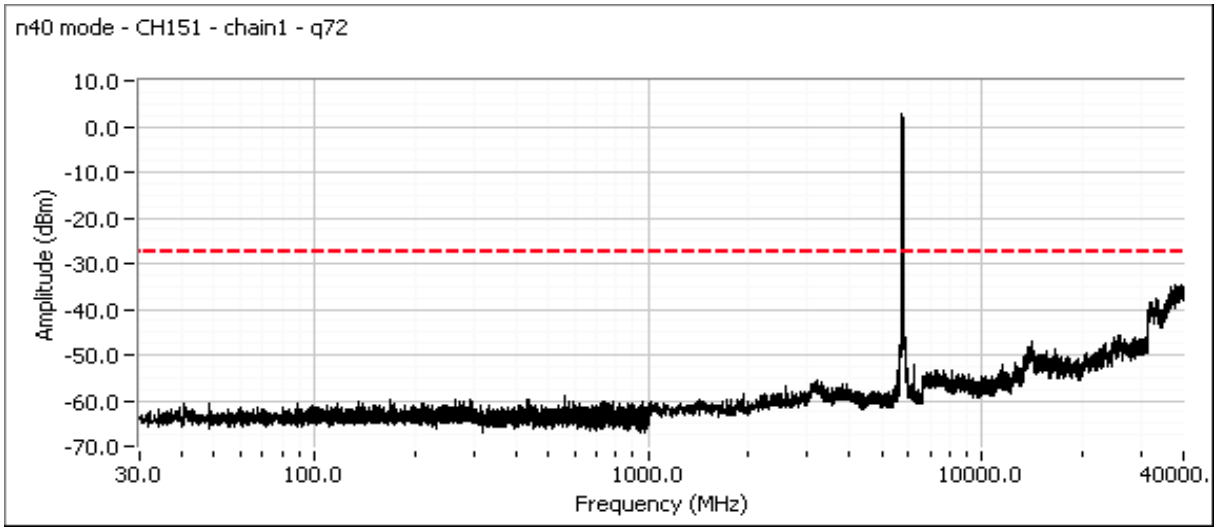


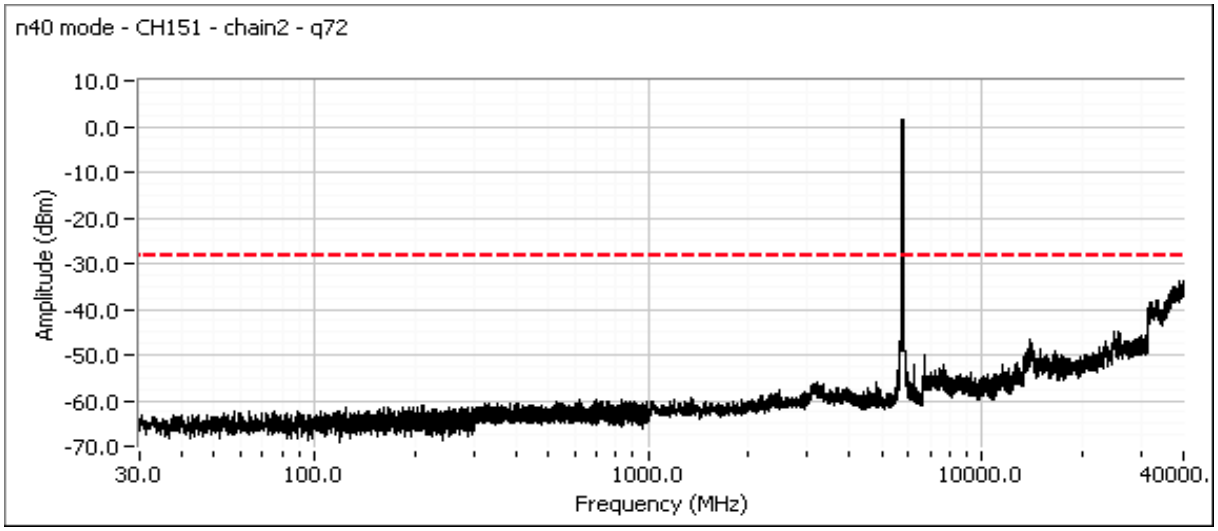
Client:	Aruba Networks	Job Number:	J96879
Model:	APINH205-2x2:2 MIMO 802.11a/b/g/n/ac Wireless Access Points	T-Log Number:	T96924
		Project Manager:	Christine Krebill
Contact:	Tian Mendez	Project Coordinator:	-
Standard:	FCC 15.247/FCC 15.407/RSS-210/LP0002	Class:	N/A





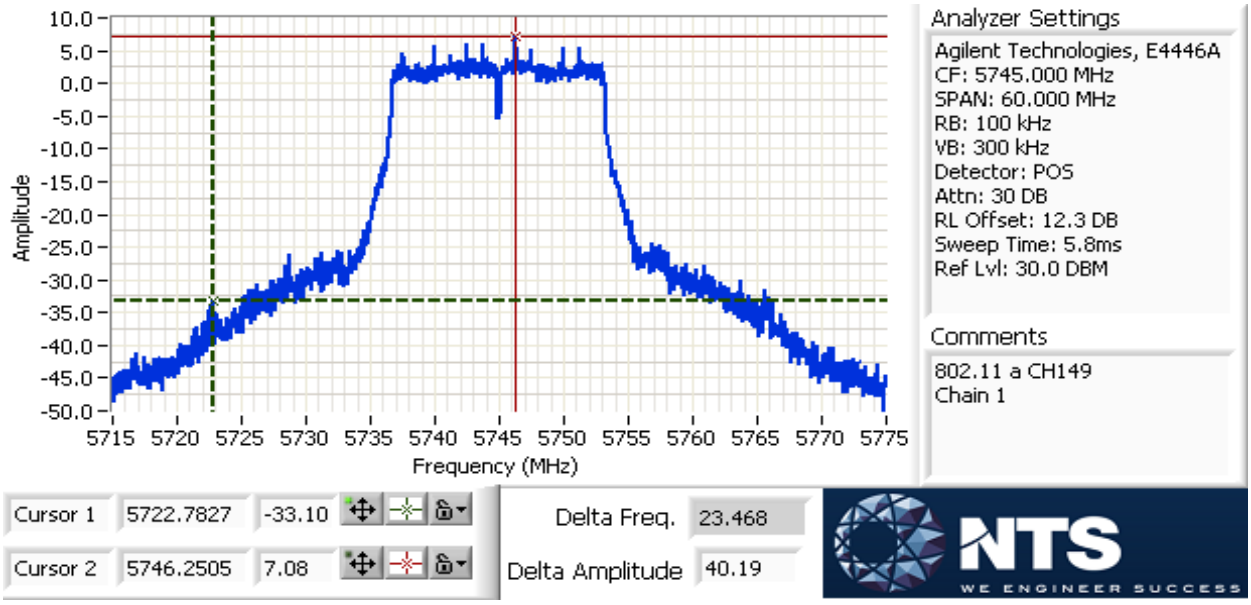
Client:	Aruba Networks	Job Number:	J96879
Model:	APINH205-2x2:2 MIMO 802.11a/b/g/n/ac Wireless Access Points	T-Log Number:	T96924
		Project Manager:	Christine Krebill
Contact:	Tian Mendez	Project Coordinator:	-
Standard:	FCC 15.247/FCC 15.407/RSS-210/LP0002	Class:	N/A

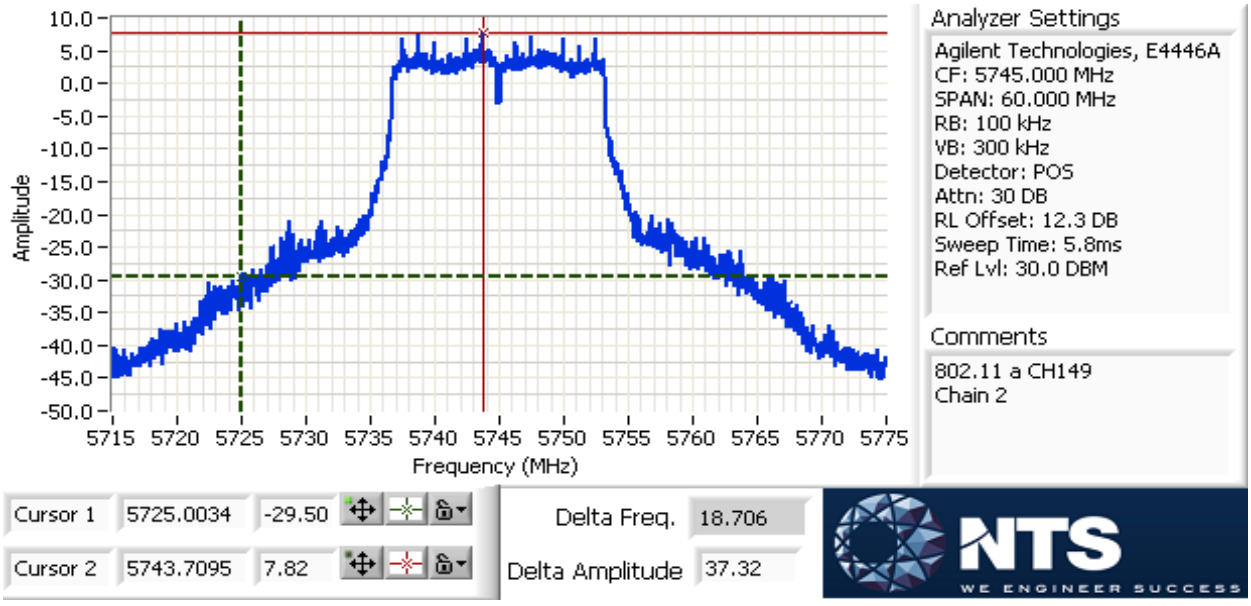




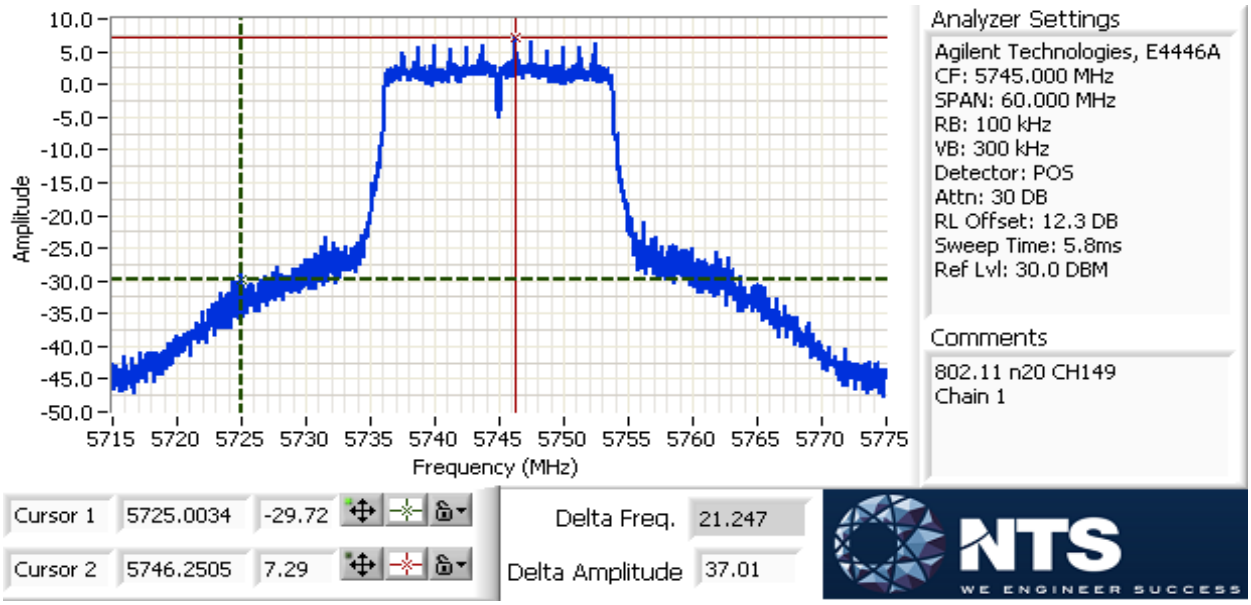
Client:	Aruba Networks	Job Number:	J96879
Model:	APINH205-2x2:2 MIMO 802.11a/b/g/n/ac Wireless Access Points	T-Log Number:	T96924
		Project Manager:	Christine Krebill
Contact:	Tian Mendez	Project Coordinator:	-
Standard:	FCC 15.247/FCC 15.407/RSS-210/LP0002	Class:	N/A

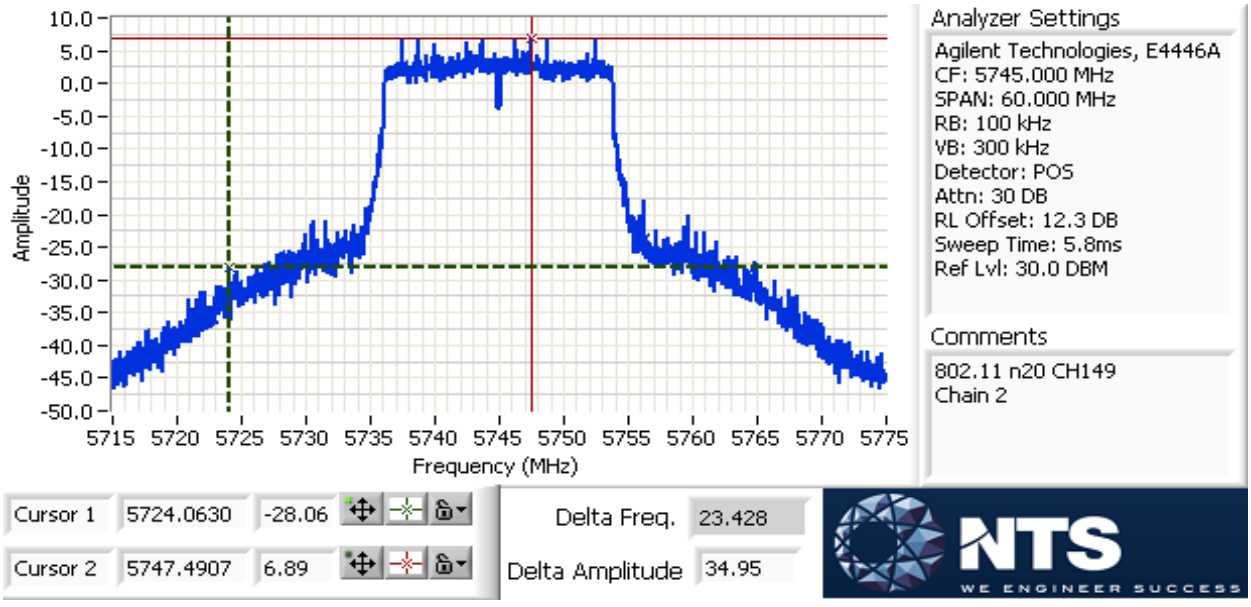
Additional plot from 5715 - 5755 MHz showing compliance with -30dBc at the band edge.



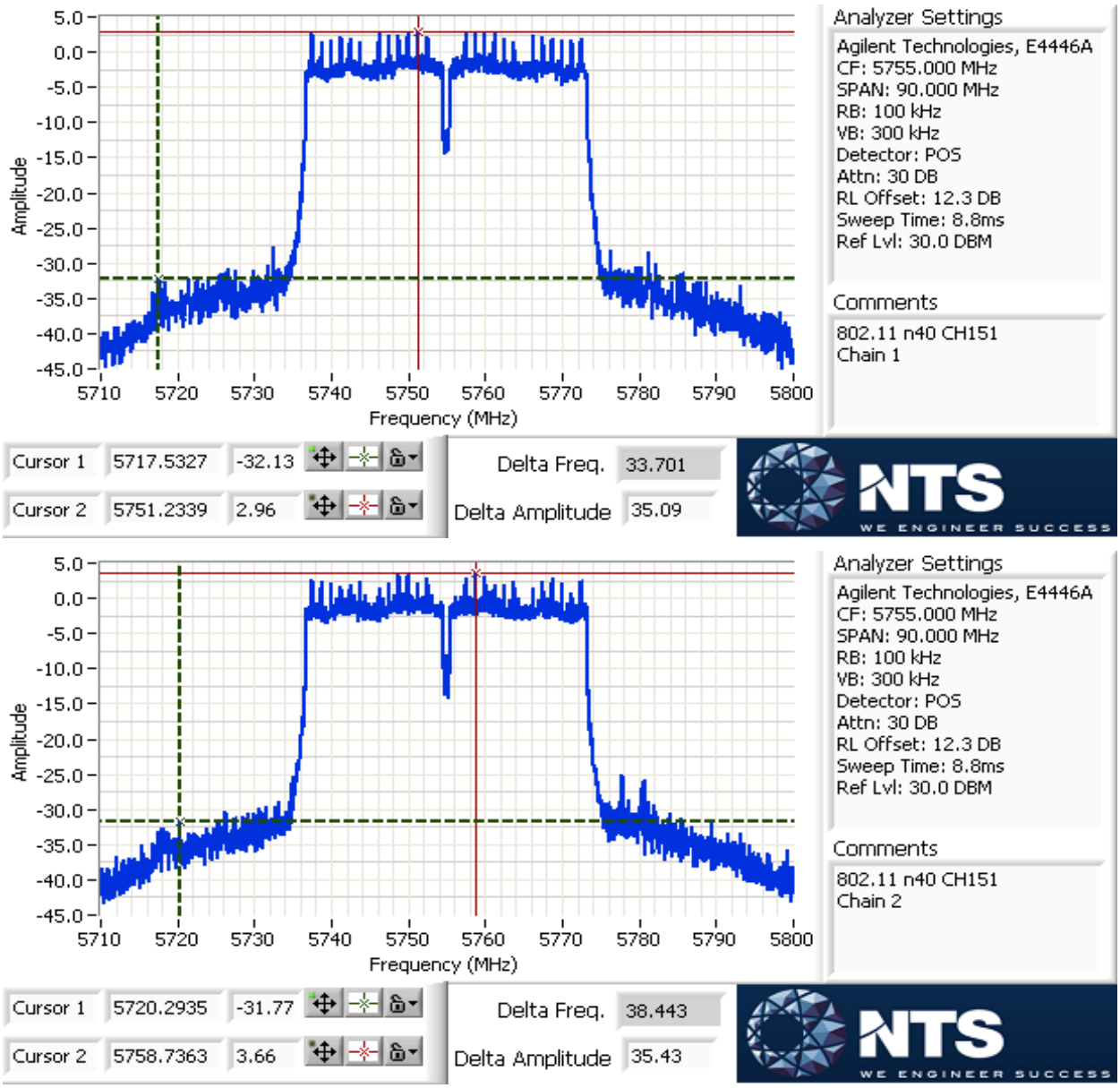


Client:	Aruba Networks	Job Number:	J96879
Model:	APINH205-2x2:2 MIMO 802.11a/b/g/n/ac Wireless Access Points	T-Log Number:	T96924
		Project Manager:	Christine Krebill
Contact:	Tian Mendez	Project Coordinator:	-
Standard:	FCC 15.247/FCC 15.407/RSS-210/LP0002	Class:	N/A

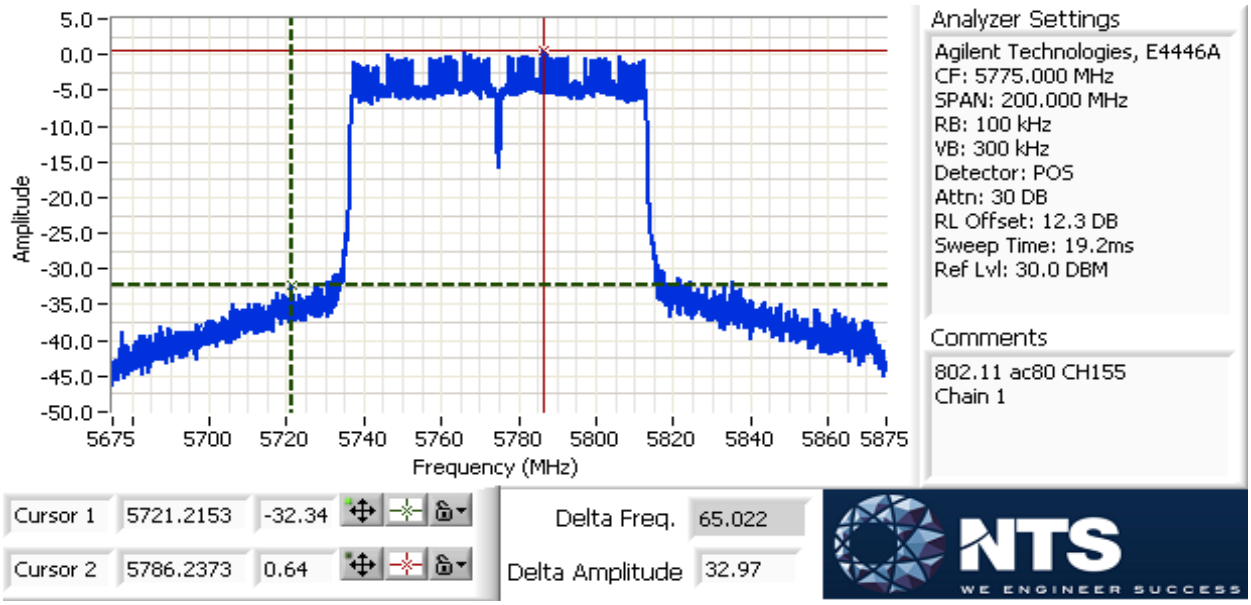


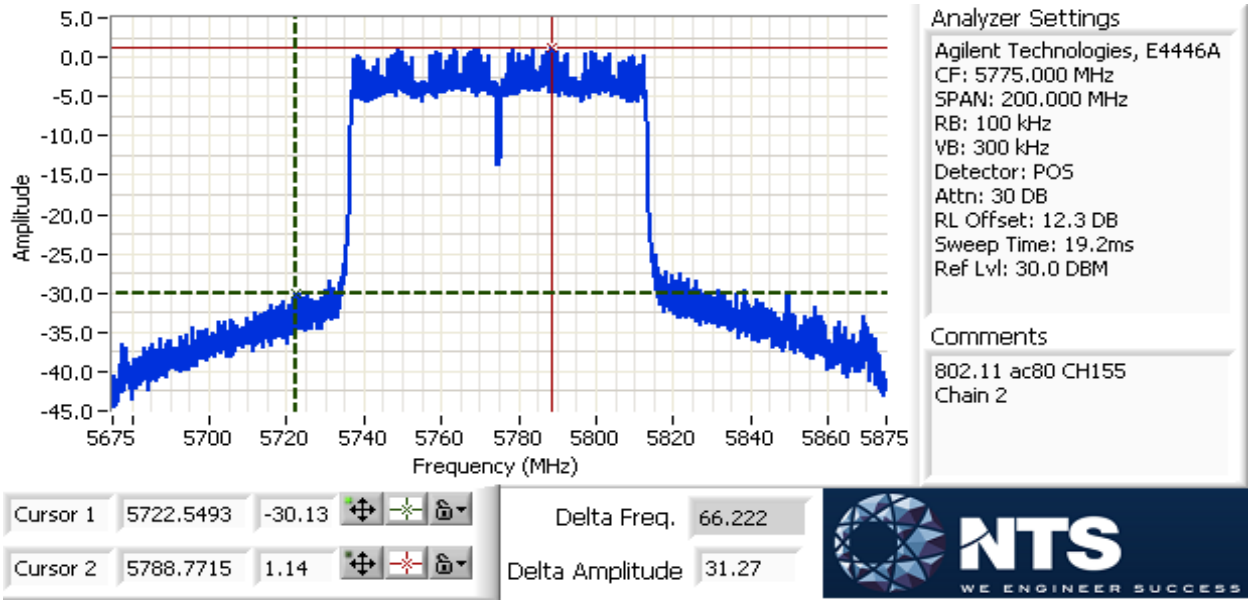


Client:	Aruba Networks	Job Number:	J96879
Model:	APINH205-2x2:2 MIMO 802.11a/b/g/n/ac Wireless Access Points	T-Log Number:	T96924
		Project Manager:	Christine Krebill
Contact:	Tian Mendez	Project Coordinator:	-
Standard:	FCC 15.247/FCC 15.407/RSS-210/LP0002	Class:	N/A



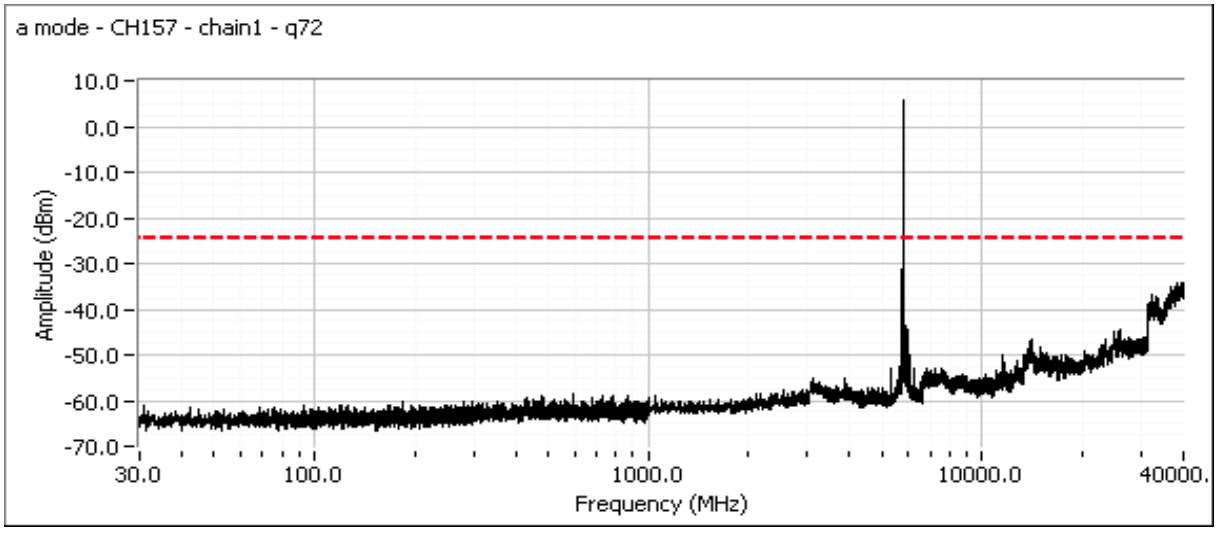
Client:	Aruba Networks	Job Number:	J96879
Model:	APINH205-2x2:2 MIMO 802.11a/b/g/n/ac Wireless Access Points	T-Log Number:	T96924
		Project Manager:	Christine Krebill
Contact:	Tian Mendez	Project Coordinator:	-
Standard:	FCC 15.247/FCC 15.407/RSS-210/LP0002	Class:	N/A

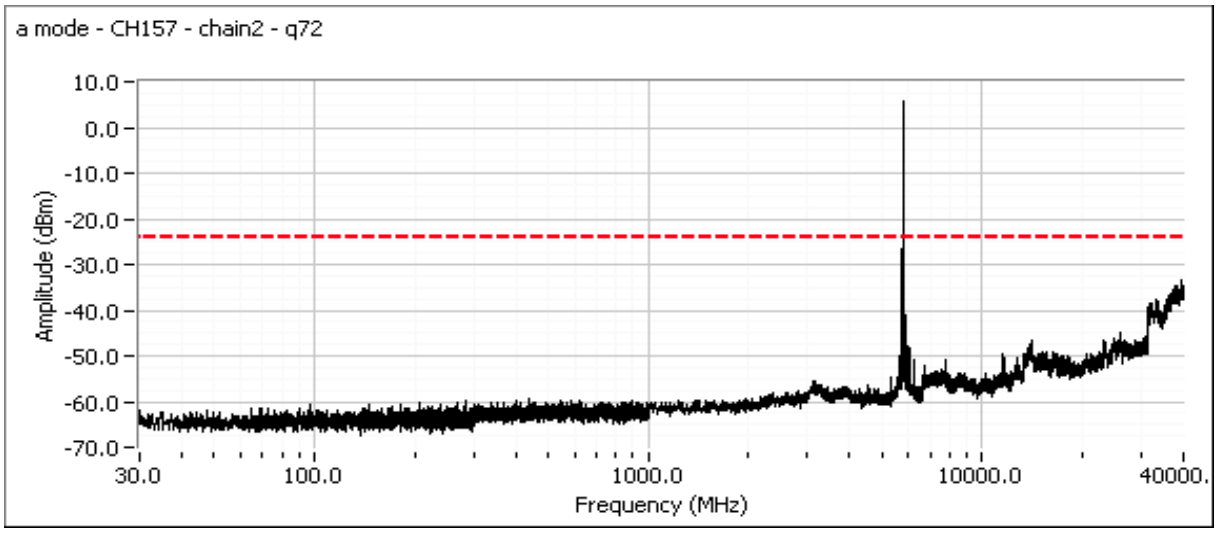




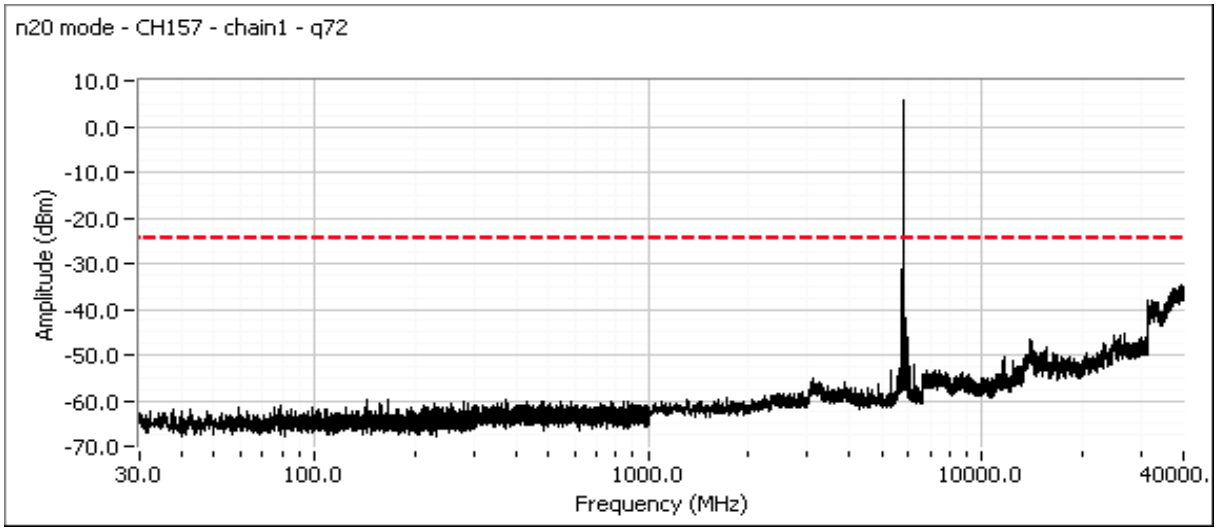
Client:	Aruba Networks	Job Number:	J96879
Model:	APINH205-2x2:2 MIMO 802.11a/b/g/n/ac Wireless Access Points	T-Log Number:	T96924
		Project Manager:	Christine Krebill
Contact:	Tian Mendez	Project Coordinator:	-
Standard:	FCC 15.247/FCC 15.407/RSS-210/LP0002	Class:	N/A

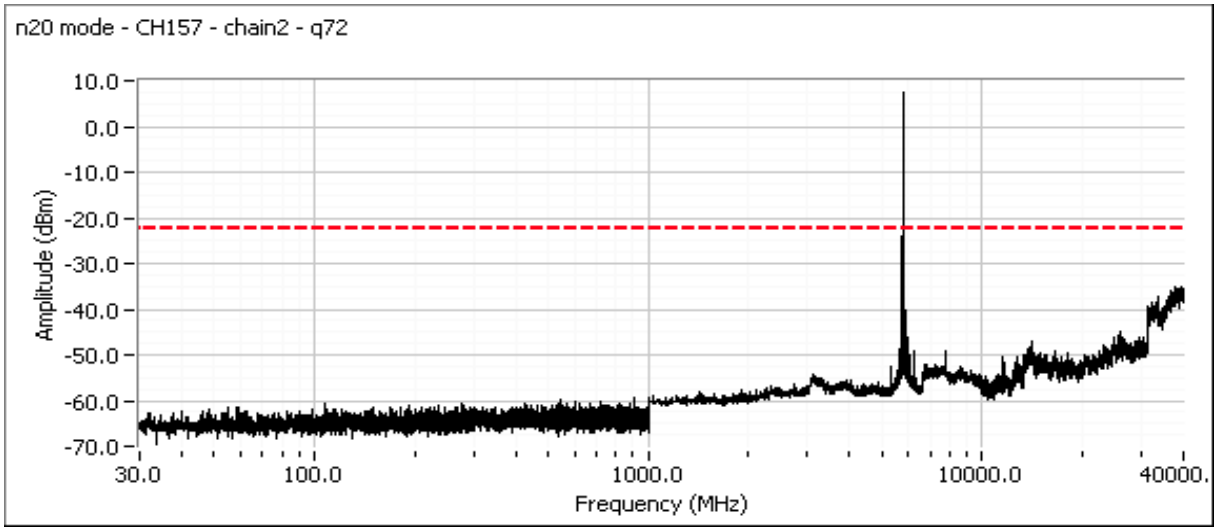
Plots for center channel





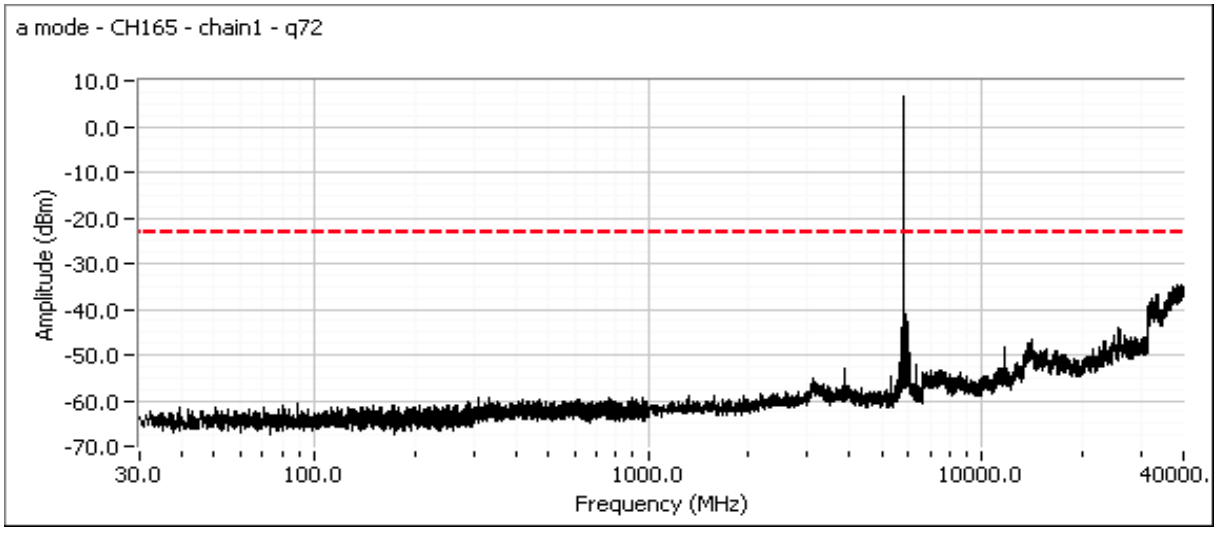
Client:	Aruba Networks	Job Number:	J96879
Model:	APINH205-2x2:2 MIMO 802.11a/b/g/n/ac Wireless Access Points	T-Log Number:	T96924
		Project Manager:	Christine Krebill
Contact:	Tian Mendez	Project Coordinator:	-
Standard:	FCC 15.247/FCC 15.407/RSS-210/LP0002	Class:	N/A

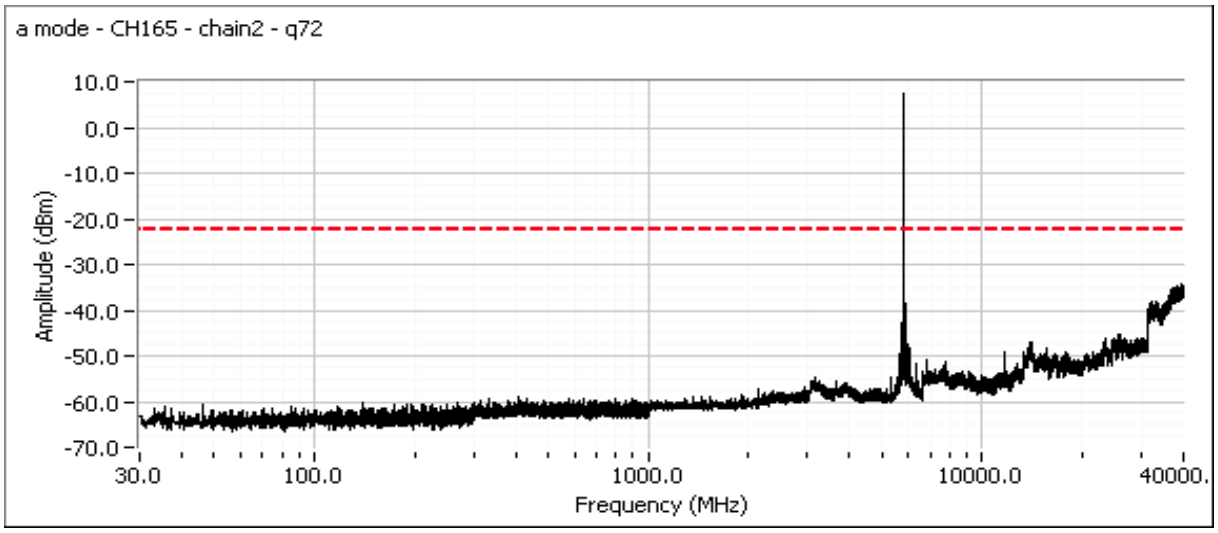




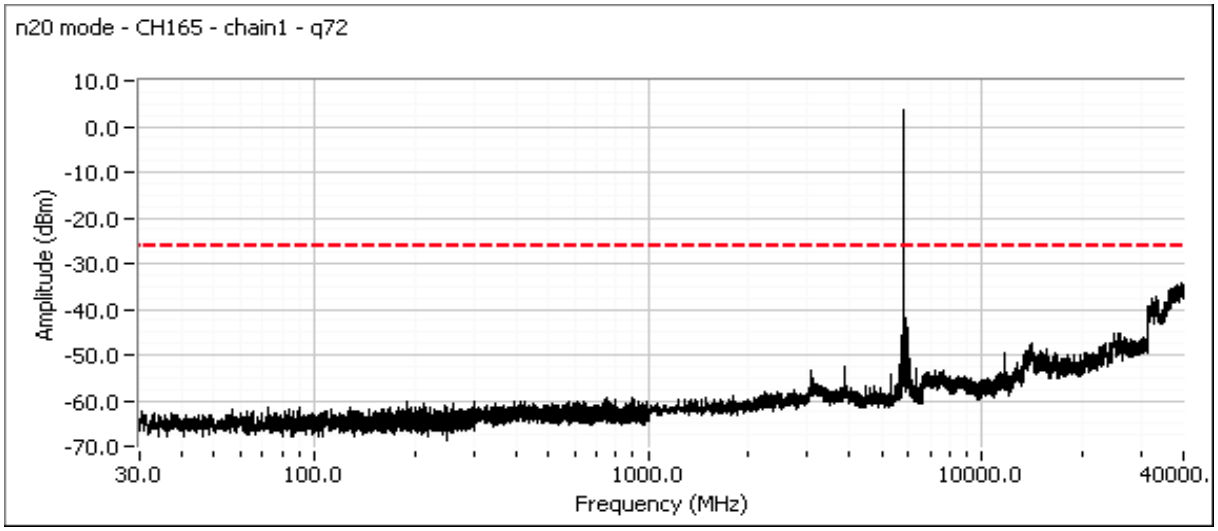
Client:	Aruba Networks	Job Number:	J96879
Model:	APINH205-2x2:2 MIMO 802.11a/b/g/n/ac Wireless Access Points	T-Log Number:	T96924
		Project Manager:	Christine Krebill
Contact:	Tian Mendez	Project Coordinator:	-
Standard:	FCC 15.247/FCC 15.407/RSS-210/LP0002	Class:	N/A

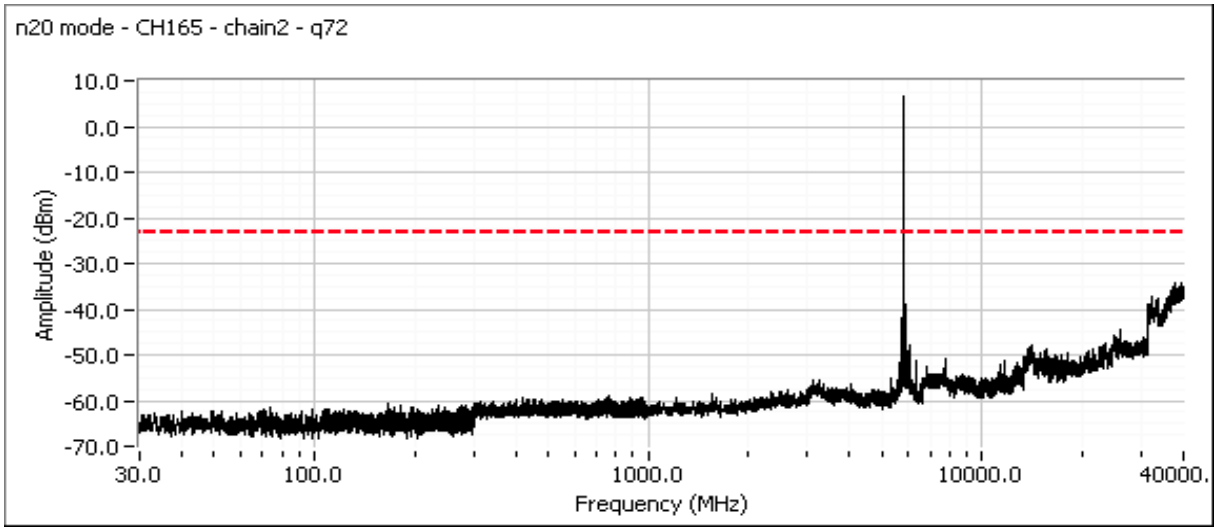
Plots for high channel



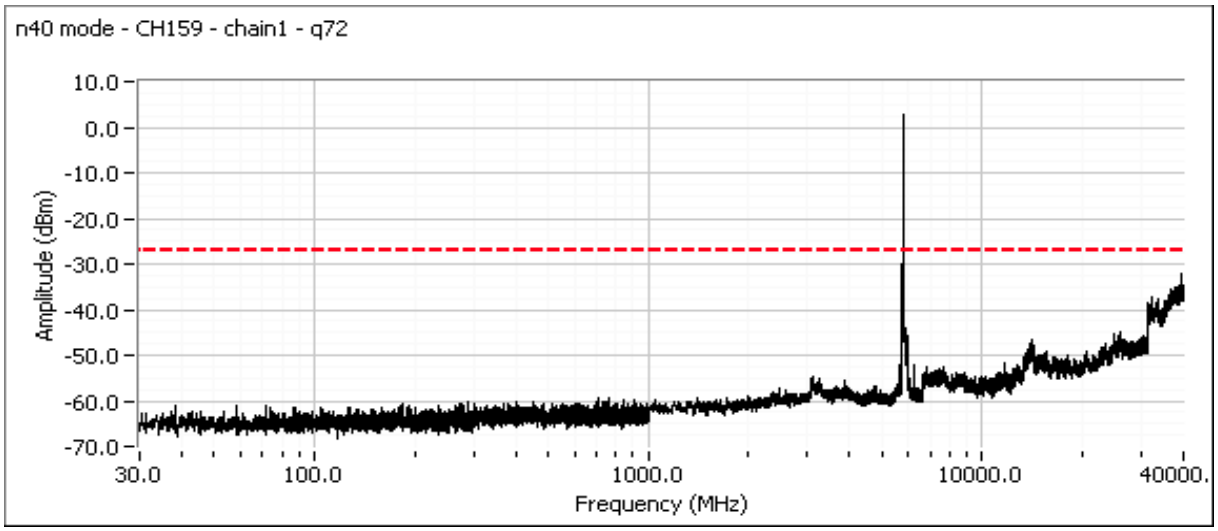


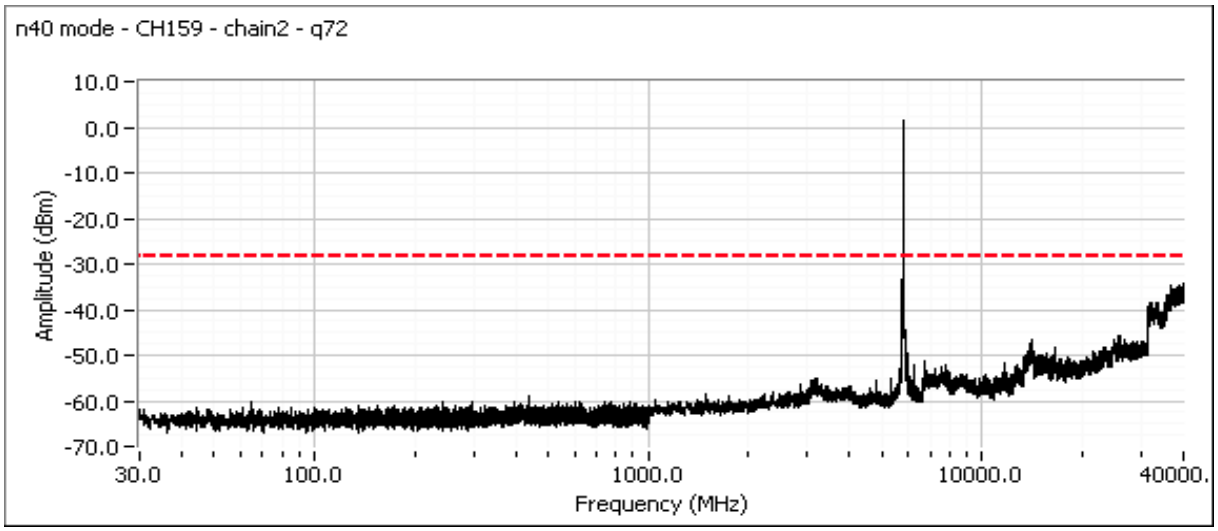
Client:	Aruba Networks	Job Number:	J96879
Model:	APINH205-2x2:2 MIMO 802.11a/b/g/n/ac Wireless Access Points	T-Log Number:	T96924
		Project Manager:	Christine Krebill
Contact:	Tian Mendez	Project Coordinator:	-
Standard:	FCC 15.247/FCC 15.407/RSS-210/LP0002	Class:	N/A



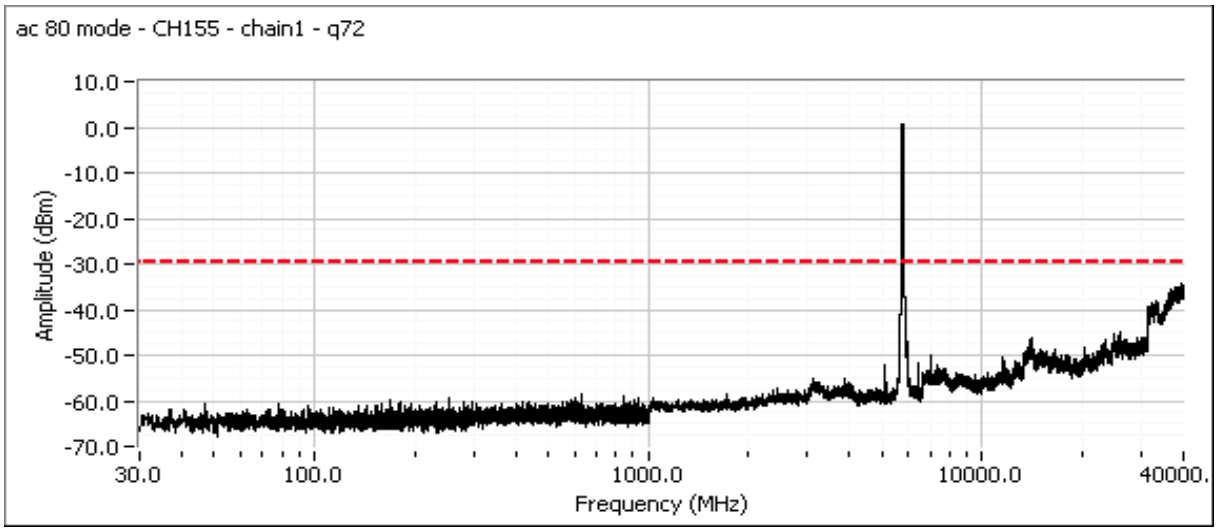


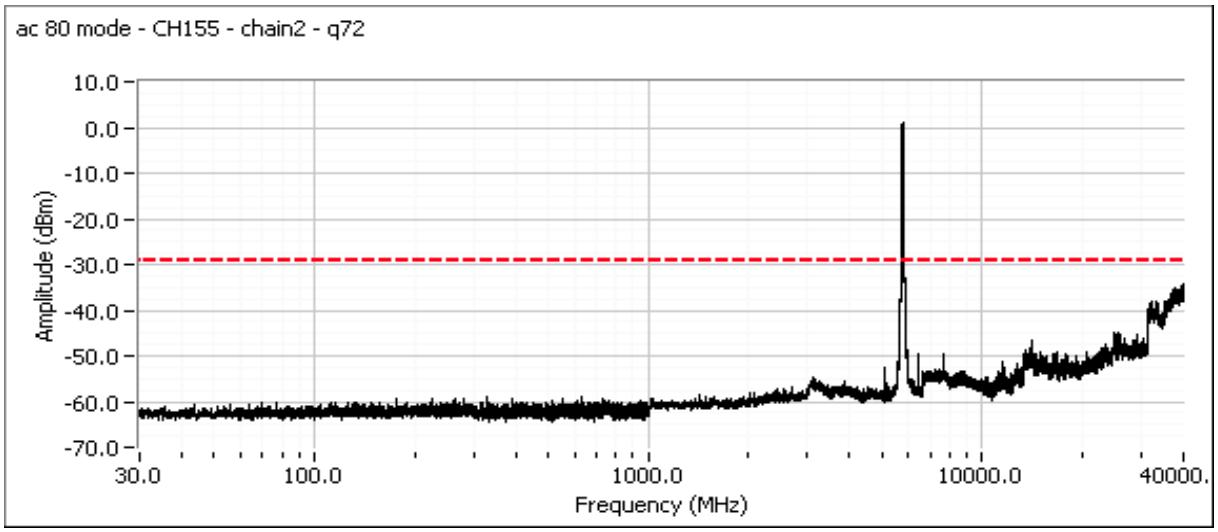
Client:	Aruba Networks	Job Number:	J96879
Model:	APINH205-2x2:2 MIMO 802.11a/b/g/n/ac Wireless Access Points	T-Log Number:	T96924
		Project Manager:	Christine Krebill
Contact:	Tian Mendez	Project Coordinator:	-
Standard:	FCC 15.247/FCC 15.407/RSS-210/LP0002	Class:	N/A





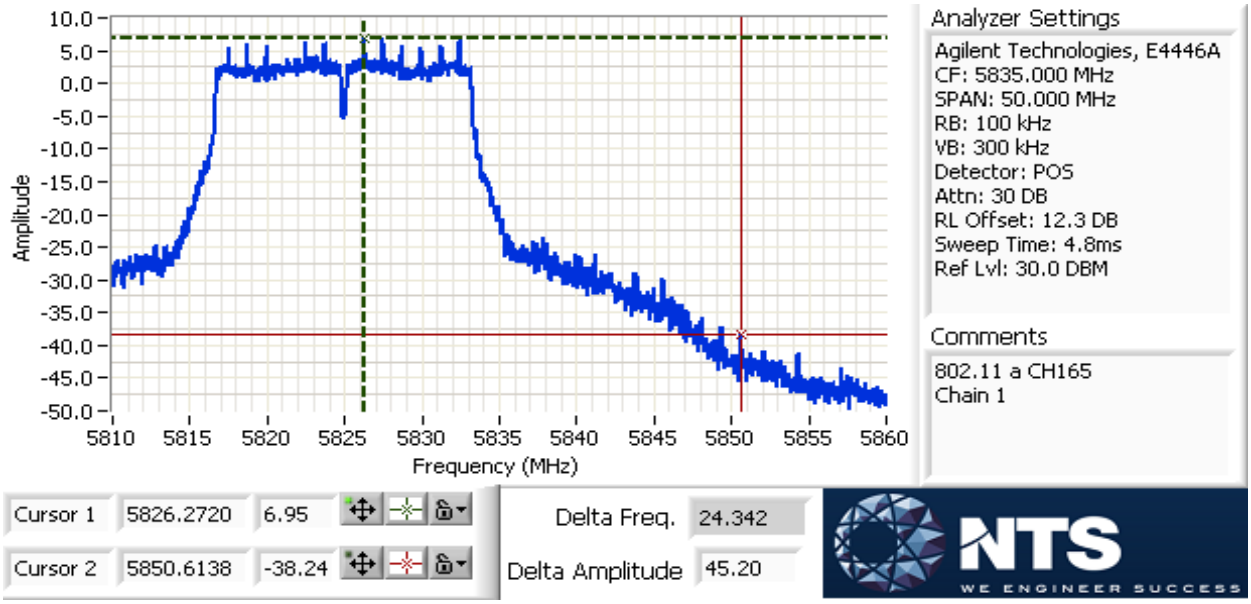
Client:	Aruba Networks	Job Number:	J96879
Model:	APINH205-2x2:2 MIMO 802.11a/b/g/n/ac Wireless Access Points	T-Log Number:	T96924
		Project Manager:	Christine Krebill
Contact:	Tian Mendez	Project Coordinator:	-
Standard:	FCC 15.247/FCC 15.407/RSS-210/LP0002	Class:	N/A

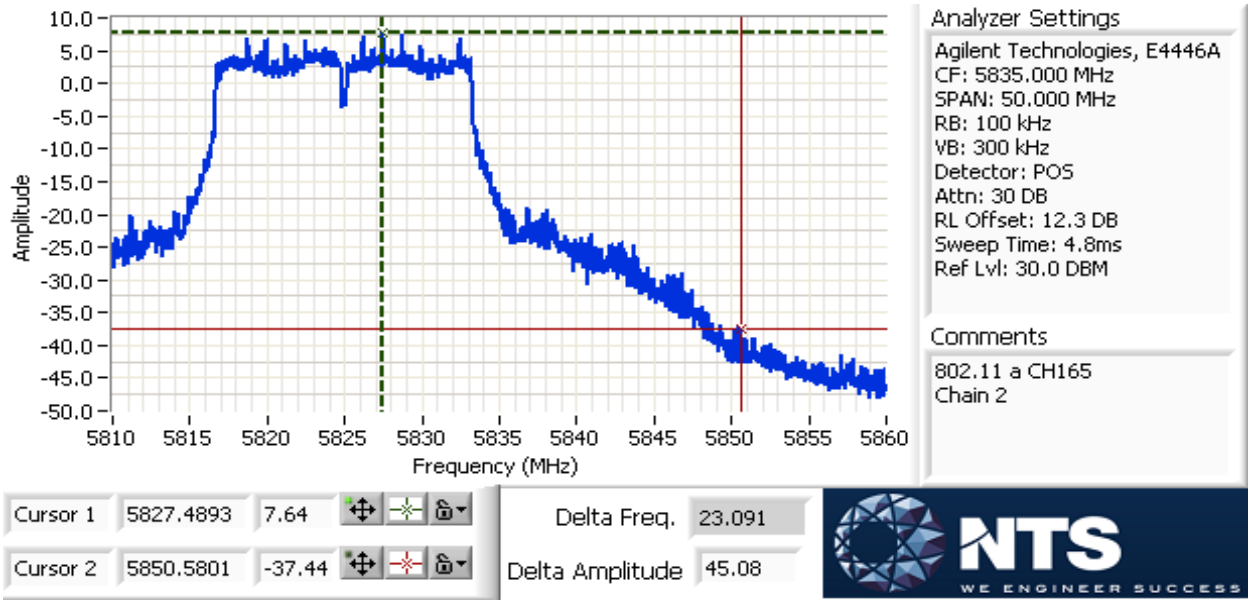




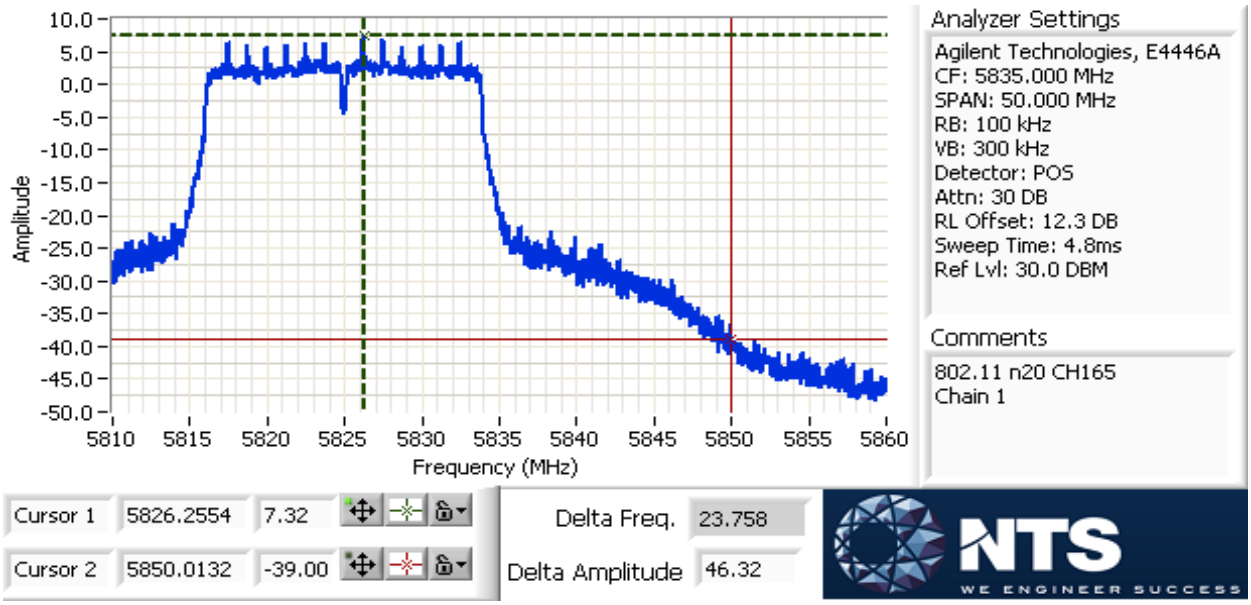
Client:	Aruba Networks	Job Number:	J96879
Model:	APINH205-2x2:2 MIMO 802.11a/b/g/n/ac Wireless Access Points	T-Log Number:	T96924
		Project Manager:	Christine Krebill
Contact:	Tian Mendez	Project Coordinator:	-
Standard:	FCC 15.247/FCC 15.407/RSS-210/LP0002	Class:	N/A

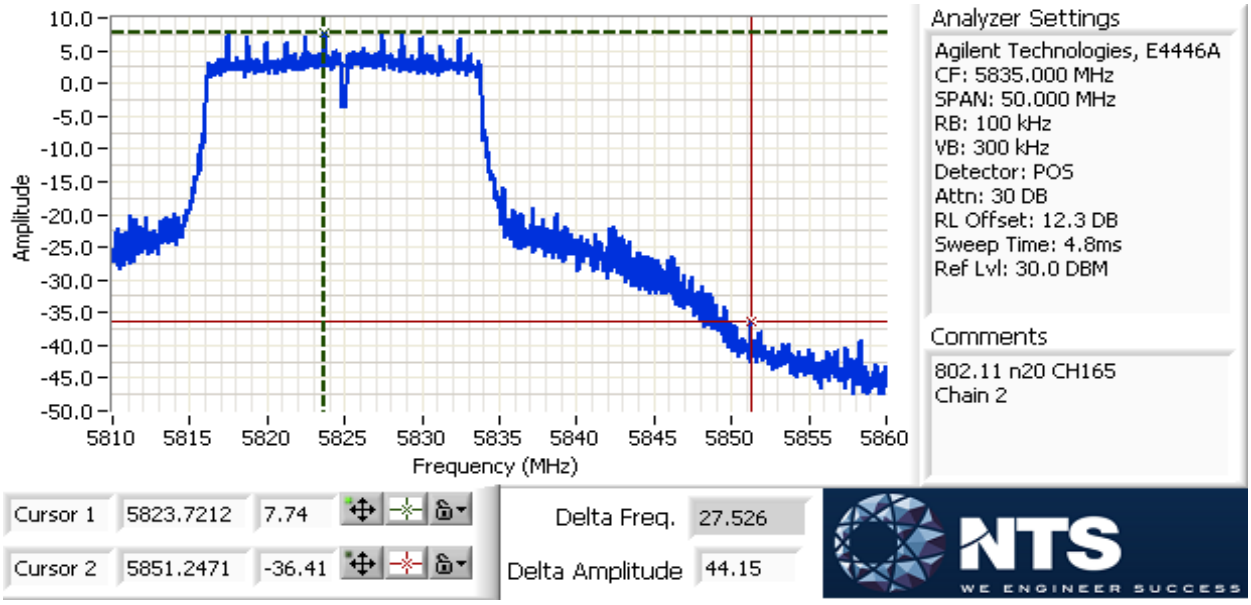
Additional plot from 5820 - 5860 MHz showing compliance with -30dBc at the band edge.



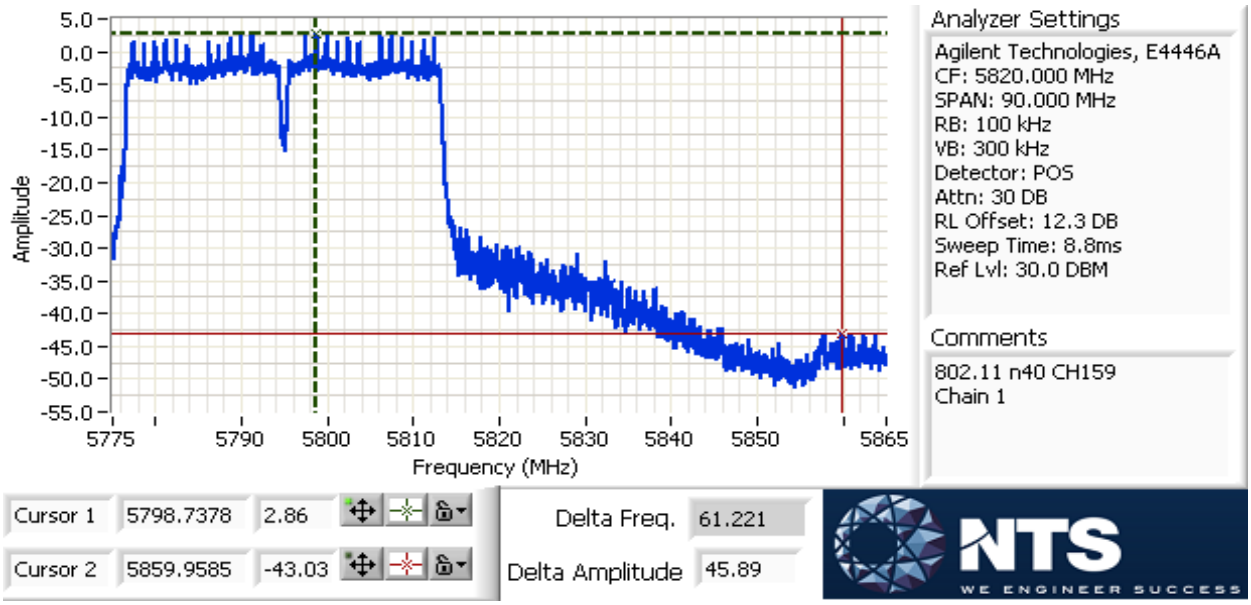


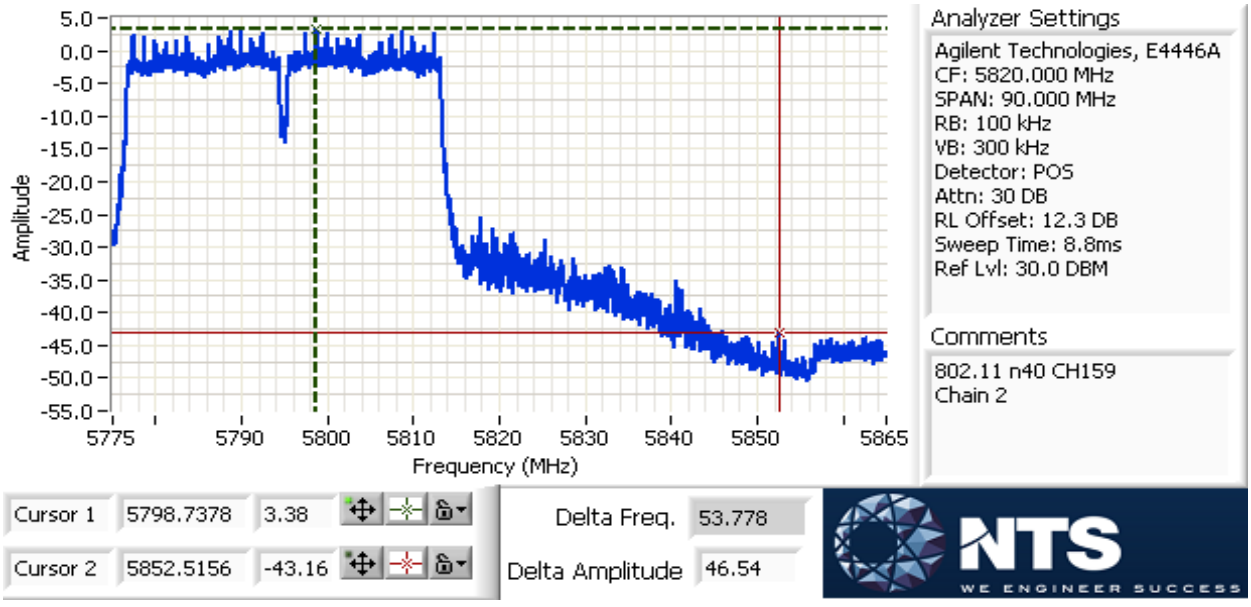
Client:	Aruba Networks	Job Number:	J96879
Model:	APINH205-2x2:2 MIMO 802.11a/b/g/n/ac Wireless Access Points	T-Log Number:	T96924
		Project Manager:	Christine Krebill
Contact:	Tian Mendez	Project Coordinator:	-
Standard:	FCC 15.247/FCC 15.407/RSS-210/LP0002	Class:	N/A



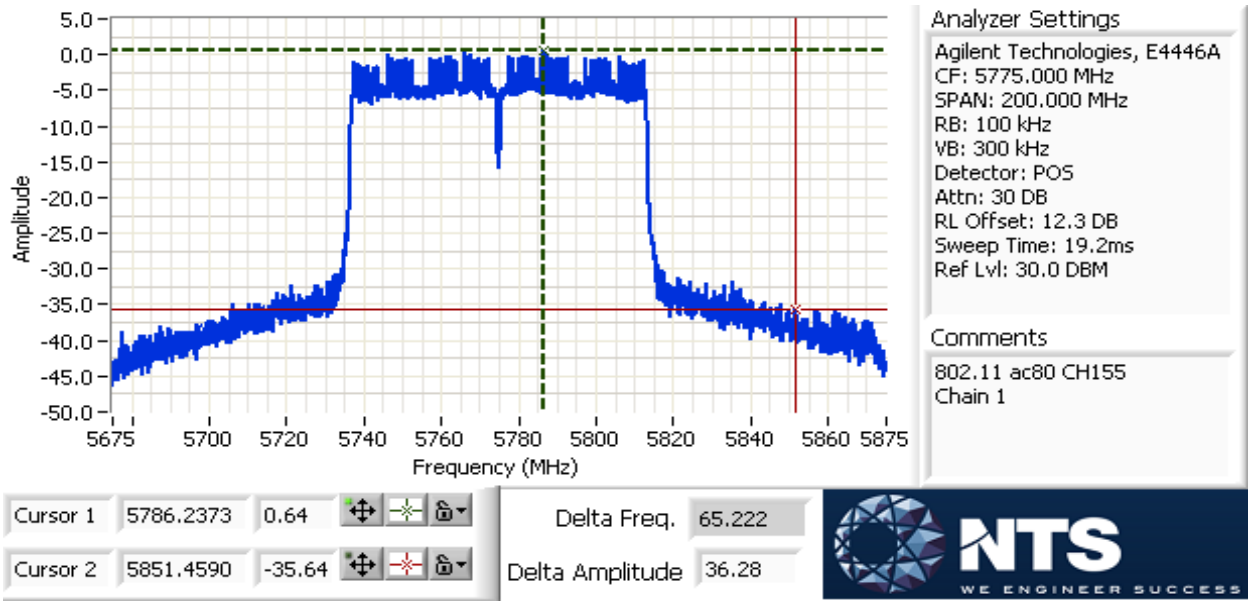


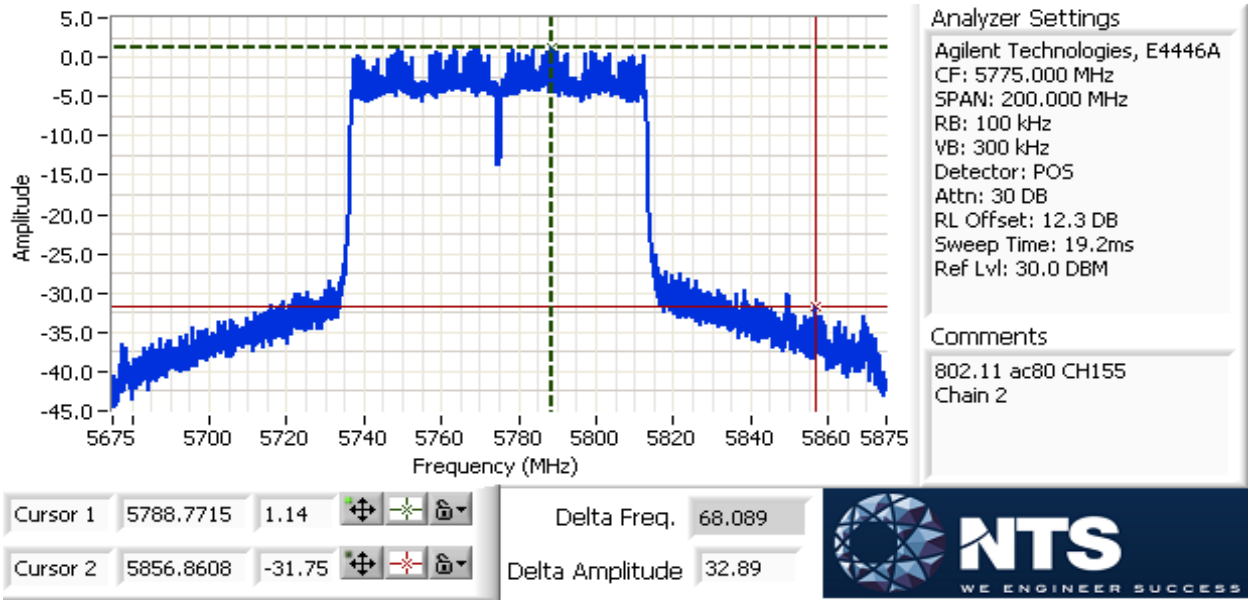
Client:	Aruba Networks	Job Number:	J96879
Model:	APINH205-2x2:2 MIMO 802.11a/b/g/n/ac Wireless Access Points	T-Log Number:	T96924
		Project Manager:	Christine Krebill
Contact:	Tian Mendez	Project Coordinator:	-
Standard:	FCC 15.247/FCC 15.407/RSS-210/LP0002	Class:	N/A





Client:	Aruba Networks	Job Number:	J96879
Model:	APINH205-2x2:2 MIMO 802.11a/b/g/n/ac Wireless Access Points	T-Log Number:	T96924
		Project Manager:	Christine Krebill
Contact:	Tian Mendez	Project Coordinator:	-
Standard:	FCC 15.247/FCC 15.407/RSS-210/LP0002	Class:	N/A





Client:	Aruba Networks	Job Number:	J96879
Product	APINH205-2x2:2 MIMO 802.11a/b/g/n/ac Wireless Access Points	T-Log Number:	T96923
		Project Manager:	Christine Krebill
Contact:	Tian Mendez	Project Coordinator:	
Emissions Standard(s):	FCC 15.247/FCC 15.407/RSS-210/LP0002	Class:	-
Immunity Standard(s):	-	Environment:	-

EMC Test Data

For The

Aruba Networks

Product

APINH205-2x2:2 MIMO 802.11a/b/g/n/ac Wireless Access Points

Date of Last Test: 1/5/2015

Client:	Aruba Networks	Job Number:	J96879
Model:	APINH205-2x2:2 MIMO 802.11a/b/g/n/ac Wireless Access Points	T-Log Number:	T96923
		Project Manager:	Christine Krebill
Contact:	Tian Mendez	Project Coordinator:	-
Standard:	FCC 15.247/FCC 15.407/RSS-210/LP0002	Class:	N/A

RSS 210 and FCC 15.407 (UNII) Radiated Spurious Emissions

Test Specific Details

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

General Test Configuration

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

Ambient Conditions:

Temperature: 18-22 °C
Rel. Humidity: 30-40 %

Summary of Results

Run #	Mode	Channel	Target Power	Passing Power	Test Performed	Limit	Result / Margin
Scans on "center" channel in all four OFDM modes to determine the worst case mode.							
7	a	157 - 5785MHz	q72	q70	Radiated Emissions, 1 - 40 GHz	FCC 15.209 / 15 E	53.8 dBµV/m @ 11572.1 MHz (-0.2 dB)
	n20	157 - 5785MHz	q72	q72	Radiated Emissions, 1 - 40 GHz	FCC 15.209 / 15 E	53.5 dBµV/m @ 11569.7 MHz (-0.5 dB)
	n40	151 - 5755MHz	q72	q72	Radiated Emissions, 1 - 40 GHz	FCC 15.209 / 15 E	50.3 dBµV/m @ 11508.9 MHz (-3.7 dB)
	ac80	155 - 5775MHz	q72	q72	Radiated Emissions, 1 - 40 GHz	FCC 15.209 / 15 E	52.5 dBµV/m @ 11563.6 MHz (-1.5 dB)
Measurements on low and high channels in worst-case OFDM mode.							
8	a	149 - 5745MHz	q72	q72	Radiated Emissions, 1 - 40 GHz	FCC 15.209 / 15 E	51.9 dBµV/m @ 11492.2 MHz (-2.1 dB)
	a	165 - 5825MHz	q72	q72	Radiated Emissions, 1 - 40 GHz	FCC 15.209 / 15 E	53.6 dBµV/m @ 11652.7 MHz (-0.4 dB)

Modifications Made During Testing

No modifications were made to the EUT during testing

Deviations From The Standard

No deviations were made from the requirements of the standard.

Client:	Aruba Networks	Job Number:	J96879
Model:	APINH205-2x2:2 MIMO 802.11a/b/g/n/ac Wireless Access Points	T-Log Number:	T96923
		Project Manager:	Christine Krebill
Contact:	Tian Mendez	Project Coordinator:	-
Standard:	FCC 15.247/FCC 15.407/RSS-210/LP0002	Class:	N/A

Procedure Comments:

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

Mode	Data Rate	Duty Cycle (x)	Constant DC?	T (ms)	Pwr Cor Factor*	Lin Volt Cor Factor**	Min VBW for FS (Hz)
11a	6Mpbs	0.99	Yes	2.063	0.0	0.0	485
n20	MCS8	0.99	Yes	1.942	0.0	0.0	515
n40	MCS8	0.82	Yes	0.938	0.9	1.8	1066
ac80	VHT0	0.59	Yes	0.256	2.3	4.6	3906

Sample Notes

Sample S/N: 2014-2278
Driver: 6.37 RC 14.54
Pkteng …… tx 20 1500 0
Antenna: Internal

Measurement Specific Notes:

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

Client:	Aruba Networks	Job Number:	J96879
Model:	APINH205-2x2:2 MIMO 802.11a/b/g/n/ac Wireless Access Points	T-Log Number:	T96923
		Project Manager:	Christine Krebill
Contact:	Tian Mendez	Project Coordinator:	-
Standard:	FCC 15.247/FCC 15.407/RSS-210/LP0002	Class:	N/A

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

Note - for IC and LP0002, any emissions within a restricted band were assessed via antenna port conducted measurements. Refer to the antenna conducted sheets.

Date of Test: 12/19/2014 Config. Used: 1
Test Engineer: Rafael Varelas Config Change: None
Test Location: FT Ch #4 EUT Voltage: 120V/60Hz

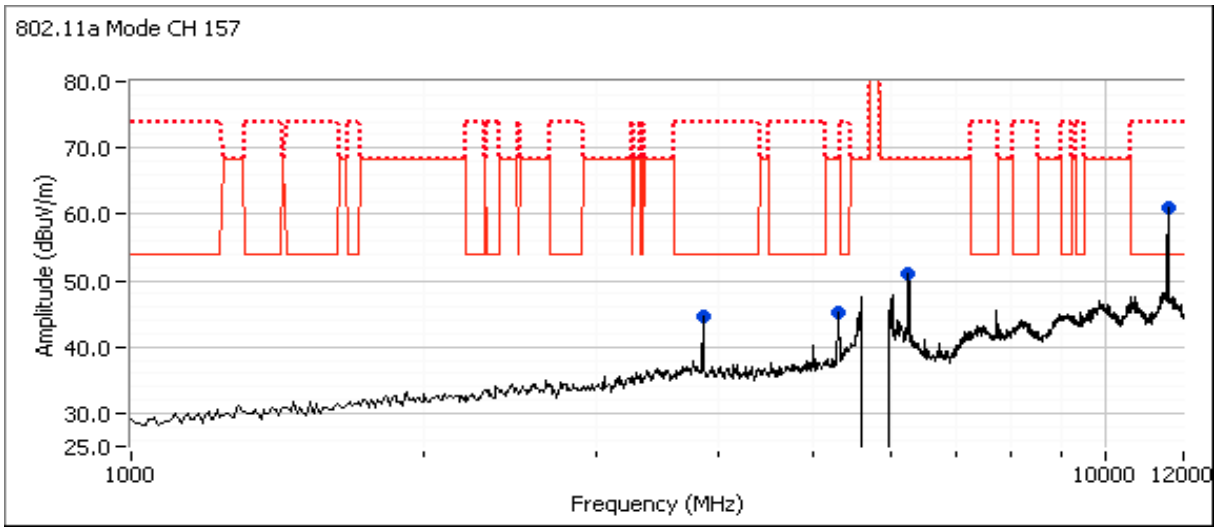
Run #7a: Center Channel

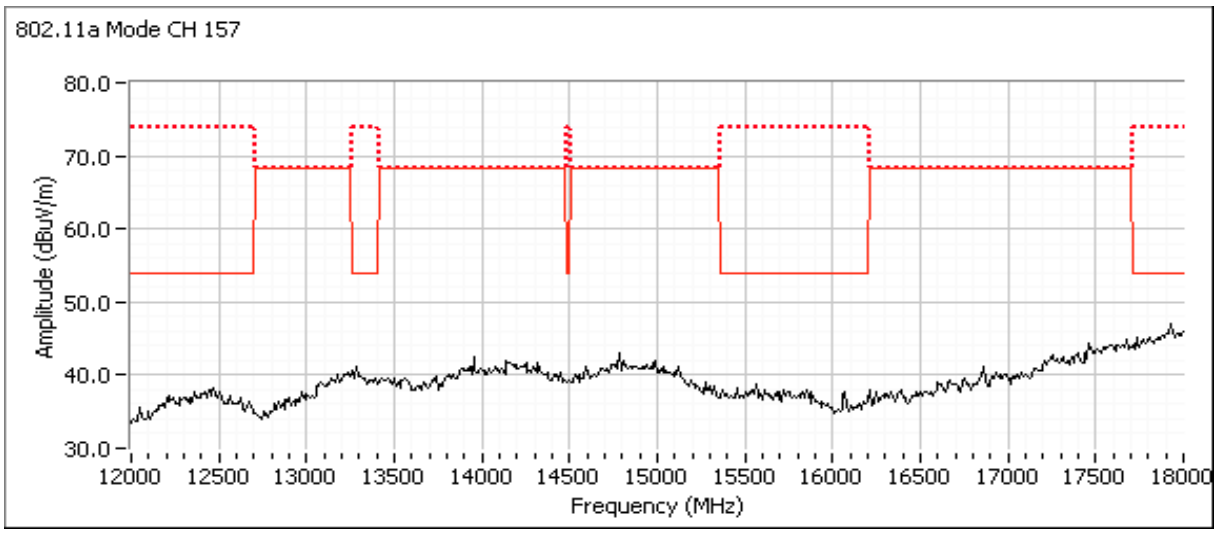
Channel: 157 Mode: a
Tx Chain: 2Tx Data Rate: 6Mpbs

Frequency	Level	Pol	15.209 / 15E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
6264.830	57.3	H	-	-	PK	35	1.1	RB 1 MHz;VB 3 MHz;Peak, note 2
5310.320	52.3	H	-	-	PK	39	1.0	RB 1 MHz;VB 3 MHz;Peak, note 2
11572.070	53.8	H	54.0	-0.2	AVG	61	1.9	RB 1 MHz;VB 10 Hz;Peak
11572.700	64.7	H	74.0	-9.3	PK	61	1.9	RB 1 MHz;VB 3 MHz;Peak
3856.690	44.5	H	54.0	-9.5	AVG	332	1.2	RB 1 MHz;VB 10 Hz;Peak
3856.650	49.1	H	74.0	-24.9	PK	332	1.2	RB 1 MHz;VB 3 MHz;Peak

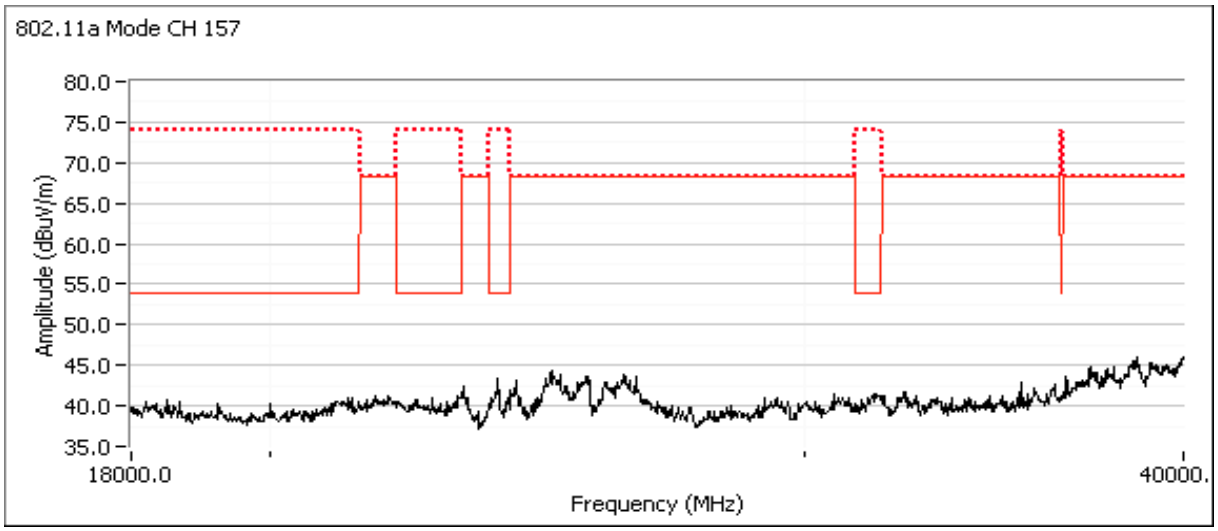
Note 1:	For emissions in restricted bands, the limit of 15.209 was used which requires average and peak measurements.
Note 2:	Emission in non-restricted band, refer to antenna port measurements

Client:	Aruba Networks	Job Number:	J96879
Model:	APINH205-2x2:2 MIMO 802.11a/b/g/n/ac Wireless Access Points	T-Log Number:	T96923
		Project Manager:	Christine Krebill
Contact:	Tian Mendez	Project Coordinator:	-
Standard:	FCC 15.247/FCC 15.407/RSS-210/LP0002	Class:	N/A





Client:	Aruba Networks	Job Number:	J96879
Model:	APINH205-2x2:2 MIMO 802.11a/b/g/n/ac Wireless Access Points	T-Log Number:	T96923
		Project Manager:	Christine Krebill
Contact:	Tian Mendez	Project Coordinator:	-
Standard:	FCC 15.247/FCC 15.407/RSS-210/LP0002	Class:	N/A



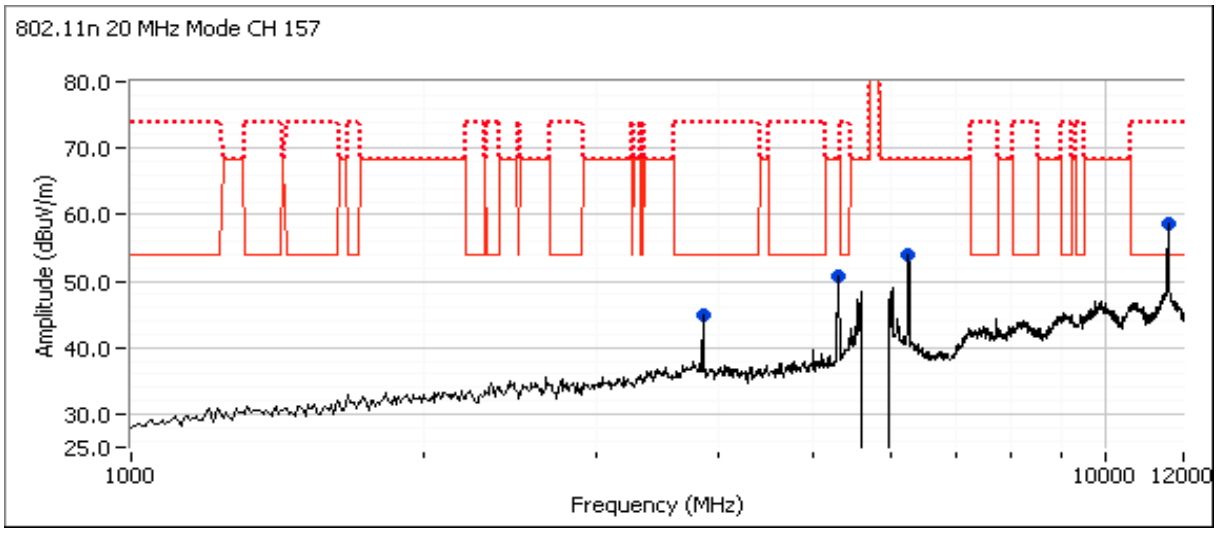
Client:	Aruba Networks	Job Number:	J96879
Model:	APINH205-2x2:2 MIMO 802.11a/b/g/n/ac Wireless Access Points	T-Log Number:	T96923
		Project Manager:	Christine Krebill
Contact:	Tian Mendez	Project Coordinator:	-
Standard:	FCC 15.247/FCC 15.407/RSS-210/LP0002	Class:	N/A

Run #7b: Center Channel

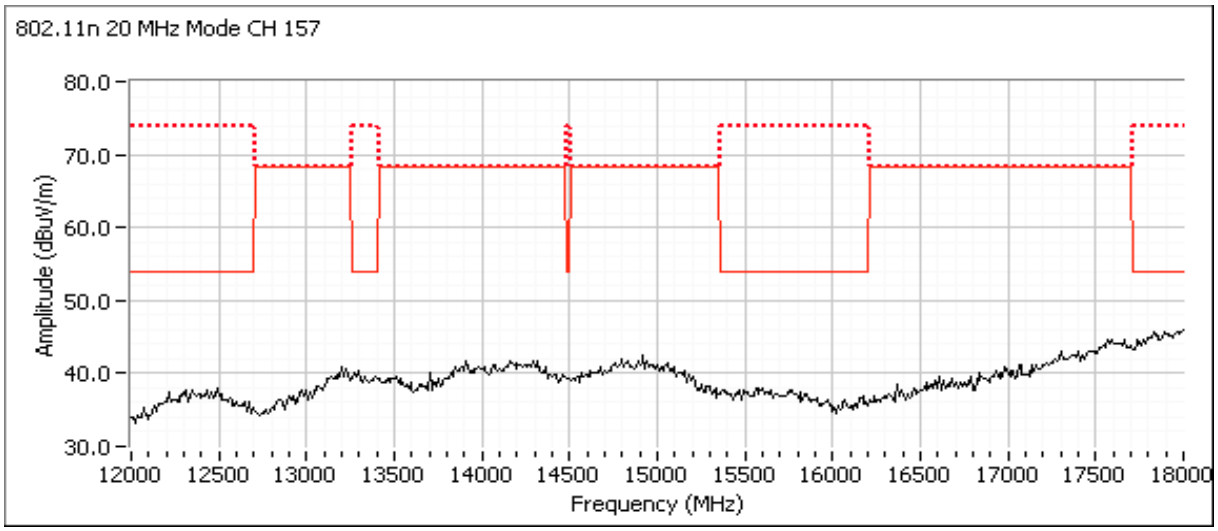
Channel: 157 Mode: 11n20
Tx Chain: 2Tx Data Rate: MCS8

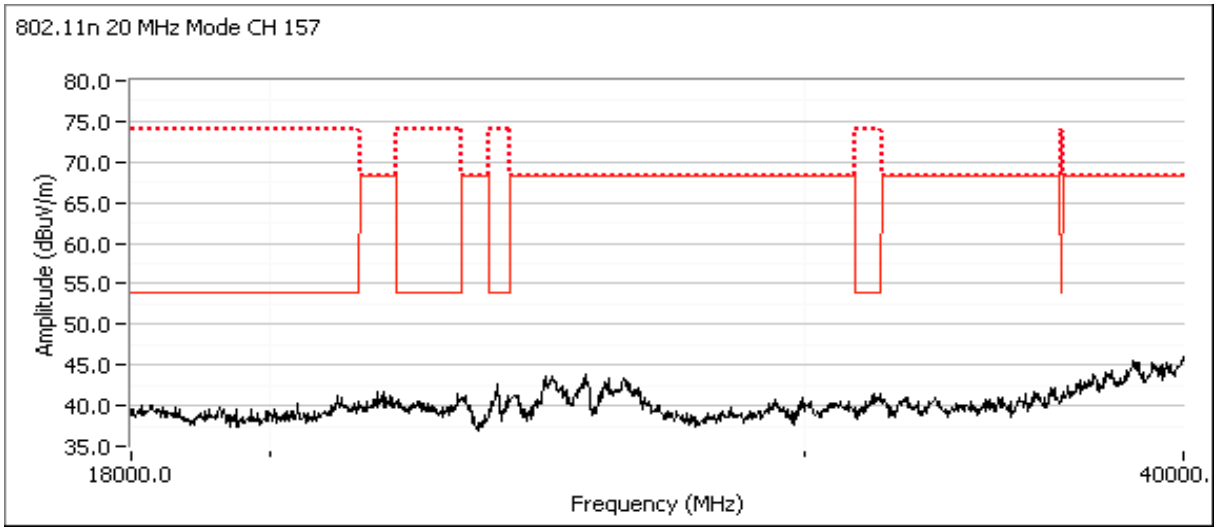
Frequency	Level	Pol	15.209 / 15E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
11569.650	53.5	H	54.0	-0.5	AVG	304	1.7	RB 1 MHz;VB 10 Hz;Peak
6267.780	60.2	H	-	-	PK	314	1.1	RB 1 MHz;VB 3 MHz;Peak, note 2
11567.020	65.1	H	74.0	-8.9	PK	304	1.7	RB 1 MHz;VB 3 MHz;Peak
3856.700	44.6	H	54.0	-9.4	AVG	338	1.1	RB 1 MHz;VB 10 Hz;Peak
5307.630	57.0	H	-	-	PK	39	1.1	RB 1 MHz;VB 3 MHz;Peak, note 2
3856.620	49.1	H	74.0	-24.9	PK	338	1.1	RB 1 MHz;VB 3 MHz;Peak

Note 1:	For emissions in restricted bands, the limit of 15.209 was used which requires average and peak measurements.
Note 2:	Emission in non-restricted band, refer to antenna port measurements



Client:	Aruba Networks	Job Number:	J96879
Model:	APINH205-2x2:2 MIMO 802.11a/b/g/n/ac Wireless Access Points	T-Log Number:	T96923
		Project Manager:	Christine Krebill
Contact:	Tian Mendez	Project Coordinator:	-
Standard:	FCC 15.247/FCC 15.407/RSS-210/LP0002	Class:	N/A





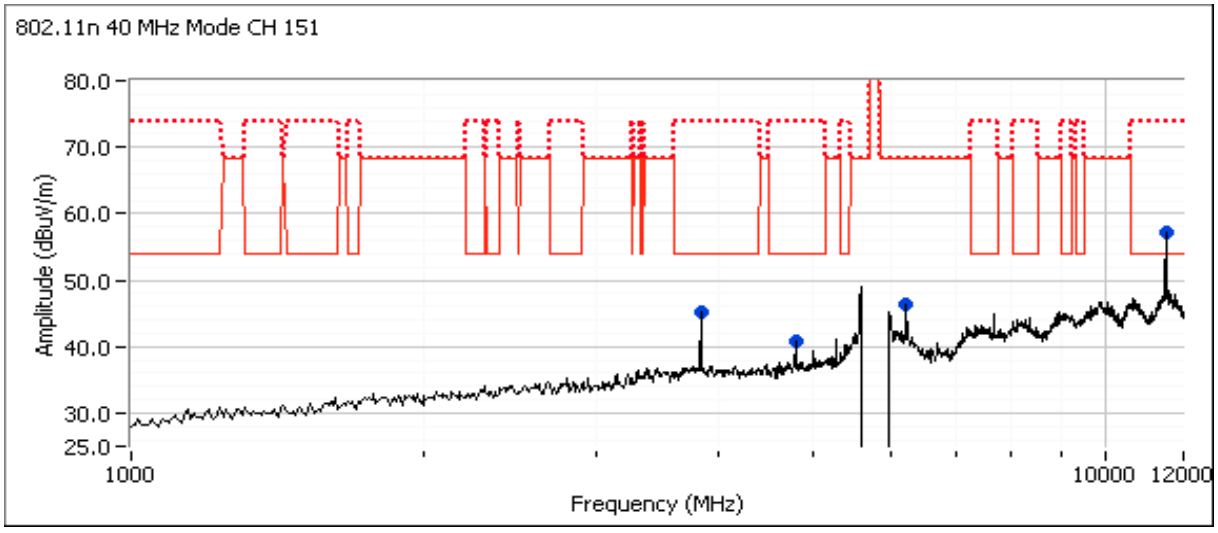
Client:	Aruba Networks	Job Number:	J96879
Model:	APINH205-2x2:2 MIMO 802.11a/b/g/n/ac Wireless Access Points	T-Log Number:	T96923
		Project Manager:	Christine Krebill
Contact:	Tian Mendez	Project Coordinator:	-
Standard:	FCC 15.247/FCC 15.407/RSS-210/LP0002	Class:	N/A

Run #7c: Center Channel

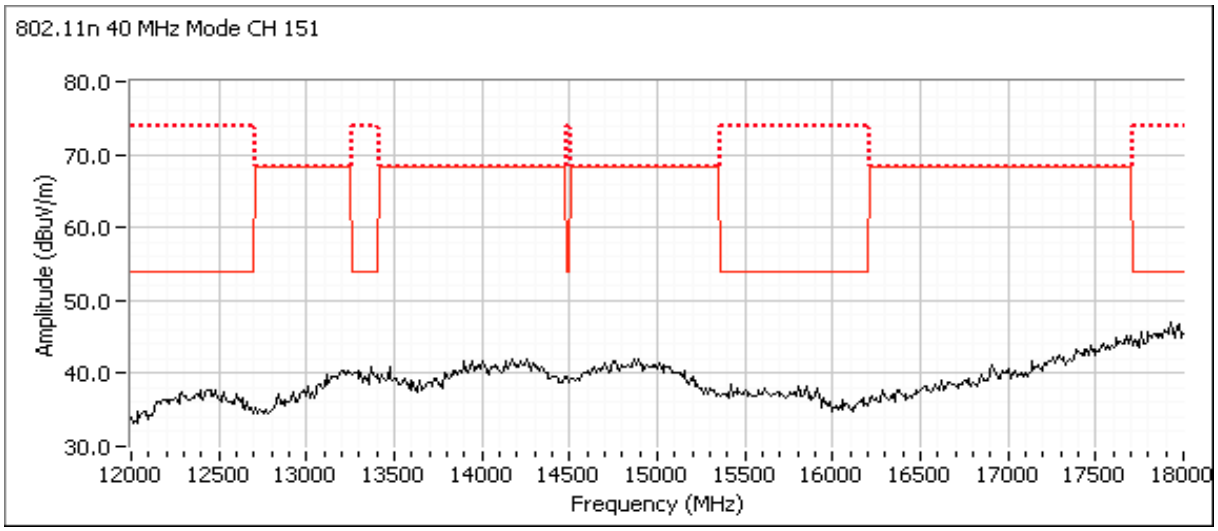
Channel: 151 Mode: 11n40
Tx Chain: 2Tx Data Rate: MCS8

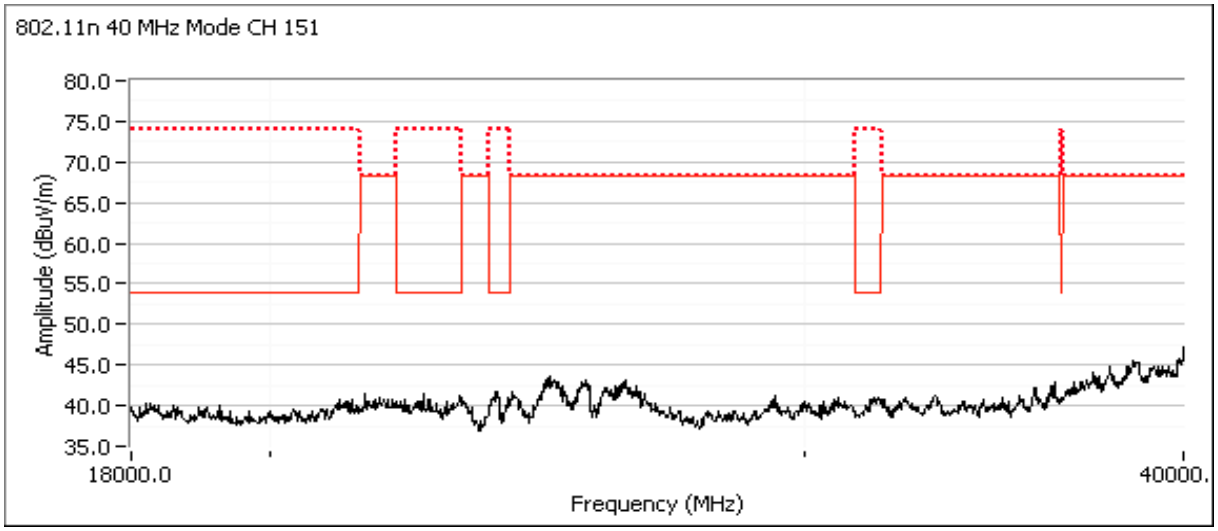
Frequency	Level	Pol	15.209 / 15E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
11508.880	50.3	H	54.0	-3.7	AVG	59	1.4	Note3, RB 1 MHz;VB 10 Hz;Peak
3836.690	46.2	H	54.0	-7.8	AVG	330	1.4	Note3, RB 1 MHz;VB 10 Hz;Peak
11506.410	61.0	H	74.0	-13.0	PK	59	1.4	RB 1 MHz;VB 3 MHz;Peak
4795.900	38.3	H	54.0	-15.7	AVG	337	1.0	RB 1 MHz;VB 10 Hz;Peak
6234.460	51.7	H	-	-16.6	PK	302	1.1	RB 1 MHz;VB 3 MHz;Peak, note 2
3836.570	48.8	H	74.0	-25.2	PK	330	1.4	RB 1 MHz;VB 3 MHz;Peak
4795.840	46.0	H	74.0	-28.0	PK	337	1.0	RB 1 MHz;VB 3 MHz;Peak

Note 1:	For emissions in restricted bands, the limit of 15.209 was used which requires average and peak measurements.
Note 2:	Emission in non-restricted band, refer to antenna port measurements



Client:	Aruba Networks	Job Number:	J96879
Model:	APINH205-2x2:2 MIMO 802.11a/b/g/n/ac Wireless Access Points	T-Log Number:	T96923
		Project Manager:	Christine Krebill
Contact:	Tian Mendez	Project Coordinator:	-
Standard:	FCC 15.247/FCC 15.407/RSS-210/LP0002	Class:	N/A





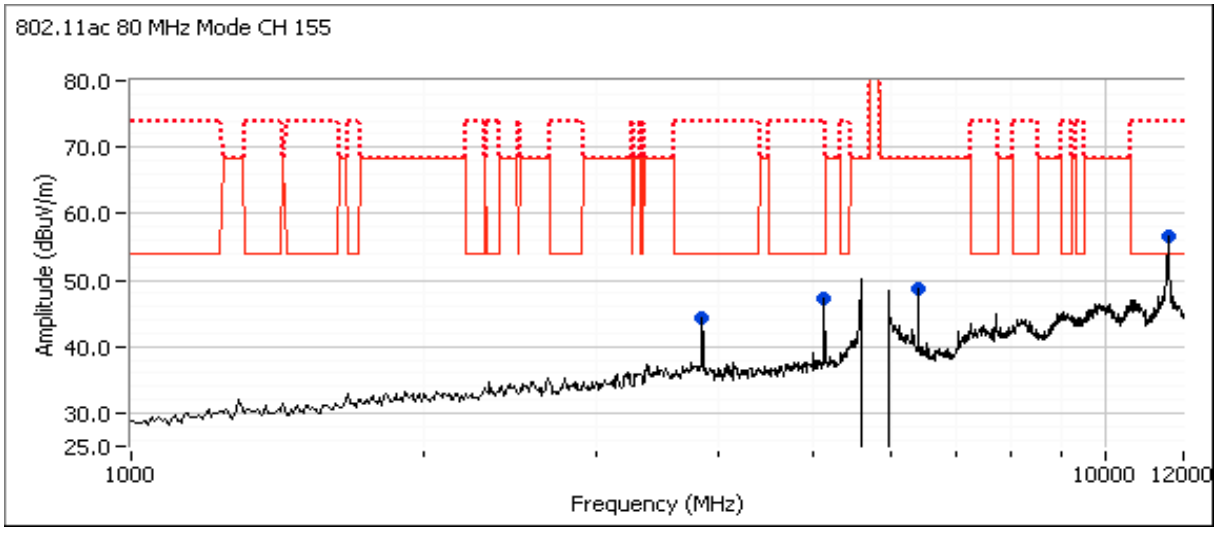
Client:	Aruba Networks	Job Number:	J96879
Model:	APINH205-2x2:2 MIMO 802.11a/b/g/n/ac Wireless Access Points	T-Log Number:	T96923
		Project Manager:	Christine Krebill
Contact:	Tian Mendez	Project Coordinator:	-
Standard:	FCC 15.247/FCC 15.407/RSS-210/LP0002	Class:	N/A

Run #7d: Center Channel

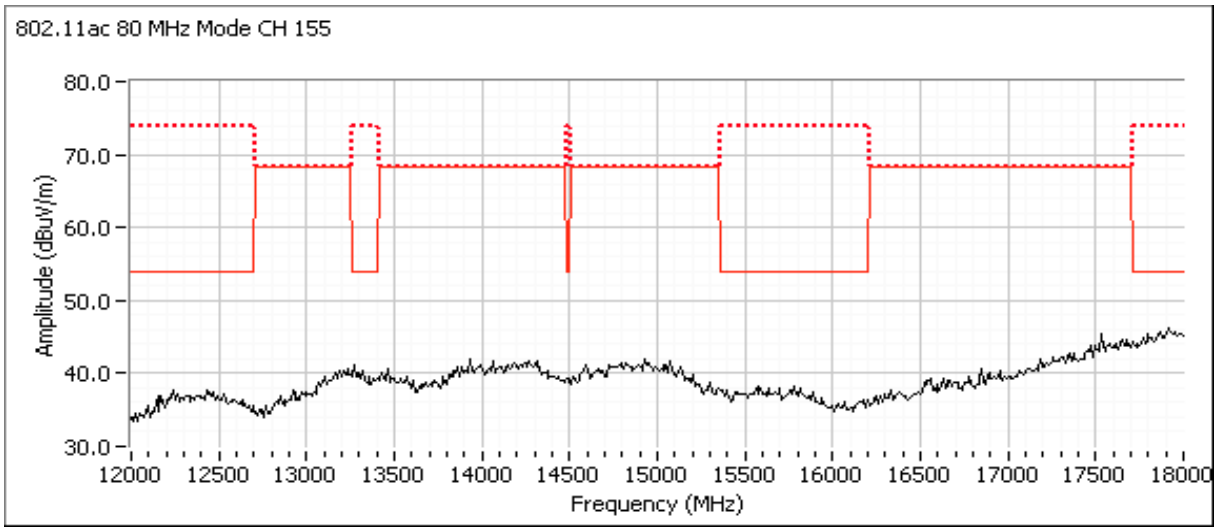
Channel: 155 Mode: ac80
Tx Chain: 2Tx Data Rate: VHT0

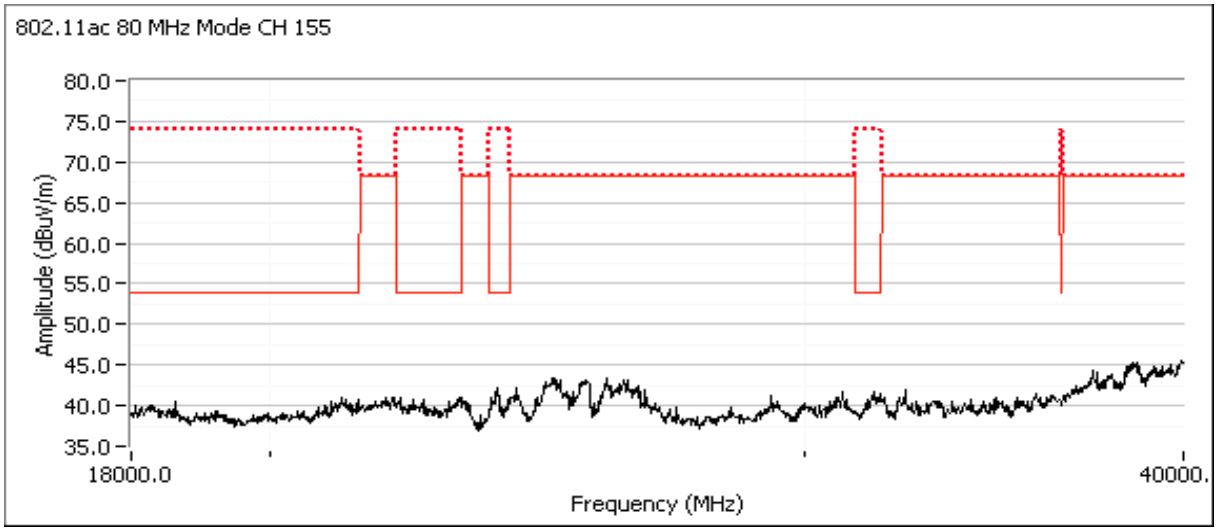
Frequency	Level	Pol	15.209 / 15E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
11563.590	52.5	H	54.0	-1.5	AVG	63	1.4	Note3, RB 1 MHz;VB 10 Hz;Peak
11566.450	61.7	H	74.0	-12.3	PK	63	1.4	RB 1 MHz;VB 3 MHz;Peak
5133.320	51.1	H	54.0	-2.9	AVG	313	1.4	Note3, RB 1 MHz;VB 10 Hz;Peak
5133.340	50.9	H	74.0	-23.1	PK	313	1.4	RB 1 MHz;VB 3 MHz;Peak
6416.750	52.8	H	-	-	PK	303	1.2	RB 1 MHz;VB 3 MHz;Peak
3850.030	43.5	H	54.0	-10.5	AVG	333	1.2	RB 1 MHz;VB 10 Hz;Peak
3849.940	48.2	H	74.0	-25.8	PK	333	1.2	RB 1 MHz;VB 3 MHz;Peak

Note 1:	For emissions in restricted bands, the limit of 15.209 was used which requires average and peak measurements.
Note 2:	Emission in non-restricted band, refer to antenna port measurements



Client:	Aruba Networks	Job Number:	J96879
Model:	APINH205-2x2:2 MIMO 802.11a/b/g/n/ac Wireless Access Points	T-Log Number:	T96923
		Project Manager:	Christine Krebill
Contact:	Tian Mendez	Project Coordinator:	-
Standard:	FCC 15.247/FCC 15.407/RSS-210/LP0002	Class:	N/A





Client:	Aruba Networks	Job Number:	J96879
Model:	APINH205-2x2:2 MIMO 802.11a/b/g/n/ac Wireless Access Points	T-Log Number:	T96923
		Project Manager:	Christine Krebill
Contact:	Tian Mendez	Project Coordinator:	-
Standard:	FCC 15.247/FCC 15.407/RSS-210/LP0002	Class:	N/A

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

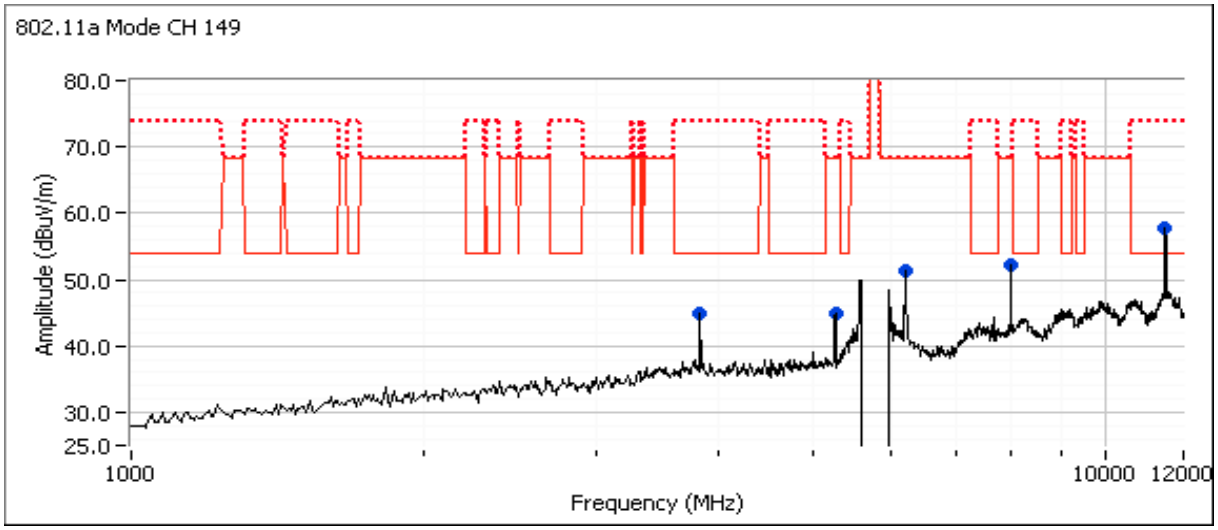
Date of Test: 12/19/2014 Config. Used: 1
Test Engineer: Rafael Varelas Config Change: None
Test Location: FT Ch #4 EUT Voltage: 120V/60Hz

Run #8a: Low Channel

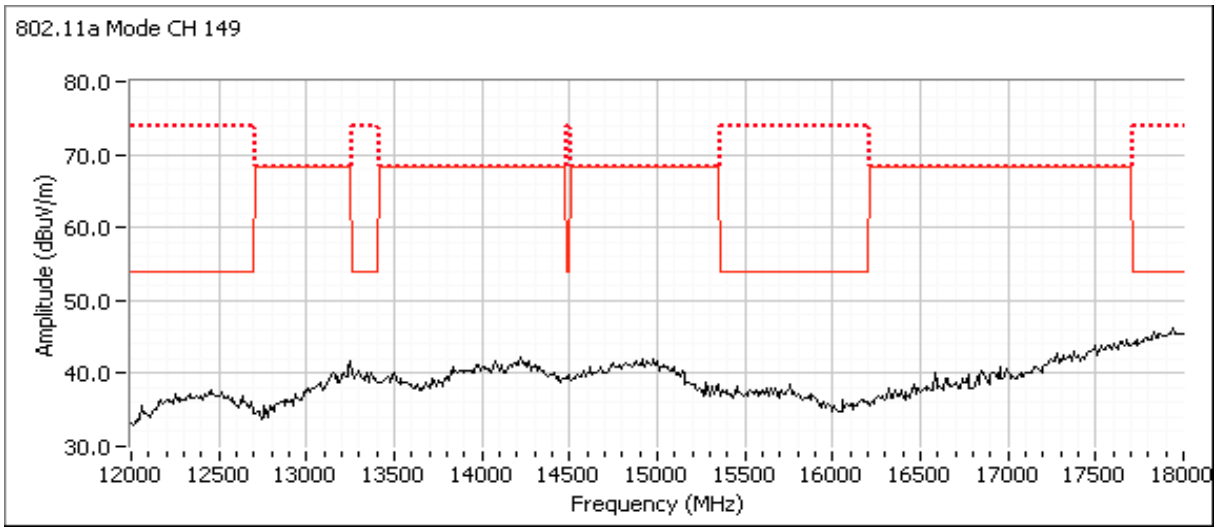
Channel: 149 Mode: a
Tx Chain: 2Tx Data Rate: 6Mpbs

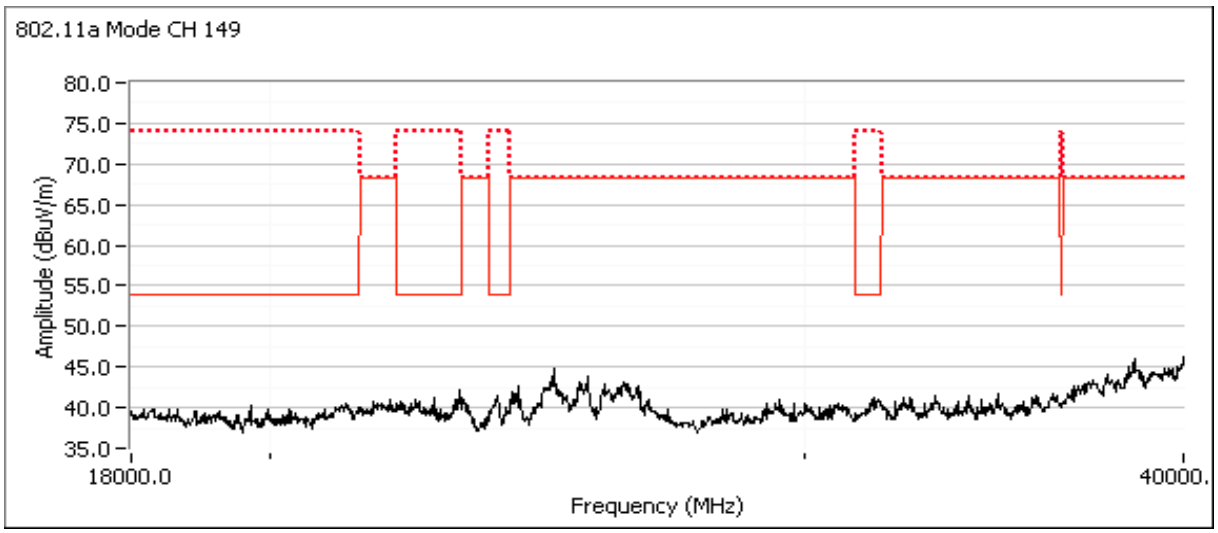
Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
11492.200	51.9	H	54.0	-2.1	AVG	61	1.7	RB 1 MHz;VB 10 Hz;Peak
3830.030	44.5	H	54.0	-9.5	AVG	330	1.1	RB 1 MHz;VB 10 Hz;Peak
11492.670	63.8	H	74.0	-10.2	PK	61	1.7	RB 1 MHz;VB 3 MHz;Peak
6220.940	56.6	H	-	-	PK	310	1.0	RB 1 MHz;VB 3 MHz;Peak, note 2
5264.230	52.8	H	-	-	PK	39	1.2	RB 1 MHz;VB 3 MHz;Peak, note 2
8004.620	50.3	H	-	-	PK	6	1.0	RB 1 MHz;VB 3 MHz;Peak, note 2
3830.140	48.9	H	74.0	-25.1	PK	330	1.1	RB 1 MHz;VB 3 MHz;Peak

Note 1:	For emissions in restricted bands, the limit of 15.209 was used which requires average and peak measurements.
Note 2:	Emission in non-restricted band, refer to antenna port measurements



Client:	Aruba Networks	Job Number:	J96879
Model:	APINH205-2x2:2 MIMO 802.11a/b/g/n/ac Wireless Access Points	T-Log Number:	T96923
		Project Manager:	Christine Krebill
Contact:	Tian Mendez	Project Coordinator:	-
Standard:	FCC 15.247/FCC 15.407/RSS-210/LP0002	Class:	N/A





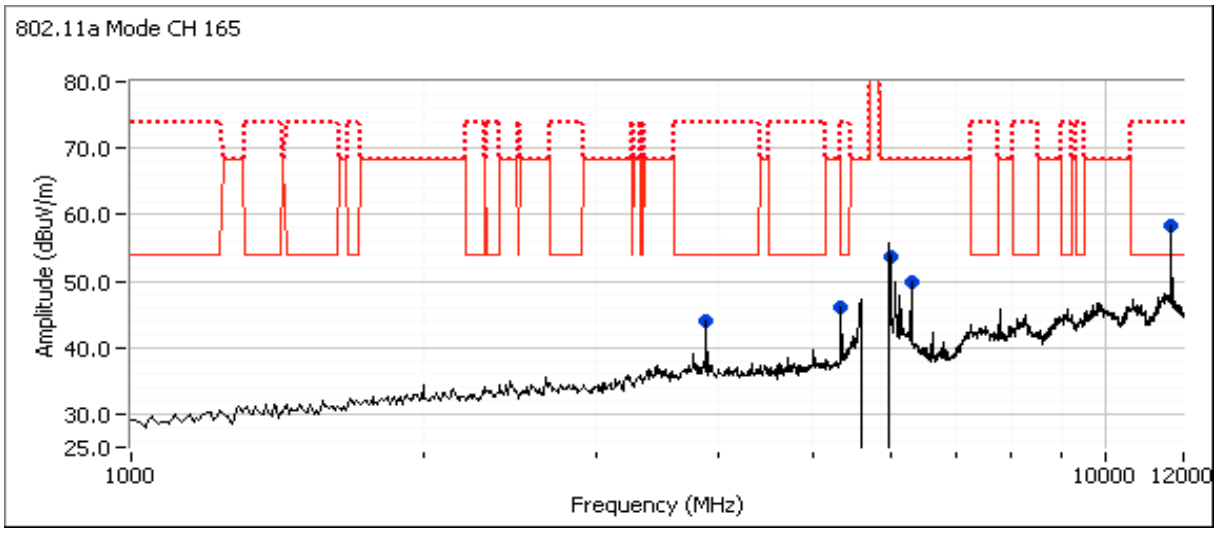
Client:	Aruba Networks	Job Number:	J96879
Model:	APINH205-2x2:2 MIMO 802.11a/b/g/n/ac Wireless Access Points	T-Log Number:	T96923
		Project Manager:	Christine Krebill
Contact:	Tian Mendez	Project Coordinator:	-
Standard:	FCC 15.247/FCC 15.407/RSS-210/LP0002	Class:	N/A

Run #8b: High Channel

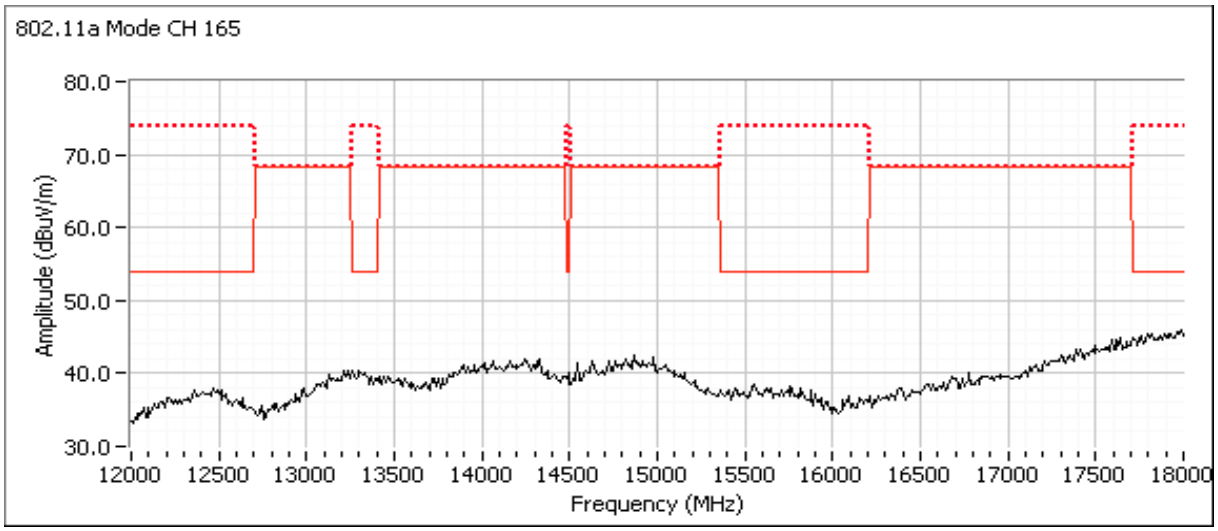
Channel: 165 Mode: a
Tx Chain: 2Tx Data Rate: 6Mpbs

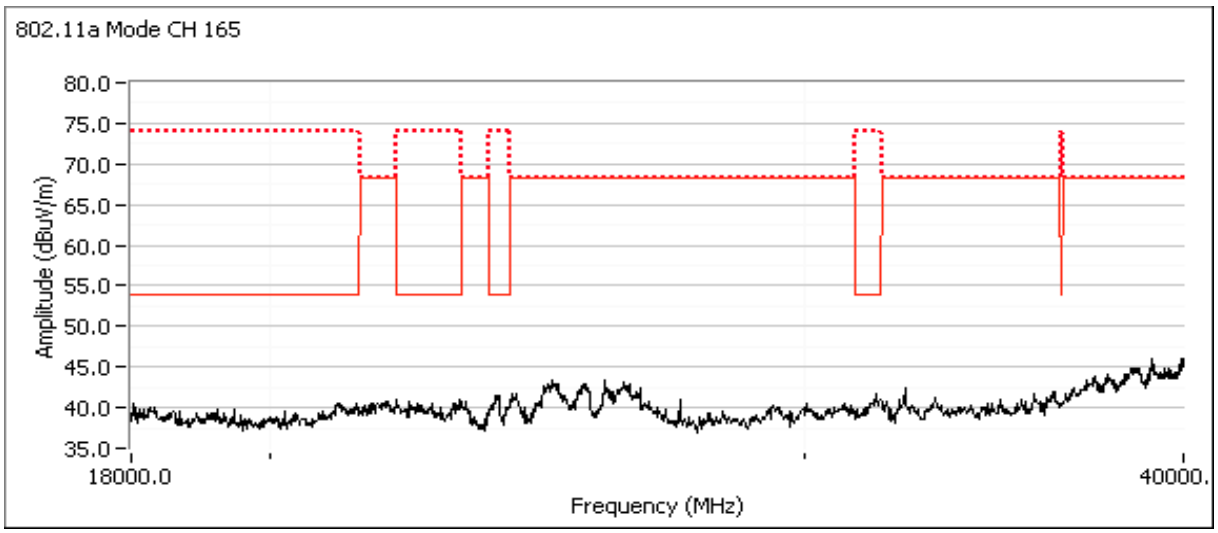
Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
11652.680	53.6	H	54.0	-0.4	AVG	59	1.3	RB 1 MHz;VB 10 Hz;Peak
5992.730	64.0	H	-	-	PK	310	1.0	RB 1 MHz;VB 3 MHz;Peak, note 2
3883.380	45.8	H	54.0	-8.2	AVG	335	1.4	RB 1 MHz;VB 10 Hz;Peak
11653.240	64.6	H	74.0	-9.4	PK	59	1.3	RB 1 MHz;VB 3 MHz;Peak
6312.040	57.9	H	-	-	PK	312	1.2	RB 1 MHz;VB 3 MHz;Peak, note 2
5337.020	51.6	H	-	-	PK	37	1.4	RB 1 MHz;VB 3 MHz;Peak, note 2
3883.270	50.0	H	74.0	-24.0	PK	335	1.4	RB 1 MHz;VB 3 MHz;Peak
5337.370	42.3	H	-	-	AVG	37	1.4	RB 1 MHz;VB 3 MHz;Peak, note 2

Note 1:	For emissions in restricted bands, the limit of 15.209 was used which requires average and peak measurements.
Note 2:	Emission in non-restricted band, refer to antenna port measurements



Client:	Aruba Networks	Job Number:	J96879
Model:	APINH205-2x2:2 MIMO 802.11a/b/g/n/ac Wireless Access Points	T-Log Number:	T96923
		Project Manager:	Christine Krebill
Contact:	Tian Mendez	Project Coordinator:	-
Standard:	FCC 15.247/FCC 15.407/RSS-210/LP0002	Class:	N/A





Client:	Aruba Networks	Job Number:	J96879
Product	APINH205-2x2:2 MIMO 802.11a/b/g/n/ac Wireless Access Points	T-Log Number:	T96924
		Project Manager:	Christine Krebill
Contact:	Tian Mendez	Project Coordinator:	
Emissions Standard(s):	FCC 15.247/FCC 15.407/RSS-210/LP0002	Class:	-
Immunity Standard(s):	-	Environment:	-

EMC Test Data

For The

Aruba Networks

Product

APINH205-2x2:2 MIMO 802.11a/b/g/n/ac Wireless Access Points

Date of Last Test: 12/30/2014

Client:	Aruba Networks	Job Number:	J96879
Model:	APINH205-2x2:2 MIMO 802.11a/b/g/n/ac Wireless Access Points	T-Log Number:	T96924
		Project Manager:	Christine Krebill
Contact:	Tian Mendez	Project Coordinator:	-
Standard:	FCC 15.247/FCC 15.407/RSS-210/LP0002	Class:	-

Conducted Emissions

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

Test Specific Details

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

Date of Test: 1/6/2015
Test Engineer: John Caizzi
Test Location: Fremont Chamber #3
Config. Used: 1
Config Change: none
EUT Voltage: 120V/60Hz

General Test Configuration

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

Ambient Conditions:

Temperature: 19 °C
Rel. Humidity: 32 %

Summary of Results

Run #	Test Performed	Limit	Result	Margin
2	CE, AC Power, 120V/60Hz	Class B	Pass	40.0 dBµV @ 0.455 MHz (-6.8 dB)

Modifications Made During Testing

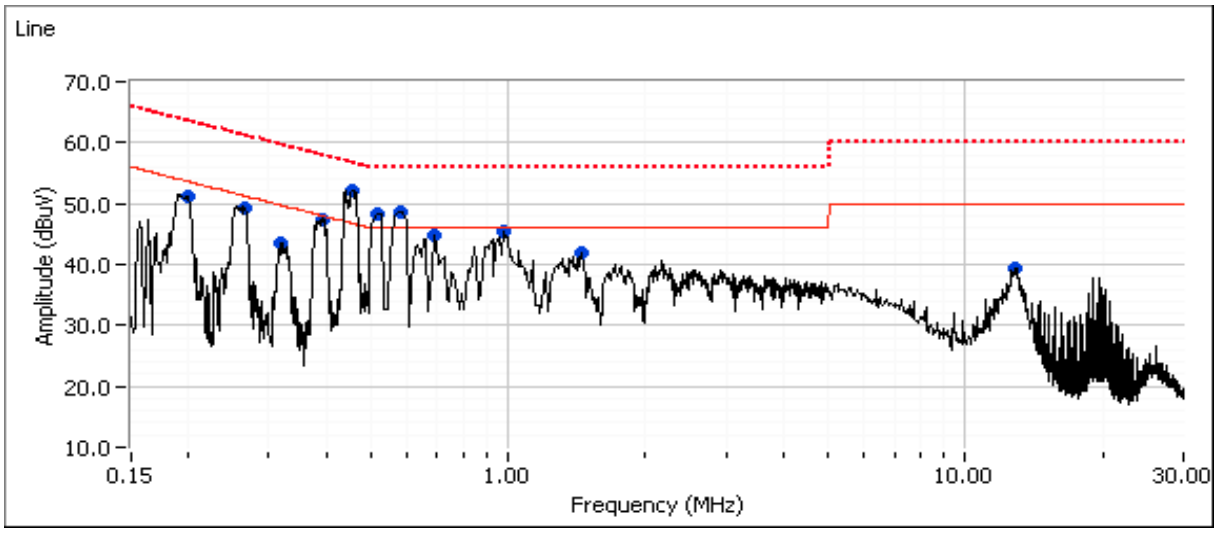
No modifications were made to the EUT during testing

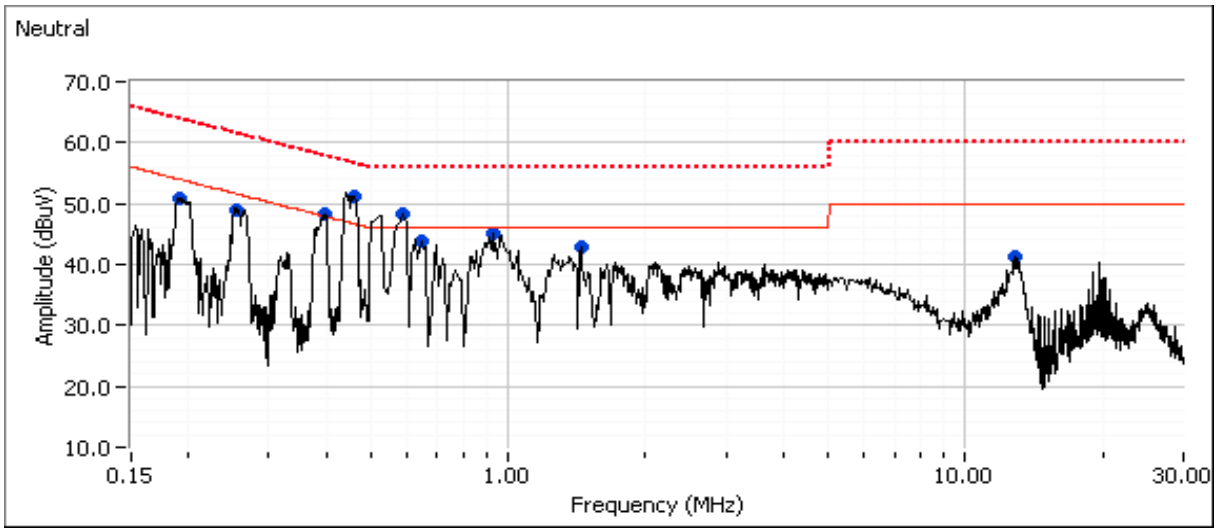
Deviations From The Standard

No deviations were made from the requirements of the standard.

Client:	Aruba Networks	Job Number:	J96879
Model:	APINH205-2x2:2 MIMO 802.11a/b/g/n/ac Wireless Access Points	T-Log Number:	T96924
		Project Manager:	Christine Krebill
Contact:	Tian Mendez	Project Coordinator:	-
Standard:	FCC 15.247/FCC 15.407/RSS-210/LP0002	Class:	-

Run #2: AC Power Port Conducted Emissions, 0.15 - 30MHz, 120V/60Hz





Client:	Aruba Networks	Job Number:	J96879
Model:	APINH205-2x2:2 MIMO 802.11a/b/g/n/ac Wireless Access Points	T-Log Number:	T96924
		Project Manager:	Christine Krebill
Contact:	Tian Mendez	Project Coordinator:	-
Standard:	FCC 15.247/FCC 15.407/RSS-210/LP0002	Class:	-

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

Frequency	Level	AC	Class B		Detector	Comments
MHz	dBµV	Line	Limit	Margin	QP/Ave	
0.455	52.0	Line	46.8	5.2	Peak	
0.584	48.5	Line	46.0	2.5	Peak	
0.522	48.4	Line	46.0	2.4	Peak	
0.921	45.3	Line	46.0	-0.7	Peak	
0.390	47.2	Line	48.0	-0.8	Peak	
0.660	44.9	Line	46.0	-1.1	Peak	
0.266	49.4	Line	51.3	-1.9	Peak	
0.196	51.2	Line	53.6	-2.4	Peak	
1.450	41.9	Line	46.0	-4.1	Peak	
0.320	43.4	Line	49.7	-6.3	Peak	
12.947	39.3	Line	50.0	-10.7	Peak	
0.456	51.2	Neutral	46.7	4.5	Peak	
0.583	48.3	Neutral	46.0	2.3	Peak	
0.395	48.4	Neutral	47.9	0.5	Peak	
0.920	45.2	Neutral	46.0	-0.8	Peak	
0.659	43.8	Neutral	46.0	-2.2	Peak	
0.260	49.0	Neutral	51.6	-2.6	Peak	
1.449	42.8	Neutral	46.0	-3.2	Peak	
0.194	50.8	Neutral	54.0	-3.2	Peak	
13.007	41.4	Neutral	50.0	-8.6	Peak	

Client:	Aruba Networks	Job Number:	J96879
Model:	APINH205-2x2:2 MIMO 802.11a/b/g/n/ac Wireless Access Points	T-Log Number:	T96924
		Project Manager:	Christine Krebill
Contact:	Tian Mendez	Project Coordinator:	-
Standard:	FCC 15.247/FCC 15.407/RSS-210/LP0002	Class:	-

Final quasi-peak and average readings

Frequency	Level	AC	Class B		Detector	Comments
MHz	dBµV	Line	Limit	Margin	QP/Ave	
0.455	40.0	Line	46.8	-6.8	AVG	
0.455	50.0	Line	56.8	-6.8	QP	
0.584	35.1	Line	46.0	-10.9	AVG	
0.584	46.3	Line	56.0	-9.7	QP	
0.522	35.8	Line	46.0	-10.2	AVG	
0.522	47.1	Line	56.0	-8.9	QP	
0.921	29.2	Line	46.0	-16.8	AVG	
0.921	42.8	Line	56.0	-13.2	QP	
0.390	35.9	Line	48.1	-12.2	AVG	
0.390	45.3	Line	58.1	-12.8	QP	
0.660	28.2	Line	46.0	-17.8	AVG	
0.660	42.1	Line	56.0	-13.9	QP	
0.266	31.8	Line	51.2	-19.4	AVG	
0.266	44.1	Line	61.2	-17.1	QP	
0.196	35.9	Line	53.8	-17.9	AVG	
0.196	48.4	Line	63.8	-15.4	QP	
1.450	32.0	Line	46.0	-14.0	AVG	
1.450	39.5	Line	56.0	-16.5	QP	
0.320	30.5	Line	49.7	-19.2	AVG	
0.320	39.3	Line	59.7	-20.4	QP	
12.947	29.5	Line	50.0	-20.5	AVG	
12.947	35.6	Line	60.0	-24.4	QP	
0.456	39.2	Neutral	46.8	-7.6	AVG	
0.456	49.4	Neutral	56.8	-7.4	QP	
0.583	34.4	Neutral	46.0	-11.6	AVG	
0.583	45.9	Neutral	56.0	-10.1	QP	
0.395	34.1	Neutral	48.0	-13.9	AVG	
0.395	45.6	Neutral	58.0	-12.4	QP	
0.920	29.2	Neutral	46.0	-16.8	AVG	
0.920	42.6	Neutral	56.0	-13.4	QP	
0.659	28.6	Neutral	46.0	-17.4	AVG	
0.659	42.0	Neutral	56.0	-14.0	QP	
0.260	38.2	Neutral	51.4	-13.2	AVG	
0.260	46.3	Neutral	61.4	-15.1	QP	
1.449	32.1	Neutral	46.0	-13.9	AVG	
1.449	39.4	Neutral	56.0	-16.6	QP	
0.194	36.9	Neutral	53.9	-17.0	AVG	
0.194	48.1	Neutral	63.9	-15.8	QP	
13.007	30.7	Neutral	50.0	-19.3	AVG	
13.007	36.7	Neutral	60.0	-23.3	QP	

End of Report

This page is intentionally blank and
marks the last page of this test report.