FCC 47 CFR PART 15 SUBPART E AND ANSI C63.10:2013 TEST REPORT

For

AC1300 IoT Router

Model: X10R

Data Applies To: X10 ; X10S

Trade Name: ASRock

Issued for

ASRock Incorporation

2F., No.37, Sec. 2, Jhongyang S. Rd., Beitou Dist., Taipei City 11270, Taiwan (R.O.C.)

Issued by

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Issued Date: February 18, 2017

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Revision History

Rev.	Issue Date	Revisions	Effect Page	Revised By
00	02/18/2017	Initial Issue	All Page 210	Michelle Chiu

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1. TEST REPORT CERTIFICATION

Applicant	：	ASRock Incorporation
Address	：	2F., No.37, Sec. 2, Jhongyang S. Rd., Beitou Dist., Taipei City 11270, Taiwan (R.O.C.)
Equipment Under Test	：	AC1300 IoT Router
Model	：	X10R
Data Applies To	：	X10 ; X10S
Trade Name	：	ASRock
Tested Date	：	October 24 ~ December 27, 2016

APPLICABLE STANDARD	
Standard	**Test Result**
FCC Part 15 Subpart E AND ANSI C63.10:2013	PASS

WE HEREBY CERTIFY THAT: The above equipment has been tested by Compliance Certification Services Inc., and found compliance with the requirements set forth in the technical standards mentioned above. The results of testing in this report apply only to the product/system, which was tested. Other similar equipment will not necessarily produce the same results due to production tolerance and measurement uncertainties.

Approved by:

Sb. Lu
Sr. Engineer

Reviewed by:

Gundam Lin
Sr. Engineer

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2. EUT DESCRIPTION

Product Name	AC1300 IoT Router
Model Number	X10R
Data Applies To	X10 ; X10S
Identify Number	T161103D21
Received Date	October 24, 2016
Frequency Range	UNII Band 1 : IEEE 802.11a, 802.11ac VHT20 Mode : 5180 MHz ~ 5240 MHz IEEE 802.11ac VHT40 Mode : 5190 MHz ~ 5230 MHz IEEE 802.11ac VHT80 Mode : 5210 MHz UNII Band 3 : IEEE 802.11a, 802.11ac VHT20 Mode : 5745 MHz ~ 5825 MHz IEEE 802.11ac VHT40 Mode : 5755 MHz ~ 5795 MHz IEEE 802.11ac VHT80 Mode : 5775 MHz
Transmit Power	For Non-beamforming : UNII Band 1/ Master: IEEE 802.11a Mode : 20.45 dBm (0.1109 W) IEEE 802.11ac VHT20 NSS1/MCS0 Mode : 20.40 dBm (0.1096 W) IEEE 802.11ac VHT40 NSS1/MCS0 Mode : 19.29 dBm (0.0849 W) IEEE 802.11ac VHT80 NSS1/MCS0 Mode : 15.10 dBm (0.0324 W) UNII Band 1/ Client : IEEE 802.11a Mode : 18.47 dBm (0.0703 W) IEEE 802.11ac VHT20 NSS1/MCS0 Mode : 18.85 dBm (0.0767 W) IEEE 802.11ac VHT40 NSS1/MCS0 Mode : 19.29 dBm (0.0849 W) IEEE 802.11ac VHT80 NSS1/MCS0 Mode : 15.10 dBm (0.0324 W) UNII Band 3 : IEEE 802.11a Mode : 22.27 dBm (0.1687 W) IEEE 802.11ac VHT20 NSS1/MCS0 Mode : 22.25 dBm (0.1679 W) IEEE 802.11ac VHT40 NSS1/MCS0 Mode : 22.32 dBm (0.1706 W) IEEE 802.11ac VHT80 NSS1/MCS0 Mode : 20.03 dBm (0.1007 W) For Beamforming : UNII Band 1/ Master : IEEE 802.11ac VHT20 NSS1/MCS0 Mode : 19.03 dBm (0.0800 W) IEEE 802.11ac VHT40 NSS1/MCS0 Mode : 18.16 dBm (0.0655 W) IEEE 802.11ac VHT80 NSS1/MCS0 Mode : 15.73 dBm (0.0374 W)

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	UNII Band 1/ Client : IEEE 802.11ac VHT20 NSS1/MCS0 Mode : 19.03 dBm (0.0800 W) IEEE 802.11ac VHT40 NSS1/MCS0 Mode : 18.16 dBm (0.0655 W) IEEE 802.11ac VHT80 NSS1/MCS0 Mode : 15.73 dBm (0.0374 W) UNII Band 3 : IEEE 802.11ac VHT20 NSS1/MCS0 Mode : 20.36 dBm (0.1086 W) IEEE 802.11ac VHT40 NSS1/MCS0 Mode : 20.25 dBm (0.1059 W) IEEE 802.11ac VHT80 NSS1/MCS0 Mode : 19.16 dBm (0.0824 W)
Channel Spacing	IEEE 802.11a, 802.11ac VHT20 Mode : 20MHz IEEE 802.11ac VHT40 Mode : 40MHz IEEE 802.11ac VHT80 Mode : 80MHz
Channel Number	IEEE 802.11a, 802.11ac VHT20 Mode : 5150MHz ~ 5250MHz : 4 Channels 5725MHz ~ 5850MHz : 5 Channels IEEE 802.11ac VHT40 Mode : 5150MHz ~ 5250MHz : 2 Channels 5725MHz ~ 5850MHz : 2 Channels IEEE 802.11ac VHT80 Mode : 5150MHz ~ 5250MHz : 1 Channels 5725MHz ~ 5850MHz : 1 Channels
Transmit Data Rate	IEEE 802.11a Mode: up to 54 Mbps IEEE 802.11ac VHT20 Mode (800ns GI) : up to 156.00 Mbps IEEE 802.11ac VHT20 Mode (400ns GI) : up to 173.40 Mbps IEEE 802.11ac VHT40 Mode (800ns GI) : up to 360.00 Mbps IEEE 802.11ac VHT40 Mode (400ns GI) : up to 400.00 Mbps IEEE 802.11ac VHT80 Mode (800ns GI) : up to 780.00 Mbps IEEE 802.11ac VHT80 Mode (400ns GI) : up to 866.60 Mbps
Type of Modulation	IEEE 802.11a Mode : OFDM (64QAM, 16QAM, QPSK, BPSK) IEEE 802.11ac VHT20/40/80 Mode : OFDM (256QAM, 64QAM, 16QAM, QPSK, BPSK)
Antenna Type	Dipole Antenna × 2, Ant. 1 (Left) / Chain 0 , Antenna Gain : 5.43 dBi Ant. 2 (Right) / Chain 1, Antenna Gain : 5.28 dBi
Power Rating	12Vdc
Test Voltage	120Vac, 60Hz
DC Power Cable Type	Non-shielded cable, 1.5m × 1 (Non-detachable)

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I/O Port	USB Port × 2, WAN(RJ-45) Port × 1, LAN(RJ-45) Port × 4, Power Port × 1
Signal Cable	Non-shielded RJ-45 cable, 1.2 m × 1 (Detachable)

Power Adapter:

No.	Manufacturer	Model No.	Power Input	Power Output
1	APD	WB-18D12R	100-240Vac, 50-60Hz, 0.5A Max.	12Vdc, 1.5A

The difference of the series model

Model Number	Difference	
	Function	External Antenna Quantity
X10	Router + Zigbee	2
X10R	Router + Zigbee+LoRa(Sub-G)	3
X10S	Router + Zigbee+LoRa(Sub-G)	3

Remark:

1. *The sample selected for test was engineering sample that approximated to production product and was provided by manufacturer.*
2. *For more details, please refer to the User's manual of the EUT.*
3. *This submittal(s) (test report) is intended for FCC ID: 2AFEB-X10 filing to comply with Section 15.207, 15.209 and 15.407 of the FCC Part 15, Subpart E Rules.*
4. *FCC 15.407(c) states: The device shall automatically discontinue transmission in case of either absence of information to transmit or operational failure. These provisions are not intended to preclude the transmission of control or signalling information or the use of repetitive codes used by certain digital technologies to complete frame or burst intervals. Applicants shall include in their application for equipment authorization a description of how this requirement is met.*
5. *The model X10R was considered the main model for testing.*

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3. DESCRIPTION OF TEST MODES

The EUT (AC1300 IoT Router) had been tested under operating condition.

For IEEE 802.11a, IEEE 802.11ac VHT20/VHT40/VHT80 mode : 2TX / 2RX.

Mode	IEEE 802.11a	IEEE 802.11ac VHT20	IEEE 802.11ac VHT40	IEEE 802.11ac VHT80
Non-beamforming	V	V	V	V
Beamforming		V	V	V

Conducted Emission / Radiated Emission Test (Below 1 GHz)

1. The following test modes were scanned during the preliminary test:

No.	Pre-Test Mode
1	TX Mode

2. After the preliminary scan, the following test mode was found to produce the highest emission level.

Final Test Mode		
Emission	Radiated Emission	Mode 1
	Radiated Emission	Mode 1

Remark: *Then, the above highest emission mode of the configuration of the EUT and cable was chosen for all final test items.*

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Conducted / Radiated Emission Test (Above 1 GHz)

IEEE 802.11a, 802.11ac VHT20 Mode

The EUT had been tested under operating condition.

Following channel(s) was (were) selected for the final test as listed below:

UNII Band	Channel	Frequency (MHz)
Band 1	Low	5180
	Middle	5200
	High	5240
Band 3	Low	5745
	Middle	5785
	High	5825

IEEE 802.11a Mode: 6Mbps data rate (worst case) was chosen for full testing.
IEEE 802.11ac VHT20 NSS1/MCS0 Mode: 6.5Mbps data rate (worst case) was chosen for full testing.

IEEE 802.11ac VHT40 Mode:

The EUT had been tested under operating condition.

Following channel(s) was (were) selected for the final test as listed below:

UNII Band	Channel	Frequency (MHz)
Band 1	Low	5190
	High	5230
Band 3	Low	5755
	High	5795

IEEE 802.11ac VHT40 NSS1/MCS0 Mode: 13.5Mbps data rate (worst case) was chosen for full testing.

IEEE 802.11ac VHT80 Mode

The EUT had been tested under operating condition.

Following channel(s) was (were) selected for the final test as listed below:

UNII Band	Channel	Frequency (MHz)
Band 1	Low	5210
Band 3	Low	5775

IEEE 802.11ac VHT80 NSS1/MCS0 Mode: 29.3 Mbps data rate (worst case) was chosen for full testing.

Remark*：*The field strength of spurious emission was measured in the following position: EUT stand-up position(Y axis), lie-down position(X, Z axis). The worst emission was found in stand-up position(Y axis) and the worst case was recorded.

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4. TEST METHODOLOGY

The tests documented in this report were performed in accordance with ANSI C63.10:2013 and FCC CFR 47, 15.207, 15.209 and 15. 407.

5. FACILITIES AND ACCREDITATION

5.1 FACILITIES

All measurement facilities used to collect the measurement data are located at

No.989-1, Wenshan Rd., Shangshan Village,
Qionglin Township, Hsinchu County 30741, Taiwan (R.O.C.)

The sites are constructed in conformance with the requirements of ANSI C63.10:2013 and CISPR 22. All receiving equipment conforms to CISPR 16-1-1, CISPR 16-1-2, CISPR 16-1-3, CISPR 16-1-4, CISPR 16-1-5.

5.2 ACCREDITATIONS

Our laboratories are accredited and approved by the following approval agencies according to ISO/IEC 17025.

Taiwan	TAF

The measuring facility of laboratories has been authorized or registered by the following approval agencies.

Canada	INDUSTRY CANADA
Japan	VCCI
Taiwan	BSMI
USA	FCC MRA

Copies of granted accreditation certificates are available for downloading from our web site, http:///www.ccsrf.com

Remark: *FCC Designation Number TW1027.*

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5.3 MEASUREMENT UNCERTAINTY

The following table is for the measurement uncertainty, which is calculated as per the document CISPR 16-4-2.

PARAMETER	UNCERTAINTY
Semi Anechoic Chamber (966 Chamber_B) / Radiated Emission, 30 to 1000 MHz	+/- 3.97
Semi Anechoic Chamber (966 Chamber_B) / Radiated Emission, 1 to 18GHz	+/- 3.58
Semi Anechoic Chamber (966 Chamber_B) / Radiated Emission, 18 to 26 GHz	+/- 3.59
Semi Anechoic Chamber (966 Chamber_B) / Radiated Emission, 26 to 40 GHz	+/- 3.81
Conducted Emission (Mains Terminals), 9kHz to 30MHz	+/- 2.48

This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.
Consistent with industry standard (e.g. CISPR 22, clause 11, Measurement Uncertainty) determining compliance with the limits shall be base on the results of the compliance measurement. Consequently the measure emissions being less than the maximum allowed emission result in this be a compliant test or passing test.
The acceptable measurement uncertainty value without requiring revision of the compliance statement is base on conducted and radiated emissions being less than U_{CISPR} which is 3.6dB and 5.2dB respectively. CCS values (called U_{Lab} in CISPR 16-4-2) is less than U_{CISPR} as shown in the table above. Therefore, MU need not be considered for compliance.

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6. SETUP OF EQUIPMENT UNDER TEST

SUPPORT EQUIPMENT

No.	Product	Manufacturer	Model No.	Serial No.
1	Notebook PC	TOSHIBA	PORTEGE R30-A	7F097009H

No.	Signal Cable Description
1	Non-shielded RJ-45 cable, 12m × 1

SETUP DIAGRAM FOR TESTS

EUT & peripherals setup diagram is shown in appendix setup photos.

EUT OPERATING CONDITION

1. EUT & peripherals setup diagram is shown in appendix setup photos.
2. TX Mode:

⇨ **TX Data Rate:** 6Mbps Bandwidth 20 (IEEE 802.11a Mode)
6.5Mbps Bandwidth 20 (IEEE 802.11ac VHT20 NSS1/MCS0 Mode)
13.5Mbps Bandwidth 40 (IEEE 802.11ac VHT40 NSS1/MCS0 Mode)
29.3 Mbps Bandwidth 80 (IEEE 802.11ac VHT80 NSS1/MCS0 Mode)

⇨ **Power control (Non-Beamforming)**

IEEE 802.11a Mode

UNII Band	Channel	Frequency (MHz)	Chain	Power Set
Band 1 (Master)	Low	5180	0/1	19
	Middle	5200	0/1	20
	High	5240	0/1	19
Band 1 (Client)	Low	5180	0/1	18
	Middle	5200	0/1	18
	High	5240	0/1	18
Band 3	Low	5745	0/1	20
	Middle	5785	0/1	20
	High	5825	0/1	20

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IEEE 802.11ac VHT20 NSS1/MCS0 Mode

UNII Band	Channel	Frequency (MHz)	Chain	Power Set
Band 1 (Master)	Low	5180	0/1	18
	Middle	5200	0/1	20
	High	5240	0/1	19
Band 1 (Client)	Low	5180	0/1	18
	Middle	5200	0/1	18
	High	5240	0/1	18
Band 3	Low	5745	0/1	20
	Middle	5785	0/1	20
	High	5825	0/1	20

IEEE 802.11ac VHT40 NSS1/MCS0 Mode

UNII Band	Channel	Frequency (MHz)	Chain	Power Set
Band 1 (Master)	Low	5190	0/1	15
	High	5230	0/1	19
Band 1 (Client)	Low	5190	0/1	15
	High	5230	0/1	19
Band 3	Low	5755	0/1	20
	High	5795	0/1	20

IEEE 802.11ac VHT80 NSS1/MCS0 Mode

UNII Band	Channel	Frequency (MHz)	Chain	Power Set
Band 1 (Master)	Low	5210	0/1	15
Band 1 (Client)	Low	5210	0/1	15
Band 3	Low	5775	0/1	18

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⇨ **Power control (Beamforming)**

IEEE 802.11ac VHT20 NSS1/MCS0 Mode

UNII Band	Channel	Frequency (MHz)	Chain	Power Set
Band 1 (Master)	Low	5180	0/1	20
	Middle	5200	0/1	20
	High	5240	0/1	20
Band 1 (Client)	Low	5180	0/1	20
	Middle	5200	0/1	20
	High	5240	0/1	20
Band 3	Low	5745	0/1	20
	Middle	5785	0/1	20
	High	5825	0/1	20

IEEE 802.11ac VHT40 NSS1/MCS0 Mode

UNII Band	Channel	Frequency (MHz)	Chain	Power Set
Band 1 (Master)	Low	5190	0/1	18
	High	5230	0/1	20
Band 1 (Client)	Low	5190	0/1	18
	High	5230	0/1	20
Band 3	Low	5755	0/1	20
	High	5795	0/1	20

IEEE 802.11ac VHT80 NSS1/MCS0 Mode

UNII Band	Channel	Frequency (MHz)	Chain	Power Set
Band 1 (Master)	Low	5210	0/1	18
Band 1 (Client)	Low	5210	0/1	18
Band 3	Low	5775	0/1	20

3. All of the functions are under run.
4. Start test.

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7. FCC PART 15.407 REQUIREMENTS

7.1 DUTY CYCLE MEASUREMENT

Product Name	AC1300 IoT Router	Test By	Waternil Guan
Test Model	X10R	Test Date	2016/10/24
Test Mode	TX Mode / Non-Beamforming	Temp. & Humidity	25°C, 50%

Mode	TX on (ms)	TX on + off (ms)	Duty Cycle (%)	Duty Factor (dB)	1/T Minimum VBW (kHz)
IEEE 802.11a	2.064	2.144	96.27	0.17	0.484
IEEE 802.11ac VHT20 NSS1/MCS0	5.006	5.086	98.43	0.07	0.010
IEEE 802.11ac VHT40 NSS1/MCS0	2.437	2.518	96.78	0.14	0.410
IEEE 802.11ac VHT80 NSS1/MCS0	1.149	1.229	93.49	0.29	0.870

Product Name	AC1300 IoT Router	Test By	Waternil Guan
Test Model	X10R	Test Date	2016/10/24
Test Mode	TX Mode / Beamforming	Temp. & Humidity	25°C, 50%

Mode	TX on (ms)	TX on + off (ms)	Duty Cycle (%)	Duty Factor (dB)	1/T Minimum VBW (kHz)
IEEE 802.11ac VHT20 NSS1/MCS0	1.815	1.925	94.29	0.26	0.551
IEEE 802.11ac VHT40 NSS1/MCS0	1.680	1.860	90.32	0.44	0.595
IEEE 802.11ac VHT80 NSS1/MCS0	2.005	2.110	95.02	0.22	0.499

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7.2 26dB BANDWIDTH

LIMITS

None: For reporting purposes only.

TEST EQUIPMENT

Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
Spectrum Analyzer	Agilent	E4446A	MY43360132	05/31/2017
Test S/W	N/A			

Remark: *Each piece of equipment is scheduled for calibration once a year.*

TEST SETUP

TEST PROCEDURE

1. Set RBW = approximately 1% of the emission bandwidth.
2. Set the VBW > RBW.
3. Detector = Peak.
4. Trace mode = max hold.
5. Measure the maximum width of the emission that is 26 dB down from the peak of the emission. Compare this with the RBW setting of the analyzer. Readjust RBW and repeat measurement as needed until the RBW/EBW ratio is approximately 1%.

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TEST RESULTS

Product Name	AC1300 IoT Router	Test By	Waternil Guan
Test Model	X10R	Test Date	2016/11/17
Test Mode	TX Mode / Non-Beamforming	Temp. & Humidity	25°C, 62%

IEEE 802.11a Mode (2TX)

U-NII Band	Channel	Channel Frequency (MHz)	26dB Bandwidth (MHz)	
			Chain 0	Chain 1
Band 1	Low	5180	34.80	27.76
	Middle	5200	37.60	34.48
	High	5240	35.38	31.53

IEEE 802.11ac VHT20 NSS1/MCS0 Mode (2TX)

U-NII Band	Channel	Channel Frequency (MHz)	26dB Bandwidth (MHz)	
			Chain 0	Chain 1
Band 1	Low	5180	34.06	24.74
	Middle	5200	42.79	36.79
	High	5240	37.58	33.51

IEEE 802.11ac VHT40 Mode NSS1/MCS0 (2TX)

U-NII Band	Channel	Channel Frequency (MHz)	26dB Bandwidth (MHz)	
			Chain 0	Chain 1
Band 1	Low	5190	44.75	43.97
	High	5230	76.88	68.55

IEEE 802.11ac VHT80 Mode NSS1/MCS0 (2TX)

U-NII Band	Channel	Channel Frequency (MHz)	26dB Bandwidth (MHz)	
			Chain 0	Chain 1
Band 1	Low	5210	90.36	88.25

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Product Name	AC1300 IoT Router	Test By	Davis Tseng
Test Model	X10R	Test Date	2016/11/25
Test Mode	TX Mode / Beamforming	Temp. & Humidity	23°C, 58%

IEEE 802.11ac VHT20 NSS1/MCS0 Mode (2TX)

U-NII Band	Channel	Channel Frequency (MHz)	26dB Bandwidth (MHz)	
			Chain 0	Chain 1
Band 1	Low	5180	32.36	23.57
	Middle	5200	32.19	23.15
	High	5240	30.61	26.45

IEEE 802.11ac VHT40 NSS1/MCS0 Mode (2TX)

U-NII Band	Channel	Channel Frequency (MHz)	26dB Bandwidth (MHz)	
			Chain 0	Chain 1
Band 1	Low	5190	49.58	47.99
	High	5230	49.98	47.79

IEEE 802.11ac VHT80 NSS1/MCS0 Mode (2TX)

U-NII Band	Channel	Channel Frequency (MHz)	26dB Bandwidth (MHz)	
			Chain 0	Chain 1
Band 1	Low	5210	84.46	89.36

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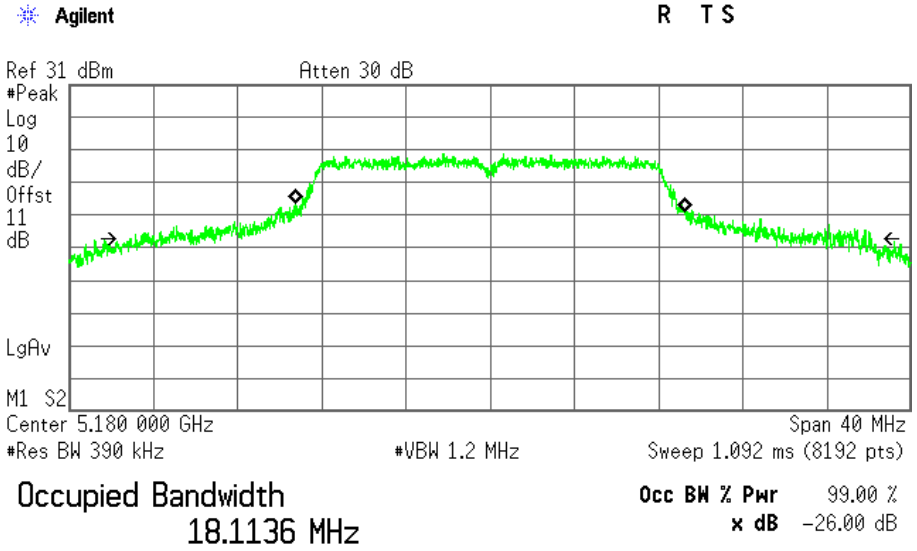
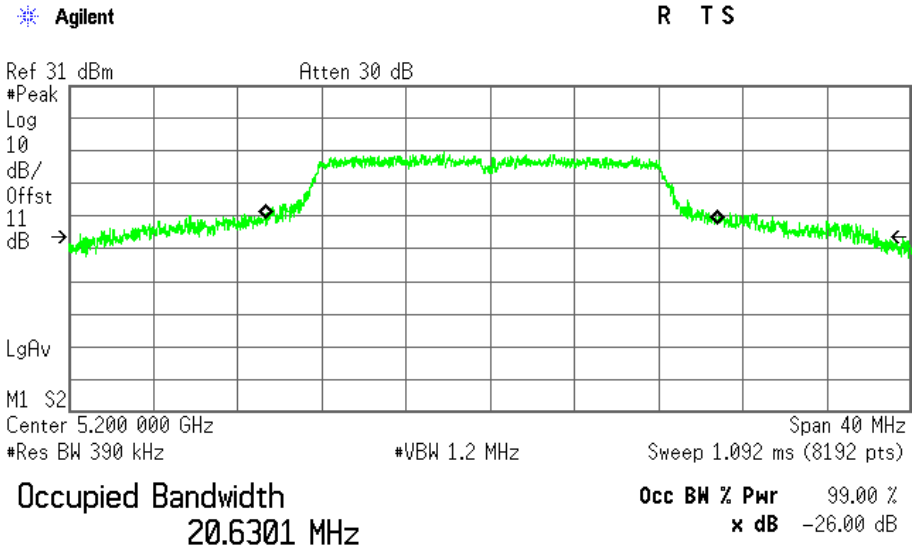
26dB BANDWIDTH

Non-beamforming

CH Low (IEEE 802.11a Mode / Band 1 / Chain 0)



CH Middle (IEEE 802.11a Mode / Band 1 / Chain 0)



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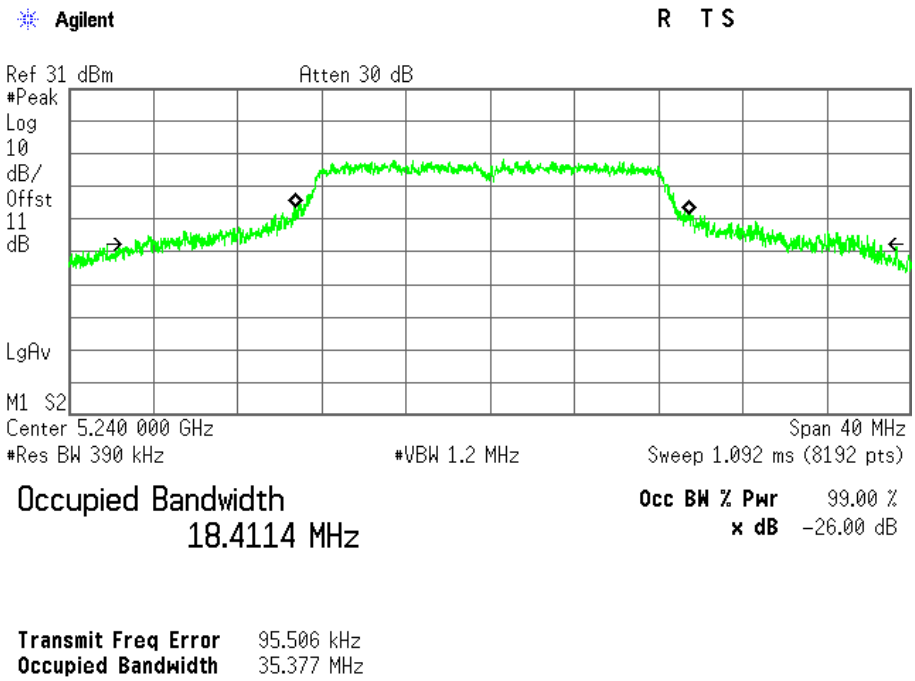
CH High (IEEE 802.11a Mode / Band 1 / Chain 0)



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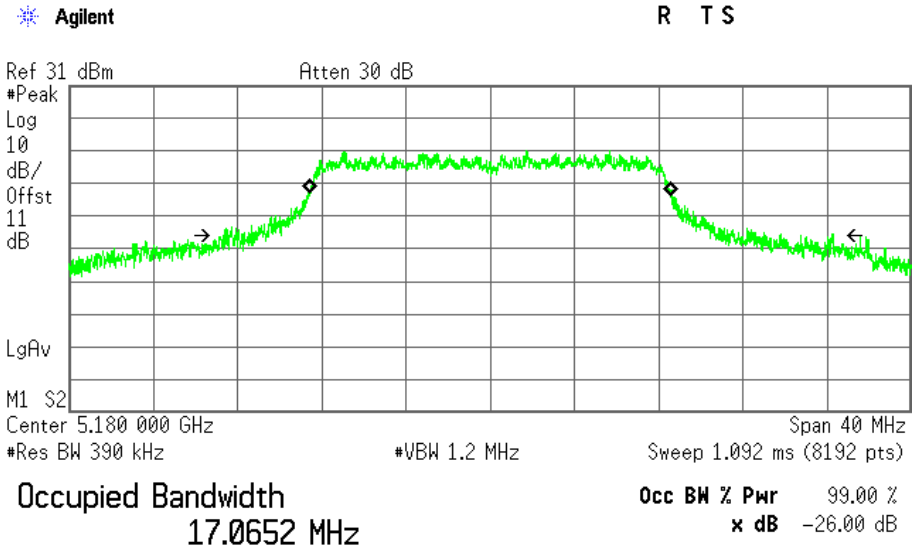
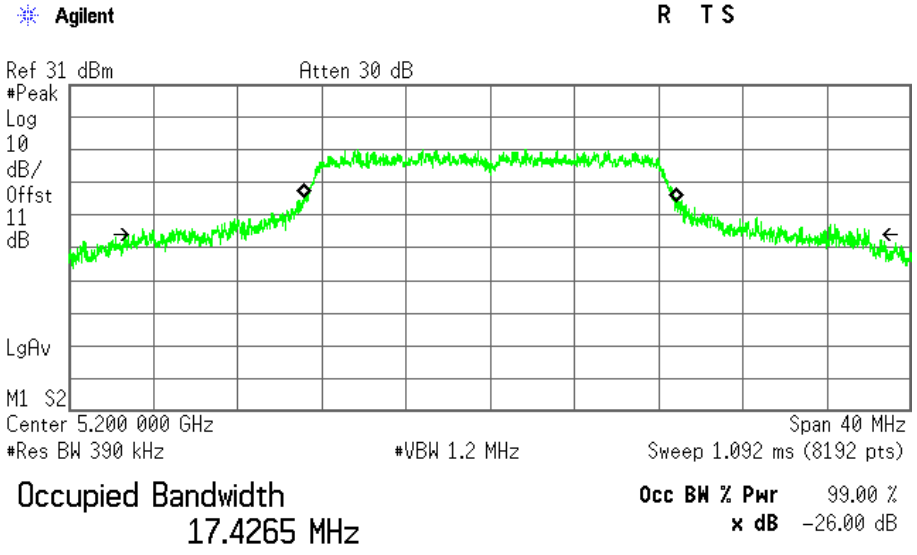
CH Low (IEEE 802.11a Mode / Band 1 / Chain 1)



CH Middle (IEEE 802.11a Mode / Band 1 / Chain 1)



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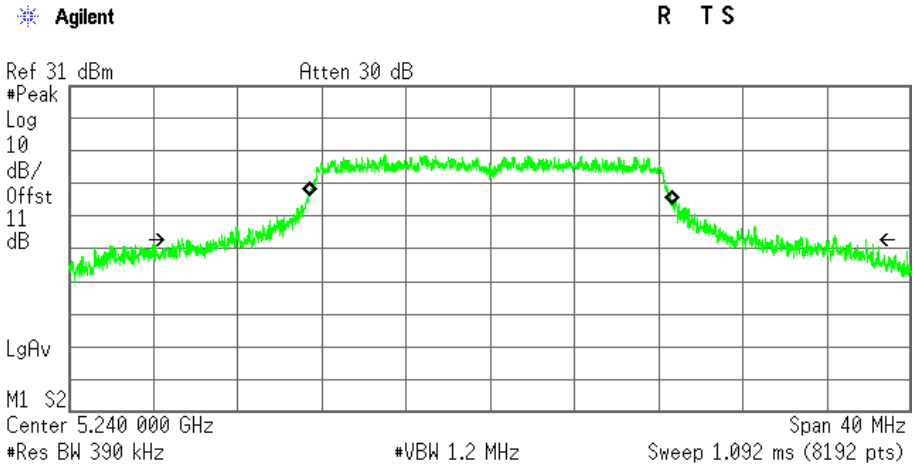
CH High (IEEE 802.11a Mode / Band 1 / Chain 1)



Occupied Bandwidth
17.0756 MHz

Occ BW % Pwr 99.00 %
x dB -26.00 dB

Transmit Freq Error 7.214 kHz
Occupied Bandwidth 31.525 MHz

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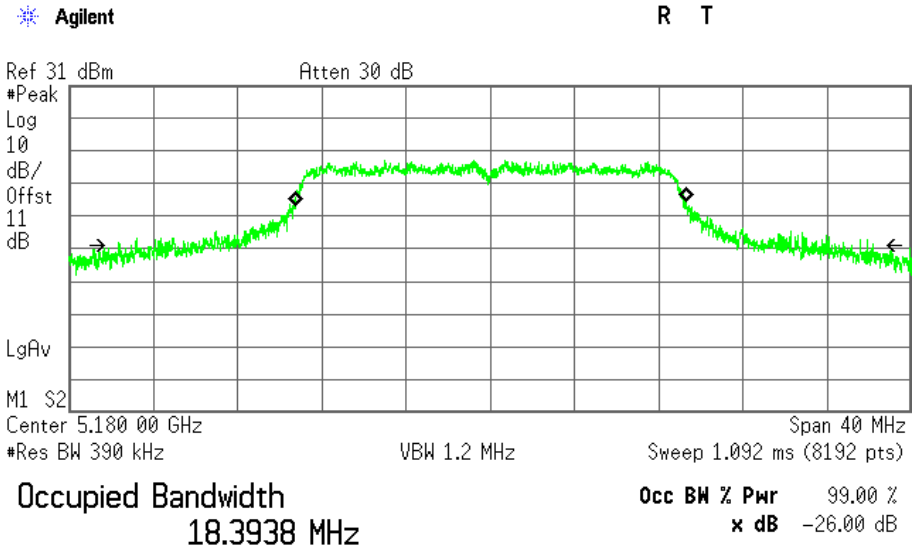
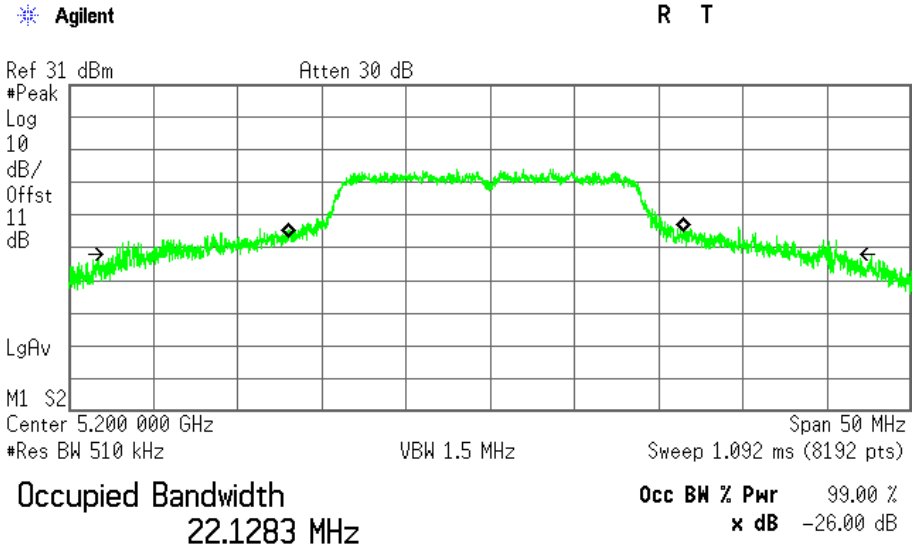
CH Low (IEEE 802.11ac VHT20 NSS1/MCS0 Mode / Band 1 / Chain 0)



Transmit Freq Error 2.193 kHz
Occupied Bandwidth 34.055 MHz

CH Middle (IEEE 802.11ac VHT20 NSS1/MCS0 Mode / Band 1 / Chain 0)



Transmit Freq Error 97.350 kHz
Occupied Bandwidth 42.785 MHz

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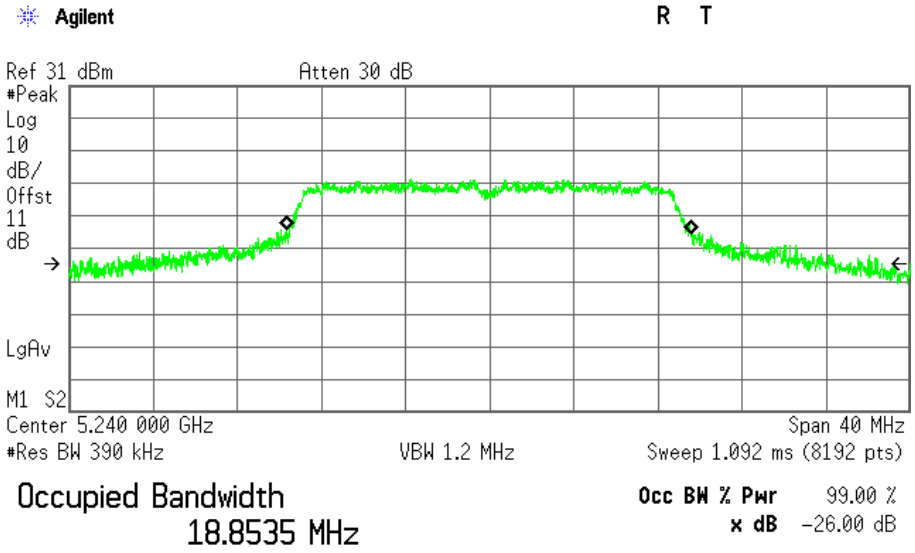
CH High (IEEE 802.11ac VHT20 NSS1/MCS0 Mode / Band 1 / Chain 0)



Transmit Freq Error -34.162 kHz
Occupied Bandwidth 37.577 MHz

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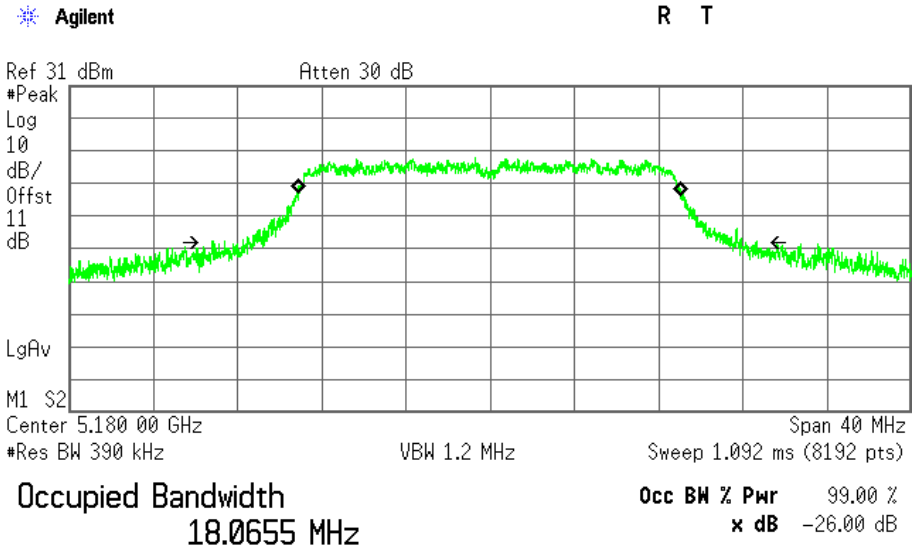
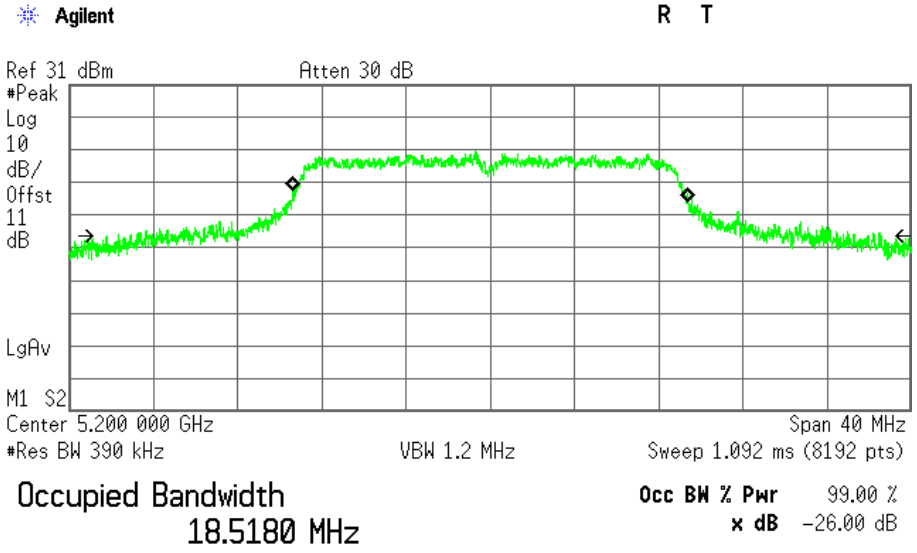
CH Low (IEEE 802.11ac VHT20 NSS1/MCS0 Mode / Band 1 / Chain 1)



Transmit Freq Error -16.880 kHz
Occupied Bandwidth 24.738 MHz

CH Middle (IEEE 802.11ac VHT20 NSS1/MCS0 Mode / Band 1 / Chain 1)



Transmit Freq Error -2.950 kHz
Occupied Bandwidth 36.790 MHz

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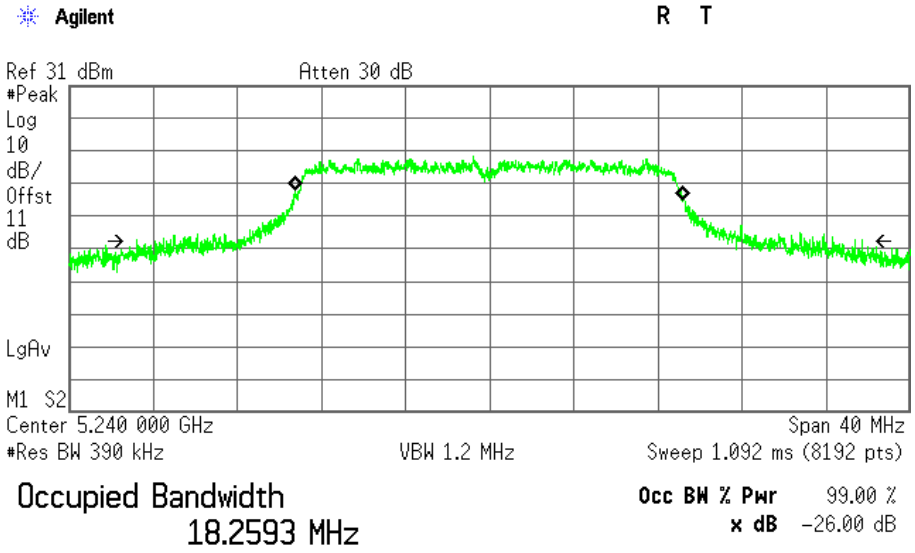
CH High (IEEE 802.11ac VHT20 NSS1/MCS0 Mode / Band 1 / Chain 1)



Occupied Bandwidth
18.2593 MHz

Occ BW % Pwr 99.00 %
x dB -26.00 dB

Transmit Freq Error -10.217 kHz
Occupied Bandwidth 33.513 MHz

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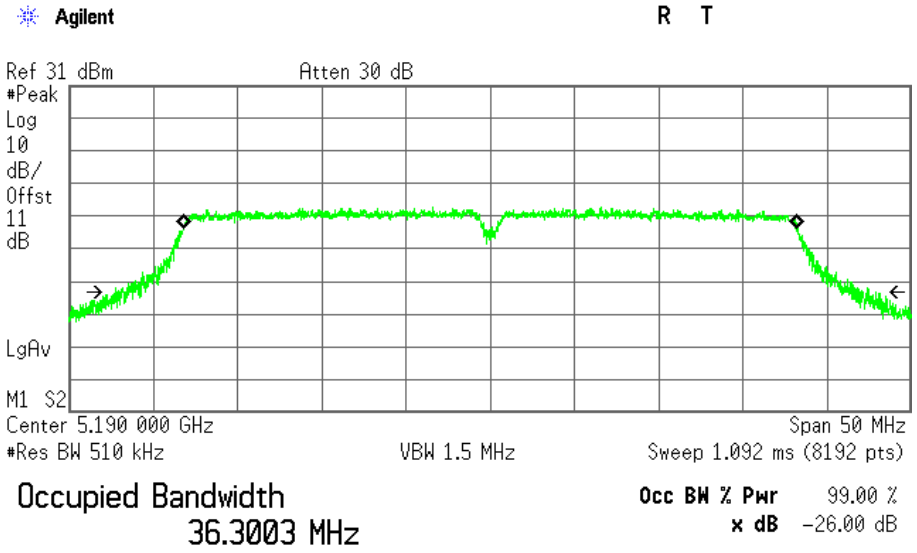
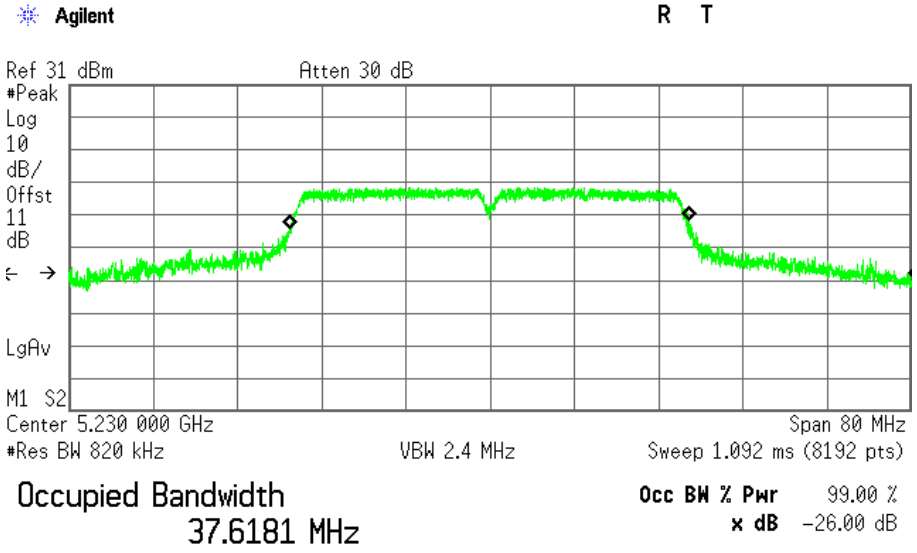
CH Low (IEEE 802.11ac VHT40 NSS1/MCS0Mode / Band 1 / Chain 0)



Transmit Freq Error −3.885 kHz
Occupied Bandwidth 44.750 MHz

CH High (IEEE 802.11ac VHT40NSS1/MCS0 Mode / Band 1 / Chain 0)



Transmit Freq Error −43.872 kHz
Occupied Bandwidth 76.881 MHz

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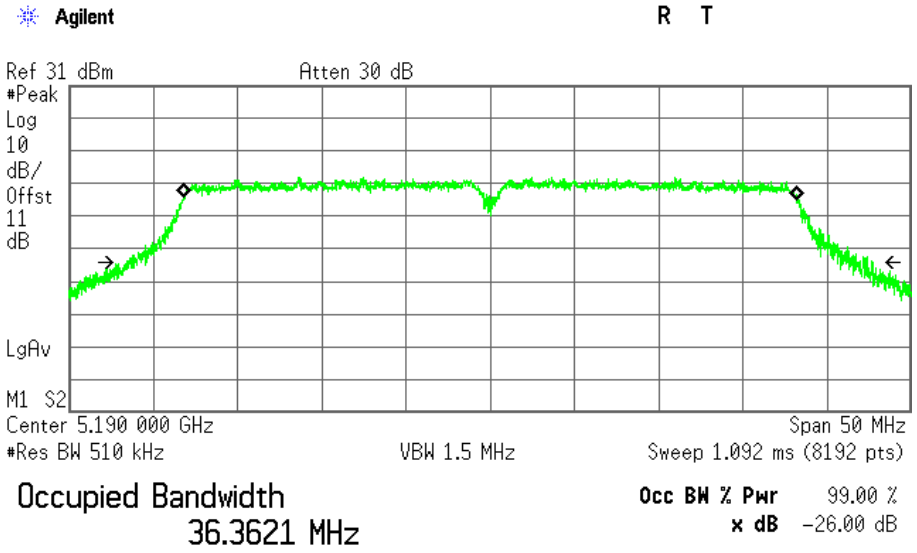
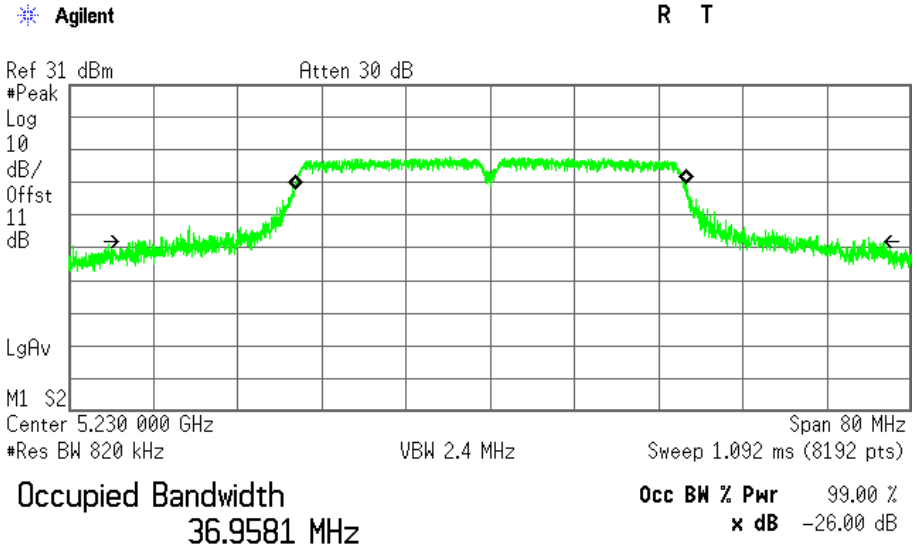
CH Low (IEEE 802.11ac VHT40 NSS1/MCS0 Mode / Band 1 / Chain 1)



Transmit Freq Error 4.191 kHz
Occupied Bandwidth 43.967 MHz

CH High (IEEE 802.11ac VHT40 NSS1/MCS0 Mode / Band 1 / Chain 1)



Transmit Freq Error 5.169 kHz
Occupied Bandwidth 68.545 MHz

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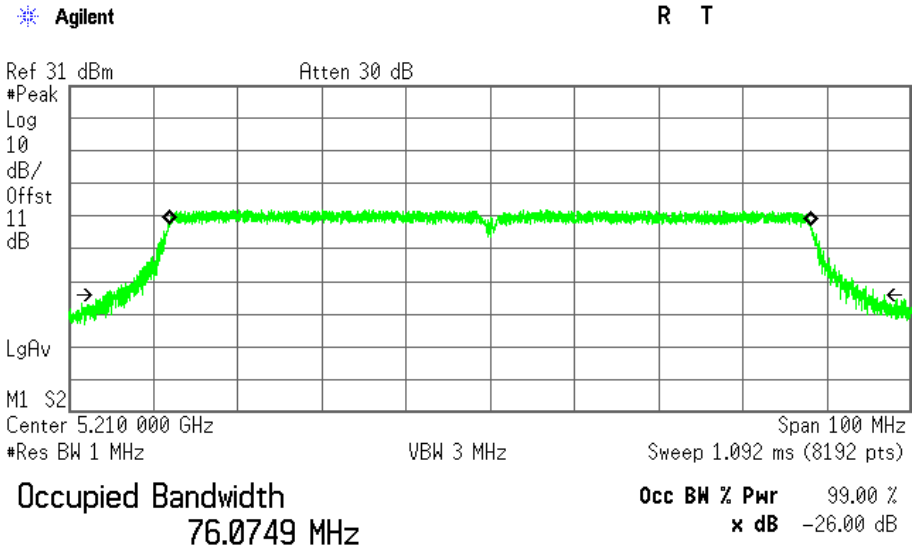
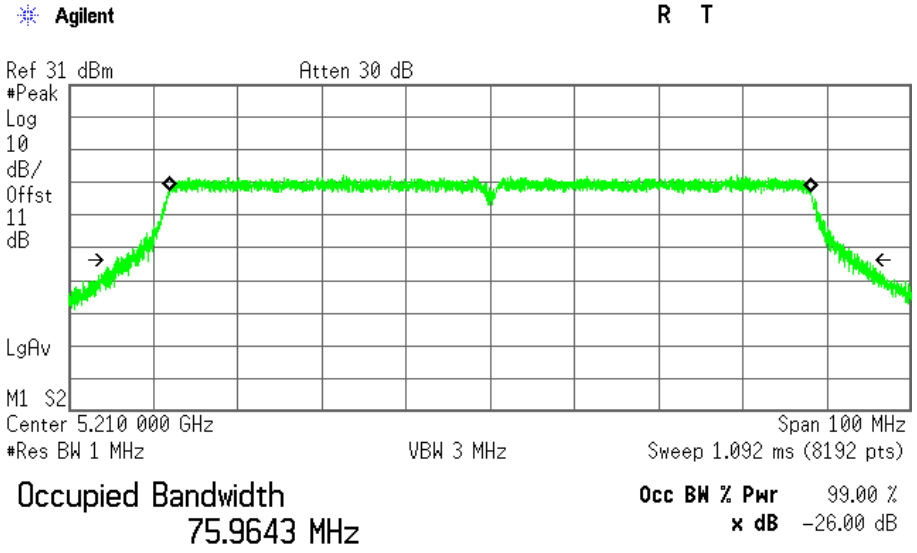
CH Low (IEEE 802.11ac VHT80 NSS1/MCS0 Mode / Band 1 / Chain 0)



Transmit Freq Error	-42.402 kHz
Occupied Bandwidth	90.361 MHz

CH Low (IEEE 802.11ac VHT80 NSS1/MCS0 Mode / Band 1 / Chain 1)



Transmit Freq Error	28.399 kHz
Occupied Bandwidth	88.253 MHz

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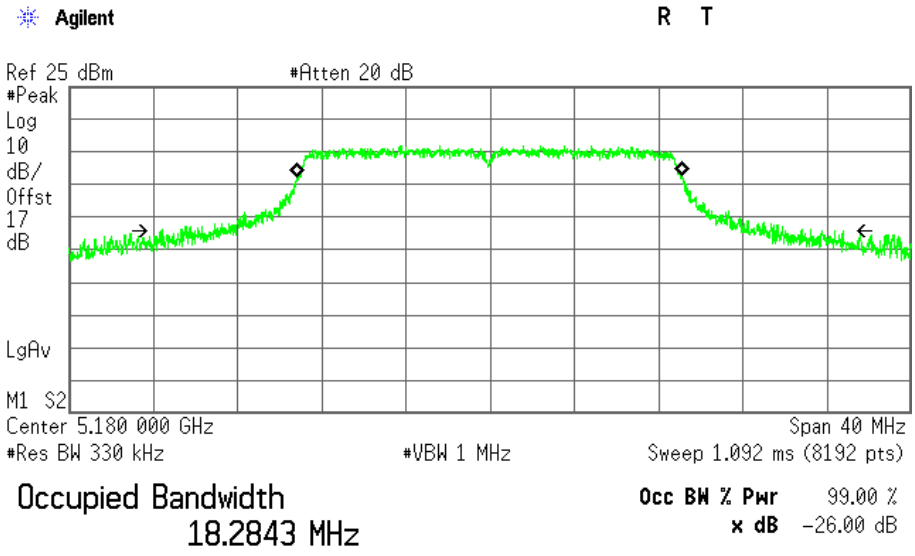
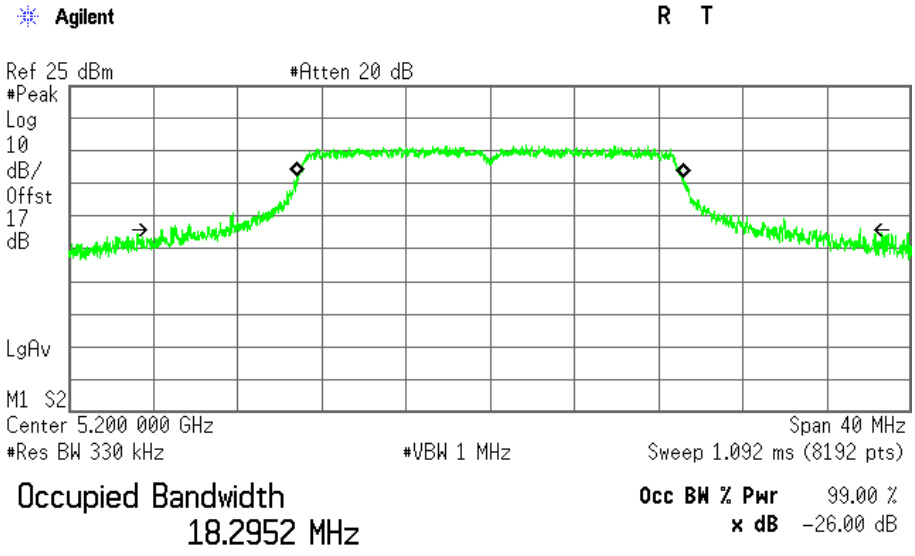
Beamforming

CH Low (IEEE 802.11ac VHT20 NSS1/MCS0 Mode / Band 1 / Chain 0)



CH Middle (IEEE 802.11ac VHT20 NSS1/MCS0 Mode / Band 1 / Chain 0)



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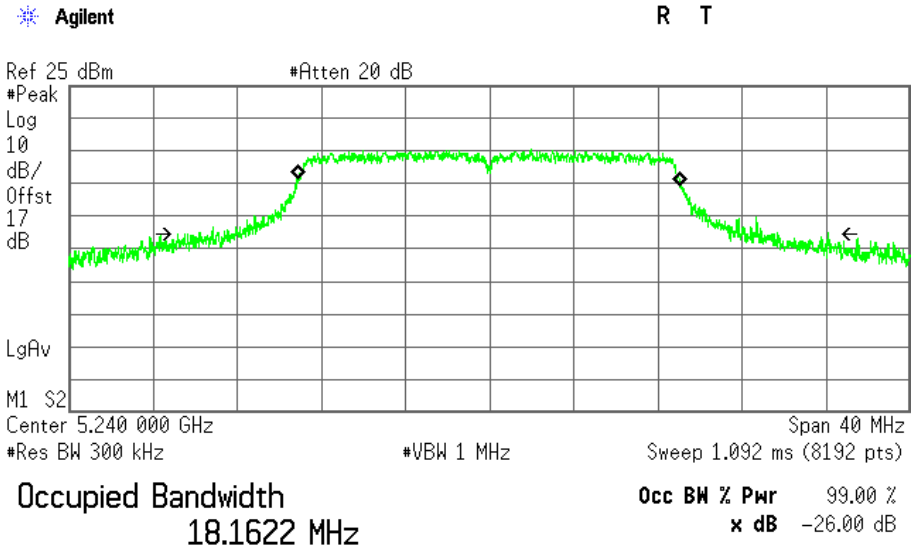
CH High (IEEE 802.11ac VHT20 NSS1/MCS0 Mode / Band 1 / Chain 0)



Occupied Bandwidth
18.1622 MHz

Occ BW % Pwr 99.00 %
x dB -26.00 dB

Transmit Freq Error -39.879 kHz
x dB Bandwidth 30.614 MHz

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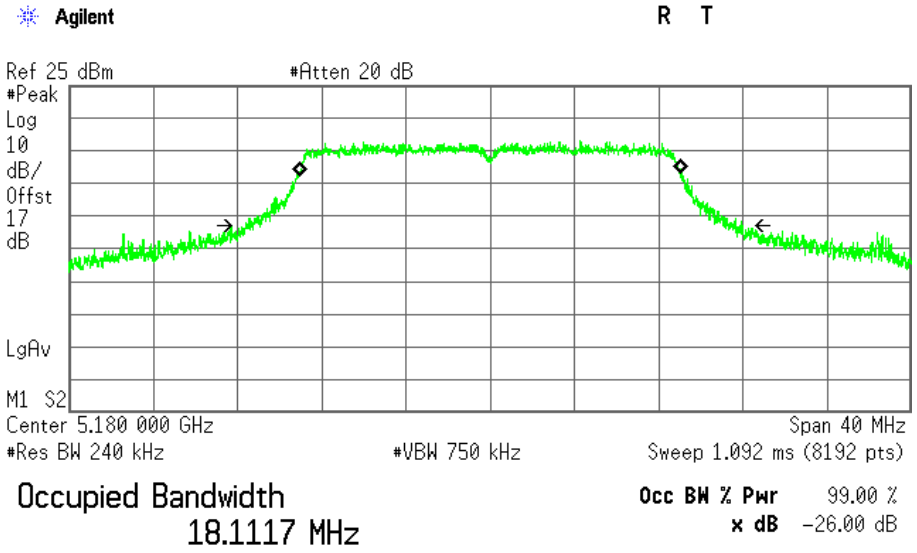
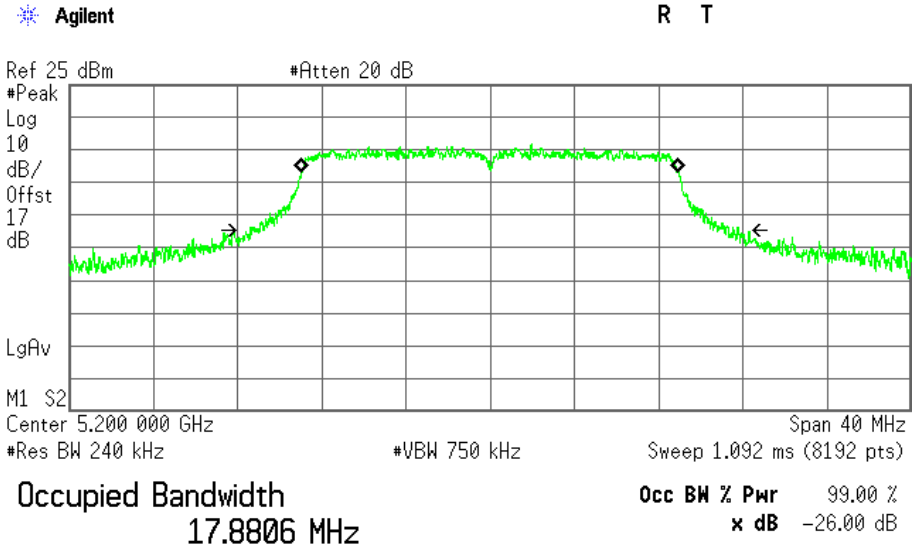
CH Low (IEEE 802.11ac VHT20 NSS1/MCS0 Mode / Band 1 / Chain 1)



CH Middle (IEEE 802.11ac VHT20 NSS1/MCS0 Mode / Band 1 / Chain 1)



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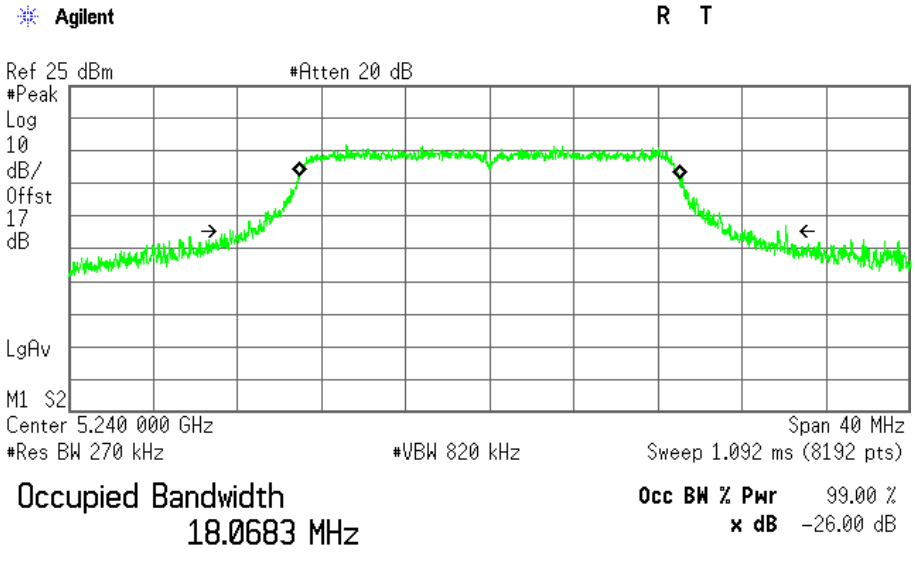
CH High (IEEE 802.11ac VHT20 NSS1/MCS0Mode / Band 1 / Chain 1)



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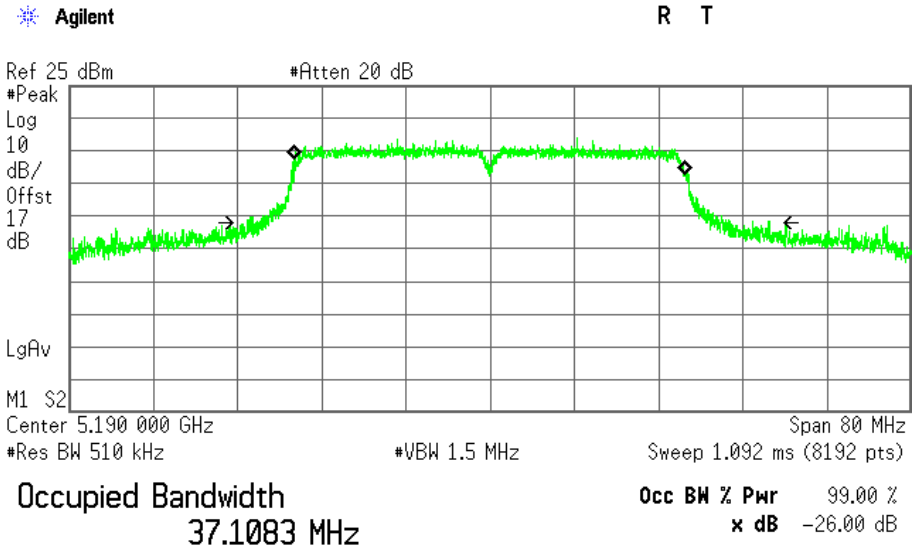
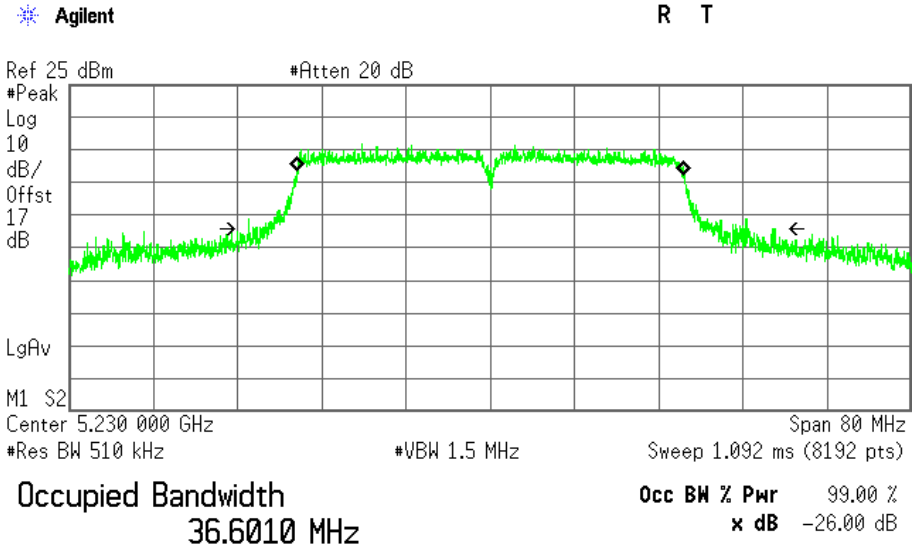
CH Low (IEEE 802.11ac VHT40 NSS1/MCS0 Mode / Band 1 / Chain 0)



Transmit Freq Error -94.601 kHz
x dB Bandwidth 49.577 MHz

CH High (IEEE 802.11ac VHT40 NSS1/MCS0 Mode / Band 1 / Chain 0)



Transmit Freq Error 13.579 kHz
x dB Bandwidth 49.981 MHz

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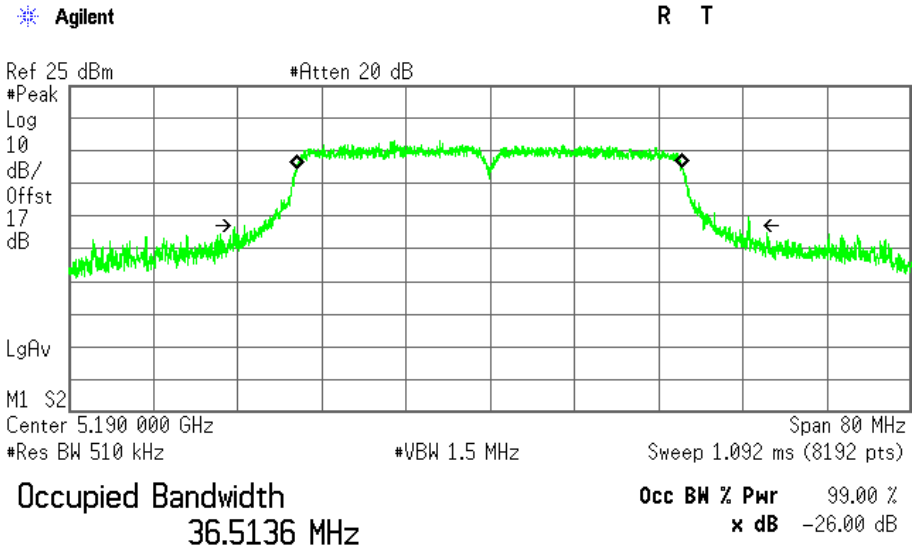
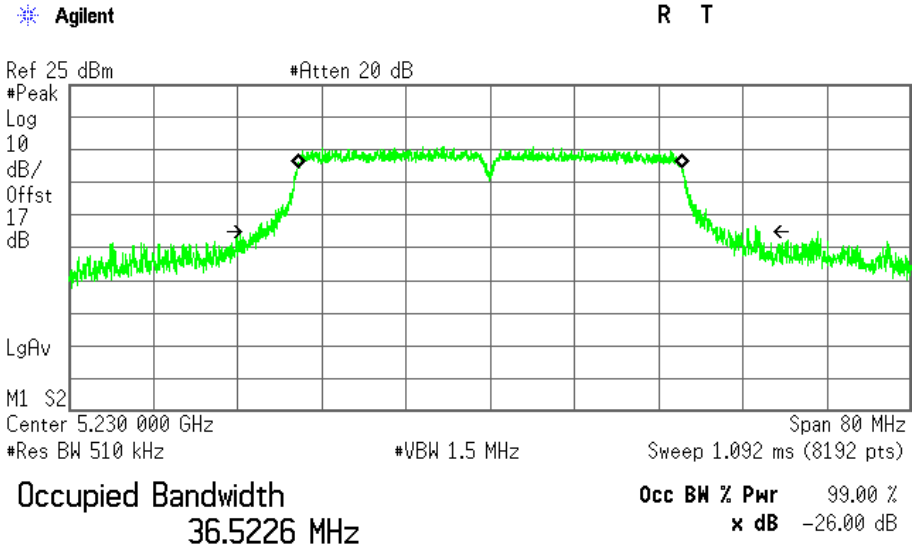
CH Low (IEEE 802.11ac VHT40 NSS1/MCS0 Mode / Band 1 / Chain 1)



CH High (IEEE 802.11ac VHT40 NSS1/MCS0 Mode / Band 1 / Chain 1)



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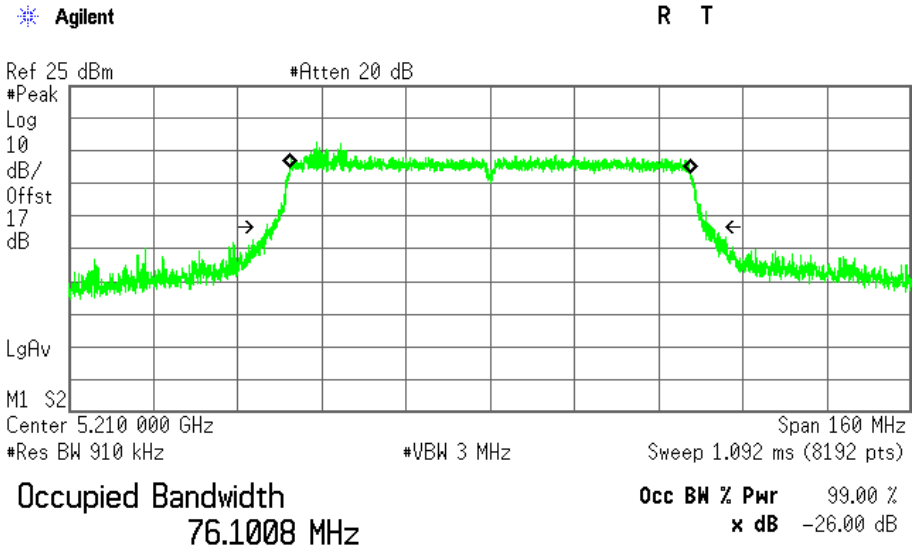
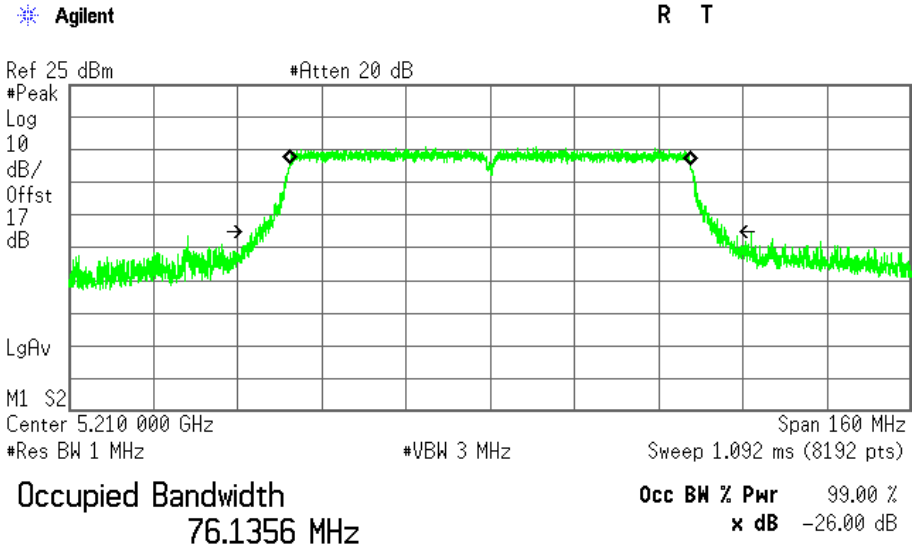
CH Low (IEEE 802.11ac VHT80 NSS1/MCS0 Mode / Band 1 / Chain 0)



Transmit Freq Error -25.741 kHz
x dB Bandwidth 84.461 MHz

CH Low (IEEE 802.11ac VHT80 NSS1/MCS0 Mode / Band 1 / Chain 1)



Transmit Freq Error -8.620 kHz
x dB Bandwidth 89.363 MHz

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7.3 6dB BANDWIDTH

LIMITS

According to§ 15.407 (e), within the 5.725-5.85 GHz band, the minimum 6 dB bandwidth of U-NII devices shall be at least 500 kHz.

TEST EQUIPMENT

Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
Spectrum Analyzer	Agilent	E4446A	MY43360132	05/31/2017
Test S/W	N/A			

Remark: *Each piece of equipment is scheduled for calibration once a year.*

TEST SETUP

TEST PROCEDURE

1. Place the EUT on the table and set it in the transmitting mode.
2. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.
3. Set the spectrum analyzer as RBW = 100kHz, VBW = 300kHz, Sweep = auto.
4. Mark the peak frequency and –6dB (upper and lower) frequency.
5. Repeat until all the rest channels are investigated.

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TEST RESULTS

Product Name	AC1300 IoT Router	Test By	Waternil Guan
Test Model	X10R	Test Date	2016/11/17
Test Mode	TX Mode / Non-beamforming	Temp. & Humidity	25°C, 62%

IEEE 802.11a Mode (2TX)

UNII Band	Channel	Channel Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (kHz)
			Chain 0	Chain 1	
Band 3	Low	5745	16.280	16.315	500
	Middle	5785	16.330	16.305	500
	High	5825	16.295	16.325	500

IEEE 802.11ac VHT20 NSS1/MCS0 Mode (2TX)

UNII Band	Channel	Channel Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (kHz)
			Chain 0	Chain 1	
Band 3	Low	5745	17.585	17.570	500
	Middle	5785	17.555	17.600	500
	High	5825	17.560	17.580	500

IEEE 802.11ac VHT40 NSS1/MCS0 Mode (2TX)

UNII Band	Channel	Channel Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (kHz)
			Chain 0	Chain 1	
Band 3	Low	5755	36.055	36.320	500
	High	5795	36.330	36.340	500

IEEE 802.11ac VHT80 NSS1/MCS0 Mode (2TX)

UNII Band	Channel	Channel Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (kHz)
			Chain 0	Chain 1	
Band 3	Low	5775	75.775	75.755	500

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Product Name	AC1300 IoT Router	Test By	Davis Tseng
Test Model	X10R	Test Date	2016/11/25
Test Mode	TX Mode / Beamforming	Temp. & Humidity	23°C, 58%

IEEE 802.11ac VHT20 NSS1/MCS0 Mode (2TX)

UNII Band	Channel	Channel Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (kHz)
			Chain 0	Chain 1	
Band 3	Low	5745	17.155	17.764	500
	Middle	5785	17.622	17.611	500
	High	5825	17.615	17.659	500

IEEE 802.11ac VHT40 NSS1/MCS0 Mode (2TX)

UNII Band	Channel	Channel Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (kHz)
			Chain 0	Chain 1	
Band 3	Low	5755	35.956	35.349	500
	High	5795	36.158	35.721	500

IEEE 802.11ac VHT80 NSS1/MCS0 Mode (2TX)

UNII Band	Channel	Channel Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (kHz)
			Chain 0	Chain 1	
Band 3	Low	5775	75.673	75.005	500

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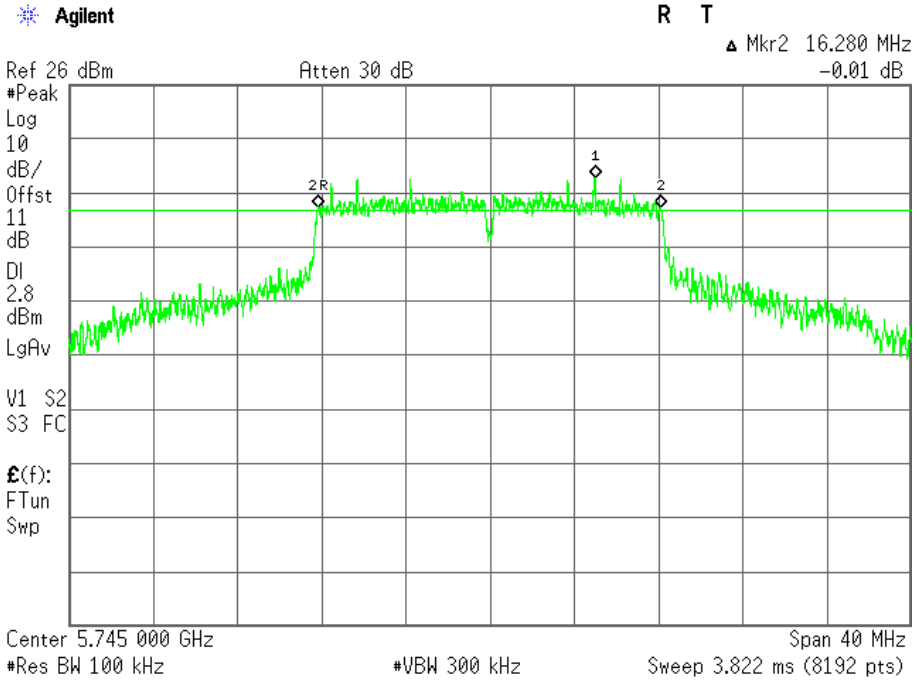
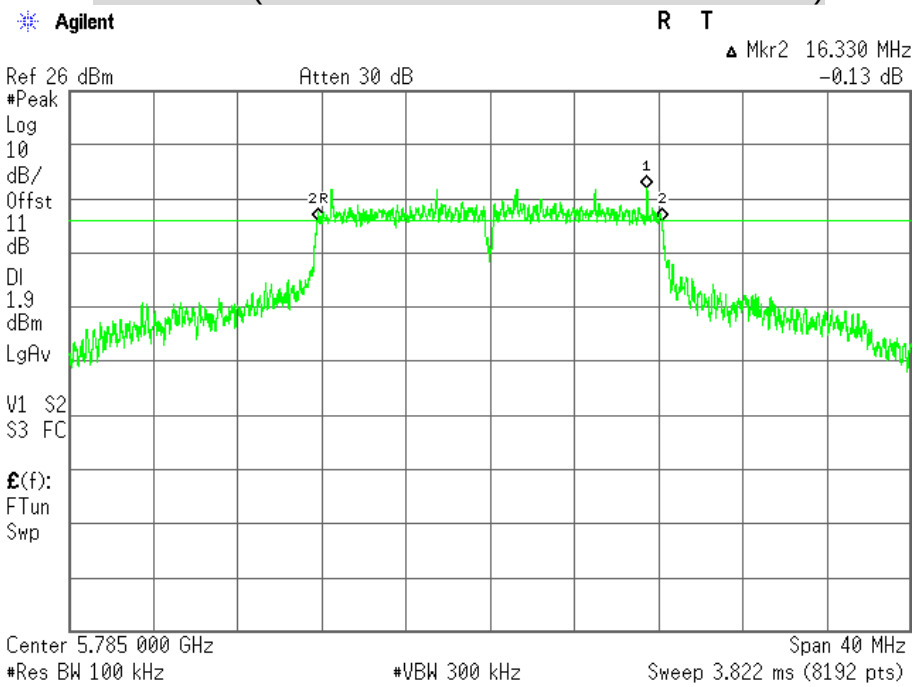
6dB BANDWIDTH

Non-beamforming

CH Low (IEEE 802.11a Mode / Band 3 / Chain 0)



CH Middle (IEEE 802.11a Mode / Band 3 / Chain 0)



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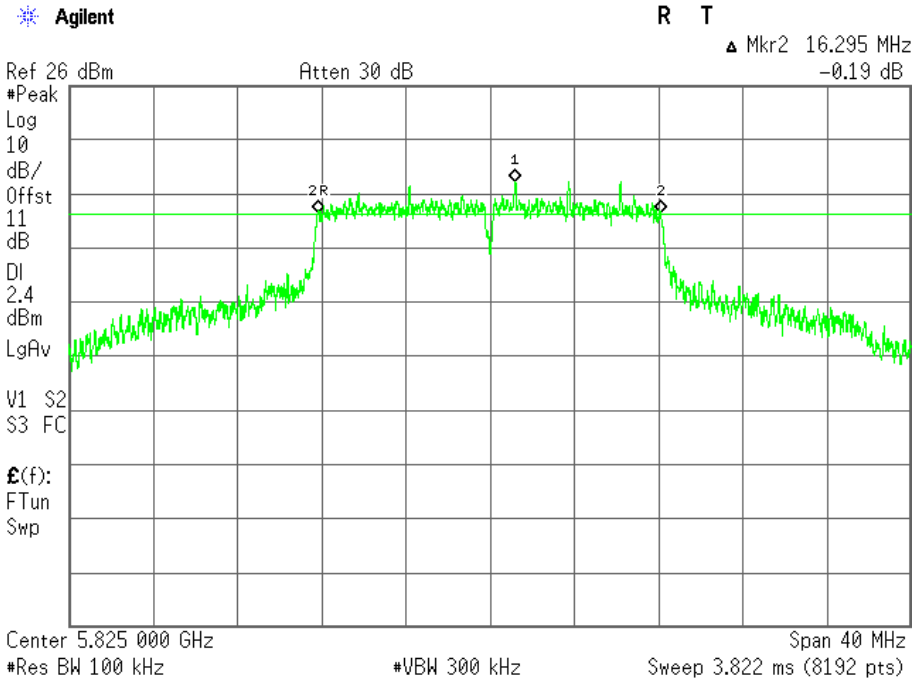
CH High (IEEE 802.11a Mode / Band 3 / Chain 0)



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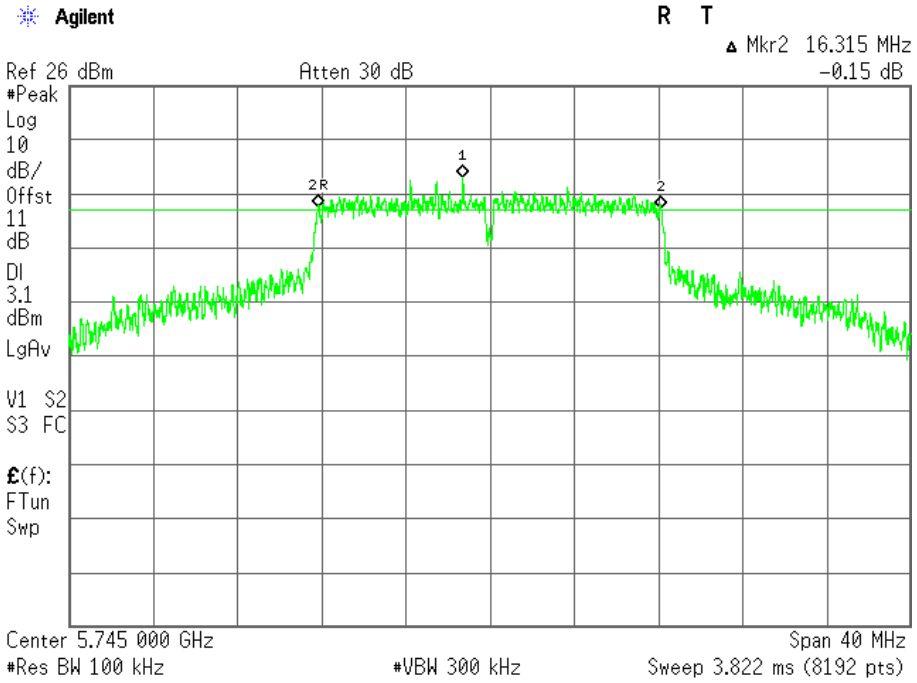
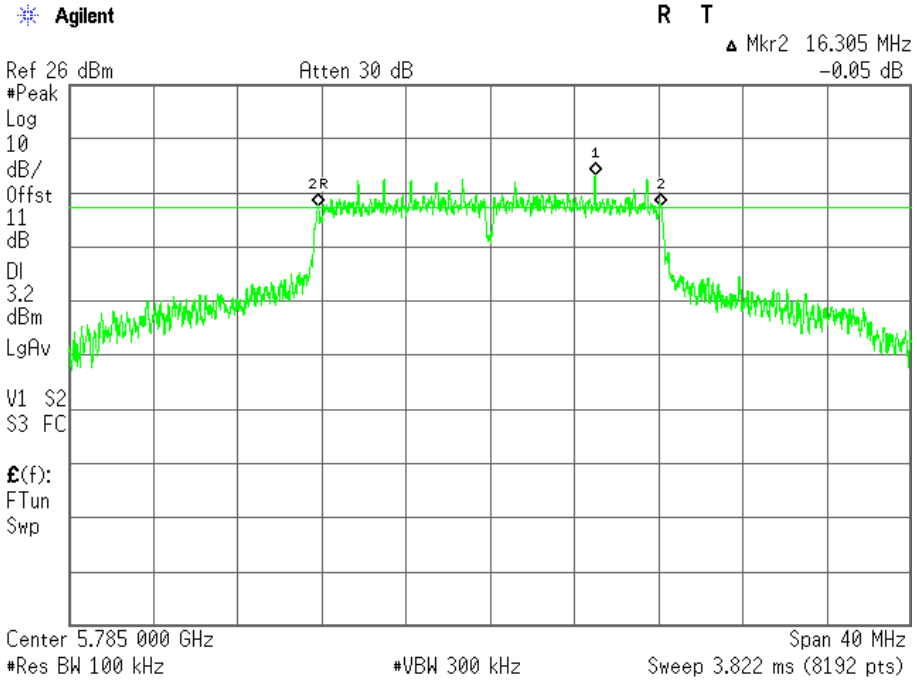
CH Low (IEEE 802.11a Mode / Band 3 / Chain 1)



CH Middle (IEEE 802.11a Mode / Band 3 / Chain 1)



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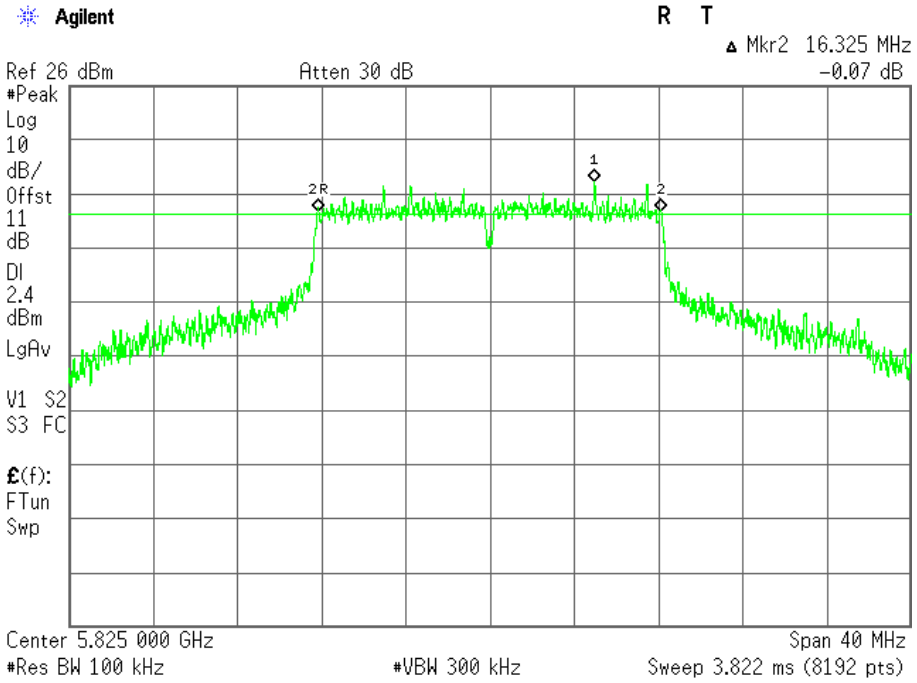
CH High (IEEE 802.11a Mode / Band 3 / Chain 1)



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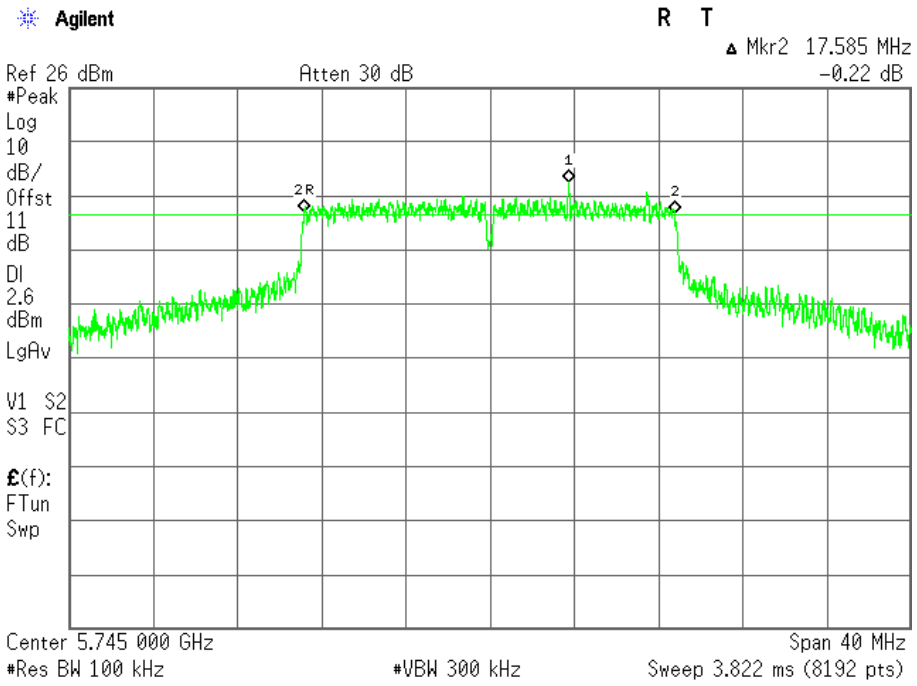
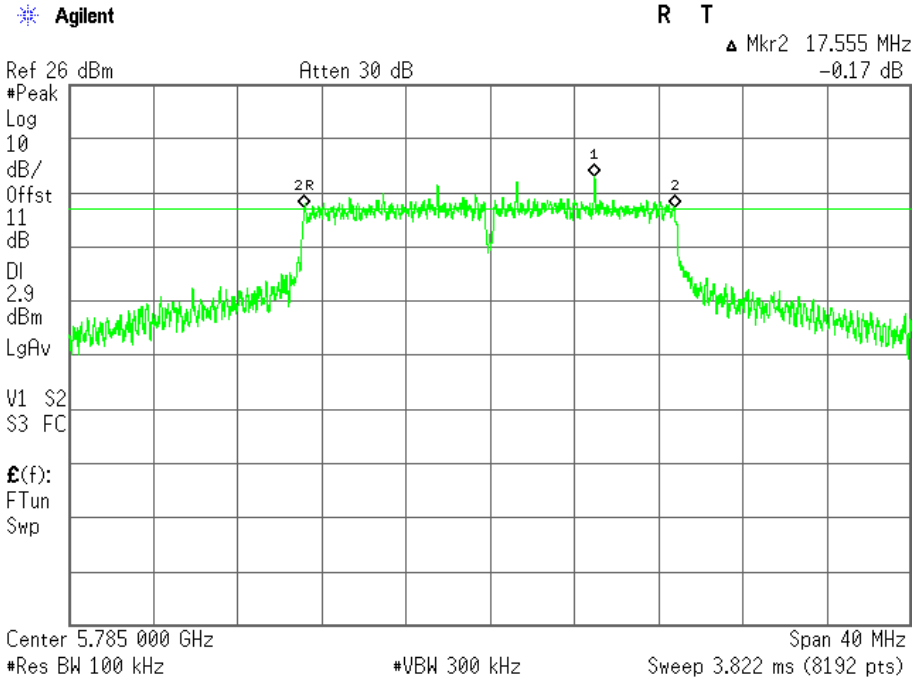
CH Low (IEEE 802.11ac VHT20 NSS1/MCS0 Mode / Band 3 / Chain 0)



CH Middle (IEEE 802.11ac VHT20 NSS1/MCS0 Mode / Band 3 / Chain 0)



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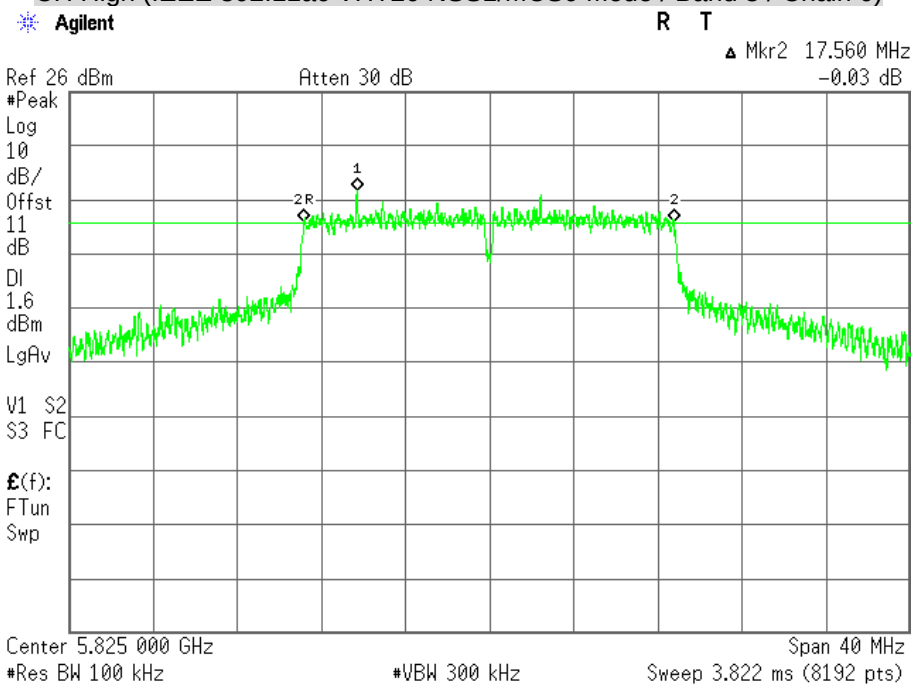
CH High (IEEE 802.11ac VHT20 NSS1/MCS0 Mode / Band 3 / Chain 0)



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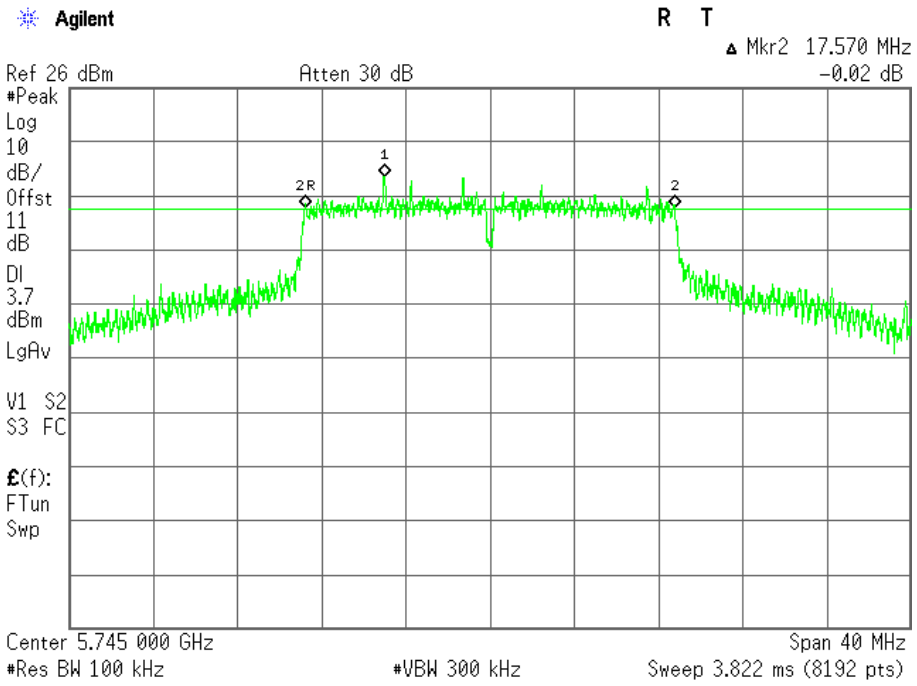
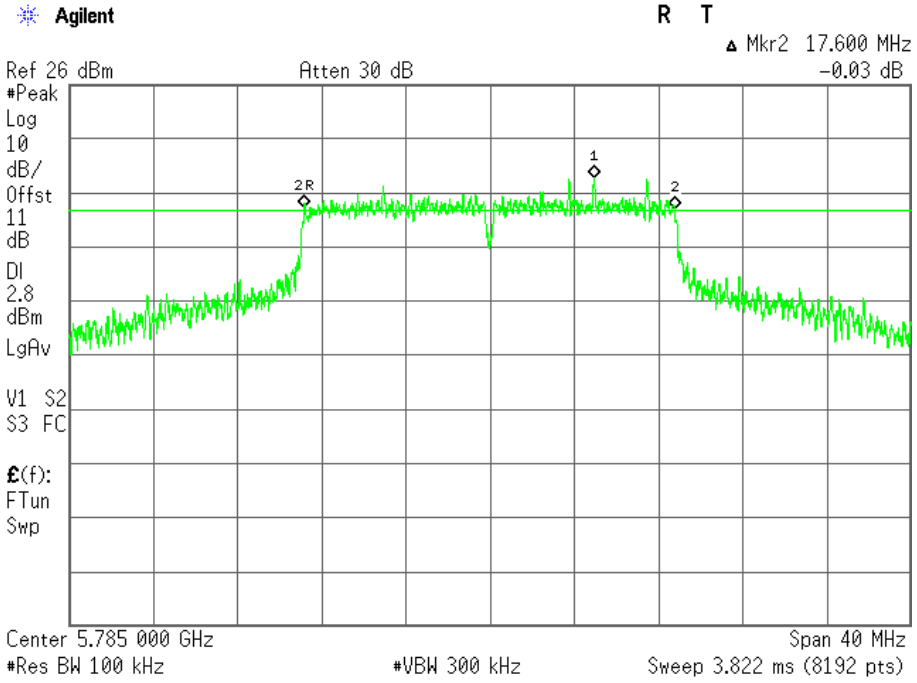
CH Low (IEEE 802.11ac VHT20 NSS1/MCS0 Mode / Band 3 / Chain 1)



CH Middle (IEEE 802.11ac VHT20 NSS1/MCS0 Mode / Band 3 / Chain 1)



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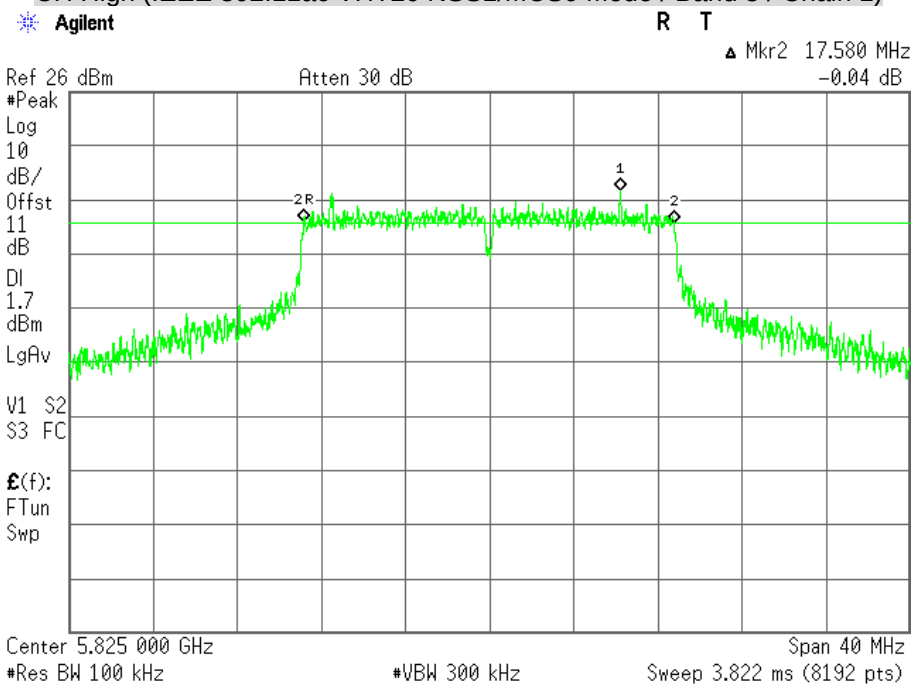
CH High (IEEE 802.11ac VHT20 NSS1/MCS0 Mode / Band 3 / Chain 1)



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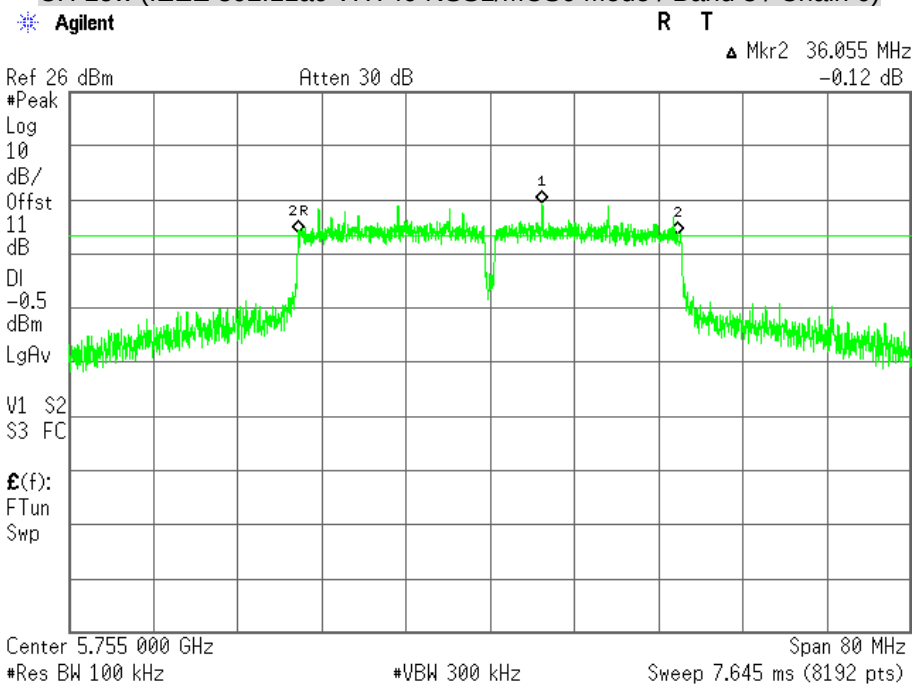
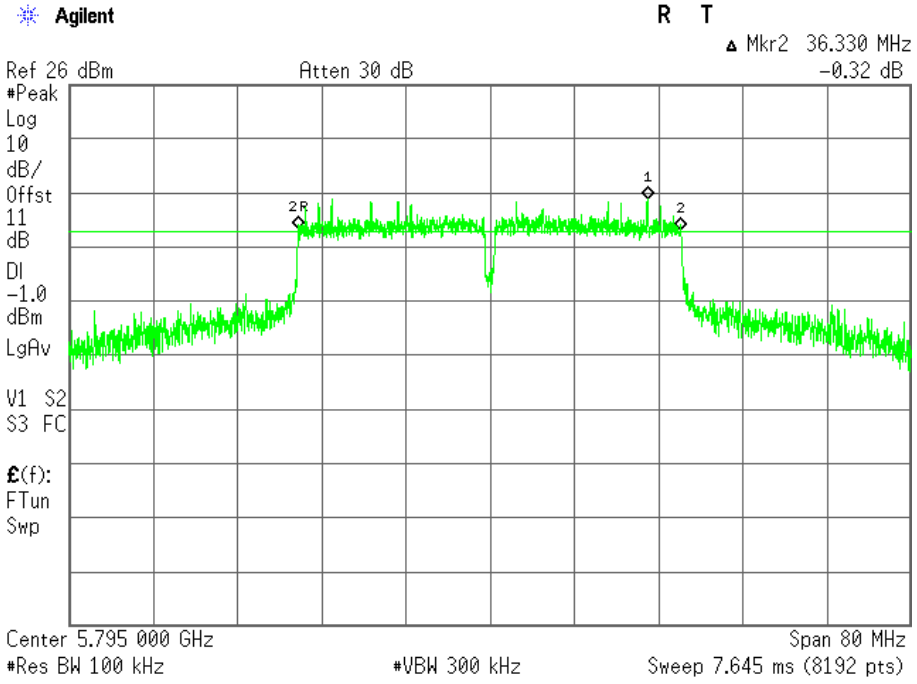
CH Low (IEEE 802.11ac VHT40 NSS1/MCS0 Mode / Band 3 / Chain 0)



CH High (IEEE 802.11ac VHT40 NSS1/MCS0 Mode / Band 3 / Chain 0)



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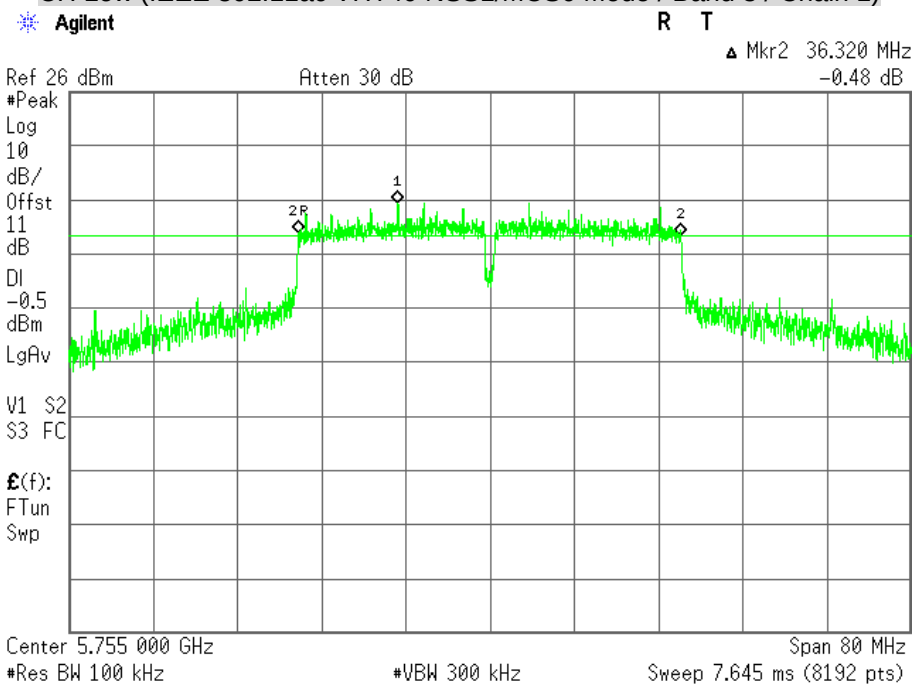
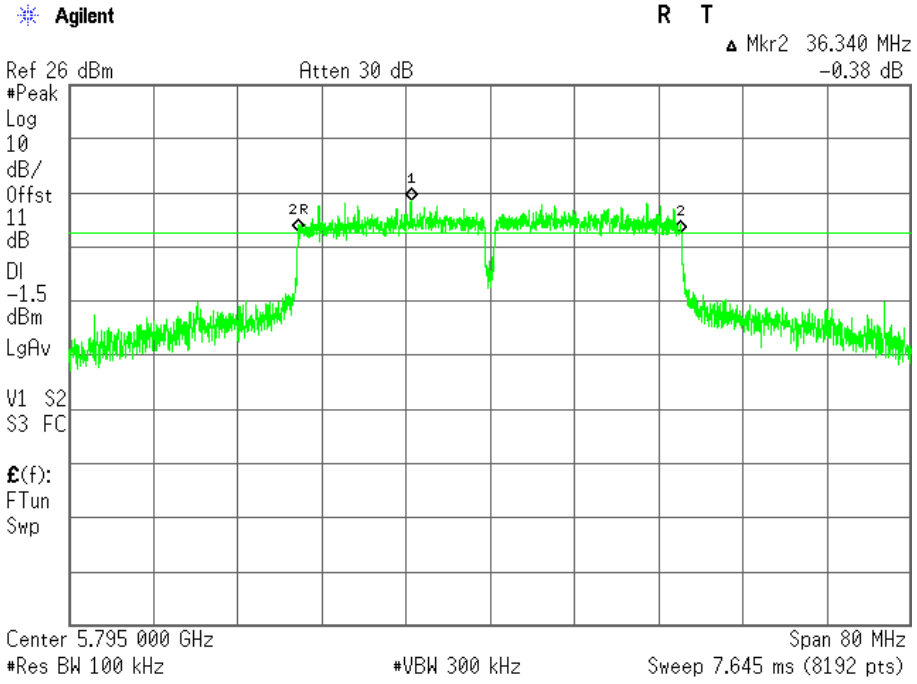
CH Low (IEEE 802.11ac VHT40 NSS1/MCS0 Mode / Band 3 / Chain 1)



CH High (IEEE 802.11ac VHT40 NSS1/MCS0 Mode / Band 3 / Chain 1)



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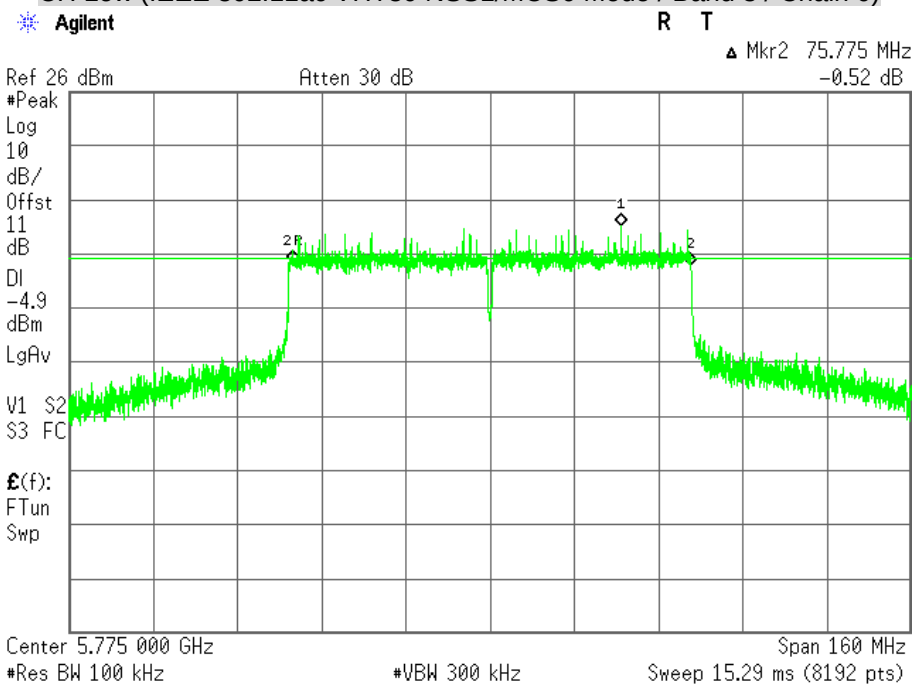
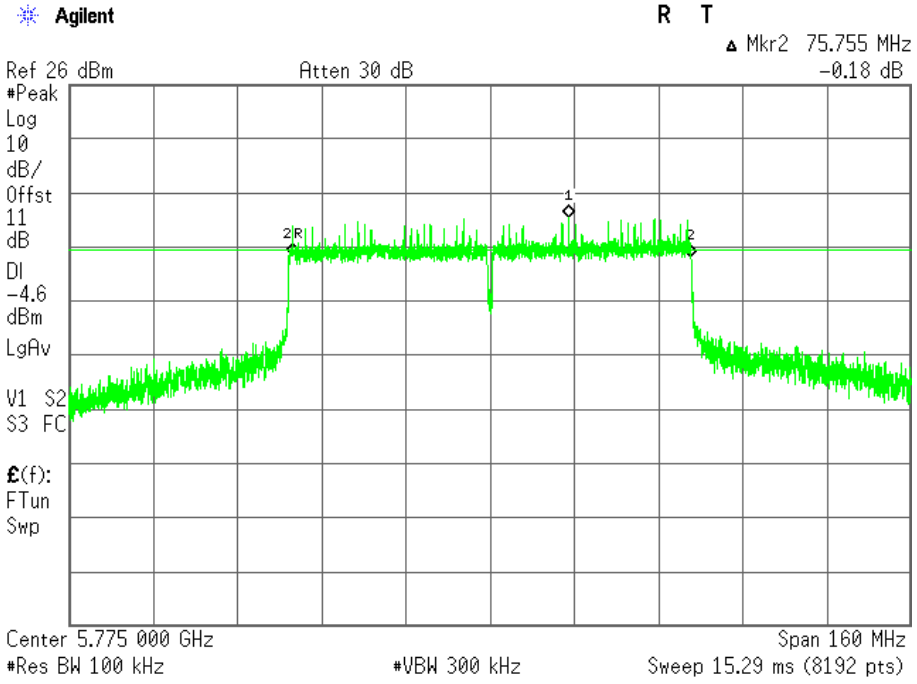
CH Low (IEEE 802.11ac VHT80 NSS1/MCS0 Mode / Band 3 / Chain 0)



CH Low (IEEE 802.11ac VHT80 NSS1/MCS0 Mode / Band 3 / Chain 1)



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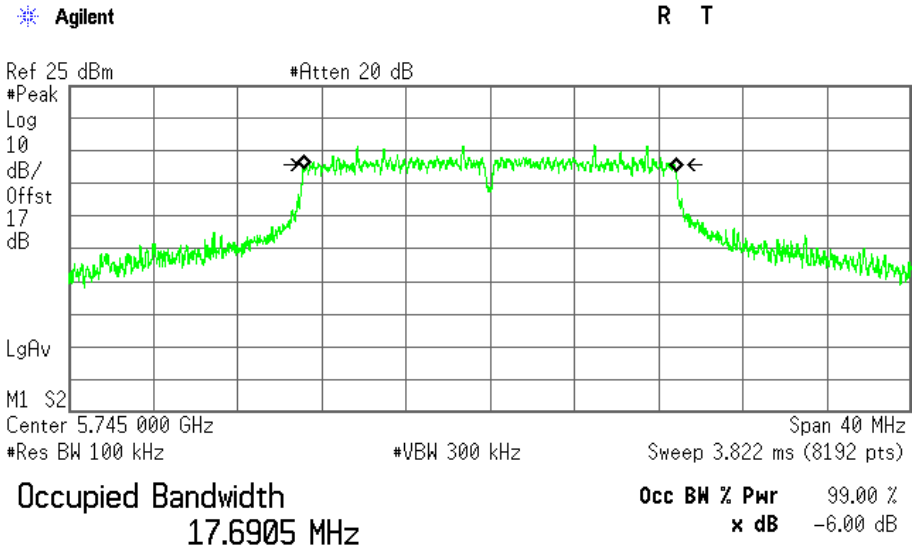
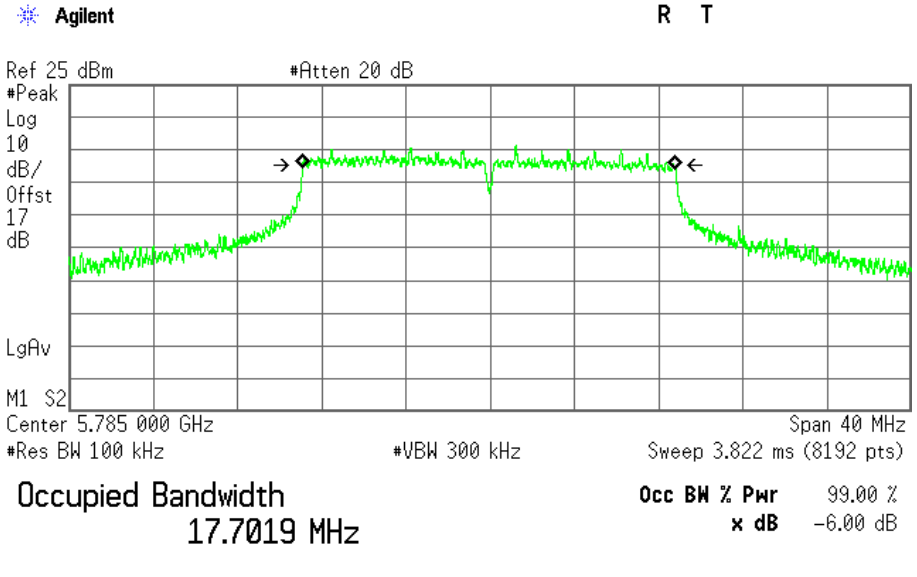
Beamforming

CH Low (IEEE 802.11ac VHT20 NSS1/MCS0 Mode / Band 3 / Chain 0)



Transmit Freq Error -26.084 kHz
x dB Bandwidth 17.155 MHz

CH Middle (IEEE 802.11ac VHT20 NSS1/MCS0 Mode / Band 3 / Chain 0)



Transmit Freq Error -54.075 kHz
x dB Bandwidth 17.622 MHz

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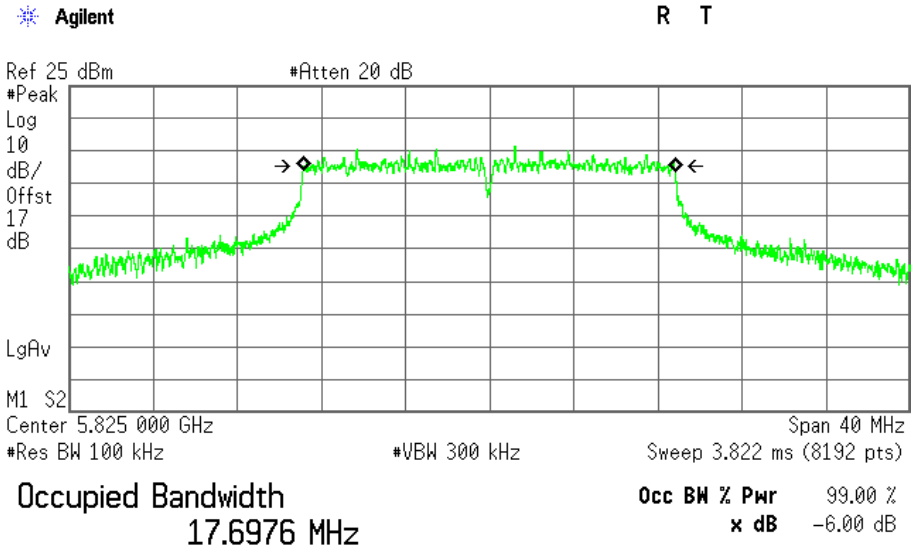
CH High (IEEE 802.11ac VHT20 NSS1/MCS0 Mode / Band 3 / Chain 0)



Transmit Freq Error -24.134 kHz
x dB Bandwidth 17.615 MHz

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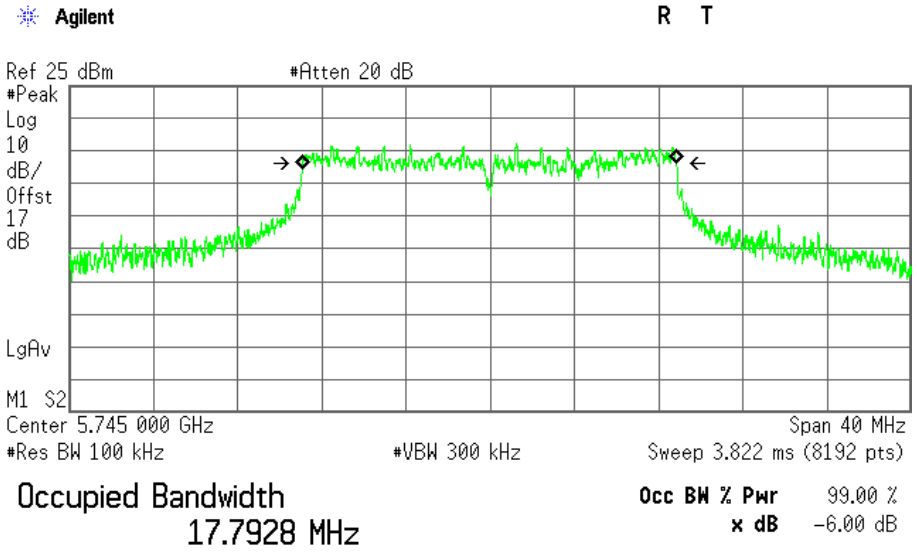
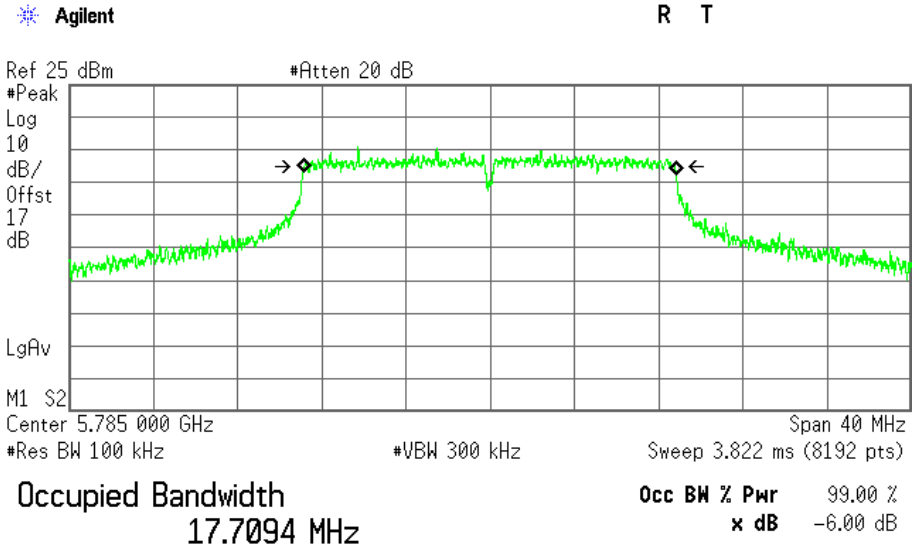
CH Low (IEEE 802.11ac VHT20 NSS1/MCS0 Mode / Band 3 / Chain 1)



Transmit Freq Error -34.447 kHz
x dB Bandwidth 17.764 MHz

CH Middle (IEEE 802.11ac VHT20 NSS1/MCS0 Mode / Band 3 / Chain 1)



Transmit Freq Error -17.360 kHz
x dB Bandwidth 17.611 MHz

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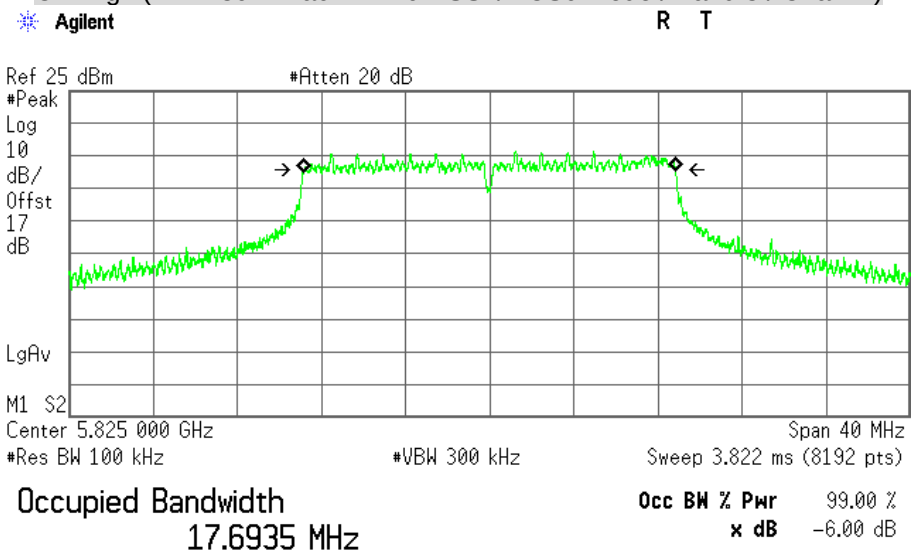
CH High (IEEE 802.11ac VHT20 NSS1/MCS0 Mode / Band 3 / Chain 1)



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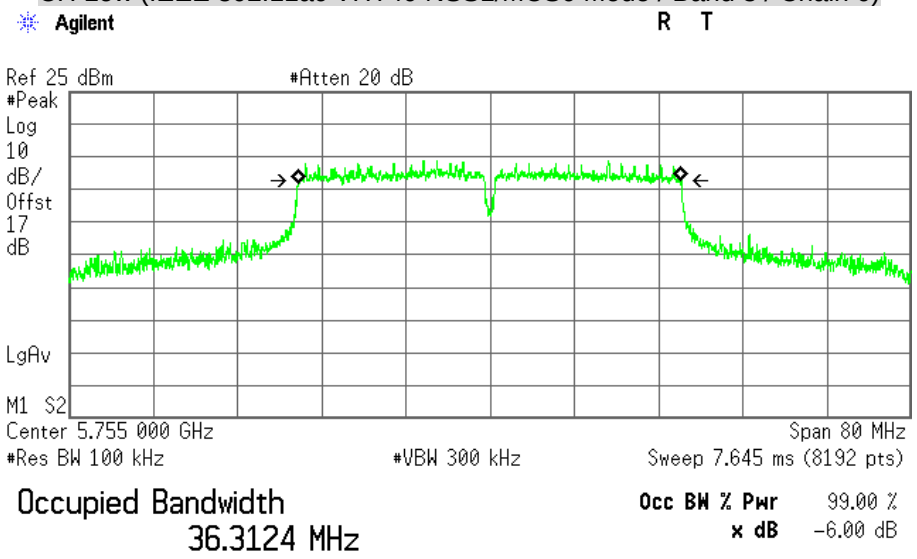
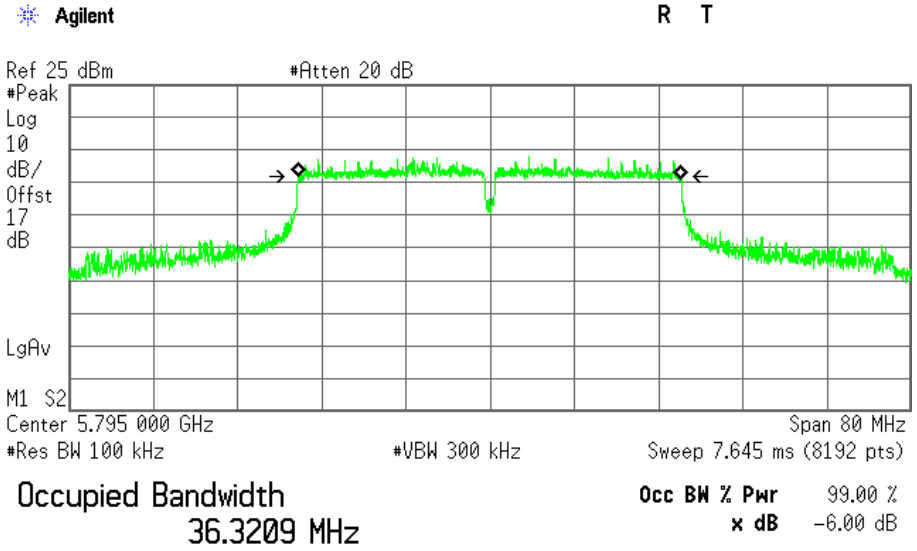
CH Low (IEEE 802.11ac VHT40 NSS1/MCS0 Mode / Band 3 / Chain 0)



Transmit Freq Error -24.270 kHz
x dB Bandwidth 35.956 MHz

CH High (IEEE 802.11ac VHT40 NSS1/MCS0 Mode / Band 3 / Chain 0)



Transmit Freq Error -35.089 kHz
x dB Bandwidth 36.158 MHz

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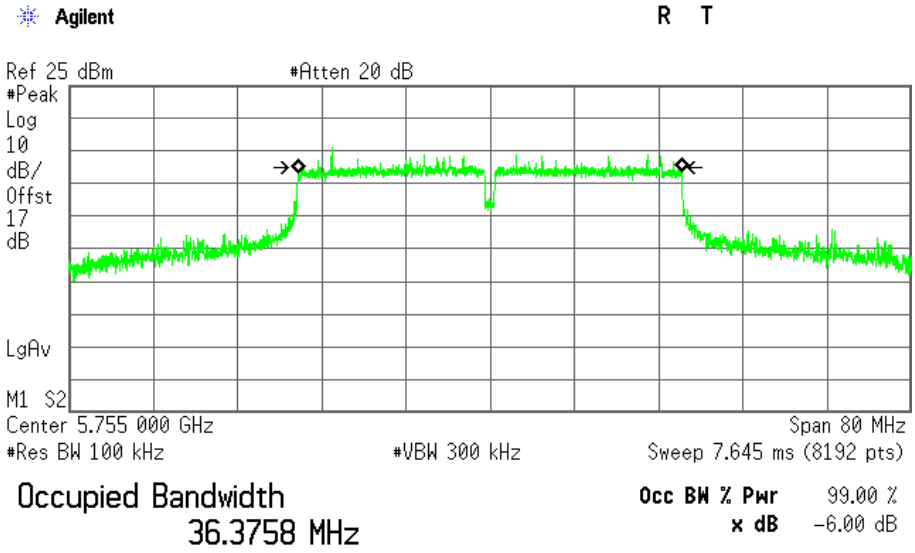
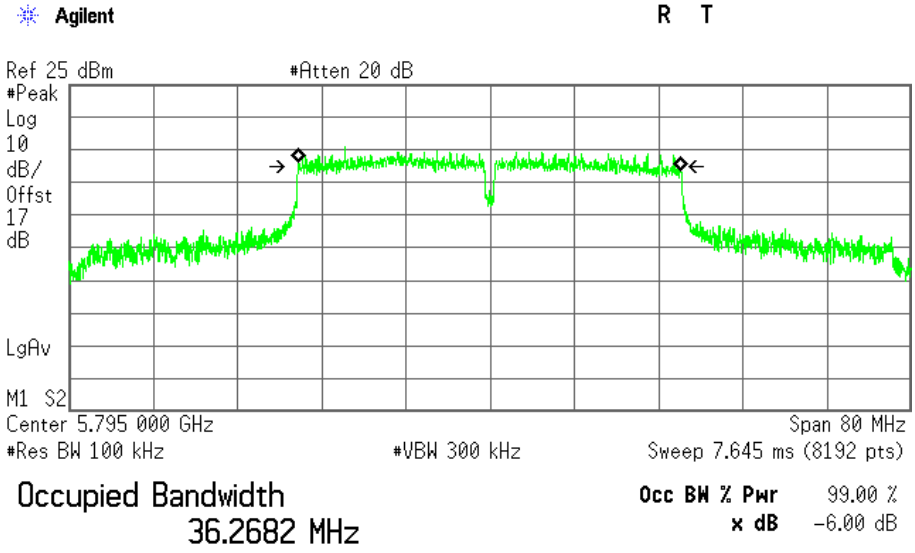
CH Low (IEEE 802.11ac VHT40 NSS1/MCS0 Mode / Band 3 / Chain 1)



Transmit Freq Error -20.156 kHz
x dB Bandwidth 35.349 MHz

CH High (IEEE 802.11ac VHT40 NSS1/MCS0 Mode / Band 3 / Chain 1)



Transmit Freq Error -46.245 kHz
x dB Bandwidth 35.721 MHz

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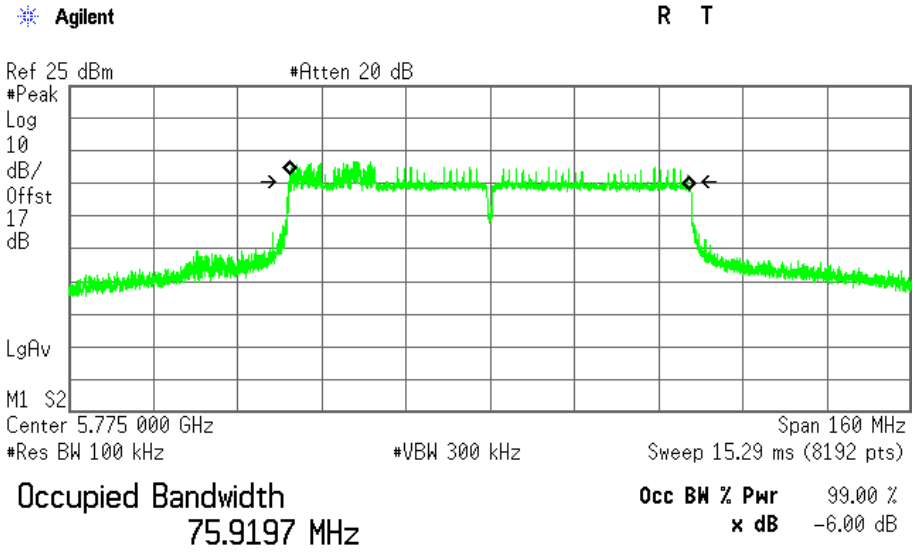
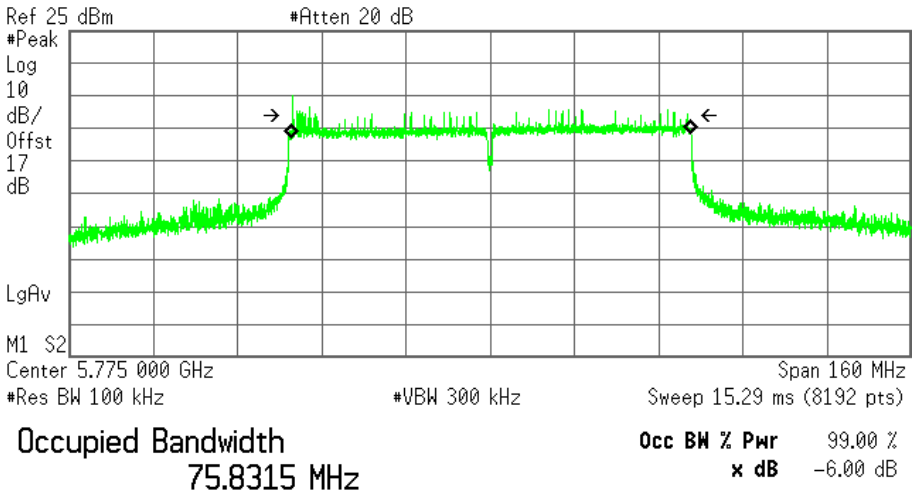
CH Low (IEEE 802.11ac VHT80 NSS1/MCS0 Mode / Band 3 / Chain 0)



Transmit Freq Error -138.687 kHz
x dB Bandwidth 75.673 MHz

CH Low (IEEE 802.11ac VHT80 NSS1/MCS0 Mode / Band 3 / Chain 1)



Transmit Freq Error 22.373 kHz
x dB Bandwidth 75.005 MHz

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7.4 MAXIMUM CONDUCTED OUTPUT POWER

LIMITS

§ 15.407(a)

(1) For the band 5.15-5.25 GHz,

(I) For an outdoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1W provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. The maximum e.i.r.p. at any elevation angle above 30 degrees as measured from the horizon must not exceed 125 mW (21 dBm).

(II) For an indoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1W provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 17dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

(III) For fixed point-to-point access points operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. Fixed point-to-point U-NII devices may employ antennas with directional gain up to 23 dBi without any corresponding reduction in the maximum conducted output power or maximum power spectral density. For fixed point-to-point transmitters that employ a directional antenna gain greater than 23 dBi, a 1 dB reduction in maximum conducted output power and maximum power spectral density is required for each 1 dB of antenna gain in excess of 23 dBi. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.

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(IV) For mobile and portable client devices in the 5.15-5.25 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed 250 mW provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

(2) For the 5.25-5.35 GHz and 5.47-5.725 GHz bands, the maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW or 11 dBm 10 log B, where B is the 26 dB emission bandwidth in megahertz. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

(3) For the band 5.725-5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. In addition, the maximum power spectral density shall not exceed 30 dBm in any 500-kHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. However, fixed point-to-point U-NII devices operating in this band may employ transmitting antennas with directional gain greater than 6 dBi without any corresponding reduction in transmitter conducted power. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.

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§ KDB 662911:

If all antennas have the same gain, GANT, Directional gain = GANT + Array Gain, where Array Gain is as follows.

For power measurements on IEEE 802.11 devices

Array Gain = 0 dB (i.e., no array gain) for $N_{ANT} \leq 4$;

Array Gain = 0 dB (i.e., no array gain) for channel widths ≥ 40 MHz for any N_{ANT} ;

Array Gain = 5 log(N_{ANT}/N_{SS}) dB or 3 dB, whichever is less for 20-MHz channel widths with $N_{ANT} \geq 5$.

If antenna gains are not equal, the user may use either of the following methods to calculate directional gain, provided that each transmit antenna is driven by only one spatial stream:

$$DirectionalGain = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{SS}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right]$$

TEST EQUIPMENT

Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
Power Meter	Anritsu	ML2495A	1149001	12/05/2017
Power Sensor	Anritsu	MA2411B	1126148	12/05/2017
Test S/W	N/A			

Remark: *Each piece of equipment is scheduled for calibration once a year.*

TEST SETUP

TEST PROCEDURE

The transmitter output is connected to the power meter. The power meter is set to the power detection.

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TEST RESULTS

Product Name	AC1300 IoT Router	Test By	Waternil Guan
Test Model	X10R	Test Date	2016/11/17
Test Mode	TX Mode / Non-beamforming	Temp. & Humidity	25°C, 62%

IEEE 802.11a Mode / Master

UNII Band	CH.	Channel Frequency (MHz)	Maximum Conducted Output Power						Result
			(dBm)		(dBm)	(W)	(dBm)	(W)	
			Chain 0	Chain 1	Total		Limit		
Band 1	Low	5180	16.49	16.92	19.72	0.0938	30.00	1.0000	PASS
	Middle	5200	17.25	17.63	20.45	0.1109	30.00	1.0000	PASS
	High	5240	16.10	16.10	19.11	0.0815	30.00	1.0000	PASS

Remark:
1. *At finial test to get the worst-case emission at 6Mbps.*
2. *The cable assembly insertion loss of 11 dB (including 10 dB pad and 1 dB cable) was entered as an offset in the power meter to allow for direct reading of power.*
3. *The maximum antenna gain is 5.43 dBi which is less than 6dBi, the limit should be 1 W.*
4. *Total power = Chain 0 + Chain 1.*

IEEE 802.11a Mode / Client

UNII Band	CH.	Channel Frequency (MHz)	Maximum Conducted Output Power						Result
			(dBm)		(dBm)	(W)	(dBm)	(W)	
			Chain 0	Chain 1	Total		Limit		
Band 1	Low	5180	15.21	15.70	18.47	0.0703	24.00	0.2512	PASS
	Middle	5200	15.30	15.54	18.43	0.0697	24.00	0.2512	PASS
	High	5240	15.08	15.11	18.11	0.0647	24.00	0.2512	PASS

Remark:
1. *At finial test to get the worst-case emission at 6Mbps.*
2. *The cable assembly insertion loss of 11 dB (including 10 dB pad and 1 dB cable) was entered as an offset in the power meter to allow for direct reading of power.*
3. *The maximum antenna gain is 5.43 dBi which is less than 6dBi, the limit should be 0.2512 W.*
4. *Total power = Chain 0 + Chain 1.*

IEEE 802.11a Mode

UNII Band	CH.	Channel Frequency (MHz)	Maximum Conducted Output Power						Result
			(dBm)		(dBm)	(W)	(dBm)	(W)	
			Chain 0	Chain 1	Total		Limit		
Band 3	Low	5745	19.01	19.50	22.27	0.1687	30.00	1.0000	PASS
	Middle	5785	18.60	18.31	21.47	0.1403	30.00	1.0000	PASS
	High	5825	18.34	18.37	21.37	0.1371	30.00	1.0000	PASS

Remark:
1. *At finial test to get the worst-case emission at 6Mbps.*
2. *The cable assembly insertion loss of 11 dB (including 10 dB pad and 1 dB cable) was entered as an offset in the power meter to allow for direct reading of power.*
3. *The maximum antenna gain is 5.43 dBi which is less than 6dBi, the limit should be 1 W.*
4. *Total power = Chain 0 + Chain 1.*

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IEEE 802.11ac VHT20 NSS1/MCS0 Mode / Master

UNII Band	CH.	Channel Frequency (MHz)	Maximum Conducted Output Power						Result
			(dBm)		(dBm)	(W)	(dBm)	(W)	
			Chain 0	Chain 1	Total		Limit		
Band 1	Low	5180	15.68	16.00	18.85	0.0767	30.00	1.0000	PASS
	Middle	5200	17.17	17.59	20.40	0.1096	30.00	1.0000	PASS
	High	5240	16.02	16.33	19.19	0.0830	30.00	1.0000	PASS

Remark:
1. *At finial test to get the worst-case emission at 6.5Mbps.*
2. *The cable assembly insertion loss of 11 dB (including 10 dB pad and 1 dB cable) was entered as an offset in the power meter to allow for direct reading of power.*
3. *The maximum antenna gain is 5.43 dBi which is less than 6dBi, the limit should be 1 W.*
4. *Total power = Chain 0 + Chain 1.*

IEEE 802.11ac VHT20 NSS1/MCS0 Mode / Client

UNII Band	CH.	Channel Frequency (MHz)	Maximum Conducted Output Power						Result
			(dBm)		(dBm)	(W)	(dBm)	(W)	
			Chain 0	Chain 1	Total		Limit		
Band 1	Low	5180	15.68	16.00	18.85	0.0767	24.00	0.2512	PASS
	Middle	5200	15.32	15.53	18.44	0.0698	24.00	0.2512	PASS
	High	5240	15.06	15.19	18.14	0.0652	24.00	0.2512	PASS

Remark:
1. *At finial test to get the worst-case emission at 6.5Mbps.*
2. *The cable assembly insertion loss of 11 dB (including 10 dB pad and 1 dB cable) was entered as an offset in the power meter to allow for direct reading of power.*
3. *The maximum antenna gain is 5.43 dBi which is less than 6dBi, the limit should be 0.2512 W.*
4. *Total power = Chain 0 + Chain 1.*

IEEE 802.11ac VHT20 NSS1/MCS0 Mode

UNII Band	CH.	Channel Frequency (MHz)	Maximum Conducted Output Power						Result
			(dBm)		(dBm)	(W)	(dBm)	(W)	
			Chain 0	Chain 1	Total		Limit		
Band 3	Low	5745	18.99	19.47	22.25	0.1679	30.00	1.0000	PASS
	Middle	5785	18.59	19.30	21.97	0.1574	30.00	1.0000	PASS
	High	5825	18.40	18.34	21.38	0.1374	30.00	1.0000	PASS

Remark:
1. *At finial test to get the worst-case emission at 6.5Mbps.*
2. *The cable assembly insertion loss of 11 dB (including 10 dB pad and 1 dB cable) was entered as an offset in the power meter to allow for direct reading of power.*
3. *The maximum antenna gain is 5.43 dBi which is less than 6dBi, the limit should be 1 W.*
4. *Total power = Chain 0 + Chain 1.*

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IEEE 802.11ac VHT40 NSS1/MCS0 Mode / Master

UNII Band	CH.	Channel Frequency (MHz)	Maximum Conducted Output Power						Result
			(dBm)		(dBm)	(W)	(dBm)	(W)	
			Chain 0	Chain 1	Total		Limit		
Band 1	Low	5190	12.32	12.40	15.37	0.0344	30.00	1.0000	PASS
	High	5230	16.05	16.49	19.29	0.0849	30.00	1.0000	PASS

Remark:
1. *At finial test to get the worst-case emission at 13.5Mbps.*
2. *The cable assembly insertion loss of 11 dB (including 10 dB pad and 1 dB cable) was entered as an offset in the power meter to allow for direct reading of power.*
3. *The maximum antenna gain is 5.43 dBi which is less than 6dBi, the limit should be 1 W.*
4. *Total power = Chain 0 + Chain 1 .*

IEEE 802.11ac VHT40 NSS1/MCS0 Mode / Client

UNII Band	CH.	Channel Frequency (MHz)	Maximum Conducted Output Power						Result
			(dBm)		(dBm)	(W)	(dBm)	(W)	
			Chain 0	Chain 1	Total		Limit		
Band 1	Low	5190	12.32	12.40	15.37	0.0344	24.00	0.2512	PASS
	High	5230	16.05	16.49	19.29	0.0849	24.00	0.2512	PASS

Remark:
1. *At finial test to get the worst-case emission at 13.5Mbps.*
2. *The cable assembly insertion loss of 11 dB (including 10 dB pad and 1 dB cable) was entered as an offset in the power meter to allow for direct reading of power.*
3. *The maximum antenna gain is 5.43 dBi which is less than 6dBi, the limit should be 0.2512 W.*
4. *Total power = Chain 0 + Chain 1 .*

IEEE 802.11ac VHT40 NSS1/MCS0 Mode

UNII Band	CH.	Channel Frequency (MHz)	Maximum Conducted Output Power						Result
			(dBm)		(dBm)	(W)	(dBm)	(W)	
			Chain 0	Chain 1	Total		Limit		
Band 3	Low	5755	19.14	19.47	22.32	0.1706	30.00	1.0000	PASS
	High	5795	18.60	19.27	21.96	0.1570	30.00	1.0000	PASS

Remark:
1. *At finial test to get the worst-case emission at 13.5Mbps.*
2. *The cable assembly insertion loss of 11 dB (including 10 dB pad and 1 dB cable) was entered as an offset in the power meter to allow for direct reading of power.*
3. *The maximum antenna gain is 5.43 dBi which is less than 6dBi, the limit should be 1 W.*
4. *Total power = Chain 0 + Chain 1 .*

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IEEE 802.11ac VHT80 NSS1/MCS0 Mode / Master

UNII Band	CH.	Channel Frequency (MHz)	Maximum Conducted Output Power						Result
			(dBm)		(dBm)	(W)	(dBm)	(W)	
			Chain 0	Chain 1	Total		Limit		
Band 1	Low	5210	12.01	12.16	15.10	0.0324	30.00	1.0000	PASS

Remark:
1. *At finial test to get the worst-case emission at 29.3 Mbps.*
2. *The cable assembly insertion loss of 11 dB (including 10 dB pad and 1 dB cable) was entered as an offset in the power meter to allow for direct reading of power.*
3. *The maximum antenna gain is 5.43 dBi which is less than 6dBi, the limit should be 1 W.*
4. *Total power = Chain 0 + Chain 1.*

IEEE 802.11ac VHT80 NSS1/MCS0 Mode / Client

UNII Band	CH.	Channel Frequency (MHz)	Maximum Conducted Output Power						Result
			(dBm)		(dBm)	(W)	(dBm)	(W)	
			Chain 0	Chain 1	Total		Limit		
Band 1	Low	5210	12.01	12.16	15.10	0.0324	24.00	0.2512	PASS

Remark:
1. *At finial test to get the worst-case emission at 29.3 Mbps.*
2. *The cable assembly insertion loss of 11 dB (including 10 dB pad and 1 dB cable) was entered as an offset in the power meter to allow for direct reading of power.*
3. *The maximum antenna gain is 5.43 dBi which is less than 6dBi, the limit should be 0.2512 W.*
4. *Total power = Chain 0 + Chain 1.*

IEEE 802.11ac VHT80 NSS1/MCS0 Mode

UNII Band	CH.	Channel Frequency (MHz)	Maximum Conducted Output Power						Result
			(dBm)		(dBm)	(W)	(dBm)	(W)	
			Chain 0	Chain 1	Total		Limit		
Band 3	Low	5775	16.78	17.24	20.03	0.1007	30.00	1.0000	PASS

Remark:
1. *At finial test to get the worst-case emission at 29.3 Mbps.*
2. *The cable assembly insertion loss of 11 dB (including 10 dB pad and 1 dB cable) was entered as an offset in the power meter to allow for direct reading of power.*
3. *The maximum antenna gain is 5.43 dBi which is less than 6dBi, the limit should be 1 W.*
4. *Total power = Chain 0 + Chain 1.*

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Product Name	AC1300 IoT Router	Test By	Davis Tseng
Test Model	X10R	Test Date	2016/11/25
Test Mode	TX Mode / Beamforming	Temp. & Humidity	23°C, 58%

IEEE 802.11ac VHT20 NSS1/MCS0 Mode / Master

UNII Band	CH.	Channel Frequency (MHz)	Maximum Conducted Output Power						Result
			(dBm)		(dBm)	(W)	(dBm)	(W)	
			Chain 0	Chain 1	Total		Limit		
Band 1	Low	5180	15.78	16.24	19.03	0.0800	27.63	0.5794	PASS
	Middle	5200	15.21	15.63	18.44	0.0698	27.63	0.5794	PASS
	High	5240	15.11	15.28	18.21	0.0662	27.63	0.5794	PASS

Remark:
1. *At finial test to get the worst-case emission at 6.5Mbps.*
2. *The cable assembly insertion loss of 17 dB (including 10 dB pad and 7 dB cable)was entered as an offset in the power meter to allow for direct reading of power.*
3. *The directional gain is 8.37 dBi which is more than 6 dBi, the limit should be 0.5794 W.*
4. *Total power = Chain 0 + Chain 1.*

IEEE 802.11ac VHT20 NSS1/MCS0 Mode / Client

UNII Band	CH.	Channel Frequency (MHz)	Maximum Conducted Output Power						Result
			(dBm)		(dBm)	(W)	(dBm)	(W)	
			Chain 0	Chain 1	Total		Limit		
Band 1	Low	5180	15.78	16.24	19.03	0.0800	21.63	0.1455	PASS
	Middle	5200	15.21	15.63	18.44	0.0698	21.63	0.1455	PASS
	High	5240	15.11	15.28	18.21	0.0662	21.63	0.1455	PASS

Remark:
1. *At finial test to get the worst-case emission at 6.5Mbps.*
2. *The cable assembly insertion loss of 17 dB (including 10 dB pad and 7 dB cable)was entered as an offset in the power meter to allow for direct reading of power.*
3. *The directional gain is 8.37 dBi which is more than 6 dBi, the limit should be 0.1455 W.*
4. *Total power = Chain 0 + Chain 1.*

IEEE 802.11ac VHT20 NSS1/MCS0 Mode

UNII Band	CH.	Channel Frequency (MHz)	Maximum Conducted Output Power						Result
			(dBm)		(dBm)	(W)	(dBm)	(W)	
			Chain 0	Chain 1	Total		Limit		
Band 3	Low	5745	17.05	17.63	20.36	0.1086	27.63	0.5794	PASS
	Middle	5785	16.82	17.43	20.15	0.1035	27.63	0.5794	PASS
	High	5825	16.08	16.35	19.23	0.0838	27.63	0.5794	PASS

Remark:
1. *At finial test to get the worst-case emission at 6.5Mbps.*
2. *The cable assembly insertion loss of 17 dB (including 10 dB pad and 7 dB cable)was entered as an offset in the power meter to allow for direct reading of power.*
3. *The directional gain is 8.37 dBi which is more than 6 dBi, the limit should be 0.5794 W.*
4. *Total power = Chain 0 + Chain 1.*

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IEEE 802.11ac VHT40 NSS1/MCS0 Mode / Master

UNII Band	CH.	Channel Frequency (MHz)	Maximum Conducted Output Power						Result
			(dBm)		(dBm)	(W)	(dBm)	(W)	
			Chain 0	Chain 1	Total		Limit		
Band 1	Low	5190	13.29	13.42	16.37	0.0434	27.63	0.5794	PASS
	High	5230	15.08	15.22	18.16	0.0655	27.63	0.5794	PASS

Remark:

1. *At finial test to get the worst-case emission at 13.5Mbps.*
2. *The cable assembly insertion loss of 17 dB (including 10 dB pad and 7 dB cable) was entered as an offset in the power meter to allow for direct reading of power.*
3. *The directional gain is 8.37 dBi which is more than 6 dBi, the limit should be 0.5794 W.*
4. *Total power = Chain 0 + Chain 1.*

IEEE 802.11ac VHT40 NSS1/MCS0 Mode / Client

UNII Band	CH.	Channel Frequency (MHz)	Maximum Conducted Output Power						Result
			(dBm)		(dBm)	(W)	(dBm)	(W)	
			Chain 0	Chain 1	Total		Limit		
Band 1	Low	5190	13.29	13.42	16.37	0.0434	21.63	0.1455	PASS
	High	5230	15.08	15.22	18.16	0.0655	21.63	0.1455	PASS

Remark:

1. *At finial test to get the worst-case emission at 13.5Mbps.*
2. *The cable assembly insertion loss of 17 dB (including 10 dB pad and 7 dB cable) was entered as an offset in the power meter to allow for direct reading of power.*
3. *The directional gain is 8.37 dBi which is more than 6 dBi, the limit should be 0.1455 W.*
4. *Total power = Chain 0 + Chain 1.*

IEEE 802.11ac VHT40 NSS1/MCS0 Mode

UNII Band	CH.	Channel Frequency (MHz)	Maximum Conducted Output Power						Result
			(dBm)		(dBm)	(W)	(dBm)	(W)	
			Chain 0	Chain 1	Total		Limit		
Band 3	Low	5755	17.03	17.44	20.25	0.1059	27.63	0.5794	PASS
	High	5795	16.81	17.28	20.06	0.1014	27.63	0.5794	PASS

Remark:

1. *At finial test to get the worst-case emission at 13.5Mbps.*
2. *The cable assembly insertion loss of 17 dB (including 10 dB pad and 7 dB cable) was entered as an offset in the power meter to allow for direct reading of power.*
3. *The directional gain is 8.37 dBi which is more than 6 dBi, the limit should be 0.5794 W.*
4. *Total power = Chain 0 + Chain 1.*

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IEEE 802.11ac VHT80 NSS1/MCS0 Mode / Master

UNII Band	CH.	Channel Frequency (MHz)	Maximum Conducted Output Power						Result
			(dBm)		(dBm)	(W)	(dBm)	(W)	
			Chain 0	Chain 1	Total		Limit		
Band 1	Low	5210	12.63	12.81	15.73	0.0374	27.63	0.5794	PASS

Remark:
1. *At finial test to get the worst-case emission at 29.3 Mbps.*
2. *The cable assembly insertion loss of 17 dB (including 10 dB pad and 7 dB cable) was entered as an offset in the power meter to allow for direct reading of power.*
3. *The directional gain is 8.37 dBi which is more than 6 dBi, the limit should be 0.5794 W.*
4. *Total power = Chain 0 + Chain 1.*

IEEE 802.11ac VHT80 NSS1/MCS0 Mode / Client

UNII Band	CH.	Channel Frequency (MHz)	Maximum Conducted Output Power						Result
			(dBm)		(dBm)	(W)	(dBm)	(W)	
			Chain 0	Chain 1	Total		Limit		
Band 1	Low	5210	12.63	12.81	15.73	0.0374	21.63	0.1455	PASS

Remark:
1. *At finial test to get the worst-case emission at 29.3 Mbps.*
2. *The cable assembly insertion loss of 17 dB (including 10 dB pad and 7 dB cable) was entered as an offset in the power meter to allow for direct reading of power.*
3. *The directional gain is 8.37 dBi which is more than 6 dBi, the limit should be 0.1455 W.*
4. *Total power = Chain 0 + Chain 1.*

IEEE 802.11ac VHT80 NSS1/MCS0 Mode

UNII Band	CH.	Channel Frequency (MHz)	Maximum Conducted Output Power						Result
			(dBm)		(dBm)	(W)	(dBm)	(W)	
			Chain 0	Chain 1	Total		Limit		
Band 3	Low	5775	15.91	16.38	19.16	0.0824	27.63	0.5794	PASS

Remark:
1. *At finial test to get the worst-case emission at 29.3 Mbps.*
2. *The cable assembly insertion loss of 17 dB (including 10 dB pad and 7 dB cable) was entered as an offset in the power meter to allow for direct reading of power.*
3. *The directional gain is 8.37 dBi which is more than 6 dBi, the limit should be 0.5794 W.*
4. *Total power = Chain 0 + Chain 1.*

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7.5 PEAK POWER SPECTRAL DENSITY

LIMITS

§ 15.407 (a)

(1) For the band 5.15-5.25 GHz

(I) For an outdoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi. The maximum e.i.r.p. at any elevation angle above 30 degrees as measured from the horizon must not exceed 125 mW (21 dBm).

(II) For an indoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

(III) For mobile and portable client devices in the 5.15-5.25 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed 250 mW provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

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(2) For the 5.25-5.35 GHz and 5.47-5.725 GHz bands, the maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW or 11 dBm 10 log B, where B is the 26 dB emission bandwidth in megahertz. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

(3) For the band 5.725-5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. In addition, the maximum power spectral density shall not exceed 30 dBm in any 500-kHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. However, fixed point-to-point U-NII devices operating in this band may employ transmitting antennas with directional gain greater than 6 dBi without any corresponding reduction in transmitter conducted power. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.

TEST EQUIPMENT

Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
Spectrum Analyzer	Agilent	E4446A	MY43360132	05/31/2017
Test S/W	N/A			

Remark: *Each piece of equipment is scheduled for calibration once a year.*

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TEST SETUP

TEST PROCEDURE

1. Place the EUT on the table and set it in transmitting mode.
   Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.
2. Set the spectrum analyzer as RBW = 1MHz, VBW = 3MHz, Span = Sweep= AUTO
3. Record the max. reading.
4. Repeat the above procedure until the measurements for all frequencies are completed.

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TEST RESULTS

Product Name	AC1300 IoT Router	Test By	Waternil Guan
Test Model	X10R	Test Date	2016/11/17
Test Mode	TX Mode / Non-beamforming	Temp. & Humidity	25°C, 62%

IEEE 802.11a Mode / Master

UNII Band	CH.	Channel Frequency (MHz)	Peak Power Spectral Density (dBm/MHz)				Result
			Chain 0	Chain 1	Total	Limit	
Band 1	Low	5180	6.74	6.55	9.65	14.63	PASS
	Middle	5200	6.85	6.97	9.92	14.63	PASS
	High	5240	6.60	6.66	9.64	14.63	PASS

Remark:
1. *At finial test to get the worst-case emission at 6Mbps.*
2. *The cable assembly insertion loss of 11 dB (including 10 dB pad and 1 dB cable) was entered as an offset in the spectrum analyzer to allow for direct reading of power.*
3. *The directional gain is 8.37dBi which is more than 6dBi, the limit should be 14.63dBm.*
4. *Total power spectral density = Chain 0 + Chain 1.*

IEEE 802.11a Mode / Client

UNII Band	CH.	Channel Frequency (MHz)	Peak Power Spectral Density (dBm/MHz)				Result
			Chain 0	Chain 1	Total	Limit	
Band 1	Low	5180	5.44	5.57	8.51	8.63	PASS
	Middle	5200	4.81	5.30	8.07	8.63	PASS
	High	5240	4.90	4.92	7.92	8.63	PASS

Remark:
1. *At finial test to get the worst-case emission at 6Mbps.*
2. *The cable assembly insertion loss of 11 dB (including 10 dB pad and 1 dB cable) was entered as an offset in the spectrum analyzer to allow for direct reading of power.*
3. *The directional gain is 8.37dBi which is more than 6dBi, the limit should be 8.63dBm.*
4. *Total power spectral density = Chain 0 + Chain 1.*

IEEE 802.11a Mode / Master

UNII Band	CH.	Channel Frequency (MHz)	Peak Power Spectral Density (dBm/500kHz)				Result
			Chain 0	Chain 1	Total	Limit	
Band 3	Low	5745	6.12	6.68	9.42	27.63	PASS
	Middle	5785	5.69	6.48	9.11	27.63	PASS
	High	5825	5.94	5.90	8.93	27.63	PASS

Remark:
1. *At finial test to get the worst-case emission at 6Mbps.*
2. *The cable assembly insertion loss of 11 dB (including 10 dB pad and 1 dB cable) was entered as an offset in the spectrum analyzer to allow for direct reading of power.*
3. *The directional gain is 8.37dBi which is more than 6dBi, the limit should be 27.63dBm.*
4. *Total power spectral density = Chain 0 + Chain 1.*

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IEEE 802.11ac VHT20 NSS1/MCS0 Mode / Master

UNII Band	CH.	Channel Frequency (MHz)	Peak Power Spectral Density (dBm/MHz)				Result
			Chain 0	Chain 1	Total	Limit	
Band 1	Low	5180	5.19	5.68	8.46	14.63	PASS
	Middle	5200	6.66	6.99	9.84	14.63	PASS
	High	5240	6.59	6.53	9.57	14.63	PASS

Remark:
1. *At finial test to get the worst-case emission at 6.5Mbps.*
2. *The cable assembly insertion loss of 11 dB (including 10 dB pad and 1 dB cable) was entered as an offset in the spectrum analyzer to allow for direct reading of power.*
3. *The directional gain is 8.37dBi which is more than 6dBi, the limit should be 14.63dBm.*
4. *Total power spectral density = Chain 0 + Chain 1.*

IEEE 802.11ac VHT20 NSS1/MCS0 Mode / Client

UNII Band	CH.	Channel Frequency (MHz)	Peak Power Spectral Density (dBm/MHz)				Result
			Chain 0	Chain 1	Total	Limit	
Band 1	Low	5180	5.19	5.68	8.46	8.63	PASS
	Middle	5200	4.77	5.09	7.94	8.63	PASS
	High	5240	4.66	5.10	7.90	8.63	PASS

Remark:
1. *At finial test to get the worst-case emission at 6.5Mbps.*
2. *The cable assembly insertion loss of 11 dB (including 10 dB pad and 1 dB cable) was entered as an offset in the spectrum analyzer to allow for direct reading of power.*
3. *The directional gain is 8.37dBi which is more than 6dBi, the limit should be 8.63dBm.*
4. *Total power spectral density = Chain 0 + Chain 1.*

IEEE 802.11ac VHT20 NSS1/MCS0 Mode / Master

UNII Band	CH.	Channel Frequency (MHz)	Peak Power Spectral Density (dBm/500kHz)				Result
			Chain 0	Chain 1	Total	Limit	
Band 3	Low	5745	5.98	6.28	9.14	27.63	PASS
	Middle	5785	5.63	5.84	8.75	27.63	PASS
	High	5825	5.32	5.11	8.23	27.63	PASS

Remark:
1. *At finial test to get the worst-case emission at 6.5Mbps.*
2. *The cable assembly insertion loss of 11 dB (including 10 dB pad and 1 dB cable) was entered as an offset in the spectrum analyzer to allow for direct reading of power.*
3. *The directional gain is 8.37dBi which is more than 6dBi, the limit should be 27.63dBm.*
4. *Total power spectral density = Chain 0 + Chain 1.*

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IEEE 802.11ac VHT40 NSS1/MCS0 Mode / Master

UNII Band	CH.	Channel Frequency (MHz)	Peak Power Spectral Density (dBm/MHz)				Result
			Chain 0	Chain 1	Total	Limit	
Band 1	Low	5190	-1.25	-1.10	1.84	14.63	PASS
	High	5230	3.25	3.76	6.52	14.63	PASS

Remark:
1. *At finial test to get the worst-case emission at 13.5Mbps.*
2. *The cable assembly insertion loss of 11 dB (including 10 dB pad and 1 dB cable) was entered as an offset in the spectrum analyzer to allow for direct reading of power.*
3. *The directional gain is 8.37dBi which is more than 6dBi, the limit should be 14.63dBm.*
4. *Total power spectral density = Chain 0 + Chain 1.*

IEEE 802.11ac VHT40 NSS1/MCS0 Mode / Client

UNII Band	CH.	Channel Frequency (MHz)	Peak Power Spectral Density (dBm/MHz)				Result
			Chain 0	Chain 1	Total	Limit	
Band 1	Low	5190	-1.25	-1.10	1.84	8.63	PASS
	High	5230	3.25	3.76	6.52	8.63	PASS

Remark:
1. *At finial test to get the worst-case emission at 13.5Mbps.*
2. *The cable assembly insertion loss of 11 dB (including 10 dB pad and 1 dB cable) was entered as an offset in the spectrum analyzer to allow for direct reading of power.*
3. *The directional gain is 8.37dBi which is more than 6dBi, the limit should be 8.63dBm.*
4. *Total power spectral density = Chain 0 + Chain 1.*

IEEE 802.11ac VHT40 NSS1/MCS0 Mode

UNII Band	CH.	Channel Frequency (MHz)	Peak Power Spectral Density (dBm/500kHz)				Result
			Chain 0	Chain 1	Total	Limit	
Band 3	Low	5755	2.71	3.24	5.99	27.63	PASS
	High	5795	2.45	2.79	5.63	27.63	PASS

Remark:
1. *At finial test to get the worst-case emission at 13.5Mbps.*
2. *The cable assembly insertion loss of 11 dB (including 10 dB pad and 1 dB cable) was entered as an offset in the spectrum analyzer to allow for direct reading of power.*
3. *The directional gain is 8.37dBi which is more than 6dBi, the limit should be 27.63dBm.*
4. *Total power spectral density = Chain 0 + Chain 1.*

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IEEE 802.11ac VHT80 NSS1/MCS0 Mode / Master

UNII Band	CH.	Channel Frequency (MHz)	Peak Power Spectral Density (dBm/MHz)				Result
			Chain 0	Chain 1	Total	Limit	
Band 1	Low	5210	-4.84	-4.82	-1.82	14.63	PASS

Remark:
1. *At finial test to get the worst-case emission at 29.3 Mbps.*
2. *The cable assembly insertion loss of 11 dB (including 10 dB pad and 1 dB cable) was entered as an offset in the spectrum analyzer to allow for direct reading of power.*
3. *The directional gain is 8.37dBi which is more than 6dBi, the limit should be 14.63dBm.*
4. *Total power spectral density = Chain 0 + Chain 1 .*

IEEE 802.11ac VHT80 NSS1/MCS0 Mode / Client

UNII Band	CH.	Channel Frequency (MHz)	Peak Power Spectral Density (dBm/MHz)				Result
			Chain 0	Chain 1	Total	Limit	
Band 1	Low	5210	-4.84	-4.82	-1.82	8.63	PASS

Remark:
1. *At finial test to get the worst-case emission at 29.3 Mbps.*
2. *The cable assembly insertion loss of 11 dB (including 10 dB pad and 1 dB cable) was entered as an offset in the spectrum analyzer to allow for direct reading of power.*
3. *The directional gain is 8.37dBi which is more than 6dBi, the limit should be 8.63dBm.*
4. *Total power spectral density = Chain 0 + Chain 1 .*

IEEE 802.11ac VHT80 NSS1/MCS0 Mode

UNII Band	CH.	Channel Frequency (MHz)	Peak Power Spectral Density (dBm/500kHz)				Result
			Chain 0	Chain 1	Total	Limit	
Band 3	Low	5775	-2.89	-2.24	0.46	27.63	PASS

Remark:
1. *At finial test to get the worst-case emission at 29.3 Mbps.*
2. *The cable assembly insertion loss of 11 dB (including 10 dB pad and 1 dB cable) was entered as an offset in the spectrum analyzer to allow for direct reading of power.*
3. *The directional gain is 8.37dBi which is more than 6dBi, the limit should be 27.63dBm.*
4. *Total power spectral density = Chain 0 + Chain 1.*

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Product Name	AC1300 IoT Router	Test By	Davis Tseng
Test Model	X10R	Test Date	2016/11/25
Test Mode	TX Mode / Beamforming	Temp. & Humidity	23°C, 58%

IEEE 802.11ac VHT20 NSS1/MCS0 Mode / Master

UNII Band	CH.	Channel Frequency (MHz)	Peak Power Spectral Density (dBm/MHz)				Result
			Chain 0	Chain 1	Total	Limit	
Band 1	Low	5180	4.72	4.97	7.86	14.63	PASS
	Middle	5200	4.85	4.61	7.74	14.63	PASS
	High	5240	3.99	3.97	6.99	14.63	PASS

Remark:
1. *At finial test to get the worst-case emission at 6.5Mbps.*
2. *The cable assembly insertion loss of 17 dB (including 10 dB pad and 7 dB cable) was entered as an offset in the spectrum analyzer to allow for direct reading of power.*
3. *The directional gain is 8.37dBi which is more than 6dBi, the limit should be 14.63dBm.*
4. *Total power spectral density = Chain 0 + Chain 1.*

IEEE 802.11ac VHT20 NSS1/MCS0 Mode / Client

UNII Band	CH.	Channel Frequency (MHz)	Peak Power Spectral Density (dBm/MHz)				Result
			Chain 0	Chain 1	Total	Limit	
Band 1	Low	5180	4.72	4.97	7.86	8.63	PASS
	Middle	5200	4.85	4.61	7.74	8.63	PASS
	High	5240	3.99	3.97	6.99	8.63	PASS

Remark:
1. *At finial test to get the worst-case emission at 6.5Mbps.*
2. *The cable assembly insertion loss of 17 dB (including 10 dB pad and 7 dB cable) was entered as an offset in the spectrum analyzer to allow for direct reading of power.*
3. *The directional gain is 8.37dBi which is more than 6dBi, the limit should be 8.63dBm.*
4. *Total power spectral density = Chain 0 + Chain 1.*

IEEE 802.11ac VHT20 NSS1/MCS0 Mode

UNII Band	CH.	Channel Frequency (MHz)	Peak Power Spectral Density (dBm/500kHz)				Result
			Chain 0	Chain 1	Total	Limit	
Band 3	Low	5745	3.92	3.90	6.92	27.63	PASS
	Middle	5785	2.76	3.84	6.35	27.63	PASS
	High	5825	2.80	3.36	6.10	27.63	PASS

Remark:
1. *At finial test to get the worst-case emission at 6.5Mbps.*
2. *The cable assembly insertion loss of 17 dB (including 10 dB pad and 7 dB cable)was entered as an offset in the spectrum analyzer to allow for direct reading of power.*
3. *The directional gain is 8.37dBi which is more than 6dBi, the limit should be 27.63dBm.*
4. *Total power spectral density = Chain 0 + Chain 1.*

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IEEE 802.11ac VHT40 NSS1/MCS0 Mode / Master

UNII Band	CH.	Channel Frequency (MHz)	Peak Power Spectral Density (dBm/MHz)				Result
			Chain 0	Chain 1	Total	Limit	
Band 1	Low	5190	-0.84	-0.01	2.60	14.63	PASS
	High	5230	0.73	0.94	3.84	14.63	PASS

Remark:

1. *At finial test to get the worst-case emission at 13.5Mbps.*
2. *The cable assembly insertion loss of 17 dB (including 10 dB pad and 7 dB cable)was entered as an offset in the spectrum analyzer to allow for direct reading of power.*
3. *The directional gain is 8.37dBi which is more than 6dBi, the limit should be 14.63dBm.*
4. *Total power spectral density = Chain 0 + Chain 1.*

IEEE 802.11ac VHT40 NSS1/MCS0 Mode / Client

UNII Band	CH.	Channel Frequency (MHz)	Peak Power Spectral Density (dBm/MHz)				Result
			Chain 0	Chain 1	Total	Limit	
Band 1	Low	5190	-0.84	-0.01	2.60	8.63	PASS
	High	5230	0.73	0.94	3.84	8.63	PASS

Remark:

1. *At finial test to get the worst-case emission at 13.5Mbps.*
2. *The cable assembly insertion loss of 17 dB (including 10 dB pad and 7 dB cable)was entered as an offset in the spectrum analyzer to allow for direct reading of power.*
3. *The directional gain is 8.37dBi which is more than 6dBi, the limit should be 8.63dBm.*
4. *Total power spectral density = Chain 0 + Chain 1.*

IEEE 802.11ac VHT40 NSS1/MCS0 Mode

UNII Band	CH.	Channel Frequency (MHz)	Peak Power Spectral Density (dBm/500kHz)				Result
			Chain 0	Chain 1	Total	Limit	
Band 3	Low	5755	0.08	0.82	3.48	27.63	PASS
	High	5795	-0.32	0.93	3.36	27.63	PASS

Remark:

1. *At finial test to get the worst-case emission at 13.5Mbps.*
2. *The cable assembly insertion loss of 17 dB (including 10 dB pad and 7 dB cable) was entered as an offset in the spectrum analyzer to allow for direct reading of power.*
3. *The directional gain is 8.37dBi which is more than 6dBi, the limit should be 27.63dBm.*
4. *Total power spectral density = Chain 0 + Chain 1.*

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IEEE 802.11ac VHT80 NSS1/MCS0 Mode / Master

UNII Band	CH.	Channel Frequency (MHz)	Peak Power Spectral Density (dBm/MHz)				Result
			Chain 0	Chain 1	Total	Limit	
Band 1	Low	5210	-4.99	-4.54	-1.75	14.63	PASS

Remark:

1. *At finial test to get the worst-case emission at 29.3 Mbps.*
2. *The cable assembly insertion loss of 17 dB (including 10 dB pad and 7 dB cable) was entered as an offset in the spectrum analyzer to allow for direct reading of power.*
3. *The directional gain is 8.37dBi which is more than 6dBi, the limit should be 14.63dBm.*
4. *Total power spectral density = Chain 0 + Chain 1 .*

IEEE 802.11ac VHT80 NSS1/MCS0 Mode / Client

UNII Band	CH.	Channel Frequency (MHz)	Peak Power Spectral Density (dBm/MHz)				Result
			Chain 0	Chain 1	Total	Limit	
Band 1	Low	5210	-4.99	-4.54	-1.75	8.63	PASS

Remark:

1. *At finial test to get the worst-case emission at 29.3 Mbps.*
2. *The cable assembly insertion loss of 17 dB (including 10 dB pad and 7 dB cable) was entered as an offset in the spectrum analyzer to allow for direct reading of power.*
3. *The directional gain is 8.37dBi which is more than 6dBi, the limit should be 8.63dBm.*
4. *Total power spectral density = Chain 0 + Chain 1 .*

IEEE 802.11ac VHT80 NSS1/MCS0 Mode

UNII Band	CH.	Channel Frequency (MHz)	Peak Power Spectral Density (dBm/500kHz)				Result
			Chain 0	Chain 1	Total	Limit	
Band 3	Low	5775	-4.24	-2.80	-0.45	27.63	PASS

Remark:

1. *At finial test to get the worst-case emission at 29.3 Mbps.*
2. *The cable assembly insertion loss of 17 dB (including 10 dB pad and 7 dB cable) was entered as an offset in the spectrum analyzer to allow for direct reading of power.*
3. *The directional gain is 8.37dBi which is more than 6dBi, the limit should be 27.63dBm.*
4. *Total power spectral density = Chain 0 + Chain 1.*

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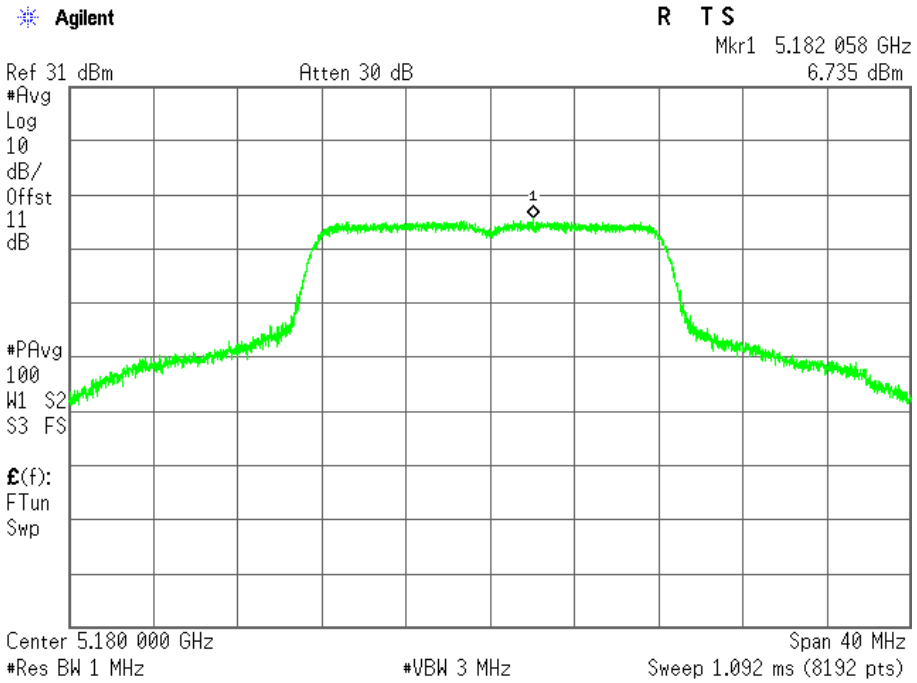
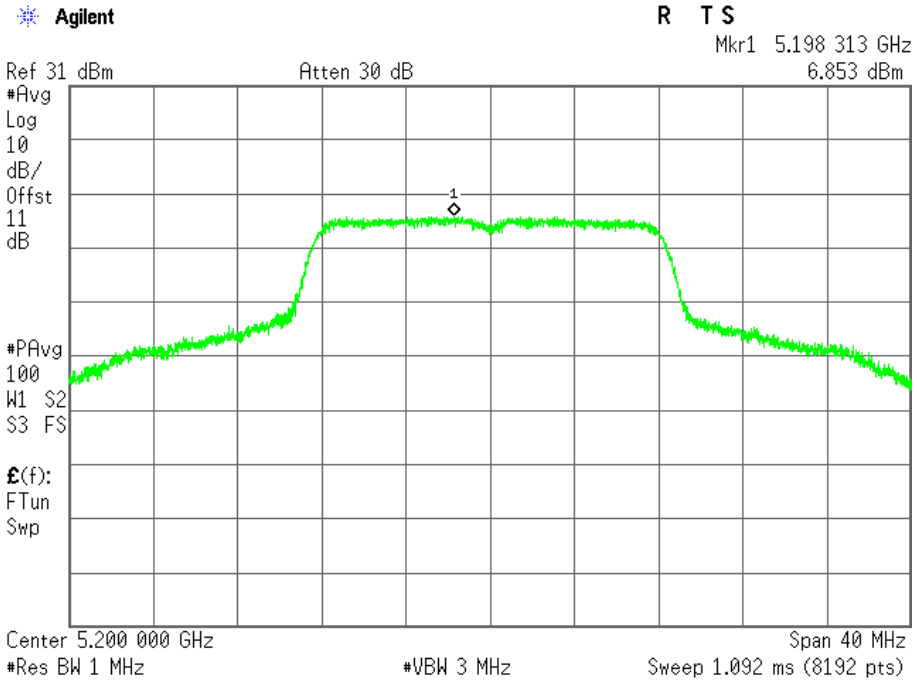
POWER SPECTRAL DENSITY

Non-beamforming / Master

CH Low (IEEE 802.11a Mode / Band 1 / Chain 0)



CH Middle (IEEE 802.11a Mode / Band 1 / Chain 0)



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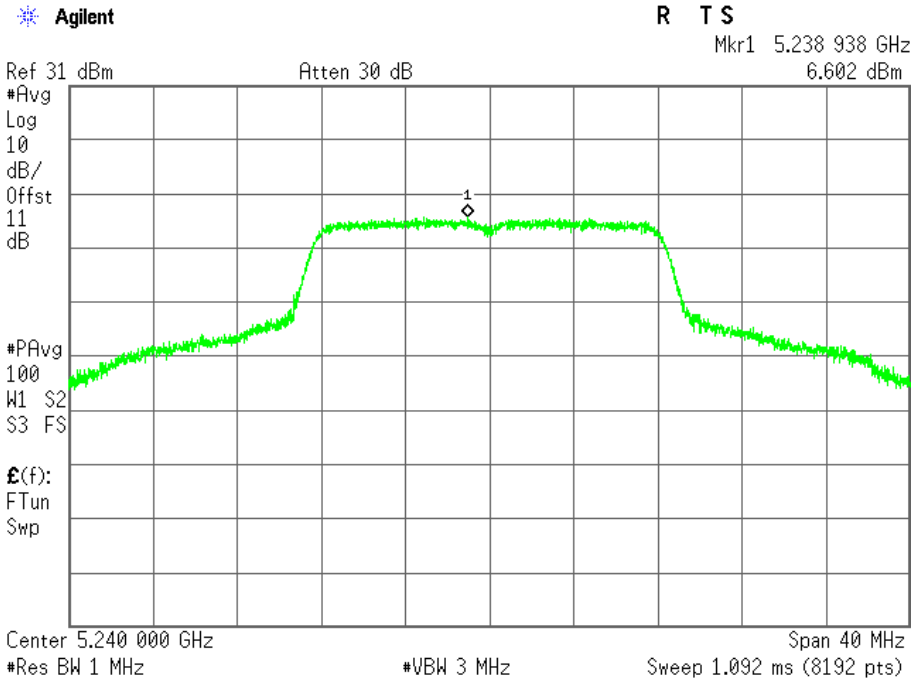
CH High (IEEE 802.11a Mode / Band 1 / Chain 0)



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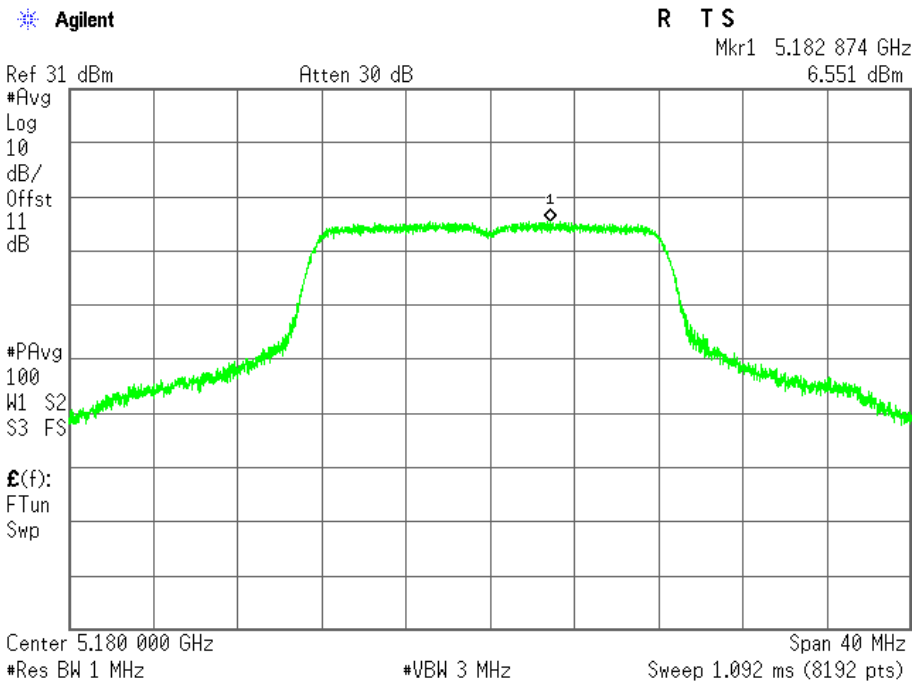
CH Low (IEEE 802.11a Mode / Band 1 / Chain 1)



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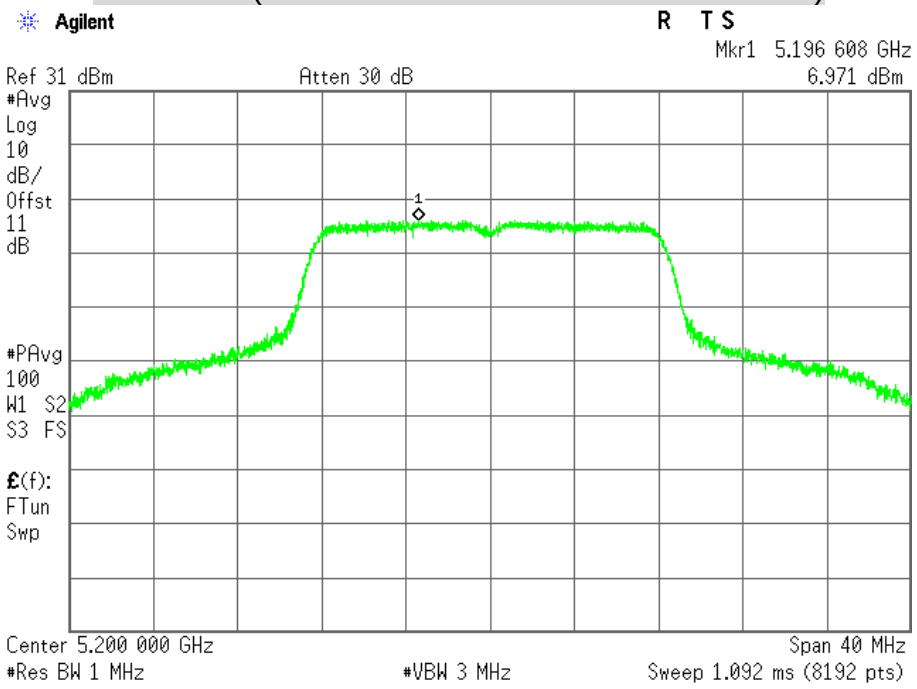

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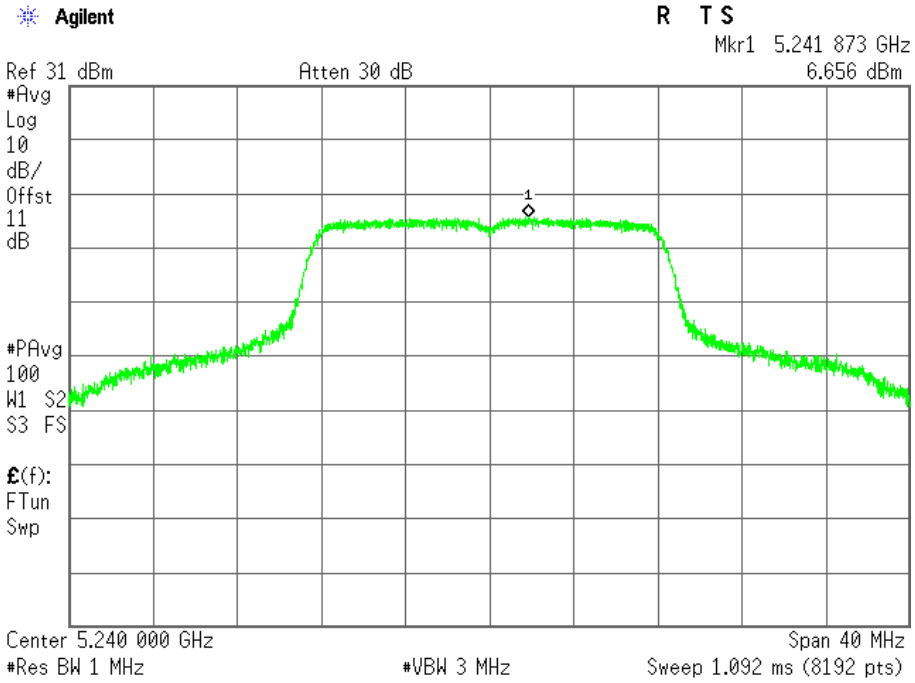
CH High (IEEE 802.11a Mode / Band 1 / Chain 1)



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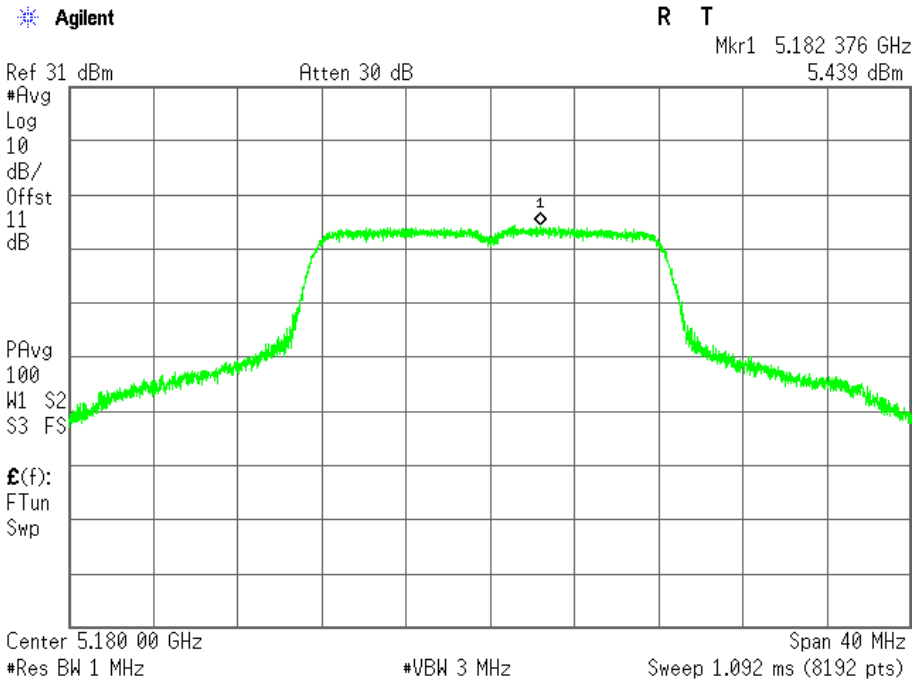
Non-beamforming / Client

CH Low (IEEE 802.11a Mode / Band 1 / Chain 0)



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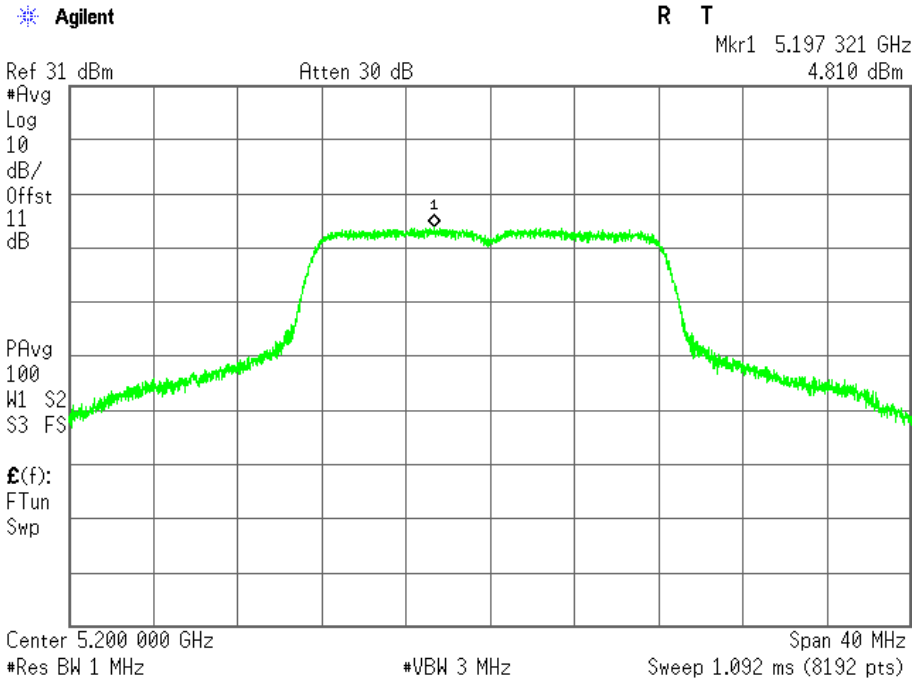

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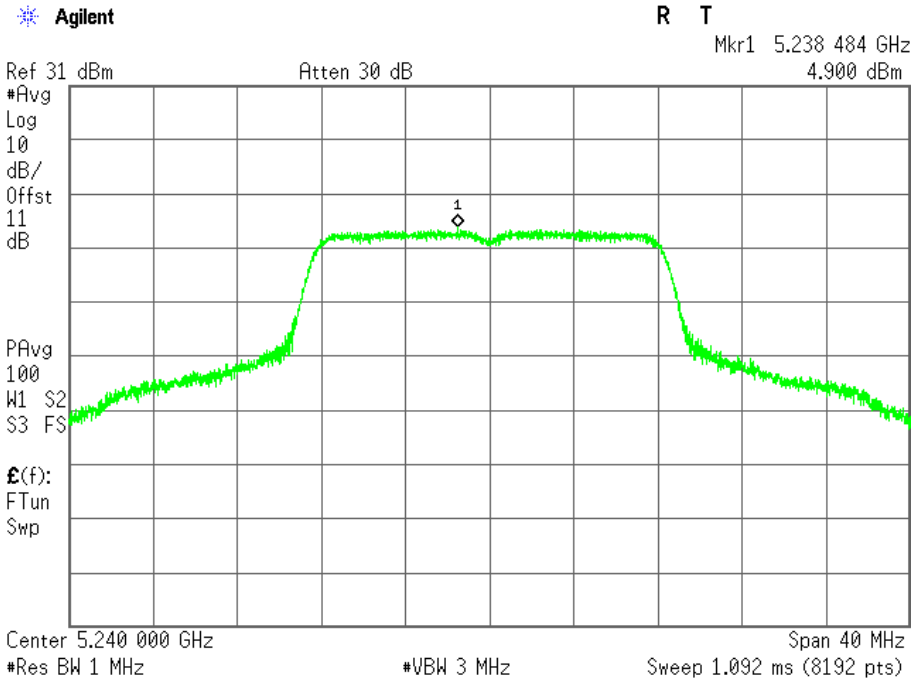
CH High (IEEE 802.11a Mode / Band 1 / Chain 0)



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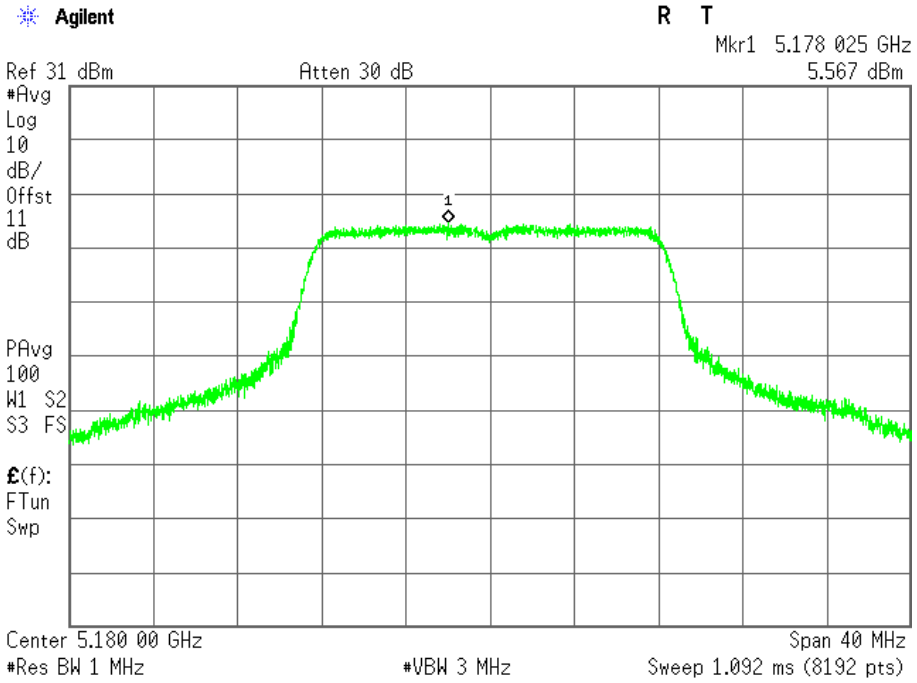
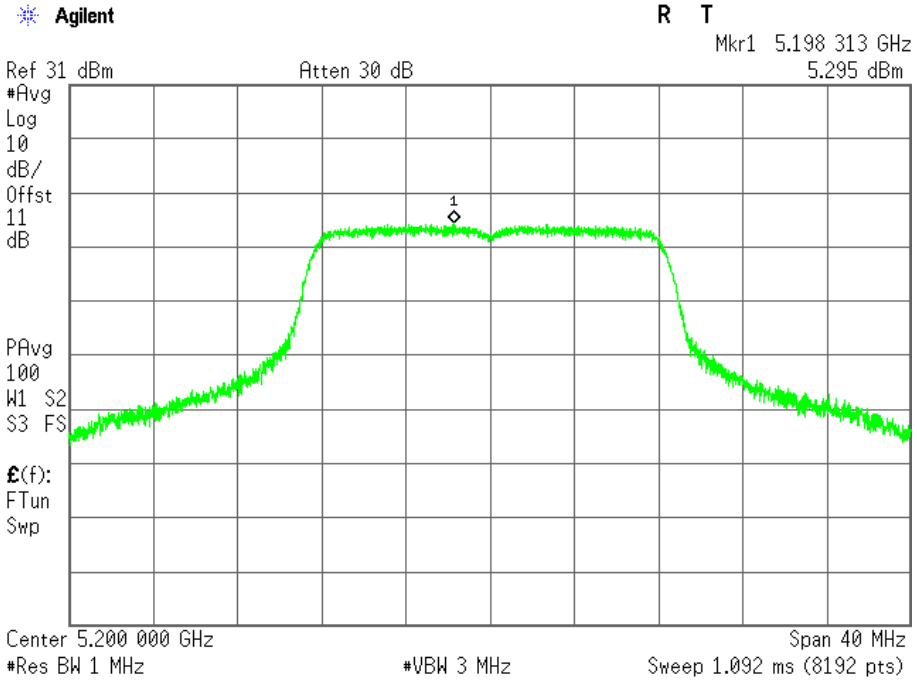
CH Low (IEEE 802.11a Mode / Band 1 / Chain 1)



CH Middle (IEEE 802.11a Mode / Band 1 / Chain 1)



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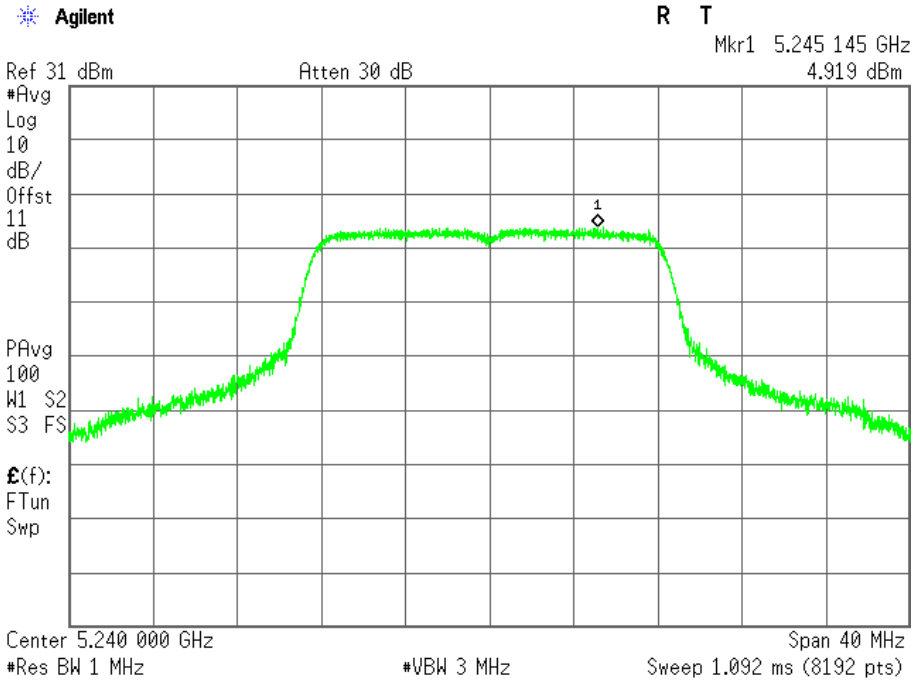
CH High (IEEE 802.11a Mode / Band 1 / Chain 1)



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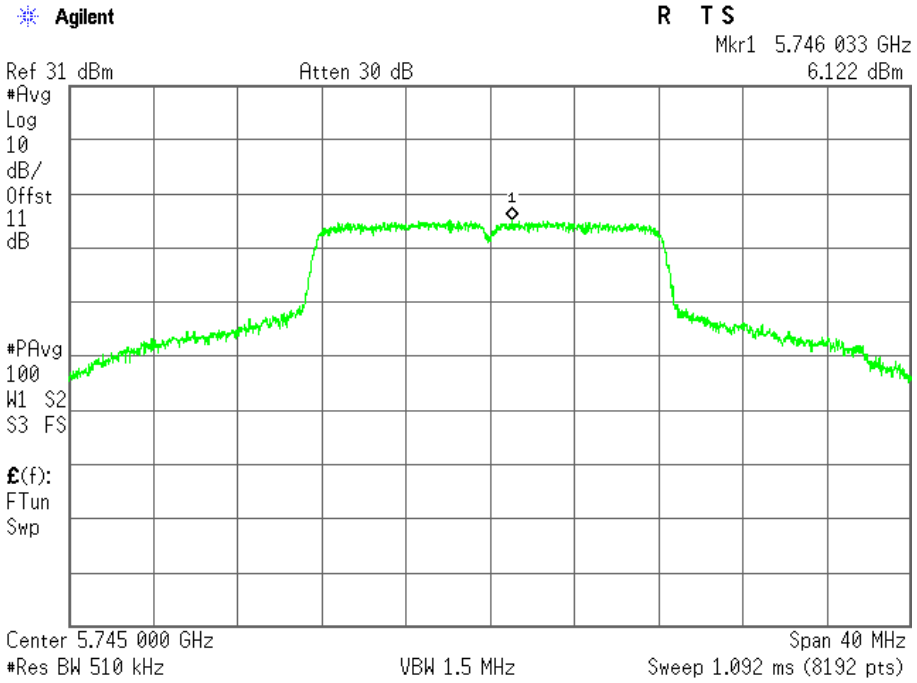
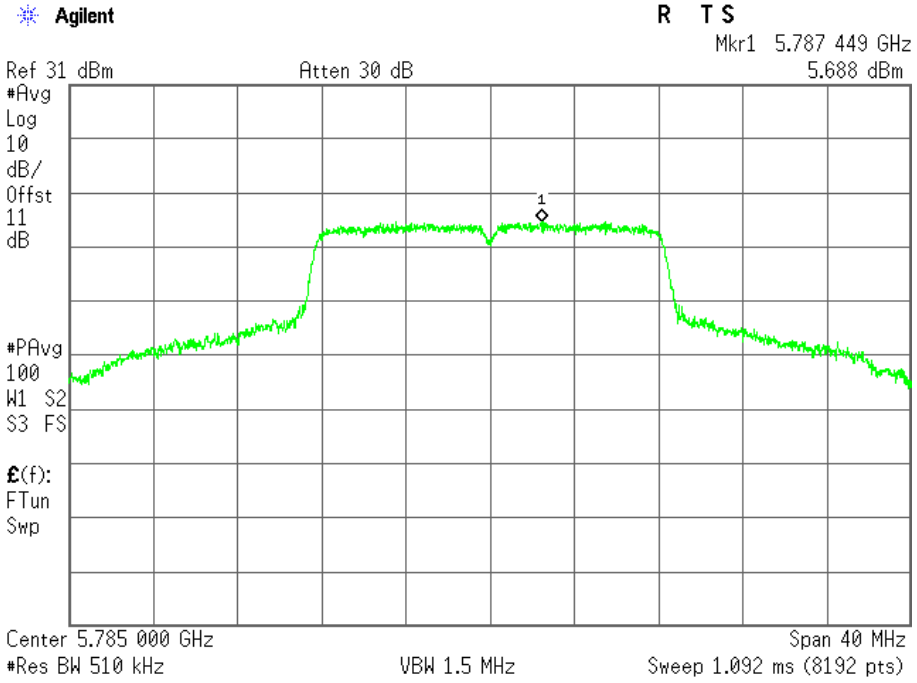
CH Low (IEEE 802.11a Mode / Band 3 / Chain 0)



CH Middle (IEEE 802.11a Mode / Band 3 / Chain 0)



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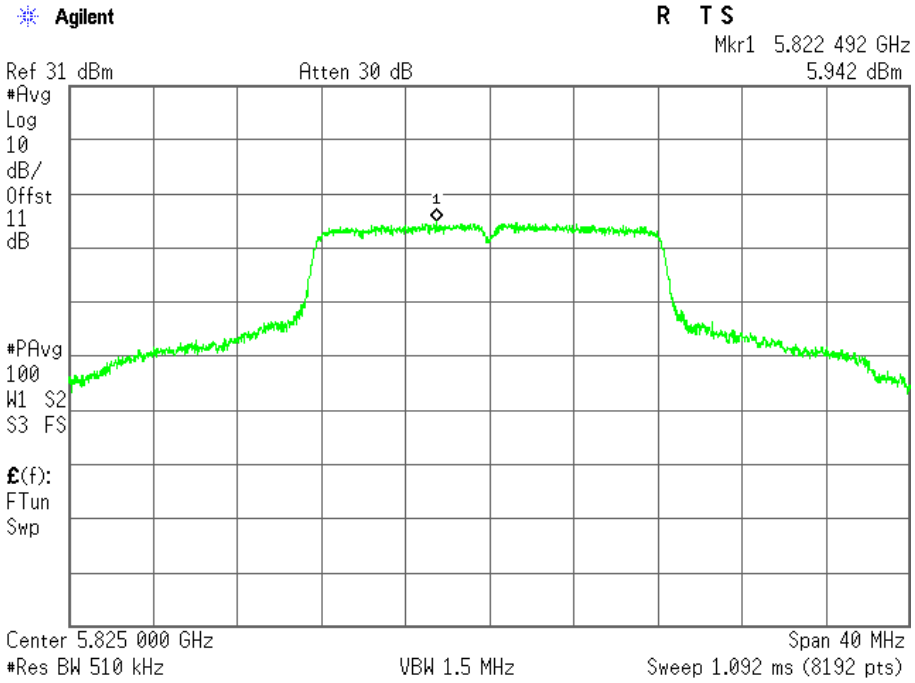
CH High (IEEE 802.11a Mode / Band 3 / Chain 0)



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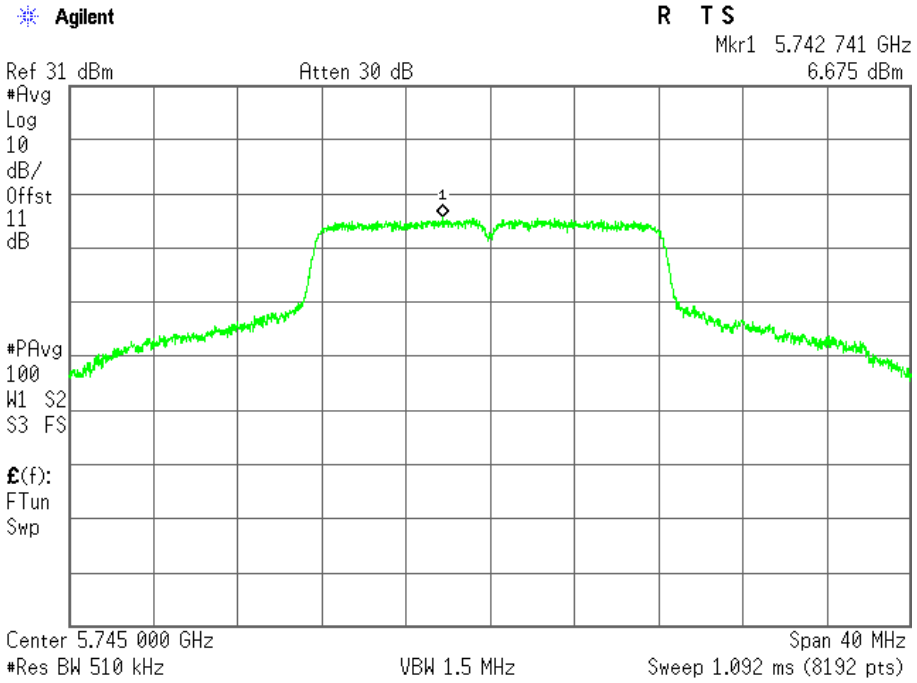
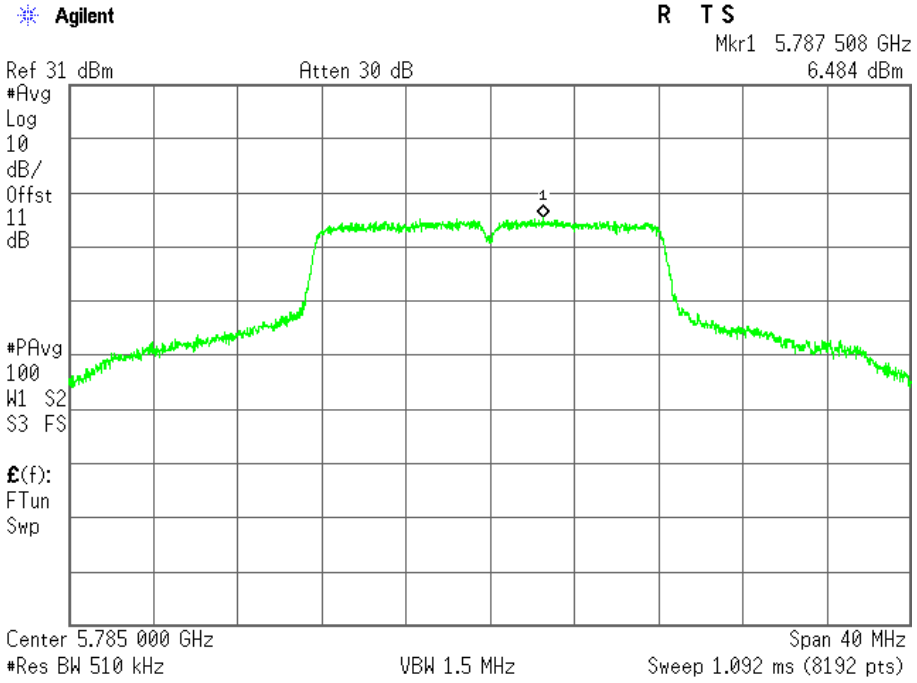
CH Low (IEEE 802.11a Mode / Band 3 / Chain 1)



CH Middle (IEEE 802.11a Mode / Band 3 / Chain 1)



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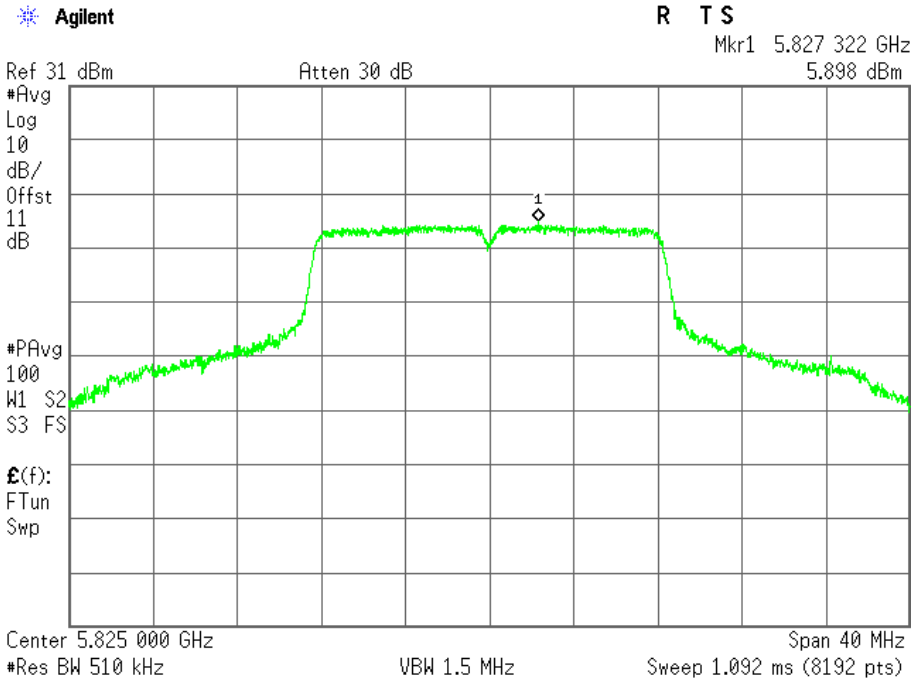
CH High (IEEE 802.11a Mode / Band 3 / Chain 1)



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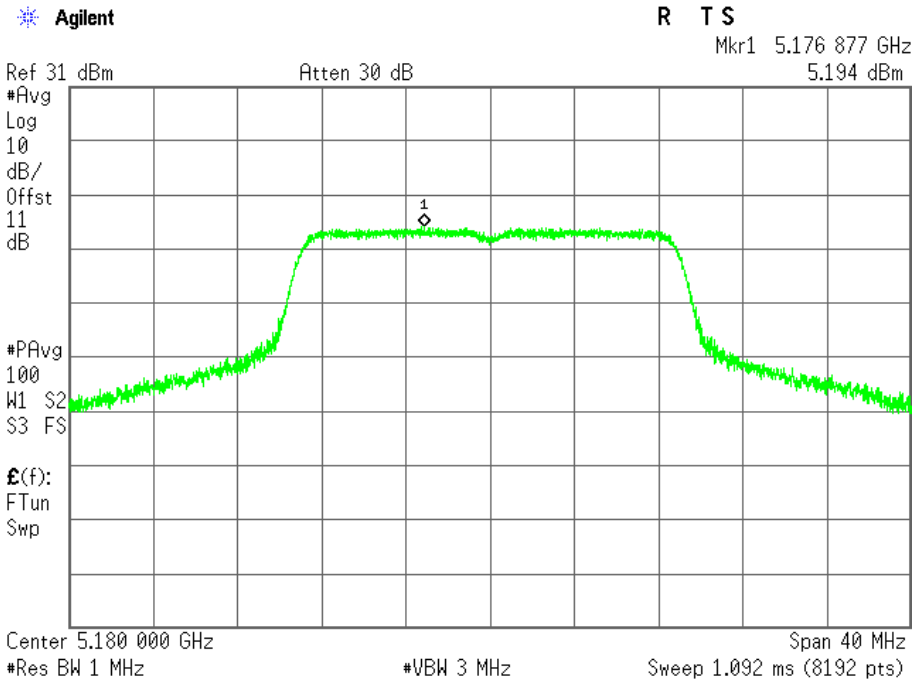
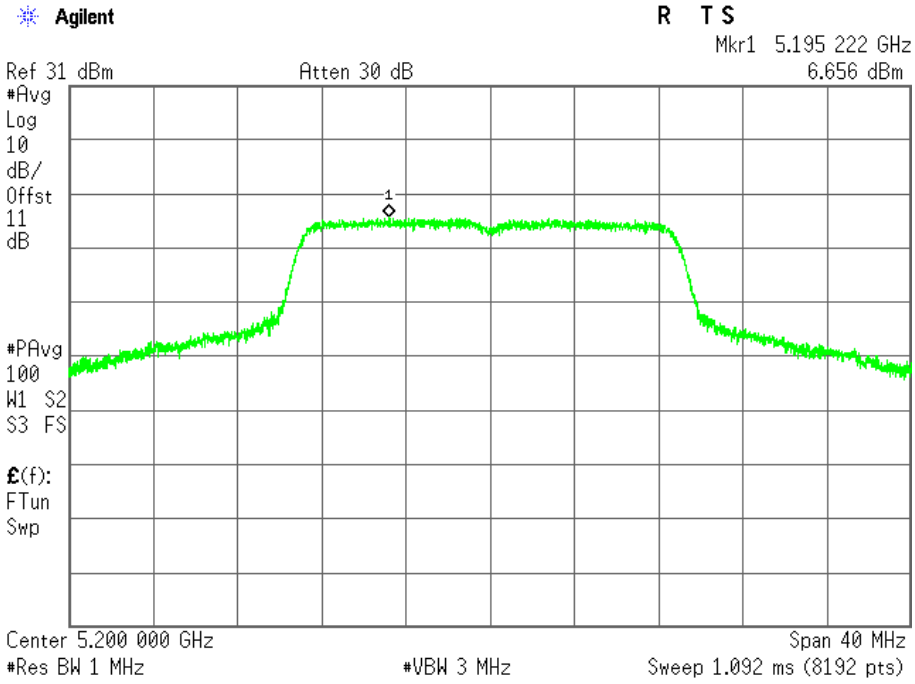
Non-beamforming / Master

CH Low (IEEE 802.11ac VHT20 NSS1/MCS0 Mode / Band 1 / Chain 0)



CH Middle (IEEE 802.11ac VHT20 NSS1/MCS0 Mode / Band 1 / Chain 0)



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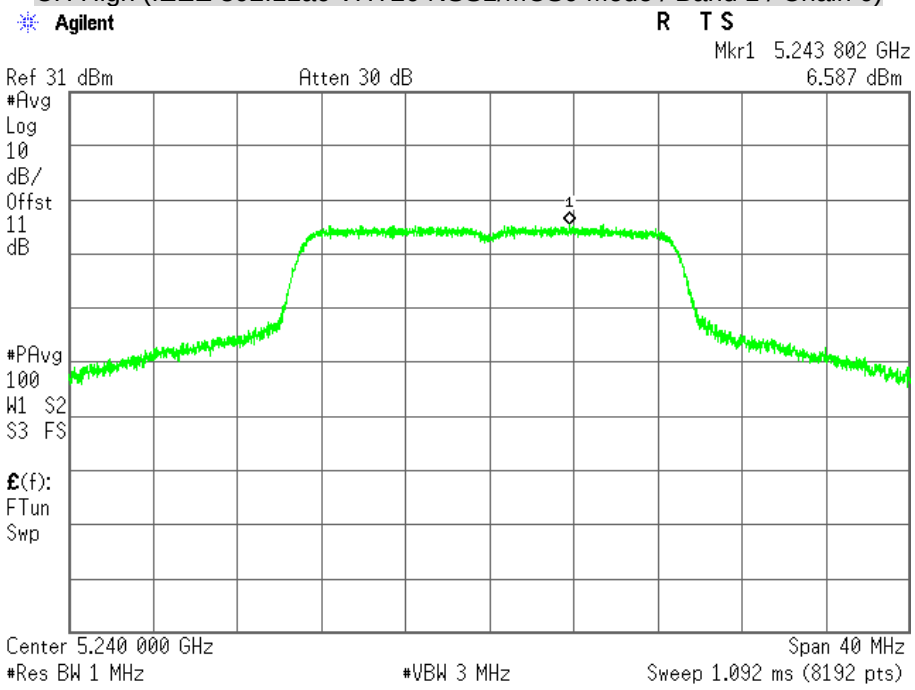
CH High (IEEE 802.11ac VHT20 NSS1/MCS0 Mode / Band 1 / Chain 0)



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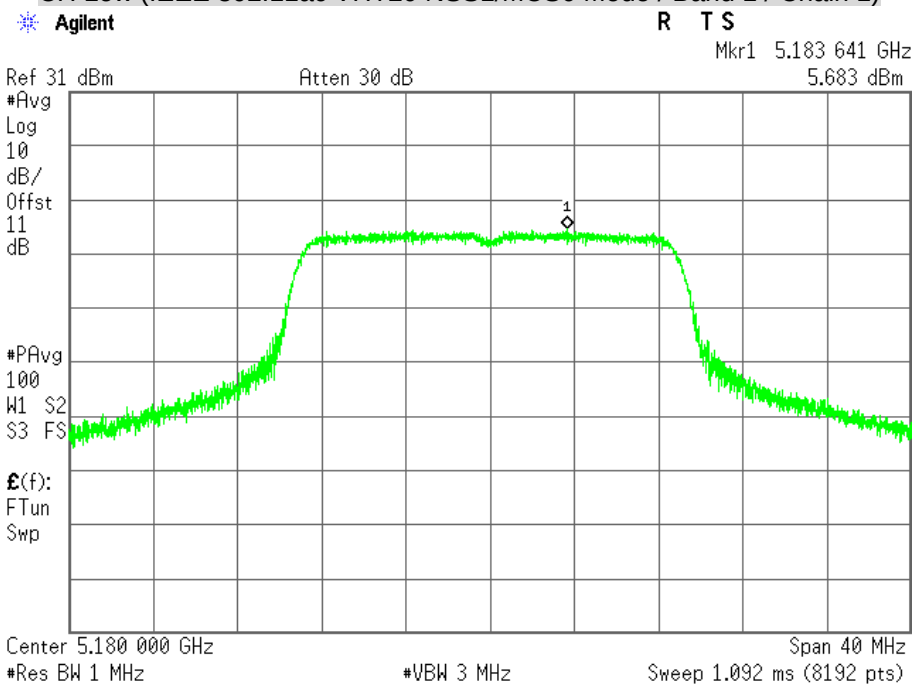
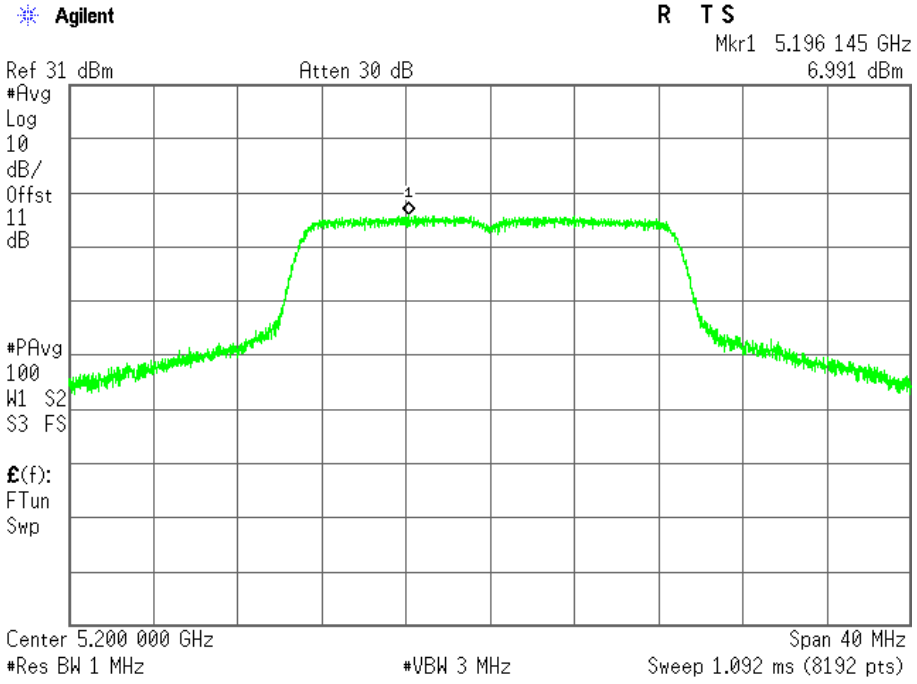
CH Low (IEEE 802.11ac VHT20 NSS1/MCS0 Mode / Band 1 / Chain 1)



CH Middle (IEEE 802.11ac VHT20 NSS1/MCS0 Mode / Band 1 / Chain 1)



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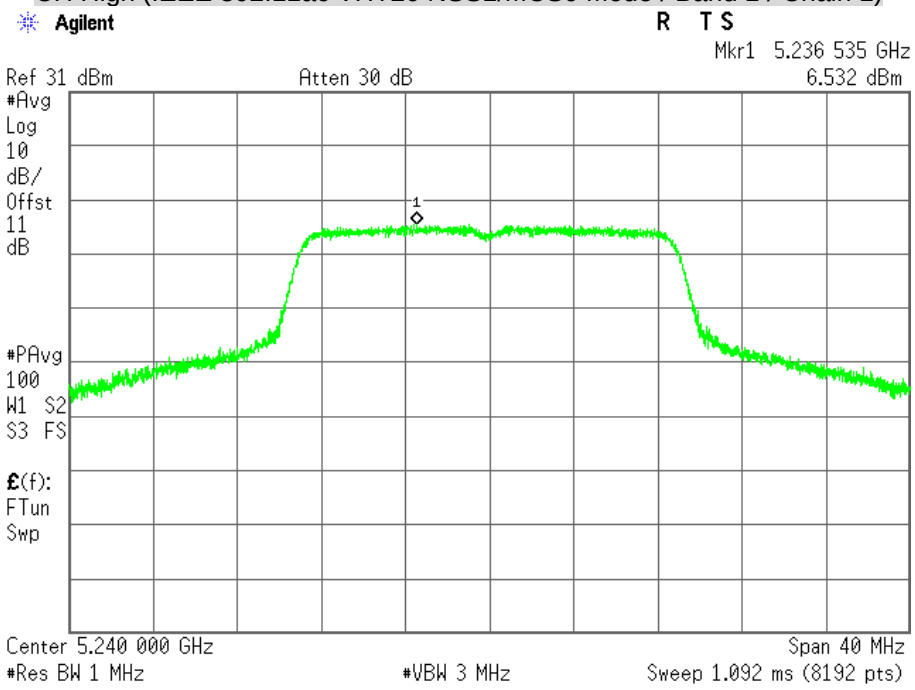
CH High (IEEE 802.11ac VHT20 NSS1/MCS0 Mode / Band 1 / Chain 1)



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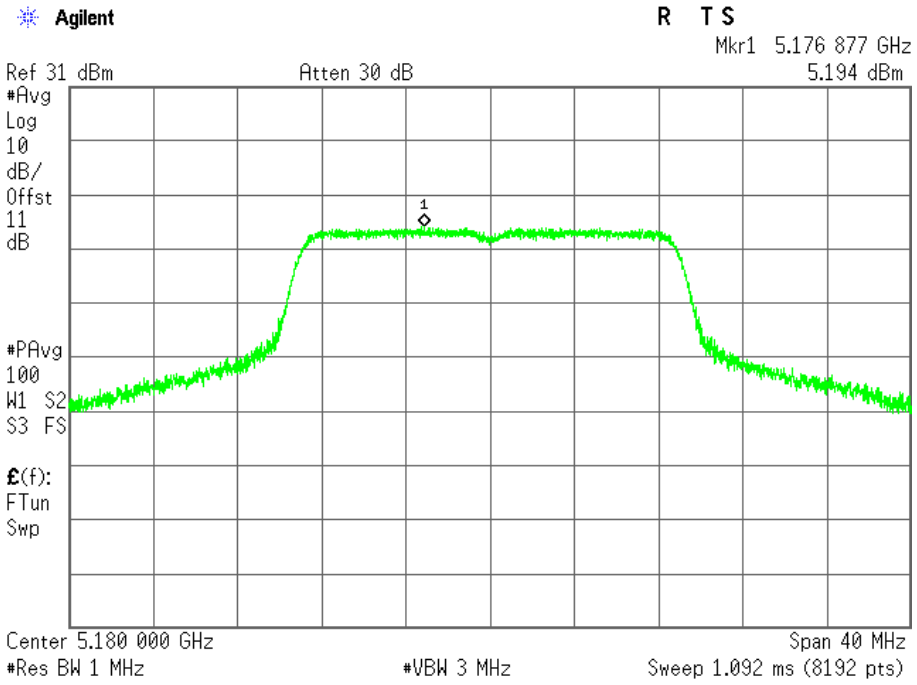
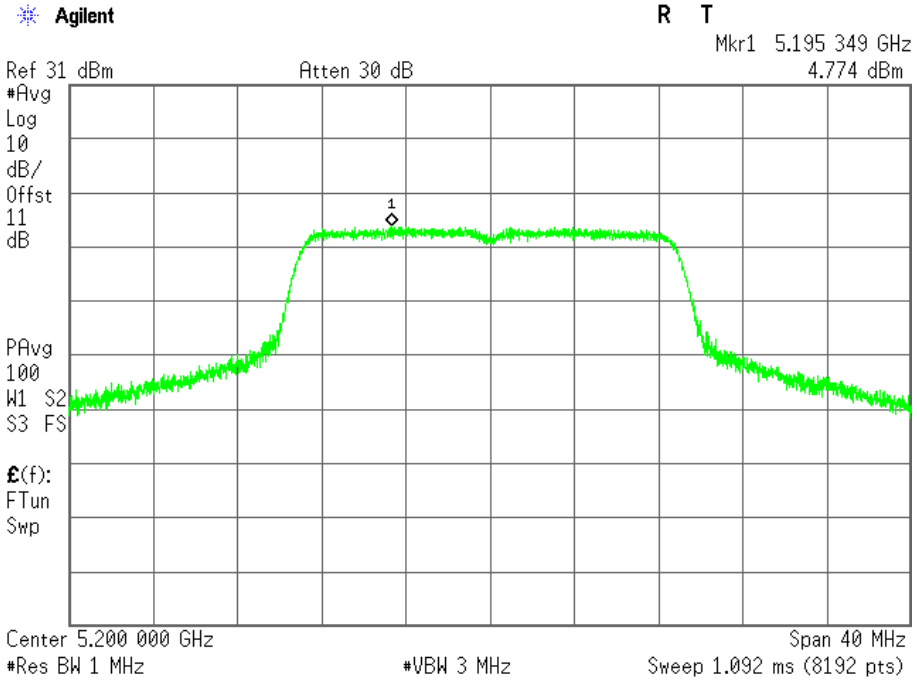
Non-beamforming / Client

CH Low (IEEE 802.11ac VHT20 NSS1/MCS0 Mode / Band 1 / Chain 0)



CH Middle (IEEE 802.11ac VHT20 NSS1/MCS0 Mode / Band 1 / Chain 0)



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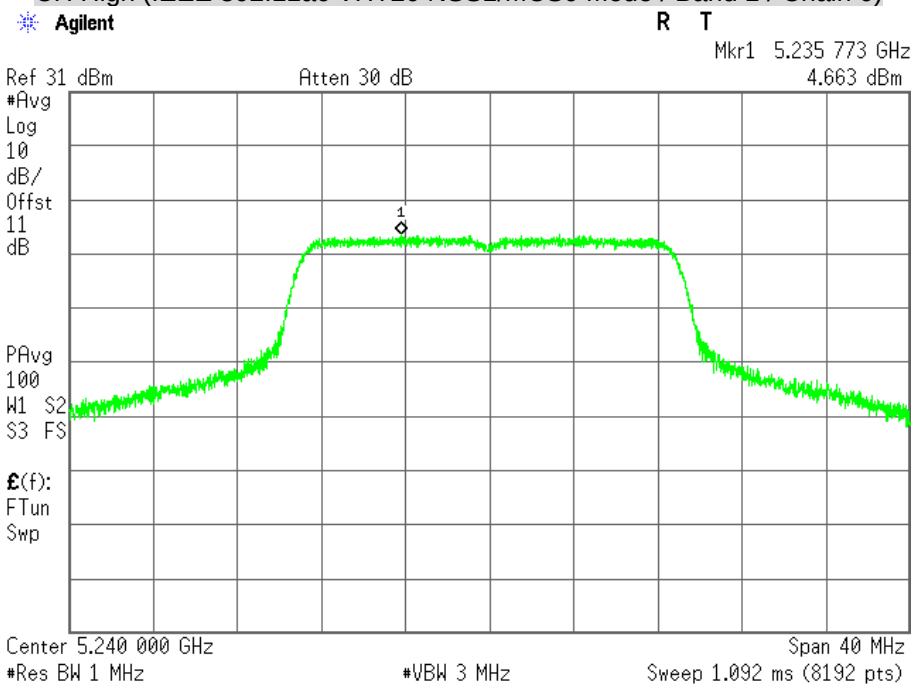
CH High (IEEE 802.11ac VHT20 NSS1/MCS0 Mode / Band 1 / Chain 0)



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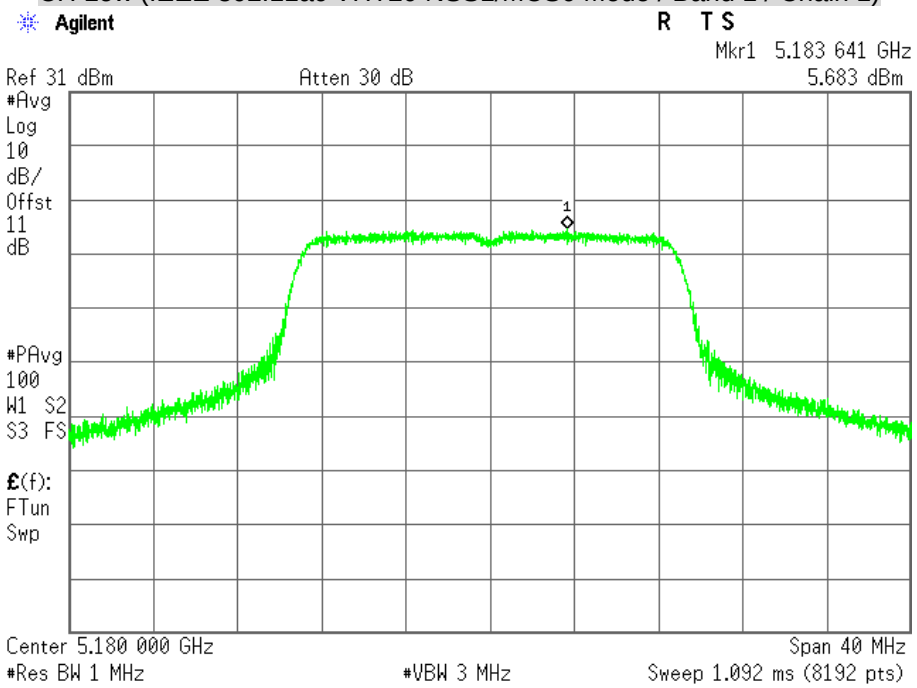
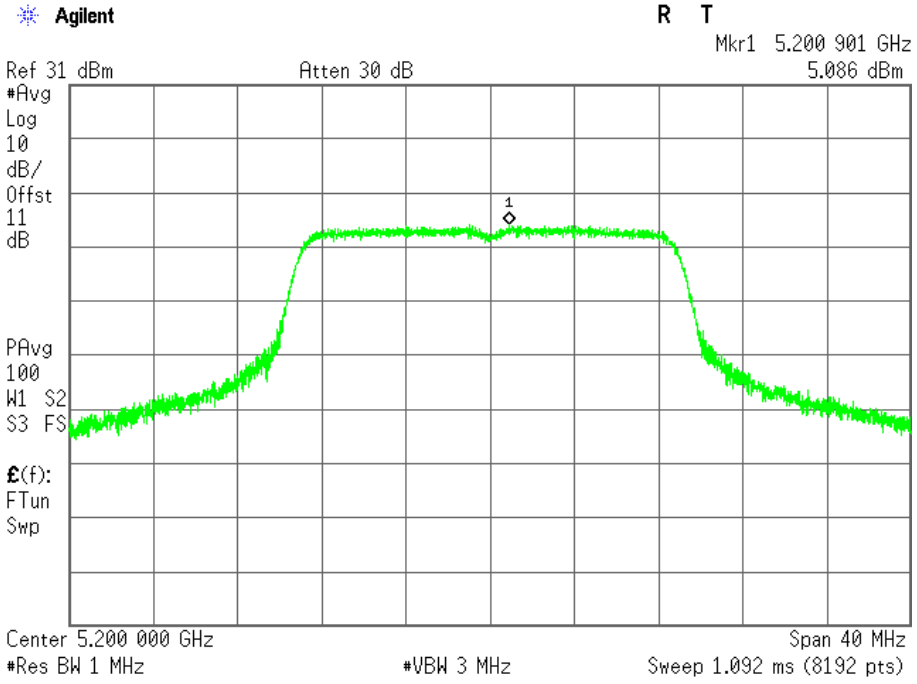
CH Low (IEEE 802.11ac VHT20 NSS1/MCS0 Mode / Band 1 / Chain 1)



CH Middle (IEEE 802.11ac VHT20 NSS1/MCS0 Mode / Band 1 / Chain 1)



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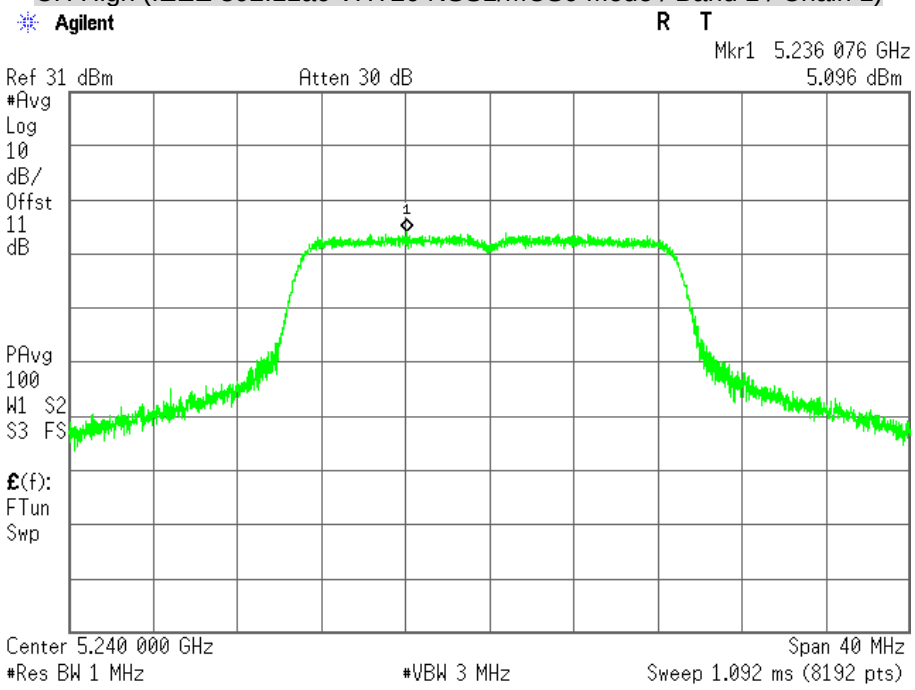
CH High (IEEE 802.11ac VHT20 NSS1/MCS0 Mode / Band 1 / Chain 1)



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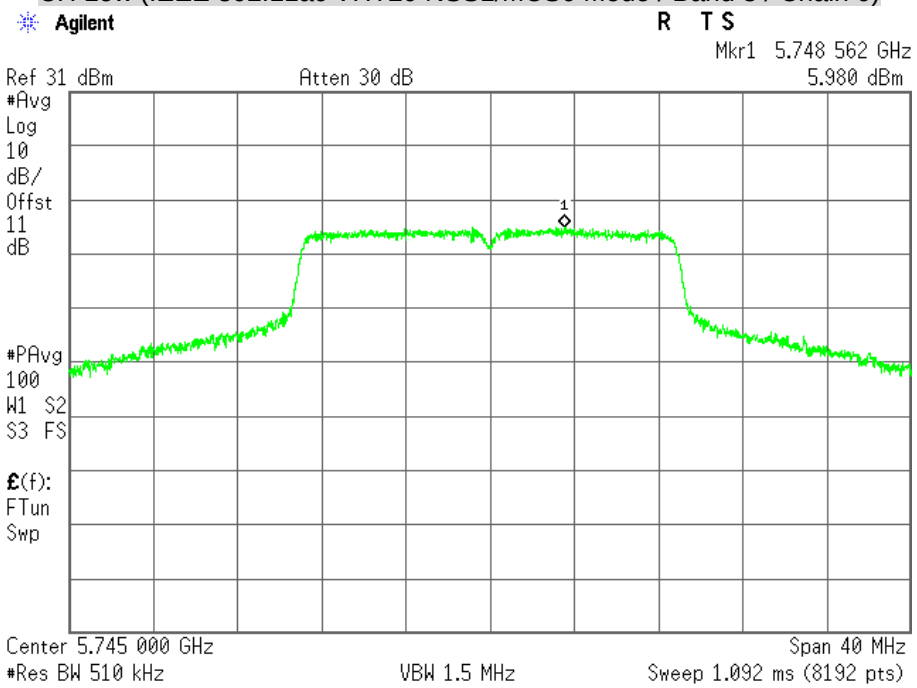
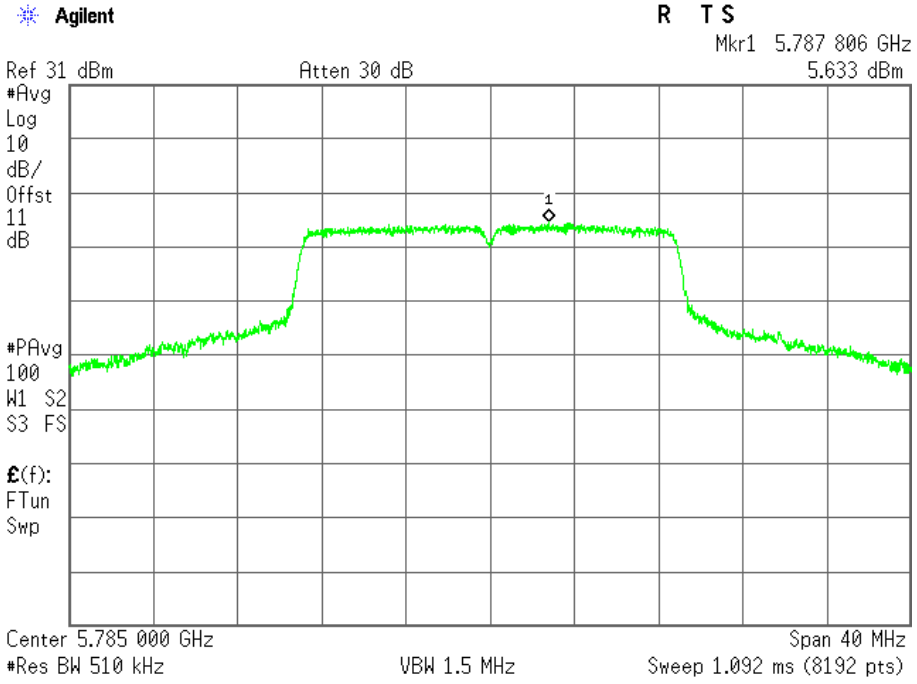
CH Low (IEEE 802.11ac VHT20 NSS1/MCS0 Mode / Band 3 / Chain 0)



CH Middle (IEEE 802.11ac VHT20 NSS1/MCS0 Mode / Band 3 / Chain 0)



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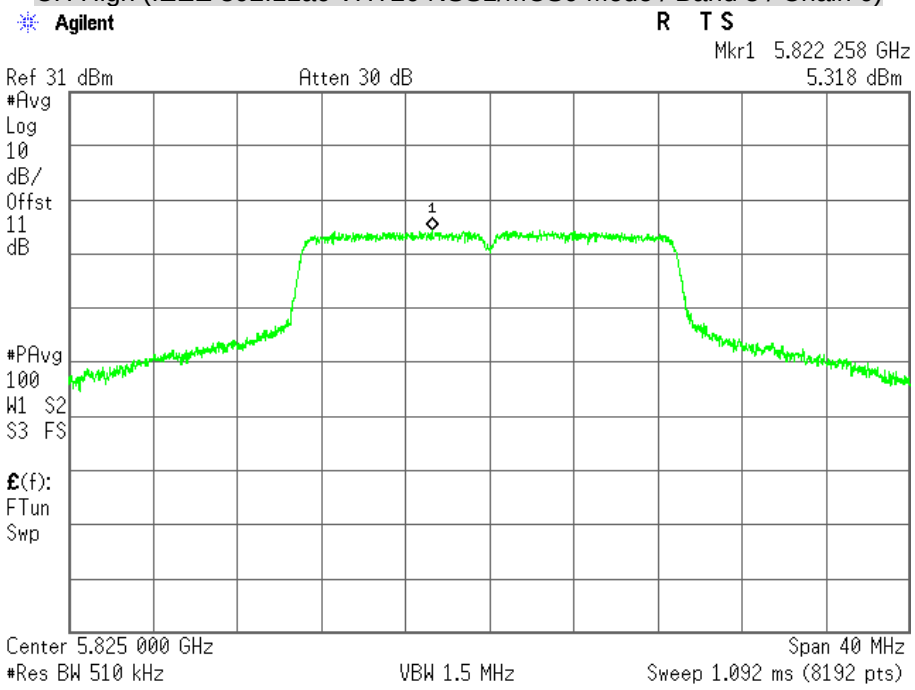
CH High (IEEE 802.11ac VHT20 NSS1/MCS0 Mode / Band 3 / Chain 0)



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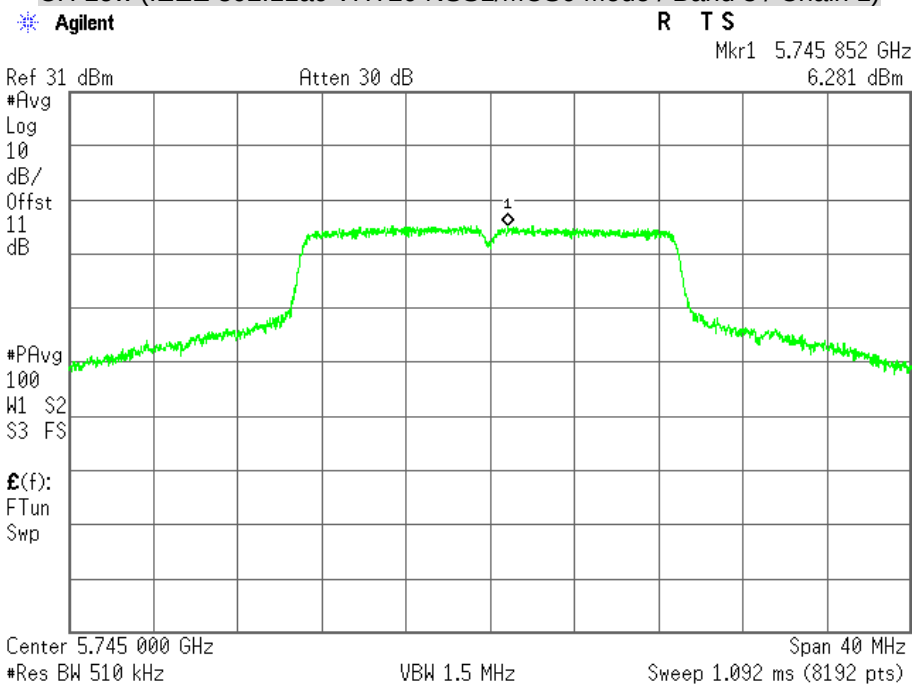
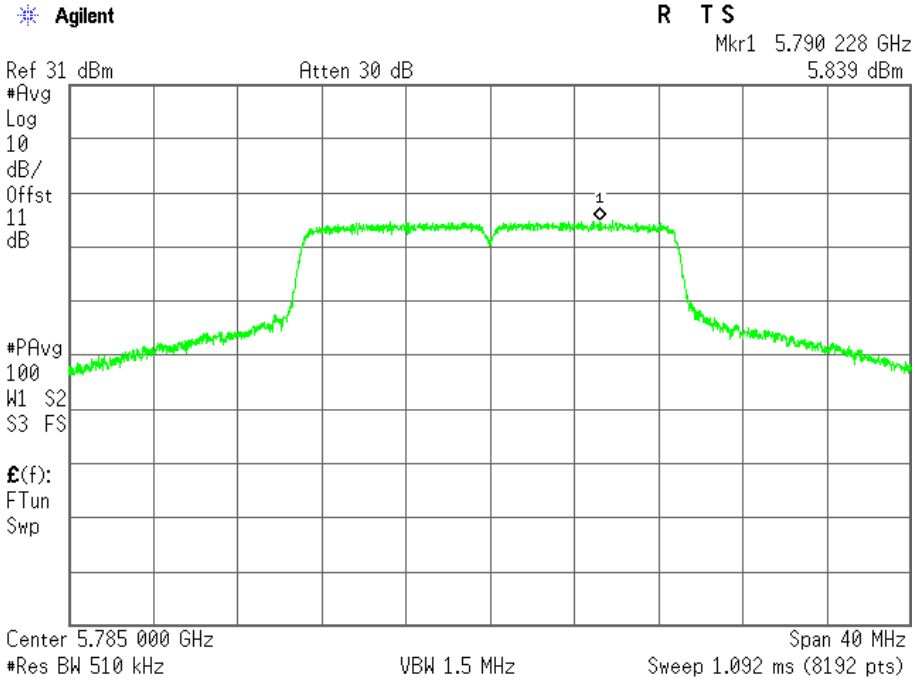
CH Low (IEEE 802.11ac VHT20 NSS1/MCS0 Mode / Band 3 / Chain 1)



CH Middle (IEEE 802.11ac VHT20 NSS1/MCS0 Mode / Band 3 / Chain 1)



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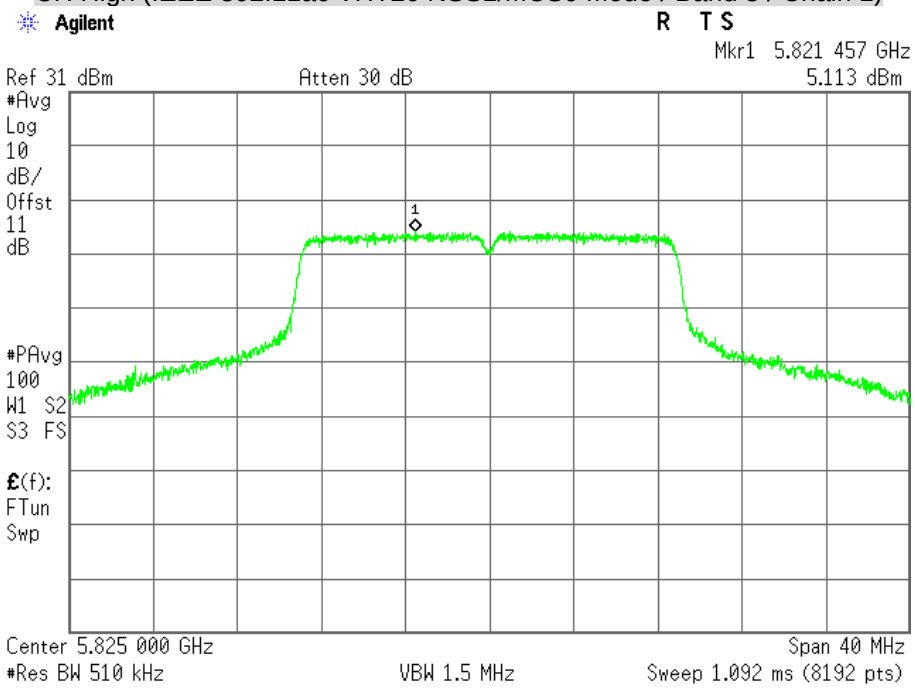
CH High (IEEE 802.11ac VHT20 NSS1/MCS0 Mode / Band 3 / Chain 1)



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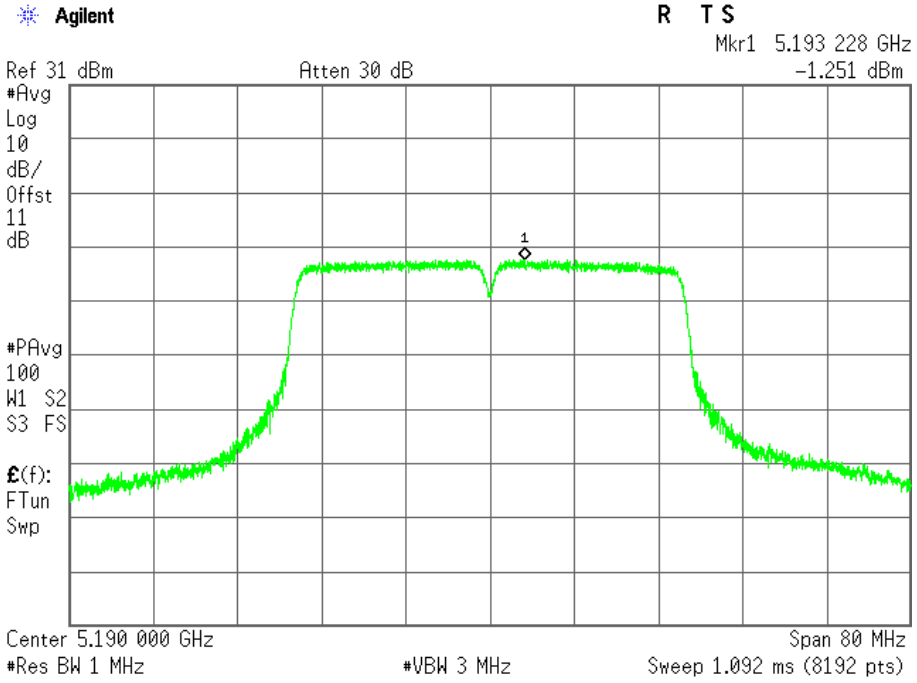
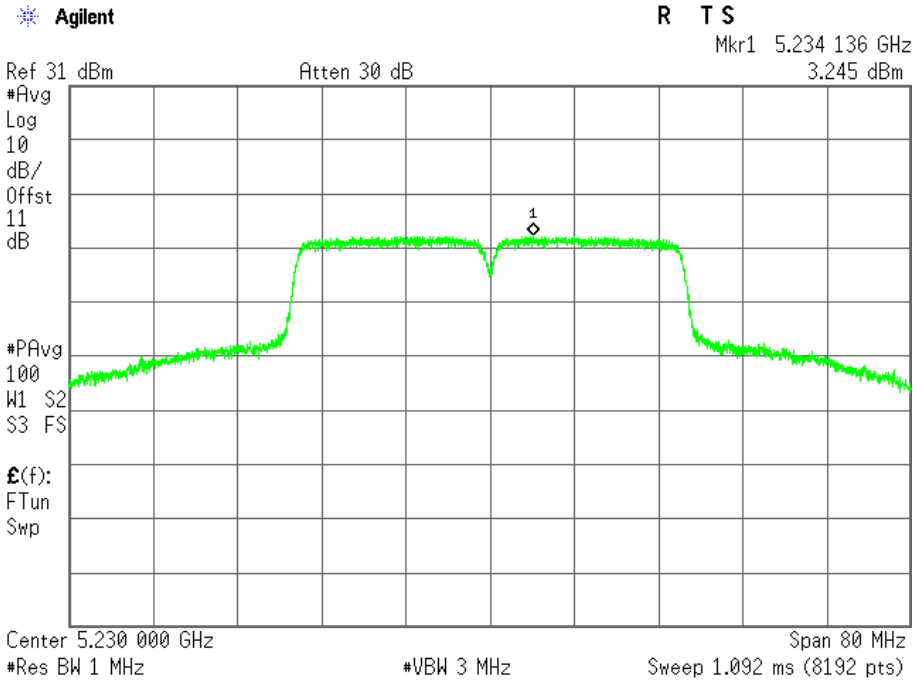
Non-beamforming / Master

CH Low (IEEE 802.11ac VHT40 NSS1/MCS0Mode / Band 1 / Chain 0)



CH High (IEEE 802.11ac VHT40 NSS1/MCS0 Mode / Band 1 / Chain 0)



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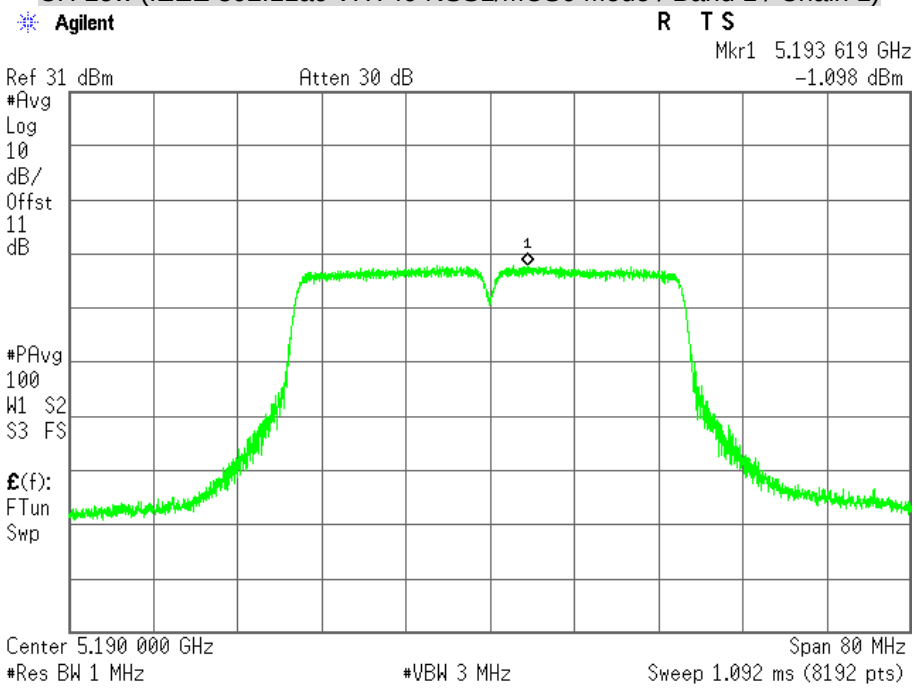
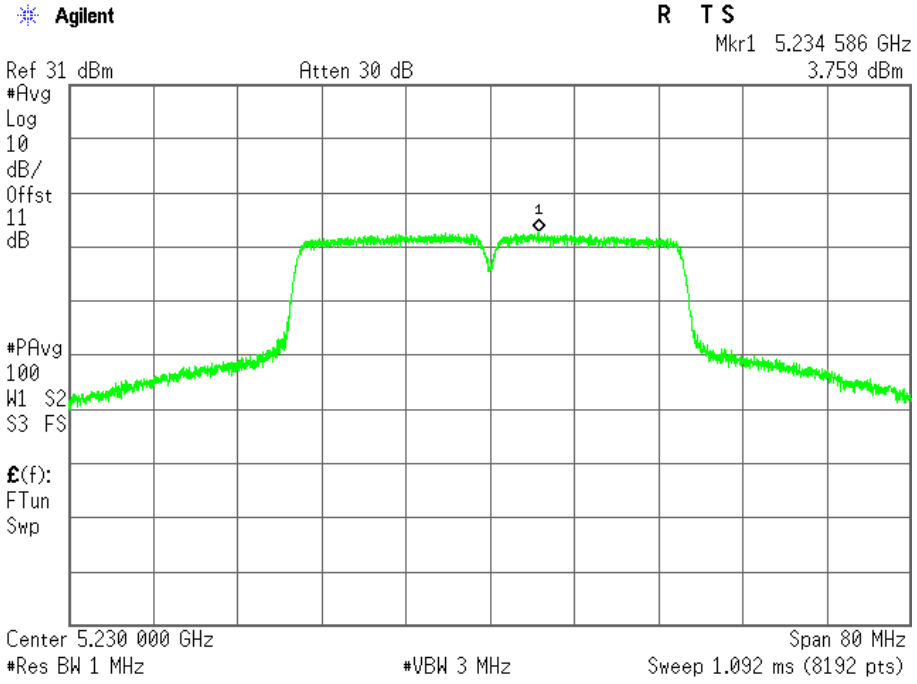
CH Low (IEEE 802.11ac VHT40 NSS1/MCS0 Mode / Band 1 / Chain 1)



CH High (IEEE 802.11ac VHT40 NSS1/MCS0 Mode / Band 1 / Chain 1)



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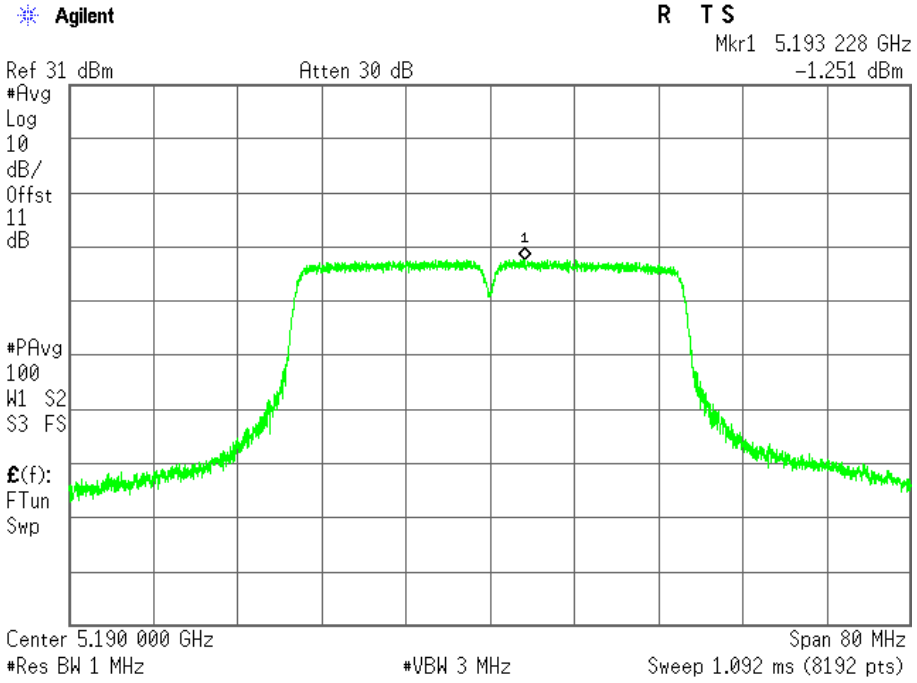
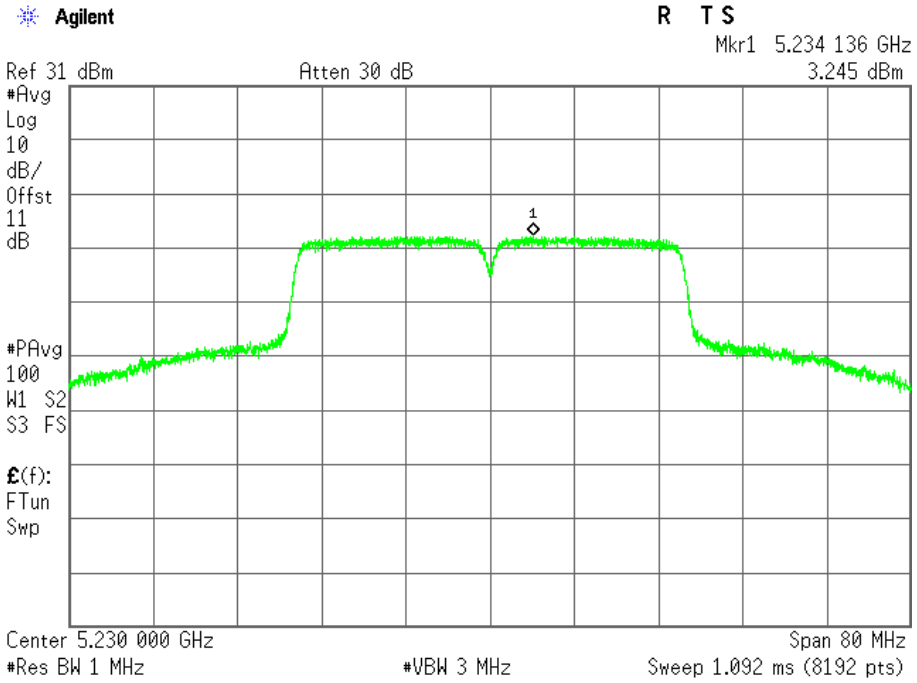
Non-beamforming / Client

CH Low (IEEE 802.11ac VHT40 NSS1/MCS0Mode / Band 1 / Chain 0)



CH High (IEEE 802.11ac VHT40 NSS1/MCS0 Mode / Band 1 / Chain 0)



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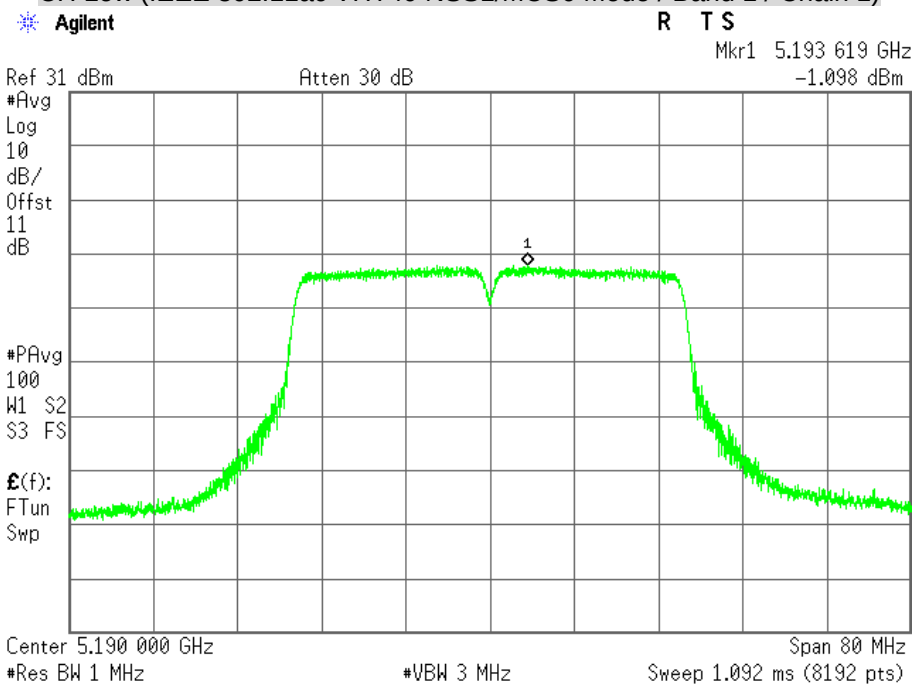
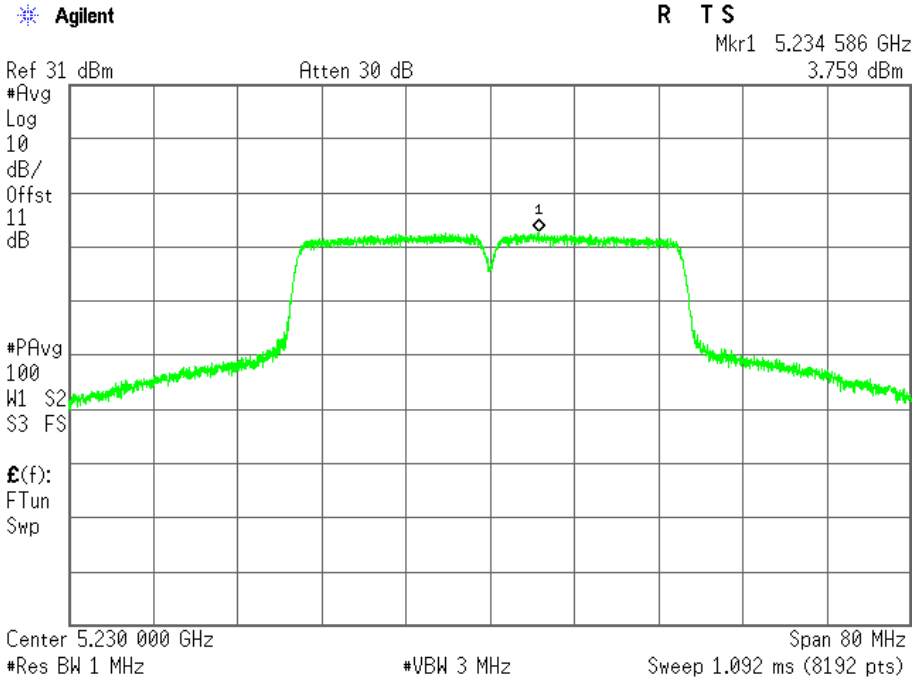
CH Low (IEEE 802.11ac VHT40 NSS1/MCS0 Mode / Band 1 / Chain 1)



CH High (IEEE 802.11ac VHT40 NSS1/MCS0 Mode / Band 1 / Chain 1)



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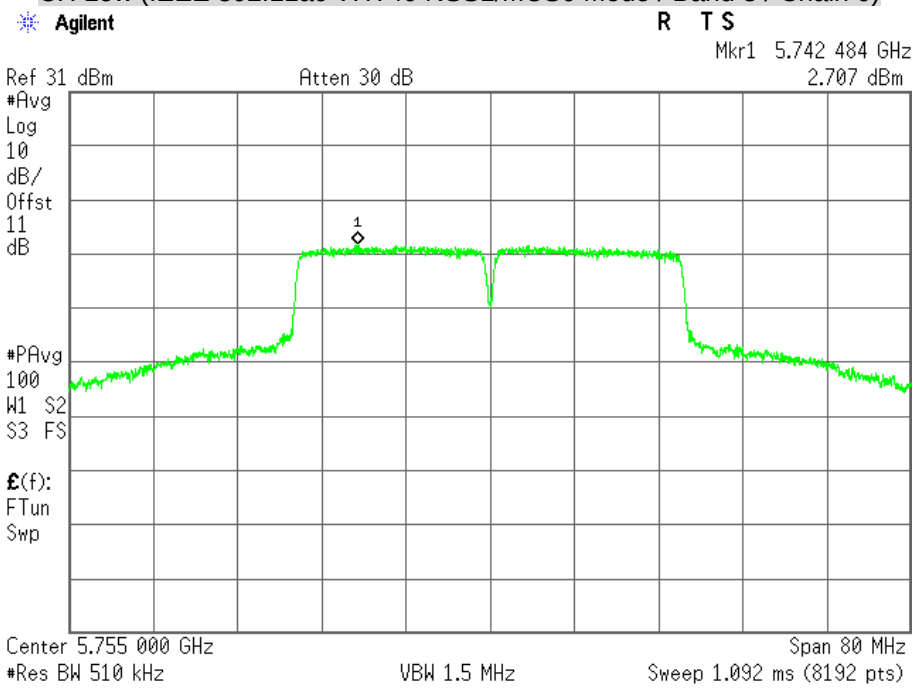
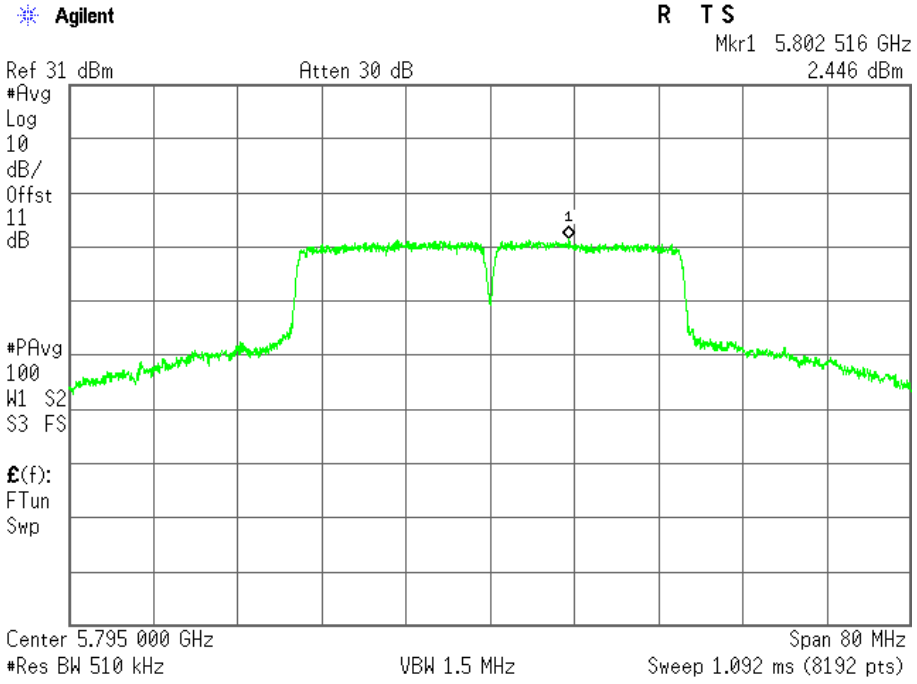
CH Low (IEEE 802.11ac VHT40 NSS1/MCS0 Mode / Band 3 / Chain 0)



CH High (IEEE 802.11ac VHT40 NSS1/MCS0 Mode / Band 3 / Chain 0)



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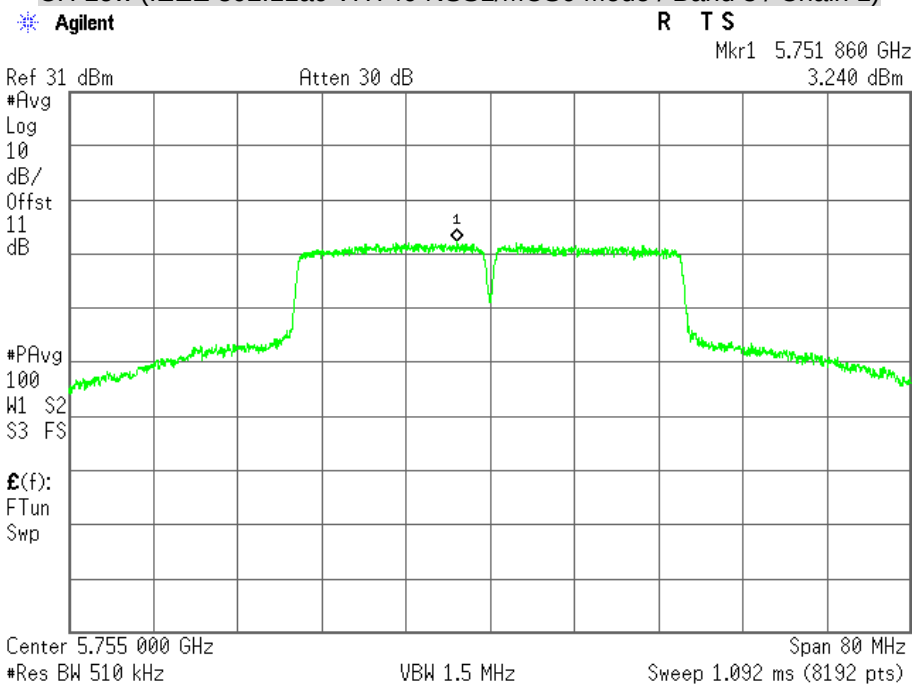
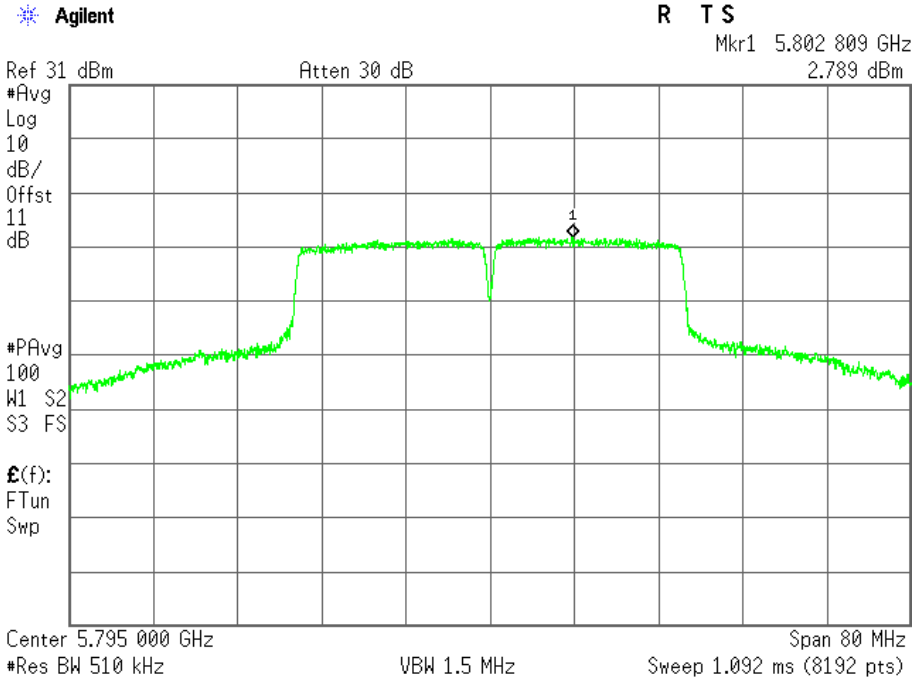
CH Low (IEEE 802.11ac VHT40 NSS1/MCS0 Mode / Band 3 / Chain 1)



CH High (IEEE 802.11ac VHT40 NSS1/MCS0 Mode / Band 3 / Chain 1)



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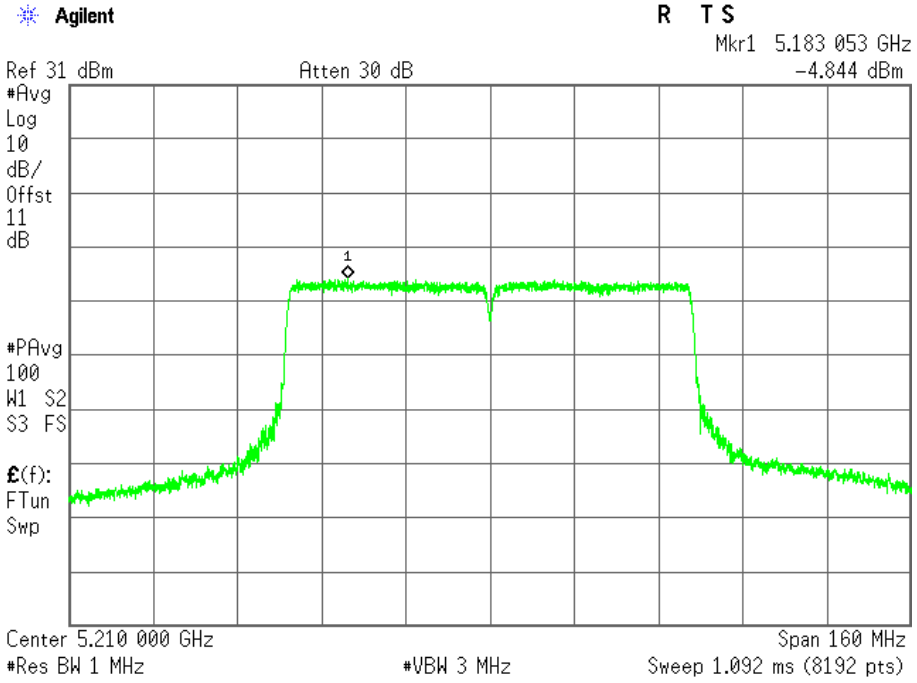
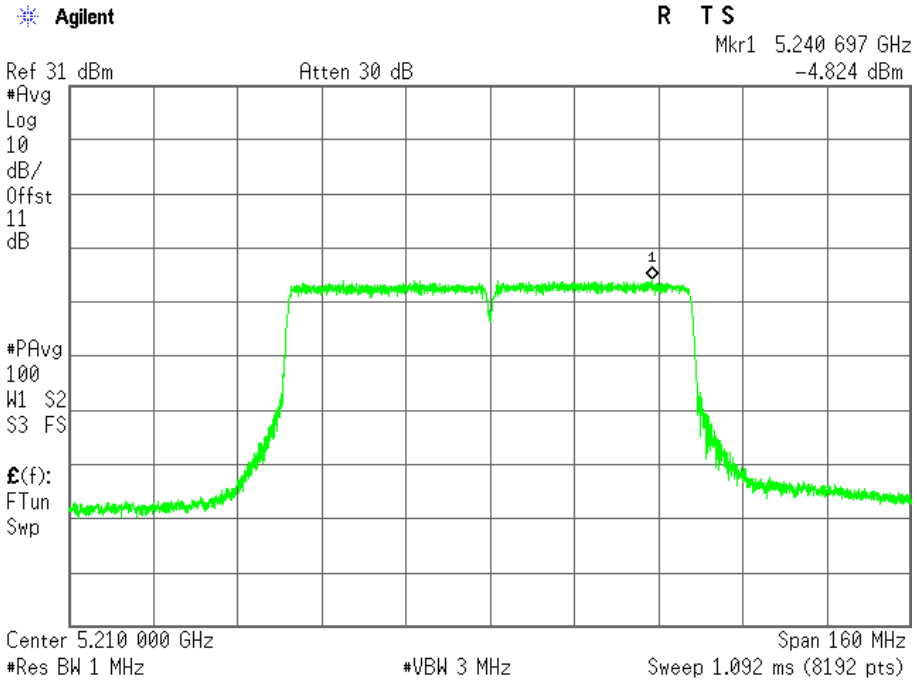
Non-beamforming / Master

CH Low (IEEE 802.11ac VHT80 NSS1/MCS0 Mode / Band 1 / Chain 0)



CH Low (IEEE 802.11ac VHT80 NSS1/MCS0 Mode / Band 1 / Chain 1)



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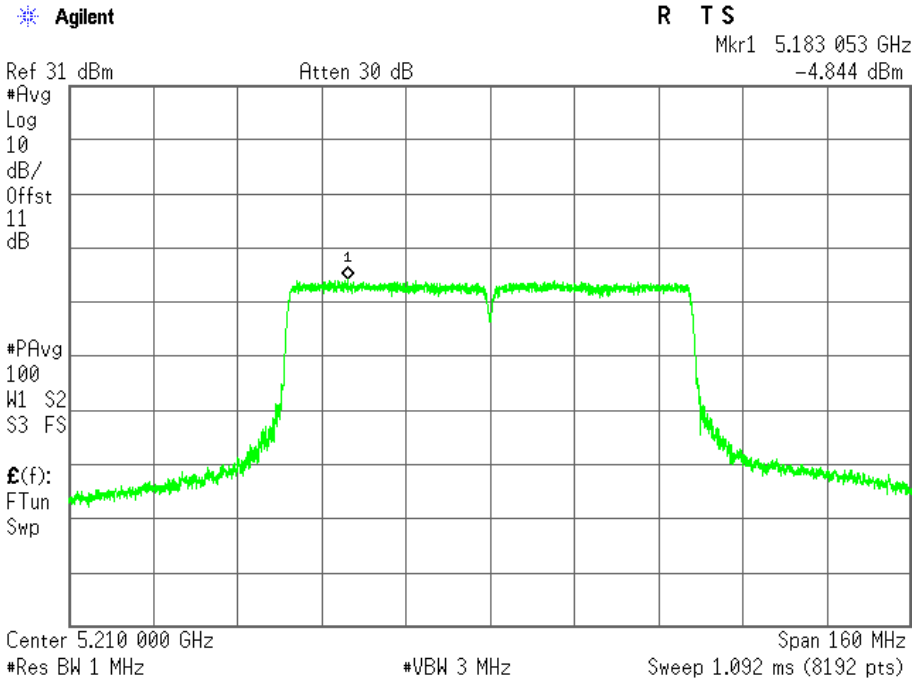
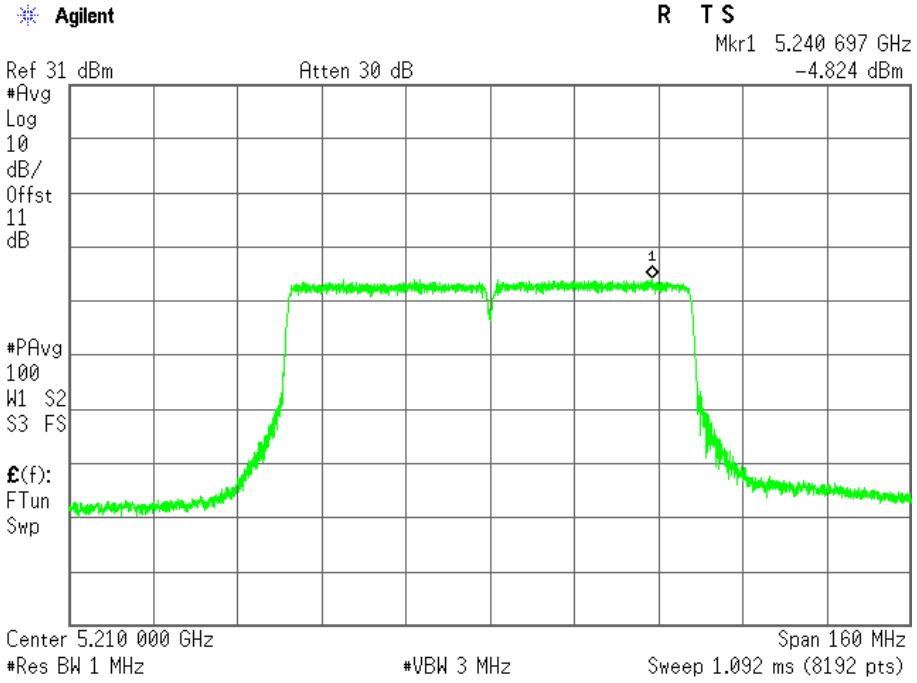
Non-beamforming / Client

CH Low (IEEE 802.11ac VHT80 NSS1/MCS0 Mode / Band 1 / Chain 0)



CH Low (IEEE 802.11ac VHT80 NSS1/MCS0 Mode / Band 1 / Chain 1)



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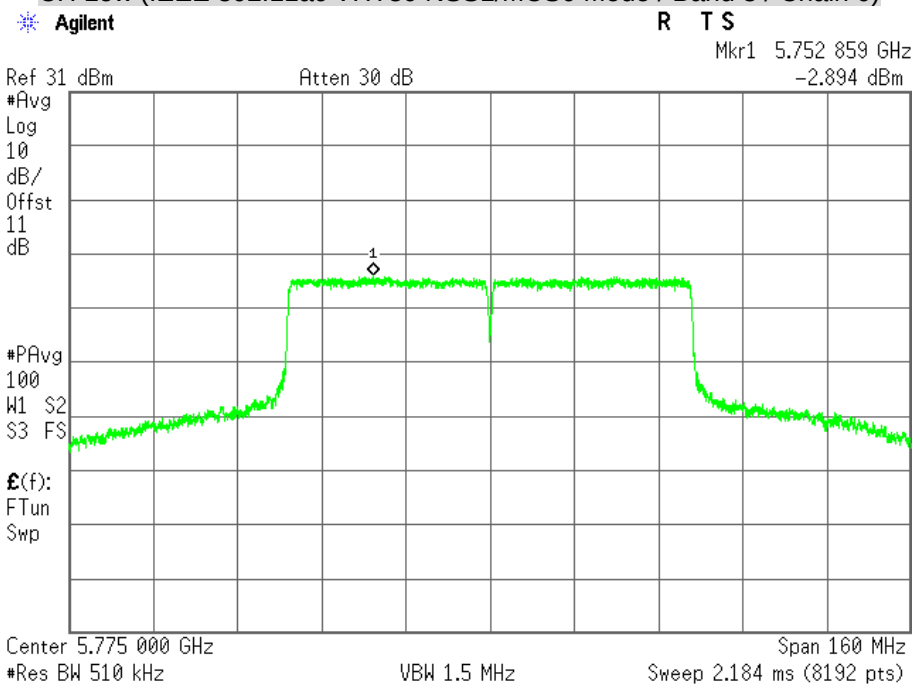
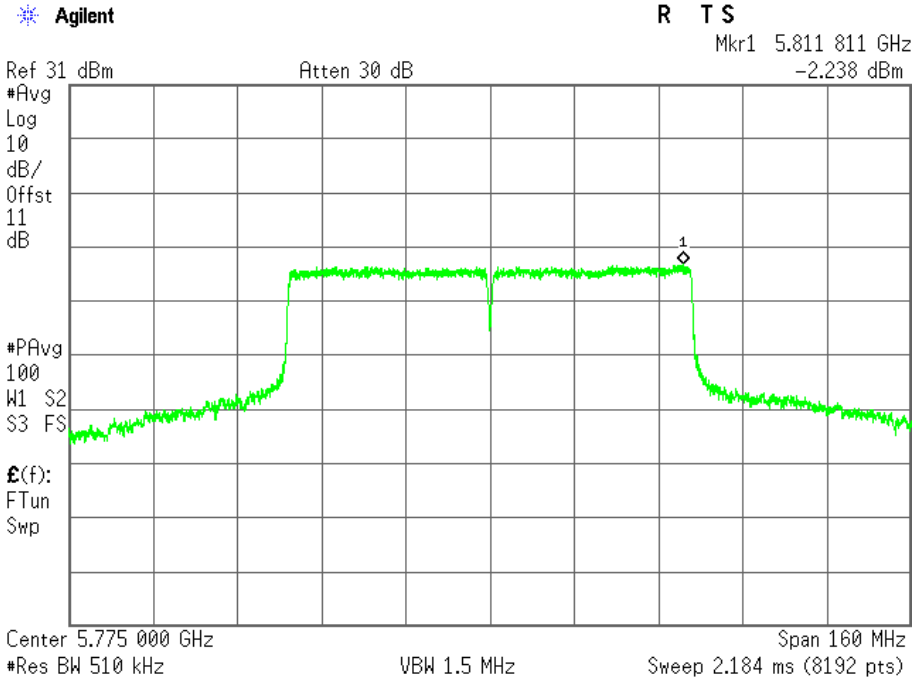
CH Low (IEEE 802.11ac VHT80 NSS1/MCS0 Mode / Band 3 / Chain 0)



CH Low (IEEE 802.11ac VHT80 NSS1/MCS0 Mode / Band 3 / Chain 1)



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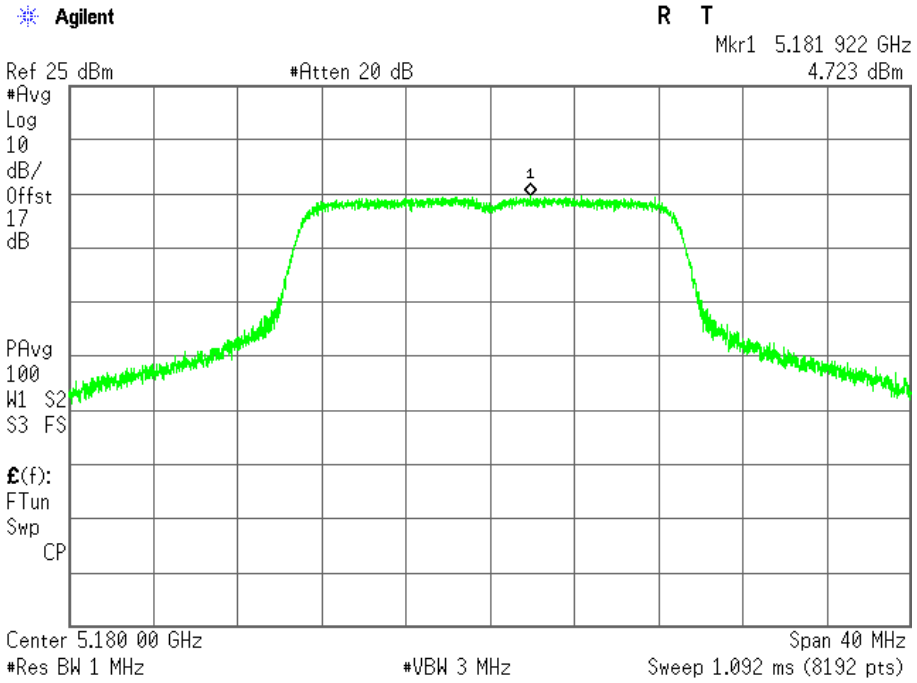
Beamforming / Master

CH Low (IEEE 802.11ac VHT20 NSS1/MCS0 Mode / Band 1 / Chain 0)



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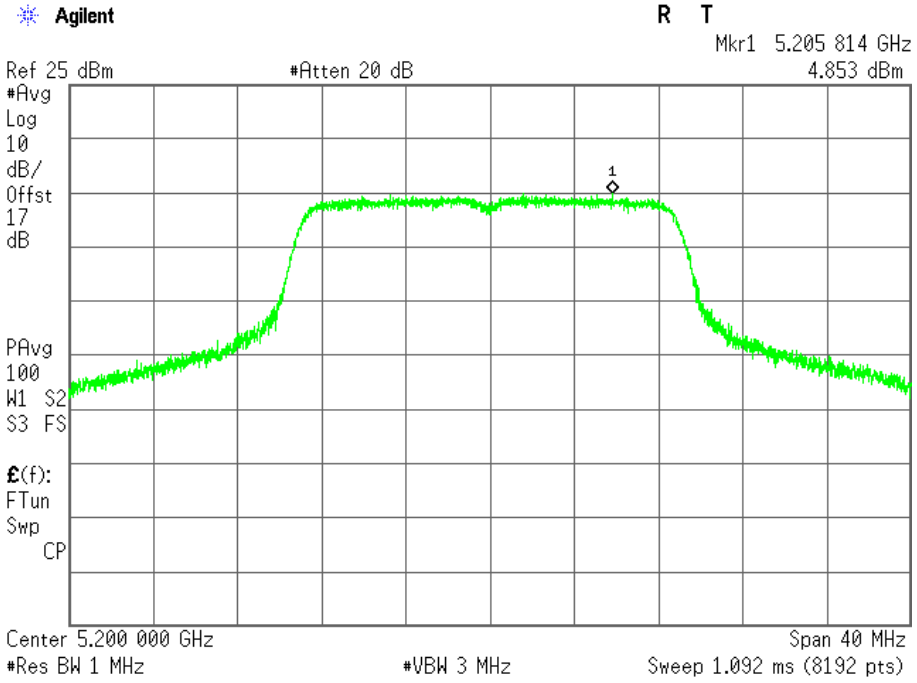

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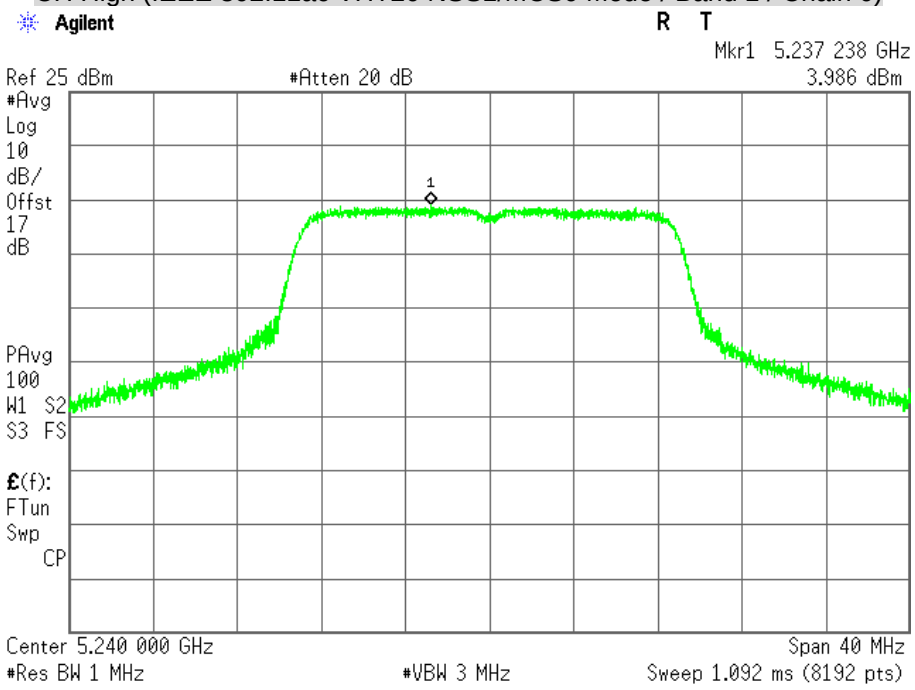
CH High (IEEE 802.11ac VHT20 NSS1/MCS0 Mode / Band 1 / Chain 0)



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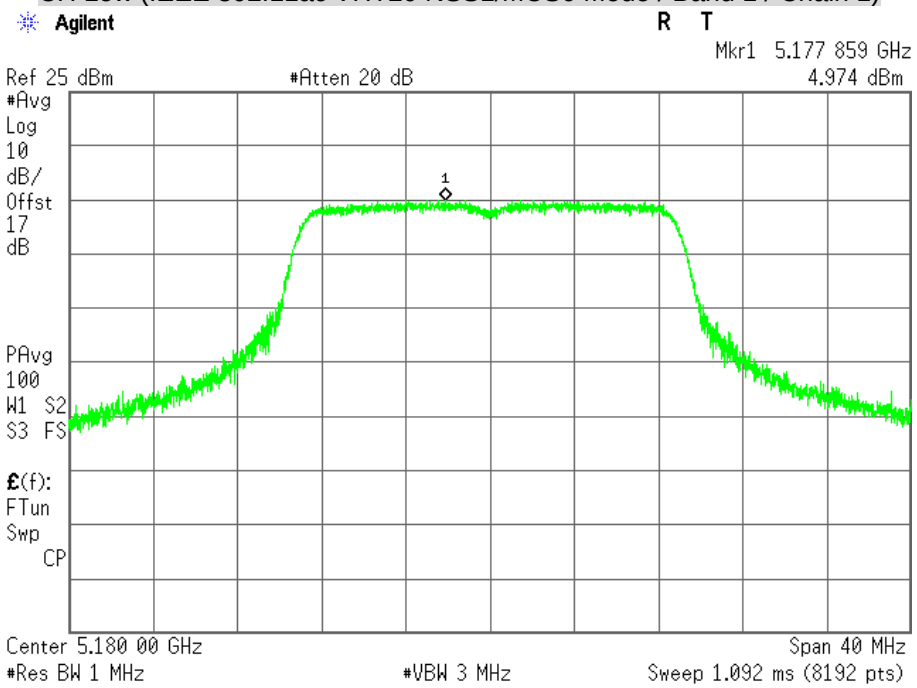
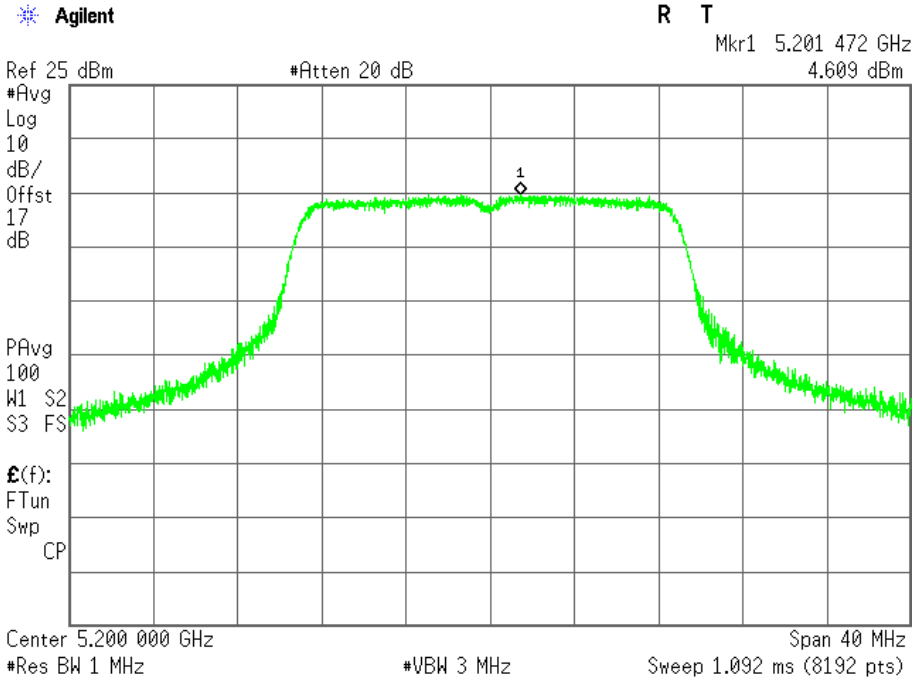
CH Low (IEEE 802.11ac VHT20 NSS1/MCS0 Mode / Band 1 / Chain 1)



CH Middle (IEEE 802.11ac VHT20 NSS1/MCS0 Mode / Band 1 / Chain 1)



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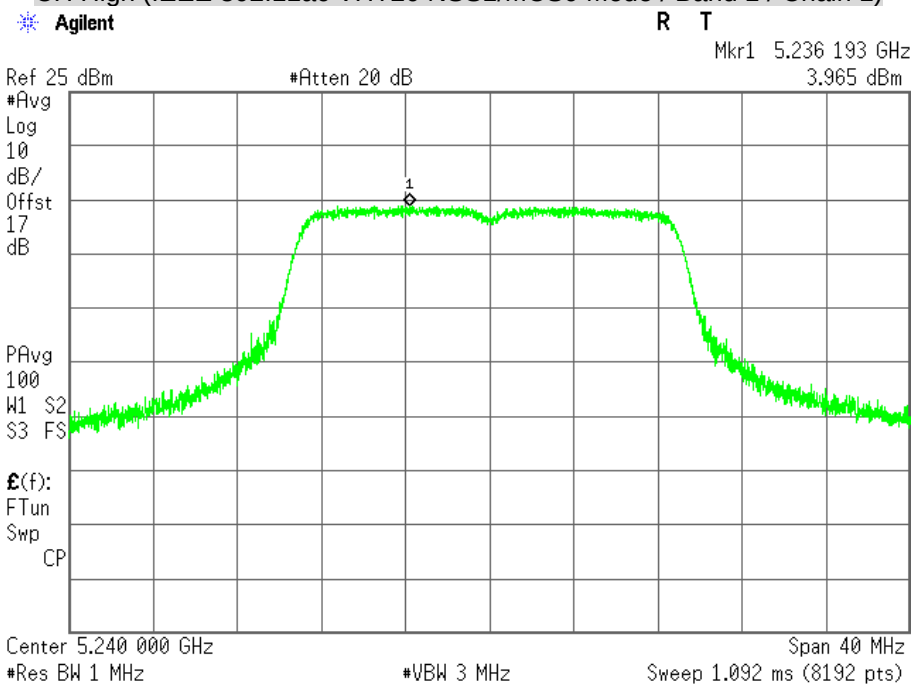
CH High (IEEE 802.11ac VHT20 NSS1/MCS0 Mode / Band 1 / Chain 1)



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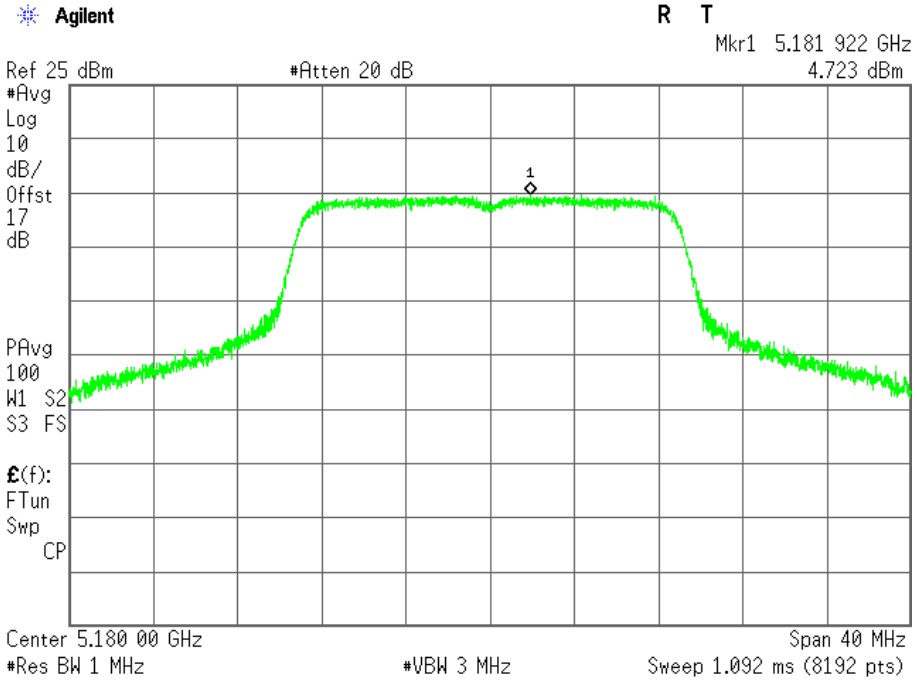
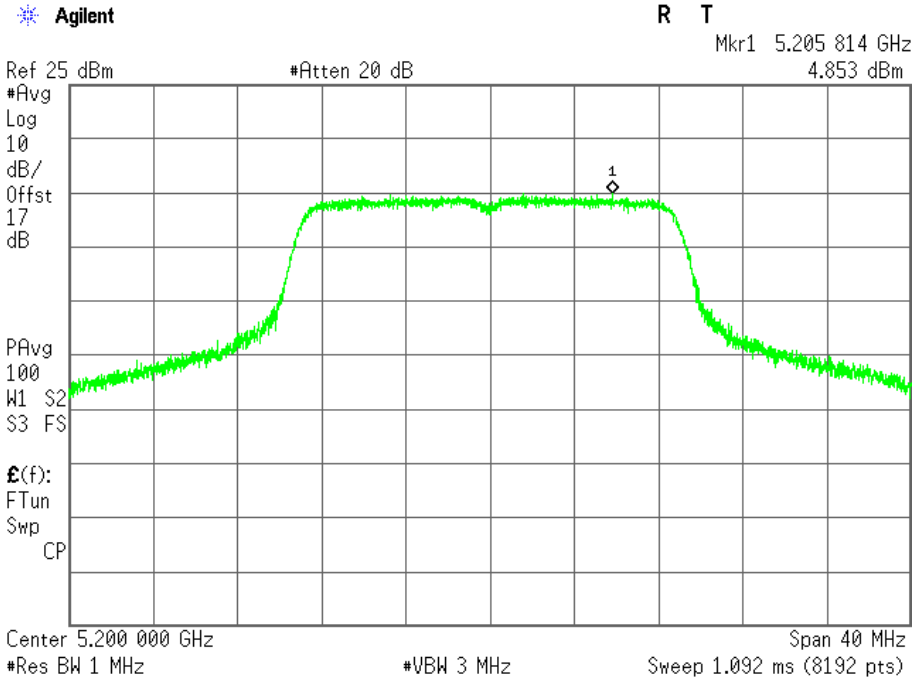
Beamforming / Client

CH Low (IEEE 802.11ac VHT20 NSS1/MCS0 Mode / Band 1 / Chain 0)



CH Middle (IEEE 802.11ac VHT20 NSS1/MCS0 Mode / Band 1 / Chain 0)



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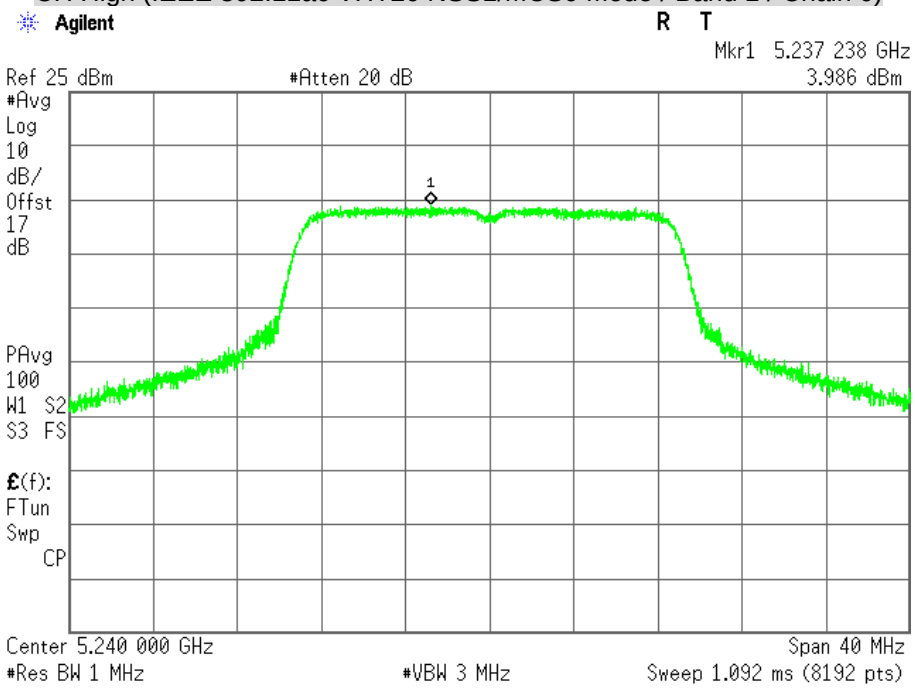
CH High (IEEE 802.11ac VHT20 NSS1/MCS0 Mode / Band 1 / Chain 0)



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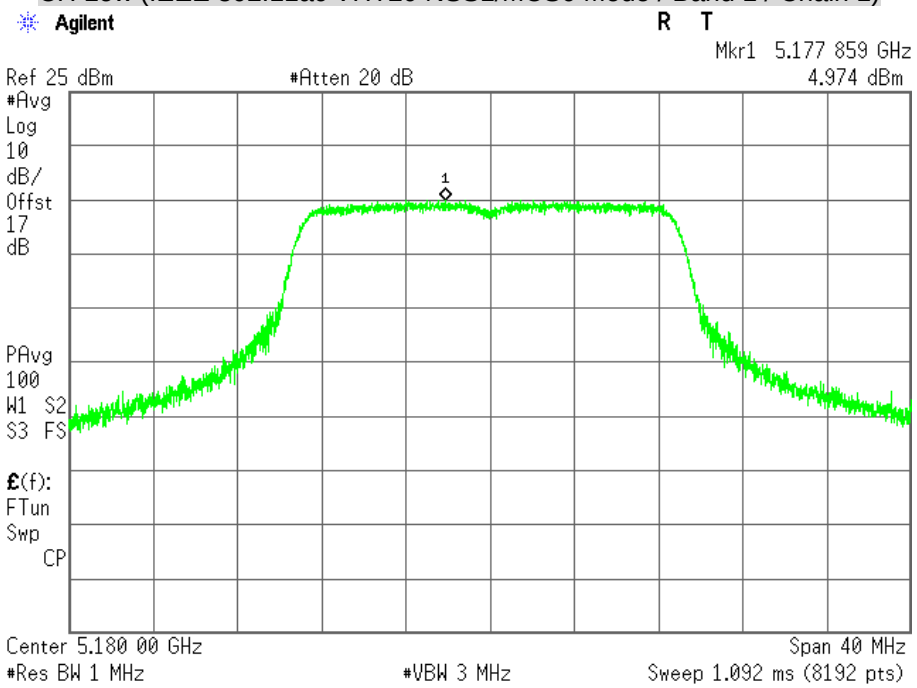
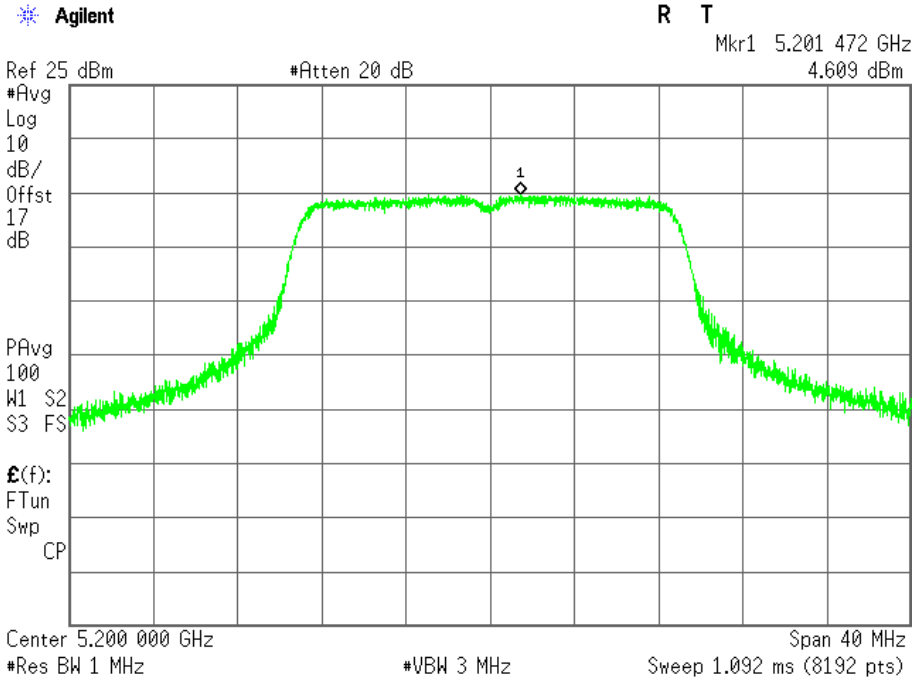
CH Low (IEEE 802.11ac VHT20 NSS1/MCS0 Mode / Band 1 / Chain 1)



CH Middle (IEEE 802.11ac VHT20 NSS1/MCS0 Mode / Band 1 / Chain 1)



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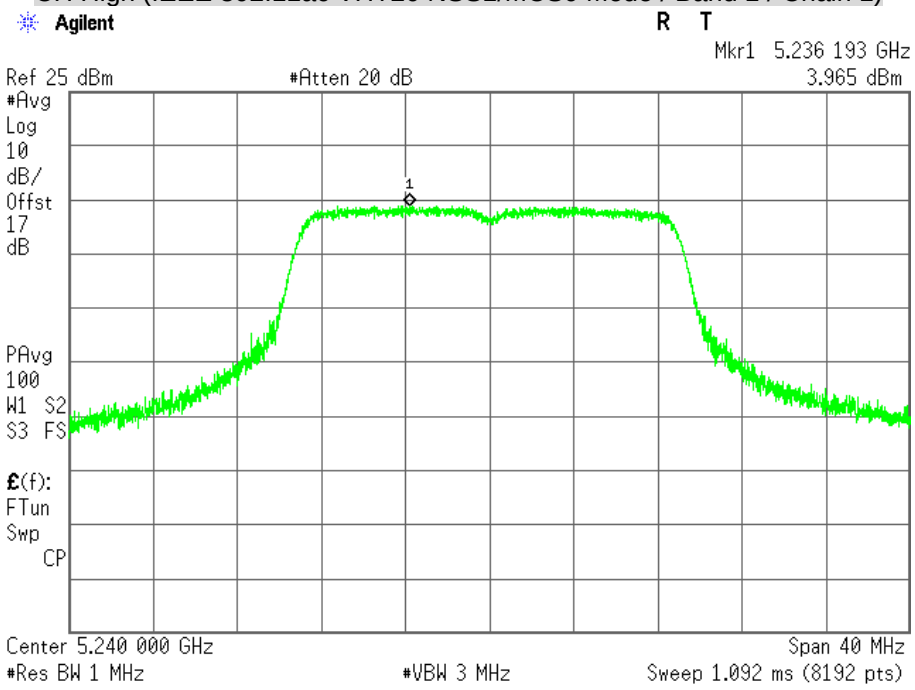
CH High (IEEE 802.11ac VHT20 NSS1/MCS0 Mode / Band 1 / Chain 1)



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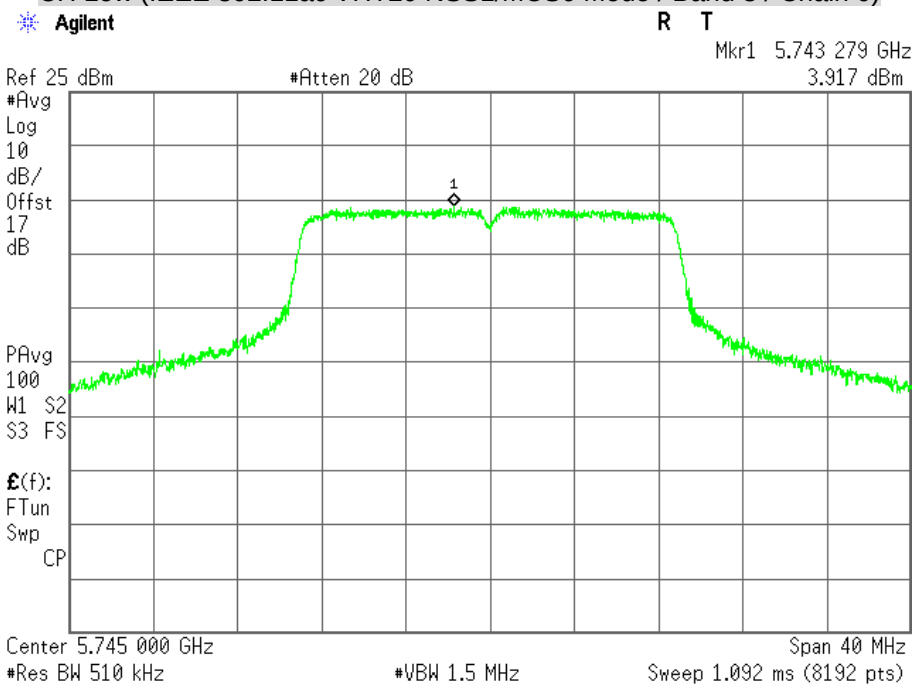
CH Low (IEEE 802.11ac VHT20 NSS1/MCS0 Mode / Band 3 / Chain 0)



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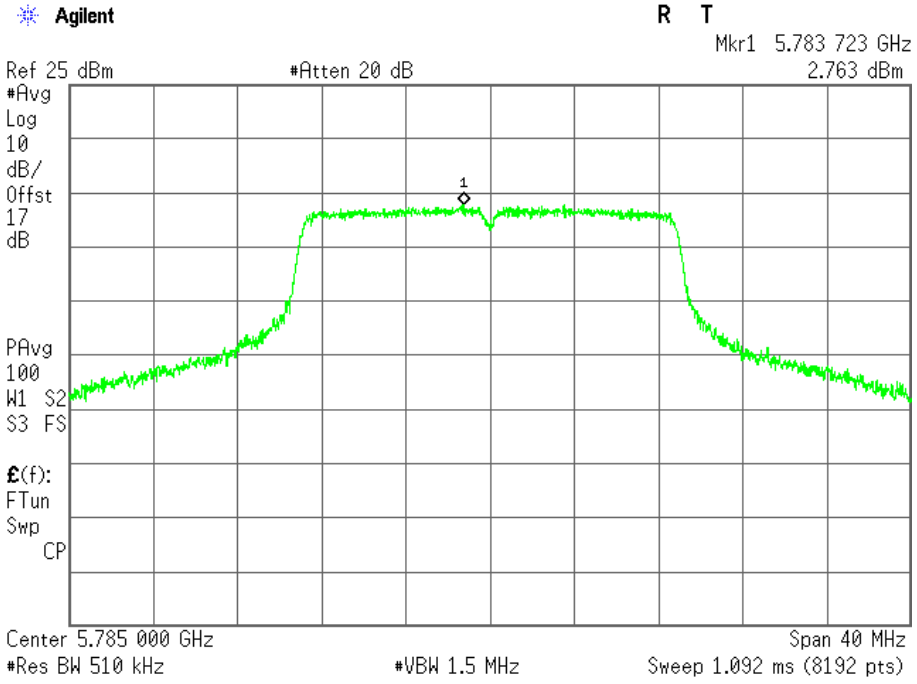

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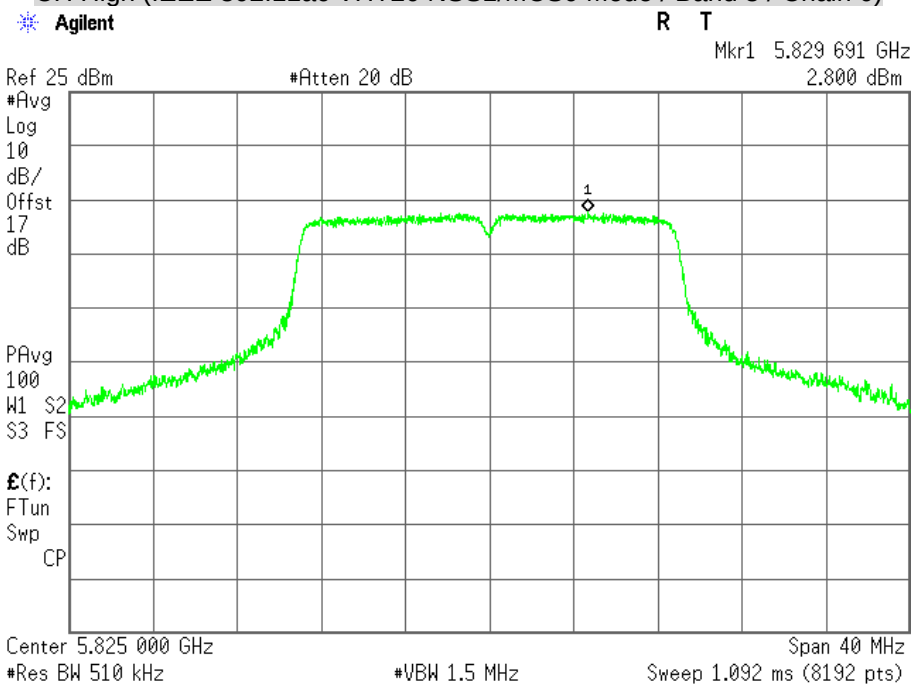
CH High (IEEE 802.11ac VHT20 NSS1/MCS0 Mode / Band 3 / Chain 0)



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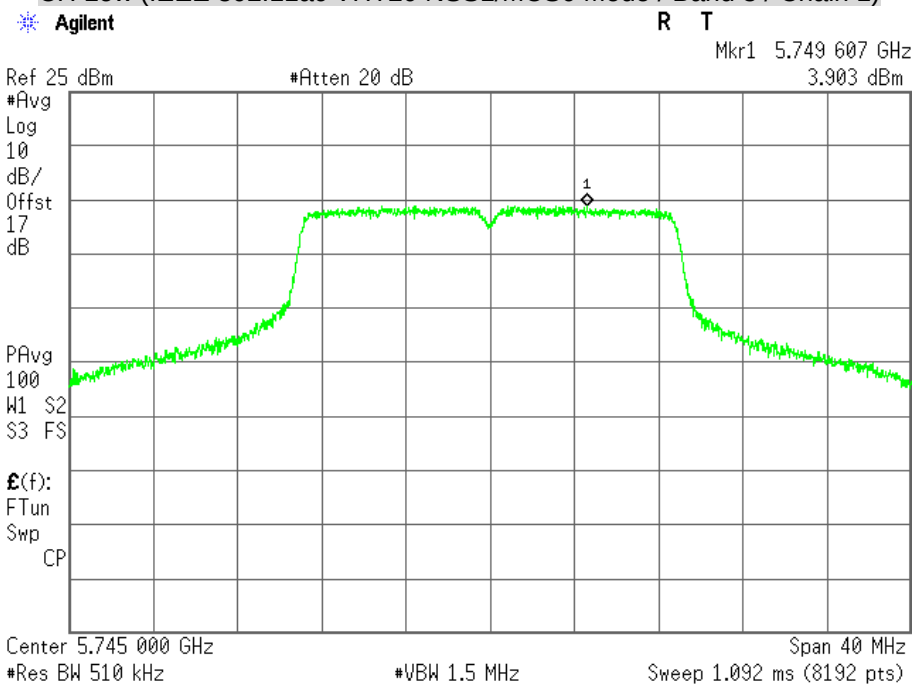
CH Low (IEEE 802.11ac VHT20 NSS1/MCS0 Mode / Band 3 / Chain 1)



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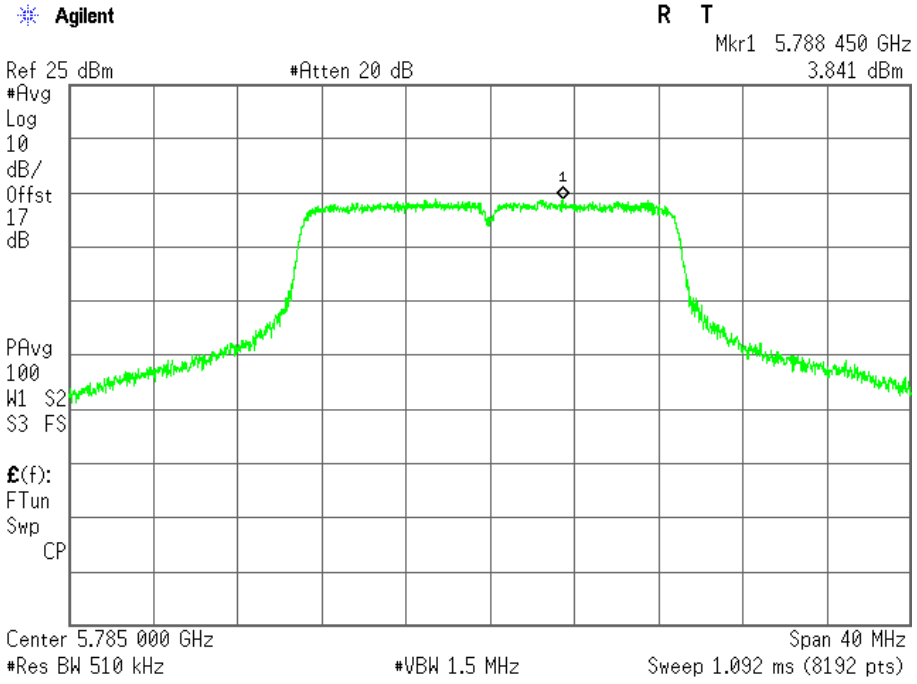

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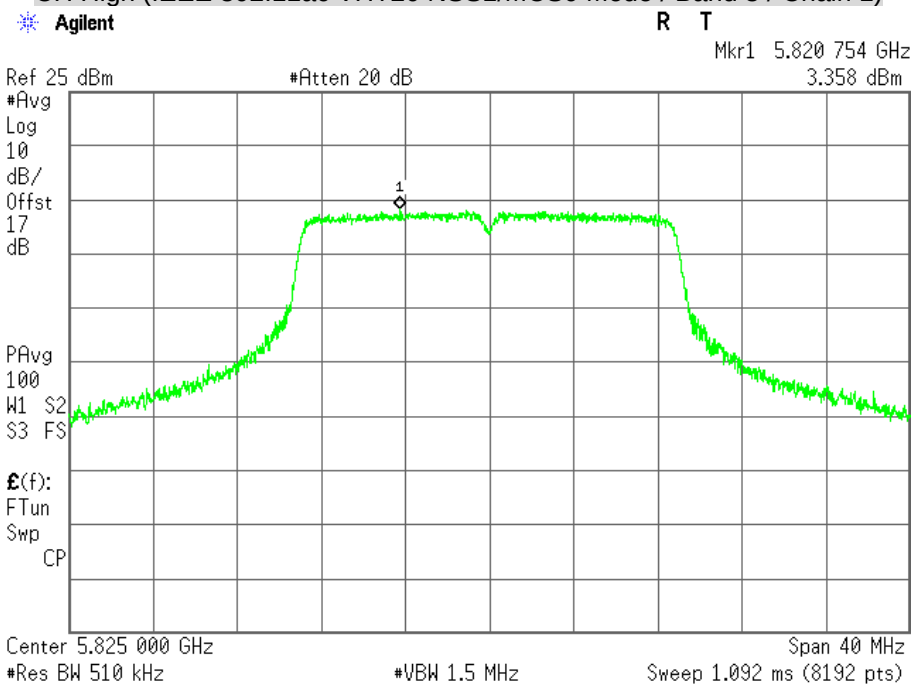
CH High (IEEE 802.11ac VHT20 NSS1/MCS0 Mode / Band 3 / Chain 1)



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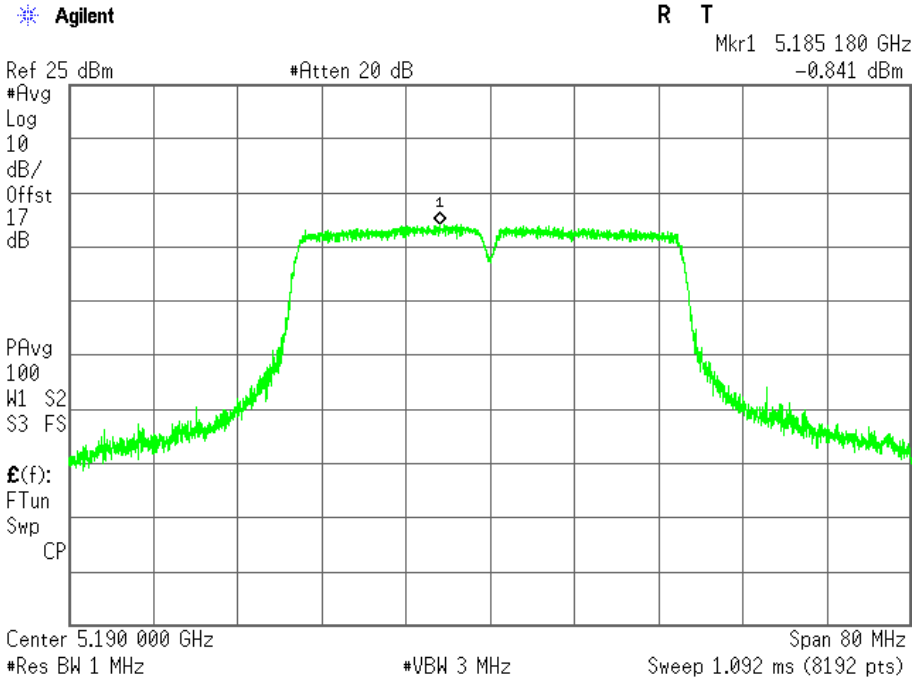
Beamforming / Master

CH Low (IEEE 802.11ac VHT40 NSS1/MCS0 Mode / Band 1 / Chain 0)



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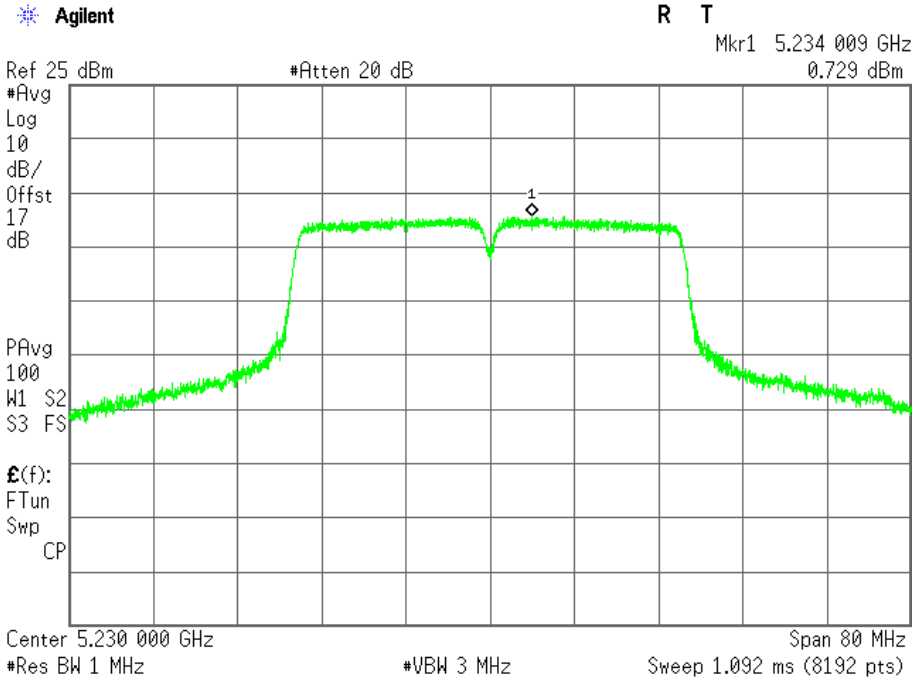

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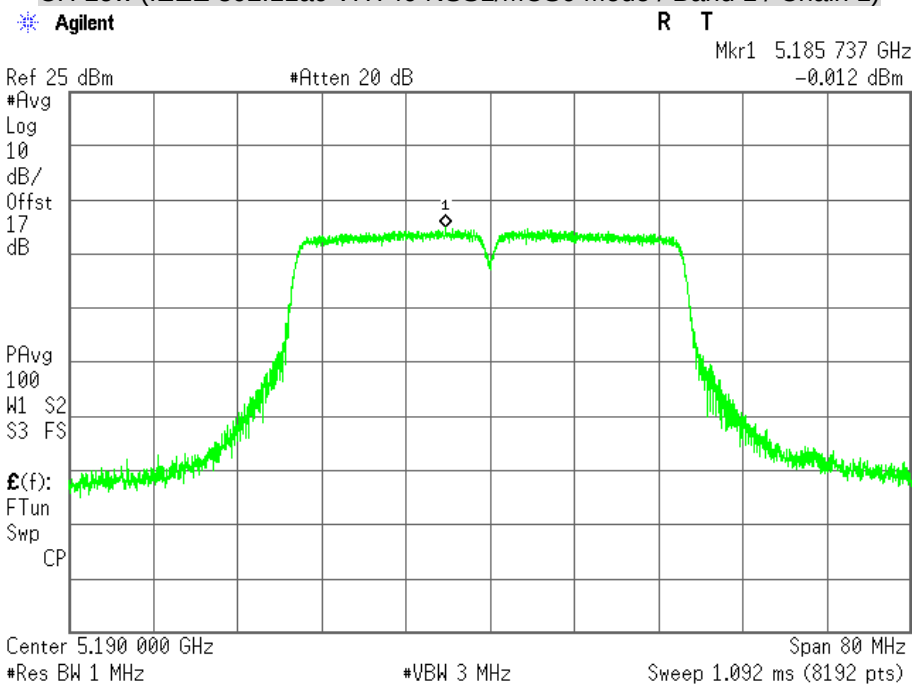
CH Low (IEEE 802.11ac VHT40 NSS1/MCS0 Mode / Band 1 / Chain 1)



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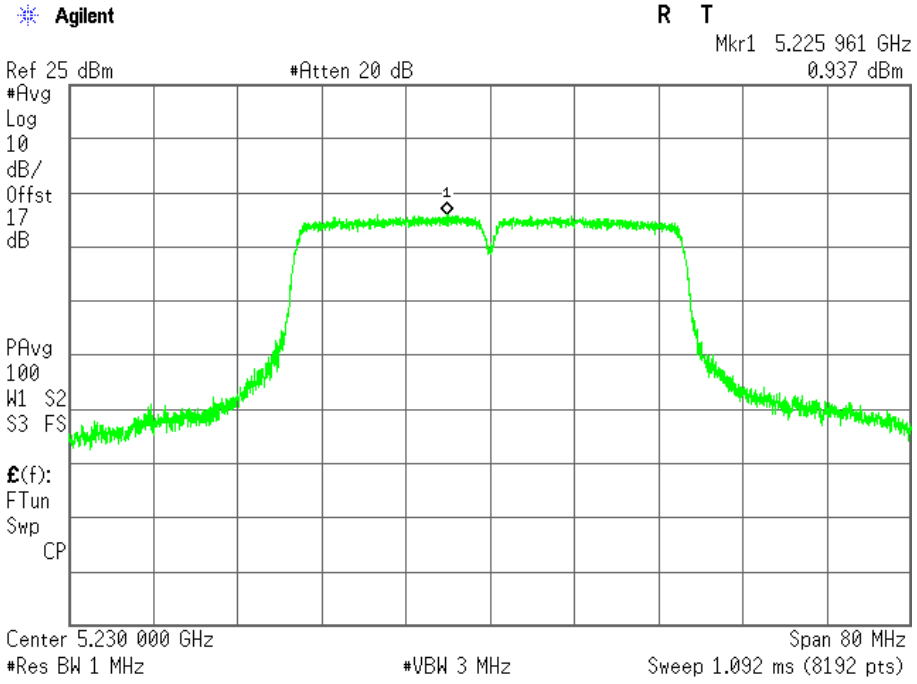

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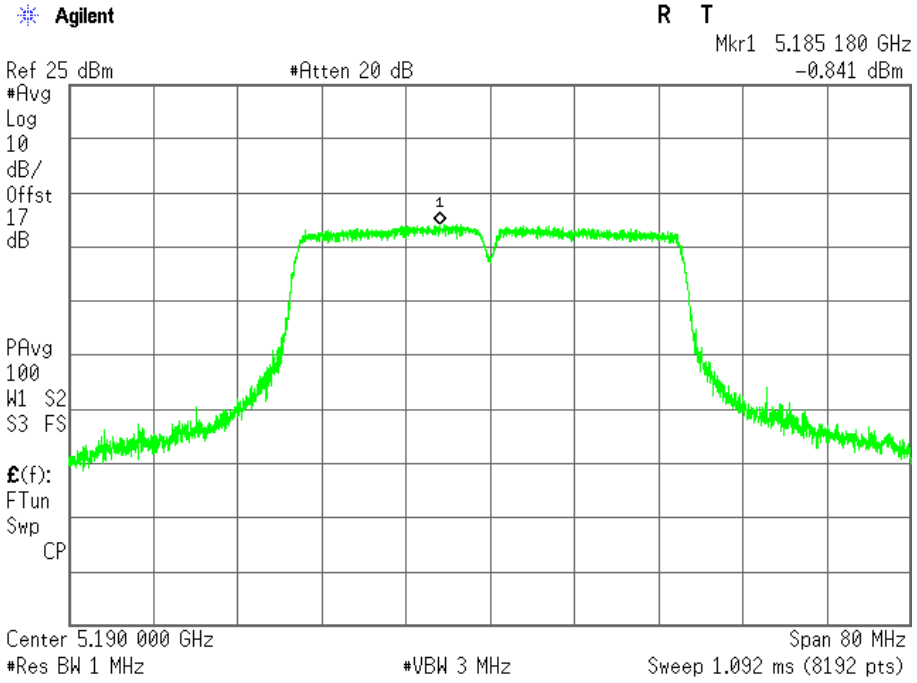
Beamforming / Client

CH Low (IEEE 802.11ac VHT40 NSS1/MCS0 Mode / Band 1 / Chain 0)



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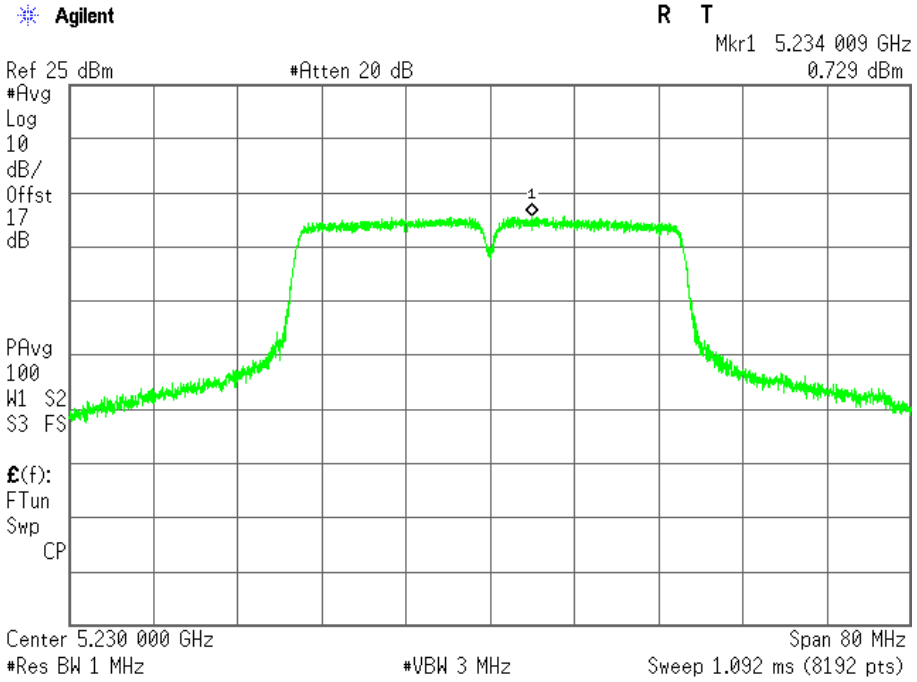

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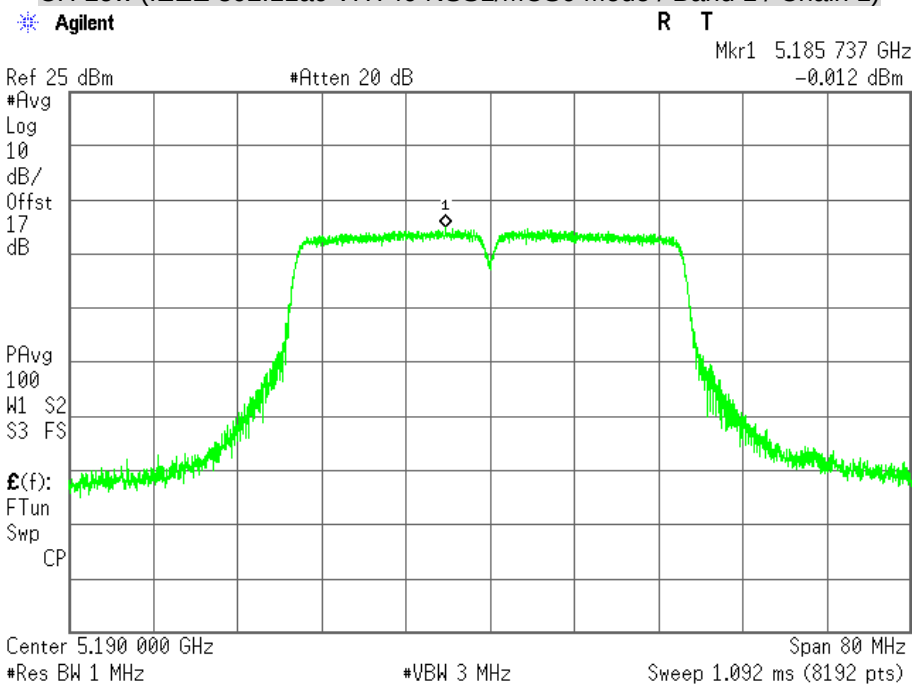
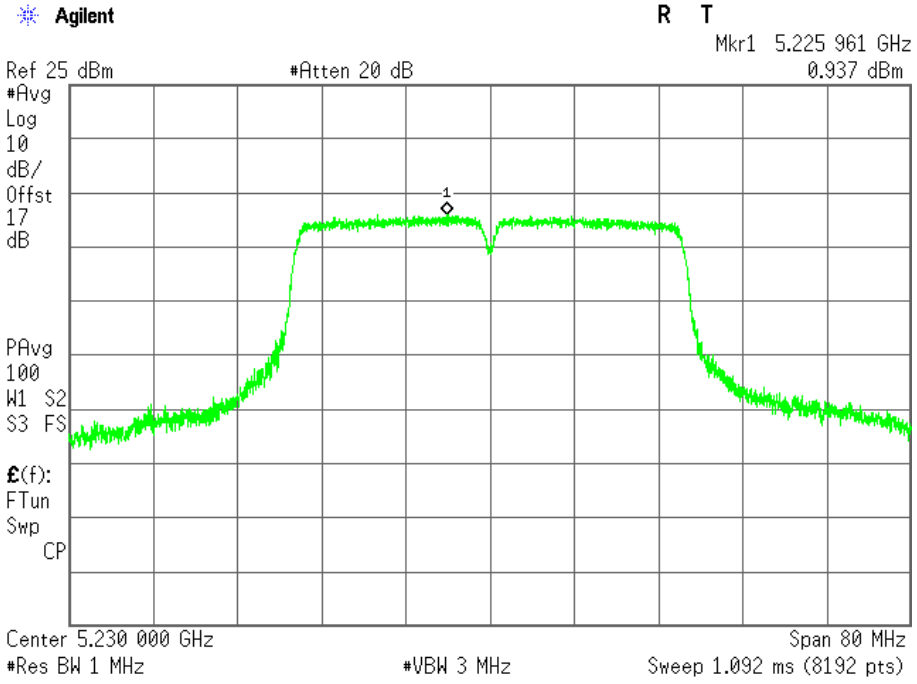
CH Low (IEEE 802.11ac VHT40 NSS1/MCS0 Mode / Band 1 / Chain 1)



CH High (IEEE 802.11ac VHT40 NSS1/MCS0 Mode / Band 1 / Chain 1)



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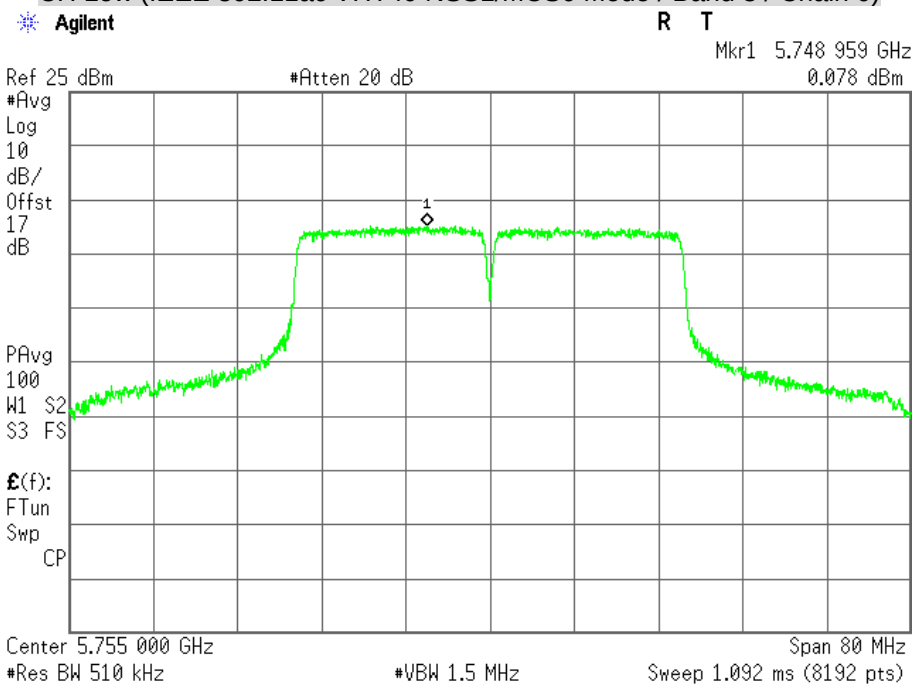
CH Low (IEEE 802.11ac VHT40 NSS1/MCS0 Mode / Band 3 / Chain 0)



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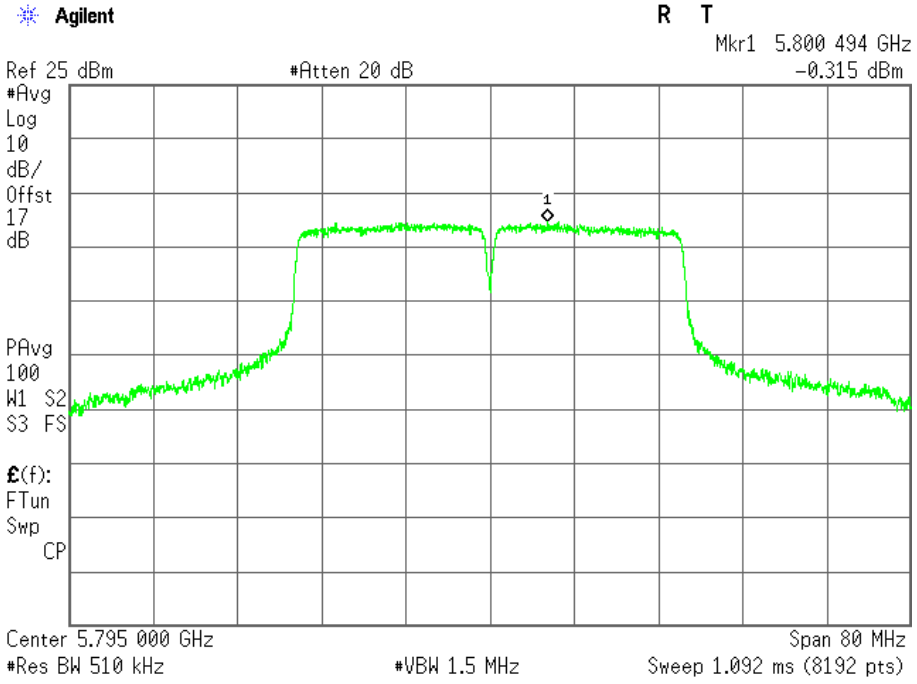

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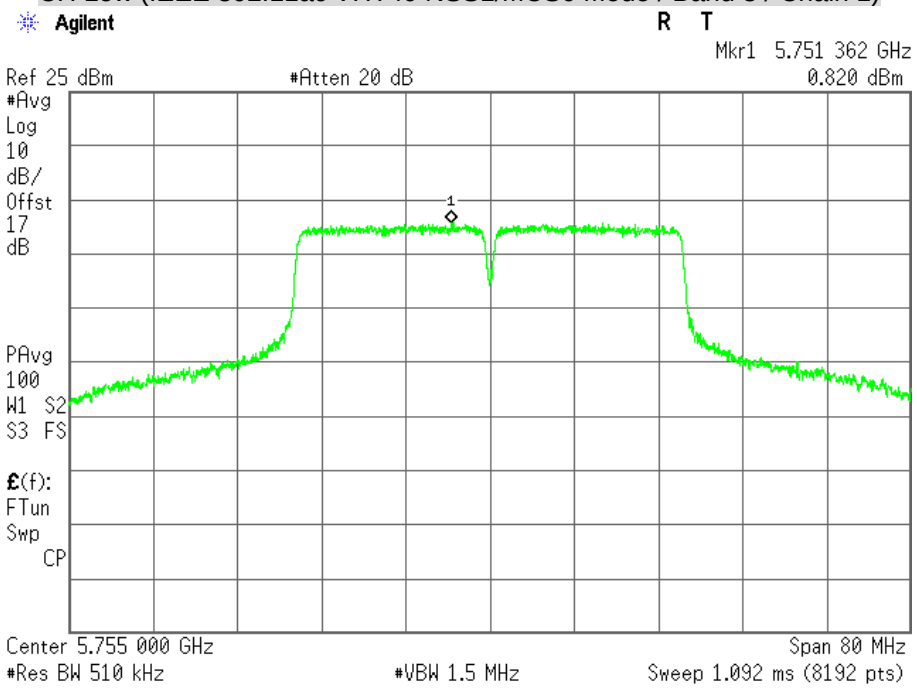
CH Low (IEEE 802.11ac VHT40 NSS1/MCS0 Mode / Band 3 / Chain 1)



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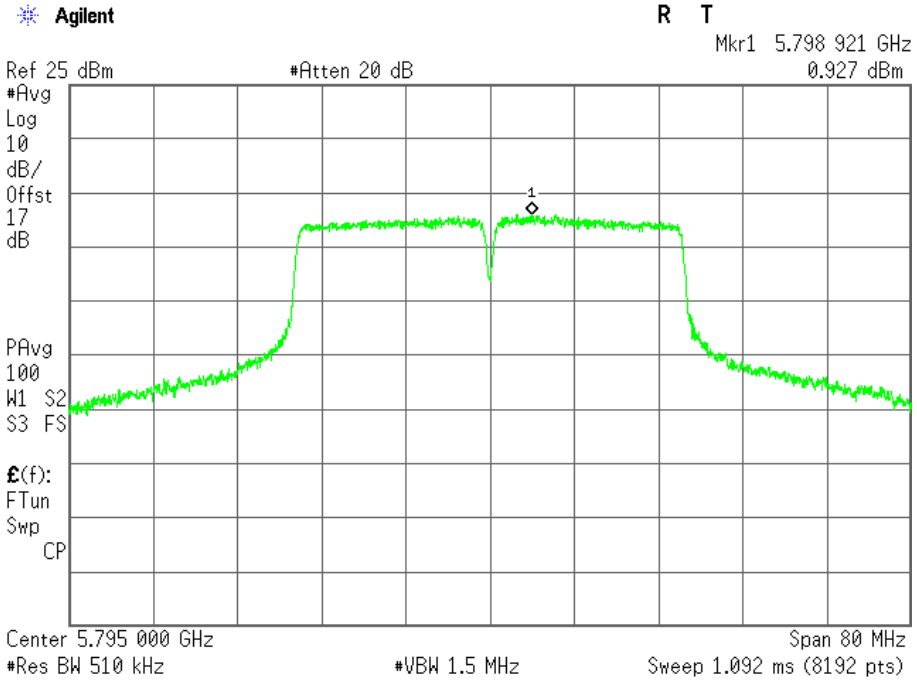

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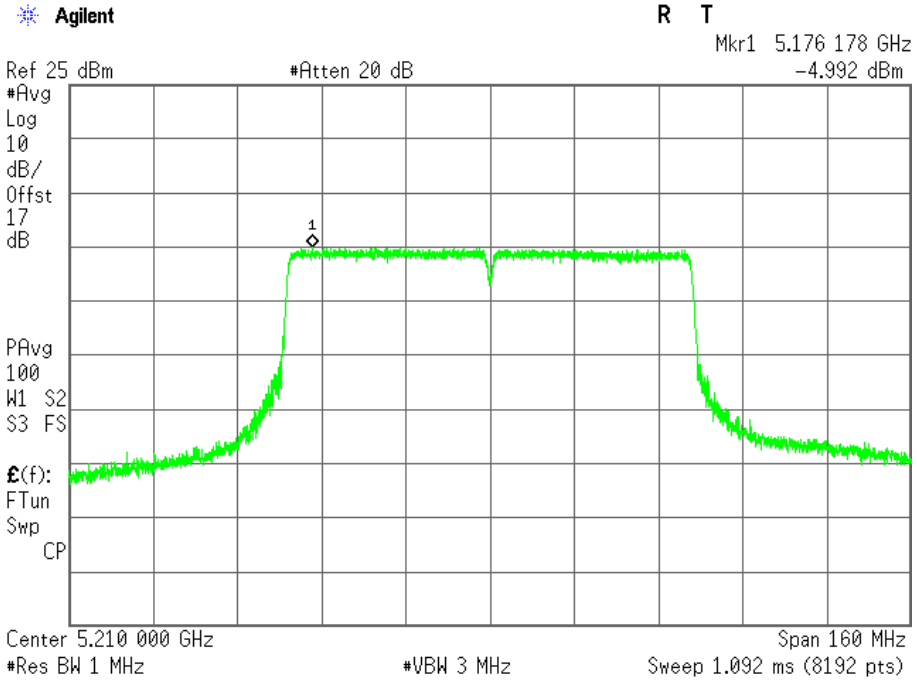
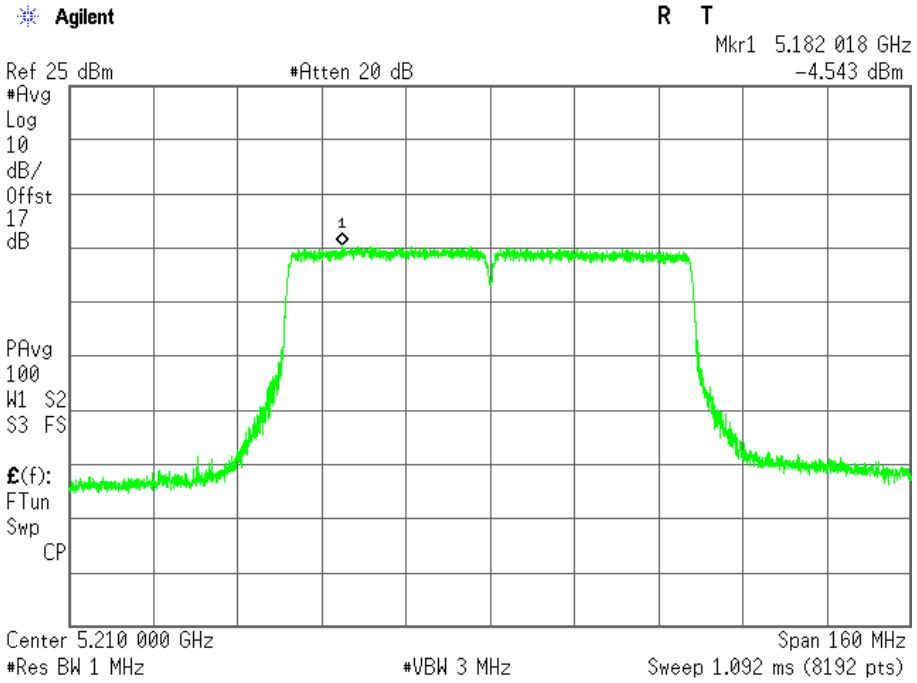
Beamforming / Master

CH Low (IEEE 802.11ac VHT80 NSS1/MCS0 Mode / Band 1 / Chain 0)



CH Low (IEEE 802.11ac VHT80 NSS1/MCS0 Mode / Band 1 / Chain 1)



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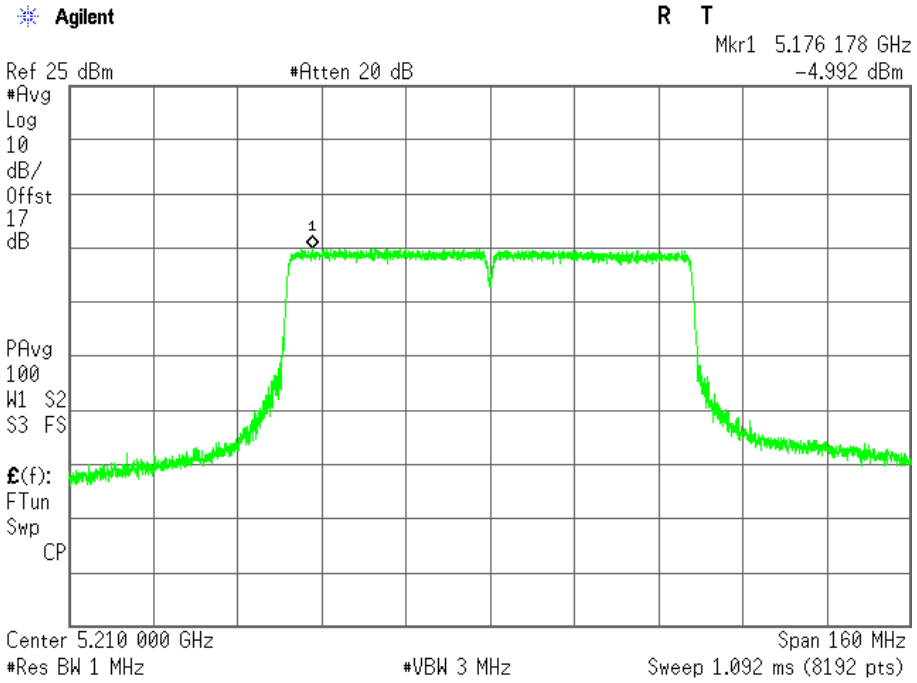
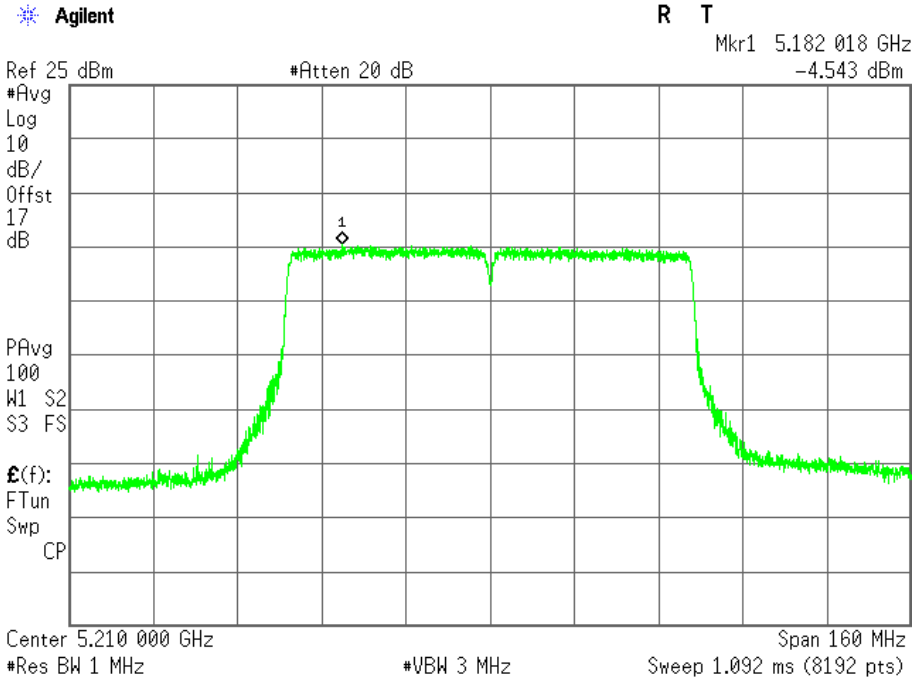
Beamforming / Client

CH Low (IEEE 802.11ac VHT80 NSS1/MCS0 Mode / Band 1 / Chain 0)



CH Low (IEEE 802.11ac VHT80 NSS1/MCS0 Mode / Band 1 / Chain 1)



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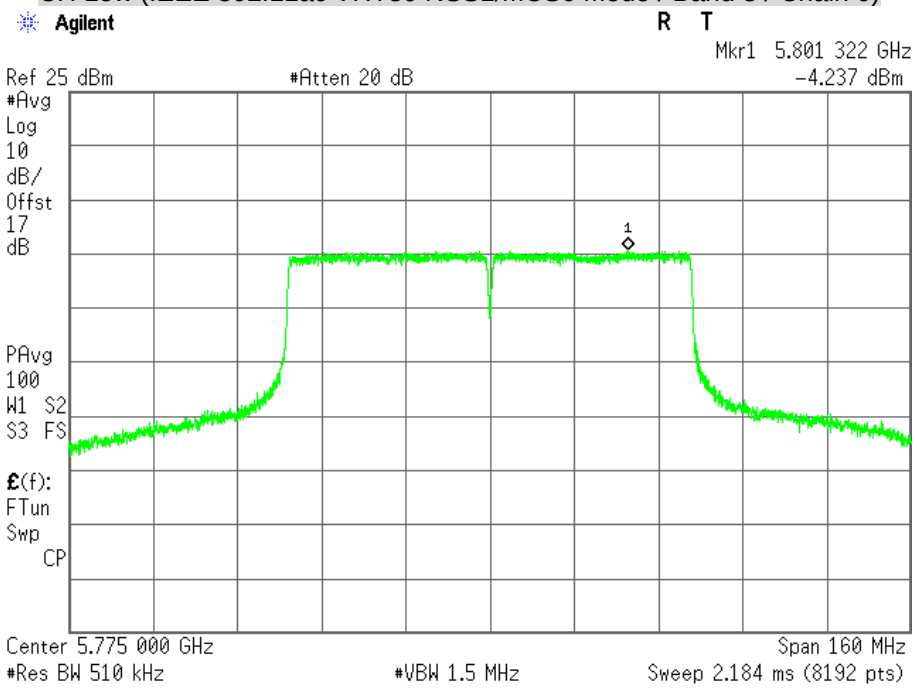
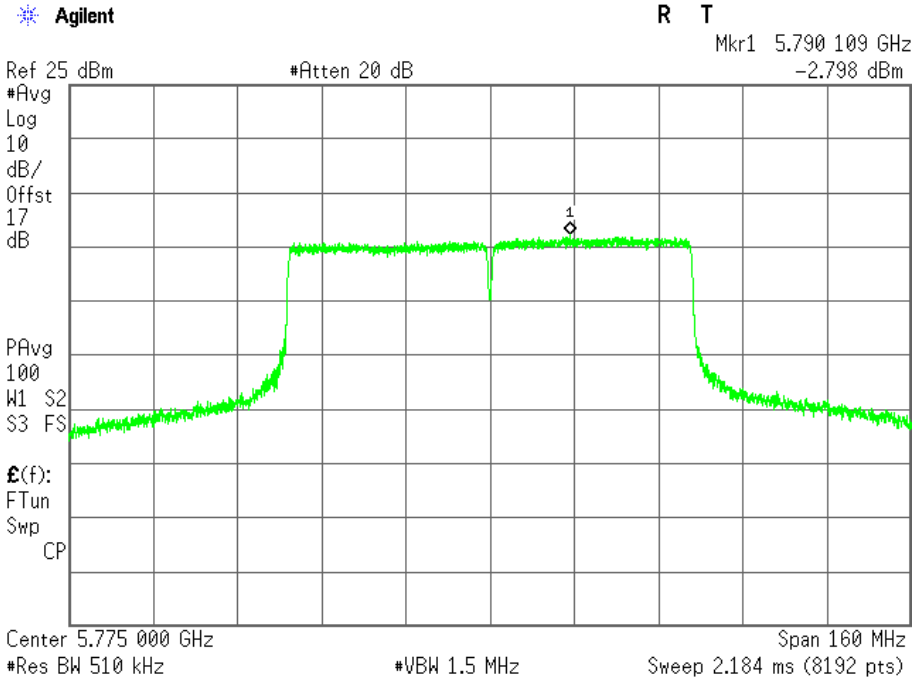


CH Low (IEEE 802.11ac VHT80 NSS1/MCS0 Mode / Band 3 / Chain 1)



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7.6 RADIATED EMISSION

LIMITS

(1) According to § 15.205 (a) Except as shown in paragraph (d) of this section, only spurious emissions are permitted in any of the frequency bands listed below:

MHz	MHz	MHz	GHz
0.090 - 0.110	16.42 - 16.423	399.9 - 410	4.5 - 5.15
[1]0.495 - 0.505	16.69475 - 16.69525	608 - 614	5.35 - 5.46
2.1735 - 2.1905	16.80425 - 16.80475	960 - 1240	7.25 - 7.75
4.125 - 4.128	25.5 - 25.67	1300 - 1427	8.025 - 8.5
4.17725 - 4.17775	37.5 - 38.25	1435 - 1626.5	9.0 - 9.2
4.20725 - 4.20775	73 - 74.6	1645.5 - 1646.5	9.3 - 9.5
6.215 - 6.218	74.8 - 75.2	1660 -1710	10.6 -12.7
6.26775 - 6.26825	108 -121.94	1718.8 - 1722.2	13.25 -13.4
6.31175 - 6.31225	123 - 138	2200 - 2300	14.47 – 14.5
8.291 - 8.294	149.9 - 150.05	2310 - 2390	15.35 -16.2
8.362 - 8.366	156.52475 - 156.52525	2483.5 - 2500	17.7 - 21.4
8.37625 - 8.38675	156.7 - 156.9	2655 - 2900	22.01 - 23.12
8.41425 - 8.41475	162.0125 - 167.17	3260 - 3267	23.6 - 24.0
12.29 - 12.293	167.72 - 173.2	3332 - 3339	31.2 - 31.8
12.51975 - 12.52025	240 - 285	3345.8 - 3338	36.43 - 36.5
12.57675 - 12.57725	322 -335.4	3600 - 4400	([2])
13.36 - 13.41			

Remark:
1. [1] Until February 1, 1999, this restricted band shall be 0.490-0.510 MHz.
2. [2] Above 38.6

(2) According to § 15.205 (b) Except as provided in paragraphs (d) and (e) of this section, the field strength of emissions appearing within these frequency bands shall not exceed the limits shown in §15.209. At frequencies equal to or less than 1000 MHz, compliance with the limits in §15.209 shall be demonstrated using measurement instrumentation employing a CISPR quasi-peak detector. Above 1000 MHz, compliance with the emission limits in §15.209 shall be demonstrated based on the average value of the measured emissions. The provisions in §15.35 apply to these measurements.

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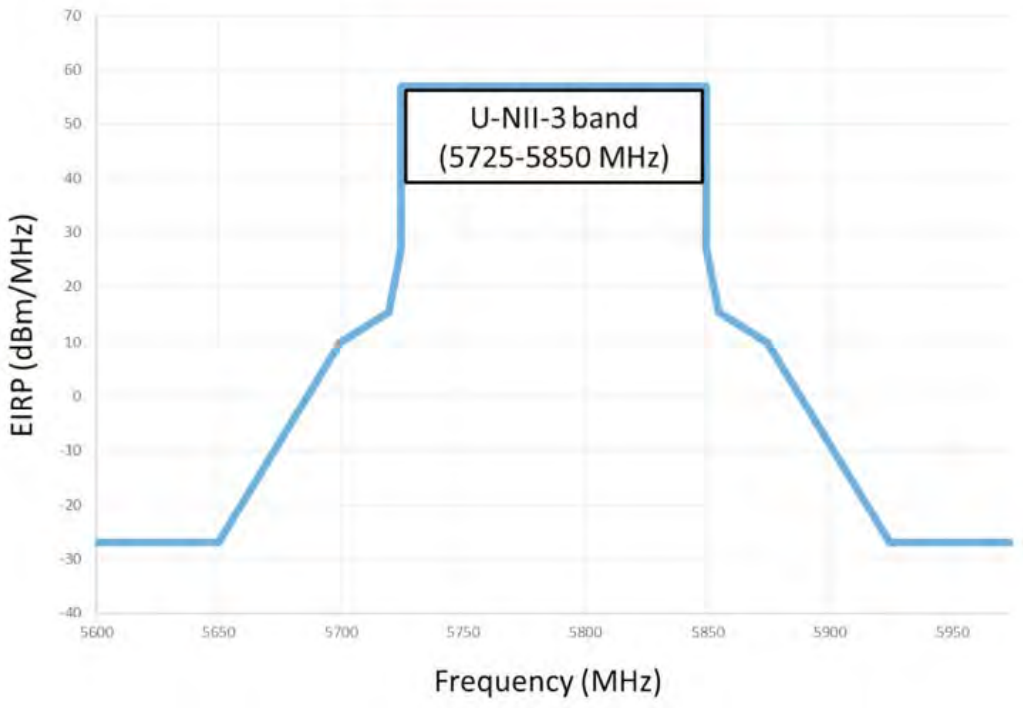
(3) According to § 15.209 (a) Except as provided elsewhere in this Subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table:

Frequency (MHz)	Field Strength (microvolts/meter)	Measurement Distance (meters)
0.009 – 0.490	2400/F(KHz)	300
0.490 – 1.705	24000/F(KHz)	30
1.705 – 30.0	30	30
30 - 88	100 **	3
88 - 216	150 **	3
216 - 960	200 **	3
Above 960	500	3

Remark: ***Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this Section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of this Part, e.g., Sections 15.231 and 15.241.*

(4) According to § 15.209 (b) In the emission table above, the tighter limit applies at the band edges.

(5) According to FCC 16-24, for transmitters operating in the 5.725-5.85 GHz band, all out-of-band emissions be limited to a level of -27 dBm/MHz at 75 MHz beyond the band edge, increasing linearly to 10 dBm/MHz at 25 MHz beyond the band edge, and from 25 MHz beyond the band edge, increasing linearly to a level of 17 dBm/MHz at the band edge. The OOBE limits in the 5 MHz closest to the band edge by allowing emissions to increase linearly to a maximum level of 27 dBm/MHz..



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TEST EQUIPMENT

Radiated Emission / 966Chamber_B

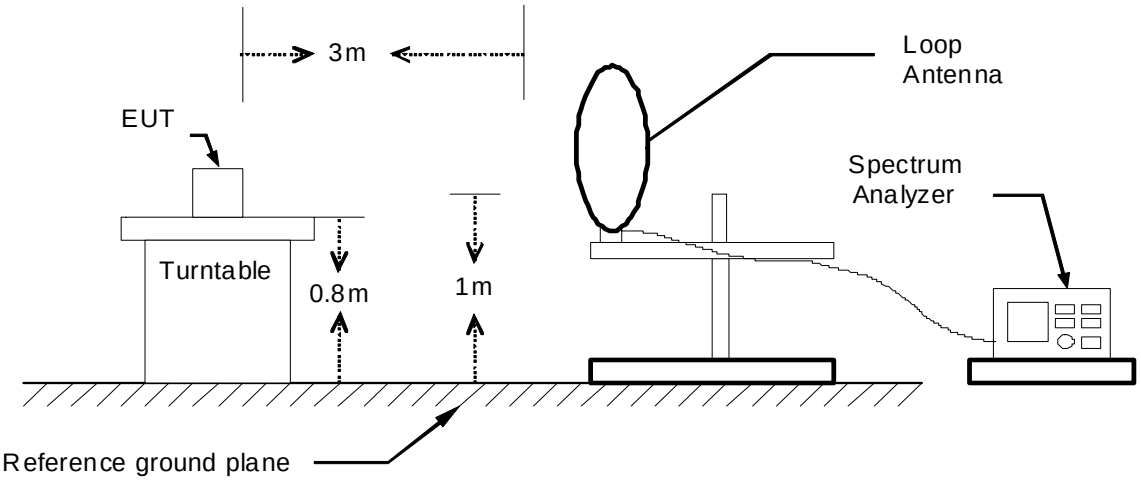
Name of Equipment	Manufacture	Model	Serial Number	Calibration Due
Spectrum Analyzer	Agilent	E4446A	MY46180323	04/12/2017
EMI Test Receiver	Rohde & Schwarz	ESCI	100221	04/26/2017
Bi-log Antenna	TESEQ	CBL 6112D	35403	07/02/2017
Broad-Band Horn Antenna	Schwarzbeck	BBHA 9120 D	9120D-778	07/14/2017
Double-Ridged Waveguide Horn	ETS-LINDGREN	3117	00078733	11/16/2017
Horn Antenna	COM-POWER	AH-840	03077	12/01/2017
Pre-Amplifier	Agilent	8447D	2944A10052	07/12/2017
Pre-Amplifier	Agilent	8449B	3008A01916	07/12/2017
LOOP Antenna	COM-POWER	AL-130	121060	05/23/2017
Test S/W	E3.815206a			

Remark: *Each piece of equipment is scheduled for calibration once a year.*

TEST SETUP

The diagram below shows the test setup that is utilized to make the measurements for emission below 1GHz.

9kHz ~ 30MHz



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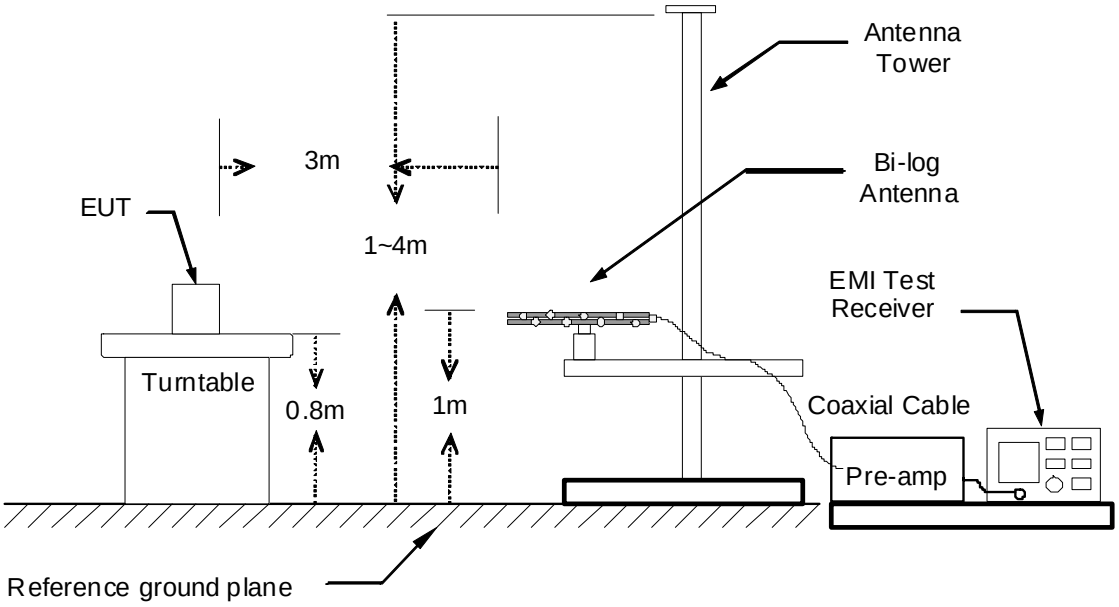
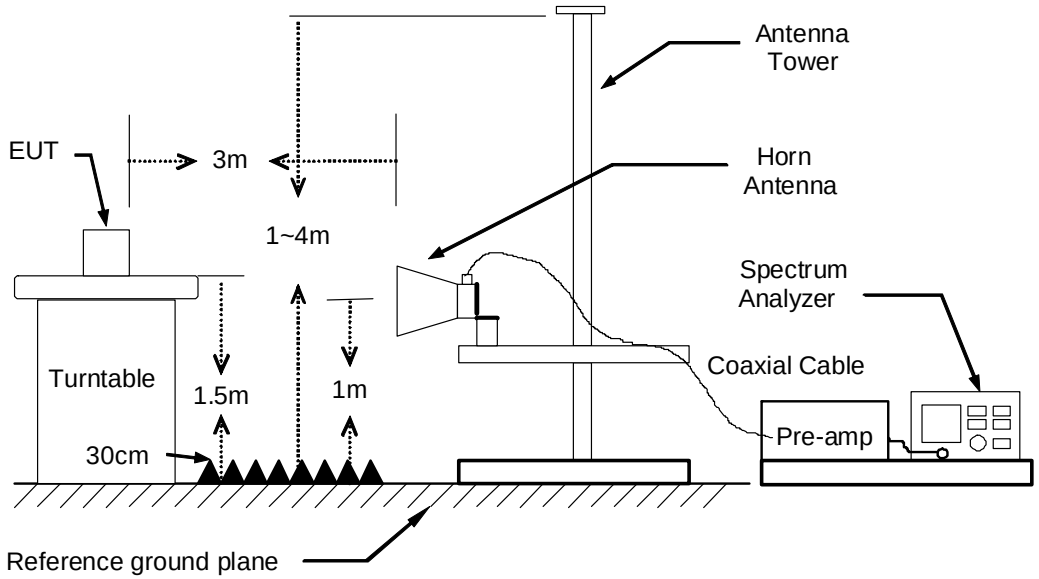
30MHz ~ 1GHz



The diagram below shows the test setup that is utilized to make the measurements for emission above 1GHz.



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TEST PROCEDURE

1. The EUT was placed on the top of a rotating table 0.8 and 1.5 meters above the ground. The table was rotated 360 degrees to determine the position of the highest radiation.
2. While measuring the radiated emission below 1GHz, the EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower. While measuring the radiated emission above 1GHz, the EUT was set 3 meters away from the interference-receiving antenna.
3. The antenna is a broadband antenna, and its height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarization of the antenna are set to make the measurement.
4. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the table was turned from 0 degrees to 360 degrees to find the maximum reading.
5. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
6. If the emission level of the EUT in peak mode was 10 dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10 dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

Remark:

1. *The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120 KHz for Peak detection (PK) and Quasi-peak detection (QP) at frequency below 1GHz.*
2. *The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 1 MHz for Peak detection and frequency above 1GHz.*
3. *The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 10 Hz for Average detection (AV) at frequency above 1GHz.*

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TEST RESULTS

Below 1 GHz (9kHz ~ 30MHz)

No emission found between lowest internal used/generated frequency to 30MHz.

Below 1 GHz (30MHz ~ 1GHz)

Product Name	AC1300 IoT Router	Test By	Rex Chiu
Test Model	X10R	Test Date	2016/11/09
Test Mode	Mode 1 / Band 1	Temp. & Humidity	25°C, 50%

966Chamber_B at 3Meter / Horizontal

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
62.01	41.03	-20.92	20.11	40.00	-19.89	298	200	Peak
103.72	45.35	-15.35	30.00	43.50	-13.50	296	200	Peak
146.40	41.76	-15.19	26.57	43.50	-16.93	260	200	Peak
157.07	47.09	-15.83	31.26	43.50	-12.24	98	200	Peak
186.17	39.90	-16.42	23.48	43.50	-20.02	148	200	Peak
287.05	35.61	-11.84	23.77	46.00	-22.23	167	100	Peak
666.32	36.90	-5.99	30.91	46.00	-15.09	215	100	Peak

966Chamber_B at 3Meter / Vertical

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
39.70	46.66	-13.65	33.01	40.00	-6.99	358	100	Peak
62.01	50.21	-20.92	29.29	40.00	-10.71	0	100	Peak
147.37	42.20	-15.25	26.95	43.50	-16.55	58	100	Peak
156.10	44.21	-15.78	28.43	43.50	-15.07	62	200	Peak
183.26	38.97	-16.53	22.44	43.50	-21.06	62	100	Peak
497.54	32.29	-8.17	24.12	46.00	-21.88	271	100	Peak
866.14	29.23	-3.31	25.92	46.00	-20.08	338	200	Peak

Remark:

1. *Quasi-peak test would be performed if the peak result were greater than the quasi-peak limit.*
2. *Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Loss (dB) – PreAmp.Gain (dB)*
3. *Result (dBuV/m) = Reading (dBuV) + Correction Factor (dB/m)*
4. *Margin (dB) = Remark result (dBuV/m) - Quasi-peak limit (dBuV/m).*

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Product Name	AC1300 IoT Router	Test By	Rex Chiu
Test Model	X10R	Test Date	2016/11/09
Test Mode	Mode 1 / Band 3	Temp. & Humidity	25°C, 50%

966Chamber_B at 3Meter / Horizontal

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
39.70	37.42	-13.65	23.77	40.00	-16.23	1	200	Peak
103.72	45.11	-15.35	29.76	43.50	-13.74	299	200	Peak
147.37	44.39	-15.25	29.14	43.50	-14.36	93	200	Peak
157.07	46.98	-15.83	31.15	43.50	-12.35	97	200	Peak
243.40	38.68	-13.30	25.38	46.00	-20.62	184	100	Peak
287.05	36.76	-11.84	24.92	46.00	-21.08	171	100	Peak
666.32	35.19	-5.99	29.20	46.00	-16.80	225	100	Peak

966Chamber_B at 3Meter / Vertical

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
40.67	46.12	-14.27	31.85	40.00	-8.15	359	100	Peak
62.01	48.82	-20.92	27.90	40.00	-12.10	213	200	Peak
103.72	39.26	-15.35	23.91	43.50	-19.59	28	100	Peak
147.37	43.79	-15.25	28.54	43.50	-14.96	86	100	Peak
157.07	43.34	-15.83	27.51	43.50	-15.99	84	200	Peak
500.45	33.99	-8.13	25.86	46.00	-20.14	89	100	Peak
875.84	28.83	-3.19	25.64	46.00	-20.36	176	100	Peak

Remark:

1. *Quasi-peak test would be performed if the peak result were greater than the quasi-peak limit.*
2. *Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Loss (dB) – PreAmp.Gain (dB)*
3. *Result (dBuV/m) = Reading (dBuV) + Correction Factor (dB/m)*
4. *Margin (dB) = Remark result (dBuV/m) - Quasi-peak limit (dBuV/m).*

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Above 1GHz

Product Name	AC1300 IoT Router	Test By	Rex Chiu
Test Model	X10R	Test Date	2016/11/08
Test Mode	UNII Band 1 / IEEE 802.11a Mode TX / CH Low / Non-beamforming	Temp. & Humidity	25°C, 50%

966Chamber_B at 3Meter / Horizontal

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
3330.00	44.11	0.13	44.24	74.00	-29.76	247	200	Peak
3995.00	41.44	2.56	44.00	74.00	-30.00	140	200	Peak
5400.00	39.60	6.60	46.20	74.00	-27.80	264	200	Peak
6252.00	36.66	10.71	47.37	74.00	-26.63	302	100	Peak
8184.00	37.45	13.17	50.62	74.00	-23.38	84	100	Peak
10356.00	36.14	16.10	52.24	74.00	-21.76	161	200	Peak

966Chamber_B at 3Meter / Vertical

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
3330.00	43.56	0.13	43.69	74.00	-30.31	243	100	Peak
3995.00	42.99	2.56	45.55	74.00	-28.45	196	100	Peak
5425.00	40.48	6.66	47.14	74.00	-26.86	328	200	Peak
6252.00	38.14	10.71	48.85	74.00	-25.15	154	100	Peak
7620.00	38.10	12.69	50.79	74.00	-23.21	118	100	Peak
10356.00	29.70	16.10	45.80	54.00	-8.20	194	200	Average
10356.00	39.64	16.10	55.74	74.00	-18.26	194	200	Peak

Remark:

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *Average test would be performed if the peak result were greater than the average limit.*
3. *Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.*
4. *Result = Reading + Correction Factor*
   Margin = Result – Limit
   Remark Peak = Result(PK) – Limit(PK)
   Remark AVG = Result(AV) – Limit(AV)

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Product Name	AC1300 IoT Router	Test By	Rex Chiu
Test Model	X10R	Test Date	2016/11/08
Test Mode	UNII Band 1 / IEEE 802.11a Mode TX / CH Middle / Non-beamforming	Temp. & Humidity	25°C, 50%

966Chamber_B at 3Meter / Horizontal

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
3995.00	42.76	2.56	45.32	74.00	-28.68	232	100	Peak
5150.00	42.05	6.04	48.09	74.00	-25.91	143	100	Peak
5405.00	39.60	6.62	46.22	74.00	-27.78	214	100	Peak
6468.00	36.54	11.15	47.69	74.00	-26.31	145	200	Peak
8292.00	36.72	13.21	49.93	74.00	-24.07	113	100	Peak
10404.00	27.60	16.23	43.83	54.00	-10.17	220	100	Average
10404.00	37.58	16.23	53.81	74.00	-20.19	220	100	Peak

966Chamber_B at 3Meter / Vertical

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
3995.00	44.10	2.56	46.66	74.00	-27.34	191	100	Peak
5150.00	36.70	6.04	42.74	54.00	-11.26	88	100	Average
5150.00	49.94	6.04	55.98	74.00	-18.02	88	100	Peak
5420.00	40.24	6.65	46.89	74.00	-27.11	32	100	Peak
6252.00	37.58	10.71	48.29	74.00	-25.71	165	200	Peak
8316.00	36.73	13.21	49.94	74.00	-24.06	224	100	Peak
10404.00	28.70	16.23	44.93	54.00	-9.07	192	200	Average
10404.00	38.30	16.23	54.53	74.00	-19.47	192	200	Peak

Remark:

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *Average test would be performed if the peak result were greater than the average limit.*
3. *Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.*
4. *Result = Reading + Correction Factor*
   Margin = Result – Limit
   Remark Peak = Result(PK) – Limit(PK)
   Remark AVG = Result(AV) – Limit(AV)

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Product Name	AC1300 IoT Router	Test By	Rex Chiu
Test Model	X10R	Test Date	2016/11/08
Test Mode	UNII Band 1 / IEEE 802.11a Mode TX / CH High / Non-beamforming	Temp. & Humidity	25°C, 50%

966Chamber_B at 3Meter / Horizontal

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
3995.00	42.36	2.56	44.92	74.00	-29.08	139	200	Peak
4745.00	41.43	5.04	46.47	74.00	-27.53	153	200	Peak
5425.00	39.42	6.66	46.08	74.00	-27.92	349	200	Peak
7416.00	36.82	12.51	49.33	74.00	-24.67	88	100	Peak
8736.00	37.42	13.48	50.90	74.00	-23.10	316	200	Peak
10476.00	36.03	16.42	52.45	74.00	-21.55	248	100	Peak

966Chamber_B at 3Meter / Vertical

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
3995.00	42.33	2.56	44.89	74.00	-29.11	207	100	Peak
5100.00	43.26	5.93	49.19	74.00	-24.81	232	100	Peak
5455.00	40.68	6.73	47.41	74.00	-26.59	131	200	Peak
6252.00	37.75	10.71	48.46	74.00	-25.54	156	100	Peak
7968.00	36.48	13.07	49.55	74.00	-24.45	46	200	Peak
10476.00	30.70	16.42	47.12	54.00	-6.88	216	100	Average
10476.00	41.41	16.42	57.83	74.00	-16.17	216	100	Peak

Remark:

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *Average test would be performed if the peak result were greater than the average limit.*
3. *Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.*
4. *Result = Reading + Correction Factor*
   Margin = Result – Limit
   Remark Peak = Result(PK) – Limit(PK)
   Remark AVG = Result(AV) – Limit(AV)

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Product Name	AC1300 IoT Router	Test By	Rex Chiu
Test Model	X10R	Test Date	2016/11/08
Test Mode	UNII Band 1 / IEEE 802.11ac VHT20 NSS1/MCS0 Mode TX / CH Low / Non-beamforming	Temp. & Humidity	25°C, 50%

966Chamber_B at 3Meter / Horizontal

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
3330.00	44.03	0.13	44.16	74.00	-29.84	239	200	Peak
3995.00	41.52	2.56	44.08	74.00	-29.92	243	100	Peak
5380.00	39.90	6.56	46.46	74.00	-27.54	264	200	Peak
7188.00	37.86	12.36	50.22	74.00	-23.78	226	200	Peak
8064.00	36.88	13.12	50.00	74.00	-24.00	103	200	Peak
9636.00	36.77	14.53	51.30	74.00	-22.70	328	200	Peak

966Chamber_B at 3Meter / Vertical

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
3330.00	44.35	0.13	44.48	74.00	-29.52	206	100	Peak
3995.00	43.41	2.56	45.97	74.00	-28.03	204	100	Peak
5375.00	40.01	6.55	46.56	74.00	-27.44	3	200	Peak
6516.00	38.32	11.25	49.57	74.00	-24.43	359	100	Peak
7932.00	37.46	13.03	50.49	74.00	-23.51	320	100	Peak
10368.00	27.90	16.13	44.03	54.00	-9.97	223	100	Average
10368.00	37.51	16.13	53.64	74.00	-20.36	223	100	Peak

Remark:

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *Average test would be performed if the peak result were greater than the average limit.*
3. *Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.*
4. *Result = Reading + Correction Factor*
   Margin = Result – Limit
   Remark Peak = Result(PK) – Limit(PK)
   Remark AVG = Result(AV) – Limit(AV)

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Product Name	AC1300 IoT Router	Test By	Rex Chiu
Test Model	X10R	Test Date	2016/11/08
Test Mode	UNII Band 1 / IEEE 802.11ac VHT20 NSS1/MCS0 Mode TX / CH Middle / Non-beamforming	Temp. & Humidity	25°C, 50%

966Chamber_B at 3Meter / Horizontal

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
3330.00	45.08	0.13	45.21	74.00	-28.79	243	200	Peak
5150.00	31.30	6.04	37.34	54.00	-16.66	98	100	Average
5150.00	45.09	6.04	51.13	74.00	-22.87	98	100	Peak
5415.00	38.69	6.64	45.33	74.00	-28.67	331	200	Peak
6252.00	37.80	10.71	48.51	74.00	-25.49	254	200	Peak
7704.00	36.61	12.78	49.39	74.00	-24.61	251	200	Peak
10020.00	36.56	15.22	51.78	74.00	-22.22	163	200	Peak

966Chamber_B at 3Meter / Vertical

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
3330.00	45.20	0.13	45.33	74.00	-28.67	168	100	Peak
5150.00	39.10	6.04	45.14	54.00	-8.86	26	200	Average
5150.00	54.41	6.04	60.45	74.00	-13.55	26	200	Peak
5385.00	40.99	6.57	47.56	74.00	-26.44	356	200	Peak
7356.00	38.41	12.47	50.88	74.00	-23.12	22	100	Peak
8532.00	36.58	13.31	49.89	74.00	-24.11	168	200	Peak
10404.00	29.10	16.23	45.33	54.00	-8.67	176	100	Average
10404.00	38.76	16.23	54.99	74.00	-19.01	176	100	Peak

Remark:

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *Average test would be performed if the peak result were greater than the average limit.*
3. *Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.*
4. *Result = Reading + Correction Factor*
   Margin = Result – Limit
   Remark Peak = Result(PK) – Limit(PK)
   Remark AVG = Result(AV) – Limit(AV)

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Product Name	AC1300 IoT Router	Test By	Rex Chiu
Test Model	X10R	Test Date	2016/11/08
Test Mode	UNII Band 1 / IEEE 802.11ac VHT20 NSS1/MCS0 Mode TX / CH High / Non-beamforming	Temp. & Humidity	25°C, 50%

966Chamber_B at 3Meter / Horizontal

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
4110.00	42.40	2.98	45.38	74.00	-28.62	202	200	Peak
4810.00	40.76	5.21	45.97	74.00	-28.03	30	100	Peak
5410.00	39.66	6.63	46.29	74.00	-27.71	193	100	Peak
7212.00	38.11	12.38	50.49	74.00	-23.51	302	100	Peak
8652.00	36.78	13.41	50.19	74.00	-23.81	239	100	Peak
10476.00	28.10	16.42	44.52	54.00	-9.48	221	100	Average
10476.00	37.97	16.42	54.39	74.00	-19.61	221	100	Peak

966Chamber_B at 3Meter / Vertical

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
3995.00	43.69	2.56	46.25	74.00	-27.75	202	100	Peak
5055.00	43.73	5.82	49.55	74.00	-24.45	351	200	Peak
5370.00	40.51	6.54	47.05	74.00	-26.95	235	200	Peak
7236.00	37.46	12.39	49.85	74.00	-24.15	81	100	Peak
8700.00	36.42	13.45	49.87	74.00	-24.13	1	100	Peak
10488.00	30.10	16.45	46.55	54.00	-7.45	235	100	Average
10488.00	39.36	16.45	55.81	74.00	-18.19	235	100	Peak

Remark:

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *Average test would be performed if the peak result were greater than the average limit.*
3. *Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.*
4. *Result = Reading + Correction Factor*
   Margin = Result – Limit
   Remark Peak = Result(PK) – Limit(PK)
   Remark AVG = Result(AV) – Limit(AV)

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Product Name	AC1300 IoT Router	Test By	Rex Chiu
Test Model	X10R	Test Date	2016/11/08
Test Mode	UNII Band 1 / IEEE 802.11ac VHT40 NSS1/MCS0 Mode TX / CH Low / Non-beamforming	Temp. & Humidity	25°C, 50%

966Chamber_B at 3Meter / Horizontal

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
3330.00	43.29	0.13	43.42	74.00	-30.58	249	200	Peak
3995.00	42.42	2.56	44.98	74.00	-29.02	134	100	Peak
5455.00	40.28	6.73	47.01	74.00	-26.99	226	200	Peak
6684.00	37.04	11.60	48.64	74.00	-25.36	295	100	Peak
8040.00	36.35	13.11	49.46	74.00	-24.54	24	200	Peak
9492.00	37.15	14.28	51.43	74.00	-22.57	15	200	Peak

966Chamber_B at 3Meter / Vertical

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
3330.00	44.62	0.13	44.75	74.00	-29.25	187	100	Peak
3995.00	44.55	2.56	47.11	74.00	-26.89	206	100	Peak
5370.00	40.57	6.54	47.11	74.00	-26.89	188	200	Peak
6528.00	36.31	11.28	47.59	74.00	-26.41	324	100	Peak
7968.00	36.87	13.07	49.94	74.00	-24.06	32	100	Peak
9576.00	36.70	14.42	51.12	74.00	-22.88	96	200	Peak

Remark:

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *Average test would be performed if the peak result were greater than the average limit.*
3. *Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.*
4. *Result = Reading + Correction Factor*
   Margin = Result – Limit
   Remark Peak = Result(PK) – Limit(PK)
   Remark AVG = Result(AV) – Limit(AV)

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Product Name	AC1300 IoT Router	Test By	Rex Chiu
Test Model	X10R	Test Date	2016/11/08
Test Mode	UNII Band 1 / IEEE 802.11ac VHT40 NSS1/MCS0 Mode TX / CH High / Non-beamforming	Temp. & Humidity	25°C, 50%

966Chamber_B at 3Meter / Horizontal

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
3330.00	45.05	0.13	45.18	74.00	-28.82	233	200	Peak
5150.00	44.87	6.04	50.91	74.00	-23.09	256	200	Peak
5355.00	40.25	6.50	46.75	74.00	-27.25	68	100	Peak
6984.00	36.86	12.21	49.07	74.00	-24.93	0	100	Peak
8580.00	36.83	13.35	50.18	74.00	-23.82	268	100	Peak
10464.00	36.11	16.39	52.50	74.00	-21.50	224	100	Peak

966Chamber_B at 3Meter / Vertical

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
2665.00	49.53	-1.71	47.82	74.00	-26.18	182	100	Peak
5150.00	41.80	6.04	47.84	54.00	-6.16	161	100	Average
5150.00	52.60	6.04	58.64	74.00	-15.36	161	100	Peak
5350.00	43.33	6.49	49.82	74.00	-24.18	6	200	Peak
7200.00	37.47	12.37	49.84	74.00	-24.16	360	100	Peak
8628.00	37.01	13.39	50.40	74.00	-23.60	259	200	Peak
10464.00	27.50	16.39	43.89	54.00	-10.11	215	100	Average
10464.00	37.19	16.39	53.58	74.00	-20.42	215	100	Peak

Remark:

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *Average test would be performed if the peak result were greater than the average limit.*
3. *Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.*
4. *Result = Reading + Correction Factor*
   Margin = Result – Limit
   Remark Peak = Result(PK) – Limit(PK)
   Remark AVG = Result(AV) – Limit(AV)

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Product Name	AC1300 IoT Router	Test By	Rex Chiu
Test Model	X10R	Test Date	2016/11/08
Test Mode	UNII Band 1 / IEEE 802.11ac VHT80 NSS1/MCS0 Mode TX / CH Low / Non-beamforming	Temp. & Humidity	25°C, 50%

966Chamber_B at 3Meter / Horizontal

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
3330.00	45.16	0.13	45.29	74.00	-28.71	248	200	Peak
3995.00	41.78	2.56	44.34	74.00	-29.66	154	200	Peak
5410.00	41.06	6.63	47.69	74.00	-26.31	5	200	Peak
6948.00	37.06	12.13	49.19	74.00	-24.81	63	200	Peak
7968.00	36.56	13.07	49.63	74.00	-24.37	274	100	Peak
9492.00	37.97	14.28	52.25	74.00	-21.75	342	100	Peak

966Chamber_B at 3Meter / Vertical

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
3330.00	44.15	0.13	44.28	74.00	-29.72	209	100	Peak
3995.00	43.06	2.56	45.62	74.00	-28.38	161	100	Peak
5365.00	42.69	6.52	49.21	74.00	-24.79	212	200	Peak
6684.00	38.07	11.60	49.67	74.00	-24.33	261	200	Peak
8748.00	37.13	13.49	50.62	74.00	-23.38	114	100	Peak
10452.00	35.97	16.35	52.32	74.00	-21.68	29	100	Peak

Remark:

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *Average test would be performed if the peak result were greater than the average limit.*
3. *Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.*
4. *Result = Reading + Correction Factor*
   Margin = Result – Limit
   Remark Peak = Result(PK) – Limit(PK)
   Remark AVG = Result(AV) – Limit(AV)

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Product Name	AC1300 IoT Router	Test By	Rex Chiu
Test Model	X10R	Test Date	2016/11/08
Test Mode	UNII Band 3 / IEEE 802.11a Mode TX / CH Low / Non-beamforming	Temp. & Humidity	25°C, 50%

966Chamber_B at 3Meter / Horizontal

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
3830.00	43.57	1.90	45.47	74.00	-28.53	182	100	Peak
4650.00	41.05	4.79	45.84	74.00	-28.16	274	200	Peak
5450.00	40.14	6.72	46.86	74.00	-27.14	262	100	Peak
6768.00	36.99	11.77	48.76	74.00	-25.24	255	200	Peak
7980.00	36.43	13.08	49.51	74.00	-24.49	23	200	Peak
9156.00	36.42	13.89	50.31	74.00	-23.69	3	200	Peak

966Chamber_B at 3Meter / Vertical

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
3830.00	45.81	1.90	47.71	74.00	-26.29	162	200	Peak
4660.00	41.42	4.82	46.24	74.00	-27.76	163	100	Peak
5440.00	41.62	6.69	48.31	74.00	-25.69	6	200	Peak
6252.00	37.45	10.71	48.16	74.00	-25.84	17	200	Peak
7752.00	36.46	12.83	49.29	74.00	-24.71	138	200	Peak
9564.00	36.64	14.40	51.04	74.00	-22.96	6	200	Peak

Remark:

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *Average test would be performed if the peak result were greater than the average limit.*
3. *Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.*
4. *Result = Reading + Correction Factor*
   Margin = Result – Limit
   Remark Peak = Result(PK) – Limit(PK)
   Remark AVG = Result(AV) – Limit(AV)

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Product Name	AC1300 IoT Router	Test By	Rex Chiu
Test Model	X10R	Test Date	2016/11/08
Test Mode	UNII Band 3 / IEEE 802.11a Mode TX / CH Middle / Non-beamforming	Temp. & Humidity	25°C, 50%

966Chamber_B at 3Meter / Horizontal

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
3855.00	43.30	2.00	45.30	74.00	-28.70	251	100	Peak
4660.00	40.91	4.82	45.73	74.00	-28.27	196	200	Peak
5395.00	39.32	6.59	45.91	74.00	-28.09	174	100	Peak
7032.00	37.28	12.26	49.54	74.00	-24.46	359	100	Peak
8568.00	35.93	13.34	49.27	74.00	-24.73	122	100	Peak
10332.00	35.45	16.04	51.49	74.00	-22.51	353	200	Peak

966Chamber_B at 3Meter / Vertical

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
3855.00	45.19	2.00	47.19	74.00	-26.81	191	100	Peak
4815.00	41.25	5.22	46.47	74.00	-27.53	232	100	Peak
5440.00	40.38	6.69	47.07	74.00	-26.93	358	200	Peak
6984.00	37.45	12.21	49.66	74.00	-24.34	104	100	Peak
8160.00	36.36	13.16	49.52	74.00	-24.48	239	200	Peak
10104.00	35.83	15.44	51.27	74.00	-22.73	164	200	Peak

Remark:

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *Average test would be performed if the peak result were greater than the average limit.*
3. *Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.*
4. *Result = Reading + Correction Factor*
   Margin = Result – Limit
   Remark Peak = Result(PK) – Limit(PK)
   Remark AVG = Result(AV) – Limit(AV)

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Product Name	AC1300 IoT Router	Test By	Rex Chiu
Test Model	X10R	Test Date	2016/11/08
Test Mode	UNII Band 3 / IEEE 802.11a Mode TX / CH High / Non-beamforming	Temp. & Humidity	25°C, 50%

966Chamber_B at 3Meter / Horizontal

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
3885.00	44.08	2.12	46.20	74.00	-27.80	162	200	Peak
4805.00	40.48	5.19	45.67	74.00	-28.33	348	100	Peak
5410.00	39.77	6.63	46.40	74.00	-27.60	286	100	Peak
6972.00	36.15	12.18	48.33	74.00	-25.67	120	100	Peak
7956.00	36.82	13.05	49.87	74.00	-24.13	360	200	Peak
9564.00	36.81	14.40	51.21	74.00	-22.79	304	100	Peak

966Chamber_B at 3Meter / Vertical

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
3995.00	44.11	2.56	46.67	74.00	-27.33	181	100	Peak
4815.00	40.19	5.22	45.41	74.00	-28.59	36	200	Peak
5455.00	39.62	6.73	46.35	74.00	-27.65	359	100	Peak
6972.00	37.17	12.18	49.35	74.00	-24.65	149	200	Peak
8472.00	37.79	13.27	51.06	74.00	-22.94	0	100	Peak
10320.00	36.27	16.01	52.28	74.00	-21.72	97	100	Peak

Remark:

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *Average test would be performed if the peak result were greater than the average limit.*
3. *Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.*
4. *Result = Reading + Correction Factor*
   Margin = Result – Limit
   Remark Peak = Result(PK) – Limit(PK)
   Remark AVG = Result(AV) – Limit(AV)

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Product Name	AC1300 IoT Router	Test By	Rex Chiu
Test Model	X10R	Test Date	2016/11/08
Test Mode	UNII Band 3 / IEEE 802.11ac VHT20 NSS1/MCS0 Mode TX / CH Low / Non-beamforming	Temp. & Humidity	25°C, 50%

966Chamber_B at 3Meter / Horizontal

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
3830.00	43.27	1.90	45.17	74.00	-28.83	183	100	Peak
4715.00	41.13	4.96	46.09	74.00	-27.91	257	200	Peak
5425.00	39.50	6.66	46.16	74.00	-27.84	199	100	Peak
6564.00	36.79	11.35	48.14	74.00	-25.86	186	200	Peak
7992.00	36.20	13.09	49.29	74.00	-24.71	354	100	Peak
9756.00	36.33	14.74	51.07	74.00	-22.93	142	100	Peak

966Chamber_B at 3Meter / Vertical

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
3830.00	45.84	1.90	47.74	74.00	-26.26	163	100	Peak
4705.00	41.22	4.93	46.15	74.00	-27.85	93	100	Peak
5375.00	40.27	6.55	46.82	74.00	-27.18	88	100	Peak
6252.00	38.12	10.71	48.83	74.00	-25.17	161	200	Peak
8112.00	36.66	13.14	49.80	74.00	-24.20	304	200	Peak
9540.00	36.81	14.36	51.17	74.00	-22.83	262	100	Peak

Remark:

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *Average test would be performed if the peak result were greater than the average limit.*
3. *Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.*
4. *Result = Reading + Correction Factor*
   Margin = Result – Limit
   Remark Peak = Result(PK) – Limit(PK)
   Remark AVG = Result(AV) – Limit(AV)

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Product Name	AC1300 IoT Router	Test By	Rex Chiu
Test Model	X10R	Test Date	2016/11/08
Test Mode	UNII Band 3 / IEEE 802.11ac VHT20 NSS1/MCS0 Mode TX / CH Middle / Non-beamforming	Temp. & Humidity	25°C, 50%

966Chamber_B at 3Meter / Horizontal

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
3855.00	44.66	2.00	46.66	74.00	-27.34	166	100	Peak
4730.00	40.79	5.00	45.79	74.00	-28.21	139	200	Peak
5355.00	39.55	6.50	46.05	74.00	-27.95	127	200	Peak
6252.00	37.70	10.71	48.41	74.00	-25.59	242	200	Peak
7884.00	36.33	12.97	49.30	74.00	-24.70	360	200	Peak
9408.00	37.09	14.18	51.27	74.00	-22.73	178	200	Peak

966Chamber_B at 3Meter / Vertical

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
3995.00	45.27	2.56	47.83	74.00	-26.17	205	100	Peak
4815.00	40.74	5.22	45.96	74.00	-28.04	94	200	Peak
5405.00	39.98	6.62	46.60	74.00	-27.40	110	100	Peak
6156.00	39.05	10.52	49.57	74.00	-24.43	210	200	Peak
8004.00	36.22	13.10	49.32	74.00	-24.68	360	100	Peak
9864.00	36.40	14.93	51.33	74.00	-22.67	55	100	Peak

Remark:

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *Average test would be performed if the peak result were greater than the average limit.*
3. *Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.*
4. *Result = Reading + Correction Factor*
   Margin = Result – Limit
   Remark Peak = Result(PK) – Limit(PK)
   Remark AVG = Result(AV) – Limit(AV)

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Product Name	AC1300 IoT Router	Test By	Rex Chiu
Test Model	X10R	Test Date	2016/11/08
Test Mode	UNII Band 3 / IEEE 802.11ac VHT20 NSS1/MCS0 Mode TX / CH High / Non-beamforming	Temp. & Humidity	25°C, 50%

966Chamber_B at 3Meter / Horizontal

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
3885.00	43.53	2.12	45.65	74.00	-28.35	192	100	Peak
4690.00	40.64	4.89	45.53	74.00	-28.47	188	100	Peak
5395.00	39.82	6.59	46.41	74.00	-27.59	141	200	Peak
6792.00	37.02	11.82	48.84	74.00	-25.16	102	200	Peak
8340.00	36.32	13.22	49.54	74.00	-24.46	360	200	Peak
9612.00	36.63	14.49	51.12	74.00	-22.88	209	200	Peak

966Chamber_B at 3Meter / Vertical

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
3885.00	44.67	2.12	46.79	74.00	-27.21	175	100	Peak
4770.00	41.20	5.10	46.30	74.00	-27.70	221	200	Peak
5370.00	40.12	6.54	46.66	74.00	-27.34	38	200	Peak
6696.00	36.96	11.62	48.58	74.00	-25.42	173	200	Peak
8868.00	36.01	13.60	49.61	74.00	-24.39	356	200	Peak
10464.00	35.98	16.39	52.37	74.00	-21.63	55	200	Peak

Remark:

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *Average test would be performed if the peak result were greater than the average limit.*
3. *Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.*
4. *Result = Reading + Correction Factor*
   Margin = Result – Limit
   Remark Peak = Result(PK) – Limit(PK)
   Remark AVG = Result(AV) – Limit(AV)

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Product Name	AC1300 IoT Router	Test By	Rex Chiu
Test Model	X10R	Test Date	2016/11/08
Test Mode	UNII Band 3 / IEEE 802.11ac VHT40 NSS1/MCS0 Mode TX / CH Low / Non-beamforming	Temp. & Humidity	25°C, 50%

966Chamber_B at 3Meter / Horizontal

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
3835.00	44.10	1.92	46.02	74.00	-27.98	176	100	Peak
4700.00	41.32	4.92	46.24	74.00	-27.76	104	100	Peak
5435.00	40.75	6.68	47.43	74.00	-26.57	249	100	Peak
6624.00	37.05	11.47	48.52	74.00	-25.48	76	100	Peak
8088.00	36.89	13.13	50.02	74.00	-23.98	154	200	Peak
9804.00	36.53	14.83	51.36	74.00	-22.64	154	100	Peak

966Chamber_B at 3Meter / Vertical

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
3835.00	45.45	1.92	47.37	74.00	-26.63	163	200	Peak
4660.00	41.32	4.82	46.14	74.00	-27.86	163	100	Peak
5390.00	40.02	6.58	46.60	74.00	-27.40	2	200	Peak
6744.00	36.57	11.72	48.29	74.00	-25.71	93	200	Peak
7968.00	36.79	13.07	49.86	74.00	-24.14	292	200	Peak
10476.00	35.82	16.42	52.24	74.00	-21.76	352	100	Peak

Remark:

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *Average test would be performed if the peak result were greater than the average limit.*
3. *Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.*
4. *Result = Reading + Correction Factor*
   Margin = Result – Limit
   Remark Peak = Result(PK) – Limit(PK)
   Remark AVG = Result(AV) – Limit(AV)

This report shall not be reproduced, except in full, without the written approval of Compliance Certification Services Inc.

Product Name	AC1300 IoT Router	Test By	Rex Chiu
Test Model	X10R	Test Date	2016/11/08
Test Mode	UNII Band 3 / IEEE 802.11ac VHT40 NSS1/MCS0 Mode TX / CH High / Non-beamforming	Temp. & Humidity	25°C, 50%

966Chamber_B at 3Meter / Horizontal

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
3865.00	44.69	2.04	46.73	74.00	-27.27	156	200	Peak
4765.00	41.14	5.09	46.23	74.00	-27.77	293	200	Peak
5355.00	39.58	6.50	46.08	74.00	-27.92	217	200	Peak
7416.00	37.13	12.51	49.64	74.00	-24.36	206	100	Peak
8712.00	36.46	13.46	49.92	74.00	-24.08	17	200	Peak
10476.00	35.89	16.42	52.31	74.00	-21.69	329	100	Peak

966Chamber_B at 3Meter / Vertical

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
3865.00	46.49	2.04	48.53	74.00	-25.47	183	100	Peak
4815.00	41.93	5.22	47.15	74.00	-26.85	349	200	Peak
5365.00	40.08	6.52	46.60	74.00	-27.40	182	200	Peak
7380.00	37.49	12.48	49.97	74.00	-24.03	286	200	Peak
8328.00	36.93	13.22	50.15	74.00	-23.85	0	100	Peak
9480.00	37.25	14.27	51.52	74.00	-22.48	249	100	Peak

Remark:

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *Average test would be performed if the peak result were greater than the average limit.*
3. *Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.*
4. *Result = Reading + Correction Factor*
   Margin = Result – Limit
   Remark Peak = Result(PK) – Limit(PK)
   Remark AVG = Result(AV) – Limit(AV)

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Product Name	AC1300 IoT Router	Test By	Rex Chiu
Test Model	X10R	Test Date	2016/11/08
Test Mode	UNII Band 3 / IEEE 802.11ac VHT80 NSS1/MCS0 Mode TX / CH Low / Non-beamforming	Temp. & Humidity	25°C, 50%

966Chamber_B at 3Meter / Horizontal

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
3850.00	44.78	1.98	46.76	74.00	-27.24	164	100	Peak
4665.00	41.18	4.83	46.01	74.00	-27.99	108	200	Peak
5410.00	39.90	6.63	46.53	74.00	-27.47	44	100	Peak
7008.00	37.19	12.25	49.44	74.00	-24.56	140	200	Peak
8628.00	36.45	13.39	49.84	74.00	-24.16	314	200	Peak
10128.00	35.63	15.51	51.14	74.00	-22.86	114	200	Peak

966Chamber_B at 3Meter / Vertical

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
3850.00	47.36	1.98	49.34	74.00	-24.66	189	100	Peak
4815.00	42.00	5.22	47.22	74.00	-26.78	349	200	Peak
5445.00	40.53	6.71	47.24	74.00	-26.76	52	200	Peak
6912.00	37.05	12.06	49.11	74.00	-24.89	32	200	Peak
8112.00	36.63	13.14	49.77	74.00	-24.23	120	200	Peak
9684.00	37.30	14.61	51.91	74.00	-22.09	266	200	Peak

Remark:

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *Average test would be performed if the peak result were greater than the average limit.*
3. *Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.*
4. *Result = Reading + Correction Factor*
   Margin = Result – Limit
   Remark Peak = Result(PK) – Limit(PK)
   Remark AVG = Result(AV) – Limit(AV)

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Product Name	AC1300 IoT Router	Test By	Waternil Guan
Test Model	X10R	Test Date	2016/10/24
Test Mode	UNII Band 1 / IEEE 802.11ac VHT20 NSS1/MCS0 Mode TX / CH Low / Beamforming	Temp. & Humidity	25°C, 50%

966Chamber_B at 3Meter / Horizontal

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
1375.00	50.62	-3.04	47.58	74.00	-26.42	115	200	Peak
2035.00	47.98	1.85	49.83	74.00	-24.17	140	100	Peak
5350.00	43.57	8.92	52.49	74.00	-21.51	274	100	Peak
6252.00	36.54	10.71	47.25	74.00	-26.75	87	100	Peak
7104.00	37.28	12.31	49.59	74.00	-24.41	234	200	Peak
7740.00	37.32	12.82	50.14	74.00	-23.86	264	100	Peak

966Chamber_B at 3Meter / Vertical

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
1060.00	49.56	-3.21	46.35	74.00	-27.65	91	100	Peak
1785.00	48.56	-0.26	48.30	74.00	-25.70	216	200	Peak
5350.00	45.01	8.92	53.93	74.00	-20.07	128	150	Peak
6252.00	38.56	10.71	49.27	74.00	-24.73	150	200	Peak
6696.00	38.42	11.62	50.04	74.00	-23.96	26	200	Peak
7020.00	38.01	12.25	50.26	74.00	-23.74	87	200	Peak

Remark:

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *Average test would be performed if the peak result were greater than the average limit.*
3. *Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.*
4. *Result = Reading + Correction Factor*
   Margin = Result – Limit
   Remark Peak = Result(PK) – Limit(PK)
   Remark AVG = Result(AV) – Limit(AV)

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Product Name	AC1300 IoT Router	Test By	Waternil Guan
Test Model	X10R	Test Date	2016/10/24
Test Mode	UNII Band 1 / IEEE 802.11ac VHT20 NSS1/MCS0 Mode TX / CH Middle / Beamforming	Temp. & Humidity	25°C, 50%

966Chamber_B at 3Meter / Horizontal

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
1620.00	50.00	-1.83	48.17	74.00	-25.83	300	200	Peak
5150.00	43.25	8.51	51.76	74.00	-22.24	307	200	Peak
5350.00	43.99	8.92	52.91	74.00	-21.09	123	200	Peak
6468.00	37.23	11.15	48.38	74.00	-25.62	328	150	Peak
7212.00	37.07	12.38	49.45	74.00	-24.55	360	200	Peak
8100.00	37.48	13.14	50.62	74.00	-23.38	148	150	Peak

966Chamber_B at 3Meter / Vertical

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
1145.00	52.56	-3.16	49.40	74.00	-24.60	41	100	Peak
5150.00	45.09	8.51	53.60	74.00	-20.40	50	100	Peak
5350.00	45.83	8.92	54.75	74.00	-19.25	0	150	Peak
6252.00	39.23	10.71	49.94	74.00	-24.06	138	100	Peak
6936.00	37.05	12.11	49.16	74.00	-24.84	354	150	Peak
7920.00	36.92	13.01	49.93	74.00	-24.07	120	250	Peak

Remark:

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *Average test would be performed if the peak result were greater than the average limit.*
3. *Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.*
4. *Result = Reading + Correction Factor*
   Margin = Result – Limit
   Remark Peak = Result(PK) – Limit(PK)
   Remark AVG = Result(AV) – Limit(AV)

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Product Name	AC1300 IoT Router	Test By	Waternil Guan
Test Model	X10R	Test Date	2016/10/24
Test Mode	UNII Band 1 / IEEE 802.11ac VHT20 NSS1/MCS0 Mode TX / CH High / Beamforming	Temp. & Humidity	25°C, 50%

966Chamber_B at 3Meter / Horizontal

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
1330.00	50.32	-3.06	47.26	74.00	-26.74	205	150	Peak
5150.00	43.84	8.51	52.35	74.00	-21.65	167	200	Peak
5350.00	44.02	8.92	52.94	74.00	-21.06	340	100	Peak
6204.00	36.71	10.62	47.33	74.00	-26.67	141	200	Peak
6720.00	37.41	11.67	49.08	74.00	-24.92	215	150	Peak
7392.00	36.81	12.49	49.30	74.00	-24.70	326	100	Peak

966Chamber_B at 3Meter / Vertical

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
1330.00	50.43	-3.06	47.37	74.00	-26.63	284	200	Peak
5150.00	44.63	8.51	53.14	74.00	-20.86	3	150	Peak
5350.00	46.56	8.92	55.48	74.00	-18.52	186	150	Peak
6252.00	39.01	10.71	49.72	74.00	-24.28	165	200	Peak
6972.00	37.44	12.18	49.62	74.00	-24.38	74	150	Peak
7776.00	37.21	12.86	50.07	74.00	-23.93	87	250	Peak

Remark:

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *Average test would be performed if the peak result were greater than the average limit.*
3. *Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.*
4. *Result = Reading + Correction Factor*
   Margin = Result – Limit
   Remark Peak = Result(PK) – Limit(PK)
   Remark AVG = Result(AV) – Limit(AV)

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Product Name	AC1300 IoT Router	Test By	Waternil Guan
Test Model	X10R	Test Date	2016/11/03
Test Mode	UNII Band 1 / IEEE 802.11ac VHT40 NSS1/MCS0 Mode TX / CH Low / Beamforming	Temp. & Humidity	25°C, 50%

966Chamber_B at 3Meter / Horizontal

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
5350.00	43.91	6.49	50.40	74.00	-23.60	114	100	Peak
5415.00	45.37	6.64	52.01	74.00	-21.99	336	100	Peak
5460.00	44.95	6.74	51.69	74.00	-22.31	308	200	Peak
7092.00	37.47	12.30	49.77	74.00	-24.23	352	150	Peak
8088.00	36.93	13.13	50.06	74.00	-23.94	300	150	Peak
9792.00	36.87	14.80	51.67	74.00	-22.33	75	100	Peak

966Chamber_B at 3Meter / Vertical

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
5350.00	44.36	6.49	50.85	74.00	-23.15	330	150	Peak
5395.00	46.05	6.59	52.64	74.00	-21.36	168	150	Peak
5460.00	44.03	6.74	50.77	74.00	-23.23	319	200	Peak
6252.00	38.47	10.71	49.18	74.00	-24.82	146	100	Peak
7260.00	37.29	12.41	49.70	74.00	-24.30	58	150	Peak
8592.00	36.77	13.36	50.13	74.00	-23.87	234	100	Peak

Remark:

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *Average test would be performed if the peak result were greater than the average limit.*
3. *Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.*
4. *Result = Reading + Correction Factor*
   Margin = Result – Limit
   Remark Peak = Result(PK) – Limit(PK)
   Remark AVG = Result(AV) – Limit(AV)

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Product Name	AC1300 IoT Router	Test By	Waternil Guan
Test Model	X10R	Test Date	2016/11/03
Test Mode	UNII Band 1 / IEEE 802.11ac VHT40 NSS1/MCS0 Mode TX / CH High / Beamforming	Temp. & Humidity	25°C, 50%

966Chamber_B at 3Meter / Horizontal

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
3225.00	49.10	-0.15	48.95	74.00	-25.05	199	100	Peak
4705.00	47.31	4.93	52.24	74.00	-21.76	51	100	Peak
5350.00	44.75	6.49	51.24	74.00	-22.76	12	150	Peak
6900.00	37.41	12.04	49.45	74.00	-24.55	209	200	Peak
7788.00	36.37	12.87	49.24	74.00	-24.76	356	150	Peak
9264.00	35.82	14.02	49.84	74.00	-24.16	329	150	Peak

966Chamber_B at 3Meter / Vertical

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
4005.00	47.49	2.60	50.09	74.00	-23.91	328	150	Peak
4600.00	48.22	4.66	52.88	74.00	-21.12	202	150	Peak
5350.00	45.73	6.49	52.22	74.00	-21.78	32	100	Peak
6252.00	39.47	10.71	50.18	74.00	-23.82	143	100	Peak
8172.00	36.97	13.16	50.13	74.00	-23.87	202	100	Peak
9600.00	37.05	14.47	51.52	74.00	-22.48	48	100	Peak

Remark:

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *Average test would be performed if the peak result were greater than the average limit.*
3. *Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.*
4. *Result = Reading + Correction Factor*
   Margin = Result – Limit
   Remark Peak = Result(PK) – Limit(PK)
   Remark AVG = Result(AV) – Limit(AV)

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Product Name	AC1300 IoT Router	Test By	Waternil Guan
Test Model	X10R	Test Date	2016/11/03
Test Mode	UNII Band 1 / IEEE 802.11ac VHT80 NSS1/MCS0 Mode TX / CH Low / Beamforming	Temp. & Humidity	25°C, 50%

966Chamber_B at 3Meter / Horizontal

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
4045.00	48.48	2.74	51.22	74.00	-22.78	45	100	Peak
5350.00	43.89	6.49	50.38	74.00	-23.62	0	100	Peak
5460.00	44.82	6.74	51.56	74.00	-22.44	120	100	Peak
6252.00	38.84	10.71	49.55	74.00	-24.45	235	200	Peak
7224.00	37.10	12.38	49.48	74.00	-24.52	130	150	Peak
7980.00	36.13	13.08	49.21	74.00	-24.79	9	200	Peak

966Chamber_B at 3Meter / Vertical

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
3180.00	48.10	-0.27	47.83	74.00	-26.17	175	150	Peak
3995.00	47.74	2.56	50.30	74.00	-23.70	205	100	Peak
5350.00	45.97	6.49	52.46	74.00	-21.54	129	150	Peak
6648.00	37.64	11.52	49.16	74.00	-24.84	17	100	Peak
7428.00	37.33	12.51	49.84	74.00	-24.16	152	100	Peak
7764.00	37.10	12.85	49.95	74.00	-24.05	164	150	Peak

Remark:

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *Average test would be performed if the peak result were greater than the average limit.*
3. *Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.*
4. *Result = Reading + Correction Factor*
   Margin = Result – Limit
   Remark Peak = Result(PK) – Limit(PK)
   Remark AVG = Result(AV) – Limit(AV)

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Product Name	AC1300 IoT Router	Test By	Waternil Guan
Test Model	X10R	Test Date	2016/10/24
Test Mode	UNII Band 3 / IEEE 802.11ac VHT20 NSS1/MCS0 Mode TX / CH Low / Beamforming	Temp. & Humidity	25°C, 50%

966Chamber_B at 3Meter / Horizontal

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
1330.00	50.80	-3.06	47.74	74.00	-26.26	211	150	Peak
2000.00	48.03	1.79	49.82	74.00	-24.18	315	100	Peak
5460.00	44.62	9.15	53.77	74.00	-20.23	89	200	Peak
6492.00	37.02	11.20	48.22	74.00	-25.78	124	200	Peak
7152.00	36.95	12.34	49.29	74.00	-24.71	137	250	Peak
7476.00	36.46	12.54	49.00	74.00	-25.00	221	150	Peak

966Chamber_B at 3Meter / Vertical

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
1555.00	49.01	-2.45	46.56	74.00	-27.44	248	200	Peak
2085.00	48.23	1.95	50.18	74.00	-23.82	242	150	Peak
5460.00	45.38	9.15	54.53	74.00	-19.47	320	150	Peak
6252.00	38.91	10.71	49.62	74.00	-24.38	128	200	Peak
6924.00	37.05	12.08	49.13	74.00	-24.87	132	250	Peak
7548.00	36.97	12.61	49.58	74.00	-24.42	114	150	Peak

Remark:

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *Average test would be performed if the peak result were greater than the average limit.*
3. *Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.*
4. *Result = Reading + Correction Factor*
   Margin = Result – Limit
   Remark Peak = Result(PK) – Limit(PK)
   Remark AVG = Result(AV) – Limit(AV)

This report shall not be reproduced, except in full, without the written approval of Compliance Certification Services Inc.

Product Name	AC1300 IoT Router	Test By	Waternil Guan
Test Model	X10R	Test Date	2016/10/24
Test Mode	UNII Band 3 / IEEE 802.11ac VHT20 NSS1/MCS0 Mode TX / CH Middle / Beamforming	Temp. & Humidity	25°C, 50%

966Chamber_B at 3Meter / Horizontal

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
1590.00	50.41	-2.11	48.30	74.00	-25.70	252	150	Peak
2005.00	47.27	1.80	49.07	74.00	-24.93	13	150	Peak
5460.00	44.83	9.15	53.98	74.00	-20.02	251	200	Peak
6252.00	37.21	10.71	47.92	74.00	-26.08	270	100	Peak
6840.00	36.61	11.91	48.52	74.00	-25.48	51	100	Peak
7020.00	37.10	12.25	49.35	74.00	-24.65	219	200	Peak

966Chamber_B at 3Meter / Vertical

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
1330.00	51.05	-3.06	47.99	74.00	-26.01	163	100	Peak
2030.00	47.75	1.85	49.60	74.00	-24.40	290	150	Peak
5460.00	43.67	9.15	52.82	74.00	-21.18	267	150	Peak
6252.00	37.61	10.71	48.32	74.00	-25.68	131	200	Peak
6696.00	37.28	11.62	48.90	74.00	-25.10	152	100	Peak
6996.00	37.70	12.23	49.93	74.00	-24.07	13	250	Peak

Remark:

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *Average test would be performed if the peak result were greater than the average limit.*
3. *Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.*
4. *Result = Reading + Correction Factor*
   Margin = Result – Limit
   Remark Peak = Result(PK) – Limit(PK)
   Remark AVG = Result(AV) – Limit(AV)

This report shall not be reproduced, except in full, without the written approval of Compliance Certification Services Inc.

Product Name	AC1300 IoT Router	Test By	Waternil Guan
Test Model	X10R	Test Date	2016/10/24
Test Mode	UNII Band 3 / IEEE 802.11ac VHT20 NSS1/MCS0 Mode TX / CH High / Beamforming	Temp. & Humidity	25°C, 50%

966Chamber_B at 3Meter / Horizontal

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
1330.00	51.02	-3.06	47.96	74.00	-26.04	190	150	Peak
3330.00	48.75	4.43	53.18	74.00	-20.82	256	100	Peak
5460.00	44.54	9.15	53.69	74.00	-20.31	249	150	Peak
6936.00	37.26	12.11	49.37	74.00	-24.63	250	100	Peak
7452.00	37.56	12.53	50.09	74.00	-23.91	272	100	Peak
7956.00	37.28	13.05	50.33	74.00	-23.67	272	100	Peak

966Chamber_B at 3Meter / Vertical

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
2030.00	47.95	1.85	49.80	74.00	-24.20	199	200	Peak
2445.00	47.72	2.61	50.33	74.00	-23.67	93	150	Peak
5460.00	44.12	9.15	53.27	74.00	-20.73	345	200	Peak
6072.00	38.98	10.35	49.33	74.00	-24.67	8	100	Peak
6648.00	38.62	11.52	50.14	74.00	-23.86	275	250	Peak
9492.00	36.88	14.28	51.16	74.00	-22.84	229	100	Peak

Remark:

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *Average test would be performed if the peak result were greater than the average limit.*
3. *Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.*
4. *Result = Reading + Correction Factor*
   Margin = Result – Limit
   Remark Peak = Result(PK) – Limit(PK)
   Remark AVG = Result(AV) – Limit(AV)

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Product Name	AC1300 IoT Router	Test By	Waternil Guan
Test Model	X10R	Test Date	2016/11/03
Test Mode	UNII Band 3 / IEEE 802.11ac VHT40 NSS1/MCS0 Mode TX / CH Low / Beamforming	Temp. & Humidity	25°C, 50%

966Chamber_B at 3Meter / Horizontal

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
4010.00	48.45	2.62	51.07	74.00	-22.93	179	200	Peak
4695.00	47.27	4.91	52.18	74.00	-21.82	0	200	Peak
5460.00	44.09	6.74	50.83	74.00	-23.17	279	200	Peak
7356.00	37.40	12.47	49.87	74.00	-24.13	179	200	Peak
7944.00	36.55	13.04	49.59	74.00	-24.41	232	200	Peak
9576.00	37.23	14.42	51.65	74.00	-22.35	67	150	Peak

966Chamber_B at 3Meter / Vertical

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
3205.00	49.06	-0.20	48.86	74.00	-25.14	347	100	Peak
3835.00	49.42	1.92	51.34	74.00	-22.66	180	100	Peak
5460.00	44.93	6.74	51.67	74.00	-22.33	322	200	Peak
6252.00	38.43	10.71	49.14	74.00	-24.86	141	100	Peak
7356.00	37.90	12.47	50.37	74.00	-23.63	223	150	Peak
9288.00	37.21	14.04	51.25	74.00	-22.75	209	100	Peak

Remark:

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *Average test would be performed if the peak result were greater than the average limit.*
3. *Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.*
4. *Result = Reading + Correction Factor*
   Margin = Result – Limit
   Remark Peak = Result(PK) – Limit(PK)
   Remark AVG = Result(AV) – Limit(AV)

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Product Name	AC1300 IoT Router	Test By	Waternil Guan
Test Model	X10R	Test Date	2016/11/03
Test Mode	UNII Band 3 / IEEE 802.11ac VHT40 NSS1/MCS0 Mode TX / CH High / Beamforming	Temp. & Humidity	25°C, 50%

966Chamber_B at 3Meter / Horizontal

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
1330.00	53.13	-7.18	45.95	74.00	-28.05	215	150	Peak
2425.00	48.64	-2.49	46.15	74.00	-27.85	340	200	Peak
5460.00	43.48	6.74	50.22	74.00	-23.78	44	200	Peak
7728.00	36.53	12.81	49.34	74.00	-24.66	55	150	Peak
8580.00	36.65	13.35	50.00	74.00	-24.00	180	100	Peak
9192.00	36.39	13.93	50.32	74.00	-23.68	326	200	Peak

966Chamber_B at 3Meter / Vertical

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
1775.00	48.67	-5.05	43.62	74.00	-30.38	253	200	Peak
3865.00	49.46	2.04	51.50	74.00	-22.50	152	100	Peak
5350.00	45.34	6.49	51.83	74.00	-22.17	110	150	Peak
7644.00	37.04	12.72	49.76	74.00	-24.24	0	100	Peak
9432.00	36.75	14.21	50.96	74.00	-23.04	353	150	Peak
10332.00	36.63	16.04	52.67	74.00	-21.33	41	200	Peak

Remark:

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *Average test would be performed if the peak result were greater than the average limit.*
3. *Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.*
4. *Result = Reading + Correction Factor*
   Margin = Result – Limit
   Remark Peak = Result(PK) – Limit(PK)
   Remark AVG = Result(AV) – Limit(AV)

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Product Name	AC1300 IoT Router	Test By	Waternil Guan
Test Model	X10R	Test Date	2016/11/03
Test Mode	UNII Band 3 / IEEE 802.11ac VHT80 NSS1/MCS0 Mode TX / CH Low / Beamforming	Temp. & Humidity	25°C, 50%

966Chamber_B at 3Meter / Horizontal

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
3850.00	48.59	1.98	50.57	74.00	-23.43	168	150	Peak
4685.00	47.15	4.88	52.03	74.00	-21.97	282	200	Peak
5460.00	43.44	6.74	50.18	74.00	-23.82	290	100	Peak
8568.00	36.81	13.34	50.15	74.00	-23.85	332	200	Peak
9780.00	37.35	14.78	52.13	74.00	-21.87	343	150	Peak
10500.00	35.64	16.48	52.12	74.00	-21.88	42	200	Peak

966Chamber_B at 3Meter / Vertical

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
3850.00	50.12	1.98	52.10	74.00	-21.90	134	100	Peak
4405.00	47.21	4.05	51.26	74.00	-22.74	299	150	Peak
5460.00	44.46	6.74	51.20	74.00	-22.80	63	100	Peak
6888.00	37.42	12.01	49.43	74.00	-24.57	310	150	Peak
7200.00	36.97	12.37	49.34	74.00	-24.66	203	100	Peak
10356.00	36.72	16.10	52.82	74.00	-21.18	108	200	Peak

Remark:

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *Average test would be performed if the peak result were greater than the average limit.*
3. *Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.*
4. *Result = Reading + Correction Factor*
   Margin = Result – Limit
   Remark Peak = Result(PK) – Limit(PK)
   Remark AVG = Result(AV) – Limit(AV)

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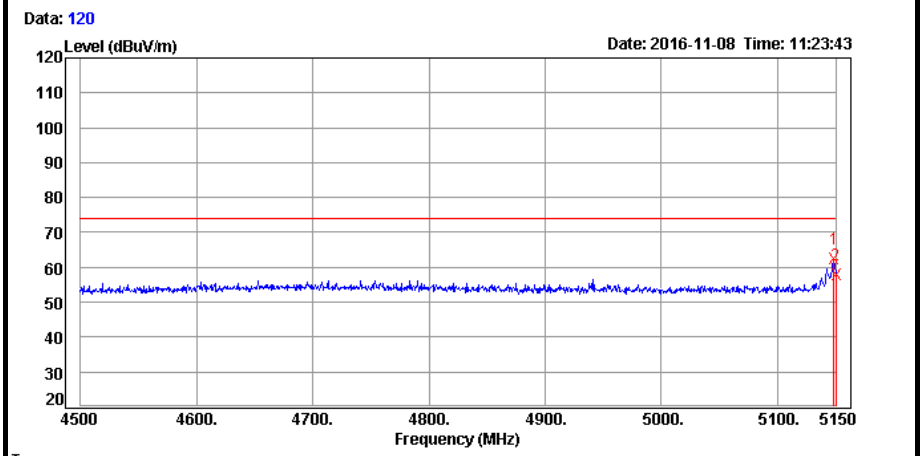
Restricted Band Edges

Non-beamforming

Detector Mode: Peak **Polarity: Horizontal**

CH Low (IEEE 802.11a Mode / Band 1)



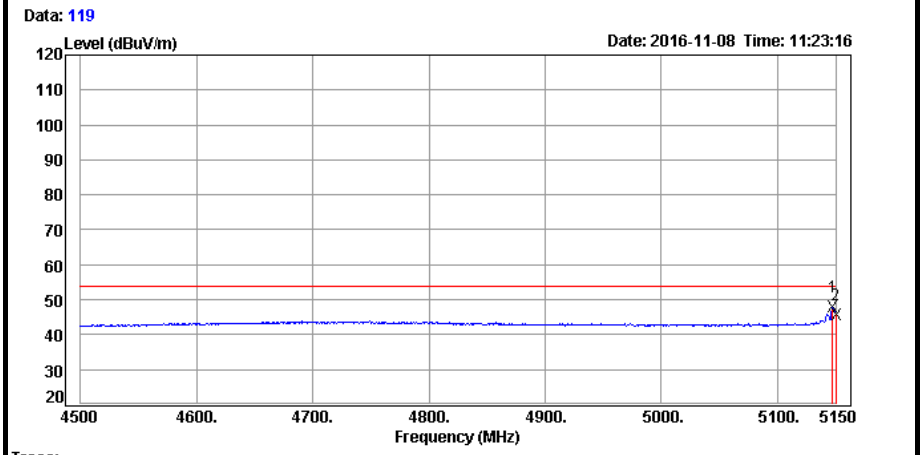
Trace:

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
5148.70	56.35	6.04	62.39	74.00	-11.61			Peak
5150.00	51.93	6.04	57.97	74.00	-16.03			Peak

Remark: *Result = Reading + Correction Factor*
Margin = Result – Limit
Remark Peak = Result(PK) – Limit(PK)

Detector Mode: Average **Polarity: Horizontal**

CH Low (IEEE 802.11a Mode / Band 1)



Trace:

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
5147.40	41.78	6.03	47.81	54.00	-6.19			Average
5150.00	39.74	6.04	45.78	54.00	-8.22			Average

Remark: *Result = Reading + Correction Factor*
Margin = Result – Limit
Remark AVG = Result(AV) – Limit(AV)

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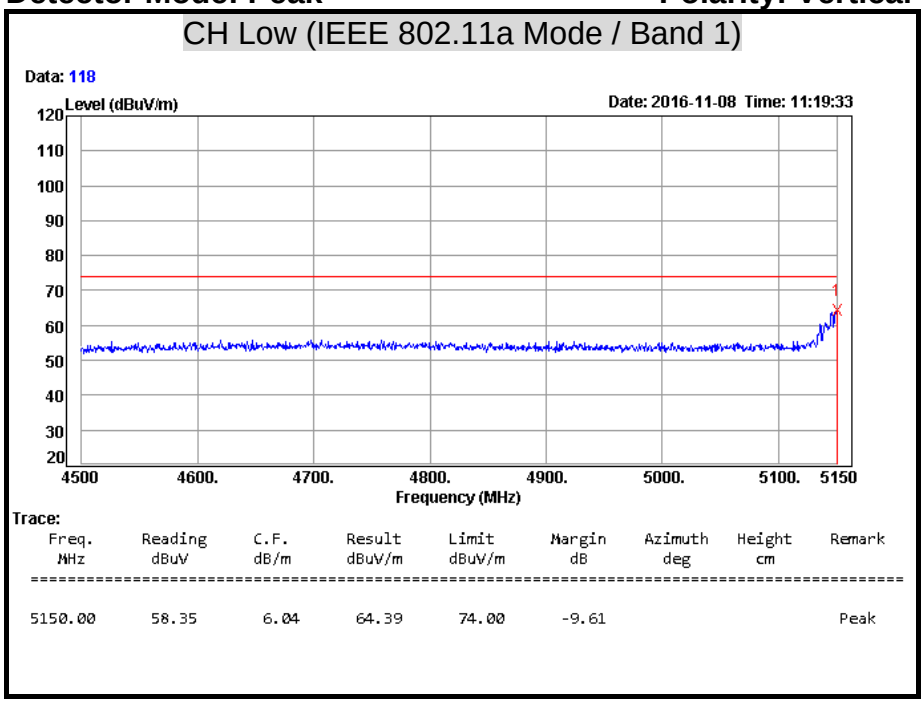
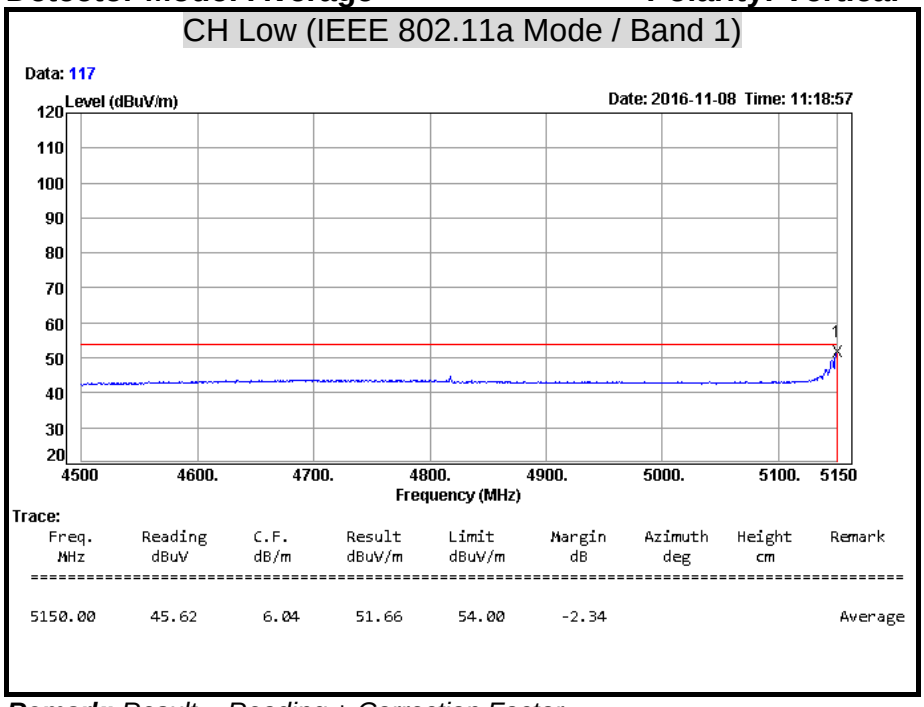
Detector Mode: Peak **Polarity: Vertical**



Remark: *Result = Reading + Correction Factor*
Margin = Result – Limit
Remark Peak = Result(PK) – Limit(PK)

Detector Mode: Average **Polarity: Vertical**



Remark: *Result = Reading + Correction Factor*
Margin = Result – Limit
Remark AVG = Result(AV) – Limit(AV)

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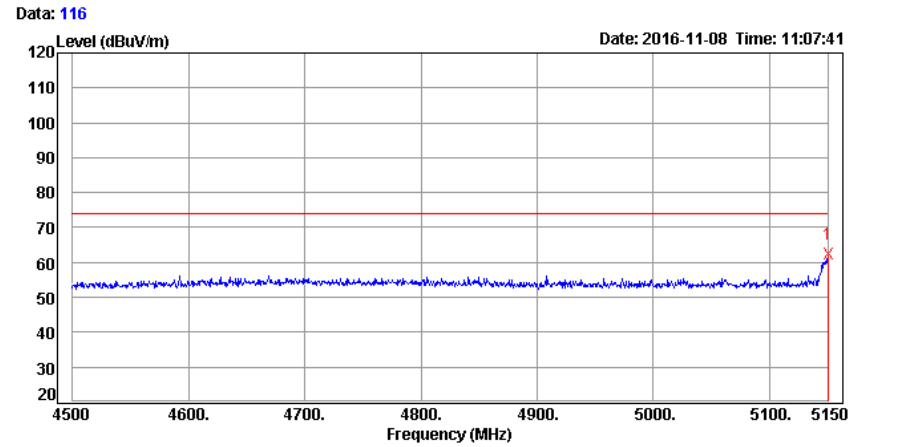
Detector Mode: Peak **Polarity: Horizontal**

CH Low (IEEE 802.11ac VHT20 NSS1/MCS0 Mode / Band 1)



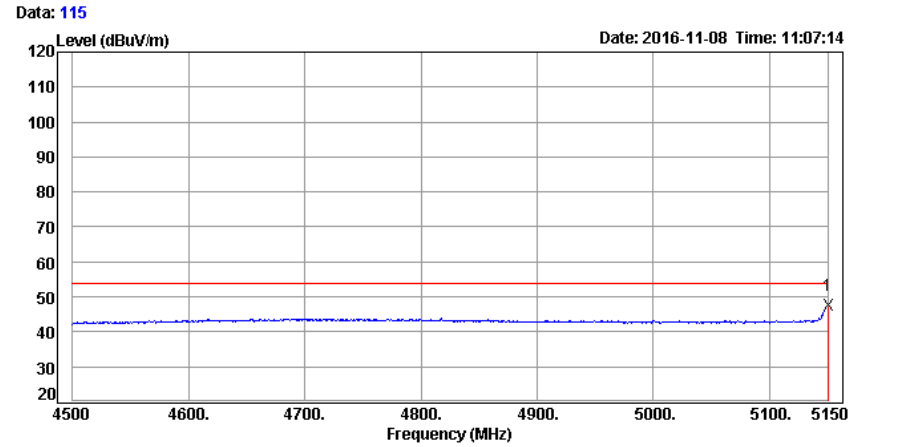
Trace:

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
5150.00	56.21	6.04	62.25	74.00	-11.75			Peak

Remark: *Result = Reading + Correction Factor*
Margin = Result – Limit
Remark Peak = Result(PK) – Limit(PK)

Detector Mode: Average **Polarity: Horizontal**

CH Low (IEEE 802.11ac VHT20 NSS1/MCS0 Mode / Band 1)



Trace:

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
5150.00	41.44	6.04	47.48	54.00	-6.52			Average

Remark: *Result = Reading + Correction Factor*
Margin = Result – Limit
Remark AVG = Result(AV) – Limit(AV)

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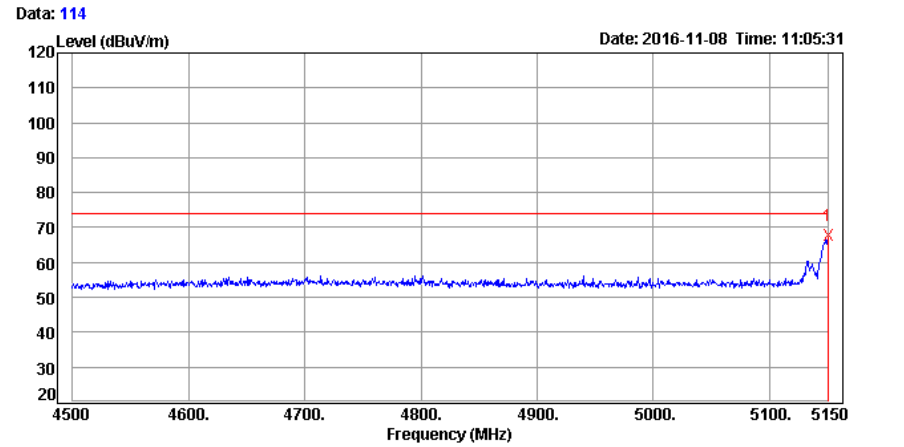
Detector Mode: Peak **Polarity: Vertical**

CH Low (IEEE 802.11ac VHT20 NSS1/MCS0 Mode / Band 1)



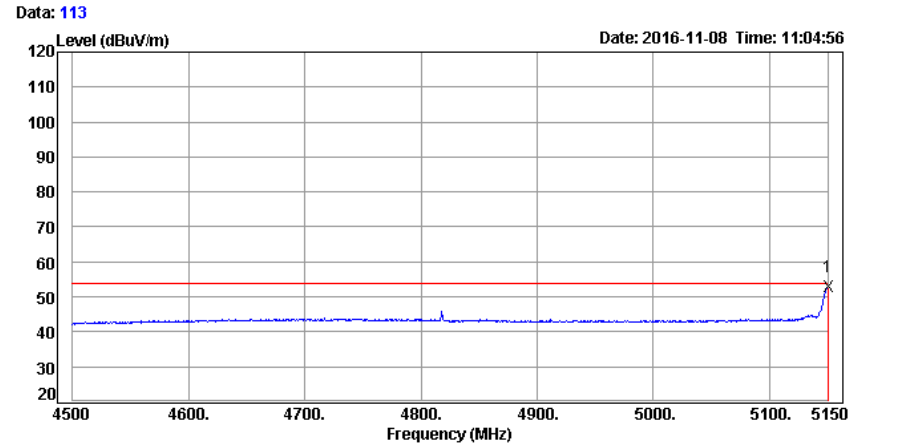
Trace:

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
5150.00	61.59	6.04	67.63	74.00	-6.37			Peak

Remark: *Result = Reading + Correction Factor*
Margin = Result – Limit
Remark Peak = Result(PK) – Limit(PK)

Detector Mode: Average **Polarity: Vertical**

CH Low (IEEE 802.11ac VHT20 NSS1/MCS0 Mode / Band 1)



Trace:

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
5150.00	46.73	6.04	52.77	54.00	-1.23			Average

Remark: *Result = Reading + Correction Factor*
Margin = Result – Limit
Remark AVG = Result(AV) – Limit(AV)

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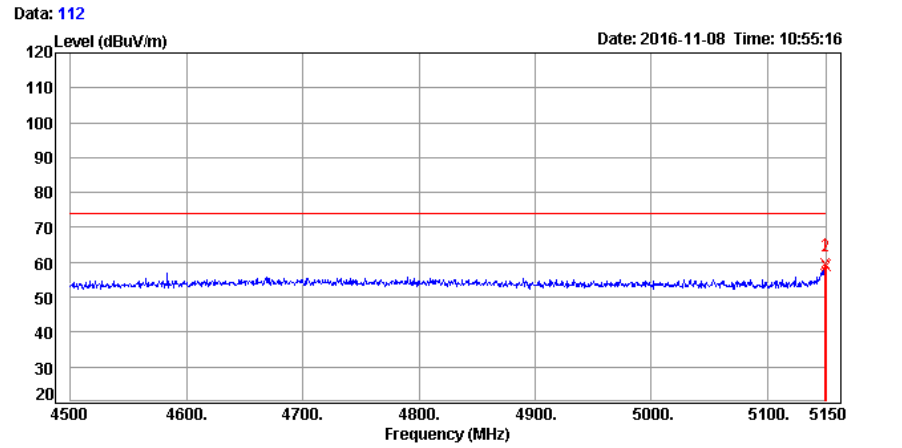
Detector Mode: Peak **Polarity: Horizontal**

CH Low (IEEE 802.11ac VHT40 NSS1/MCS0 Mode / Band 1)



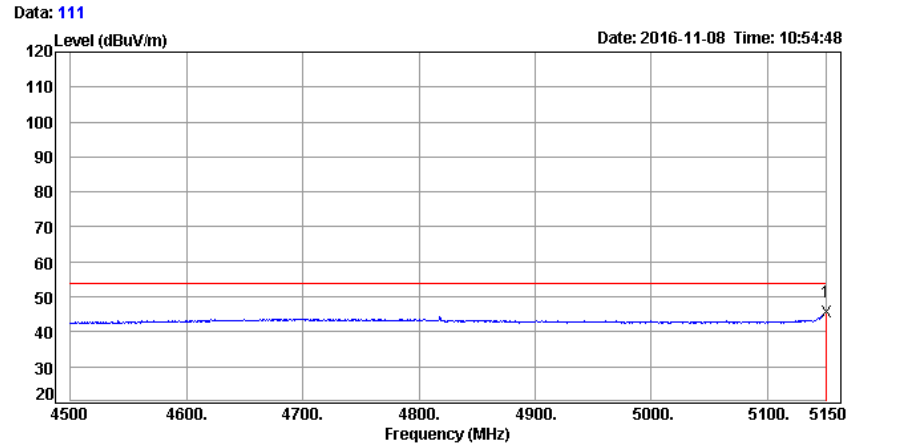
Trace:

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
5149.35	53.40	6.04	59.44	74.00	-14.56			Peak
5150.00	52.96	6.04	59.00	74.00	-15.00			Peak

Remark: *Result = Reading + Correction Factor*
Margin = Result – Limit
Remark Peak = Result(PK) – Limit(PK)

Detector Mode: Average **Polarity: Horizontal**

CH Low (IEEE 802.11ac VHT40 NSS1/MCS0 Mode / Band 1)



Trace:

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
5150.00	39.57	6.04	45.61	54.00	-8.39			Average

Remark: *Result = Reading + Correction Factor*
Margin = Result – Limit
Remark AVG = Result(AV) – Limit(AV)

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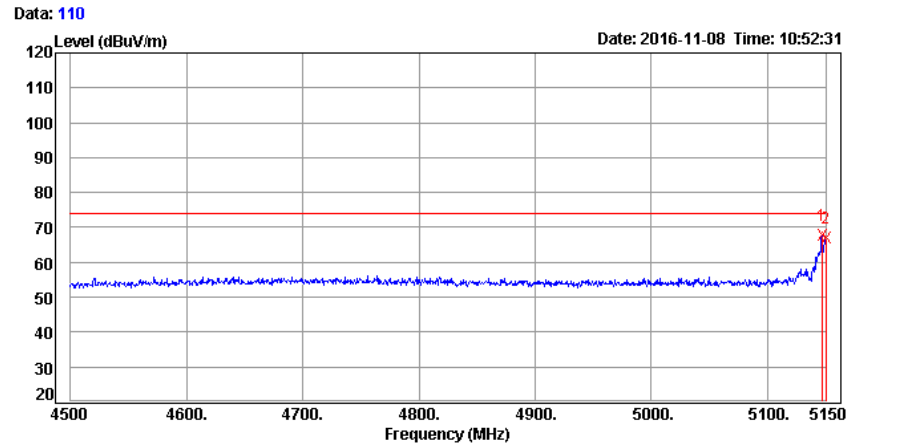
Detector Mode: Peak **Polarity: Vertical**

CH Low (IEEE 802.11ac VHT40 NSS1/MCS0 Mode / Band 1)



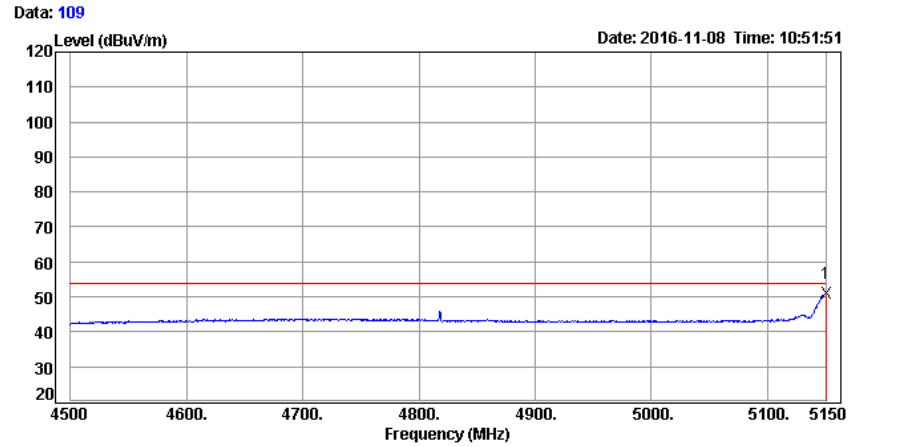
Trace:

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
5146.75	61.69	6.03	67.72	74.00	-6.28			Peak
5150.00	60.83	6.04	66.87	74.00	-7.13			Peak

Remark: *Result = Reading + Correction Factor*
Margin = Result – Limit
Remark Peak = Result(PK) – Limit(PK)

Detector Mode: Average **Polarity: Vertical**

CH Low (IEEE 802.11ac VHT40 NSS1/MCS0 Mode / Band 1)



Trace:

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
5150.00	44.90	6.04	50.94	54.00	-3.06			Average

Remark: *Result = Reading + Correction Factor*
Margin = Result – Limit
Remark AVG = Result(AV) – Limit(AV)

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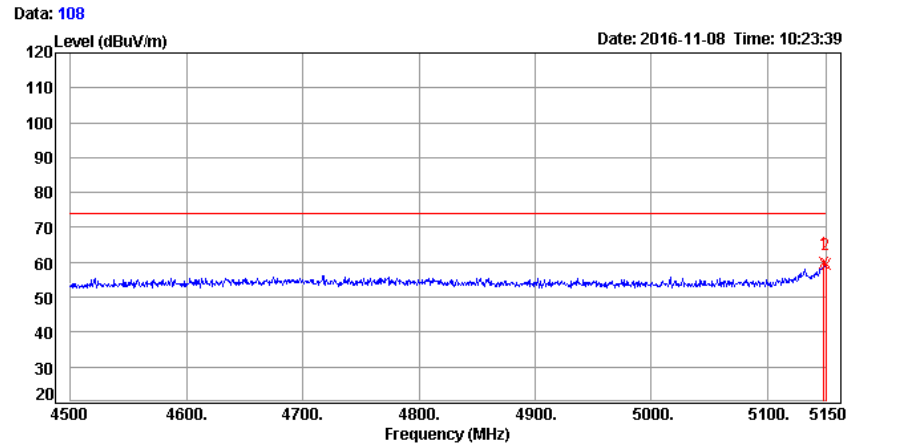
Detector Mode: Peak **Polarity: Horizontal**

CH Low (IEEE 802.11ac VHT80 NSS1/MCS0 Mode / Band 1)



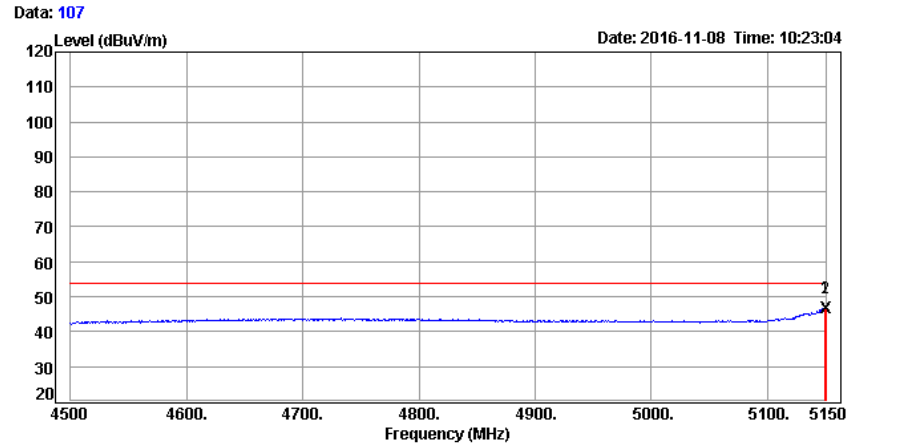
Trace:

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
5148.70	53.81	6.04	59.85	74.00	-14.15			Peak
5150.00	53.21	6.04	59.25	74.00	-14.75			Peak

Remark: *Result = Reading + Correction Factor*
Margin = Result – Limit
Remark Peak = Result(PK) – Limit(PK)

Detector Mode: Average **Polarity: Horizontal**

CH Low (IEEE 802.11ac VHT80 NSS1/MCS0 Mode / Band 1)



Trace:

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
5149.35	40.71	6.04	46.75	54.00	-7.25			Average
5150.00	40.60	6.04	46.64	54.00	-7.36			Average

Remark: *Result = Reading + Correction Factor*
Margin = Result – Limit
Remark AVG = Result(AV) – Limit(AV)

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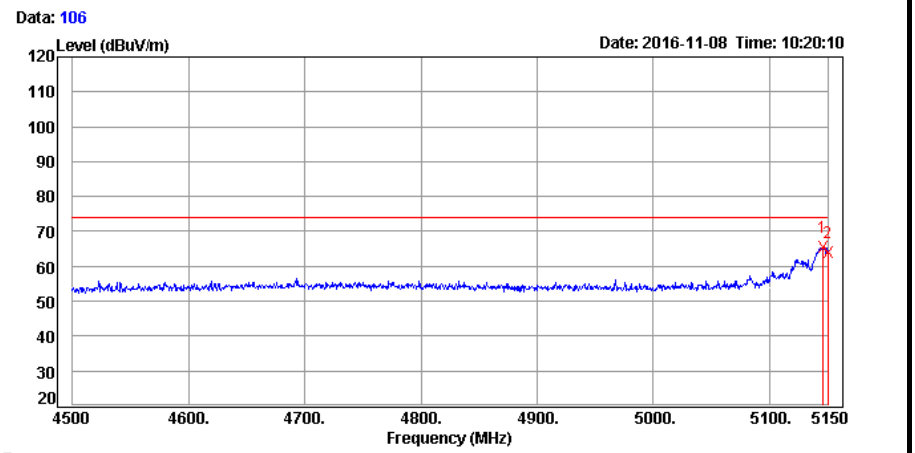
Detector Mode: Peak **Polarity: Vertical**

CH Low (IEEE 802.11ac VHT80 NSS1/MCS0 Mode / Band 1)



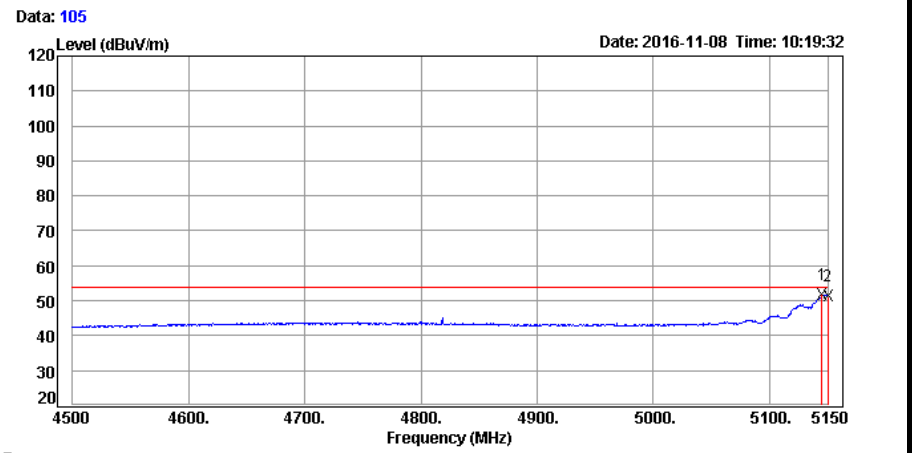
Trace:

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
5145.45	59.57	6.03	65.60	74.00	-8.40			Peak
5150.00	58.03	6.04	64.07	74.00	-9.93			Peak

Remark: *Result = Reading + Correction Factor*
Margin = Result – Limit
Remark Peak = Result(PK) – Limit(PK)

Detector Mode: Average **Polarity: Vertical**

CH Low (IEEE 802.11ac VHT80 NSS1/MCS0 Mode / Band 1)



Trace:

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
5144.80	45.83	6.03	51.86	54.00	-2.14			Average
5150.00	45.32	6.04	51.36	54.00	-2.64			Average

Remark: *Result = Reading + Correction Factor*
Margin = Result – Limit
Remark AVG = Result(AV) – Limit(AV)

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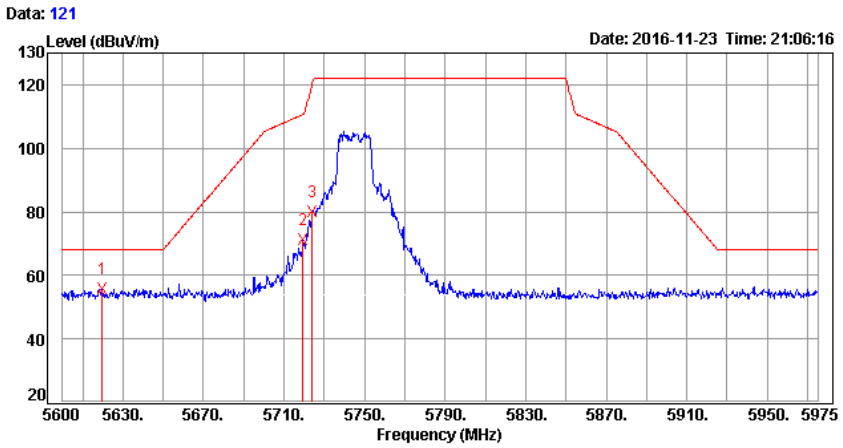
Detector Mode: Peak **Polarity: Horizontal**

CH Low (IEEE 802.11a Mode / Band 3)



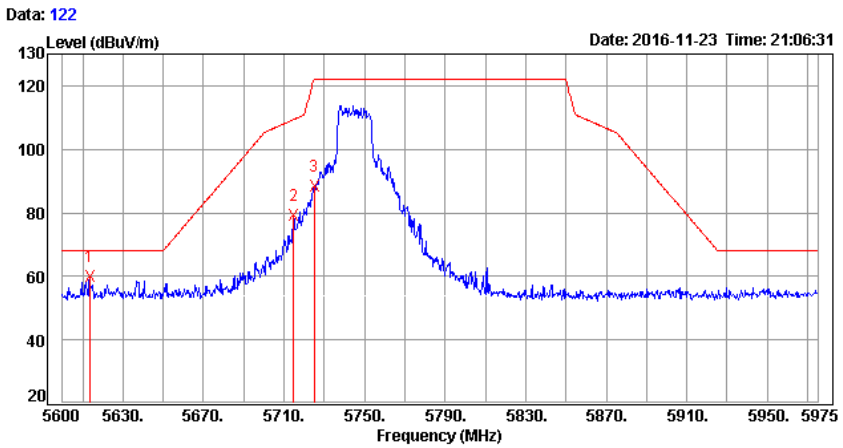
Trace:

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
5619.88	48.53	7.06	55.59	68.20	-12.61	131	200	Peak
5719.25	63.84	7.26	71.10	110.59	-39.49	97	200	Peak
5724.13	72.79	7.26	80.05	120.21	-40.16	108	200	Peak

Remark: *Result = Reading + Correction Factor*
Margin = Result – Limit
Remark Peak = Result(PK) – Limit(PK)

Detector Mode: Peak **Polarity: Vertical**

CH Low (IEEE 802.11a Mode / Band 3)



Trace:

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
5613.50	52.97	7.05	60.02	68.20	-8.18	163	200	Peak
5714.75	72.01	7.25	79.26	109.33	-30.07	216	100	Peak
5724.88	81.32	7.27	88.59	121.91	-33.32	205	100	Peak

Remark: *Result = Reading + Correction Factor*
Margin = Result – Limit
Remark Peak = Result(PK) – Limit(PK)

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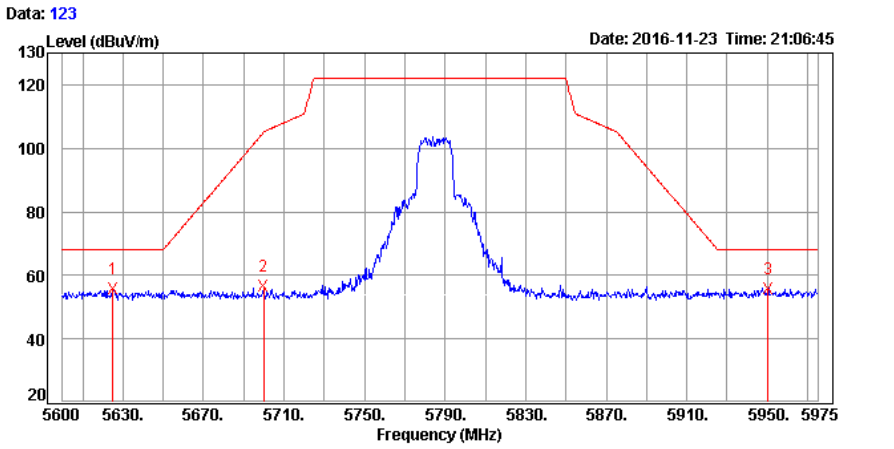
Detector Mode: Peak **Polarity: Horizontal**

CH Middle (IEEE 802.11a Mode / Band 3)



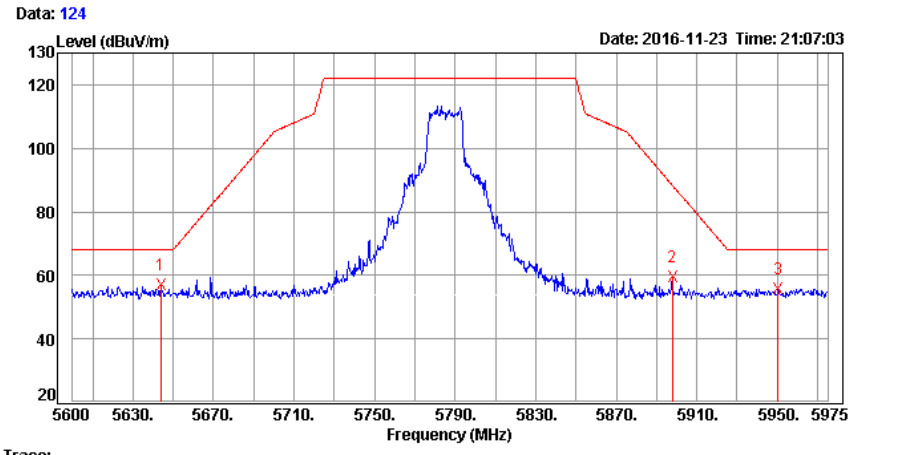
Trace:

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
5625.13	48.73	7.07	55.80	68.20	-12.40	85	200	Peak
5699.75	49.29	7.22	56.51	105.01	-48.50	76	100	Peak
5950.25	48.18	7.70	55.88	68.20	-12.32	76	100	Peak

Remark: *Result = Reading + Correction Factor*
Margin = Result – Limit
Remark Peak = Result(PK) – Limit(PK)

Detector Mode: Peak **Polarity: Vertical**

CH Middle (IEEE 802.11a Mode / Band 3)



Trace:

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
5643.88	50.01	7.11	57.12	68.20	-11.08	142	100	Peak
5897.75	52.07	7.60	59.67	88.36	-28.69	309	100	Peak
5950.25	48.03	7.70	55.73	68.20	-12.47	309	100	Peak

Remark: *Result = Reading + Correction Factor*
Margin = Result – Limit
Remark Peak = Result(PK) – Limit(PK)

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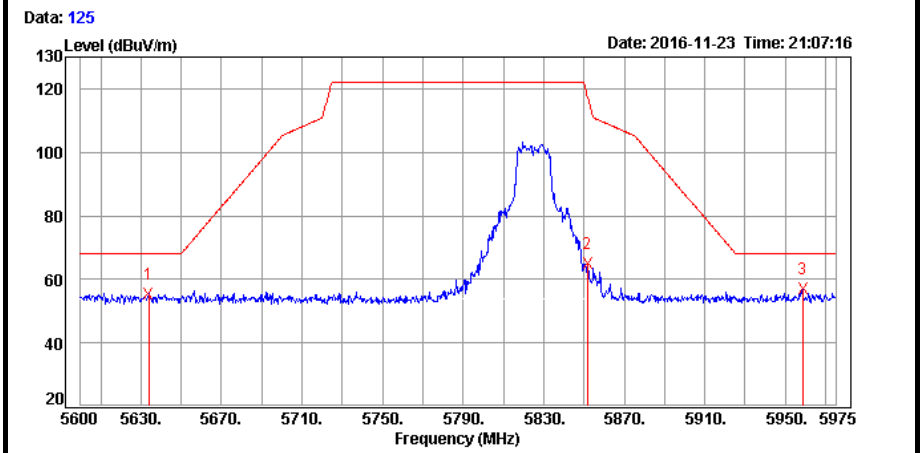
Detector Mode: Peak **Polarity: Horizontal**

CH High (IEEE 802.11a Mode / Band 3)



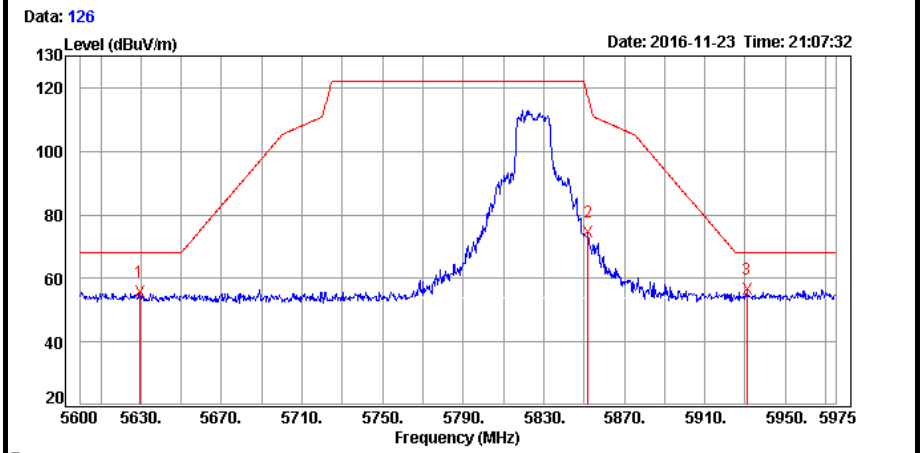
Trace:

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
5633.75	48.36	7.09	55.45	68.20	-12.75	84	200	Peak
5851.63	57.59	7.51	65.10	118.49	-53.39	66	100	Peak
5958.50	49.09	7.72	56.81	68.20	-11.39	279	200	Peak

Remark: *Result = Reading + Correction Factor*
Margin = Result – Limit
Remark Peak = Result(PK) – Limit(PK)

Detector Mode: Peak **Polarity: Vertical**

CH High (IEEE 802.11a Mode / Band 3)



Trace:

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
5629.25	48.68	7.08	55.76	68.20	-12.44	309	100	Peak
5852.00	67.04	7.51	74.55	117.64	-43.09	309	100	Peak
5930.75	48.92	7.67	56.59	68.20	-11.61	122	100	Peak

Remark: *Result = Reading + Correction Factor*
Margin = Result – Limit
Remark Peak = Result(PK) – Limit(PK)

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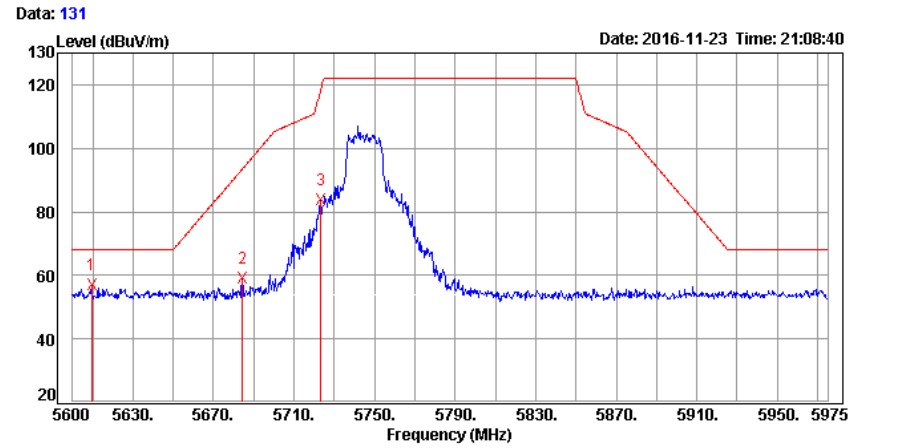
Detector Mode: Peak **Polarity: Horizontal**

CH Low (IEEE 802.11ac VHT20 NSS1/MCS0 Mode / Band 3)



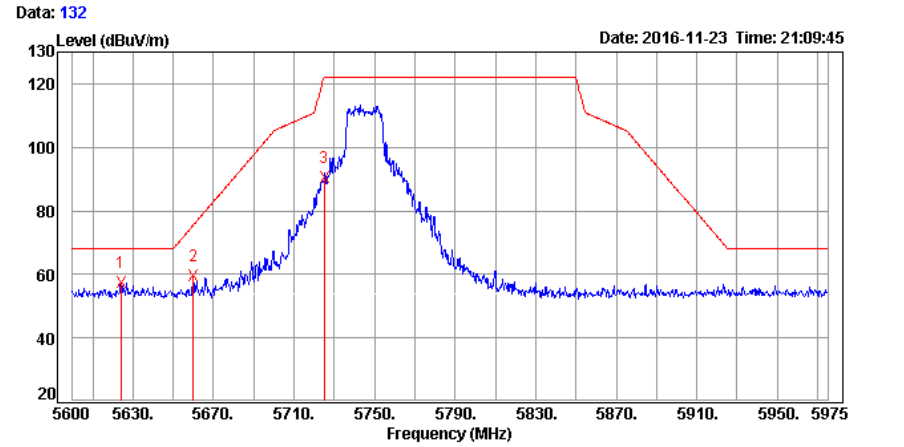
Trace:

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
5609.38	50.08	7.04	57.12	68.20	-11.08	104	200	Peak
5684.38	51.85	7.19	59.04	93.64	-34.60	97	100	Peak
5723.38	76.32	7.26	83.58	118.49	-34.91	76	200	Peak

Remark: *Result = Reading + Correction Factor*
Margin = Result – Limit
Remark Peak = Result(PK) – Limit(PK)

Detector Mode: Peak **Polarity: Vertical**

CH Low (IEEE 802.11ac VHT20 NSS1/MCS0 Mode / Band 3)



Trace:

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
5624.00	50.42	7.07	57.49	68.20	-10.71	151	200	Peak
5660.00	52.39	7.14	59.53	75.60	-16.07	249	100	Peak
5724.88	83.12	7.27	90.39	121.91	-31.52	249	100	Peak

Remark: *Result = Reading + Correction Factor*
Margin = Result – Limit
Remark Peak = Result(PK) – Limit(PK)

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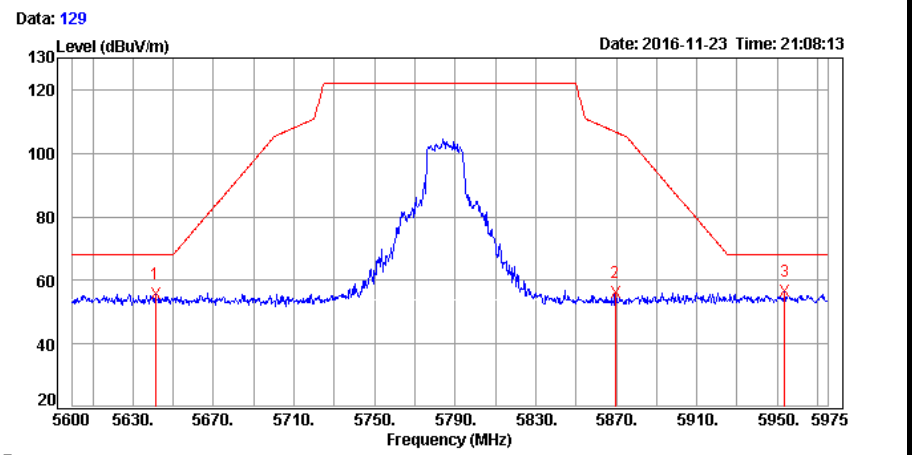
Detector Mode: Peak **Polarity: Horizontal**

CH Middle (IEEE 802.11ac VHT20 NSS1/MCS0 Mode / Band 3)



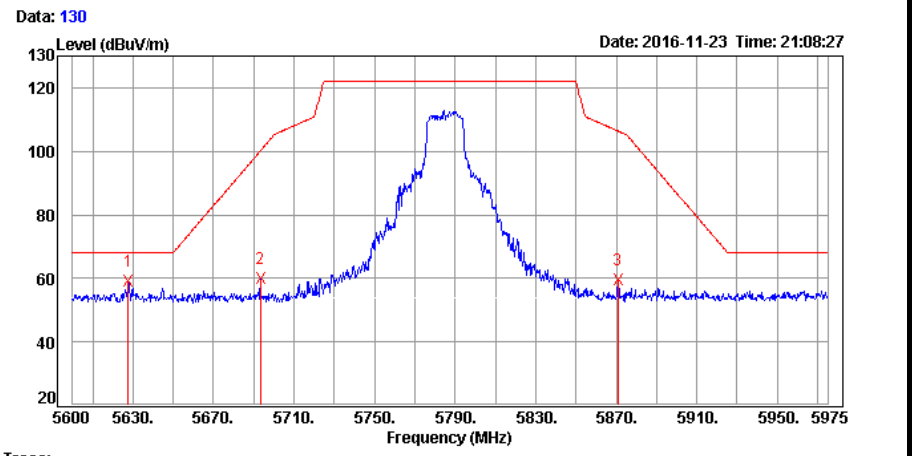
Trace:

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
5641.25	48.63	7.10	55.73	68.20	-12.47	286	200	Peak
5869.63	48.68	7.55	56.23	106.71	-50.48	105	200	Peak
5953.63	48.75	7.71	56.46	68.20	-11.74	68	200	Peak

Remark: *Result = Reading + Correction Factor*
Margin = Result – Limit
Remark Peak = Result(PK) – Limit(PK)

Detector Mode: Peak **Polarity: Vertical**

CH Middle (IEEE 802.11ac VHT20 NSS1/MCS0 Mode / Band 3)



Trace:

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
5627.75	52.23	7.08	59.31	68.20	-8.89	23	100	Peak
5693.38	52.70	7.21	59.91	100.30	-40.39	94	200	Peak
5870.75	52.07	7.55	59.62	106.39	-46.77	238	100	Peak

Remark: *Result = Reading + Correction Factor*
Margin = Result – Limit
Remark Peak = Result(PK) – Limit(PK)

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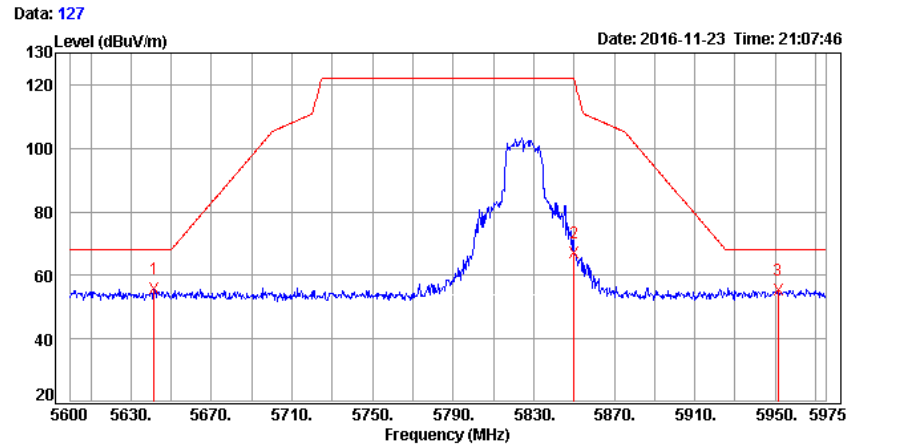
Detector Mode: Peak **Polarity: Horizontal**

CH High (IEEE 802.11ac VHT20 NSS1/MCS0 Mode / Band 3)



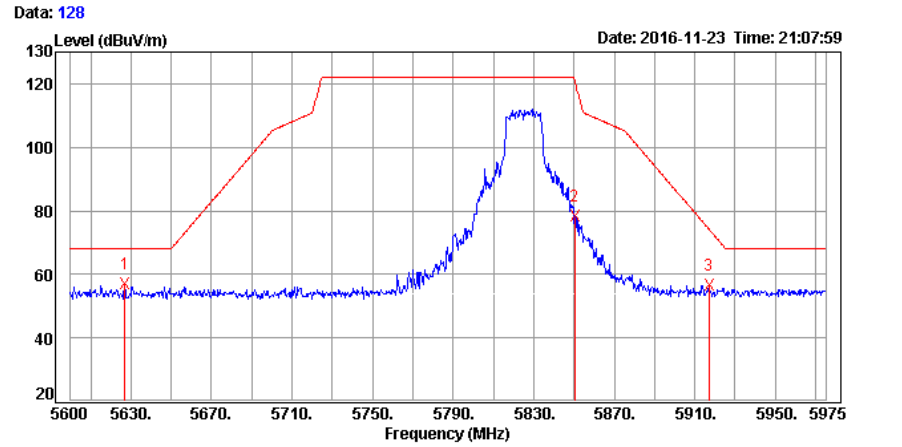
Trace:

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
5641.63	48.65	7.10	55.75	68.20	-12.45	95	200	Peak
5850.13	59.67	7.51	67.18	121.91	-54.73	93	200	Peak
5951.38	47.71	7.71	55.42	68.20	-12.78	55	200	Peak

Remark: *Result = Reading + Correction Factor*
Margin = Result – Limit
Remark Peak = Result(PK) – Limit(PK)

Detector Mode: Peak **Polarity: Vertical**

CH High (IEEE 802.11ac VHT20 NSS1/MCS0 Mode / Band 3)



Trace:

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
5627.00	49.95	7.08	57.03	68.20	-11.17	190	200	Peak
5850.50	70.71	7.51	78.22	121.06	-42.84	209	100	Peak
5916.88	49.06	7.64	56.70	74.21	-17.51	231	100	Peak

Remark: *Result = Reading + Correction Factor*
Margin = Result – Limit
Remark Peak = Result(PK) – Limit(PK)

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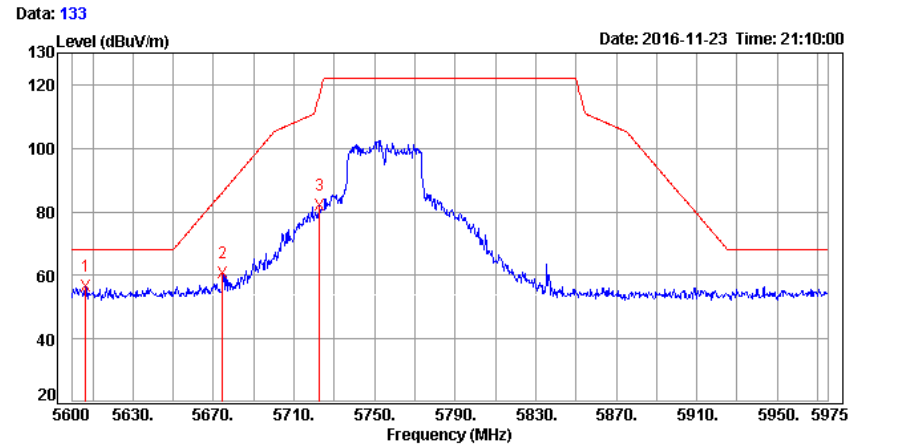
Detector Mode: Peak **Polarity: Horizontal**

CH Low (IEEE 802.11ac VHT40NSS1/MCS0 Mode / Band 3)



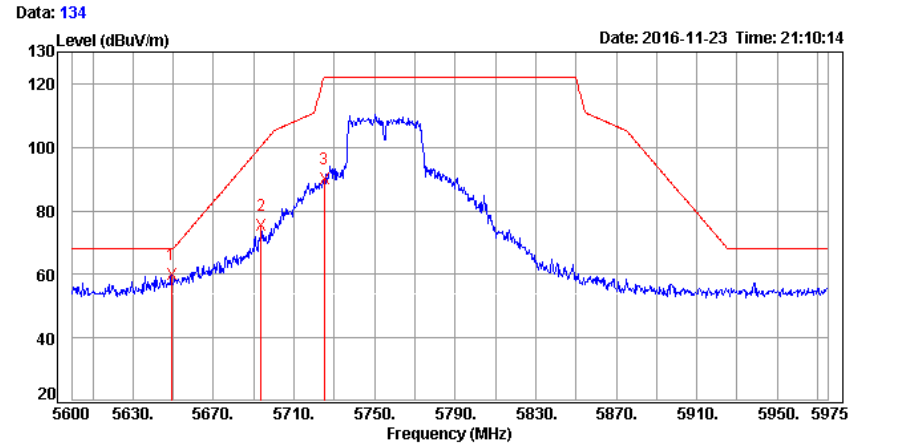
Trace:

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
5606.38	49.40	7.04	56.44	68.20	-11.76	1	200	Peak
5674.63	53.72	7.17	60.89	86.42	-25.53	91	100	Peak
5722.63	74.66	7.26	81.92	116.79	-34.87	220	100	Peak

Remark: *Result = Reading + Correction Factor*
Margin = Result – Limit
Remark Peak = Result(PK) – Limit(PK)

Detector Mode: Peak **Polarity: Vertical**

CH Low (IEEE 802.11ac VHT40 NSS1/MCS0 Mode / Band 3)



Trace:

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
5649.13	52.73	7.12	59.85	68.20	-8.35	111	100	Peak
5693.75	68.40	7.21	75.61	100.57	-24.96	53	100	Peak
5724.88	82.89	7.27	90.16	121.91	-31.75	201	200	Peak

Remark: *Result = Reading + Correction Factor*
Margin = Result – Limit
Remark Peak = Result(PK) – Limit(PK)

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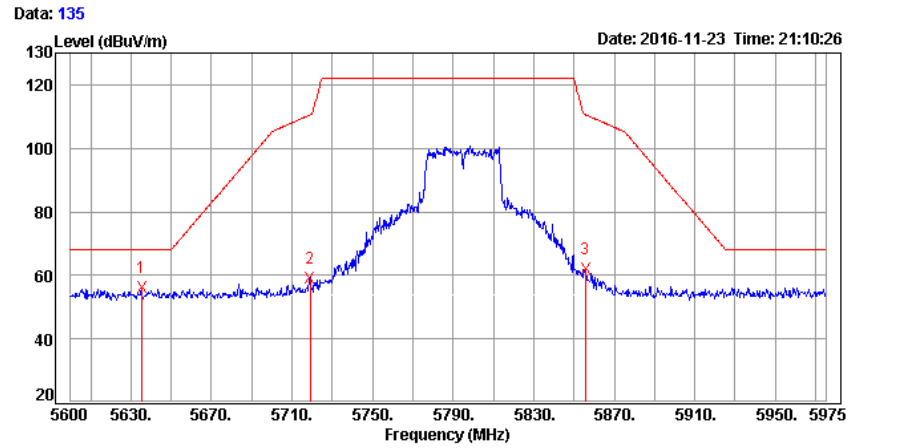
Detector Mode: Peak **Polarity: Horizontal**

CH High (IEEE 802.11ac VHT40 NSS1/MCS0 Mode / Band 3)



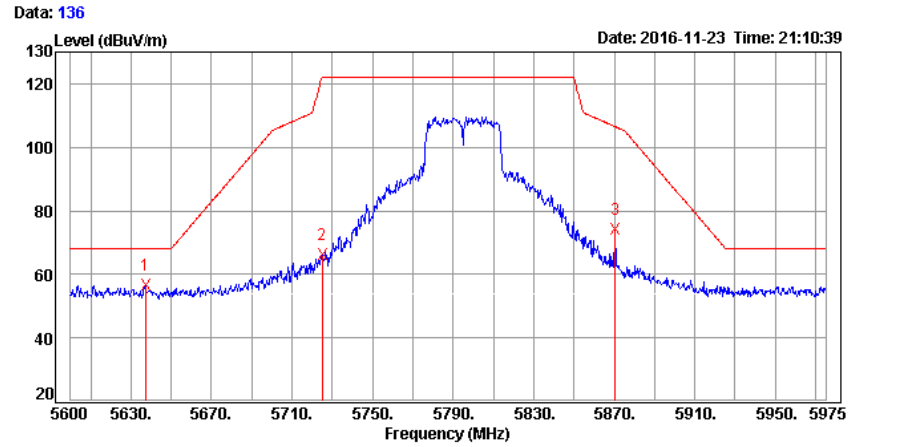
Trace:

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
5635.25	49.18	7.09	56.27	68.20	-11.93	207	200	Peak
5718.88	51.86	7.25	59.11	110.49	-51.38	216	100	Peak
5855.75	54.67	7.52	62.19	110.59	-48.40	252	100	Peak

Remark: *Result = Reading + Correction Factor*
Margin = Result – Limit
Remark Peak = Result(PK) – Limit(PK)

Detector Mode: Peak **Polarity: Vertical**

CH High (IEEE 802.11ac VHT40NSS1/MCS0 Mode / Band 3)



Trace:

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
5637.13	49.32	7.10	56.42	68.20	-11.78	0	100	Peak
5724.88	58.81	7.27	66.08	121.91	-55.83	76	100	Peak
5870.38	66.63	7.55	74.18	106.49	-32.31	95	100	Peak

Remark: *Result = Reading + Correction Factor*
Margin = Result – Limit
Remark Peak = Result(PK) – Limit(PK)

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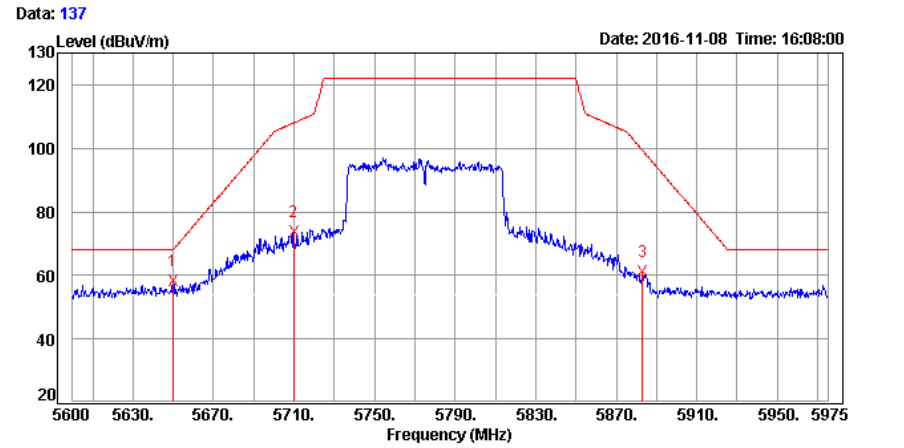
Detector Mode: Peak **Polarity: Horizontal**

CH Low (IEEE 802.11ac VHT80NSS1/MCS0 Mode / Band 3)



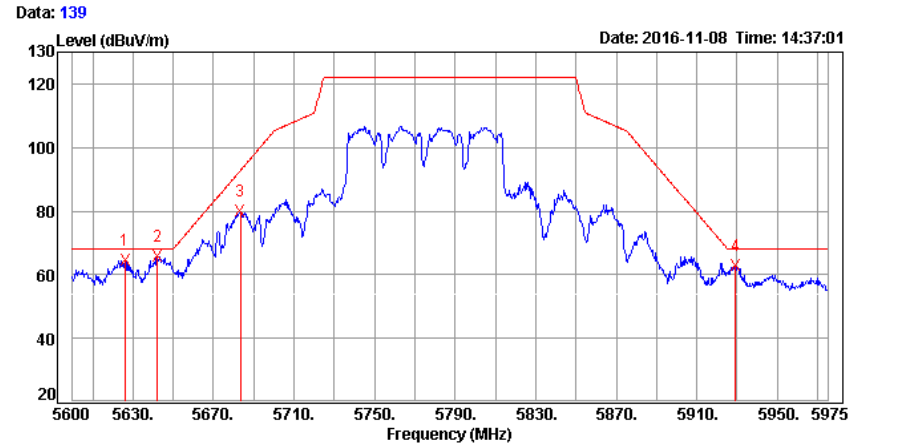
Trace:

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
5649.88	51.17	7.12	58.29	68.20	-9.91	97	200	Peak
5709.88	66.45	7.24	73.69	107.96	-34.27	97	200	Peak
5883.13	53.64	7.57	61.21	99.19	-37.98	266	200	Peak

Remark: *Result = Reading + Correction Factor*
Margin = Result – Limit
Remark Peak = Result(PK) – Limit(PK)

Detector Mode: Peak **Polarity: Vertical**

CH Low (IEEE 802.11ac VHT80 NSS1/MCS0 Mode / Band 3)



Trace:

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
5625.88	57.59	7.07	64.66	68.20	-3.54	97	100	Peak
5642.00	58.72	7.11	65.83	68.20	-2.37	225	100	Peak
5683.25	72.75	7.19	79.94	92.80	-12.86	225	100	Peak
5929.25	55.33	7.66	62.99	68.20	-5.21	310	100	Peak

Remark: *Result = Reading + Correction Factor*
Margin = Result – Limit
Remark Peak = Result(PK) – Limit(PK)

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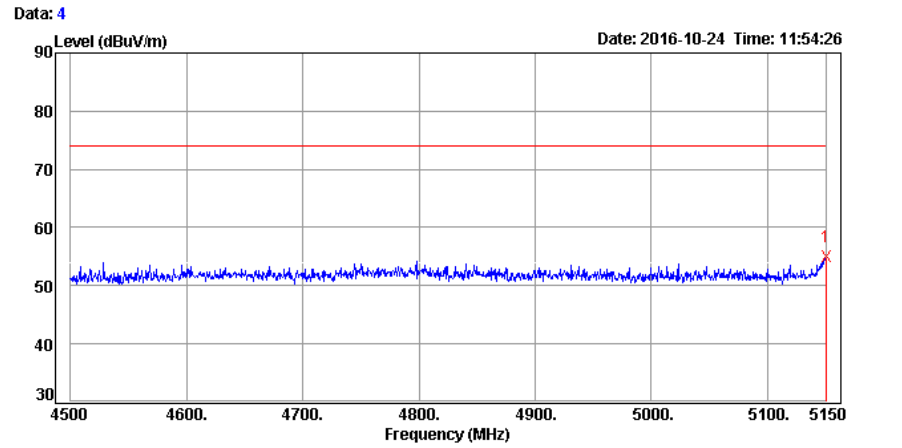
Beamforming

Detector Mode: Peak **Polarity: Horizontal**

CH Low (IEEE 802.11ac VHT20 NSS1/MCS0 Mode / Band 1)



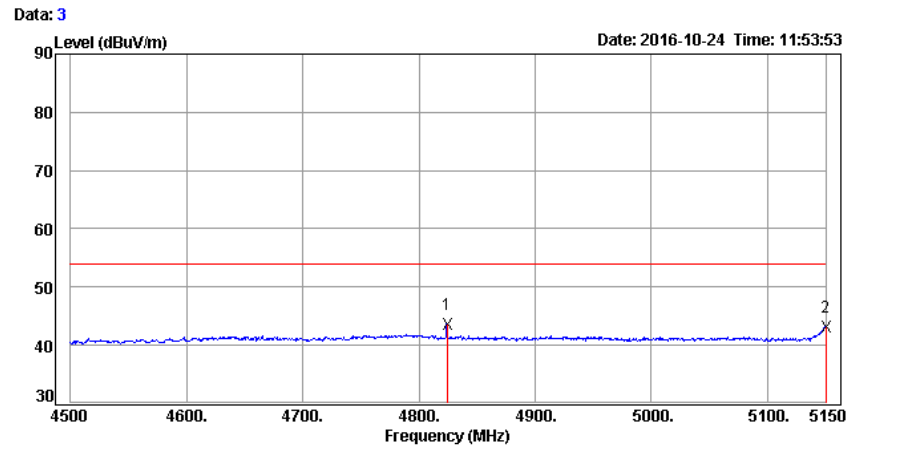
Trace:

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
5150.00	48.88	6.04	54.92	74.00	-19.08			Peak

Remark: *Result = Reading + Correction Factor*
Margin = Result – Limit
Remark Peak = Result(PK) – Limit(PK)

Detector Mode: Average **Polarity: Horizontal**

CH Low (IEEE 802.11ac VHT20 NSS1/MCS0 Mode / Band 1)



Trace:

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
4824.35	38.40	5.24	43.64	54.00	-10.36			Average
5150.00	37.19	6.04	43.23	54.00	-10.77			Average

Remark: *Result = Reading + Correction Factor*
Margin = Result – Limit
Remark AVG = Result(AV) – Limit(AV)

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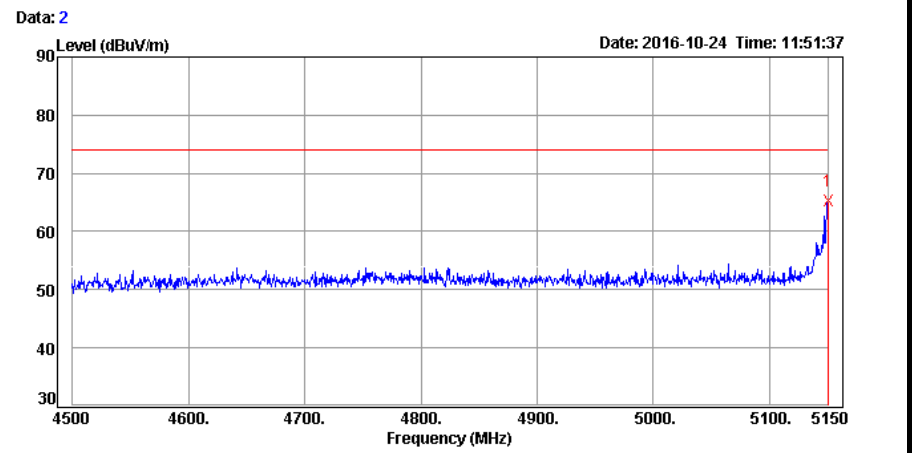
Detector Mode: Peak **Polarity: Vertical**

CH Low (IEEE 802.11ac VHT20 NSS1/MCS0 Mode / Band 1)



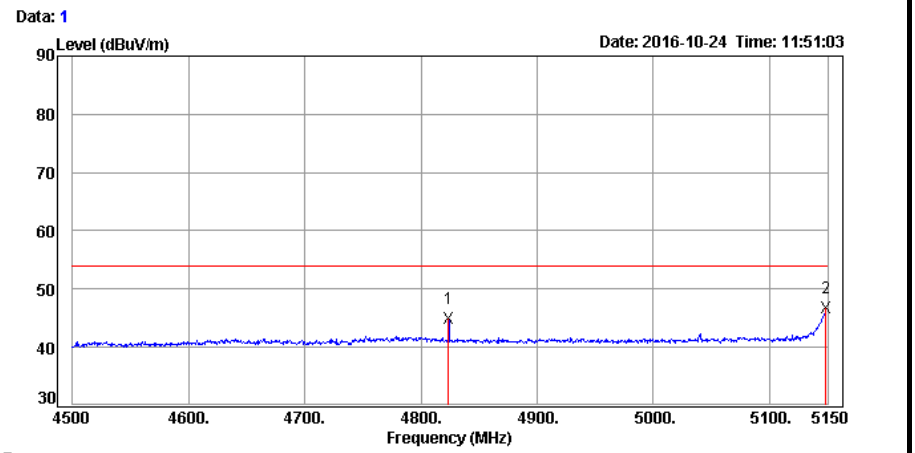
Trace:

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
5150.00	59.18	6.04	65.22	74.00	-8.78			Peak

Remark: *Result = Reading + Correction Factor*
Margin = Result – Limit
Remark Peak = Result(PK) – Limit(PK)

Detector Mode: Average **Polarity: Vertical**

CH Low (IEEE 802.11ac VHT20 NSS1/MCS0 Mode / Band 1)



Trace:

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
4823.70	39.76	5.24	45.00	54.00	-9.00			Average
5148.70	40.73	6.04	46.77	54.00	-7.23			Average

Remark: *Result = Reading + Correction Factor*
Margin = Result – Limit
Remark AVG = Result(AV) – Limit(AV)

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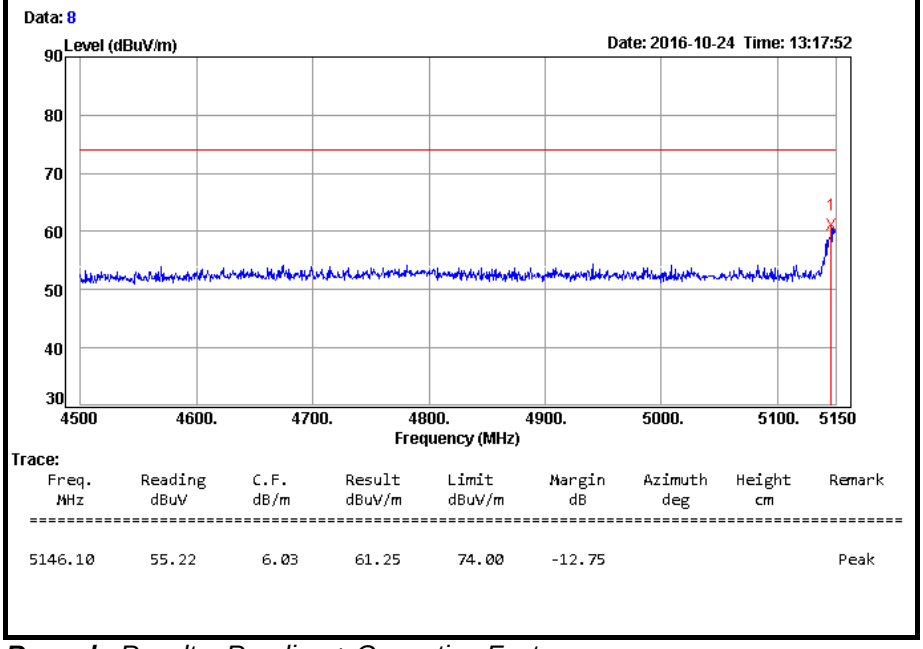
Detector Mode: Peak **Polarity: Horizontal**

CH Low (IEEE 802.11ac VHT40 NSS1/MCS0 Mode / Band 1)



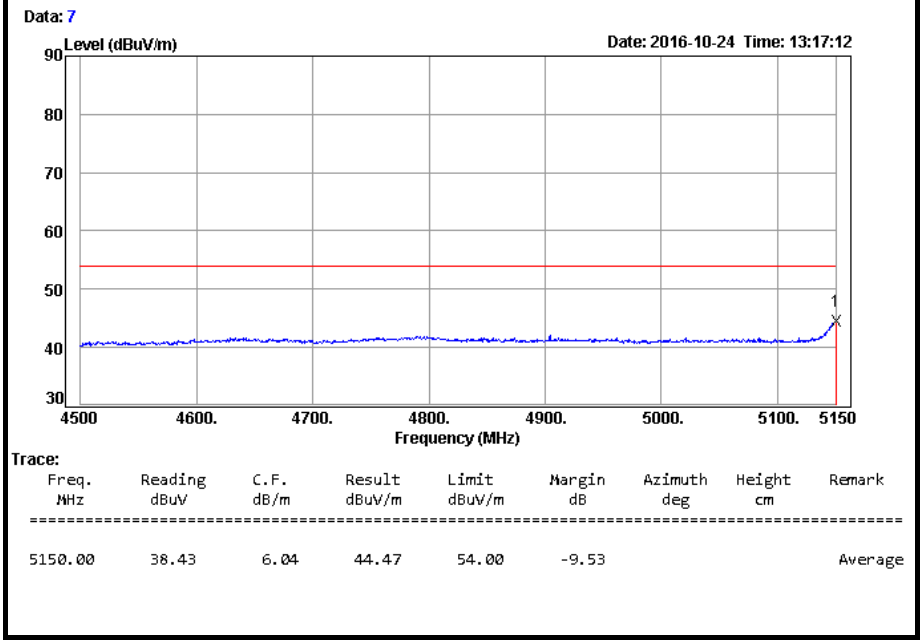
Trace:

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
5146.10	55.22	6.03	61.25	74.00	-12.75			Peak

Remark: *Result = Reading + Correction Factor*
Margin = Result – Limit
Remark Peak = Result(PK) – Limit(PK)

Detector Mode: Average **Polarity: Horizontal**

CH Low (IEEE 802.11ac VHT40 NSS1/MCS0 Mode / Band 1)



Trace:

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
5150.00	38.43	6.04	44.47	54.00	-9.53			Average

Remark: *Result = Reading + Correction Factor*
Margin = Result – Limit
Remark AVG = Result(AV) – Limit(AV)

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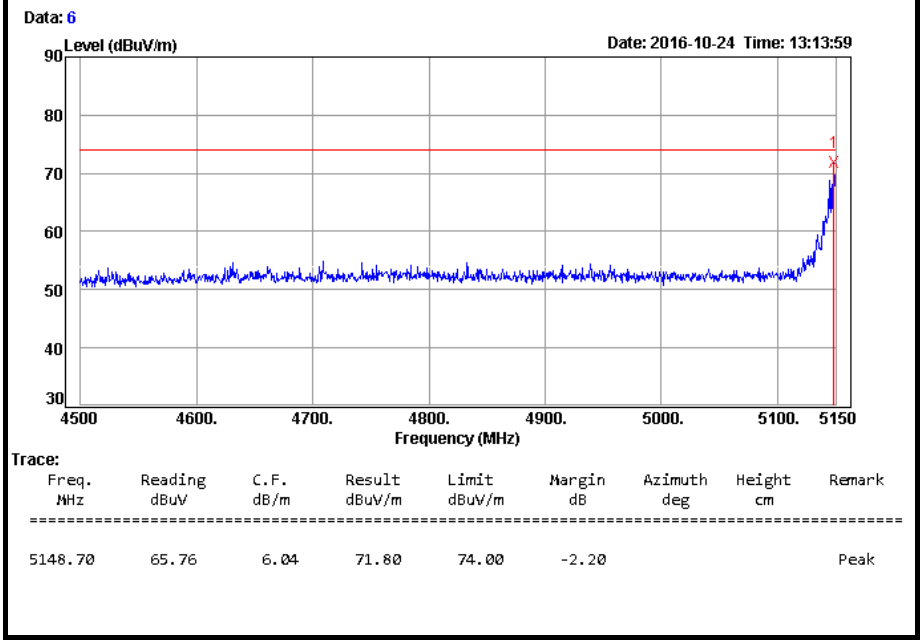
Detector Mode: Peak **Polarity: Vertical**

CH Low (IEEE 802.11ac VHT40 NSS1/MCS0 Mode / Band 1)



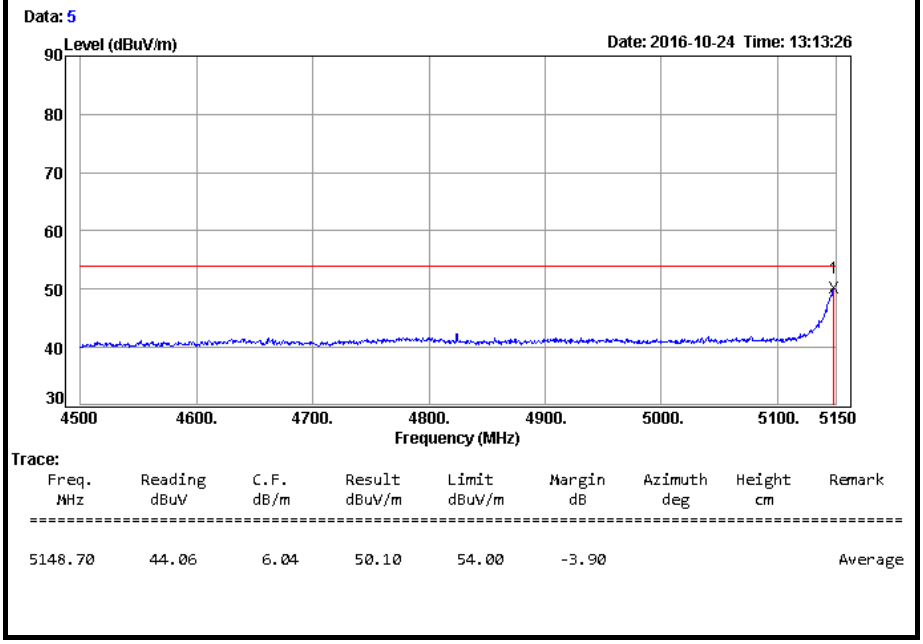
Trace:

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
5148.70	65.76	6.04	71.80	74.00	-2.20			Peak

Remark: *Result = Reading + Correction Factor*
Margin = Result – Limit
Remark Peak = Result(PK) – Limit(PK)

Detector Mode: Average **Polarity: Vertical**

CH Low (IEEE 802.11ac VHT40 NSS1/MCS0 Mode / Band 1)



Trace:

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
5148.70	44.06	6.04	50.10	54.00	-3.90			Average

Remark: *Result = Reading + Correction Factor*
Margin = Result – Limit
Remark AVG = Result(AV) – Limit(AV)

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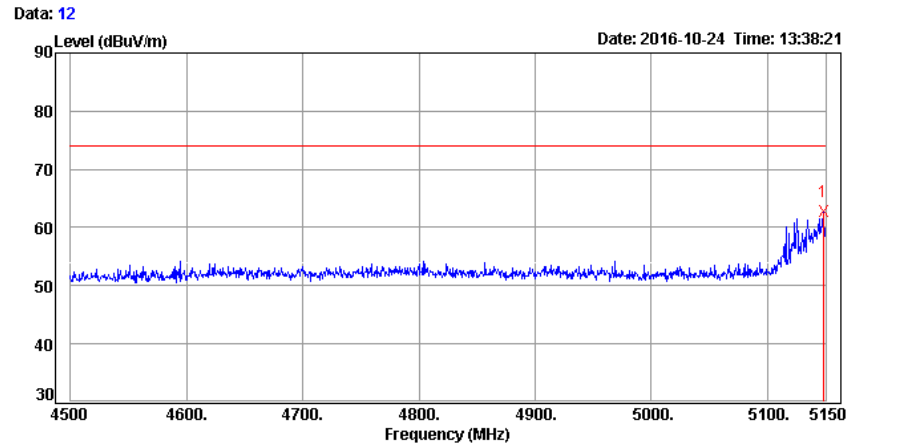
Detector Mode: Peak **Polarity: Horizontal**

CH Low (IEEE 802.11ac VHT80 NSS1/MCS0 Mode / Band 1)



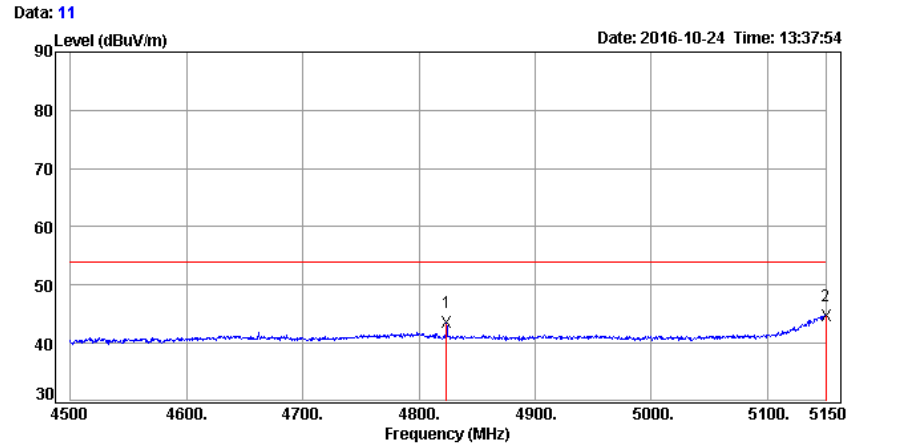
Trace:

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
5148.05	56.65	6.03	62.68	74.00	-11.32			Peak

Remark: *Result = Reading + Correction Factor*
Margin = Result – Limit
Remark Peak = Result(PK) – Limit(PK)

Detector Mode: Average **Polarity: Horizontal**

CH Low (IEEE 802.11ac VHT80 NSS1/MCS0 Mode / Band 1)



Trace:

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
4823.70	38.31	5.24	43.55	54.00	-10.45			Average
5150.00	38.77	6.04	44.81	54.00	-9.19			Average

Remark: *Result = Reading + Correction Factor*
Margin = Result – Limit
Remark AVG = Result(AV) – Limit(AV)

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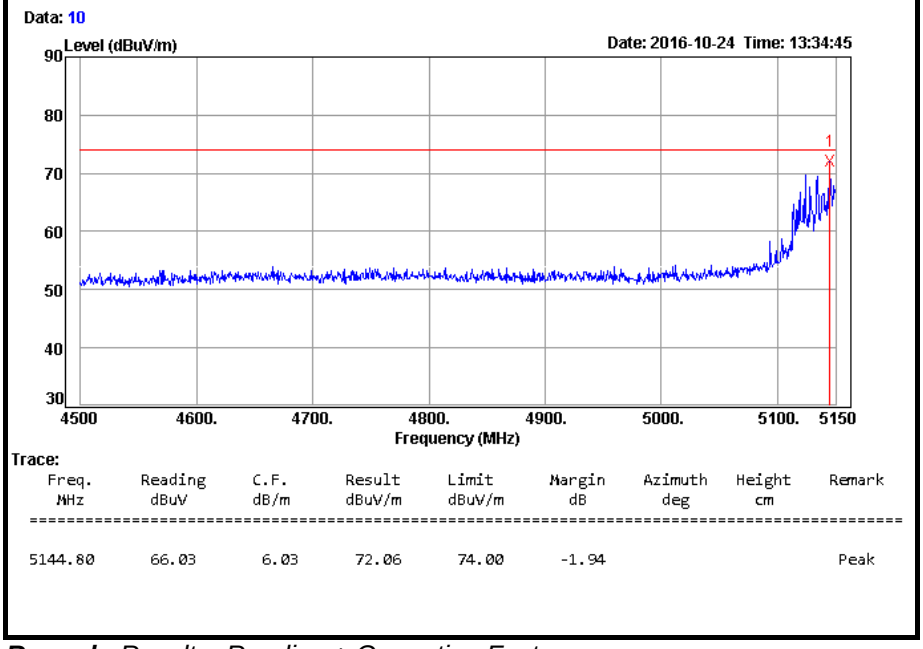
Detector Mode: Peak **Polarity: Vertical**

CH Low (IEEE 802.11ac VHT80 NSS1/MCS0 Mode / Band 1)



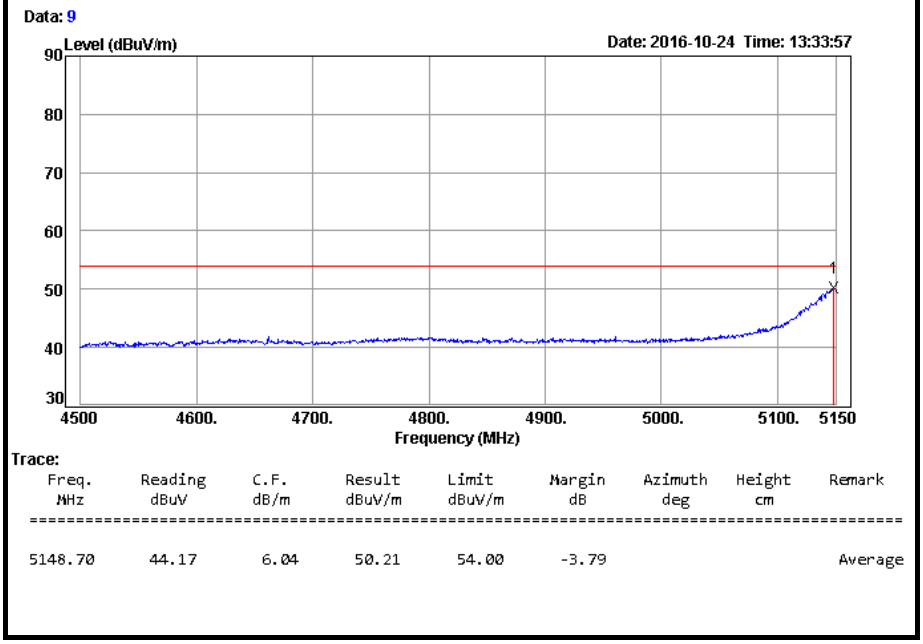
Trace:

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
5144.80	66.03	6.03	72.06	74.00	-1.94			Peak

Remark: *Result = Reading + Correction Factor*
Margin = Result – Limit
Remark Peak = Result(PK) – Limit(PK)

Detector Mode: Average **Polarity: Vertical**

CH Low (IEEE 802.11ac VHT80 NSS1/MCS0 Mode / Band 1)



Trace:

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
5148.70	44.17	6.04	50.21	54.00	-3.79			Average

Remark: *Result = Reading + Correction Factor*
Margin = Result – Limit
Remark AVG = Result(AV) – Limit(AV)

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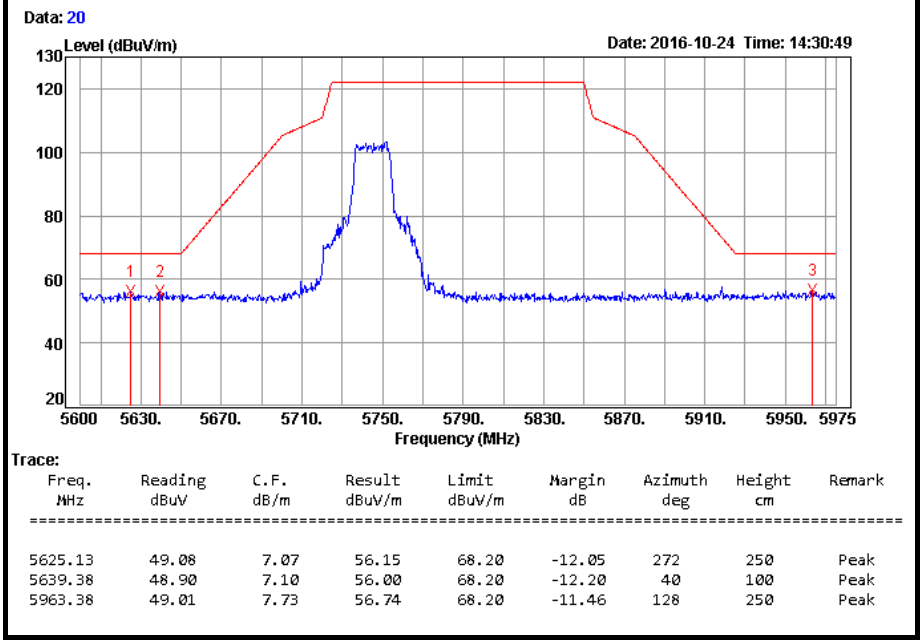
Detector Mode: Peak **Polarity: Horizontal**

CH Low (IEEE 802.11ac VHT20 NSS1/MCS0 Mode / Band 3)



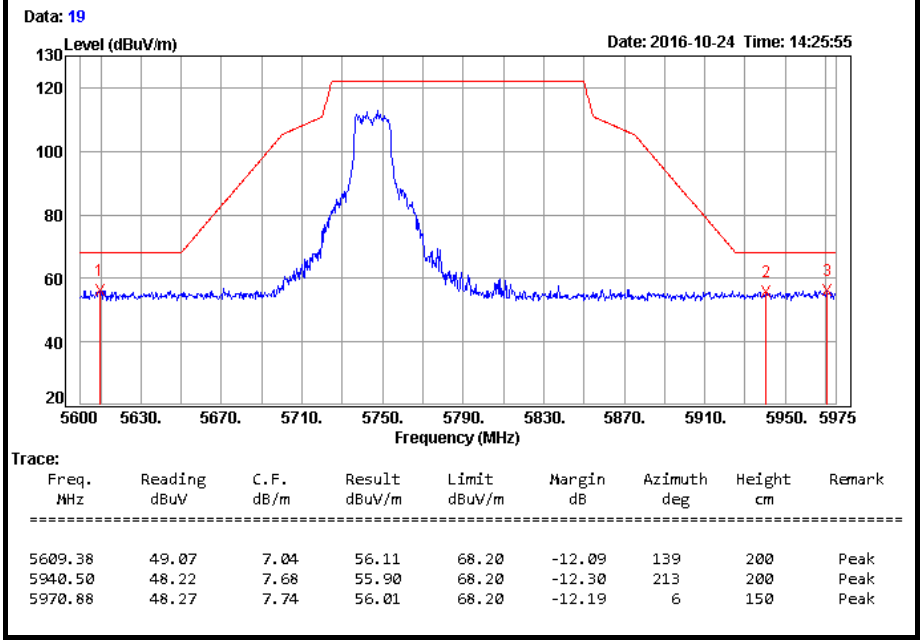
Trace:

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
5625.13	49.08	7.07	56.15	68.20	-12.05	272	250	Peak
5639.38	48.90	7.10	56.00	68.20	-12.20	40	100	Peak
5963.38	49.01	7.73	56.74	68.20	-11.46	128	250	Peak

Remark: *Result = Reading + Correction Factor*
Margin = Result – Limit
Remark Peak = Result(PK) – Limit(PK)

Detector Mode: Peak **Polarity: Vertical**

CH Low (IEEE 802.11ac VHT20 NSS1/MCS0 Mode / Band 3)



Trace:

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
5609.38	49.07	7.04	56.11	68.20	-12.09	139	200	Peak
5940.50	48.22	7.68	55.90	68.20	-12.30	213	200	Peak
5970.88	48.27	7.74	56.01	68.20	-12.19	6	150	Peak

Remark: *Result = Reading + Correction Factor*
Margin = Result – Limit
Remark Peak = Result(PK) – Limit(PK)

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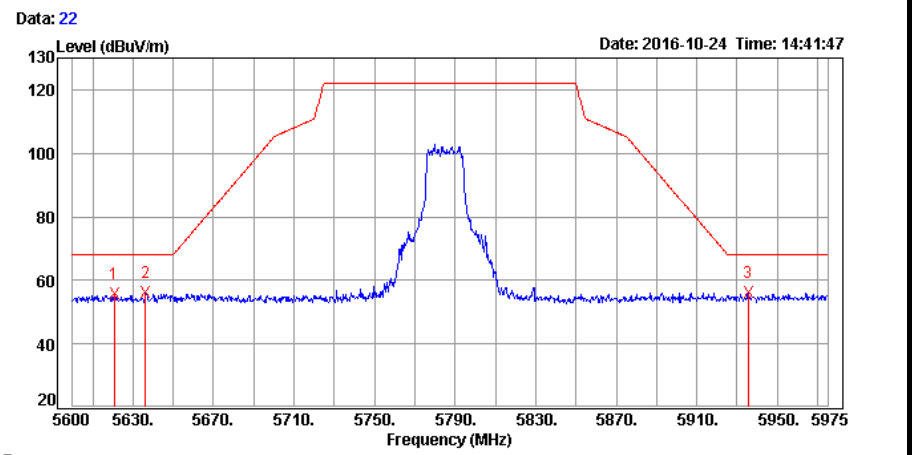
Detector Mode: Peak **Polarity: Horizontal**

CH Middle (IEEE 802.11ac VHT20 NSS1/MCS0 Mode / Band 3)



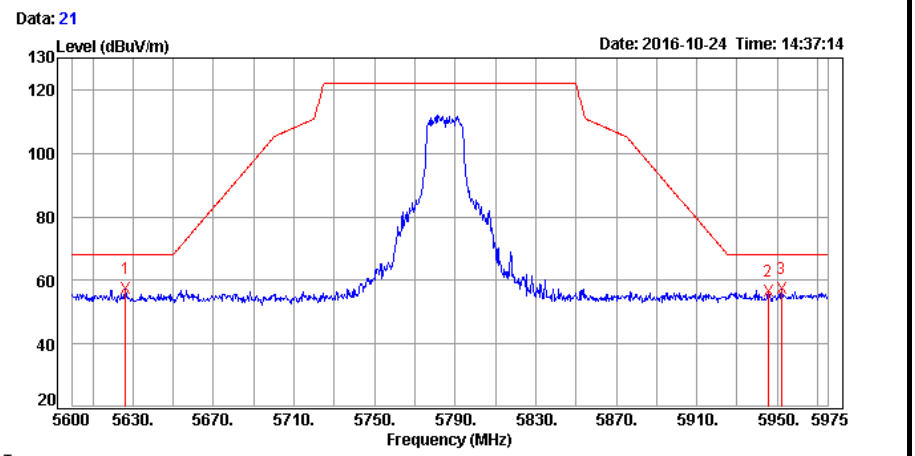
Trace:

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
5620.63	48.88	7.06	55.94	68.20	-12.26	232	250	Peak
5636.38	48.99	7.09	56.08	68.20	-12.12	245	150	Peak
5935.63	48.44	7.68	56.12	68.20	-12.08	163	100	Peak

Remark: *Result = Reading + Correction Factor*
Margin = Result – Limit
Remark Peak = Result(PK) – Limit(PK)

Detector Mode: Peak **Polarity: Vertical**

CH Middle (IEEE 802.11ac VHT20 NSS1/MCS0 Mode / Band 3)



Trace:

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
5626.25	50.22	7.07	57.29	68.20	-10.91	62	150	Peak
5945.38	48.97	7.69	56.66	68.20	-11.54	33	200	Peak
5952.13	49.71	7.71	57.42	68.20	-10.78	210	250	Peak

Remark: *Result = Reading + Correction Factor*
Margin = Result – Limit
Remark Peak = Result(PK) – Limit(PK)

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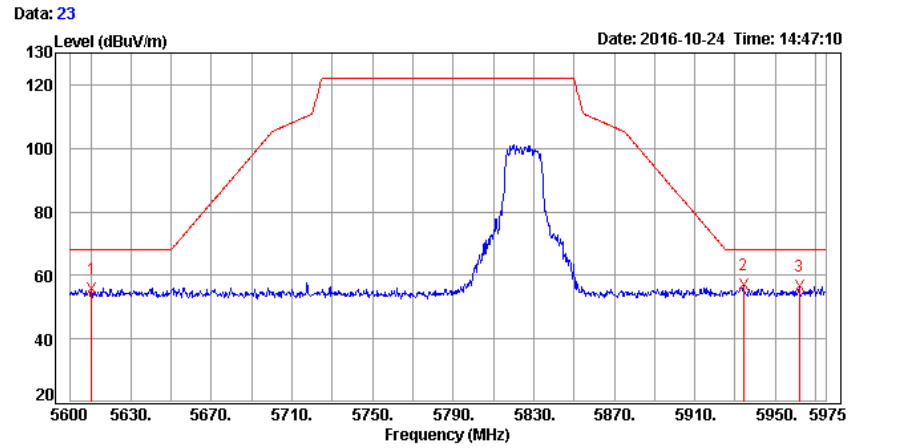
Detector Mode: Peak **Polarity: Horizontal**

CH High (IEEE 802.11ac VHT20 NSS1/MCS0 Mode / Band 3)



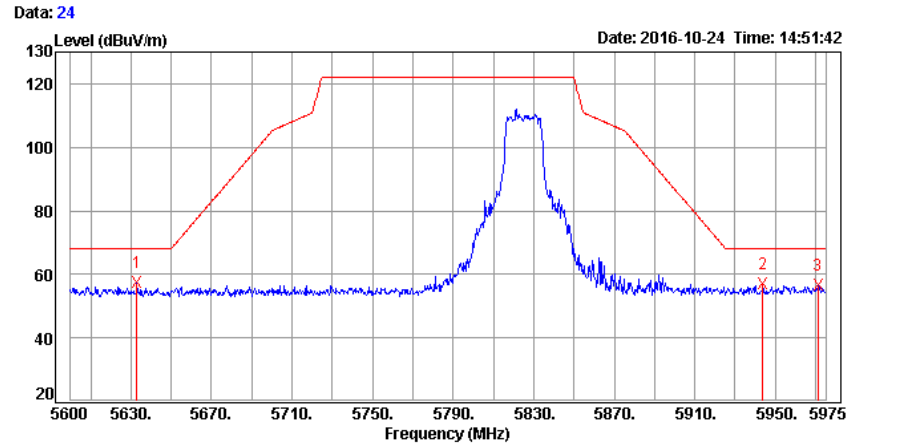
Trace:

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
5610.50	48.92	7.04	55.96	68.20	-12.24	112	100	Peak
5934.13	49.14	7.67	56.81	68.20	-11.39	147	150	Peak
5961.88	48.81	7.73	56.54	68.20	-11.66	228	150	Peak

Remark: *Result = Reading + Correction Factor*
Margin = Result – Limit
Remark Peak = Result(PK) – Limit(PK)

Detector Mode: Peak **Polarity: Vertical**

CH High (IEEE 802.11ac VHT20 NSS1/MCS0 Mode / Band 3)



Trace:

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
5633.00	50.15	7.09	57.24	68.20	-10.96	55	150	Peak
5943.88	49.52	7.69	57.21	68.20	-10.99	129	200	Peak
5971.25	48.78	7.74	56.52	68.20	-11.68	55	150	Peak

Remark: *Result = Reading + Correction Factor*
Margin = Result – Limit
Remark Peak = Result(PK) – Limit(PK)

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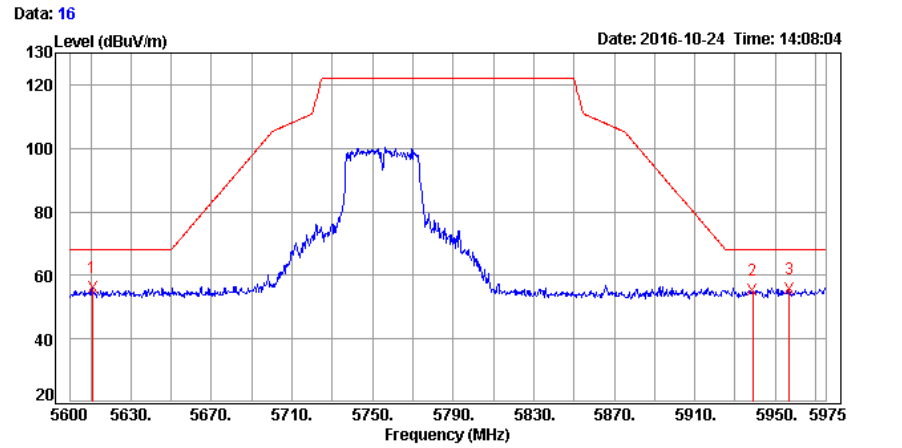
Detector Mode: Peak **Polarity: Horizontal**

CH Low (IEEE 802.11ac VHT40 NSS1/MCS0 Mode / Band 3)



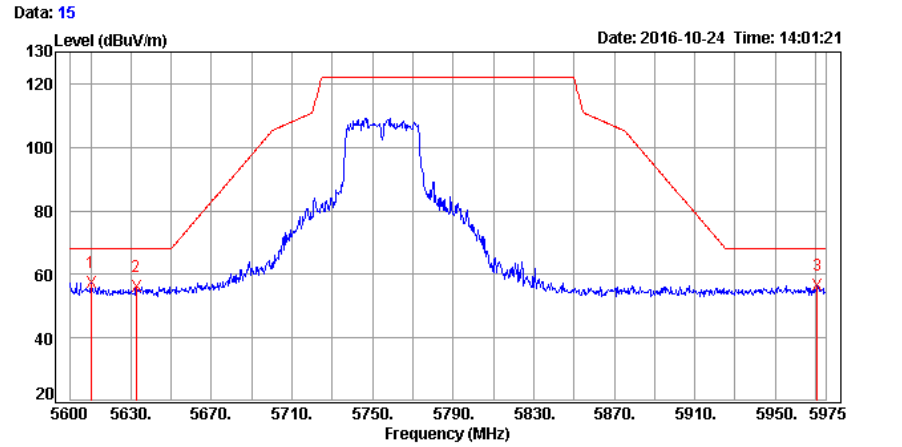
Trace:

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
5610.88	48.97	7.05	56.02	68.20	-12.18	4	100	Peak
5938.63	47.58	7.68	55.26	68.20	-12.94	331	250	Peak
5957.00	48.21	7.72	55.93	68.20	-12.27	198	250	Peak

Remark: *Result = Reading + Correction Factor*
Margin = Result – Limit
Remark Peak = Result(PK) – Limit(PK)

Detector Mode: Peak **Polarity: Vertical**

CH Low (IEEE 802.11ac VHT40 NSS1/MCS0 Mode / Band 3)



Trace:

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
5610.13	50.34	7.04	57.38	68.20	-10.82	310	150	Peak
5632.63	49.17	7.09	56.26	68.20	-11.94	177	100	Peak
5970.88	48.83	7.74	56.57	68.20	-11.63	32	250	Peak

Remark: *Result = Reading + Correction Factor*
Margin = Result – Limit
Remark Peak = Result(PK) – Limit(PK)

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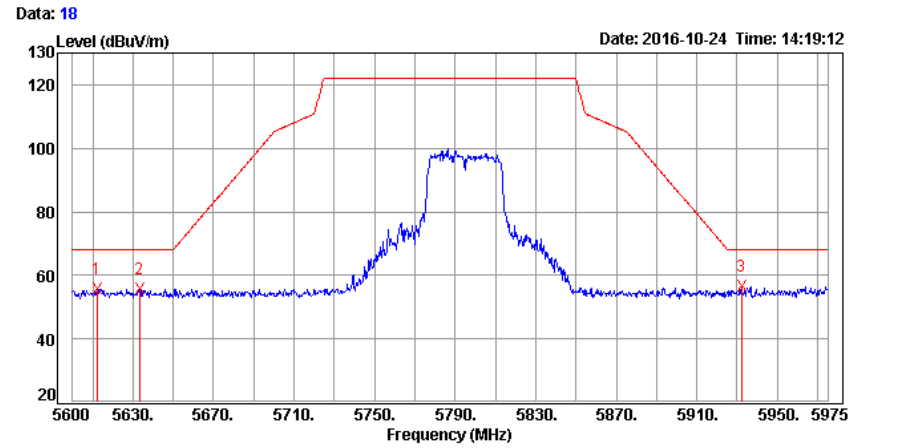
Detector Mode: Peak **Polarity: Horizontal**

CH High (IEEE 802.11ac VHT40 NSS1/MCS0 Mode / Band 3)



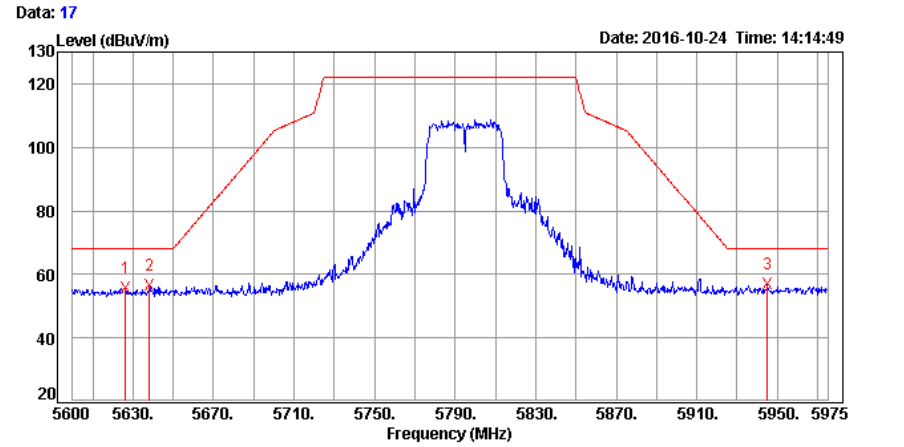
Trace:

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
5612.00	48.63	7.05	55.68	68.20	-12.52	213	150	Peak
5633.38	48.55	7.09	55.64	68.20	-12.56	254	150	Peak
5932.25	48.98	7.67	56.65	68.20	-11.55	0	150	Peak

Remark: *Result = Reading + Correction Factor*
Margin = Result – Limit
Remark Peak = Result(PK) – Limit(PK)

Detector Mode: Peak **Polarity: Vertical**

CH High (IEEE 802.11ac VHT40 NSS1/MCS0 Mode / Band 3)



Trace:

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
5626.25	48.73	7.07	55.80	68.20	-12.40	165	250	Peak
5638.25	49.69	7.10	56.79	68.20	-11.41	339	150	Peak
5945.00	49.14	7.69	56.83	68.20	-11.37	224	100	Peak

Remark: *Result = Reading + Correction Factor*
Margin = Result – Limit
Remark Peak = Result(PK) – Limit(PK)

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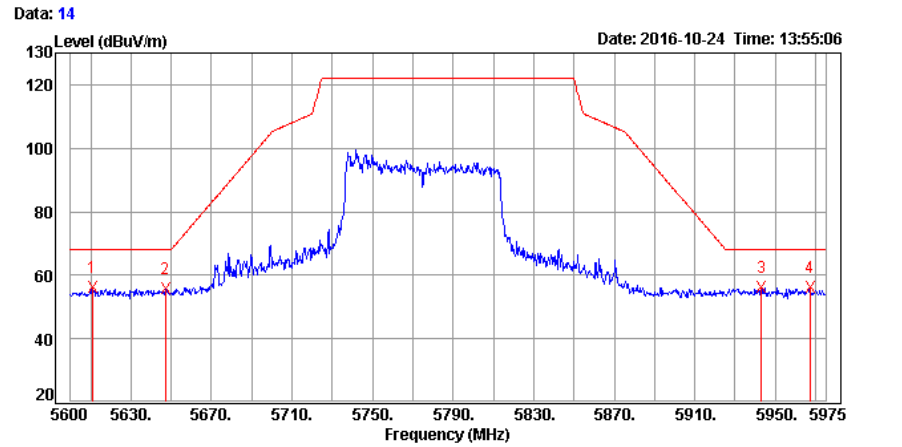
Detector Mode: Peak **Polarity: Horizontal**

CH Low (IEEE 802.11ac VHT80 NSS1/MCS0 Mode / Band 3)



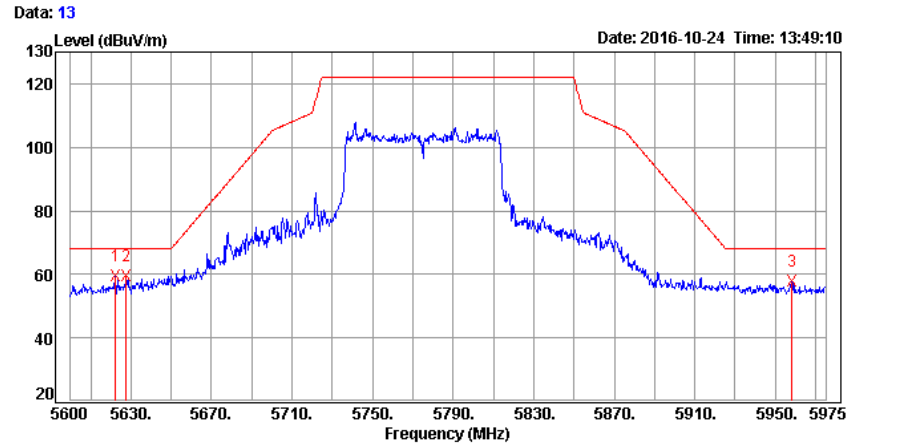
Trace:

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
5610.88	49.25	7.05	56.30	68.20	-11.90	359	150	Peak
5647.25	48.58	7.12	55.70	68.20	-12.50	346	200	Peak
5943.13	48.56	7.69	56.25	68.20	-11.95	315	250	Peak
5967.13	48.46	7.74	56.20	68.20	-12.00	350	150	Peak

Remark: *Result = Reading + Correction Factor*
Margin = Result – Limit
Remark Peak = Result(PK) – Limit(PK)

Detector Mode: Peak **Polarity: Vertical**

CH Low (IEEE 802.11ac VHT80 NSS1/MCS0 Mode / Band 3)



Trace:

Freq. MHz	Reading dBuV	C.F. dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Azimuth deg	Height cm	Remark
5622.50	52.38	7.07	59.45	68.20	-8.75	5	150	Peak
5627.75	52.48	7.08	59.56	68.20	-8.64	143	150	Peak
5958.13	49.98	7.72	57.70	68.20	-10.50	0	200	Peak

Remark: *Result = Reading + Correction Factor*
Margin = Result – Limit
Remark Peak = Result(PK) – Limit(PK)

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7.7 CONDUCTED EMISSION

LIMITS

§ 15.207 (a) Except as shown in paragraph (b) and (c) this section, for an intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits in the following table, as measured using a 50 μH/50 ohms line impedance stabilization network (LISN). Compliance with the provisions of this paragraph shall be based on the measurement of the radio frequency voltage between each power line and ground at the power terminal. The lower limit applies at the boundary between the frequency ranges.

Frequency Range (MHz)	Conducted Limit (dBμv)	
	Quasi-peak	Average
0.15 - 0.50	66 to 56	56 to 46
0.50 - 5.00	56	46
5.00 - 30.0	60	50

TEST EQUIPMENT

Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
L.I.S.N	Schwarzbeck	NSLK 8127	8127465	07/28/2017
L.I.S.N	Schwarzbeck	NSLK 8127	8127473	03/10/2017
EMI Test Receiver	Rohde & Schwarz	ESHS 30	838550/003	10/25/2017
Pulse Limiter	Rohde & Schwarz	ESH3-Z2	100111	06/27/2017
Test S/W	E3.815206a			

Remark: *Each piece of equipment is scheduled for calibration once a year.*

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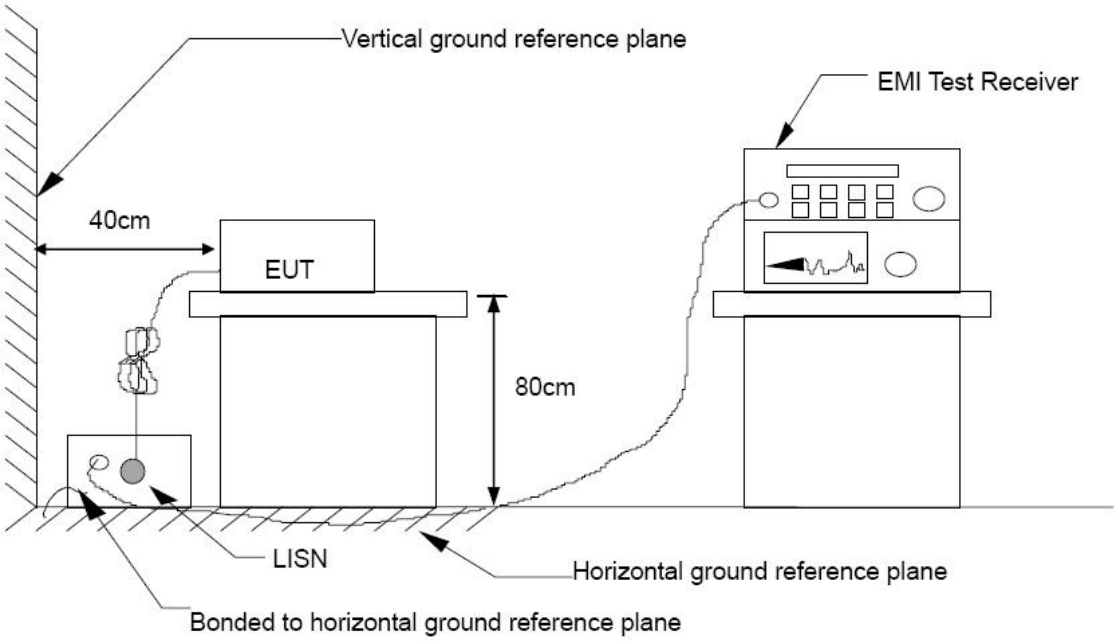
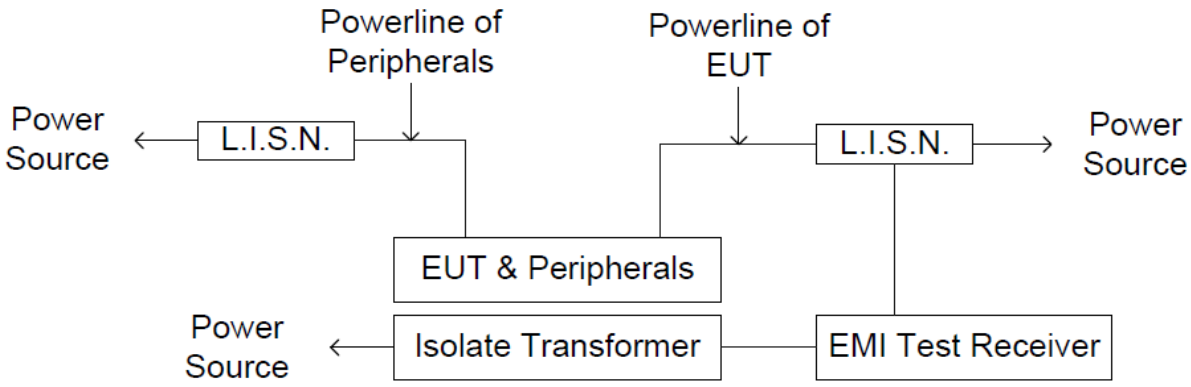
TEST SETUP





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TEST PROCEDURE

The basic test procedure was in accordance with ANSI C63.10:2013.
The test procedure is performed in a 4m × 3m × 2.4m (L×W×H) shielded room.
The EUT along with its peripherals were placed on a 1.0m (W) × 1.5m (L) and 0.8m in height wooden table and the EUT was adjusted to maintain a 0.4 meter space from a vertical reference plane.
The EUT was connected to power mains through a line impedance stabilization network (LISN) which provides 50 ohm coupling impedance for measuring instrument and the chassis ground was bounded to the horizontal ground plane of shielded room. All peripherals were connected to the second LISN and the chassis ground also bounded to the horizontal ground plane of shielded room.
The EUT was located so that the distance between the boundary of the EUT and the closest surface of the LISN is 0.8 m. Where a mains flexible cord was provided by the manufacturer shall be 1 m long, or if in excess of 1 m, the excess cable was folded back and forth as far as possible so as to form a bundle not exceeding 0.4 m in length.

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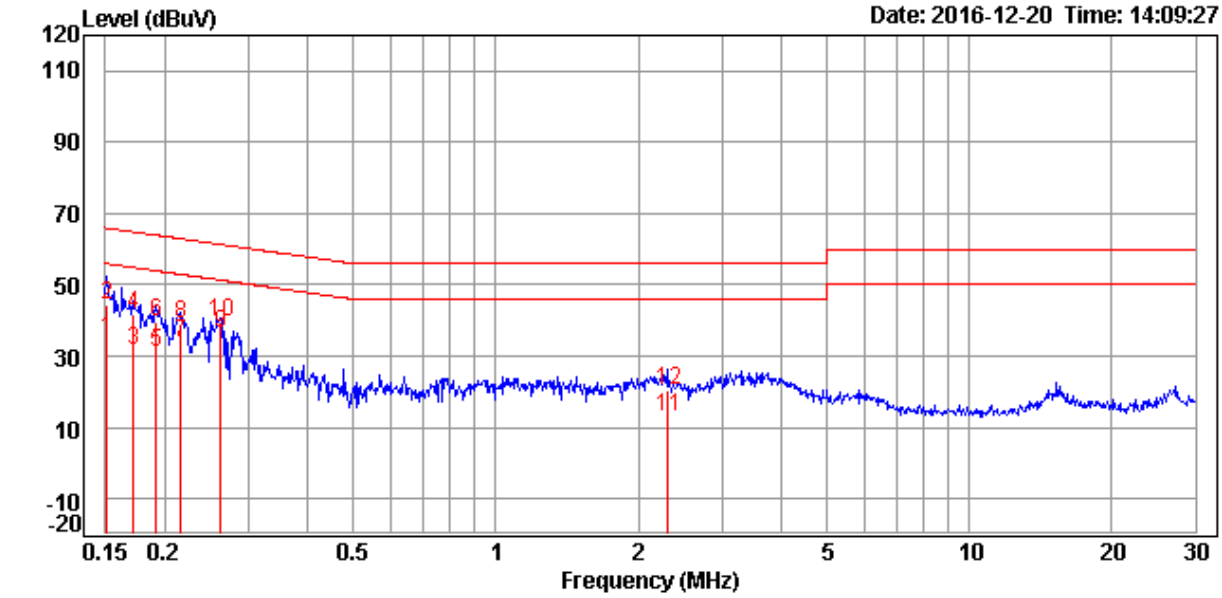
TEST RESULTS

Product Name	AC1300 IoT Router	Test By	Allen Liu
Test Model	X10R	Test Date	2016/12/20
Test Mode	Mode 1	Temp. & Humidity	26°C, 46%

LINE



Trace:

Freq. MHz	Reading dBuV Q.P.	Reading dBuV AV.	C.F. dB	Result dBuV Q.P.	Result dBuV AV.	Limit dBuV Q.P.	Limit dBuV AV.	Margin dB Q.P.	Margin dB AV.
0.151	34.67	24.65	10.00	44.67	34.65	65.96	55.96	-21.29	-21.31
0.172	31.58	21.45	9.99	41.57	31.44	64.86	54.86	-23.29	-23.42
0.191	29.59	21.00	9.98	39.57	30.98	63.98	53.98	-24.41	-23.00
0.216	29.06	23.93	9.96	39.02	33.89	62.96	52.96	-23.94	-19.07
0.263	29.65	26.67	9.92	39.57	36.59	61.34	51.34	-21.77	-14.75
2.297	10.22	3.15	10.08	20.30	13.23	56.00	46.00	-35.70	-32.77

Remark:

1. *Correction Factor = Insertion loss + Cable loss*
2. *Result level = Reading Value + Correction factor*
3. *Margin value = Result level – Limit value*

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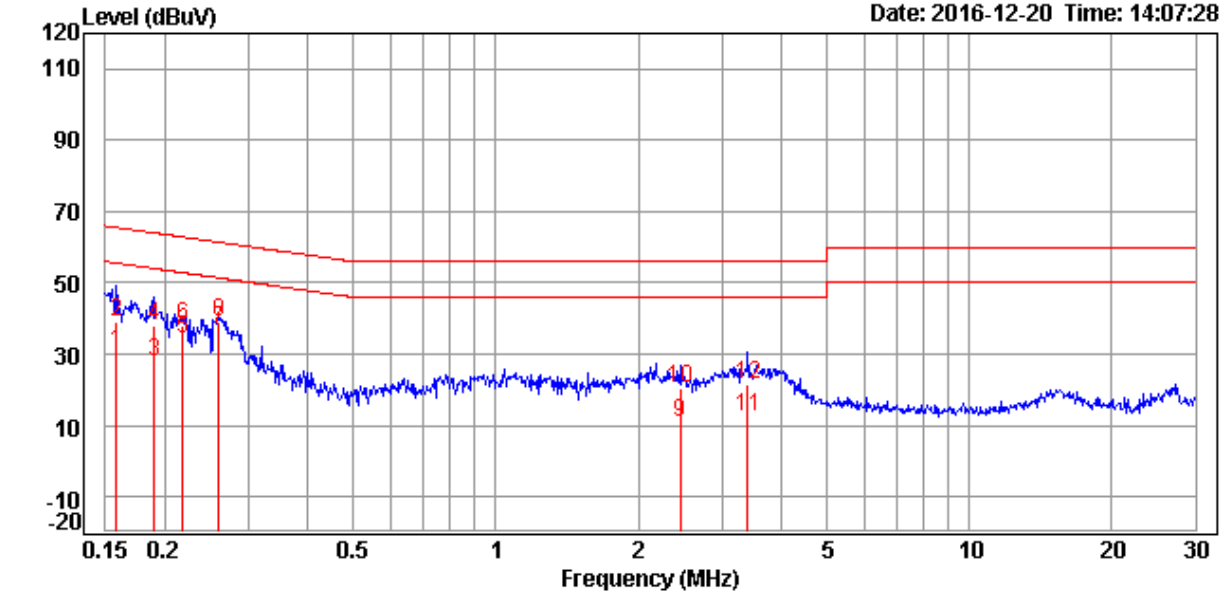
Product Name	AC1300 IoT Router	Test By	Allen Liu
Test Model	X10R	Test Date	2016/12/20
Test Mode	Mode 1	Temp. & Humidity	26°C, 46%

NEUTRAL



Trace:

Freq. MHz	Reading dBuV Q.P.	Reading dBuV AV.	C.F. dB	Result dBuV Q.P.	Result dBuV AV.	Limit dBuV Q.P.	Limit dBuV AV.	Margin dB Q.P.	Margin dB AV.
0.158	29.29	20.53	9.99	39.28	30.52	65.56	55.56	-26.28	-25.04
0.189	27.81	17.81	10.00	37.81	27.81	64.06	54.06	-26.25	-26.25
0.217	28.26	24.22	9.98	38.24	34.20	62.92	52.92	-24.68	-18.72
0.260	28.96	27.06	9.94	38.90	37.00	61.42	51.42	-22.52	-14.42
2.448	10.16	0.89	10.07	20.23	10.96	56.00	46.00	-35.77	-35.04
3.399	11.59	2.17	10.12	21.71	12.29	56.00	46.00	-34.29	-33.71

Remark:

1. *Correction Factor = Insertion loss + Cable loss*
2. *Result level = Reading Value + Correction factor*
3. *Margin value = Result level – Limit value*

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7.8 FREQUENCY STABILITY

LIMITS

§ 15.407 (g) manufacturers of U-NII devices are responsible for ensuring frequency stability such that an emission is maintained within the band of operation under all conditions of normal operation as specified in the user's manual.

TEST EQUIPMENT

Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
Spectrum Analyzer	Agilent	E4446A	MY43360132	05/31/2017
Test S/W	N/A			

Remark: *Each piece of equipment is scheduled for calibration once a year.*

TEST SETUP

TEST PROCEDURE

1. Place the EUT on the table and set it in the transmitting mode.
2. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.
3. Set the environment into appropriate environment.
4. Set the spectrum analyzer as RBW=1kHz, VBW = RBW, Span = 200kHz, Sweep = auto.
5. Mark the peak frequency and measure the frequency tolerance using frequency counter function.
6. Repeat until all the results are investigated.

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TEST RESULTS

Product Name	AC1300 IoT Router	Test By	Waternil Guan
Test Model	X10R	Test Date	2016/11/17
Test Mode	TX Mode / Non-Beamforming	Temp. & Humidity	25°C, 62%

IEEE 802.11a Mode

U-NII Band	Channel	Channel Frequency (MHz)	Measured Frequency (MHz)	Delta Frequency (kHz)	20 ppm Limit (kHz)	Margin (kHz)
Band 1	Low	5180	5179.969455	-30.54	103.60	-73.06
	Middle	5200	5200.034774	34.77	104.00	-69.23
	High	5240	5240.095506	95.51	104.80	-9.29
Band 3	Low	5745	5745.078041	78.04	114.90	-36.86
	Middle	5785	5785.090297	90.30	115.70	-25.40
	High	5825	5825.056302	56.30	116.50	-60.20

IEEE 802.11ac VHT20 NSS1/MCS0 Mode

U-NII Band	Channel	Channel Frequency (MHz)	Measured Frequency (MHz)	Delta Frequency (kHz)	20 ppm Limit (kHz)	Margin (kHz)
Band 1	Low	5180	5179.983120	-16.88	103.60	-86.72
	Middle	5200	5200.097350	97.35	104.00	-6.65
	High	5240	5239.965838	-34.16	104.80	-70.64
Band 3	Low	5745	5744.950145	-49.86	114.90	-65.04
	Middle	5785	5785.073320	73.32	115.70	-42.38
	High	5825	5824.917218	-82.78	116.50	-33.72

IEEE 802.11ac VHT40 NSS1/MCS0 Mode

U-NII Band	Channel	Channel Frequency (MHz)	Measured Frequency (MHz)	Delta Frequency (kHz)	20 ppm Limit (kHz)	Margin (kHz)
Band 1	Low	5190	5190.004191	4.19	103.80	-99.61
	High	5230	5229.956128	-43.87	104.60	-60.73
Band 3	Low	5755	5755.078880	78.88	115.10	-36.22
	High	5795	5795.085847	85.85	115.90	-30.05

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IEEE 802.11ac VHT80 NSS1/MCS0 Mode

U-NII Band	Channel	Channel Frequency (MHz)	Measured Frequency (MHz)	Delta Frequency (kHz)	20 ppm Limit (kHz)	Margin (kHz)
Band 1	Low	5210	5209.957598	-42.40	104.20	-61.80
Band 3	Low	5775	5775.092985	92.99	115.50	-22.51

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Product Name	AC1300 IoT Router	Test By	Davis Tseng
Test Model	X10R	Test Date	2016/11/25
Test Mode	TX Mode / Beamforming	Temp. & Humidity	23°C, 58%

IEEE 802.11ac VHT20 NSS1/MCS0 Mode

U-NII Band	Channel	Channel Frequency (MHz)	Measured Frequency (MHz)	Delta Frequency (kHz)	20 ppm Limit (kHz)	Margin (kHz)
Band 1	Low	5180	5179.993845	-6.16	103.60	-97.44
	Middle	5200	5199.993487	-6.51	104.00	-97.49
	High	5240	5239.960121	-39.88	104.80	-64.92
Band 3	Low	5745	5744.964788	-35.21	114.90	-79.69
	Middle	5785	5784.952028	-47.97	115.70	-67.73
	High	5825	5824.982021	-17.98	116.50	-98.52

IEEE 802.11ac VHT40 NSS1/MCS0 Mode

U-NII Band	Channel	Channel Frequency (MHz)	Measured Frequency (MHz)	Delta Frequency (kHz)	20 ppm Limit (kHz)	Margin (kHz)
Band 1	Low	5190	5189.905399	-94.60	103.80	-9.20
	High	5230	5229.982953	-17.05	104.60	-87.55
Band 3	Low	5755	5754.969825	-30.17	115.10	-84.93
	High	5795	5794.948094	-51.91	115.90	-63.99

IEEE 802.11ac VHT80 NSS1/MCS0 Mode

U-NII Band	Channel	Channel Frequency (MHz)	Measured Frequency (MHz)	Delta Frequency (kHz)	20 ppm Limit (kHz)	Margin (kHz)
Band 1	Low	5210	5209.974259	-25.74	104.20	-78.46
Band 3	Low	5775	5774.884544	-115.46	115.50	-0.04

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