FCC Test Report

Product Name	：	Dual band AC1900 USB 3.0 Wi-Fi Adapter
Trade Name	：	ASUS
Model No.	：	USB-AC68
FCC ID.	：	MSQ-USBR700

Applicant	：	ASUSTeK COMPUTER INC.
Address	：	4F, No. 150, Li-Te Rd., Peitou, Taipei, Taiwan

Date of Receipt	：	Oct. 01, 2019
Issued Date	：	Nov. 20, 2019
Report No.	：	19A0015R-RFUSP54V00
Report Version	：	V1.0

Testing Laboratory
3024

Test Report Certification

Issued Date : Nov. 20, 2019
Report No. : 19A0015R-RFUSP54V00

Product Name	:	Dual band AC1900 USB 3.0 Wi-Fi Adapter
Applicant	:	ASUSTeK COMPUTER INC.
Address	:	4F, No. 150, Li-Te Rd., Peitou, Taipei, Taiwan
Manufacturer	:	ASUSTeK COMPUTER INC.
Model No.	:	USB-AC68
FCC ID.	:	MSQ-USBR700
EUT Voltage	:	DC 5V (Power by Notebook PC)
Testing Voltage	:	DC 5V (Power by Notebook PC)
Trade Name	:	ASUS
Applicable Standard	:	FCC CFR Title 47 Part 15 Subpart E Section 15.407: 2018 ANSI C63.10: 2013
Laboratory Name	:	Hsin Chu Laboratory
Address	:	No.372-2, Sec. 4, Zhongxing Rd., Zhudong Township, Hsinchu County 310, Taiwan, R.O.C. TEL: +886-3-582-8001 / FAX: +886-3-582-8958
Test Result	:	Complied

Documented By :

(Demi Chang / Senior Engineering Adm. Specialist)

Tested By :

(Clemens Fang / Senior Engineer)

Approved By :

(Louis Hsu / Deputy Manager)

Revision History

Report No.	Version	Description	Issued Date
19A0015R-RFUSP54V00	V1.0	This device is re-tested the unwanted emission on the basis of 15.407 b) i) under MO&O (Memorandum Opinion and Order) FCC 16-24. And verified the conducted emission, occupied bandwidth, minimum emission bandwidth, output power, power density and bandedge test items.	Nov. 20, 2019

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1. General Information

1.1. EUT Description

Product Name	Dual band AC1900 USB 3.0 Wi-Fi Adapter	
Trade Name	ASUS	
Model No.	USB-AC68	
Frequency Range/ Channel Number	IEEE 802.11a/ IEEE 802.11n (20MHz) / IEEE 802.11ac (20MHz)	5745~5825MHz / 5 Channels
	IEEE 802.11n (40MHz) / IEEE 802.11ac (40MHz)	5755~5795MHz / 2 Channels
	IEEE 802.11ac (80MHz)	5775~5775MHz / 1 Channel
Type of Modulation	IEEE 802.11a/n/ac	Orthogonal Frequency Division Multiplexing (OFDM)
Data Speed	IEEE 802.11a	6, 12, 18, 24, 36, 48, 54Mbps
	IEEE 802.11n	Support a subset of the combination of GI, MCS 0~MCS 23 and bandwidth defined in 802.11n
	IEEE 802.11ac	Support a subset of the combination of GI, MCS 0~MCS 9 and bandwidth defined in 802.11ac

Antenna Information	
Antenna Type	FPC/PIFA Antenna
Antenna Gain	2.4G(3Tx/4Rx): RX(Chain A):2.55dBi TX/RX Ant0(Chain B): 2.71dBi TX/RX Ant1(Chain C): 2.41dBi TX/RX Ant2(Chain D): 2.52dBi 5G(3Tx/4Rx): RX(Chain A):3.89dBi TX/RX Ant0(Chain B): 3.89dBi TX/RX Ant1(Chain C): 3.55dBi TX/RX Ant2(Chain D): 4.03dBi
Directional Gain	2.4G: 7.319 dBi 5G: 8.597 dBi
Beamforming Gain	2.4G: 1.51dBi 5G:1.75dBi

Accessories Information	
Cradle Cable	Shielded, 1m

ANT-TX / RX & Bandwidth

ANT-TX / RX	TX			RX		
Mode/ Channel Bandwidth	20MHz	40MHz	80MHz	20MHz	40MHz	80MHz
IEEE802.11a	✓			✓		
IEEE802.11n	✓	✓		✓	✓	
IEEE802.11ac	✓	✓	✓	✓	✓	✓

IEEE 802.11n

MCS Index	Modulation	R	N_{BPSCS}	N_{CBPS}		N_{DBPS}		Data Rate(Mb/s)			
				20MHz	40MHz	20MHz	40MHz	800ns GI		400ns GI	
								20MHz	40MHz	20MHz	40MHz
0	BPSK	1/2	1	52	108	26	54	6.5	13.5	7.2	15.0
1	QPSK	1/2	2	104	216	52	108	13.0	27.0	14.4	30.0
2	QPSK	3/4	2	104	216	78	162	19.5	40.5	21.7	45.0
3	16-QAM	1/2	4	208	432	104	216	26.0	54.0	28.9	60.0
4	16-QAM	3/4	4	208	432	156	324	39.0	81.0	43.3	90.0
5	64-QAM	2/3	6	312	648	208	432	52.0	108.0	57.8	120.0
6	64-QAM	3/4	6	312	648	234	486	58.5	121.5	65.0	135.0
7	64-QAM	5/6	6	312	648	260	540	65.0	135.0	72.2	150.0
Note 1: Support of 400ns GI is optional on transmit and receive.											

Table 1 – MCS parameters for TX Antenna number = 1

MCS Index	Modulation	R	N_{BPSCS}	N_{CBPS}		N_{DBPS}		Data Rate(Mb/s)			
				20MHz	40MHz	20MHz	40MHz	800ns GI		400ns GI	
								20MHz	40MHz	20MHz	40MHz
8	BPSK	1/2	1	104	216	52	108	13.0	27.0	14.4	30.0
9	QPSK	1/2	2	208	432	104	216	26.0	54.0	28.9	60.0
10	QPSK	3/4	2	208	432	156	324	39.0	81.0	43.3	90.0
11	16-QAM	1/2	4	416	864	208	432	52.0	108.0	57.8	120.0
12	16-QAM	3/4	4	416	864	312	648	78.0	162.0	86.7	180.0
13	64-QAM	2/3	6	624	1296	416	864	104.0	216.0	115.6	240.0
14	64-QAM	3/4	6	624	1296	468	972	117.0	243.0	130.0	270.0
15	64-QAM	5/6	6	624	1296	520	1080	130.0	270.0	144.4	300.0
Note 1: Support of 400ns GI is optional on transmit and receive.											

Table 2 – MCS parameters for TX Antenna number = 2

MCS Index	Modulation	R	N_{BPSCS}	N_{CBPS}		N_{DBPS}		Data Rate(Mb/s)			
				20MHz	40MHz	20MHz	40MHz	800ns GI		400ns GI	
								20MHz	40MHz	20MHz	40MHz
16	BPSK	1/2	1	156	324	78	162	19.5	40.5	21.7	45.0
17	QPSK	1/2	2	312	648	156	324	39.0	81.0	43.3	90.0
18	QPSK	3/4	2	312	648	234	486	58.5	121.5	65.0	135.0
19	16-QAM	1/2	4	624	1296	312	648	78.0	162.0	86.7	180.0
20	16-QAM	3/4	4	624	1296	468	972	117.0	243.0	130.0	270.0
21	64-QAM	2/3	6	936	1944	624	1296	156.0	324.0	173.3	360.0
22	64-QAM	3/4	6	936	1944	702	1458	175.5	364.5	195.0	405.0
23	64-QAM	5/6	6	936	1944	780	1620	195.0	405.0	216.7	450.0
Note 1: Support of 400ns GI is optional on transmit and receive.											

Table 3 – MCS parameters for TX Antenna number = 3

Symbol	Explanation
R	Code rate
N_{BPSC}	Number of coded bits per single carrier
N_{CBPS}	Number of coded bits per symbol
N_{DBPS}	Number of data bits per symbol
GI	guard interval

IEEE 802.11ac Data Rate

Spatial Streams (Note1)	MCS Index	Modulation type	Coding rate	Data Rate(Mb/s)							
				20 MHz		40 MHz		80 MHz		160 MHz	
				Guard Interval		Guard Interval		Guard Interval		Guard Interval	
				800ns	400ns	800ns	400ns	800ns	400ns	800ns	400ns
1	0	BPSK	1/2	6.5	7.2	13.5	15	29.3	32.5	58.5	65
	1	QPSK	1/2	13	14.4	27	30	58.5	65	117	130
	2	QPSK	3/4	19.5	21.7	40.5	45	87.8	97.5	175.5	195
	3	16-QAM	1/2	26	28.9	54	60	117	130	234	260
	4	16-QAM	3/4	39	43.3	81	90	175.5	195	351	390
	5	64-QAM	2/3	52	57.8	108	120	234	260	468	520
	6	64-QAM	3/4	58.5	65	121.5	135	263.3	292.5	526.5	585
	7	64-QAM	5/6	65	72.2	135	150	292.5	325	585	650
	8	256-QAM	3/4	78	86.7	162	180	351	390	702	780
	9	256-QAM	5/6	N/A	N/A	180	200	390	433.3	780	866.7
2	0	BPSK	1/2	13	14.4	27	30	58.6	65	117	130
	1	QPSK	1/2	26	28.8	54	60	117	130	234	260
	2	QPSK	3/4	39	43.4	81	90	175.6	195	351	390
	3	16-QAM	1/2	52	57.8	108	120	234	260	468	520
	4	16-QAM	3/4	78	86.6	162	180	351	390	702	780
	5	64-QAM	2/3	104	115.6	216	240	468	520	936	1040
	6	64-QAM	3/4	117	130	243	270	526.6	585	1053	1170
	7	64-QAM	5/6	130	144.4	270	300	585	650	1170	1300
	8	256-QAM	3/4	156	173.4	324	360	702	780	1404	1560
	9	256-QAM	5/6	N/A	N/A	360	400	780	866.6	1560	1733.4
3	0	BPSK	1/2	19.5	21.6	40.5	45	87.9	97.5	175.5	195
	1	QPSK	1/2	39	43.2	81	90	175.5	195	351	390
	2	QPSK	3/4	58.5	65.1	121.5	135	263.4	292.5	526.5	585
	3	16-QAM	1/2	78	86.7	162	180	351	390	702	780
	4	16-QAM	3/4	117	129.9	243	270	526.5	585	1053	1170
	5	64-QAM	2/3	156	173.4	324	360	702	780	1404	1560
	6	64-QAM	3/4	175.5	195	364.5	405	789.9	877.5	1579.5	1755
	7	64-QAM	5/6	195	216.6	405	450	877.5	975	1755	1950
	8	256-QAM	3/4	234	260.1	486	540	1053	1170	2106	2340
	9	256-QAM	5/6	N/A	N/A	540	600	1170	1299.9	2340	2600.1

IEEE 802.11a & IEEE 802.11n (20MHz) & IEEE 802.11ac (20MHz)

Working Frequency of Each Channel							
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
149	5745 MHz	153	5765 MHz	157	5785 MHz	161	5805 MHz
165	5825 MHz						

IEEE 802.11n (40MHz) & IEEE 802.11ac (40MHz)

Working Frequency of Each Channel			
Channel	Frequency	Channel	Frequency
151	5755 MHz	159	5795 MHz

IEEE 802.11ac (80MHz)

Working Frequency of Each Channel	
Channel	Frequency
155	5775 MHz

Note:

1. This device is a Dual band AC1900 USB 3.0 Wi-Fi Adapter including 2.4GHz b/g/n (3x4) and 5G a/n/ac (3x4) transmitting and receiving functions.
2. Regards to the frequency band operation; the lowest、middle and highest frequency of channel were selected to perform the test, and then shown on this report.
3. The EUT description is from the customer declaration.
4. Directional Gain Calculated by KDB662911 F.(d)(i) rule.

1.2. Report History

Report No.	Version	Description
15C0048R-RFUSP56V00	V1.0	Initial issue of report

1.3. Test Mode

DEKRA has verified the construction and function in typical operation. The preliminary tests were performed in different data rate, and to find the worst condition, which was shown in this test report. The following table is the final test mode.

Test Mode	Mode 1: Transmit_SISO Mode Mode 2: Transmit_MIMO Mode Mode 3: Transmit_Beamforming Mode

Test Items	Modulation	Channel	Antenna	Result
Conducted Emission	11ac (80MHz)	155	0+1+2	Complies
99% & Minimum Emission Bandwidth	a	149/157/165	0/1/2	Complies
	11n/ac (20MHz)	149/157/165	0/1/2	Complies
	11n/ac (40MHz)	151/159	0/1/2	Complies
	11ac (80MHz)	155	0/1/2	Complies
Maximum conducted output power	a	149/157/165	0/1/2	Complies
	11n/ac (20MHz)	149/157/165	0+1+2	Complies
	11n/ac (40MHz)	151/159	0+1+2	Complies
	11ac (80MHz)	155	0+1+2	Complies
Maximum power spectral density	a	149/157/165	0/1/2	Complies
	11n/ac (20MHz)	149/157/165	0+1+2	Complies
	11n/ac (40MHz)	151/159	0+1+2	Complies
	11ac (80MHz)	155	0+1+2	Complies
Radiated Emission	a	149/157/165	0	Complies
	11n/ac (20MHz)	149/157/165	0+1+2	Complies
	11n/ac (40MHz)	151/159	0+1+2	Complies
	11ac (80MHz)	155	0+1+2	Complies
Band Edge	a	149/157/165	0	Complies
	11n/ac (20MHz)	149/157/165	0+1+2	Complies
	11n/ac (40MHz)	151/159	0+1+2	Complies
	11ac (80MHz)	155	0+1+2	Complies

Note: Determining compliance shall be based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.

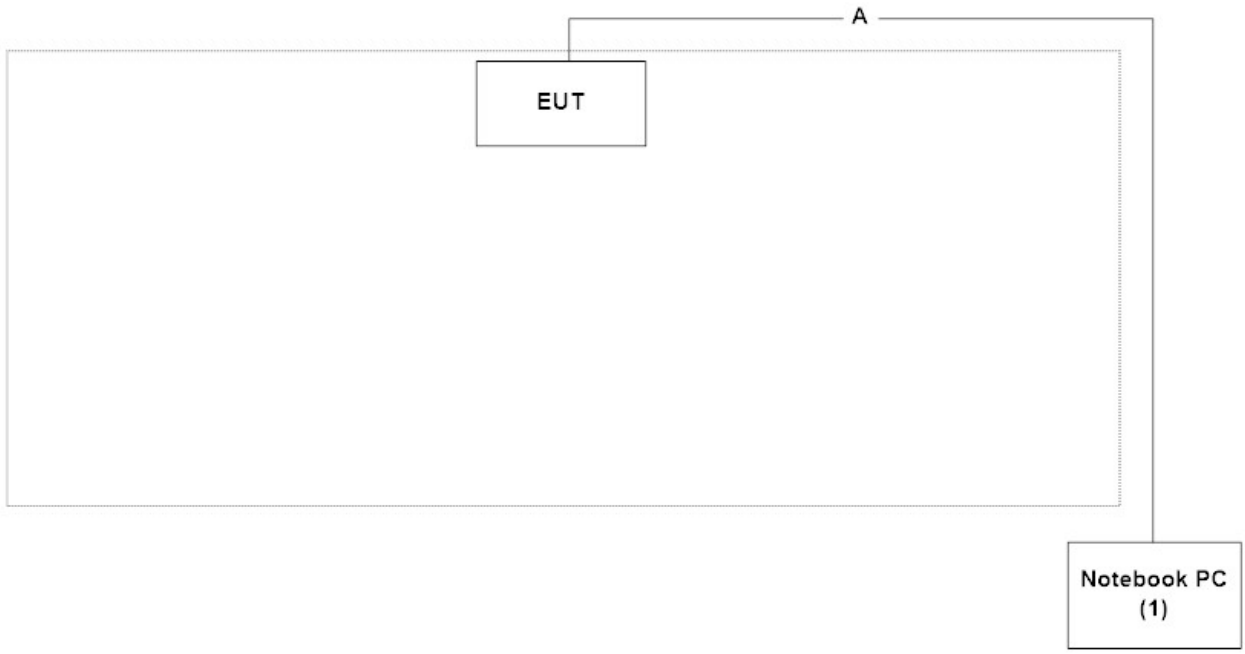
1.4. Tested System Details

The types for all equipments, plus descriptions of all cables used in the tested system (including inserted cards) are:

Product		Manufacturer	Model No.	Serial No.	FCC ID	Power Cord
1	Notebook PC	HP	110-3010TU	CNC0343H3R	DoC	Non-Shielded, 1m

1.5. Configuration of tested System

Connection Diagram



Signal Cable Type		Signal cable Description
A	USB Cable	Shielded, 2m

1.6. EUT Exercise Software

1	Setup the EUT as shown in Section 1.5.
2	Execute “Realtek 11ac 8814AU USB” on the EUT.
3	Configure the test mode, the test channel, and the data rate.
4	Press “Start TX” to start the continuous transmitting.
5	Verify that the EUT works properly.

1.7. Test Facility

Ambient conditions in the laboratory:

Items	Test Item	Required	Test Site
Temperature (°C)	FCC PART 15 E 15.407	15 - 35	3
Humidity (%RH)	Conducted Emission	25 - 75	
Temperature (°C)	FCC PART 15 E 15.407	15 - 35	3
Humidity (%RH)	99% & Minimum Emission Bandwidth	25 - 75	
Temperature (°C)	FCC PART 15 E 15.407	15 - 35	3
Humidity (%RH)	Maximum conducted output power	25 - 75	
Temperature (°C)	FCC PART 15 E 15.407	15 - 35	3
Humidity (%RH)	Maximum power spectral density	25 - 75	
Temperature (°C)	FCC PART 15 E 15.407	15 - 35	2
Humidity (%RH)	Radiated Emission	25 - 75	
Temperature (°C)	FCC PART 15 E 15.407	15 - 35	2
Humidity (%RH)	Band Edge	25 - 75	

Note: Test Site information refers to Laboratory Information.

Laboratory Information

USA : FCC Registration Number: TW3024

The address and introduction of DEKRA Testing and Certification Co., Ltd. laboratories can be founded in our Web site : http://www.dekra.com.tw

If you have any comments, Please don't hesitate to contact us. Our test sites as below:

Test Laboratory	DEKRA Testing and Certification Co., Ltd.
Address	1. No. 75-2, 3rd Lin, WangYe Keng, Yonghxing Tsuen, Qionglin Shiang, Hsinchu County 307, Taiwan, R.O.C. 2. No.372, Sec. 4, Zhongxing Rd., Zhudong Township, Hsinchu County 31061, Taiwan, R.O.C. 3. No.372-2, Sec. 4, Zhongxing Rd., Zhudong Township, Hsinchu County 31061, Taiwan, R.O.C.
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E mail address	info.tw@dekra.com
Website	http://www.dekra.com.tw

1.8. List of Test Equipment

Conducted Emission / SR2-H

Instrument	Manufacturer	Model No.	Serial No.	Cal. Date	Next Cal. Date
Artificial Mains Network	R&S	ENV4200	848411/010	2019/01/11	2020/01/10
Test Receiver	R&S	ESCS 30	836858/022	2019/03/12	2020/03/11
LISN	R&S	ENV216	100092	2019/07/09	2020/07/08

99% & Minimum Emission Bandwidth / SR12-H

Instrument	Manufacturer	Model No.	Serial No.	Cal. Date	Next Cal. Date
Spectrum Analyzer	Keysight	N9030B	MY57140404	2019/06/18	2020/06/17
Spectrum Analyzer	Keysight	N9010B	MY57110159	2019/05/03	2020/05/02
Spectrum Analyzer	Agilent	N9010A	US47140172	2019/06/28	2020/06/27
Signal & Spectrum Analyzer	R&S	FSV40	101049	2019/09/11	2020/09/10

Maximum conducted output power / SR12-H

Instrument	Manufacturer	Model No.	Serial No.	Cal. Date	Next Cal. Date
High Speed Peak Power Meter Dual Input	Anritsu	ML2496A	1602004	2018/12/17	2019/12/16
Pulse Power Sensor	Anritsu	MA2411B	1531043	2018/12/17	2019/12/16
Pulse Power Sensor	Anritsu	MA2411B	1531044	2018/12/17	2019/12/16
Power Meter	Keysight	8990B	MY51000248	2019/05/21	2020/05/20
Power Sensor	Keysight	N1923A	MY57240005	2019/05/21	2020/05/20

Maximum power spectral density / SR12-H

Instrument	Manufacturer	Model No.	Serial No.	Cal. Date	Next Cal. Date
Spectrum Analyzer	Keysight	N9030B	MY57140404	2019/06/18	2020/06/17
Spectrum Analyzer	Keysight	N9010B	MY57110159	2019/05/03	2020/05/02
Spectrum Analyzer	Agilent	N9010A	US47140172	2019/06/28	2020/06/27
Signal & Spectrum Analyzer	R&S	FSV40	101049	2019/09/11	2020/09/10

Radiated Emission / CB2-H

Instrument	Manufacturer	Model No.	Serial No.	Cal. Date	Next Cal. Date
Signal Analyzer	R&S	FSVA40	101455	2019/10/21	2020/10/20
Signal & Spectrum Analyzer	R&S	FSV40	101049	2019/09/11	2020/09/10
Signal Analyzer	R&S	FSV40	101435	2019/07/08	2020/070/7
EXA Signal Analyzer	Keysight	N9010A	MY51440132	2019/03/15	2020/03/14
Bilog Antenna	Teseq	CBL6112D	23191	2019/06/17	2020/06/16
Horn Antenna	Schwarzbeck	BBHA 9120D	639	2019/05/28	2020/05/27
Horn Antenna	Schwarzbeck	BBHA 9120D	01656	2019/10/25	2020/10/24
Horn Antenna	Schwarzbeck	BBHA 9170	202	2019/01/16	2020/01/15
Horn Antenna	Schwarzbeck	BBHA 9170	203	2019/02/20	2020/02/19
Pre-Amplifier	DEKRA	AP-025C	201801236	2019/09/24	2020/09/23
Pre-Amplifier	EMCI	EMC11830I	980366	2018/12/21	2019/12/20
Pre-Amplifier	DEKRA	AP-400C	201801231	2018/12/05	2019/12/04
Band Reject Filter	Micro-Tronics	BRM50716	G089	2019/03/27	2020/03/26
Band Reject Filter	Micro-Tronics	BRM50716	G068	2019/03/27	2020/03/26
Coaxial Cable(16m)	Huber+Suhner	SF104	CB2-H	2019/07/25	2020/07/24
EMI system	DEKRA	Version 1.0	CB2-H	NA	NA

Band Edge / CB2-H

Instrument	Manufacturer	Model No.	Serial No.	Cal. Date	Next Cal. Date
Signal Analyzer	R&S	FSVA40	101455	2019/10/21	2020/10/20
Signal & Spectrum Analyzer	R&S	FSV40	101049	2019/09/11	2020/09/10
Signal Analyzer	R&S	FSV40	101435	2019/07/08	2020/070/7
EXA Signal Analyzer	Keysight	N9010A	MY51440132	2019/03/15	2020/03/14
Bilog Antenna	Teseq	CBL6112D	23191	2019/06/17	2020/06/16
Horn Antenna	Schwarzbeck	BBHA 9120D	639	2019/05/28	2020/05/27
Horn Antenna	Schwarzbeck	BBHA 9120D	01656	2019/10/25	2020/10/24
Horn Antenna	Schwarzbeck	BBHA 9170	202	2019/01/16	2020/01/15
Horn Antenna	Schwarzbeck	BBHA 9170	203	2019/02/20	2020/02/19
Pre-Amplifier	DEKRA	AP-025C	201801236	2019/09/24	2020/09/23
Pre-Amplifier	EMCI	EMC11830I	980366	2018/12/21	2019/12/20
Pre-Amplifier	DEKRA	AP-400C	201801231	2018/12/05	2019/12/04
Band Reject Filter	Micro-Tronics	BRM50716	G089	2019/03/27	2020/03/26
Band Reject Filter	Micro-Tronics	BRM50716	G068	2019/03/27	2020/03/26
Coaxial Cable(16m)	Huber+Suhner	SF104	CB2-H	2019/07/25	2020/07/24
EMI system	DEKRA	Version 1.0	CB2-H	NA	NA

Note: All equipment upon which need to calibrated are with calibration period of 1 year.

1.9. Duty Cycle

Mode	On Time (ms)	On+Off Time (ms)	Duty Cycle (%)	Duty Factor (dB) linear voltage	Power	1/T Minimum VBW (kHz)
802.11a	1.346	1.431	94.06%	0.531891	0.266	0.74
802.11n (20MHz)	0.457	0.512	89.17%	0.995965	0.498	2.19
802.11n (40MHz)	0.219	0.305	71.66%	2.894715	1.447	4.57
802.11ac (80MHz)	0.143	0.197	72.74%	2.764950	1.382	6.99

Note:

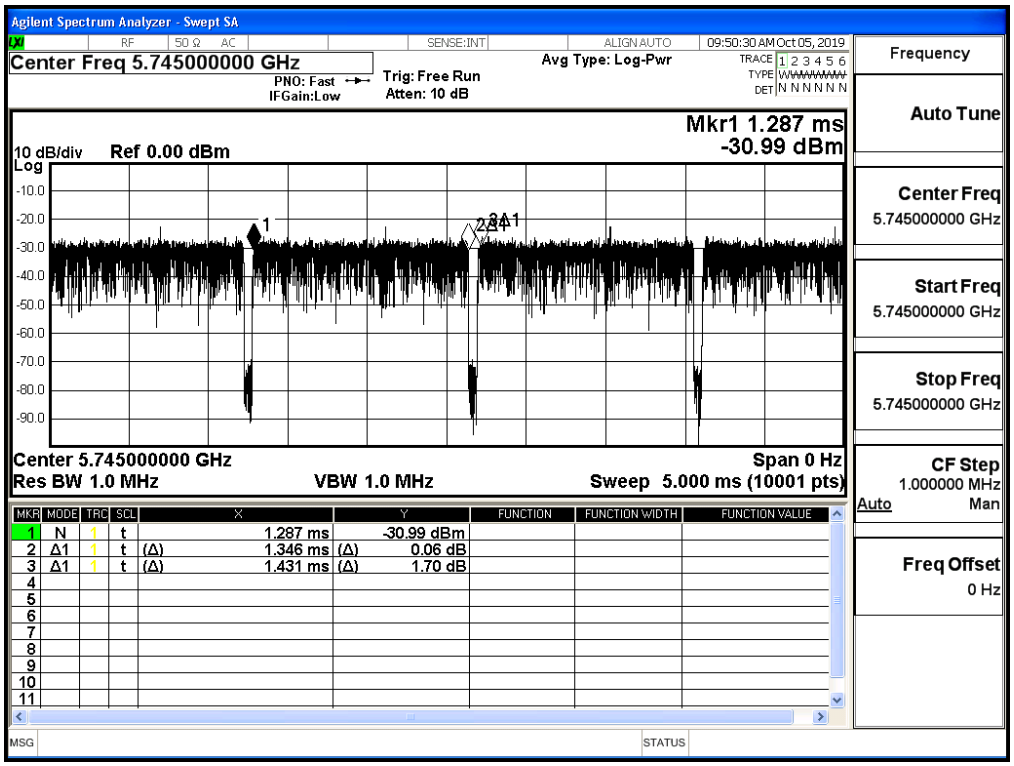
Offset = 20 log(1/duty cycle)

Accotding to KDB 789033

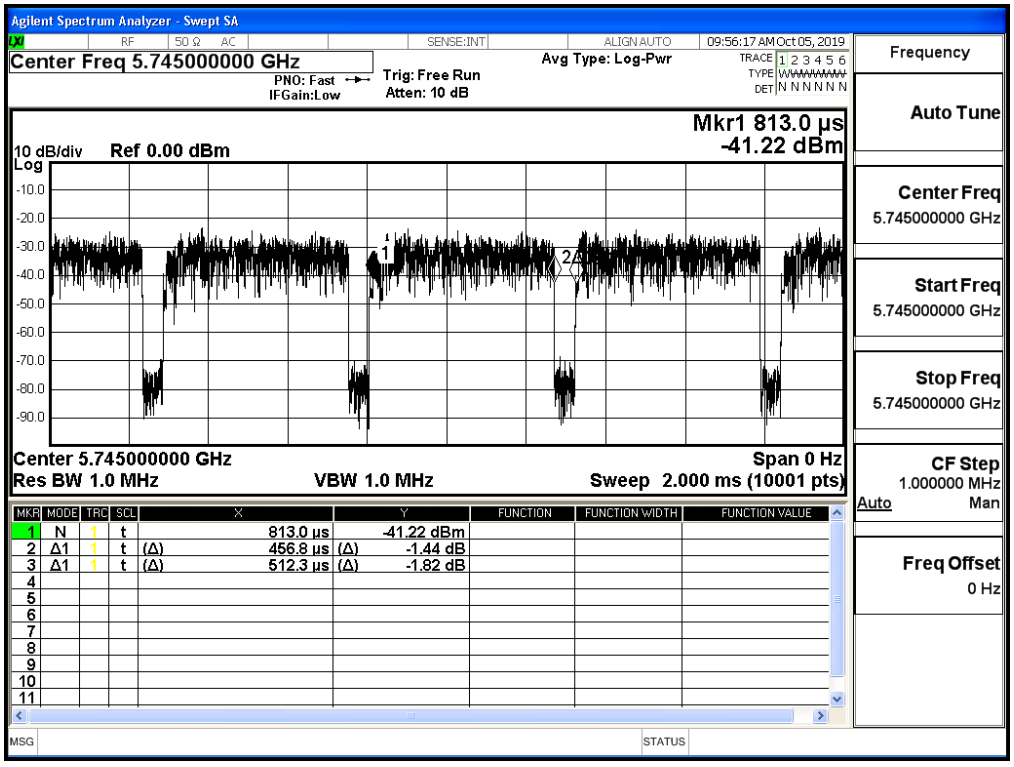
If power averaging (rms) mode was used in step (iv) above, the correction factor is 10 log (1/x), where x is the duty cycle. For example, if the transmit duty cycle was 50%, then 3 dB must be added to the measured emission levels.

If linear voltage averaging mode was used in step (iv) above, the correction factor is 20 log (1/x), where x is the duty cycle. For example, if the transmit duty cycle was 50%, then 6 dB must be added to the measured emission levels.

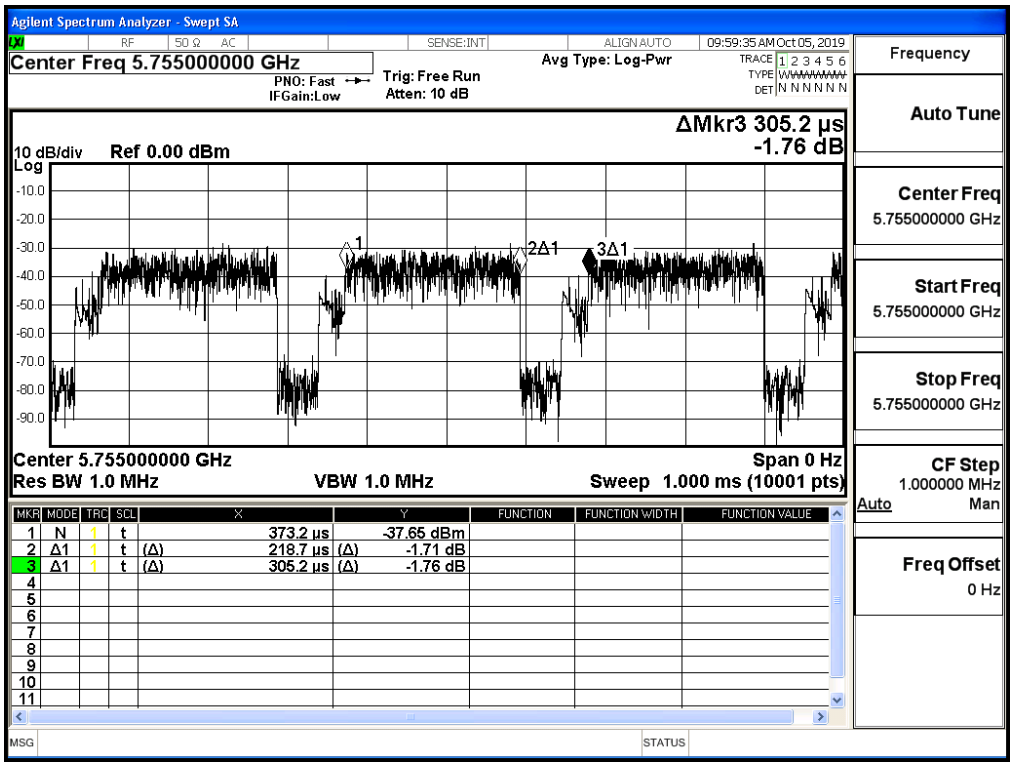
802.11a



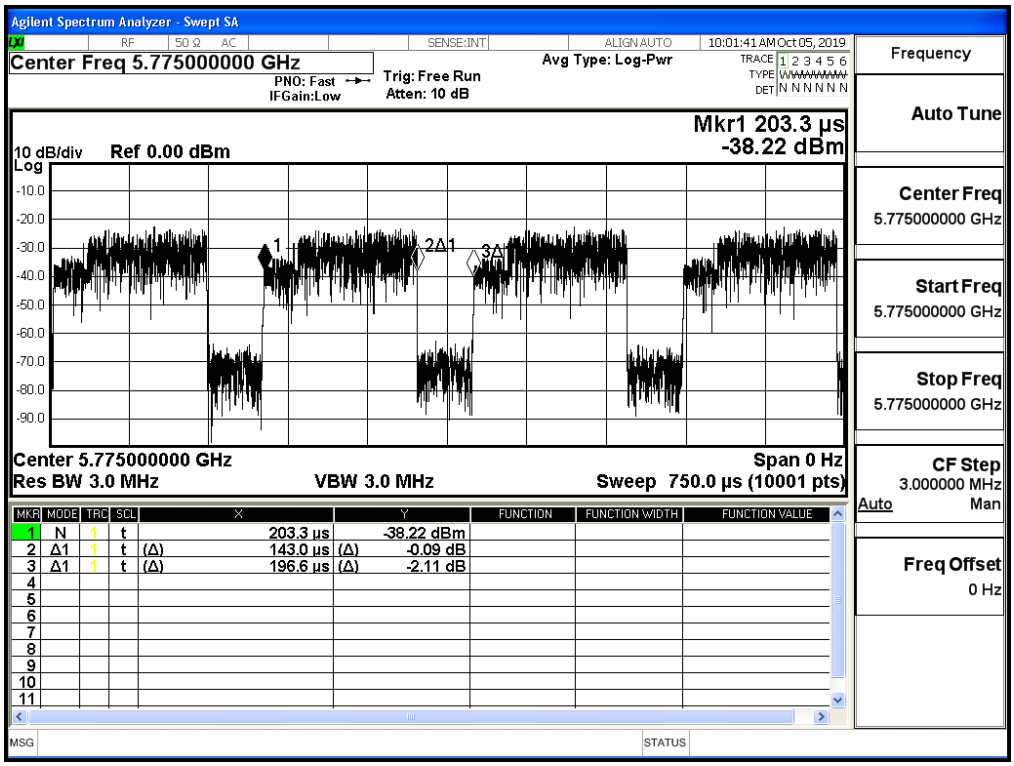
802.11n(20M)



802.11n(40M)



802.11ac(80M)



1.10. Uncertainty

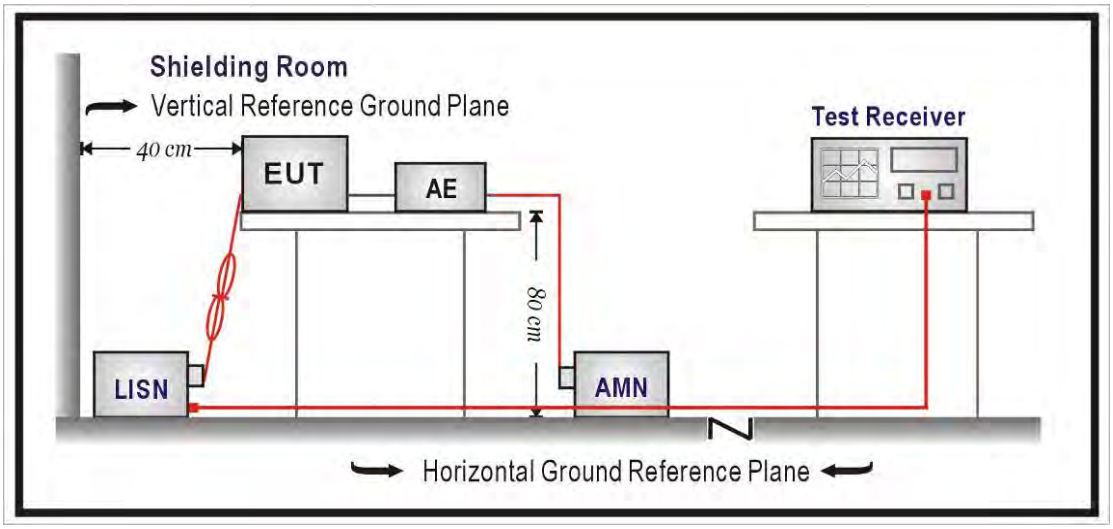
Test item	Uncertainty
Conducted Emission	± 2.1 dB
99% & Minimum Emission Bandwidth	± 637 Hz
Maximum conducted output power	± 1.16 dB
Maximum power spectral density	± 2.11 dB
Radiated Emission	± 3.40 dB below 1GHz ± 3.46 dB above 1GHz
Band Edge	± 3.40 dB below 1GHz ± 3.46 dB above 1GHz

2. Aetenna Requirements

According to FCC 47CFR 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

3. Conducted Emission

3.1. Test Setup



3.2. Limits

FCC Part 15 Subpart C Paragraph 15.207 Limits (dBuV)		
Frequency MHz	QP	AV
0.15 - 0.50	66 - 56	56 - 46
0.50 - 5.0	56	46
5.0 - 30	60	50

Remark: In the above table, the tighter limit applies at the band edges.

3.3. Test Procedure

The EUT was setup according to ANSI C63.10: 2013. The EUT was placed on a platform of nominal size, 1 m by 1.5 m, raised 80 cm above the conducting ground plane. The vertical conducting plane was located 40 cm to the rear of the EUT. All other surfaces of EUT were at least 80 cm from any other grounded conducting surface. The EUT and simulators are connected to the main power through a line impedance stabilization network (LISN). The LISN provides a 50 ohm /50uH coupling impedance for the measuring equipment. The peripheral devices are also connected to the main power through a LISN. (Please refer to the block diagram of the test setup and photographs.)

Each current-carrying conductor of the EUT power cord, except the ground (safety) conductor, was individually connected through a LISN to the input power source.

The excess length of the power cord between the EUT and the LISN receptacle were folded back and forth at the center of the lead to form a bundle not exceeding 40 cm in length.

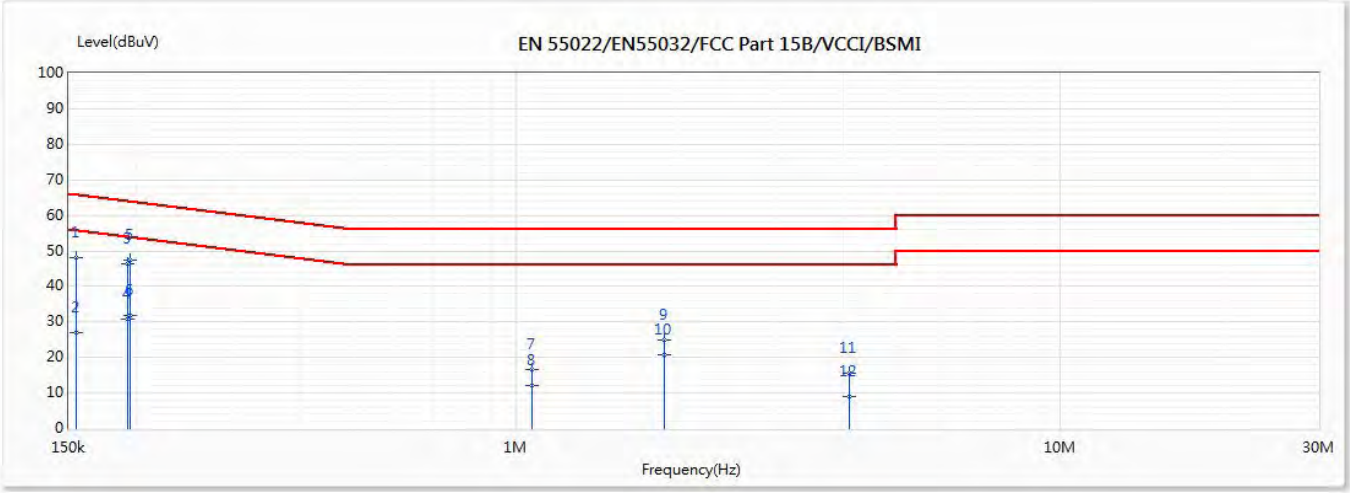
Conducted emissions were investigated over the frequency range from 0.15MHz to 30MHz using a receiver bandwidth of 9 kHz.

3.4. Test Specification

According to FCC Part 15 Subpart C Paragraph 15.407: 2018

3.5. Test Result

Site :	SR2-H	Engineer :	Scott
Model No :	USB-AC68	Test Date :	2019/11/7
Test Voltage :	DC 5V (Power by Notebook PC)	Phase :	L1
Test Mode :	Mode 2: Transmit_MIMO Mode		
Note :	802.11ac(80M)_5775MHz		
Environmental Condition:	Temperature (℃) : 24..5 ; Relative Humidity (%RH) : 57.6		

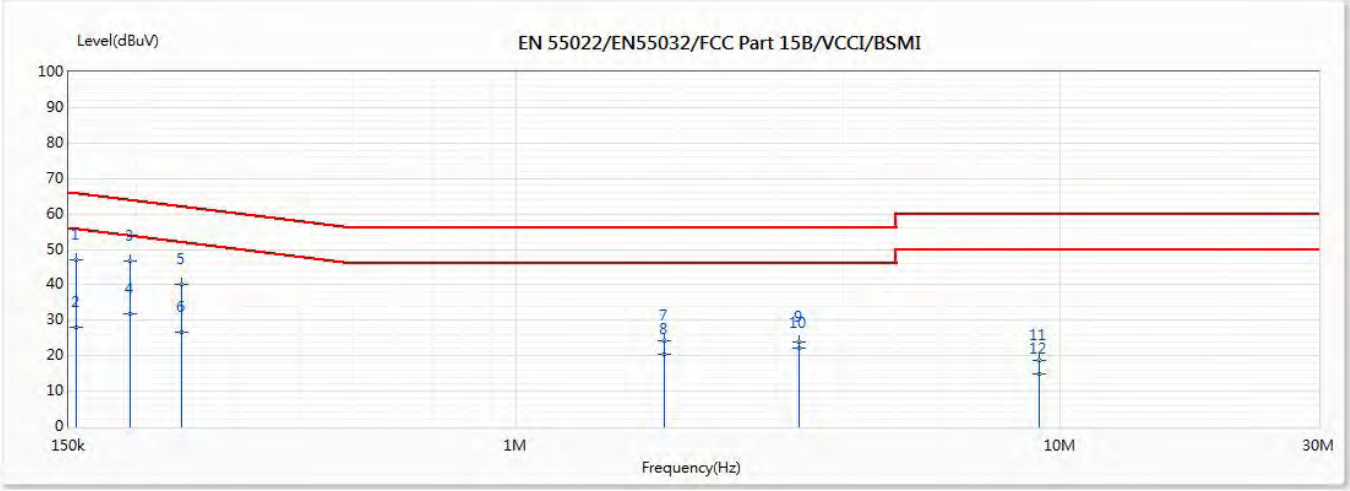


No	Frequency (MHz)	Emission Level (dBuV)	Limit (dBuV)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	0.155	48.25	65.86	-17.62	38.59	9.66	QP
2	0.155	26.90	55.86	-28.96	17.24	9.66	AV
3	0.193	46.52	64.78	-18.25	36.86	9.67	QP
4	0.193	30.78	54.78	-23.99	21.11	9.67	AV
*5	0.195	47.33	64.72	-17.39	37.66	9.67	QP
6	0.195	31.88	54.72	-22.83	22.21	9.67	AV
7	1.07	16.59	56.00	-39.41	6.77	9.82	QP
8	1.07	12.10	46.00	-33.90	2.27	9.82	AV
9	1.871	24.86	56.00	-31.14	15.03	9.84	QP
10	1.871	20.81	46.00	-25.19	10.97	9.84	AV
11	4.108	15.59	56.00	-40.41	5.69	9.90	QP
12	4.108	8.88	46.00	-37.12	-1.02	9.90	AV

Note:

1. All Reading Levels is Quasi-Peak and average value.
2. " * ", means this data is the worst emission level.
3. Emission Level = Reading Level + Correct Factor.

Site :	SR2-H	Engineer :	Scott
Model No :	USB-AC68	Test Date :	2019/11/7
Test Voltage :	DC 5V (Power by Notebook PC)	Phase :	L2
Test Mode :	Mode 2: Transmit_MIMO Mode		
Note :	802.11ac(80M)_5775MHz		
Environmental Condition:	Temperature (℃) : 24..5 ; Relative Humidity (%RH) : 57.6		



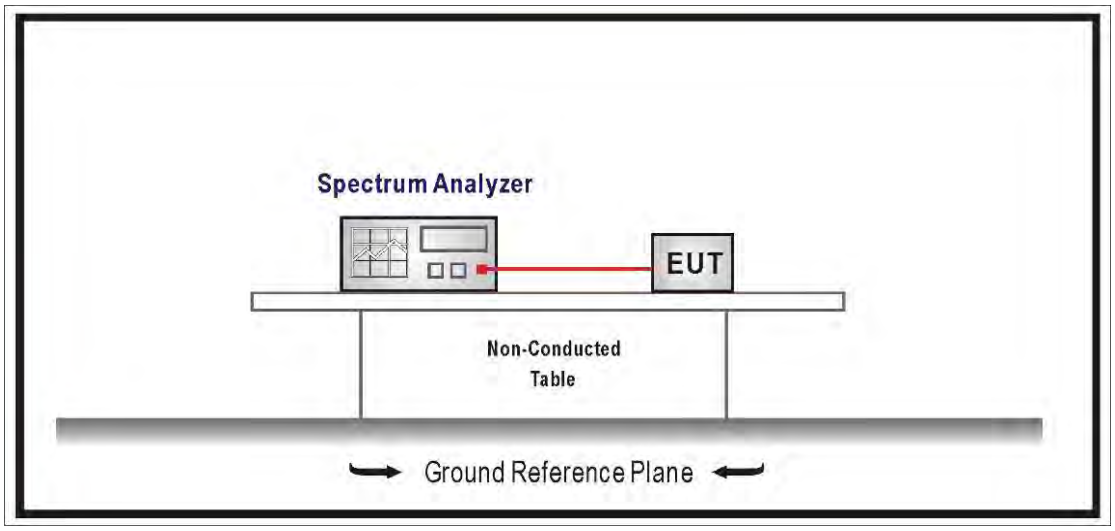
No	Frequency (MHz)	Emission Level (dBuV)	Limit (dBuV)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	0.155	46.98	65.86	-18.87	37.30	9.68	QP
2	0.155	28.07	55.86	-27.79	18.39	9.68	AV
*3	0.195	46.72	64.72	-17.99	37.04	9.68	QP
4	0.195	31.85	54.72	-22.87	22.17	9.68	AV
5	0.242	40.24	63.37	-23.13	30.56	9.69	QP
6	0.242	26.62	53.37	-26.75	16.93	9.69	AV
7	1.871	24.07	56.00	-31.93	14.23	9.85	QP
8	1.871	20.35	46.00	-25.65	10.50	9.85	AV
9	3.311	23.93	56.00	-32.07	14.04	9.88	QP
10	3.311	21.98	46.00	-24.02	12.10	9.88	AV
11	9.16	18.59	60.00	-41.41	8.48	10.12	QP
12	9.16	14.72	50.00	-35.28	4.60	10.12	AV

Note:

1. All Reading Levels is Quasi-Peak and average value.
2. " * ", means this data is the worst emission level.
3. Emission Level = Reading Level + Correct Factor.

4. 99% & Minimum Emission Bandwidth

4.1. Test Setup



4.2. Limits

99% Bandwidth : No Required
Minimum Emission Bandwidth ≧ 500KHz

4.3. Test Procedure

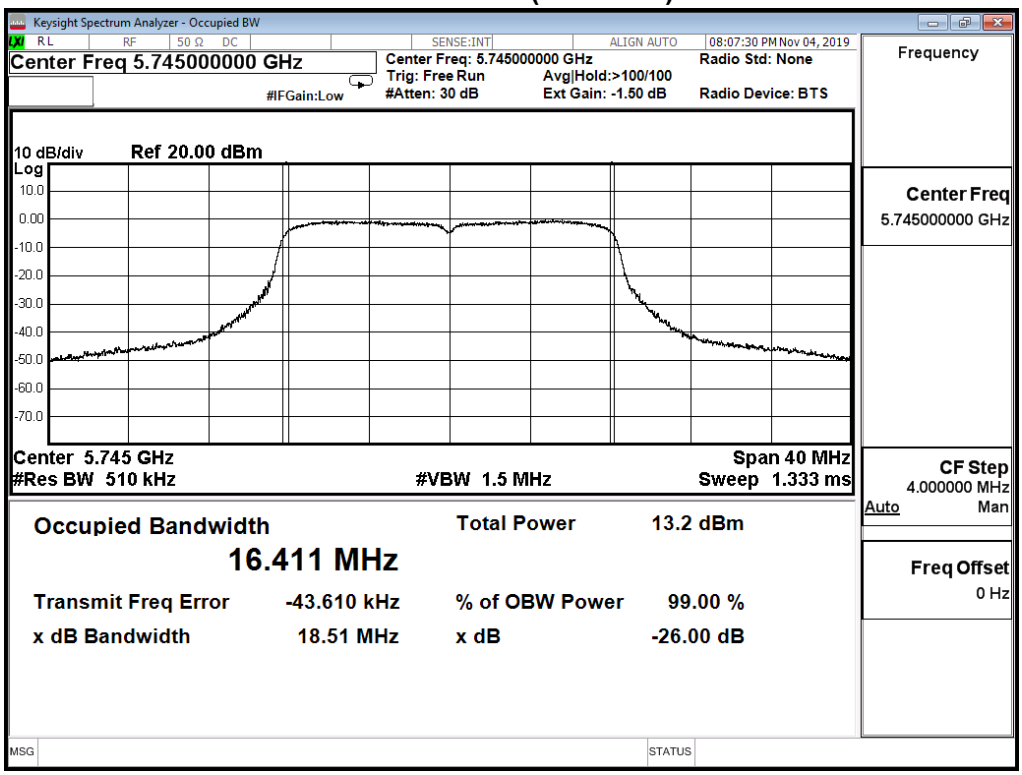
99% Bandwidth :
The EUT was tested according to U-NII test procedure of KDB 789033.D02 v02
Set RBW 1% of the emission bandwidth, VBW equal to 3 times the RBW.
Minimum Emission Bandwidth :
Set RBW = 100KHz, VBW≧3xRBW, Sweep time=Auto, Set Peak detector.

4.4. Test Result

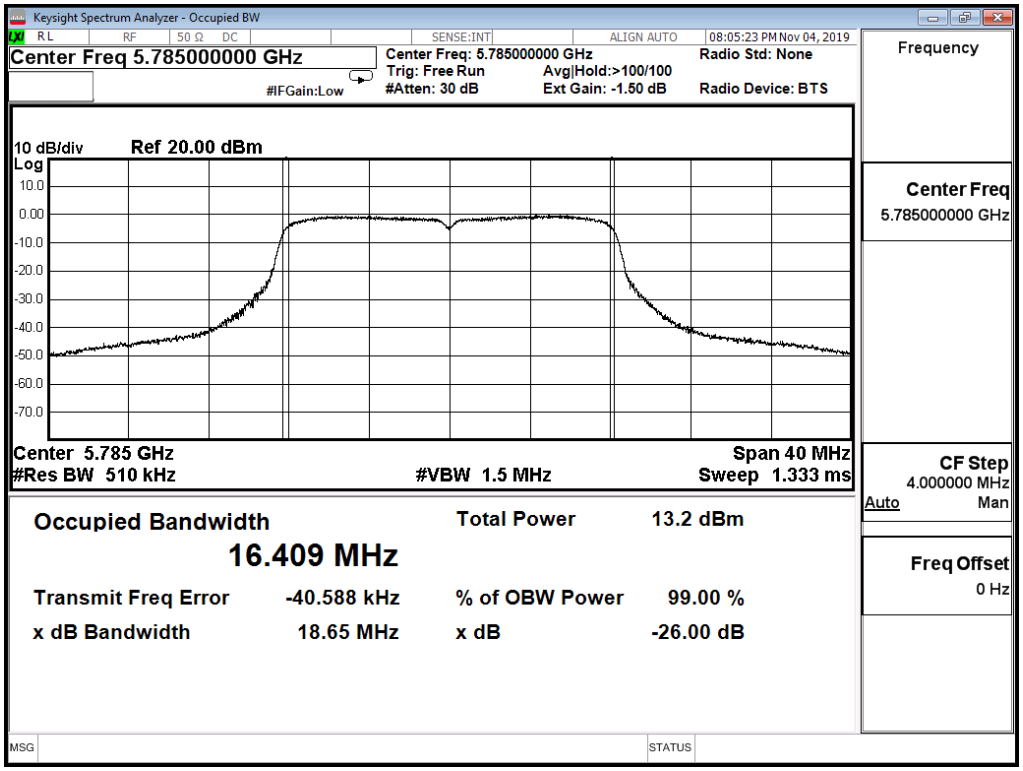
Product	Dual band AC1900 USB 3.0 Wi-Fi Adapter		
Test Item	99% Occupied Bandwidth		
Test Mode	Mode 1: Transmit_SISO Mode		
Date of Test	2019/11/04	Test Site	SR12-H
Test Temperature:	24.3℃	Test Hhumidity:	58%

IEEE 802.11a (ANT 0)			
Channel No.	Frequency (MHz)	99% Bandwidth (MHz)	Limit (MHz)
149	5745	16.411	--
157	5785	16.409	--
165	5825	16.402	--

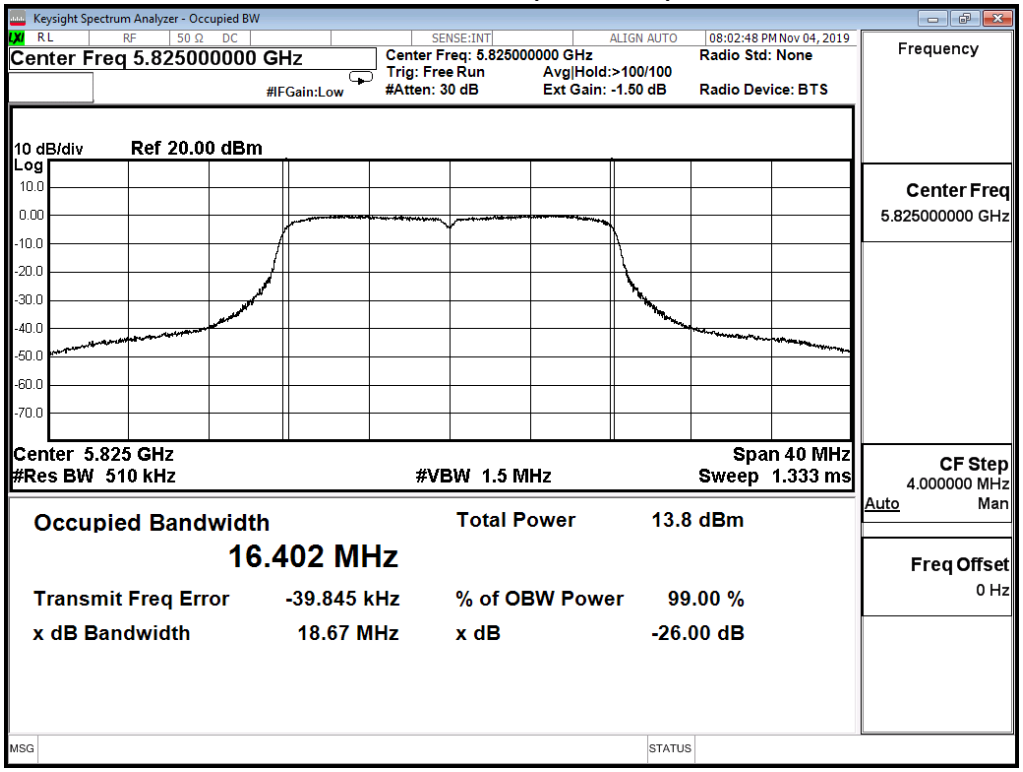
Channel 146 (5745MHz)



Channel 157 (5785MHz)



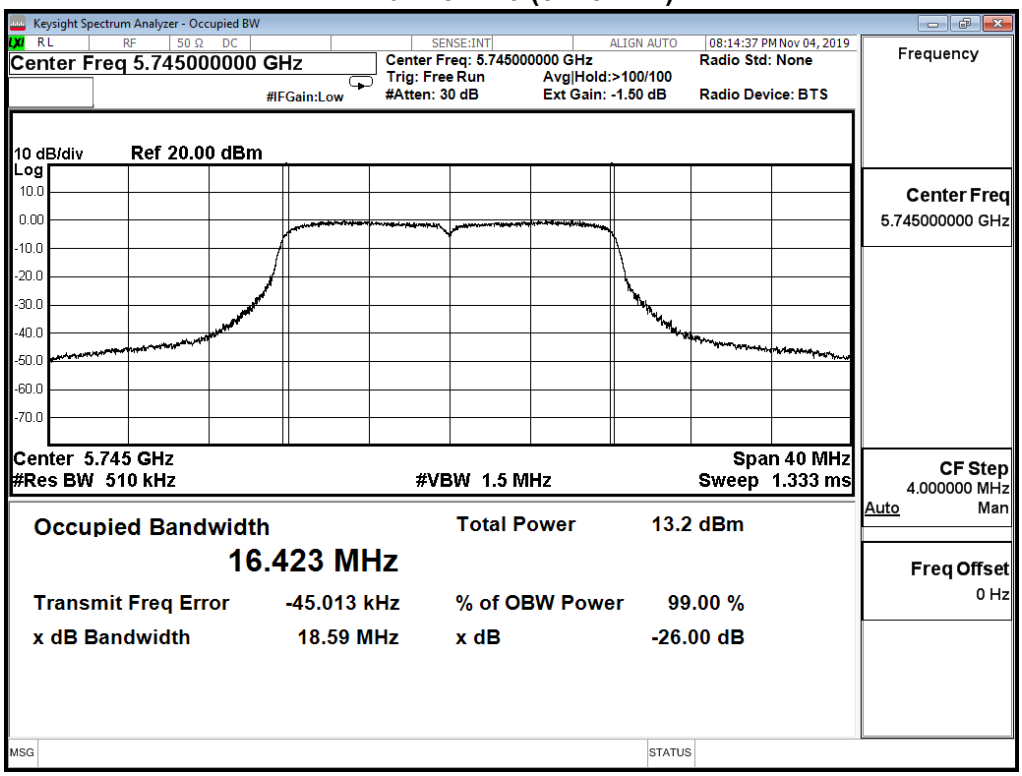
Channel 165 (5825MHz)



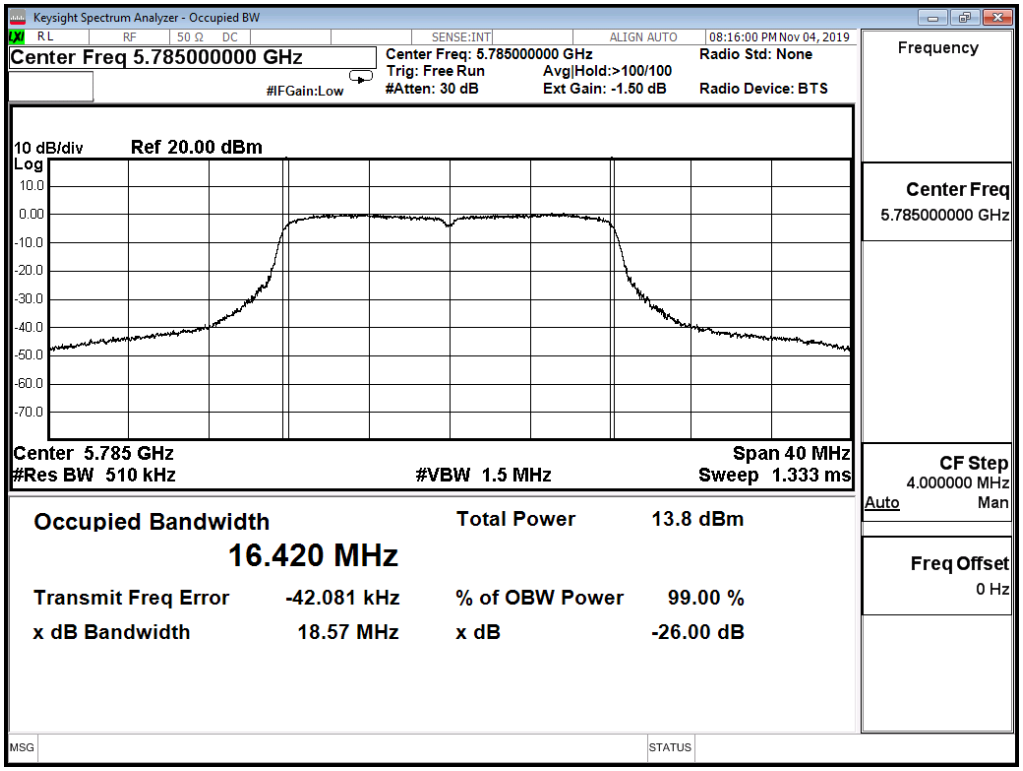
Product	Dual band AC1900 USB 3.0 Wi-Fi Adapter		
Test Item	99% Occupied Bandwidth		
Test Mode	Mode 1: Transmit_SISO Mode		
Date of Test	2019/11/04	Test Site	SR12-H
Test Temperature:	24.3℃	Test Hhumidity:	58%

IEEE 802.11a (ANT 1)			
Channel No.	Frequency (MHz)	99% Bandwidth (MHz)	Limit (MHz)
149	5745	16.423	--
157	5785	16.420	--
165	5825	16.424	--

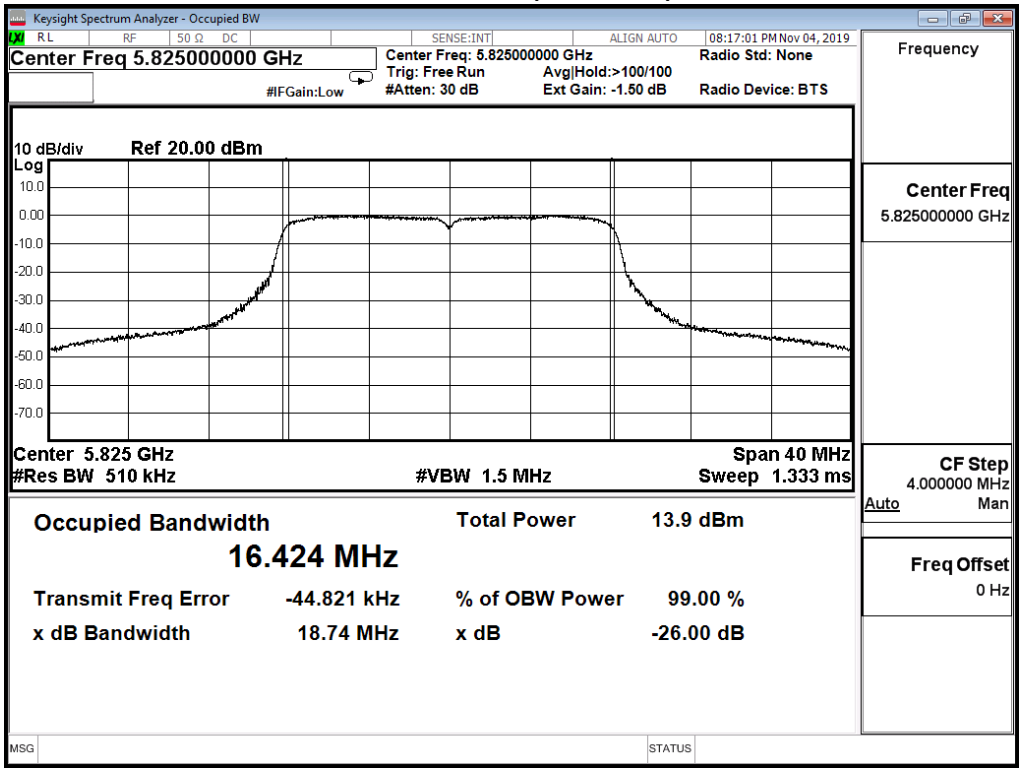
Channel 146 (5745MHz)



Channel 157 (5785MHz)



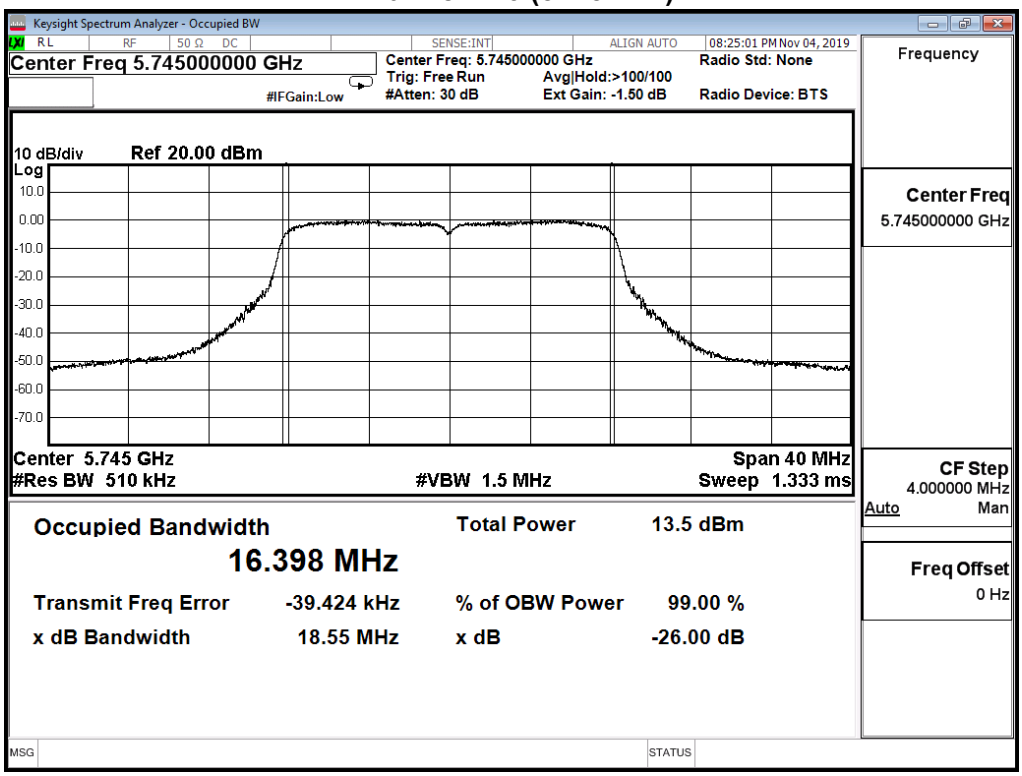
Channel 165 (5825MHz)



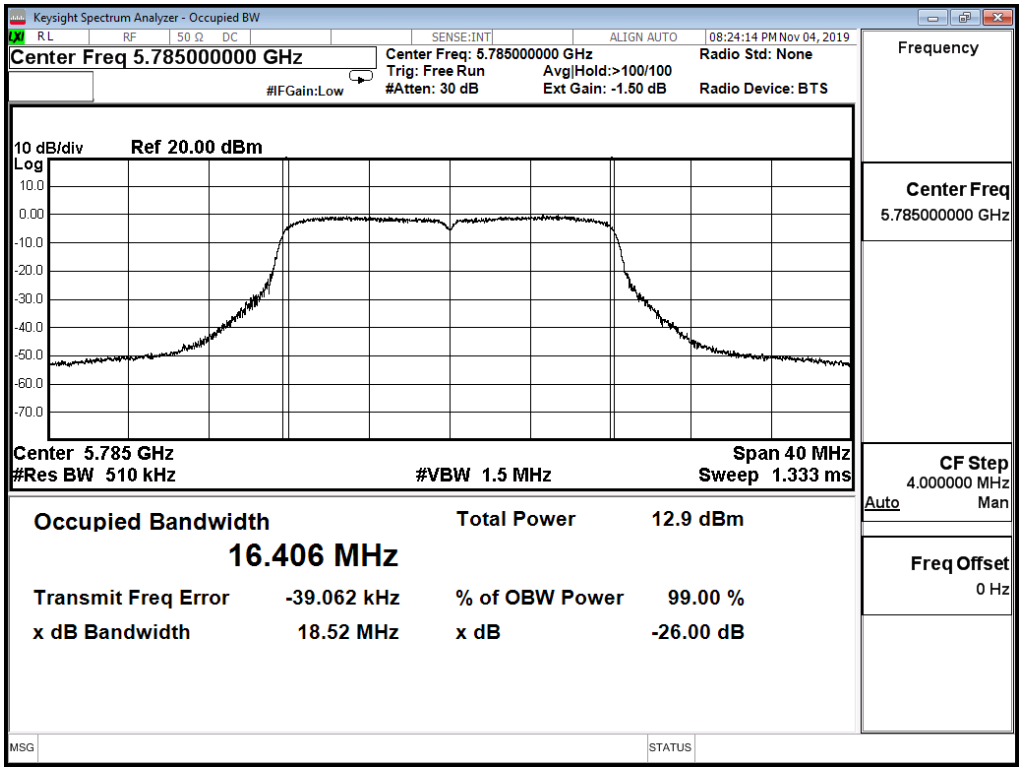
Product	Dual band AC1900 USB 3.0 Wi-Fi Adapter		
Test Item	99% Occupied Bandwidth		
Test Mode	Mode 1: Transmit_SISO Mode		
Date of Test	2019/11/04	Test Site	SR12-H
Test Temperature:	24.3℃	Test Hhumidity:	58%

IEEE 802.11a (ANT 2)			
Channel No.	Frequency (MHz)	99% Bandwidth (MHz)	Limit (MHz)
149	5745	16.398	--
157	5785	16.406	--
165	5825	16.409	--

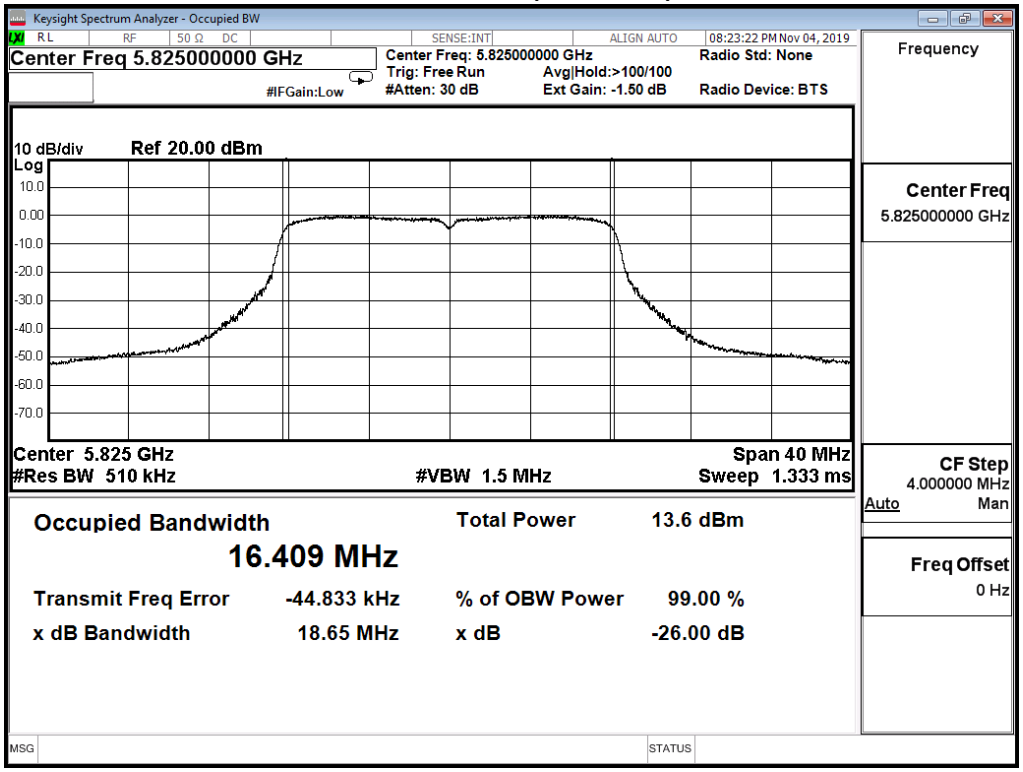
Channel 146 (5745MHz)



Channel 157 (5785MHz)



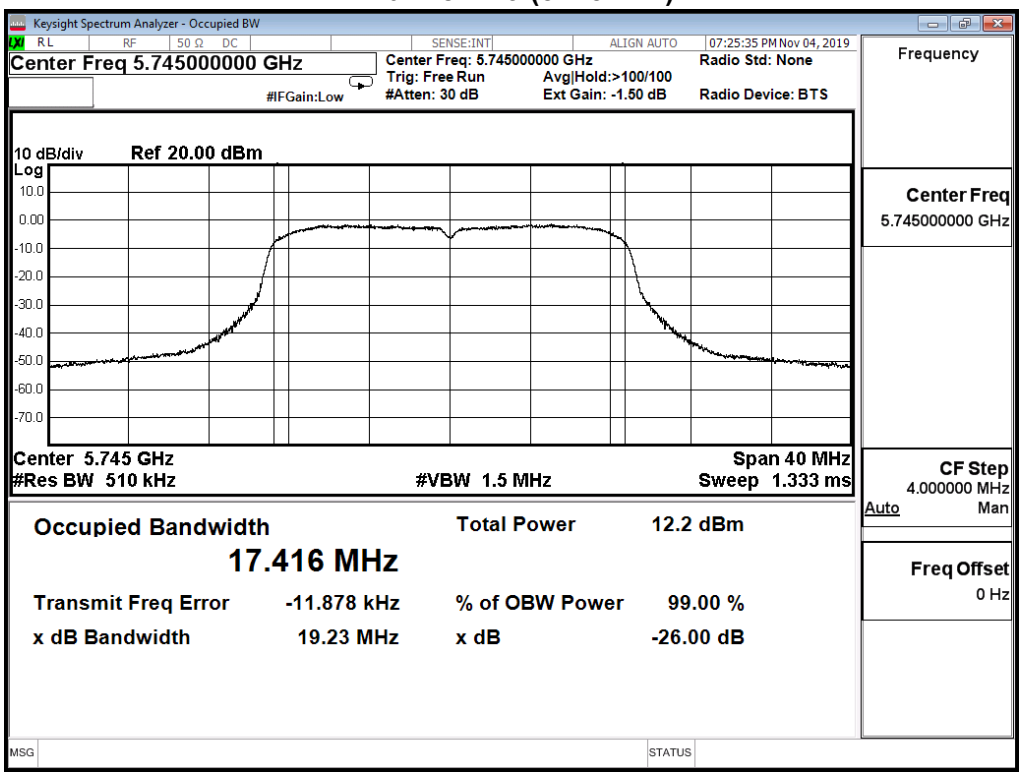
Channel 165 (5825MHz)



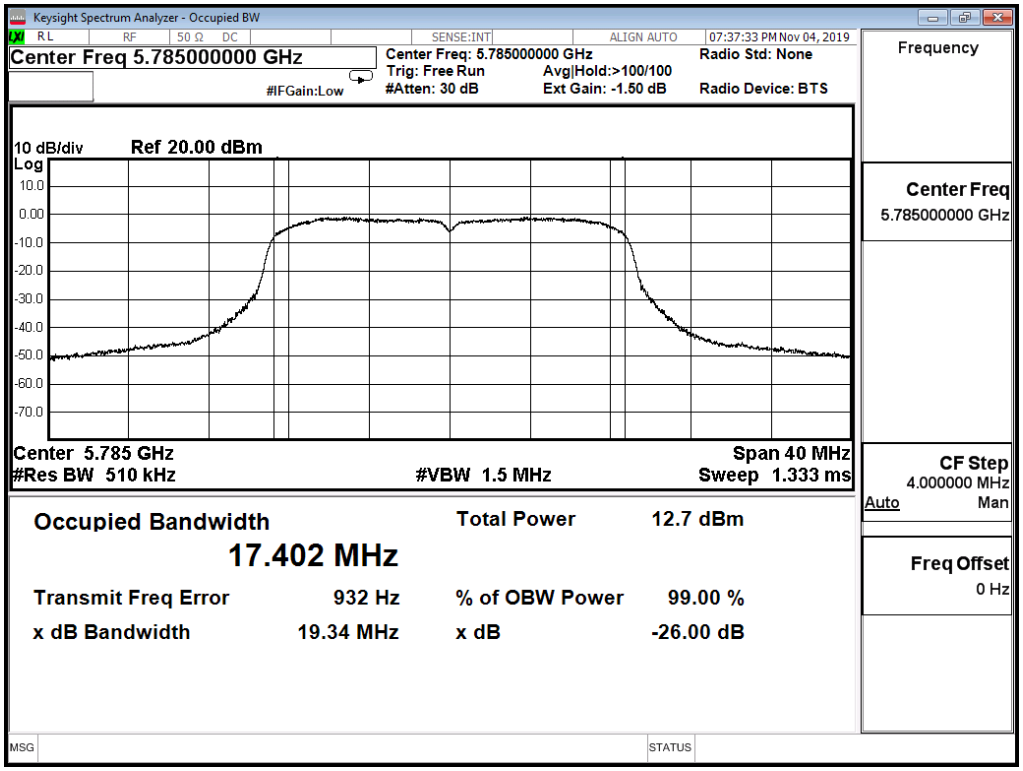
Product	Dual band AC1900 USB 3.0 Wi-Fi Adapter		
Test Item	99% Occupied Bandwidth		
Test Mode	Mode 2: Transmit_MIMO Mode		
Date of Test	2019/11/04	Test Site	SR12-H
Test Temperature:	24.3℃	Test Hhumidity:	58%

IEEE 802.11n(20MHz)(ANT 0)			
Channel No.	Frequency (MHz)	99% Bandwidth (MHz)	Limit (MHz)
149	5745	17.416	--
157	5785	17.402	--
165	5825	17.402	--

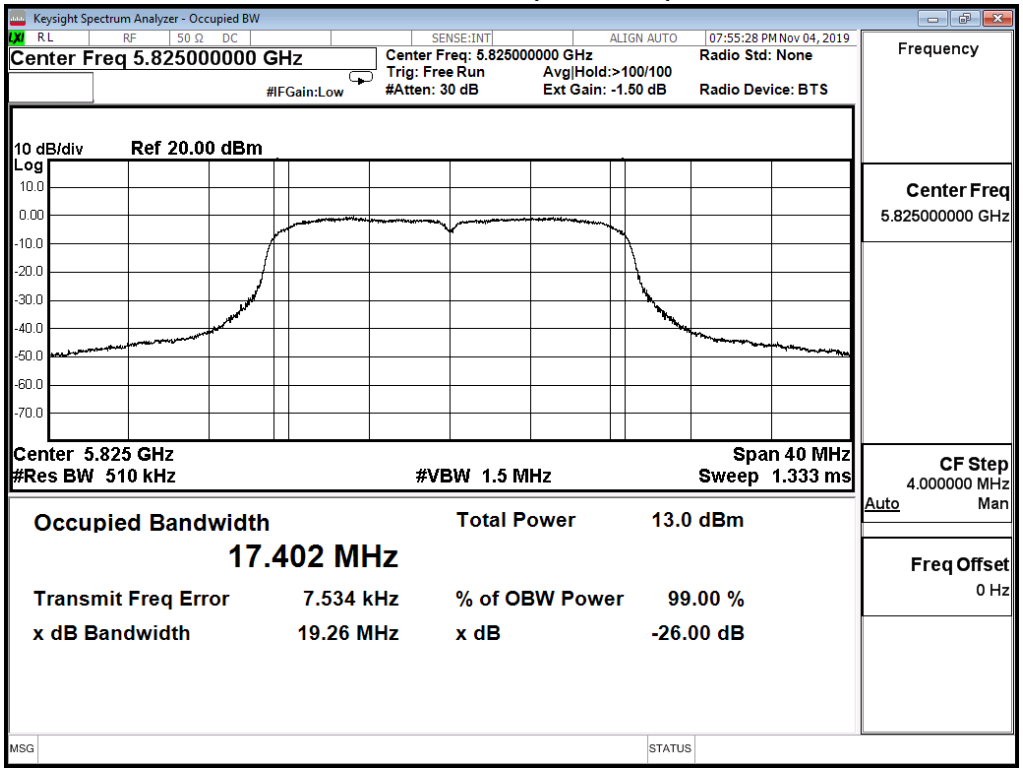
Channel 149 (5745MHz)



Channel 157 (5785MHz)



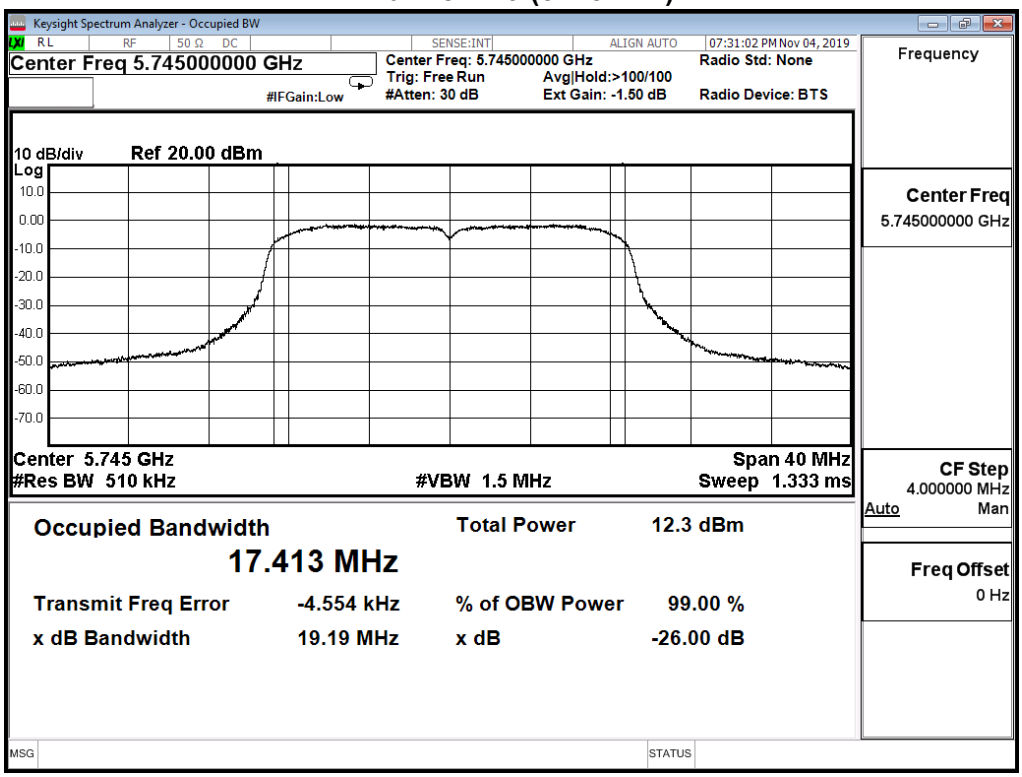
Channel 165 (5825MHz)



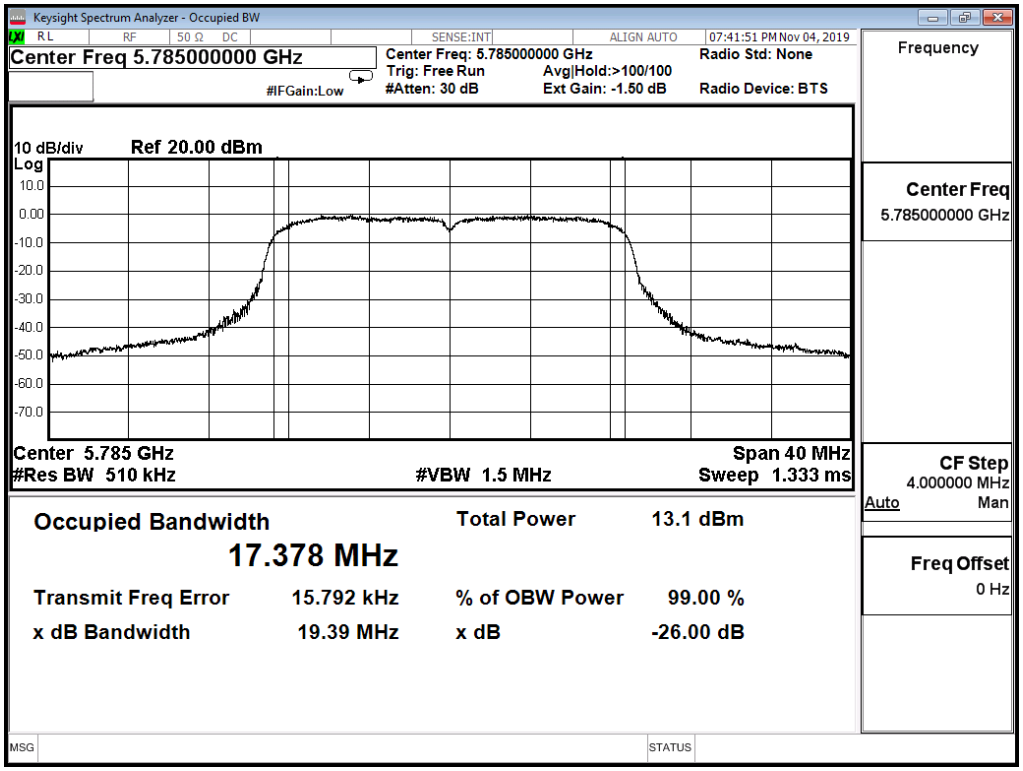
Product	Dual band AC1900 USB 3.0 Wi-Fi Adapter		
Test Item	99% Occupied Bandwidth		
Test Mode	Mode 2: Transmit_MIMO Mode		
Date of Test	2019/11/04	Test Site	SR12-H
Test Temperature:	24.3℃	Test Hhumidity:	58%

IEEE 802.11n(20MHz)(ANT 1)			
Channel No.	Frequency (MHz)	99% Bandwidth (MHz)	Limit (MHz)
149	5745	17.413	--
157	5785	17.378	--
165	5825	17.388	--

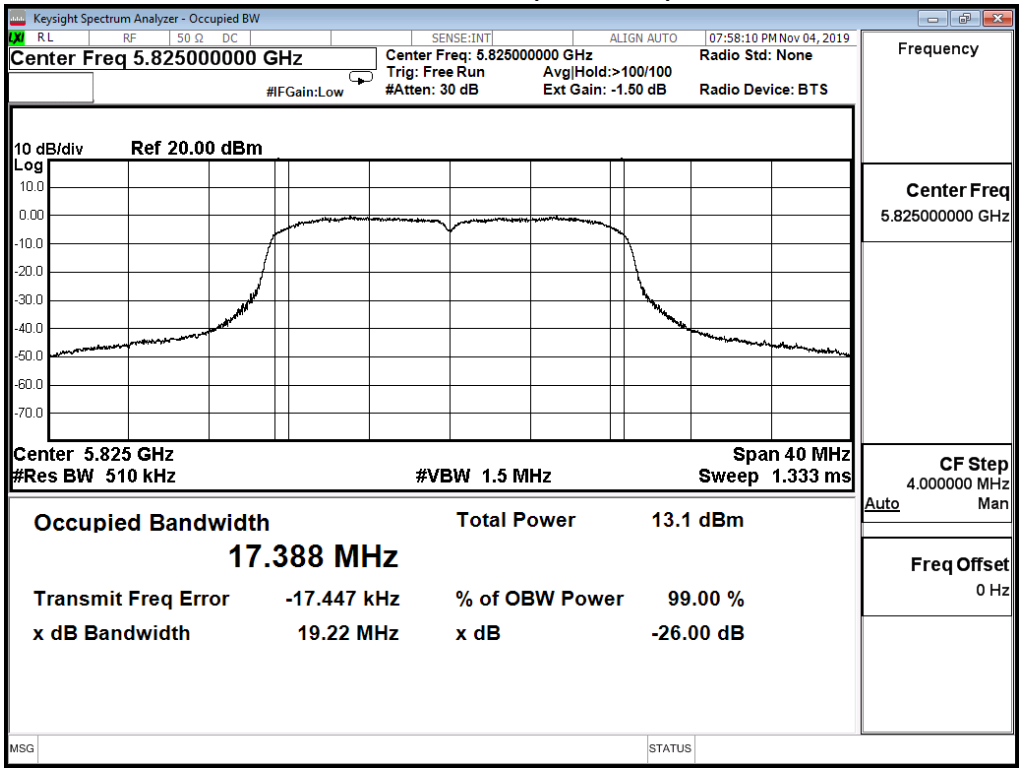
Channel 149 (5745MHz)



Channel 157 (5785MHz)



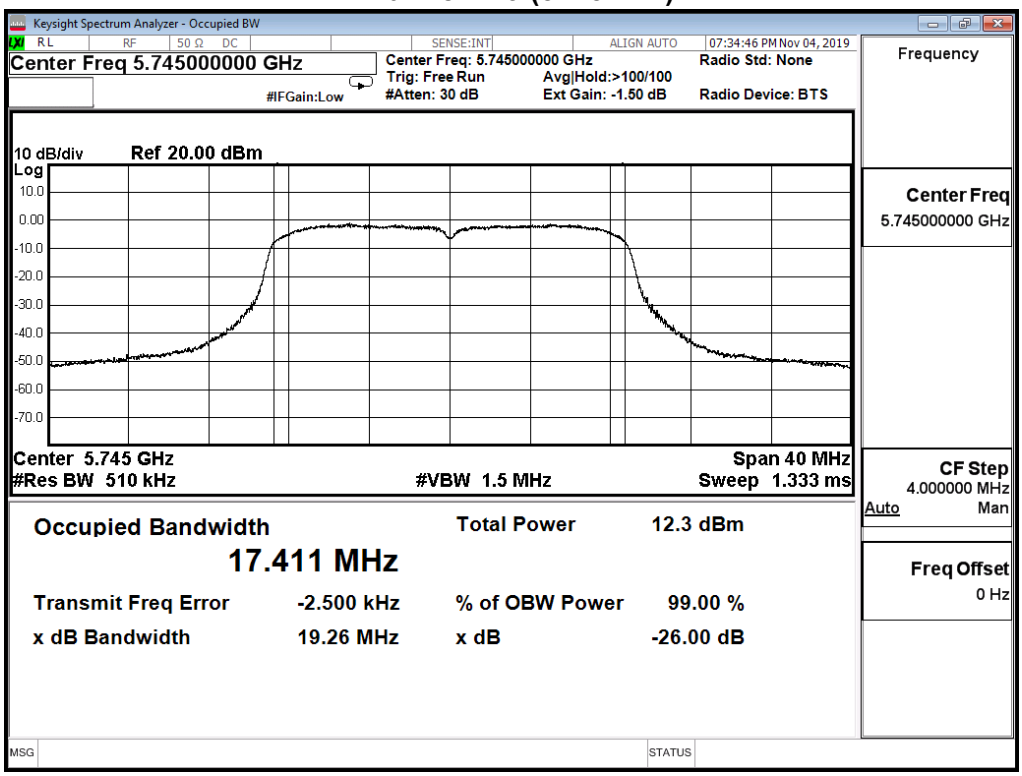
Channel 165 (5825MHz)



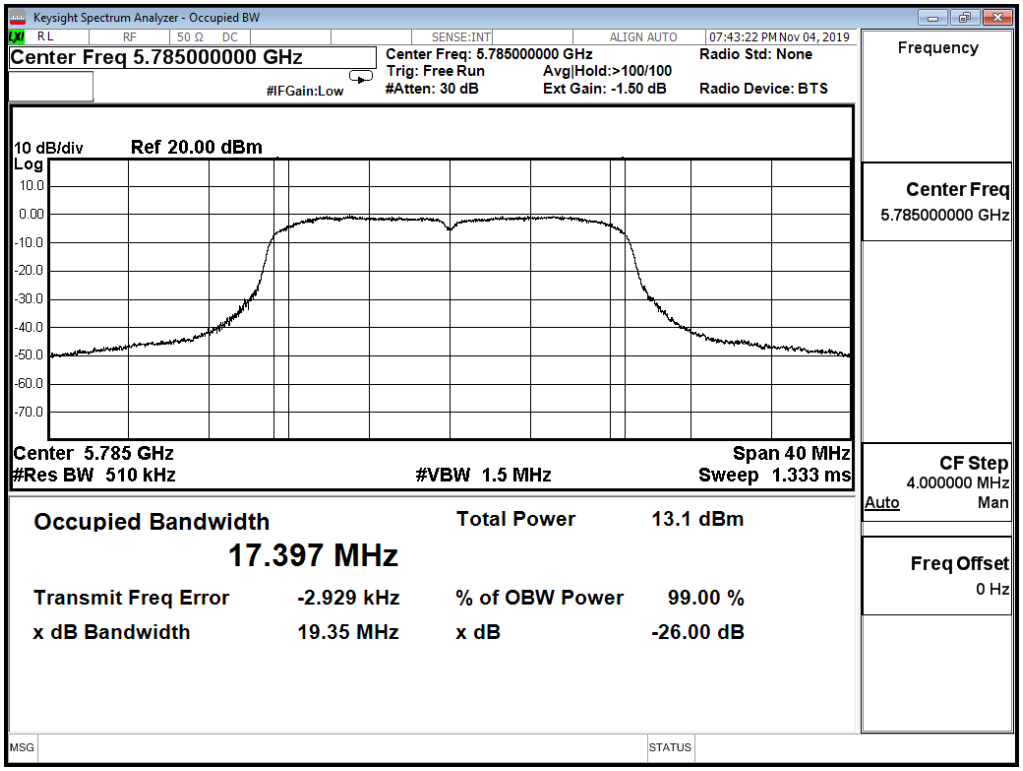
Product	Dual band AC1900 USB 3.0 Wi-Fi Adapter		
Test Item	99% Occupied Bandwidth		
Test Mode	Mode 2: Transmit_MIMO Mode		
Date of Test	2019/11/04	Test Site	SR12-H
Test Temperature:	24.3℃	Test Hhumidity:	58%

IEEE 802.11n(20MHz)(ANT 2)			
Channel No.	Frequency (MHz)	99% Bandwidth (MHz)	Limit (MHz)
149	5745	17.411	--
157	5785	17.397	--
165	5825	17.409	--

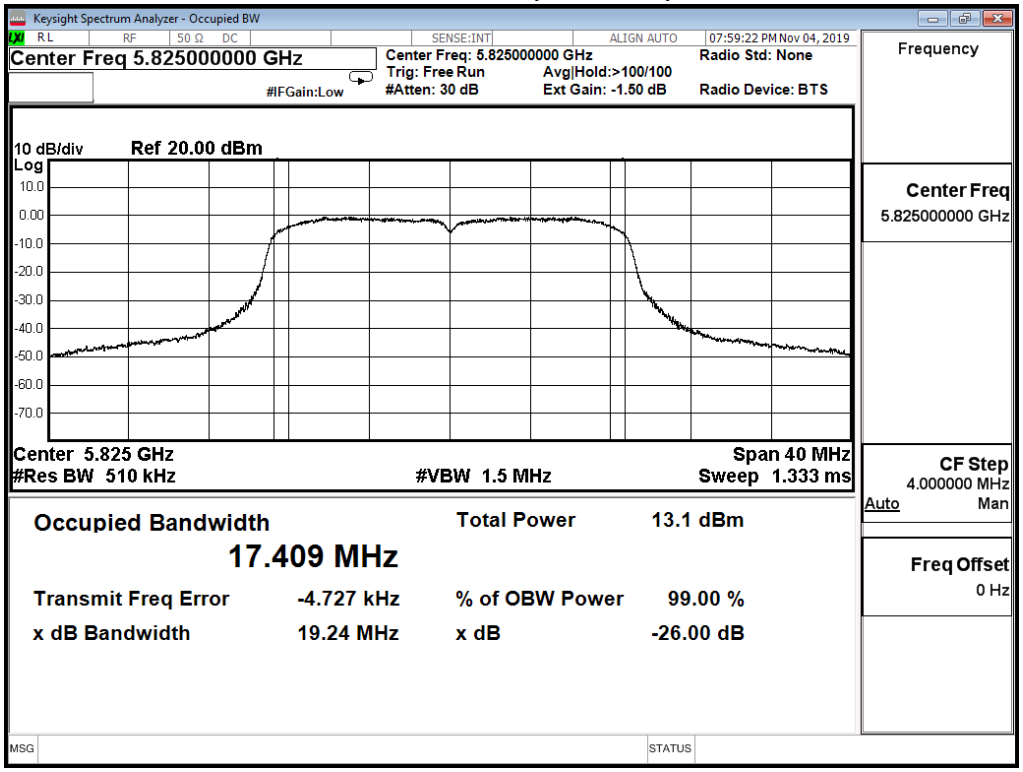
Channel 149 (5745MHz)



Channel 157 (5785MHz)



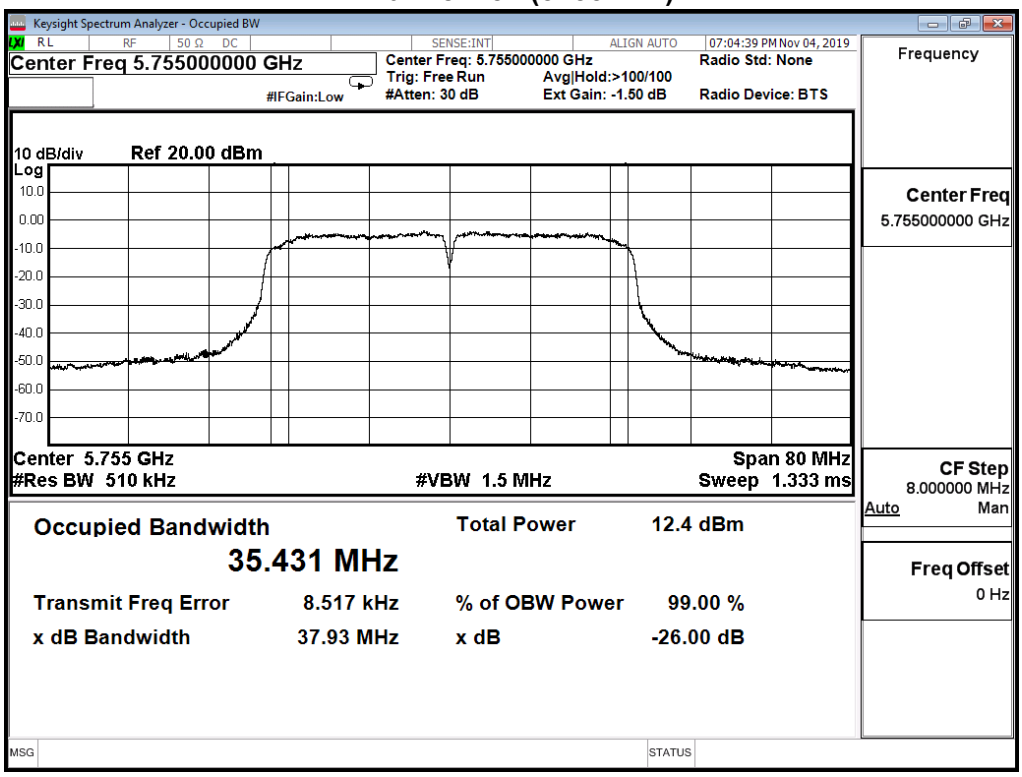
Channel 165 (5825MHz)



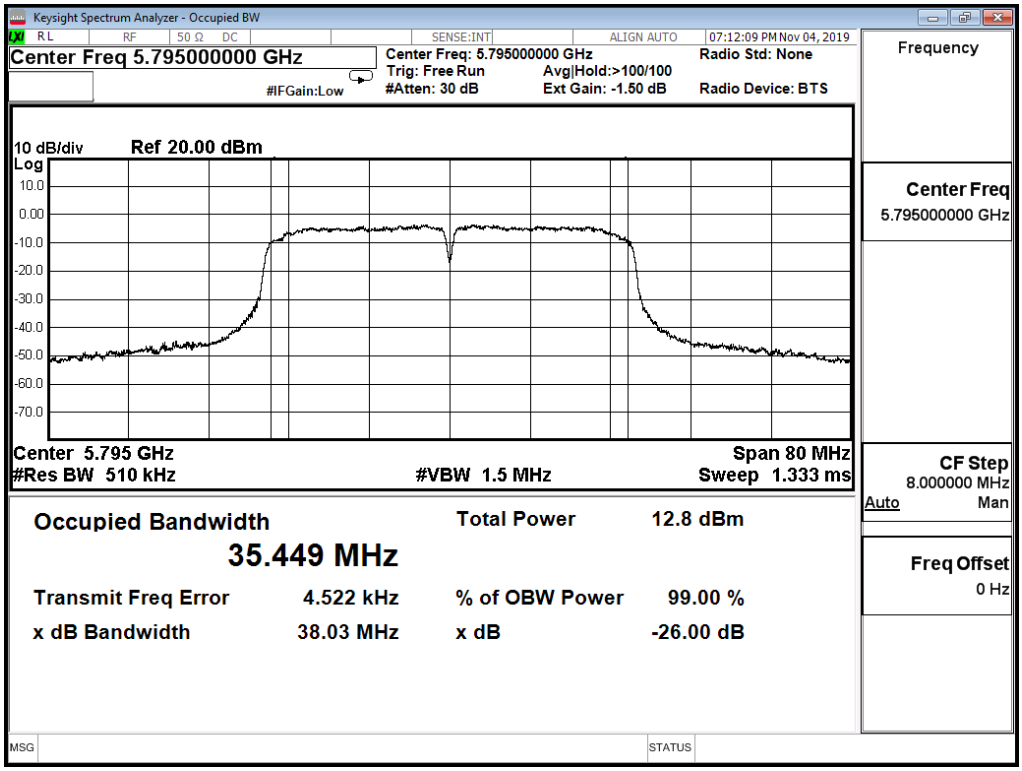
Product	Dual band AC1900 USB 3.0 Wi-Fi Adapter		
Test Item	99% Occupied Bandwidth		
Test Mode	Mode 2: Transmit_MIMO Mode		
Date of Test	2019/11/04	Test Site	SR12-H
Test Temperature:	24.3℃	Test Hhumidity:	58%

IEEE 802.11n(40MHz)(ANT 0)			
Channel No.	Frequency (MHz)	99% Bandwidth (MHz)	Limit (MHz)
151	5755	35.431	--
159	5795	35.449	--

Channel 151 (5755MHz)



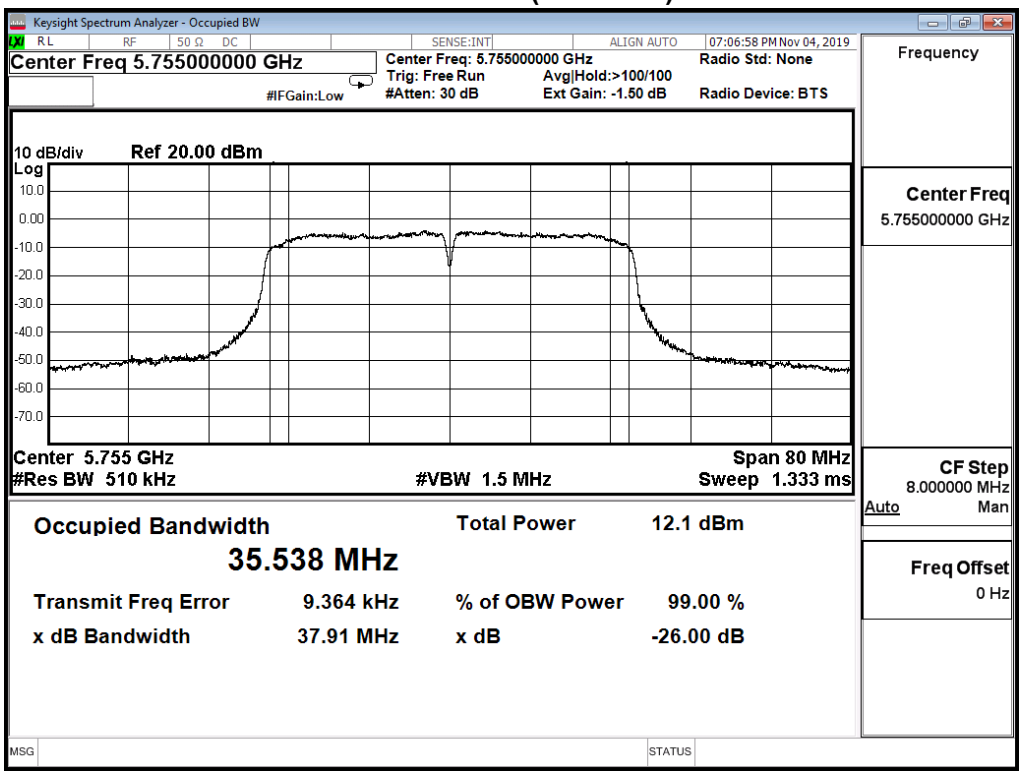
Channel 159 (5795MHz)



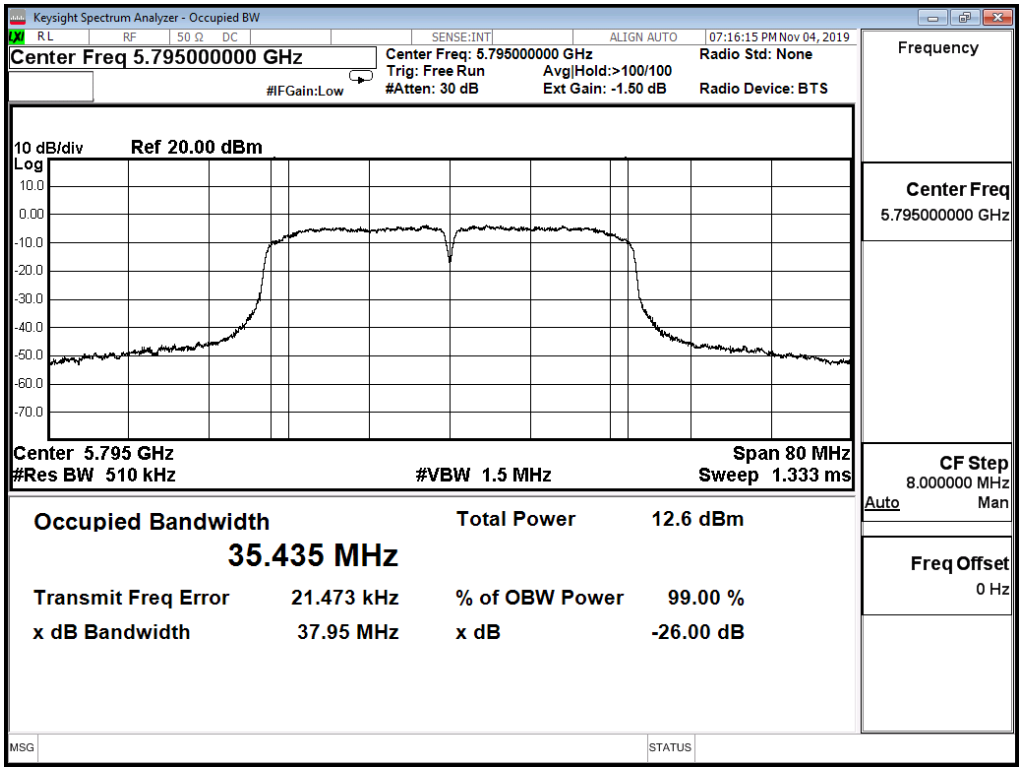
Product	Dual band AC1900 USB 3.0 Wi-Fi Adapter		
Test Item	99% Occupied Bandwidth		
Test Mode	Mode 2: Transmit_MIMO Mode		
Date of Test	2019/11/04	Test Site	SR12-H
Test Temperature:	24.3℃	Test Hhumidity:	58%

IEEE 802.11n(40MHz)(ANT 1)			
Channel No.	Frequency (MHz)	99% Bandwidth (MHz)	Limit (MHz)
151	5755	35.538	--
159	5795	35.435	--

Channel 151 (5755MHz)



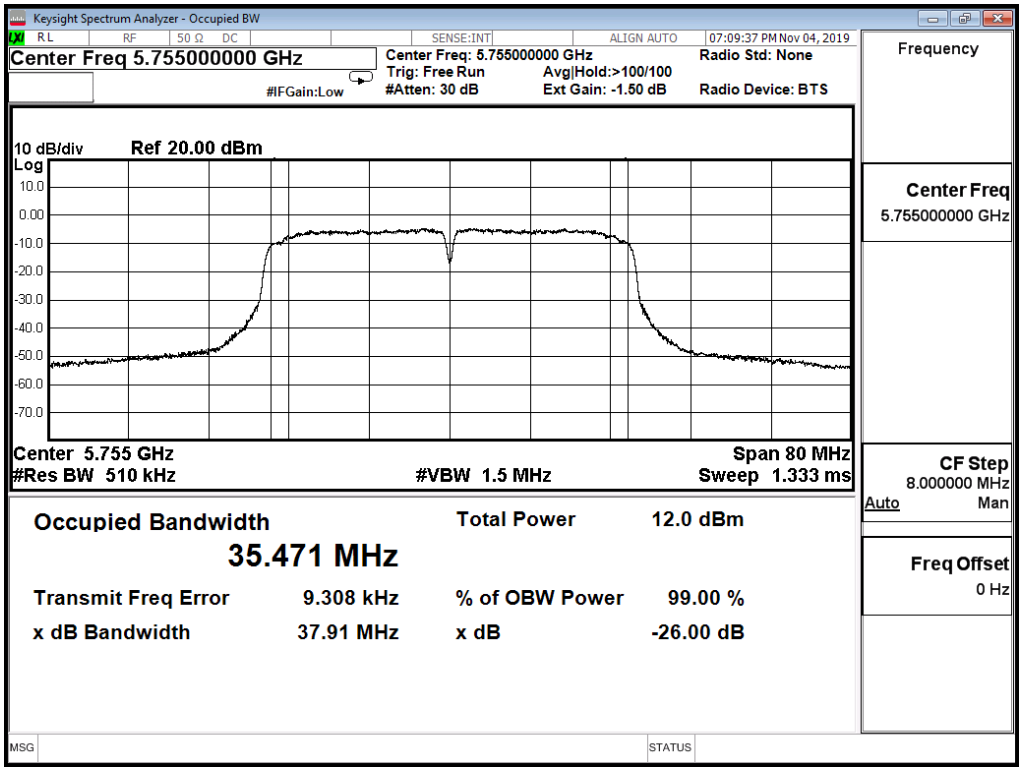
Channel 159 (5795MHz)



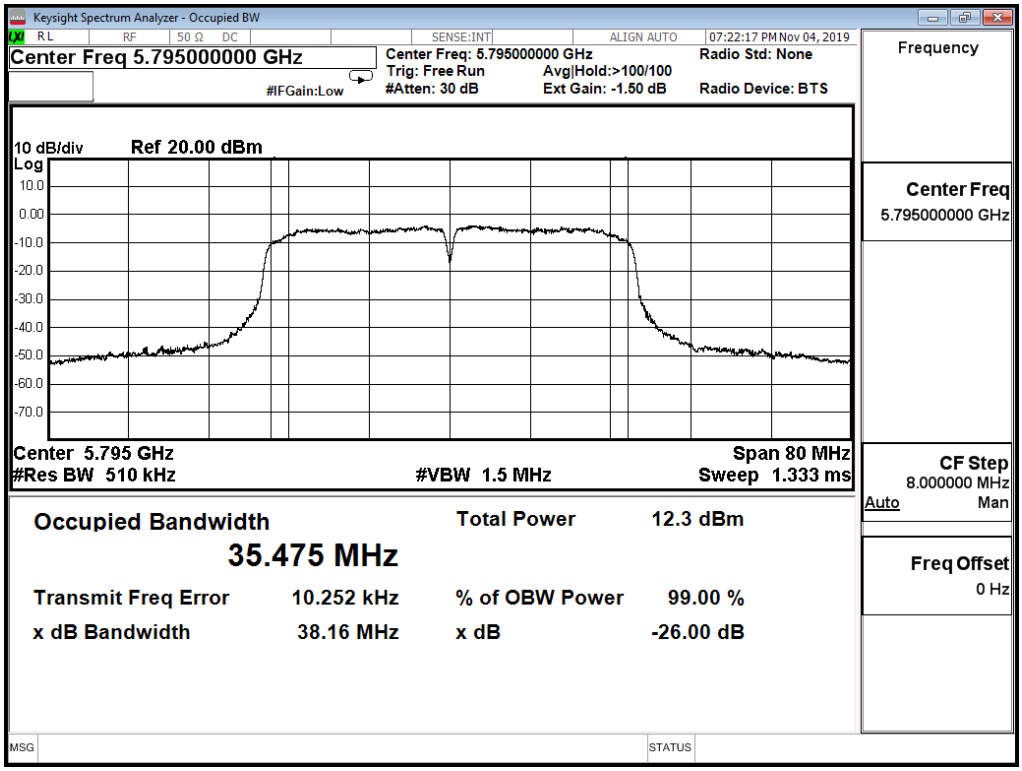
Product	Dual band AC1900 USB 3.0 Wi-Fi Adapter		
Test Item	99% Occupied Bandwidth		
Test Mode	Mode 2: Transmit_MIMO Mode		
Date of Test	2019/11/04	Test Site	SR12-H
Test Temperature:	24.3℃	Test Hhumidity:	58%

IEEE 802.11n(40MHz)(ANT 2)			
Channel No.	Frequency (MHz)	99% Bandwidth (MHz)	Limit (MHz)
151	5755	35.471	--
159	5795	35.475	--

Channel 151 (5755MHz)



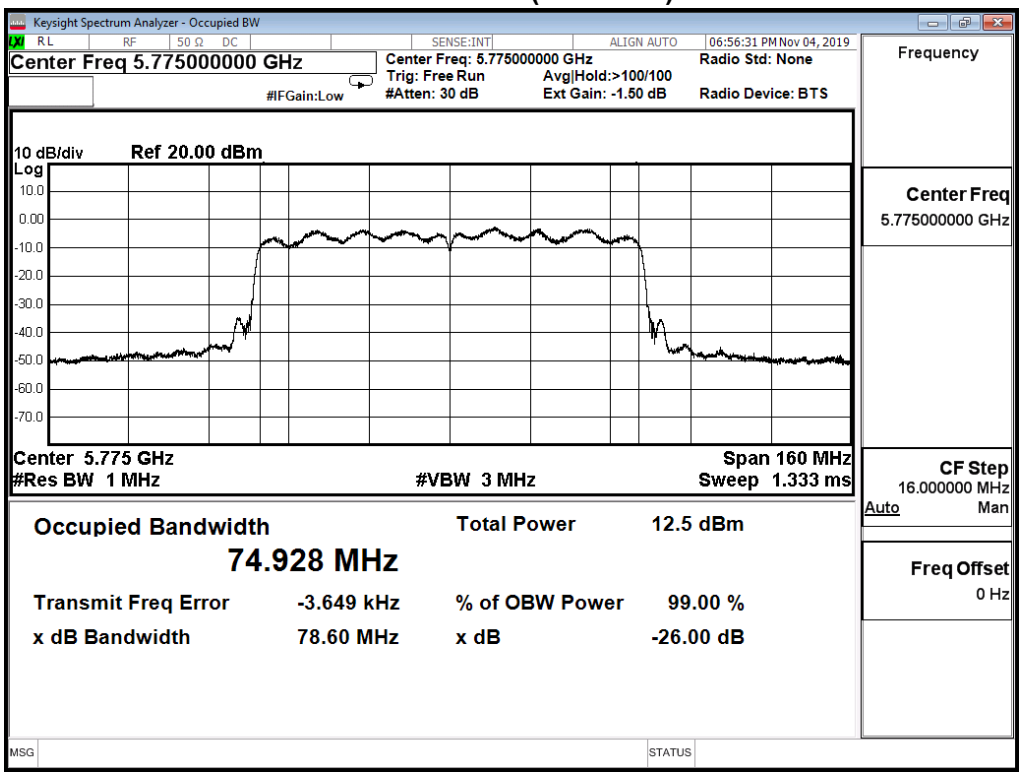
Channel 159 (5795MHz)



Product	Dual band AC1900 USB 3.0 Wi-Fi Adapter		
Test Item	99% Occupied Bandwidth		
Test Mode	Mode 2: Transmit_MIMO Mode		
Date of Test	2019/11/04	Test Site	SR12-H
Test Temperature:	24.3℃	Test Hhumidity:	58%

IEEE 802.11ac(80MHz)(ANT 0)			
Channel No.	Frequency (MHz)	99% Bandwidth (MHz)	Limit (MHz)
155	5775	74.928	--

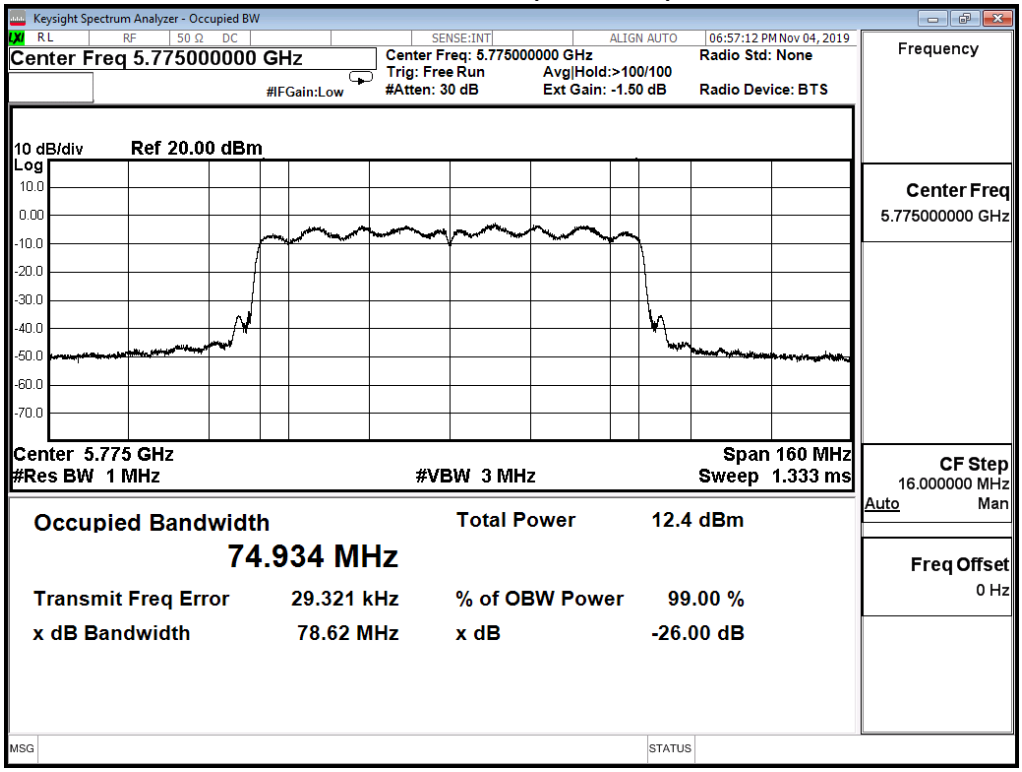
Channel 155 (5775MHz)



Product	Dual band AC1900 USB 3.0 Wi-Fi Adapter		
Test Item	99% Occupied Bandwidth		
Test Mode	Mode 2: Transmit_MIMO Mode		
Date of Test	2019/11/04	Test Site	SR12-H
Test Temperature:	24.3℃	Test Hhumidity:	58%

IEEE 802.11ac(80MHz)(ANT 1)			
Channel No.	Frequency (MHz)	99% Bandwidth (MHz)	Limit (MHz)
155	5775	74.934	--

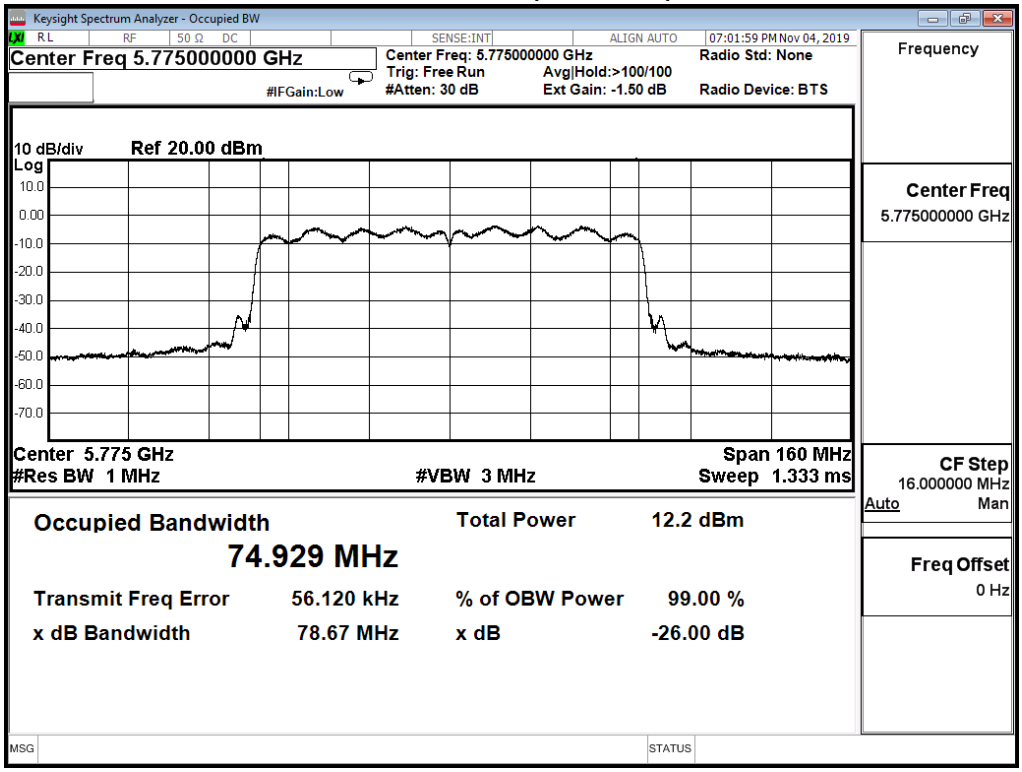
Channel 155 (5775MHz)



Product	Dual band AC1900 USB 3.0 Wi-Fi Adapter		
Test Item	99% Occupied Bandwidth		
Test Mode	Mode 2: Transmit_MIMO Mode		
Date of Test	2019/11/04	Test Site	SR12-H
Test Temperature:	24.3℃	Test Hhumidity:	58%

IEEE 802.11ac(80MHz)(ANT 2)			
Channel No.	Frequency (MHz)	99% Bandwidth (MHz)	Limit (MHz)
155	5775	74.929	--

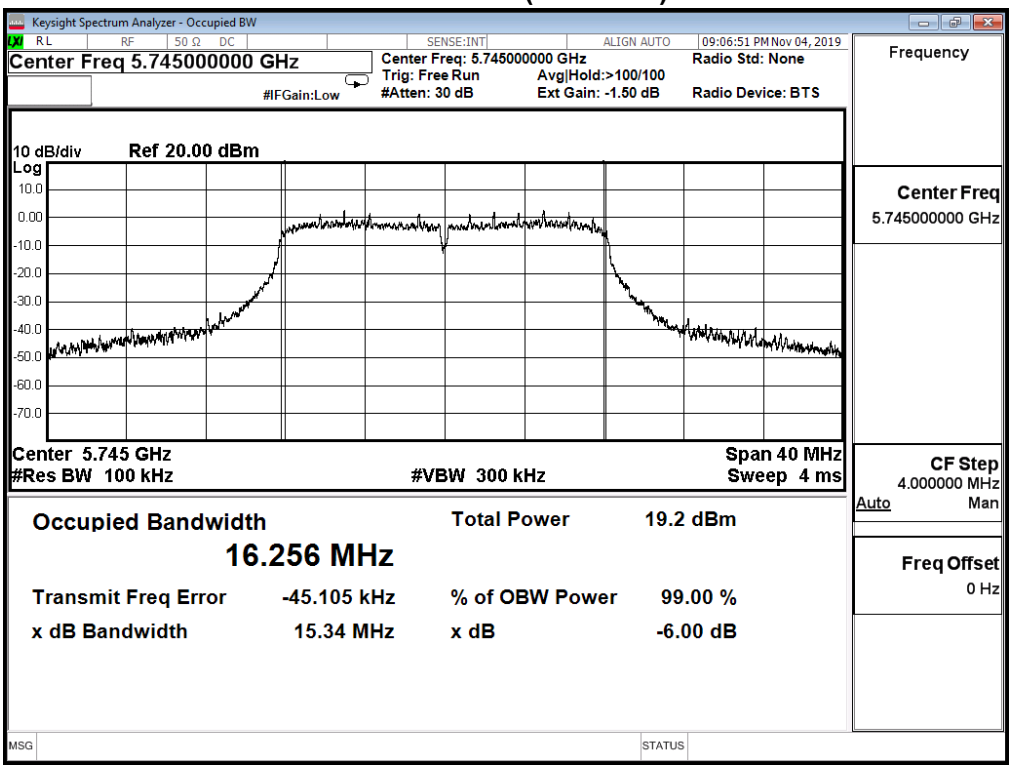
Channel 155 (5775MHz)



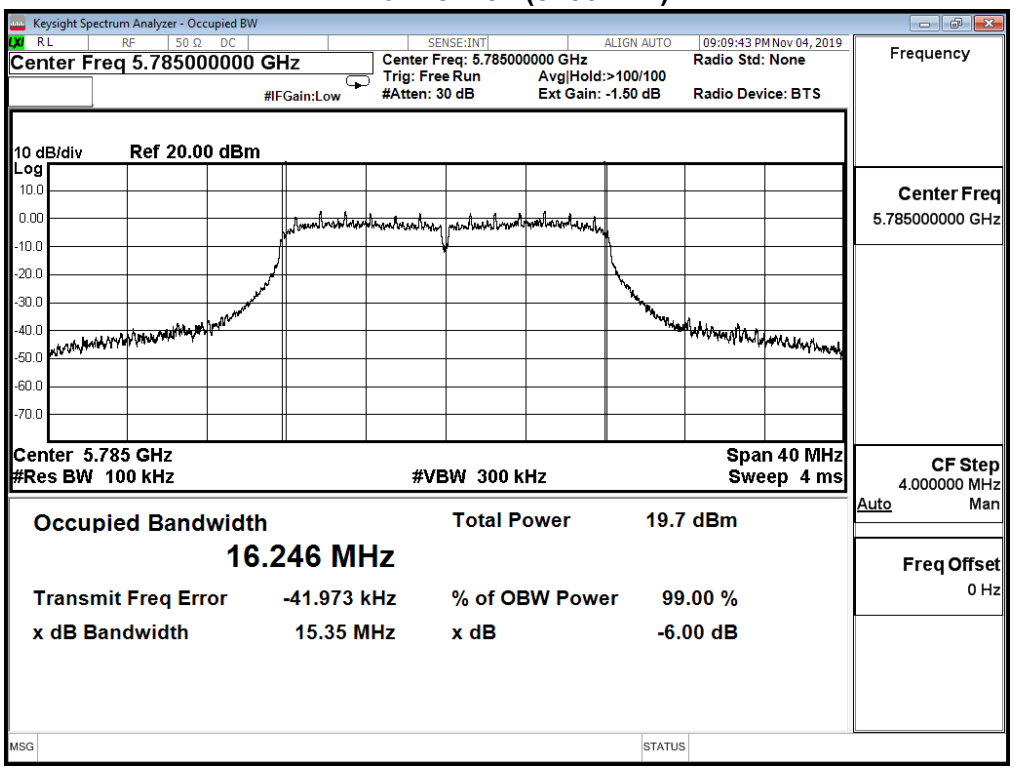
Product	Dual band AC1900 USB 3.0 Wi-Fi Adapter		
Test Item	Minimum Emission Bandwidth		
Test Mode	Mode 1: Transmit_SISO Mode		
Date of Test	2019/11/04	Test Site	SR12-H
Test Temperature:	24.3℃	Test Hhumidity:	58%

IEEE 802.11a (ANT 0)				
Channel No.	Frequency (MHz)	Measure Value (MHz)	Limit (MHz)	Result
149	5745	15.340	≧0.5	Pass
157	5785	15.350	≧0.5	Pass
165	5825	15.500	≧0.5	Pass

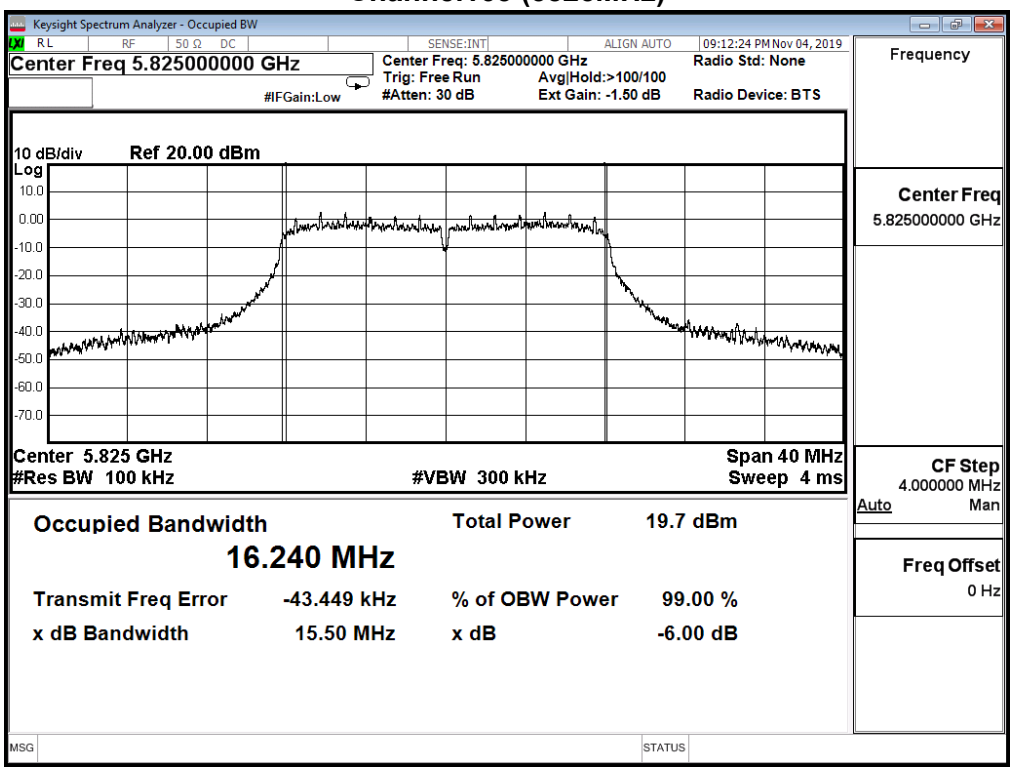
Channel 149 (5745MHz)



Channel 157 (5785MHz)



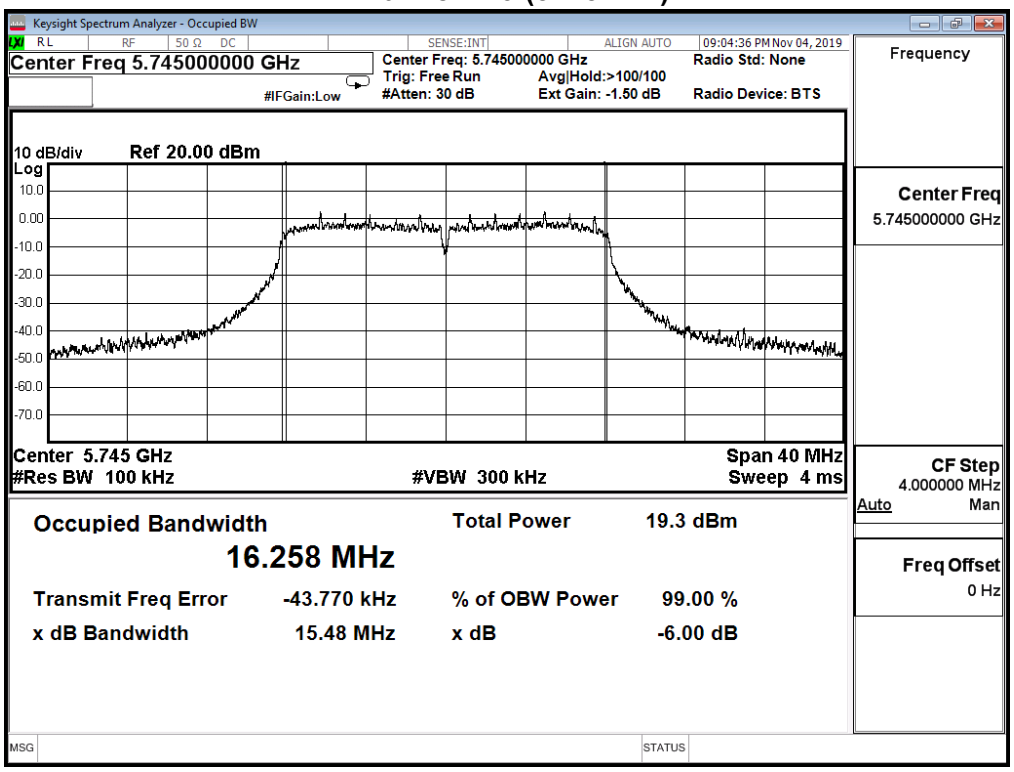
Channel165 (5825MHz)



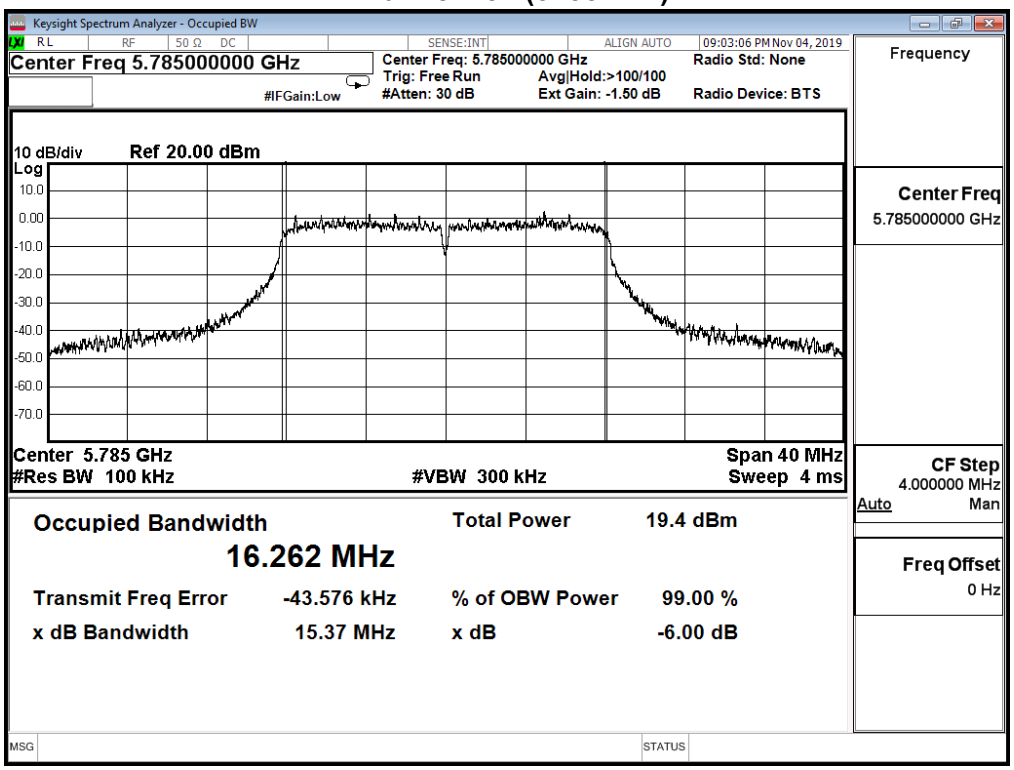
Product	Dual band AC1900 USB 3.0 Wi-Fi Adapter		
Test Item	Minimum Emission Bandwidth		
Test Mode	Mode 1: Transmit_SISO Mode		
Date of Test	2019/11/04	Test Site	SR12-H
Test Temperature:	24.3℃	Test Hhumidity:	58%

IEEE 802.11a (ANT 1)				
Channel No.	Frequency (MHz)	Measure Value (MHz)	Limit (MHz)	Result
149	5745	15.480	≧0.5	Pass
157	5785	15.370	≧0.5	Pass
165	5825	15.540	≧0.5	Pass

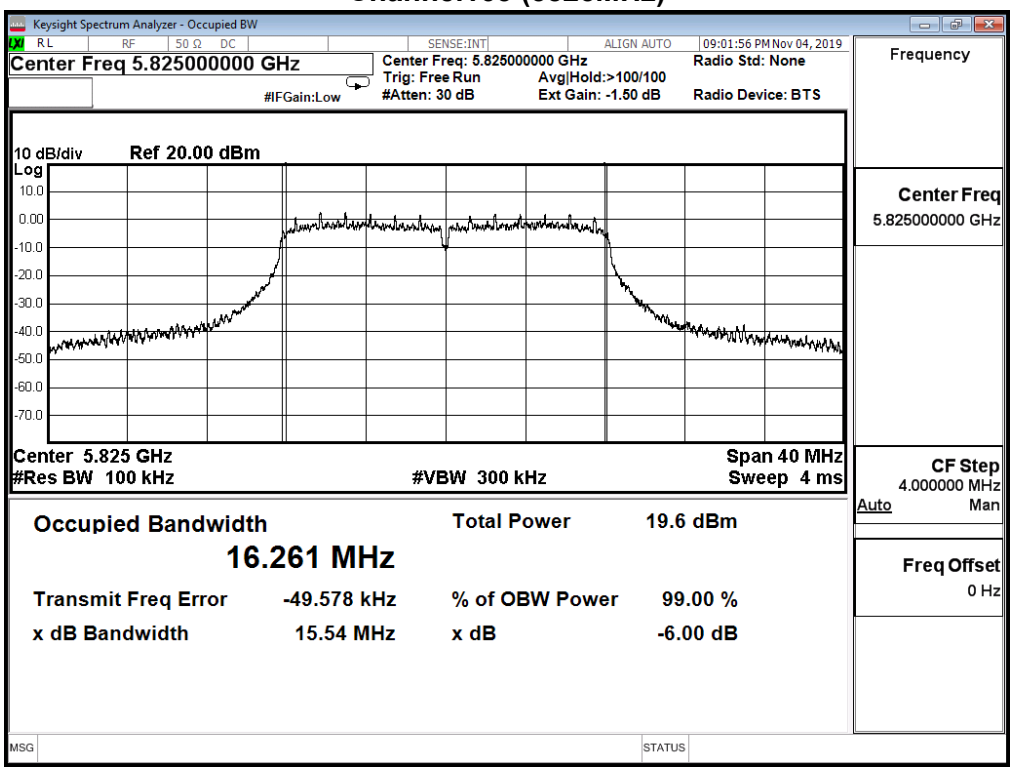
Channel 149 (5745MHz)



Channel 157 (5785MHz)



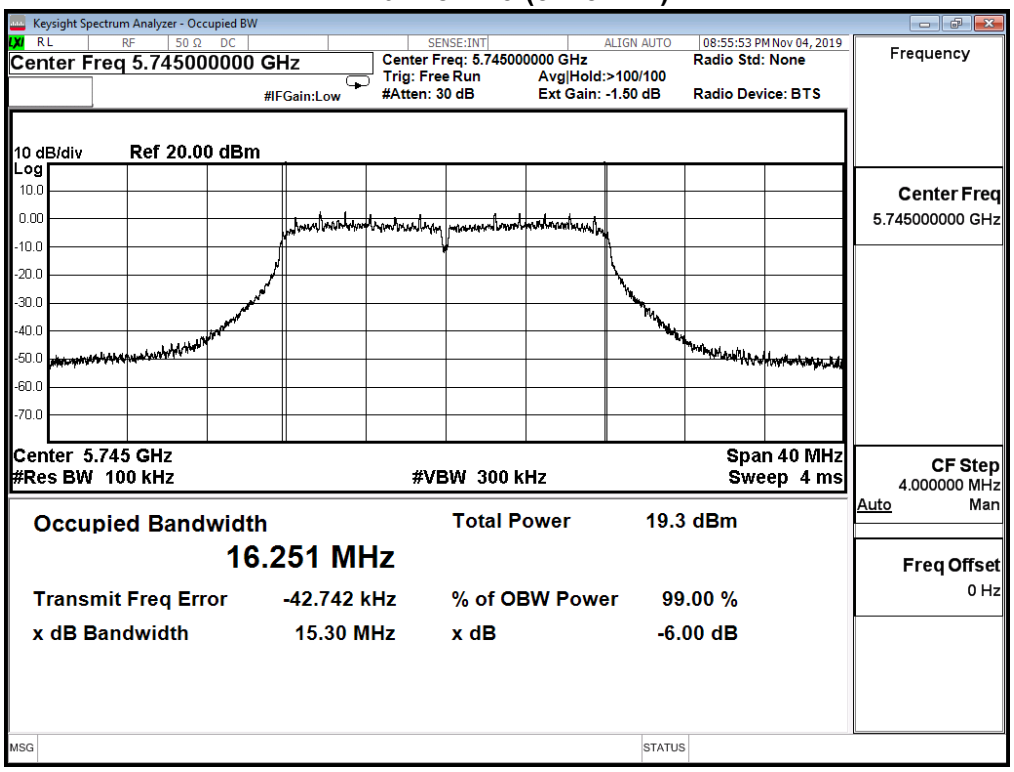
Channel165 (5825MHz)



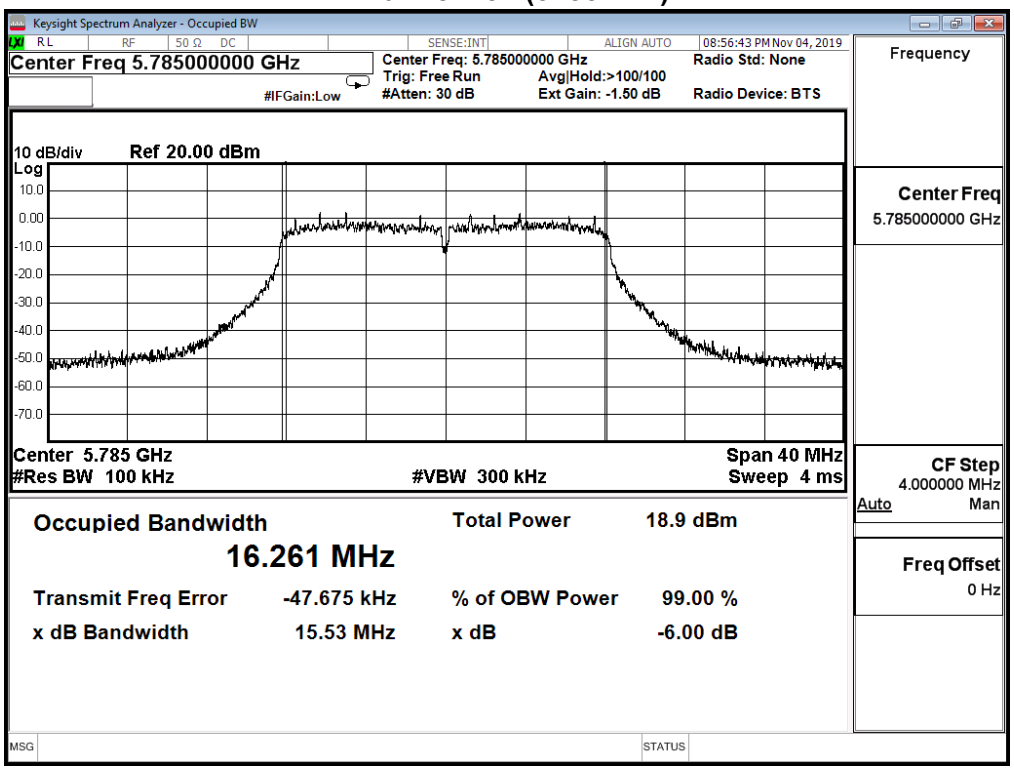
Product	Dual band AC1900 USB 3.0 Wi-Fi Adapter		
Test Item	Minimum Emission Bandwidth		
Test Mode	Mode 1: Transmit_SISO Mode		
Date of Test	2019/11/04	Test Site	SR12-H
Test Temperature:	24.3℃	Test Hhumidity:	58%

IEEE 802.11a (ANT 2)				
Channel No.	Frequency (MHz)	Measure Value (MHz)	Limit (MHz)	Result
149	5745	15.300	≧0.5	Pass
157	5785	15.530	≧0.5	Pass
165	5825	15.520	≧0.5	Pass

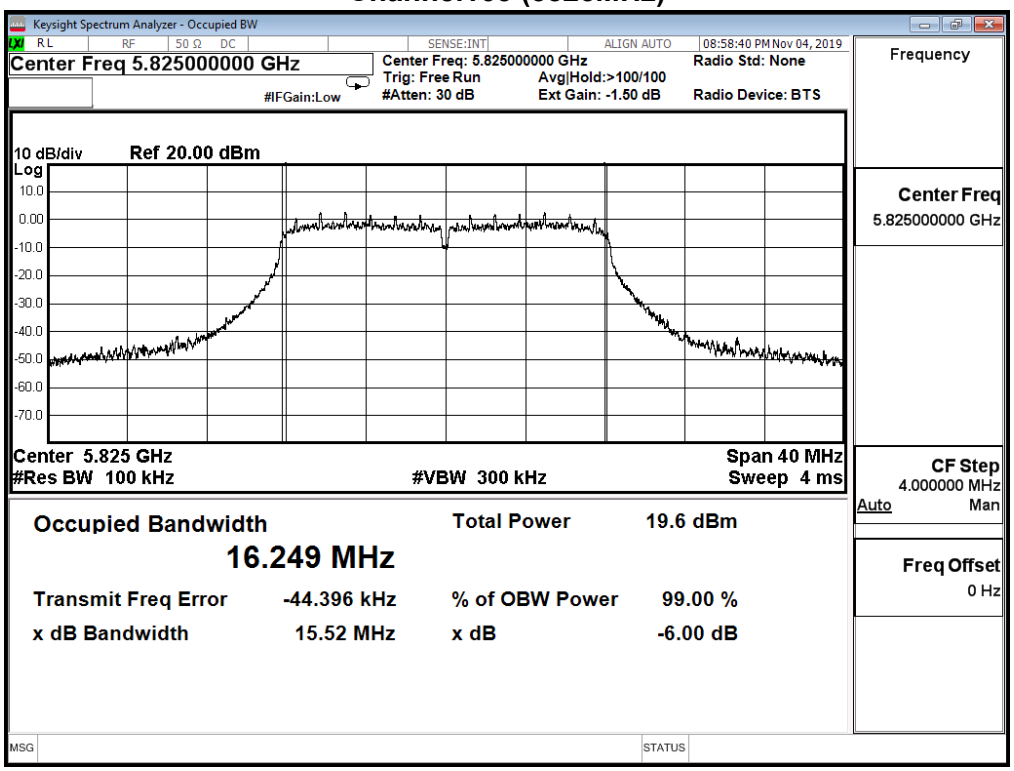
Channel 149 (5745MHz)



Channel 157 (5785MHz)



Channel165 (5825MHz)

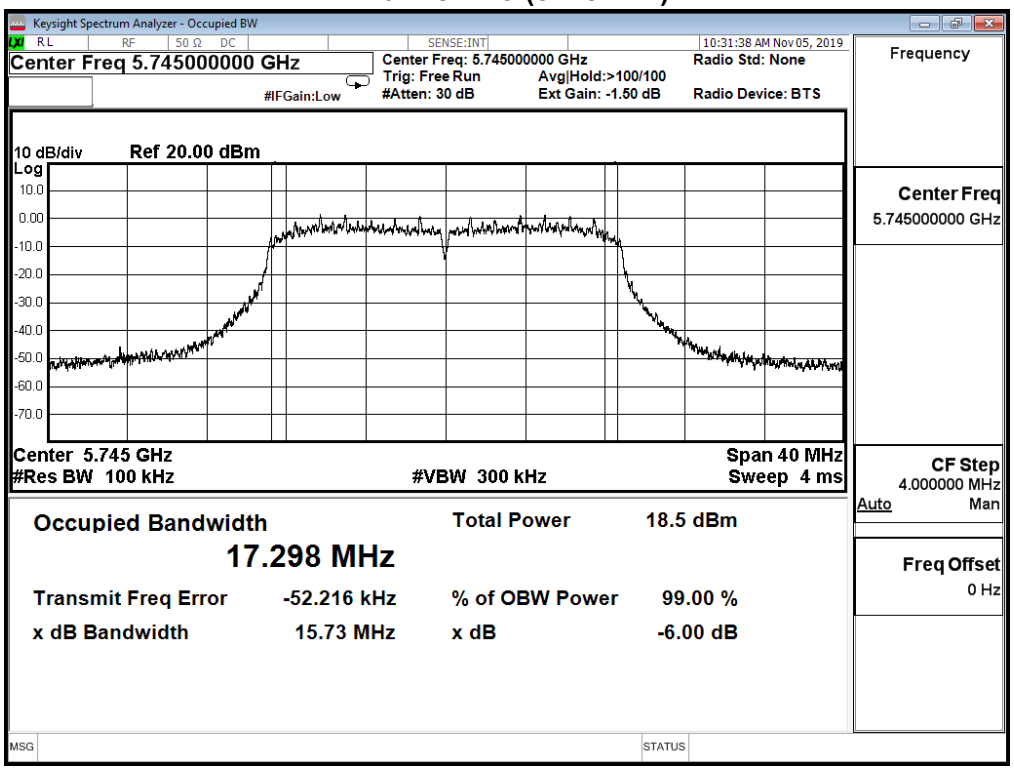


Product	Dual band AC1900 USB 3.0 Wi-Fi Adapter		
Test Item	Minimum Emission Bandwidth		
Test Mode	Mode 2: Transmit_MIMO Mode		
Date of Test	2019/11/05	Test Site	SR12-H
Test Temperature:	24.3℃	Test Hhumidity:	58%

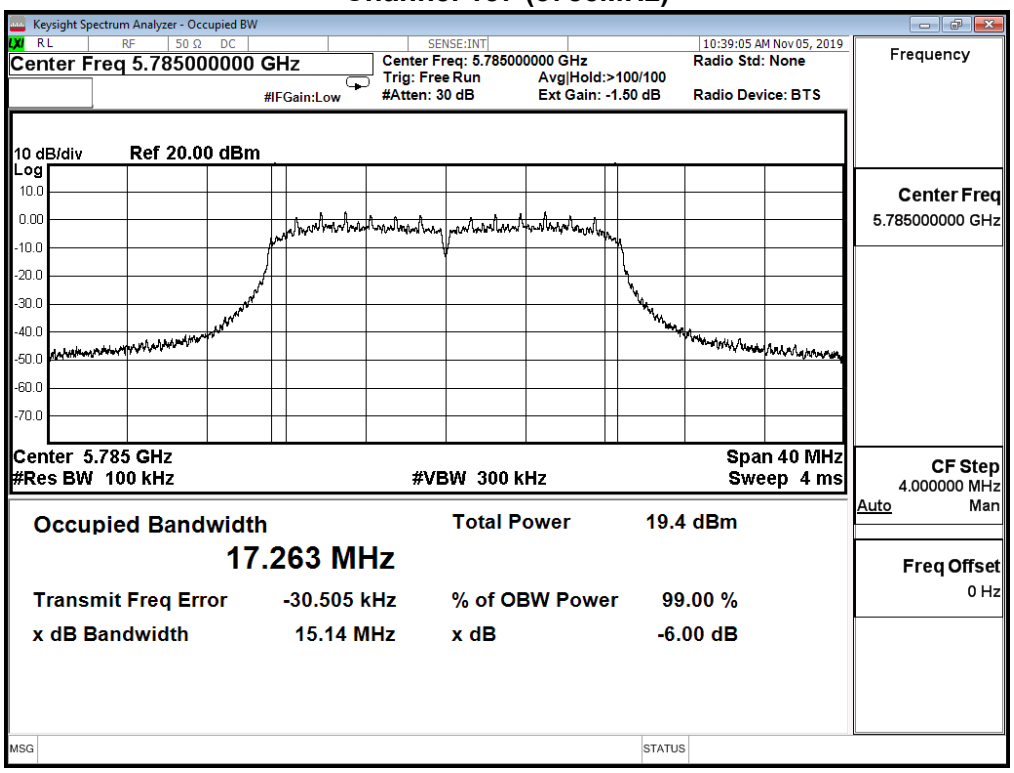
IEEE 802.11n(20MHz)(ANT 0)

Channel No.	Frequency (MHz)	Measure Value (MHz)	Limit (MHz)	Result
149	5745	15.730	≧0.5	Pass
157	5785	15.140	≧0.5	Pass
165	5825	15.140	≧0.5	Pass

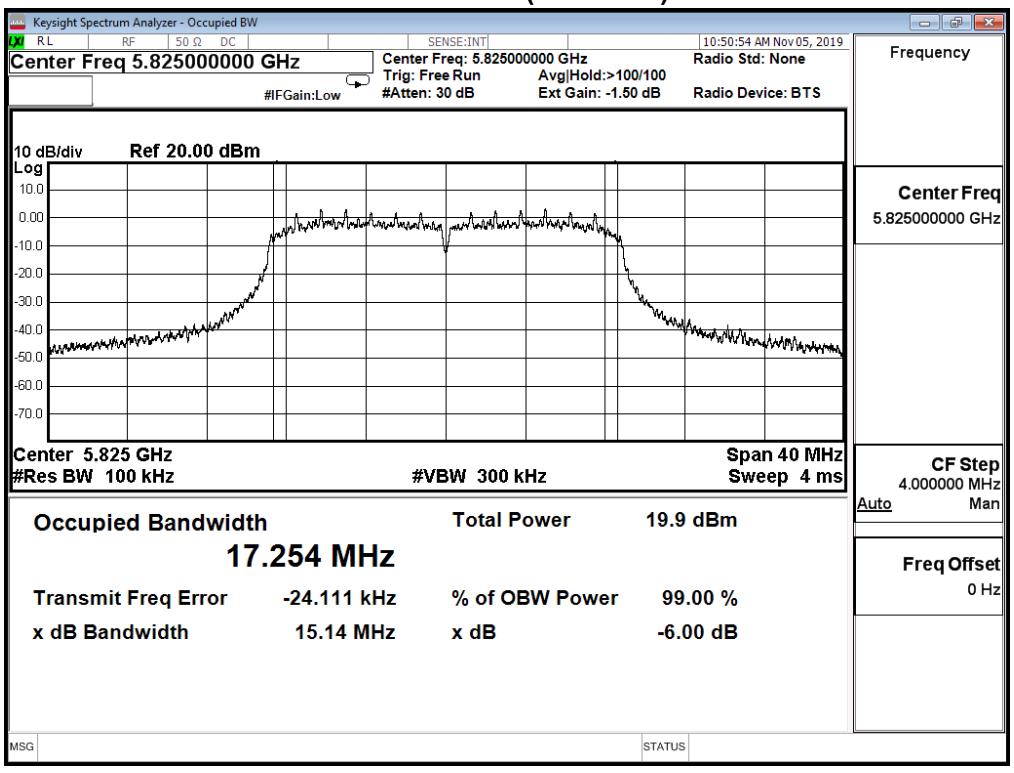
Channel 149 (5745MHz)



Channel 157 (5785MHz)



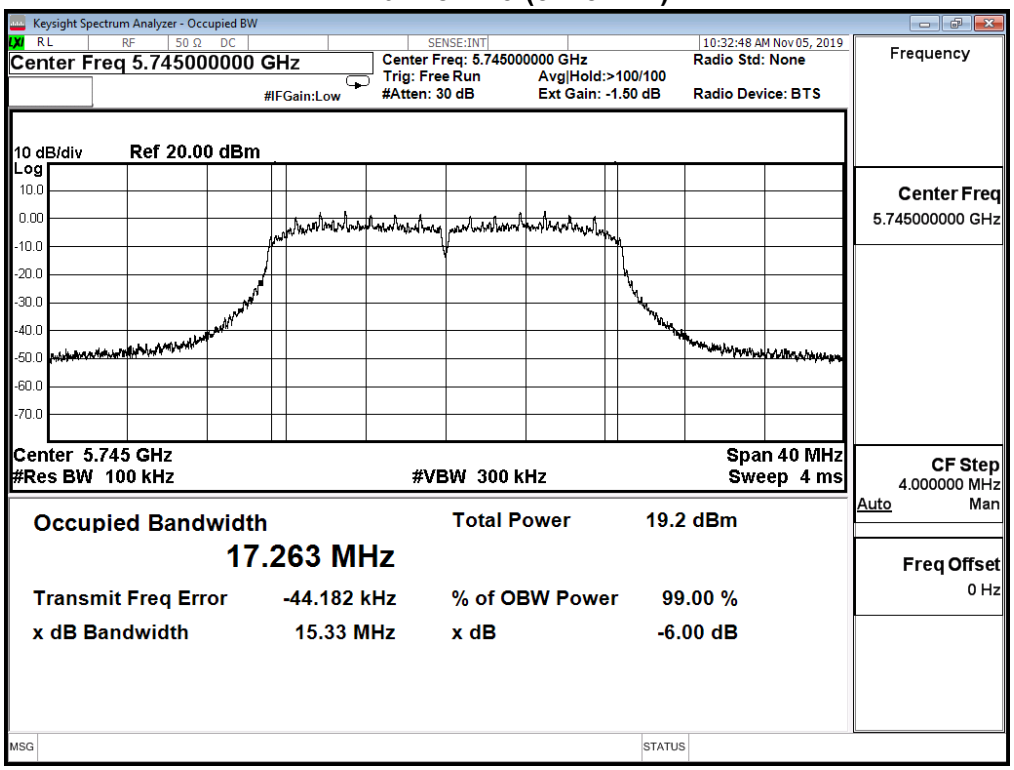
Channel 165 (5825MHz)



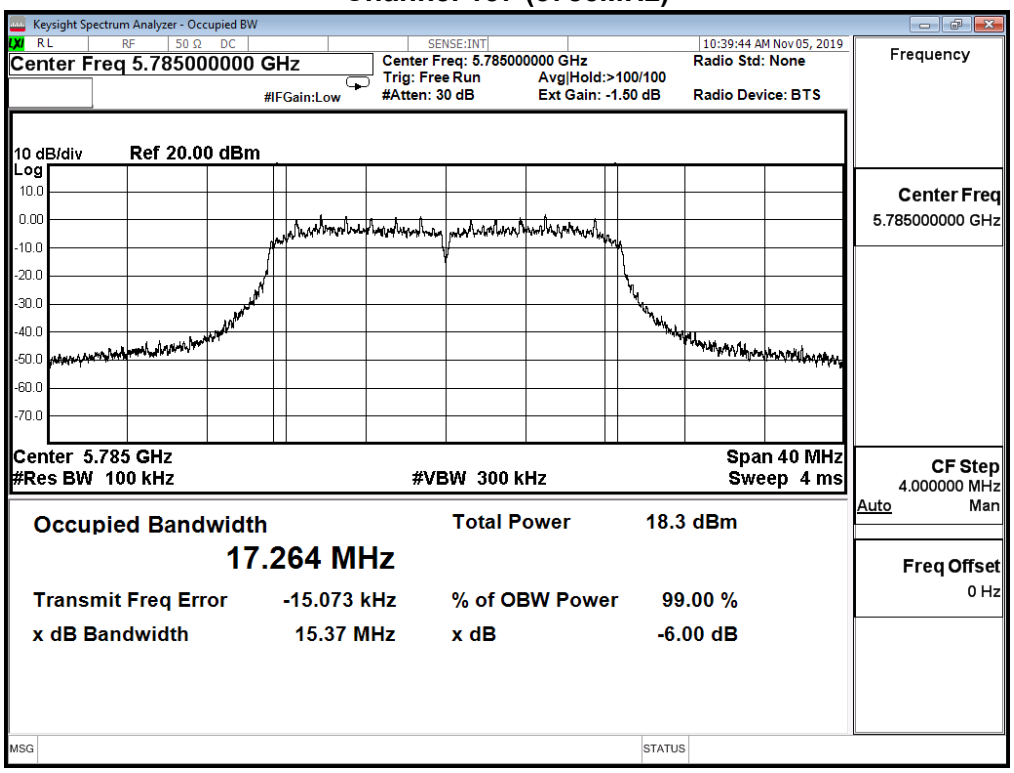
Product	Dual band AC1900 USB 3.0 Wi-Fi Adapter		
Test Item	Minimum Emission Bandwidth		
Test Mode	Mode 2: Transmit_MIMO Mode		
Date of Test	2019/11/05	Test Site	SR12-H
Test Temperature:	24.3℃	Test Hhumidity:	58%

IEEE 802.11n(20MHz)(ANT 1)				
Channel No.	Frequency (MHz)	Measure Value (MHz)	Limit (MHz)	Result
149	5745	15.330	≧0.5	Pass
157	5785	15.370	≧0.5	Pass
165	5825	15.130	≧0.5	Pass

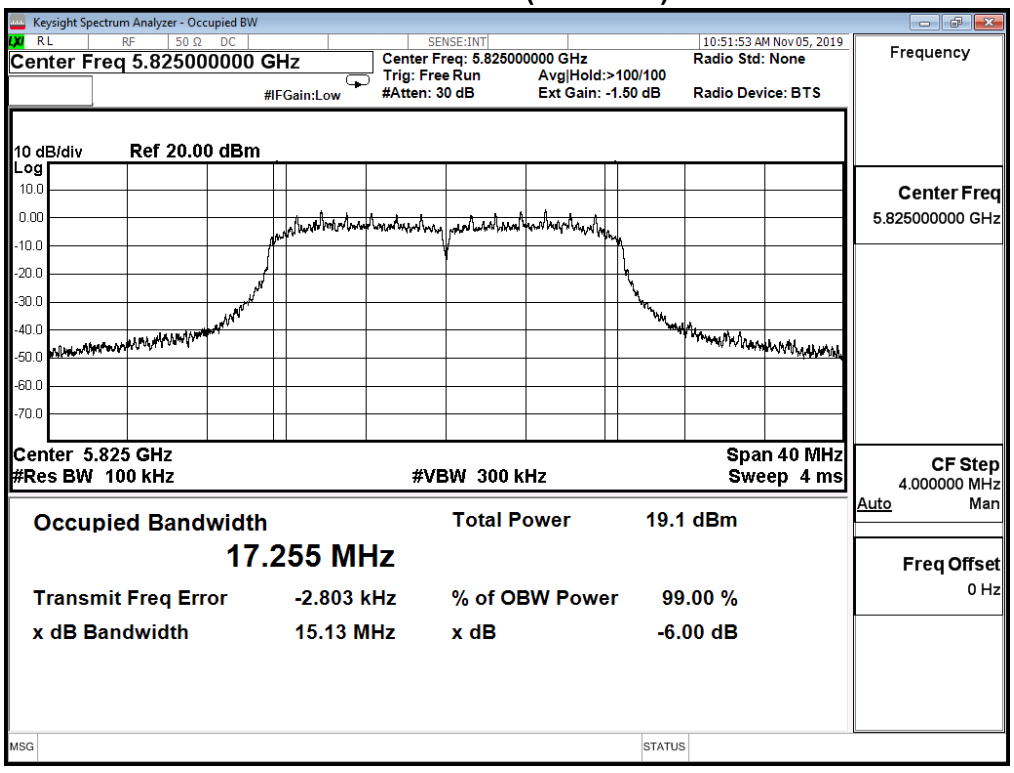
Channel 149 (5745MHz)



Channel 157 (5785MHz)



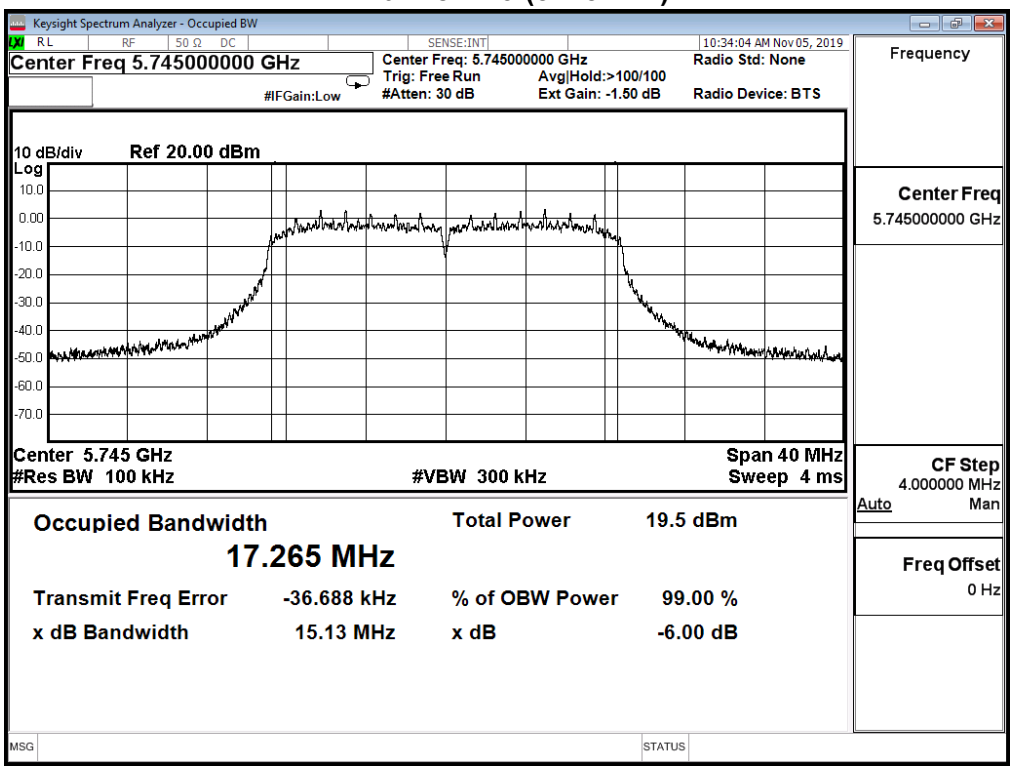
Channel 165 (5825MHz)



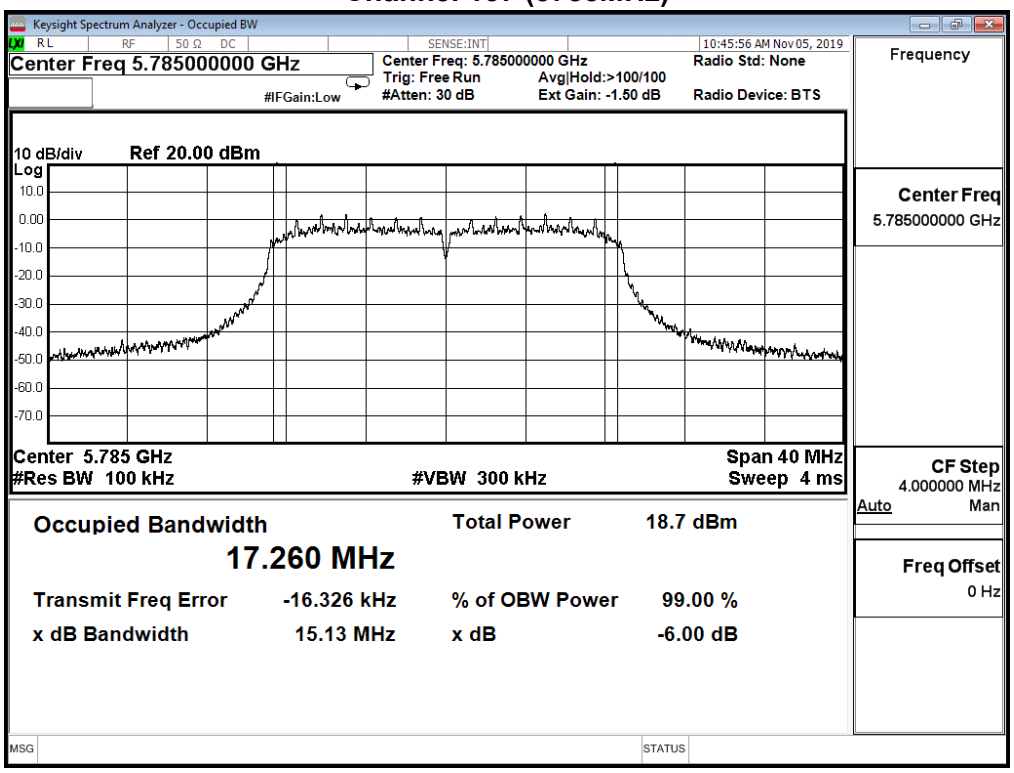
Product	Dual band AC1900 USB 3.0 Wi-Fi Adapter		
Test Item	Minimum Emission Bandwidth		
Test Mode	Mode 2: Transmit_MIMO Mode		
Date of Test	2019/11/05	Test Site	SR12-H
Test Temperature:	24.3℃	Test Hhumidity:	58%

IEEE 802.11n(20MHz)(ANT 2)				
Channel No.	Frequency (MHz)	Measure Value (MHz)	Limit (MHz)	Result
149	5745	15.130	≧0.5	Pass
157	5785	15.130	≧0.5	Pass
165	5825	15.120	≧0.5	Pass

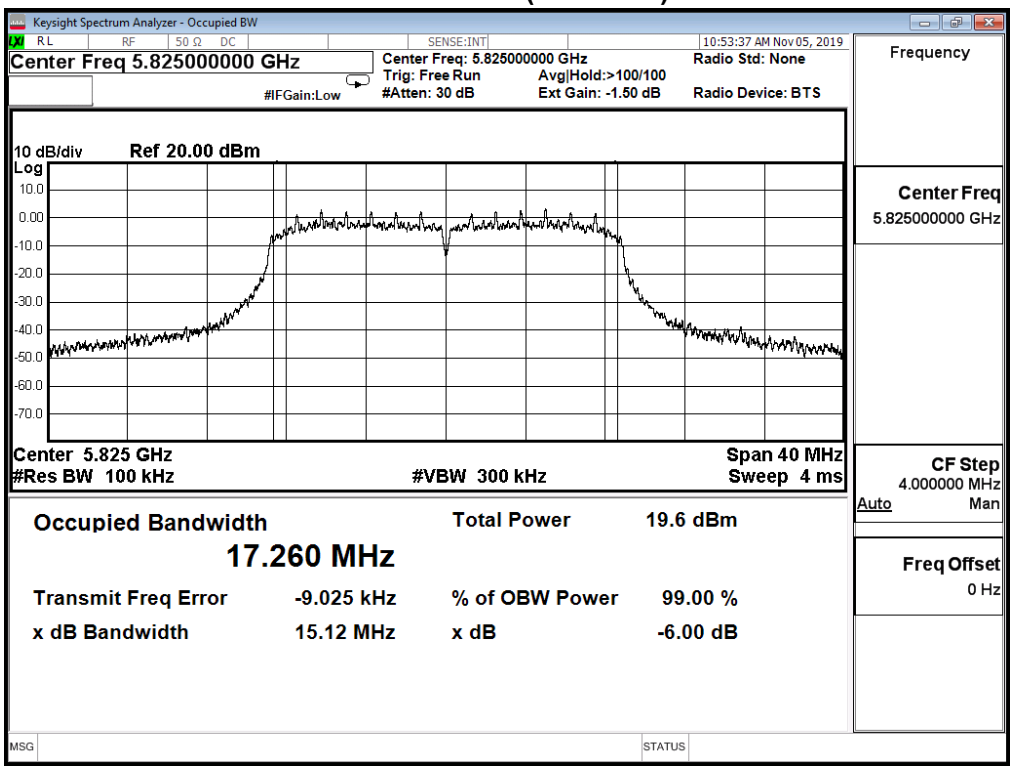
Channel 149 (5745MHz)



Channel 157 (5785MHz)



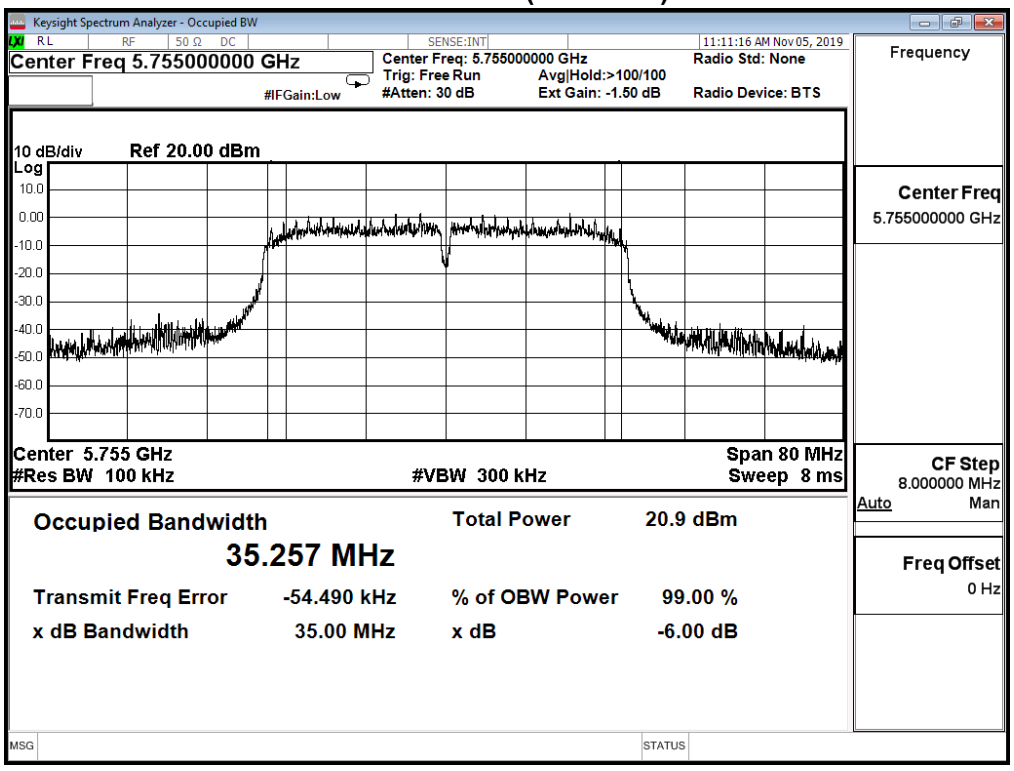
Channel 165 (5825MHz)



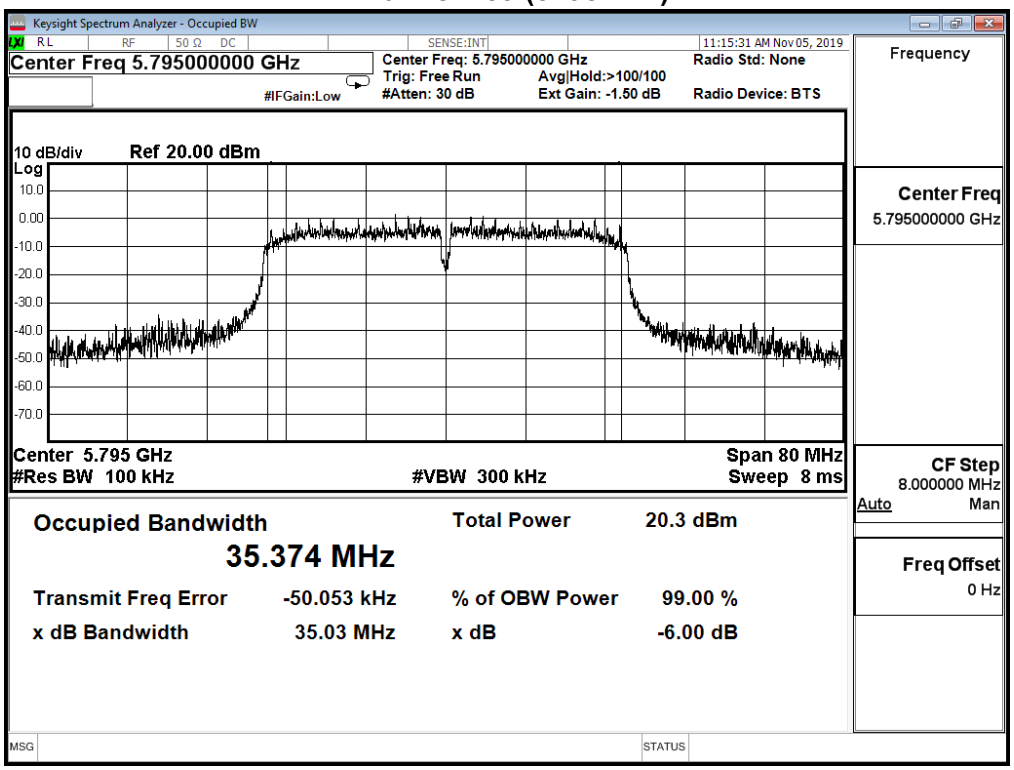
Product	Dual band AC1900 USB 3.0 Wi-Fi Adapter		
Test Item	Minimum Emission Bandwidth		
Test Mode	Mode 2: Transmit_MIMO Mode		
Date of Test	2019/11/05	Test Site	SR12-H
Test Temperature:	24.3℃	Test Hhumidity:	58%

IEEE 802.11n(40MHz)(ANT 0)				
Channel No.	Frequency (MHz)	Measure Value (MHz)	Limit (MHz)	Result
151	5755	35.000	≧0.5	Pass
159	5795	35.030	≧0.5	Pass

Channel 151 (5755MHz)



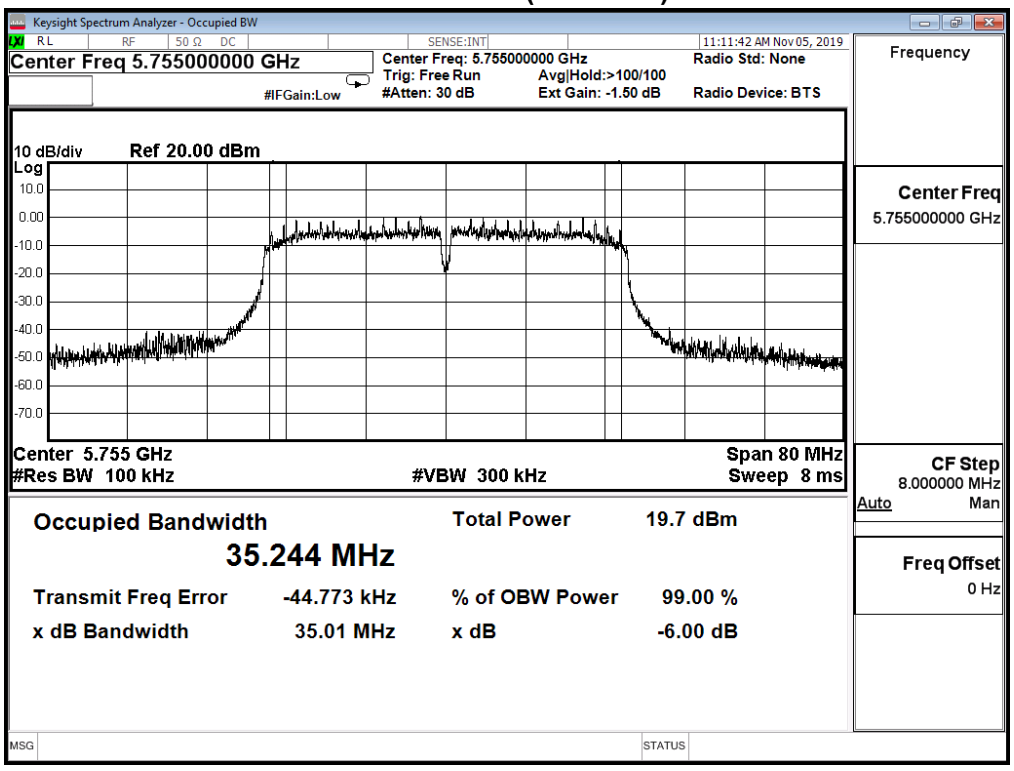
Channel 159 (5795MHz)



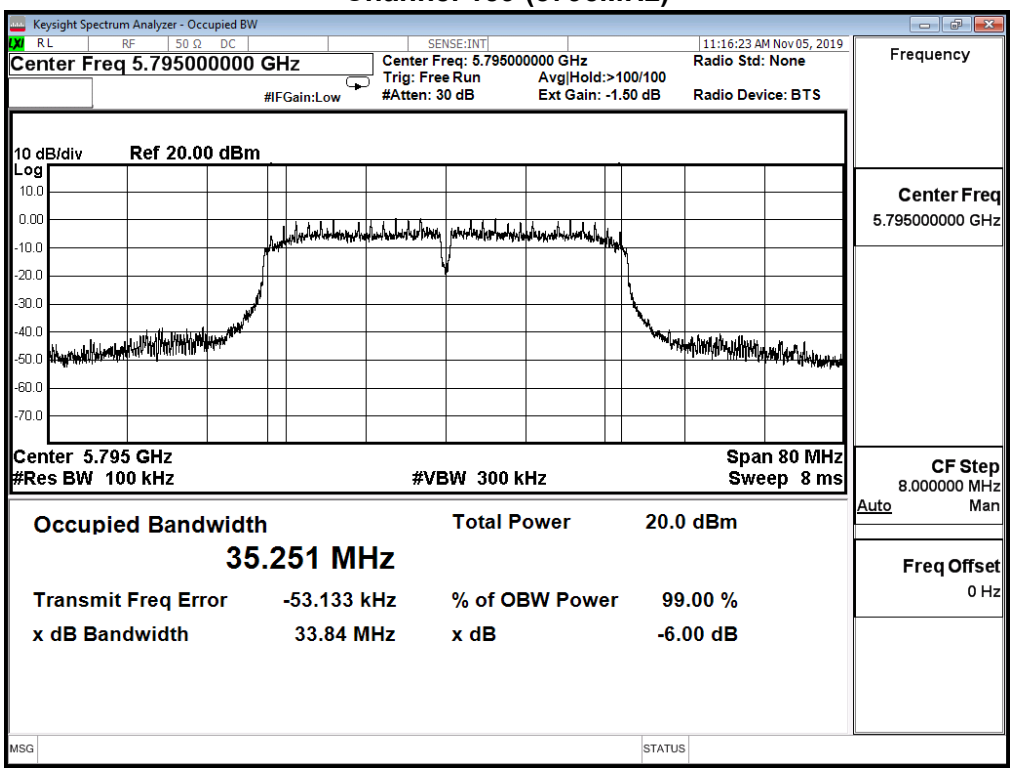
Product	Dual band AC1900 USB 3.0 Wi-Fi Adapter		
Test Item	Minimum Emission Bandwidth		
Test Mode	Mode 2: Transmit_MIMO Mode		
Date of Test	2019/11/05	Test Site	SR12-H
Test Temperature:	24.3℃	Test Hhumidity:	58%

IEEE 802.11n(40MHz)(ANT 1)				
Channel No.	Frequency (MHz)	Measure Value (MHz)	Limit (MHz)	Result
151	5755	35.010	≧0.5	Pass
159	5795	33.840	≧0.5	Pass

Channel 151 (5755MHz)



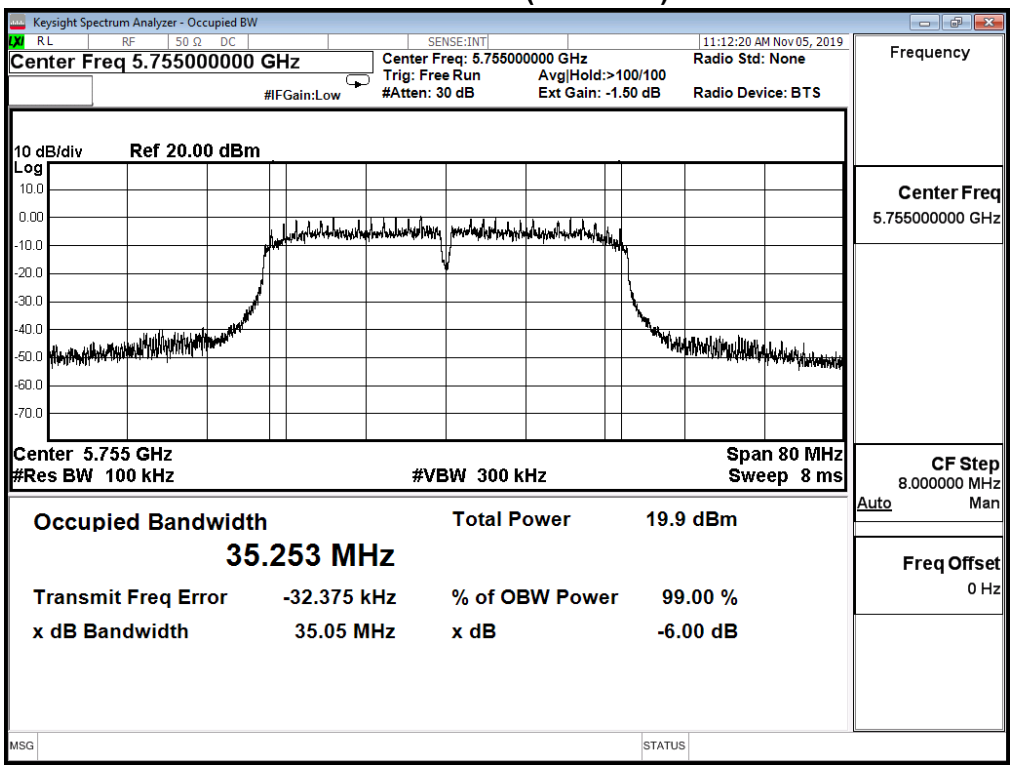
Channel 159 (5795MHz)



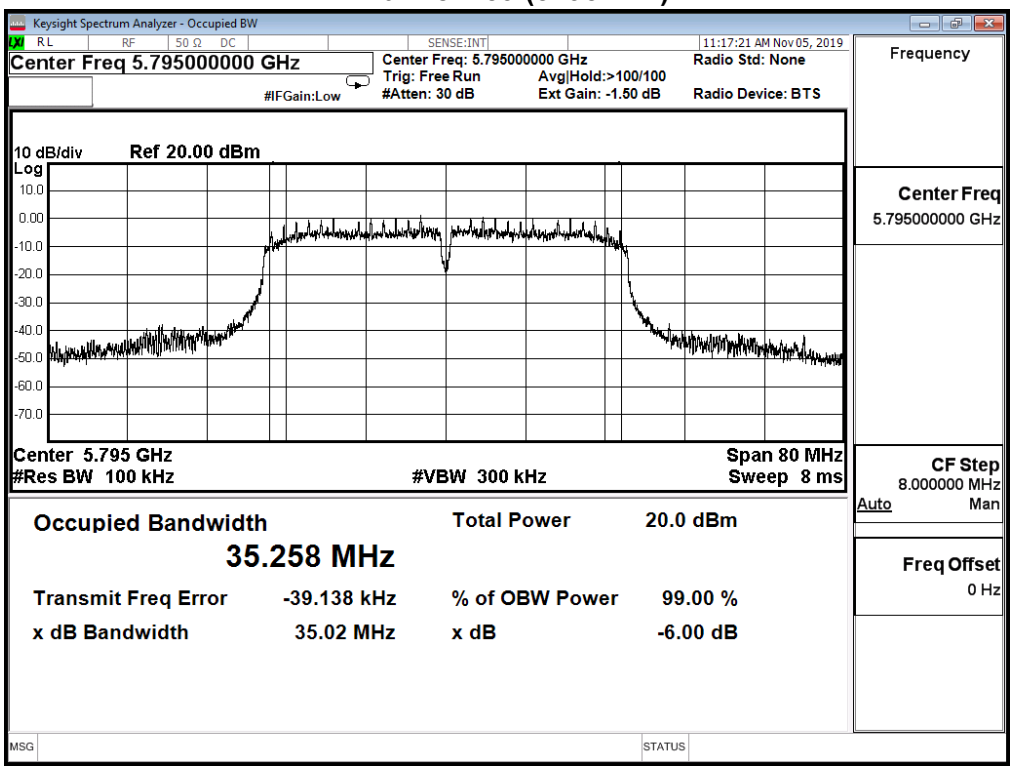
Product	Dual band AC1900 USB 3.0 Wi-Fi Adapter		
Test Item	Minimum Emission Bandwidth		
Test Mode	Mode 2: Transmit_MIMO Mode		
Date of Test	2019/11/05	Test Site	SR12-H
Test Temperature:	24.3℃	Test Hhumidity:	58%

IEEE 802.11n(40MHz)(ANT 2)				
Channel No.	Frequency (MHz)	Measure Value (MHz)	Limit (MHz)	Result
151	5755	35.050	≧0.5	Pass
159	5795	35.020	≧0.5	Pass

Channel 151 (5755MHz)



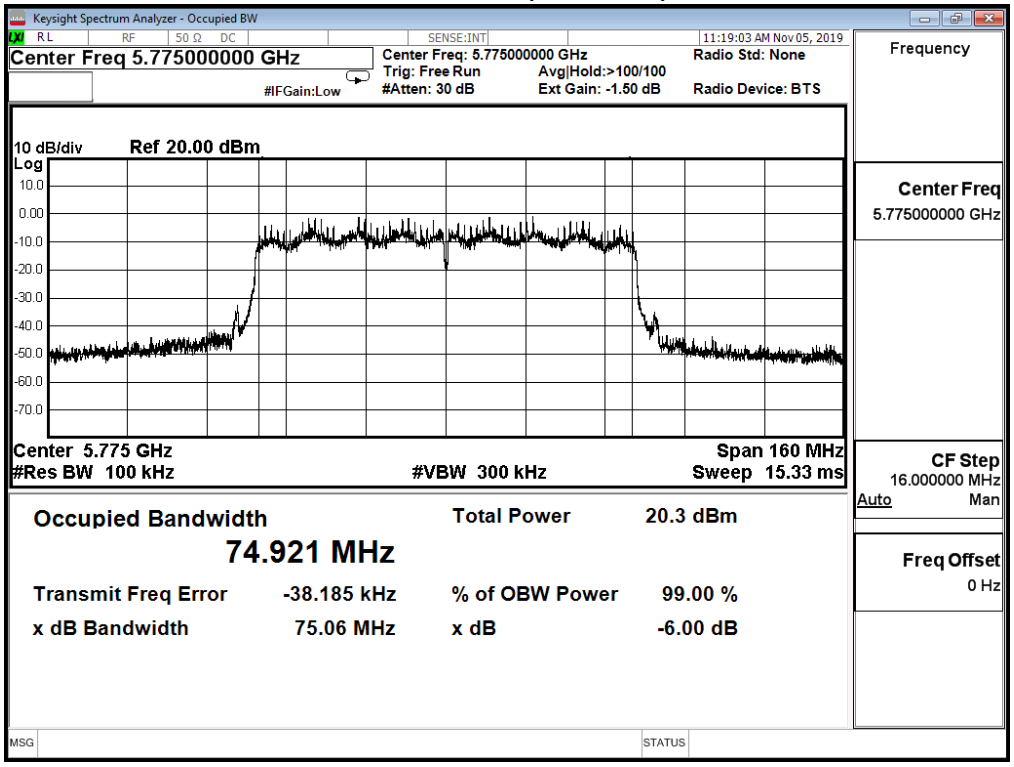
Channel 159 (5795MHz)



Product	Dual band AC1900 USB 3.0 Wi-Fi Adapter		
Test Item	Minimum Emission Bandwidth		
Test Mode	Mode 2: Transmit_MIMO Mode		
Date of Test	2019/11/05	Test Site	SR12-H
Test Temperature:	24.3℃	Test Hhumidity:	58%

IEEE 802.11ac(80MHz)(ANT 0)				
Channel No.	Frequency (MHz)	Measure Value (MHz)	Limit (MHz)	Result
155	5775	75.060	≧0.5	Pass

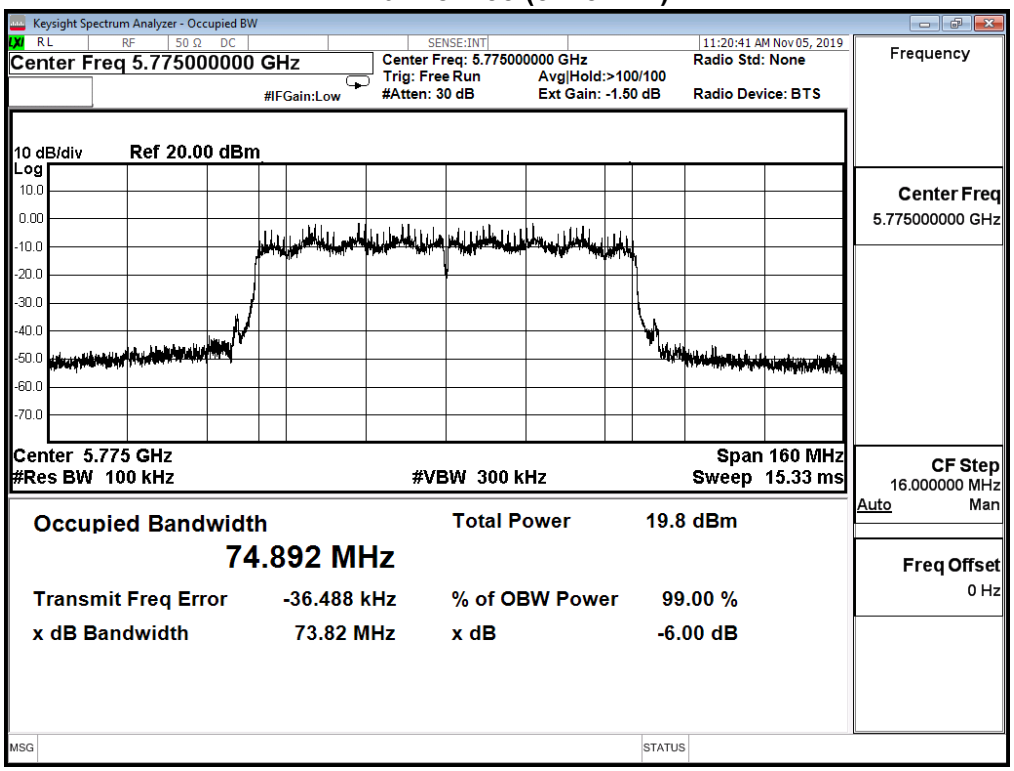
Channel 155 (5775MHz)



Product	Dual band AC1900 USB 3.0 Wi-Fi Adapter		
Test Item	Minimum Emission Bandwidth		
Test Mode	Mode 2: Transmit_MIMO Mode		
Date of Test	2019/11/05	Test Site	SR12-H
Test Temperature:	24.3℃	Test Hhumidity:	58%

IEEE 802.11ac(80MHz)(ANT 1)				
Channel No.	Frequency (MHz)	Measure Value (MHz)	Limit (MHz)	Result
155	5775	73.820	≧0.5	Pass

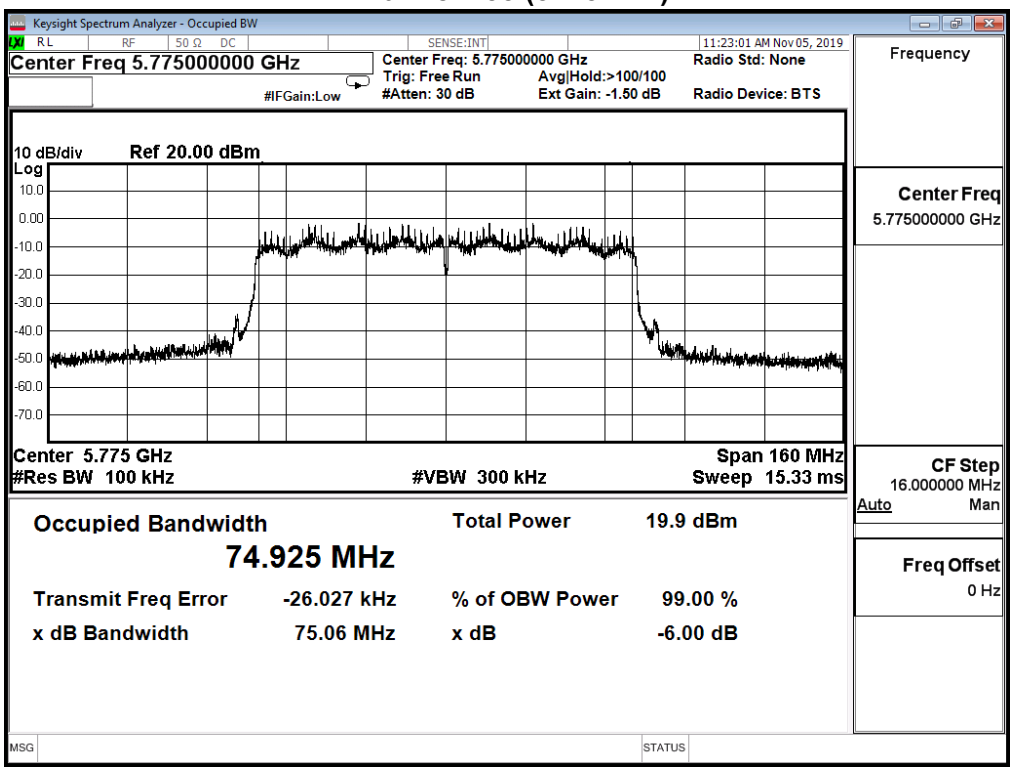
Channel 155 (5775MHz)



Product	Dual band AC1900 USB 3.0 Wi-Fi Adapter		
Test Item	Minimum Emission Bandwidth		
Test Mode	Mode 2: Transmit_MIMO Mode		
Date of Test	2019/11/05	Test Site	SR12-H
Test Temperature:	24.3℃	Test Hhumidity:	58%

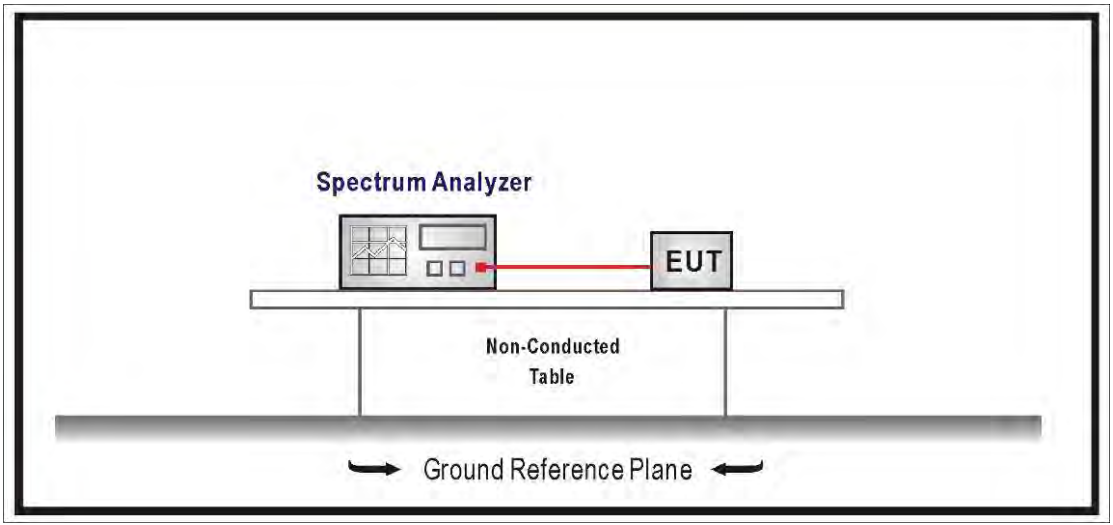
IEEE 802.11ac(80MHz)(ANT 2)				
Channel No.	Frequency (MHz)	Measure Value (MHz)	Limit (MHz)	Result
155	5775	75.060	≧0.5	Pass

Channel 155 (5775MHz)



5. Maximum conducted output power

5.1. Test Setup



5.2. Limits

(1) For the band 5.15-5.25 GHz.

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

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

(iii) For fixed point-to-point access points operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. In addition, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. Fixed point-to-point U-NII devices may employ antennas with directional gain up to 23 dBi without any corresponding reduction in the maximum conducted output power or maximum power spectral density. For fixed point-to-point transmitters that employ a

directional antenna gain greater than 23 dBi, a 1 dB reduction in maximum conducted output power and maximum power spectral density is required for each 1 dB of antenna gain in excess of 23 dBi. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.

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

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

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

5.3. Test Procedure

The EUT was setup to ANSI C63.10: 2013; tested to U-NII test procedure of 789033 D02 v02r01 for compliance to FCC 47CFR Subpart E requirements. The Method SA-1 of the Maximum conducted output power was used.

Set RBW=1MHz, VBW=3MHz with RMS detector and trace average 100 traces in power averaging mode. Set span to encompass the entire emission bandwidth (EBW) of the signal. Compute power by integrating the spectrum across the 26 dB EBW of the signal.

5.4. Test Result

Product	Dual band AC1900 USB 3.0 Wi-Fi Adapter		
Test Item	Maximum conducted output power		
Test Mode	Mode 1: Transmit_SISO Mode		
Date of Test	2019/11/05	Test Site	SR12-H
Test Temperature:	24.1℃	Test Hhumidity:	63%

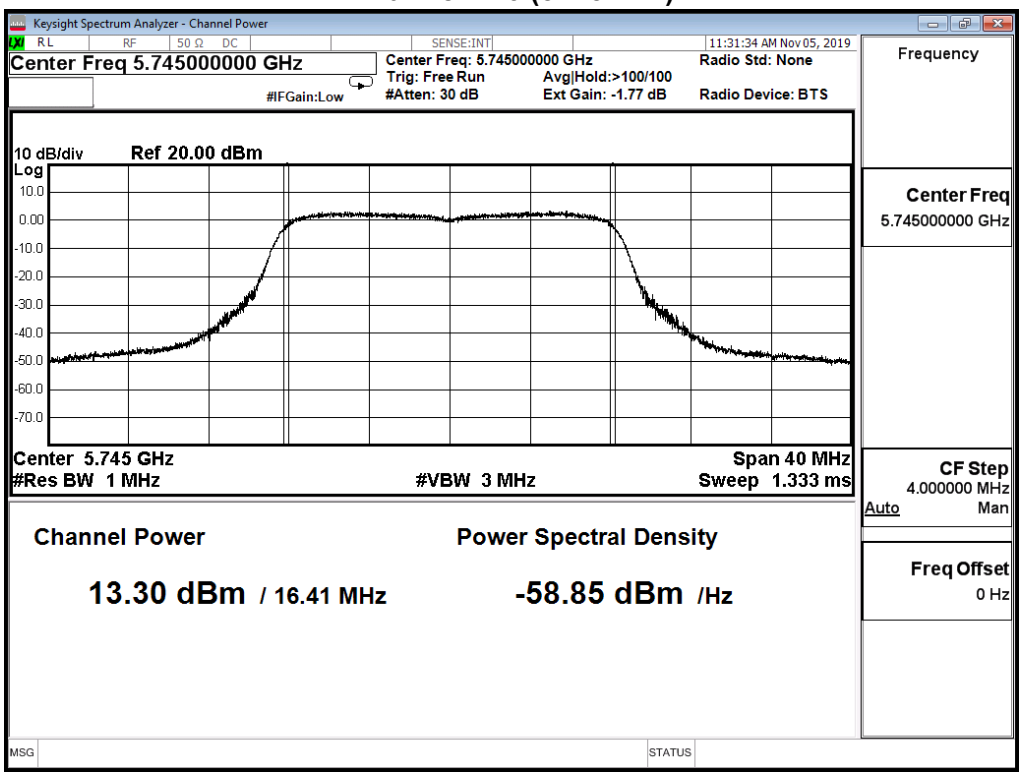
IEEE 802.11a (ANT 0)

Channel No.	Frequency (MHz)	Measure Value (dBm)	Limit (dBm)
149	5745	13.300	≦30
157	5785	13.380	≦30
165	5825	13.370	≦30

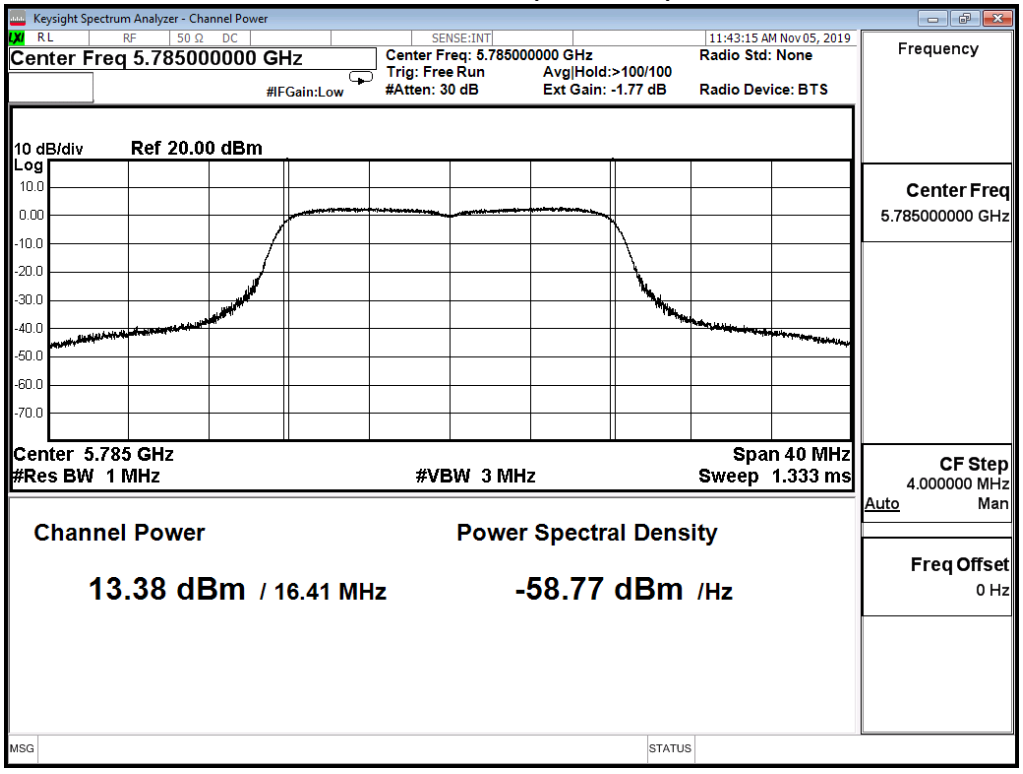
The worst emission of data rate is 6Mbps

Channel No.	Frequency (MHz)	6	12	18	24	36	48	54
149	5745	13.300	--	--	--	--	--	--
157	5785	13.380	13.230	13.090	12.940	12.800	12.650	12.500
165	5825	13.370	--	--	--	--	--	--

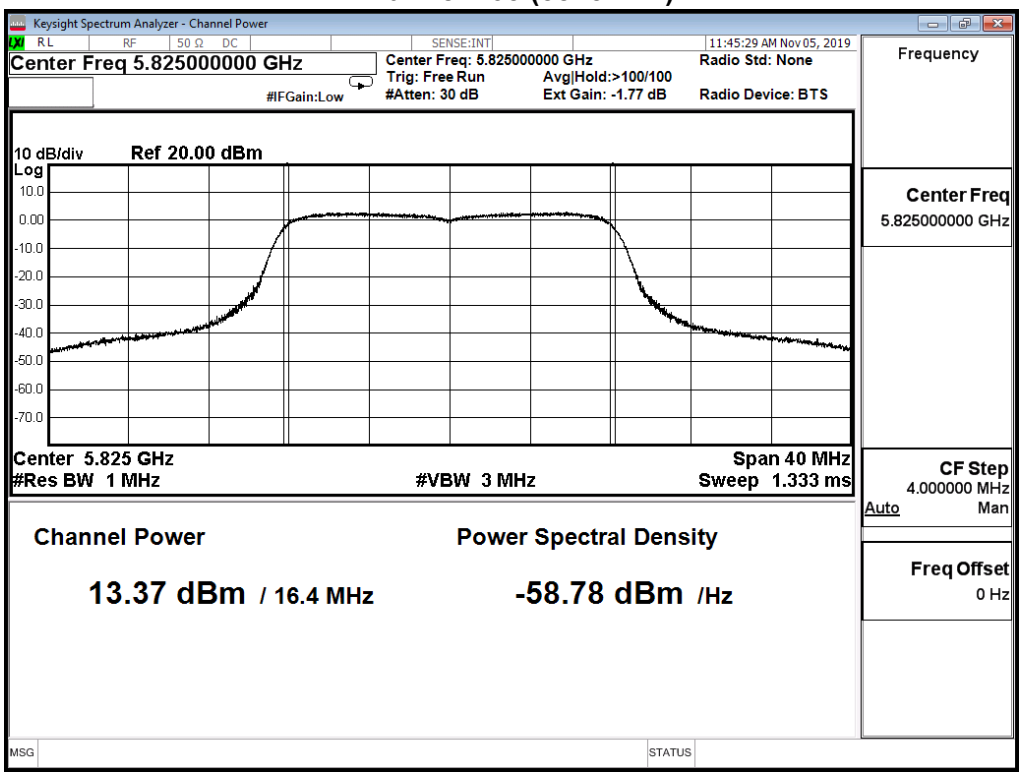
Channel 146 (5745MHz)



Channel 157 (5785MHz)



Channel 165 (5825MHz)



Product	Dual band AC1900 USB 3.0 Wi-Fi Adapter		
Test Item	Maximum conducted output power		
Test Mode	Mode 1: Transmit_SISO Mode		
Date of Test	2019/11/05	Test Site	SR12-H
Test Temperature:	24.1℃	Test Hhumidity:	63%

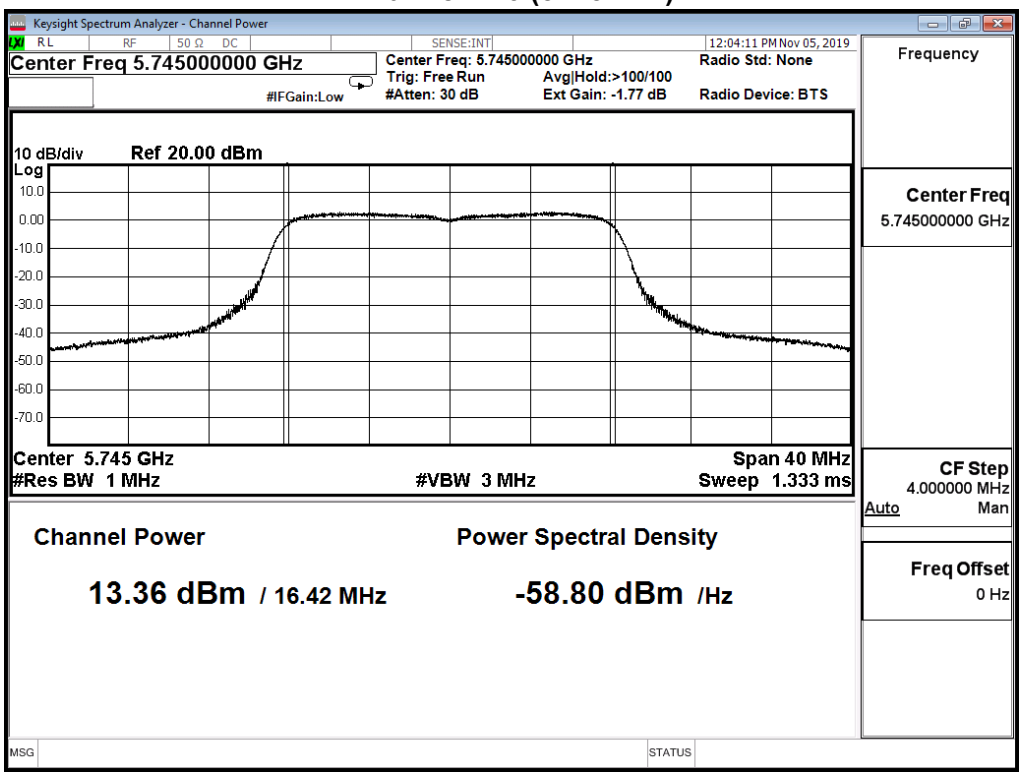
IEEE 802.11a (ANT 1)

Channel No.	Frequency (MHz)	Measure Value (dBm)	Limit (dBm)
149	5745	13.360	≦30
157	5785	13.340	≦30
165	5825	13.420	≦30

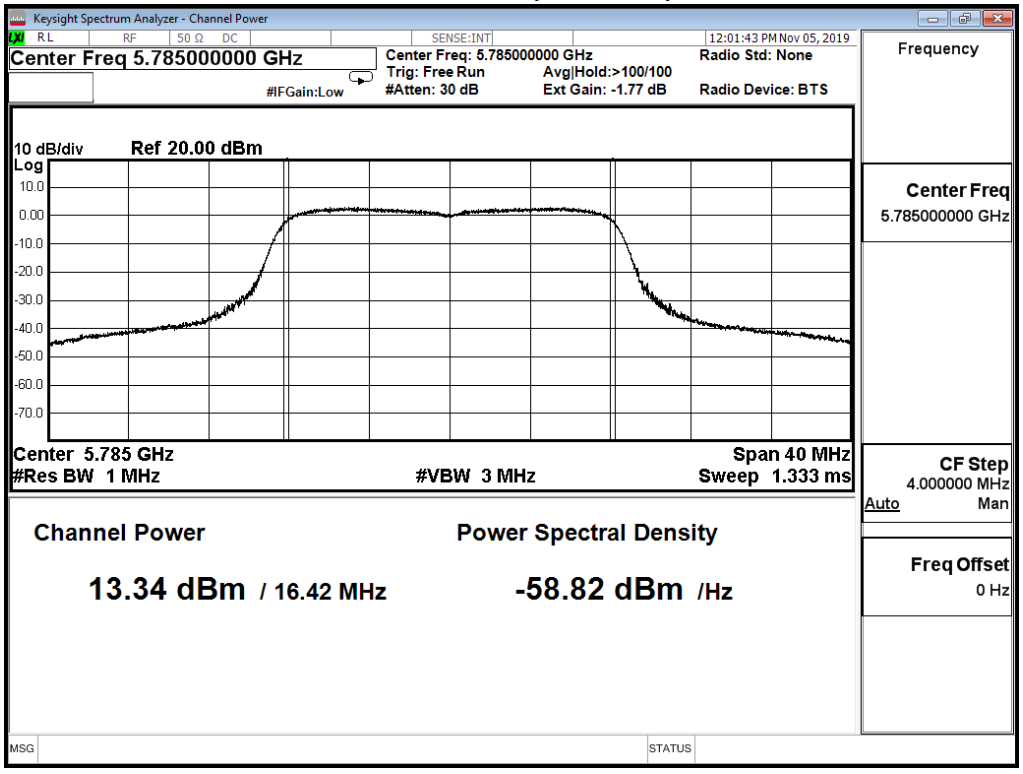
The worst emission of data rate is 6Mbps

Channel No.	Frequency (MHz)	6	12	18	24	36	48	54
149	5745	13.360	--	--	--	--	--	--
157	5785	13.340	13.200	13.070	12.930	12.800	12.660	12.520
165	5825	13.420	--	--	--	--	--	--

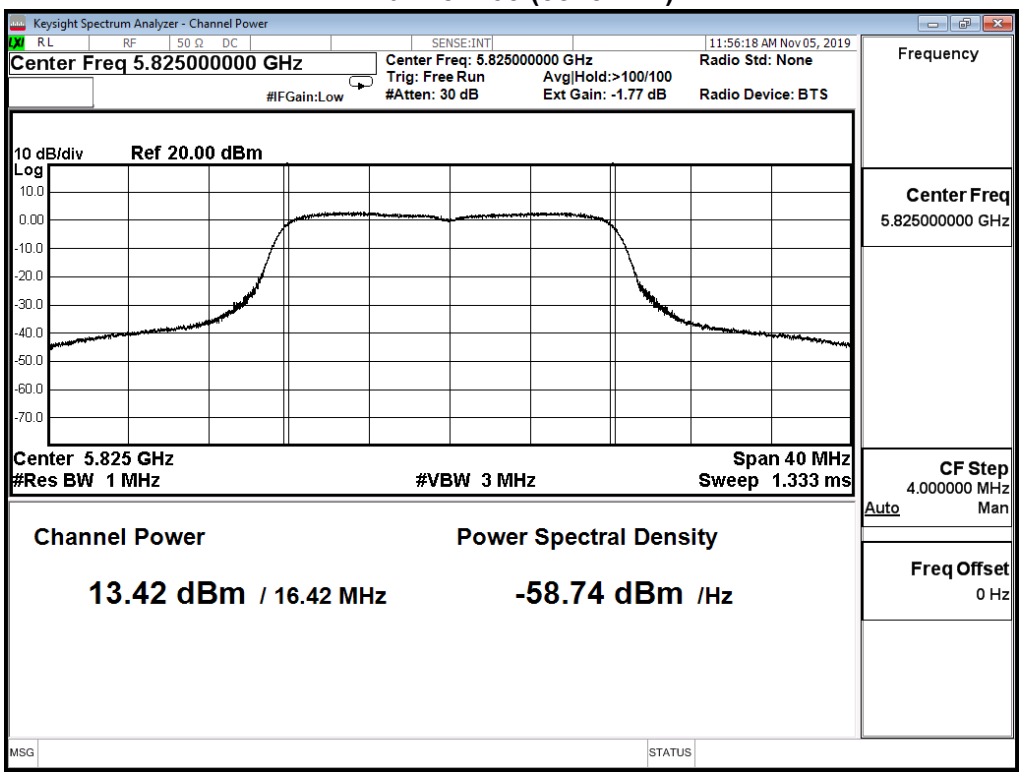
Channel 146 (5745MHz)



Channel 157 (5785MHz)



Channel 165 (5825MHz)



Product	Dual band AC1900 USB 3.0 Wi-Fi Adapter		
Test Item	Maximum conducted output power		
Test Mode	Mode 1: Transmit_SISO Mode		
Date of Test	2019/11/05	Test Site	SR12-H
Test Temperature:	24.1℃	Test Hhumidity:	63%

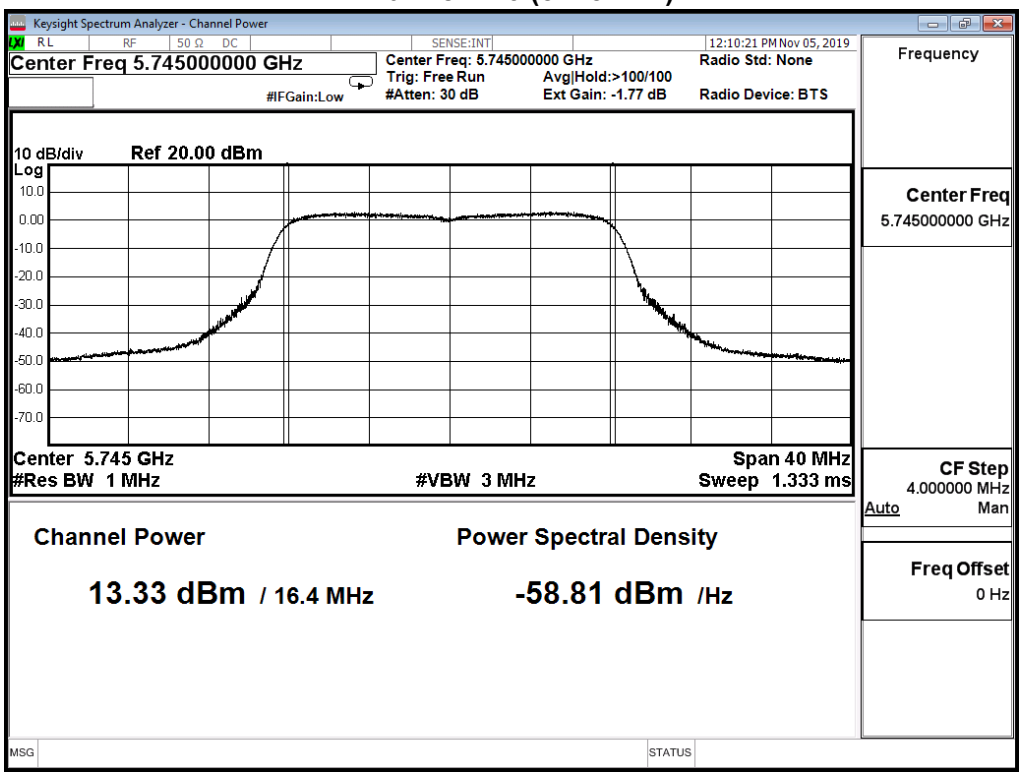
IEEE 802.11a (ANT 2)

Channel No.	Frequency (MHz)	Measure Value (dBm)	Limit (dBm)
149	5745	13.330	≦30
157	5785	13.460	≦30
165	5825	13.620	≦30

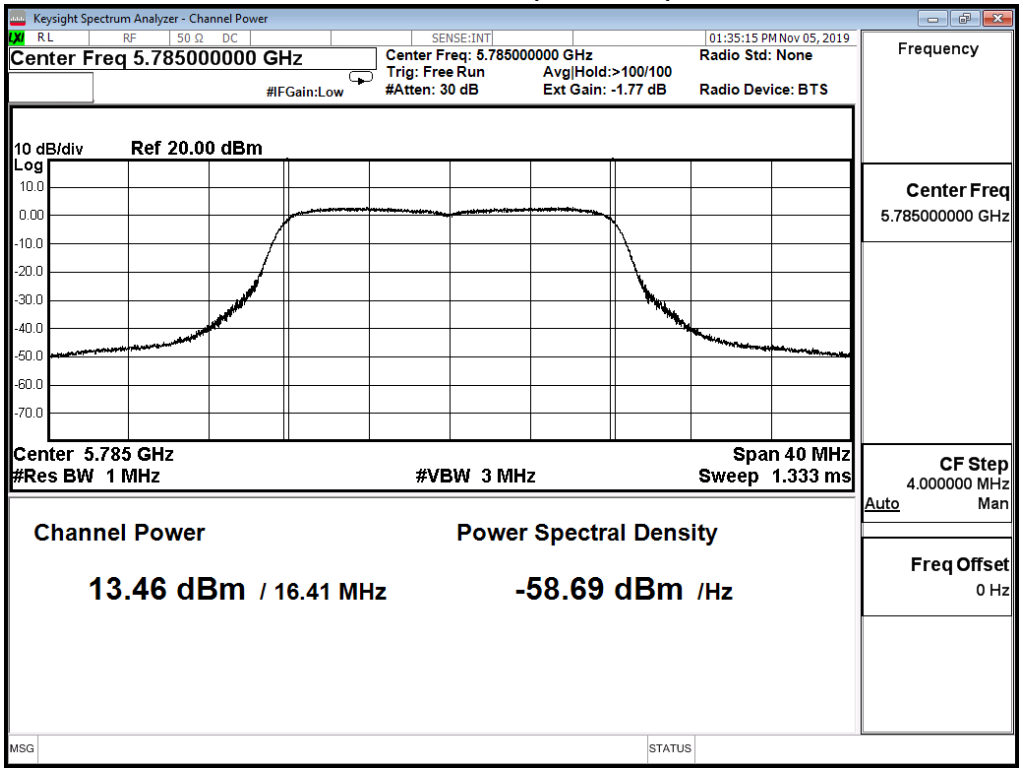
The worst emission of data rate is 1Mbps

Channel No.	Frequency (MHz)	6	12	18	24	36	48	54
149	5745	13.330	--	--	--	--	--	--
157	5785	13.460	13.310	13.170	13.020	12.890	12.750	12.610
165	5825	13.620	--	--	--	--	--	--

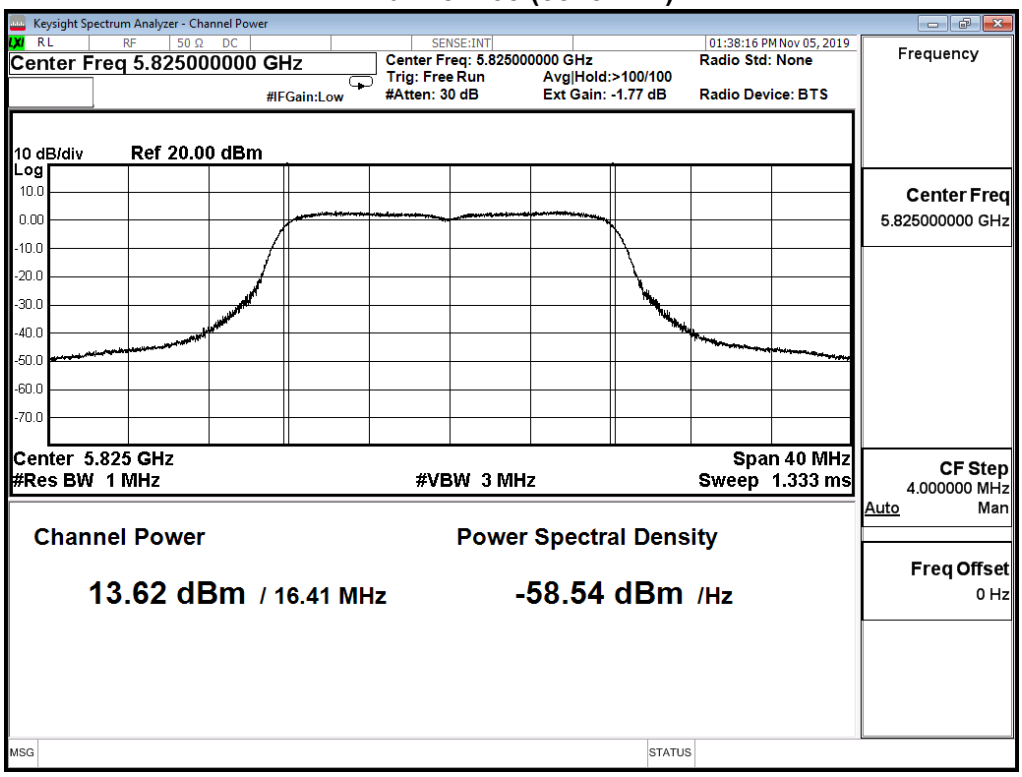
Channel 146 (5745MHz)



Channel 157 (5785MHz)



Channel 165 (5825MHz)



Product	Dual band AC1900 USB 3.0 Wi-Fi Adapter		
Test Item	Maximum conducted output power		
Test Mode	Mode 2: Transmit_MIMO Mode		
Date of Test	2019/11/05	Test Site	SR12-H
Test Temperature:	24.1℃	Test Hhumidity:	63%

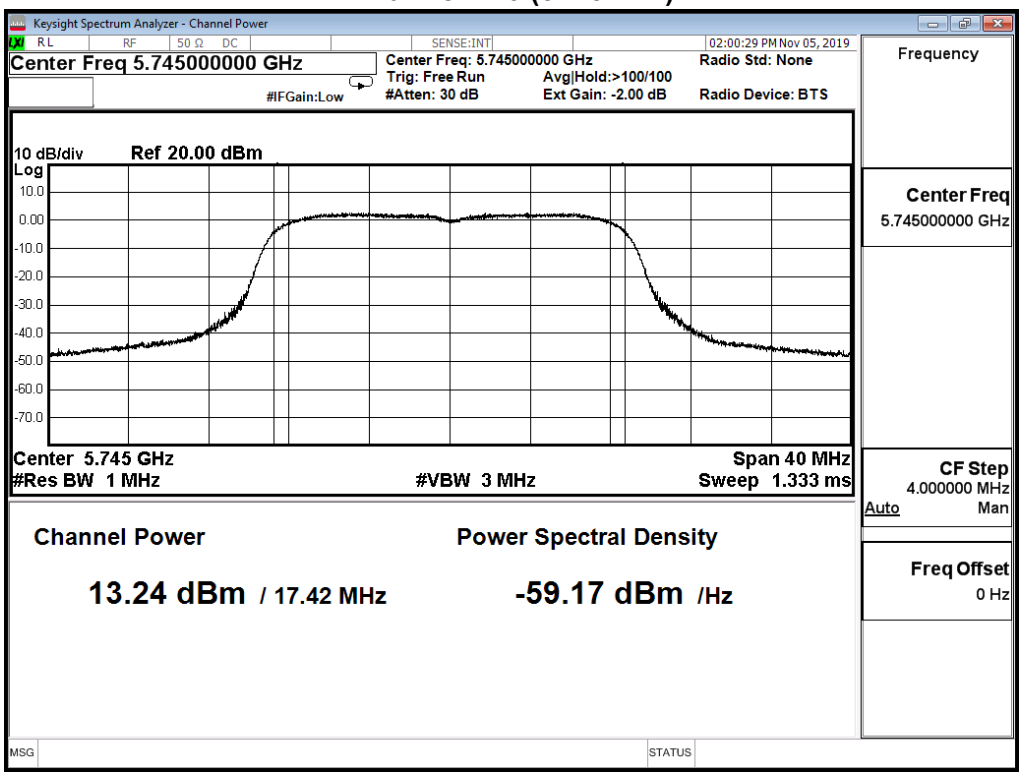
IEEE 802.11n(20MHz)(ANT 0)

Channel No.	Frequency (MHz)	Measure Value (dBm)	Limit (dBm)
149	5745	13.240	≦30
157	5785	13.400	≦30
165	5825	13.250	≦30

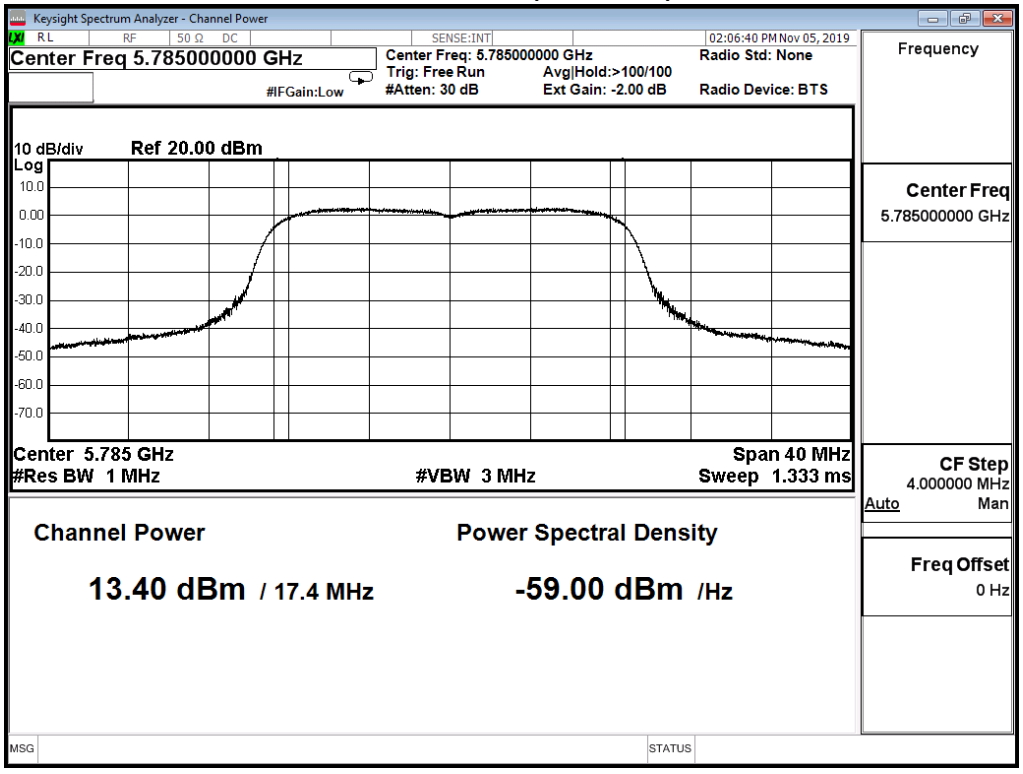
The worst emission of data rate is MCS16

Channel No	Frequency (MHz)	MCS index							
		16	17	18	19	20	21	22	23
149	5745	13.240	--	--	--	--	--	--	--
157	5785	13.400	13.260	13.120	12.970	12.830	12.690	12.540	12.400
165	5825	13.250	--	--	--	--	--	--	--

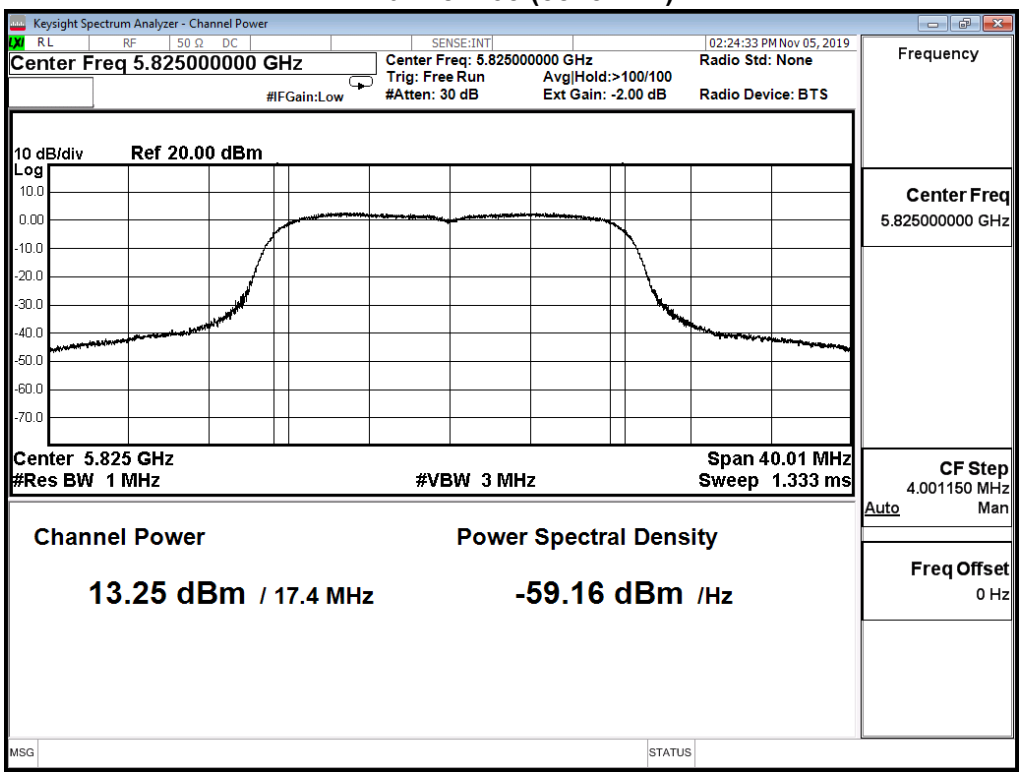
Channel 146 (5745MHz)



Channel 157 (5785MHz)



Channel 165 (5825MHz)



Product	Dual band AC1900 USB 3.0 Wi-Fi Adapter		
Test Item	Maximum conducted output power		
Test Mode	Mode 2: Transmit_MIMO Mode		
Date of Test	2019/11/05	Test Site	SR12-H
Test Temperature:	24.1℃	Test Hhumidity:	63%

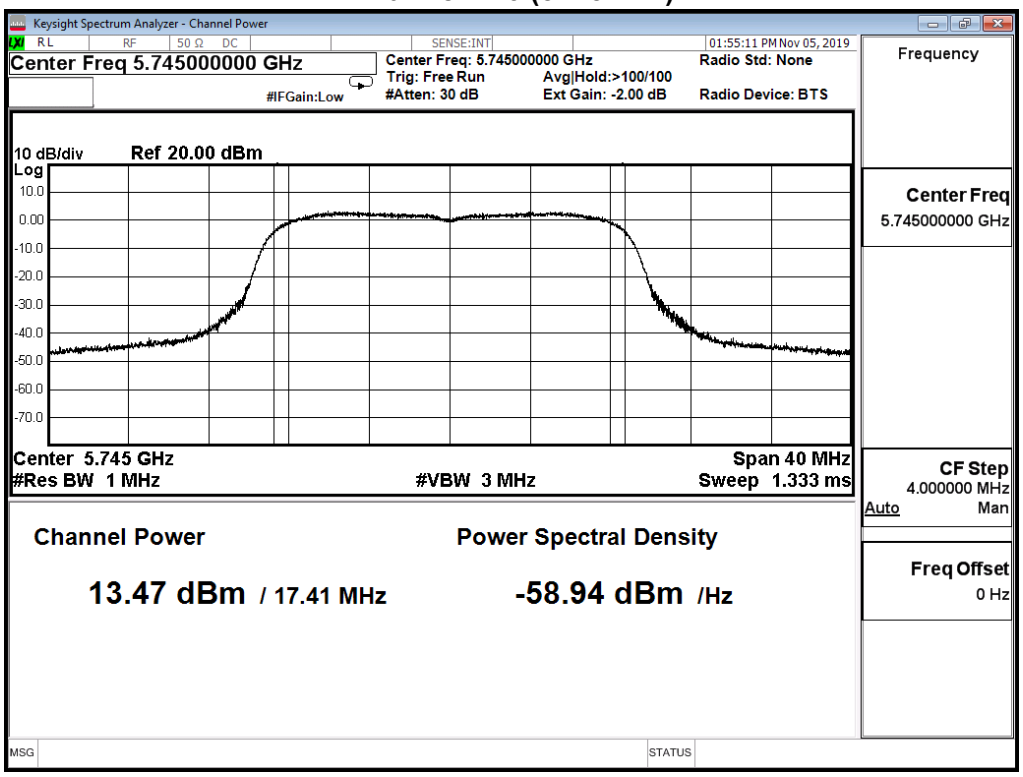
IEEE 802.11n(20MHz)(ANT 1)

Channel No.	Frequency (MHz)	Measure Value (dBm)	Limit (dBm)
149	5745	13.470	≦30
157	5785	13.360	≦30
165	5825	13.440	≦30

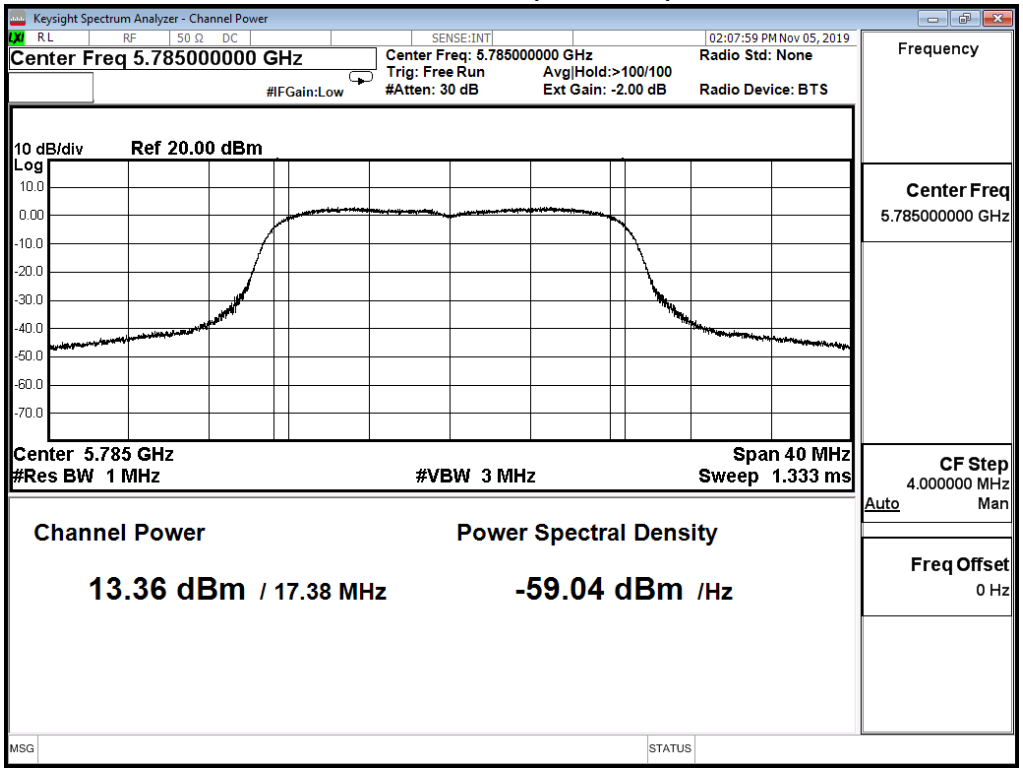
The worst emission of data rate is MCS16

Channel	Frequency	MCS index							
No	(MHz)	16	17	18	19	20	21	22	23
149	5745	13.470	--	--	--	--	--	--	--
157	5785	13.360	13.220	13.090	12.950	12.800	12.670	12.530	12.390
165	5825	13.440	--	--	--	--	--	--	--

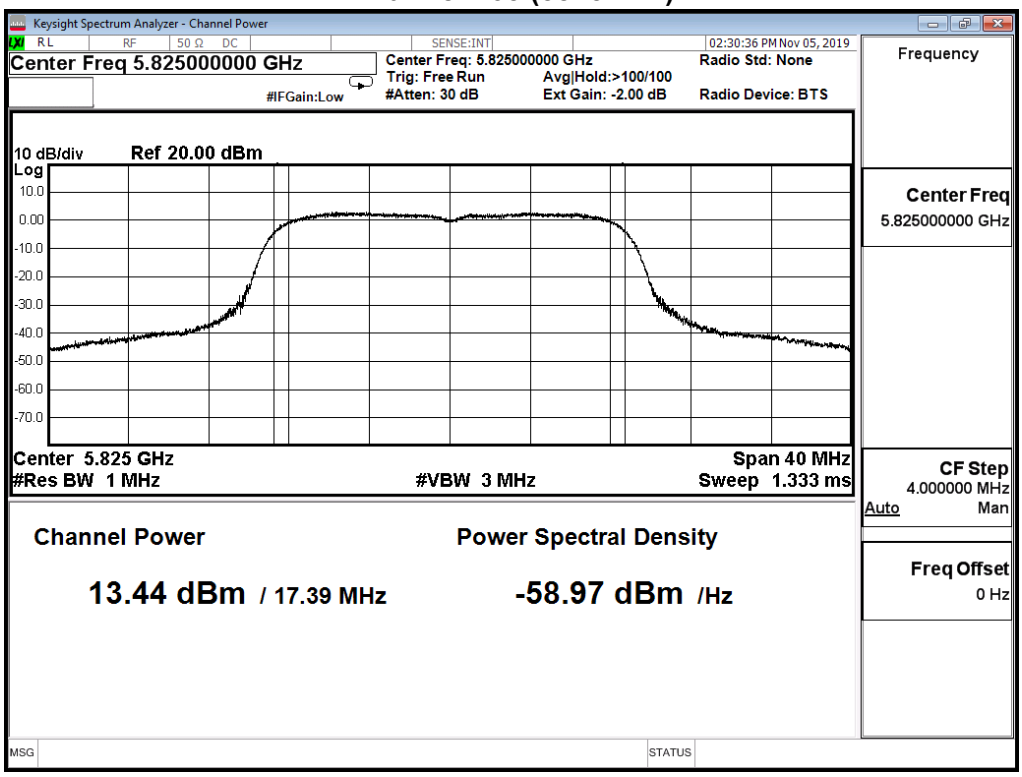
Channel 146 (5745MHz)



Channel 157 (5785MHz)



Channel 165 (5825MHz)



Product	Dual band AC1900 USB 3.0 Wi-Fi Adapter		
Test Item	Maximum conducted output power		
Test Mode	Mode 2: Transmit_MIMO Mode		
Date of Test	2019/11/05	Test Site	SR12-H
Test Temperature:	24.1℃	Test Hhumidity:	63%

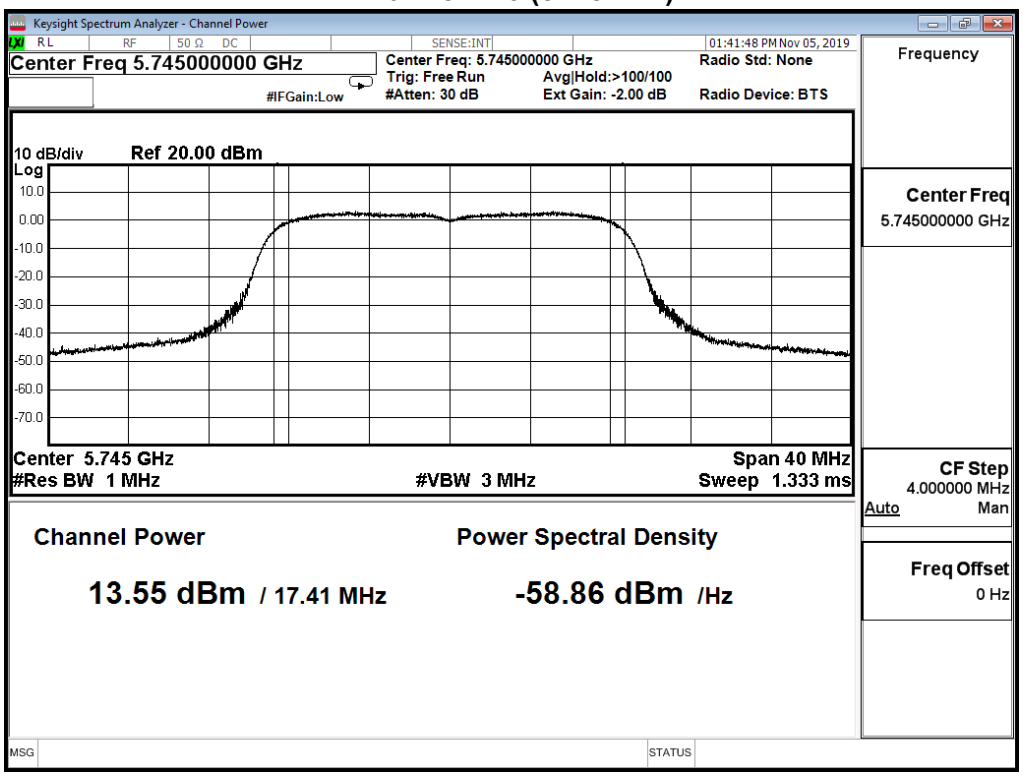
IEEE 802.11n(20MHz)(ANT 2)

Channel No.	Frequency (MHz)	Measure Value (dBm)	Limit (dBm)
149	5745	13.550	≦30
157	5785	13.360	≦30
165	5825	13.580	≦30

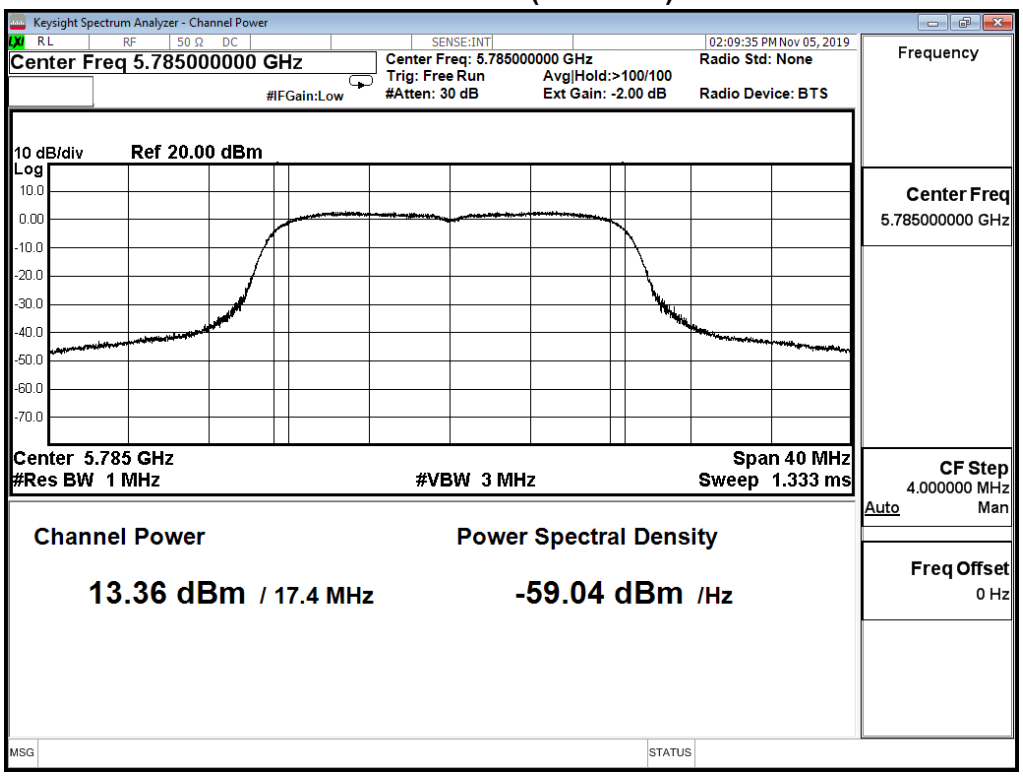
The worst emission of data rate is MCS16

Channel	Frequency	MCS index							
No	(MHz)	16	17	18	19	20	21	22	23
149	5745	13.550	--	--	--	--	--	--	--
157	5785	13.360	13.230	13.080	12.940	12.800	12.660	12.510	12.370
165	5825	13.580	--	--	--	--	--	--	--

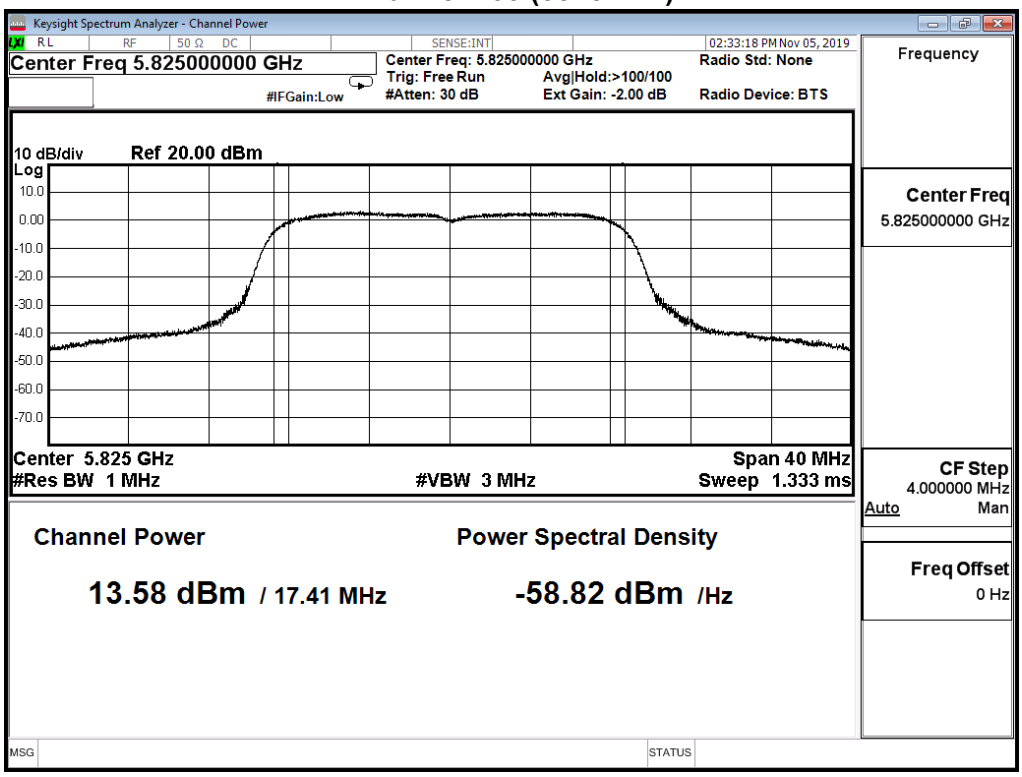
Channel 146 (5745MHz)



Channel 157 (5785MHz)



Channel 165 (5825MHz)



Product	Dual band AC1900 USB 3.0 Wi-Fi Adapter		
Test Item	Maximum conducted output power		
Test Mode	Mode 2: Transmit_MIMO Mode		
Date of Test	2019/11/05	Test Site	SR12-H
Test Temperature:	24.1℃	Test Hhumidity:	63%

IEEE 802.11n(20MHz)(ANT 0+1+2)

Channel No.	Frequency (MHz)	Measure Value (dBm)	Limit (dBm)
149	5745	18.193	≦30
157	5785	18.145	≦30
165	5825	18.197	≦30

Product	Dual band AC1900 USB 3.0 Wi-Fi Adapter		
Test Item	Maximum conducted output power		
Test Mode	Mode 2: Transmit_MIMO Mode		
Date of Test	2019/11/05	Test Site	SR12-H
Test Temperature:	24.1℃	Test Hhumidity:	63%

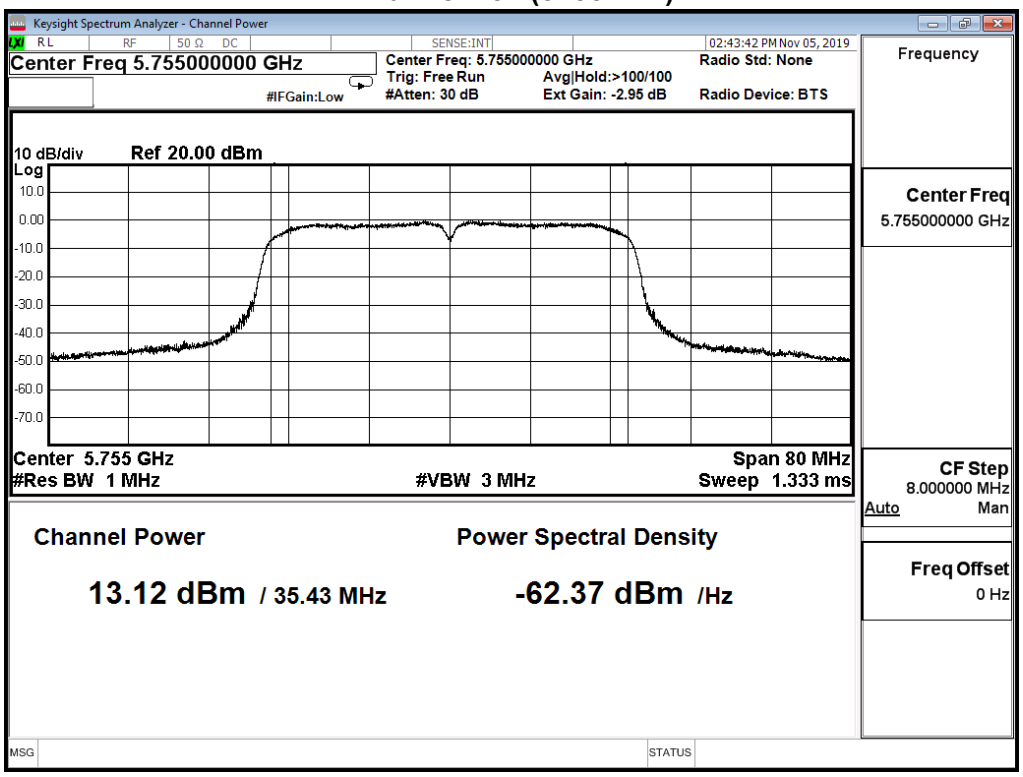
IEEE 802.11n(40MHz)(ANT 0)

Channel No.	Frequency (MHz)	Measure Value (dBm)	Limit (dBm)
151	5755	13.120	≦30
159	5795	13.230	≦30

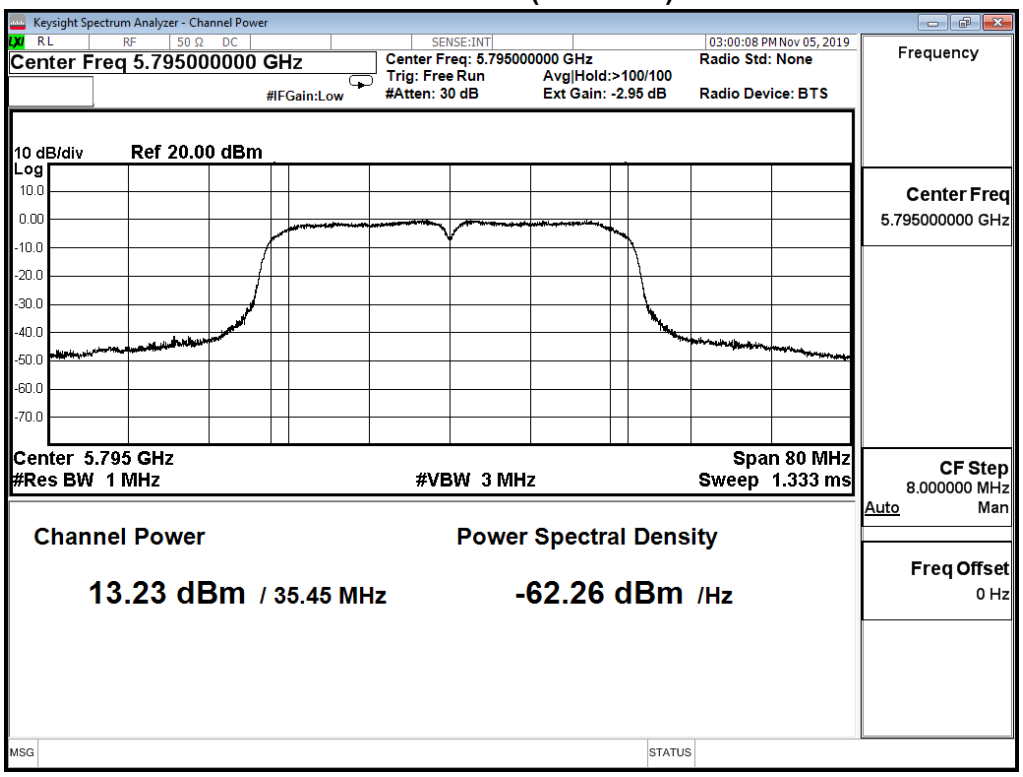
The worst emission of data rate is MCS16

Channel No	Frequency (MHz)	MCS index							
		16	17	18	19	20	21	22	23
151	5755	13.120	12.980	12.840	12.700	12.560	12.430	12.290	12.140
159	5795	13.230	--	--	--	--	--	--	--

Channel 151 (5755MHz)



Channel 159 (5795MHz)



Product	Dual band AC1900 USB 3.0 Wi-Fi Adapter		
Test Item	Maximum conducted output power		
Test Mode	Mode 2: Transmit_MIMO Mode		
Date of Test	2019/11/05	Test Site	SR12-H
Test Temperature:	24.1℃	Test Hhumidity:	63%

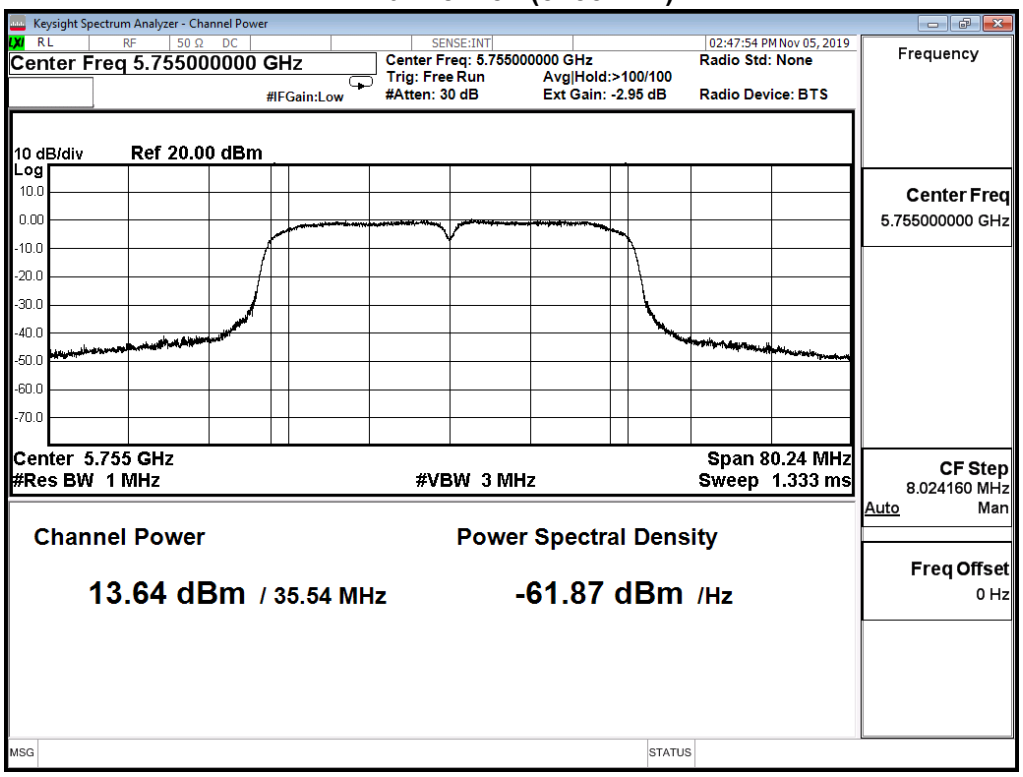
IEEE 802.11n(40MHz)(ANT 1)

Channel No.	Frequency (MHz)	Measure Value (dBm)	Limit (dBm)
151	5755	13.640	≦30
159	5795	13.190	≦30

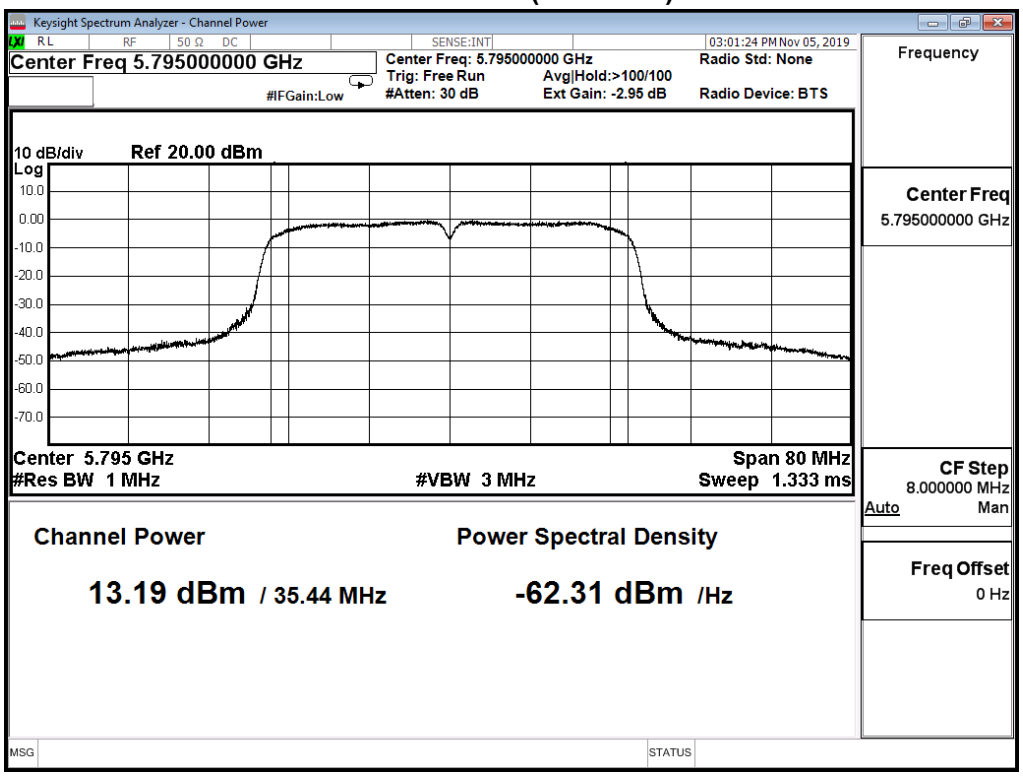
The worst emission of data rate is MCS16

Channel No	Frequency (MHz)	MCS index							
		16	17	18	19	20	21	22	23
151	5755	13.640	13.510	13.380	13.240	13.090	12.950	12.800	12.670
159	5795	13.190	--	--	--	--	--	--	--

Channel 151 (5755MHz)



Channel 159 (5795MHz)



Product	Dual band AC1900 USB 3.0 Wi-Fi Adapter		
Test Item	Maximum conducted output power		
Test Mode	Mode 2: Transmit_MIMO Mode		
Date of Test	2019/11/05	Test Site	SR12-H
Test Temperature:	24.1℃	Test Hhumidity:	63%

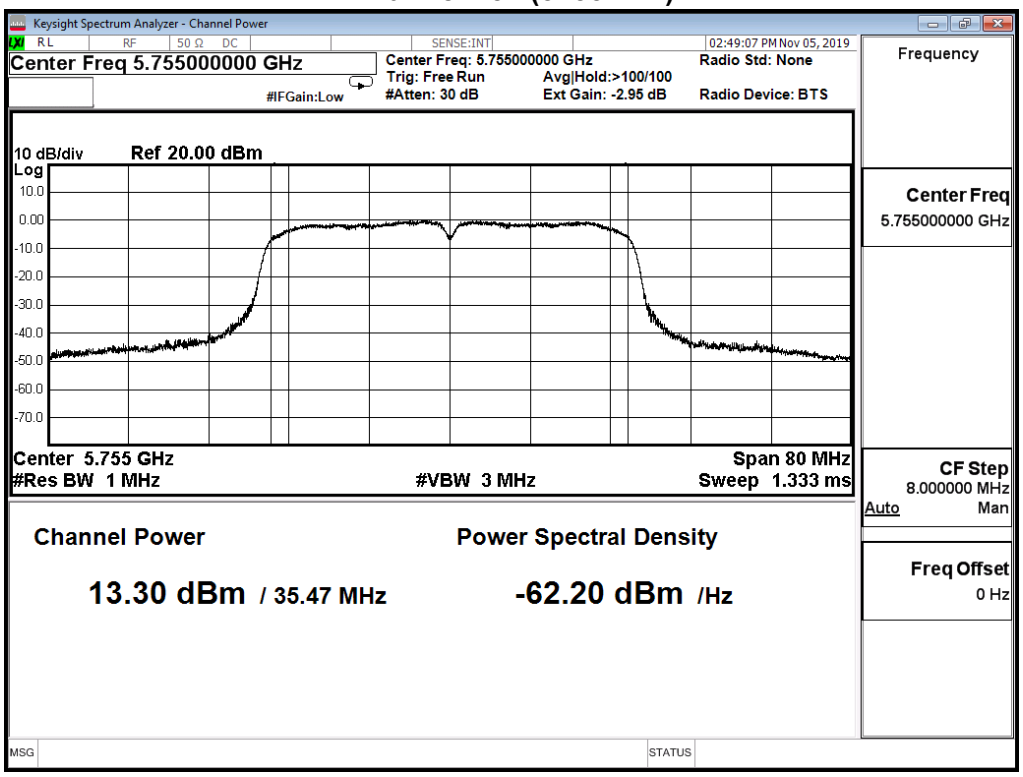
IEEE 802.11n(40MHz)(ANT 2)

Channel No.	Frequency (MHz)	Measure Value (dBm)	Limit (dBm)
151	5755	13.300	≦30
159	5795	13.160	≦30

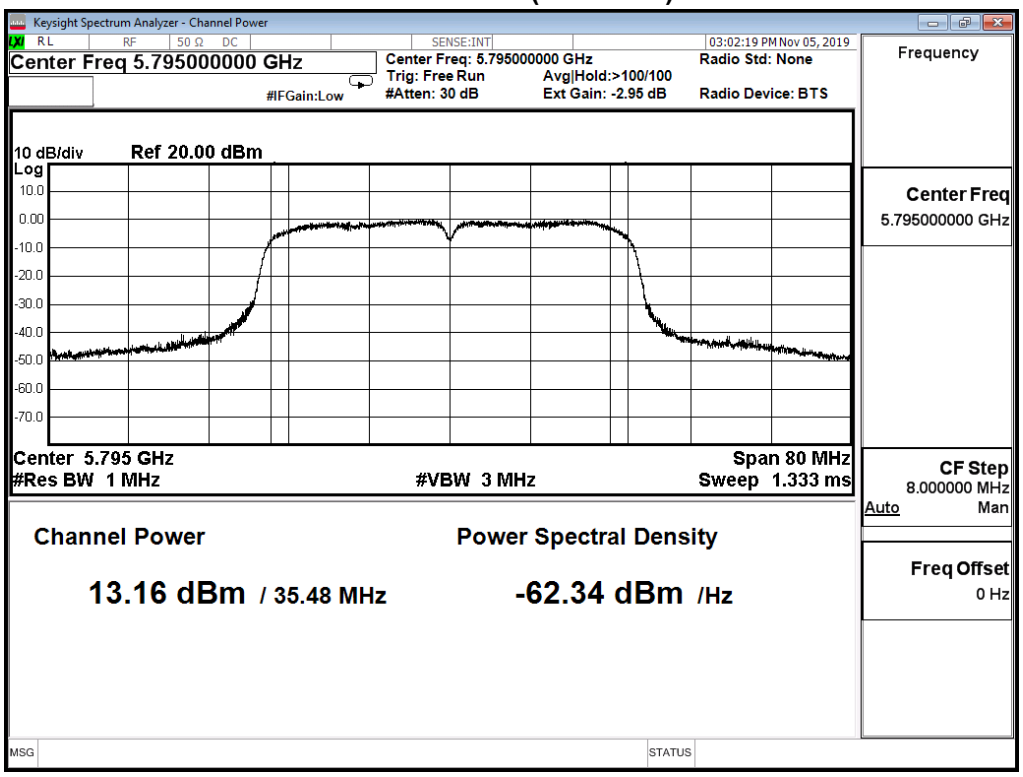
The worst emission of data rate is MCS16

Channel No	Frequency (MHz)	MCS index							
		16	17	18	19	20	21	22	23
151	5755	13.300	13.170	13.020	12.870	12.730	12.600	12.460	12.310
159	5795	13.160	--	--	--	--	--	--	--

Channel 151 (5755MHz)



Channel 159 (5795MHz)



Product	Dual band AC1900 USB 3.0 Wi-Fi Adapter		
Test Item	Maximum conducted output power		
Test Mode	Mode 2: Transmit_MIMO Mode		
Date of Test	2019/11/05	Test Site	SR12-H
Test Temperature:	24.1℃	Test Hhumidity:	63%

IEEE 802.11n(40MHz)(ANT 0+1+2)

Channel No.	Frequency (MHz)	Measure Value (dBm)	Limit (dBm)
151	5755	18.130	≦30
159	5795	17.965	≦30

Product	Dual band AC1900 USB 3.0 Wi-Fi Adapter		
Test Item	Maximum conducted output power		
Test Mode	Mode 2: Transmit_MIMO Mode		
Date of Test	2019/11/05	Test Site	SR12-H
Test Temperature:	24.1℃	Test Hhumidity:	63%

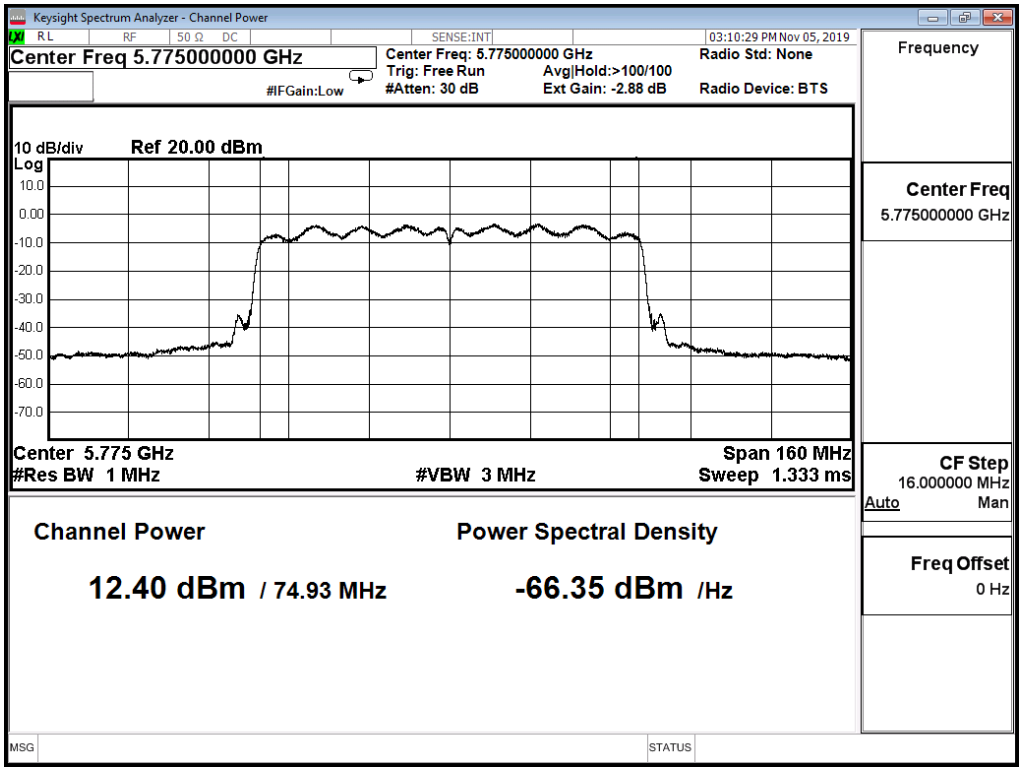
IEEE 802.11ac(80MHz)(ANT 0)

Channel No.	Frequency (MHz)	Measure Value (dBm)	Limit (dBm)
155	5775	12.400	≦30

The worst emission of data rate is MCS0

Channel	Frequency	MCS Index									
No	(MHz)	0	1	2	3	4	5	6	7	8	9
155	5775	12.400	12.270	12.120	11.990	11.840	11.690	11.540	11.410	11.260	11.120

Channel 155 (5775MHz)



Product	Dual band AC1900 USB 3.0 Wi-Fi Adapter		
Test Item	Maximum conducted output power		
Test Mode	Mode 2: Transmit_MIMO Mode		
Date of Test	2019/11/05	Test Site	SR12-H
Test Temperature:	24.1℃	Test Hhumidity:	63%

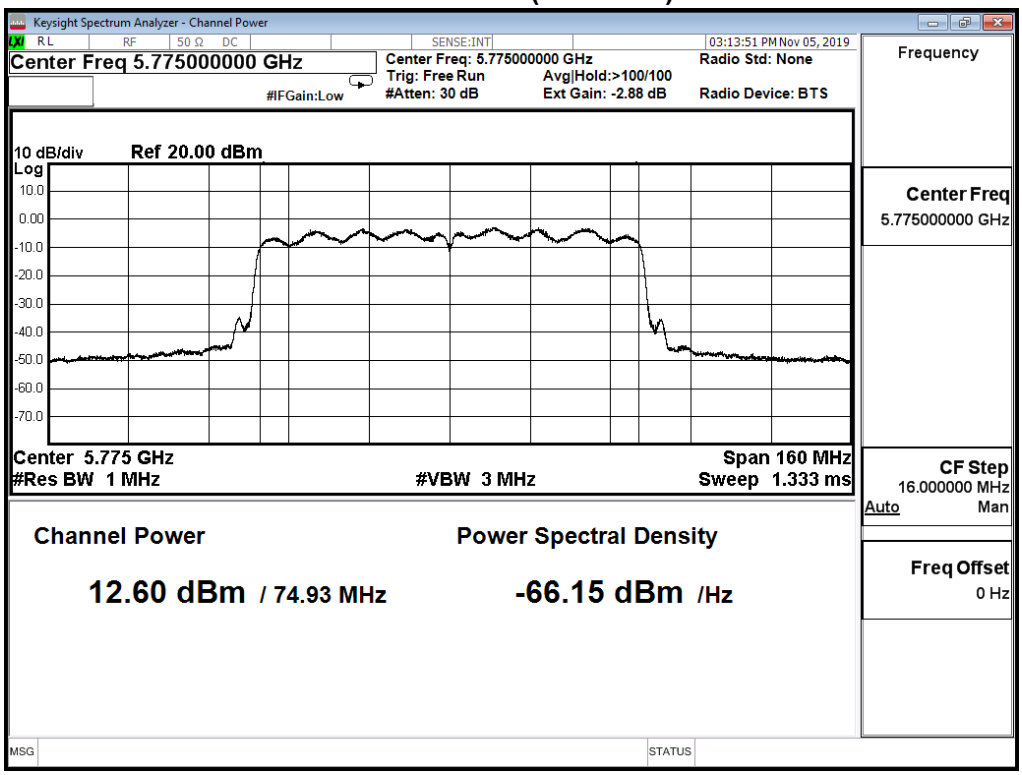
IEEE 802.11ac(80MHz)(ANT 1)

Channel No.	Frequency (MHz)	Measure Value (dBm)	Limit (dBm)
155	5775	12.600	≦30

The worst emission of data rate is MCS0

Channel	Frequency	MCS Index									
No	(MHz)	0	1	2	3	4	5	6	7	8	9
155	5775	12.600	12.470	12.340	12.210	12.080	11.940	11.800	11.670	11.540	11.390

Channel 155 (5775MHz)



Product	Dual band AC1900 USB 3.0 Wi-Fi Adapter		
Test Item	Maximum conducted output power		
Test Mode	Mode 2: Transmit_MIMO Mode		
Date of Test	2019/11/05	Test Site	SR12-H
Test Temperature:	24.1℃	Test Hhumidity:	63%

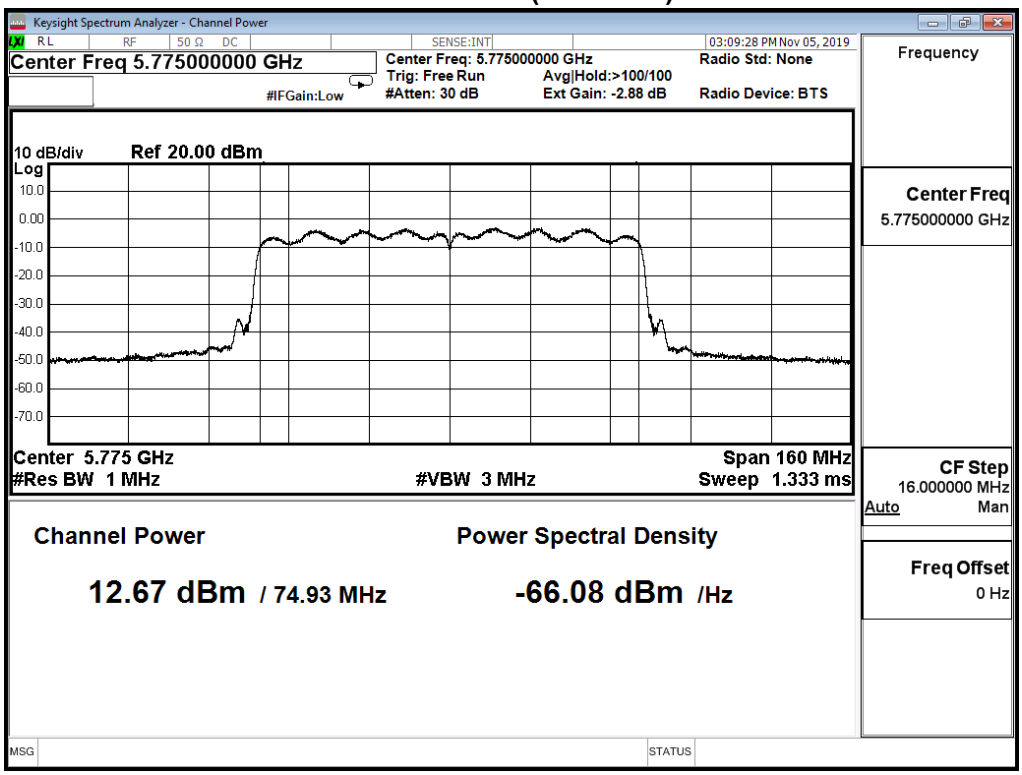
IEEE 802.11ac(80MHz)(ANT 2)

Channel No.	Frequency (MHz)	Measure Value (dBm)	Limit (dBm)
155	5775	12.670	≦30

The worst emission of data rate is MCS0

Channel	Frequency	MCS Index									
No	(MHz)	0	1	2	3	4	5	6	7	8	9
155	5775	12.670	12.520	12.370	12.220	12.080	11.950	11.800	11.650	11.500	11.360

Channel 155 (5775MHz)



Product	Dual band AC1900 USB 3.0 Wi-Fi Adapter		
Test Item	Maximum conducted output power		
Test Mode	Mode 2: Transmit_MIMO Mode		
Date of Test	2019/11/05	Test Site	SR12-H
Test Temperature:	24.1℃	Test Hhumidity:	63%

IEEE 802.11ac(80MHz)(ANT 0+1+2)

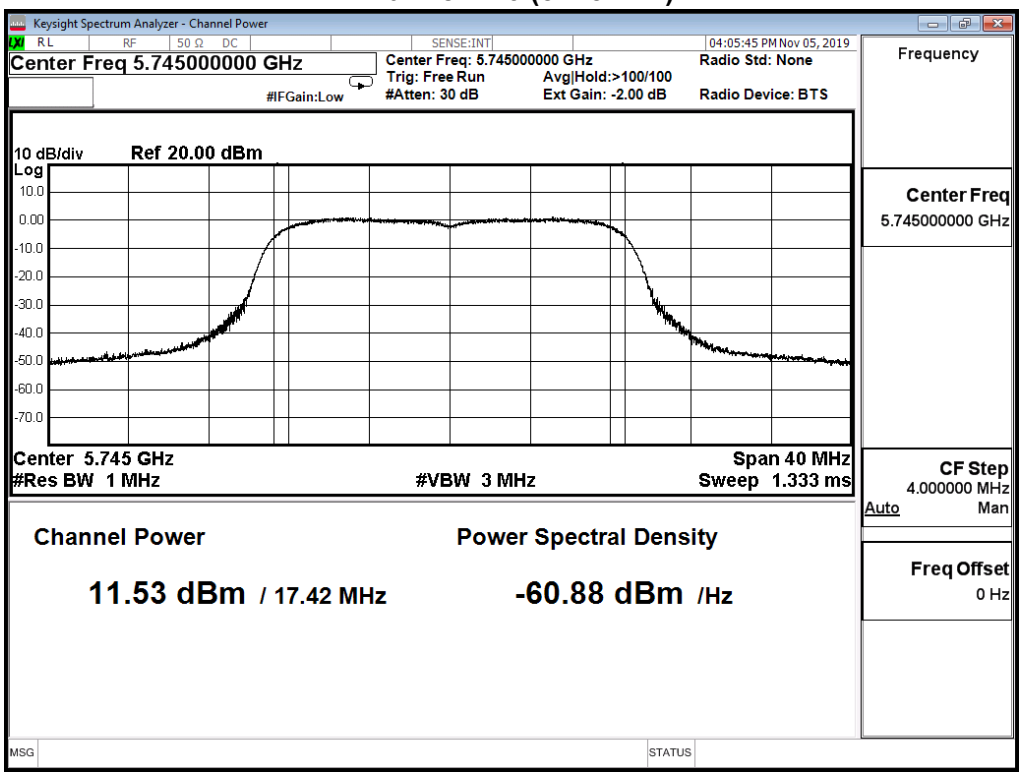
Channel No.	Frequency (MHz)	Measure Value (dBm)	Limit (dBm)
155	5775	17.329	≦30

Product	Dual band AC1900 USB 3.0 Wi-Fi Adapter		
Test Item	Maximum conducted output power		
Test Mode	Mode 3: Transmit_Beamforming Mode		
Date of Test	2019/11/05	Test Site	SR12-H
Test Temperature:	24.1℃	Test Hhumidity:	63%

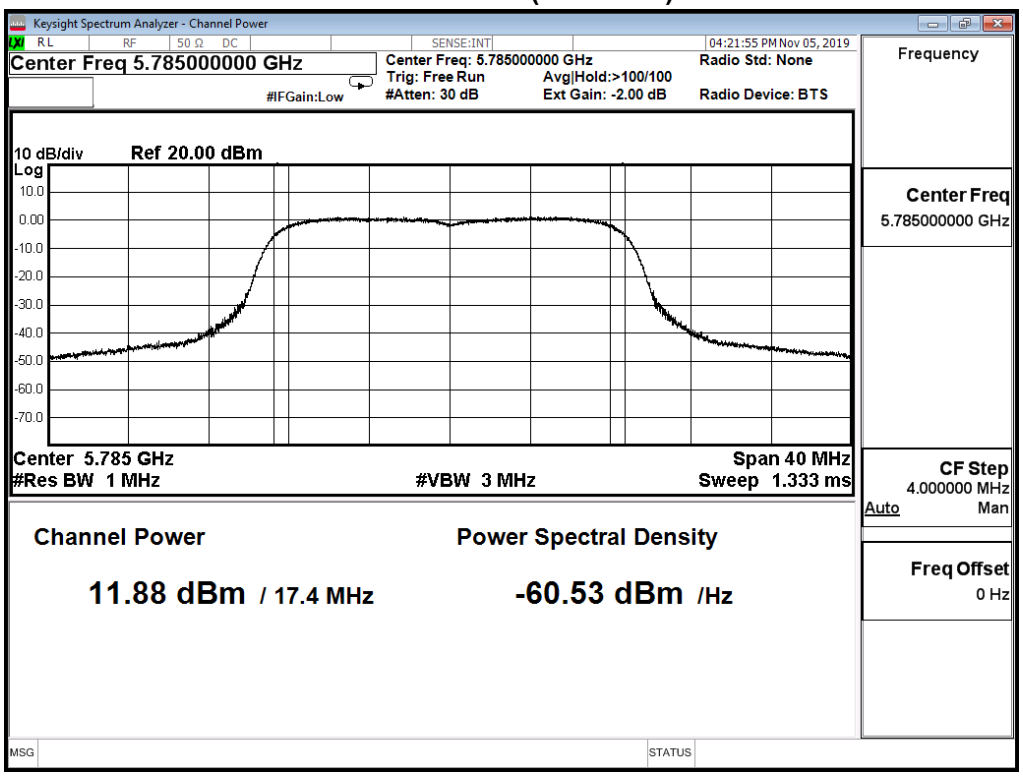
IEEE 802.11n(20MHz)(ANT 0)

Channel No.	Frequency (MHz)	Measure Value (dBm)	Limit (dBm)
149	5745	11.530	≦27.403
157	5785	11.880	≦27.403
165	5825	11.960	≦27.403

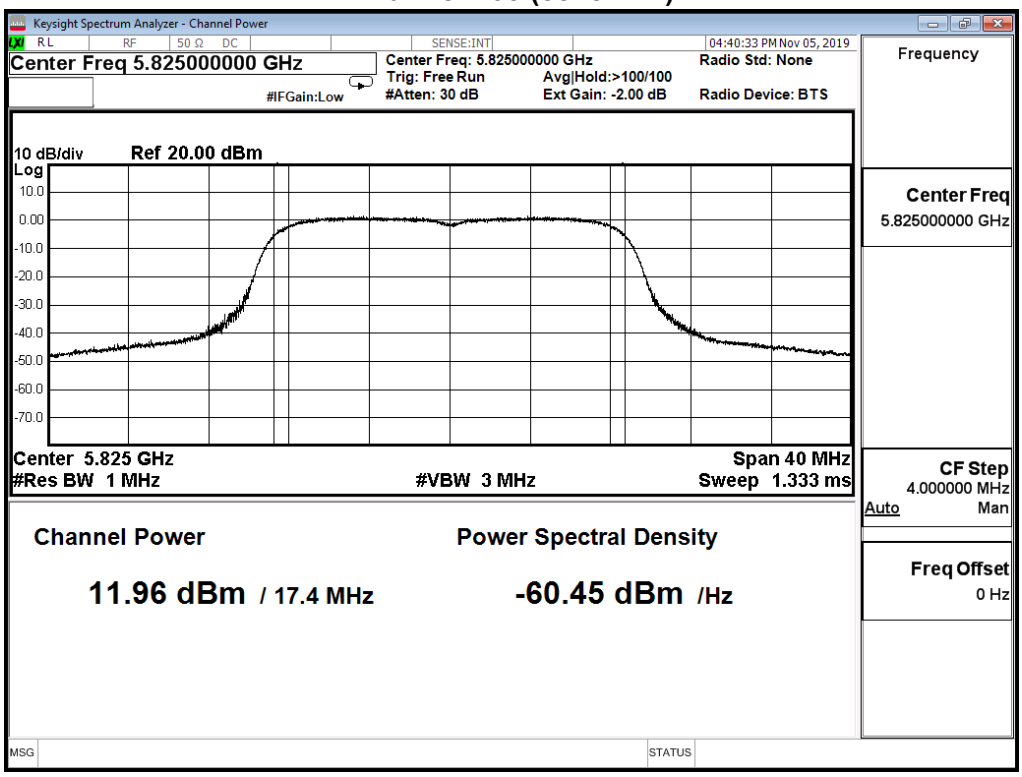
Channel 146 (5745MHz)



Channel 157 (5785MHz)



Channel 165 (5825MHz)

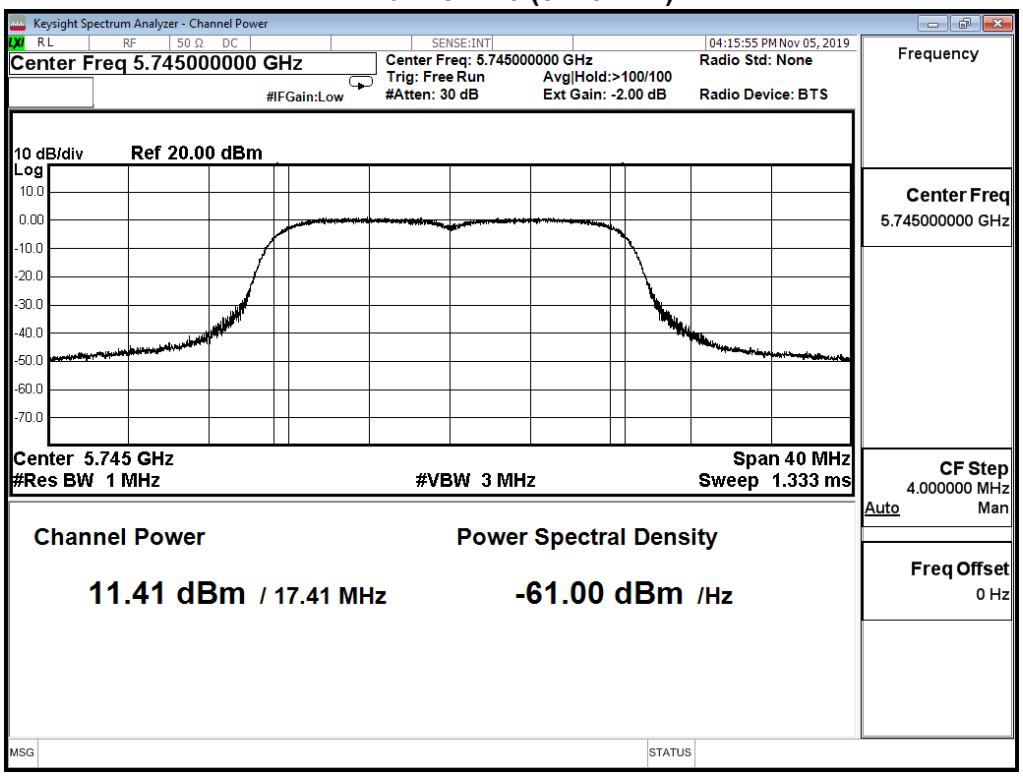


Product	Dual band AC1900 USB 3.0 Wi-Fi Adapter		
Test Item	Maximum conducted output power		
Test Mode	Mode 3: Transmit_Beamforming Mode		
Date of Test	2019/11/05	Test Site	SR12-H
Test Temperature:	24.1℃	Test Hhumidity:	63%

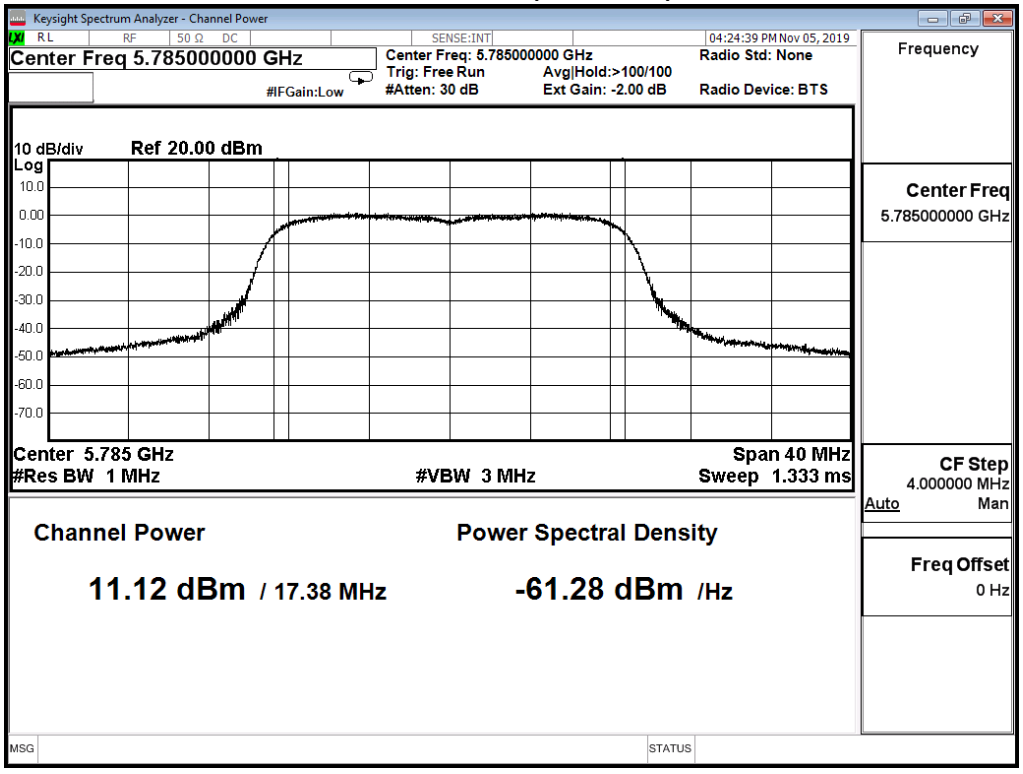
IEEE 802.11n(20MHz)(ANT 1)

Channel No.	Frequency (MHz)	Measure Value (dBm)	Limit (dBm)
149	5745	11.410	≦27.403
157	5785	11.120	≦27.403
165	5825	11.550	≦27.403

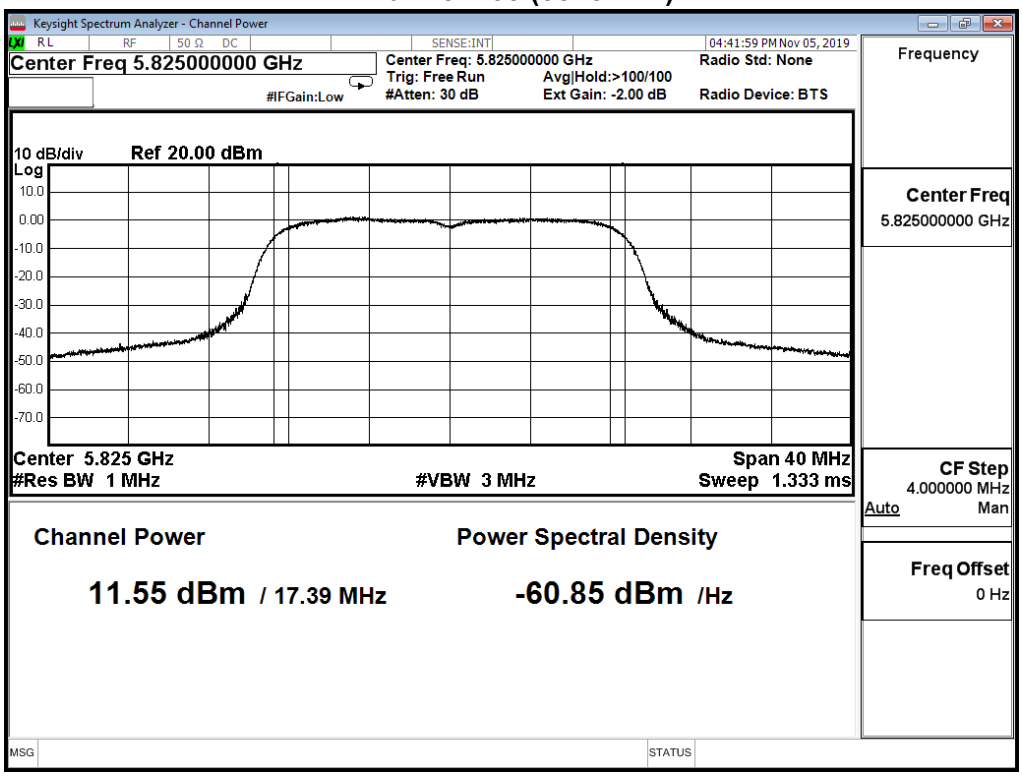
Channel 146 (5745MHz)



Channel 157 (5785MHz)



Channel 165 (5825MHz)

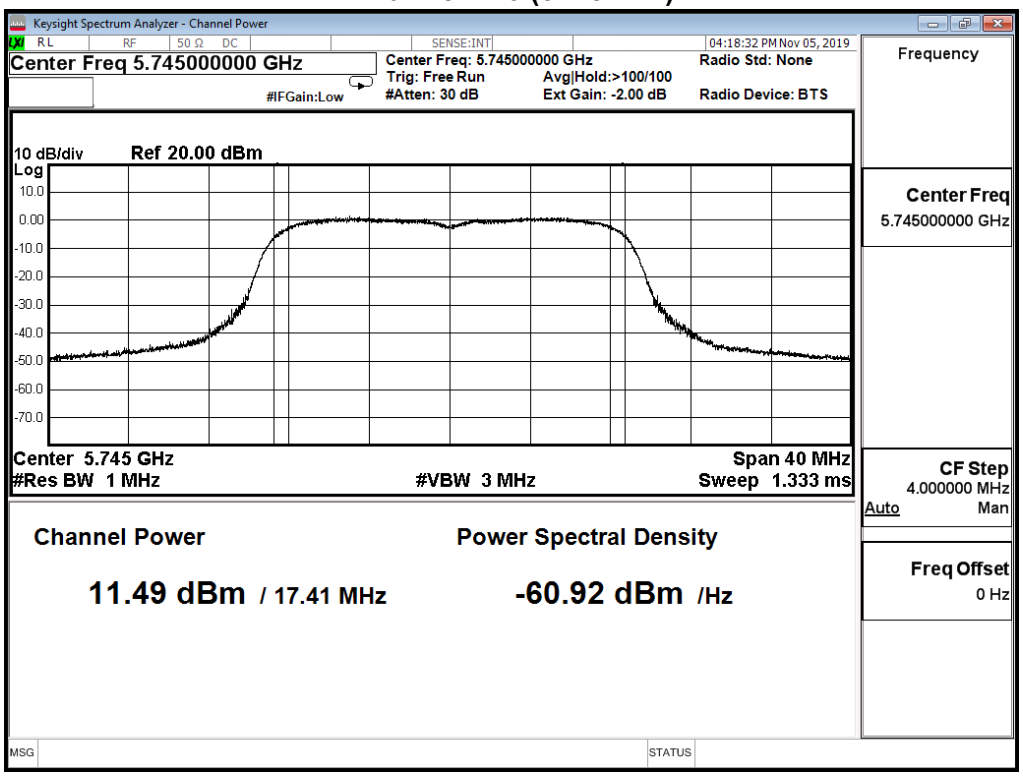


Product	Dual band AC1900 USB 3.0 Wi-Fi Adapter		
Test Item	Maximum conducted output power		
Test Mode	Mode 3: Transmit_Beamforming Mode		
Date of Test	2019/11/05	Test Site	SR12-H
Test Temperature:	24.1℃	Test Hhumidity:	63%

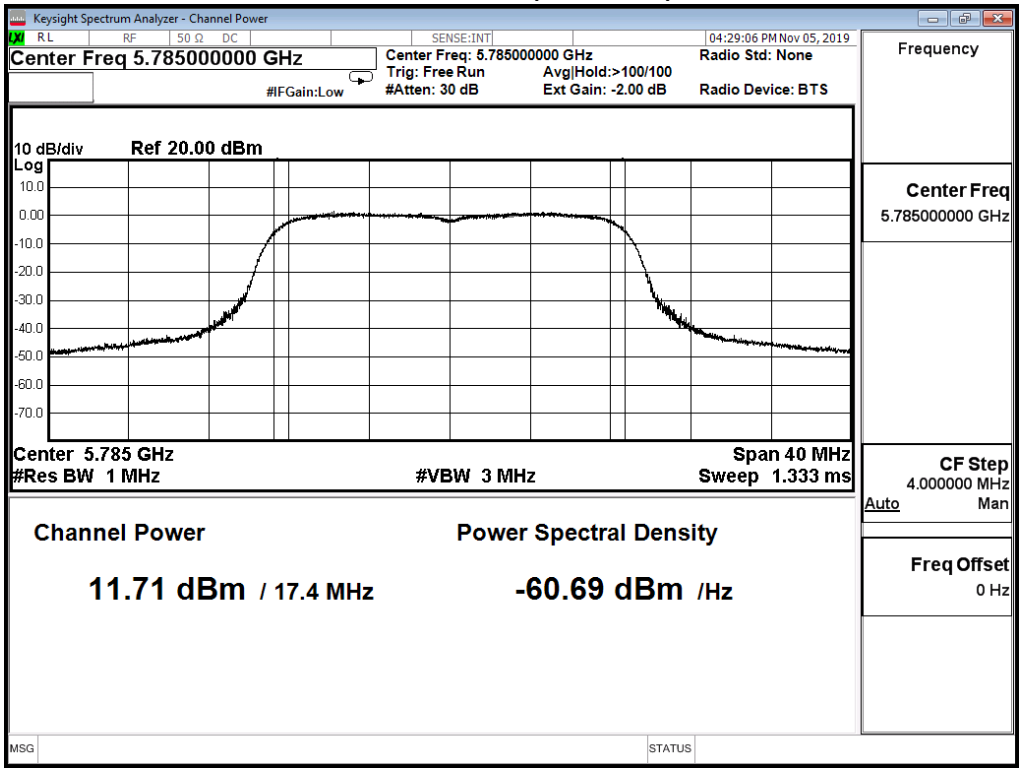
IEEE 802.11n(20MHz)(ANT 2)

Channel No.	Frequency (MHz)	Measure Value (dBm)	Limit (dBm)
149	5745	11.490	≦27.403
157	5785	11.710	≦27.403
165	5825	11.810	≦27.403

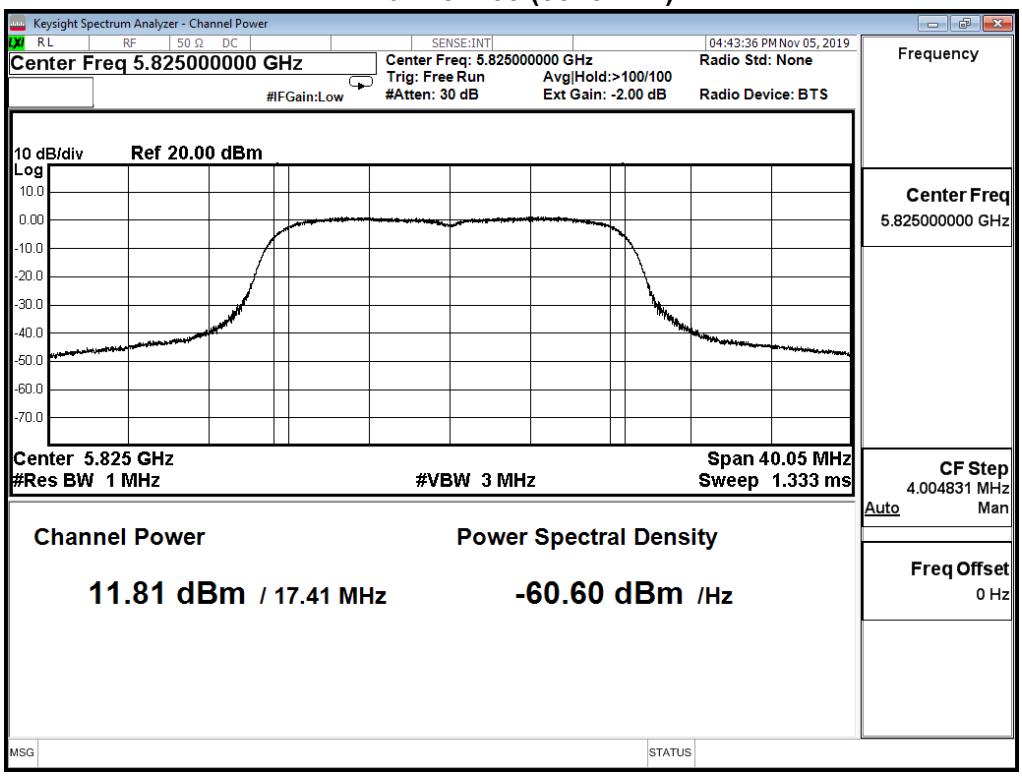
Channel 146 (5745MHz)



Channel 157 (5785MHz)



Channel 165 (5825MHz)



Product	Dual band AC1900 USB 3.0 Wi-Fi Adapter		
Test Item	Maximum conducted output power		
Test Mode	Mode 3: Transmit_Beamforming Mode		
Date of Test	2019/11/05	Test Site	SR12-H
Test Temperature:	24.1℃	Test Hhumidity:	63%

IEEE 802.11n(20MHz)(ANT 0+1+2)

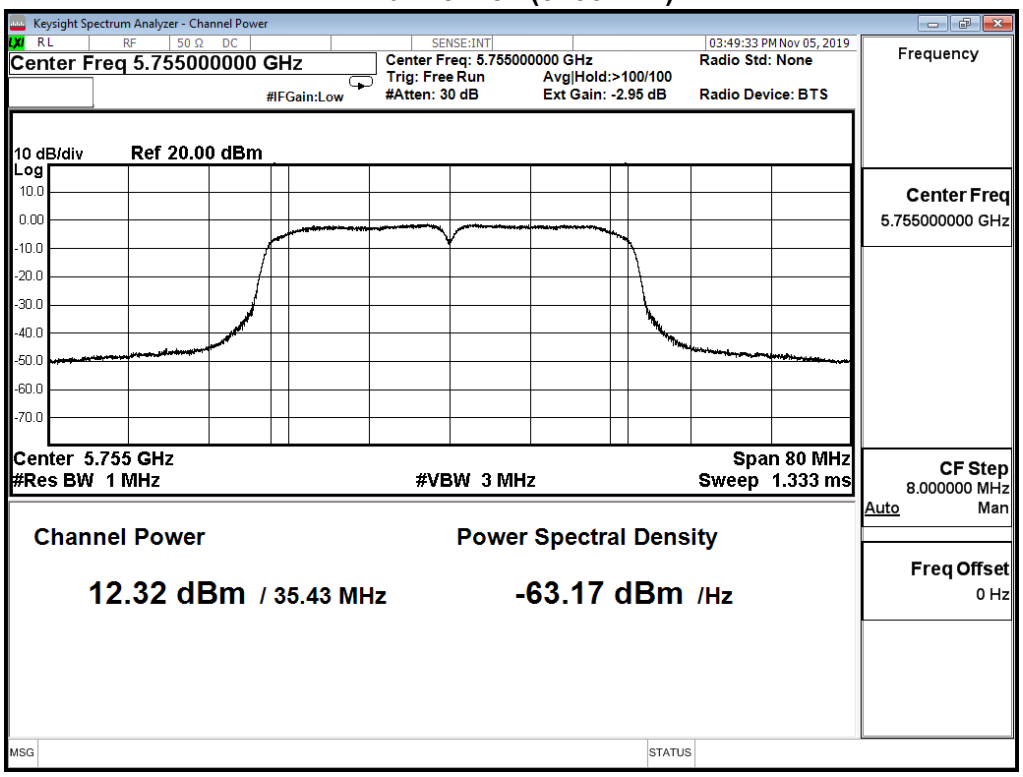
Channel No.	Frequency (MHz)	Measure Value (dBm)	Limit (dBm)
149	5745	16.248	≦27.403
157	5785	16.353	≦27.403
165	5825	16.548	≦27.403

Product	Dual band AC1900 USB 3.0 Wi-Fi Adapter		
Test Item	Maximum conducted output power		
Test Mode	Mode 3: Transmit_Beamforming Mode		
Date of Test	2019/11/05	Test Site	SR12-H
Test Temperature:	24.1℃	Test Hhumidity:	63%

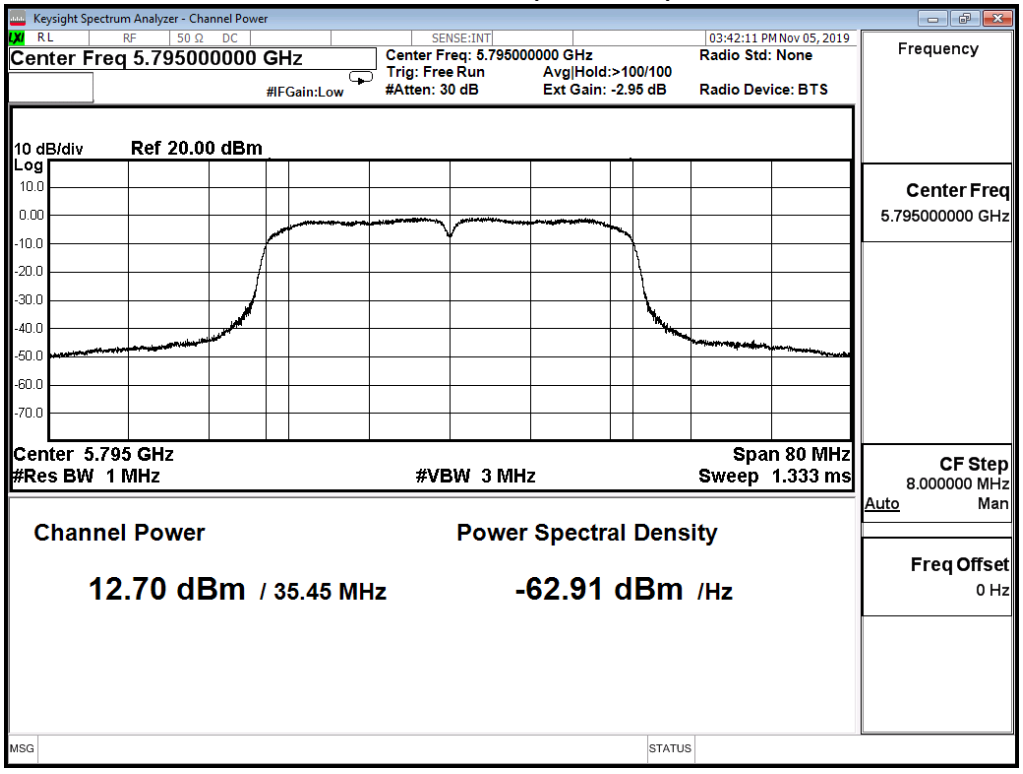
IEEE 802.11n(40MHz)(ANT 0)

Channel No.	Frequency (MHz)	Measure Value (dBm)	Limit (dBm)
151	5755	12.320	≦27.403
159	5795	12.700	≦27.403

Channel 151 (5755MHz)



Channel 159 (5795MHz)

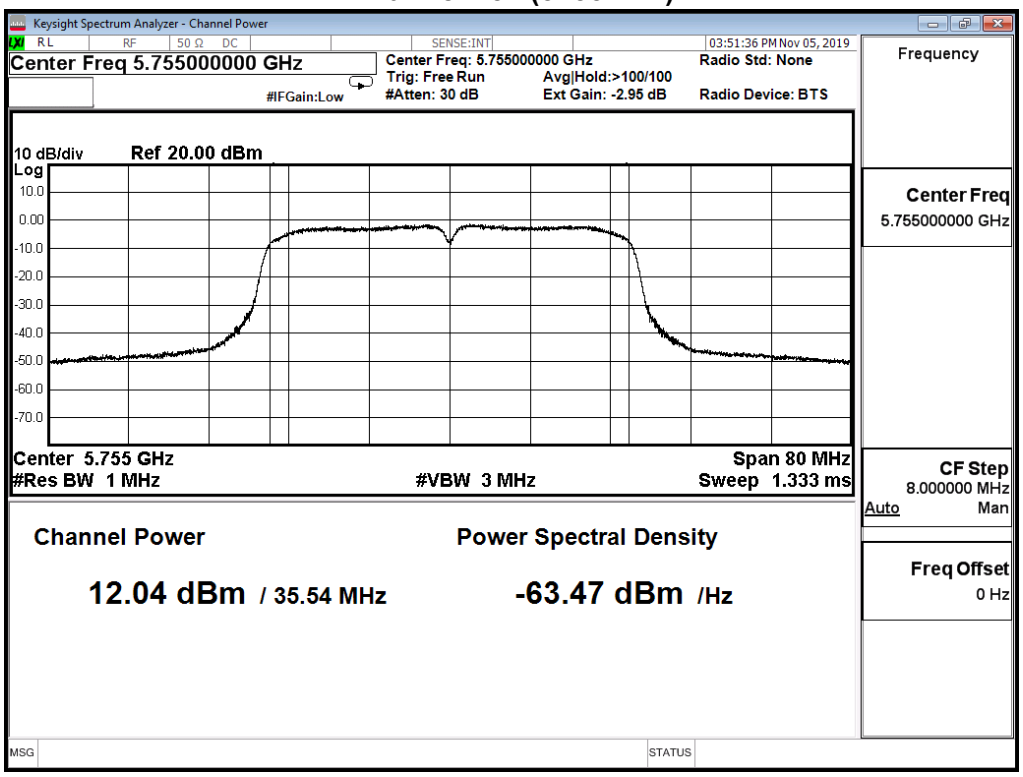


Product	Dual band AC1900 USB 3.0 Wi-Fi Adapter		
Test Item	Maximum conducted output power		
Test Mode	Mode 3: Transmit_Beamforming Mode		
Date of Test	2019/11/05	Test Site	SR12-H
Test Temperature:	24.1℃	Test Hhumidity:	63%

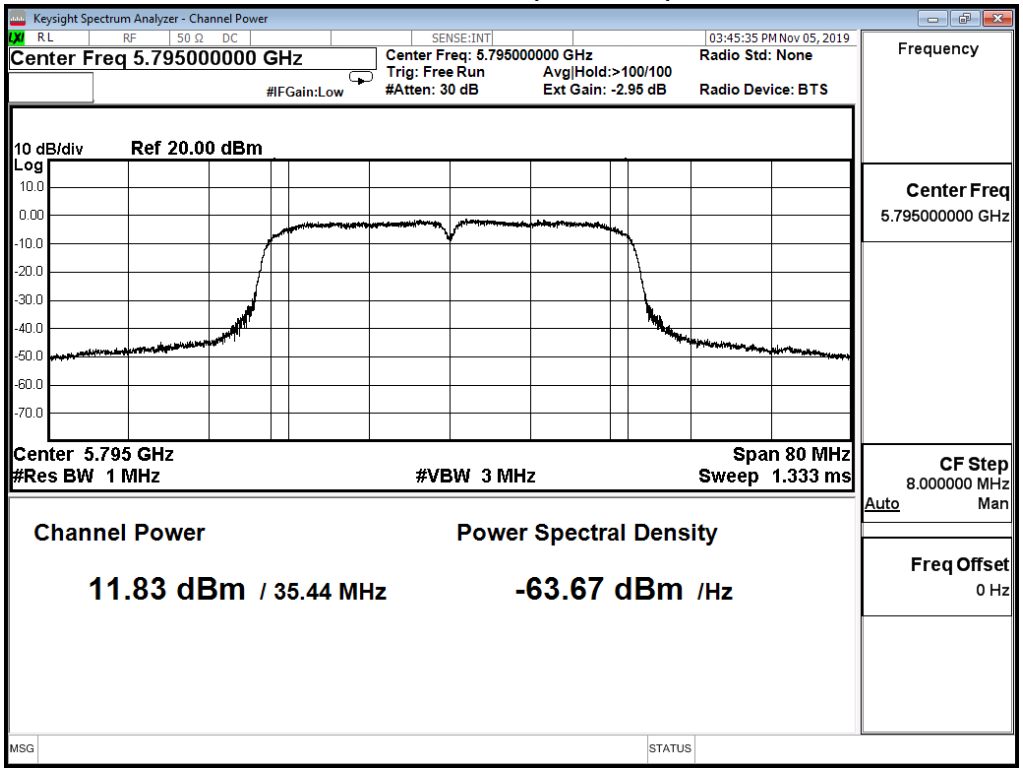
IEEE 802.11n(40MHz)(ANT 1)

Channel No.	Frequency (MHz)	Measure Value (dBm)	Limit (dBm)
151	5755	12.040	≦27.403
159	5795	11.830	≦27.403

Channel 151 (5755MHz)



Channel 159 (5795MHz)

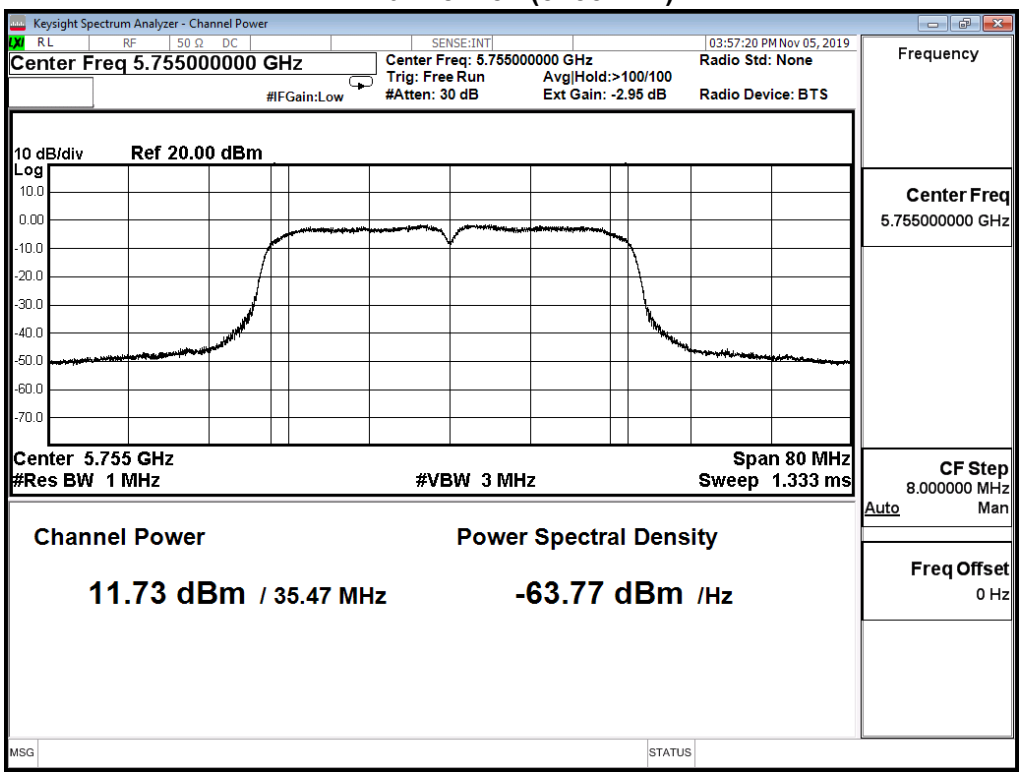


Product	Dual band AC1900 USB 3.0 Wi-Fi Adapter		
Test Item	Maximum conducted output power		
Test Mode	Mode 3: Transmit_Beamforming Mode		
Date of Test	2019/11/05	Test Site	SR12-H
Test Temperature:	24.1℃	Test Hhumidity:	63%

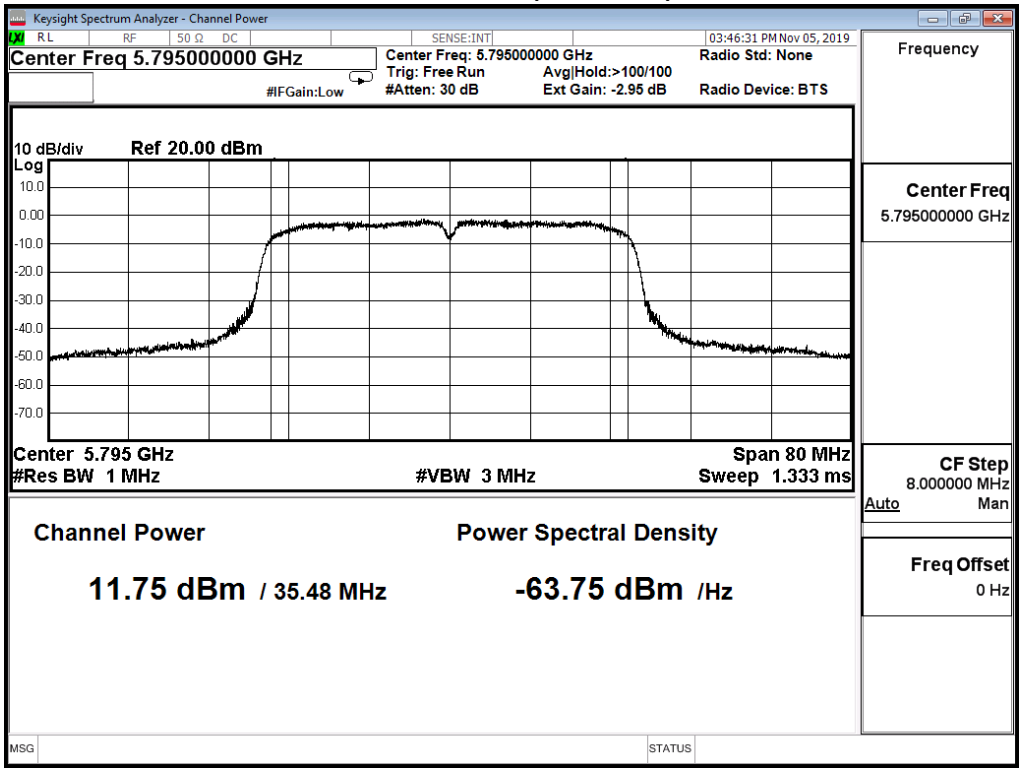
IEEE 802.11n(40MHz)(ANT 2)

Channel No.	Frequency (MHz)	Measure Value (dBm)	Limit (dBm)
151	5755	11.730	≦27.403
159	5795	11.750	≦27.403

Channel 151 (5755MHz)



Channel 159 (5795MHz)



Product	Dual band AC1900 USB 3.0 Wi-Fi Adapter		
Test Item	Maximum conducted output power		
Test Mode	Mode 3: Transmit_Beamforming Mode		
Date of Test	2019/11/05	Test Site	SR12-H
Test Temperature:	24.1℃	Test Hhumidity:	63%

IEEE 802.11n(40MHz)(ANT 0+1+2)

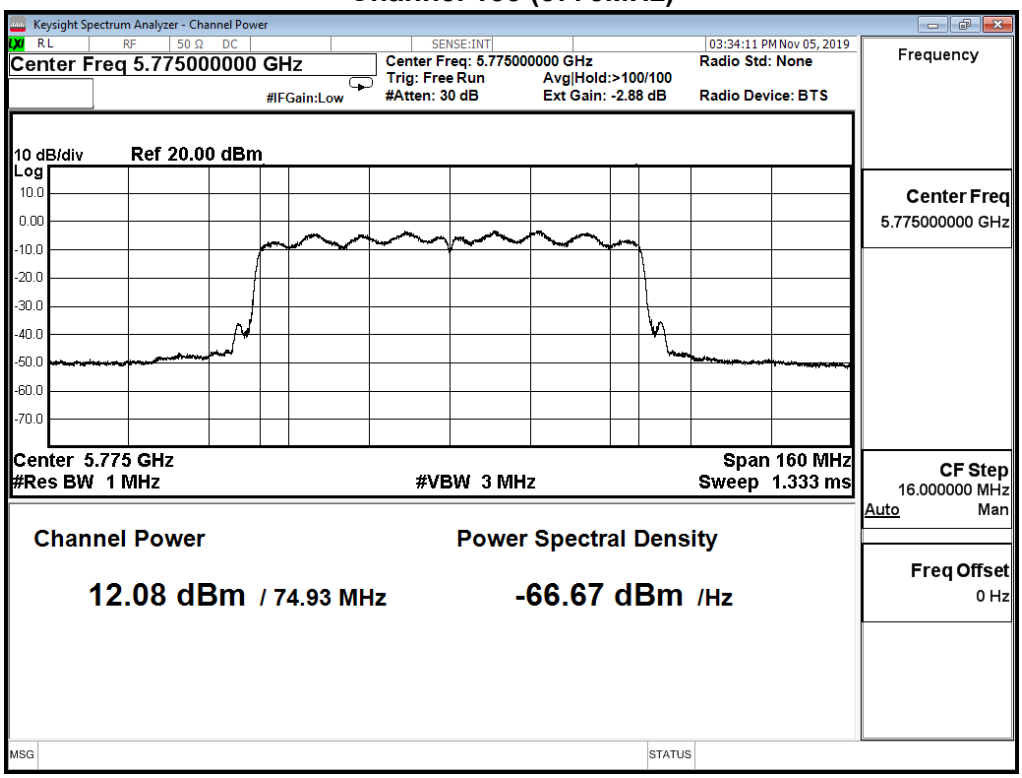
Channel No.	Frequency (MHz)	Measure Value (dBm)	Limit (dBm)
151	5755	16.808	≦27.403
159	5795	16.886	≦27.403

Product	Dual band AC1900 USB 3.0 Wi-Fi Adapter		
Test Item	Maximum conducted output power		
Test Mode	Mode 3: Transmit_Beamforming Mode		
Date of Test	2019/11/05	Test Site	SR12-H
Test Temperature:	24.1℃	Test Hhumidity:	63%

IEEE 802.11ac(80MHz)(ANT 0)

Channel No.	Frequency (MHz)	Measure Value (dBm)	Limit (dBm)
155	5775	12.080	≦27.403

Channel 155 (5775MHz)

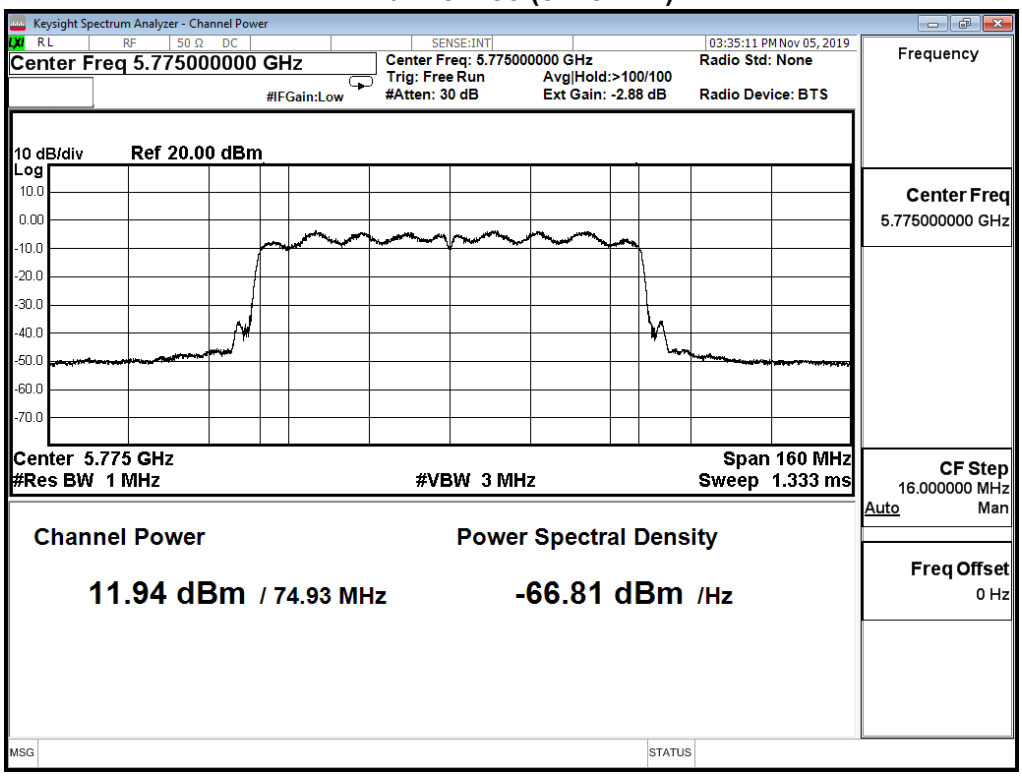


Product	Dual band AC1900 USB 3.0 Wi-Fi Adapter		
Test Item	Maximum conducted output power		
Test Mode	Mode 3: Transmit_Beamforming Mode		
Date of Test	2019/11/05	Test Site	SR12-H
Test Temperature:	24.1℃	Test Hhumidity:	63%

IEEE 802.11ac(80MHz)(ANT 1)

Channel No.	Frequency (MHz)	Measure Value (dBm)	Limit (dBm)
155	5775	11.940	≦27.403

Channel 155 (5775MHz)

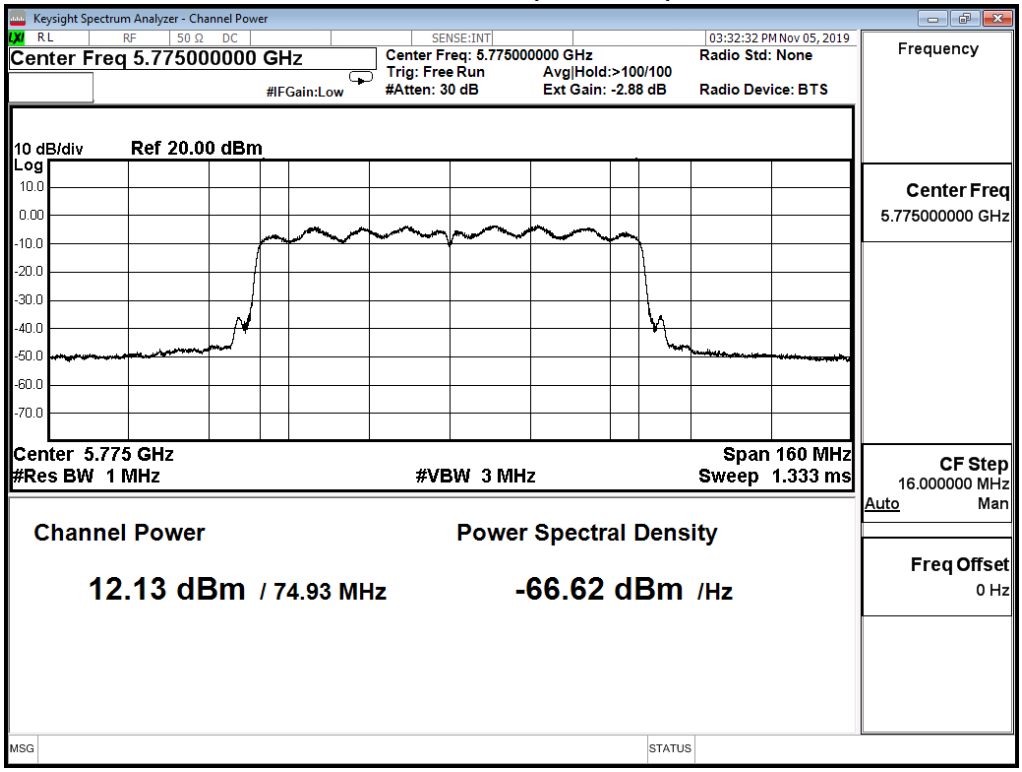


Product	Dual band AC1900 USB 3.0 Wi-Fi Adapter		
Test Item	Maximum conducted output power		
Test Mode	Mode 3: Transmit_Beamforming Mode		
Date of Test	2019/11/05	Test Site	SR12-H
Test Temperature:	24.1℃	Test Hhumidity:	63%

IEEE 802.11ac(80MHz)(ANT 2)

Channel No.	Frequency (MHz)	Measure Value (dBm)	Limit (dBm)
155	5775	12.130	≦27.403

Channel 155 (5775MHz)



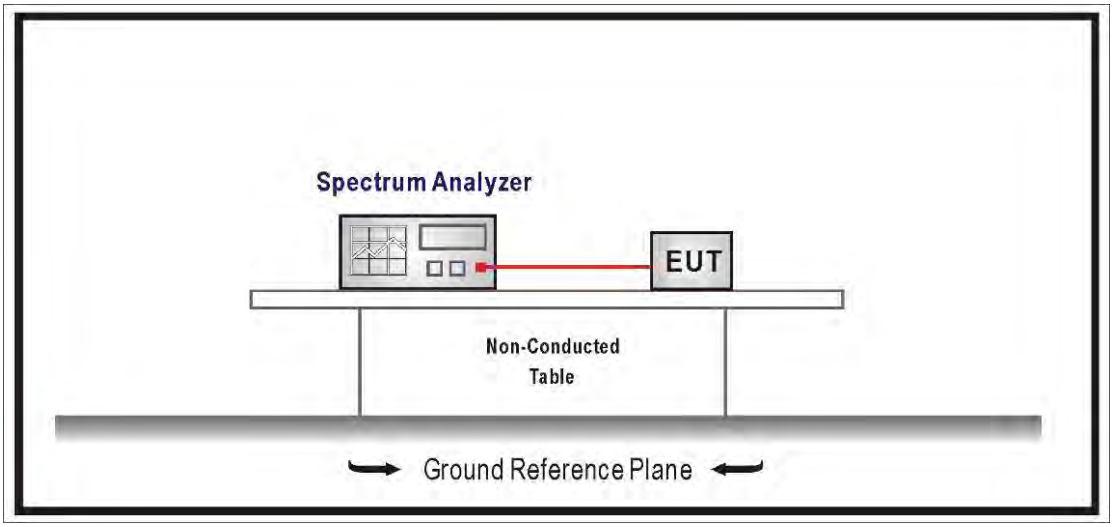
Product	Dual band AC1900 USB 3.0 Wi-Fi Adapter		
Test Item	Maximum conducted output power		
Test Mode	Mode 3: Transmit_Beamforming Mode		
Date of Test	2019/11/05	Test Site	SR12-H
Test Temperature:	24.1℃	Test Hhumidity:	63%

IEEE 802.11ac(80MHz)(ANT 0+1+2)

Channel No.	Frequency (MHz)	Measure Value (dBm)	Limit (dBm)
155	5775	16.822	≦27.403

6. Maximum power spectral density

6.1. Test Setup



6.2. Limits

1. For the band 5.15-5.25 GHz, the Maximum power spectral density shall not exceed 17 dBm in any 1MHz band. If transmitting antenna of directional gain greater than 6 dBi are used, the Maximum power spectral density shall be reduced by the amount in dB that directional gain of the antenna exceeds 6 dBi.
2. For client devices in the 5.15-5.25 GHz band, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi
3. For the band 5.25-5.35 GHz, the Maximum power spectral density shall not exceed 11 dBm in any 1-MHz band. If transmitting antenna of directional gain greater than 6 dBi are used, the Maximum power spectral density shall be reduced by the amount in dB that directional gain of the antenna exceeds 6 dBi.
4. For the band 5.725-5.850 GHz, the Maximum power spectral density shall not exceed 30 dBm in any 500KHz band. If transmitting antenna of directional gain greater than 6 dBi are used, the Maximum power spectral density shall be reduced by the amount in dB that directional gain of the antenna exceeds 6 dBi..

6.3. Test Procedure

The EUT was setup to ANSI C63.10: 2013; tested to U-NII test procedure of KDB 789033.D02 v02 for compliance to FCC 47CFR Subpart E requirements.

For Band1 : Set RBW=1MHz, VBW=3MHz with RMS detector. The PPSD is the highest level found across the emission in any 1-MHz band after 100 sweeps of averaging.

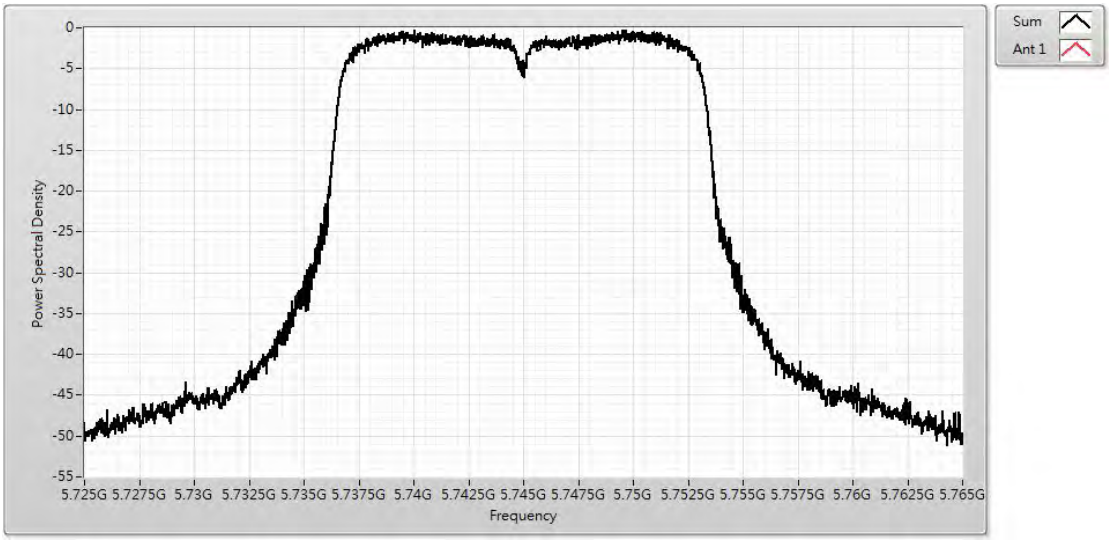
For Band4 : Set RBW=500KHz, VBW=1.5MHz with RMS detector. The PPSD is the highest level found across the emission in any 500KHz band after 100 sweeps of averaging.

6.4. Test Result

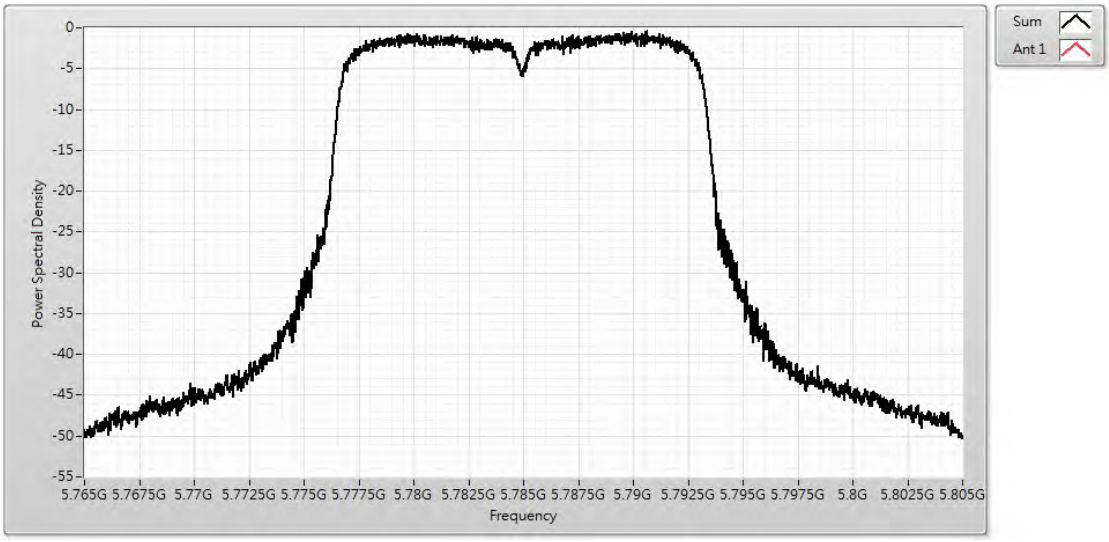
Product	Dual band AC1900 USB 3.0 Wi-Fi Adapter		
Test Item	Maximum power spectral density		
Test Mode	Mode 1: Transmit_SISO Mode		
Date of Test	2019/11/14	Test Site	SR12-H
Test Temperature:	24.3℃	Test Hhumidity:	58%

IEEE 802.11a (ANT0)				
Channel No.	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Result
149	5745	-0.280	≦27.403	Pass
157	5785	-0.440	≦27.403	Pass
165	5825	-0.040	≦27.403	Pass

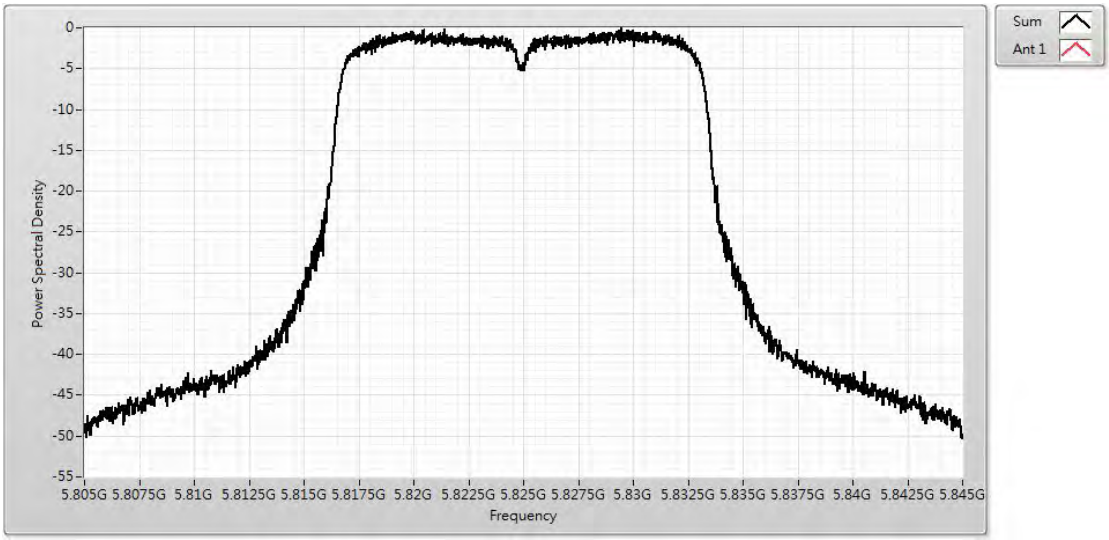
Channel 149



Channel 157



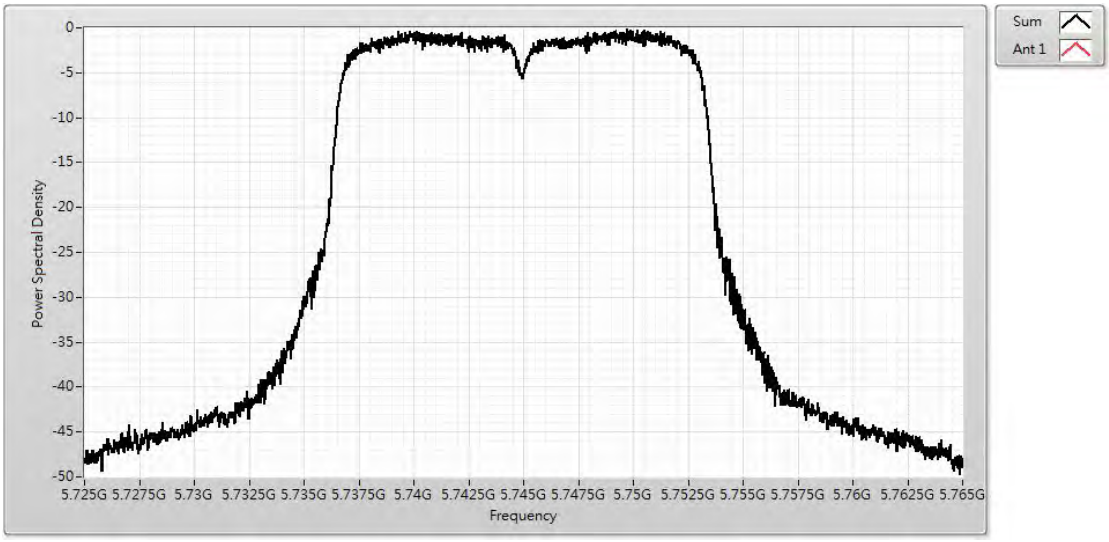
Channel 165



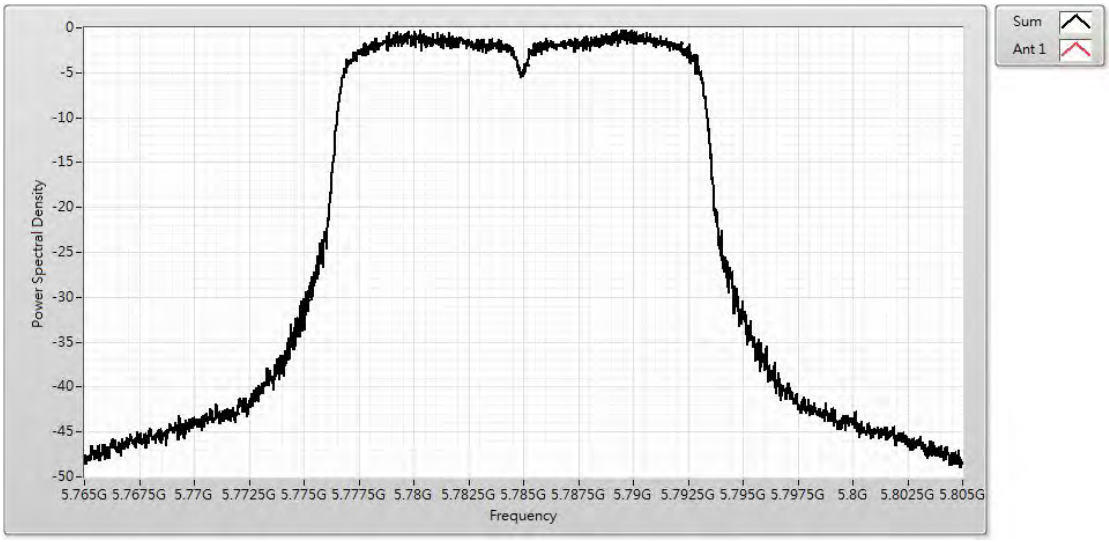
Product	Dual band AC1900 USB 3.0 Wi-Fi Adapter		
Test Item	Maximum power spectral density		
Test Mode	Mode 1: Transmit_SISO Mode		
Date of Test	2019/11/14	Test Site	SR12-H
Test Temperature:	24.3℃	Test Hhumidity:	58%

IEEE 802.11a (ANT1)				
Channel No.	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Result
149	5745	-0.170	≦27.403	Pass
157	5785	-0.220	≦27.403	Pass
165	5825	-0.250	≦27.403	Pass

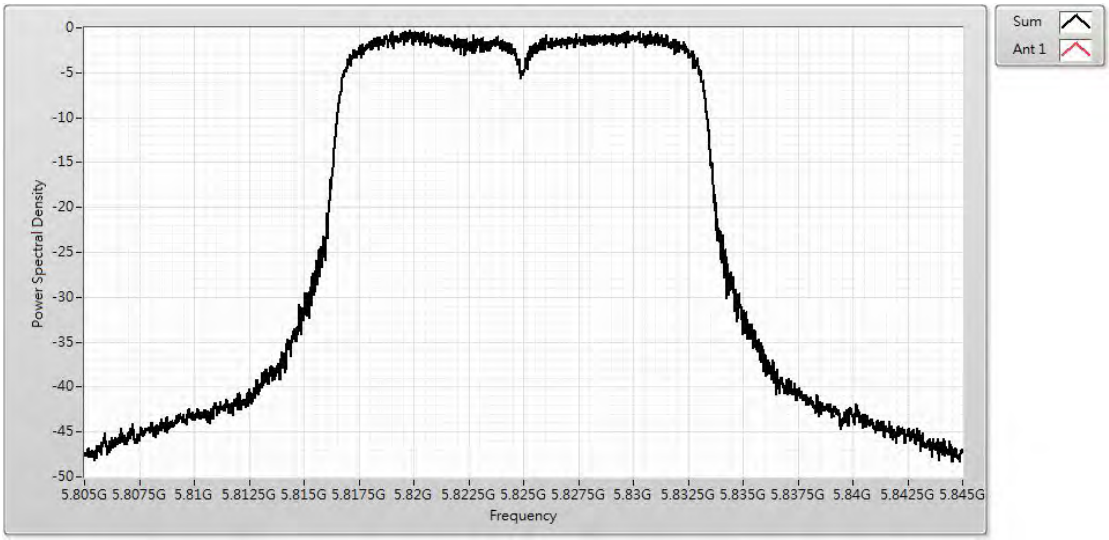
Channel 149



Channel 157



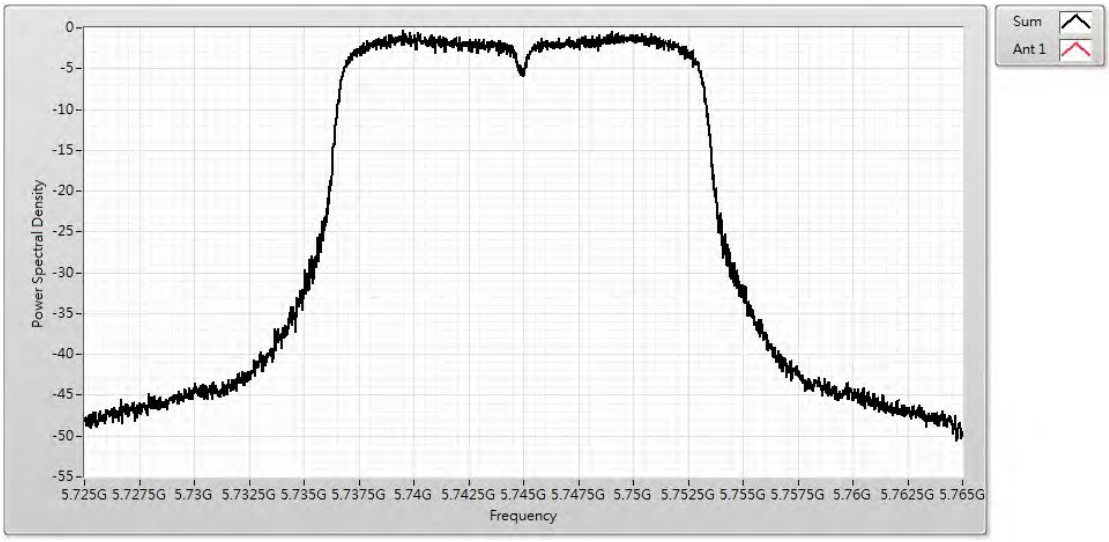
Channel 165



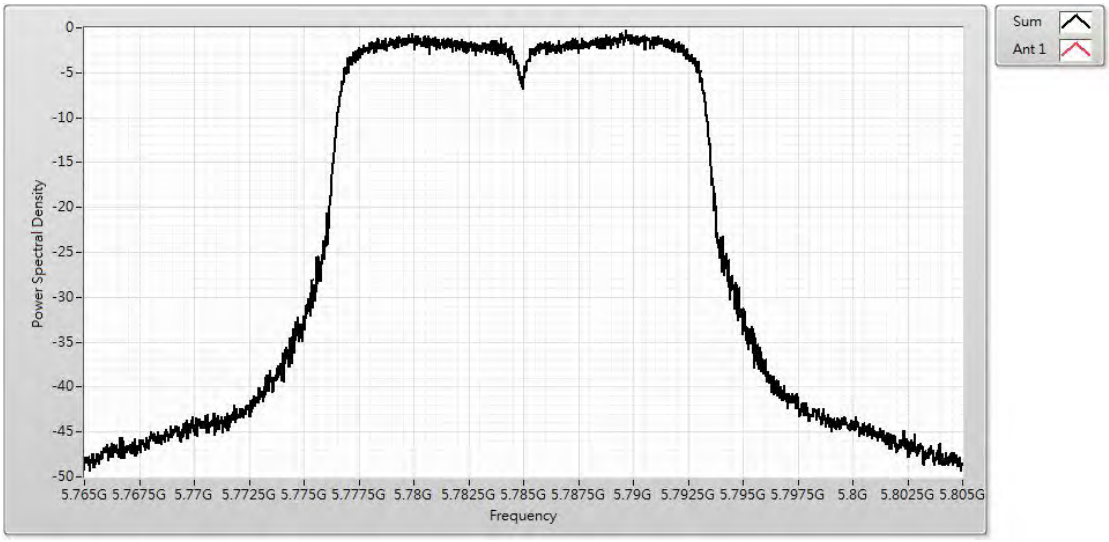
Product	Dual band AC1900 USB 3.0 Wi-Fi Adapter		
Test Item	Maximum power spectral density		
Test Mode	Mode 1: Transmit_SISO Mode		
Date of Test	2019/11/14	Test Site	SR12-H
Test Temperature:	24.3℃	Test Hhumidity:	58%

IEEE 802.11a (ANT2)				
Channel No.	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Result
149	5745	-0.320	≦27.403	Pass
157	5785	-0.220	≦27.403	Pass
165	5825	-0.650	≦27.403	Pass

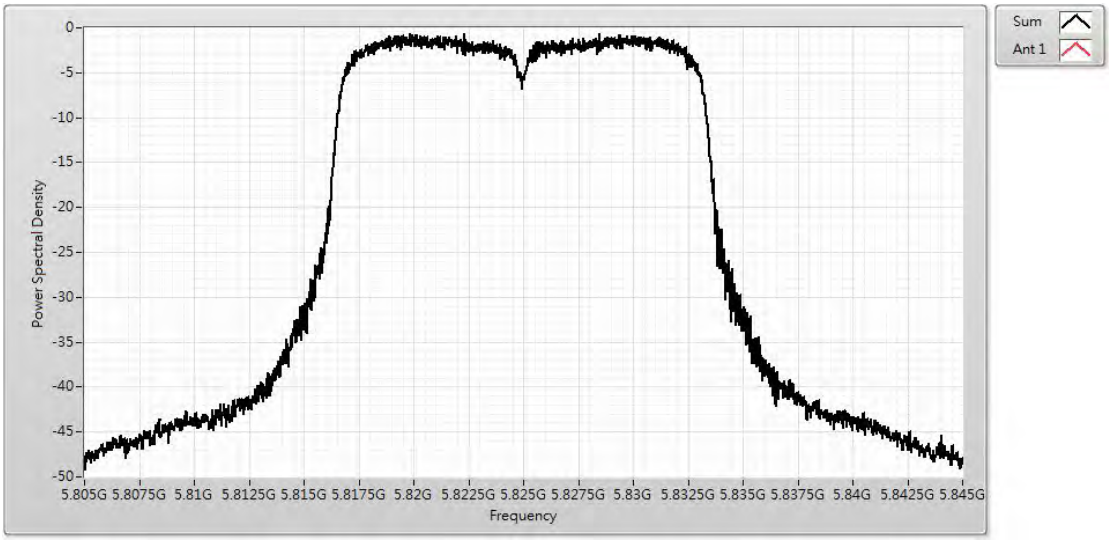
Channel 149



Channel 157



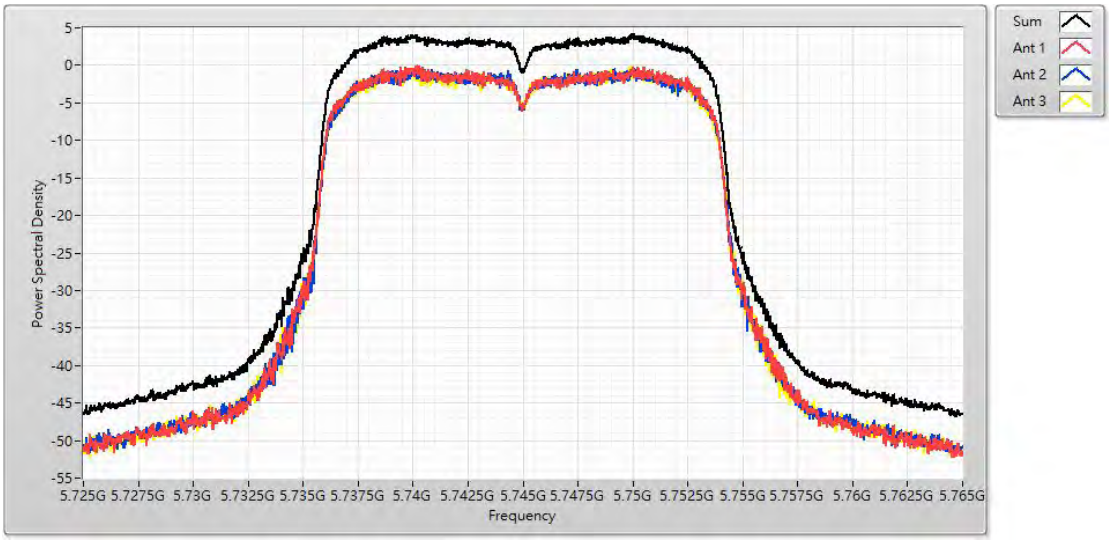
Channel 165



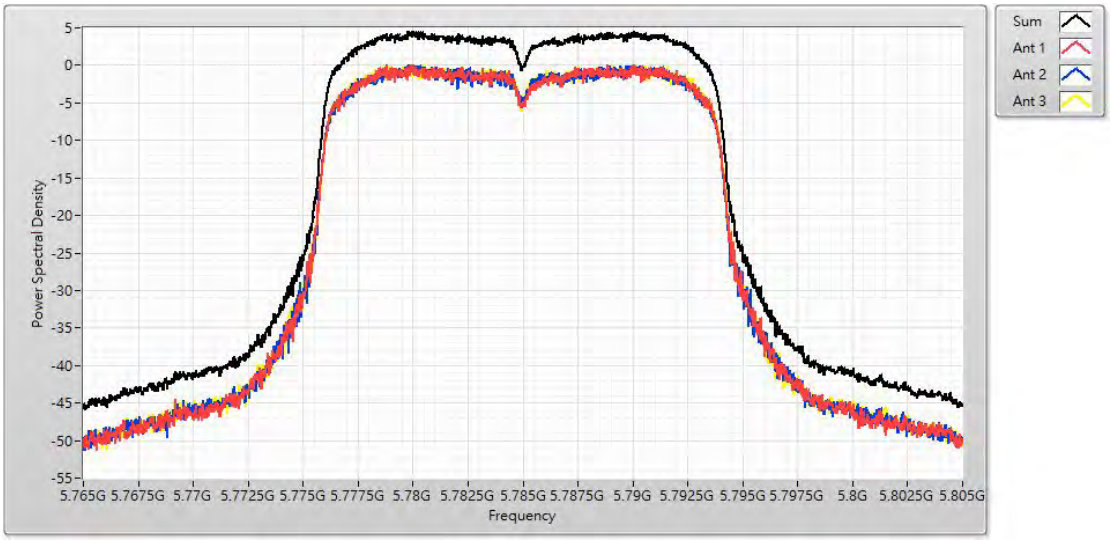
Product	Dual band AC1900 USB 3.0 Wi-Fi Adapter		
Test Item	Maximum power spectral density		
Test Mode	Mode 2: Transmit_MIMO Mode		
Date of Test	2019/11/14	Test Site	SR12-H
Test Temperature:	24.3℃	Test Hhumidity:	58%

IEEE 802.11n (20MHz)(ANT0+1+2)				
Channel No.	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Result
149	5745	4.230	≦27.403	Pass
157	5785	4.480	≦27.403	Pass
165	5825	5.030	≦27.403	Pass

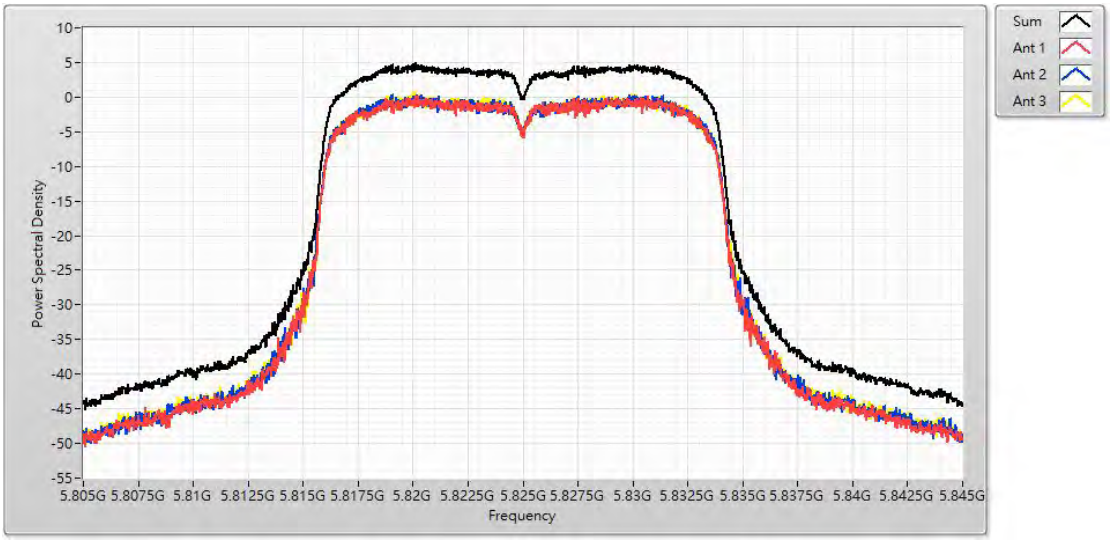
Channel 149



Channel 157



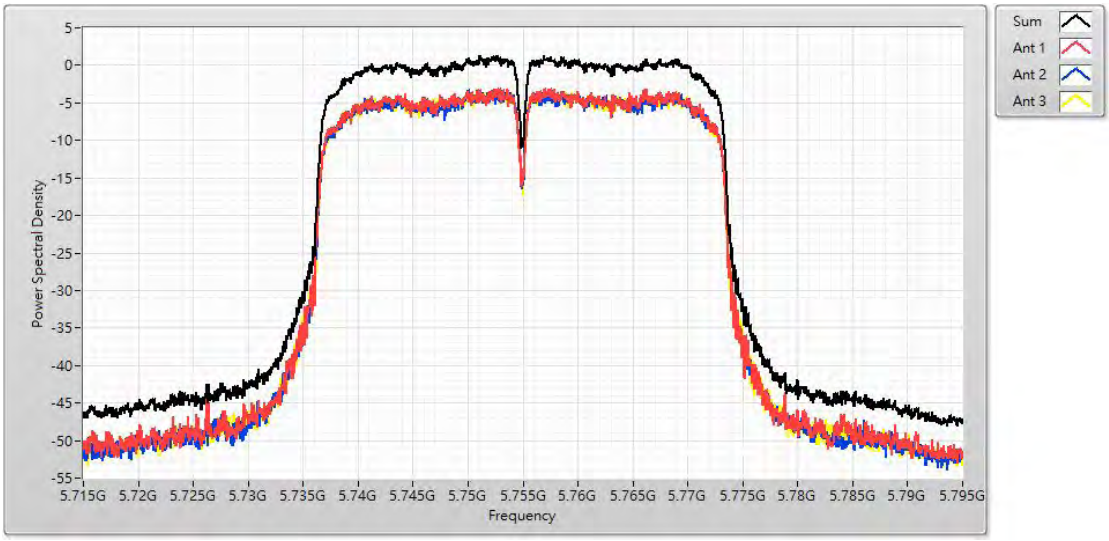
Channel 165



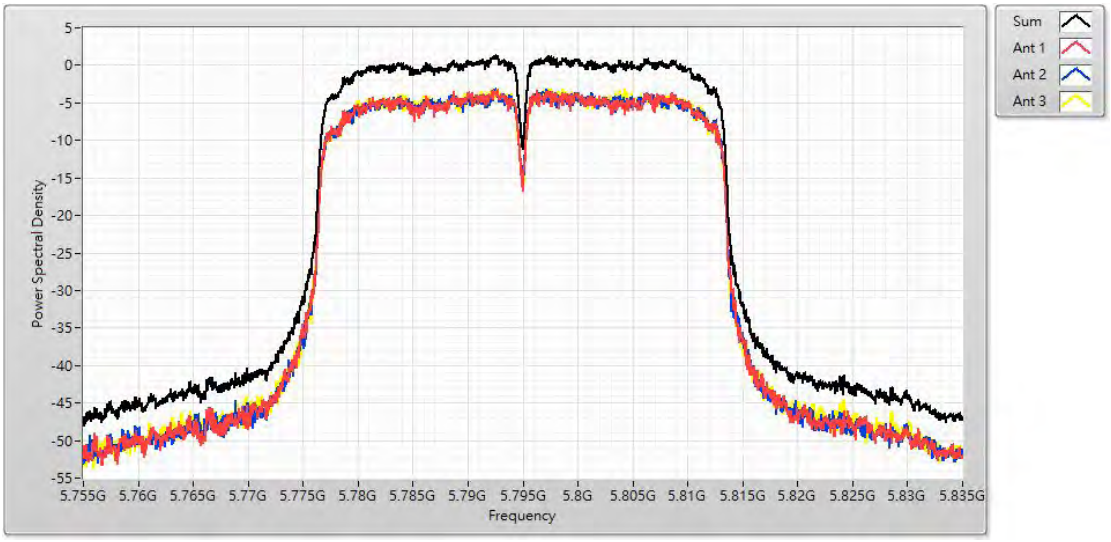
Product	Dual band AC1900 USB 3.0 Wi-Fi Adapter		
Test Item	Maximum power spectral density		
Test Mode	Mode 2: Transmit_MIMO Mode		
Date of Test	2019/11/14	Test Site	SR12-H
Test Temperature:	24.3℃	Test Hhumidity:	58%

IEEE 802.11n(40MHz)(ANT0+1+2)				
Channel No.	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Result
151	5755	1.493	≦27.403	Pass
159	5795	1.595	≦27.403	Pass

Channel 151



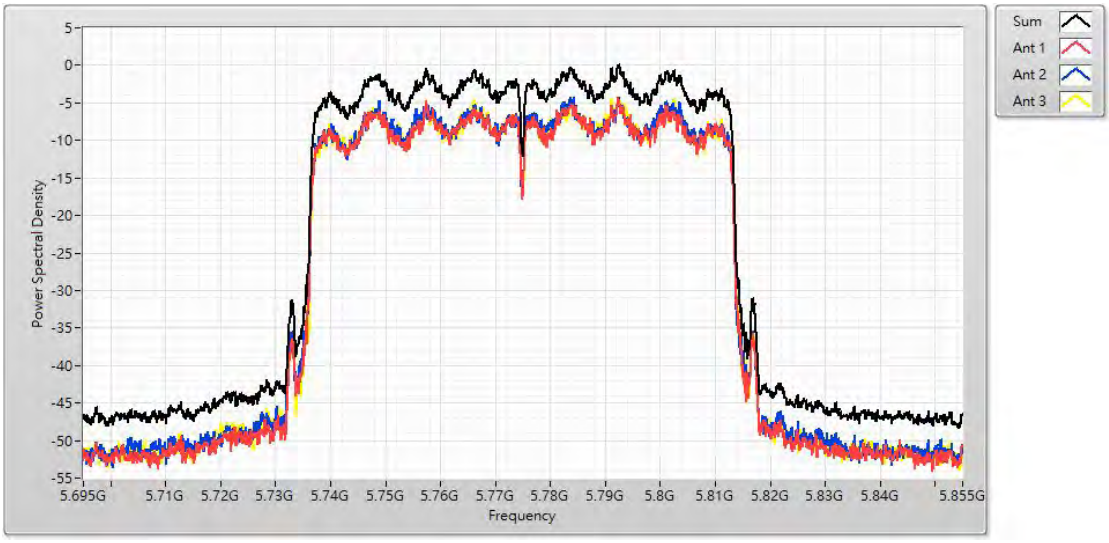
Channel 159


Sum
Ant 1
Ant 2
Ant 3
Power Spectral Density
5
0
-5
-10
-15
-20
-25
-30
-35
-40
-45
-50
-55
5.755G
5.76G
5.765G
5.77G
5.775G
5.78G
5.785G
5.79G
5.795G
5.8G
5.805G
5.81G
5.815G
5.82G
5.825G
5.83G
5.835G
Frequency

Product	Dual band AC1900 USB 3.0 Wi-Fi Adapter		
Test Item	Maximum power spectral density		
Test Mode	Mode 2: Transmit_MIMO Mode		
Date of Test	2019/11/14	Test Site	SR12-H
Test Temperature:	24.3℃	Test Hhumidity:	58%

IEEE 802.11ac(80MHz)(ANT0+1+2)				
Channel No.	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Result
155	5775	0.432	≦27.403	Pass

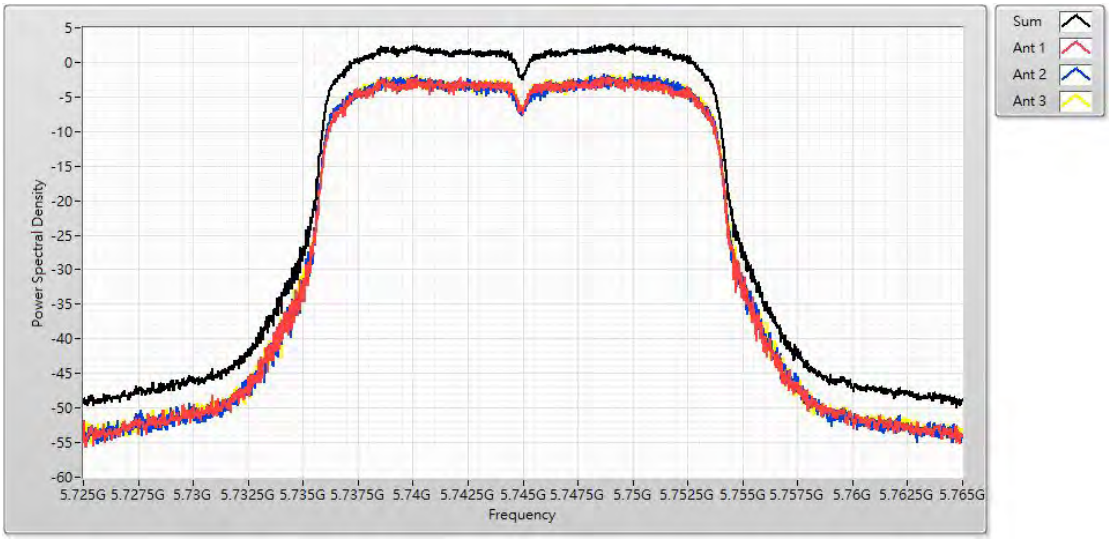
Channel 155



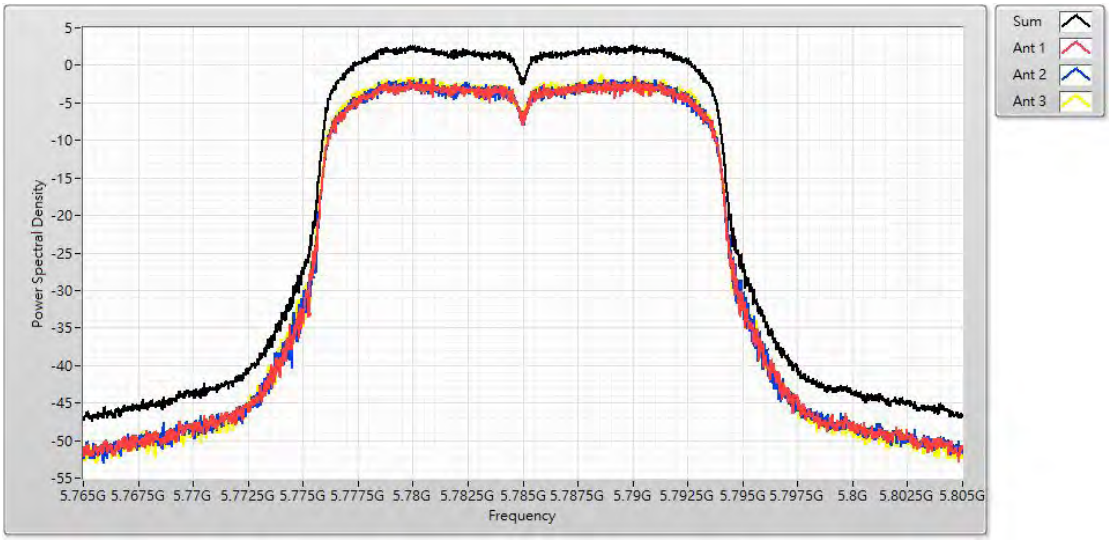
Product	Dual band AC1900 USB 3.0 Wi-Fi Adapter		
Test Item	Maximum power spectral density		
Test Mode	Mode 3: Transmit_Beamforming Mode		
Date of Test	2019/11/05	Test Site	SR12-H
Test Temperature:	24.1℃	Test Hhumidity:	63%

IEEE 802.11n (20MHz)(ANT0+1+2)				
Channel No.	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Result
149	5745	2.610	≦27.403	Pass
157	5785	2.630	≦27.403	Pass
165	5825	2.900	≦27.403	Pass

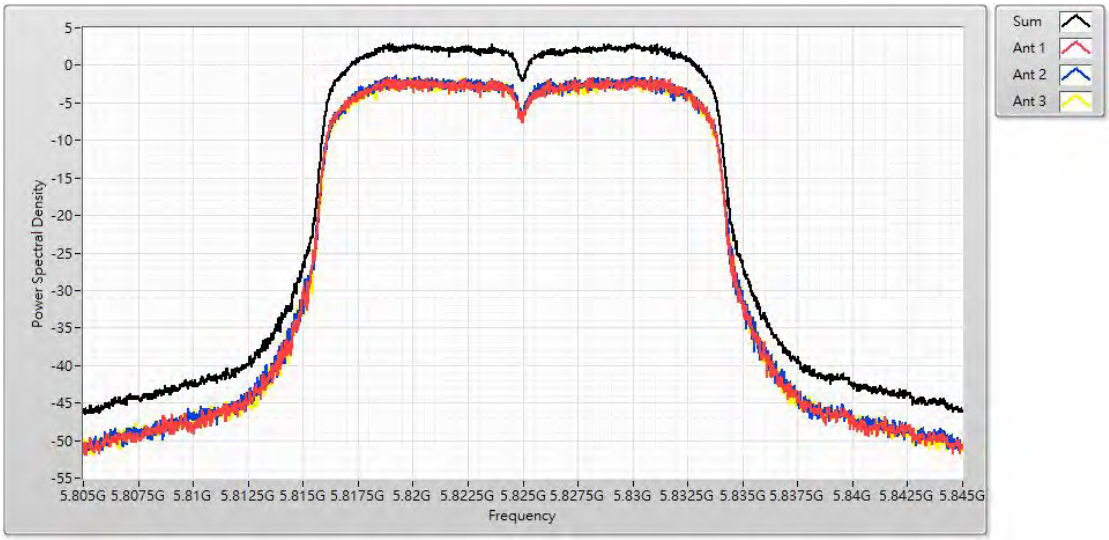
Channel 149



Channel 157



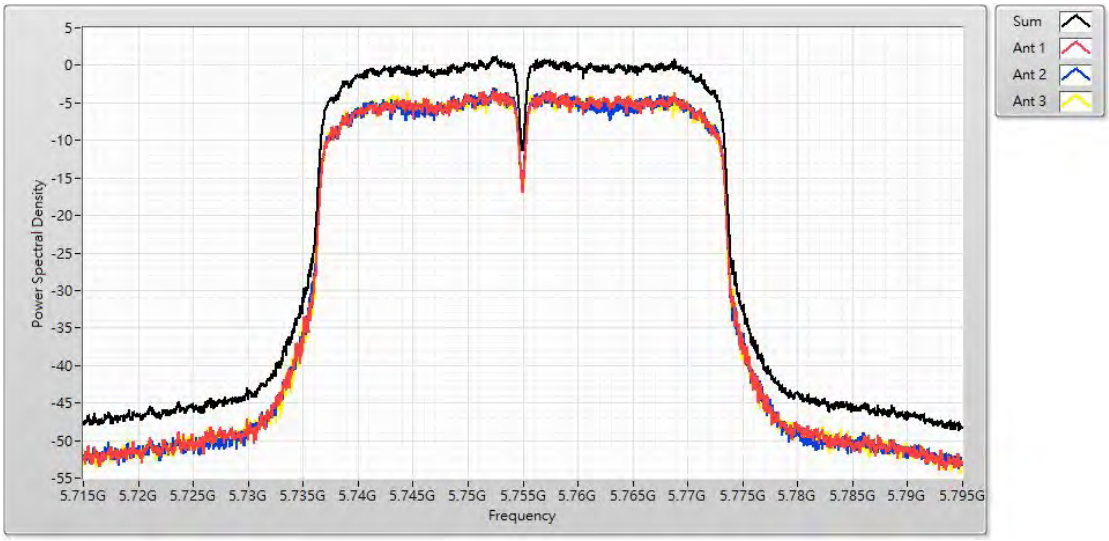
Channel 165



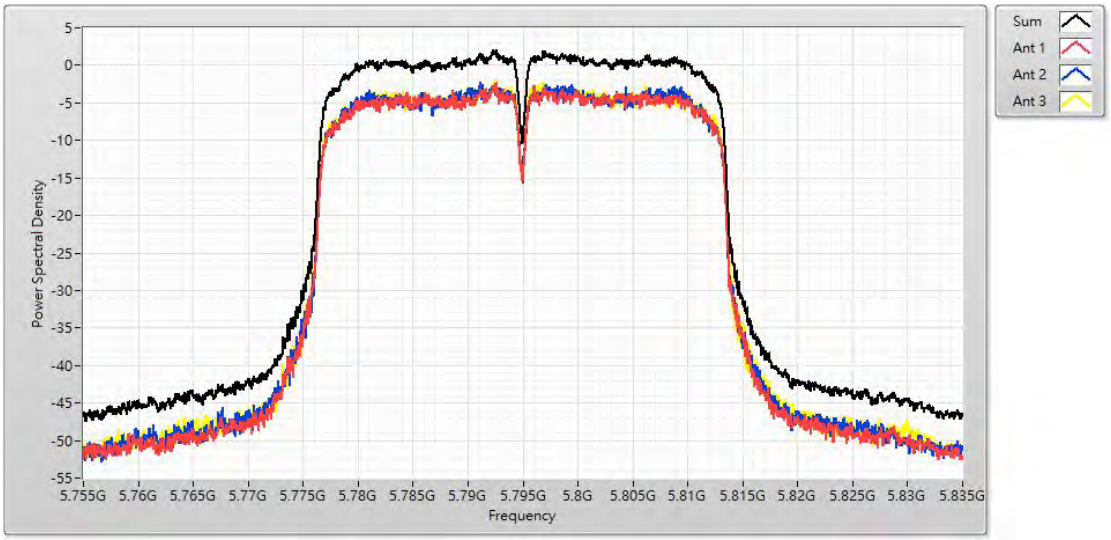
Product	Dual band AC1900 USB 3.0 Wi-Fi Adapter		
Test Item	Maximum power spectral density		
Test Mode	Mode 3: Transmit_Beamforming Mode		
Date of Test	2019/11/05	Test Site	SR12-H
Test Temperature:	24.1℃	Test Hhumidity:	63%

IEEE 802.11n(40MHz)(ANT0+1+2)				
Channel No.	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Result
151	5755	1.150	≦27.403	Pass
159	5795	2.120	≦27.403	Pass

Channel 151



Channel 159


Sum
Ant 1
Ant 2
Ant 3
Power Spectral Density
5
0
-5
-10
-15
-20
-25
-30
-35
-40
-45
-50
-55
5.755G
5.76G
5.765G
5.77G
5.775G
5.78G
5.785G
5.79G
5.795G
5.8G
5.805G
5.81G
5.815G
5.82G
5.825G
5.83G
5.835G
Frequency

Product	Dual band AC1900 USB 3.0 Wi-Fi Adapter		
Test Item	Maximum power spectral density		
Test Mode	Mode 3: Transmit_Beamforming Mode		
Date of Test	2019/11/05	Test Site	SR12-H
Test Temperature:	24.1℃	Test Hhumidity:	63%

IEEE 802.11ac(80MHz)(ANT0+1+2)				
Channel No.	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Result
155	5775	0.170	≦27.403	Pass

Channel 155