Test Report

Product Name ： Dual Band 3x3 802.11AC Gigabit Router

Model No. ： RT-AC66U

FCC ID. ： MSQ-RTAC66U

Applicant ： ASUSTeK COMPUTER INC.

Address ： No. 15, Li-Te Rd., Peitou, Taipei 112, Taiwan R.O.C.

Date of Receipt ： 2012/04/27

Issued Date ： 2012/05/21

Report No. ： 125201R-RFUSP46V01

Report Version ： V1.0

The test results relate only to the samples tested.
The test report shall not be reproduced except in full without the written approval of QuieTek Corporation.

Test Report Certification

Issued Date : 2012/05/21
Report No. : 125201R-RFUSP46V01

Product Name	:	Dual Band 3x3 802.11AC Gigabit Router
Applicant	:	ASUSTeK COMPUTER INC.
Address	:	No. 15, Li-Te Rd., Peitou, Taipei 112, Taiwan R.O.C.
Manufacturer	:	(1) Askey Technology (Jiang Su) Ltd. (2) Compal Networking (KunShan) Co., Ltd.
Model No.	:	RT-AC66U
FCC ID.	:	MSQ-RTAC66U
EUT Voltage	:	AC 100-240V, 50-60Hz
Trade Name	:	ASUS
Applicable Standard	:	FCC CFR Title 47 Part 15 Subpart C Section 15.407:2011 ANSI C63.4: 2009
Test Result	:	Complied

The test results relate only to the samples tested.
The test report shall not be reproduced except in full without the written approval of QuieTek Corporation.

Documented By : 
(Carol Tsai / Adm. Specialist)

Reviewed By : 
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Approved By : 
(Roy Wang / Manager)

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1. General Information

1.1. EUT Description

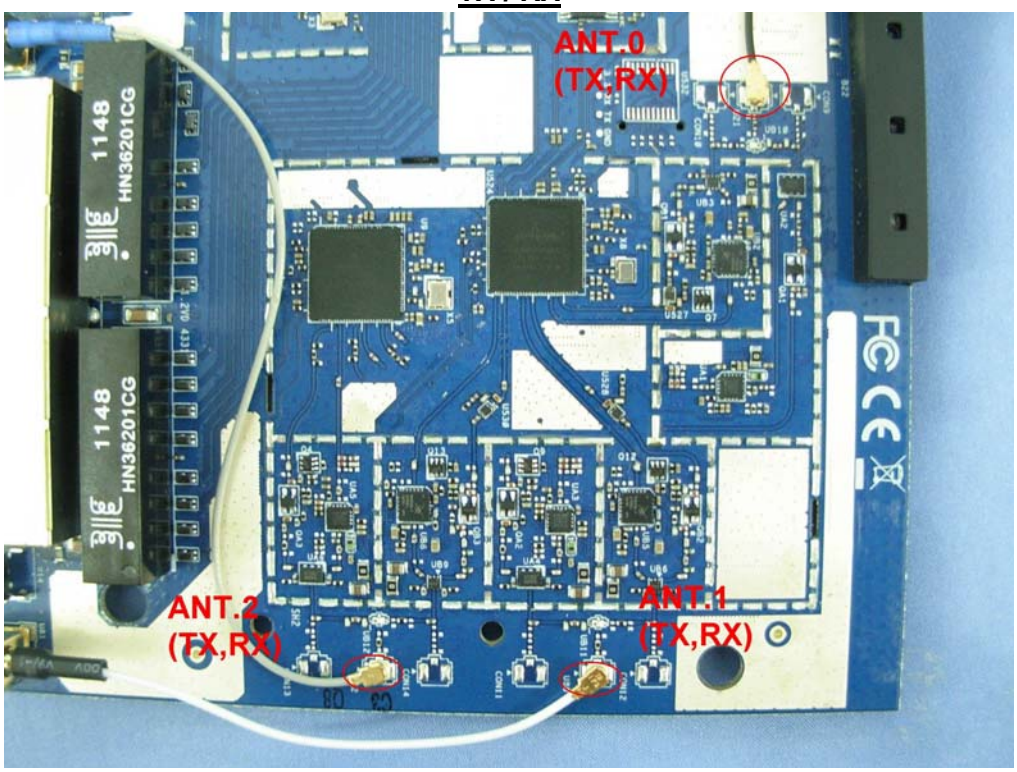
Product Name	Dual Band 3x3 802.11AC Gigabit Router	
Product Type	WLAN (3TX, 3RX)	
Trade Name	ASUS	
Model No.	MSQ-RTAC66U	
Frequency Range	IEEE 802.11a/ IEEE 802.11n (20MHz) / IEEE 802.11ac (20MHz)	5180~5240MHz
	IEEE 802.11n (40MHz) / IEEE 802.11ac (40MHz)	5190~5230MHz
	IEEE 802.11ac (80MHz)	5210MHz
Channel Number	IEEE 802.11a/ IEEE 802.11n (20MHz) / IEEE 802.11ac (20MHz)	4
	IEEE 802.11n (40MHz) / IEEE 802.11ac (40MHz)	2
	IEEE 802.11ac (80MHz)	1
Type of Modulation	IEEE 802.11a/n/ac	Orthogonal Frequency Division Multiplexing (OFDM)
Data Speed	IEEE 802.11n	6Mbps,9Mbps,12Mbps,18Mbps,24Mbps,36Mbps,48 Mbps,54Mbps
Data Speed	IEEE 802.11ac	Support a subset of the combination of GI, MCS 0~MCS 23 and bandwidth defined in 802.11n
Antenna Gain	2dBi	
Channel Control	Manual	
Antenna Type	Dipole	

Component	
LAN Cable	Non-Shielded, 1.5m
Power Adatper	ASUS, EXA1004UH I/P : AC 100-240V, 50-60Hz 1A O/P : +19V⎓1.58A Cable Out: Non-shielded, 2.5m, one ferrite core bonded.
Power Adatper	ASUS, AD82030 I/P : AC 100-240V, 50-60Hz 0.8A O/P : +19V⎓1.58A Cable Out: Non-Shielded, 2.5m, one ferrite core bonded.

ANT-TX / Rx & Bandwidth

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

TX / RX



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 (Note1)	
								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 (Note1)	
								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 (Note1)	
								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

Draft 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
36	5180MHz	40	5200MHz	44	5220MHz	48	5240MHz

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

Working Frequency of Each Channel			
Channel	Frequency	Channel	Frequency
38	5190MHz	46	5230MHz

IEEE 802.11ac (80MHz)- 5.8GHz

Working Frequency of Each Channel	
Channel	Frequency
42	5210 MHz

Note:

1. This device is a Dual Band 3x3 802.11AC Gigabit Router including 2.4GHz b/g/n and 5GHz a/n (3x3) transmitting and receiving function.
2. These test results on a sample of the device are for the purpose of demonstrating Compliance with Part 15 Subpart C Paragraph 15.407.
3. 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.
4. The function of the 2.4GHz & 5.8GHz transmitting is measured and makes a test report of the report number: 125201R-RFUSP42V01.
5. This device is a composite device in accordance with Part 15 regulations. The receiving function receiving was tested and its test report number is 125201R-RFUSP37V02 under Declaration of Conformity.

1.3. 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 (Adapter: EXA1004UH) Mode 2: Transmit (Adapter: AD82030)

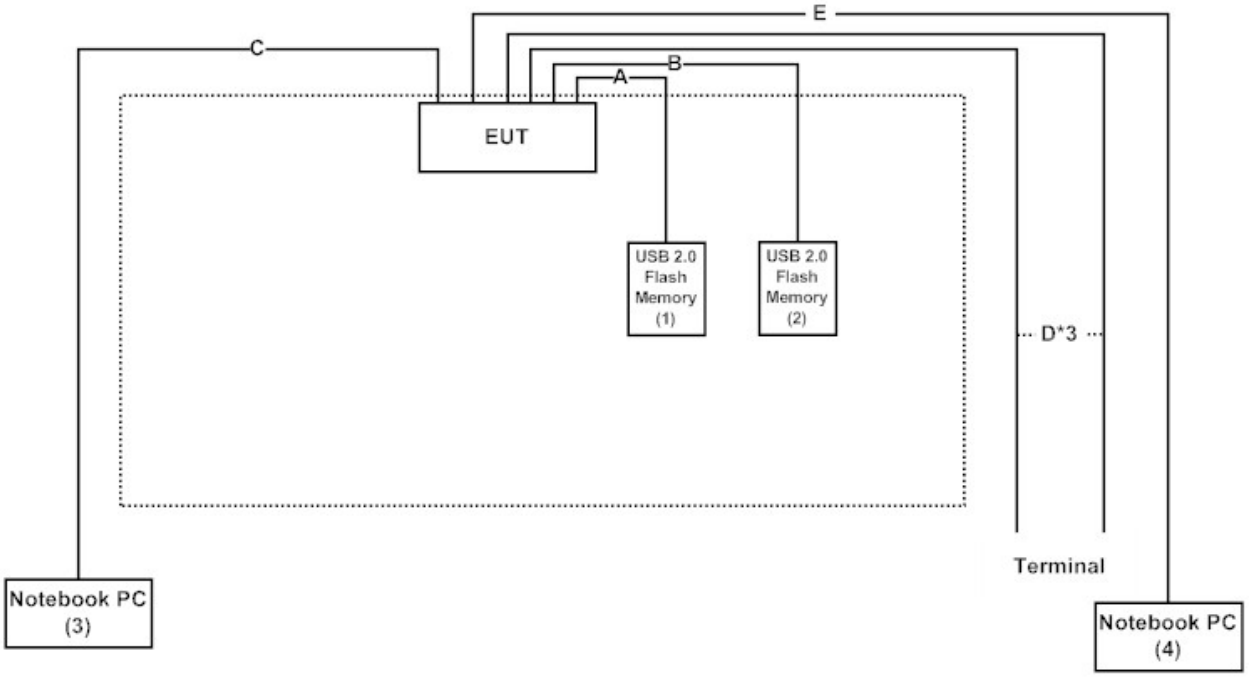
Test Items	Mode	Channel	Antenna	Result
Conducted Emission	11ac (80MHz)	42	0+1+2	Complies
99 % & 26dB Bandwidth	a	36/44/48	0	Complies
	11n/ac (20MHz)	36/44/48	0/1/2	Complies
	11n/ac (40MHz)	38/46	0/1/2	Complies
	11ac (80MHz)	42	0/1/2	Complies
Peak Transmit Output	a	36/44/48	0	Complies
	11n/ac (20MHz)	36/44/48	0+1+2	Complies
	11n/ac (40MHz)	38/46	0+1+2	Complies
	11ac (80MHz)	42	0+1+2	Complies
Peak Power Spectrum Density	a	36/44/48	0	Complies
	11n/ac (20MHz)	36/44/48	0+1+2	Complies
	11n/ac (40MHz)	38/46	0+1+2	Complies
	11ac (80MHz)	42	0+1+2	Complies
Power Excursion	a	36/44/48	0	Complies
	11n/ac (20MHz)	36/44/48	0/1/2	Complies
	11n/ac (40MHz)	38/46	0/1/2	Complies
	11ac (80MHz)	42	0/1/2	Complies
Radiated Emission	a	36/44/48	0	Complies
	11n/ac (20MHz)	36/44/48	0+1+2	Complies
	11n/ac (40MHz)	38/46	0+1+2	Complies
	11ac (80MHz)	42	0+1+2	Complies
Band Edge	a	36	0	Complies
	11n/ac (20MHz)	36	0+1+2	Complies
	11n/ac (40MHz)	38	0+1+2	Complies
	11ac (80MHz)	42	0+1+2	Complies
Frequency Stability	a	36/44/48	0	Complies
	11n/ac (20MHz)	36/44/48	0/1/2	Complies
	11n/ac (40MHz)	38/46	0/1/2	Complies
	11ac (80MHz)	42	0/1/2	Complies

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	USB 2.0 Flash Memory	Sony	USM2GJX	N/A	DoC	--
2	USB 2.0 Flash Memory	Sony	USM2GJX	N/A	DoC	--
3	Notebook PC	DELL	PP37L	CD8BNG1	DoC	Non-Shielded, 1.8m
4	Notebook PC	HP Compaq	NX6320FF	CNU7020BXT	DoC	Non-Shielded, 1.8m

1.5. Configuration of tested System

Connection Diagram


Signal Cable Type		Signal cable Description
A	USB 2.0 Flash Memory Cable	Shielded, 1.0m
B	USB 2.0 Flash Memory Cable	Shielded, 1.0m
C	LAN Cable	Non-Shielded, 3.0m
D	LAN Cable	Non-Shielded, 3.0m, 3PCS
E	LAN Cable	Non-Shielded, 3.0m

1.6. EUT Exercise Software

1	Setup the EUT as shown in Section 1.5.
2	Execute the MFG Control Panel Ver 1.4.0.0 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 (IEC 68-1)	Actual
Temperature (°C)	FCC PART 15 C 15.407 Conducted Emission	15 - 35	20
Humidity (%RH)		25 - 75	50
Barometric pressure (mbar)		860 - 1060	950-1000
Temperature (°C)	FCC PART 15 C 15.407 99 % & 26dB Bandwidth	15 - 35	25
Humidity (%RH)		25 - 75	48
Barometric pressure (mbar)		860 - 1060	950-1000
Temperature (°C)	FCC PART 15 C 15.407 Peal Transmit Power	15 - 35	25
Humidity (%RH)		25 - 75	65
Barometric pressure (mbar)		860 - 1060	950-1000
Temperature (°C)	FCC PART 15 C 15.407 Peak Power Spectrum Density	15 - 35	24
Humidity (%RH)		25 - 75	49
Barometric pressure (mbar)		860 - 1060	950-1000
Temperature (°C)	FCC PART 15 C 15.407 Power Excursion	15 - 35	25
Humidity (%RH)		25 - 75	48
Barometric pressure (mbar)		860 - 1060	950-1000
Temperature (°C)	FCC PART 15 C 15.407 Radiated Emission	15 - 35	25
Humidity (%RH)		25 - 75	48
Barometric pressure (mbar)		860 - 1060	950-1000
Temperature (°C)	FCC PART 15 C 15.407 Band Edge	15 - 35	25
Humidity (%RH)		25 - 75	48
Barometric pressure (mbar)		860 - 1060	950-1000
Temperature (°C)	FCC PART 15 C 15.407 Frequency Stability	15 - 35	25
Humidity (%RH)		25 - 75	48
Barometric pressure (mbar)		860 - 1060	950-1000

Site Description: September 27, 2010 File on
Federal Communications Commission
Laboratory Division
7435 Oakland Mills Road
Columbia, MD 21046
Registration Number: 365520

Accredited by TAF
Accreditation Number: 1313
Effective through: December 27, 2013

Accredited by NVLAP
NVLAP Lab Code: 200347-0
Effective through: September 30, 2012

Site Name: Quietek Corporation
Site Address: No. 75-2, 3rd Lin, Wangye Keng, Yonghxing
Tsuen, Qionglin Shiang, Hsinchu County 307, Taiwan
TEL : 886-3-5928858 / FAX : 886-3-5928859
E-Mail : service@quietek.com

2. Conducted Emission

2.1. Test Equipment

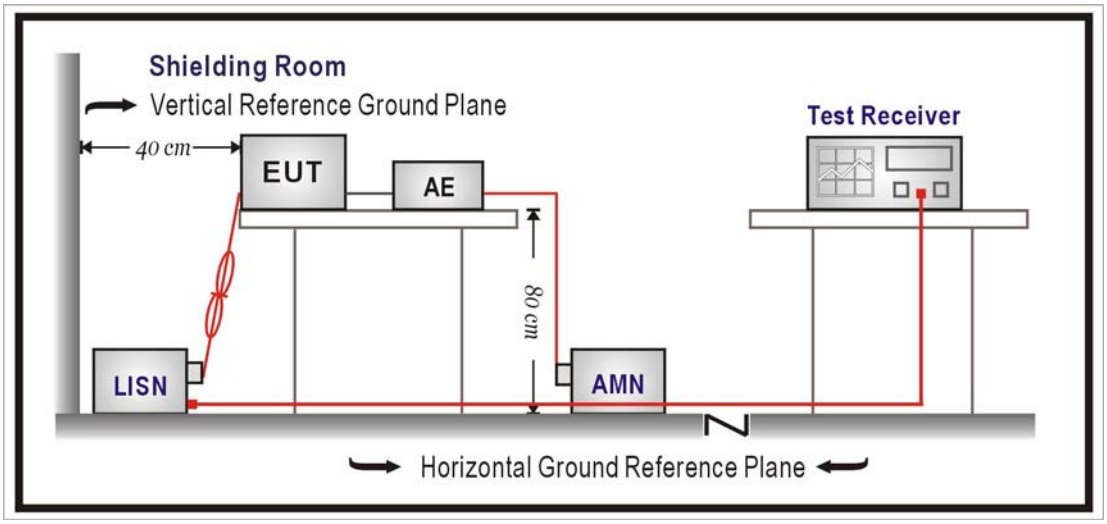
The following test equipments are used during the test:

Conducted Emission / SR3

Instrument	Manufacturer	Model No.	Serial No	Next Cal. Date
LISN	R&S	ENV216	100096	2012/09/06
LISN	R&S	ESH3-Z5	836679/022	2013/02/06
Test Receiver	R&S	ESCS 30	825442/017	2013/01/01

Note: 1. 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

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

2.4. Test Procedure

The EUT was setup according to ANSI C63.4: 2009 and tested according to DTS test procedure of Oct 2002 KDB558074 for compliance to FCC 47CFR 15.247 requirements.
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

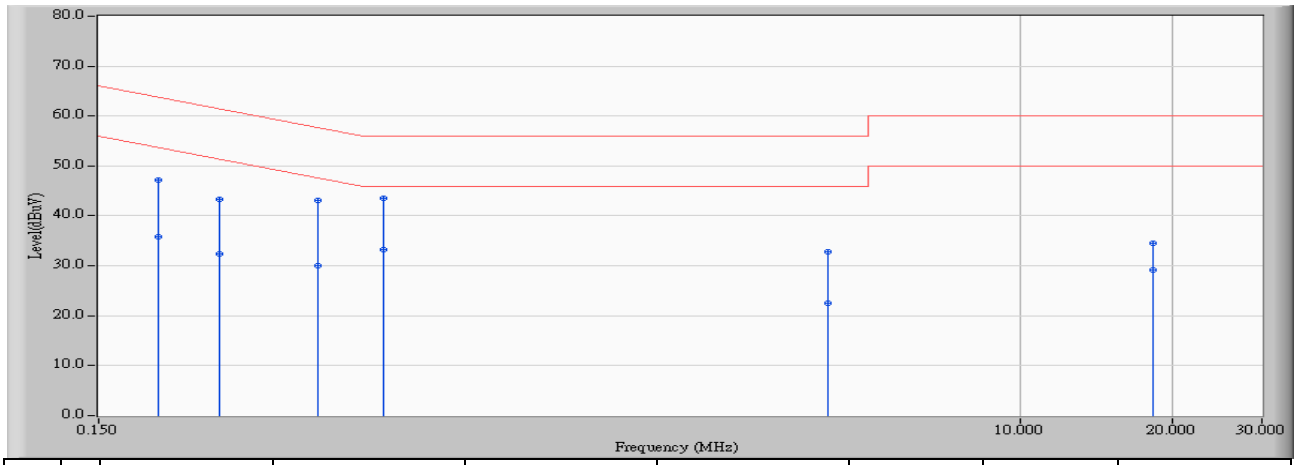
According to FCC Part 15 Subpart C Paragraph 15.207:2011

2.6. Uncertainty

The measurement uncertainty is defined as ± 2.26 dB.

2.7. Test Result

Site : SR3	**Time : 2012/05/09 - 18:36**
Limit : CISPR_B_00M_QP	**Margin : 10**
Probe : SR3_LISN(16A)-1_0907 - Line1	**Power : AC 120V/60Hz**
EUT : Dual Band 3x3 802.11AC Gigabit Router	**Note : Mode 1: Transmit (Adapter: EXA1004UH) 5210MHz,802.11ac(80M)**

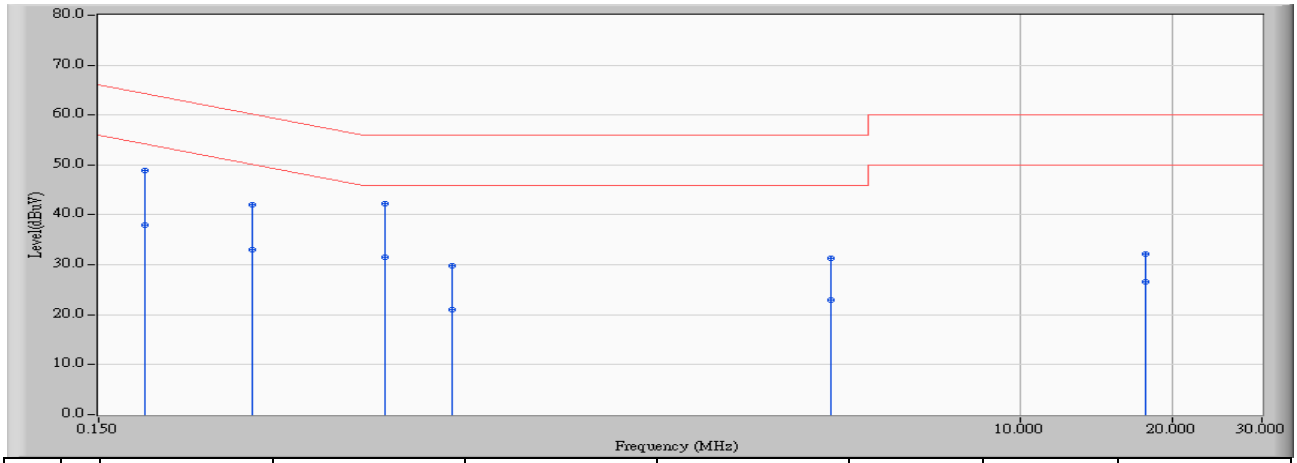


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1		0.197	9.658	37.470	47.127	-16.614	63.741	QUASIPEAK
2		0.197	9.658	26.130	35.787	-17.954	53.741	AVERAGE
3		0.259	9.665	33.710	43.375	-18.076	61.451	QUASIPEAK
4		0.259	9.665	22.790	32.455	-18.996	51.451	AVERAGE
5		0.408	9.687	33.520	43.207	-14.486	57.693	QUASIPEAK
6		0.408	9.687	20.370	30.057	-17.636	47.693	AVERAGE
7	*	0.548	9.709	33.820	43.529	-12.471	56.000	QUASIPEAK
8		0.548	9.709	23.480	33.189	-12.811	46.000	AVERAGE
9		4.150	10.020	22.860	32.880	-23.120	56.000	QUASIPEAK
10		4.150	10.020	12.530	22.550	-23.450	46.000	AVERAGE
11		18.232	10.286	24.300	34.586	-25.414	60.000	QUASIPEAK
12		18.232	10.286	18.960	29.246	-20.754	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 : 2012/05/09 - 18:39**
Limit : CISPR_B_00M_QP	**Margin : 10**
Probe : SR3_LISN(16A)-1_0907 - Line2	**Power : AC 120V/60Hz**
EUT : Dual Band 3x3 802.11AC Gigabit Router	**Note : Mode 1: Transmit (Adapter: EXA1004UH) 5210MHz,802.11ac(80M)**

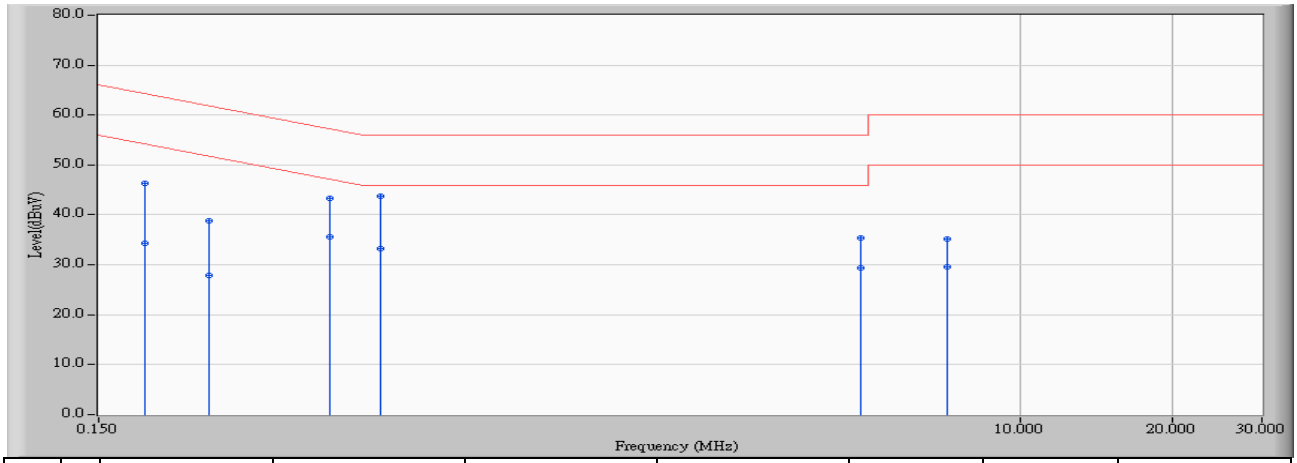


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1		0.185	9.666	39.190	48.856	-15.395	64.251	QUASIPEAK
2		0.185	9.666	28.260	37.926	-16.325	54.251	AVERAGE
3		0.302	9.682	32.400	42.082	-18.097	60.178	QUASIPEAK
4		0.302	9.682	23.310	32.992	-17.187	50.178	AVERAGE
5	*	0.552	9.717	32.610	42.327	-13.673	56.000	QUASIPEAK
6		0.552	9.717	21.810	31.527	-14.473	46.000	AVERAGE
7		0.752	9.745	20.090	29.835	-26.165	56.000	QUASIPEAK
8		0.752	9.745	11.370	21.115	-24.885	46.000	AVERAGE
9		4.224	10.045	21.290	31.335	-24.665	56.000	QUASIPEAK
10		4.224	10.045	12.890	22.935	-23.065	46.000	AVERAGE
11		17.677	10.445	21.810	32.255	-27.745	60.000	QUASIPEAK
12		17.677	10.445	16.100	26.545	-23.455	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 : 2012/05/11 - 10:11**
Limit : CISPR_B_00M_QP	**Margin : 10**
Probe : SR3_LISN(16A)-1_0907 - Line1	**Power : AC 120V/60Hz**
EUT : Dual Band 3x3 802.11AC Gigabit Router	**Note : Mode 2: Transmit (Adapter: AD82030) 5210MHz,802.11ac(80M)**

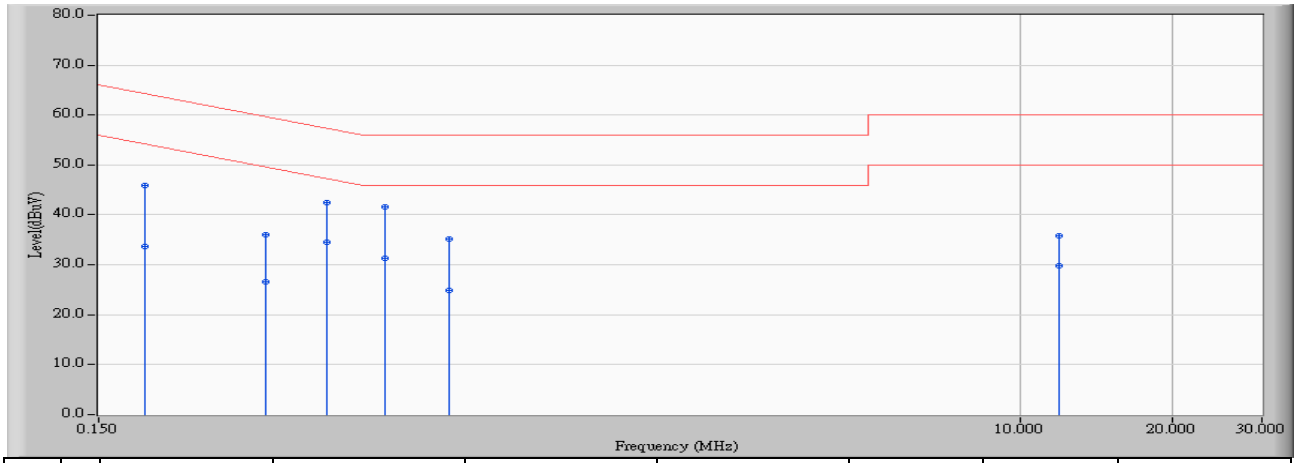


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1		0.185	9.656	36.570	46.226	-18.025	64.251	QUASIPEAK
2		0.185	9.656	24.580	34.236	-20.015	54.251	AVERAGE
3		0.248	9.664	29.060	38.724	-23.112	61.835	QUASIPEAK
4		0.248	9.664	18.180	27.844	-23.992	51.835	AVERAGE
5		0.431	9.691	33.590	43.281	-13.948	57.229	QUASIPEAK
6	*	0.431	9.691	25.830	35.521	-11.708	47.229	AVERAGE
7		0.541	9.708	33.940	43.648	-12.352	56.000	QUASIPEAK
8		0.541	9.708	23.540	33.248	-12.752	46.000	AVERAGE
9		4.810	10.050	25.290	35.340	-20.660	56.000	QUASIPEAK
10		4.810	10.050	19.440	29.490	-16.510	46.000	AVERAGE
11		7.166	10.089	25.050	35.139	-24.861	60.000	QUASIPEAK
12		7.166	10.089	19.580	29.669	-20.331	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 : 2012/05/11 - 10:14**
Limit : CISPR_B_00M_QP	**Margin : 10**
Probe : SR3_LISN(16A)-1_0907 - Line2	**Power : AC 120V/60Hz**
EUT : Dual Band 3x3 802.11AC Gigabit Router	**Note : Mode 2: Transmit (Adapter: AD82030) 5210MHz,802.11ac(80M)**



		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1		0.185	9.666	36.330	45.996	-18.255	64.251	QUASIPEAK
2		0.185	9.666	24.010	33.676	-20.575	54.251	AVERAGE
3		0.322	9.684	26.390	36.074	-23.584	59.658	QUASIPEAK
4		0.322	9.684	16.840	26.524	-23.134	49.658	AVERAGE
5		0.423	9.699	32.740	42.439	-14.942	57.380	QUASIPEAK
6	*	0.423	9.699	24.830	34.529	-12.852	47.380	AVERAGE
7		0.552	9.717	31.910	41.627	-14.373	56.000	QUASIPEAK
8		0.552	9.717	21.570	31.287	-14.713	46.000	AVERAGE
9		0.740	9.743	25.350	35.093	-20.907	56.000	QUASIPEAK
10		0.740	9.743	15.200	24.943	-21.057	46.000	AVERAGE
11		11.931	10.259	25.590	35.849	-24.151	60.000	QUASIPEAK
12		11.931	10.259	19.590	29.849	-20.151	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% & 26dB Bandwidth

3.1. Test Equipment

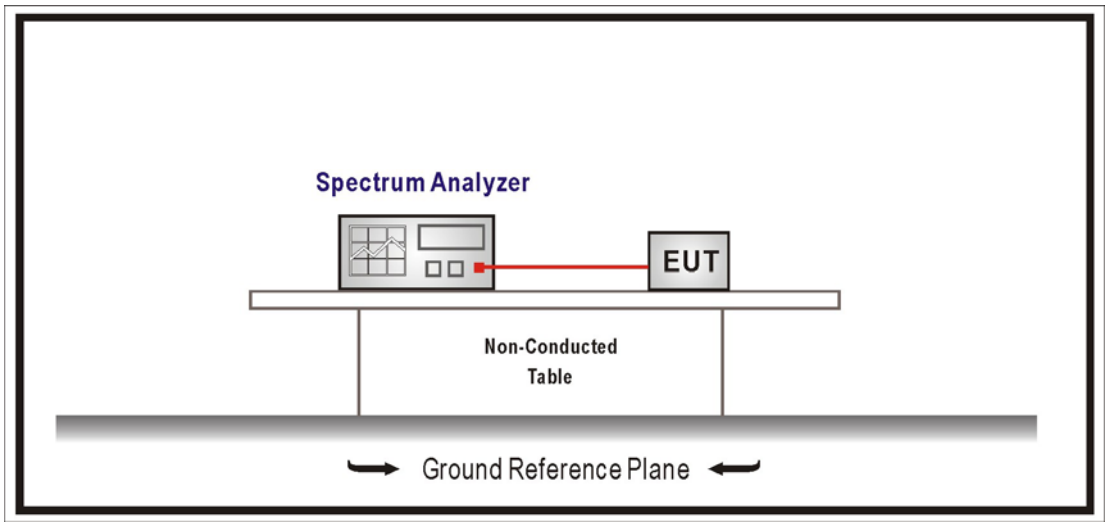
The following test equipments are used during the radiated emission tests:

99% & 26dB Bandwidth / SR7

Instrument	Manufacturer	Model No.	Serial No	Next Cal. Date
Spectrum Analyzer	R&S	FSP	100561	2013/02/19

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

3.2. Test Setup



3.3. Limits

No Required

3.4. Test Procedure

The EUT was tested according to U-NII test procedure of March 2012 KDB 789033.
Set RBW 1% of the emission bandwidth, VBW equal to 3 times the RBW.

3.5. Uncertainty

The measurement uncertainty is defined as ±150Hz

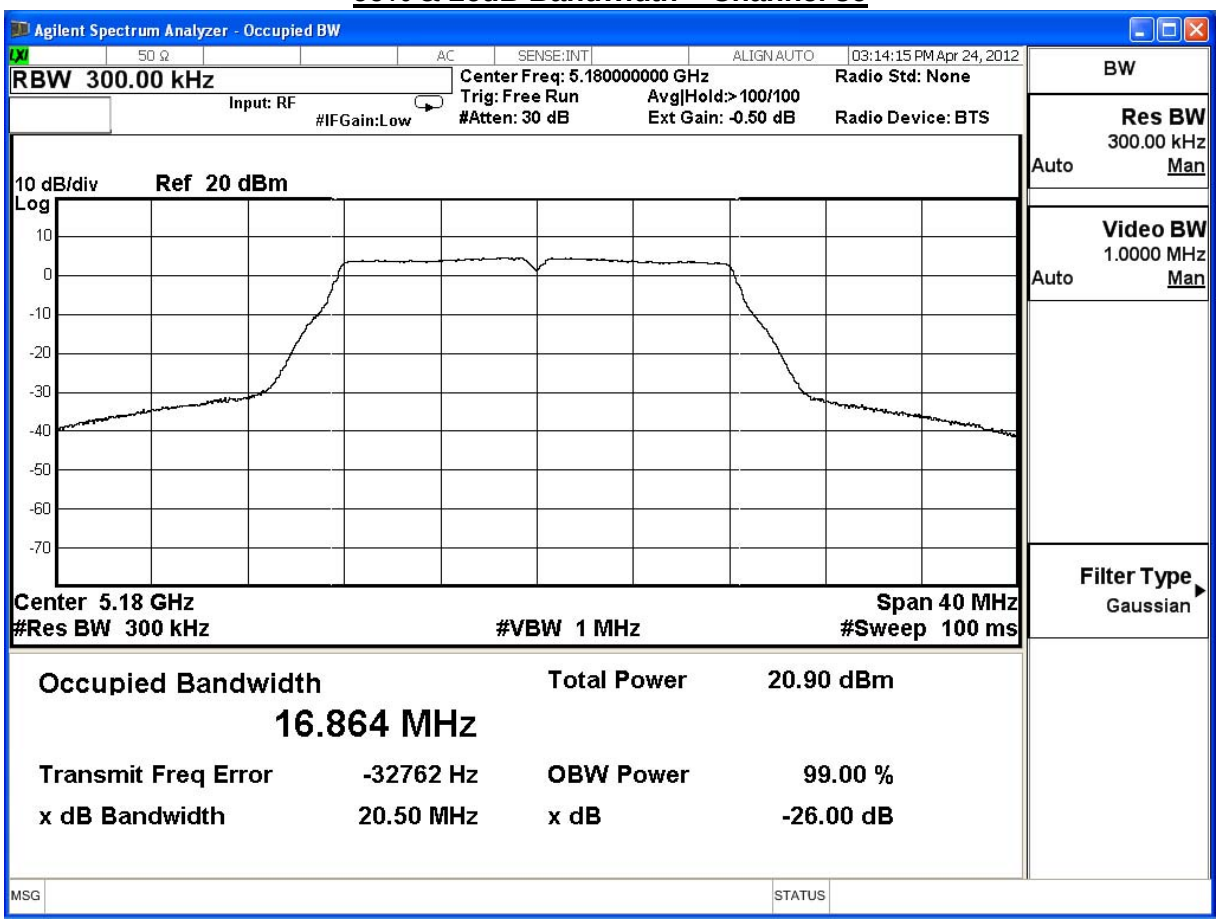
3.6. Test Result

Product	Dual Band 3x3 802.11AC Gigabit Router		
Test Item	99% & 26dB Bandwidth		
Test Mode	Mode 1: Transmit (Adapter: EXA1004UH)		
Date of Test	2012/04/24	Test Site	SR7

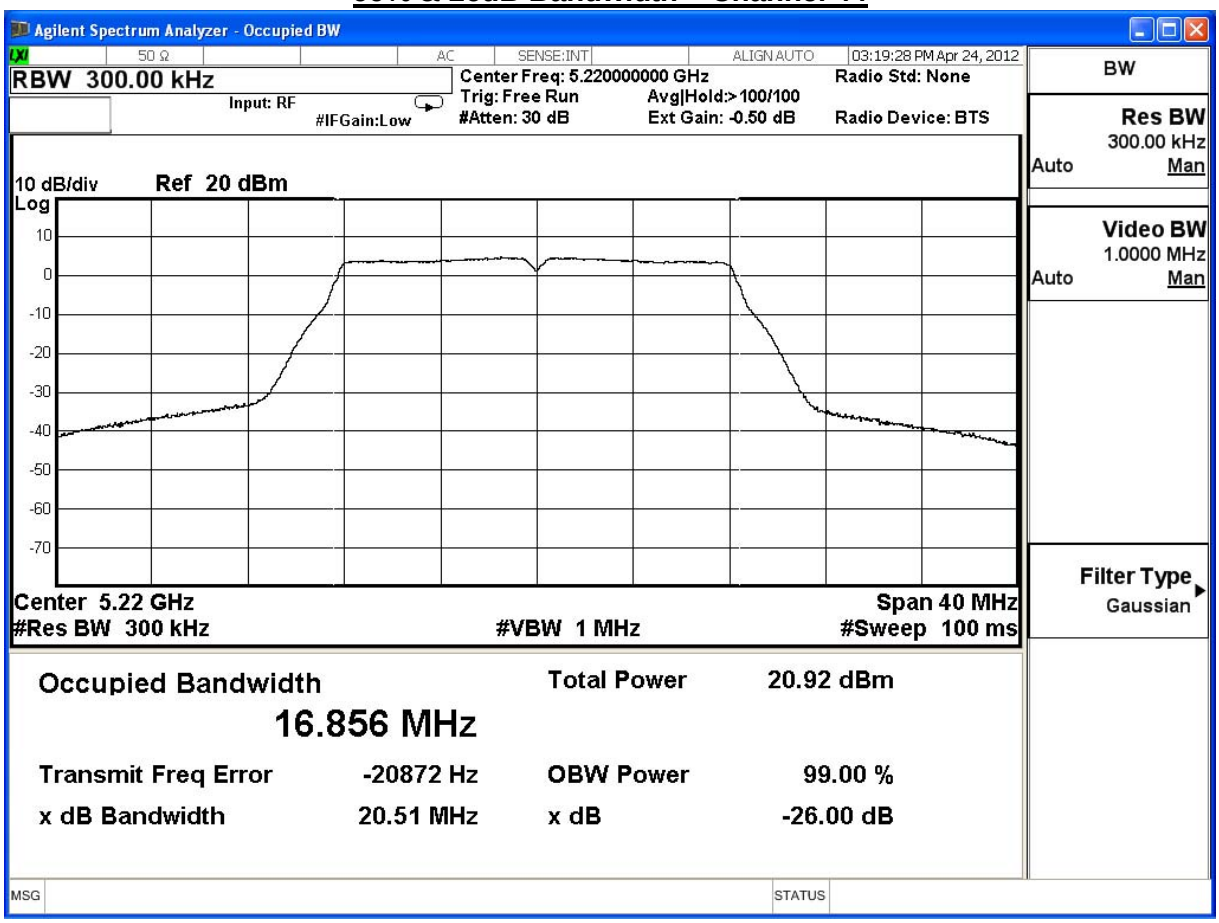
802.11a

Channel No.	Frequency (MHz)	26dB BW (MHz)	99 % OBW (MHz)	Required Limit (MHz)	Result
36	5180	20.50	16.86	--	NA
44	5220	20.51	16.85	--	NA
48	5240	20.44	16.80	--	NA

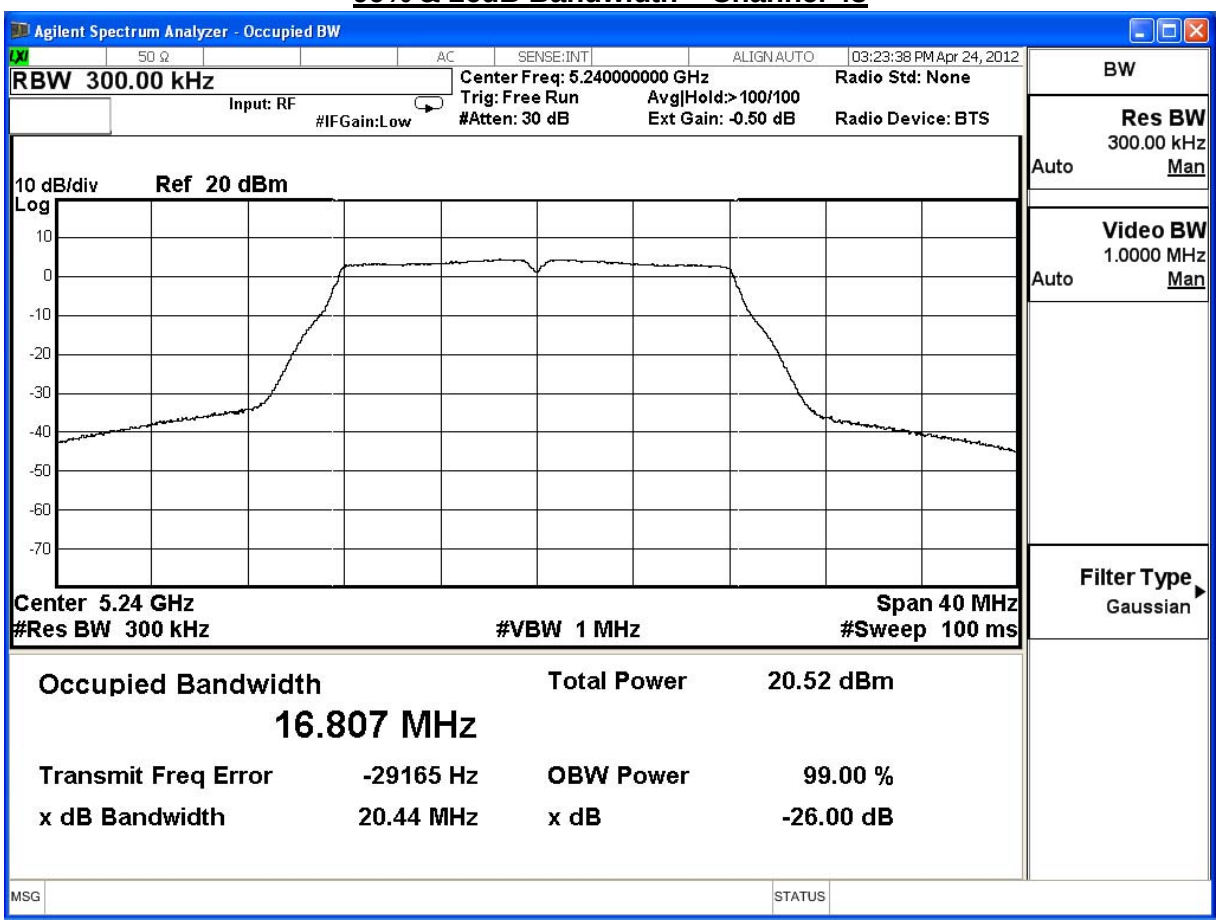
99% & 26dB Bandwidth – Channel 36



99% & 26dB Bandwidth – Channel 44



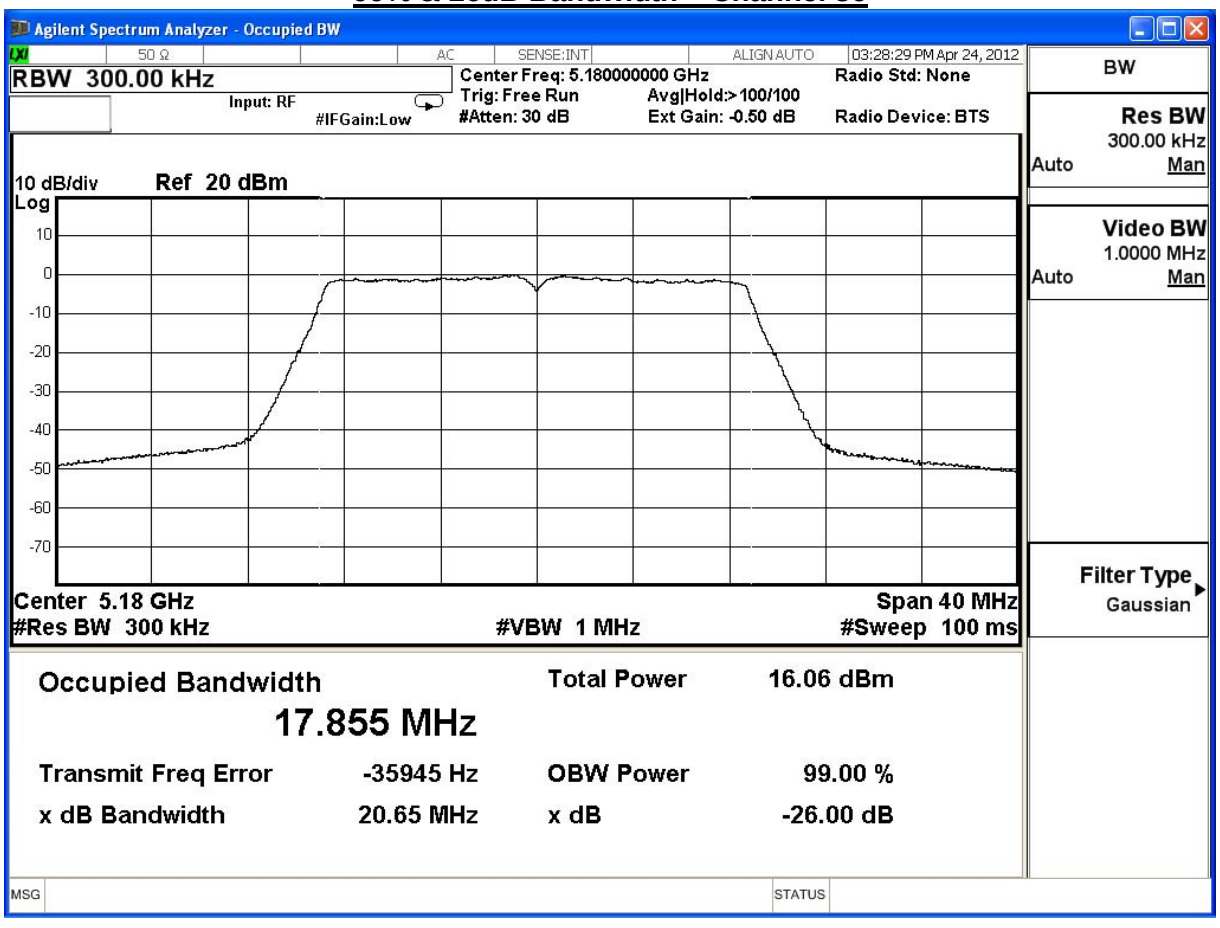
99% & 26dB Bandwidth – Channel 48



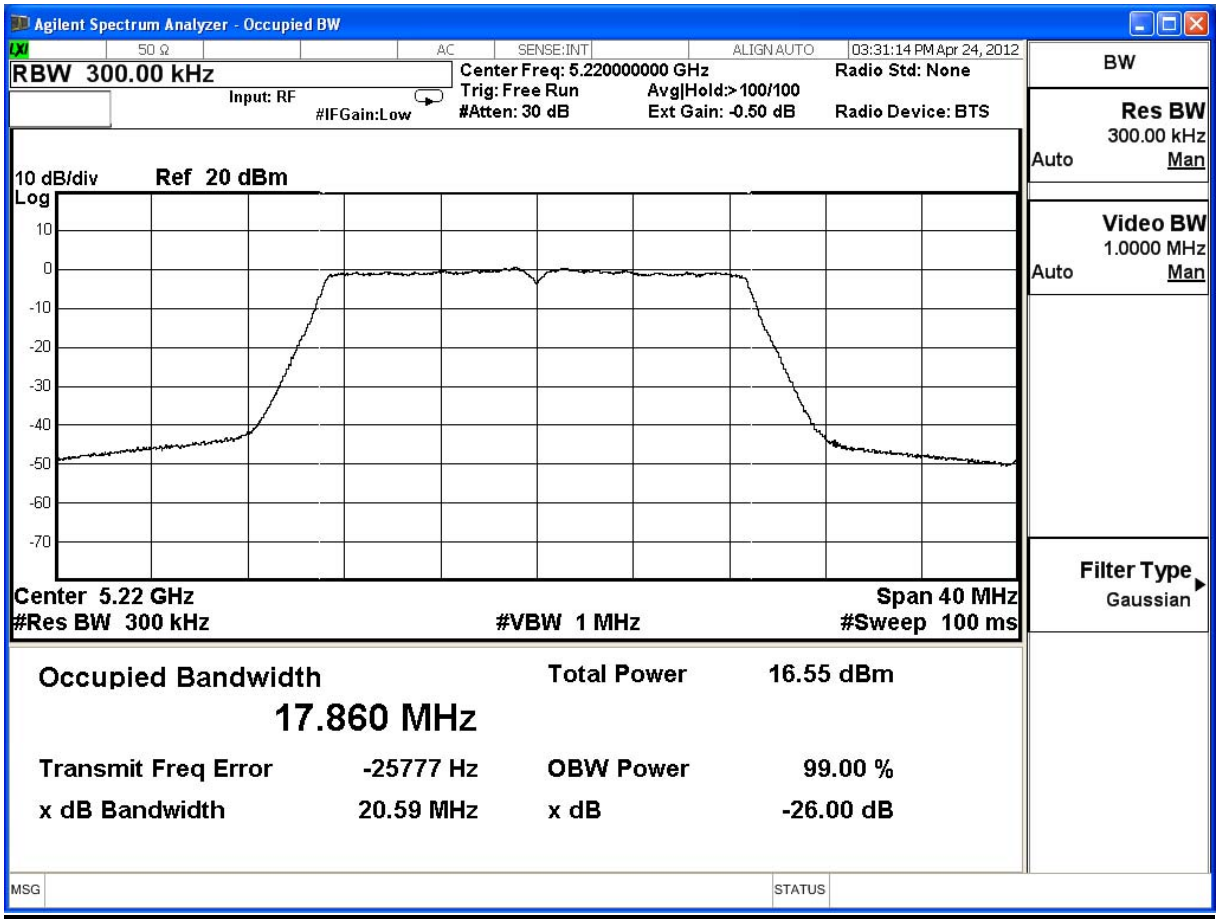
Product	Dual Band 3x3 802.11AC Gigabit Router		
Test Item	99% & 26dB Bandwidth		
Test Mode	Mode 1: Transmit (Adapter: EXA1004UH)		
Date of Test	2012/04/24	Test Site	SR7

802.11n_20M(ANT 0)					
Channel No.	Frequency (MHz)	26dB BW (MHz)	99 % OBW (MHz)	Required Limit (MHz)	Result
36	5180	20.65	17.85	--	NA
44	5220	20.59	17.86	--	NA
48	5240	20.55	17.82	--	NA

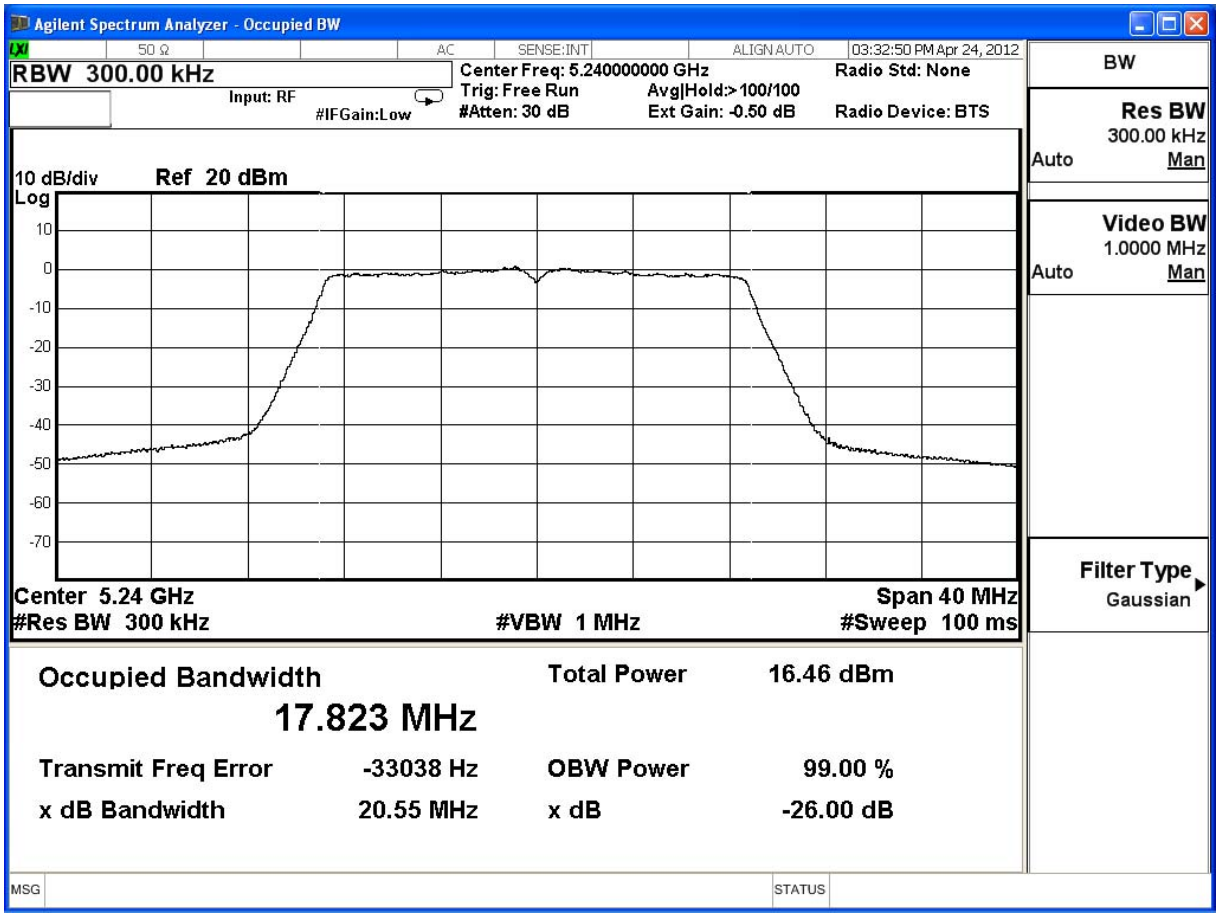
99% & 26dB Bandwidth – Channel 36



99% & 26dB Bandwidth – Channel 44



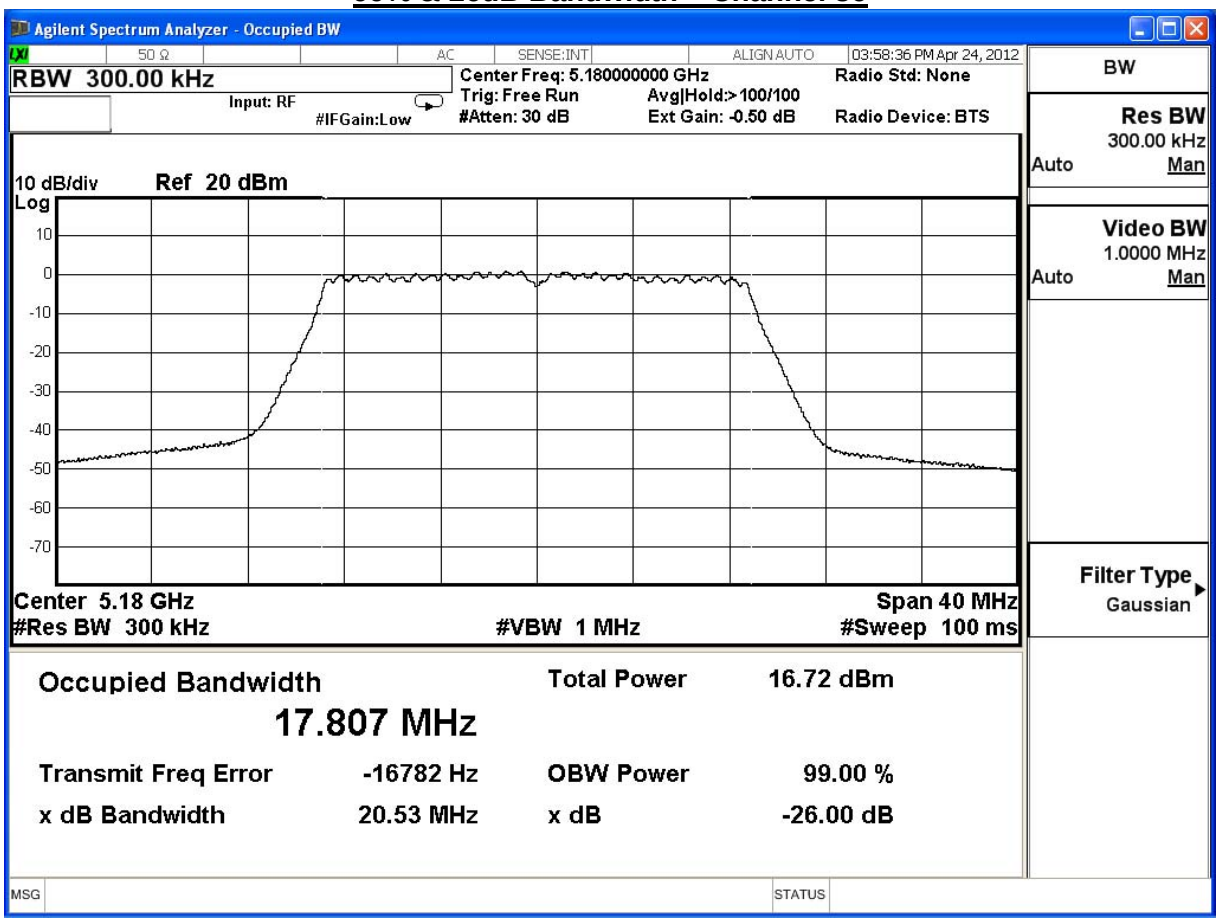
99% & 26dB Bandwidth – Channel 48



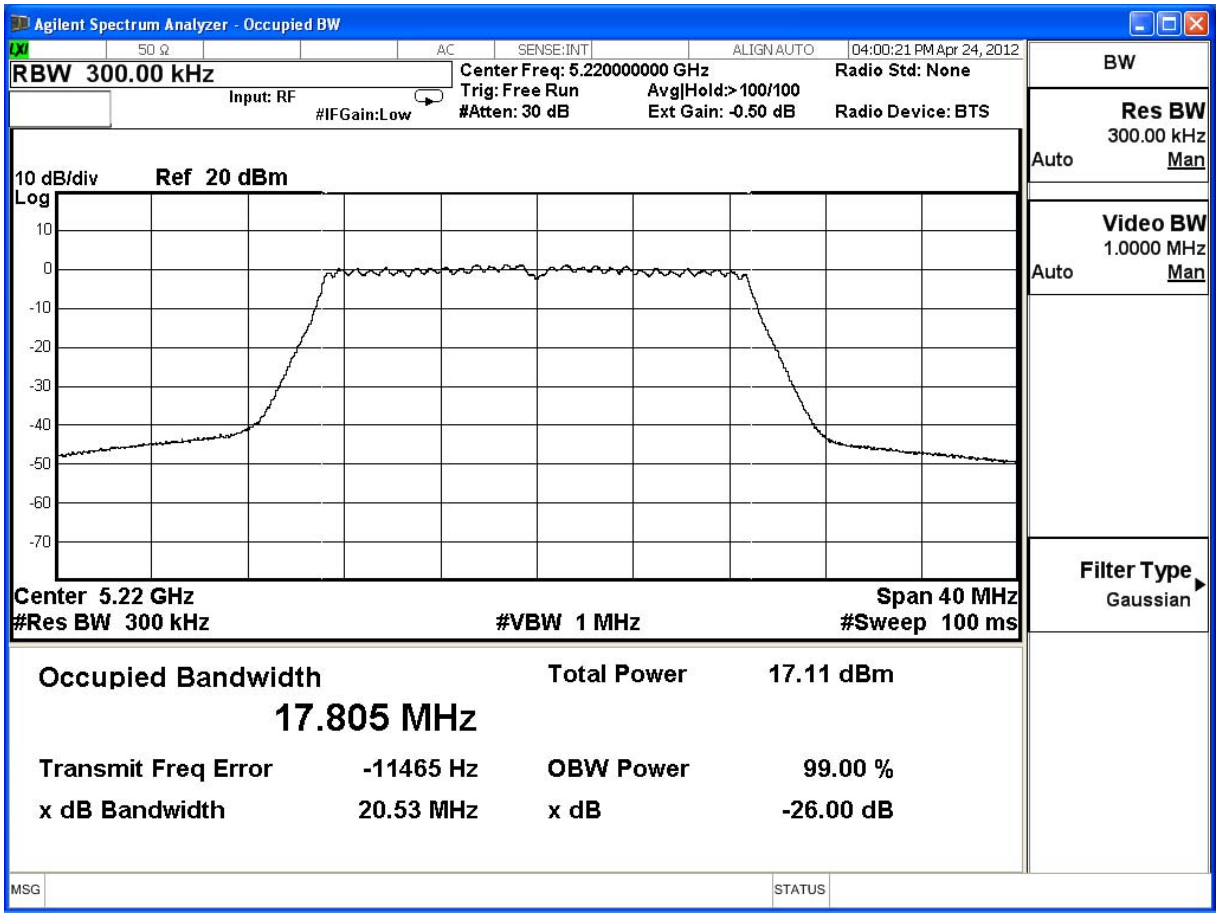
Product	Dual Band 3x3 802.11AC Gigabit Router		
Test Item	99% & 26dB Bandwidth		
Test Mode	Mode 1: Transmit (Adapter: EXA1004UH)		
Date of Test	2012/04/24	Test Site	SR7

802.11n_20M(ANT 1)					
Channel No.	Frequency (MHz)	26dB BW (MHz)	99 % OBW (MHz)	Required Limit (MHz)	Result
36	5180	20.53	17.80	--	NA
44	5220	20.53	17.80	--	NA
48	5240	20.53	17.80	--	NA

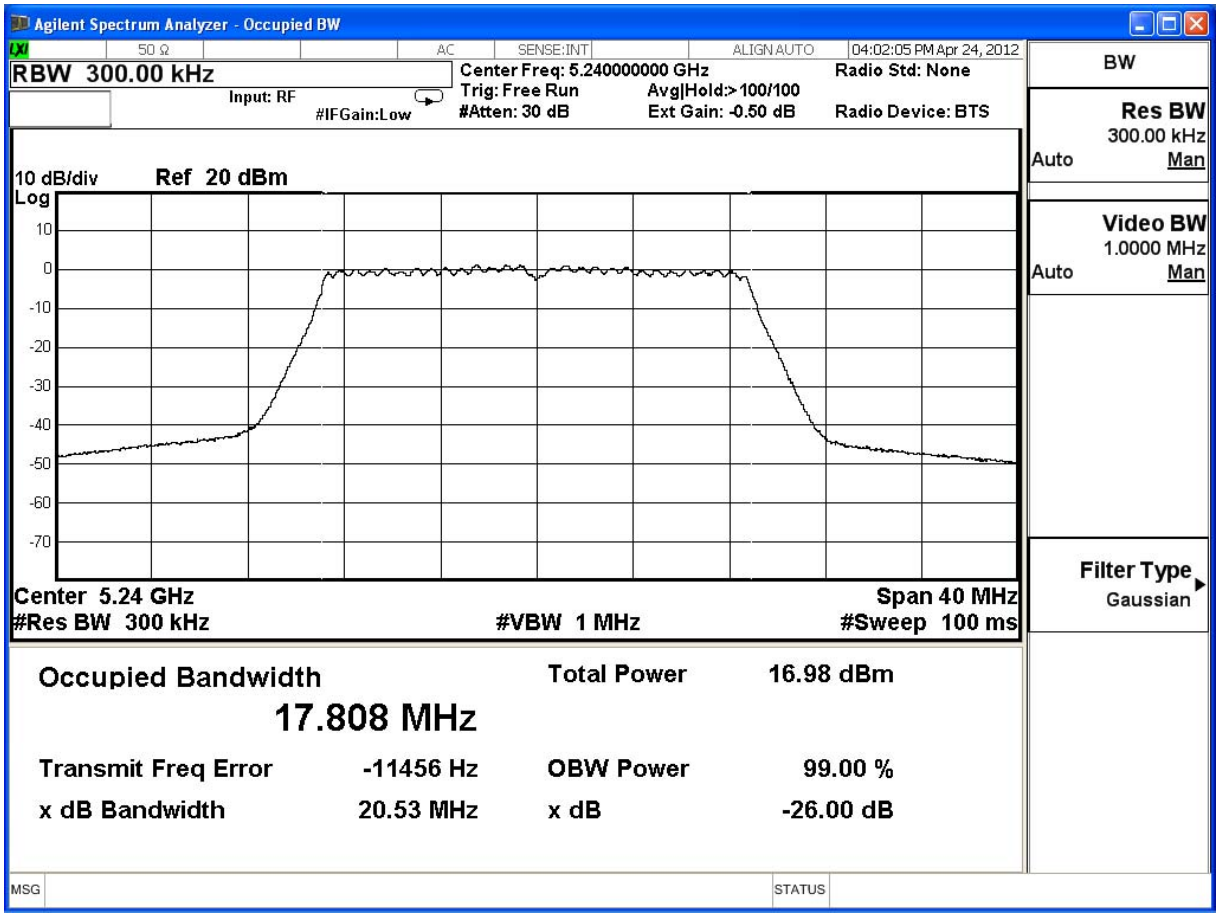
99% & 26dB Bandwidth – Channel 36



99% & 26dB Bandwidth – Channel 44



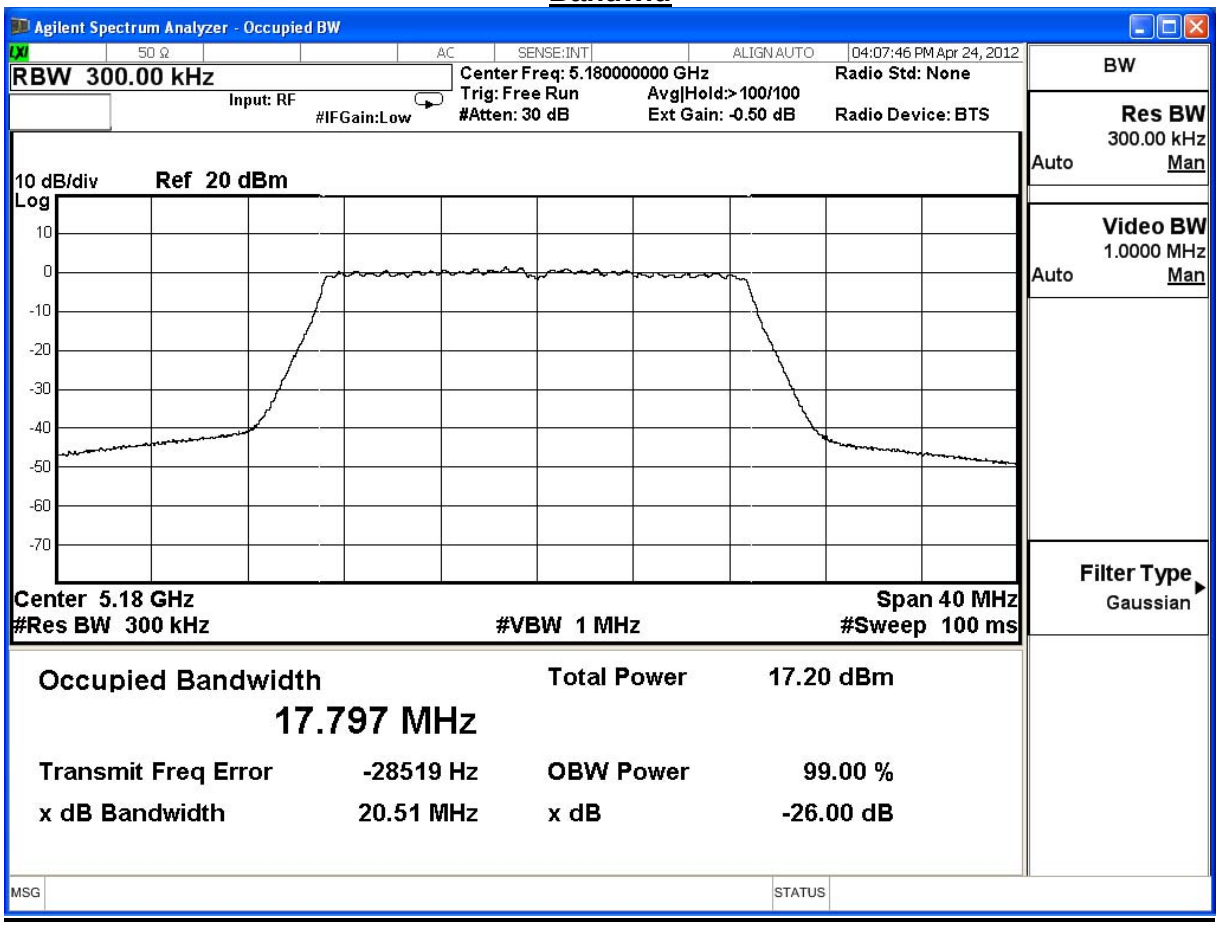
99% & 26dB Bandwidth – Channel 48



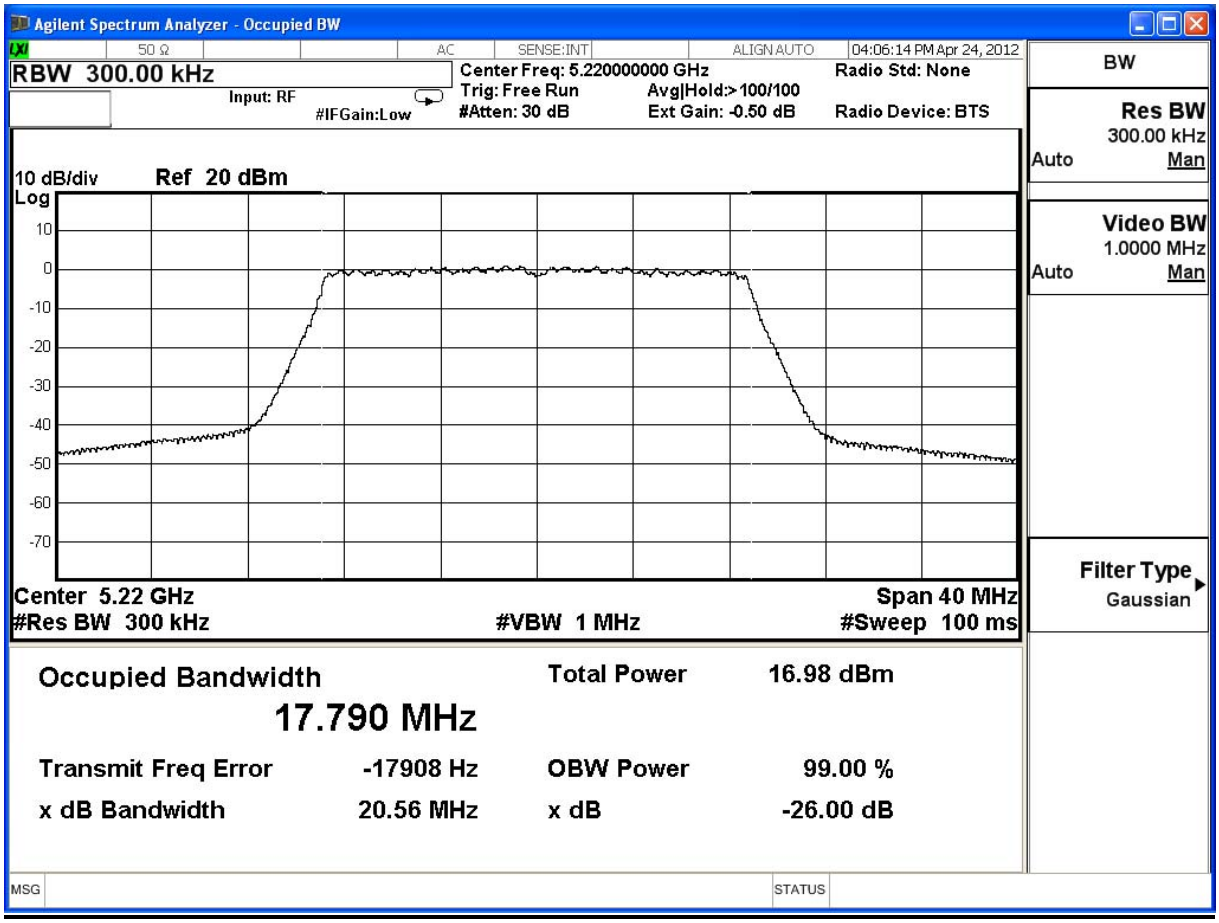
Product	Dual Band 3x3 802.11AC Gigabit Router		
Test Item	99% & 26dB Bandwidth		
Test Mode	Mode 1: Transmit (Adapter: EXA1004UH)		
Date of Test	2012/04/24	Test Site	SR7

802.11n_20M(ANT 2)					
Channel No.	Frequency (MHz)	26dB BW (MHz)	99 % OBW (MHz)	Required Limit (MHz)	Result
36	5180	20.51	17.79	--	NA
44	5220	20.56	17.79	--	NA
48	5240	20.42	17.75	--	NA

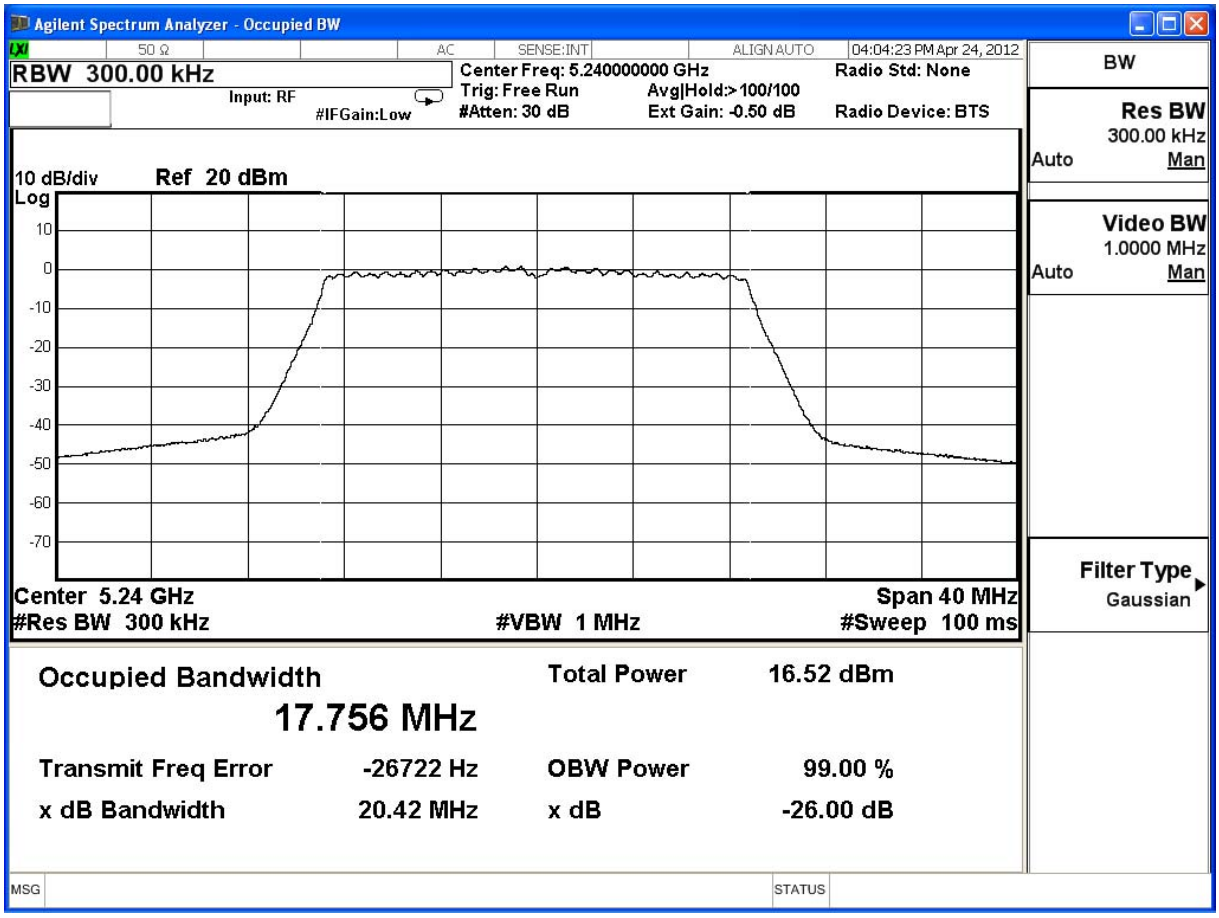
99% & 26dB Bandwid



99% & 26dB Bandwidth – Channel 44



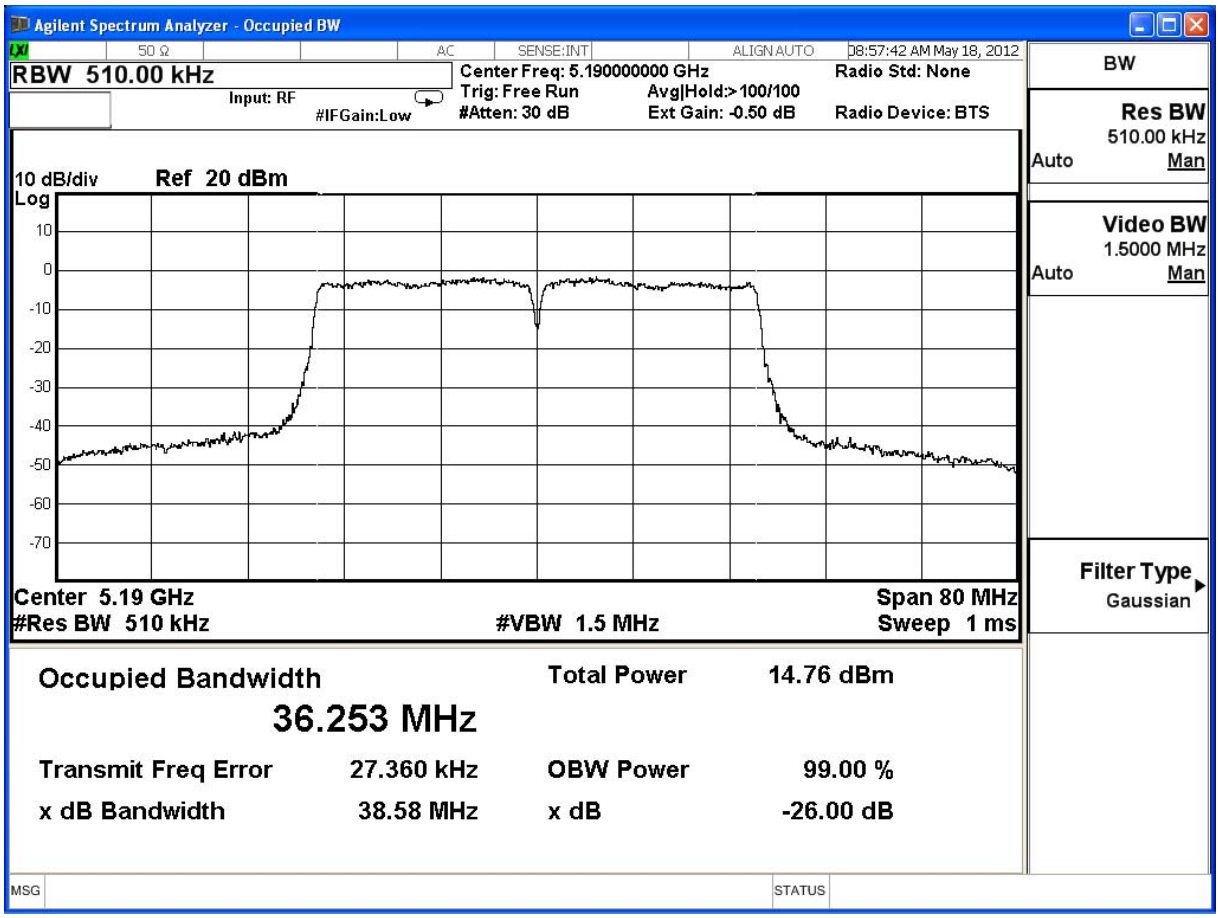
99% & 26dB Bandwidth – Channel 48



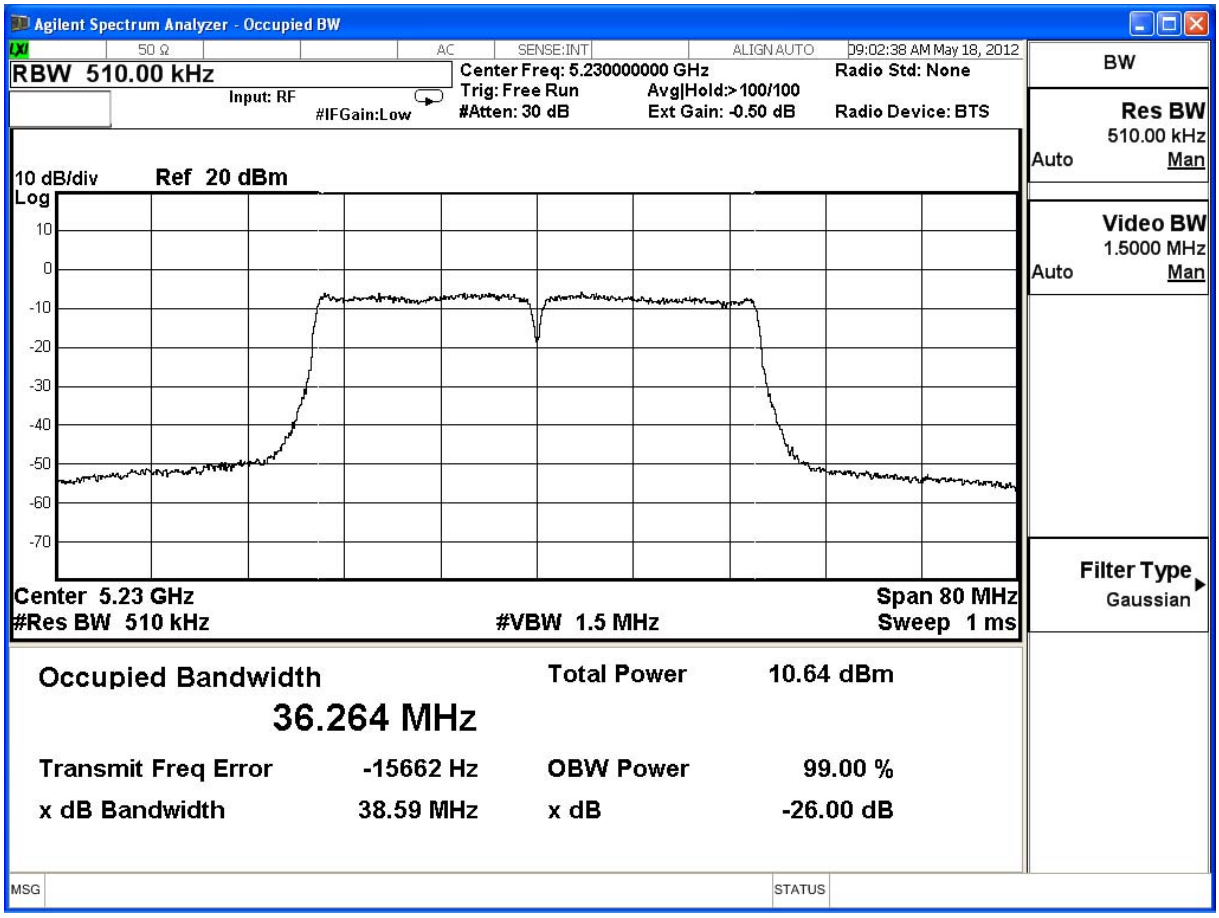
Product	Dual Band 3x3 802.11AC Gigabit Router		
Test Item	99% & 26dB Bandwidth		
Test Mode	Mode 1: Transmit (Adapter: EXA1004UH)		
Date of Test	2012/05/18	Test Site	SR7

802.11n_40M(ANT 0)					
Channel No.	Frequency (MHz)	26dB BW (MHz)	99 % OBW (MHz)	Required Limit (MHz)	Result
38	5190	38.58	36.25	--	NA
46	5230	38.59	36.26	--	NA

99% & 26dB Bandwidth – Channel 38



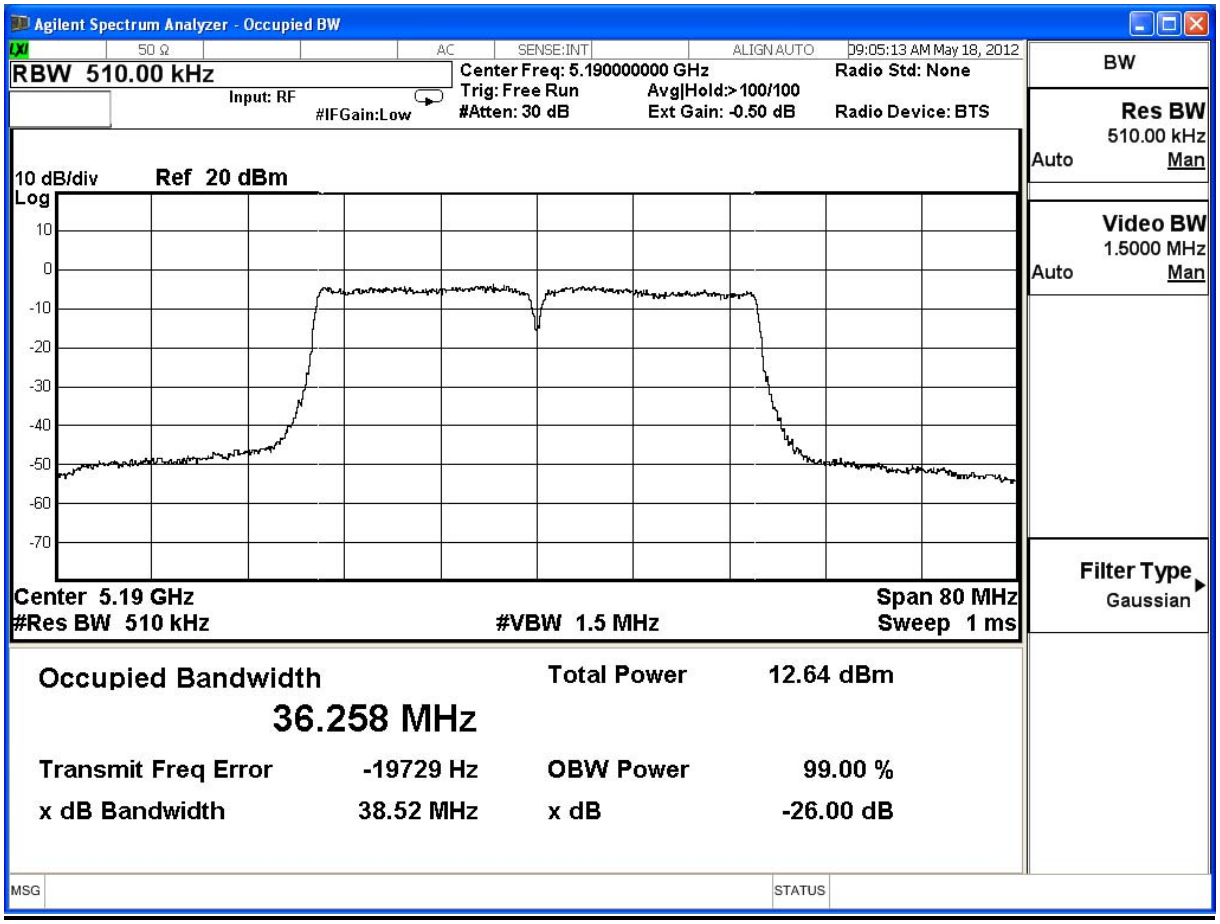
99% & 26dB Bandwidth – Channel 46



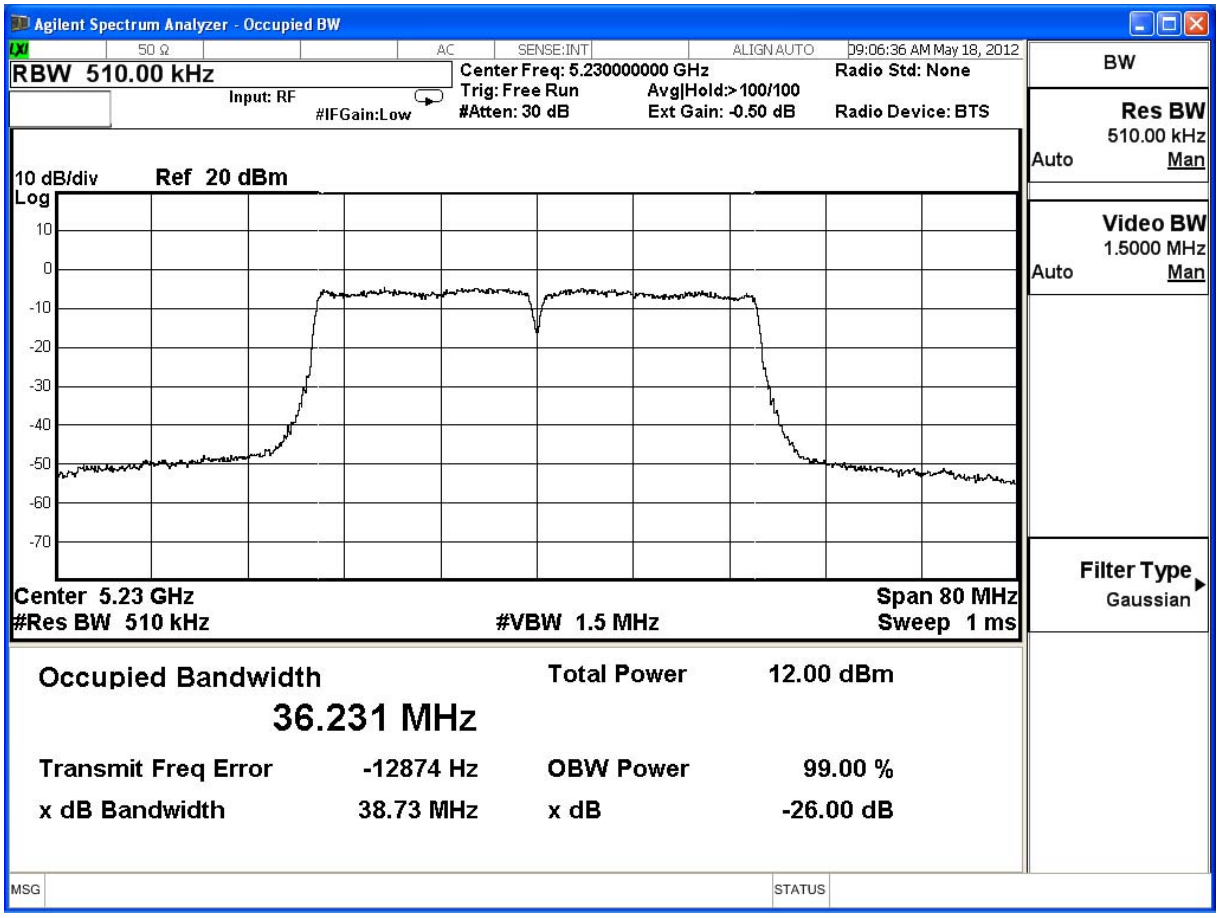
Product	Dual Band 3x3 802.11AC Gigabit Router		
Test Item	99% & 26dB Bandwidth		
Test Mode	Mode 1: Transmit (Adapter: EXA1004UH)		
Date of Test	2012/05/18	Test Site	SR7

802.11n_40M(ANT 1)					
Channel No.	Frequency (MHz)	26dB BW (MHz)	99 % OBW (MHz)	Required Limit (MHz)	Result
38	5190	38.52	36.25	--	NA
46	5230	38.73	36.23	--	NA

99% & 26dB Bandwidth – Channel 38



99% & 26dB Bandwidth – Channel 46

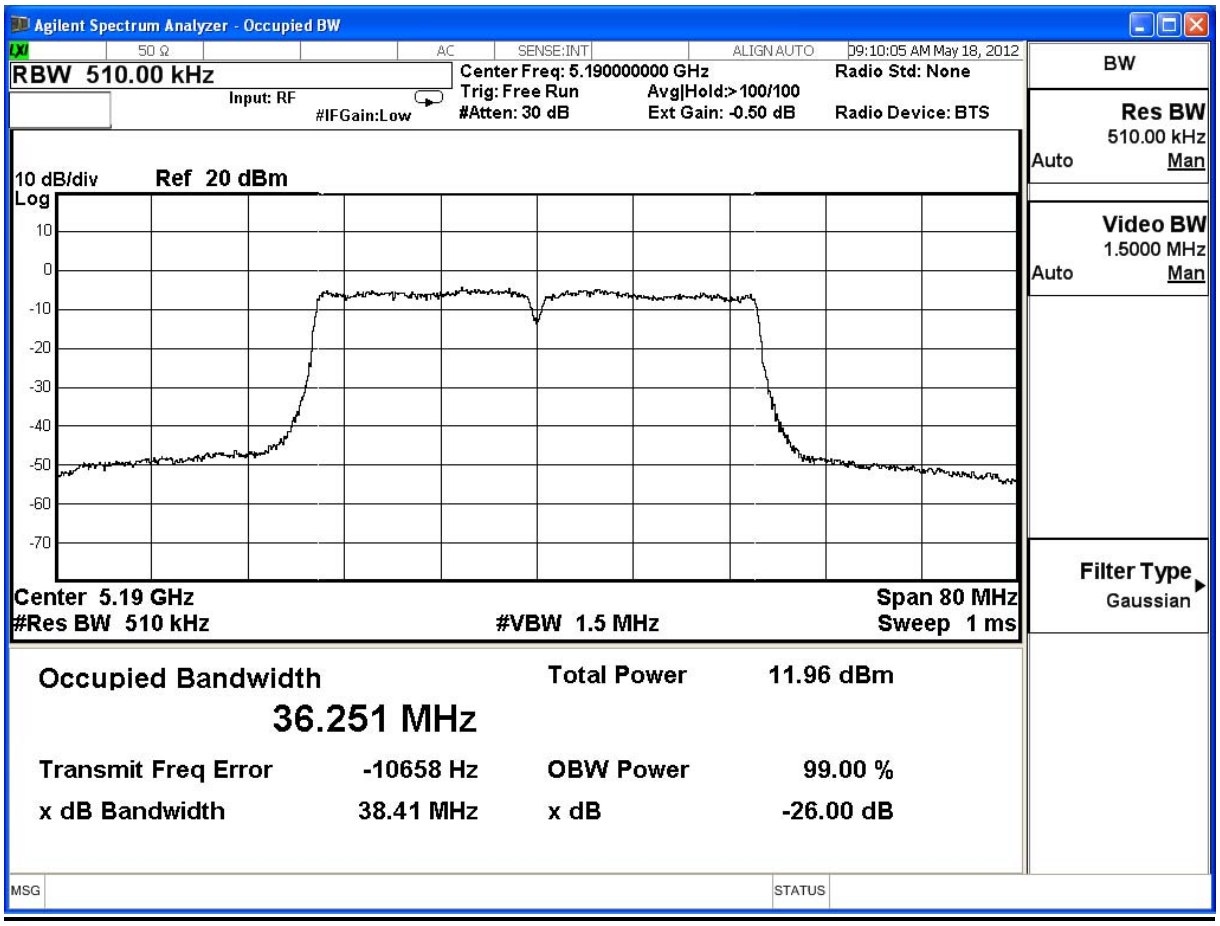


Product	Dual Band 3x3 802.11AC Gigabit Router		
Test Item	99% & 26dB Bandwidth		
Test Mode	Mode 1: Transmit (Adapter: EXA1004UH)		
Date of Test	2012/05/18	Test Site	SR7

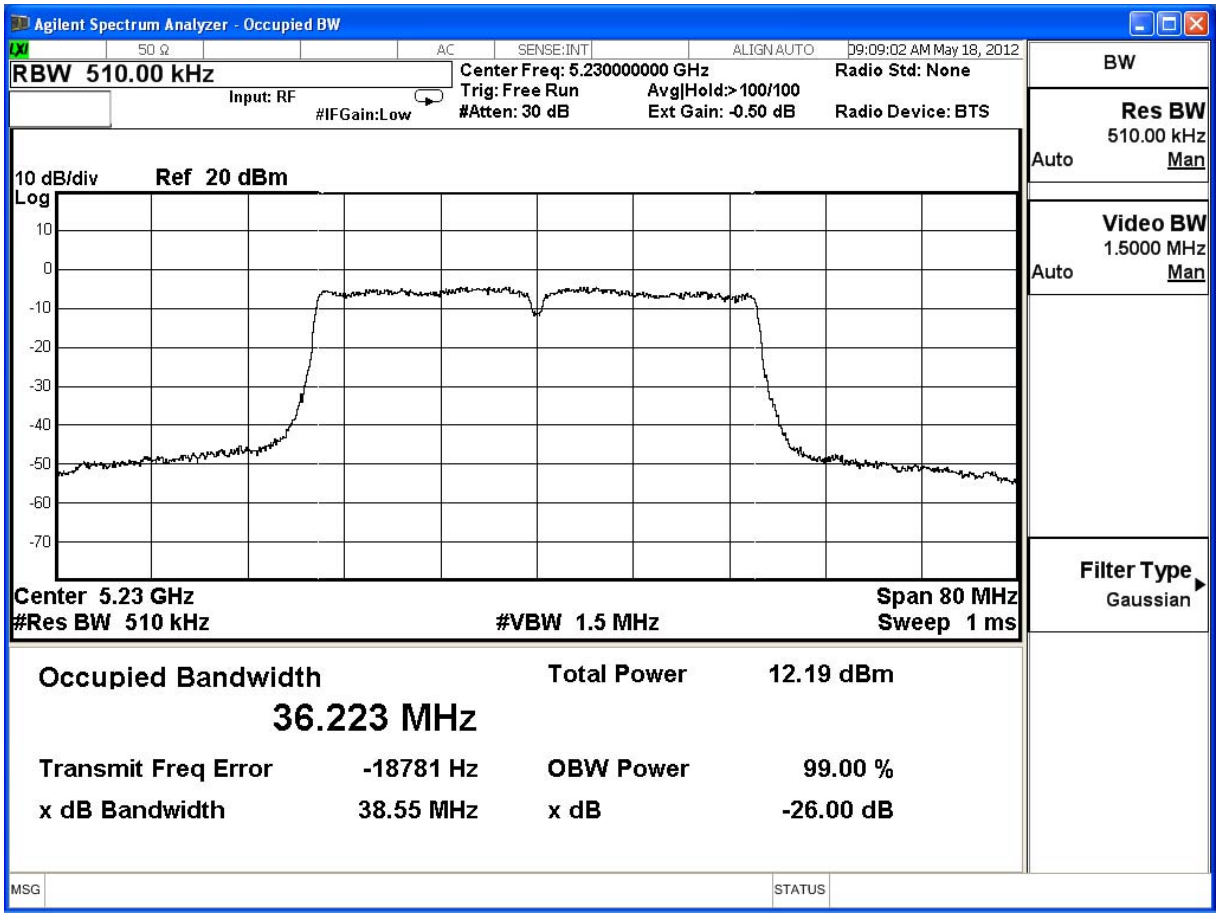
802.11n_40M(ANT 2)

Channel No.	Frequency (MHz)	26dB BW (MHz)	99 % OBW (MHz)	Required Limit (MHz)	Result
38	5190	38.41	36.25	--	NA
46	5230	38.55	36.22	--	NA

99% & 26dB Bandwidth – Channel 38



99% & 26dB Bandwidth – Channel 46

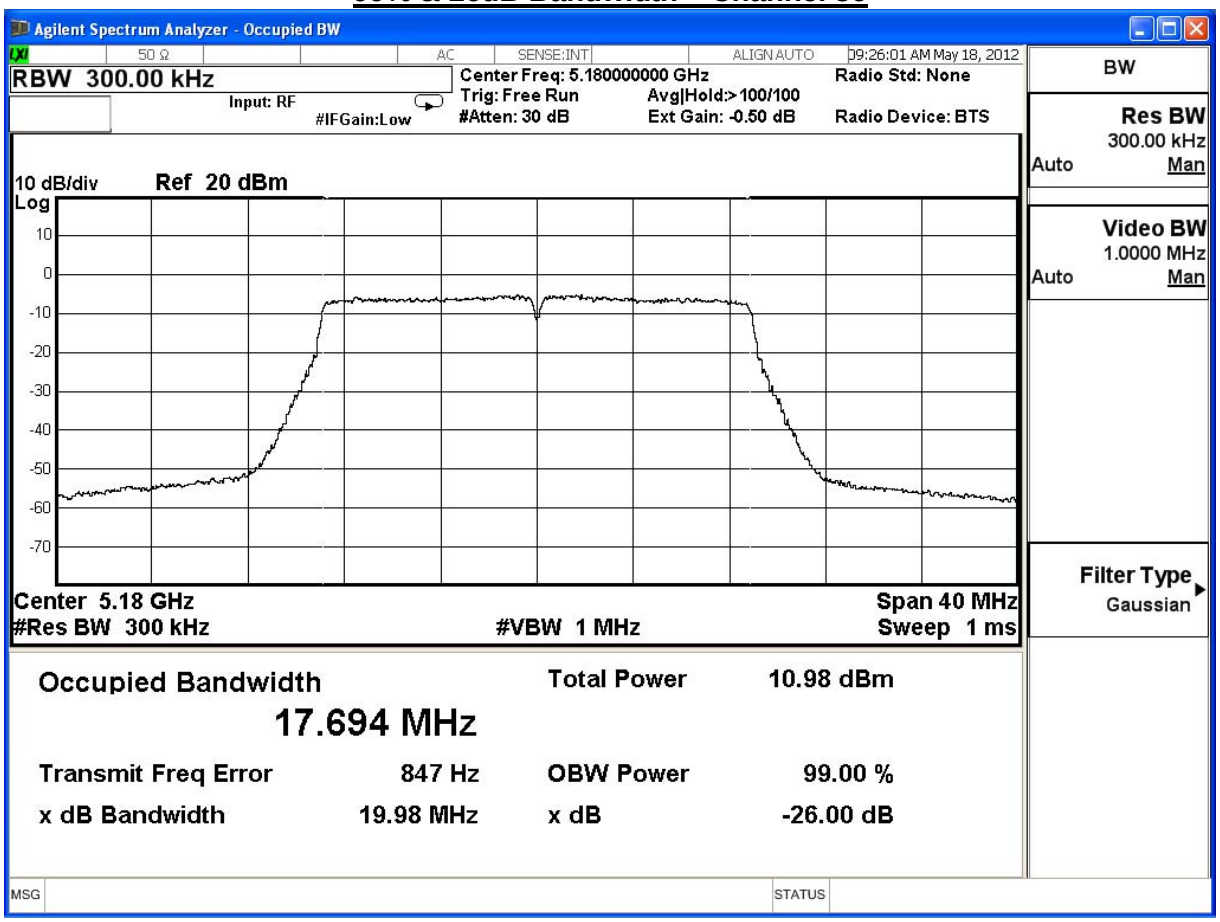


Product	Dual Band 3x3 802.11AC Gigabit Router		
Test Item	99% & 26dB Bandwidth		
Test Mode	Mode 1: Transmit (Adapter: EXA1004UH)		
Date of Test	2012/05/18	Test Site	SR7

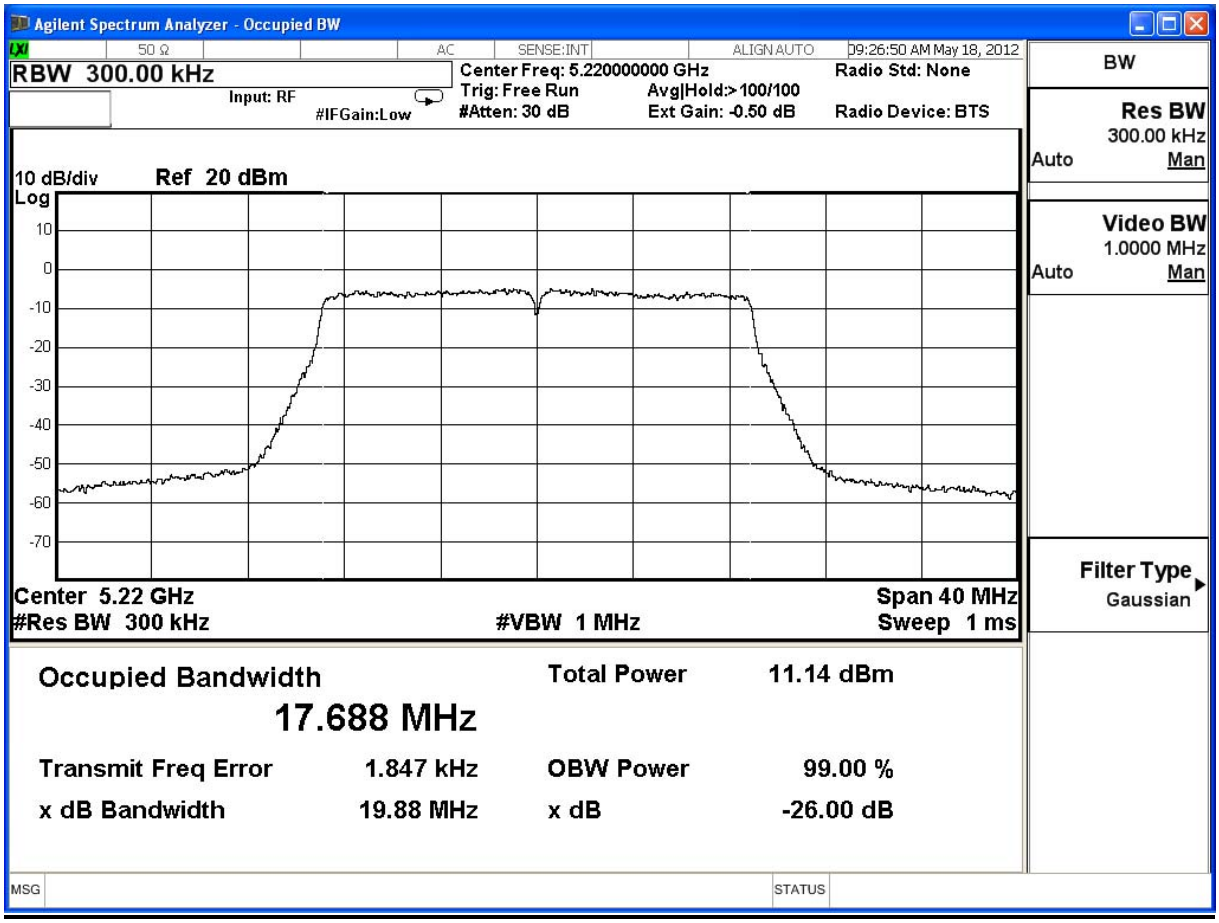
802.11ac_20M(ANT 0)

Channel No.	Frequency (MHz)	26dB BW (MHz)	99 % OBW (MHz)	Required Limit (MHz)	Result
36	5180	19.98	17.69	--	NA
44	5220	19.88	17.68	--	NA
48	5240	19.85	17.69	--	NA

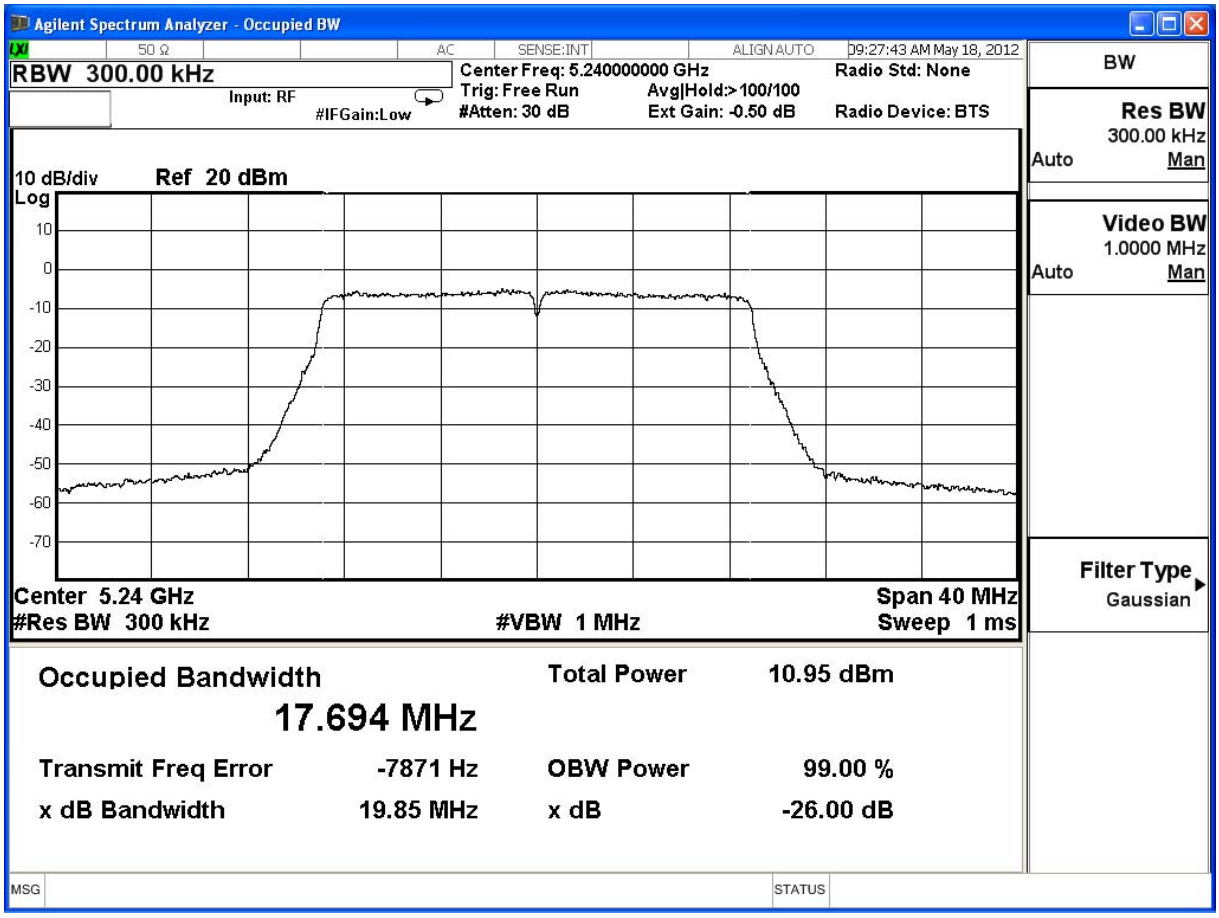
99% & 26dB Bandwidth – Channel 36



99% & 26dB Bandwidth – Channel 44



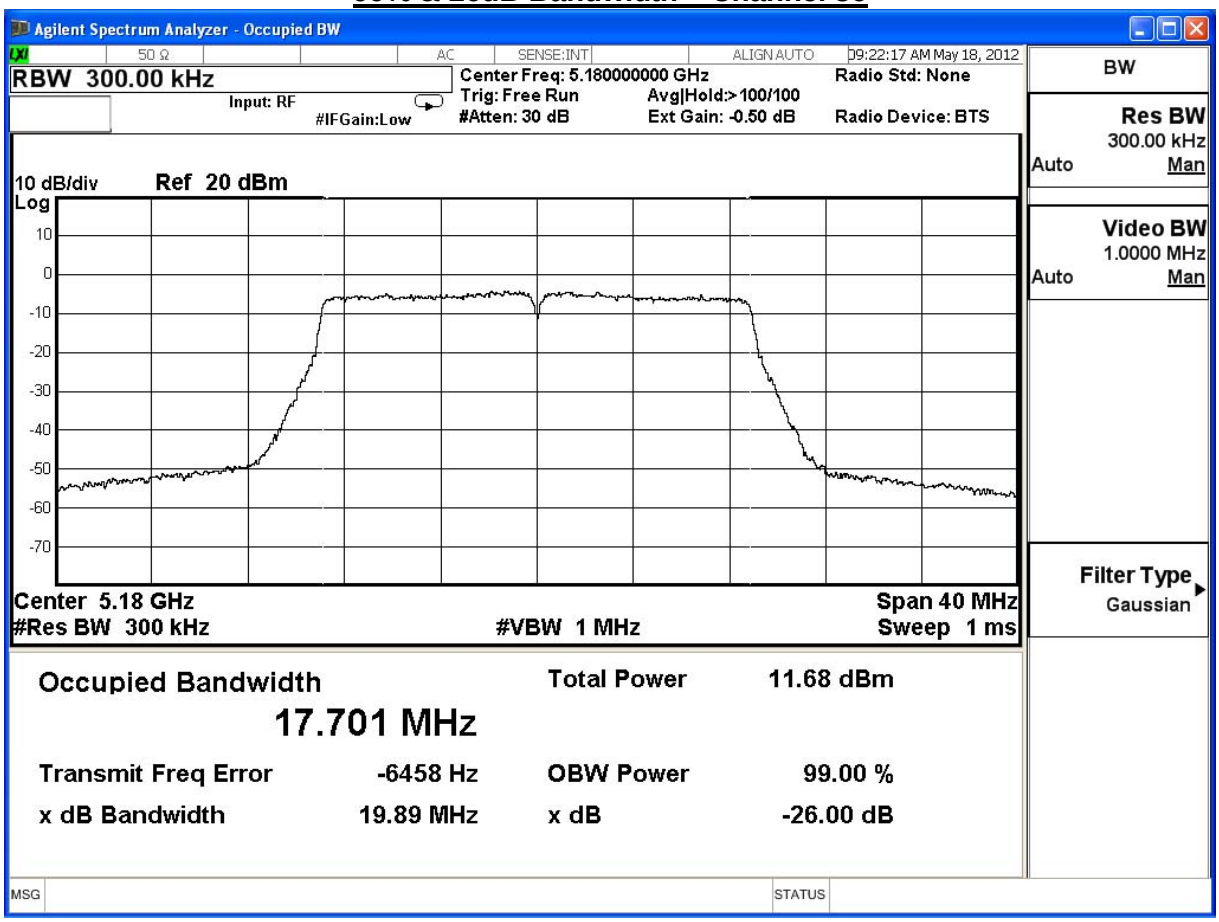
99% & 26dB Bandwidth – Channel 48



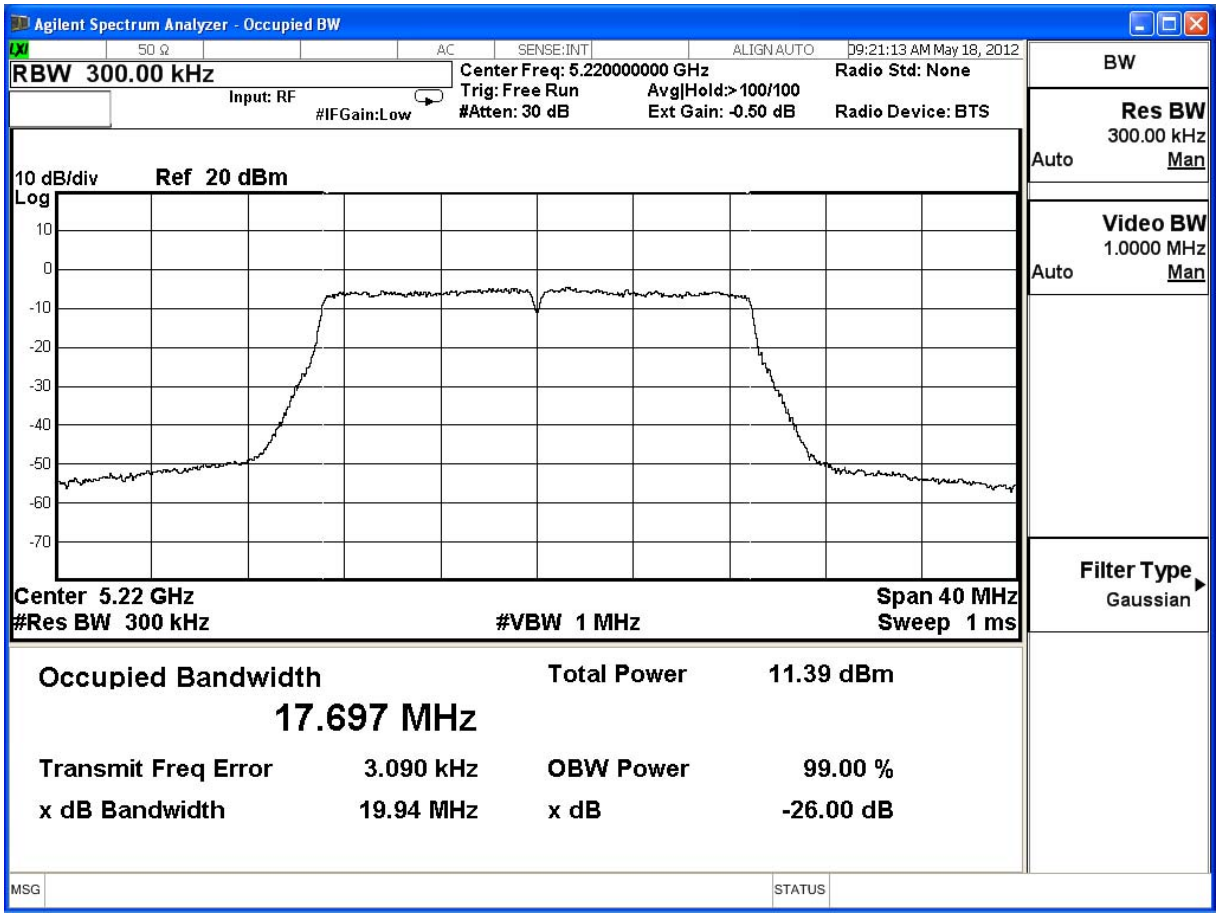
Product	Dual Band 3x3 802.11AC Gigabit Router		
Test Item	99% & 26dB Bandwidth		
Test Mode	Mode 1: Transmit (Adapter: EXA1004UH)		
Date of Test	2012/05/18	Test Site	SR7

802.11ac_20M(ANT 1)					
Channel No.	Frequency (MHz)	26dB BW (MHz)	99 % OBW (MHz)	Required Limit (MHz)	Result
36	5180	19.89	17.70	--	NA
44	5220	19.94	17.69	--	NA
48	5240	19.87	17.69	--	NA

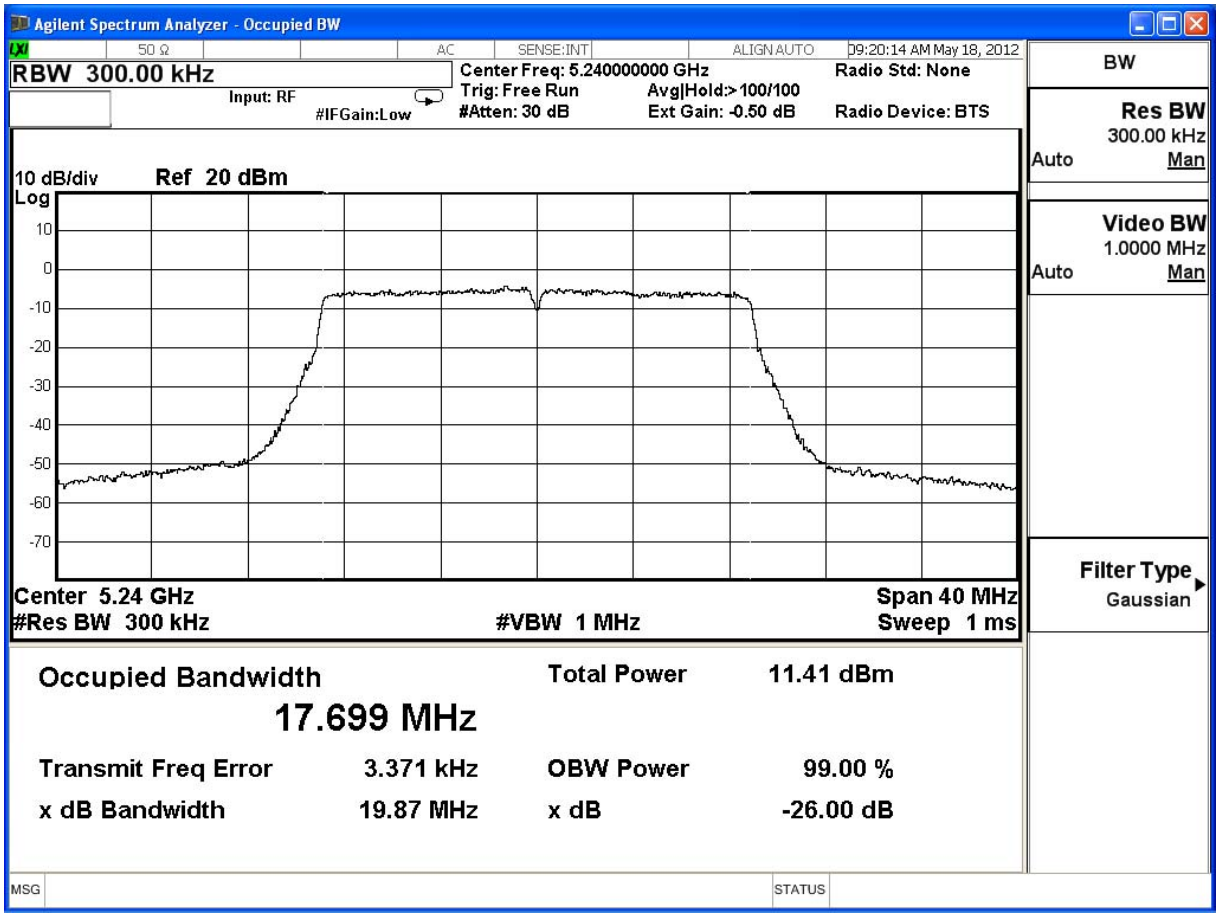
99% & 26dB Bandwidth – Channel 36



99% & 26dB Bandwidth – Channel 44



99% & 26dB Bandwidth – Channel 48

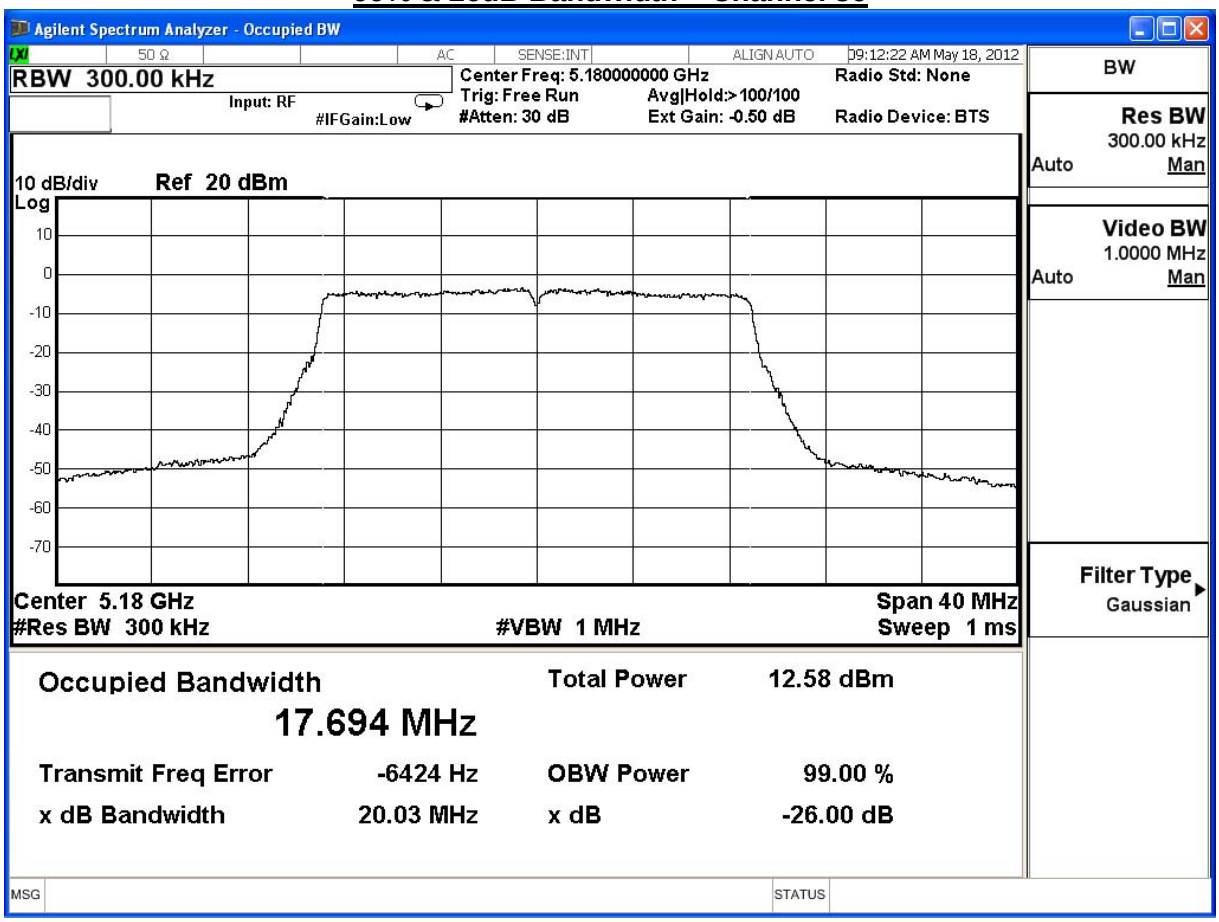


Product	Dual Band 3x3 802.11AC Gigabit Router		
Test Item	99% & 26dB Bandwidth		
Test Mode	Mode 1: Transmit (Adapter: EXA1004UH)		
Date of Test	2012/05/18	Test Site	SR7

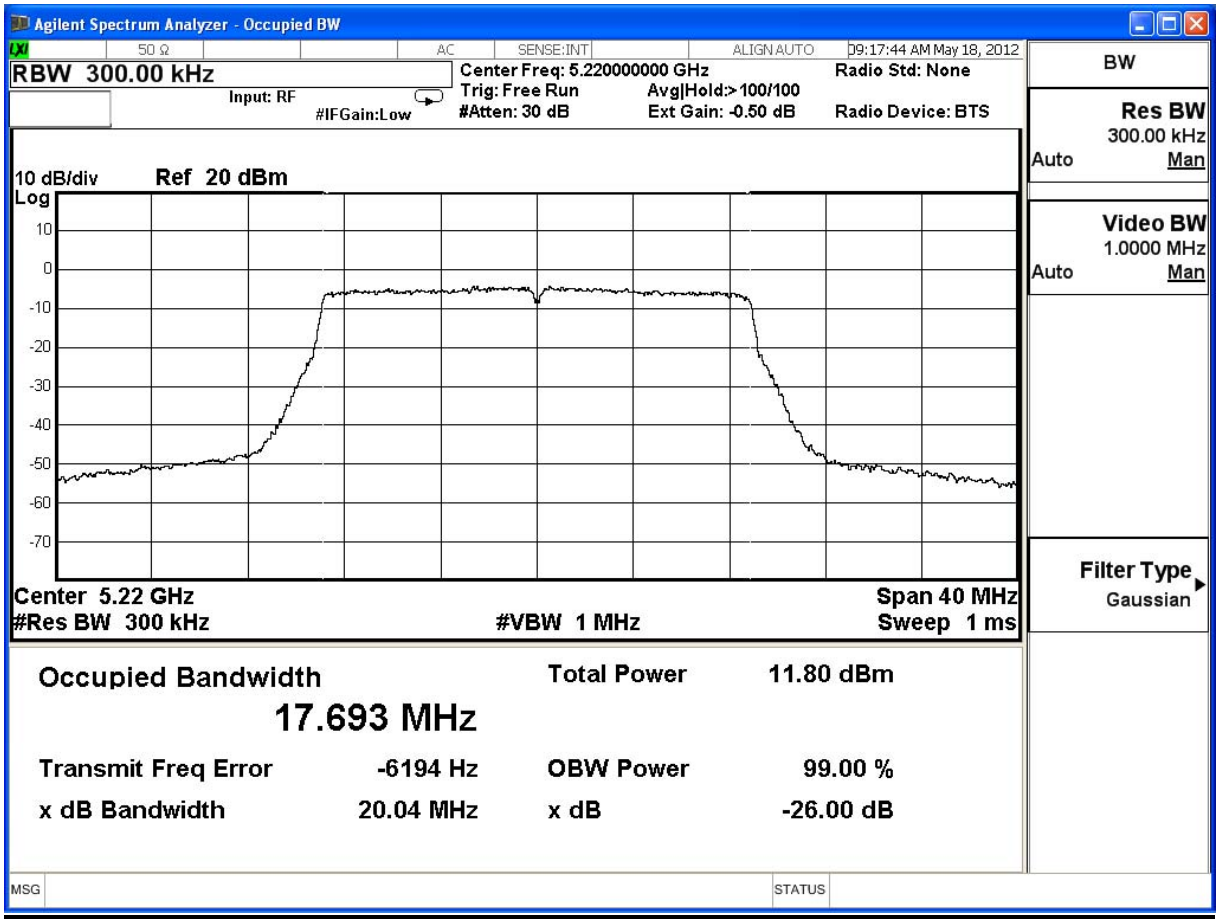
802.11ac_20M(ANT 2)

Channel No.	Frequency (MHz)	26dB BW (MHz)	99 % OBW (MHz)	Required Limit (MHz)	Result
36	5180	20.03	17.69	--	NA
44	5220	20.04	17.69	--	NA
48	5240	19.98	17.70	--	NA

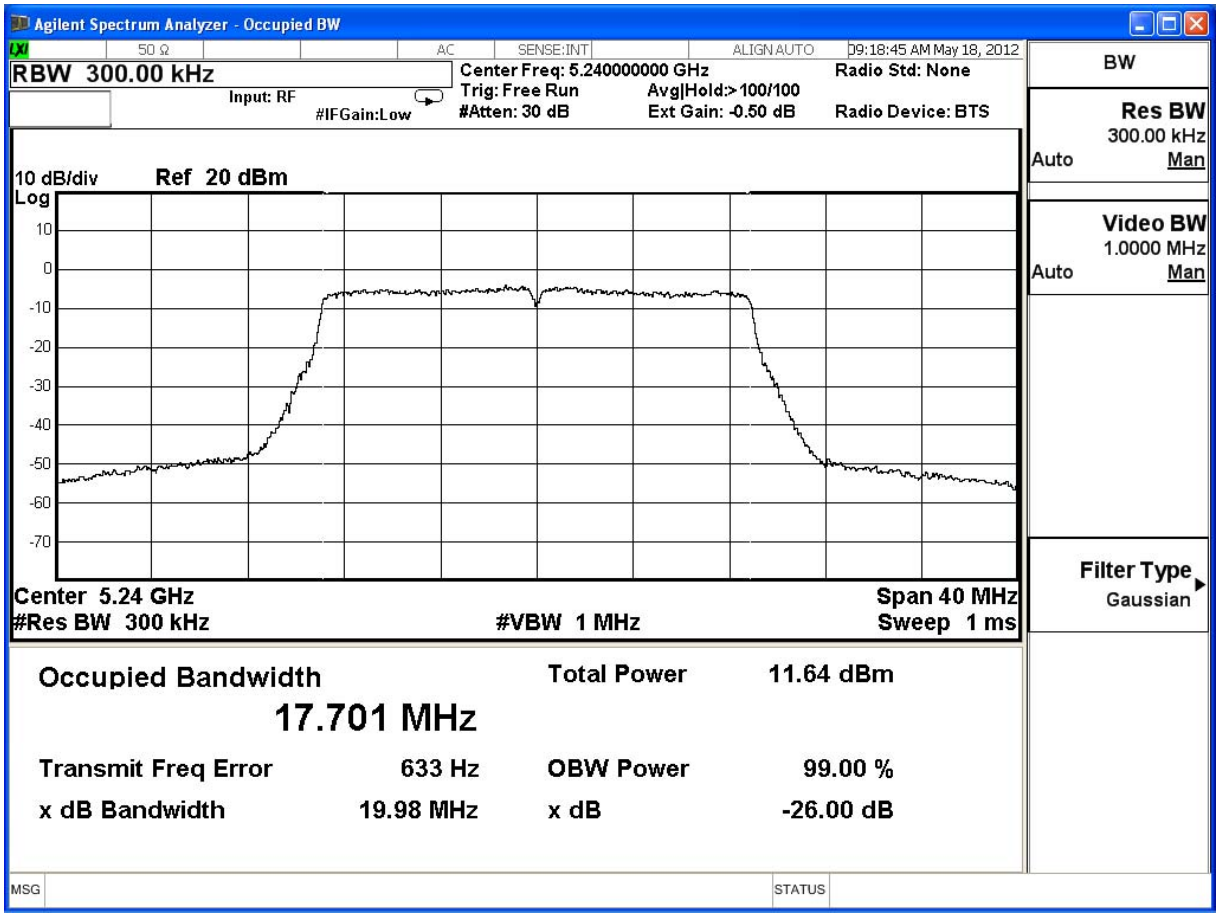
99% & 26dB Bandwidth – Channel 36



99% & 26dB Bandwidth – Channel 44



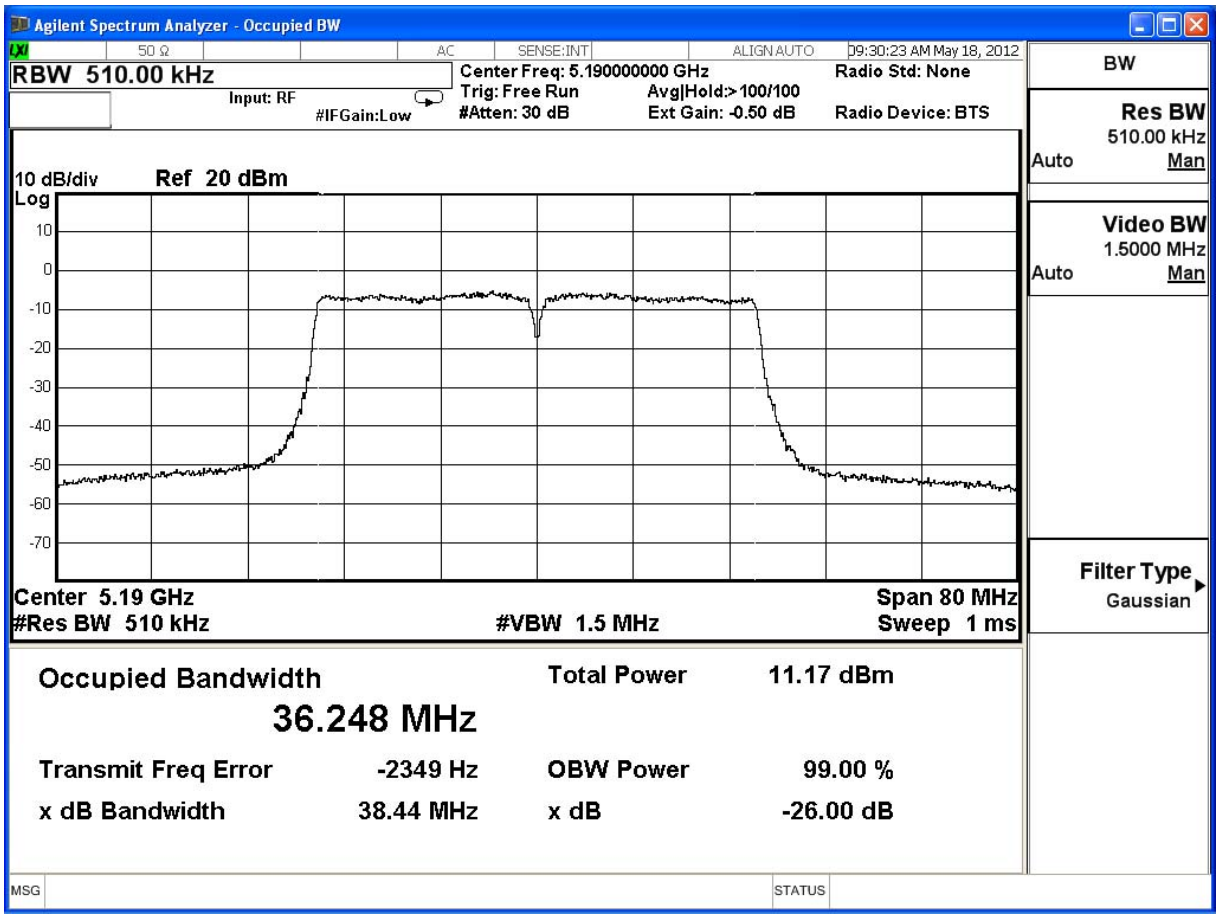
99% & 26dB Bandwidth – Channel 48



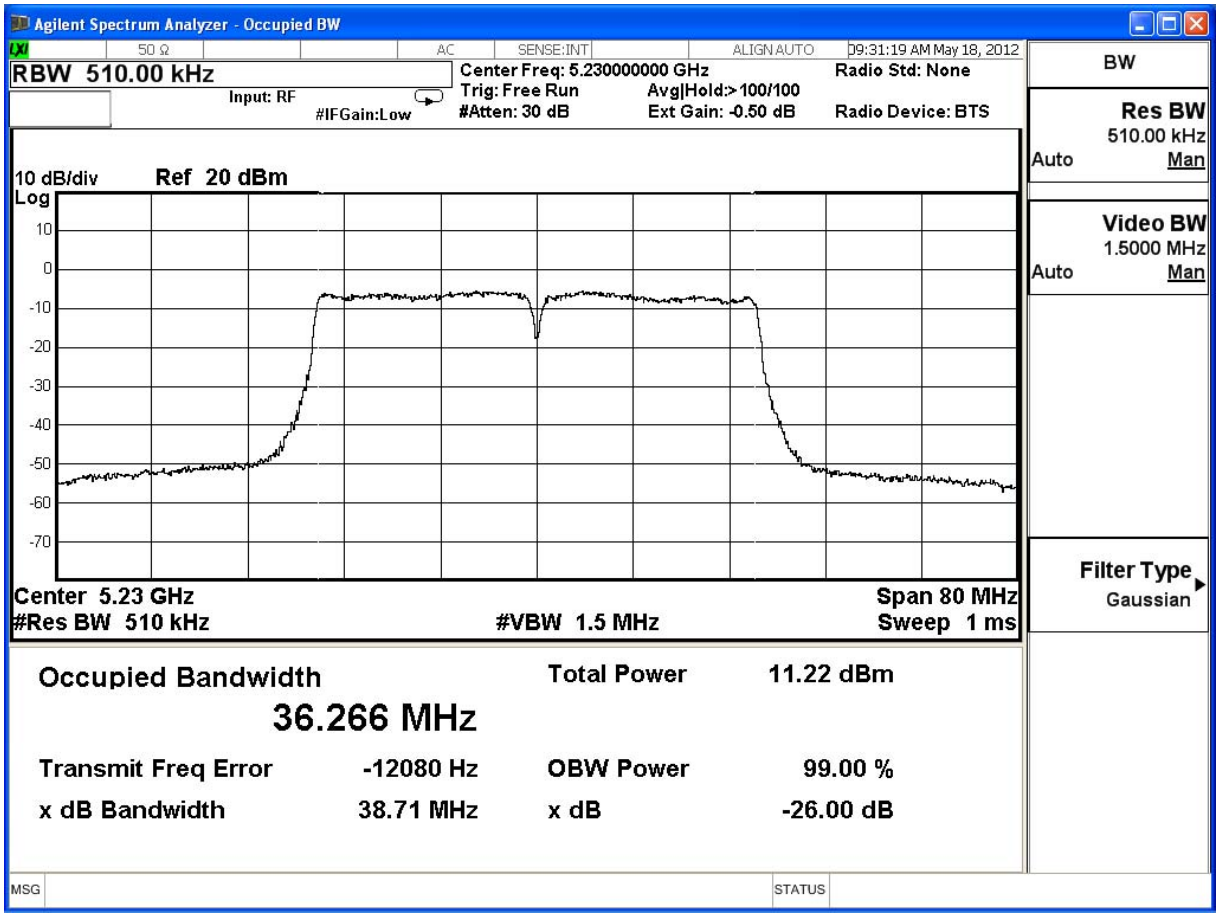
Product	Dual Band 3x3 802.11AC Gigabit Router		
Test Item	99% & 26dB Bandwidth		
Test Mode	Mode 1: Transmit (Adapter: EXA1004UH)		
Date of Test	2012/05/18	Test Site	SR7

802.11ac_40M(ANT 0)					
Channel No.	Frequency (MHz)	26dB BW (MHz)	99 % OBW (MHz)	Required Limit (MHz)	Result
38	5190	38.44	36.24	--	NA
46	5230	38.71	36.26	--	NA

99% & 26dB Bandwidth – Channel 38



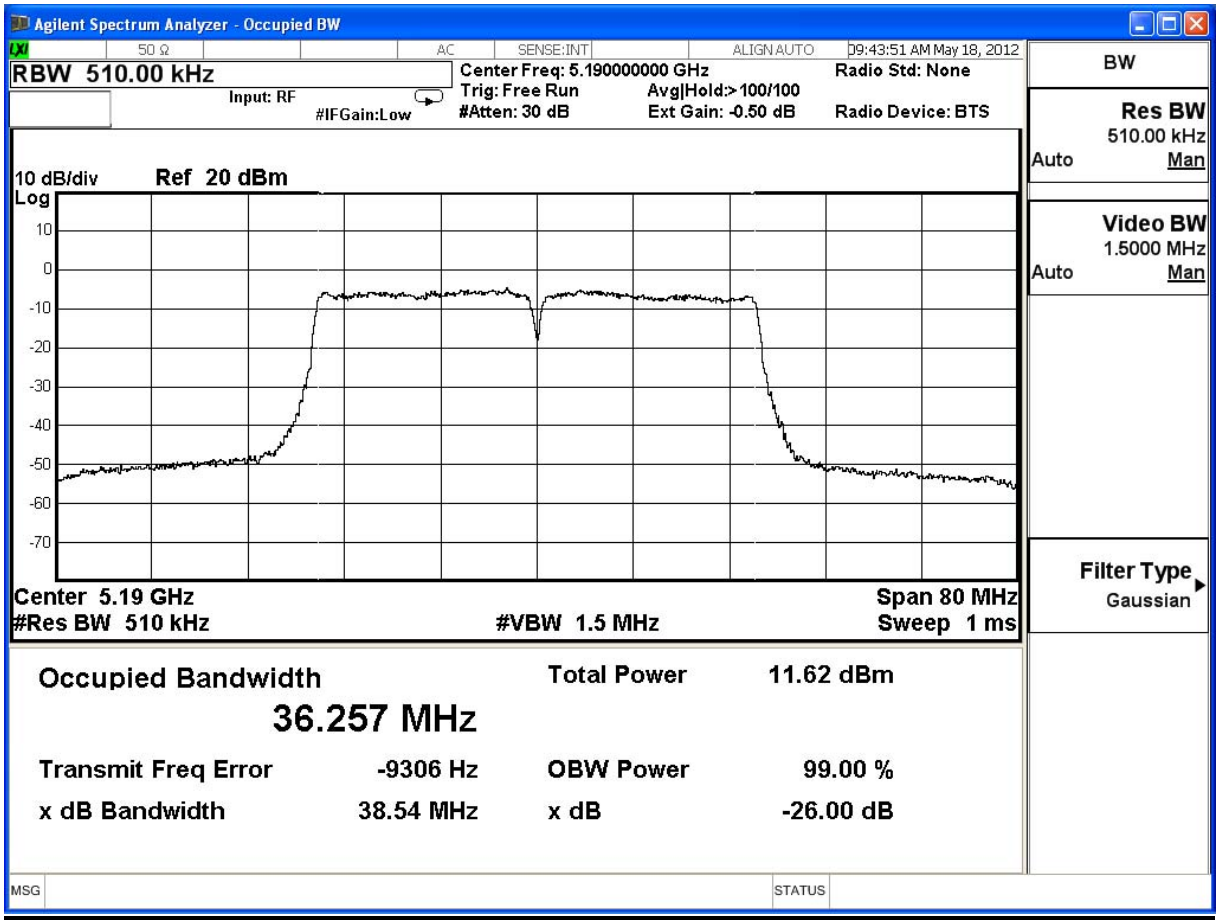
99% & 26dB Bandwidth – Channel 46



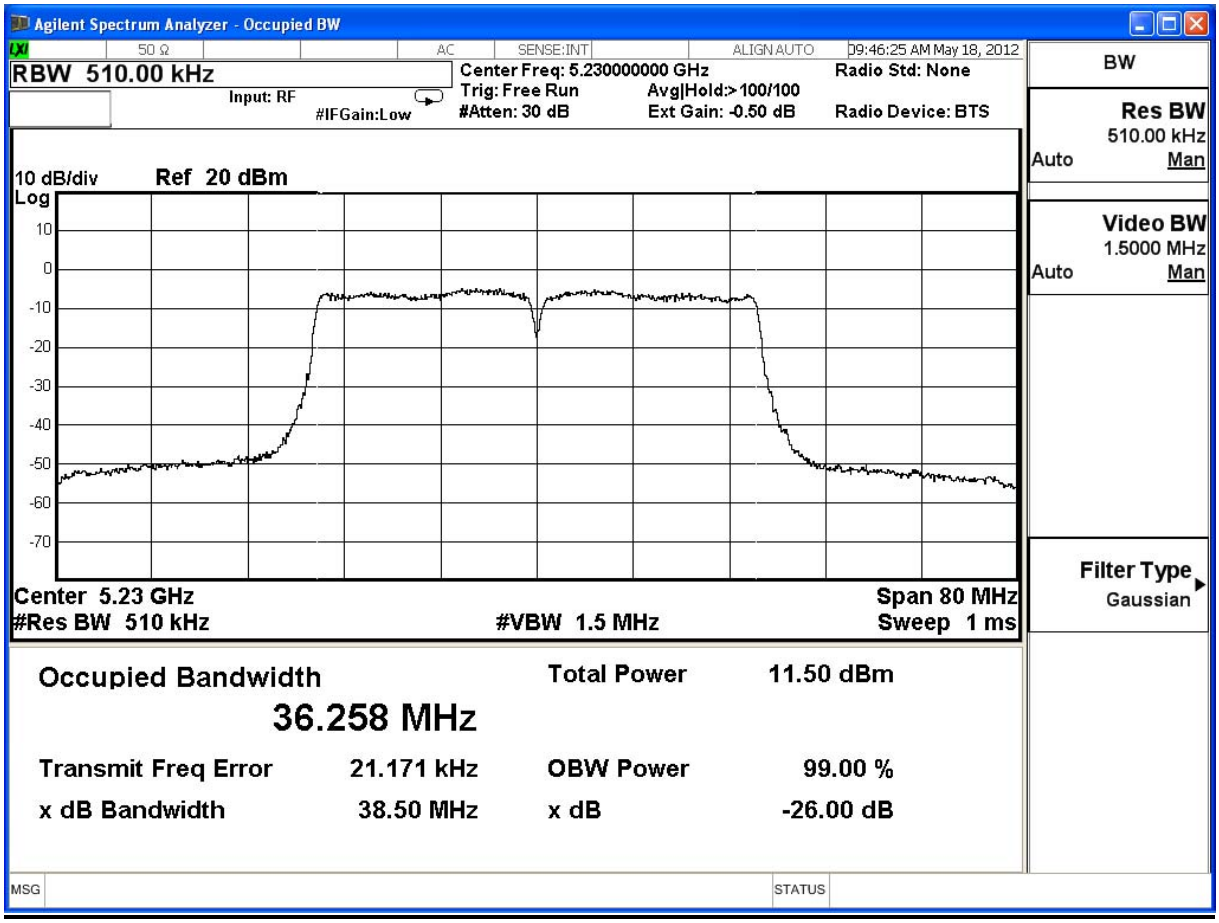
Product	Dual Band 3x3 802.11AC Gigabit Router		
Test Item	99% & 26dB Bandwidth		
Test Mode	Mode 1: Transmit (Adapter: EXA1004UH)		
Date of Test	2012/05/18	Test Site	SR7

802.11ac_40M(ANT 1)					
Channel No.	Frequency (MHz)	26dB BW (MHz)	99 % OBW (MHz)	Required Limit (MHz)	Result
38	5190	38.54	36.25	--	NA
46	5230	38.50	36.25	--	NA

99% & 26dB Bandwidth – Channel 38



99% & 26dB Bandwi

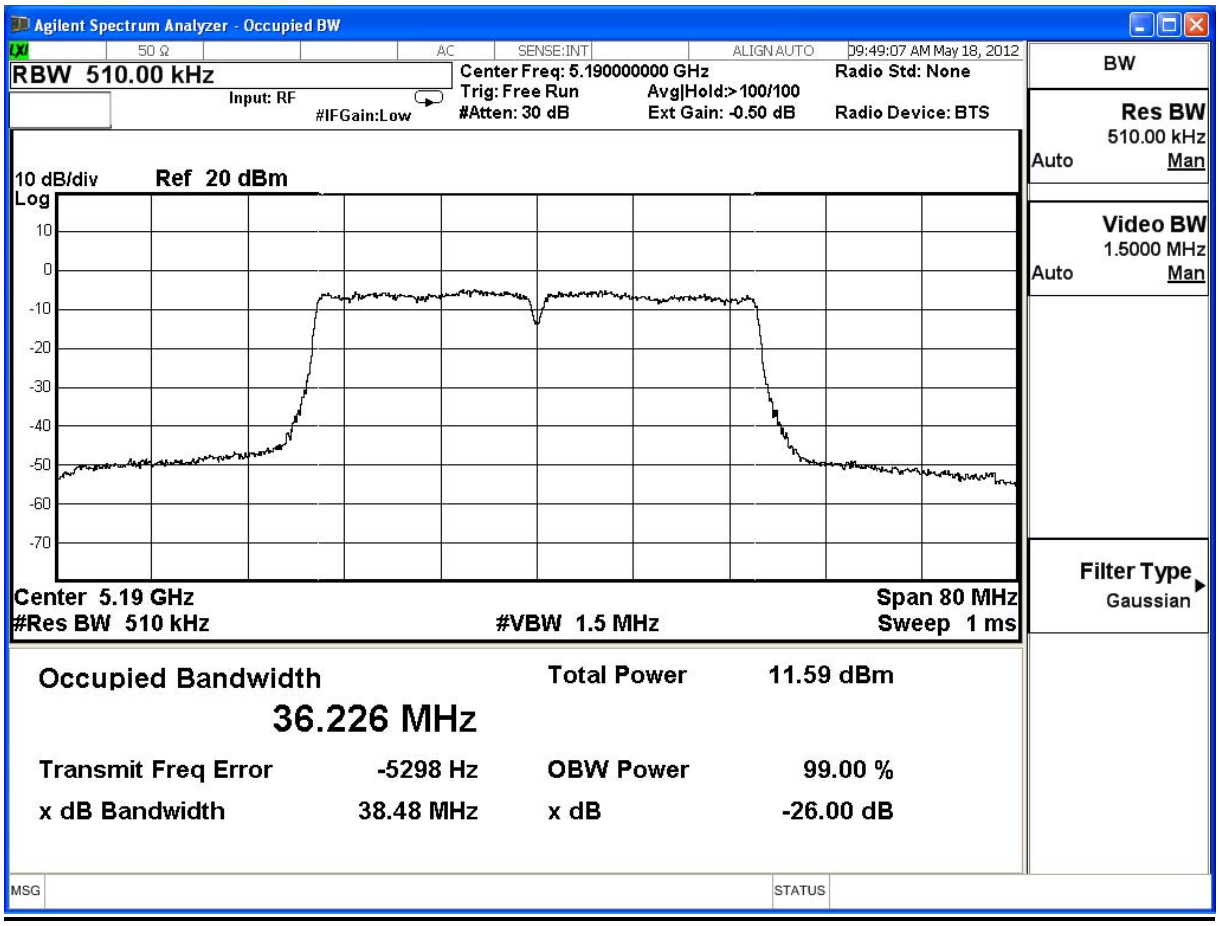


Product	Dual Band 3x3 802.11AC Gigabit Router		
Test Item	99% & 26dB Bandwidth		
Test Mode	Mode 1: Transmit (Adapter: EXA1004UH)		
Date of Test	2012/05/18	Test Site	SR7

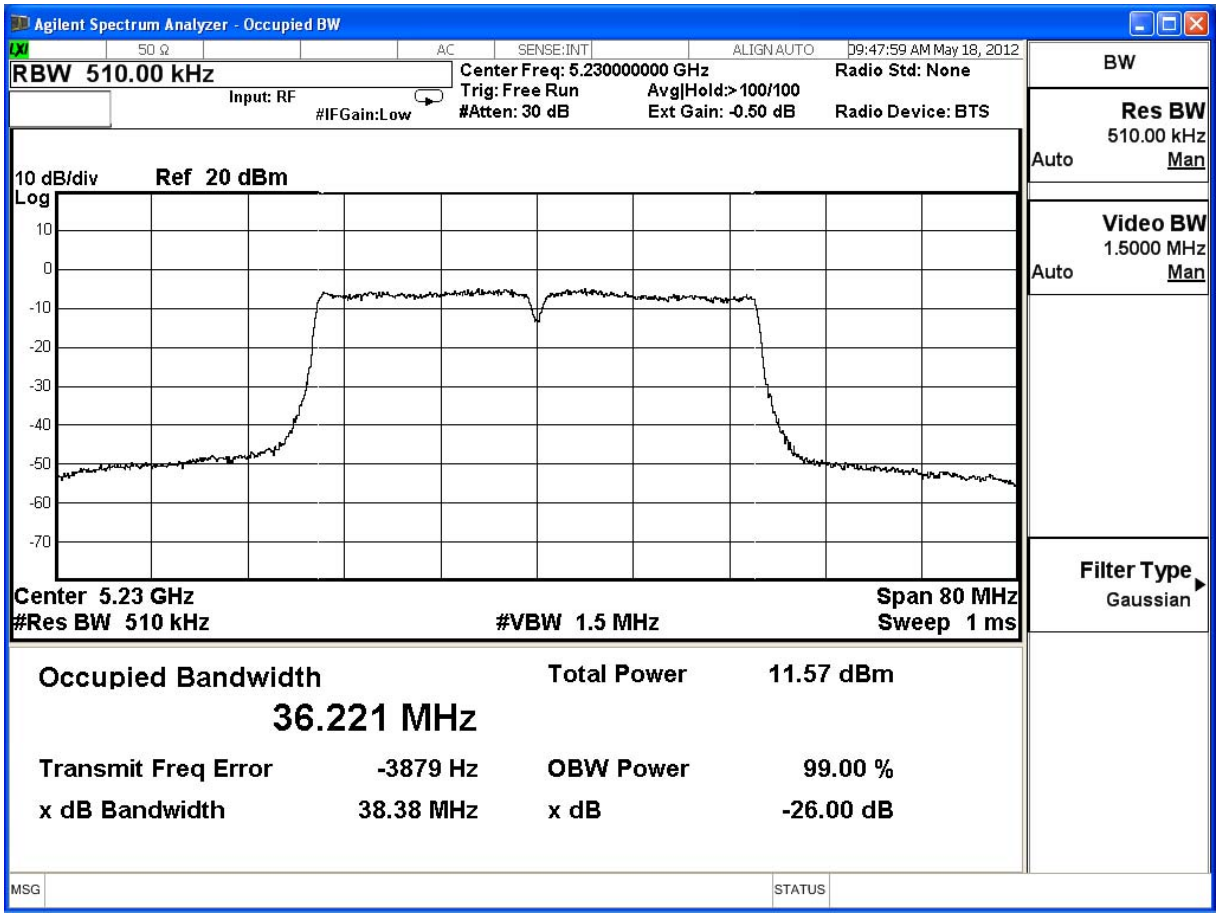
802.11ac_40M(ANT 2)

Channel No.	Frequency (MHz)	26dB BW (MHz)	99 % OBW (MHz)	Required Limit (MHz)	Result
38	5190	38.48	36.22	--	NA
46	5230	38.38	36.22	--	NA

99% & 26dB Bandwidth – Channel 38



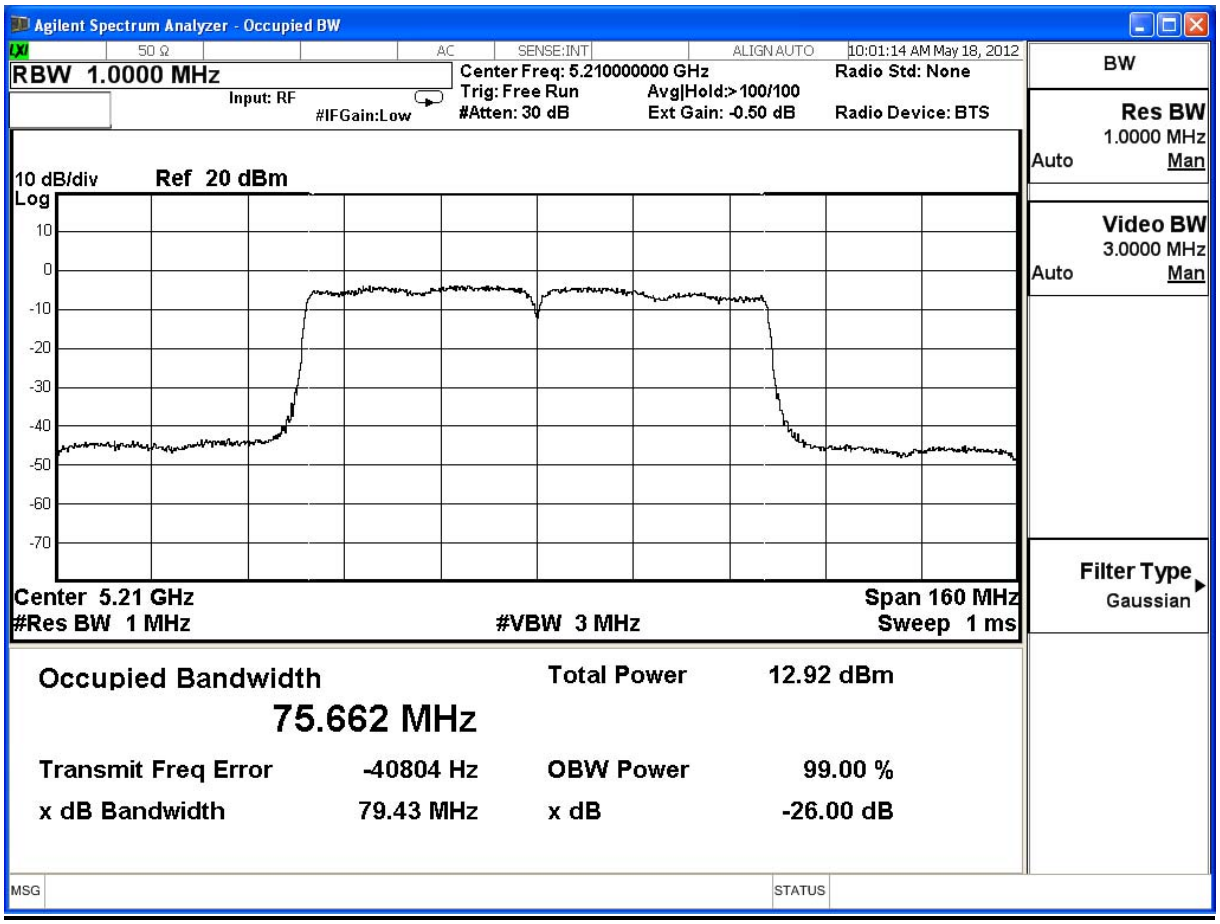
99% & 26dB Bandwidth – Channel 46



Product	Dual Band 3x3 802.11AC Gigabit Router		
Test Item	99% & 26dB Bandwidth		
Test Mode	Mode 1: Transmit (Adapter: EXA1004UH)		
Date of Test	2012/05/18	Test Site	SR7

802.11ac_80M(ANT 0)					
Channel No.	Frequency (MHz)	26dB BW (MHz)	99 % OBW (MHz)	Required Limit (MHz)	Result
42	5210	79.43	75.66	--	NA

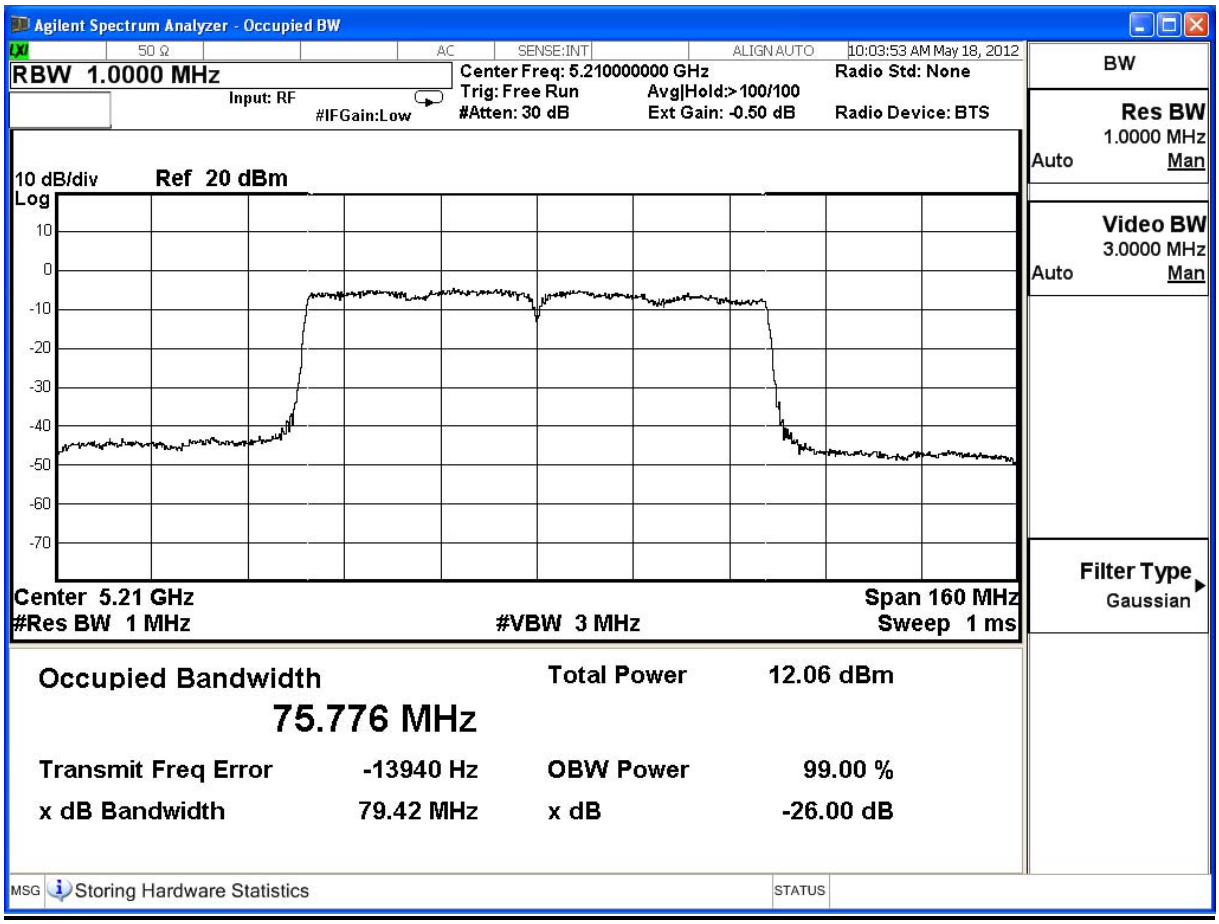
99% & 26dB Bandwidth – Channel 42



Product	Dual Band 3x3 802.11AC Gigabit Router		
Test Item	99% & 26dB Bandwidth		
Test Mode	Mode 1: Transmit (Adapter: EXA1004UH)		
Date of Test	2012/05/18	Test Site	SR7

802.11ac_80M(ANT 1)					
Channel No.	Frequency (MHz)	26dB BW (MHz)	99 % OBW (MHz)	Required Limit (MHz)	Result
42	5210	79.42	75.77	--	NA

99% & 26dB Bandwidth – Channel 42



Product	Dual Band 3x3 802.11AC Gigabit Router		
Test Item	99% & 26dB Bandwidth		
Test Mode	Mode 1: Transmit (Adapter: EXA1004UH)		
Date of Test	2012/05/18	Test Site	SR7

802.11ac_80M(ANT 2)

Channel No.	Frequency (MHz)	26dB BW (MHz)	99 % OBW (MHz)	Required Limit (MHz)	Result
42	5210	79.60	75.67	--	NA

99% & 26dB Bandwidth – Channel 42