FCC Test Report

Product Name ： Dual-Band Wireless-AC PCI-E Adapter

Trade Name ： ASUS

Model No. ： PCE-AC51

FCC ID. ： MSQ-PCEAC1N00

Applicant ： ASUSTeK COMPUTER INC.

Address ： 4F, No. 150, Li-Te Rd., Peitou, Taipei, Taiwan

Date of Receipt ： Aug. 22, 2016

Issued Date ： Sep. 20, 2016

Report No. ： 1680463R-RFUSP45V00

Report Version ： V1.0

Testing Laboratory
3024

Test Report Certification

Issued Date: Sep. 20, 2016
Report No. : 1680463R-RFUSP45V00

Product Name	:	Dual-Band Wireless-AC PCI-E Adapter
Applicant	:	ASUSTeK COMPUTER INC.
Address	:	4F, No. 150, Li-Te Rd., Peitou, Taipei, Taiwan
Manufacturer	:	ASUSTeK COMPUTER INC.
Model No.	:	PCE-AC51
FCC ID.	:	MSQ-PCEAC1N00
EUT Voltage	:	AC 120V/60Hz
Testing Voltage	:	DC 5V (Power by Notebook PC)
Trade Name	:	ASUS
Applicable Standard	:	FCC CFR Title 47 Part 15 Subpart E Section 15.407: 2015 ANSI C63.10: 2013
Test Lab	:	QuieTek Hsin Chu Laboratory
Test Result	:	Complied

The test results relate only to the samples tested.
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Documented By : Lyla Yang
(Lyla Yang / Engineering Adm. Assistant)

Tested By : Scott Chang
(Scott Chang / Assistant Engineer)

Approved By : Roy Wang
(Roy Wang / Director)

Revision History

Report No.	Version	Description	Issued Date
1680463R-RFUSP45V00	V1.0	Initial issue of report	Sep. 20, 2016

Laboratory Information

We, **QuieTek Corporation**, are an independent RF consultancy that was established the whole facility in our laboratories. The test facility has been accredited/accepted (audited or listed) by the following related bodies in compliance with ISO 17025 specified testing scopes:

Taiwan R.O.C.	**:**	**TAF, Accreditation Number: 3024**
USA	**:**	**FCC, Registration Number: 834100**
Canada	**:**	**IC, Submission No: 181665 / IC Registration Number: 4075C-4**

The related certificate for our laboratories about the test site and management system can be downloaded from QuieTek Corporation's Web Site:http://www.quietek.com/english/about/certificates.aspx?bval=5
The address and introduction of QuieTek Corporation's laboratories can be founded in our Web site : http://www.quietek.com/index_en.aspx
If you have any comments, Please don't hesitate to contact us. Our contact information is as below:

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1. General Information

1.1. EUT Description

Product Name	Dual-Band Wireless-AC PCI-E Adapter	
Trade Name	ASUS	
Model No.	PCE-AC51	
Frequency Range/ Channel Number	IEEE 802.11a/ IEEE 802.11n (20MHz) / IEEE 802.11ac (20MHz)	5180~5240MHz / 4 Channels 5745~5825MHz / 5 Channels
	IEEE 802.11n (40MHz) / IEEE 802.11ac (40MHz)	5190~5230MHz / 2 Channels 5755~5795MHz / 2 Channels
	IEEE 802.11ac (80MHz)	5210~5210MHz / 1 Channel 5775~5775MHz / 1 Channel
Type of Modulation	IEEE 802.11a/n/ac	Orthogonal Frequency Division Multiplexing (OFDM)
Data Speed	IEEE 802.11a	6, 9, 18, 24, 36, 48, 54Mbps
	IEEE 802.11n	Support a subset of the combination of GI, MCS 0~MCS 15 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	Dipole
Antenna Gain	3.61 dBi

Accessories Information	
Antenna	2 PCS

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

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

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

Working Frequency of Each Channel							
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
36	5180 MHz	40	5200 MHz	44	5220 MHz	48	5240 MHz
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	Channel	Frequency	Channel	Frequency
38	5190 MHz	46	5230 MHz	151	5755 MHz	159	5795 MHz

IEEE 802.11ac (80MHz)

Working Frequency of Each Channel	
Channel	Frequency
42	5210 MHz
155	5775 MHz

Note:

1. This device is a Dual-Band Wireless-AC PCI-E Adapter including 2.4GHz b/g/n (2x2) and 5GHz a/n/ac (2x2) transmitting and receiving function.
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 function of the 2.4GHz transmitting is measured and makes a test report of the number: 1680463R-RFUSP27V00
4. This device is a composite device in accordance with Part 15 regulations. The receiving function was tested and its number is 1680463R-RFUSP01V00.

1.2. Test Mode

QuieTek 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.

TX	Mode 1: Transmit_SISO Mode Mode 2: Transmit_CDD Mode

Test Items	Modulation	Channel	Antenna	Result
Conducted Emission	11ac (80MHz)	42/155	0+1	Complies
99% & 20dB & DTS Bandwidth	a	36/44/48/149/157/165	0/1	Complies
	11n/ac (20MHz)	36/44/48/149/157/165	0/1	Complies
	11n/ac (40MHz)	38/46/151/159	0/1	Complies
	11ac (80MHz)	42/155	0/1	Complies
Peak Transmit Output	a	36/44/48/149/157/165	0/1	Complies
	11n/ac (20MHz)	36/44/48/149/157/165	0+1	Complies
	11n/ac (40MHz)	38/46/151/159	0+1	Complies
	11ac (80MHz)	42/155	0+1	Complies
Peak Power Spectrum Density	a	36/44/48/149/157/165	0/1	Complies
	11n/ac (20MHz)	36/44/48/149/157/165	0+1	Complies
	11n/ac (40MHz)	38/46/151/159	0+1	Complies
	11ac (80MHz)	42/155	0+1	Complies
Radiated Emission	a	36/44/48/149/157/165	0+1	Complies
	11n/ac (20MHz)	36/44/48/149/157/165	0+1	Complies
	11n/ac (40MHz)	38/46/151/159	0+1	Complies
	11ac (80MHz)	42/155	0+1	Complies
Band Edge	a	36/44/48/149/157/165	0+1	Complies
	11n/ac (20MHz)	36/44/48/149/157/165	0+1	Complies
	11n/ac (40MHz)	38/46/151/159	0+1	Complies
	11ac (80MHz)	42/155	0+1	Complies
Frequency Stability	a	36/44/48/149/157/165	0/1	Complies
	11n/ac (20MHz)	36/44/48/149/157/165	0/1	Complies
	11n/ac (40MHz)	38/46/151/159	0/1	Complies
	11ac (80MHz)	42/155	0/1	Complies

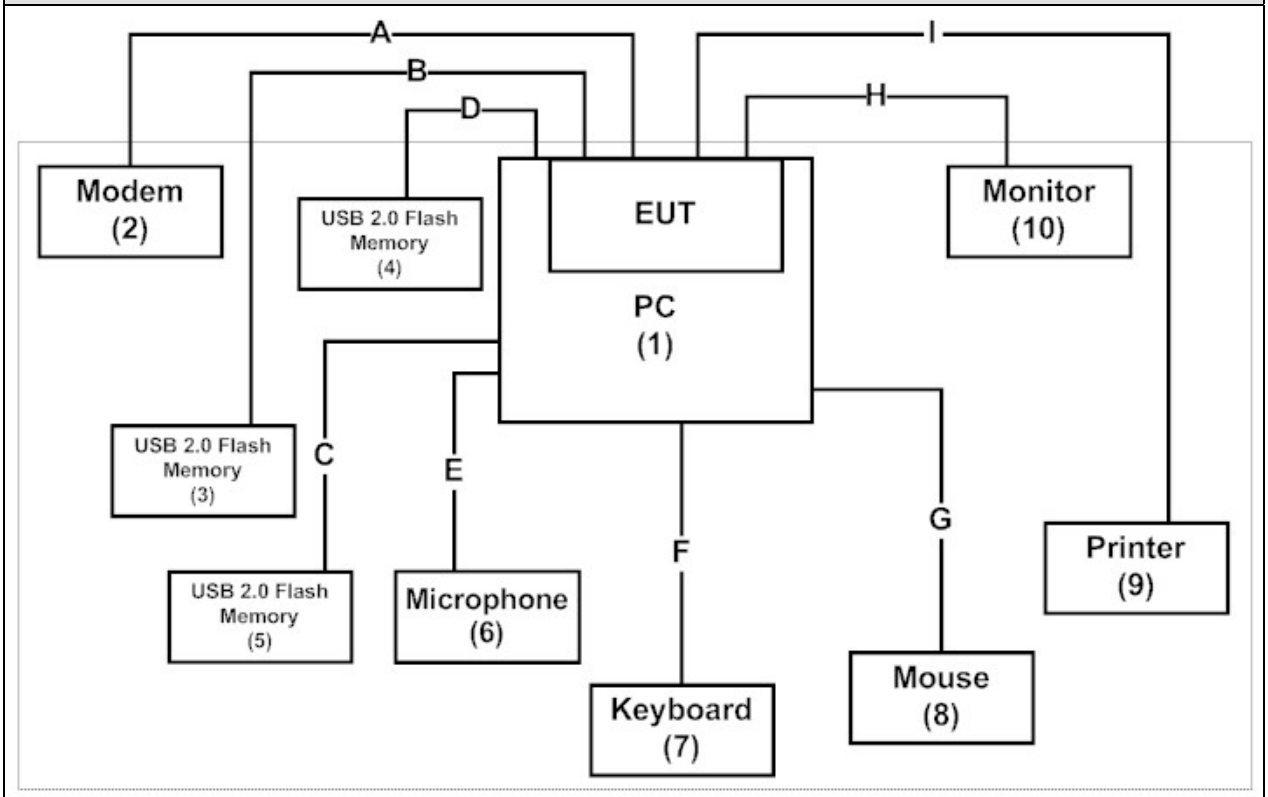
1.3. Tested System Details

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	PC	ASUS	P2L97	92M1Y00768	DoC	Non-Shielded, 1.8m
2	Modem	ACEEX	DM-2814	960018054	DoC	Non-Shielded, 1.6m
3	USB 2.0 Flash Memory	Apacer	AH223	N/A	DoC	--
4	USB 2.0 Flash Memory	Apacer	AH223	N/A	DoC	--
5	USB 2.0 Flash Memory	Apacer	AH223	N/A	DoC	--
6	Microphone	DYNAMIC	DM-35	N/A	DoC	--
7	Keyboard	Logitech	Y-SM46	SY525U18108	DoC	--
8	Mouse	Logitech	M-SBF83	HCA52200174	DoC	--
9	Printer	HP	C2642A	MY75J1D1D2	DoC	Non-Shielded, 0.7m
10	Monitor	CHI MEI	A170E1-09	3UC120955SA 1227	DoC	Non-Shielded, 1.8m

1.4. Configuration of tested System

Connection Diagram



Signal Cable Type		Signal cable Description
A	Modem Cable	Shielded, 1.8m
B	USB 2.0 Flash Memory Cable	Non-Shielded, 1.5m
C	USB 2.0 Flash Memory Cable	Non-Shielded, 1.5m
D	USB 2.0 Flash Memory Cable	Non-Shielded, 1.5m
E	Microphone Cable	Non-Shielded, 1m
F	Keyboard Cable	Shielded, 1.8m
G	Mouse Cable	Shielded, 1.8m
H	VGA Cable	Shielded, 1.6m
I	Printer Cable	Shielded, 1.2m

1.5. EUT Exercise Software

1	Setup the EUT as shown in Section 1.4.
2	Execute the “Realtek 8812A chip, 0.0057.25 version” 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.

1.6. Test Facility

Ambient conditions in the laboratory:

Items	Test Item	Required (IEC 68-1)	Actual
Temperature (°C)	FCC PART 15 E 15.407 Conducted Emission	15 - 35	20°C
Humidity (%RH)		25 - 75	50%RH
Barometric pressure (mbar)		860 - 1060	950-1000
Temperature (°C)	FCC PART 15 E 15.407 99% & 20dB & DTS Bandwidth	15 - 35	25°C
Humidity (%RH)		25 - 75	45%RH
Barometric pressure (mbar)		860 - 1060	950-1000
Temperature (°C)	FCC PART 15 E 15.407 Peak Transmit Power	15 - 35	25°C
Humidity (%RH)		25 - 75	65%RH
Barometric pressure (mbar)		860 - 1060	950-1000
Temperature (°C)	FCC PART 15 E 15.407 Peak Power Spectrum Density	15 - 35	25°C
Humidity (%RH)		25 - 75	45%RH
Barometric pressure (mbar)		860 - 1060	950-1000
Temperature (°C)	FCC PART 15 E 15.407 Radiated Emission	15 - 35	25°C
Humidity (%RH)		25 - 75	45%RH
Barometric pressure (mbar)		860 - 1060	950-1000
Temperature (°C)	FCC PART 15 E 15.407 Band Edge	15 - 35	25°C
Humidity (%RH)		25 - 75	45%RH
Barometric pressure (mbar)		860 - 1060	950-1000
Temperature (°C)	FCC PART 15 E 15.407 Frequency Stability	15 - 35	25°C
Humidity (%RH)		25 - 75	45%RH
Barometric pressure (mbar)		860 - 1060	950-1000

2. Conducted Emission

2.1. Test Equipment

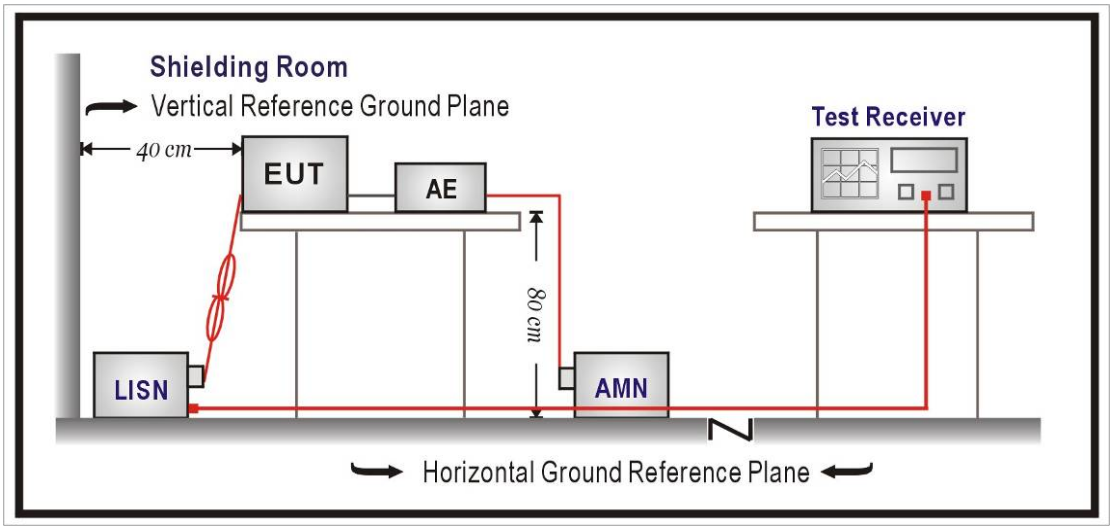
The following test equipments are used during the test:

Conducted Emission / SR3

Instrument	Manufacturer	Model No.	Serial No	Next Cal. Date
LISN	R&S	ENV216	100096	2017/07/11
LISN	R&S	ESH3-Z5	836679/022	2016/11/30
Test Receiver	R&S	ESCS 30	825442/017	2017/01/04

Note: All equipments that need to calibrate are with calibration period of 1 year.

2.2. Test Setup



2.3. 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.

2.4. 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.

2.5. Test Specification

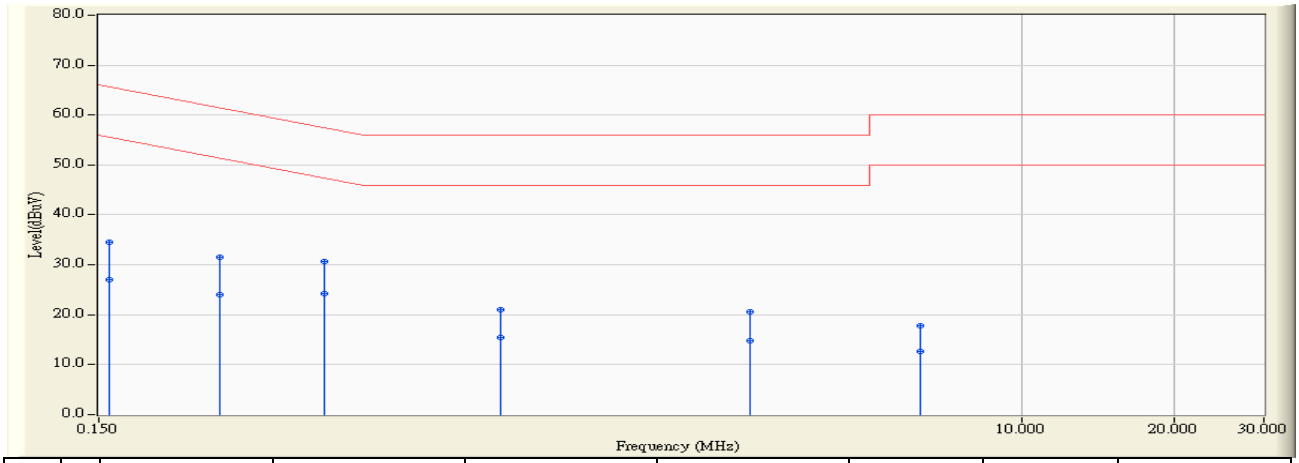
According to FCC Part 15 Subpart C Paragraph 15.207: 2015

2.6. Uncertainty

The measurement uncertainty is defined as ± 2.26 dB.

2.7. Test Result

Site : SR3	**Time : 2016/08/26 - 15:43**
Limit : CISPR_B_00M_QP	**Margin : 10**
Probe : SR3_LISN(16A)-6_0712 - Line1	**Power : AC 120V/60Hz**
EUT : Dual-Band Wireless-AC PCI-E Adapter	**Note : Mode 2: Transmit_CDD Mode _802.11ac(80M)_5210MHz**

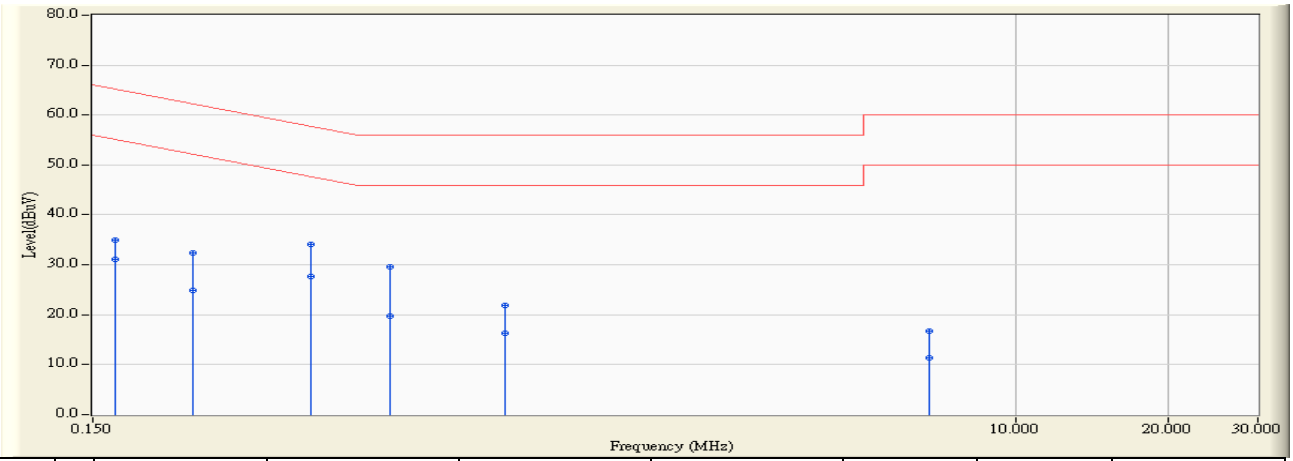


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1		0.158	9.755	24.690	34.445	-31.133	65.578	QUASIPEAK
2		0.158	9.755	17.360	27.115	-28.463	55.578	AVERAGE
3		0.259	9.759	21.860	31.620	-29.832	61.451	QUASIPEAK
4		0.259	9.759	14.260	24.020	-27.432	51.451	AVERAGE
5		0.420	9.768	21.000	30.768	-26.689	57.457	QUASIPEAK
6	*	0.420	9.768	14.560	24.328	-23.129	47.457	AVERAGE
7		0.935	9.771	11.180	20.951	-35.049	56.000	QUASIPEAK
8		0.935	9.771	5.750	15.521	-30.479	46.000	AVERAGE
9		2.900	9.881	10.780	20.661	-35.339	56.000	QUASIPEAK
10		2.900	9.881	4.950	14.831	-31.169	46.000	AVERAGE
11		6.298	10.013	7.710	17.723	-42.277	60.000	QUASIPEAK
12		6.298	10.013	2.550	12.563	-37.437	50.000	AVERAGE

Note:

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

Site : SR3	**Time : 2016/08/26 - 15:48**
Limit : CISPR_B_00M_QP	**Margin : 10**
Probe : SR3_LISN(16A)-6_0712 - Line2	**Power : AC 120V/60Hz**
EUT : Dual-Band Wireless-AC PCI-E Adapter	**Note : Mode 2: Transmit_CDD Mode _802.11ac(80M)_5210MHz**

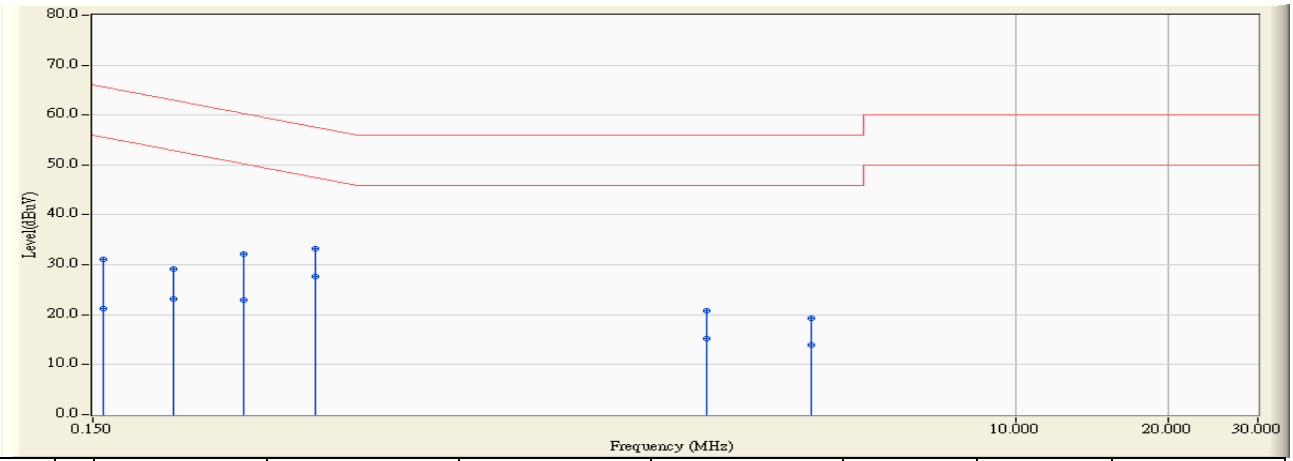


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1		0.166	9.755	25.290	35.046	-30.131	65.177	QUASIPEAK
2		0.166	9.755	21.270	31.026	-24.151	55.177	AVERAGE
3		0.236	9.762	22.700	32.462	-29.776	62.238	QUASIPEAK
4		0.236	9.762	15.080	24.842	-27.396	52.238	AVERAGE
5		0.404	9.786	24.220	34.006	-23.767	57.773	QUASIPEAK
6	*	0.404	9.786	17.950	27.736	-20.037	47.773	AVERAGE
7		0.580	9.791	19.840	29.631	-26.369	56.000	QUASIPEAK
8		0.580	9.791	9.950	19.741	-26.259	46.000	AVERAGE
9		0.978	9.771	12.160	21.931	-34.069	56.000	QUASIPEAK
10		0.978	9.771	6.620	16.391	-29.609	46.000	AVERAGE
11		6.716	9.991	6.810	16.801	-43.199	60.000	QUASIPEAK
12		6.716	9.991	1.400	11.391	-38.609	50.000	AVERAGE

Note:

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

Site : SR3	**Time : 2016/08/26 - 15:59**
Limit : CISPR_B_00M_QP	**Margin : 10**
Probe : SR3_LISN(16A)-6_0712 - Line1	**Power : AC 120V/60Hz**
EUT : Dual-Band Wireless-AC PCI-E Adapter	**Note : Mode 2: Transmit_CDD Mode _802.11ac(80M)_5775MHz**

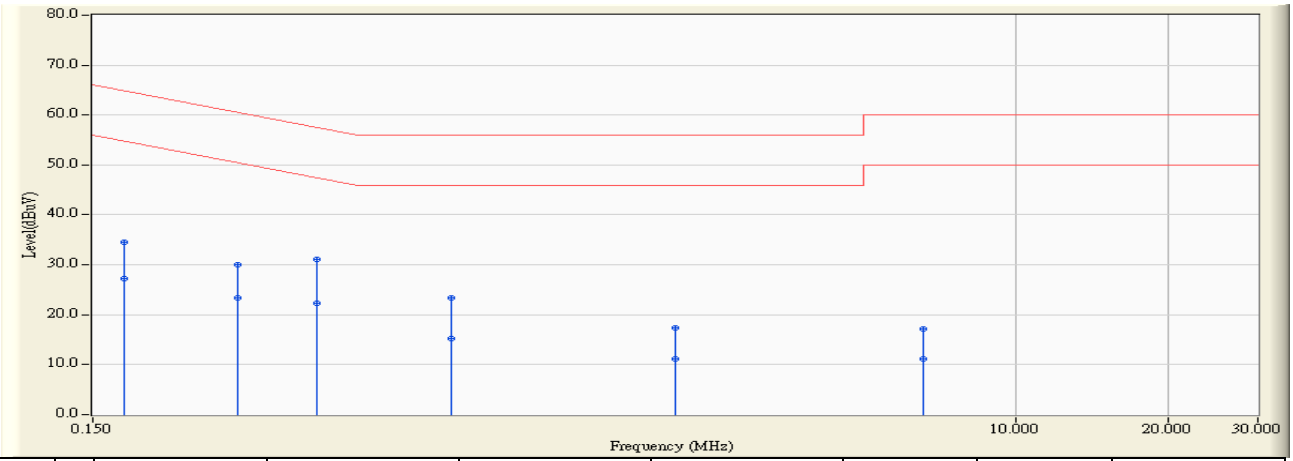


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1		0.158	9.755	21.310	31.065	-34.513	65.578	QUASIPEAK
2		0.158	9.755	11.540	21.295	-34.283	55.578	AVERAGE
3		0.216	9.757	19.490	29.248	-33.708	62.956	QUASIPEAK
4		0.216	9.757	13.480	23.238	-29.718	52.956	AVERAGE
5		0.298	9.761	22.390	32.151	-28.135	60.286	QUASIPEAK
6		0.298	9.761	13.140	22.901	-27.385	50.286	AVERAGE
7		0.412	9.767	23.480	33.247	-24.366	57.614	QUASIPEAK
8	*	0.412	9.767	17.940	27.707	-19.906	47.614	AVERAGE
9		2.451	9.856	10.930	20.786	-35.214	56.000	QUASIPEAK
10		2.451	9.856	5.390	15.246	-30.754	46.000	AVERAGE
11		3.927	9.939	9.350	19.289	-36.711	56.000	QUASIPEAK
12		3.927	9.939	3.990	13.929	-32.071	46.000	AVERAGE

Note:

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

Site : SR3	**Time : 2016/08/26 - 16:05**
Limit : CISPR_B_00M_QP	**Margin : 10**
Probe : SR3_LISN(16A)-6_0712 - Line2	**Power : AC 120V/60Hz**
EUT : Dual-Band Wireless-AC PCI-E Adapter	**Note : Mode 2: Transmit_CDD Mode _802.11ac(80M)_5775MHz**



		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1		0.173	9.756	24.730	34.486	-30.308	64.794	QUASIPEAK
2		0.173	9.756	17.530	27.286	-27.508	54.794	AVERAGE
3		0.291	9.770	20.150	29.920	-30.587	60.507	QUASIPEAK
4		0.291	9.770	13.630	23.400	-27.107	50.507	AVERAGE
5		0.416	9.787	21.370	31.157	-26.378	57.535	QUASIPEAK
6	*	0.416	9.787	12.450	22.237	-25.298	47.535	AVERAGE
7		0.767	9.782	13.550	23.332	-32.668	56.000	QUASIPEAK
8		0.767	9.782	5.430	15.212	-30.788	46.000	AVERAGE
9		2.127	9.822	7.650	17.473	-38.527	56.000	QUASIPEAK
10		2.127	9.822	1.260	11.083	-34.917	46.000	AVERAGE
11		6.556	9.984	7.270	17.254	-42.746	60.000	QUASIPEAK
12		6.556	9.984	1.130	11.114	-38.886	50.000	AVERAGE

Note:

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

3. 99% & 20dB & DTS Bandwidth

3.1. Test Equipment

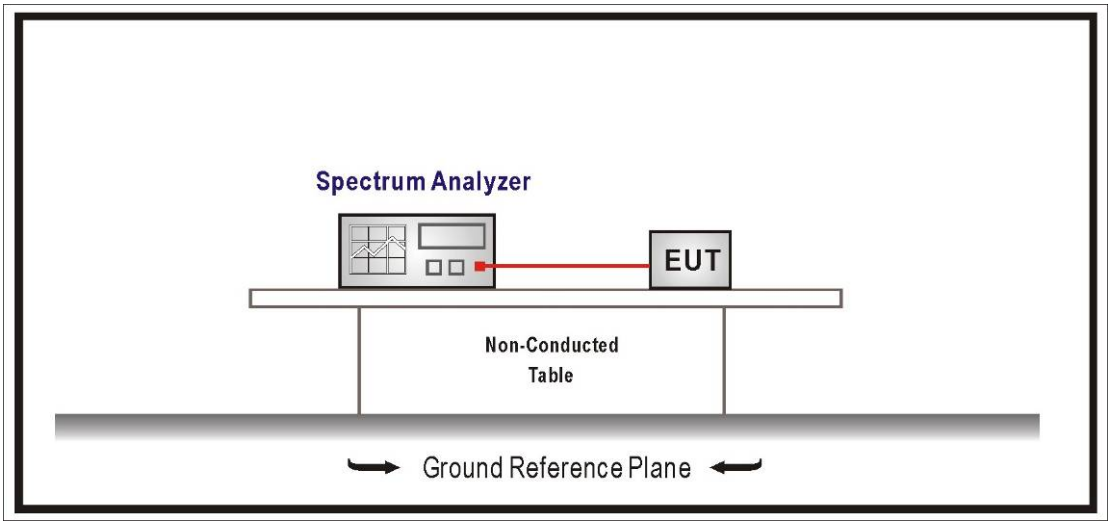
The following test equipments are used during the radiated emission tests:

99%& 26dB & DTS Bandwidth / SR7

Instrument	Manufacturer	Model No.	Serial No	Next Cal. Date
Spectrum Analyzer	Agilent	N9010A	US47140172	2017/08/08
Signal & Spectrum Analyzer	R&S	FSV40	101049	2017/01/05
Signal Analyzer	R&S	FSV7	101650	2016/11/30

Note: All equipments that need to calibrate are with calibration period of 1 year.

3.2. Test Setup



3.3. Limits

99% & 26dB Bandwidth : No Required
6dB Bandwidth ≧ 500KHz

3.4. Test Procedure

99% & 26dB Bandwidth :
The EUT was tested according to U-NII test procedure of KDB 789033.
Set RBW 1% of the emission bandwidth, VBW equal to 3 times the RBW.
DTS Bandwidth :
Set RBW = 100KHz, VBW≧3xRBW, Sweep time=Auto, Set Peak detector.

3.5. Uncertainty

The measurement uncertainty is defined as ±150Hz

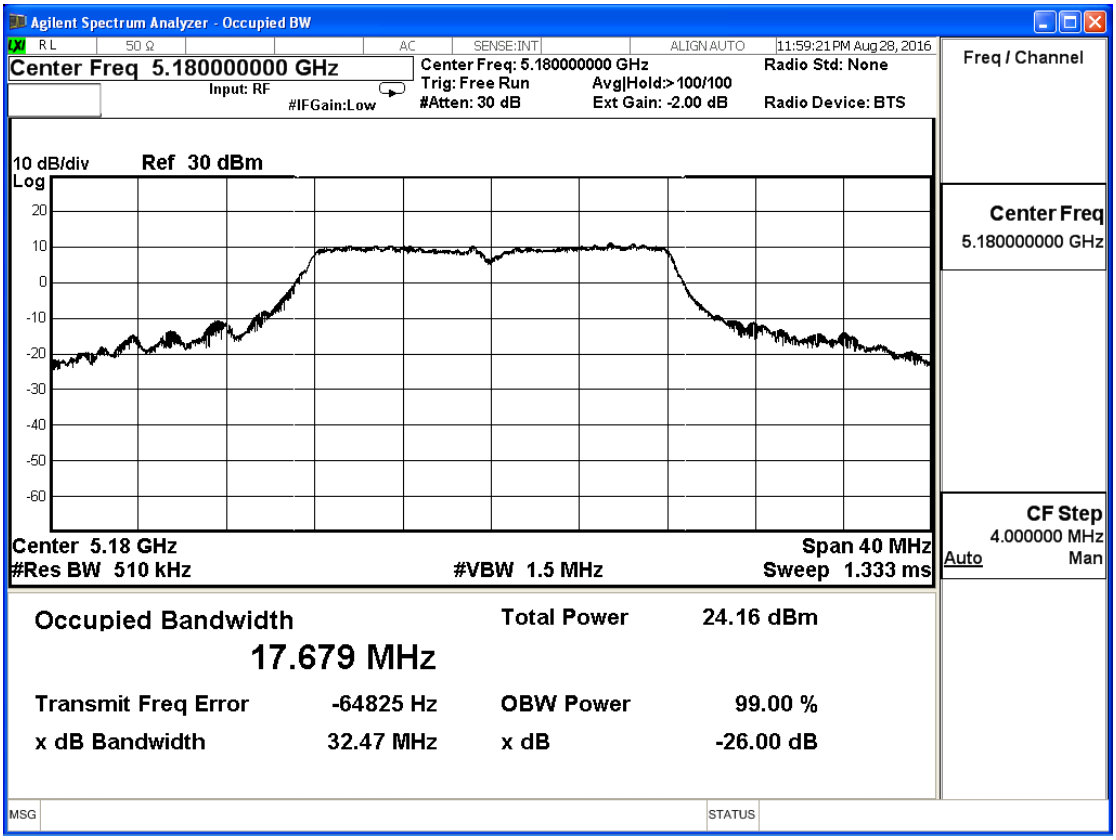
3.6. Test Result

Product	Dual-Band Wireless-AC PCI-E Adapter		
Test Item	99% & 26dB Bandwidth		
Test Mode	Mode 1: Transmit_SISO Mode		
Date of Test	2016/08/25	Test Site	SR7

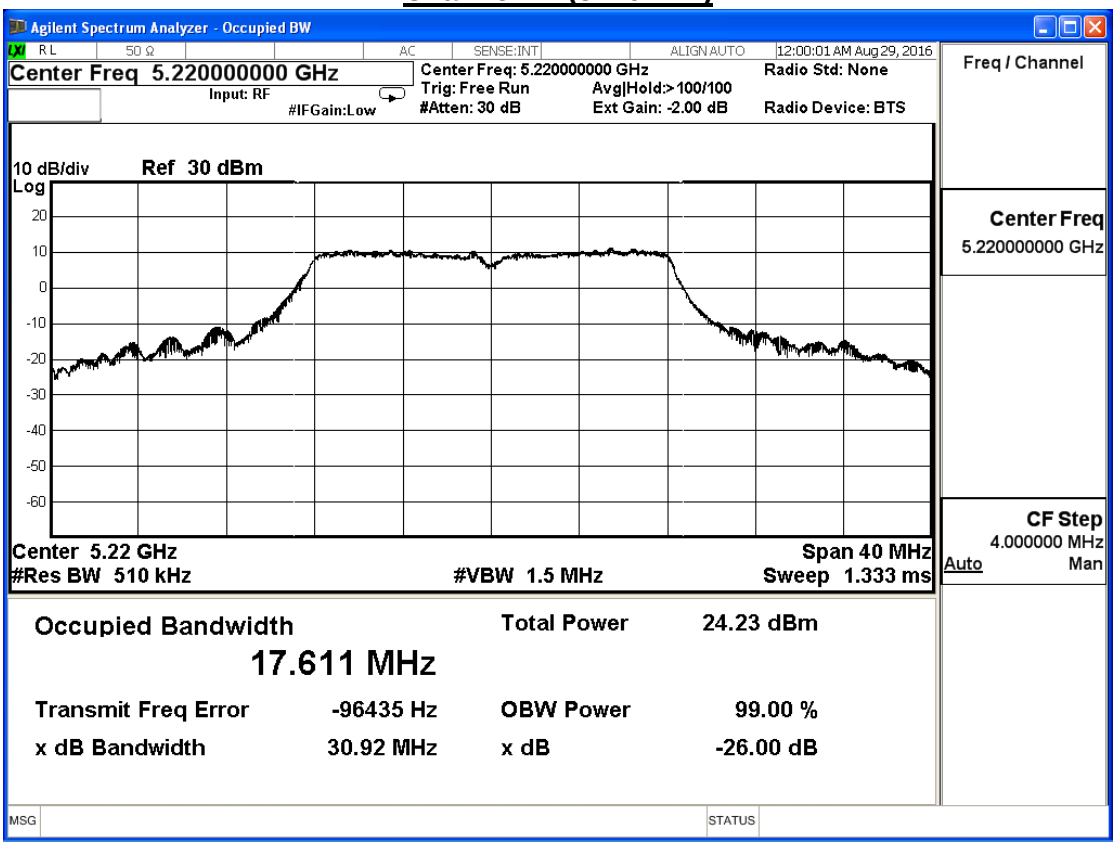
IEEE 802.11 ____a____, Ant 0

Channel No.	Frequency (MHz)	Measure Value(MHz)	Limit (MHz)
36	5180	17.68	--
44	5220	17.61	--
48	5240	17.29	--

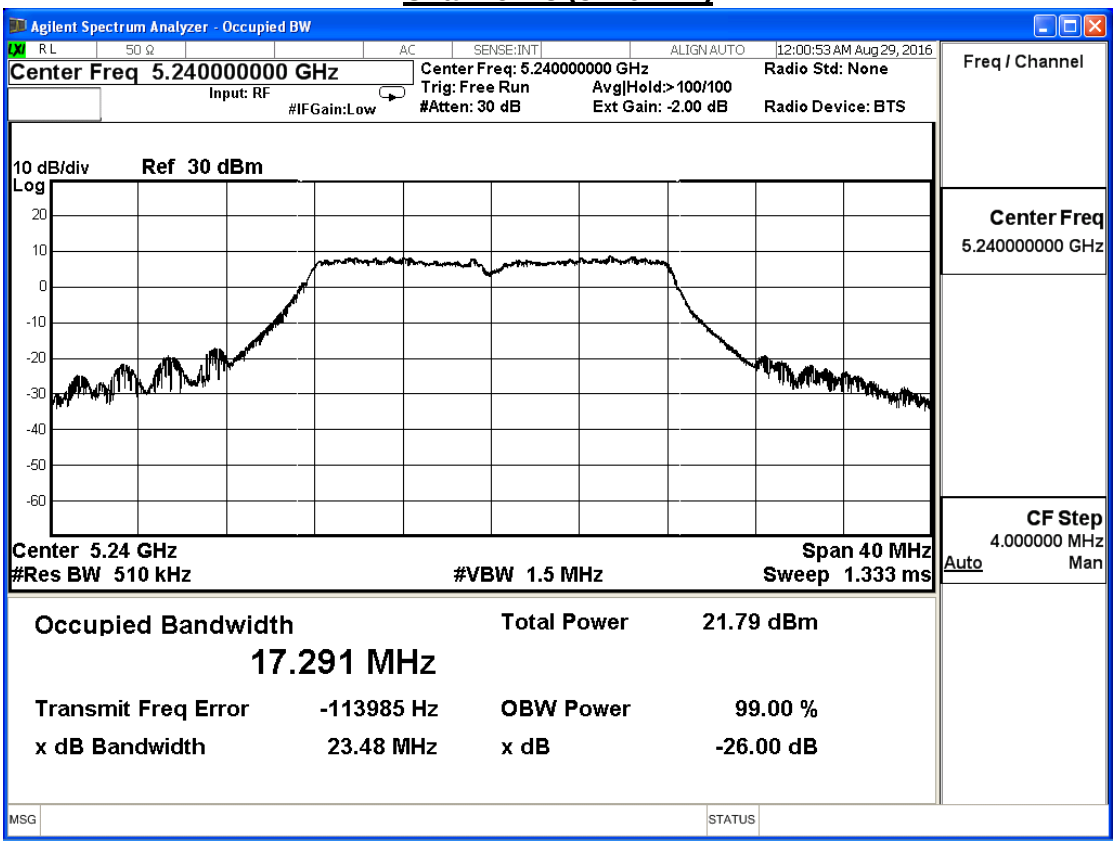
Channel 36 (5180MHz)



Channel 44 (5220MHz)



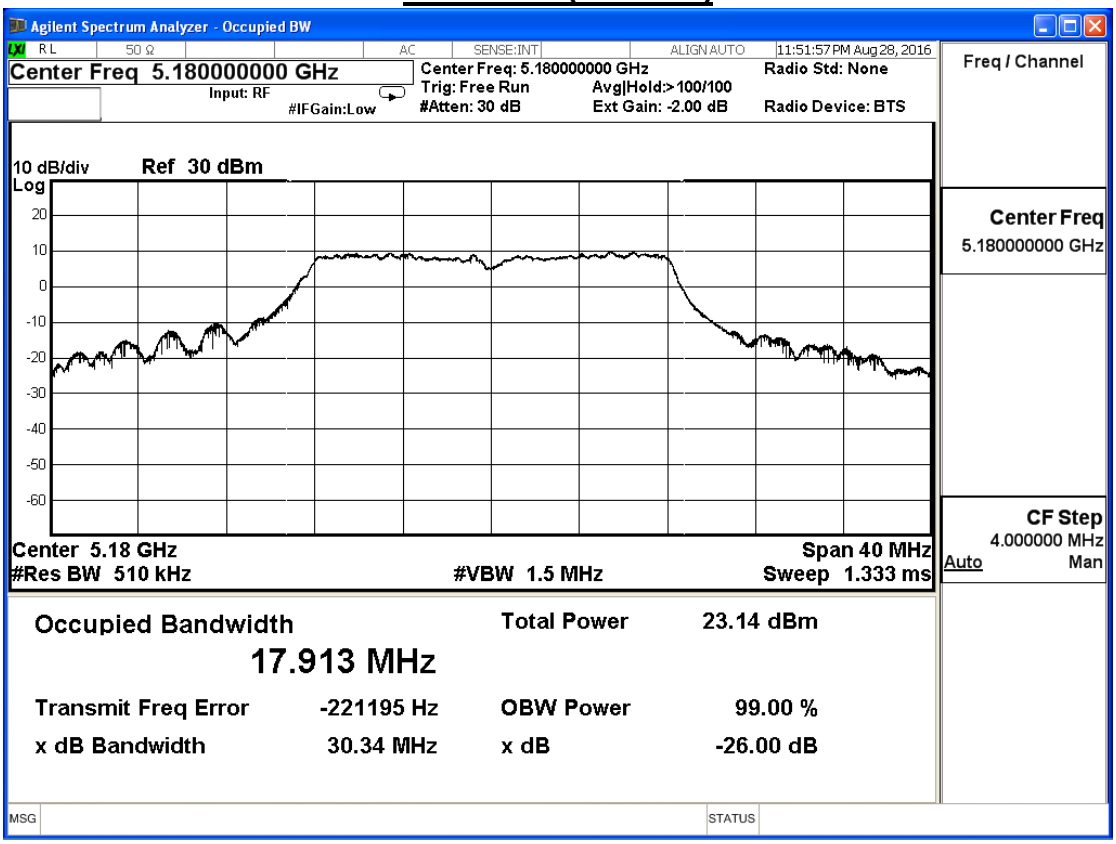
Channel 48 (5240MHz)



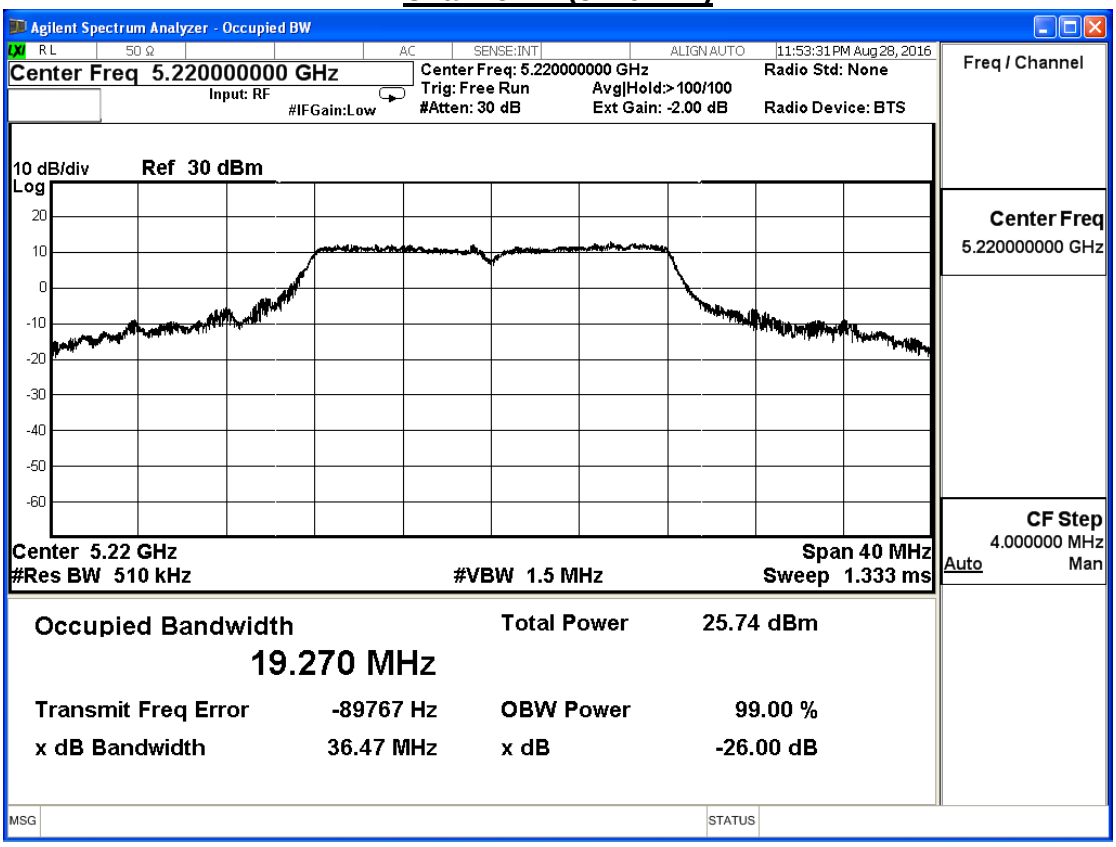
Product	Dual-Band Wireless-AC PCI-E Adapter		
Test Item	99% & 26dB Bandwidth		
Test Mode	Mode 1: Transmit_SISO Mode		
Date of Test	2016/08/25	Test Site	SR7

IEEE 802.11 ____a____, Ant 1			
Channel No.	Frequency (MHz)	Measure Value(MHz)	Limit (MHz)
36	5180	17.91	--
44	5220	19.27	--
48	5240	17.88	--

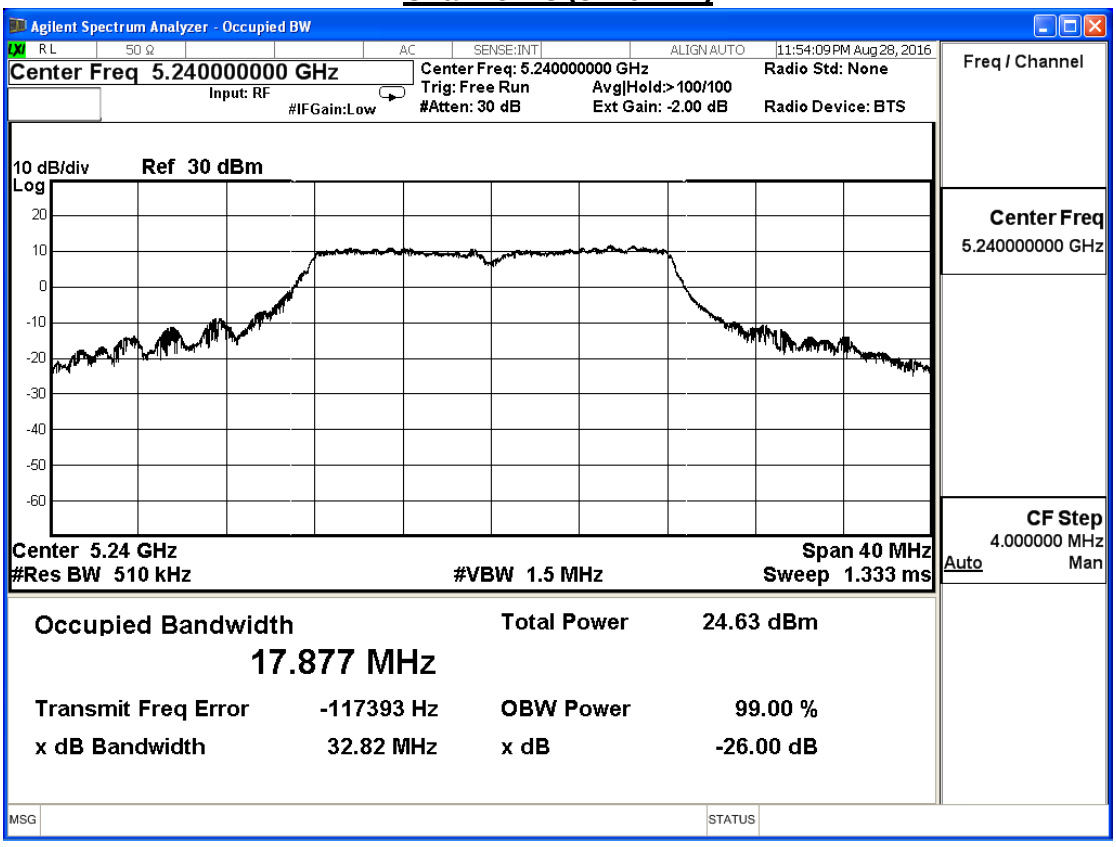
Channel 36 (5180MHz)



Channel 44 (5220MHz)



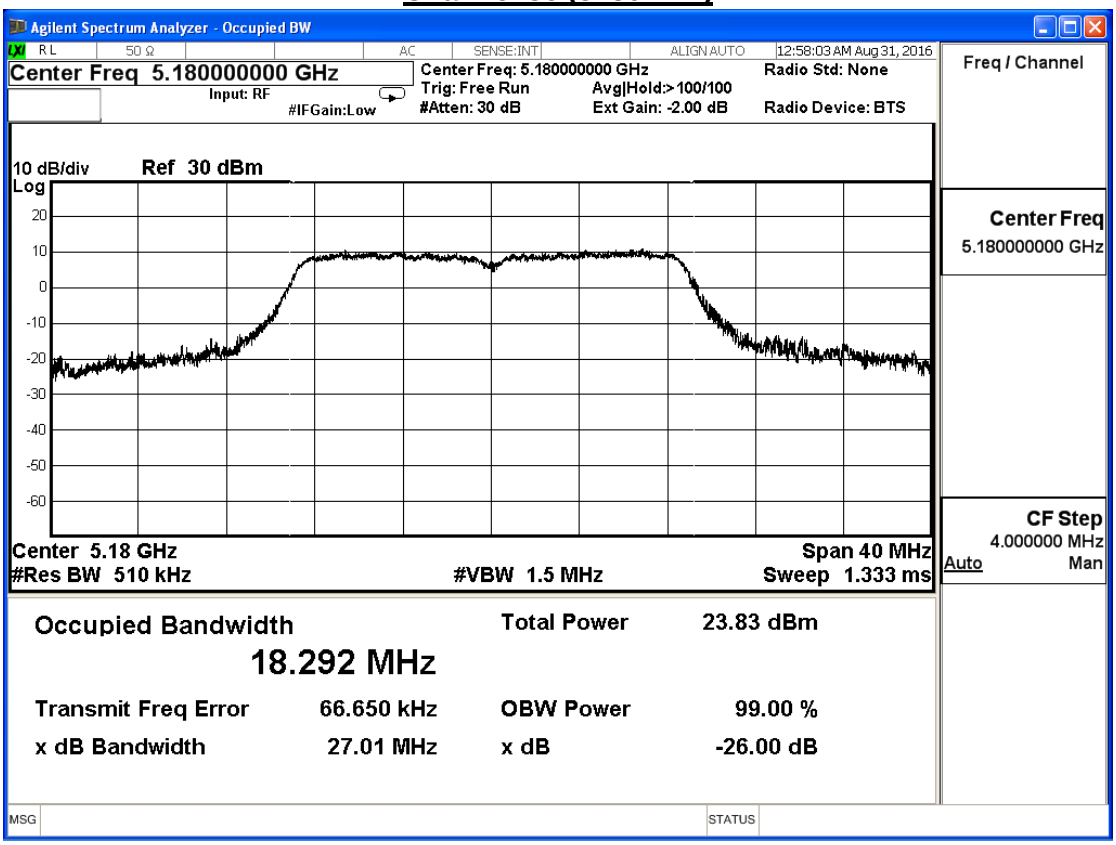
Channel 48 (5240MHz)



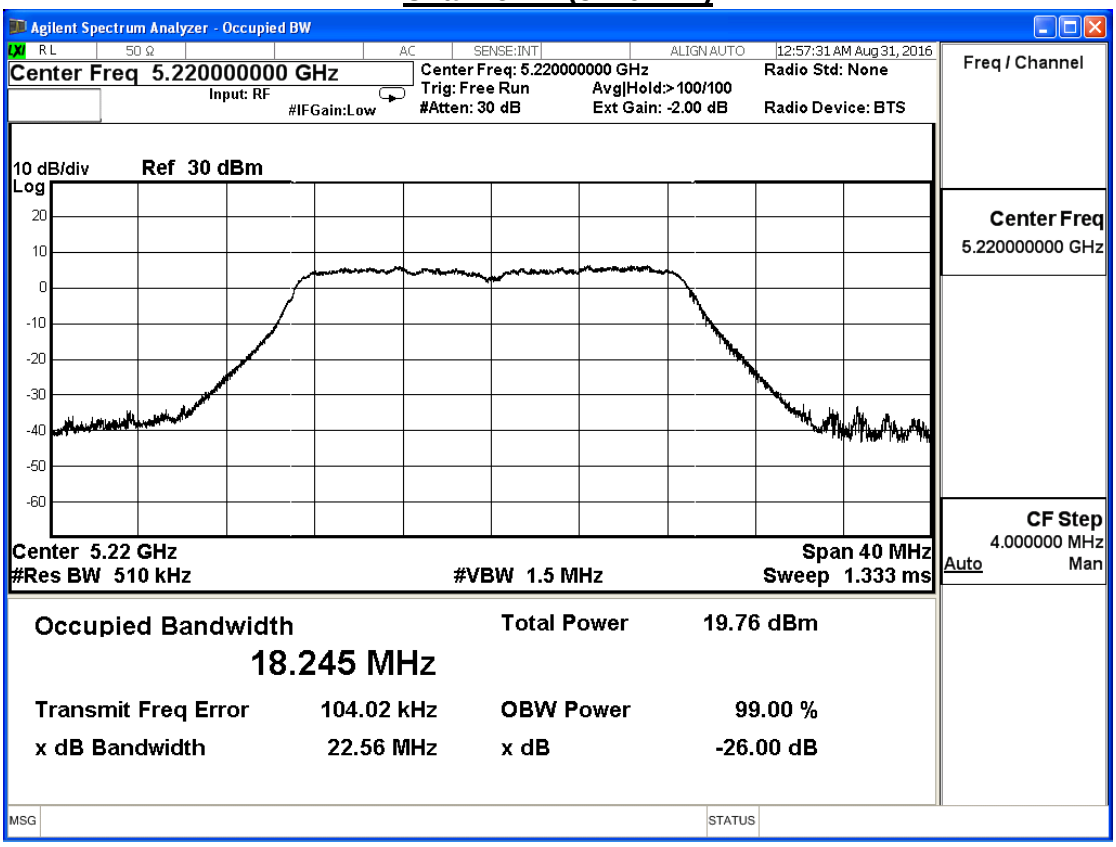
Product	Dual-Band Wireless-AC PCI-E Adapter		
Test Item	99% & 26dB Bandwidth		
Test Mode	Mode 2: Transmit_CDD Mode		
Date of Test	2016/08/25	Test Site	SR7

IEEE 802.11 ____n20____, Ant 0			
Channel No.	Frequency (MHz)	Measure Value(MHz)	Limit (MHz)
36	5180	18.29	--
44	5220	18.25	--
48	5240	18.11	--

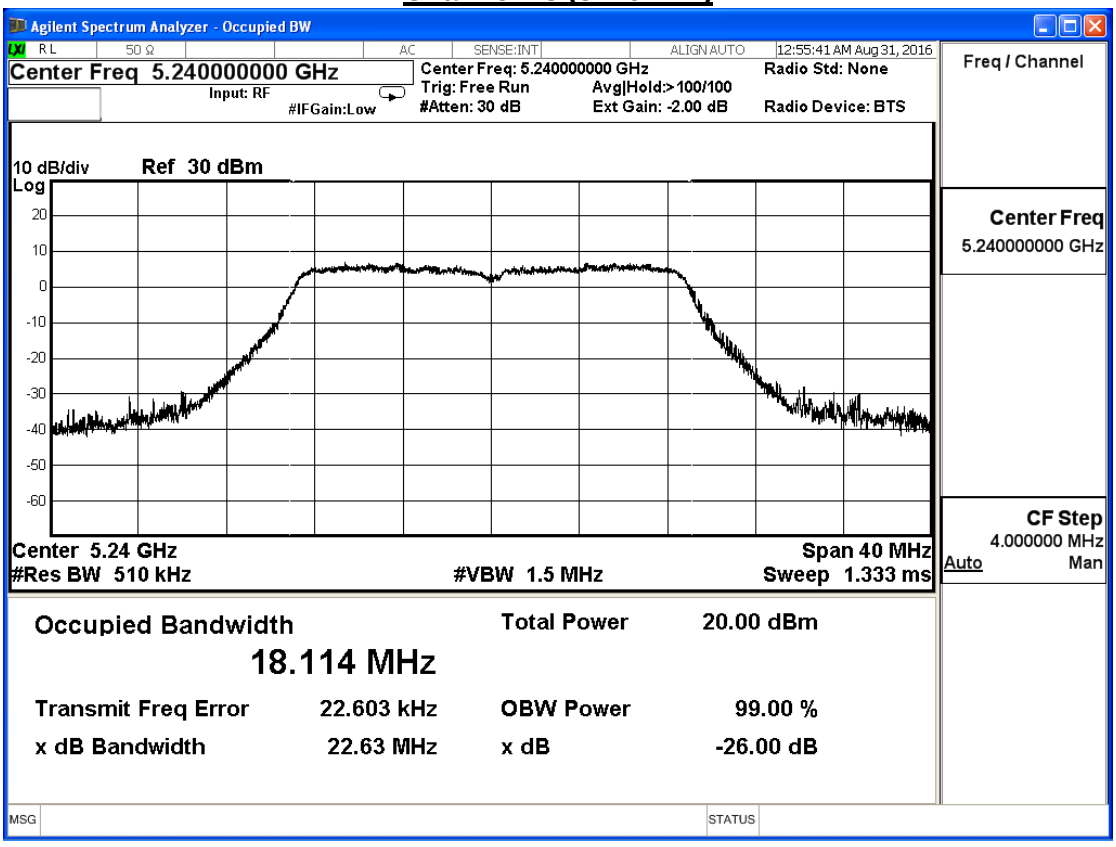
Channel 36 (5180MHz)



Channel 44 (5220MHz)



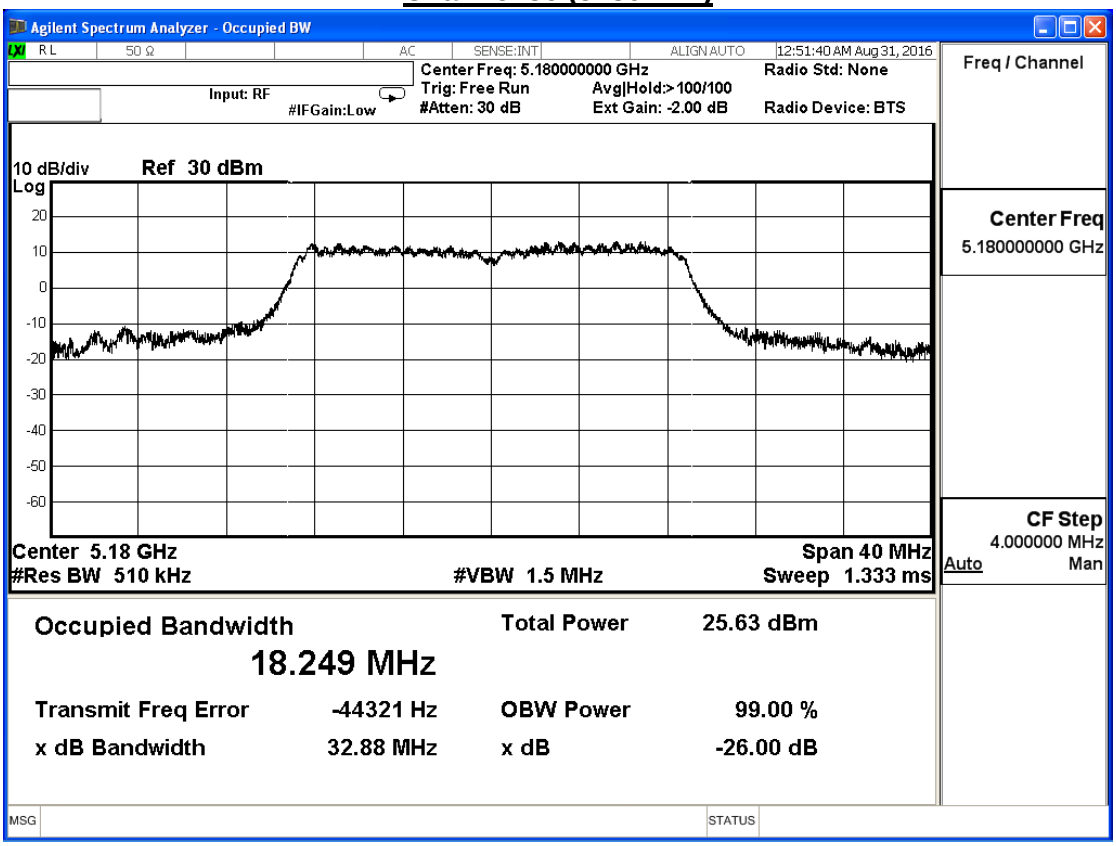
Channel 48 (5240MHz)



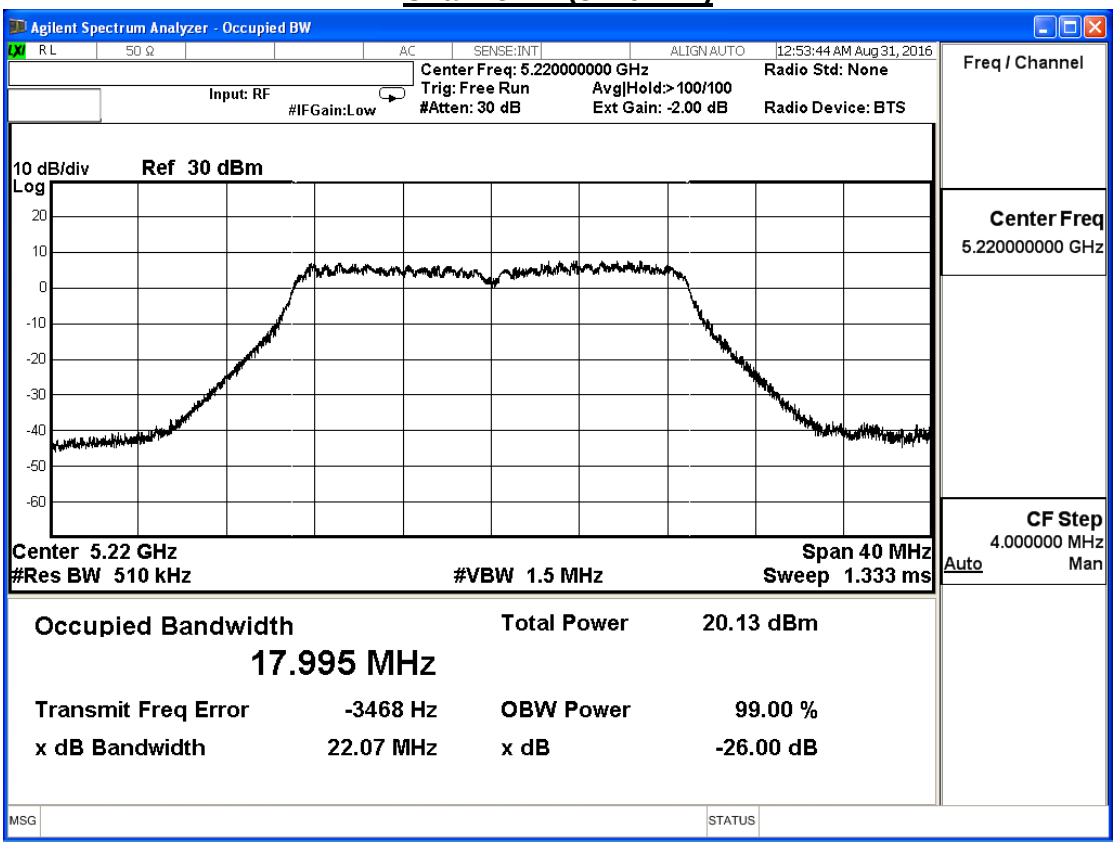
Product	Dual-Band Wireless-AC PCI-E Adapter		
Test Item	99% & 26dB Bandwidth		
Test Mode	Mode 2: Transmit_CDD Mode		
Date of Test	2016/08/25	Test Site	SR7

IEEE 802.11 ____n20____, Ant 1			
Channel No.	Frequency (MHz)	Measure Value(MHz)	Limit (MHz)
36	5180	18.25	--
44	5220	18.00	--
48	5240	17.99	--

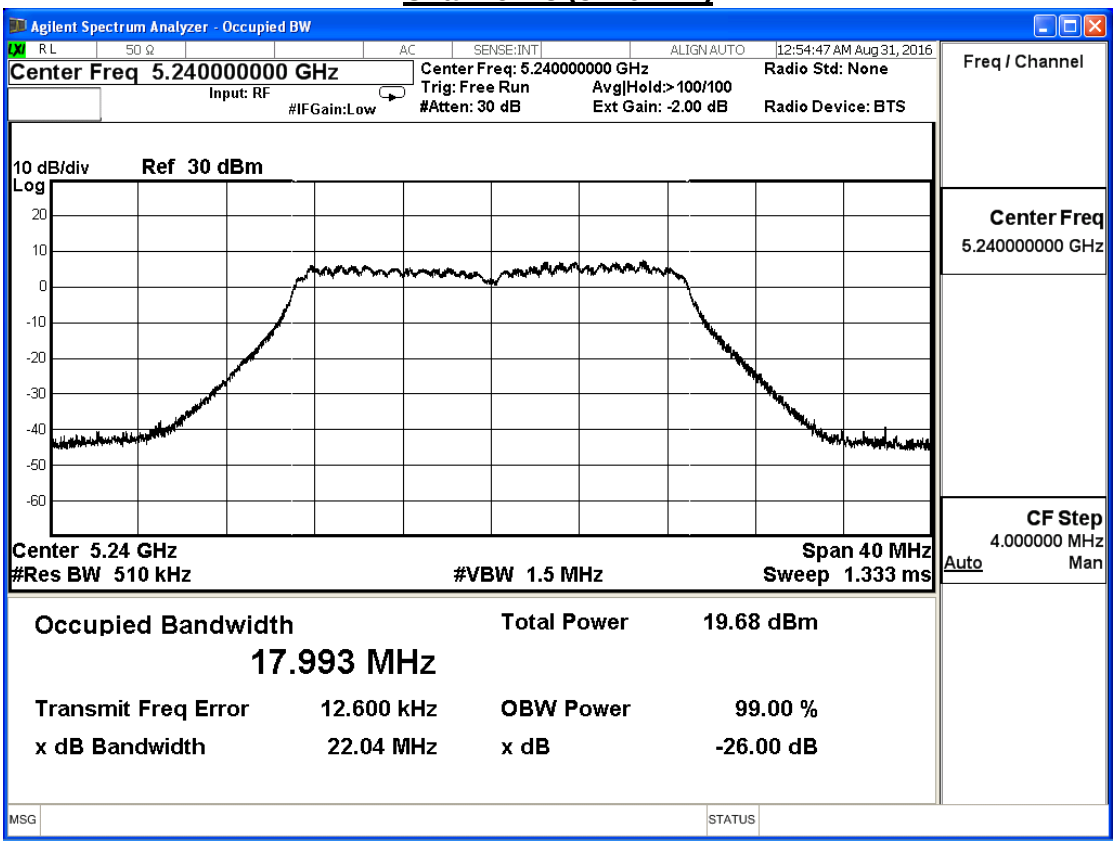
Channel 36 (5180MHz)



Channel 44 (5220MHz)



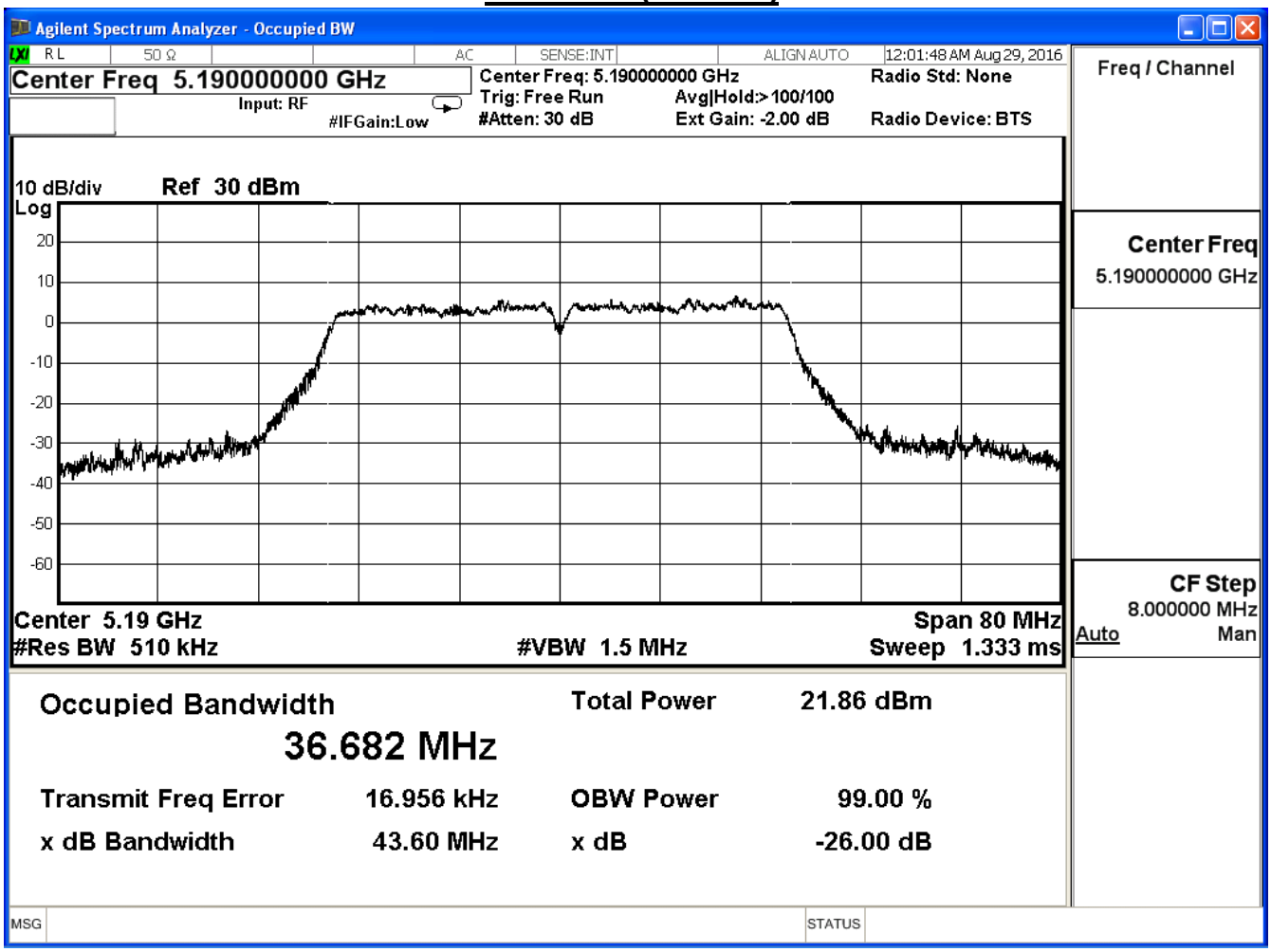
Channel 48 (5240MHz)



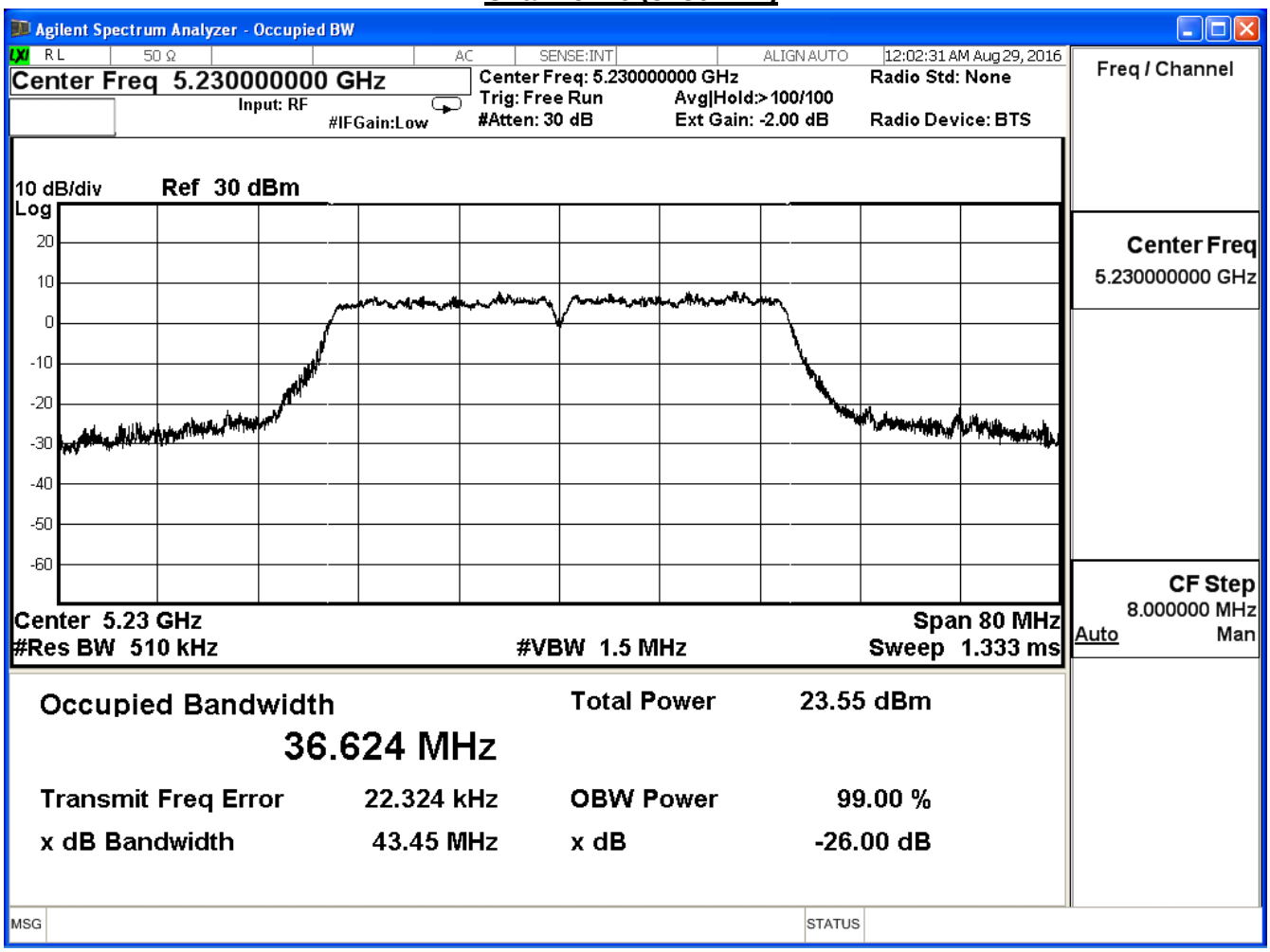
Product	Dual-Band Wireless-AC PCI-E Adapter		
Test Item	99% & 26dB Bandwidth		
Test Mode	Mode 2: Transmit_CDD Mode		
Date of Test	2016/08/25	Test Site	SR7

IEEE 802.11 ____n40____, Ant 0			
Channel No.	Frequency (MHz)	Measure Value(MHz)	Limit (MHz)
38	5190	36.68	--
46	5230	36.62	--

Channel 38 (5190MHz)



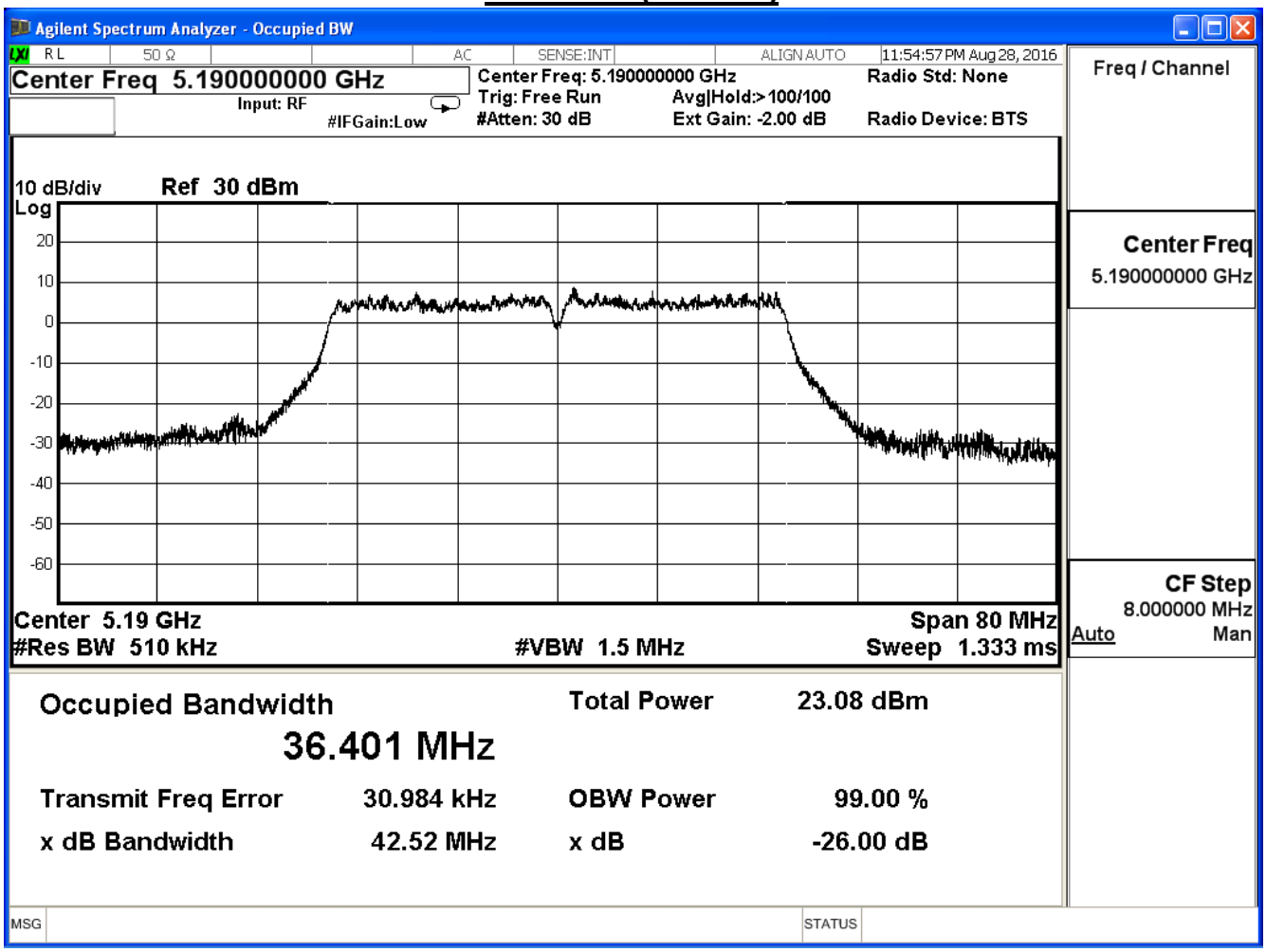
Channel 46 (5230MHz)



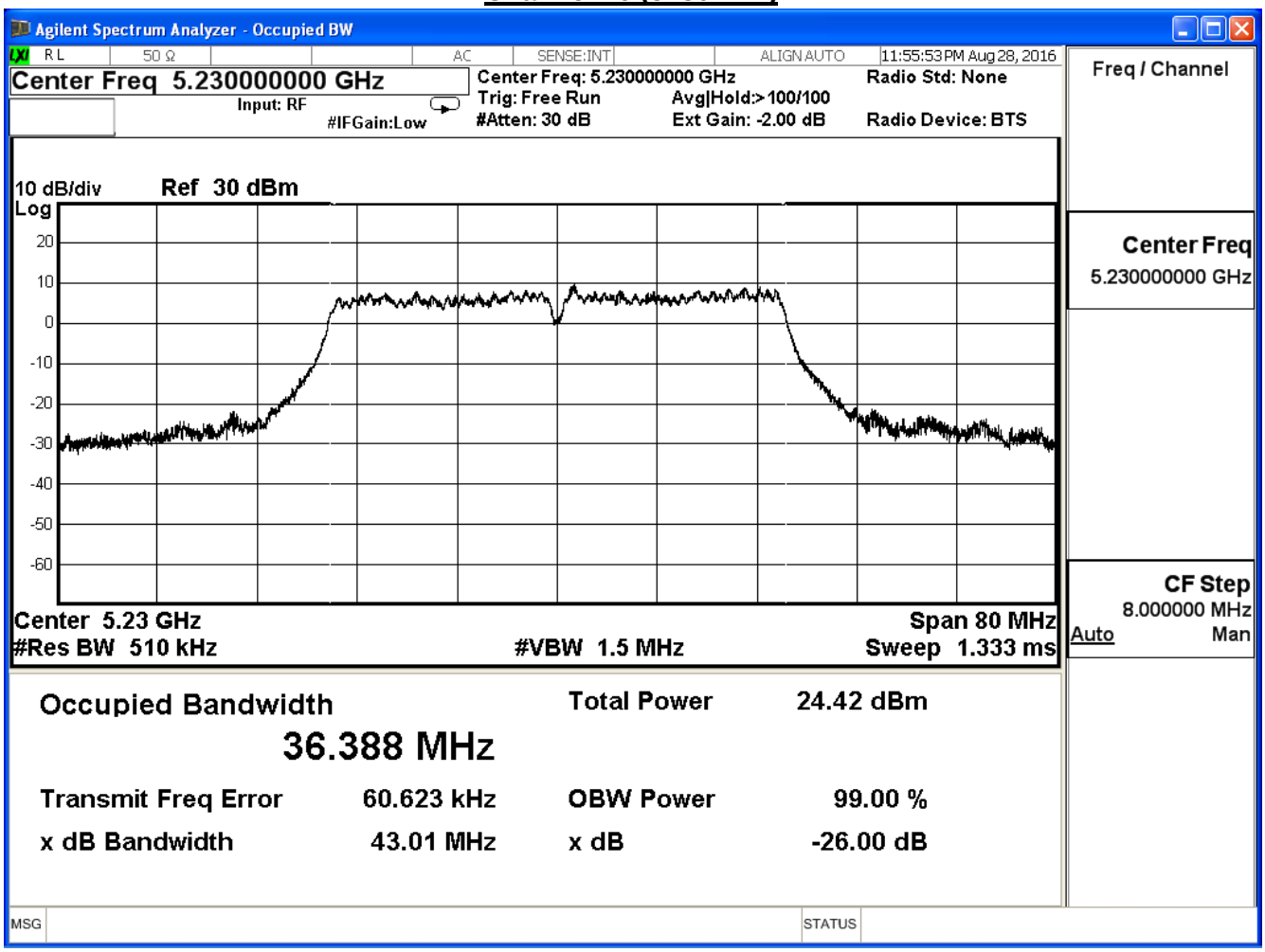
Product	Dual-Band Wireless-AC PCI-E Adapter		
Test Item	99% & 26dB Bandwidth		
Test Mode	Mode 2: Transmit_CDD Mode		
Date of Test	2016/08/25	Test Site	SR7

IEEE 802.11 ____n40____, Ant 1			
Channel No.	Frequency (MHz)	Measure Value(MHz)	Limit (MHz)
38	5190	36.40	--
46	5230	36.39	--

Channel 38 (5190MHz)



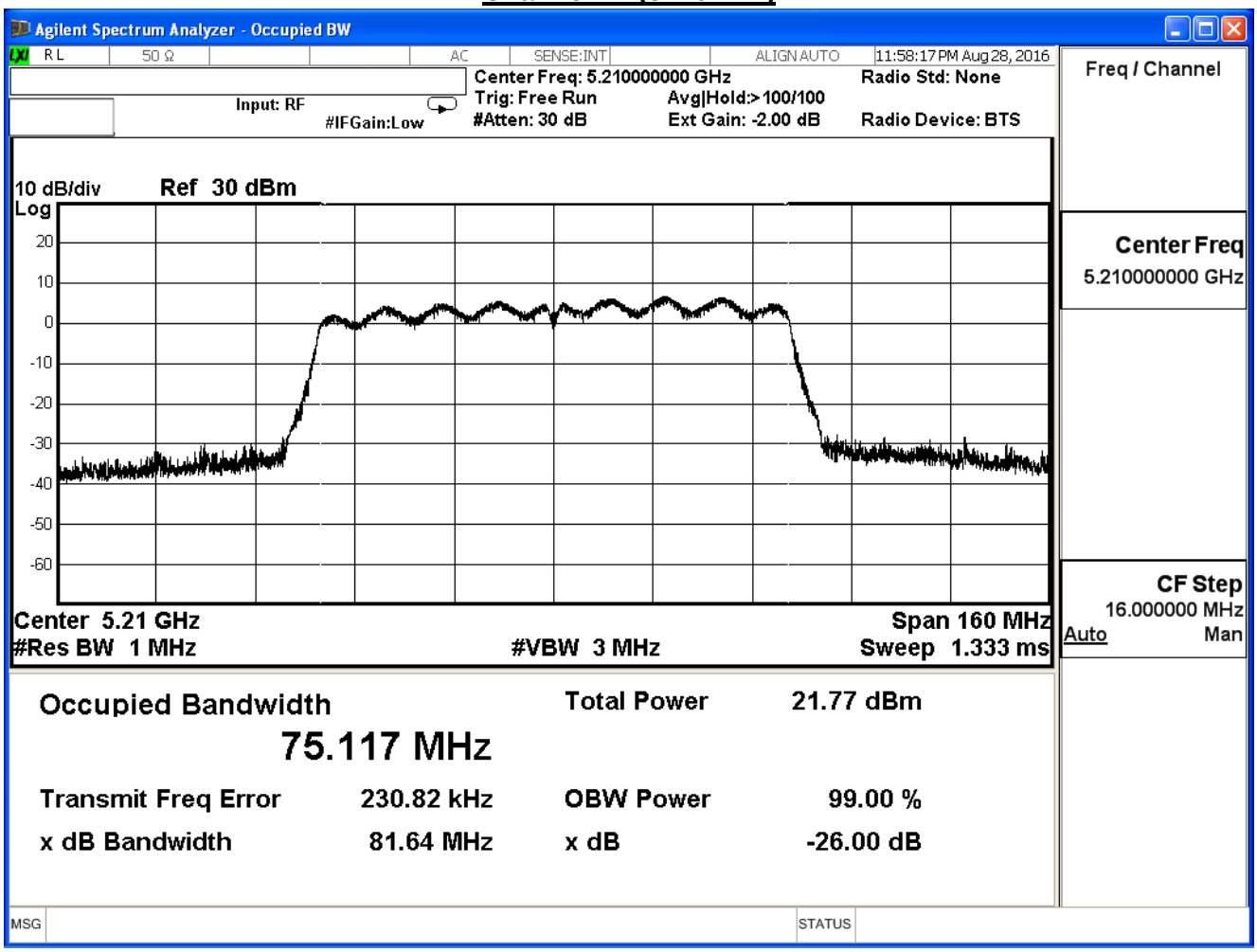
Channel 46 (5230MHz)



Product	Dual-Band Wireless-AC PCI-E Adapter		
Test Item	99% & 26dB Bandwidth		
Test Mode	Mode 2: Transmit_CDD Mode		
Date of Test	2016/08/25	Test Site	SR7

IEEE 802.11 ____ac80____, Ant 0			
Channel No.	Frequency (MHz)	Measure Value(MHz)	Limit (MHz)
42	5210	75.12	--

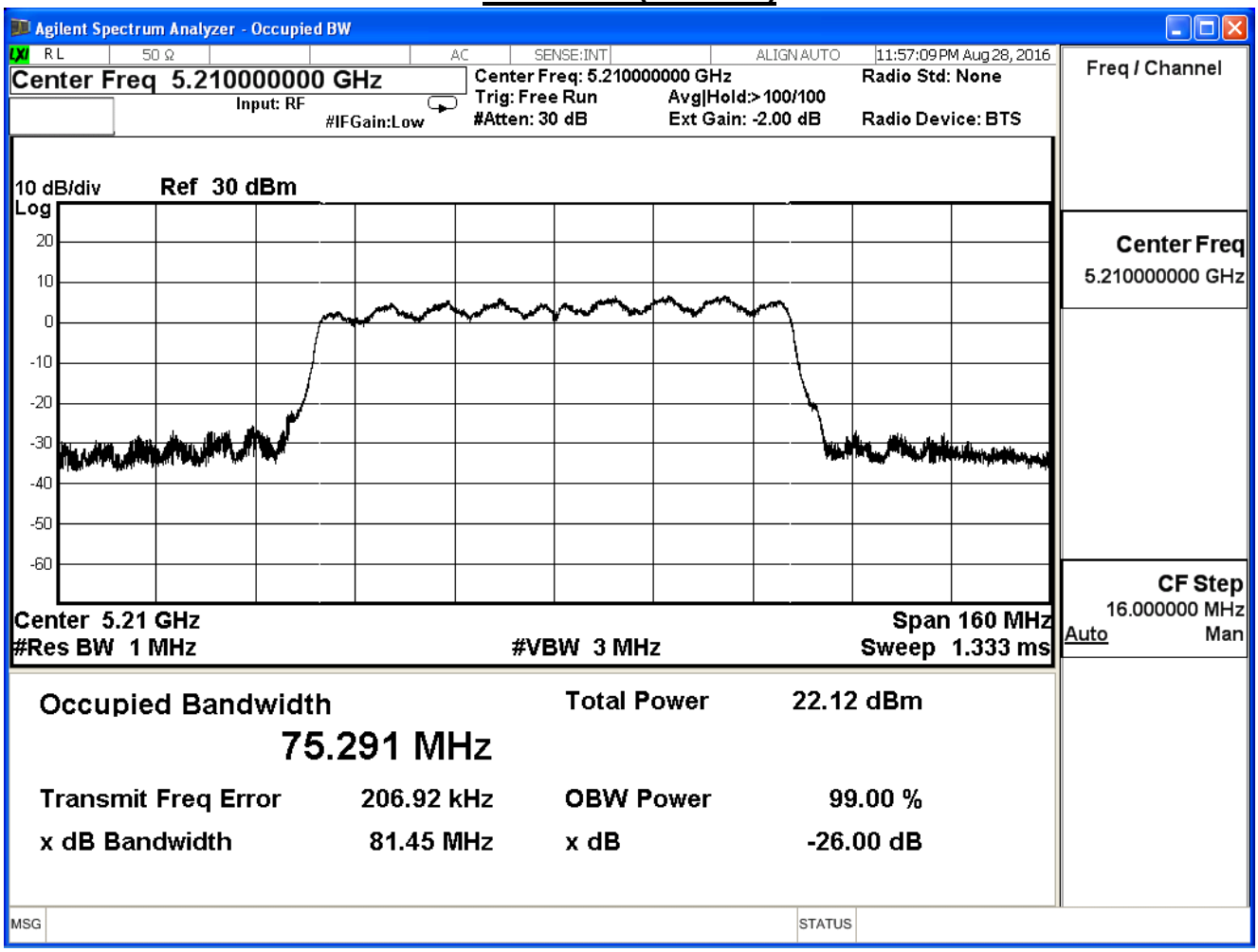
Channel 42 (5210MHz)



Product	Dual-Band Wireless-AC PCI-E Adapter		
Test Item	99% & 26dB Bandwidth		
Test Mode	Mode 2: Transmit_CDD Mode		
Date of Test	2016/08/25	Test Site	SR7

IEEE 802.11 ____ac80____, Ant 1			
Channel No.	Frequency (MHz)	Measure Value(MHz)	Limit (MHz)
42	5210	75.29	--

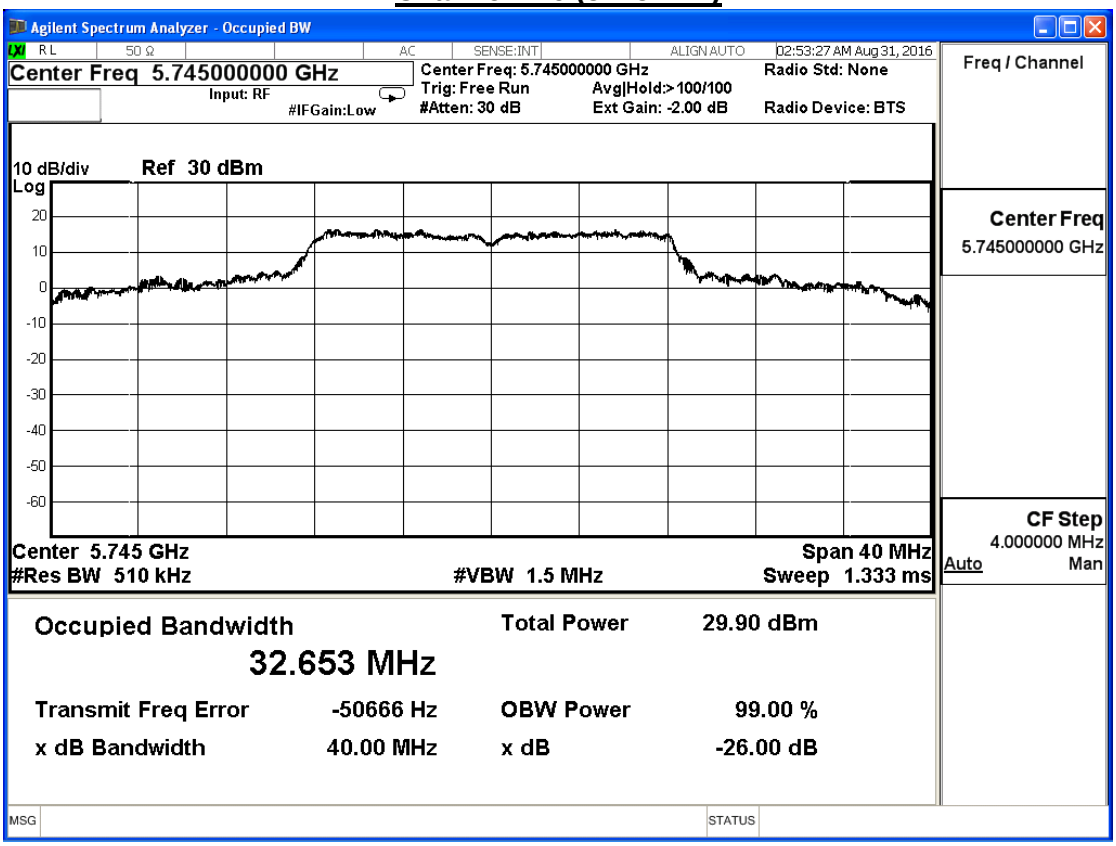
Channel 42 (5210MHz)



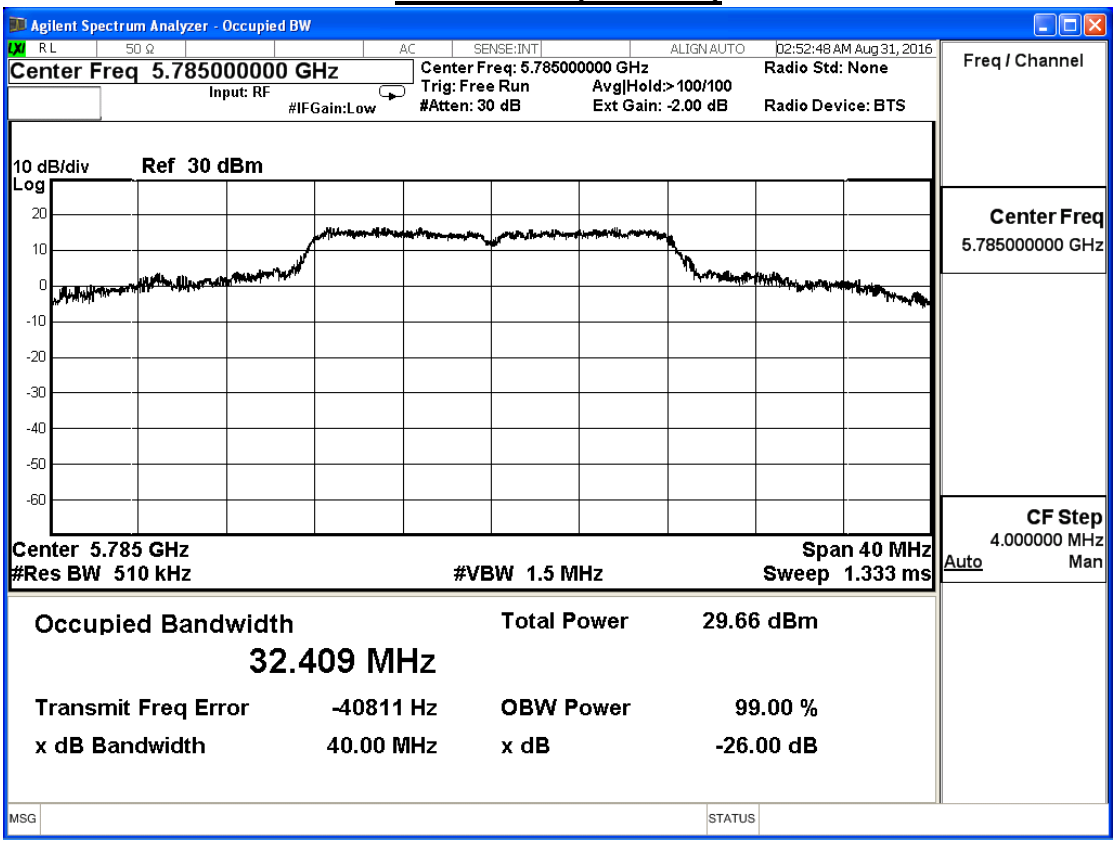
Product	Dual-Band Wireless-AC PCI-E Adapter		
Test Item	99% & 26dB Bandwidth		
Test Mode	Mode 1: Transmit_SISO Mode		
Date of Test	2016/08/25	Test Site	SR7

IEEE 802.11 ____a____, Ant 0			
Channel No.	Frequency (MHz)	Measure Value(MHz)	Limit (MHz)
149	5745	32.65	--
157	5785	32.41	--
165	5825	32.25	--

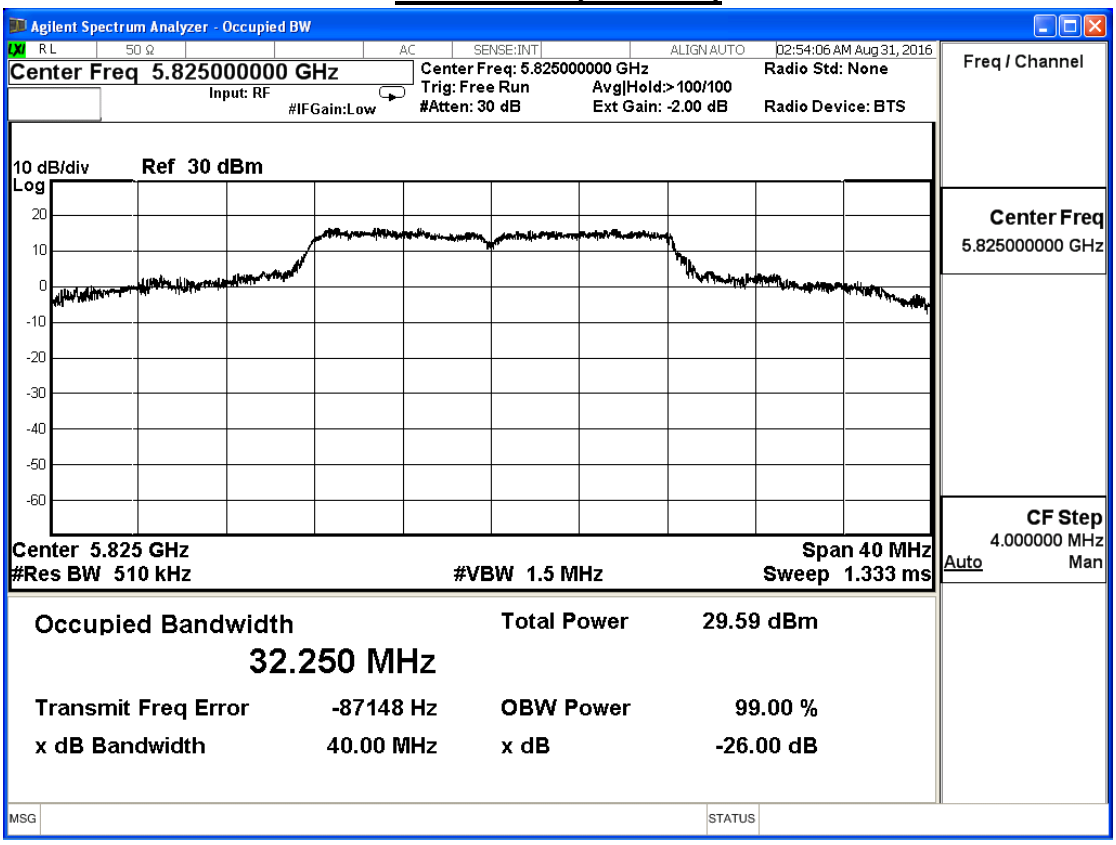
Channel 149 (5745MHz)



Channel 157 (5785MHz)



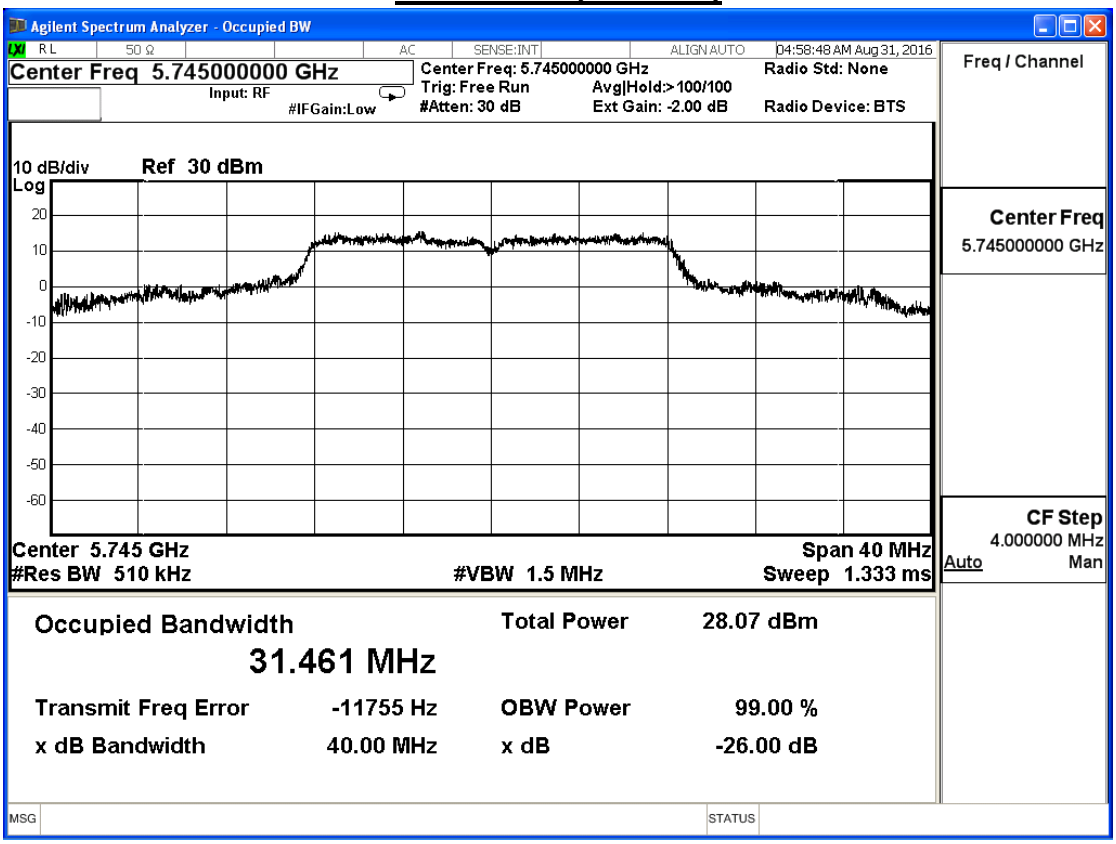
Channel 165 (5825MHz)



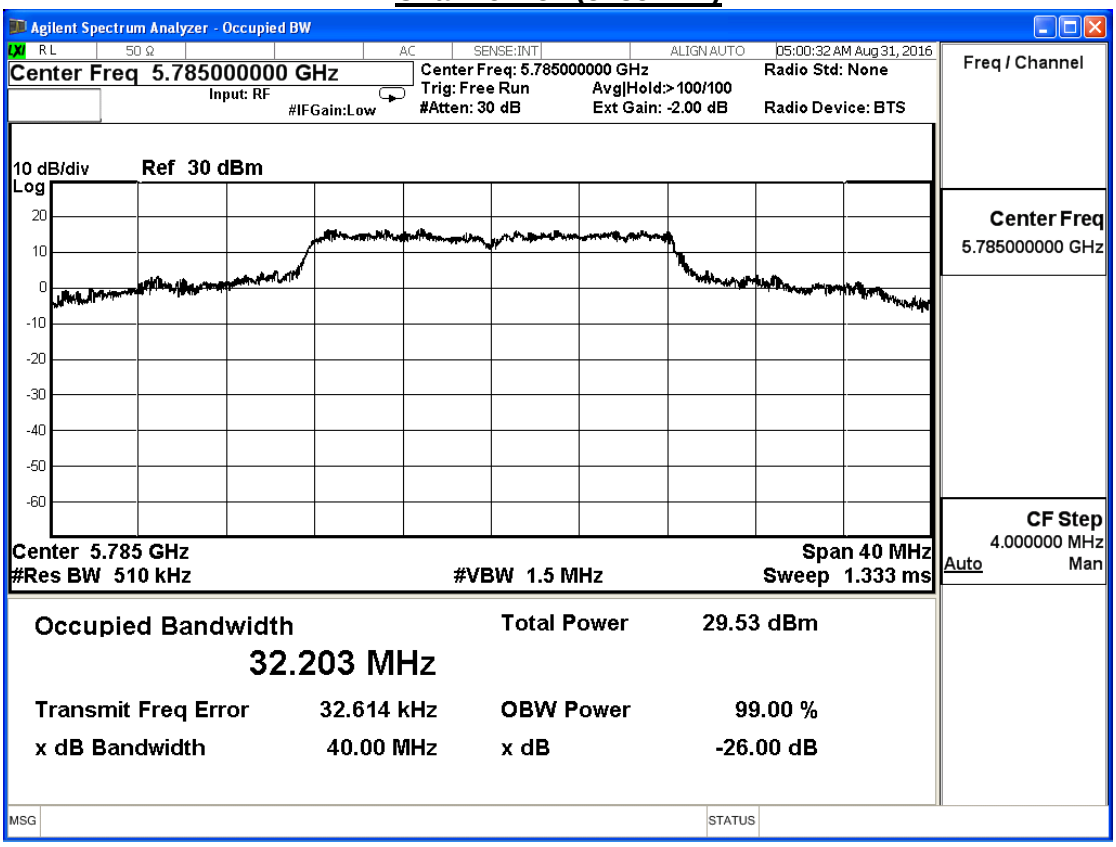
Product	Dual-Band Wireless-AC PCI-E Adapter		
Test Item	99% & 26dB Bandwidth		
Test Mode	Mode 1: Transmit_SISO Mode		
Date of Test	2016/08/25	Test Site	SR7

IEEE 802.11 ____a____, Ant 1			
Channel No.	Frequency (MHz)	Measure Value(MHz)	Limit (MHz)
149	5745	31.46	--
157	5785	32.20	--
165	5825	32.06	--

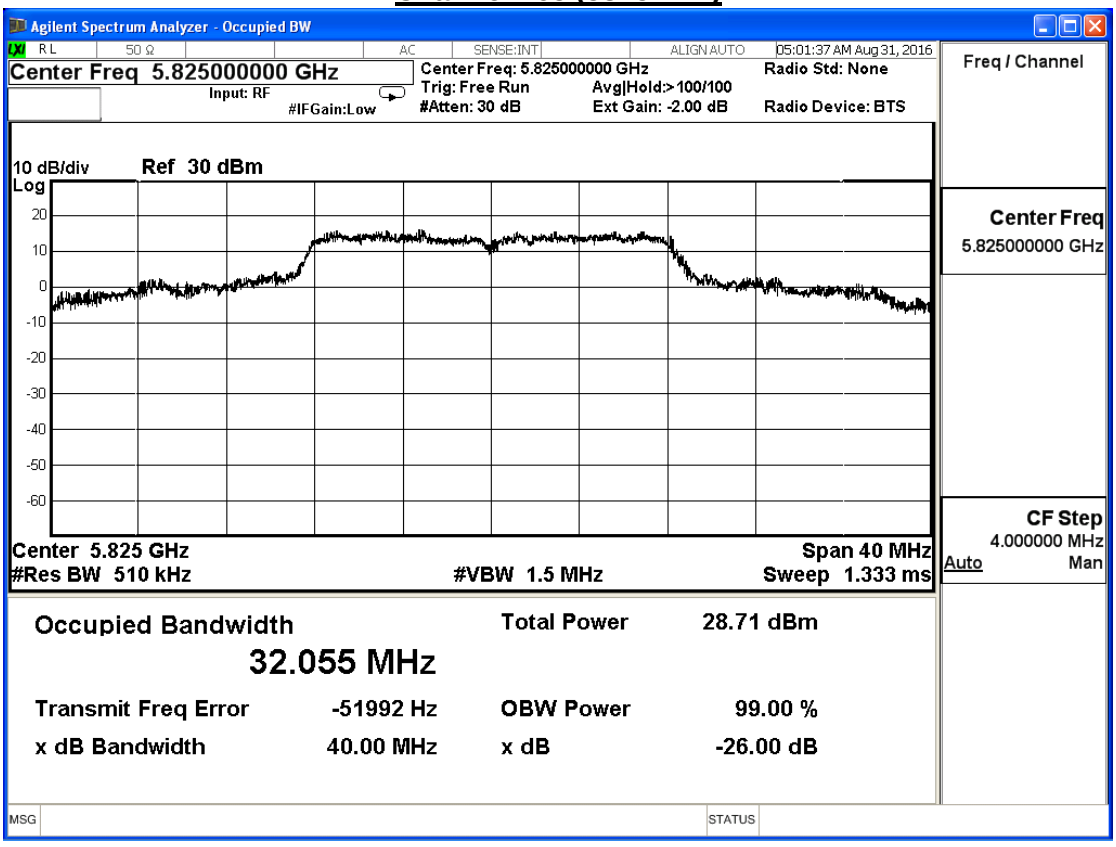
Channel 149 (5745MHz)



Channel 157 (5785MHz)



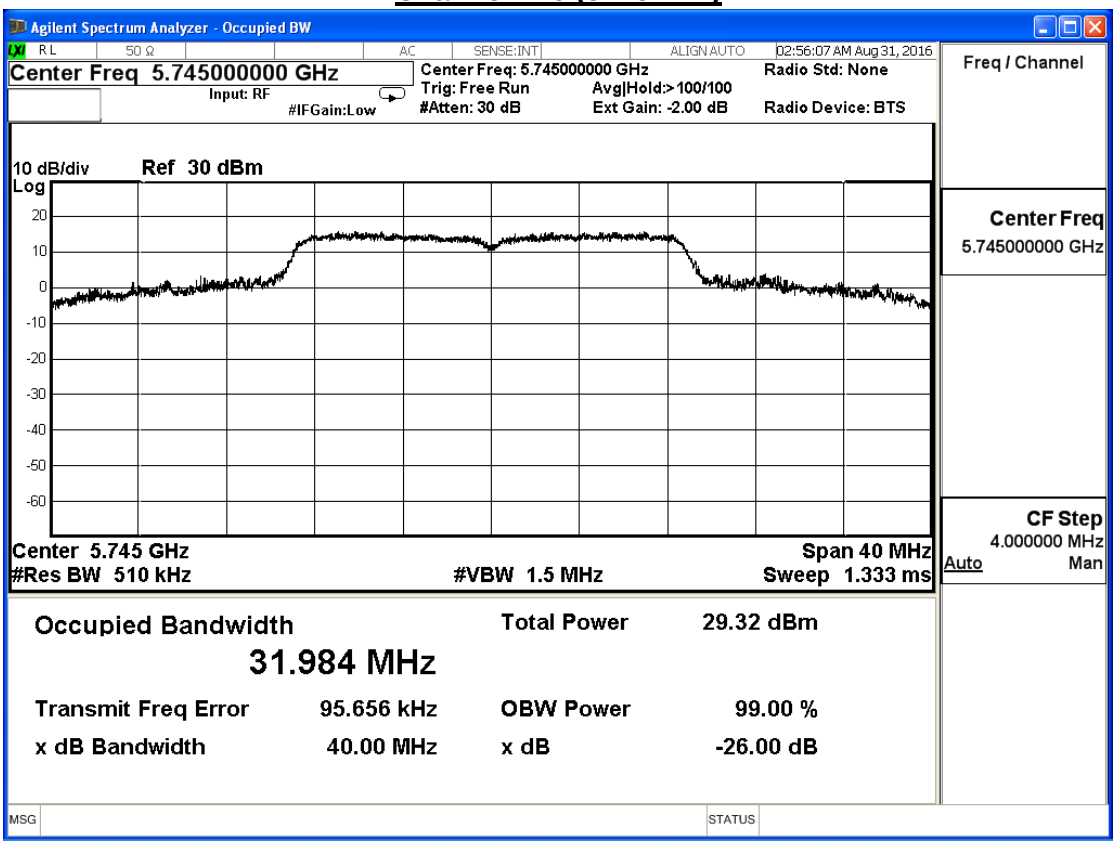
Channel 165 (5825MHz)



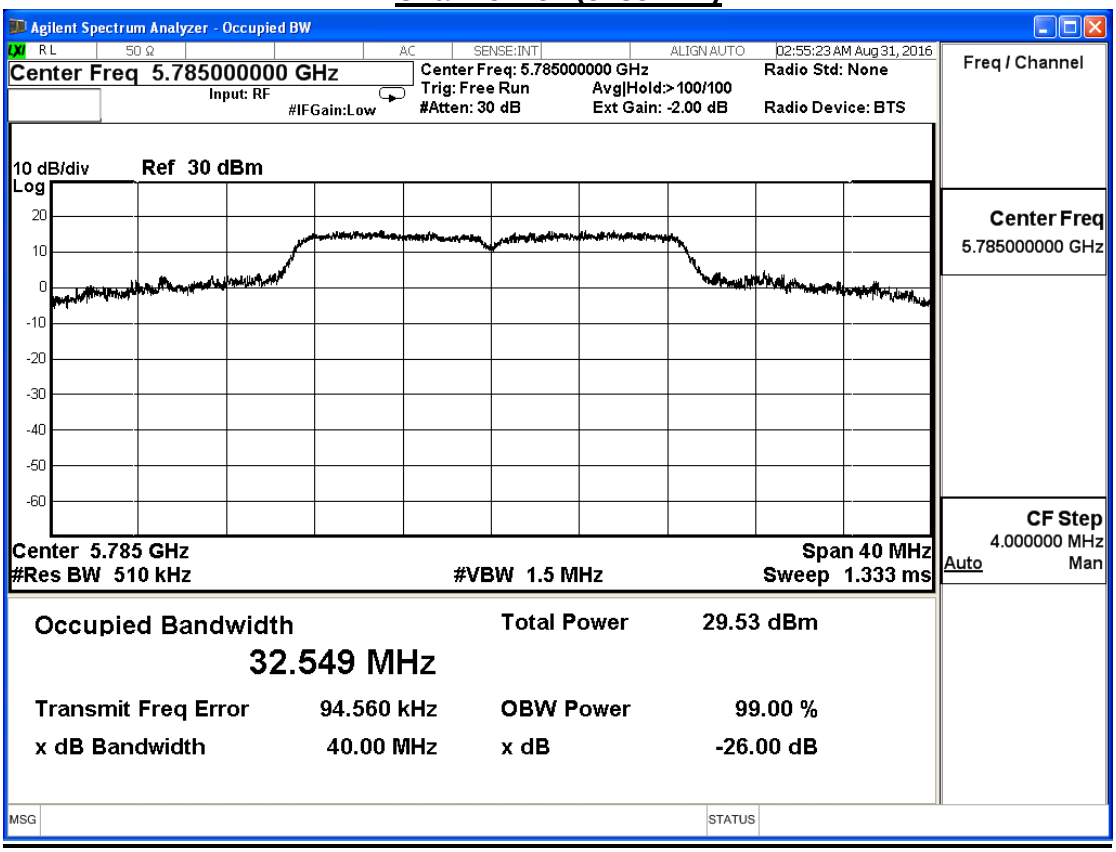
Product	Dual-Band Wireless-AC PCI-E Adapter		
Test Item	99% & 26dB Bandwidth		
Test Mode	Mode 2: Transmit_CDD Mode		
Date of Test	2016/08/25	Test Site	SR7

IEEE 802.11 ____n20____, Ant 0			
Channel No.	Frequency (MHz)	Measure Value(MHz)	Limit (MHz)
149	5745	31.98	--
157	5785	32.55	--
165	5825	31.82	--

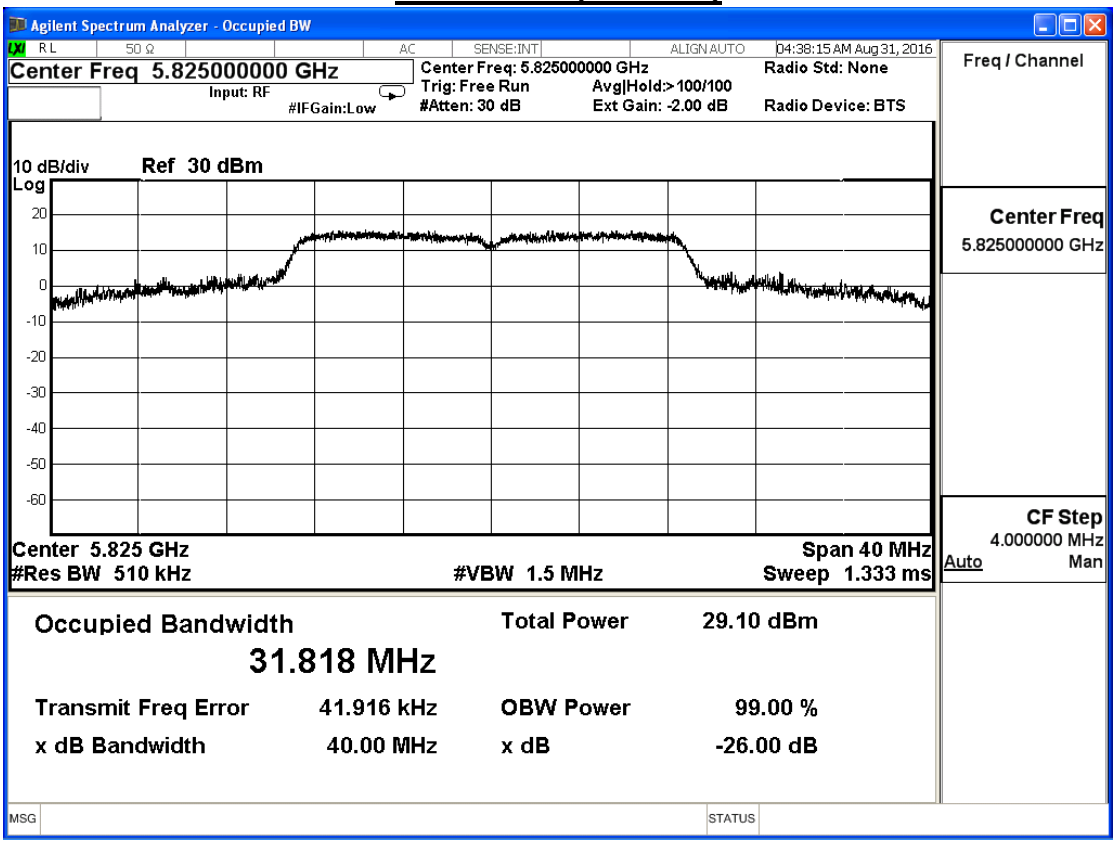
Channel 149 (5745MHz)



Channel 157 (5785MHz)



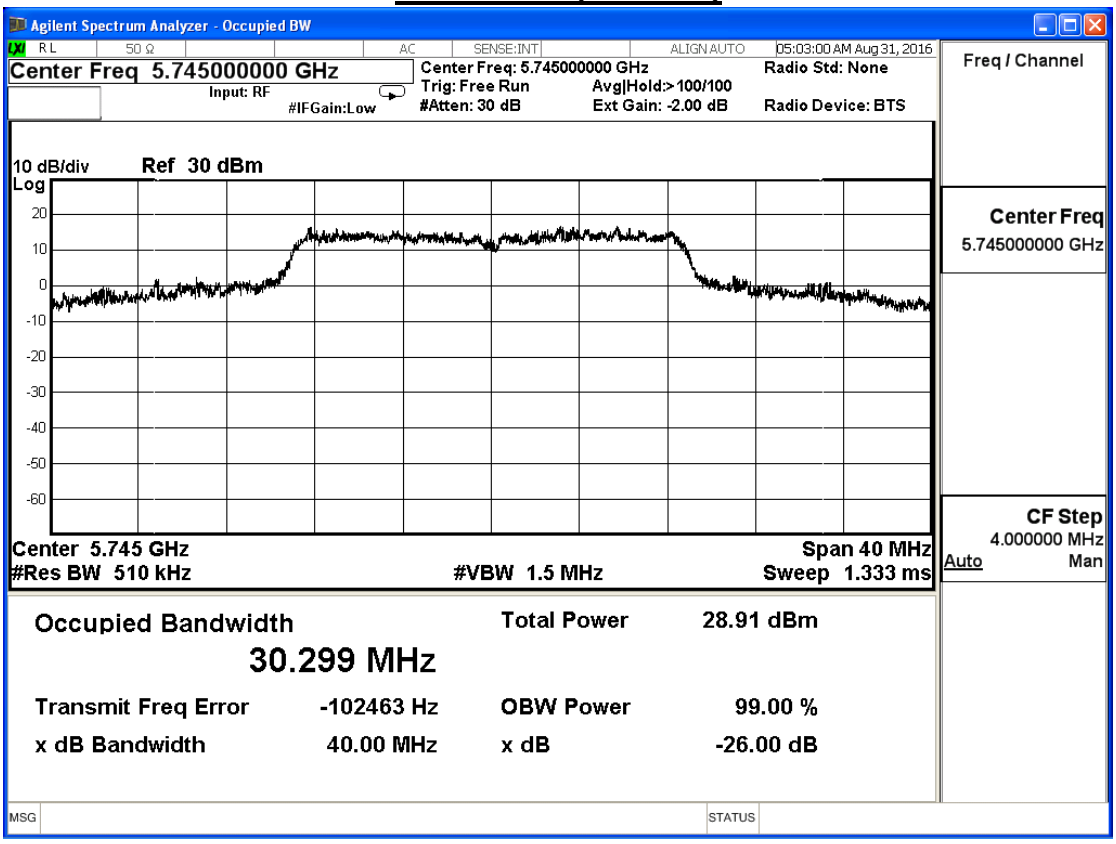
Channel 165 (5825MHz)



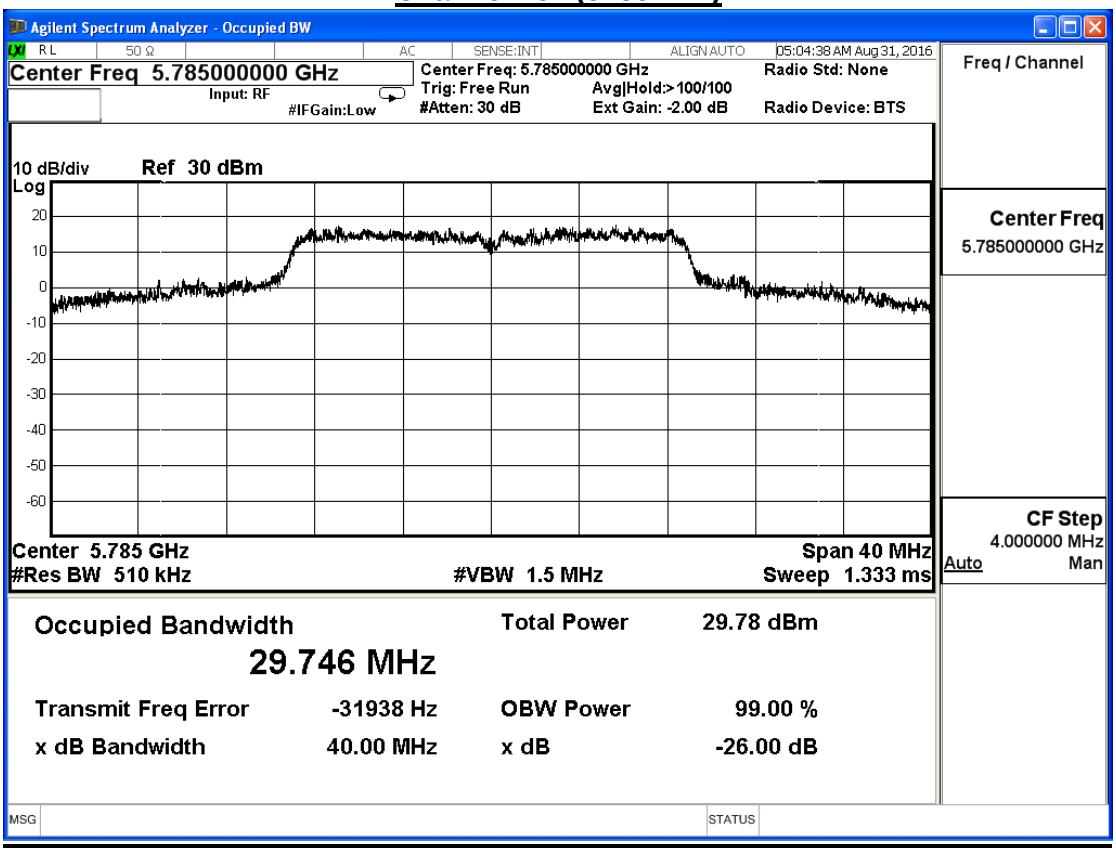
Product	Dual-Band Wireless-AC PCI-E Adapter		
Test Item	99% & 26dB Bandwidth		
Test Mode	Mode 2: Transmit_CDD Mode		
Date of Test	2016/08/25	Test Site	SR7

IEEE 802.11 ____n20____, Ant 1			
Channel No.	Frequency (MHz)	Measure Value(MHz)	Limit (MHz)
149	5745	30.30	--
157	5785	29.75	--
165	5825	30.42	--

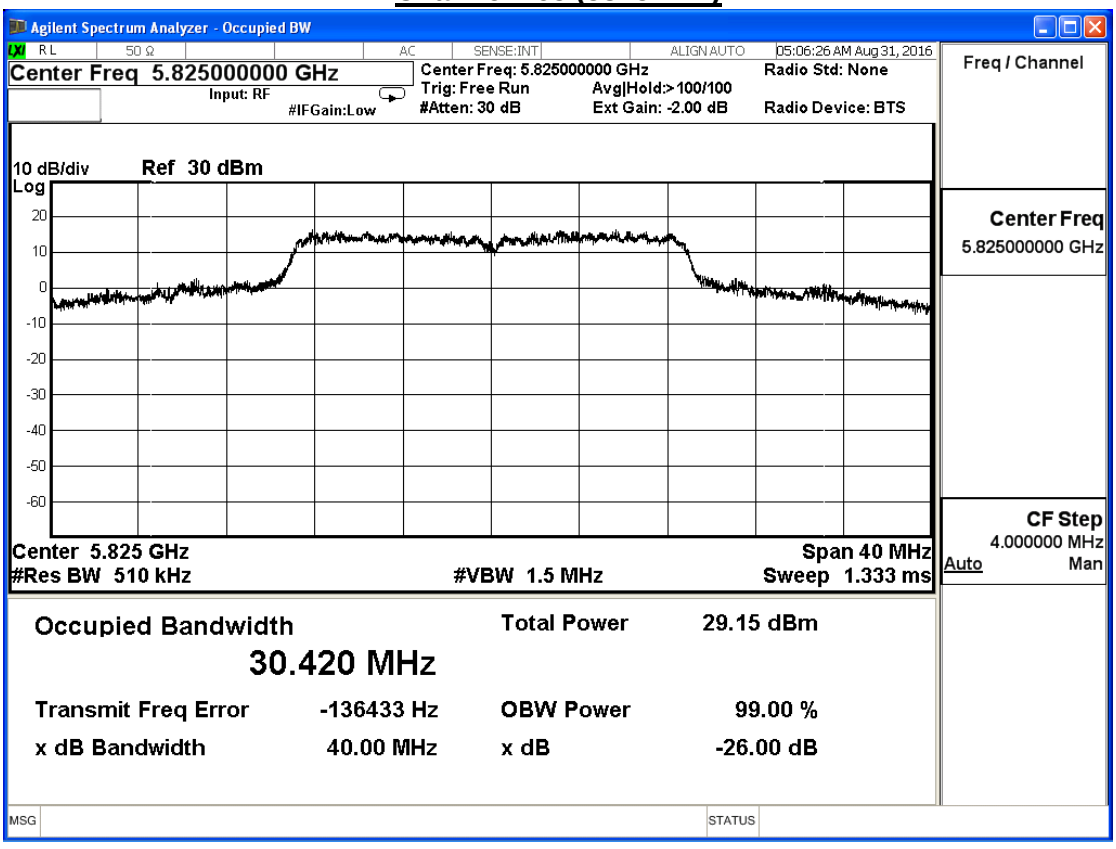
Channel 149 (5745MHz)



Channel 157 (5785MHz)



Channel 165 (5825MHz)

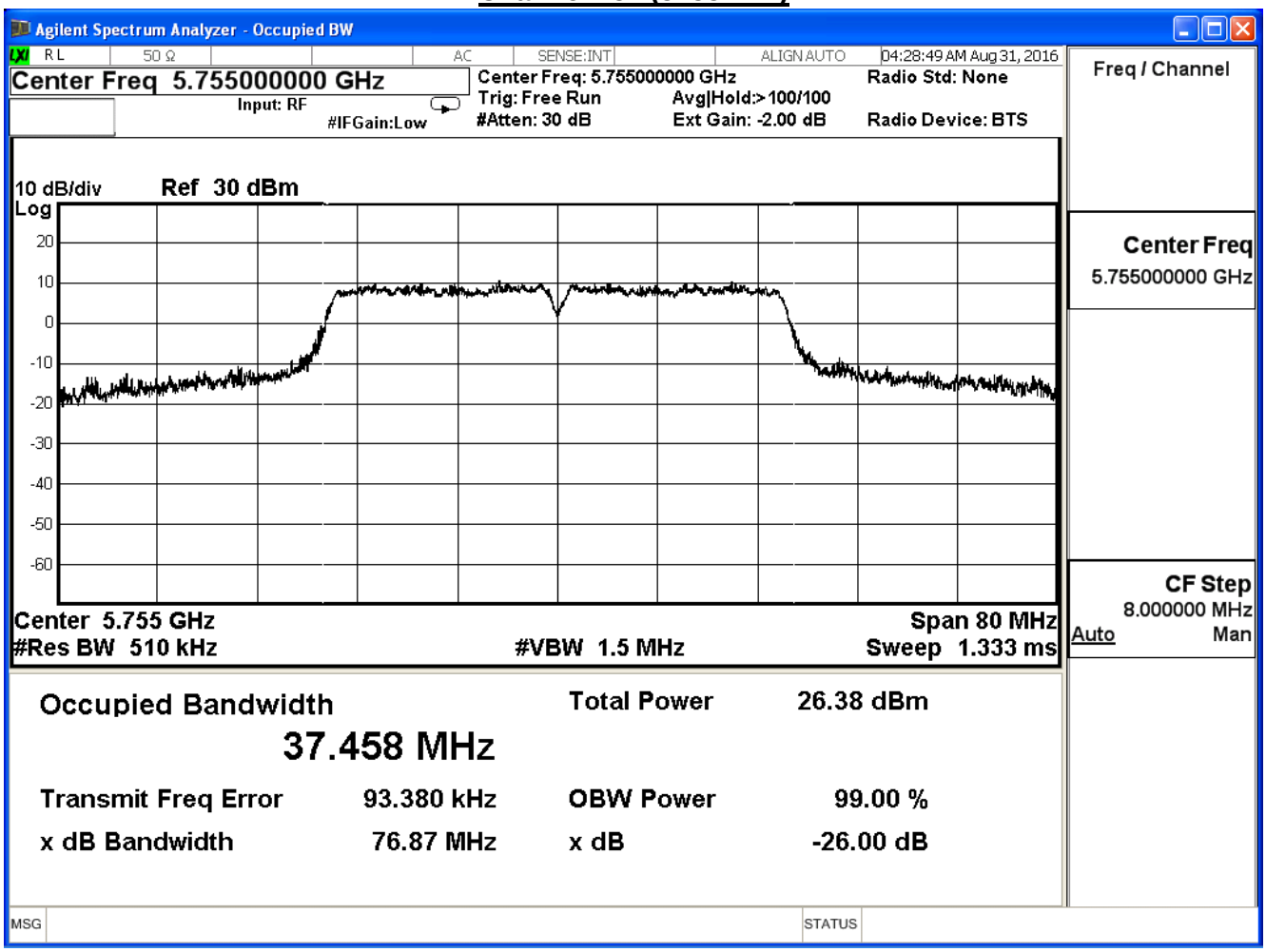


Product	Dual-Band Wireless-AC PCI-E Adapter		
Test Item	99% & 26dB Bandwidth		
Test Mode	Mode 2: Transmit_CDD Mode		
Date of Test	2016/08/25	Test Site	SR7

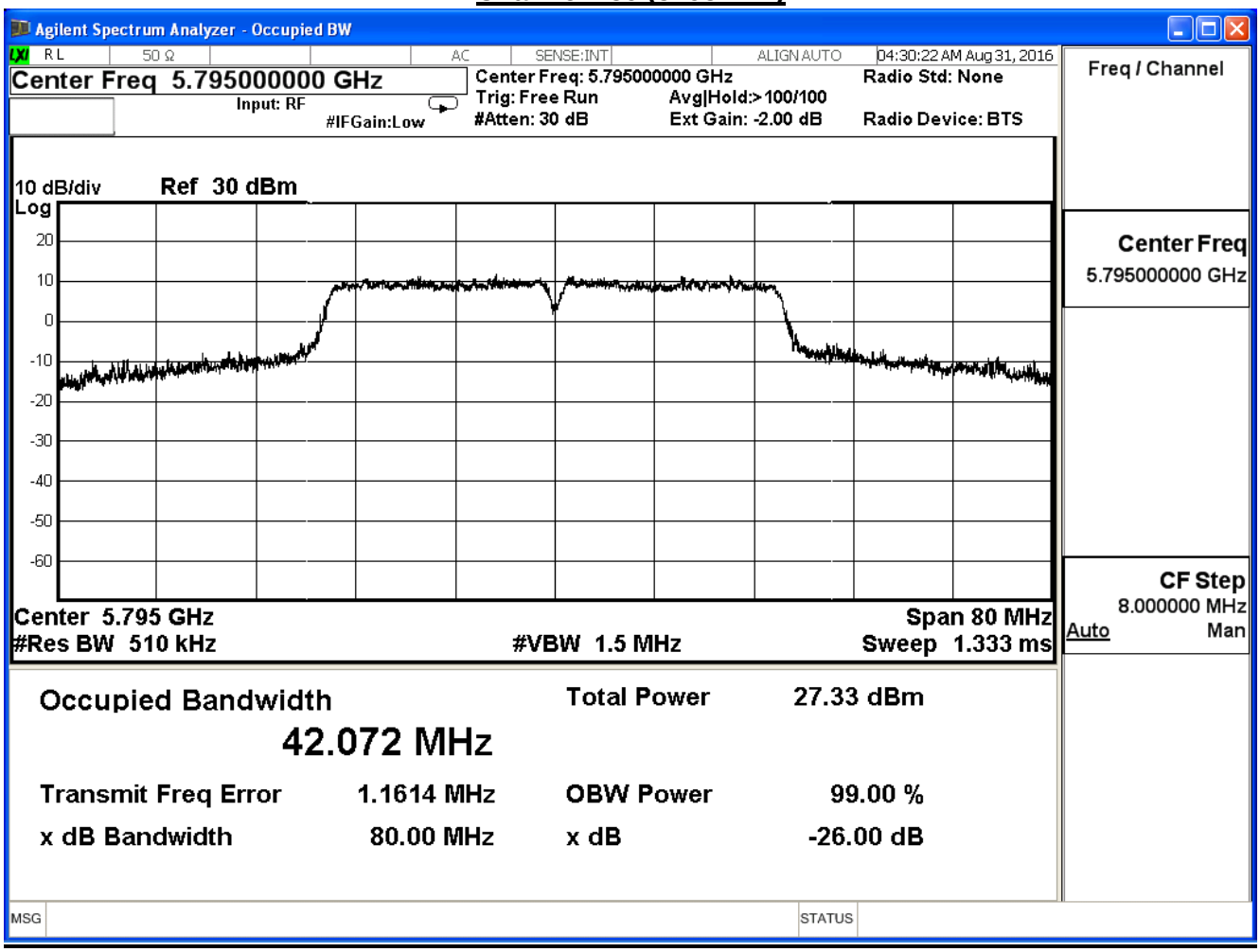
IEEE 802.11 ____n40____, Ant 0

Channel No.	Frequency (MHz)	Measure Value(MHz)	Limit (MHz)
151	5755	37.46	--
159	5795	42.07	--

Channel 151 (5755MHz)



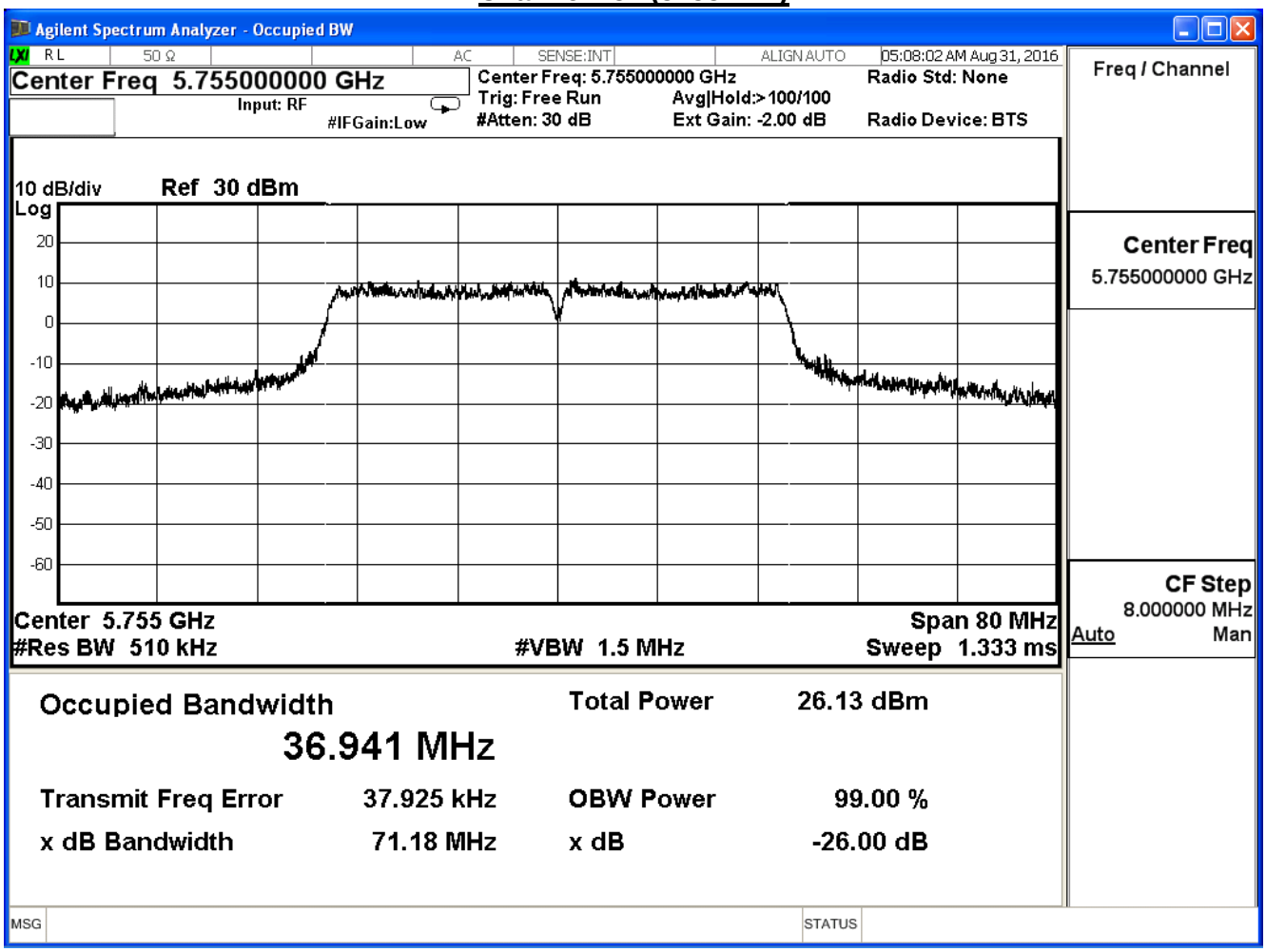
Channel 159 (5795MHz)



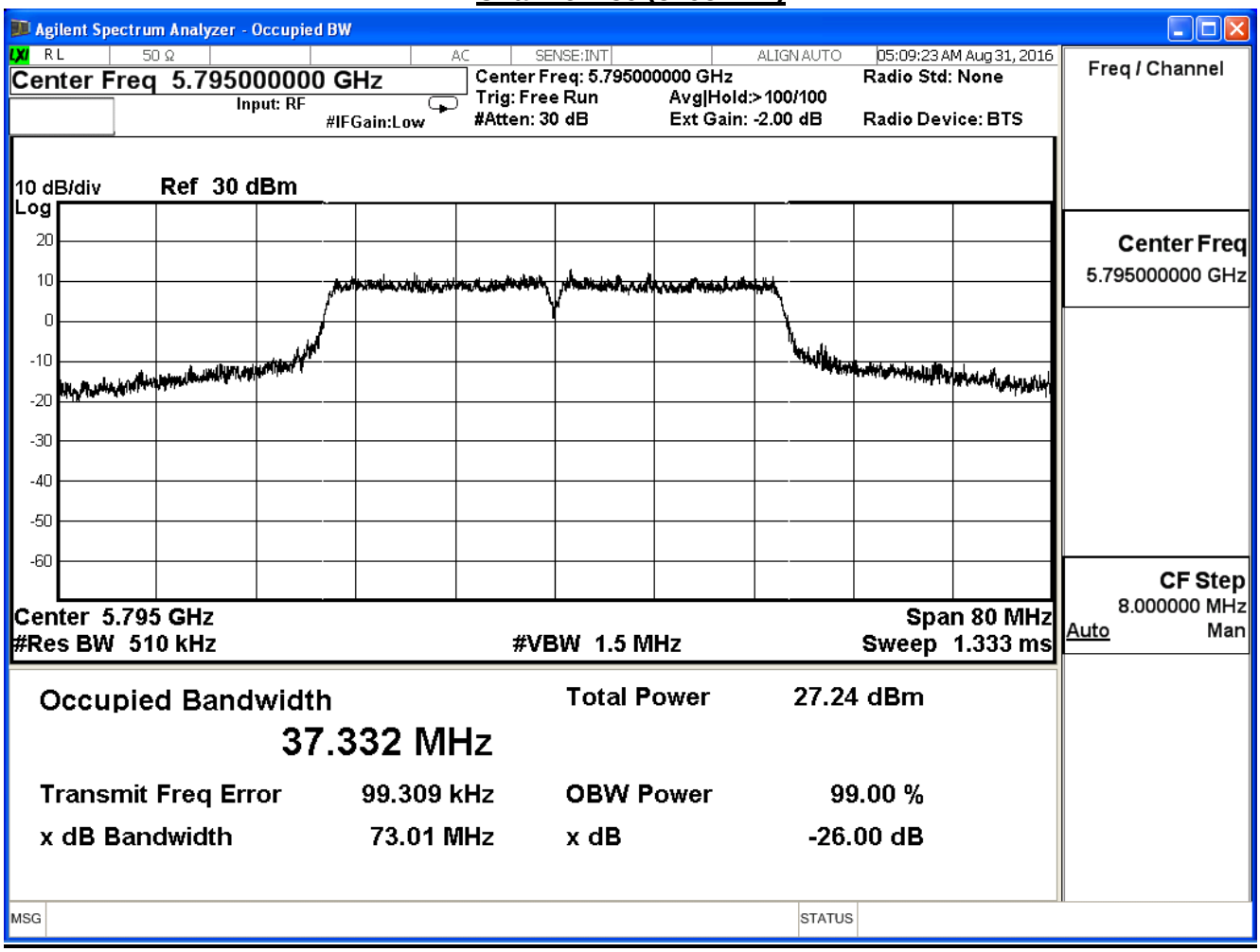
Product	Dual-Band Wireless-AC PCI-E Adapter		
Test Item	99% & 26dB Bandwidth		
Test Mode	Mode 2: Transmit_CDD Mode		
Date of Test	2016/08/25	Test Site	SR7

IEEE 802.11 ____n40____, Ant 1			
Channel No.	Frequency (MHz)	Measure Value(MHz)	Limit (MHz)
151	5755	36.94	--
159	5795	37.33	--

Channel 151 (5755MHz)



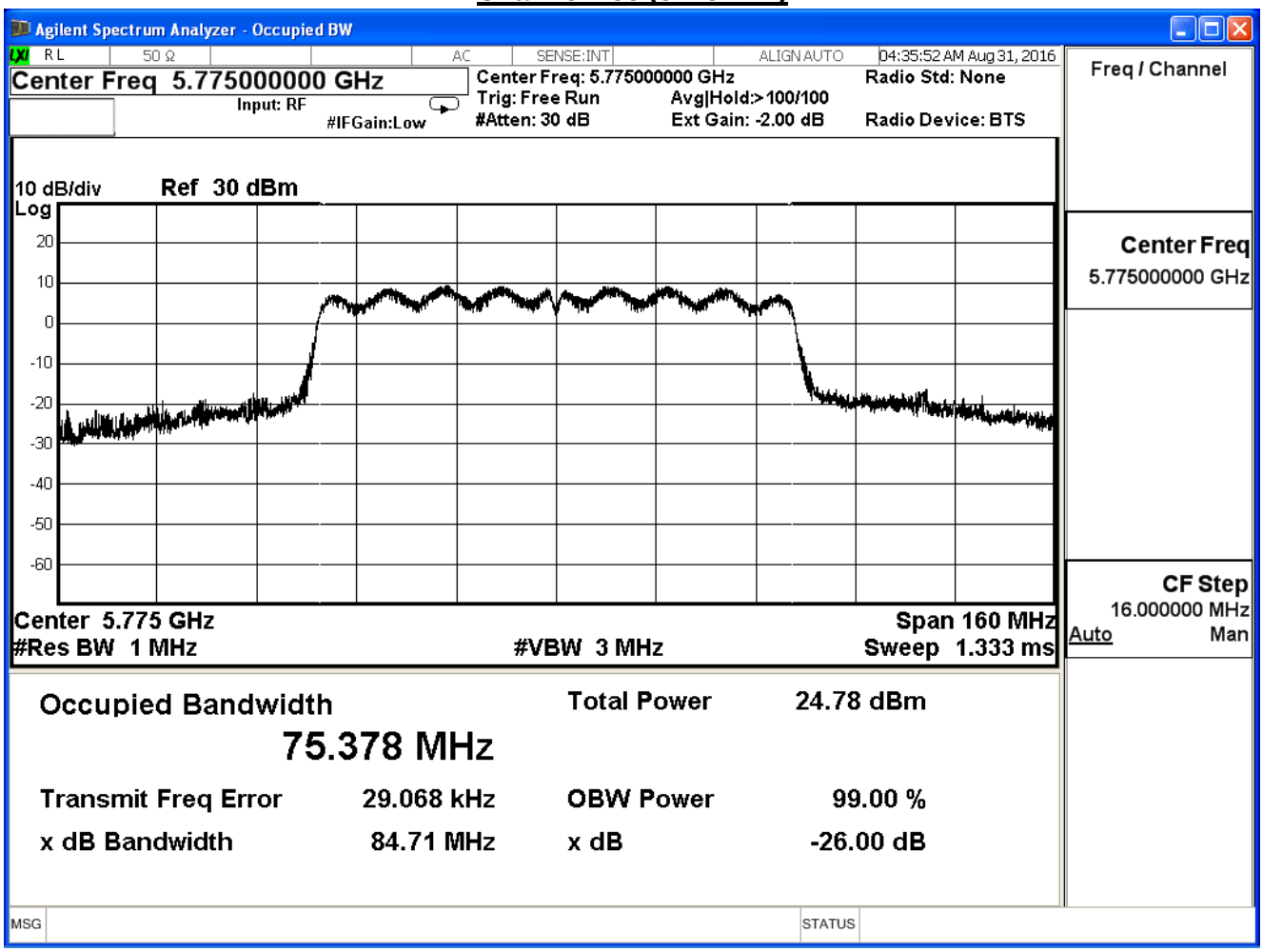
Channel 159 (5795MHz)



Product	Dual-Band Wireless-AC PCI-E Adapter		
Test Item	99% & 26dB Bandwidth		
Test Mode	Mode 2: Transmit_CDD Mode		
Date of Test	2016/08/25	Test Site	SR7

IEEE 802.11 ____ac80____, Ant 0			
Channel No.	Frequency (MHz)	Measure Value(MHz)	Limit (MHz)
155	5775	75.38	--

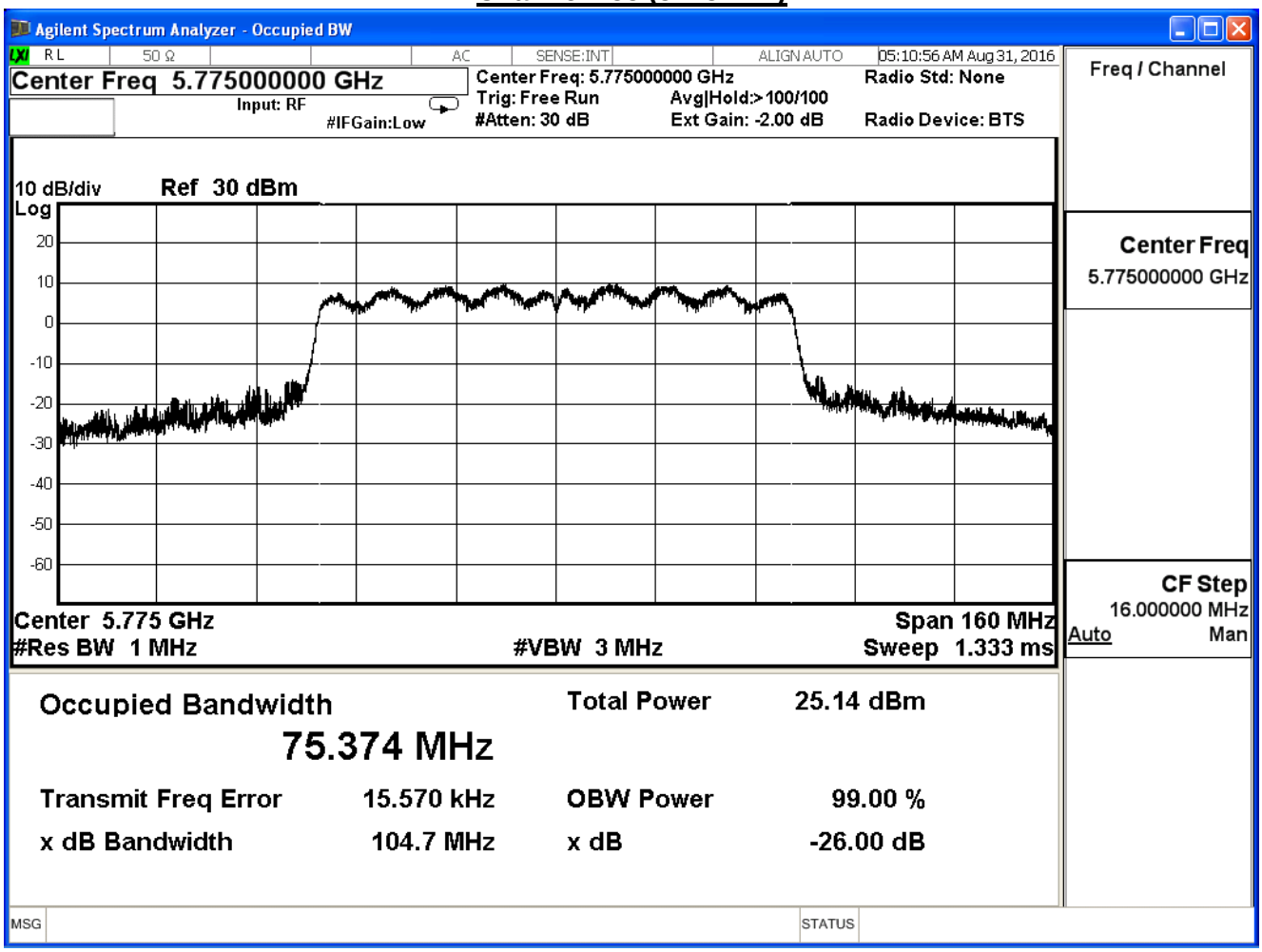
Channel 155 (5775MHz)



Product	Dual-Band Wireless-AC PCI-E Adapter		
Test Item	99% & 26dB Bandwidth		
Test Mode	Mode 2: Transmit_CDD Mode		
Date of Test	2016/08/25	Test Site	SR7

IEEE 802.11 ____ac80____, Ant 1			
Channel No.	Frequency (MHz)	Measure Value(MHz)	Limit (MHz)
155	5775	75.37	--

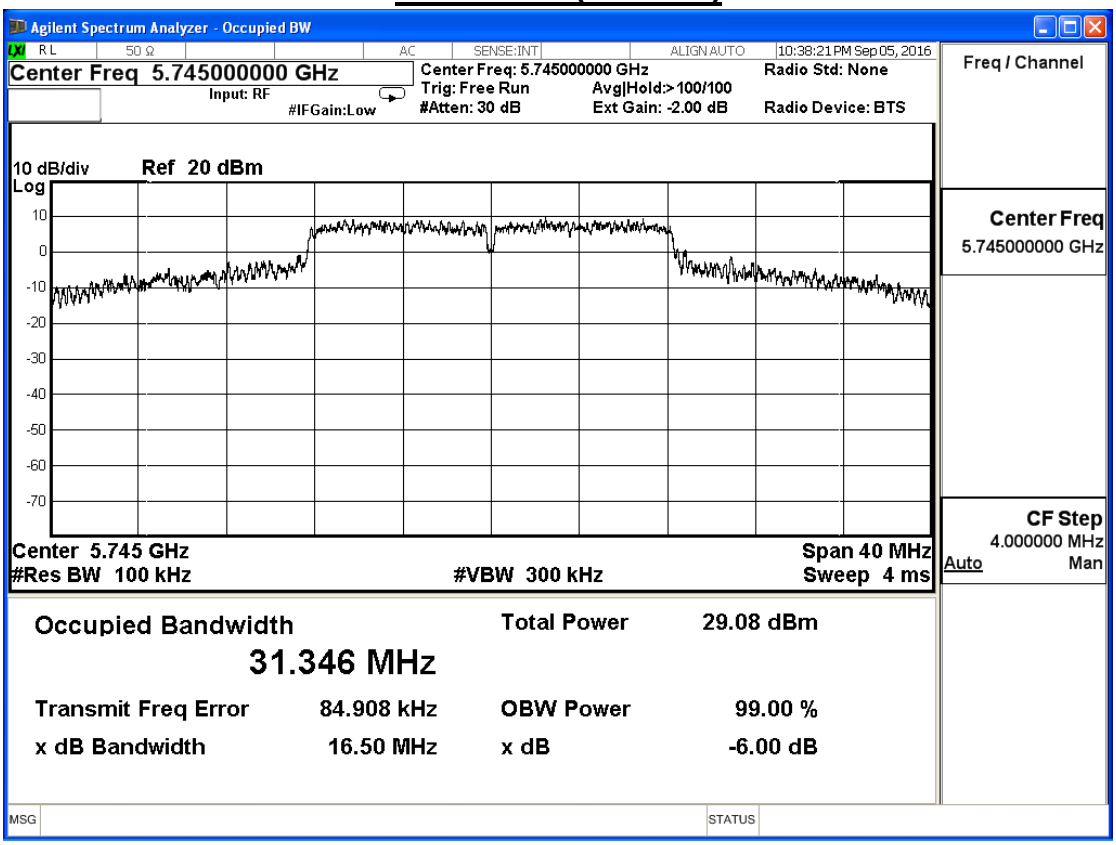
Channel 155 (5775MHz)



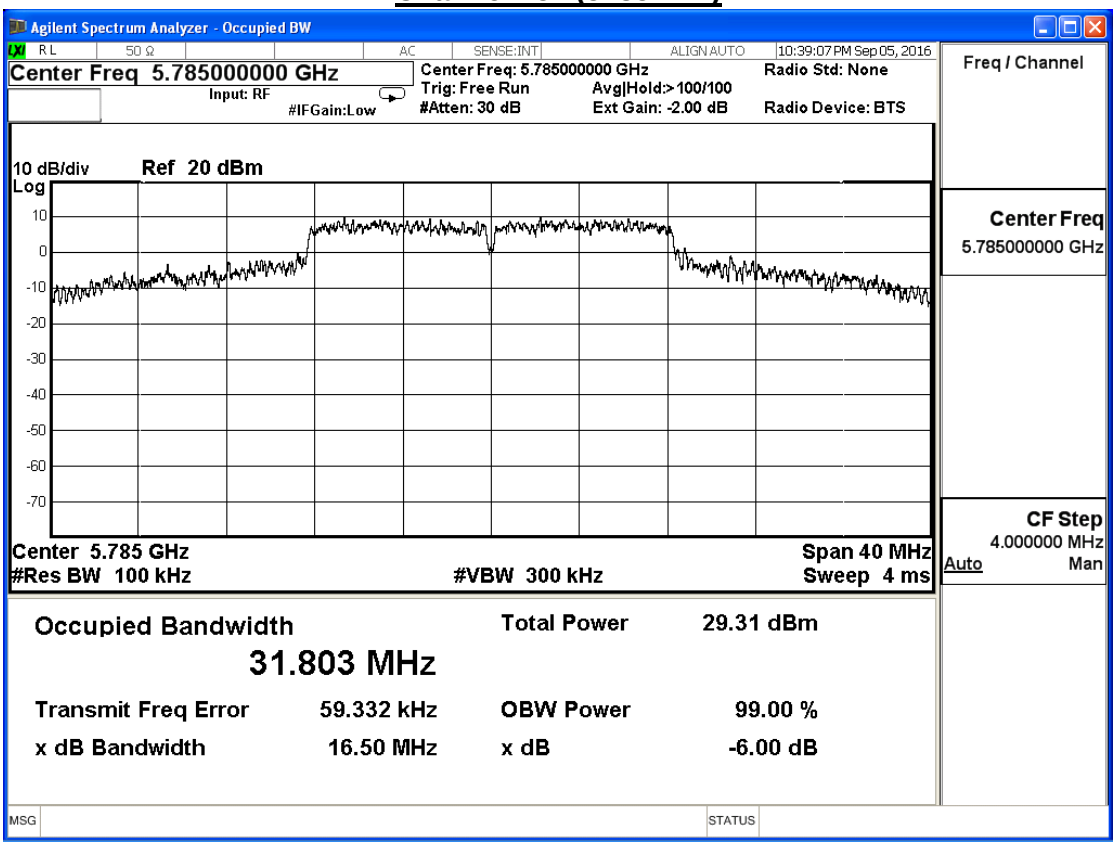
Product	Dual-Band Wireless-AC PCI-E Adapter		
Test Item	DTS Bandwidth		
Test Mode	Mode 1: Transmit_SISO Mode		
Date of Test	2016/09/02	Test Site	SR7

802.11a(ANT 0)				
Channel No.	Frequency (MHz)	Measure Level (MHz)	Limit (MHz)	Result
149	5745	16.50	≧0.5	Pass
157	5785	16.50	≧0.5	Pass
165	5825	16.51	≧0.5	Pass

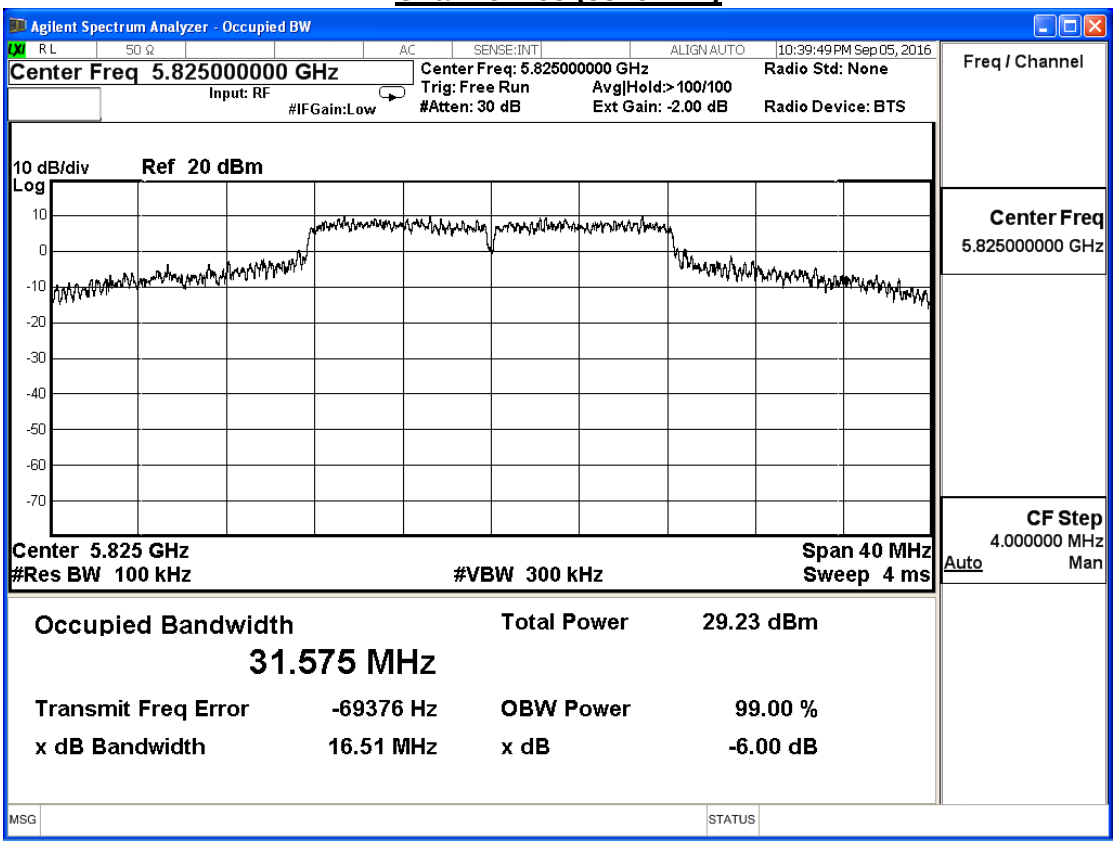
Channel 149 (5745MHz)



Channel 157 (5785MHz)



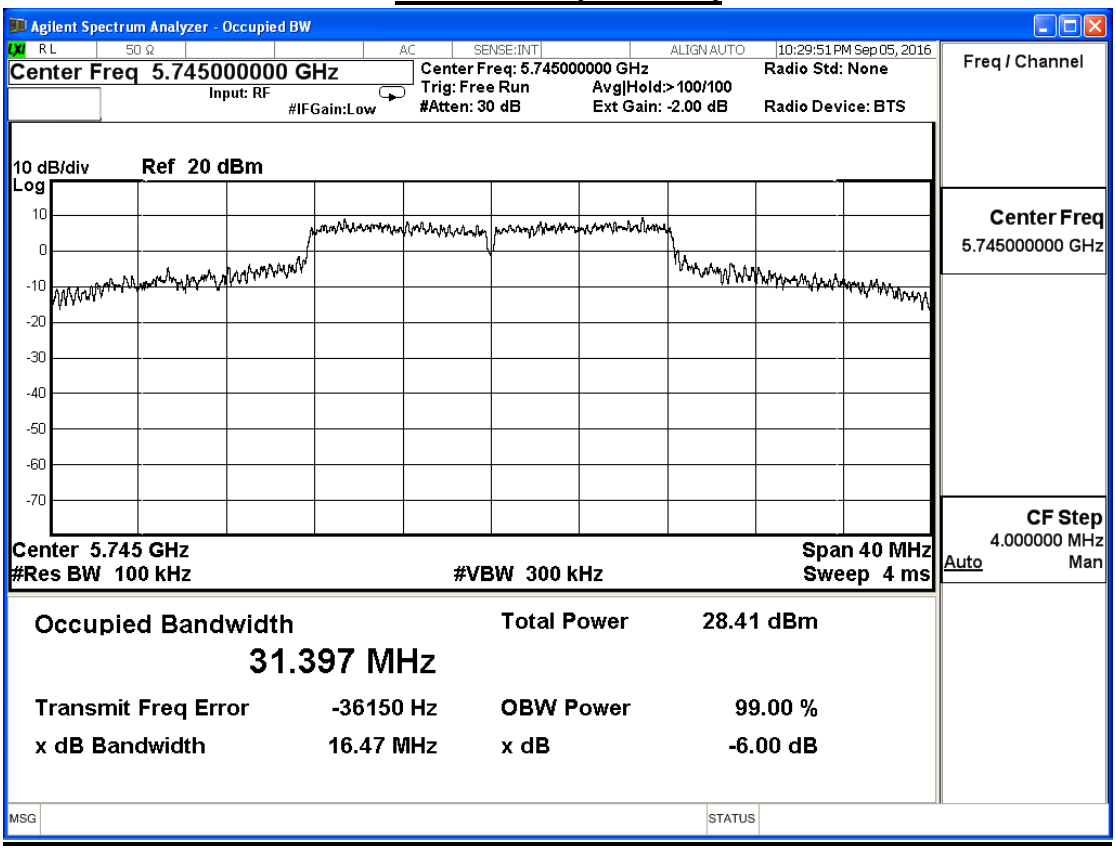
Channel 165 (5825MHz)



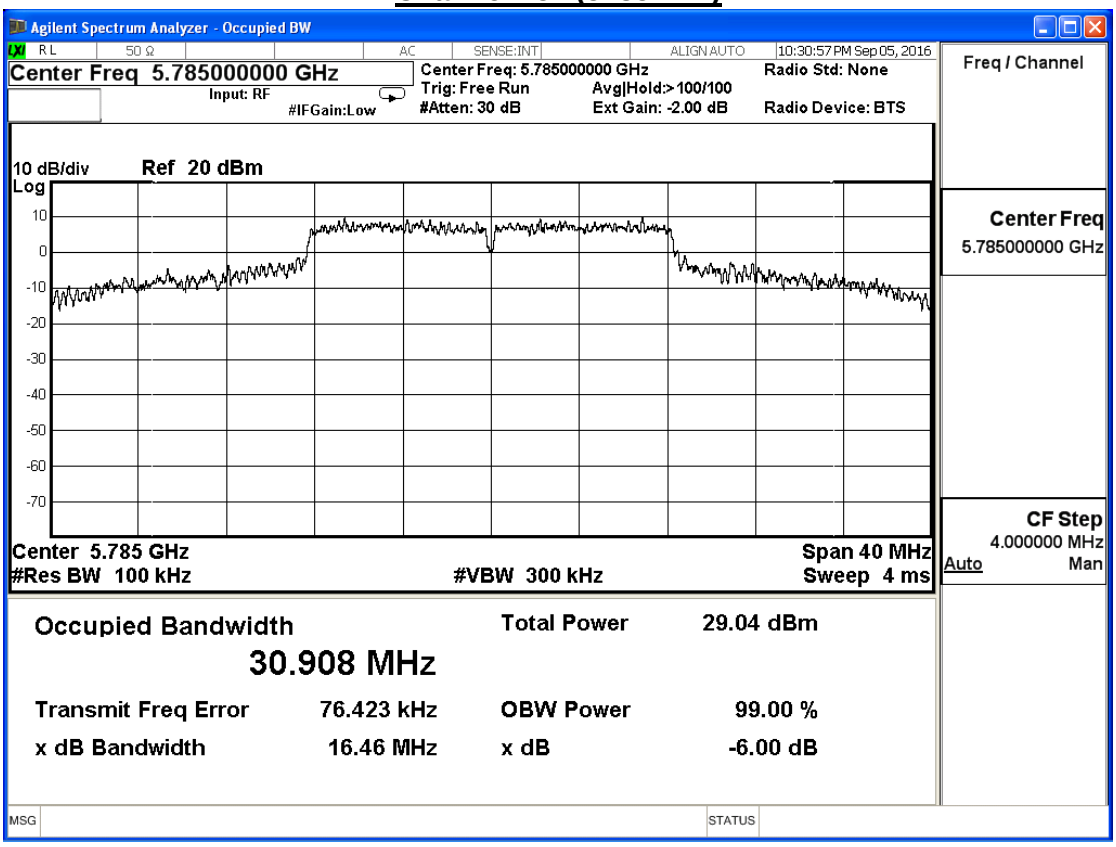
Product	Dual-Band Wireless-AC PCI-E Adapter		
Test Item	DTS Bandwidth		
Test Mode	Mode 1: Transmit_SISO Mode		
Date of Test	2016/09/02	Test Site	SR7

802.11a(ANT 1)				
Channel No.	Frequency (MHz)	Measure Level (MHz)	Limit (MHz)	Result
149	5745	16.47	≧0.5	Pass
157	5785	16.46	≧0.5	Pass
165	5825	16.48	≧0.5	Pass

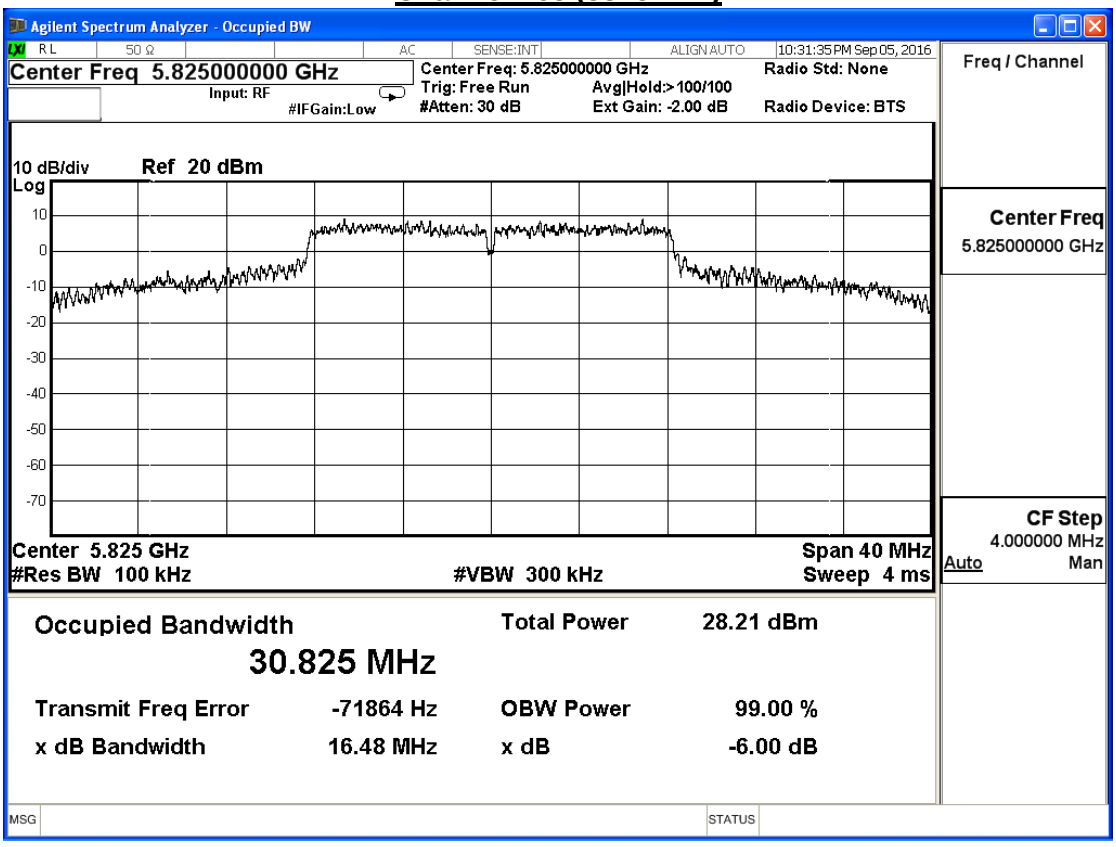
Channel 149 (5745MHz)



Channel 157 (5785MHz)



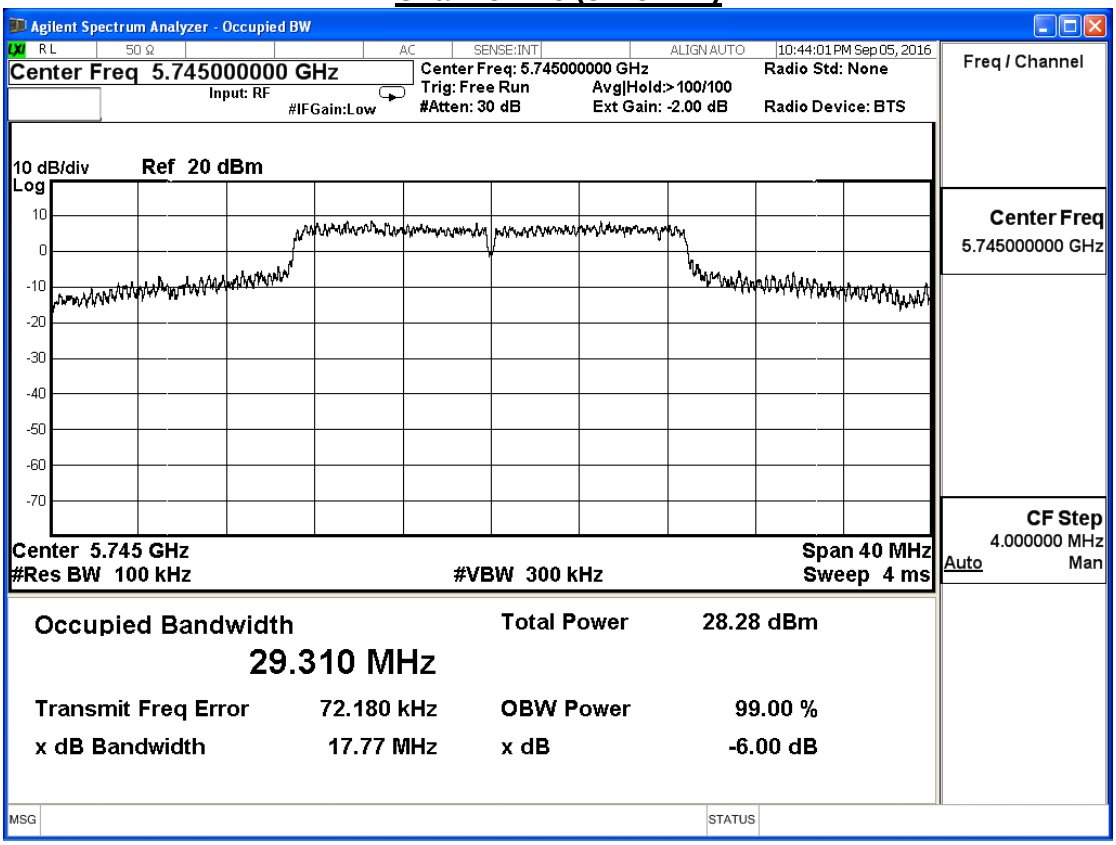
Channel 165 (5825MHz)



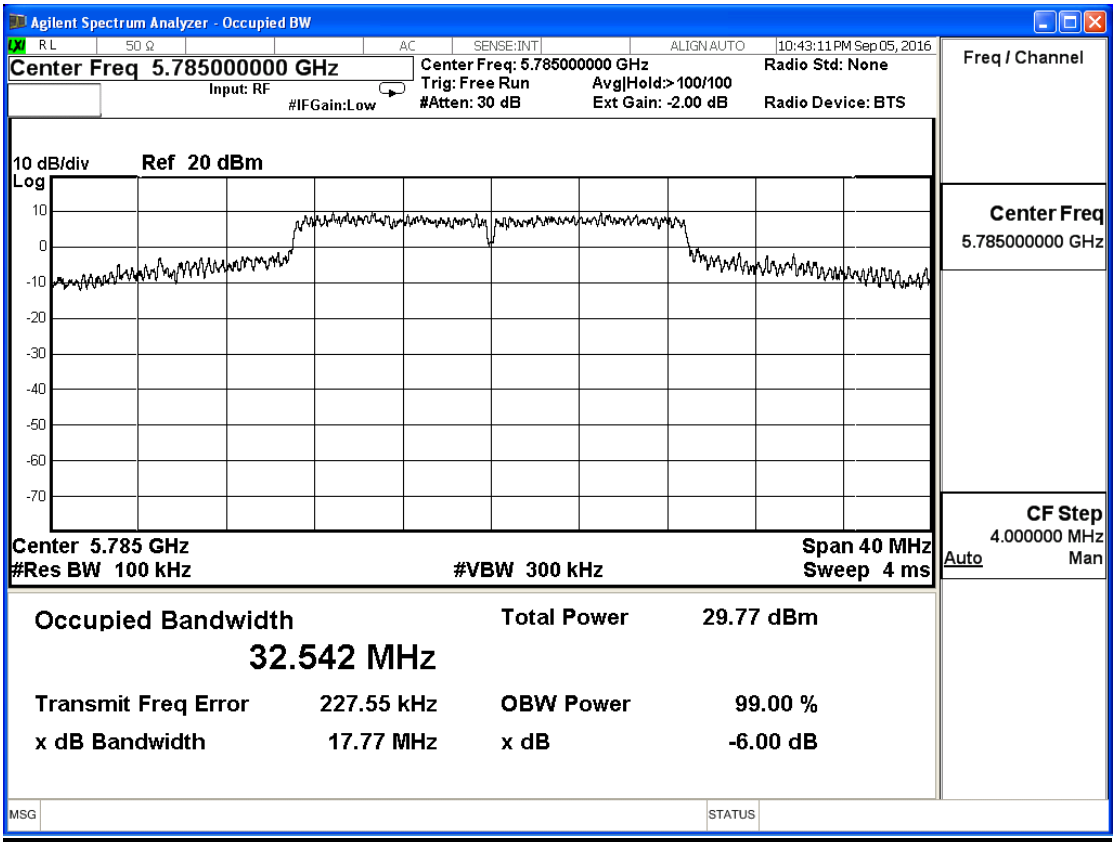
Product	Dual-Band Wireless-AC PCI-E Adapter		
Test Item	DTS Bandwidth		
Test Mode	Mode 2: Transmit_CDD Mode		
Date of Test	2016/09/02	Test Site	SR7

802.11n_20M(ANT 0)				
Channel No.	Frequency (MHz)	Measure Level (MHz)	Limit (MHz)	Result
149	5745	17.77	≧0.5	Pass
157	5785	17.77	≧0.5	Pass
165	5825	17.75	≧0.5	Pass

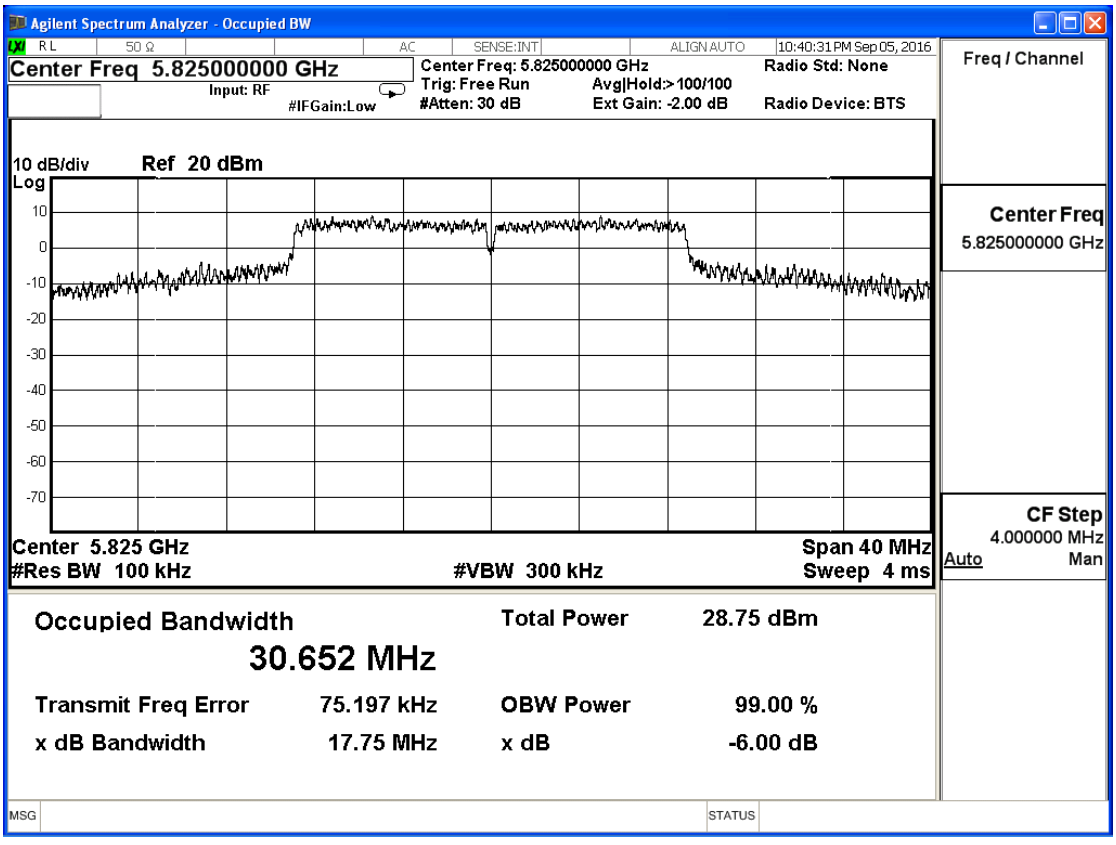
Channel 149 (5745MHz)



Channel 157 (5785MHz)



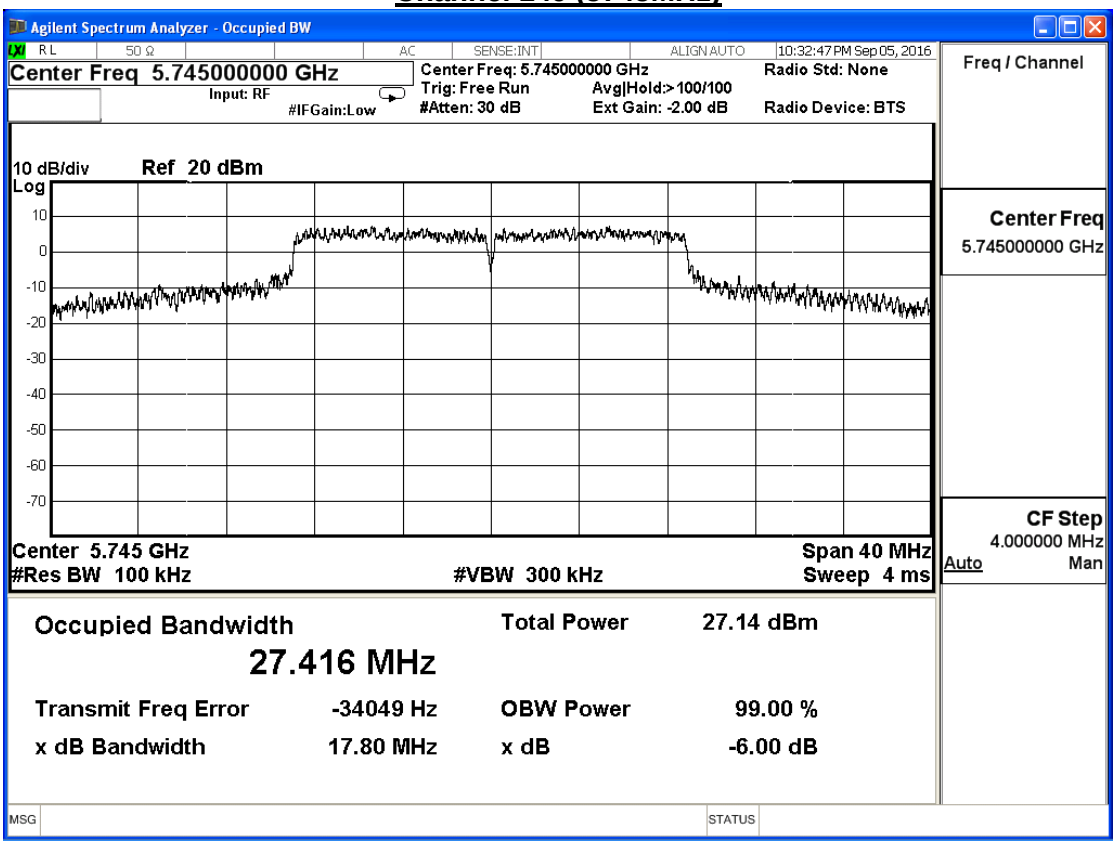
Channel 165 (5825MHz)



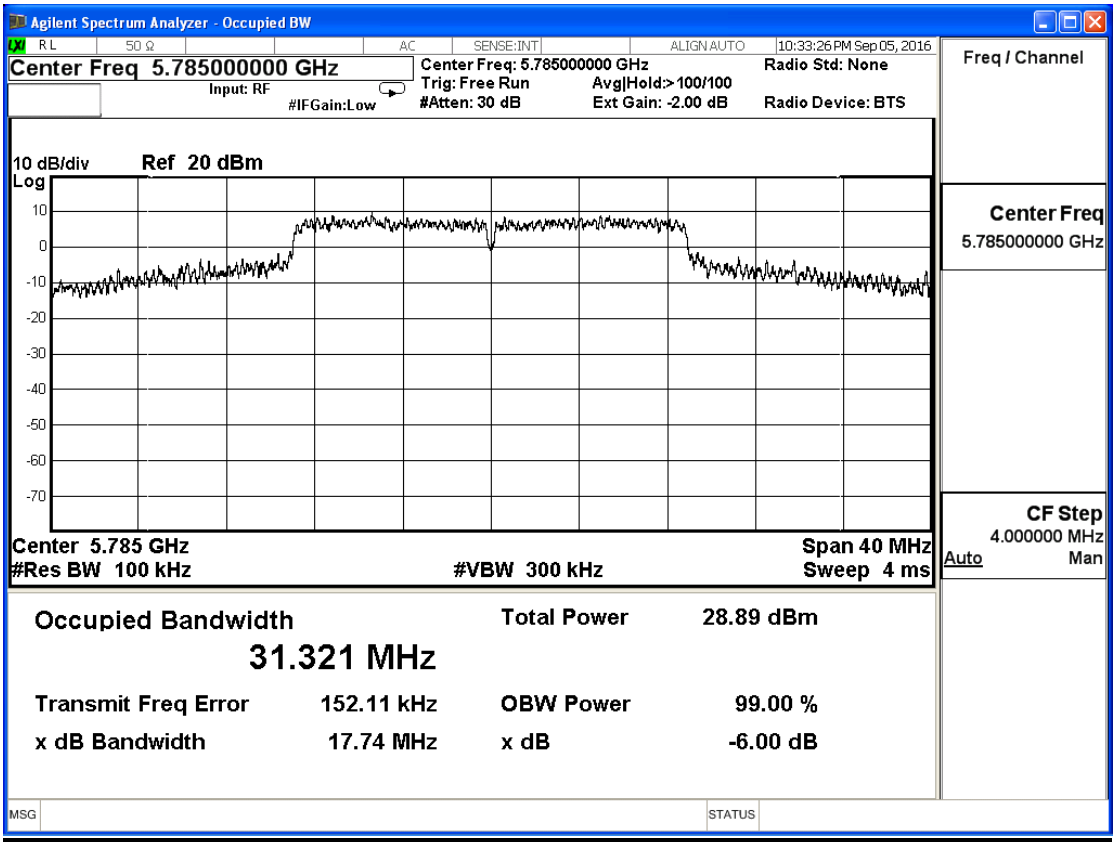
Product	Dual-Band Wireless-AC PCI-E Adapter		
Test Item	DTS Bandwidth		
Test Mode	Mode 2: Transmit_CDD Mode		
Date of Test	2016/09/02	Test Site	SR7

802.11n_20M(ANT 1)				
Channel No.	Frequency (MHz)	Measure Level (MHz)	Limit (MHz)	Result
149	5745	17.80	≧0.5	Pass
157	5785	17.74	≧0.5	Pass
165	5825	17.78	≧0.5	Pass

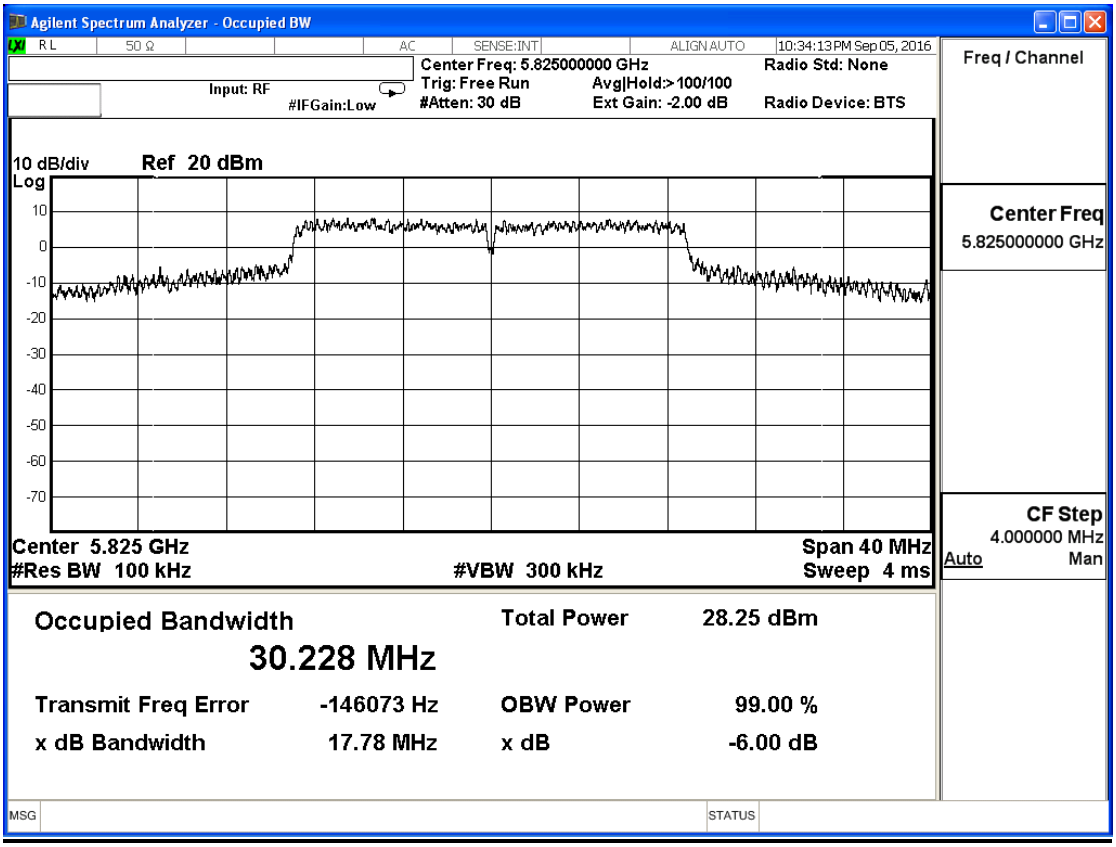
Channel 149 (5745MHz)



Channel 157 (5785MHz)



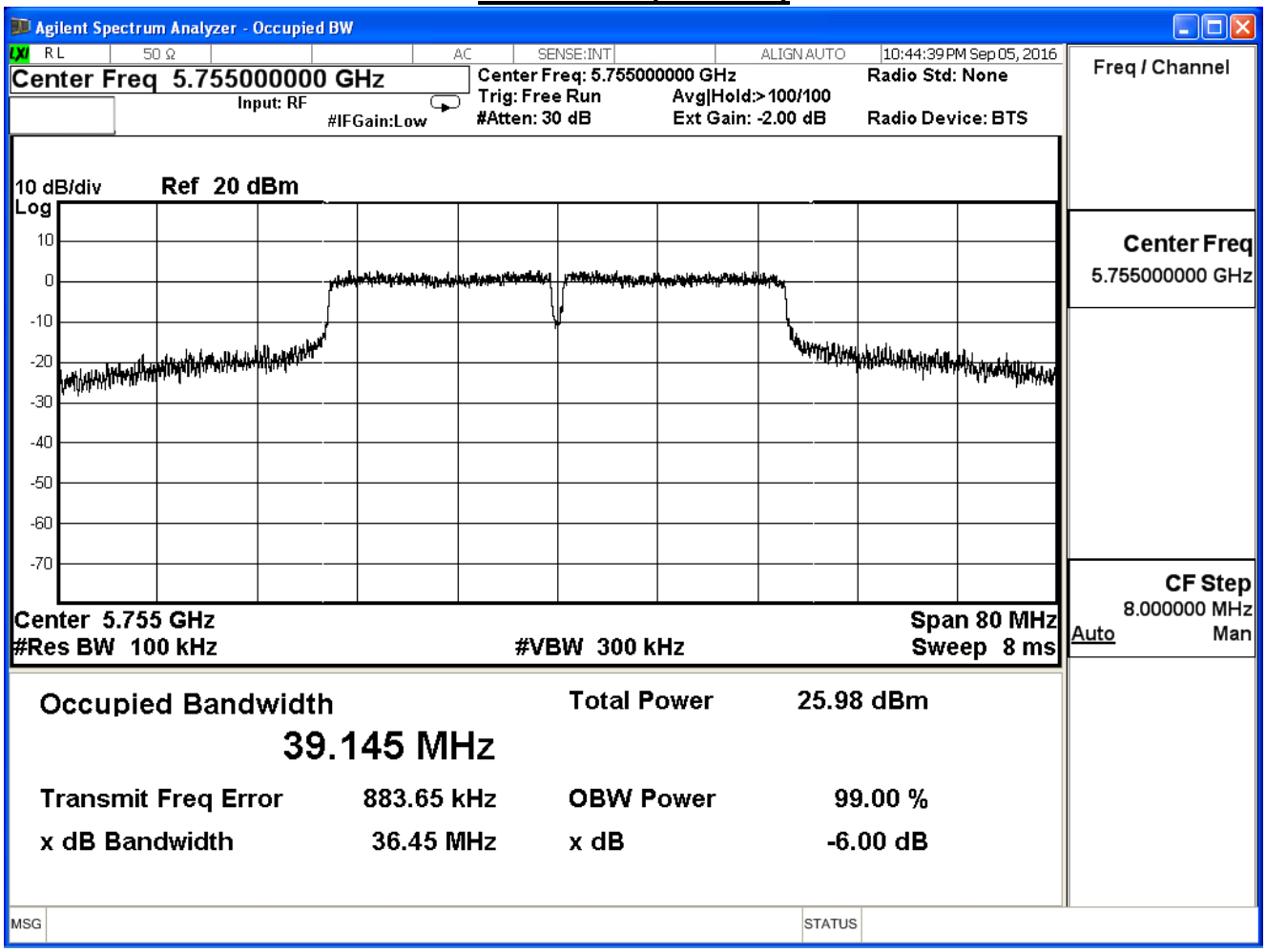
Channel 165 (5825MHz)



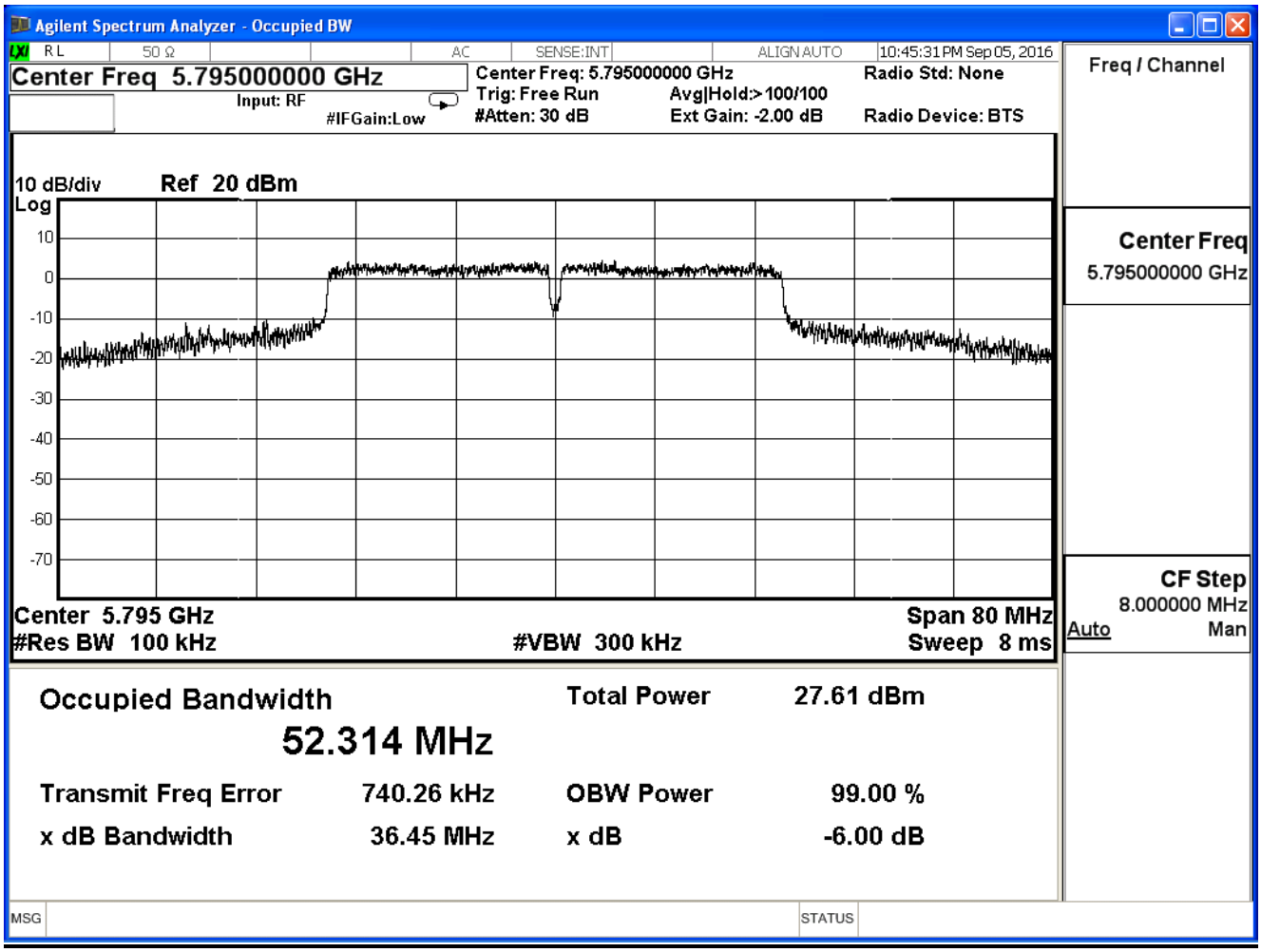
Product	Dual-Band Wireless-AC PCI-E Adapter		
Test Item	DTS Bandwidth		
Test Mode	Mode 2: Transmit_CDD Mode		
Date of Test	2016/09/02	Test Site	SR7

802.11n_40M(ANT 0)				
Channel No.	Frequency (MHz)	Measure Level (MHz)	Limit (MHz)	Result
151	5755	36.45	≧0.5	Pass
159	5795	36.45	≧0.5	Pass

Channel 151 (5755MHz)



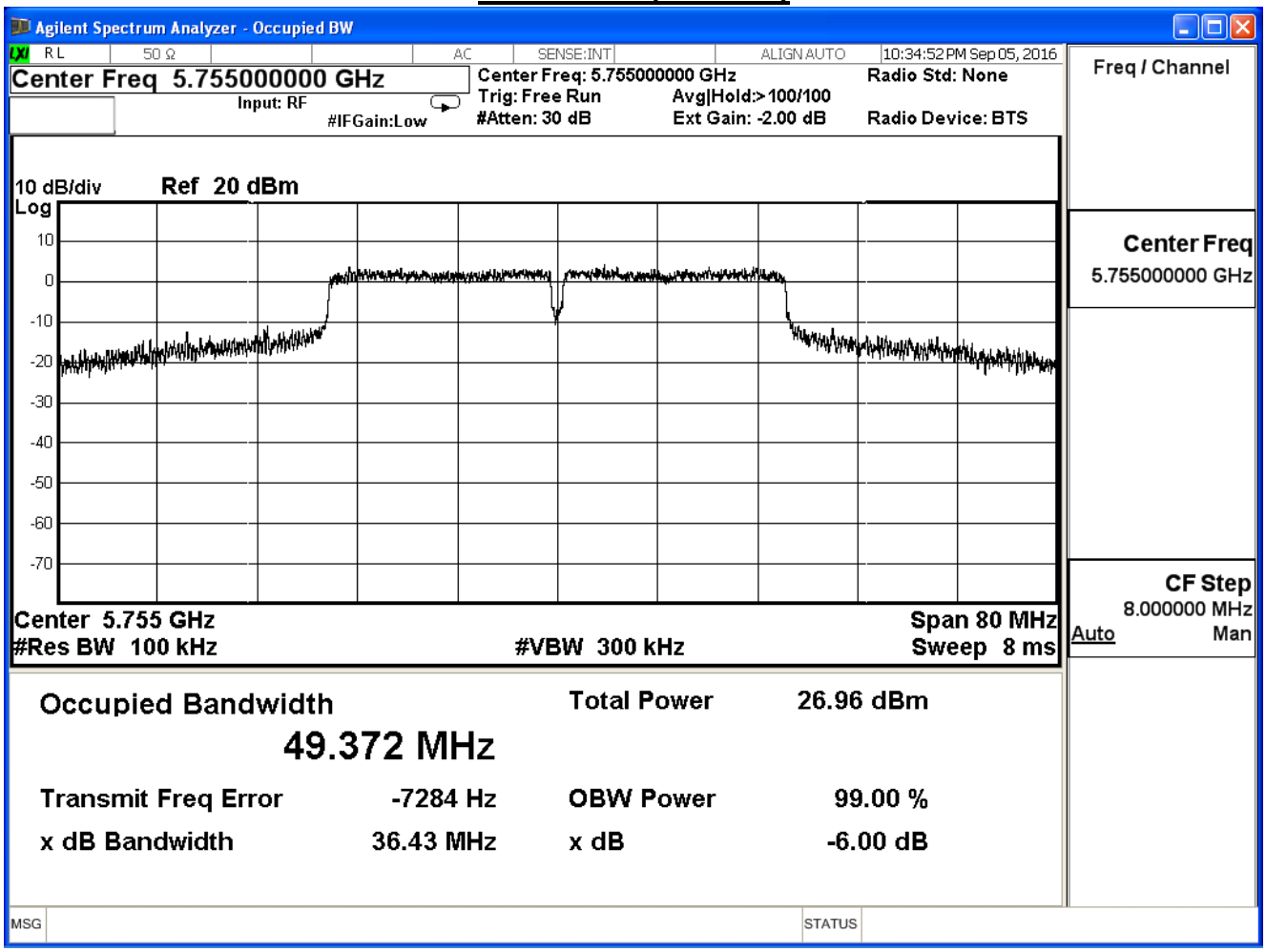
Channel 159 (5795MHz)



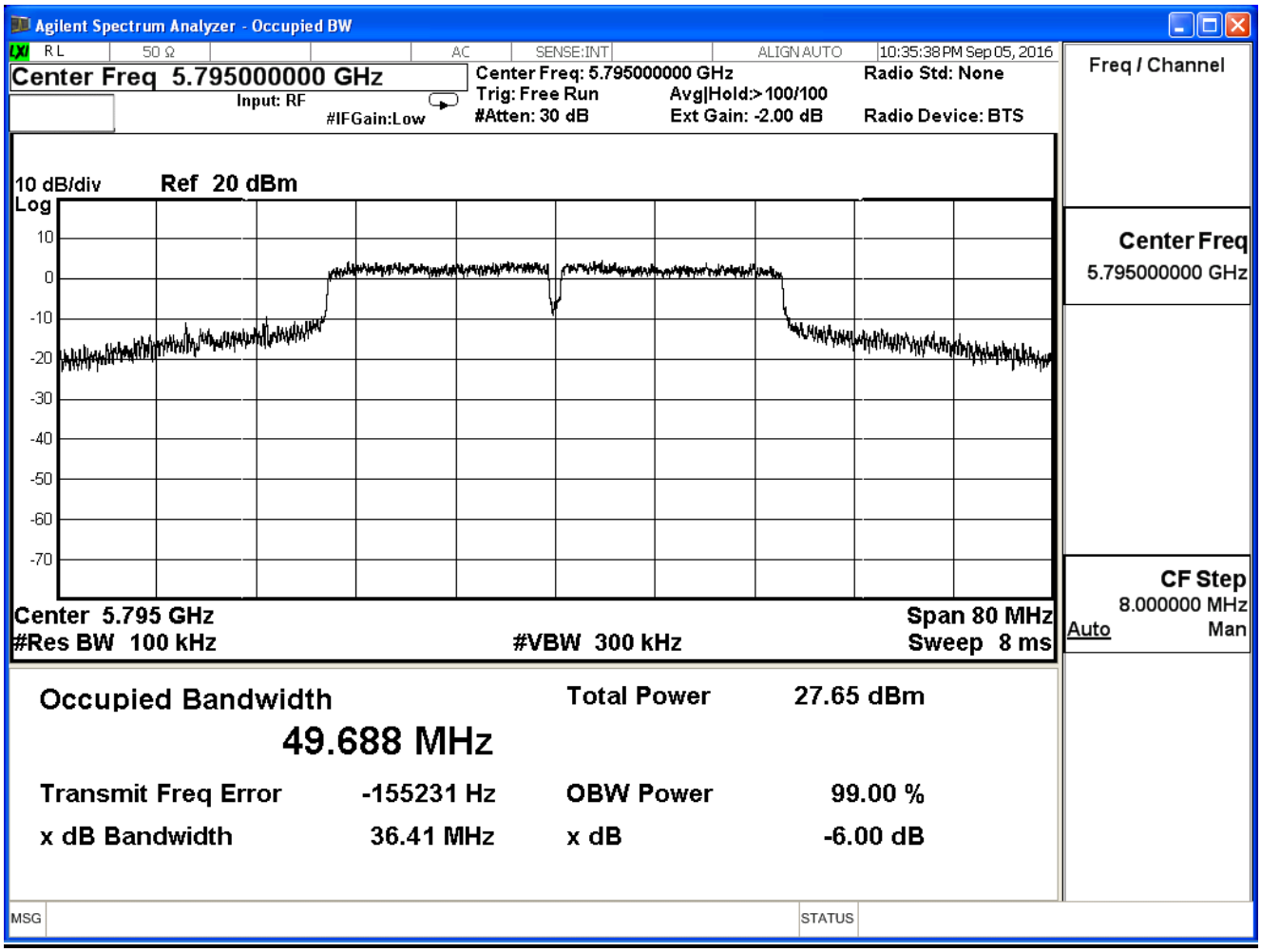
Product	Dual-Band Wireless-AC PCI-E Adapter		
Test Item	DTS Bandwidth		
Test Mode	Mode 2: Transmit_CDD Mode		
Date of Test	2016/09/02	Test Site	SR7

802.11n_40M(ANT 1)				
Channel No.	Frequency (MHz)	Measure Level (MHz)	Limit (MHz)	Result
151	5755	36.43	≧0.5	Pass
159	5795	36.41	≧0.5	Pass

Channel 151 (5755MHz)



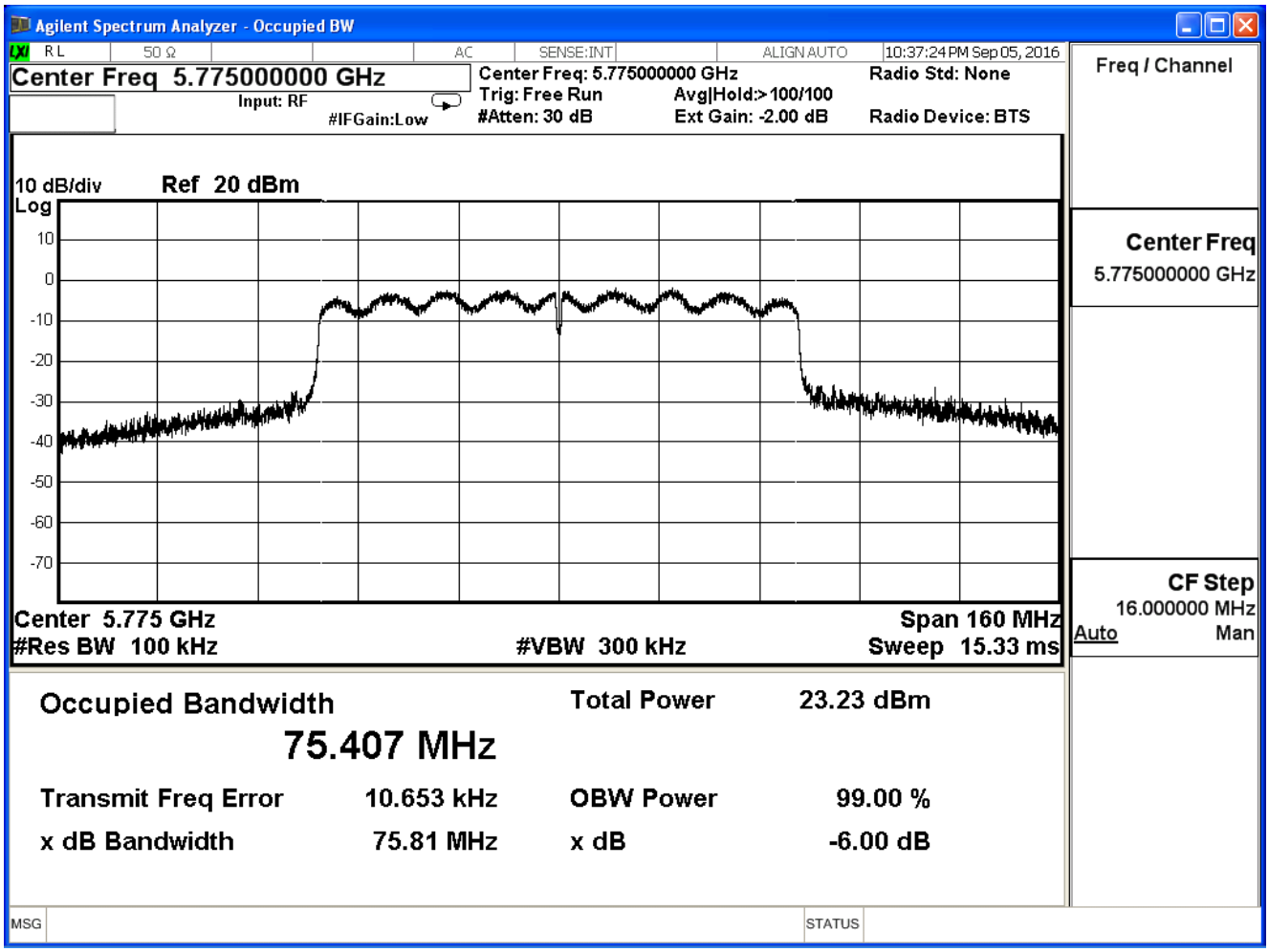
Channel 159 (5795MHz)



Product	Dual-Band Wireless-AC PCI-E Adapter		
Test Item	DTS Bandwidth		
Test Mode	Mode 2: Transmit_CDD Mode		
Date of Test	2016/09/02	Test Site	SR7

802.11ac_80M(ANT 0)				
Channel No.	Frequency (MHz)	Measure Level (MHz)	Limit (MHz)	Result
155	5775	75.81	≧0.5	Pass

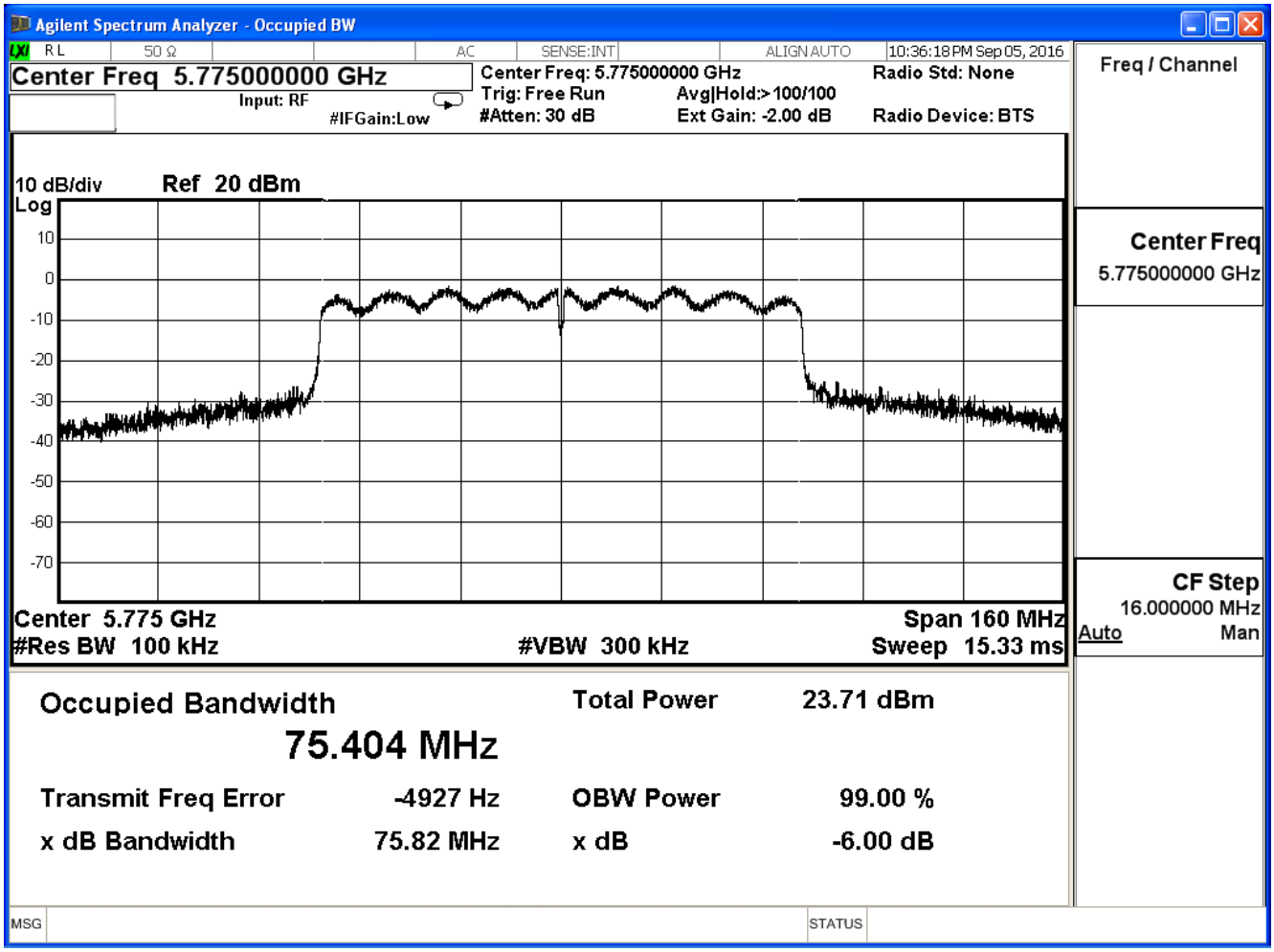
Channel 155 (5775MHz)



Product	Dual-Band Wireless-AC PCI-E Adapter		
Test Item	DTS Bandwidth		
Test Mode	Mode 2: Transmit_CDD Mode		
Date of Test	2016/09/02	Test Site	SR7

802.11ac_80M(ANT 1)				
Channel No.	Frequency (MHz)	Measure Level (MHz)	Limit (MHz)	Result
155	5775	75.82	≧0.5	Pass

Channel 155 (5775MHz)



4. Peak Transmit power

4.1. Test Equipment

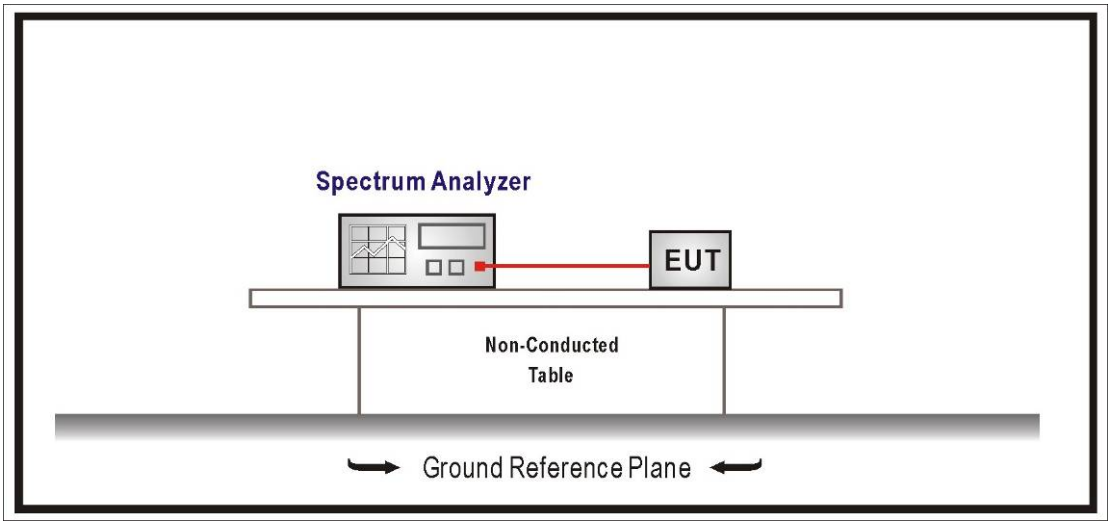
The following test equipments are used during the radiated emission tests:

Peak Transmit power / SR7

Instrument	Manufacturer	Model No.	Serial No	Next Cal. Date
Spectrum Analyzer	Agilent	N9010A	US47140172	2017/08/08
Signal & Spectrum Analyzer	R&S	FSV40	101049	2017/01/05
Signal Analyzer	R&S	FSV7	101650	2016/11/30

Note: All equipments that need to calibrate are with calibration period of 1 year.

4.2. Test Setup



4.3. Limits

1. For the band 5.15-5.25 GHz, the peak transmit power over the frequency band of operation shall not exceed the lesser of 1W. If transmitting antenna of directional gain greater than 6 dBi are used, the peak transmit power 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 conducted output power over the frequency band of operation shall not exceed 250 mW provided the maximum antenna gain does not exceed 6 dBi. 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 peak transmit power over the frequency band of operation shall not exceed the lesser of 250 mW. If transmitting antenna of directional gain greater than 6 dBi are used, the peak transmit power 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 peak transmit power over the frequency band of operation shall not exceed the lesser of 1W. If transmitting antenna of directional gain greater than 6 dBi are used, the peak transmit power shall be reduced by the amount in dB that directional gain of the antenna exceeds 6 dBi.

4.4. Test Procedure

The EUT was setup to ANSI C63.10: 2013; tested to U-NII test procedure of 789033 D02 V01R03 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.

4.5. Uncertainty

The measurement uncertainty is defined as ± 1.27 dB

4.6. Test Result

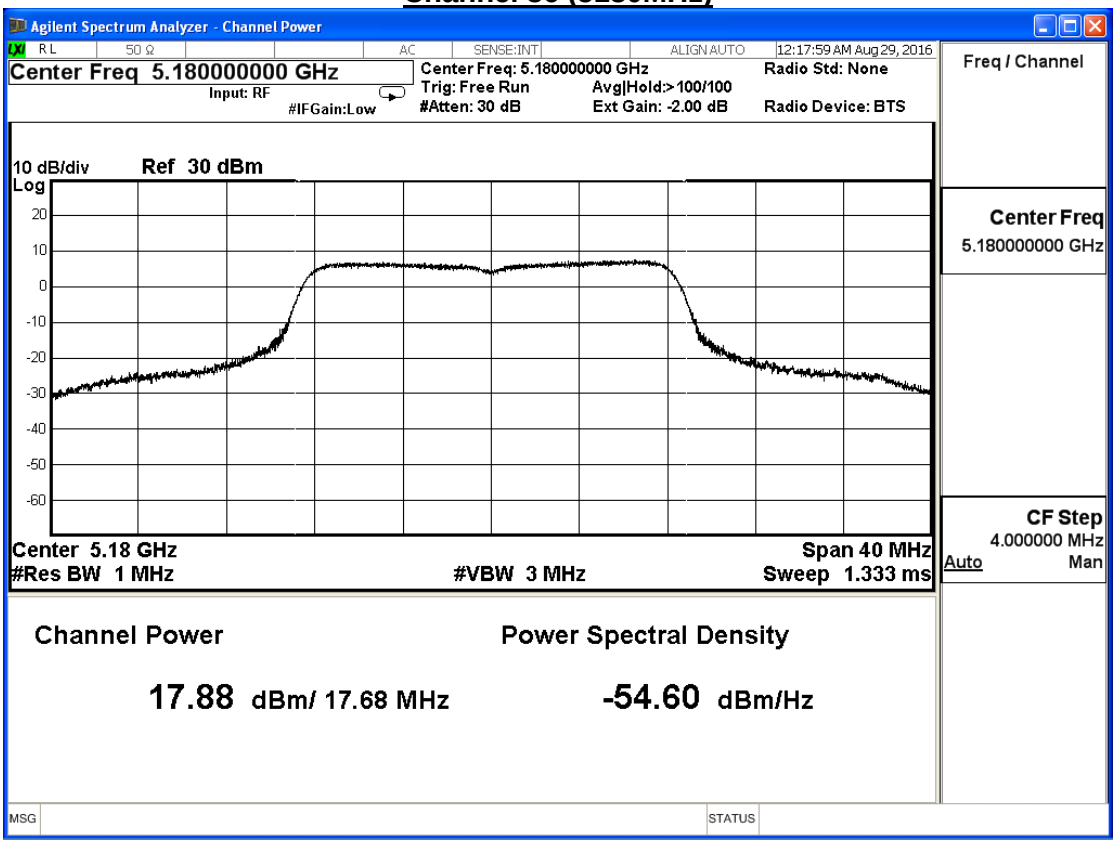
Product	Dual-Band Wireless-AC PCI-E Adapter		
Test Item	Peak Transmit Output		
Test Mode	Mode 1: Transmit_SISO Mode		
Date of Test	2016/09/02	Test Site	SR7

IEEE 802.11a (ANT 0)			
Channel No.	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)
36	5180	17.88	≤24
44	5220	18.15	≤24
48	5240	15.85	≤24

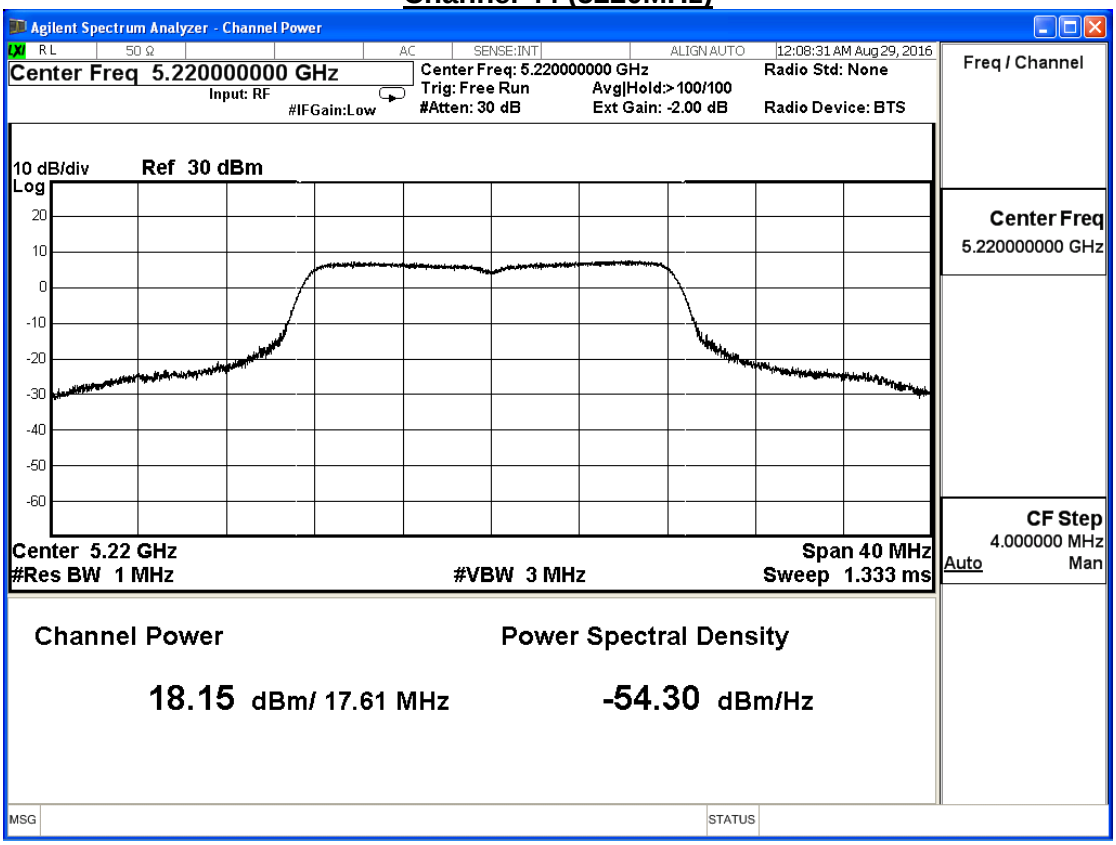
The worst emission of data rate is 6 Mbps.

peak transmit power (dBm)									
Channel No	Frequency (MHz)	Data Rate							Required Limit
		6	12	18	24	36	48	54	
36	5180	17.88	--	--	--	--	--	--	≤24dBm
44	5220	18.15	17.89	17.64	17.38	16.86	16.35	16.09	
48	5240	15.85	--	--	--	--	--	--	

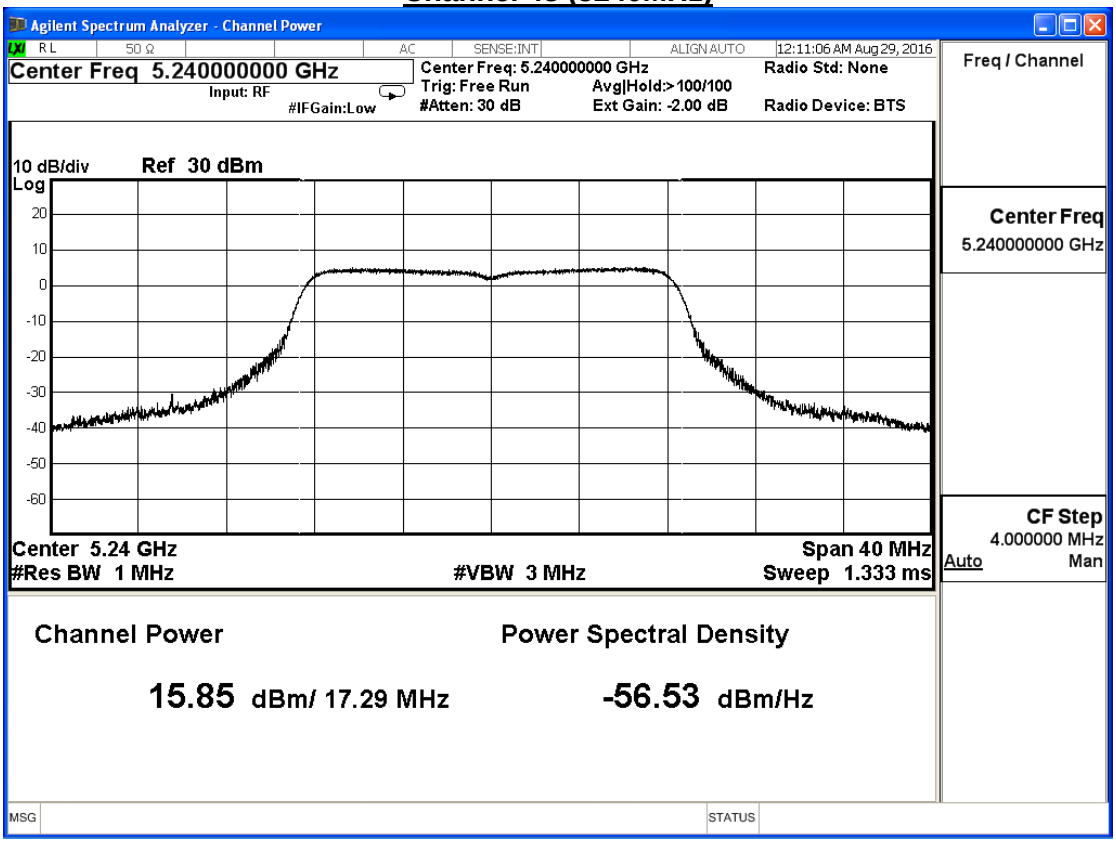
Channel 36 (5180MHz)



Channel 44 (5220MHz)



Channel 48 (5240MHz)



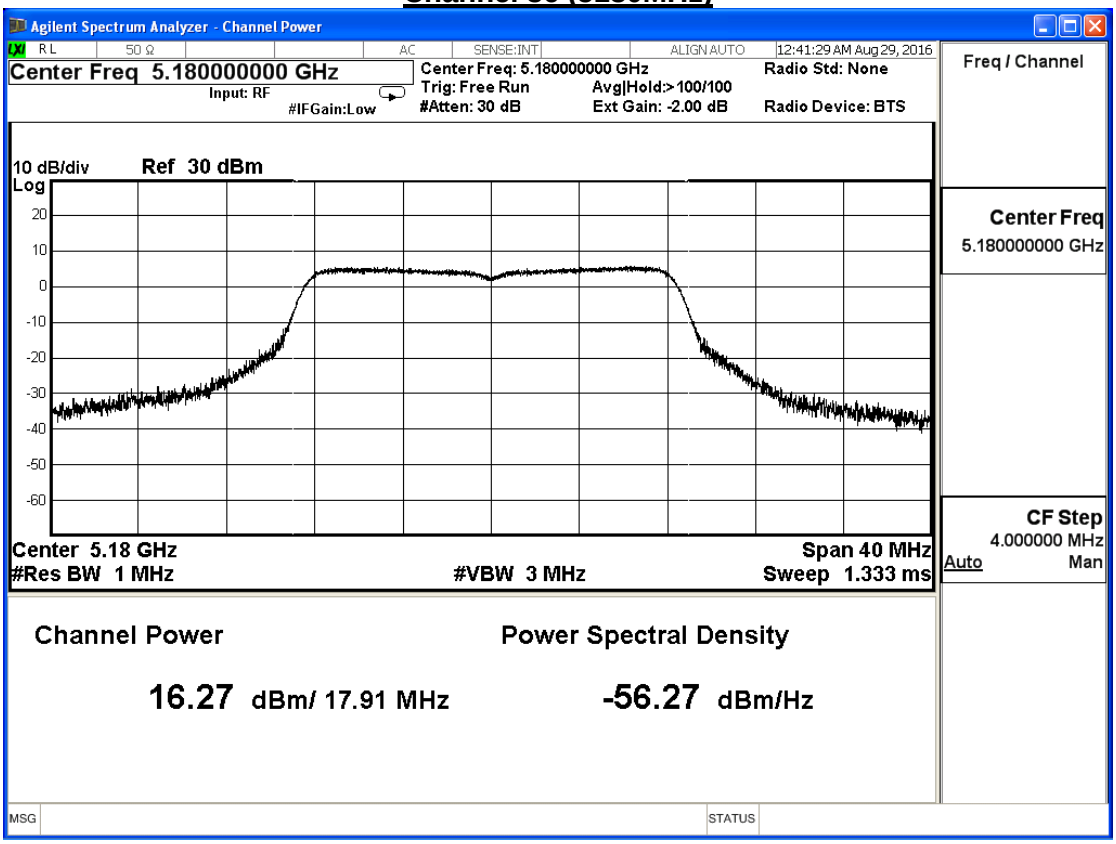
Product	Dual-Band Wireless-AC PCI-E Adapter		
Test Item	Peak Transmit power		
Test Mode	Mode 1: Transmit_SISO Mode		
Date of Test	2016/09/02	Test Site	SR7

IEEE 802.11a (ANT 1)			
Channel No.	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)
36	5180	16.27	≤24
44	5220	19.25	≤24
48	5240	18.19	≤24

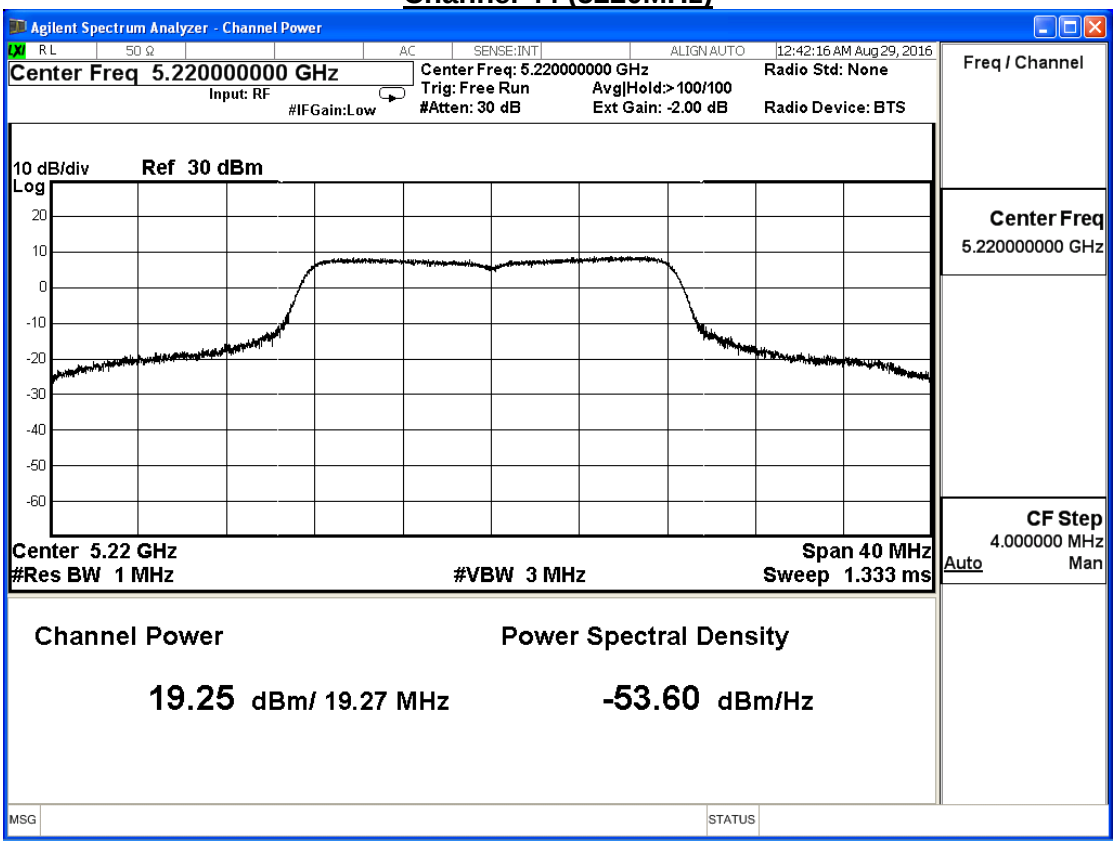
The worst emission of data rate is 6 Mbps.

peak transmit power (dBm)									
Channel No	Frequency (MHz)	Data Rate							Required Limit
		6	12	18	24	36	48	54	
36	5180	16.27	--	--	--	--	--	--	≤24dBm
44	5220	19.25	19.02	18.79	18.56	18.10	17.64	17.41	
48	5240	18.19	--	--	--	--	--	--	

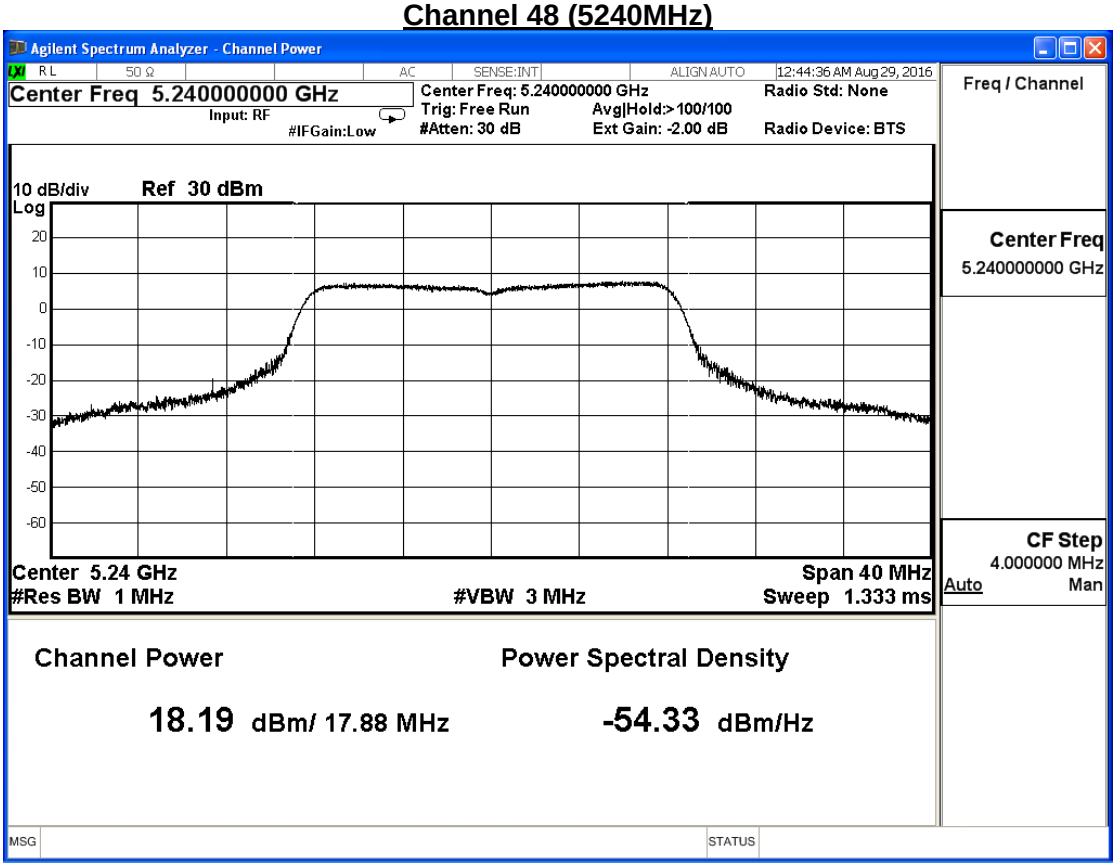
Channel 36 (5180MHz)



Channel 44 (5220MHz)



Channel 48 (5240MHz)



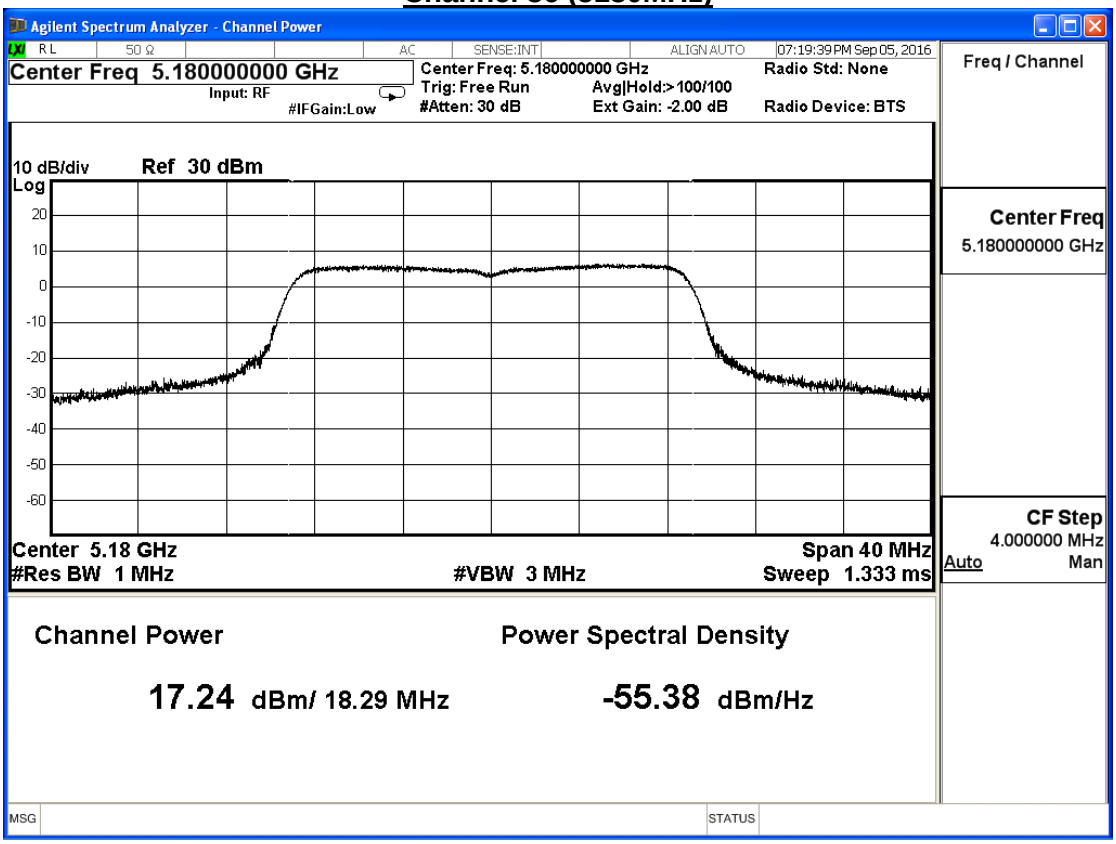
Product	Dual-Band Wireless-AC PCI-E Adapter		
Test Item	Peak Transmit power		
Test Mode	Mode 2: Transmit_CDD Mode		
Date of Test	2016/09/02	Test Site	SR7

IEEE 802.11n20 (ANT 0)			
Channel No.	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)
36	5180	17.24	≤24
44	5220	12.65	≤24
48	5240	12.27	≤24

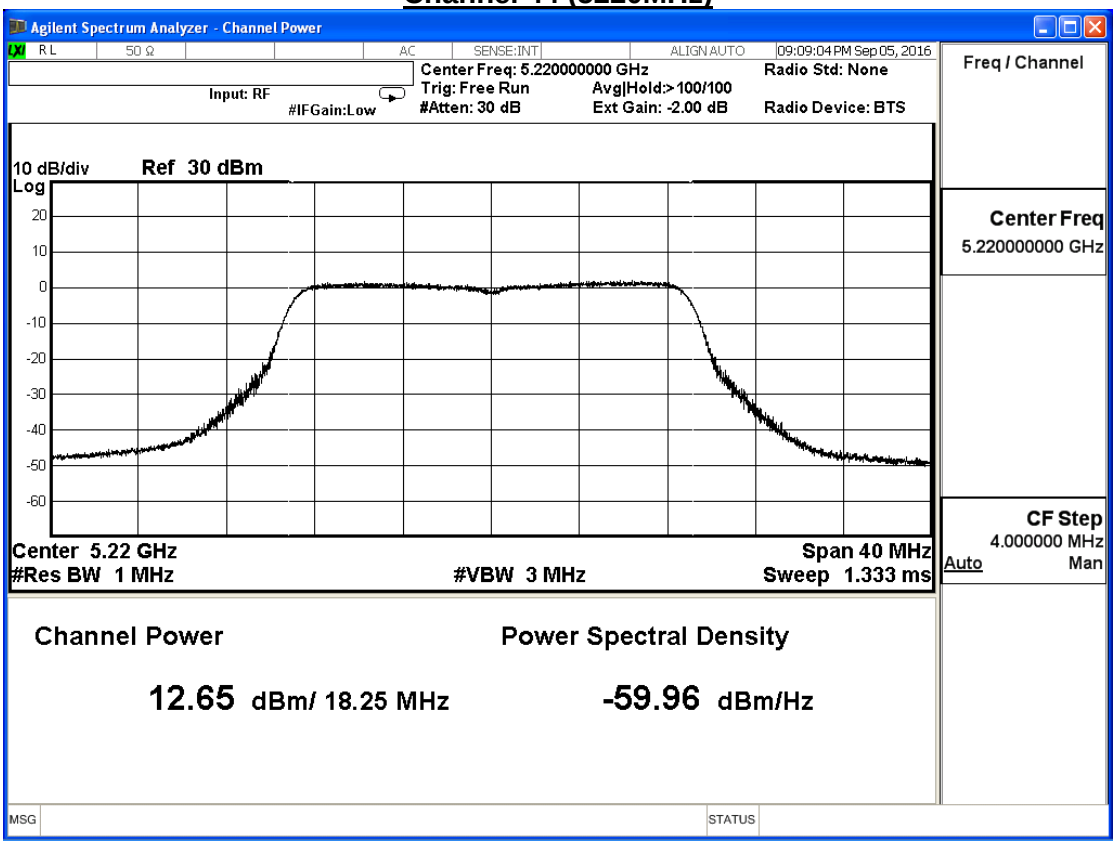
The worst emission of data rate is 6.5 Mbps

Peak transmit power (dBm)										
MCS Index		0	1	2	3	4	5	6	7	Required Limit
Channel No	Frequency (MHz)	Data Rate								
		6.5	13	19.5	26	39	52	58.5	65	
36	5180	17.24	--	--	--	--	--	--	--	≤24
44	5220	12.65	12.53	12.41	12.30	12.06	11.83	11.71	11.59	≤24
48	5240	12.27	--	--	--	--	--	--	--	≤24

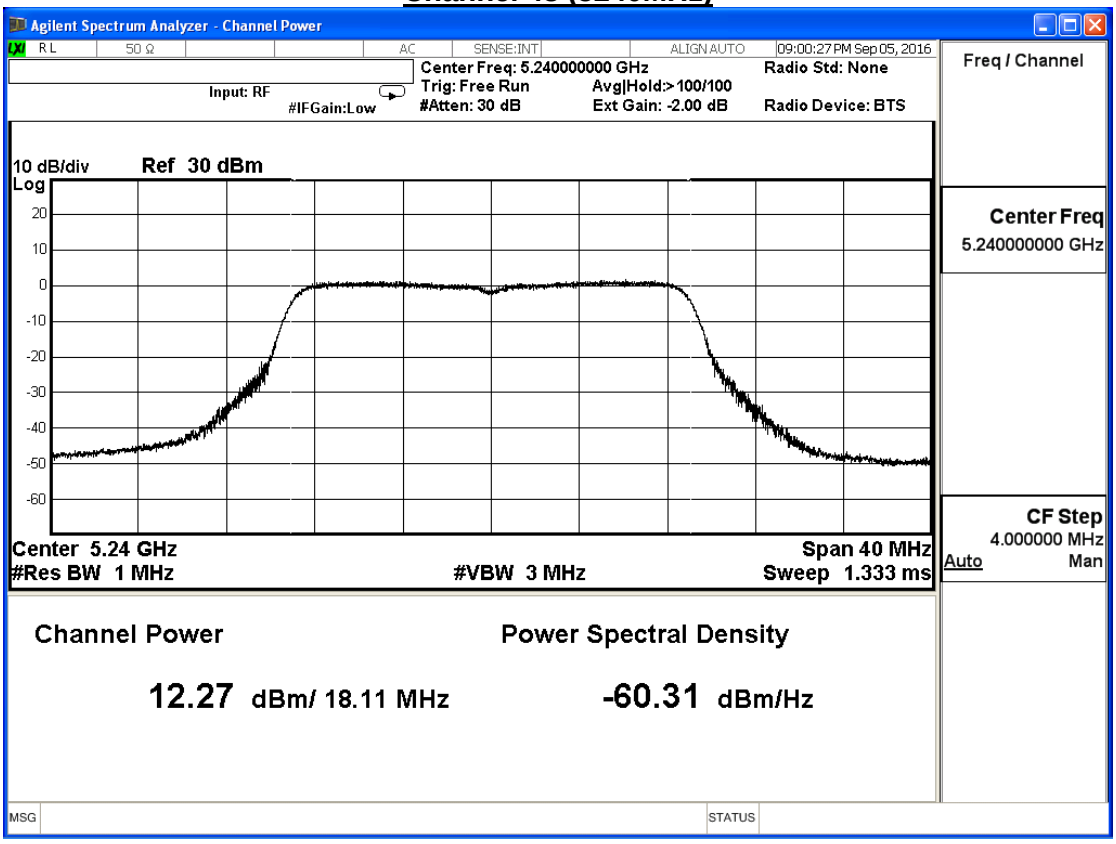
Channel 36 (5180MHz)



Channel 44 (5220MHz)



Channel 48 (5240MHz)



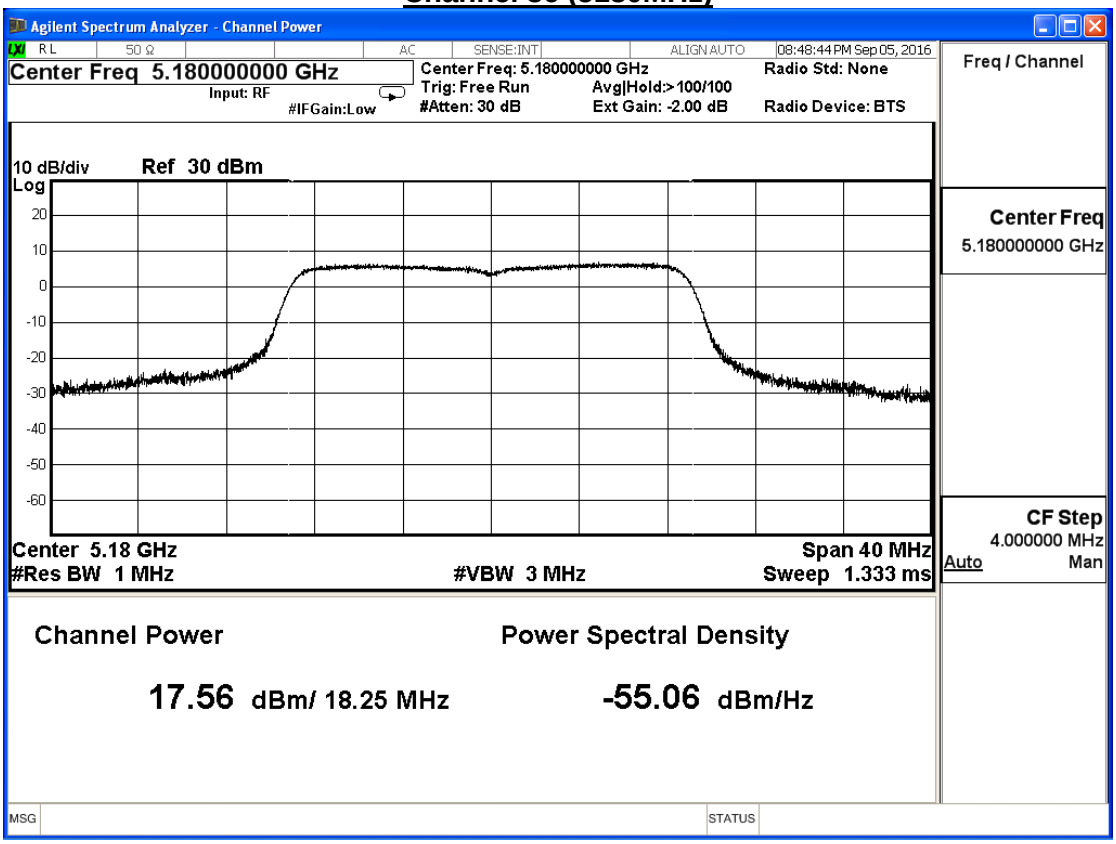
Product	Dual-Band Wireless-AC PCI-E Adapter		
Test Item	Peak Transmit power		
Test Mode	Mode 2: Transmit_CDD Mode		
Date of Test	2016/09/02	Test Site	SR7

IEEE 802.11n20 (ANT 1)			
Channel No.	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)
36	5180	17.56	≤24
44	5220	12.62	≤24
48	5240	11.89	≤24

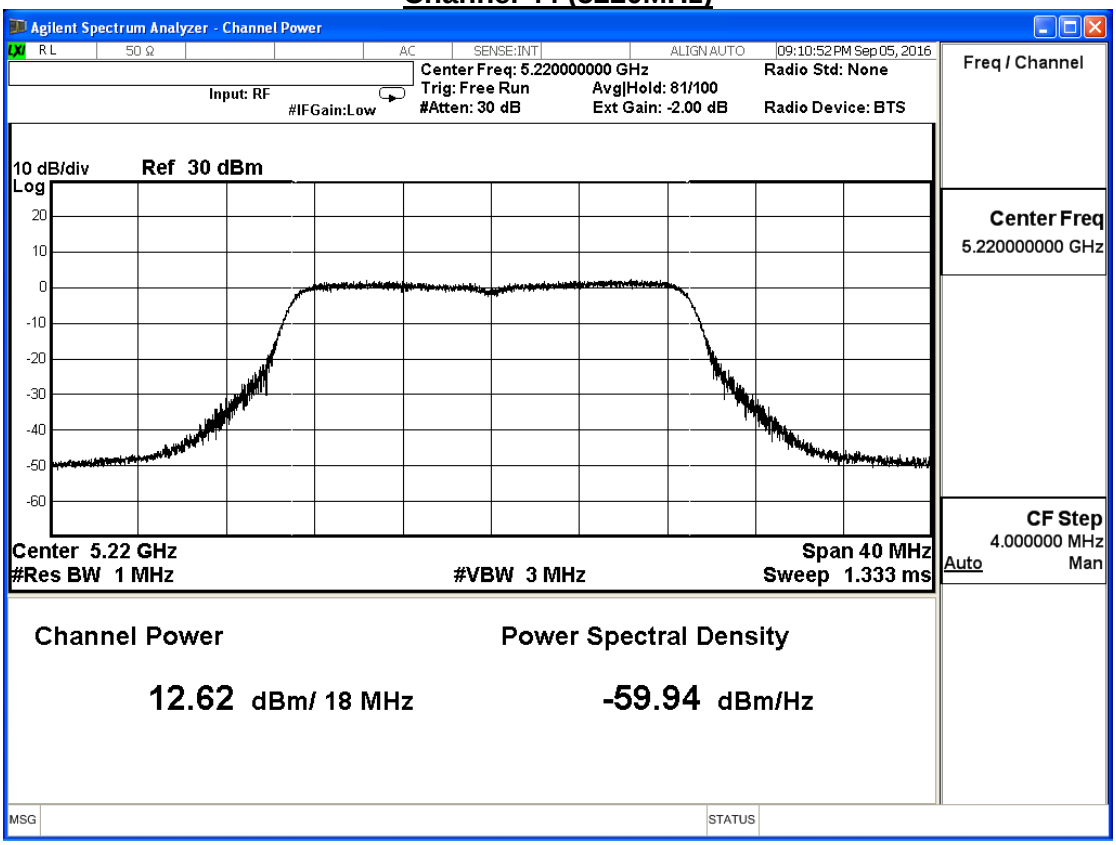
The worst emission of data rate is 6.5 Mbps

Peak transmit power (dBm)										
MCS Index		0	1	2	3	4	5	6	7	Required Limit
Channel No	Frequency (MHz)	Data Rate								
		6.5	13	19.5	26	39	52	58.5	65	
36	5180	17.56	--	--	--	--	--	--	--	≤24
44	5220	12.62	12.50	12.37	12.25	12.00	11.76	11.63	11.51	≤24
48	5240	11.89	--	--	--	--	--	--	--	≤24

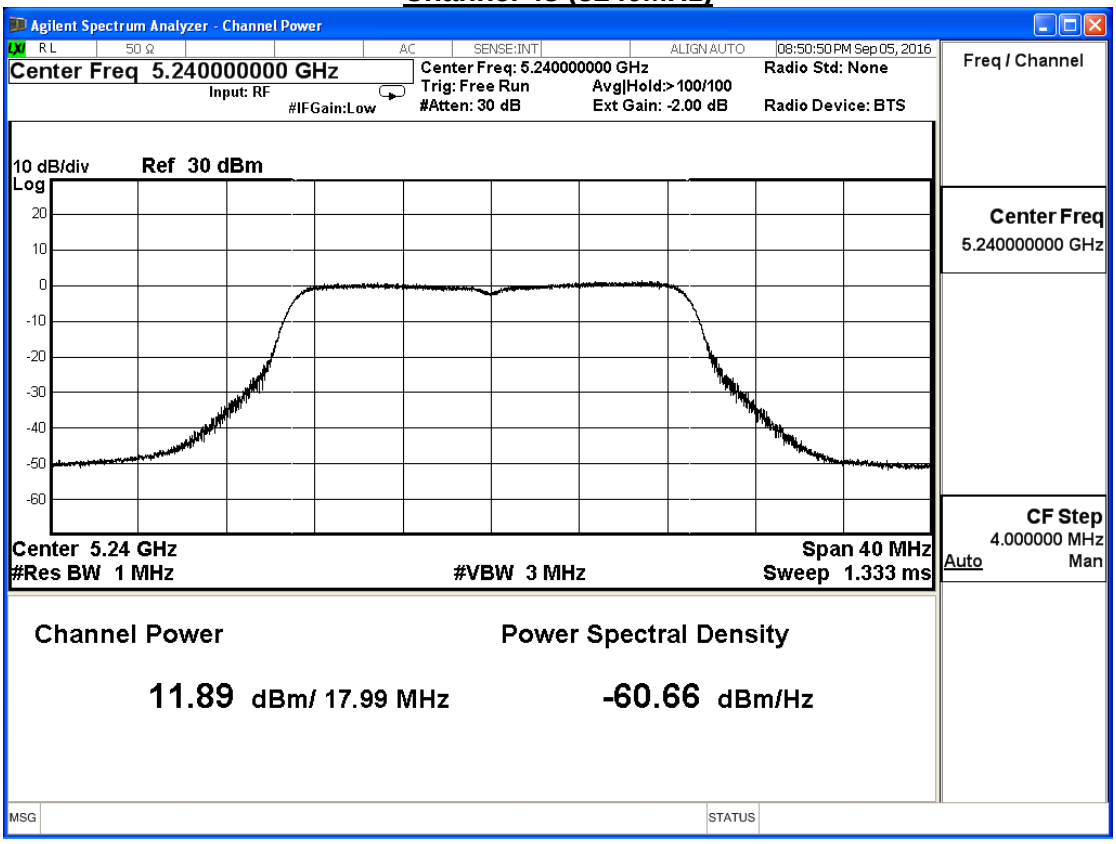
Channel 36 (5180MHz)



Channel 44 (5220MHz)



Channel 48 (5240MHz)



Product	Dual-Band Wireless-AC PCI-E Adapter		
Test Item	Peak Transmit power		
Test Mode	Mode 2: Transmit_CDD Mode		
Date of Test	2016/09/02	Test Site	SR7

IEEE 802.11n20 (ANT 0+1)			
Channel No.	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)
36	5180	20.41	≤24
44	5220	15.65	≤24
48	5240	15.09	≤24

The worst emission of data rate is 6.5 Mbps

Peak transmit power (dBm)										
MCS Index		0	1	2	3	4	5	6	7	Required Limit
Channel No	Frequency (MHz)	Data Rate								
		6.5	13	19.5	26	39	52	58.5	65	
36	5180	20.41	--	--	--	--	--	--	--	≤24
44	5220	15.65	15.52	15.40	15.28	15.04	14.80	14.68	14.56	≤24
48	5240	15.09	--	--	--	--	--	--	--	≤24

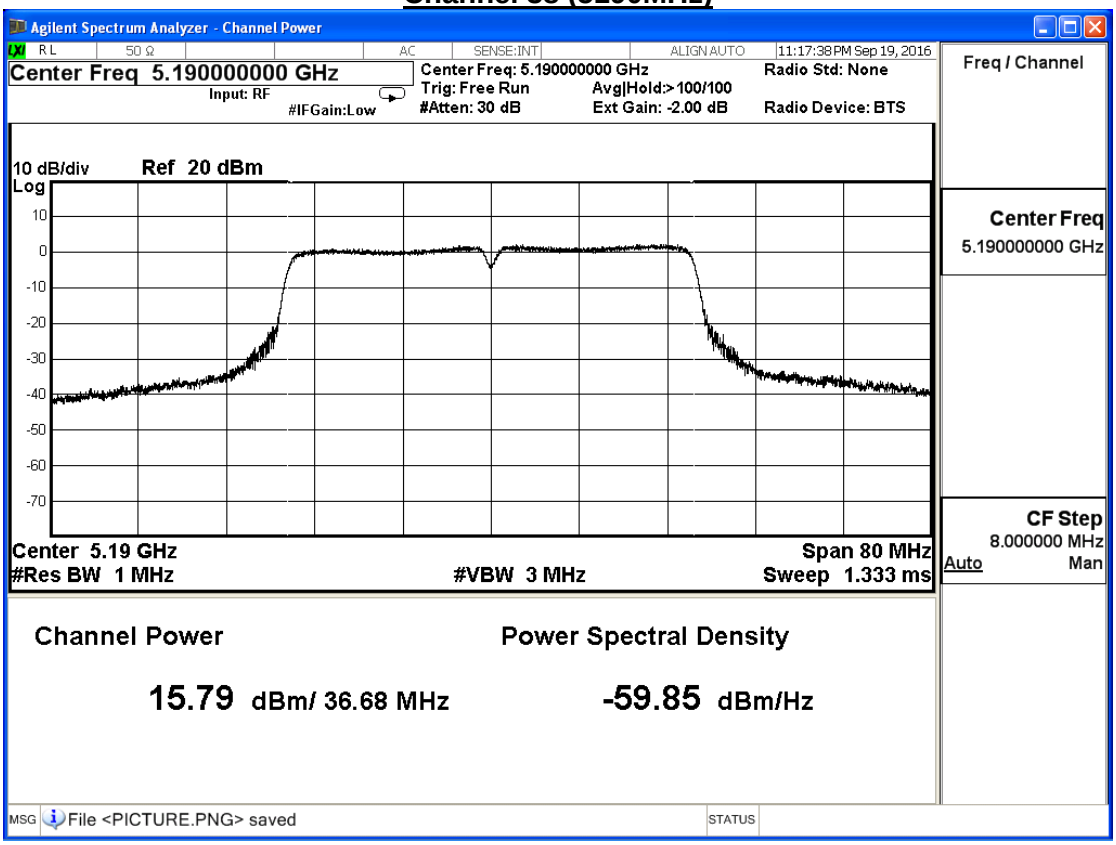
Product	Dual-Band Wireless-AC PCI-E Adapter		
Test Item	Peak Transmit power		
Test Mode	Mode 2: Transmit_CDD Mode		
Date of Test	2016/09/02	Test Site	SR7

IEEE 802.11n40 (ANT 0)			
Channel No.	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)
38	5190	15.79	≤24
46	5230	19.55	≤24

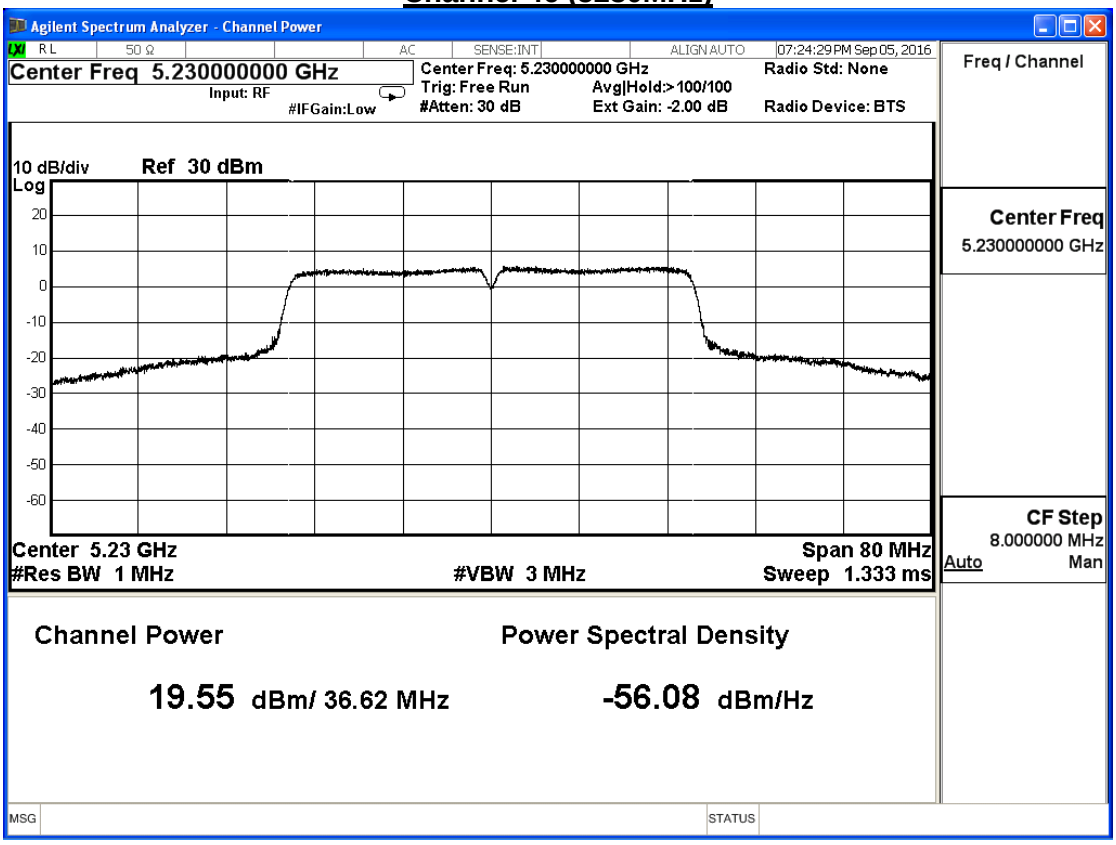
The worst emission of data rate is 13.5 Mbps.

Peak transmit power (dBm)										
MCS Index		0	1	2	3	4	5	6	7	Required Limit
Channel No	Frequency (MHz)	Data Rate								
		13.5	27	40.5	54	81	108	121.5	135	
38	5190	15.79	--	--	--	--	--	--	--	≤24
46	5230	19.55	19.33	19.11	18.89	18.46	18.02	17.80	17.58	≤24

Channel 38 (5190MHz)



Channel 46 (5230MHz)



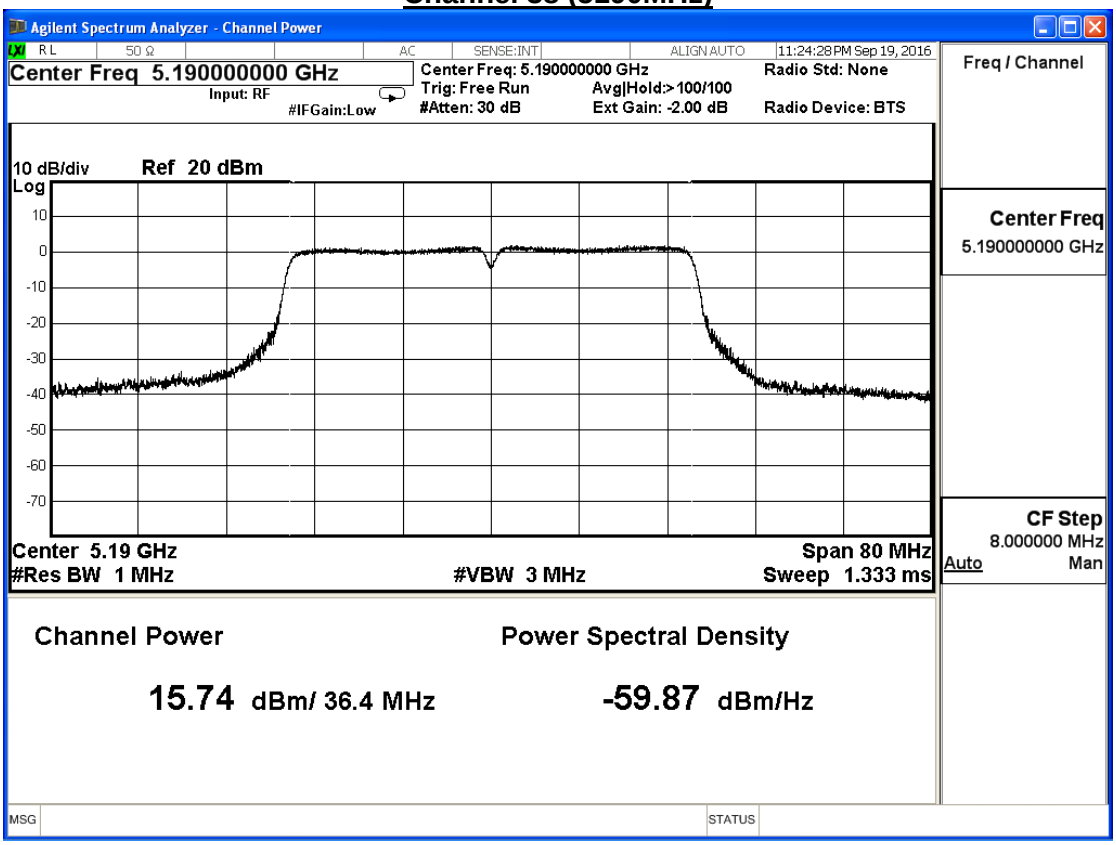
Product	Dual-Band Wireless-AC PCI-E Adapter		
Test Item	Peak Transmit power		
Test Mode	Mode 2: Transmit_CDD Mode		
Date of Test	2016/09/02	Test Site	SR7

IEEE 802.11n40 (ANT 1)			
Channel No.	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)
38	5190	15.74	≤24
46	5230	19.53	≤24

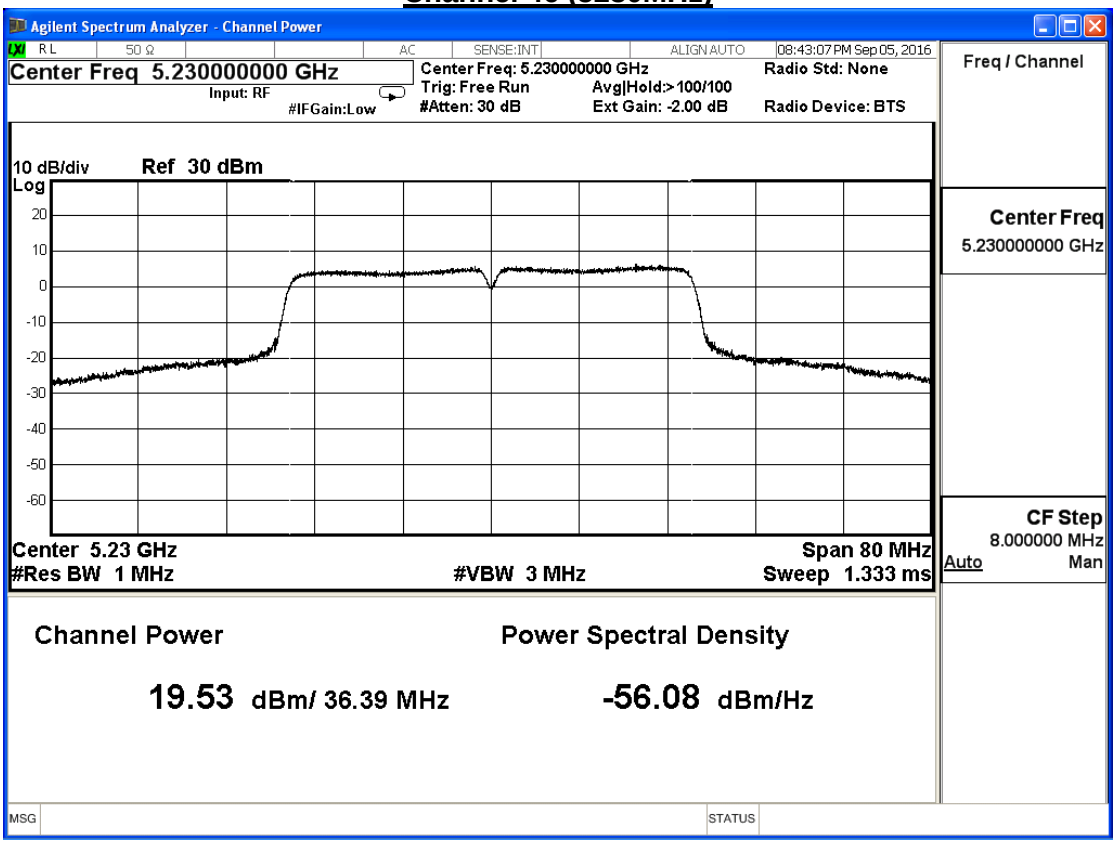
The worst emission of data rate is 13.5Mbps.

Peak transmit power (dBm)										
MCS Index		0	1	2	3	4	5	6	7	Required Limit
Channel No	Frequency (MHz)	Data Rate								
		13.5	27	40.5	54	81	108	121.5	135	
38	5190	15.74	--	--	--	--	--	--	--	≤24
46	5230	19.53	19.31	19.09	18.87	18.44	18.00	17.78	17.56	≤24

Channel 38 (5190MHz)



Channel 46 (5230MHz)



Product	Dual-Band Wireless-AC PCI-E Adapter		
Test Item	Peak Transmit power		
Test Mode	Mode 2: Transmit_CDD Mode		
Date of Test	2016/09/02	Test Site	SR7

IEEE 802.11n40 (ANT 0+1)			
Channel No.	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)
38	5190	18.78	≤24
46	5230	22.55	≤24

The worst emission of data rate is 13.5 Mbps.

Peak transmit power (dBm)										
MCS Index		0	1	2	3	4	5	6	7	Required Limit
Channel No	Frequency (MHz)	Data Rate								
		13.5	27	40.5	54	81	108	121.5	135	
38	5190	18.78	--	--	--	--	--	--	--	≤24
46	5230	22.55	22.33	22.11	21.89	21.46	21.02	20.80	20.58	≤24

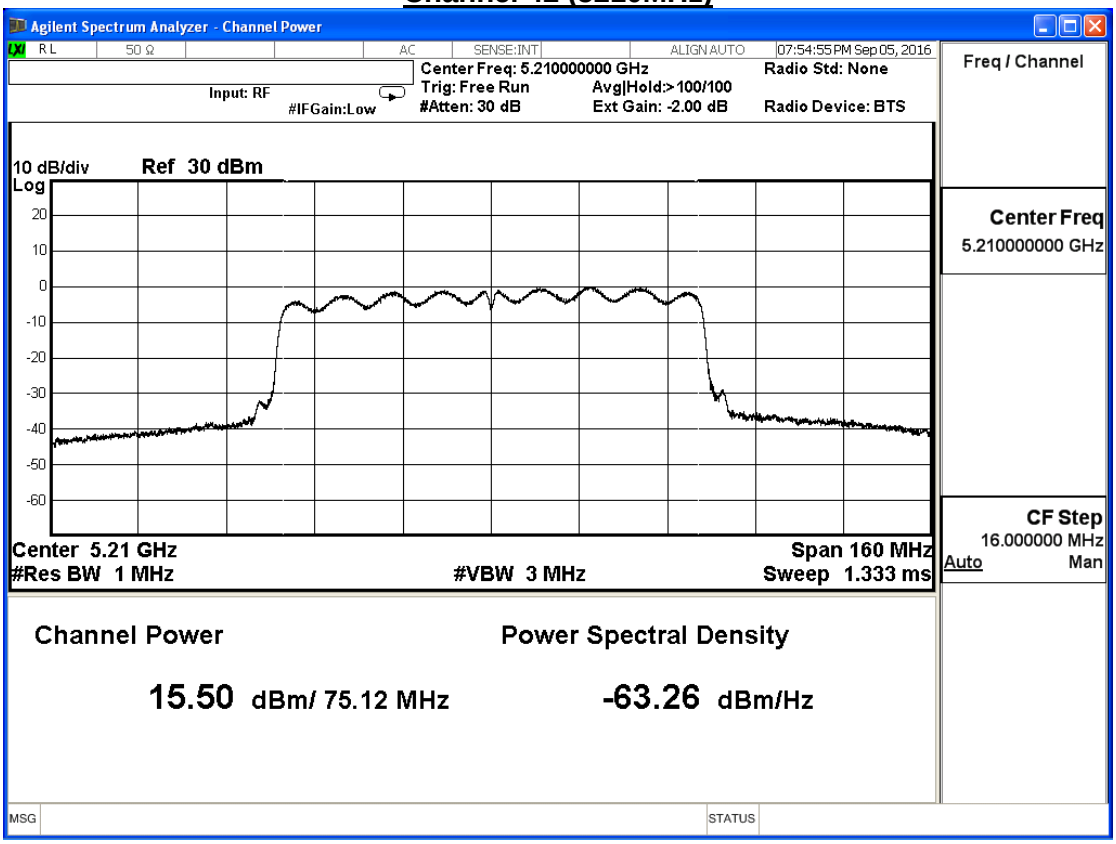
Product	Dual-Band Wireless-AC PCI-E Adapter		
Test Item	Peak Transmit power		
Test Mode	Mode 2: Transmit_CDD Mode		
Date of Test	2016/09/02	Test Site	SR7

IEEE 802.11ac80 (ANT 0)			
Channel No.	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)
42	5210	15.50	≤24

The worst emission of data rate is 29.3 Mbps.

Peak transmit power (dBm)											
MCS Index		0	1	2	3	4	5	6	7	8	Require Limit
Channel No	Frequency (MHz)	Data Rate									
		29.3	58.5	87.8	117	175.5	234	263.3	292.5	351	≤24dBm
42	5210	15.50	15.21	14.92	14.64	14.06	13.48	13.19	12.91	12.33	

Channel 42 (5210MHz)



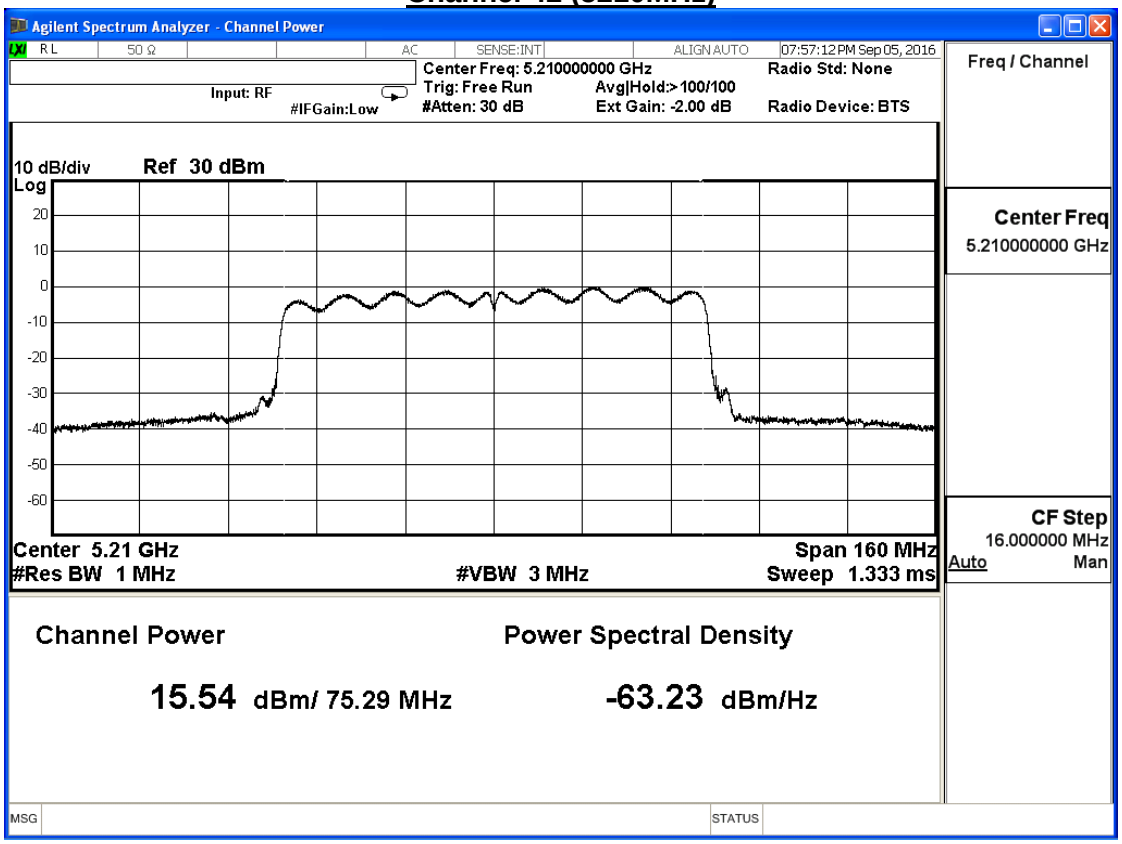
Product	Dual-Band Wireless-AC PCI-E Adapter		
Test Item	Peak Transmit power		
Test Mode	Mode 2: Transmit_CDD Mode		
Date of Test	2016/09/02	Test Site	SR7

IEEE 802.11ac80 (ANT 1)			
Channel No.	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)
42	5210	15.54	≤24

The worst emission of data rate is 29.3 Mbps.

Peak transmit power (dBm)											
MCS Index		0	1	2	3	4	5	6	7	8	Require Limit
Channel No	Frequency (MHz)	Data Rate									
		29.3	58.5	87.8	117	175.5	234	263.3	292.5	351	≤24dBm
42	5210	15.54	15.26	14.99	14.71	14.15	13.60	13.32	13.04	12.49	

Channel 42 (5210MHz)



Product	Dual-Band Wireless-AC PCI-E Adapter		
Test Item	Peak Transmit power		
Test Mode	Mode 2: Transmit_CDD Mode		
Date of Test	2016/09/02	Test Site	SR7

IEEE 802.11ac80 (ANT 0+1)			
Channel No.	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)
42	5210	18.53	≤24

The worst emission of data rate is 29.3 Mbps.

Peak transmit power (dBm)											
MCS Index		0	1	2	3	4	5	6	7	8	Require Limit
Channel No	Frequency (MHz)	Data Rate									
		29.3	58.5	87.8	117	175.5	234	263.3	292.5	351	≤24dBm
42	5210	18.53	18.25	17.96	17.68	17.12	16.55	16.27	15.99	15.42	

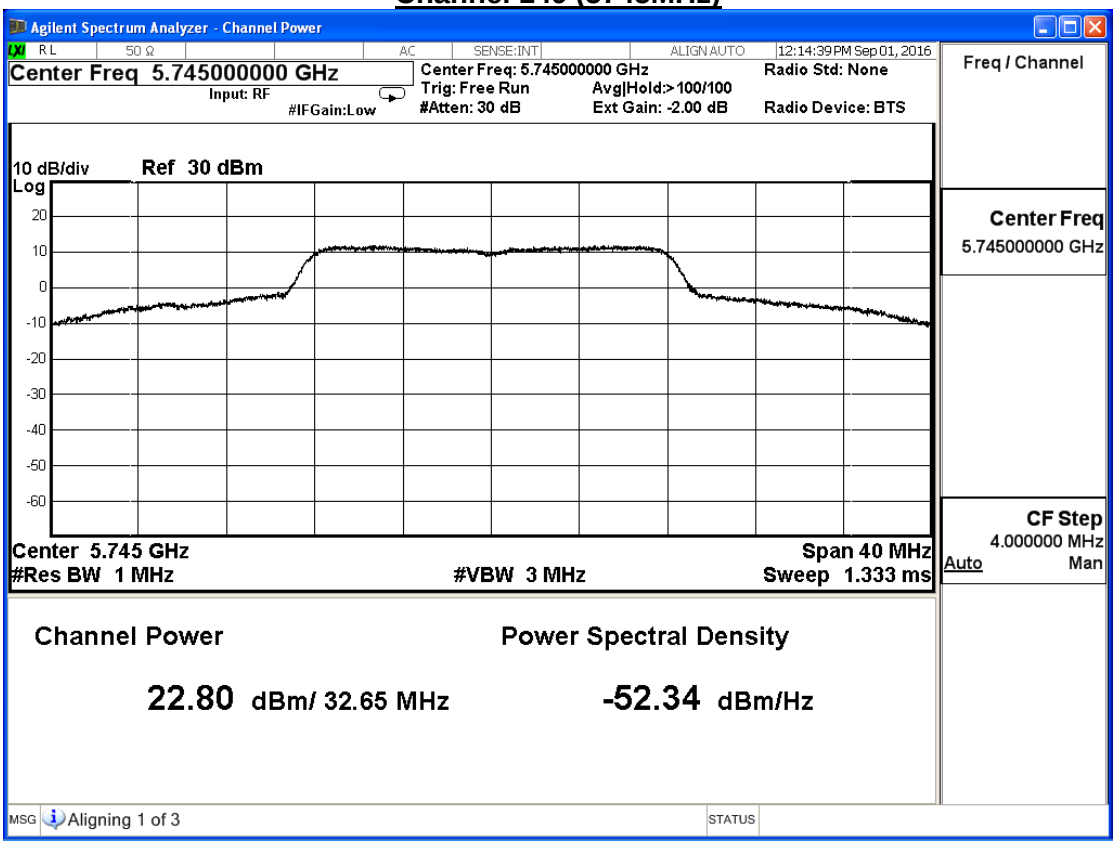
Product	Dual-Band Wireless-AC PCI-E Adapter		
Test Item	Peak Transmit power		
Test Mode	Mode 1: Transmit_SISO Mode		
Date of Test	2016/08/08	Test Site	SR7

IEEE 802.11a (ANT 0)			
Channel No.	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)
149	5745	22.80	≤30
157	5785	23.16	≤30
165	5825	23.04	≤30

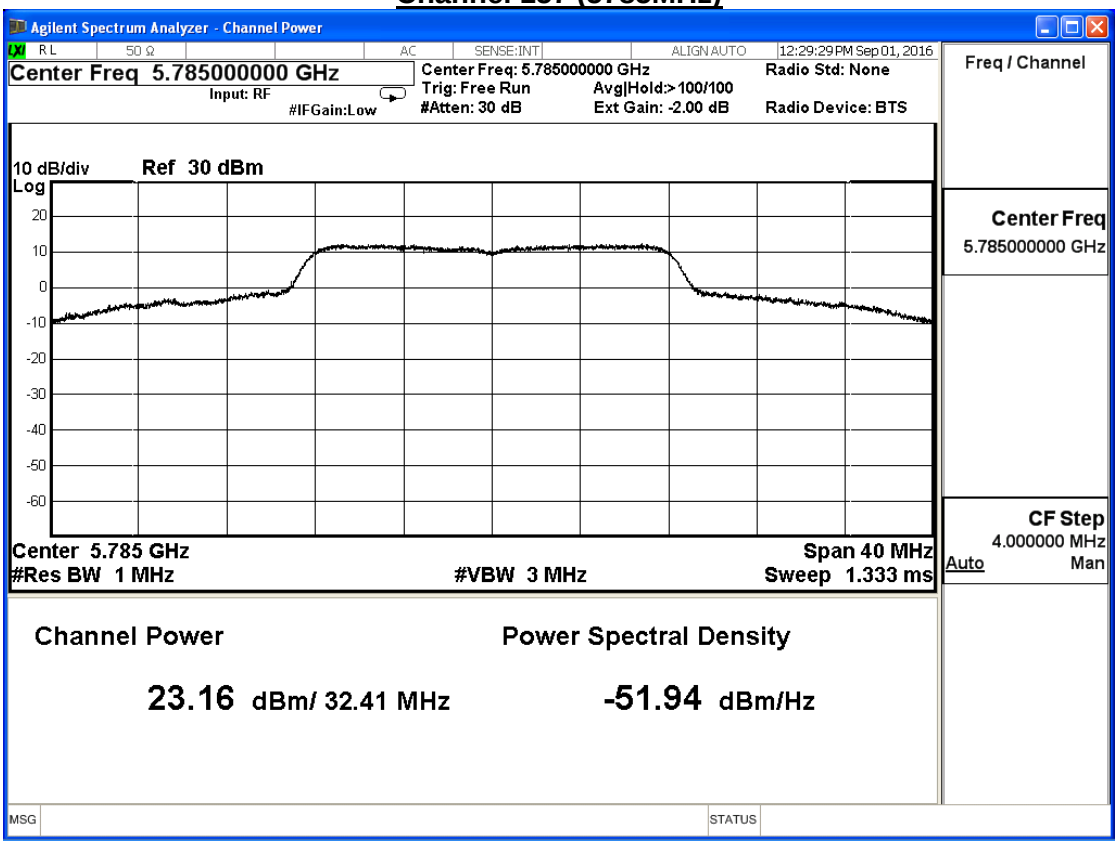
The worst emission of data rate is 6 Mbps.

Peak transmit power (dBm)									
Channel No	Frequency (MHz)	Data Rate							Required Limit
		6	12	18	24	36	48	54	
149	5745	22.80	--	--	--	--	--	--	≤30dBm
157	5785	23.16	22.90	22.63	22.37	21.84	21.31	21.05	
165	5825	23.04	--	--	--	--	--	--	

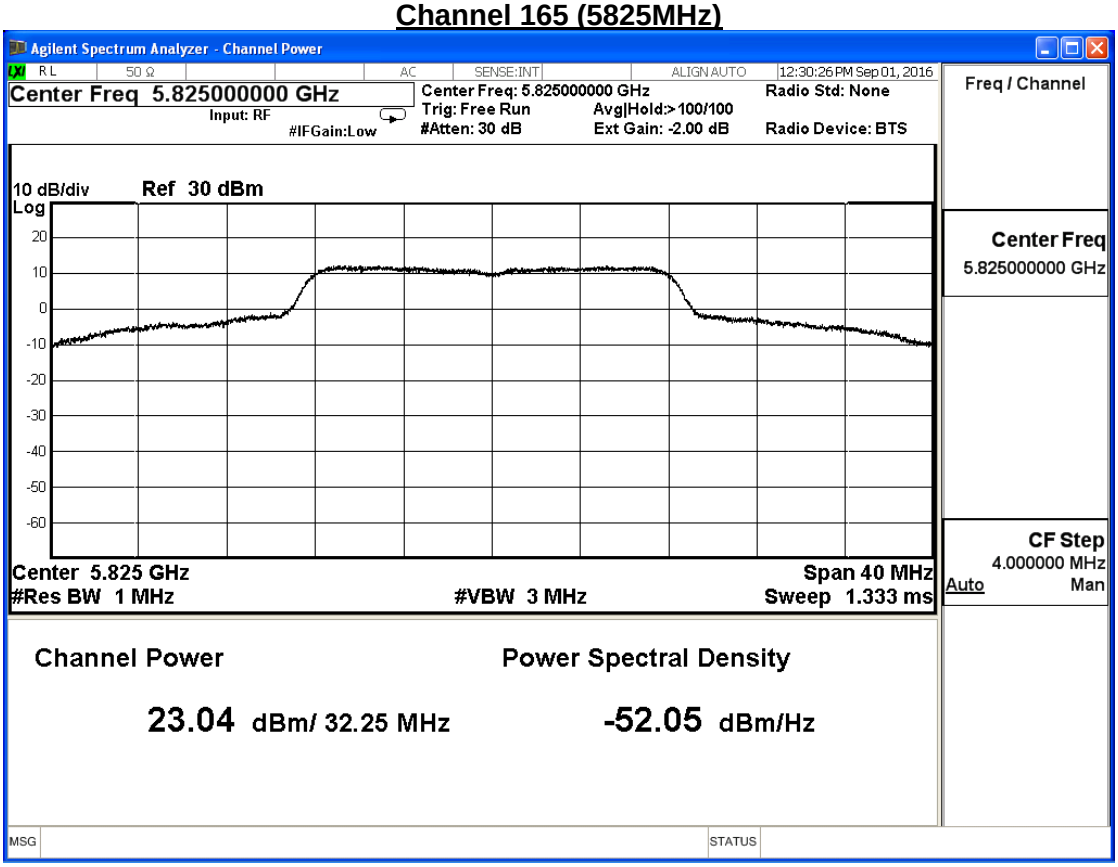
Channel 149 (5745MHz)



Channel 157 (5785MHz)



Channel 165 (5825MHz)



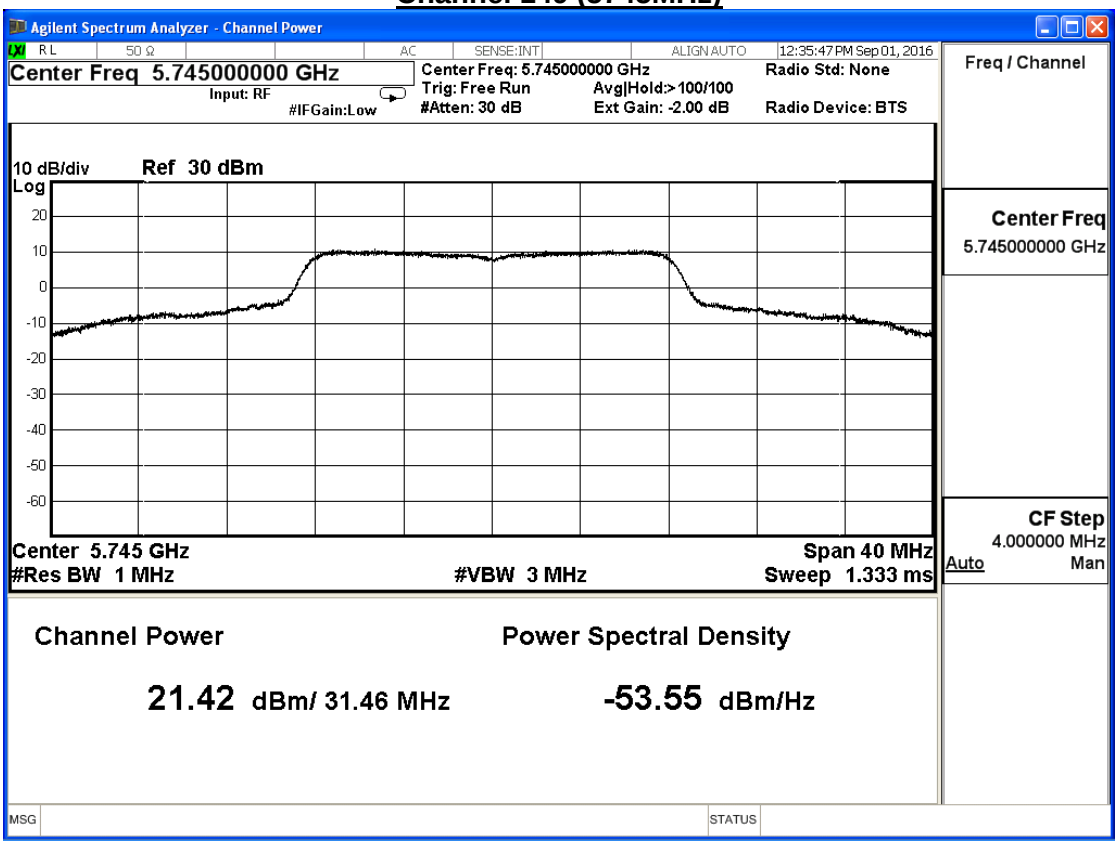
Product	Dual-Band Wireless-AC PCI-E Adapter		
Test Item	Peak Transmit power		
Test Mode	Mode 1: Transmit_SISO Mode		
Date of Test	2016/08/08	Test Site	SR7

IEEE 802.11a (ANT 1)			
Channel No.	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)
149	5745	21.42	≤30
157	5785	22.58	≤30
165	5825	22.02	≤30

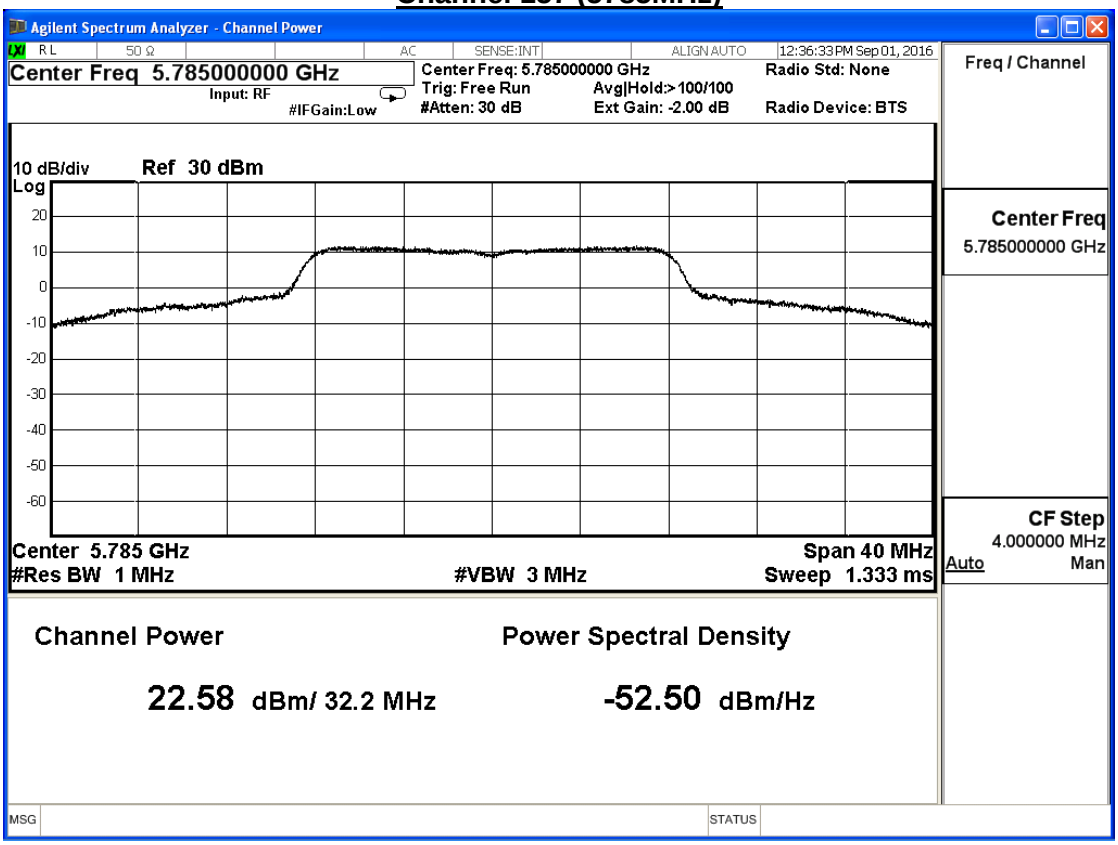
The worst emission of data rate is 6 Mbps.

Peak transmit power (dBm)									
Channel No	Frequency (MHz)	Data Rate							Required Limit
		6	12	18	24	36	48	54	
149	5745	21.42	--	--	--	--	--	--	≤30dBm
157	5785	22.58	22.34	22.10	21.86	21.37	20.89	20.65	
165	5825	22.02	--	--	--	--	--	--	

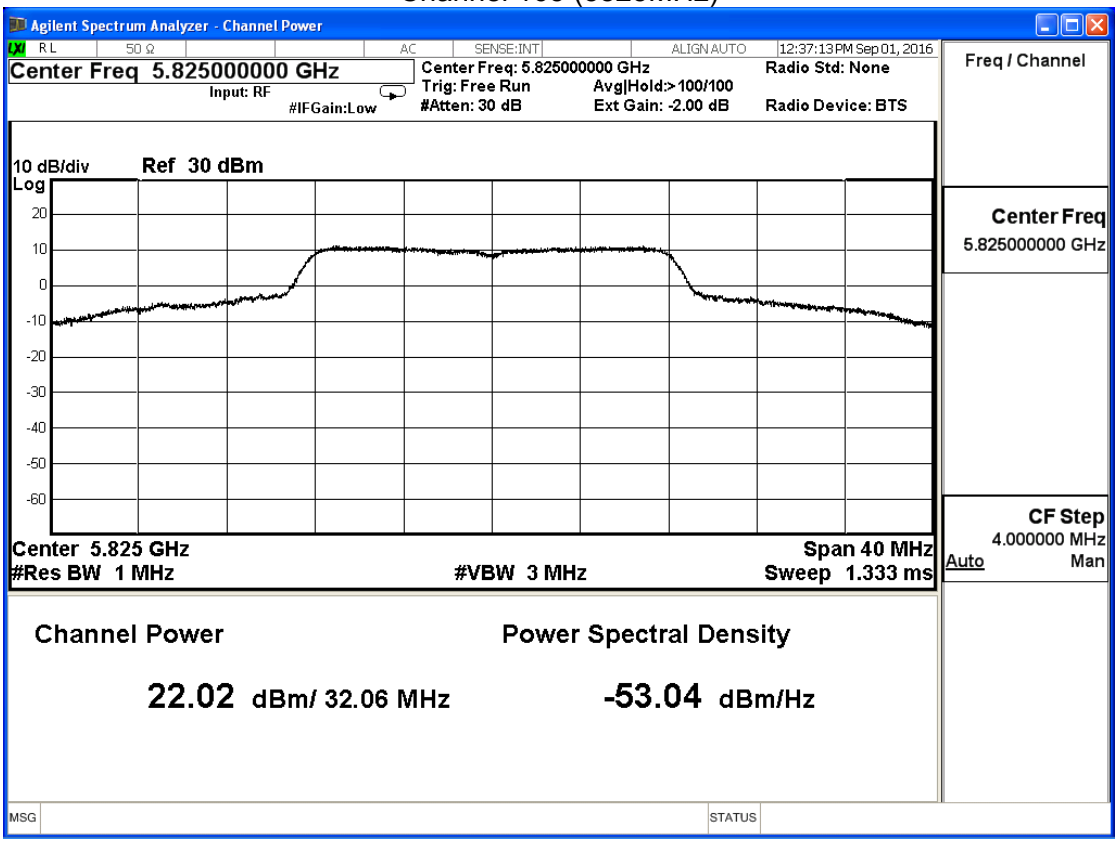
Channel 149 (5745MHz)



Channel 157 (5785MHz)



Channel 165 (5825MHz)



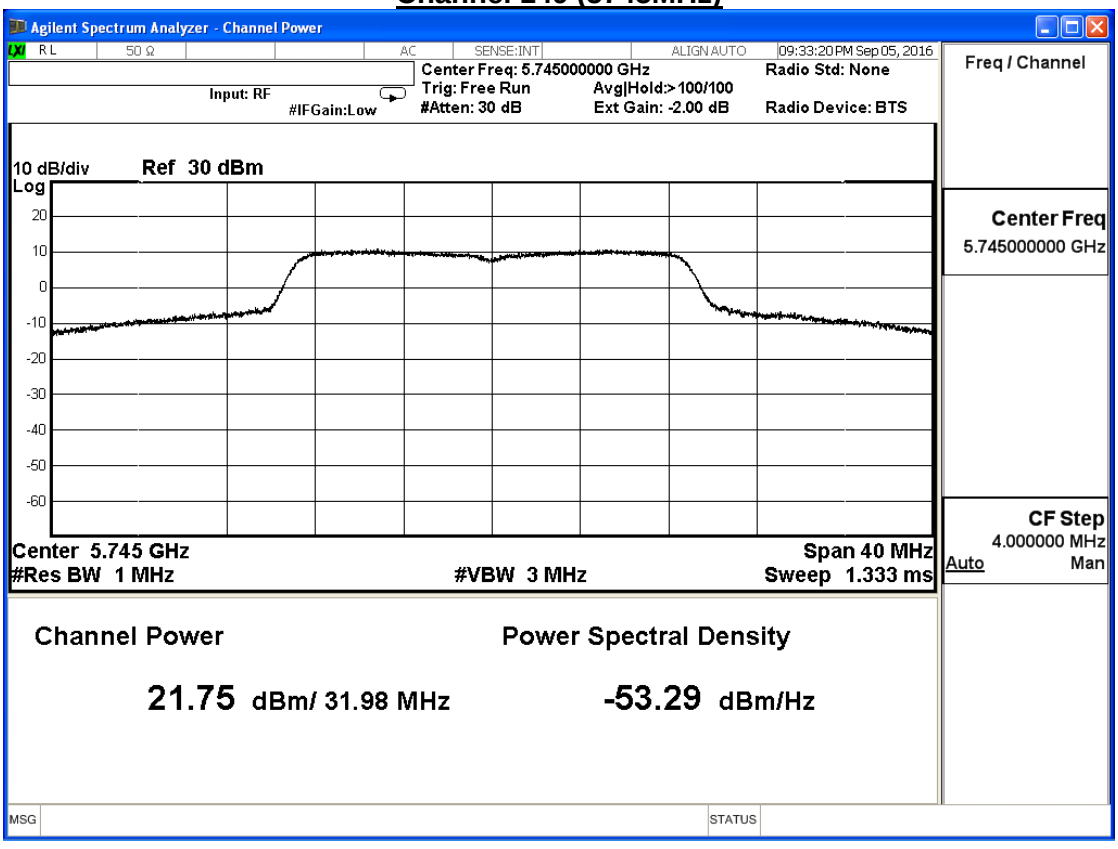
Product	Dual-Band Wireless-AC PCI-E Adapter		
Test Item	Peak Transmit power		
Test Mode	Mode 2: Transmit_CDD Mode		
Date of Test	2016/08/08	Test Site	SR7

IEEE 802.11n20 (ANT 0)			
Channel No.	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)
149	5745	21.75	≦30
157	5785	22.51	≦30
165	5825	21.98	≦30

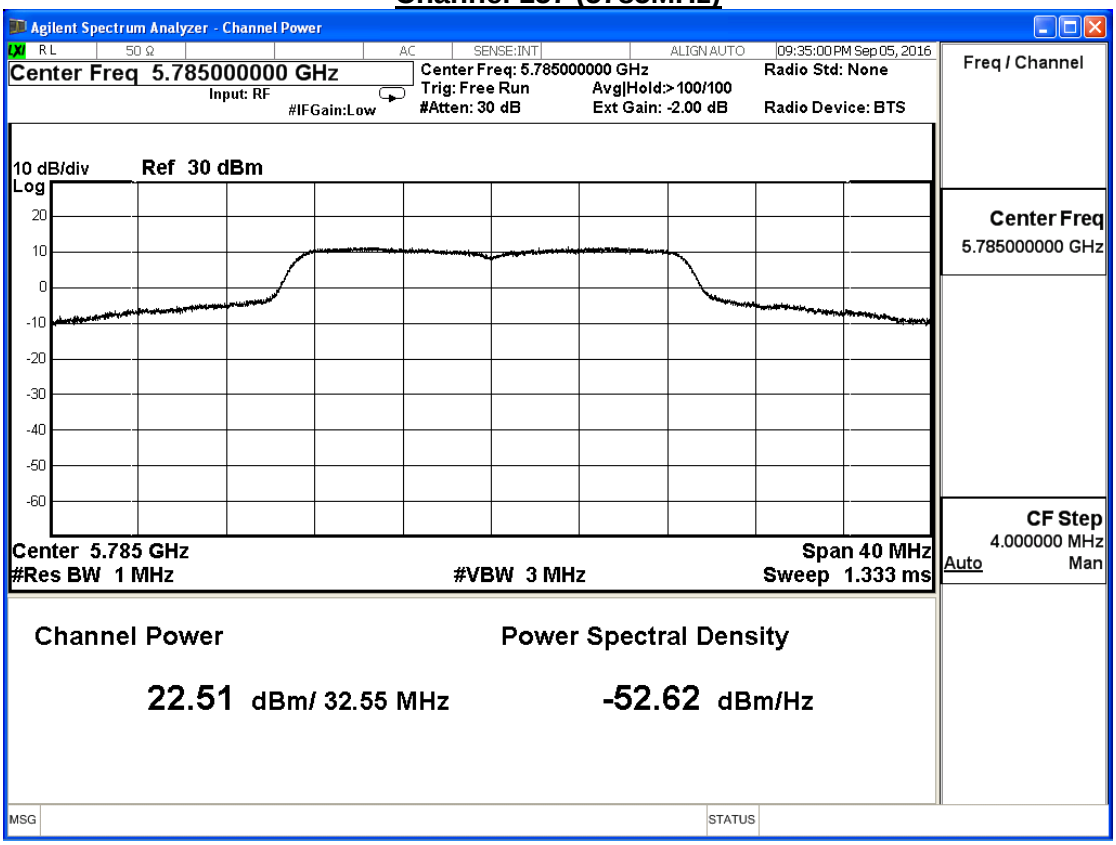
The worst emission of data rate is 6.5 Mbps

Peak transmit power (dBm)										
MCS Index		0	1	2	3	4	5	6	7	Required Limit
Channel No	Frequency (MHz)	Data Rate								
		6.5	13	19.5	26	39	52	58.5	65	
149	5745	21.75	--	--	--	--	--	--	--	≦30dBm
157	5785	22.51	22.31	22.12	21.92	21.53	21.13	20.94	20.74	
165	5825	21.98	--	--	--	--	--	--	--	

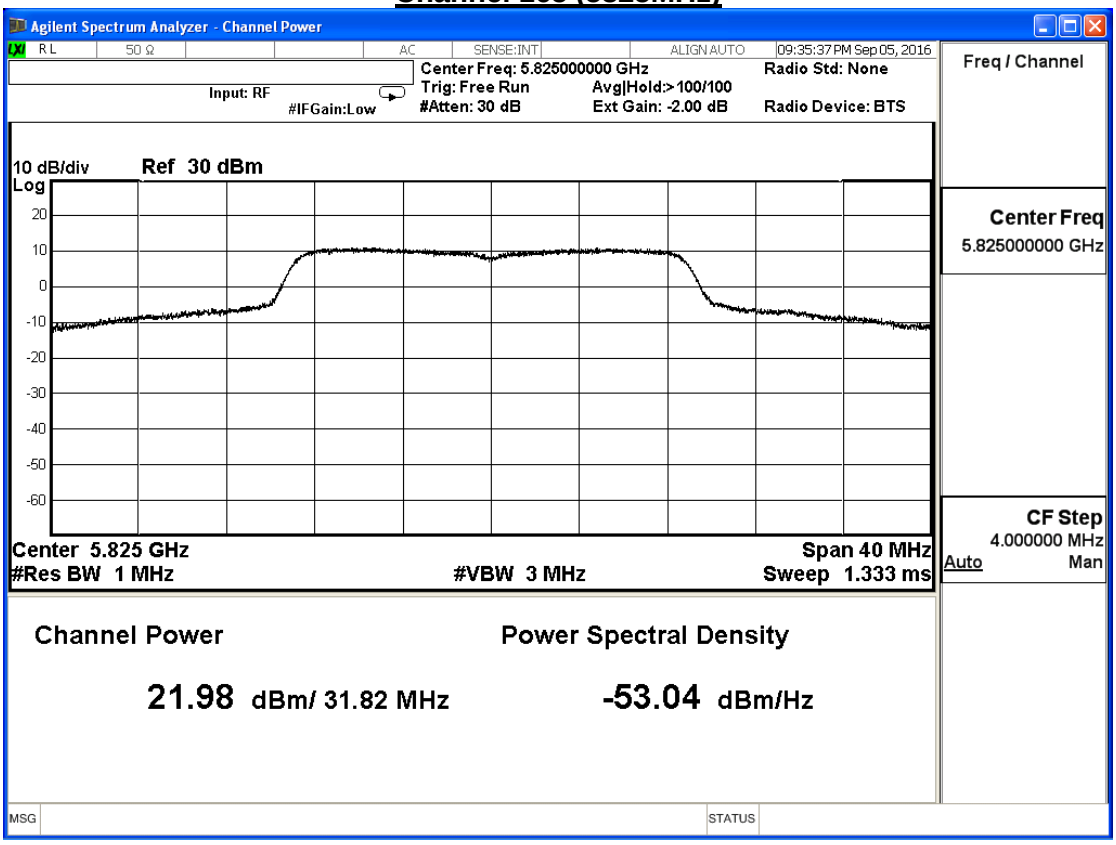
Channel 149 (5745MHz)



Channel 157 (5785MHz)



Channel 165 (5825MHz)



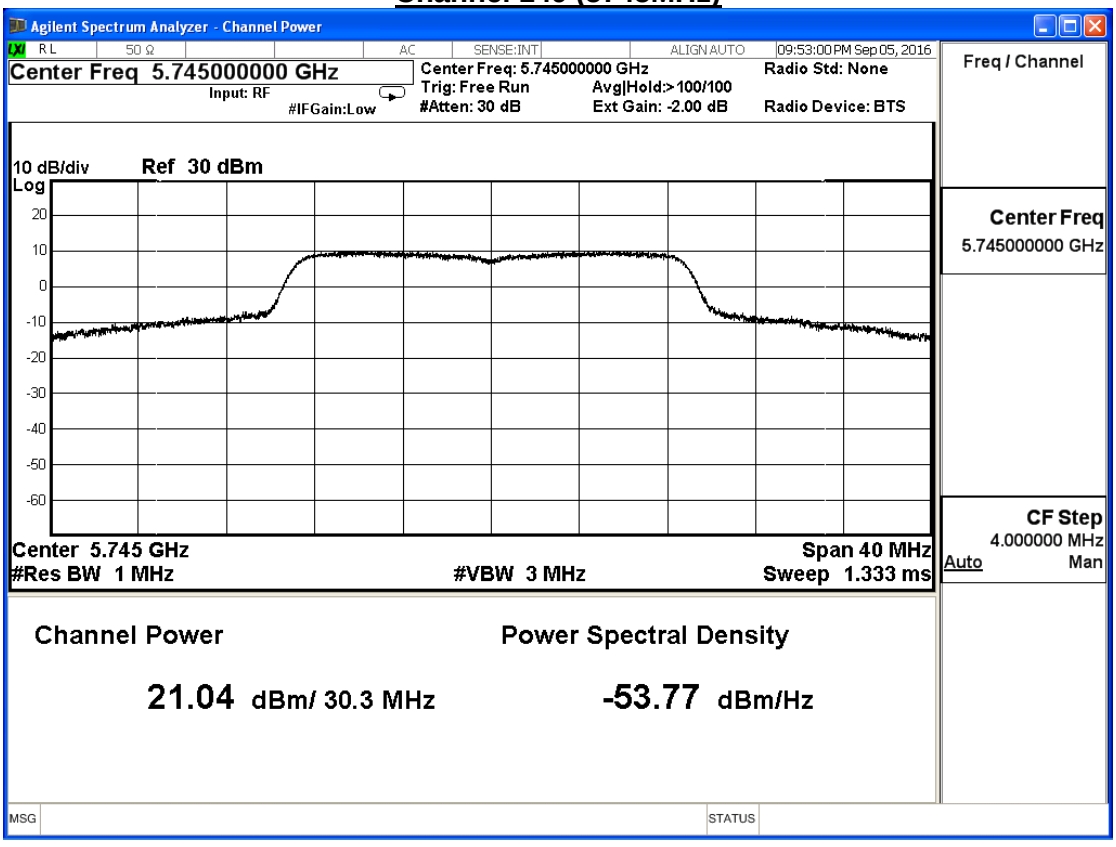
Product	Dual-Band Wireless-AC PCI-E Adapter		
Test Item	Peak Transmit power		
Test Mode	Mode 2: Transmit_CDD Mode		
Date of Test	2016/08/08	Test Site	SR7

IEEE 802.11n20 (ANT 1)			
Channel No.	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)
149	5745	21.04	≦30
157	5785	22.08	≦30
165	5825	21.63	≦30

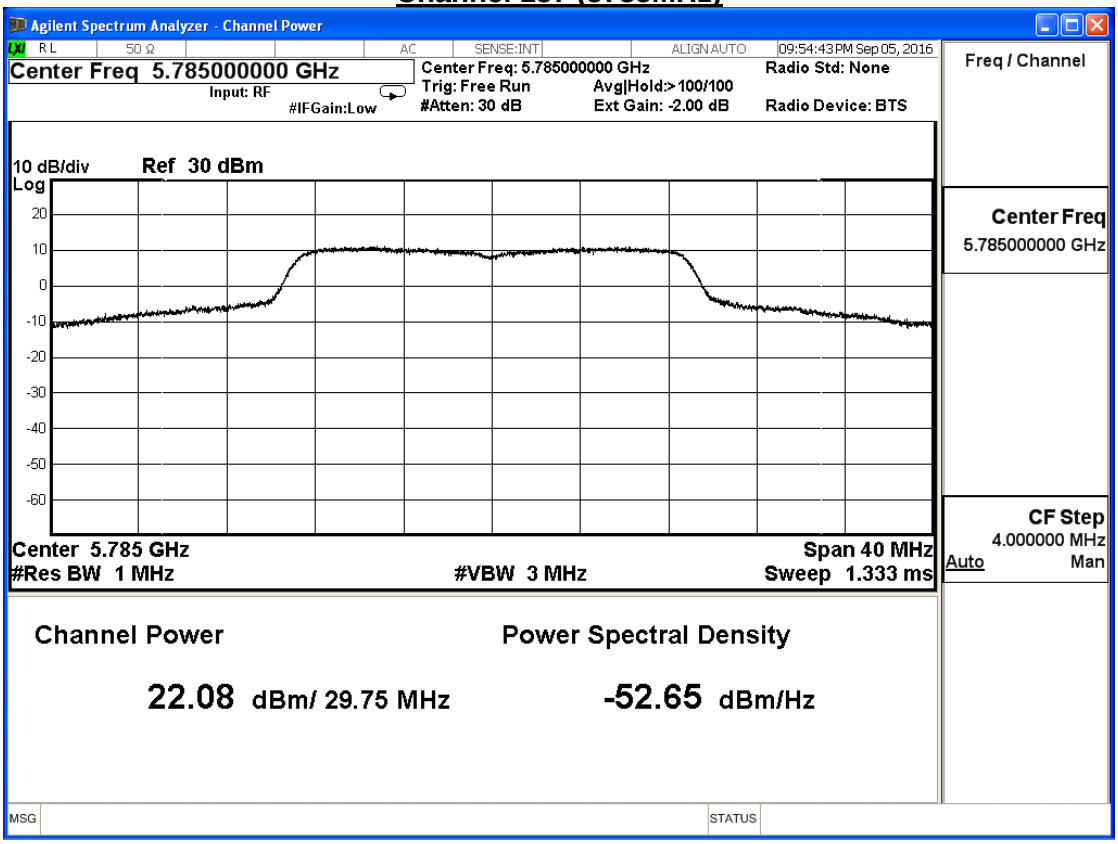
The worst emission of data rate is 6.5 Mbps

Peak transmit power (dBm)										
MCS Index		0	1	2	3	4	5	6	7	Required Limit
Channel No	Frequency (MHz)	Data Rate								
		6.5	13	19.5	26	39	52	58.5	65	
149	5745	21.04	--	--	--	--	--	--	--	≦30dBm
157	5785	22.08	21.87	21.66	21.46	21.04	20.63	20.42	20.21	
165	5825	21.63	--	--	--	--	--	--	--	

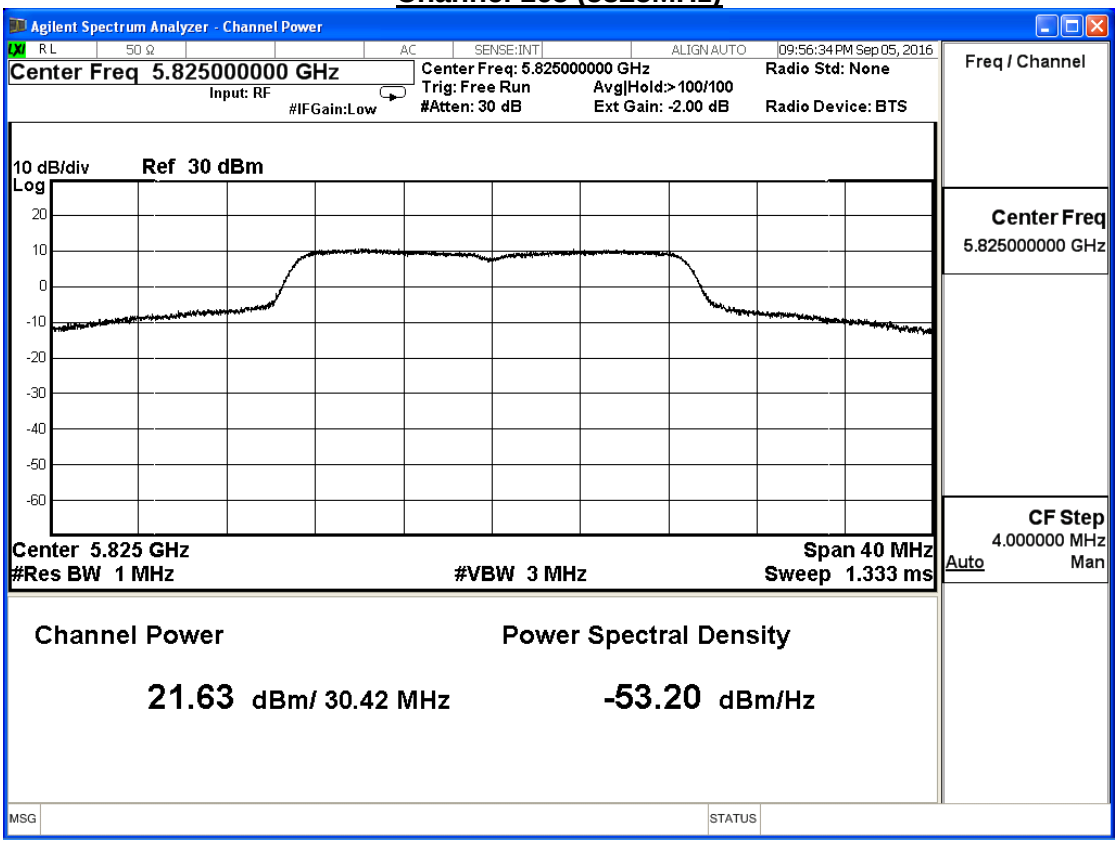
Channel 149 (5745MHz)



Channel 157 (5785MHz)



Channel 165 (5825MHz)



Product	Dual-Band Wireless-AC PCI-E Adapter		
Test Item	Peak Transmit power		
Test Mode	Mode 2: Transmit_CDD Mode		
Date of Test	2016/08/08	Test Site	SR7

IEEE 802.11n20 (ANT 0+1)			
Channel No.	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)
149	5745	24.42	≦30
157	5785	25.31	≦30
165	5825	24.82	≦30

The worst emission of data rate is 6.5 Mbps

Peak transmit power (dBm)									
MCS Index		0	1	2	3	4	5	6	7	Required Limit
Channel No	Frequency (MHz)	Data Rate								
		6.5	13	19.5	26	39	52	58.5	65	
149	5745	24.42	--	--	--	--	--	--	--	≦30dBm
157	5785	25.31	25.11	24.91	24.70	24.30	23.90	23.70	23.49	
165	5825	24.82	--	--	--	--	--	--	--	

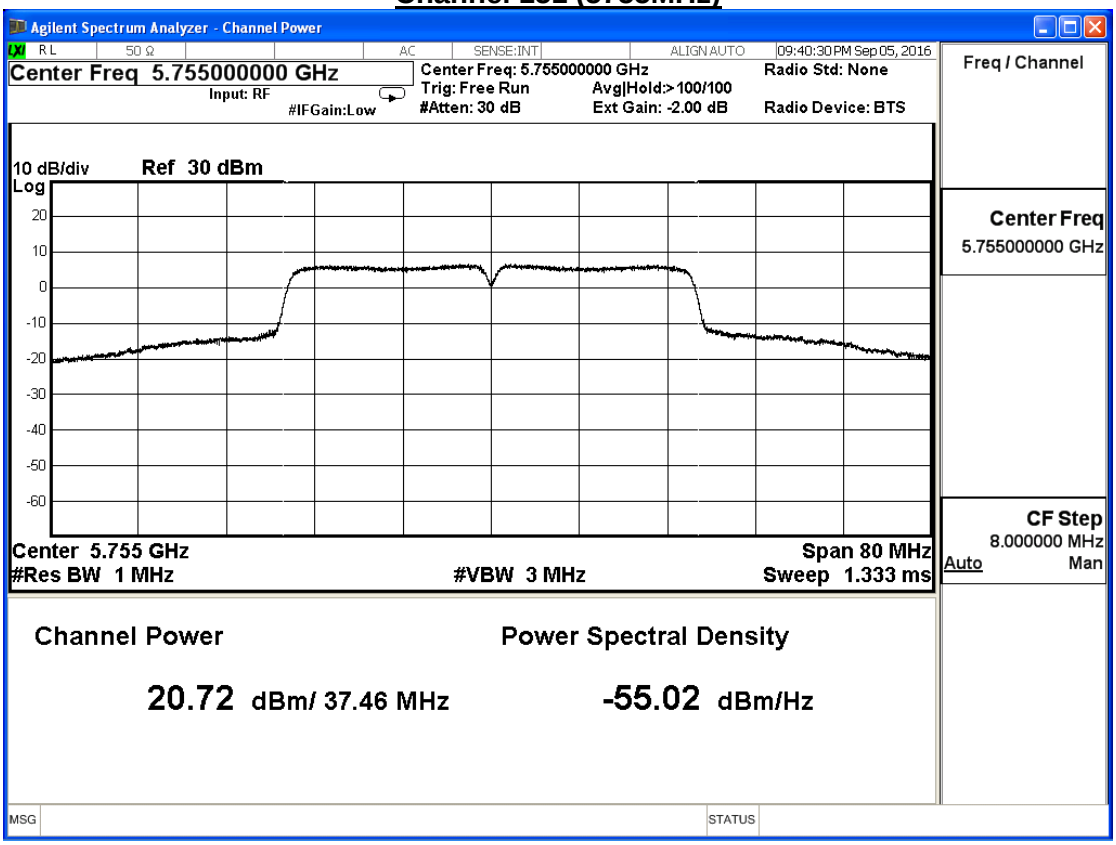
Product	Dual-Band Wireless-AC PCI-E Adapter		
Test Item	Peak Transmit power		
Test Mode	Mode 2: Transmit_CDD Mode		
Date of Test	2016/08/08	Test Site	SR7

IEEE 802.11n40 (ANT 0)			
Channel No.	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)
151	5755	20.72	≦30
159	5795	21.33	≦30

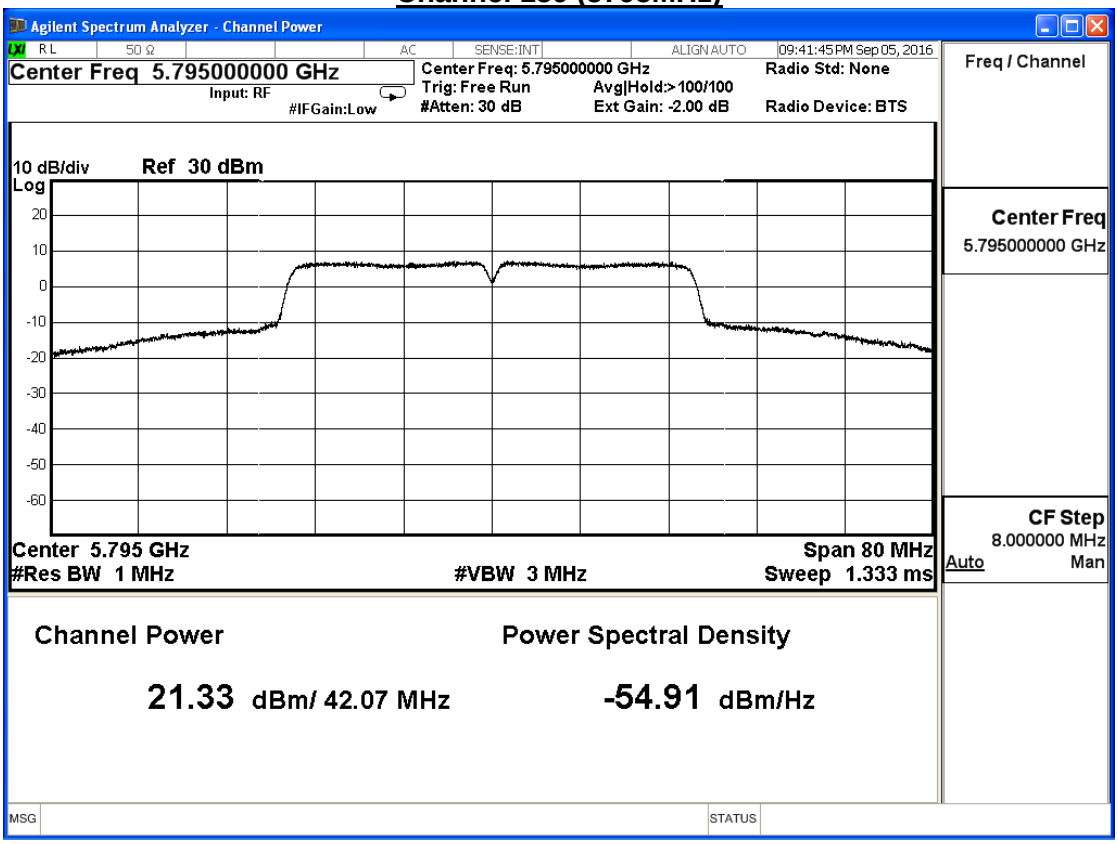
The worst emission of data rate is 13.5 Mbps.

Peak transmit power (dBm)										
MCS Index		0	1	2	3	4	5	6	7	Required Limit
Channel No	Frequency (MHz)	Data Rate								
		13.5	27	40.5	54	81	108	121.5	135	
151	5755	20.72	--	--	--	--	--	--	--	≦30dBm
159	5795	21.33	20.54	19.76	18.97	17.40	15.82	15.04	14.25	

Channel 151 (5755MHz)



Channel 159 (5795MHz)



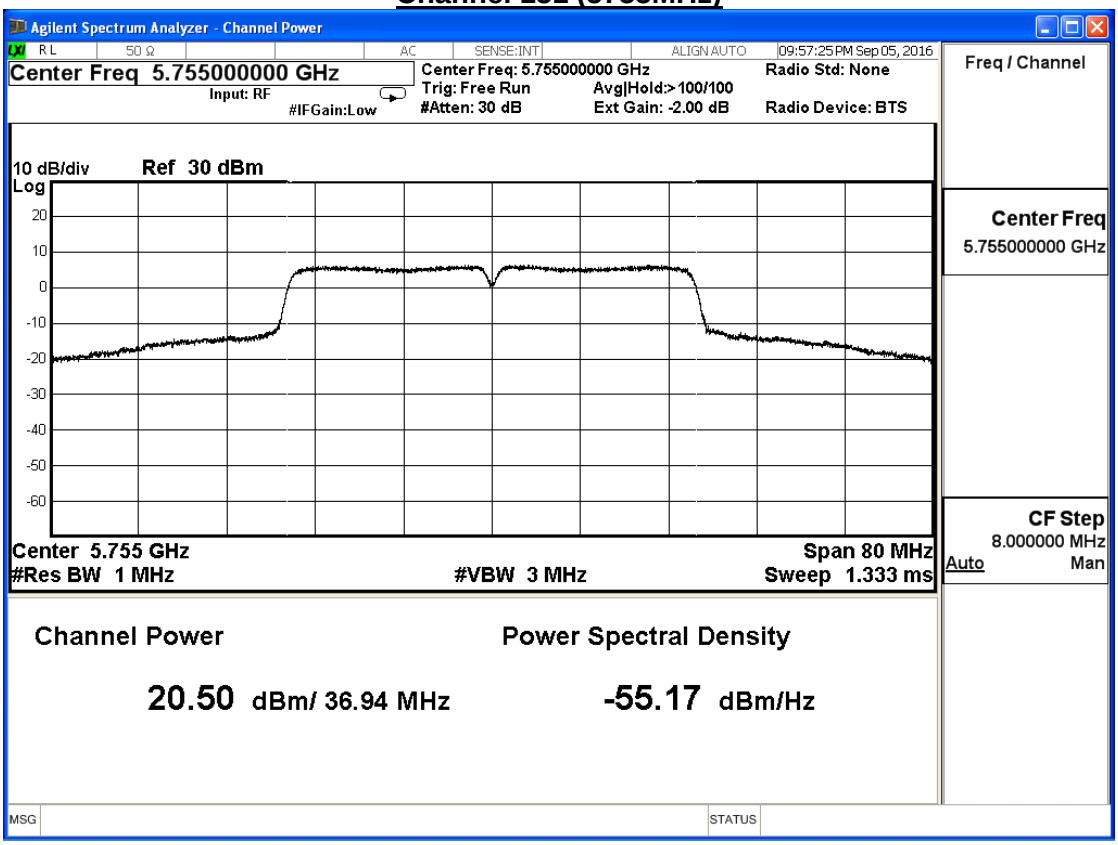
Product	Dual-Band Wireless-AC PCI-E Adapter		
Test Item	Peak Transmit power		
Test Mode	Mode 2: Transmit_CDD Mode		
Date of Test	2016/08/08	Test Site	SR7

IEEE 802.11n40 (ANT 1)			
Channel No.	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)
151	5755	20.50	≦30
159	5795	20.98	≦30

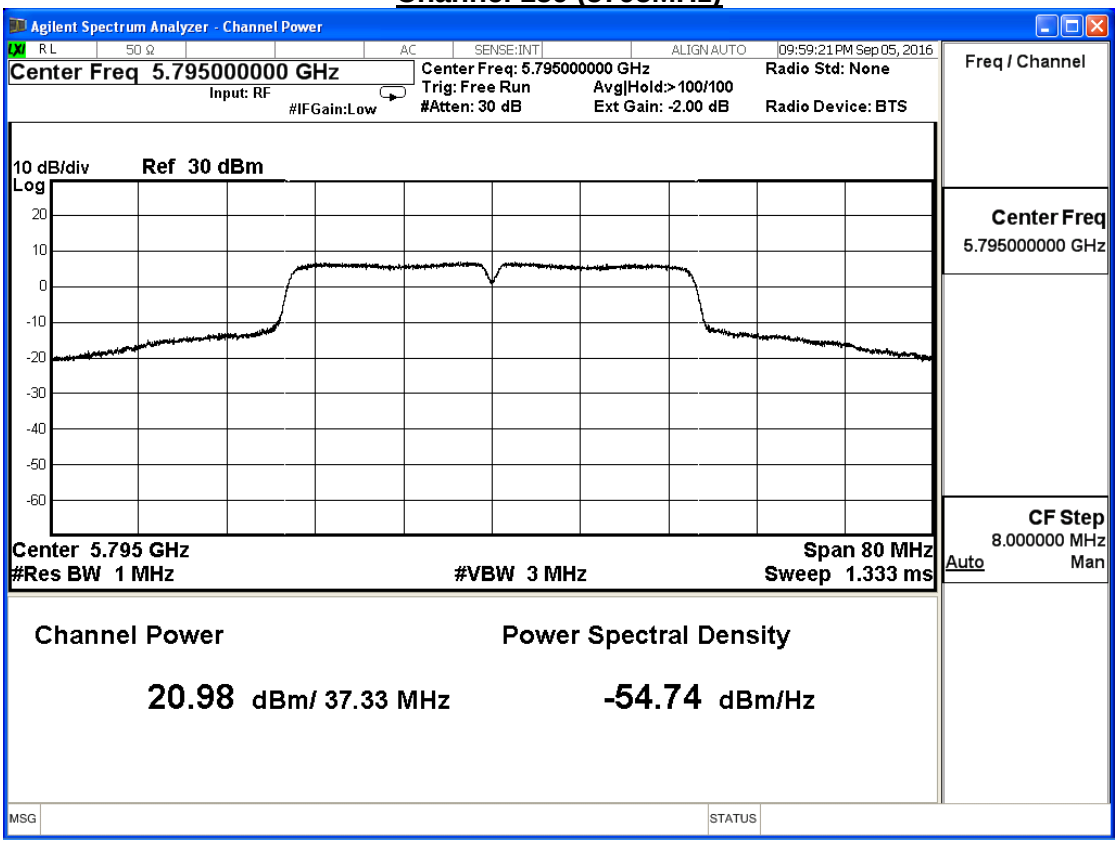
The worst emission of data rate is 13.5Mbps.

Peak transmit power (dBm)										
MCS Index		0	1	2	3	4	5	6	7	Required Limit
Channel No	Frequency (MHz)	Data Rate								
		13.5	27	40.5	54	81	108	121.5	135	
151	5755	20.50	--	--	--	--	--	--	--	≦30dBm
159	5795	20.98	20.22	19.45	18.69	17.16	15.64	14.87	14.11	

Channel 151 (5755MHz)



Channel 159 (5795MHz)



Product	Dual-Band Wireless-AC PCI-E Adapter		
Test Item	Peak Transmit power		
Test Mode	Mode 2: Transmit_CDD Mode		
Date of Test	2016/08/08	Test Site	SR7

IEEE 802.11n40 (ANT 0+1)			
Channel No.	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)
151	5755	23.62	≦30
159	5795	24.17	≦30

The worst emission of data rate is 13.5 Mbps.

Peak transmit power (dBm)										
MCS Index		0	1	2	3	4	5	6	7	Required Limit
Channel No	Frequency (MHz)	Data Rate								
		13.5	27	40.5	54	81	108	121.5	135	
151	5755	23.62	--	--	--	--	--	--	--	≦30dBm
159	5795	24.17	23.39	22.62	21.84	20.29	18.74	17.97	17.19	

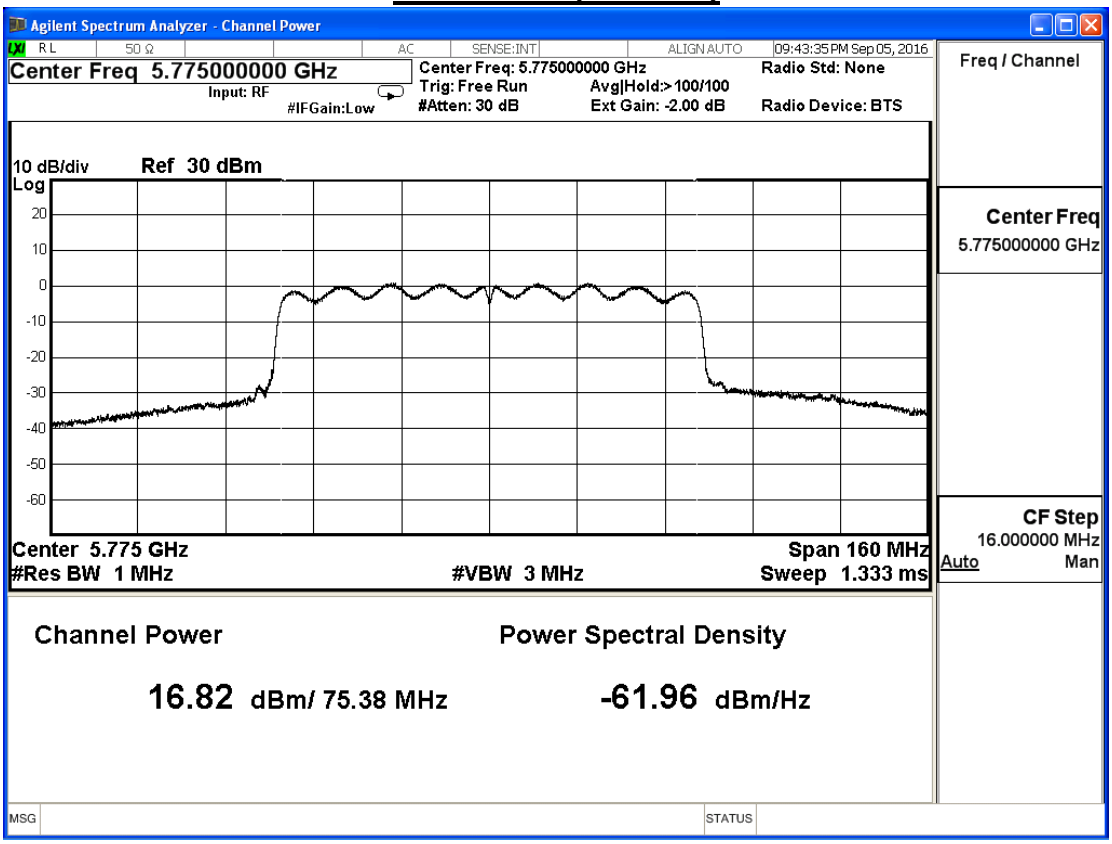
Product	Dual-Band Wireless-AC PCI-E Adapter		
Test Item	Peak Transmit power		
Test Mode	Mode 2: Transmit_CDD Mode		
Date of Test	2016/08/08	Test Site	SR7

IEEE 802.11ac80 (ANT 0)			
Channel No.	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)
155	5775	16.82	≦30

The worst emission of data rate is 29.3 Mbps.

Peak transmit power (dBm)											
MCS Index		0	1	2	3	4	5	6	7	8	Require Limit
Channel No	Frequency (MHz)	Data Rate									
		29.3	58.5	87.8	117	175.5	234	263.3	292.5	351	≦30dBm
155	5775	16.82	16.12	15.42	14.72	13.32	11.91	11.21	10.51	9.11	

Channel 155 (5775MHz)



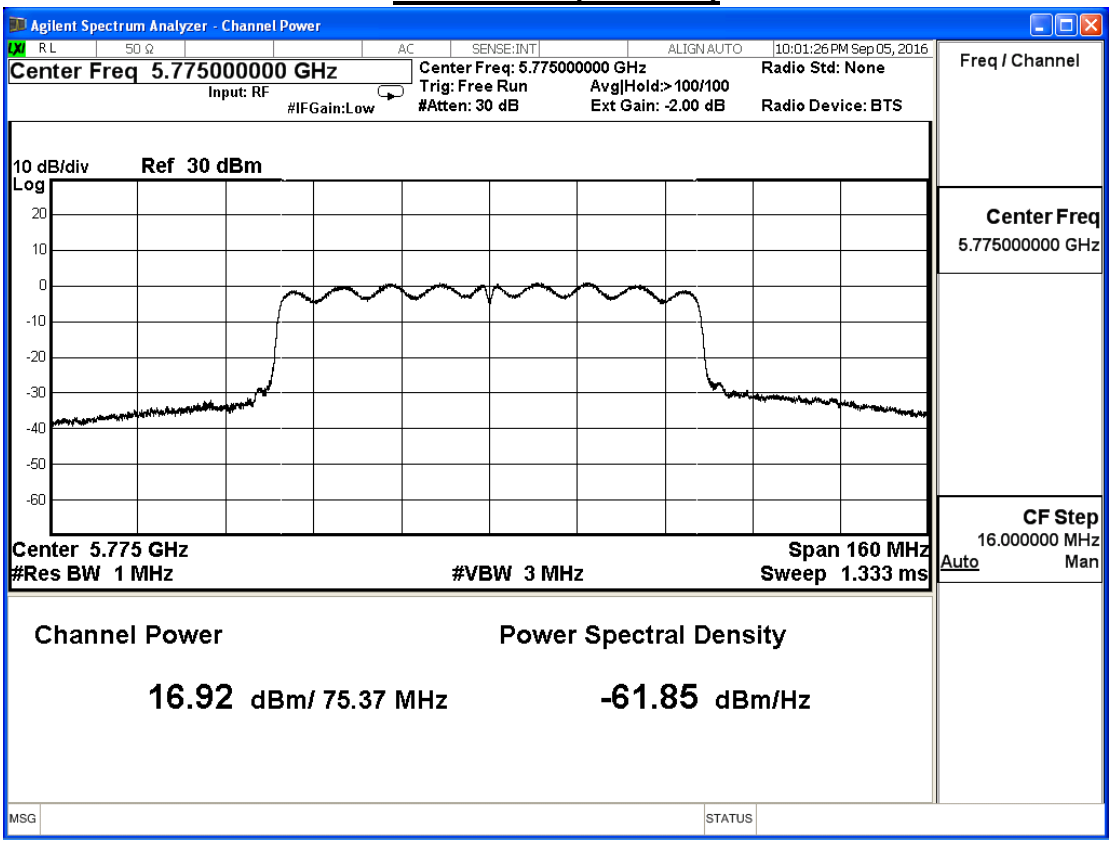
Product	Dual-Band Wireless-AC PCI-E Adapter		
Test Item	Peak Transmit power		
Test Mode	Mode 2: Transmit_CDD Mode		
Date of Test	2016/08/08	Test Site	SR7

IEEE 802.11ac80 (ANT 1)			
Channel No.	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)
155	5775	16.92	≦30

The worst emission of data rate is 29.3 Mbps.

Peak transmit power (dBm)											
MCS Index		0	1	2	3	4	5	6	7	8	Require Limit
Channel No	Frequency (MHz)	Data Rate									
		29.3	58.5	87.8	117	175.5	234	263.3	292.5	351	≦30dBm
155	5775	16.92	16.15	15.48	14.81	13.47	12.13	11.46	10.79	9.45	

Channel 155 (5775MHz)



Product	Dual-Band Wireless-AC PCI-E Adapter		
Test Item	Peak Transmit power		
Test Mode	Mode 2: Transmit_CDD Mode		
Date of Test	2016/08/08	Test Site	SR7

IEEE 802.11ac80 (ANT 0+1)			
Channel No.	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)
155	5775	19.88	≦30

The worst emission of data rate is 29.3 Mbps.

Peak transmit power (dBm)											
MCS Index		0	1	2	3	4	5	6	7	8	Require Limit
Channel No	Frequency (MHz)	Data Rate									
		29.3	58.5	87.8	117	175.5	234	263.3	292.5	351	≦30dBm
155	5775	19.88	19.15	18.46	17.78	16.40	15.03	14.35	13.66	12.29	

5. Peak Power Spectrum Density

5.1. Test Equipment

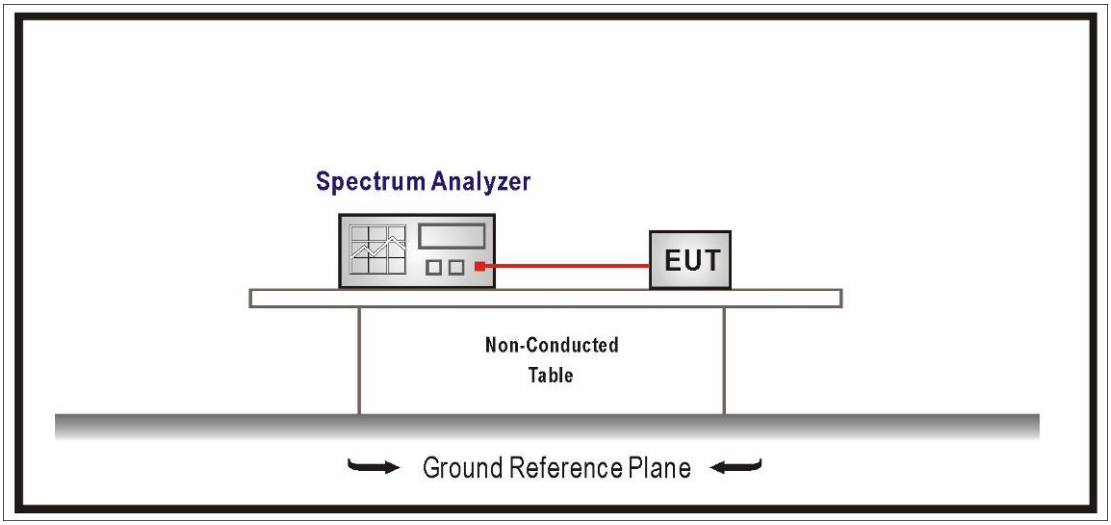
The following test equipments are used during the radiated emission tests:

Peak Power Spectrum Density / SR7

Instrument	Manufacturer	Model No.	Serial No	Next Cal. Date
Spectrum Analyzer	Agilent	N9010A	US47140172	2017/08/08
Signal & Spectrum Analyzer	R&S	FSV40	101049	2017/01/05
Signal Analyzer	R&S	FSV7	101650	2016/11/30

Note: All equipments that need to calibrate are with calibration period of 1 year.

5.2. Test Setup



5.3. Limits

1. For the band 5.15-5.25 GHz, the peak 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 peak 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 peak 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 peak 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 peak 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 peak power spectral density shall be reduced by the amount in dB that directional gain of the antenna exceeds 6 dBi..

5.4. Test Procedure

The EUT was setup to ANSI C63.10:2013; tested to U-NII test procedure of KDB 789033 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.

5.5. Uncertainty

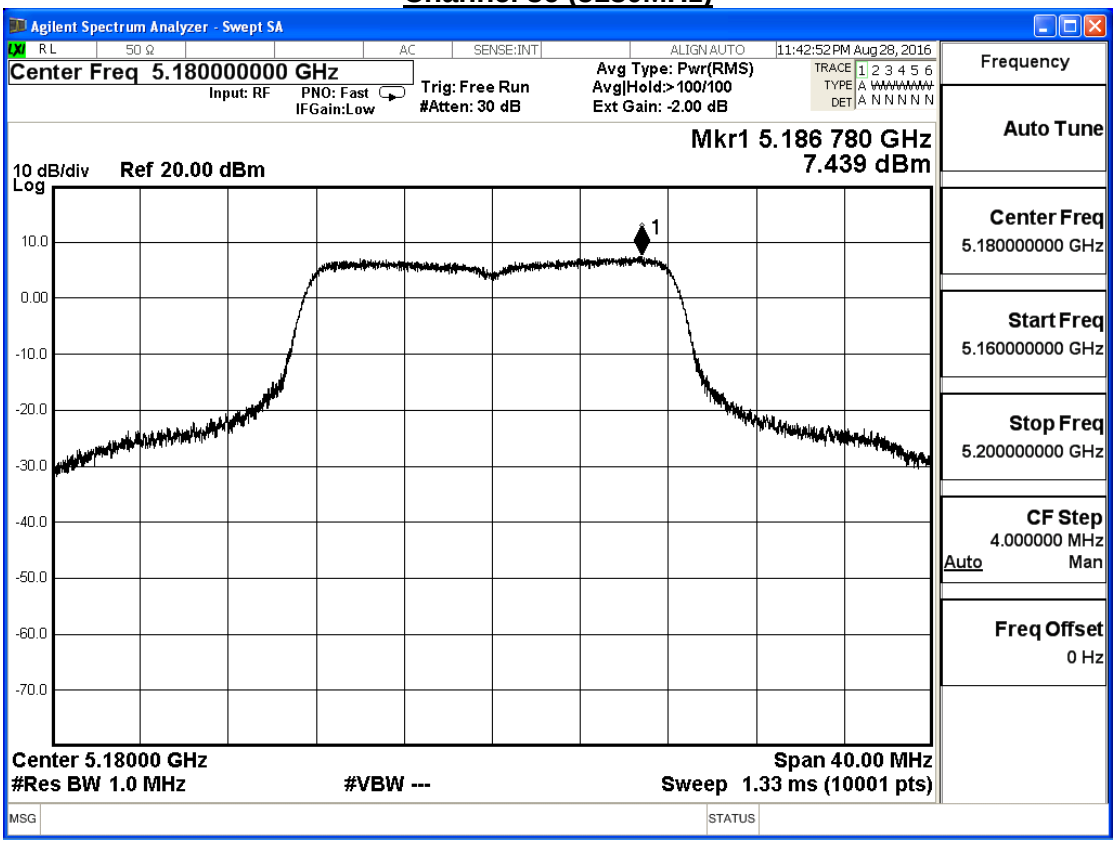
The measurement uncertainty is defined as ± 1.27 dB

5.6. Test Result

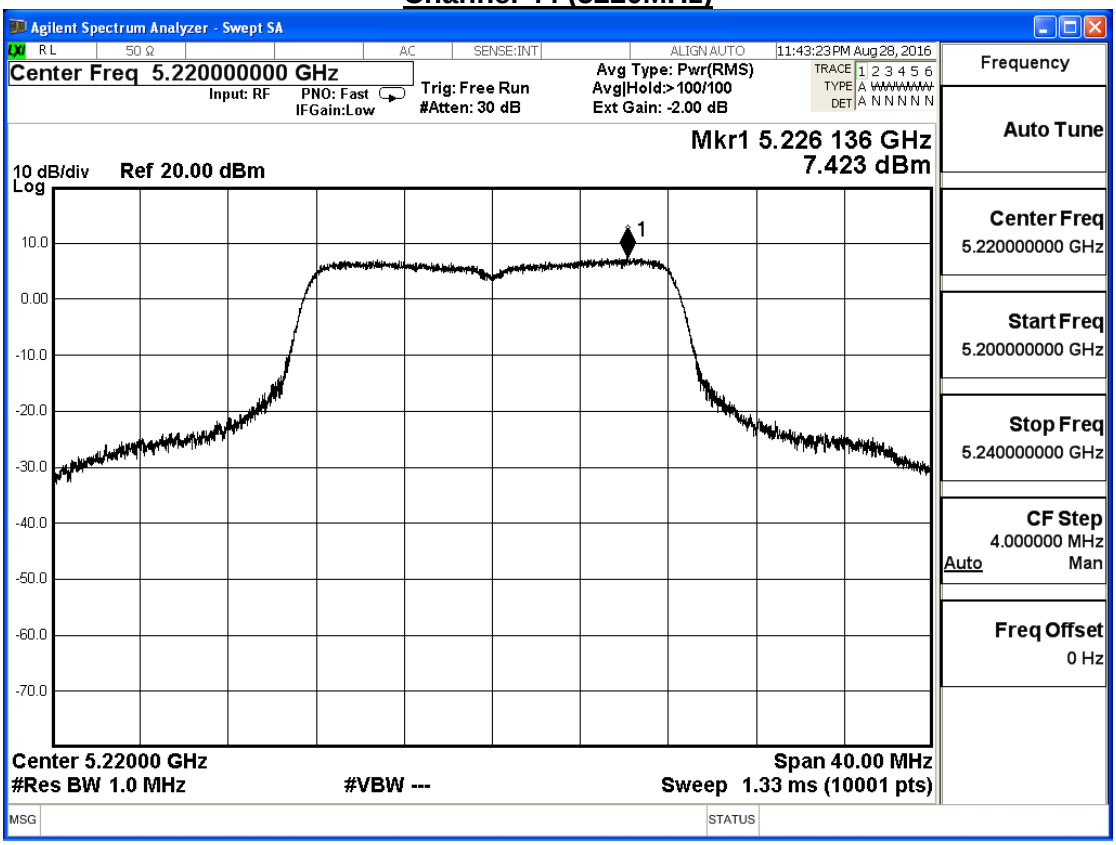
Product	Dual-Band Wireless-AC PCI-E Adapter		
Test Item	Peak Power Spectral Density		
Test Mode	Mode 1: Transmit_SISO Mode		
Date of Test	2016/08/25	Test Site	SR7

IEEE 802.11a (ANT 0)				
Channel No.	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Result
36	5180	7.439	≦11	Pass
44	5220	7.423	≦11	Pass
48	5240	4.688	≦11	Pass

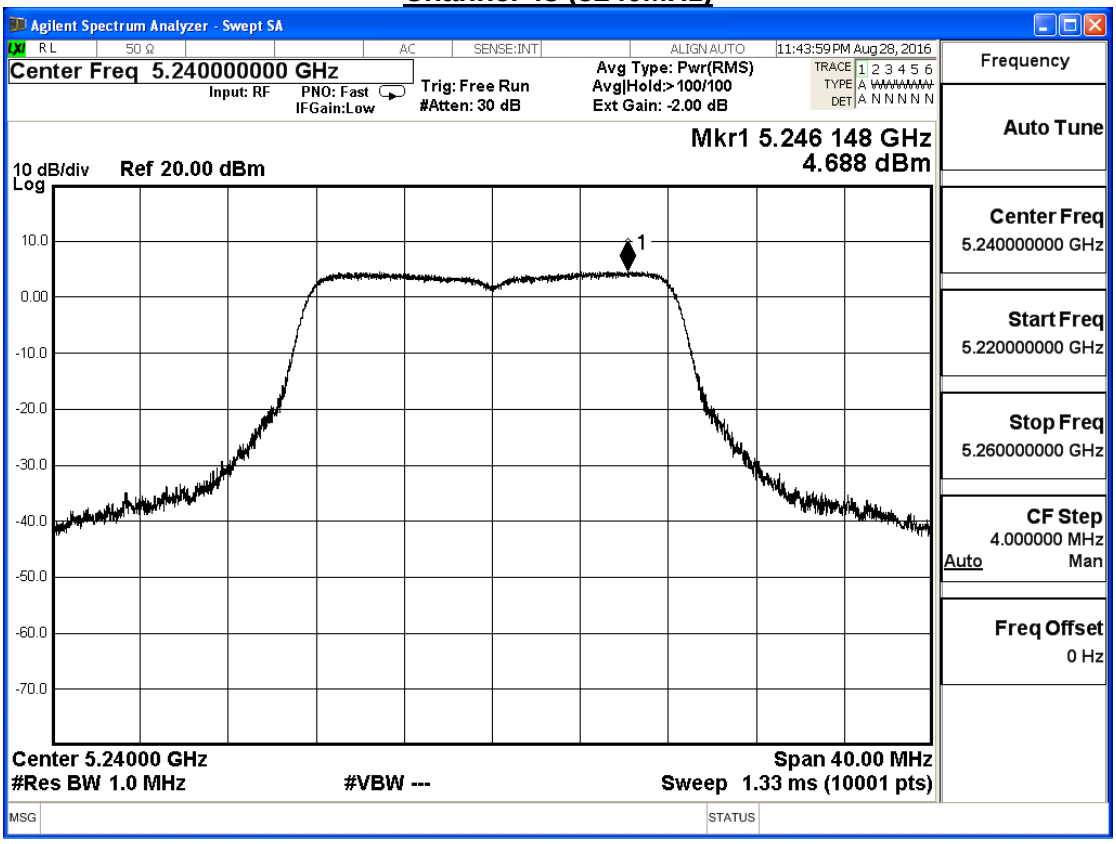
Channel 36 (5180MHz)



Channel 44 (5220MHz)



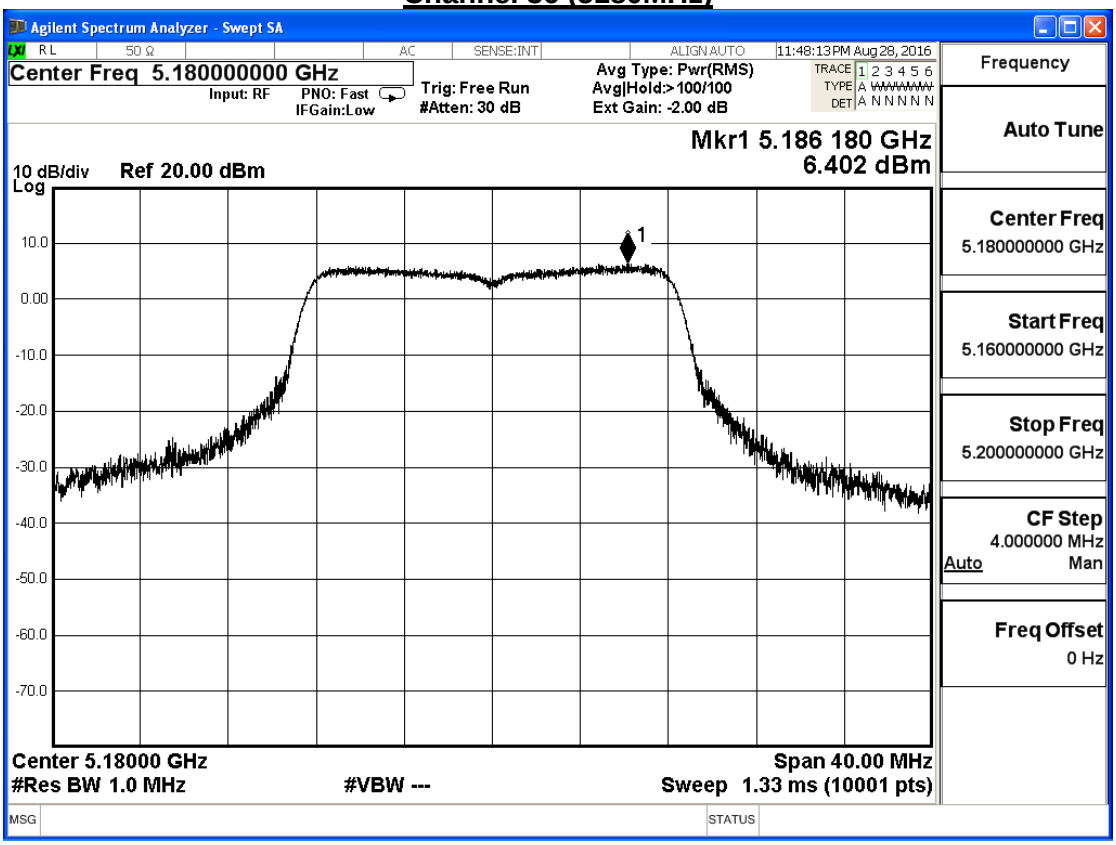
Channel 48 (5240MHz)



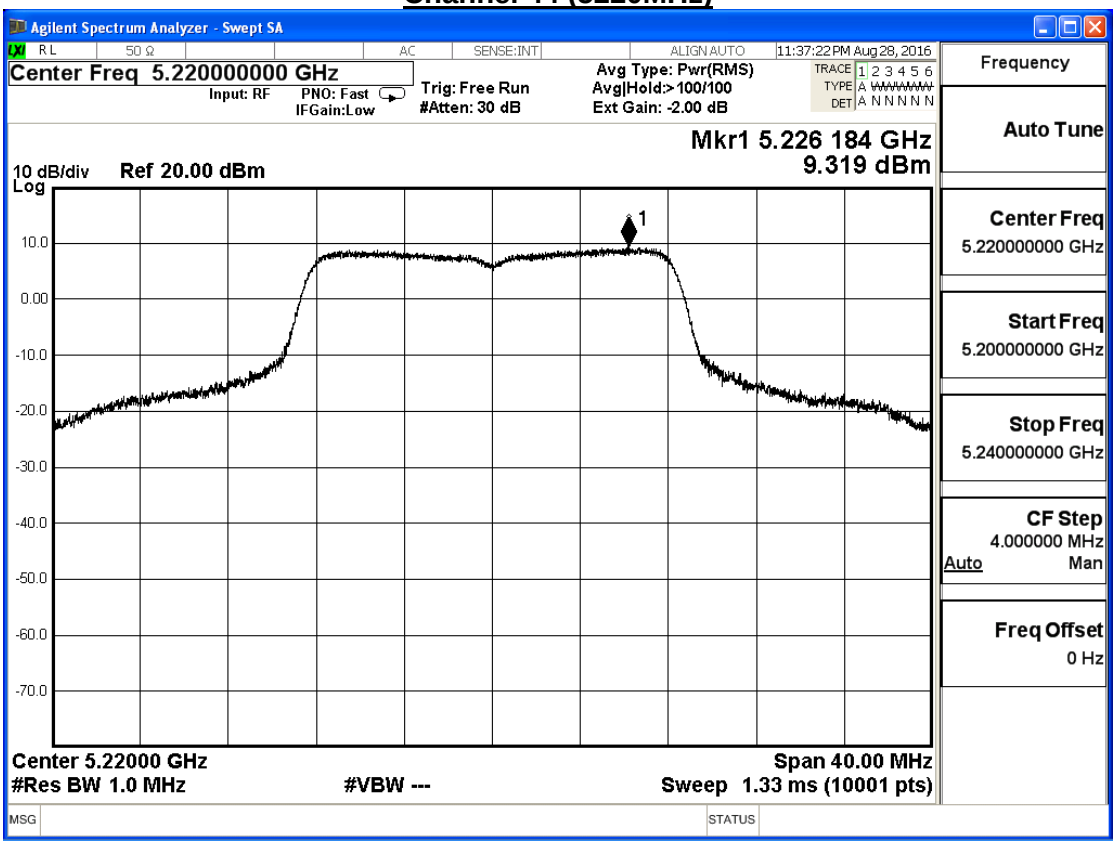
Product	Dual-Band Wireless-AC PCI-E Adapter		
Test Item	Peak Power Spectral Density		
Test Mode	Mode 1: Transmit_SISO Mode		
Date of Test	2016/09/02	Test Site	SR7

IEEE 802.11a (ANT 1)				
Channel No.	Frequency (MHz)	Measurement (dBm)	Limit (dBm)	Result
36	5180	6.402	≦11	Pass
44	5220	9.319	≦11	Pass
48	5240	8.160	≦11	Pass

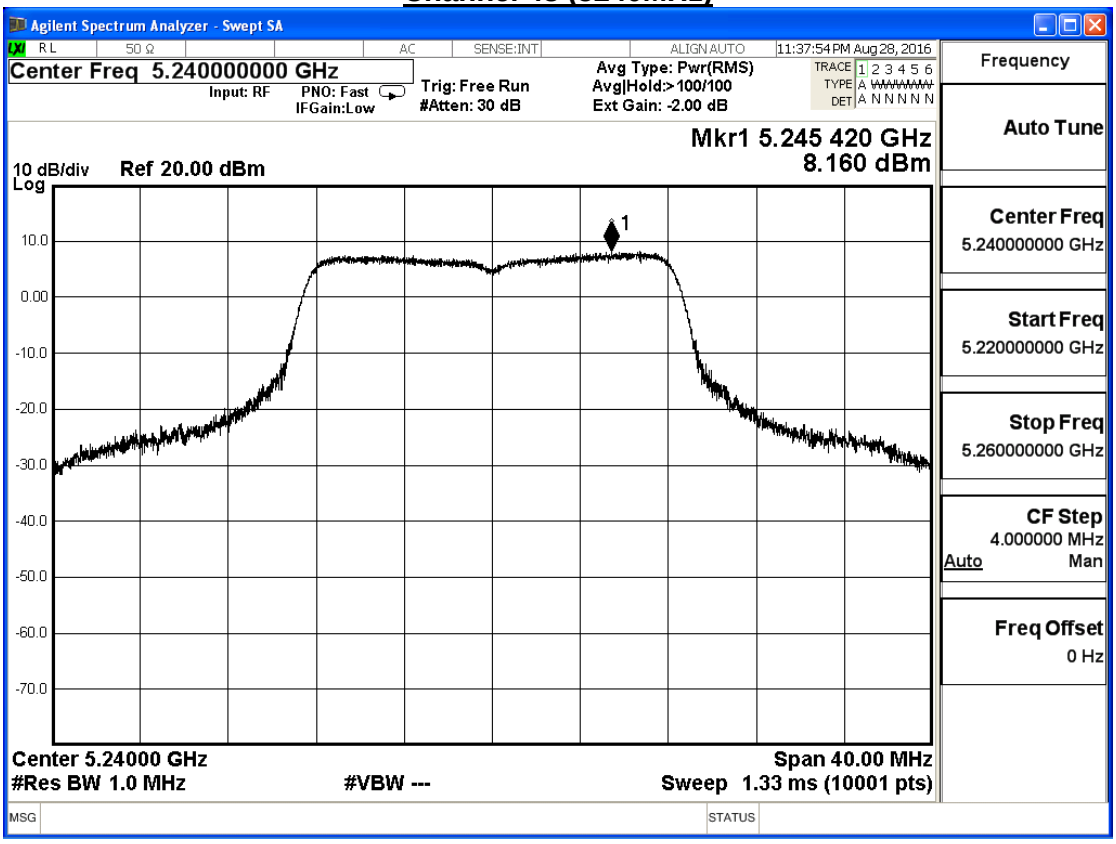
Channel 36 (5180MHz)



Channel 44 (5220MHz)



Channel 48 (5240MHz)

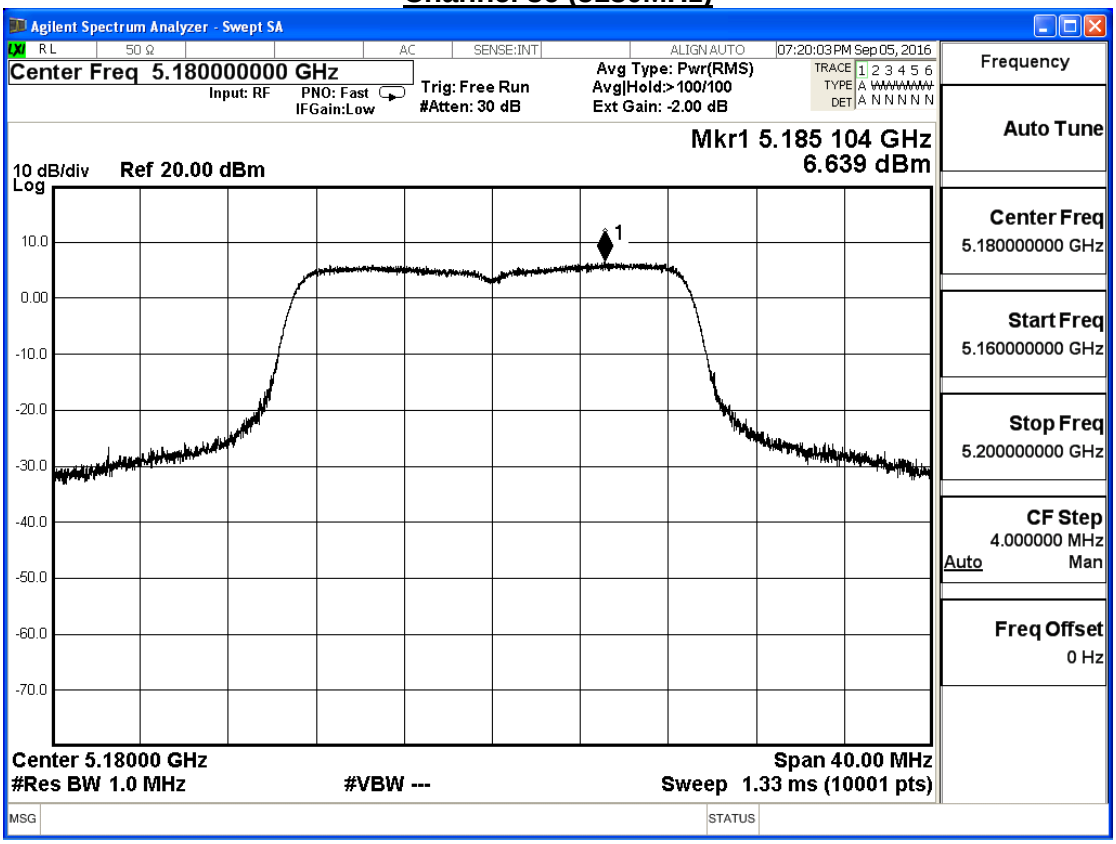


Product	Dual-Band Wireless-AC PCI-E Adapter		
Test Item	Peak Power Spectral Density		
Test Mode	Mode 2: Transmit_CDD Mode		
Date of Test	2016/09/02	Test Site	SR7

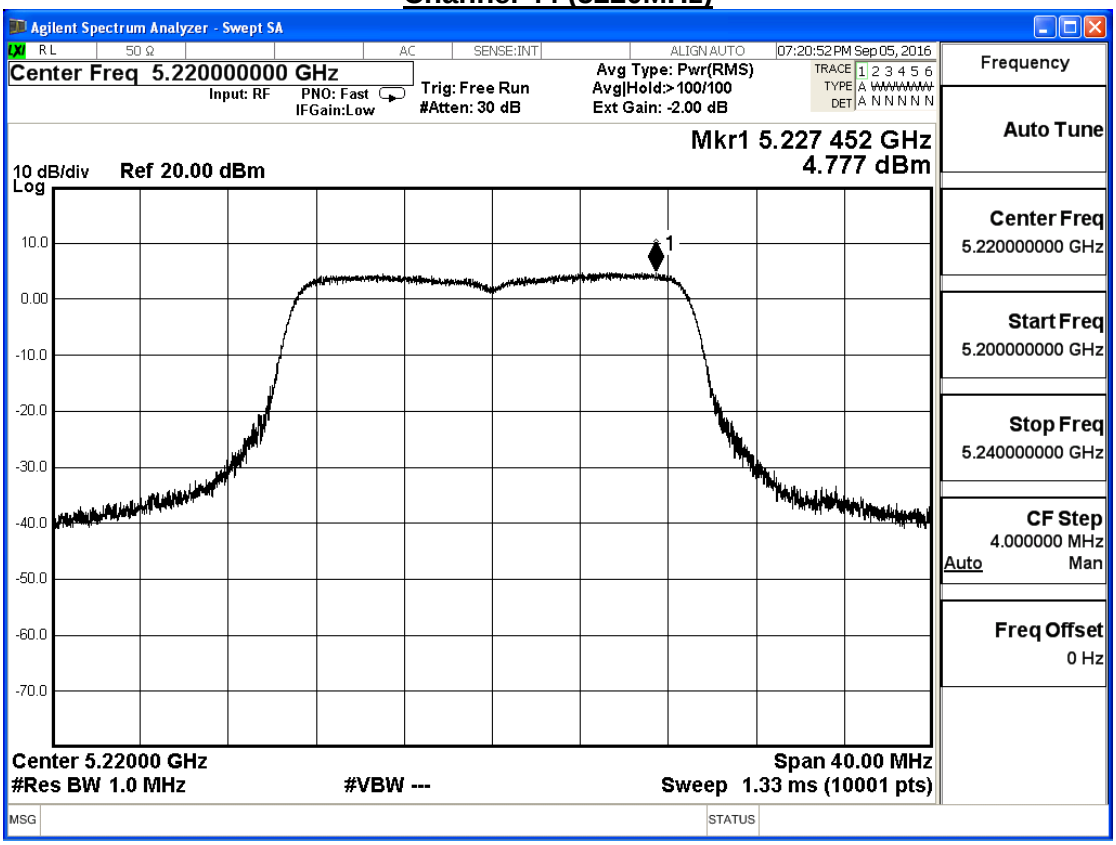
IEEE 802.11n(20MHz)(ANT 0)				
Channel No.	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Result
36	5180	6.639	≦10.38	Pass
44	5220	4.777	≦10.38	Pass
48	5240	2.171	≦10.38	Pass

Total Gain: 10log(ANT N)+max Gain=3.01+3.61 = 6.62dBi
Limit=11-(6.62dBi-6dBi)=10.38dBi

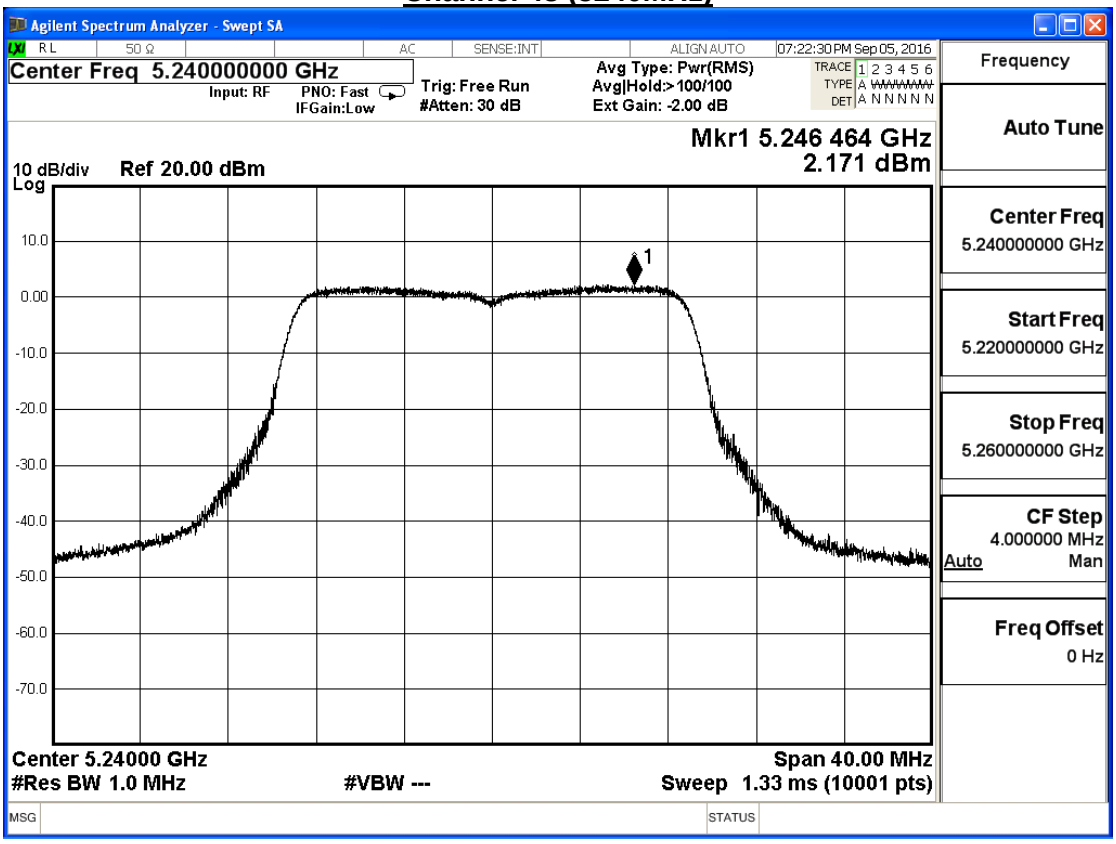
Channel 36 (5180MHz)



Channel 44 (5220MHz)



Channel 48 (5240MHz)



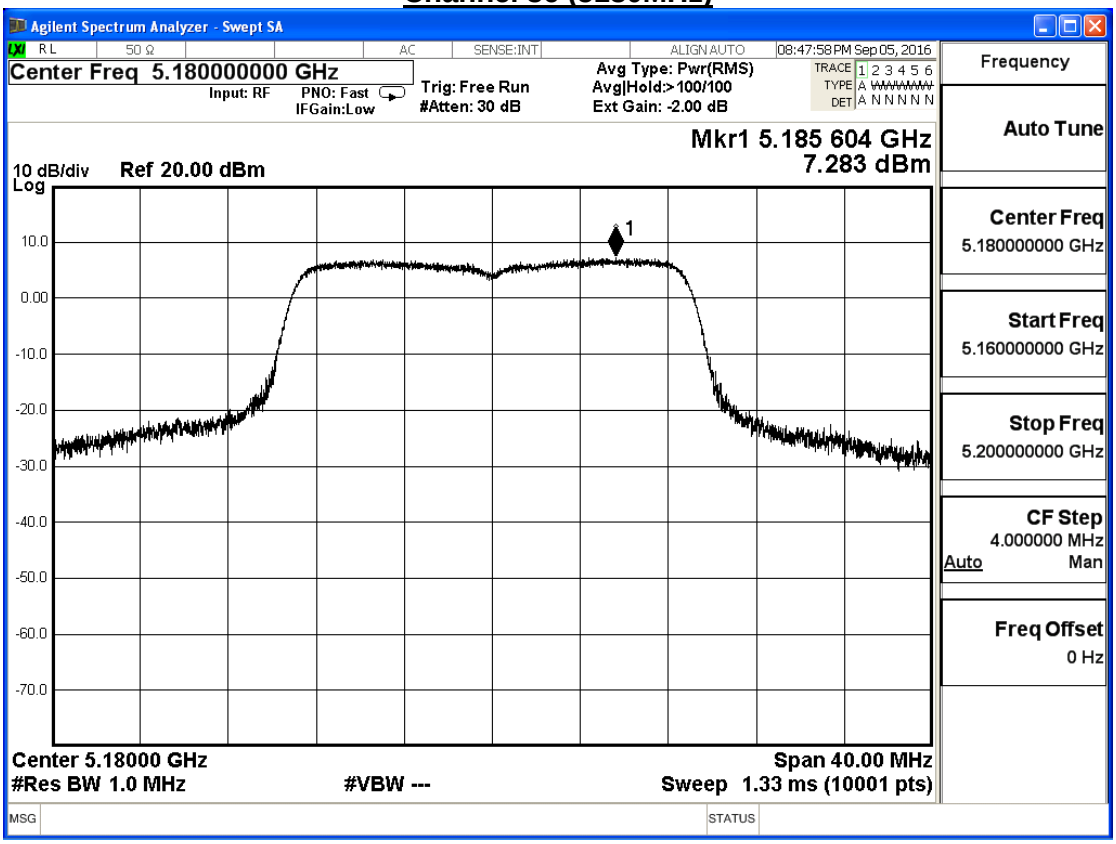
Product	Dual-Band Wireless-AC PCI-E Adapter		
Test Item	Peak Power Spectral Density		
Test Mode	Mode 2: Transmit_CDD Mode		
Date of Test	2016/09/02	Test Site	SR7

IEEE 802.11n(20MHz) (ANT 1)

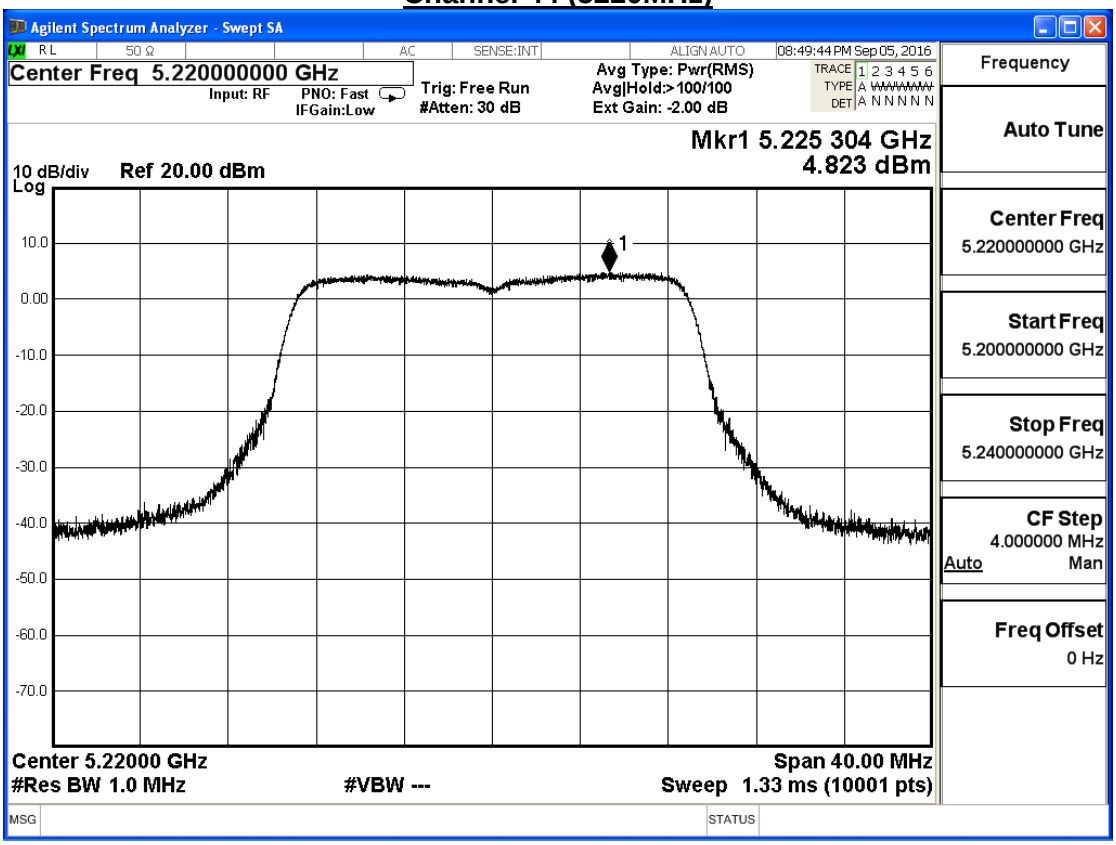
Channel No.	Frequency (MHz)	Measurement (dBm)	Limit (dBm)	Result
36	5180	7.283	≦10.38	Pass
44	5220	4.823	≦10.38	Pass
48	5240	1.396	≦10.38	Pass

Total Gain: 10log(ANT N)+max Gain=3.01+3.61 = 6.62dBi
Limit=11-(6.62dBi-6dBi)=10.38dBi

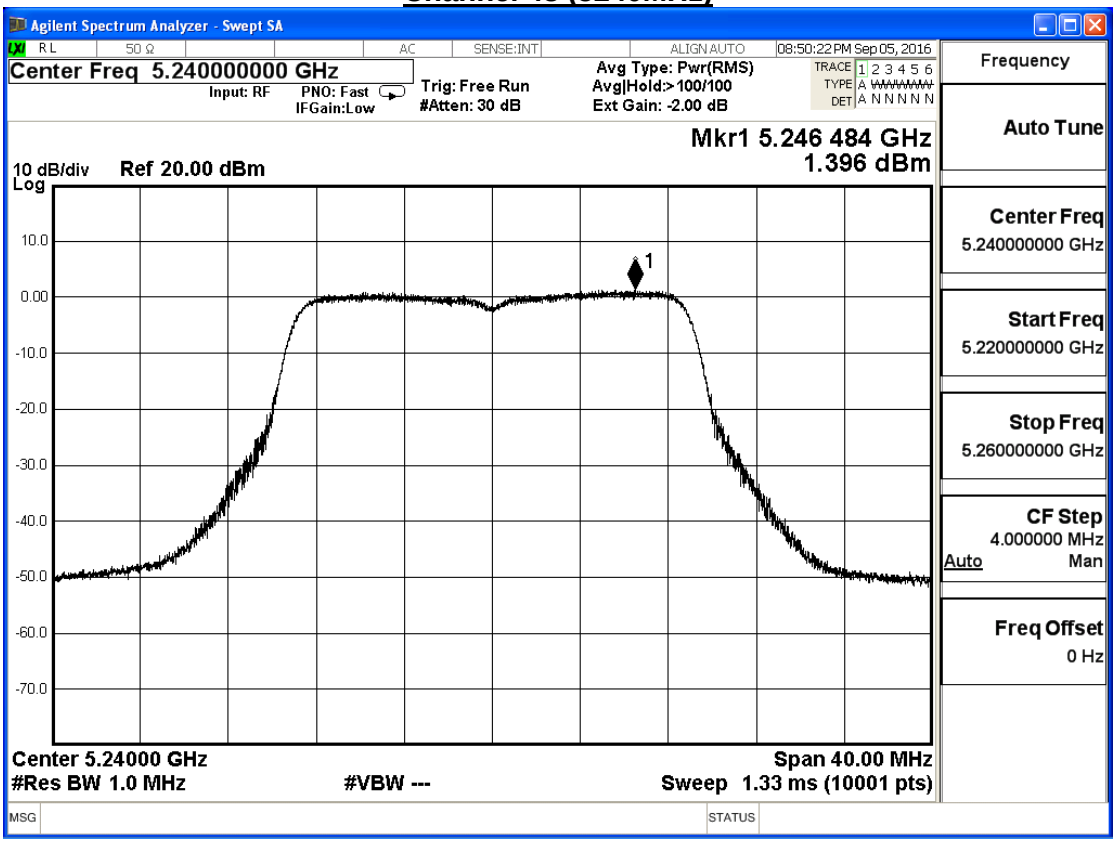
Channel 36 (5180MHz)



Channel 44 (5220MHz)



Channel 48 (5240MHz)



Product	Dual-Band Wireless-AC PCI-E Adapter		
Test Item	Peak Power Spectral Density		
Test Mode	Mode 2: Transmit_CDD Mode		
Date of Test	2016/09/02	Test Site	SR7

IEEE 802.11n(20MHz) (ANT 0+1)				
Channel No.	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Result
36	5180	9.983	≦10.38	Pass
44	5220	7.810	≦10.38	Pass
48	5240	4.811	≦10.38	Pass

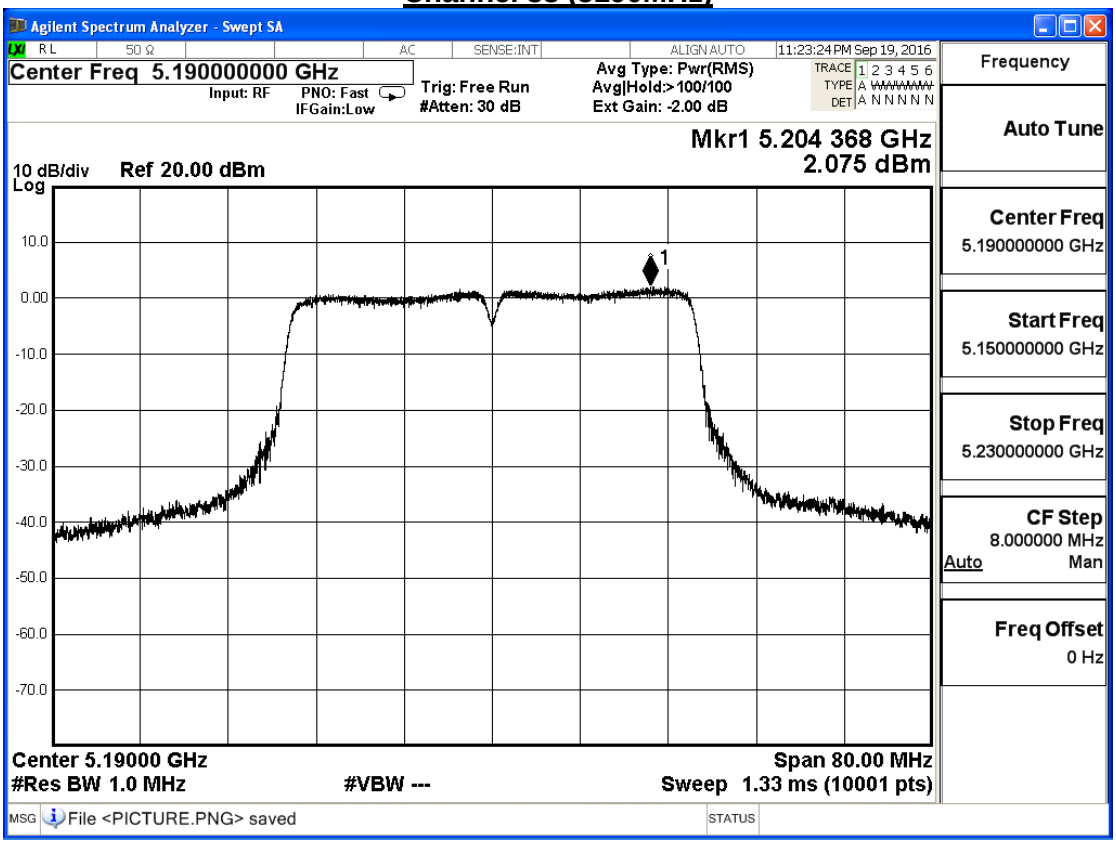
Total Gain: 10log(ANT N)+max Gain=3.01+3.61 = 6.62dBi
Limit=11-(6.62dBi-6dBi)=10.38dBi

Product	Dual-Band Wireless-AC PCI-E Adapter		
Test Item	Peak Power Spectral Density		
Test Mode	Mode 2: Transmit_CDD Mode		
Date of Test	2016/09/20	Test Site	SR7

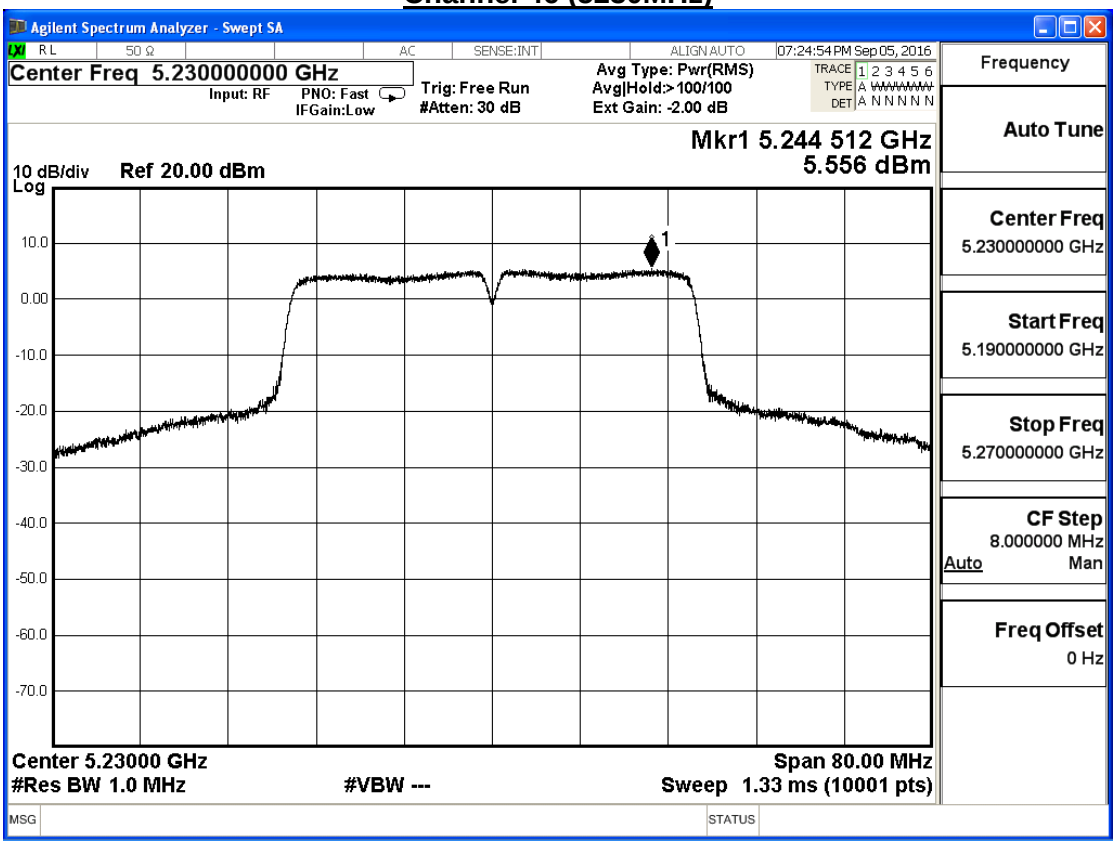
IEEE 802.11n(40MHz)(ANT 0)				
Channel No.	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Result
38	5190	2.075	≦10.38	Pass
46	5230	5.556	≦10.38	Pass

Total Gain: 10log(ANT N)+max Gain=3.01+3.61 = 6.62dBi
Limit=11-(6.62dBi-6dBi)=10.38dBi

Channel 38 (5190MHz)



Channel 46 (5230MHz)

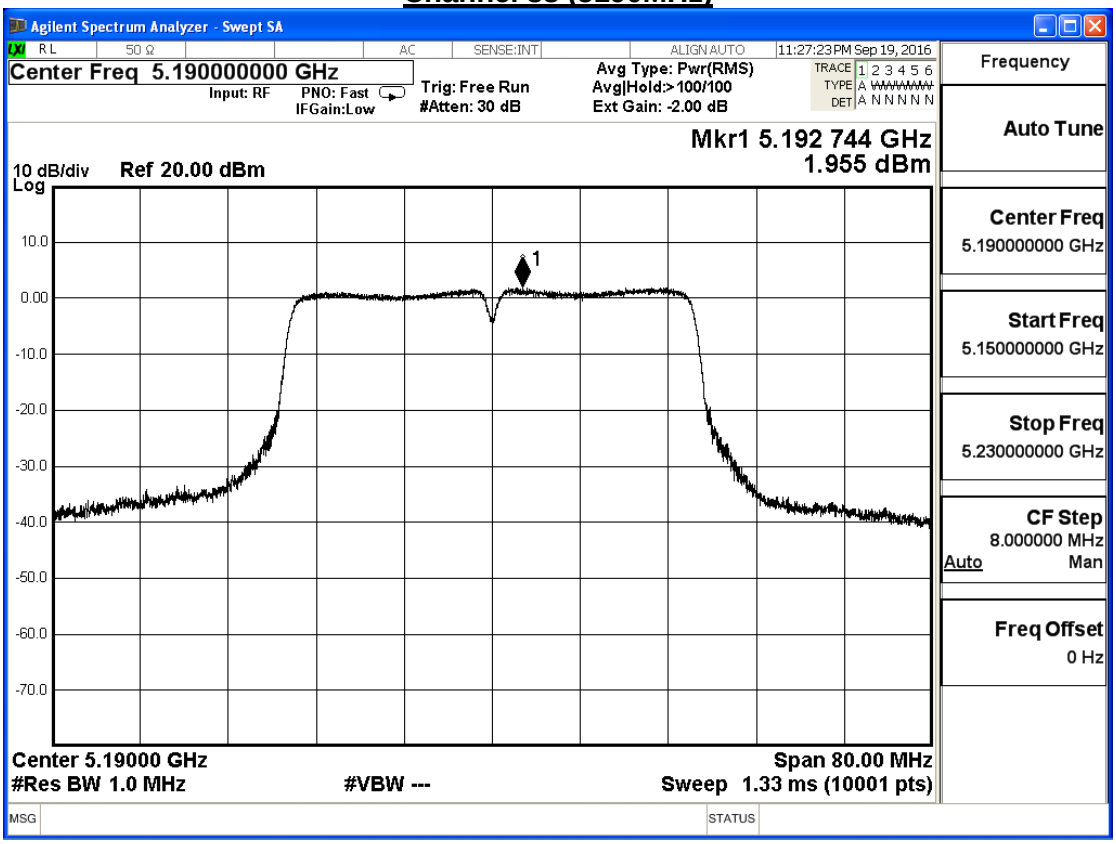


Product	Dual-Band Wireless-AC PCI-E Adapter		
Test Item	Peak Power Spectral Density		
Test Mode	Mode 2: Transmit_CDD Mode		
Date of Test	2016/09/20	Test Site	SR7

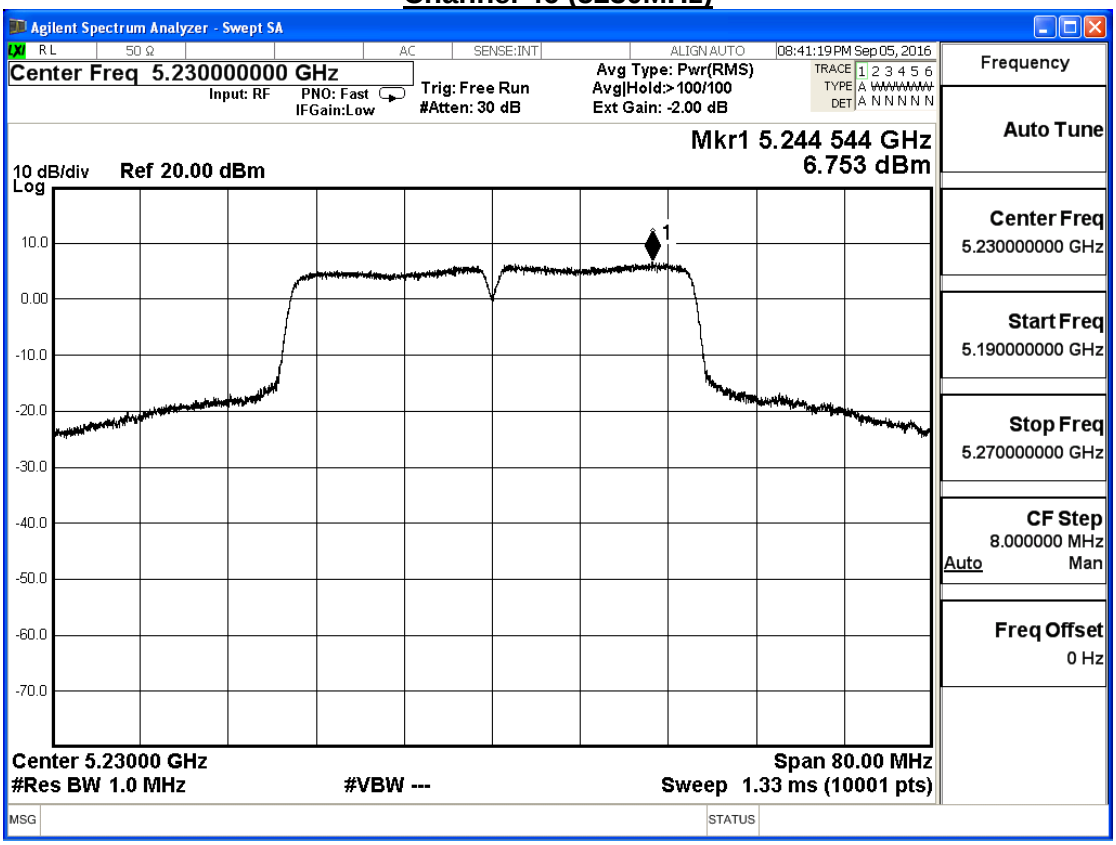
IEEE 802.11n(40MHz) (ANT 1)				
Channel No.	Frequency (MHz)	Measurement (dBm)	Limit (dBm)	Result
38	5190	1.955	≦10.38	Pass
46	5230	6.753	≦10.38	Pass

Total Gain: 10log(ANT N)+max Gain=3.01+3.61 = 6.62dBi
Limit=11-(6.62dBi-6dBi)=10.38dBi

Channel 38 (5190MHz)



Channel 46 (5230MHz)



Product	Dual-Band Wireless-AC PCI-E Adapter		
Test Item	Peak Power Spectral Density		
Test Mode	Mode 2: Transmit_CDD Mode		
Date of Test	2016/09/20	Test Site	SR7

IEEE 802.11n(40MHz) (ANT 0+1)				
Channel No.	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Result
38	5190	5.026	≦10.38	Pass
46	5230	9.206	≦10.38	Pass

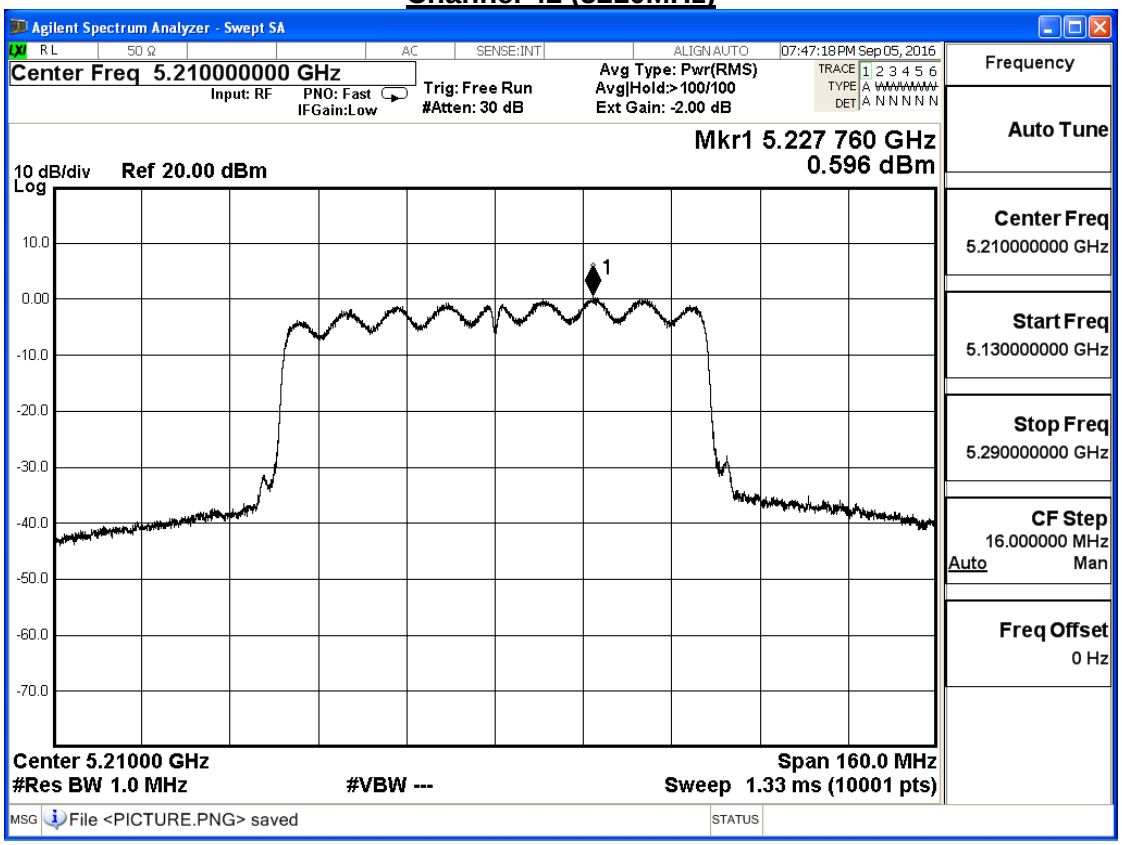
Total Gain: 10log(ANT N)+max Gain=3.01+3.61 = 6.62dBi
Limit=11-(6.62dBi-6dBi)=10.38dBi

Product	Dual-Band Wireless-AC PCI-E Adapter		
Test Item	Peak Power Spectral Density		
Test Mode	Mode 2: Transmit_CDD Mode		
Date of Test	2016/09/02	Test Site	SR7

IEEE 802.11ac(80MHz)(ANT 0)				
Channel No.	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Result
42	5210	0.596	≦10.38	Pass

Total Gain: 10log(ANT N)+max Gain=3.01+3.61 = 6.62dBi
Limit=11-(6.62dBi-6dBi)=10.38dBi

Channel 42 (5210MHz)

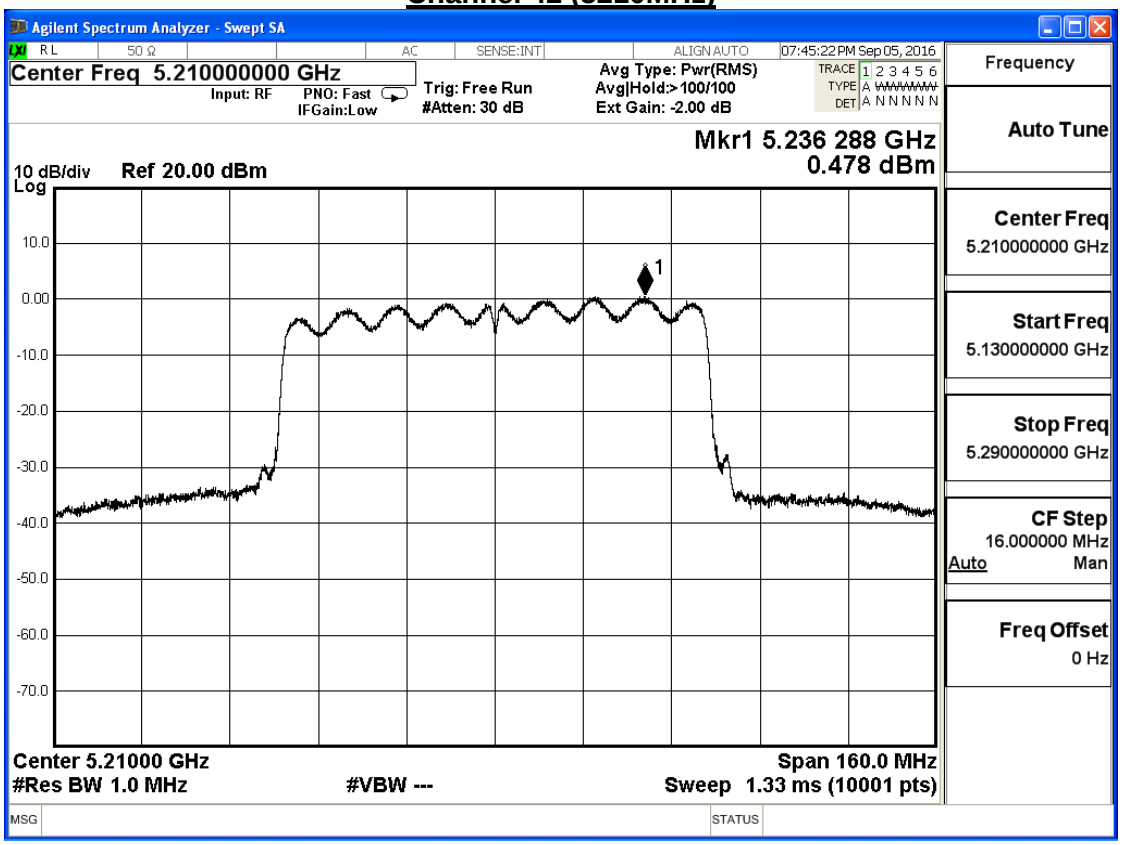


Product	Dual-Band Wireless-AC PCI-E Adapter		
Test Item	Peak Power Spectral Density		
Test Mode	Mode 2: Transmit_CDD Mode		
Date of Test	2016/09/02	Test Site	SR7

IEEE 802.11ac(80MHz) (ANT 1)				
Channel No.	Frequency (MHz)	Measurement (dBm)	Limit (dBm)	Result
42	5210	0.478	≦10.38	Pass

Total Gain: 10log(ANT N)+max Gain=3.01+3.61 = 6.62dBi
Limit=11-(6.62dBi-6dBi)=10.38dBi

Channel 42 (5210MHz)



Product	Dual-Band Wireless-AC PCI-E Adapter		
Test Item	Peak Power Spectral Density		
Test Mode	Mode 2: Transmit_CDD Mode		
Date of Test	2016/09/02	Test Site	SR7

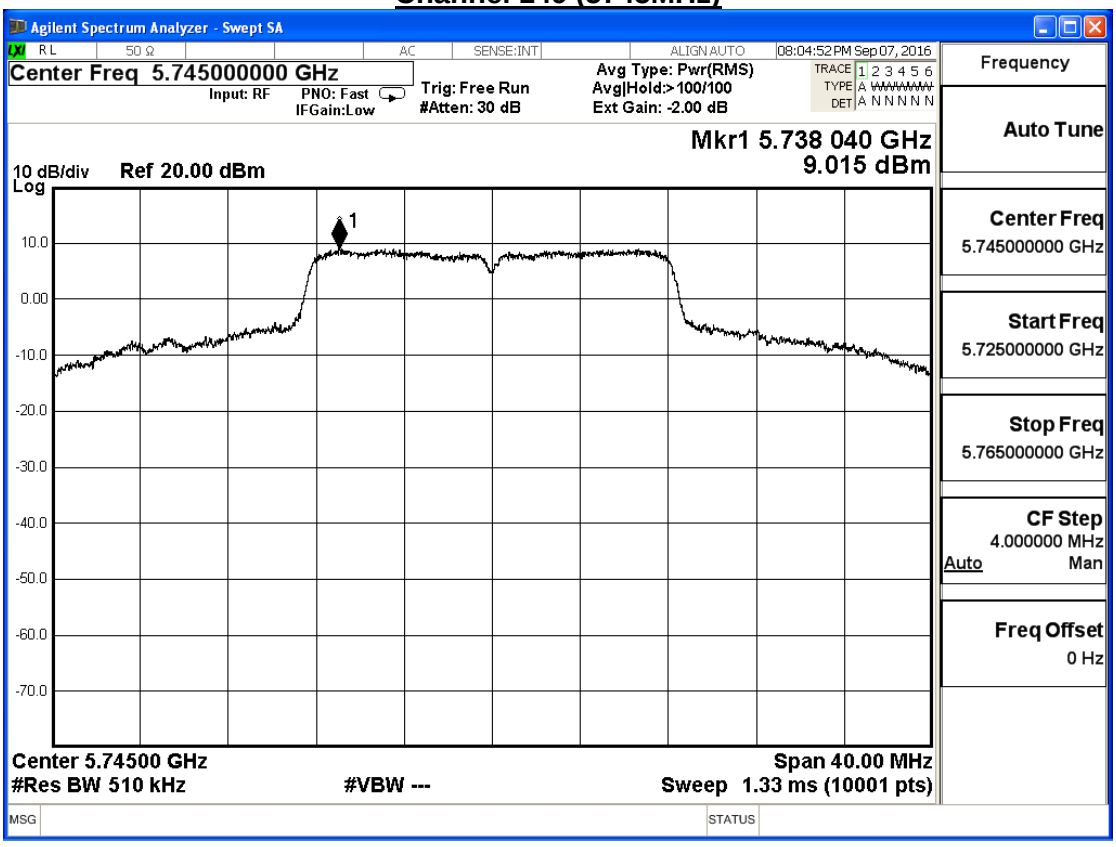
IEEE 802.11ac(80MHz)(ANT 0+1)				
Channel No.	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Result
42	5210	3.548	≦10.38	Pass

Total Gain: 10log(ANT N)+max Gain=3.01+3.61 = 6.62dBi
Limit=11-(6.62dBi-6dBi)=10.38dBi

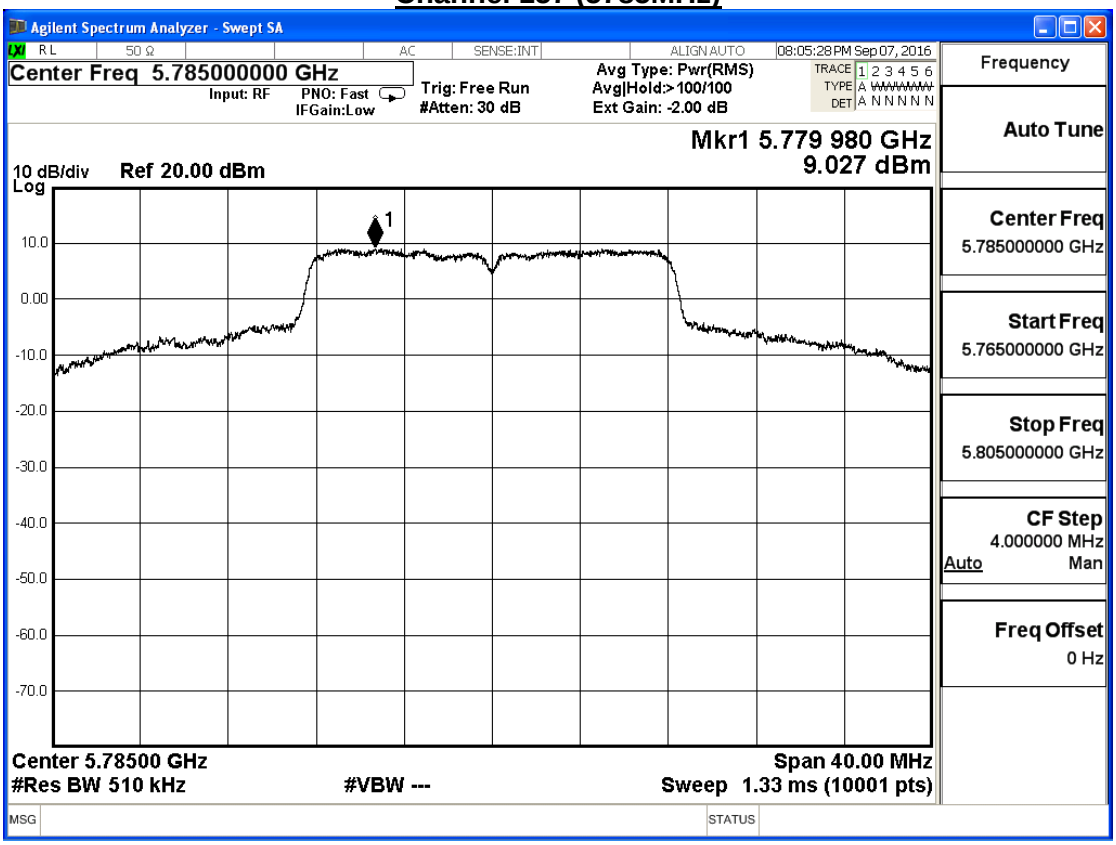
Product	Dual-Band Wireless-AC PCI-E Adapter		
Test Item	Peak Power Spectral Density		
Test Mode	Mode 1: Transmit_SISO Mode		
Date of Test	2016/09/07	Test Site	SR7

IEEE 802.11a (ANT 0)				
Channel No.	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Result
149	5745	9.015	≦30	Pass
157	5785	9.027	≦30	Pass
165	5825	9.024	≦30	Pass

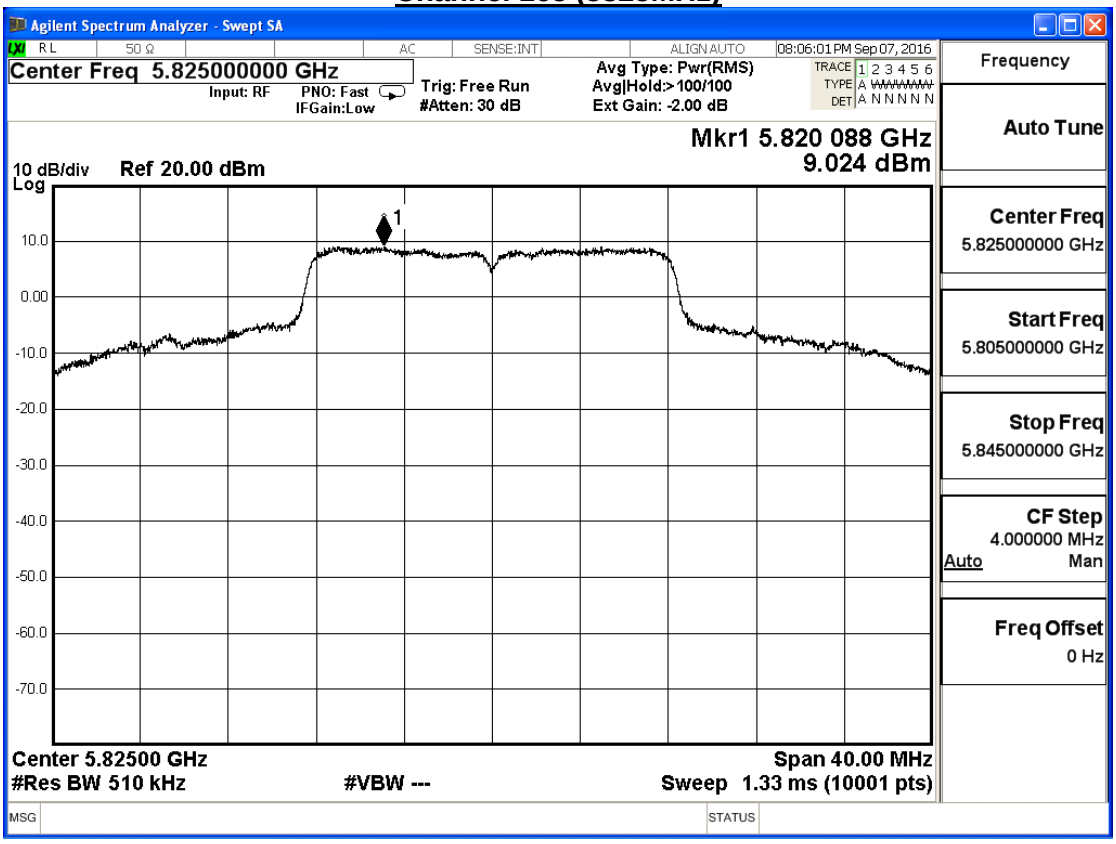
Channel 149 (5745MHz)



Channel 157 (5785MHz)



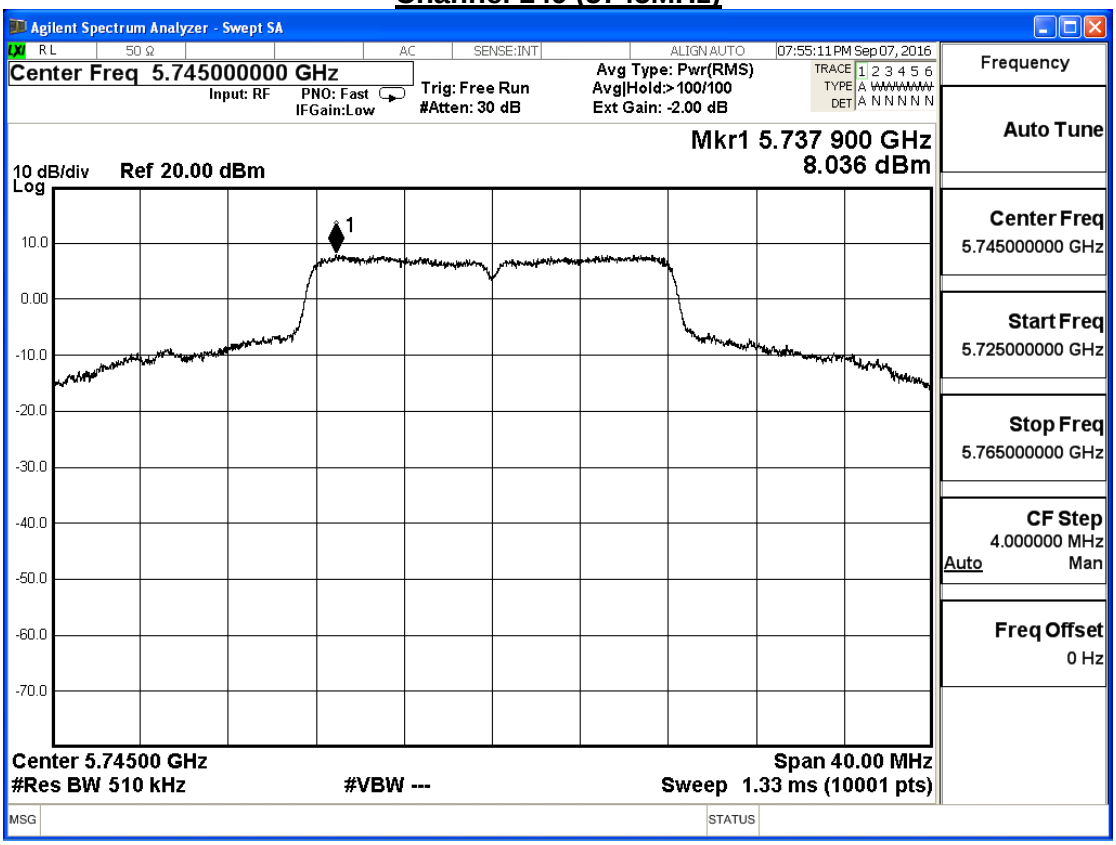
Channel 165 (5825MHz)



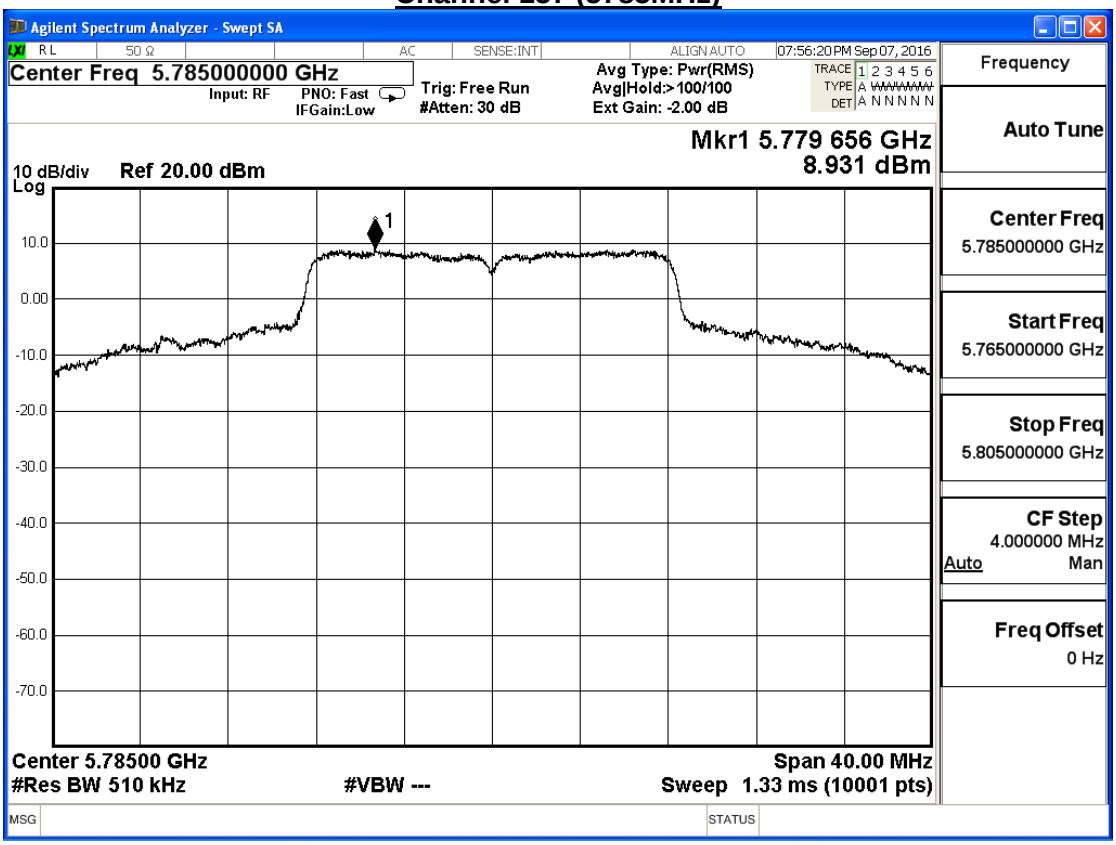
Product	Dual-Band Wireless-AC PCI-E Adapter		
Test Item	Peak Power Spectral Density		
Test Mode	Mode 1: Transmit_SISO Mode		
Date of Test	2016/09/07	Test Site	SR7

IEEE 802.11a (ANT 1)				
Channel No.	Frequency (MHz)	Measurement (dBm)	Limit (dBm)	Result
149	5745	8.036	≦30	Pass
157	5785	8.931	≦30	Pass
165	5825	8.466	≦30	Pass

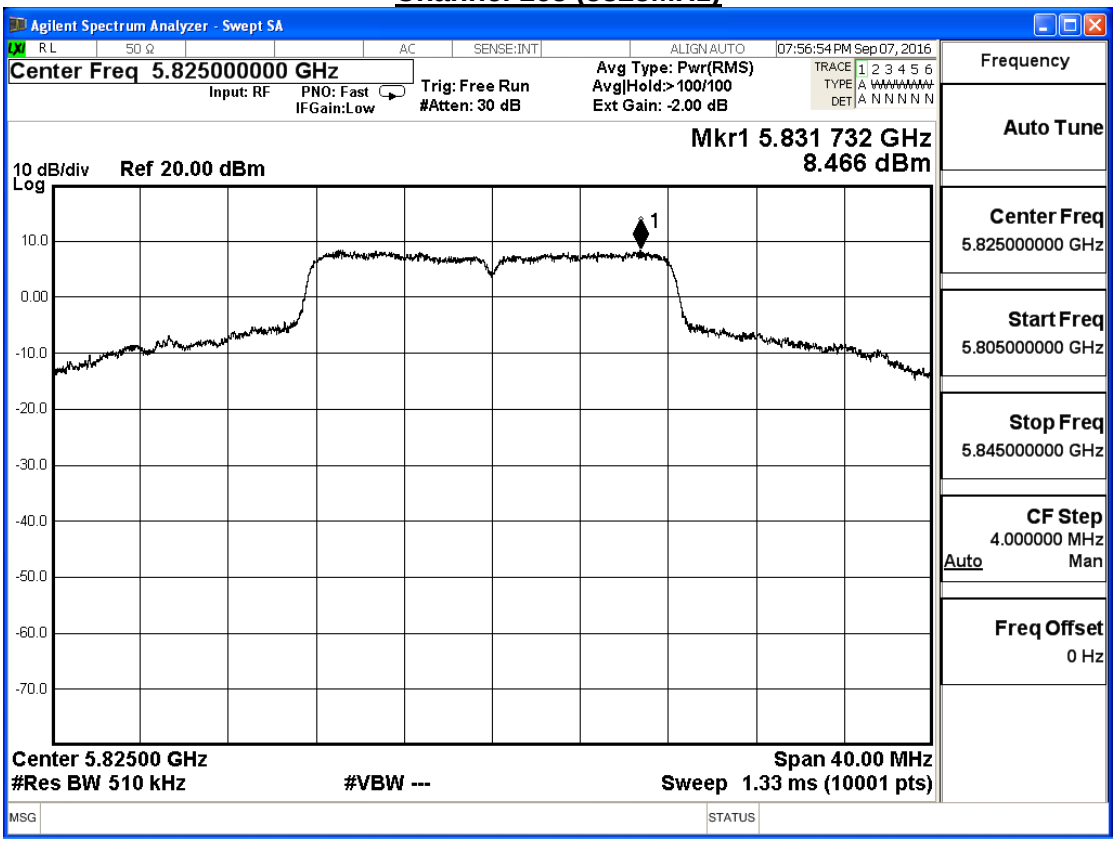
Channel 149 (5745MHz)



Channel 157 (5785MHz)



Channel 165 (5825MHz)

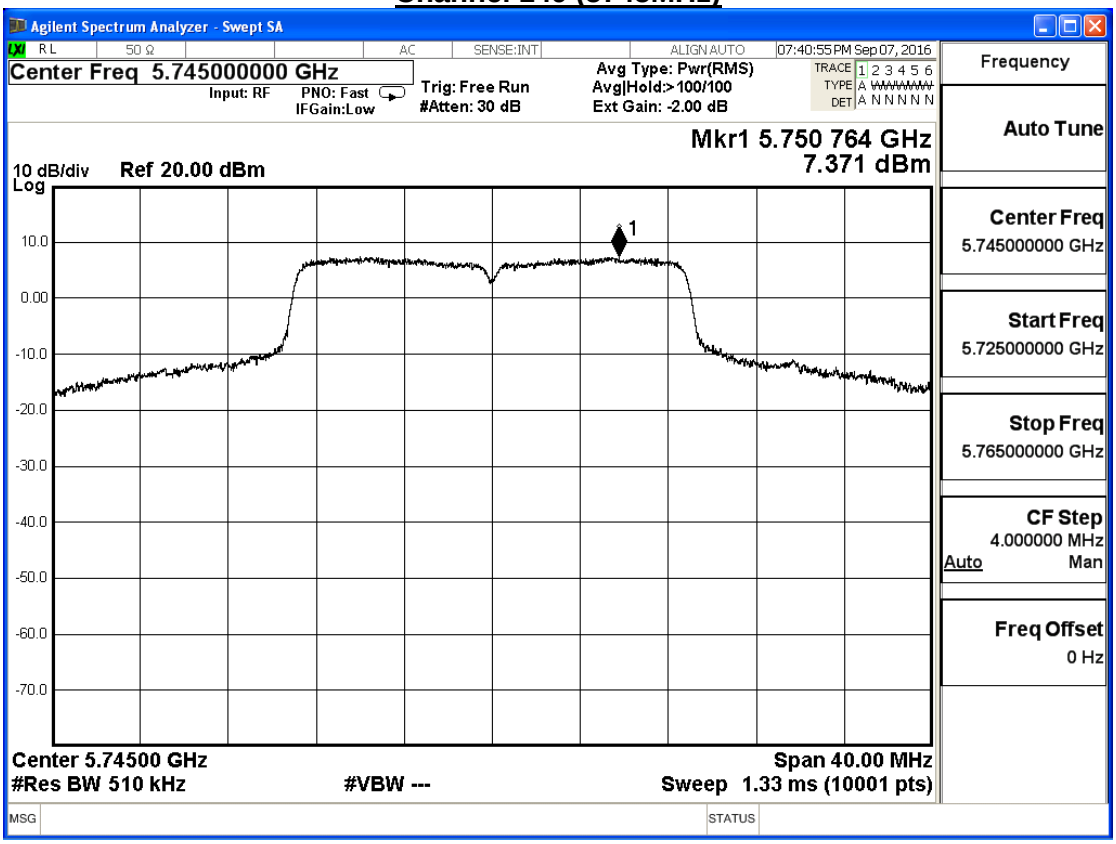


Product	Dual-Band Wireless-AC PCI-E Adapter		
Test Item	Peak Power Spectral Density		
Test Mode	Mode 2: Transmit_CDD Mode		
Date of Test	2016/09/07	Test Site	SR7

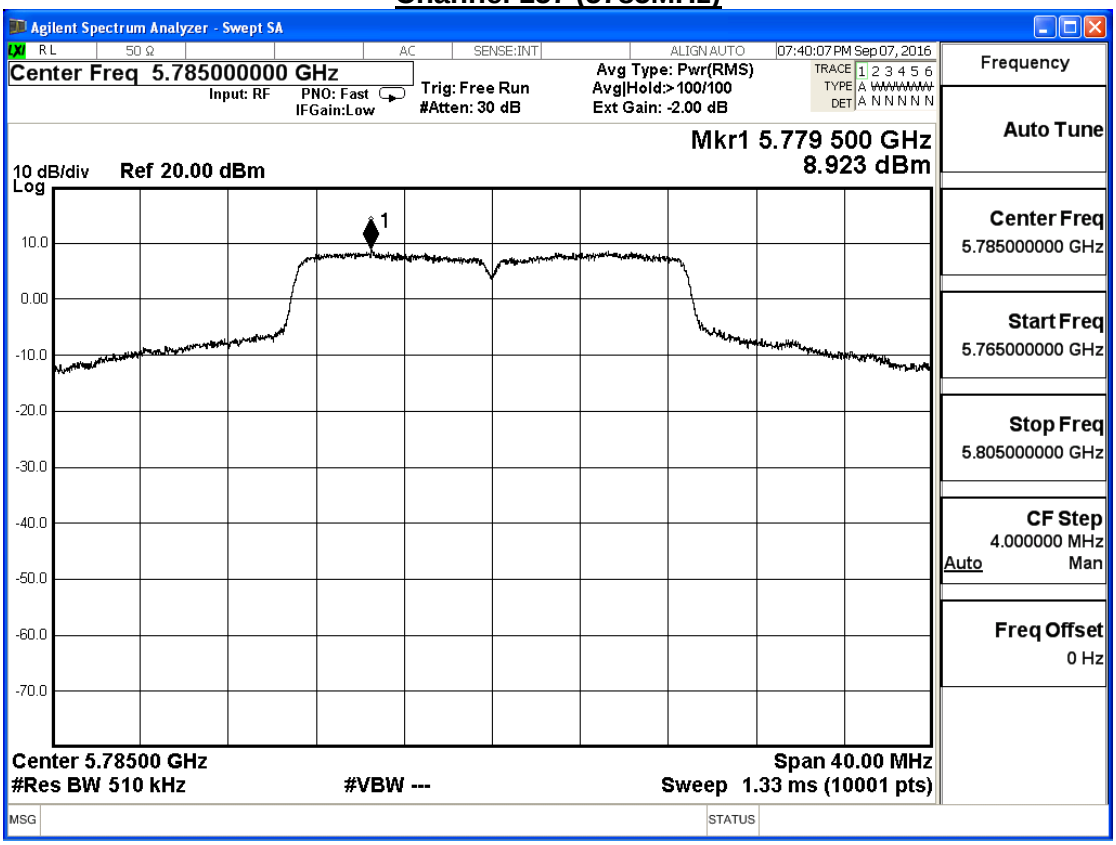
IEEE 802.11n(20MHz)(ANT 0)				
Channel No.	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Result
149	5745	7.371	≦29.38	Pass
157	5785	8.923	≦29.38	Pass
165	5825	8.442	≦29.38	Pass

Total Gain: 10log(ANT N)+max Gain=3.01+3.61 = 6.62dBi
Limit=30-(6.62dBi-6dBi)=29.38dBi

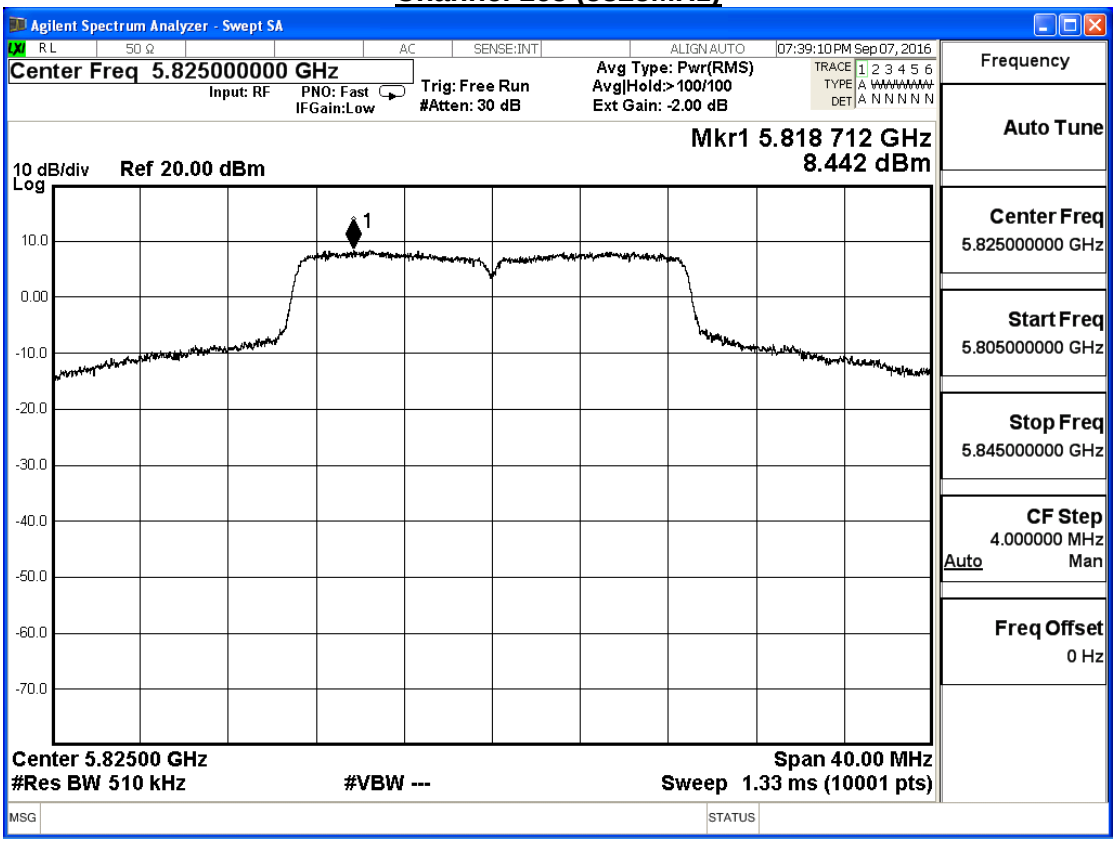
Channel 149 (5745MHz)



Channel 157 (5785MHz)



Channel 165 (5825MHz)

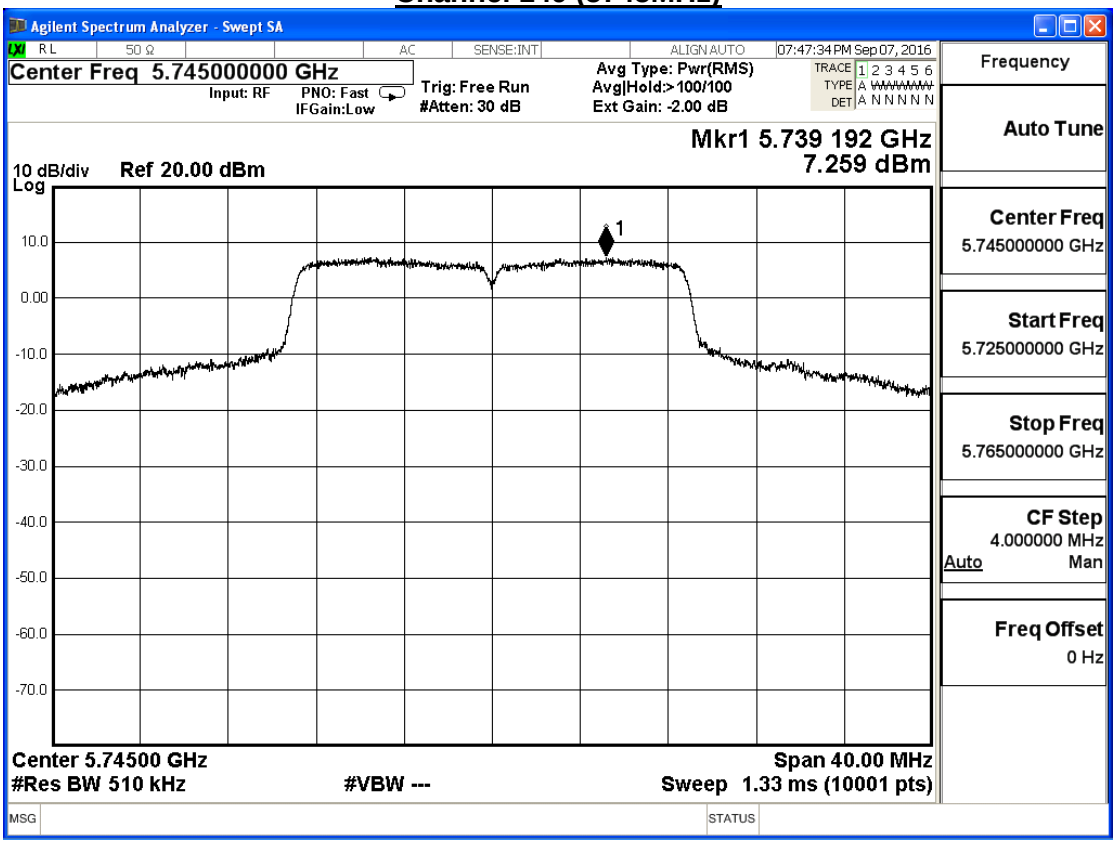


Product	Dual-Band Wireless-AC PCI-E Adapter		
Test Item	Peak Power Spectral Density		
Test Mode	Mode 2: Transmit_CDD Mode		
Date of Test	2016/09/07	Test Site	SR7

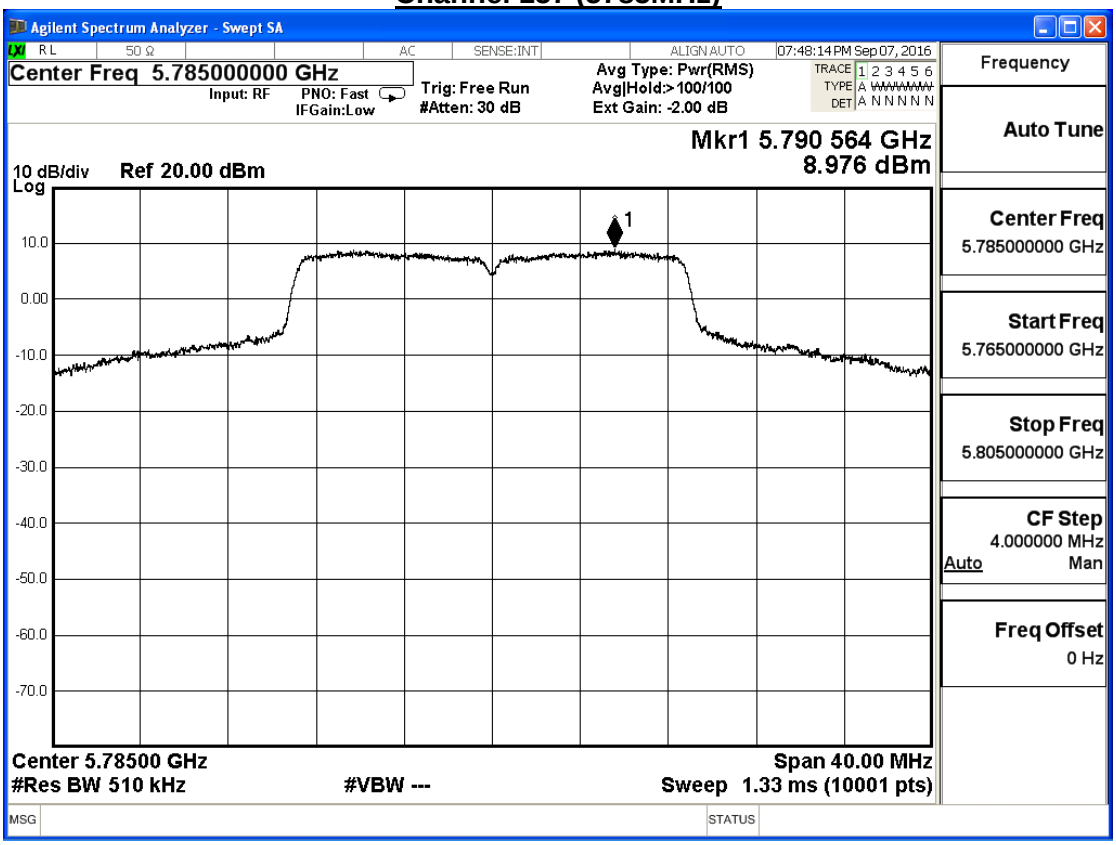
IEEE 802.11n(20MHz) (ANT 1)				
Channel No.	Frequency (MHz)	Measurement (dBm)	Limit (dBm)	Result
149	5745	7.259	≦29.38	Pass
157	5785	8.976	≦29.38	Pass
165	5825	7.631	≦29.38	Pass

Total Gain: 10log(ANT N)+max Gain=3.01+3.61 = 6.62dBi
Limit=30-(6.62dBi-6dBi)=29.38dBi

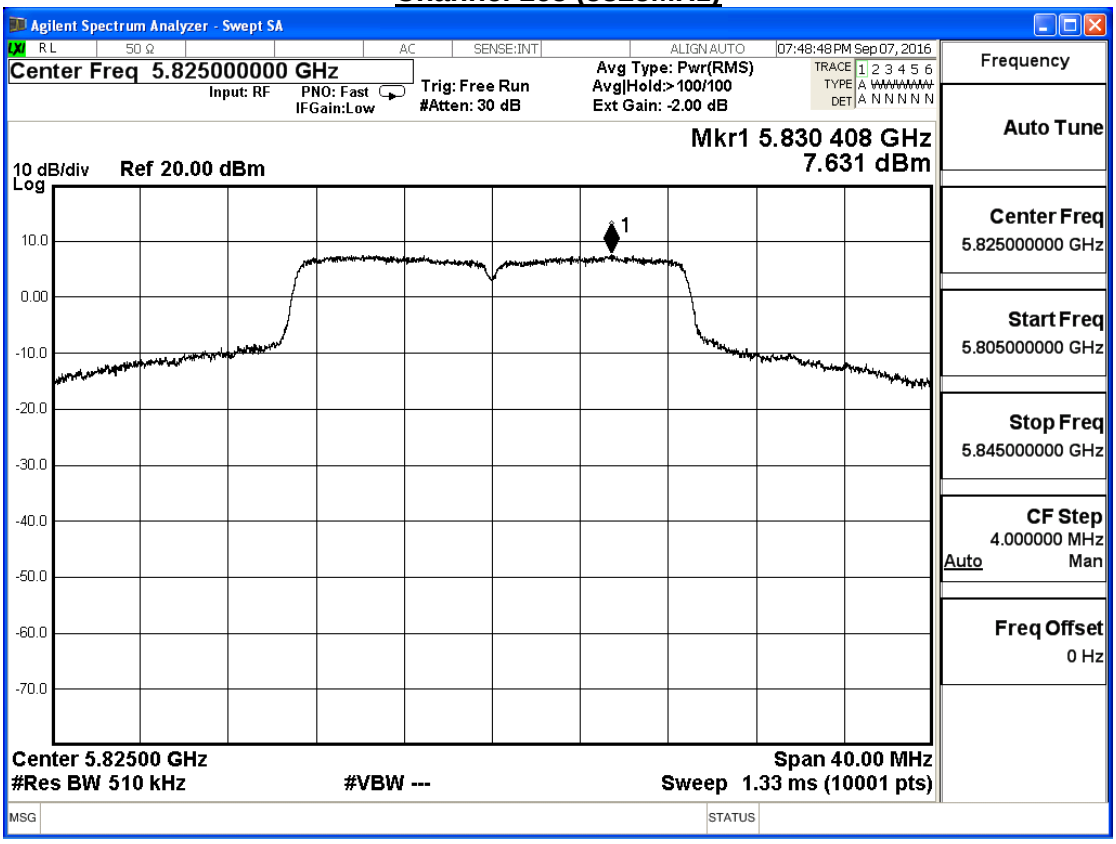
Channel 149 (5745MHz)



Channel 157 (5785MHz)



Channel 165 (5825MHz)



Product	Dual-Band Wireless-AC PCI-E Adapter		
Test Item	Peak Power Spectral Density		
Test Mode	Mode 2: Transmit_CDD Mode		
Date of Test	2016/09/07	Test Site	SR7

IEEE 802.11n(20MHz) (ANT 0+1)				
Channel No.	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Result
149	5745	10.326	≦29.38	Pass
157	5785	11.960	≦29.38	Pass
165	5825	11.066	≦29.38	Pass

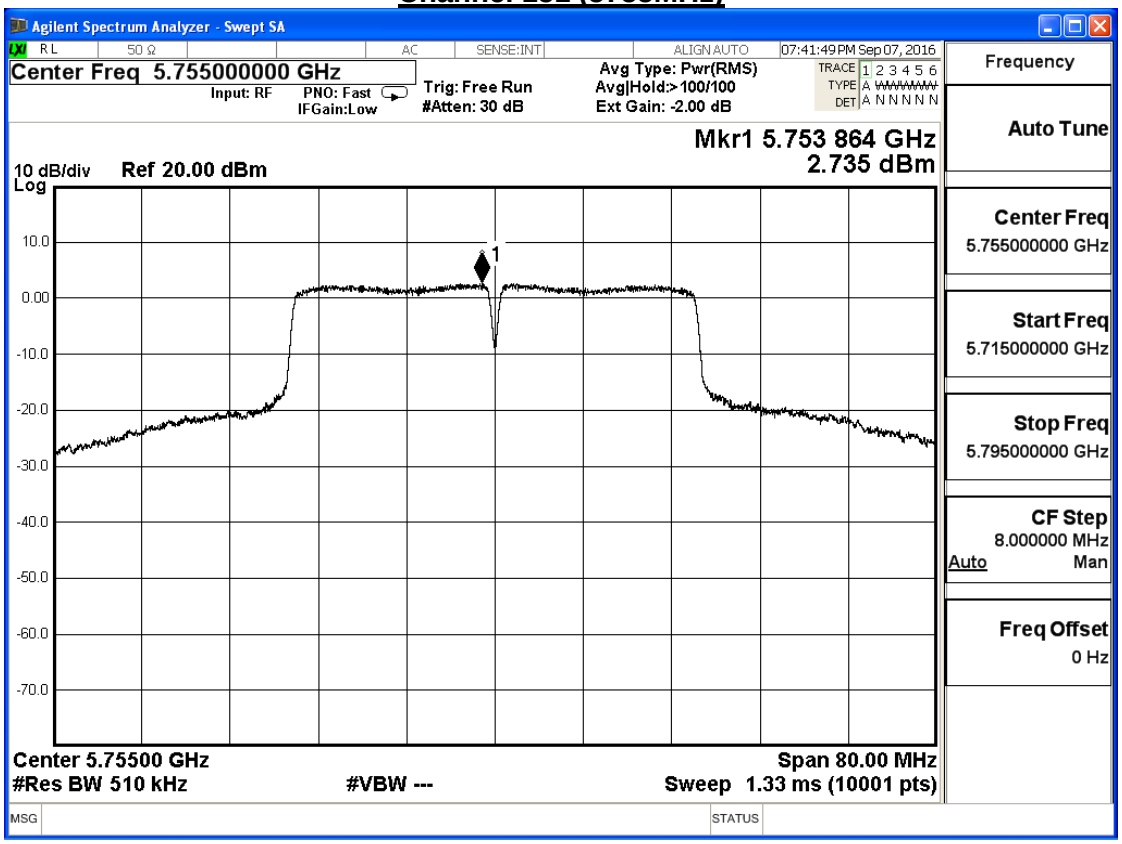
Total Gain: 10log(ANT N)+max Gain=3.01+3.61 = 6.62dBi
Limit=30-(6.62dBi-6dBi)=29.38dBi

Product	Dual-Band Wireless-AC PCI-E Adapter		
Test Item	Peak Power Spectral Density		
Test Mode	Mode 2: Transmit_CDD Mode		
Date of Test	2016/09/07	Test Site	SR7

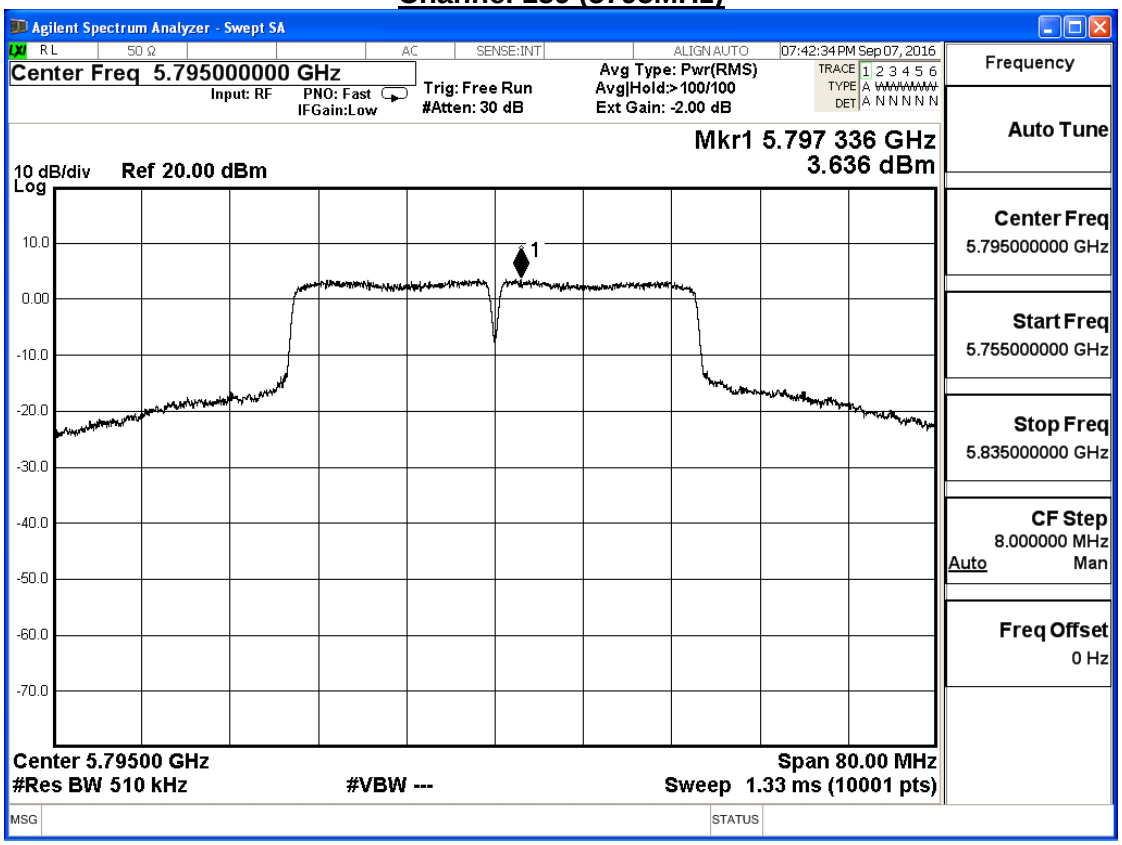
IEEE 802.11n(40MHz)(ANT 0)				
Channel No.	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Result
151	5755	2.735	≦29.38	Pass
159	5795	3.636	≦29.38	Pass

Total Gain: 10log(ANT N)+max Gain=3.01+3.61 = 6.62dBi
Limit=30-(6.62dBi-6dBi)=29.38dBi

Channel 151 (5755MHz)



Channel 159 (5795MHz)

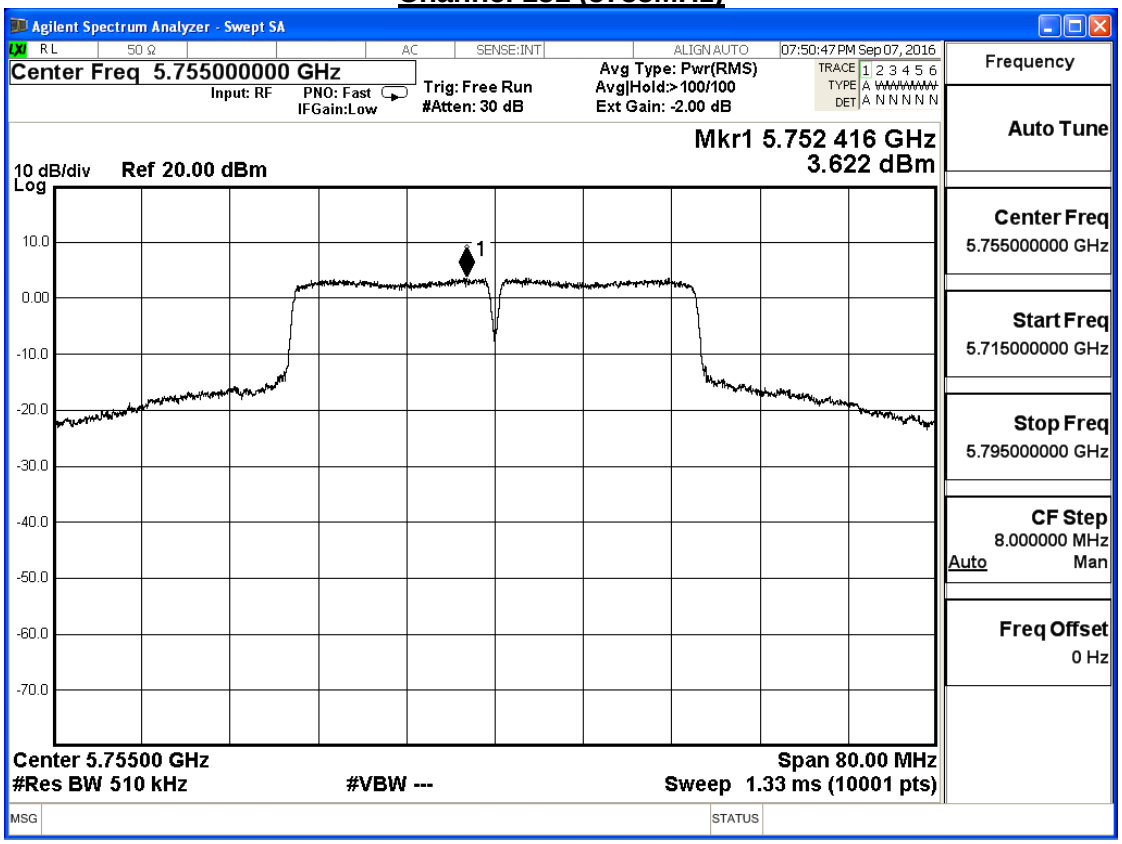


Product	Dual-Band Wireless-AC PCI-E Adapter		
Test Item	Peak Power Spectral Density		
Test Mode	Mode 2: Transmit_CDD Mode		
Date of Test	2016/09/07	Test Site	SR7

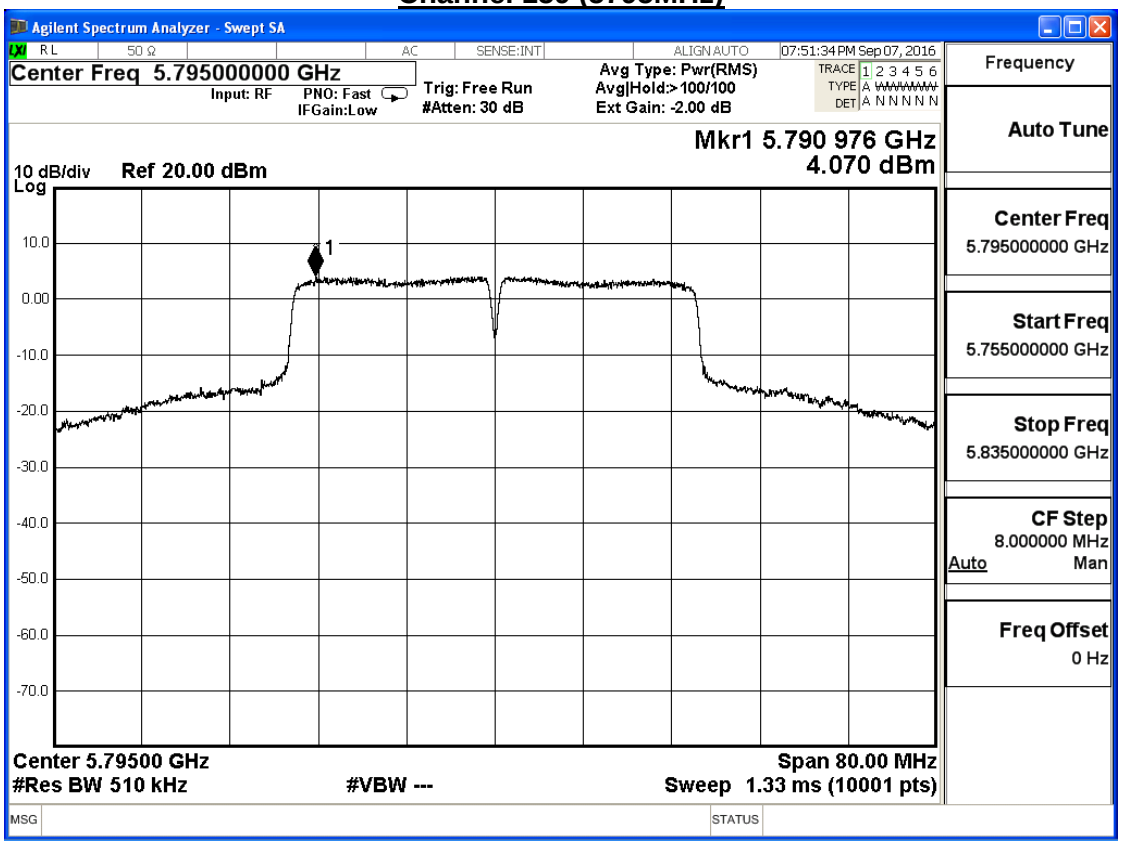
IEEE 802.11n(40MHz) (ANT 1)				
Channel No.	Frequency (MHz)	Measurement (dBm)	Limit (dBm)	Result
151	5755	3.622	≦29.38	Pass
159	5795	4.070	≦29.38	Pass

Total Gain: 10log(ANT N)+max Gain=3.01+3.61 = 6.62dBi
Limit=30-(6.62dBi-6dBi)=29.38dBi

Channel 151 (5755MHz)



Channel 159 (5795MHz)



Product	Dual-Band Wireless-AC PCI-E Adapter		
Test Item	Peak Power Spectral Density		
Test Mode	Mode 2: Transmit_CDD Mode		
Date of Test	2016/09/07	Test Site	SR7

IEEE 802.11n(40MHz) (ANT 0+1)				
Channel No.	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Result
151	5755	11.066	≦29.38	Pass
159	5795	6.211	≦29.38	Pass

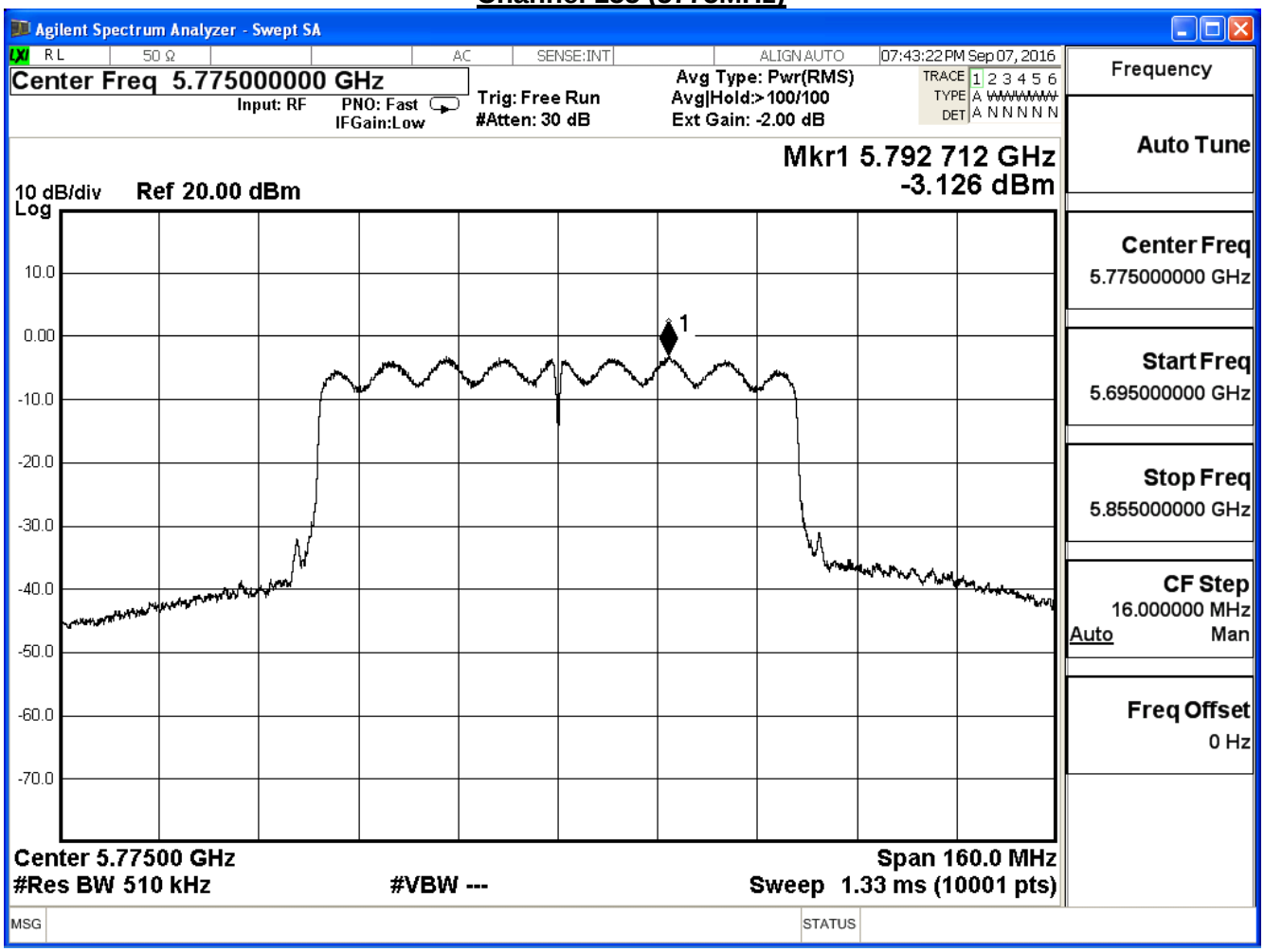
Total Gain: 10log(ANT N)+max Gain=3.01+3.61 = 6.62dBi
Limit=30-(6.62dBi-6dBi)=29.38dBi

Product	Dual-Band Wireless-AC PCI-E Adapter		
Test Item	Peak Power Spectral Density		
Test Mode	Mode 2: Transmit_CDD Mode		
Date of Test	2016/09/07	Test Site	SR7

IEEE 802.11ac(80MHz)(ANT 0)				
Channel No.	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Result
155	5775	-3.126	≦29.38	Pass

Total Gain: 10log(ANT N)+max Gain=3.01+3.61 = 6.62dBi
Limit=30-(6.62dBi-6dBi)=29.38dBi

Channel 155 (5775MHz)

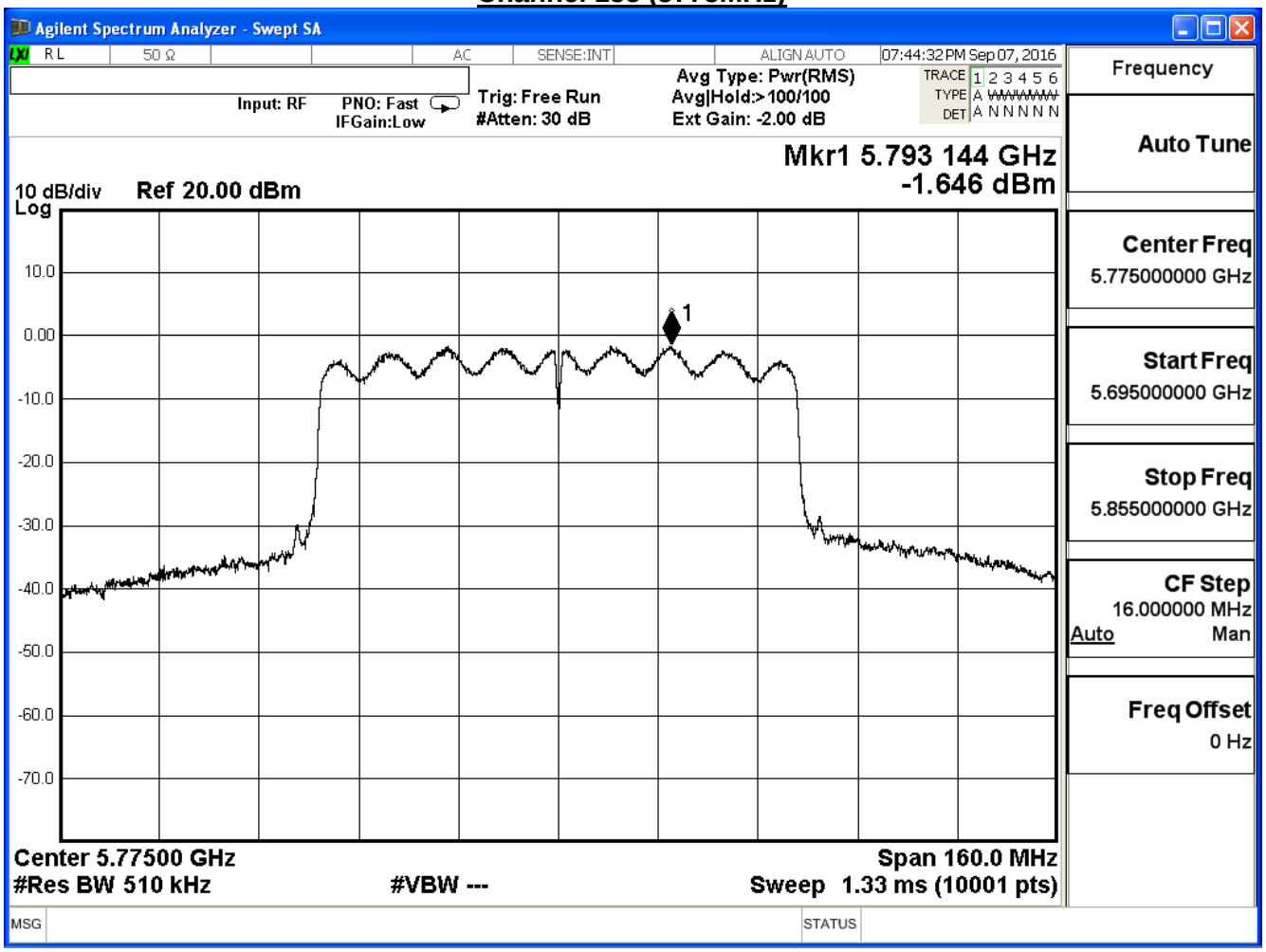


Product	Dual-Band Wireless-AC PCI-E Adapter		
Test Item	Peak Power Spectral Density		
Test Mode	Mode 2: Transmit_CDD Mode		
Date of Test	2016/09/07	Test Site	SR7

IEEE 802.11ac(80MHz) (ANT 1)				
Channel No.	Frequency (MHz)	Measurement (dBm)	Limit (dBm)	Result
155	5775	-1.646	≦29.38	Pass

Total Gain: 10log(ANT N)+max Gain=3.01+3.61 = 6.62dBi
Limit=30-(6.62dBi-6dBi)=29.38dBi

Channel 155 (5775MHz)



Product	Dual-Band Wireless-AC PCI-E Adapter		
Test Item	Peak Power Spectral Density		
Test Mode	Mode 2: Transmit_CDD Mode		
Date of Test	2016/09/07	Test Site	SR7

IEEE 802.11ac(80MHz)(ANT 0+1)				
Channel No.	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Result
155	5775	0.687	≦29.38	Pass

Total Gain: 10log(ANT N)+max Gain=3.01+3.61 = 6.62dBi
Limit=30-(6.62dBi-6dBi)=29.38dBi