

TEST REPORT

Report No.: SHE19080042-02IE

Date: 2019-11-01

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Applicant : Shenzhen UniStrong Science & Technology Co.,Ltd.
Address of Applicant : B,4-4Factory, Zhengcheng Road, Fuyong Baoan District, Shenzhen, China

Product Name : Rugged Tablet
Model No. : UT52
Sample No. : E19080042-01#04
FCC ID : 2AOPD-UT52
ISED Number : 11546A-UT52

Standards : FCC CFR47 Part 15, Subpart E
RSS-Gen (Issue 5, March 2019)
RSS-247 (Issue 2, February 2017)

Date of Receipt : 2019-09-09
Date of Test : 2019-09-09 ~ 2019-10-28
Date of Issue : 2019-10-31

Remark:

This report details the results of the testing carried out on one sample, the results contained in this report do not relate to other samples of the same product. The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report.

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Revision Record			
Version	Date	Revisions	Revised By
1.0	2019-11-01	Original	--

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1 General Information

1.1 Testing Laboratory

Company Name	ICAS Testing Technology Services (Shanghai) Co., Ltd.
Address	155 Pingbei Rd, Minhang District, Shanghai, China
Telephone	0086 21-51682999
Fax	0086 21-54711112
Homepage	www.icasiso.com

1.2 Details of Application

Company Name	Shenzhen UniStrong Science & Technology Co.,Ltd.
Address	B,4-4Factory, Zhengcheng Road, Fuyong Baoan District, Shenzhen, China
Contact Person	Lili Zheng
Telephone	+86-21-54467182
Email	ll.zheng@unistrong.com

1.3 Details of EUT

Product Name	Rugged Tablet
Brand Name	Unistrong
Model No.	UT52
FCC ID	2AOPD-UT52
ISED Number	11546A-UT52
Mode of Operation	WLAN 802.11a/n(HT20/40)/ac(HT20/40/80)
Frequency Range	Band I: 5150 MHz ~ 5250 MHz Band IV: 5725 MHz ~ 5850 MHz
Modulation Type	256QAM, 64QAM, 16QAM, BPSK, QPSK
Channel Bandwidth	802.11a: 20MHz 802.11n: 20MHz, 40MHz 802.11ac: 20MHz, 40MHz, 80MHz
Antenna Type	Internal Antenna
Antenna Gain	-3.1 dBi
Extreme Temperature Range	-10℃~ +55℃
Test Voltage	DC 3.8V
Extreme Voltage	Low Voltage: DC 3.0V High Voltage: DC 4.35V
Product Type	Mobile and protable for FCC standard Indoor for IC standard

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1.4 Test Methodology

47 CFR Part 15, Subpart C (10-1-16 Edition)	Miscellaneous Wireless Communications Services
KDB Publication 789033 D02 v02r01	Guidelines for Compliance Testing of Unlicensed National Information Infrastructure (U-NII) Devices Part 15, Subpart E
KDB Publication 662911 D01 v02r01	Emissions Testing of Transmitters with Multiple Outputs in the Same Band (e.g., MIMO, Smart Antenna, etc)
RSS-Gen (Issue 5, March 2019)	General Requirements for Compliance of Radio Apparatus
RSS-247 (Issue 2, February 2017)	Digital Transmission Systems (DTSS), Frequency Hopping Systems (FHSs) and Licence-Exempt Local Area Network (LE-LAN) Devices
ANSI C63.10-2013	American National Standard for Testing Unlicensed Wireless Devices

Note(s):

All test items were verified and recorded according to the standards and without any addition/deviation/exclusion during the test.

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2 Test Condition

2.1 Environmental conditions

Temperature (°C)	18-25
Humidity (%RH)	40-65
Barometric Pressure (mbar)	960-1060

2.2 Equipment List

Name of Equipment	Manufacturer	Model	Serial No.	Cal. Due Date
Spectrum Analyzer	Keysight	N9020B	MY59260184	2020-07-28
Spectrum Analyzer	Rohde & Schwarz	FSV40N	101450	2020-06-24
EMI Test Receiver	Rohde & Schwarz	ESPI3	100173	2020-06-19
EMI Test Receiver	Rohde & Schwarz	ESR 7	101911	2020-06-19
V-network	SCHWARZBECK	NSLK 8127	8127-902	2020-02-20
Wideband Radio Communication Tester	Rohde & Schwarz	CMW 500	100687	2020-08-22
Broadband Antenna	SCHWARZBECK	VULB9163	9163-1037	2020-06-06
Horn Antenna-18G	SCHWARZBECK	BBHA9120D	9120D-1775	2020-06-06
Loop Antenna	SCHWARZBECK	FMZB 1513	N/A	2021-03-19
Horn Antenna-40G	YINGLIAN	LB-180400-KF	N/A	2020-07-26
EMC chamber 9*6*6 (L*W*H)	CHANGNING	966	N/A	2020-06-26
Shielded Enclosure 8*5*4 (L*W*H)	CHANGNING	854	N/A	2020-08-28
Test Software	BL	BL410_E	N/A	N/A

2.3 Measurement Uncertainty

Parameter	Frequency	Uncertainty
Antenna Port Conducted Emission	< 1GHz	± 1.5 dB
	> 1GHz	± 1.5 dB
Radiated Emission	30 MHz – 1 GHz	± 3 dB
	> 1GHz	± 3 dB

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3 Test Set-up and Operation Modes

3.1 Details of Test Mode

Using test software was control EUT work in continuous transmitter and receiver mode. Select test channel as below:

For 802.11a/n(HT20), 802.11ac(VHT20)

Band I (5150 – 5250 MHz)		Band IV (5725 – 5850 MHz)	
Channel	Frequency	Channel	Frequency
The lowest channel(CH36)	5180MHz	The lowest channel(CH149)	5745MHz
The middle channel(CH44)	5220MHz	The middle channel(CH157)	5785MHz
The highest channel(CH48)	5240MHz	The highest channel(CH165)	5825MHz

For 802.11n(HT40), 802.11ac(VHT40)

Band I (5150 – 5250 MHz)		Band IV (5725 – 5850 MHz)	
Channel	Frequency	Channel	Frequency
The lowest channel(CH38)	5190MHz	The lowest channel(CH151)	5755MHz
The highest channel(CH46)	5230MHz	The highest channel(CH159)	5795MHz

For 802.11ac(VHT80)

Band I (5150 – 5250 MHz)		Band IV (5725 – 5850 MHz)	
Channel	Frequency	Channel	Frequency
The lowest channel(CH42)	5210MHz	The lowest channel(CH155)	5775MHz

Through Pre-scan under all rate at lowest channel, the data rate as below table described is the worst case, so we choose these data rate for test.

Type	Data rate
802.11a	6Mbps
802.11n(HT20), 802.11ac(VHT20)	MCS4
802.11n(HT40), 802.11ac(VHT40)	MCS3
802.11ac(VHT80)	MCS4

The basic operation modes are:

- A. On
 - 1. WLAN mode
 - a. Transmitting
 - b. Receiving
- B. Standby
- C. Off

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3.2 Special Accessories and Auxiliary Equipment

Description	Manufacturer	Model No.	Serial No.
N/A	N/A	N/A	N/A

3.3 Support Software

Description	Manufacturer	Software Name
N/A	N/A	N/A

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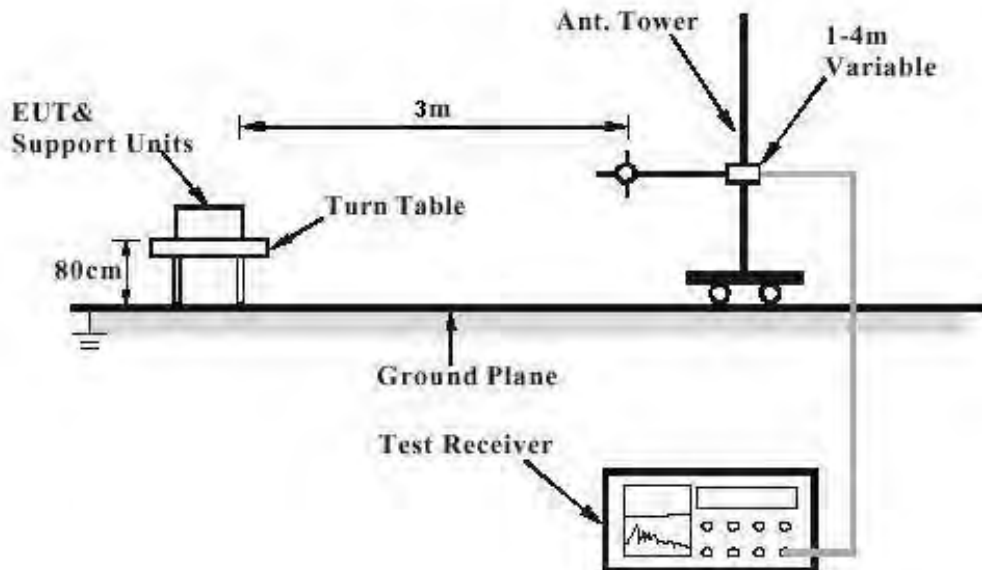
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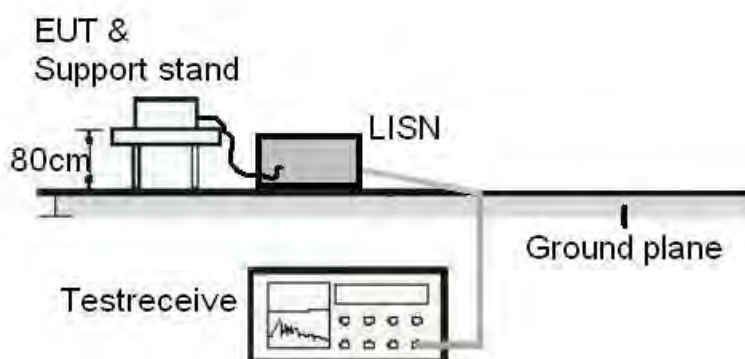
3.4 Test Setup Diagram

Diagram of Measurement Configuration for Radiation Test



Note: Measurements above 1GHz are done with a table height of 1.5m. In addition, there is RF absorbing material on the floor of the test site for above 1GHz measurement.

Diagram of Measurement Equipment Configuration for Conduction Measurement



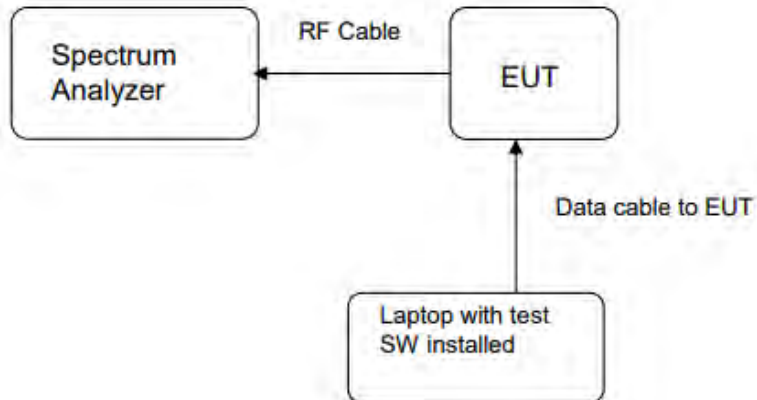
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Diagram of Measurement Equipment Configuration for Transmitter Measurement



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4 Test Results

4.1 Transmitter Requirement & Test Suites

4.1.1 Antenna Requirement

RESULT:

PASS

Test standard	:	FCC Part 15.407(a), 15.203 RSS-247 6.2
Requirement	:	The use of approved antennas only with directional gains that do not exceed 6 dBi

According to the manufacturer declaration, the EUT has an antenna with a directional gain of -3.10 dBi. The antenna is an internal antenna with no possibility of replacement with a non-approved antenna by the end-user.

Therefore, the EUT is considered to comply with this provision.

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4.1.2 Peak Output Power and E.I.R.P

RESULT:

PASS

Test standard : FCC Part 15.407(a)
RSS-247 6.2

Requirement : ANSI C63.10-2013, KDB 789033

Kind of test site : Shielded room

Test setup

Test Channel : Low/Middle/High

Operation Mode : A.1.a

Ambient temperature : 25°C

Relative humidity : 52%

Table 1: Peak Output Power

Band I (5150 – 5250 MHz)

Test Mode	Test Channel (MHz)	Measured Peak Output Power		FCC Limit (mW)
		(dBm)	(mW)	
802.11a	5180	13.84	24.21	250
	5220	14.13	25.88	
	5240	14.87	30.69	
802.11n(HT20)	5180	14.43	27.73	
	5220	14.75	29.85	
	5240	15.51	35.56	
802.11ac(VHT20)	5180	14.41	27.61	
	5220	14.67	29.31	
	5240	15.75	37.58	
802.11n(HT40)	5190	14.22	26.42	
	5230	14.92	31.05	
802.11ac(VHT40)	5190	14.17	26.12	
	5230	14.97	31.41	
802.11ac(VHT80)	5210	14.65	29.17	

Band IV (5725 – 5850 MHz)

Test Mode	Test Channel (MHz)	Measured Peak Output Power		FCC Limit (W)
		(dBm)	(mW)	
802.11a	5745	15.72	37.33	1
	5785	15.26	33.57	

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	5825	15.61	36.39	
802.11n(HT20)	5745	16.51	44.77	
	5785	16.07	40.46	
	5825	16.44	44.06	
802.11ac(VHT20)	5745	16.46	44.26	
	5785	16.15	41.21	
	5825	16.21	41.78	
802.11n(HT40)	5755	16.48	44.46	
	5795	16.05	40.27	
802.11ac(VHT40)	5755	16.49	44.57	
	5795	16.12	40.93	
802.11ac(VHT80)	5775	16.56	45.29	

Table 2: E.I.R.P

Band I (5150 – 5250 MHz)

Test Mode	Test Channel (MHz)	E.I.R.P		IC Limit (mW)
		(dBm)	(mW)	
802.11a	5180	10.74	11.86	200 mW or 10 dBm + 10log B, which is less
	5220	11.03	12.68	
	5240	11.77	15.03	
802.11n(HT20)	5180	11.33	13.58	
	5220	11.65	14.62	
	5240	12.41	17.42	
802.11ac(VHT20)	5180	11.31	13.52	
	5220	11.57	14.35	
	5240	12.65	18.41	
802.11n(HT40)	5190	11.12	12.94	
	5230	11.82	15.21	
802.11ac(VHT40)	5190	11.07	12.79	
	5230	11.87	15.38	
802.11ac(VHT80)	5210	11.55	14.29	

Note:

B is the 99% emissions bandwidth in MHz.

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4.1.3 26dB Bandwidth and 99% Bandwidth

RESULT:

PASS

Test standard : FCC Part 15.407(a)
RSS-247 6.2
Requirement : ANSI C63.10-2013, KDB 789033
Kind of test site : Shielded room

Test setup

Test Channel : Low/Middle/High
Operation Mode : A.1.a
Ambient temperature : 25°C
Relative humidity : 52%

Table 3: 26dB Bandwidth and 99% Bandwidth

Band I (5150 – 5250 MHz)

Test Mode	Test Channel (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)
802.11a	5180	28.44	16.989
	5220	26.34	16.741
	5240	25.39	16.705
802.11n(HT20)	5180	27.84	17.763
	5220	27.18	17.720
	5240	24.46	17.716
802.11ac(VHT20)	5180	25.04	17.736
	5220	24.77	17.732
	5240	25.99	17.733
802.11n(HT40)	5190	52.21	36.232
	5230	51.95	36.238
802.11ac(VHT40)	5190	48.83	36.267
	5230	47.61	36.250
802.11ac(VHT80)	5210	83.06	75.427

Band IV (5725 – 5850 MHz)

Test Mode	Test Channel (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)
802.11a	5745	23.75	16.612
	5785	23.70	16.605
	5825	24.17	16.608

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802.11n(HT20)	5745	25.92	17.705
	5785	23.19	17.725
	5825	22.76	17.674
802.11ac(VHT20)	5745	21.78	17.705
	5785	22.57	17.687
	5825	22.88	17.699
802.11n(HT40)	5755	46.16	36.148
	5795	46.10	36.130
802.11ac(VHT40)	5755	45.64	36.190
	5795	45.60	36.207
802.11ac(VHT80)	5775	80.54	75.405

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Figure 1: 26dB Bandwidth and 99% Bandwidth, 802.11a, 5180MHz

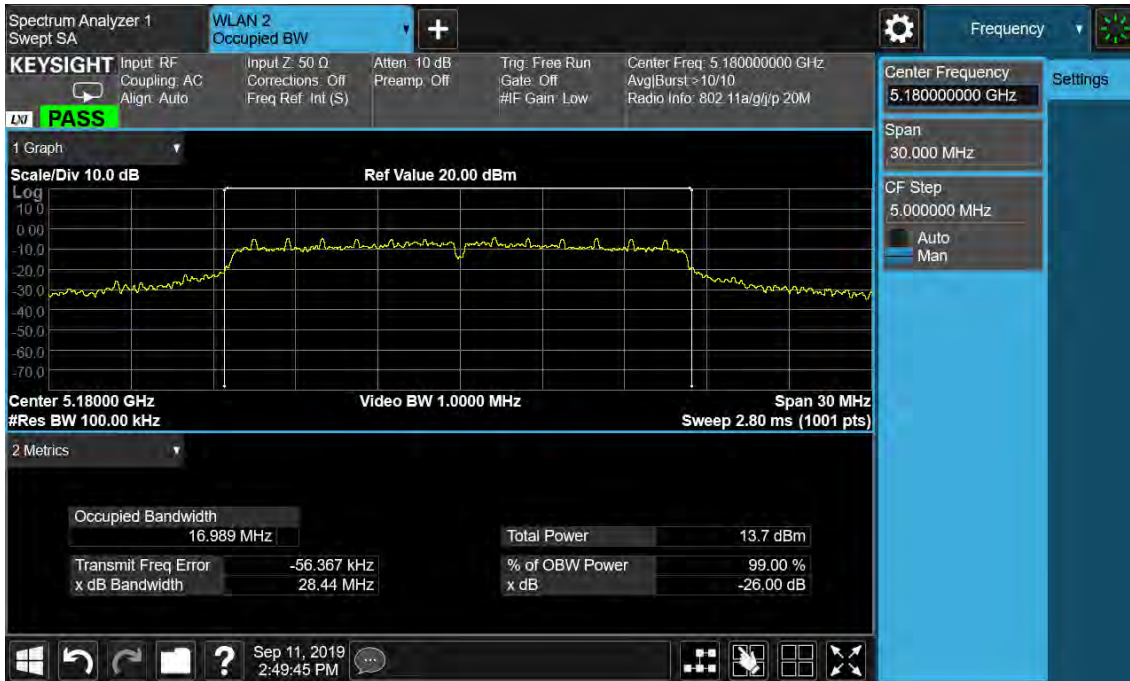
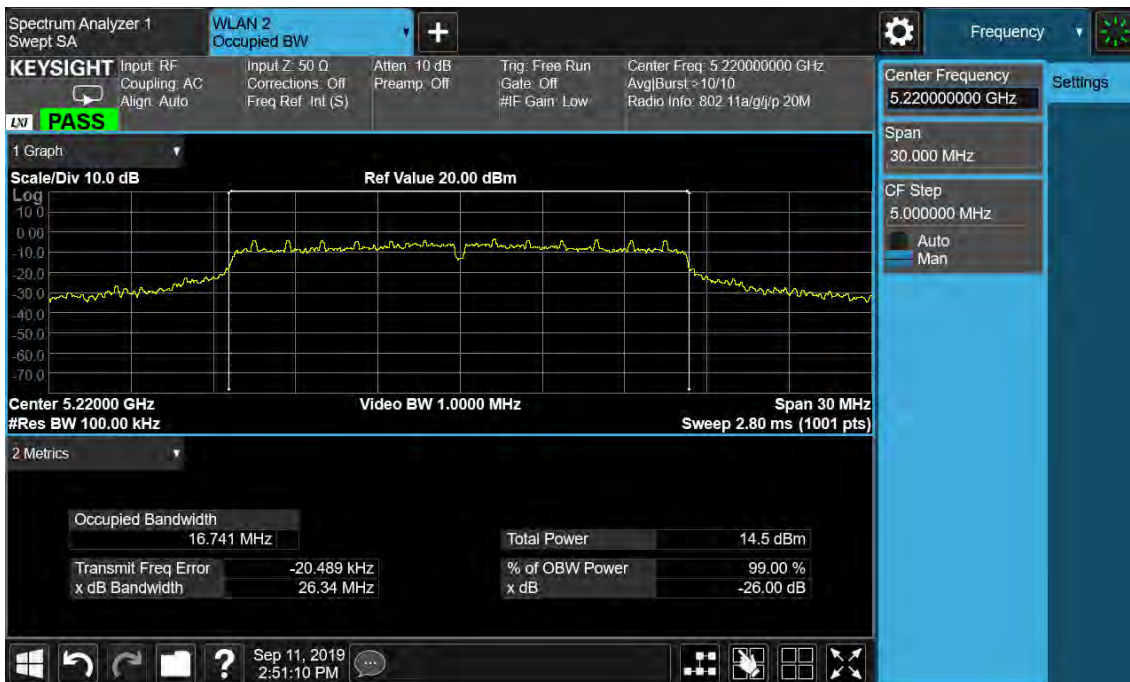


Figure 2: 26dB Bandwidth and 99% Bandwidth, 802.11a, 5220MHz



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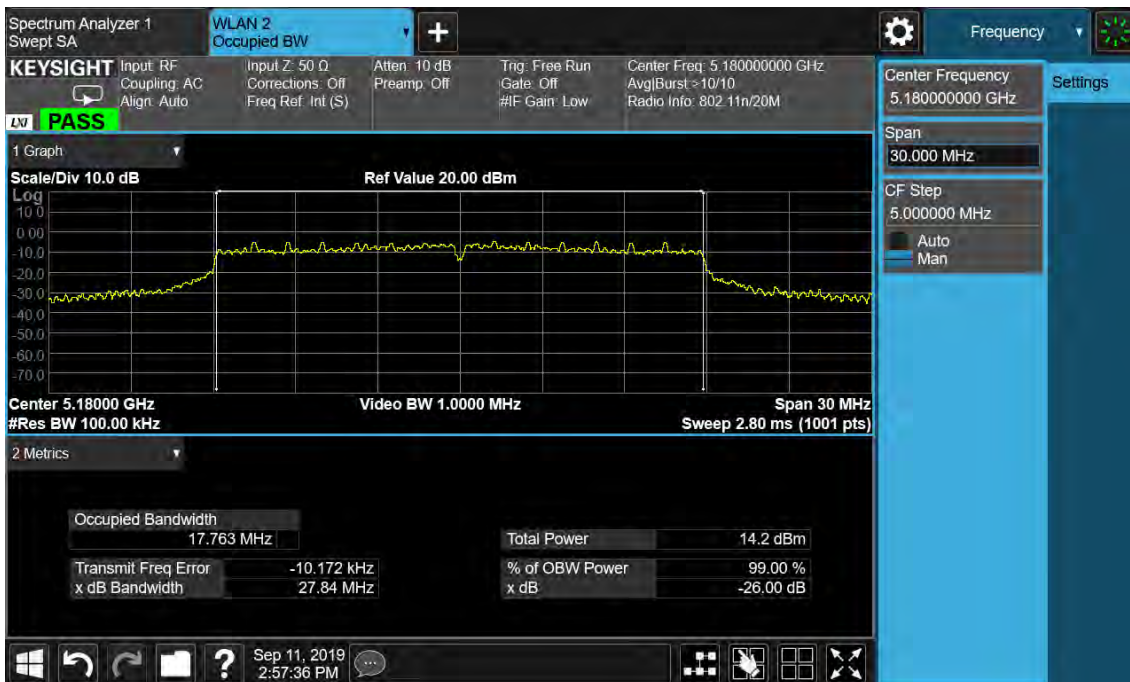
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Figure 3: 26dB Bandwidth and 99% Bandwidth, 802.11a, 5240MHz



Figure 4: 26dB Bandwidth and 99% Bandwidth, 802.11n(HT20), 5180MHz



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Figure 5: 26dB Bandwidth and 99% Bandwidth, 802.11n(HT20), 5220MHz



Figure 6: 26dB Bandwidth and 99% Bandwidth, 802.11n(HT20), 5240MHz



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Figure 7: 26dB Bandwidth and 99% Bandwidth, 802.11ac(VHT20), 5180MHz

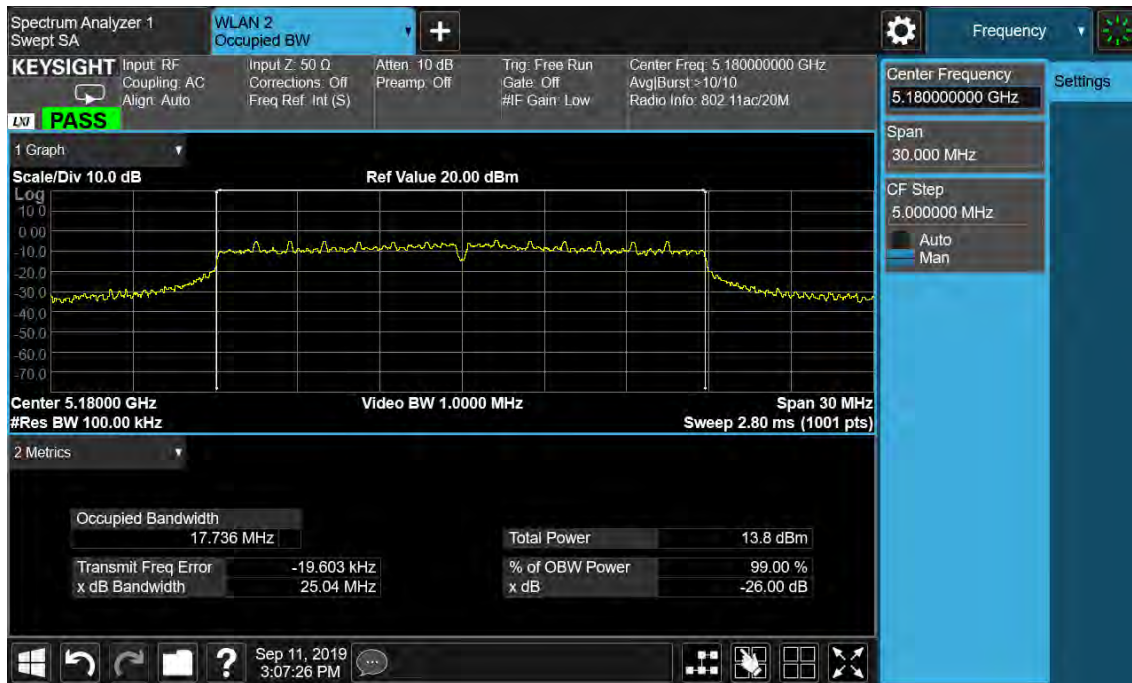
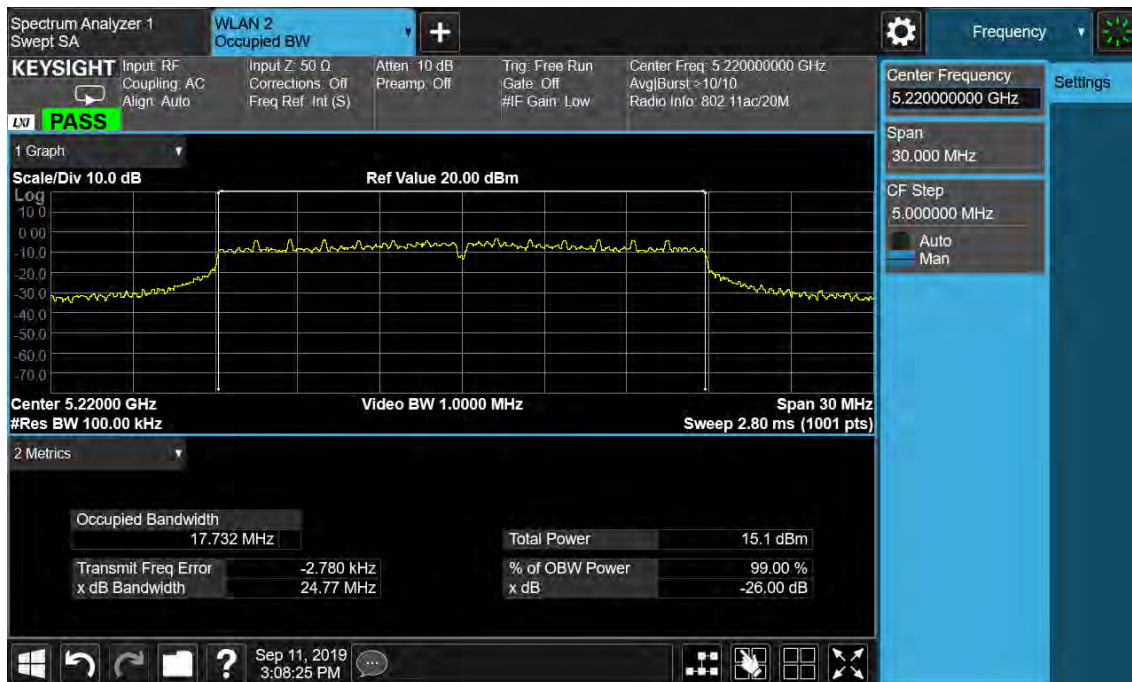


Figure 8: 26dB Bandwidth and 99% Bandwidth, 802.11ac(VHT20), 5220MHz



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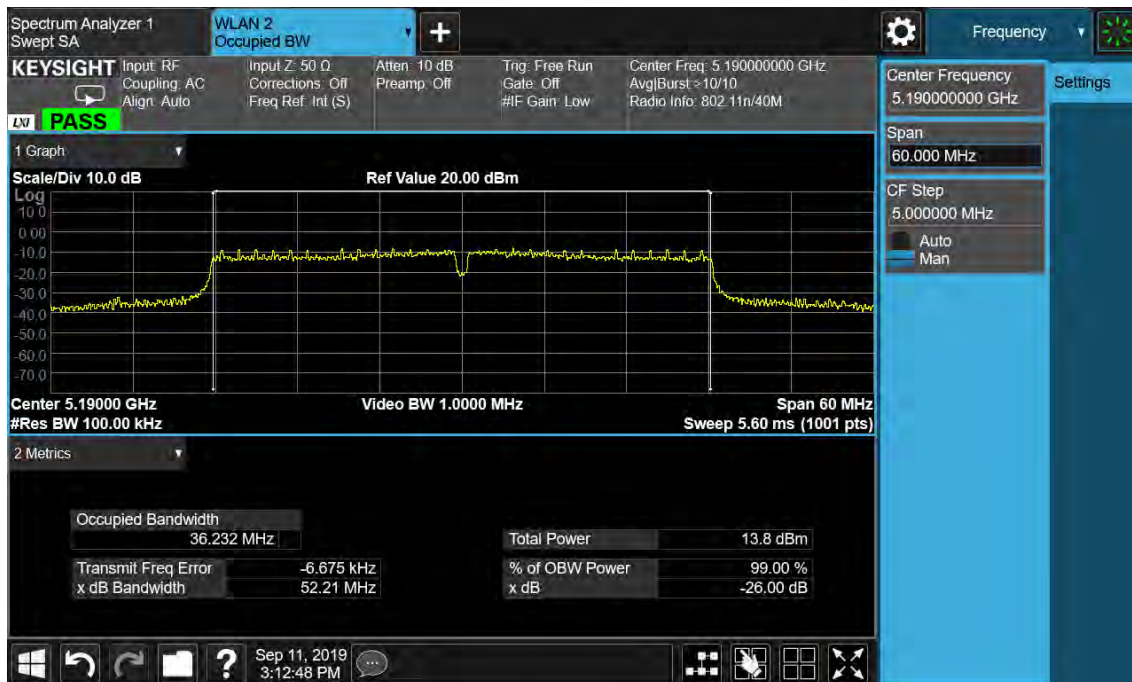
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Figure 9: 26dB Bandwidth and 99% Bandwidth, 802.11ac(VHT20), 5240MHz



Figure 10: 26dB Bandwidth and 99% Bandwidth, 802.11n(HT40), 5190MHz



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Figure 11: 26dB Bandwidth and 99% Bandwidth, 802.11n(HT40), 5230MHz

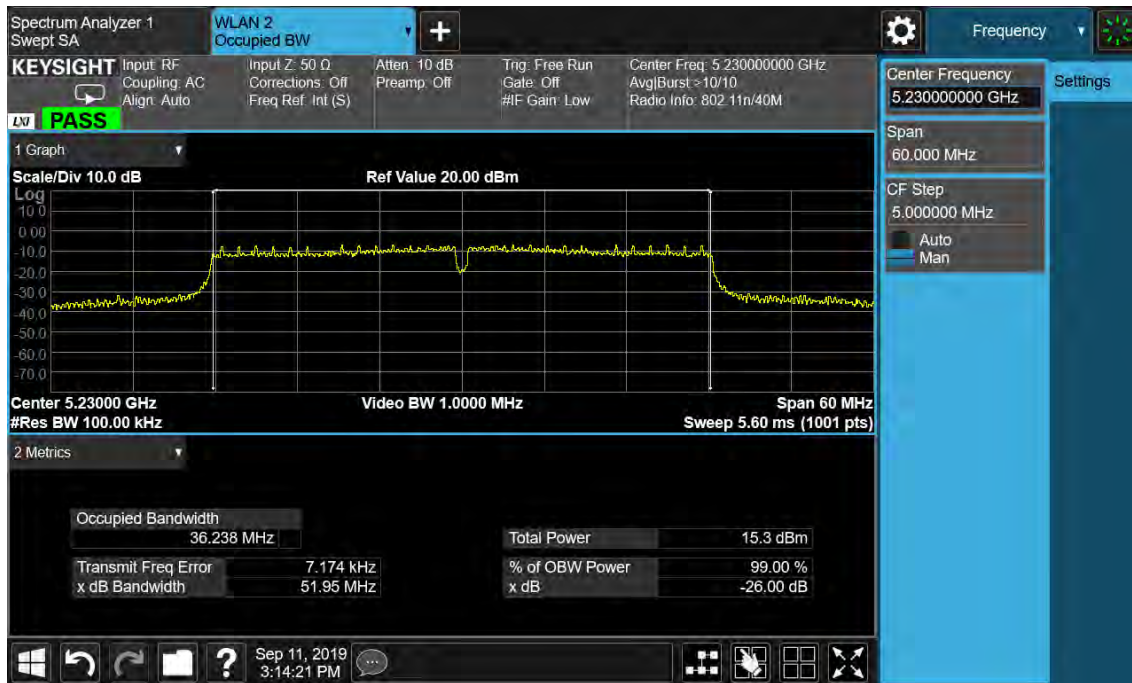
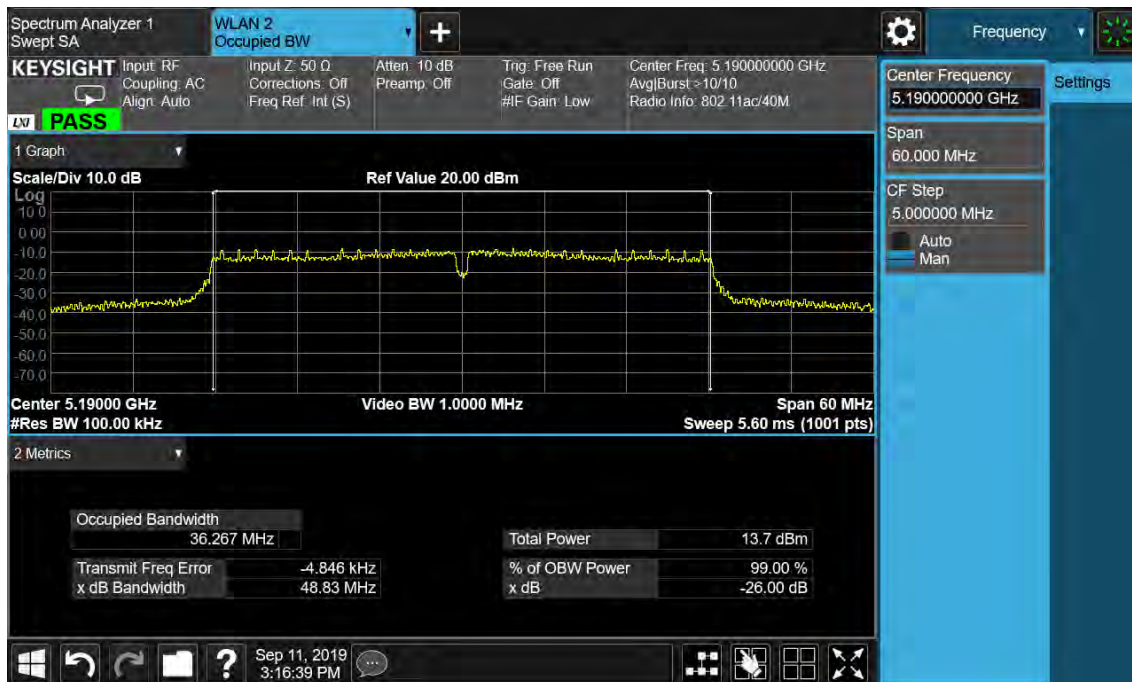


Figure 12: 26dB Bandwidth and 99% Bandwidth, 802.11ac(VHT40), 5190MHz



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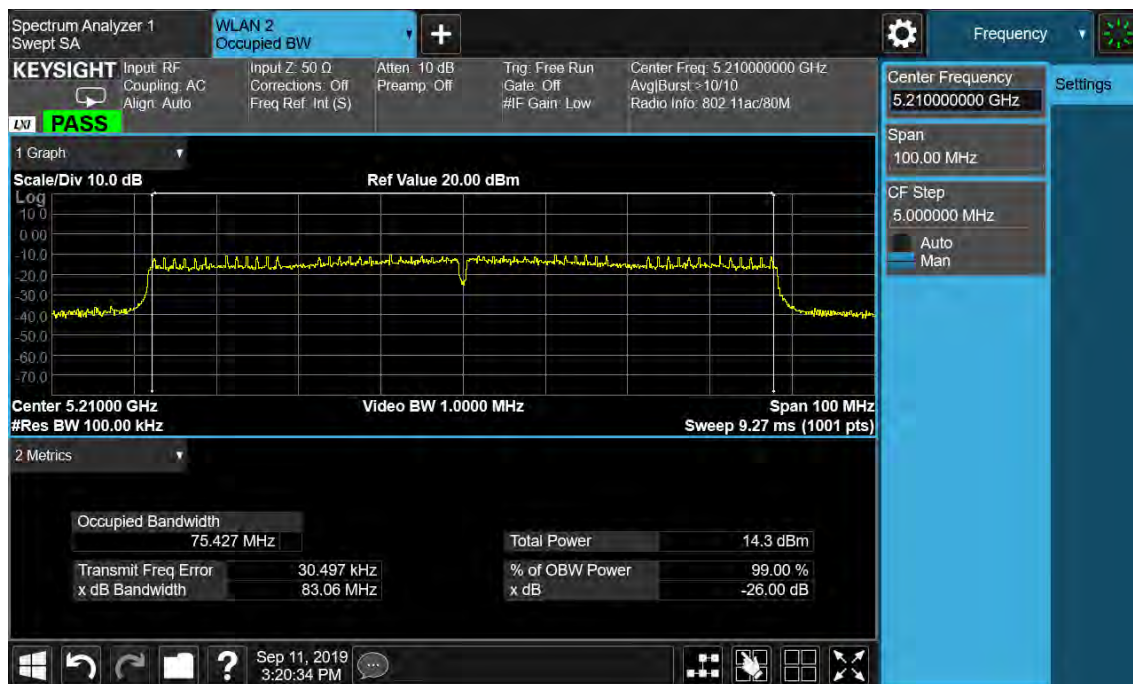
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Figure 13: 26dB Bandwidth and 99% Bandwidth, 802.11ac(VHT40), 5230MHz



Figure 14: 26dB Bandwidth and 99% Bandwidth, 802.11ac(VHT80), 5210MHz



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Figure 15: 26dB Bandwidth and 99% Bandwidth, 802.11a, 5745MHz

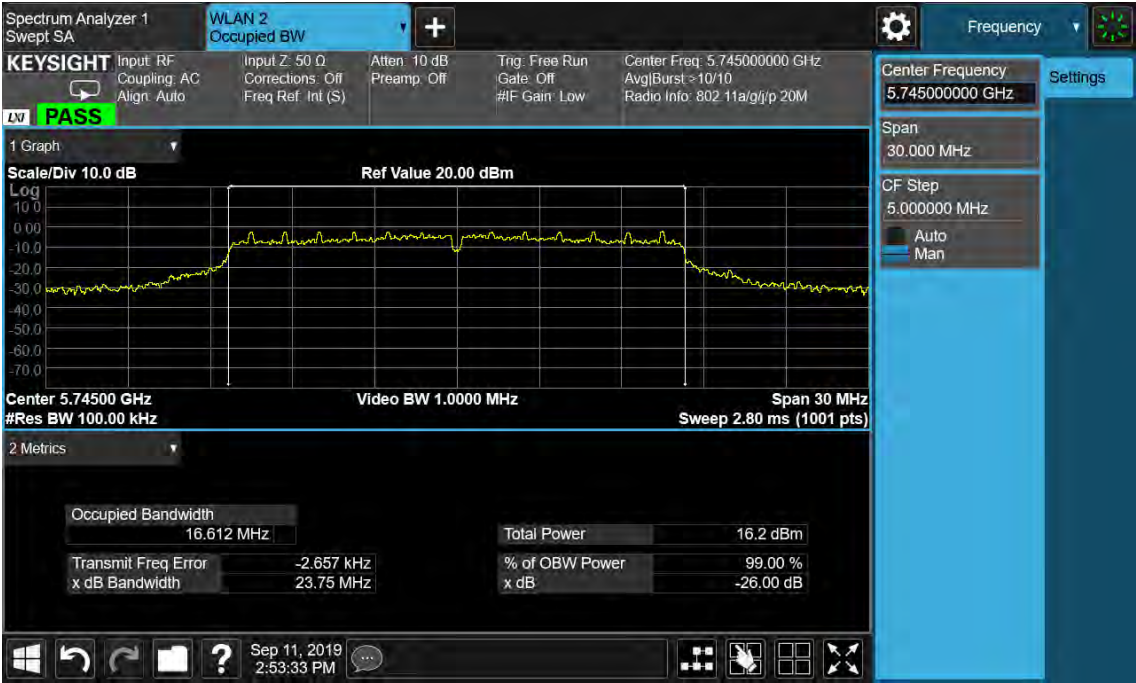
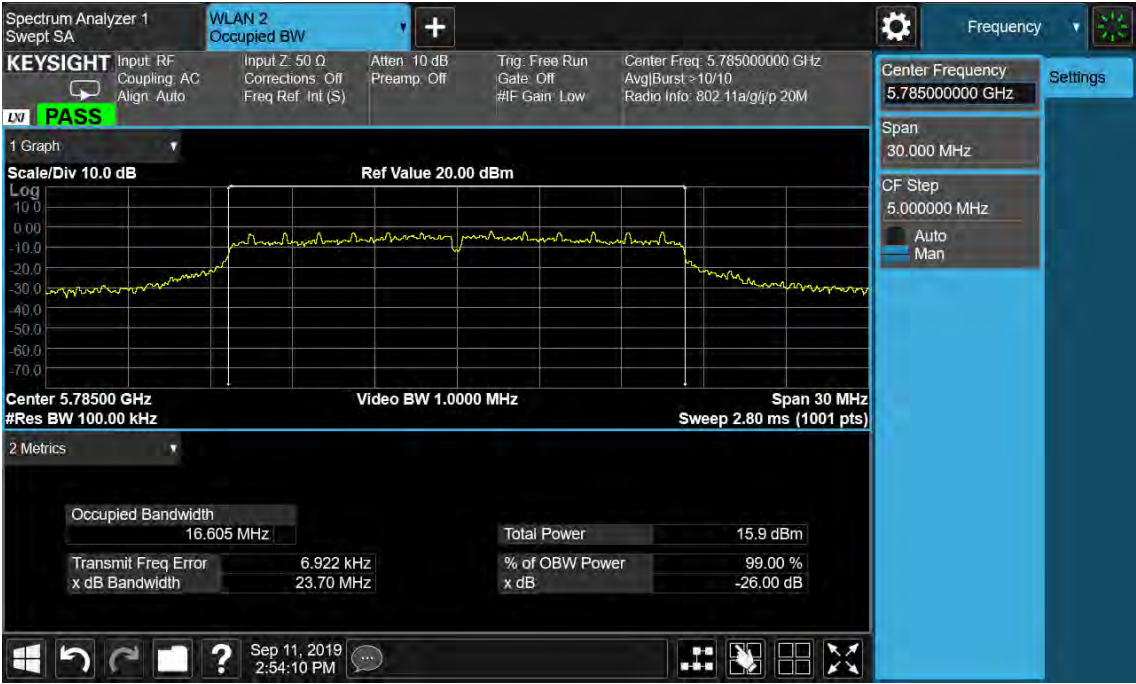


Figure 16: 26dB Bandwidth and 99% Bandwidth, 802.11a, 5785MHz



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Figure 17: 26dB Bandwidth and 99% Bandwidth, 802.11a, 5825MHz



Figure 18: 26dB Bandwidth and 99% Bandwidth, 802.11n(HT20), 5745MHz



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Figure 19: 26dB Bandwidth and 99% Bandwidth, 802.11n(HT20), 5785MHz



Figure 20: 26dB Bandwidth and 99% Bandwidth, 802.11n(HT20), 5825MHz



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Figure 21: 26dB Bandwidth and 99% Bandwidth, 802.11ac(VHT20), 5745MHz



Figure 22: 26dB Bandwidth and 99% Bandwidth, 802.11ac(VHT20), 5785MHz



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Figure 23: 26dB Bandwidth and 99% Bandwidth, 802.11ac(VHT20), 5825MHz

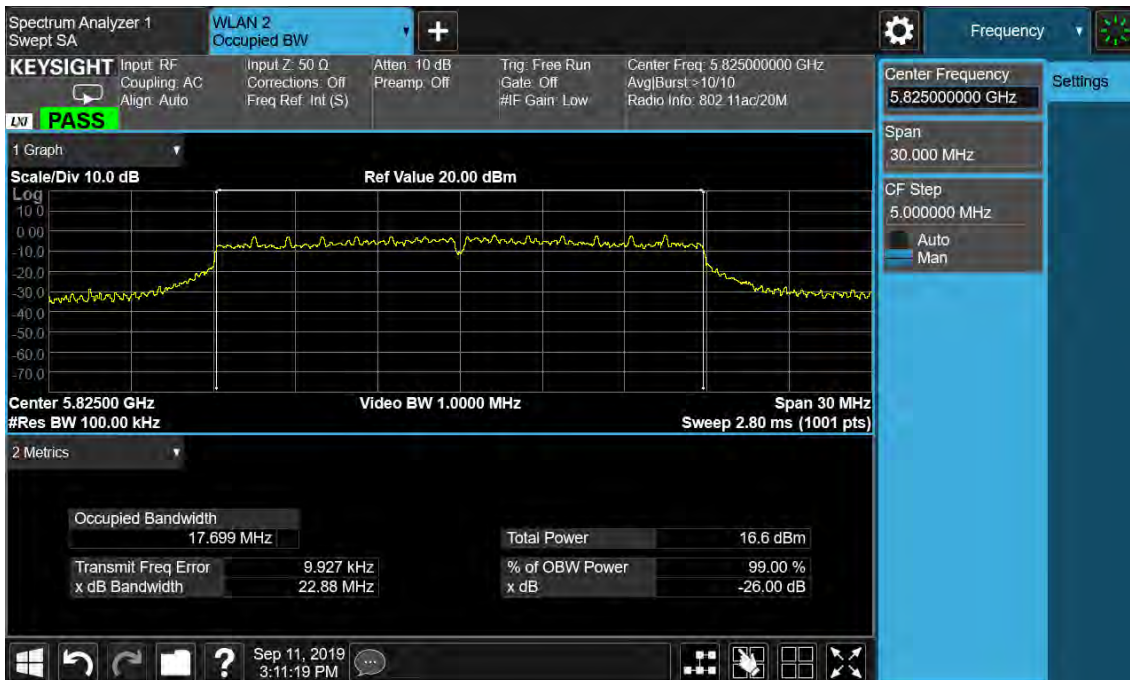
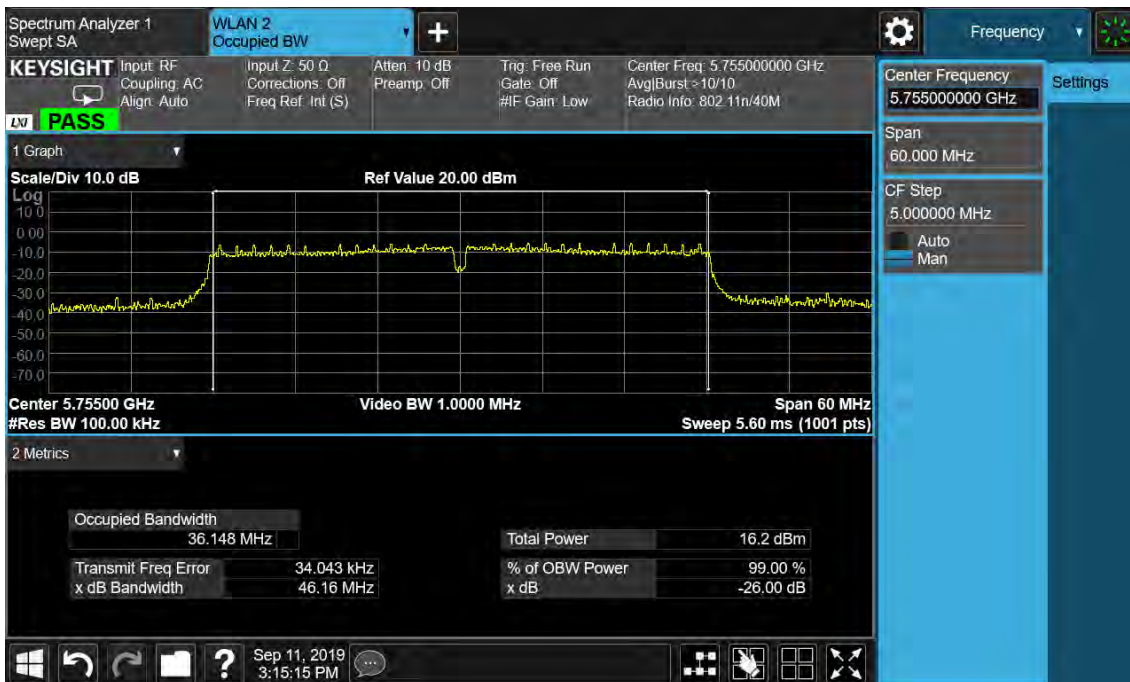


Figure 24: 26dB Bandwidth and 99% Bandwidth, 802.11n(HT40), 5755MHz



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Figure 25: 26dB Bandwidth and 99% Bandwidth, 802.11n(HT40), 5795MHz

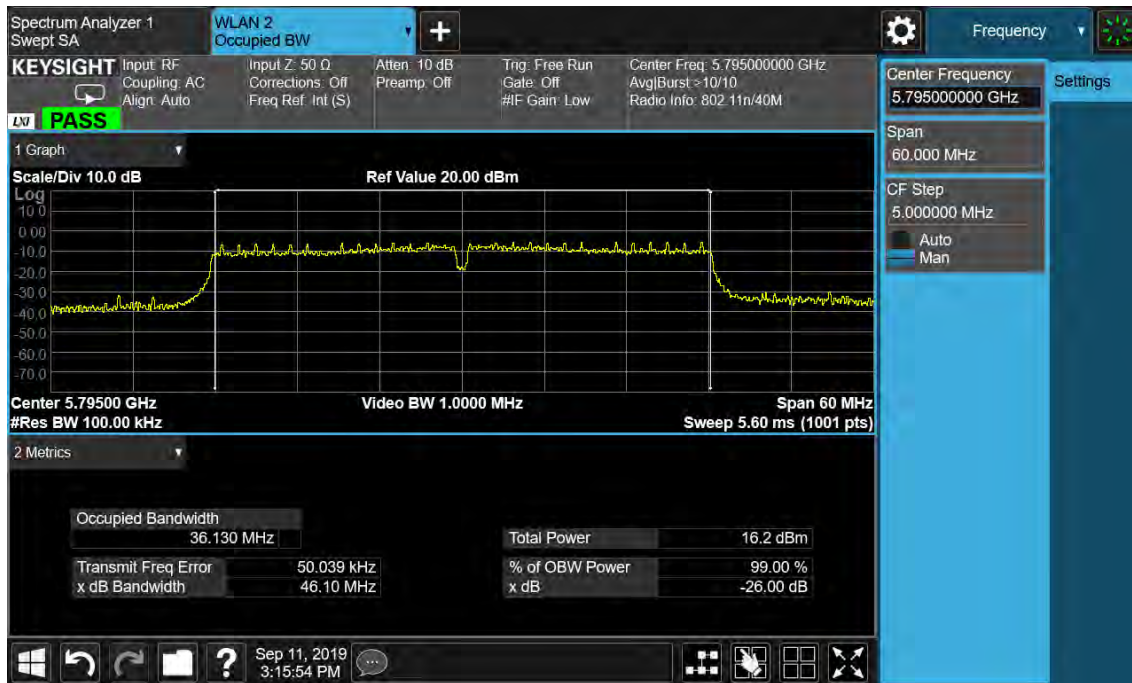
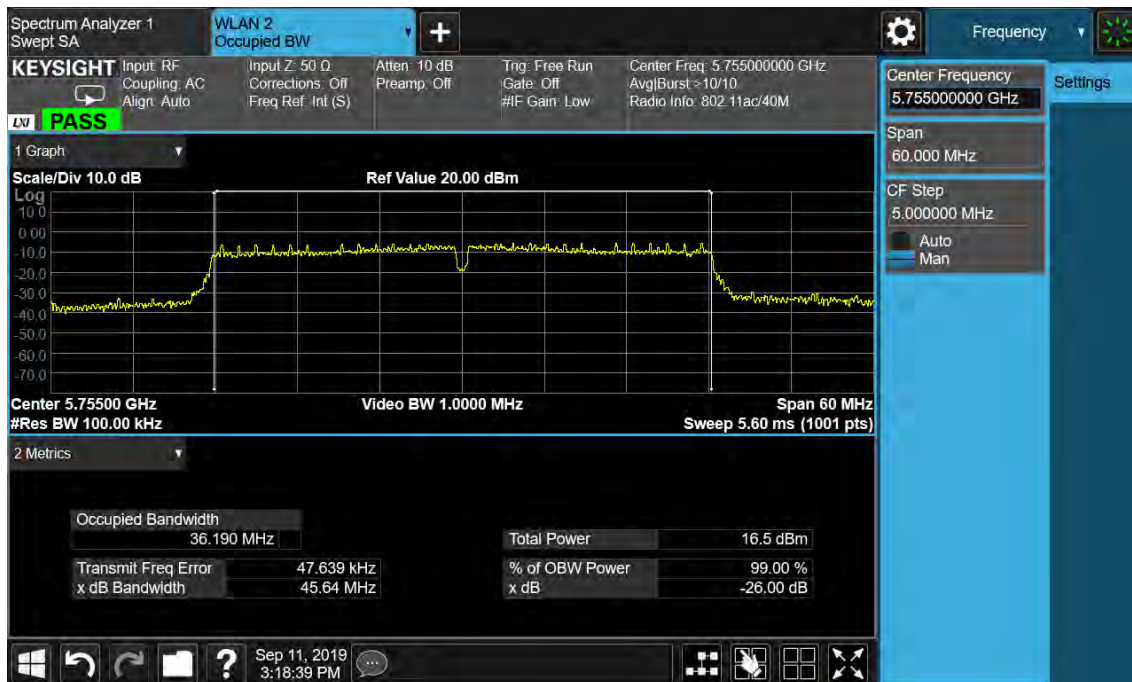


Figure 26: 26dB Bandwidth and 99% Bandwidth, 802.11ac(VHT40), 5755MHz



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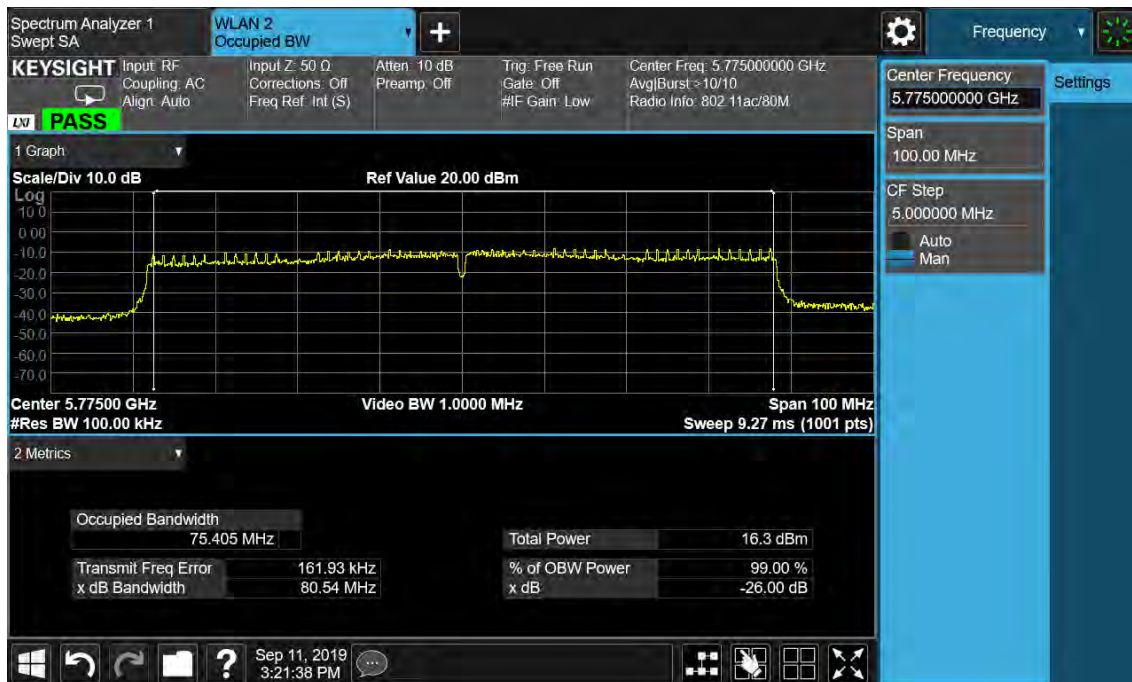
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Figure 27: 26dB Bandwidth and 99% Bandwidth, 802.11ac(VHT40), 5785MHz



Figure 28: 26dB Bandwidth and 99% Bandwidth, 802.11ac(VHT80), 5775MHz



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4.1.4 6dB Bandwidth

RESULT:

PASS

Test standard : FCC Part 15.407(e)
RSS-247 6.2
Requirement : ANSI C63.10-2013, KDB 789033
Kind of test site : Shielded room

Test setup

Test Channel : Low/Middle/High
Operation Mode : A.1.a
Ambient temperature : 25°C
Relative humidity : 52%

Table 4: 6dB Bandwidth

Band IV (5725 – 5850 MHz)

Test Mode	Test Channel (MHz)	6dB Bandwidth (MHz)	Limit (MHz)
802.11a	5745	16.55	0.5
	5785	16.30	
	5825	16.10	
802.11n(HT20)	5745	17.65	
	5785	17.65	
	5825	17.65	
802.11ac(VHT20)	5745	17.68	
	5785	17.65	
	5825	17.68	
802.11n(HT40)	5755	36.33	
	5795	36.39	
802.11ac(VHT40)	5755	36.45	
	5795	36.45	
802.11ac(VHT80)	5775	75.86	

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Figure 29: 6dB Bandwidth, 802.11a, 5745MHz

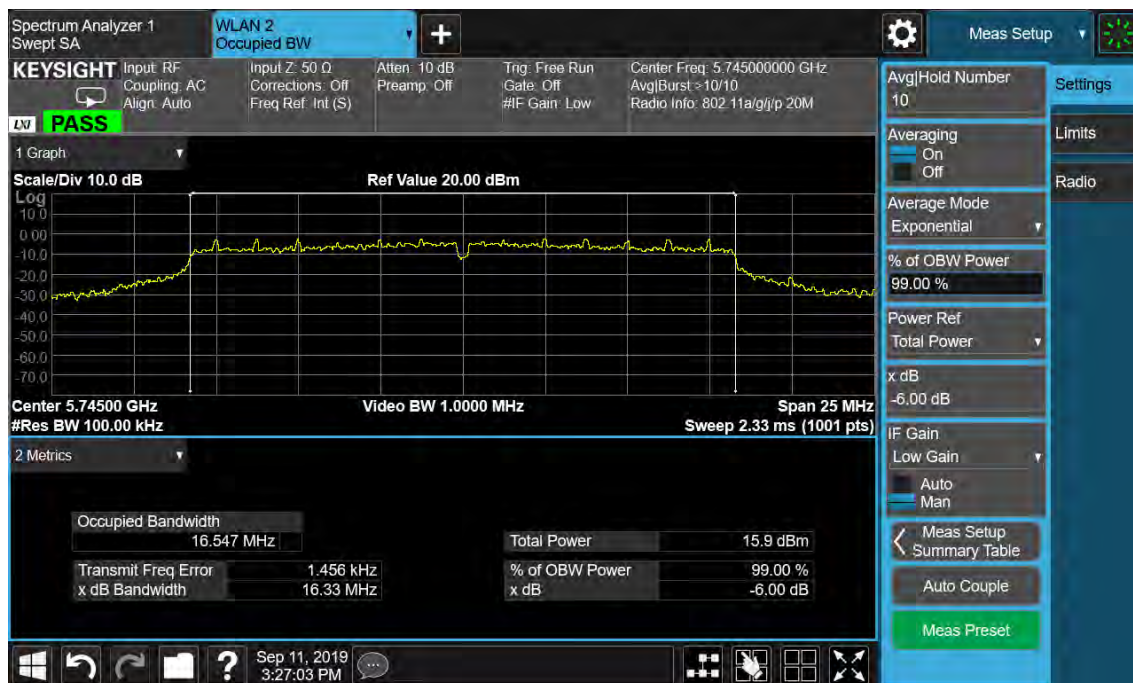
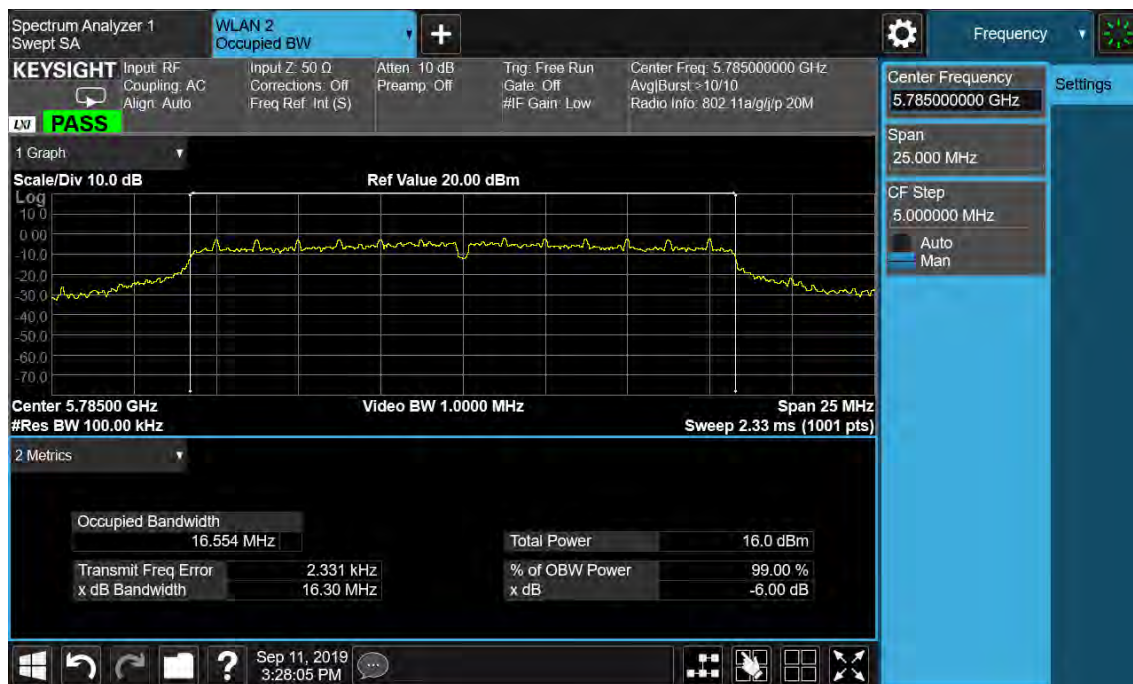


Figure 30: 6dB Bandwidth, 802.11a, 5785MHz



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Figure 31: 6dB Bandwidth, 802.11a, 5825MHz

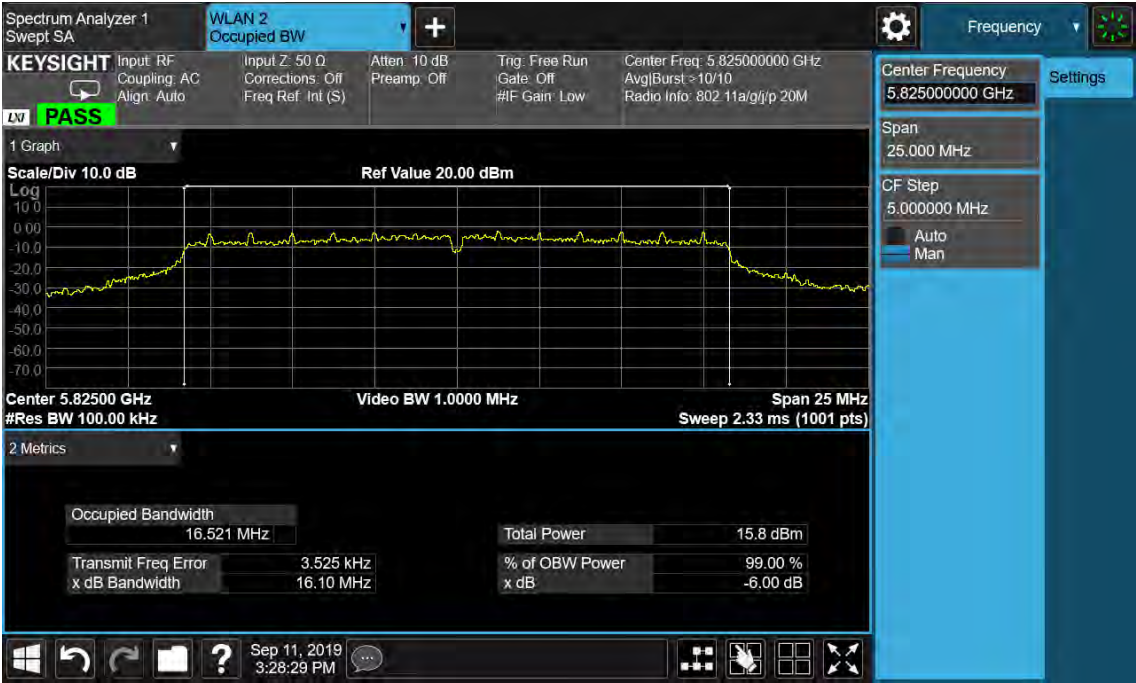
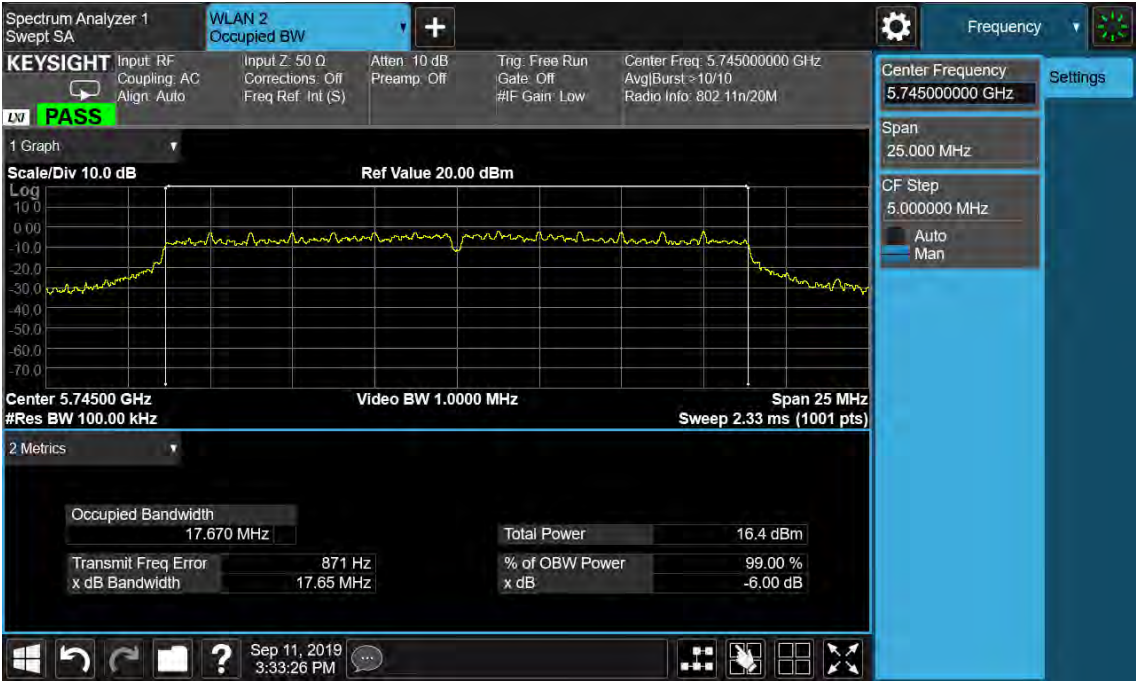


Figure 32: 6dB Bandwidth, 802.11n(HT20), 5745MHz



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Figure 33: 6dB Bandwidth, 802.11n(HT20), 5785MHz

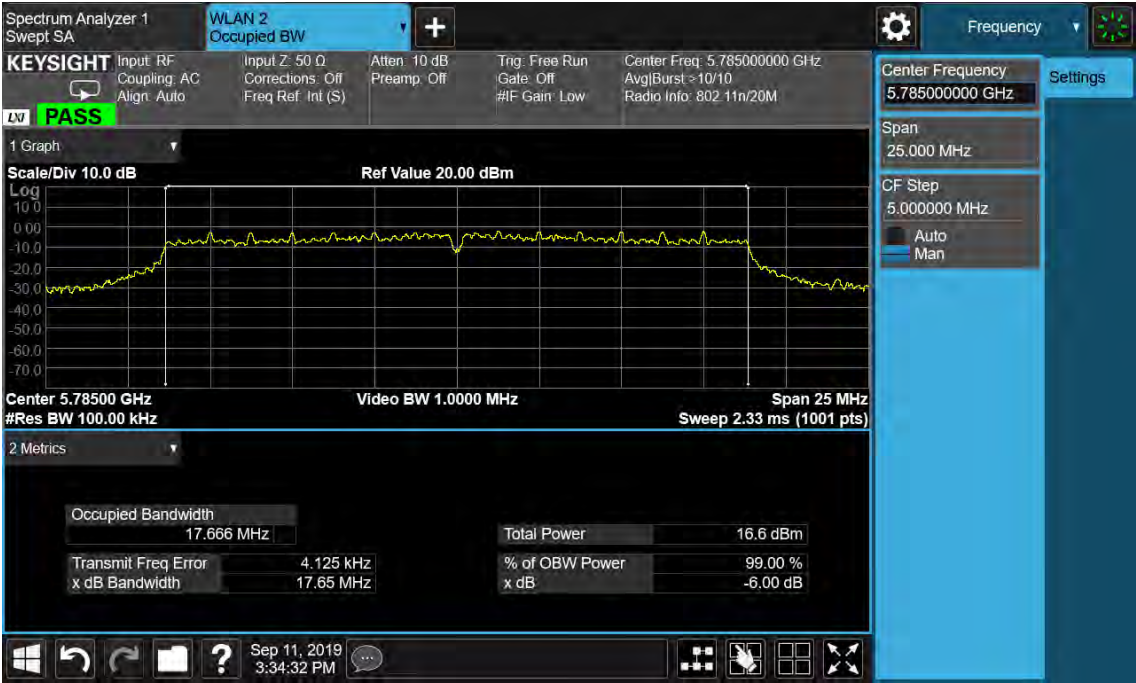
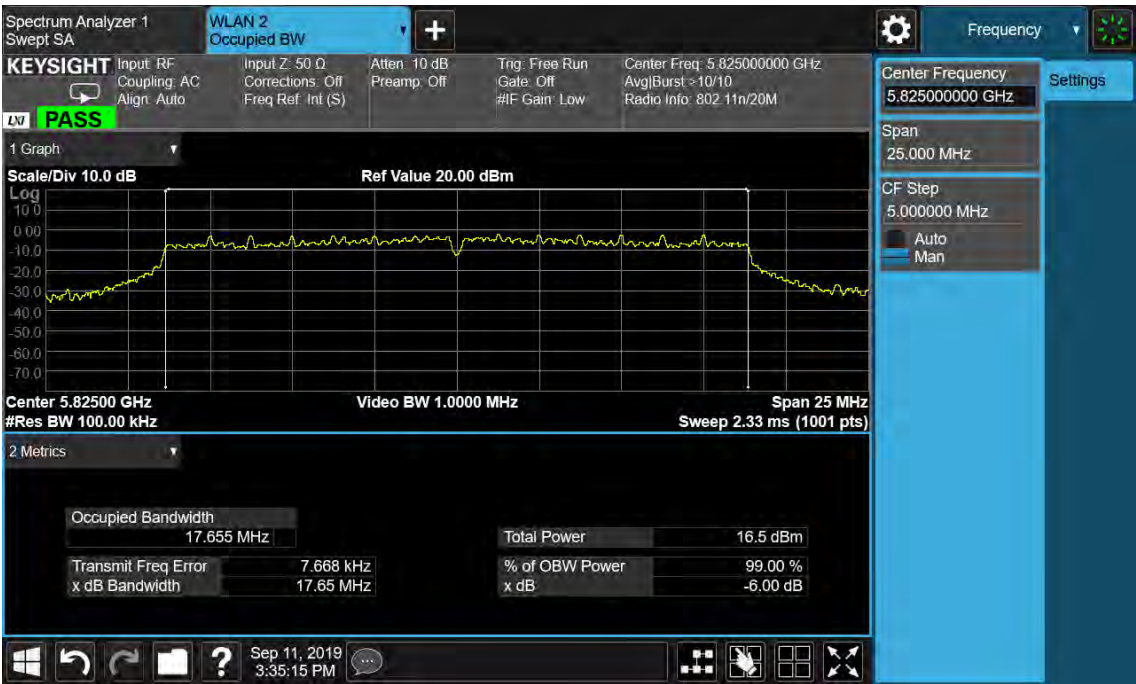


Figure 34: 6dB Bandwidth, 802.11n(HT20), 5825MHz



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Figure 35: 6dB Bandwidth, 802.11ac(VHT20), 5745MHz

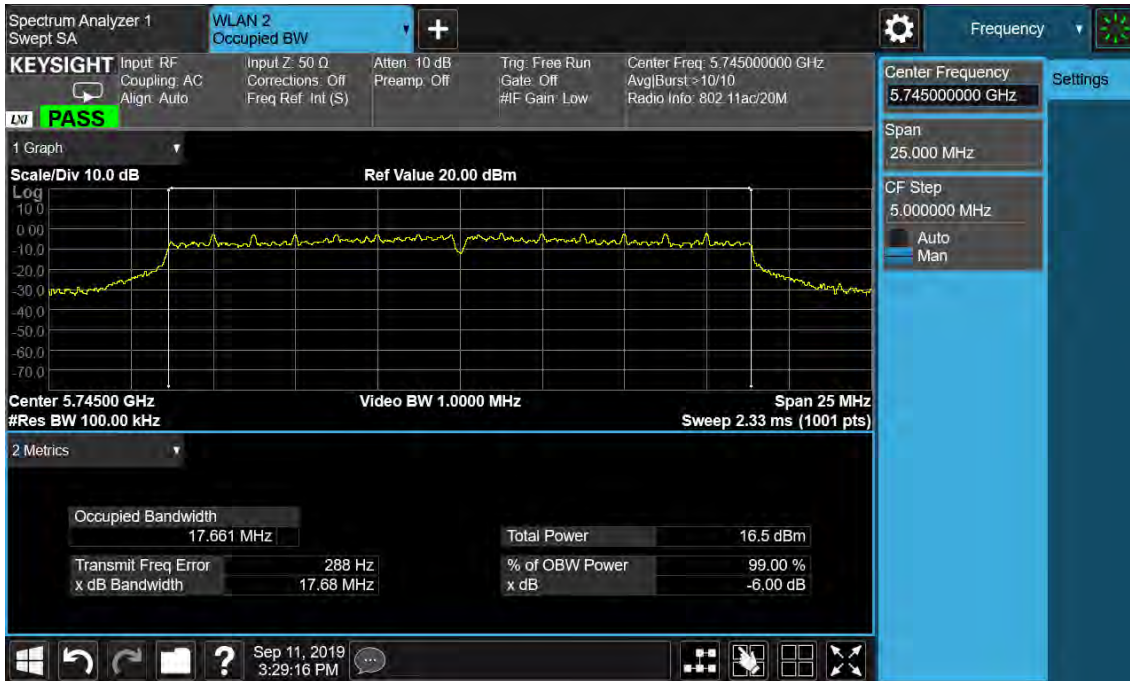
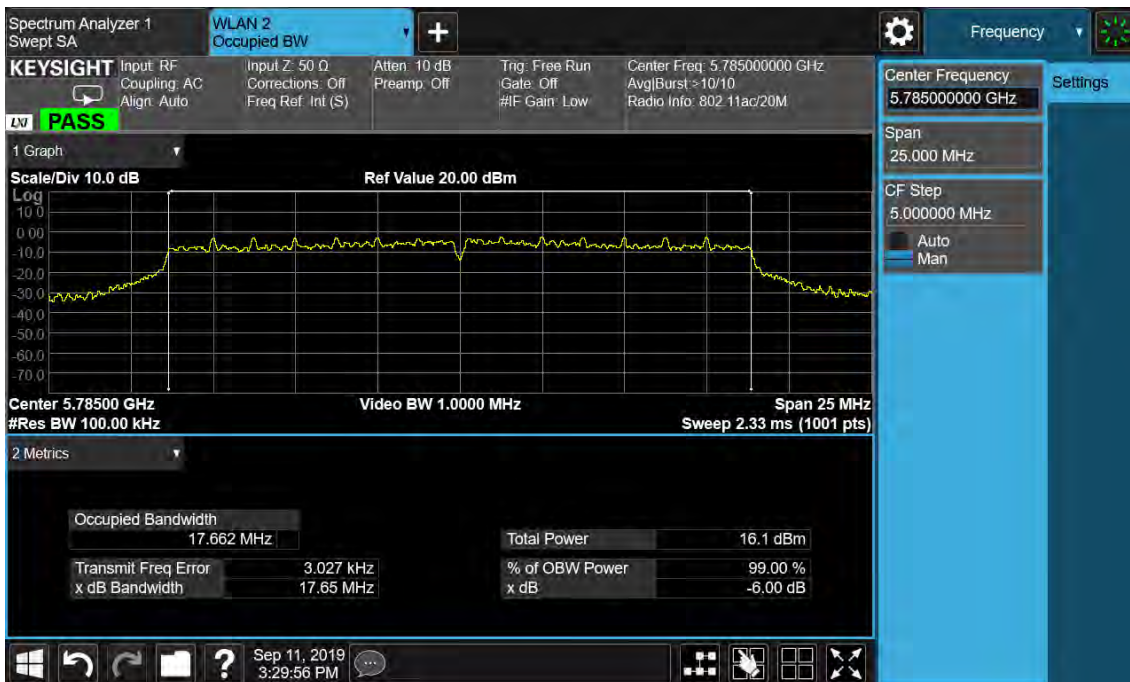


Figure 36: 6dB Bandwidth, 802.11ac(VHT20), 5785MHz



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Figure 37: 6dB Bandwidth, 802.11ac(VHT20), 5825MHz

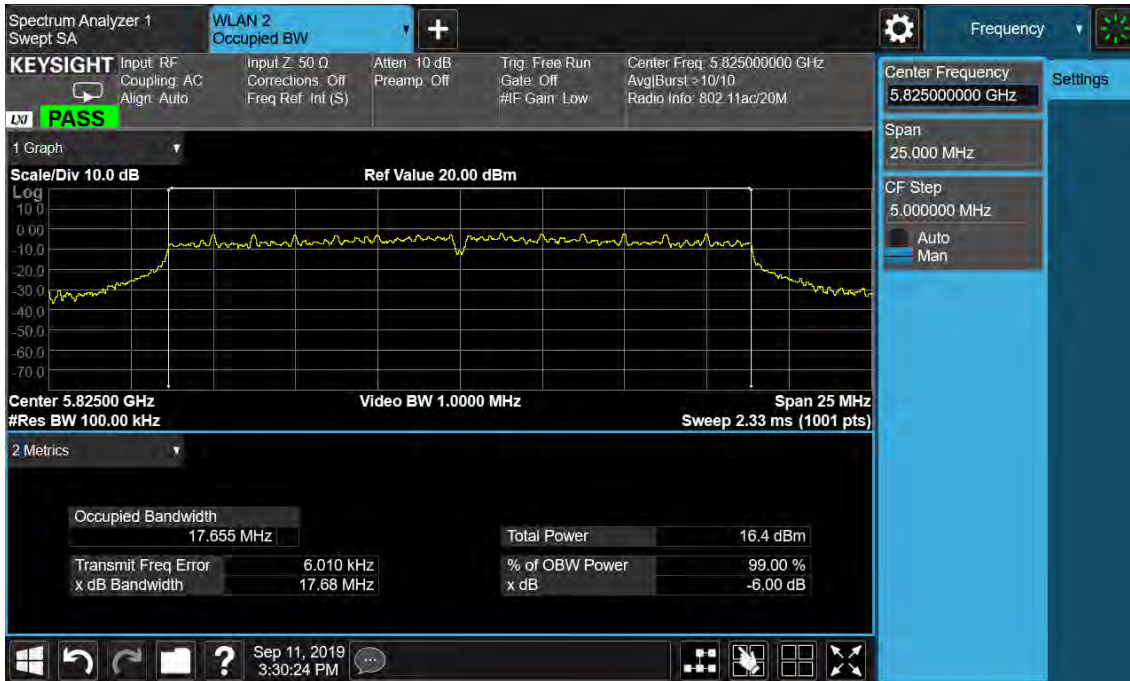
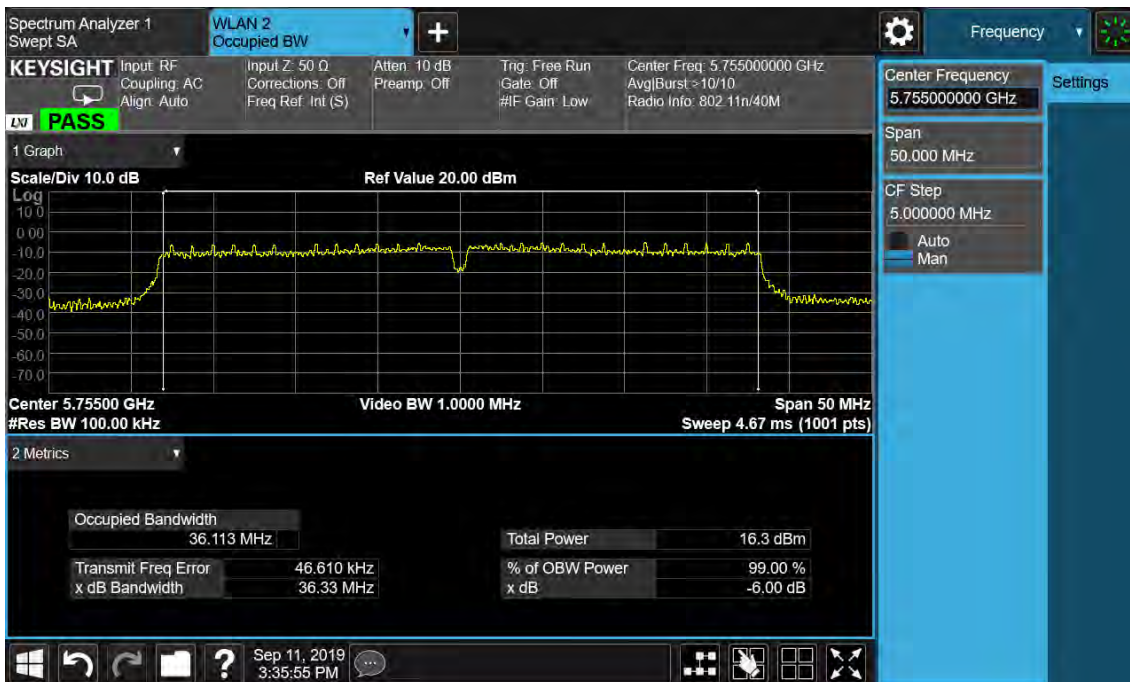


Figure 38: 6dB Bandwidth, 802.11n(HT40), 5755MHz



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Figure 39: 6dB Bandwidth, 802.11n(HT40), 5795MHz

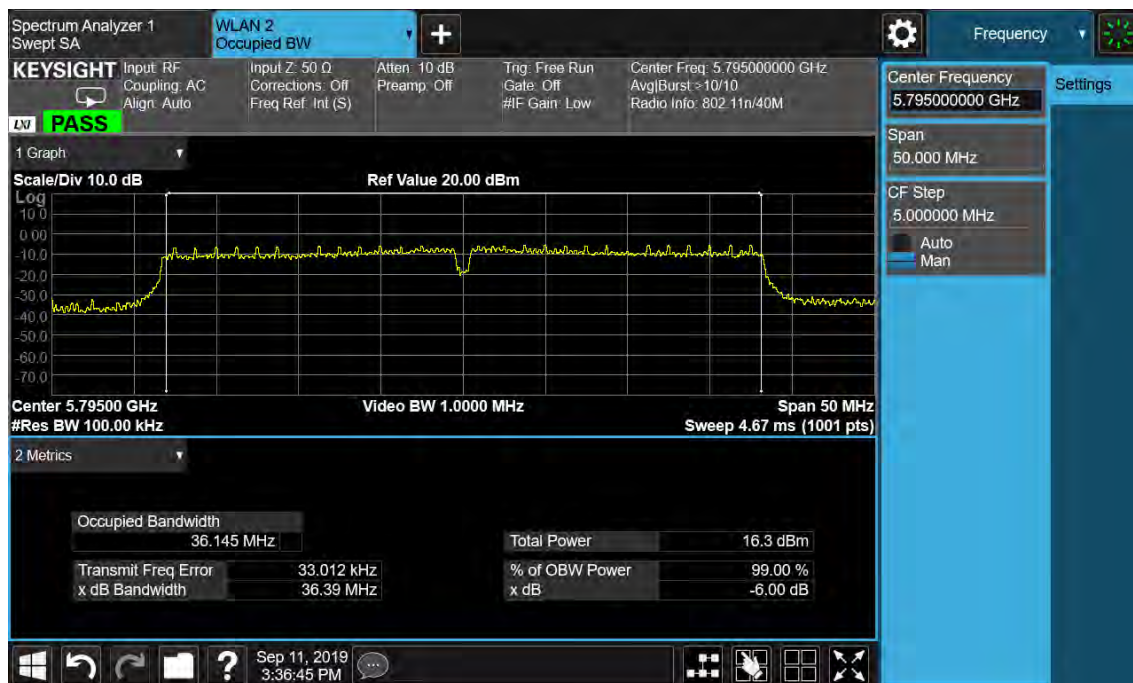
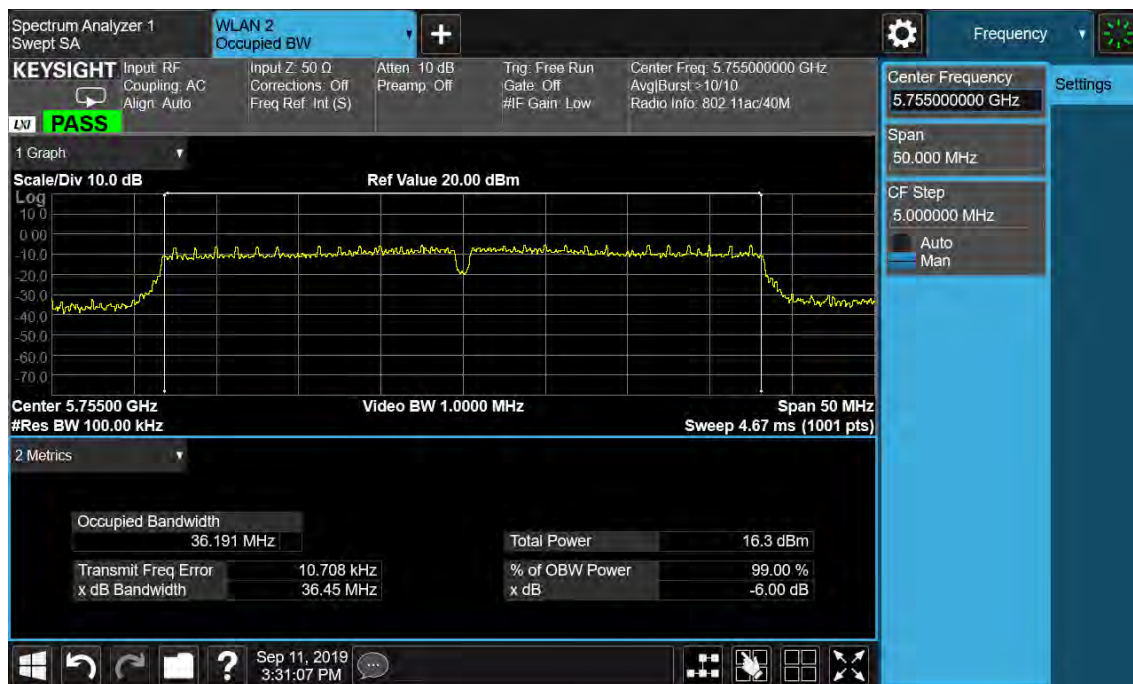


Figure 40: 6dB Bandwidth, 802.11ac(VHT40), 5755MHz



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Figure 41: 6dB Bandwidth, 802.11ac(VHT40), 5785MHz

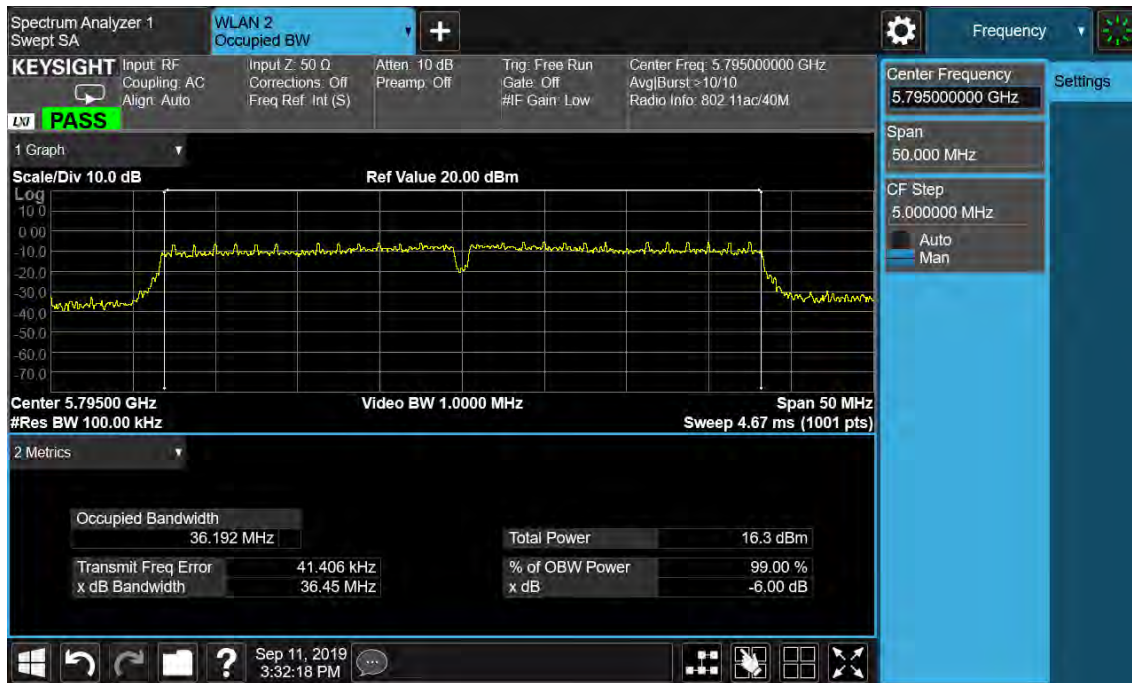
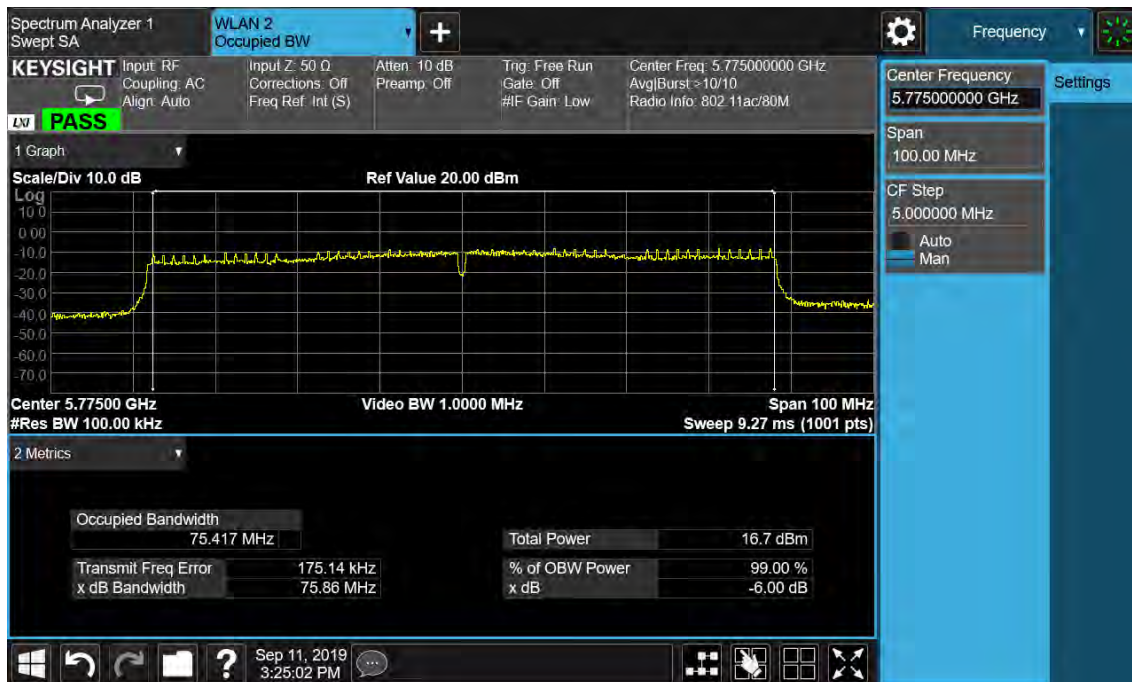


Figure 42: 6dB Bandwidth, 802.11ac(VHT80), 5775MHz



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4.1.5 Power Spectral Density

RESULT:

PASS

Test standard : FCC Part 15.407(a)
RSS-247 6.2
Requirement : ANSI C63.10-2013, KDB 789033
Kind of test site : Shielded room

Test setup

Test Channel : Low/Middle/High
Operation Mode : A.1.a
Ambient temperature : 25°C
Relative humidity : 52%

Table 5: Power Spectral Density

Band I (5150 – 5250 MHz)

Test Mode	Test Channel (MHz)	PSD (dBm/MHz)	FCC Limit (dBm/MHz)
802.11a	5180	1.52	11
	5220	2.74	
	5240	3.51	
802.11n(HT20)	5180	2.52	
	5220	3.37	
	5240	3.89	
802.11ac(VHT20)	5180	2.86	
	5220	3.50	
	5240	4.91	
802.11n(HT40)	5190	-1.30	
	5230	-0.36	
802.11ac(VHT40)	5190	-1.06	
	5230	0.75	
802.11ac(VHT80)	5210	-5.05	

Band IV (5725 – 5850 MHz)

Test Mode	Test Channel (MHz)	PSD (dBm/MHz)	FCC Limit (dBm/MHz)
802.11a	5745	4.42	30
	5785	4.11	
	5825	4.13	

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802.11n(HT20)	5745	4.57	
	5785	4.17	
	5825	4.87	
802.11ac(VHT20)	5745	5.65	
	5785	4.80	
	5825	4.47	
802.11n(HT40)	5755	1.72	
	5795	0.95	
802.11ac(VHT40)	5755	1.09	
	5795	0.73	
802.11ac(VHT80)	5775	-3.68	

Band I (5150 – 5250 MHz)

Test Mode	Test Channel (MHz)	EIRP PSD (dBm/MHz)	IC Limit (dBm/MHz)
802.11a	5180	-1.58	10
	5220	-0.36	
	5240	0.41	
802.11n(HT20)	5180	-0.58	
	5220	0.27	
	5240	0.79	
802.11ac(VHT20)	5180	-0.24	
	5220	0.40	
	5240	1.81	
802.11n(HT40)	5190	-4.40	
	5230	-3.46	
802.11ac(VHT40)	5190	-4.16	
	5230	-2.35	
802.11ac(VHT80)	5210	-8.15	

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Figure 43: Power Spectral Density, 802.11a, 5180MHz



Figure 44: Power Spectral Density, 802.11a, 5220MHz



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Figure 45: Power Spectral Density, 802.11a, 5240MHz



Figure 46: Power Spectral Density, 802.11n(HT20), 5180MHz



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Figure 47: Power Spectral Density, 802.11n(HT20), 5220MHz



Figure 48: Power Spectral Density, 802.11n(HT20), 5240MHz



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Figure 49: Power Spectral Density, 802.11ac(VHT20), 5180MHz



Figure 50: Power Spectral Density, 802.11ac(VHT20), 5220MHz



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Figure 51: Power Spectral Density, 802.11ac(VHT20), 5240MHz



Figure 52: Power Spectral Density, 802.11n(HT40), 5190MHz



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Figure 53: Power Spectral Density, 802.11n(HT40), 5230MHz



Figure 54: Power Spectral Density, 802.11ac(VHT40), 5190MHz



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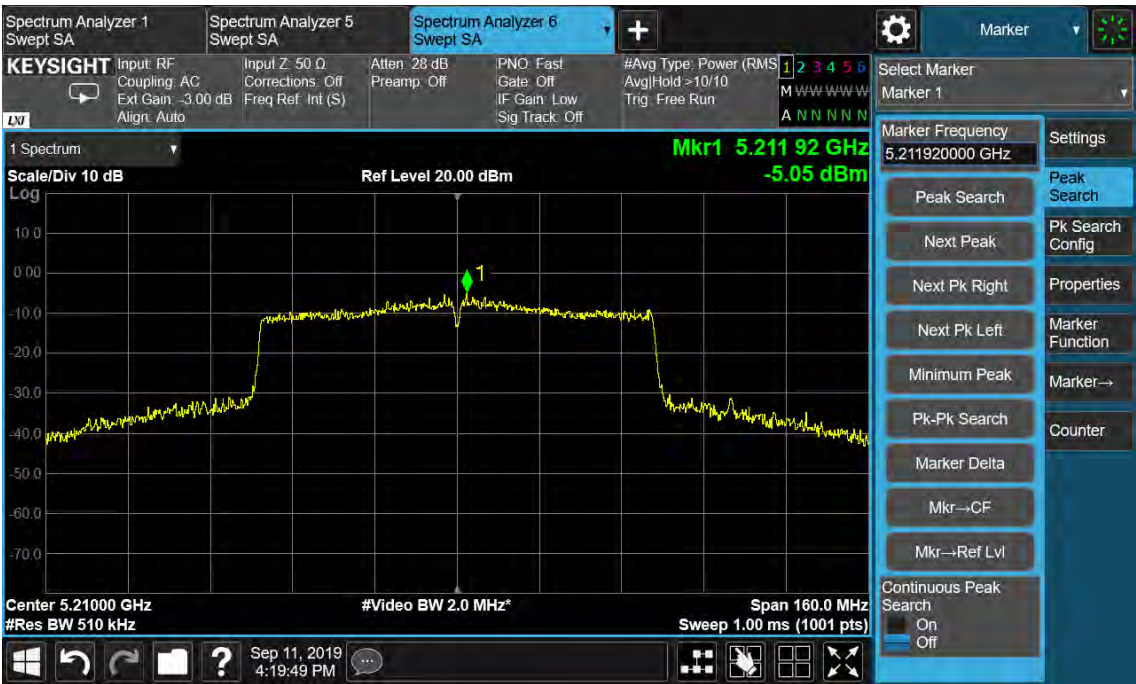
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Figure 55: Power Spectral Density, 802.11ac(VHT40), 5230MHz



Figure 56: Power Spectral Density, 802.11ac(VHT80), 5210MHz



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Figure 57: Power Spectral Density, 802.11a, 5745MHz



Figure 58: Power Spectral Density, 802.11a, 5785MHz



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Figure 59: Power Spectral Density, 802.11a, 5825MHz



Figure 60: Power Spectral Density, 802.11n(HT20), 5745MHz



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Figure 61: Power Spectral Density, 802.11n(HT20), 5785MHz



Figure 62: Power Spectral Density, 802.11n(HT20), 5825MHz



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Figure 63: Power Spectral Density, 802.11ac(VHT20), 5745MHz



Figure 64: Power Spectral Density, 802.11ac(VHT20), 5785MHz



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Figure 65: Power Spectral Density, 802.11ac(VHT20), 5825MHz

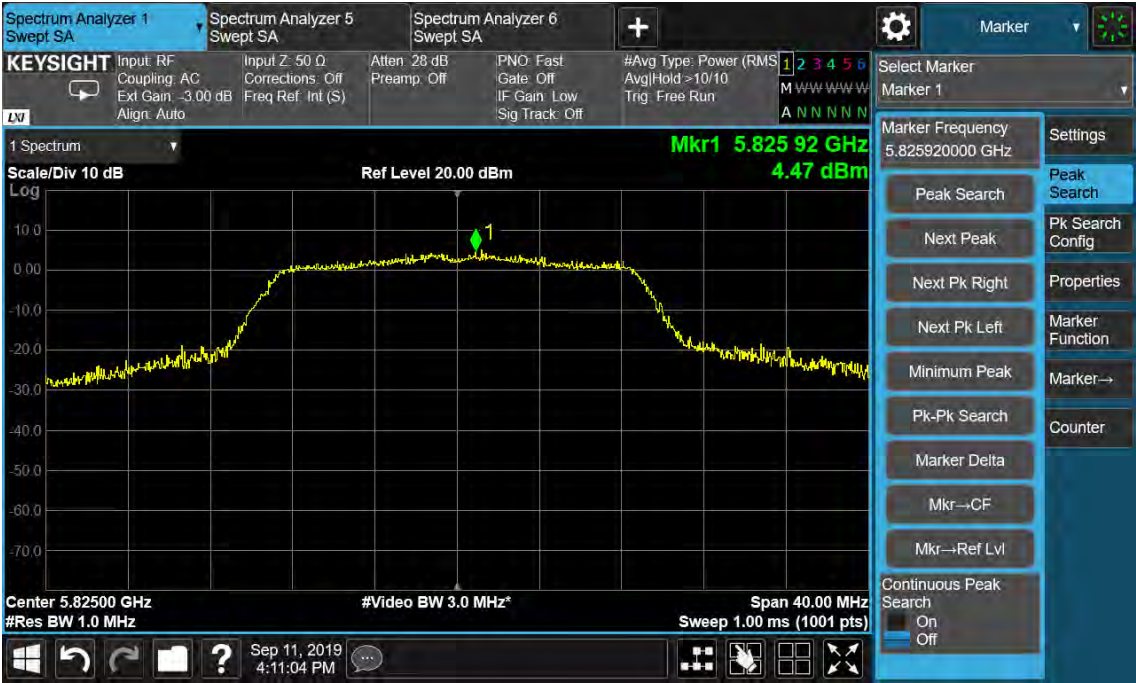


Figure 66: Power Spectral Density, 802.11n(HT40), 5755MHz



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Figure 67: Power Spectral Density, 802.11n(HT40), 5795MHz



Figure 68: Power Spectral Density, 802.11ac(VHT40), 5755MHz



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Figure 69: Power Spectral Density, 802.11ac(VHT40), 5785MHz



Figure 70: Power Spectral Density, 802.11ac(VHT80), 5775MHz



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4.1.6 Undesirable Emission

RESULT:

PASS

Test standard	: FCC Part 15.407(b), 15.209 RSS-247 6.2
Requirement	: ANSI C63.10-2013, KDB 789033
Kind of test site	: Shielded room

Test setup

Test Channel	: Low/Middle/High
Operation Mode	: A.1.a
Ambient temperature	: 25°C
Relative humidity	: 52%

For details refer to following test plot.

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Figure 71: Undesirable Emission, 30MHz-25GHz, 802.11a, 5180MHz



Figure 72: Undesirable Emission, 30MHz-25GHz, 802.11a, 5220MHz



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Figure 73: Undesirable Emission, 30MHz-25GHz, 802.11a, 5240MHz



Figure 74: Undesirable Emission, 30MHz-25GHz, 802.11n(HT20), 5180MHz



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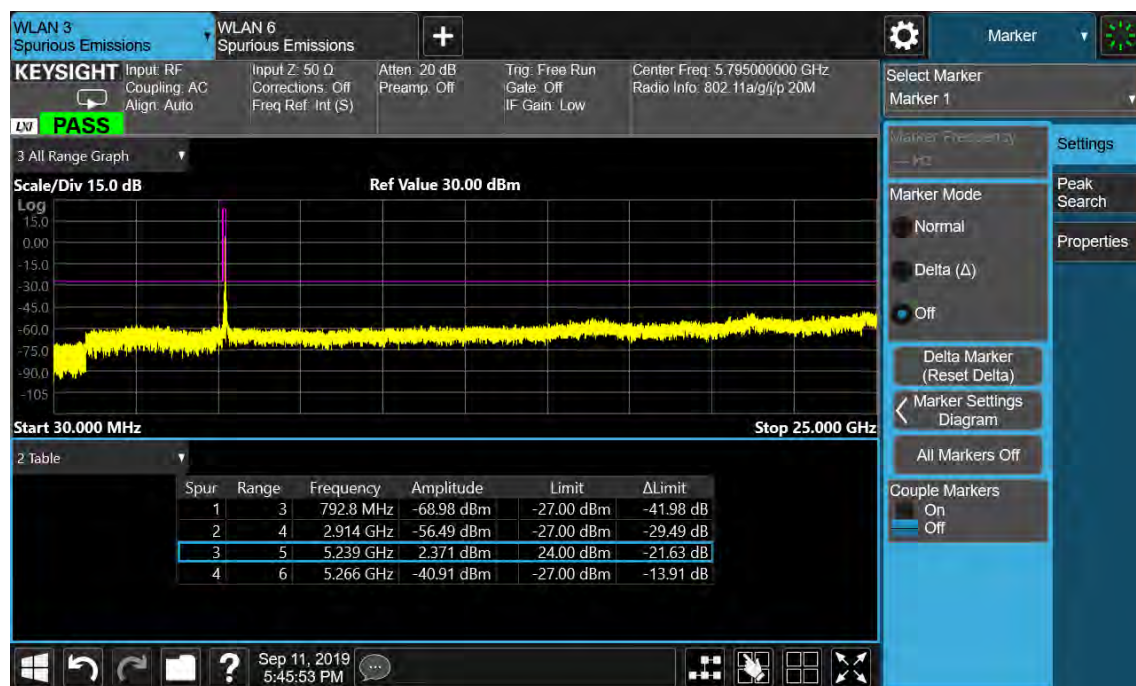
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Figure 75: Undesirable Emission, 30MHz-25GHz, 802.11n(HT20), 5220MHz



Figure 76: Undesirable Emission, 30MHz-25GHz, 802.11n(HT20), 5240MHz



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Figure 77: Undesirable Emission, 30MHz-25GHz, 802.11ac(VHT20), 5180MHz



Figure 78: Undesirable Emission, 30MHz-25GHz, 802.11ac(VHT20), 5220MHz



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Figure 79: Undesirable Emission, 30MHz-25GHz, 802.11ac(VHT20), 5240MHz



Figure 80: Undesirable Emission, 30MHz-25GHz, 802.11n(HT40), 5190MHz



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Figure 81: Undesirable Emission, 30MHz-25GHz, 802.11n(HT40), 5230MHz



Figure 82: Undesirable Emission, 30MHz-25GHz, 802.11ac(VHT40), 5190MHz



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Figure 83: Undesirable Emission, 30MHz-25GHz, 802.11ac(VHT40), 5230MHz



Figure 84: Undesirable Emission, 30MHz-25GHz, 802.11ac(VHT80), 5210MHz



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Figure 85: Undesirable Emission, 30MHz-25GHz, 802.11a, 5745MHz

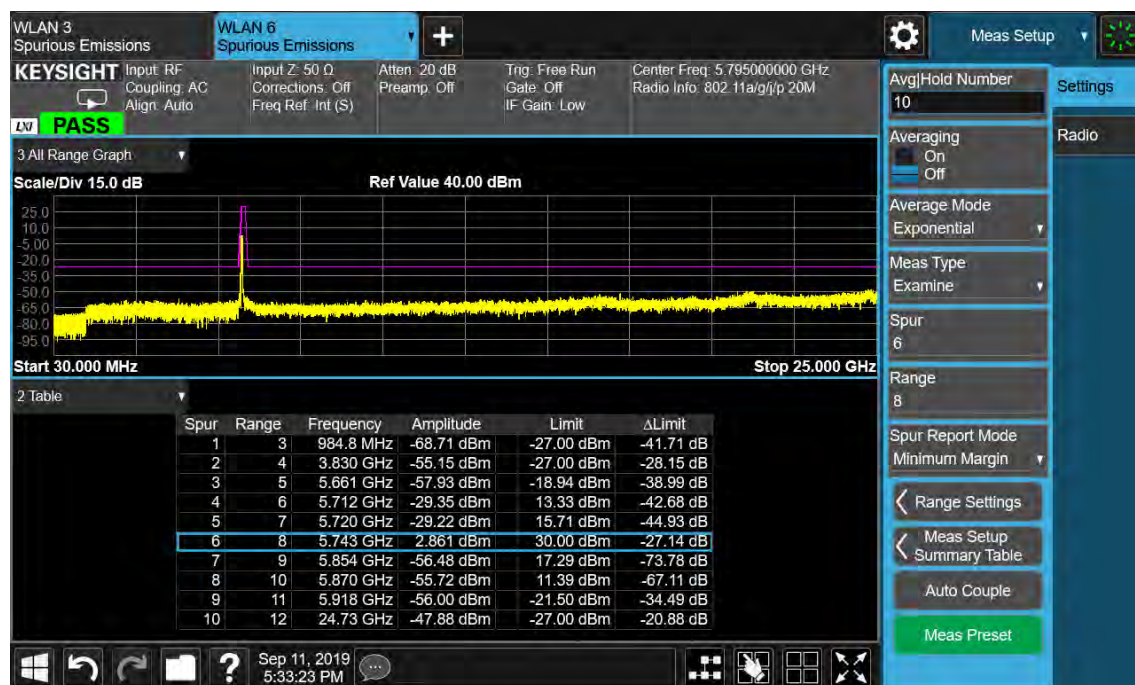
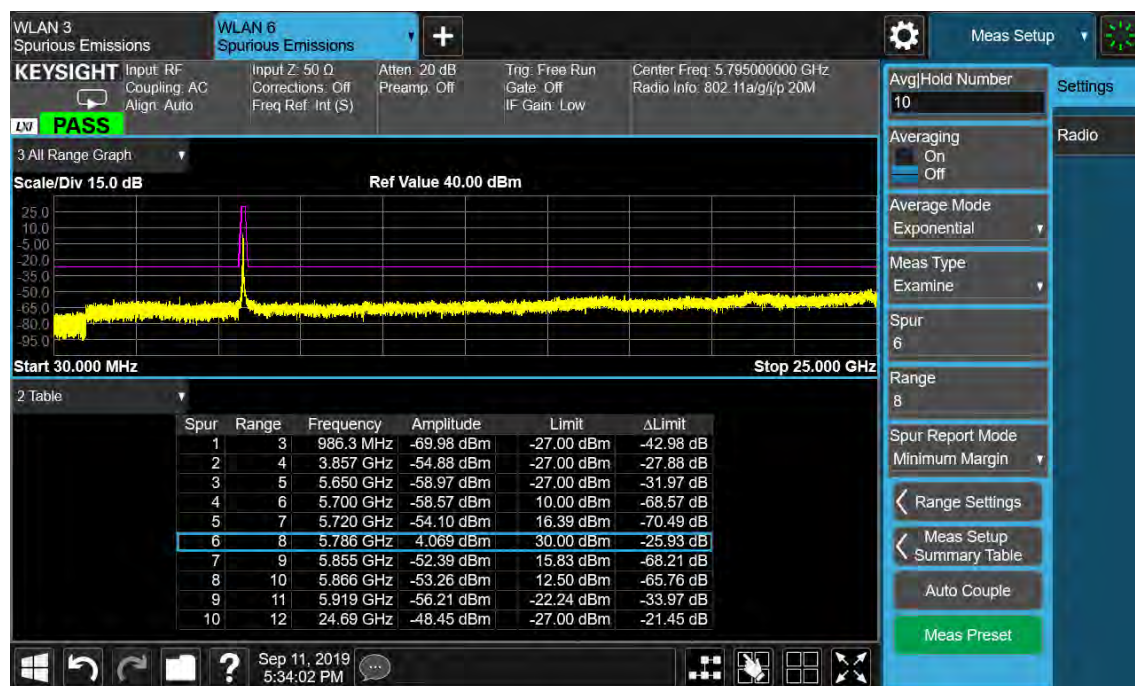


Figure 86: Undesirable Emission, 30MHz-25GHz, 802.11a, 5785MHz



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Figure 87: Undesirable Emission, 30MHz-25GHz, 802.11a, 5825MHz

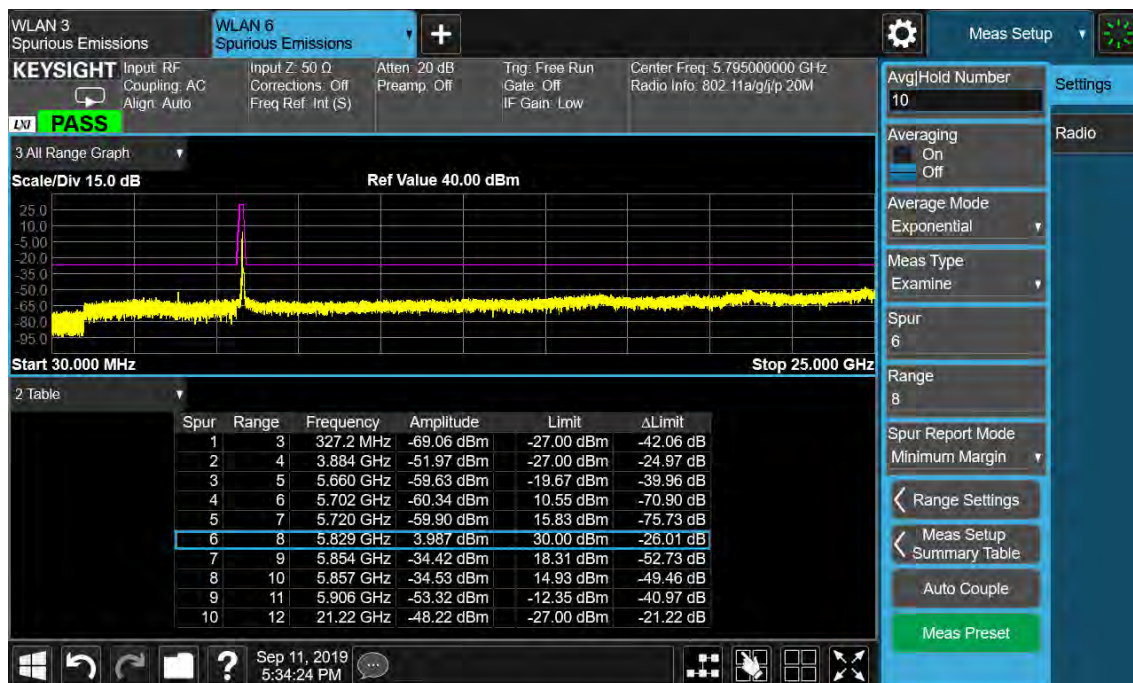
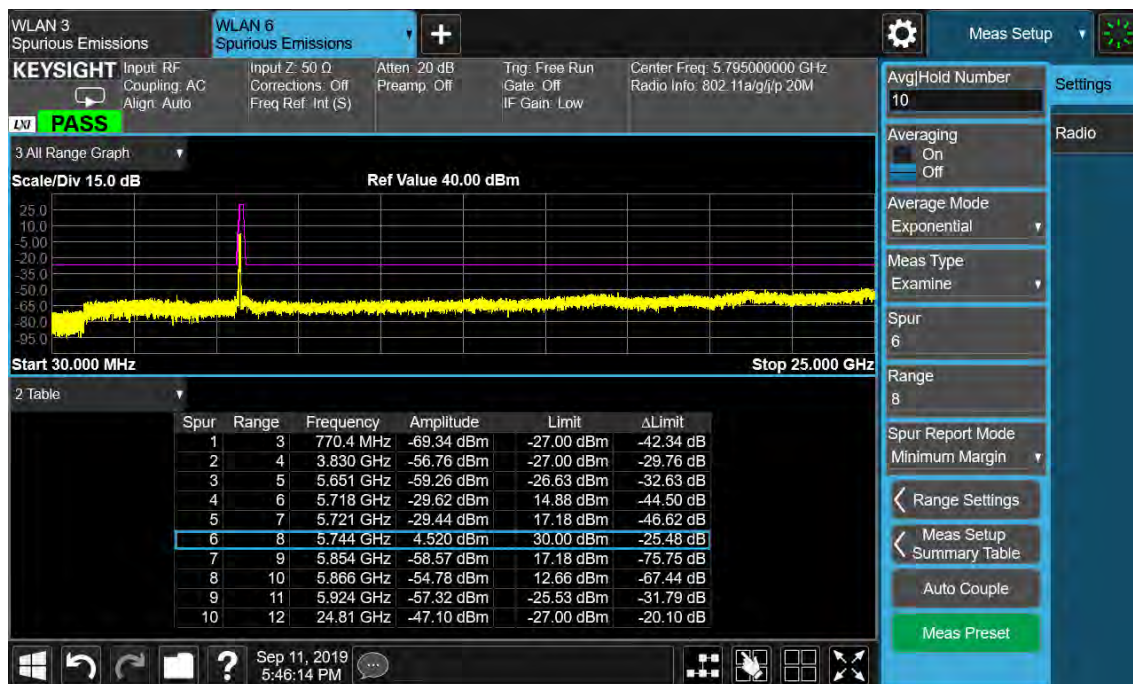


Figure 88: Undesirable Emission, 30MHz-25GHz, 802.11n(HT20), 5745MHz



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Figure 89: Undesirable Emission, 30MHz-25GHz, 802.11n(HT20), 5785MHz

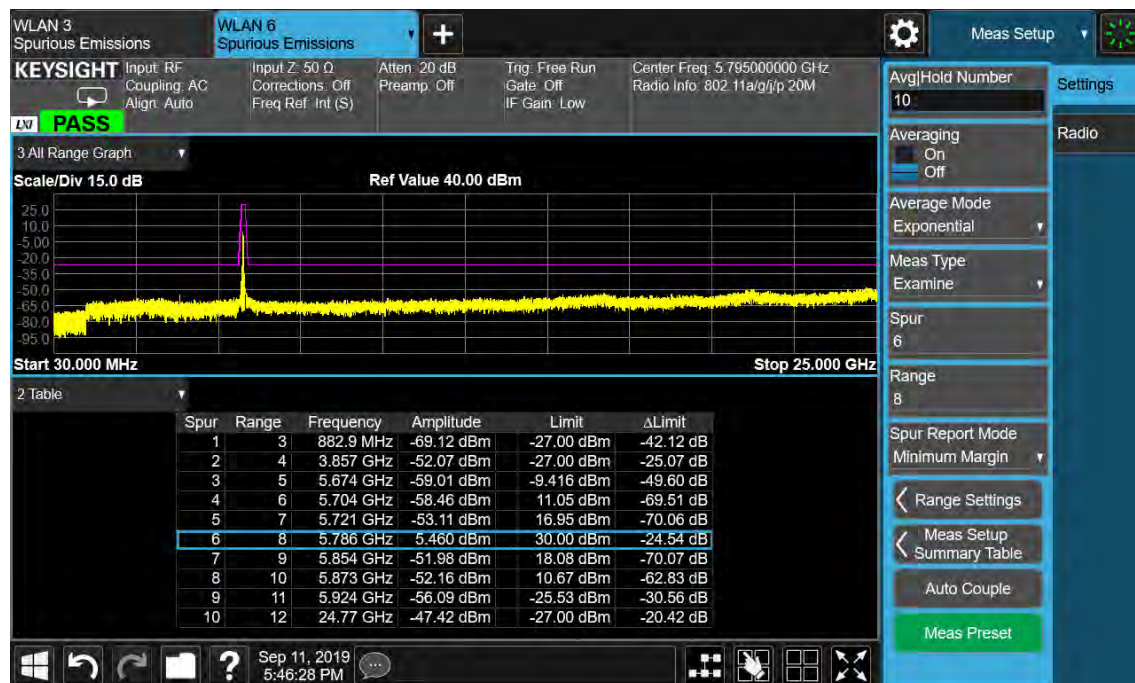
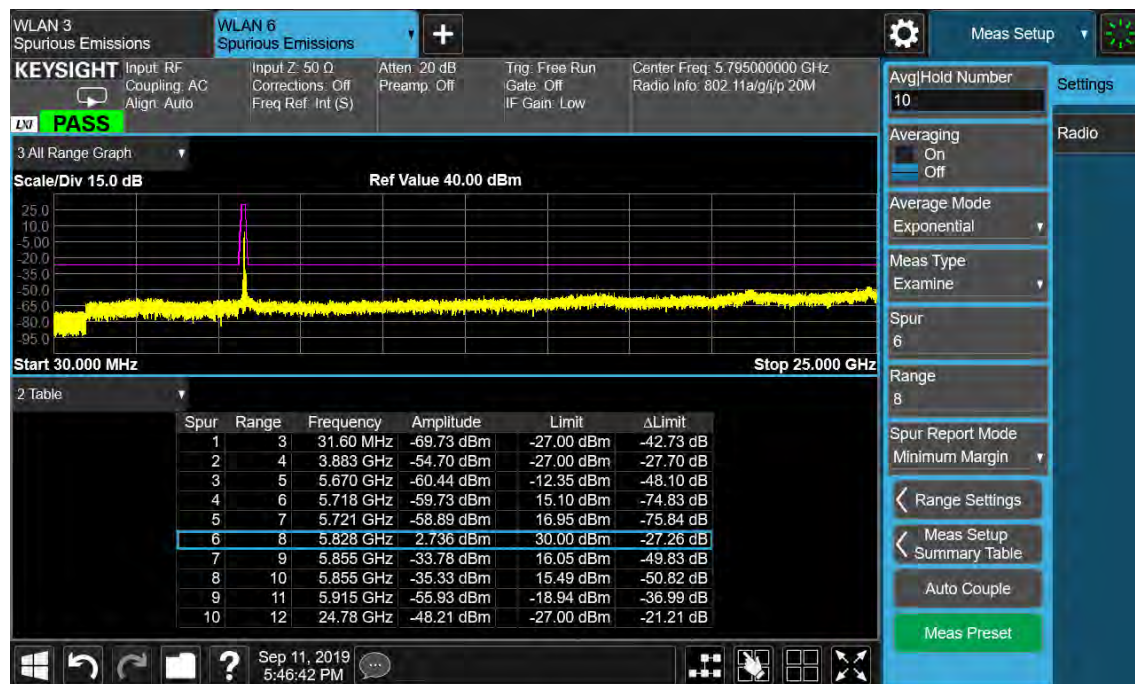


Figure 90: Undesirable Emission, 30MHz-25GHz, 802.11n(HT20), 5825MHz



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Figure 91: Undesirable Emission, 30MHz-25GHz, 802.11ac(VHT20), 5745MHz

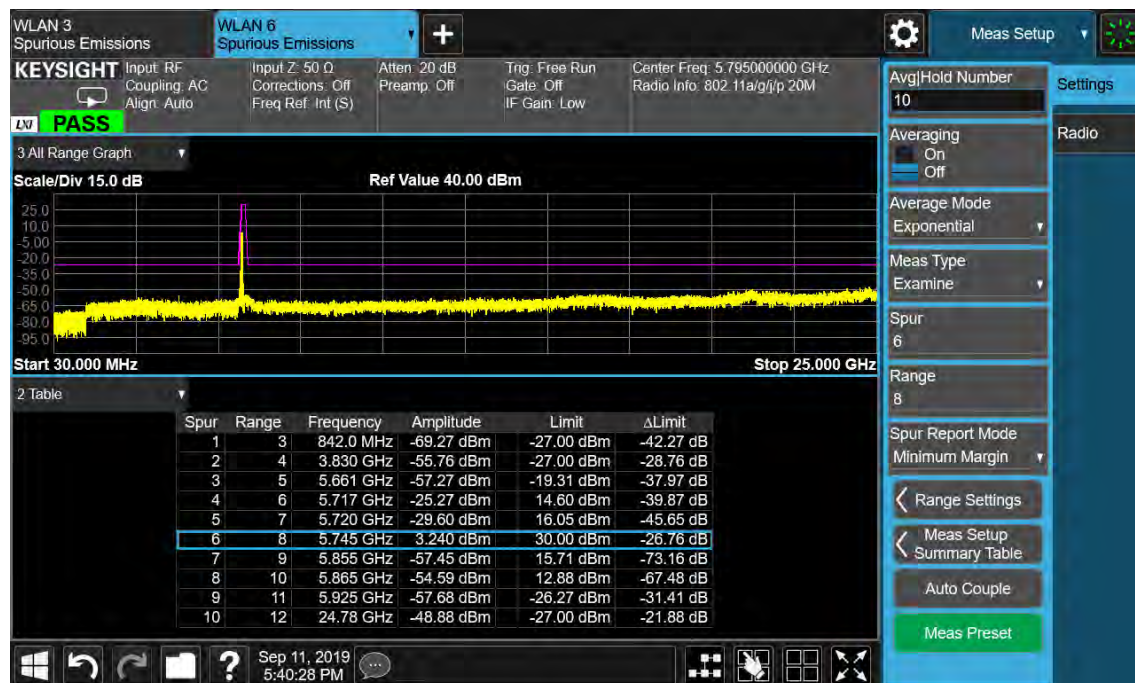
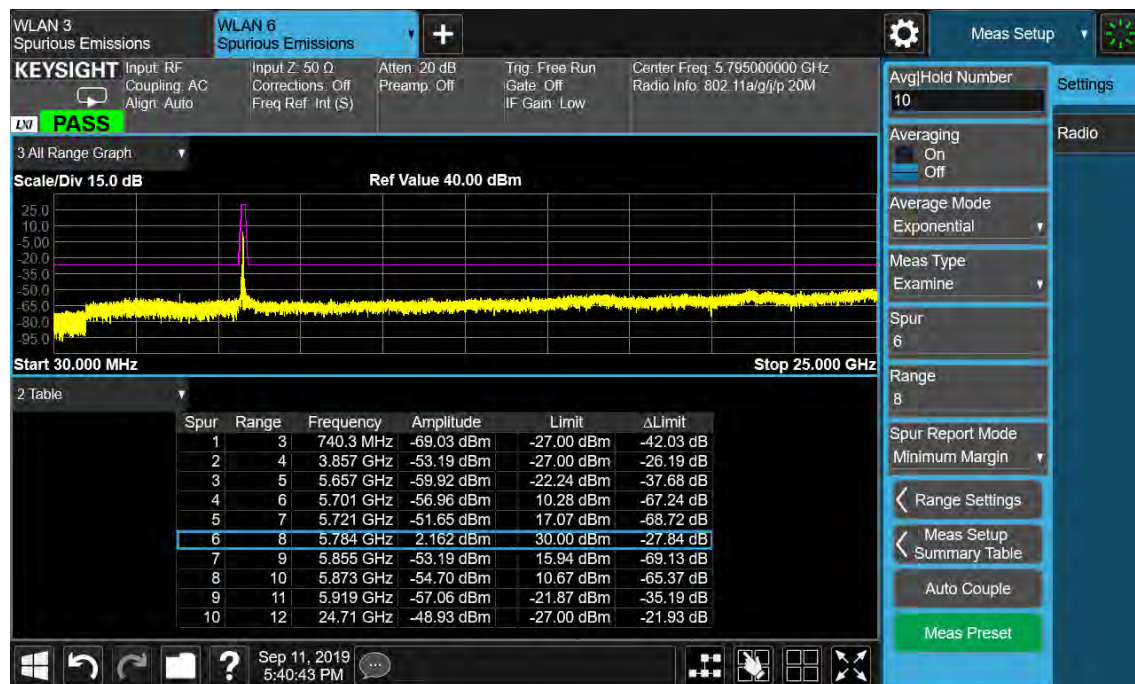


Figure 92: Undesirable Emission, 30MHz-25GHz, 802.11ac(VHT20), 5785MHz



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Figure 93: Undesirable Emission, 30MHz-25GHz, 802.11ac(VHT20), 5825MHz

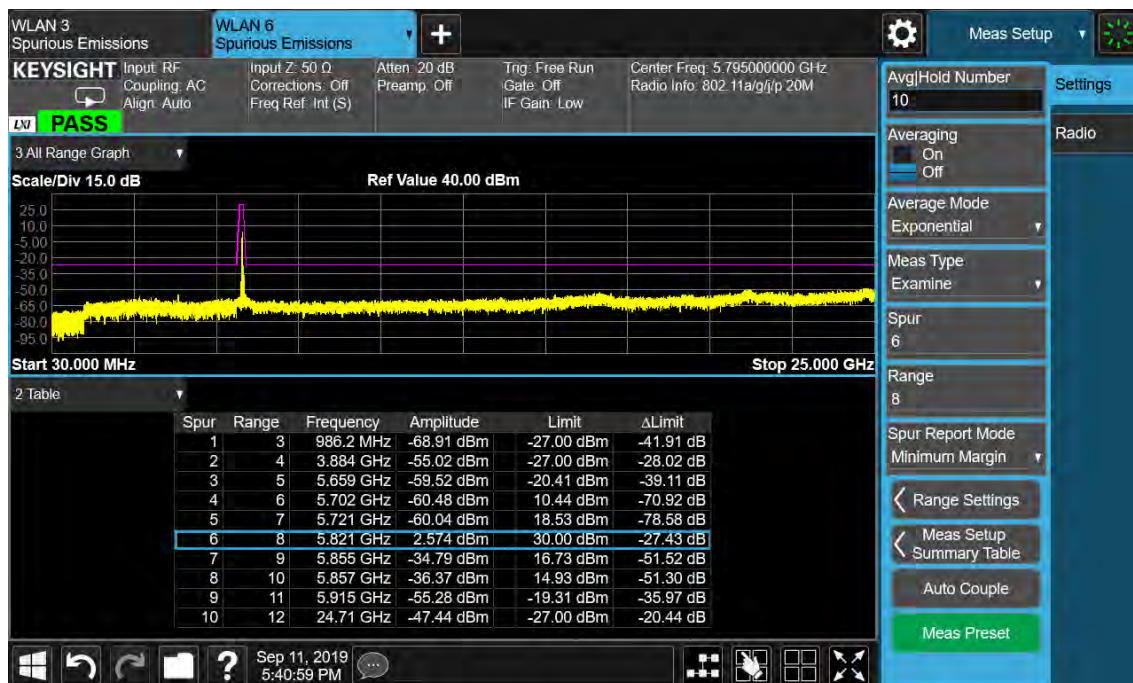
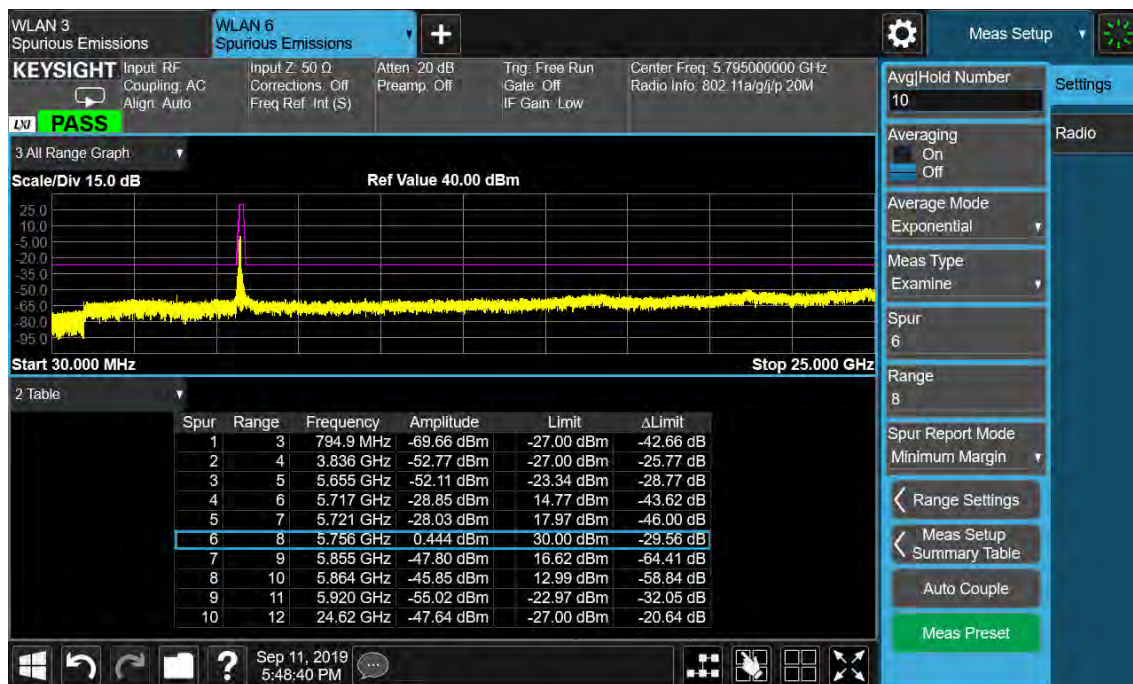


Figure 94: Undesirable Emission, 30MHz-25GHz, 802.11n(HT40), 5755MHz



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Figure 95: Undesirable Emission, 30MHz-25GHz, 802.11n(HT40), 5795MHz

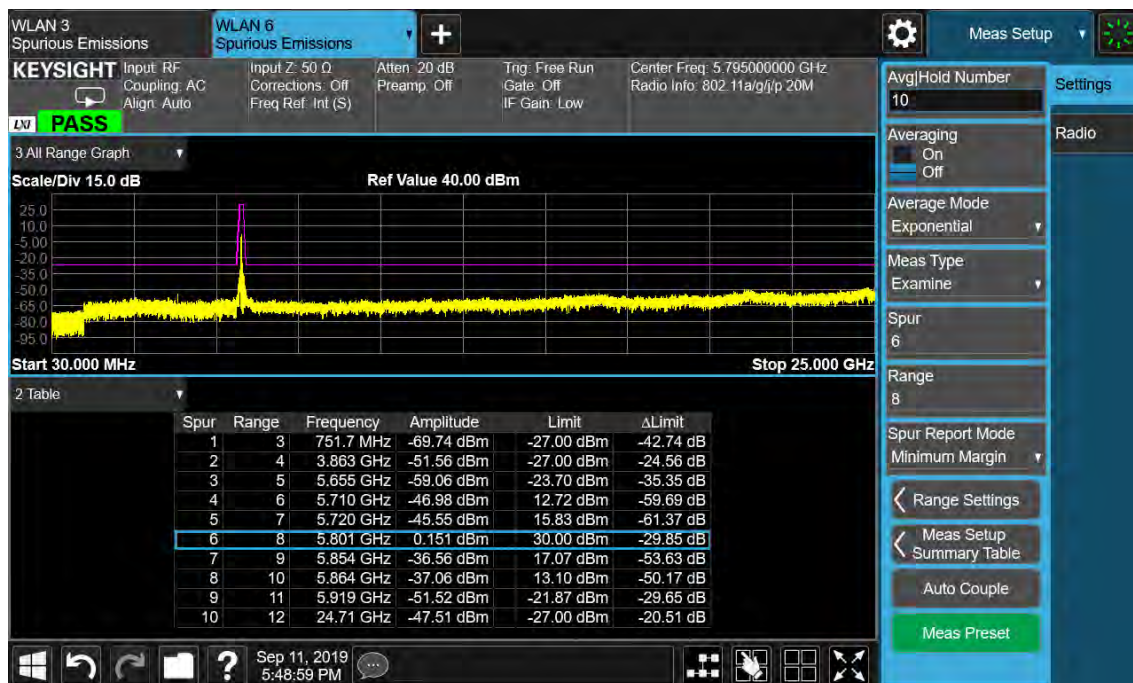
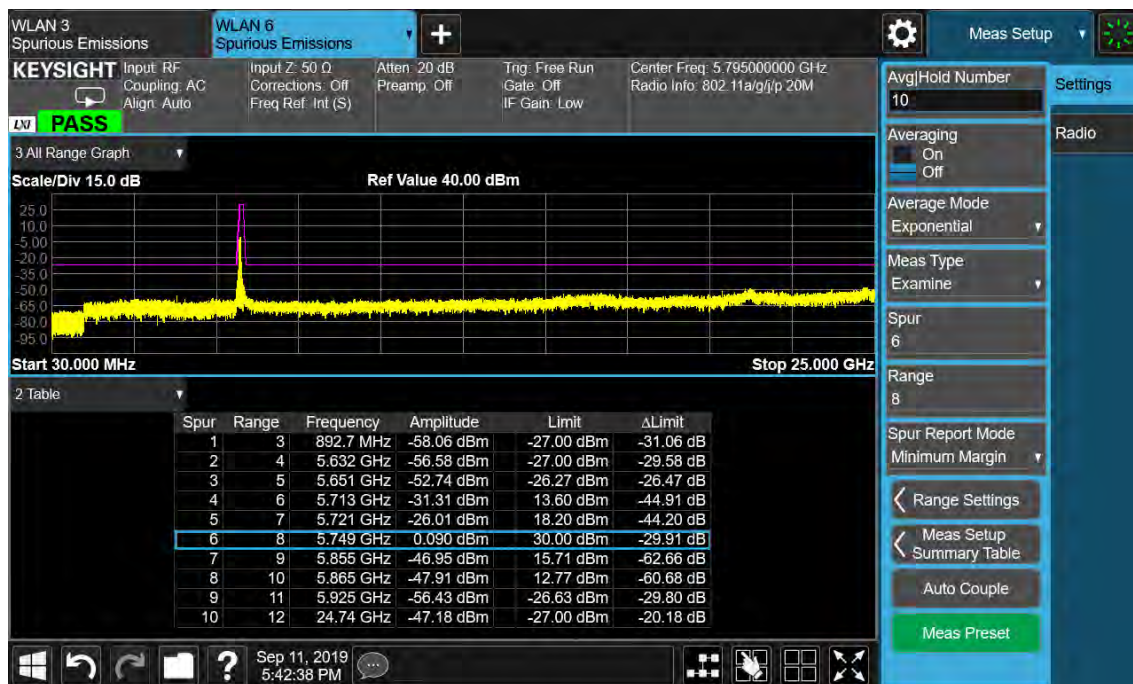


Figure 96: Undesirable Emission, 30MHz-25GHz, 802.11ac(VHT40), 5755MHz



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Figure 97: Undesirable Emission, 30MHz-25GHz, 802.11ac(VHT40), 5795MHz

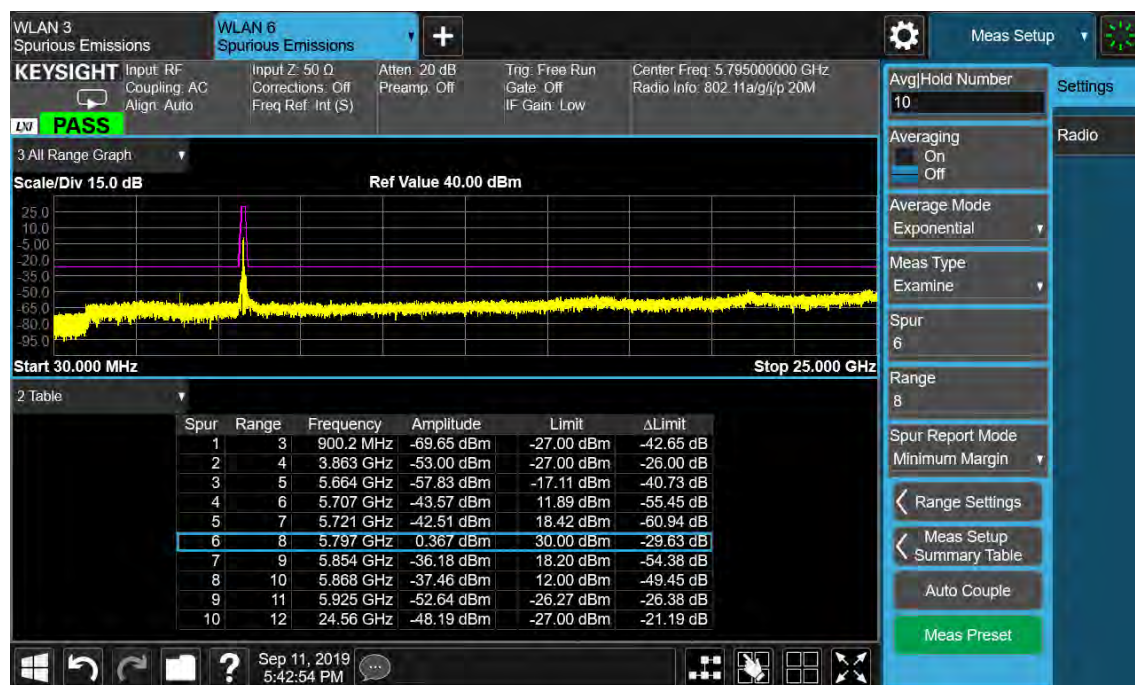
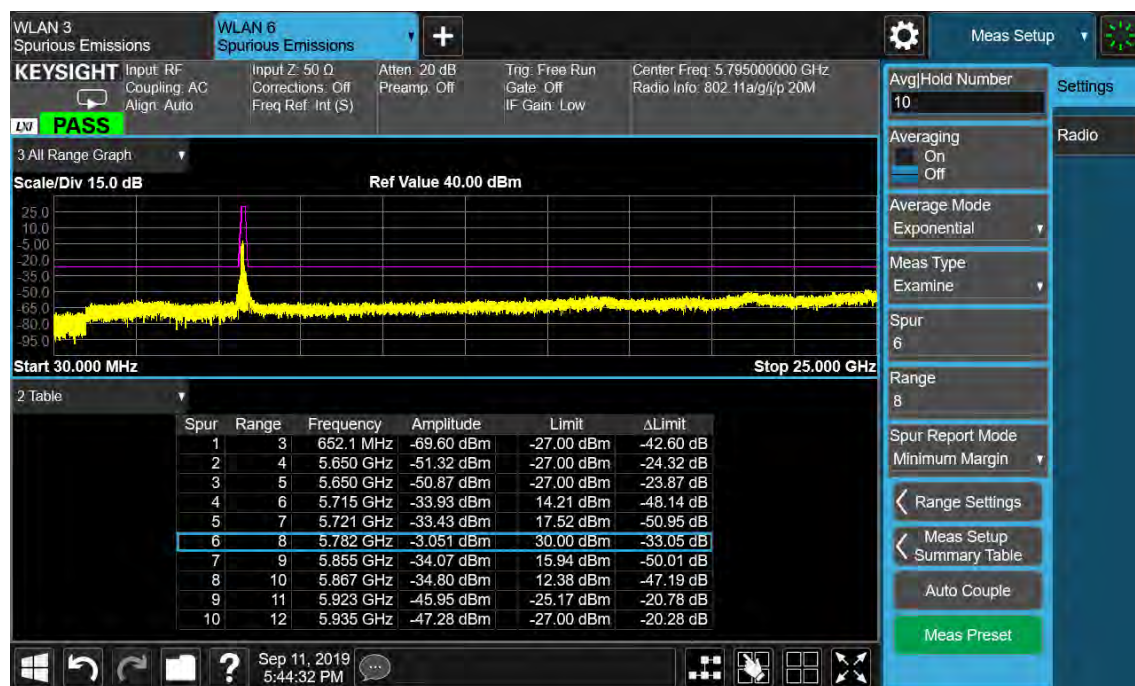


Figure 98: Undesirable Emission, 30MHz-25GHz, 802.11ac(VHT80), 5775MHz



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4.1.7 Spurious Emission

RESULT:

PASS

Test standard	: FCC Part 15.407(b) RSS-247 6.2
Requirement	: ANSI C63.10-2013
Kind of test site	: 3m Semi-Anechoic Chamber

Test setup

Test Channel	: Low/Middle/High
Operation Mode	: A
Ambient temperature	: 25°C
Relative humidity	: 52%

For details refer to following test plot.

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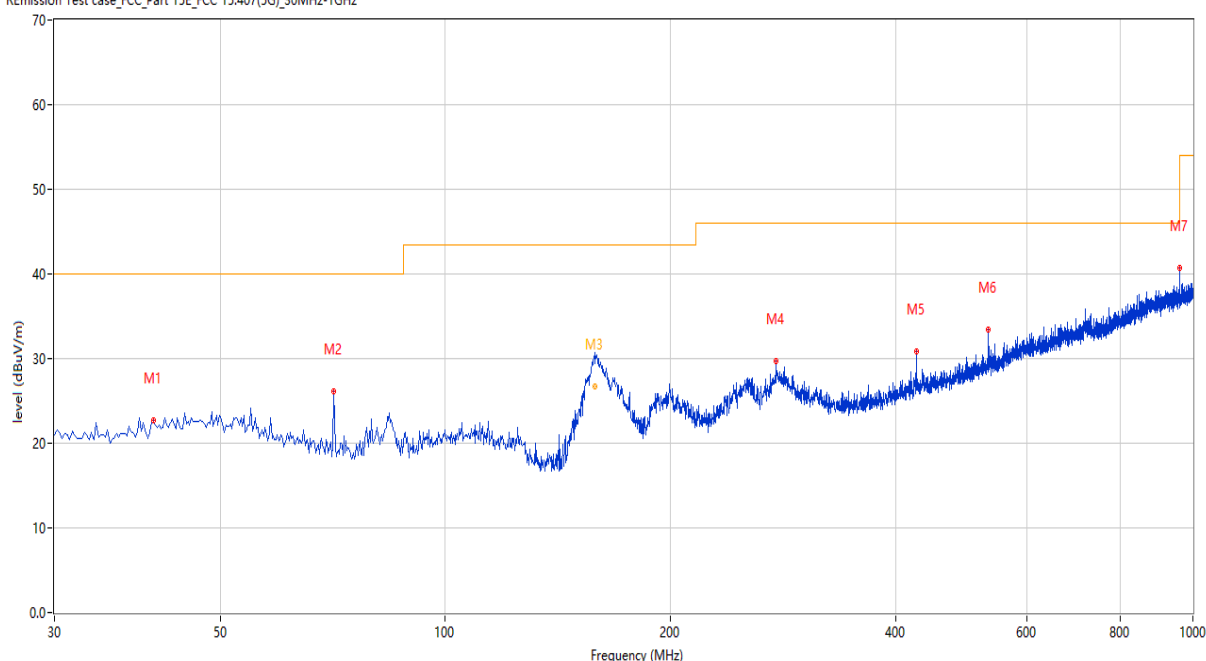
Notes:

1. For 9 kHz ~ 30 MHz, the amplitude of spurious emissions that are attenuated by more than 20dB below the permissible. The value has no need to be reported.
2. The spurious above 18GHz is noise only and 20dB below the limit. The value has no need to be reported.
3. The EUT is working in the Normal link mode below 1 GHz.

Figure 99: Spurious Emission, 30MHz – 1GHz, Normal Link Mode

30MHz-1GHz, Horizontal

REmission Test case_FCC_Part 15E_FCC 15.407(5G)_30MHz-1GHz



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	40.667	22.78	-26.16	40.0	-17.22	Peak	0.40	100	Horizontal	Pass
2	70.972	26.14	-30.42	40.0	-13.86	Peak	259.40	100	Horizontal	Pass
3	158.498	29.77	-30.65	43.5	-13.73	Peak	158.80	111	Horizontal	Pass
3*	158.498	26.66	-30.65	43.5	-16.84	QP	158.80	111	Horizontal	Pass
4	277.046	29.65	-25.85	46.0	-16.35	Peak	0.40	100	Horizontal	Pass
5	426.388	30.82	-22.40	46.0	-15.18	Peak	153.10	100	Horizontal	Pass
6	533.062	32.21	-19.98	46.0	-13.79	Peak	25.90	100	Horizontal	Pass
7	959.755	40.66	-11.91	46.0	-5.34	Peak	241.80	200	Horizontal	Pass

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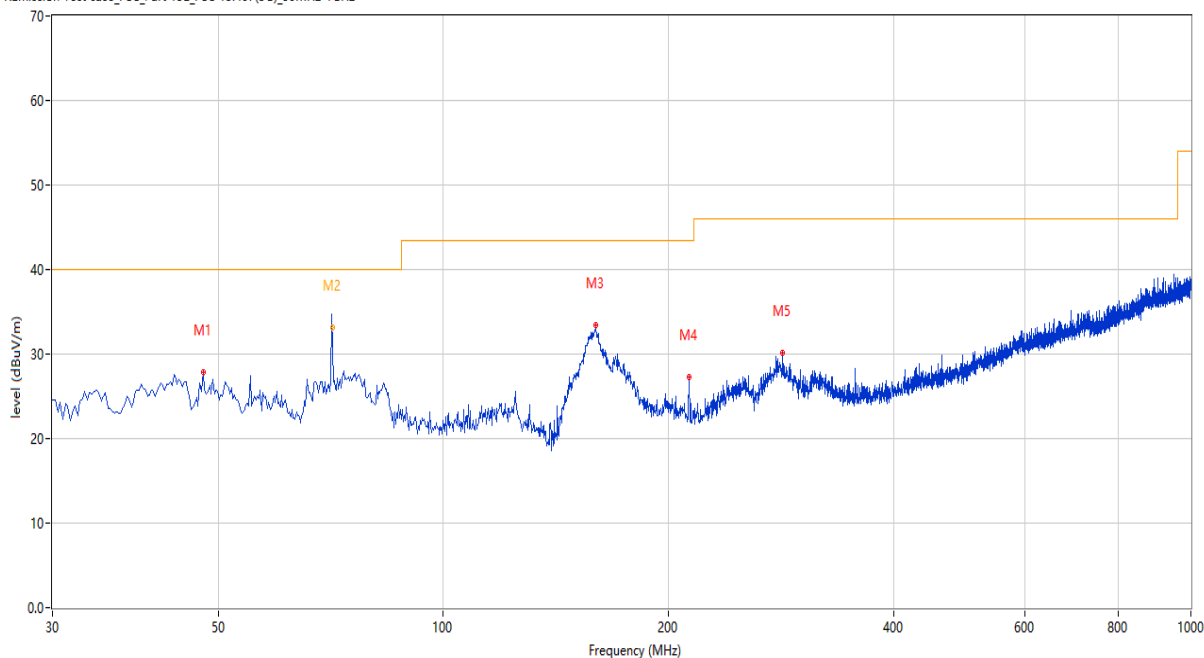
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30MHz-1GHz, Vertical

REmission Test case_FCC_Part 15E_FCC 15.407(5G)_30MHz-1GHz



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	47.698	27.80	-25.54	40.0	-12.20	Peak	9.50	100	Vertical	Pass
2	71.095	35.56	-30.42	40.0	-4.44	Peak	179.20	108	Vertical	Pass
2*	71.095	33.10	-30.42	40.0	-6.90	QP	179.20	108	Vertical	Pass
3	159.948	33.47	-30.58	43.5	-10.03	Peak	342.20	100	Vertical	Pass
4	213.042	27.24	-27.48	43.5	-16.26	Peak	359.50	200	Vertical	Pass
5	284.319	30.20	-25.80	46.0	-15.80	Peak	144.90	100	Vertical	Pass

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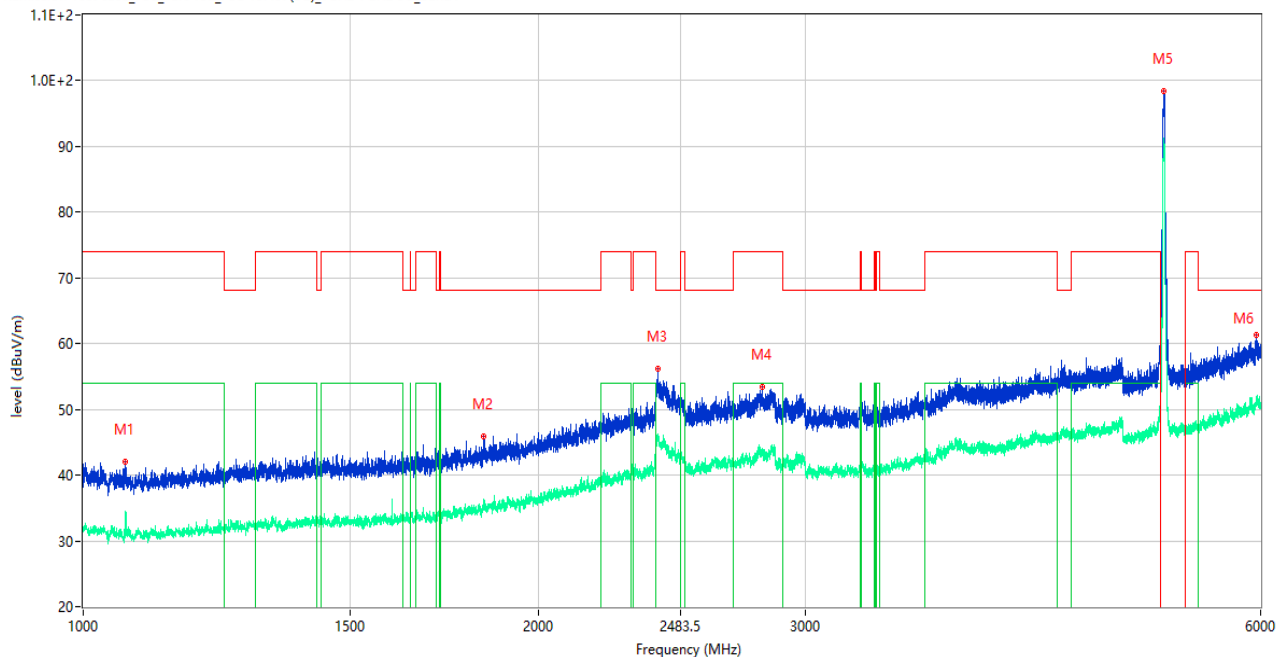
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Figure 100: Spurious Emission, 1GHz – 10th Harmonic, 802.11a, 5180MHz

1GHz-6GHz, Horizontal

REmission Test case_FCC_Part 15E_FCC 15.407(5G)_1GHz-7GHz 5G_Band1



Frequency (MHz)	Peak Level (dBuV/m)	Q-peak Level (dBuV/m)	Average Level (dBuV/m)	Factor (dB)	PK Limit (dBuV/m)	QP Limit (dBuV/m)	AV Limit (dBuV/m)	Over Limit (dB)	Table (o)	Height (cm)	ANT	Verdict
1066.242	42.01	--	34.54	-10.68	74.0	--	54.0	-19.46	3.00	100	Horizontal	Pass
1839.395	45.84	--	36.12	-7.69	68.2	--	--	-22.36	15.00	100	Horizontal	Pass
2397.575	56.14	--	45.90	2.18	68.2	--	--	-12.06	4.00	100	Horizontal	Pass
2811.024	53.42	--	43.62	-0.29	74.0	--	54.0	-10.38	6.00	100	Horizontal	Pass
5181.477	98.47	--	90.32	4.26	--	--	--	--	9.00	100	Horizontal	Pass
5959.130	61.33	--	50.85	8.10	68.2	--	--	-6.87	3.00	100	Horizontal	Pass

TEST REPORT

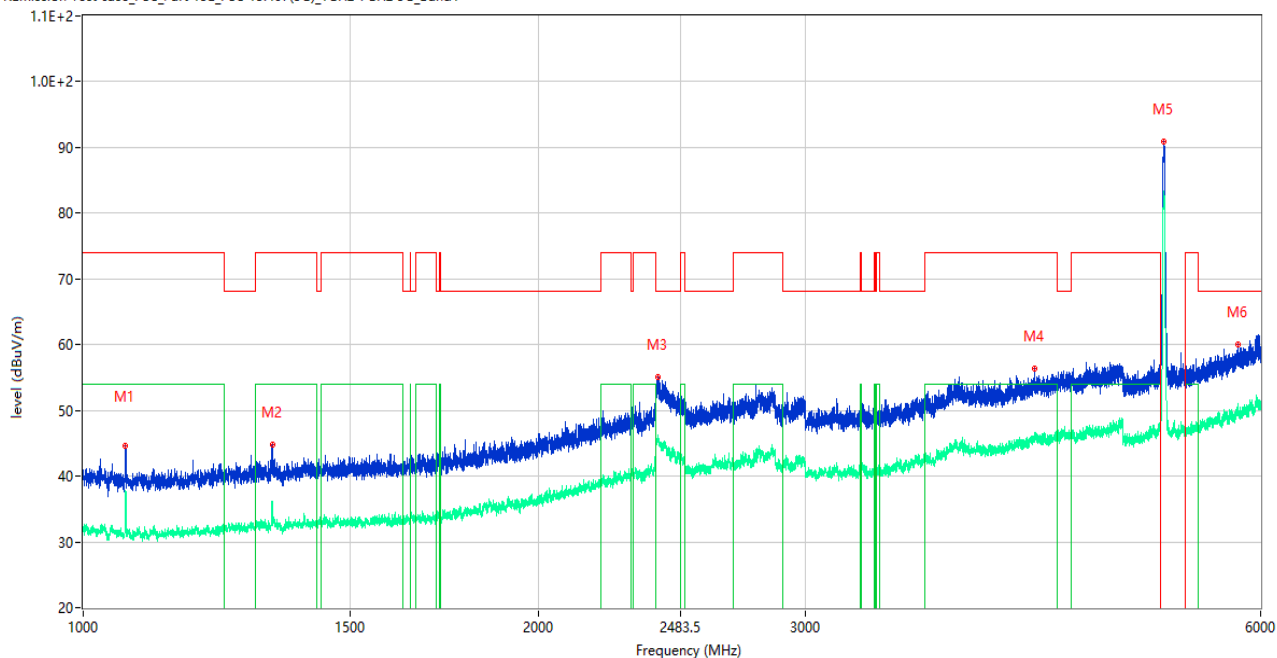
Report No.: SHE19080042-02IE

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1GHz-6GHz, Vertical

REmission Test case_FCC_Part 15E_FCC 15.407(5G)_1GHz-7GHz 5G_Band1



Frequency (MHz)	Peak Level (dBuV/m)	Q-peak Level (dBuV/m)	Average Level (dBuV/m)	Factor (dB)	PK Limit (dBuV/m)	QP Limit (dBuV/m)	AV Limit (dBuV/m)	Over Limit (dB)	Table (o)	Height (cm)	ANT	Verdict
1066.742	44.59	--	37.80	-10.59	74.0	--	54.0	-16.20	3.00	100	Vertical	Pass
1333.208	44.80	--	35.04	-9.70	74.0	--	54.0	-18.96	13.00	100	Vertical	Pass
2398.325	55.11	--	45.46	2.15	68.2	--	--	-13.09	9.00	100	Vertical	Pass
4253.093	56.32	--	46.11	1.10	74.0	--	54.0	-7.89	2.00	100	Vertical	Pass
5181.477	90.88	--	83.01	4.26	--	--	--	--	14.00	100	Vertical	Pass
5796.775	60.06	--	49.75	6.89	68.2	--	--	-8.14	2.00	100	Vertical	Pass

TEST REPORT

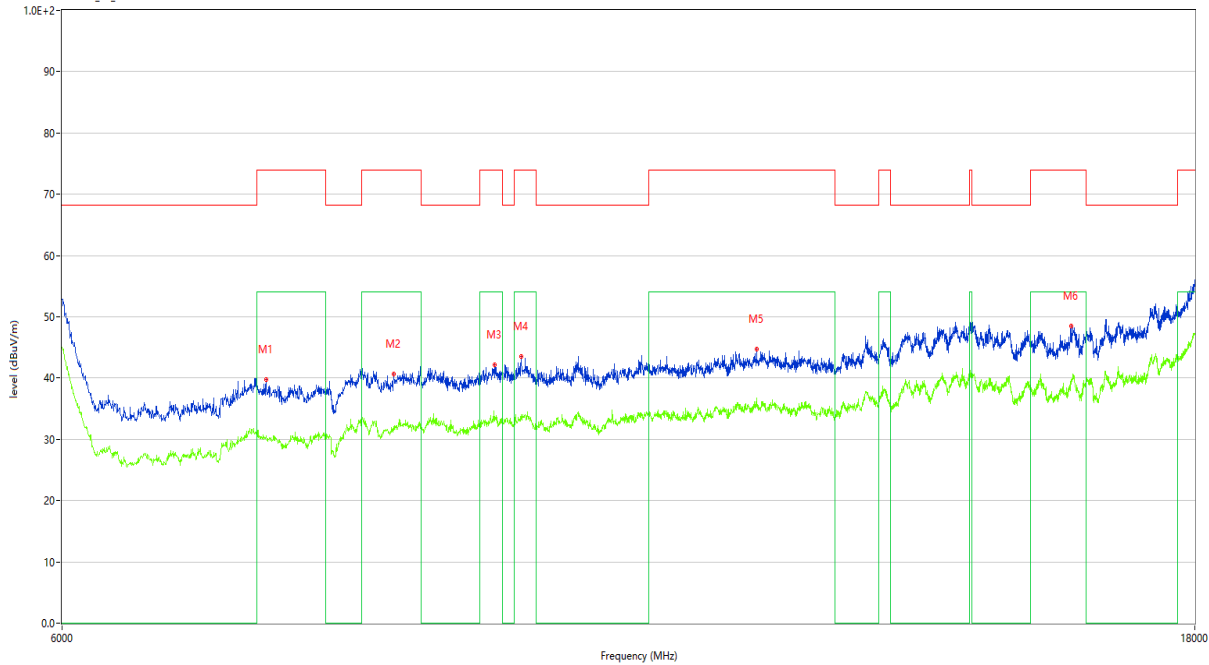
Report No.: SHE19080042-02IE

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6GHz-18GHz, Horizontal

REmission Test case_CE_FCC PART 15E BAND1 7-18G



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	7313.672	39.71	-24.87	74.0	-34.29	Peak	315.10	100	Horizontal	Pass
1**	7313.672	30.59	-24.87	54.0	-23.41	AV	315.10	100	Horizontal	Pass
2	8276.431	40.66	-22.59	74.0	-33.34	Peak	258.90	100	Horizontal	Pass
2**	8276.431	31.64	-22.59	54.0	-22.36	AV	258.90	100	Horizontal	Pass
3	9125.219	42.13	-23.02	74.0	-31.87	Peak	264.90	100	Horizontal	Pass
3**	9125.219	33.13	-23.02	54.0	-20.87	AV	264.90	100	Horizontal	Pass
4	9365.159	43.55	-22.45	74.0	-30.45	Peak	342.00	100	Horizontal	Pass
4**	9365.159	33.28	-22.45	54.0	-20.72	AV	342.00	100	Horizontal	Pass
5	11770.557	44.73	-18.56	74.0	-29.27	Peak	54.60	100	Horizontal	Pass
5**	11770.557	36.76	-18.56	54.0	-17.24	AV	54.60	100	Horizontal	Pass
6	15963.509	48.47	-16.49	74.0	-25.53	Peak	116.10	100	Horizontal	Pass
6**	15963.509	39.57	-16.49	54.0	-14.43	AV	116.10	100	Horizontal	Pass

TEST REPORT

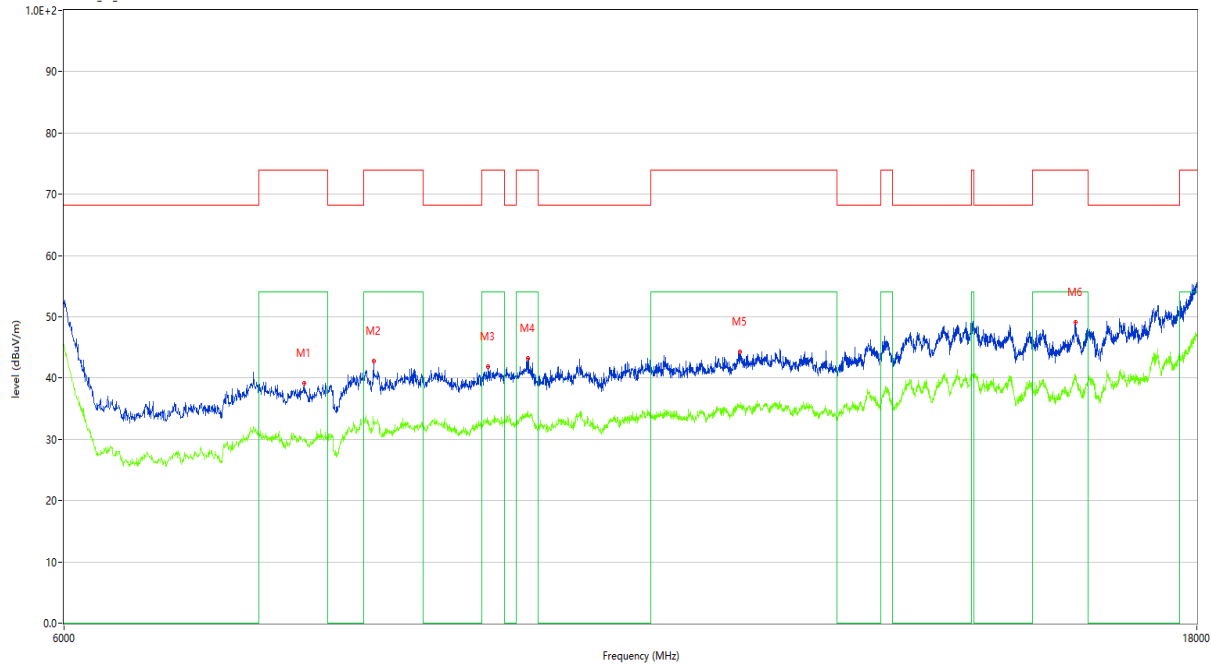
Report No.: SHE19080042-02IE

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6GHz-18GHz, Vertical

REmission Test case_CE_FCC PART 15E BAND1 7-18G



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	7571.607	39.19	-25.22	74.0	-34.81	Peak	176.80	100	Vertical	Pass
1**	7571.607	29.90	-25.22	54.0	-24.10	AV	176.80	100	Vertical	Pass
2	8102.474	42.75	-22.32	74.0	-31.25	Peak	248.20	100	Vertical	Pass
2**	8102.474	32.56	-22.32	54.0	-21.44	AV	248.20	100	Vertical	Pass
3	9053.237	41.82	-23.00	74.0	-32.18	Peak	221.30	100	Vertical	Pass
3**	9053.237	32.59	-23.00	54.0	-21.41	AV	221.30	100	Vertical	Pass
4	9407.148	43.17	-21.75	74.0	-30.83	Peak	126.40	100	Vertical	Pass
4**	9407.148	34.69	-21.75	54.0	-19.31	AV	126.40	100	Vertical	Pass
5	11560.610	44.21	-18.30	74.0	-29.79	Peak	18.00	100	Vertical	Pass
5**	11560.610	35.19	-18.30	54.0	-18.81	AV	18.00	100	Vertical	Pass
6	16002.499	49.12	-15.33	74.0	-24.88	Peak	239.30	100	Vertical	Pass
6**	16002.499	40.44	-15.33	54.0	-13.56	AV	239.30	100	Vertical	Pass

TEST REPORT

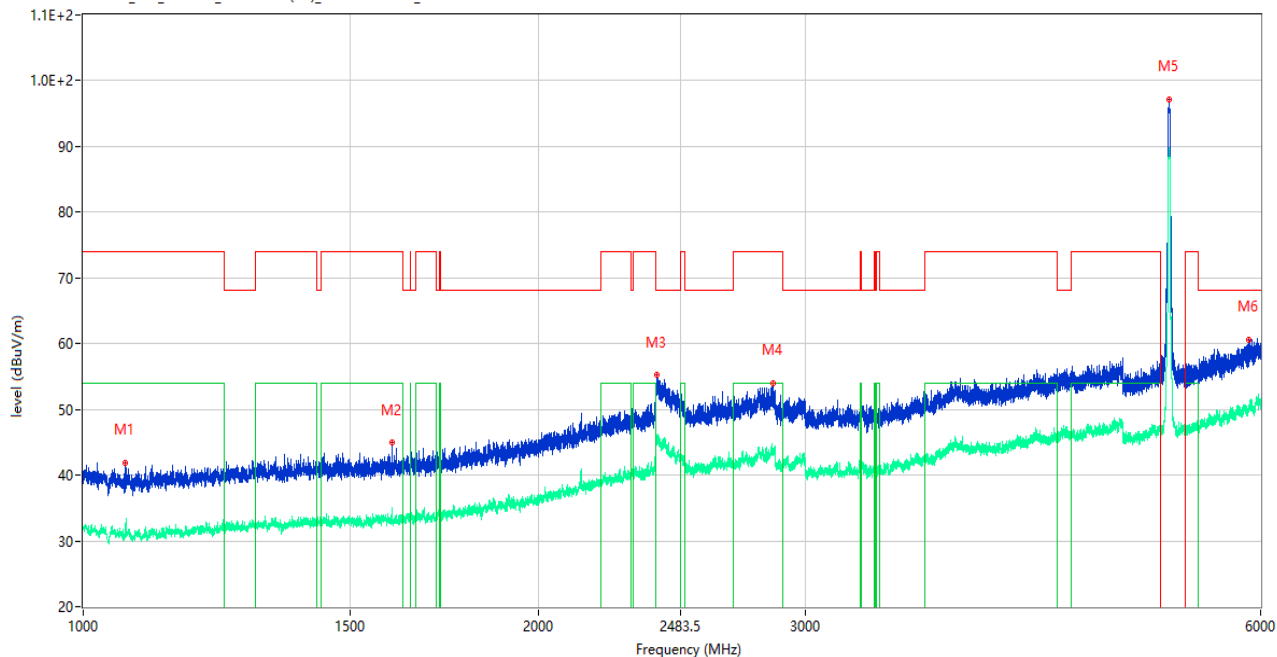
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Figure 101: Spurious Emission, 1GHz – 10th Harmonic, 802.11a, 5220MHz
1GHz-6GHz, Horizontal

REmission Test case_FCC_Part 15E_FCC 15.407(5G)_1GHz-7GHz 5G_Band1



Frequency (MHz)	Peak Level (dBuV/m)	Q-peak Level (dBuV/m)	Average Level (dBuV/m)	Factor (dB)	PK Limit (dBuV/m)	QP Limit (dBuV/m)	AV Limit (dBuV/m)	Over Limit (dB)	Table (o)	Height (cm)	ANT	Verdict
1066.492	41.95	--	31.31	-10.64	74.0	--	54.0	-22.69	15.00	100	Horizontal	Pass
1599.675	44.93	--	35.01	-10.38	74.0	--	54.0	-18.99	6.00	100	Horizontal	Pass
2393.326	55.21	--	45.07	2.34	68.2	--	--	-12.99	5.00	100	Horizontal	Pass
2855.268	53.97	--	44.03	-0.46	74.0	--	54.0	-9.97	1.00	100	Horizontal	Pass
5218.598	97.21	--	89.57	4.20	--	--	--	--	1.00	100	Horizontal	Pass
5897.263	60.68	--	50.52	7.10	68.2	--	--	-7.52	11.00	100	Horizontal	Pass

TEST REPORT

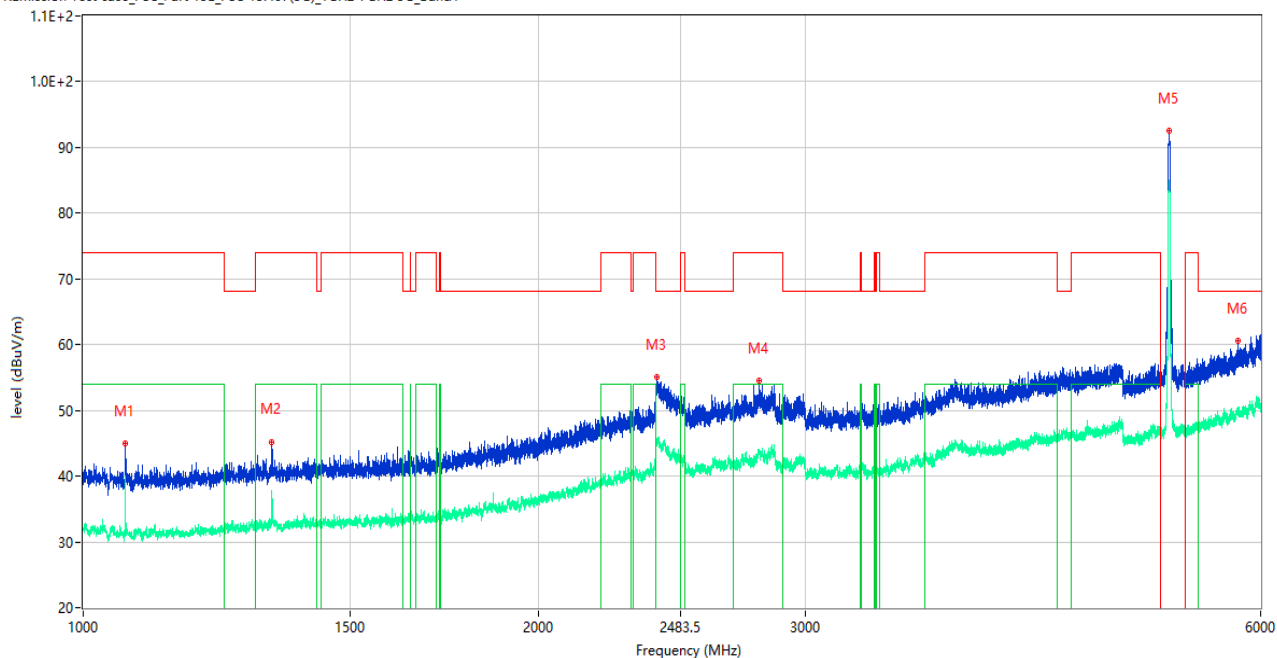
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1GHz-6GHz, Vertical

REmission Test case_FCC_Part 15E_FCC 15.407(5G)_1GHz-7GHz 5G_Band1



Frequency (MHz)	Peak Level (dBuV/m)	Q-peak Level (dBuV/m)	Average Level (dBuV/m)	Factor (dB)	PK Limit (dBuV/m)	QP Limit (dBuV/m)	AV Limit (dBuV/m)	Over Limit (dB)	Table (o)	Height (cm)	ANT	Verdict
1066.492	44.94	--	40.06	-10.64	74.0	--	54.0	-13.94	1.00	100	Vertical	Pass
1332.958	45.23	--	37.83	-9.72	74.0	--	54.0	-16.17	6.00	100	Vertical	Pass
2395.576	55.05	--	45.23	2.25	68.2	--	--	-13.15	3.00	100	Vertical	Pass
2797.025	54.47	--	43.89	0.23	74.0	--	54.0	-10.11	6.00	100	Vertical	Pass
5218.598	92.47	--	84.91	4.20	--	--	--	--	8.00	100	Vertical	Pass
5795.276	60.53	--	50.30	6.96	68.2	--	--	-7.67	7.00	100	Vertical	Pass

TEST REPORT

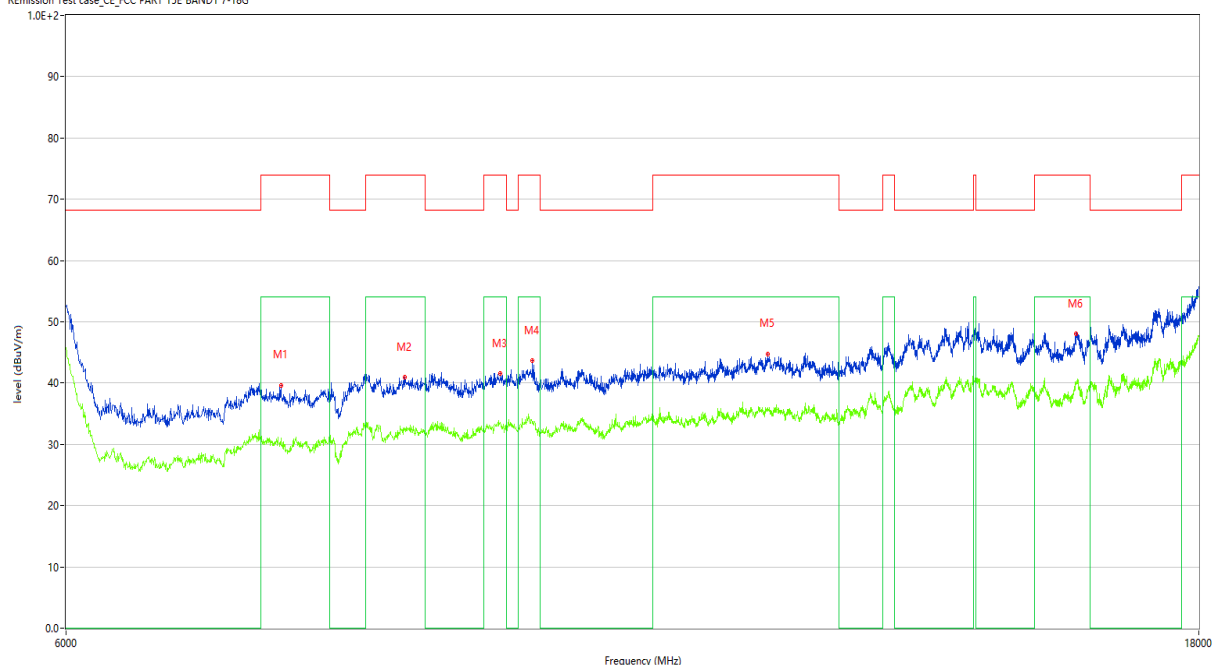
Report No.: SHE19080042-02IE

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6GHz-18GHz, Horizontal

REmission Test case_CE_FCC PART 15E BAND1 7-18G



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	7391.652	39.55	-25.11	74.0	-34.45	Peak	81.70	100	Horizontal	Pass
1**	7391.652	31.06	-25.11	54.0	-22.94	AV	81.70	100	Horizontal	Pass
2	8333.417	41.03	-22.34	74.0	-32.97	Peak	87.60	100	Horizontal	Pass
2**	8333.417	32.10	-22.34	54.0	-21.90	AV	87.60	100	Horizontal	Pass
3	9143.214	41.63	-23.00	74.0	-32.37	Peak	105.40	100	Horizontal	Pass
3**	9143.214	32.74	-23.00	54.0	-21.26	AV	105.40	100	Horizontal	Pass
4	9431.142	43.70	-22.10	74.0	-30.30	Peak	78.70	100	Horizontal	Pass
4**	9431.142	33.49	-22.10	54.0	-20.51	AV	78.70	100	Horizontal	Pass
5	11848.538	44.79	-18.69	74.0	-29.21	Peak	75.70	100	Horizontal	Pass
5**	11848.538	35.78	-18.69	54.0	-18.22	AV	75.70	100	Horizontal	Pass
6	15975.506	48.07	-16.09	74.0	-25.93	Peak	66.80	100	Horizontal	Pass
6**	15975.506	39.75	-16.09	54.0	-14.25	AV	66.80	100	Horizontal	Pass

TEST REPORT

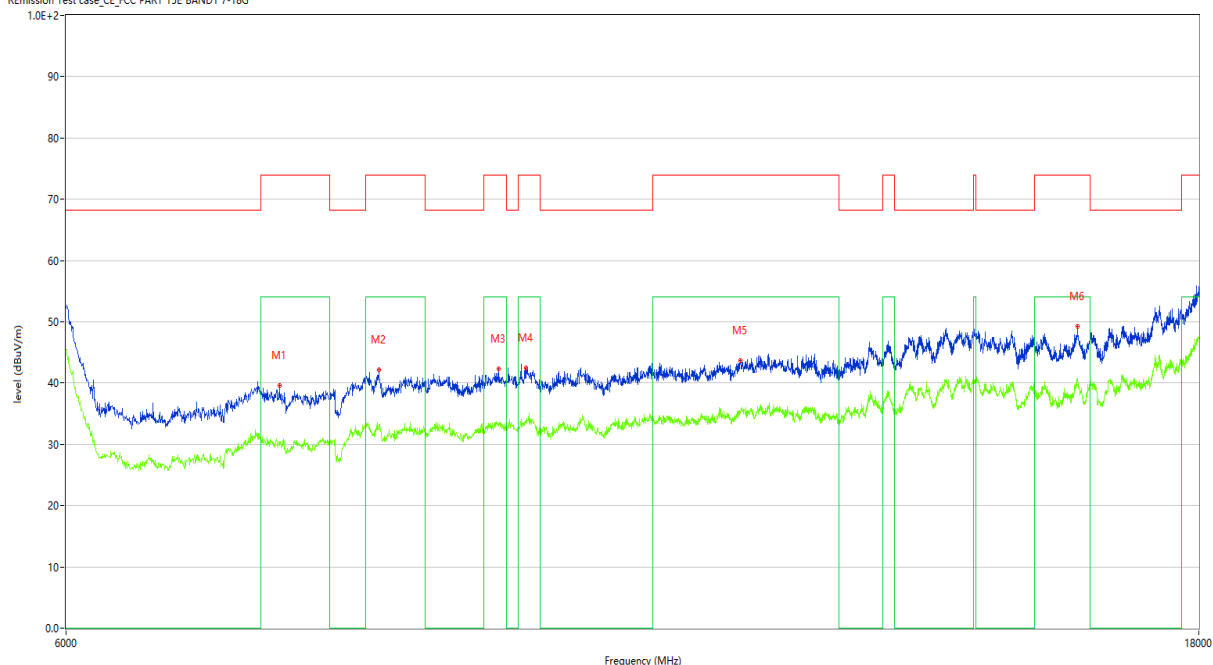
Report No.: SHE19080042-02IE

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6GHz-18GHz, Vertical

REmission Test case_CE_FCC PART 15E BAND1 7-18G



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	7379.655	39.61	-25.08	74.0	-34.39	Peak	320.70	100	Vertical	Pass
1**	7379.655	29.87	-25.08	54.0	-24.13	AV	320.70	100	Vertical	Pass
2	8126.468	42.14	-22.44	74.0	-31.86	Peak	150.90	100	Vertical	Pass
2**	8126.468	33.26	-22.44	54.0	-20.74	AV	150.90	100	Vertical	Pass
3	9125.219	42.39	-23.02	74.0	-31.61	Peak	223.10	100	Vertical	Pass
3**	9125.219	33.43	-23.02	54.0	-20.57	AV	223.10	100	Vertical	Pass
4	9371.157	42.50	-22.31	74.0	-31.50	Peak	112.60	100	Vertical	Pass
4**	9371.157	33.85	-22.31	54.0	-20.15	AV	112.60	100	Vertical	Pass
5	11539.615	43.62	-18.11	74.0	-30.38	Peak	264.60	100	Vertical	Pass
5**	11539.615	35.41	-18.11	54.0	-18.59	AV	264.60	100	Vertical	Pass
6	16002.499	49.27	-15.33	74.0	-24.73	Peak	166.00	100	Vertical	Pass
6**	16002.499	40.28	-15.33	54.0	-13.72	AV	166.00	100	Vertical	Pass

TEST REPORT

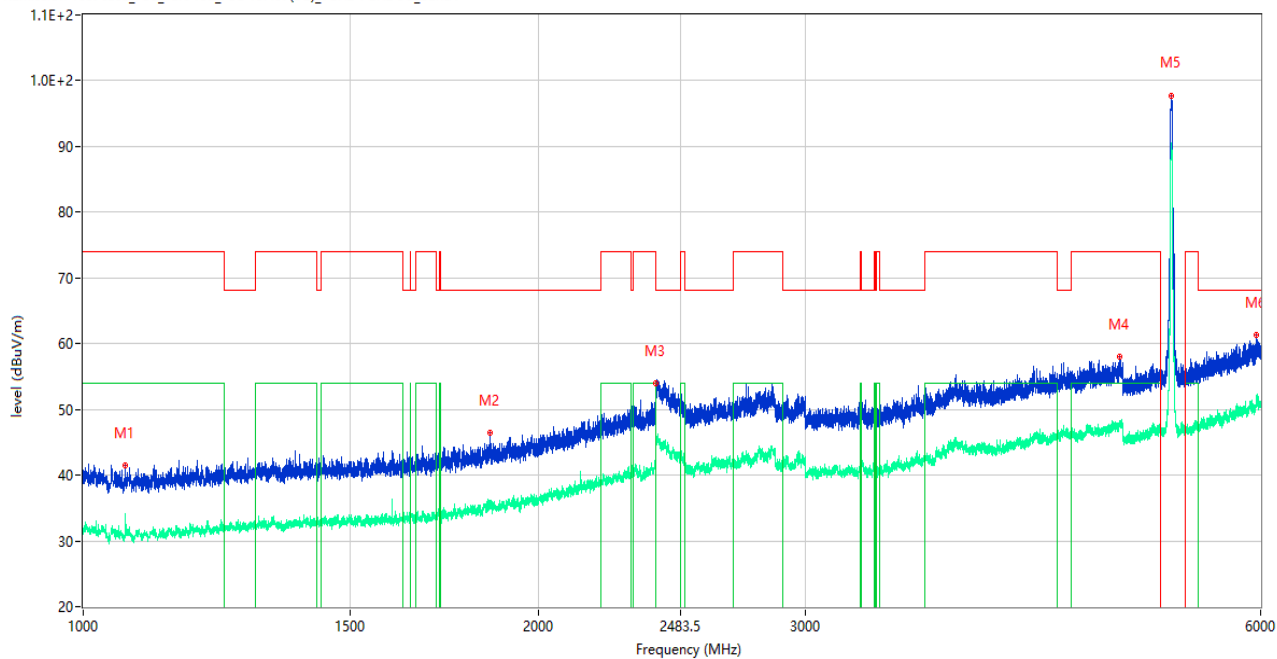
Report No.: SHE19080042-02IE

Date: 2019-11-01

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Figure 102: Spurious Emission, 1GHz – 10th Harmonic, 802.11a, 5240MHz
1GHz-6GHz, Horizontal

REmission Test case_FCC_Part 15E_FCC 15.407(5G)_1GHz-7GHz 5G_Band1



Frequency (MHz)	Peak Level (dBuV/m)	Q-peak Level (dBuV/m)	Average Level (dBuV/m)	Factor (dB)	PK Limit (dBuV/m)	QP Limit (dBuV/m)	AV Limit (dBuV/m)	Over Limit (dB)	Table (o)	Height (cm)	ANT	Verdict
1066.242	41.52	--	32.18	-10.68	74.0	--	54.0	-21.82	7.00	100	Horizontal	Pass
1858.393	46.42	--	36.19	-7.71	68.2	--	--	-21.78	9.00	100	Horizontal	Pass
2392.326	54.46	--	45.47	2.18	68.2	--	--	-13.74	13.00	100	Horizontal	Pass
4840.270	57.93	--	48.22	3.89	74.0	--	54.0	-5.78	3.00	100	Horizontal	Pass
5238.845	97.76	--	90.48	4.08	--	--	--	--	12.00	100	Horizontal	Pass
5957.255	61.42	--	50.33	7.80	68.2	--	--	-6.78	0.00	100	Horizontal	Pass

TEST REPORT

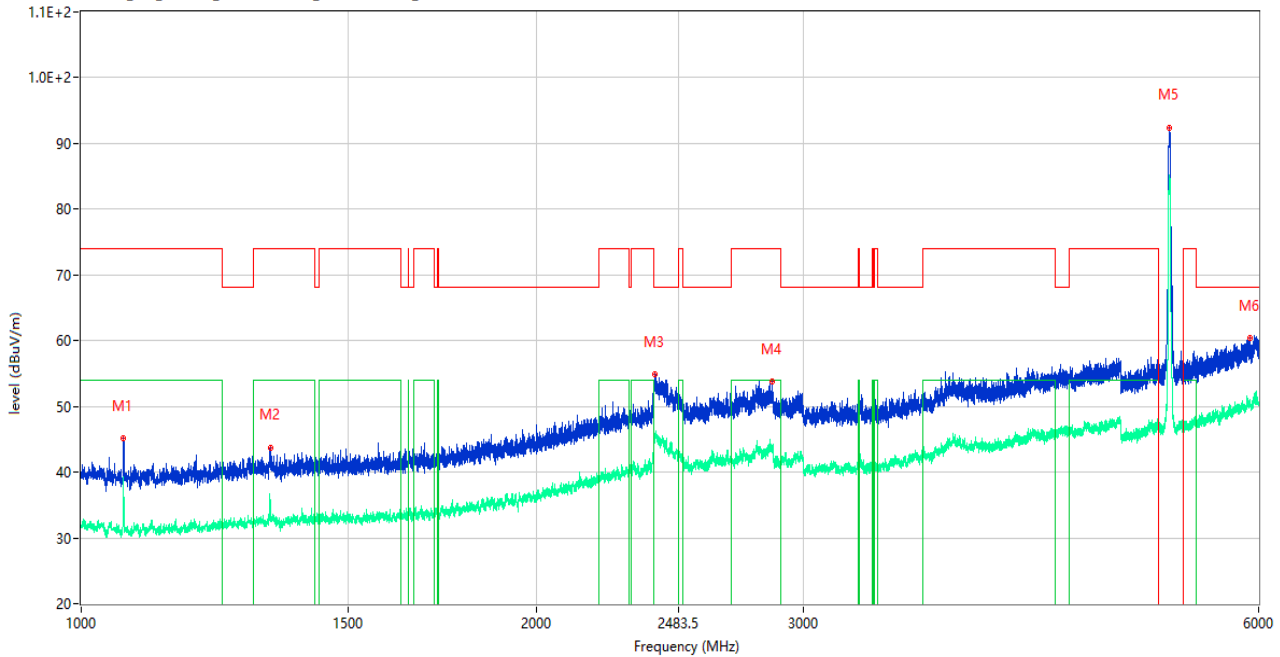
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1GHz-6GHz, Vertical

REmission Test case_FCC_Part 15E_FCC 15.407(5G)_1GHz-7GHz 5G_Band1



Frequency (MHz)	Peak Level (dBuV/m)	Q-peak Level (dBuV/m)	Average Level (dBuV/m)	Factor (dB)	PK Limit (dBuV/m)	QP Limit (dBuV/m)	AV Limit (dBuV/m)	Over Limit (dB)	Table (o)	Height (cm)	ANT	Verdict
1066.742	45.13	--	39.26	-10.59	74.0	--	54.0	-14.74	4.00	100	Vertical	Pass
1333.958	43.77	--	35.06	-9.64	74.0	--	54.0	-18.94	4.00	100	Vertical	Pass
2393.076	54.88	--	44.58	2.35	68.2	--	--	-13.32	9.00	100	Vertical	Pass
2862.267	53.82	--	44.05	-0.66	74.0	--	54.0	-9.95	14.00	100	Vertical	Pass
5240.720	92.42	--	84.70	4.16	--	--	--	--	3.00	100	Vertical	Pass
5922.010	60.49	--	50.74	7.48	68.2	--	--	-7.71	7.00	100	Vertical	Pass

TEST REPORT

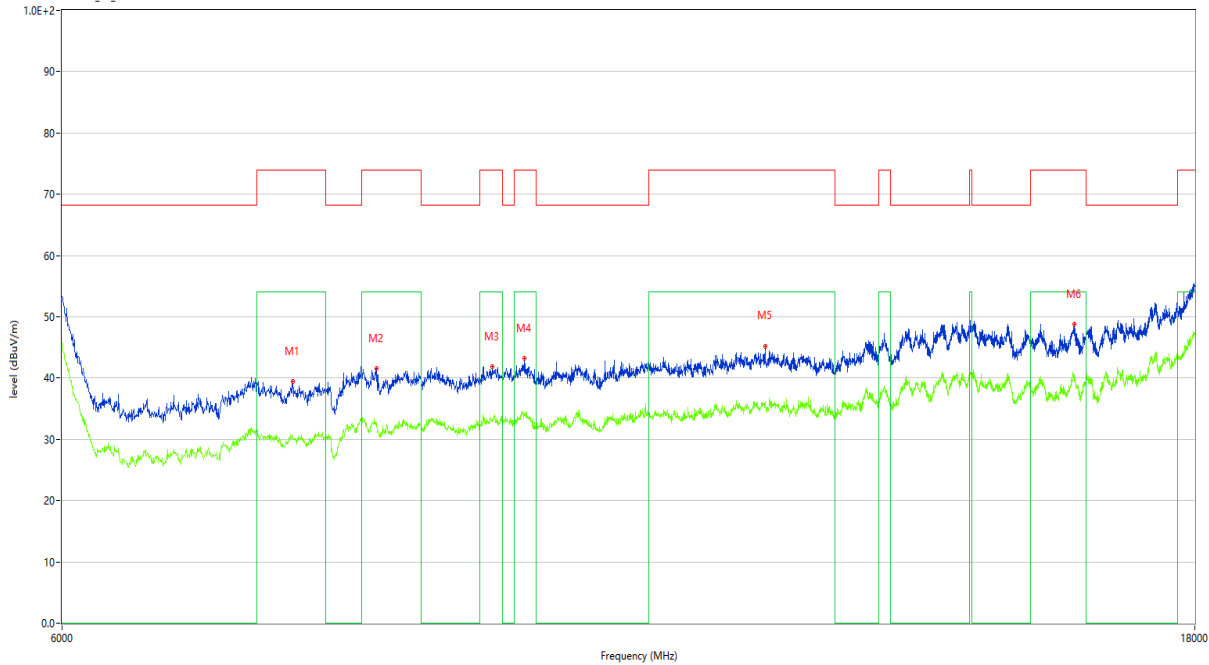
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6GHz-18GHz, Horizontal

REmission Test case_CE_FCC PART 15E BAND1 7-18G



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	7505.624	39.53	-24.47	74.0	-34.47	Peak	170.00	100	Horizontal	Pass
1**	7505.624	29.96	-24.47	54.0	-24.04	AV	170.00	100	Horizontal	Pass
2	8141.465	41.50	-22.51	74.0	-32.50	Peak	98.30	100	Horizontal	Pass
2**	8141.465	32.38	-22.51	54.0	-21.62	AV	98.30	100	Horizontal	Pass
3	9110.222	41.80	-23.04	74.0	-32.20	Peak	279.70	100	Horizontal	Pass
3**	9110.222	33.25	-23.04	54.0	-20.75	AV	279.70	100	Horizontal	Pass
4	9398.150	43.17	-21.68	74.0	-30.83	Peak	122.00	100	Horizontal	Pass
4**	9398.150	34.04	-21.68	54.0	-19.96	AV	122.00	100	Horizontal	Pass
5	11863.534	45.26	-18.75	74.0	-28.74	Peak	232.20	100	Horizontal	Pass
5**	11863.534	36.11	-18.75	54.0	-17.89	AV	232.20	100	Horizontal	Pass
6	16020.495	48.81	-15.80	74.0	-25.19	Peak	172.90	100	Horizontal	Pass
6**	16020.495	39.43	-15.80	54.0	-14.57	AV	172.90	100	Horizontal	Pass

TEST REPORT

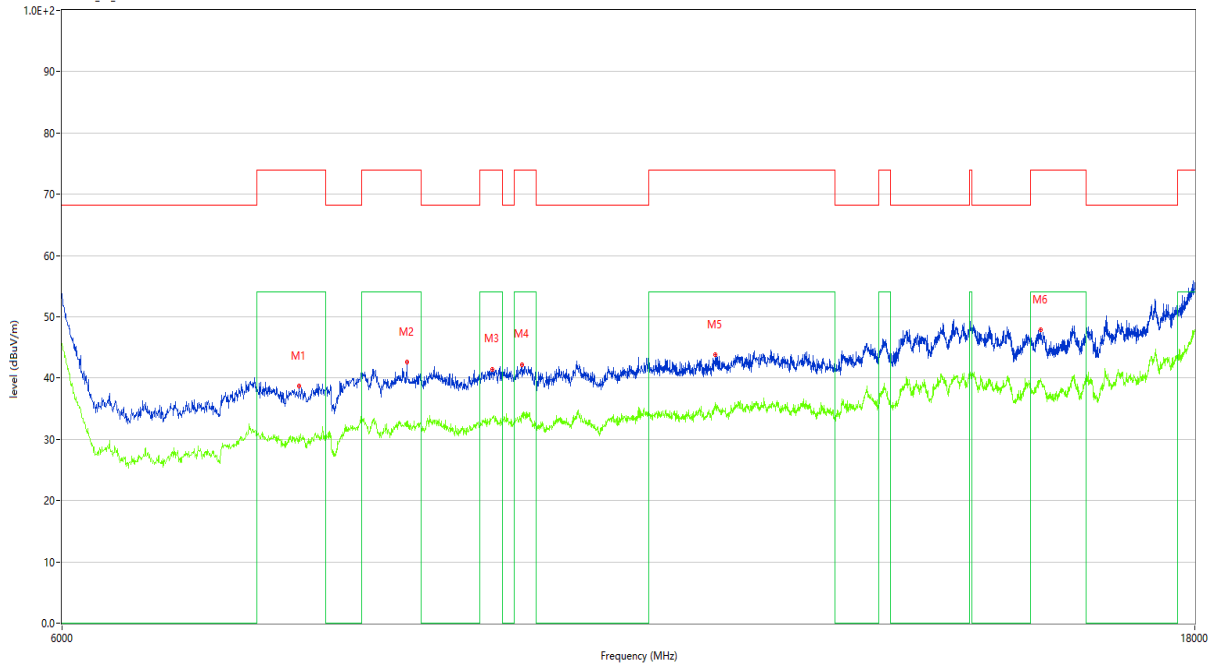
Report No.: SHE19080042-02IE

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6GHz-18GHz, Vertical

REmission Test case_CE_FCC PART 15E BAND1 7-18G



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	7550.612	38.67	-24.98	74.0	-35.33	Peak	53.50	100	Vertical	Pass
1**	7550.612	30.55	-24.98	54.0	-23.45	AV	53.50	100	Vertical	Pass
2	8381.405	42.66	-22.07	74.0	-31.34	Peak	236.60	100	Vertical	Pass
2**	8381.405	32.94	-22.07	54.0	-21.06	AV	236.60	100	Vertical	Pass
3	9110.222	41.45	-23.04	74.0	-32.55	Peak	65.40	100	Vertical	Pass
3**	9110.222	33.45	-23.04	54.0	-20.55	AV	65.40	100	Vertical	Pass
4	9374.156	42.22	-22.24	74.0	-31.78	Peak	65.40	100	Vertical	Pass
4**	9374.156	34.18	-22.24	54.0	-19.82	AV	65.40	100	Vertical	Pass
5	11308.673	43.75	-18.99	74.0	-30.25	Peak	166.00	100	Vertical	Pass
5**	11308.673	35.99	-18.99	54.0	-18.01	AV	166.00	100	Vertical	Pass
6	15498.625	47.87	-16.82	74.0	-26.13	Peak	322.80	100	Vertical	Pass
6**	15498.625	39.69	-16.82	54.0	-14.31	AV	322.80	100	Vertical	Pass

TEST REPORT

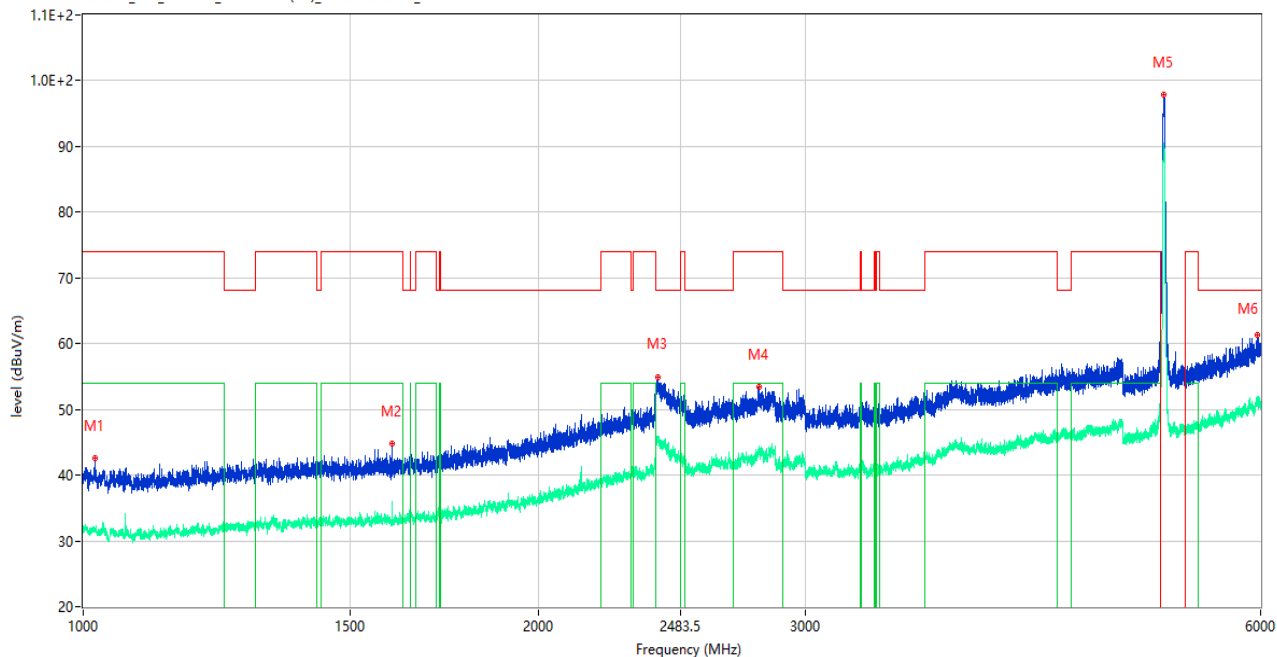
Report No.: SHE19080042-02IE

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Figure 103: Spurious Emission, 1GHz – 10th Harmonic, 802.11n(HT20), 5180MHz
1GHz-6GHz, Horizontal

REmission Test case_FCC_Part 15E_FCC 15.407(5G)_1GHz-7GHz 5G_Band1



Frequency (MHz)	Peak Level (dBuV/m)	Q-peak Level (dBuV/m)	Average Level (dBuV/m)	Factor (dB)	PK Limit (dBuV/m)	QP Limit (dBuV/m)	AV Limit (dBuV/m)	Over Limit (dB)	Table (o)	Height (cm)	ANT	Verdict
1009.499	38.54	--	31.02	-10.13	74.0	--	54.0	-22.98	3.00	100	Horizontal	Pass
1599.675	44.76	--	36.07	-10.38	74.0	--	54.0	-17.93	12.00	100	Horizontal	Pass
2397.075	54.96	--	45.27	2.19	68.2	--	--	-13.24	8.00	100	Horizontal	Pass
2796.775	53.36	--	44.47	0.20	74.0	--	54.0	-9.53	13.00	100	Horizontal	Pass
5180.727	97.87	--	90.21	4.28	--	--	--	--	14.00	100	Horizontal	Pass
5965.879	61.32	--	51.98	7.70	68.2	--	--	-6.88	8.00	100	Horizontal	Pass

TEST REPORT

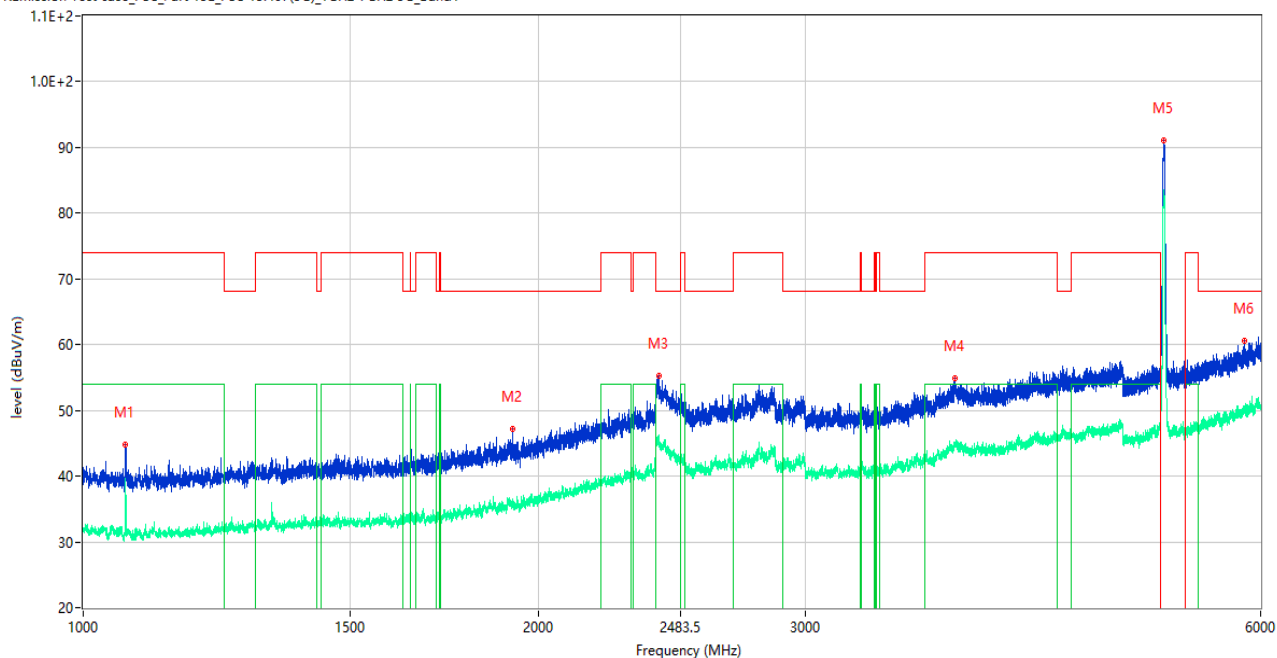
Report No.: SHE19080042-02IE

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1GHz-6GHz, Vertical

REmission Test case_FCC_Part 15E_FCC 15.407(5G)_1GHz-7GHz 5G_Band1



Frequency (MHz)	Peak Level (dBuV/m)	Q-peak Level (dBuV/m)	Average Level (dBuV/m)	Factor (dB)	PK Limit (dBuV/m)	QP Limit (dBuV/m)	AV Limit (dBuV/m)	Over Limit (dB)	Table (o)	Height (cm)	ANT	Verdict
1066.492	44.85	--	39.69	-10.64	74.0	--	54.0	-14.31	14.00	100	Vertical	Pass
1923.385	47.19	--	35.95	-7.38	68.2	--	--	-21.01	0.00	100	Vertical	Pass
2400.575	55.26	--	45.80	2.06	68.2	--	--	-12.94	11.00	100	Vertical	Pass
3766.779	54.92	--	44.98	0.85	74.0	--	54.0	-9.02	5.00	100	Vertical	Pass
5181.102	91.03	--	83.04	4.27	--	--	--	--	2.00	100	Vertical	Pass
5850.769	60.51	--	50.24	7.18	68.2	--	--	-7.69	4.00	100	Vertical	Pass

TEST REPORT

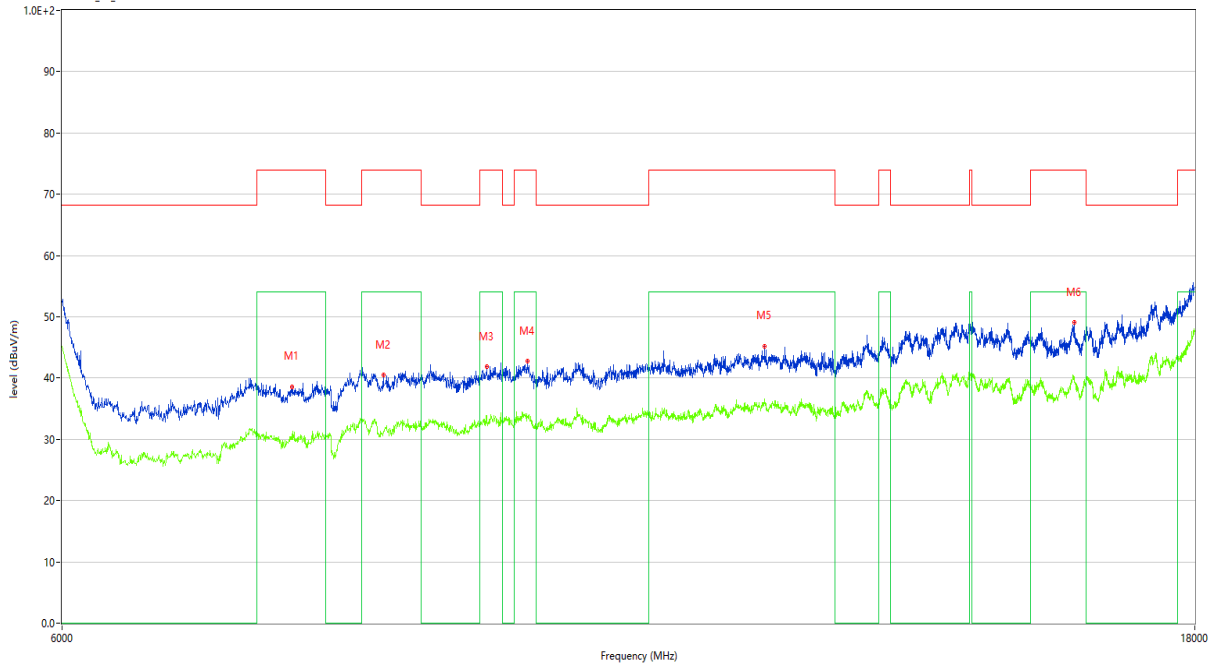
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6GHz-18GHz, Horizontal

REmission Test case_CE_FCC PART 15E BAND1 7-18G



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	7496.626	38.52	-24.43	74.0	-35.48	Peak	122.00	100	Horizontal	Pass
1**	7496.626	30.85	-24.43	54.0	-23.15	AV	122.00	100	Horizontal	Pass
2	8192.452	40.49	-22.75	74.0	-33.51	Peak	225.30	100	Horizontal	Pass
2**	8192.452	31.12	-22.75	54.0	-22.88	AV	225.30	100	Horizontal	Pass
3	9059.235	41.91	-23.01	74.0	-32.09	Peak	139.80	100	Horizontal	Pass
3**	9059.235	33.18	-23.01	54.0	-20.82	AV	139.80	100	Horizontal	Pass
4	9425.144	42.81	-22.01	74.0	-31.19	Peak	302.90	100	Horizontal	Pass
4**	9425.144	33.61	-22.01	54.0	-20.39	AV	302.90	100	Horizontal	Pass
5	11857.536	45.25	-18.73	74.0	-28.75	Peak	163.50	100	Horizontal	Pass
5**	11857.536	36.54	-18.73	54.0	-17.46	AV	163.50	100	Horizontal	Pass
6	16011.497	49.14	-15.57	74.0	-24.86	Peak	163.50	100	Horizontal	Pass
6**	16011.497	40.03	-15.57	54.0	-13.97	AV	163.50	100	Horizontal	Pass

TEST REPORT

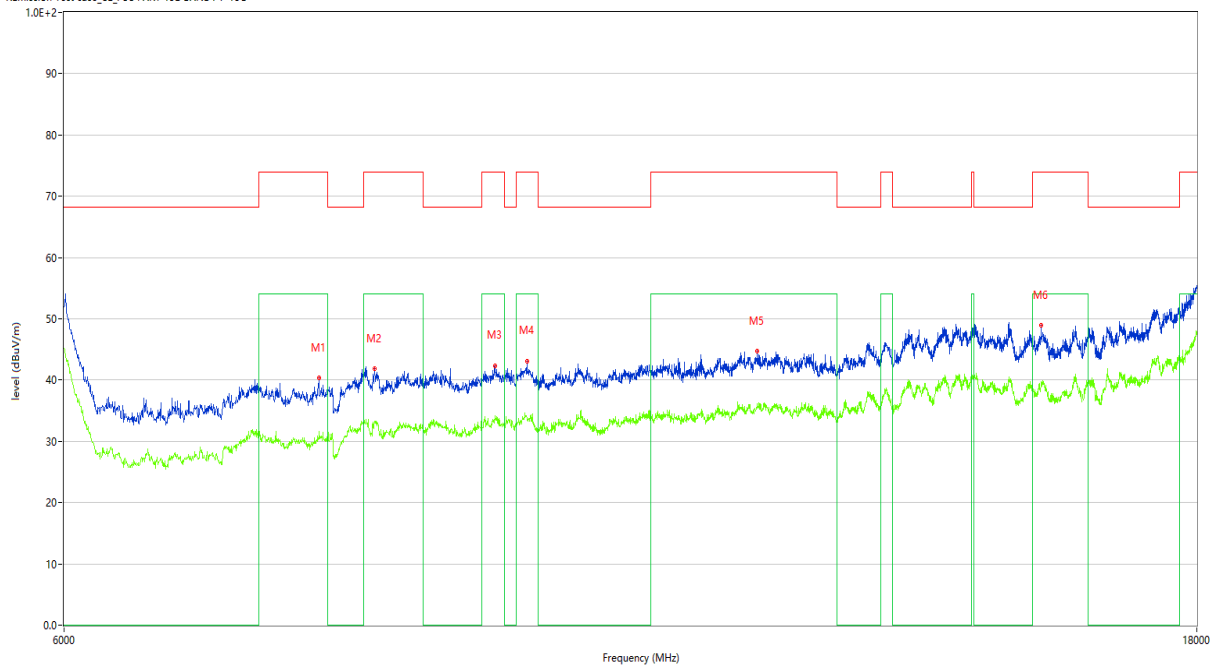
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6GHz-18GHz, Vertical

REmission Test case_CE_FCC PART 15E BAND1 7-18G



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	7682.579	40.32	-24.75	74.0	-33.68	Peak	312.30	100	Vertical	Pass
1**	7682.579	30.44	-24.75	54.0	-23.56	AV	312.30	100	Vertical	Pass
2	8111.472	41.90	-22.37	74.0	-32.10	Peak	166.00	100	Vertical	Pass
2**	8111.472	33.17	-22.37	54.0	-20.83	AV	166.00	100	Vertical	Pass
3	9116.221	42.34	-23.04	74.0	-31.66	Peak	306.30	100	Vertical	Pass
3**	9116.221	34.17	-23.04	54.0	-19.83	AV	306.30	100	Vertical	Pass
4	9401.150	43.15	-21.66	74.0	-30.85	Peak	184.30	100	Vertical	Pass
4**	9401.150	33.90	-21.66	54.0	-20.10	AV	184.30	100	Vertical	Pass
5	11752.562	44.71	-18.58	74.0	-29.29	Peak	196.40	100	Vertical	Pass
5**	11752.562	36.12	-18.58	54.0	-17.88	AV	196.40	100	Vertical	Pass
6	15477.631	48.93	-17.28	74.0	-25.07	Peak	77.30	100	Vertical	Pass
6**	15477.631	39.52	-17.28	54.0	-14.48	AV	77.30	100	Vertical	Pass

TEST REPORT

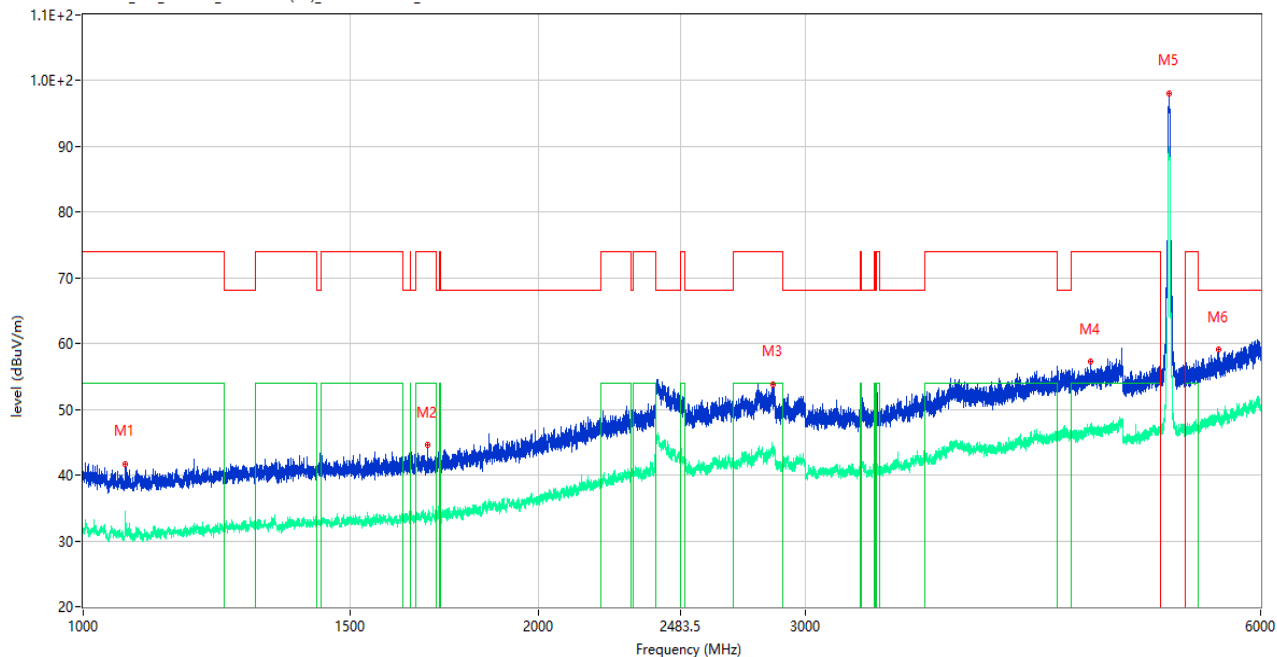
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Figure 104: Spurious Emission, 1GHz – 10th Harmonic, 802.11n(HT20), 5220MHz
1GHz-6GHz, Horizontal

REmission Test case_FCC_Part 15E_FCC 15.407(5G)_1GHz-7GHz 5G_Band1



Frequency (MHz)	Peak Level (dBuV/m)	Q-peak Level (dBuV/m)	Average Level (dBuV/m)	Factor (dB)	PK Limit (dBuV/m)	QP Limit (dBuV/m)	AV Limit (dBuV/m)	Over Limit (dB)	Table (o)	Height (cm)	ANT	Verdict
1066.492	41.74	--	34.36	-10.64	74.0	--	54.0	-19.64	11.00	100	Horizontal	Pass
1689.414	44.66	--	34.22	-9.64	74.0	--	54.0	-19.78	10.00	100	Horizontal	Pass
2856.268	53.86	--	44.19	-0.63	74.0	--	54.0	-9.81	11.00	100	Horizontal	Pass
4628.796	57.22	--	46.65	2.81	74.0	--	54.0	-7.35	13.00	100	Horizontal	Pass
5221.972	98.02	--	89.58	4.20	--	--	--	--	15.00	100	Horizontal	Pass
5632.921	59.11	--	48.54	6.34	68.2	--	--	-9.09	10.00	100	Horizontal	Pass