Regulatory Test Report

Prepared for Harman International Industries, Inc.

This report presents detailed information on

INFO3.8 CSM

Prepared by

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Engineer II

Approved by

Jason Kanakry

General Manager

Issue date: 08/21/2023

Report No: AH22120901-HAR-054-TR2 v3

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The test is traceable to national standard or related international standard

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1. Test Request Information

Test Request #:	7700182070
Test Requested By:	Mark Bowman Harman International Industries, Inc. 30001 Cabot Drive, Novi, MI 48377
Test item Description:	INFO3.8 CSM
Part Number:	8709305
DUT Sample Number:	AH22120901-HAR-054#1, AH22120901-HAR-054#2
Hardware Version of DUT:	PV
Software Version of DUT:	17.80.200.219
Component Category of DUT:	N/A
FCC ID:	2AHPN-BE2867
ISED ID:	6434C-BE2867
Type of Test:	FCC/ISED Certification
Test Method:	CFR Title 47 FCC Part 15.407, ISED Canada RSS-247 Issue 2, ISED Canada RSS-Gen Issue 5, FCC KDB 789033 D02 General UNII Test Procedures New Rules v02r01 and ANSI C63.10-2013
Deviations from standard:	None
Approved Test Plan Number:	N/A
Test Plan Revision:	N/A
Date test sample received:	10-07-2022
Date test started:	12-09-2022
Date test finished:	01-13-2023

2. Test Laboratory Information

Location of Test Lab:	The radiated and conducted emissions test sites are located at Bureau Veritas 815 N. Opdyke Rd #100, Auburn Hills, MI 48326, Phone: +1-248-836-4700
Key Contact:	Jason Kanakry (General Manager) Jason.Kanakry@BureauVeritas.com Phone: +1-248-836-4747
Laboratory Accreditations:	BUREAU VERITAS CONSUMER PRODUCTS SERVICES, INC is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017 General requirements for the competence of testing and calibration laboratories.
ISO/IEC 17025:2017:	5678.01
FCC Test Site Number:	US1278 (242530)
IC Test Site Number:	US0229 (26240)

3. Statement of Conformity

RSS-GEN	RSS 247	Part 15	Comments
6.4		15.15(b)	There are no controls accessible to the user that varies the output power to operate in violation of the regulatory requirements.
		15.19	The label is shown in the label exhibit.
		15.21	Information to the user is shown in the instruction manual exhibit.
		15.27	No special accessories are required for compliance.
3.2		15.31	The EUT was tested in accordance with the measurement standards in this section.
6.13.2		15.33	Frequency range was investigated according to this section, unless noted in specific rule section under which the equipment operates.
6.13.1		15.35	The EUT emissions were measured using the measurement detector and bandwidth specified in this section, unless noted in specific rule section under which the equipment operates.
6.8		15.203	EUT employs integrated PCB antenna with 4.39dBi (UNII-1) and 5.05dBi (UNII-3)
8.10		15.205 15.209	The fundamental is not in a Restricted band and the spurious and harmonic emissions in the Restricted bands comply with the general emission limits of 15.209 or RSS-Gen as applicable
8.8		15.207	N/A. EUT is vehicle battery powered only.

4. Conducted Testing

4.1 Test Summary

This test report supports an application for certification of a transmitter operating pursuant to:

CFR Title 47 FCC Part 15.407, ISED Canada RSS-247 Issue 2, ISED Canada RSS-Gen Issue 5, FCC KDB 789033 D02 General UNII Test Procedures New Rules v02r01 and ANSI C63.10-2013

The product is **INFO3.8 CSM** transmitter that operates in UNII-1 (5.15GHz – 5.25GHz) and UNII-3 (5.725GHz – 5.85GHz)

Details	Description
Frequency Range (MHz)	UNII-1 (5.15GHz – 5.25GHz) UNII-3 (5.725GHz – 5.85GHz)
Tested Modes	802.11a 802.11n(HT20, HT40) 802.11ac (VHT20, VHT40, VHT80).
Tested Channels	UNII-1 (36-48) UNII-3 (149-165)
DUT Antenna Type	Integrated PCB antenna
Number of transmit chains	1
Equipment Type	Unlicensed National Information Infrastructure Device
DUT Antenna Gain	4.39dBi (UNII-1) 5.05dBi (UNII-3) ☒ Provided by Customer with Gain Report ☐ Not Provided by Customer

Test samples received in good condition, we found that the product met the above requirements with modification.

Test Item	Sample #	Result
FCC 15.407 UNII-1	AH22120901-HAR-054#1	Meets Requirements
FCC 15.407 UNII-3	AH22120901-HAR-054#1	Meets Requirements

Worst-case emission obtained on low data rates so Full Testing performed on lowest data rate.

UNII-1 Test Results Summary

Test	Frequency (MHz)	802.11a	802.11n(HT20)	802.11ac (VHT20)
RF Output Power	**5180/5200/5240**	PASS	PASS	PASS
Power Spectral Density	**5180/5200/5240**	PASS	PASS	PASS
DTS Bandwidth (6dB)	**5180/5200/5240**	PASS	PASS	PASS
Occupied Channel Bandwidth 99%	**5180/5200/5240**	PASS	PASS	PASS
Emission Bandwidth 26 dB	**5180/5200/5240**	PASS	PASS	PASS
		802.11n(HT40)	**802.11ac(VHT40)**	
RF Output Power	**5190/5230**	PASS	PASS	
Power Spectral Density	**5190/5230**	PASS	PASS	
DTS Bandwidth (6dB)	**5190/5230**	PASS	PASS	
Occupied Channel Bandwidth 99%	**5190/5230**	PASS	PASS	
Emission Bandwidth 26 dB	**5190/5230**	PASS	PASS	
		802.11ac(VHT80)		
RF Output Power	**5210**	PASS		
Power Spectral Density	**5210**	PASS		
DTS Bandwidth (6dB)	**5210**	PASS		
Occupied Channel Bandwidth 99%	**5210**	PASS		
Emission Bandwidth 26 dB	**5210**	PASS		

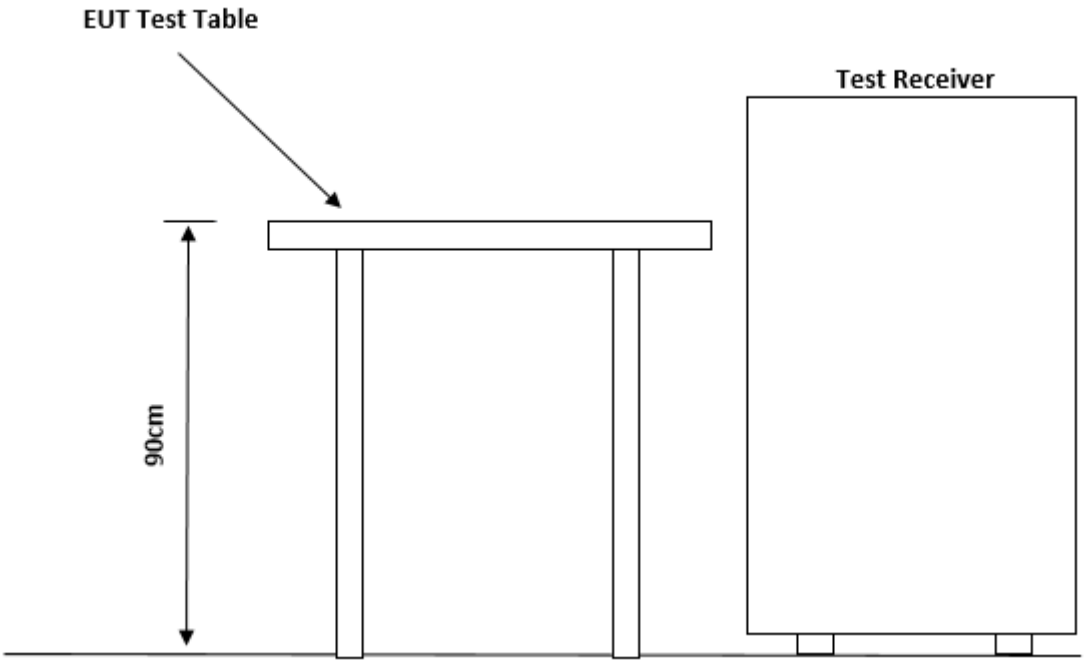
UNII-3 Test Results Summary

Test	Frequency (MHz)	802.11a	802.11n(HT20)	802.11ac (VHT20)
RF Output Power	**5745/5785/5825**	PASS	PASS	PASS
Power Spectral Density	**5745/5785/5825**	PASS	PASS	PASS
DTS Bandwidth (6dB)	**5745/5785/5825**	PASS	PASS	PASS
Occupied Channel Bandwidth 99%	**5745/5785/5825**	PASS	PASS	PASS
		802.11n(HT40)	**802.11ac(VHT40)**	
RF Output Power	**5755/5795**	PASS	PASS	
Power Spectral Density	**5755/5795**	PASS	PASS	
DTS Bandwidth (6dB)	**5755/5795**	PASS	PASS	
Occupied Channel Bandwidth 99%	**5755/5795**	PASS	PASS	
		802.11ac(VHT80)		
RF Output Power	**5775**	PASS		
Power Spectral Density	**5775**	PASS		
DTS Bandwidth (6dB)	**5775**	PASS		
Occupied Channel Bandwidth 99%	**5775**	PASS		

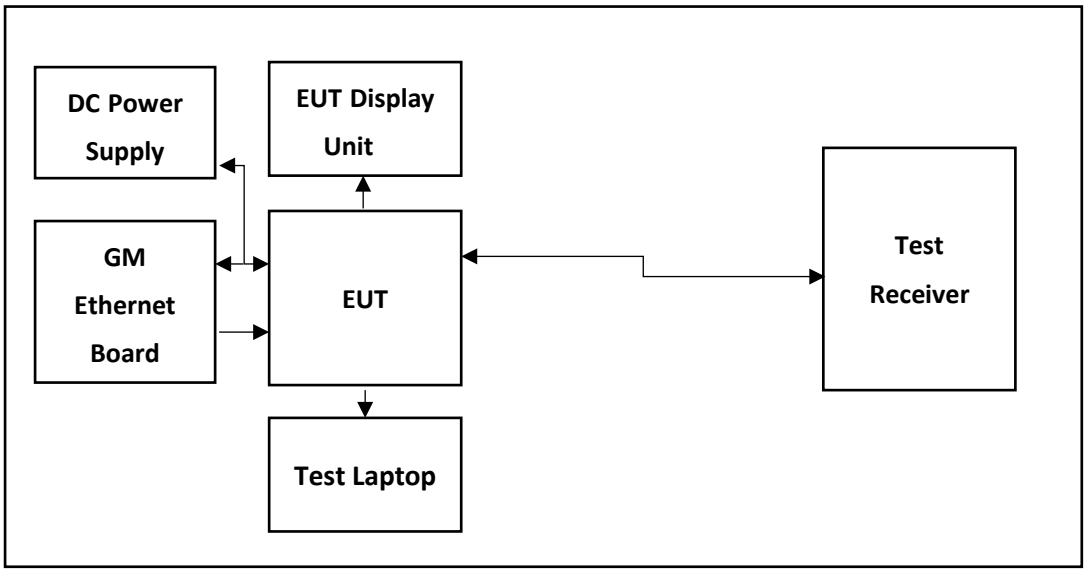
4.2 Test Setup

Conducted Test Site Description

The site is accommodated to test tabletop and floor standing test equipment.



TEST SETUP DIAGRAM



4.3 Test Equipment Used

ID #	Equipment	Manufacturer	Model #	Serial #	Cal Due
BVD0226	Spectrum Analyzer 10Hz-44GHz	Rohde & Schwarz	FSV3044	101018	4/20/2024
BVD0227	8 port switch unit for Wireless Test system	Rohde & Schwarz	OSP150	101100	11/24/2025
BVD0228	8 port switch unit for Wireless Test system	Rohde & Schwarz	OSP220	101632	11/14/2025
BVD0224	Signal Generator 100kHz-40GHz	Rohde & Schwarz	SMB100A	181741	4/20/2024
BVD0225	Signal Generator 100k-6GHz with GPS simulator	Rohde & Schwarz	SMW200A	107664	4/20/2023
BVD0250	Wireless Connectivity Tester 70M-6GHz	Rohde & Schwarz	CMW270	102113	4/20/2024
BVD0302	DC power supply 1-15VDC 60A 110/220 11.5A max input	BK Precision	1693	257F17180	N/A
BVD0321	Fixed Attenuator 2W 20dB -40GHz	Mini-Circuits	BW-K20-2W44+	2103	3/21/2023
BVD0430	Multimeter	Fluke	117	49710262SV	11/11/2023
BVD0229	Temp and Humidity Meter	Fluke	971	12001009	5/1/2023
N/A	Test-PC	Lenovo ThinkPad	E560	PF0L0N9R	N/A

Notes:- DC power supply verified before use with calibrated Multimeter.

Customer Supplied Equipment

ID #	Equipment	Manufacturer	Model	Serial #	Version No.
N/A	Harness	Harman	N/A	N/A	N/A
N/A	Display Unit	Innolux Corp	INFOMM-15524	0024	N/A
N/A	Ethernet Board	GM	N/A	N/A	CSMate rev.4
N/A	GM BT WLAN Test Tool NXP Chips S/W	Harman	N/A	N/A	2.4

Equipment List (Software)

ID #	Equipment	Manufacturer	Model	Version No	
N/A	EMC Test Software	Rodhe & Schwarz	EMC32	11.20.00	N/A

4.4 UNII-1

Mode	Channel	Frequency
802.11a **802.11n(HT20)** **802.11ac(VHT20)**	36	5180
802.11n(HT40) **802.11ac(VHT40)**	38	5190
802.11a **802.11n(HT20)** **802.11ac(VHT20)**	40	5200
802.11ac(VHT80)	42	5210
802.11n(HT40) **802.11ac(VHT40)**	46	5230
802.11a **802.11n(HT20)** **802.11ac(VHT20)**	48	5240

Notes: Channels and modes above were tested.

Power settings

802.11a		802.11n (HT20)		802.11ac (VHT20)	
Channel	**Power Setting**	**Channel**	**Power Setting**	**Channel**	**Power Setting**
36	15	**36**	15	**36**	15
40	15	**40**	15	**40**	15
48	15	**48**	15	**48**	15

802.11n (HT40)		802.11ac (VHT40)	
Channel	**Power Setting**	**Channel**	**Power Setting**
38	15	**38**	13
46	15	**46**	13

802.11ac (VHT80)	
Channel	**Power Setting**
42	12

4.4.1 RF output power and Duty Cycle

FCC

Test according to FCC title 47 part 15 §15.407(a), KDB 789033 D02 General U-NII Test Procedures New Rules v02r01 II.E and ANSI C63.10-2013 (In Reference to KDB 789033 E.3.B)

Measurement uncertainty calculated in accordance with ETSI TR 100 028-1. Expanded Combined Uncertainty of absolute Level Measurement (K=2) < 1 dB

Device has both client and access point modes and has identical RF characteristics and settings for both Limits are as follows:
15.407(a)(1)(i): 1W (30dBm) for outdoor access points with antenna gains less than 6dBi.
15.407(a)(1)(iv): 250mW (23.9dBm) for client devices with antenna gains less than 6dBi.
Since client devices are subject to more stringent limits, unit was tested against the limits for a client device.

802.11a

Data Rate	Gated RMS (dBm) 5180 MHz	Gated RMS (dBm) 5200 MHz	Gated RMS (dBm) 5240 MHz	Limit (dBm)	Duty Cycle (%)	Power Setting (dBm)
6 Mbps	12.560	13.178	13.457	23.9	99.045	15

802.11n (HT20)

Data Rate	Gated RMS (dBm) 5180 MHz	Gated RMS (dBm) 5200 MHz	Gated RMS (dBm) 5240 MHz	Limit (dBm)	Duty Cycle (%)	Power Setting (dBm)
MCS0	12.572	13.160	13.451	23.9	98.983	15

802.11ac (VHT20)

Data Rate	Gated RMS (dBm) 5180 MHz	Gated RMS (dBm) 5200 MHz	Gated RMS (dBm) 5240 MHz	Limit (dBm)	Duty Cycle (%)	Power Setting (dBm)
MCS0	12.353	13.164	13.411	23.9	98.984	15

802.11n (HT40)

Data Rate	Gated RMS (dBm) 5190 MHz	Gated RMS (dBm) 5230 MHz	Limit (dBm)	Duty Cycle (%)	Power Setting (dBm)
MCS0	12.794	12.955	23.9	98.001	15

802.11ac (VHT40)

Data Rate	Gated RMS (dBm) 5190 MHz	Gated RMS (dBm) 5230 MHz	Limit (dBm)	Duty Cycle (%)	Power Setting (dBm)
MCS0	10.226	10.647	23.9	97.810	13

802.11ac (VHT80)

Data Rate	Gated RMS (dBm) 5210 MHz	Limit (dBm)	Duty Cycle (%)	Power Setting (dBm)
MCS0	10.032	23.9	96.107	12

RSS-247

Per RSS-247 Issue 2 Section 6.2.1.1, limit for OEM devices installed in vehicles: Maximum EIRP shall not exceed 30mW or 1.76+10*log B, dBm, whichever is less (where B is 99% OBW in MHz). In addition devices must be capable of reducing power by a least 3dB below the maximum permitted EIRP of 30mW, which is 11.77dBm.

For modulations with less than 20MHz 99% OBW; 802.11a, 802.11n (HT20) and 802.11ac (VHT20), worst case 99% OBW of 16.600MHz is assumed with resulting conservative limit of 13.96dBm. For modulations with more than 20MHz 99% OBW; 802.11n (HT40), 802.11ac (VHT40) and 802.11ac (VHT80), the limit is 30mW (14.77dBm)

802.11a

Data Rate	Gated RMS (dBm) 5180MHz	Antenna Gain(dBi)	EIRP (dBm)	Limit (dBm)	Power Setting (dBm)
6 Mbps	8.584	4.39	12.974	13.96	11
Data Rate	**Gated RMS (dBm) 5200MHz**	**Antenna Gain(dBi)**	**EIRP (dBm)**	**Limit (dBm)**	
6 Mbps	9.233	4.39	13.623	13.96	11
Data Rate	**Gated RMS (dBm) 5240MHz**	**Antenna Gain(dBi)**	**EIRP (dBm)**	**Limit (dBm)**	
6 Mbps	9.191	4.39	13.581	13.96	11

802.11n (HT20)

Data Rate	Gated RMS (dBm) 5180MHz	Antenna Gain(dBi)	EIRP (dBm)	Limit (dBm)	Power Setting (dBm)
MCS0	7.576	4.39	11.966	13.96	10
Data Rate	**Gated RMS (dBm) 5200MHz**	**Antenna Gain(dBi)**	**EIRP (dBm)**	**Limit (dBm)**	
MCS0	7.941	4.39	12.331	13.96	10
Data Rate	**Gated RMS (dBm) 5240MHz**	**Antenna Gain(dBi)**	**EIRP (dBm)**	**Limit (dBm)**	
MCS0	8.612	4.39	13.002	13.96	10

802.11ac (VHT20)

Data Rate	Gated RMS (dBm) 5180MHz	Antenna Gain(dBi)	EIRP (dBm)	Limit (dBm)	Power Setting (dBm)
MCS0	7.578	4.39	11.968	13.96	10
Data Rate	**Gated RMS (dBm) 5200MHz**	**Antenna Gain(dBi)**	**EIRP (dBm)**	**Limit (dBm)**	
MCS0	8.188	4.39	12.578	13.96	10
Data Rate	**Gated RMS (dBm) 5240MHz**	**Antenna Gain(dBi)**	**EIRP (dBm)**	**Limit (dBm)**	
MCS0	8.584	4.39	12.974	13.96	10

802.11n (HT40)

Data Rate	Gated RMS (dBm) 5190MHz	Antenna Gain(dBi)	EIRP (dBm)	Limit (dBm)	Power Setting (dBm)
MCS0	7.825	4.39	12.215	14.77	10
Data Rate	**Gated RMS (dBm) 5230MHz**	**Antenna Gain(dBi)**	**EIRP (dBm)**	**Limit (dBm)**	
MCS0	8.324	4.39	12.714	14.77	10

802.11ac (VHT40)

Data Rate	Gated RMS (dBm) 5190MHz	Antenna Gain(dBi)	EIRP (dBm)	Limit (dBm)	Power Setting (dBm)
MCS0	7.879	4.39	12.269	14.77	10
Data Rate	**Gated RMS (dBm) 5230MHz**	**Antenna Gain(dBi)**	**EIRP (dBm)**	**Limit (dBm)**	
MCS0	8.342	4.39	12.732	14.77	10

802.11ac (VHT80)

Data Rate	Gated RMS (dBm) 5210MHz	Antenna Gain(dBi)	EIRP (dBm)	Limit (dBm)	Power Setting (dBm)
MCS0	8.209	4.39	12.599	14.77	10

4.4.2 Power Spectral Density

Test according to FCC title 47 part 15 §15.407(a), KDB 789033 D02 General U-NII Test Procedures New Rules v02r01 II.F with test method SA-1 and ANSI C63.10-2013.

Measurement uncertainty calculated in accordance with ETSI TR 100 028-1. Expanded Uncertainty (K=2) < 1.3 dB

FCC

Device has both client and access point modes and has identical RF characteristics and settings for both Limits are as follows:

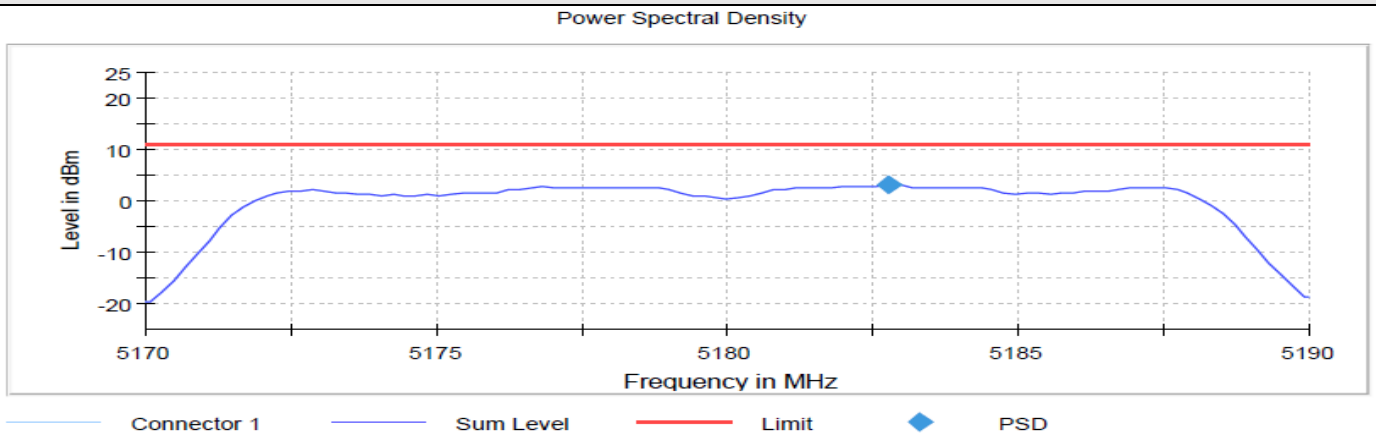
15.407(a)(1)(i): 17dBm for outdoor access points with antenna gains less than 6dBi.

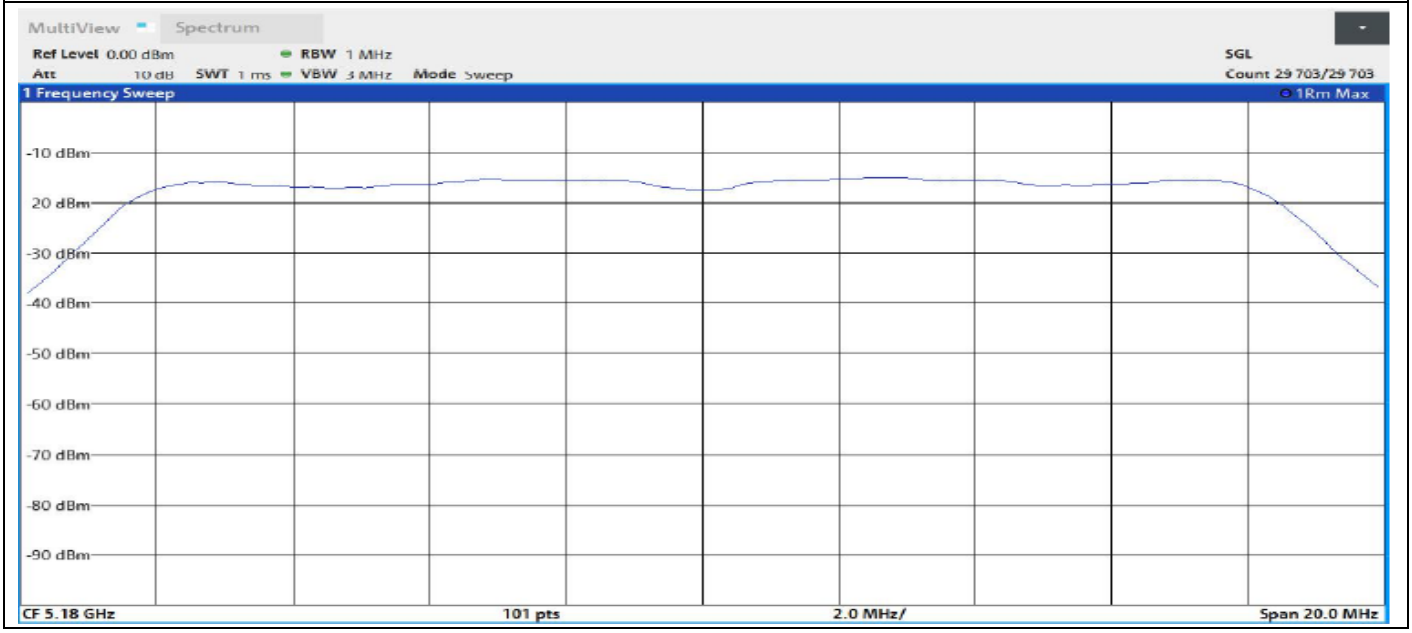
15.407(a)(1)(iv):11dBm for client devices with antenna gains less than 6dBi.

Since client devices are subject to more stringent limits, unit was tested against the limits for a client device.

Mode	Data Rate	PSD (dBm) 5180 MHz	PSD (dBm) 5200 MHz	PSD (dBm) 5240 MHz	Limit (dBm)	Power Setting (dBm)
802.11a	**6Mbps**	3.027	3.624	4.012	11.0	15

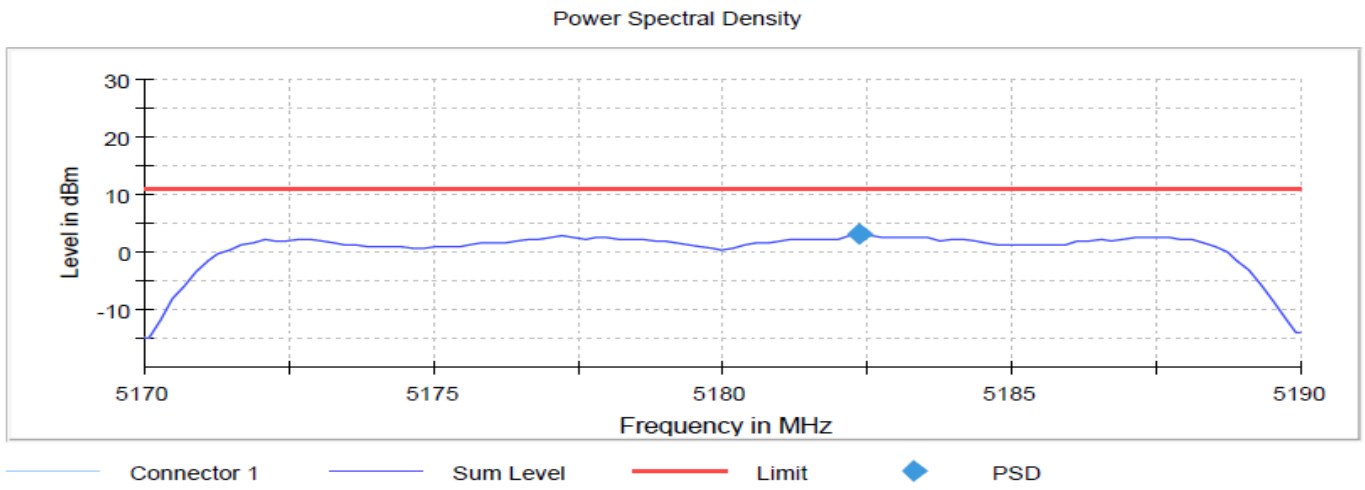
802.11a 5180 MHz 6Mbps

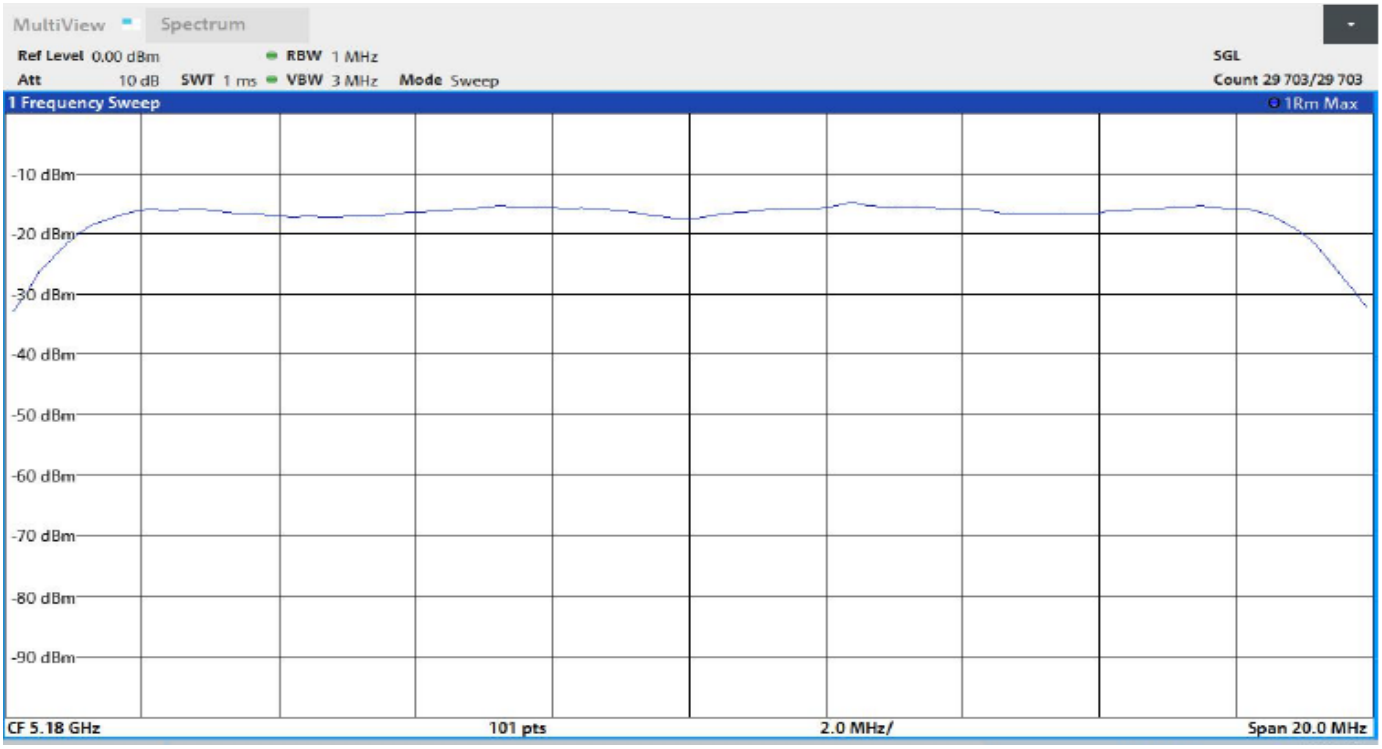




Mode	Data Rate	PSD (dBm) 5180 MHz	PSD (dBm) 5200 MHz	PSD (dBm) 5240 MHz	Limit (dBm)	Power Setting (dBm)
802.11n (HT20)	**MCS0**	3.259	3.876	4.161	11.0	15

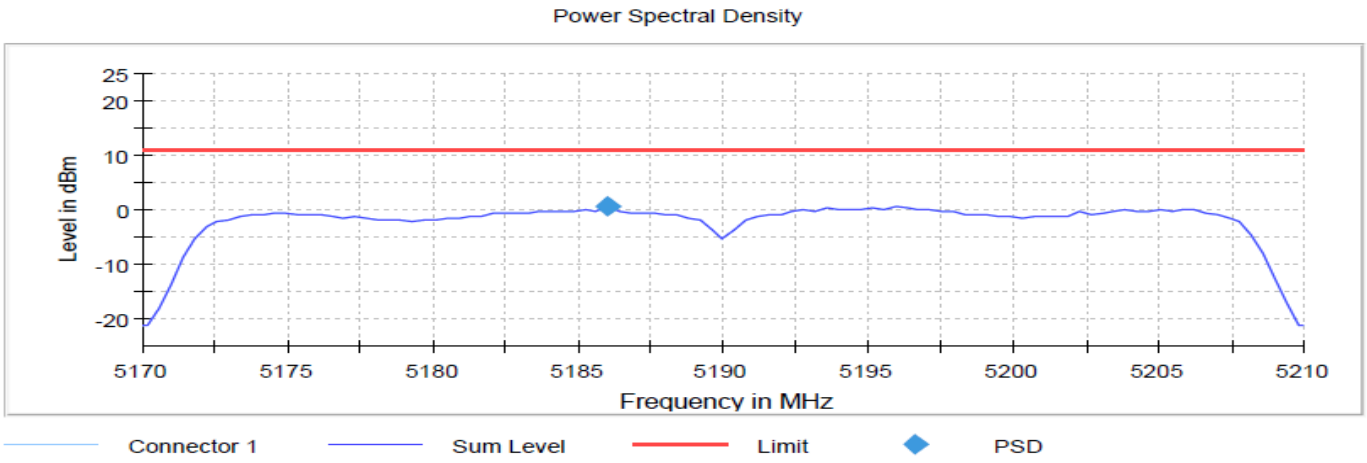
802.11n (HT20) 5180 MHz MCS0

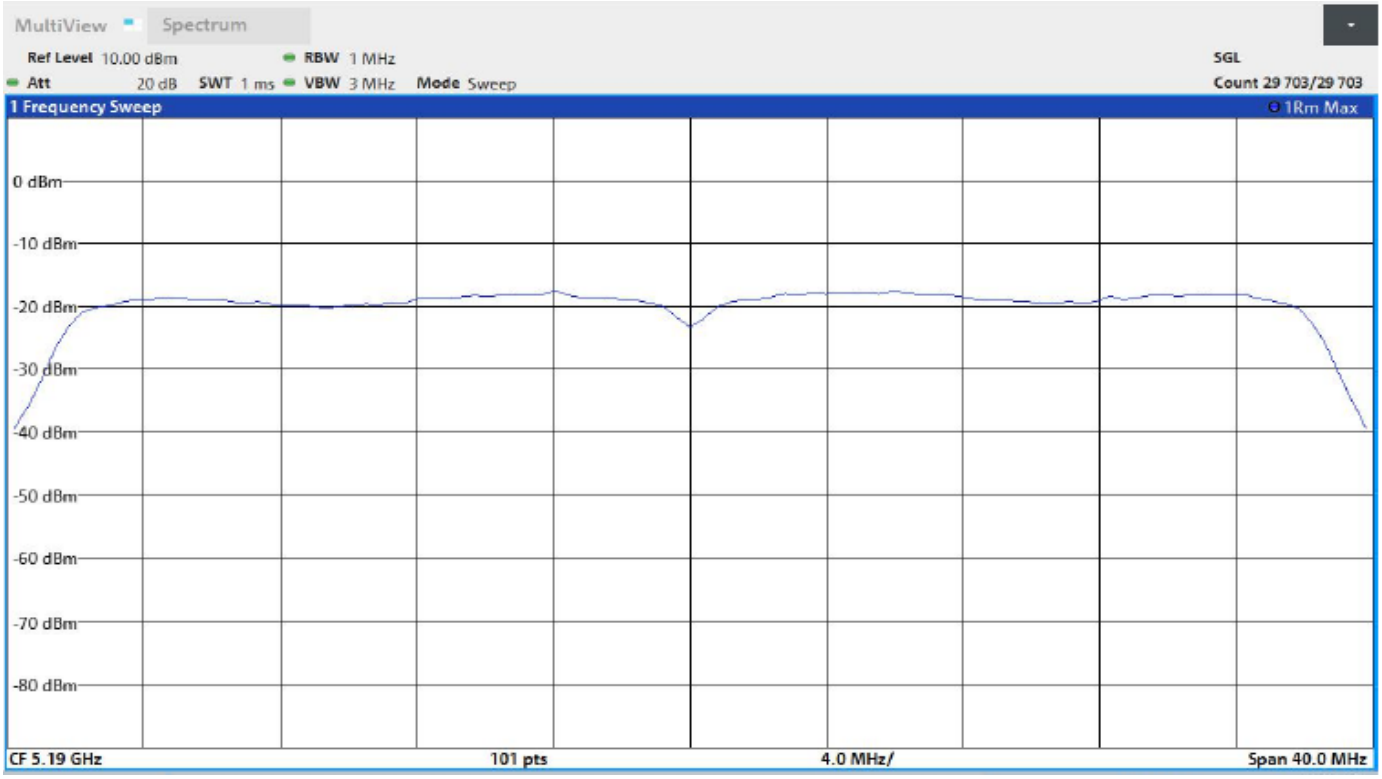




Mode	Data Rate	PSD (dBm) 5190 MHz	PSD (dBm) 5230 MHz	Limit (dBm)	Power Setting (dBm)
802.11n (HT40)	**MCS0**	0.603	0.556	11.0	15

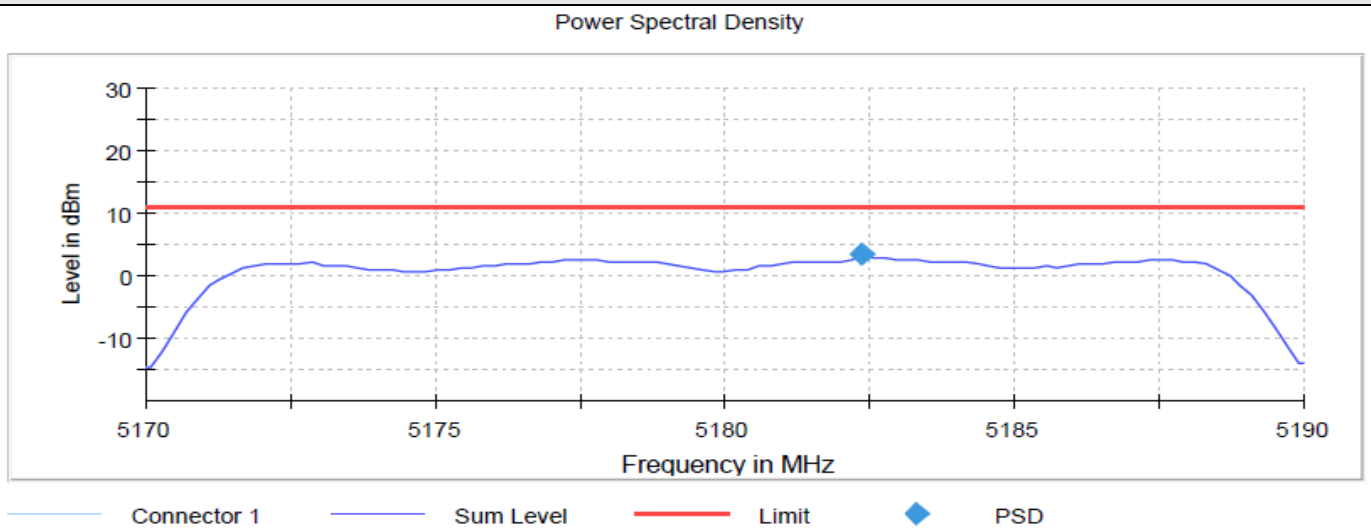
802.11n (HT40) 5190 MHz MCS0

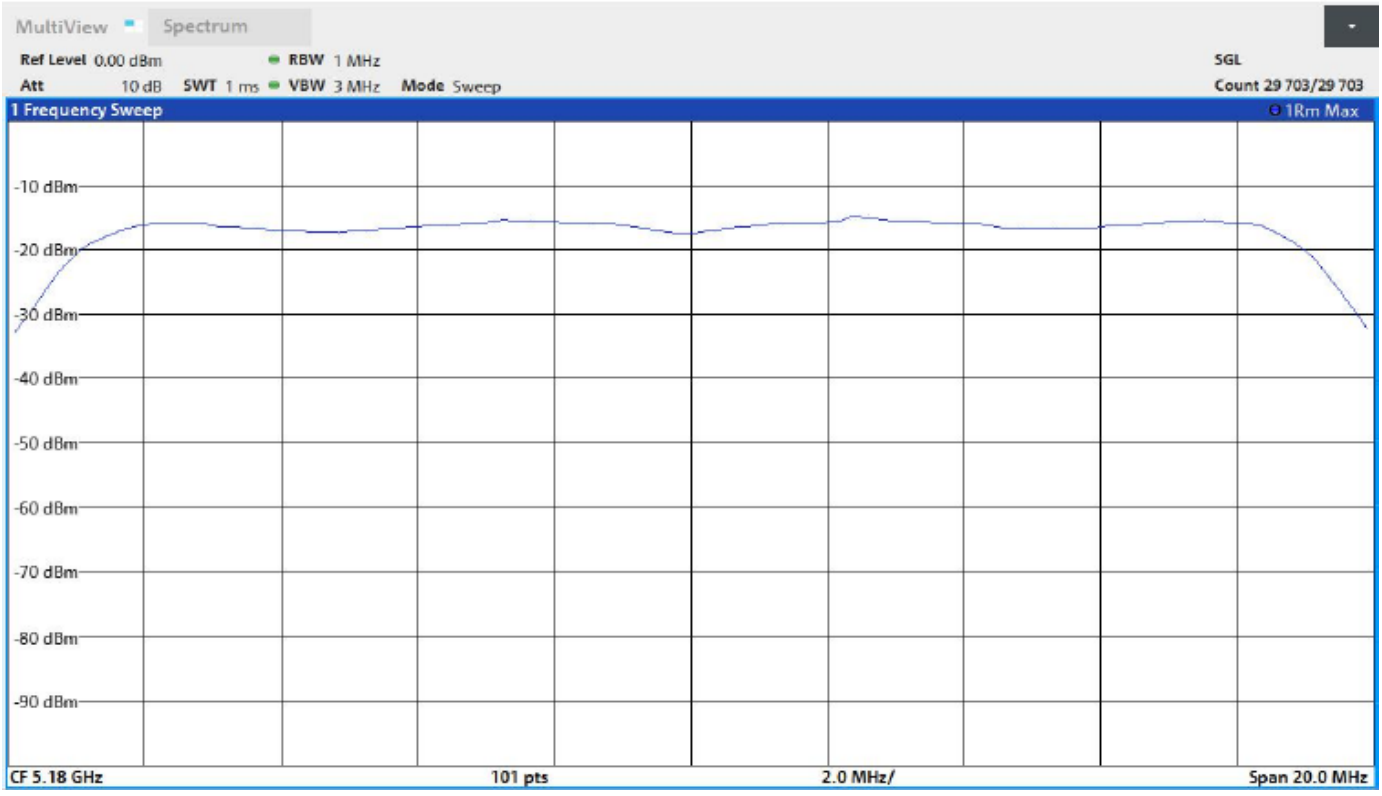




Mode	Data Rate	PSD (dBm) 5180 MHz	PSD (dBm) 5200 MHz	PSD (dBm) 5240 MHz	Limit (dBm)	Power Setting (dBm)
802.11ac (VHT20)	**MCS0**	3.318	3.624	4.100	11.0	15

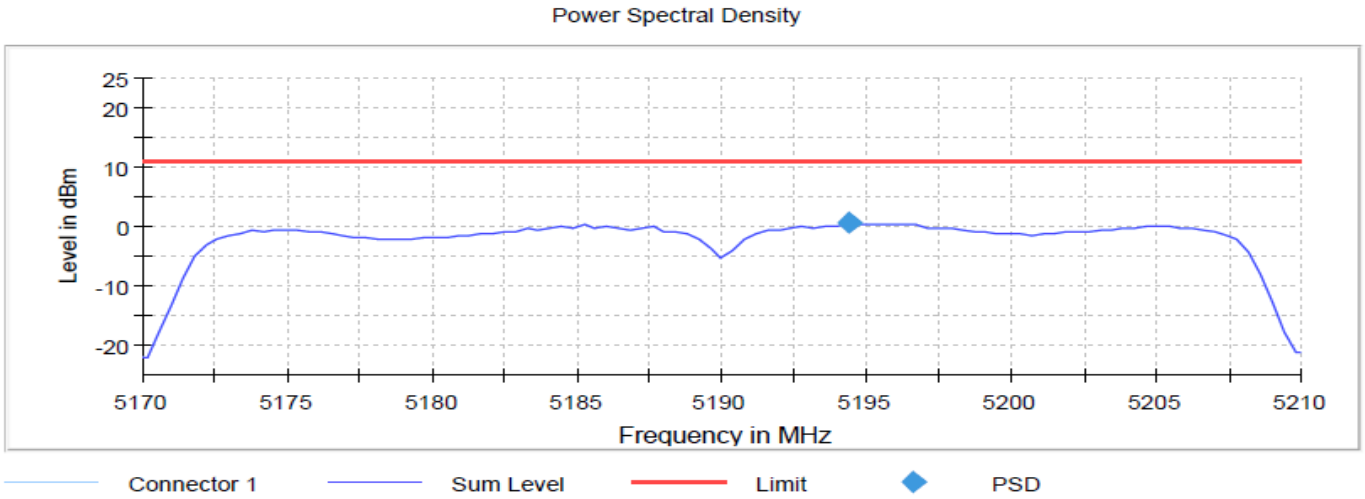
802.11ac (VHT20) 5180 MHz MCS0

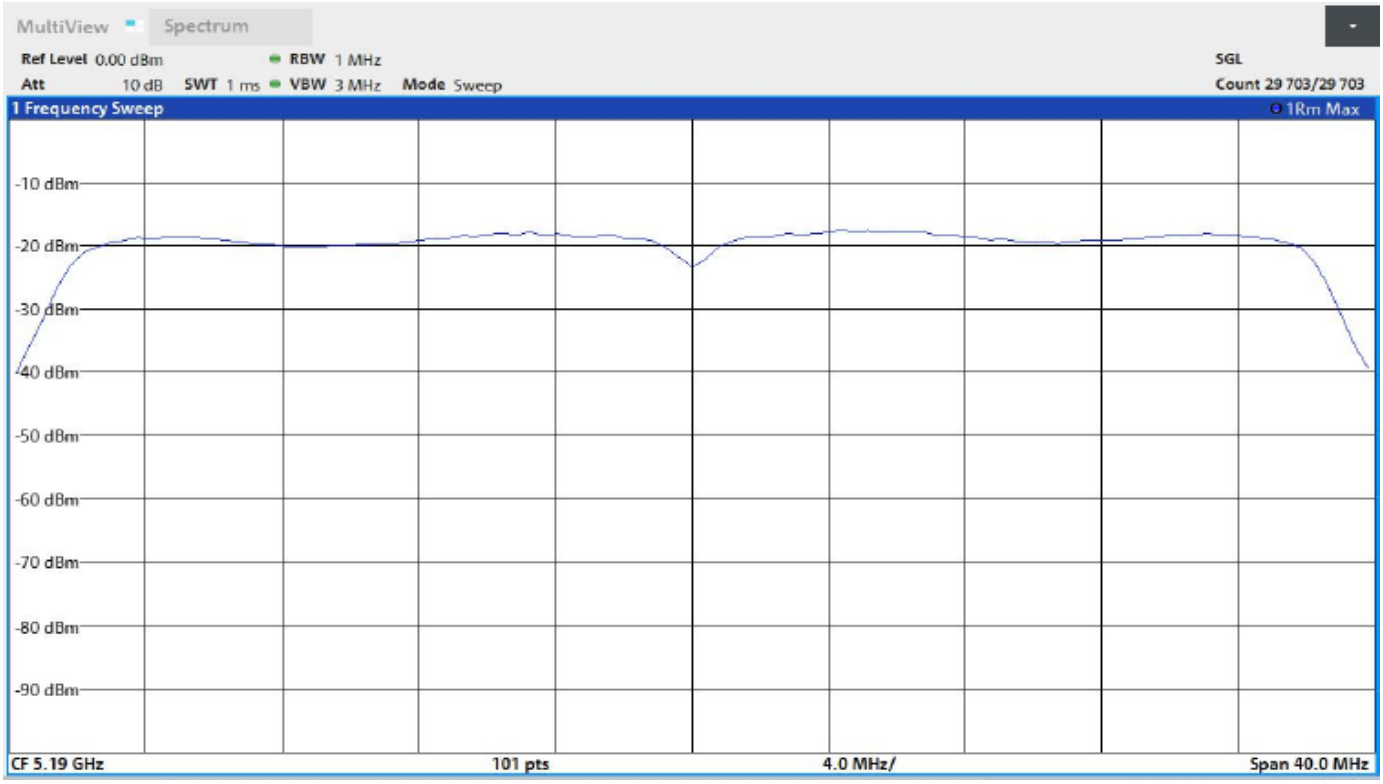




Mode	Data Rate	PSD (dBm) 5190 MHz	PSD (dBm) 5230 MHz	Limit (dBm)	Power Setting (dBm)
802.11ac (VHT40)	**MCS0**	0.558	0.819	11.0	13

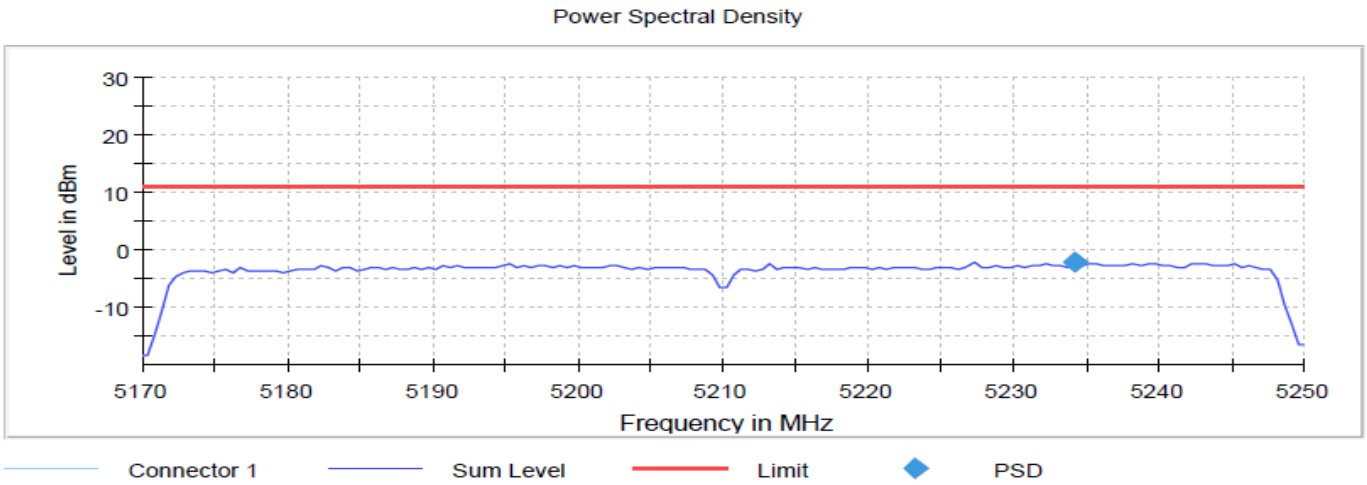
802.11ac (VHT40) 5190 MHz MCS0

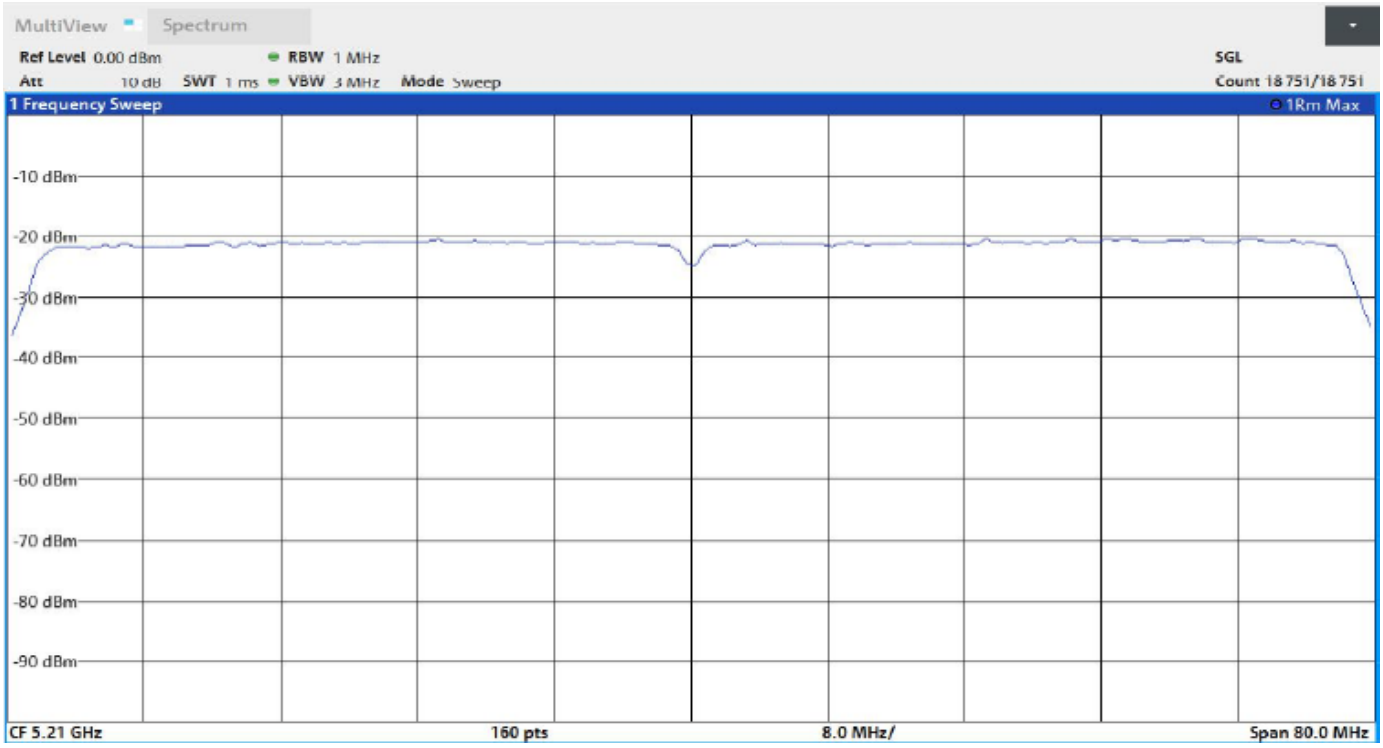




Mode	Data Rate	PSD (dBm) 5210 MHz	Limit (dBm)	Power Setting (dBm)
802.11ac (VHT80)	**MCS0**	-2.236	11.0	12

802.11ac (VHT80) 5210 MHz MCS0





RSS-247

802.11a

Data Rate	PSD(dBm) 5180MHz	Antenna Gain (dBi)	EIRP PSD (dBm)	Limit (dBm)	Power Setting (dBm)
6 Mbps	-1.032	4.39	3.358	10.0	11
Data Rate	**PSD(dBm) 5200MHz**	**Antenna Gain (dBi)**	**EIRP PSD (dBm)**	**Limit (dBm)**	**Power Setting (dBm)**
6 Mbps	-0.417	4.39	3.973	10.0	11
Data Rate	**PSD(dBm) 5240MHz**	**Antenna Gain (dBi)**	**EIRP PSD (dBm)**	**Limit (dBm)**	**Power Setting (dBm)**
6 Mbps	-0.029	4.39	4.361	10.0	11

802.11n (HT20)

Data Rate	PSD(dBm) 5180MHz	Antenna Gain (dBi)	EIRP PSD (dBm)	Limit (dBm)	Power Setting (dBm)
MCS0	-1.788	4.39	2.602	10.0	10
Data Rate	**PSD(dBm) 5200MHz**	**Antenna Gain (dBi)**	**EIRP PSD (dBm)**	**Limit (dBm)**	**Power Setting (dBm)**
MCS0	-1.586	4.39	2.804	10.0	10
Data Rate	**PSD(dBm) 5240MHz**	**Antenna Gain (dBi)**	**EIRP PSD (dBm)**	**Limit (dBm)**	**Power Setting (dBm)**
MCS0	-1.094	4.39	3.296	10.0	10

802.11n (HT40)

Data Rate	PSD(dBm) 5190MHz	Antenna Gain (dBi)	EIRP PSD (dBm)	Limit (dBm)	Power Setting (dBm)
MCS0	-4.495	4.39	-0.105	10.0	10
Data Rate	**PSD(dBm) 5230MHz**	**Antenna Gain (dBi)**	**EIRP PSD (dBm)**	**Limit (dBm)**	**Power Setting (dBm)**
MCS0	-4.223	4.39	0.167	10.0	10

802.11ac (VHT20)

Data Rate	PSD(dBm) 5180MHz	Antenna Gain (dBi)	EIRP PSD (dBm)	Limit (dBm)	Power Setting (dBm)
MCS0	-2.137	4.39	2.253	10.0	10
Data Rate	**PSD(dBm) 5200MHz**	**Antenna Gain (dBi)**	**EIRP PSD (dBm)**	**Limit (dBm)**	**Power Setting (dBm)**
MCS0	-1.296	4.39	3.094	10.0	10
Data Rate	**PSD(dBm) 5240MHz**	**Antenna Gain (dBi)**	**EIRP PSD (dBm)**	**Limit (dBm)**	**Power Setting (dBm)**
MCS0	-0.878	4.39	3.512	10.0	10

802.11ac (VHT40)

Data Rate	PSD(dBm) 5190MHz	Antenna Gain (dBi)	EIRP PSD (dBm)	Limit (dBm)	Power Setting (dBm)
MCS0	-4.321	4.39	0.069	10.0	10
Data Rate	**PSD(dBm) 5230MHz**	**Antenna Gain (dBi)**	**EIRP PSD (dBm)**	**Limit (dBm)**	**Power Setting (dBm)**
MCS0	-4.241	4.39	0.149	10.0	10

802.11ac (VHT80)

Data Rate	PSD(dBm) 5210MHz	Antenna Gain (dBi)	EIRP PSD (dBm)	Limit (dBm)	Power Setting (dBm)
MCS0	-7.231	4.39	-2.841	10.0	10

4.4.3 DTS Bandwidth 6dB

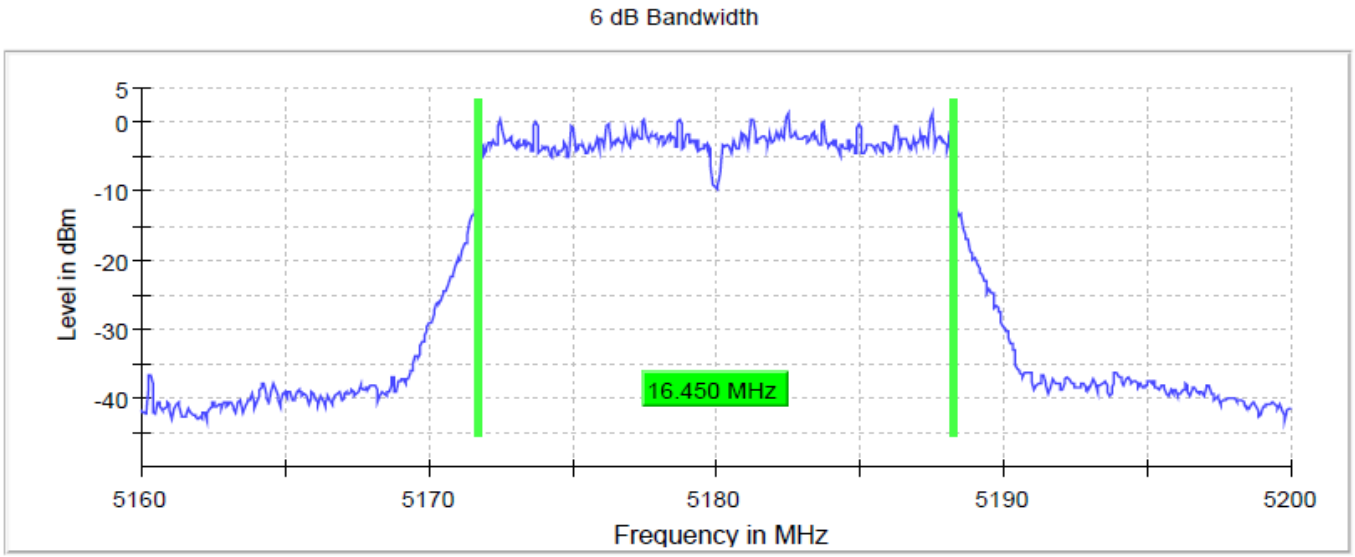
FCC and RSS-247

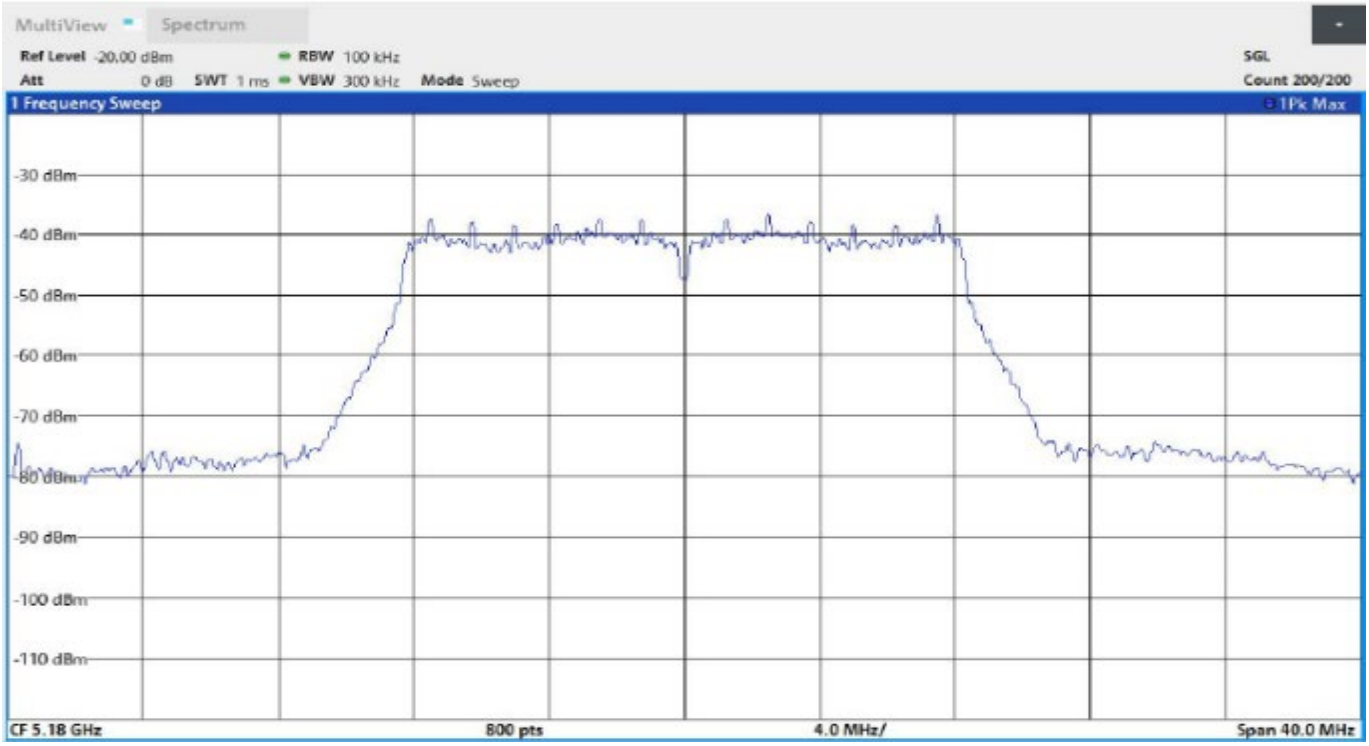
Test according to FCC title 47 part 15 §15.407(a) (e), KDB 789033 D02 General U-NII Test Procedures New Rules v02r01 Section C.2 and ANSI C63.10-2013, ISEDC RSS-247 6.2.4(1)

Measurement uncertainty calculated in accordance with ETSI TR 100 028-1. Expanded Uncertainty (K=2) < 2%

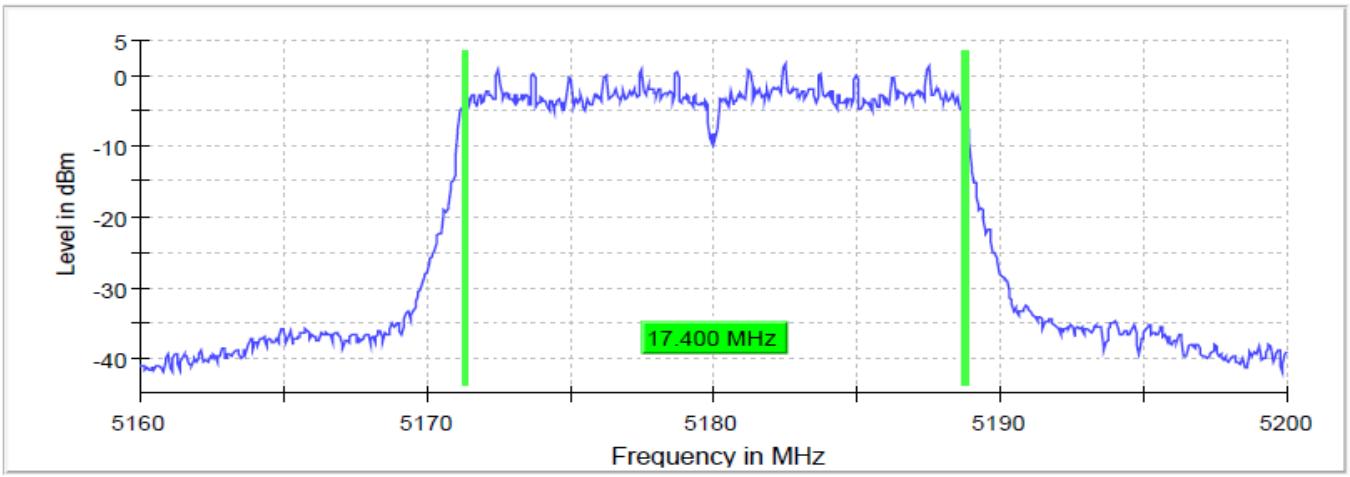
Data Rate	DUT Frequency (MHz)	Bandwidth (MHz)	Band Edge Left (MHz)	Band Edge Right (MHz)	Minimum Limit (MHz)
802.11a 6Mbps	5180.000000	16.450000	5171.775000	5188.225000	0.5
802.11n (HT20) MCS0	5180.000000	17.400000	5171.375000	5188.775000	0.5
802.11ac (VHT20) MCS0	5180.000000	17.400000	5171.375000	5188.775000	0.5
802.11n (HT40) MCS0	5190.000000	35.800000	5172.175000	5207.975000	0.5
802.11ac (VHT40) MCS0	5190.000000	35.900000	5172.075000	5207.975000	0.5
802.11ac (VHT80) MCS0	5210.000000	76.400000	5171.825000	5248.225000	0.5
802.11a 6Mbps	5200.000000	16.450000	5191.775000	5208.225000	0.5
802.11n (HT20) MCS0	5200.000000	17.400000	5191.175000	5208.575000	0.5
802.11ac (VHT20) MCS0	5200.000000	17.600000	5191.175000	5208.775000	0.5
802.11n (HT40) MCS0	5230.000000	35.900000	5212.075000	5247.975000	0.5
802.11ac (VHT40) MCS0	5230.000000	35.900000	5212.075000	5247.975000	0.5
802.11a 6Mbps	5240.000000	16.450000	5231.775000	5248.225000	0.5
802.11n (HT20) MCS0	5240.000000	17.400000	5231.375000	5248.775000	0.5
802.11ac (VHT20) MCS0	5240.000000	17.600000	5231.175000	5248.775000	0.5

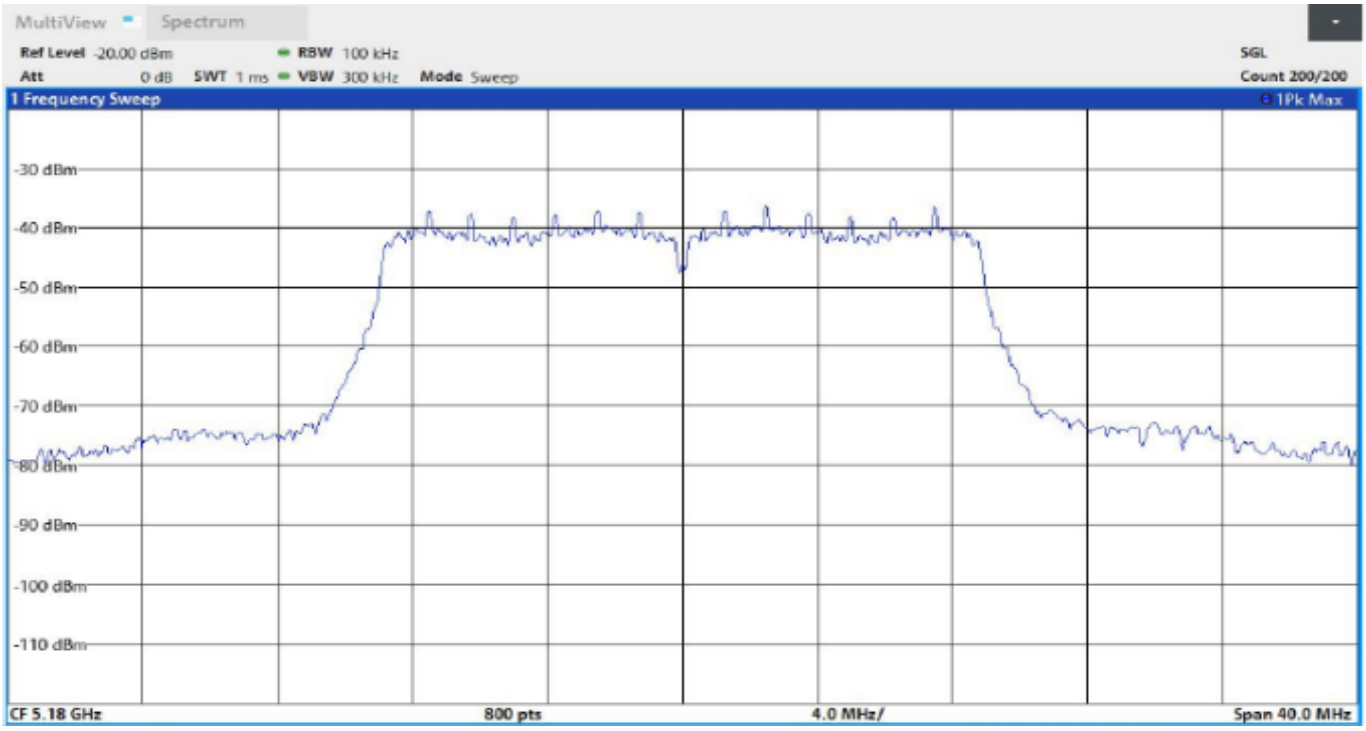
802.11a 5180MHz 6Mbps



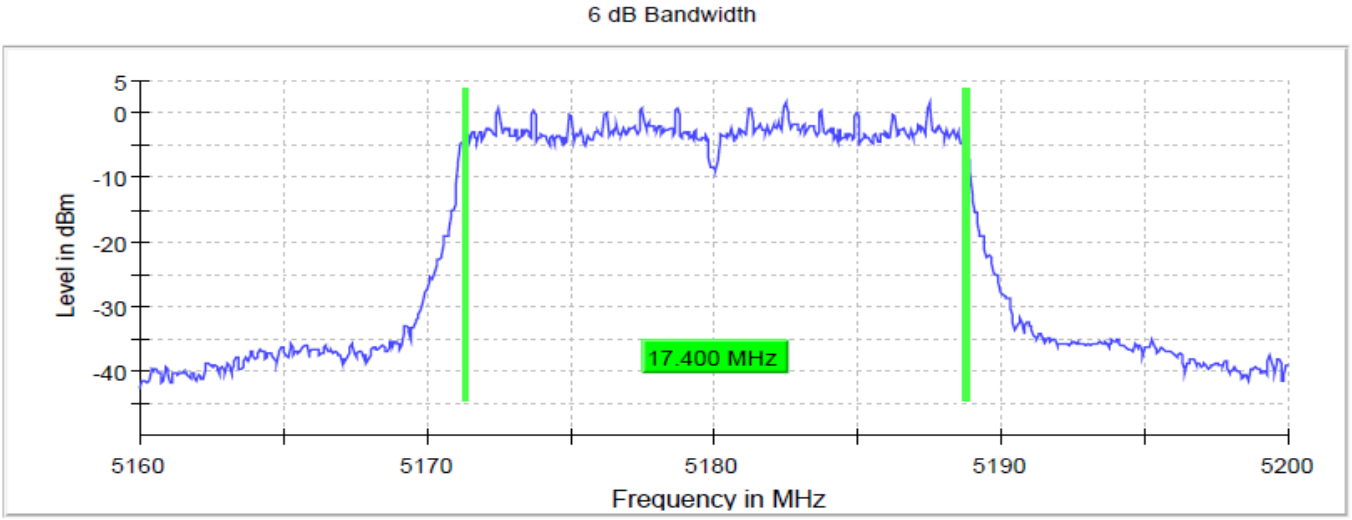


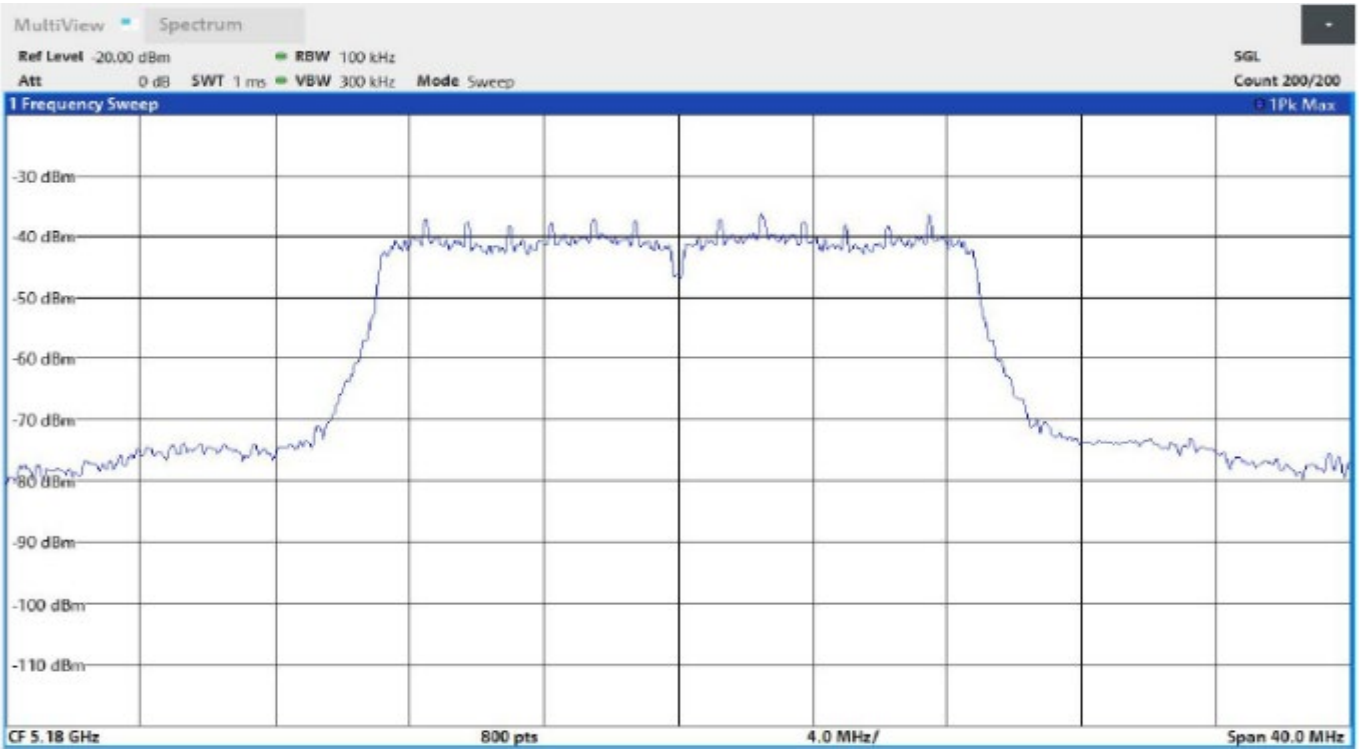
802.11n 5180MHz MCS0





802.11ac 5180MHz MCS0





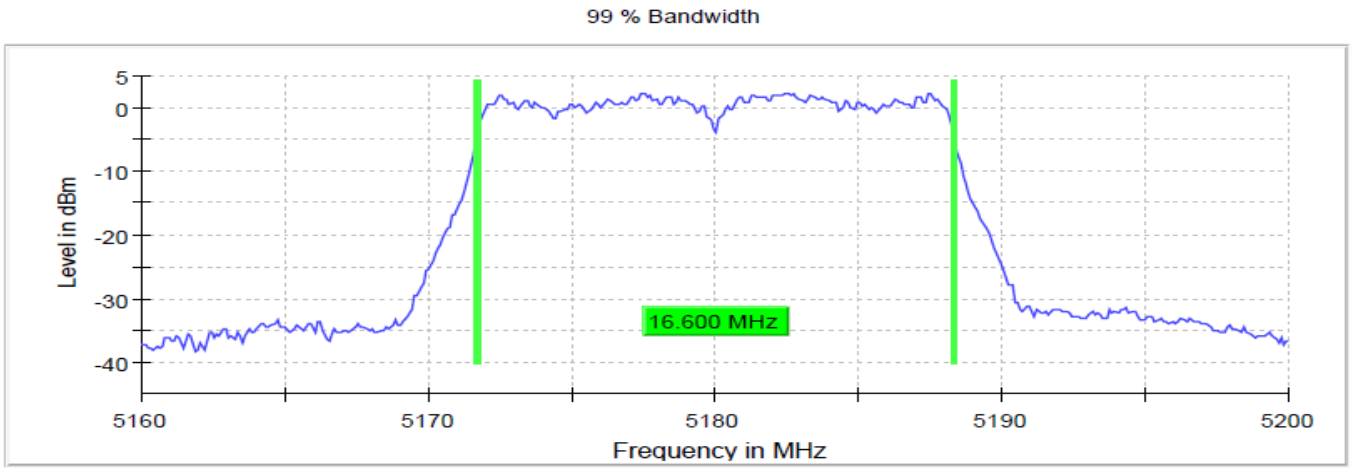
4.4.4 Occupied Channel Bandwidth

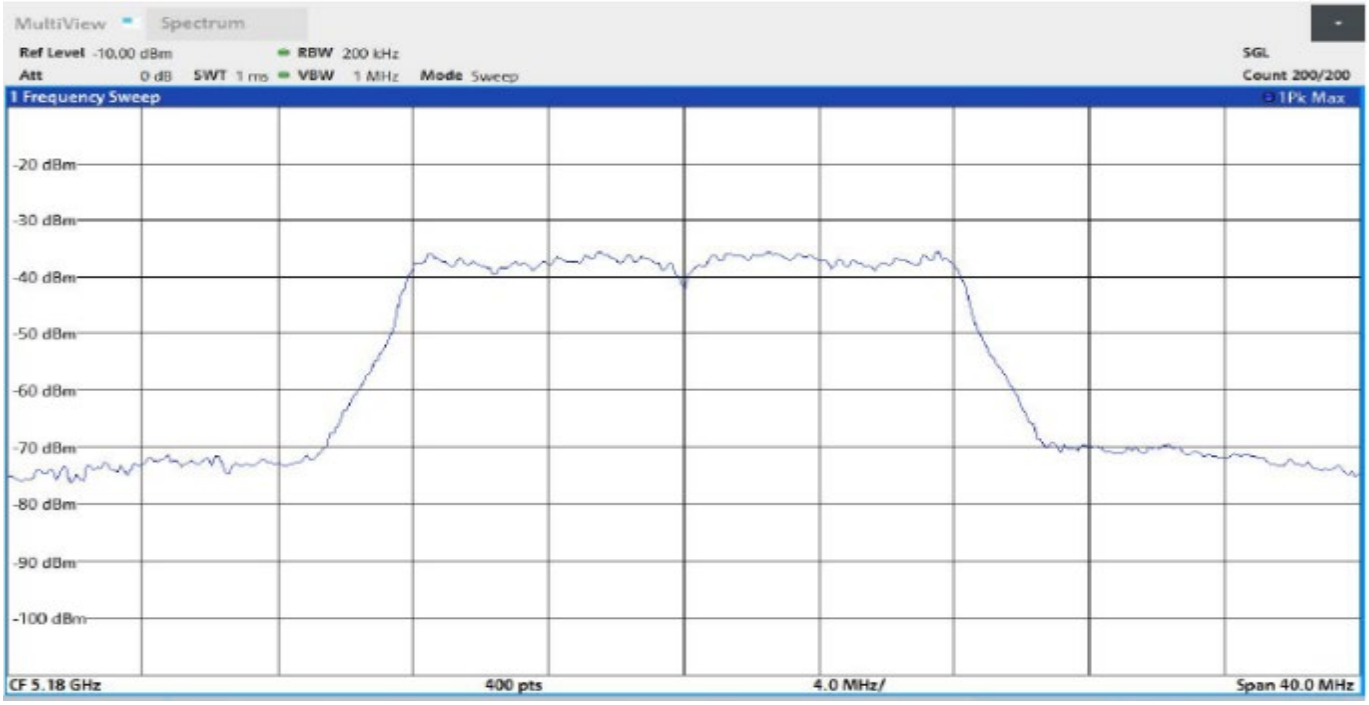
Test according to RSS-GEN Section 6.7, KDB 789033 D02 General U-NII Test Procedures New Rules v02r01 D and ANSI C63.10-2013.

Measurement uncertainty calculated in accordance with ETSI TR 100 028-1. Expanded Uncertainty (K=2) < 2%

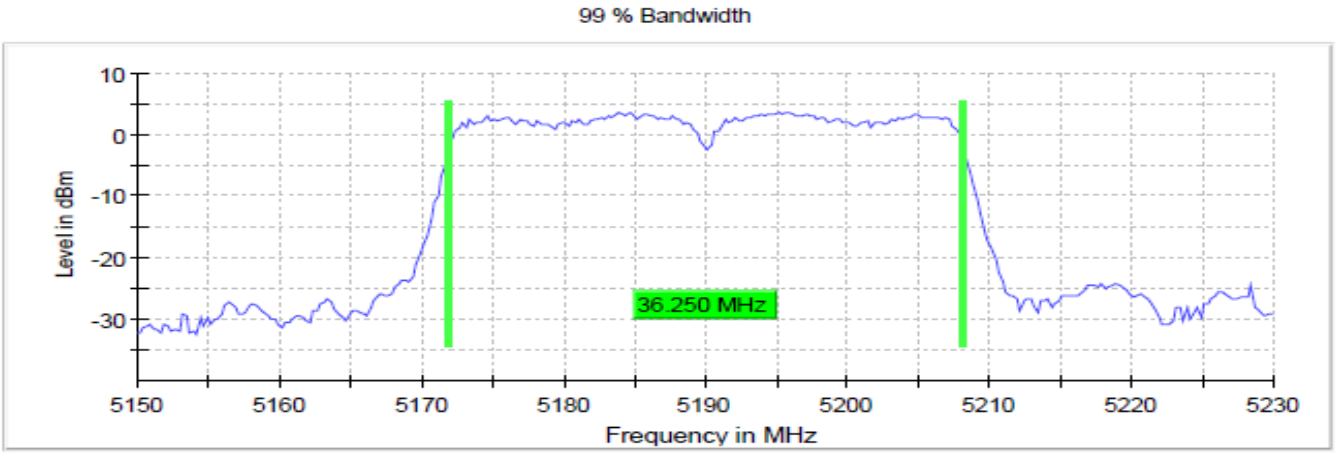
Data Rate	DUT Frequency (MHz)	Bandwidth (MHz)	Band Edge Left (MHz)	Band Edge Right (MHz)	Band Limit (MHz)
802.11a 6Mbps	5180.000000	16.600000	5171.750000	5188.350000	5150-5250
802.11n (HT20) MCS0	5180.000000	17.700000	5171.150000	5188.850000	5150-5250
802.11ac (VHT20) MCS0	5180.000000	17.600000	5171.250000	5188.850000	5150-5250
802.11n (HT40) MCS0	5190.000000	36.250000	5171.875000	5208.125000	5150-5250
802.11ac (VHT40) MCS0	5190.000000	36.500000	5171.875000	5208.375000	5150-5250
802.11ac (VHT80) MCS0	5210.000000	77.000000	5171.750000	5248.750000	5150-5250
802.11a 6Mbps	5200.000000	16.600000	5191.750000	5208.350000	5150-5250
802.11n (HT20) MCS0	5200.000000	17.700000	5191.150000	5208.850000	5150-5250
802.11ac (VHT20) MCS0	5200.000000	17.700000	5191.150000	5208.850000	5150-5250
802.11n (HT40) MCS0	5230.000000	36.500000	5211.875000	5248.375000	5150-5250
802.11ac (VHT40) MCS0	5230.000000	36.250000	5211.875000	5248.125000	5150-5250
802.11a 6Mbps	5240.000000	16.600000	5231.750000	5248.350000	5150-5250
802.11n (HT20) MCS0	5240.000000	17.700000	5231.150000	5248.850000	5150-5250
802.11ac (VHT20) MCS0	5240.000000	17.700000	5231.150000	5248.850000	5150-5250

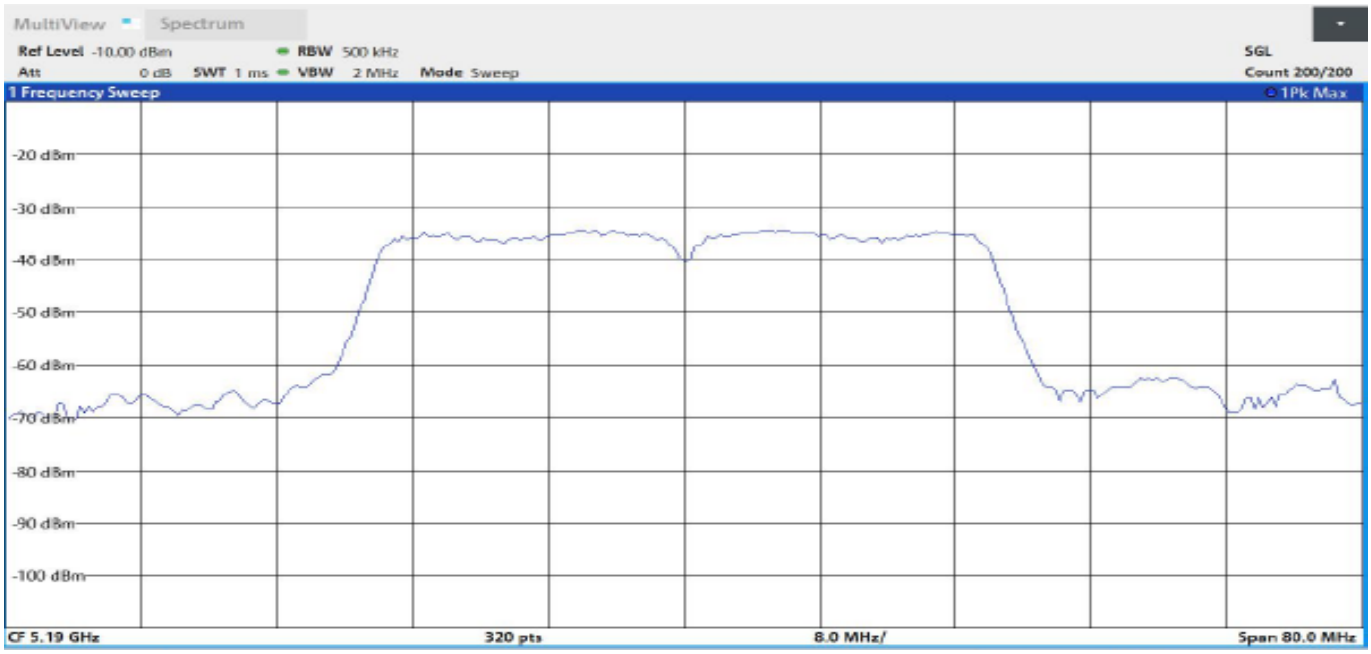
802.11a 5180MHz 6Mbps



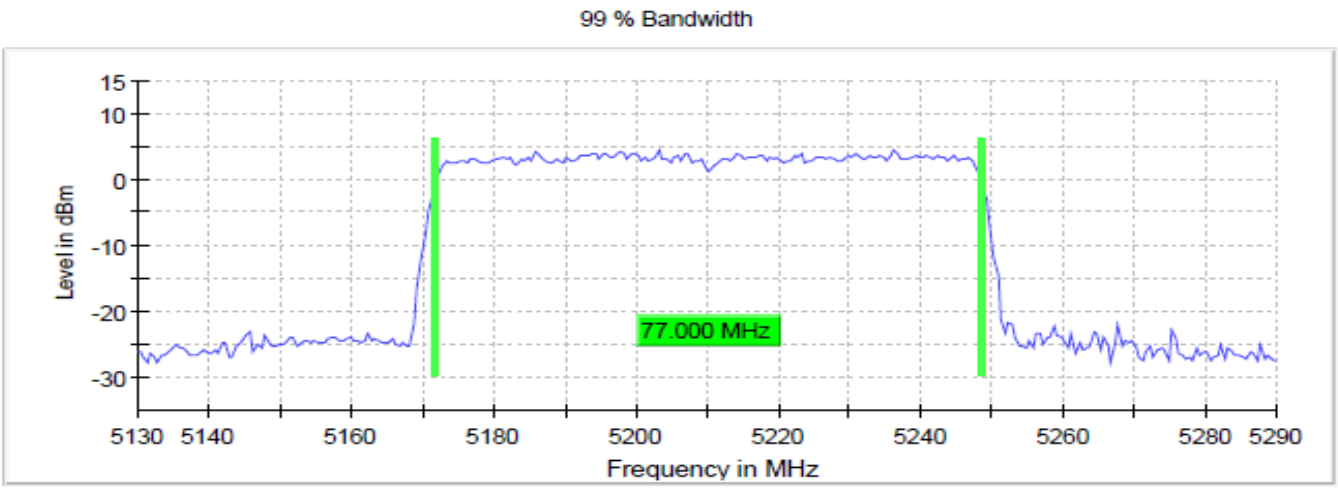


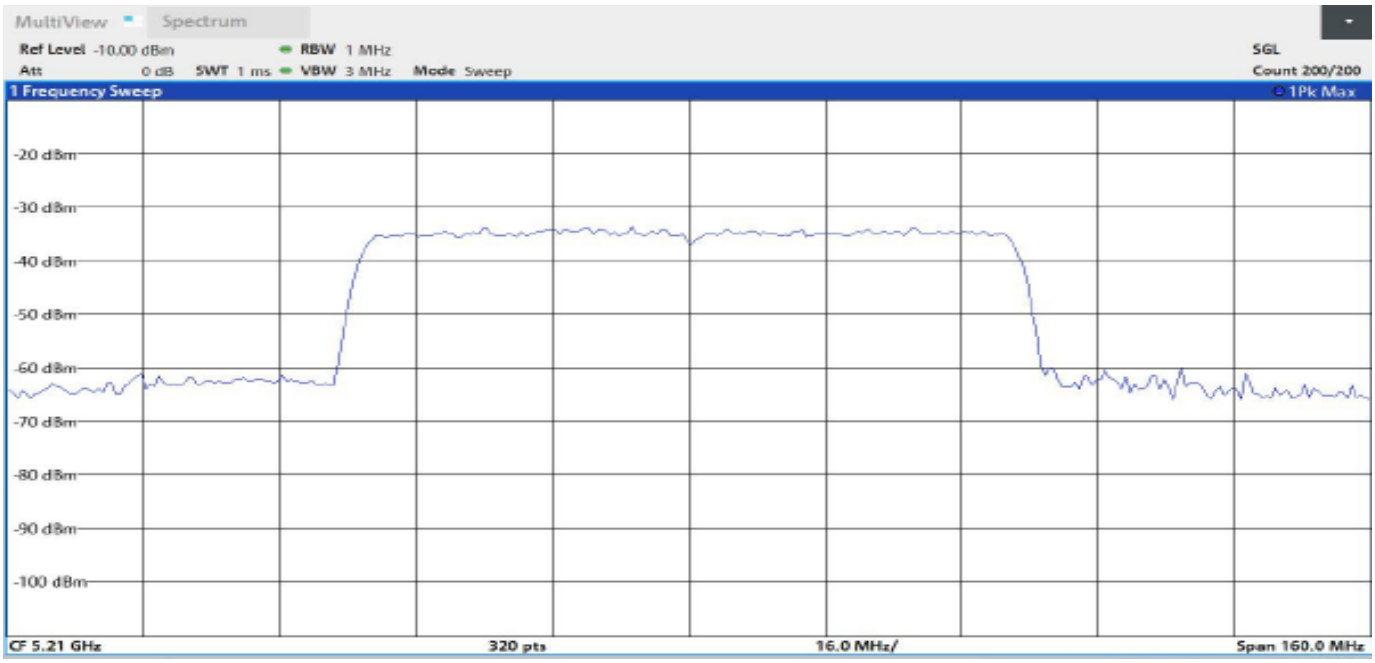
802.11n (HT40) 5190MHz MCS0





802.11ac (VHT80) 5210MHz MCS0





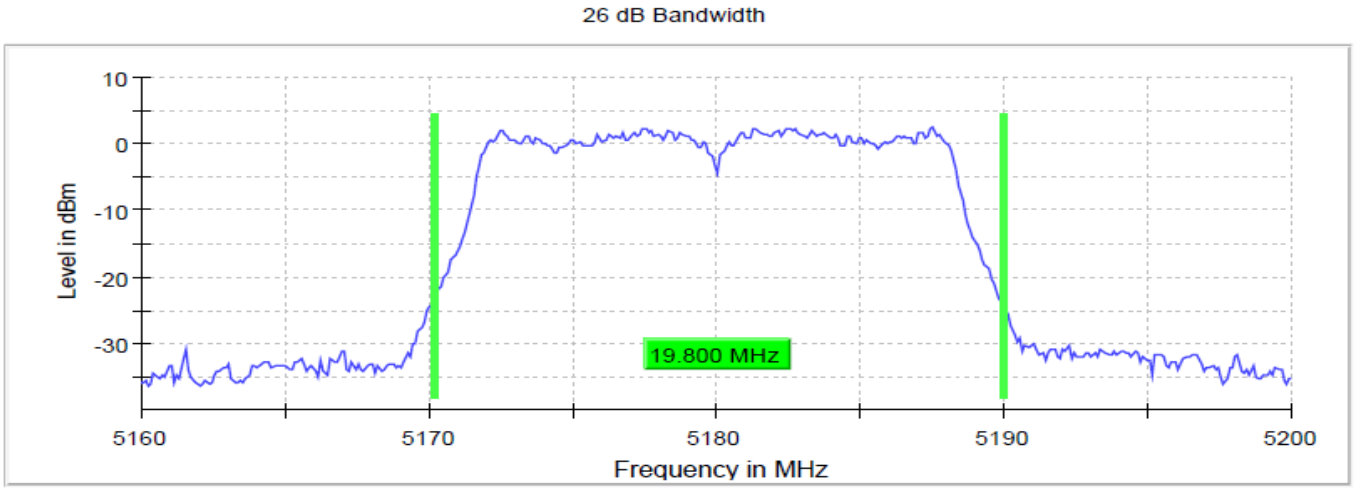
4.4.5 Emission Bandwidth 26 dB

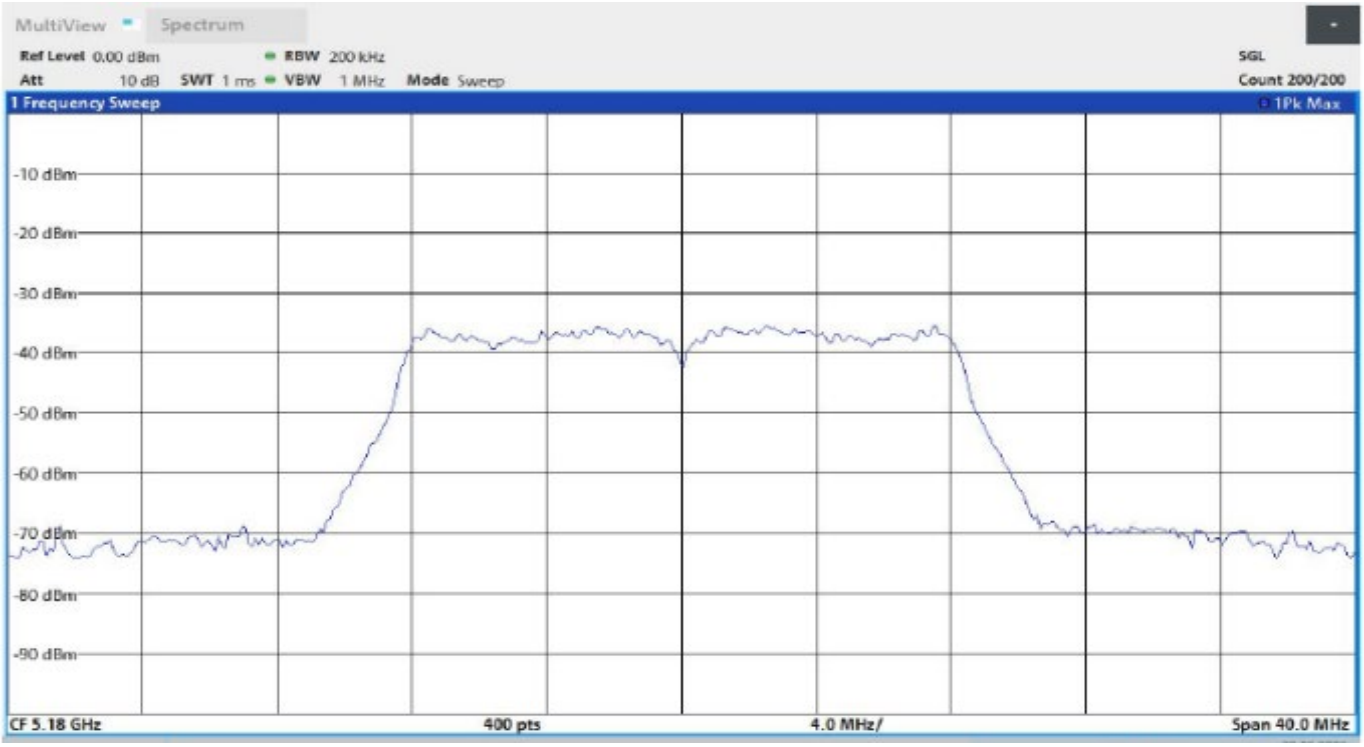
Test according to FCC title 47 part 15 §15.407(a), KDB 789033 D02 General U-NII Test Procedures New Rules v02r01 D and ANSI C63.10-2013

Measurement uncertainty calculated in accordance with ETSI TR 100 028-1. Expanded Uncertainty (K=2) < 2%

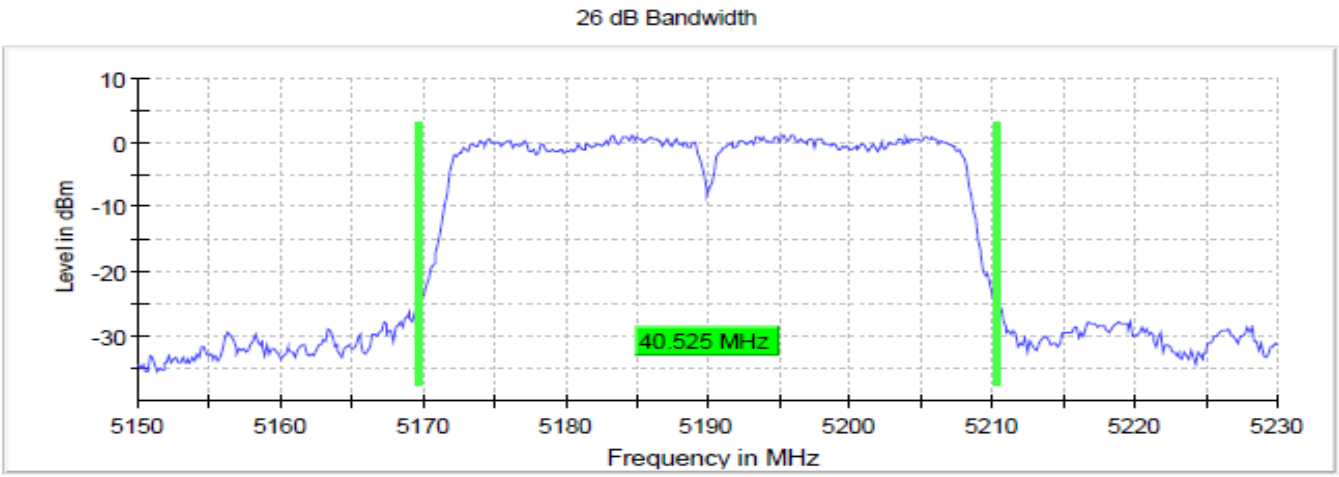
Data Rate	DUT Frequency (MHz)	Bandwidth (MHz)	Band Edge Left (MHz)	Band Edge Right (MHz)
802.11a 6Mbps	5180.000000	19.800000	5170.150000	5189.950000
802.11n (HT20) MCS0	5180.000000	20.300000	5169.950000	5190.250000
802.11ac (VHT20) MCS0	5180.000000	20.200000	5169.950000	5190.150000
802.11n (HT40) MCS0	5190.000000	40.525328	5169.737336	5210.262664
802.11ac (VHT40) MCS0	5190.000000	40.525328	5169.737336	5210.262664
802.11ac (VHT80) MCS0	5210.000000	87.000000	5168.250000	5255.250000
802.11a 6Mbps	5200.000000	19.800000	5190.150000	5209.950000
802.11n (HT20) MCS0	5200.000000	20.200000	5189.950000	5210.150000
802.11ac (VHT20) MCS0	5200.000000	20.300000	5189.950000	5210.250000
802.11n (HT40) MCS0	5230.000000	40.675422	5209.587242	5250.262664
802.11ac (VHT40) MCS0	5230.000000	40.825516	5209.587242	5250.412758
802.11a 6Mbps	5240.000000	19.800000	5230.150000	5249.950000
802.11n (HT20) MCS0	5240.000000	20.200000	5229.950000	5250.150000
802.11ac (VHT20) MCS0	5240.000000	20.300000	5229.850000	5250.150000

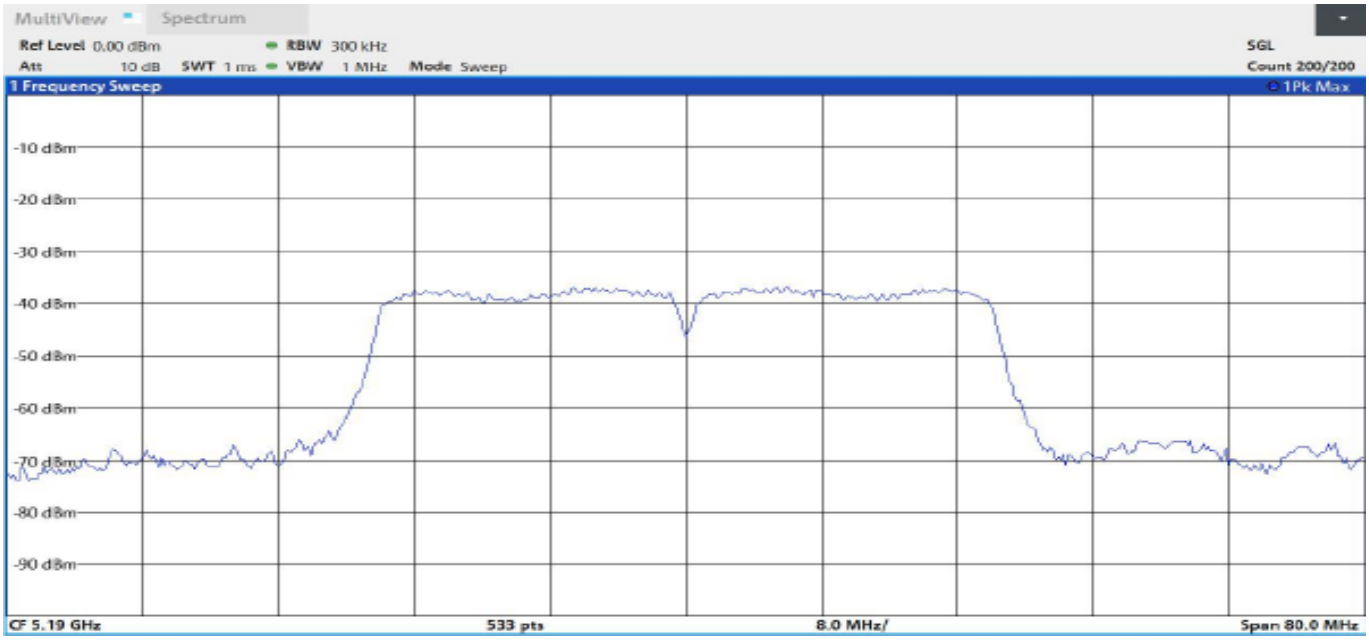
802.11a 5180MHz 6Mbps



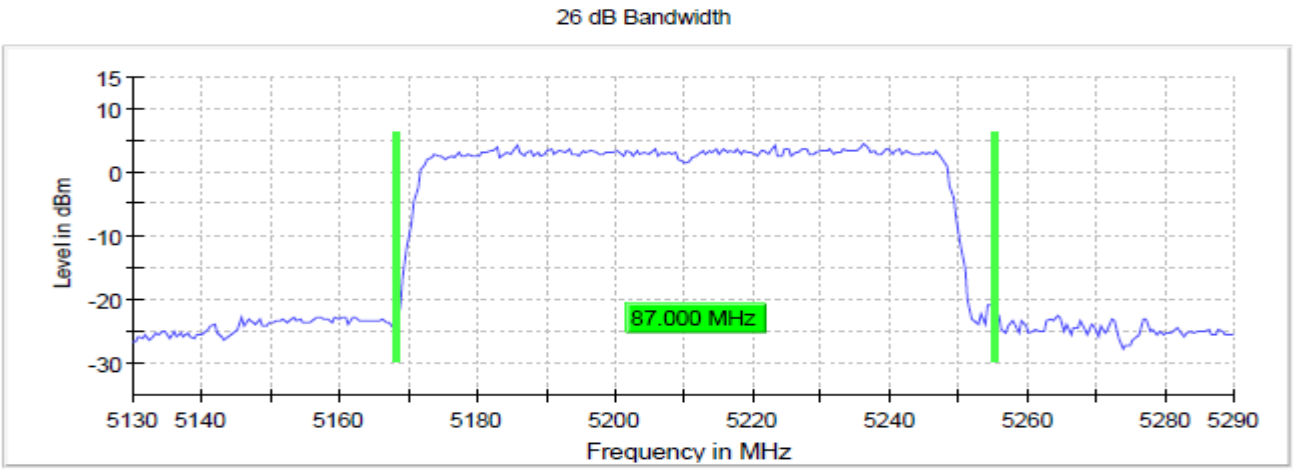


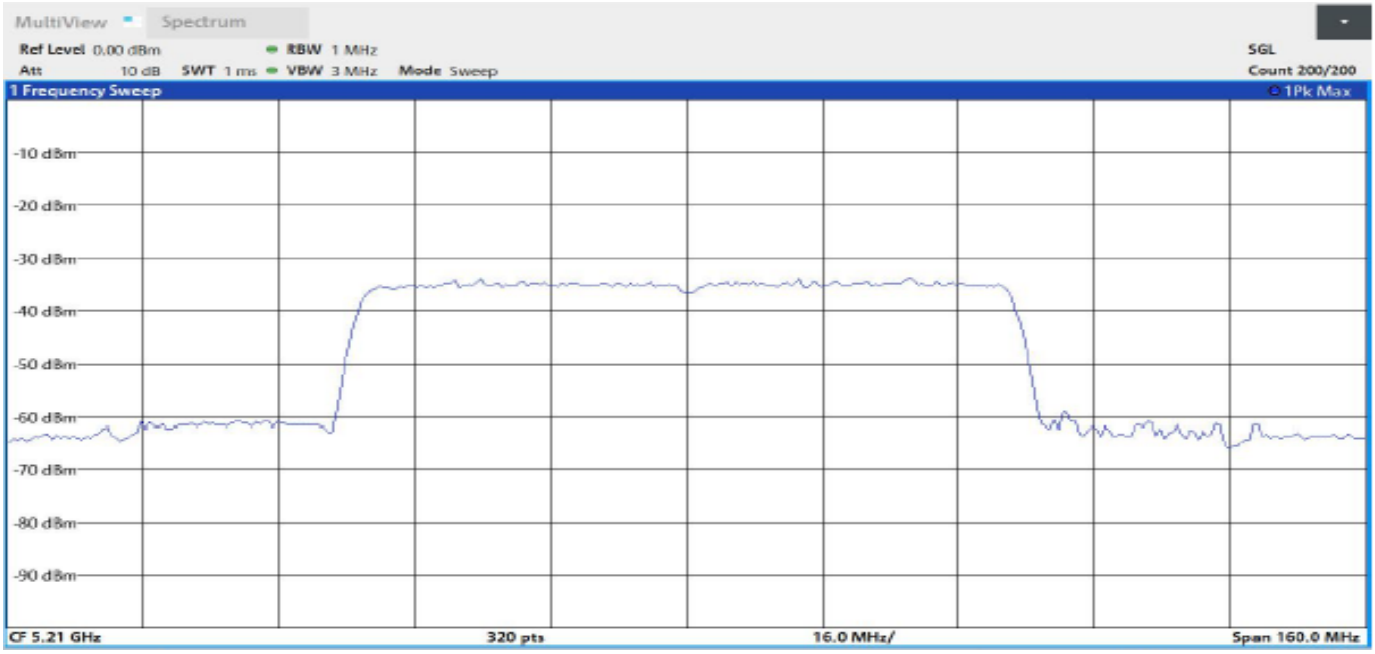
802.11n (HT40) 5190MHz MCS0





802.11ac (VHT80) 5210MHz MCS0





4.5 UNII-3

Mode	Channel	Frequency
802.11a **802.11n(HT20)** **802.11ac(VHT20)**	149	5745
802.11n(HT40) **802.11ac(VHT40)**	151	5755
802.11ac(VHT80)	155	5775
802.11a **802.11n(HT20)** **802.11ac(VHT20)**	157	5785
802.11n(HT40) **802.11ac(VHT40)**	159	5795
802.11a **802.11n(HT20)** **802.11ac(VHT20)**	165	5825

Notes:- Output power measurements performed on all supported worst data rate of each supported 802.11 mode.

Power Settings

802.11a		802.11n (HT20)		802.11ac (VHT20)	
Channel	**Power Setting**	**Channel**	**Power Setting**	**Channel**	**Power Setting**
149	15	**149**	15	**149**	15
157	15	**157**	15	**157**	15
165	15	**165**	15	**165**	15

802.11n (HT40)		802.11ac (VHT40)	
Channel	**Power Setting**	**Channel**	**Power Setting**
151	15	**151**	15
159	15	**159**	15

802.11ac (VHT80)	
Channel	**Power Setting**
155	15

4.5.1 RF output power and Duty-Cycle

FCC and RSS-247

Test according to FCC title 47 part 15 §15.407(a), KDB 789033 D02 General U-NII Test Procedures New Rules v02r01 II.E and ANSI C63.10-2013 (In Reference to KDB 789033 E.3.B)

Measurement uncertainty calculated in accordance with ETSI TR 100 028-1. Expanded Combined Uncertainty of absolute Level Measurement (K=2) < 1 dB

802.11a

Data Rate	Gated RMS (dBm) 5745 MHz	Gated RMS (dBm) 5785 MHz	Gated RMS (dBm) 5825 MHz	Limit (dBm)	Duty Cycle (%)
6 Mbps	8.954	9.381	7.576	30.0	99.056

802.11n (HT20)

Data Rate	Gated RMS (dBm) 5745 MHz	Gated RMS (dBm) 5785 MHz	Gated RMS (dBm) 5825 MHz	Limit (dBm)	Duty Cycle (%)
MCS0	8.899	9.389	7.545	30.0	98.999

802.11ac (VHT20)

Data Rate	Gated RMS (dBm) 5745 MHz	Gated RMS (dBm) 5785 MHz	Gated RMS (dBm) 5825 MHz	Limit (dBm)	Duty Cycle (%)
MCS0	8.922	9.119	7.658	30.0	98.998

802.11n (HT40)

Data Rate	Gated RMS (dBm) 5755 MHz	Gated RMS (dBm) 5795 MHz	Limit (dBm)	Duty Cycle (%)
MCS0	9.145	9.503	30.0	98.028

802.11ac (VHT40)

Data Rate	Gated RMS (dBm) 5755 MHz	Gated RMS (dBm) 5795 MHz	Limit (dBm)	Duty Cycle (%)
MCS0	9.158	9.533	30.0	98.044

802.11ac (VHT80)

Data Rate	Gated RMS (dBm) 5775 MHz	Limit (dBm)	Duty Cycle (%)
MCS0	9.346	30.0	96.126

4.5.2 Power Spectral Density

FCC and RSS-247

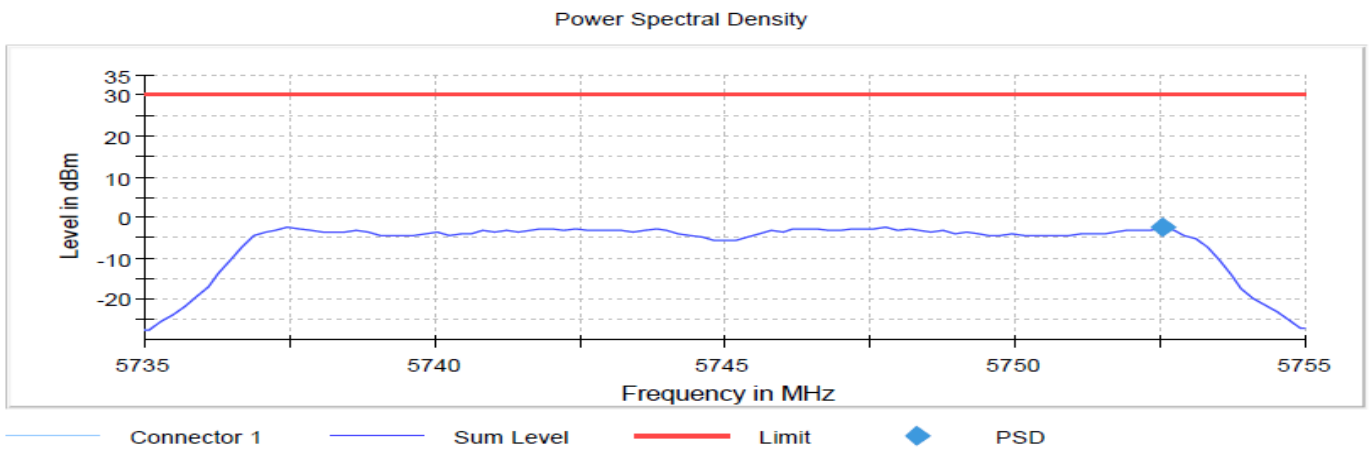
Test according to FCC title 47 part 15 §15.407(a), KDB 789033 D02 General U-NII Test Procedures New Rules v02r01 II.F with test method SA-1 and ANSI C63.10-2013

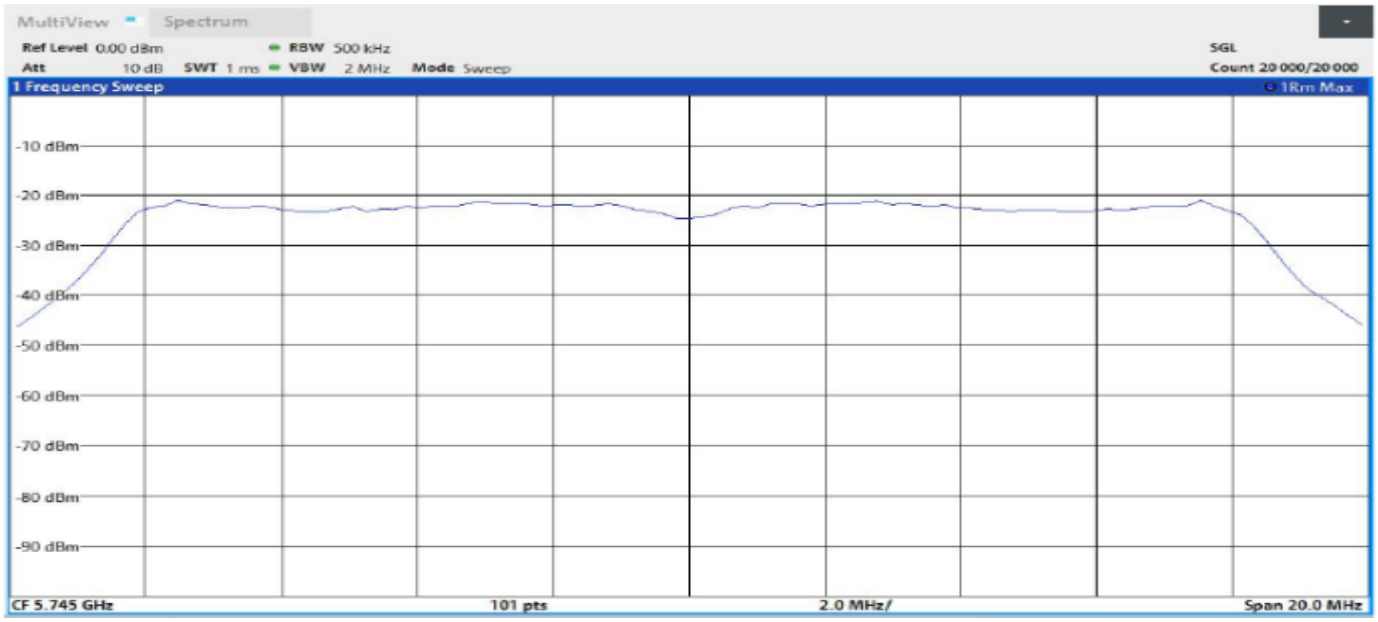
Measurement uncertainty calculated in accordance with ETSI TR 100 028-1. Expanded Uncertainty (K=2) < 1.3 dB

802.11a 6Mbps

Data Rate	PSD (dBm) 5745 MHz	PSD (dBm) 5785 MHz	PSD (dBm) 5825 MHz	Limit (dBm)
6Mbps	-2.209	-1.857	-4.017	30.0

802.11a 5745 MHz 6Mbps





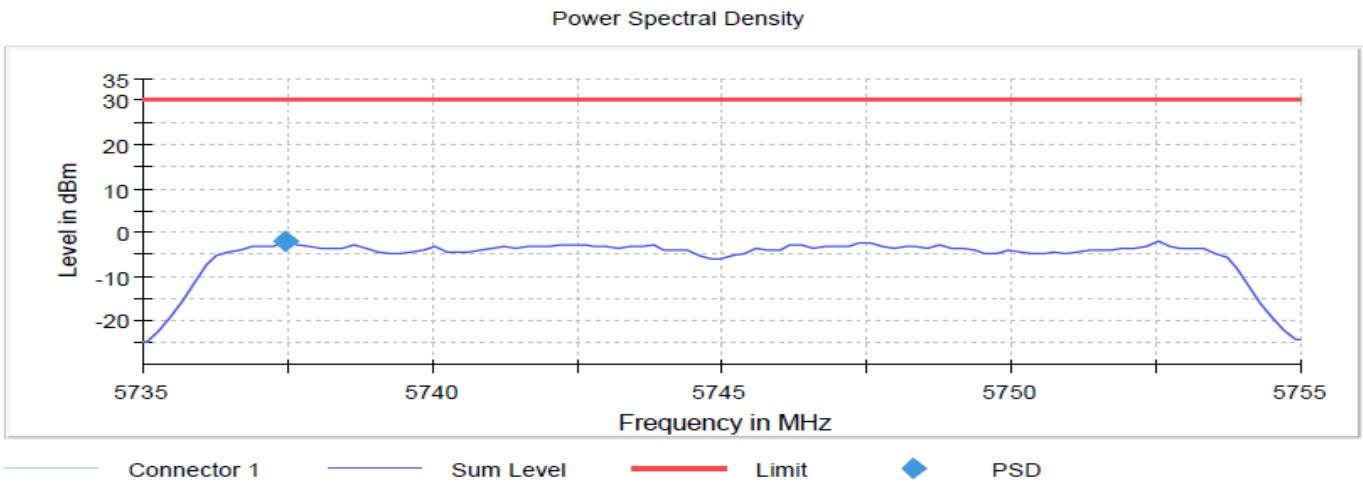
802.11n (HT20)

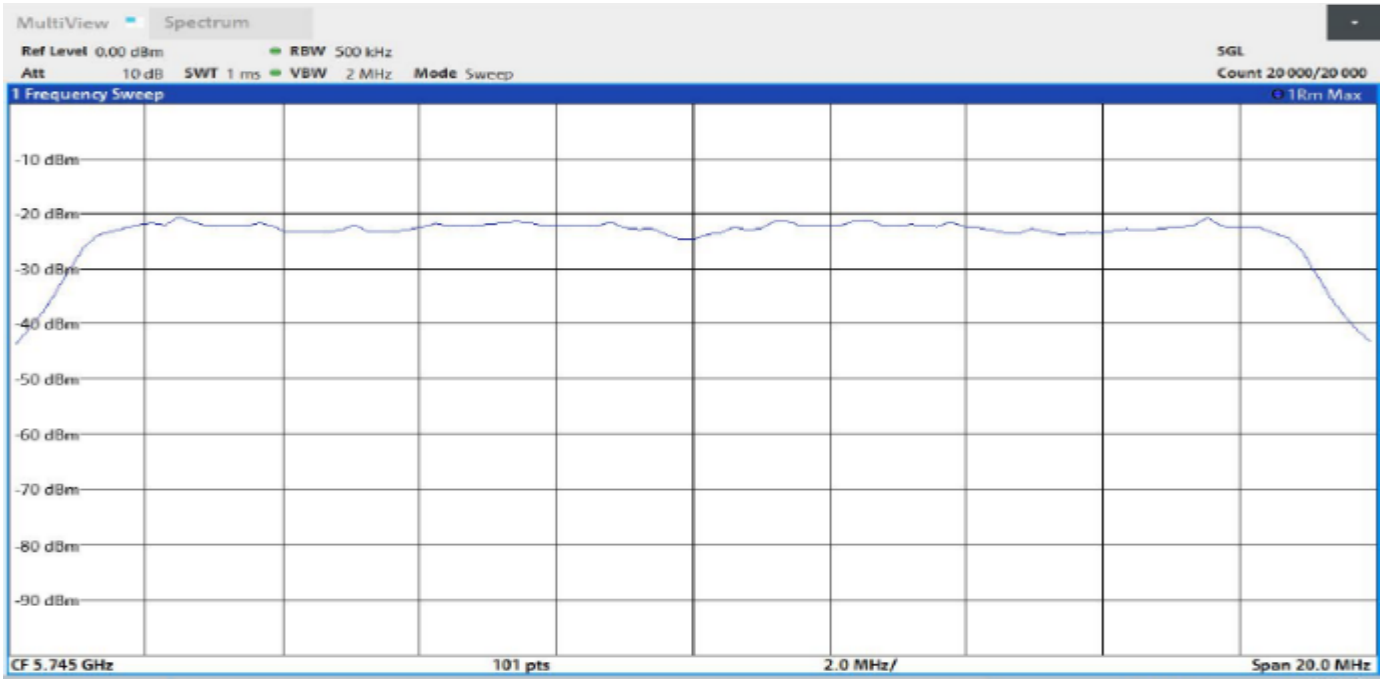
Data Rate	PSD (dBm) 5745 MHz	PSD (dBm) 5785 MHz	PSD (dBm) 5825 MHz	Limit (dBm)
MCS0	-1.890	-1.558	-3.716	30.0

802.11n (HT40)

Data Rate	PSD (dBm) 5755 MHz	PSD (dBm) 5795 MHz	Limit (dBm)
MCS0	-4.329	-3.827	30.0

802.11n (HT20) 5745 MHz MCS0





802.11ac (VHT20)

Data Rate	PSD (dBm) 5745 MHz	PSD (dBm) 5785 MHz	PSD (dBm) 5825 MHz	Limit (dBm)
MCS0	-1.951	-1.573	-3.767	30.0

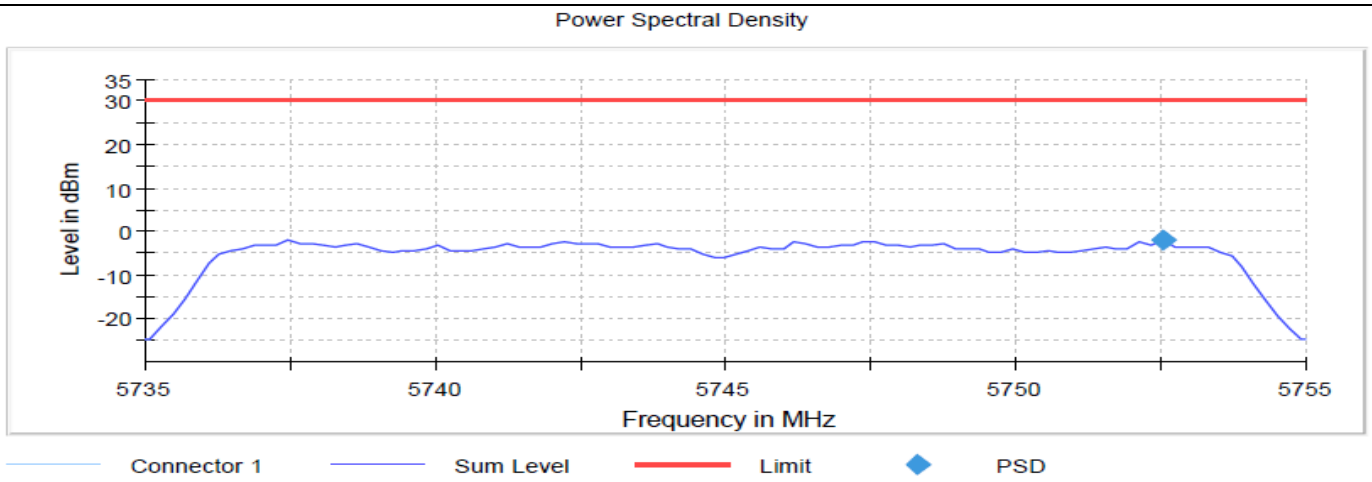
802.11ac (VHT40)

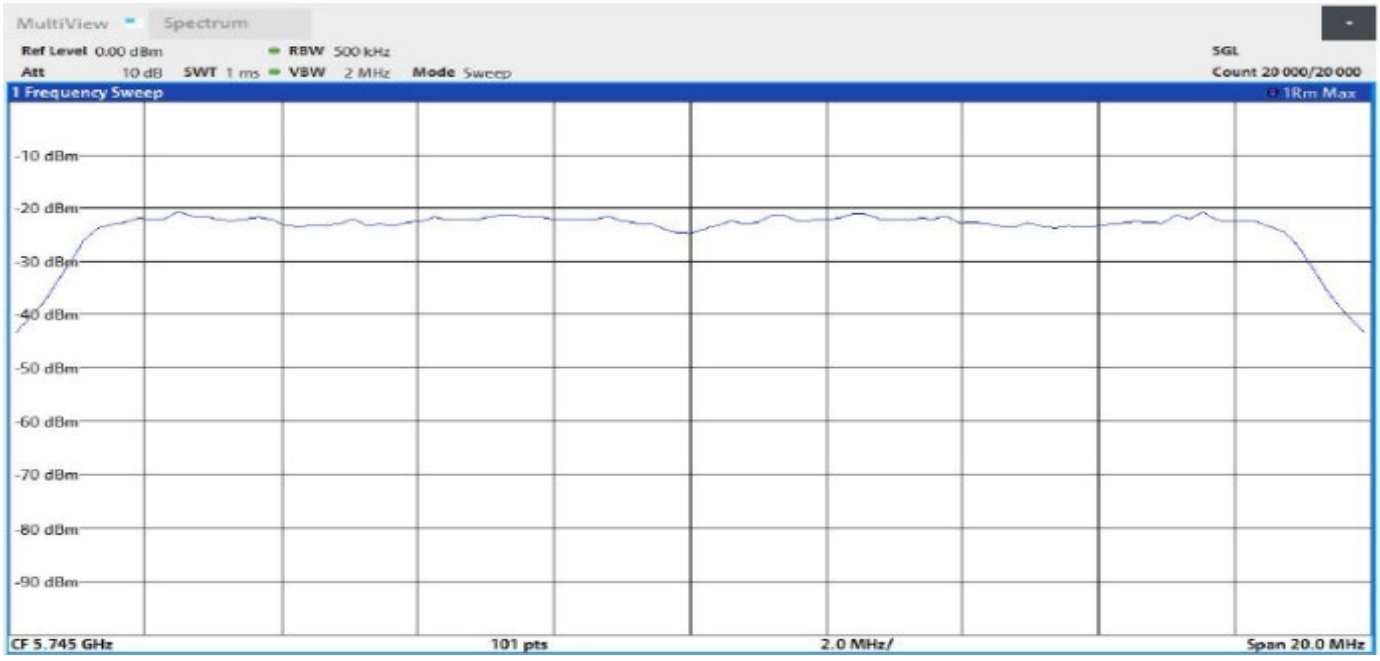
Data Rate	PSD (dBm) 5755 MHz	PSD (dBm) 5795 MHz	Limit (dBm)
MCS0	-4.358	-4.023	30.0

802.11ac (VHT80)

Data Rate	PSD (dBm) 5775 MHz	Limit (dBm)
MCS0	-6.074	30.0

802.11a (VHT20) 5745 MHz MCS0





4.5.3 DTS Bandwidth 6dB

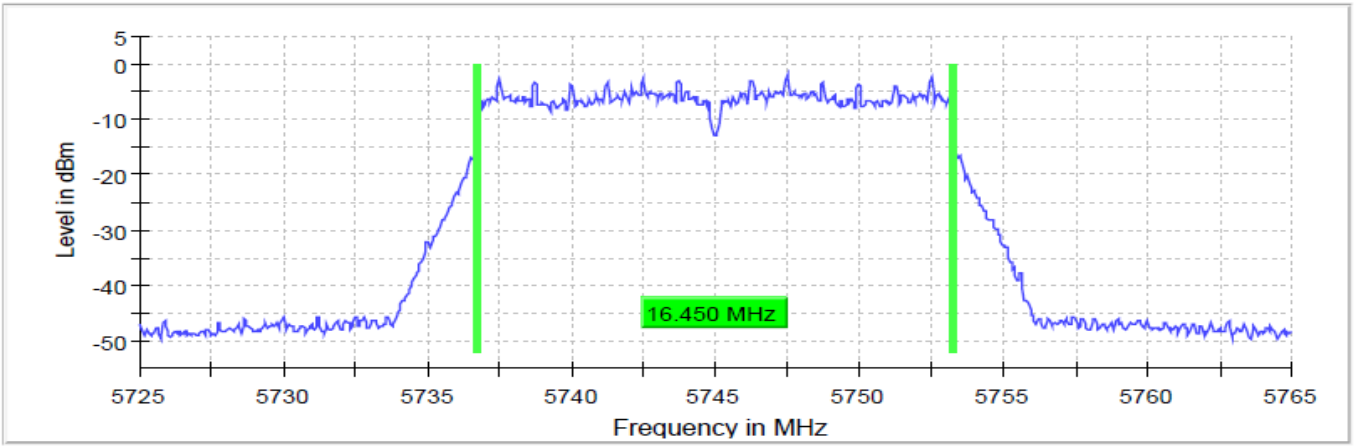
FCC and RSS-247

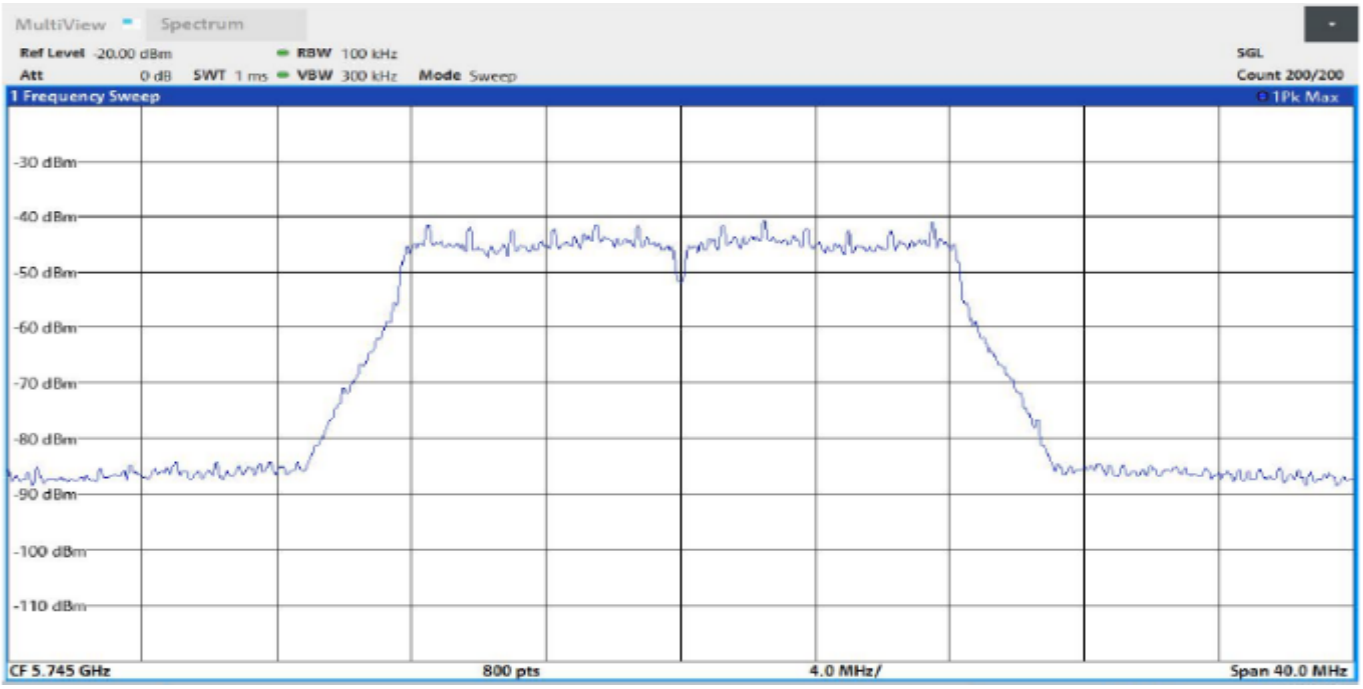
Test according to FCC title 47 part 15 §15.407(a) (e), KDB 789033 D02 General U-NII Test Procedures New Rules v02r01 D and ANSI C63.10-2013, ISEDC RSS-247 6.2.4(1)

Measurement uncertainty calculated in accordance with ETSI TR 100 028-1. Expanded Uncertainty (K=2) < 2%

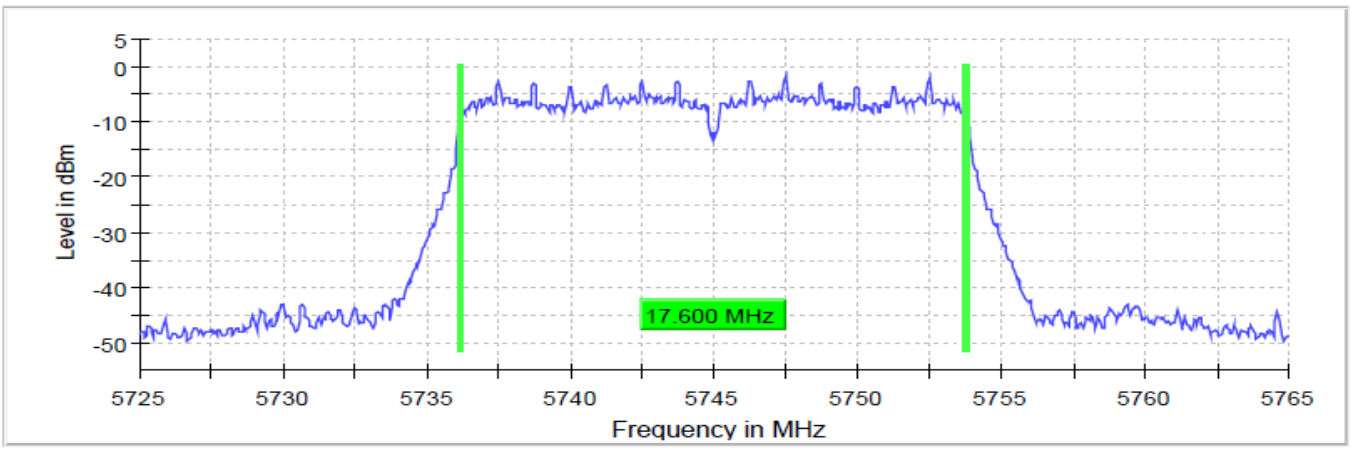
Data Rate	DUT Frequency (MHz)	Bandwidth (MHz)	Band Edge Left (MHz)	Band Edge Right (MHz)	Minimum Band Limit (MHz)
802.11a 6Mbps	5745.000000	16.450000	5736.775000	5753.225000	0.500000
802.11n (HT20) MCS0	5745.000000	17.600000	5736.175000	5753.775000	0.500000
802.11ac (VHT20) MCS0	5745.000000	17.150000	5736.425000	5753.575000	0.500000
802.11n (HT40) MCS0	5755.000000	35.900000	5737.075000	5772.975000	0.500000
802.11ac (VHT40) MCS0	5755.000000	35.750000	5737.225000	5772.975000	0.500000
802.11ac (VHT80) MCS0	5775.000000	76.400000	5736.825000	5813.225000	0.500000
802.11a 6Mbps	5785.000000	16.450000	5776.775000	5793.225000	0.500000
802.11n (HT20) MCS0	5785.000000	17.400000	5776.375000	5793.775000	0.500000
802.11ac (VHT20) MCS0	5785.000000	17.600000	5776.175000	5793.775000	0.500000
802.11n (HT40) MCS0	5795.000000	35.850000	5777.075000	5812.925000	0.500000
802.11ac (VHT40) MCS0	5795.000000	35.900000	5777.075000	5812.975000	0.500000
802.11a 6Mbps	5825.000000	16.450000	5816.775000	5833.225000	0.500000
802.11n (HT20) MCS0	5825.000000	17.650000	5816.175000	5833.825000	0.500000
802.11ac (VHT20) MCS0	5825.000000	17.600000	5816.175000	5833.775000	0.500000

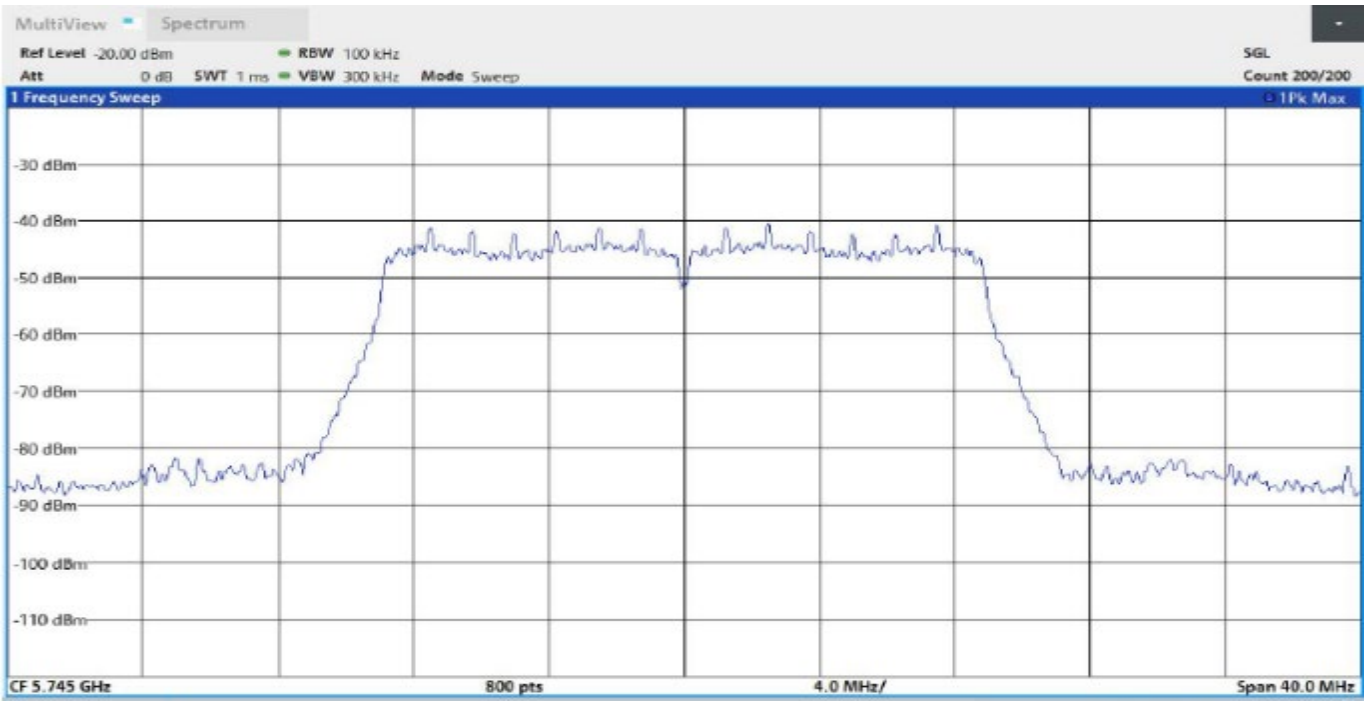
802.11a 5745MHz 6Mbps



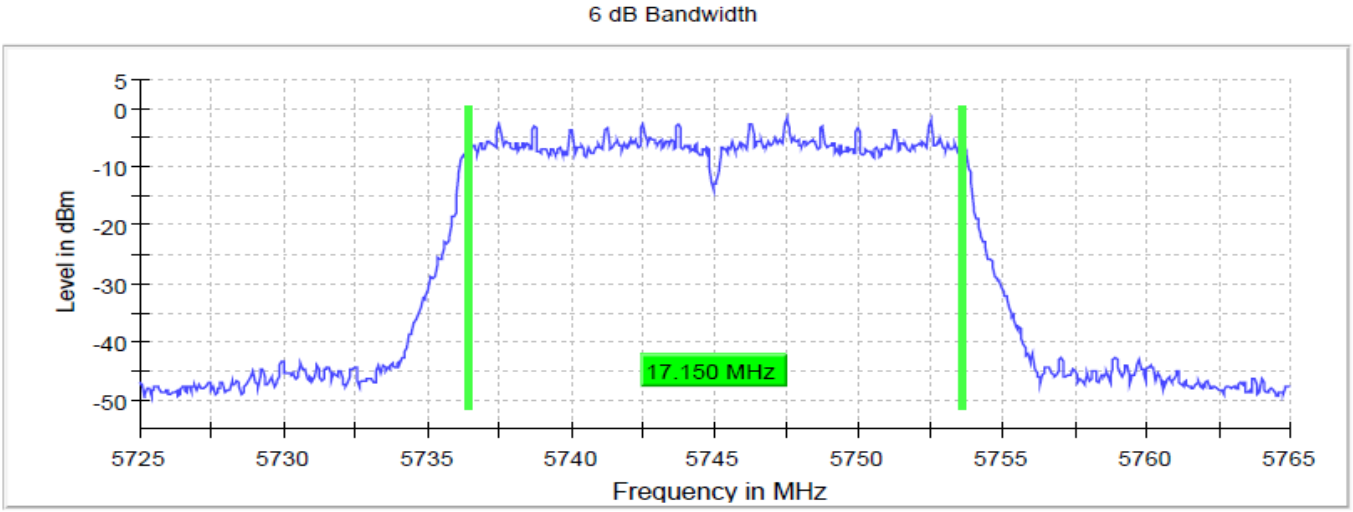


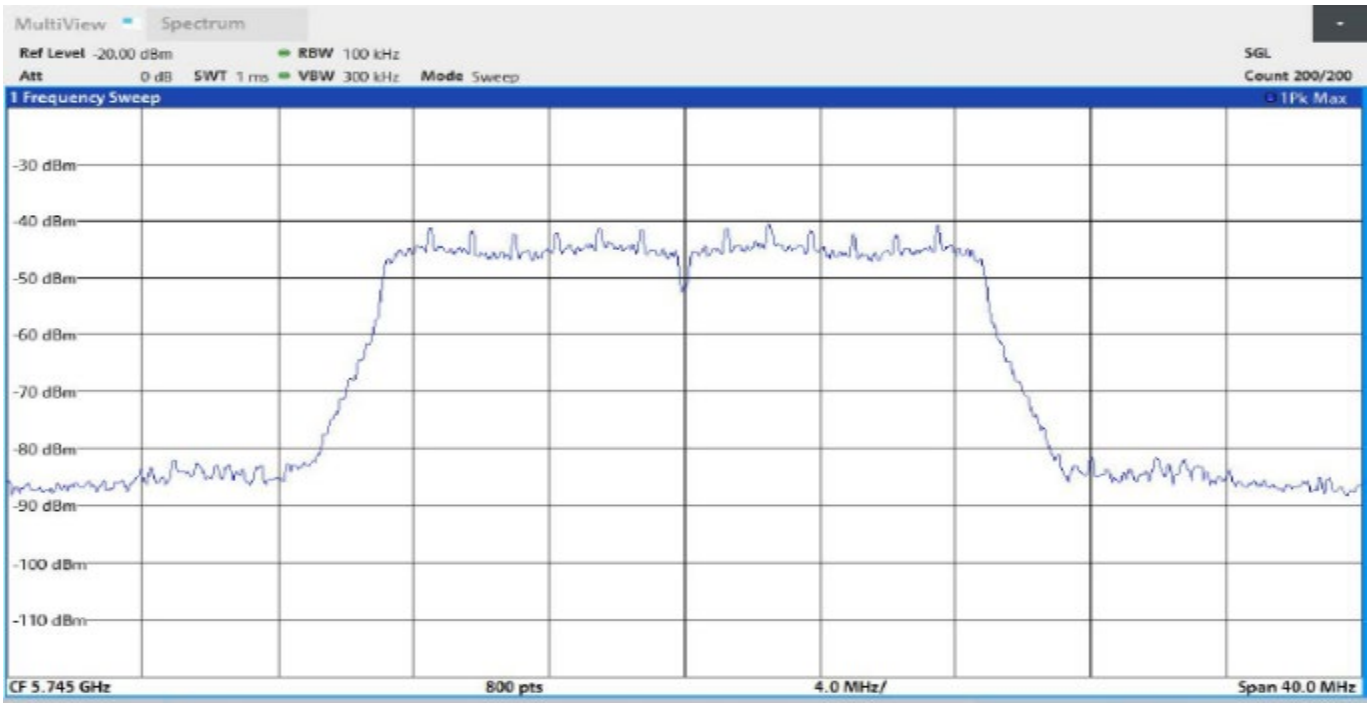
802.11n (HT20) 5745MHz MCS0





802.11ac (VHT20) 5745MHz MCS0





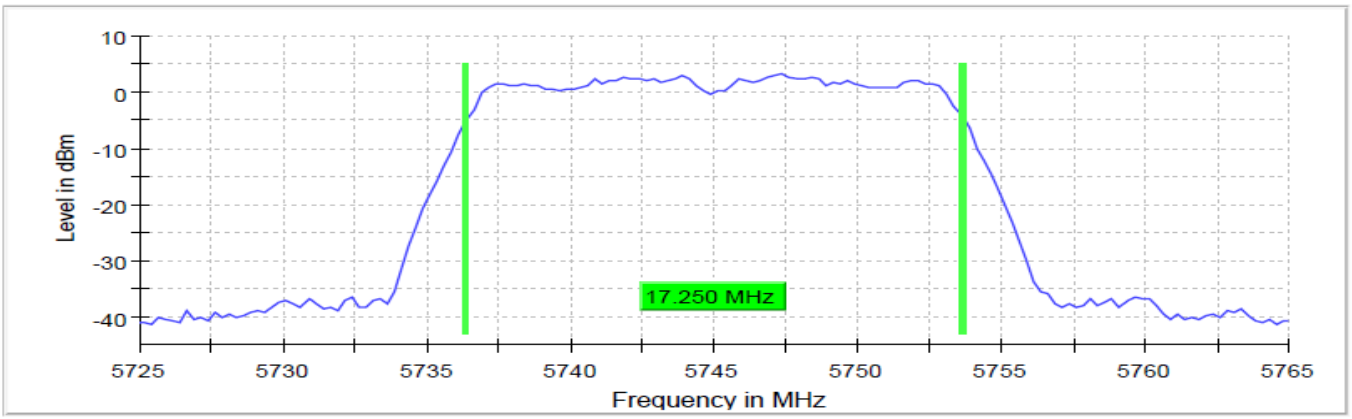
4.5.4 Occupied Channel Bandwidth

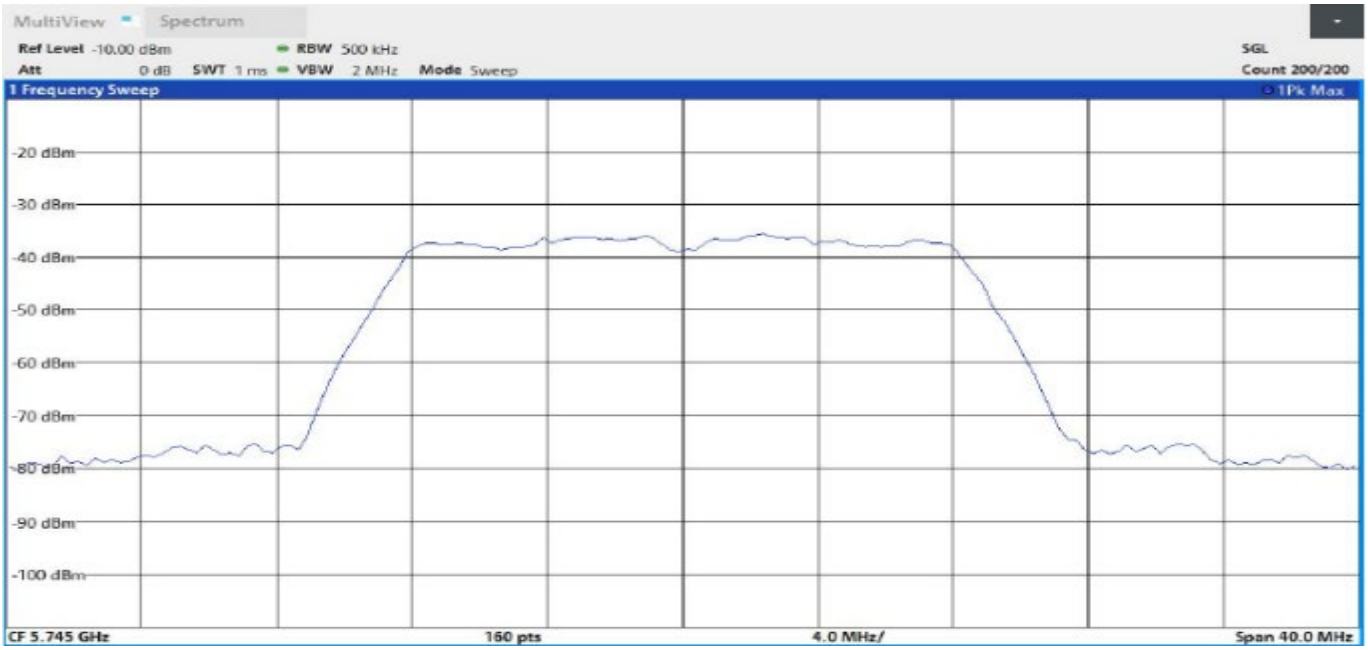
Test according to RSS-GEN Section 6.7, KDB 789033 D02 General U-NII Test Procedures New Rules v02r01 D and ANSI C63.10-2013

Measurement uncertainty calculated in accordance with ETSI TR 100 028-1. Expanded Uncertainty (K=2) < 2%

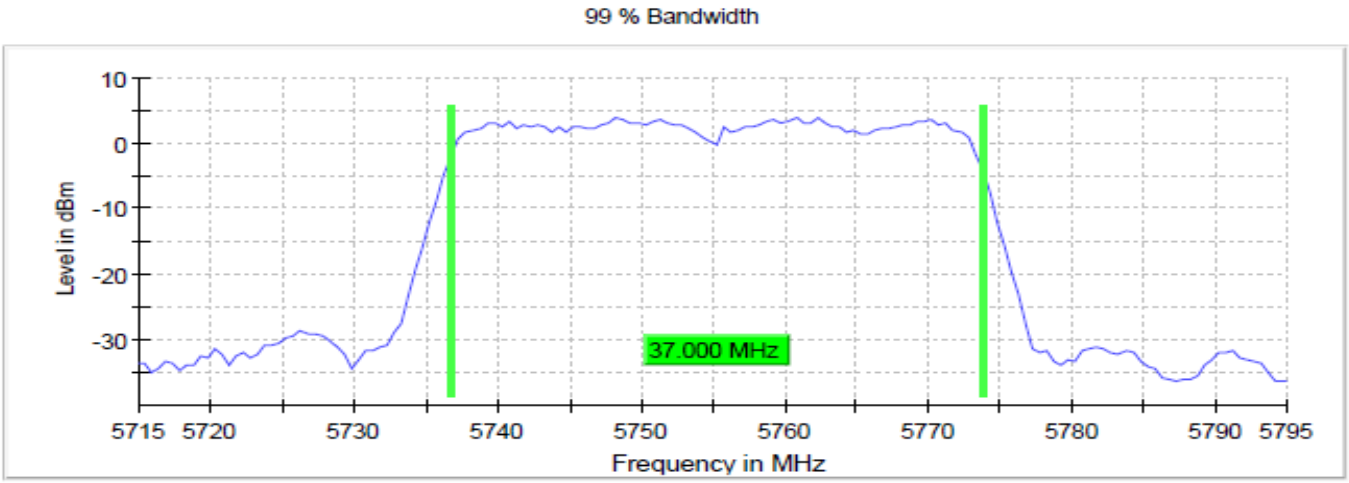
Data Rate	DUT Frequency (MHz)	Bandwidth (MHz)	Band Edge Left (MHz)	Band Edge Right (MHz)	Band Limit (MHz)
802.11a 6Mbps	5745.000000	17.250000	5736.375000	5753.625000	5725-5850
802.11n (HT20) MCS0	5745.000000	18.250000	5735.875000	5754.125000	5725-5850
802.11ac (VHT20) MCS0	5745.000000	18.250000	5735.875000	5754.125000	5725-5850
802.11n (HT40) MCS0	5755.000000	37.000000	5736.750000	5773.750000	5725-5850
802.11ac (VHT40) MCS0	5755.000000	36.500000	5736.750000	5773.250000	5725-5850
802.11ac (VHT80) MCS0	5775.000000	77.000000	5736.500000	5813.500000	5725-5850
802.11a 6Mbps	5785.000000	17.250000	5776.375000	5793.625000	5725-5850
802.11n (HT20) MCS0	5785.000000	18.000000	5776.125000	5794.125000	5725-5850
802.11ac (VHT20) MCS0	5785.000000	18.250000	5775.875000	5794.125000	5725-5850
802.11n (HT40) MCS0	5795.000000	36.500000	5776.750000	5813.250000	5725-5850
802.11ac (VHT40) MCS0	5795.000000	36.500000	5776.750000	5813.250000	5725-5850
802.11a 6Mbps	5825.000000	17.250000	5816.375000	5833.625000	5725-5850
802.11n (HT20) MCS0	5825.000000	18.250000	5815.875000	5834.125000	5725-5850
802.11ac (VHT20) MCS0	5825.000000	18.250000	5815.875000	5834.125000	5725-5850

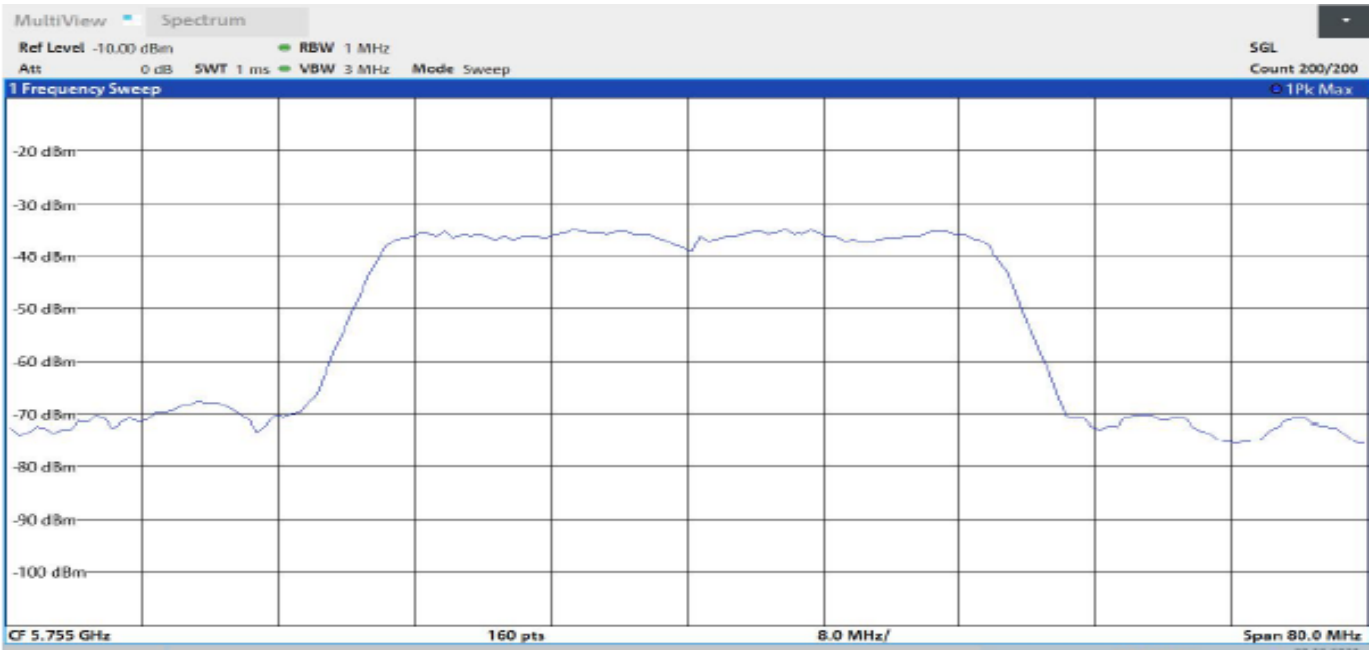
802.11a 5745MHz 6Mbps



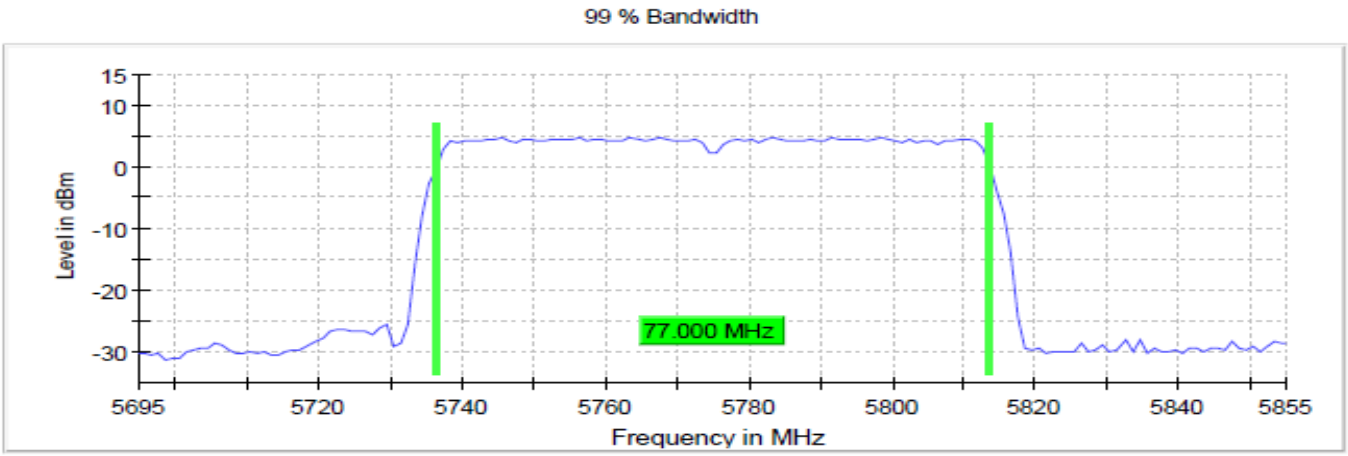


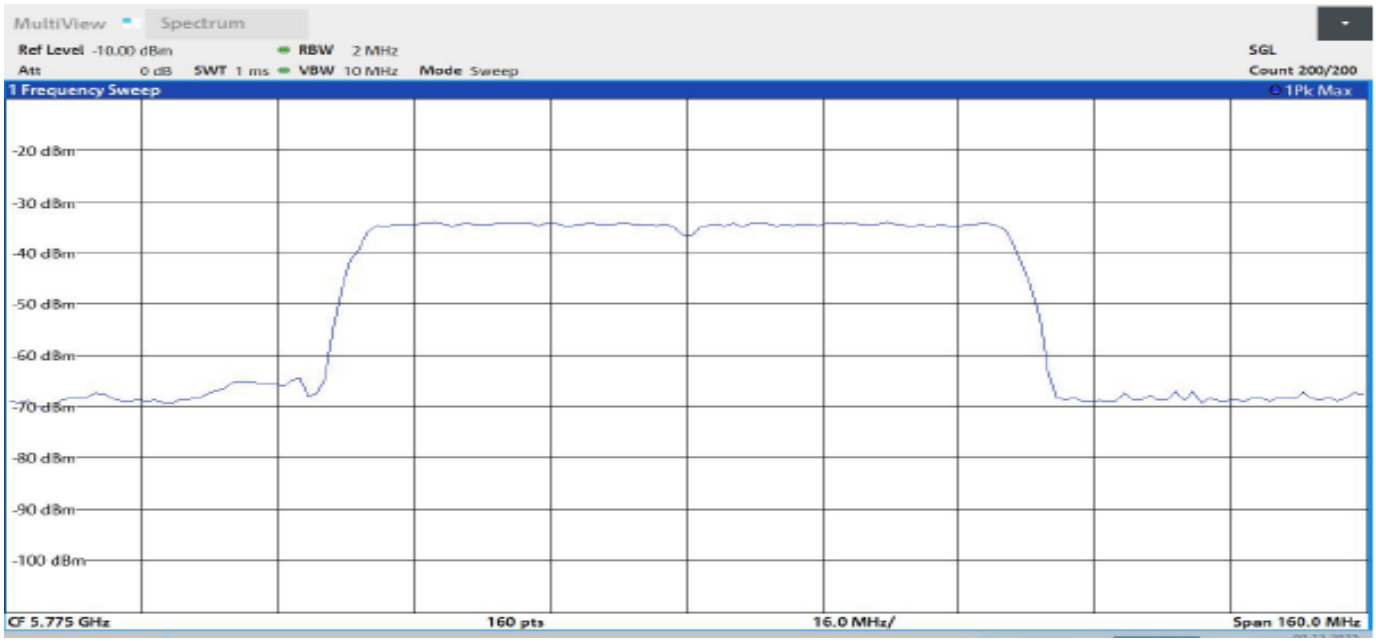
802.11n (HT40) 5755MHz MCS0





802.11ac (VHT80) 5775MHz MCS0





5. Radiated Testing

5.1 Test Summary

Start: 12/13/2022	End: 1/13/2022	Temperature: 22.0°C Humidity: 25.4 %R.H	Initials: AB

DUT S/N	AH22120901-HAR-054#2	DUT Operating Mode	WLAN 5G
Comment	UNII-1: 802.11a for all 20MHz channels. 802.11ac for all 40MHz and 80MHz channels. UNII-3: 802.11a for all 20MHz channels. 802.11ac for all 40MHz channels. 802.11ac for all 80MHz channels. Worst-case modes tested from 20MHz, 40MHz and 80MHz channels.		

Antenna	Frequency Range	Polarization	Result Over/Under Limit	Notes
Loop	9kHz-30MHz	Parallel	☐Over ☒Under	√
		Perpendicular	☐Over ☒Under	√
		Ground-Parallel	☐Over ☒Under	√
Log Periodic	30MHz-1GHz	Horizontal	☐Over ☒Under	√
		Vertical	☐Over ☒Under	√
Horn	1GHz-18GHz	Horizontal	☐Over ☒Under	√
		Vertical	☐Over ☒Under	√
Horn	18GHz-27.5GHz	Horizontal	☐Over ☒Under	√
		Vertical	☐Over ☒Under	√

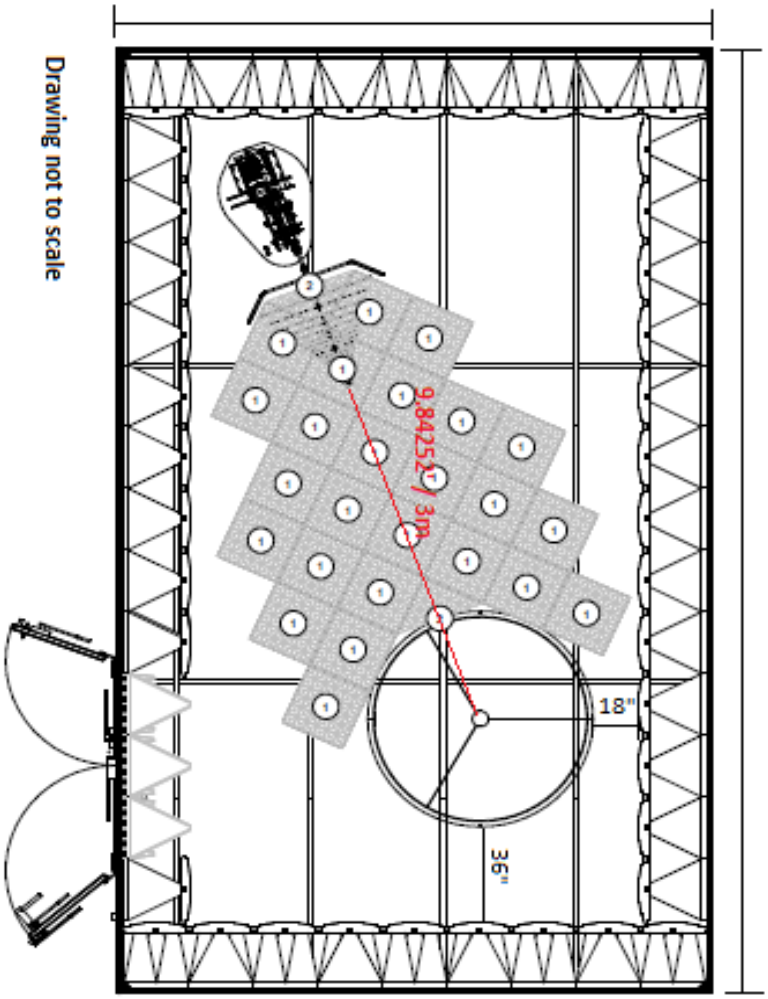
Notes: √ meets the requirements of the acceptance criteria.

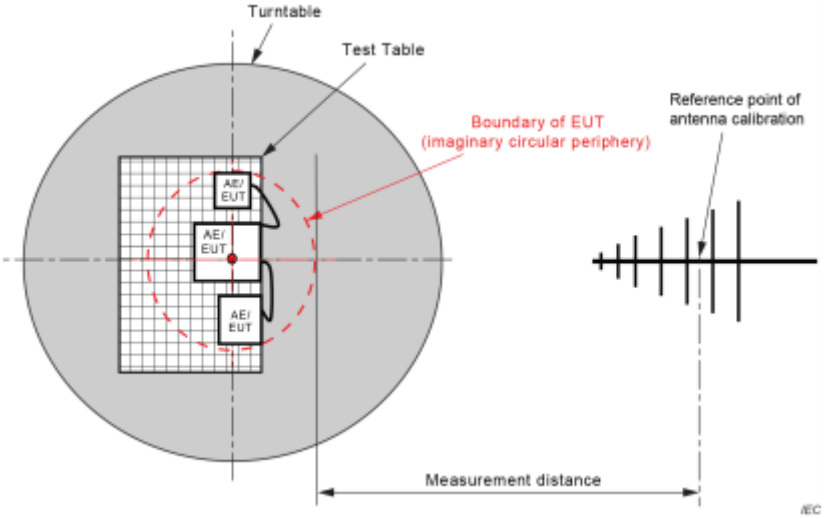
5.2 Test Setup

Semi-Anechoic Chamber Test Site-3 meter

Chamber Location	815 N Opdyke Rd Auburn Hills, Michigan 48326
Chamber Manufacturer:	ETS-Lindgren
Chamber Type	Semi-Anechoic
Model	FACT™ 3-2.0 Plus
Chamber Dimensions (L x W x H)	18'x18'x30'
Quiet Zone Diameter	2.0 meters
Quiet Zone Test Heights	1 & 2 meters (front only)
Test Distance	3.0 meters
Test Frequency Range	1-40 GHz
Measured Performance	4.87 dB Site *s*VSWR

Chamber Dimensions




Turntable
Test Table
Boundary of EUT
(imaginary circular periphery)
Reference point of
antenna calibration
AE/
EUT
AE/
EUT
AE/
EUT
Measurement distance
IEC

5.3 Test Equipment Used

ID #	Equipment	Manufacturer	Model #	Serial #	Cal Due
BVD0217	Receiver 2Hz-44GHz	Rohde & Schwarz	ESW44	101871	4/20/2023
BVD0118	Antenna Mast Position Controller	ETS	7006-001	00214778/00214648	N/A
BVD0111	3 Meter Anechoic Chamber	ETS	N/A	N/A	N/A
BVD0247	Turn Table	ETS	920250	N/A	N/A
BVD0323	Foam Test Table For 3 Meter Chamber	ETS-Lindgren	LDT-1.5	N/A	N/A
BVD0069	Bore Sight Tower	ETS	2171B	226732	N/A
BVD0259	Optima 12V Blue top Marine battery	Optima	D34M	N/A	N/A
BVD0184	Preamplifier 29dB 1-18GHz	Rohde & Schwarz	TS-PR18	101646	5/6/2023
BVD0185	Preamplifier 45dB 18-40GHz	Rohde & Schwarz	TS-PR1840	100064	4/6/2023
BVD0267	Double Ridge Waveguide 800MHz-18GHz	Rohde & Schwarz	HF907	102832	5/5/2023
BVD0021	UltraLog Antenna 30-6000 MHz	Rohde & Schwarz	HL562E	101113	7/21/2023
BVD0320	18-40GHz Horn Antenna	L3 Narda ATM	PNR 180-442-KF	136164-01	4/4/2023
BVD0011	Loop Antenna 9kHz-30MHz	Rohde & Schwarz	FMZB1519B	145	5/4/2023
BVD0045	Field Probe Mast	Rohde & Schwarz	TS-FPMA	N/A	N/A
BVD0481	Band Reject Filter 40dB from 5150 to 5880MHz	Micro-Tronics	BRM50716	G336	4/11/2023
BVD0394	Double Shielded N-Type Cable 6.9 Meter	Rohde & Schwarz	N-Type	N/A	3/11/2023
BVD0398	Double Shielded N-Type Cable 2 Meter	Rohde & Schwarz	N-Type	N/A	12/29/2024
BVD0486	Sucoflex K-Type Coaxial Cable 5 Meter	Huber+Suhner, inc	K-Type Coaxial	474343	8/30/2023
BVD0407	Double Shielded N-Type Cable 410mm (For PreAmp)	Rohde & Schwarz	N-Type	N/A	8/31/2023
BVD0495	SMA Shielded Cable approx 100mm (for Pre-Amp)	Rohde & Schwarz	SMA-Type	N/A	4/6/2023
BVD0552	Double Shielded N-Type Cable 440mm (For PreAmp)	Electronic Assemblies	N-Type	N/A	5/7/2023
BVD0229	Temp and Humidity Meter	Fluke	971	12001009	5/1/2023

Equipment List (Software)

ID #	Equipment	Manufacturer	Model	Version No.	
N/A	EMC Test Software	Rodhe & Schwarz	EMC32	11.20.00	N/A

Customer Supplied Equipment

ID #	Equipment	Manufacturer	Model	Serial #	Version No.
N/A	Harness	Harman	N/A	N/A	N/A
N/A	Display Unit	Innolux Corp	INFOMM-15524	0024	N/A
N/A	Ethernet Board	GM	N/A	N/A	CSMate rev.4
N/A	GM BT WLAN Test Tool NXP Chips S/W	Harman	N/A	N/A	2.4

5.4 Test Limits and Procedure

Radiated emissions that fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a)

Frequencies (MHz)	Field strength (µV/m)	Field strength (dBµV/m)	Measurement distance (meters)
0.009 ~ 0.490	2400/F(kHz)	48.5 - 13.8	300
0.490 ~ 1.705	24000/F(kHz)	33.8 - 23	30
1.705 ~ 30.0	30	29.54	30
30 ~ 88	100	40.0	3
88 ~ 216	150	43.5	3
216 ~ 960	200	46.0	3
Above 960	500	54.0	3

Note:

a) The lower limit shall apply at the transition frequencies.

b) For performing measurements at a specified distance of 3m, the values are extrapolated using extrapolation factor.
Frequencies below 30MHz are extrapolated using 40dB/decade.
Frequencies above 30MHz are extrapolated using 20dB/decade.

Frequencies (MHz)	Formula for Limits derivation for below 30MHz	Limits for frequencies below 30MHz (dBuV/m)
0.009 ~ 0.490	2400/F(kHz) + 40 Log (300m/3m)	128.5 ~ 93.8
0.490 ~ 1.705	24000/F(kHz) + 40 Log (30m/3m)	73.8 ~ 62.96
1.705 ~ 30.0	29.54 + 40 Log (30m/3m)	69.54

c) For frequencies above 1000MHz, the field strength limits based on average detector, however, the peak field strength of any emission shall not exceed the maximum permitted average limits, specified above by more than 30dB under any condition of modulation.

The limits in CFR 47, Part 15, Subpart C, paragraph 15.209 (a), are identical to those in RSS-GEN Section 8.9, Table 6, since the measurements are performed in terms of magnetic field strength and converted to electric field strength levels (as reported in the table) using the free space impedance of 377Ω.

For example, the measurement frequency 2181KHz resulted in a level of 30.26 dBuV/m, which is equivalent to 30.26 - 51.48 = --21.22dBuA/m, which has the same margin, -39.28 dB, to the corresponding RSS-GEN Table 6 limit as it has to the 15.209(a) limit.

The measurement procedures are as per **789033 D02 General UNII Test Procedures New Rules v02r01, ISED RSS-247 6.2**

The Limits for Unwanted emissions out of the Restricted Bands are as follows.

Procedure	Limits	
	Peak (dBµV/m)	Average (dBµV/m)
KDB 789033 D02 General UNII Test Procedures New Rules v02r01	74	54

§ 15.407

(b) Undesirable emission limits. Except as shown in paragraph (b)(7) of this section, the maximum emissions outside of the frequency bands of operation shall be attenuated in accordance with the following limits:

(1) For transmitters operating in the 5.15–5.25 GHz band: All emissions outside of the 5.15–5.35 GHz band shall not exceed an e.i.r.p. of -27 dBm/MHz.

(2) For transmitters operating in the 5.25–5.35 GHz band: All emissions outside of the 5.15–5.35 GHz band shall not exceed an e.i.r.p. of -27 dBm/MHz.

(3) For transmitters operating in the 5.47–5.725 GHz band: All emissions outside of the 5.47–5.725 GHz band shall not exceed an e.i.r.p. of -27 dBm/MHz.

(4) For transmitters operating in the 5.725–5.85 GHz band:

(i) All emissions shall be limited to a level of -27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.

Procedure	Peak Limit (dBµV/m)
15.407(b)(1)	68.23
15.407(b)(2)	
15.407(b)(3)	
15.407(b)(4)	As stated above

1. The table height for emissions measurements
   i) Below 1 GHz, the table height is 80 cm above the reference ground plane.
   ii) Above 1 GHz, the table height is 1.5 m
2. Measurements performed with the EUT rotated from 0° to 360°, the antenna height scanned between 1m and 4 m, and the antenna rotated to repeat the measurements for both the horizontal and vertical antenna polarizations.

5.5 Test Data

Uncertainty

Radiated Emissions (30MHz to 40GHz)

Test Engineer Initials: AB

The test is to measure the radiated emissions of the EUT. Some error sources that can contribute to the total uncertainty:

- Uncertainty of the receiver
- Uncertainty of the antenna
- Uncertainty of cables
- Uncertainty due to the mismatches
- NSA Calibration
- Etc., details see the below table

30MHz to 1GHZ

Source of Uncertainty	Value (dB)	ProbabilityDistribution	Division	Sensitivity Coefficient	Expanded Uncertainty
Receiver Reading	0.12	Rectangular	1.732	1	0.069284
Cable Insertion Loss	0.21	Normal	2	1	0.105
Filter Insertion Loss	0.25	Normal	2	1	0.125
Antenna Factor	0.65	Normal	2	1	0.325
Receiver CW accuracy	0.5	Rectangular	1.732	1	0.2886836
Pulse Amplitude Response	1.5	Rectangular	1.732	1	0.86605081
PRF Response	1.5	Rectangular	1.732	1	0.86605081
Mismatch Filter – Receiver	0.25	U-Shape	2.449	1	0.1768033
NSA Calibration	4.0	Triangular	1.414	1	1.633332
ETS Foam Table (LDT-1.5)	1.8	Rectangular	1.732	1	1.039261
Combined Standard Uncertainty (square root of the sum of the squares)					2.113781
Expanded Uncertainty (K=2)					**4.227562**

The total derived measurement uncertainty is +/- 4.228 dB

1GHz to 40GHz

Source of Uncertainty	Value (dB)	Probability Distribution	Division	Sensitivity Coefficient	Expanded Uncertainty
Receiver Reading	0.12	Rectangular	1.732	1	0.069284
Cable Insertion Loss	0.21	Normal	2	1	0.105000
Filter Insertion Loss	0.25	Normal	2	1	0.125000
Antenna Factor	0.65	Normal	2	1	0.325000
Receiver CW accuracy	0.5	Rectangular	1.732	1	0.2886836
Pulse Amplitude Response	1.5	Rectangular	1.732	1	0.866051
PRF Response	1.5	Rectangular	1.732	1	0.866051
Mismatch Filter – Receiver	0.25	U-Shape	1.414	1	0.176803
VSWR Calibration	2.0	Triangular	2.449	1	0.816659
ETS Foam Table (LDT-1.5)	1.8	Rectangular	1.732	1	1.039261
Combined Standard Uncertainty (square root of the sum of the squares)					1.869213
Expanded Uncertainty (K=2)					**3.738426**

The total derived measurement uncertainty is +/- 3.738 dB.

Remarks:

1. Level Q-Peak Reading (dBµV/m) = Raw Q-Peak Level + Correction Factor
2. Correction Factor (dB) = Antenna Factor + Cable Loss – Preamplifier Gain
3. Margin = Level Q-Peak Reading – Limit

Remarks:

1. Level Peak Reading (dBµV/m) = Raw Peak Level + Correction Factor
2. Correction Factor (dB) = Antenna Factor + Cable Loss – Preamplifier Gain
3. Margin = Level Peak Reading – Limit

Remarks:

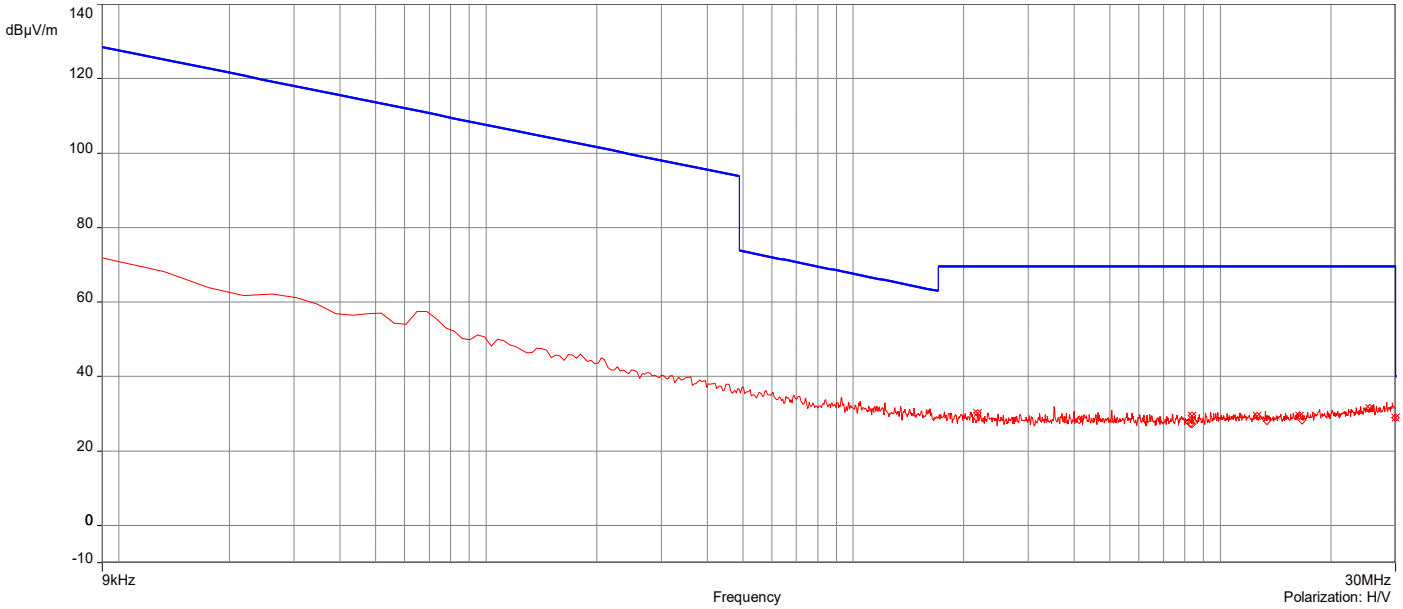
1. Level Average Reading (dBµV/m) = Raw Average Level + Correction Factor
2. Correction Factor (dB) = Antenna Factor + Cable Loss – Preamplifier Gain
3. Margin = Level Average Reading – Limit

AH22120901-HAR-054#2_5G UNII-1 802.11a_Ch 40_9kHz-30MHz_Ground-Parallel

12/28/2022 4:51:58 PM

No	Frequency (MHz)	Level Q-Peak Reading (dBµV/m)	Correction Factor (dB)	Limit dBµV/m	Margin (dB)	Height (m)	Angle (°)	Polarization	Judgement
1.	2.181516MHz	30.26	19.49	69.54	-39.28	1.00	130.60	H/V	Passed
2.	8.377685MHz	29.49	19.45	69.54	-40.05	1.00	122.80	H/V	Passed
3.	12.577024MHz	29.43	19.83	69.54	-40.11	1.00	174.10	H/V	Passed
4.	16.420706MHz	29.51	19.89	69.54	-40.03	1.00	124.20	H/V	Passed
5.	25.547843MHz	31.46	20.98	69.54	-38.08	1.00	253.40	H/V	Passed
6.	30MHz	28.93	21.85	40.00	-11.07	1.00	283.00	H/V	Passed

Overall Graphs:

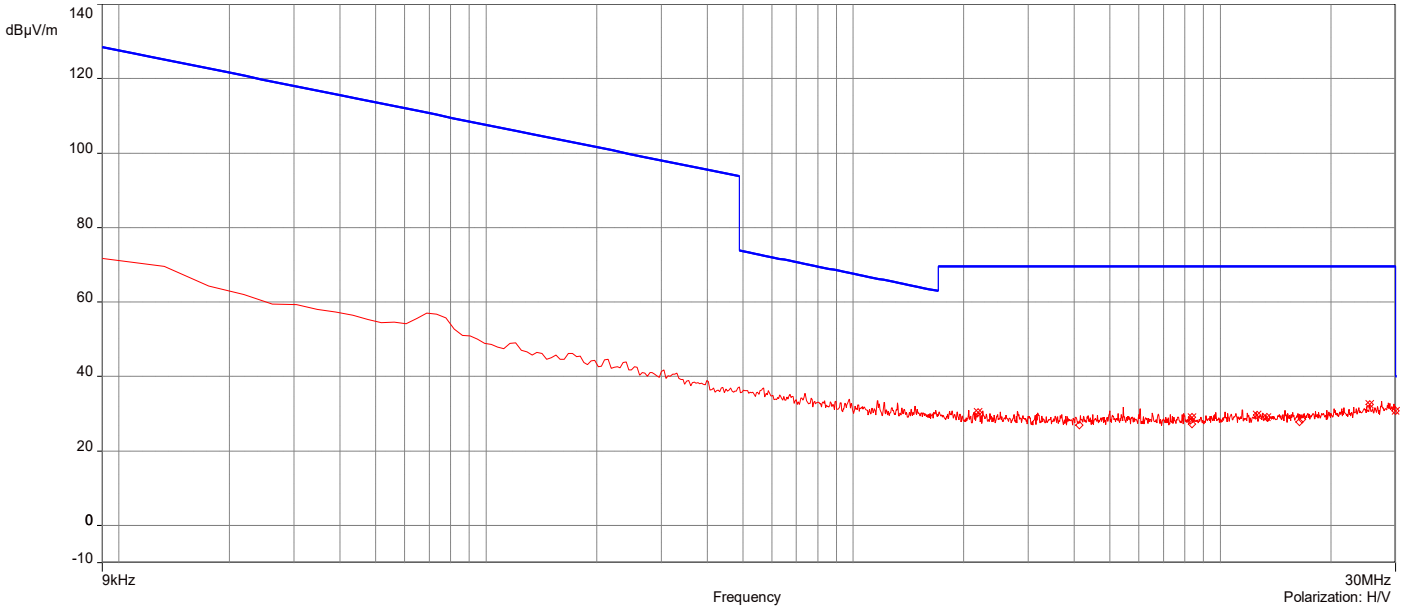


AH22120901-HAR-054#2_5G UNII-1 802.11a_Ch 40_9kHz-30MHz_Parallel

12/28/2022 4:48:53 PM

No	Frequency (MHz)	Level Q-Peak Reading (dBµV/m)	Correction Factor (dB)	Limit dBµV/m	Margin (dB)	Height (m)	Angle (°)	Polarization	Judgement
1.	2.190086MHz	30.37	19.49	69.54	-39.17	1.00	7.30	H/V	Passed
2.	8.364829MHz	29.13	19.45	69.54	-40.41	1.00	238.80	H/V	Passed
3.	12.577024MHz	29.64	19.83	69.54	-39.90	1.00	3.60	H/V	Passed
4.	13.369757MHz	29.13	19.85	69.54	-40.41	1.00	39.30	H/V	Passed
5.	25.517847MHz	32.46	20.98	69.54	-37.08	1.00	0.10	H/V	Passed
6.	30MHz	30.86	21.85	40.00	-9.14	1.00	186.40	H/V	Passed

Overall Graphs:

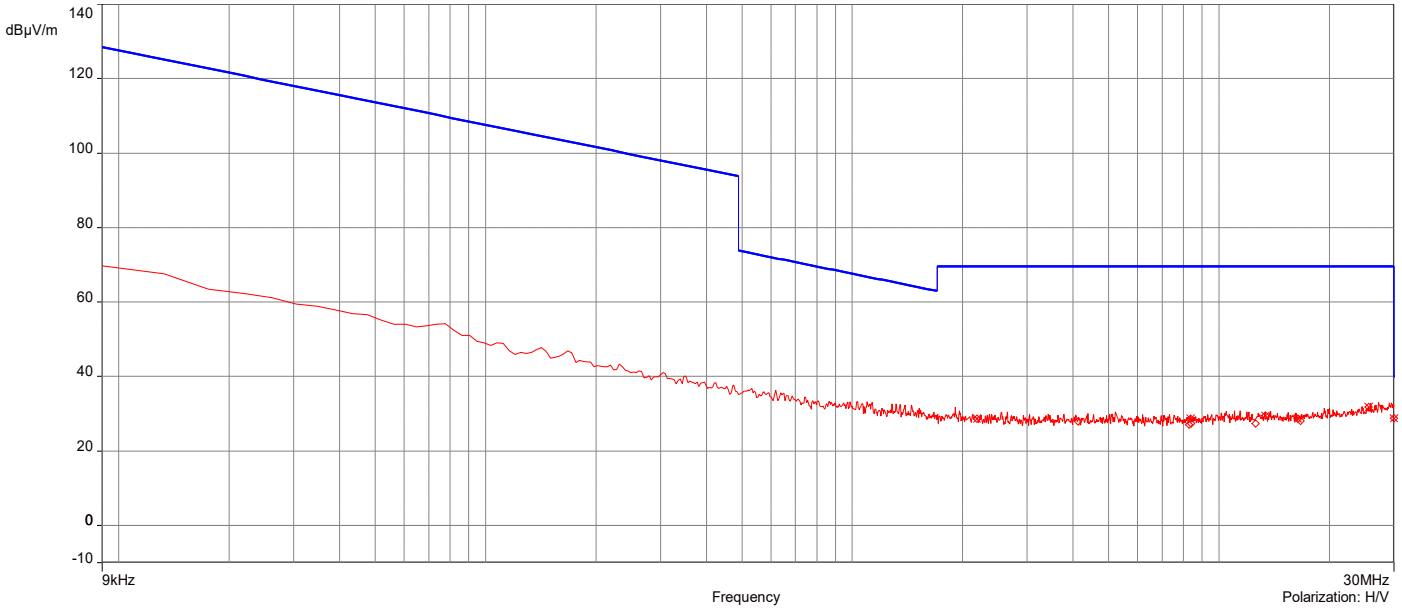


AH22120901-HAR-054#2_5G UNII-1 802.11a_Ch 40_9kHz-30MHz_Perpendicular

12/28/2022 4:54:40 PM

No	Frequency (MHz)	Level Q-Peak Reading (dBµV/m)	Correction Factor (dB)	Limit dBµV/m	Margin (dB)	Height (m)	Angle (°)	Polarization	Judgement
1.	2.185801MHz	28.71	19.49	69.54	-40.83	1.00	132.90	H/V	Passed
2.	8.364829MHz	28.68	19.45	69.54	-40.86	1.00	259.30	H/V	Passed
3.	13.395467MHz	29.55	19.85	69.54	-39.99	1.00	303.90	H/V	Passed
4.	16.420706MHz	28.61	19.89	69.54	-40.93	1.00	285.50	H/V	Passed
5.	25.603548MHz	31.74	20.99	69.54	-37.80	1.00	345.60	H/V	Passed
6.	30MHz	28.83	21.85	40.00	-11.17	1.00	134.20	H/V	Passed

Overall Graphs:

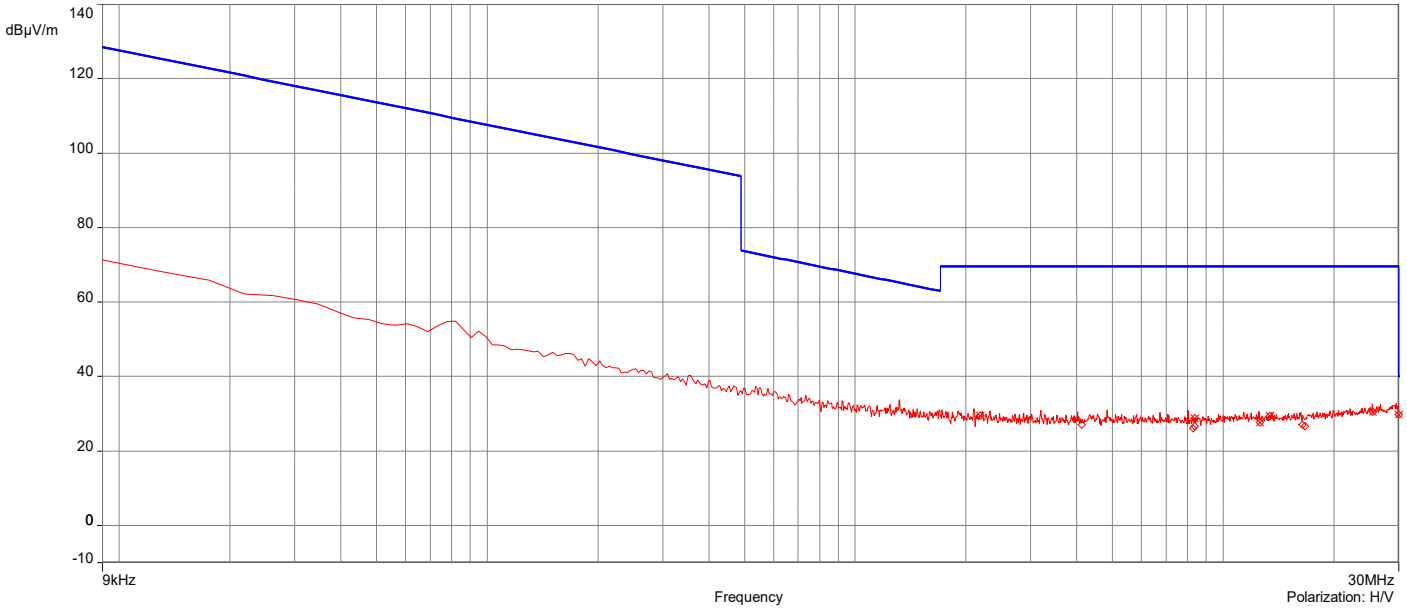


AH22120901-HAR-054#2_5G UNII-1 802.11n_Ch 40_9kHz-30MHz_Ground-Parallel

12/28/2022 5:01:44 PM

No	Frequency (MHz)	Level Q-Peak Reading (dBµV/m)	Correction Factor (dB)	Limit dBµV/m	Margin (dB)	Height (m)	Angle (°)	Polarization	Judgement
1.	2.190086MHz	29.53	19.49	69.54	-40.01	1.00	10.50	H/V	Passed
2.	8.38197MHz	28.78	19.45	69.54	-40.76	1.00	302.70	H/V	Passed
3.	12.577024MHz	27.71	19.83	69.54	-41.83	1.00	232.60	H/V	Passed
4.	13.369757MHz	29.33	19.85	69.54	-40.21	1.00	338.20	H/V	Passed
5.	25.552128MHz	30.49	20.98	69.54	-39.05	1.00	265.60	H/V	Passed
6.	30MHz	29.73	21.85	40.00	-10.27	1.00	358.90	H/V	Passed

Overall Graphs:

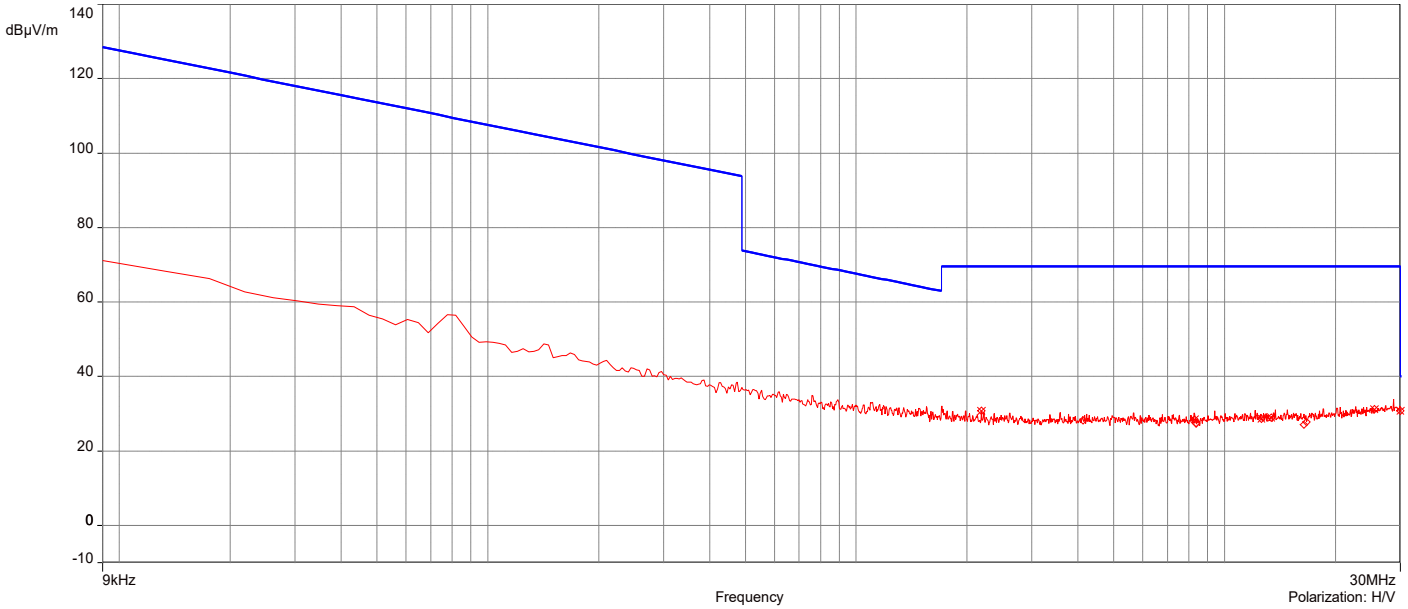


AH22120901-HAR-054#2_5G UNII-1 802.11n_Ch 40_9kHz-30MHz_Parallel

12/28/2022 5:04:09 PM

No	Frequency (MHz)	Level Q-Peak Reading (dBµV/m)	Correction Factor (dB)	Limit dBµV/m	Margin (dB)	Height (m)	Angle (°)	Polarization	Judgement
1.	2.190086MHz	30.76	19.49	69.54	-38.78	1.00	144.60	H/V	Passed
2.	8.291984MHz	28.46	19.45	69.54	-41.08	1.00	226.70	H/V	Passed
3.	12.577024MHz	28.68	19.83	69.54	-40.86	1.00	301.60	H/V	Passed
4.	13.378327MHz	28.89	19.85	69.54	-40.65	1.00	170.90	H/V	Passed
5.	25.530703MHz	31.28	20.98	69.54	-38.26	1.00	147.70	H/V	Passed
6.	30MHz	30.86	21.85	40.00	-9.14	1.00	29.90	H/V	Passed

Overall Graphs:

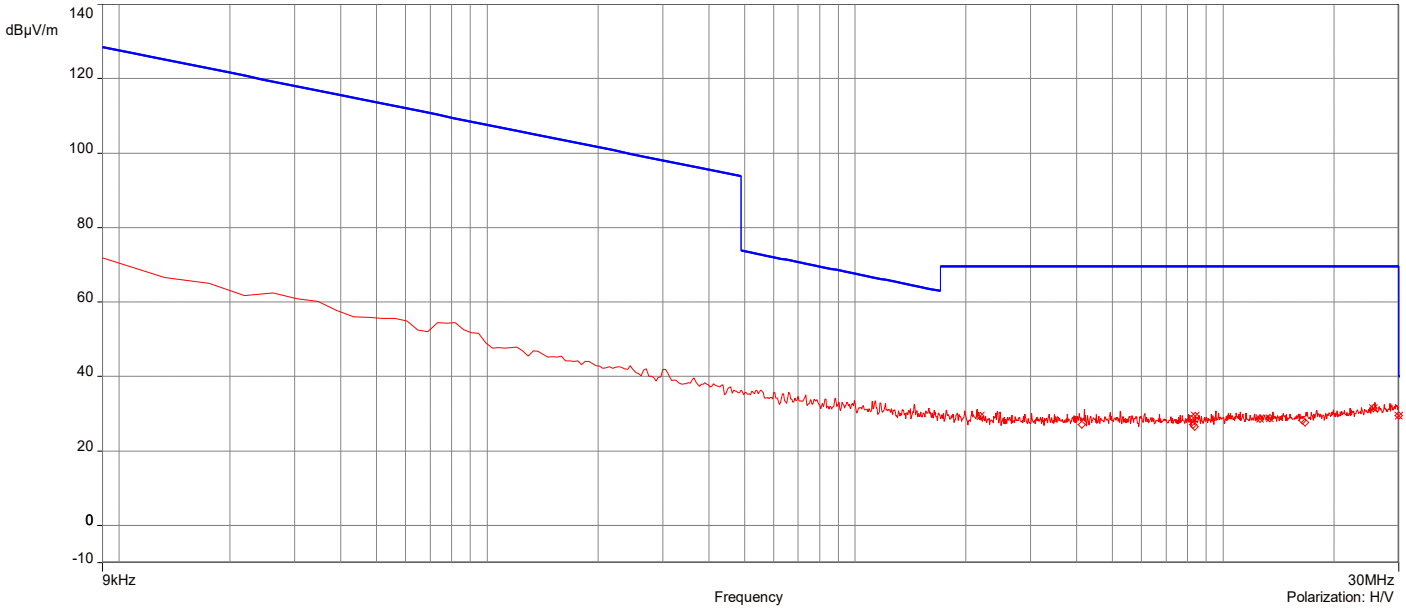


AH22120901-HAR-054#2_5G UNII-1 802.11n_Ch 40_9kHz-30MHz_Perpendicular

12/28/2022 4:59:16 PM

No	Frequency (MHz)	Level Q-Peak Reading (dBµV/m)	Correction Factor (dB)	Limit dBµV/m	Margin (dB)	Height (m)	Angle (°)	Polarization	Judgement
1.	2.185801MHz	29.43	19.49	69.54	-40.11	1.00	358.90	H/V	Passed
2.	8.386255MHz	29.31	19.45	69.54	-40.23	1.00	82.00	H/V	Passed
3.	12.577024MHz	28.67	19.83	69.54	-40.87	1.00	296.50	H/V	Passed
4.	13.395467MHz	28.84	19.85	69.54	-40.70	1.00	282.20	H/V	Passed
5.	25.624973MHz	31.46	20.99	69.54	-38.08	1.00	239.00	H/V	Passed
6.	30MHz	29.46	21.85	40.00	-10.54	1.00	94.30	H/V	Passed

Overall Graphs:

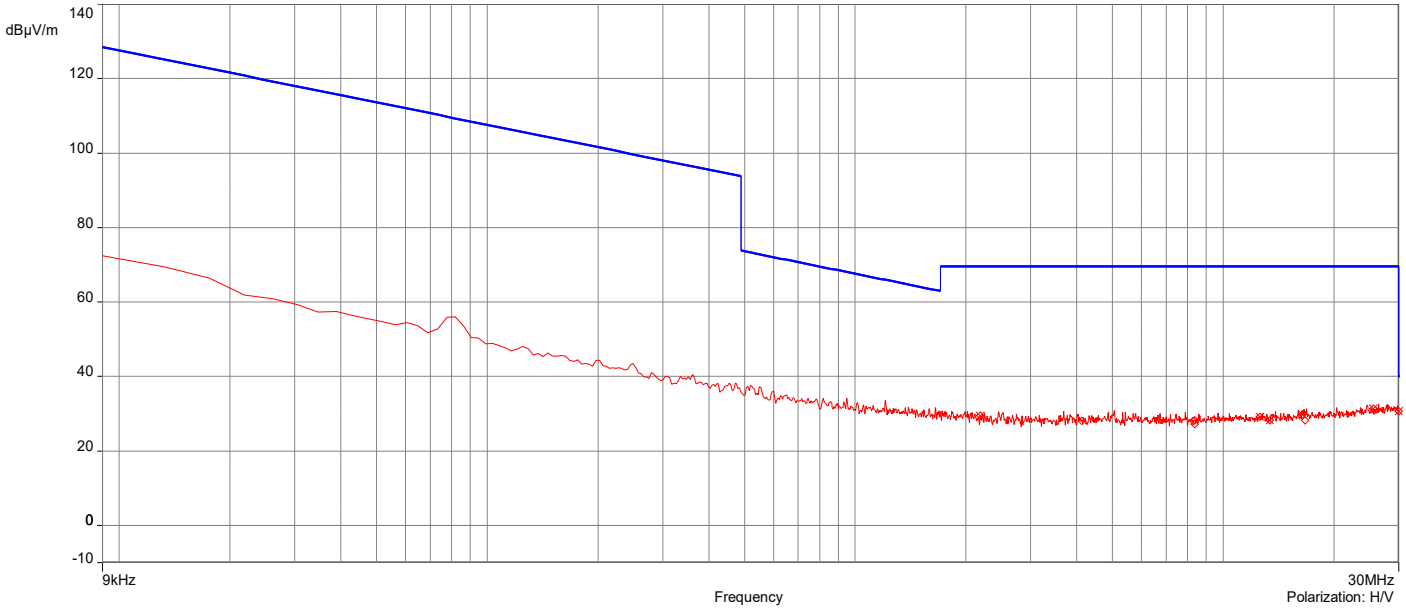


AH22120901-HAR-054#2_5G UNII-3 802.11a_Ch 157_9kHz-30MHz_Ground-Parallel

12/28/2022 5:12:11 PM

No	Frequency (MHz)	Level Q-Peak Reading (dBµV/m)	Correction Factor (dB)	Limit dBµV/m	Margin (dB)	Height (m)	Angle (°)	Polarization	Judgement
1.	2.190086MHz	29.47	19.49	69.54	-40.07	1.00	346.00	H/V	Passed
2.	12.577024MHz	29.16	19.83	69.54	-40.38	1.00	67.80	H/V	Passed
3.	13.399752MHz	28.26	19.85	69.54	-41.28	1.00	82.10	H/V	Passed
4.	16.420706MHz	29.84	19.89	69.54	-39.70	1.00	358.90	H/V	Passed
5.	25.603548MHz	31.39	20.99	69.54	-38.15	1.00	4.00	H/V	Passed
6.	30MHz	30.63	21.85	40.00	-9.37	1.00	254.80	H/V	Passed

Overall Graphs:

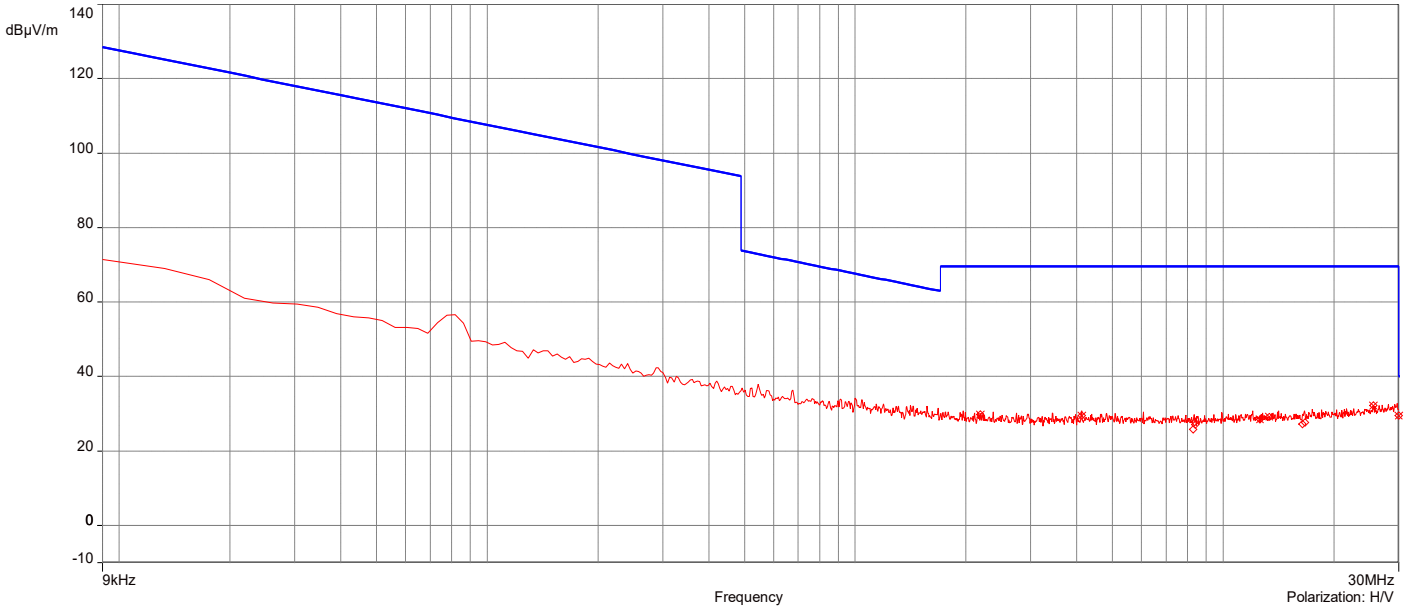


AH22120901-HAR-054#2_5G UNII-3 802.11a_Ch 157_9kHz-30MHz_Parallel

12/28/2022 5:09:38 PM

No	Frequency (MHz)	Level Q-Peak Reading (dBµV/m)	Correction Factor (dB)	Limit dBµV/m	Margin (dB)	Height (m)	Angle (°)	Polarization	Judgement
1.	2.190086MHz	29.84	19.49	69.54	-39.70	1.00	208.00	H/V	Passed
2.	4.126924MHz	29.50	19.69	69.54	-40.04	1.00	167.80	H/V	Passed
3.	12.577024MHz	28.57	19.83	69.54	-40.97	1.00	197.10	H/V	Passed
4.	13.361187MHz	29.17	19.85	69.54	-40.37	1.00	87.90	H/V	Passed
5.	25.624973MHz	32.20	20.99	69.54	-37.34	1.00	27.50	H/V	Passed
6.	30MHz	29.51	21.85	40.00	-10.49	1.00	268.50	H/V	Passed

Overall Graphs:

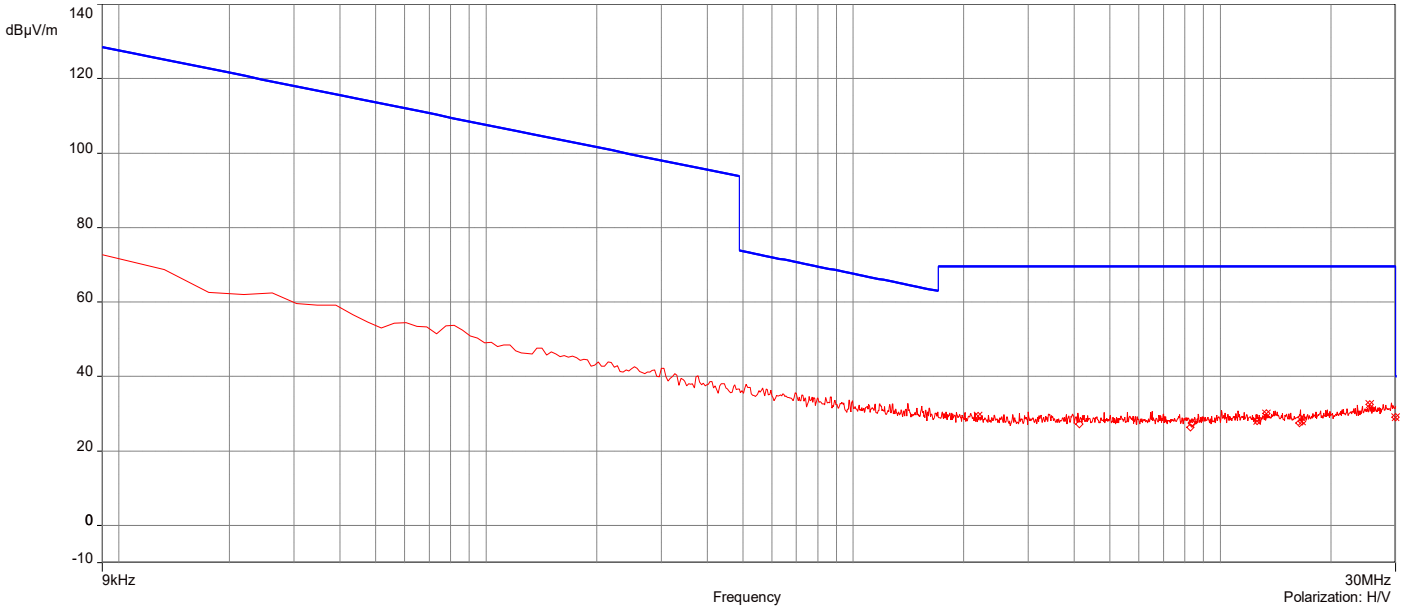


AH22120901-HAR-054#2_5G UNII-3 802.11a_Ch 157_9kHz-30MHz_Perpendicular

12/28/2022 5:14:45 PM

No	Frequency (MHz)	Level Q-Peak Reading (dBµV/m)	Correction Factor (dB)	Limit dBµV/m	Margin (dB)	Height (m)	Angle (°)	Polarization	Judgement
1.	2.185801MHz	29.32	19.49	69.54	-40.22	1.00	278.50	H/V	Passed
2.	12.577024MHz	28.05	19.83	69.54	-41.49	1.00	261.60	H/V	Passed
3.	13.361187MHz	30.12	19.85	69.54	-39.42	1.00	173.70	H/V	Passed
4.	16.694949MHz	27.88	19.92	69.54	-41.66	1.00	86.00	H/V	Passed
5.	25.500707MHz	32.56	20.98	69.54	-36.98	1.00	99.90	H/V	Passed
6.	30MHz	29.01	21.85	40.00	-10.99	1.00	346.90	H/V	Passed

Overall Graphs:

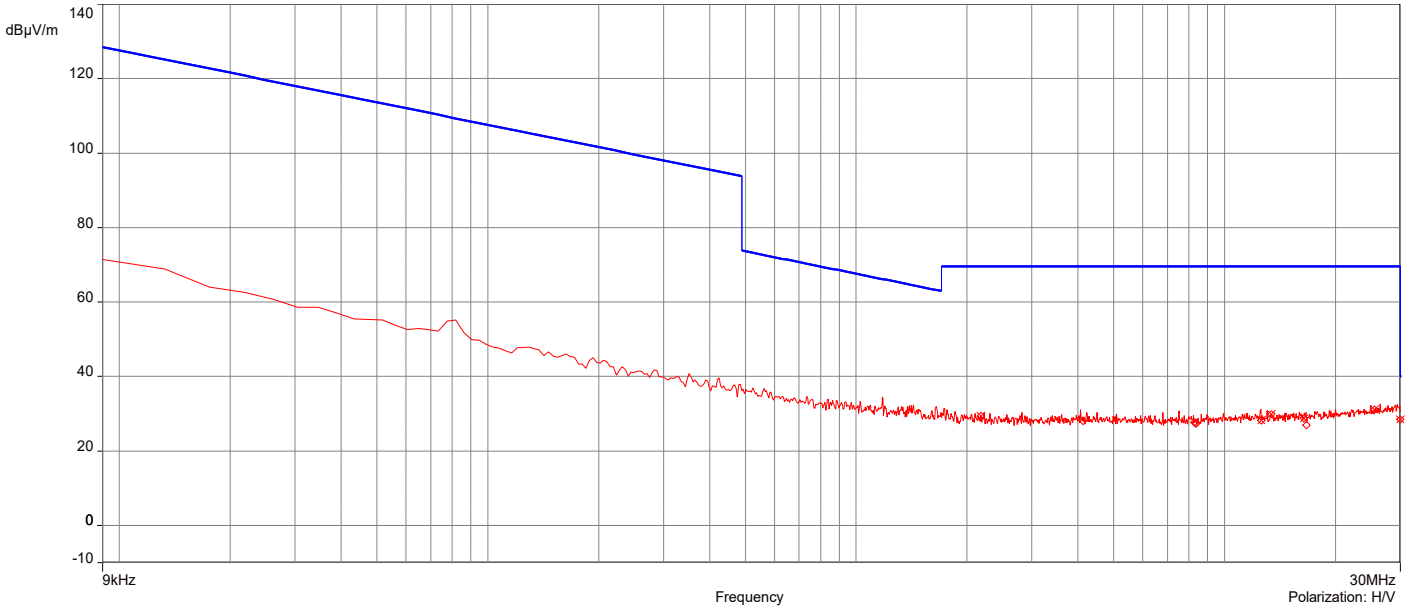


AH22120901-HAR-054#2_5G UNII-3 802.11n_Ch 157_9kHz-30MHz_Ground-Parallel

12/28/2022 5:21:52 PM

No	Frequency (MHz)	Level Q-Peak Reading (dBµV/m)	Correction Factor (dB)	Limit dBµV/m	Margin (dB)	Height (m)	Angle (°)	Polarization	Judgement
1.	2.181516MHz	29.43	19.49	69.54	-40.11	1.00	72.80	H/V	Passed
2.	12.577024MHz	28.18	19.83	69.54	-41.36	1.00	257.70	H/V	Passed
3.	13.399752MHz	29.98	19.85	69.54	-39.56	1.00	238.90	H/V	Passed
4.	16.420706MHz	28.81	19.89	69.54	-40.73	1.00	130.10	H/V	Passed
5.	25.556413MHz	31.14	20.98	69.54	-38.40	1.00	117.60	H/V	Passed
6.	30MHz	28.55	21.85	40.00	-11.45	1.00	246.40	H/V	Passed

Overall Graphs:

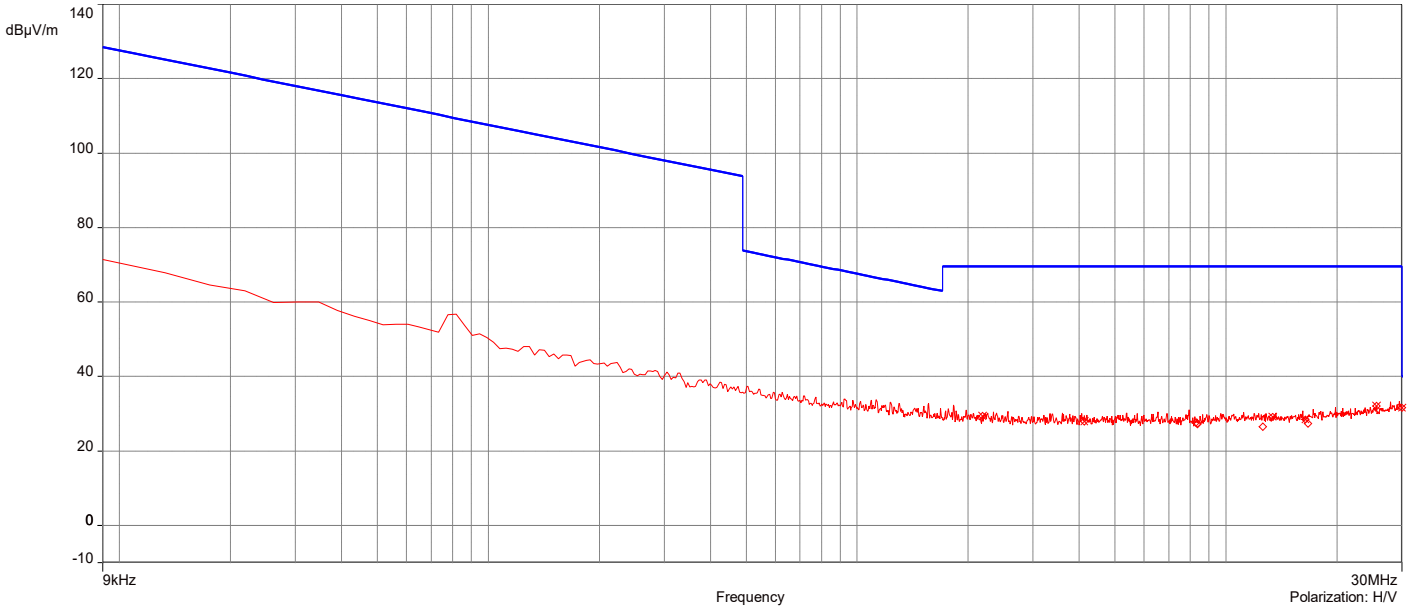


AH22120901-HAR-054#2_5G UNII-3 802.11n_Ch 157_9kHz-30MHz_Parallel

12/28/2022 5:24:02 PM

No	Frequency (MHz)	Level Q-Peak Reading (dBµV/m)	Correction Factor (dB)	Limit dBµV/m	Margin (dB)	Height (m)	Angle (°)	Polarization	Judgement
1.	2.185801MHz	29.33	19.49	69.54	-40.21	1.00	234.70	H/V	Passed
2.	4.126924MHz	27.90	19.69	69.54	-41.64	1.00	358.90	H/V	Passed
3.	13.395467MHz	29.17	19.85	69.54	-40.37	1.00	68.40	H/V	Passed
4.	16.420706MHz	28.51	19.89	69.54	-41.03	1.00	10.10	H/V	Passed
5.	25.586408MHz	32.10	20.99	69.54	-37.44	1.00	21.90	H/V	Passed
6.	30MHz	31.67	21.85	40.00	-8.33	1.00	293.60	H/V	Passed

Overall Graphs:

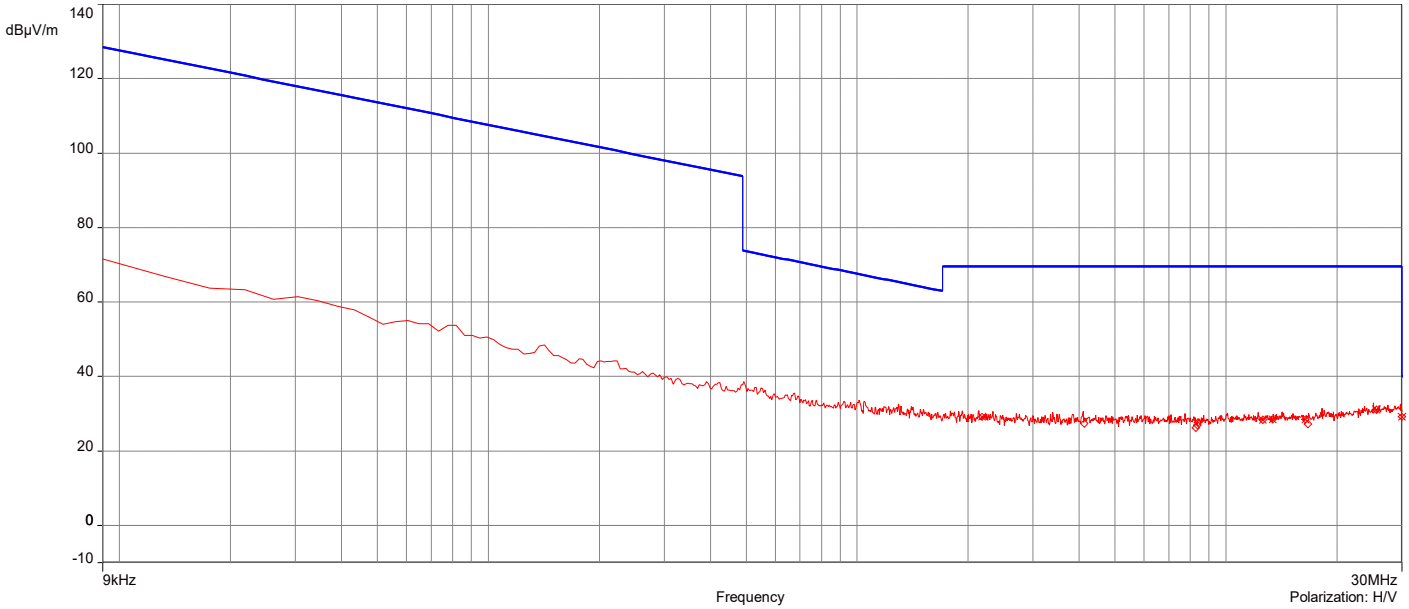


AH22120901-HAR-054#2_5G UNII-3 802.11n_Ch 157_9kHz-30MHz_Perpendicular

12/28/2022 5:19:27 PM

No	Frequency (MHz)	Level Q-Peak Reading (dBµV/m)	Correction Factor (dB)	Limit dBµV/m	Margin (dB)	Height (m)	Angle (°)	Polarization	Judgement
1.	2.181516MHz	29.17	19.49	69.54	-40.37	1.00	185.80	H/V	Passed
2.	12.577024MHz	28.34	19.83	69.54	-41.20	1.00	275.30	H/V	Passed
3.	13.404037MHz	28.52	19.85	69.54	-41.02	1.00	284.40	H/V	Passed
4.	16.420706MHz	28.53	19.89	69.54	-41.01	1.00	318.50	H/V	Passed
5.	25.564983MHz	31.04	20.98	69.54	-38.50	1.00	261.60	H/V	Passed
6.	30MHz	29.27	21.85	40.00	-10.73	1.00	325.00	H/V	Passed

Overall Graphs:

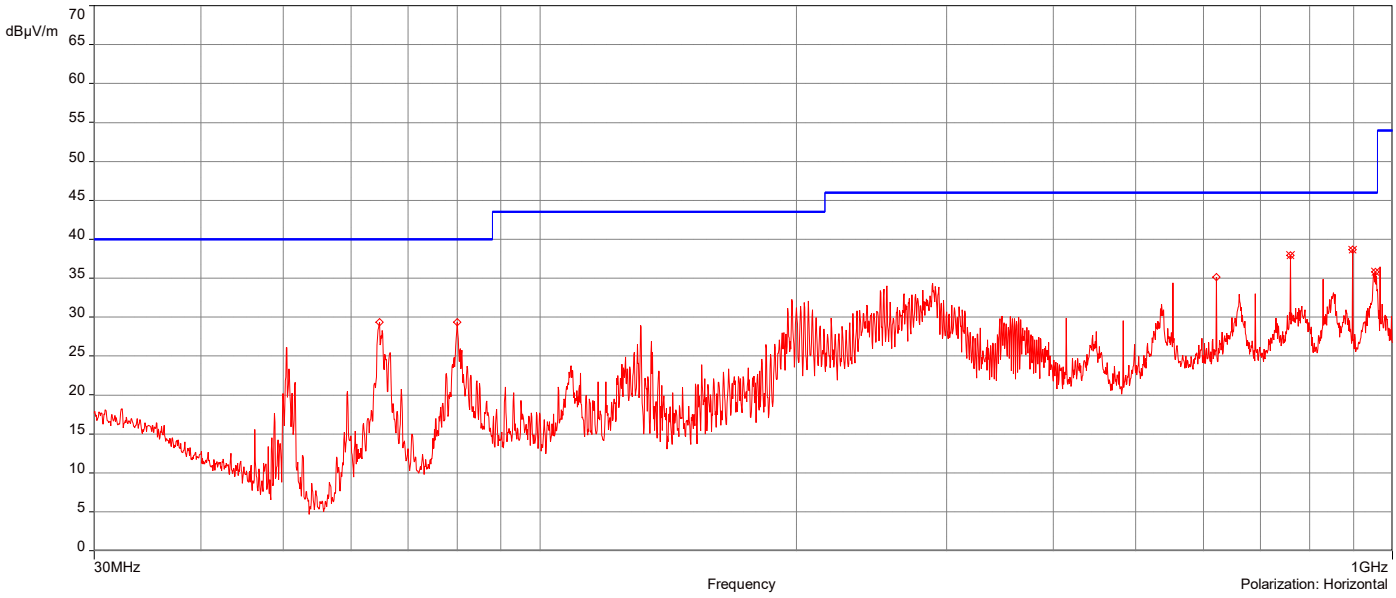


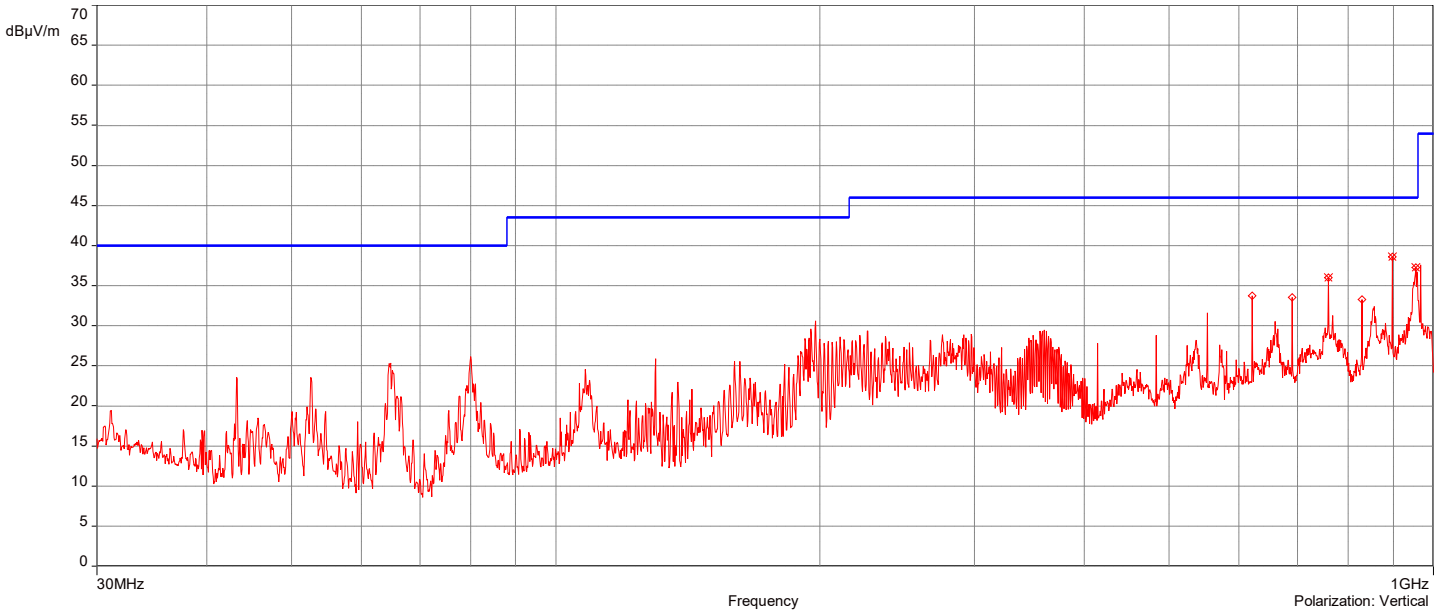
AH22120901-HAR-054#2_5G UNII-1 802.11a_Ch 40_30MHz-1GHz

12/23/2022 2:01:18 PM

No	Frequency (MHz)	Level Q-Peak Reading (dBµV/m)	Correction Factor (dB)	Limit dBµV/m	Margin (dB)	Height (m)	Angle (°)	Polarization	Judgement
1.	759.59704MHz	36.01	-3.28	46.00	-9.99	1.00	91.60	Vertical	Passed
2.	897.68751MHz	38.60	-1.68	46.00	-7.40	1.00	139.80	Vertical	Passed
3.	955.20619MHz	37.28	-1.04	46.00	-8.72	1.25	354.20	Vertical	Passed
4.	759.59704MHz	37.92	-2.18	46.00	-8.08	1.25	65.20	Horizontal	Passed
5.	897.68751MHz	38.64	-0.38	46.00	-7.36	1.00	137.40	Horizontal	Passed
6.	955.54856MHz	35.84	0.17	46.00	-10.16	1.00	60.30	Horizontal	Passed

Overall Graphs:



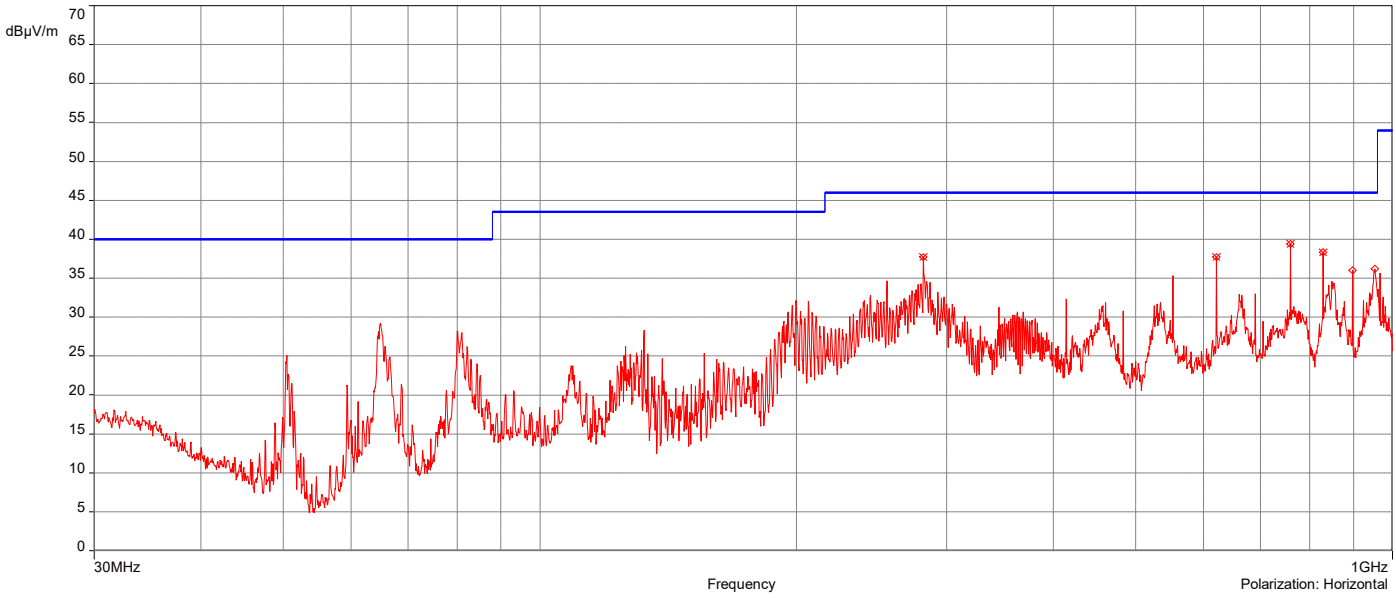

dBµV/m
70
65
60
55
50
45
40
35
30
25
20
15
10
5
0
30MHz
Frequency
1GHz
Polarization: Vertical

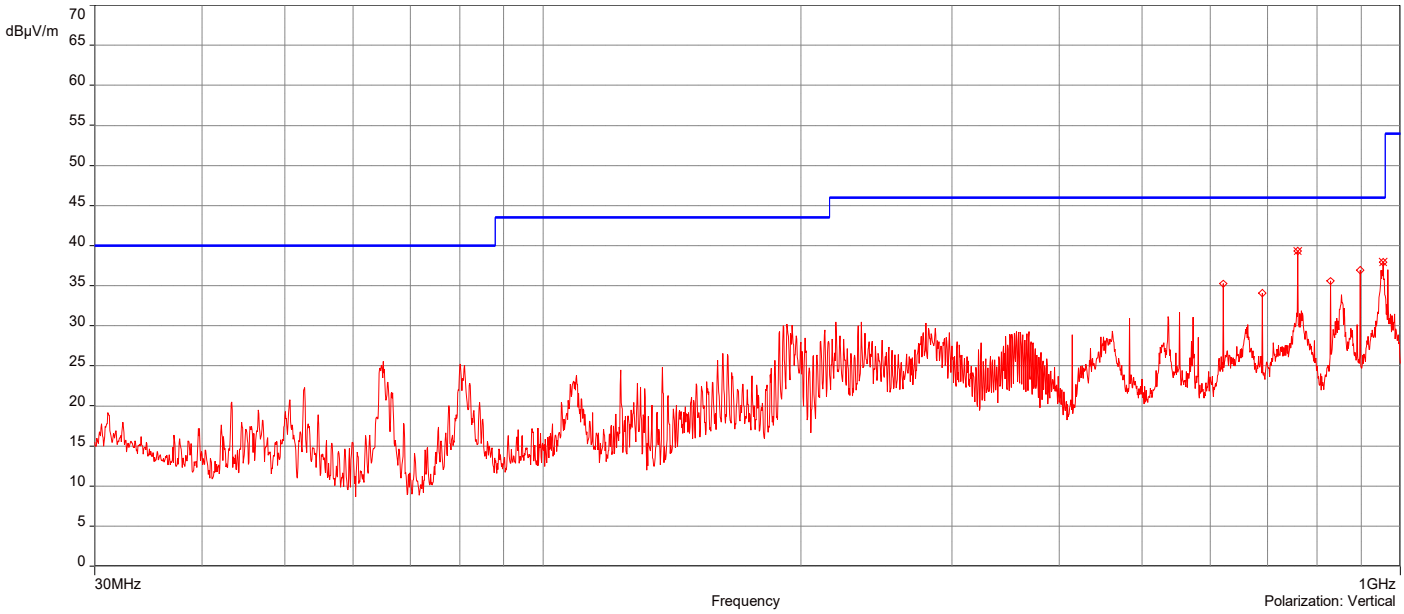
AH22120901-HAR-054#2_5G UNII-1 802.11ac_Ch 38_30MHz-1GHz

12/27/2022 11:18:18 AM

No	Frequency (MHz)	Level Q-Peak Reading (dBµV/m)	Correction Factor (dB)	Limit dBµV/m	Margin (dB)	Height (m)	Angle (°)	Polarization	Judgement
1.	759.59704MHz	39.31	-3.28	46.00	-6.69	1.25	152.10	Vertical	Passed
2.	955.43444MHz	37.94	-1.03	46.00	-8.06	1.25	61.60	Vertical	Passed
3.	281.75834MHz	37.72	-11.85	46.00	-8.28	1.00	286.50	Horizontal	Passed
4.	621.4495MHz	37.70	-4.13	46.00	-8.30	1.00	233.50	Horizontal	Passed
5.	759.59704MHz	39.43	-2.18	46.00	-6.57	1.25	61.00	Horizontal	Passed
6.	828.64227MHz	38.31	-0.86	46.00	-7.69	1.25	244.60	Horizontal	Passed

Overall Graphs:



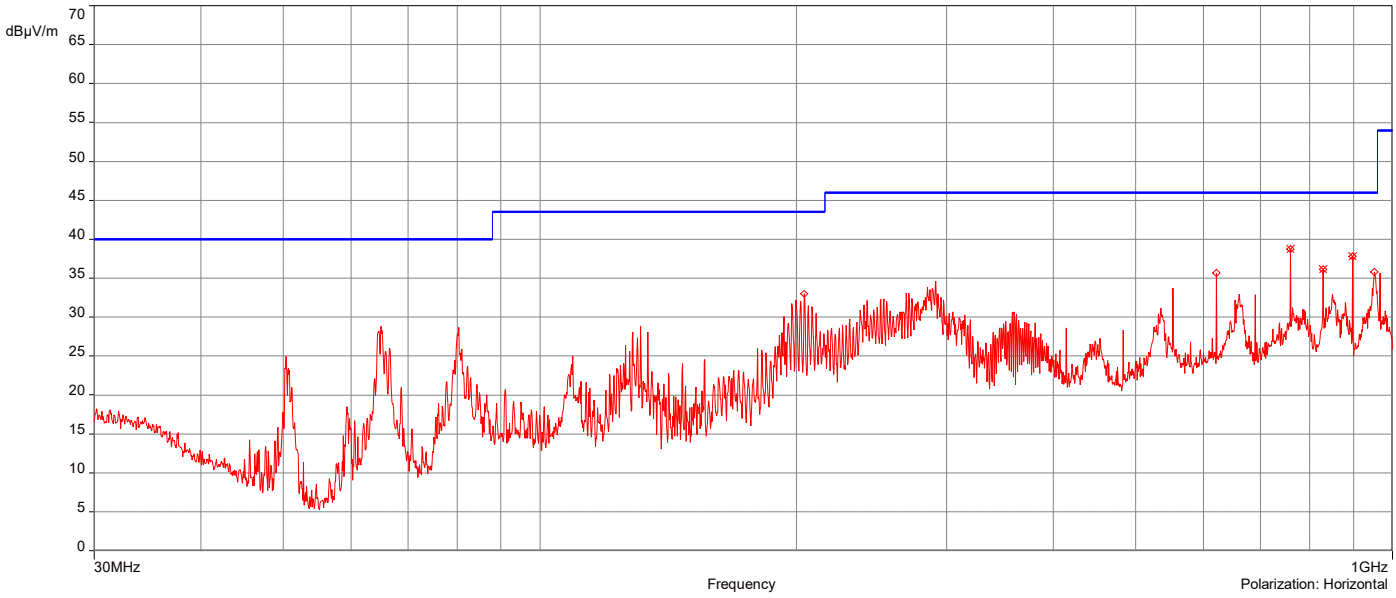

dBµV/m
70
65
60
55
50
45
40
35
30
25
20
15
10
5
0
30MHz
Frequency
1GHz
Polarization: Vertical

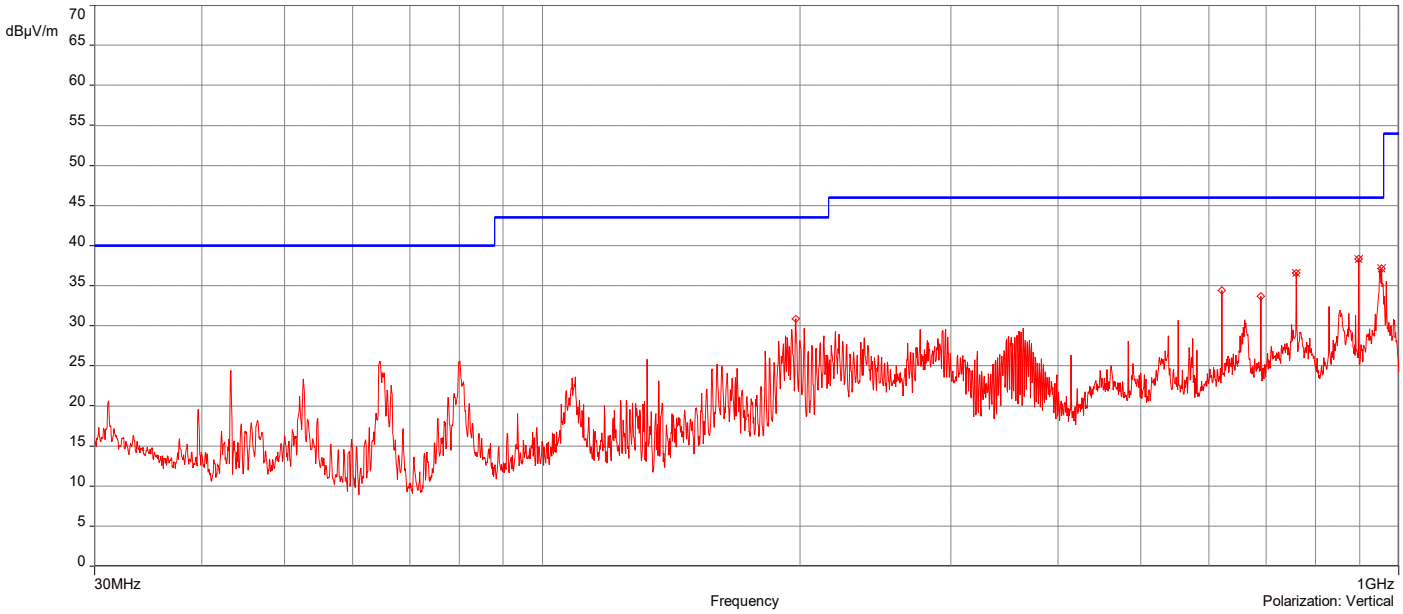
AH22120901-HAR-054#2_5G UNII-1 802.11ac_Ch 46_30MHz-1GHz

12/23/2022 2:24:11 PM

No	Frequency (MHz)	Level Q-Peak Reading (dBµV/m)	Correction Factor (dB)	Limit dBµV/m	Margin (dB)	Height (m)	Angle (°)	Polarization	Judgement
1.	759.59704MHz	36.62	-3.28	46.00	-9.38	1.25	155.40	Vertical	Passed
2.	897.68751MHz	38.34	-1.68	46.00	-7.66	1.25	171.80	Vertical	Passed
3.	955.43444MHz	37.15	-1.03	46.00	-8.85	1.25	8.40	Vertical	Passed
4.	759.59704MHz	38.73	-2.18	46.00	-7.27	1.00	68.00	Horizontal	Passed
5.	828.64227MHz	36.16	-0.86	46.00	-9.84	1.00	61.00	Horizontal	Passed
6.	897.68751MHz	37.83	-0.38	46.00	-8.17	1.00	137.40	Horizontal	Passed

Overall Graphs:



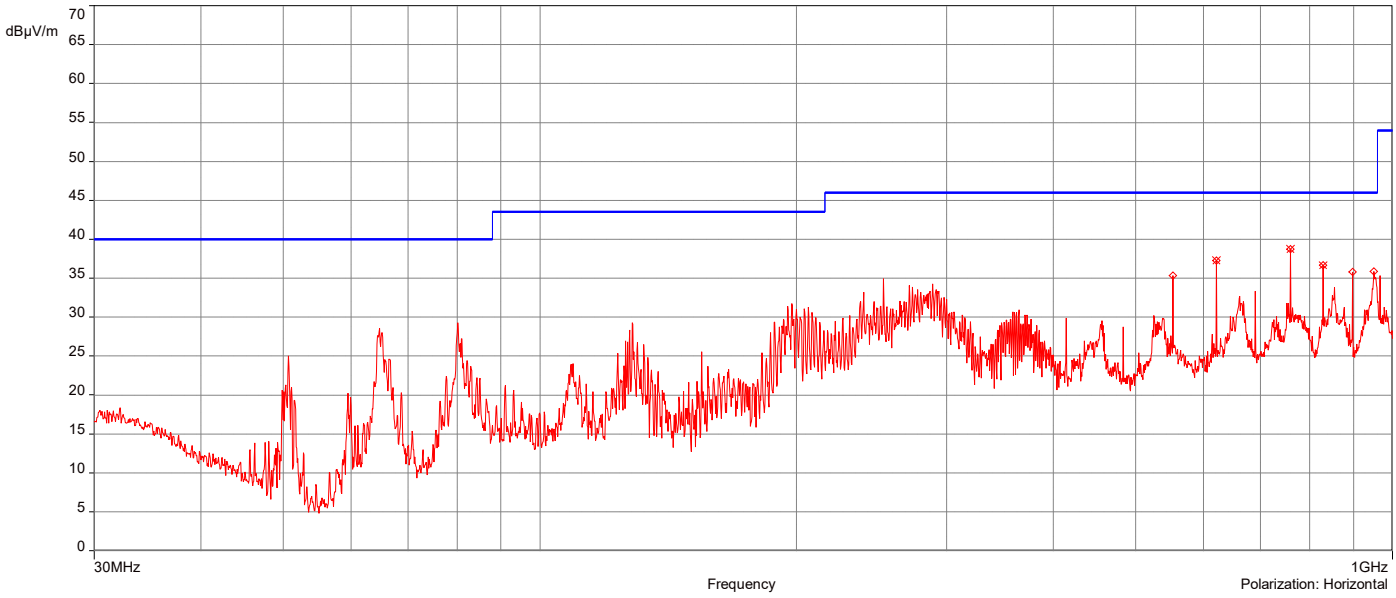

dBµV/m
70
65
60
55
50
45
40
35
30
25
20
15
10
5
0
30MHz
Frequency
1GHz
Polarization: Vertical

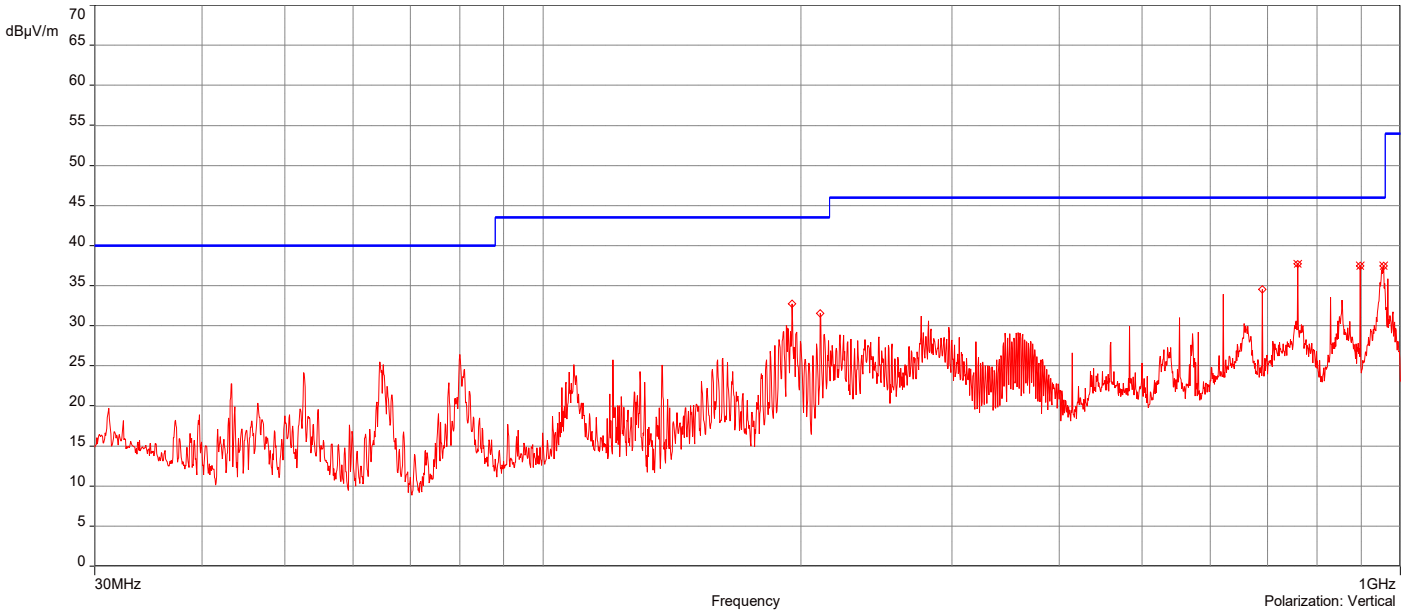
AH22120901-HAR-054#2_5G UNII-1 802.11ac_Ch 42_30MHz-1GHz

12/27/2022 11:42:05 AM

No	Frequency (MHz)	Level Q-Peak Reading (dBµV/m)	Correction Factor (dB)	Limit dBµV/m	Margin (dB)	Height (m)	Angle (°)	Polarization	Judgement
1.	759.59704MHz	37.76	-3.28	46.00	-8.24	1.25	158.10	Vertical	Passed
2.	897.68751MHz	37.47	-1.68	46.00	-8.53	1.25	178.10	Vertical	Passed
3.	955.66269MHz	37.48	-1.03	46.00	-8.52	1.25	356.80	Vertical	Passed
4.	621.4495MHz	37.29	-4.13	46.00	-8.71	1.00	228.10	Horizontal	Passed
5.	759.59704MHz	38.72	-2.18	46.00	-7.28	1.00	57.40	Horizontal	Passed
6.	828.64227MHz	36.69	-0.86	46.00	-9.31	1.00	144.30	Horizontal	Passed

Overall Graphs:



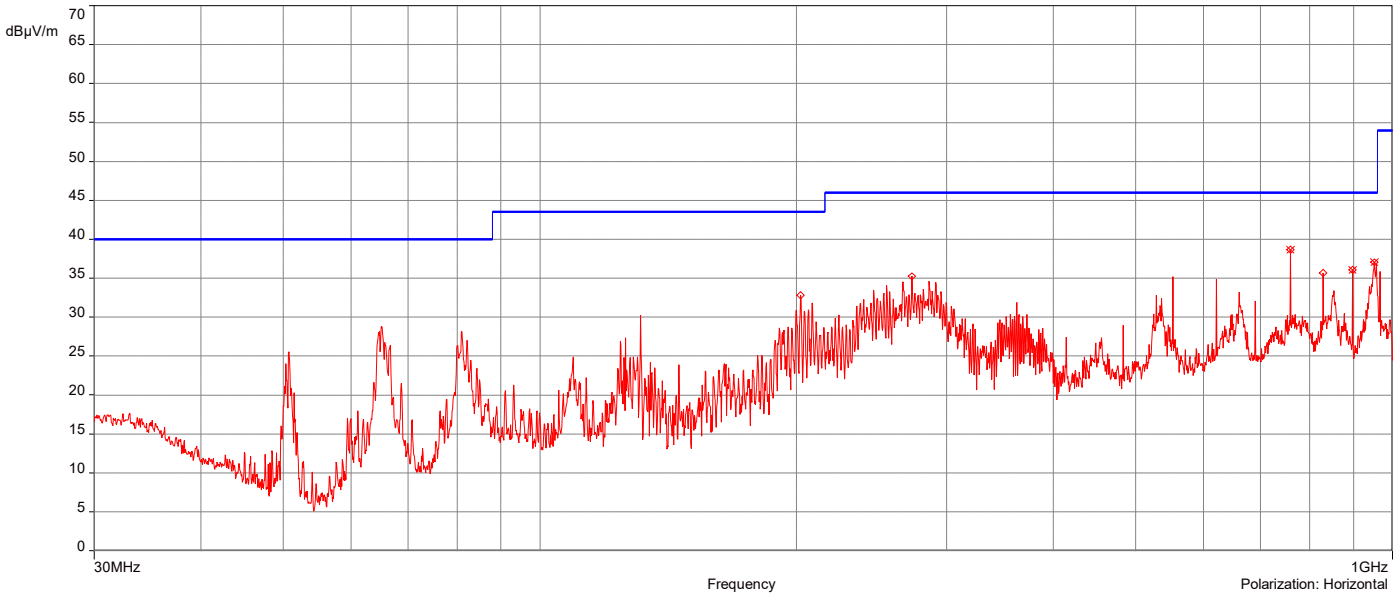

dBµV/m
70
65
60
55
50
45
40
35
30
25
20
15
10
5
0
30MHz
Frequency
1GHz
Polarization: Vertical

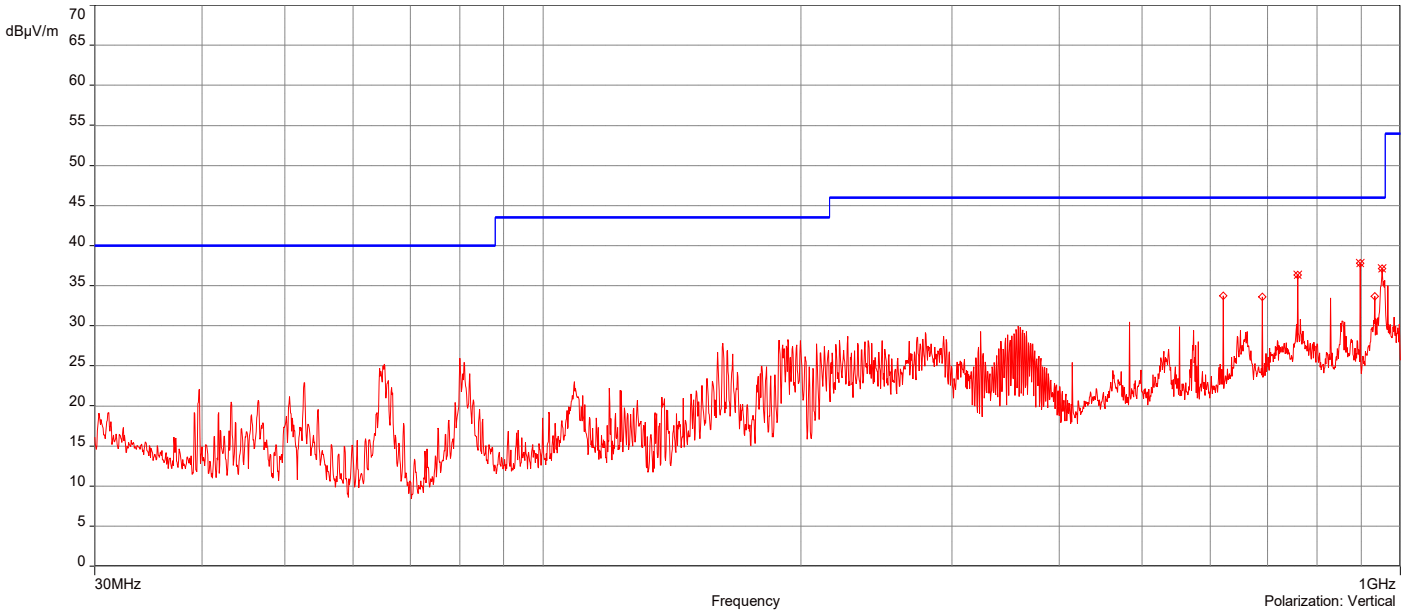
AH22120901-HAR-054#2_5G UNII-3 802.11ac_Ch 157_30MHz-1GHz

12/27/2022 12:02:56 PM

No	Frequency (MHz)	Level Q-Peak Reading (dBµV/m)	Correction Factor (dB)	Limit dBµV/m	Margin (dB)	Height (m)	Angle (°)	Polarization	Judgement
1.	759.59704MHz	36.34	-3.28	46.00	-9.66	1.25	159.70	Vertical	Passed
2.	897.68751MHz	37.78	-1.68	46.00	-8.22	1.25	70.00	Vertical	Passed
3.	951.61127MHz	37.14	-1.07	46.00	-8.86	1.25	345.00	Vertical	Passed
4.	759.59704MHz	38.69	-2.18	46.00	-7.31	1.00	71.90	Horizontal	Passed
5.	897.68751MHz	36.10	-0.38	46.00	-9.90	1.00	77.30	Horizontal	Passed
6.	951.83952MHz	37.10	0.03	46.00	-8.90	1.00	337.70	Horizontal	Passed

Overall Graphs:



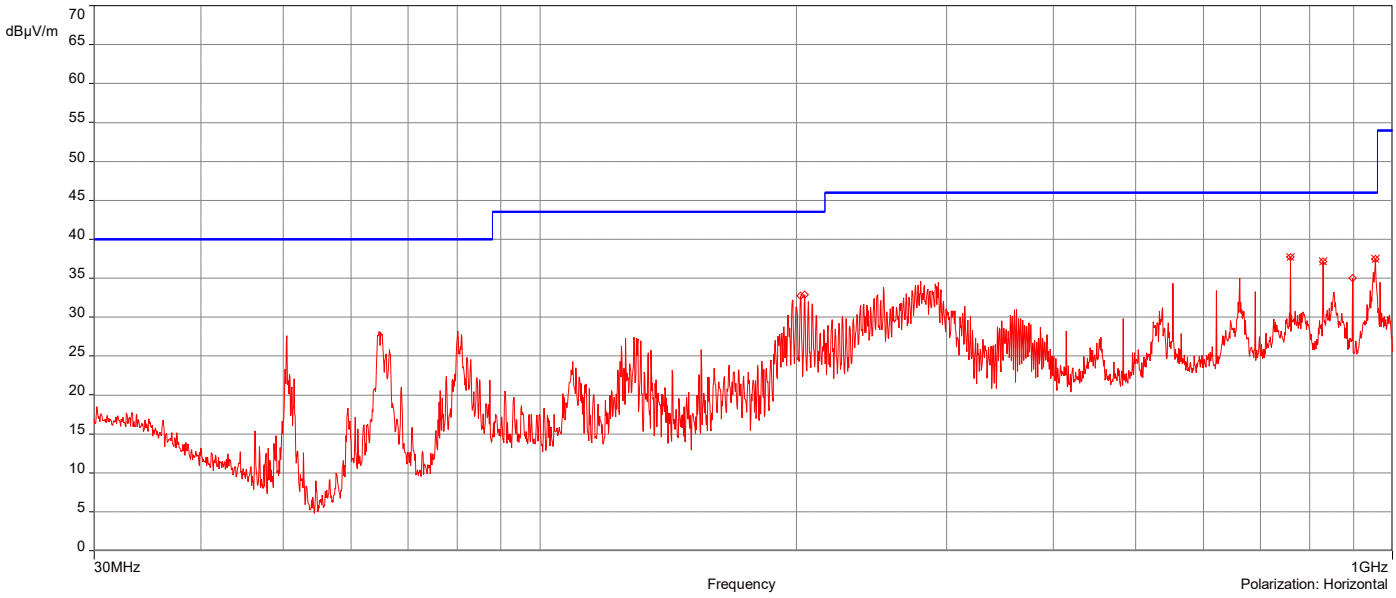

dBµV/m
70
65
60
55
50
45
40
35
30
25
20
15
10
5
0
30MHz
Frequency
1GHz
Polarization: Vertical

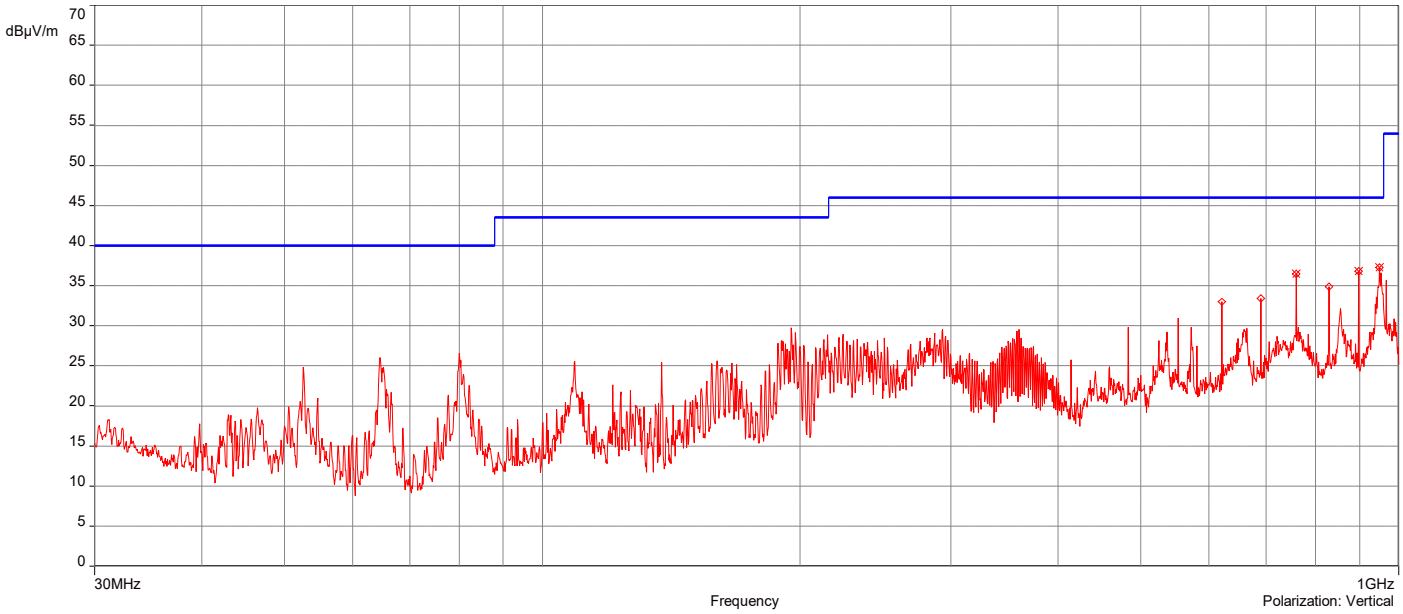
AH22120901-HAR-054#2_5G UNII-3 802.11ac_Ch 151_30MHz-1GHz

12/27/2022 12:25:30 PM

No	Frequency (MHz)	Level Q-Peak Reading (dBµV/m)	Correction Factor (dB)	Limit dBµV/m	Margin (dB)	Height (m)	Angle (°)	Polarization	Judgement
1.	759.59704MHz	36.47	-3.28	46.00	-9.53	1.00	83.60	Vertical	Passed
2.	897.68751MHz	36.80	-1.68	46.00	-9.20	1.25	172.30	Vertical	Passed
3.	950.01353MHz	37.26	-1.19	46.00	-8.74	1.25	352.80	Vertical	Passed
4.	759.59704MHz	37.73	-2.18	46.00	-8.27	1.00	73.00	Horizontal	Passed
5.	828.64227MHz	37.15	-0.86	46.00	-8.85	1.00	84.40	Horizontal	Passed
6.	955.4915MHz	37.48	0.17	46.00	-8.52	1.00	238.60	Horizontal	Passed

Overall Graphs:



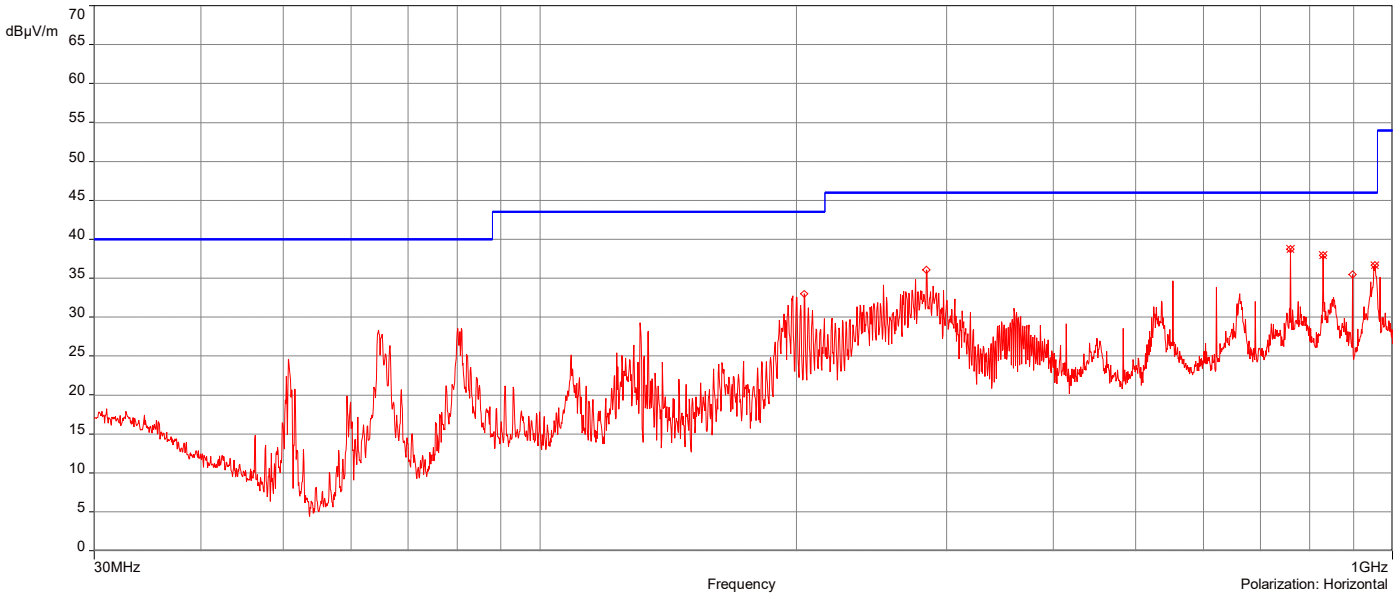

dBµV/m
70
65
60
55
50
45
40
35
30
25
20
15
10
5
0
30MHz
Frequency
1GHz
Polarization: Vertical

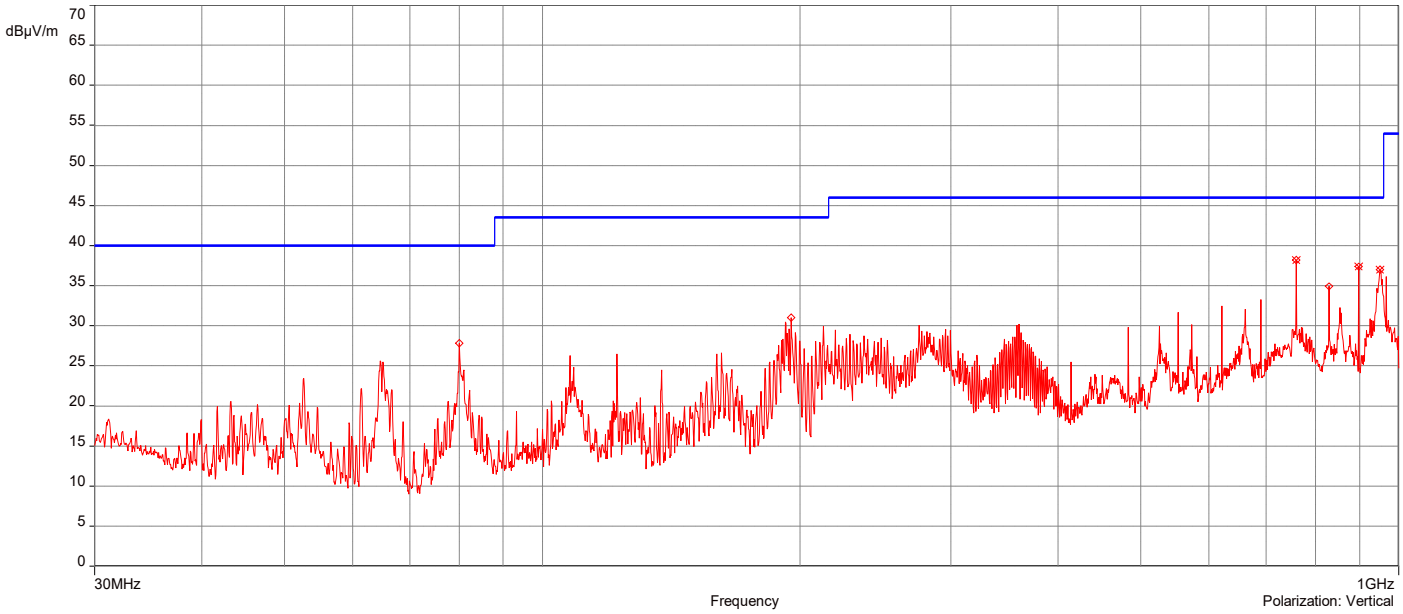
AH22120901-HAR-054#2_5G UNII-3 802.11ac_Ch 159_30MHz-1GHz

12/27/2022 12:48:41 PM

No	Frequency (MHz)	Level Q-Peak Reading (dBµV/m)	Correction Factor (dB)	Limit dBµV/m	Margin (dB)	Height (m)	Angle (°)	Polarization	Judgement
1.	759.59704MHz	38.18	-3.28	46.00	-7.82	1.25	157.20	Vertical	Passed
2.	897.68751MHz	37.38	-1.68	46.00	-8.62	1.25	177.10	Vertical	Passed
3.	951.55421MHz	37.02	-1.07	46.00	-8.98	1.25	346.00	Vertical	Passed
4.	759.59704MHz	38.75	-2.18	46.00	-7.25	1.00	57.70	Horizontal	Passed
5.	828.64227MHz	37.94	-0.86	46.00	-8.06	1.25	248.20	Horizontal	Passed
6.	954.12201MHz	36.66	0.06	46.00	-9.34	1.00	344.10	Horizontal	Passed

Overall Graphs:



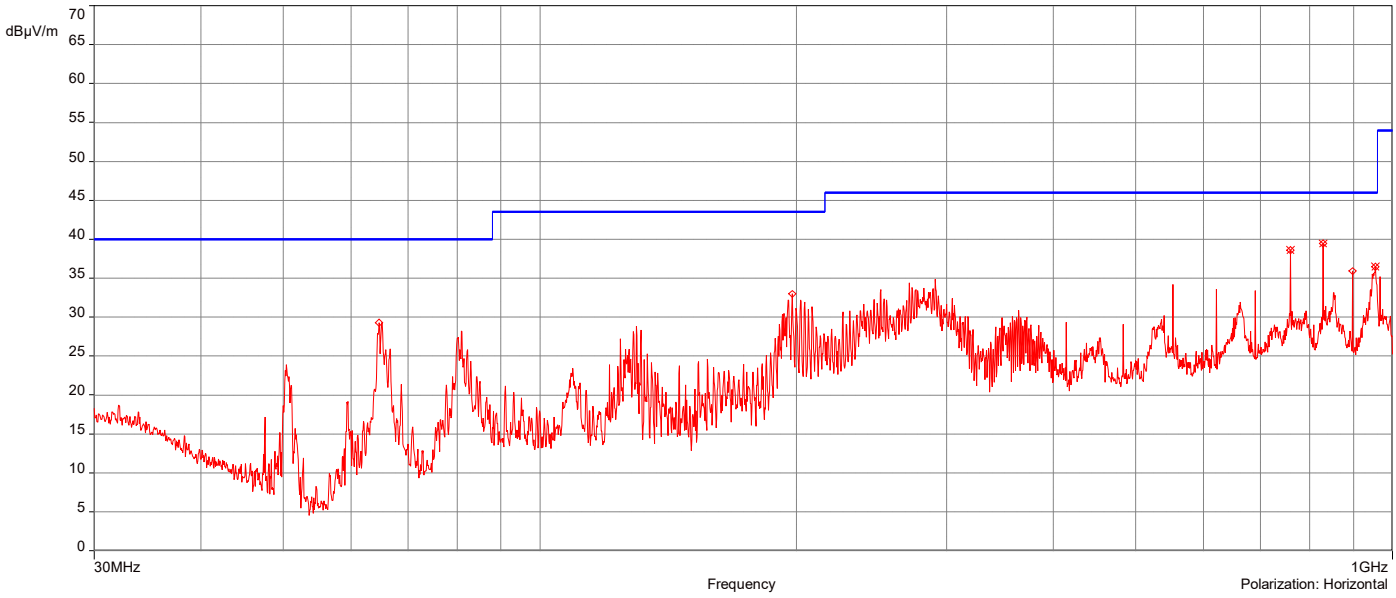

dBµV/m
70
65
60
55
50
45
40
35
30
25
20
15
10
5
0
30MHz
Frequency
1GHz
Polarization: Vertical

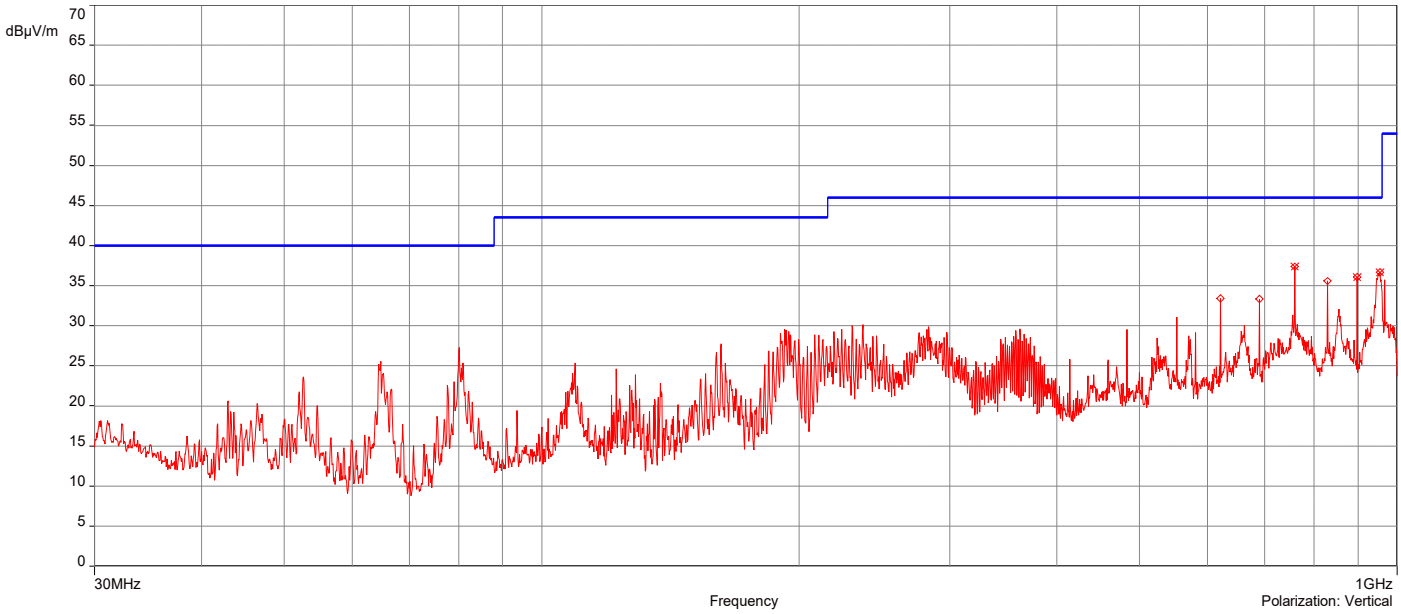
AH22120901-HAR-054#2_5G UNII-3 802.11ac_Ch 155_30MHz-1GHz

12/27/2022 1:11:19 PM

No	Frequency (MHz)	Level Q-Peak Reading (dBµV/m)	Correction Factor (dB)	Limit dBµV/m	Margin (dB)	Height (m)	Angle (°)	Polarization	Judgement
1.	759.59704MHz	37.39	-3.28	46.00	-8.61	1.00	97.80	Vertical	Passed
2.	897.68751MHz	36.07	-1.68	46.00	-9.93	1.25	174.20	Vertical	Passed
3.	955.14913MHz	36.64	-1.04	46.00	-9.36	1.25	348.80	Vertical	Passed
4.	759.59704MHz	38.57	-2.18	46.00	-7.43	1.00	65.40	Horizontal	Passed
5.	828.64227MHz	39.48	-0.86	46.00	-6.52	1.25	250.60	Horizontal	Passed
6.	955.26325MHz	36.45	0.16	46.00	-9.55	1.00	335.40	Horizontal	Passed

Overall Graphs:



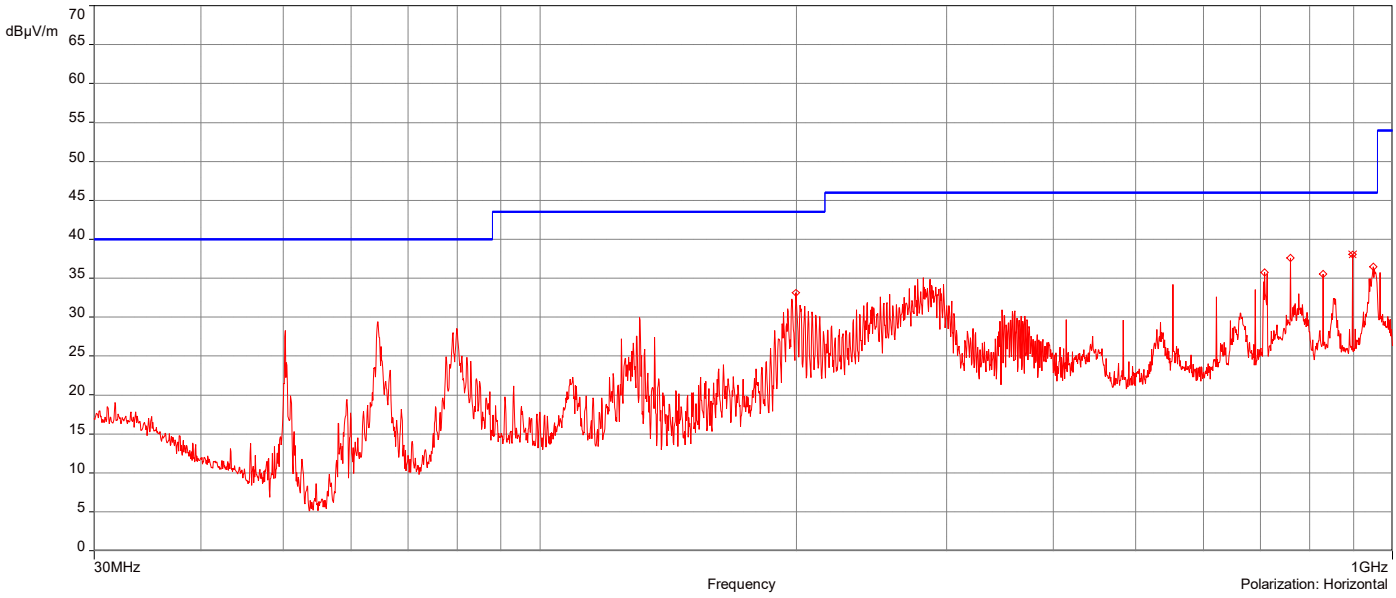

dBµV/m
70
65
60
55
50
45
40
35
30
25
20
15
10
5
0
30MHz
Frequency
1GHz
Polarization: Vertical

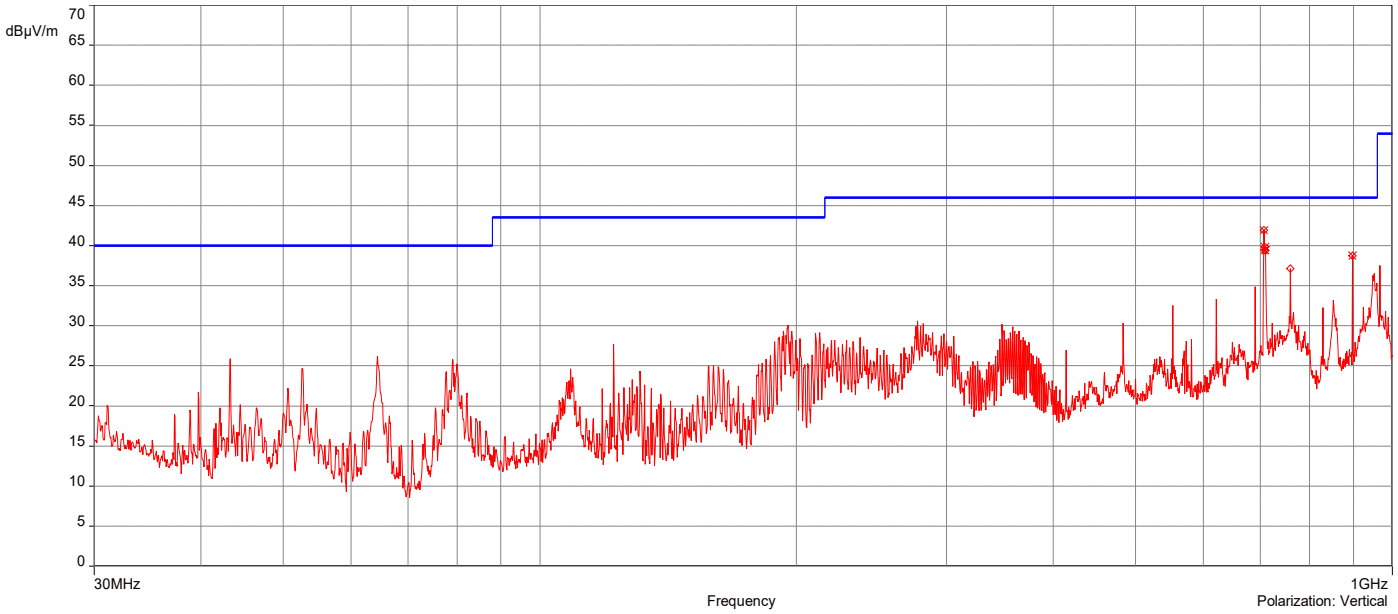
AH22120901-HAR-054#2_5G UNII-1 802.11n_Ch 40_30MHz-1GHz

1/3/2023 12:37:01 PM

No	Frequency (MHz)	Level Q-Peak Reading (dBµV/m)	Correction Factor (dB)	Limit dBµV/m	Margin (dB)	Height (m)	Angle (°)	Polarization	Judgement
1.	706.98571MHz	41.94	-3.87	46.00	-4.06	3.00	250.70	Vertical	Passed
2.	707.67045MHz	39.50	-3.87	46.00	-6.50	2.00	225.40	Vertical	Passed
3.	708.41226MHz	39.84	-3.87	46.00	-6.16	1.75	105.40	Vertical	Passed
4.	709.95294MHz	39.38	-3.87	46.00	-6.62	2.00	230.80	Vertical	Passed
5.	897.68751MHz	38.72	-1.69	46.00	-7.28	1.25	177.30	Vertical	Passed
6.	897.68751MHz	38.05	-0.39	46.00	-7.95	1.50	133.10	Horizontal	Passed

Overall Graphs:



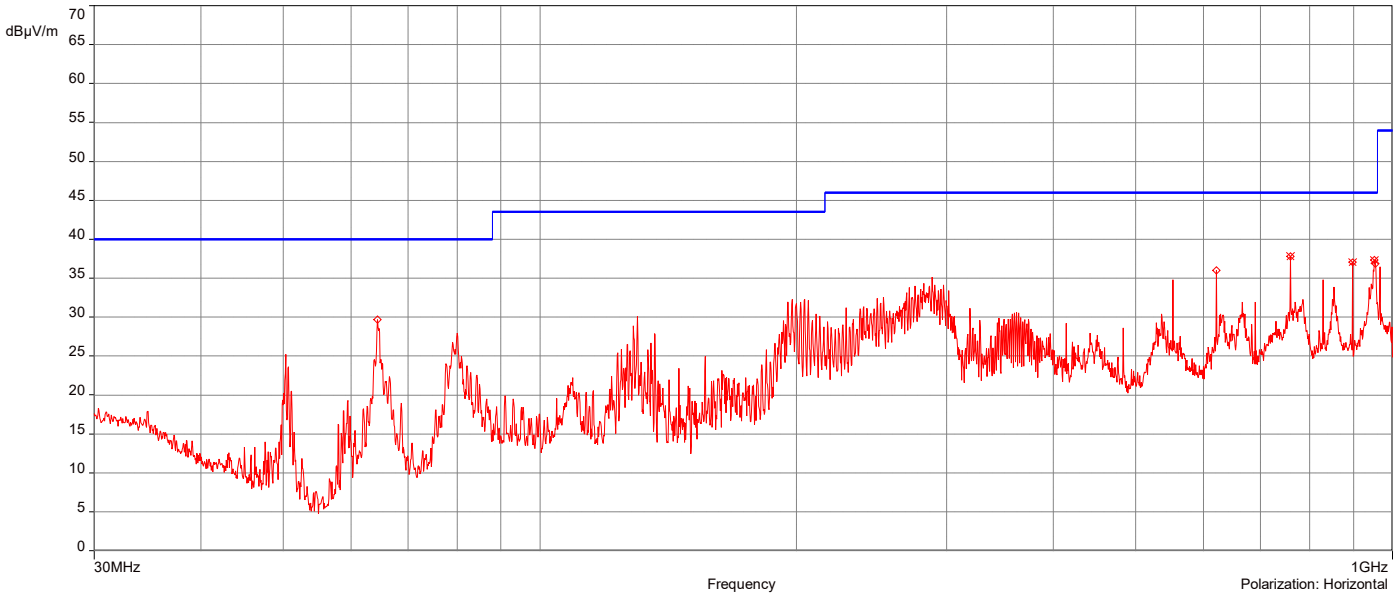

dBµV/m
70
65
60
55
50
45
40
35
30
25
20
15
10
5
0
30MHz
Frequency
1GHz
Polarization: Vertical

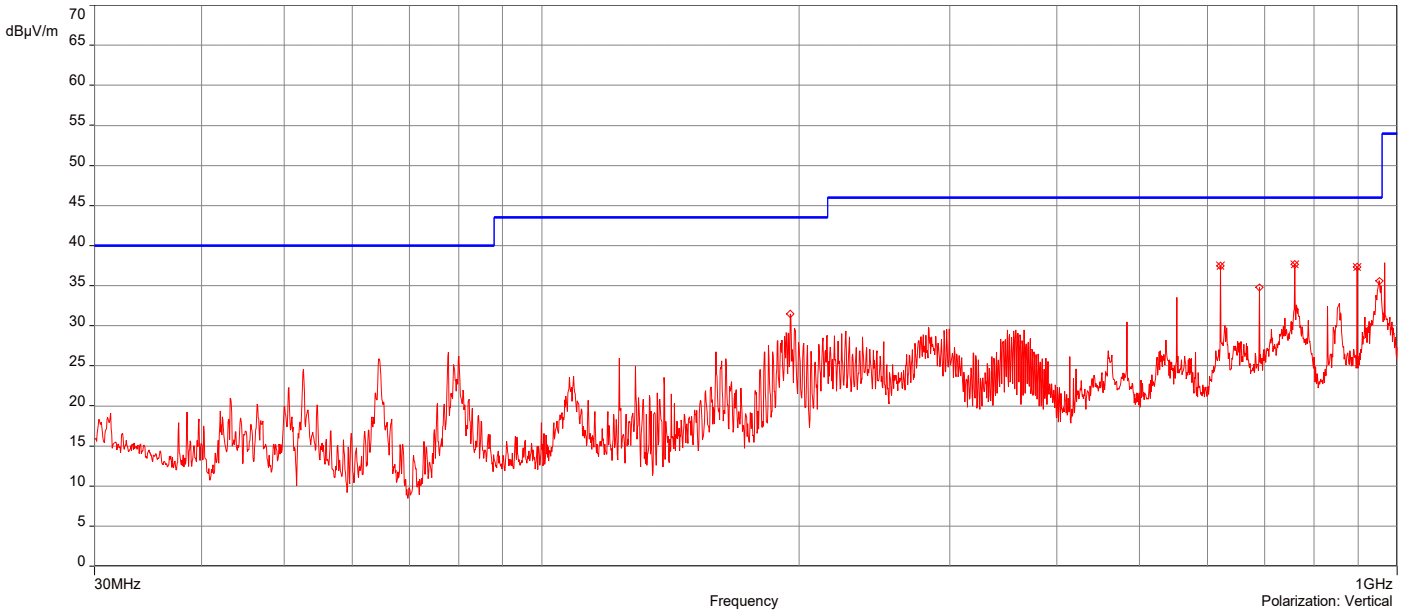
AH22120901-HAR-054#2_5G UNII-3 802.11a_Ch 157_30MHz-1GHz

1/3/2023 1:03:48 PM

No	Frequency (MHz)	Level Q-Peak Reading (dBµV/m)	Correction Factor (dB)	Limit dBµV/m	Margin (dB)	Height (m)	Angle (°)	Polarization	Judgement
1.	621.4495MHz	37.49	-5.19	46.00	-8.51	1.00	101.60	Vertical	Passed
2.	759.59704MHz	37.65	-3.29	46.00	-8.35	1.25	155.20	Vertical	Passed
3.	897.68751MHz	37.34	-1.69	46.00	-8.66	1.25	182.30	Vertical	Passed
4.	759.59704MHz	37.83	-2.19	46.00	-8.17	1.25	69.90	Horizontal	Passed
5.	897.68751MHz	37.04	-0.39	46.00	-8.96	1.50	133.90	Horizontal	Passed
6.	952.9237MHz	37.30	0.04	46.00	-8.70	1.00	331.70	Horizontal	Passed

Overall Graphs:




dBµV/m
70
65
60
55
50
45
40
35
30
25
20
15
10
5
0
30MHz
Frequency
1GHz
Polarization: Vertical

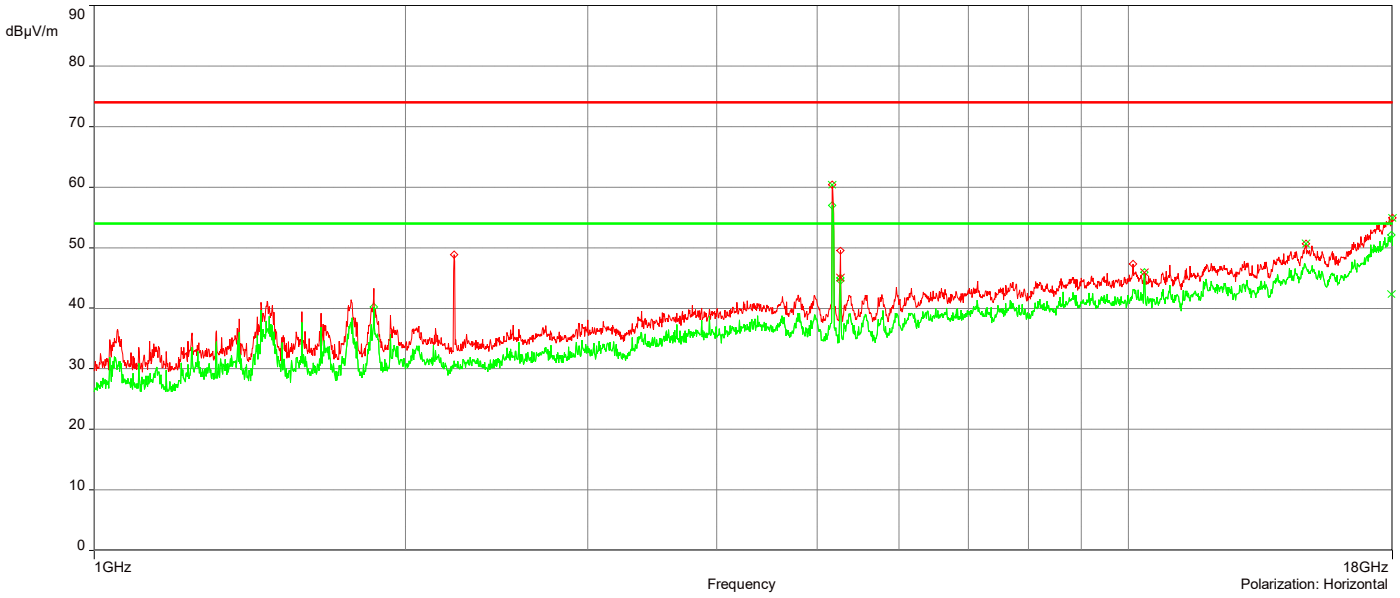
AH22120901-HAR-054#2_5G UNII-1 802.11a Ch 36_1-18GHz

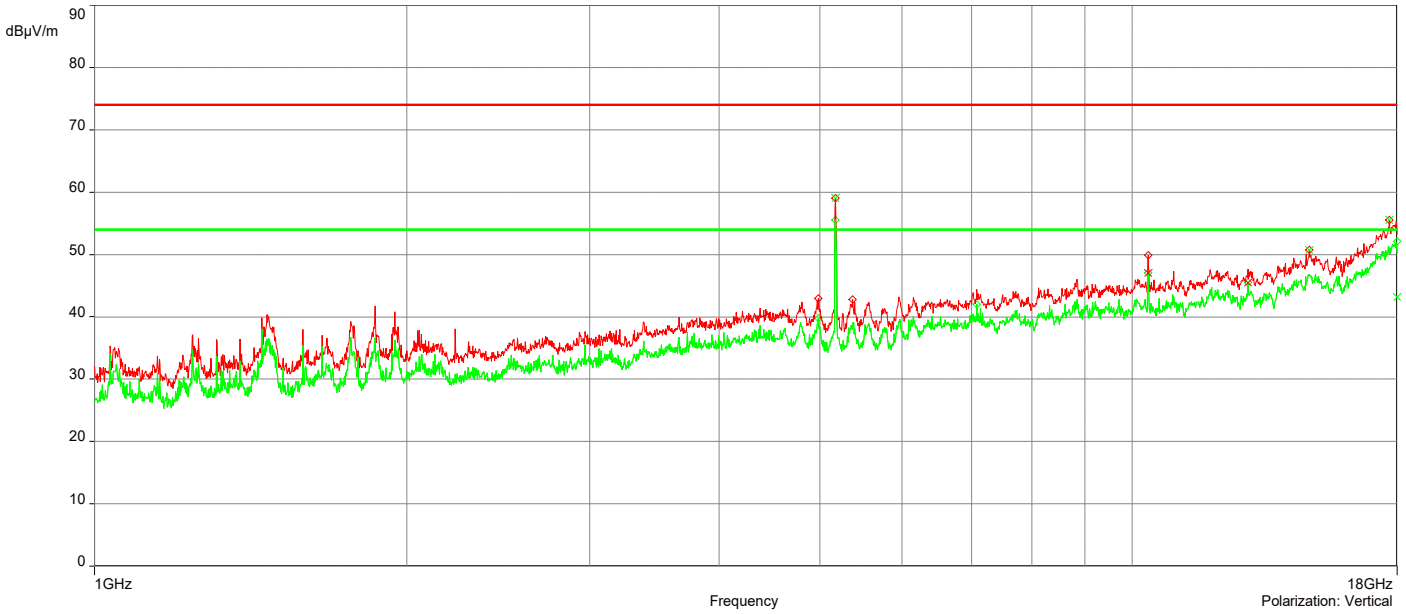
12/20/2022 12:27:32 PM

No	Frequency (MHz)	Level Peak Reading (dBµV/m)	Correction Factor (dB)	Limit dBµV/m	Margin (dB)	Height (m)	Angle (°)	Polarization	Judgement
1.	5.1771229GHz	59.07	4.99	68.23	-9.16	2.00	256.50	Vertical	Passed
2.	14.815906GHz	50.71	15.54	68.23	-17.52	1.50	0.10	Vertical	Passed
3.	17.682991GHz	55.55	19.37	68.23	-12.68	3.50	110.80	Vertical	Passed
4.	5.1726227GHz	60.40	5.00	68.23	-7.83	1.00	17.30	Horizontal	Passed
5.	14.841407GHz	50.63	15.61	68.23	-17.6	2.50	95.00	Horizontal	Passed
6.	17.995GHz	54.93	21.33	74.00	-19.07	3.50	213.30	Horizontal	Passed

No	Frequency (MHz)	Level Average Reading (dBµV/m)	Correction Factor (dB)	Limit dBµV/m	Margin (dB)	Height (m)	Angle (°)	Polarization	Judgment
1.	17.9945GHz	43.19	21.34	54.00	-10.81	4.00	326.90	Vertical	Passed
2.	17.957999GHz	42.33	20.81	54.00	-11.67	2.00	58.10	Horizontal	Passed

Overall Graphs:




dBµV/m
90
80
70
60
50
40
30
20
10
0
1GHz
Frequency
18GHz
Polarization: Vertical

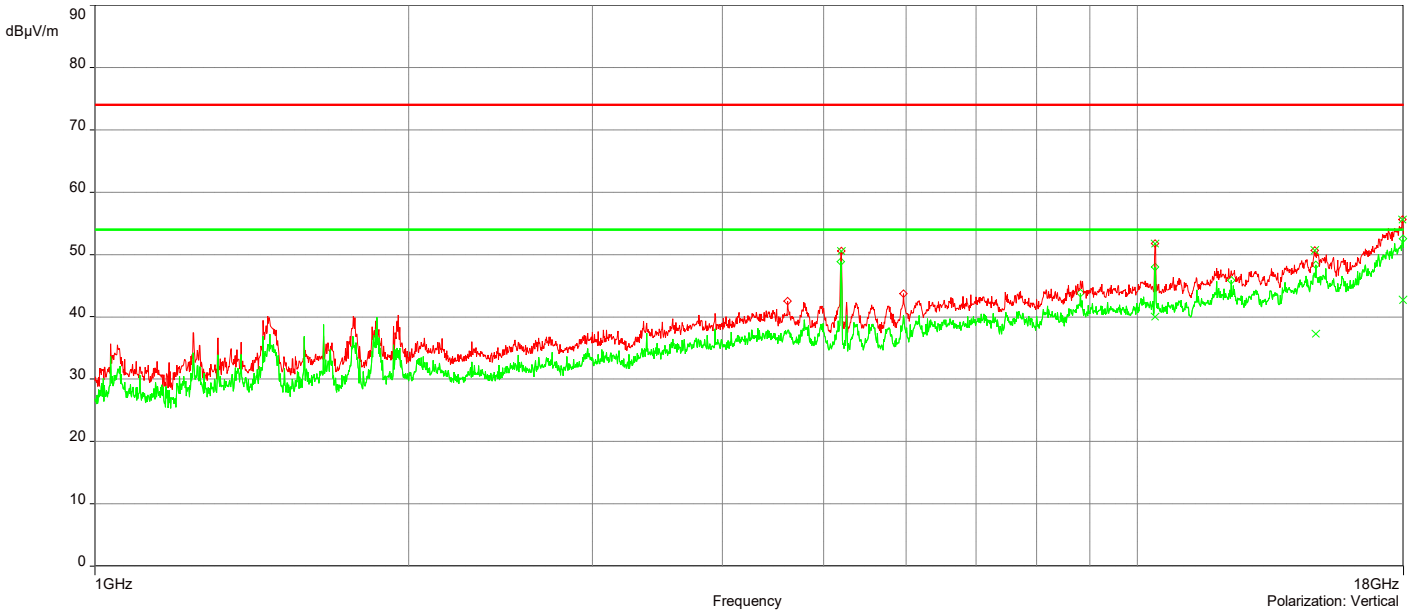
AH22120901-HAR-054#2_5G UNII-1 802.11a_Ch 40_1-18GHz

12/20/2022 12:51:50 PM

No	Frequency (MHz)	Level Peak Reading (dBµV/m)	Correction Factor (dB)	Limit dBµV/m	Margin (dB)	Height (m)	Angle (°)	Polarization	Judgement
1.	5.1976235GHz	50.59	4.94	68.23	-17.64	2.50	246.50	Vertical	Passed
2.	10.399276GHz	51.76	9.45	68.23	-16.47	3.00	86.20	Vertical	Passed
3.	14.798906GHz	50.67	15.34	68.23	-17.56	2.50	179.70	Vertical	Passed
4.	17.965999GHz	55.61	20.93	74.00	-18.39	2.50	125.80	Vertical	Passed
5.	5.1926233GHz	53.45	4.94	68.23	-14.78	2.00	140.50	Horizontal	Passed
6.	17.893997GHz	55.28	20.44	74.00	-18.72	3.50	300.10	Horizontal	Passed

No	Frequency (MHz)	Level Average Reading (dBµV/m)	Correction Factor (dB)	Limit dBµV/m	Margin (dB)	Height (m)	Angle (°)	Polarization	Judgment
1.	17.9885GHz	42.70	21.21	54.00	-11.30	3.00	323.90	Vertical	Passed
2.	17.960999GHz	42.44	20.84	54.00	-11.56	3.50	36.10	Horizontal	Passed

Overall Graphs:


dBµV/m
90
80
70
60
50
40
30
20
10
0
1GHz
Frequency
18GHz
Polarization: Vertical

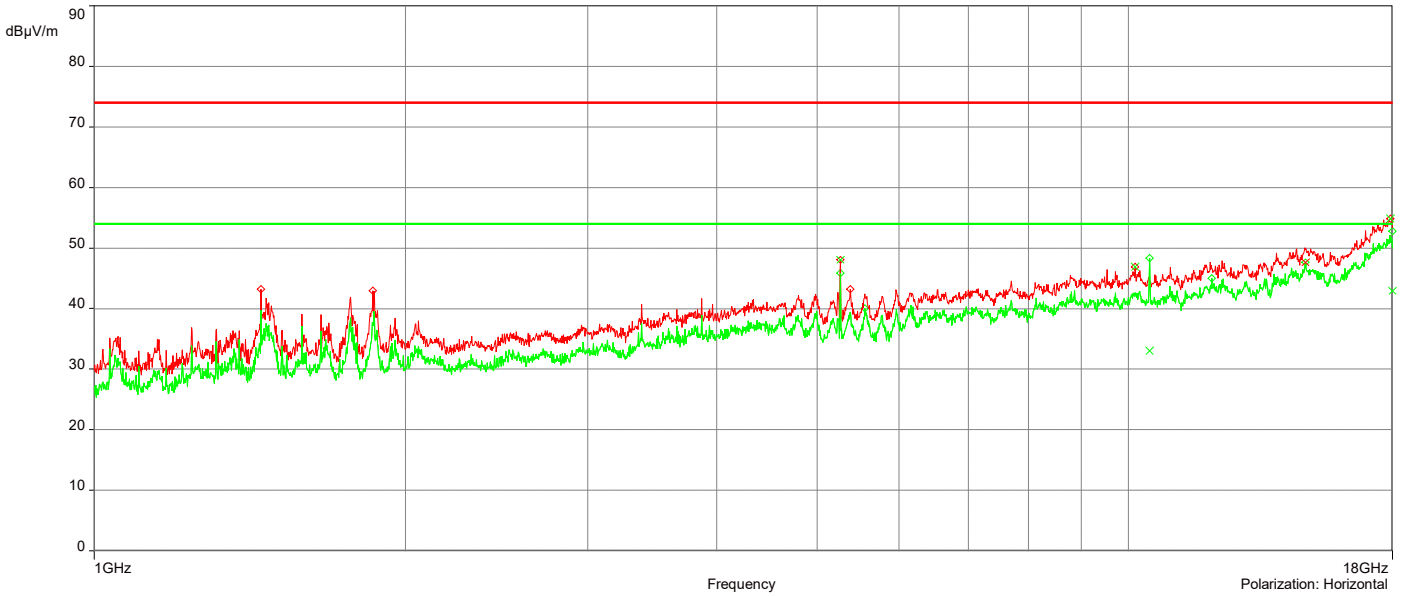
AH22120901-HAR-054#2_5G UNII-1 802.11a_Ch 48_1-18GHz

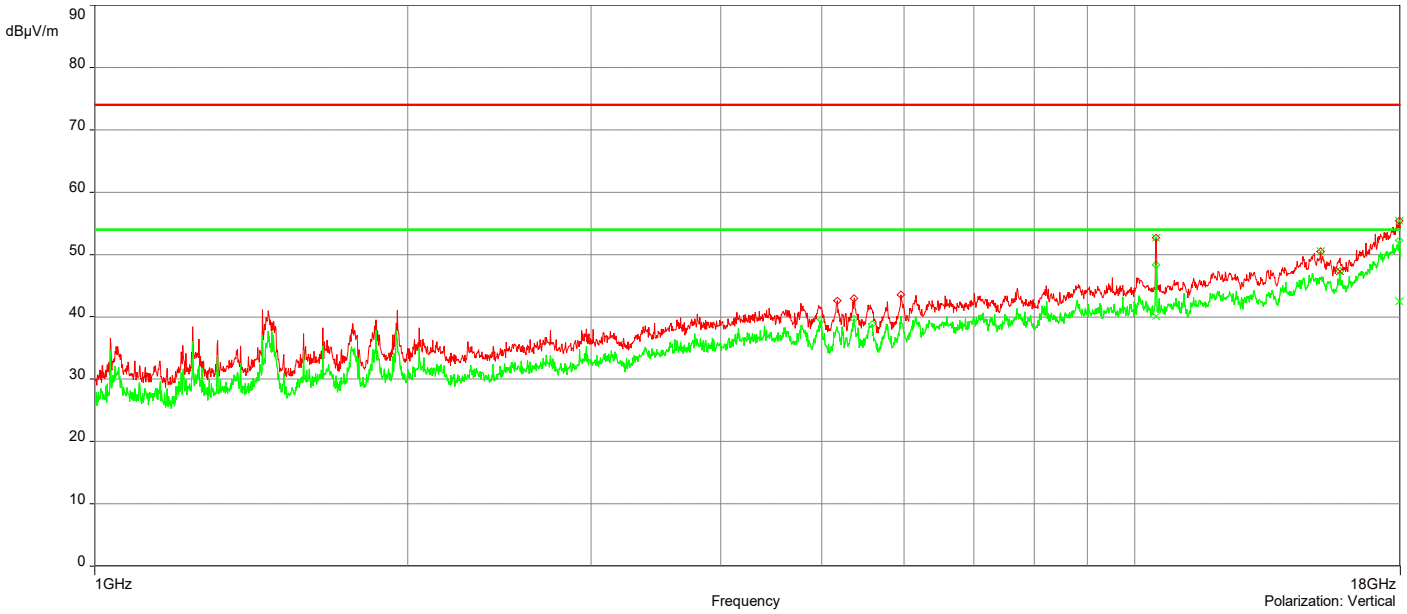
12/20/2022 1:18:47 PM

No	Frequency (MHz)	Level Peak Reading (dBµV/m)	Correction Factor (dB)	Limit dBµV/m	Margin (dB)	Height (m)	Angle (°)	Polarization	Judgement
1.	10.480279GHz	52.67	9.47	68.23	-15.56	3.00	84.50	Vertical	Passed
2.	15.084914GHz	50.49	14.76	68.23	-17.74	1.50	142.30	Vertical	Passed
3.	17.951999GHz	55.45	20.83	74.00	-18.55	4.00	166.90	Vertical	Passed
4.	5.2646254GHz	48.07	5.09	68.23	-20.16	1.00	322.90	Horizontal	Passed
5.	10.147769GHz	46.89	10.00	68.23	-21.34	1.50	243.50	Horizontal	Passed
6.	17.911497GHz	54.84	20.55	74.00	-19.16	3.50	210.50	Horizontal	Passed

No	Frequency (MHz)	Level Average Reading (dBµV/m)	Correction Factor (dB)	Limit dBµV/m	Margin (dB)	Height (m)	Angle (°)	Polarization	Judgment
1.	15.755434GHz	47.29	14.81	54.00	-6.71	2.00	314.20	Vertical	Passed
2.	17.960999GHz	42.51	20.89	54.00	-11.49	1.50	102.10	Vertical	Passed
3.	17.9955GHz	42.94	21.34	54.00	-11.06	1.50	273.90	Horizontal	Passed

Overall Graphs:




dBµV/m
90
80
70
60
50
40
30
20
10
0
1GHz
Frequency
18GHz
Polarization: Vertical

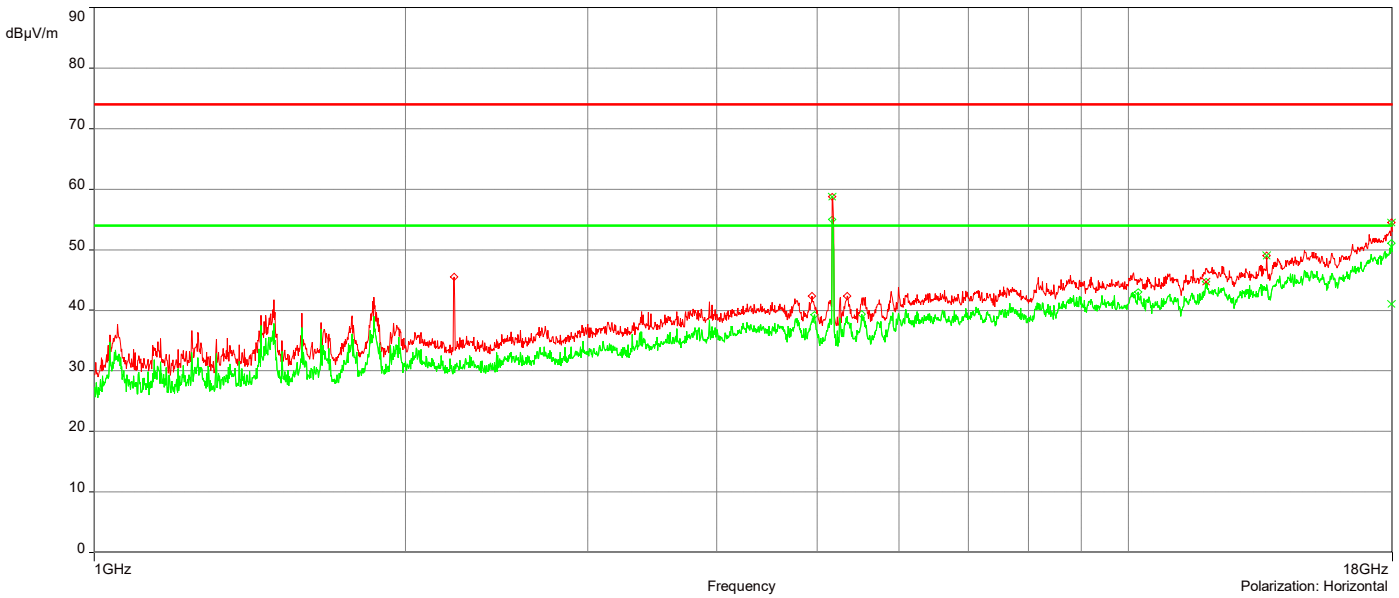
AH22120901-HAR-054#2_5G UNII-1 802.11n Ch 36_1-18GHz

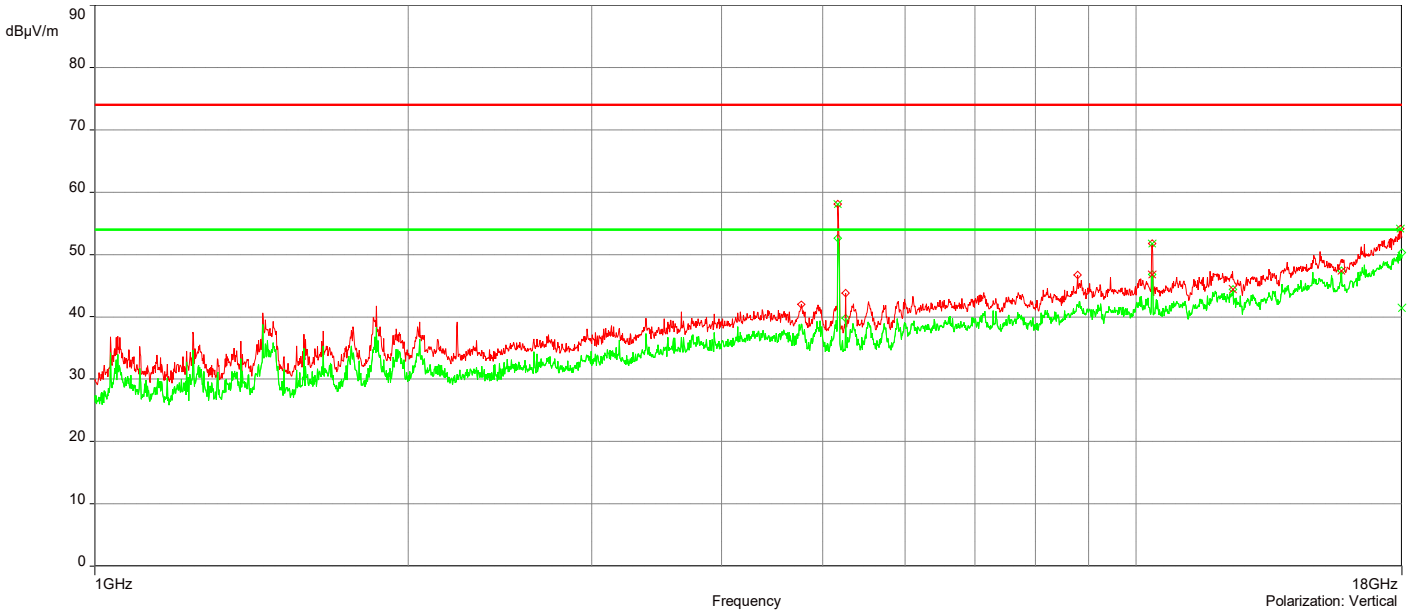
1/10/2023 10:20:08 AM

No	Frequency (MHz)	Level Peak Reading (dBµV/m)	Correction Factor (dB)	Limit dBµV/m	Margin (dB)	Height (m)	Angle (°)	Polarization	Judgement
1.	5.1726227GHz	58.10	5.03	68.23	-10.13	2.50	257.30	Vertical	Passed
2.	10.363775GHz	51.80	9.21	68.23	-16.43	3.00	81.30	Vertical	Passed
3.	17.930498GHz	54.17	19.27	74.00	-19.83	3.00	18.90	Vertical	Passed
4.	5.1726227GHz	58.78	5.02	68.23	-9.45	1.00	29.10	Horizontal	Passed
5.	13.59487GHz	49.00	11.04	68.23	-19.23	3.50	77.50	Horizontal	Passed
6.	17.962499GHz	54.53	19.46	74.00	-19.47	3.00	47.50	Horizontal	Passed

No	Frequency (MHz)	Level Average Reading (dBµV/m)	Correction Factor (dB)	Limit dBµV/m	Margin (dB)	Height (m)	Angle (°)	Polarization	Judgment
1.	12.391835GHz	44.38	11.91	54.00	-9.62	2.50	307.80	Vertical	Passed
2.	15.739434GHz	47.42	15.03	54.00	-6.58	2.00	266.30	Vertical	Passed
3.	17.996GHz	41.42	20.05	54.00	-12.58	1.50	85.90	Vertical	Passed
4.	11.89232GHz	44.78	11.60	54.00	-9.22	1.00	335.70	Horizontal	Passed
5.	17.964999GHz	41.11	19.48	54.00	-12.89	3.00	78.10	Horizontal	Passed

Overall Graphs:




dBµV/m
90
80
70
60
50
40
30
20
10
0
1GHz
Frequency
18GHz
Polarization: Vertical

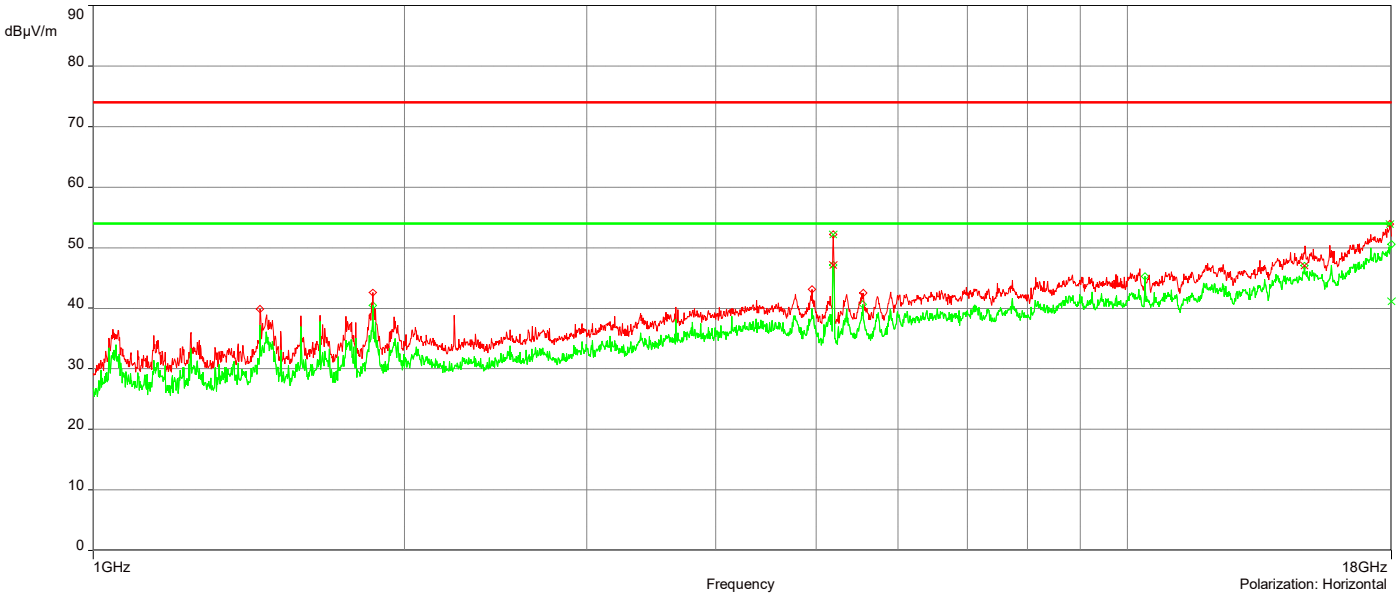
AH22120901-HAR-054#2_5G UNII-1 802.11n_Ch 40_1-18GHz

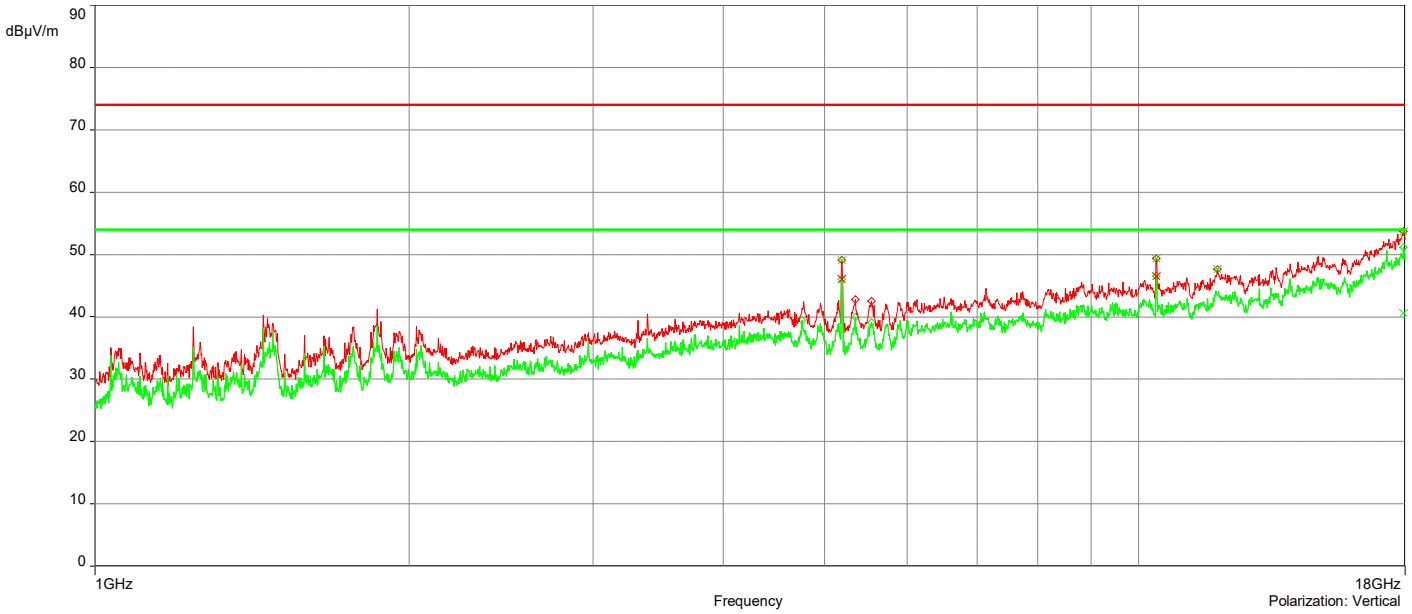
1/10/2023 10:39:10 AM

No	Frequency (MHz)	Level Peak Reading (dBµV/m)	Correction Factor (dB)	Limit dBµV/m	Margin (dB)	Height (m)	Angle (°)	Polarization	Judgement
1.	5.1921233GHz	49.15	4.94	68.23	-19.08	3.50	180.60	Vertical	Passed
2.	10.400776GHz	49.41	9.36	68.23	-18.82	4.00	139.30	Vertical	Passed
3.	11.89682GHz	47.63	11.68	74.00	-26.37	2.00	6.80	Vertical	Passed
4.	17.938498GHz	53.72	19.33	74.00	-20.28	1.00	151.40	Vertical	Passed
5.	5.1921233GHz	52.20	4.93	68.23	-16.03	2.50	358.90	Horizontal	Passed
6.	17.940998GHz	53.91	19.28	74.00	-20.09	1.00	282.00	Horizontal	Passed

No	Frequency (MHz)	Level Average Reading (dBµV/m)	Correction Factor (dB)	Limit dBµV/m	Margin (dB)	Height (m)	Angle (°)	Polarization	Judgment
1.	17.938498GHz	40.62	19.33	54.00	-13.38	1.00	151.40	Vertical	Passed
2.	17.9915GHz	41.16	19.91	54.00	-12.84	2.00	46.10	Horizontal	Passed

Overall Graphs:




dBµV/m
90
80
70
60
50
40
30
20
10
0
1GHz
Frequency
18GHz
Polarization: Vertical

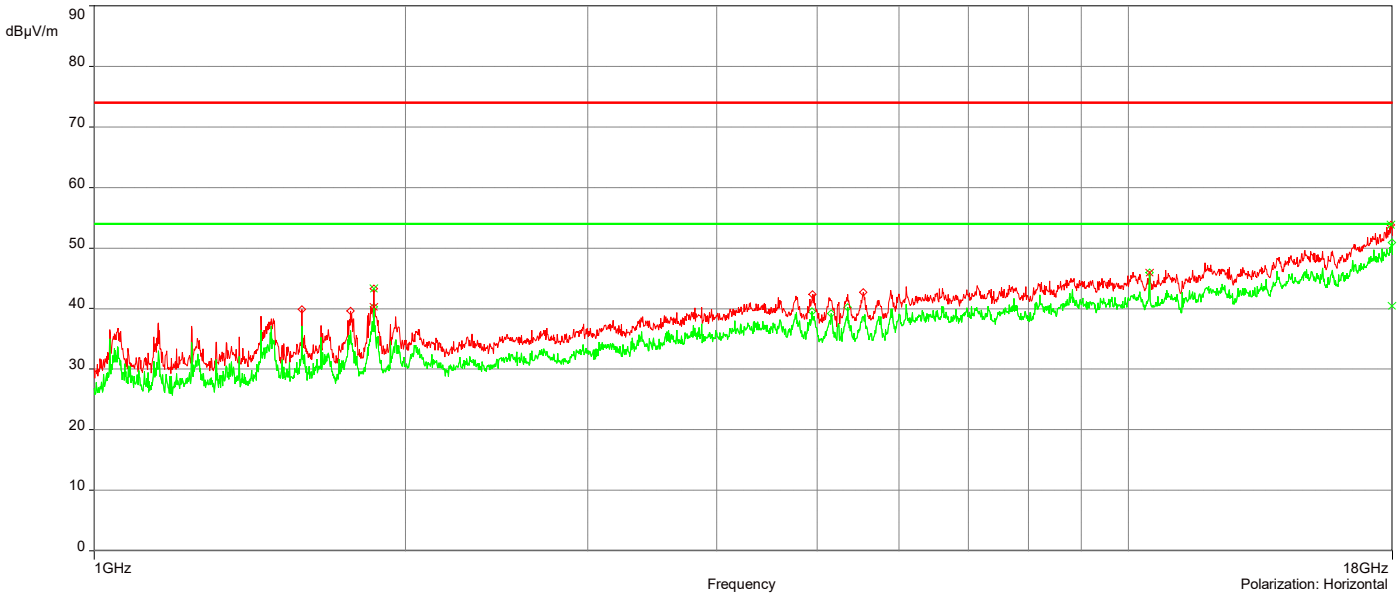
AH22120901-HAR-054#2_5G UNII-1 802.11n_Ch 48_1-18GHz

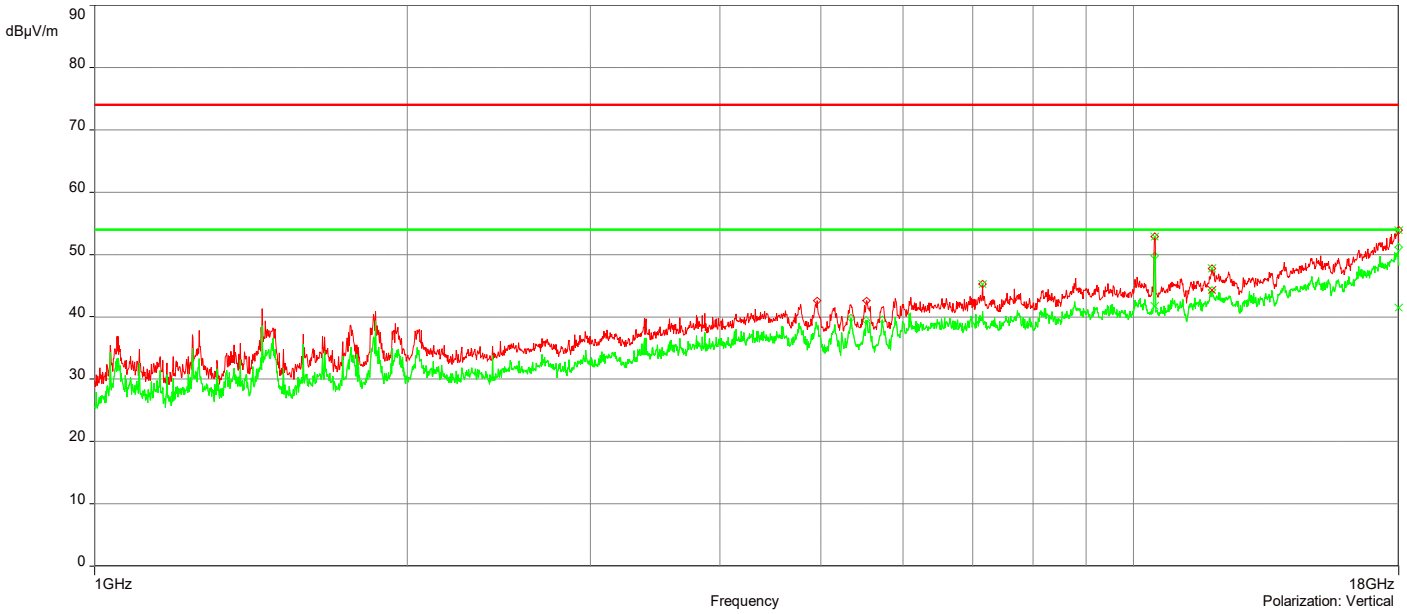
1/10/2023 10:58:50 AM

No	Frequency (MHz)	Level Peak Reading (dBµV/m)	Correction Factor (dB)	Limit dBµV/m	Margin (dB)	Height (m)	Angle (°)	Polarization	Judgement
1.	7.1601812GHz	45.29	7.44	68.23	-22.94	2.50	114.90	Vertical	Passed
2.	10.479279GHz	52.84	9.45	68.23	-15.39	4.00	63.20	Vertical	Passed
3.	11.899821GHz	47.74	11.70	74.00	-26.26	1.50	0.10	Vertical	Passed
4.	17.9975GHz	53.89	20.09	74.00	-20.11	1.50	5.70	Vertical	Passed
5.	1.8640254GHz	43.30	-4.50	68.23	-24.93	4.00	128.30	Horizontal	Passed
6.	17.935498GHz	53.86	19.24	74.00	-20.14	1.00	103.60	Horizontal	Passed

No	Frequency (MHz)	Level Average Reading (dBµV/m)	Correction Factor (dB)	Limit dBµV/m	Margin (dB)	Height (m)	Angle (°)	Polarization	Judgment
1.	11.903821GHz	44.30	11.72	54.00	-9.70	2.50	237.10	Vertical	Passed
2.	17.993GHz	41.54	19.98	54.00	-12.46	1.50	39.90	Vertical	Passed
3.	17.979999GHz	40.45	19.63	54.00	-13.55	1.00	33.10	Horizontal	Passed

Overall Graphs:




dBµV/m
90
80
70
60
50
40
30
20
10
0
1GHz
Frequency
18GHz
Polarization: Vertical

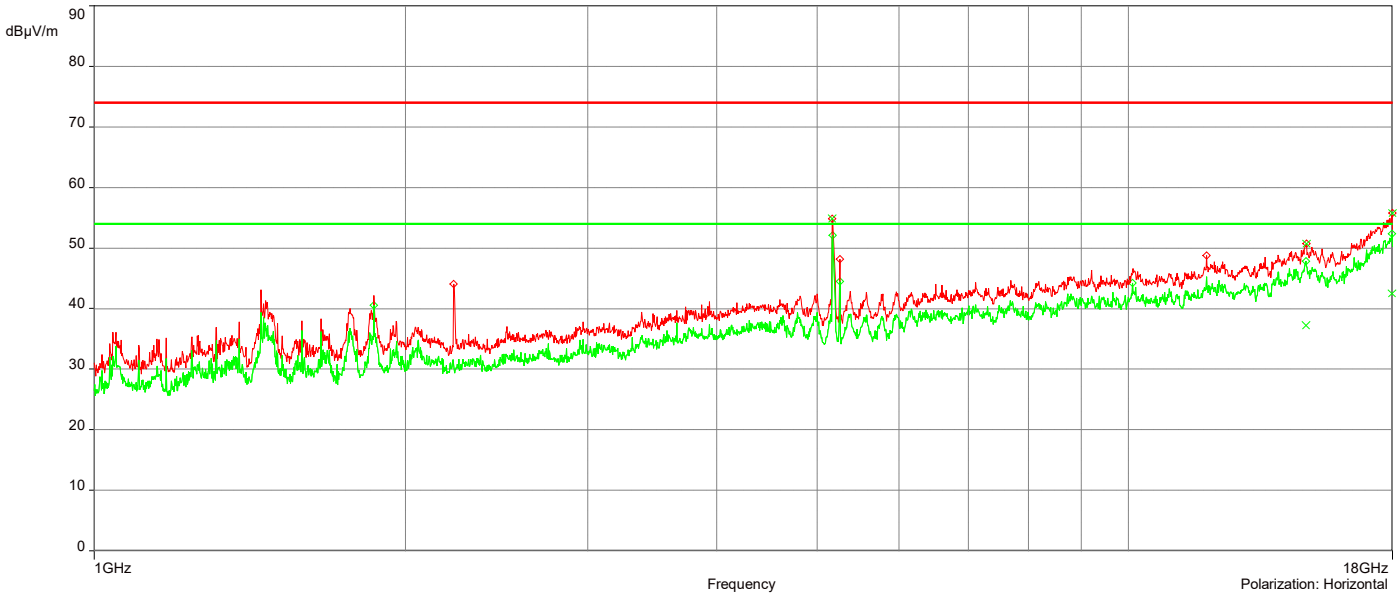
AH22120901-HAR-054#2_5G UNII-1 802.11ac_Ch 38_1-18GHz

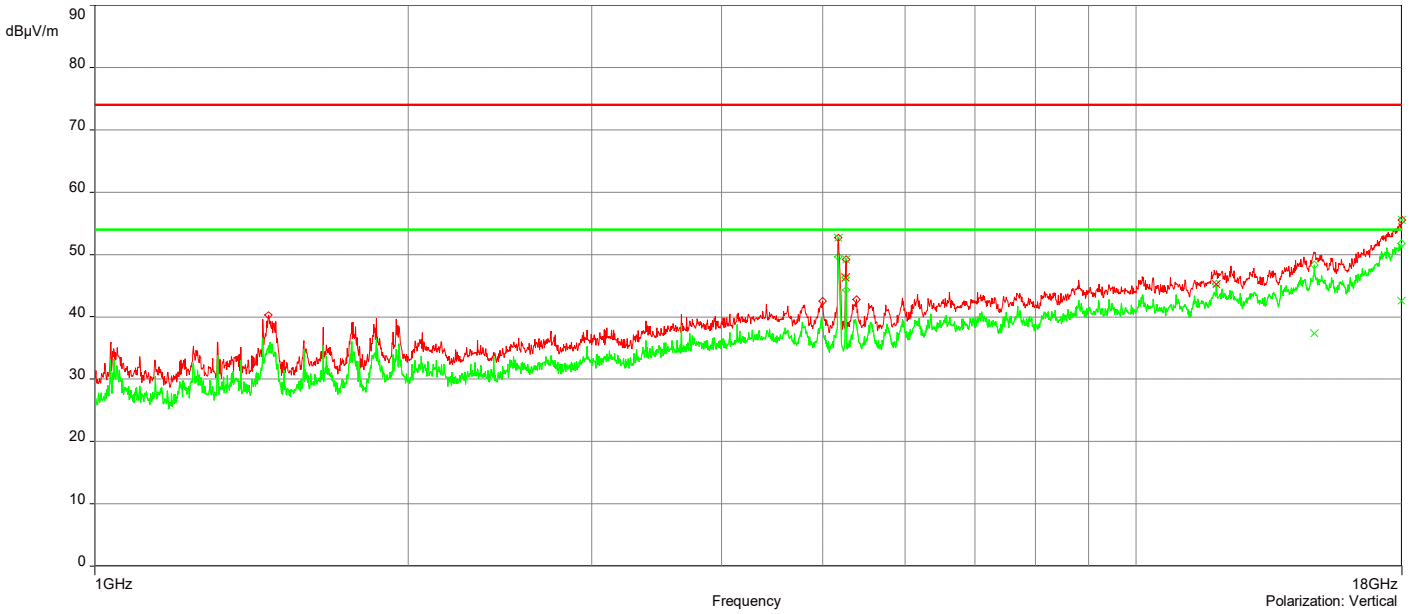
12/20/2022 3:02:04 PM

No	Frequency (MHz)	Level Peak Reading (dBµV/m)	Correction Factor (dB)	Limit dBµV/m	Margin (dB)	Height (m)	Angle (°)	Polarization	Judgement
1.	5.1751228GHz	52.71	5.00	68.23	-15.52	4.00	58.90	Vertical	Passed
2.	5.2666255GHz	49.23	5.08	68.23	-19	3.00	161.60	Vertical	Passed
3.	17.991GHz	55.56	21.27	74.00	-18.44	4.00	242.00	Vertical	Passed
4.	5.1726227GHz	54.85	5.00	68.23	-13.38	1.50	23.60	Horizontal	Passed
5.	14.865908GHz	50.71	15.30	68.23	-17.52	2.00	230.10	Horizontal	Passed
6.	17.9925GHz	55.82	21.27	74.00	-18.18	3.50	6.20	Horizontal	Passed

No	Frequency (MHz)	Level Average Reading (dBµV/m)	Correction Factor (dB)	Limit dBµV/m	Margin (dB)	Height (m)	Angle (°)	Polarization	Judgment
1.	11.947322GHz	45.28	11.81	54.00	-8.72	2.50	94.50	Vertical	Passed
2.	17.99GHz	42.63	21.24	54.00	-11.37	1.00	0.10	Vertical	Passed
3.	17.970999GHz	42.53	20.91	54.00	-11.47	1.50	9.10	Horizontal	Passed

Overall Graphs:




dBµV/m
90
80
70
60
50
40
30
20
10
0
1GHz
Frequency
18GHz
Polarization: Vertical

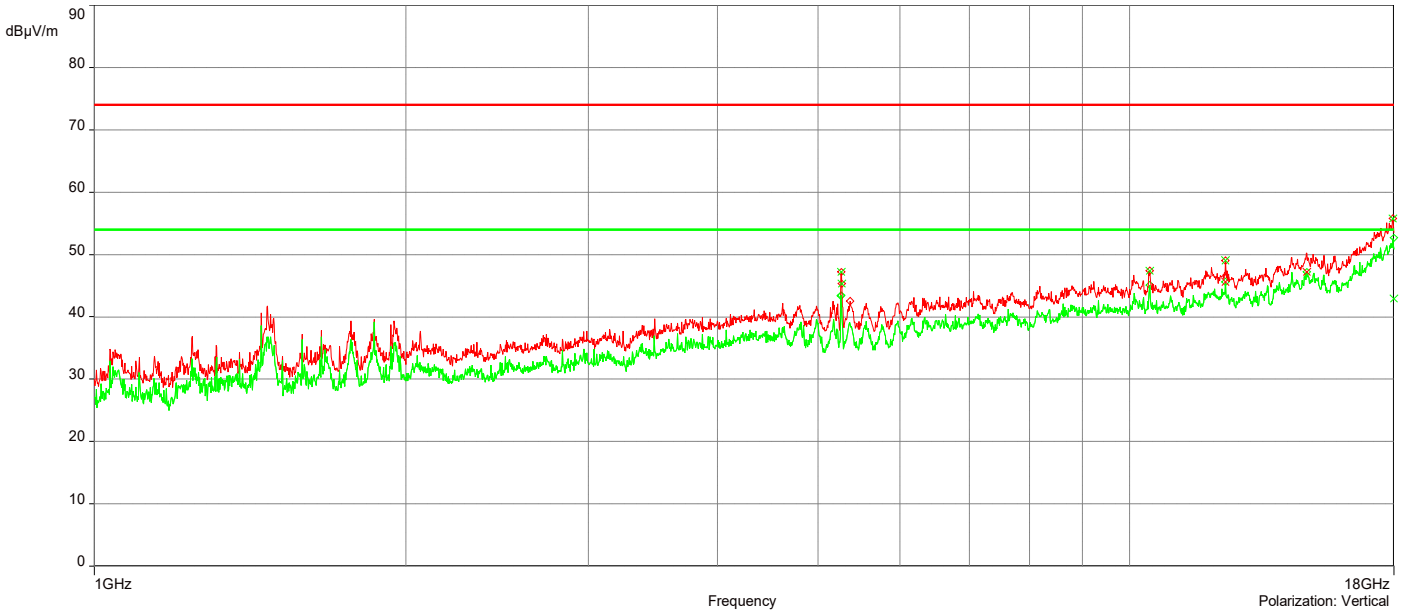
AH22120901-HAR-054#2_5G UNII-1 802.11ac_Ch 46_1-18GHz

12/20/2022 3:44:09 PM

No	Frequency (MHz)	Level Peak Reading (dBµV/m)	Correction Factor (dB)	Limit dBµV/m	Margin (dB)	Height (m)	Angle (°)	Polarization	Judgement
1.	5.2666255GHz	47.20	5.08	68.23	-21.03	4.00	276.10	Vertical	Passed
2.	5.2706256GHz	45.32	5.10	68.23	-22.91	4.00	256.20	Vertical	Passed
3.	10.458778GHz	47.38	9.49	68.23	-20.85	3.50	86.20	Vertical	Passed
4.	12.376835GHz	49.03	12.12	74.00	-24.97	4.00	341.90	Vertical	Passed
5.	17.956999GHz	55.78	20.87	74.00	-18.22	2.00	214.10	Vertical	Passed
6.	17.993GHz	55.54	21.28	74.00	-18.46	3.50	356.10	Horizontal	Passed

No	Frequency (MHz)	Level Average Reading (dBµV/m)	Correction Factor (dB)	Limit dBµV/m	Margin (dB)	Height (m)	Angle (°)	Polarization	Judgment
1.	12.376835GHz	45.58	12.12	54.00	-8.42	4.00	341.90	Vertical	Passed
2.	17.993GHz	42.96	21.31	54.00	-11.04	3.50	359.90	Vertical	Passed
3.	17.993GHz	42.74	21.28	54.00	-11.26	3.50	356.10	Horizontal	Passed

Overall Graphs:


dBµV/m
90
80
70
60
50
40
30
20
10
0
1GHz
Frequency
18GHz
Polarization: Vertical

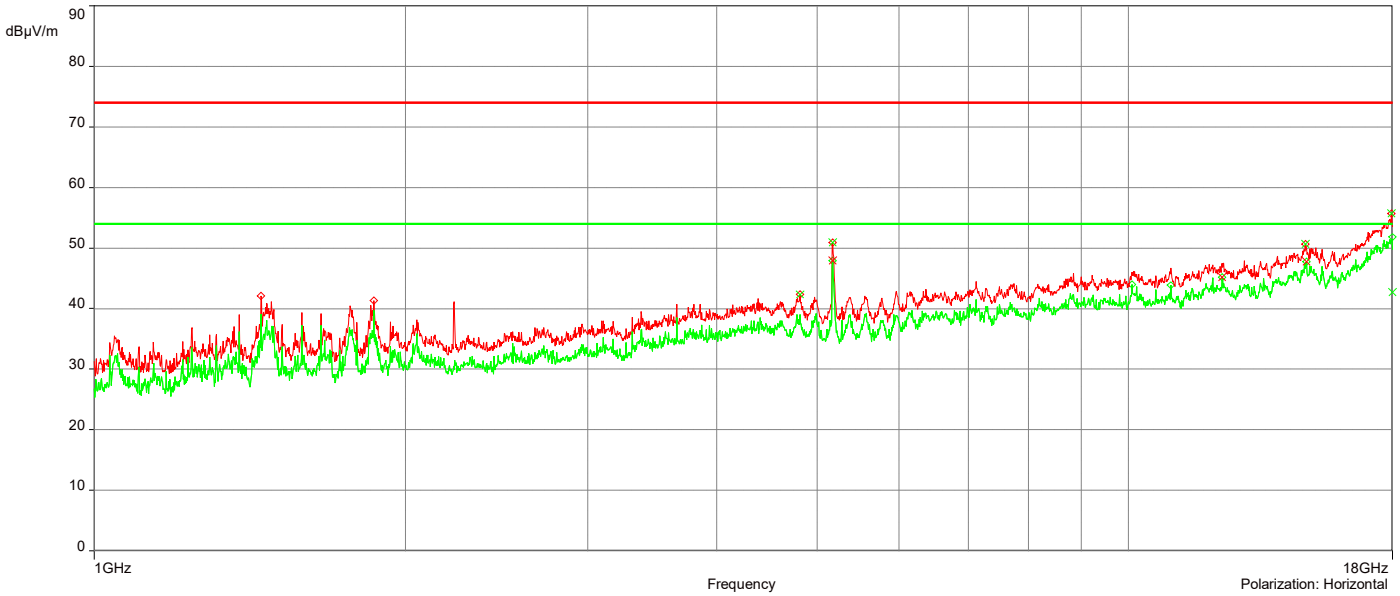
AH22120901-HAR-054#2_5G UNII-1 802.11ac_Ch 42_1-18GHz

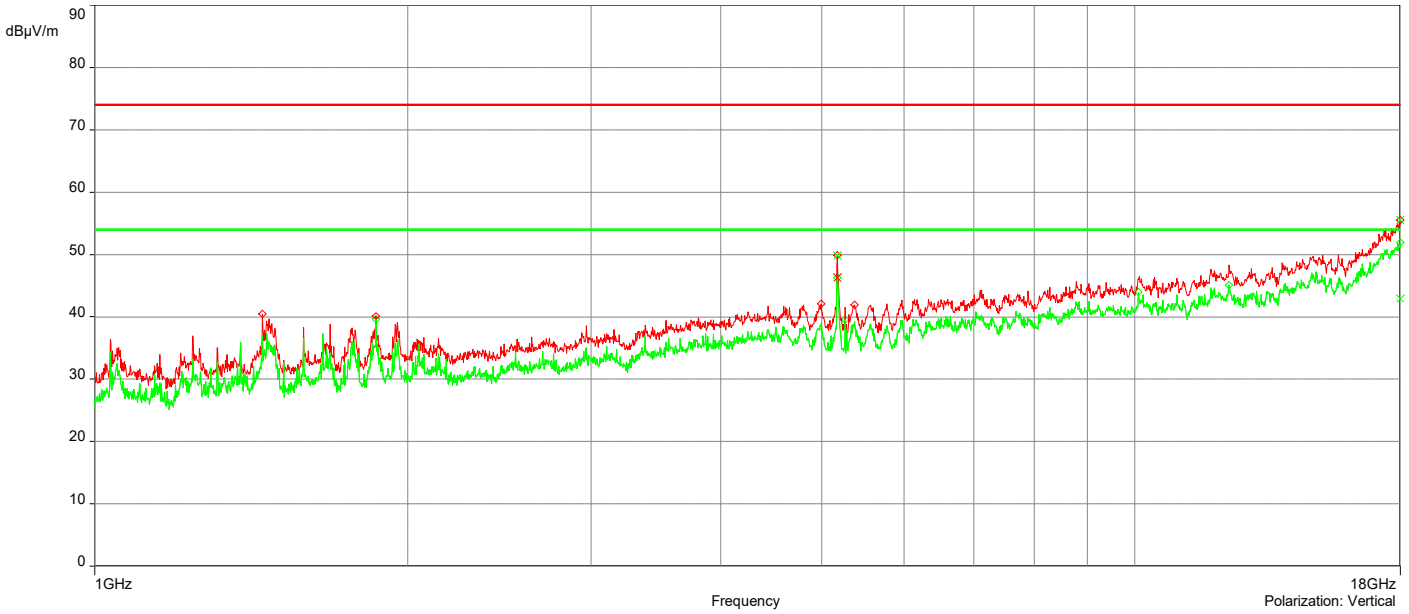
12/20/2022 4:00:54 PM

No	Frequency (MHz)	Level Peak Reading (dBµV/m)	Correction Factor (dB)	Limit dBµV/m	Margin (dB)	Height (m)	Angle (°)	Polarization	Judgement
1.	5.1736228GHz	49.91	5.00	68.23	-18.32	2.00	248.30	Vertical	Passed
2.	17.994GHz	55.53	21.33	74.00	-18.47	2.50	250.70	Vertical	Passed
3.	4.8131122GHz	42.34	5.12	74.00	-31.66	2.00	184.80	Horizontal	Passed
4.	5.1741228GHz	50.95	5.00	68.23	-17.28	4.00	77.20	Horizontal	Passed
5.	14.828907GHz	50.64	15.77	68.23	-17.59	1.50	7.60	Horizontal	Passed
6.	17.964999GHz	55.72	20.87	74.00	-18.28	3.00	133.50	Horizontal	Passed

No	Frequency (MHz)	Level Average Reading (dBµV/m)	Correction Factor (dB)	Limit dBµV/m	Margin (dB)	Height (m)	Angle (°)	Polarization	Judgment
1.	17.995GHz	42.98	21.35	54.00	-11.02	2.50	156.10	Vertical	Passed
2.	12.317333GHz	45.18	11.89	54.00	-8.82	4.00	134.10	Horizontal	Passed
3.	17.992GHz	42.68	21.26	54.00	-11.32	2.50	102.10	Horizontal	Passed

Overall Graphs:




dBµV/m
90
80
70
60
50
40
30
20
10
0
1GHz
Frequency
18GHz
Polarization: Vertical

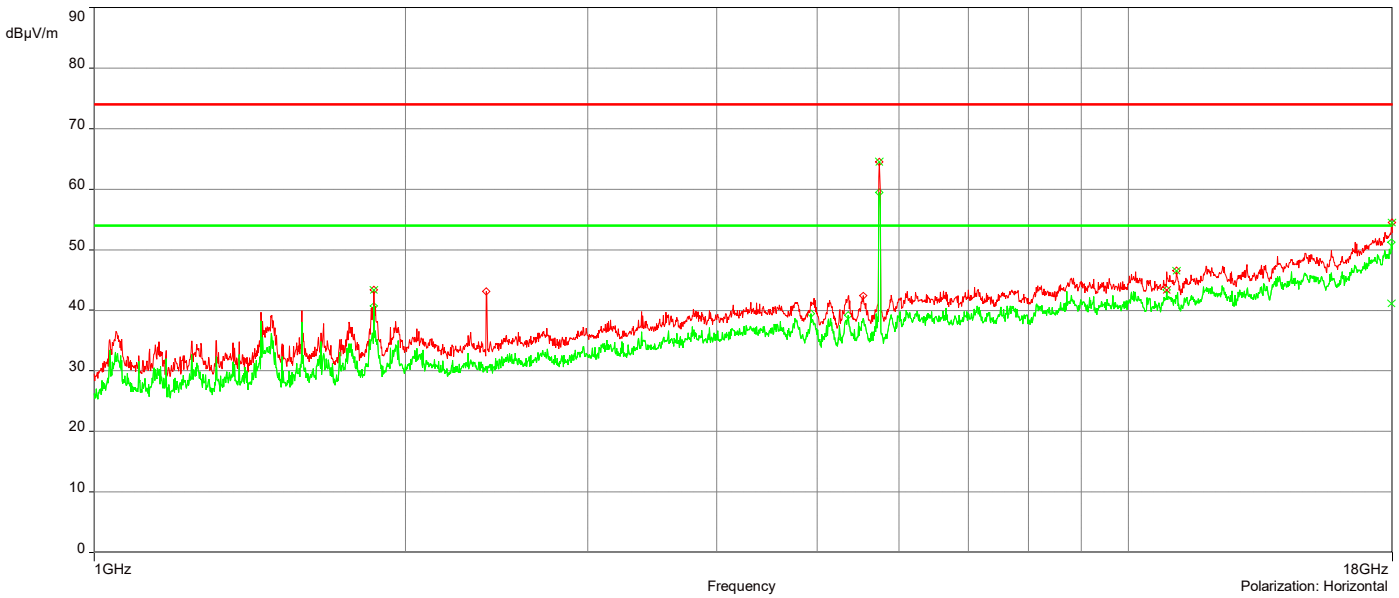
AH22120901-HAR-054#2_5G UNII-3 802.11a_Ch 149_1-18GHz

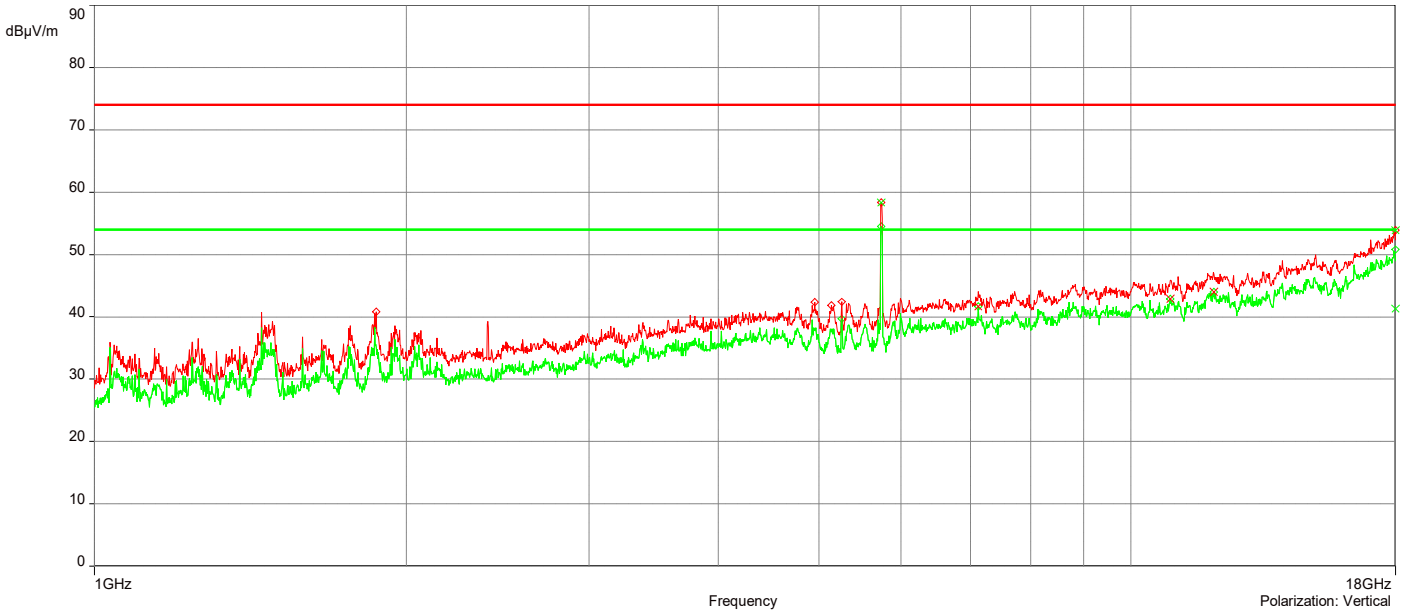
1/10/2023 11:16:22 AM

No	Frequency (MHz)	Level Peak Reading (dBµV/m)	Correction Factor (dB)	Limit dBµV/m	Margin (dB)	Height (m)	Angle (°)	Polarization	Judgement
1.	5.7431395GHz	58.31	5.55	68.23	-9.92	1.00	130.40	Vertical	Passed
2.	17.995GHz	53.95	20.02	74.00	-20.05	1.00	66.10	Vertical	Passed
3.	1.8640254GHz	43.37	-4.50	68.23	-24.86	2.00	103.60	Horizontal	Passed
4.	5.7416395GHz	64.52	5.48	68.23	-3.71	3.00	125.10	Horizontal	Passed
5.	11.128798GHz	46.51	10.08	74.00	-27.49	1.00	74.80	Horizontal	Passed
6.	17.9885GHz	54.53	19.84	74.00	-19.47	4.00	198.40	Horizontal	Passed

No	Frequency (MHz)	Level Average Reading (dBµV/m)	Correction Factor (dB)	Limit dBµV/m	Margin (dB)	Height (m)	Angle (°)	Polarization	Judgment
1.	10.916792GHz	42.88	10.23	54.00	-11.12	4.00	254.50	Vertical	Passed
2.	12.021324GHz	44.00	11.34	54.00	-10.00	1.00	227.80	Vertical	Passed
3.	17.994GHz	41.35	20.00	54.00	-12.65	3.50	98.10	Vertical	Passed
4.	10.892791GHz	43.36	10.17	54.00	-10.64	4.00	258.70	Horizontal	Passed
5.	17.963499GHz	41.13	19.47	54.00	-12.87	3.50	267.90	Horizontal	Passed

Overall Graphs:




dBµV/m
90
80
70
60
50
40
30
20
10
0
1GHz
Frequency
18GHz
Polarization: Vertical

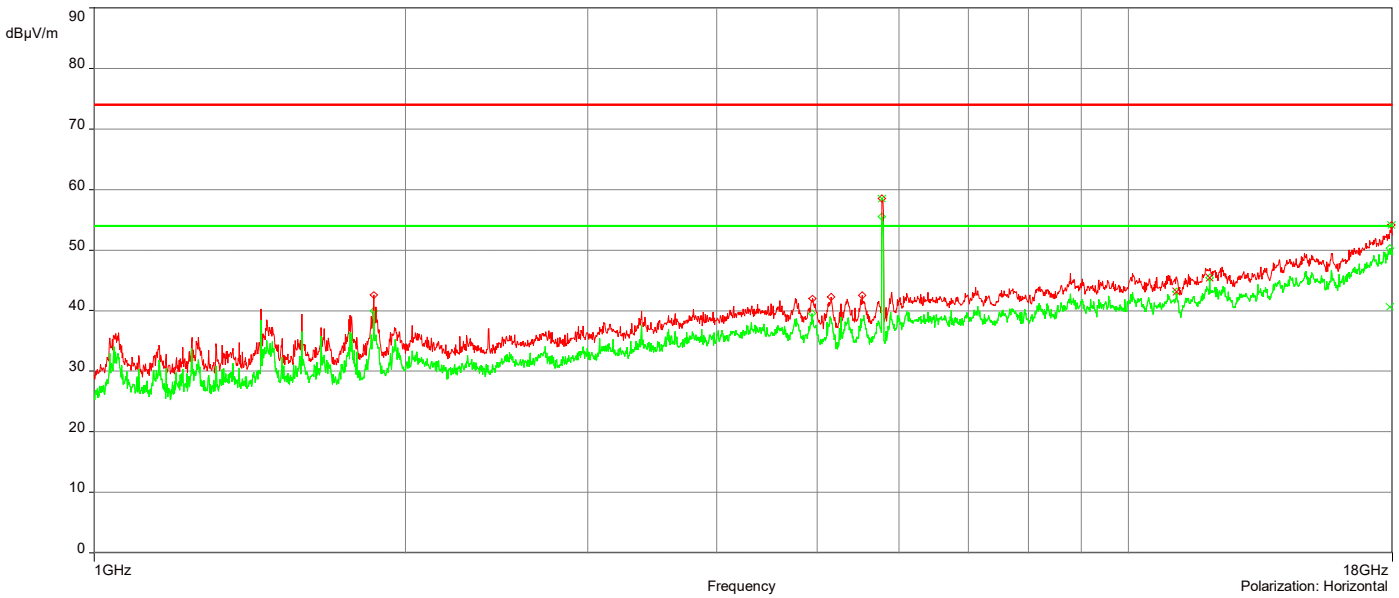
AH22120901-HAR-054#2_5G UNII-3 802.11a_Ch 157_1-18GHz

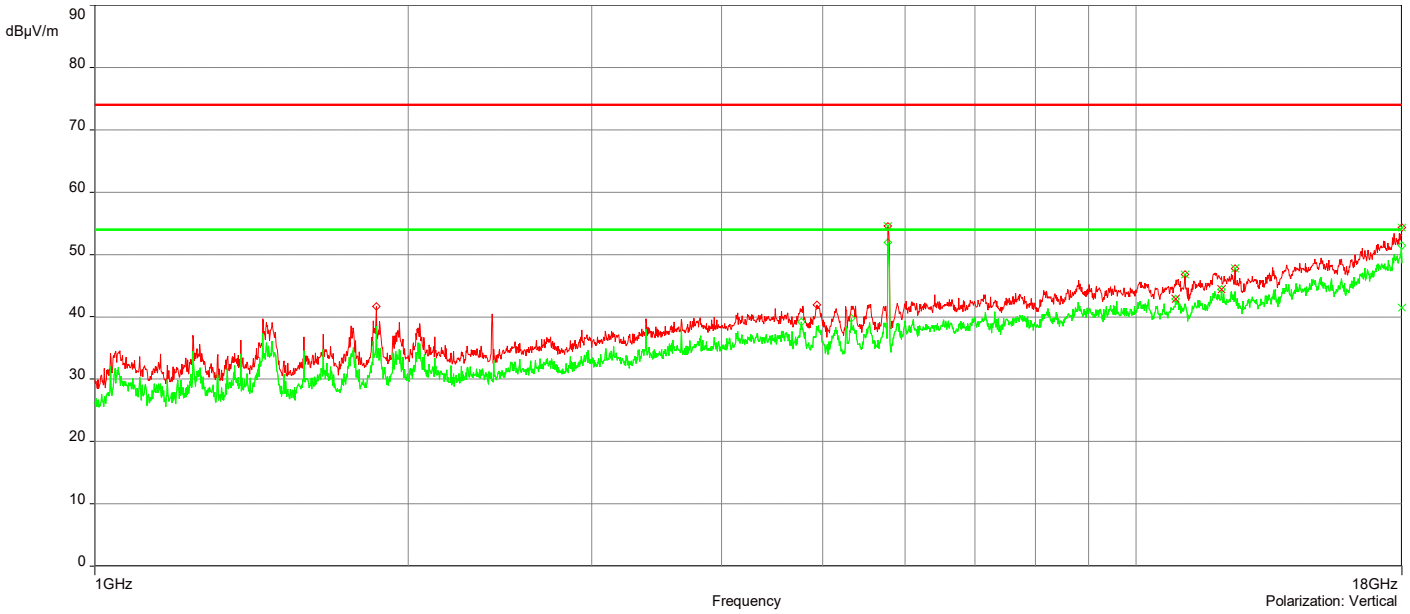
1/10/2023 11:34:14 AM

No	Frequency (MHz)	Level Peak Reading (dBµV/m)	Correction Factor (dB)	Limit dBµV/m	Margin (dB)	Height (m)	Angle (°)	Polarization	Judgement
1.	5.7771405GHz	54.59	5.35	68.23	-13.64	3.50	158.80	Vertical	Passed
2.	11.145298GHz	46.83	10.07	74.00	-27.17	3.50	263.00	Vertical	Passed
3.	12.441337GHz	47.74	11.50	74.00	-26.26	4.00	231.80	Vertical	Passed
4.	17.996GHz	54.34	20.05	74.00	-19.66	1.00	242.50	Vertical	Passed
5.	5.7771405GHz	58.55	5.39	68.23	-9.68	1.00	58.40	Horizontal	Passed
6.	17.956499GHz	54.16	19.40	74.00	-19.84	3.50	117.60	Horizontal	Passed

No	Frequency (MHz)	Level Average Reading (dBµV/m)	Correction Factor (dB)	Limit dBµV/m	Margin (dB)	Height (m)	Angle (°)	Polarization	Judgment
1.	10.913292GHz	42.89	10.23	54.00	-11.11	3.00	108.20	Vertical	Passed
2.	12.077826GHz	44.45	11.15	54.00	-9.55	3.00	25.80	Vertical	Passed
3.	17.994GHz	41.51	20.00	54.00	-12.49	3.50	148.90	Vertical	Passed
4.	11.132798GHz	43.12	10.06	54.00	-10.88	1.50	335.30	Horizontal	Passed
5.	11.988823GHz	45.40	11.48	54.00	-8.60	4.00	352.40	Horizontal	Passed
6.	17.899497GHz	40.66	19.00	54.00	-13.34	2.00	358.90	Horizontal	Passed

Overall Graphs:




dBµV/m
90
80
70
60
50
40
30
20
10
0
1GHz
Frequency
18GHz
Polarization: Vertical

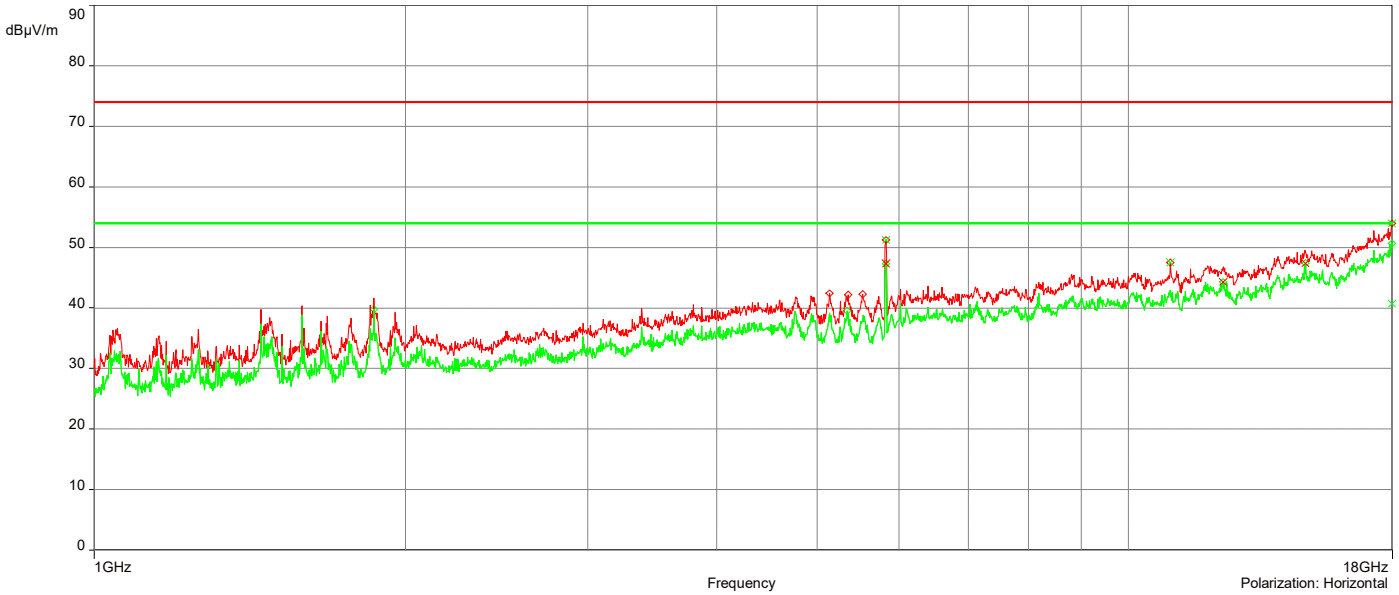
AH22120901-HAR-054#2_5G UNII-3 802.11a_Ch 165_1-18GHz

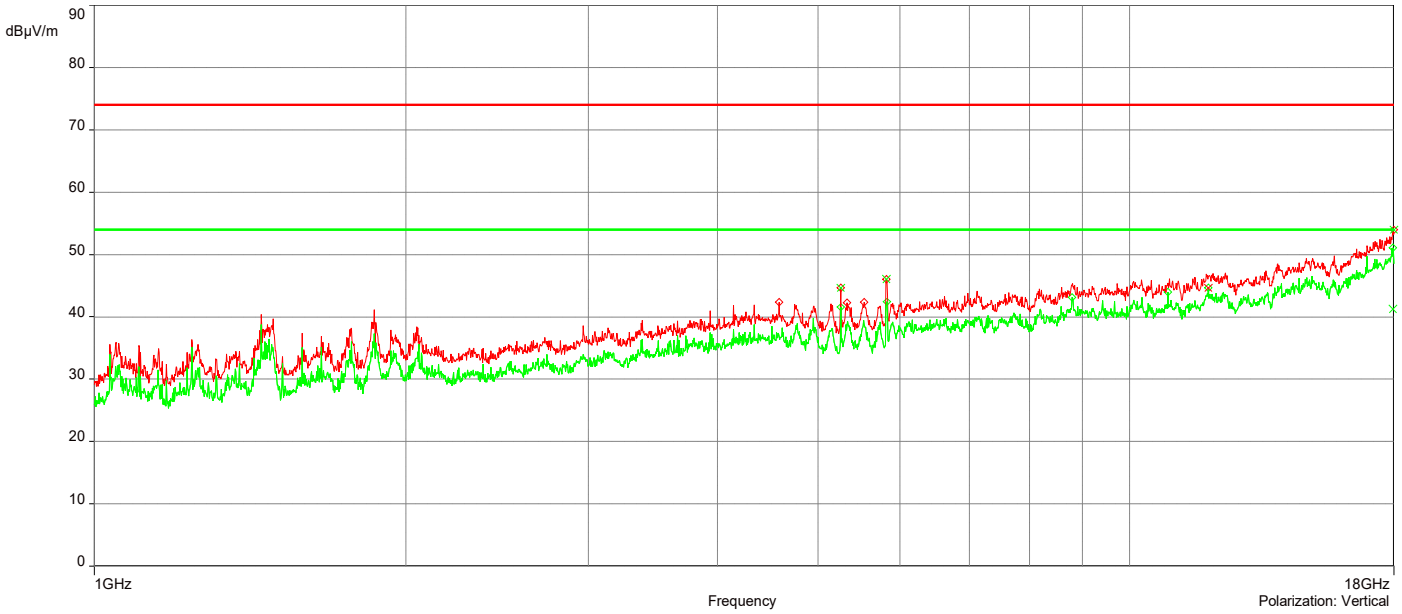
1/10/2023 11:52:19 AM

No	Frequency (MHz)	Level Peak Reading (dBµV/m)	Correction Factor (dB)	Limit dBµV/m	Margin (dB)	Height (m)	Angle (°)	Polarization	Judgement
1.	5.2586253GHz	44.65	5.00	68.23	-23.58	2.50	256.80	Vertical	Passed
2.	5.8231419GHz	46.02	5.52	68.23	-22.21	3.00	78.20	Vertical	Passed
3.	17.9905GHz	53.96	19.92	74.00	-20.04	3.00	263.00	Vertical	Passed
4.	5.826642GHz	51.24	5.67	68.23	-16.99	3.00	72.30	Horizontal	Passed
5.	10.982294GHz	47.46	10.20	74.00	-26.54	2.50	134.50	Horizontal	Passed
6.	17.972999GHz	53.99	19.56	74.00	-20.01	1.50	344.50	Horizontal	Passed

No	Frequency (MHz)	Level Average Reading (dBµV/m)	Correction Factor (dB)	Limit dBµV/m	Margin (dB)	Height (m)	Angle (°)	Polarization	Judgment
1.	11.919821GHz	44.65	11.78	54.00	-9.35	4.00	8.30	Vertical	Passed
2.	17.957999GHz	41.25	19.48	54.00	-12.75	2.00	10.10	Vertical	Passed
3.	12.350334GHz	44.30	11.80	54.00	-9.70	2.50	352.60	Horizontal	Passed
4.	17.972999GHz	40.70	19.56	54.00	-13.30	1.50	344.50	Horizontal	Passed

Overall Graphs:




dBµV/m
90
80
70
60
50
40
30
20
10
0
1GHz
Frequency
18GHz
Polarization: Vertical

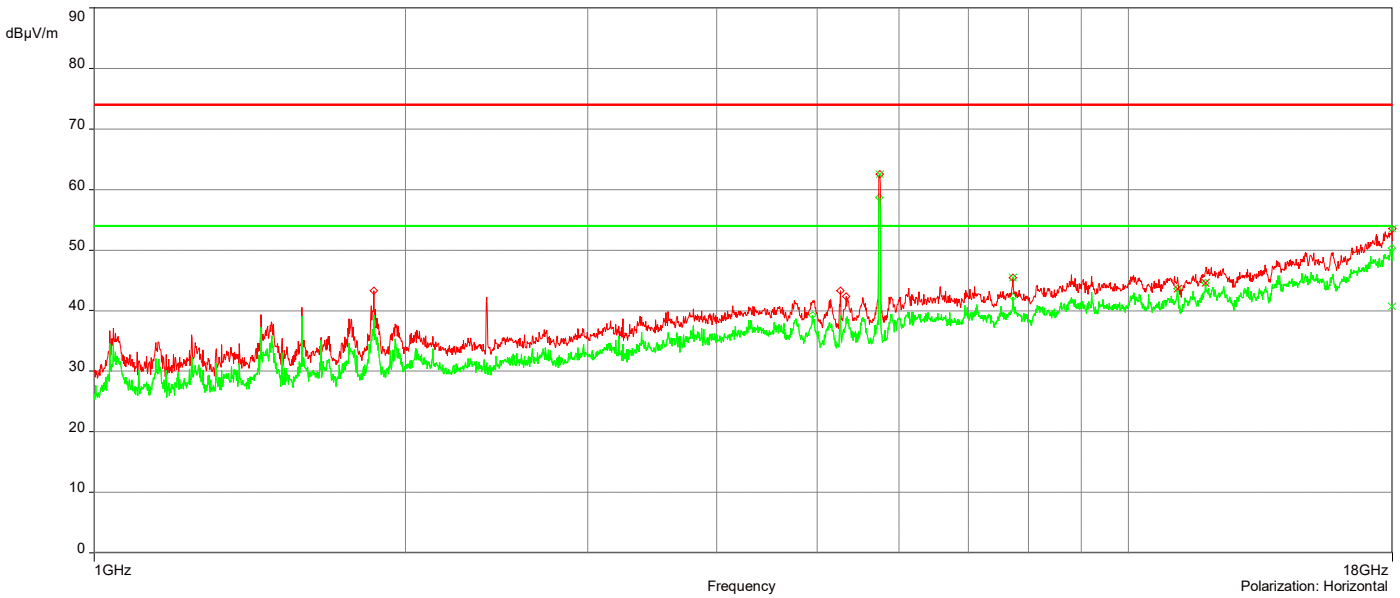
AH22120901-HAR-054#2_5G UNII-3 802.11n_Ch 149_1-18GHz

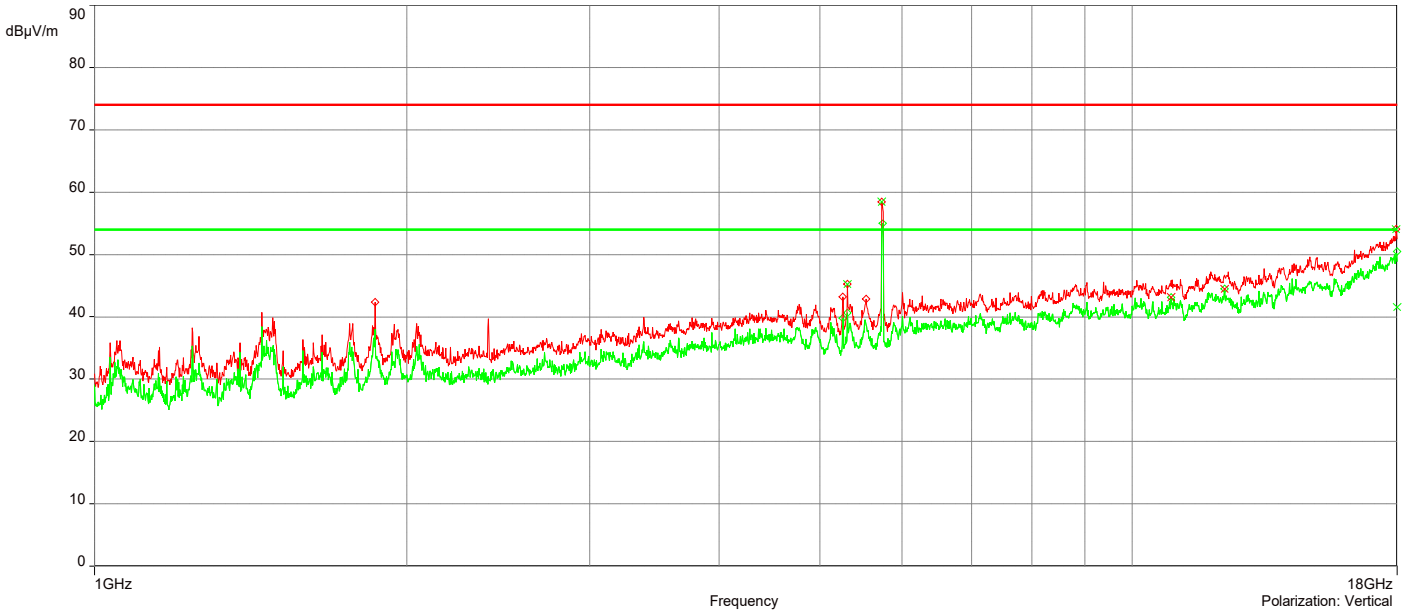
1/10/2023 12:10:27 PM

No	Frequency (MHz)	Level Peak Reading (dBµV/m)	Correction Factor (dB)	Limit dBµV/m	Margin (dB)	Height (m)	Angle (°)	Polarization	Judgement
1.	5.3161269GHz	45.25	5.34	68.23	-22.98	1.50	355.80	Vertical	Passed
2.	5.7381394GHz	58.43	5.58	68.23	-9.8	1.00	123.80	Vertical	Passed
3.	17.963999GHz	54.06	19.53	74.00	-19.94	1.50	198.10	Vertical	Passed
4.	5.7476396GHz	62.54	5.45	68.23	-5.69	3.00	126.70	Horizontal	Passed
5.	7.7276979GHz	45.40	8.05	74.00	-28.6	1.00	54.40	Horizontal	Passed
6.	17.9915GHz	53.58	19.91	74.00	-20.42	2.50	75.20	Horizontal	Passed

No	Frequency (MHz)	Level Average Reading (dBµV/m)	Correction Factor (dB)	Limit dBµV/m	Margin (dB)	Height (m)	Angle (°)	Polarization	Judgment
1.	10.903291GHz	43.14	10.22	54.00	-10.86	3.00	318.00	Vertical	Passed
2.	12.278832GHz	44.50	11.57	54.00	-9.50	3.00	308.50	Vertical	Passed
3.	17.991GHz	41.56	19.93	54.00	-12.44	1.50	5.10	Vertical	Passed
4.	11.157799GHz	43.65	9.94	54.00	-10.35	2.00	78.10	Horizontal	Passed
5.	11.87482GHz	44.61	11.48	54.00	-9.39	1.50	93.90	Horizontal	Passed
6.	17.974499GHz	40.73	19.58	54.00	-13.27	4.00	197.90	Horizontal	Passed

Overall Graphs:




dBµV/m
90
80
70
60
50
40
30
20
10
0
1GHz
Frequency
18GHz
Polarization: Vertical

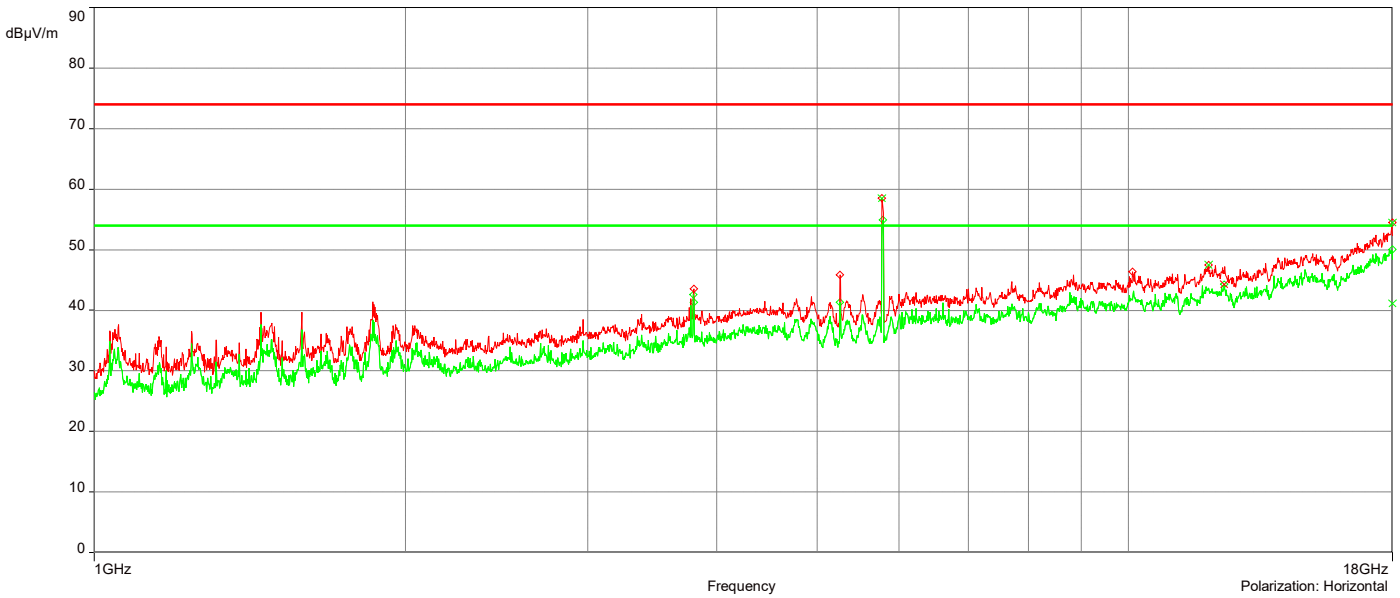
AH22120901-HAR-054#2_5G UNII-3 802.11n_Ch 157_1-18GHz

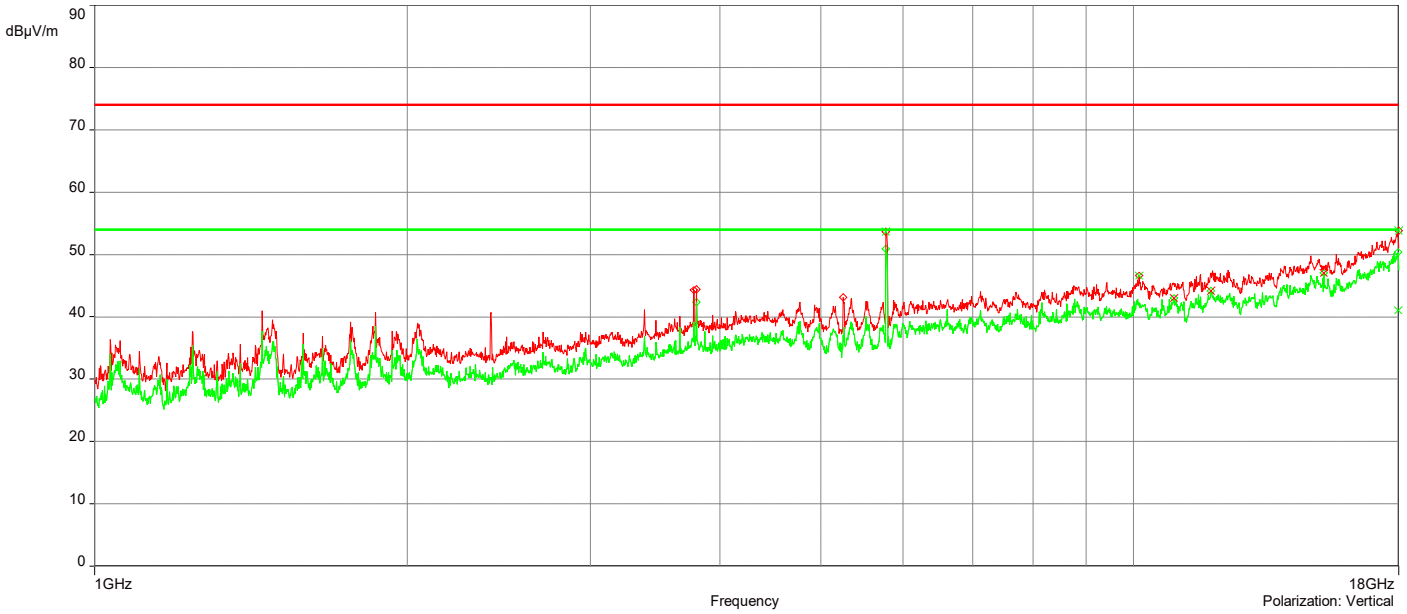
1/10/2023 12:34:47 PM

No	Frequency (MHz)	Level Peak Reading (dBµV/m)	Correction Factor (dB)	Limit dBµV/m	Margin (dB)	Height (m)	Angle (°)	Polarization	Judgement
1.	5.7771405GHz	53.60	5.35	68.23	-14.63	3.50	171.90	Vertical	Passed
2.	10.124768GHz	46.65	9.79	68.23	-21.58	4.00	0.10	Vertical	Passed
3.	17.996GHz	53.85	20.05	74.00	-20.15	4.00	120.90	Vertical	Passed
4.	5.7776405GHz	58.49	5.39	68.23	-9.74	3.50	72.90	Horizontal	Passed
5.	11.952322GHz	47.47	11.68	74.00	-26.53	3.00	23.40	Horizontal	Passed
6.	17.994GHz	54.53	19.98	74.00	-19.47	3.50	149.80	Horizontal	Passed

No	Frequency (MHz)	Level Average Reading (dBµV/m)	Correction Factor (dB)	Limit dBµV/m	Margin (dB)	Height (m)	Angle (°)	Polarization	Judgment
1.	10.942792GHz	43.05	10.24	54.00	-10.95	1.00	315.10	Vertical	Passed
2.	11.86782GHz	44.12	11.49	54.00	-9.88	2.00	157.60	Vertical	Passed
3.	17.971499GHz	41.07	19.59	54.00	-12.93	2.50	24.10	Vertical	Passed
4.	12.374835GHz	44.36	11.85	54.00	-9.64	4.00	236.50	Horizontal	Passed
5.	17.998GHz	41.17	20.08	54.00	-12.83	3.50	233.90	Horizontal	Passed

Overall Graphs:




dBµV/m
90
80
70
60
50
40
30
20
10
0
1GHz
Frequency
18GHz
Polarization: Vertical

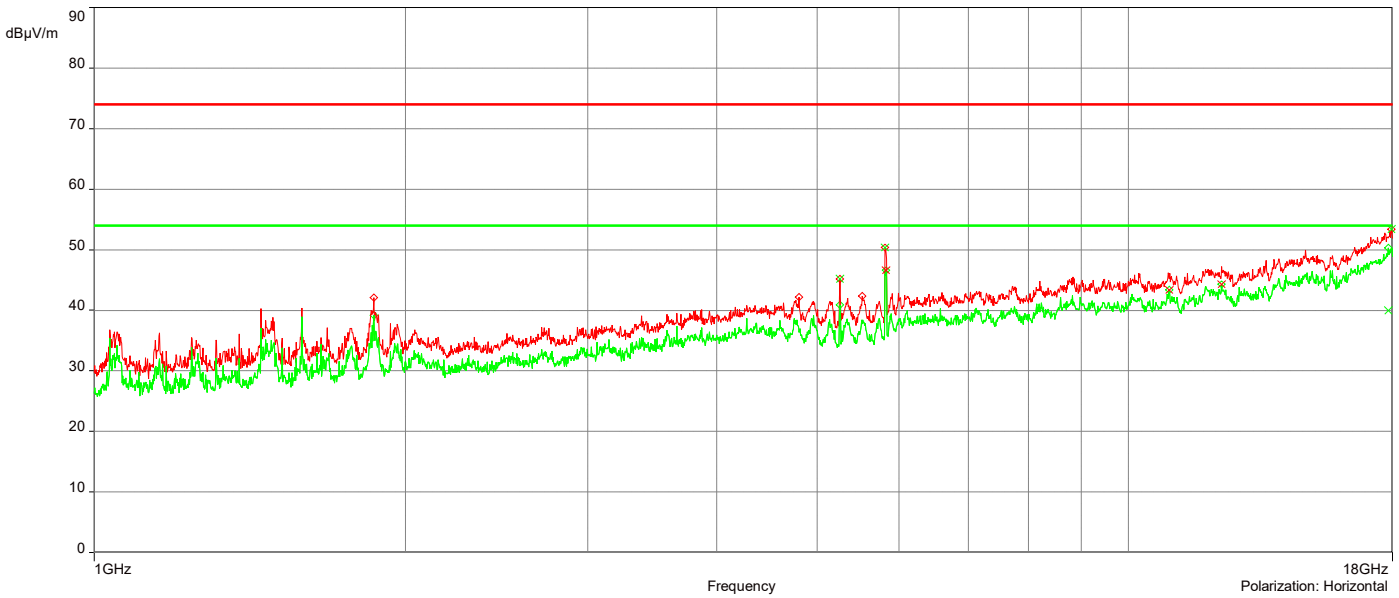
AH22120901-HAR-054#2_5G UNII-3 802.11n_Ch 165_1-18GHz

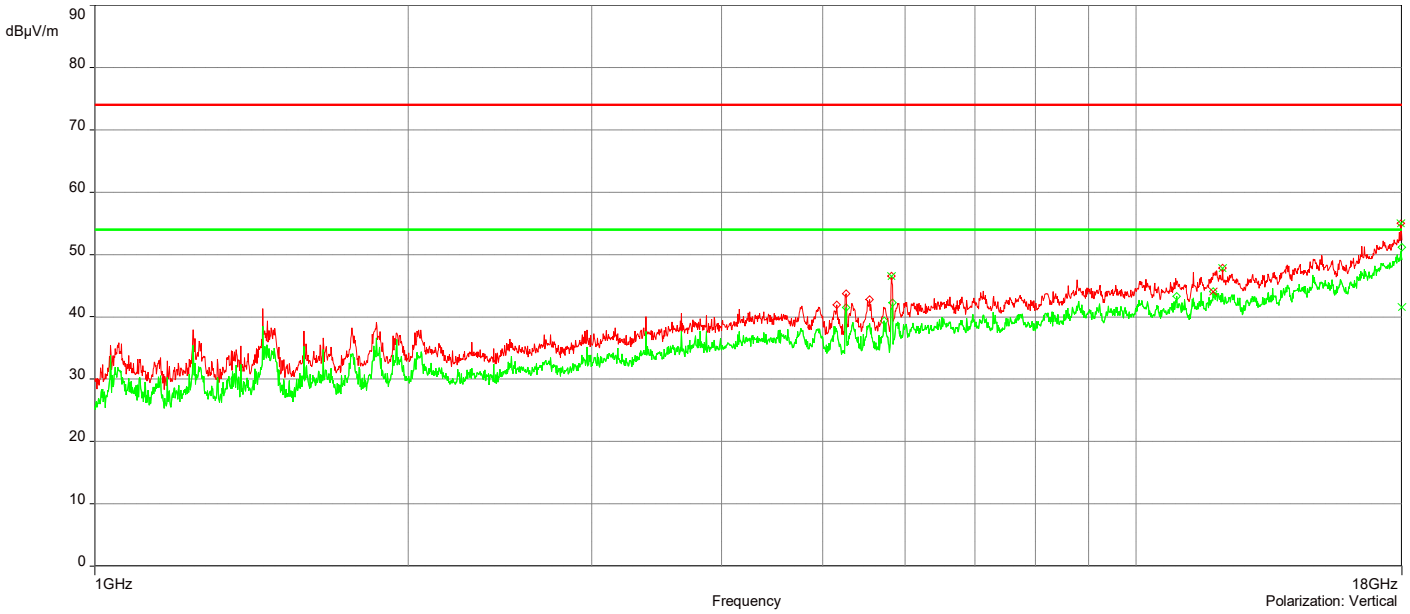
1/10/2023 12:56:32 PM

No	Frequency (MHz)	Level Peak Reading (dBµV/m)	Correction Factor (dB)	Limit dBµV/m	Margin (dB)	Height (m)	Angle (°)	Polarization	Judgement
1.	5.8226418GHz	46.54	5.52	68.23	-21.69	3.00	160.80	Vertical	Passed
2.	12.112827GHz	47.80	11.22	74.00	-26.2	1.00	130.60	Vertical	Passed
3.	17.960499GHz	55.01	19.50	74.00	-18.99	1.00	347.20	Vertical	Passed
4.	5.2611253GHz	45.16	5.03	68.23	-23.07	3.50	74.00	Horizontal	Passed
5.	5.8171417GHz	50.40	5.61	68.23	-17.83	1.00	67.90	Horizontal	Passed
6.	17.968499GHz	53.38	19.52	74.00	-20.62	3.00	149.30	Horizontal	Passed

No	Frequency (MHz)	Level Average Reading (dBµV/m)	Correction Factor (dB)	Limit dBµV/m	Margin (dB)	Height (m)	Angle (°)	Polarization	Judgment
1.	11.854319GHz	44.04	11.40	54.00	-9.96	3.50	245.50	Vertical	Passed
2.	17.993GHz	41.57	19.98	54.00	-12.43	3.00	0.10	Vertical	Passed
3.	10.948293GHz	43.37	10.22	54.00	-10.63	2.00	212.70	Horizontal	Passed
4.	12.310833GHz	44.33	11.72	54.00	-9.67	2.50	40.40	Horizontal	Passed
5.	17.831995GHz	40.00	18.60	54.00	-14.00	3.00	278.90	Horizontal	Passed

Overall Graphs:




dBµV/m
90
80
70
60
50
40
30
20
10
0
1GHz
Frequency
18GHz
Polarization: Vertical

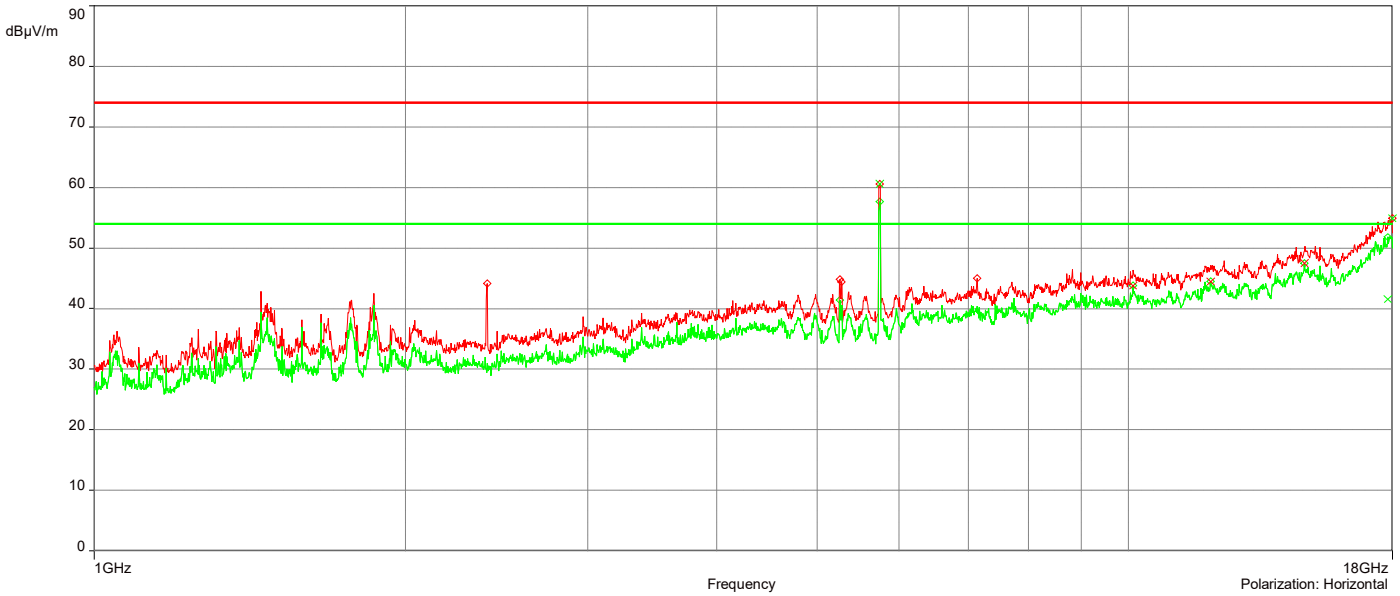
AH22120901-HAR-054#2_5G UNII-3 802.11ac_Ch 149_1-18GHz

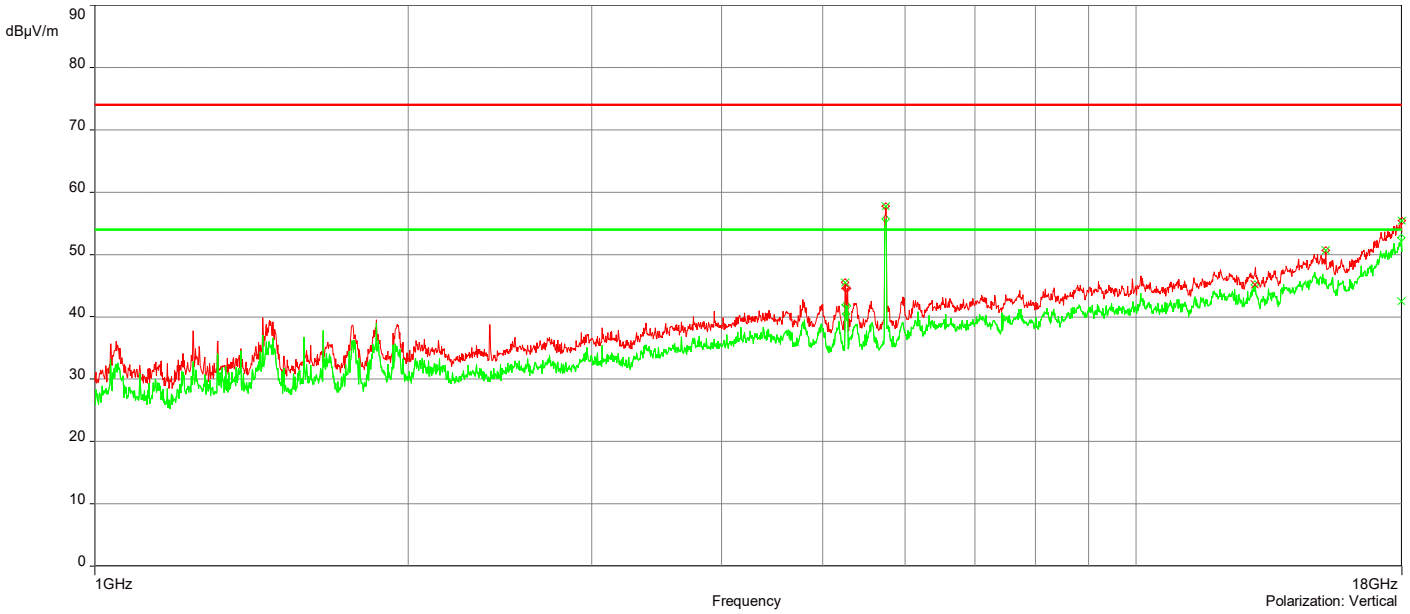
12/20/2022 4:25:28 PM

No	Frequency (MHz)	Level Peak Reading (dBµV/m)	Correction Factor (dB)	Limit dBµV/m	Margin (dB)	Height (m)	Angle (°)	Polarization	Judgement
1.	5.2551252GHz	45.49	5.04	68.23	-22.74	2.50	353.00	Vertical	Passed
2.	5.7481397GHz	57.75	5.46	68.23	-10.48	1.00	133.80	Vertical	Passed
3.	15.218918GHz	50.66	14.02	68.23	-17.57	2.50	91.60	Vertical	Passed
4.	17.9915GHz	55.41	21.28	74.00	-18.59	3.50	288.00	Vertical	Passed
5.	5.7486397GHz	60.57	5.38	68.23	-7.66	1.00	77.00	Horizontal	Passed
6.	17.9965GHz	54.96	21.36	74.00	-19.04	2.50	258.60	Horizontal	Passed

No	Frequency (MHz)	Level Average Reading (dBµV/m)	Correction Factor (dB)	Limit dBµV/m	Margin (dB)	Height (m)	Angle (°)	Polarization	Judgment
1.	17.972999GHz	42.56	20.98	54.00	-11.44	1.00	323.90	Vertical	Passed
2.	12.013324GHz	44.52	11.51	54.00	-9.48	4.00	0.10	Horizontal	Passed
3.	17.811494GHz	41.58	19.94	54.00	-12.42	1.00	229.10	Horizontal	Passed

Overall Graphs:




dBµV/m
90
80
70
60
50
40
30
20
10
0
1GHz
Frequency
18GHz
Polarization: Vertical

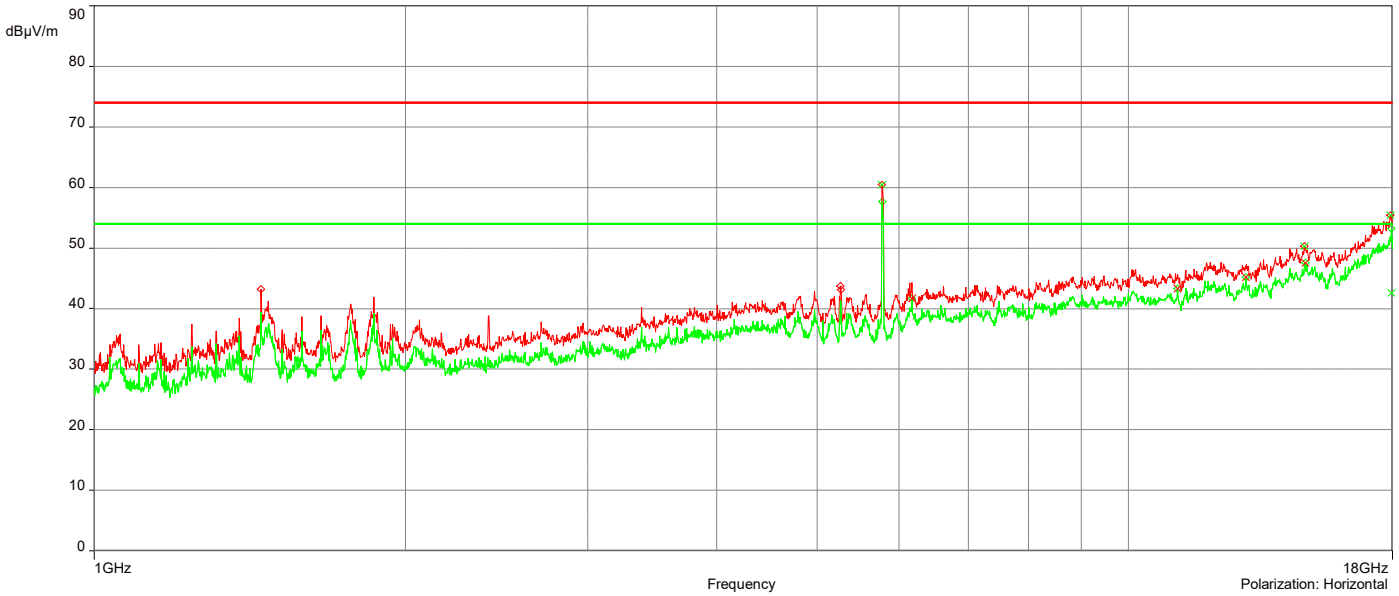
AH22120901-HAR-054#2_5G UNII-3 802.11ac_Ch 157_1-18GHz

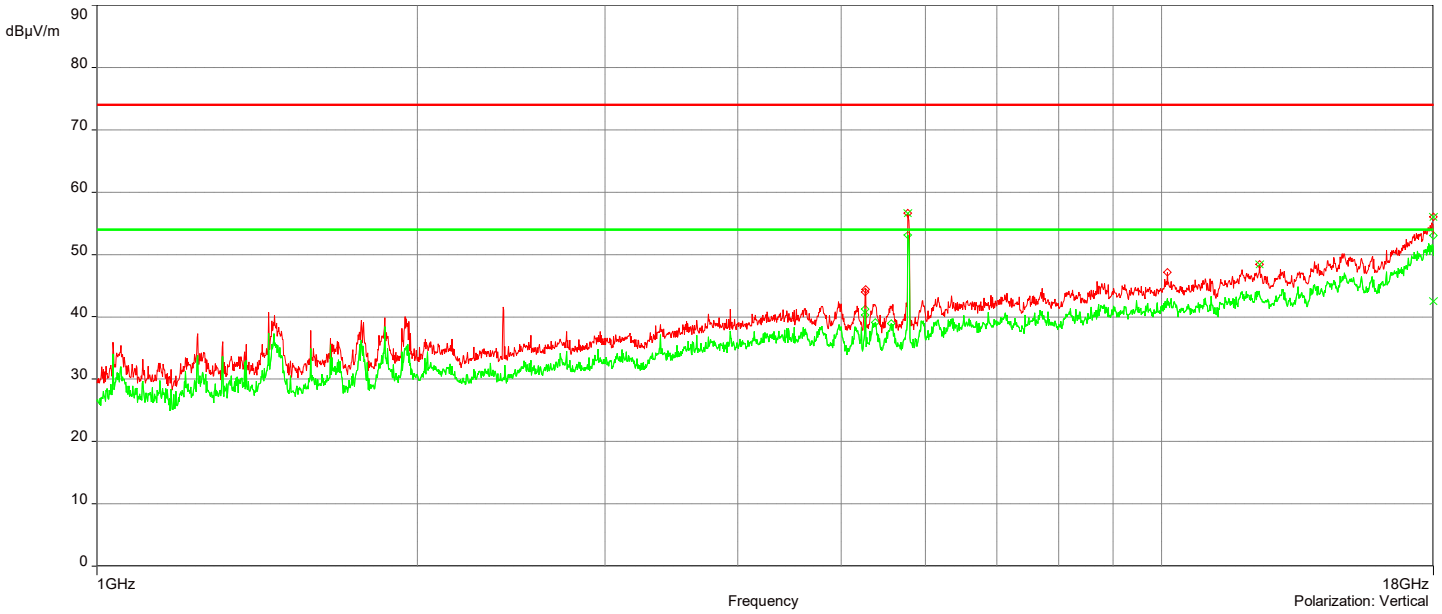
12/20/2022 4:48:52 PM

No	Frequency (MHz)	Level Peak Reading (dBµV/m)	Correction Factor (dB)	Limit dBµV/m	Margin (dB)	Height (m)	Angle (°)	Polarization	Judgement
1.	5.7771405GHz	56.66	5.30	68.23	-11.57	3.00	162.10	Vertical	Passed
2.	12.354834GHz	48.42	12.06	74.00	-25.58	2.00	48.70	Vertical	Passed
3.	17.9975GHz	56.01	21.41	74.00	-17.99	2.50	108.30	Vertical	Passed
4.	5.7771405GHz	60.48	5.34	68.23	-7.75	3.50	121.20	Horizontal	Passed
5.	14.788906GHz	50.34	15.36	68.23	-17.89	1.50	333.90	Horizontal	Passed
6.	17.922498GHz	55.47	20.61	74.00	-18.53	2.50	334.20	Horizontal	Passed

No	Frequency (MHz)	Level Average Reading (dBµV/m)	Correction Factor (dB)	Limit dBµV/m	Margin (dB)	Height (m)	Angle (°)	Polarization	Judgment
1.	17.9975GHz	42.50	21.41	54.00	-11.50	2.50	108.30	Vertical	Passed
2.	11.152299GHz	43.31	10.06	54.00	-10.69	1.50	47.70	Horizontal	Passed
3.	17.957499GHz	42.62	20.81	54.00	-11.38	4.00	329.10	Horizontal	Passed

Overall Graphs:




dBµV/m
90
80
70
60
50
40
30
20
10
0
1GHz
Frequency
18GHz
Polarization: Vertical

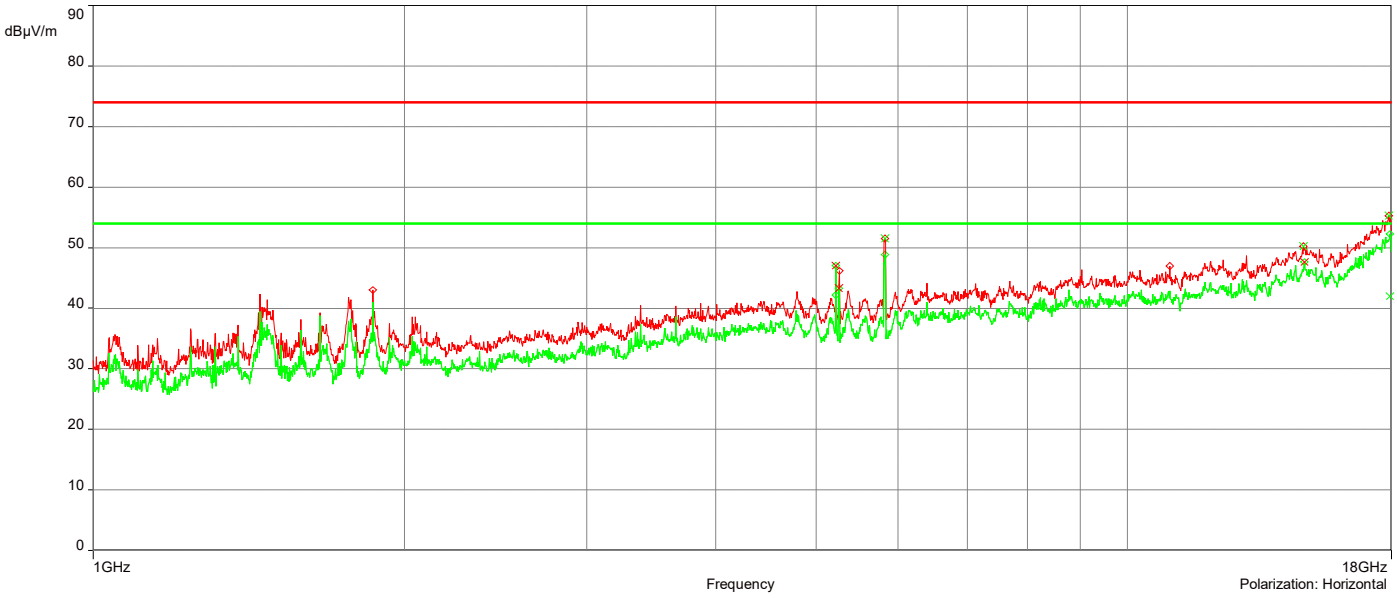
AH22120901-HAR-054#2_5G UNII-3 802.11ac_Ch 165_1-18GHz

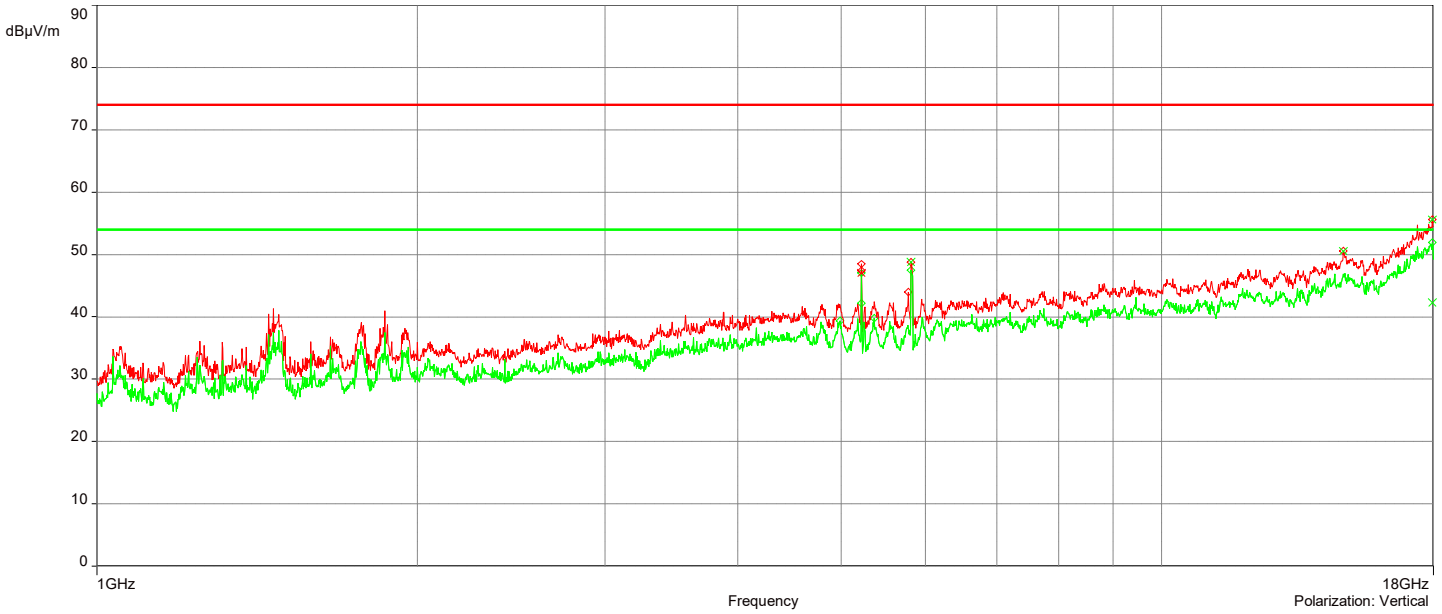
12/20/2022 5:09:27 PM

No	Frequency (MHz)	Level Peak Reading (dBµV/m)	Correction Factor (dB)	Limit dBµV/m	Margin (dB)	Height (m)	Angle (°)	Polarization	Judgement
1.	5.8176417GHz	48.75	5.49	68.23	-19.48	4.00	51.80	Vertical	Passed
2.	14.817906GHz	50.56	15.57	68.23	-17.67	1.50	15.20	Vertical	Passed
3.	17.961999GHz	55.59	20.90	74.00	-18.41	3.50	0.10	Vertical	Passed
4.	5.827142GHz	51.54	5.69	68.23	-16.69	3.00	66.50	Horizontal	Passed
5.	14.793906GHz	50.21	15.41	68.23	-18.02	1.00	175.40	Horizontal	Passed
6.	17.904997GHz	55.32	20.51	74.00	-18.68	4.00	105.90	Horizontal	Passed

No	Frequency (MHz)	Level Average Reading (dBµV/m)	Correction Factor (dB)	Limit dBµV/m	Margin (dB)	Height (m)	Angle (°)	Polarization	Judgment
1.	17.953499GHz	42.30	20.84	54.00	-11.70	3.50	39.10	Vertical	Passed
2.	17.948498GHz	41.97	20.74	54.00	-12.03	1.50	86.90	Horizontal	Passed

Overall Graphs:




dBµV/m
90
80
70
60
50
40
30
20
10
0
1GHz
Frequency
18GHz
Polarization: Vertical

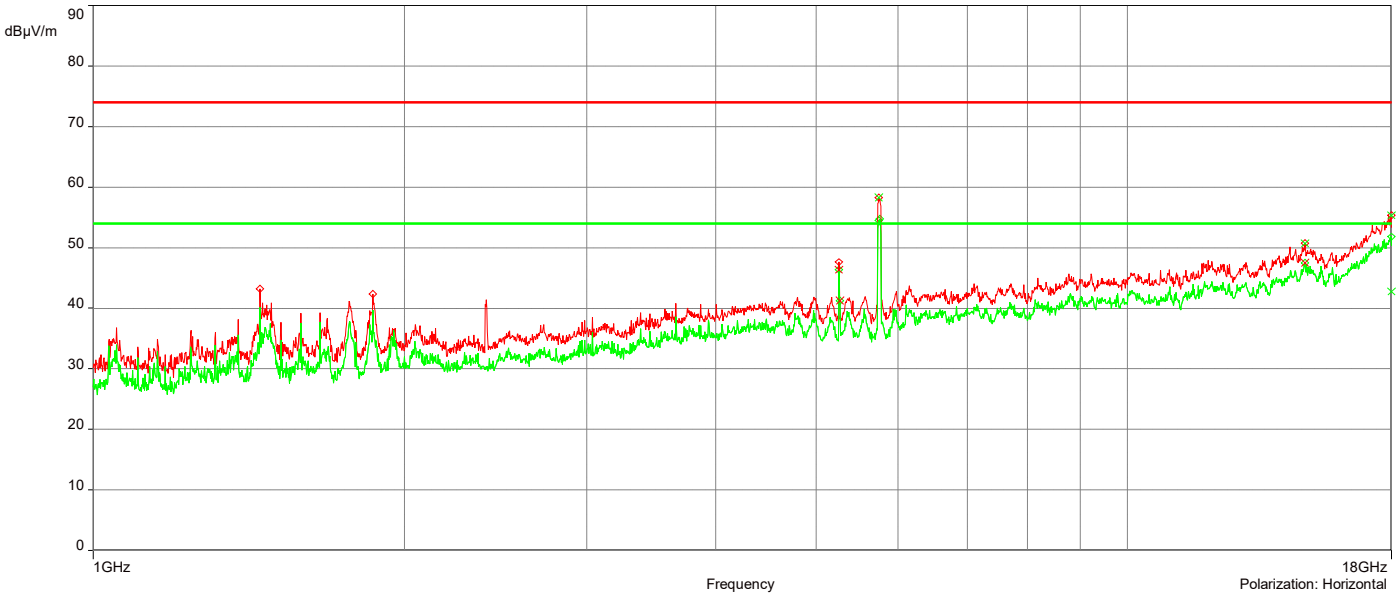
AH22120901-HAR-054#2_5G UNII-3 802.11ac_Ch 151_1-18GHz

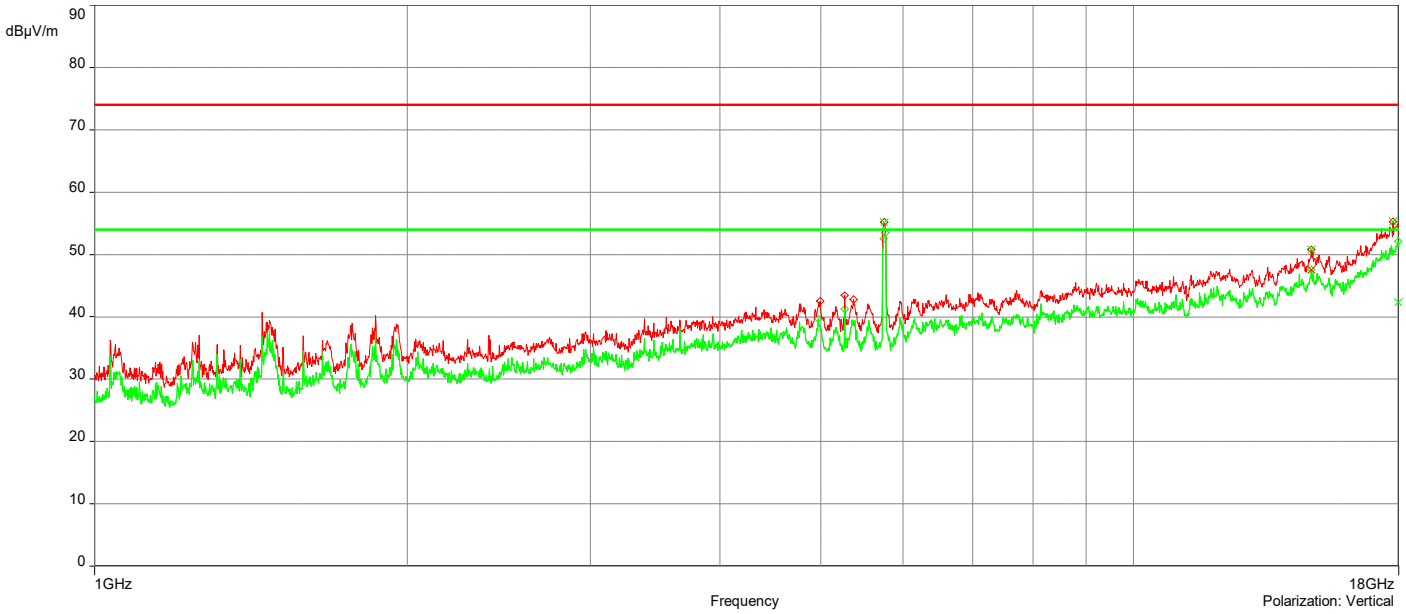
12/20/2022 5:28:07 PM

No	Frequency (MHz)	Level Peak Reading (dBµV/m)	Correction Factor (dB)	Limit dBµV/m	Margin (dB)	Height (m)	Angle (°)	Polarization	Judgement
1.	5.7571399GHz	55.18	5.38	68.23	-13.05	1.00	161.00	Vertical	Passed
2.	14.831407GHz	50.80	15.66	68.23	-17.43	2.50	244.80	Vertical	Passed
3.	17.781494GHz	55.23	19.84	74.00	-18.77	1.00	302.00	Vertical	Passed
4.	5.7496397GHz	58.29	5.38	68.23	-9.94	4.00	78.20	Horizontal	Passed
5.	14.846907GHz	50.72	15.54	68.23	-17.51	3.00	219.50	Horizontal	Passed
6.	17.997GHz	55.34	21.38	74.00	-18.66	2.50	265.80	Horizontal	Passed

No	Frequency (MHz)	Level Average Reading (dBµV/m)	Correction Factor (dB)	Limit dBµV/m	Margin (dB)	Height (m)	Angle (°)	Polarization	Judgment
1.	17.972999GHz	42.39	20.98	54.00	-11.61	3.50	42.90	Vertical	Passed
2.	17.994GHz	42.77	21.31	54.00	-11.23	4.00	307.90	Horizontal	Passed

Overall Graphs:




dBµV/m
90
80
70
60
50
40
30
20
10
0
1GHz
Frequency
18GHz
Polarization: Vertical

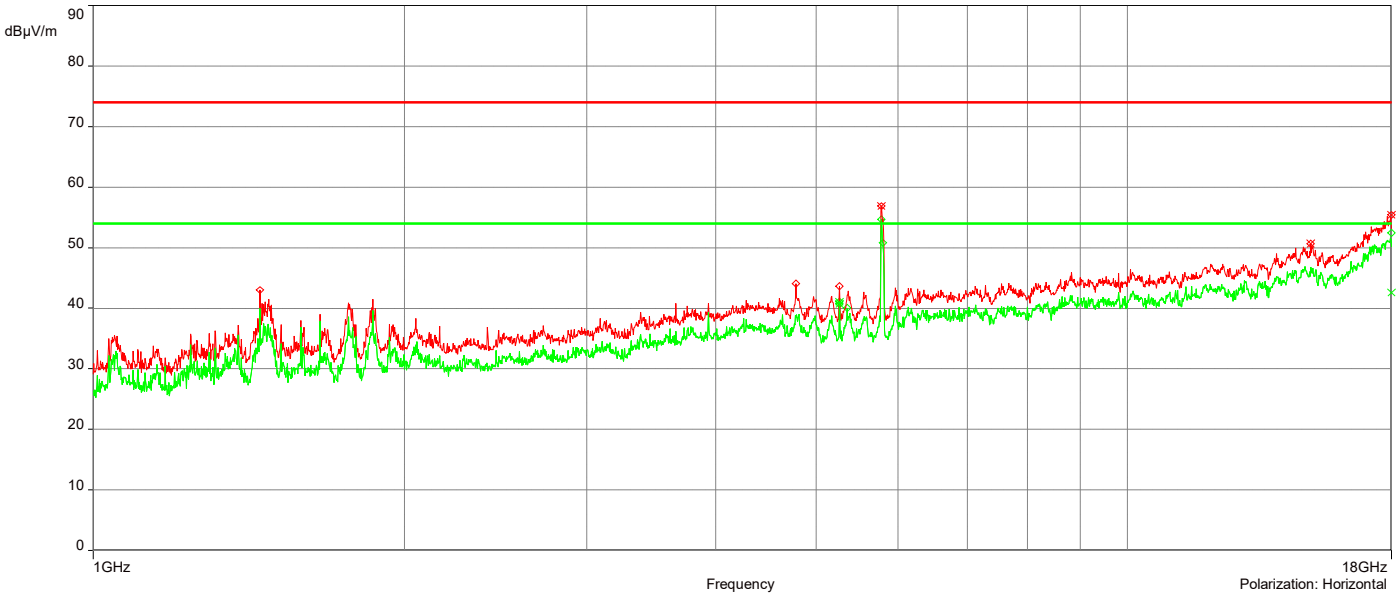
AH22120901-HAR-054#2_5G UNII-3 802.11ac_Ch 159_1-18GHz

12/20/2022 5:51:04 PM

No	Frequency (MHz)	Level Peak Reading (dBµV/m)	Correction Factor (dB)	Limit dBµV/m	Margin (dB)	Height (m)	Angle (°)	Polarization	Judgement
1.	5.7806406GHz	53.93	5.29	68.23	-14.3	3.00	162.50	Vertical	Passed
2.	14.876408GHz	50.62	15.10	68.23	-17.61	2.50	343.00	Vertical	Passed
3.	17.9925GHz	55.58	21.30	74.00	-18.42	1.00	113.90	Vertical	Passed
4.	5.7796406GHz	56.89	5.34	68.23	-11.34	1.00	78.70	Horizontal	Passed
5.	15.037913GHz	50.64	14.73	68.23	-17.59	4.00	215.80	Horizontal	Passed
6.	17.991GHz	55.42	21.24	74.00	-18.58	2.50	162.30	Horizontal	Passed

No	Frequency (MHz)	Level Average Reading (dBµV/m)	Correction Factor (dB)	Limit dBµV/m	Margin (dB)	Height (m)	Angle (°)	Polarization	Judgment
1.	17.960999GHz	42.34	20.89	54.00	-11.66	2.00	77.90	Vertical	Passed
2.	17.9905GHz	42.63	21.23	54.00	-11.37	1.00	98.90	Horizontal	Passed

Overall Graphs:



dBµV/m
90
80
70
60
50
40
30
20
10
0
1GHz
Frequency
18GHz
Polarization: Vertical