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Emissions
Test Report

EUT Name: eero 6 and eero 6 Extender

Model No.: N010001 and Q010001

CFR 47 Part 15.407 2020 and RSS 247: 2017

Prepared for:

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Prepared by:

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Revisions

Revision No.	Date MM/DD/YYYY	Reason for Change	Author
0	07/31/2020	Original Document	N/A

Note: Latest revision report will replace all previous reports.

Statement of Compliance

Manufacturer:	eero LLC 660 3rd Street San Francisco, CA 94107
Requester / Applicant:	eero LLC +1 415-738-7972
Name of Equipment:	eero 6 and eero 6 Extender
Model No.	N010001 and Q010001
Type of Equipment:	Intentional Radiator
Application of Regulations:	CFR 47 Part 15.407 2020 and RSS 247: 2017
Test Dates:	June 12, 2020 to July 24, 2020

Guidance Documents:

Emissions: ANSI C63.10-2013, KDB 789033 D02 General UNII Test Procedures New Rules v02r01, KDB 662911 D01 Multiple Transmitter Output v02r01

Test Methods:

Emissions: ANSI C63.10-2013, KDB 789033 D02 General UNII Test Procedures New Rules v02r01, KDB 662911 D01 Multiple Transmitter Output v02r01

The electromagnetic compatibility test and documented data described in this report has been performed and recorded by TUV Rheinland, in accordance with the standards and procedures listed herein. As the responsible authorized agent of the EMC laboratory, I hereby declare that the equipment described above has been shown to be compliant with the EMC requirements of the stated regulations and standards based on these results. If any special accessories and/or modifications were required for compliance, they are listed in the Executive Summary of this report.

This report must not be used to claim product endorsement by A2LA or any agency of the U.S. Government. This report contains data that are not covered by A2LA accreditation. This report shall not be reproduced except in full, without the written authorization of TUV Rheinland of North America.

Kerwinn Corpuz

Test Engineer Date October 30, 2020

Jeremy Luong

Reviewer Signature Date October 30, 2020

Testing Cert #3331.02 **US1131** **2932M**

1 Executive Summary

1.1 Scope

This report is intended to document the status of conformance with the requirements of the CFR 47 Part 15.407 2020 and RSS 247: 2017 based on the results of testing performed on June 12, 2020 to July 24, 2020 on the eero 6 and eero 6 Extender Model N010001 and Q010001 manufactured by eero LLC This report only applies to the specific samples tested under the stated test conditions. It is the responsibility of the manufacturer to assure that additional production units of this model are manufactured with identical or EMI equivalent electrical and mechanical components. This report is further intended to document changes and modifications to the EUT throughout its life cycle. All documentation will be included as a supplement.

1.2 Purpose

Testing was performed to evaluate the EMC performance of the EUT in accordance with the applicable requirements, procedures, and criteria defined in the application of regulations and application of standards listed in this report. The 5260 MHz – 5320 MHz and 5500 MHz to 5720 MHz frequency bands are covered in this document.

1.3 Summary of Test Results

Table 1: Summary of Test Results

Test	Test Method ANSI C63.10:2013	Test Parameters	Measured Value	Result
Duty Cycle	Information Only	N/A	See Section 3.5	N/A
Spurious Emission in Transmit Mode	CFR47 15.209, CFR47 15.407 (b) RSS-GEN Sect.8.9, RSS 247 Sect. 6.2.1.2	Class B	-0.05 dB Margin	**Complied**
Restricted Bands of Operation	CFR47 15.205, RSS GEN Sect.8.10	Class B		**Complied**
AC Power Conducted Emission	CFR47 15.207, RSS-GEN Sect.8.8	Class B	-10.39 dB Margin	**Complied**
Occupied Bandwidth	CFR47 15.407 (a) & (e), RSS GEN Sect.6.7	N/A	99% BW: 16.40 – 75.29 MHz 26dB BW: 20.50 – 82.16 MHz	**N/A**
Maximum Output Power	CFR47 15.407 (a) RSS 247 Sect. 6.2.3.1 [see Note 1]	UNII2A: 250mW UNII2C: 250mW	UNII2A: 23.61dBm/ 229.61mW UNII2C: 23.75dBm/ 237.14mW	**Complied**
Maximum Output Power	RSS 247 Sect. 6.2.2.3 [see Note 2]	UNII2A: 200mW eirp	UNII2A: 22.83dBm/ 191.87mW eirp	**Complied**
Power Spectral Density	CFR47 15.407 (a) RSS 247 Sect. 6.2.2.1 & 6.2.3.1	UNII2A & UNII2C: 11dBm/MHz	UNII2A: 10.91 dBm/ MHz [see Note 1] UNII2C: 10.94 dBm/ MHz [see Note 2]	**Complied**
Conducted Emission – Antenna Port	CFR47 15.407 (b)(1) (2)(3)(4) RSS 247 Sect.6.2.2.2 & 6.2.3.2	< -27 dBm/MHz	-9.37 dB Margin	**Complied**
Frequency Stability	CFR47 15.407 (g), RSS GEN Sect. 6.11	±20 ppm	Manufacturer Declaration	**Complied**
Voltage Variation	CFR47 15.31(e) RSS-Gen Sect. 6.11	±20 ppm	Manufacturer Declaration	**Complied**

Note: 1. Measurements are conducted 2x2 total power for correlated.
2. Measurements are conducted max power for non-correlated.

1.4 Special Accessories

No special accessories were necessary in order to achieve compliance.

1.5 Equipment Modifications

None

2 Laboratory Information

2.1 Accreditations & Endorsements

2.1.1 US Federal Communications Commission

TUV Rheinland of North America at 1279 Quarry Ln, Pleasanton, CA 94566 is recognized by the commission for performing testing services for the general public on a fee basis. These laboratory test facilities have been fully described in reports submitted to and accepted by the FCC (US1131). The laboratory scope of accreditation includes: Title 47 CFR Parts 15, 18, and 90. The accreditation is updated every 3 years.

2.1.2 NIST / A2LA

TUV Rheinland of North America is accredited by the National Voluntary Laboratory Accreditation Program, which is administered under the auspices of the National Institute of Standards and Technology. The laboratory has been assessed and accredited in accordance with ISO Guide 17025:2017 and ISO 9002 (Lab Code Testing Cert #3331.02). The scope of laboratory accreditation includes emission and immunity testing. The accreditation is updated annually.

2.1.3 Canada

TUV Rheinland of North America at the 1279 Quarry Ln, Pleasanton, CA 94566 address is accredited by Industry Canada for performing testing services for the general public on a fee basis. This laboratory test facilities have been fully described in reports submitted to and accepted by Industry Canada (File Number 2932M). This reference number is the indication to the Industry Canada Certification Officers that the site meets the requirements of RSS 212, Issue 1 (Provisional). The accreditation is updated every 3 years.

2.1.4 Japan – VCCI

The Voluntary Control Council for Interference by Information Technology Equipment (VCCI) is a group that consists of Information Technology Equipment (ITE) manufacturers and EMC test laboratories. The purpose of the Council is to take voluntary control measures against electromagnetic interference from Information Technology Equipment, and thereby contribute to the development of a socially beneficial and responsible state of affairs in the realm of Information Technology Equipment in Japan. TUV Rheinland of North America at 1279 Quarry Ln, Pleasanton, CA 94566 has been assessed and approved in accordance with the Regulations for Voluntary Control Measures.

VCCI Registration No. for Pleasanton: A-0326

2.1.5 Acceptance by Mutual Recognition Arrangement

The United States has an established agreement with specific countries under the Asia Pacific Laboratory Accreditation Corporation (APLAC) Mutual Recognition Arrangement. Under this agreement, all TUV Rheinland at 1279 Quarry Ln, Pleasanton, CA 94566 test results and test reports within the scope of the laboratory NIST / A2LA accreditation will be accepted by each member country.

2.2 Test Facilities

All of the test facilities are located at 1279 Quarry Lane, Pleasanton, California 94566, USA.

2.2.1 Emission Test Facility

The Semi-Anechoic chamber and AC Line Conducted measurement facility used to collect the radiated and conducted data has been constructed in accordance with ANSI C63.7:1992. The site has been measured in accordance with and verified to comply with the theoretical normalized site attenuation requirements of ANSI C63.4-2014, at a test distance of 3 and 5 meters. The site is listed with the FCC and accredited by A2LA (Lab Code Testing Cert #3331.02). The 3/5-meter semi-anechoic chamber used to collect the radiated data has been verified to comply with the theoretical normalized site attenuation requirements of ANSI C63.4-2014, at a test distance of 3 meter and 5 meters. A report detailing this site can be obtained from TUV Rheinland of North America.

2.2.2 Immunity Test Facility

ESD, EFT, Surge, PQF: These tests are performed in an environmentally controlled room with a 3.7 m x 4.8 m x 3.175 mm thick aluminum floor connected to PE ground.

For ESD testing, tabletop equipment is placed on an insulated mat with a surface resistivity of 10^9 Ohms/square on a 1.6 m x 0.8 m x 0.8 m high non-conductive table with a 3.175 mm aluminum top (Horizontal Coupling Plane). The HCP is connected to the main ground plane via a low impedance ground strap through two 470-kΩ resistors. The Vertical Coupling Plane consists of an aluminum plate 50 cm x 50 cm x 3.175 mm thick. The VCP is connected to the main ground plane via a low impedance ground strap through two 470-kΩ resistors.

For EFT, Surge, PQF, the HCP and VCP are removed.

RF Field Immunity testing is performed in a 7.3m x 4.3m x 4.1m anechoic chamber.

RF Conducted and Magnetic Field Immunity testing is performed on a 4.8m x 3.7m x 3.175mm thick aluminum ground plane.

All test areas allow a minimum distance of 1 meter from the EUT to walls or conducting objects.

2.3 Measurement Uncertainty

Two types of measurement uncertainty are expressed in this report, per *ISO Guide To The Expression Of Uncertainty In Measurement*, 1st Edition, 1995.

The Combined Standard Uncertainty is the standard uncertainty of the result of a measurement when that result is obtained from the values of a number of other quantities; it is equal to the positive square root of the sum of the variances or co-variances of these other quantities, weighted according to how the measurement result varies with changes in these quantities. The term *standard uncertainty* is the result of a measurement expressed as a standard deviation.

2.3.1 Sample Calculation – radiated & conducted emissions

The field strength is calculated by subtracting the Amplifier Gain and adding the Cable Loss and Antenna Correction Factor to the measured reading. The basic equation is as follows:

Field Strength (dBμV/m) = RAW - AMP + CBL + ACF

Where: RAW = Measured level before correction (dBμV)

AMP = Amplifier Gain (dB)

CBL = Cable Loss (dB)

ACF = Antenna Correction Factor (dB/m)

$$\mu V/m = 10^{\frac{dB\mu V/m}{20}}$$

Sample radiated emissions calculation @ 30 MHz

Measurement +Antenna Factor–Amplifier Gain+Cable loss=Radiated Emissions (dBuV/m)

25 dBuV/m + 17.5 dB – 20 dB + 1.0 dB = 23.5 dBuV/m

2.3.2 Measurement Uncertainty

Per CISPR 16-4-2	**U_{lab}**	**U_{cispr}**
Radiated Disturbance @ 10 meters		
30 – 1,000 MHz	2.25 dB	4.51 dB
Radiated Disturbance @ 3 meters		
30 – 1,000 MHz	2.26 dB	4.52 dB
1 – 6 GHz	2.12 dB	4.25 dB
6 – 40 GHz	2.47 dB	4.93 dB
Conducted Disturbance @ Mains Terminals		
150 kHz – 30 MHz	1.09 dB	2.18 dB
Disturbance Power		
30 MHz – 300 MHz	3.92 dB	4.3 dB

Voltech PM6000A

The estimated combined standard uncertainty for harmonic current and flicker measurements is ± 5.0%.	Per CISPR 16-4-2 Methods

Measurement Uncertainty - EMC Immunity

The estimated combined standard uncertainty for ESD immunity measurements is ± 8.2%.	Per IEC 61000-4-2
The estimated combined standard uncertainty for radiated immunity measurements is ± 4.10 dB.	Per IEC 61000-4-3
The estimated combined standard uncertainty for conducted immunity measurements with CDN is ± 3.66 dB	Per IEC 61000-4-6
The estimated combined standard uncertainty for power frequency magnetic field immunity is ± 2.9%.	Per IEC 61000-4-8
The estimated combined standard uncertainty for EFT fast transient immunity measurements is ± 2.6%.	Per IEC 61000-4-4
The estimated combined standard uncertainty for surge immunity measurements is ± 2.6%.	Per IEC 61000-4-5
The estimated combined standard uncertainty for voltage variation and interruption measurements is ± 1.74%.	Per IEC 61000-4-11

Measurement Uncertainty – Radio Testing

The estimated combined standard uncertainty for frequency error measurements is ± 3.88 Hz
The estimated combined standard uncertainty for carrier power measurements is ± 0.70 dB.
The estimated combined standard uncertainty for adjacent channel power measurements is ± 1.47 dB.
The estimated combined standard uncertainty for modulation frequency response measurements is ± 0.46 dB.
The estimated combined standard uncertainty for transmitter conducted emission measurements is ± 2.06 dB

The expanded uncertainty at a level of 95% confidence is obtained by multiplying the combined standard uncertainty by a coverage factor of 2. Compliance criteria are not based on measurement uncertainty. on measurement uncertainty.

2.4 Calibration Traceability

All measurement instrumentation is traceable to the National Institute of Standards and Technology (NIST). Measurement method complies with ANSI/NCSL Z540-1-1994 and ISO Standard 17025:2017. Equipment calibration records are kept on file at the test facility.

3 Product Information

3.1 Product Description

The Model N010001 and Q010001, eero 6 and eero 6 Extender, is a 2x2 home Wi-Fi router. It is intended to operate as a dual band (2.4 GHz and 5 GHz) wireless router over 20 MHz, 40 MHz and 80 MHz channels. The router will be in compliance with regulatory standards of regions it will be operating in.

Model differences:
N010001, eero 6 Gateway, contains two RJ45 ports and USB-C AC/DC adapter port.
Q010001, eero 6 Extender, USB-C AC/DC adapter port; No RJ45 ports. BLE/802.15.4 RF circuitry has been removed.
Both have the same WLAN radio hardware.

Model N010001 is considered worst case and used for testing.

3.2 Equipment Configuration

A description of the equipment configuration is given in the Test Plan Section. The EUT was tested as called for in the test standard and was configured and operated in a manner consistent with its intended use. The EUT was connected to rated power and allowed to reach intended operating conditions. The placement of the EUT system components was guided by the test standard and selected to represent typical installation conditions.

In the case of an EUT that can operate in more than one configuration, preliminary testing was performed to determine the configuration that produced maximum radiation.

The final configuration was selected to produce the worst case radiation for emissions testing and to place the EUT in the most susceptible state for immunity testing.

3.3 Operating Mode

A description of the operation mode is given in the Test Plan Section. In the case of an EUT that can operate in more than one state, preliminary testing was performed to determine the operating mode that produced maximum radiation.

The final operating mode was selected to produce the worst case radiation for emissions testing and to place the EUT in the most susceptible state for immunity testing.

3.4 Unique Antenna Connector

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this Section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited. This requirement does not apply to carrier current devices or to devices operated under the provisions of CFR47 Parts 15.211, 15.213, 15.217, 15.219, or 15.221.

3.4.1 Results

The N010001 has 3 internal antennas. BLE and ZigBee uses 1 Stamped Metal, Planar Inverted F, Antenna and 2 Flex PCB for WiFi in the band 2.4 GHz and 5 GHz.

The Q010001 has 2 internal antennas, 2 Flex PCB for WiFi in the band 2.4 GHz and 5 GHz.

Max Antenna Gain		**Antenna Type**		
	dBi			
BLE/ZigBee (2.4-2483.5 GHz)	3.46	Stamped metal, Planar Inverted F		
Wi-Fi			**Antenna 1 (dBi)**	**Antenna 2 (dBi)**
2.4-2483.5 GHz	3.72	Flexible Printed Circuit Board (FPCB)	3.72	3.25
U-NII-1 (5.15-5.25 GHz)	3.42	Flexible Printed Circuit Board (FPCB)	2.52	3.42
U-NII-2A (5.25-5.35 GHz)	2.37		1.69	2.37
U-NII-2C (5.47-5.725 GHz)	3.57		2.72	3.57
U-NII-3 (5.725-5.85 GHz)	4.17		4.04	4.17

3.5 Duty Cycle

The N010001 and Q010001 were measured for the duty cycle.
Calculation of transmit duty cycle. Duty cycle (%) = (ON time / Period) * 100%
Calculation for Power Averaging (RMS) mode: CF = 10 log(1/x)
Calculation for Linear Voltage Averaging mode: CF = 20 log(1/x)
Where x is the duty cycle in numeric.
CF = correction factor

3.5.1 Results

Mode	On Time (ms)	Period (ms)	Duty Cycle (%)	Corr. Factor (dB)	Remark
802.11a	1.43	1.55	92.3	0.7	Radiated Bandedge
802.11n HT20	16.26	17.44	93.2	0.6	Radiated Bandedge
802.11n HT40	5.41	5.65	95.7	0.38	Radiated Bandedge
802.11ac VHT80	5.41	5.65	95.7	0.38	Radiated Bandedge
802.11a	1.43	1.55	92.3	0.35	Conducted
802.11n HT20	16.26	17.44	93.2	0.3	Conducted
802.11n HT40	5.41	5.65	95.7	0.19	Conducted
802.11ac VHT80	5.41	5.65	95.7	0.19	Conducted
Note: EUT configured and measured for duty cycle. Correction factor will be used toward RF measurement offset.					

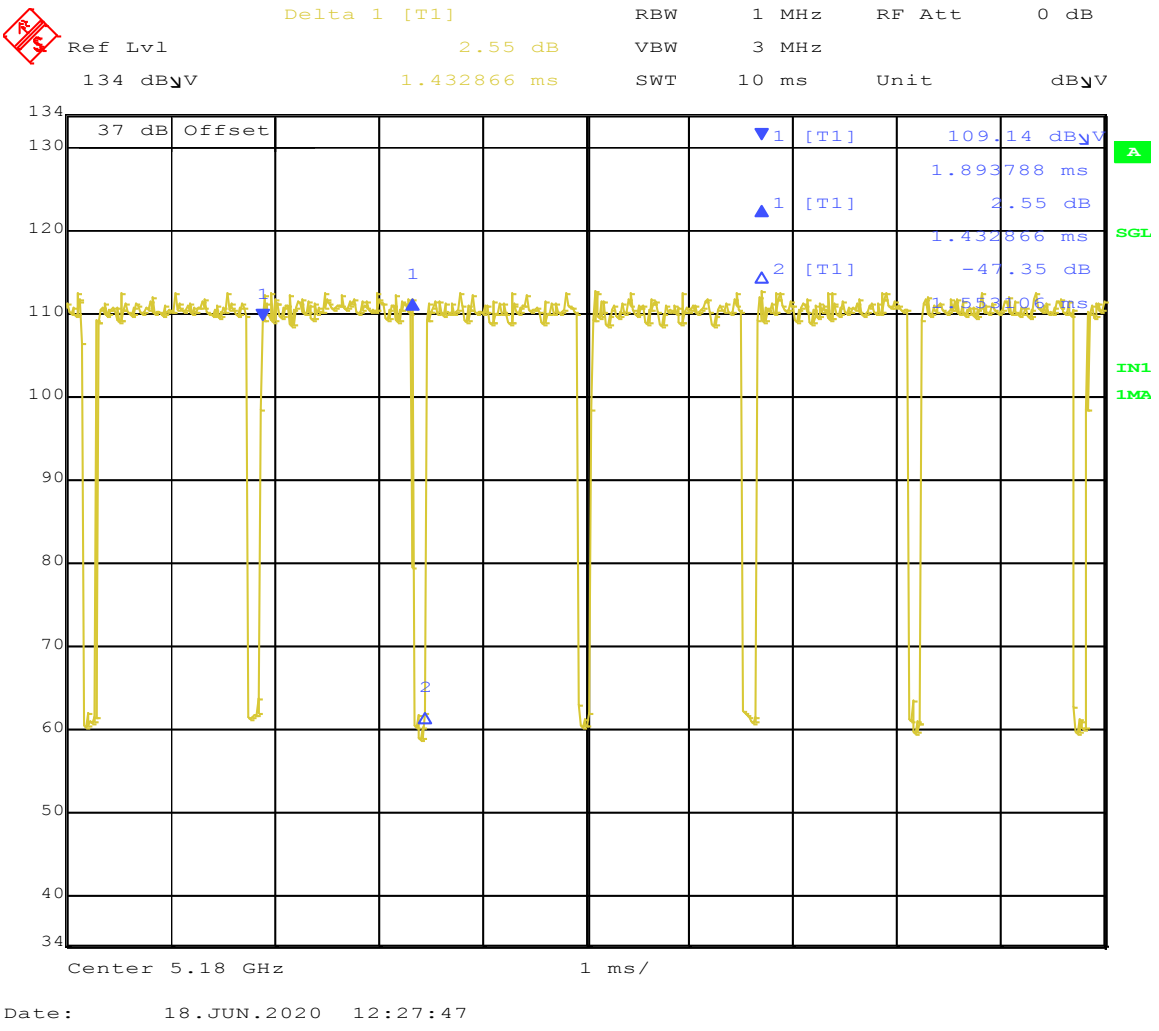


Figure 1: Duty Cycle for 802.11a

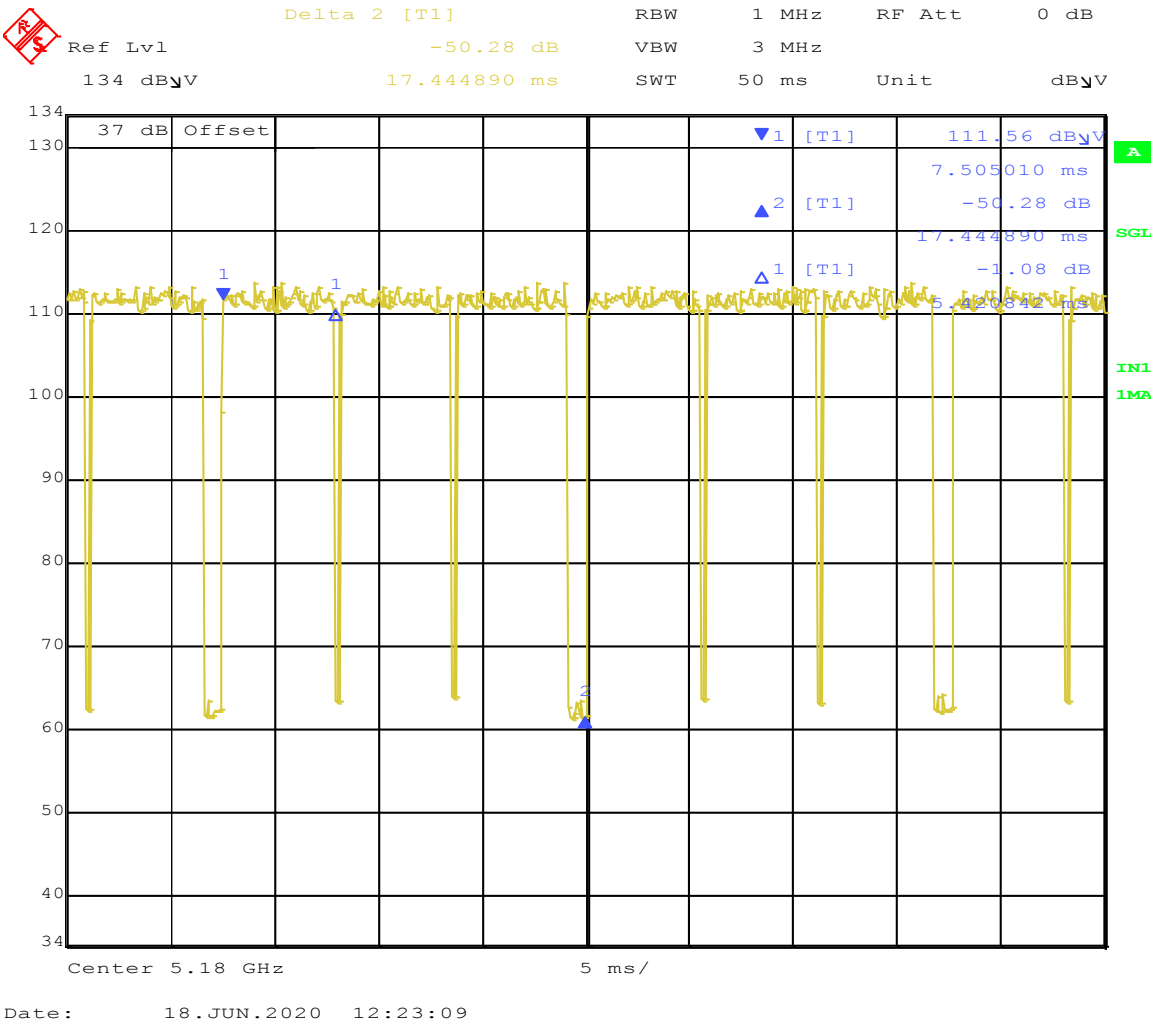


Figure 2: Duty Cycle for 802.11n HT20

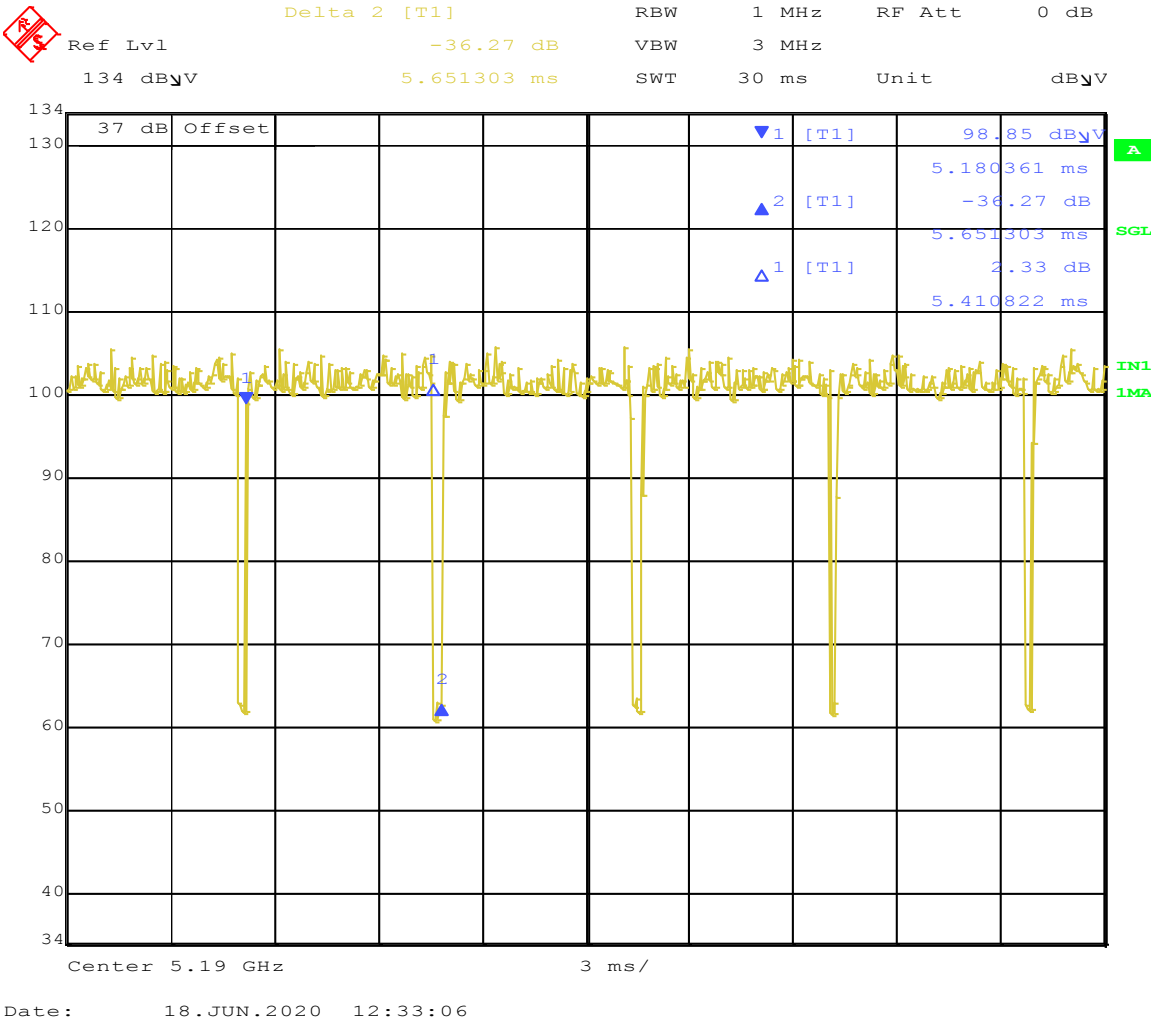


Figure 3: Duty Cycle for 802.11n HT40

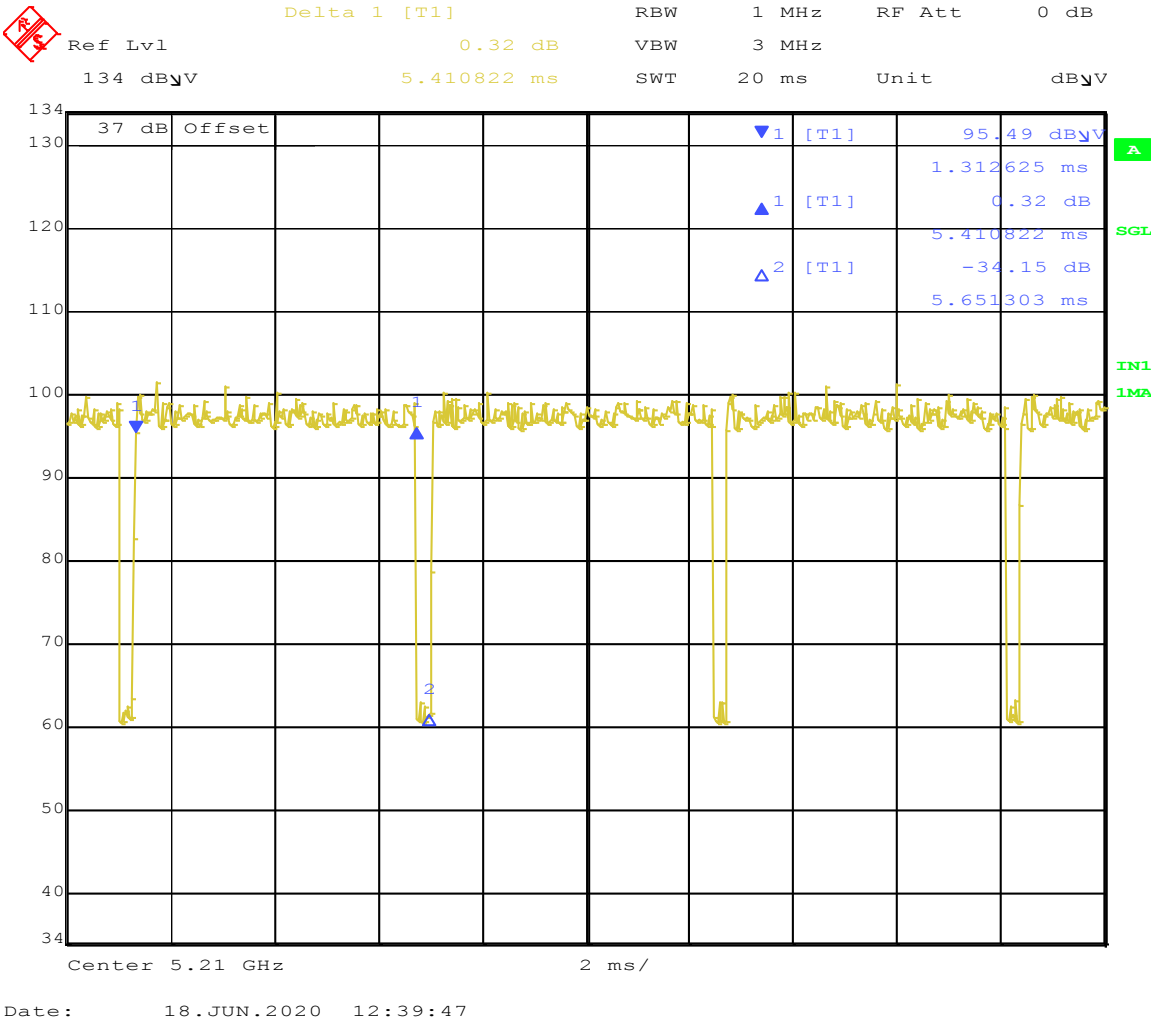


Figure 4: Duty Cycle for 802.11ac VHT80

4 Emissions

Testing was performed in accordance with CFR 47 Part 15.407: 2020 and RSS 247: 2017. These test methods are listed under the laboratory's A2LA Scope of Accreditation. This test measures the levels emanating from the EUT, thus evaluating the potential for the EUT to cause radio frequency interference to other electronic devices. Procedures described in section 8 of the standard were used.

4.1 Output Power Requirements

The maximum output power requirement is the maximum equivalent isotropic radiated power delivering at the transmitting antenna under specified conditions of measurements in the presence of modulation.

The maximum transmitted power limits per CFR47 Part 15.407 and RSS-247 are

Part 15.407(a)(1)(iv) – Band 5150-5250 MHz:1 W.

Part 15.407(a)(2) – Band 5250-5350 MHz, 5470-5725 MHz:250 mW or 11 dBm + 10Log B.

Part 15.407(a)(3) – Band 5725-5825 MHz:1 W

RSS 247 Sect. 6.2.1.1 – Band 5150-5250 MHz (e.i.r.p.): 200 mW or 10 + 10Log(B)

RSS 247 Sect. 6.2.2.1, 6.2.3.1 – Band 5250-5350 MHz, 5470-5725 MHz: 250 mW or 11 dBm + 10Log B.

RSS 247 Sect. 6.2.2.3 (b) – Band 5250-5350 MHz (e.i.r.p.): 200 mW

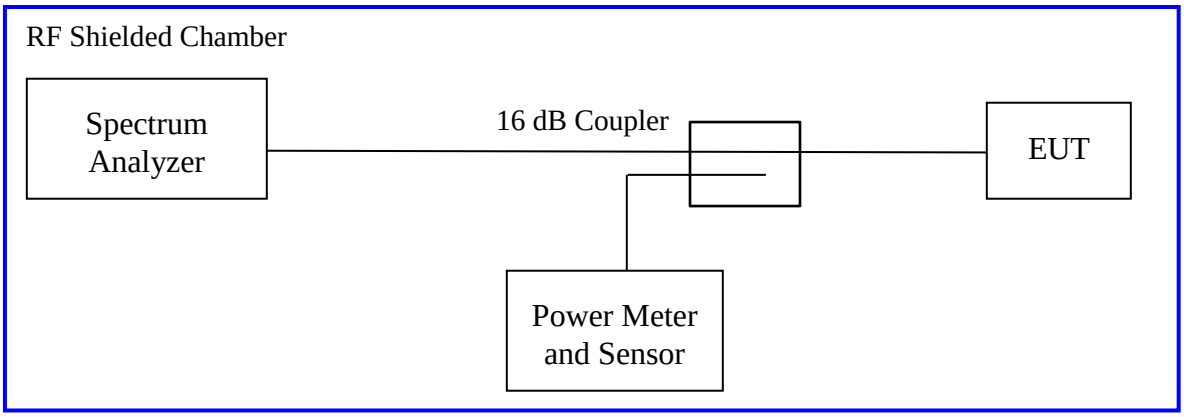
RSS 247 Sect. 6.2.4.1 – Band 5725-5850 MHz: 1 W

Note: B is the 99% emission bandwidth.

4.1.1 Test Method

The ANSI C63.10-2013 Section 12.3.2.2 conducted method was used to measure the channel power output. The preliminary investigation was performed at different data rate/ chain to determine the highest power output for each mode. The worst findings were conducted on 3 channels in each operating range per CFR47 Part 15.407(a) and RSS 247 Sect. 6.2. The worst mode results indicated below.

Test Setup:



Method SA-2 of "KDB 789033 D02 – Guidelines for Compliance Testing of Unlicensed National Information Infrastructure (U-NII) Devices" applies since the EUT continuously transmit; where duty cycle is less than 98%. Sample detector was used.

4.1.2 Results

As originally tested, the EUT was found to be compliant to the requirements of the test standard(s).

Table 2: RF Output Power at the Antenna Port – Test Results

Date: July 8 - 22, 2020	**Tested By:** Kerwinn Corpuz
Test Method: Conducted Measurements	**Power Setting:** See test plan.
Antenna Type: FPCB	**Max Antenna Gain:** UNII2A = 2.37 dBi; UNII2C = 3.57 dBi
Operating Mode: Uncorrelated	**Signal State:** Modulated at 92.3%
Ambient Temp.: 22 - 23 °C	**Relative Humidity:** 35 - 38%

Frequency (MHz)	CH 0 Output [dBm]	CH 1 Output [dBm]	Duty Cycle [dB]	Max Power [dBm]	Limit [dBm]	Margin [dB]
802.11a at 6 Mbps (FCC Limit)						
5260	19.97	19.95	0.35	20.32	24.00	-3.68
5280	20.04	20.11	0.35	20.46	24.00	-3.54
5320	19.20	19.32	0.35	19.67	24.00	-4.33
802.11a at 6 Mbps (RSS-247 Limit)						
5260	19.97	19.95	0.35	20.32	20.63	-0.31
5280	20.04	20.11	0.35	20.46	20.63	-0.17
5320	19.20	19.32	0.35	19.67	20.63	-0.96
802.11a at 6 Mbps (FCC and RSS-247 Limit)						
5500	20.69	20.96	0.35	21.31	24.00	-2.69
5580	20.59	20.62	0.35	20.97	24.00	-3.03
5700	19.54	18.74	0.35	19.89	24.00	-4.11

Note: 1. Worst case was observed at 6 Mbps.
2. RSS-247 Limit (5250-5350MHz) = 23 dBm – 2.37 dBi = 20.63 dBm.
3. Plots for all the measurements stated above were taken. To reduce complexity and bulkiness of the report, Highlighted Plots are placed in the report.

Table 3: RF Output Power at the Antenna Port – Test Results Continued

Date: July 8 - 22, 2020	**Tested By:** Kerwinn Corpuz
Test Method: Conducted Measurements	**Power Setting:** See test plan.
Antenna Type: FPCB	**Max Antenna Gain:** UNII2A = 2.37 dBi; UNII2C = 3.57 dBi
Operating Mode: Uncorrelated	**Signal State:** Modulated at 93.2%
Ambient Temp.: 22 - 23 °C	**Relative Humidity:** 35 - 38%

Frequency (MHz)	CH 0 Output [dBm]	CH 1 Output [dBm]	Duty Cycle [dB]	Max Power [dBm]	Limit [dBm]	Margin [dB]
802.11n HT20 at MCS0 (FCC Limit)						
5260	19.78	19.73	0.30	20.08	24.00	-3.92
5300	19.87	20.09	0.30	20.39	24.00	-3.61
5320	19.02	19.12	0.30	19.42	24.00	-4.58
802.11n HT20 at MCS0 (RSS-247 Limit)						
5260	19.78	19.73	0.30	20.08	20.63	-0.55
5300	19.87	20.09	0.30	20.39	20.63	-0.24
5320	19.02	19.12	0.30	19.42	20.63	-1.21
802.11n HT20 at MCS0 (FCC & RSS-247 Limit)						
5500	20.64	20.80	0.30	21.10	24.00	-2.90
5580	20.80	20.87	0.30	21.17	24.00	-2.83
5700	19.51	18.85	0.30	19.81	24.00	-4.19

Note: 1. Worst case was observed at MCS0. HT20 mode is worst case (covers VHT20 mode).
2. RSS-247 Limit (5250-5350MHz) = 23 dBm – 2.37 dBi = 20.63 dBm.
3. Plots for all the measurements stated above were taken. To reduce complexity and bulkiness of the report, Highlighted Plots are placed in the report.

Table 4: RF Output Power at the Antenna Port – Test Results Continued

Date: July 8 - 22, 2020	**Tested By:** Kerwinn Corpuz
Test Method: Conducted Measurements	**Power Setting:** See test plan.
Antenna Type: FPCB	**Max Antenna Gain:** UNII2A = 2.37 dBi; UNII2C = 3.57 dBi
Operating Mode: Uncorrelated	**Signal State:** Modulated at 95.7%
Ambient Temp.: 22 - 23 °C	**Relative Humidity:** 35 - 38%

802.11n HT40 at MCS0 (FCC Limit)						
Frequency (MHz)	**CH 0 Output [dBm]**	**CH 1 Output [dBm]**	**Duty Cycle [dB]**	**Max Power [dBm]**	**Limit [dBm]**	**Margin [dB]**
5270	20.67	20.15	0.19	20.86	24.00	-3.14
5310	18.31	18.49	0.19	18.68	24.00	-5.32
802.11n HT40 at MCS0 (RSS-247 Limit)						
5270	19.81	19.66	0.19	20.00	20.63	-0.63
5310	18.31	18.49	0.19	18.68	20.63	-1.95
802.11n HT40 at MCS0 (FCC & RSS-247 Limit)						
5510	19.18	19.71	0.19	19.90	24.00	-4.10
5590	21.44	21.68	0.19	21.87	24.00	-2.13
5670	19.68	19.55	0.19	19.87	24.00	-4.13
802.11ac VHT80 at MCS0 (FCC Limit)						
Frequency (MHz)	**CH 0 Output [dBm]**	**CH 1 Output [dBm]**	**Duty Cycle [dB]**	**Max Power [dBm]**	**Limit [dBm]**	**Margin [dB]**
5290	17.18	17.13	0.19	17.37	24.00	-6.63
802.11ac VHT80 at MCS0 (RSS-247 Limit)						
5290	17.18	17.13	0.19	17.37	20.63	-3.26
802.11ac VHT80 at MCS0 (FCC & RSS-247 Limit)						
5530	17.32	17.60	0.19	17.79	24.00	-6.21
5610	18.84	18.98	0.19	19.17	24.00	-4.83

Note: 1. Worst case was observed at MCS0. HT40 mode is worst case (covers VHT40 mode).
2. RSS-247 Limit (5250-5350MHz) = 23 dBm – 2.37 dBi = 20.63 dBm.
3. Plots for all the measurements stated above were taken. To reduce complexity and bulkiness of the report, Highlighted Plots are placed in the report.

Table 5: RF Output Power at the Antenna Port – Straddle Channels – Test Results Continued

Date: July 8 - 22, 2020	**Tested By:** Kerwinn Corpuz
Test Method: Conducted Measurements	**Power Setting:** See test plan.
Antenna Type: FPCB	**Max Antenna Gain:** UNII2C = 3.57 dBi; UNII3 = 4.17 dBi
Operating Mode: Uncorrelated	**Signal State:** Modulated at 92.3% (11a), 93.2% (HT20), (HT40 & VHT80) 95.7%
Ambient Temp.: 22 - 23 °C	**Relative Humidity:** 35 - 38%

802.11a at 6Mbps (5720 MHz)

Operating Band	CH 0 Output [dBm]	CH 1 Output [dBm]	Duty Cycle [dB]	Max Power [dBm]	Limit [dBm]	Margin [dB]
U-NII-2C	19.05	18.72	0.35	19.40	22.74	-3.34
U-NII-3	12.65	12.33	0.35	13.00	17.96	-4.96

802.11n HT20 at MCS0 (5720 MHz)

Operating Band	CH 0 Output [dBm]	CH 1 Output [dBm]	Duty Cycle [dB]	Max Power [dBm]	Limit [dBm]	Margin [dB]
U-NII-2C	19.01	18.38	0.30	19.31	22.88	-3.57
U-NII-3	12.92	12.18	0.30	13.22	18.35	-5.13

802.11n HT40 at MCS0 (5710 MHz)

Operating Band	CH 0 Output [dBm]	CH 1 Output [dBm]	Duty Cycle [dB]	Max Power [dBm]	Limit [dBm]	Margin [dB]
U-NII-2C	20.62	20.31	0.19	20.81	24.00	-3.19
U-NII-3	9.97	9.60	0.19	10.16	18.11	-7.94

802.11ac VHT80 at MCS0 (5690 MHz)

Frequency (MHz)	CH 0 Output [dBm]	CH 1 Output [dBm]	Duty Cycle [dB]	Max Power [dBm]	Limit [dBm]	Margin [dB]
U-NII-2C	20.40	20.08	0.19	20.59	24.00	-3.41
U-NII-3	5.36	5.06	0.19	5.55	18.01	-12.46

Note: 1. Limit = 11 dBm + 10 log B, where B is 26 dB EBW, or 24 dBm, (whichever is lesser).
2. Marker 5 is U-NII-2C power measurement and Marker 6 is U-NII-3 power measurement in the plot.
3. Plots for all the measurements stated above were taken. To reduce complexity and bulkiness of the report, Highlighted Plots are placed in the report.

Table 6: RF Output Power at the Antenna Port – Test Results Continued

Date: July 8 - 22, 2020	**Tested By:** Kerwinn Corpuz
Test Method: Conducted Measurements	**Power Setting:** See test plan.
Antenna Type: FPCB	**Total Antenna Gain:** UNII2A = 5.05 dBi; UNII2C = 6.17 dBi
Operating Mode: Correlated	**Signal State:** Modulated at 93.2%
Ambient Temp.: 22 - 23 °C	**Relative Humidity:** 35 - 38%

Frequency (MHz)	CH 0 Output [dBm]	CH 1 Output [dBm]	Duty Cycle [dB]	Total Power [dBm]	Limit [dBm]	Margin [dB]
802.11n HT20 at MCS0 (FCC Limit)						
5260	17.66	17.50	0.30	20.89	24.00	-3.11
5300	17.71	18.10	0.30	21.22	24.00	-2.78
5320	17.93	18.14	0.30	21.35	24.00	-2.65
802.11n HT20 at MCS0 (RSS-247 Limit)						
5260	14.40	14.29	0.30	17.66	17.95	-0.29
5280	14.44	14.32	0.30	17.69	17.95	-0.26
5320	14.40	14.77	0.30	17.90	17.95	-0.05
802.11n HT20 at MCS0 (FCC & RSS-247 Limit)						
5500	17.46	18.05	0.30	21.07	23.83	-2.76
5580	17.31	17.64	0.30	20.79	23.83	-3.04
5700	17.94	17.40	0.30	20.98	23.83	-2.85

Note: 1. Worst case was observed at MCS0. HT20 mode is worst case (covers VHT20 mode).
2. The sum of Ch0 and Ch1 = Total Power.
3. RSS-247 Limit (5250-5350MHz) = 23 dBm – 5.05 dBi = 17.95 dBm.
4. Limit (5470-5725MHz) = 24 dBm – (6.17 dBi – 6 dBi) = 23.83 dBm.
5. Plots for all the measurements stated above were taken. To reduce complexity and bulkiness of the report, Highlighted Plots are placed in the report.

Table 7: RF Output Power at the Antenna Port – Test Results Continued

Date: July 8 - 22, 2020	**Tested By:** Kerwinn Corpuz
Test Method: Conducted Measurements	**Power Setting:** See test plan.
Antenna Type: FPCB	**Total Antenna Gain:** UNII2A = 5.05 dBi; UNII2C = 6.17 dBi
Operating Mode: Correlated	**Signal State:** Modulated at 95.7%
Ambient Temp.: 22 - 23 °C	**Relative Humidity:** 35 - 38%

802.11n HT40 at MCS0 (FCC Limit)						
Frequency (MHz)	**CH 0 Output [dBm]**	**CH 1 Output [dBm]**	**Duty Cycle [dB]**	**Total Power [dBm]**	**Limit [dBm]**	**Margin [dB]**
5270	20.67	20.15	0.19	23.61	24.00	-0.39
5310	18.31	18.49	0.19	21.60	24.00	-2.40
802.11n HT40 at MCS0 (RSS-247 Limit)						
5270	14.22	14.23	0.19	17.43	17.95	-0.52
5310	14.30	14.47	0.19	17.59	17.95	-0.36
802.11n HT40 at MCS0 (FCC & RSS-247 Limit)						
5510	19.18	19.71	0.19	22.65	23.83	-1.18
5590	20.42	20.67	0.19	23.75	23.83	-0.08
5670	19.68	19.55	0.19	22.82	23.83	-1.01
802.11ac VHT80 at MCS0 (FCC Limit)						
Frequency (MHz)	**CH 0 Output [dBm]**	**CH 1 Output [dBm]**	**Duty Cycle [dB]**	**Total Power [dBm]**	**Limit [dBm]**	**Margin [dB]**
5290	17.18	17.13	0.19	20.36	24.00	-3.64
802.11ac VHT80 at MCS0 (RSS-247 Limit)						
5290	14.22	14.31	0.19	17.47	17.95	-0.48
802.11ac VHT80 at MCS0 (FCC & RSS-247 Limit)						
5530	17.32	17.6	0.19	20.66	23.83	-3.17
5610	18.84	18.98	0.19	22.11	23.83	-1.72

Note: 1. Worst case was observed at MCS0. HT40 mode is worst case (covers VHT40 mode).
2. The sum of Ch0 and Ch1 = Total Power.
3. RSS-247 Limit (5250-5350MHz) = 23 dBm – 5.05 dBi = 17.95 dBm.
4. Limit (5470-5725MHz) = 24 dBm – (6.17 dBi – 6 dBi) = 23.83 dBm.
5. Plots for all the measurements stated above were taken. To reduce complexity and bulkiness of the report, Highlighted Plots are placed in the report.

Table 8: RF Output Power at the Antenna Port – Straddle Channels – Test Results Continued

Date: July 8 - 22, 2020	**Tested By:** Kerwinn Corpuz
Test Method: Conducted Measurements	**Power Setting:** See test plan.
Antenna Type: FPCB	**Max Antenna Gain:** UNII2C = 6.17 dBi; UNII3 = 7.12 dBi
Operating Mode: Correlated	**Signal State:** Modulated at 92.3% (11a), 93.2% (HT20), (HT40 & VHT80) 95.7%
Ambient Temp.: 22 - 23 °C	**Relative Humidity:** 35 - 38%

802.11n HT20 at MCS0 (5720 MHz)

Operating Band	CH 0 Output [dBm]	CH 1 Output [dBm]	Duty Cycle [dB]	Total Power [dBm]	Limit [dBm]	Margin [dB]
U-NII-2C	17.78	17.02	0.30	20.72	22.69	-1.97
U-NII-3	11.75	10.93	0.30	14.66	18.22	-3.56

802.11n HT40 at MCS0 (5710 MHz)

Operating Band	CH 0 Output [dBm]	CH 1 Output [dBm]	Duty Cycle [dB]	Total Power [dBm]	Limit [dBm]	Margin [dB]
U-NII-2C	20.62	20.31	0.19	23.67	23.83	-0.16
U-NII-3	9.97	9.60	0.19	12.99	17.94	-4.95

802.11ac VHT80 at MCS0 (5690 MHz)

Frequency (MHz)	CH 0 Output [dBm]	CH 1 Output [dBm]	Duty Cycle [dB]	Total Power [dBm]	Limit [dBm]	Margin [dB]
U-NII-2C	20.40	20.07	0.19	23.44	23.83	-0.39
U-NII-3	5.36	5.06	0.19	8.41	17.84	-9.43

Note: 1. The sum of Ch0 and Ch1 = Total Power.
2. Limit = 11 dBm + 10 log B, where B is 26 dB EBW, or 24 dBm, (whichever is lesser).
3. If antenna exceeds 6dBi, apply: POut = PLimit − (GTx − 6) = 24 dBm – (6.17 dBi – 6) = 23.83 dBm.
4. Marker 5 is U-NII-2C power measurement and Marker 6 is U-NII-3 power measurement in the plot.
5. Plots for all the measurements stated above were taken. To reduce complexity and bulkiness of the report, Highlighted Plots are placed in the report.

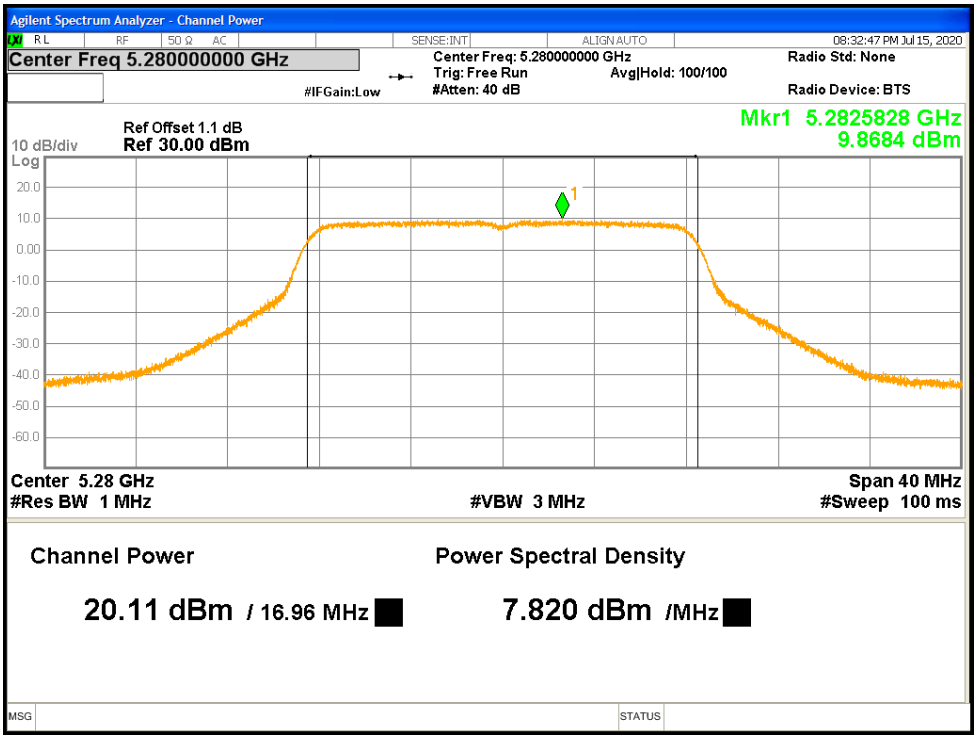


Figure 5: FCC Uncorrelated Max Conducted Power-5280 MHz-802.11a-6 Mbps-Ch1

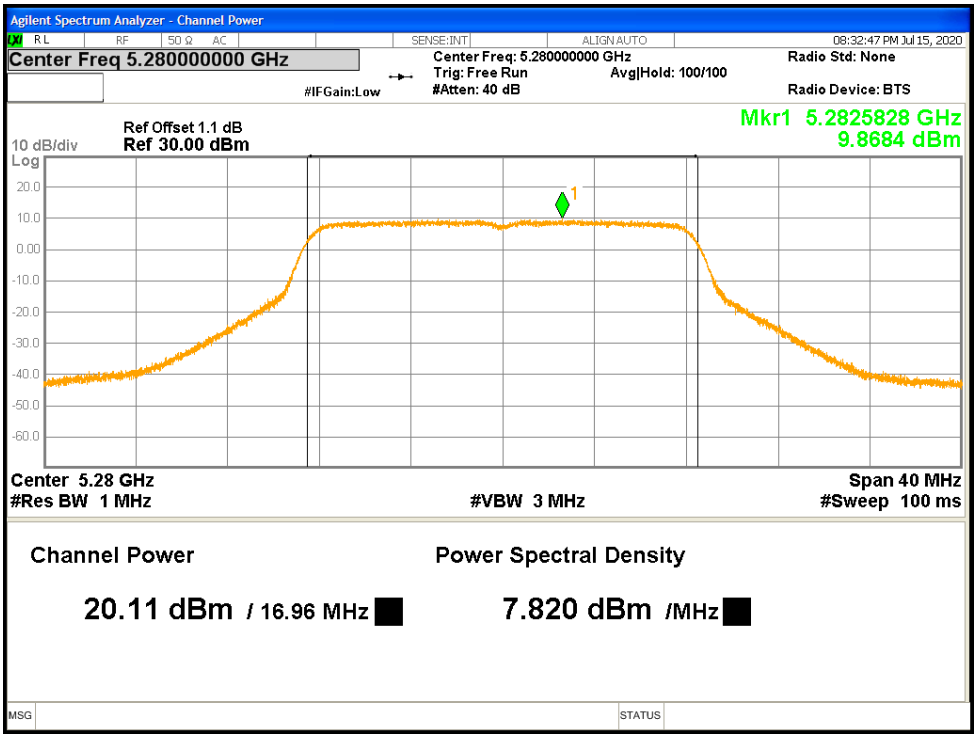


Figure 6: RSS Uncorrelated Max Conducted Power-5280 MHz-802.11a-6 Mbps-Ch1

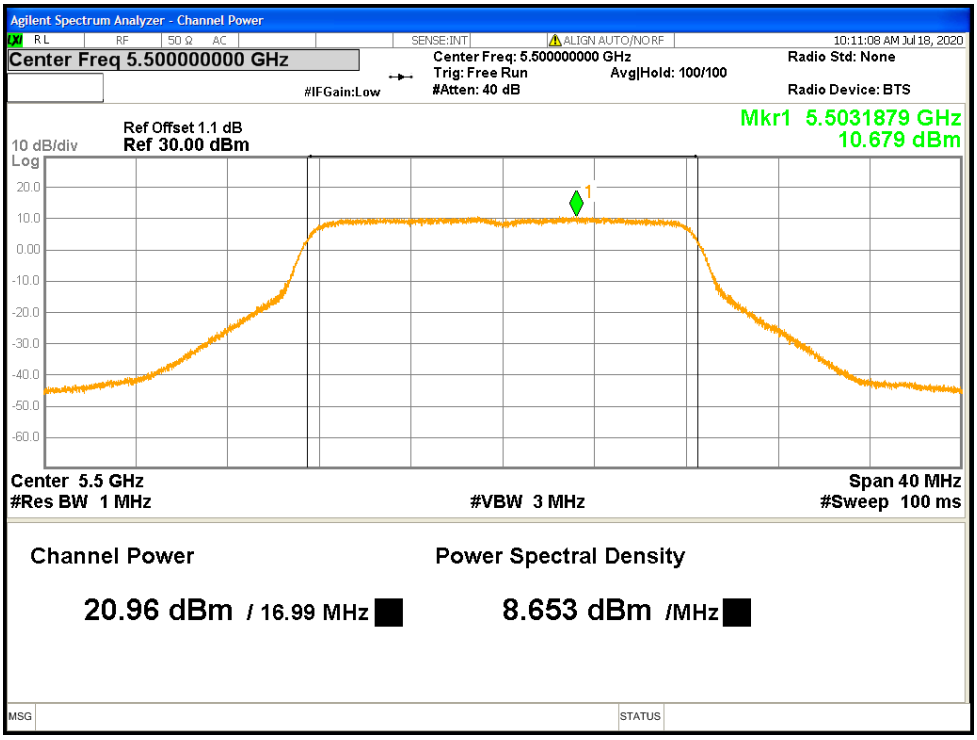


Figure 7: Uncorrelated Max Conducted Power-5500 MHz-802.11a-6 Mbps-Ch1

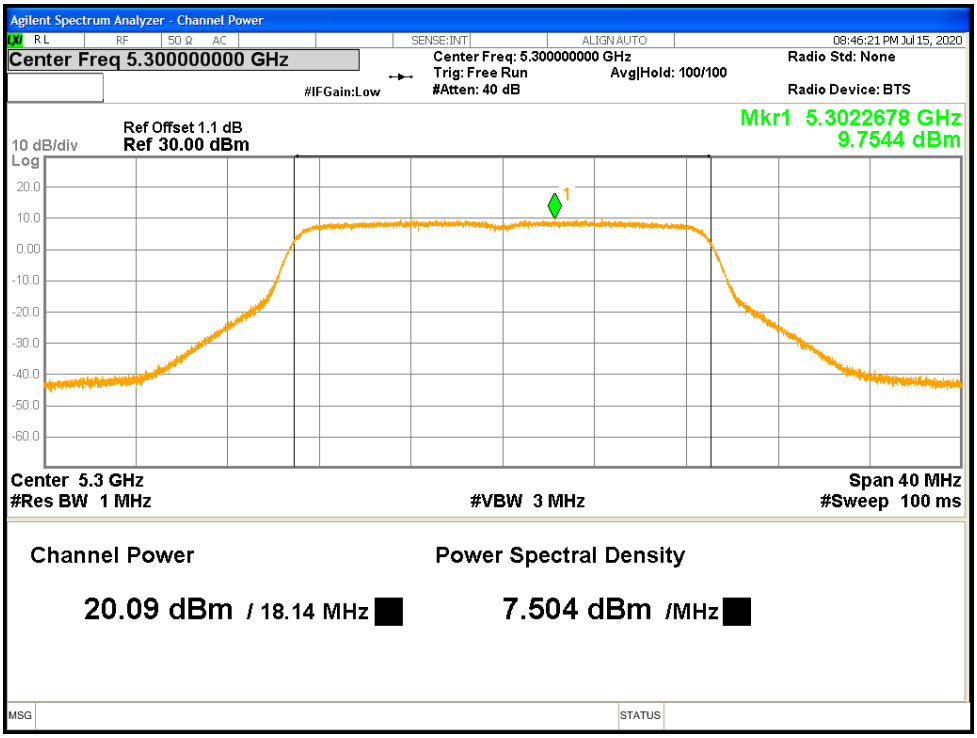


Figure 8: FCC Uncorrelated Max Conducted Power-5300 MHz-802.11n-HT20-MCS0-Ch1

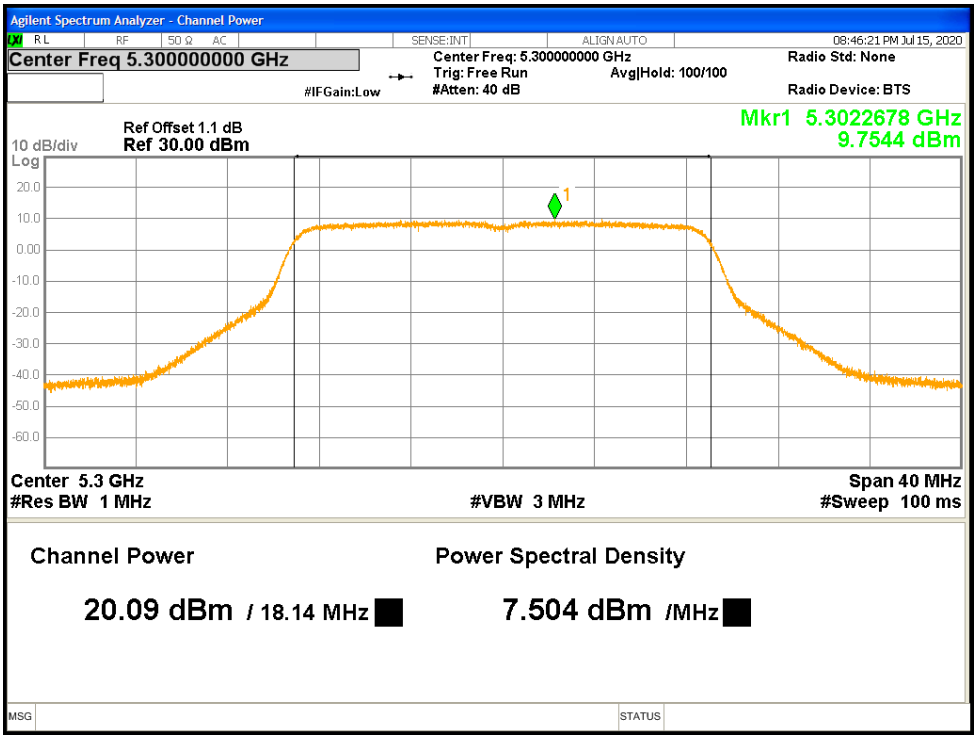


Figure 9: RSS Uncorrelated Max Conducted Power-5300 MHz-802.11n-HT20-MCS0-Ch1

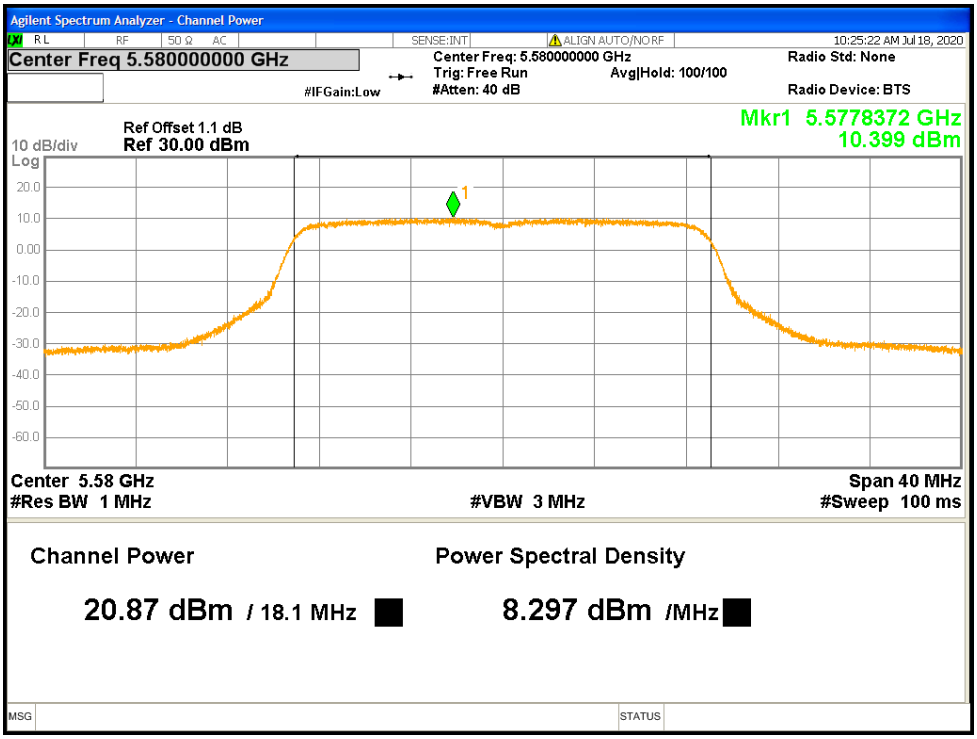


Figure 10: Uncorrelated Max Conducted Power-5580 MHz-802.11n-HT20-MCS0-Ch1

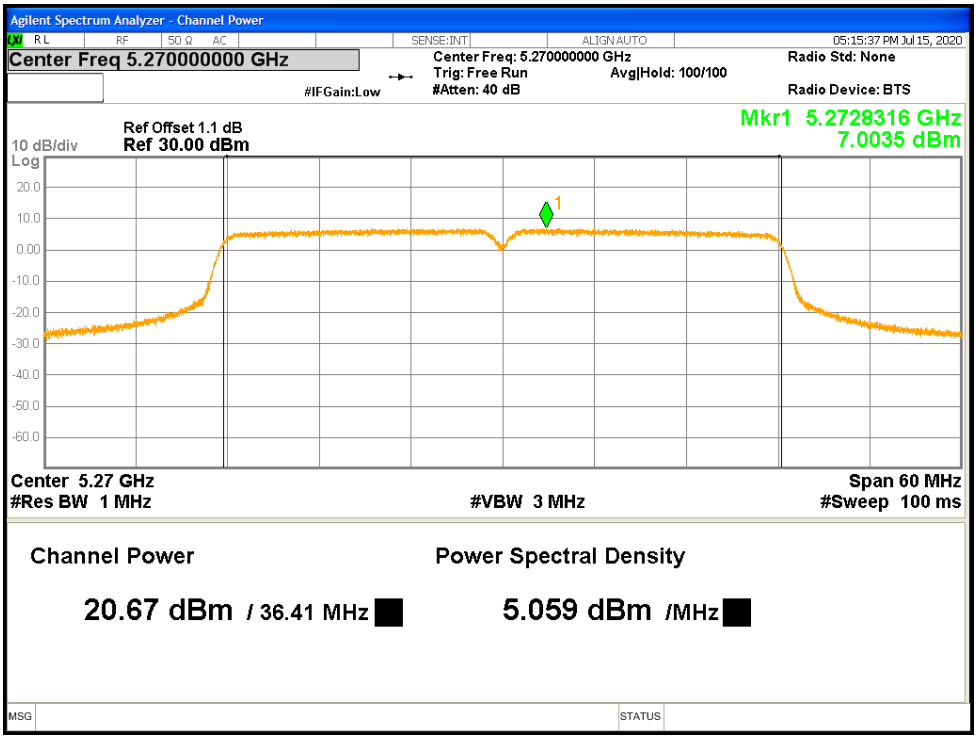


Figure 11: FCC Uncorrelated Max Conducted Power-5270 MHz-802.11n-HT40-MCS0-Ch0

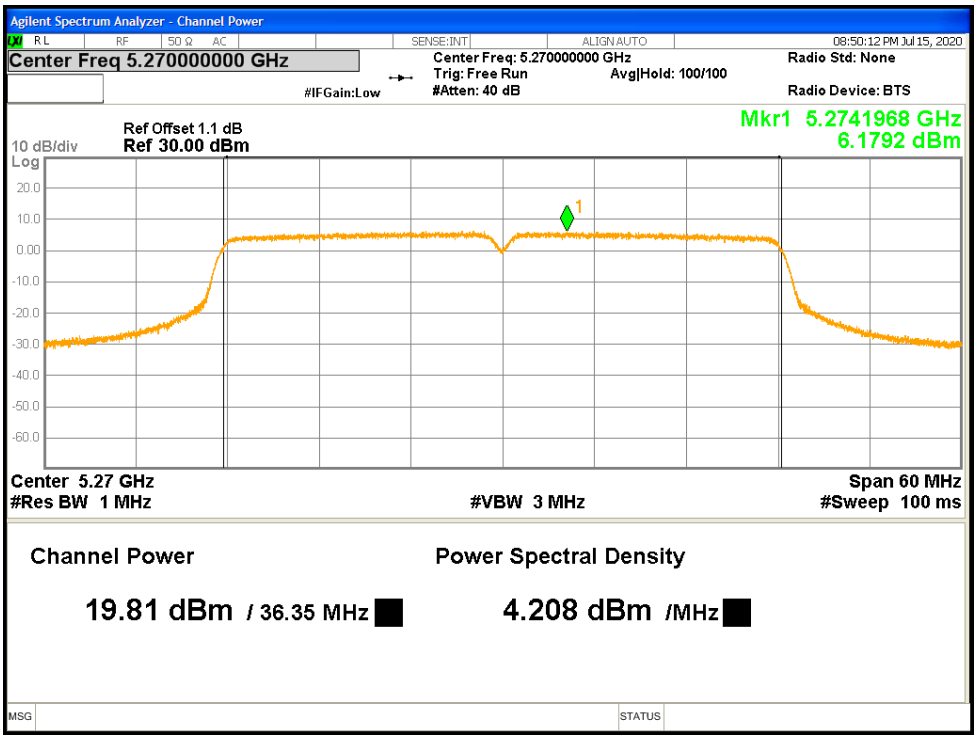


Figure 12: RSS Uncorrelated Max Conducted Power-5270 MHz-802.11n-HT40-MCS0-Ch0

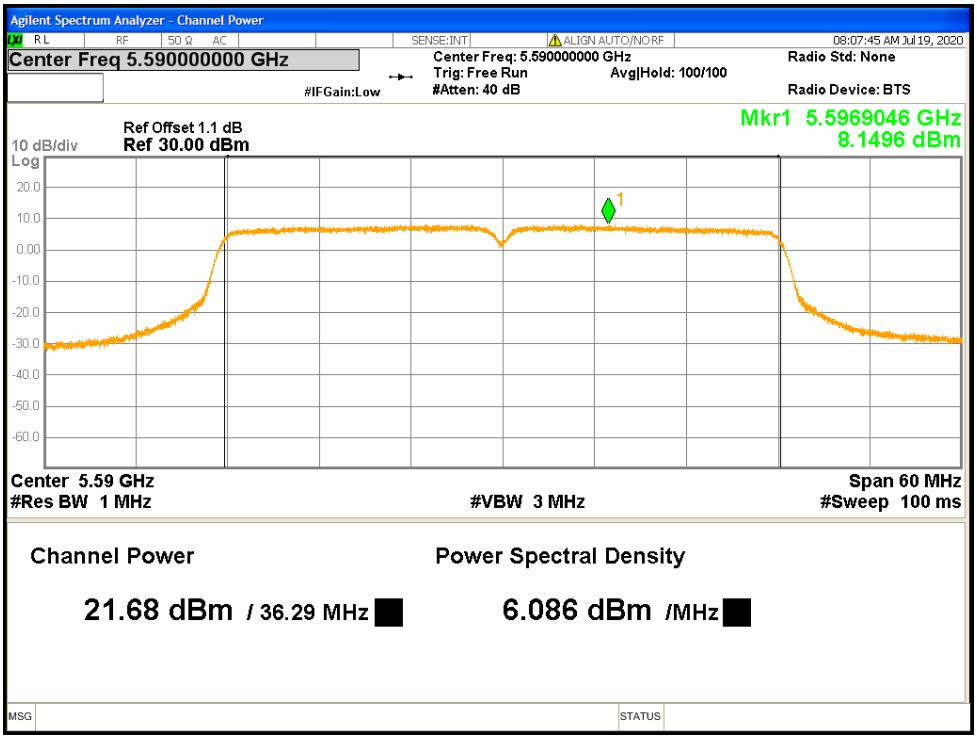


Figure 13: Uncorrelated Max Conducted Power-5590 MHz-802.11n-HT40-MCS0-Ch1

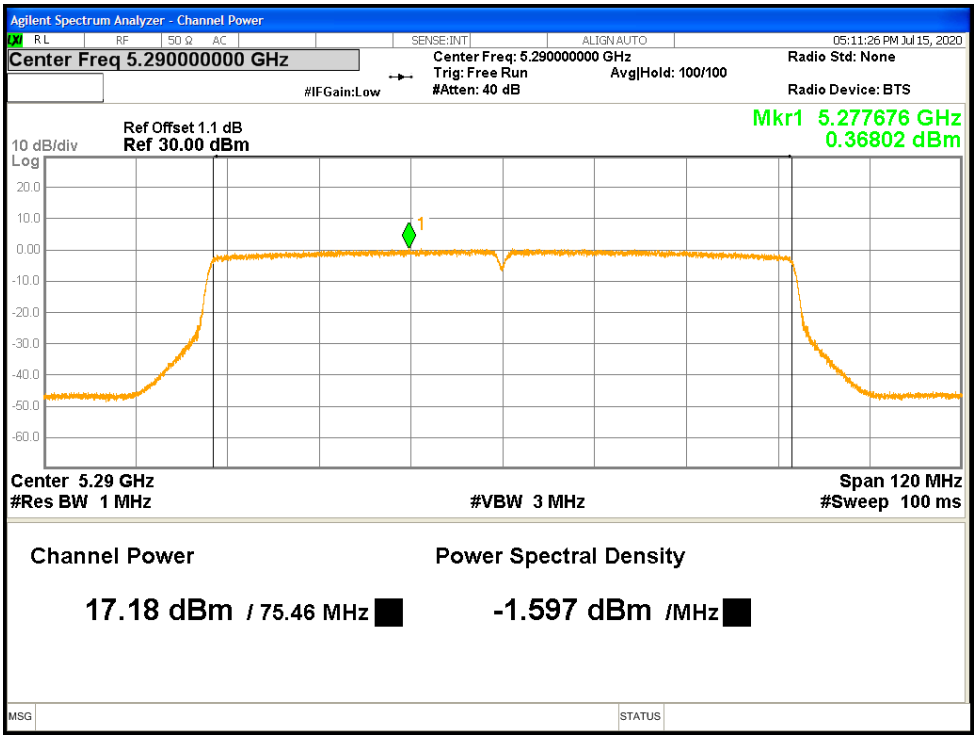


Figure 14: FCC Uncorrelated Max Conducted Power-5290 MHz-802.11ac-VHT80-MCS0-Ch0

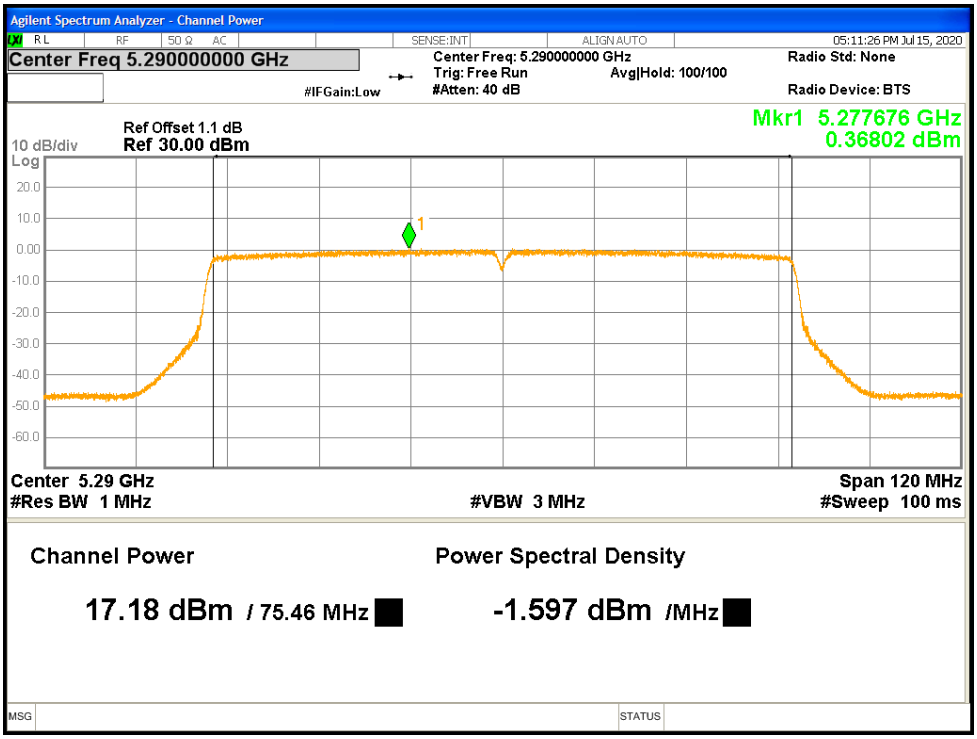


Figure 15: RSS Uncorrelated Max Conducted Power-5290 MHz-802.11ac-VHT80-MCS0-Ch0

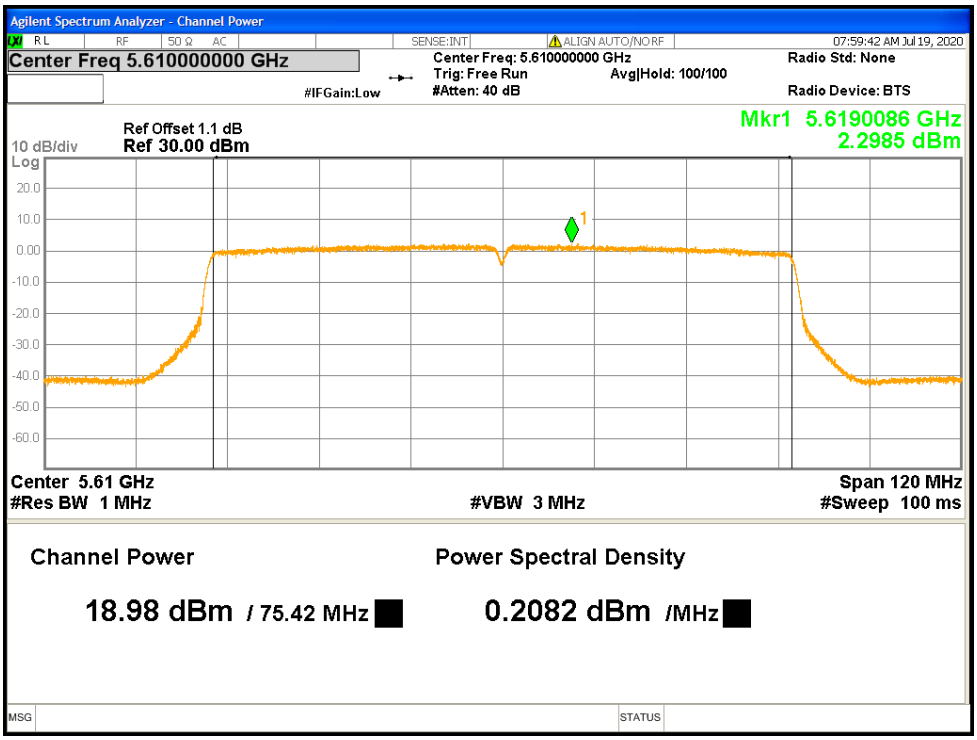


Figure 16: Uncorrelated Max Conducted Power-5610 MHz-802.11ac-VHT80-MCS0-Ch1

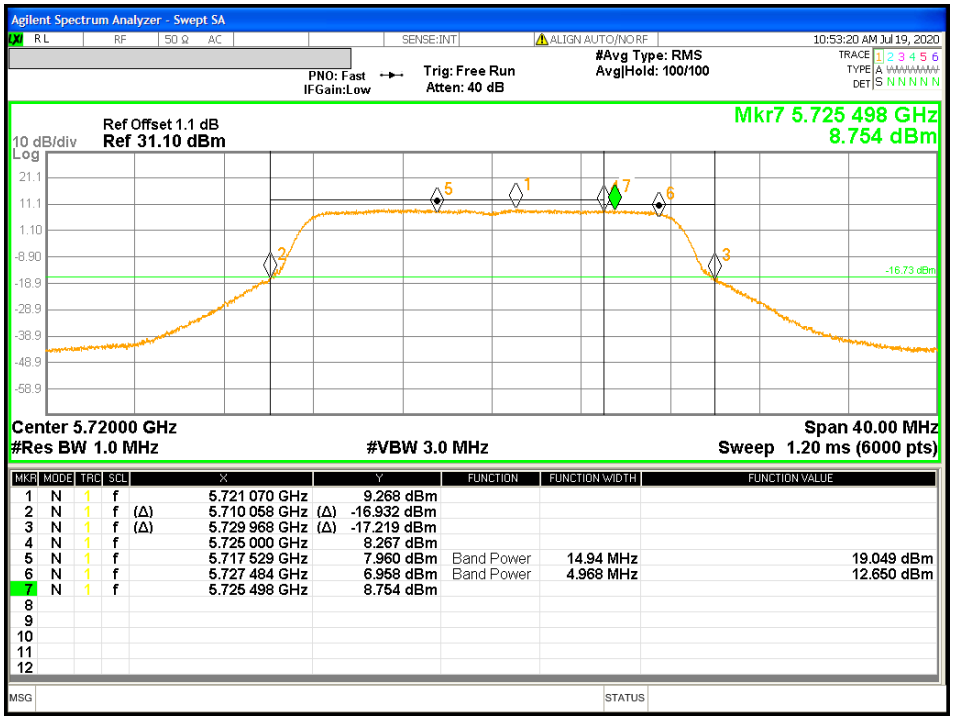


Figure 17: Uncorrelated Max Power & PSD-5720 MHz-802.11a-6Mbps-Ch0 (Straddle Channel in UNII2C & UNII3)

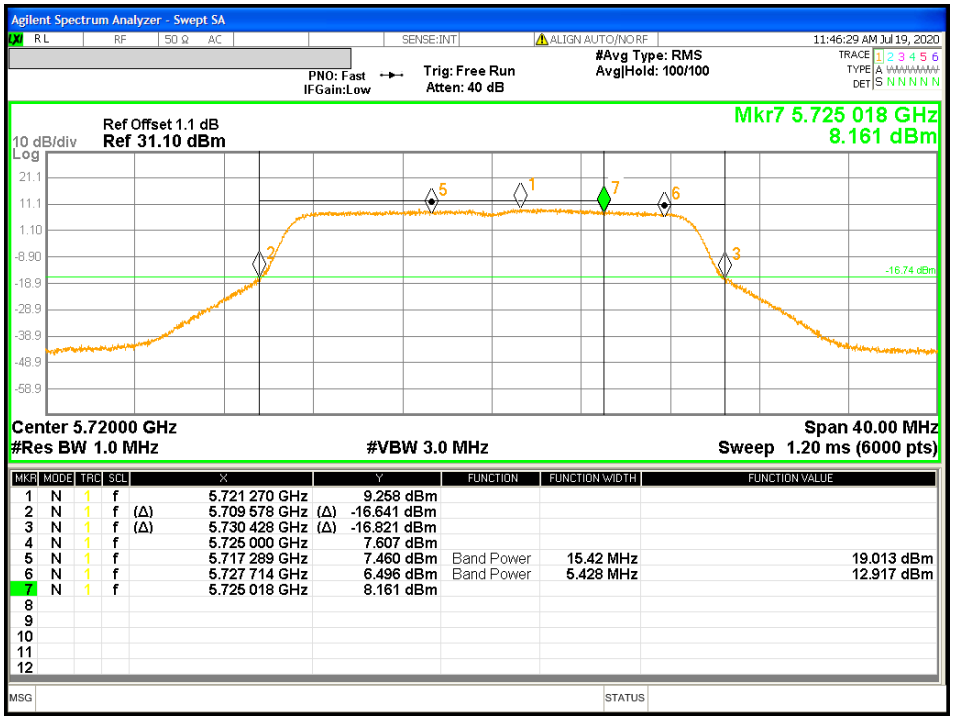


Figure 18: Uncorrelated Max Power & PSD-5720 MHz-802.11n-HT20-MCS0-Ch0 (Straddle Channel in UNII2C & UNII3)

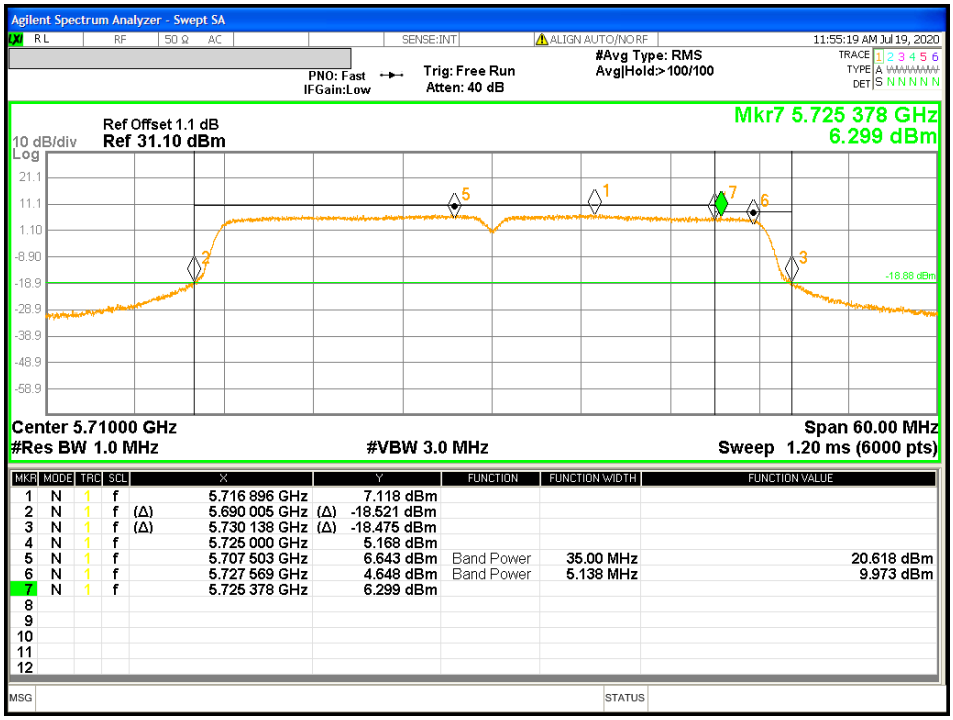


Figure 19: Uncorrelated Max Power & PSD-5710 MHz-802.11n-HT40-MCS0-Ch0 (Straddle Channel in UNII2C & UNII3)

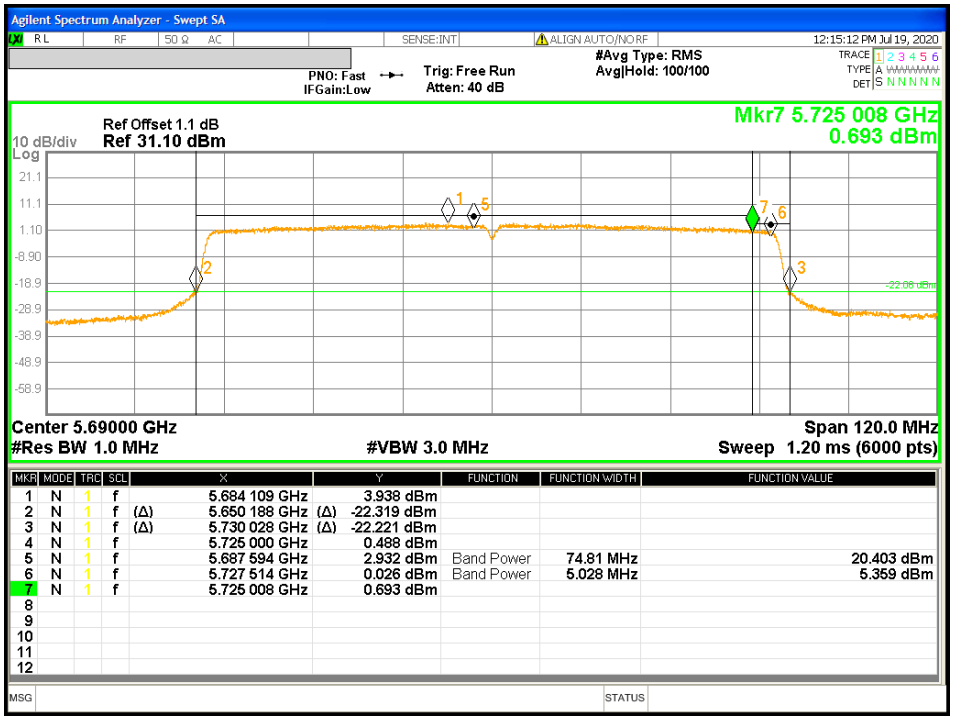


Figure 20: Uncorrelated Max Power & PSD-5690 MHz-802.11ac-VHT80-MCS0-Ch0 (Straddle Channel in UNII2C & UNII3)

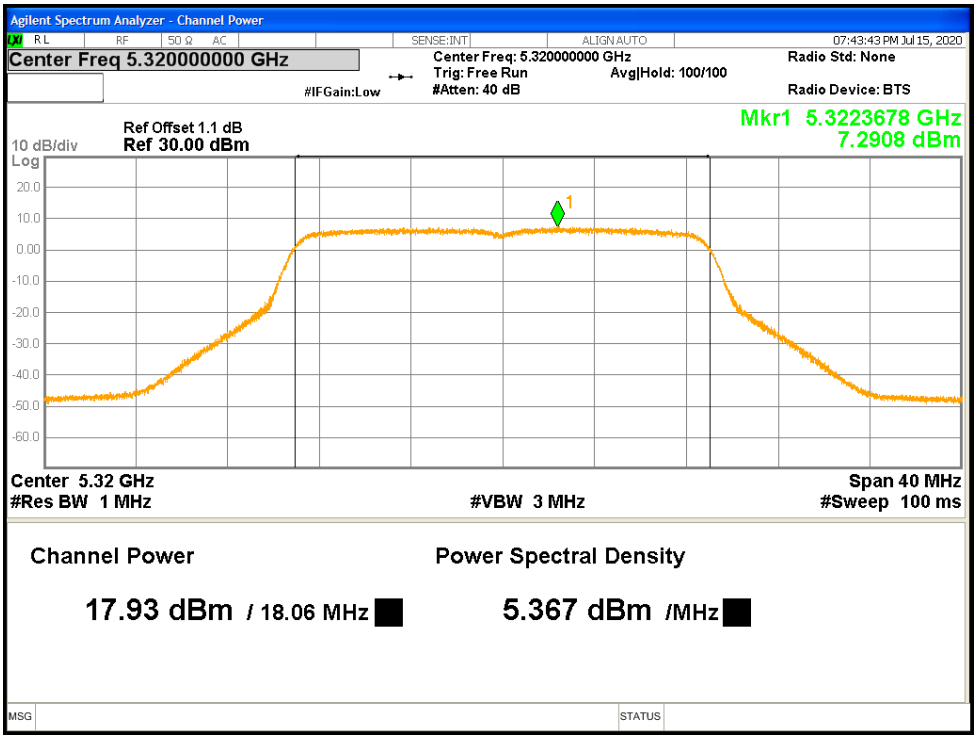


Figure 21: FCC Correlated Max Conducted Power-5320 MHz-802.11n-HT20-MCS0-Ch0

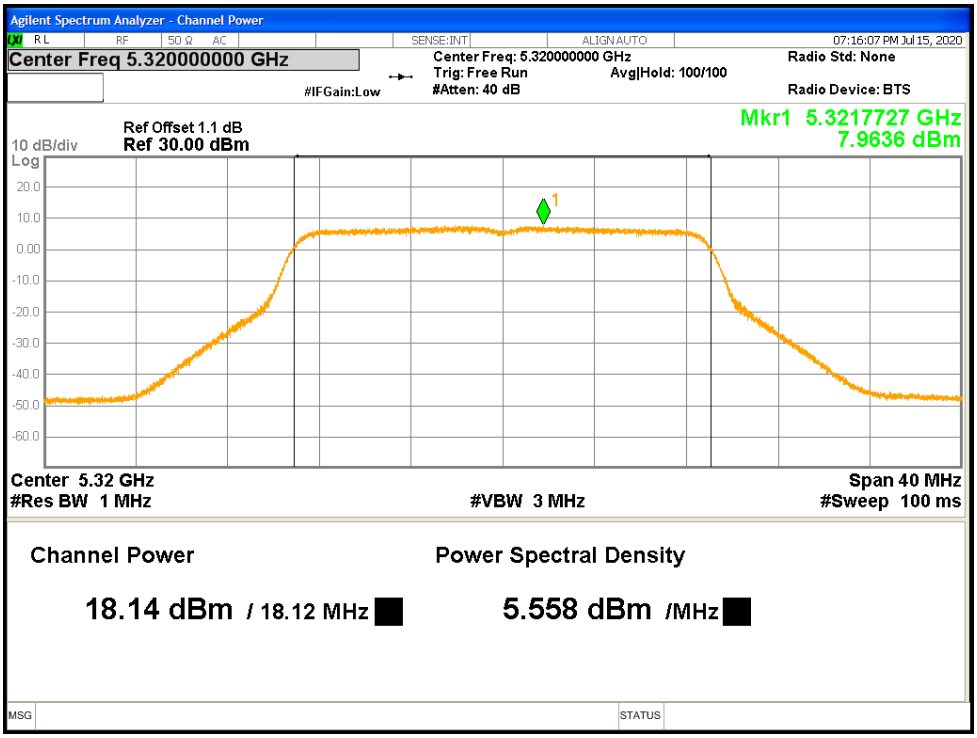


Figure 22: FCC Correlated Max Conducted Power-5320 MHz-802.11n-HT20-MCS0-Ch1

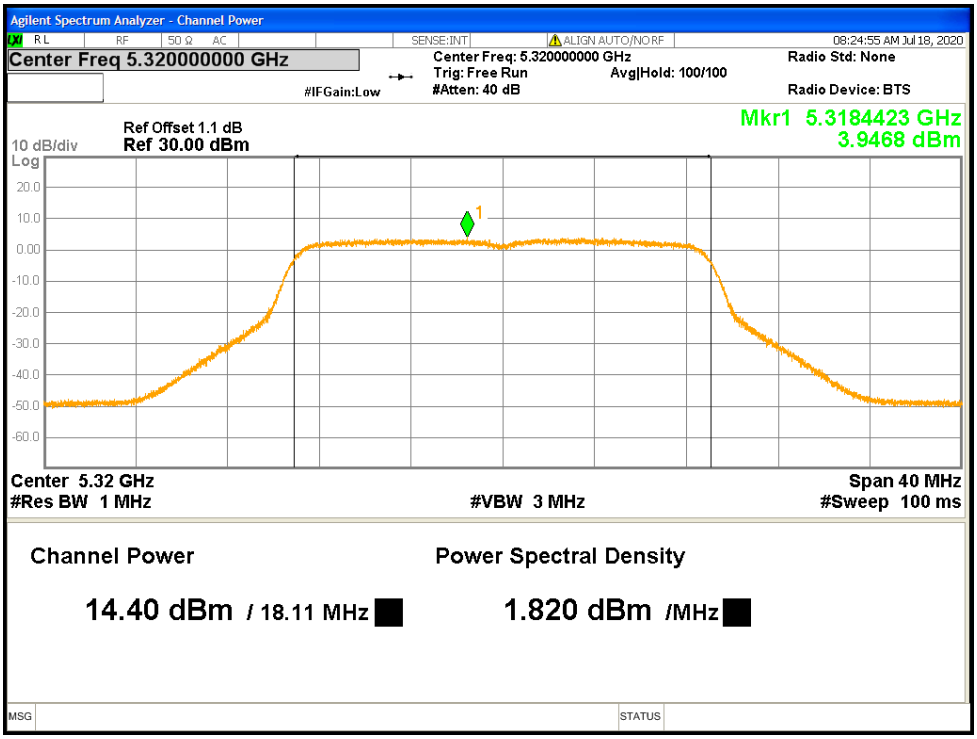


Figure 23: RSS Correlated Max Conducted Power-5320 MHz-802.11n-HT20-MCS0-Ch0

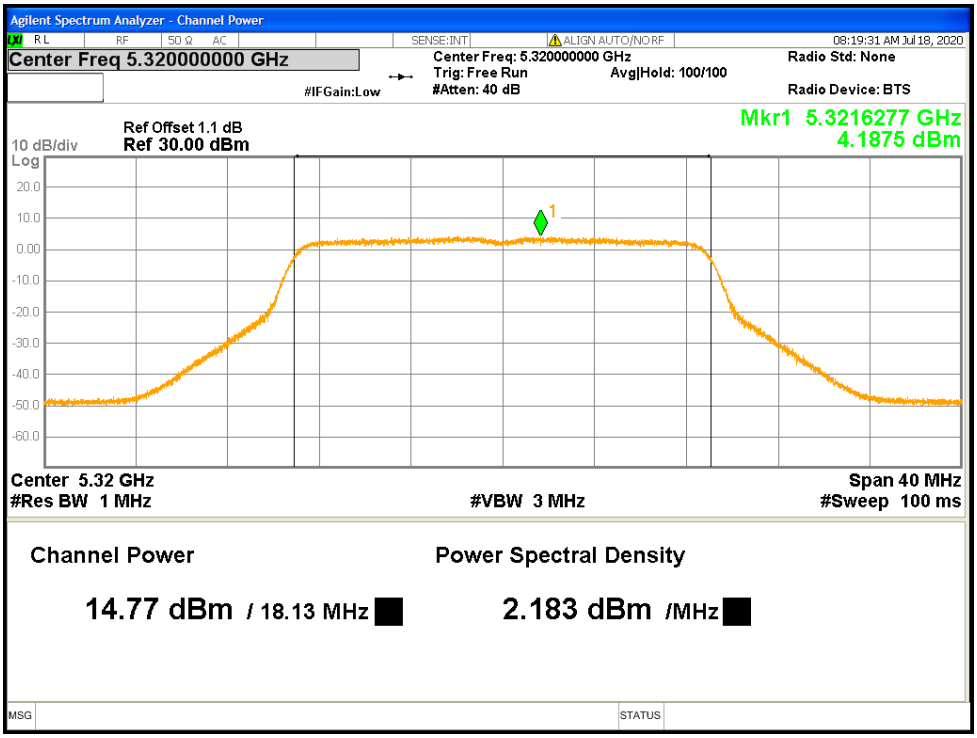


Figure 24: RSS Correlated Max Conducted Power-5320 MHz-802.11n-HT20-MCS0-Ch1

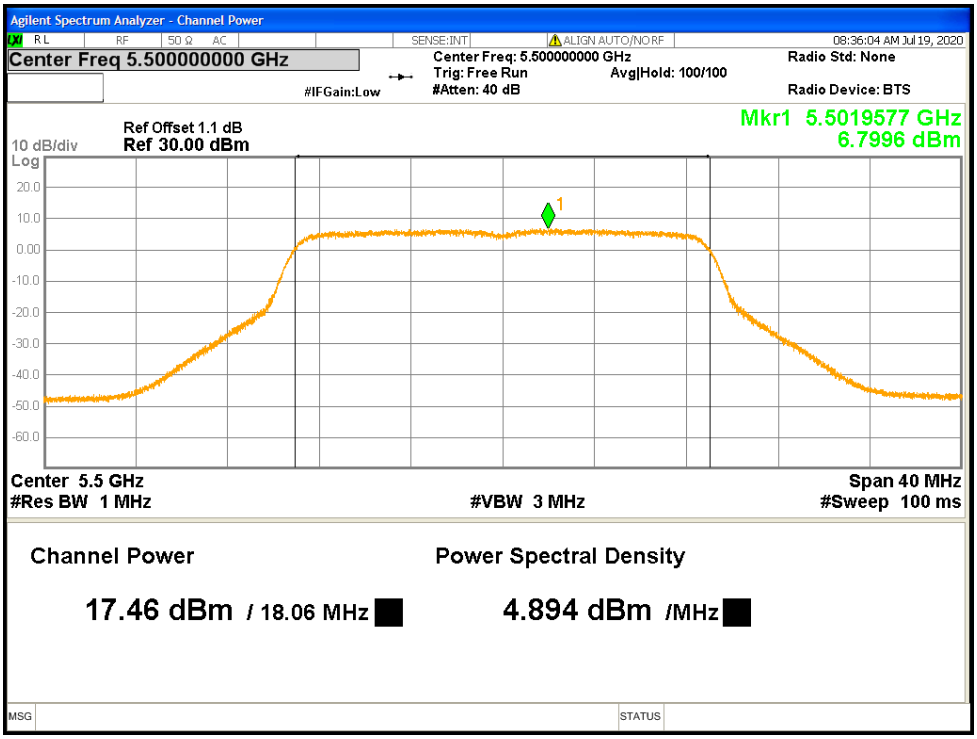


Figure 25: Correlated Max Conducted Power-5500 MHz-802.11n-HT20-MCS0-Ch0

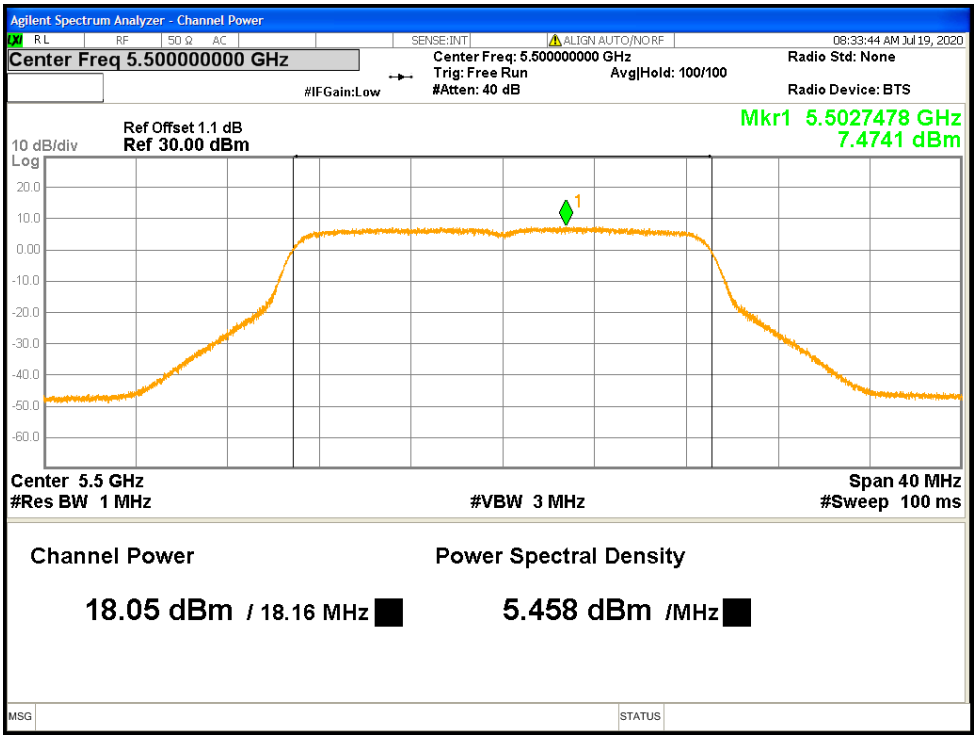


Figure 26: Correlated Max Conducted Power-5500 MHz-802.11n-HT20-MCS0-Ch1

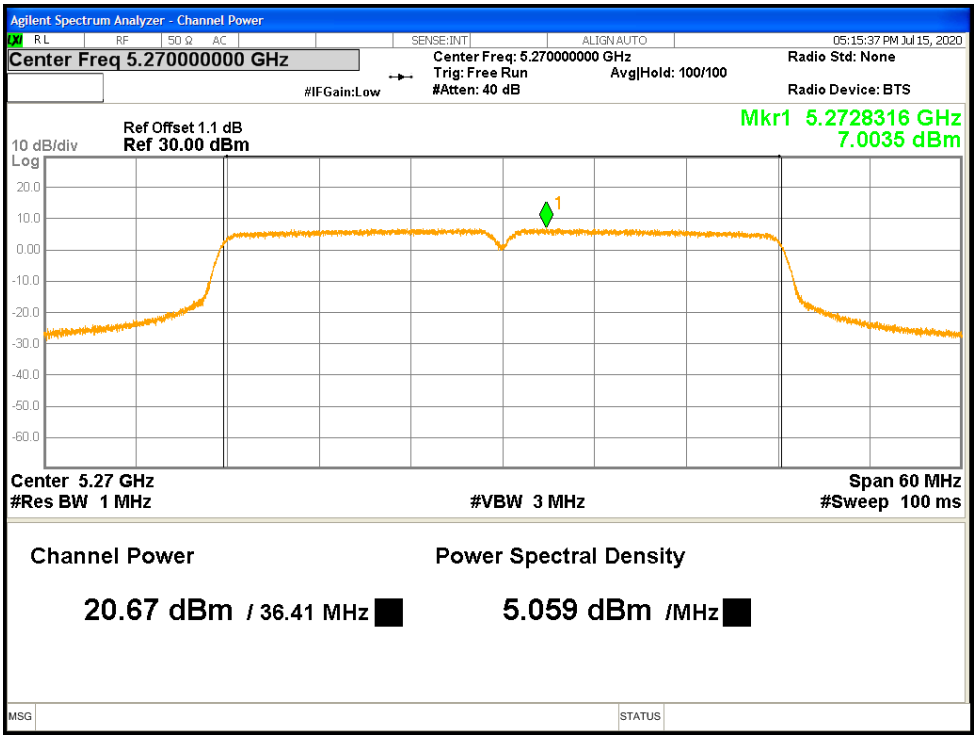


Figure 27: FCC Correlated Max Conducted Power-5270 MHz-802.11n-HT40-MCS0-Ch0

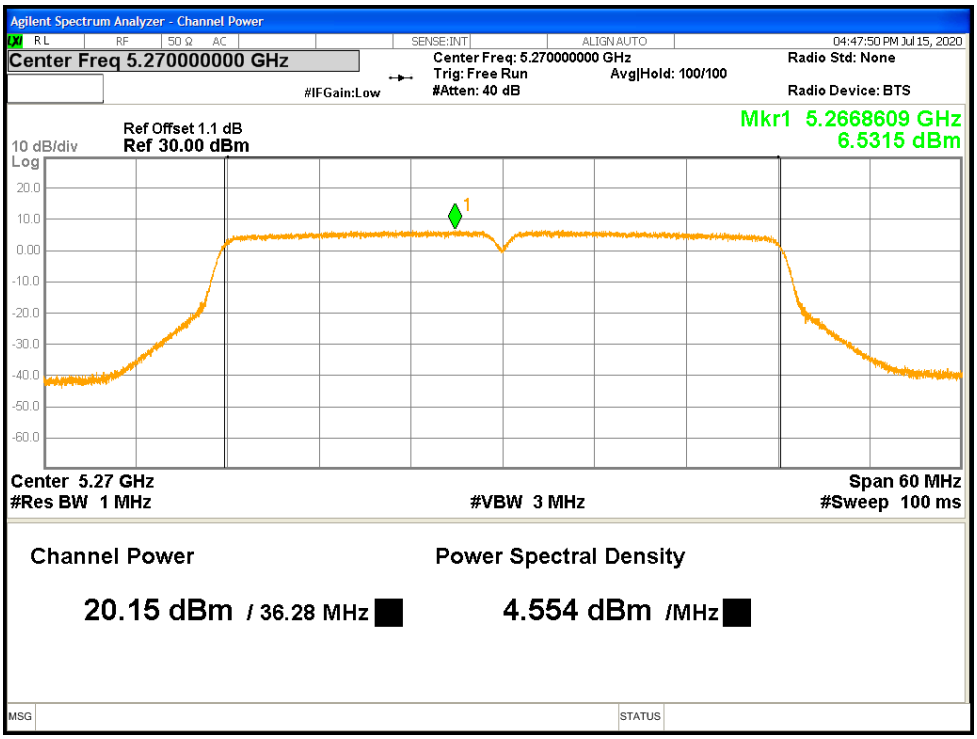


Figure 28: FCC Correlated Max Conducted Power-5270 MHz-802.11n-HT40-MCS0-Ch1

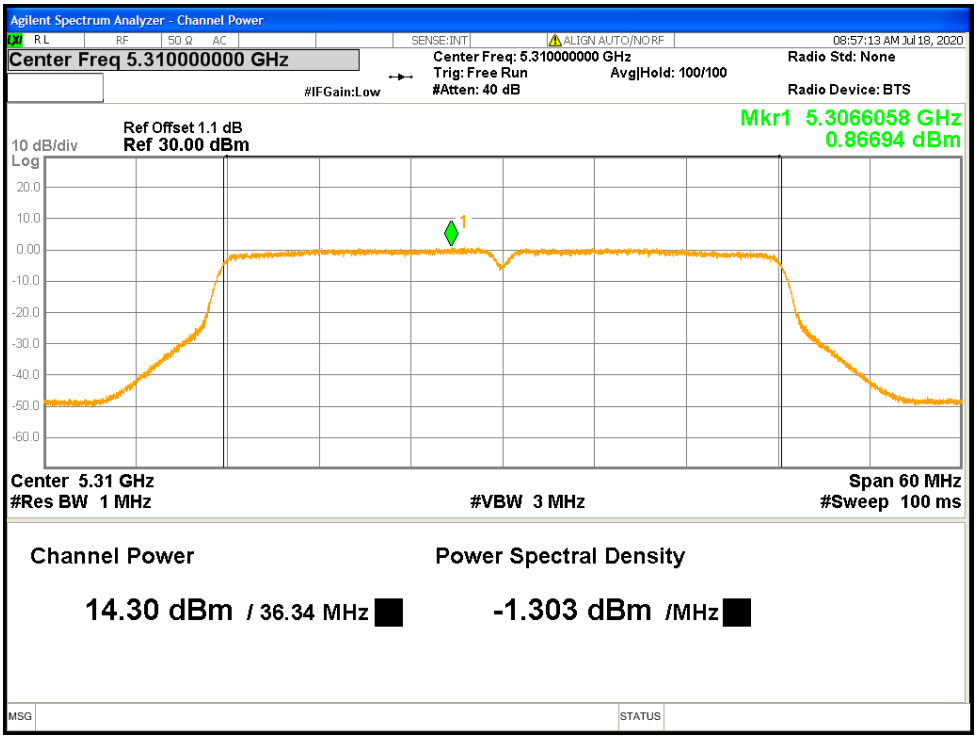


Figure 29: RSS Correlated Max Conducted Power-5310 MHz-802.11n-HT40-MCS0-Ch0

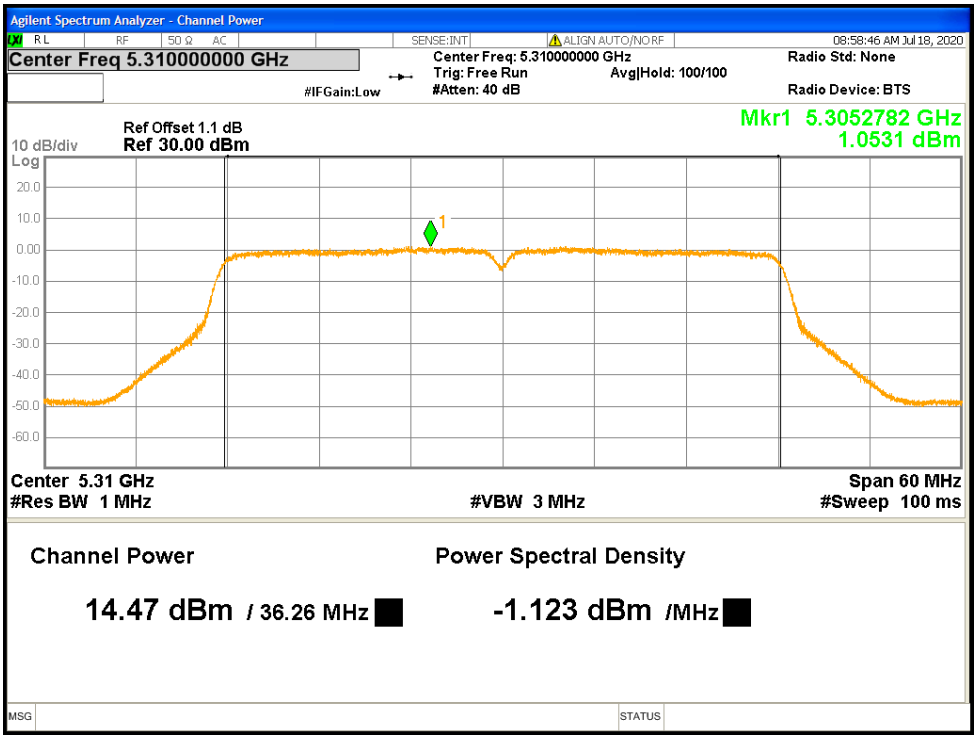


Figure 30: RSS Correlated Max Conducted Power-5310 MHz-802.11n-HT40-MCS0-Ch1

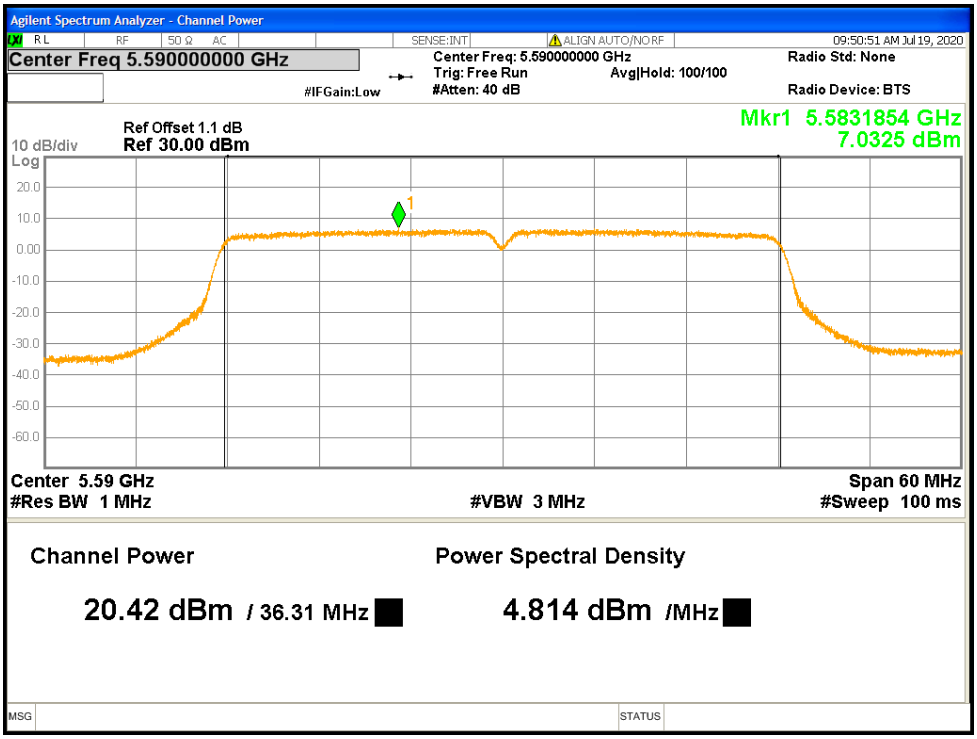


Figure 31: Correlated Max Conducted Power-5590 MHz-802.11n-HT40-MCS0-Ch0

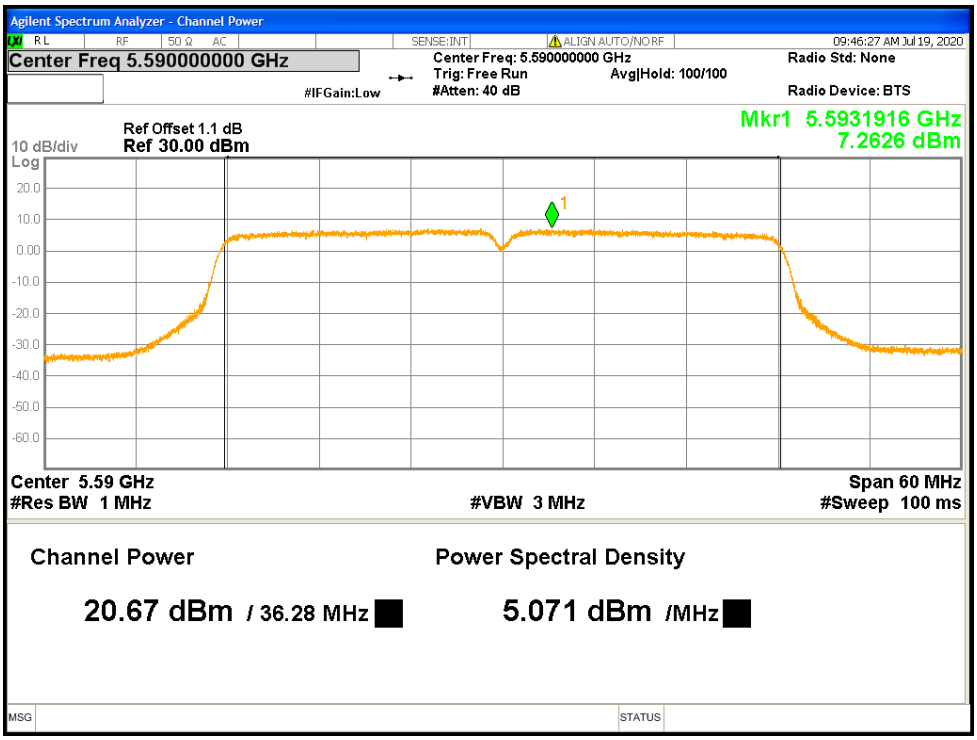


Figure 32: Correlated Max Conducted Power-5590 MHz-802.11n-HT40-MCS0-Ch1

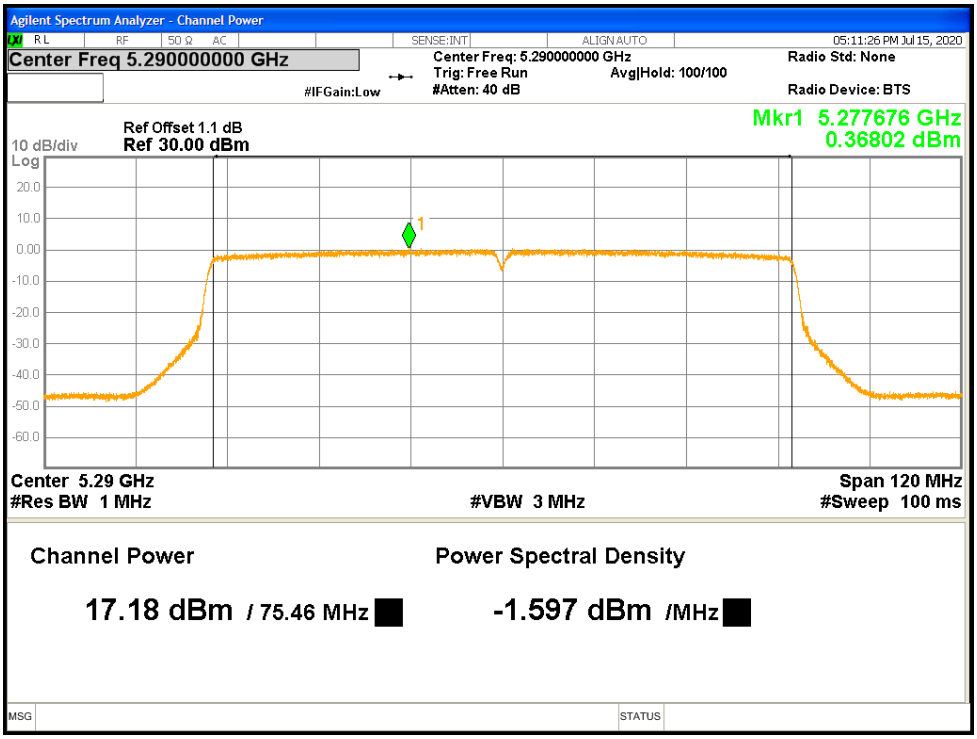


Figure 33: FCC Correlated Max Conducted Power-5290 MHz-802.11ac-VHT80-MCS0-Ch0

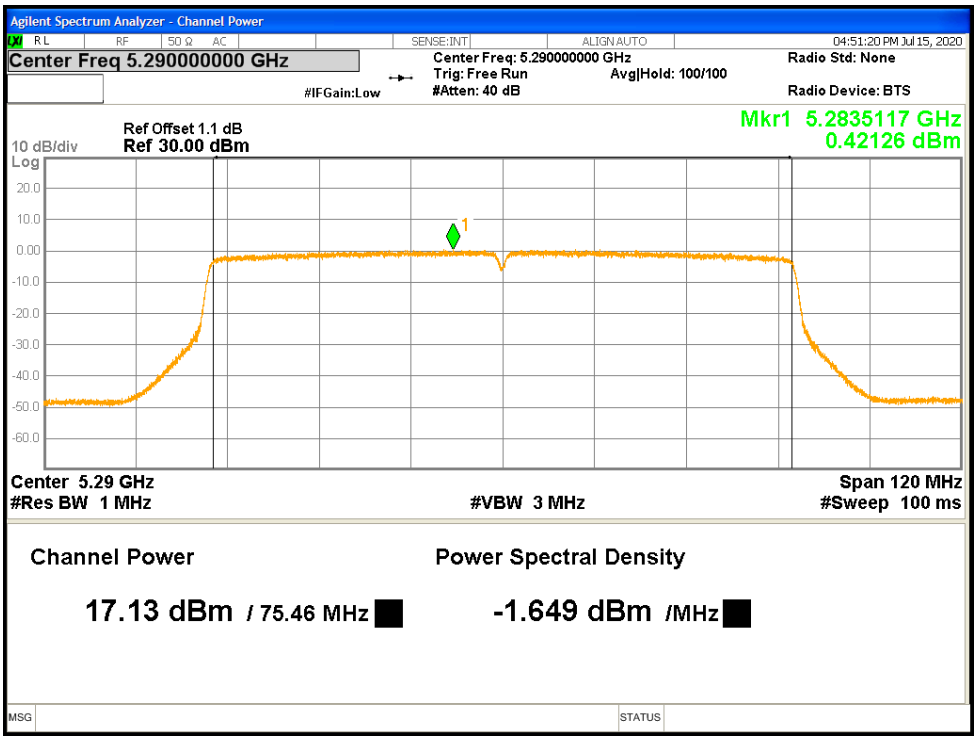


Figure 34: FCC Correlated Max Conducted Power-5290 MHz-802.11ac-VHT80-MCS0-Ch1

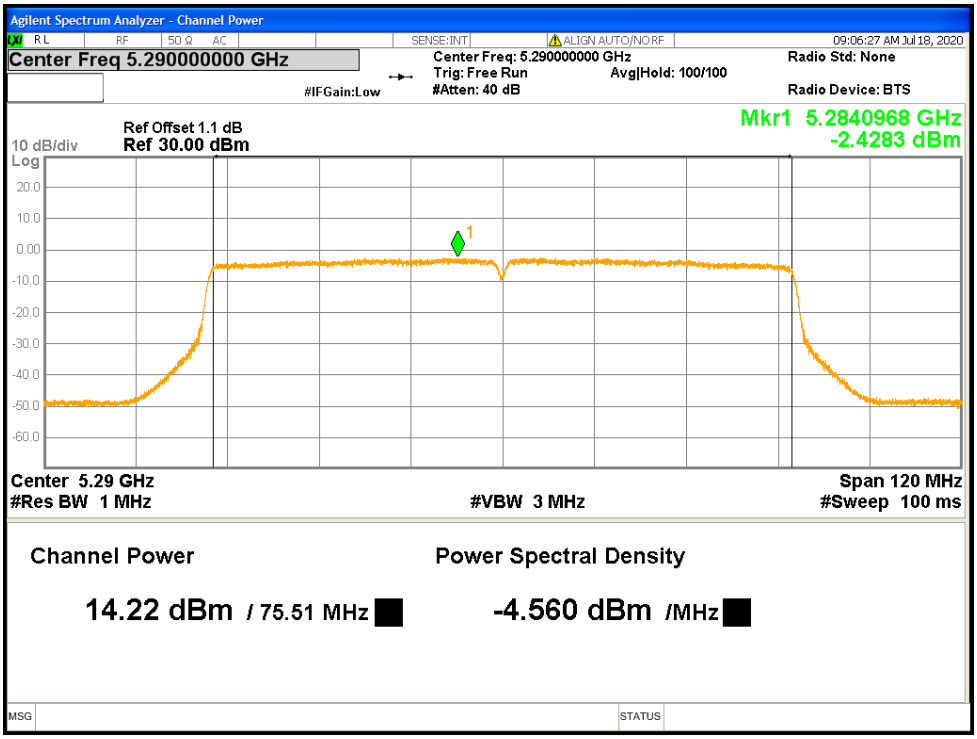


Figure 35: RSS Correlated Max Conducted Power-5290 MHz-802.11ac-VHT80-MCS0-Ch0

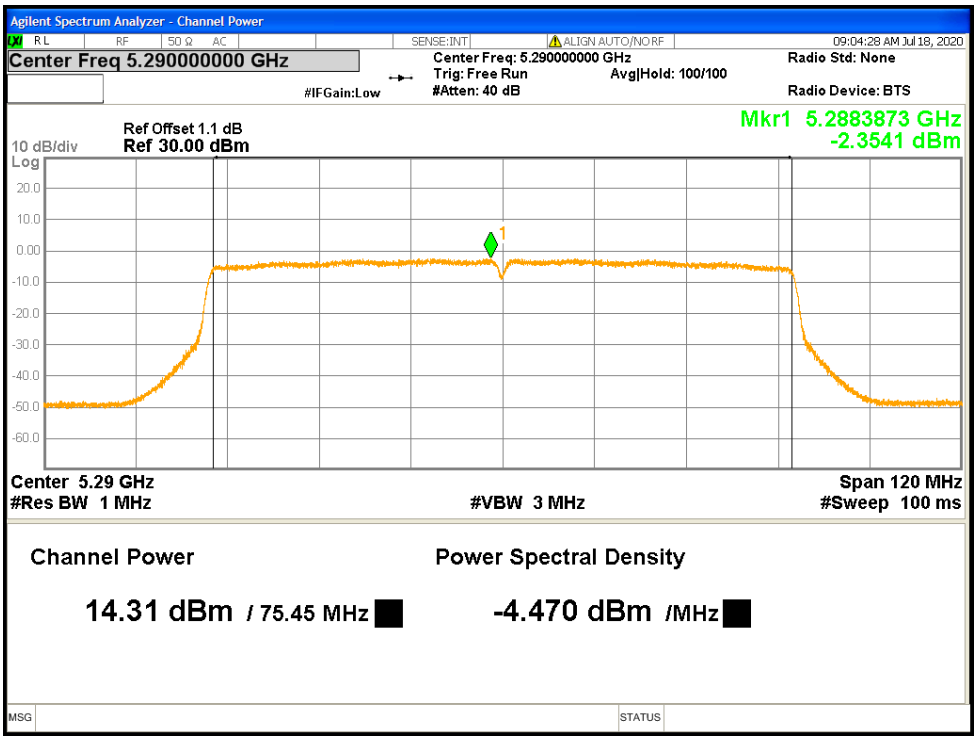


Figure 36: RSS Correlated Max Conducted Power-5290 MHz-802.11ac-VHT80-MCS0-Ch1

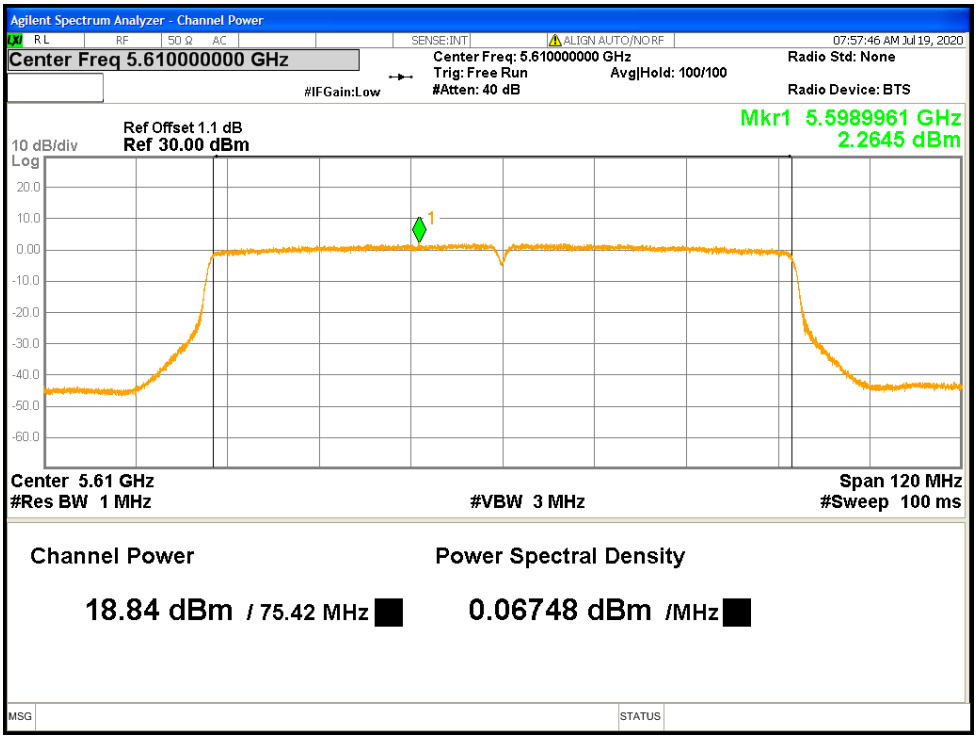


Figure 37: Correlated Max Conducted Power-5610 MHz-802.11ac-VHT80-MCS0-Ch0

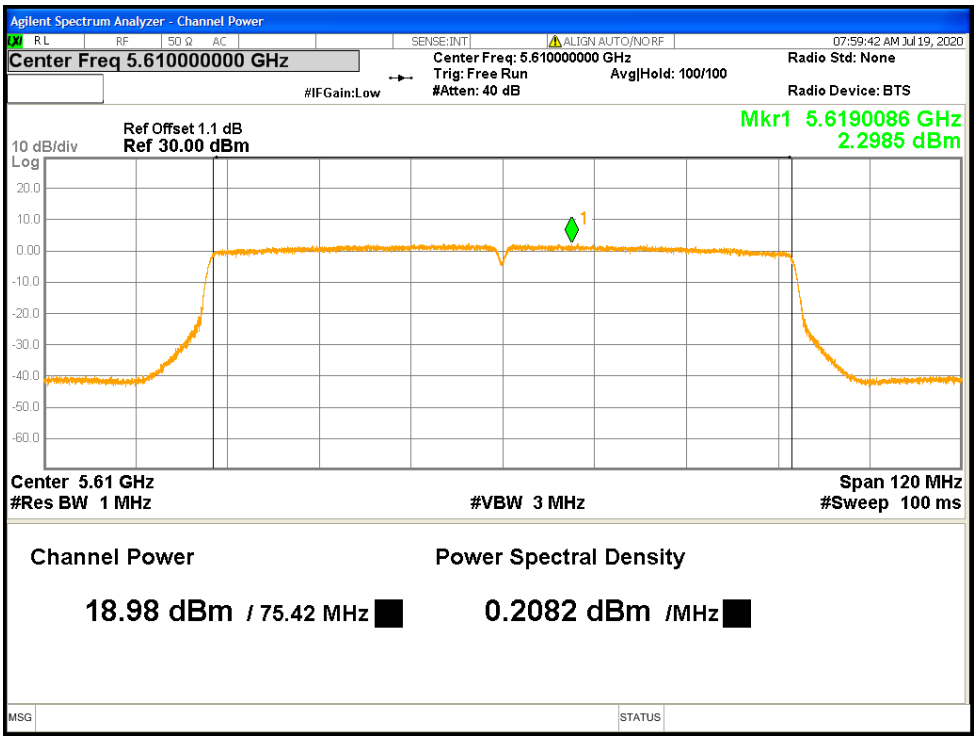


Figure 38: Correlated Max Conducted Power-5610 MHz-802.11ac-VHT80-MCS0-Ch1

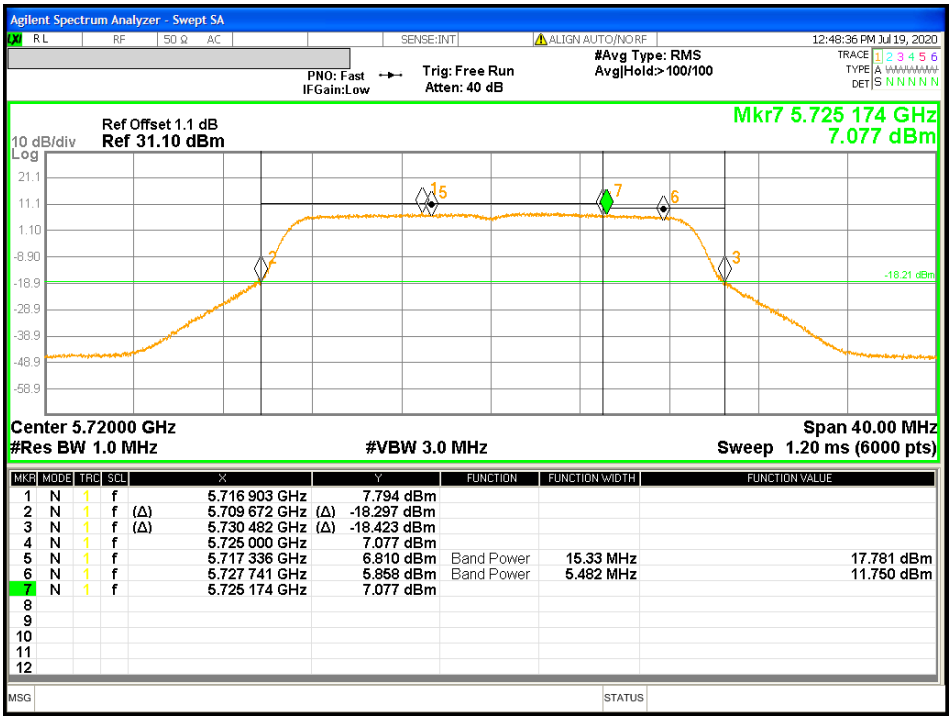


Figure 39: Correlated Max Power & PSD-5720 MHz-802.11n-HT20-MCS0-Ch0 (Straddle Channel in UNII2C & UNII3)

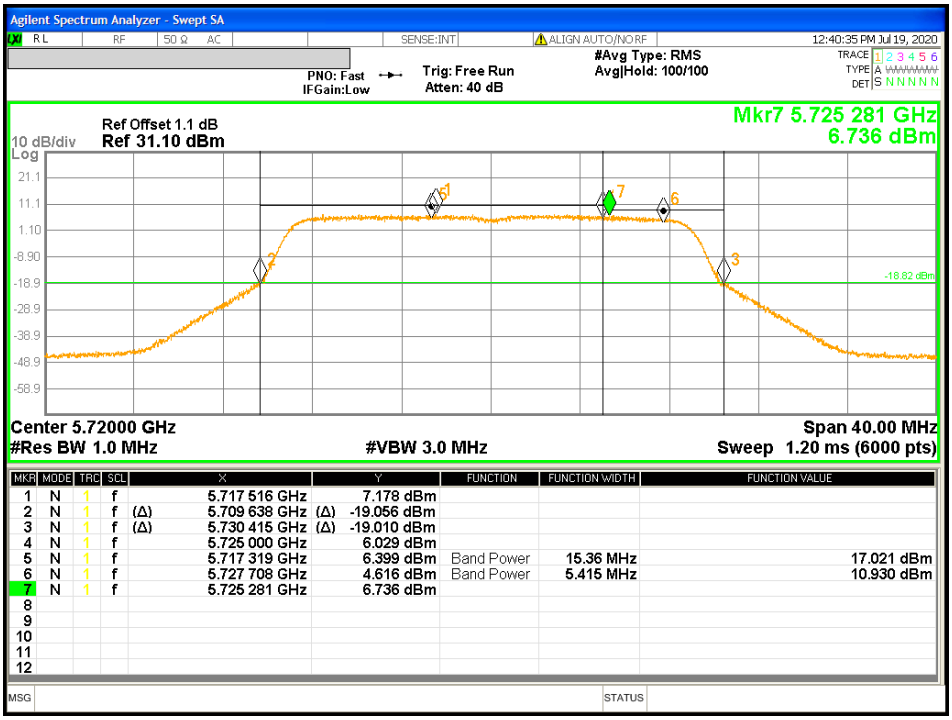


Figure 40: Correlated Max Power & PSD-5720 MHz-802.11n-HT20-MCS0-Ch1 (Straddle Channel in UNII2C & UNII3)

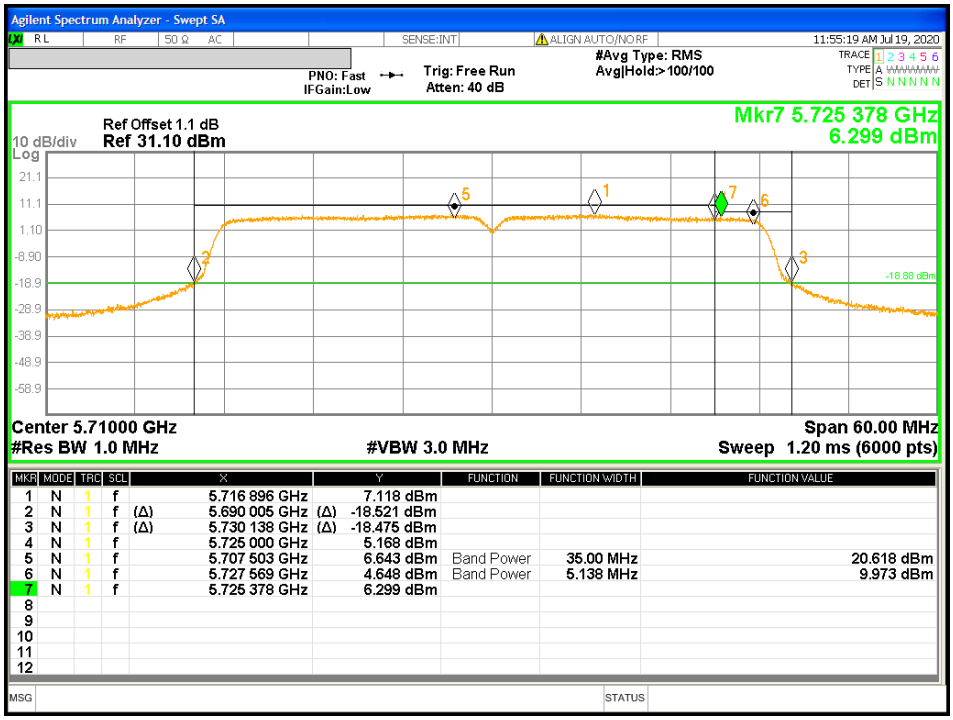


Figure 41: Correlated Max Power & PSD-5710 MHz-802.11n-HT40-MCS0-Ch0 (Straddle Channel in UNII2C & UNII3)

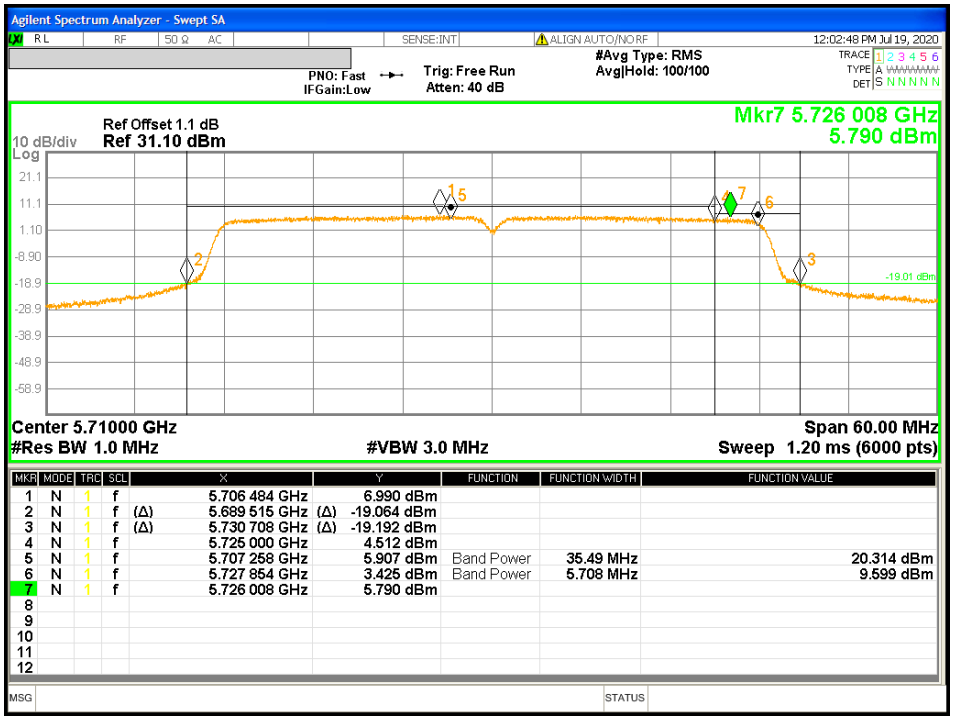


Figure 42: Correlated Max Power & PSD-5710 MHz-802.11n-HT40-MCS0-Ch1 (Straddle Channel in UNII2C & UNII3)

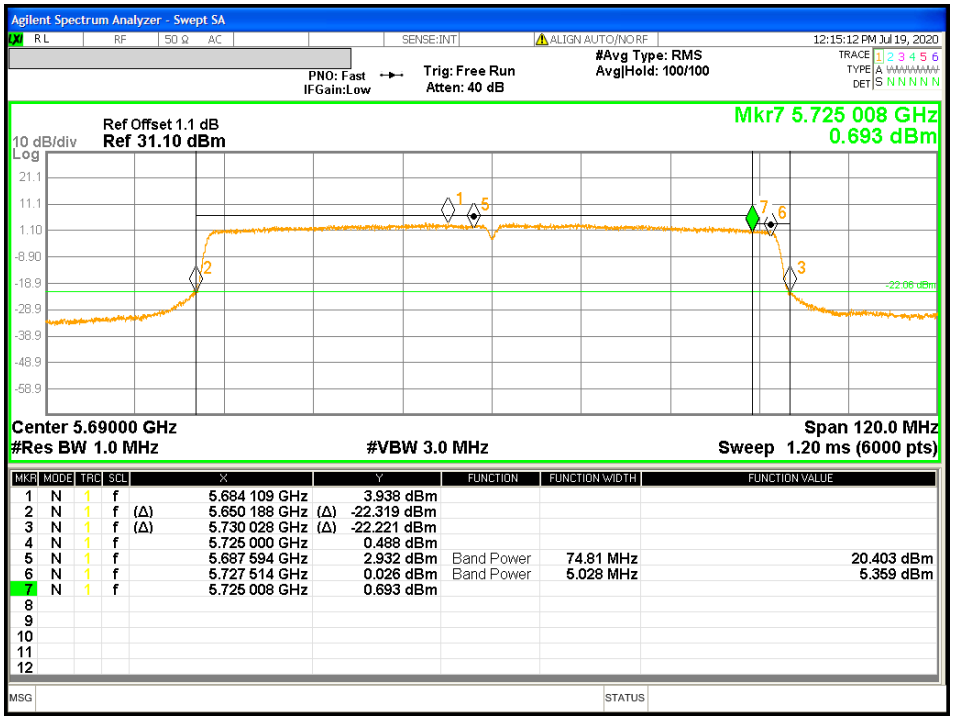


Figure 43: Correlated Max Power & PSD-5690 MHz-802.11ac-VHT80-MCS0-Ch0 (Straddle Channel in UNII2C & UNII3)

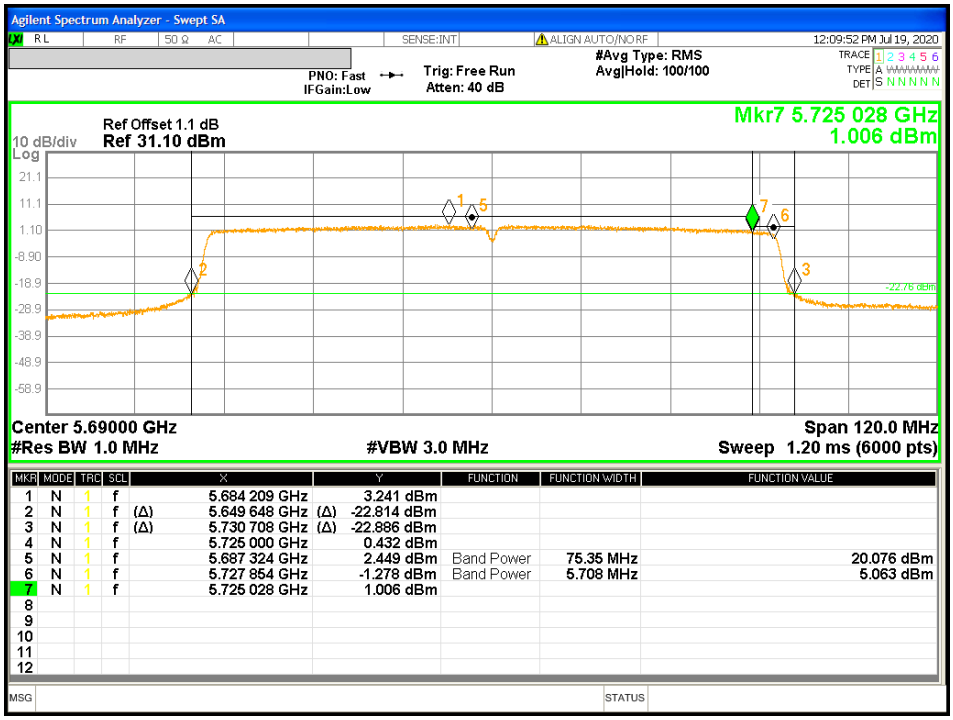


Figure 44: Correlated Max Power & PSD-5710 MHz-802.11ac-VHT80-MCS0-Ch1 (Straddle Channel in UNII2C & UNII3)

4.2 Occupied Bandwidth

The occupied bandwidth is measured at an amplitude level reduced from the reference level by a specified ratio. The reference level is the level of the highest amplitude signal observed from the transmitter at the fundamental frequency.

The 99% bandwidth is the bandwidth in which 99% of the transmitted power occupied.

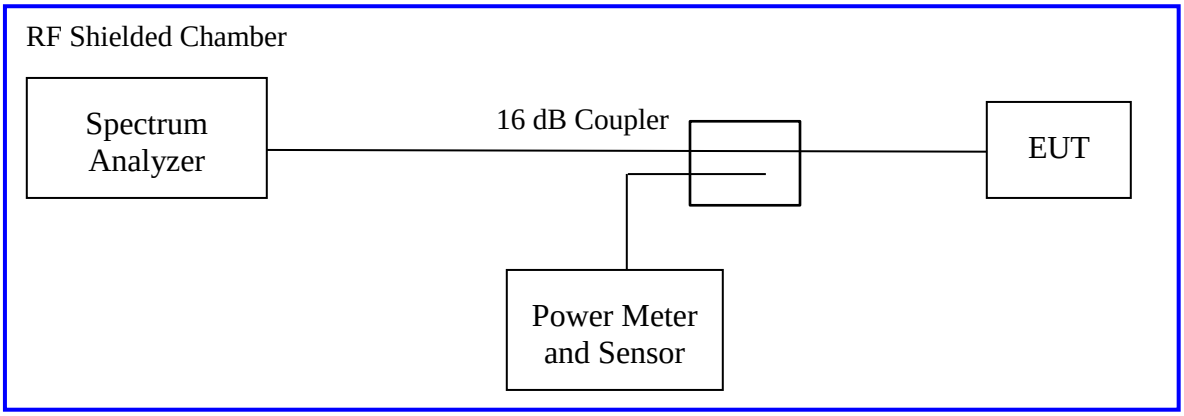
The 26 dB bandwidth is defined the bandwidth of 26 dBr from highest transmitted level of the fundamental frequency.

There is no restriction limits for the bandwidth. The 26 dB bandwidth was used to determine the limit for maximum conducted output power per CFR47 Part 15.407(a).

4.2.1 Test Method

The conducted method was used to measure the occupied bandwidth. The measurement was performed with modulation per CFR47 15.407(a), RSS Gen Sect.6.7. The preliminary investigation was performed to find the narrowest 26 dB bandwidth for each operational mode at different data rates. This worst finding was performed on 3 channels in each operating frequency range. The worst results indicated below.

Test Setup:



4.2.2 Results

As originally tested, the EUT was found to be compliant to the requirements of the test standard(s).

Table 9: Occupied Bandwidth – Test Results

Date: July 8 - 22, 2020	**Tested By:** Kerwinn Corpuz
Test Method: Conducted Measurements	**Power Setting:** See test plan.
Antenna Type: FPCB	**Max Antenna Gain:** UNII2A = 2.37 dBi; UNII2C = 3.57 dBi
Operating Mode: Uncorrelated	**Signal State:** Modulated at 92.3% (11a); 93.2% (HT20)
Ambient Temp.: 22 - 23 °C	**Relative Humidity:** 35 - 38%

802.11a, 6Mbps

Frequency (MHz)	99% Bandwidth (MHz)		26 dB Bandwidth (MHz)		Limit (kHz)
	Ch0	Ch1	Ch0	Ch1	
5260	16.530	17.323	22.470	30.840	NA
5300	16.586	16.686	22.990	24.910	NA
5320	17.691	16.588	24.240	24.510	NA
5500	16.437	16.399	21.240	20.505	NA
5580	16.445	16.429	21.330	21.040	NA
5720	16.591	16.419	23.480	20.750	NA

802.11n HT20, MCS0

Frequency (MHz)	99% Bandwidth (MHz)		26 dB Bandwidth (MHz)		Limit (kHz)
	Ch0	Ch1	Ch0	Ch1	
5260	17.715	18.075	23.220	29.460	NA
5300	17.739	17.782	23.500	24.600	NA
5320	17.757	17.717	24.220	23.760	NA
5500	17.621	17.592	21.670	21.000	NA
5580	17.635	17.607	21.810	21.440	NA
5720	17.713	17.600	23.060	21.540	NA

Note: 1. The 99% bandwidth measurements are informative, and 26 dB bandwidths are used to determine the output power limits.
2. Plots for all the measurements stated above were taken. To reduce complexity and bulkiness of The report, Highlighted Plots are placed in the report.

Table 10: Occupied Bandwidth – Test Results

Date: July 8 - 22, 2020	**Tested By:** Kerwinn Corpuz
Test Method: Conducted Measurements	**Power Setting:** See test plan.
Antenna Type: FPCB	**Max Antenna Gain:** UNII1 = 3.42 dBi; UNII3 = 4.17 dBi
Operating Mode: Uncorrelated	**Signal State:** Modulated at 95.7% (HT40 & VHT80)
Ambient Temp.: 22 - 23 °C	**Relative Humidity:** 35 - 38%

802.11n HT40, MCS0

Frequency (MHz)	99% Bandwidth (MHz)		26 dB Bandwidth (MHz)		Limit (kHz)
	Ch0	Ch1	Ch0	Ch1	
5270	36.072	36.236	40.910	46.090	NA
5310	36.118	36.135	42.150	41.910	NA
5510	36.087	36.069	41.200	41.320	NA
5550	36.073	36.075	41.190	41.350	NA
5710	36.194	36.096	46.470	41.800	NA

802.11ac VHT80, MCS0

Frequency (MHz)	99% Bandwidth (MHz)		26 dB Bandwidth (MHz)		Limit (kHz)
	Ch0	Ch1	Ch0	Ch1	
5290	75.294	75.358	82.160	82.020	NA
5530	75.302	75.313	82.250	82.000	NA
5610	75.321	75.321	82.240	82.070	NA
5690	75.547	75.420	84.130	83.280	NA

Note: 1. The 99% bandwidth measurements are informative, and 26 dB bandwidths are used to determine the output power limits.
2. Plots for all the measurements stated above were taken. To reduce complexity and bulkiness of The report, Highlighted Plots are placed in the report.

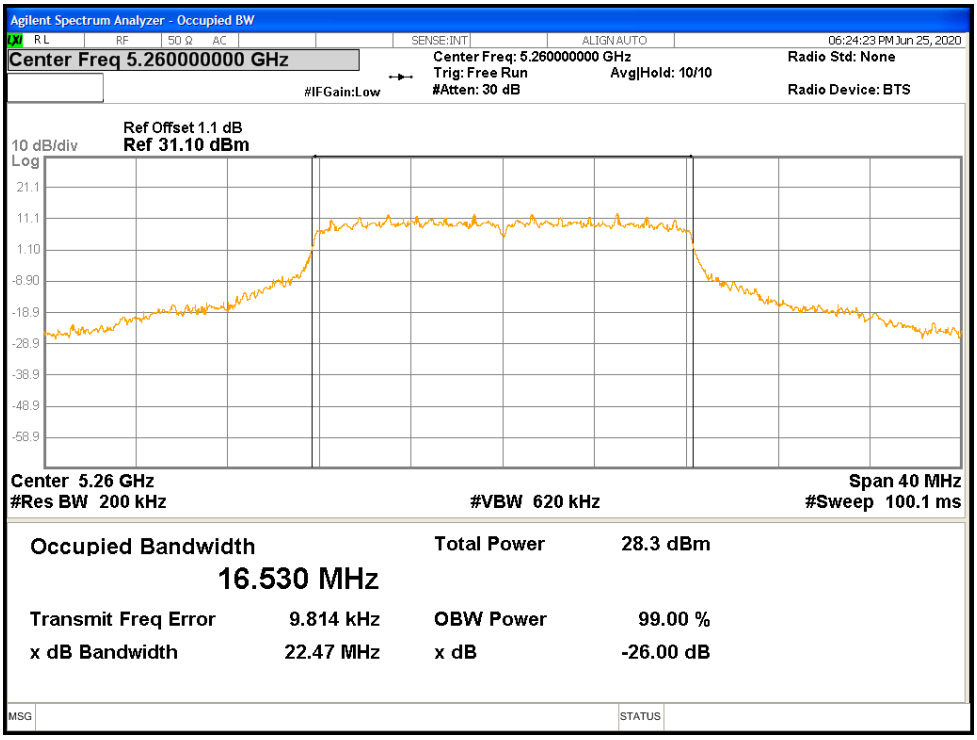


Figure 45: Occupied Bandwidth-5260 MHz-802.11a

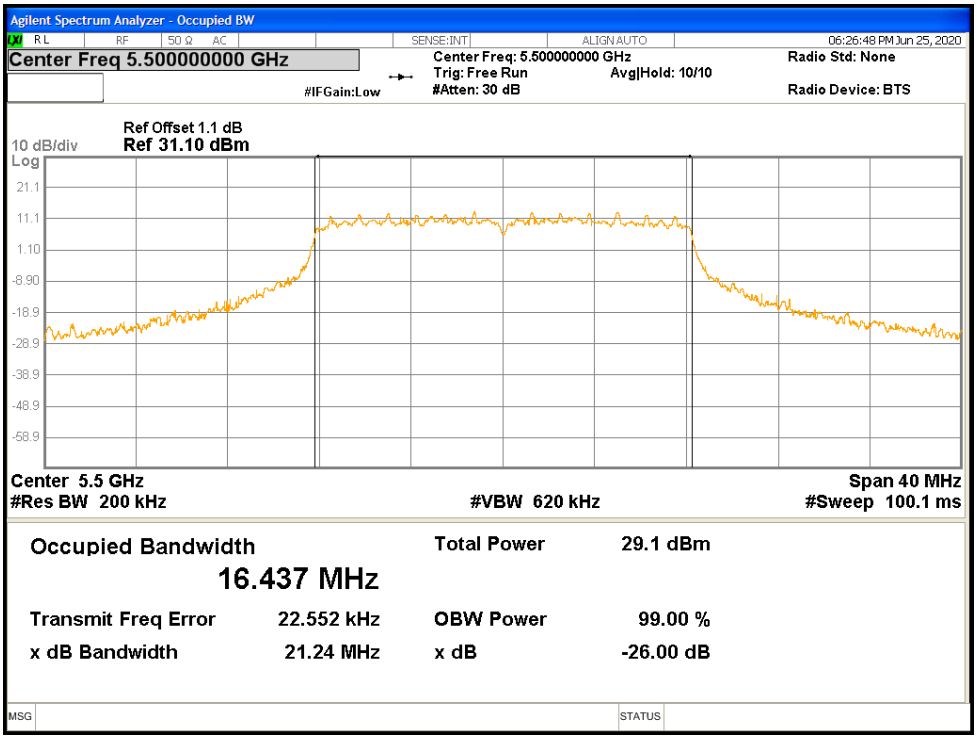


Figure 46: Occupied Bandwidth-5500 MHz-802.11a

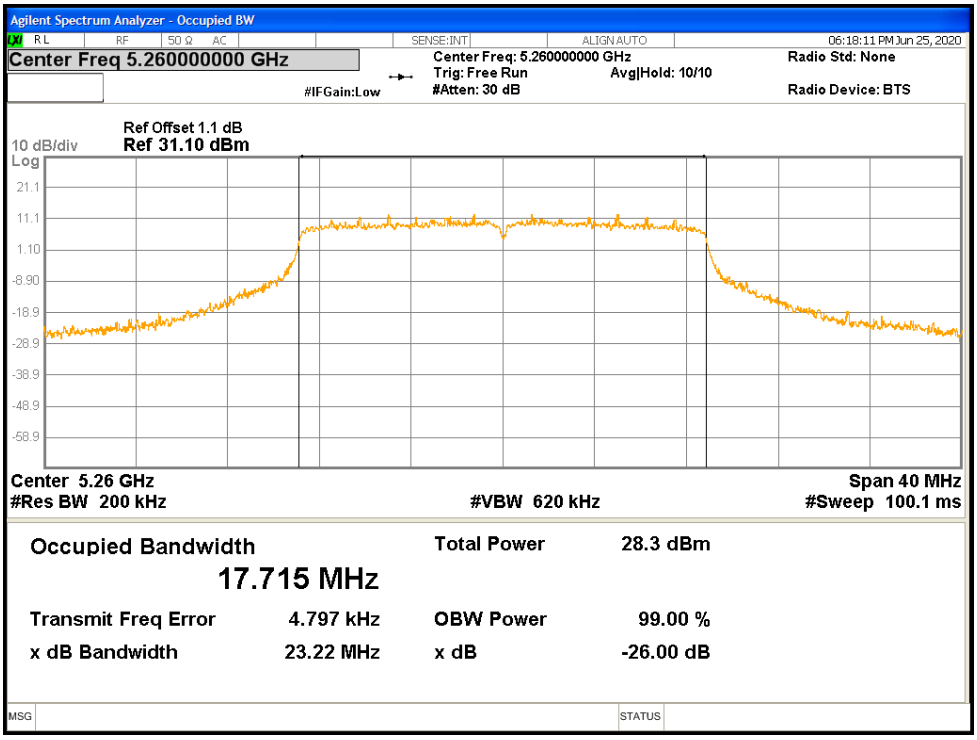


Figure 47: Occupied Bandwidth-5260 MHz-802.11n HT20

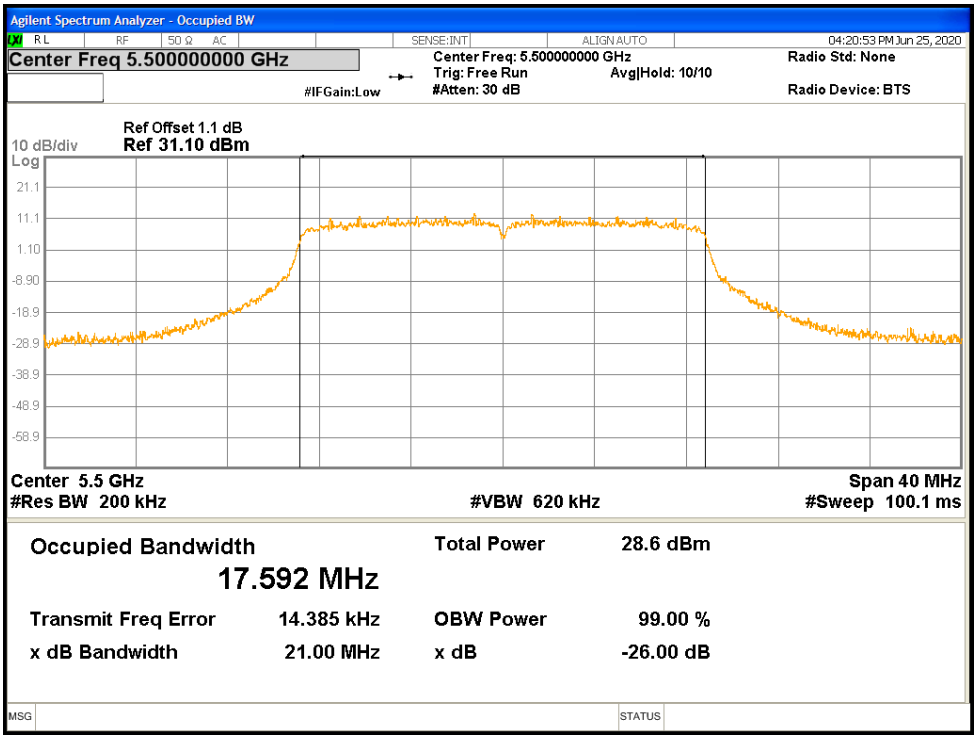


Figure 48: Occupied Bandwidth-5500 MHz-802.11n HT20

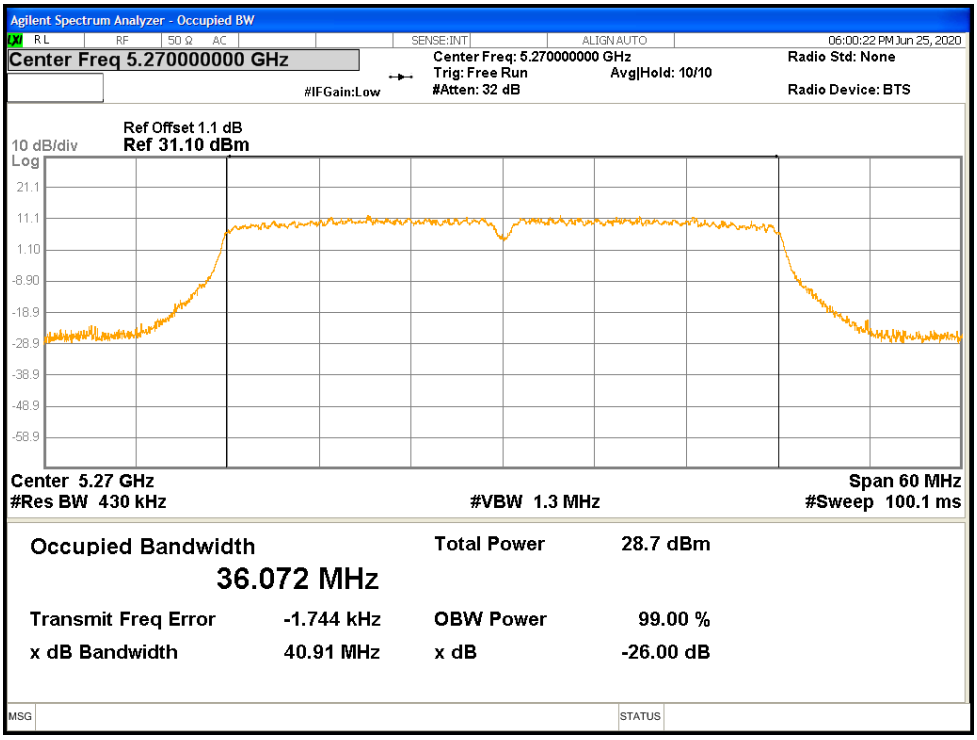


Figure 49: Occupied Bandwidth-5270 MHz-802.11n HT40

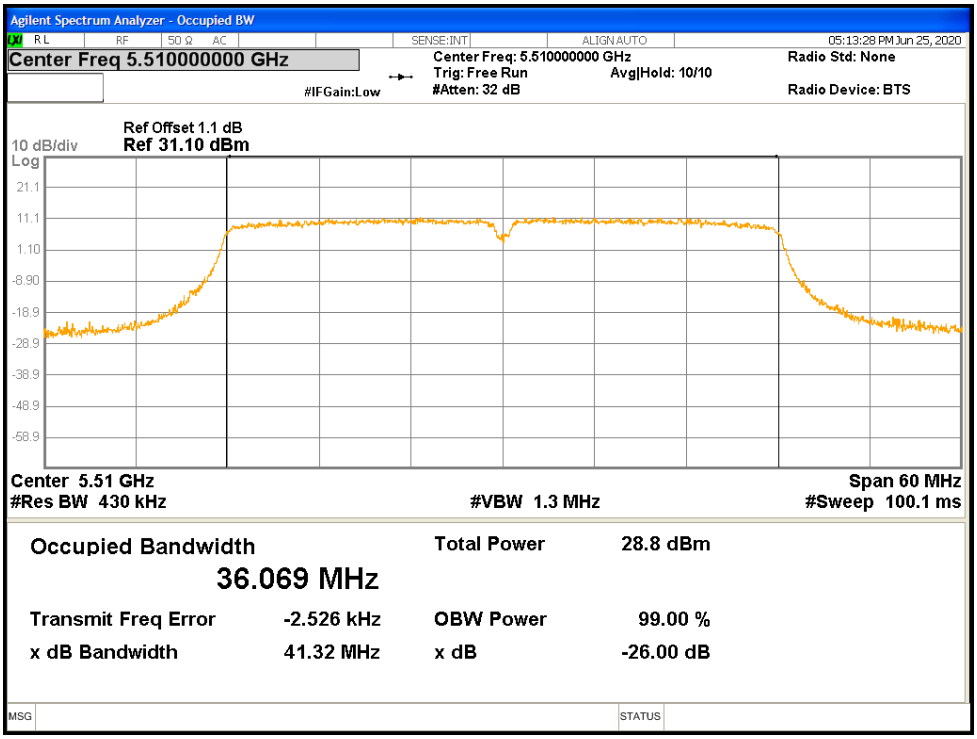


Figure 50: Occupied Bandwidth-5510 MHz-802.11n HT40

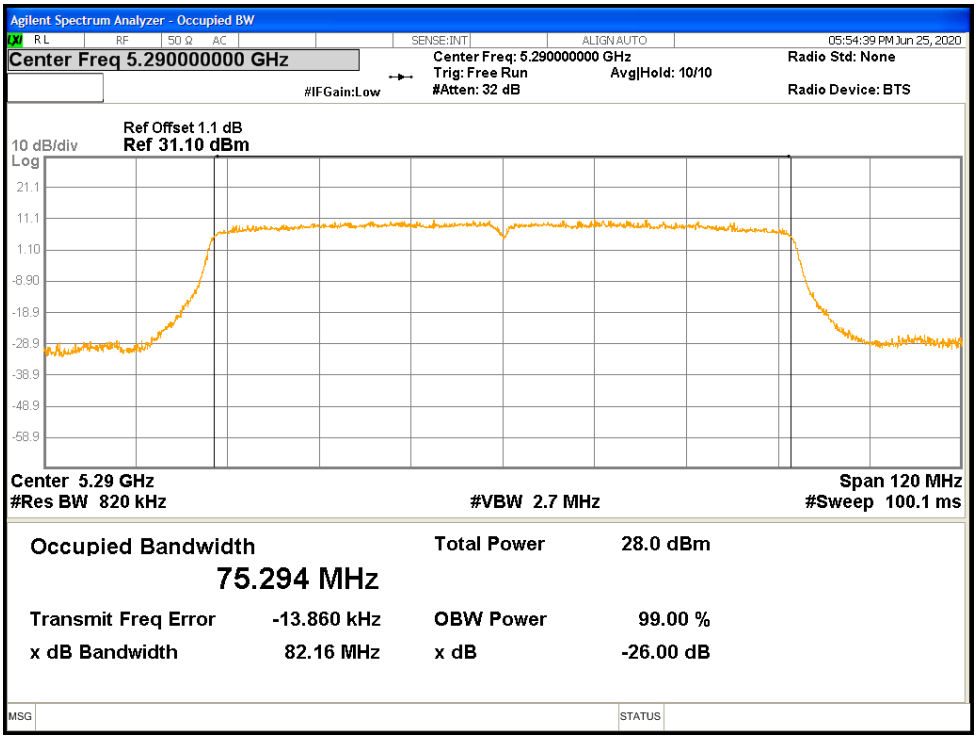


Figure 51: Occupied Bandwidth-5290 MHz-802.11ac VHT80

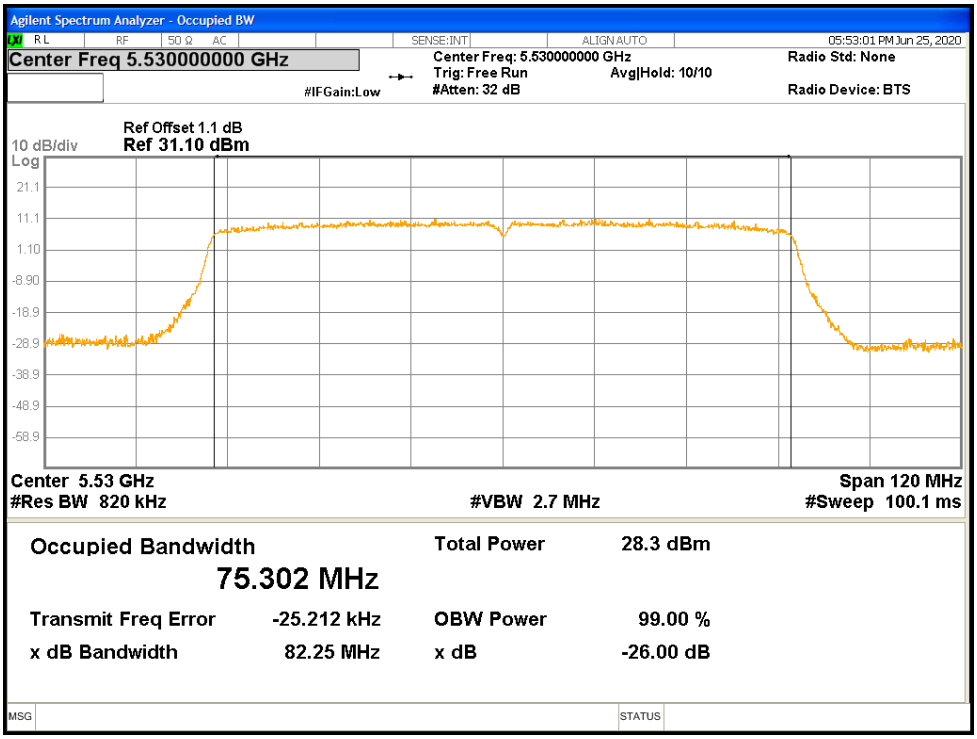


Figure 52: Occupied Bandwidth-5530 MHz-802.11ac VHT80

4.3 Power Spectral Density

According to the CFR47 Part 15.407 (a) and RSS 247 Sect. 6.2, the spectral power density output of the antenna port shall be as followed listed below during any time interval of continuous transmission.

The power spectral density limits per CFR47 Part 15.407 (a):

Band 5150-5250 MHz: 17 dBm in any 1 MHz band

Band 5250-5350 MHz, and 5470-5725 MHz: 11 dBm in any 1 MHz band

Band 5725-5850 MHz: 30 dBm in any 500 kHz band.

The power spectral density limits per RSS-247 Section 6.2:

Band 5150-5250 MHz: 10 dBm in any 1 MHz band, E.I.R.P.

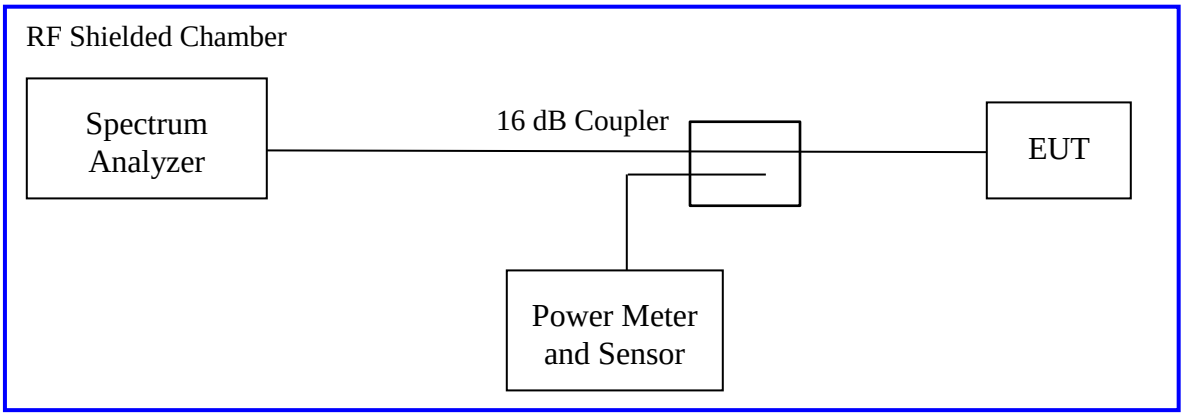
Band 5250-5350 MHz, and 5470-5725 MHz: 11 dBm in any 1 MHz band

Band 5725-5850 MHz: *30 dBm in any 500 kHz band*

4.3.1 Test Method

The conducted method was used to measure the channel power output per ANSI C63.10-2013 Section 12.3.2.2. The measurement was performed with modulation per CFR47 Part 15.407 (a) and RSS 247 Sect. 6.2. The pre-evaluation was performed to find the worst modes. The worst findings were conducted on 3 channels in each operating frequency range. The worst sample result indicated below.

Test Setup:



4.3.2 Results

As originally tested, the EUT was found to be compliant to the requirements of the test standard(s).

Table 11: Power Spectral Density – Test Results

Date: July 8 - 22, 2020	**Tested By:** Kerwinn Corpuz
Test Method: Conducted Measurements	**Power Setting:** See test plan.
Antenna Type: FPCB	**Max Antenna Gain:** UNII2A = 2.37 dBi; UNII2C = 3.57 dBi
Operating Mode: Uncorrelated	**Signal State:** Modulated at 92.3%
Ambient Temp.: 22 - 23 °C	**Relative Humidity:** 35 - 38%

802.11a at 6 Mbps (FCC and RSS 247 Limit)						
Frequency (MHz)	**CH 0 Output [dBm]**	**CH 1 Output [dBm]**	**Duty Cycle [dB]**	**Max PSD [dBm]**	**Limit [dBm]**	**Margin [dB]**
5260	9.90	9.61	0.35	10.25	11.00	-0.76
5300	10.03	10.05	0.35	10.40	11.00	-0.60
5320	8.74	8.89	0.35	9.24	11.00	-1.76
5500	10.48	10.42	0.35	10.83	11.00	-0.17
5580	10.25	10.39	0.35	10.74	11.00	-0.26
5700	9.31	8.68	0.35	9.66	11.00	-1.35
802.11n HT20, MCS0 (FCC and RSS 247 Limit)						
Frequency (MHz)	**CH 0 Output [dBm]**	**CH 1 Output [dBm]**	**Duty Cycle [dB]**	**Max PSD [dBm]**	**Limit [dBm]**	**Margin [dB]**
5260	9.24	9.49	0.30	9.79	11.00	-1.21
5300	9.31	9.63	0.30	9.93	11.00	-1.07
5320	8.45	8.51	0.30	8.81	11.00	-2.19
5500	9.97	10.24	0.30	10.54	11.00	-0.46
5580	10.36	10.46	0.30	10.76	11.00	-0.24
5700	8.94	8.34	0.30	9.24	11.00	-1.76

Note: 1. Worst case was observed at 6 Mbps.
2. Plots for all the measurements stated above were taken. To reduce complexity and bulkiness of the report, Highlighted Plots are placed in the report.

Table 12: Power Spectral Density – Test Results Continued

Date: July 8 - 22, 2020	**Tested By:** Kerwinn Corpuz
Test Method: Conducted Measurements	**Power Setting:** See test plan.
Antenna Type: FPCB	**Max Antenna Gain:** UNII2A = 2.37 dBi; UNII2C = 3.57 dBi
Operating Mode: Uncorrelated	**Signal State:** Modulated at 95.7%
Ambient Temp.: 22 - 23 °C	**Relative Humidity:** 35 - 38%

802.11n HT40 at MCS0 (FCC Limit)						
Frequency (MHz)	**CH 0 Output [dBm]**	**CH 1 Output [dBm]**	**Duty Cycle [dB]**	**Max PSD [dBm]**	**Limit [dBm]**	**Margin [dB]**
5270	7.09	6.55	0.19	7.28	11.00	-3.72
5310	4.85	4.81	0.19	5.04	11.00	-5.96
802.11n HT40 at MCS0 (RSS-247 Limit)						
5270	6.10	6.23	0.19	6.42	11.00	-4.58
5310	4.85	4.81	0.19	5.04	11.00	-5.96
802.11n HT40 at MCS0 (FCC and RSS-247 Limit)						
5510	5.59	6.23	0.19	6.42	11.00	-4.58
5550	6.19	6.55	0.19	6.74	11.00	-4.26
5590	7.83	8.19	0.19	8.38	11.00	-2.62
5670	6.12	5.89	0.19	6.31	11.00	-4.69
802.11ac VHT80 at MCS0 (FCC and RSS-247 Limit)						
Frequency (MHz)	**CH 0 Output [dBm]**	**CH 1 Output [dBm]**	**Duty Cycle [dB]**	**Max PSD [dBm]**	**Limit [dBm]**	**Margin [dB]**
5290	0.48	0.51	0.19	0.70	11.00	-10.30
802.11ac VHT80 at MCS0 (FCC and RSS-247 Limit)						
5530	0.73	1.07	0.19	1.26	11.00	-9.74
5610	2.11	2.48	0.19	2.67	11.00	-8.33

Note: 1. Worst case was observed at MCS0. HT40 is worst case and VHT40 is covered.
2. Plots for all the measurements stated above were taken. To reduce complexity and bulkiness of the report, Highlighted Plots are placed in the report.

Table 13: Power Spectral Density – Straddle Channels – Test Results Continued

Date: July 8 - 22, 2020	**Tested By:** Kerwinn Corpuz
Test Method: Conducted Measurements	**Power Setting:** See test plan.
Antenna Type: FPCB	**Max Antenna Gain:** UNII2C = 3.57 dBi; UNII3 = 4.17 dBi
Operating Mode: Uncorrelated	**Signal State:** Modulated at 92.3% (11a), 93.2% (HT20), (HT40 & VHT80) 95.7%
Ambient Temp.: 22 - 23 °C	**Relative Humidity:** 35 - 38%

802.11a at 6Mbps (5720 MHz)

Operating Band	CH 0 Output [dBm]	CH 1 Output [dBm]	Duty Cycle [dB]	Max PSD [dBm]	Limit [dBm]	Margin [dB]
U-NII-2C	9.27	8.97	0.35	9.62	11.00	-1.38
U-NII-3	8.75	8.66	-2.66	6.09	30.00	-23.91

802.11n HT20 at MCS0 (5720 MHz)

Operating Band	CH 0 Output [dBm]	CH 1 Output [dBm]	Duty Cycle [dB]	Max PSD [dBm]	Limit [dBm]	Margin [dB]
U-NII-2C	9.26	8.82	0.30	9.56	11.00	-1.44
U-NII-3	8.16	7.77	-2.71	5.45	30.00	-24.55

802.11n HT40 at MCS0 (5710 MHz)

Operating Band	CH 0 Output [dBm]	CH 1 Output [dBm]	Duty Cycle [dB]	Max PSD [dBm]	Limit [dBm]	Margin [dB]
U-NII-2C	7.12	6.99	0.19	7.31	11.00	-3.69
U-NII-3	6.30	5.79	-2.82	3.48	30.00	-26.52

802.11ac VHT80 at MCS0 (5690 MHz)

Frequency (MHz)	CH 0 Output [dBm]	CH 1 Output [dBm]	Duty Cycle [dB]	Max PSD [dBm]	Limit [dBm]	Margin [dB]
U-NII-2C	3.94	3.24	0.19	4.13	11.00	-6.87
U-NII-3	0.69	1.01	-2.82	-1.81	30.00	-31.81

Note: 1. U-NII-3 Band: CF (RBW) = 10 log (.5 MHz / 1 MHz) = -3.01 dB.
2. Marker 1 is U-NII-2C PSD and Marker 7 is U-NII-3 PSD in the plot.
3. For 802.11a PSD plot, refer to Section 4.1.2, Figure 17, page 34.
4. For 802.11n HT20 PSD plot, refer to Section 4.1.2, Figure 18, page 34.
5. For 802.11n HT40 PSD plot, refer to Section 4.1.2, Figure 19, page 35.
6. For 802.11ac VHT80 PSD plot, refer to Section 4.1.2, Figure 20, page 35.
7. Plots for all the measurements stated above were taken. To reduce complexity and bulkiness of the report, Highlighted Plots are placed in the report.

Table 14: Power Spectral Density – Test Results Continued

Date: July 8 - 22, 2020	**Tested By:** Kerwinn Corpuz
Test Method: Conducted Measurements	**Power Setting:** See test plan.
Antenna Type: FPCB	**Total Antenna Gain:** UNII2A = 5.05 dBi; UNII2C = 6.17 dBi
Operating Mode: Correlated	**Signal State:** Modulated at 93.2%
Ambient Temp.: 22 - 23 °C	**Relative Humidity:** 35 - 38%

Frequency (MHz)	CH 0 Output [dBm]	CH 1 Output [dBm]	Duty Cycle [dB]	Total PSD [dBm]	Limit [dBm]	Margin [dB]
802.11n HT20 at MCS0 (FCC Limit)						
5260	7.25	6.98	0.30	10.43	11.00	-0.57
5300	7.25	7.51	0.30	10.69	11.00	-0.31
5320	7.57	7.63	0.30	10.91	11.00	-0.09
802.11n HT20 at MCS0 (RSS-247 Limit)						
5260	4.02	3.96	0.30	7.30	11.00	-3.70
5280	4.11	3.86	0.30	7.29	11.00	-3.71
5320	3.80	4.05	0.30	7.24	11.00	-3.76
802.11n HT20 at MCS0 (FCC and RSS-247 Limit)						
5500	6.89	7.48	0.30	10.50	10.83	-0.33
5680	7.50	7.03	0.30	10.58	10.83	-0.25
5700	7.59	6.8	0.30	10.51	10.83	-0.32

Note: 1. Worst case was observed at MCS0. HT20 mode is worst case (covers VHT20 mode).
2. The sum of Ch0 and Ch1 = Total PSD.
3. Limit (5470 – 5725 MHz) = 11 dBm – (6.17 dBi – 6 dBi) = 10.83 dBm
3. Plots for all the measurements stated above were taken. To reduce complexity and bulkiness of the report, Highlighted Plots are placed in the report.

Table 15: Power Spectral Density – Test Results Continued

Date: July 8 - 22, 2020	**Tested By:** Kerwinn Corpuz
Test Method: Conducted Measurements	**Power Setting:** See test plan.
Antenna Type: FPCB	**Total Antenna Gain:** UNII2A = 5.05 dBi; UNII2C = 6.17 dBi
Operating Mode: Correlated	**Signal State:** Modulated at 95.7%
Ambient Temp.: 22 - 23 °C	**Relative Humidity:** 35 - 38%

802.11n HT40 at MCS0 (FCC Limit)						
Frequency (MHz)	**CH 0 Output [dBm]**	**CH 1 Output [dBm]**	**Duty Cycle [dB]**	**Total PSD [dBm]**	**Limit [dBm]**	**Margin [dB]**
5270	7.09	6.55	0.19	10.03	11.00	-0.97
5310	4.85	4.81	0.19	8.03	11.00	-2.97
802.11n HT40 at MCS0 (RSS-247 Limit)						
5270	0.63	0.79	0.19	3.91	11.00	-7.09
5310	0.71	0.96	0.19	4.04	11.00	-6.96
802.11n HT40 at MCS0 (FCC and RSS-247 Limit)						
5510	5.59	6.23	0.19	9.12	10.83	-1.71
5550	6.19	6.55	0.19	9.57	10.83	-1.26
5590	6.89	7.25	0.19	10.27	10.83	-0.56
5670	6.12	5.89	0.19	9.21	10.83	-1.62
802.11ac VHT80 at MCS0 (FCC Limit)						
Frequency (MHz)	**CH 0 Output [dBm]**	**CH 1 Output [dBm]**	**Duty Cycle [dB]**	**Total PSD [dBm]**	**Limit [dBm]**	**Margin [dB]**
5290	0.48	0.51	0.19	3.69	11.00	-7.31
802.11ac VHT80 at MCS0 (RSS-247 Limit)						
5290	-2.55	-2.21	0.19	0.82	11.00	-10.18
802.11ac VHT80 at MCS0 (FCC and RSS-247 Limit)						
5530	0.73	1.07	0.19	4.10	10.83	-6.73
5610	2.11	2.48	0.19	5.50	10.83	-5.33

Note: 1. Worst case was observed at MCS0. HT40 mode is worst case (covers VHT40 mode).
2. The sum of Ch0 and Ch1 = Total PSD.
3. Limit (5470-5725MHz) = 11 dBm – (6.17 dBi – 6 dBi) = 10.83 dBm.
4. Plots for all the measurements stated above were taken. To reduce complexity and bulkiness of the report, Highlighted Plots are placed in the report.

Table 16: Power Spectral Density – Straddle Channels – Test Results Continued

Date: July 8 - 22, 2020	**Tested By:** Kerwinn Corpuz
Test Method: Conducted Measurements	**Power Setting:** See test plan.
Antenna Type: FPCB	**Total Antenna Gain:** UNII2C = 6.17 dBi; UNII3 = 7.12 dBi
Operating Mode: Correlated	**Signal State:** Modulated at 92.3% (11a), 93.2% (HT20), (HT40 & VHT80) 95.7%
Ambient Temp.: 22 - 23 °C	**Relative Humidity:** 35 - 38%

802.11n HT20 at MCS0 (5720 MHz)

Operating Band	CH 0 Output [dBm]	CH 1 Output [dBm]	Duty Cycle [dB]	Total PSD [dBm]	Limit [dBm]	Margin [dB]
U-NII-2C	7.79	7.18	0.30	10.80	10.83	-0.03
U-NII-3	7.08	6.74	-2.71	7.21	28.88	-21.67

802.11n HT40 at MCS0 (5710 MHz)

Operating Band	CH 0 Output [dBm]	CH 1 Output [dBm]	Duty Cycle [dB]	Total PSD [dBm]	Limit [dBm]	Margin [dB]
U-NII-2C	7.12	6.99	0.19	10.25	10.83	-0.58
U-NII-3	6.30	5.79	-2.82	6.24	28.88	-22.64

802.11ac VHT80 at MCS0 (5690 MHz)

Frequency (MHz)	CH 0 Output [dBm]	CH 1 Output [dBm]	Duty Cycle [dB]	Total PSD [dBm]	Limit [dBm]	Margin [dB]
U-NII-2C	3.94	3.24	0.19	6.80	10.83	-4.03
U-NII-3	0.69	1.01	-2.82	1.04	28.88	-27.84

Note: 1. The sum of Ch0 and Ch1 = Total PSD.
2. Limit (U-NII-2C) = 11 dBm – (6.17 dBi – 6 dBi) = 10.83 dBm.
3. Limit (U-NII-3) = 30 dBm – (7.12 dBi – 6 dBi) = 28.88 dBm.
4. U-NII-3 Band: CF (RBW) = 10 log (.5 MHz / 1 MHz) = -3.01 dB.
5. Marker 1 is U-NII-2C PSD and Marker 7 is U-NII-3 PSD in the plot.
6. For 802.11n HT20 PSD plot, refer to Section 4.1.2, Figure 39 & 40, page 45.
7. For 802.11n HT40 PSD plot, refer to Section 4.1.2, Figure 41 & 42, page 46.
8. For 802.11ac VHT80 PSD plot, refer to Section 4.1.2, Figure 43 & 44, page 47.
9. Plots for all the measurements stated above were taken. To reduce complexity and bulkiness of the report, Highlighted Plots are placed in the report.

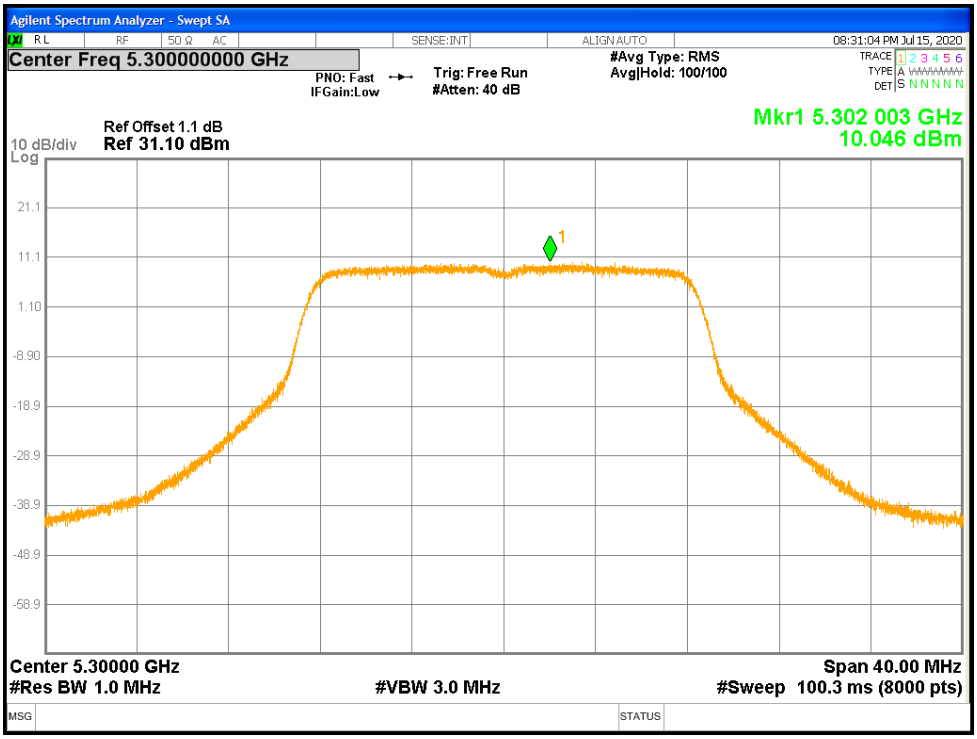


Figure 53: Uncorrelated Power Spectral Density-5300 MHz-802.11a-6 Mbps-Ch1

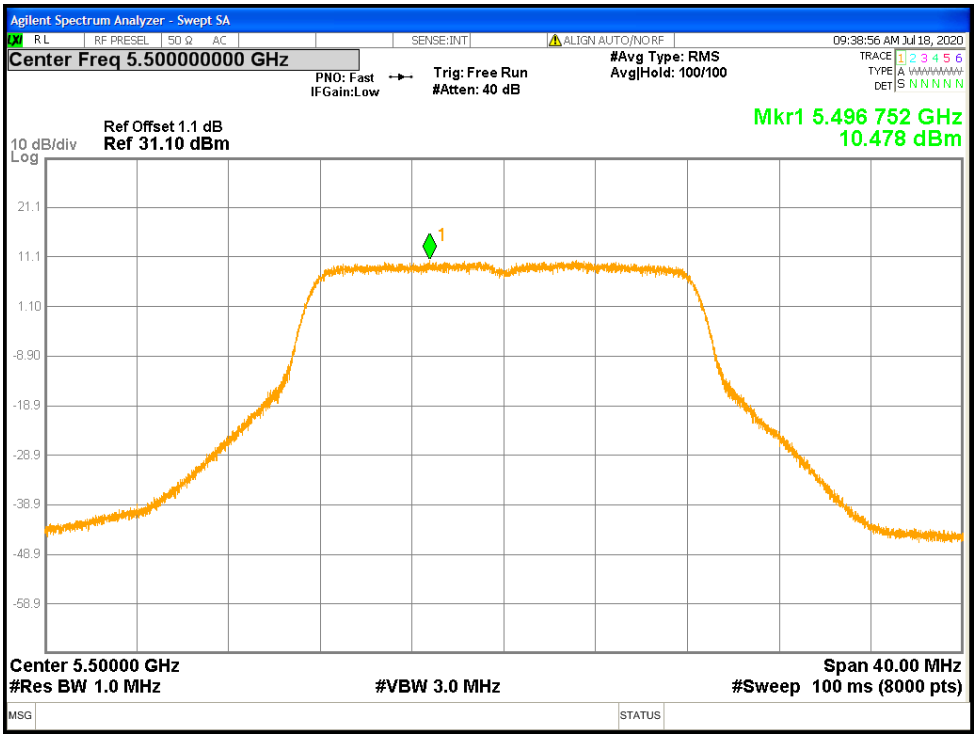


Figure 54: Uncorrelated Power Spectral Density-5500 MHz-802.11a-6 Mbps-Ch0

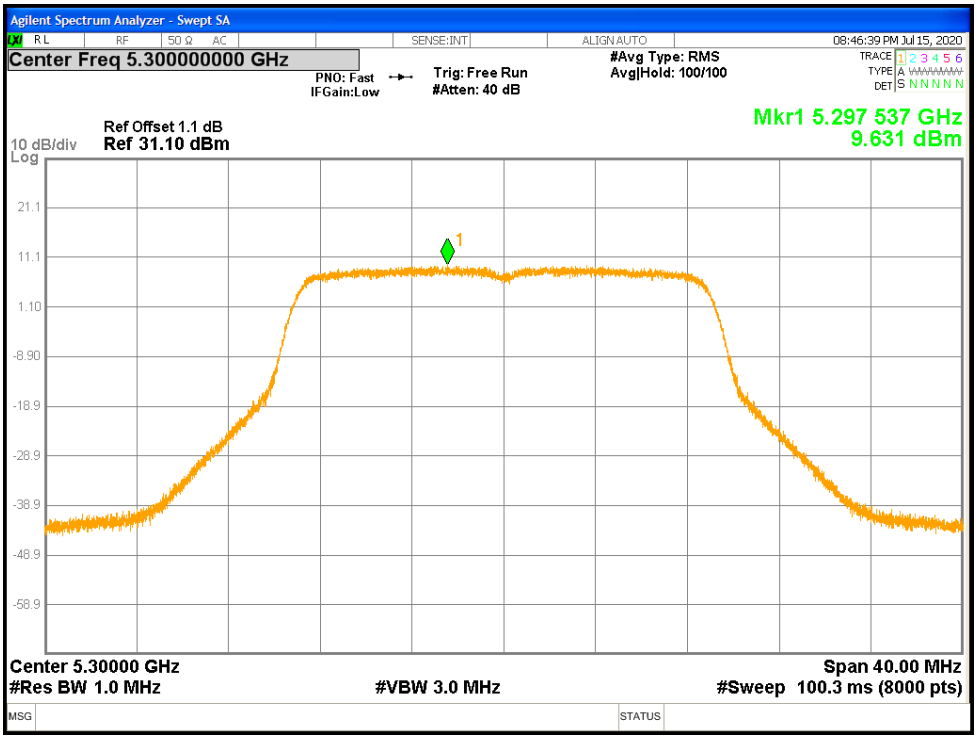


Figure 55: Uncorrelated Power Spectral Density-5300 MHz-802.11n-HT20-MCS0-Ch1

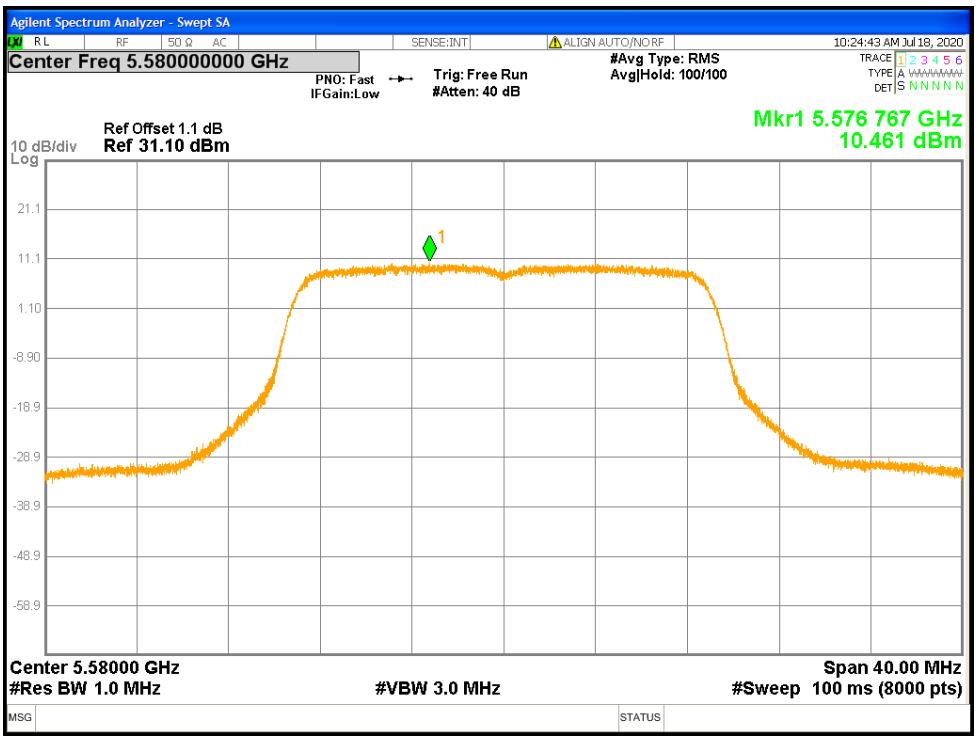


Figure 56: Uncorrelated Power Spectral Density-5580 MHz-802.11n-HT20-MCS0-Ch1

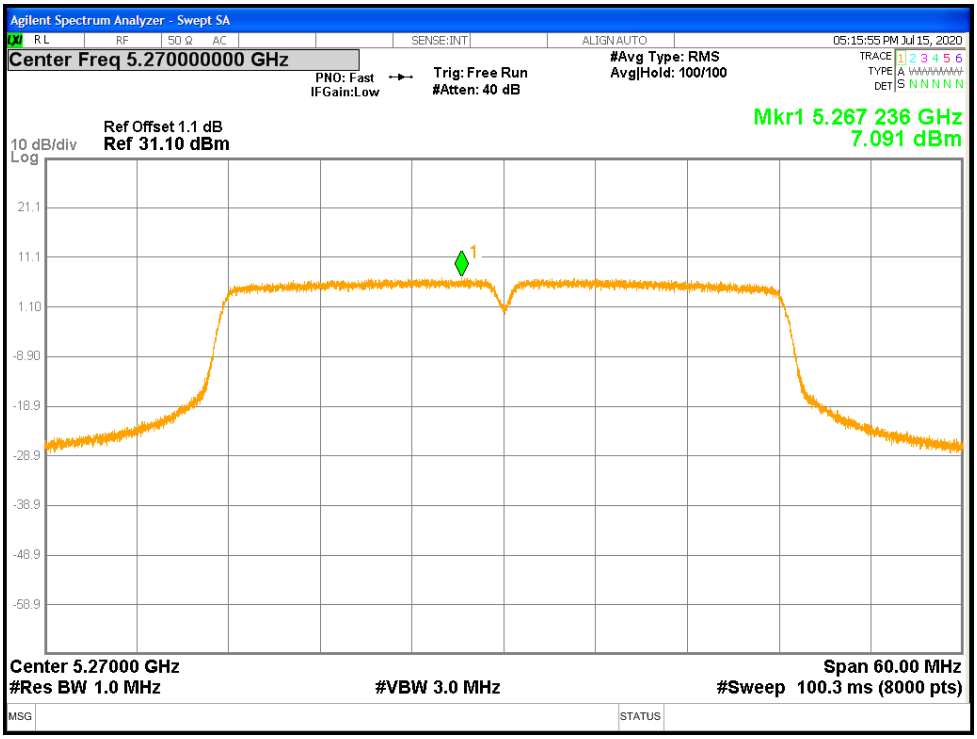


Figure 57: FCC Uncorrelated Power Spectral Density-5270 MHz-802.11n-HT40-MCS0-Ch0

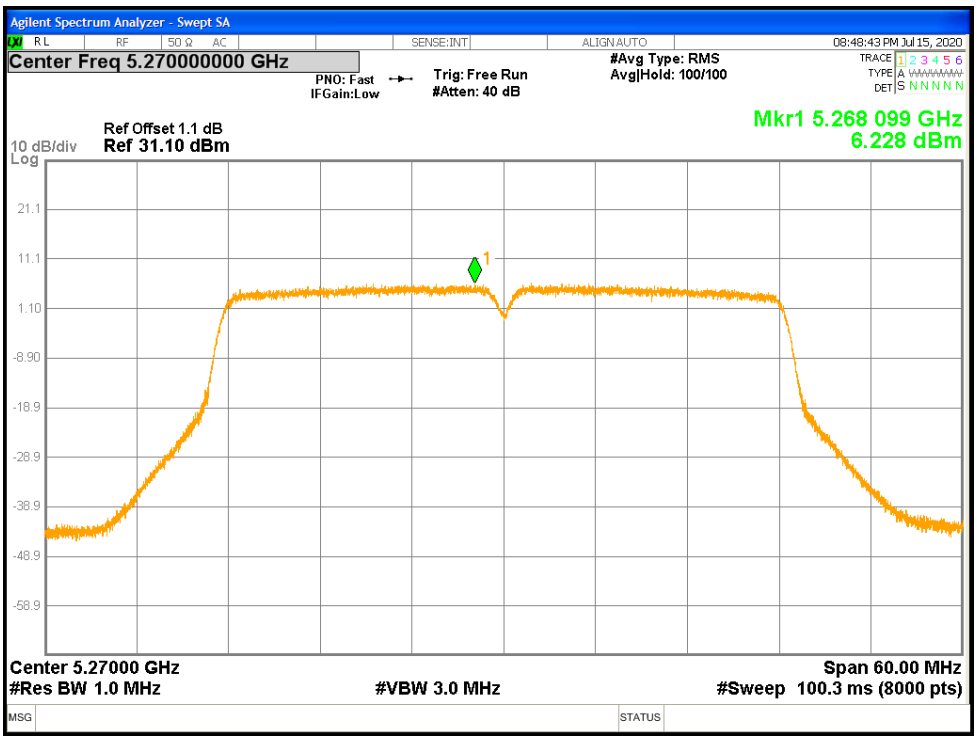


Figure 58: RSS Uncorrelated Power Spectral Density-5270 MHz-802.11n-HT40-MCS0-Ch1

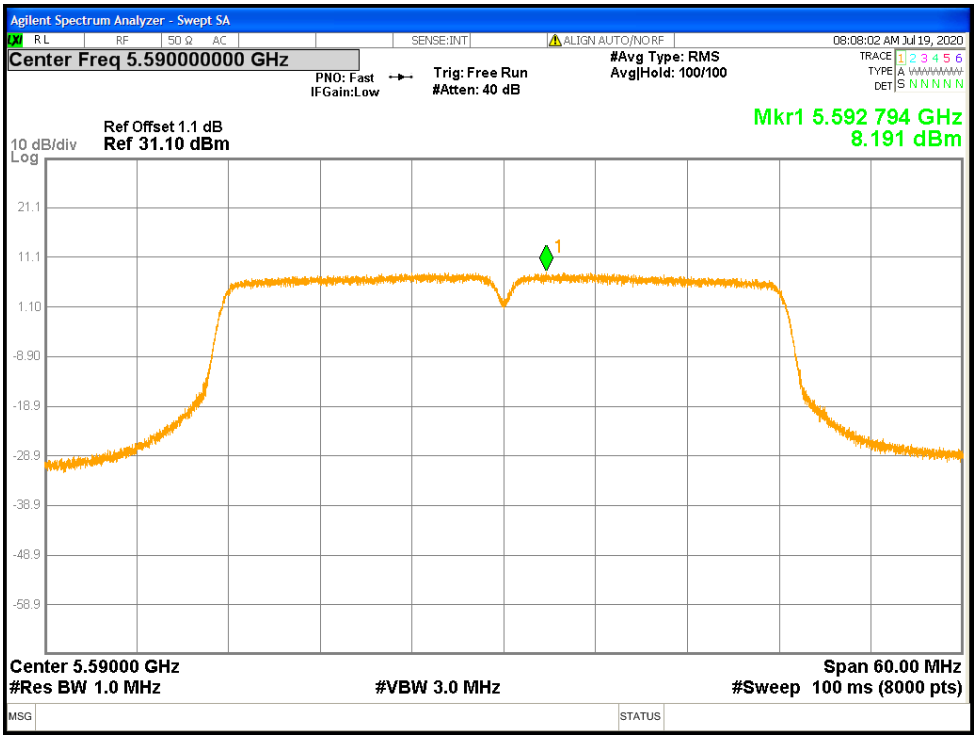


Figure 59: Uncorrelated Power Spectral Density-5590 MHz-802.11n-HT40-MCS0-Ch1

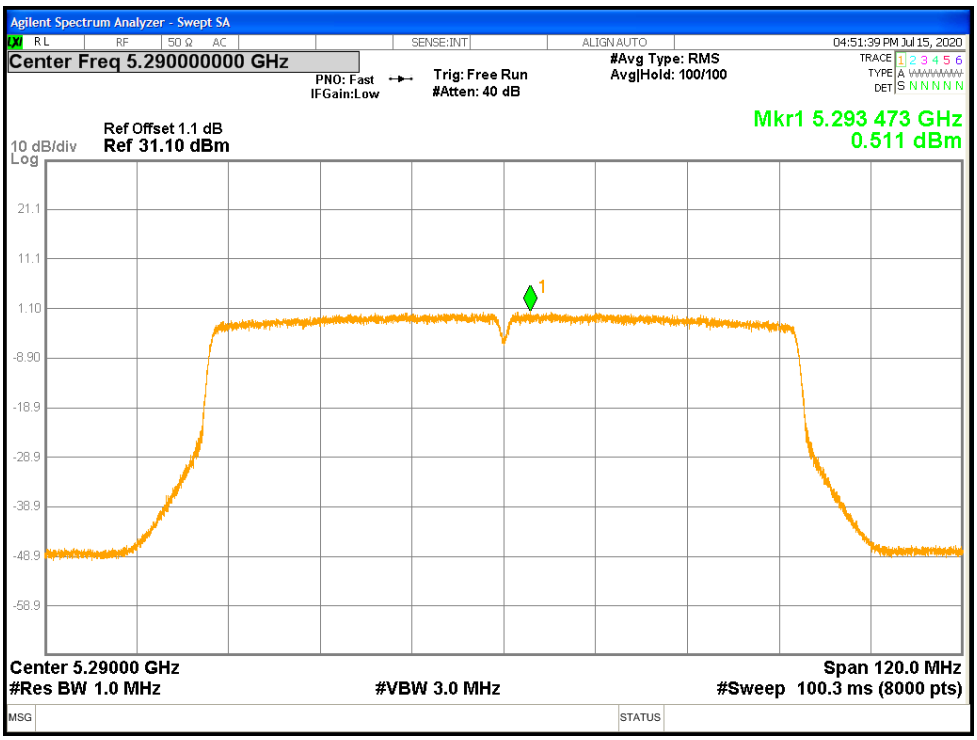


Figure 60: Uncorrelated Power Spectral Density-5290 MHz-802.11ac-VHT80-MCS0-Ch1

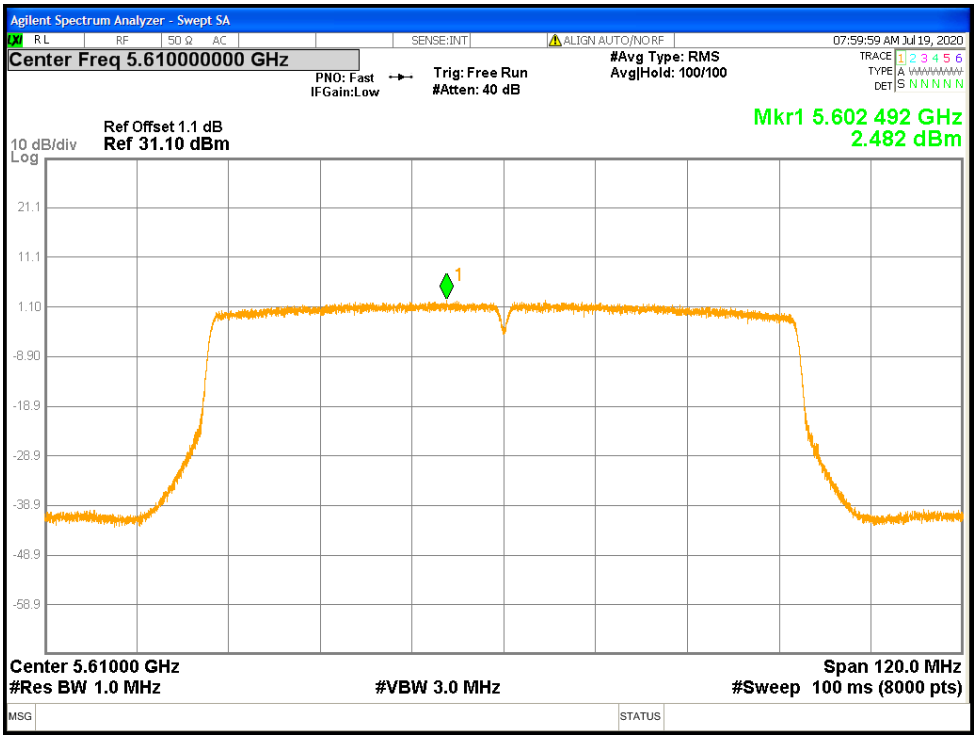


Figure 61: Uncorrelated Power Spectral Density-5610 MHz-802.11ac-VHT80-MCS0-Ch1

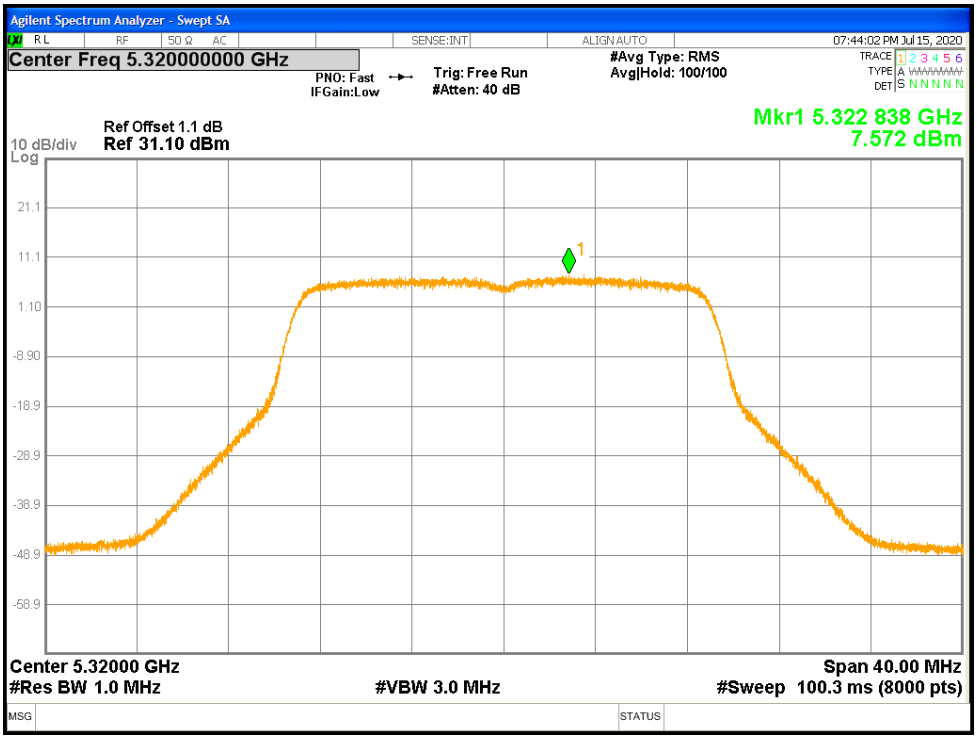


Figure 62: FCC Correlated Power Spectral Density-5320 MHz-802.11n-HT20-MCS0-Ch0

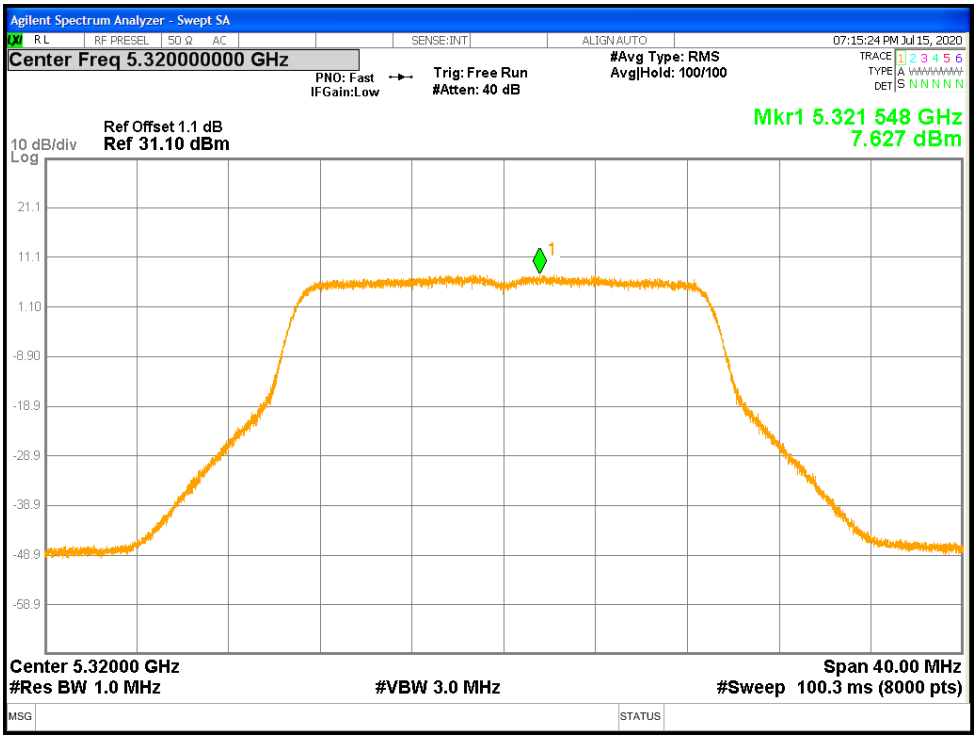


Figure 63: FCC Correlated Power Spectral Density-5320 MHz-802.11n-HT20-MCS0-Ch1

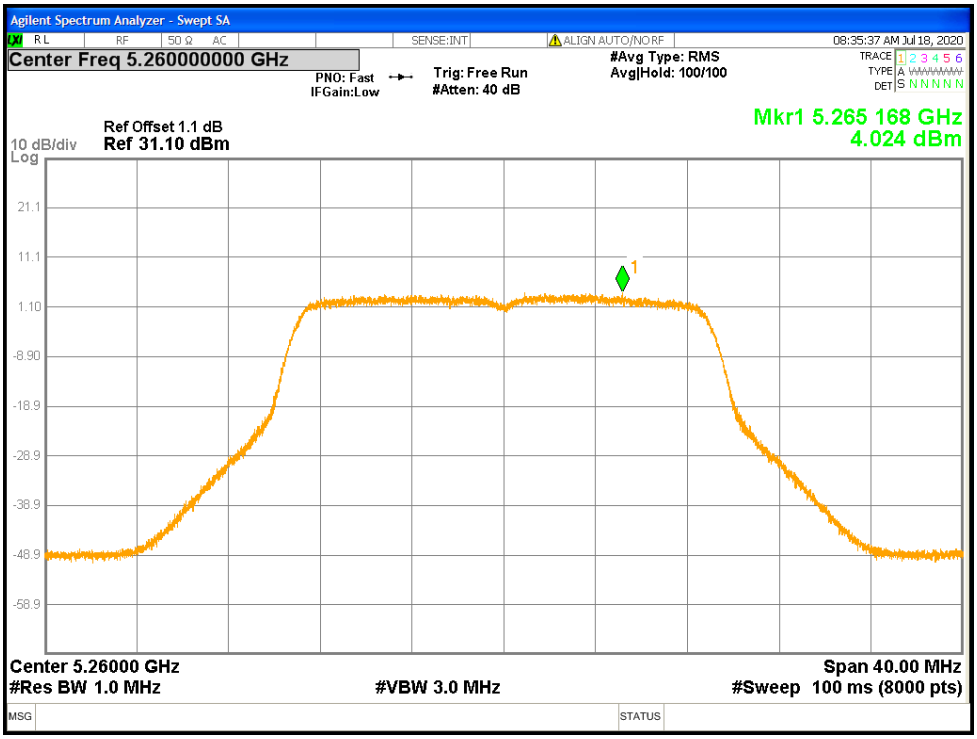


Figure 64: RSS Correlated Power Spectral Density-5260 MHz-802.11n-HT20-MCS0-Ch0

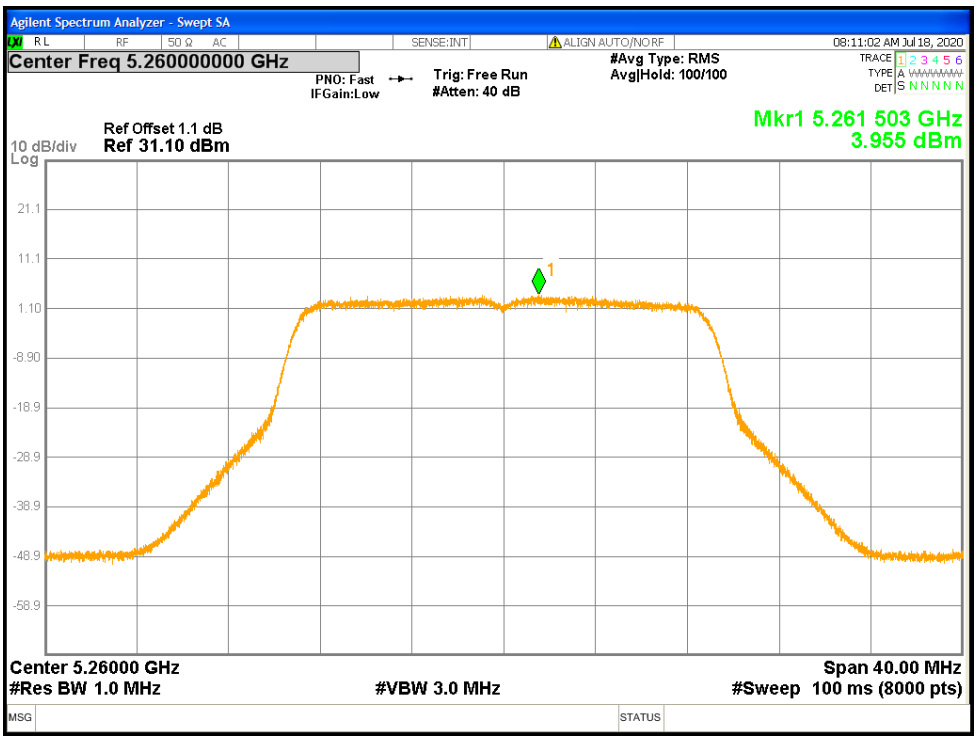


Figure 65: RSS Correlated Power Spectral Density-5260 MHz-802.11n-HT20-MCS0-Ch1

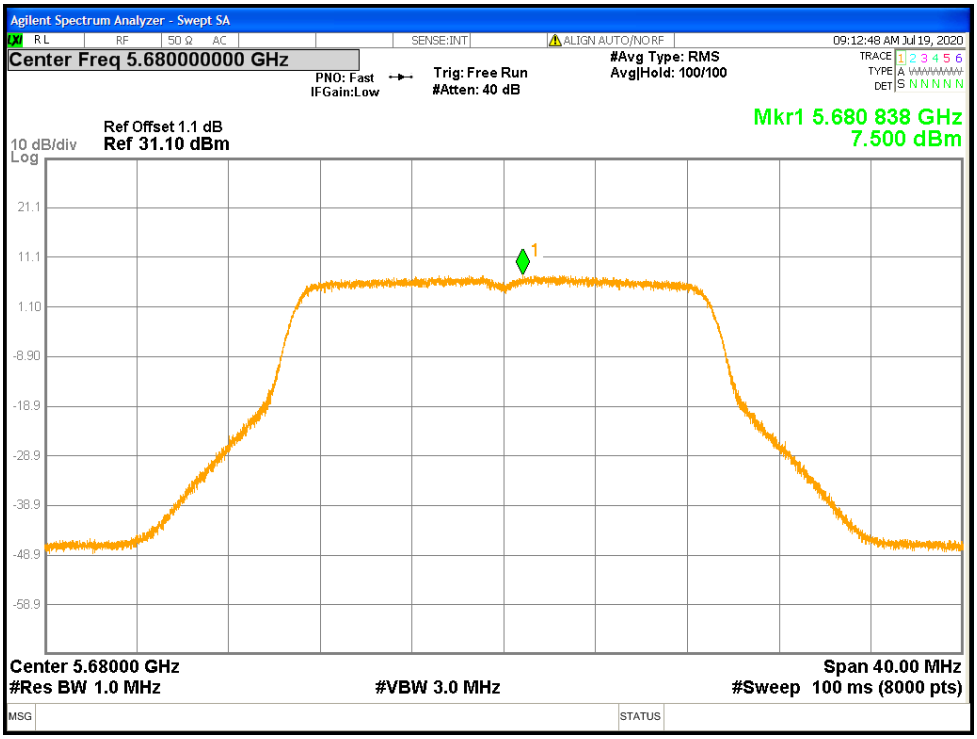


Figure 66: Correlated Power Spectral Density-5680 MHz-802.11n-HT20-MCS0-Ch0

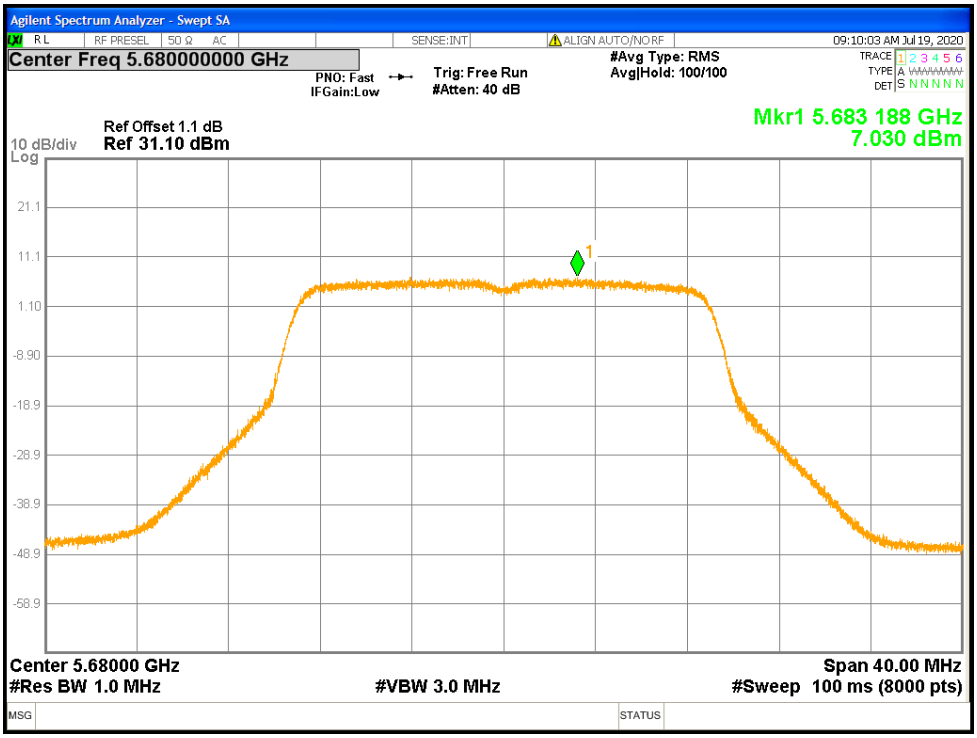


Figure 67: Correlated Power Spectral Density-5680 MHz-802.11n-HT20-MCS0-Ch1

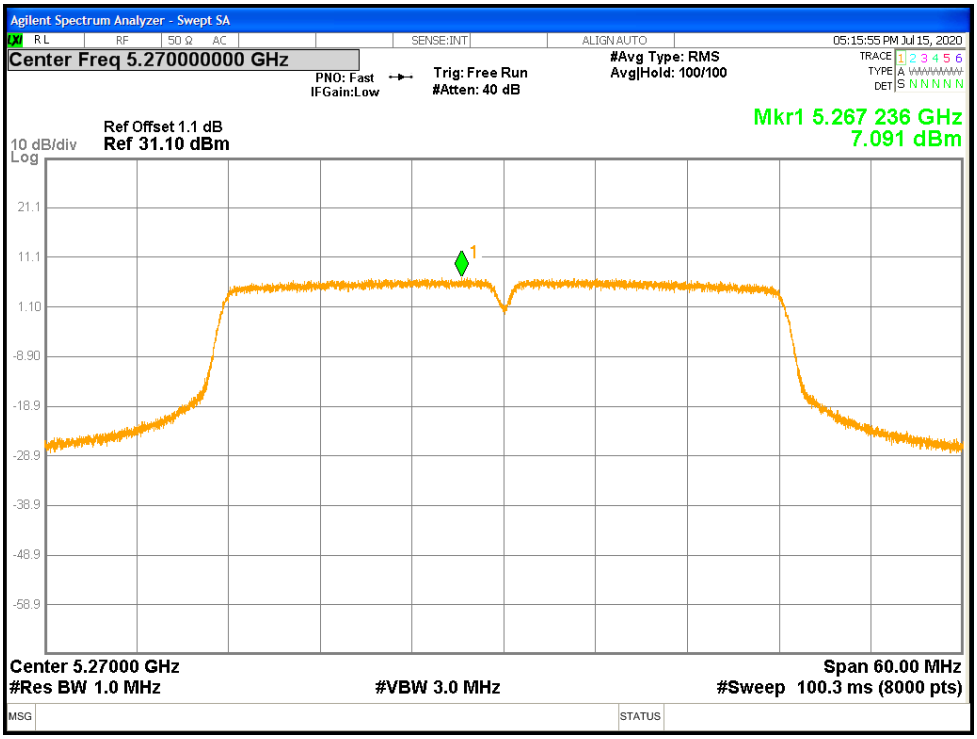


Figure 68: FCC Correlated Power Spectral Density-5270 MHz-802.11n-HT40-MCS0-Ch0

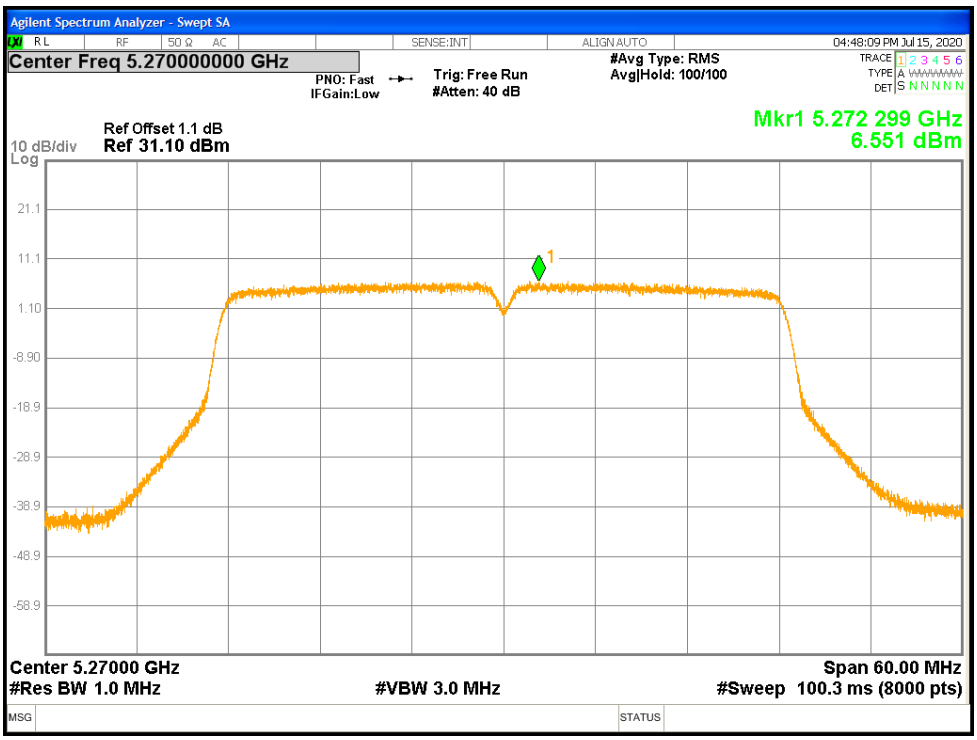


Figure 69: FCC Correlated Power Spectral Density-5270 MHz-802.11n-HT40-MCS0-Ch1

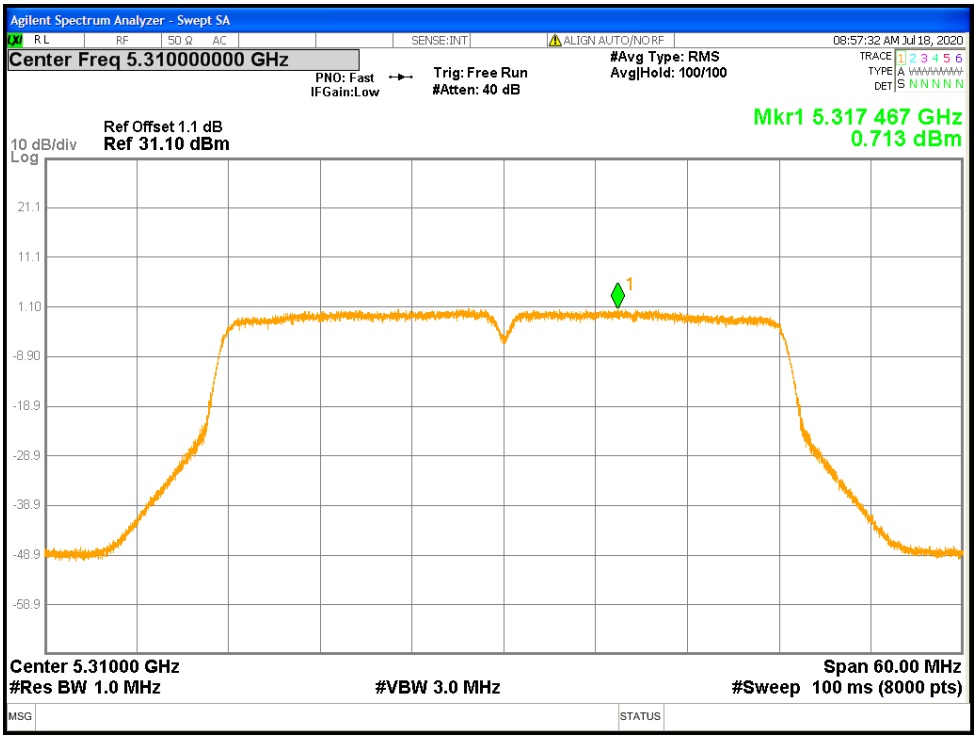


Figure 70: RSS Correlated Power Spectral Density-5310 MHz-802.11n-HT40-MCS0-Ch0

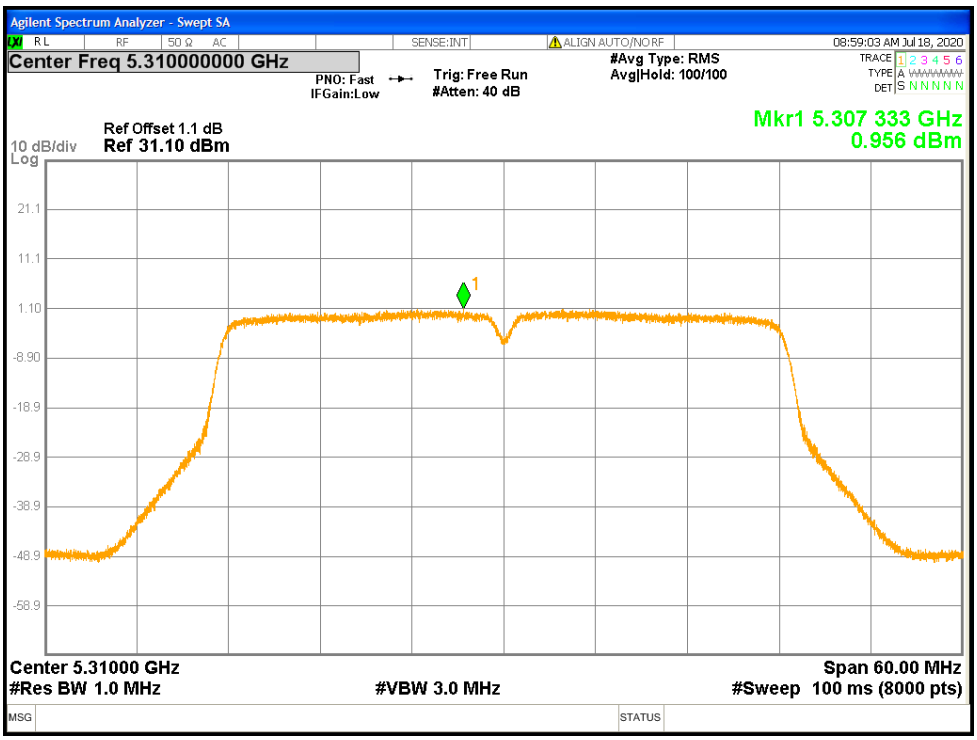


Figure 71: RSS Correlated Power Spectral Density-5310 MHz-802.11n-HT40-MCS0-Ch1

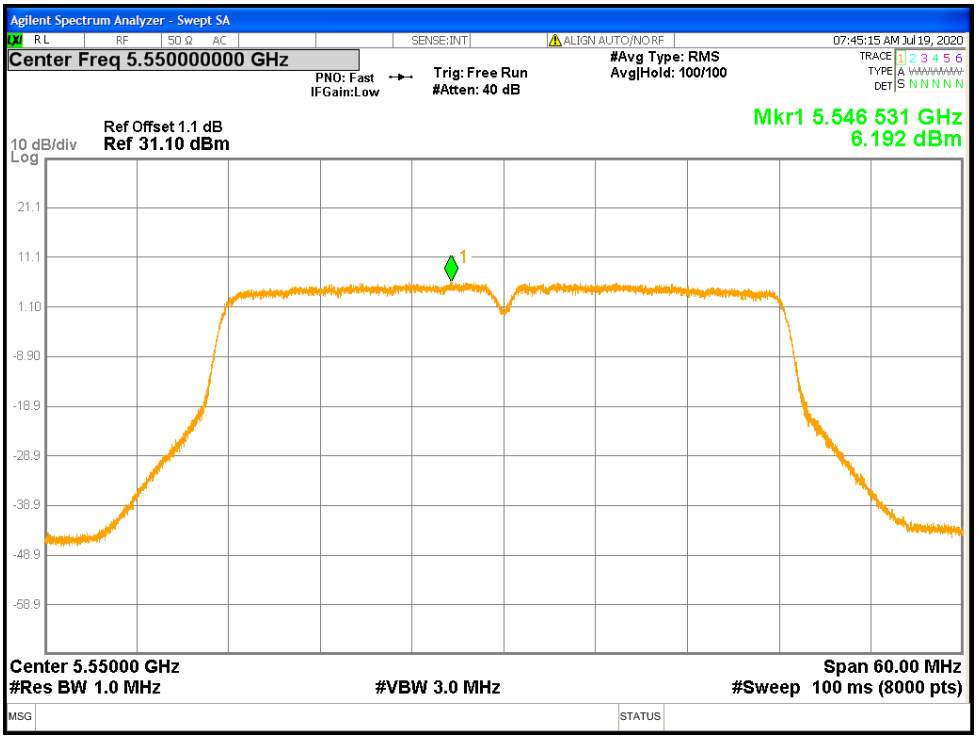


Figure 72: Correlated Power Spectral Density-5550 MHz-802.11n-HT40-MCS0-Ch0

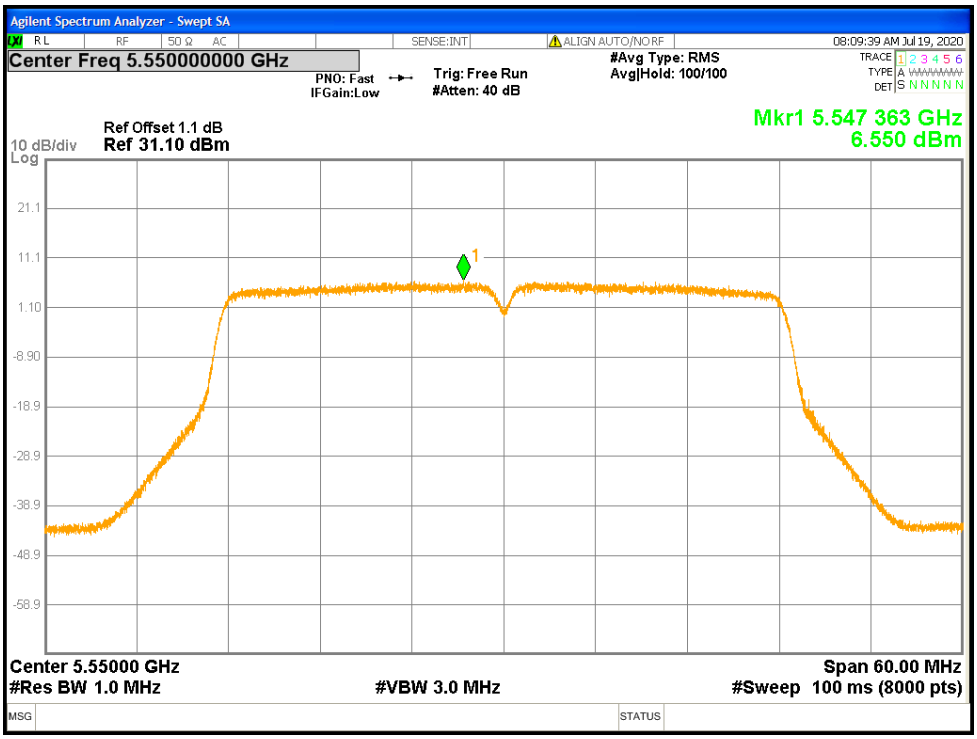


Figure 73: Correlated Power Spectral Density-5550 MHz-802.11n-HT40-MCS0-Ch1

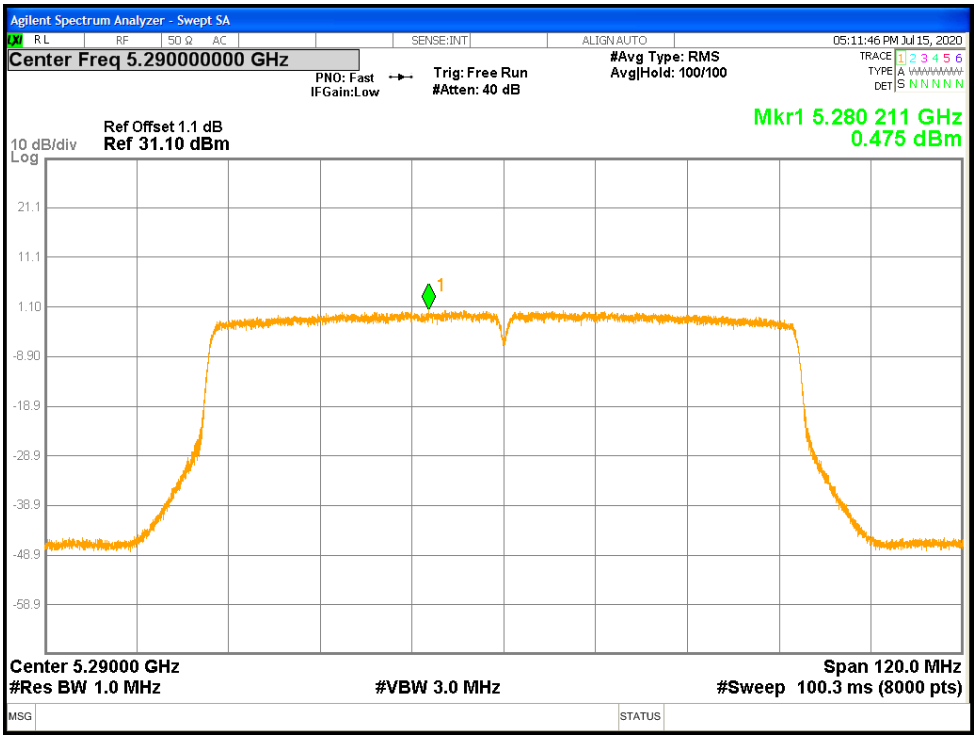


Figure 74: FCC Correlated Power Spectral Density-5290 MHz-802.11ac-VHT80-MCS0-Ch0

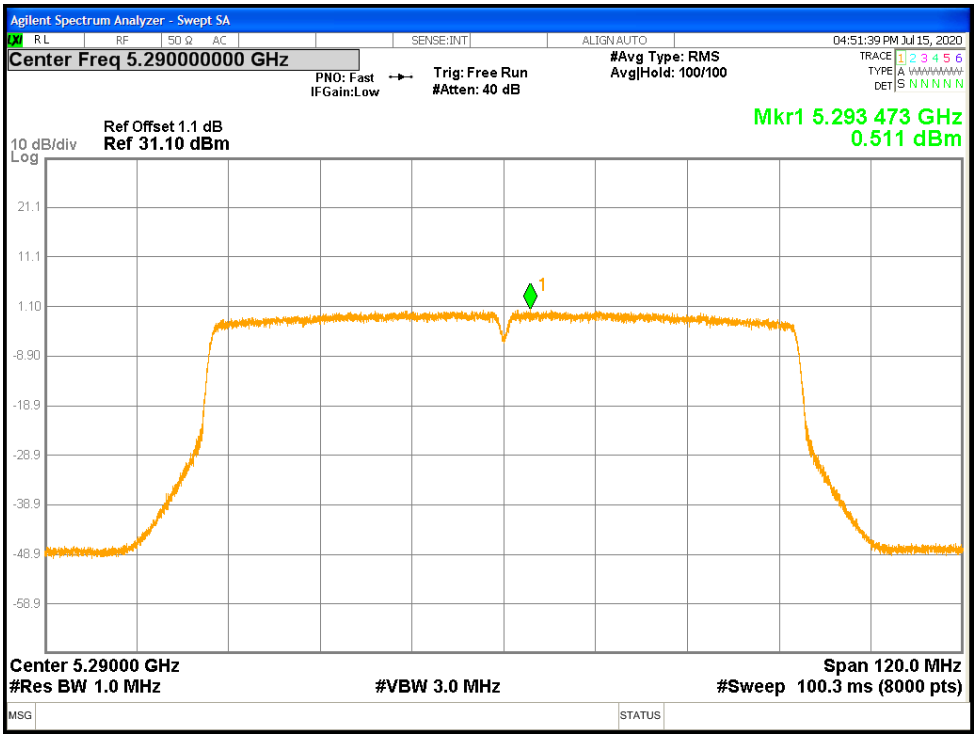


Figure 75: FCC Correlated Power Spectral Density-5290 MHz-802.11ac-VHT80-MCS0-Ch1

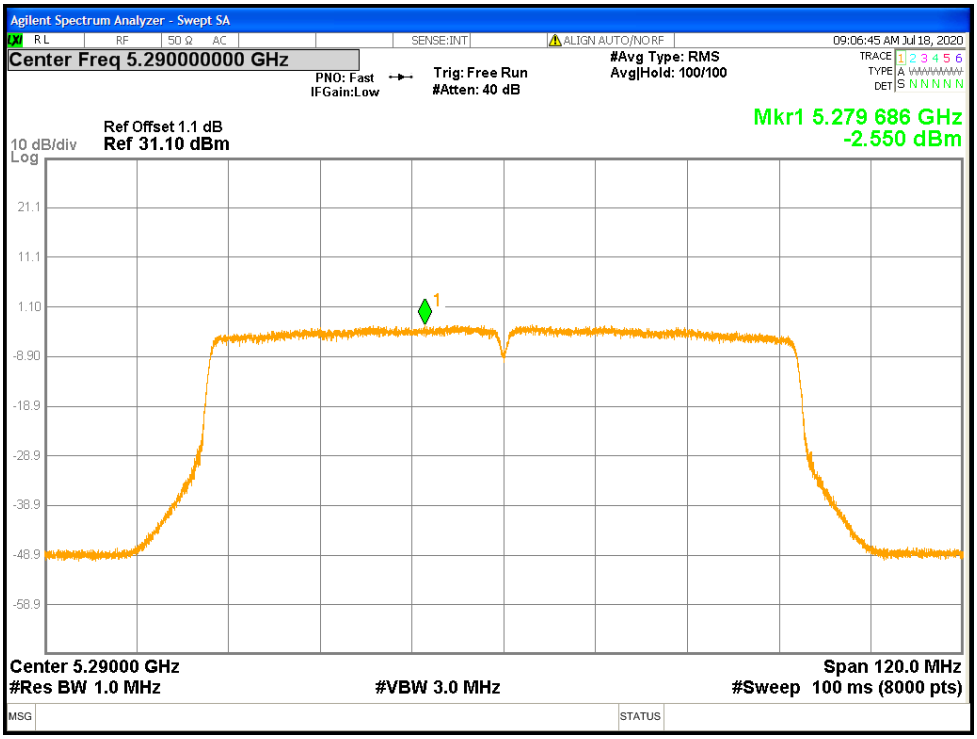


Figure 76: RSS Correlated Power Spectral Density-5290 MHz-802.11ac-VHT80-MCS0-Ch0

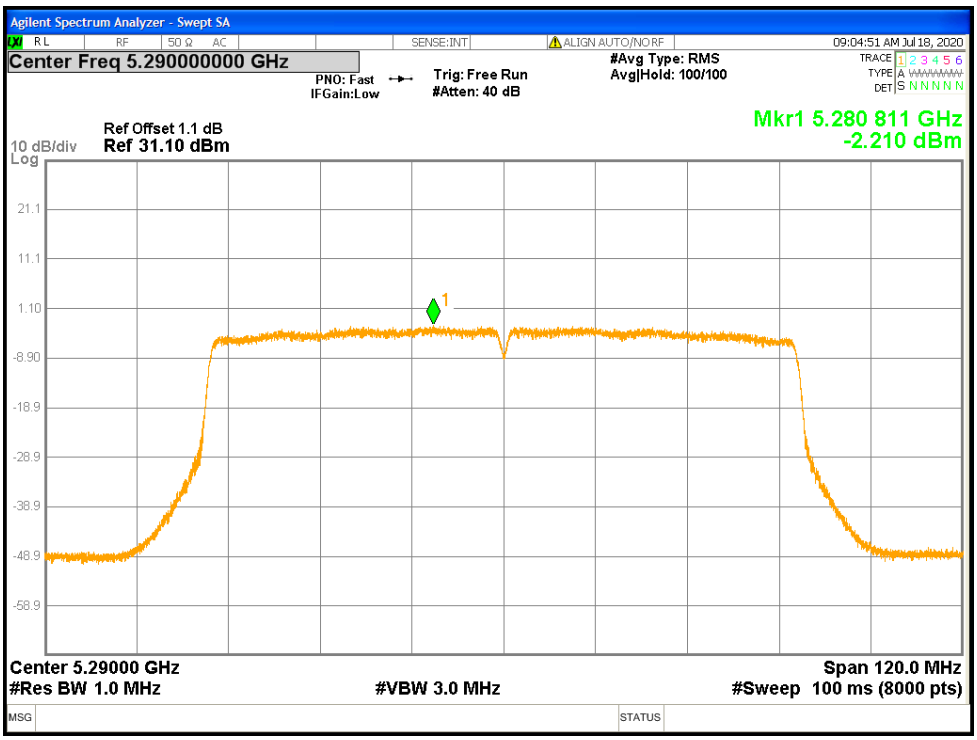


Figure 77: RSS Correlated Power Spectral Density-5290 MHz-802.11ac-VHT80-MCS0-Ch1

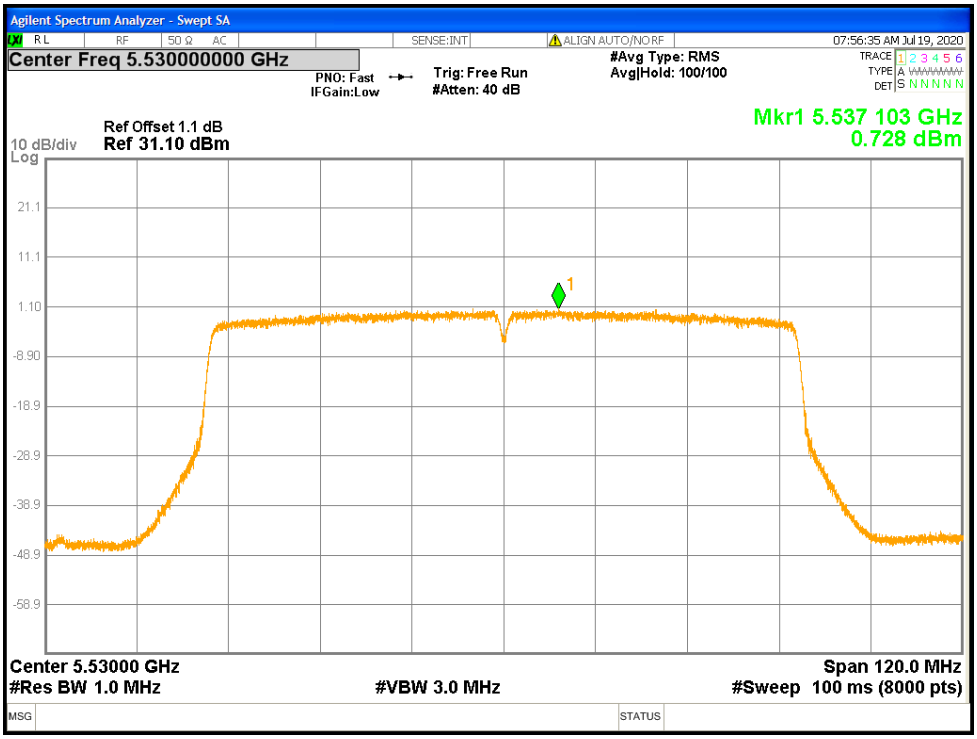


Figure 78: Correlated Power Spectral Density-5530 MHz-802.11ac-VHT80-MCS0-Ch0

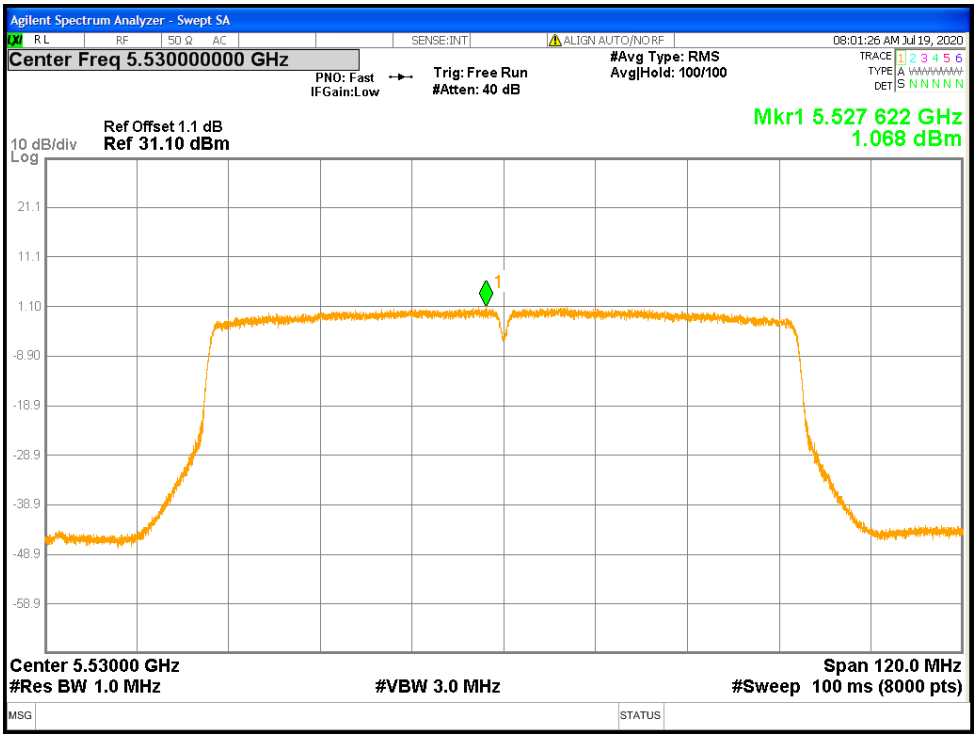


Figure 79: Correlated Power Spectral Density-5530 MHz-802.11ac-VHT80-MCS0-Ch1

4.4 Undesirable Emission Limits

CFR47 15.407 (b) and RSS 247 Sect.6.2.1.2, 6.2.2.2, and 6.2.3.2: The maximum emissions outside of the frequency bands of operation shall be attenuated in accordance with the following limits:

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.

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.

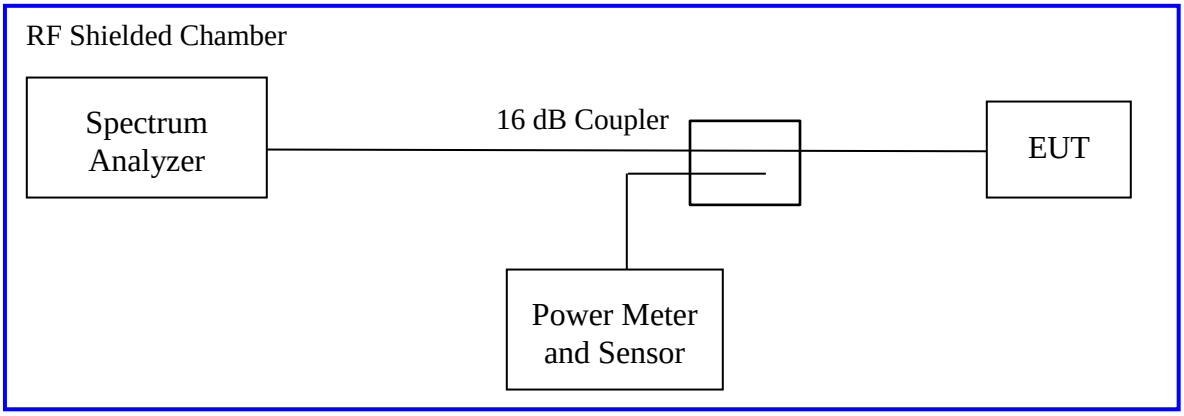
For transmitters operating in the 5.47-5.725 GHz band: All emissions outside of the 5.47-5.725 GHz band shall not exceed an e.i.r.p. of −27 dBm/MHz.

For transmitters operating in the 5.725-5.85 GHz band: 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.

4.4.1 Test Method

The conducted method was used to measure the undesirable emission requirement. The measurement was performed with modulation. This test was conducted on 3 channels of Sample in each mode on Sample. The worst sample result indicated below.

Test Setup:



4.4.2 Results

As originally tested, the EUT was found to be compliant to the requirements of the test standard(s).

Table 17: Undesired Emissions – Test Results

Date: June 30 – July 1, 2020	**Tested By:** Kerwinn Corpuz
Test Method: Conducted Measurements	**Power Setting:** See test plan.
Antenna Type: FPCB	**Max Antenna Gain:** UNII2A = 2.37 dBi; UNII2C = 3.57 dBi
Operating Mode: Uncorrelated	**Signal State:** Modulated at 92.3% (11a), 93.2% (HT20), 95.7% (HT40 & VHT80)
Ambient Temp.: 23 °C	**Relative Humidity:** 35-37%

Undesired Emissions for 802.11a, 6Mbps

Frequency	Raw	CF	Ant. Gain	Level	Det.	Port	Limit	Margin	Comments
MHz	dBm	dB	dBi	dBm		Ch 0/1	dBm	dB	Operating Frequency
36820.44	-40.61	1.85	2.37	-36.38	Pk	Ch 1	-27	-9.38	5260MHz, 11a
34503.16	-41.28	1.83	2.37	-37.08	Pk	Ch 1	-27	-10.08	5260MHz, 11a
30998.68	-42.31	1.71	2.37	-38.23	Pk	Ch 1	-27	-11.23	5300MHz, 11a
34331.78	-42.21	1.8	2.37	-38.04	Pk	Ch 1	-27	-11.04	5300MHz, 11a
32188.56	-42.99	1.76	2.37	-38.86	Pk	Ch 1	-27	-11.86	5320MHz, 11a
34030.06	-42.28	1.83	2.37	-38.08	Pk	Ch 1	-27	-11.08	5320MHz, 11a
32142.14	-43.85	1.76	3.57	-38.52	Pk	Ch 1	-27	-11.52	5500MHz, 11a
36066.16	-42.83	1.83	3.57	-37.43	Pk	Ch 1	-27	-10.43	5500MHz, 11a
32191.24	-42.65	1.76	3.57	-37.32	Pk	Ch 1	-27	-10.32	5580MHz, 11a
35439.53	-42.22	1.87	3.57	-36.78	Pk	Ch 1	-27	-9.78	5580MHz, 11a
33591.78	-43.35	1.83	3.57	-37.96	Pk	Ch 1	-27	-10.96	5720MHz, 11a
35265.47	-42.29	1.81	3.57	-36.91	Pk	Ch 1	-27	-9.91	5720MHz, 11a

Undesired Emissions for 802.11n HT20, MCS0

Frequency	Raw	CF	Ant. Gain	Level	Det.	Port	Limit	Margin	Comments
MHz	dBm	dB	dBi	dBm		Ch 0/1	dBm	dB	Operating Frequency
34864.68	-41.50	1.88	2.37	-37.25	Pk	Ch 1	-27	-10.25	5260MHz, HT20
37679.15	-40.31	1.86	2.37	-36.08	Pk	Ch 1	-27	-9.08	5260MHz, HT20
33673.01	-41.56	1.8	2.37	-37.39	Pk	Ch 1	-27	-10.39	5300MHz, HT20
35386.87	-40.87	1.87	2.37	-36.63	Pk	Ch 1	-27	-9.63	5300MHz, HT20
33609.63	-42.02	1.83	2.37	-37.83	Pk	Ch 1	-27	-10.83	5320MHz, HT20
35667.16	-41.48	1.86	2.37	-37.25	Pk	Ch 1	-27	-10.25	5320MHz, HT20
30504.16	-42.69	1.71	3.57	-37.41	Pk	Ch 1	-27	-10.41	5500MHz, HT20
35036.06	-42.00	1.81	3.57	-36.62	Pk	Ch 1	-27	-9.62	5500MHz, HT20

34636.16	-42.22	1.82	3.57	-36.83	Pk	Ch 1	-27	-9.83	5580MHz, HT20
35830.51	-42.68	1.84	3.57	-37.28	Pk	Ch 1	-27	-10.28	5580MHz, HT20
33689.08	-42.54	1.8	3.57	-37.17	Pk	Ch 1	-27	-10.17	5720MHz, HT20
35691.26	-42.44	1.86	3.57	-37.02	Pk	Ch 1	-27	-10.02	5720MHz, HT20
Undesired Emissions for 802.11n HT40, MCS0									
Frequency	Raw	CF	Ant. Gain	Level	Det.	Port	Limit	Margin	Comments
MHz	dBm	dB	dBi	dBm		Ch 0/1	dBm	dB	Operating Frequency
27450.46	-42.65	1.67	2.37	-38.62	Pk	Ch 1	-27	-11.62	5270MHz, HT40
33258.83	-42.67	1.82	2.37	-38.49	Pk	Ch 1	-27	-11.49	5270MHz, HT40
34663.83	-40.07	1.81	2.37	-35.89	Pk	Ch 1	-27	-8.89	5310MHz, HT40
37488.13	-40.25	1.9	2.37	-35.98	Pk	Ch 1	-27	-8.98	5310MHz, HT40
33629.27	-43.00	1.82	3.57	-37.61	Pk	Ch 1	-27	-10.61	5510MHz, HT40
35626.99	-42.13	1.85	3.57	-36.71	Pk	Ch 1	-27	-9.71	5510MHz, HT40
30090.87	-43.27	1.71	3.57	-37.99	Pk	Ch 1	-27	-10.99	5590MHz, HT40
33716.75	-43.41	1.79	3.57	-38.04	Pk	Ch 1	-27	-11.04	5590MHz, HT40
30588.07	-43.93	1.69	3.57	-38.67	Pk	Ch 1	-27	-11.67	5710MHz, HT40
32096.62	-44.04	1.76	3.57	-38.71	Pk	Ch 1	-27	-11.71	5710MHz, HT40
Undesired Emissions for 802.11ac VHT80, MCS0									
Frequency	Raw	CF	Ant. Gain	Level	Det.	Port	Limit	Margin	Comments
MHz	dBm	dB	dBi	dBm		Ch 0/1	dBm	dB	Operating Frequency
29715.97	-42.04	1.69	2.37	-37.98	Pk	Ch 1	-27	-10.98	5290MHz, VHT80
33872.96	-41.76	1.81	2.37	-37.58	Pk	Ch 1	-27	-10.58	5290MHz, VHT80
27534.37	-42.78	1.65	3.57	-37.56	Pk	Ch 1	-27	-10.56	5530MHz, VHT80
34238.94	-42.51	1.81	3.57	-37.13	Pk	Ch 1	-27	-10.13	5530MHz, VHT80
33598.03	-42.55	1.83	3.57	-37.16	Pk	Ch 1	-27	-10.16	5610MHz, VHT80
35448.46	-42.01	1.87	3.57	-36.57	Pk	Ch 1	-27	-9.57	5610MHz, VHT80
27475.45	-43.82	1.66	3.57	-38.59	Pk	Ch 1	-27	-11.59	5690MHz, VHT80
32568.82	-43.86	1.78	3.57	-38.52	Pk	Ch 1	-27	-11.52	5690MHz, VHT80

Note: 1. Worst case observed at Chain 1. Emissions detected, noise floor.

2. All out-of-band emissions, including Straddle Channels, are below the -27dBm level.

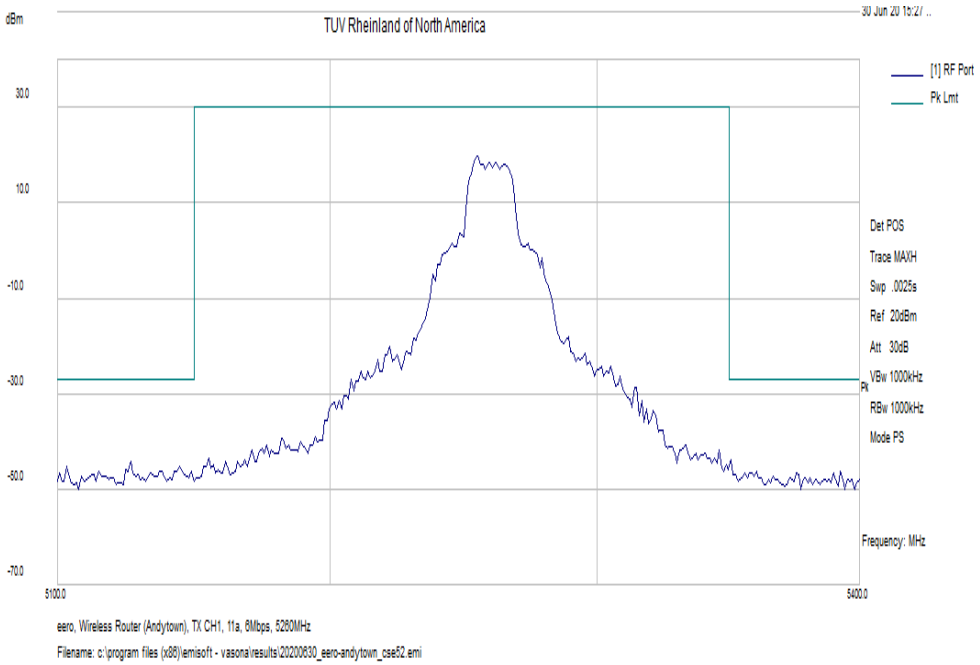


Figure 80: Measured Band-edge for 802.11a-6 Mbps at 5260 MHz, Ch 1

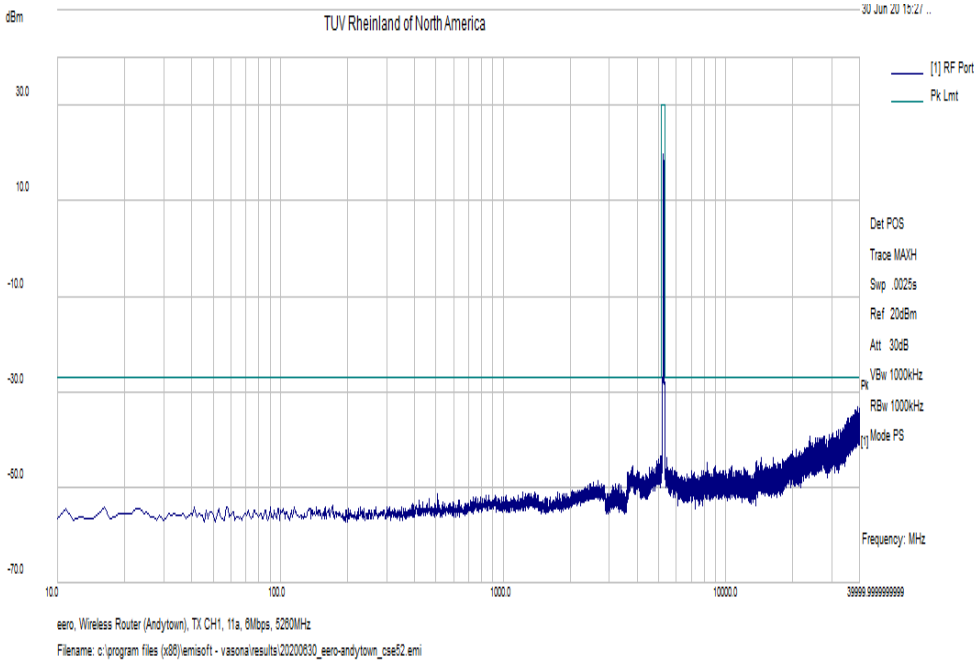


Figure 81: Undesirable Emission for 802.11a-6 Mbps at 5260 MHz, Ch 1

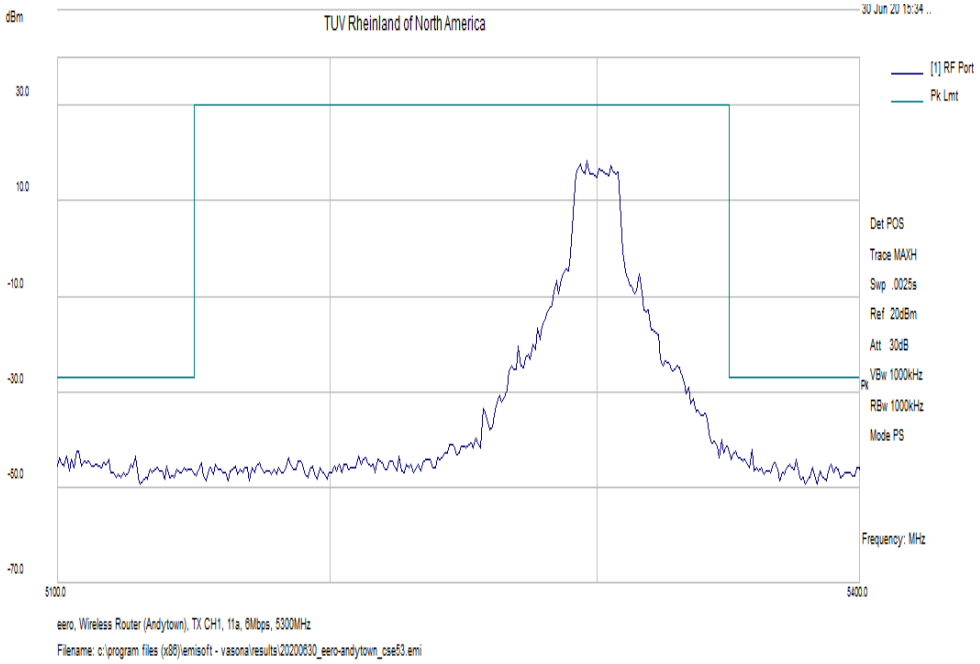


Figure 82: Measured Band-edge for 802.11a-6 Mbps at 5300 MHz, Ch 1

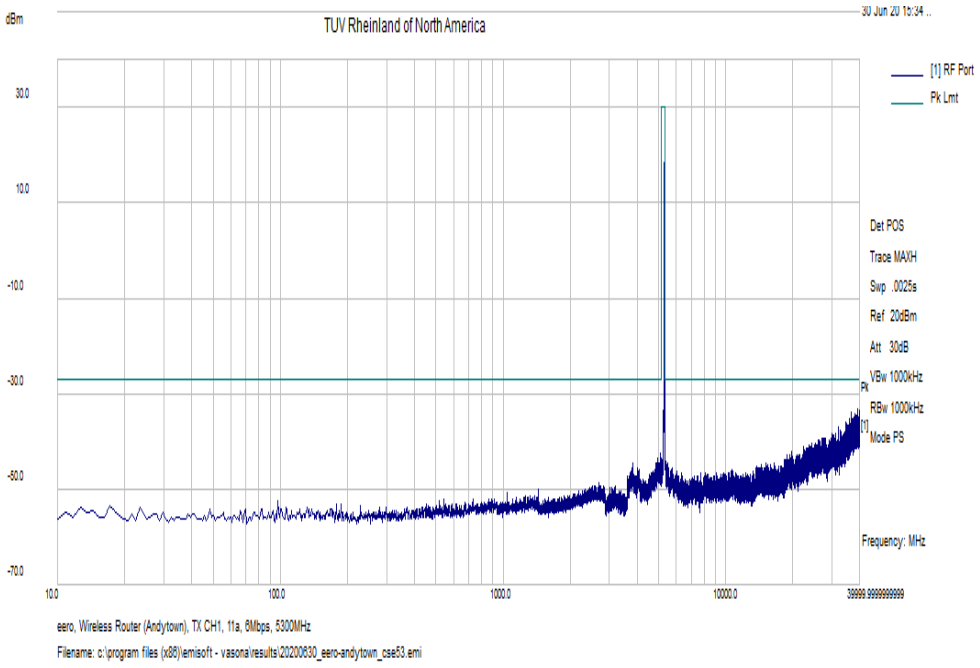


Figure 83: Undesirable Emission for 802.11a-6 Mbps at 5300 MHz, Ch 1

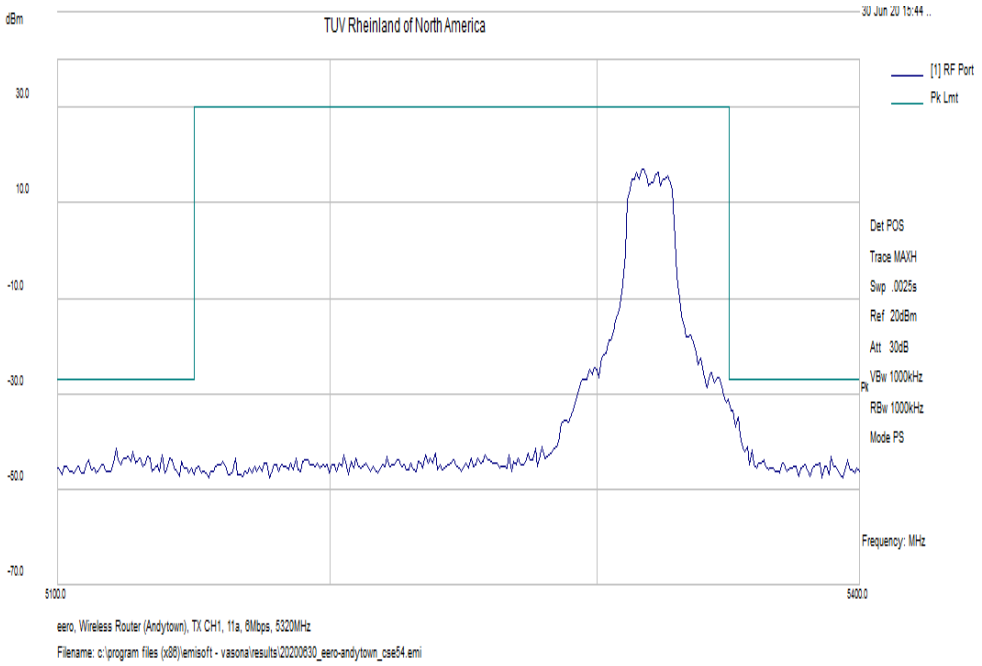


Figure 84: Measured Band-edge for 802.11a-6 Mbps at 5320 MHz, Ch 1

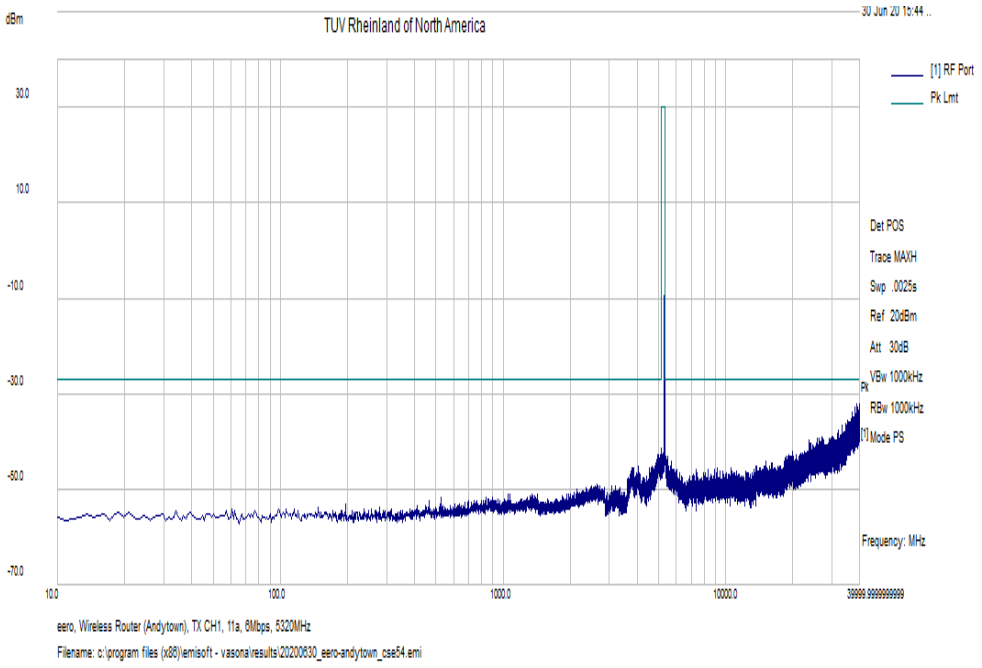


Figure 85: Undesirable Emission for 802.11a-6 Mbps at 5320 MHz, Ch 1

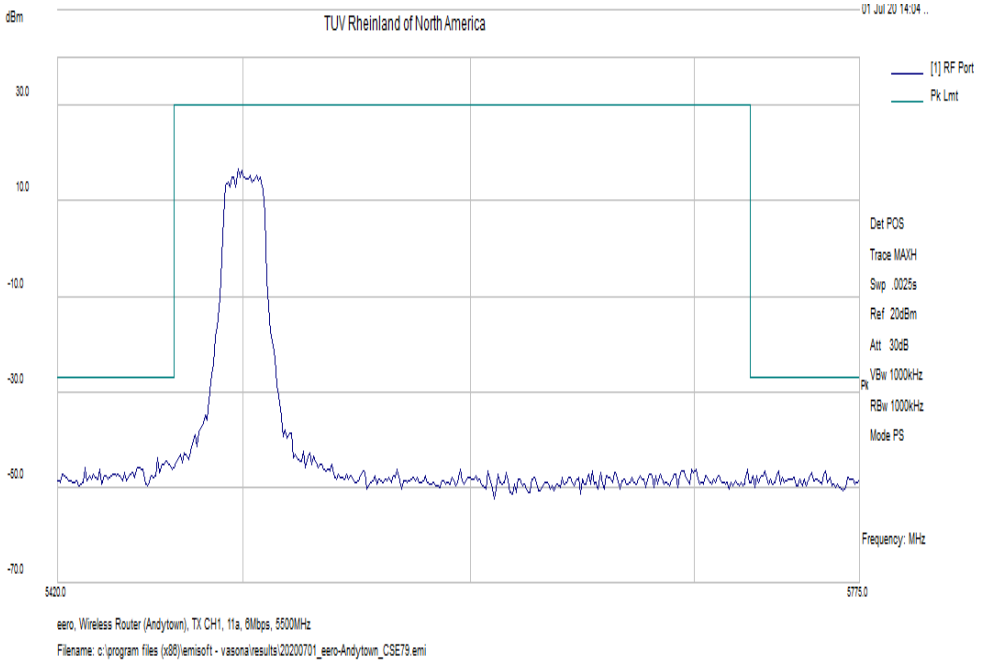


Figure 86: Measured Band-edge for 802.11a-6 Mbps at 5500 MHz, Ch 1

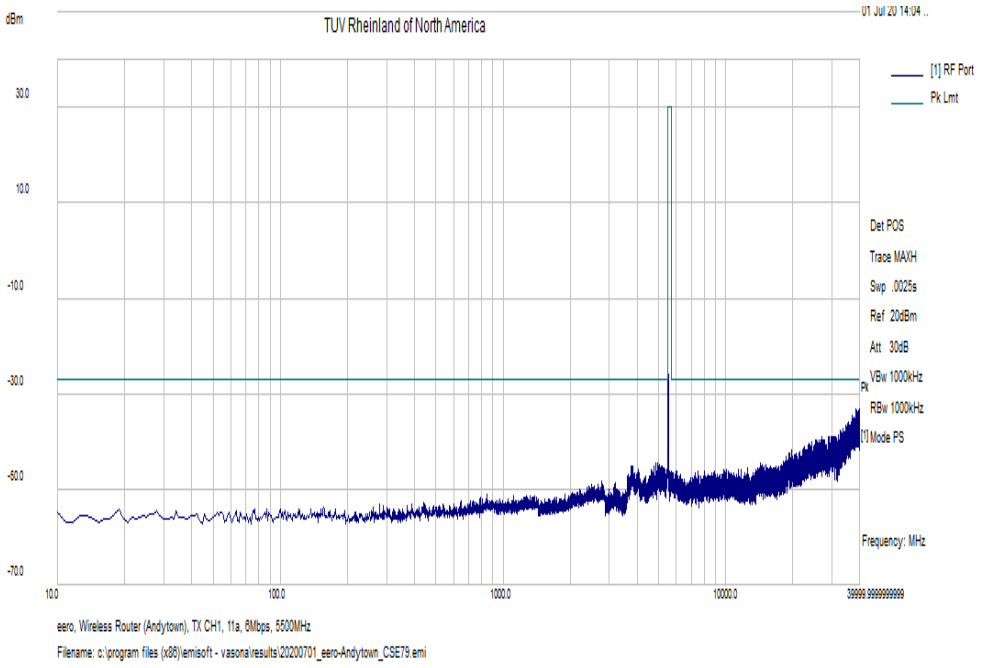


Figure 87: Undesirable Emission for 802.11a-6 Mbps at 5500 MHz, Ch 1

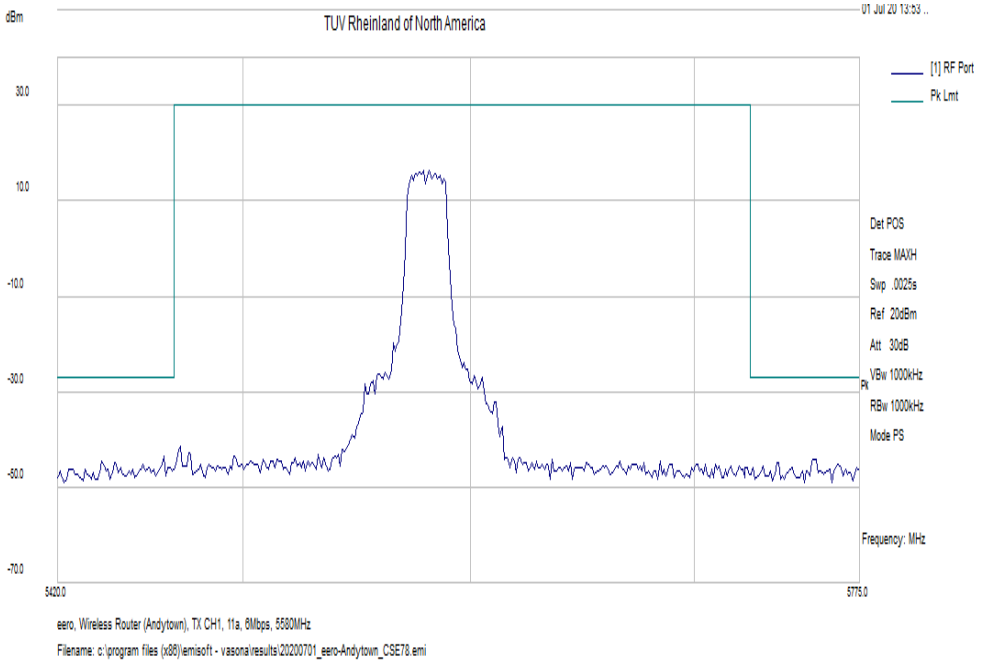


Figure 88: Measured Band-edge for 802.11a-6 Mbps at 5580 MHz, Ch 1

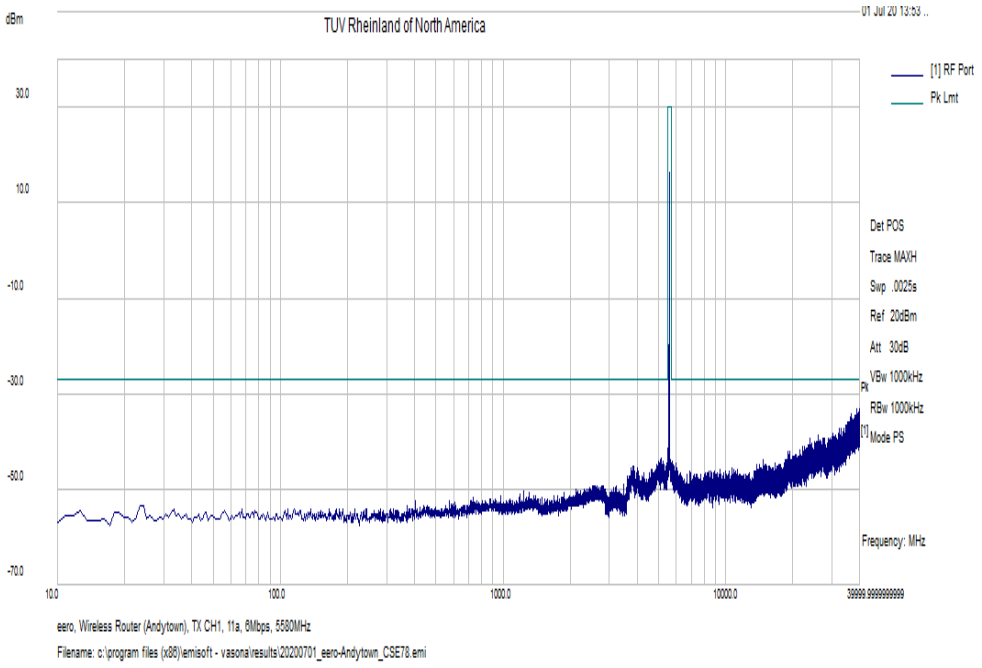


Figure 89: Undesirable Emission for 802.11a-6 Mbps at 5580 MHz, Ch 1

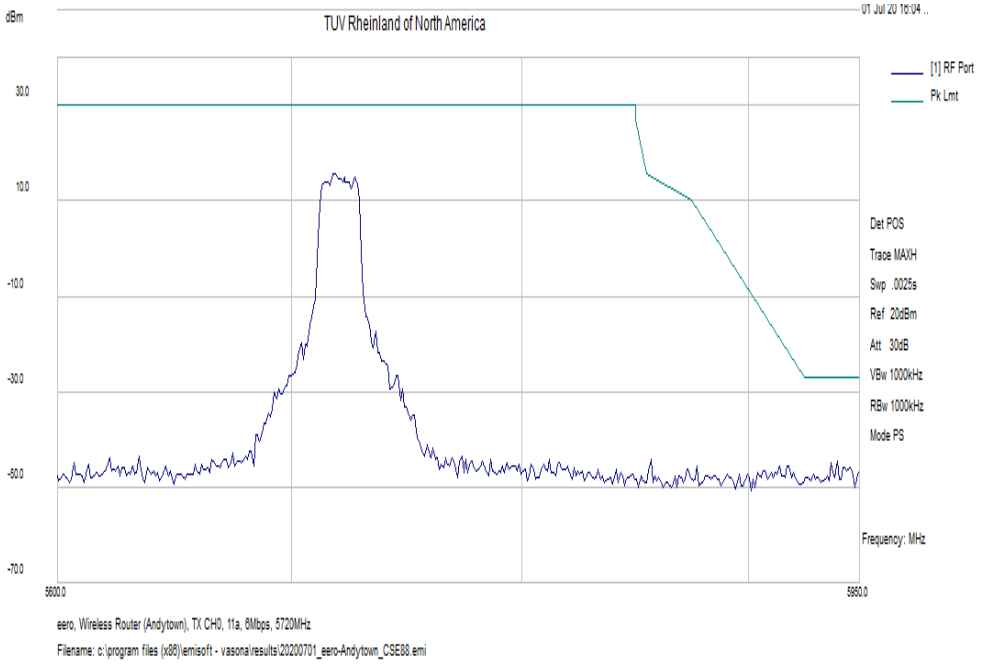


Figure 90: Measured Band-edge for 802.11a-6 Mbps at 5720 MHz, Ch 1

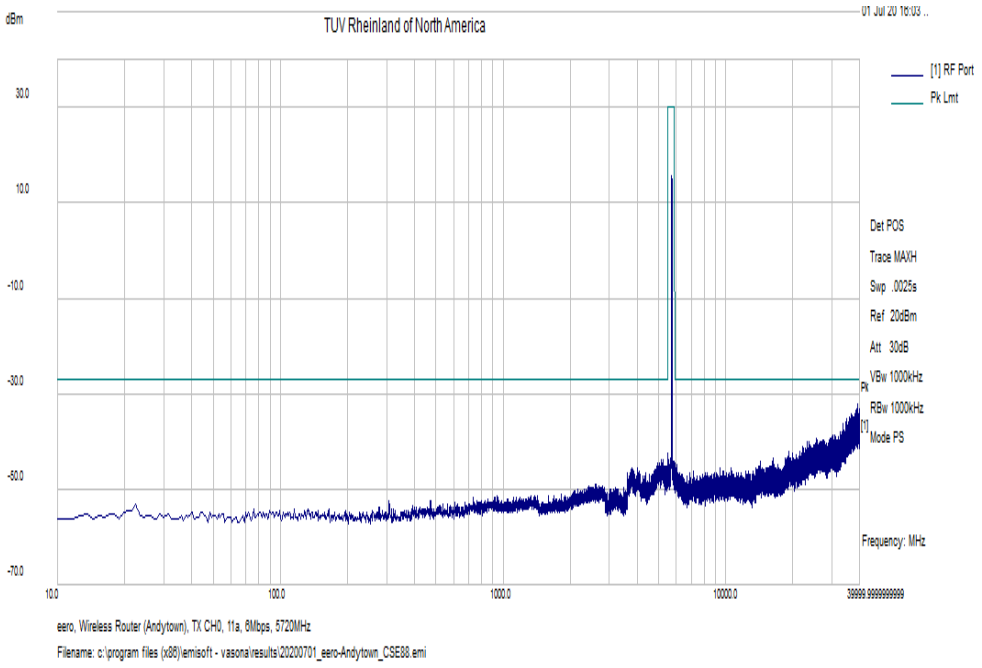


Figure 91: Undesirable Emission for 802.11a-6 Mbps at 5720 MHz, Ch 1

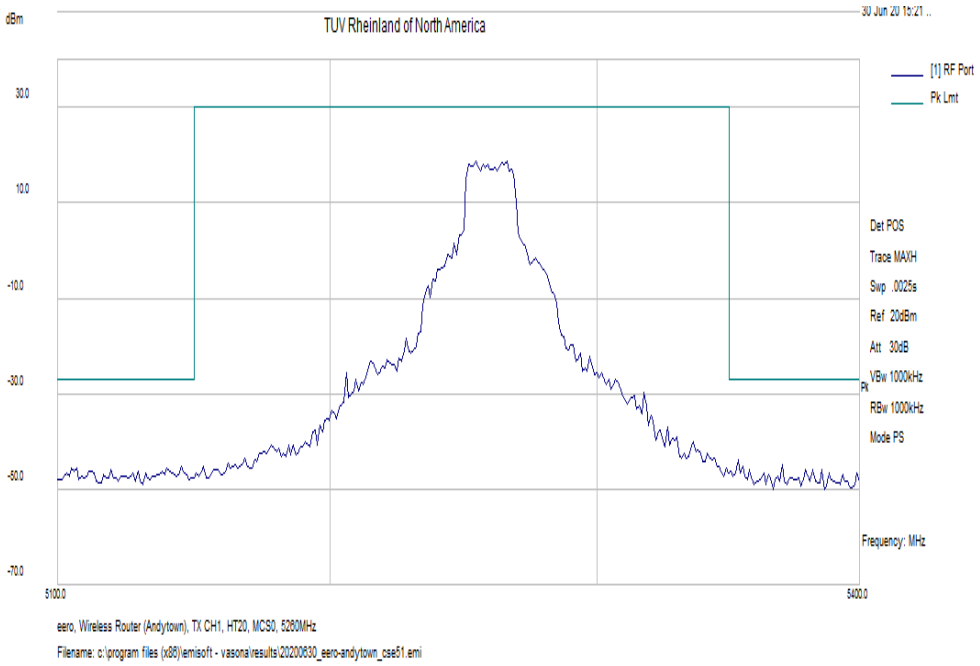


Figure 92: Measured Band-edge for HT20-MCS0 at 5260 MHz, Ch 1

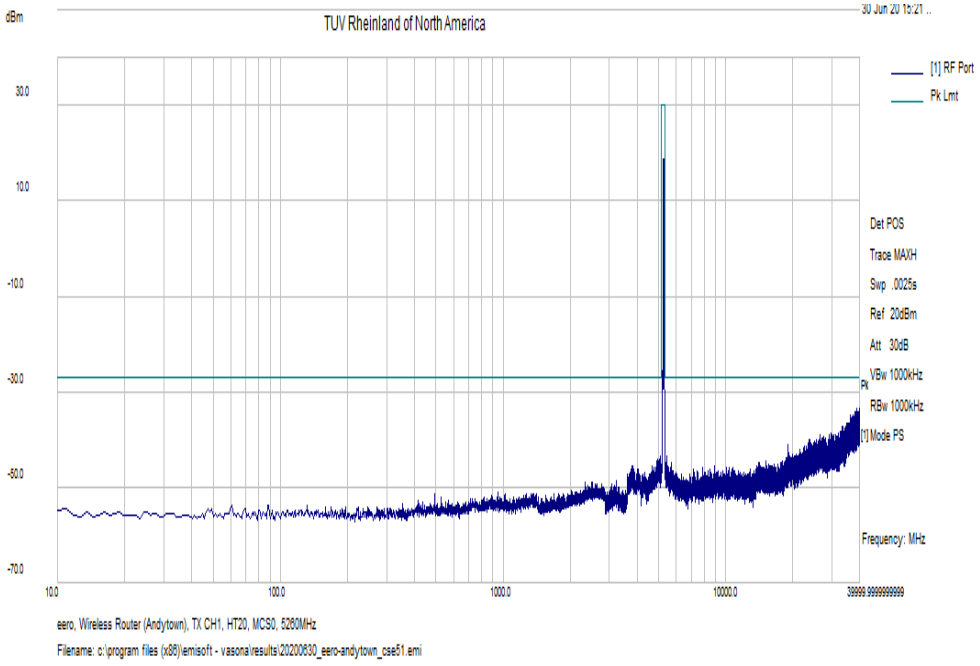


Figure 93: Undesirable Emission for HT20-MCS0 at 5260 MHz, Ch 1

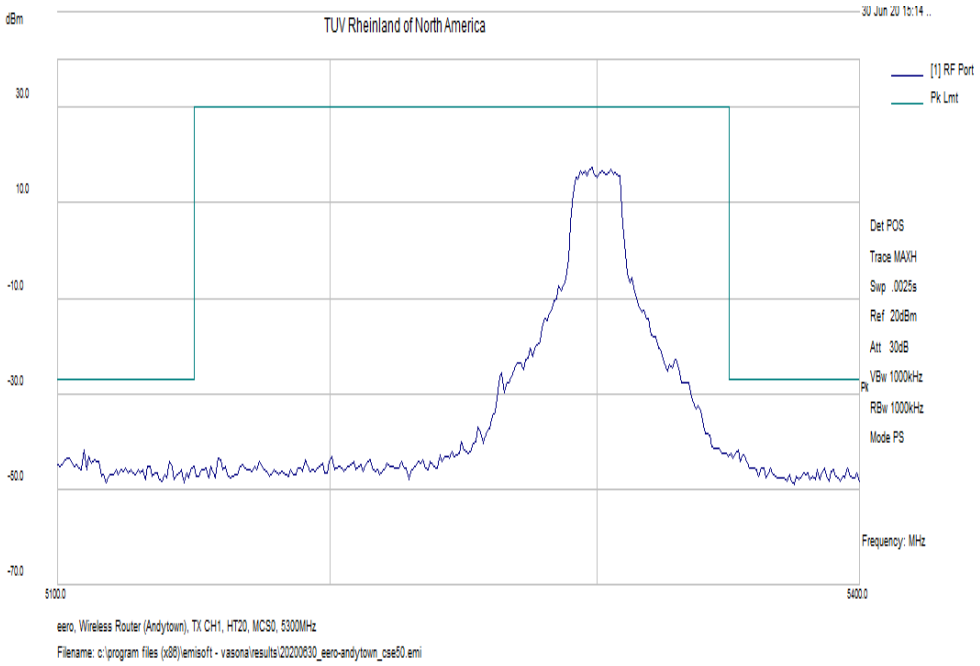


Figure 94: Measured Band-edge for HT20-MCS0 at 5300 MHz, Ch 1

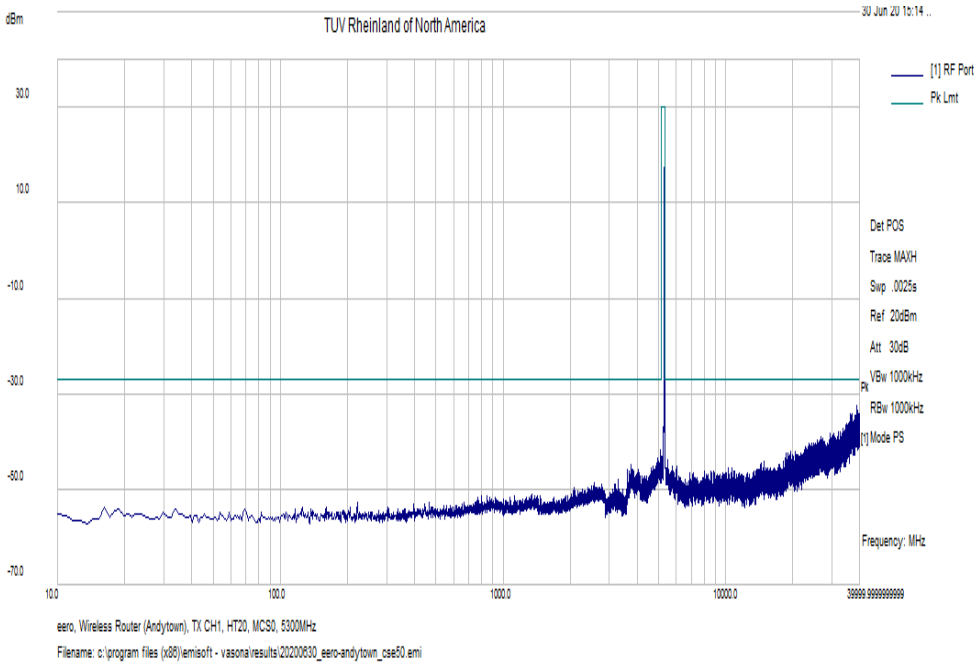


Figure 95: Undesirable Emission for HT20-MCS0 at 5300 MHz, Ch 1

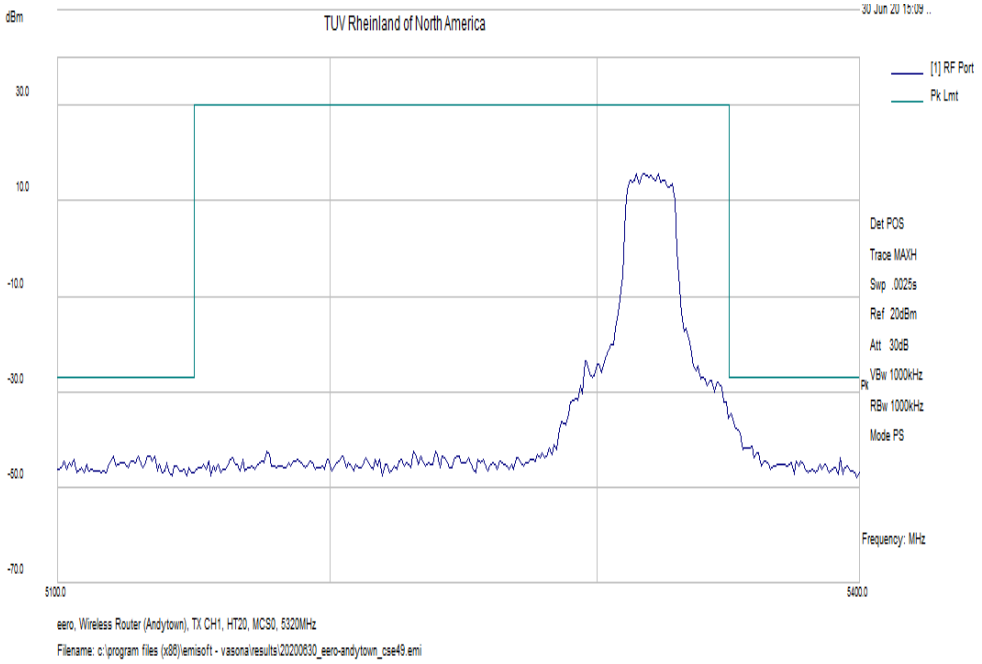


Figure 96: Measured Band-edge for HT20-MCS0 at 5320 MHz, Ch 1

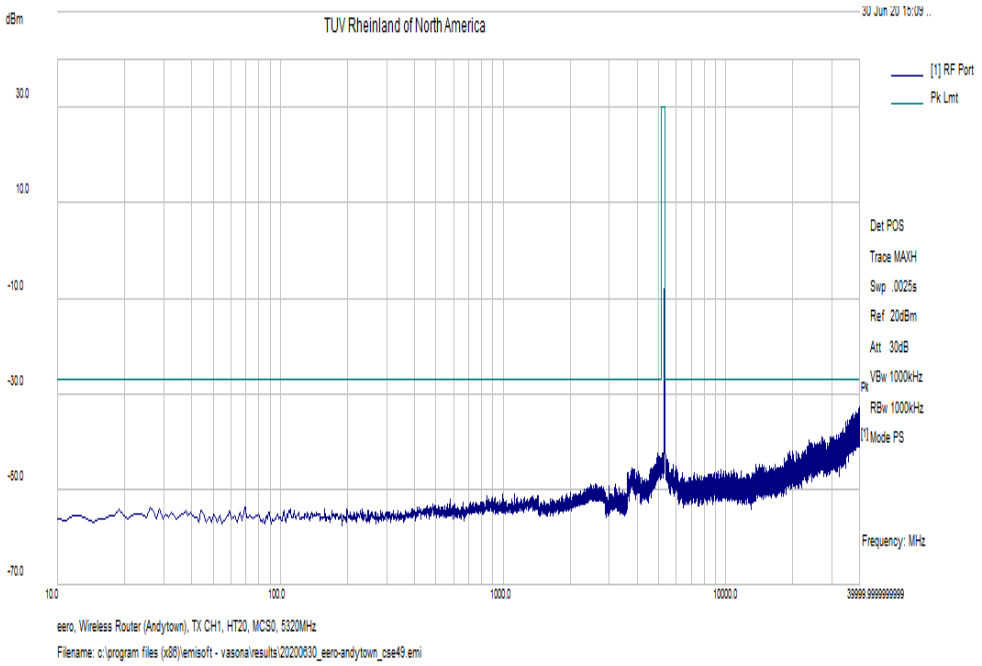


Figure 97: Undesirable Emission for HT20-MCS0 at 5320 MHz, Ch 1

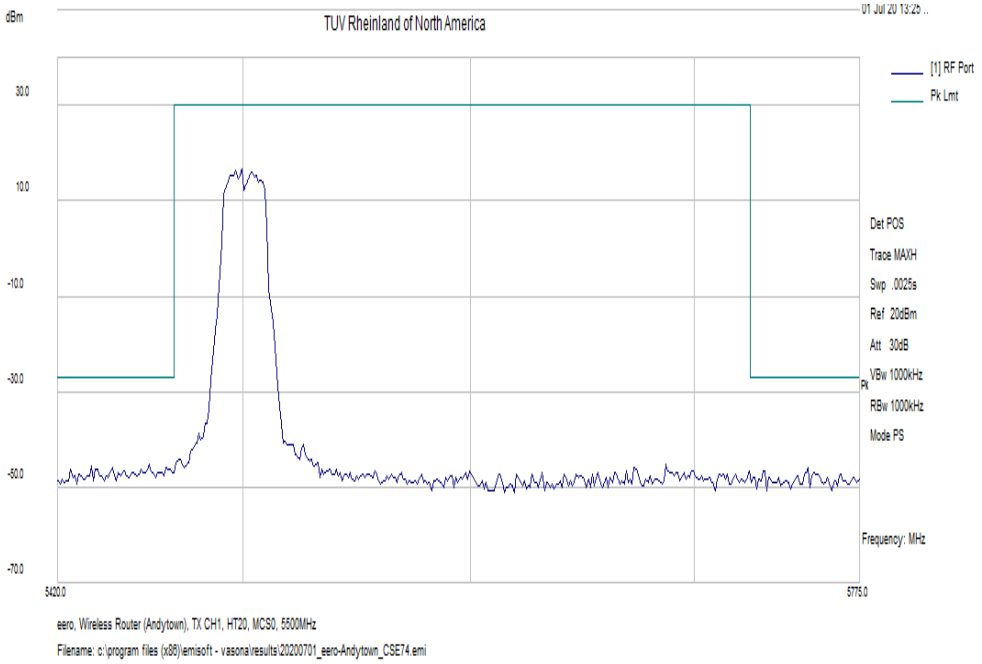


Figure 98: Measured Band-edge for HT20-MCS0 at 5500 MHz, Ch 1

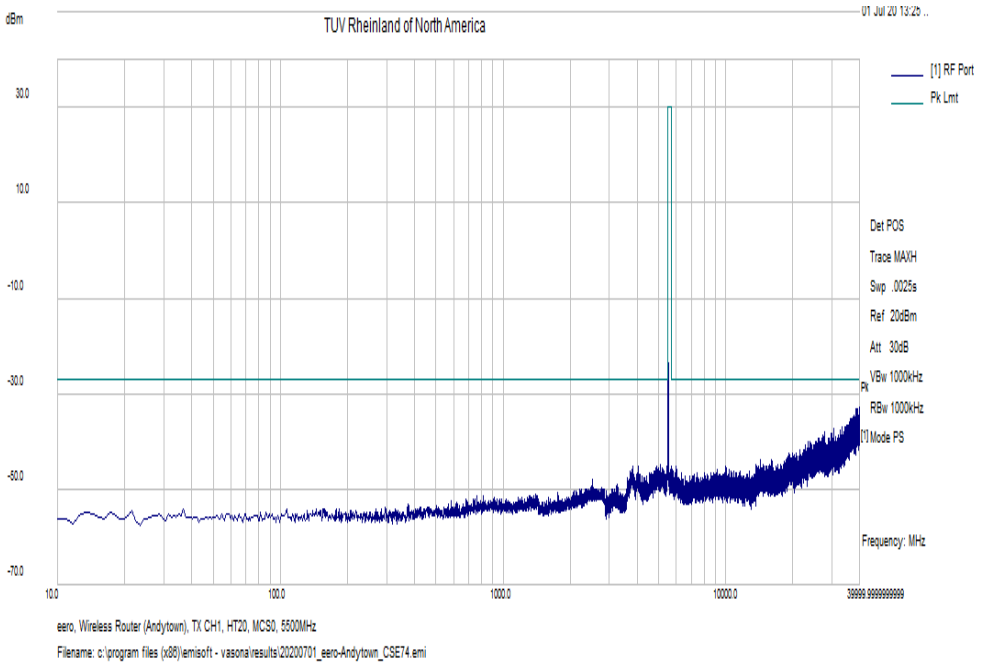


Figure 99: Undesirable Emission for HT20-MCS0 at 5500 MHz, Ch 1

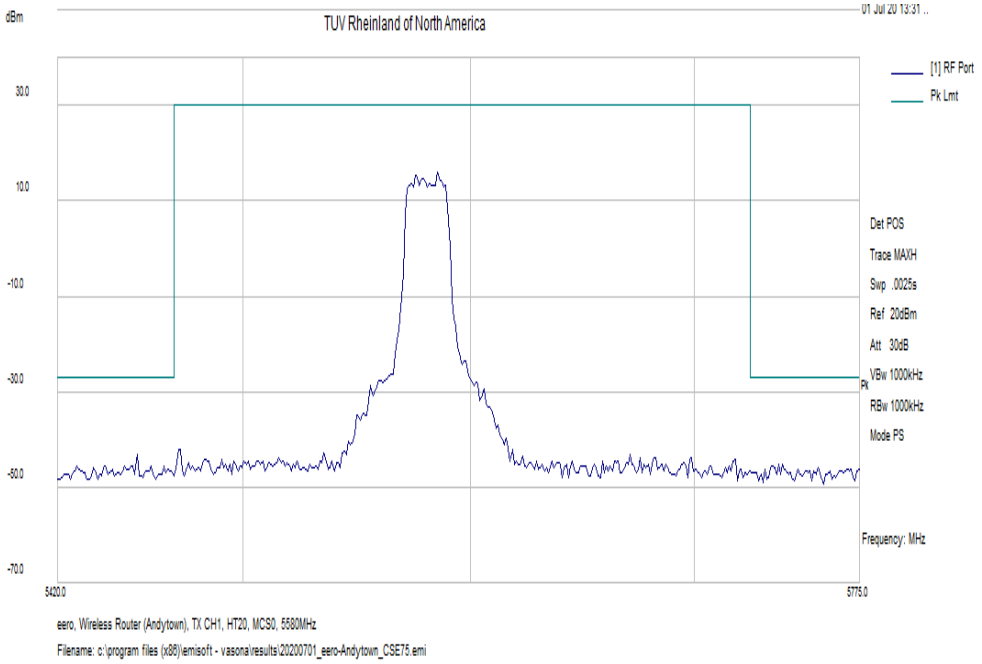


Figure 100: Measured Band-edge for HT20-MCS0 at 5580 MHz, Ch 1

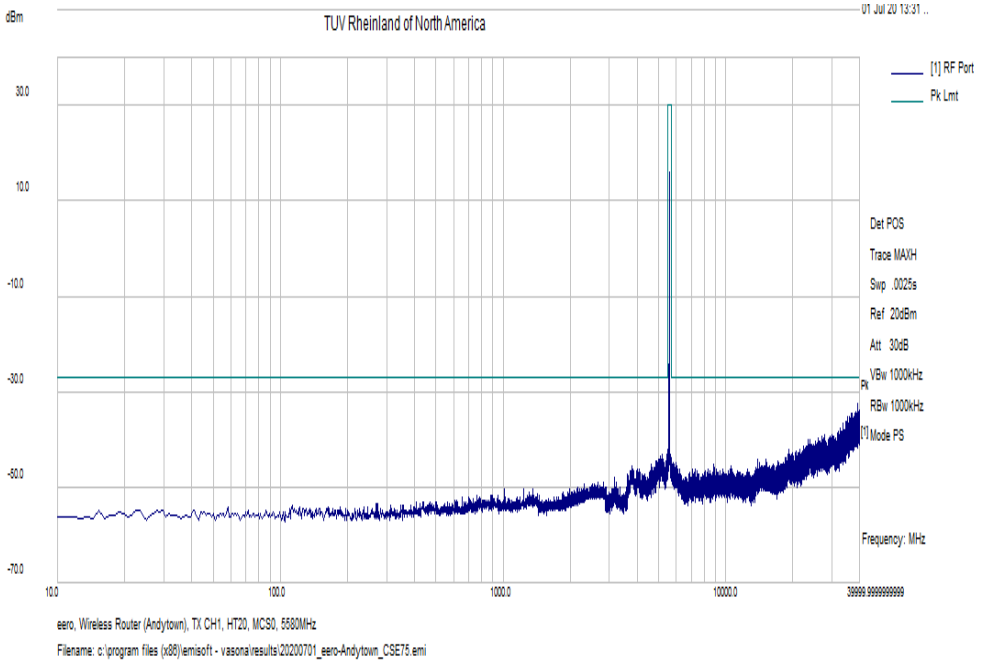


Figure 101: Undesirable Emission for HT20-MCS0 at 5580 MHz, Ch 1

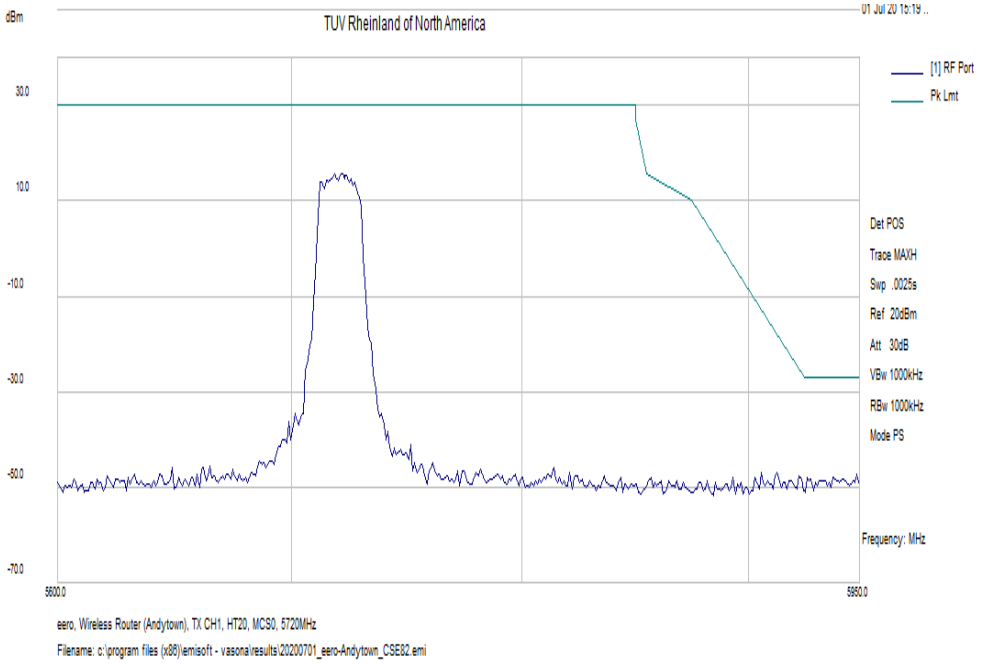


Figure 102: Measured Band-edge for HT20-MCS0 at 5720 MHz, Ch 1

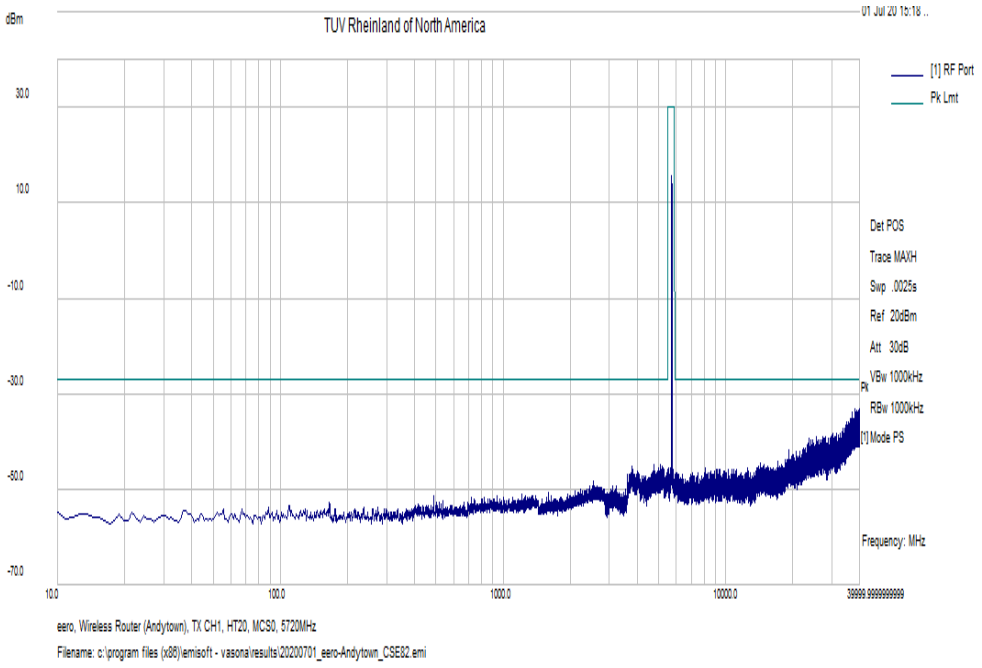


Figure 103: Undesirable Emission for HT20-MCS0 at 5720 MHz, Ch 1

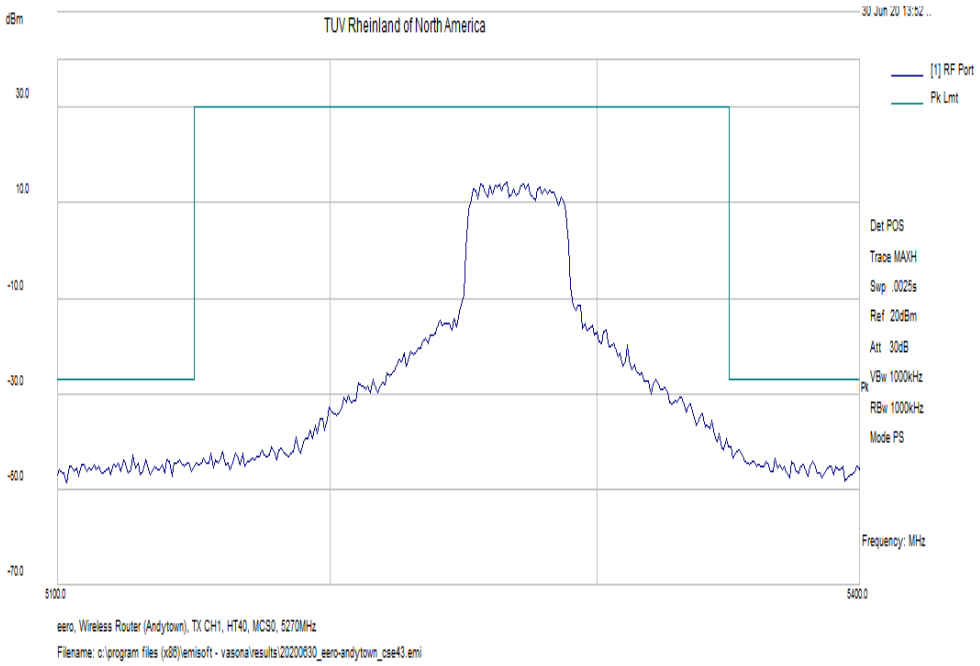


Figure 104: Measured Band-edge for HT40-MCS0 at 5270 MHz, Ch 1

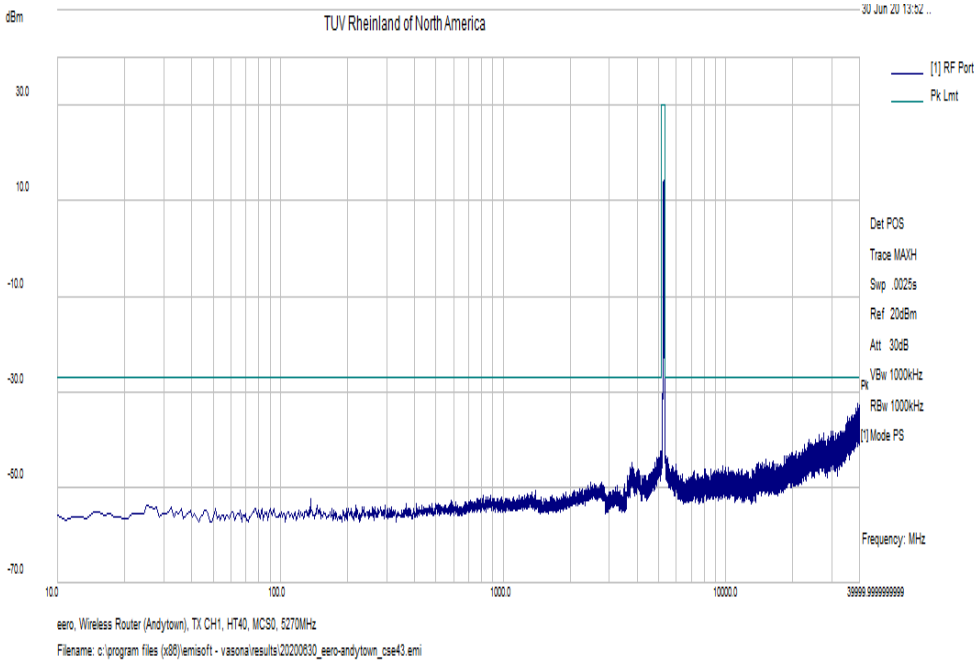


Figure 105: Undesirable Emission for HT40-MCS0 at 5270 MHz, Ch 1

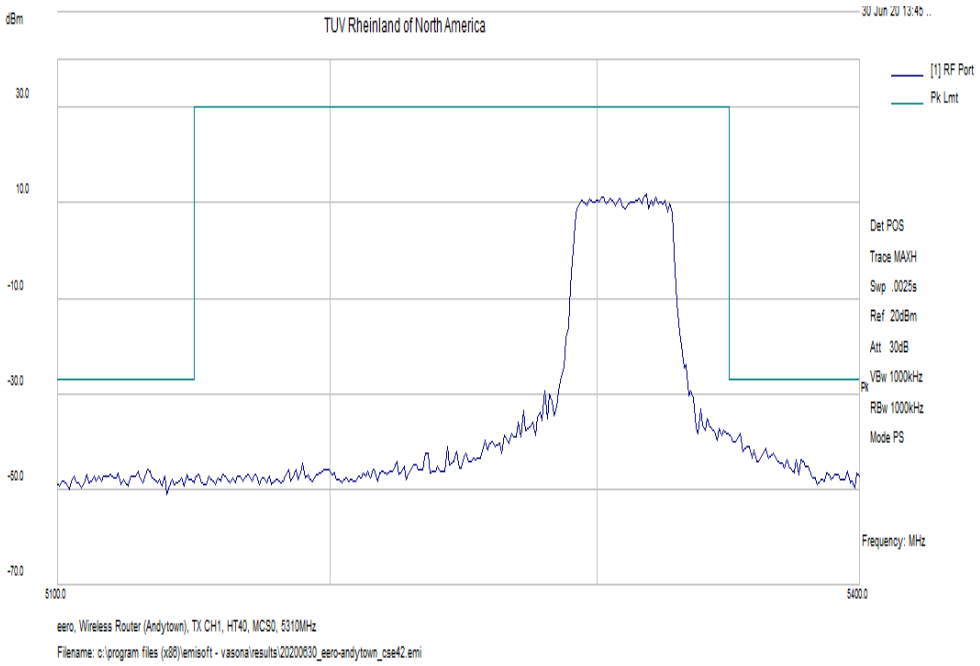


Figure 106: Measured Band-edge for HT40-MCS0 at 5310 MHz, Ch 1

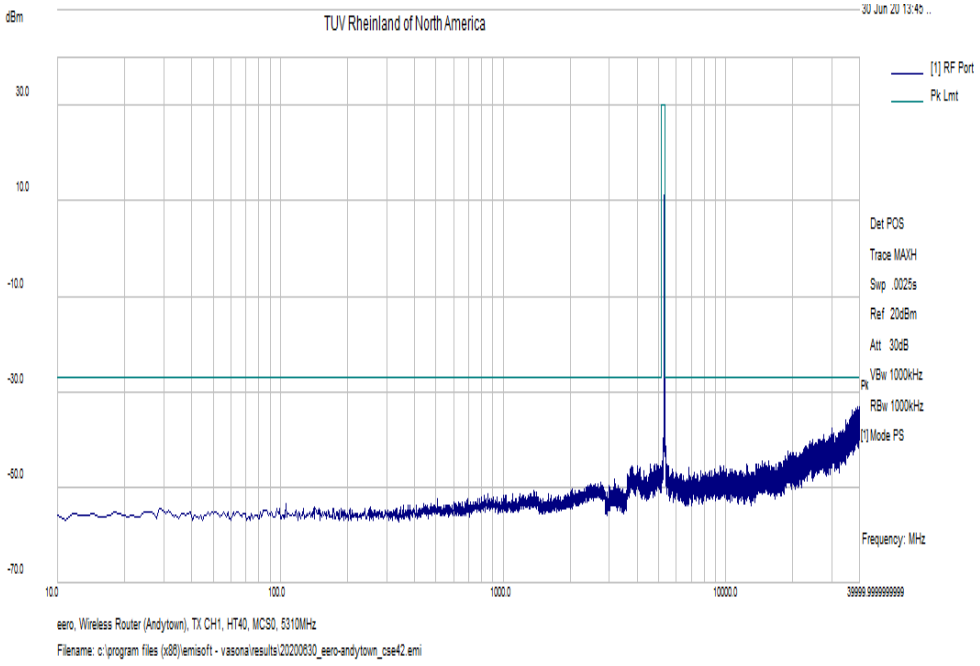


Figure 107: Undesirable Emission for HT40-MCS0 at 5310 MHz, Ch 1

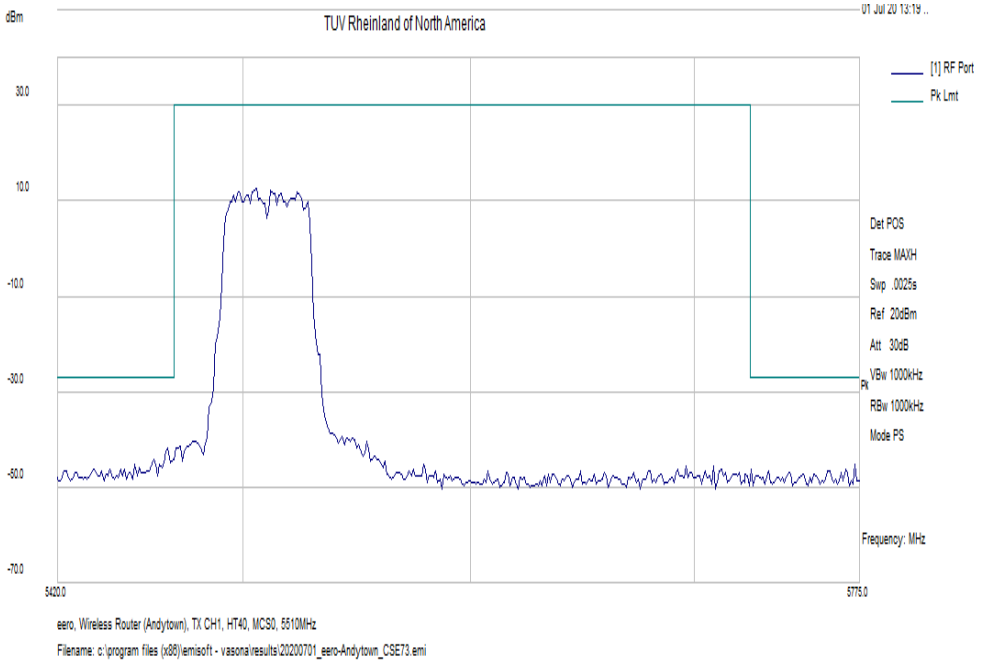


Figure 108: Measured Band-edge for HT40-MCS0 at 5510 MHz, Ch 1

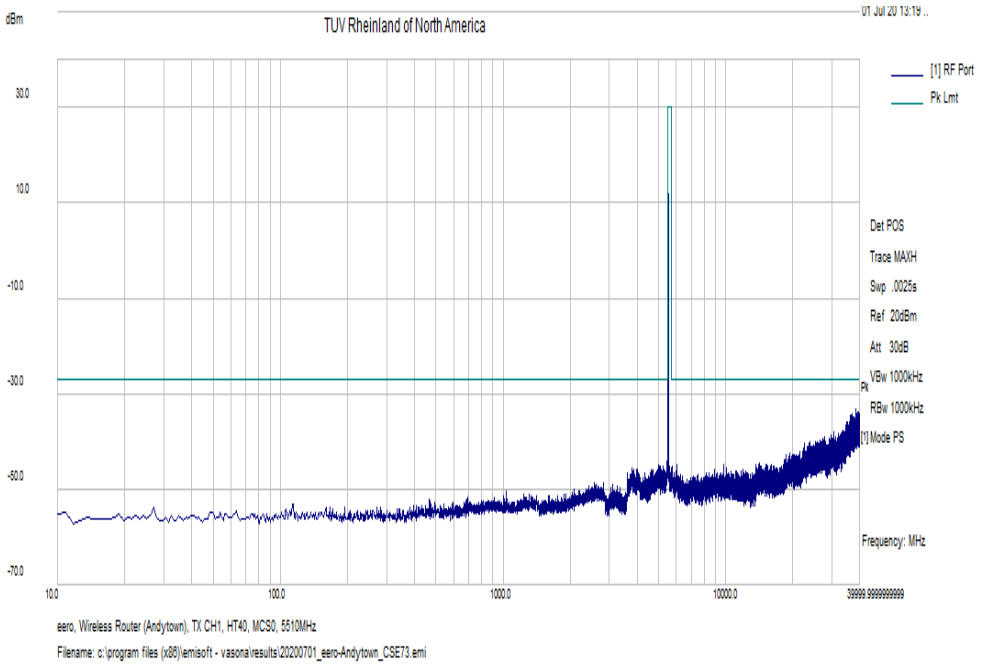


Figure 109: Undesirable Emission for HT40-MCS0 at 5510 MHz, Ch 1

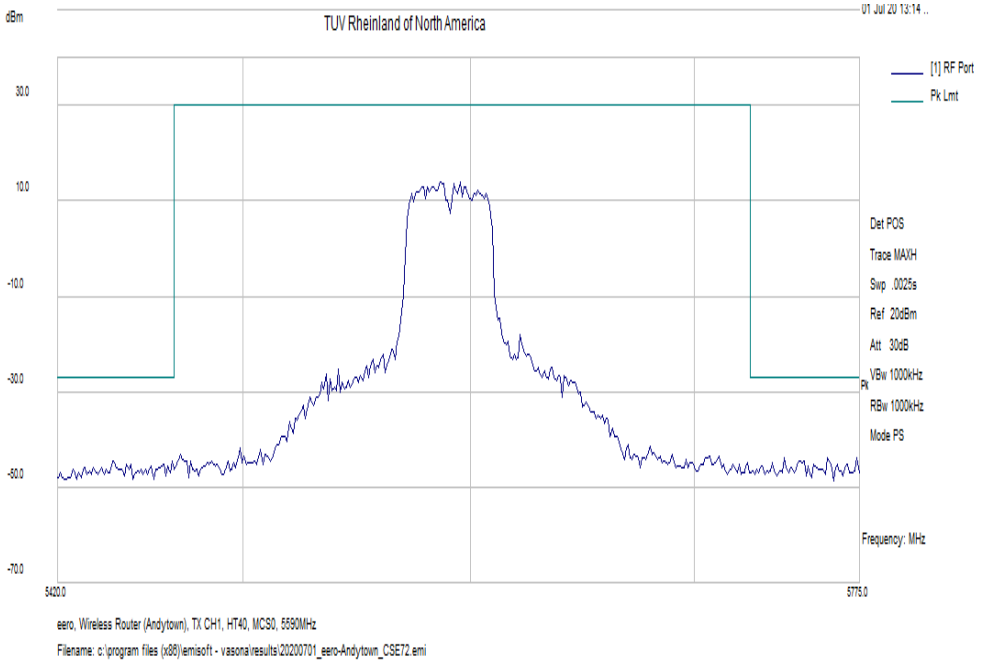


Figure 110: Measured Band-edge for HT40-MCS0 at 5590 MHz, Ch 1

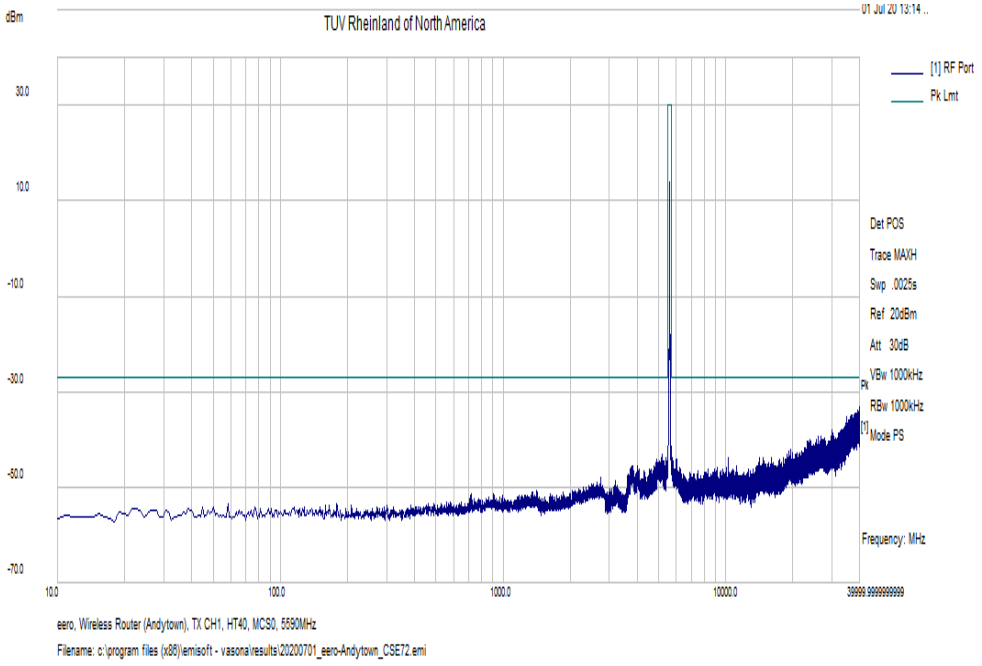


Figure 111: Undesirable Emission for HT40-MCS0 at 5590 MHz, Ch 1

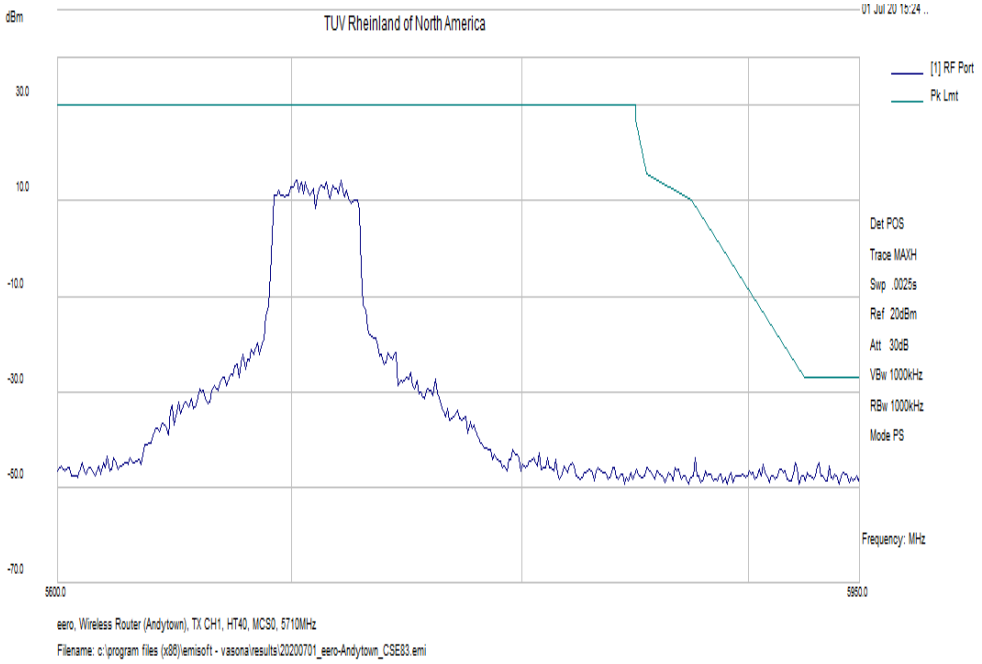


Figure 112: Measured Band-edge for HT40-MCS0 at 5710 MHz, Ch 1

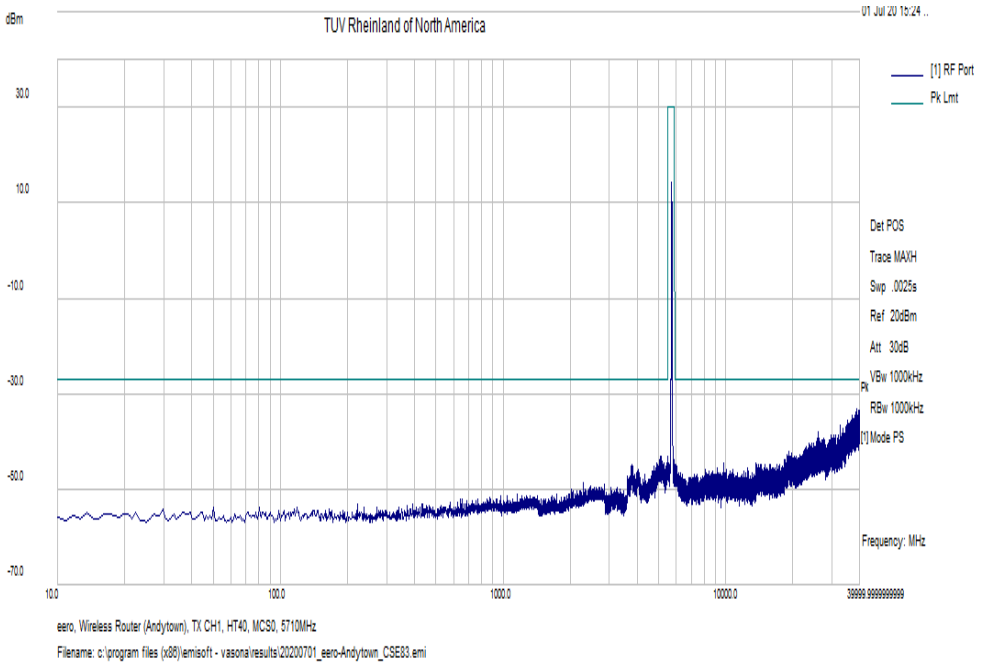


Figure 113: Undesirable Emission for HT40-MCS0 at 5710 MHz, Ch 1

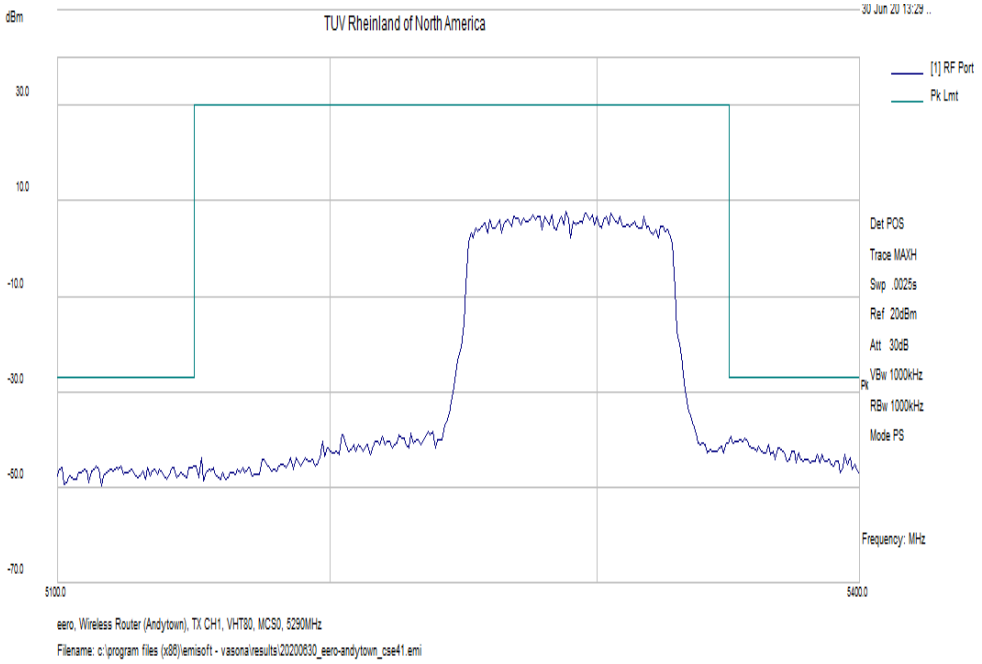


Figure 114: Measured Band-edge for VHT80-MCS0 at 5290 MHz, Ch 1

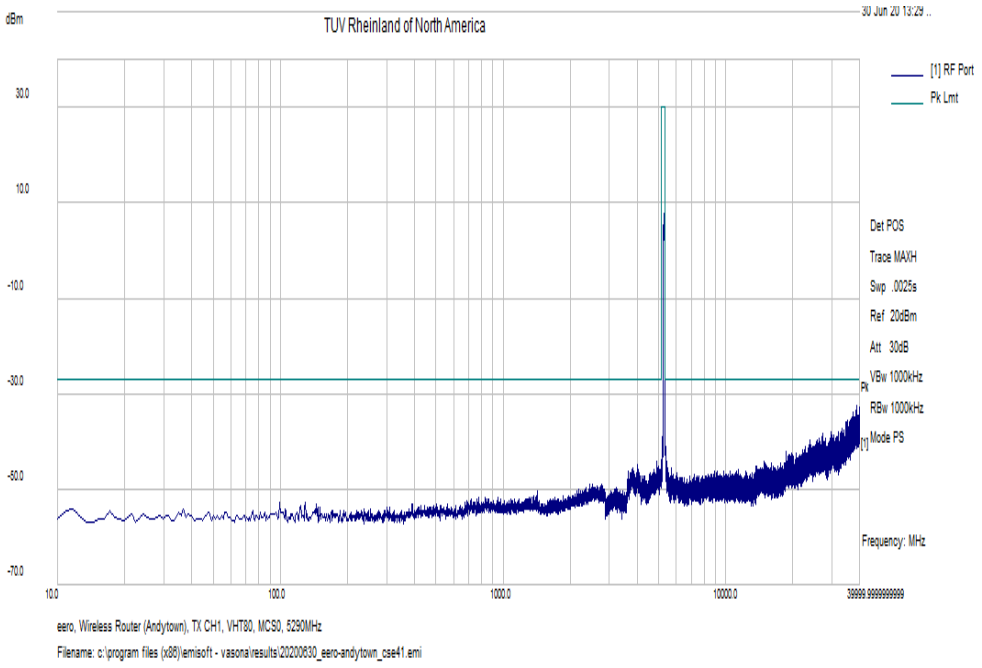


Figure 115: Undesirable Emission for VHT80-MCS0 at 5290 MHz, Ch 1

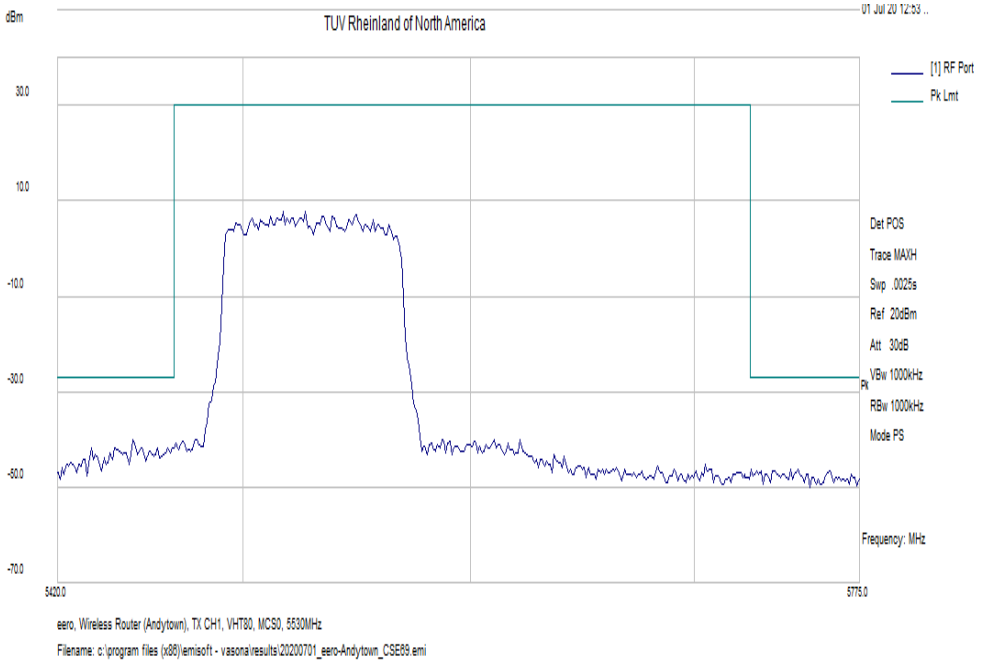


Figure 116: Measured Band-edge for VHT80-MCS0 at 5530 MHz, Ch 1

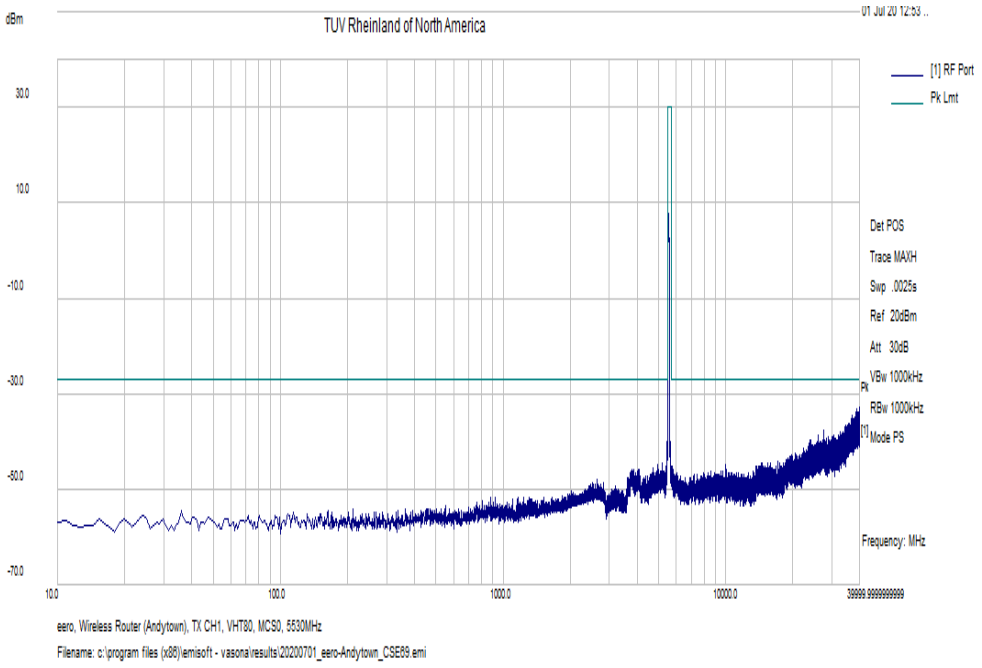


Figure 117: Undesirable Emission for VHT80-MCS0 at 5530 MHz, Ch 1

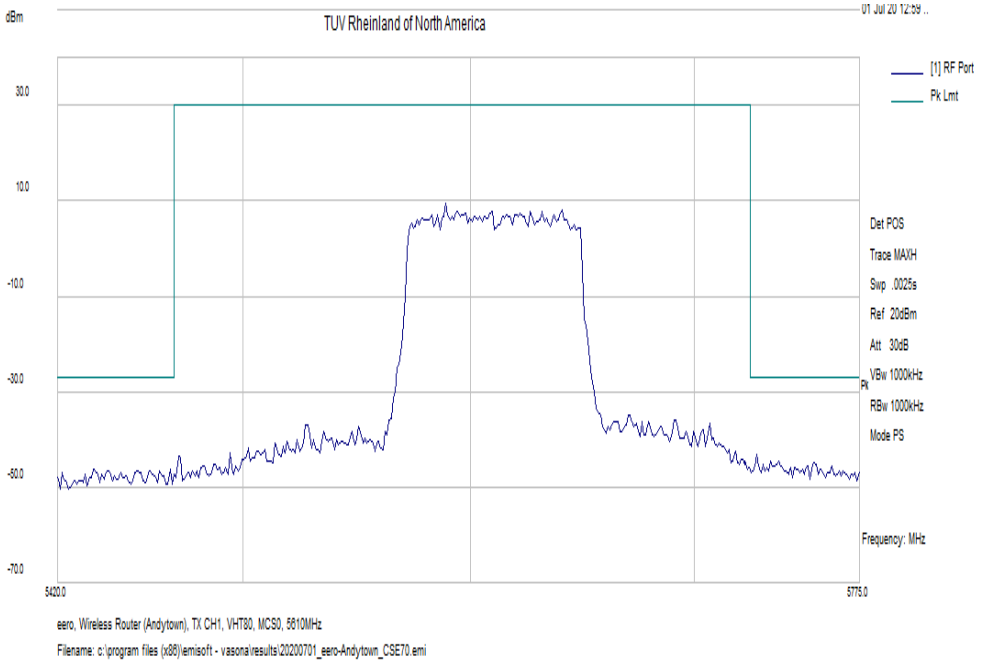


Figure 118: Measured Band-edge for VHT80-MCS0 at 5610 MHz, Ch 1

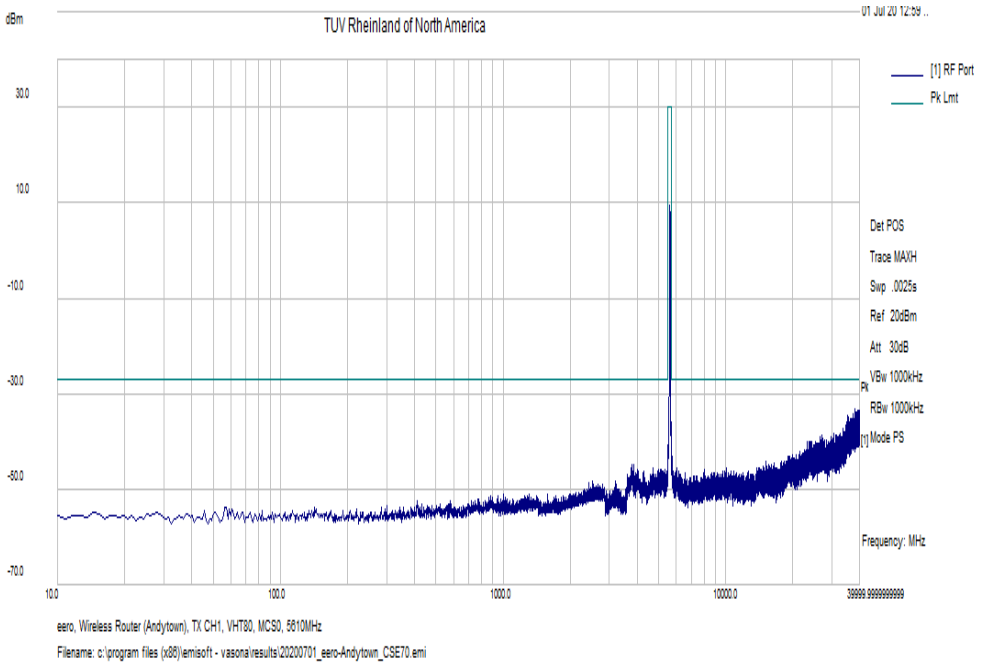


Figure 119: Undesirable Emission for VHT80-MCS0 at 5610 MHz, Ch 1

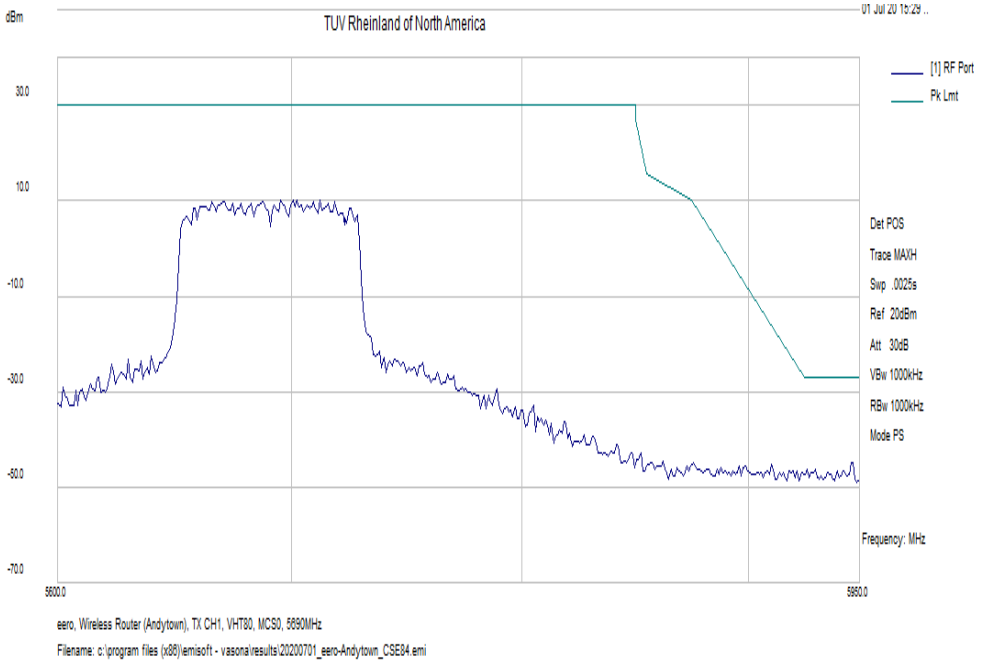


Figure 120: Measured Band-edge for VHT80-MCS0 at 5690 MHz, Ch 1

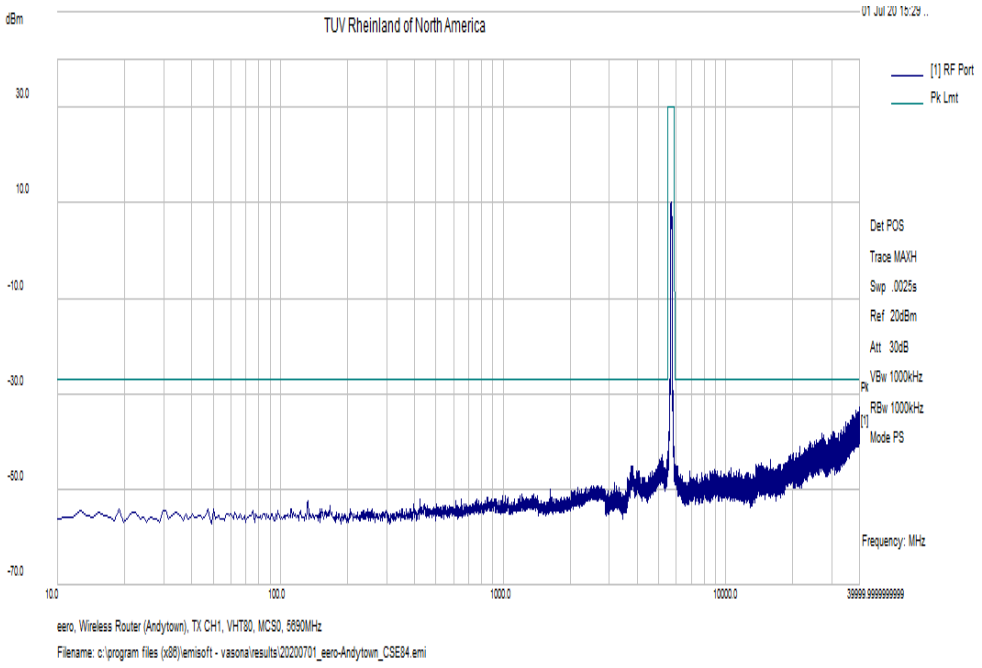


Figure 121: Undesirable Emission for VHT80-MCS0 at 5690 MHz, Ch 1