

TEST REPORT

On behalf of

Shanghai Teraoka Electronic Co., Ltd.

Product Name: SMART CARD TERMINAL

Model No.: WB-20

FCC ID: 2ARYWWB-20

Prepared For: Shanghai Teraoka Electronic Co., Ltd.
Tinglin Industry Development Zone, Jinshan District,
Shanghai, China

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Report No. : ACI-F21122
Date of Test : 2020.11.11 – 2021.04.20
Date of Report : 2021.06.01

The statement is based on a single evaluation of one sample of the above-mentioned products. It does not imply an assessment of the whole production and does not permit the use of the test lab logo. The report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the Federal Government.

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TEST REPORT

Applicant : Shanghai Teraoka Electronic Co., Ltd.
EUT Description : SMART CARD TERMINAL
(A) Model No. : Refer to Sec.2.1
(B) Power Supply : DC5V
(C) Test Voltage : DC5V (Via Adaptor)

Test Procedure Used:

*FCC RULES AND REGULATIONS PART 15 SUBPART C
AND PART 15 SUBPART E
AND ANSI C63.10-2013*

The device described above is tested by Audix Technology (Shanghai) Co., Ltd. to determine the maximum emission levels emanating from the device. The maximum emission levels are compared to the FCC Part 15 Subpart E limits.

The test results are contained in this test report and Audix Technology (Shanghai) Co., Ltd. is assumed full responsibility for the accuracy and completeness of these measurements. This report also shows that the EUT (M/N: Refer to Sec2.1), which was tested is technically compliance with the FCC limits.

This report applies to above tested Sample only. This report shall not be reproduced in part without written approval of Audix Technology (Shanghai) Co., Ltd.

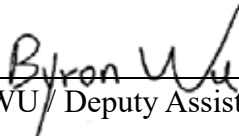
The test results for EUT's BLE/ WIFI (2.4G)/DFS / BT function are contained in No.ACI-F21108, ACI-F21109, ACI-F21123, ACI-F21121 report.

Date of Test : 2020.11.11 – 2021.04.20 Date of Report : 2021.06.01

Producer :


JAREY LU / Supervisor

Reviewer :


BYRON WU / Deputy Assistant Manager

 For and on behalf of
Audix Technology (Shanghai) Co., Ltd.

Signatory : 
Authorized Signature(s) BYRON KWO/Assistant General Manager

1 SUMMARY OF STANDARDS AND RESULTS

1.1 Description of Standards and Results

The EUT have been tested according to the applicable standards as referenced below:

Description / Test Item	Test Standard	Results	Meets Limit
EMISSION			
Conducted Emission	FCC RULES AND REGULATIONS PART 15 SUBPART C AND PART 15 SUBPART E AND ANSI C63.10:2013	Pass	15.207 15.407(b)(6)
Radiated Emission	FCC RULES AND REGULATIONS PART 15 SUBPART C AND PART 15 SUBPART E AND ANSI C63.10:2013	Pass	15.209(a) 15.407(b)(1) 15.407(b)(2) 15.407(b)(3) 15.407(b)(4) 15.407(b)(6)
Band Edge Measurement	FCC RULES AND REGULATIONS PART 15 SUBPART C AND PART 15 SUBPART E AND ANSI C63.10:2013	Pass	15.209(a) 15.205(a)(c) 15.407(b)(1) 15.407(b)(2) 15.407(b)(3) 15.407(b)(4) 15.407(b)(7)
6 dB&99% Bandwidth Measurement	FCC RULES AND REGULATIONS PART 15 SUBPART E AND ANSI C63.10:2013	Pass	15.407(e)
26 dB Bandwidth Measurement	FCC RULES AND REGULATIONS PART 15 SUBPART E AND ANSI C63.10:2013	Pass	15.407
Maximum Conducted Output Power Measurement	FCC RULES AND REGULATIONS PART 15 SUBPART E AND ANSI C63.10:2013	Pass	15.407(a)(1) 15.407(a)(2) 15.407(a)(3)
Maximum Power Spectral Density Measurement	FCC RULES AND REGULATIONS PART 15 SUBPART E AND ANSI C63.10:2013	Pass	15.407(a)(1) 15.407(a)(2) 15.407(a)(3)
Frequency Stability Measurement	FCC RULES AND REGULATIONS PART 15 SUBPART E AND ANSI C63.10:2013	Pass	15.407(g)
Transmit Power Control Measurement	FCC RULES AND REGULATIONS PART 15 SUBPART E AND ANSI C63.10:2013	N/A	15.247(h)(1)
N/A is an abbreviation for Not Applicable.			

2 GENERAL INFORMATION

2.1 Description of Equipment Under Test

Description : SMART CARD TERMINAL

Type of EUT : ☒ Production ☐ Pre-product ☐ Pro-type

Model Number : WB-20

Radio Tech : Bluetooth 4.2;
IEEE 802.11 a/b/g/n/ac.

Channel Freq. : BLE: 2402MHz-2480MHz;
BT: 2402MHz-2480MHz
IEEE 802.11a:
5180MHz—5240MHz; 5260MHz—5320MHz
5500MHz—5700MHz; 5745MHz—5825MHz
IEEE 802.11ac VHT20:
5180MHz—5240MHz; 5260MHz—5320MHz
5500MHz—5700MHz; 5745MHz—5825MHz
IEEE 802.11ac VHT40:
5190MHz—5230MHz; 5270MHz—5310MHz
5510MHz—5670MHz; 5755MHz—5795MHz
IEEE 802.11ac VHT80:
5210MHz, 5290MHz; 5530MHz—5610MHz; 5775MHz
IEEE 802.11b: 2412MHz—2462MHz
IEEE 802.11g: 2412MHz—2462MHz
IEEE802.11nHT20:
2412MHz—2462MHz;
5180MHz—5240MHz; 5260MHz—5320MHz
5500MHz—5700MHz; 5745MHz—5825MHz
IEEE802.11nHT40:
5190MHz—5230MHz; 5270MHz—5310MHz
5510MHz—5670MHz; 5755MHz—5795MHz

Modulation : BLE: GFSK;
BT: FHSS, GFSK, DPSK, DQPSK;
802.11b: DSSS (CCK, DQPSK, DBPSK);
802.11a/g/n: OFDM (64QAM, 16QAM, QPSK, BPSK);
802.11ac: OFDM (256QAM, 64QAM, 16QAM, QPSK, BPSK).

Antenna Info. : Antenna Type: SMA Antenna
Antenna Gain: 5 dBi
The Antenna was an antenna that uses a unique coupling to the intentional radiator that is comply with 15.203 requirement.

Applicant : Shanghai Teraoka Electronic Co., Ltd.
Tinglin Industry Development Zone, Jinshan District,
Shanghai, China

Manufacturer : same as Applicant

Factory : same as Applicant

2.2 EUT Specifications Assessed in Current Report

Mode	Modulation	Data Rate(Mbps)
802.11a	OFDM (64QAM, 16QAM, QPSK, BPSK)	Up to 54
802.11n-HT 20	OFDM (64QAM, 16QAM, QPSK, BPSK)	Up to 72.2
802.11n-HT 40	OFDM (64QAM, 16QAM, QPSK, BPSK)	Up to 150
802.11ac-V HT20	OFDM (256QAM, 64QAM, 16QAM, QPSK, BPSK)	Up to 86.7
802.11ac-V HT40	OFDM (256QAM, 64QAM, 16QAM, QPSK, BPSK)	Up to 200
802.11ac-V HT80	OFDM (256QAM, 64QAM, 16QAM, QPSK, BPSK)	Up to 433.3

Channel List for 11a/11n-HT20/11ac-VHT20			
Channel No.	Frequency (MHz)	Channel No.	Frequency (MHz)
36	5180	116	5580
40	5200	120	5600
44	5220	124	5620
48	5240	128	5640
52	5260	132	5660
56	5280	136	5680
60	5300	140	5700
64	5320	149	5745
100	5500	153	5765
104	5520	157	5785
108	5540	161	5805
112	5560	165	5825

Channel List for 11n-HT40/11ac-VHT40			
Channel No.	Frequency (MHz)	Channel No.	Frequency (MHz)
38	5190	118	5590
46	5230	126	5630
54	5270	134	5670
62	5310	151	5755
102	5510	159	5795
110	5550		

Channel List for 11ac-VHT80			
Channel No.	Frequency (MHz)	Channel No.	Frequency (MHz)
42	5210	122	5610
58	5290	155	5775
106	5530		

2.3 Test Information

The test software “RFTestTool.apk” was used to control EUT work in TX mode, Power Setting and select test channel.

Modulation	data rate (Mbps)	Power Setting	Test Channel		Frequency (MHz)
802.11a	6	Default	Low:	36	5180
		Default	Middle:	40	5200
		Default	High:	48	5240
		Default	Low:	52	5260
		Default	Middle:	60	5300
		Default	High:	64	5320
		Default	Low:	100	5500
		Default	Middle:	120	5600
		Default	High:	140	5700
		Default	Low:	149	5745
		Default	Middle:	157	5785
		Default	High:	165	5825
802.11n-HT 20	MSC0	Default	Low:	36	5180
		Default	Middle:	40	5200
		Default	High:	48	5240
		Default	Low:	52	5260
		Default	Middle:	60	5300
		Default	High:	64	5320
		Default	Low:	100	5500
		Default	Middle:	120	5600
		Default	High:	140	5700
		Default	Low:	149	5745
		Default	Middle:	157	5785
		Default	High:	165	5825

802.11n-HT 40	MSC0	Default	Low:	38	5190
		Default	High:	46	5230
		Default	Low:	54	5270
		Default	High:	62	5310
		Default	Low:	102	5510
		Default	Middle:	118	5590
		Default	High:	134	5670
		Default	Low:	151	5755
		Default	High:	159	5795
802.11ac-V HT80	MSC0	Default	Low:	42	5210
		Default	Low:	58	5290
		Default	Low:	106	5530
		Default	High:	122	5610
		Default	Low:	155	5775

2.4 Sample Description

Test Item	Model Number	Sample Number	Date of receipted
Conducted Emission	WB-20	E20111479-04/04	2020.11.02
Radiated Emission	WB-20	E20111479-04/04	2020.11.02
Conducted RF Test	WB-20	E20111479-04/04	2020.11.02

2.5 Supported equipment

Brand : HUAWEI
 Product Name: : Adaptor
 Model Name : HW-050200C01

2.6 Description of Test Facility

Name of Firm : Audix Technology (Shanghai) Co., Ltd.
 Site Location : 3F and 4F, 34Bldg, 680 Guiping Rd.,
 Caohejing Hi-Tech Park,
 Shanghai 200233, China.
 Accredited by NVLAP, Lab Code : 200371-0
 FCC Designation Number : CN5027
 Test Firm Registration Number : 954668

3 CONDUCTED EMISSION TEST

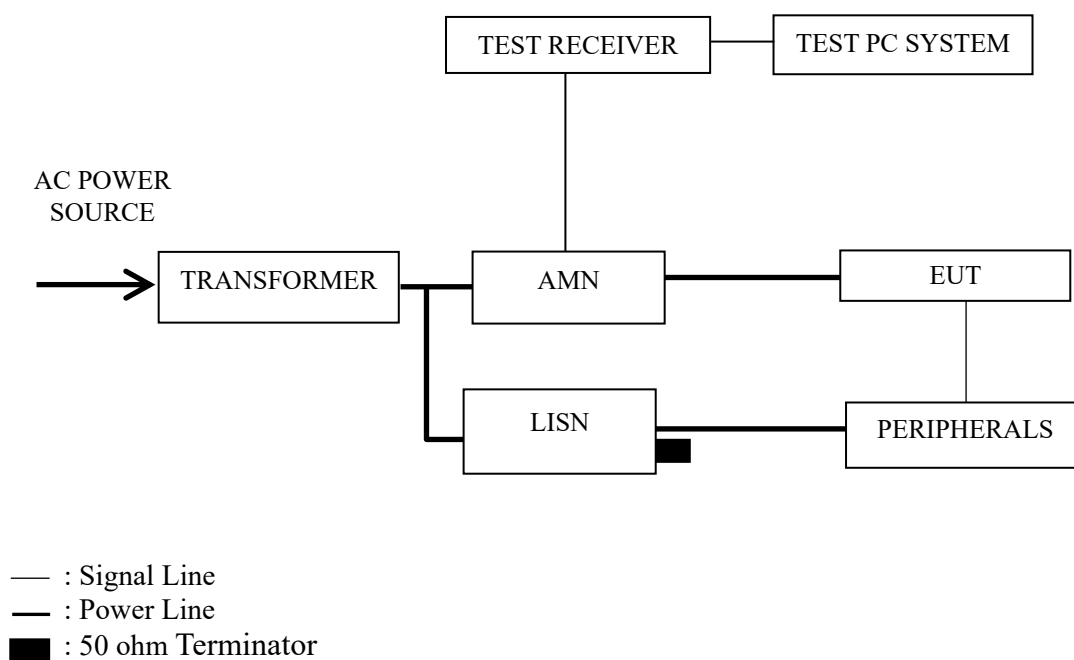
3.1 Test Equipment

The following test equipments are used during the conducted emission test in a shielded room:

Item	Type	Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Interval
1.	Test Receiver	R&S	ESCI	100841	2021.02.11	1 Year
2.	Artificial Mains Network (AMN)	R&S	ESH2-Z5	843890/011	2021.01.06	1 Year
3.	Software	Audix	e3	6.2009-1-15	--	--

3.2 Block Diagram of Test Setup

3.2.1 Conducted Disturbance Test Setup



3.3 Conducted Emission Limits

§15.207:

Frequency Range (MHz)	Limits dB(μV)	
	Quasi-peak	Average
0.15 ~ 0.5	66~56	56~46
0.5 ~ 5	56	46
5 ~ 30	60	50
NOTE 1 – The lower limit shall apply at the transition frequencies. NOTE 2 – The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz~0.50 MHz		

§15.407(6):

Further, any U-NII devices using an AC power line are required to comply also with the conducted limits set forth in §15.207.

3.4 Test Configuration

The EUT (listed in Sec.2.1) was installed as shown on Sec.3.2 to meet FCC requirement and operating in a manner which tends to maximize its emission level in a normal application.

3.5 Operating Condition of EUT

3.5.1 Setup the EUT as shown in Sec. 3.2.

3.5.2 Turn on the power of all equipment.

3.5.3 Turn the EUT on the test mode, and then test.

3.6 Test Procedures

The EUT was placed upon a non-metallic table, which is 0.8 m above the horizontal conducting ground plane and 0.4 m from a vertical reference plane. The EUT was connected to the power mains through an Artificial Mains Network (AMN) to provide a 50 Ω coupling impedance for the measuring equipment. Both sides of AC line (Line & Neutral) were checked to find out the maximum conducted emission according to FCC Part 15 Subpart C and ANSI C63.10: 2013 requirements during conducted disturbance test.

The I.F. bandwidth of Test Receiver ESCI was set at 9 kHz.

The frequency range from 150 kHz to 30 MHz was checked.

Test with a dummy load in lieu of the antenna to determine compliance with Section 15.207 limits within the transmitter's fundamental emission band. (According to KDB 174176 D01 Line Conducted FAQ)

The test modes were done on conducted disturbance test and all the test results are listed in Sec. 3.7.

3.7 Test Results

< **PASS** >

The frequency and amplitude of the highest conducted emission relative the limit is reported. All the emissions not reported below are too low against the FCC limit.

Worst case emission:

No.	Operation	Modulation	Channel	Frequency (MHz)	Data Page
1.	Transmitting	--	--	--	P13

NOTE 1 – Level = Read Level + AMN Factor + Cable Loss

NOTE 2 – “QP” means “Quasi-Peak” values

NOTE 3 – The emission levels which not reported are too low against the official limit.

Worst case emission

EUT : SMART CARD TERMINAL Temperature : 22°C

Model No. : WB-20 Humidity : 51%RH

Test Mode : Transmitting Date of Test : 2020.11.11

Polarization	Frequency (MHz)	Meter Reading dB (μV)	AMN Factor (dB)	Cable Loss (dB)	Emission Level dB (μV)	Limits dB (μV)	Margin (dB)	Remark
Line	0.1565	39.79	0.08	0.08	39.95	65.65	25.7	QP
	0.1565	27.78	0.08	0.08	27.94	55.65	27.71	Average
	0.3712	45.5	0.09	0.18	45.77	58.47	12.7	QP
	0.3712	43.2	0.09	0.18	43.47	48.47	5	Average
	0.743	40.44	0.11	0.16	40.71	56	15.29	QP
	0.743	32.23	0.11	0.16	32.5	46	13.5	Average
	1.065	35.9	0.11	0.14	36.15	56	19.85	QP
	1.065	27.92	0.11	0.14	28.17	46	17.83	Average
	2.707	30.37	0.15	0.17	30.69	56	25.31	QP
	2.707	24.34	0.15	0.17	24.66	46	21.34	Average
	13.989	26	0.18	0.13	26.31	60	33.69	QP
	13.989	16.7	0.18	0.13	17.01	50	32.99	Average
Neutral	0.1549	41.04	0.09	0.08	41.21	65.74	24.53	QP
	0.1549	26.99	0.09	0.08	27.16	55.74	28.58	Average
	0.3465	41.19	0.1	0.17	41.46	59.05	17.59	QP
	0.3465	27.16	0.1	0.17	27.43	49.05	21.62	Average
	0.7274	37.46	0.12	0.16	37.74	56	18.26	QP
	0.7274	27.13	0.12	0.16	27.41	46	18.59	Average
	1.032	35.78	0.13	0.14	36.05	56	19.95	QP
	1.032	23.57	0.13	0.14	23.84	46	22.16	Average
	3.436	27.79	0.19	0.18	28.16	56	27.84	QP
	3.436	20.4	0.19	0.18	20.77	46	25.23	Average
	13.551	34.32	0.41	0.13	34.86	60	25.14	QP
	13.551	23.93	0.41	0.13	24.47	50	25.53	Average

TEST ENGINEER: Jarey

4 RADIATED EMISSION TEST

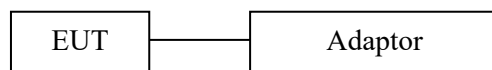
4.1 Test Equipment

The following test equipment are used during the radiated emission test in a semi-anechoic chamber:

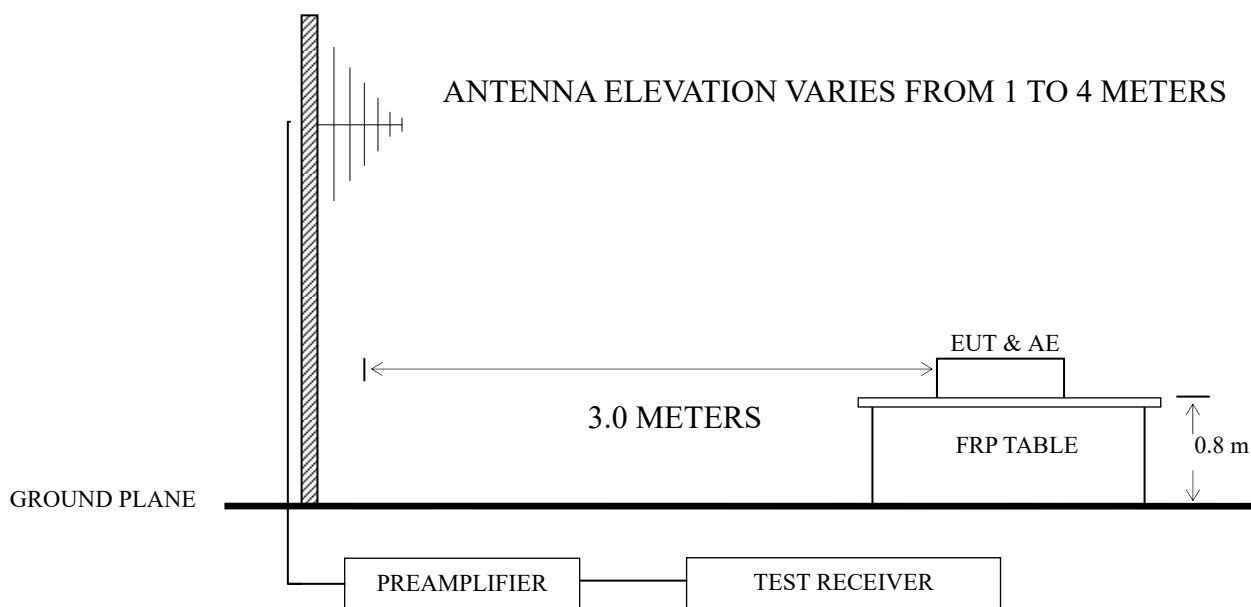
Item	Type	Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Interval
1.	Preamplifier	Agilent	8447D	2944A10548	2020.04.26	1 Year
2.	Preamplifier	HP	8449B	3008A00864	2021.01.05	1 Year
3.	Spectrum Analyzer	Agilent	N9010A	MY52221182	2020.09.16	1 Year
4.	Test Receiver	R&S	ESCI	101303	2020.04.26	1 Year
5.	Bilog Antenna+6dB Attenuator	Schwarz beck	VULB 9168+EMCI-N-6-06	708+AT-N0638	2020.07.06	1 Year
6.	Horn Antenna	EMCO	3115	9607-4878	2020.07.13	1 Year
7.	Horn Antenna	EMCO	3116	00062643	2020.09.08	1 Year
8.	Cavity Band Rejection Filter	Microwave	WT-A3882-R10	WT200312-1-1	2020.07.07	1 Year
9.	Software	Audix	e3	SET002009912M295-2	--	--

4.2 Block Diagram of Test Setup

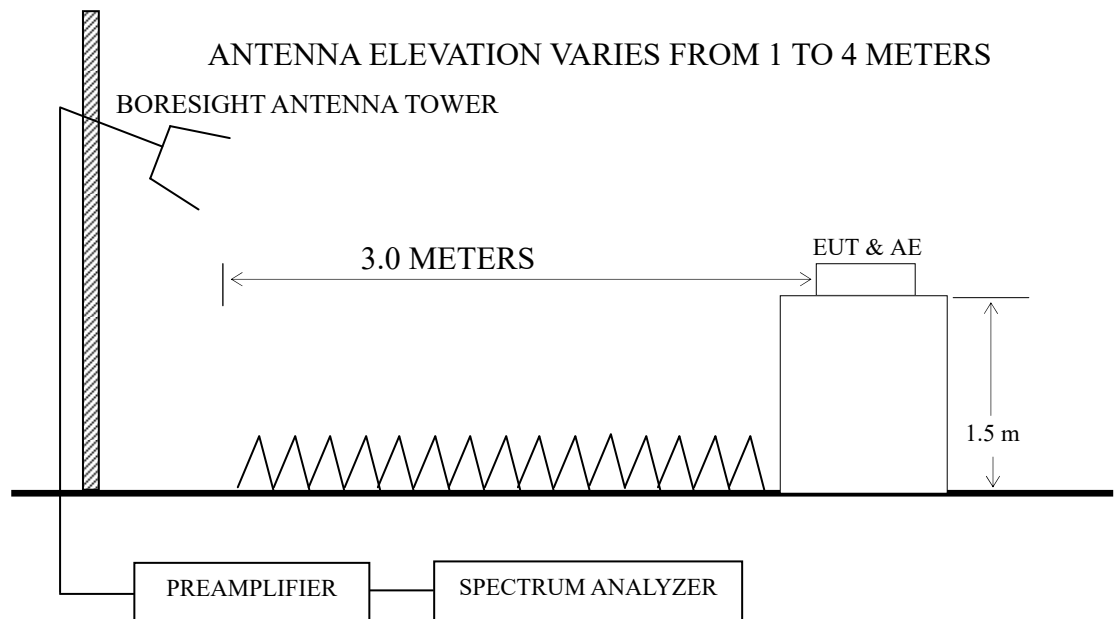
4.2.1 EUT & Peripherals



4.2.2 Below 1GHz



4.2.3 Above 1GHz



4.3 Radiated Emission Limit

§15.209:

Frequency (MHz)	Distance (m)	Field strength limits ($\mu\text{V/m}$)	
		($\mu\text{V/m}$)	$\text{dB}(\mu\text{V/m})$
30 ~ 88	3	100	40.0
88 ~ 216	3	150	43.5
216 ~ 960	3	200	46.0
Above 960	3	500	54.0

NOTE 1 - Emission Level $\text{dB}(\mu\text{V/m}) = 20 \log \text{Emission Level}(\mu\text{V/m})$
 NOTE 2 - The tighter limit applies at the band edges.
 NOTE 3 - Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system.
 NOTE 4 - The limits shown are based on Quasi-peak value detector below or equal to 1GHz and Average value detector above 1GHz.
 NOTE 5 - Above 1 GHz, the limit on peak emission is 20 dB above the maximum permitted average emission limit applicable to the EUT

§15.407(b):

- (1) For transmitters operating in the 5.15-5.25 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of -27 dBm/MHz .
- (2) For transmitters operating in the 5.25-5.35 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of -27 dBm/MHz .
- (3) For transmitters operating in the 5.47-5.725 GHz band: All emissions outside of the 5.47-5.725 GHz band shall not exceed an e.i.r.p. of -27 dBm/MHz .
- (4) For transmitters operating in the 5.725-5.85 GHz band:
 - (i) All emissions shall be limited to a level of -27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge

increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.

(6) Unwanted emissions below 1 GHz must comply with the general field strength limits set forth in §15.209.

4.4 Test Configuration

The EUT (listed in Sec.2.1) and the simulators (listed in Sec.2.2) were installed as shown on Sec.4.2 to meet FCC requirements and operating in a manner that tends to maximize its emission level in a normal application.

4.5 Operating Condition of EUT

4.5.1 Setup the EUT as shown in Sec. 4.2.

4.5.2 Turn on the power of all equipment.

4.5.3 Turn the EUT on the test mode, and then test.

4.6 Test Procedures

Radiated emission test applies to harmonics/spurs that fall in the restricted bands listed in Section 15.205. The maximum permitted average field strength is listed in Section 15.209. A pre-amp is necessary for this measurement. For measurement above 1 GHz, set RBW = 1MHz, VBW = 10 Hz, Sweep: Auto. If the emission is pulsed, modify the unit for continuous operation; use the settings shown above, then correct the reading by subtracting the peak-average correction factor, derived from the appropriate duty cycle calculation.

The EUT was placed on a turntable. Below 1 GHz, the table height is 80 cm above the reference ground plane. Above 1 GHz, the table height is 1.5 m. The turntable rotated 360 degrees to determine the position of the maximum emission level. The EUT was set 3 meters away from the receiving antenna, which was mounted on an antenna tower. The antenna moved up and down between 1 meter and 4 meters to find out the maximum emission level. Broadband antenna (Calibrated Bilog Antenna) or Horn antenna was used as receiving antenna. Both horizontal and vertical polarizations of the antenna were set on measurement. In order to find the maximum emission, all of the interference cables were manipulated according to ANSI C63.10: 2013 requirements during radiated emission test.

The bandwidth of Test Receiver R&S ESCI was set at 120 kHz from 30MHz to 1000MHz.

The bandwidth of Agilent N9010A was set at 1MHz for above 1GHz.

The frequency range from 30 MHz to 40 GHz (Up to 10th harmonics from fundamental frequency) was checked.

Per KDB 789033 D02 clause G.2.d), if the measurement distance is 3m,
 $EIRP[dBm] = E[dBuV/m] - 95.2$

Get the result of all unwanted emission outside the restricted band is less than the -27dBm/MHz.

All the test results are listed in Sec.4.7.

4.7 Test Results

<PASS>

The frequency and amplitude of the highest radiated emission relative the limit is reported. All the emissions not reported below are too low against the FCC limit.

No any emissions were found from 18GHz to 40GHz. So the Radiated emission from 18GHz to 40GHz were not record.

Frequency range: below 1GHz (Worst case emission)

No.	Operation	Modulation	Channel	Frequency	Data Page
1.	Transmitting	--	--	--	P19

Frequency range: above 1GHz

No.	Operation	Modulation	Channel	Frequency	Data Page
1.	Transmitting	802.11a	36	5180 MHz	P20
2.			40	5200 MHz	P20
3.			48	5240 MHz	P21
4.			52	5260 MHz	P21
5.			60	5300 MHz	P22
6.			64	5320 MHz	P22
7.			100	5500 MHz	P23
8.			120	5600 MHz	P23
9.			140	5700 MHz	P24
10.			149	5745 MHz	P24
11.			157	5785 MHz	P25
12.			165	5825 MHz	P25
13.		802.11n-HT20	36	5180 MHz	P26
14.			52	5260 MHz	P26
15.			100	5500 MHz	P27
16.			149	5745 MHz	P27
17.		802.11n-HT40	38	5190 MHz	P28
18.			54	5270 MHz	P28
19.			102	5510 MHz	P29
20.			151	5755 MHz	P29
21.		802.11ac-VHT80	42	5210 MHz	P30
22.			58	5290 MHz	P30
23.			106	5530 MHz	P31
24.			155	5775 MHz	P31

NOTE 1 – Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor

NOTE 2 – “QP” means “Quasi-Peak” values

NOTE 3 – 0° was the table front facing the antenna. Degree is calculated from 0° clockwise facing the antenna.

NOTE 4 – The emission levels which not reported are too low against the official limit.

NOTE 5 – The emission levels recorded below is data of EUT configured in Lying direction, for Lying direction was the maximum emission direction during the test. The data of Side & Standing direction are

too low against the official limit to be reported.

NOTE 6 – All reading are Quasi-Peak values below or equal to 1GHz, Peak and Average values above 1GHz.

For above 1GHz test, if the peak measured value complies with the average limit, it is unnecessary to perform an average measurement.

Worst case emission < 1GHz

EUT : SMART CARD TERMINAL Temperature : 22°C

Model No. : WB-20 Humidity : 51%RH

Test Mode : Transmitting Date of Test : 2021.04.20

Polarization	Frequency (MHz)	Meter Reading dB (μV/m)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Emission Level dB (μV/m)	Limits dB (μV/m)	Margin (dB)	Remark
Horizontal	52.76	28.02	19.63	0.45	28.35	19.75	40	20.25	QP
	150.02	37.2	19.1	0.59	27.74	29.15	43.5	14.35	QP
	254.73	37.79	17.77	0.76	27.41	28.91	46	17.09	QP
	300	40.4	19	0.88	27.35	32.93	46	13.07	QP
	450	46.8	22.8	1.17	27.2	43.57	46	2.43	QP
	750	40.9	27.5	1.83	27.44	42.79	46	3.21	QP
Vertical	51.843	41.06	19.69	0.45	28.35	32.85	40	7.15	QP
	66.266	40.11	18.11	0.5	28.25	30.47	40	9.53	QP
	150.01	39.86	19.1	0.59	27.74	31.81	43.5	11.69	QP
	450	42.7	22.8	1.17	27.2	39.47	46	6.53	QP
	600	41.5	25.3	1.51	27.28	41.03	46	4.97	QP
	750	41.9	27.5	1.83	27.44	43.79	46	2.21	QP

TEST ENGINEER: Jarey

Radiated Emission > 1GHz

EUT	:	SMART CARD TERMINAL	Temperature :	22°C
Model No.	:	WB-20	Humidity :	51%RH
Test Mode	:	Transmitting	Date of Test :	2021.12.13

802.11a CH5180MHz

Polarization	Frequency (MHz)	Meter Reading dB (μV/m)	Antenna Factor (dB)	Cable Loss (dB)	Preamplifier Factor (dB)	Emission Level dB (μV/m)	Limits dB (μV/m)	Margin (dB)	Remark
Horizontal	2872	41.85	29.72	4.2	37.1	38.67	74	35.33	Peak
	7237	34.71	36.15	6.26	37.01	40.11	74	33.89	Peak
	9739	35.56	38.4	7.26	36.96	44.26	74	29.74	Peak
	11384	33.84	38.75	9.52	36.69	45.42	74	28.58	Peak
	13632	33.8	40.95	13.81	36.3	52.26	74	21.74	Peak
	16664	32.21	39.28	16.96	35.59	52.86	74	21.14	Peak
Vertical	3259	40.86	30.7	4.41	37.09	38.88	74	35.12	Peak
	6805	35.58	35.04	6.17	37.02	39.77	74	34.23	Peak
	9739	35.3	38.4	7.26	36.96	44	74	30	Peak
	11704	32.92	38.92	10.05	36.63	45.26	74	28.74	Peak
	13976	32.95	41.26	14.62	36.24	52.59	74	21.41	Peak
	16616	32	39.12	16.96	35.59	52.49	74	21.51	Peak

802.11a CH5200MHz

Polarization	Frequency (MHz)	Meter Reading dB (μV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Emission Level dB (μV/m)	Limits dB (μV/m)	Margin (dB)	Remark
Horizontal	3259	41.05	30.7	4.41	37.09	39.07	74	34.93	Peak
	7615	35.1	37.04	6.33	37	41.47	74	32.53	Peak
	9856	34.61	38.4	7.33	36.96	43.38	74	30.62	Peak
	11440	33.89	38.77	9.78	36.68	45.76	74	28.24	Peak
	13936	33.54	41.22	14.62	36.25	53.13	74	20.87	Peak
	16840	32	39.92	17.16	35.57	53.51	74	20.49	Peak
Vertical	3205	41.41	30.58	4.38	37.09	39.28	74	34.72	Peak
	6427	35.86	34.46	6.07	37.02	39.37	74	34.63	Peak
	8875	35.13	38.35	6.88	36.98	43.38	74	30.62	Peak
	11760	33.47	38.96	10.05	36.62	45.86	74	28.14	Peak
	13672	33.83	40.99	14.22	36.29	52.75	74	21.25	Peak
	16600	32.66	39.12	16.96	35.59	53.15	74	20.85	Peak

802.11a CH5240MHz

Polarization	Frequency (MHz)	Meter Reading dB (μV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Emission Level dB (μV/m)	Limits dB (μV/m)	Margin (dB)	Remark
Horizontal	3457	40.62	31.12	4.51	37.08	39.17	74	34.83	Peak
	6913	34.99	35.26	6.19	37.01	39.43	74	34.57	Peak
	9892	35.06	38.4	7.33	36.96	43.83	74	30.17	Peak
	12096	33.46	39.04	10.58	36.56	46.52	74	27.48	Peak
	14192	33.04	41.55	14.82	36.14	53.27	74	20.73	Peak
	16848	32.19	39.92	17.16	35.57	53.7	74	20.3	Peak
Vertical	3205	41.45	30.58	4.38	37.09	39.32	74	34.68	Peak
	7156	34.97	35.9	6.24	37.01	40.1	74	33.9	Peak
	9568	34.42	38.4	7.2	36.97	43.05	74	30.95	Peak
	12000	32.84	39.1	10.58	36.58	45.94	74	28.06	Peak
	14024	33.12	41.35	14.62	36.22	52.87	74	21.13	Peak
	16776	32.09	39.76	16.96	35.58	53.23	74	20.77	Peak

802.11a CH5260MHz

Polarization	Frequency (MHz)	Meter Reading dB (μV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Emission Level dB (μV/m)	Limits dB (μV/m)	Margin (dB)	Remark
Horizontal	3205	40.93	30.58	4.38	37.09	38.8	74	35.2	Peak
	6706	35.8	34.86	6.14	37.02	39.78	74	34.22	Peak
	9838	35.33	38.4	7.26	36.96	44.03	74	29.97	Peak
	11944	34.3	39.06	10.31	36.59	47.08	74	26.92	Peak
	13952	33.79	41.26	14.62	36.25	53.42	74	20.58	Peak
	16832	32.02	39.92	17.16	35.57	53.53	74	20.47	Peak
Vertical	3016	40.85	30.14	4.28	37.09	38.18	74	35.82	Peak
	6229	35.86	34.34	6.02	37.03	39.19	74	34.81	Peak
	9640	34.65	38.4	7.2	36.97	43.28	74	30.72	Peak
	11720	33.03	38.94	10.05	36.63	45.39	74	28.61	Peak
	13656	33.84	40.95	13.81	36.29	52.31	74	21.69	Peak
	16192	33.41	38.29	16.57	35.62	52.65	74	21.35	Peak

802.11a CH5300MHz

Polarization	Frequency (MHz)	Meter Reading dB (μV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Emission Level dB (μV/m)	Limits dB (μV/m)	Margin (dB)	Remark
Horizontal	3304	41.21	30.78	4.44	37.09	39.34	74	34.66	Peak
	6148	36.23	34.29	6	37.03	39.49	74	34.51	Peak
	9307	35.42	38.36	7.07	36.97	43.88	74	30.12	Peak
	12072	33.66	39.04	10.58	36.57	46.71	74	27.29	Peak
	14040	33.37	41.35	14.62	36.22	53.12	74	20.88	Peak
	16656	32.34	39.28	16.96	35.59	52.99	74	21.01	Peak
Vertical	2863	41.08	29.69	4.2	37.1	37.87	74	36.13	Peak
	6157	36.04	34.3	6	37.03	39.31	74	34.69	Peak
	9370	34.89	38.37	7.07	36.97	43.36	74	30.64	Peak
	11424	34.35	38.77	9.78	36.68	46.22	74	27.78	Peak
	13928	33.36	41.22	14.62	36.25	52.95	74	21.05	Peak
	16736	32.08	39.6	16.96	35.58	53.06	74	20.94	Peak

802.11a CH5320MHz

Polarization	Frequency (MHz)	Meter Reading dB (μV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Emission Level dB (μV/m)	Limits dB (μV/m)	Margin (dB)	Remark
Horizontal	2908	41.49	29.82	4.22	37.1	38.43	74	35.57	Peak
	6391	35.98	34.44	6.07	37.02	39.47	74	34.53	Peak
	9649	35.92	38.4	7.2	36.97	44.55	74	29.45	Peak
	11896	33.19	39.04	10.31	36.59	45.95	74	28.05	Peak
	13984	33.12	41.3	14.62	36.24	52.8	74	21.2	Peak
	17016	31	40.67	17.16	35.56	53.27	74	20.73	Peak
Vertical	2935	41.09	29.92	4.22	37.09	38.14	74	35.86	Peak
	6760	34.09	34.97	6.14	37.02	38.18	74	35.82	Peak
	9802	34.58	38.4	7.26	36.96	43.28	74	30.72	Peak
	11408	33.78	38.76	9.52	36.68	45.38	74	28.62	Peak
	13744	33.56	41.07	14.22	36.28	52.57	74	21.43	Peak
	16592	33	39.12	16.96	35.59	53.49	74	20.51	Peak

802.11a CH5500MHz

Polarization	Frequency (MHz)	Meter Reading dB (μV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Emission Level dB (μV/m)	Limits dB (μV/m)	Margin (dB)	Remark
Horizontal	2827	42	29.59	4.17	37.1	38.66	74	35.34	Peak
	7003	34.51	35.4	6.21	37.01	39.11	74	34.89	Peak
	9604	34.95	38.4	7.2	36.97	43.58	74	30.42	Peak
	11824	33.53	39	10.31	36.61	46.23	74	27.77	Peak
	13824	33.92	41.15	14.22	36.27	53.02	74	20.98	Peak
	16616	31.9	39.12	16.96	35.59	52.39	74	21.61	Peak
Vertical	2674	42.52	29.08	4.06	37.1	38.56	74	35.44	Peak
	6742	34.91	34.93	6.14	37.02	38.96	74	35.04	Peak
	9802	34.86	38.4	7.26	36.96	43.56	74	30.44	Peak
	11584	34.24	38.86	9.78	36.66	46.22	74	27.78	Peak
	14040	33.45	41.35	14.62	36.22	53.2	74	20.8	Peak
	16552	31.98	38.96	16.77	35.6	52.11	74	21.89	Peak

802.11a CH5600MHz

Polarization	Frequency (MHz)	Meter Reading dB (μV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Emission Level dB (μV/m)	Limits dB (μV/m)	Margin (dB)	Remark
Horizontal	3358	41.08	30.91	4.46	37.09	39.36	74	34.64	Peak
	6967	35.4	35.36	6.19	37.01	39.94	74	34.06	Peak
	9766	35.53	38.4	7.26	36.96	44.23	74	29.77	Peak
	11904	33.62	39.04	10.31	36.59	46.38	74	27.62	Peak
	14048	33.21	41.35	14.62	36.22	52.96	74	21.04	Peak
	16560	33.08	38.96	16.77	35.59	53.22	74	20.78	Peak
Vertical	3358	39.88	30.91	4.46	37.09	38.16	74	35.84	Peak
	6751	34.18	34.97	6.14	37.02	38.27	74	35.73	Peak
	9703	34.63	38.4	7.26	36.96	43.33	74	30.67	Peak
	11712	34.05	38.92	10.05	36.63	46.39	74	27.61	Peak
	13912	33.06	41.22	14.62	36.25	52.65	74	21.35	Peak
	16568	32.23	38.96	16.77	35.59	52.37	74	21.63	Peak

802.11a CH5700MHz

Polarization	Frequency (MHz)	Meter Reading dB (μV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Emission Level dB (μV/m)	Limits dB (μV/m)	Margin (dB)	Remark
Horizontal	2962	42.11	30	4.25	37.09	39.27	74	34.73	Peak
	6949	35.36	35.33	6.19	37.01	39.87	74	34.13	Peak
	9694	34.97	38.4	7.2	36.96	43.61	74	30.39	Peak
	11560	34.07	38.84	9.78	36.66	46.03	74	27.97	Peak
	14040	33.16	41.35	14.62	36.22	52.91	74	21.09	Peak
	16920	31.4	40.24	17.16	35.57	53.23	74	20.77	Peak
Vertical	3754	39.22	31.94	4.67	37.08	38.75	74	35.25	Peak
	6931	35.67	35.29	6.19	37.01	40.14	74	33.86	Peak
	9118	34.05	38.33	6.94	36.97	42.35	74	31.65	Peak
	12112	33.39	39.01	10.58	36.56	46.42	74	27.58	Peak
	13904	33.07	41.22	14.62	36.25	52.66	74	21.34	Peak
	16912	31.48	40.08	17.16	35.57	53.15	74	20.85	Peak

802.11a CH5745MHz

Polarization	Frequency (MHz)	Meter Reading dB (μV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Emission Level dB (μV/m)	Limits dB (μV/m)	Margin (dB)	Remark
Horizontal	2917	41.98	29.85	4.22	37.1	38.95	74	35.05	Peak
	6805	35.59	35.04	6.17	37.02	39.78	74	34.22	Peak
	9370	35.8	38.37	7.07	36.97	44.27	74	29.73	Peak
	11424	33.59	38.77	9.78	36.68	45.46	74	28.54	Peak
	13928	33.27	41.22	14.62	36.25	52.86	74	21.14	Peak
	16984	31.3	40.4	17.16	35.56	53.3	74	20.7	Peak
Vertical	3169	40.83	30.49	4.36	37.09	38.59	74	35.41	Peak
	6760	34.95	34.97	6.14	37.02	39.04	74	34.96	Peak
	9541	34.52	38.4	7.13	36.97	43.08	74	30.92	Peak
	12032	33.54	39.07	10.58	36.57	46.62	74	27.38	Peak
	13984	32.97	41.3	14.62	36.24	52.65	74	21.35	Peak
	16744	32.35	39.6	16.96	35.58	53.33	74	20.67	Peak

802.11a CH5785MHz

Polarization	Frequency (MHz)	Meter Reading dB (μV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Emission Level dB (μV/m)	Limits dB (μV/m)	Margin (dB)	Remark
Horizontal	3313	40.57	30.81	4.44	37.09	38.73	74	35.27	Peak
	6301	35.06	34.38	6.05	37.03	38.46	74	35.54	Peak
	9073	34.51	38.32	6.94	36.97	42.8	74	31.2	Peak
	11880	33.23	39.02	10.31	36.6	45.96	74	28.04	Peak
	13872	33.22	41.18	14.62	36.26	52.76	74	21.24	Peak
	16688	32.6	39.44	16.96	35.58	53.42	74	20.58	Peak
Vertical	2341	43.46	28.17	3.83	37.11	38.35	74	35.65	Peak
	6202	35.31	34.32	6.02	37.03	38.62	74	35.38	Peak
	8992	34.91	38.3	6.88	36.98	43.11	74	30.89	Peak
	11552	34.12	38.84	9.78	36.66	46.08	74	27.92	Peak
	13976	33.15	41.26	14.62	36.24	52.79	74	21.21	Peak
	16736	32.11	39.6	16.96	35.58	53.09	74	20.91	Peak

802.11a CH5825MHz

Polarization	Frequency (MHz)	Meter Reading dB (μV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Emission Level dB (μV/m)	Limits dB (μV/m)	Margin (dB)	Remark
Horizontal	3358	40.93	30.91	4.46	37.09	39.21	74	34.79	Peak
	6823	36.17	35.08	6.17	37.02	40.4	74	33.6	Peak
	9658	34.48	38.4	7.2	36.97	43.11	74	30.89	Peak
	11304	34.23	38.72	9.52	36.7	45.77	74	28.23	Peak
	13680	33.33	40.99	14.22	36.29	52.25	74	21.75	Peak
	16616	32.32	39.12	16.96	35.59	52.81	74	21.19	Peak
Vertical	3547	40.22	31.35	4.57	37.08	39.06	74	34.94	Peak
	7057	34.67	35.59	6.21	37.01	39.46	74	34.54	Peak
	9667	34.45	38.4	7.2	36.97	43.08	74	30.92	Peak
	11736	32.57	38.94	10.05	36.63	44.93	74	29.07	Peak
	13696	33.29	40.99	14.22	36.28	52.22	74	21.78	Peak
	16824	31.53	39.92	16.96	35.58	52.83	74	21.17	Peak

802.11n-HT20 CH5180MHz

Polarization	Frequency (MHz)	Meter Reading dB (μV/m)	Antenna Factor (dB)	Cable Loss (dB)	Preamplifier Factor (dB)	Emission Level dB (μV/m)	Limits dB (μV/m)	Margin (dB)	Remark
Horizontal	3502	39.73	31.23	4.54	37.08	38.42	74	35.58	Peak
	6337	35.64	34.4	6.05	37.03	39.06	74	34.94	Peak
	9433	34.25	38.38	7.13	36.97	42.79	74	31.21	Peak
	11856	33.41	39.02	10.31	36.6	46.14	74	27.86	Peak
	13840	34.09	41.15	14.22	36.26	53.2	74	20.8	Peak
	16656	32.14	39.28	16.96	35.59	52.79	74	21.21	Peak
Vertical	2926	40.87	29.87	4.22	37.1	37.86	74	36.14	Peak
	6445	35	34.47	6.07	37.02	38.52	74	35.48	Peak
	9487	35.23	38.39	7.13	36.97	43.78	74	30.22	Peak
	11464	33.5	38.79	9.78	36.68	45.39	74	28.61	Peak
	13896	33.47	41.18	14.62	36.25	53.02	74	20.98	Peak
	16720	31.9	39.44	16.96	35.58	52.72	74	21.28	Peak

802.11n-HT20 CH5260MHz

Polarization	Frequency (MHz)	Meter Reading dB (μV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Emission Level dB (μV/m)	Limits dB (μV/m)	Margin (dB)	Remark
Horizontal	3547	39.73	31.35	4.57	37.08	38.57	74	35.43	Peak
	6436	35.17	34.46	6.07	37.02	38.68	74	35.32	Peak
	9307	34.04	38.36	7.07	36.97	42.5	74	31.5	Peak
	11880	33.51	39.02	10.31	36.6	46.24	74	27.76	Peak
	14088	33.06	41.4	14.82	36.19	53.09	74	20.91	Peak
	16696	32.44	39.44	16.96	35.58	53.26	74	20.74	Peak
Vertical	3457	40.34	31.12	4.51	37.08	38.89	74	35.11	Peak
	7021	35.61	35.46	6.21	37.01	40.27	74	33.73	Peak
	9334	34.28	38.37	7.07	36.97	42.75	74	31.25	Peak
	12008	33.61	39.1	10.58	36.58	46.71	74	27.29	Peak
	13704	33.77	41.03	14.22	36.28	52.74	74	21.26	Peak
	16864	31.99	39.92	17.16	35.57	53.5	74	20.5	Peak

802.11n-HT20 CH5500MHz

Polarization	Frequency (MHz)	Meter Reading dB (μV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Emission Level dB (μV/m)	Limits dB (μV/m)	Margin (dB)	Remark
Horizontal	3205	40.04	30.58	4.38	37.09	37.91	74	36.09	Peak
	6958	34.04	35.33	6.19	37.01	38.55	74	35.45	Peak
	9343	34.43	38.37	7.07	36.97	42.9	74	31.1	Peak
	11904	32.93	39.04	10.31	36.59	45.69	74	28.31	Peak
	13960	33.44	41.26	14.62	36.25	53.07	74	20.93	Peak
	16768	32.28	39.6	16.96	35.58	53.26	74	20.74	Peak
Vertical	3691	40.12	31.77	4.65	37.08	39.46	74	34.54	Peak
	6769	35.29	35	6.14	37.02	39.41	74	34.59	Peak
	9460	34.34	38.39	7.13	36.97	42.89	74	31.11	Peak
	11344	34.16	38.73	9.52	36.7	45.71	74	28.29	Peak
	13648	33.25	40.95	13.81	36.29	51.72	74	22.28	Peak
	16544	31.87	38.96	16.77	35.6	52	74	22	Peak

802.11n-HT20 CH5745MHz

Polarization	Frequency (MHz)	Meter Reading dB (μV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Emission Level dB (μV/m)	Limits dB (μV/m)	Margin (dB)	Remark
Horizontal	3592	40.1	31.47	4.59	37.08	39.08	74	34.92	Peak
	7273	34.42	36.21	6.26	37.01	39.88	74	34.12	Peak
	9658	34.55	38.4	7.2	36.97	43.18	74	30.82	Peak
	11888	33.88	39.02	10.31	36.6	46.61	74	27.39	Peak
	13728	33.63	41.03	14.22	36.28	52.6	74	21.4	Peak
	16552	33.21	38.96	16.77	35.6	53.34	74	20.66	Peak
Vertical	2584	42.38	28.78	4.01	37.1	38.07	74	35.93	Peak
	6247	36.07	34.35	6.02	37.03	39.41	74	34.59	Peak
	8911	34.71	38.33	6.88	36.98	42.94	74	31.06	Peak
	11584	33.43	38.86	9.78	36.66	45.41	74	28.59	Peak
	13616	33.81	40.92	13.81	36.3	52.24	74	21.76	Peak
	16088	33.61	38.15	16.38	35.63	52.51	74	21.49	Peak

802.11n-HT40 CH5190MHz

Polarization	Frequency (MHz)	Meter Reading dB (μV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Emission Level dB (μV/m)	Limits dB (μV/m)	Margin (dB)	Remark
Horizontal	3448	39.8	31.1	4.51	37.08	38.33	74	35.67	Peak
	6310	34.86	34.38	6.05	37.03	38.26	74	35.74	Peak
	9019	33.93	38.31	6.94	36.98	42.2	74	31.8	Peak
	12104	33.26	39.01	10.58	36.56	46.29	74	27.71	Peak
	14016	33.25	41.3	14.62	36.22	52.95	74	21.05	Peak
	16872	31.29	40.08	17.16	35.57	52.96	74	21.04	Peak
Vertical	2818	42.48	29.54	4.17	37.1	39.09	74	34.91	Peak
	6922	35.16	35.26	6.19	37.01	39.6	74	34.4	Peak
	9208	34.94	38.34	7.01	36.97	43.32	74	30.68	Peak
	11384	34.13	38.75	9.52	36.69	45.71	74	28.29	Peak
	13712	33.47	41.03	14.22	36.28	52.44	74	21.56	Peak
	16680	32.09	39.44	16.96	35.58	52.91	74	21.09	Peak

802.11n-HT40 CH5270MHz

Polarization	Frequency (MHz)	Meter Reading dB (μV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Emission Level dB (μV/m)	Limits dB (μV/m)	Margin (dB)	Remark
Horizontal	2809	42.39	29.52	4.14	37.1	38.95	74	35.05	Peak
	7120	34.81	35.78	6.24	37.01	39.82	74	34.18	Peak
	9802	35.11	38.4	7.26	36.96	43.81	74	30.19	Peak
	11848	33.77	39	10.31	36.61	46.47	74	27.53	Peak
	13928	33.17	41.22	14.62	36.25	52.76	74	21.24	Peak
	16632	32.32	39.28	16.96	35.59	52.97	74	21.03	Peak
Vertical	3313	41.34	30.81	4.44	37.09	39.5	74	34.5	Peak
	5914	35.97	34.2	5.92	37.04	39.05	74	34.95	Peak
	8938	34.2	38.32	6.88	36.98	42.42	74	31.58	Peak
	12328	33.19	38.84	11.39	36.52	46.9	74	27.1	Peak
	13968	33.3	41.26	14.62	36.24	52.94	74	21.06	Peak
	16720	32.31	39.44	16.96	35.58	53.13	74	20.87	Peak

802.11n-HT40 CH5510MHz

Polarization	Frequency (MHz)	Meter Reading dB (μV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Emission Level dB (μV/m)	Limits dB (μV/m)	Margin (dB)	Remark
Horizontal	3016	41.87	30.14	4.28	37.09	39.2	74	34.8	Peak
	6877	35.19	35.18	6.17	37.01	39.53	74	34.47	Peak
	9019	34.96	38.31	6.94	36.98	43.23	74	30.77	Peak
	11968	33.64	39.08	10.58	36.59	46.71	74	27.29	Peak
	13800	33.43	41.11	14.22	36.27	52.49	74	21.51	Peak
	16600	32.04	39.12	16.96	35.59	52.53	74	21.47	Peak
Vertical	3547	41.22	31.35	4.57	37.08	40.06	74	33.94	Peak
	6724	35.3	34.9	6.14	37.02	39.32	74	34.68	Peak
	9685	34.87	38.4	7.2	36.96	43.51	74	30.49	Peak
	11960	33.25	39.08	10.58	36.59	46.32	74	27.68	Peak
	13744	33.42	41.07	14.22	36.28	52.43	74	21.57	Peak
	16784	31.85	39.76	16.96	35.58	52.99	74	21.01	Peak

802.11n-HT40 CH5755MHz

Polarization	Frequency (MHz)	Meter Reading dB (μV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Emission Level dB (μV/m)	Limits dB (μV/m)	Margin (dB)	Remark
Horizontal	3358	40.37	30.91	4.46	37.09	38.65	74	35.35	Peak
	7336	34.68	36.4	6.29	37	40.37	74	33.63	Peak
	9775	34.46	38.4	7.26	36.96	43.16	74	30.84	Peak
	11784	33.29	38.96	10.31	36.61	45.95	74	28.05	Peak
	13976	33.84	41.26	14.62	36.24	53.48	74	20.52	Peak
	16808	31.7	39.76	16.96	35.58	52.84	74	21.16	Peak
Vertical	3691	39.53	31.77	4.65	37.08	38.87	74	35.13	Peak
	6643	35.27	34.75	6.12	37.02	39.12	74	34.88	Peak
	9361	34.41	38.37	7.07	36.97	42.88	74	31.12	Peak
	11896	33.99	39.04	10.31	36.59	46.75	74	27.25	Peak
	13912	33.26	41.22	14.62	36.25	52.85	74	21.15	Peak
	16952	30.96	40.24	17.16	35.56	52.8	74	21.2	Peak

802.11ac-VHT80 CH5210MHz

Polarization	Frequency (MHz)	Meter Reading dB (μV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Emission Level dB (μV/m)	Limits dB (μV/m)	Margin (dB)	Remark
Horizontal	3448	39.71	31.1	4.51	37.08	38.24	74	35.76	Peak
	6355	34.99	34.41	6.05	37.03	38.42	74	35.58	Peak
	9334	34.36	38.37	7.07	36.97	42.83	74	31.17	Peak
	11840	33.77	39	10.31	36.61	46.47	74	27.53	Peak
	14008	33.04	41.3	14.62	36.24	52.72	74	21.28	Peak
	16824	31.72	39.92	16.96	35.58	53.02	74	20.98	Peak
Vertical	2962	40.7	30	4.25	37.09	37.86	74	36.14	Peak
	6607	34.95	34.68	6.12	37.02	38.73	74	35.27	Peak
	8875	34.63	38.35	6.88	36.98	42.88	74	31.12	Peak
	11896	33.53	39.04	10.31	36.59	46.29	74	27.71	Peak
	13872	33.32	41.18	14.62	36.26	52.86	74	21.14	Peak
	16832	31.88	39.92	17.16	35.57	53.39	74	20.61	Peak

802.11ac-VHT80 CH5290MHz

Polarization	Frequency (MHz)	Meter Reading dB (μV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Emission Level dB (μV/m)	Limits dB (μV/m)	Margin (dB)	Remark
Horizontal	3115	40.86	30.37	4.33	37.09	38.47	74	35.53	Peak
	6409	34.59	34.45	6.07	37.02	38.09	74	35.91	Peak
	9118	34.12	38.33	6.94	36.97	42.42	74	31.58	Peak
	11544	33.43	38.82	9.78	36.66	45.37	74	28.63	Peak
	13832	33.64	41.15	14.22	36.26	52.75	74	21.25	Peak
	16656	32.47	39.28	16.96	35.59	53.12	74	20.88	Peak
Vertical	3115	40.19	30.37	4.33	37.09	37.8	74	36.2	Peak
	6445	35.74	34.47	6.07	37.02	39.26	74	34.74	Peak
	9307	34.86	38.36	7.07	36.97	43.32	74	30.68	Peak
	12152	33.32	38.99	10.98	36.55	46.74	74	27.26	Peak
	13984	33.25	41.3	14.62	36.24	52.93	74	21.07	Peak
	16792	31.34	39.76	16.96	35.58	52.48	74	21.52	Peak

802.11ac-VHT80 CH5530MHz

Polarization	Frequency (MHz)	Meter Reading dB (μV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Emission Level dB (μV/m)	Limits dB (μV/m)	Margin (dB)	Remark
Horizontal	3844	38.88	32.18	4.7	37.08	38.68	74	35.32	Peak
	7219	34.32	36.09	6.26	37.01	39.66	74	34.34	Peak
	9307	34.03	38.36	7.07	36.97	42.49	74	31.51	Peak
	12376	33.64	38.81	11.39	36.51	47.33	74	26.67	Peak
	14232	33.19	41.6	14.82	36.12	53.49	74	20.51	Peak
	16800	31.65	39.76	16.96	35.58	52.79	74	21.21	Peak
Vertical	3259	40.81	30.7	4.41	37.09	38.83	74	35.17	Peak
	7084	34.86	35.65	6.21	37.01	39.71	74	34.29	Peak
	9694	34.73	38.4	7.2	36.96	43.37	74	30.63	Peak
	12240	33.66	38.9	10.98	36.54	47	74	27	Peak
	13944	33.05	41.26	14.62	36.25	52.68	74	21.32	Peak
	16928	31.62	40.24	17.16	35.57	53.45	74	20.55	Peak

802.11ac-VHT80 CH5775MHz

Polarization	Frequency (MHz)	Meter Reading dB (μV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Emission Level dB (μV/m)	Limits dB (μV/m)	Margin (dB)	Remark
Horizontal	3691	38.36	31.77	4.65	37.08	37.7	74	36.3	Peak
	7651	35.15	37.09	6.36	37	41.6	74	32.4	Peak
	9559	34.45	38.4	7.2	36.97	43.08	74	30.92	Peak
	11936	33.68	39.06	10.31	36.59	46.46	74	27.54	Peak
	13872	33.21	41.18	14.62	36.26	52.75	74	21.25	Peak
	16672	31.66	39.28	16.96	35.58	52.32	74	21.68	Peak
Vertical	3781	38.78	32	4.67	37.08	38.37	74	35.63	Peak
	7426	35.51	36.71	6.31	37	41.53	74	32.47	Peak
	9658	34.81	38.4	7.2	36.97	43.44	74	30.56	Peak
	12200	33.78	38.96	10.98	36.54	47.18	74	26.82	Peak
	13872	32.82	41.18	14.62	36.26	52.36	74	21.64	Peak
	16728	32.12	39.6	16.96	35.58	53.1	74	20.9	Peak

TEST ENGINEER: Jarey

5 BAND EDGE MEASUREMENT

5.1 Test Equipment

The following test equipment are used during the radiated emission test in a semi-anechoic chamber:

Item	Type	Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Interval
1.	Preamplifier	HP	8449B	3008A00864	2021.01.05	1 Year
2.	Spectrum Analyzer	Agilent	N9010A	MY52221182	2020.09.16	1 Year
3.	Horn Antenna	EMCO	3115	9607-4878	2020.07.13	1 Year
4.	Horn Antenna	EMCO	3116	00062643	2020.09.08	1 Year
5.	Software	Audix	e3	SET00200 9912M295-2	--	--

5.2 Block Diagram of Test Setup

The Same as Section. 4.2.3.

5.3 Specification Limit

Only spurious emissions are permitted in any of the frequency bands which fall in Restricted bands as defined in §15.205(a), the field strength of emission shall not exceed the limits shown in §15.209:

Frequency (MHz)	Distance (m)	Field strength limits (μV/m)	
		(μV/m)	dB(μV/m)
30 ~ 88	3	100	40.0
88 ~ 216	3	150	43.5
216 ~ 960	3	200	46.0
Above 960	3	500	54.0

NOTE 1 - Emission Level dB (μV/m) = 20 log Emission Level (μV/m)

NOTE 2 - The tighter limit applies at the band edges.

NOTE 3 - Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system.

NOTE 4 - The limits shown are based on Quasi-peak value detector below or equal to 1GHz and Average value detector above 1GHz.

NOTE 5 - Above 1 GHz, the limit on peak emission is 20 dB above the maximum permitted average emission limit applicable to the EUT

§15.407(b):

- (1) For transmitters operating in the 5.15-5.25 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of -27 dBm/MHz.
- (2) For transmitters operating in the 5.25-5.35 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of -27 dBm/MHz.
- (3) For transmitters operating in the 5.47-5.725 GHz band: All emissions outside of the 5.47-5.725 GHz band shall not exceed an e.i.r.p. of -27 dBm/MHz.
- (4) For transmitters operating in the 5.725-5.85 GHz band:
 - (i) All emissions shall be limited to a level of -27 dBm/MHz at 75 MHz or more

above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.

(7) The provisions of §15.205 apply to intentional radiators operating under this section.

5.4 Test Procedures

Radiated emission test applies to harmonics/spurs that fall in the restricted bands listed in Section 15.205. The maximum permitted average field strength is listed in Section 15.209. A pre-amp is necessary for this measurement. For measurement above 1 GHz, set RBW = 1MHz, VBW = 10 Hz, Sweep: Auto. If the emission is pulsed, modify the unit for continuous operation; use the settings shown above, then correct the reading by subtracting the peak-average correction factor, derived from the appropriate duty cycle calculation.

The EUT was placed on a turntable, the table height is 1.5 m. The turntable rotated 360 degrees to determine the position of the maximum emission level. The EUT was set 3 meters away from the receiving antenna, which was mounted on an antenna tower. The antenna moved up and down between 1 meter and 4 meters to find out the maximum emission level. Horn antenna was used as receiving antenna. Both horizontal and vertical polarizations of the antenna were set on measurement. In order to find the maximum emission, all of the interference cables were manipulated according to ANSI C63.10: 2013 requirements during radiated emission test.

The bandwidth of Agilent N9010A was set at 1MHz.

Per KDB 789033 D02 clause G.2.d), if the measurement distance is 3m,
 $EIRP[dBm] = E[dBuV/m] - 95.2$

Get the result of all unwanted emission outside the restricted band is less than the -27dBm/MHz.

All the test results are listed in Sec.5.5.

5.5 Test Results

<PASS>

The frequency and amplitude of the highest radiated emission relative the limit is reported. All the emissions not reported below are too low against the FCC limit.

Band Edge & Restricted bands:

No.	Operation	Modulation	Channel	Frequency	Data Page
1.	Transmitting	802.11a	36	5180 MHz	P36
			48	5240 MHz	
2.			52	5260 MHz	P37
			64	5320 MHz	
3.			100	5500 MHz	P38
			140	5700 MHz	
4.			149	5745 MHz	P39
			165	5825 MHz	
5.		802.11n-HT20	36	5180 MHz	P40
			48	5240 MHz	
6.			52	5260 MHz	P41
			64	5320 MHz	
7.			100	5500 MHz	P42
			140	5700 MHz	
8.			149	5745 MHz	P43
			165	5825 MHz	
9.		802.11n-HT40	38	5190 MHz	P44
			46	5230 MHz	
10.			54	5270 MHz	P45
			62	5310 MHz	
11.			102	5510 MHz	P46
			134	5670 MHz	
12.			151	5755 MHz	P47
			159	5795 MHz	
13.		802.11ac-VHT80	42	5210 MHz	P48
14.			58	5290 MHz	P49
15.			106	5530 MHz	P50
			122	5610 MHz	
16.			155	5775 MHz	P51

NOTE 1 – Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor

NOTE 2 – “QP” means “Quasi-Peak” values

NOTE 3 – 0° was the table front facing the antenna. Degree is calculated from 0° clockwise facing the antenna.

NOTE 4 – The emission levels which not reported are too low against the official limit.

NOTE 5 – The emission levels recorded below is data of EUT configured in Lying direction, for Lying direction was the maximum emission direction during the test. The data of Side & Standing direction are too low against the official limit to be reported.

NOTE 6 – All reading are Quasi-Peak values below or equal to 1GHz, Peak and Average values above 1GHz.

For above 1GHz test, if the peak measured value complies with the average limit, it is unnecessary to perform an average measurement.

NOTE 7 – The frequency range 4500MHz-5150MHz & 5350MHz-5460MHz & 7250MHz-7750MHz were tested for Restricted bands.

EUT	:	<u>SMART CARD TERMINAL</u>	Temperature :	<u>22°C</u>
Model No.	:	<u>WB-20</u>	Humidity :	<u>51%RH</u>
Test Mode	:	<u>Transmitting</u>	Date of Test :	<u>2020.12.13</u>

802.11a CH5180MHz&CH5240MHz

Polarization	Frequency (MHz)	Meter Reading dB (μV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Emission Level dB (μV/m)	Limits dB (μV/m)	Margin (dB)	Remark
Horizontal	4613	41.85	32.62	5.37	37.07	42.77	74	31.23	Peak
	4613	30.49	32.62	5.37	37.07	31.41	54	22.59	Average
	4892.5	41.41	33.11	5.6	37.06	43.06	74	30.94	Peak
	4892.5	30.84	33.11	5.6	37.06	32.49	54	21.51	Average
	5150	53.78	33.57	5.71	37.06	56	74	18	Peak
	5150	46.71	33.57	5.71	37.06	48.93	54	5.07	Average
	5350	38.9	33.93	5.78	37.05	41.56	74	32.44	Peak
	5350	30.58	33.93	5.78	37.05	33.24	54	20.76	Average
	5397.2	40.82	34.01	5.78	37.05	43.56	74	30.44	Peak
	5397.2	29.78	34.01	5.78	37.05	32.52	54	21.48	Average
	5446	40.23	34.09	5.8	37.05	43.07	74	30.93	Peak
	5446	29.57	34.09	5.8	37.05	32.41	54	21.59	Average
Vertical	4572.8	42.46	32.55	5.31	37.07	43.25	74	30.75	Peak
	4572.8	32.64	32.55	5.31	37.07	33.43	54	20.57	Average
	4851.4	41.65	33.03	5.54	37.06	43.16	74	30.84	Peak
	4851.4	31.97	33.03	5.54	37.06	33.48	54	20.52	Average
	5150	46.85	33.57	5.71	37.06	49.07	74	24.93	Peak
	5150	38.57	33.57	5.71	37.06	40.79	54	13.21	Average
	5350	38.9	33.93	5.78	37.05	41.56	74	32.44	Peak
	5350	30.58	33.93	5.78	37.05	33.24	54	20.76	Average
	5397.2	40.82	34.01	5.78	37.05	43.56	74	30.44	Peak
	5397.2	29.78	34.01	5.78	37.05	32.52	54	21.48	Average
	5446	40.23	34.09	5.8	37.05	43.07	74	30.93	Peak
	5446	29.57	34.09	5.8	37.05	32.41	54	21.59	Average

802.11a CH5260MHz&CH5320MHz

Polarization	Frequency (MHz)	Meter Reading dB (μV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Emission Level dB (μV/m)	Limits dB (μV/m)	Margin (dB)	Remark
Horizontal	4676.3	41.91	32.74	5.43	37.06	43.02	74	30.98	Peak
	4676.3	30.48	32.74	5.43	37.06	31.59	54	22.41	Average
	4949.7	41.4	33.2	5.6	37.06	43.14	74	30.86	Peak
	4949.7	30.64	33.2	5.6	37.06	32.38	54	21.62	Average
	5150	40.26	33.57	5.71	37.06	42.48	74	31.52	Peak
	5150	30.49	33.57	5.71	37.06	32.71	54	21.29	Average
	5350	52.79	33.93	5.78	37.05	55.45	74	18.55	Peak
	5350	42.8	33.93	5.78	37.05	45.46	54	8.54	Average
	5401.2	40.14	34.04	5.78	37.05	42.91	74	31.09	Peak
	5401.2	29.61	34.04	5.78	37.05	32.38	54	21.62	Average
	5442.8	41.19	34.09	5.8	37.05	44.03	74	29.97	Peak
	5442.8	31.83	34.09	5.8	37.05	34.67	54	19.33	Average
Vertical	4608.4	43.03	32.62	5.37	37.07	43.95	74	30.05	Peak
	4608.4	33.4	32.62	5.37	37.07	34.32	54	19.68	Average
	4954.7	41.79	33.23	5.6	37.06	43.56	74	30.44	Peak
	4954.7	31.58	33.23	5.6	37.06	33.35	54	20.65	Average
	5150	39.68	33.57	5.71	37.06	41.9	74	32.1	Peak
	5150	29.37	33.57	5.71	37.06	31.59	54	22.41	Average
	5350	43.2	33.93	5.78	37.05	45.86	74	28.14	Peak
	5350	33.52	33.93	5.78	37.05	36.18	54	17.82	Average
	5399	41.21	34.01	5.78	37.05	43.95	74	30.05	Peak
	5399	31.75	34.01	5.78	37.05	34.49	54	19.51	Average
	5454.9	40.65	34.12	5.8	37.05	43.52	74	30.48	Peak
	5454.9	30.57	34.12	5.8	37.05	33.44	54	20.56	Average

802.11a CH5500MHz&CH5700MHz

Polarization	Frequency (MHz)	Meter Reading dB (μV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Emission Level dB (μV/m)	Limits dB (μV/m)	Margin (dB)	Remark
Horizontal	5376.9	40.92	33.98	5.78	37.05	43.63	74	30.37	Peak
	5416.7	40.35	34.06	5.78	37.05	43.14	74	30.86	Peak
	5460	47.43	34.12	5.8	37.05	50.3	74	23.7	Peak
	5460	37.94	34.12	5.8	37.05	40.81	54	13.19	Average
	5470	53.37	34.15	5.8	37.05	56.27	74	17.73	Peak
	5470	41.54	34.15	5.8	37.05	44.44	54	9.56	Average
	5725	63	34.2	5.88	37.04	66.04	74	7.96	Peak
	5725	46.2	34.2	5.88	37.04	49.24	54	4.76	Average
	6668.5	41.89	34.79	6.12	37.02	45.78	74	28.22	Peak
	7250	40.09	36.15	6.26	37.01	45.49	74	28.51	Peak
	7250	30.14	36.15	6.26	37.01	35.54	54	18.46	Average
	7667.6	41.53	37.12	6.36	37	48.01	74	25.99	Peak
Vertical	5378.6	41.17	33.98	5.78	37.05	43.88	74	30.12	Peak
	5410.9	40.98	34.04	5.78	37.05	43.75	74	30.25	Peak
	5460	40.15	34.12	5.8	37.05	43.02	74	30.98	Peak
	5460	30.32	34.12	5.8	37.05	33.19	54	20.81	Average
	5470	44.59	34.15	5.8	37.05	47.49	74	26.51	Peak
	5470	35.76	34.15	5.8	37.05	38.66	54	15.34	Average
	5725	48.6	34.2	5.88	37.04	51.64	74	22.36	Peak
	5725	39.26	34.2	5.88	37.04	42.3	54	11.7	Average
	6327.3	42.15	34.39	6.05	37.03	45.56	74	28.44	Peak
	7250	41.93	36.15	6.26	37.01	47.33	74	26.67	Peak
	7250	31.7	36.15	6.26	37.01	37.1	54	16.9	Average
	7700.8	42.53	37.15	6.36	37	49.04	74	24.96	Peak

802.11a CH5745MHz&CH5825MHz

Polarization	Frequency (MHz)	Meter Reading dB (μV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Emission Level dB (μV/m)	Limits dB (μV/m)	Margin (dB)	Remark
Horizontal	5409.5	41.25	34.04	5.78	37.05	44.02	74	29.98	Peak
	5460.2	38.89	34.12	5.8	37.05	41.76	74	32.24	Peak
	5460.2	30.76	34.12	5.8	37.05	33.63	54	20.37	Average
	5583.3	41.1	34.2	5.83	37.04	44.09	74	29.91	Peak
	5650	39.42	34.2	5.85	37.04	42.43	74	31.57	Peak
	5650	30.64	34.2	5.85	37.04	33.65	54	20.35	Average
	5925	41.24	34.2	5.92	37.04	44.32	74	29.68	Peak
	5925	31.73	34.2	5.92	37.04	34.81	54	19.19	Average
	6370.7	41.61	34.42	6.05	37.03	45.05	74	28.95	Peak
	7250	40.78	36.15	6.26	37.01	46.18	74	27.82	Peak
	7250	30.61	36.15	6.26	37.01	36.01	54	17.99	Average
	7641.4	42.07	37.09	6.36	37	48.52	74	25.48	Peak
Vertical	5391.1	40.44	34.01	5.78	37.05	43.18	74	30.82	Peak
	5460	38.65	34.12	5.8	37.05	41.52	74	32.48	Peak
	5460	28.37	34.12	5.8	37.05	31.24	54	22.76	Average
	5573.3	40.88	34.2	5.83	37.04	43.87	74	30.13	Peak
	5650	39.59	34.2	5.85	37.04	42.6	74	31.4	Peak
	5650	29.76	34.2	5.85	37.04	32.77	54	21.23	Average
	5925	39.56	34.2	5.92	37.04	42.64	74	31.36	Peak
	5925	30.26	34.2	5.92	37.04	33.34	54	20.66	Average
	6814.9	42.56	35.08	6.17	37.02	46.79	74	27.21	Peak
	7250	41.1	36.15	6.26	37.01	46.5	74	27.5	Peak
	7250	31.31	36.15	6.26	37.01	36.71	54	17.29	Average
	7672.4	41.94	37.12	6.36	37	48.42	74	25.58	Peak

802.11n-HT20 CH5180MHz&CH5240MHz

Polarization	Frequency (MHz)	Meter Reading dB (μV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Emission Level dB (μV/m)	Limits dB (μV/m)	Margin (dB)	Remark
Horizontal	4626.7	42.28	32.64	5.37	37.07	43.22	74	30.78	Peak
	4626.7	31.43	32.64	5.37	37.07	32.37	54	21.63	Average
	4805.2	42.28	32.96	5.48	37.06	43.66	74	30.34	Peak
	4805.2	31.73	32.96	5.48	37.06	33.11	54	20.89	Average
	5150	51.58	33.57	5.71	37.06	53.8	74	20.2	Peak
	5150	44.16	33.57	5.71	37.06	46.38	54	7.62	Average
	5350	38.19	33.93	5.78	37.05	40.85	74	33.15	Peak
	5350	29.32	33.93	5.78	37.05	31.98	54	22.02	Average
	5393.8	40.42	34.01	5.78	37.05	43.16	74	30.84	Peak
	5393.8	29.64	34.01	5.78	37.05	32.38	54	21.62	Average
	5438.9	40.65	34.09	5.8	37.05	43.49	74	30.51	Peak
	5438.9	29.57	34.09	5.8	37.05	32.41	54	21.59	Average
Vertical	4619.7	42.76	32.62	5.37	37.07	43.68	74	30.32	Peak
	4619.7	31.58	32.62	5.37	37.07	32.5	54	21.5	Average
	4826.9	41.48	33.01	5.54	37.06	42.97	74	31.03	Peak
	4826.9	29.85	33.01	5.54	37.06	31.34	54	22.66	Average
	5150	42.23	33.57	5.71	37.06	44.45	74	29.55	Peak
	5150	34.43	33.57	5.71	37.06	36.65	54	17.35	Average
	5350	37.75	33.93	5.78	37.05	40.41	74	33.59	Peak
	5350	29.57	33.93	5.78	37.05	32.23	54	21.77	Average
	5408.6	39.7	34.04	5.78	37.05	42.47	74	31.53	Peak
	5408.6	30.47	34.04	5.78	37.05	33.24	54	20.76	Average
	5446.3	40.49	34.09	5.8	37.05	43.33	74	30.67	Peak
	5446.3	30.66	34.09	5.8	37.05	33.5	54	20.5	Average

802.11n-HT20 CH5260MHz&CH5320MHz

Polarization	Frequency (MHz)	Meter Reading dB (μV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Emission Level dB (μV/m)	Limits dB (μV/m)	Margin (dB)	Remark
Horizontal	4608.4	43.21	32.62	5.37	37.07	44.13	74	29.87	Peak
	4608.4	31.52	32.62	5.37	37.07	32.44	54	21.56	Average
	4803.4	43.74	32.96	5.48	37.06	45.12	74	28.88	Peak
	4803.4	32.57	32.96	5.48	37.06	33.95	54	20.05	Average
	5150	40.56	33.57	5.71	37.06	42.78	74	31.22	Peak
	5150	31.16	33.57	5.71	37.06	33.38	54	20.62	Average
	5350	44.7	33.93	5.78	37.05	47.36	74	26.64	Peak
	5350	36.57	33.93	5.78	37.05	39.23	54	14.77	Average
	5386.4	40.57	34.01	5.78	37.05	43.31	74	30.69	Peak
	5386.4	30.26	34.01	5.78	37.05	33	54	21	Average
	5444.8	40.74	34.09	5.8	37.05	43.58	74	30.42	Peak
	5444.8	29.48	34.09	5.8	37.05	32.32	54	21.68	Average
Vertical	4676.3	42.8	32.74	5.43	37.06	43.91	74	30.09	Peak
	4676.3	31.64	32.74	5.43	37.06	32.75	54	21.25	Average
	4894.7	42.05	33.11	5.6	37.06	43.7	74	30.3	Peak
	4894.7	30.2	33.11	5.6	37.06	31.85	54	22.15	Average
	5150	39.88	33.57	5.71	37.06	42.1	74	31.9	Peak
	5150	30.69	33.57	5.71	37.06	32.91	54	21.09	Average
	5350	39.51	33.93	5.78	37.05	42.17	74	31.83	Peak
	5350	30.51	33.93	5.78	37.05	33.17	54	20.83	Average
	5408.8	41.57	34.04	5.78	37.05	44.34	74	29.66	Peak
	5408.8	30.46	34.04	5.78	37.05	33.23	54	20.77	Average
	5439.7	40.63	34.09	5.8	37.05	43.47	74	30.53	Peak
	5439.7	30.27	34.09	5.8	37.05	33.11	54	20.89	Average

802.11n-HT20 CH5500MHz&CH5700MHz

Polarization	Frequency (MHz)	Meter Reading dB (μV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Emission Level dB (μV/m)	Limits dB (μV/m)	Margin (dB)	Remark
Horizontal	5370.7	41.25	33.98	5.78	37.05	43.96	74	30.04	Peak
	5417.5	40.06	34.06	5.78	37.05	42.85	74	31.15	Peak
	5460	45.02	34.12	5.8	37.05	47.89	74	26.11	Peak
	5460	34.35	34.12	5.8	37.05	37.22	54	16.78	Average
	5470	47.52	34.15	5.8	37.05	50.42	74	23.58	Peak
	5470	38.65	34.15	5.8	37.05	41.55	54	12.45	Average
	5725	54.89	34.2	5.88	37.04	57.93	74	16.07	Peak
	5725	46.39	34.2	5.88	37.04	49.43	54	4.57	Average
	6460.6	40.86	34.47	6.07	37.02	44.38	74	29.62	Peak
	7250	39.89	36.15	6.26	37.01	45.29	74	28.71	Peak
	7250	30.69	36.15	6.26	37.01	36.09	54	17.91	Average
	7651.6	41.96	37.09	6.36	37	48.41	74	25.59	Peak
Vertical	5379.9	40.25	33.98	5.78	37.05	42.96	74	31.04	Peak
	5422.1	39.61	34.06	5.78	37.05	42.4	74	31.6	Peak
	5460	38.33	34.12	5.8	37.05	41.2	74	32.8	Peak
	5460	30.14	34.12	5.8	37.05	33.01	54	20.99	Average
	5470	42.53	34.15	5.8	37.05	45.43	74	28.57	Peak
	5470	33.36	34.15	5.8	37.05	36.26	54	17.74	Average
	5725	47.17	34.2	5.88	37.04	50.21	74	23.79	Peak
	5725	36.31	34.2	5.88	37.04	39.35	54	14.65	Average
	6462.5	41.17	34.48	6.07	37.02	44.7	74	29.3	Peak
	7250	40.66	36.15	6.26	37.01	46.06	74	27.94	Peak
	7250	30.57	36.15	6.26	37.01	35.97	54	18.03	Average
	7650.6	42.07	37.09	6.36	37	48.52	74	25.48	Peak

802.11n-HT20 CH5745MHz&CH5825MHz

Polarization	Frequency (MHz)	Meter Reading dB (μV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Emission Level dB (μV/m)	Limits dB (μV/m)	Margin (dB)	Remark
Horizontal	5397.3	40.13	34.01	5.78	37.05	42.87	74	31.13	Peak
	5460	40.41	34.12	5.8	37.05	43.28	74	30.72	Peak
	5460	29.65	34.12	5.8	37.05	32.52	54	21.48	Average
	5577.8	41.74	34.2	5.83	37.04	44.73	74	29.27	Peak
	5650	39.19	34.2	5.85	37.04	42.2	74	31.8	Peak
	5650	30.32	34.2	5.85	37.04	33.33	54	20.67	Average
	5920	41.34	34.2	5.92	37.04	44.42	74	29.58	Peak
	5920	31.64	34.2	5.92	37.04	34.72	54	19.28	Average
	6580	40.77	34.64	6.09	37.02	44.48	74	29.52	Peak
	7250	40.91	36.15	6.26	37.01	46.31	74	27.69	Peak
	7250	30.8	36.15	6.26	37.01	36.2	54	17.8	Average
	7574.5	42.76	37.01	6.33	37	49.1	74	24.9	Peak
Vertical	5397.3	40.13	34.01	5.78	37.05	42.87	74	31.13	Peak
	5460	40.41	34.12	5.8	37.05	43.28	74	30.72	Peak
	5460	29.65	34.12	5.8	37.05	32.52	54	21.48	Average
	5577.8	41.74	34.2	5.83	37.04	44.73	74	29.27	Peak
	5650	39.19	34.2	5.85	37.04	42.2	74	31.8	Peak
	5650	30.32	34.2	5.85	37.04	33.33	54	20.67	Average
	5925	40.06	34.2	5.92	37.04	43.14	74	30.86	Peak
	5925	31.31	34.2	5.92	37.04	34.39	54	19.61	Average
	6758.1	41.68	34.97	6.14	37.02	45.77	74	28.23	Peak
	7250	40.94	36.15	6.26	37.01	46.34	74	27.66	Peak
	7250	31.8	36.15	6.26	37.01	37.2	54	16.8	Average
	7596.3	41.64	37.04	6.33	37	48.01	74	25.99	Peak

802.11n-HT40 CH5190MHz&CH5230MHz

Polarization	Frequency (MHz)	Meter Reading dB (μV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Emission Level dB (μV/m)	Limits dB (μV/m)	Margin (dB)	Remark
Horizontal	4628.2	42.26	32.64	5.37	37.06	43.21	74	30.79	Peak
	4628.2	31.42	32.64	5.37	37.06	32.37	54	21.63	Average
	4800.2	42.29	32.96	5.48	37.06	43.67	74	30.33	Peak
	4800.2	32.53	32.96	5.48	37.06	33.91	54	20.09	Average
	5150	52.56	33.57	5.71	37.06	54.78	74	19.22	Peak
	5150	44.26	33.57	5.71	37.06	46.48	54	7.52	Average
	5350	37.63	33.93	5.78	37.05	40.29	74	33.71	Peak
	5350	30.46	33.93	5.78	37.05	33.12	54	20.88	Average
	5406.2	41.48	34.04	5.78	37.05	44.25	74	29.75	Peak
	5406.2	30.25	34.04	5.78	37.05	33.02	54	20.98	Average
	5444.9	41.07	34.09	5.8	37.05	43.91	74	30.09	Peak
	5444.9	30.11	34.09	5.8	37.05	32.95	54	21.05	Average
Vertical	4627.8	42.19	32.64	5.37	37.06	43.14	74	30.86	Peak
	4627.8	31.61	32.64	5.37	37.06	32.56	54	21.44	Average
	4825.9	40.25	33.01	5.54	37.06	41.74	74	32.26	Peak
	4825.9	30.32	33.01	5.54	37.06	31.81	54	22.19	Average
	5150	45.48	33.57	5.71	37.06	47.7	74	26.3	Peak
	5150	35.65	33.57	5.71	37.06	37.87	54	16.13	Average
	5350	38.11	33.93	5.78	37.05	40.77	74	33.23	Peak
	5350	30.31	33.93	5.78	37.05	32.97	54	21.03	Average
	5380.6	41.73	33.98	5.78	37.05	44.44	74	29.56	Peak
	5380.6	30.48	33.98	5.78	37.05	33.19	54	20.81	Average
	5429.5	41.45	34.06	5.8	37.05	44.26	74	29.74	Peak
	5429.5	30.65	34.06	5.8	37.05	33.46	54	20.54	Average

802.11n-HT40 CH5270MHz&CH5310MHz

Polarization	Frequency (MHz)	Meter Reading dB (μV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Emission Level dB (μV/m)	Limits dB (μV/m)	Margin (dB)	Remark
Horizontal	4654.4	42.8	32.69	5.37	37.06	43.8	74	30.2	Peak
	4654.4	31.57	32.69	5.37	37.06	32.57	54	21.43	Average
	4887.2	41.23	33.11	5.6	37.06	42.88	74	31.12	Peak
	4887.2	30.52	33.11	5.6	37.06	32.17	54	21.83	Average
	5150	41.31	33.57	5.71	37.06	43.53	74	30.47	Peak
	5150	31.34	33.57	5.71	37.06	33.56	54	20.44	Average
	5350	57.04	33.93	5.78	37.05	59.7	74	14.3	Peak
	5350	43.3	33.93	5.78	37.05	45.96	54	8.04	Average
	5405.7	40.66	34.04	5.78	37.05	43.43	74	30.57	Peak
	5405.7	31.36	34.04	5.78	37.05	34.13	54	19.87	Average
	5448.8	41.1	34.12	5.8	37.05	43.97	74	30.03	Peak
	5448.8	30.41	34.12	5.8	37.05	33.28	54	20.72	Average
Vertical	4676.8	42.46	32.74	5.43	37.06	43.57	74	30.43	Peak
	4676.8	32.24	32.74	5.43	37.06	33.35	54	20.65	Average
	4934.4	41.43	33.18	5.6	37.06	43.15	74	30.85	Peak
	4934.4	30.64	33.18	5.6	37.06	32.36	54	21.64	Average
	5150	41.1	33.57	5.71	37.06	43.32	74	30.68	Peak
	5150	31.21	33.57	5.71	37.06	33.43	54	20.57	Average
	5350	43.69	33.93	5.78	37.05	46.35	74	27.65	Peak
	5350	36.47	33.93	5.78	37.05	39.13	54	14.87	Average
	5393.2	40.9	34.01	5.78	37.05	43.64	74	30.36	Peak
	5393.2	30.79	34.01	5.78	37.05	33.53	54	20.47	Average
	5441.5	40.88	34.09	5.8	37.05	43.72	74	30.28	Peak
	5441.5	30.4	34.09	5.8	37.05	33.24	54	20.76	Average

802.11n-HT40 CH5510MHz&CH5670MHz

Polarization	Frequency (MHz)	Meter Reading dB (μV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Emission Level dB (μV/m)	Limits dB (μV/m)	Margin (dB)	Remark
Horizontal	5367.5	40.84	33.95	5.78	37.05	43.52	74	30.48	Peak
	5429.2	43.61	34.06	5.8	37.05	46.42	74	27.58	Peak
	5460	51.19	34.12	5.8	37.05	54.06	74	19.94	Peak
	5460	40.32	34.12	5.8	37.05	43.19	54	10.81	Average
	5470	52.89	34.15	5.8	37.05	55.79	74	18.21	Peak
	5470	46.59	34.15	5.8	37.05	49.49	54	4.51	Average
	5725	48.46	34.2	5.88	37.04	51.5	74	22.5	Peak
	5725	39.24	34.2	5.88	37.04	42.28	54	11.72	Average
	6437.5	42.01	34.46	6.07	37.02	45.52	74	28.48	Peak
	7250	40.51	36.15	6.26	37.01	45.91	74	28.09	Peak
	7250	31.46	36.15	6.26	37.01	36.86	54	17.14	Average
	7629.4	42.67	37.06	6.33	37	49.06	74	24.94	Peak
Vertical	5368.1	41.07	33.95	5.78	37.05	43.75	74	30.25	Peak
	5413.5	41.25	34.04	5.78	37.05	44.02	74	29.98	Peak
	5460	44.55	34.12	5.8	37.05	47.42	74	26.58	Peak
	5460	35.36	34.12	5.8	37.05	38.23	54	15.77	Average
	5470	49.21	34.15	5.8	37.05	52.11	74	21.89	Peak
	5470	40.62	34.15	5.8	37.05	43.52	54	10.48	Average
	5725	40.64	34.2	5.88	37.04	43.68	74	30.32	Peak
	5725	31.46	34.2	5.88	37.04	34.5	54	19.5	Average
	6332.1	42.6	34.4	6.05	37.03	46.02	74	27.98	Peak
	7250	41.9	36.15	6.26	37.01	47.3	74	26.7	Peak
	7250	31.69	36.15	6.26	37.01	37.09	54	16.91	Average
	7663.1	42.52	37.12	6.36	37	49	74	25	Peak

802.11n-HT40 CH5755MHz&CH5795MHz

Polarization	Frequency (MHz)	Meter Reading dB (μV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Emission Level dB (μV/m)	Limits dB (μV/m)	Margin (dB)	Remark
Horizontal	5374.9	39.77	33.98	5.78	37.05	42.48	74	31.52	Peak
	5460	39.8	34.12	5.8	37.05	42.67	74	31.33	Peak
	5460	29.59	34.12	5.8	37.05	32.46	54	21.54	Average
	5574.3	41.51	34.2	5.83	37.04	44.5	74	29.5	Peak
	5650	39.23	34.2	5.85	37.04	42.24	74	31.76	Peak
	5650	32.62	34.2	5.85	37.04	35.63	54	18.37	Average
	5920	40.3	34.2	5.92	37.04	43.38	74	30.62	Peak
	5920	31.44	34.2	5.92	37.04	34.52	54	19.48	Average
	6693.4	42.01	34.86	6.14	37.02	45.99	74	28.01	Peak
	7250	40.47	36.15	6.26	37.01	45.87	74	28.13	Peak
	7250	30.55	36.15	6.26	37.01	35.95	54	18.05	Average
	7585.6	42.77	37.01	6.33	37	49.11	74	24.89	Peak
Vertical	5400.5	40.75	34.01	5.78	37.05	43.49	74	30.51	Peak
	5460.1	41.19	34.12	5.8	37.05	44.06	74	29.94	Peak
	5460.1	30.52	34.12	5.8	37.05	33.39	54	20.61	Average
	5534.9	43.43	34.2	5.83	37.05	46.41	74	27.59	Peak
	5650	39.86	34.2	5.85	37.04	42.87	74	31.13	Peak
	5650	30.69	34.2	5.85	37.04	33.7	54	20.3	Average
	5920	40.76	34.2	5.92	37.04	43.84	74	30.16	Peak
	5920	31.58	34.2	5.92	37.04	34.66	54	19.34	Average
	6799.2	41.44	35.04	6.17	37.02	45.63	74	28.37	Peak
	7249.8	41.65	36.15	6.26	37.01	47.05	74	26.95	Peak
	7249.8	31.37	36.15	6.26	37.01	36.77	54	17.23	Average
	7648.8	42.56	37.09	6.36	37	49.01	74	24.99	Peak

802.11ac-VHT80 CH5210MHz

Polarization	Frequency (MHz)	Meter Reading dB (μV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Emission Level dB (μV/m)	Limits dB (μV/m)	Margin (dB)	Remark
Horizontal	4621.6	42.7	32.64	5.37	37.07	43.64	74	30.36	Peak
	4621.6	31.47	32.64	5.37	37.07	32.41	54	21.59	Average
	4894.4	41.44	33.11	5.6	37.06	43.09	74	30.91	Peak
	4894.4	30.74	33.11	5.6	37.06	32.39	54	21.61	Average
	5150	55.25	33.57	5.71	37.06	57.47	74	16.53	Peak
	5150	47.53	33.57	5.71	37.06	49.75	54	4.25	Average
	5350	39.81	33.93	5.78	37.05	42.47	74	31.53	Peak
	5350	32.68	33.93	5.78	37.05	35.34	54	18.66	Average
	5399.1	41.57	34.01	5.78	37.05	44.31	74	29.69	Peak
	5399.1	30.26	34.01	5.78	37.05	33	54	21	Average
	5442.3	41.06	34.09	5.8	37.05	43.9	74	30.1	Peak
	5442.3	30.41	34.09	5.8	37.05	33.25	54	20.75	Average
Vertical	4624	42.7	32.64	5.37	37.07	43.64	74	30.36	Peak
	4624	32.27	32.64	5.37	37.07	33.21	54	20.79	Average
	4945.8	41.8	33.2	5.6	37.06	43.54	74	30.46	Peak
	4945.8	31.48	33.2	5.6	37.06	33.22	54	20.78	Average
	5150	46.7	33.57	5.71	37.06	48.92	74	25.08	Peak
	5150	40.47	33.57	5.71	37.06	42.69	54	11.31	Average
	5350	39.35	33.93	5.78	37.05	42.01	74	31.99	Peak
	5350	30.53	33.93	5.78	37.05	33.19	54	20.81	Average
	5394.6	40.88	34.01	5.78	37.05	43.62	74	30.38	Peak
	5394.6	30.59	34.01	5.78	37.05	33.33	54	20.67	Average
	5446.4	40.83	34.09	5.8	37.05	43.67	74	30.33	Peak
	5446.4	30.49	34.09	5.8	37.05	33.33	54	20.67	Average

802.11ac-VHT80 CH5290MHz

Polarization	Frequency (MHz)	Meter Reading dB (μV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Emission Level dB (μV/m)	Limits dB (μV/m)	Margin (dB)	Remark
Horizontal	4642	43.73	32.67	5.37	37.06	44.71	74	29.29	Peak
	4642	31.66	32.67	5.37	37.06	32.64	54	21.36	Average
	4918.3	41.57	33.15	5.6	37.06	43.26	74	30.74	Peak
	4918.3	31.26	33.15	5.6	37.06	32.95	54	21.05	Average
	5150	41.51	33.57	5.71	37.06	43.73	74	30.27	Peak
	5150	33.66	33.57	5.71	37.06	35.88	54	18.12	Average
	5350	52.78	33.93	5.78	37.05	55.44	74	18.56	Peak
	5350	44.68	33.93	5.78	37.05	47.34	54	6.66	Average
	5382	46.88	33.98	5.78	37.05	49.59	74	24.41	Peak
	5382	35.79	33.98	5.78	37.05	38.5	54	15.5	Average
	5433.6	40.54	34.09	5.8	37.05	43.38	74	30.62	Peak
	5433.6	30.36	34.09	5.8	37.05	33.2	54	20.8	Average
Vertical	4682.3	42.62	32.74	5.43	37.06	43.73	74	30.27	Peak
	4682.3	31.45	32.74	5.43	37.06	32.56	54	21.44	Average
	4988.9	42.55	33.28	5.66	37.06	44.43	74	29.57	Peak
	4988.9	31.14	33.28	5.66	37.06	33.02	54	20.98	Average
	5150	40.14	33.57	5.71	37.06	42.36	74	31.64	Peak
	5150	31.32	33.57	5.71	37.06	33.54	54	20.46	Average
	5350	46.3	33.93	5.78	37.05	48.96	74	25.04	Peak
	5350	38.53	33.93	5.78	37.05	41.19	54	12.81	Average
	5402.1	40.53	34.04	5.78	37.05	43.3	74	30.7	Peak
	5402.1	30.65	34.04	5.78	37.05	33.42	54	20.58	Average
	5445.3	40.84	34.09	5.8	37.05	43.68	74	30.32	Peak
	5445.3	30.58	34.09	5.8	37.05	33.42	54	20.58	Average

802.11ac-VHT80 CH5530MHz&CH5610MHz

Polarization	Frequency (MHz)	Meter Reading dB (μV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Emission Level dB (μV/m)	Limits dB (μV/m)	Margin (dB)	Remark
Horizontal	5373.2	42.86	33.98	5.78	37.05	45.57	74	28.43	Peak
	5436	57.04	34.09	5.8	37.05	59.88	74	14.12	Peak
	5460	54.16	34.12	5.8	37.05	57.03	74	16.97	Peak
	5460	47.42	34.12	5.8	37.05	50.29	54	3.71	Average
	5470	56.03	34.15	5.8	37.05	58.93	74	15.07	Peak
	5470	48.81	34.15	5.8	37.05	51.71	54	2.29	Average
	5725	41.71	34.2	5.88	37.04	44.75	74	29.25	Peak
	5725	32.47	34.2	5.88	37.04	35.51	54	18.49	Average
	6349	42.08	34.4	6.05	37.03	45.5	74	28.5	Peak
	7250	41.69	36.15	6.26	37.01	47.09	74	26.91	Peak
	7250	31.37	36.15	6.26	37.01	36.77	54	17.23	Average
	7671.9	44.09	37.12	6.36	37	50.57	74	23.43	Peak
Vertical	5381.3	40.68	33.98	5.78	37.05	43.39	74	30.61	Peak
	5443.4	49.65	34.09	5.8	37.05	52.49	74	21.51	Peak
	5460	48.24	34.12	5.8	37.05	51.11	74	22.89	Peak
	5460	40.43	34.12	5.8	37.05	43.3	54	10.7	Average
	5470	51.92	34.15	5.8	37.05	54.82	74	19.18	Peak
	5470	44.59	34.15	5.8	37.05	47.49	54	6.51	Average
	5725	41.33	34.2	5.88	37.04	44.37	74	29.63	Peak
	5725	30.73	34.2	5.88	37.04	33.77	54	20.23	Average
	6716.4	41.46	34.9	6.14	37.02	45.48	74	28.52	Peak
	7250	40.05	36.15	6.26	37.01	45.45	74	28.55	Peak
	7250	31.31	36.15	6.26	37.01	36.71	54	17.29	Average
	7696.5	41.82	37.15	6.36	37	48.33	74	25.67	Peak

802.11ac-VHT80 CH5775MHz

Polarization	Frequency (MHz)	Meter Reading dB (μV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Emission Level dB (μV/m)	Limits dB (μV/m)	Margin (dB)	Remark
Horizontal	5400.8	40.68	34.04	5.78	37.05	43.45	74	30.55	Peak
	5460	39.11	34.12	5.8	37.05	41.98	74	32.02	Peak
	5460	30.52	34.12	5.8	37.05	33.39	54	20.61	Average
	5560	40.82	34.2	5.83	37.04	43.81	74	30.19	Peak
	5650	45.24	34.2	5.85	37.04	48.25	74	25.75	Peak
	5650	36.42	34.2	5.85	37.04	39.43	54	14.57	Average
	5920	41.77	34.2	5.92	37.04	44.85	74	29.15	Peak
	5920	32.69	34.2	5.92	37.04	35.77	54	18.23	Average
	6796.2	41.28	35.04	6.17	37.02	45.47	74	28.53	Peak
	7251.9	41.61	36.15	6.26	37.01	47.01	74	26.99	Peak
	7251.9	30.87	36.15	6.26	37.01	36.27	54	17.73	Average
	7673.1	41.78	37.12	6.36	37	48.26	74	25.74	Peak
Vertical	5399.4	42.56	34.01	5.78	37.05	45.3	74	28.7	Peak
	5460.2	39.4	34.12	5.8	37.05	42.27	74	31.73	Peak
	5460.2	30.35	34.12	5.8	37.05	33.22	54	20.78	Average
	5556.2	41.93	34.2	5.83	37.04	44.92	74	29.08	Peak
	5650	40.19	34.2	5.85	37.04	43.2	74	30.8	Peak
	5650	31.52	34.2	5.85	37.04	34.53	54	19.47	Average
	5920	40.74	34.2	5.92	37.04	43.82	74	30.18	Peak
	5920	31.58	34.2	5.92	37.04	34.66	54	19.34	Average
	6589.7	41.7	34.64	6.12	37.02	45.44	74	28.56	Peak
	7250	40.63	36.15	6.26	37.01	46.03	74	27.97	Peak
	7250	31.47	36.15	6.26	37.01	36.87	54	17.13	Average
	7646.7	42.22	37.09	6.36	37	48.67	74	25.33	Peak

TEST ENGINEER: Jarey

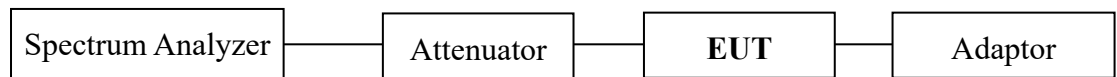
6 6 dB&99% BANDWIDTH MEASUREMENT

6.1 Test Equipment

The following test equipment was used during the Emission Bandwidth measurement:

Item	Type	Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Interval
1.	Spectrum Analyzer	Agilent	N9010A	MY52221182	2020.09.16	1 Year
2.	Coaxial Cable	WOKEN	SFL402-105F LEX	F02-150819-045	2021.03.08	1 Year
3.	20 dB Attenuator	Mini-Circuits	VAT-20+	001	2020.08.06	1 Year

6.2 Block Diagram of Test Setup



6.3 Specification Limits (§15.407(e))

Within the 5.725-5.85 GHz band, the minimum 6 dB bandwidth of U-NII devices shall be at least 500 kHz.

6.4 Operating Condition of EUT

The switch ON/OFF was used to enable the EUT to change the channel one by one.

6.5 Test Procedure

For 6 dB Bandwidth:

The following procedure shall be used for measuring this bandwidth:

- Set RBW = 100 kHz.
- Set the video bandwidth (VBW) $\geq 3 \times$ RBW.
- Detector = Peak.
- Trace mode = max hold.
- Sweep = auto couple.
- Allow the trace to stabilize.
- Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

The test procedure is defined in KDB789033 D02 (the clause II.C.2 Measurement Procedure “ Minimum Emission Bandwidth for the band 5.725–5.85 GHz” was used).

For 99% Bandwidth:

The following procedure shall be used for measuring (99%) power bandwidth:

- Set center frequency to the nominal EUT channel center frequency.
- Set span = 1.5 times to 5.0 times the OBW.
- Set RBW = 1% to 5% of the OBW.

4. Set $VBW \geq 3 \times RBW$.
5. Video averaging is not permitted. Where practical, a sample detection and single sweep mode shall be used. Otherwise, peak detection and max hold mode (until the trace stabilizes) shall be used.
6. Use the 99% power bandwidth function of the instrument (if available).
7. If the instrument does not have a 99% power bandwidth function, the trace data points are recovered and directly summed in power units. The recovered amplitude data points, beginning at the lowest frequency, are placed in a running sum until 0.5% of the total is reached; that frequency is recorded as the lower frequency. The process is repeated until 99.5% of the total is reached; that frequency is recorded as the upper frequency. The 99% occupied bandwidth is the difference between these two frequencies.

The test procedure is defined in KDB789033 D02 (the clause II.D Measurement Procedure “99% Occupied Bandwidth” was used).

6.6 Test Results

PASSED.

All the test results are attached in next pages.

(Test Date: 2020.12.11-12 Temperature: 23°C Humidity: 51 %)

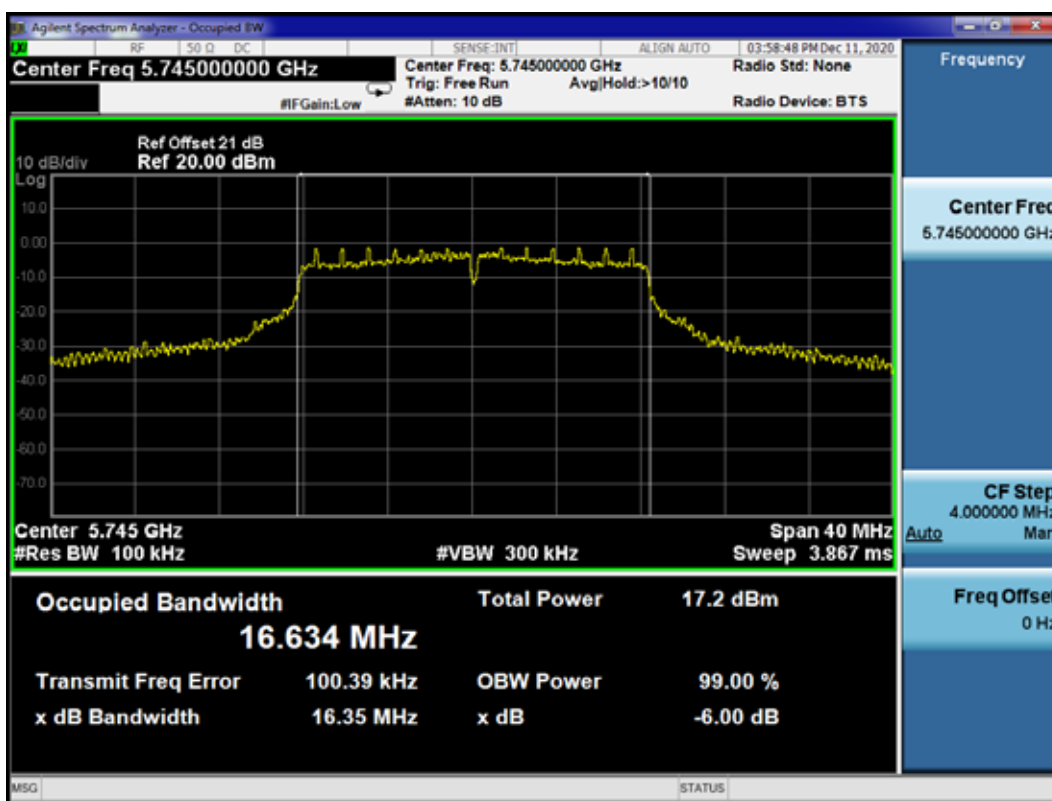
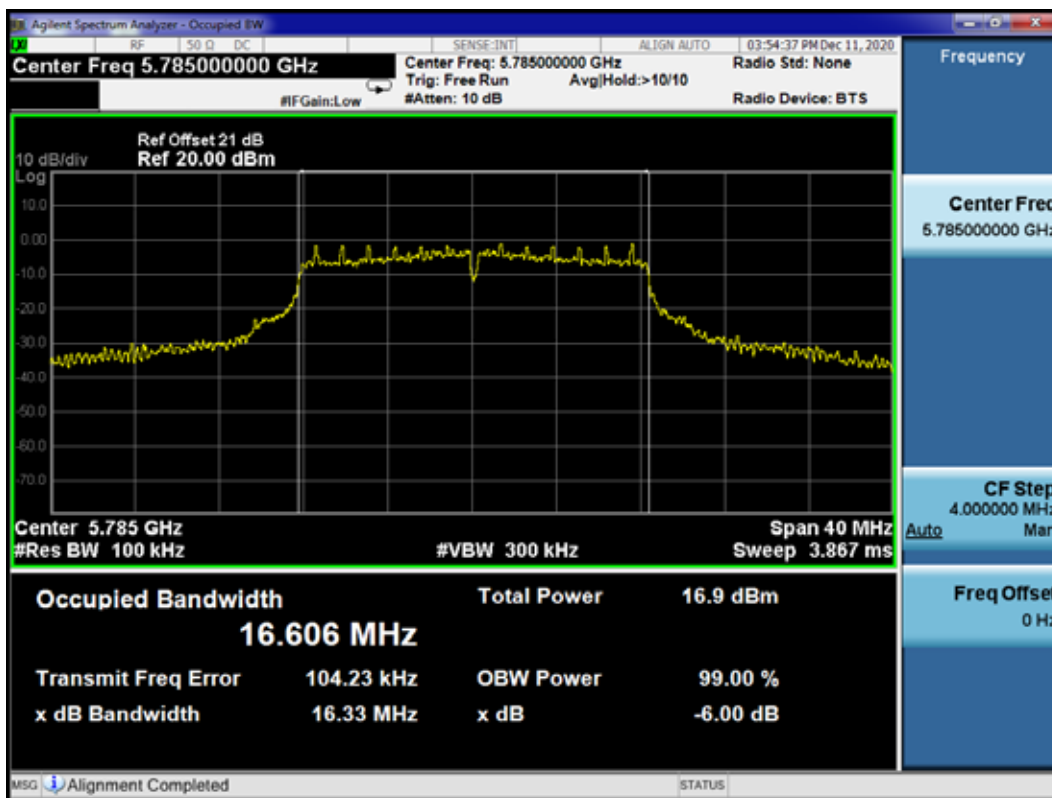
Modulation	Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Limit
802.11a	149	5745	16.35	500 kHz
	157	5785	16.33	500 kHz
	165	5825	16.33	500 kHz
802.11n-HT20	149	5745	17.57	500 kHz
	157	5785	17.06	500 kHz
	165	5825	17.23	500 kHz
802.11n-HT40	151	5755	35.58	500 kHz
	159	5795	35.61	500 kHz
802.11ac-VHT80	155	5775	75.55	500 kHz

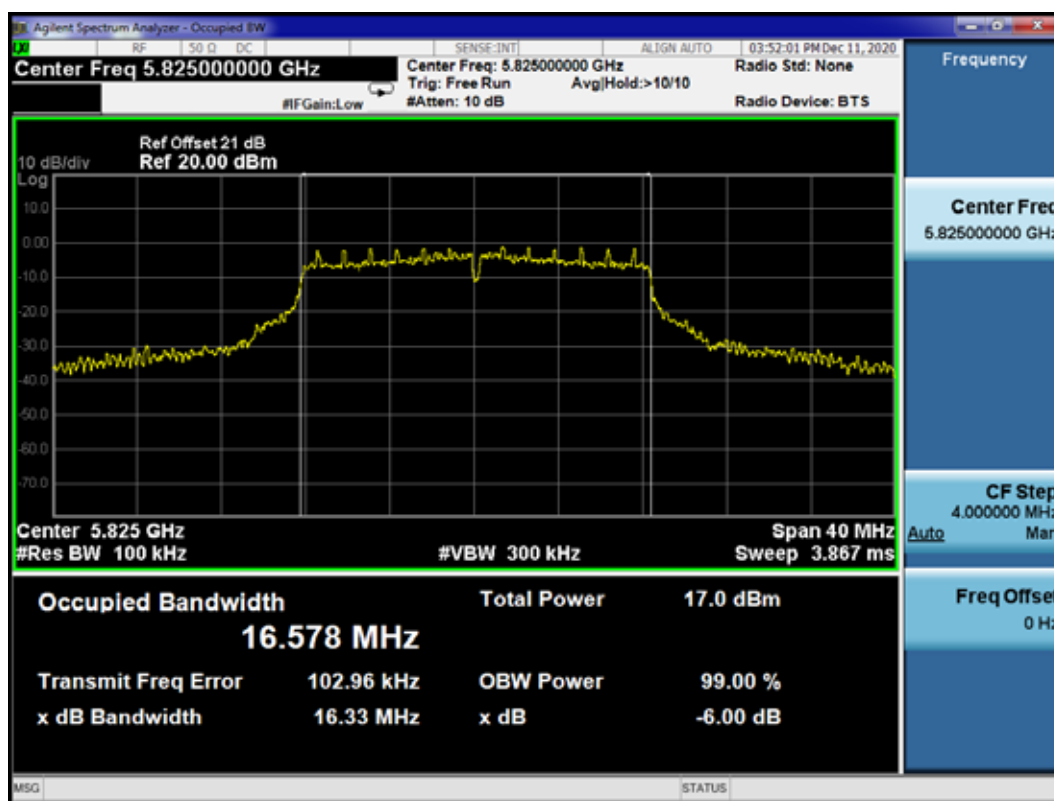
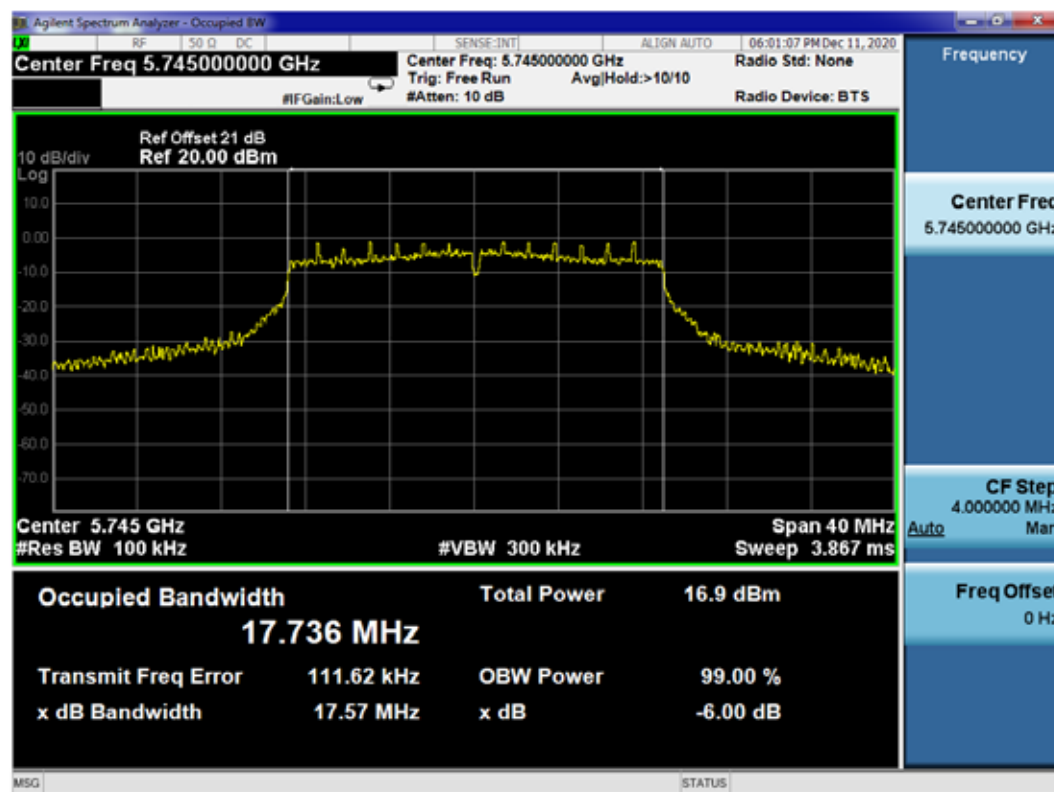
Modulation	Channel	Frequency (MHz)	99% Bandwidth (MHz)	Limit
802.11a	36	5180	18.092	N/A
	40	5200	18.117	N/A
	48	5240	18.235	N/A
	52	5260	17.833	N/A
	60	5300	17.966	N/A
	64	5320	17.74	N/A
	100	5500	17.442	N/A
	120	5600	17.769	N/A
	140	5700	17.608	N/A
	149	5745	17.21	N/A
	157	5785	17.246	N/A
	165	5825	17.159	N/A

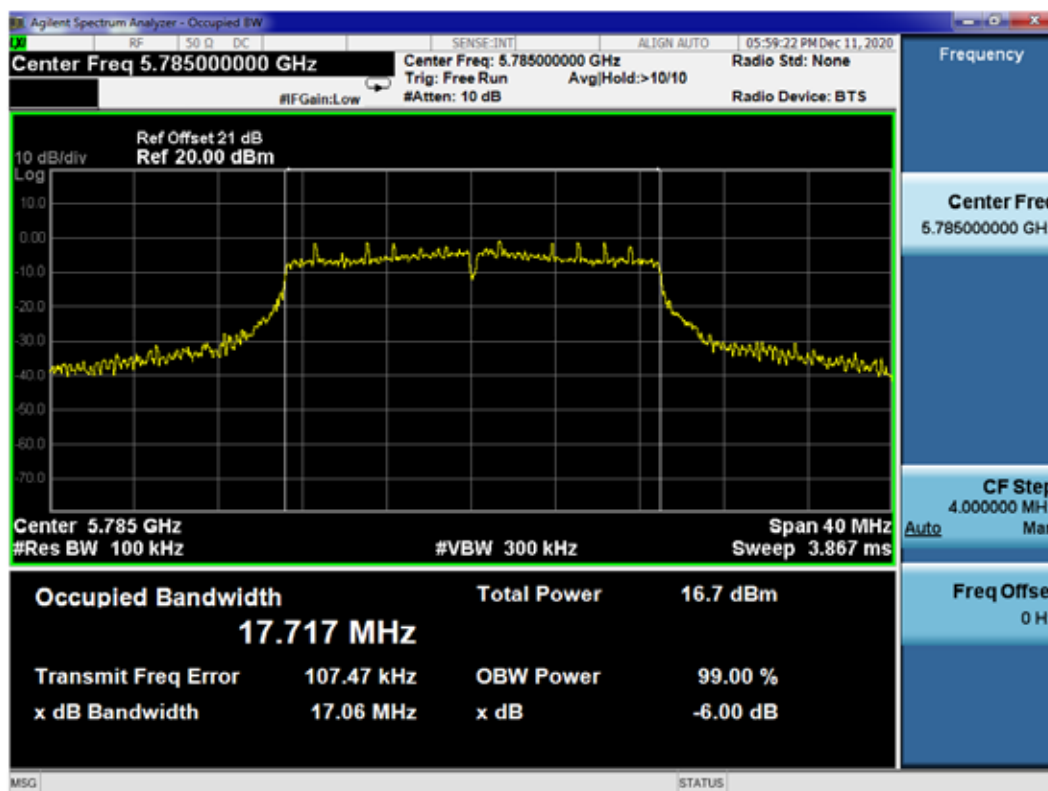
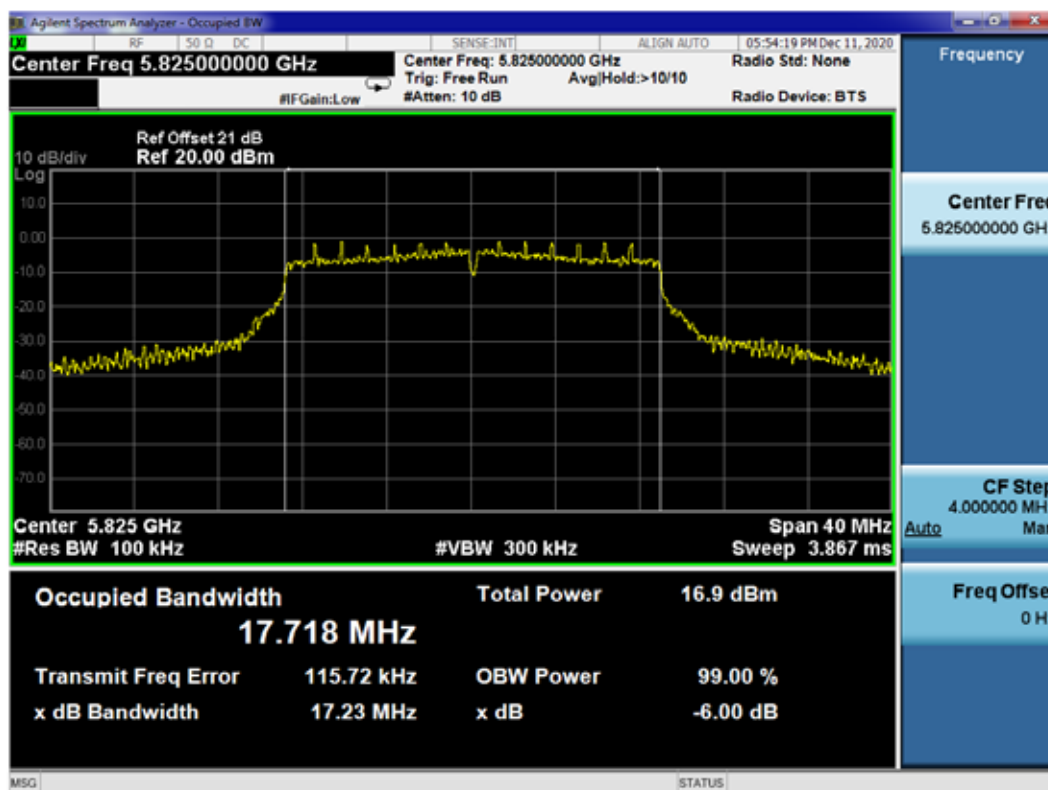
Modulation	Channel	Frequency (MHz)	99% Bandwidth (MHz)	Limit
802.11n-HT20	36	5180	18.774	N/A
	40	5200	18.498	N/A
	48	5240	18.777	N/A
	52	5260	18.607	N/A
	60	5300	18.661	N/A
	64	5320	18.587	N/A
	100	5500	18.333	N/A
	120	5600	18.392	N/A
	140	5700	18.375	N/A
	149	5745	18.41	N/A
	157	5785	18.218	N/A
	165	5825	18.16	N/A

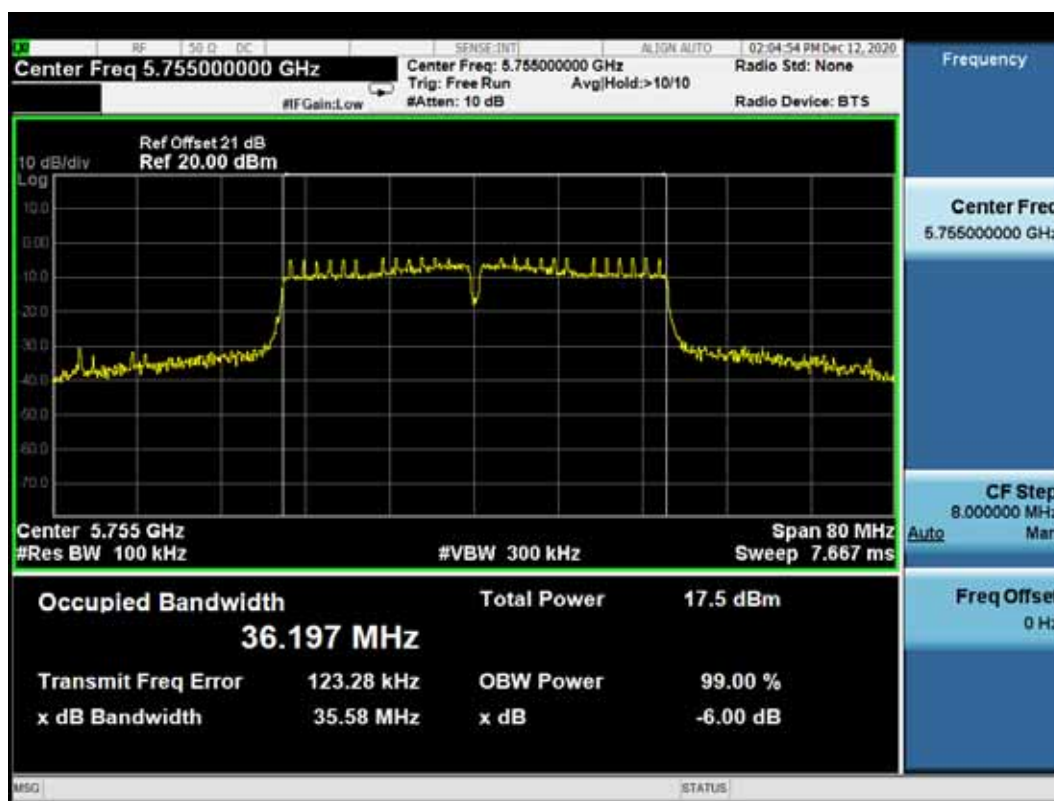
Modulation	Channel	Frequency (MHz)	99% Bandwidth (MHz)	Limit
802.11n-HT40	38	5190	37.217	N/A
	46	5230	37.151	N/A
	54	5270	37.053	N/A
	62	5310	37.079	N/A
	102	5510	36.804	N/A
	118	5590	37.011	N/A
	134	5670	37.089	N/A
	151	5755	36.877	N/A
	159	5795	37.008	N/A

Modulation	Channel	Frequency (MHz)	99% Bandwidth (MHz)	Limit
802.11ac-VHT80	42	5210	76.479	N/A
	58	5290	76.351	N/A
	106	5530	76.239	N/A
	122	5610	76.712	N/A
	155	5775	76.563	N/A

6 dB Bandwidth:**802.11a CH5745MHz****802.11a CH5785MHz**

6 dB Bandwidth:**802.11a CH5825MHz****802.11n-HT20 CH5745MHz**

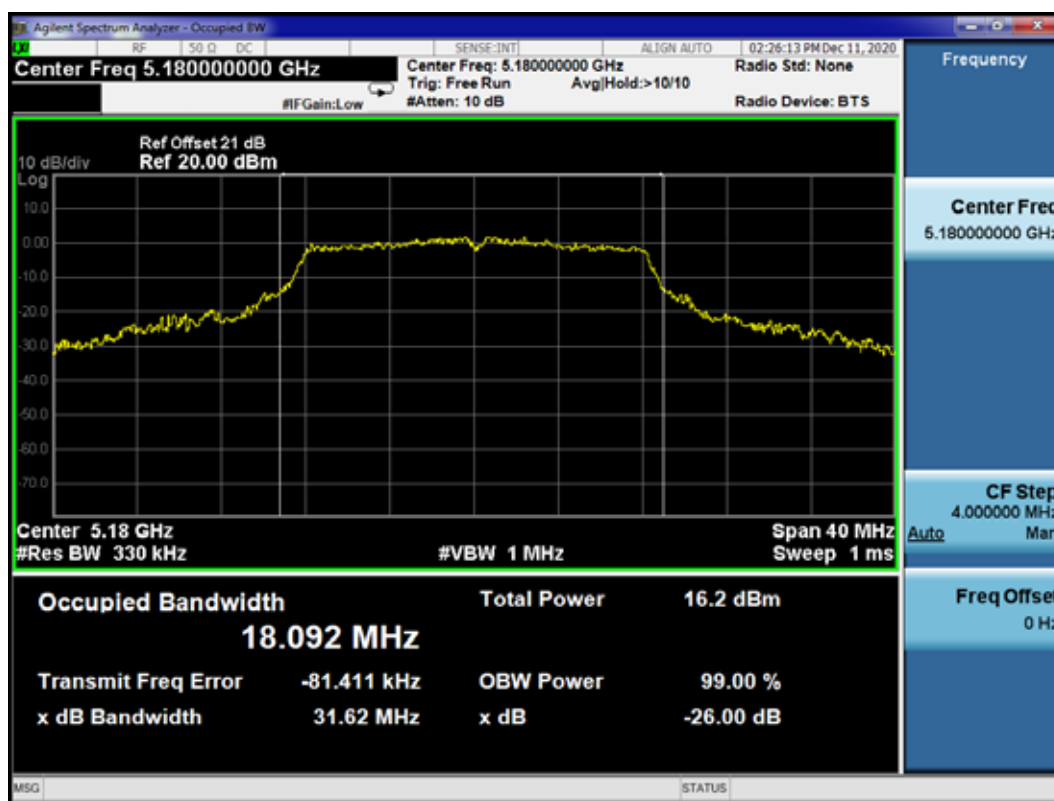
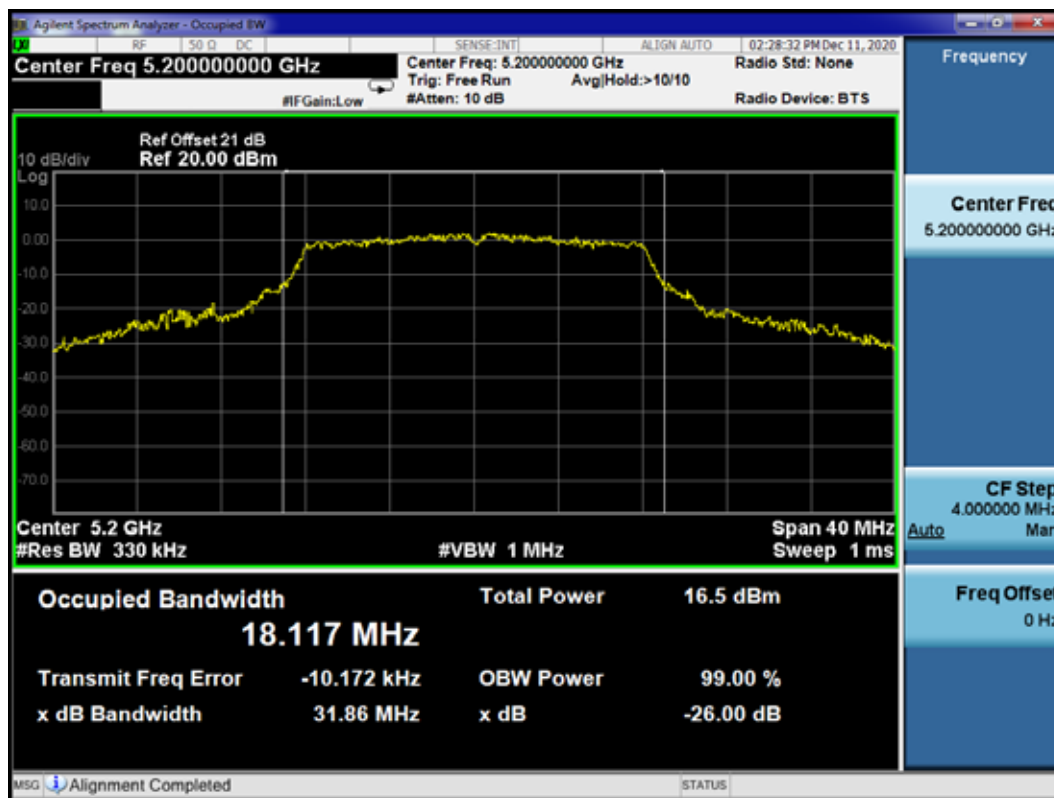
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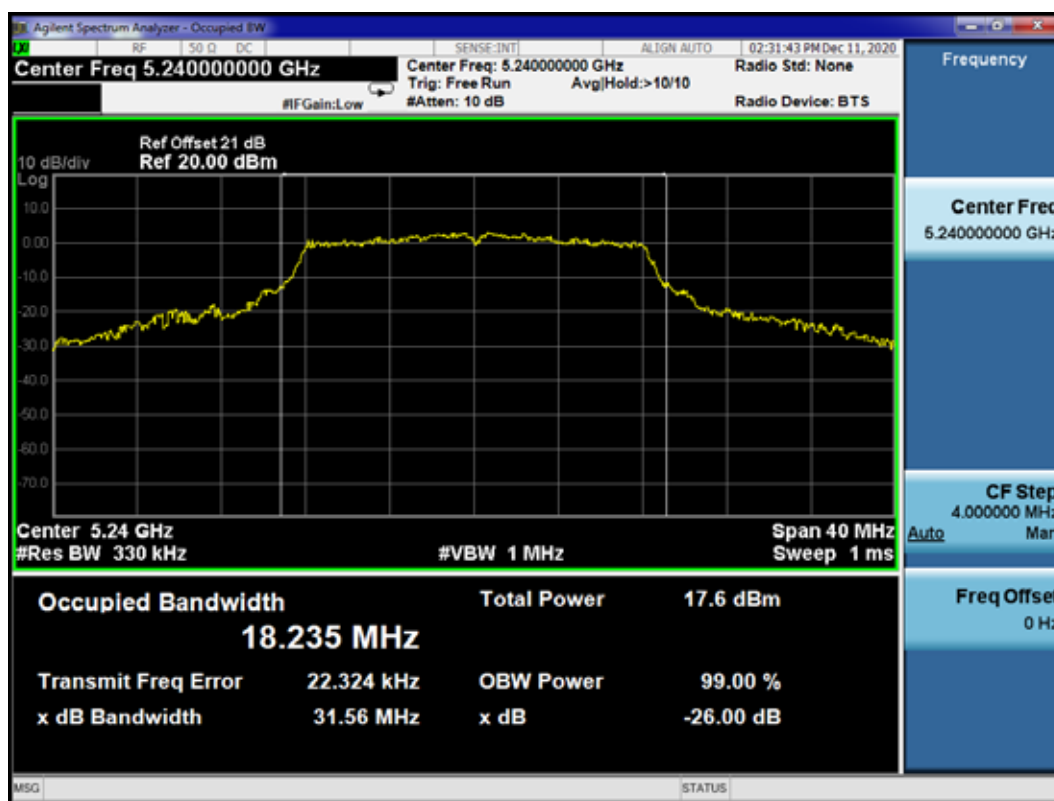
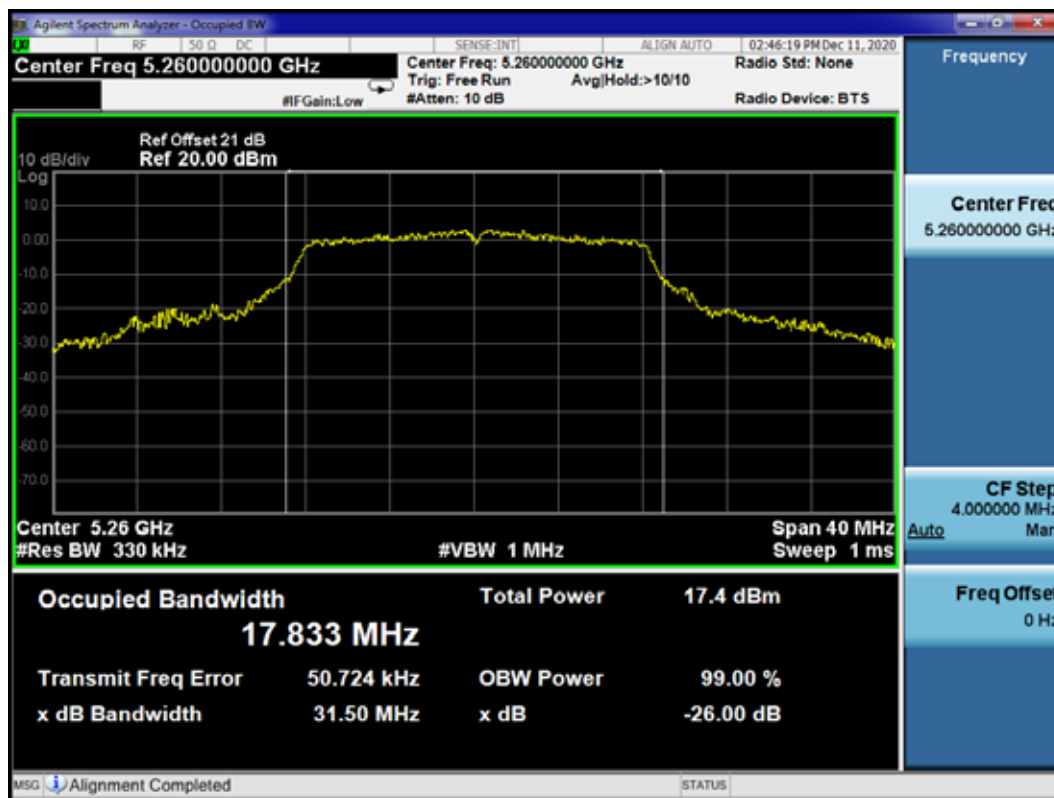
6 dB Bandwidth:**802.11n-HT40 CH5755MHz****802.11n-HT40 CH5795MHz**

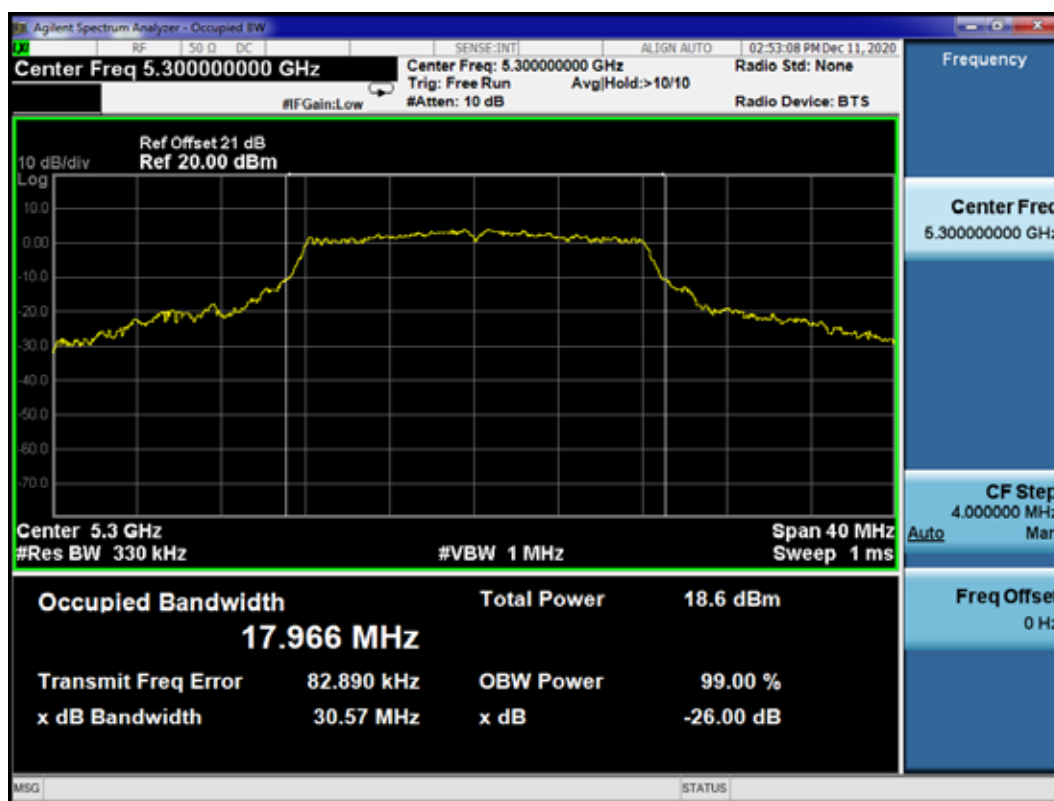
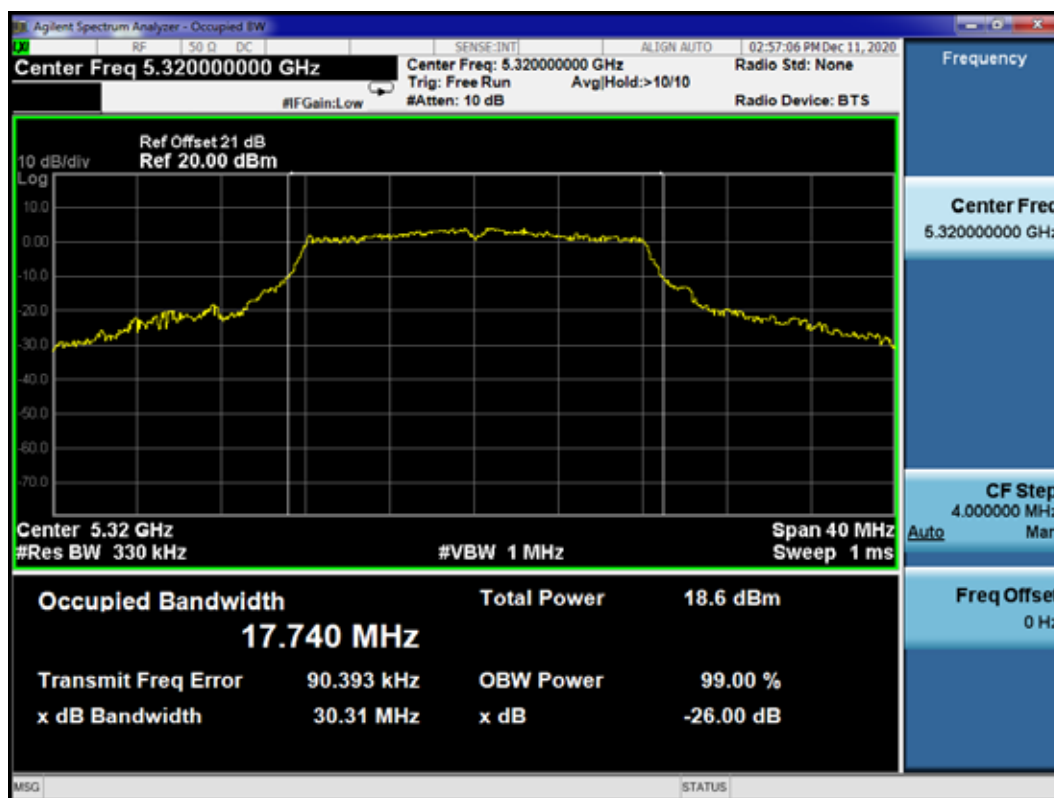
6 dB Bandwidth:

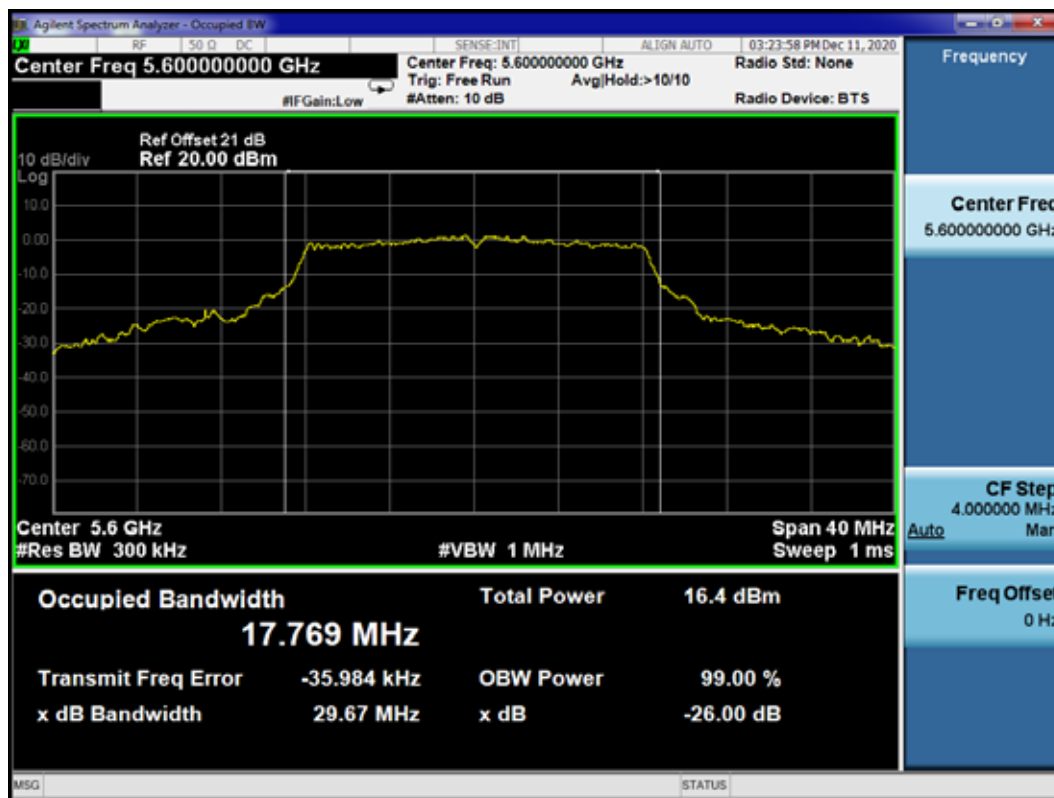
802.11ac-VHT80 CH5775MHz



99% Bandwidth:**802.11a CH5180MHz****802.11a CH5200MHz**

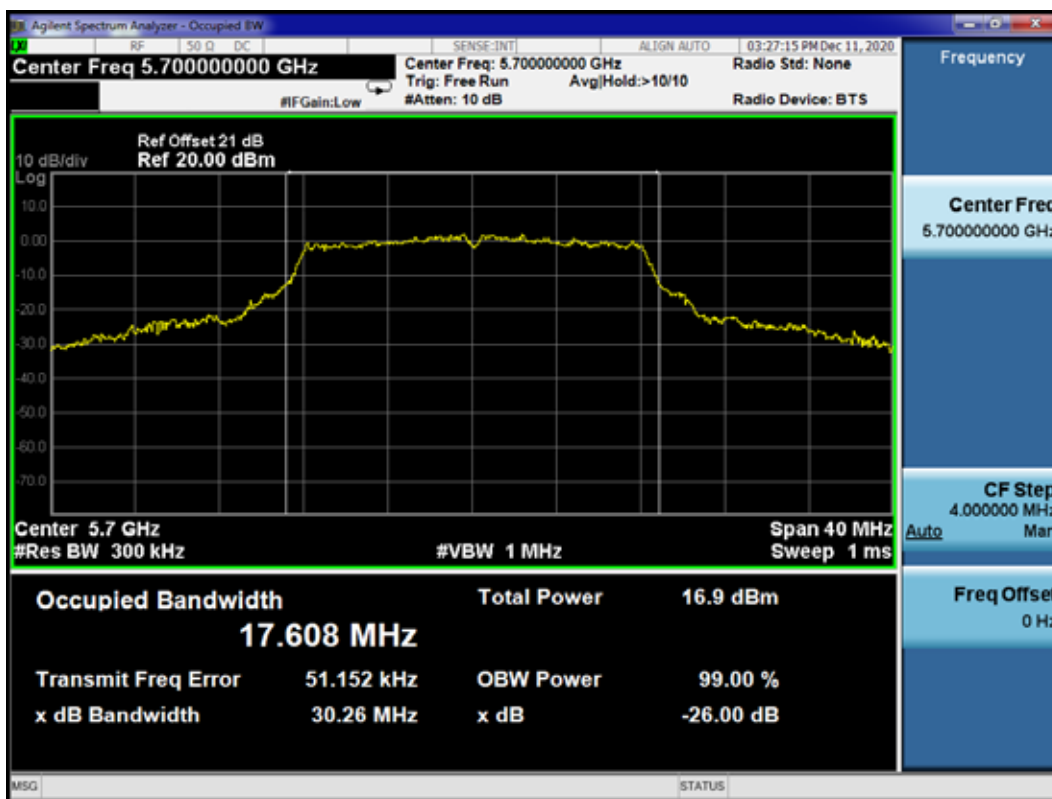
99% Bandwidth:**802.11a CH5240MHz****802.11a CH5260MHz**

99% Bandwidth:**802.11a CH5300MHz****802.11a CH5320MHz**

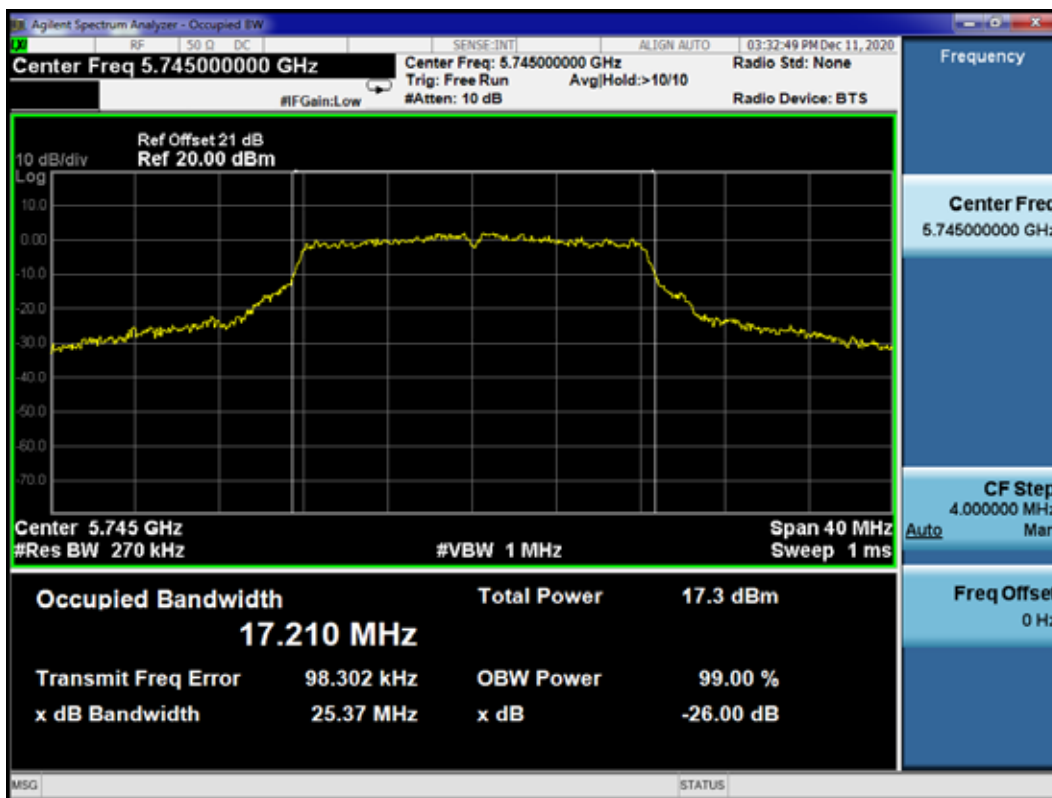
99% Bandwidth:**802.11a CH5500MHz****802.11a CH5600MHz**

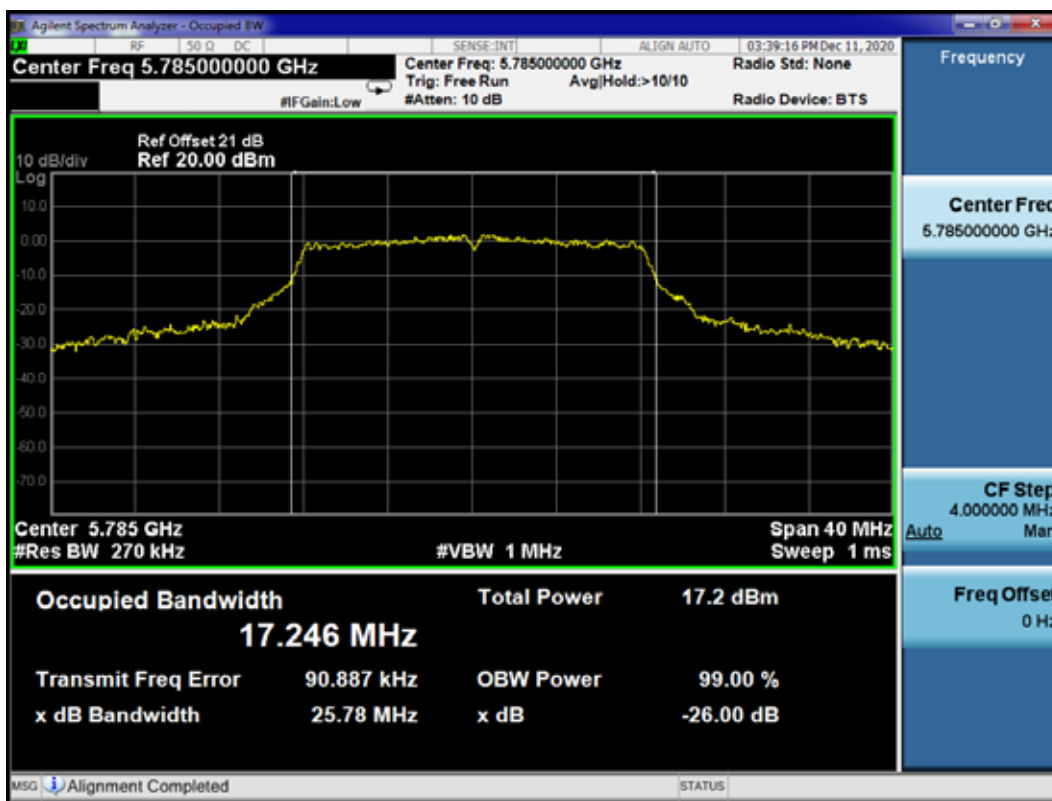
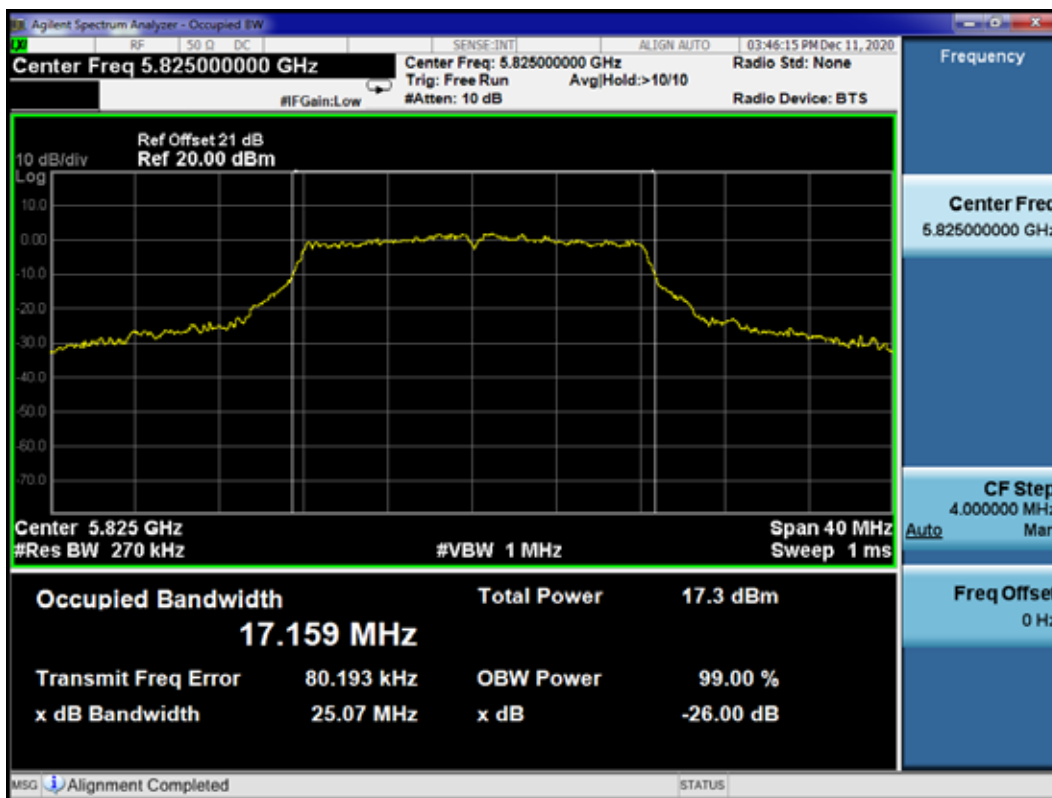
99% Bandwidth:

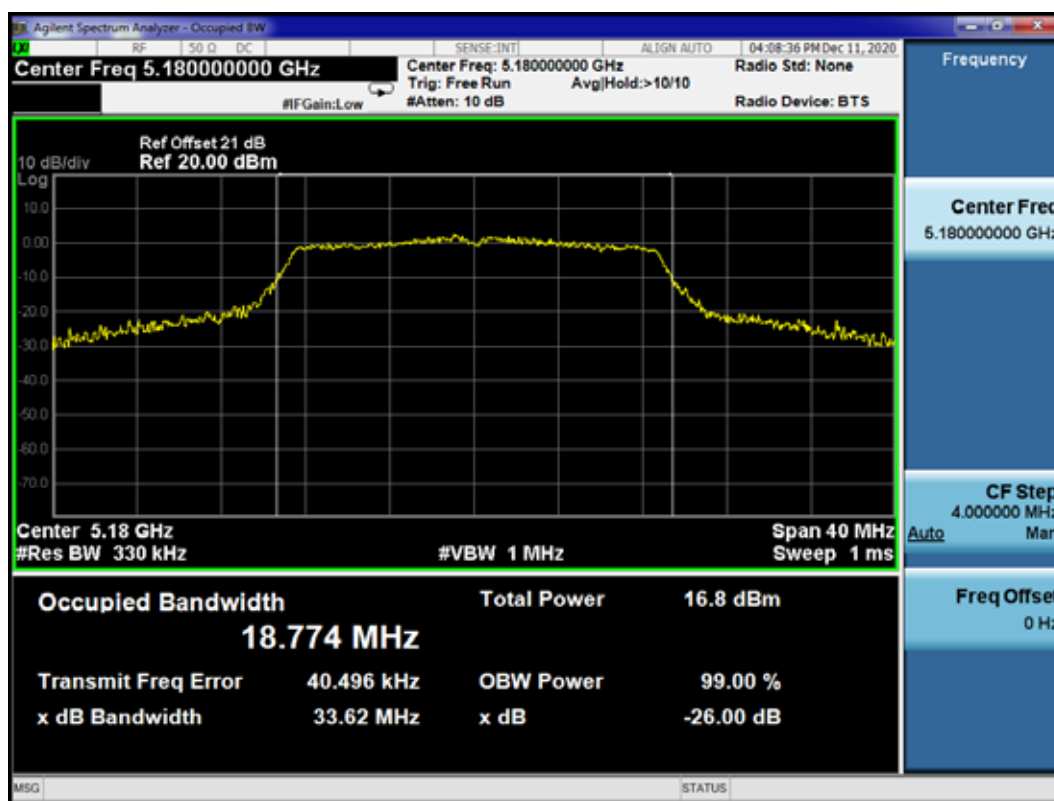
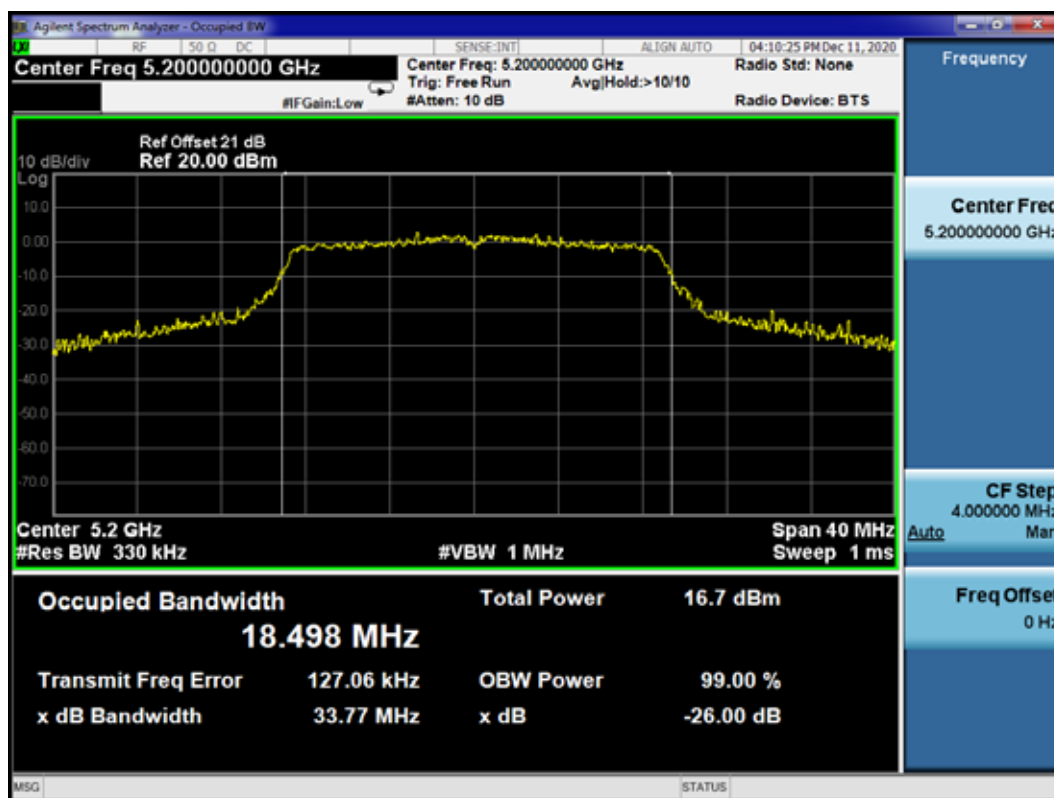
802.11a CH5700MHz



802.11a CH5745MHz

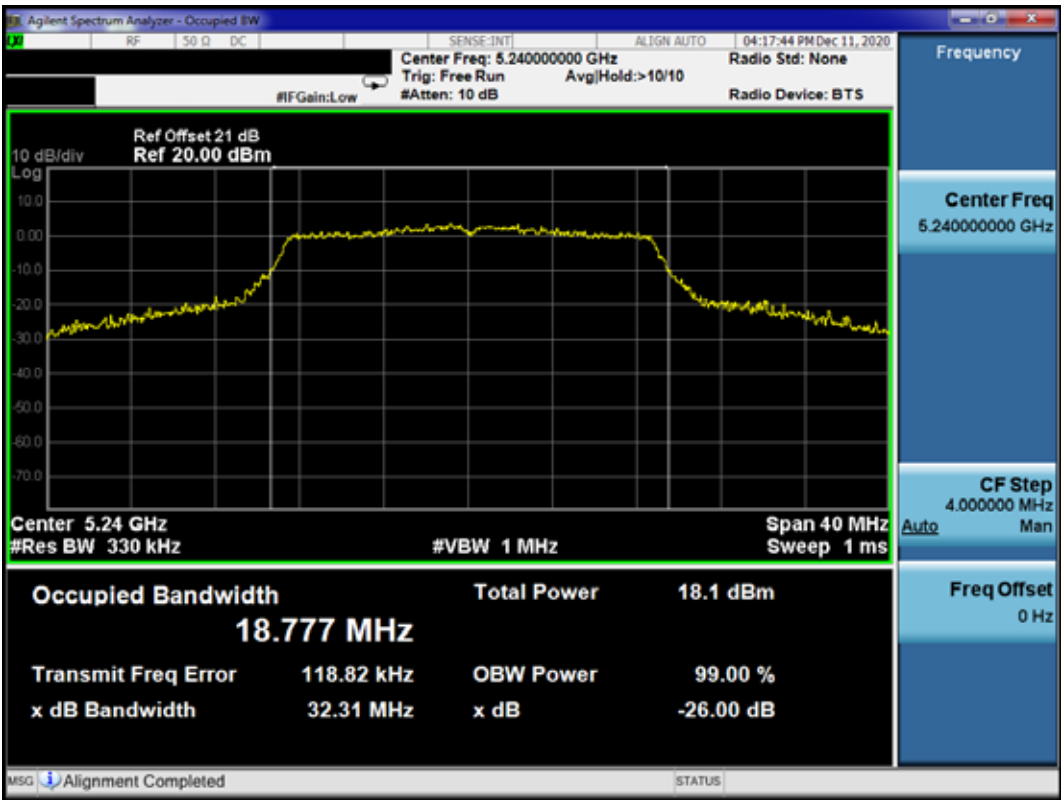


99% Bandwidth:**802.11a CH5785MHz****802.11a CH5825MHz**

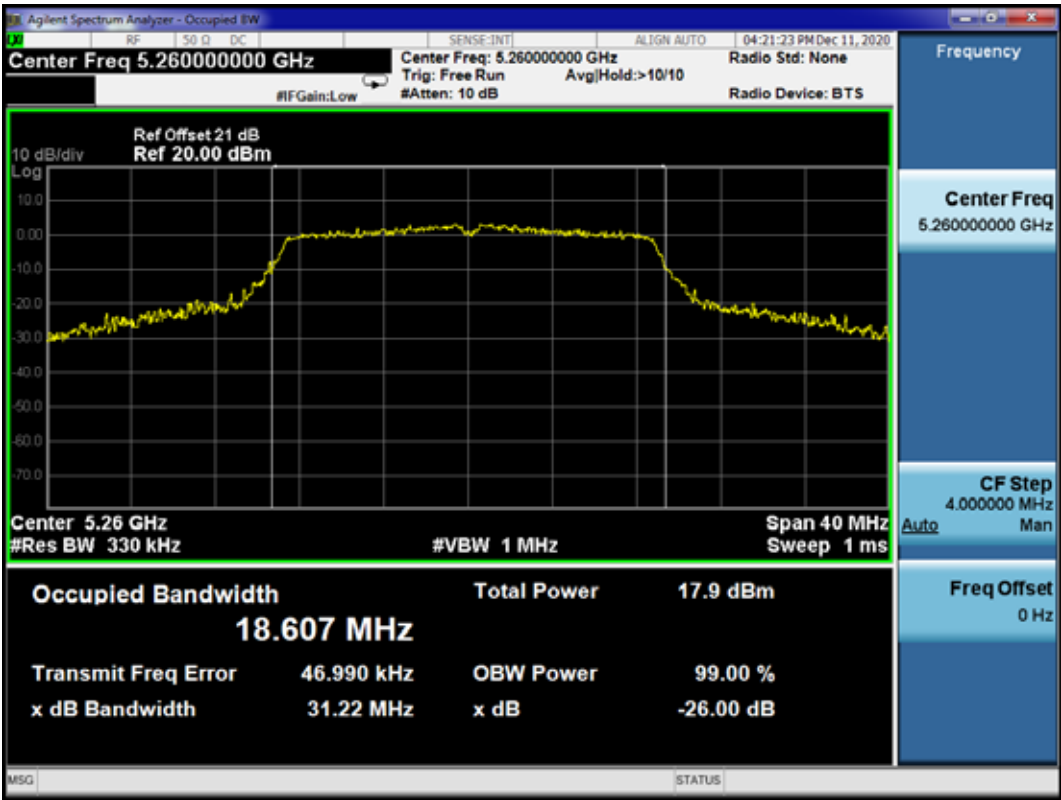
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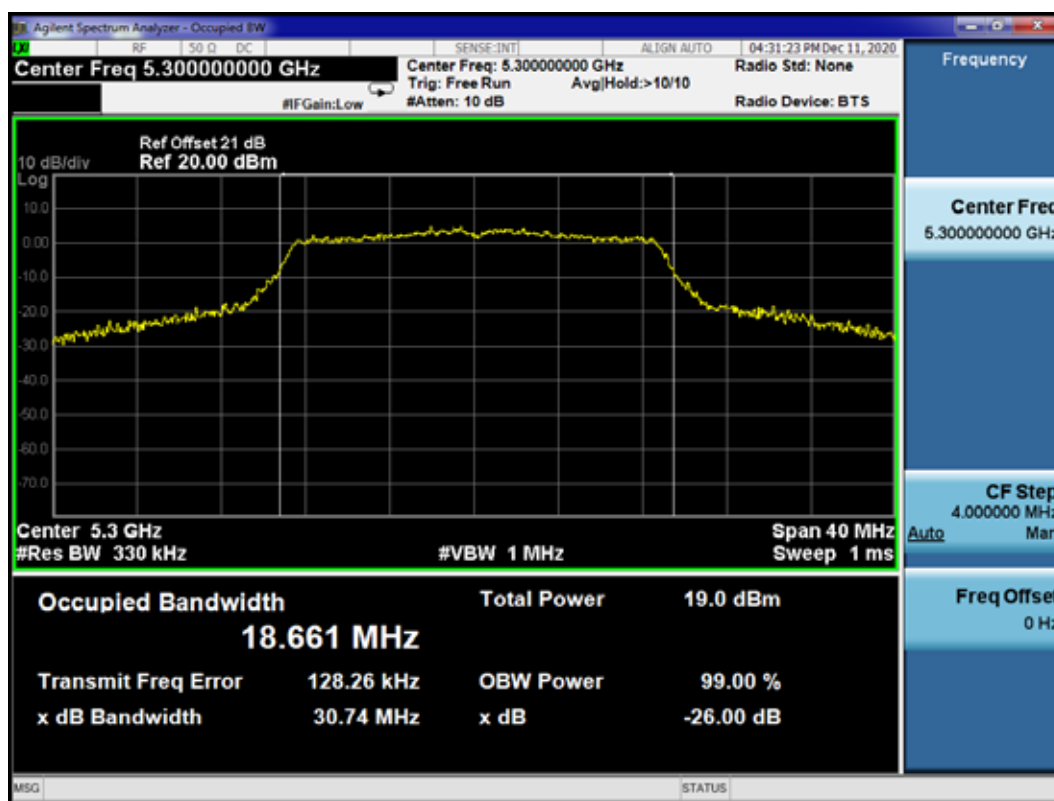
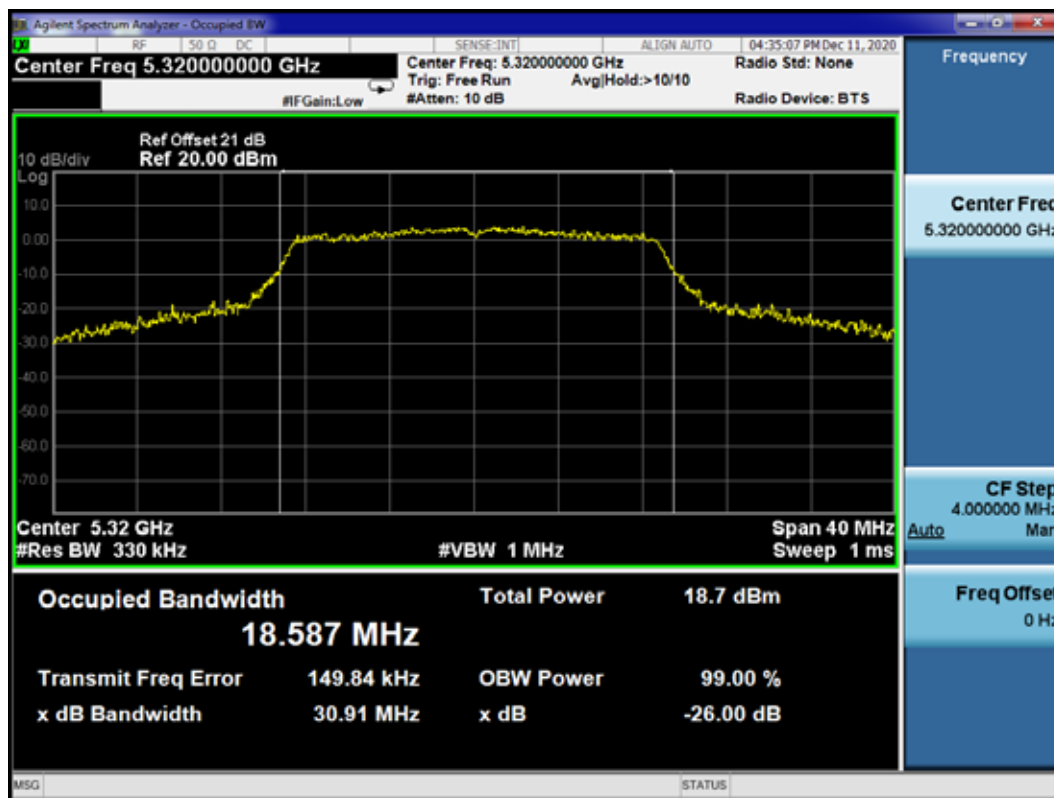
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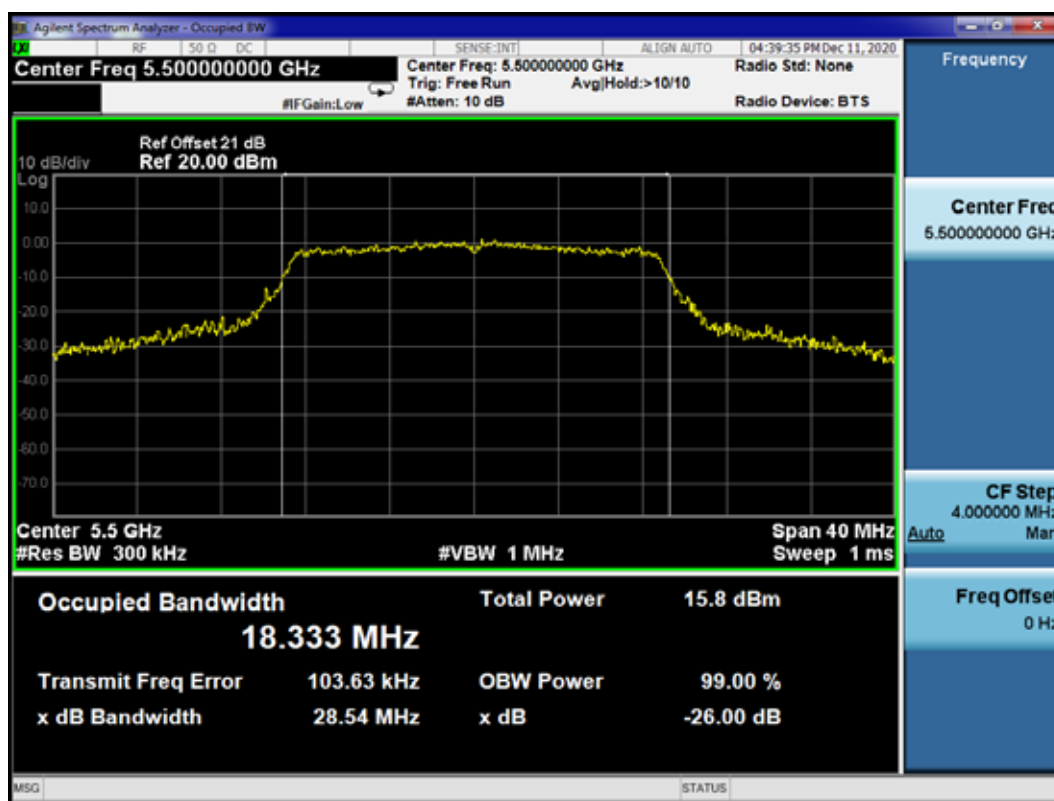
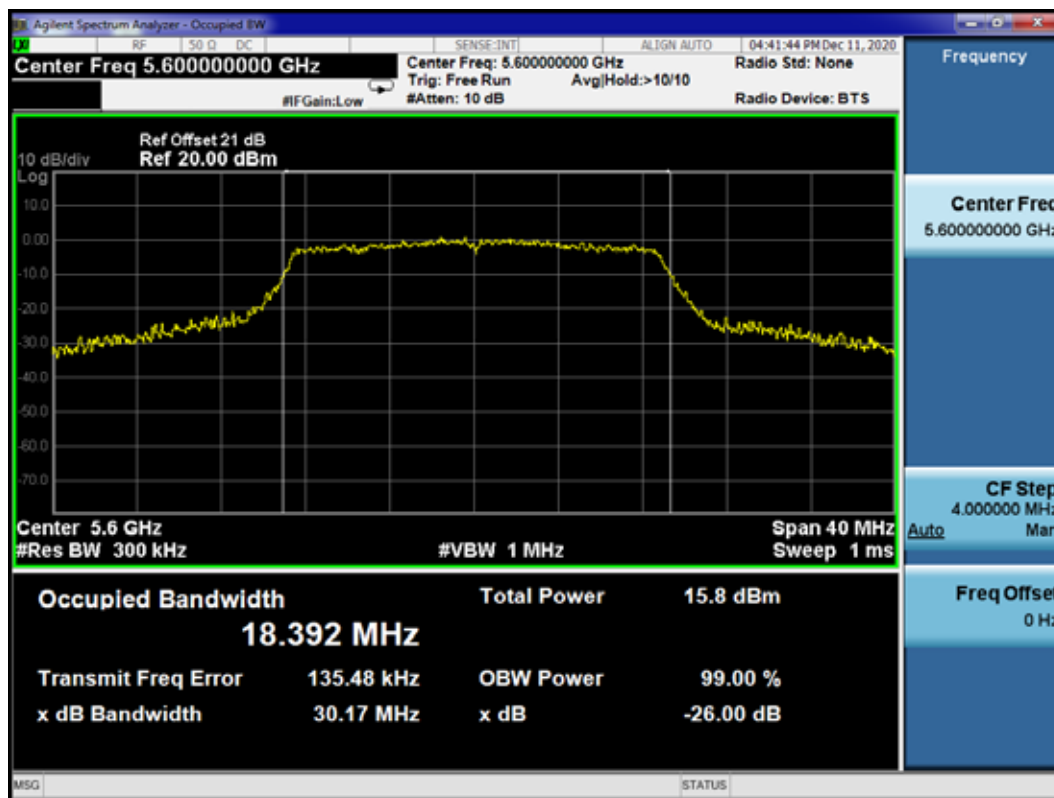
801.11n-HT20 CH5240MHz

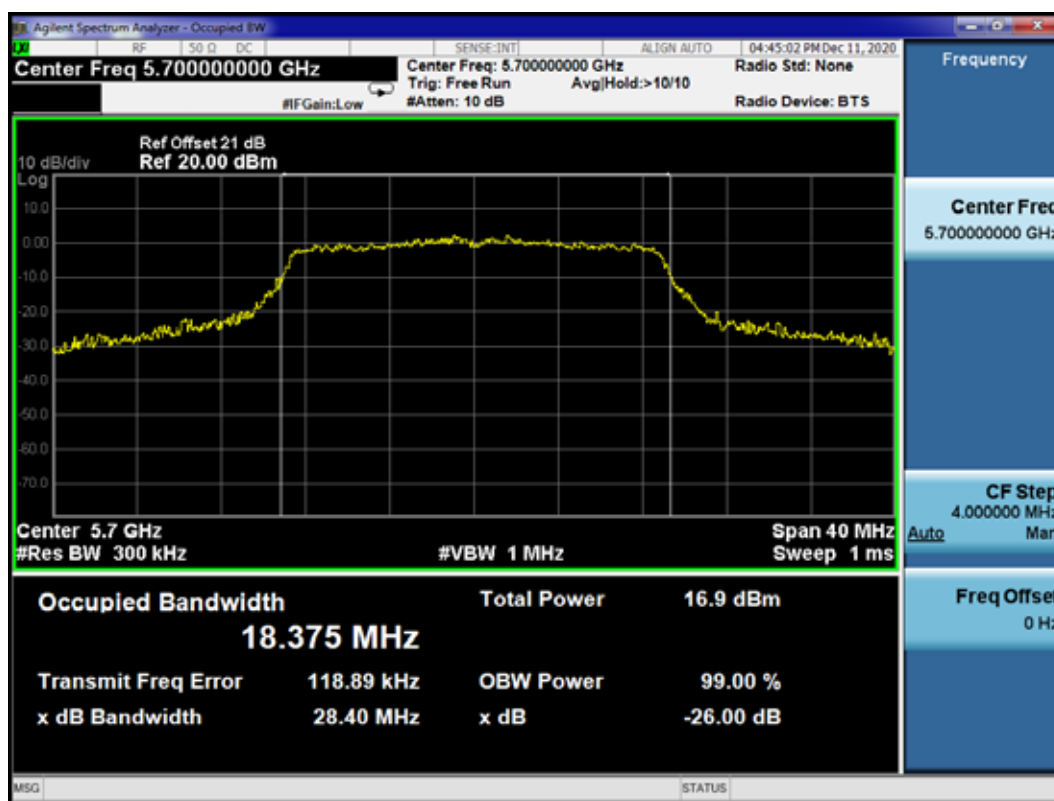
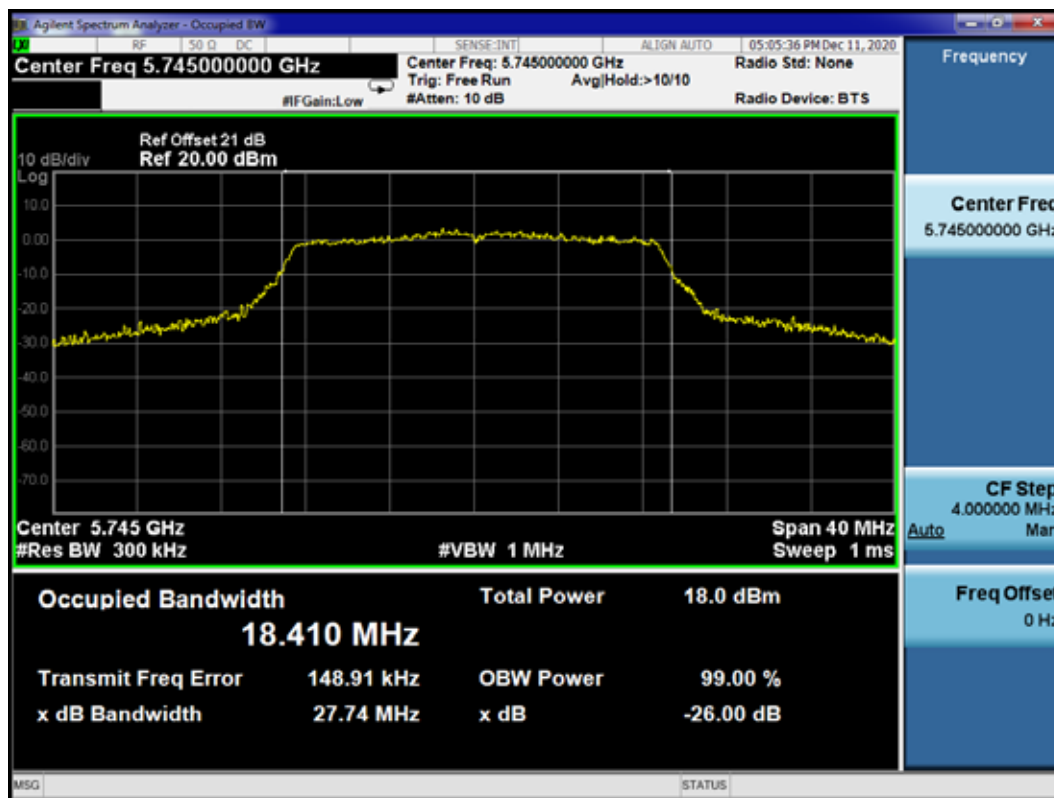


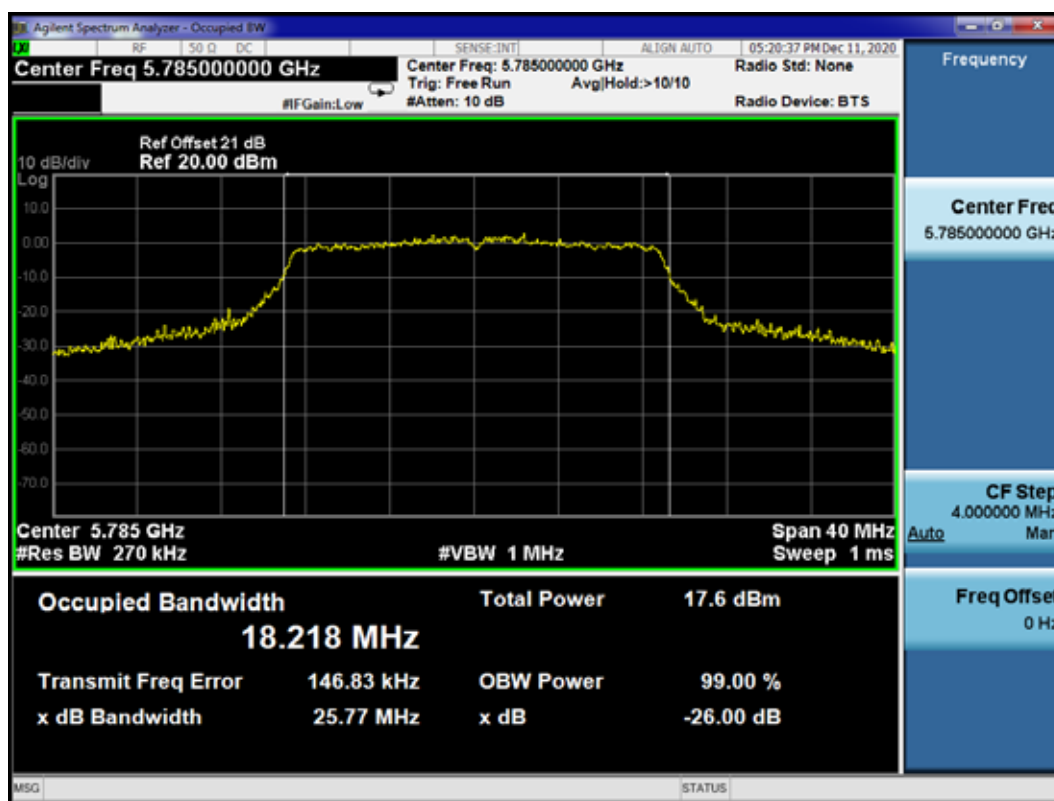
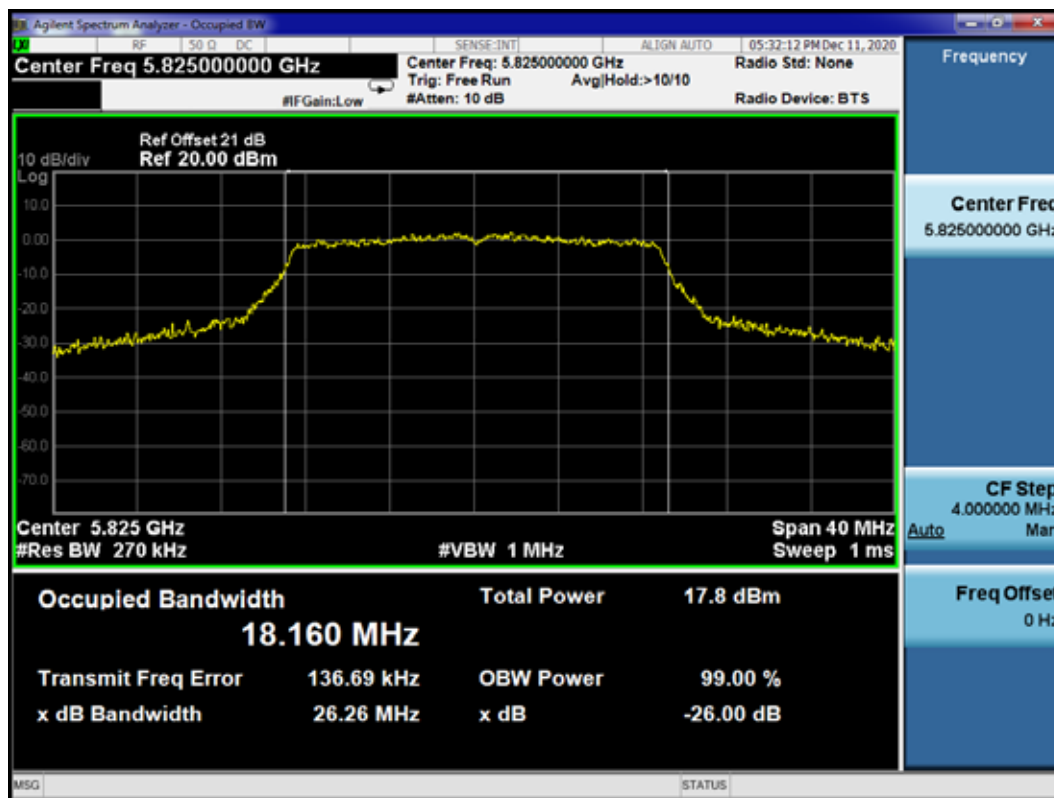
801.11n-HT20 CH5260MHz

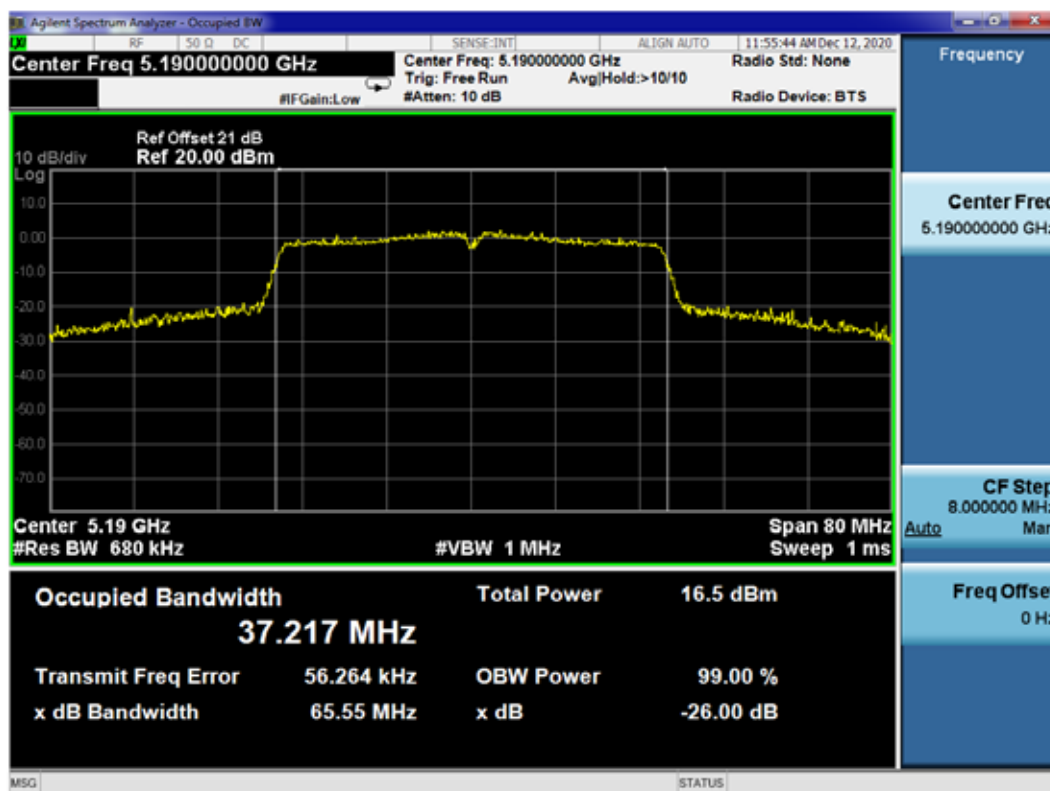


99% Bandwidth:**801.11n-HT20 CH5300MHz****801.11n-HT20 CH5320MHz**

99% Bandwidth:**801.11n-HT20 CH5500MHz****801.11n-HT20 CH5600MHz**

99% Bandwidth:**801.11n-HT20 CH5700MHz****801.11n-HT20 CH5745MHz**

99% Bandwidth:**801.11n-HT20 CH5785MHz****801.11n-HT20 CH5825MHz**

99% Bandwidth:**801.11n-HT40 CH5190MHz****801.11n-HT40 CH5230MHz**

99% Bandwidth:**801.11n-HT40 CH5270MHz****801.11n-HT40 CH5310MHz**

99% Bandwidth:**801.11n-HT40 CH5510MHz****801.11n-HT40 CH5590MHz**

99% Bandwidth:**801.11n-HT40 CH5670MHz****801.11n-HT40 CH5755MHz**

99% Bandwidth:

801.11n-HT40 CH5795MHz



801.11ac-VHT80 CH5210MHz



99% Bandwidth:**801.11ac-VHT80 CH5290MHz****801.11ac-VHT80 CH5530MHz**

99% Bandwidth:**801.11ac-VHT80 CH5610MHz****801.11ac-VHT80 CH5775MHz**

7 26 dB BANDWIDTH MEASUREMENT

7.1 Test Equipment

The following test equipment was used during the Emission Bandwidth measurement:

Item	Type	Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Interval
4.	Spectrum Analyzer	Agilent	N9010A	MY52221182	2020.09.16	1 Year
5.	Coaxial Cable	WOKEN	SFL402-105F LEX	F02-150819-045	2021.03.08	1 Year
6.	20 dB Attenuator	Mini-Circuits	VAT-20+	001	2020.08.06	1 Year

7.2 Block Diagram of Test Setup

The Same as Section. 6.2

7.3 Operating Condition of EUT

The switch ON/OFF was used to enable the EUT to change the channel one by one.

7.4 Test Procedure

The following procedure shall be used for measuring this bandwidth:

- a) Set RBW = approximately 1% of the emission bandwidth.
- b) Set the VBW > RBW.
- c) Detector = Peak.
- d) Trace mode = max hold.
- e) Measure the maximum width of the emission that is 26 dB down from the maximum of the emission. Compare this with the RBW setting of the analyzer. Readjust RBW and repeat measurement as needed until the RBW/EBW ratio is approximately 1%.

The test procedure is defined in KDB789033 D02 (the clause II.C.1 Measurement Procedure “Emission Bandwidth (EBW)” was used).

7.5 Test Results

PASSED.

All the test results are attached in next pages.

(Test Date: 2020.12.11-12 Temperature: 23°C Humidity: 51 %)

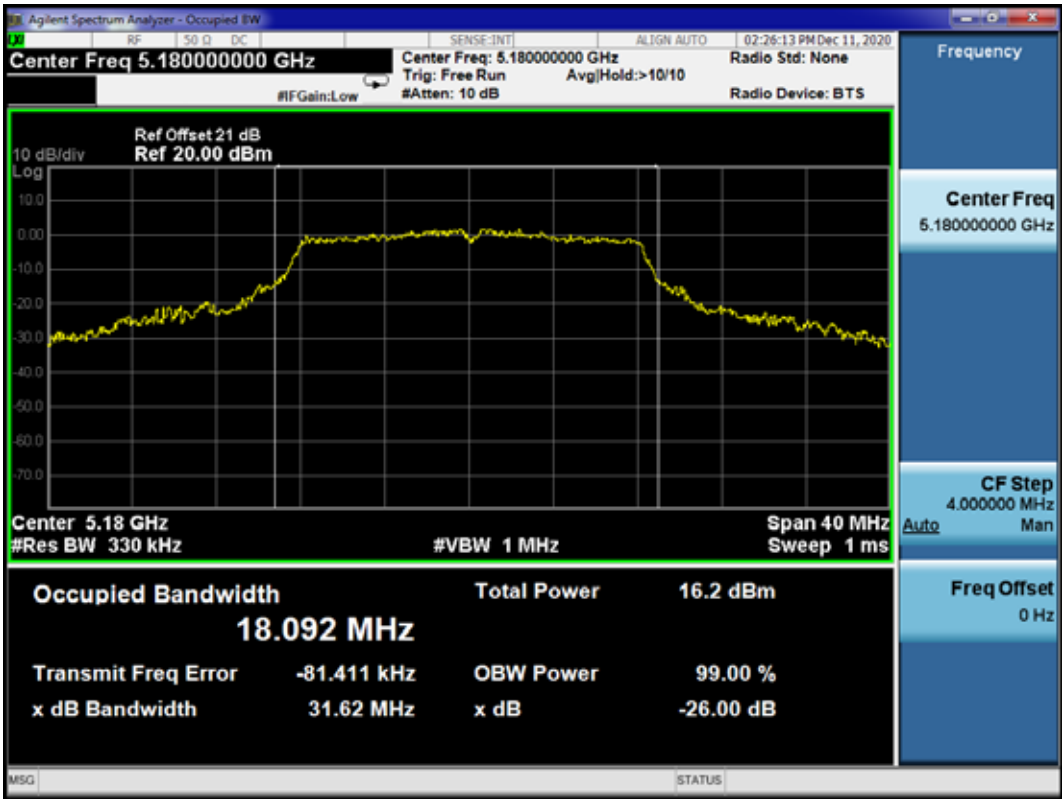
Modulation	Channel	Frequency (MHz)	26 dB Bandwidth (MHz)	Limit
802.11a	36	5180	31.62	N/A
	40	5200	31.86	N/A
	48	5240	31.56	N/A
	52	5260	30.57	N/A
	60	5300	30.57	N/A
	64	5320	30.31	N/A
	100	5500	28.81	N/A
	120	5600	29.67	N/A
	140	5700	30.26	N/A
	149	5745	25.37	N/A
	157	5785	25.78	N/A
	165	5825	25.07	N/A

Modulation	Channel	Frequency (MHz)	26 dB Bandwidth (MHz)	Limit
802.11n-HT20	36	5180	33.62	N/A
	40	5200	33.77	N/A
	48	5240	32.31	N/A
	52	5260	31.22	N/A
	60	5300	30.74	N/A
	64	5320	30.91	N/A
	100	5500	28.54	N/A
	120	5600	30.17	N/A
	140	5700	28.4	N/A
	149	5745	27.74	N/A
	157	5785	25.77	N/A
	165	5825	26.26	N/A

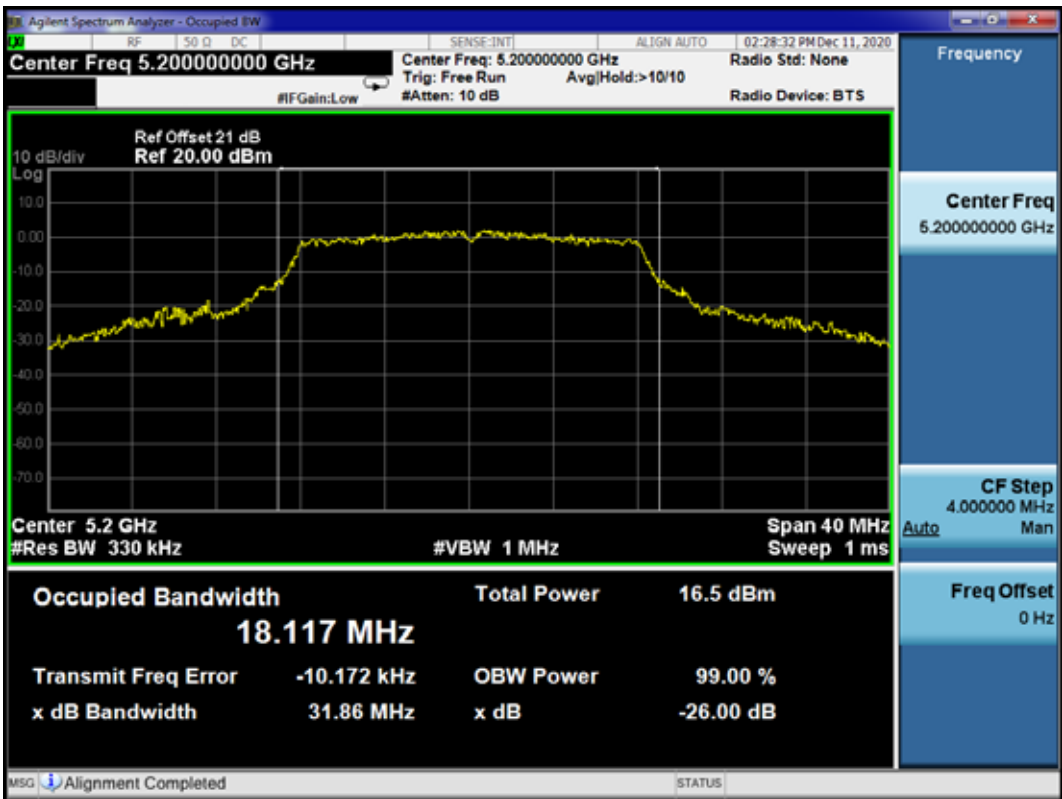
Modulation	Channel	Frequency (MHz)	26 dB Bandwidth (MHz)	Limit
802.11n-HT40	38	5190	65.55	N/A
	46	5230	67.99	N/A
	54	5270	68.01	N/A
	62	5310	64.47	N/A
	102	5510	60.68	N/A
	118	5590	67.58	N/A
	134	5670	66.04	N/A
	151	5755	62.77	N/A
	159	5795	59.29	N/A

Modulation	Channel	Frequency (MHz)	26 dB Bandwidth (MHz)	Limit
802.11ac-VHT80	42	5210	130.2	N/A
	58	5290	132.8	N/A
	106	5530	133.9	N/A
	122	5610	147.9	N/A
	155	5775	127.5	N/A

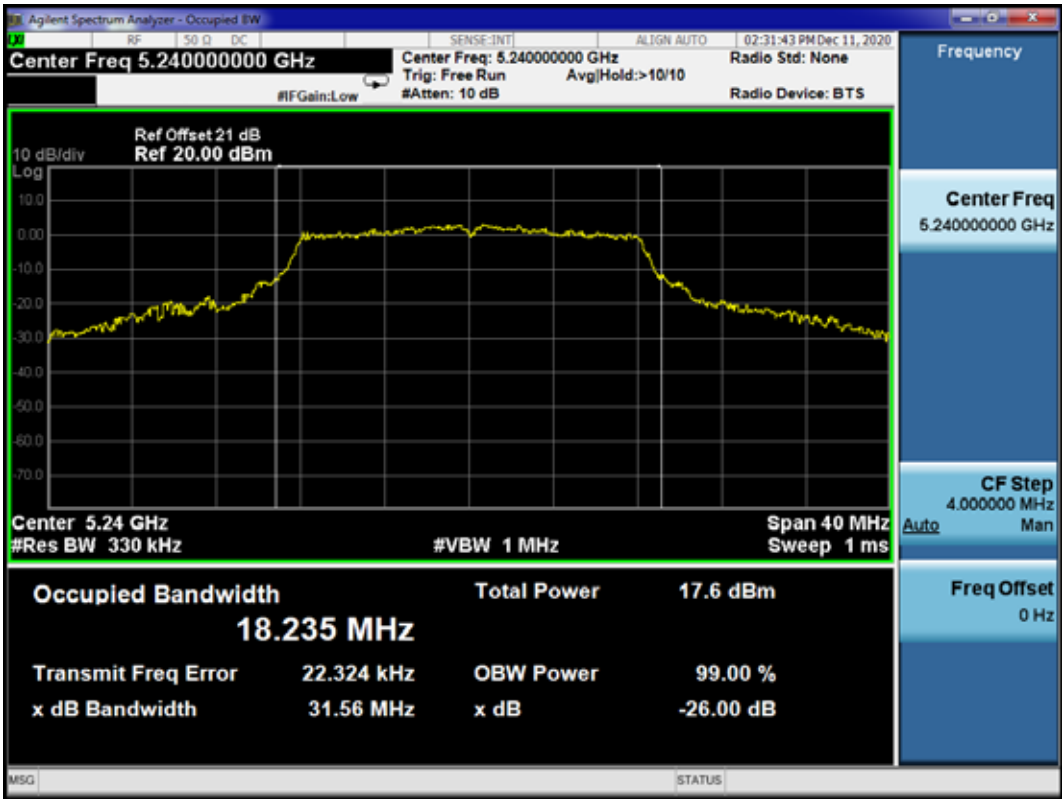
802.11a CH5180MHz



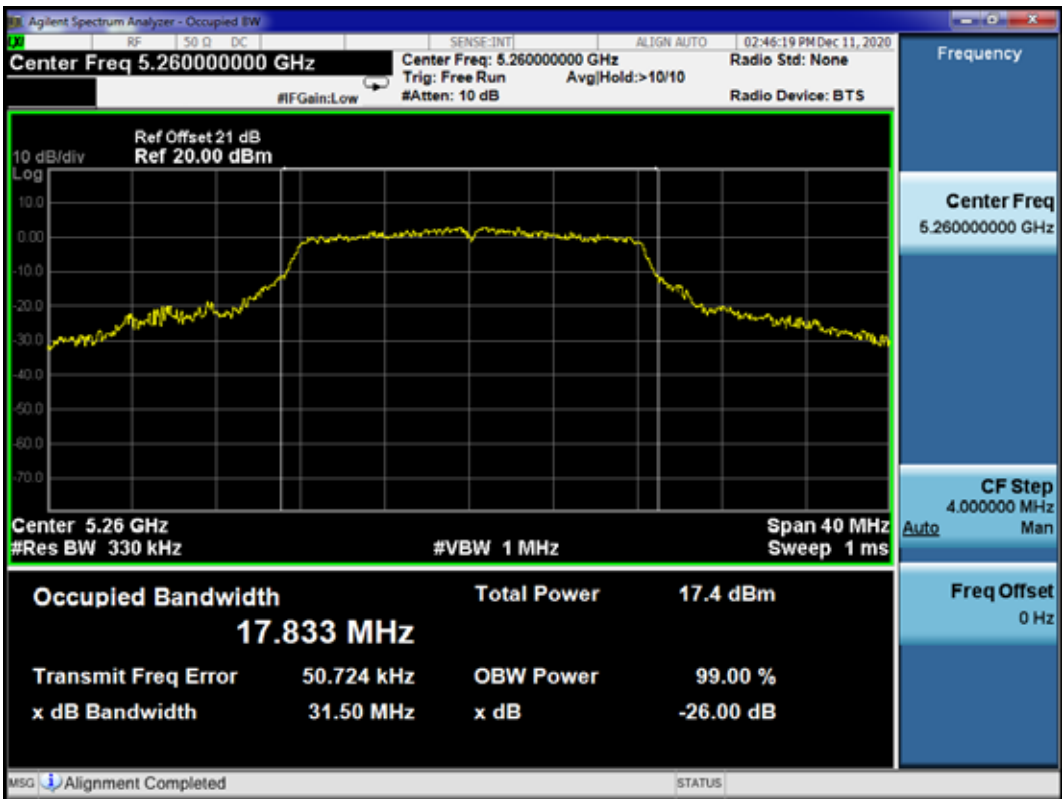
802.11a CH5200MHz



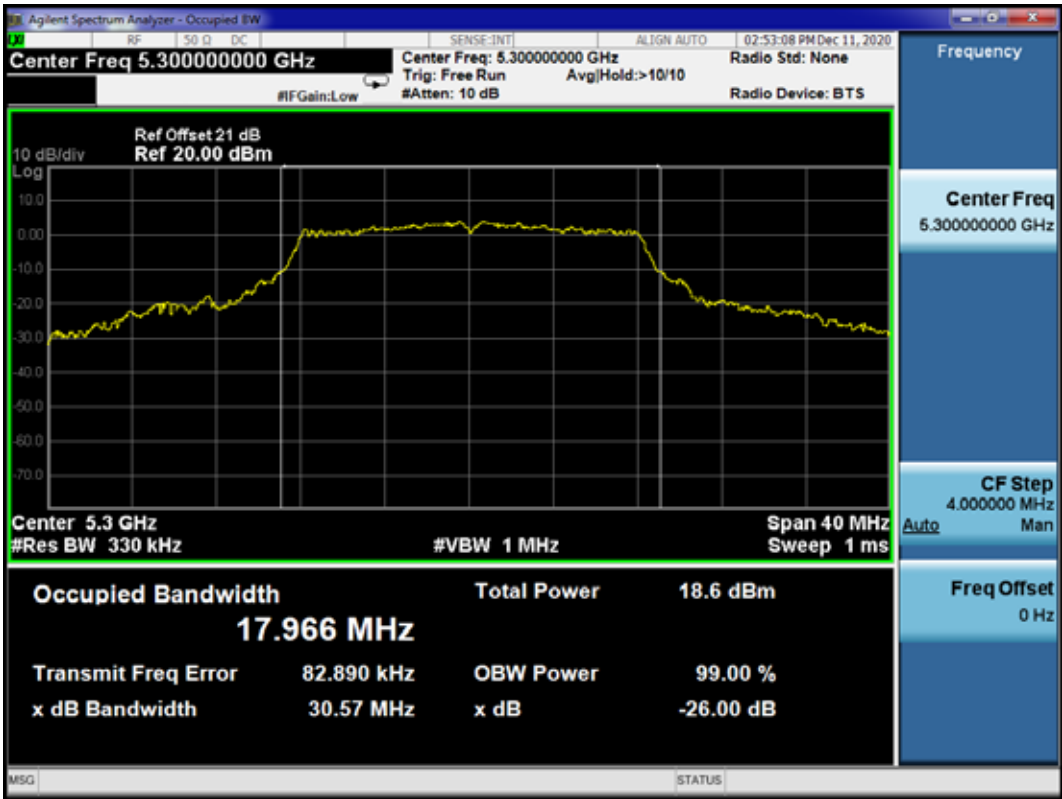
802.11a CH5240MHz



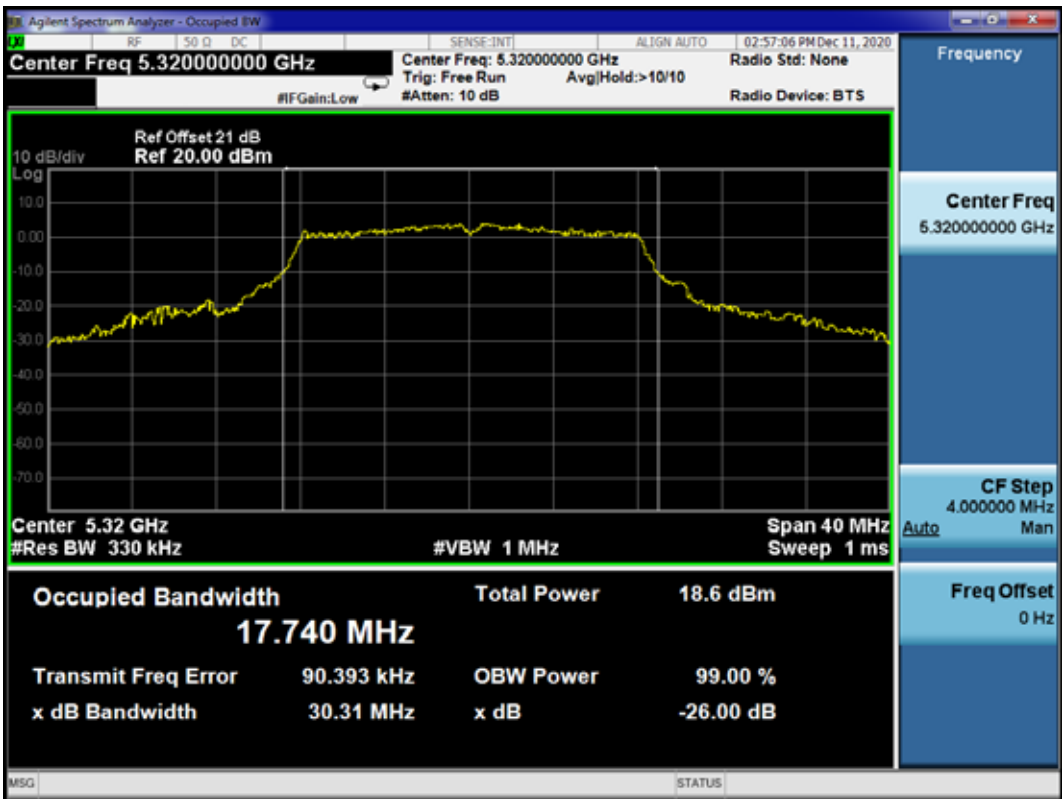
802.11a CH5260MHz



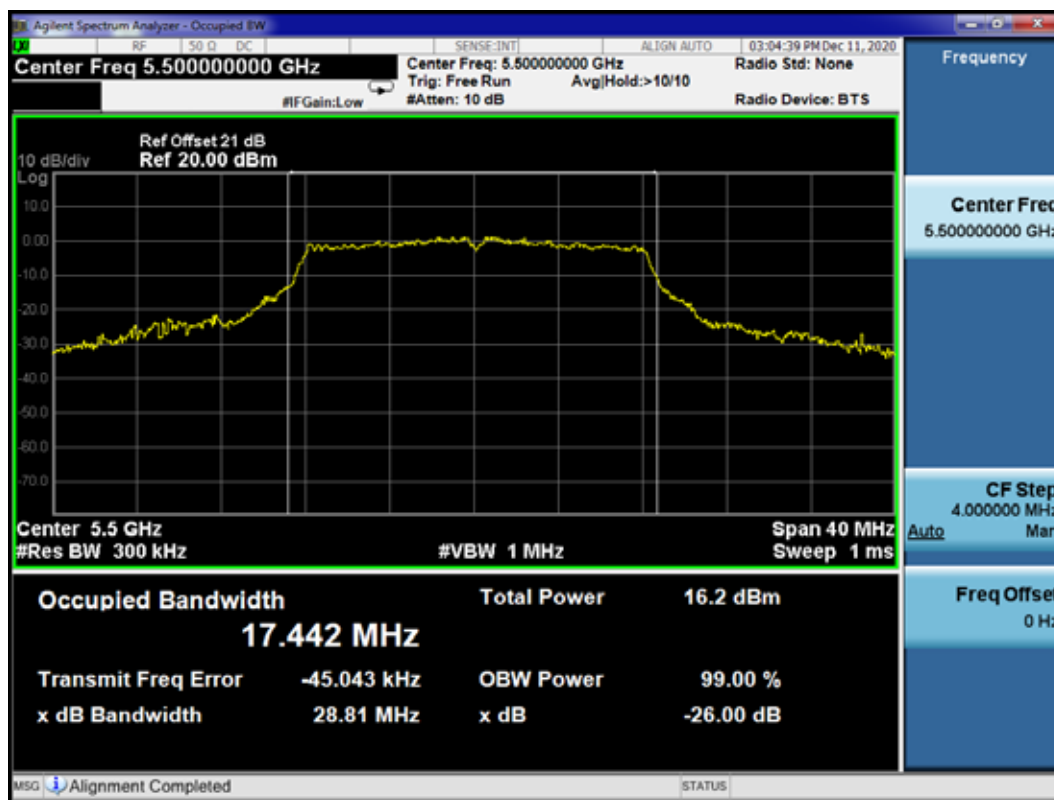
802.11a CH5300MHz



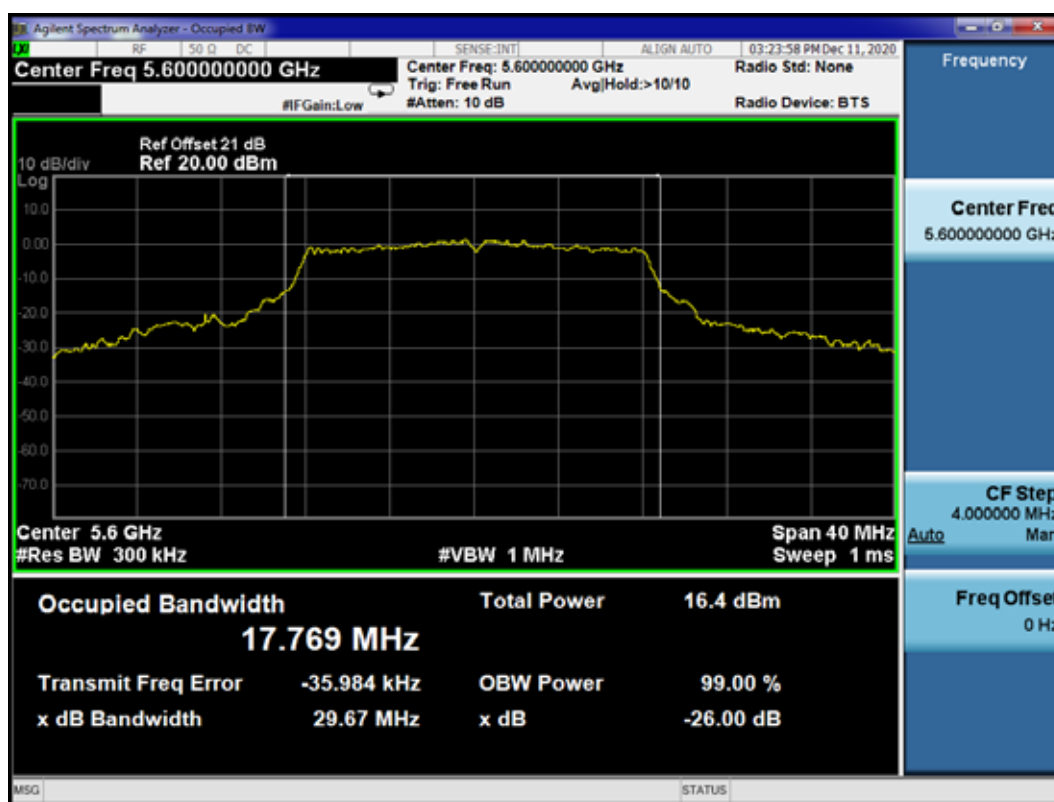
802.11a CH5320MHz



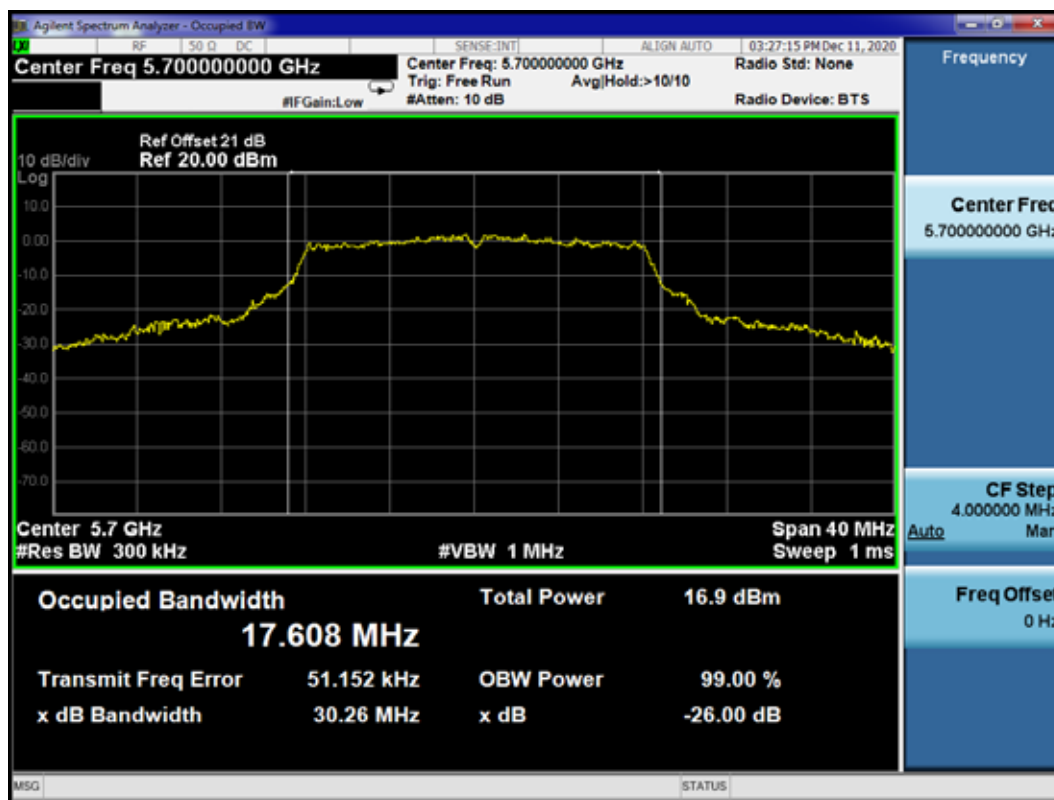
802.11a CH5500MHz



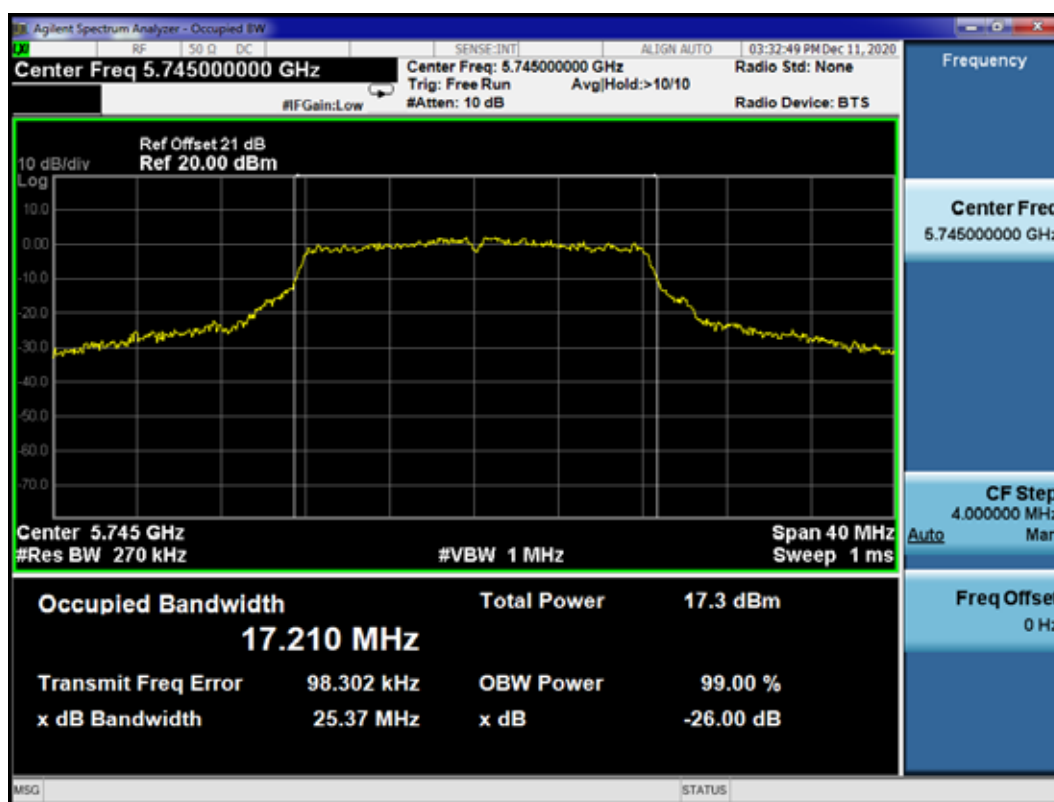
802.11a CH5600MHz



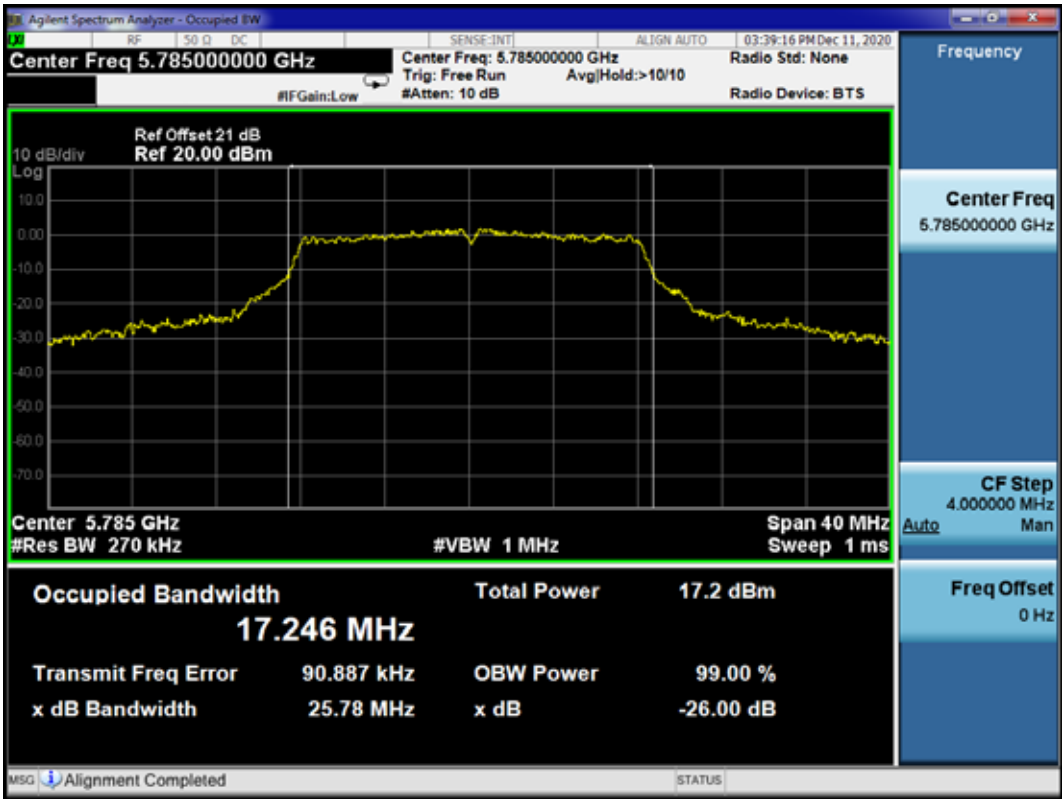
802.11a CH5700MHz



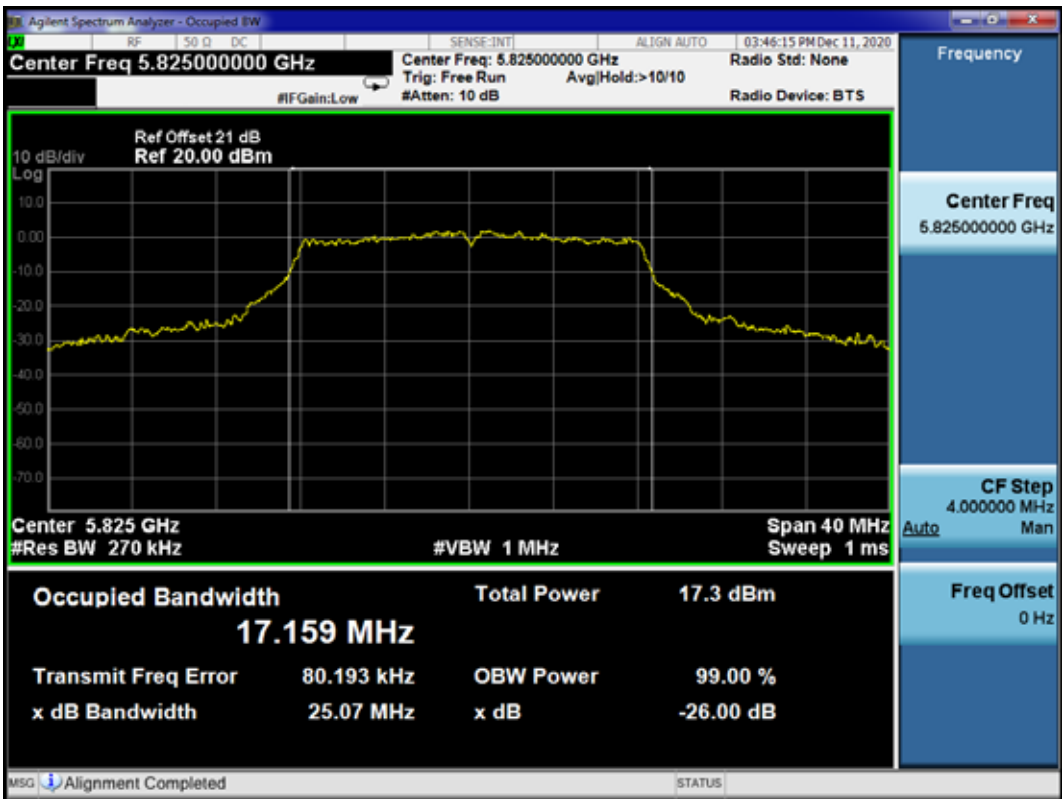
802.11a CH5745MHz



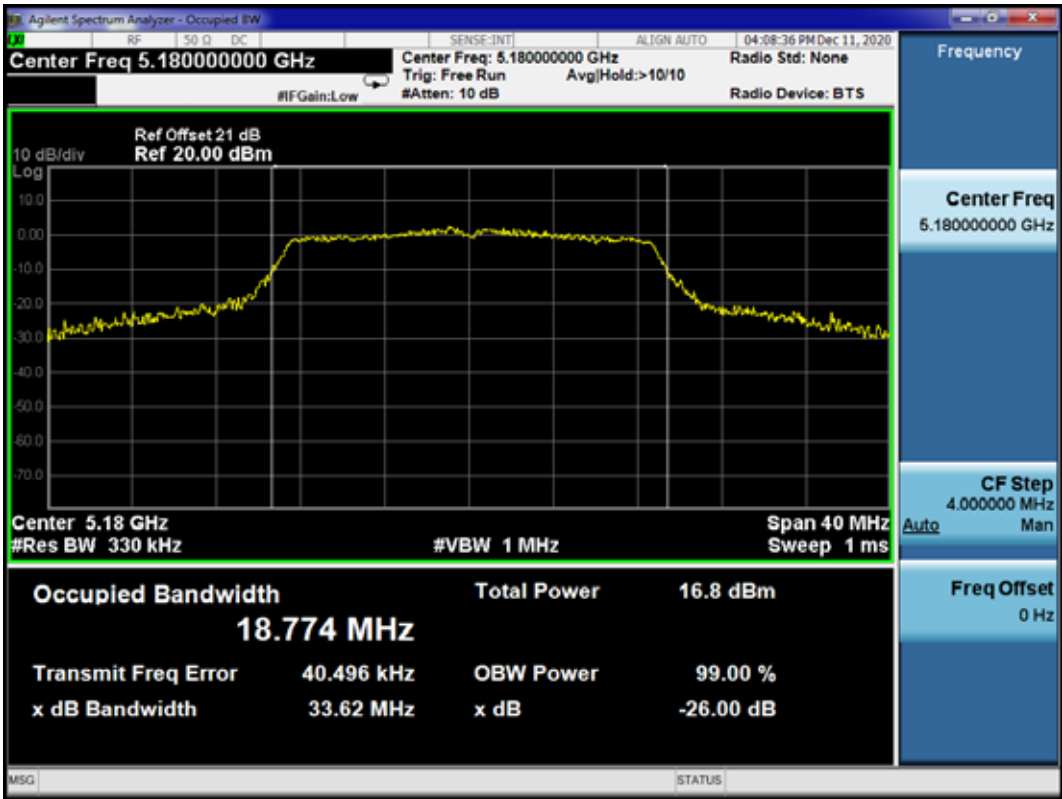
802.11a CH5785MHz



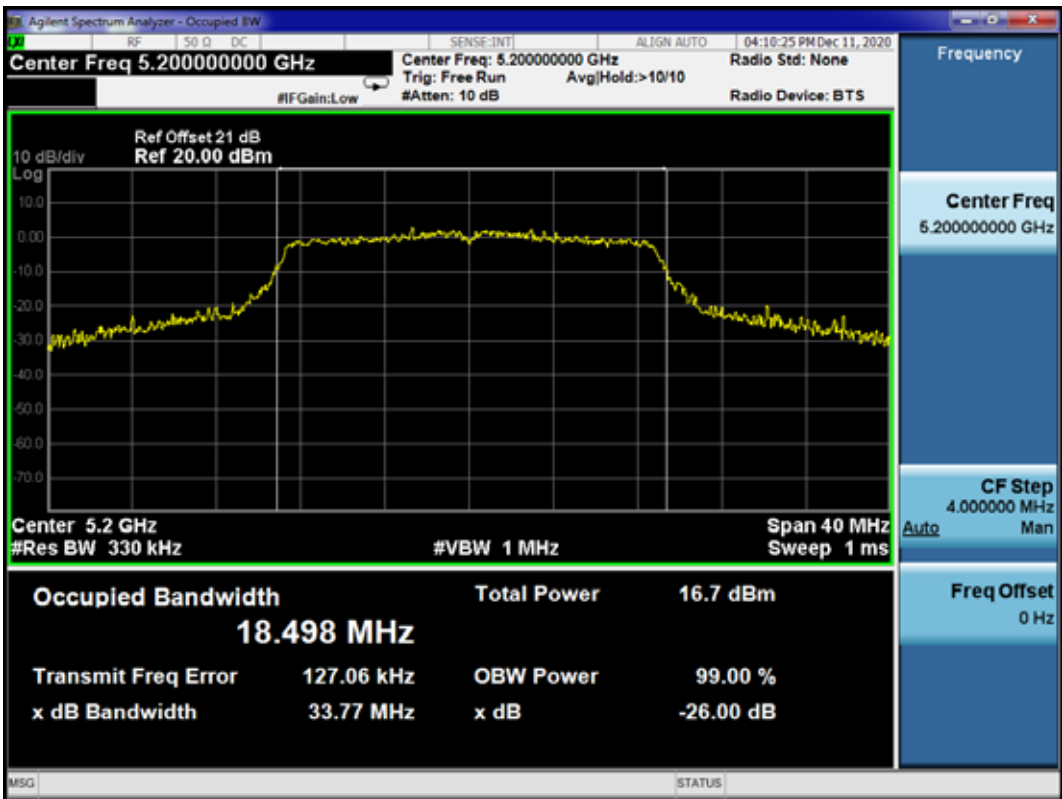
802.11a CH5825MHz



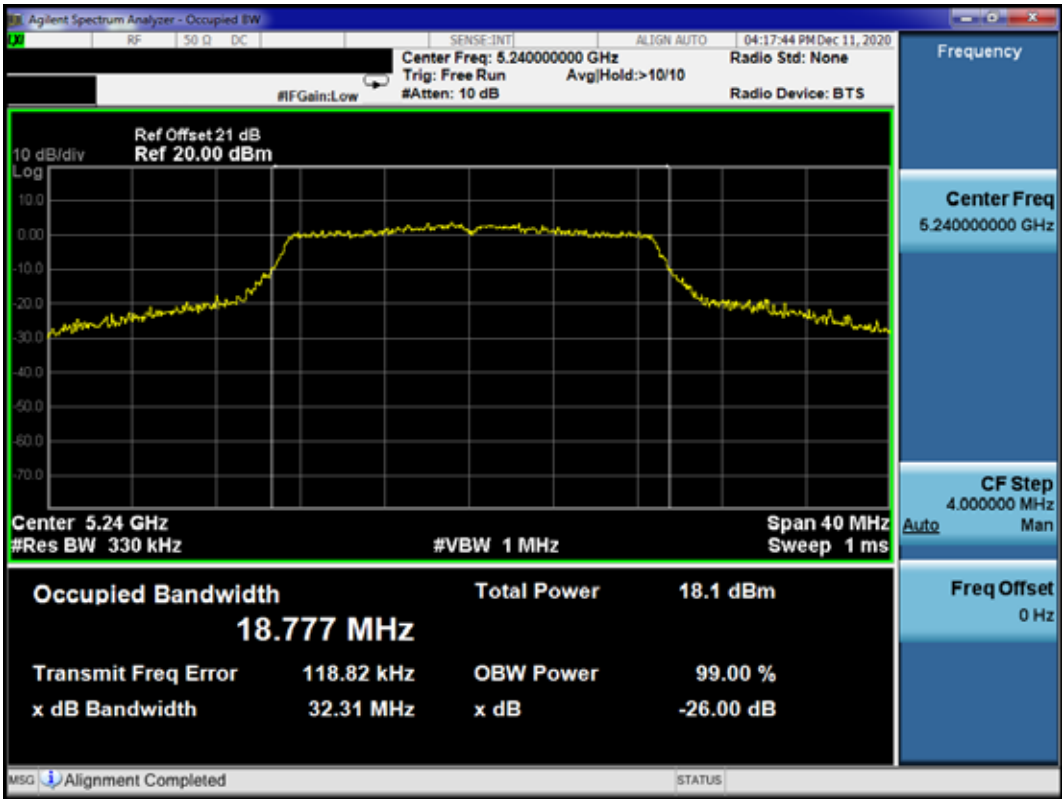
801.11n-HT20 CH5180MHz



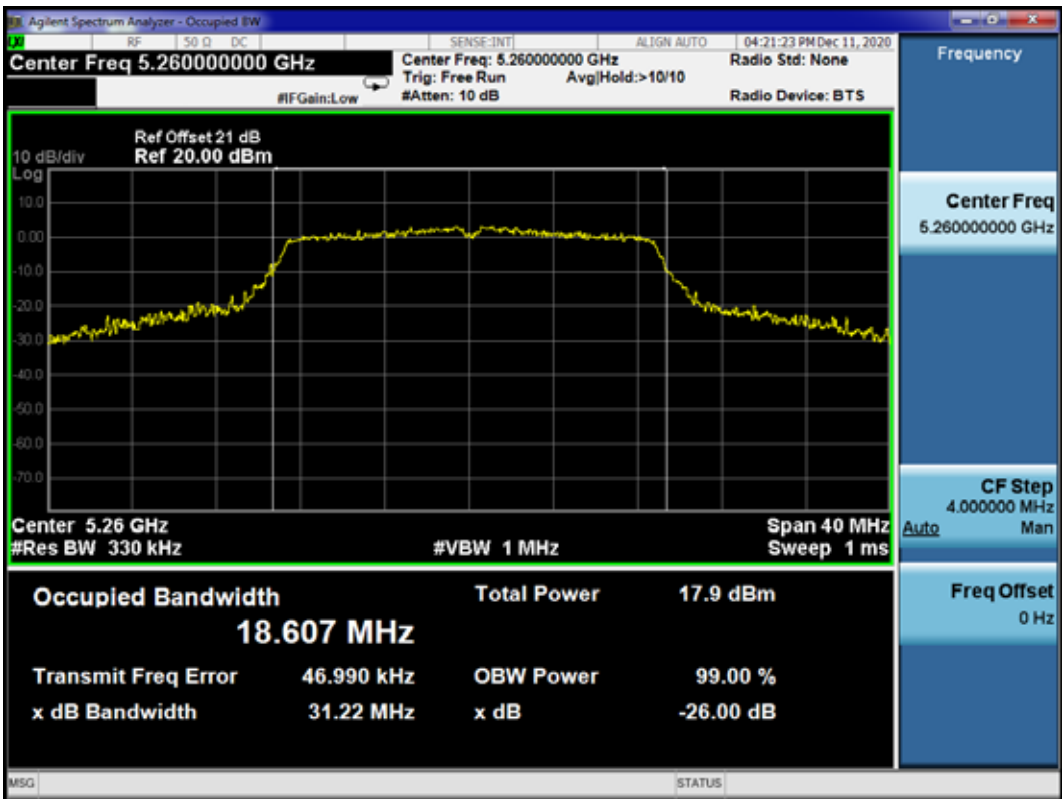
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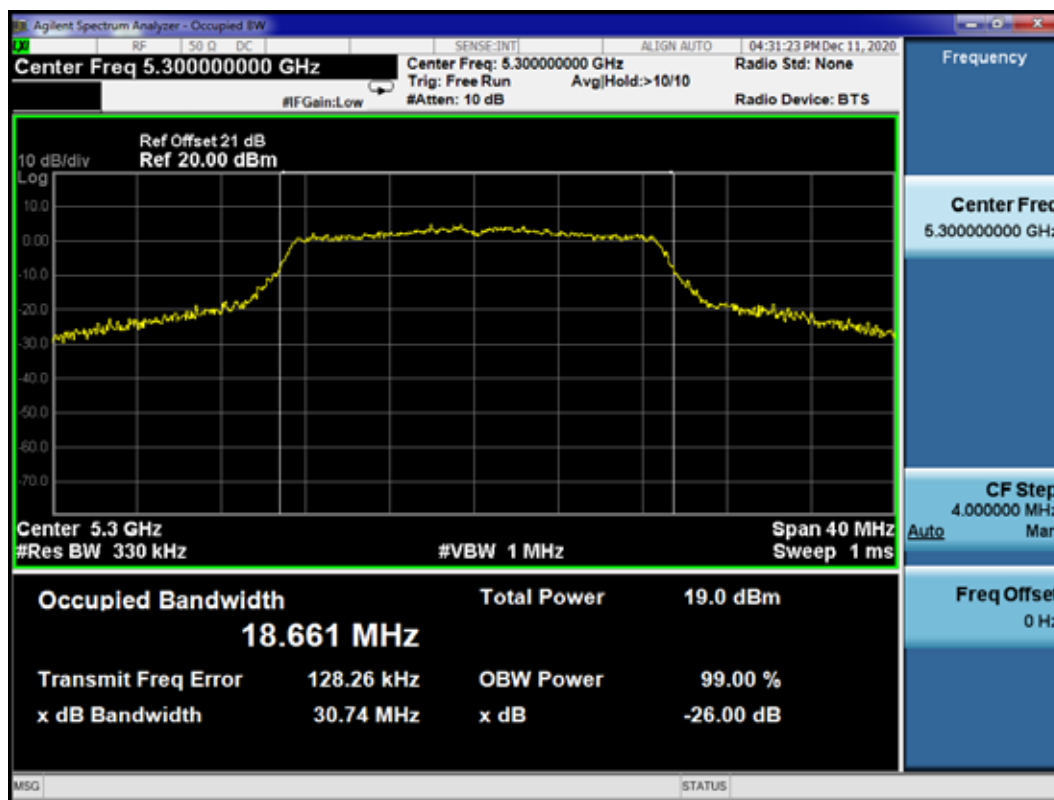
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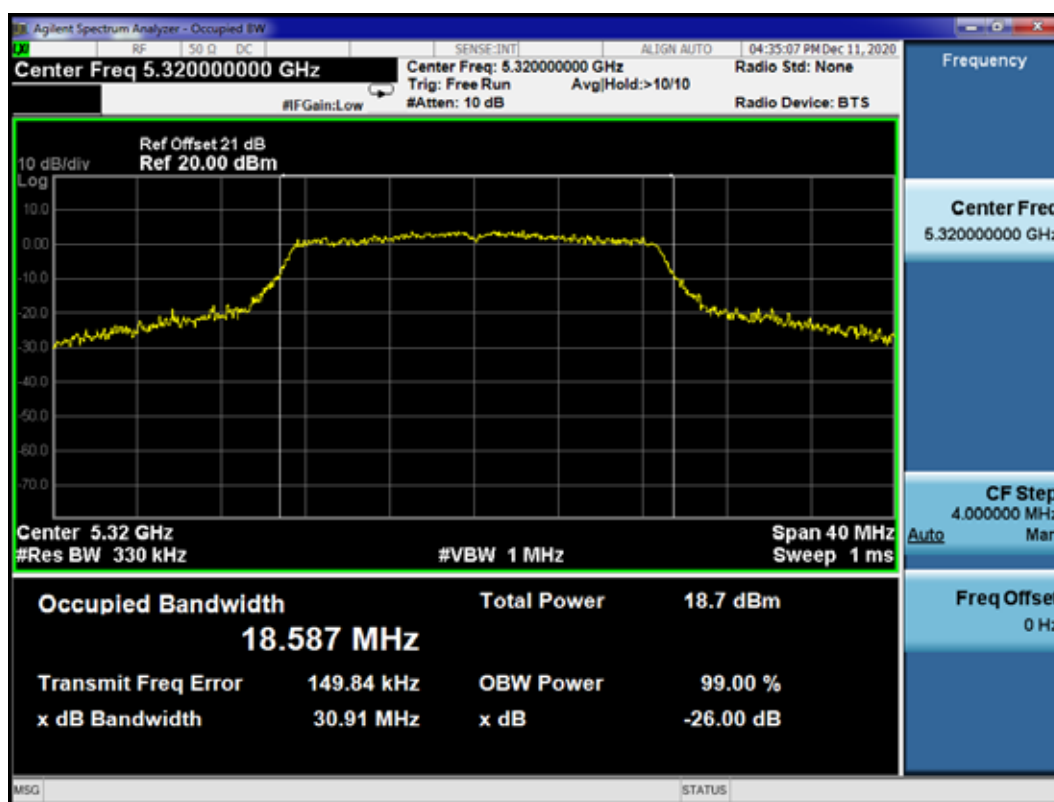
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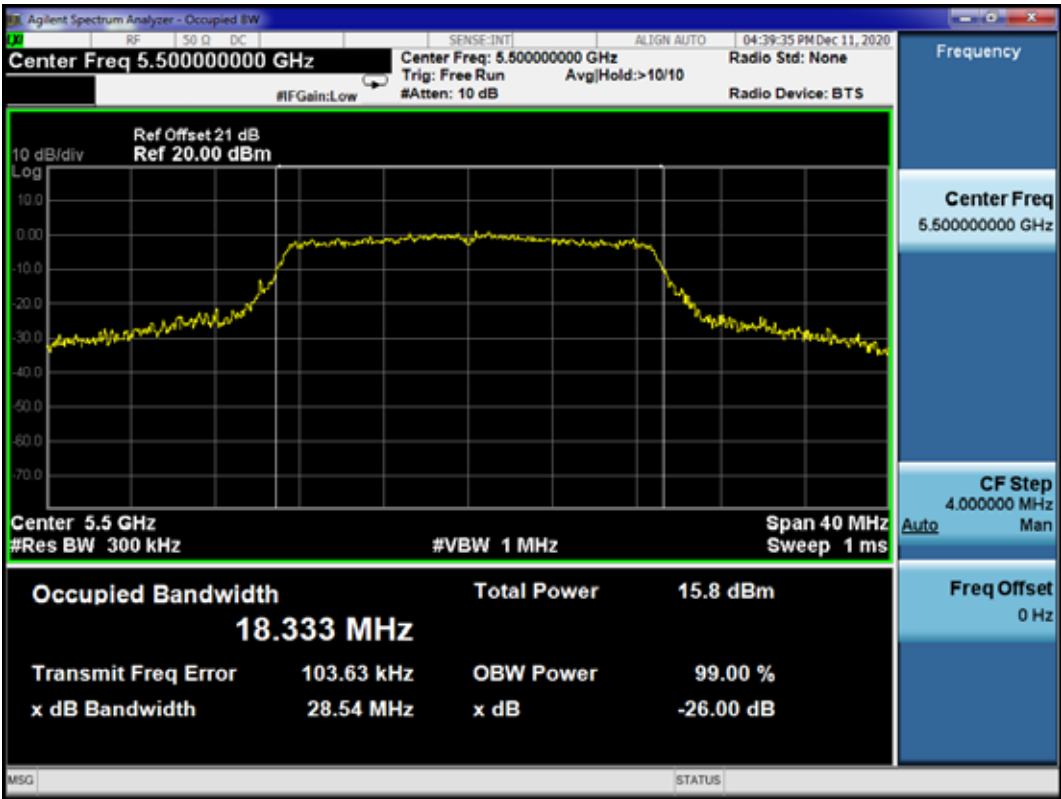
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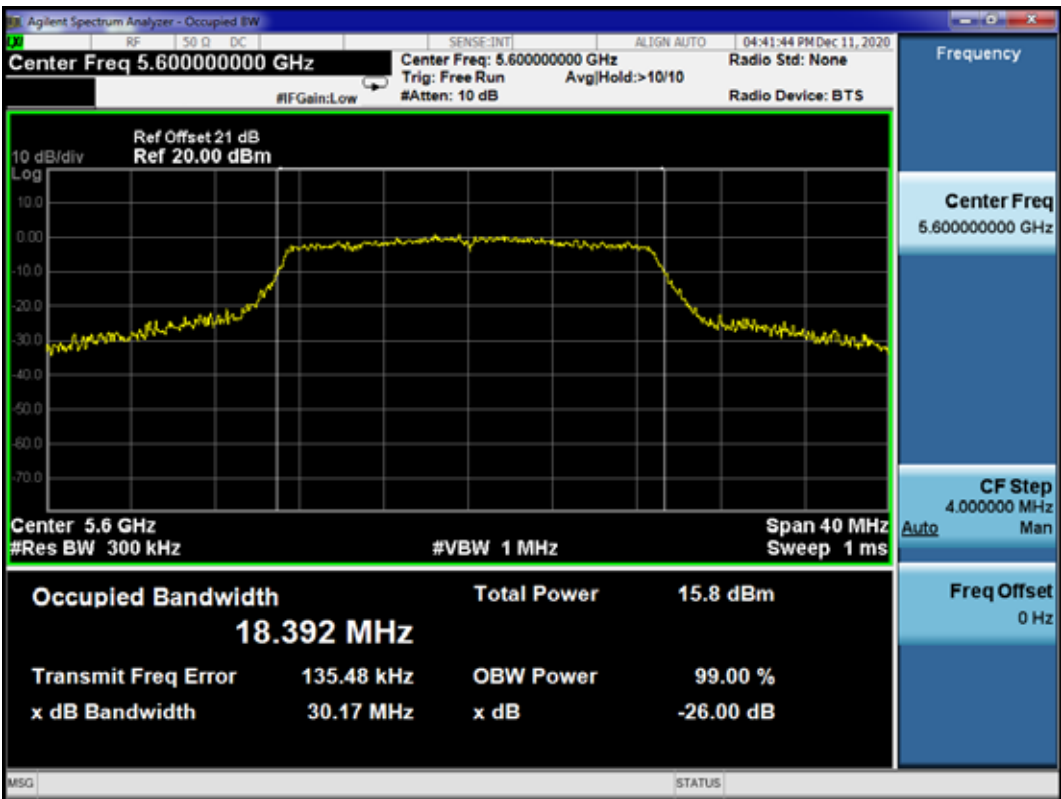
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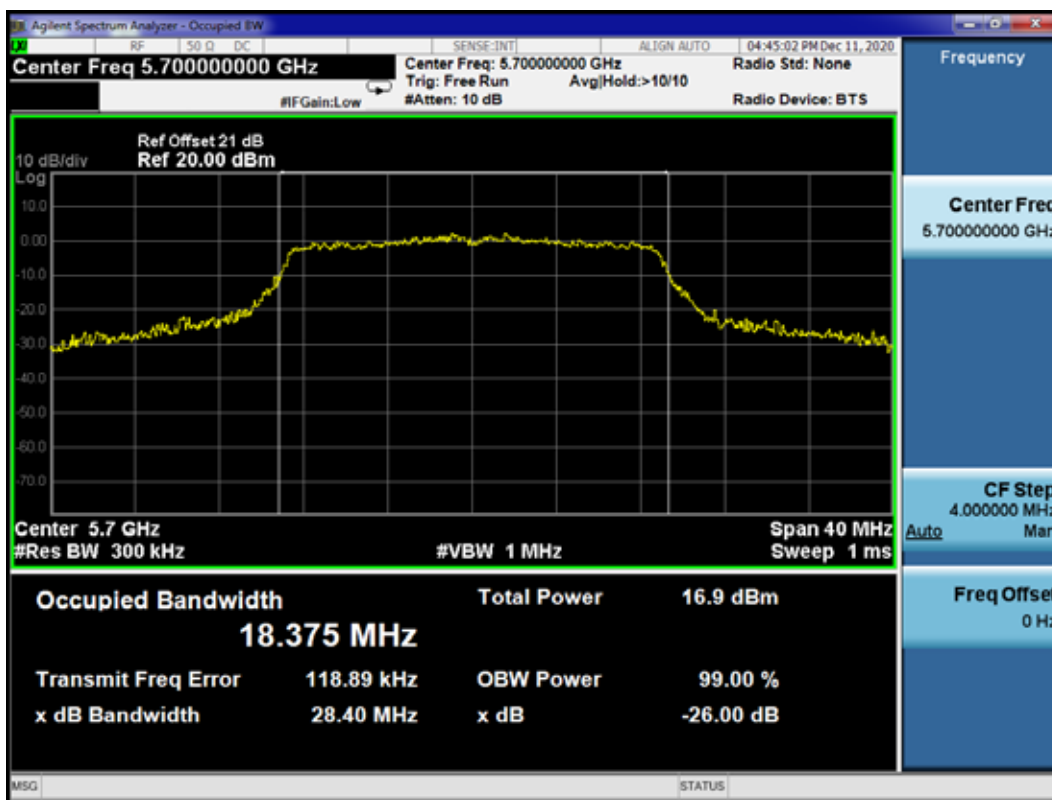
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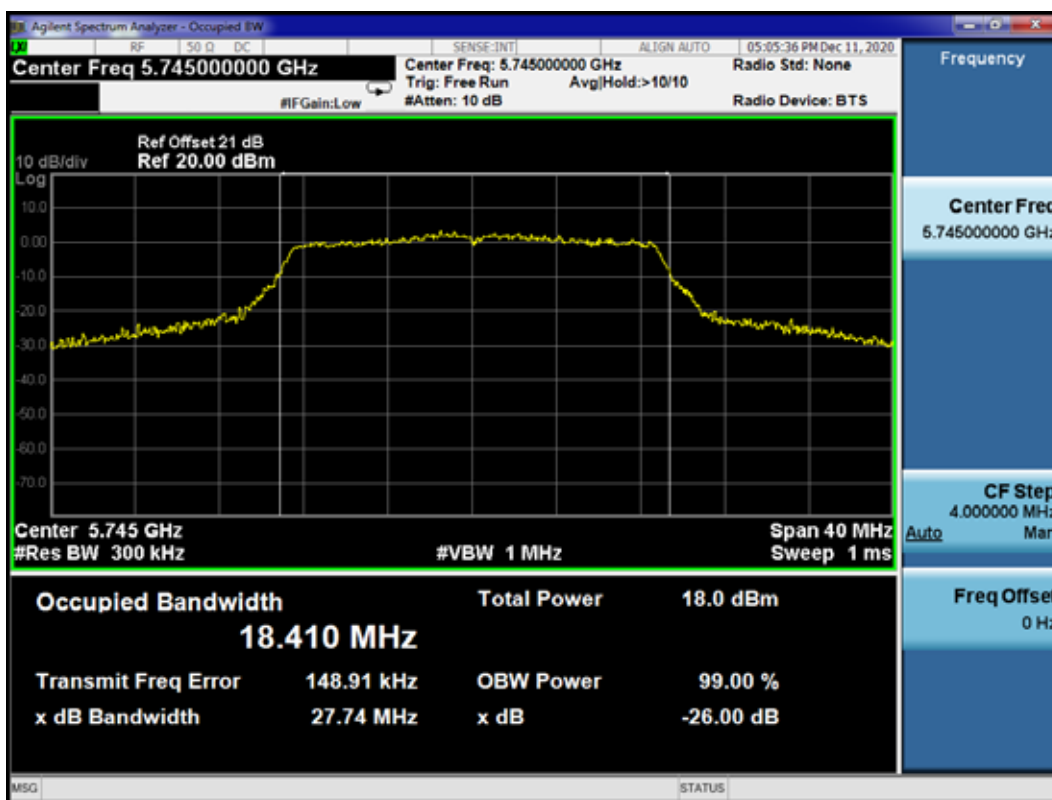
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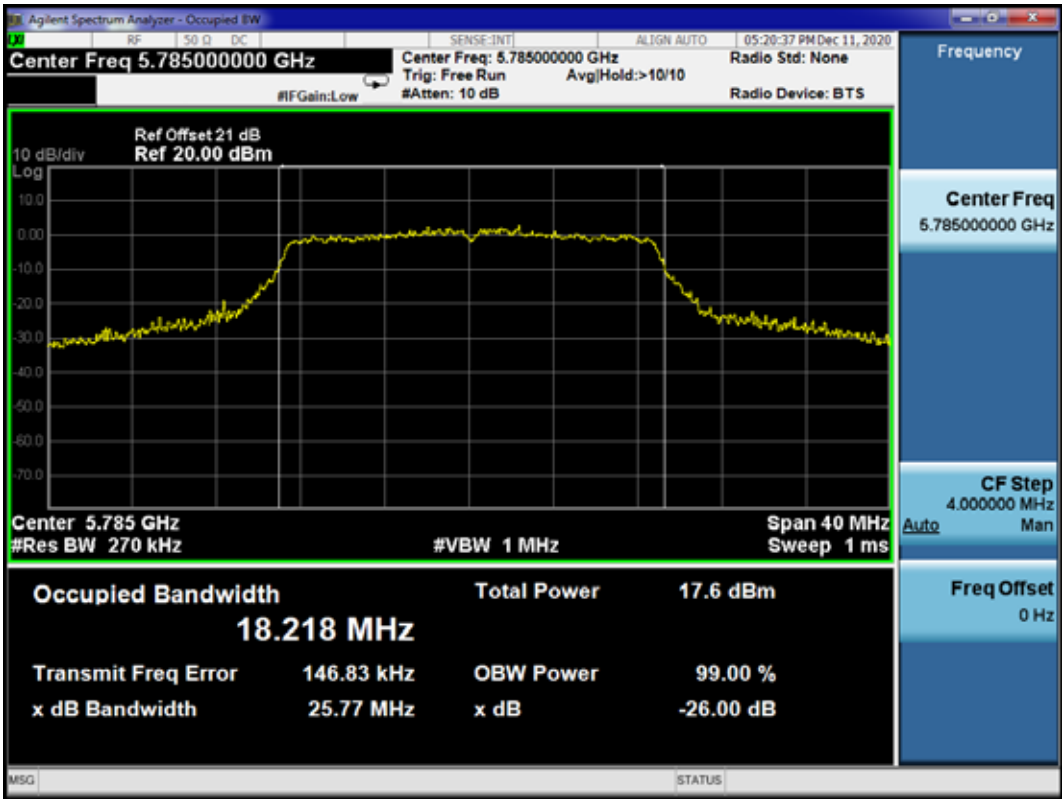
801.11n-HT20 CH5700MHz



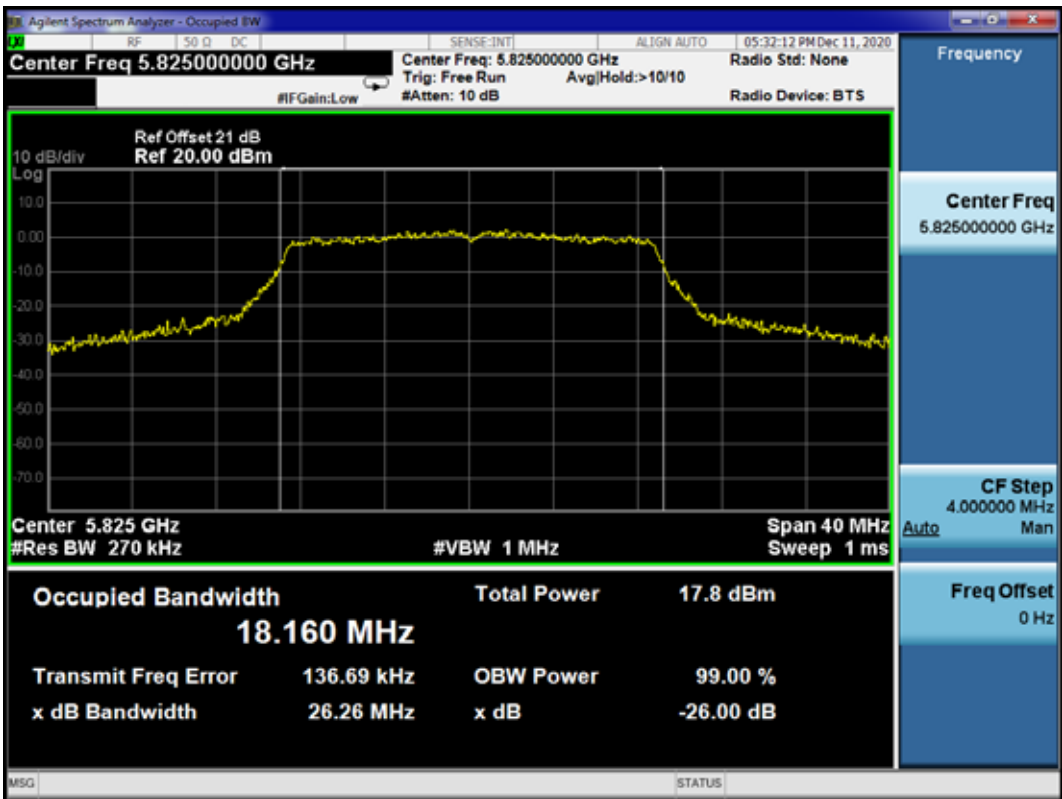
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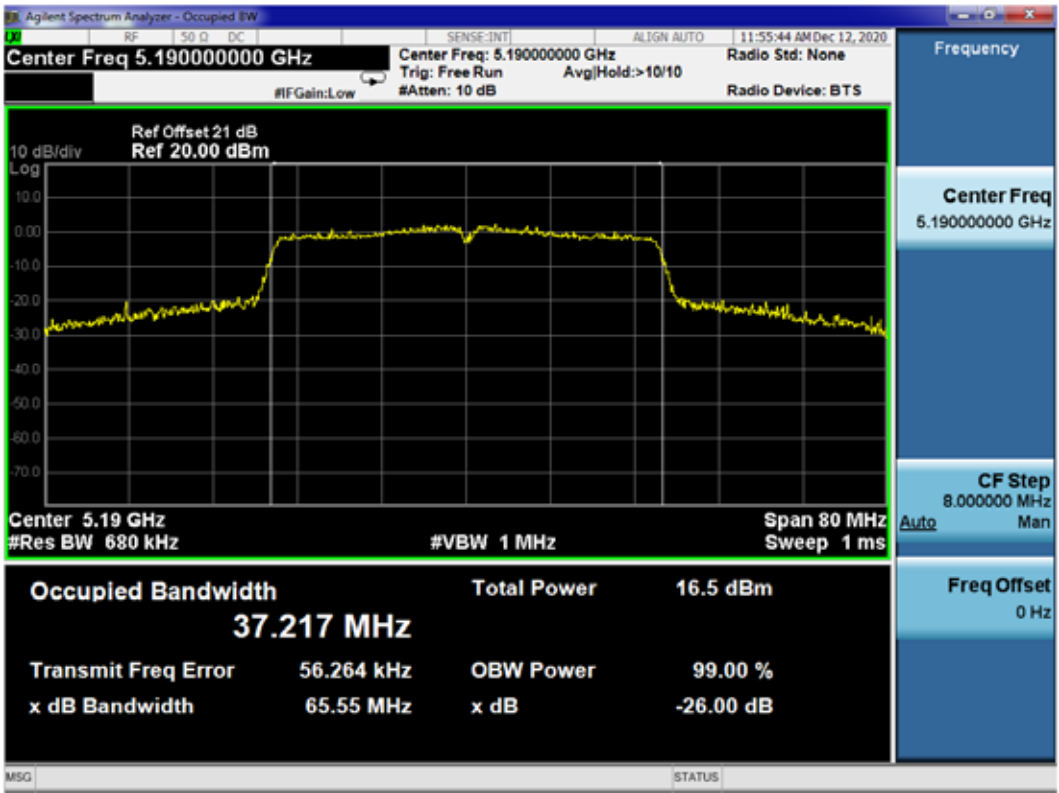
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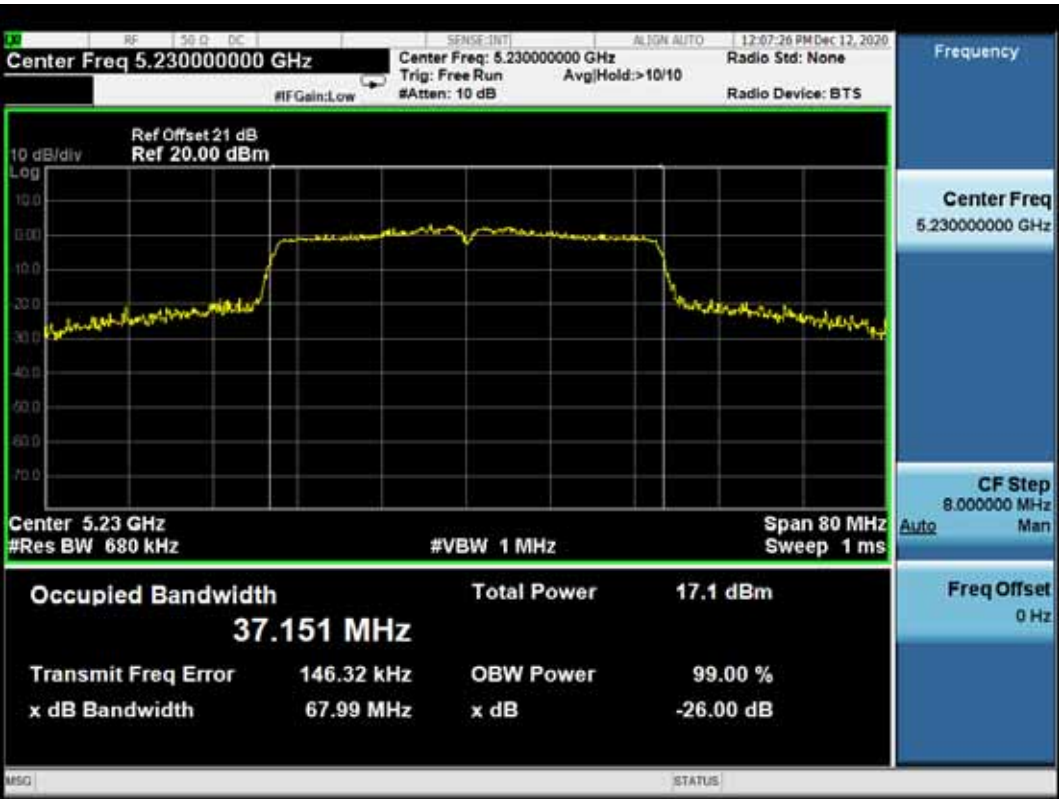
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801.11n-HT40 CH5190MHz



801.11n-HT40 CH5230MHz



801.11n-HT40 CH5270MHz



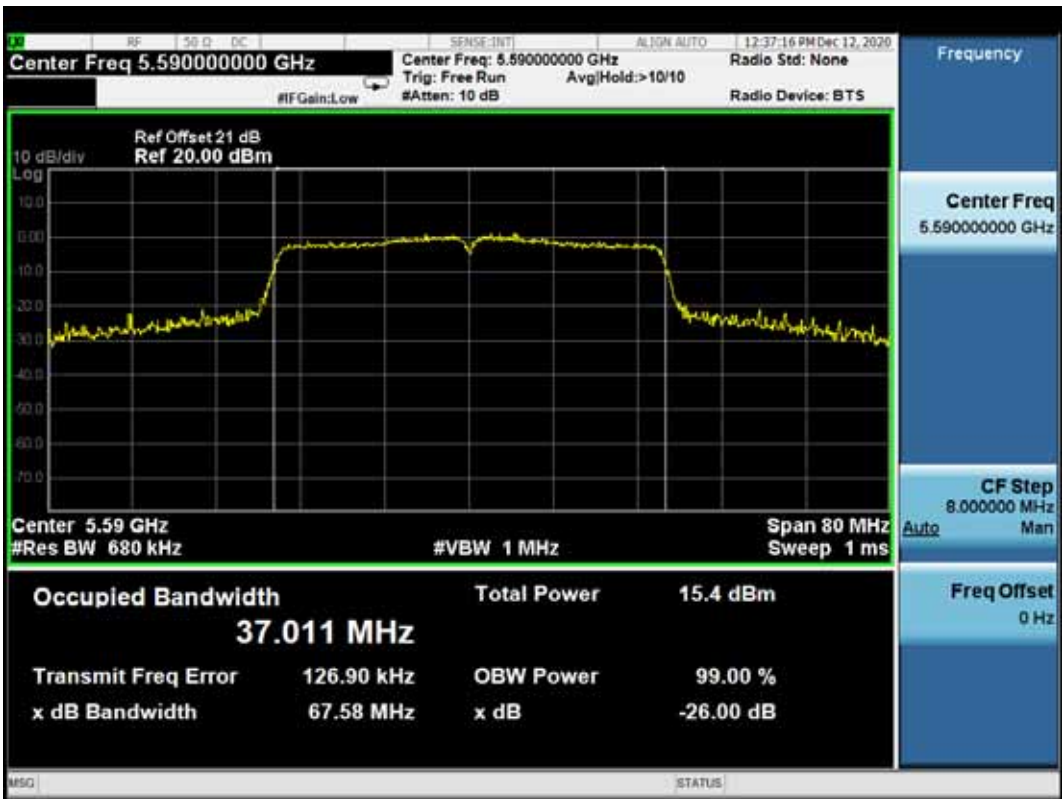
801.11n-HT40 CH5310MHz



801.11n-HT40 CH5510MHz



801.11n-HT40 CH5590MHz



801.11n-HT40 CH5670MHz



801.11n-HT40 CH5755MHz



801.11n-HT40 CH5795MHz



801.11ac-VHT80 CH5210MHz



801.11ac-VHT80 CH5290MHz



801.11ac-VHT80 CH5530MHz



801.11ac-VHT80 CH5610MHz



801.11ac-VHT80 CH5775MHz

