FCC Test Report

Product Name ： PCE-AC56 Dual-Band Wireless PCI-E Adapter

Model No. ： PCE-AC56

FCC ID. ： MSQ-PCEAC56

Applicant ： ASUSTeK COMPUTER INC.

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

Date of Receipt ： 2013/10/24

Issued Date ： 2013/12/11

Report No. ： 13B0341R-RFUSP55V00

Report Version ： V1.0

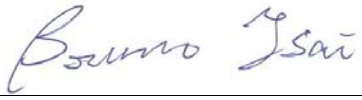
Test Report Certification

Issued Date : 2013/12/11
Report No. : 13B0341R-RFUSP55V00

Product Name	:	PCE-AC56 Dual-Band Wireless PCI-E Adapter
Applicant	:	ASUSTeK COMPUTER INC.
Address	:	4F, No. 150, Li-Te Rd., Peitou, Taipei, Taiwan
Manufacturer	:	Arcadyan Technology Corporation
Model No.	:	PCE-AC56
FCC ID.	:	MSQ-PCEAC56
EUT Voltage	:	DC 3.3V (Power by PC)
Trade Name	:	ASUS
Applicable Standard	:	FCC CFR Title 47 Part 15 Subpart C Section 15.407:2012 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)

Tested By : 
(Bruno Tsai / Assistant Engineer)

Approved By : 
(Roy Wang / Director)

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: 1313**
USA	**:**	**FCC, Registration Number: 365520**
Canada	**:**	**IC, Submission No: 150981**

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/tw/ctg/cts/accreditations.htm
The address and introduction of QuieTek Corporation's laboratories can be founded in our Web site : http://www.quietek.com/
If you have any comments, Please don't hesitate to contact us. Our contact information is as below:

HsinChu Testing Laboratory:
No.75-2, 3rd Lin, Wangye Keng, Yonghxing Tsuen, Qionglin Shiang, Hsinchu County 307, Taiwan, R.O.C.
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LinKou Testing Laboratory:
No.5-22, Ruishukeng, Linkou Dist., New Taipei City 24451, Taiwan, R.O.C.
TEL : 886-2-8601-3788 / FAX : 886-2-8601-3789 E-Mail : service@quietek.com

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1. General Information

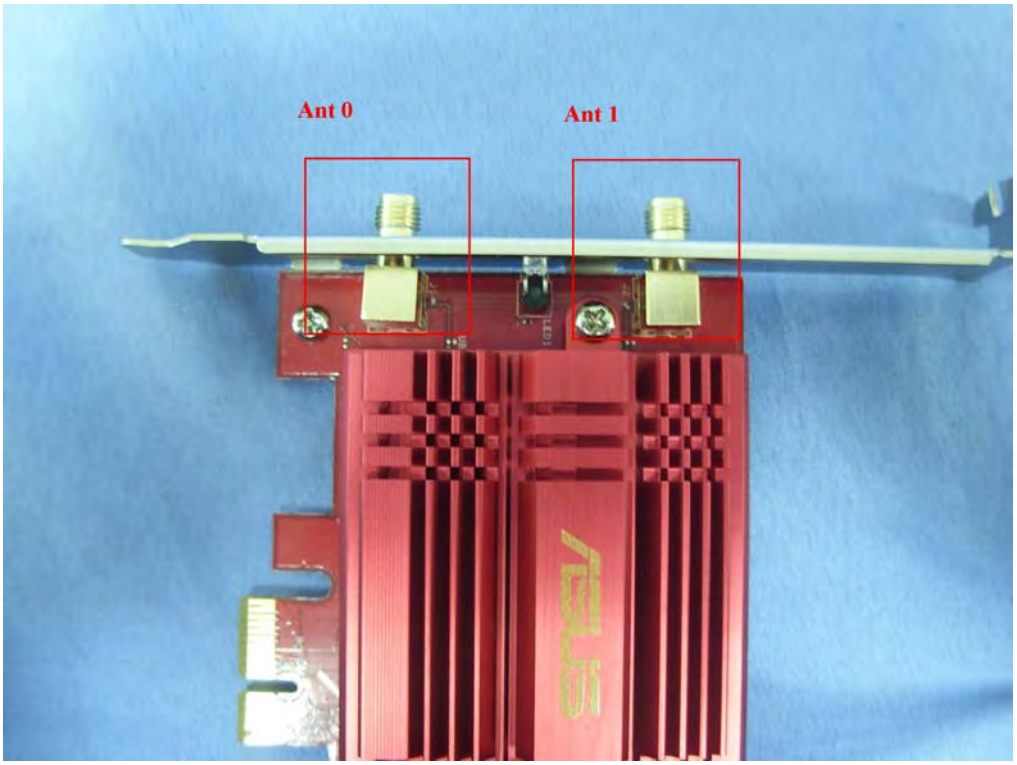
1.1. EUT Description

Product Name	PCE-AC56 Dual-Band Wireless PCI-E Adapter	
Product Type	WLAN (2TX, 2RX)	
Trade Name	ASUS	
Model No.	PCE-AC56	
Frequency Range/ Channel Number	IEEE 802.11a/ IEEE 802.11n (20MHz) / IEEE 802.11ac (20MHz)	5180~5240MHz / 4 Channels
	IEEE 802.11n (40MHz) / IEEE 802.11ac (40MHz)	5190~5230MHz / 2 Channels
	IEEE 802.11ac (80MHz)	5210~5210MHz / 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 Gain	Ant0: 4dBi, Ant1: 4dBi	
Beamforming Gain	3dB	
Antenna Type	Dipole Antenna	

ANT-TX / RX & Bandwidth

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

2TX / 2RX



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

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

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)

Working Frequency of Each Channel	
Channel	Frequency
42	5210 MHz

Note:

1. This device is a PCE-AC56 Dual-Band Wireless PCI-E Adapter including 2.4GHz b/g/n and 5GHz a/n/ac (2x2) 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: 13B0341R-RFUSP38V00.
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 13B0341R-RFUSP01V00 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 (CDD mode) Mode 2: Transmit (Beamforming mode)

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

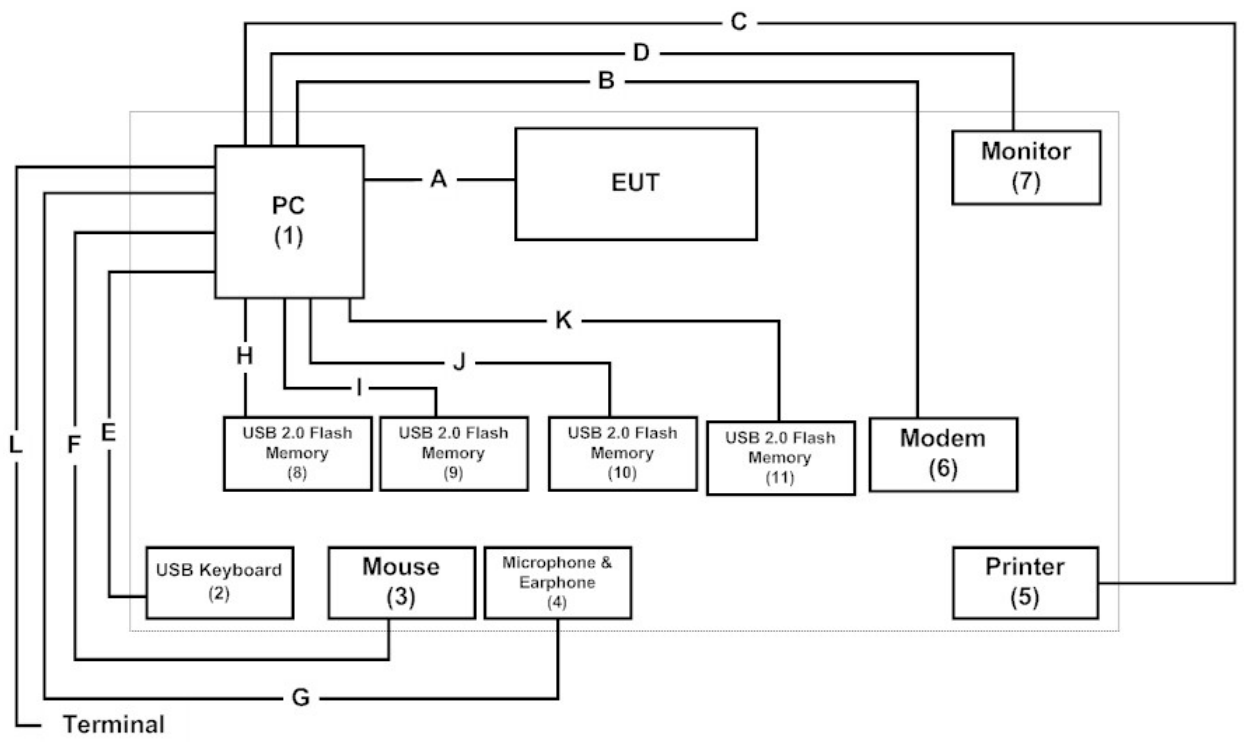
1.4. Tested System Details

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	PC	DELL	DCSM	00144-531-356-513	DoC	Non-Shielded, 1.8m
2	USB Keyboard	DELL	SK-8115	1437	DoC	--
3	Mouse	Logitech	M-SBF83	HCA52200315	DoC	--
4	Microphone & Earphone	Fujiei	SBZ-38	N/A	DoC	--
5	Printer	HP	C2642A	MY75N1D2Y1	DoC	Non-Shielded, 0.7m
6	Modem	ACEEX	DM-1414	980033034	DoC	Non-Shielded, 1.6m
7	Monitor	DELL	U2410f	082WXD-72872-16R-0W2L	DoC	Non-Shielded, 1.8m
8	USB 2.0 Flash Memory	Apacer	AH223	N/A	DoC	--
9	USB 2.0 Flash Memory	Apacer	AH223	N/A	DoC	--
10	USB 2.0 Flash Memory	Apacer	AH223	N/A	DoC	--
11	USB 2.0 Flash Memory	Apacer	AH223	N/A	DoC	--

1.5. Configuration of tested System

Connection Diagram



Signal Cable Type		Signal cable Description
A	RF Cable	Non-Shielded, 0.8m
B	Modem Cable	Shielded, 1.5m
C	Printer Cable	Shielded, 1.2m
D	VGA Cable	Shielded, 1.8m, two ferrite cores bonded.
E	USB Keyboard Cable	Shielded, 1.5m
F	USB Mouse Cable	Shielded, 1.5m
G	Microphone & Earphone Cable	Non-Shielded, 1.2m
H	USB 2.0 Flash Memory Cable	Non-Shielded, 0.5m
I	USB 2.0 Flash Memory Cable	Non-Shielded, 0.5m
J	USB 2.0 Flash Memory Cable	Non-Shielded, 0.5m
K	USB 2.0 Flash Memory Cable	Non-Shielded, 0.5m
L	LAN Cable	Non-Shielded, 10m

1.6. EUT Exercise Software

1	Setup the EUT as shown in Section 1.5.
2	Execute the control program “Mtool Ver 1.0.0.9” 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	45
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	45
Barometric pressure (mbar)		860 - 1060	950-1000
Temperature (°C)	FCC PART 15 C 15.407 Peak Power Spectrum Density	15 - 35	25
Humidity (%RH)		25 - 75	45
Barometric pressure (mbar)		860 - 1060	950-1000
Temperature (°C)	FCC PART 15 C 15.407 Power Excursion	15 - 35	25
Humidity (%RH)		25 - 75	45
Barometric pressure (mbar)		860 - 1060	950-1000
Temperature (°C)	FCC PART 15 C 15.407 Radiated Emission	15 - 35	25
Humidity (%RH)		25 - 75	65
Barometric pressure (mbar)		860 - 1060	950-1000
Temperature (°C)	FCC PART 15 C 15.407 Band Edge	15 - 35	25
Humidity (%RH)		25 - 75	58
Barometric pressure (mbar)		860 - 1060	950-1000
Temperature (°C)	FCC PART 15 C 15.407 Frequency Stability	15 - 35	25
Humidity (%RH)		25 - 75	45
Barometric pressure (mbar)		860 - 1060	950-1000

2. Conducted Emission

2.1. Test Equipment

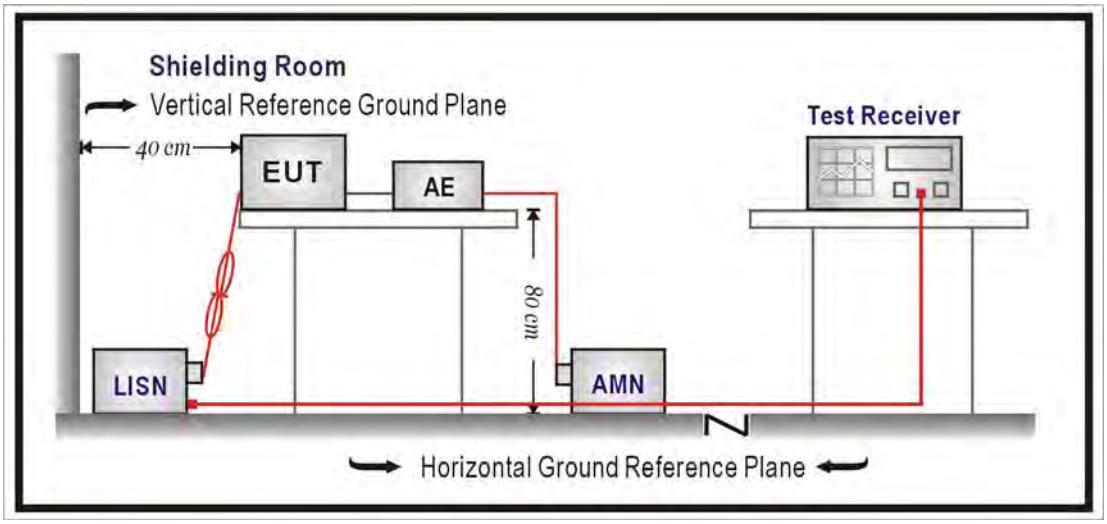
The following test equipments are used during the test:

Conducted Emission / SR3

Instrument	Manufacturer	Model No.	Serial No	Next Cal. Date
LISN	R&S	ENV216	100096	2014/08/01
LISN	R&S	ESH3-Z5	836679/022	2014/01/20
Test Receiver	R&S	ESCS 30	825442/017	2014/01/01

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. 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

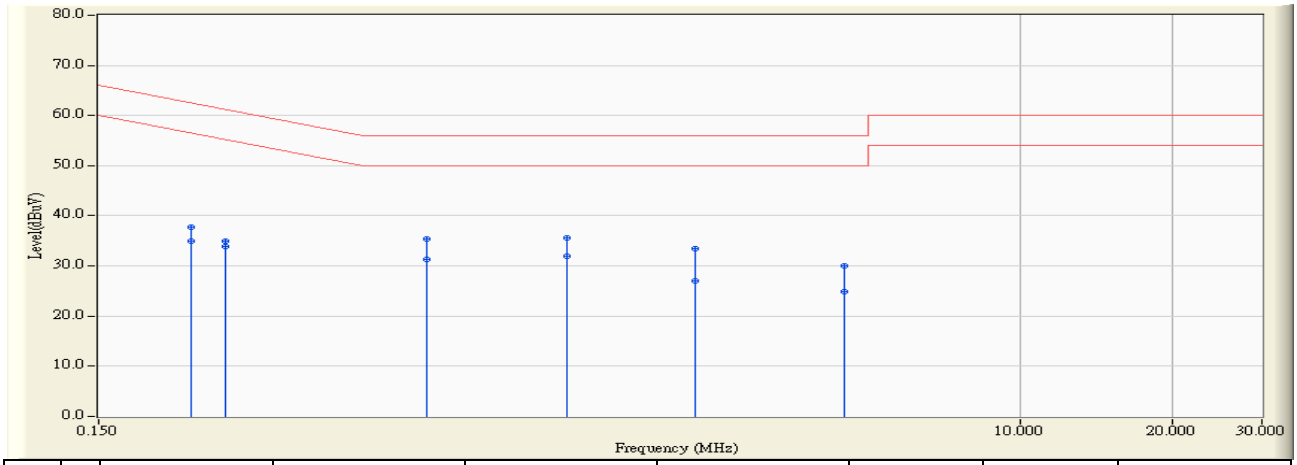
According to FCC Part 15 Subpart C Paragraph 15.207:2012

2.6. Uncertainty

The measurement uncertainty is defined as ± 2.26 dB.

2.7. Test Result

Site : SR3	**Time : 2013/12/07 - 12:09**
Limit : CISPR_B_00M_QP	**Margin : 6**
Probe : SR3_LISN(16A)-3_0813 - Line1	**Power : DC 3.3V (Power by PC)**
EUT : PCE-AC56 Dual-Band Wireless PCI-E Adapter	**Note : Mode 1: Transmit (CDD mode)** **802.11ac_80_5210MHz**

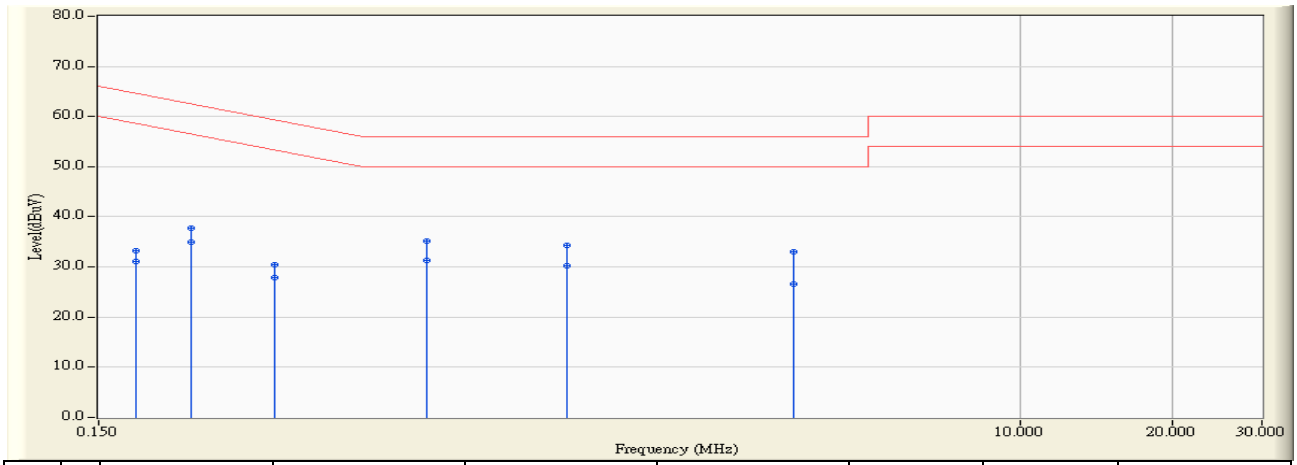


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1		0.228	9.676	28.040	37.716	-24.802	62.518	QUASIPEAK
2		0.228	9.676	25.350	35.026	-17.492	52.518	AVERAGE
3		0.267	9.696	25.270	34.966	-26.239	61.205	QUASIPEAK
4		0.267	9.696	24.200	33.896	-17.309	51.205	AVERAGE
5		0.670	9.860	25.470	35.330	-20.670	56.000	QUASIPEAK
6		0.670	9.860	21.490	31.350	-14.650	46.000	AVERAGE
7		1.263	9.948	25.690	35.638	-20.362	56.000	QUASIPEAK
8	*	1.263	9.948	22.000	31.948	-14.052	46.000	AVERAGE
9		2.267	9.980	23.440	33.420	-22.580	56.000	QUASIPEAK
10		2.267	9.980	16.970	26.950	-19.050	46.000	AVERAGE
11		4.482	10.090	19.870	29.960	-26.040	56.000	QUASIPEAK
12		4.482	10.090	14.700	24.790	-21.210	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 : 2013/12/07 - 12:14**
Limit : CISPR_B_00M_QP	**Margin : 6**
Probe : SR3_LISN(16A)-3_0813 - Line2	**Power : DC 3.3V (Power by PC)**
EUT : PCE-AC56 Dual-Band Wireless PCI-E Adapter	**Note : Mode 1: Transmit (CDD mode)** **802.11ac_80_5210MHz**



		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1		0.177	9.646	23.700	33.346	-31.263	64.609	QUASIPEAK
2		0.177	9.646	21.360	31.006	-23.603	54.609	AVERAGE
3		0.228	9.676	28.160	37.836	-24.682	62.518	QUASIPEAK
4		0.228	9.676	25.350	35.026	-17.492	52.518	AVERAGE
5		0.334	9.726	20.740	30.466	-28.895	59.361	QUASIPEAK
6		0.334	9.726	18.180	27.906	-21.455	49.361	AVERAGE
7		0.670	9.850	25.350	35.200	-20.800	56.000	QUASIPEAK
8	*	0.670	9.850	21.550	31.400	-14.600	46.000	AVERAGE
9		1.263	9.930	24.320	34.250	-21.750	56.000	QUASIPEAK
10		1.263	9.930	20.350	30.280	-15.720	46.000	AVERAGE
11		3.552	10.010	23.110	33.120	-22.880	56.000	QUASIPEAK
12		3.552	10.010	16.650	26.660	-19.340	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.

3. 99% & 26dB Bandwidth

3.1. Test Equipment

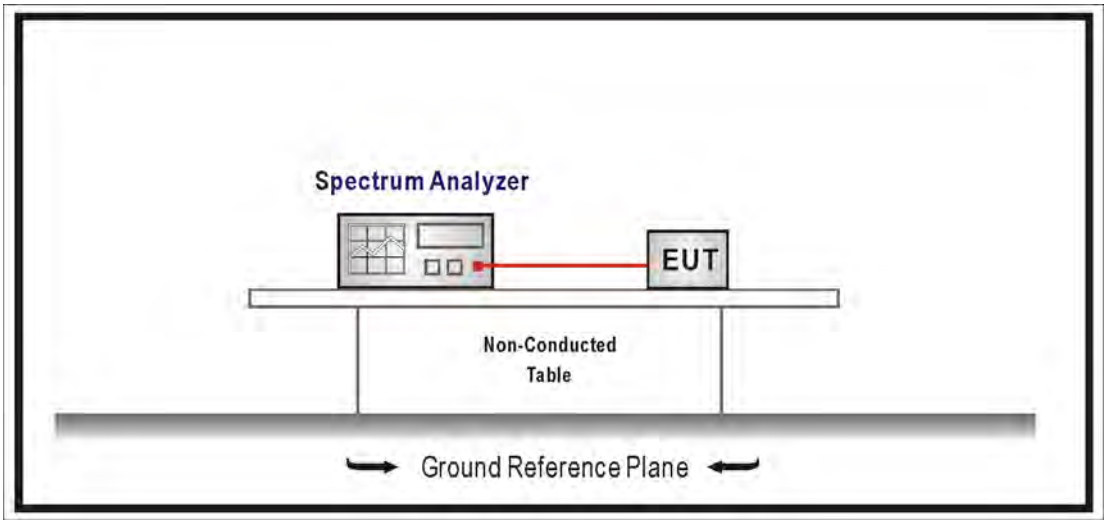
The following test equipments are used during the radiated emission tests:

99% & 26dB Bandwidth / SR7

Instrument	Manufacturer	Model No.	Serial No	Next Cal. Date
Spectrum Analyzer	Agilent	N9010A-EXA	US47140172	2014/08/05

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 KDB 789033.
Set RBW 1% of the emission bandwidth, VBW equal to 3 times the RBW.

3.5. Uncertainty

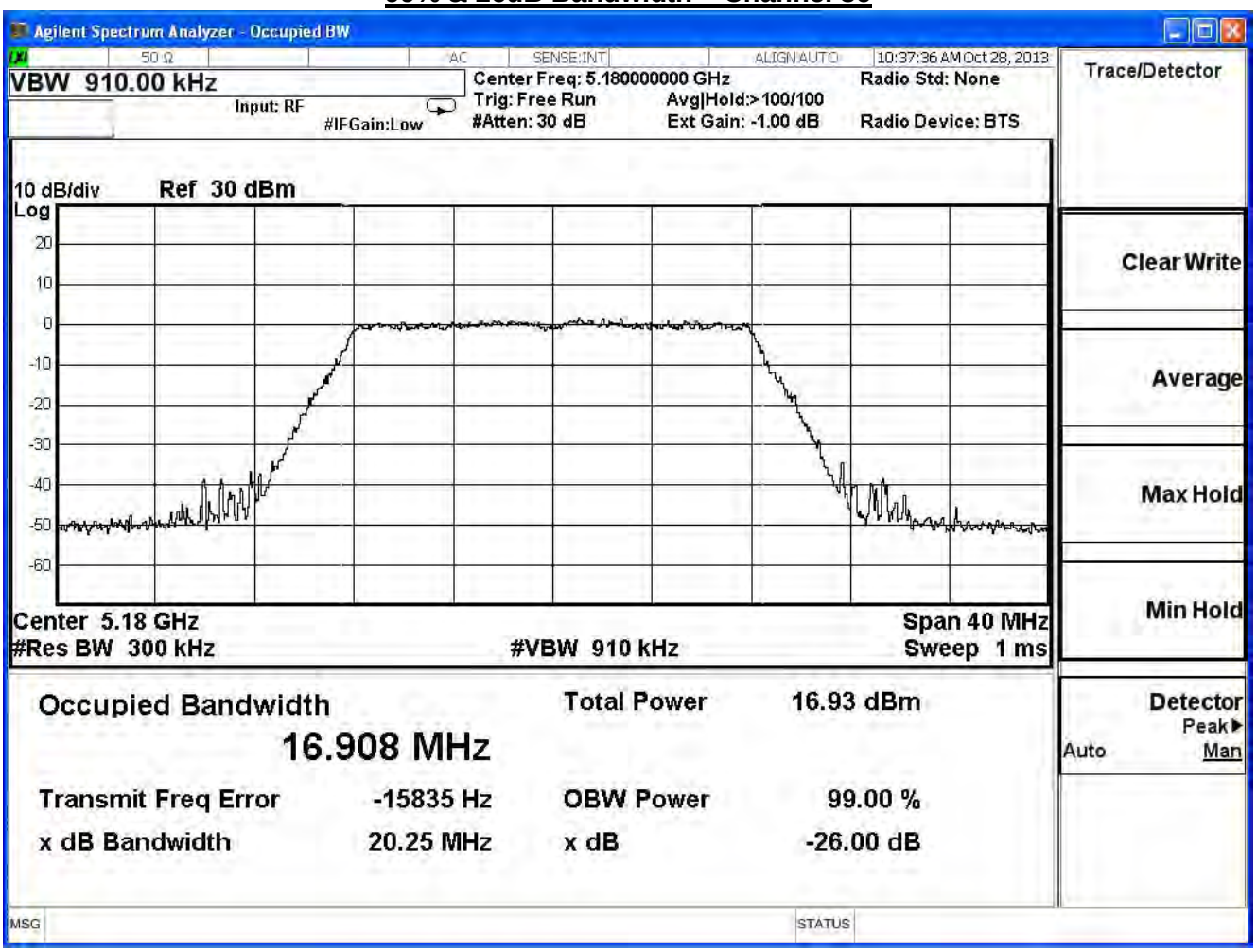
The measurement uncertainty is defined as ±150Hz

3.6. Test Result

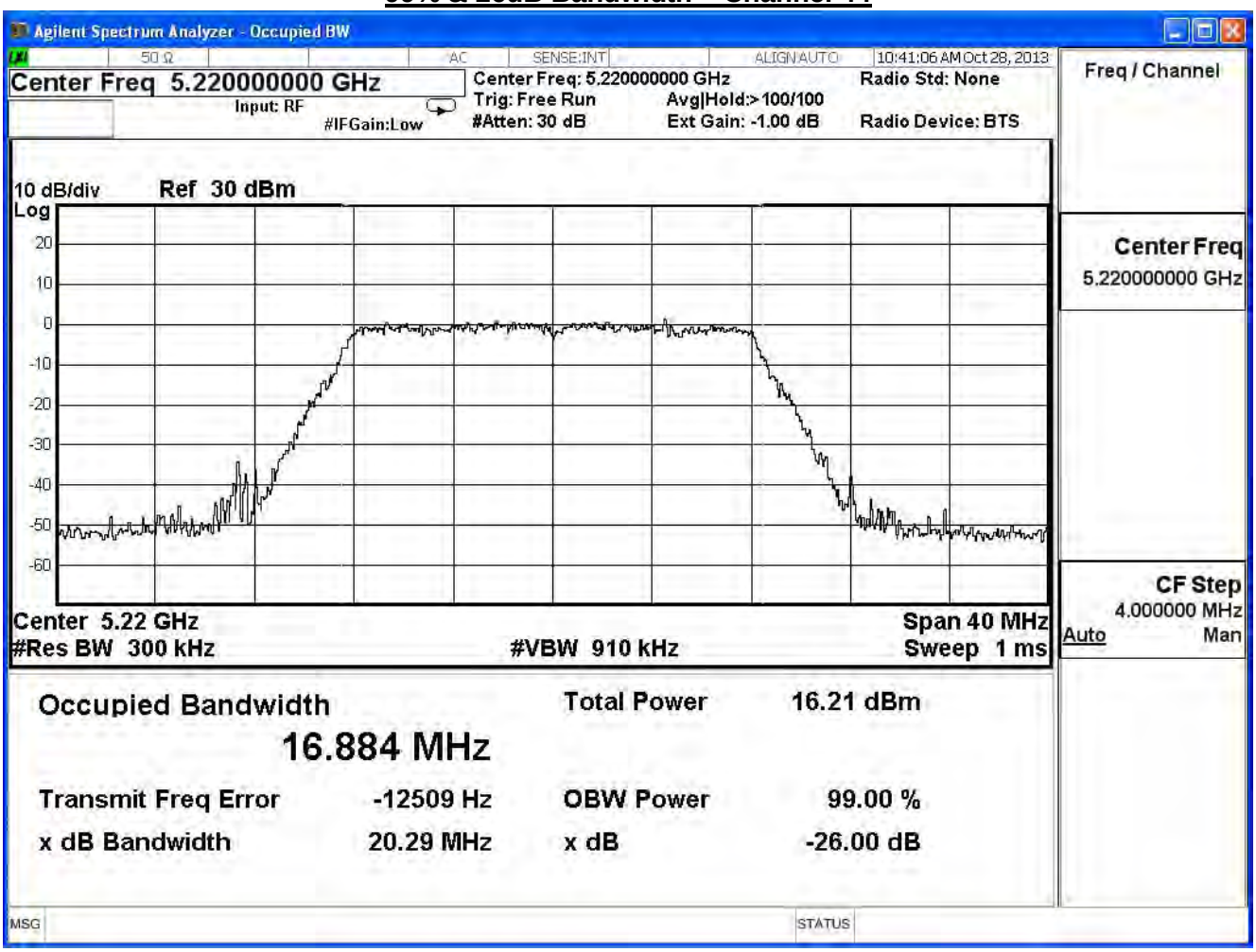
Product	PCE-AC56 Dual-Band Wireless PCI-E Adapter		
Test Item	99% & 26dB Bandwidth		
Test Mode	Mode 1: Transmit (CDD mode)		
Date of Test	2013/11/15	Test Site	SR7

802.11a (ANT 0)					
Channel No.	Frequency (MHz)	26dB BW (MHz)	99 % OBW (MHz)	Required Limit (MHz)	Result
36	5180	20.25	16.908	--	NA
44	5220	20.29	16.884	--	NA
48	5240	20.27	16.863	--	NA

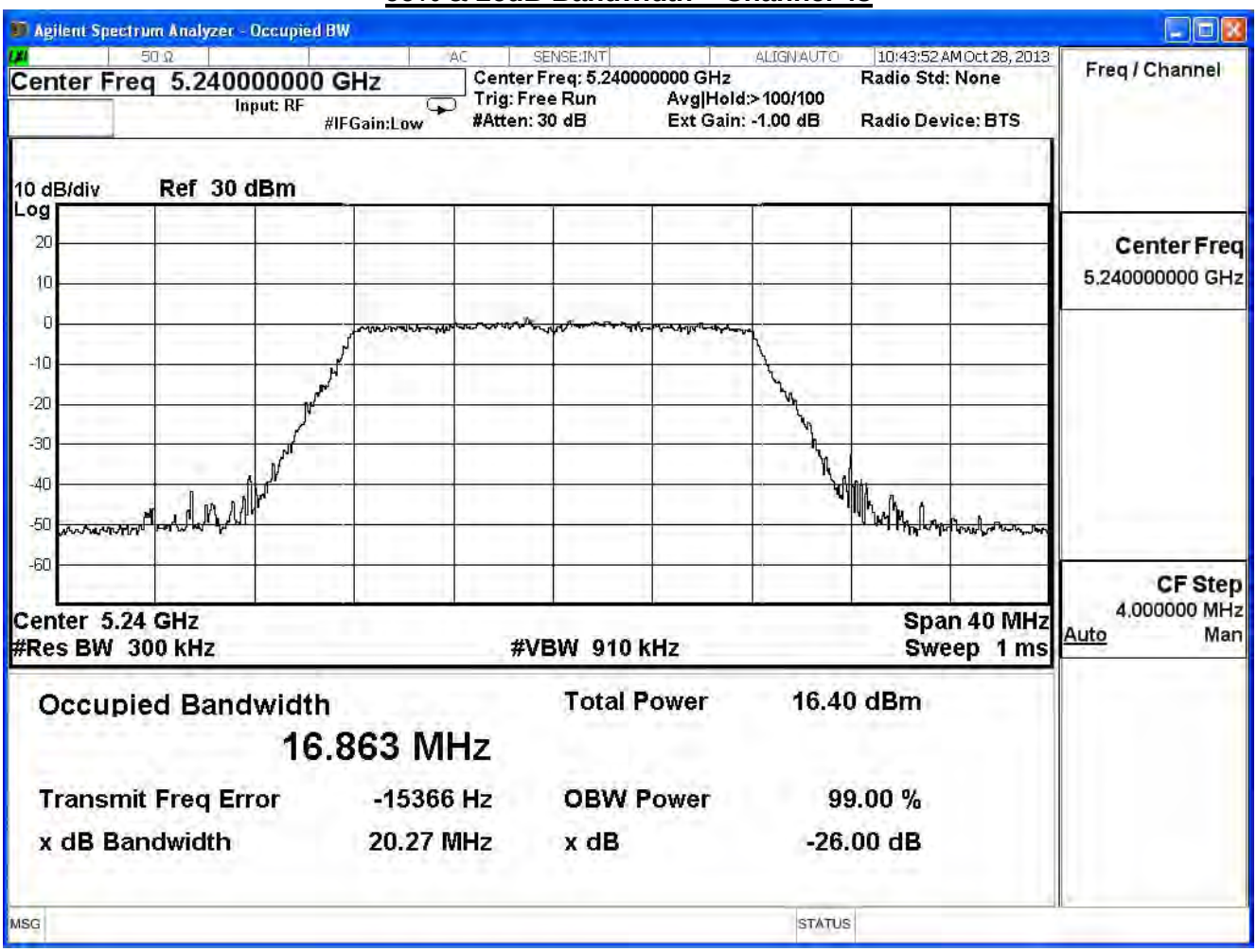
99% & 26dB Bandwidth – Channel 36



99% & 26dB Bandwidth – Channel 44



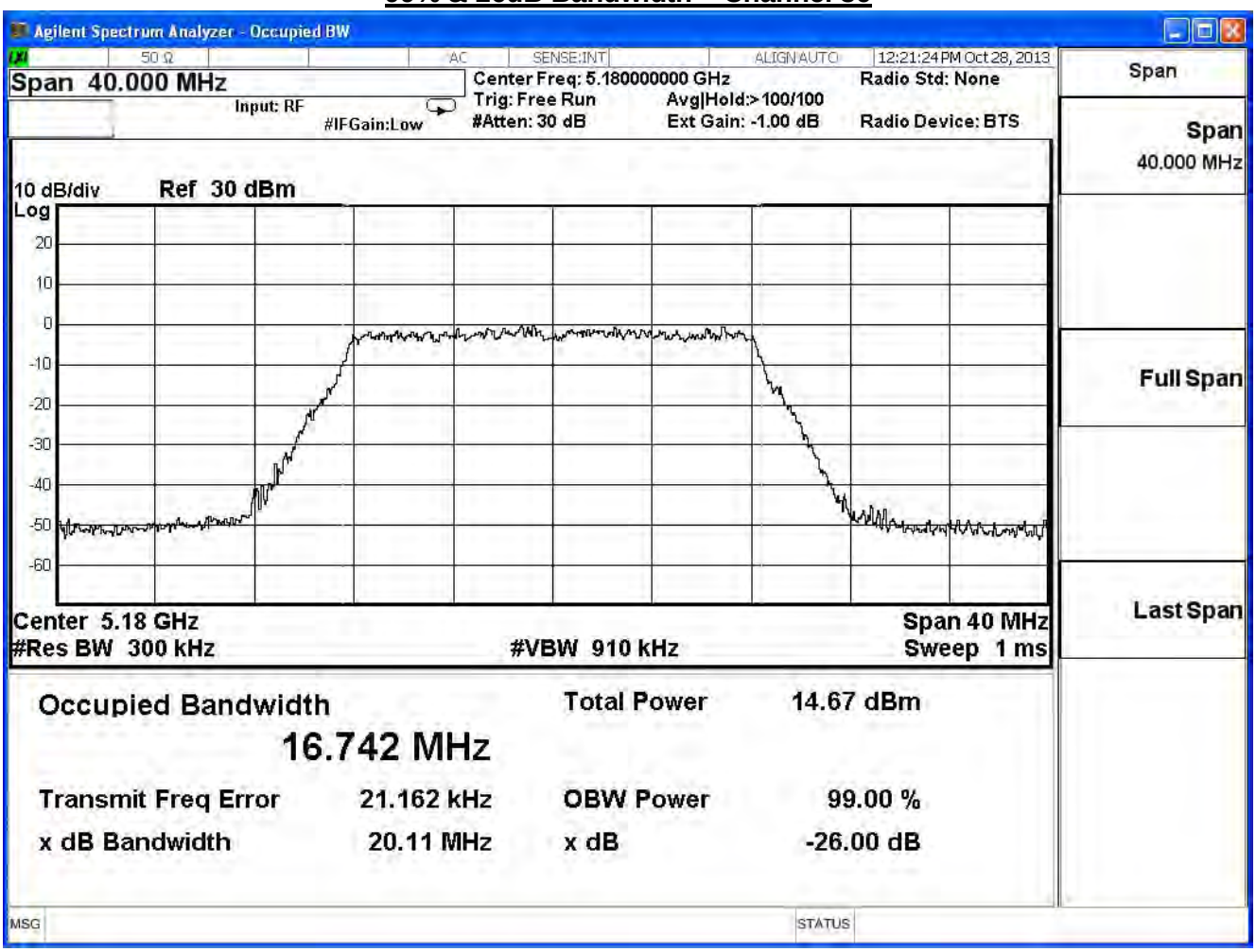
99% & 26dB Bandwidth – Channel 48



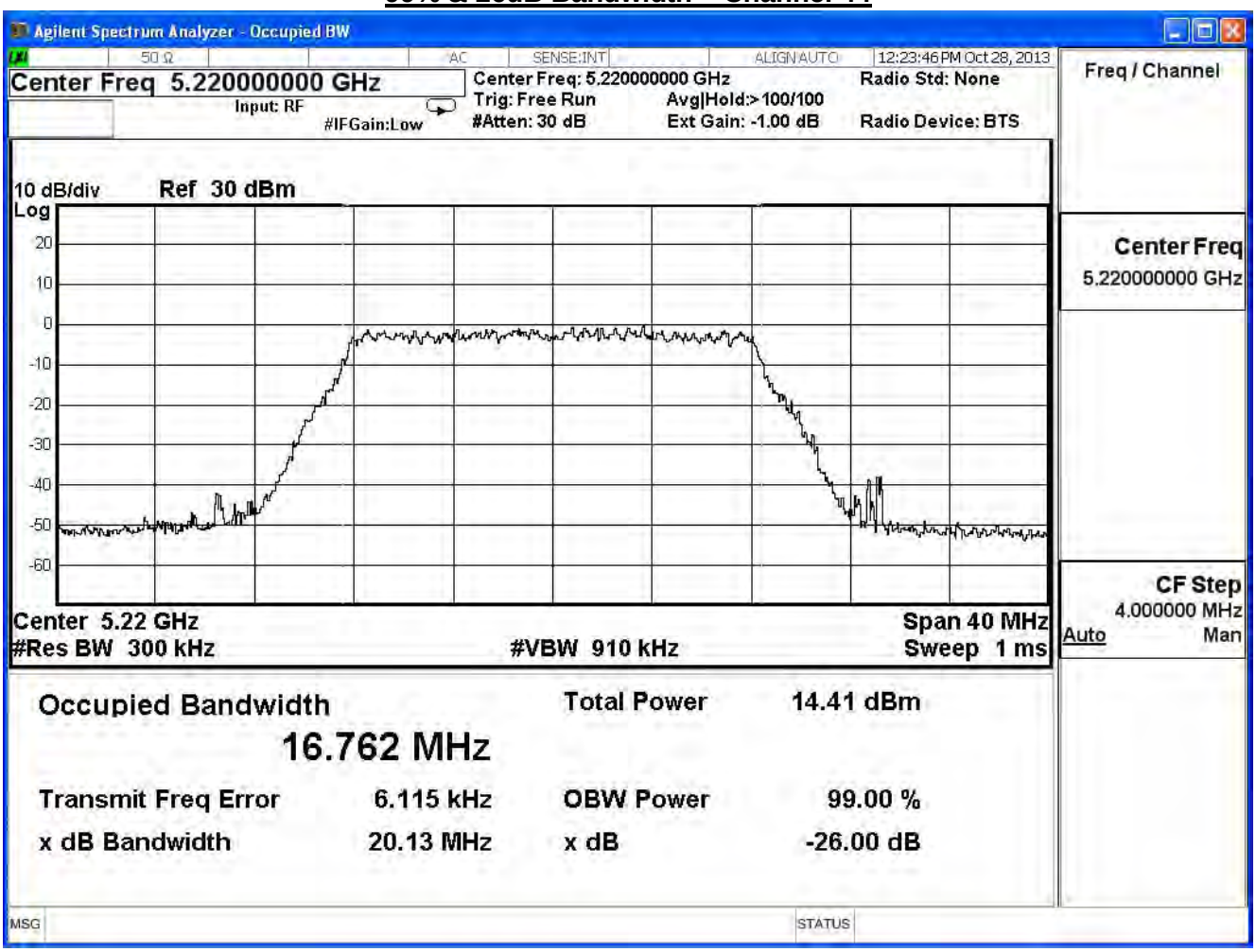
Product	PCE-AC56 Dual-Band Wireless PCI-E Adapter		
Test Item	99% & 26dB Bandwidth		
Test Mode	Mode 1: Transmit (CDD mode)		
Date of Test	2013/11/15	Test Site	SR7

802.11a (ANT 1)					
Channel No.	Frequency (MHz)	26dB BW (MHz)	99 % OBW (MHz)	Required Limit (MHz)	Result
36	5180	20.11	16.742	--	NA
44	5220	20.13	16.762	--	NA
48	5240	20.10	16.763	--	NA

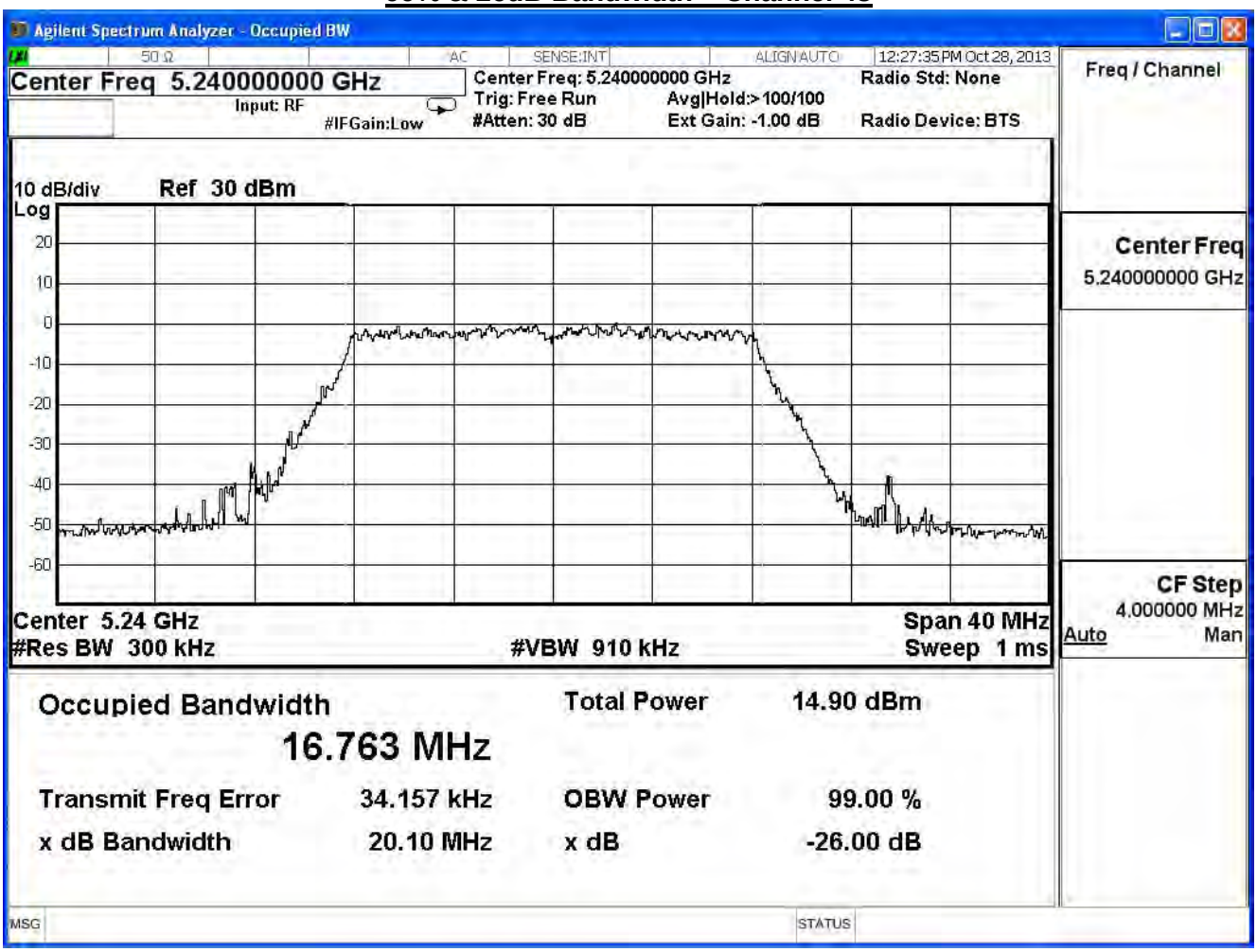
99% & 26dB Bandwidth – Channel 36



99% & 26dB Bandwidth – Channel 44



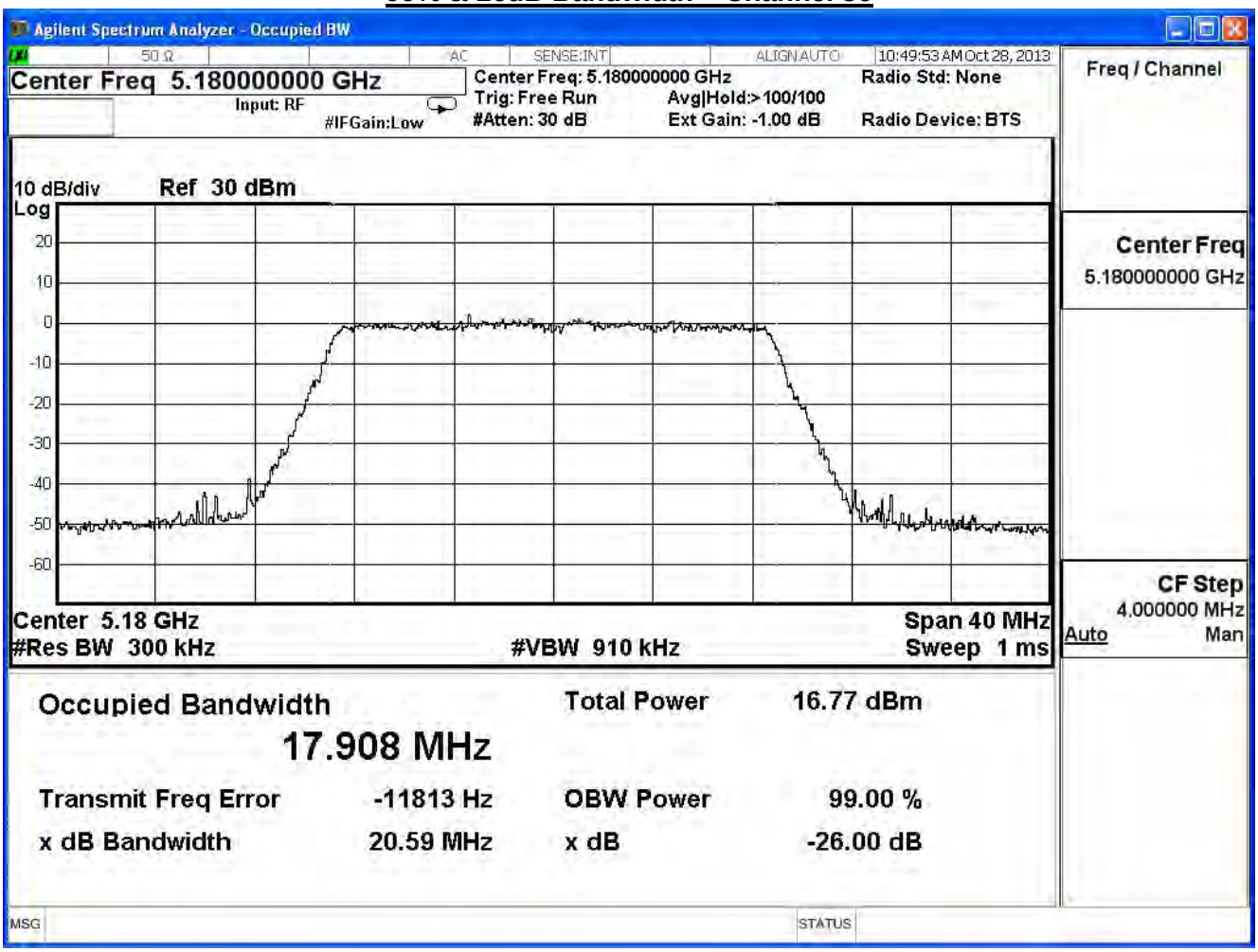
99% & 26dB Bandwidth – Channel 48



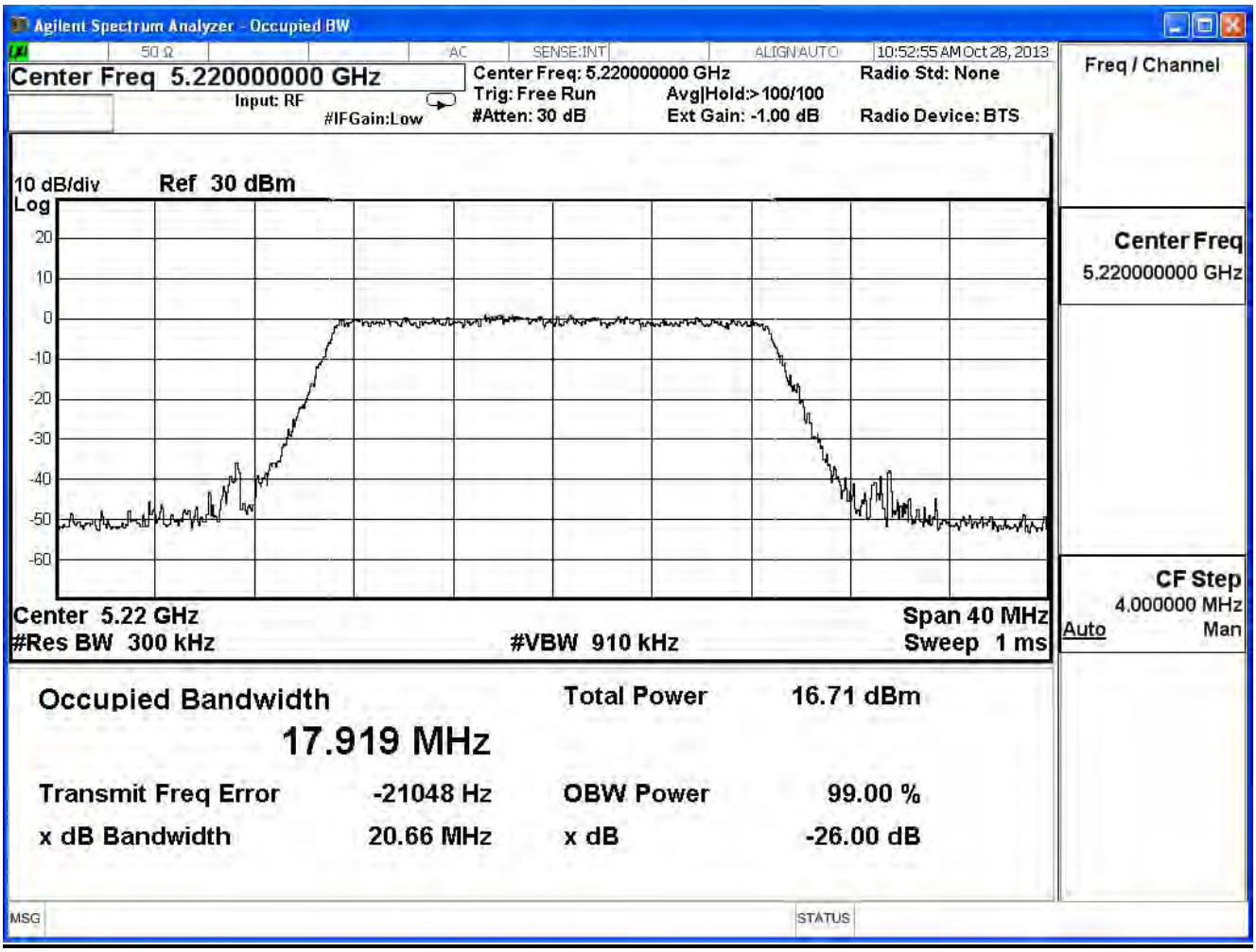
Product	PCE-AC56 Dual-Band Wireless PCI-E Adapter		
Test Item	99% & 26dB Bandwidth		
Test Mode	Mode 1: Transmit (CDD mode)		
Date of Test	2013/11/15	Test Site	SR7

802.11n_20M(ANT 0)					
Channel No.	Frequency (MHz)	26dB BW (MHz)	99 % OBW (MHz)	Required Limit (MHz)	Result
36	5180	20.59	17.908	--	NA
44	5220	20.66	17.919	--	NA
48	5240	20.68	17.916	--	NA

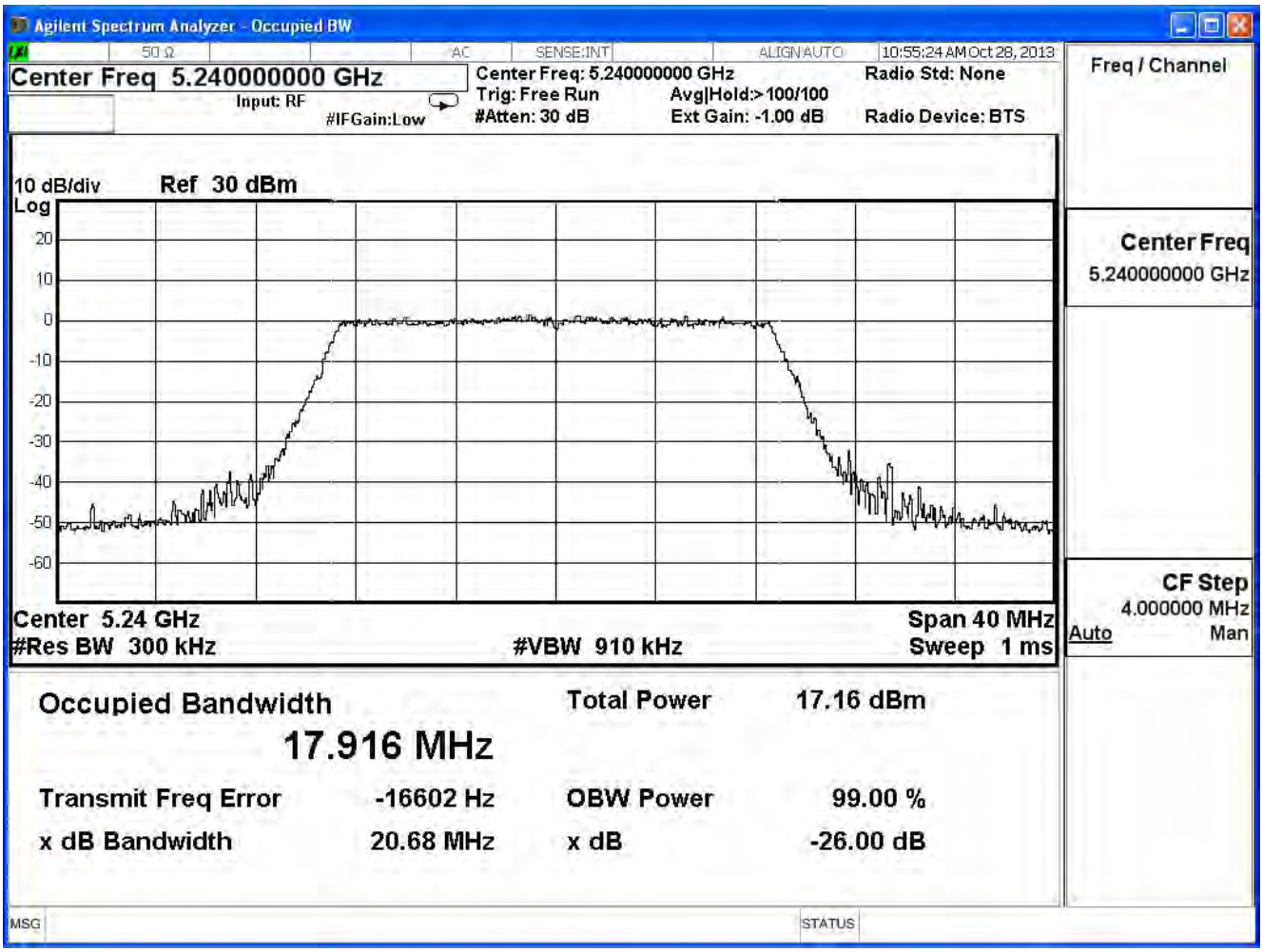
99% & 26dB Bandwidth – Channel 36



99% & 26dB Bandwidth – Channel 44



99% & 26dB Bandwidth – Channel 48

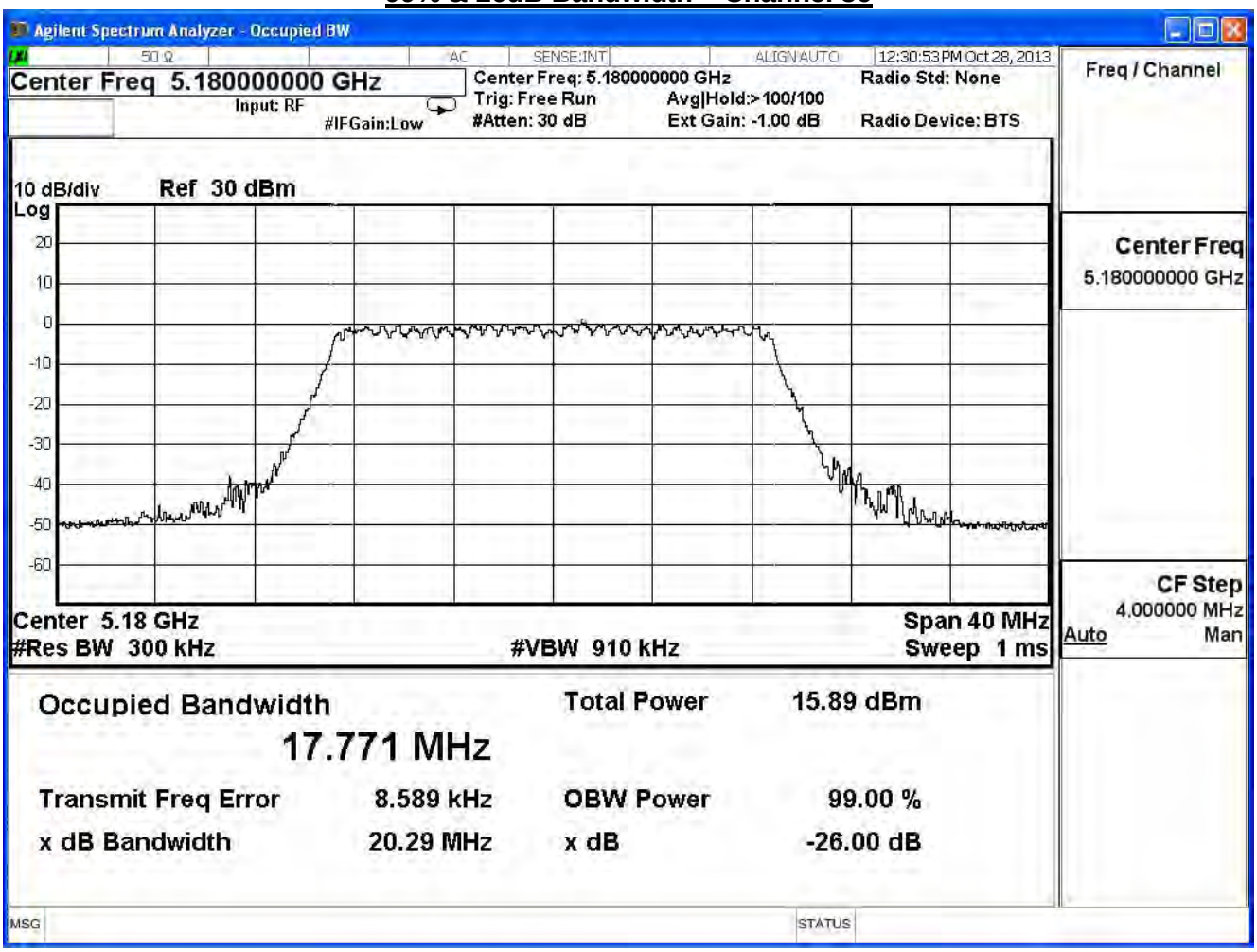


Product	PCE-AC56 Dual-Band Wireless PCI-E Adapter		
Test Item	99% & 26dB Bandwidth		
Test Mode	Mode 1: Transmit (CDD mode)		
Date of Test	2013/11/15	Test Site	SR7

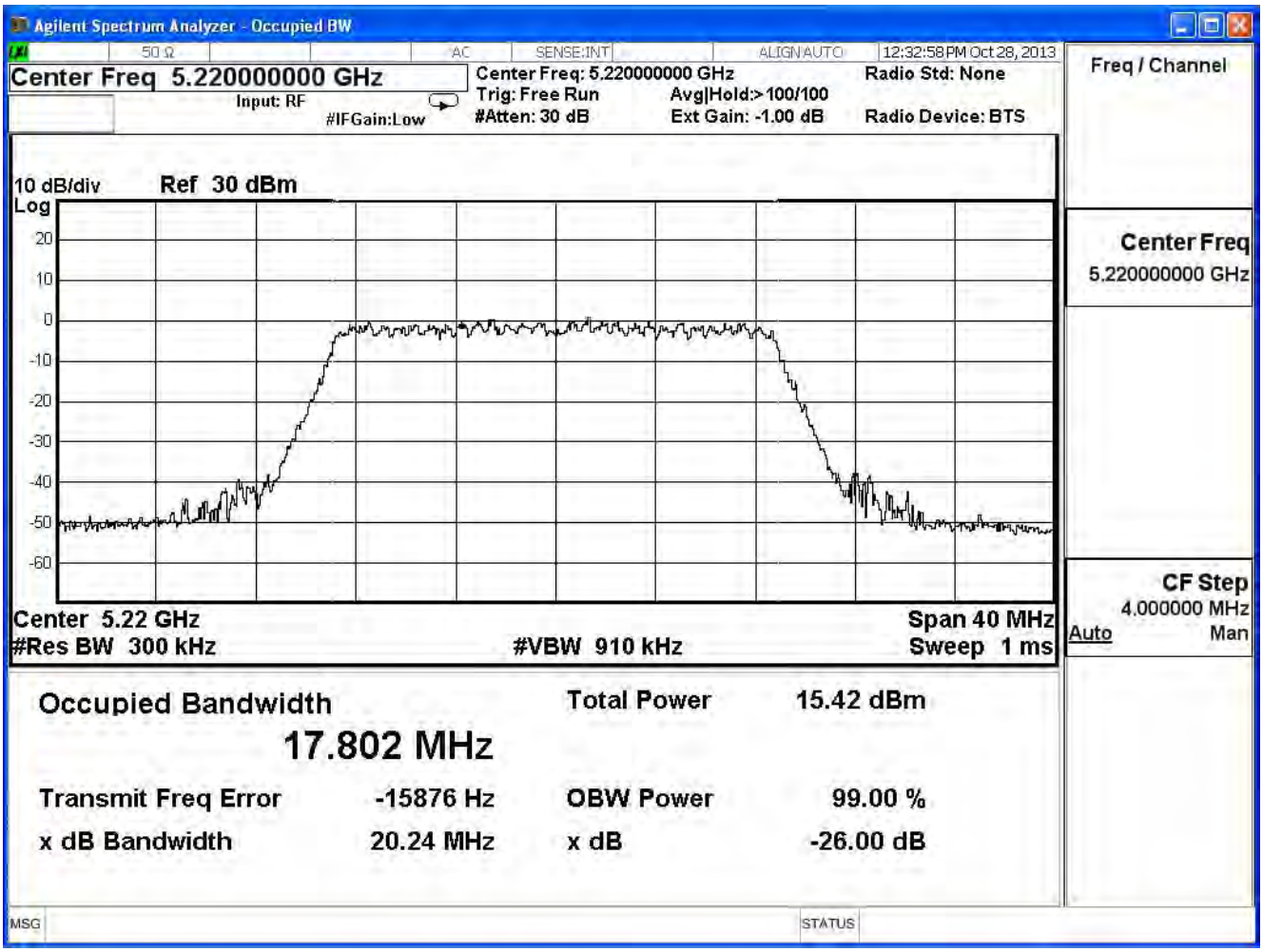
802.11n_20M(ANT 1)

Channel No.	Frequency (MHz)	26dB BW (MHz)	99 % OBW (MHz)	Required Limit (MHz)	Result
36	5180	20.29	17.771	--	NA
44	5220	20.24	17.802	--	NA
48	5240	20.30	17.779	--	NA

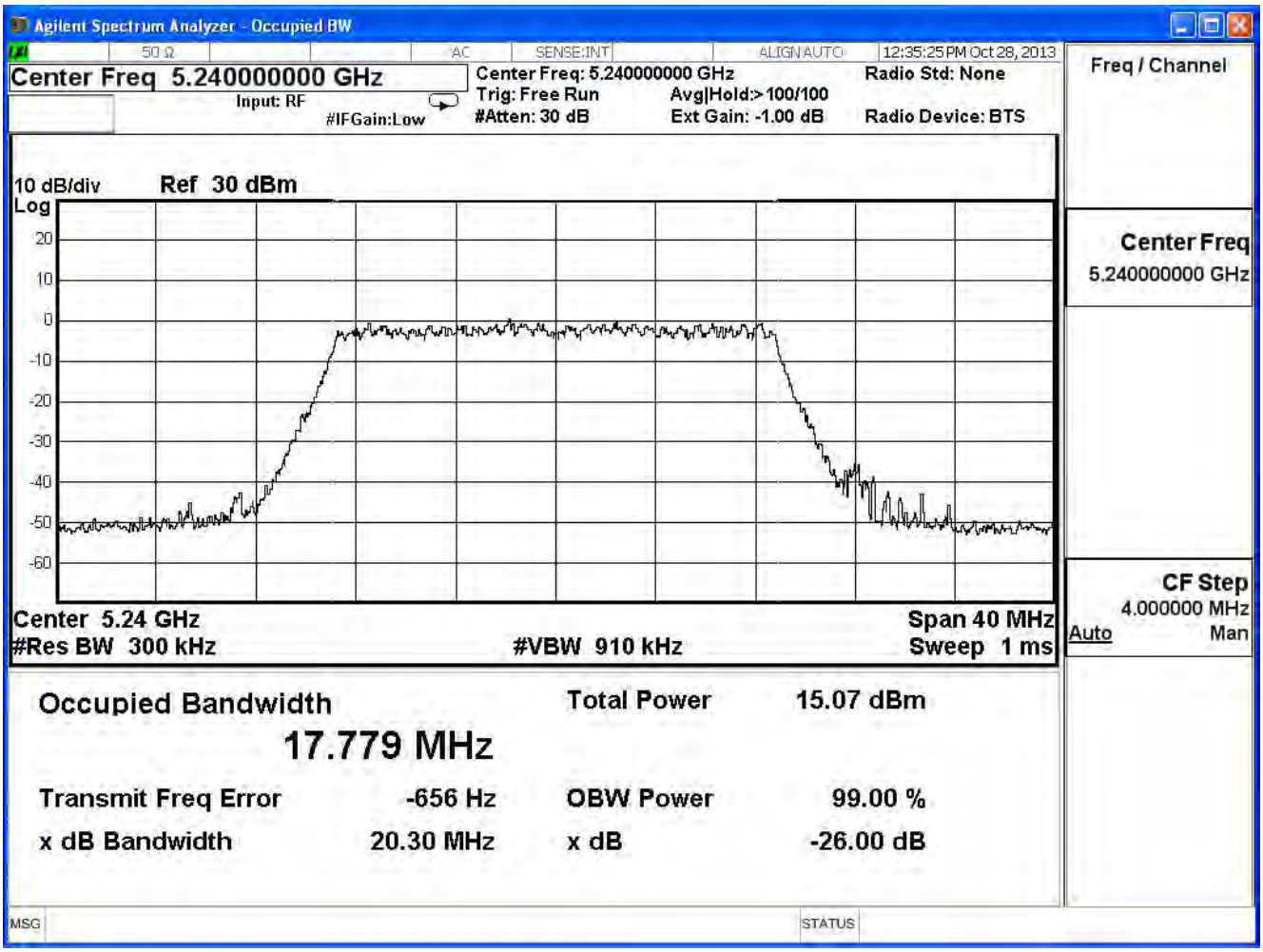
99% & 26dB Bandwidth – Channel 36



99% & 26dB Bandwidth – Channel 44



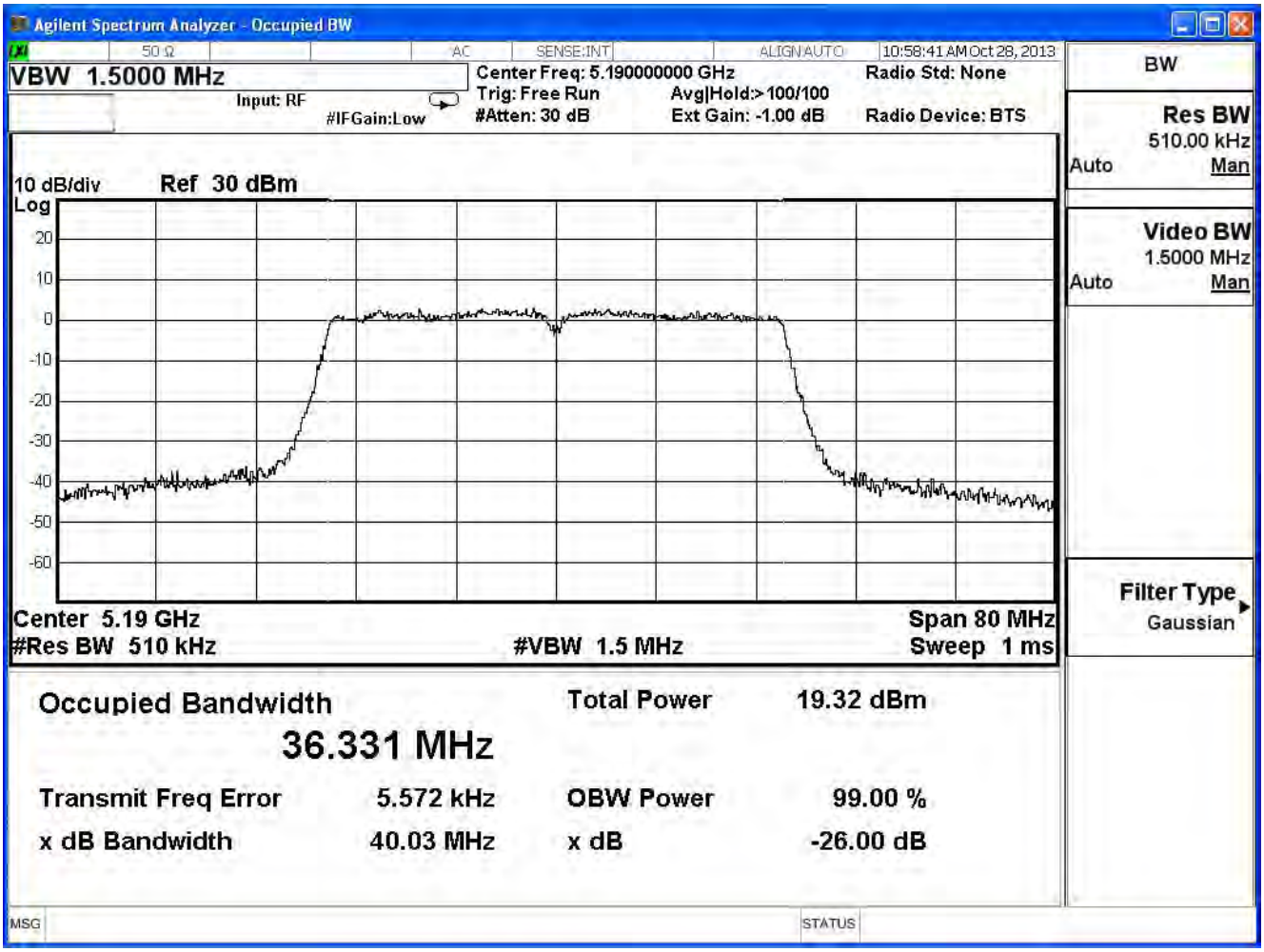
99% & 26dB Bandwidth – Channel 48



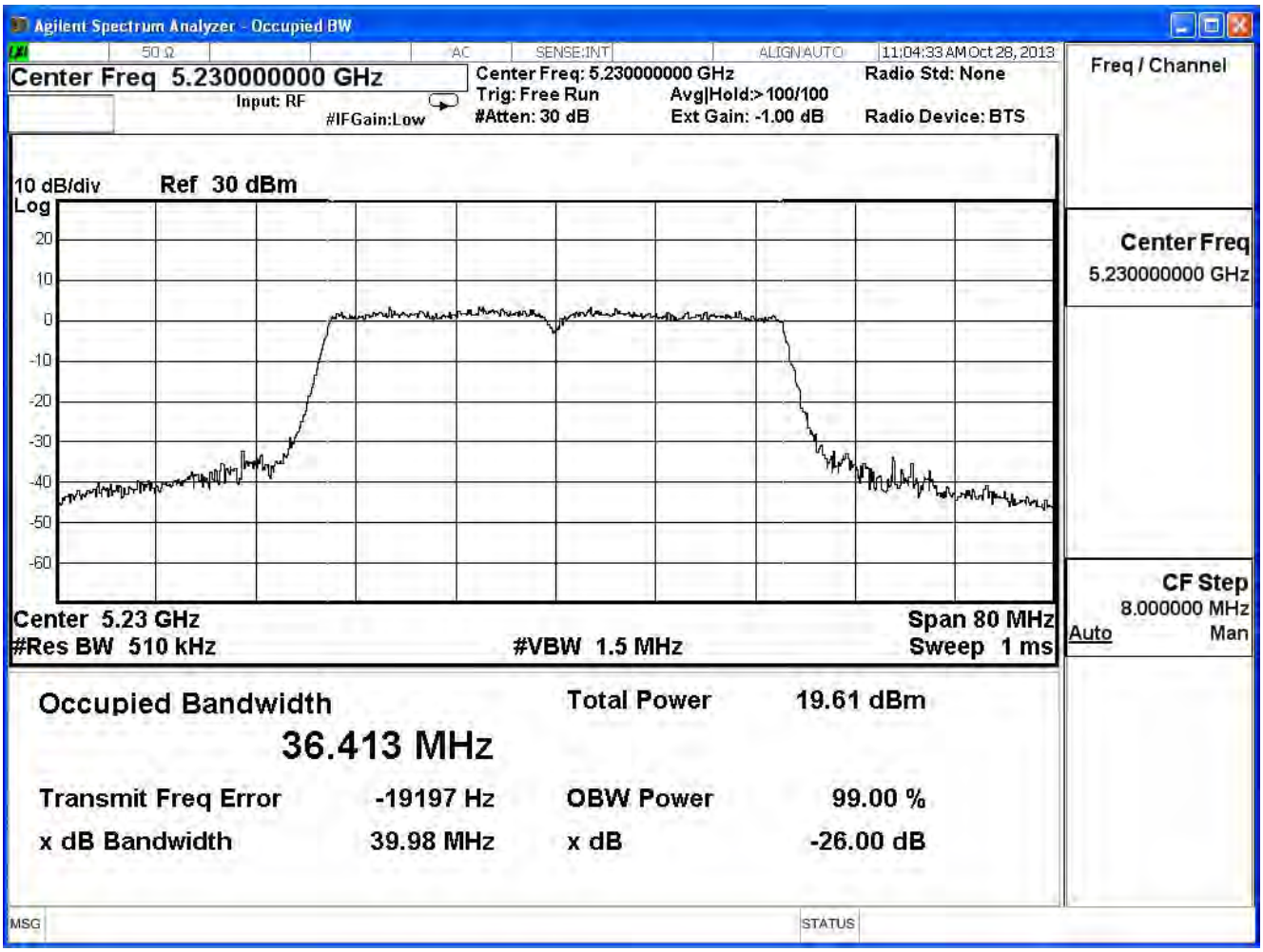
Product	PCE-AC56 Dual-Band Wireless PCI-E Adapter		
Test Item	99% & 26dB Bandwidth		
Test Mode	Mode 1: Transmit (CDD mode)		
Date of Test	2013/11/15	Test Site	SR7

802.11n_40M(ANT 0)					
Channel No.	Frequency (MHz)	26dB BW (MHz)	99 % OBW (MHz)	Required Limit (MHz)	Result
38	5190	40.03	36.331	--	NA
46	5230	39.98	36.413	--	NA

99% & 26dB Bandwidth – Channel 38



99% & 26dB Bandwidth – Channel 46

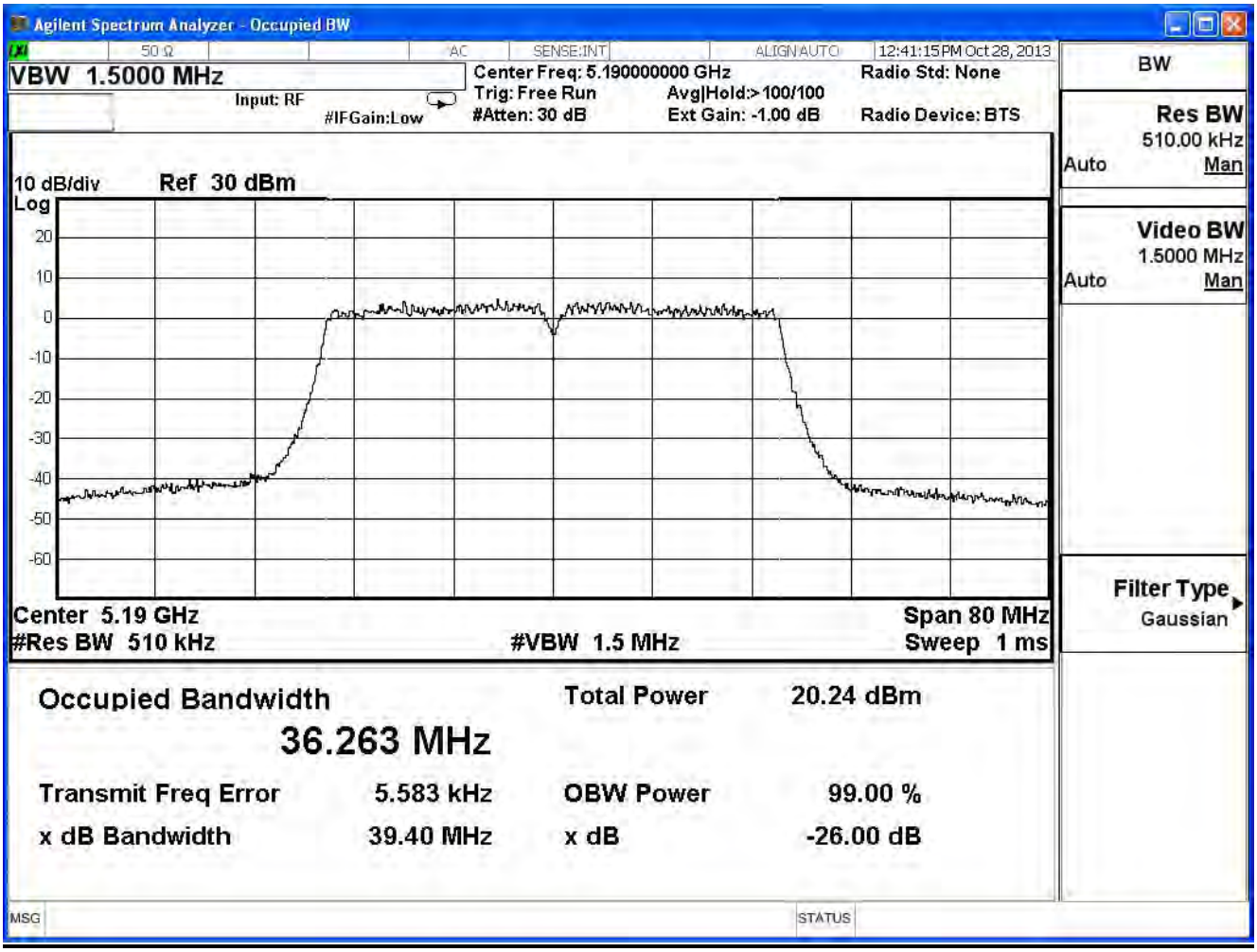


Product	PCE-AC56 Dual-Band Wireless PCI-E Adapter		
Test Item	99% & 26dB Bandwidth		
Test Mode	Mode 1: Transmit (CDD mode)		
Date of Test	2013/11/15	Test Site	SR7

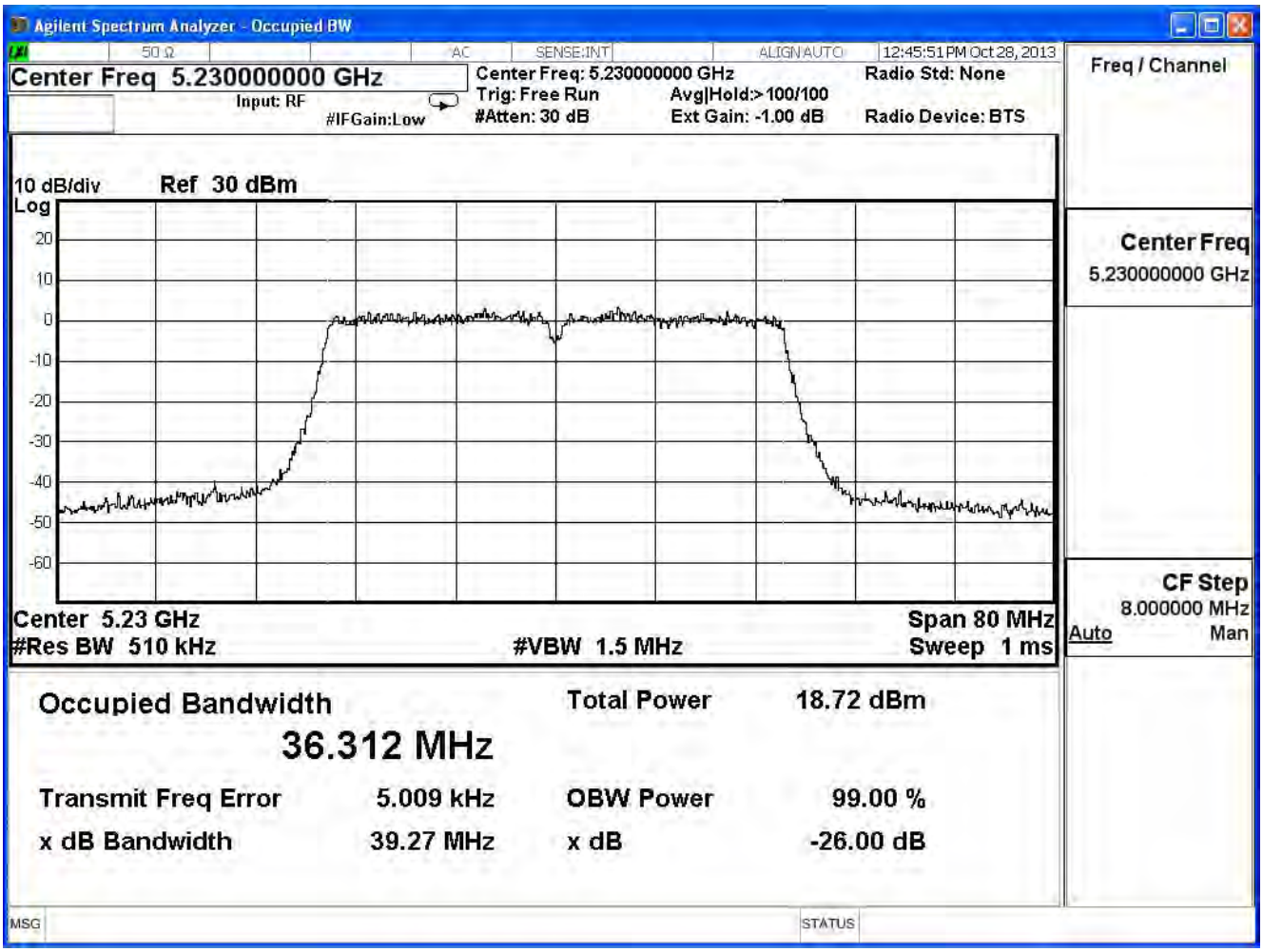
802.11n_40M(ANT 1)

Channel No.	Frequency (MHz)	26dB BW (MHz)	99 % OBW (MHz)	Required Limit (MHz)	Result
38	5190	38.40	36.263	--	NA
46	5230	39.27	36.312	--	NA

99% & 26dB Bandwidth – Channel 38



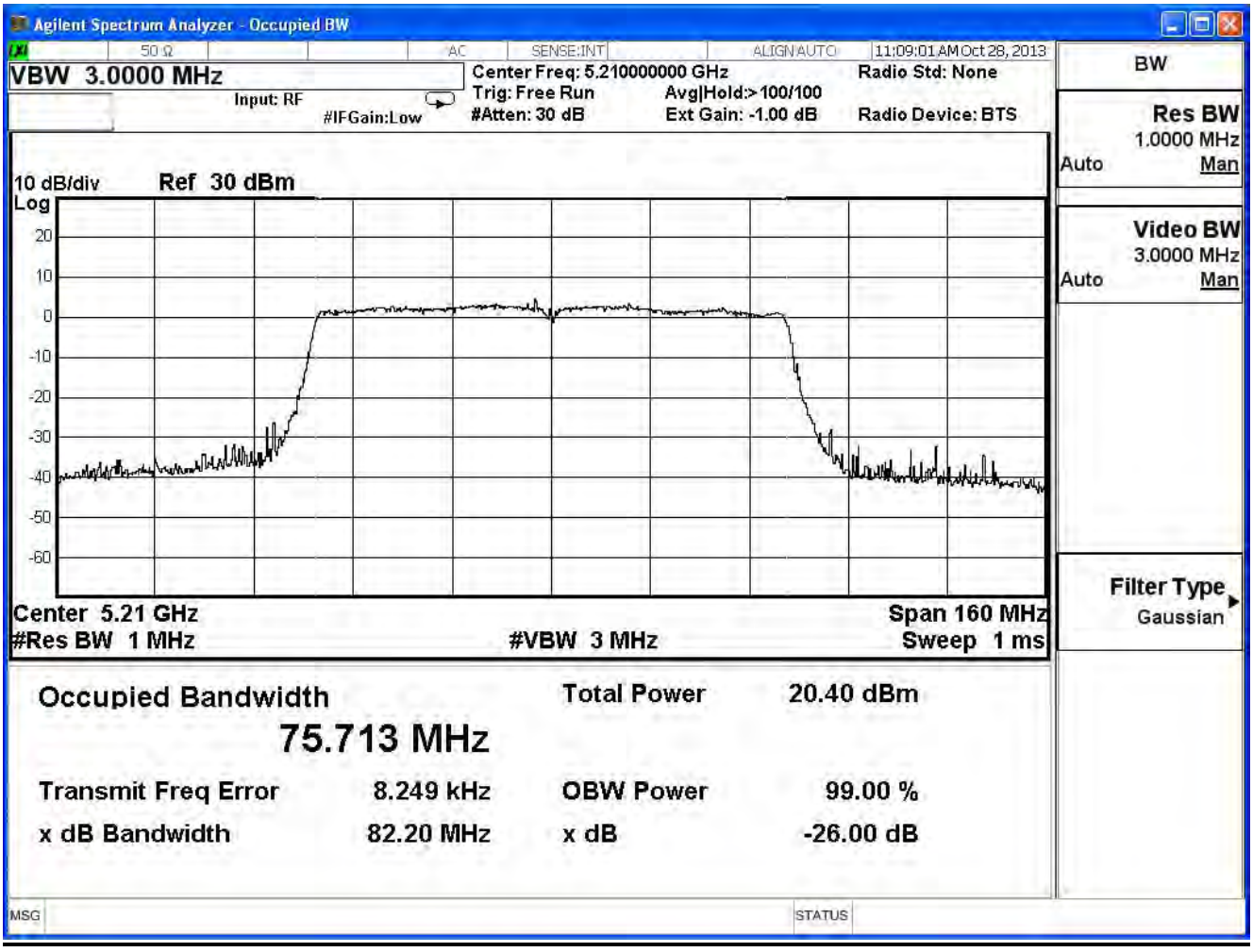
99% & 26dB Bandwidth – Channel 46



Product	PCE-AC56 Dual-Band Wireless PCI-E Adapter		
Test Item	99% & 26dB Bandwidth		
Test Mode	Mode 1: Transmit (CDD mode)		
Date of Test	2013/11/15	Test Site	SR7

802.11ac_80M(ANT 0)					
Channel No.	Frequency (MHz)	26dB BW (MHz)	99 % OBW (MHz)	Required Limit (MHz)	Result
42	5210	82.20	75.713	--	NA

99% & 26dB Bandwidth – Channel 42

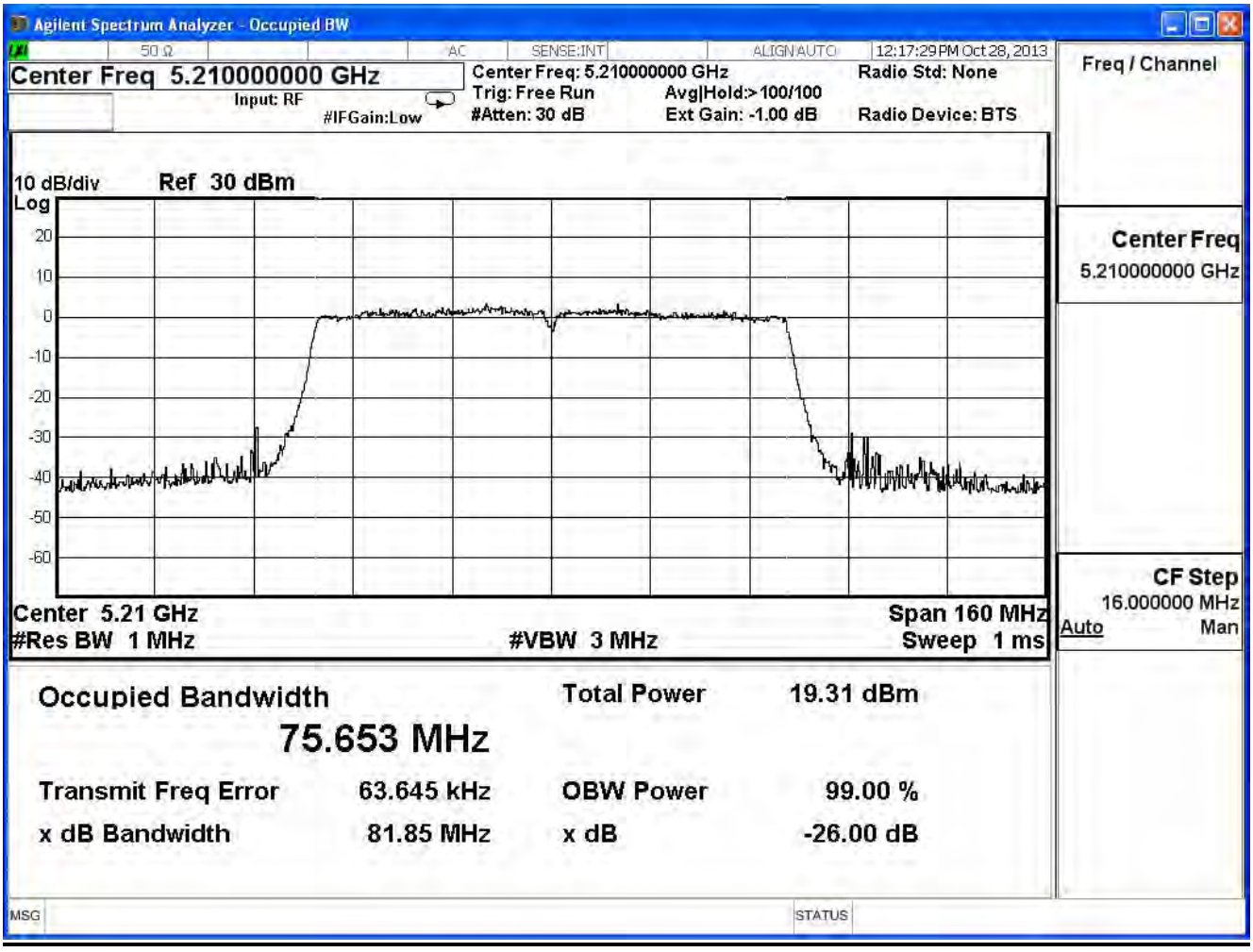


Product	PCE-AC56 Dual-Band Wireless PCI-E Adapter		
Test Item	99% & 26dB Bandwidth		
Test Mode	Mode 1: Transmit (CDD mode)		
Date of Test	2013/11/15	Test Site	SR7

802.11ac_80M(ANT 1)

Channel No.	Frequency (MHz)	26dB BW (MHz)	99 % OBW (MHz)	Required Limit (MHz)	Result
42	5210	81.85	75.653	--	NA

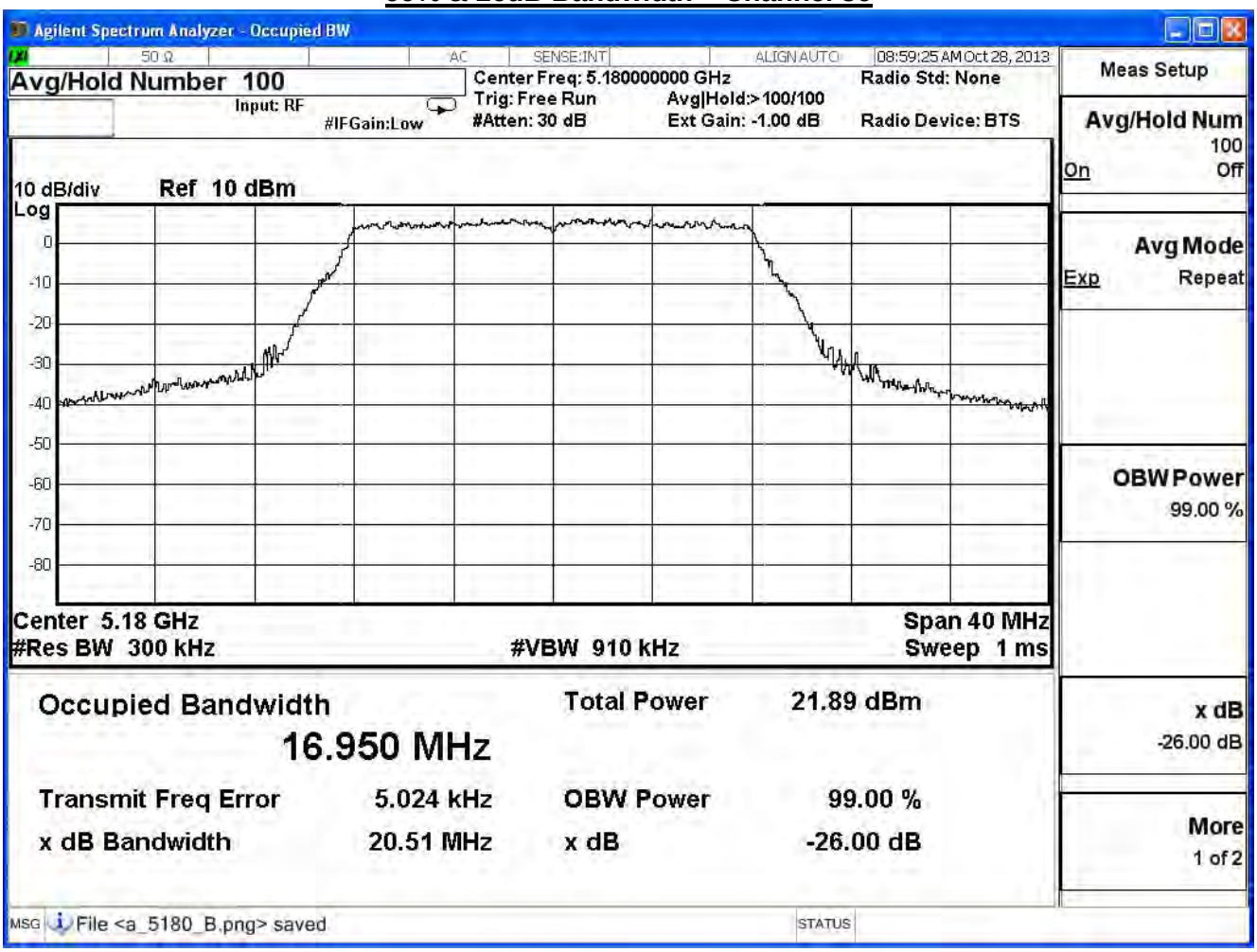
99% & 26dB Bandwidth – Channel 42



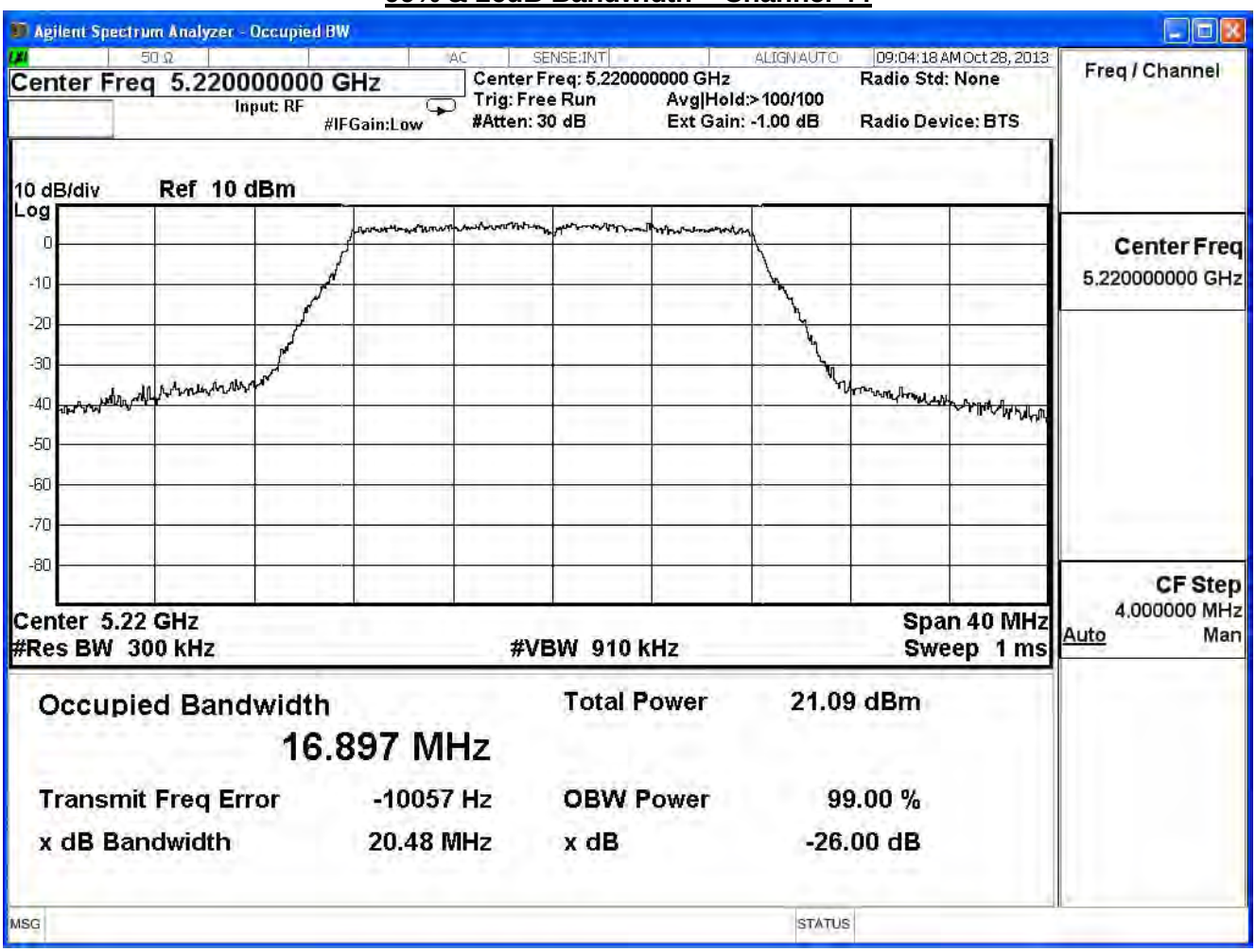
Product	PCE-AC56 Dual-Band Wireless PCI-E Adapter		
Test Item	99% & 26dB Bandwidth		
Test Mode	Mode 2: Transmit (Beamforming mode)		
Date of Test	2013/11/15	Test Site	SR7

802.11a					
Channel No.	Frequency (MHz)	26dB BW (MHz)	99 % OBW (MHz)	Required Limit (MHz)	Result
36	5180	20.51	16.95	--	NA
44	5220	20.48	16.90	--	NA
48	5240	20.52	16.88	--	NA

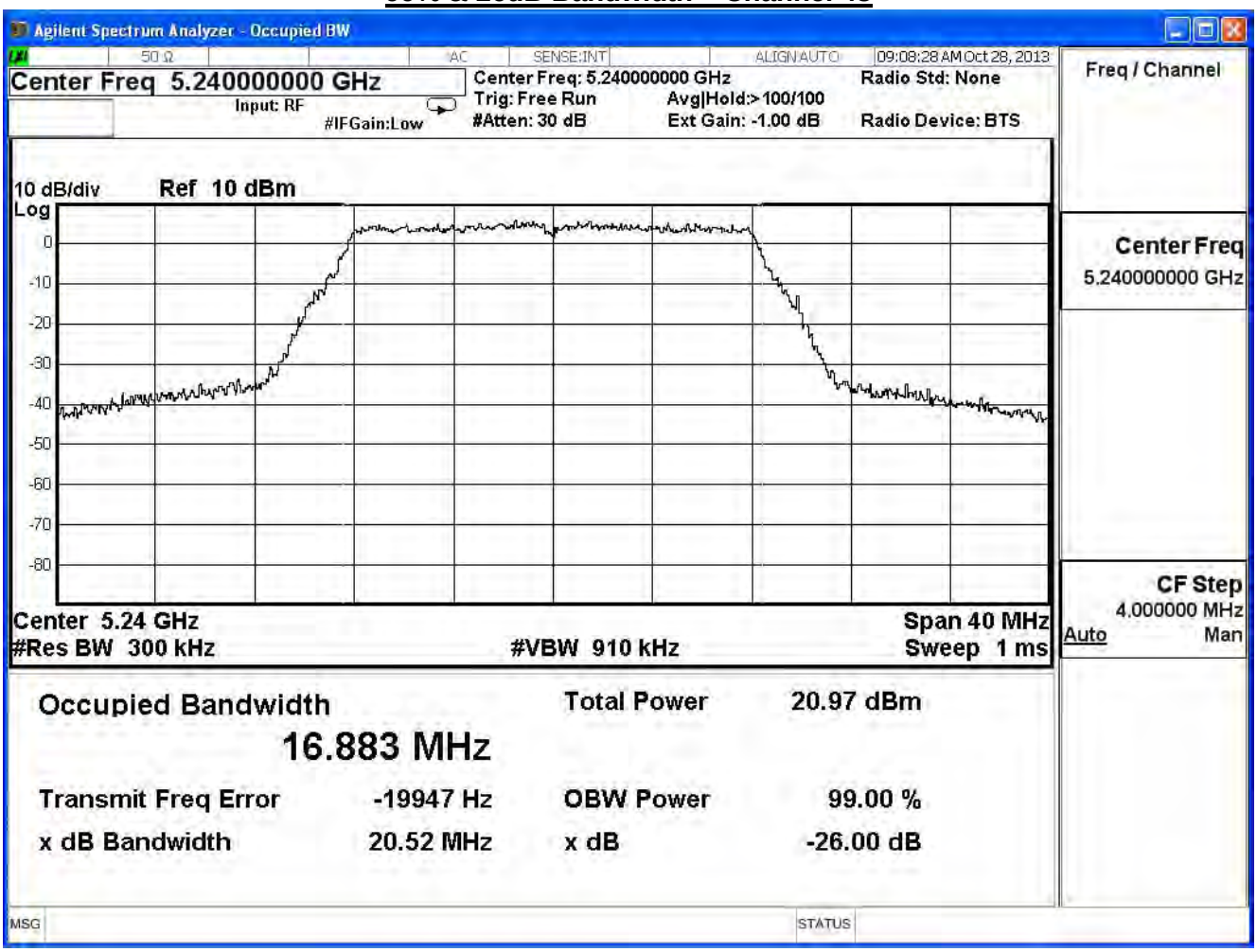
99% & 26dB Bandwidth – Channel 36



99% & 26dB Bandwidth – Channel 44



99% & 26dB Bandwidth – Channel 48

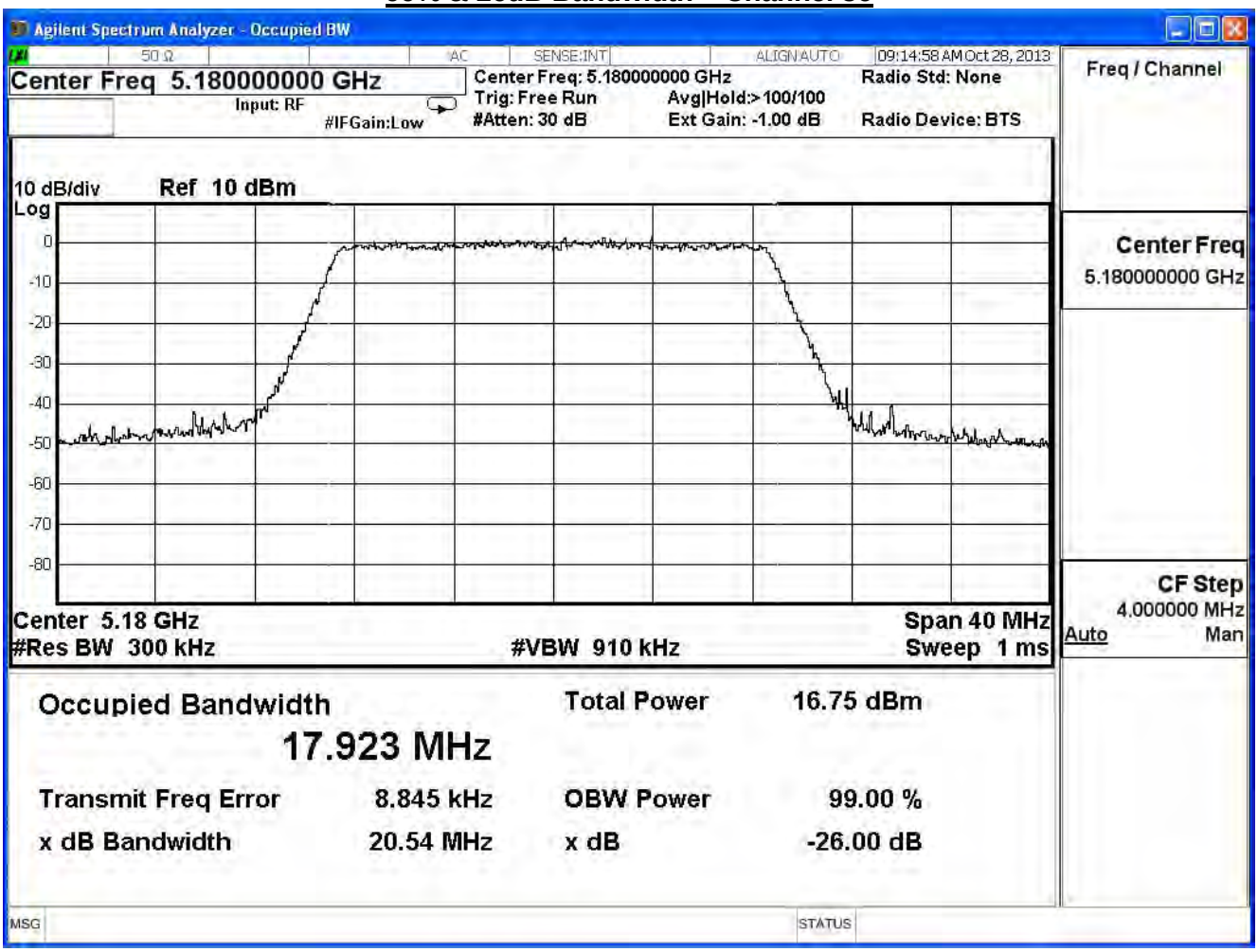


Product	PCE-AC56 Dual-Band Wireless PCI-E Adapter		
Test Item	99% & 26dB Bandwidth		
Test Mode	Mode 2: Transmit (Beamforming mode)		
Date of Test	2013/11/15	Test Site	SR7

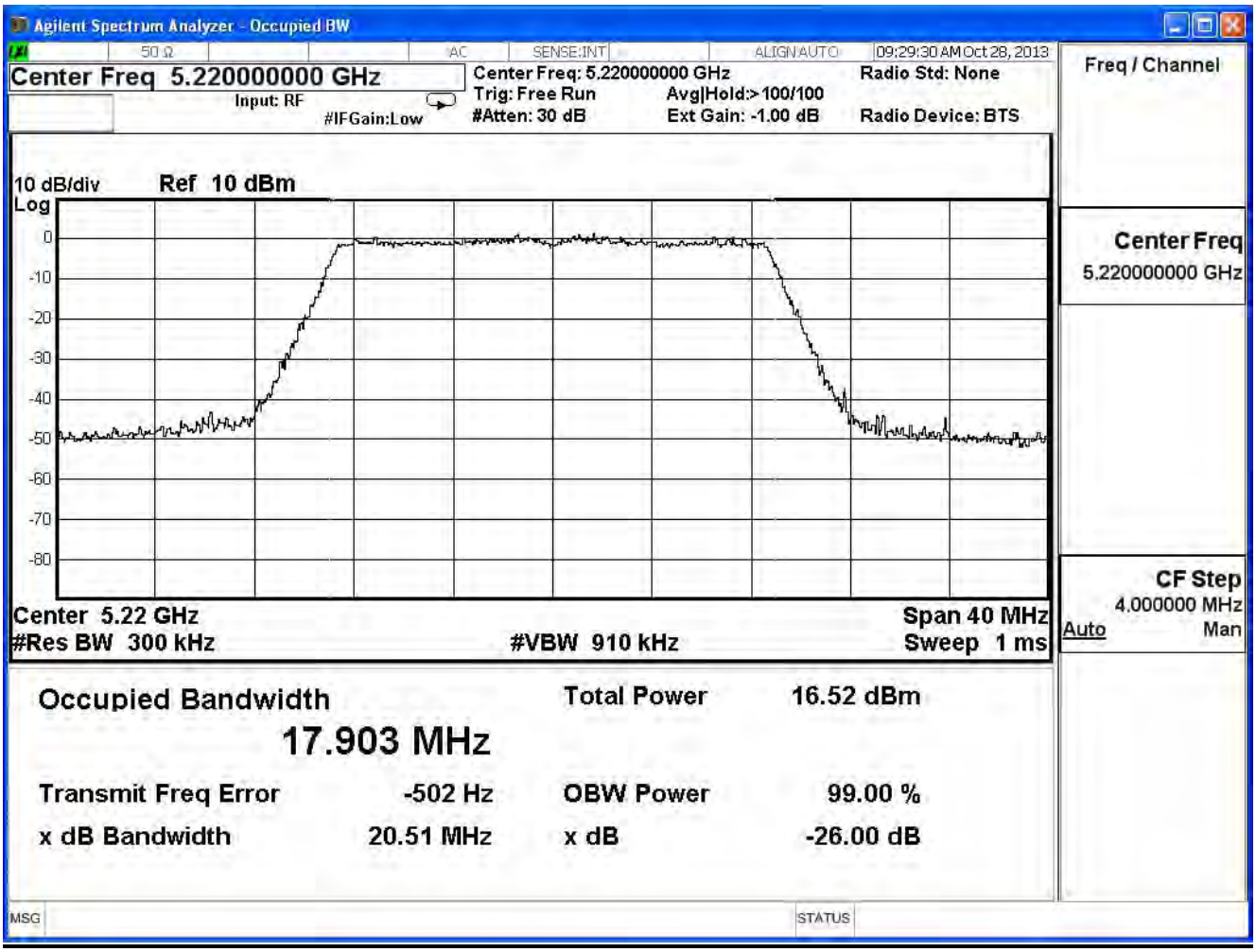
802.11n_20M(ANT 0)

Channel No.	Frequency (MHz)	26dB BW (MHz)	99 % OBW (MHz)	Required Limit (MHz)	Result
36	5180	20.54	17.92	--	NA
44	5220	20.51	17.90	--	NA
48	5240	20.55	17.87	--	NA

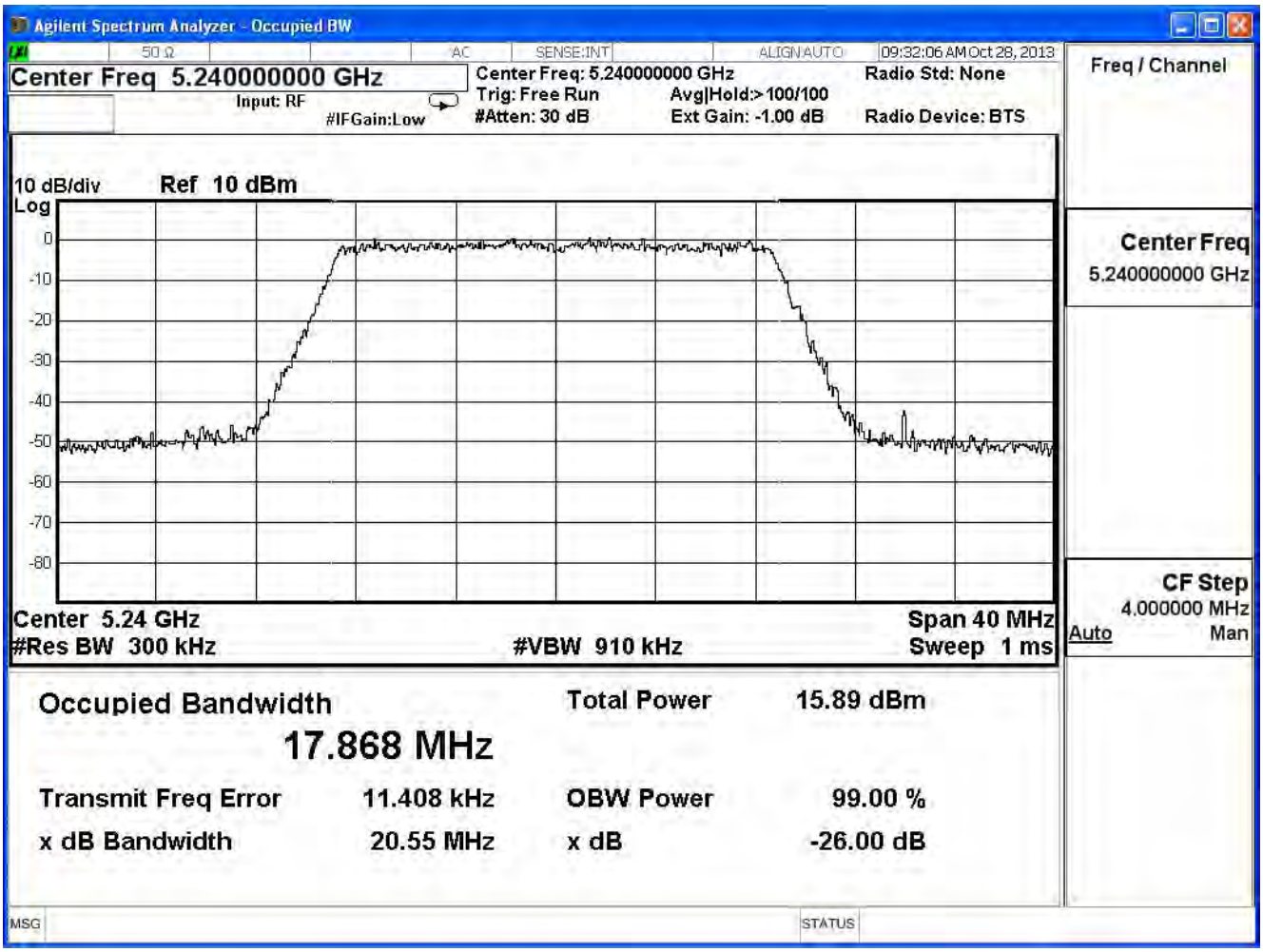
99% & 26dB Bandwidth – Channel 36



99% & 26dB Bandwidth – Channel 44



99% & 26dB Bandwidth – Channel 48

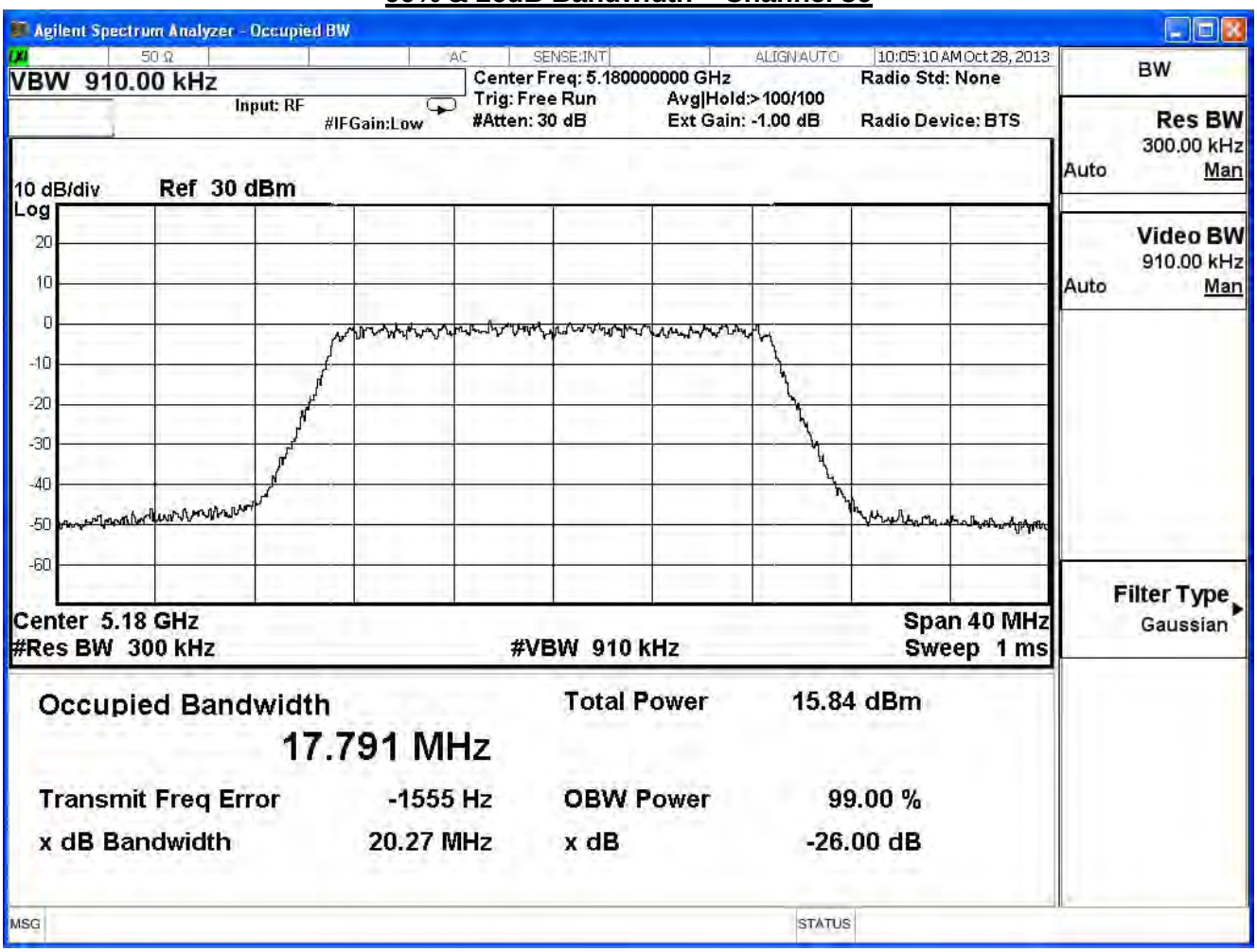


Product	PCE-AC56 Dual-Band Wireless PCI-E Adapter		
Test Item	99% & 26dB Bandwidth		
Test Mode	Mode 2: Transmit (Beamforming mode)		
Date of Test	2013/11/15	Test Site	SR7

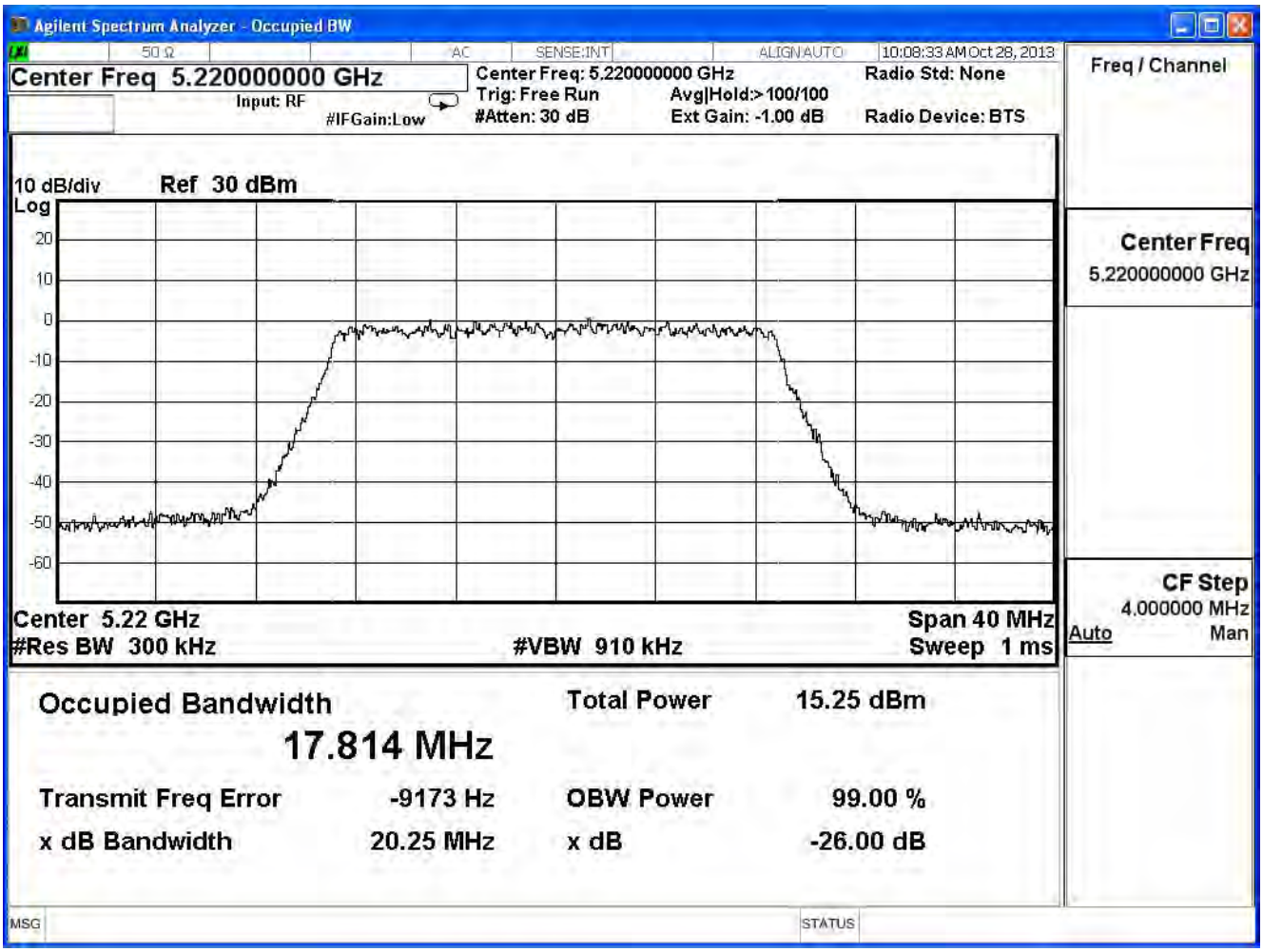
802.11n_20M(ANT 1)

Channel No.	Frequency (MHz)	26dB BW (MHz)	99 % OBW (MHz)	Required Limit (MHz)	Result
36	5180	20.27	17.79	--	NA
44	5220	20.25	17.81	--	NA
48	5240	20.51	17.78	--	NA

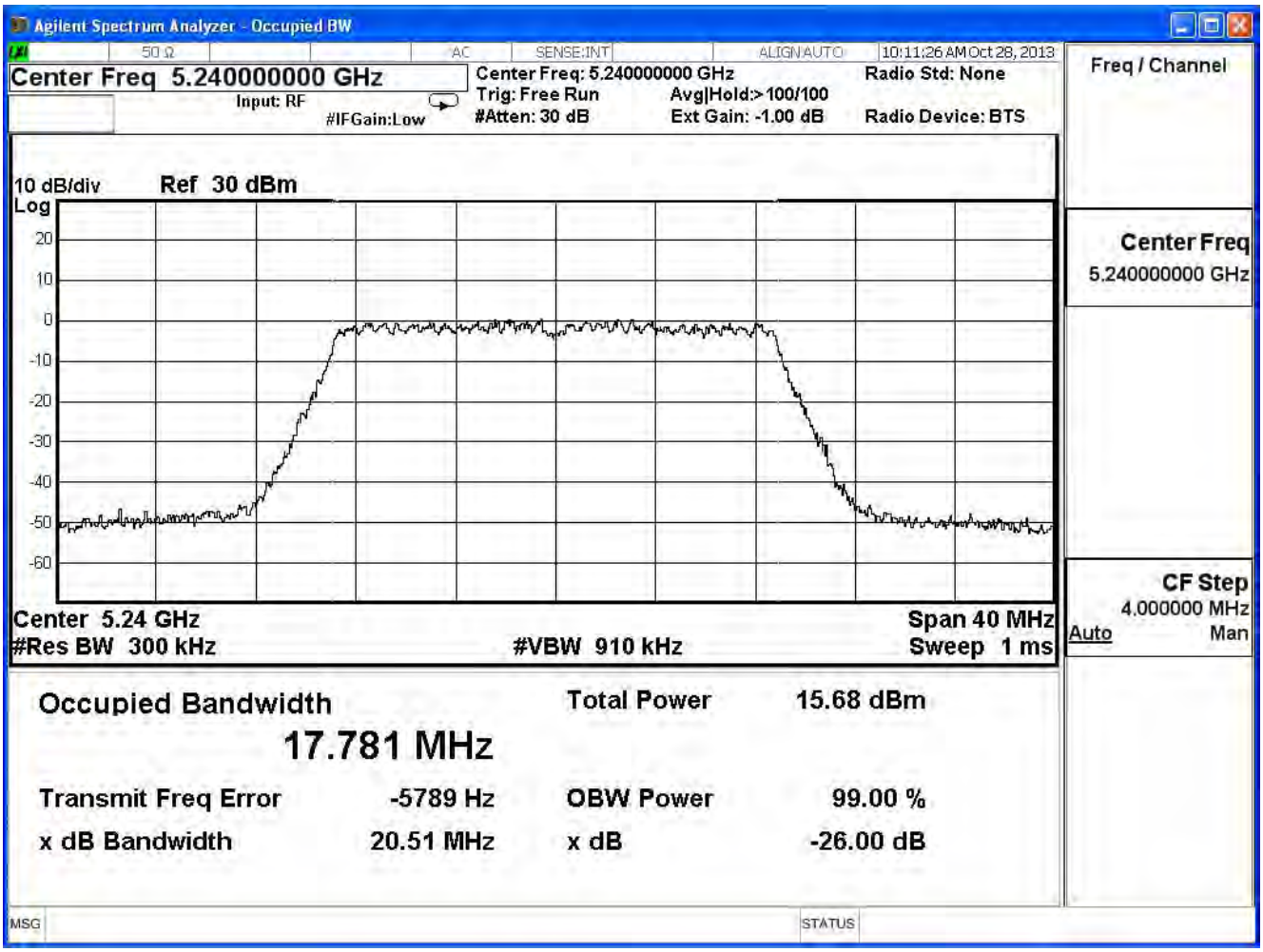
99% & 26dB Bandwidth – Channel 36



99% & 26dB Bandwidth – Channel 44



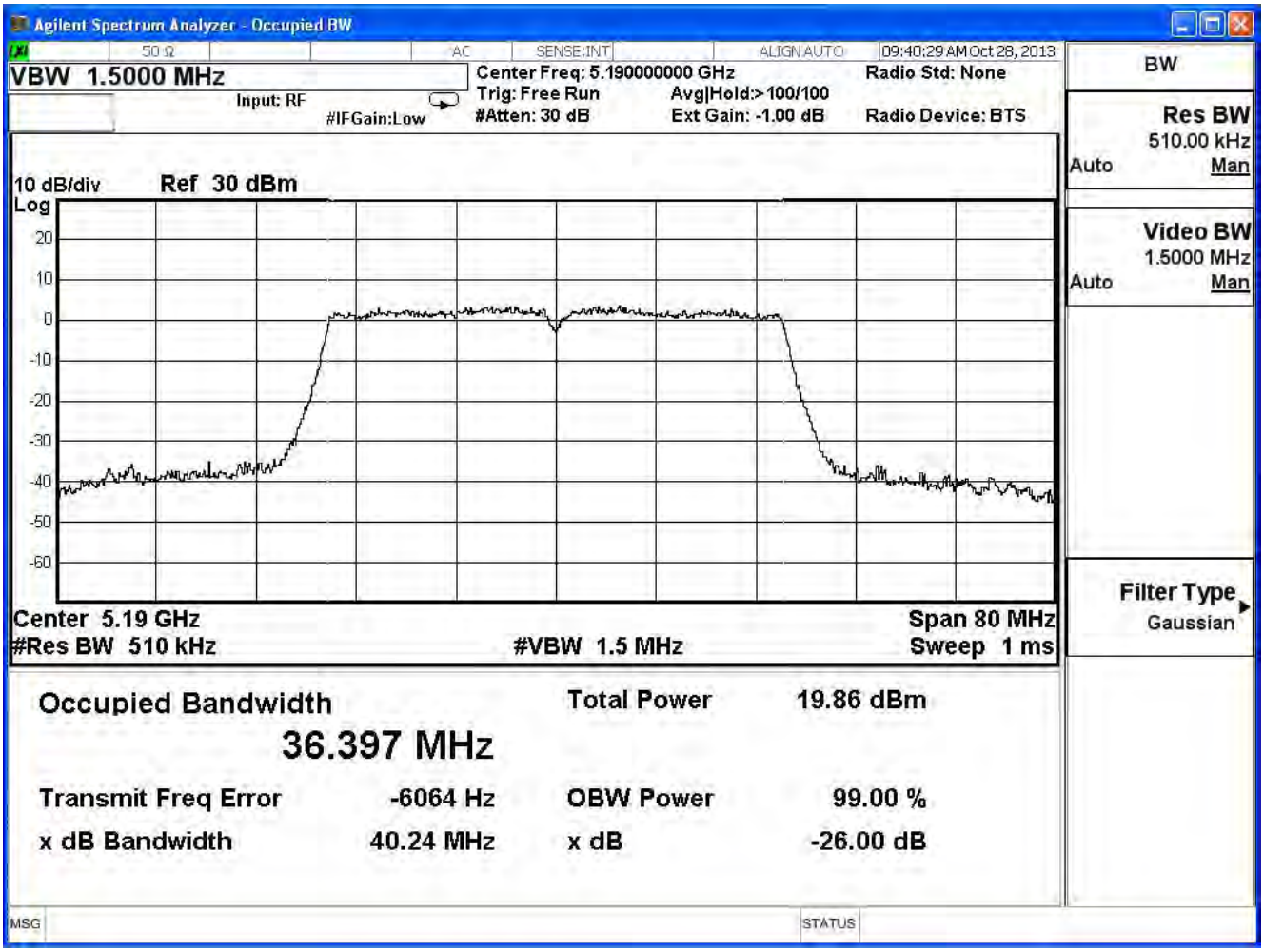
99% & 26dB Bandwidth – Channel 48



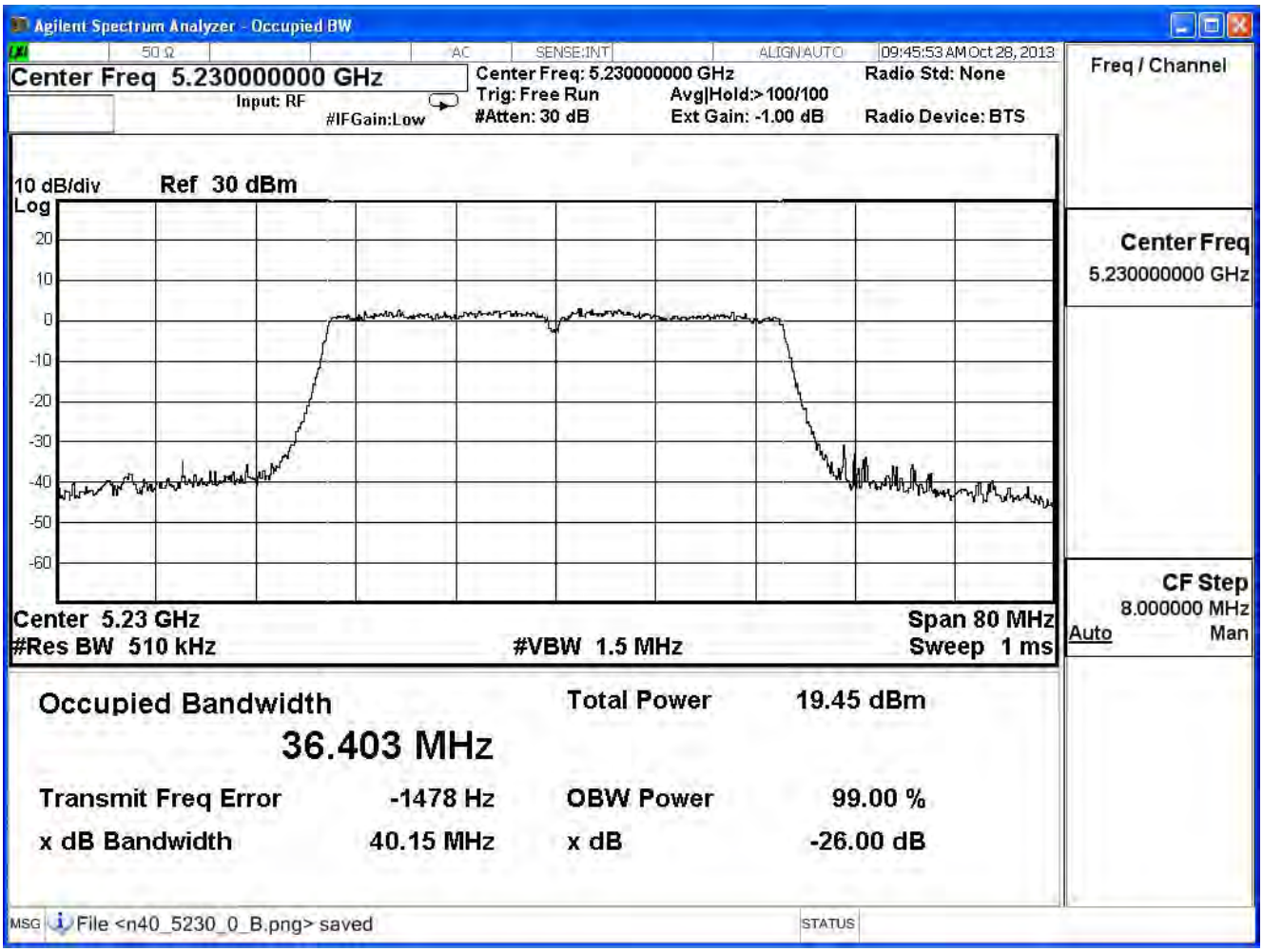
Product	PCE-AC56 Dual-Band Wireless PCI-E Adapter		
Test Item	99% & 26dB Bandwidth		
Test Mode	Mode 2: Transmit (Beamforming mode)		
Date of Test	2013/11/15	Test Site	SR7

802.11n_40M(ANT 0)					
Channel No.	Frequency (MHz)	26dB BW (MHz)	99 % OBW (MHz)	Required Limit (MHz)	Result
38	5190	40.24	36.40	--	NA
46	5230	40.15	36.40	--	NA

99% & 26dB Bandwidth – Channel 38



99% & 26dB Bandwidth – Channel 46

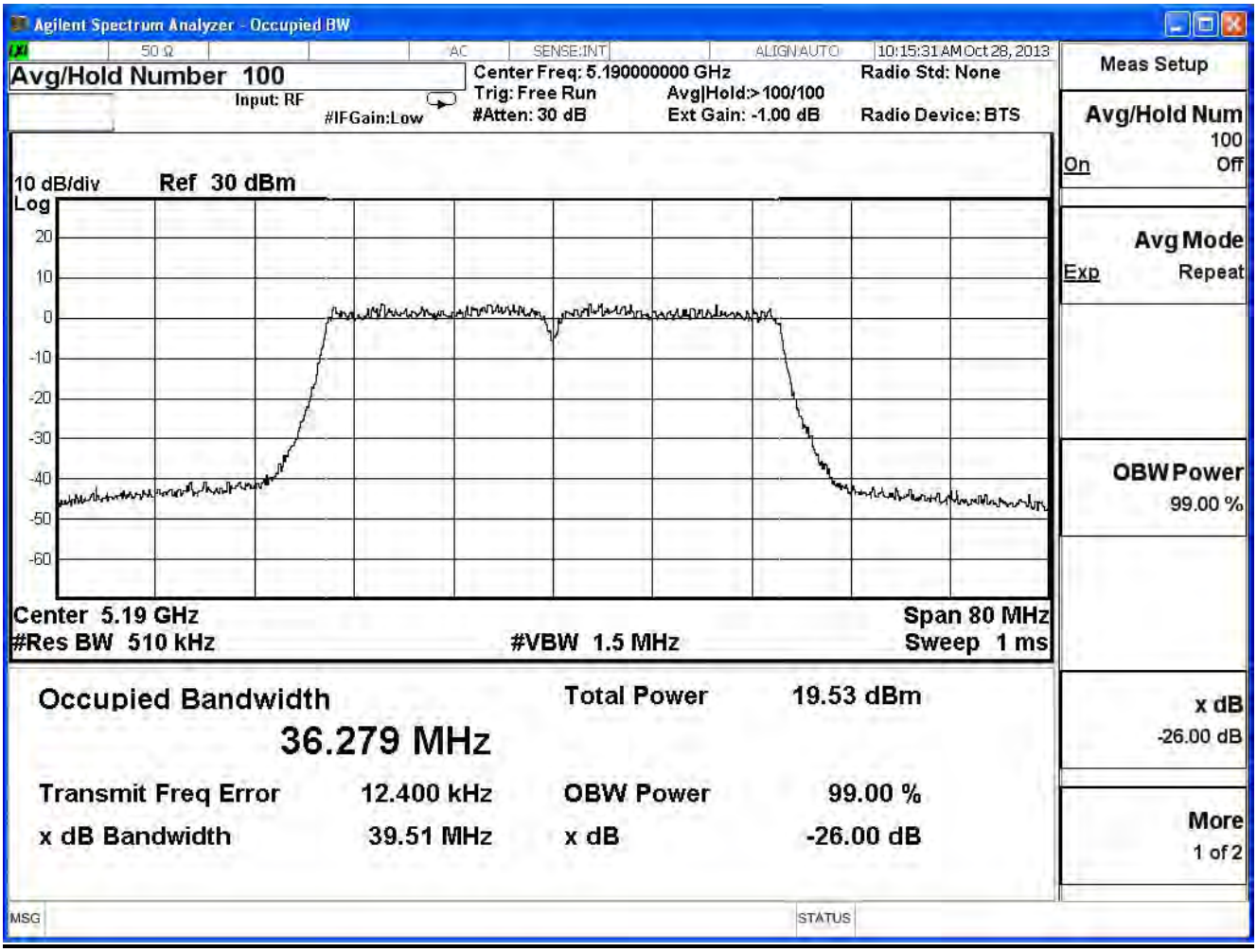


Product	PCE-AC56 Dual-Band Wireless PCI-E Adapter		
Test Item	99% & 26dB Bandwidth		
Test Mode	Mode 2: Transmit (Beamforming mode)		
Date of Test	2013/11/15	Test Site	SR7

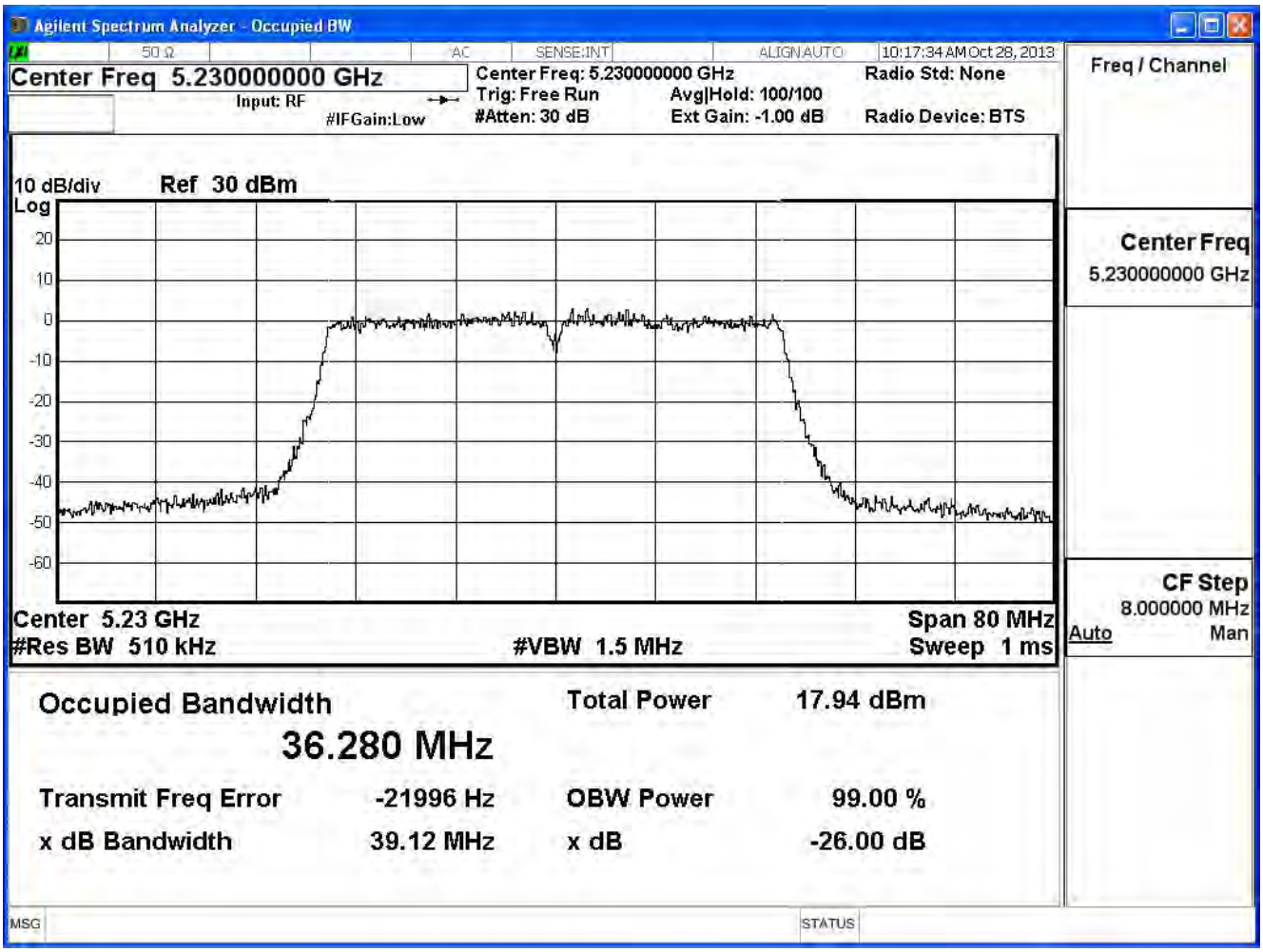
802.11n_40M(ANT 1)

Channel No.	Frequency (MHz)	26dB BW (MHz)	99 % OBW (MHz)	Required Limit (MHz)	Result
38	5190	39.51	36.28	--	NA
46	5230	39.12	36.28	--	NA

99% & 26dB Bandwidth – Channel 38



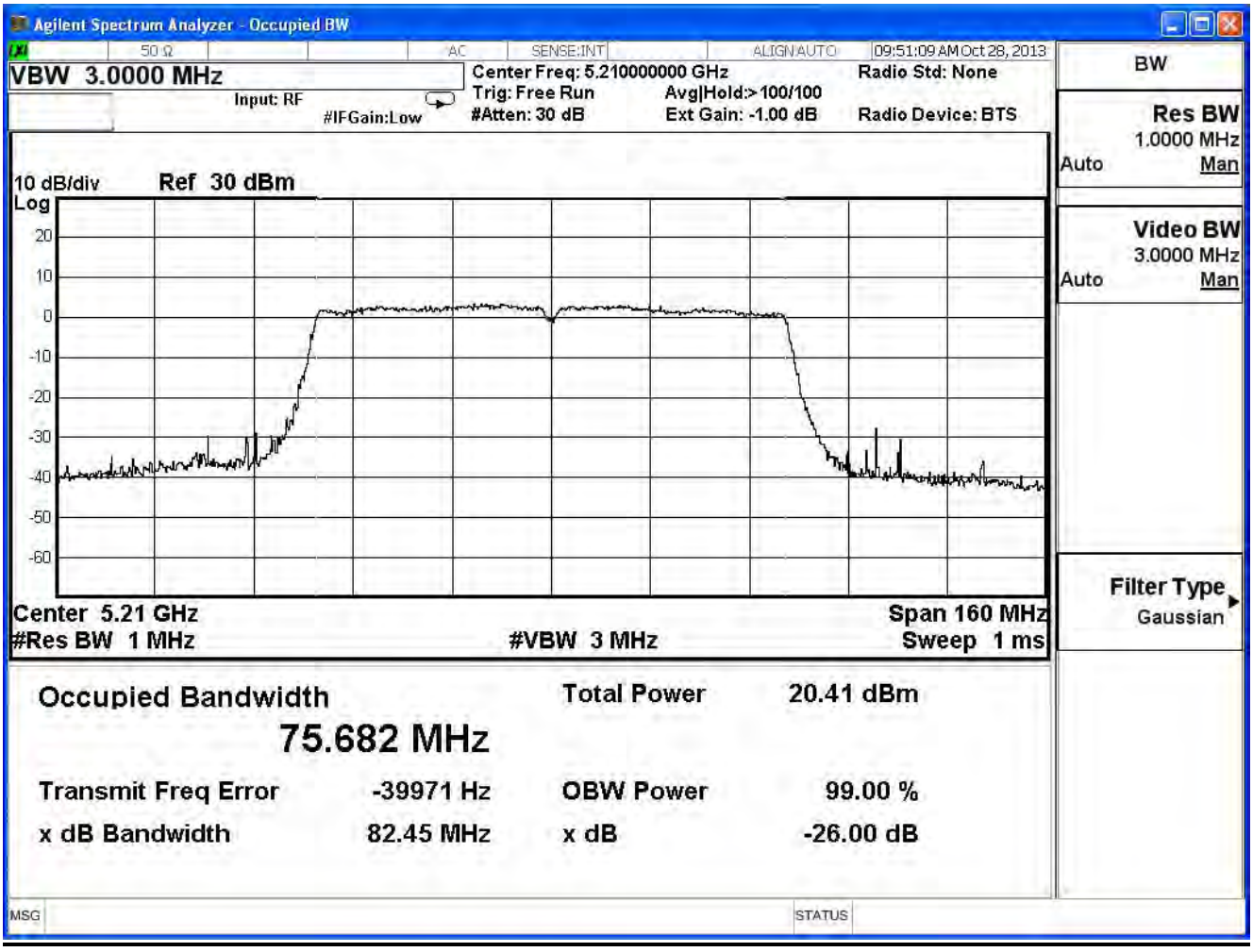
99% & 26dB Bandwidth – Channel 46



Product	PCE-AC56 Dual-Band Wireless PCI-E Adapter		
Test Item	99% & 26dB Bandwidth		
Test Mode	Mode 2: Transmit (Beamforming mode)		
Date of Test	2013/11/15	Test Site	SR7

802.11ac_80M(ANT 0)					
Channel No.	Frequency (MHz)	26dB BW (MHz)	99 % OBW (MHz)	Required Limit (MHz)	Result
42	5210	82.45	75.68	--	NA

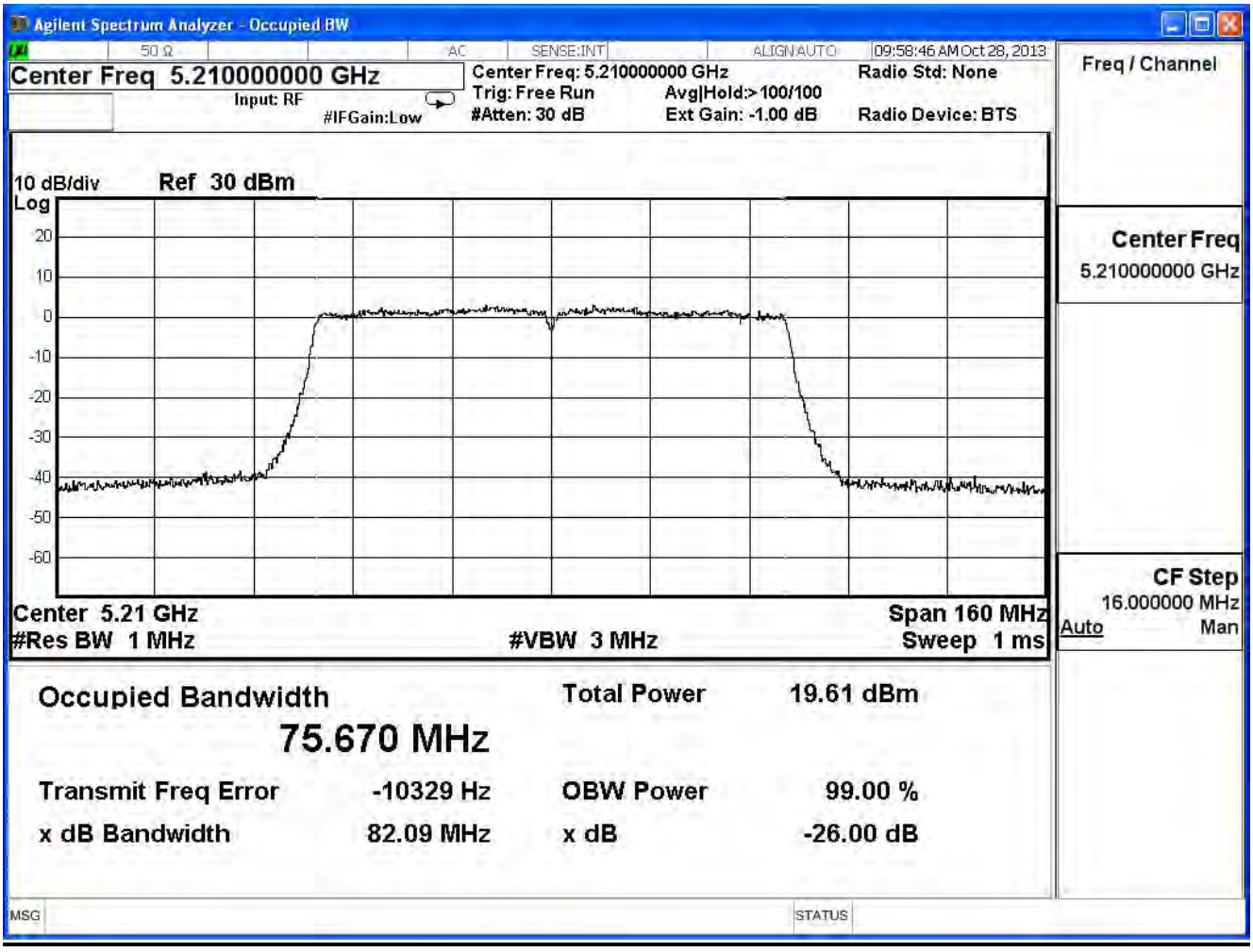
99% & 26dB Bandwidth – Channel 42



Product	PCE-AC56 Dual-Band Wireless PCI-E Adapter		
Test Item	99% & 26dB Bandwidth		
Test Mode	Mode 2: Transmit (Beamforming mode)		
Date of Test	2013/11/15	Test Site	SR7

802.11ac_80M(ANT 1)					
Channel No.	Frequency (MHz)	26dB BW (MHz)	99 % OBW (MHz)	Required Limit (MHz)	Result
42	5210	82.09	75.67	--	NA

99% & 26dB Bandwidth – Channel 42



4. Peak Transmit Output

4.1. Test Equipment

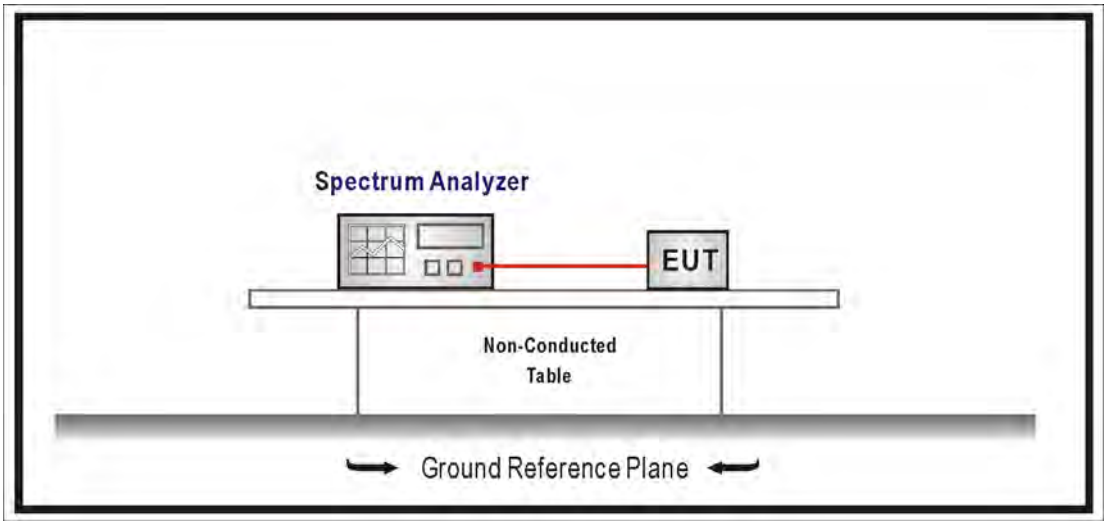
The following test equipments are used during the radiated emission tests:

Peak Transmit Output / SR7

Instrument	Manufacturer	Model No.	Serial No	Next Cal. Date
Spectrum Analyzer	Agilent	N9010A-EXA	US47140172	2014/08/05

Note: 1. 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 50 mW or 4 dBm + 10log B, where B is the 26dB emission bandwidth in MHz. 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 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 or 11 dBm + 10log B, where B is the 26dB emission bandwidth in MHz. 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.
3. For the band 5.725-5.825 GHz, the peak transmit power over the frequency band of operation shall not exceed the lesser of 1W or 17 dBm + 10log B, where B is the 26dB emission bandwidth in MHz. 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 C63.4, 2009; tested to U-NII test procedure of KDB 789033 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	PCE-AC56 Dual-Band Wireless PCI-E Adapter		
Test Item	Peak Transmit Output		
Test Mode	Mode 1: Transmit (CDD mode)		
Date of Test	2013/11/15	Test Site	SR7

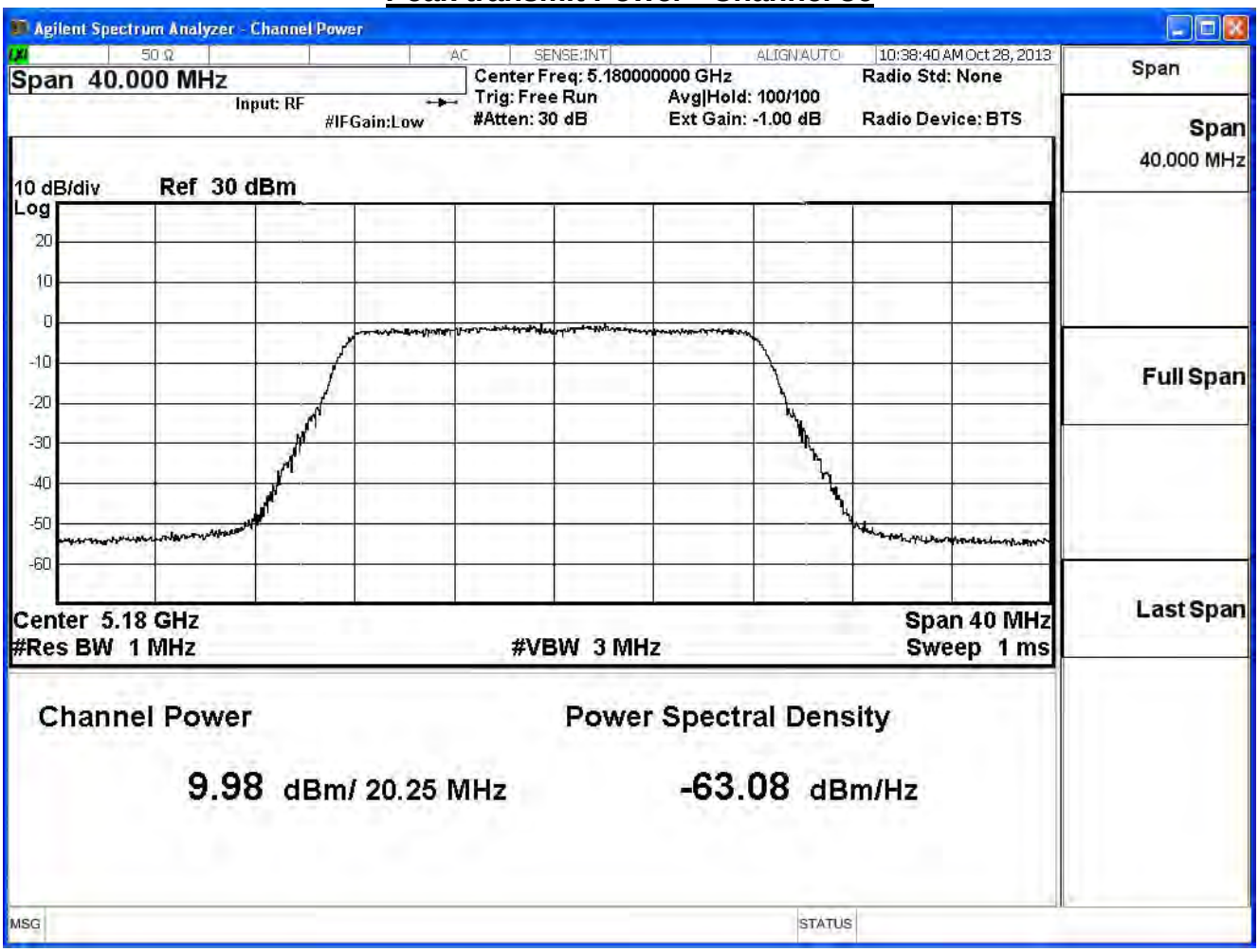
802.11a (ANT 0)

Channel No.	Frequency (MHz)	26dB Bandwidth (MHz)	Output Power (dBm)	Required Limit		Result
				Fixed Limit (dBm)	4+10logB Limit (dBm)	
36	5180	20.25	9.98	≤17	17.064	Pass
44	5220	20.29	10.04	≤17	17.073	Pass
48	5240	20.27	9.86	≤17	17.069	Pass

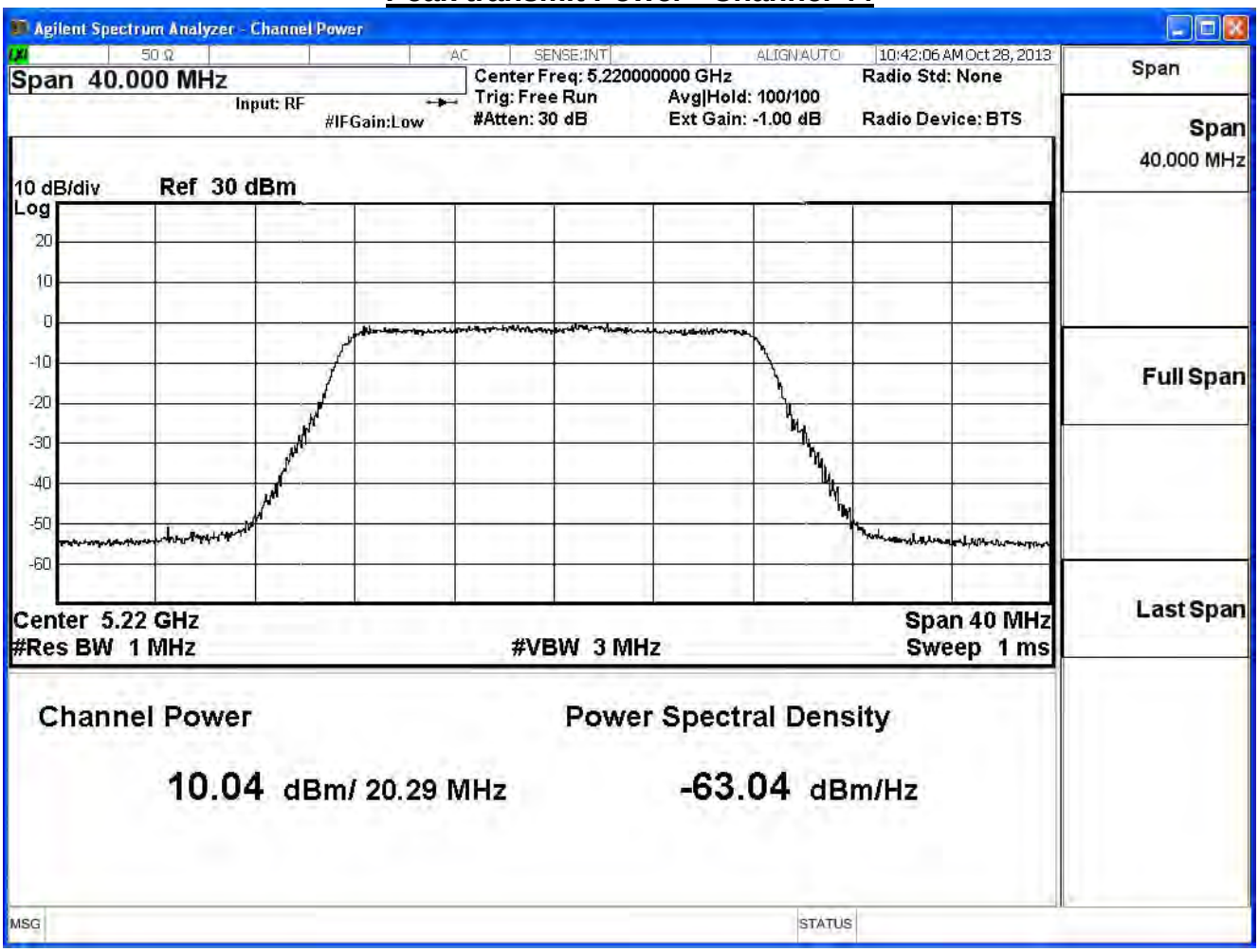
The worst emission of data rate is 6 Mbps.

Peak Power Output (dBm)									
Channel No	Frequency (MHz)	Data Rate							Required Limit
		6	12	18	24	36	48	54	
36	5180	9.98	--	--	--	--	--	--	17dBm or 4dBm+10logB
44	5220	10.04	9.84	9.64	9.54	9.30	9.18	8.94	
48	5240	9.86	--	--	--	--	--	--	

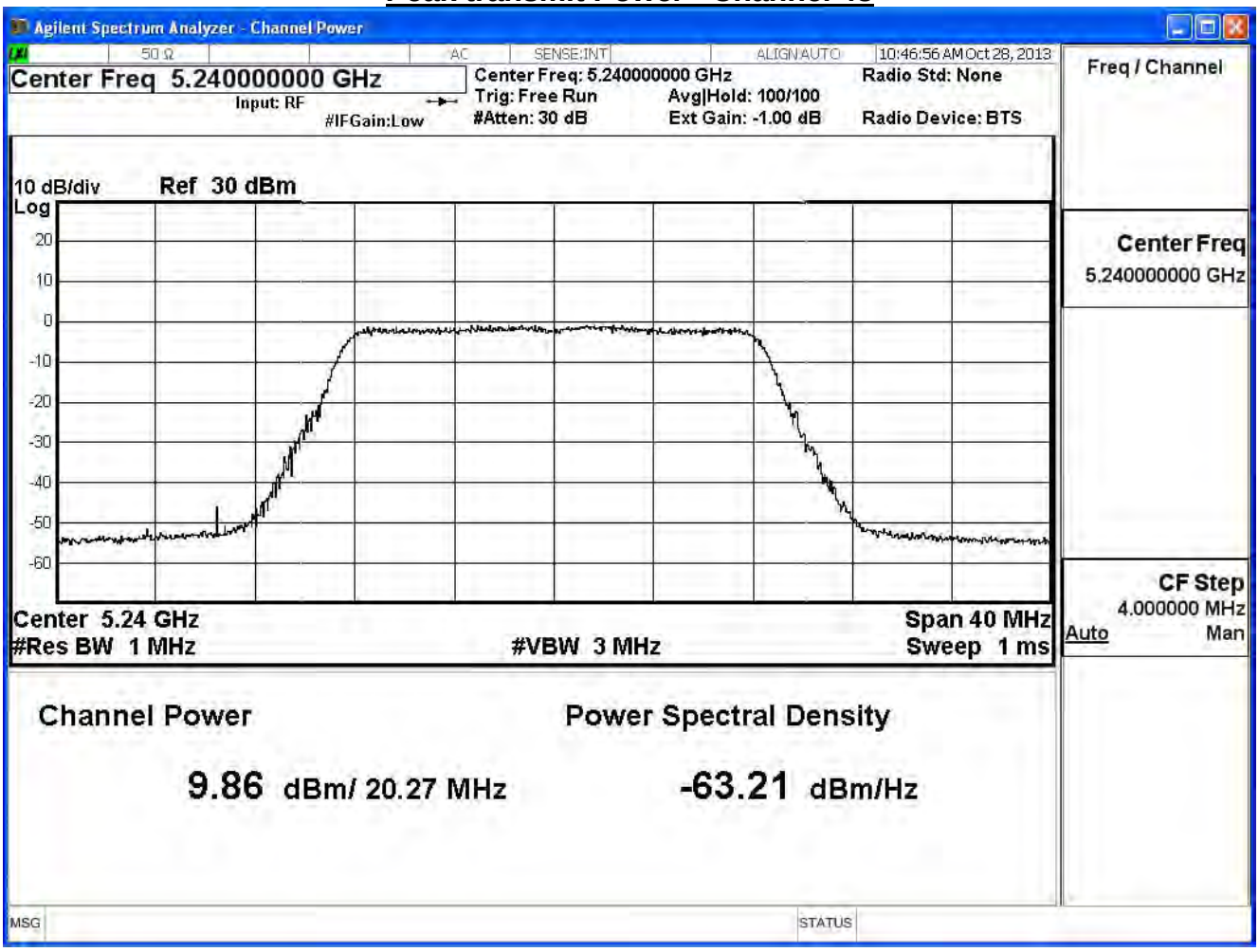
Peak transmit Power - Channel 36



Peak transmit Power - Channel 44



Peak transmit Power - Channel 48



Product	PCE-AC56 Dual-Band Wireless PCI-E Adapter		
Test Item	Peak Transmit Output		
Test Mode	Mode 1: Transmit (CDD mode)		
Date of Test	2013/11/15	Test Site	SR7

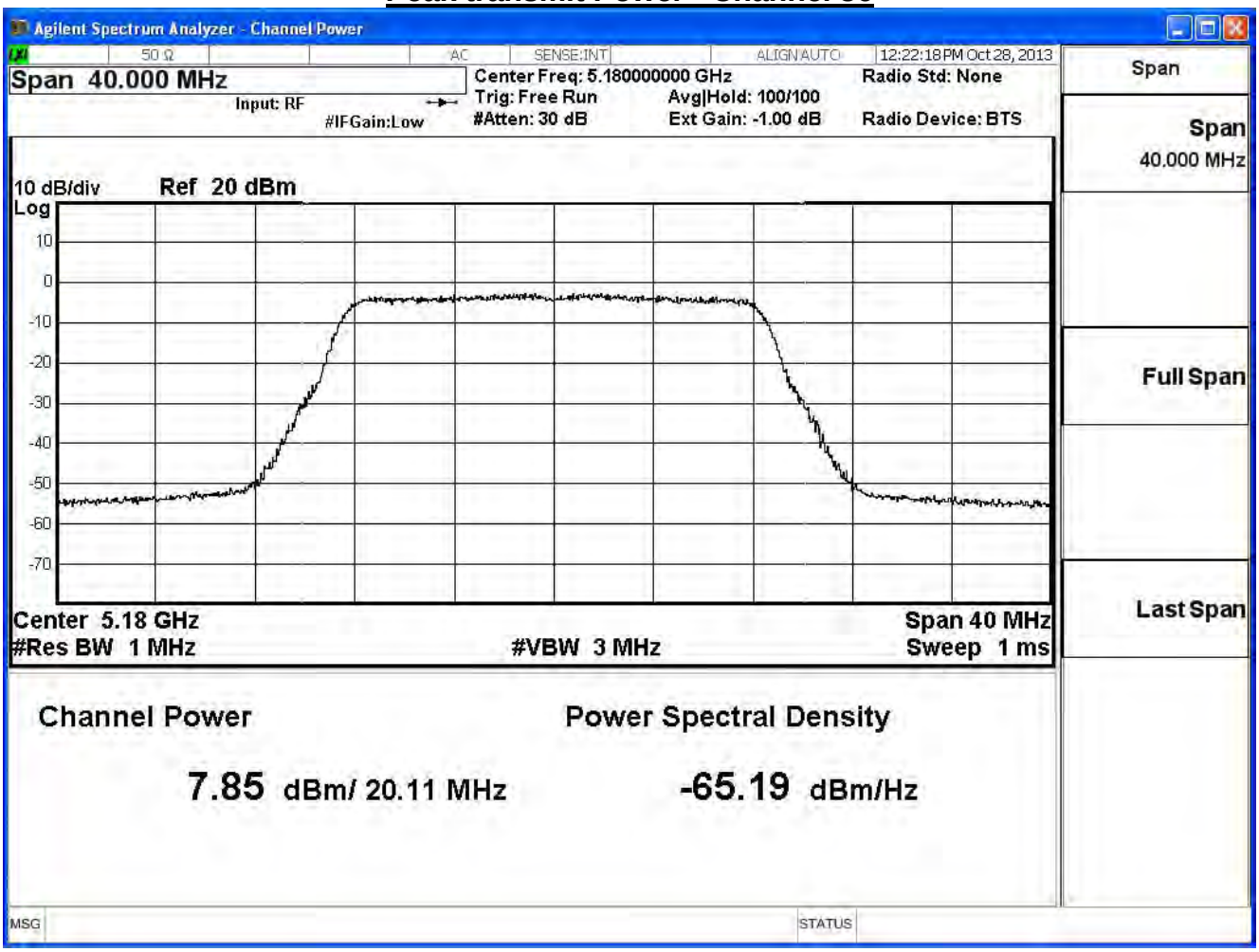
802.11a (ANT 1)

Channel No.	Frequency (MHz)	26dB Bandwidth (MHz)	Output Power (dBm)	Required Limit		Result
				Fixed Limit (dBm)	4+10logB Limit (dBm)	
36	5180	20.11	7.85	≤17	17.034	Pass
44	5220	20.13	7.71	≤17	17.038	Pass
48	5240	20.10	8.00	≤17	17.034	Pass

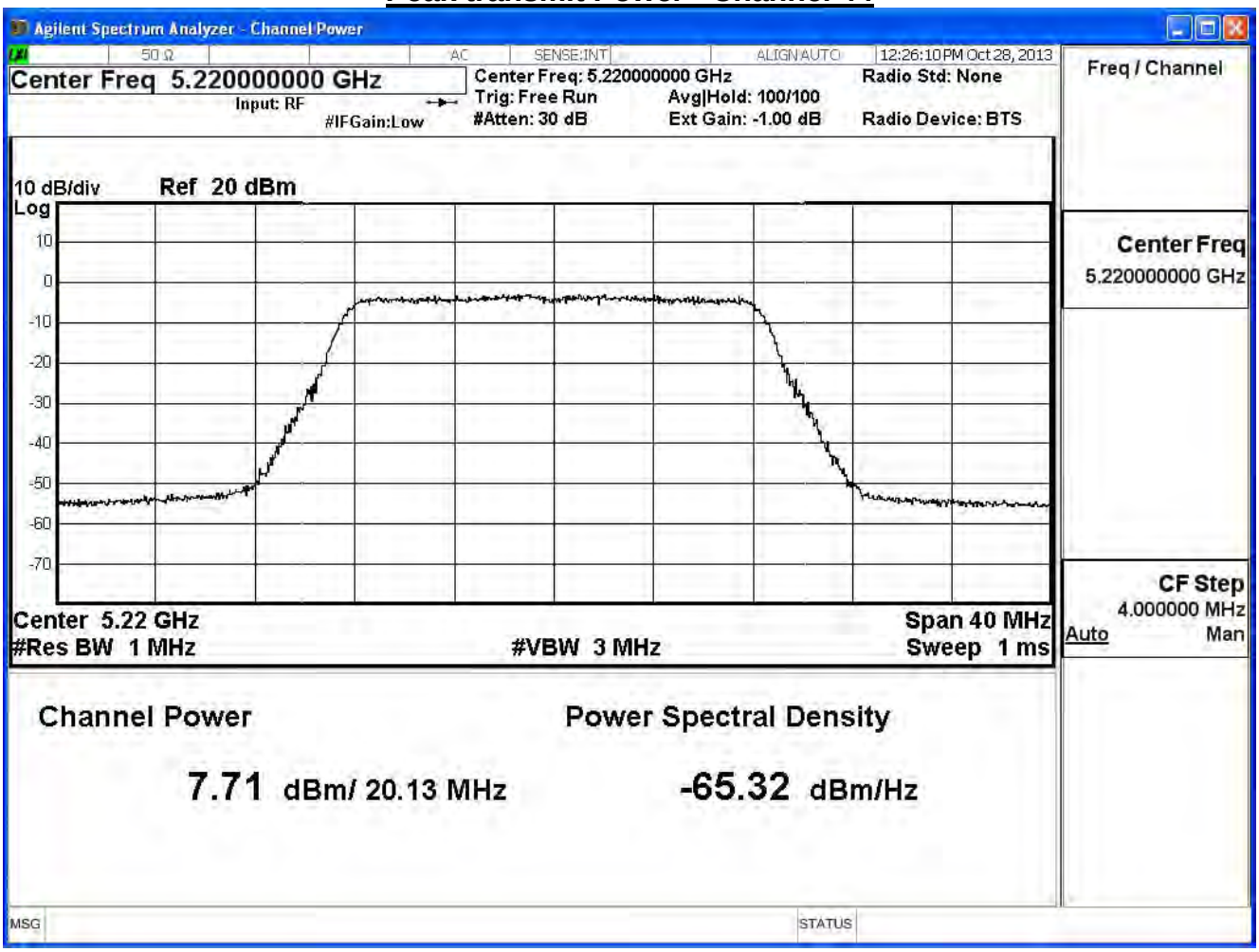
The worst emission of data rate is 6 Mbps.

Peak Power Output (dBm)									
Channel No	Frequency (MHz)	Data Rate							Required Limit
		6	12	18	24	36	48	54	
36	5180	7.85	--	--	--	--	--	--	17dBm or 4dBm+10logB
44	5220	7.71	7.61	7.41	7.31	7.19	6.95	6.71	
48	5240	8.00	--	--	--	--	--	--	

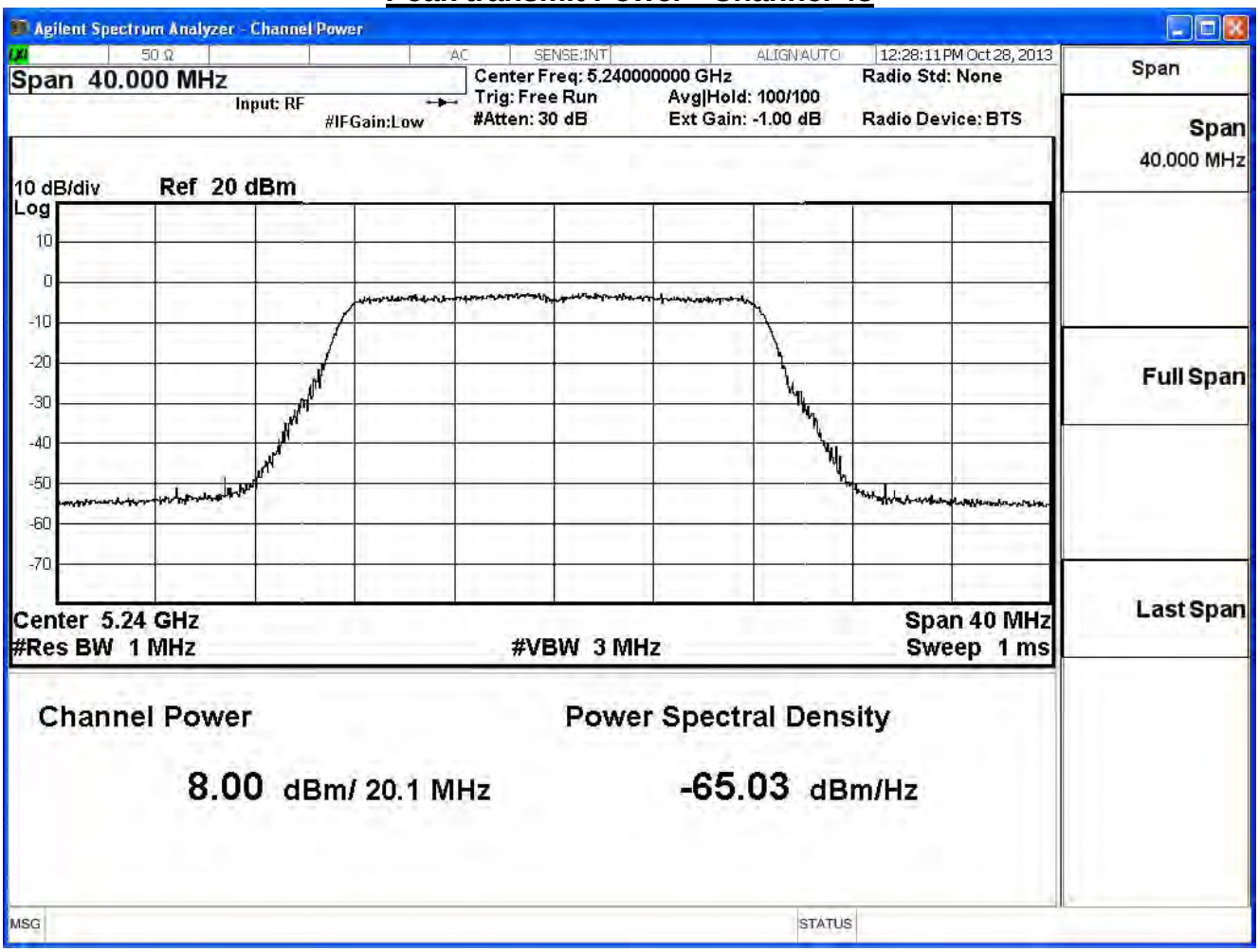
Peak transmit Power - Channel 36



Peak transmit Power - Channel 44



Peak transmit Power - Channel 48



Product	PCE-AC56 Dual-Band Wireless PCI-E Adapter		
Test Item	Peak Transmit Output		
Test Mode	Mode 1: Transmit (CDD mode)		
Date of Test	2013/11/15	Test Site	SR7

802.11a (ANT 0+1)

Channel No.	Frequency (MHz)	Total Output Power		Required Limit (dBm)	Result
		(mW)	(dBm)		
36	5180	16.05	12.05	≤17	Pass
44	5220	15.99	12.04	≤17	Pass
48	5240	15.99	12.04	≤17	Pass

The worst emission of data rate is 6 Mbps.

Peak Power Output (dBm)									
Channel No	Frequency (MHz)	Data Rate							Required Limit
		6	12	18	24	36	48	54	
36	5180	12.05	--	--	--	--	--	--	17dBm or 4dBm+10logB
44	5220	12.04	11.90	11.77	11.60	11.44	11.32	11.16	
48	5240	12.04	--	--	--	--	--	--	

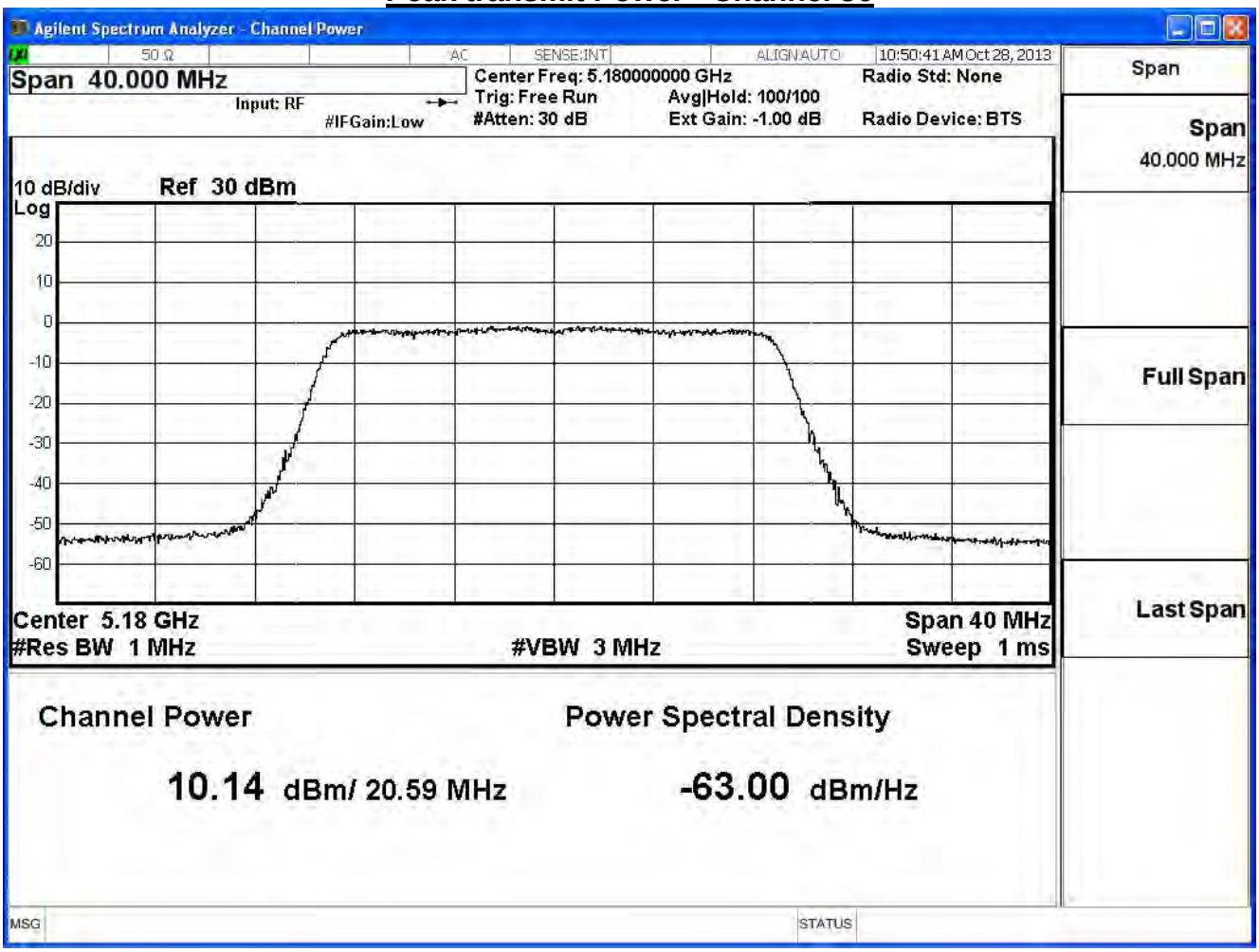
Product	PCE-AC56 Dual-Band Wireless PCI-E Adapter		
Test Item	Peak Transmit Output		
Test Mode	Mode 1: Transmit (CDD mode)		
Date of Test	2013/11/15	Test Site	SR7

IEEE 802.11n(20MHz)_ANT 0						
Channel No.	Frequency (MHz)	26dB Bandwidth (MHz)	Output Power (dBm)	Required Limit		Result
				Fixed Limit (dBm)	4+10logB Limit (dBm)	
36	5180	20.59	10.14	≤17	17.137	Pass
44	5220	20.66	10.30	≤17	17.151	Pass
48	5240	20.68	10.37	≤17	17.156	Pass

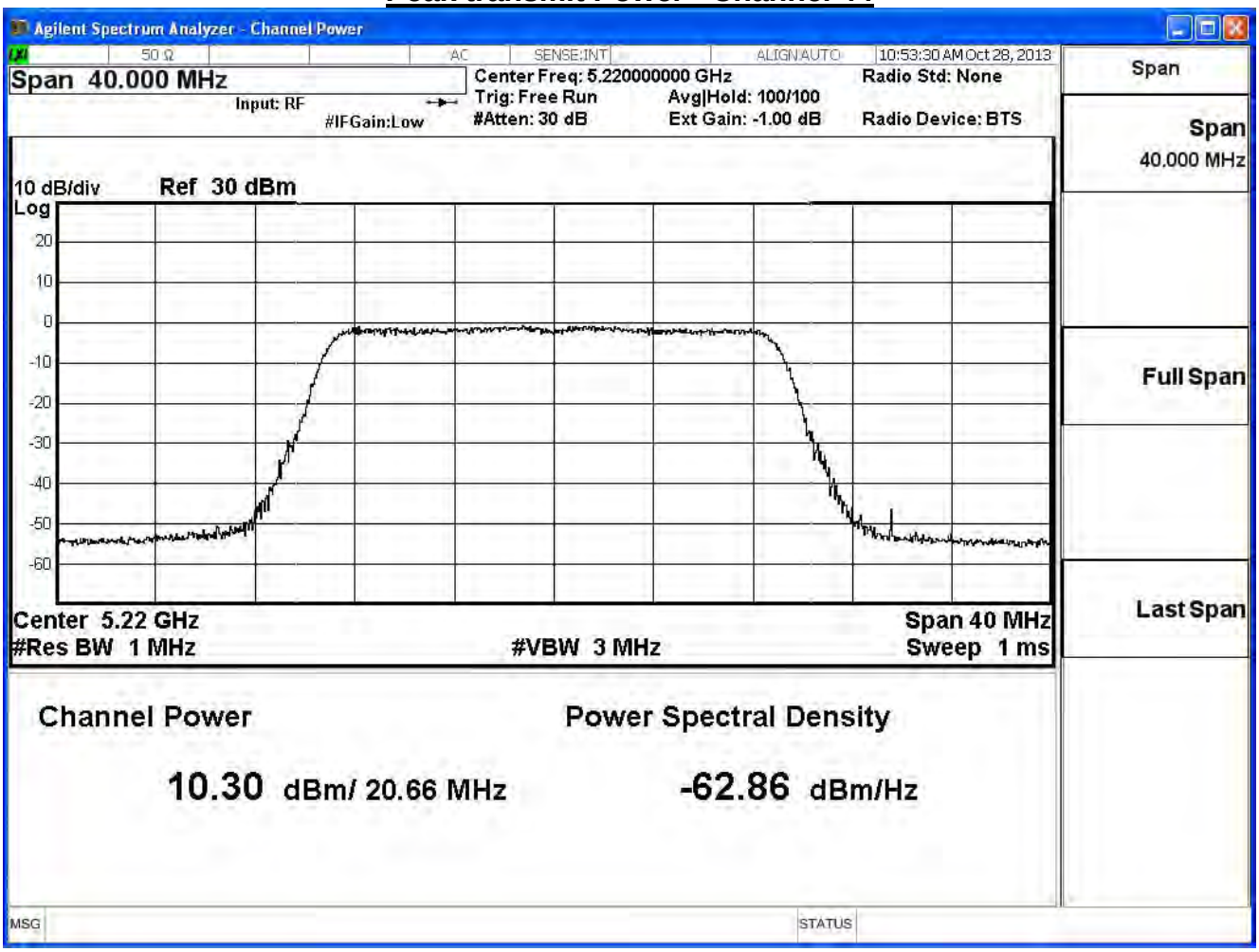
The worst emission of data rate is 6.5Mbps.

Peak Power Output (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	10.14	--	--	--	--	--	--	--	17dBm or 4dBm+10logB
44	5220	10.30	10.20	10.00	9.80	9.60	9.36	9.24	9.12	
48	5240	10.37	--	--	--	--	--	--	--	

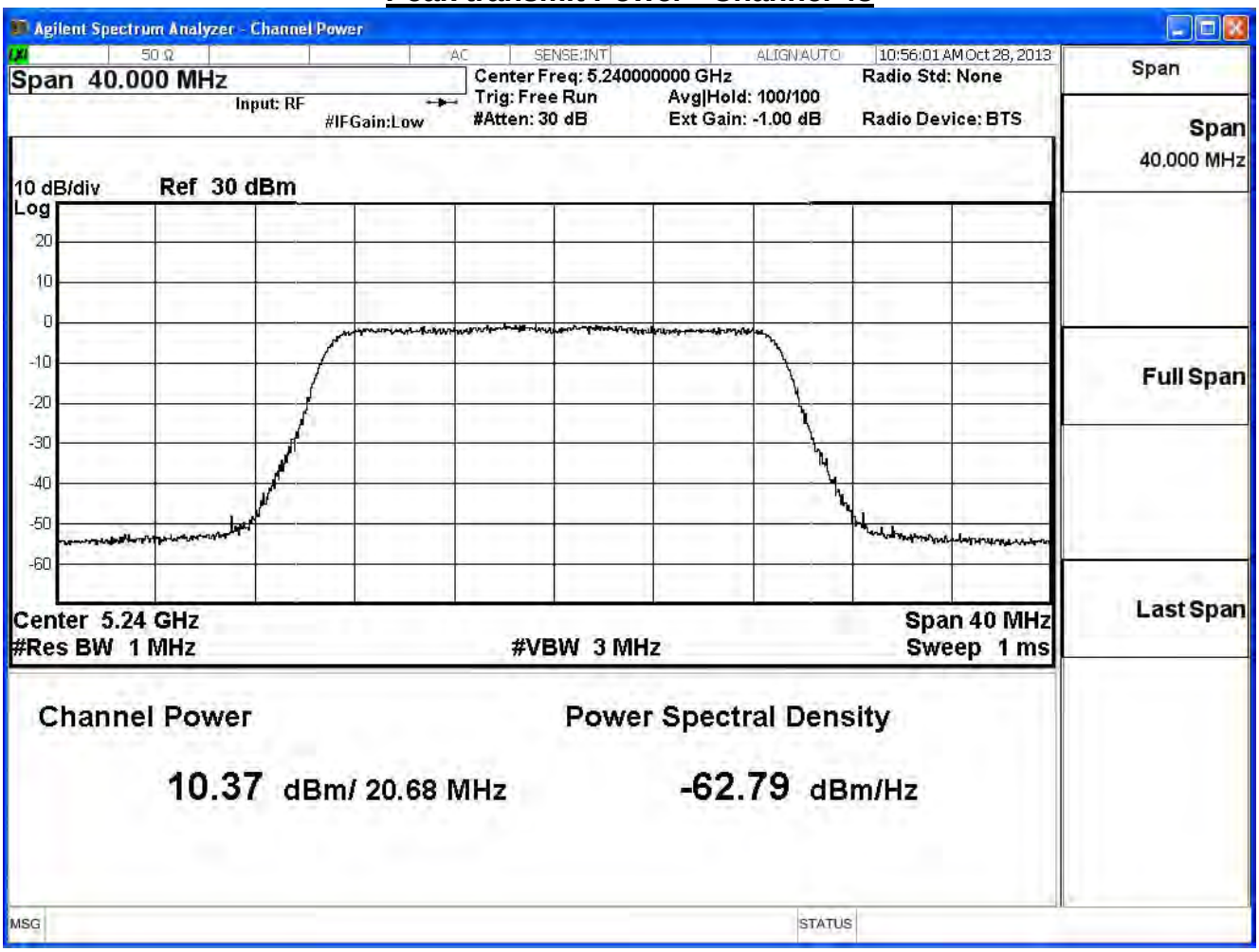
Peak transmit Power - Channel 36



Peak transmit Power - Channel 44



Peak transmit Power - Channel 48



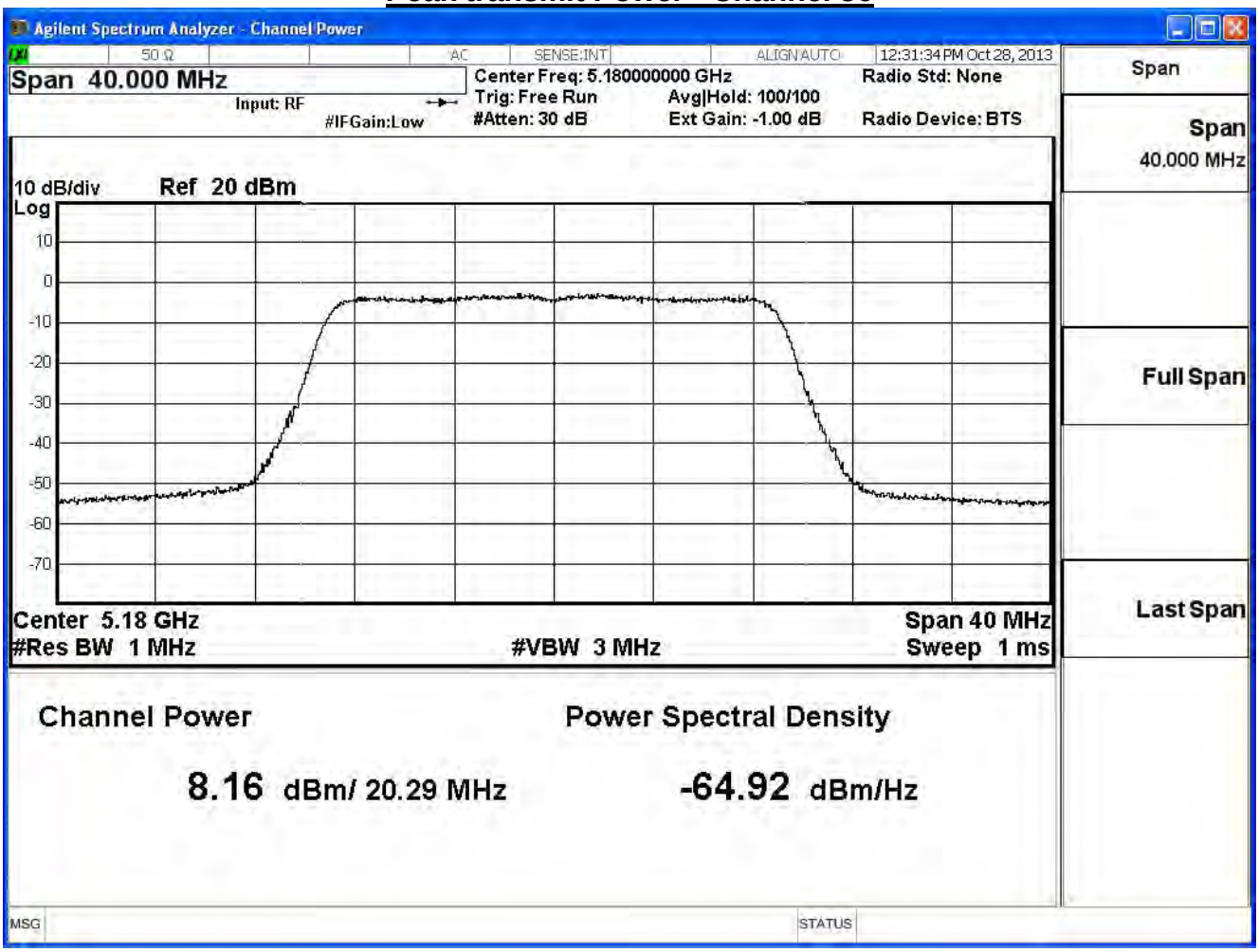
Product	PCE-AC56 Dual-Band Wireless PCI-E Adapter		
Test Item	Peak Transmit Output		
Test Mode	Mode 1: Transmit (CDD mode)		
Date of Test	2013/11/15	Test Site	SR7

IEEE 802.11n(20MHz)_ANT 1						
Channel No.	Frequency (MHz)	26dB Bandwidth (MHz)	Output Power (dBm)	Required Limit		Result
				Fixed Limit (dBm)	4+10logB Limit (dBm)	
36	5180	20.29	8.16	≤17	17.075	Pass
44	5220	20.24	8.13	≤17	17.062	Pass
48	5240	20.30	8.17	≤17	17.075	Pass

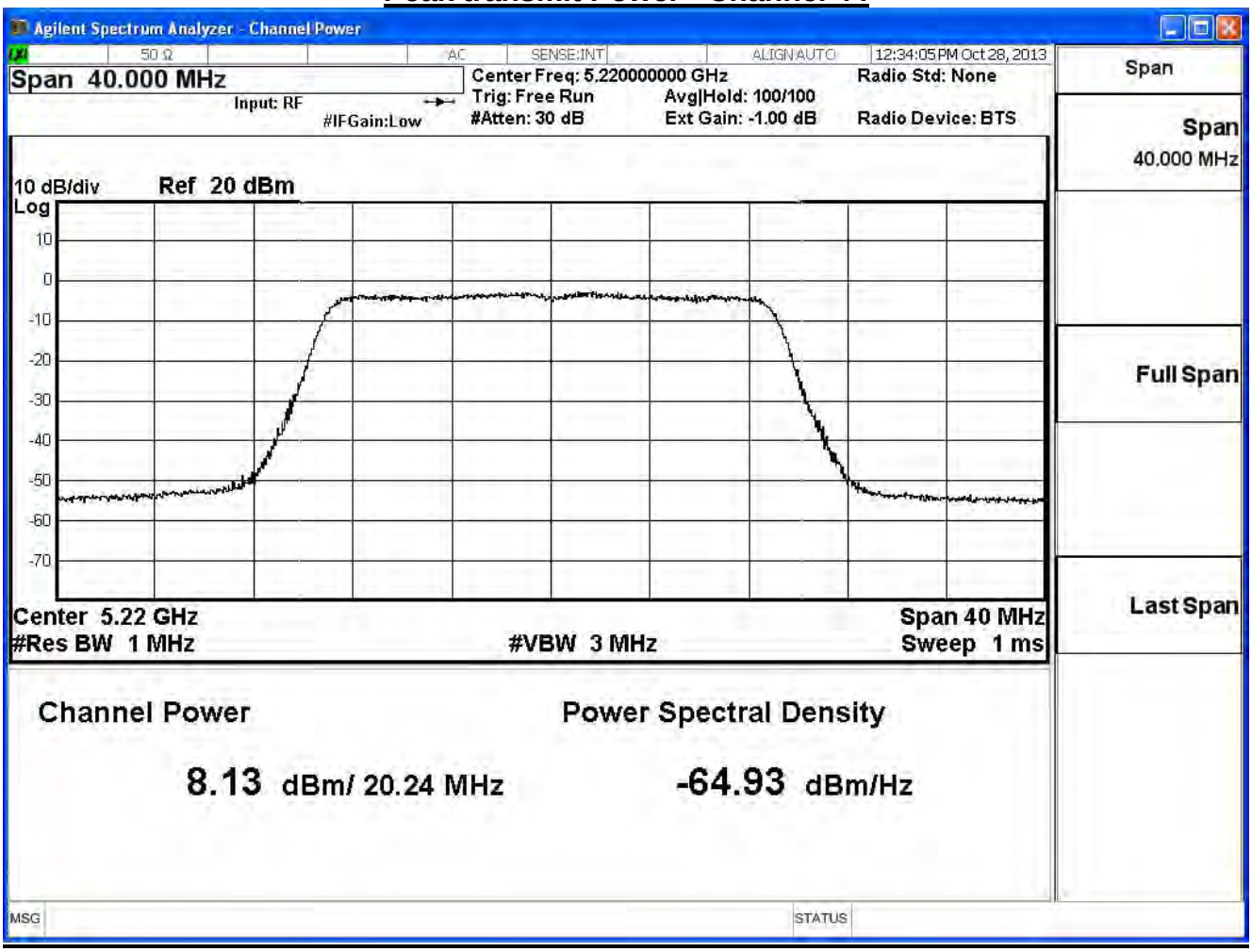
The worst emission of data rate is 6.5Mbps.

Peak Power Output (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	8.16	--	--	--	--	--	--	--	17dBm or 4dBm+10logB
44	5220	8.13	8.03	7.93	7.83	7.63	7.39	7.27	7.15	
48	5240	8.17	--	--	--	--	--	--	--	

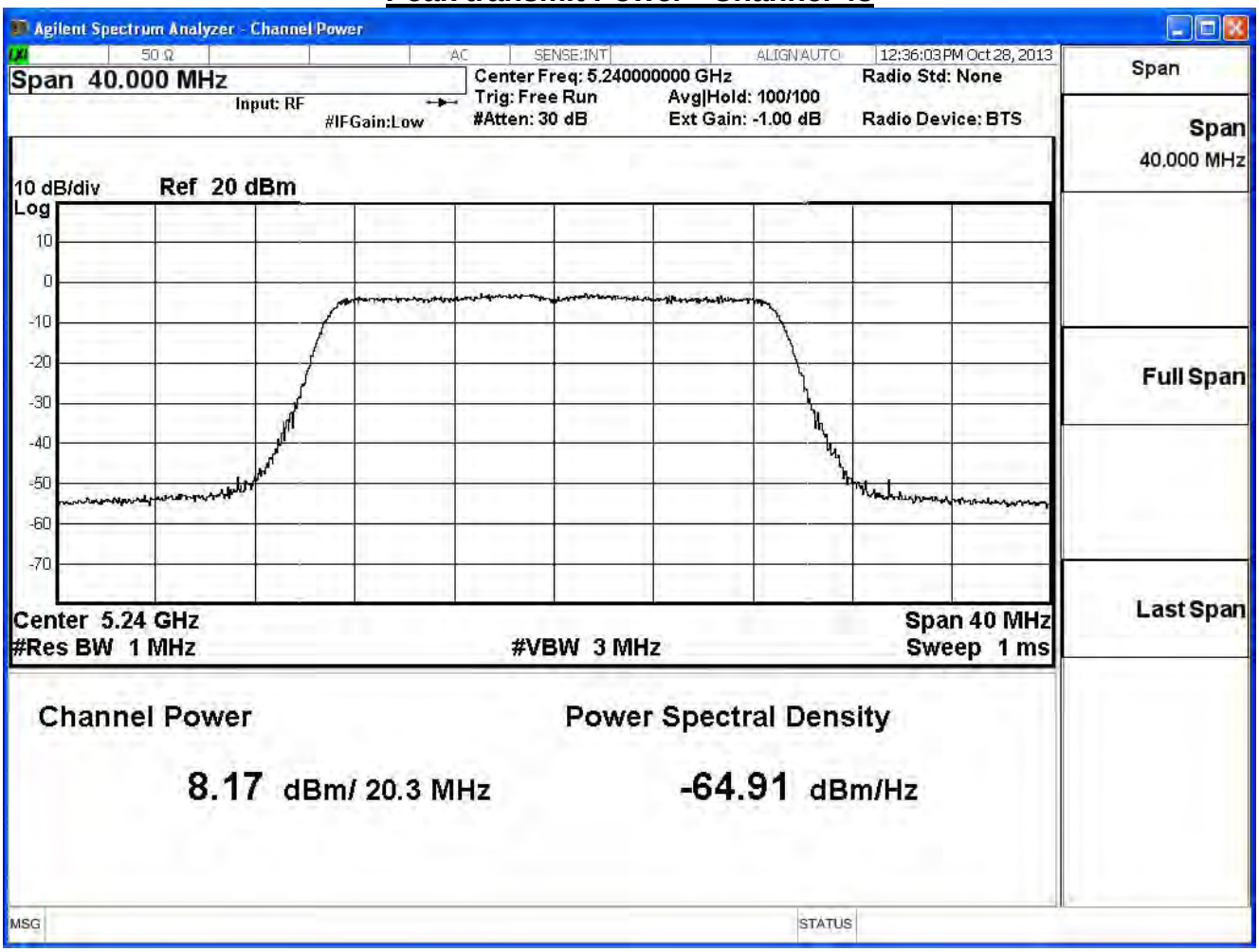
Peak transmit Power - Channel 36



Peak transmit Power - Channel 44



Peak transmit Power - Channel 48



Product	PCE-AC56 Dual-Band Wireless PCI-E Adapter		
Test Item	Peak Transmit Output		
Test Mode	Mode 1: Transmit (CDD mode)		
Date of Test	2013/11/15	Test Site	SR7

IEEE 802.11n(20MHz)_ANT 0+1					
Channel No.	Frequency (MHz)	Total Output Power		Required Limit (dBm)	Result
		(mW)	(dBm)		
36	5180	16.87	12.27	≤17	Pass
44	5220	17.22	12.36	≤17	Pass
48	5240	17.45	12.42	≤17	Pass

The worst emission of data rate is 6.5Mbps.

Peak Power Output (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	12.27	--	--	--	--	--	--	--	17dBm or 4dBm+10logB
44	5220	12.36	12.26	12.10	11.96	11.76	11.64	11.40	11.23	
48	5240	12.42	--	--	--	--	--	--	--	

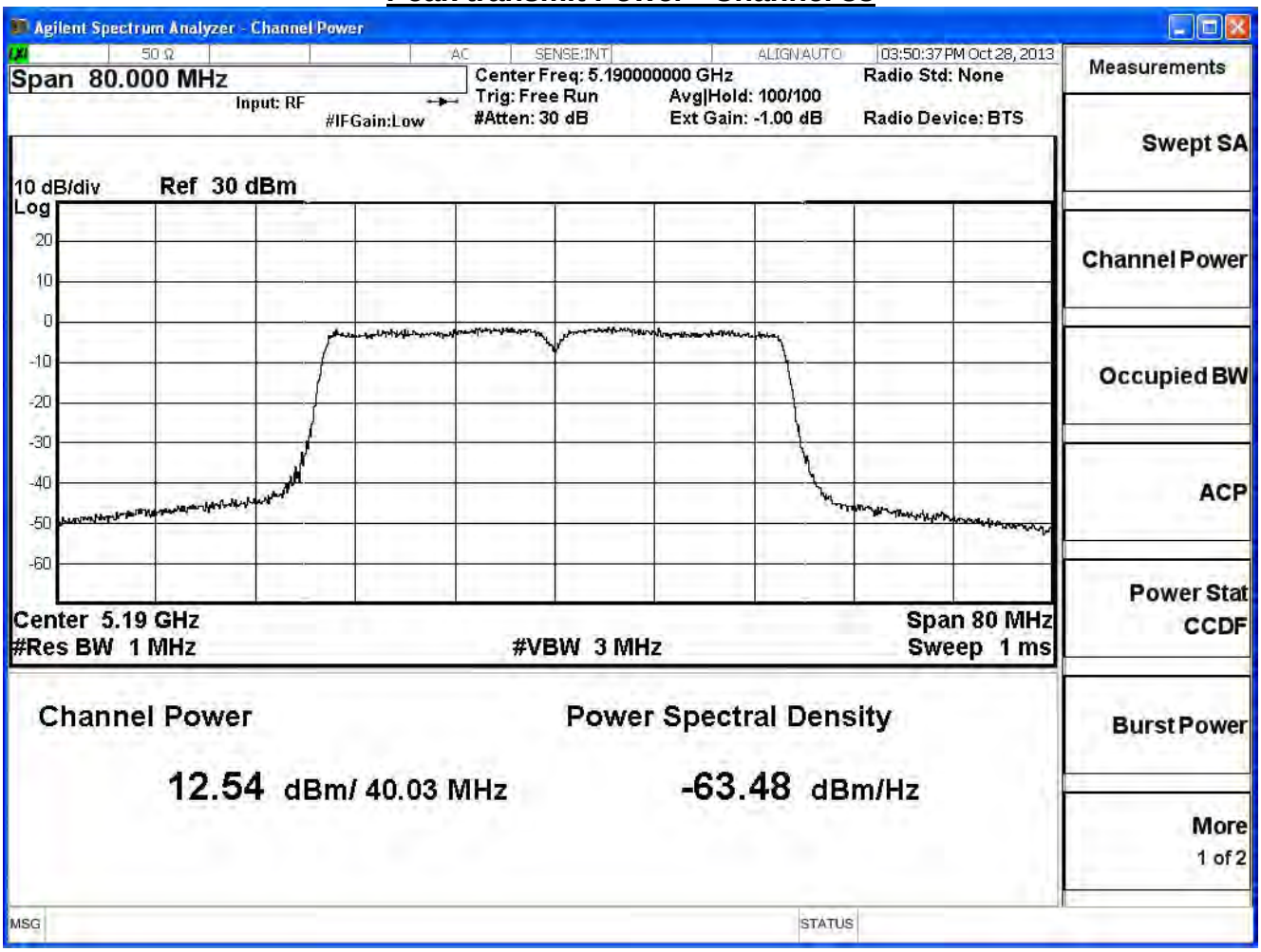
Product	PCE-AC56 Dual-Band Wireless PCI-E Adapter		
Test Item	Peak Transmit Output		
Test Mode	Mode 1: Transmit (CDD mode)		
Date of Test	2013/11/15	Test Site	SR7

IEEE 802.11n(40MHz)_ANT 0						
Channel No.	Frequency (MHz)	26dB Bandwidth (MHz)	Output Power (dBm)	Required Limit		Result
				Fixed Limit (dBm)	4+10logB Limit (dBm)	
38	5190	40.03	12.54	≤17	20.024	Pass
46	5230	39.98	12.77	≤17	20.018	Pass

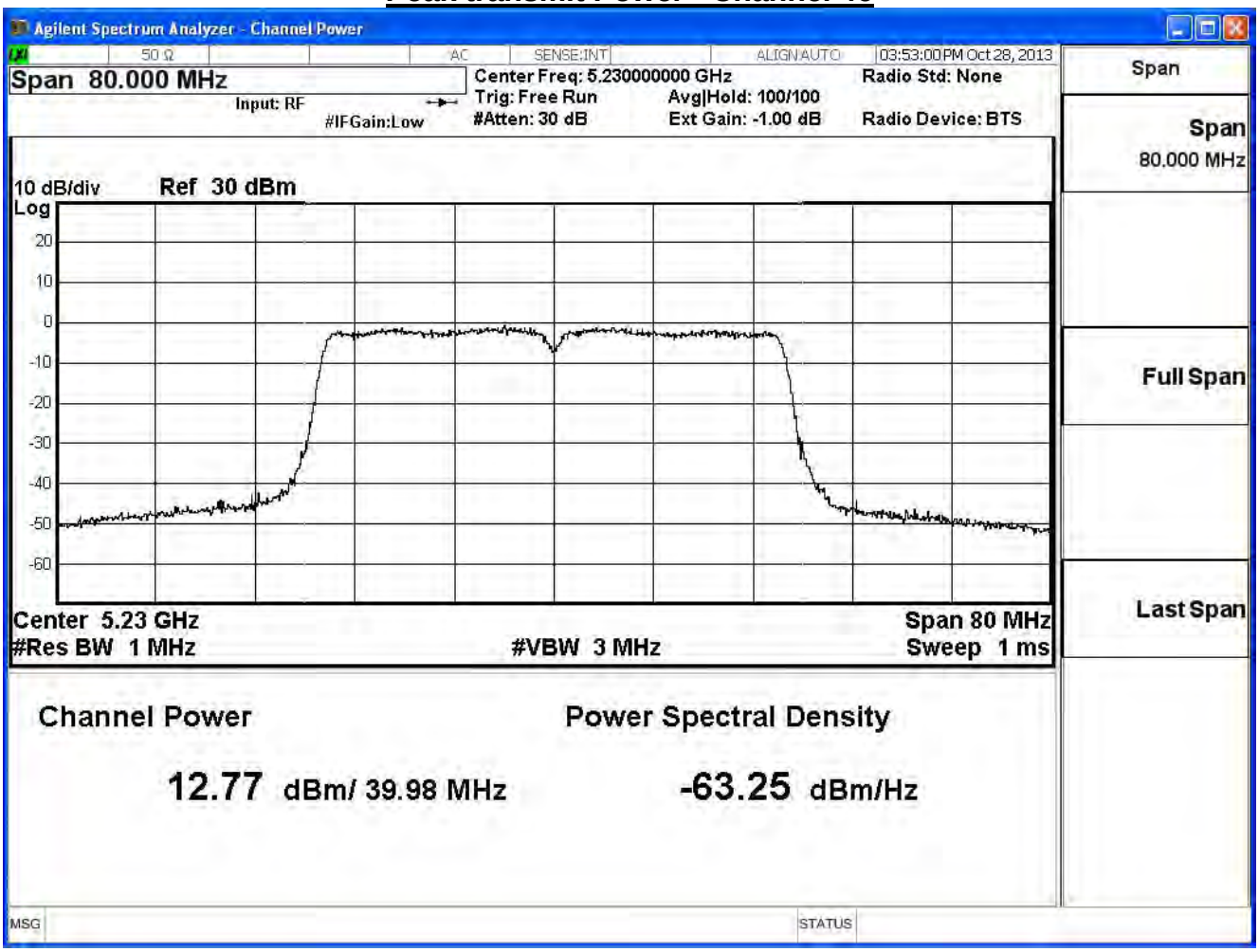
The worst emission of data rate is 13.5 Mbps

Peak Power Output (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	12.54	--	--	--	--	--	--	--	17dBm or 4dBm+10logB
46	5230	12.77	12.6	12.37	12.27	12.17	12.05	11.93	11.81	

Peak transmit Power - Channel 38



Peak transmit Power - Channel 46



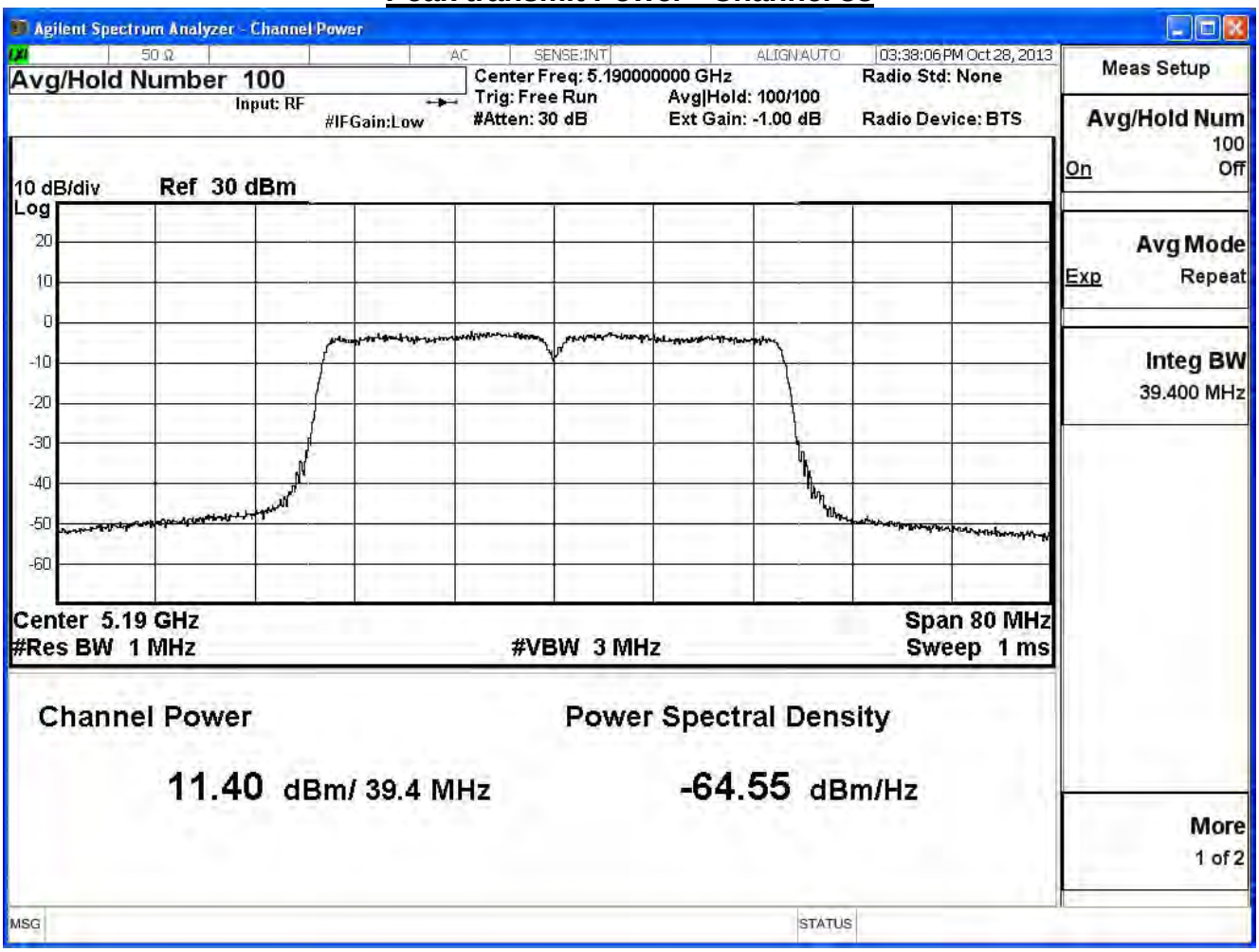
Product	PCE-AC56 Dual-Band Wireless PCI-E Adapter		
Test Item	Peak Transmit Output		
Test Mode	Mode 1: Transmit (CDD mode)		
Date of Test	2013/11/15	Test Site	SR7

IEEE 802.11n(40MHz)_ANT 1						
Channel No.	Frequency (MHz)	26dB Bandwidth (MHz)	Output Power (dBm)	Required Limit		Result
				Fixed Limit (dBm)	4+10logB Limit (dBm)	
38	5190	39.40	11.40	≤17	19.955	Pass
46	5230	39.27	11.92	≤17	19.941	Pass

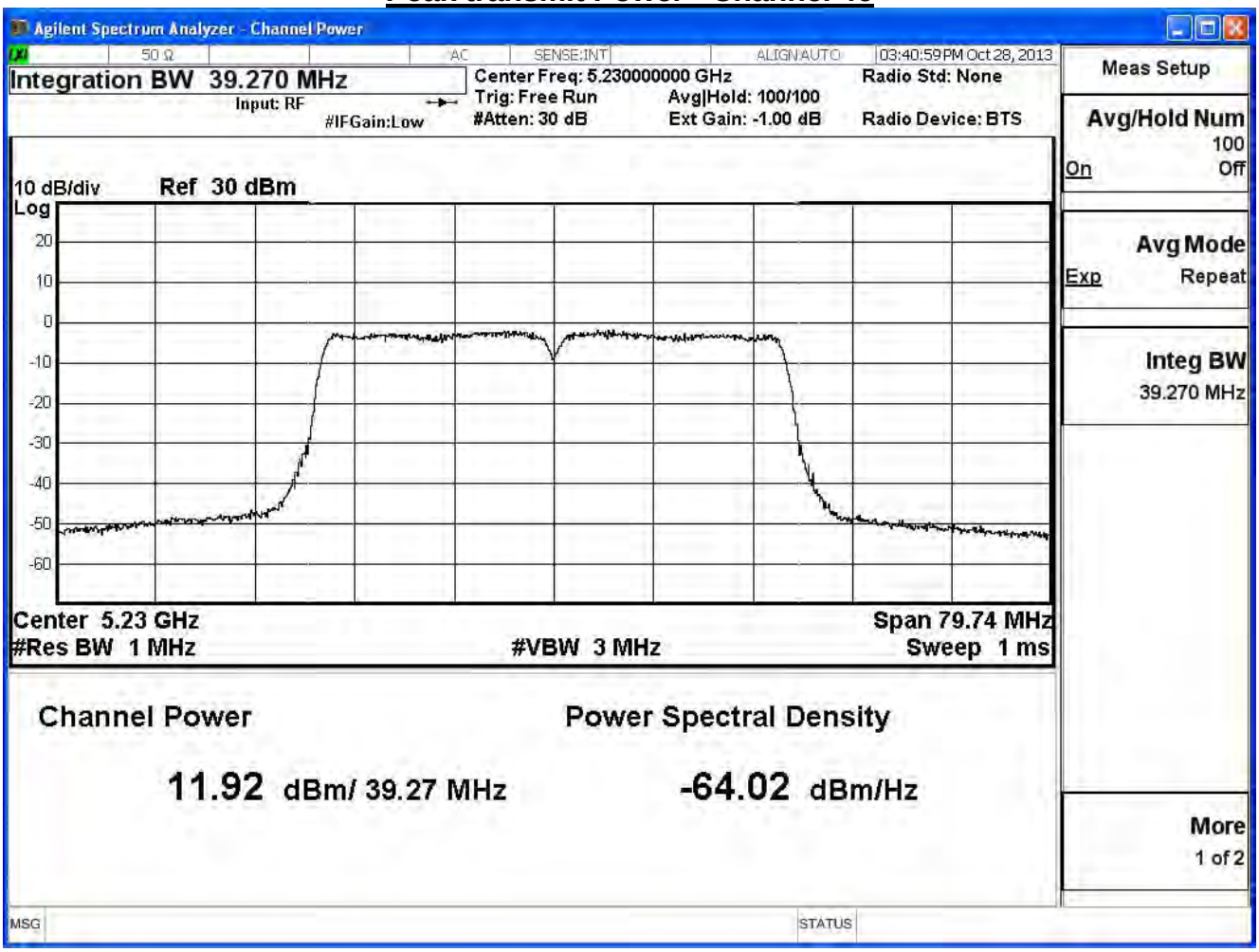
The worst emission of data rate is 13.5 Mbps

Peak Power Output (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	11.40	--	--	--	--	--	--	--	17dBm or 4dBm+10logB
46	5230	11.92	11.72	11.52	11.32	11.12	11.00	10.76	10.64	

Peak transmit Power - Channel 38



Peak transmit Power - Channel 46



Product	PCE-AC56 Dual-Band Wireless PCI-E Adapter		
Test Item	Peak Transmit Output		
Test Mode	Mode 1: Transmit (CDD mode)		
Date of Test	2013/11/15	Test Site	SR7

IEEE 802.11n(40MHz)_ANT 0+1					
Channel No.	Frequency (MHz)	Total Output Power		Required Limit (dBm)	Result
		(mW)	(dBm)		
38	5190	31.75	15.02	≤17	Pass
46	5230	34.48	15.38	≤17	Pass

The worst emission of data rate is 13.5 Mbps

Peak Power Output (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	15.02	--	--	--	--	--	--	--	17dBm or 4dBm+10logB
46	5230	15.38	15.28	15.18	14.98	14.78	14.66	14.54	14.30	

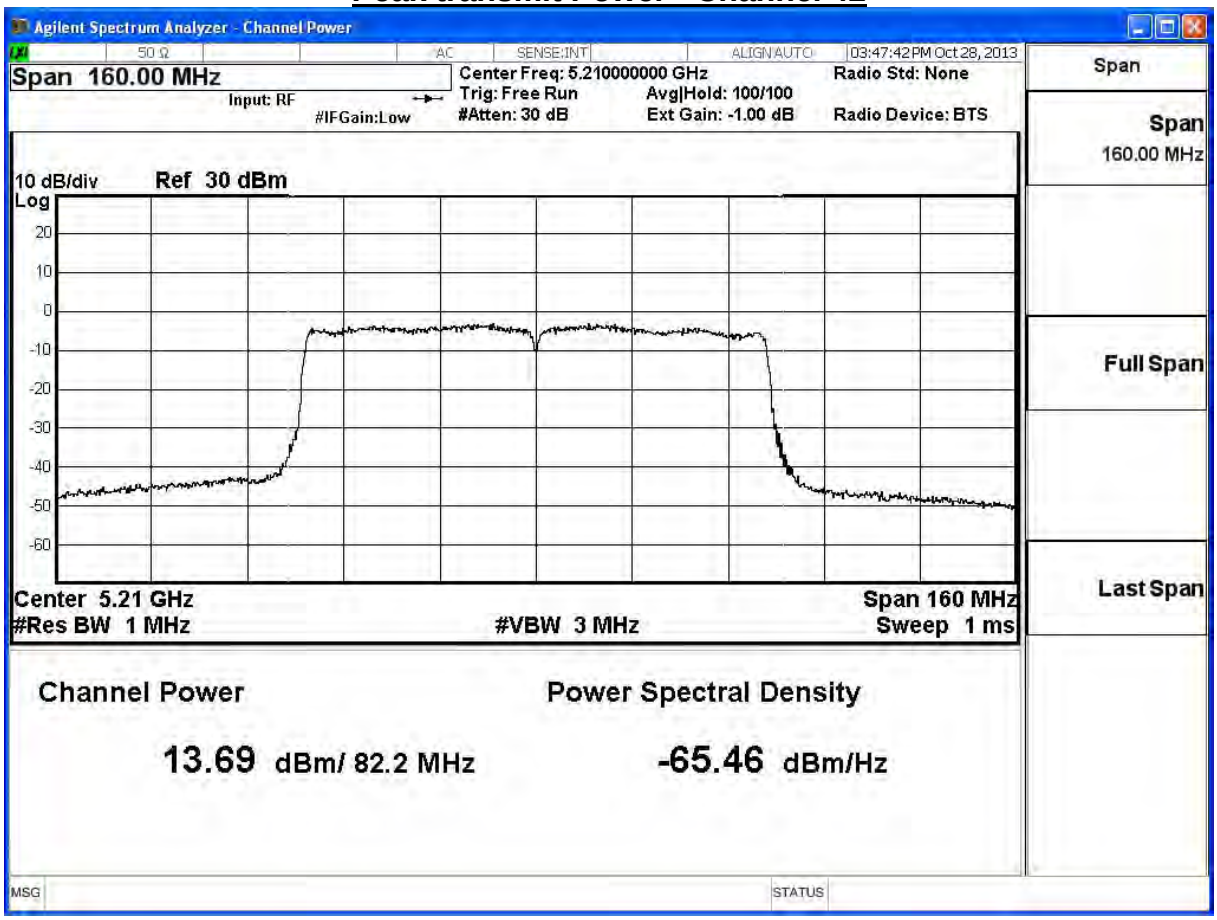
Product	PCE-AC56 Dual-Band Wireless PCI-E Adapter		
Test Item	Peak Transmit Output		
Test Mode	Mode 1: Transmit (CDD mode)		
Date of Test	2013/11/15	Test Site	SR7

IEEE 802.11ac(80MHz)_ANT 0						
Channel No.	Frequency (MHz)	26dB Bandwidth (MHz)	Output Power (dBm)	Required Limit		Result
				Fixed Limit (dBm)	4+10logB Limit (dBm)	
42	5210	82.20	13.69	≤17	23.149	Pass

The worst emission of data rate is 29.3 Mbps.

Peak Power Output (dBm)												
MCS Index		0	1	2	3	4	5	6	7	8	9	Required Limit
Channel No	Frequency (MHz)	Data Rate										
		29.3	58.5	87.8	117	175.5	234	263.3	292.5	351	390	
42	5210	13.69	13.49	13.29	13.19	13.09	12.99	12.87	12.75	12.51	12.39	17

Peak transmit Power - Channel 42



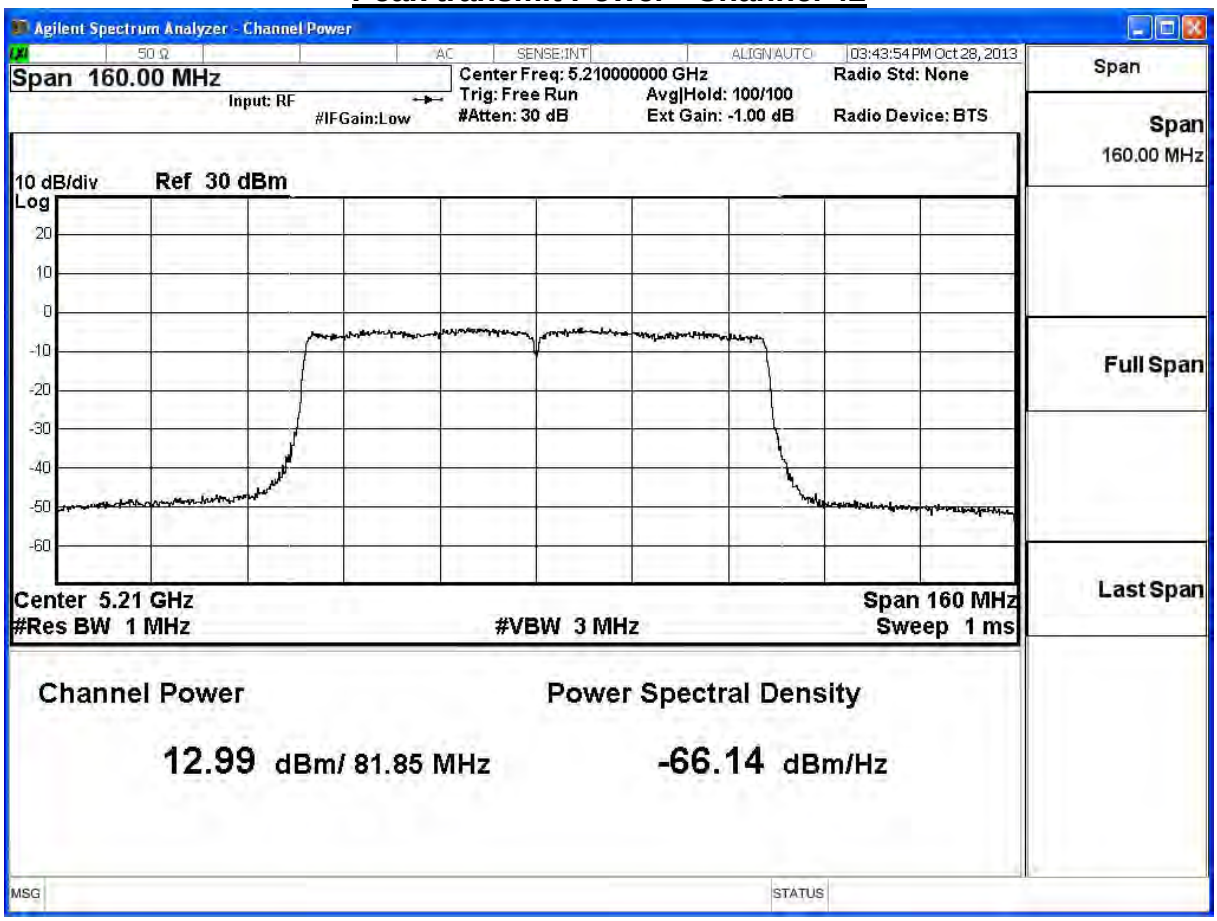
Product	PCE-AC56 Dual-Band Wireless PCI-E Adapter		
Test Item	Peak Transmit Output		
Test Mode	Mode 1: Transmit (CDD mode)		
Date of Test	2013/11/15	Test Site	SR7

IEEE 802.11ac(80MHz)_ANT 1						
Channel No.	Frequency (MHz)	26dB Bandwidth (MHz)	Output Power (dBm)	Required Limit		Result
				Fixed Limit (dBm)	4+10logB Limit (dBm)	
42	5210	81.85	12.99	≤17	23.128	Pass

The worst emission of data rate is 29.3 Mbps.

Peak Power Output (dBm)												
MCS Index		0	1	2	3	4	5	6	7	8	9	Required Limit
Channel No	Frequency (MHz)	Data Rate										
		29.3	58.5	87.8	117	175.5	234	263.3	292.5	351	390	
42	5210	12.99	12.89	12.79	12.59	12.49	12.29	12.05	11.93	11.69	11.57	17

Peak transmit Power - Channel 42



Product	PCE-AC56 Dual-Band Wireless PCI-E Adapter		
Test Item	Peak Transmit Output		
Test Mode	Mode 1: Transmit (CDD mode)		
Date of Test	2013/11/15	Test Site	SR7

IEEE 802.11ac(80MHz)_ANT 0+1					
Channel No.	Frequency (MHz)	Total Output Power		Required Limit (dBm)	Result
		(mW)	(dBm)		
42	5210	43.30	16.39	≤17	Pass

The worst emission of data rate is 29.3 Mbps.

Peak Power Output (dBm)												
MCS Index		0	1	2	3	4	5	6	7	8	9	Required Limit
Channel No	Frequency (MHz)	Data Rate										
		29.3	58.5	87.8	117	175.5	234	263.3	292.5	351	390	
42	5210	16.39	16.29	16.09	15.89	15.69	15.49	15.25	15.13	15.01	14.77	17

Product	PCE-AC56 Dual-Band Wireless PCI-E Adapter		
Test Item	Peak Transmit Output		
Test Mode	Mode 2: Transmit (Beamforming mode)		
Date of Test	2013/11/15	Test Site	SR7

802.11a

Channel No.	Frequency (MHz)	26dB Bandwidth (MHz)	Output Power (dBm)	Required Limit		Result
				Fixed Limit (dBm)	4+10logB Limit (dBm)	
36	5180	20.51	13.23	≤15.99	17.12	Pass
44	5220	20.48	13.42	≤15.99	17.11	Pass
48	5240	20.52	13.46	≤15.99	17.12	Pass

The worst emission of data rate is 6 Mbps.

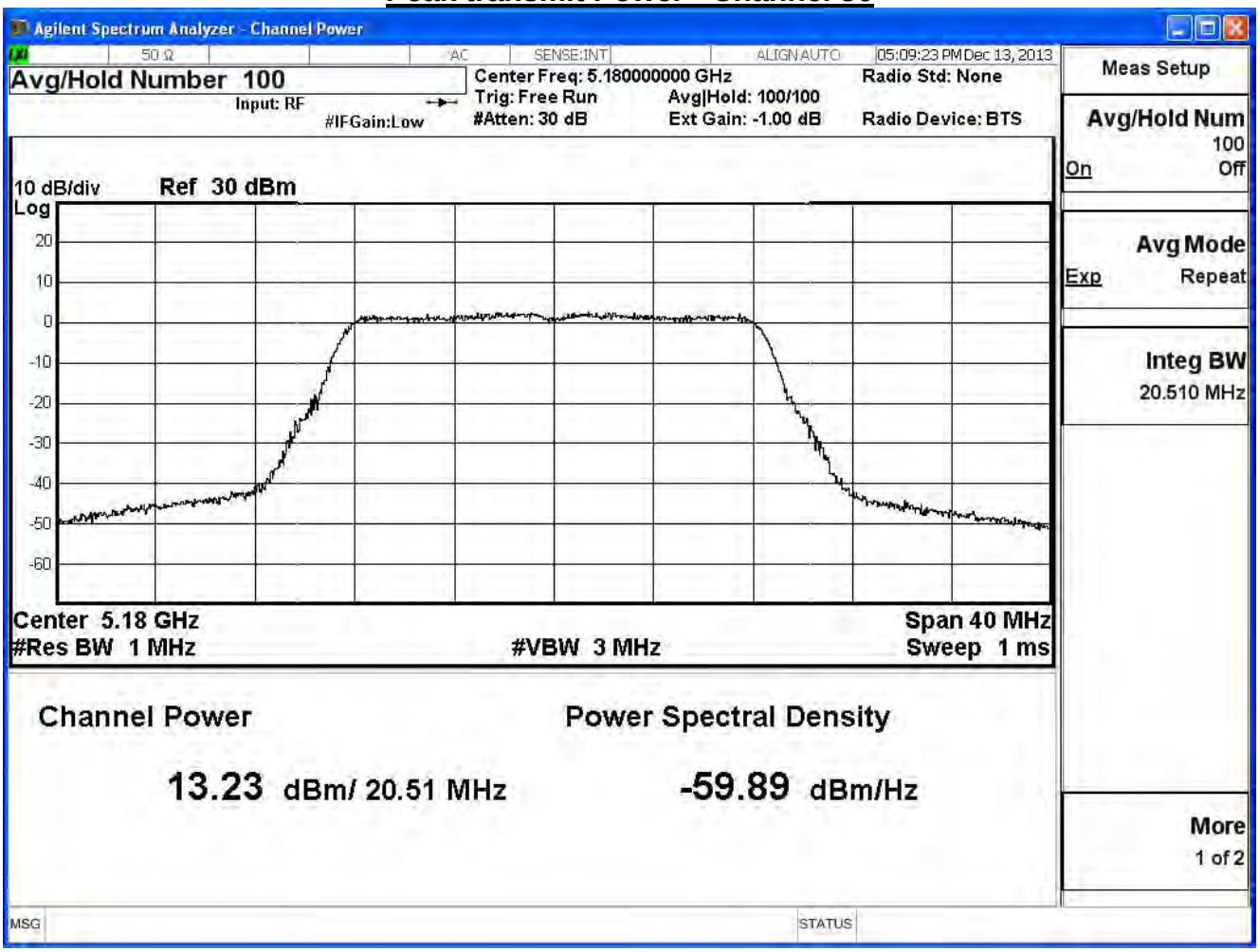
Peak Power Output (dBm)									
Channel No	Frequency (MHz)	Data Rate							Required Limit
		6	12	18	24	36	48	54	
36	5180	13.23	--	--	--	--	--	--	15.99dBm or 4dBm+10logB
44	5220	13.42	13.38	13.32	13.28	13.26	13.22	13.1	
48	5240	13.46	--	--	--	--	--	--	

Note:

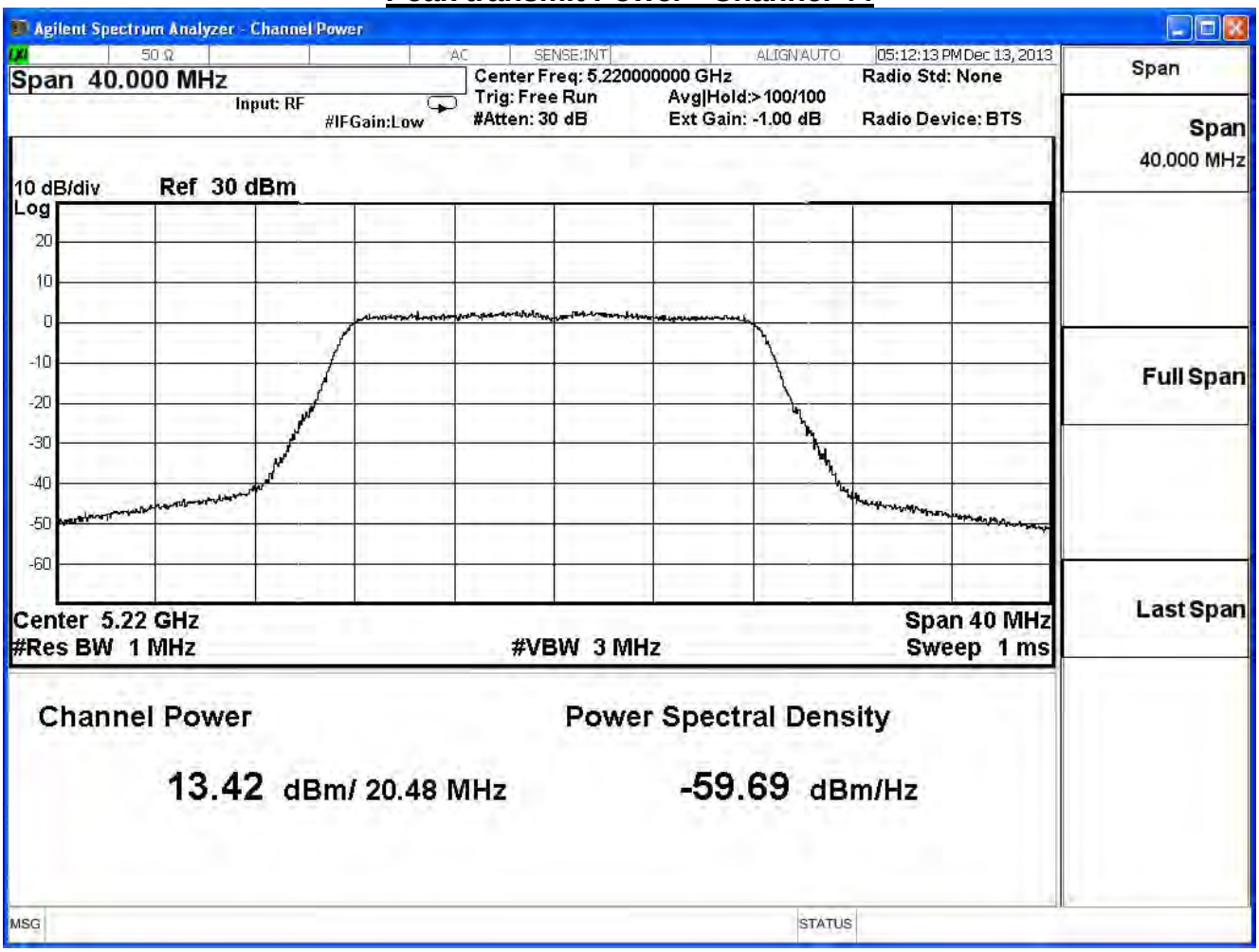
Measure Level =Reading value + cable loss

Directional antenna : Beamforming Gain + max Gain = 7.01dBi
Fixed Limit : 17dBm - (7.01dBi - 6dB) = 15.99 dBm

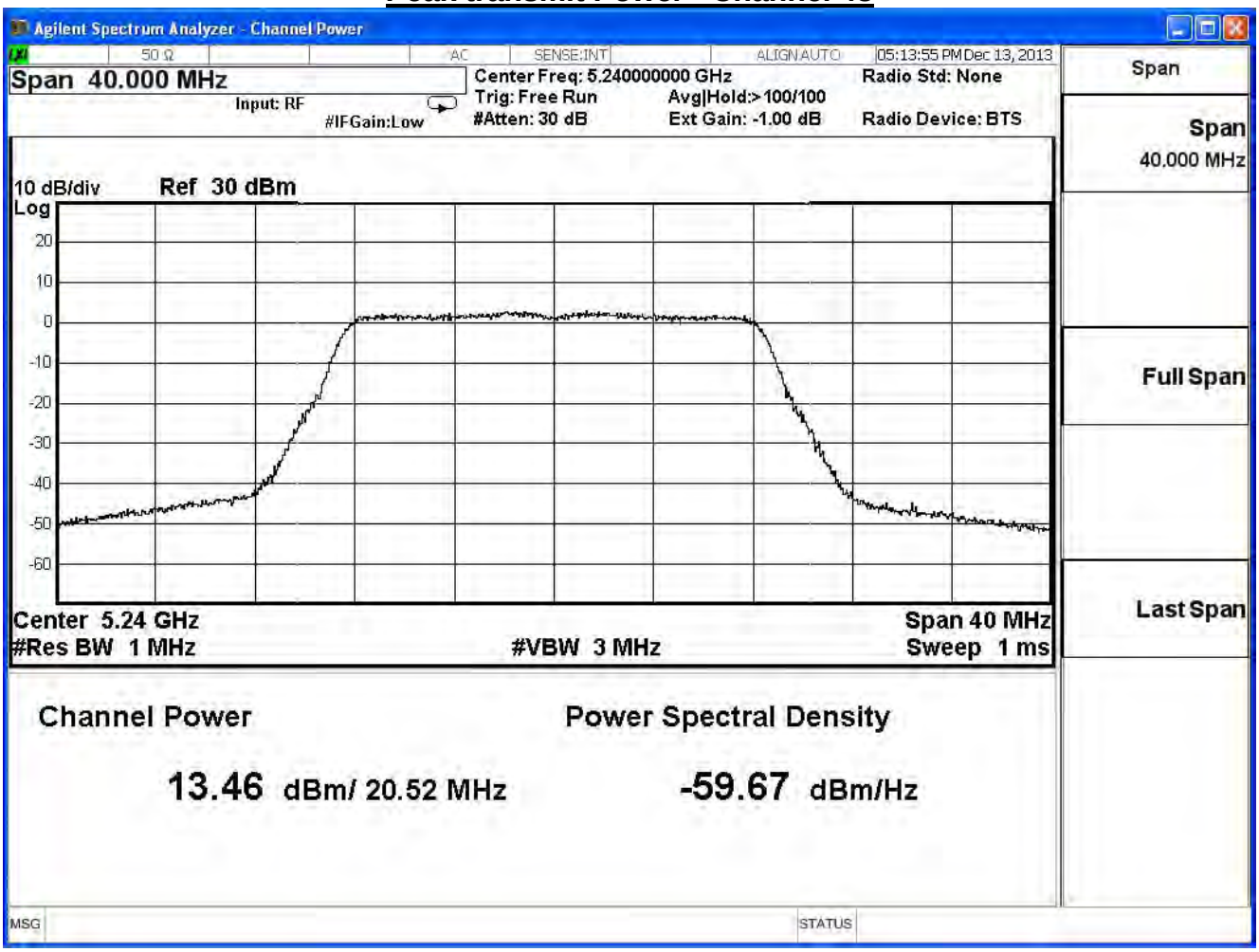
Peak transmit Power - Channel 36



Peak transmit Power - Channel 44



Peak transmit Power - Channel 48



Product	PCE-AC56 Dual-Band Wireless PCI-E Adapter		
Test Item	Peak Transmit Output		
Test Mode	Mode 2: Transmit (Beamforming mode)		
Date of Test	2013/11/15	Test Site	SR7

IEEE 802.11n(20MHz)_ANT 0

Channel No.	Frequency (MHz)	26dB Bandwidth (MHz)	Output Power (dBm)	Required Limit		Result
				Fixed Limit (dBm)	4+10logB Limit (dBm)	
36	5180	20.54	9.78	≤15.99	21.40	Pass
44	5220	20.51	9.57	≤15.99	17.12	Pass
48	5240	20.55	9.48	≤15.99	21.40	Pass

The worst emission of data rate is 13Mbps.

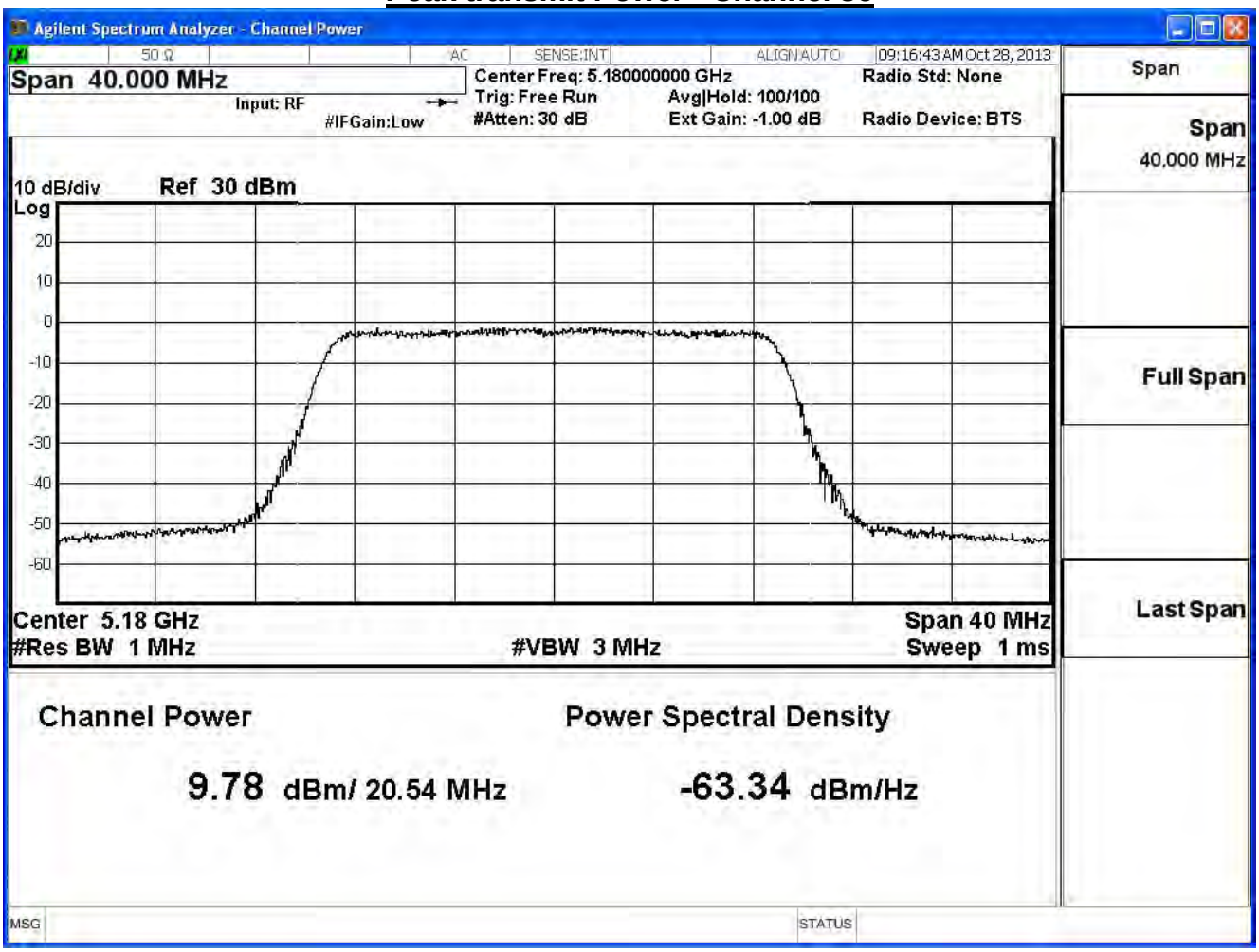
Peak Power Output (dBm)										
MCS Index		8	9	10	11	12	13	14	15	Required Limit
Channel No	Frequency (MHz)	Data Rate								
		13	26	39	52	78	104	117	130	
36	5180	9.78	--	--	--	--	--	--	--	15.99dBm or 4dBm+10logB
44	5220	9.57	9.47	9.27	9.17	8.97	8.85	8.61	8.37	
48	5240	9.48	--	--	--	--	--	--	--	

Note:

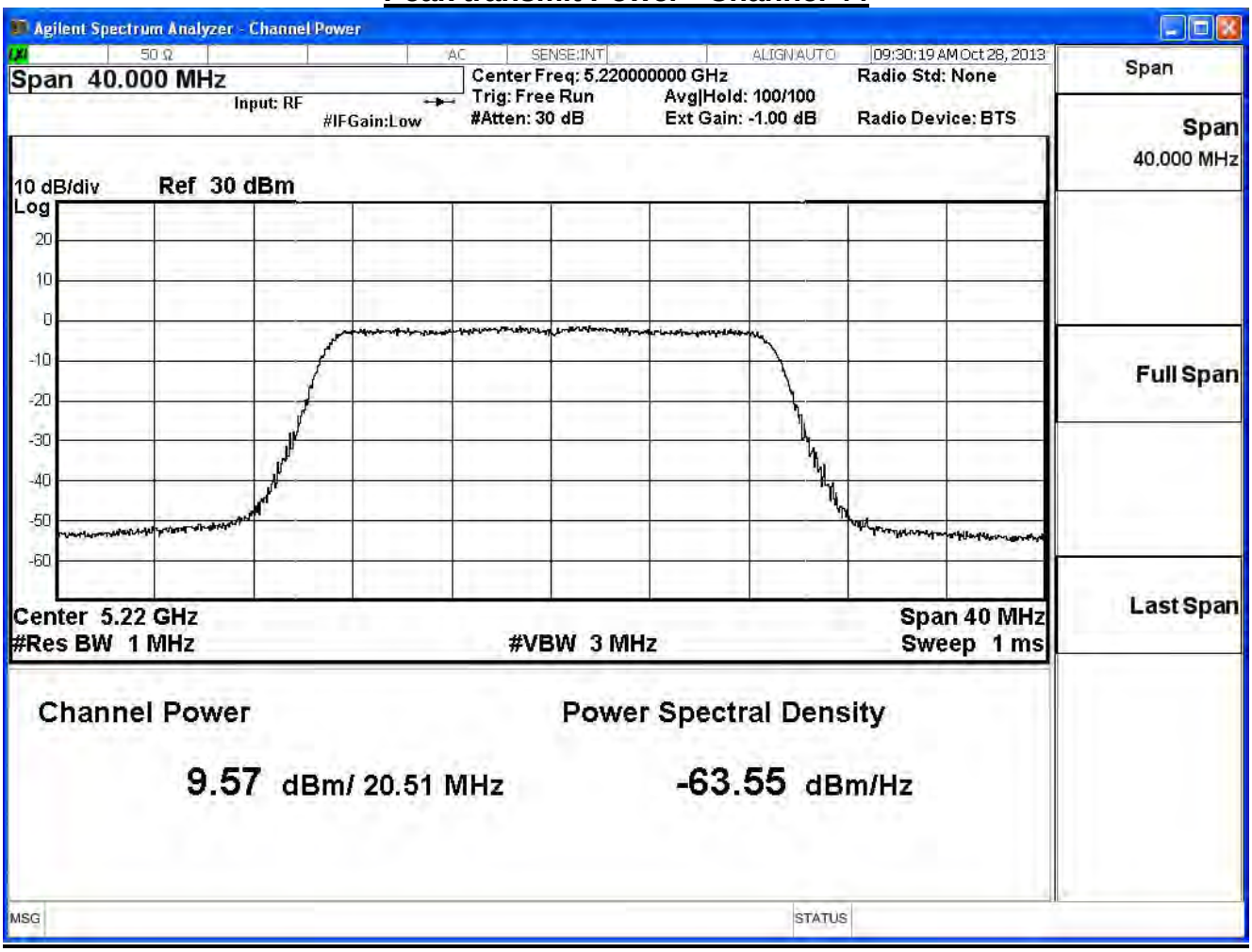
Measure Level =Reading value + cable loss

Directional antenna : 10log(2) + max Gain = 7.01dBi
Fixed Limit : 17dBm - (7.01dBi - 6dB) = 15.99 dBm

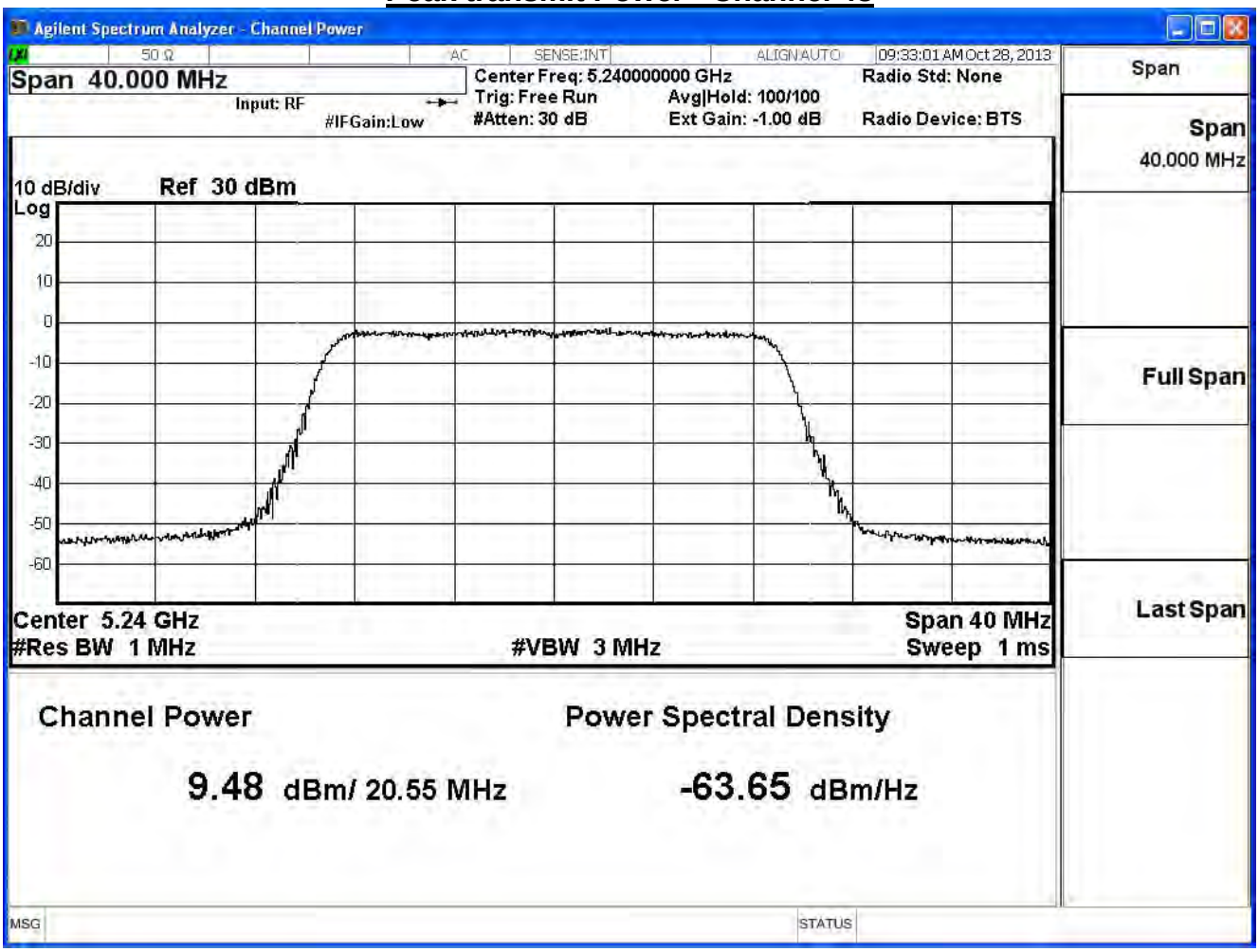
Peak transmit Power - Channel 36



Peak transmit Power - Channel 44



Peak transmit Power - Channel 48



Product	PCE-AC56 Dual-Band Wireless PCI-E Adapter		
Test Item	Peak Transmit Output		
Test Mode	Mode 2: Transmit (Beamforming mode)		
Date of Test	2013/11/15	Test Site	SR7

IEEE 802.11n(20MHz)_ANT 1						
Channel No.	Frequency (MHz)	26dB Bandwidth (MHz)	Output Power (dBm)	Required Limit		Result
				Fixed Limit (dBm)	4+10logB Limit (dBm)	
36	5180	20.27	8.89	≤15.99	17.07	Pass
44	5220	20.25	8.44	≤15.99	17.06	Pass
48	5240	20.51	8.63	≤15.99	17.12	Pass

The worst emission of data rate is 13Mbps.

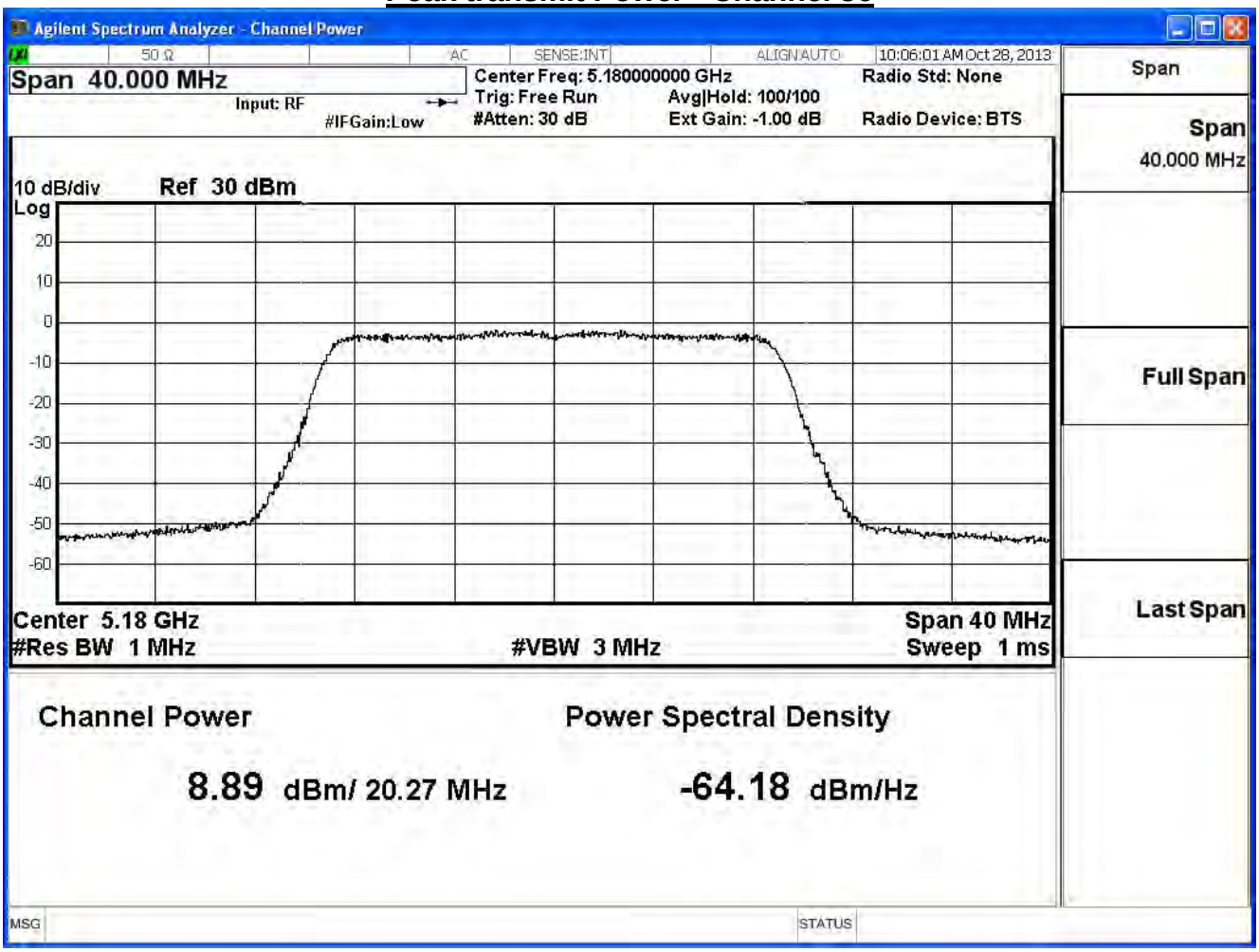
Peak Power Output (dBm)										
MCS Index		8	9	10	11	12	13	14	15	Required Limit
Channel No	Frequency (MHz)	Data Rate								
		13	26	39	52	78	104	117	130	
36	5180	8.89	--	--	--	--	--	--	--	15.99dBm or 4dBm+10logB
44	5220	8.44	8.34	8.24	8.14	7.94	7.82	7.70	7.46	
48	5240	8.63	--	--	--	--	--	--	--	

Note:

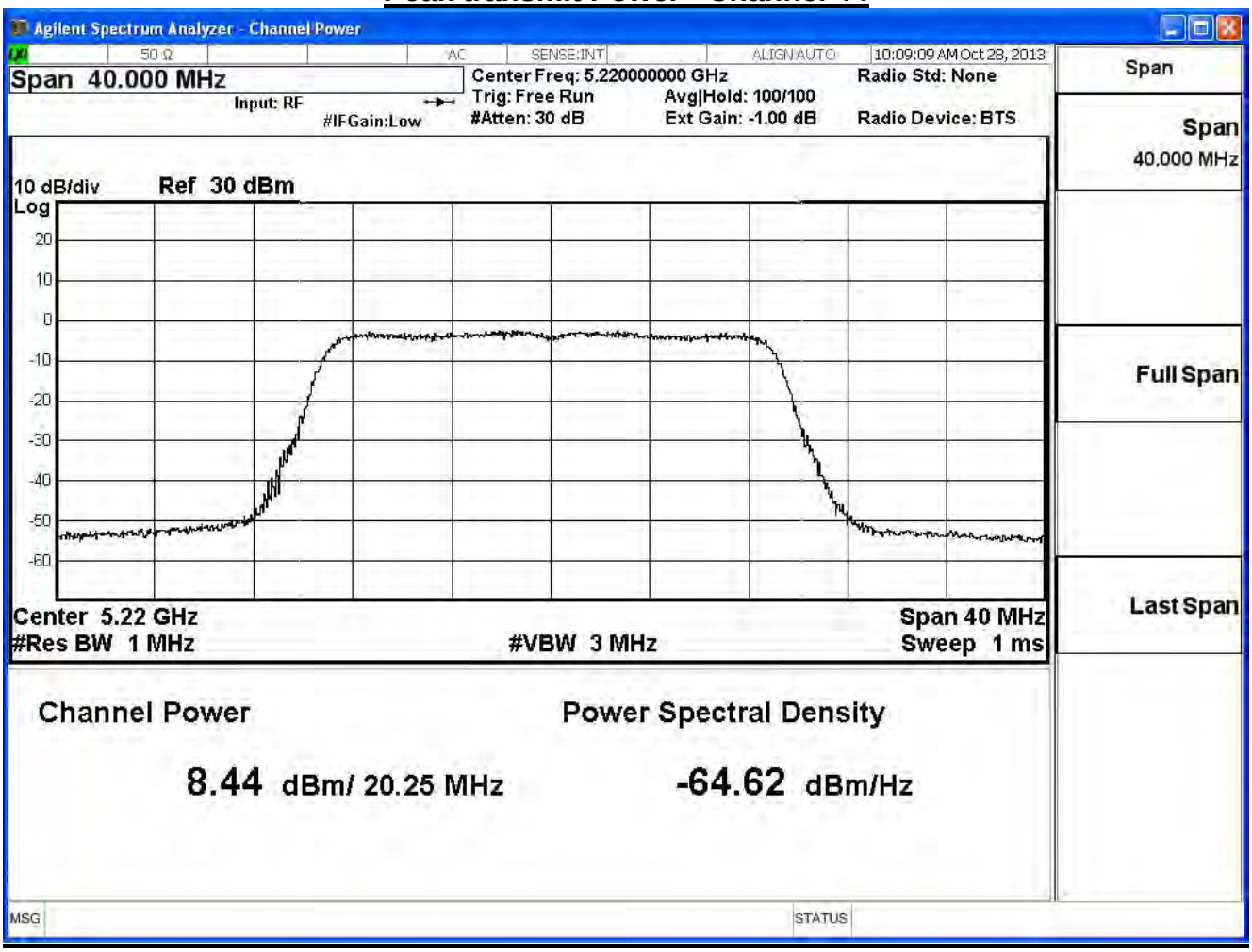
Measure Level =Reading value + cable loss

Directional antenna : 10log(2) + max Gain = 7.01dBi
Fixed Limit : 17dBm - (7.01dBi - 6dB) = 15.99 dBm

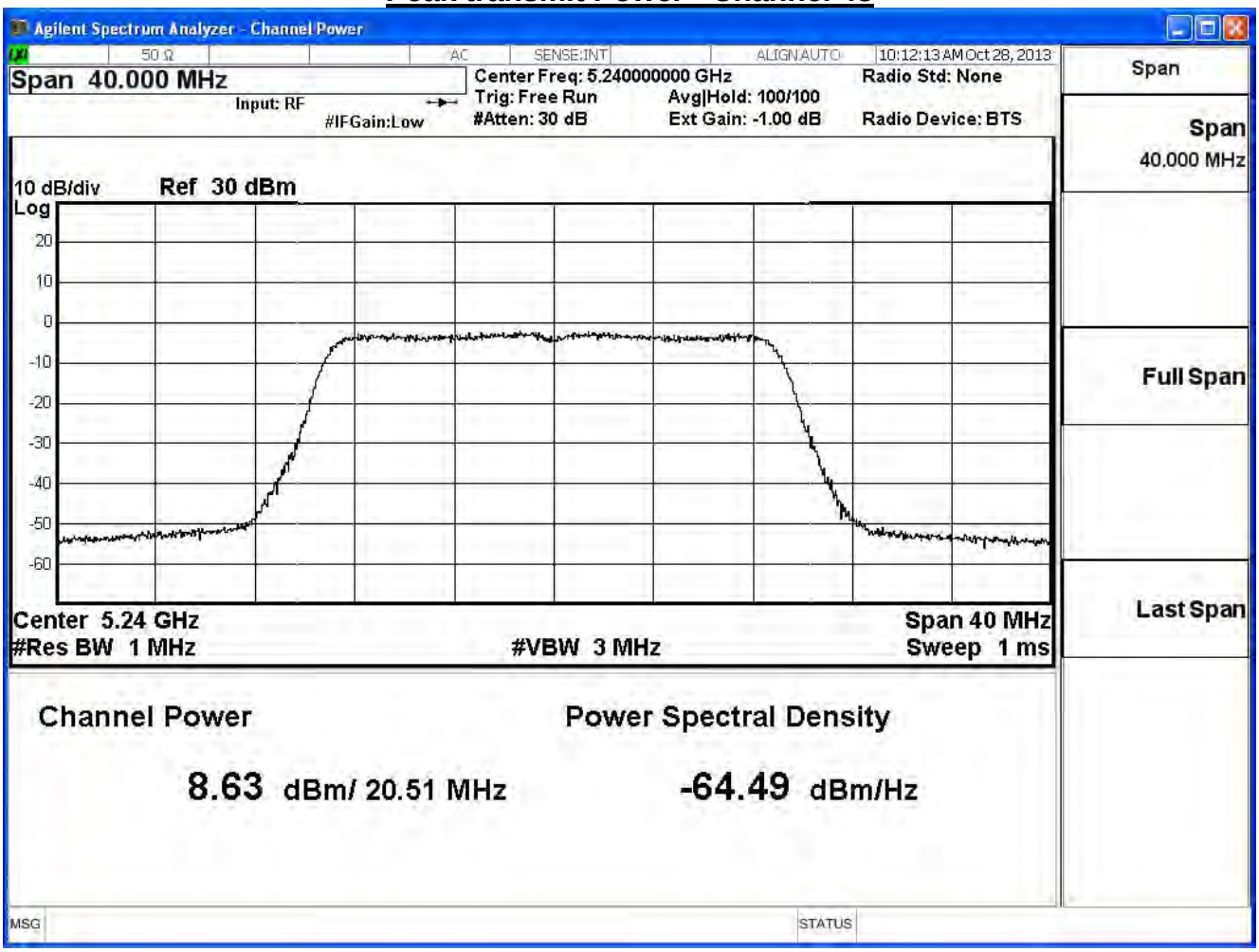
Peak transmit Power - Channel 36



Peak transmit Power - Channel 44



Peak transmit Power - Channel 48



Product	PCE-AC56 Dual-Band Wireless PCI-E Adapter		
Test Item	Peak Transmit Output		
Test Mode	Mode 2: Transmit (Beamforming mode)		
Date of Test	2013/11/15	Test Site	SR7

IEEE 802.11n(20MHz)_ANT 0+1					
Channel No.	Frequency (MHz)	Total Output Power		Required Limit (dBm)	Result
		(mW)	(dBm)		
36	5180	17.25	12.37	≤15.99	Pass
44	5220	16.04	12.05	≤15.99	Pass
48	5240	16.17	12.09	≤15.99	Pass

The worst emission of data rate is 13Mbps.

Peak Power Output (dBm)										
MCS Index		8	9	10	11	12	13	14	15	Required Limit
Channel No	Frequency (MHz)	Data Rate								
		13	26	39	52	78	104	117	130	
36	5180	12.37	--	--	--	--	--	--	--	15.99dBm or 4dBm+10logB
44	5220	12.05	11.95	11.80	11.70	11.50	11.38	11.19	10.95	
48	5240	12.09	--	--	--	--	--	--	--	

Note:

Measure Level =Reading value + cable loss

Directional antenna : 10log(2) + max Gain = 7.01dBi

Fixed Limit : 17dBm - (7.01dBi - 6dB) = 15.99 dBm

Product	PCE-AC56 Dual-Band Wireless PCI-E Adapter		
Test Item	Peak Transmit Output		
Test Mode	Mode 2: Transmit (Beamforming mode)		
Date of Test	2013/11/15	Test Site	SR7

IEEE 802.11n(40MHz)_ANT 0						
Channel No.	Frequency (MHz)	26dB Bandwidth (MHz)	Output Power (dBm)	Required Limit		Result
				Fixed Limit (dBm)	4+10logB Limit (dBm)	
38	5190	40.24	12.20	≤15.99	20.05	Pass
46	5230	40.15	12.25	≤15.99	16.04	Pass

The worst emission of data rate is 27 Mbps

Peak Power Output (dBm)										
MCS Index		8	9	10	11	12	13	14	15	Required Limit
Channel No	Frequency (MHz)	Data Rate								
		27	54	81	108	162	216	243	270	
38	5190	12.20	--	--	--	--	--	--	--	15.99dBm or 4dBm+10logB
46	5230	12.25	12.15	11.95	11.85	11.65	11.53	11.41	11.29	

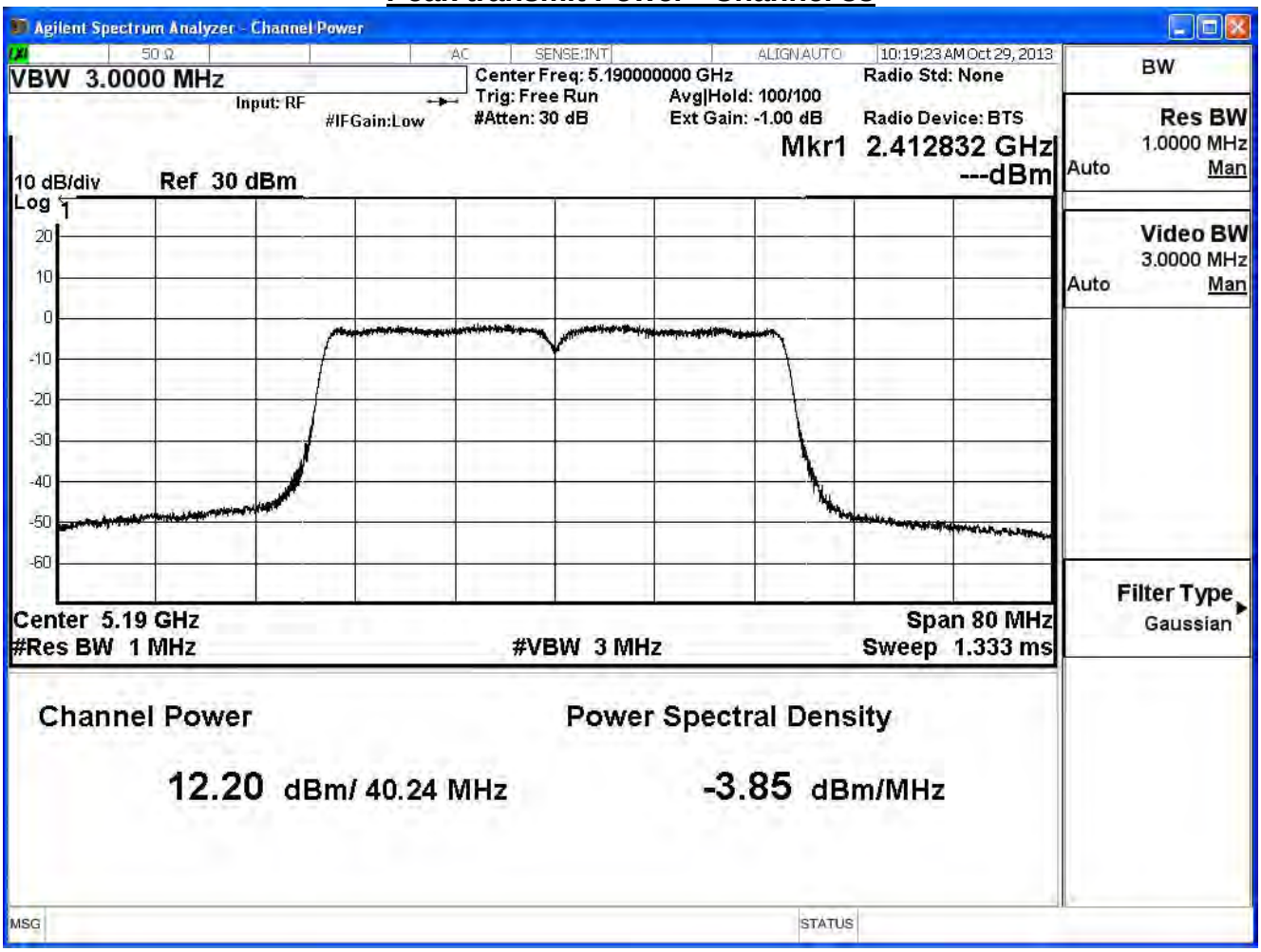
Note:

Measure Level =Reading value + cable loss

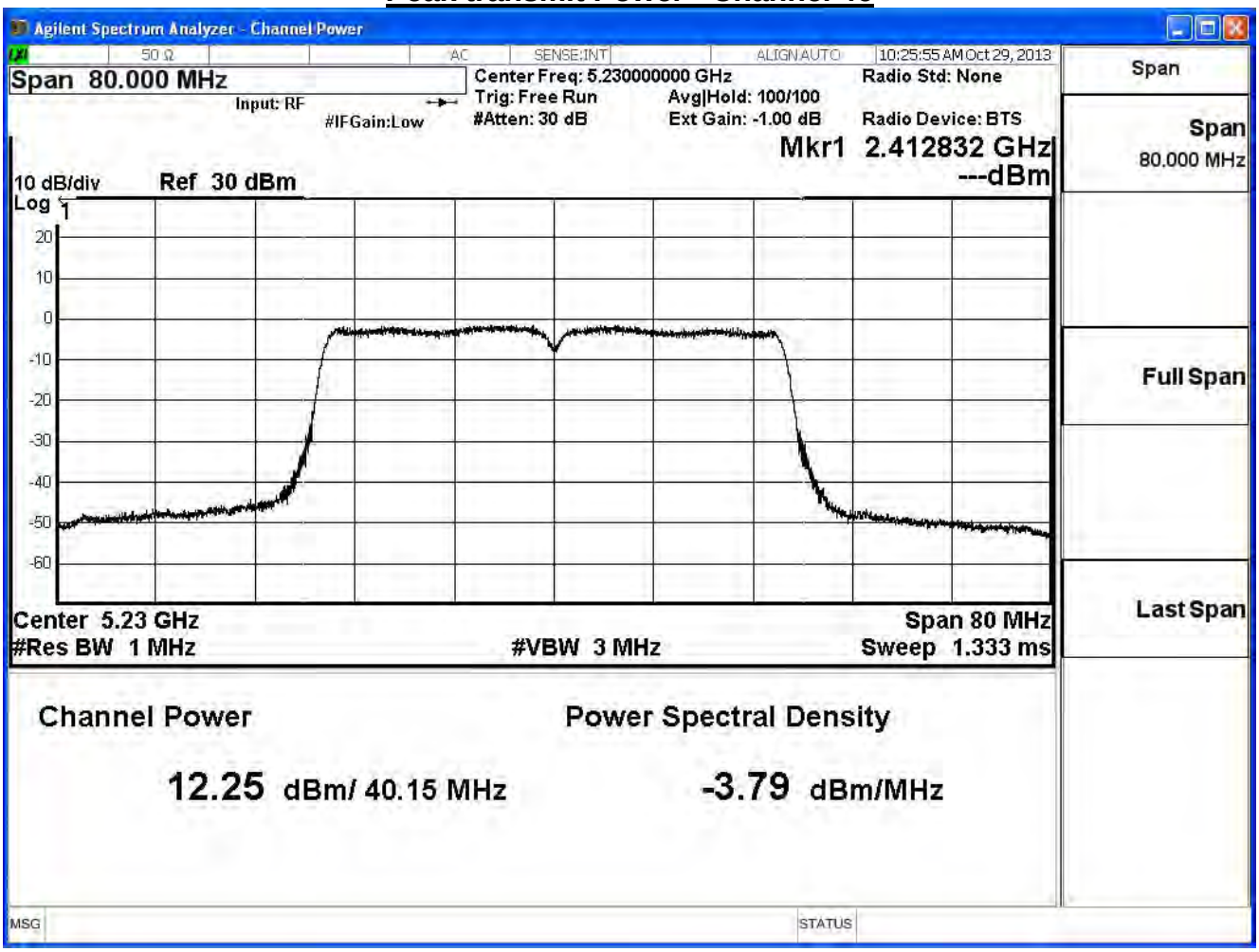
Directional antenna : 10log(2) + max Gain = 7.01dBi

Fixed Limit : 17dBm - (7.01dBi - 6dB) = 15.99 dBm

Peak transmit Power - Channel 38



Peak transmit Power - Channel 46



Product	PCE-AC56 Dual-Band Wireless PCI-E Adapter		
Test Item	Peak Transmit Output		
Test Mode	Mode 2: Transmit (Beamforming mode)		
Date of Test	2013/11/15	Test Site	SR7

IEEE 802.11n(40MHz)_ANT 1						
Channel No.	Frequency (MHz)	26dB Bandwidth (MHz)	Output Power (dBm)	Required Limit		Result
				Fixed Limit (dBm)	4+10logB Limit (dBm)	
38	5190	39.12	11.45	≤15.99	19.92	Pass
46	5230	39.51	11.37	≤15.99	19.97	Pass

The worst emission of data rate is 27 Mbps

Peak Power Output (dBm)										
MCS Index		8	9	10	11	12	13	14	15	Required Limit
Channel No	Frequency (MHz)	Data Rate								
		27	54	81	108	162	216	243	270	
38	5190	11.45	--	--	--	--	--	--	--	15.99dBm or 4dBm+10logB
46	5230	11.37	11.27	11.17	11.07	10.97	10.73	10.61	10.49	

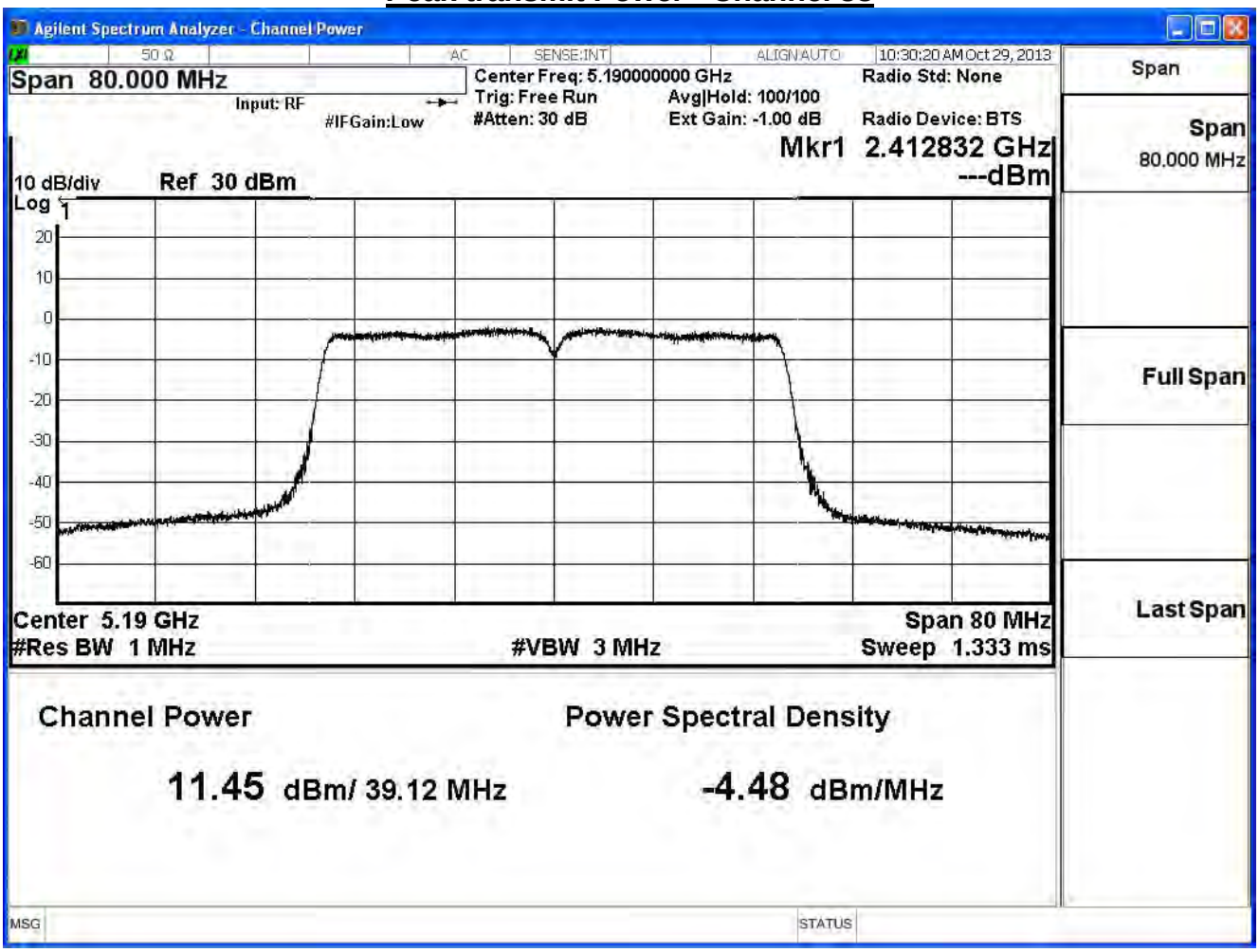
Note:

Measure Level =Reading value + cable loss

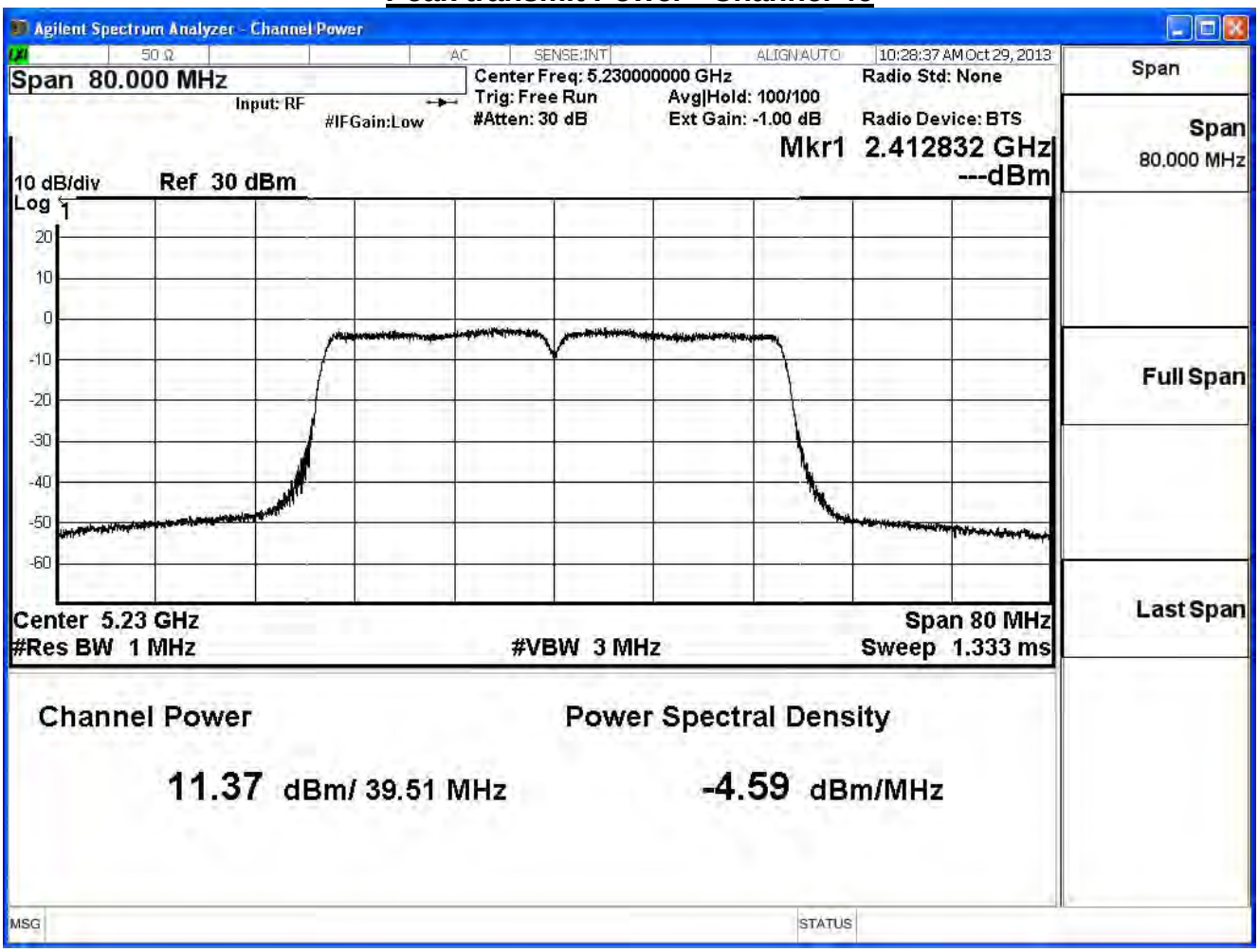
Directional antenna : 10log(2) + max Gain = 7.01dBi

Fixed Limit : 17dBm - (7.01dBi - 6dB) = 15.99 dBm

Peak transmit Power - Channel 38



Peak transmit Power - Channel 46



Product	PCE-AC56 Dual-Band Wireless PCI-E Adapter		
Test Item	Peak Transmit Output		
Test Mode	Mode 2: Transmit (Beamforming mode)		
Date of Test	2013/11/15	Test Site	SR7

IEEE 802.11n(40MHz)_ANT 0+1					
Channel No.	Frequency (MHz)	Total Output Power		Required Limit (dBm)	Result
		(mW)	(dBm)		
38	5190	30.56	14.85	≤15.99	Pass
46	5230	30.50	14.84	≤15.99	Pass

The worst emission of data rate is 27 Mbps

Peak Power Output (dBm)										
MCS Index		8	9	10	11	12	13	14	15	Required Limit
Channel No	Frequency (MHz)	Data Rate								
		27	54	81	108	162	216	243	270	
38	5190	14.85	--	--	--	--	--	--	--	15.99dBm or 4dBm+10logB
46	5230	14.84	14.74	14.59	14.49	14.33	14.16	14.04	13.92	

Note:

Measure Level =Reading value + cable loss

Directional antenna : 10log(2) + max Gain = 7.01dBi

Fixed Limit : 17dBm - (7.01dBi - 6dB) = 15.99 dBm

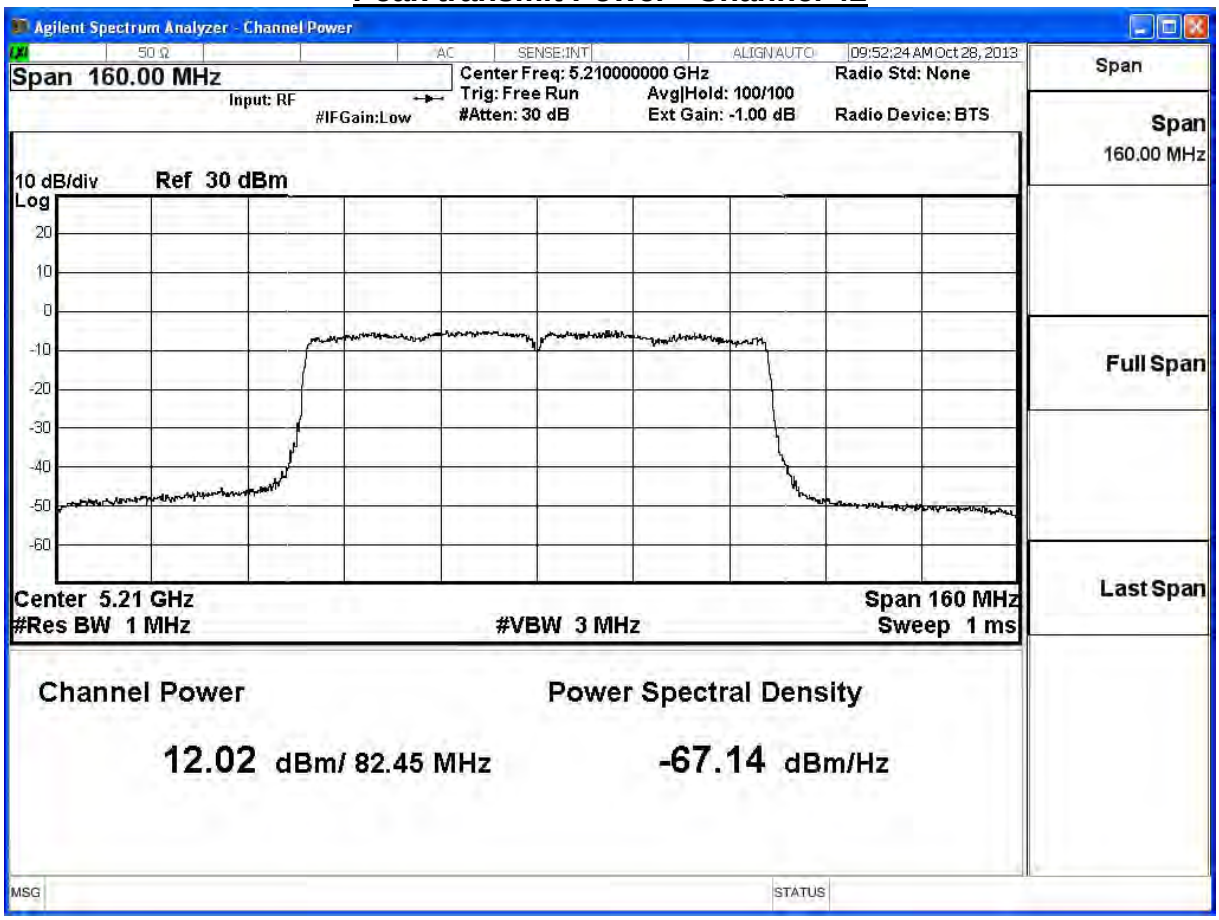
Product	PCE-AC56 Dual-Band Wireless PCI-E Adapter		
Test Item	Peak Transmit Output		
Test Mode	Mode 2: Transmit (Beamforming mode)		
Date of Test	2013/11/15	Test Site	SR7

IEEE 802.11ac(80MHz)_ANT 0						
Channel No.	Frequency (MHz)	26dB Bandwidth (MHz)	Output Power (dBm)	Required Limit		Result
				Fixed Limit (dBm)	4+10logB Limit (dBm)	
42	5210	82.45	12.02	≤15.99	23.16	Pass

The worst emission of data rate is 87.9 Mbps.

Peak Power Output (dBm)												
MCS Index		0	1	2	3	4	5	6	7	8	9	Required Limit
Channel No	Frequency (MHz)	Data Rate										
		87.9	175.5	263.4	351	526.5	702	789.9	877.5	1053	1170	
42	5210	12.02	11.82	11.72	11.62	11.52	11.32	11.20	10.96	10.72	10.60	17

Peak transmit Power - Channel 42



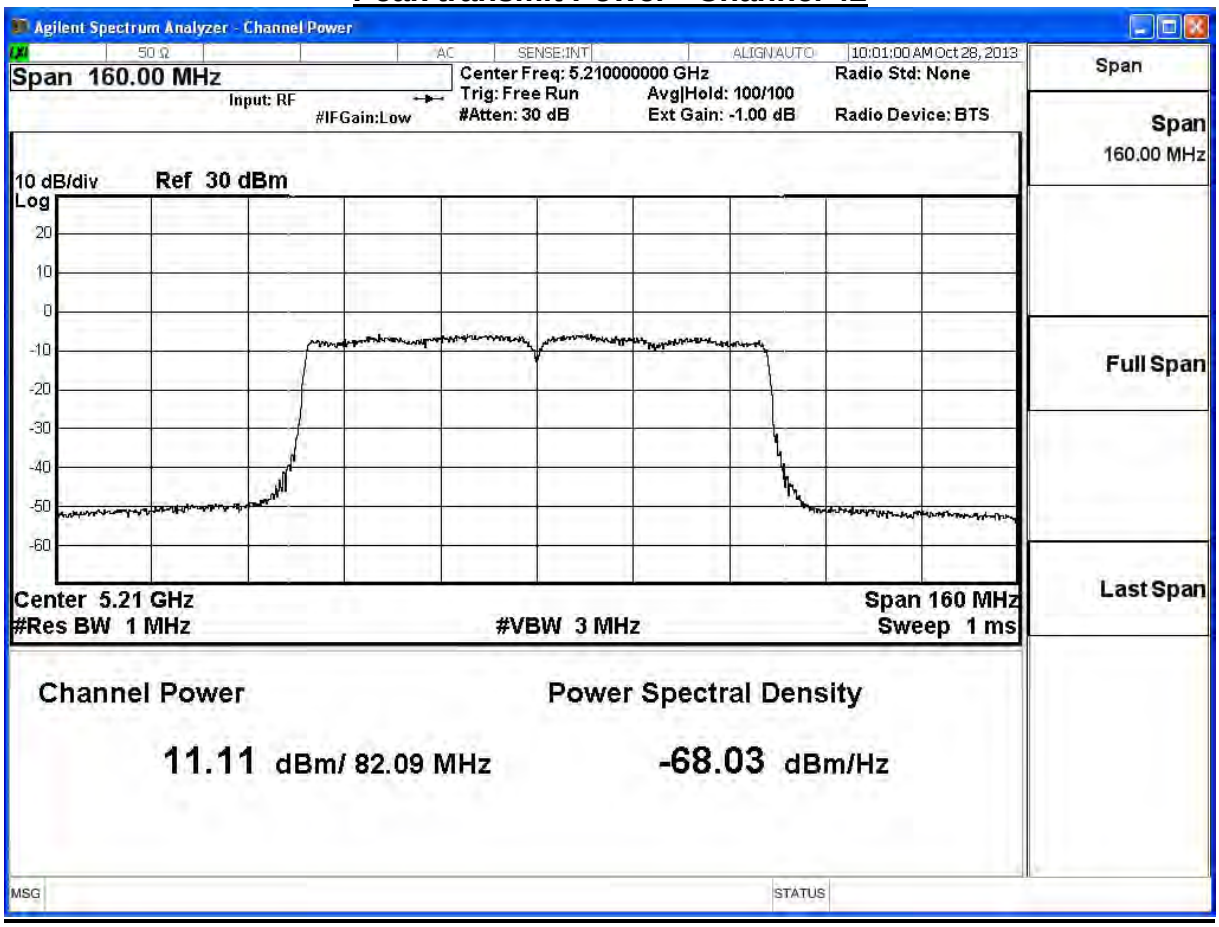
Product	PCE-AC56 Dual-Band Wireless PCI-E Adapter		
Test Item	Peak Transmit Output		
Test Mode	Mode 2: Transmit (Beamforming mode)		
Date of Test	2013/11/15	Test Site	SR7

IEEE 802.11ac(80MHz)_ANT 1						
Channel No.	Frequency (MHz)	26dB Bandwidth (MHz)	Output Power (dBm)	Required Limit		Result
				Fixed Limit (dBm)	4+10logB Limit (dBm)	
42	5210	82.09	11.11	≤15.99	23.14	Pass

The worst emission of data rate is 87.9 Mbps.

Peak Power Output (dBm)											
MCS Index		0	1	2	3	4	5	6	7	8	9	Required Limit
Channel No	Frequency (MHz)	Data Rate										
		87.9	175.5	263.4	351	526.5	702	789.9	877.5	1053	1170	
42	5210	11.11	10.91	10.71	10.61	10.41	10.21	9.97	9.73	9.49	9.25	15.23

Peak transmit Power - Channel 42



Product	PCE-AC56 Dual-Band Wireless PCI-E Adapter		
Test Item	Peak Transmit Output		
Test Mode	Mode 2: Transmit (Beamforming mode)		
Date of Test	2013/11/15	Test Site	SR7

IEEE 802.11ac(80MHz)_ANT 0+1					
Channel No.	Frequency (MHz)	Total Output Power		Required Limit (dBm)	Result
		(mW)	(dBm)		
42	5210	28.83	14.60	≤15.99	Pass

The worst emission of data rate is 87.9 Mbps.

Peak Power Output (dBm)												
MCS Index		0	1	2	3	4	5	6	7	8	9	Required Limit
Channel No	Frequency (MHz)	Data Rate										
		87.9	175.5	263.4	351	526.5	702	789.9	877.5	1053	1170	
42	5210	14.60	15.95	15.80	15.70	15.55	15.35	15.18	14.96	14.72	14.54	15.23

Note:

Measure Level =Reading value + cable loss

Directional antenna : 10log(2) + max Gain = 7.01dBi
Fixed Limit : 17dBm - (7.01dBi - 6dB) = 15.99 dBm

5. Peak Power Spectrum Density

5.1. Test Equipment

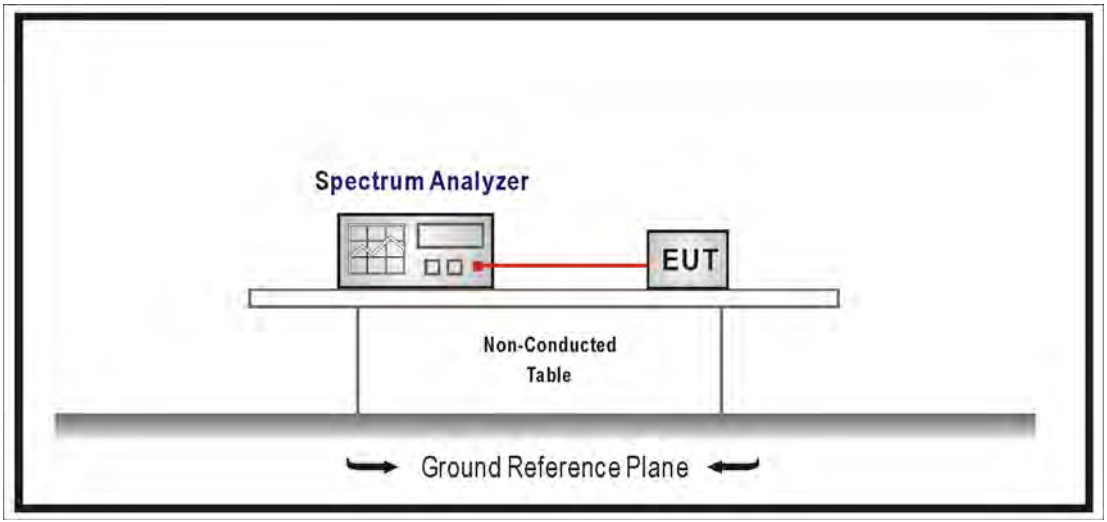
The following test equipments are used during the radiated emission tests:

Peak Power Spectrum Density / SR7

Instrument	Manufacturer	Model No.	Serial No	Next Cal. Date
Spectrum Analyzer	Agilent	N9010A-EXA	US47140172	2014/08/05

Note: 1. 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 4 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.
2. 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.
3. For the band 5.725-5.825 GHz, the peak power spectral density shall not exceed 17 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.

5.4. Test Procedure

The EUT was setup to ANSI C63.4, 2009; tested to U-NII test procedure of KDB 789033 for compliance to FCC 47CFR Subpart E requirements.

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.

5.5. Uncertainty

The measurement uncertainty is defined as ± 1.27 dB

5.6. Test Result

Product	PCE-AC56 Dual-Band Wireless PCI-E Adapter		
Test Item	Peak Power Spectral Density		
Test Mode	Mode 1: Transmit (CDD mode)		
Date of Test	2013/11/15	Test Site	SR7

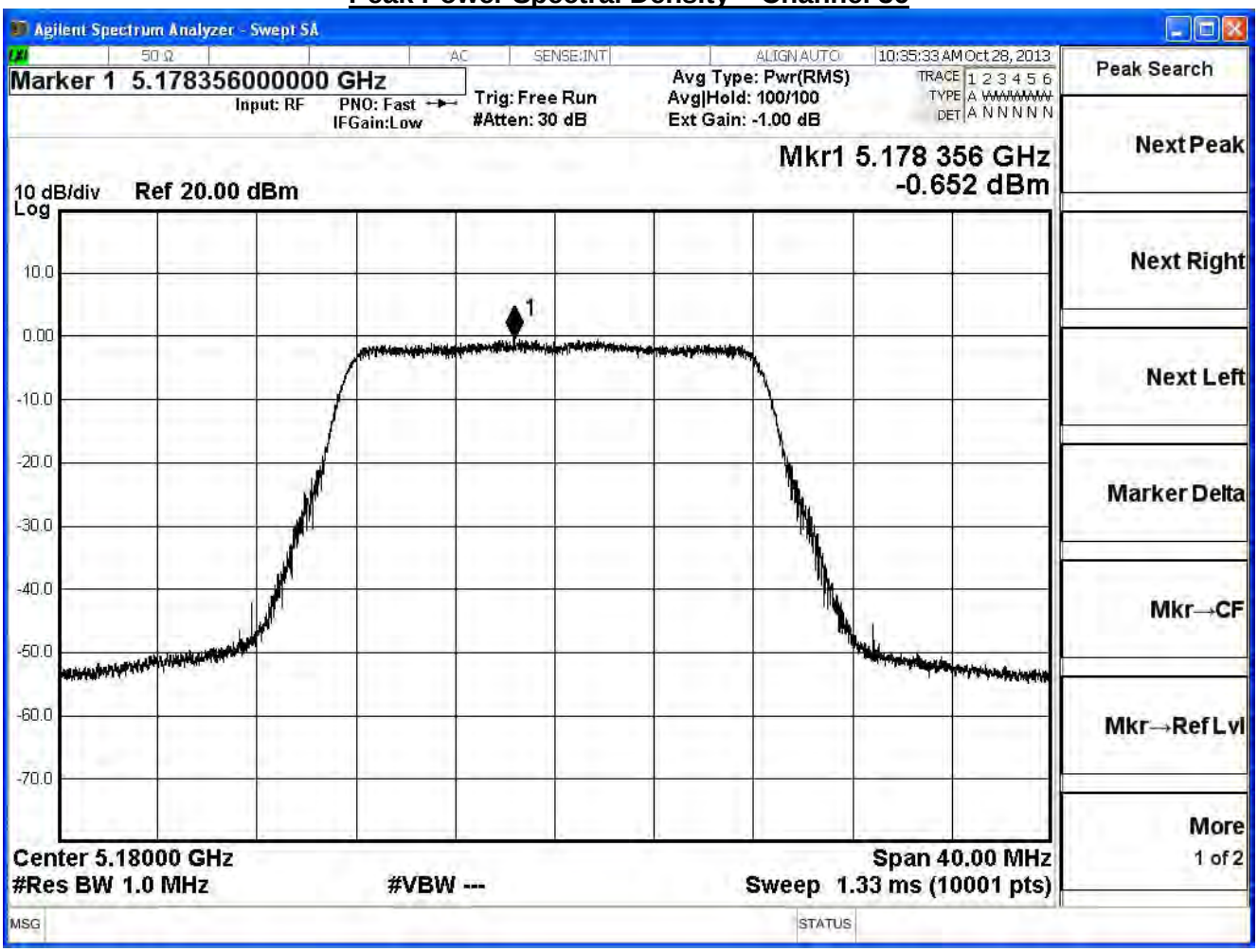
IEEE 802.11a (ANT 0)				
Channel No.	Frequency (MHz)	Measure Level (dBm)	Required Limit (dBm)	Result
36	5180	-0.65	≦2.99	Pass
44	5220	-0.73	≦2.99	Pass
48	5240	-0.64	≦2.99	Pass

Note:

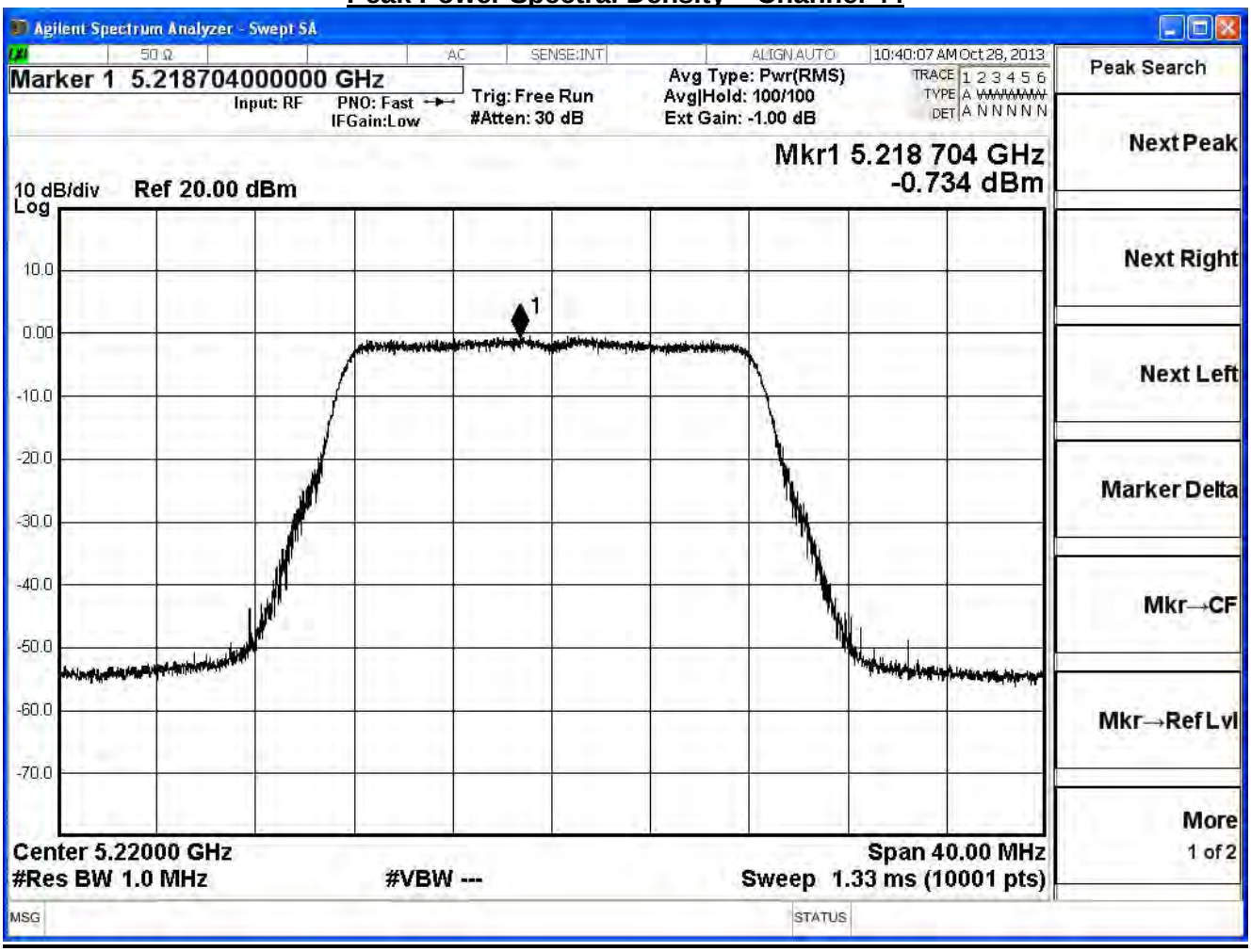
Measure Level =Reading value + cable loss

Directional antenna : 10log(2) + max Gain = 7.01dBi
Limit = 4dBm - (7.01dBi - 6dB) = 2.99 dBm

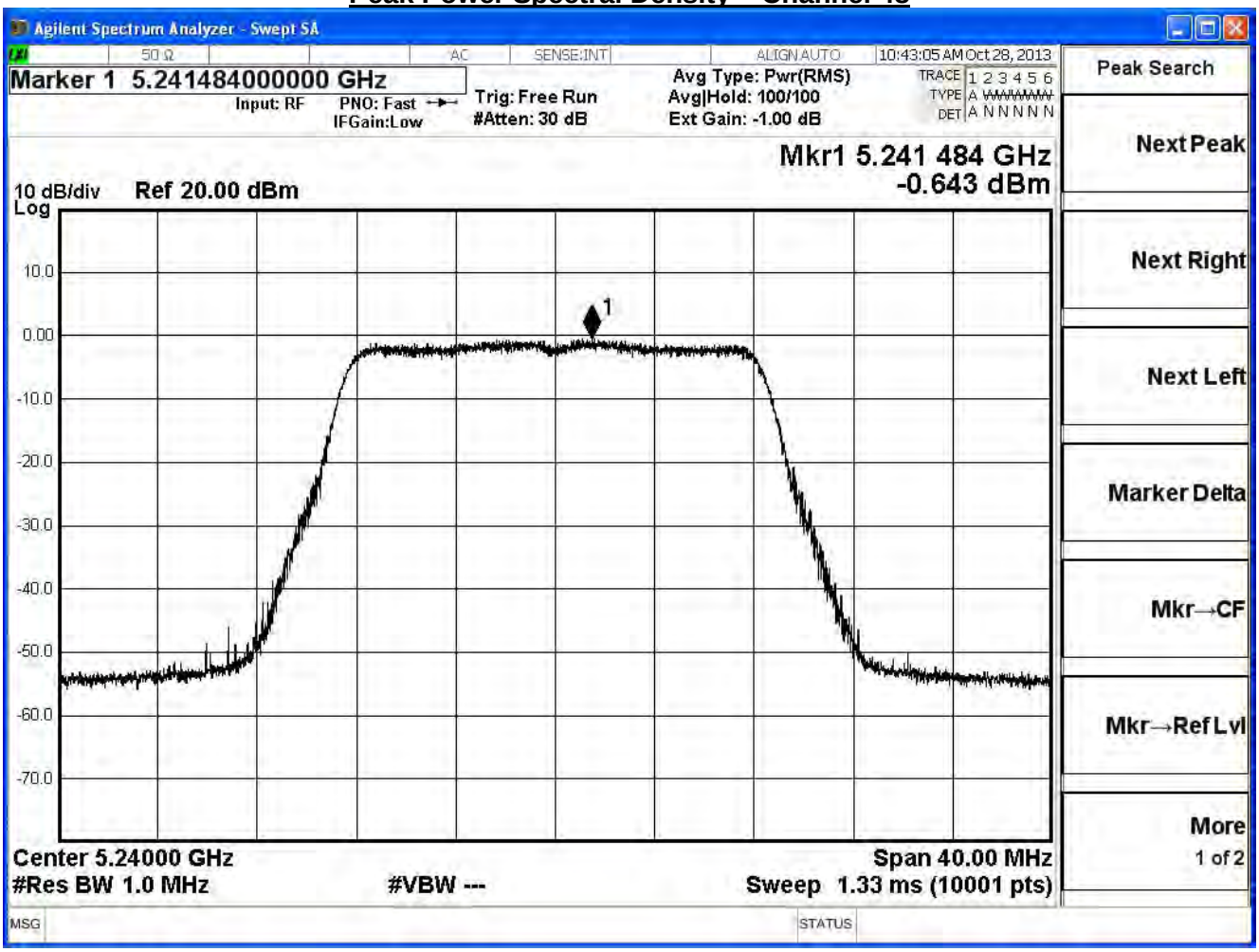
Peak Power Spectral Density – Channel 36



Peak Power Spectral Density – Channel 44



Peak Power Spectral Density – Channel 48



Product	PCE-AC56 Dual-Band Wireless PCI-E Adapter		
Test Item	Peak Power Spectral Density		
Test Mode	Mode 1: Transmit (CDD mode)		
Date of Test	2013/11/15	Test Site	SR7

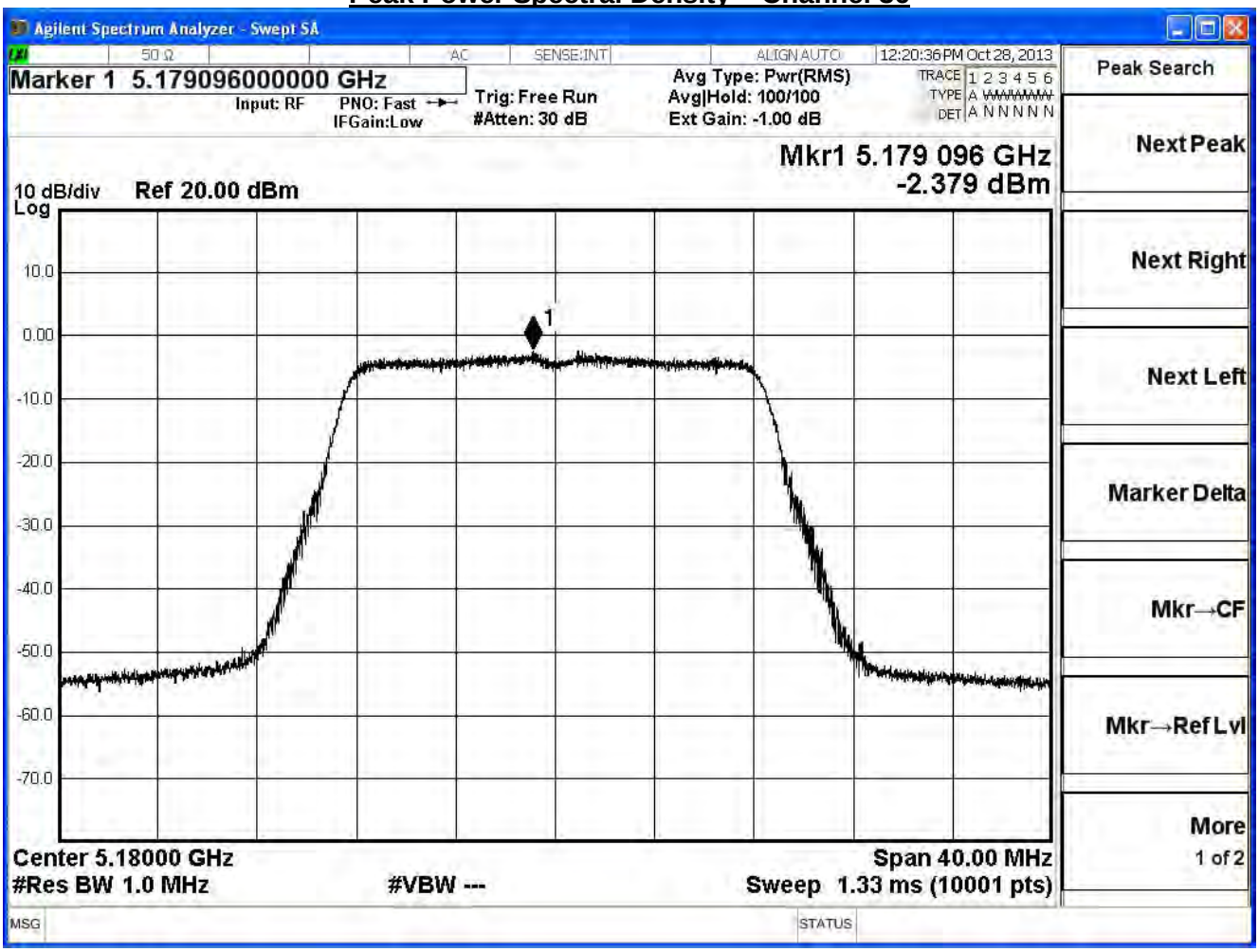
IEEE 802.11a (ANT 1)				
Channel No.	Frequency (MHz)	Measure Level (dBm)	Required Limit (dBm)	Result
36	5180	-2.36	≦2.99	Pass
44	5220	-2.71	≦2.99	Pass
48	5240	-2.23	≦2.99	Pass

Note:

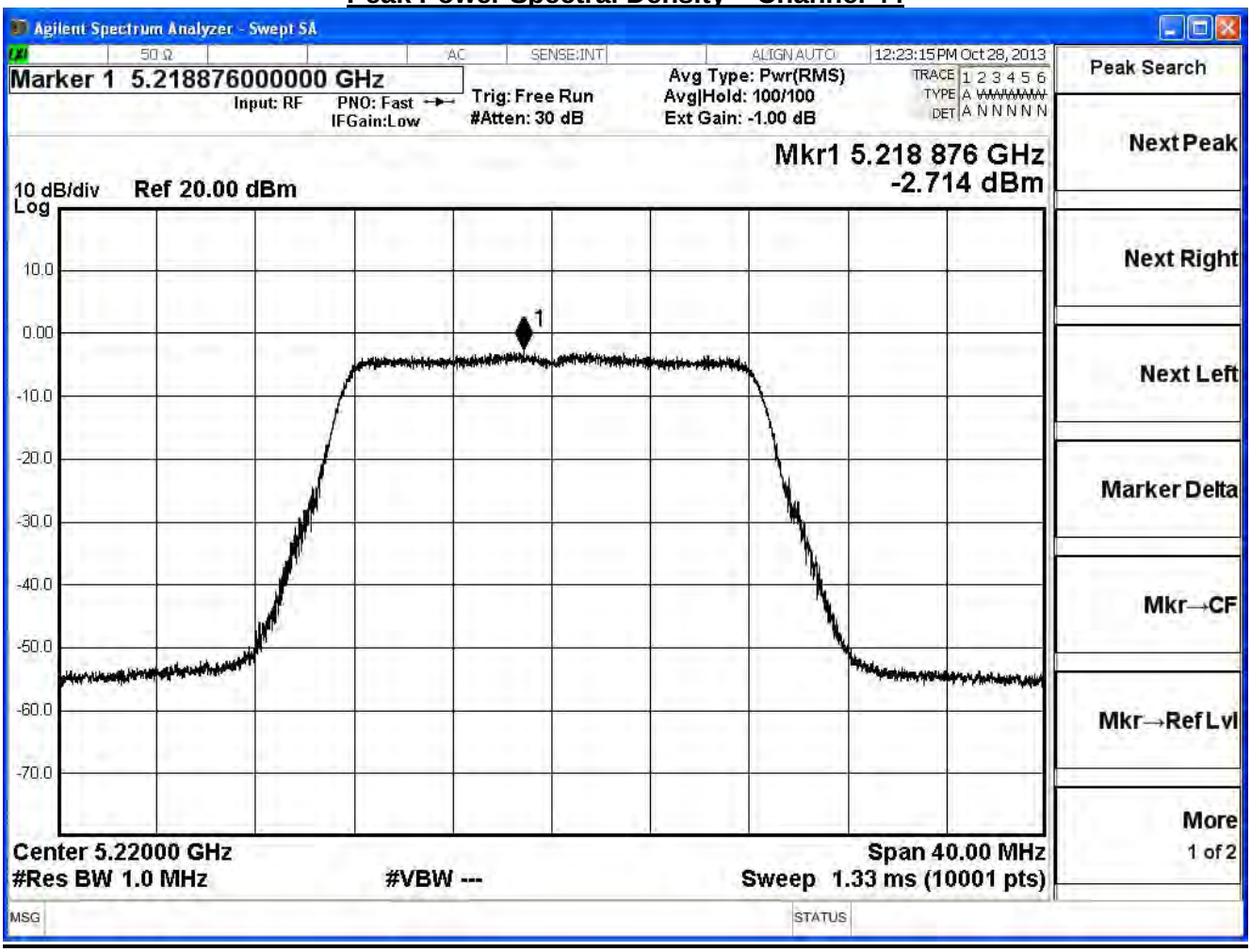
Measure Level =Reading value + cable loss

Directional antenna : 10log(2) + max Gain = 7.01dBi
Limit = 4dBm - (7.01dBi - 6dB) = 2.99 dBm

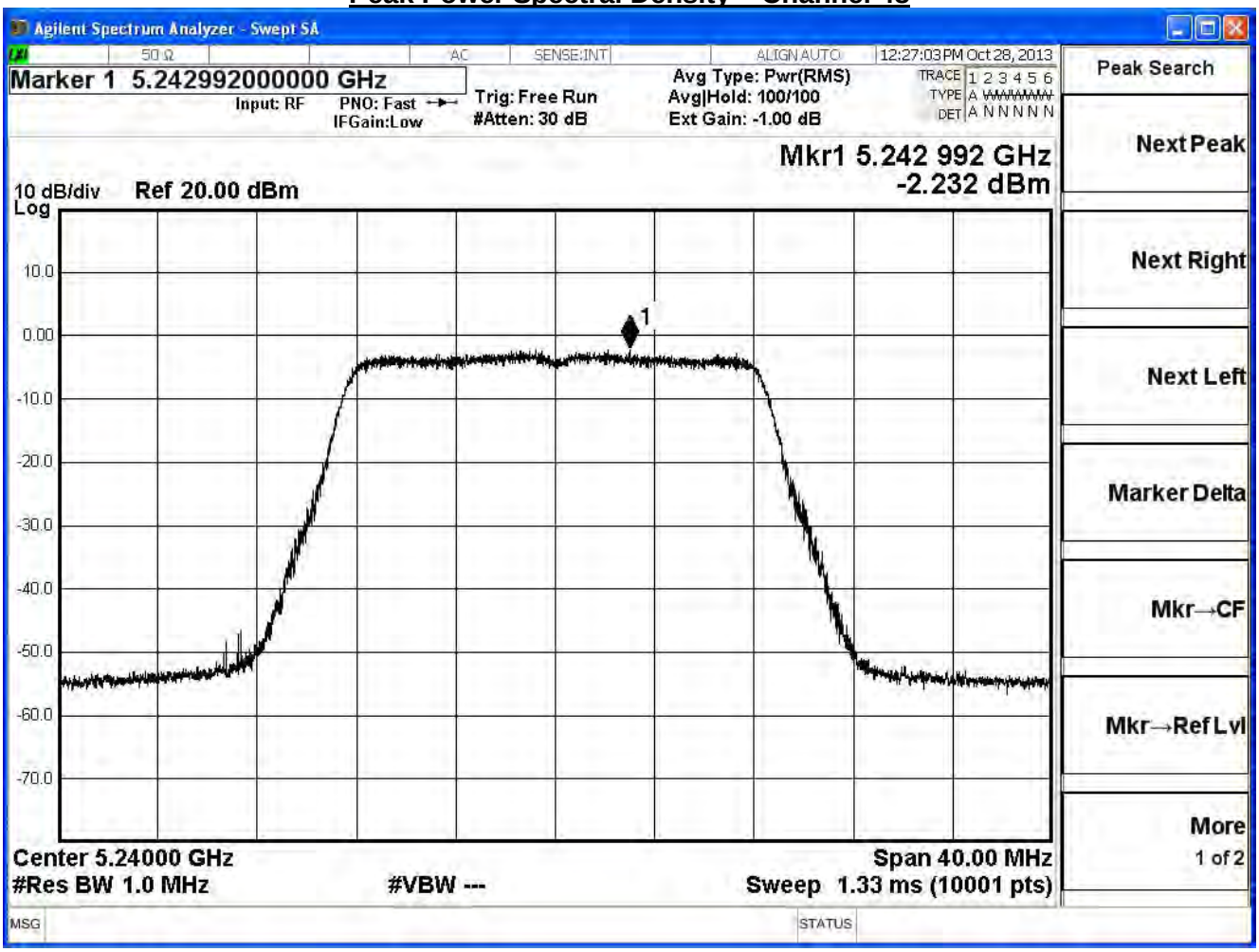
Peak Power Spectral Density – Channel 36



Peak Power Spectral Density – Channel 44



Peak Power Spectral Density – Channel 48



Product	PCE-AC56 Dual-Band Wireless PCI-E Adapter		
Test Item	Peak Power Spectral Density		
Test Mode	Mode 1: Transmit (CDD mode)		
Date of Test	2013/11/15	Test Site	SR7

IEEE 802.11a (ANT 0+1)				
Channel No.	Frequency (MHz)	Measure Level (dBm)	Required Limit (dBm)	Result
36	5180	1.58	≦2.99	Pass
44	5220	1.40	≦2.99	Pass
48	5240	1.65	≦2.99	Pass

Note:

Measure Level =Reading value + cable loss

Directional antenna : 10log(2) + max Gain = 7.01dBi
Limit = 4dBm - (7.01dBi - 6dB) = 2.99 dBm

Product	PCE-AC56 Dual-Band Wireless PCI-E Adapter		
Test Item	Peak Power Spectral Density		
Test Mode	Mode 1: Transmit (CDD mode)		
Date of Test	2013/11/15	Test Site	SR7

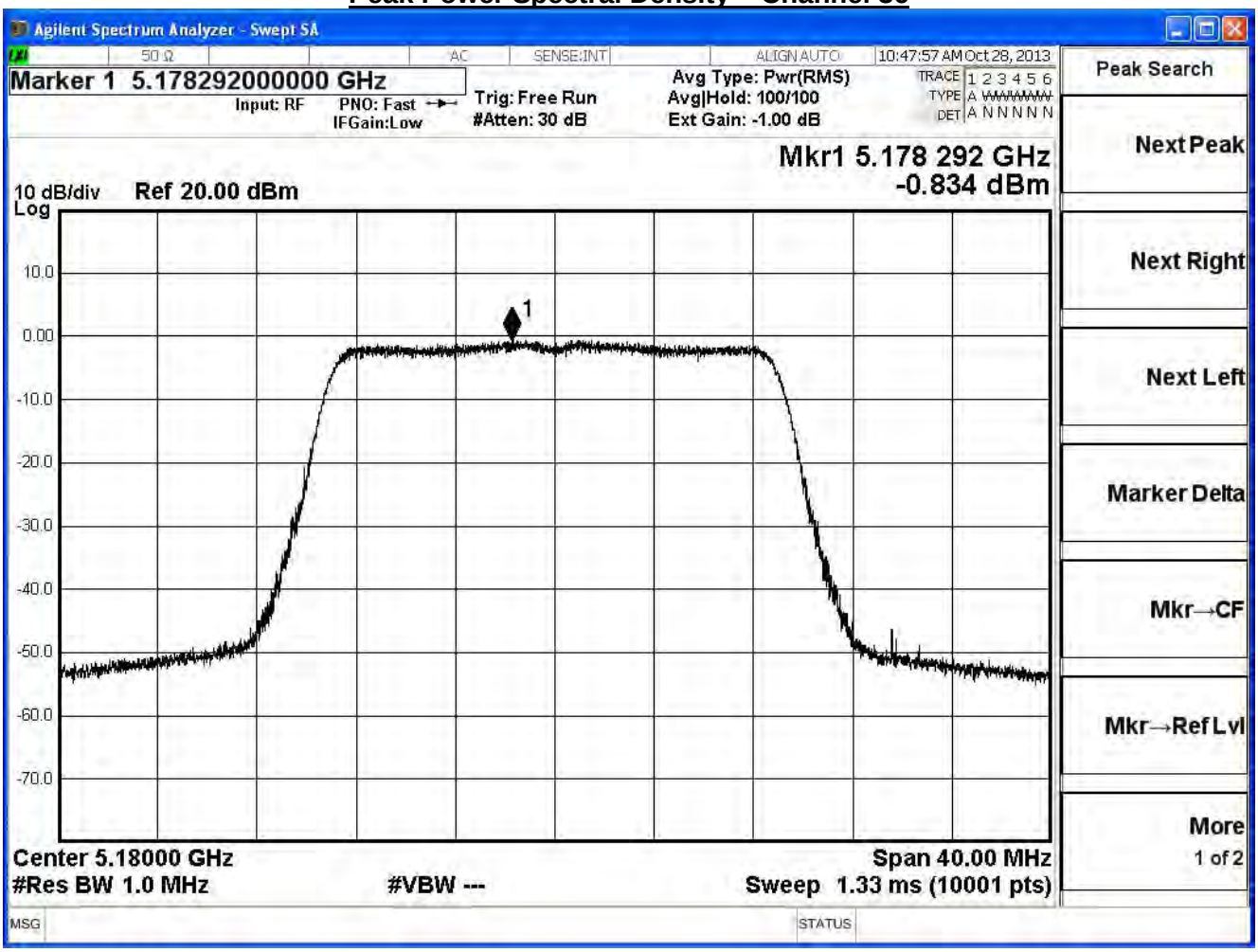
IEEE 802.11n_20M(ANT 0)				
Channel No.	Frequency (MHz)	Measure Level (dBm)	Required Limit (dBm)	Result
36	5180	-0.83	≦2.99	Pass
44	5220	-0.79	≦2.99	Pass
48	5240	-0.60	≦2.99	Pass

Note:

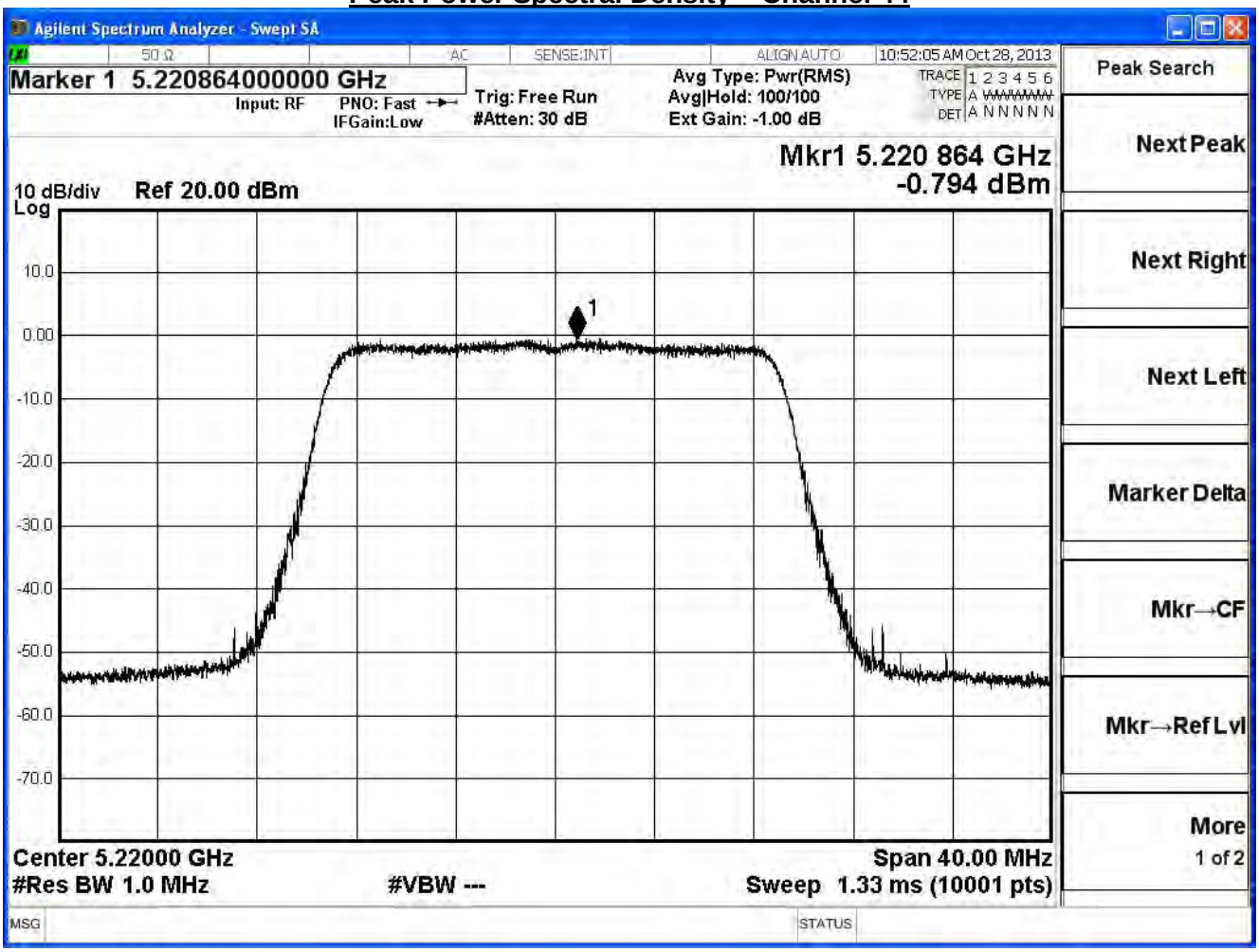
Measure Level =Reading value + cable loss

Directional antenna : 10log(2) + max Gain = 7.01dBi
Limit = 4dBm - (7.01dBi - 6dB) = 2.99 dBm

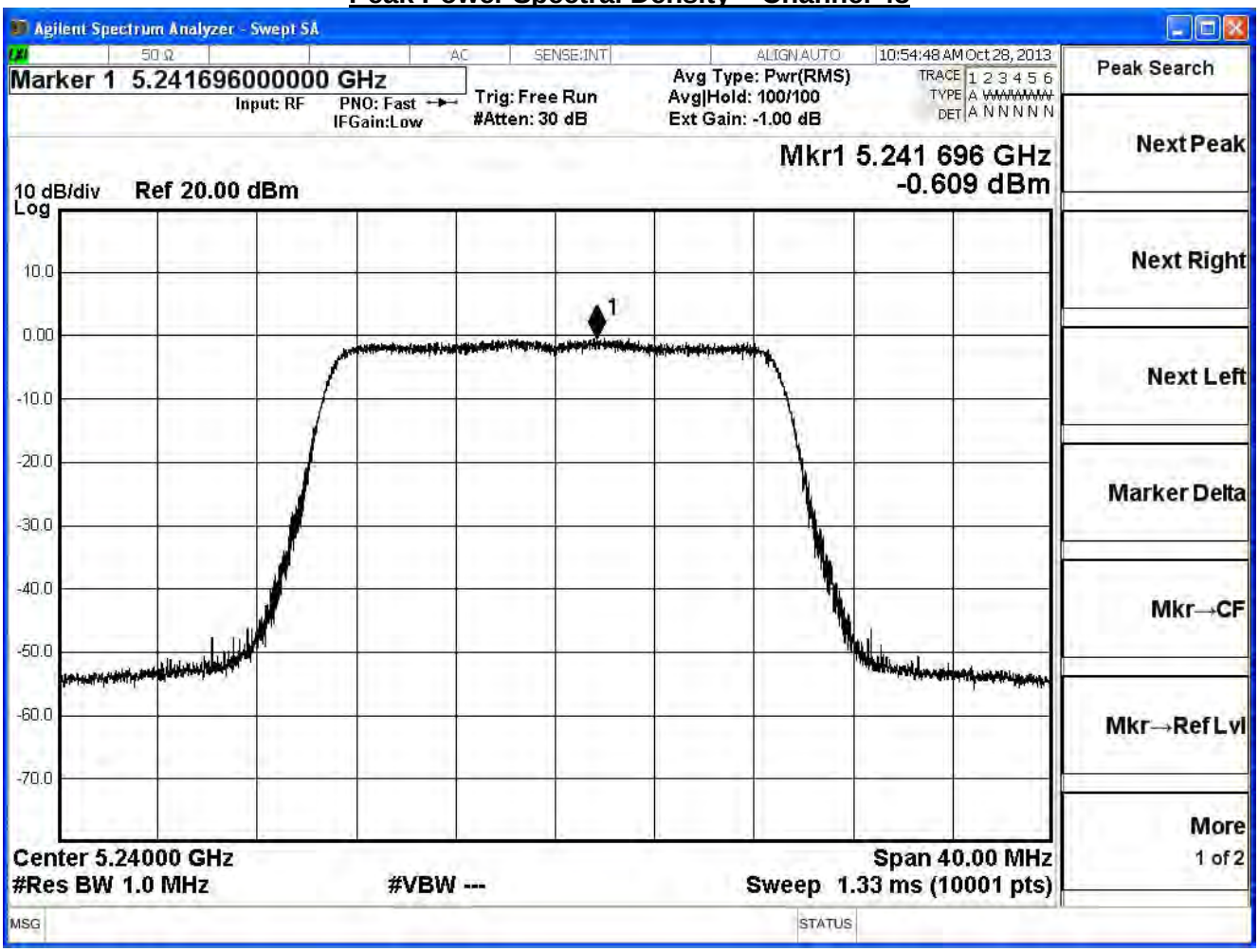
Peak Power Spectral Density – Channel 36



Peak Power Spectral Density – Channel 44



Peak Power Spectral Density – Channel 48



Product	PCE-AC56 Dual-Band Wireless PCI-E Adapter		
Test Item	Peak Power Spectral Density		
Test Mode	Mode 1: Transmit (CDD mode)		
Date of Test	2013/11/15	Test Site	SR7

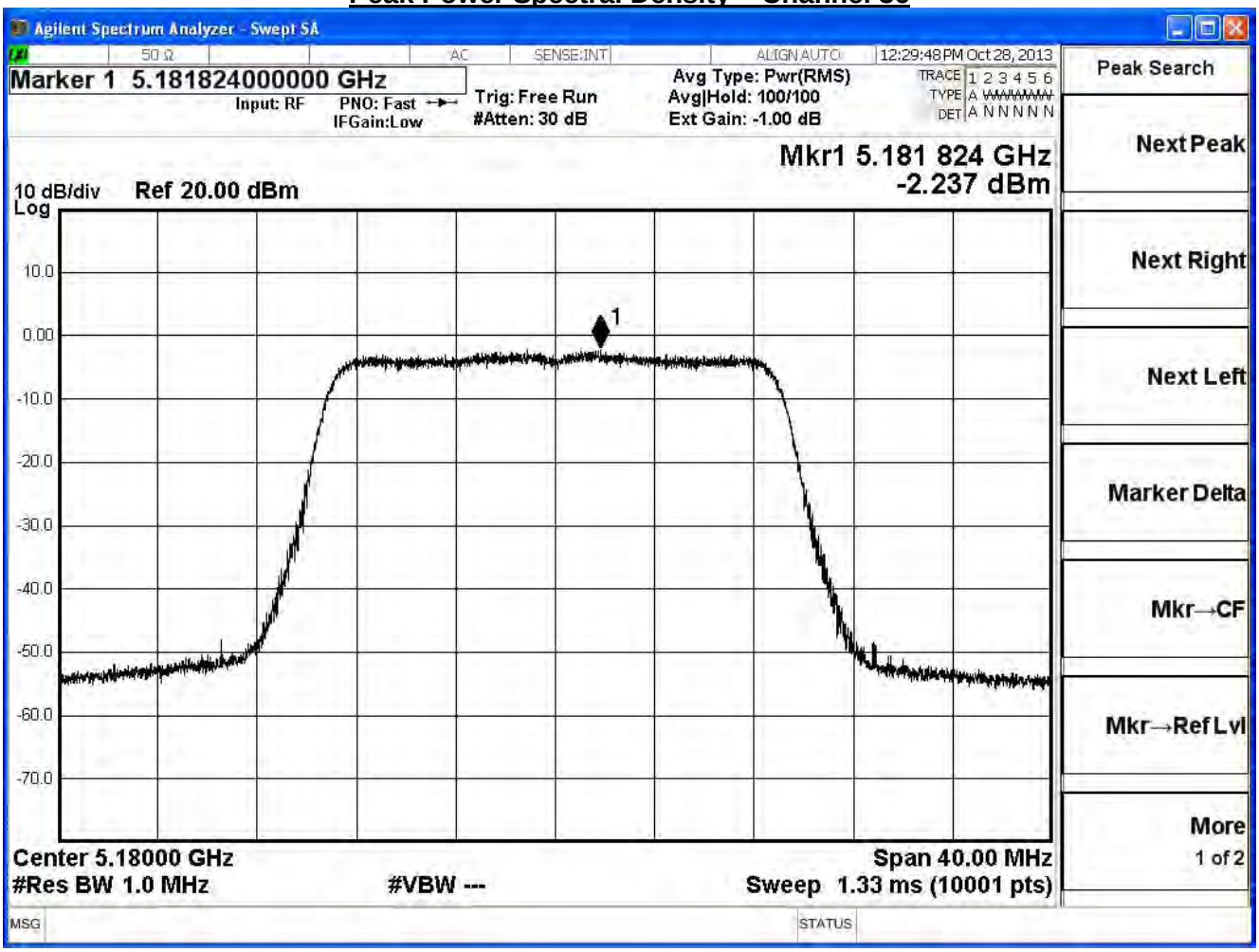
IEEE 802.11n_20M(ANT 1)				
Channel No.	Frequency (MHz)	Measure Level (dBm)	Required Limit (dBm)	Result
36	5180	-2.22	≦2.99	Pass
44	5220	-2.41	≦2.99	Pass
48	5240	-2.34	≦2.99	Pass

Note:

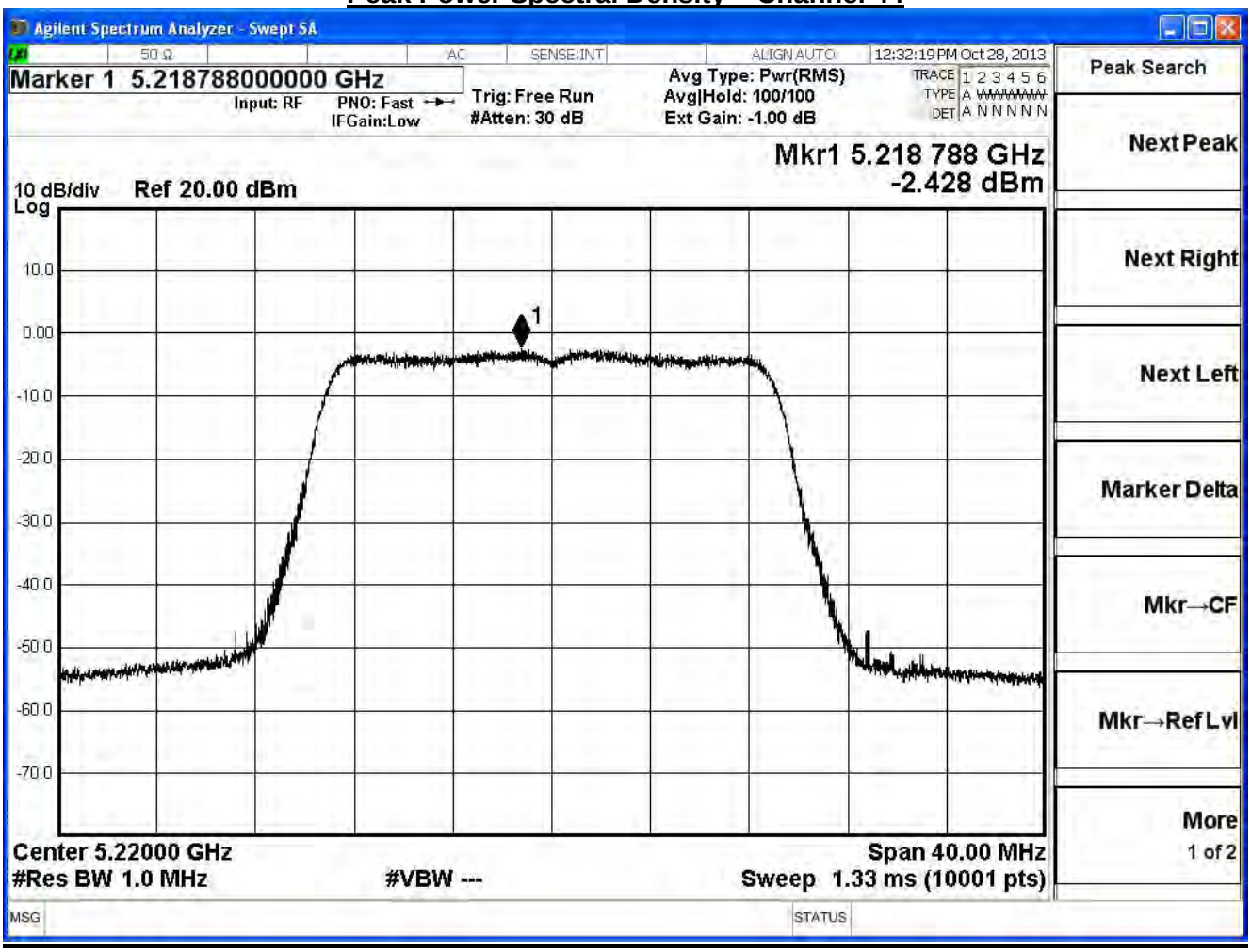
Measure Level =Reading value + cable loss

Directional antenna : 10log(2) + max Gain = 7.01dBi
Limit = 4dBm - (7.01dBi - 6dB) = 2.99 dBm

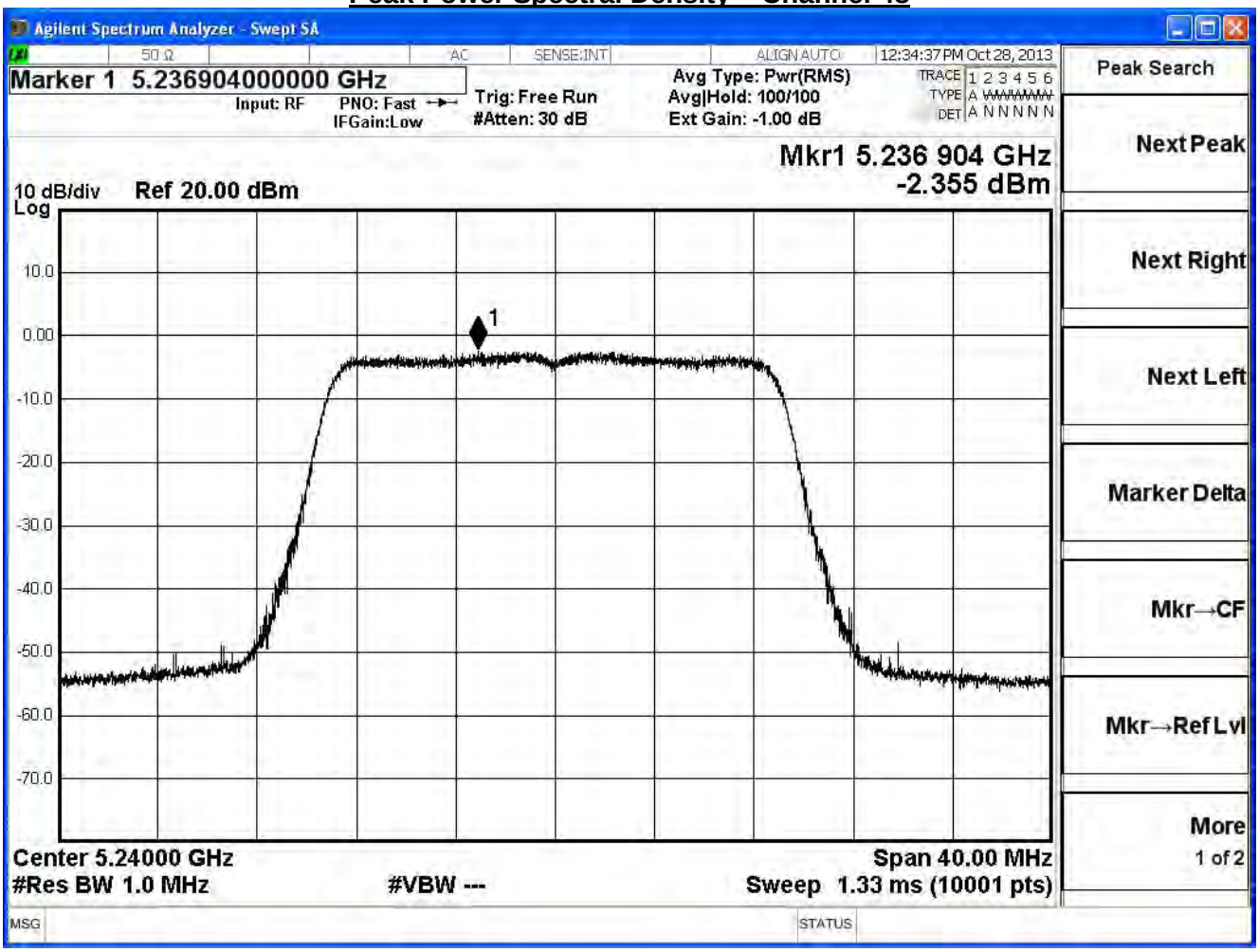
Peak Power Spectral Density – Channel 36



Peak Power Spectral Density – Channel 44



Peak Power Spectral Density – Channel 48



Product	PCE-AC56 Dual-Band Wireless PCI-E Adapter		
Test Item	Peak Power Spectral Density		
Test Mode	Mode 1: Transmit (CDD mode)		
Date of Test	2013/11/15	Test Site	SR7

IEEE 802.11n_20M(ANT 0+1)				
Channel No.	Frequency (MHz)	Measure Level (dBm)	Required Limit (dBm)	Result
36	5180	1.54	≦2.99	Pass
44	5220	1.48	≦2.99	Pass
48	5240	1.62	≦2.99	Pass

Note:

Measure Level =Reading value + cable loss

Directional antenna : 10log(2) + max Gain = 7.01dBi
Limit = 4dBm - (7.01dBi - 6dB) = 2.99 dBm

Product	PCE-AC56 Dual-Band Wireless PCI-E Adapter		
Test Item	Peak Power Spectral Density		
Test Mode	Mode 1: Transmit (CDD mode)		
Date of Test	2013/11/15	Test Site	SR7

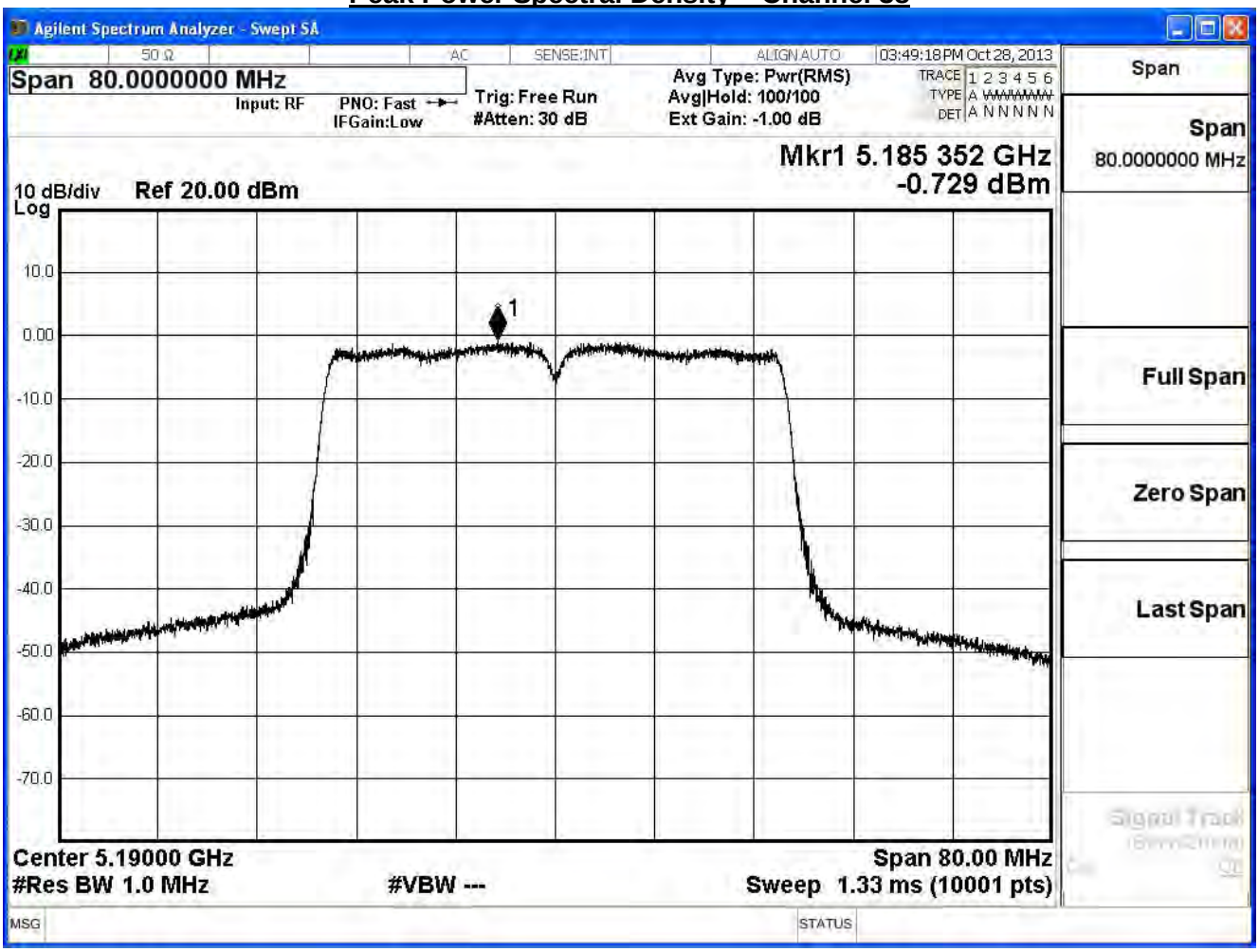
IEEE 802.11n_40M(ANT 0)				
Channel No.	Frequency (MHz)	Measure Level (dBm)	Required Limit (dBm)	Result
38	5190	-0.72	≦2.99	Pass
46	5230	-0.58	≦2.99	Pass

Note:

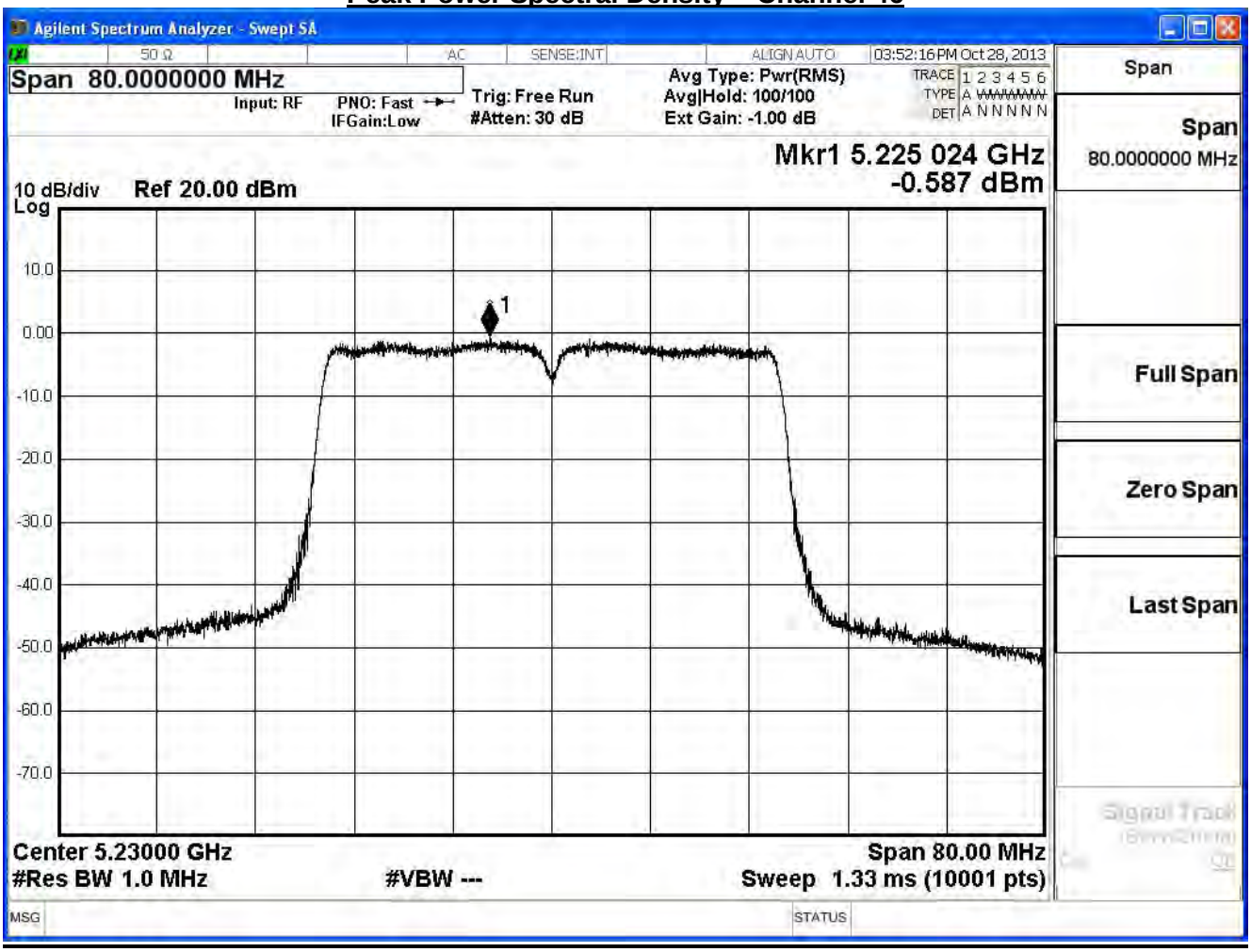
Measure Level =Reading value + cable loss

Directional antenna : 10log(2) + max Gain = 7.01dBi
Limit = 4dBm - (7.01dBi - 6dB) = 2.99 dBm

Peak Power Spectral Density – Channel 38



Peak Power Spectral Density – Channel 46



Product	PCE-AC56 Dual-Band Wireless PCI-E Adapter		
Test Item	Peak Power Spectral Density		
Test Mode	Mode 1: Transmit (CDD mode)		
Date of Test	2013/11/15	Test Site	SR7

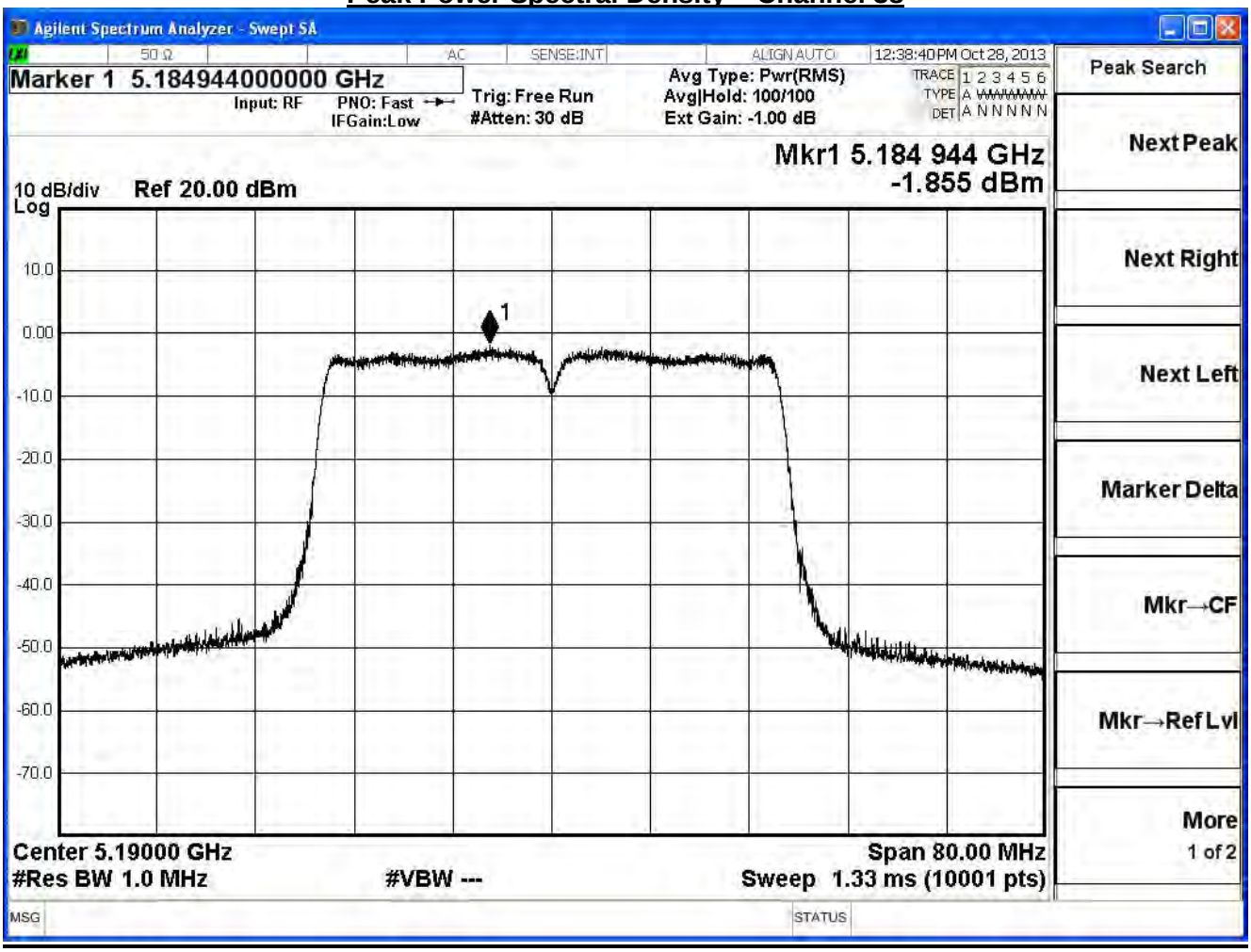
IEEE 802.11n_40M(ANT 1)				
Channel No.	Frequency (MHz)	Measure Level (dBm)	Required Limit (dBm)	Result
38	5190	-1.85	≦2.99	Pass
46	5230	-1.70	≦2.99	Pass

Note:

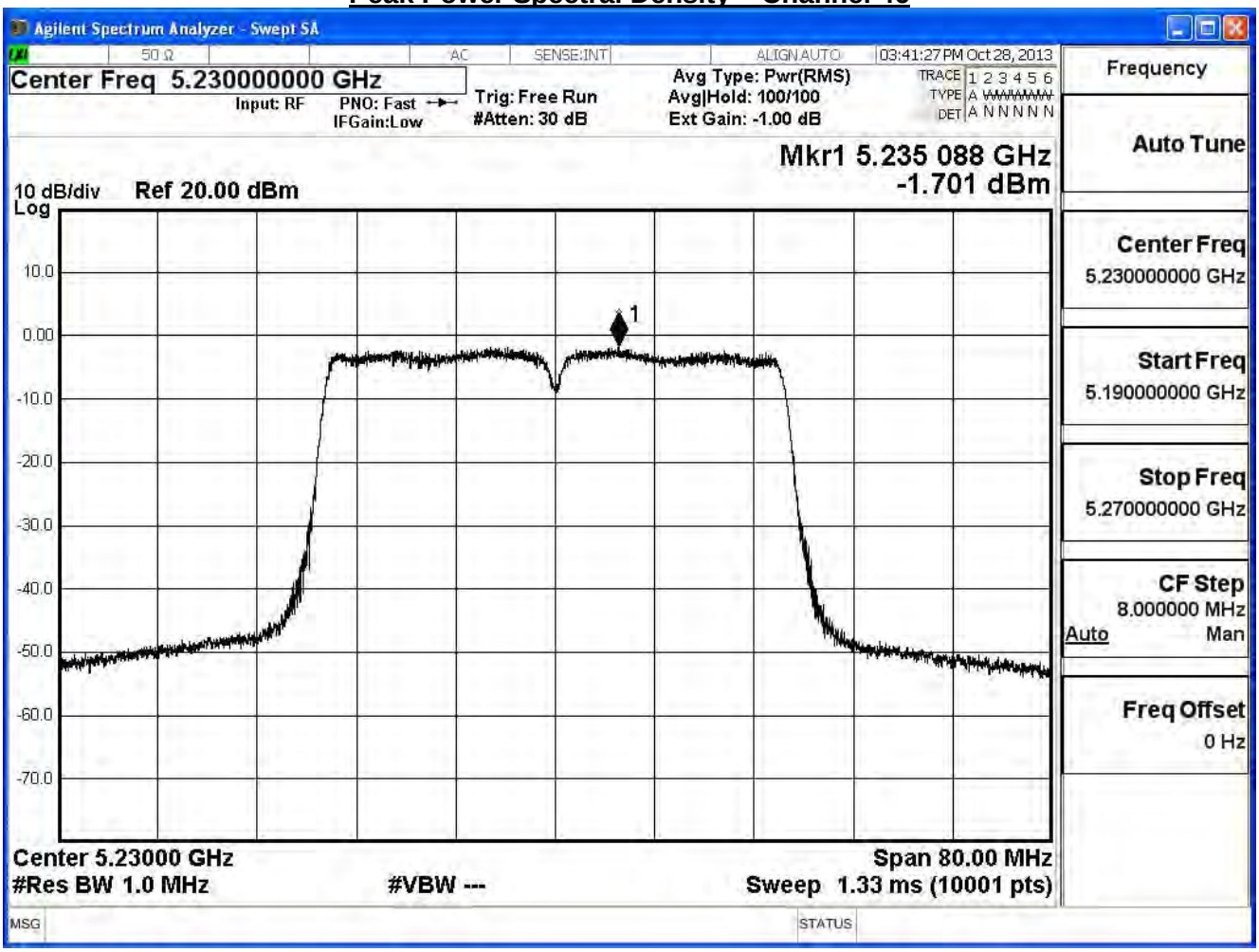
Measure Level =Reading value + cable loss

Directional antenna : 10log(2) + max Gain = 7.01dBi
Limit = 4dBm - (7.01dBi - 6dB) = 2.99 dBm

Peak Power Spectral Density – Channel 38



Peak Power Spectral Density – Channel 46



Product	PCE-AC56 Dual-Band Wireless PCI-E Adapter		
Test Item	Peak Power Spectral Density		
Test Mode	Mode 1: Transmit (CDD mode)		
Date of Test	2013/11/15	Test Site	SR7

IEEE 802.11n_40M(ANT 0+1)				
Channel No.	Frequency (MHz)	Measure Level (dBm)	Required Limit (dBm)	Result
38	5190	1.76	≦2.99	Pass
46	5230	1.91	≦2.99	Pass

Note:

Measure Level =Reading value + cable loss

Directional antenna : 10log(2) + max Gain = 7.01dBi
Limit = 4dBm - (7.01dBi - 6dB) = 2.99 dBm

Product	PCE-AC56 Dual-Band Wireless PCI-E Adapter		
Test Item	Peak Power Spectral Density		
Test Mode	Mode 1: Transmit (CDD mode)		
Date of Test	2013/11/15	Test Site	SR7

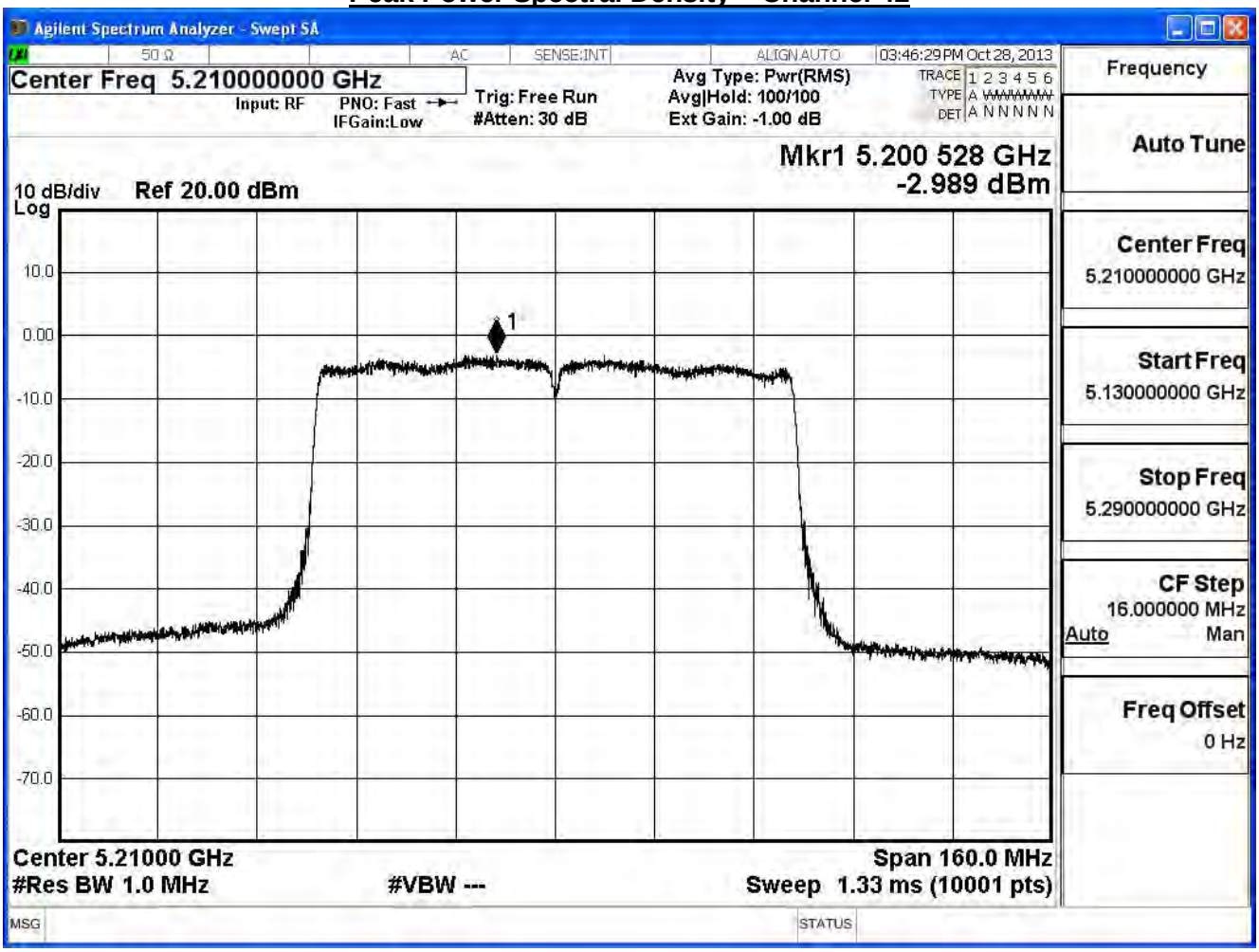
IEEE 802.11ac_80M(ANT 0)				
Channel No.	Frequency (MHz)	Measure Level (dBm)	Required Limit (dBm)	Result
42	5210	-2.97	≤ 2.99	Pass

Note:

Measure Level =Reading value + cable loss

Directional antenna : 10log(2) + max Gain = 7.01dBi
Limit = 4dBm - (7.01dBi - 6dB) = 2.99 dBm

Peak Power Spectral Density – Channel 42



Product	PCE-AC56 Dual-Band Wireless PCI-E Adapter		
Test Item	Peak Power Spectral Density		
Test Mode	Mode 1: Transmit (CDD mode)		
Date of Test	2013/11/15	Test Site	SR7

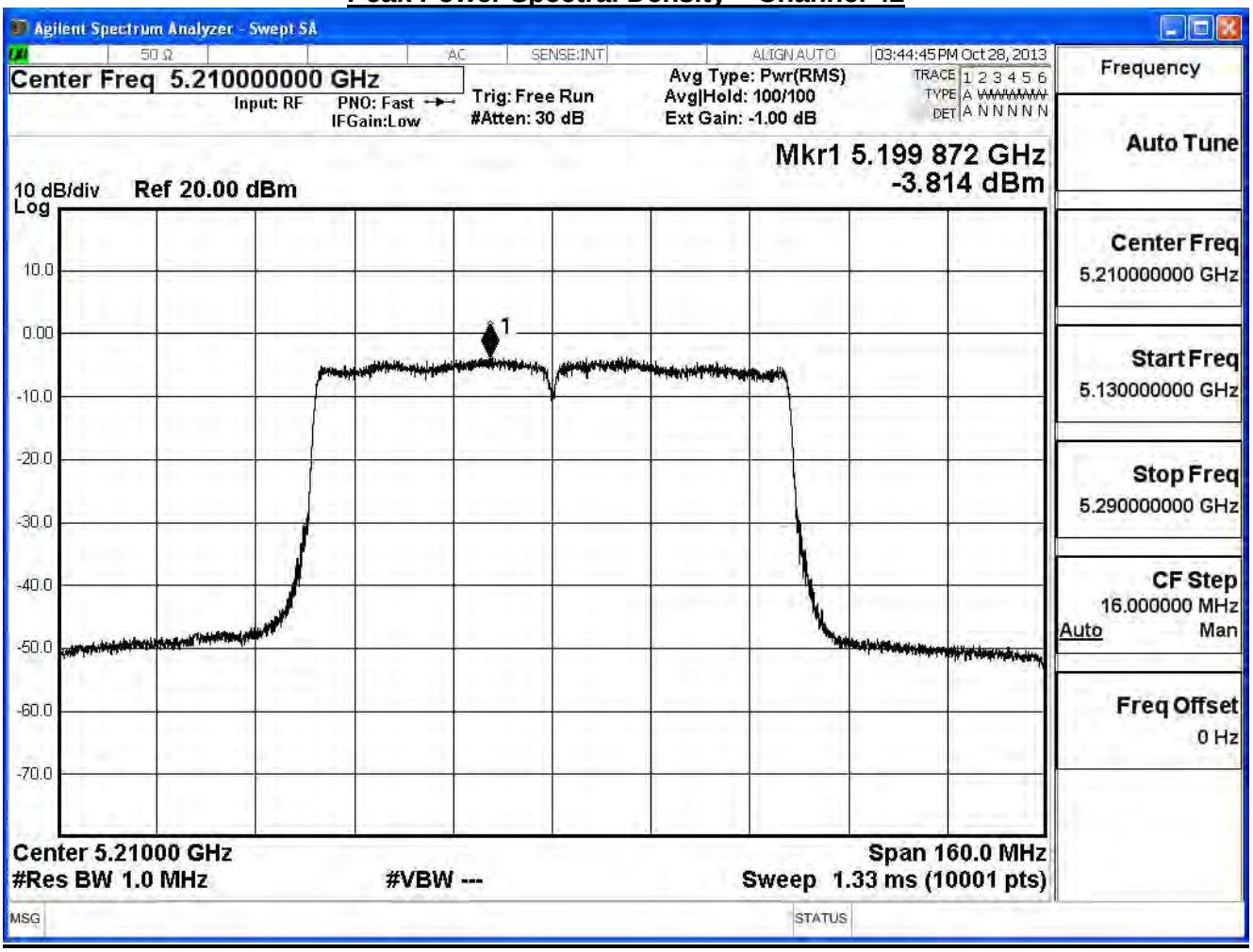
IEEE 802.11ac_80M(ANT 1)				
Channel No.	Frequency (MHz)	Measure Level (dBm)	Required Limit (dBm)	Result
42	5210	-3.81	≦2.99	Pass

Note:

Measure Level =Reading value + cable loss

Directional antenna : 10log(2) + max Gain = 7.01dBi
Limit = 4dBm - (7.01dBi - 6dB) = 2.99 dBm

Peak Power Spectral Density – Channel 42



Product	PCE-AC56 Dual-Band Wireless PCI-E Adapter		
Test Item	Peak Power Spectral Density		
Test Mode	Mode 1: Transmit (CDD mode)		
Date of Test	2013/11/15	Test Site	SR7

IEEE 802.11ac_80M(ANT 0+1)				
Channel No.	Frequency (MHz)	Measure Level (dBm)	Required Limit (dBm)	Result
42	5210	-0.37	≦2.99	Pass

Note:

Measure Level =Reading value + cable loss

Directional antenna : 10log(2) + max Gain = 7.01dBi

Limit = 4dBm - (7.01dBi - 6dB) = 2.99 dBm

Product	PCE-AC56 Dual-Band Wireless PCI-E Adapter		
Test Item	Peak Power Spectral Density		
Test Mode	Mode 2: Transmit (Beamforming mode)		
Date of Test	2013/12/13	Test Site	SR7

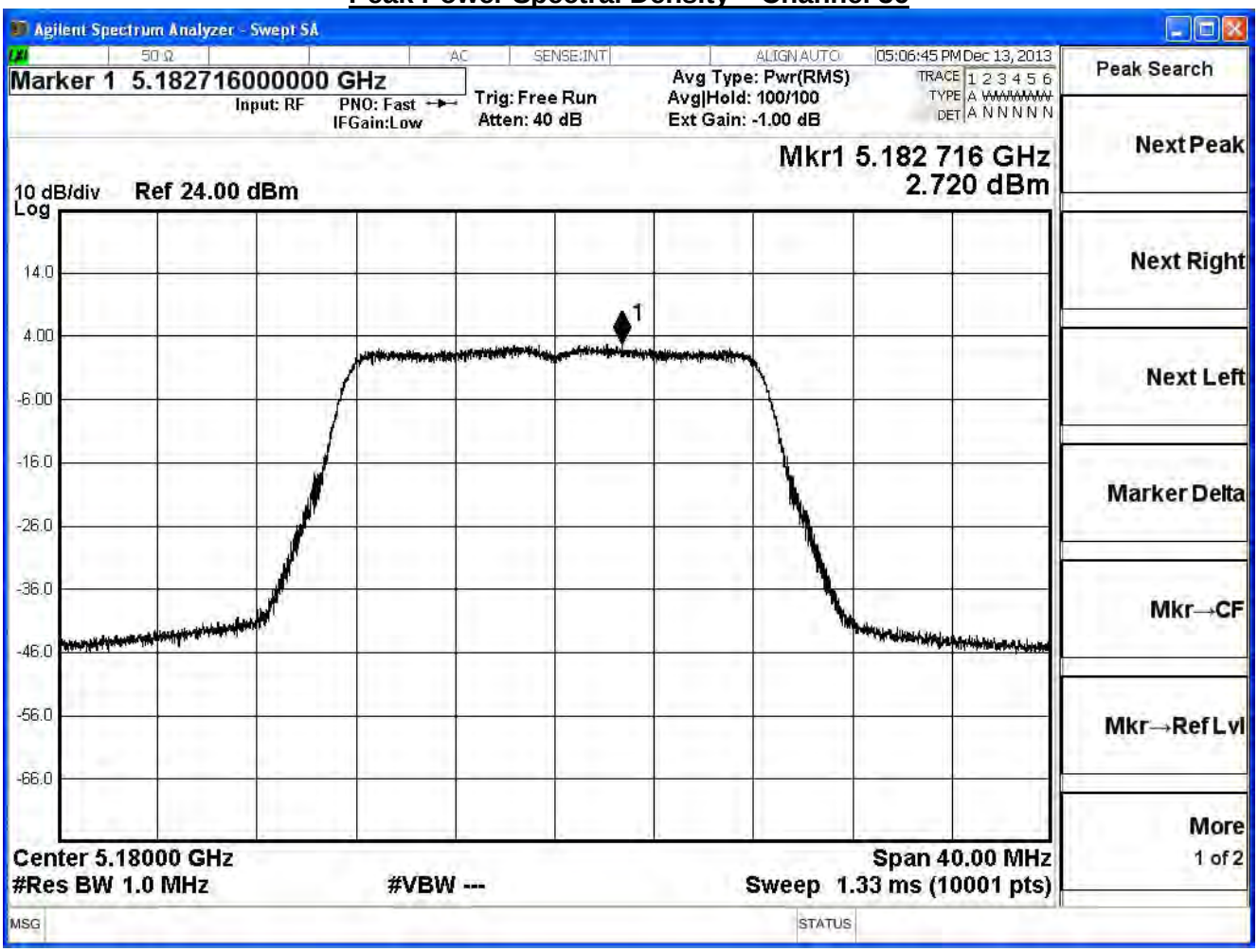
IEEE 802.11a				
Channel No.	Frequency (MHz)	Measure Level (dBm)	Required Limit (dBm)	Result
36	5180	2.720	≦2.99	Pass
44	5220	2.839	≦2.99	Pass
48	5240	2.776	≦2.99	Pass

Note:

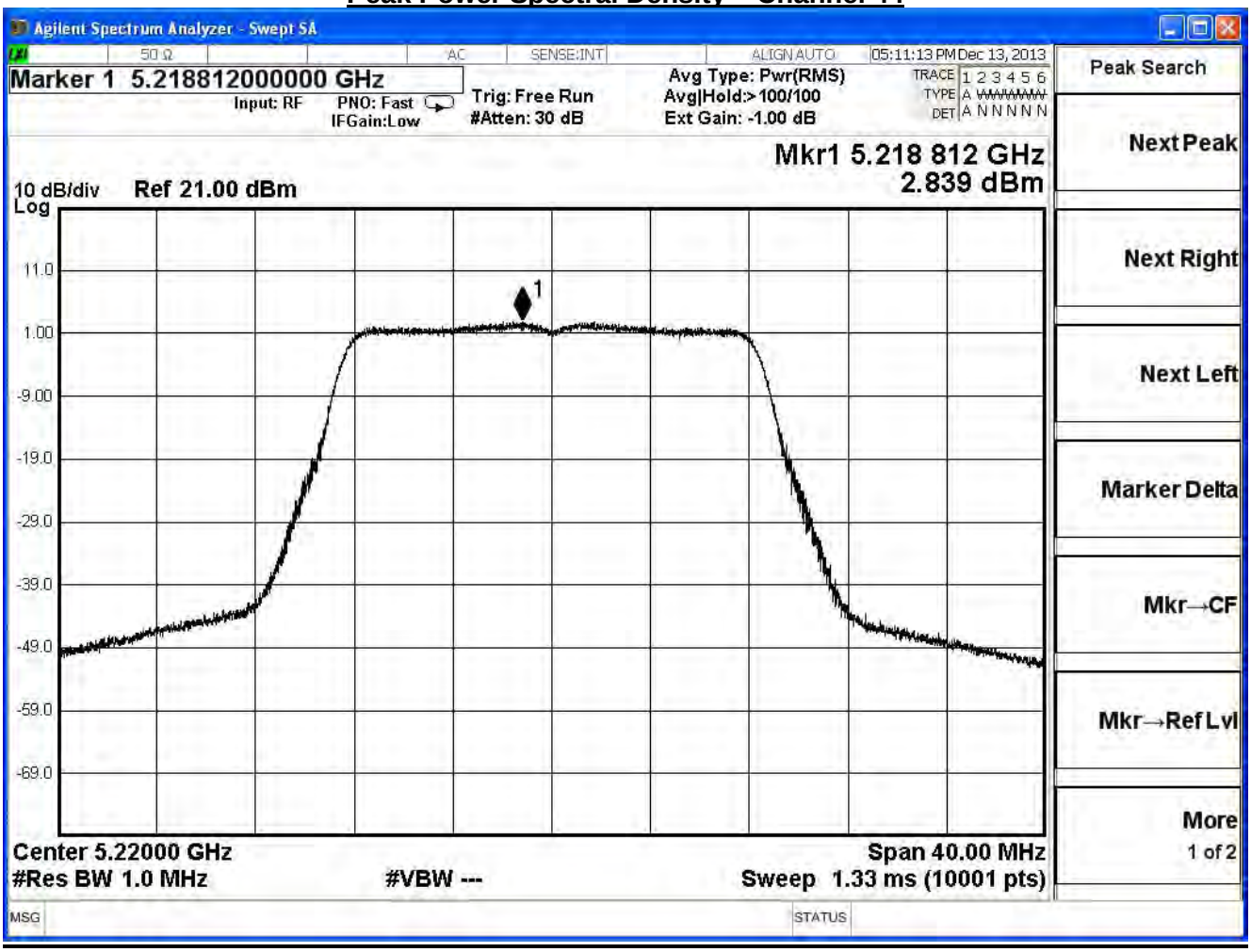
Measure Level =Reading value + cable loss

Directional antenna : Beamforming Gain + max Gain = 7.01dBi
Limit : 4dBm - (7.01dBi - 6dB) = 2.99 dBm

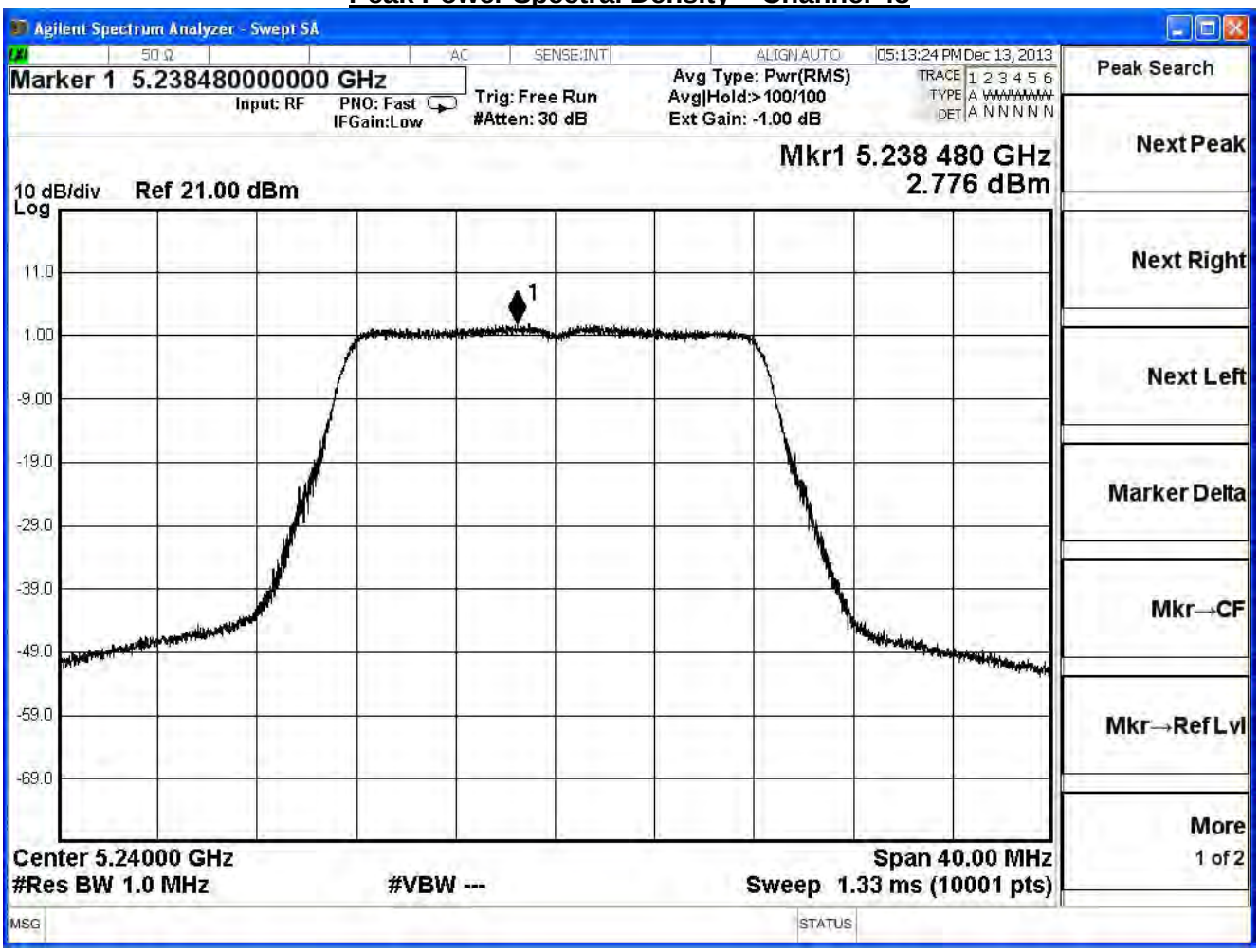
Peak Power Spectral Density – Channel 36



Peak Power Spectral Density – Channel 44



Peak Power Spectral Density – Channel 48



Product	PCE-AC56 Dual-Band Wireless PCI-E Adapter		
Test Item	Peak Power Spectral Density		
Test Mode	Mode 2: Transmit (Beamforming mode)		
Date of Test	2013/11/15	Test Site	SR7

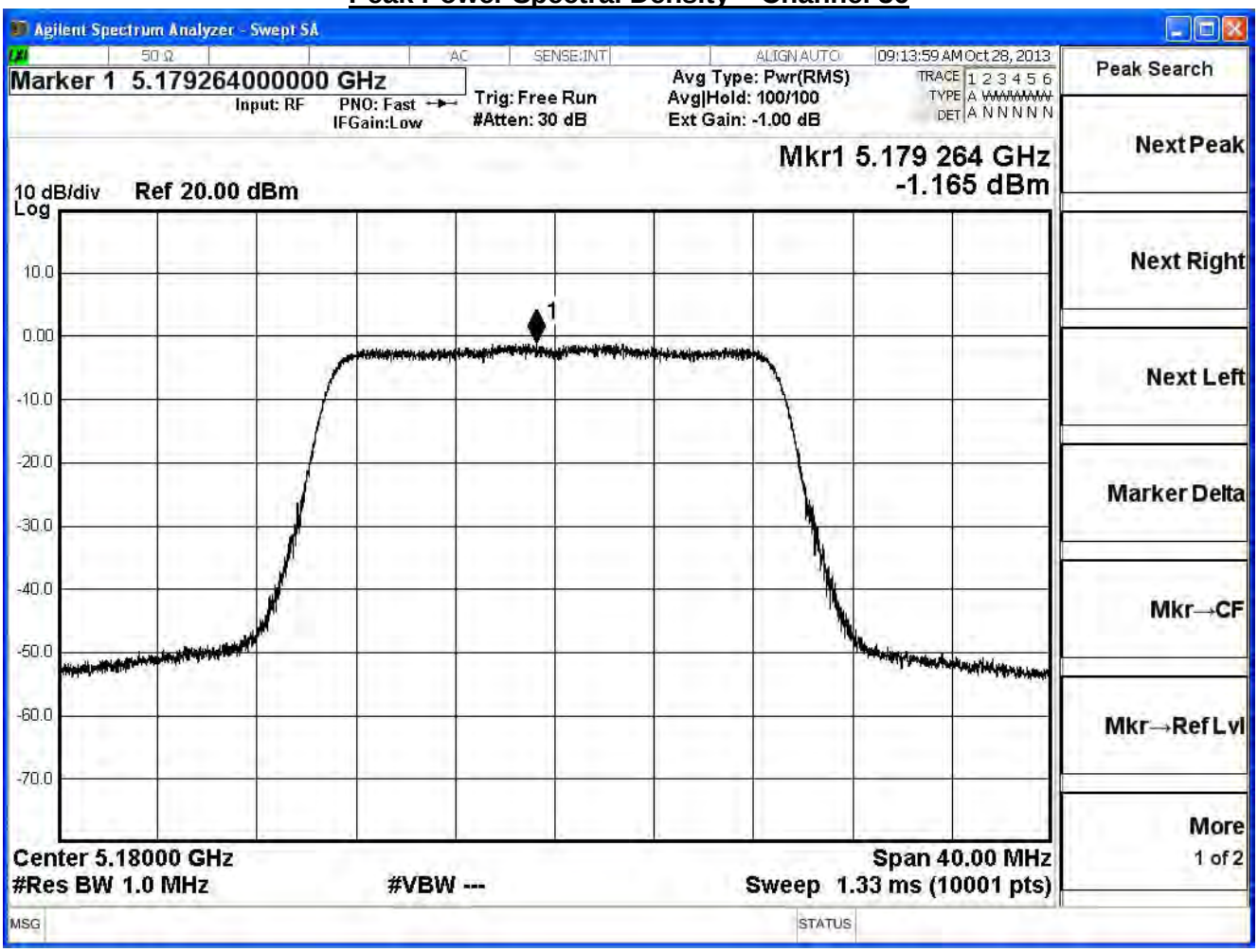
IEEE 802.11n_20M(ANT 0)				
Channel No.	Frequency (MHz)	Measure Level (dBm)	Required Limit (dBm)	Result
36	5180	-1.16	≦2.99	Pass
44	5220	-1.13	≦2.99	Pass
48	5240	-1.18	≦2.99	Pass

Note:

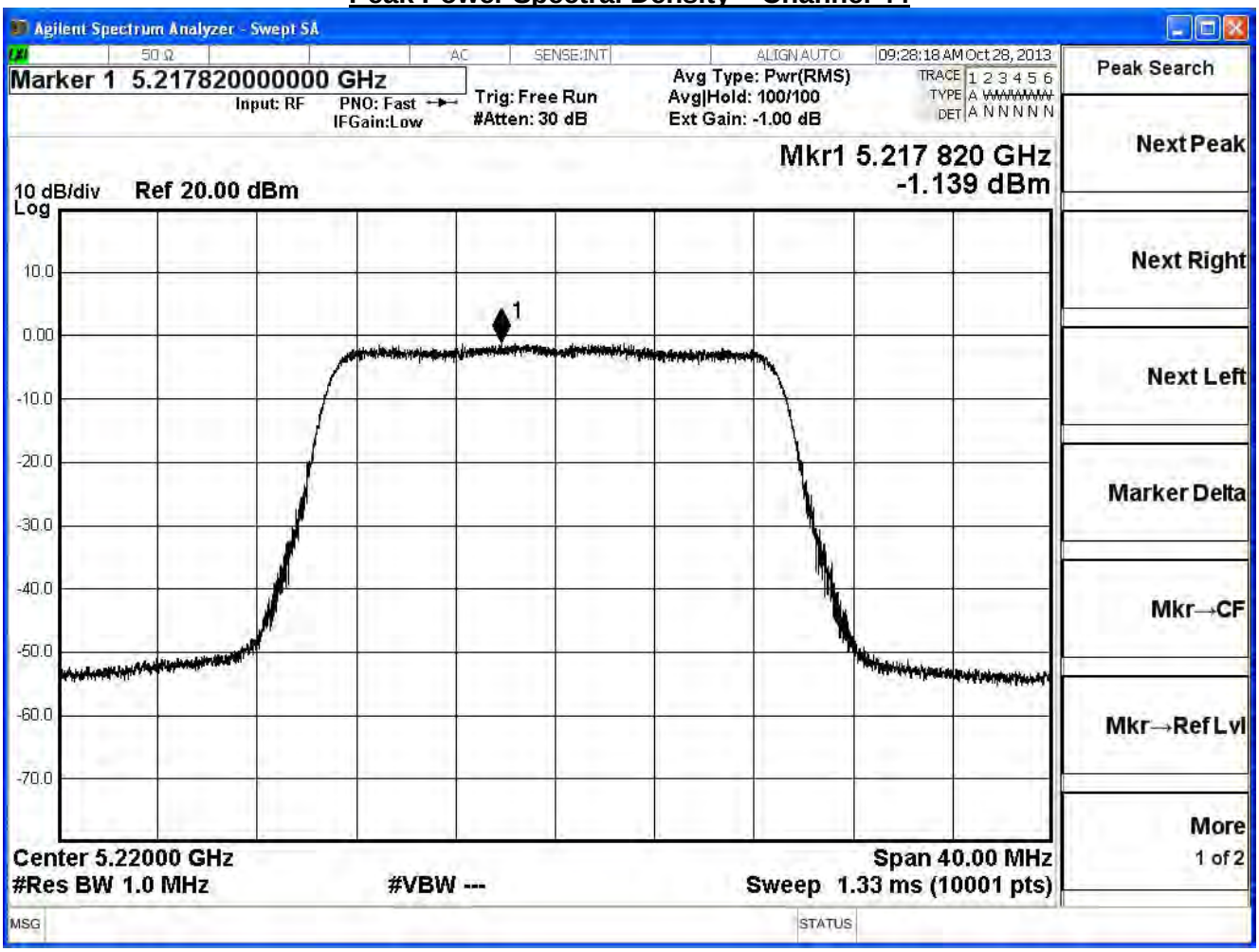
Measure Level =Reading value + cable loss

Directional antenna : 10log(2) + max Gain = 7.01dBi
Limit : 4dBm - (7.01dBi - 6dB) = 2.99 dBm

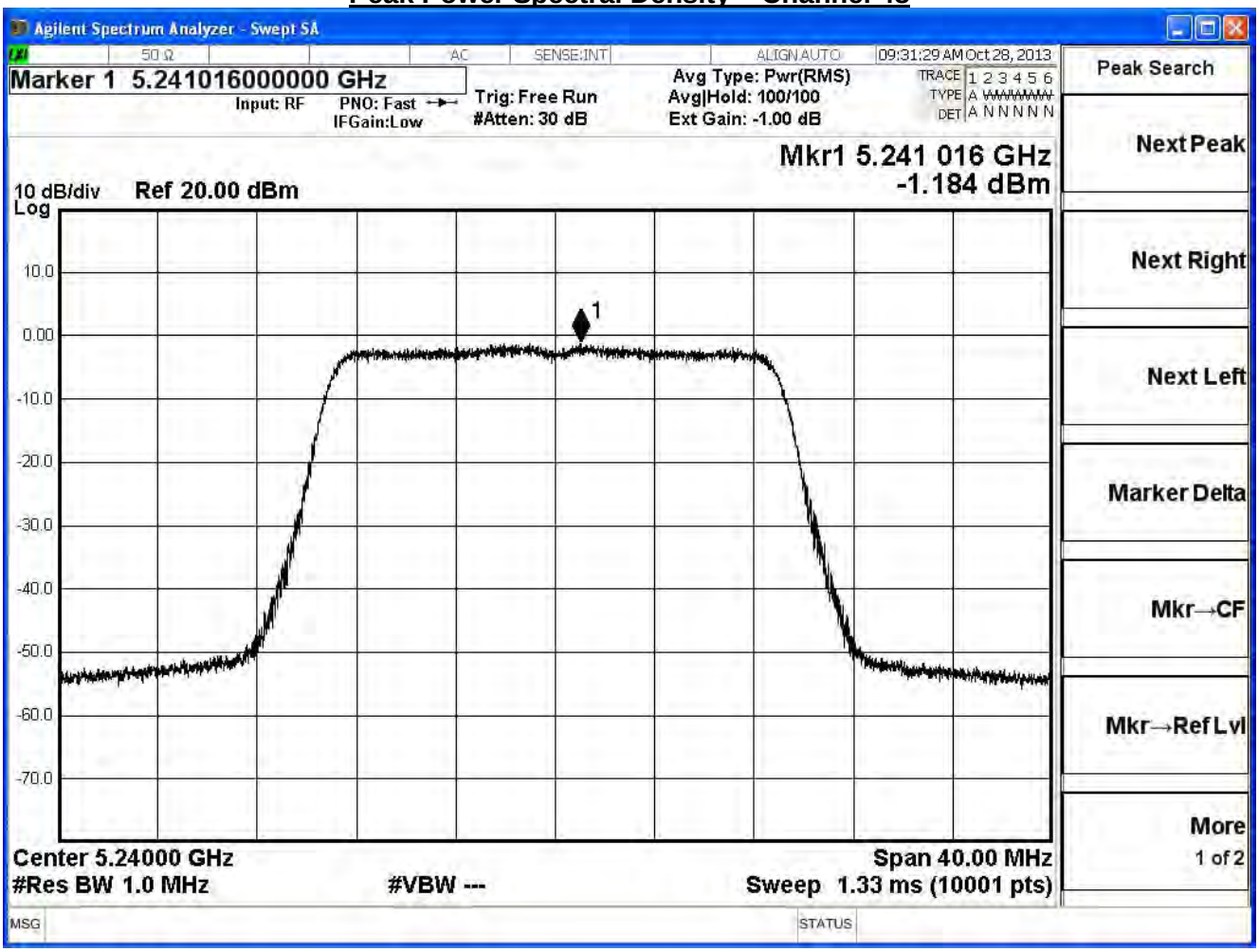
Peak Power Spectral Density – Channel 36



Peak Power Spectral Density – Channel 44



Peak Power Spectral Density – Channel 48



Product	PCE-AC56 Dual-Band Wireless PCI-E Adapter		
Test Item	Peak Power Spectral Density		
Test Mode	Mode 2: Transmit (Beamforming mode)		
Date of Test	2013/11/15	Test Site	SR7

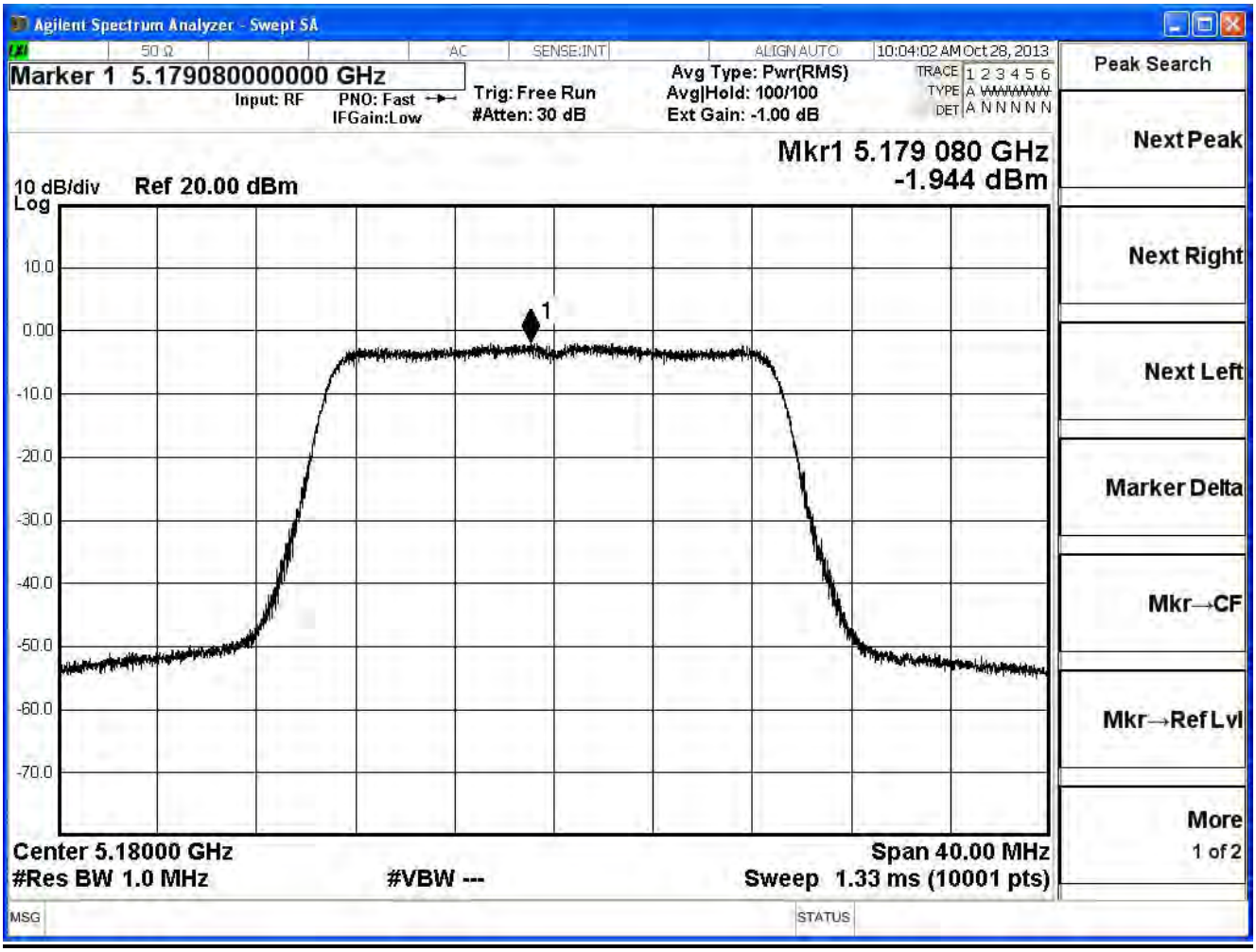
IEEE 802.11n_20M(ANT 1)				
Channel No.	Frequency (MHz)	Measure Level (dBm)	Required Limit (dBm)	Result
36	5180	-1.94	≦2.99	Pass
44	5220	-1.92	≦2.99	Pass
48	5240	-1.95	≦2.99	Pass

Note:

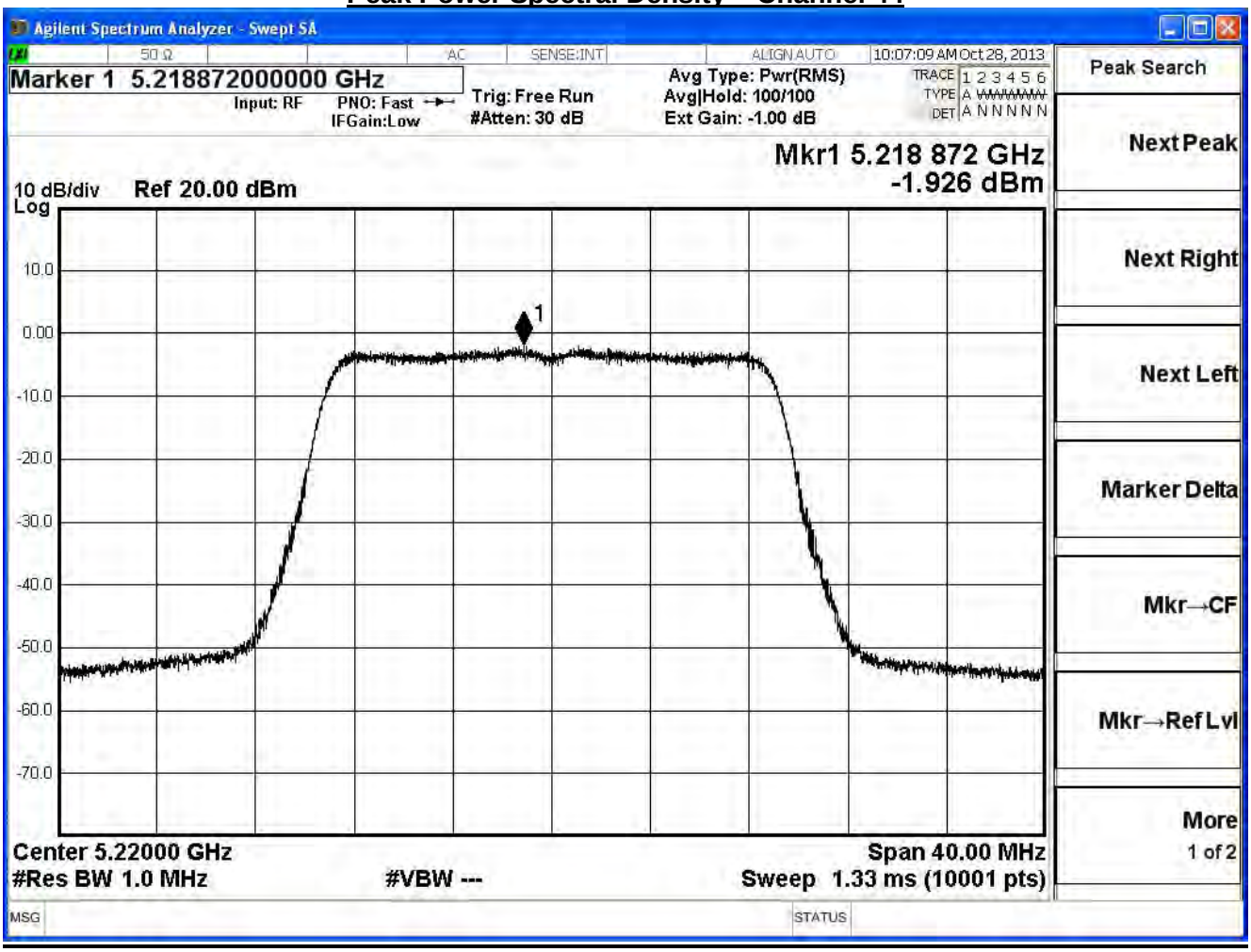
Measure Level =Reading value + cable loss

Directional antenna : 10log(2) + max Gain = 7.01dBi
Limit : 4dBm - (7.01dBi - 6dB) = 2.99 dBm

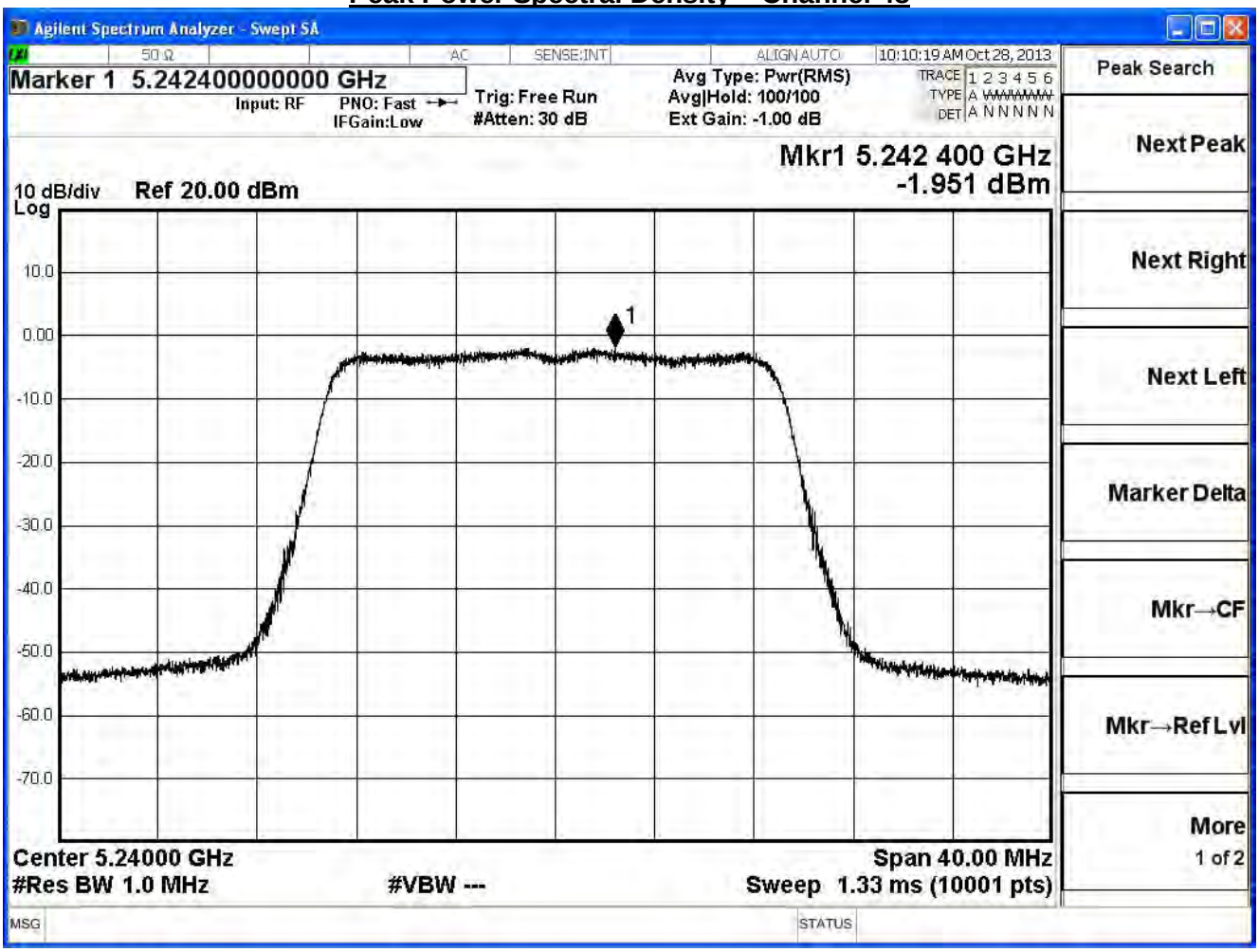
Peak Power Spectral Density – Channel 36



Peak Power Spectral Density – Channel 44



Peak Power Spectral Density – Channel 48



Product	PCE-AC56 Dual-Band Wireless PCI-E Adapter		
Test Item	Peak Power Spectral Density		
Test Mode	Mode 2: Transmit (Beamforming mode)		
Date of Test	2013/11/15	Test Site	SR7

IEEE 802.11n_20M(ANT 0+1)				
Channel No.	Frequency (MHz)	Measure Level (dBm)	Required Limit (dBm)	Result
36	5180	1.47	≦2.99	Pass
44	5220	1.50	≦2.99	Pass
48	5240	1.46	≦2.99	Pass

Note:

Measure Level =Reading value + cable loss

Directional antenna : 10log(2) + max Gain = 7.01dBi
Limit : 4dBm - (7.01dBi - 6dB) = 2.99 dBm

Product	PCE-AC56 Dual-Band Wireless PCI-E Adapter		
Test Item	Peak Power Spectral Density		
Test Mode	Mode 2: Transmit (Beamforming mode)		
Date of Test	2013/11/15	Test Site	SR7

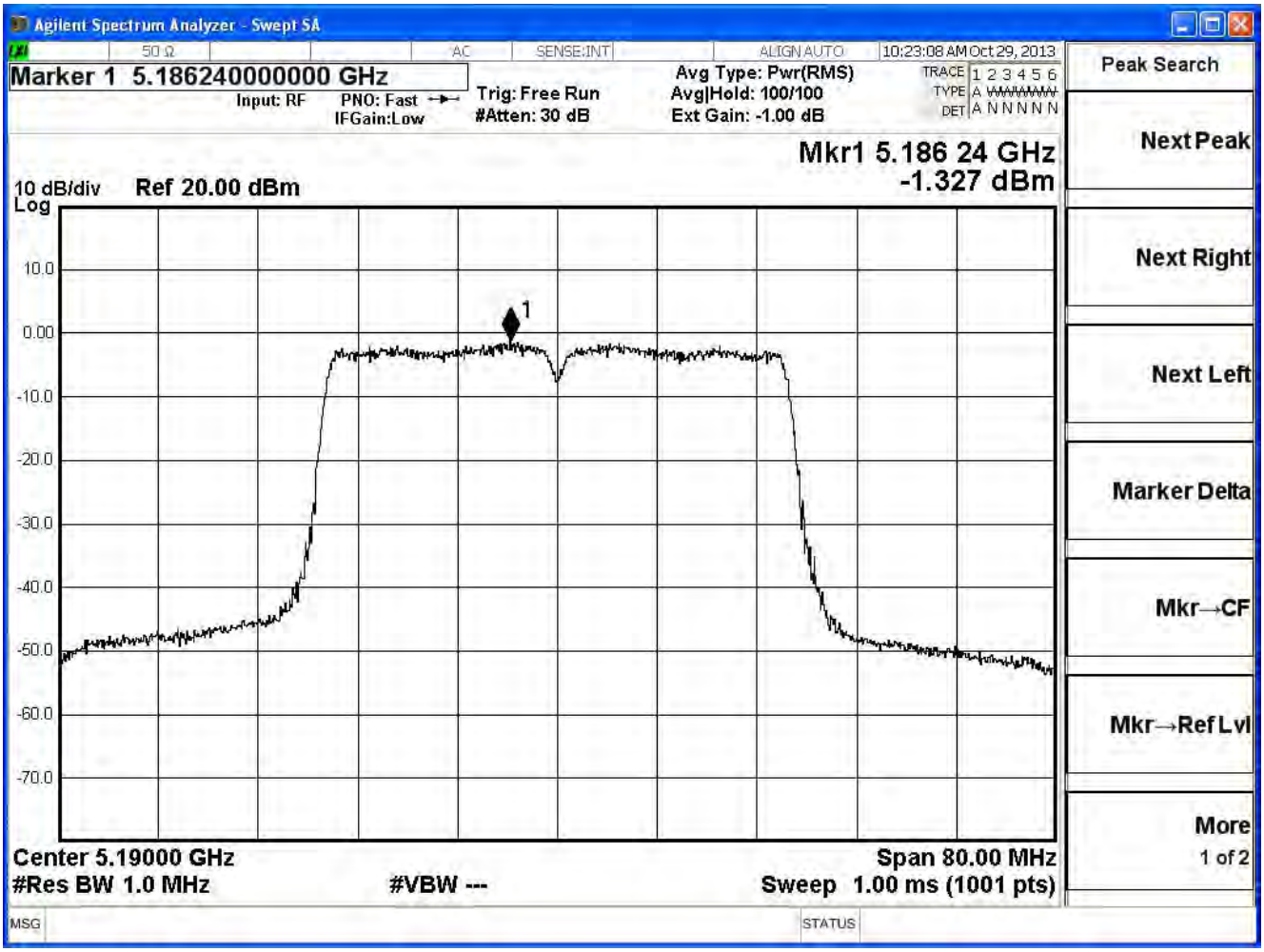
IEEE 802.11n_40M(ANT 0)				
Channel No.	Frequency (MHz)	Measure Level (dBm)	Required Limit (dBm)	Result
38	5190	-1.32	≦2.99	Pass
46	5230	-1.27	≦2.99	Pass

Note:

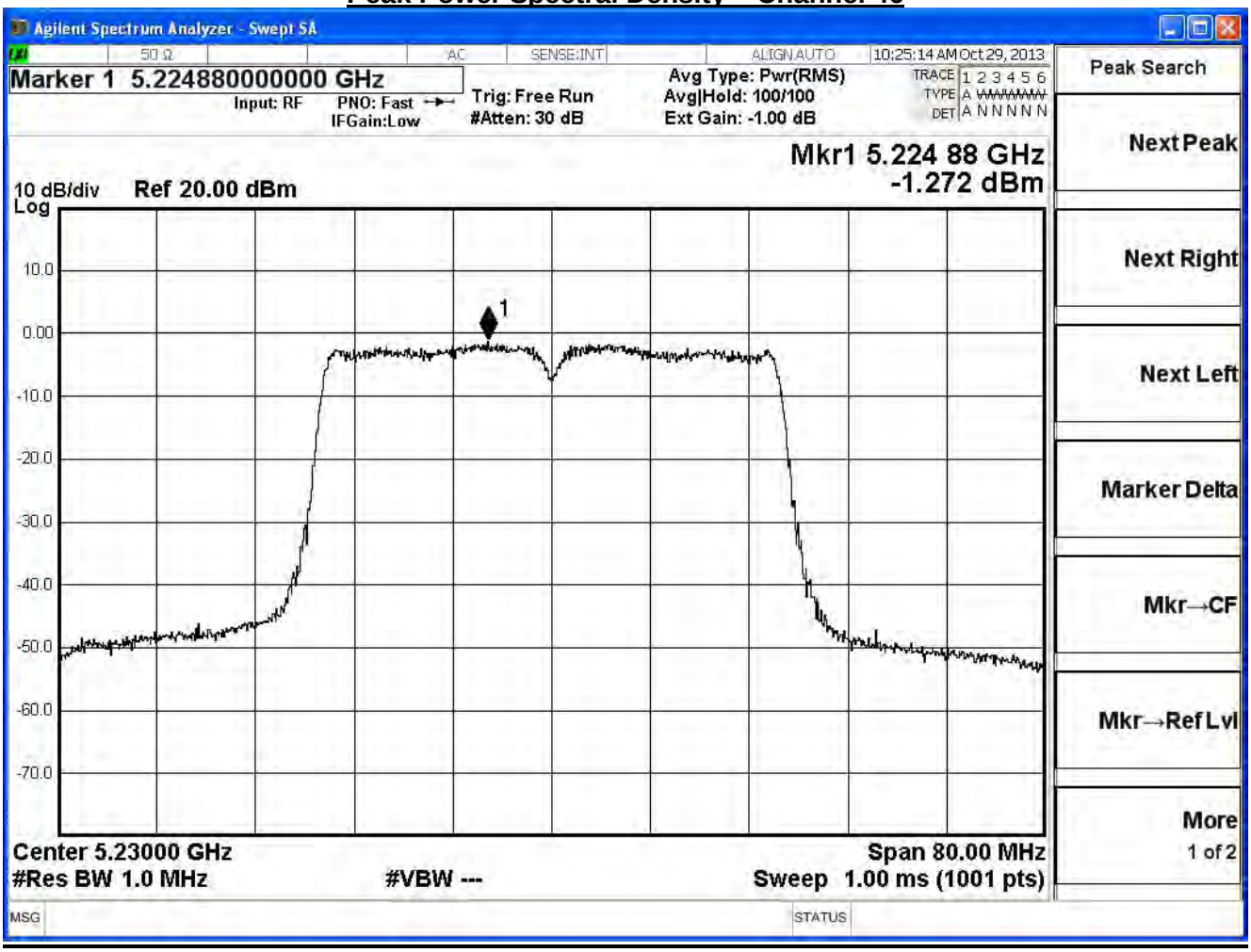
Measure Level =Reading value + cable loss

Directional antenna : 10log(2) + max Gain = 7.01dBi
Limit : 4dBm - (7.01dBi - 6dB) = 2.99 dBm

Peak Power Spectral Density – Channel 38



Peak Power Spectral Density – Channel 46



Product	PCE-AC56 Dual-Band Wireless PCI-E Adapter		
Test Item	Peak Power Spectral Density		
Test Mode	Mode 2: Transmit (Beamforming mode)		
Date of Test	2013/11/15	Test Site	SR7

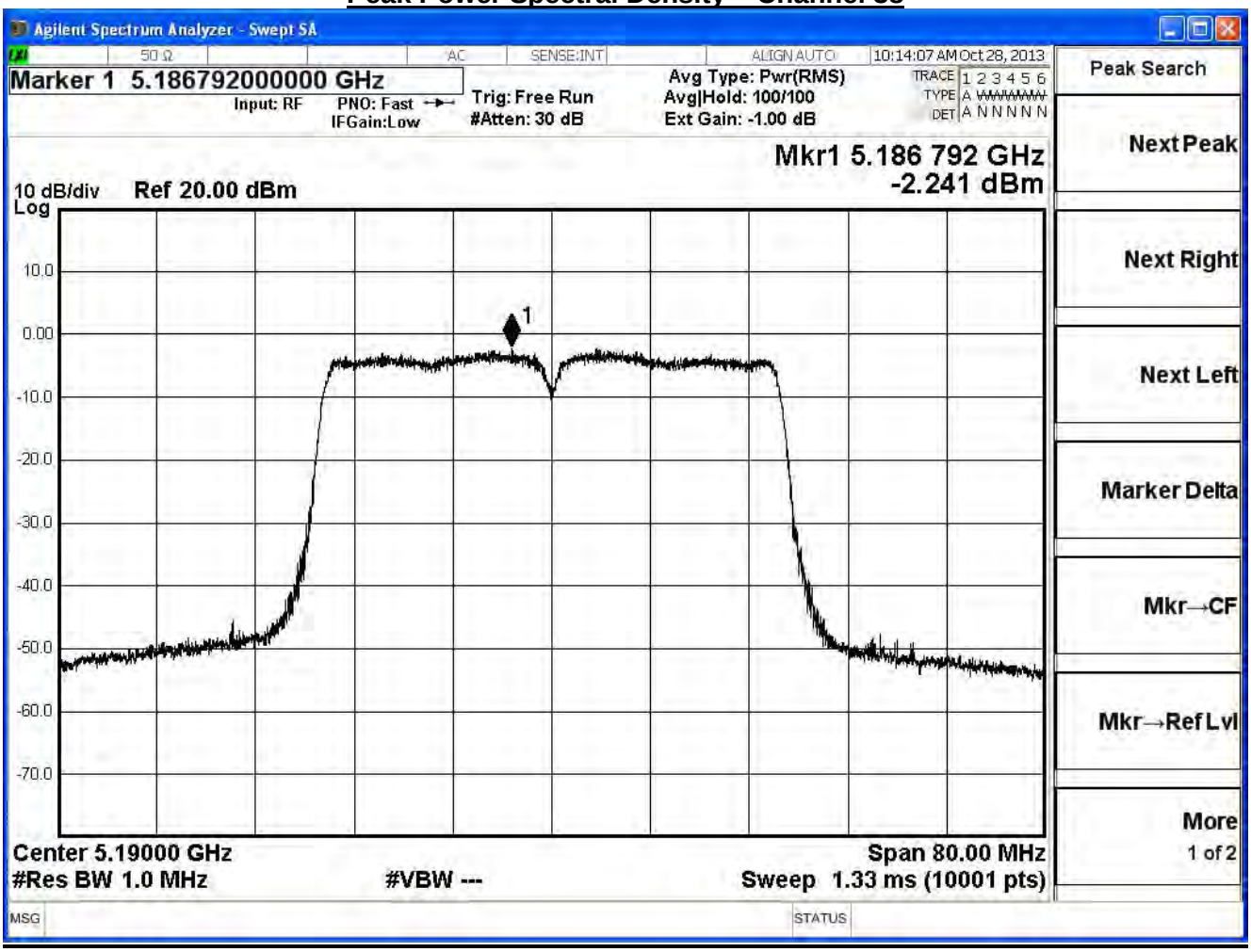
IEEE 802.11n_40M(ANT 1)				
Channel No.	Frequency (MHz)	Measure Level (dBm)	Required Limit (dBm)	Result
38	5190	-2.24	≦2.99	Pass
46	5230	-2.56	≦2.99	Pass

Note:

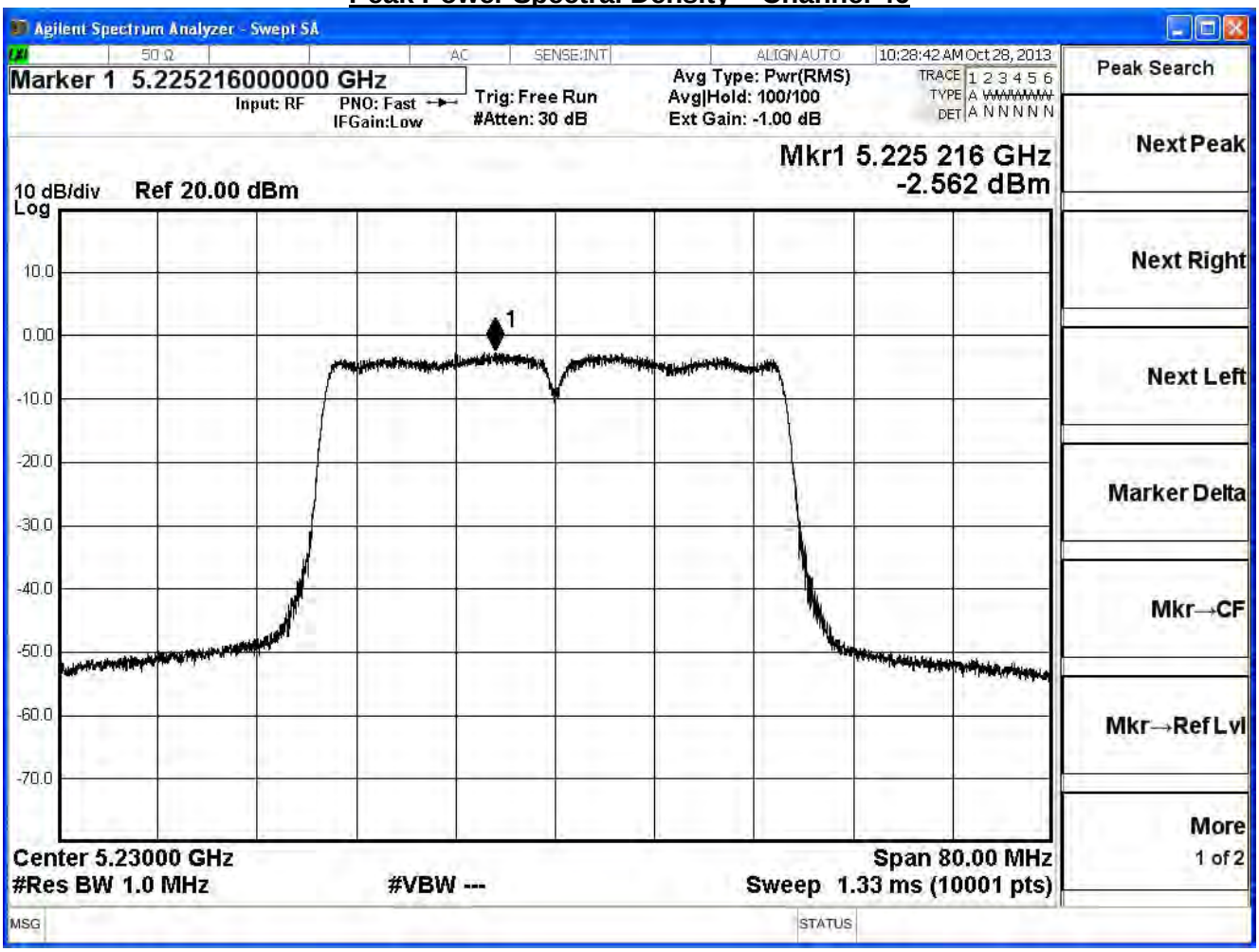
Measure Level =Reading value + cable loss

Directional antenna : 10log(2) + max Gain = 7.01dBi
Limit : 4dBm - (7.01dBi - 6dB) = 2.99 dBm

Peak Power Spectral Density – Channel 38



Peak Power Spectral Density – Channel 46



Product	PCE-AC56 Dual-Band Wireless PCI-E Adapter		
Test Item	Peak Power Spectral Density		
Test Mode	Mode 2: Transmit (Beamforming mode)		
Date of Test	2013/11/15	Test Site	SR7

IEEE 802.11n_40M(ANT 0+1)				
Channel No.	Frequency (MHz)	Measure Level (dBm)	Required Limit (dBm)	Result
38	5190	1.25	≦2.99	Pass
46	5230	1.14	≦2.99	Pass

Note:

Measure Level =Reading value + cable loss

Directional antenna : 10log(2) + max Gain = 7.01dBi
Limit : 4dBm - (7.01dBi - 6dB) = 2.99 dBm

Product	PCE-AC56 Dual-Band Wireless PCI-E Adapter		
Test Item	Peak Power Spectral Density		
Test Mode	Mode 2: Transmit (Beamforming mode)		
Date of Test	2013/11/15	Test Site	SR7

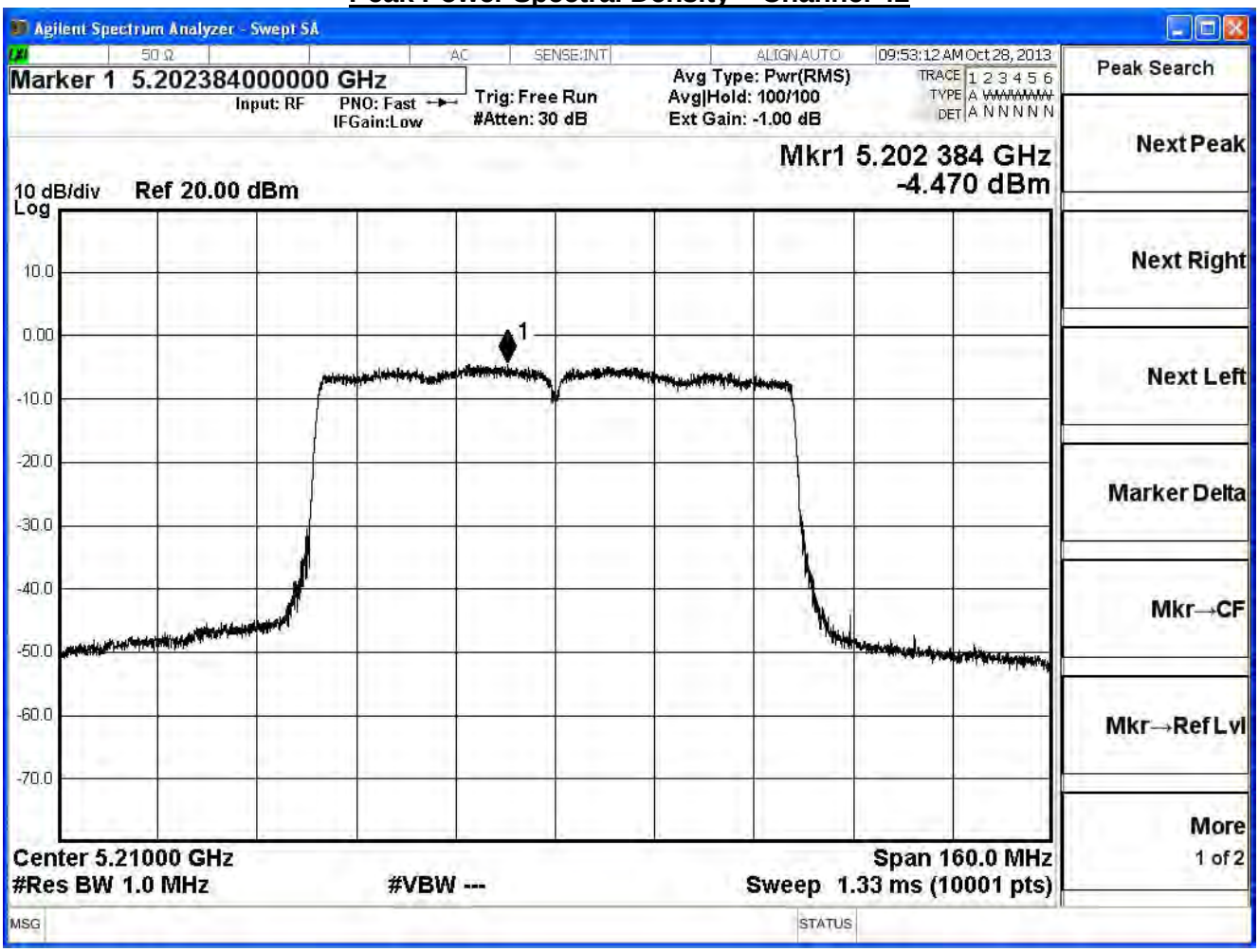
IEEE 802.11ac_80M(ANT 0)				
Channel No.	Frequency (MHz)	Measure Level (dBm)	Required Limit (dBm)	Result
42	5210	-4.47	≦2.99	Pass

Note:

Measure Level =Reading value + cable loss

Directional antenna : 10log(2) + max Gain = 7.01dBi
Limit : 4dBm - (7.01dBi - 6dB) = 2.99 dBm

Peak Power Spectral Density – Channel 42



Product	PCE-AC56 Dual-Band Wireless PCI-E Adapter		
Test Item	Peak Power Spectral Density		
Test Mode	Mode 2: Transmit (Beamforming mode)		
Date of Test	2013/11/15	Test Site	SR7

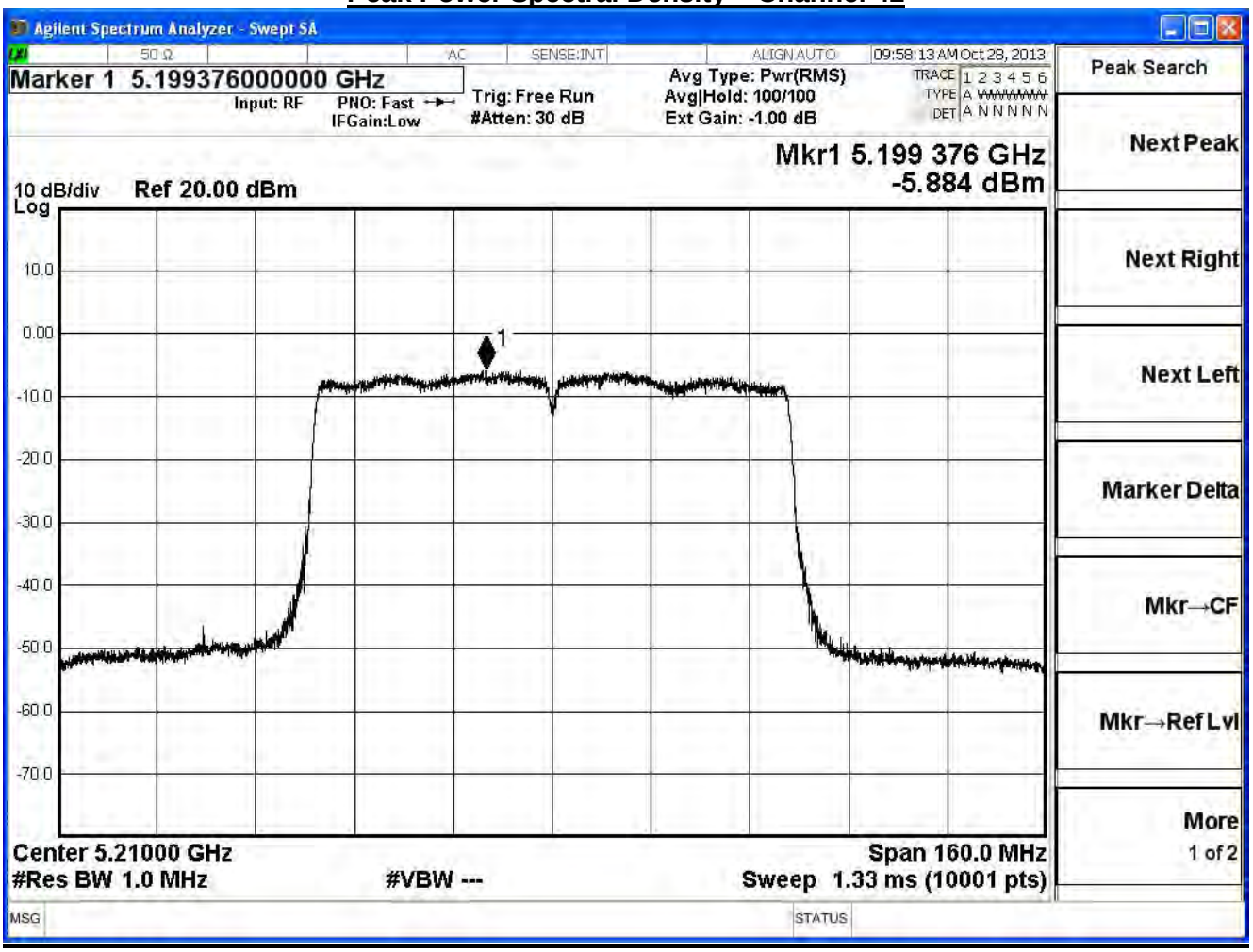
IEEE 802.11ac_80M(ANT 1)				
Channel No.	Frequency (MHz)	Measure Level (dBm)	Required Limit (dBm)	Result
42	5210	-5.88	≦2.99	Pass

Note:

Measure Level =Reading value + cable loss

Directional antenna : 10log(2) + max Gain = 7.01dBi
Limit : 4dBm - (7.01dBi - 6dB) = 2.99 dBm

Peak Power Spectral Density – Channel 42



Product	PCE-AC56 Dual-Band Wireless PCI-E Adapter		
Test Item	Peak Power Spectral Density		
Test Mode	Mode 2: Transmit (Beamforming mode)		
Date of Test	2013/11/15	Test Site	SR7

IEEE 802.11ac_80M(ANT 0+1)				
Channel No.	Frequency (MHz)	Measure Level (dBm)	Required Limit (dBm)	Result
42	5210	-2.11	≦2.99	Pass

Note:

Measure Level =Reading value + cable loss

Directional antenna : 10log(2) + max Gain = 7.01dBi
Limit : 4dBm - (7.01dBi - 6dB) = 2.99 dBm

6. Peak Excursion

6.1. Test Equipment

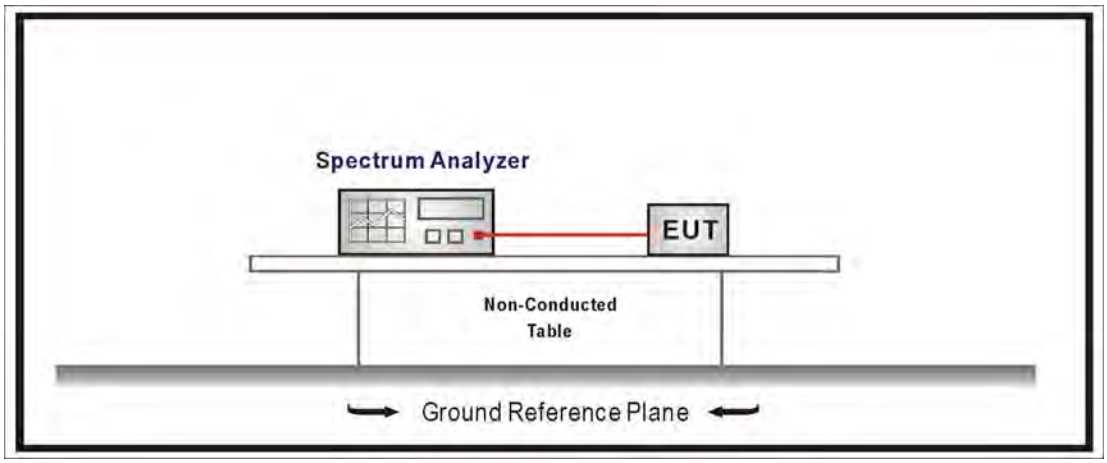
The following test equipments are used during the radiated emission tests:

Peak Excursion / SR7

Instrument	Manufacturer	Model No.	Serial No	Next Cal. Date
Spectrum Analyzer	Agilent	N9010A-EXA	US47140172	2014/08/05

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

6.2. Test Setup



6.3. Limits

The ratio of the peak excursion of the modulation envelope (measured suing a peak hold function) to the peak transmit power (measured as specified above) shall not exceed 13 dB across any 1 MHz bandwidth or the emission bandwidth whichever is less.

6.4. Test Procedure

The EUT was setup to ANSI C63.4, 2009; tested to U-NII test procedure of KDB 789033 for compliance to FCC 47CFR Subpart E requirements.

1st Trace:

Set RBW = 1MHz, VBW = 3MHz with peak detector and max-hold settings.

2nd Trace:

Set RBW = 1MHz, VBW = 3MHz with RMS detector and trace average 100 traces in power averaging mode.

6.5. Uncertainty

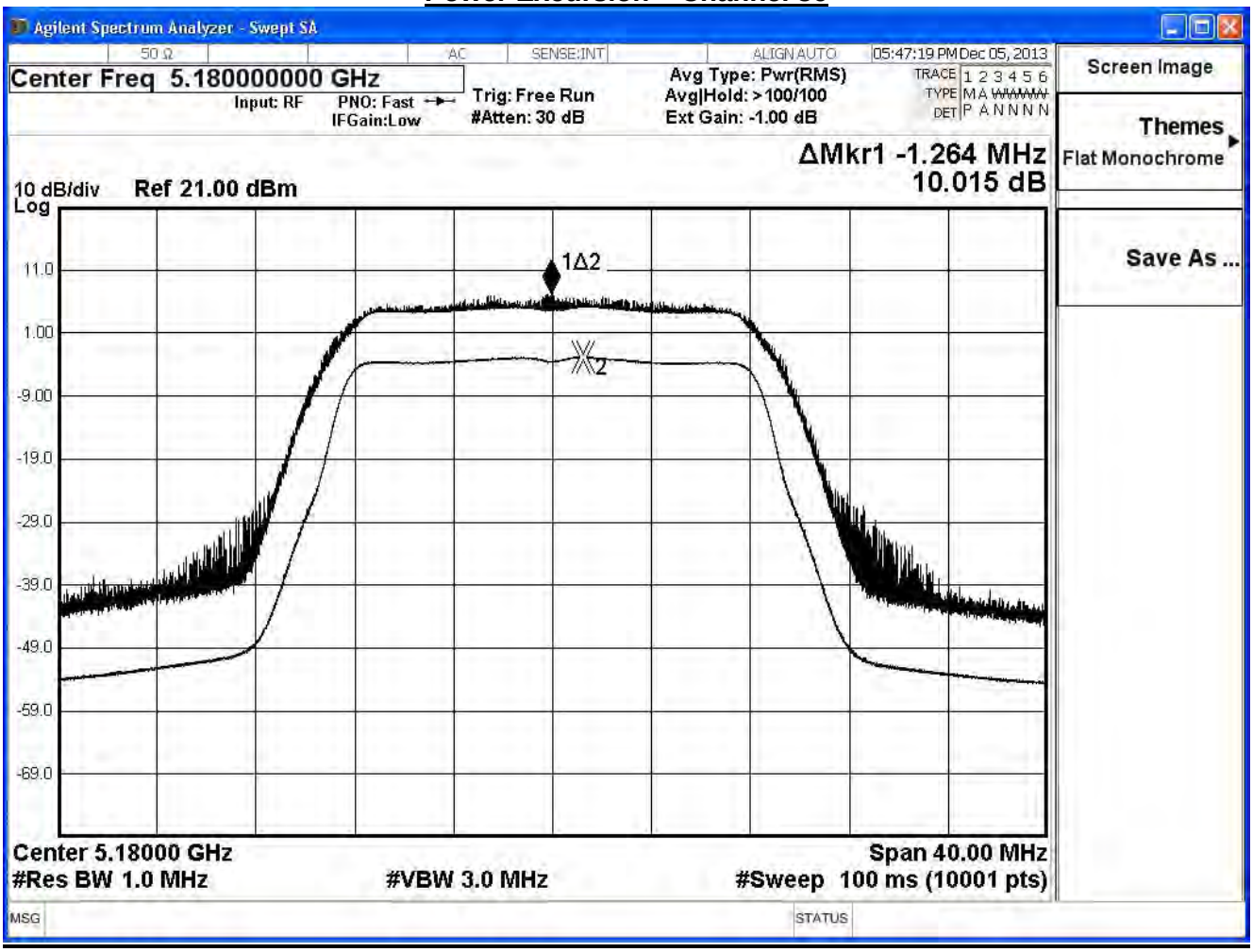
The measurement uncertainty is defined as ± 1.27 dB

6.6. Test Result

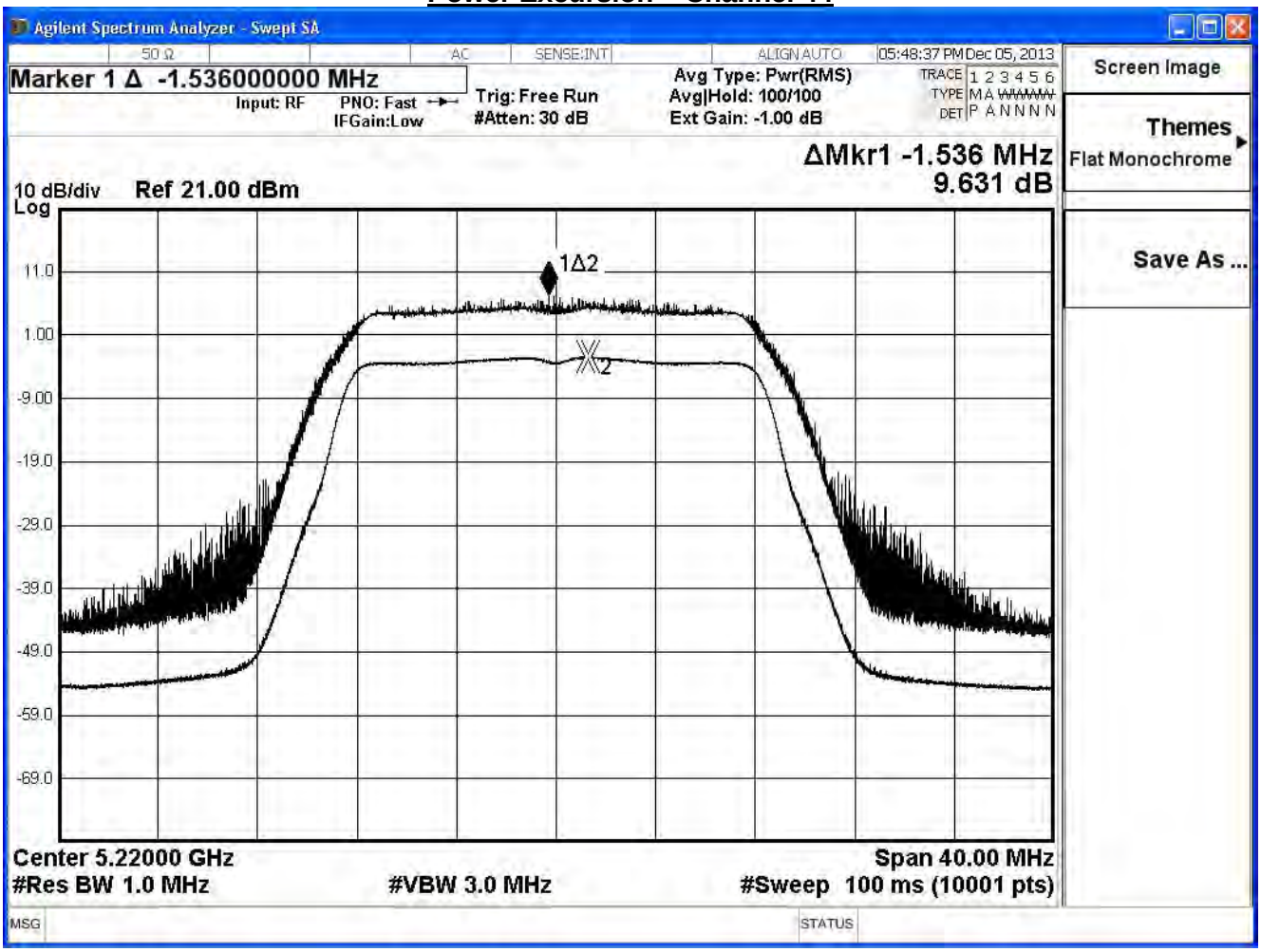
Product	PCE-AC56 Dual-Band Wireless PCI-E Adapter		
Test Item	Peak Excursion		
Test Mode	Mode 1: Transmit (CDD mode)		
Date of Test	2013/12/05	Test Site	SR7

IEEE 802.11a (ANT 0)				
Channel No.	Frequency (MHz)	Measure Level (dB)	Required Limit (dB)	Result
36	5180	10.02	≦13	Pass
44	5220	9.63	≦13	Pass
48	5240	9.80	≦13	Pass

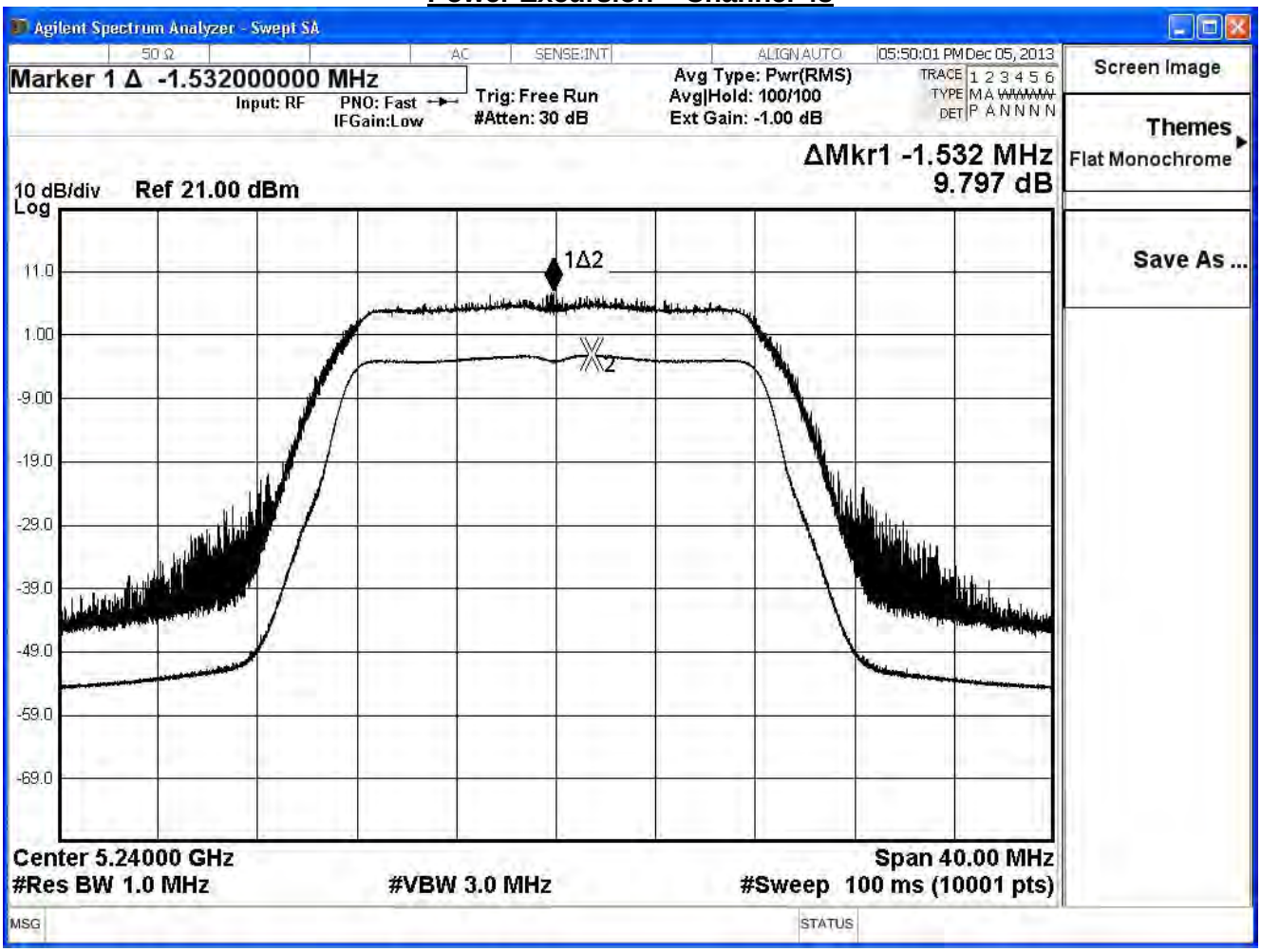
Power Excursion – Channel 36



Power Excursion – Channel 44



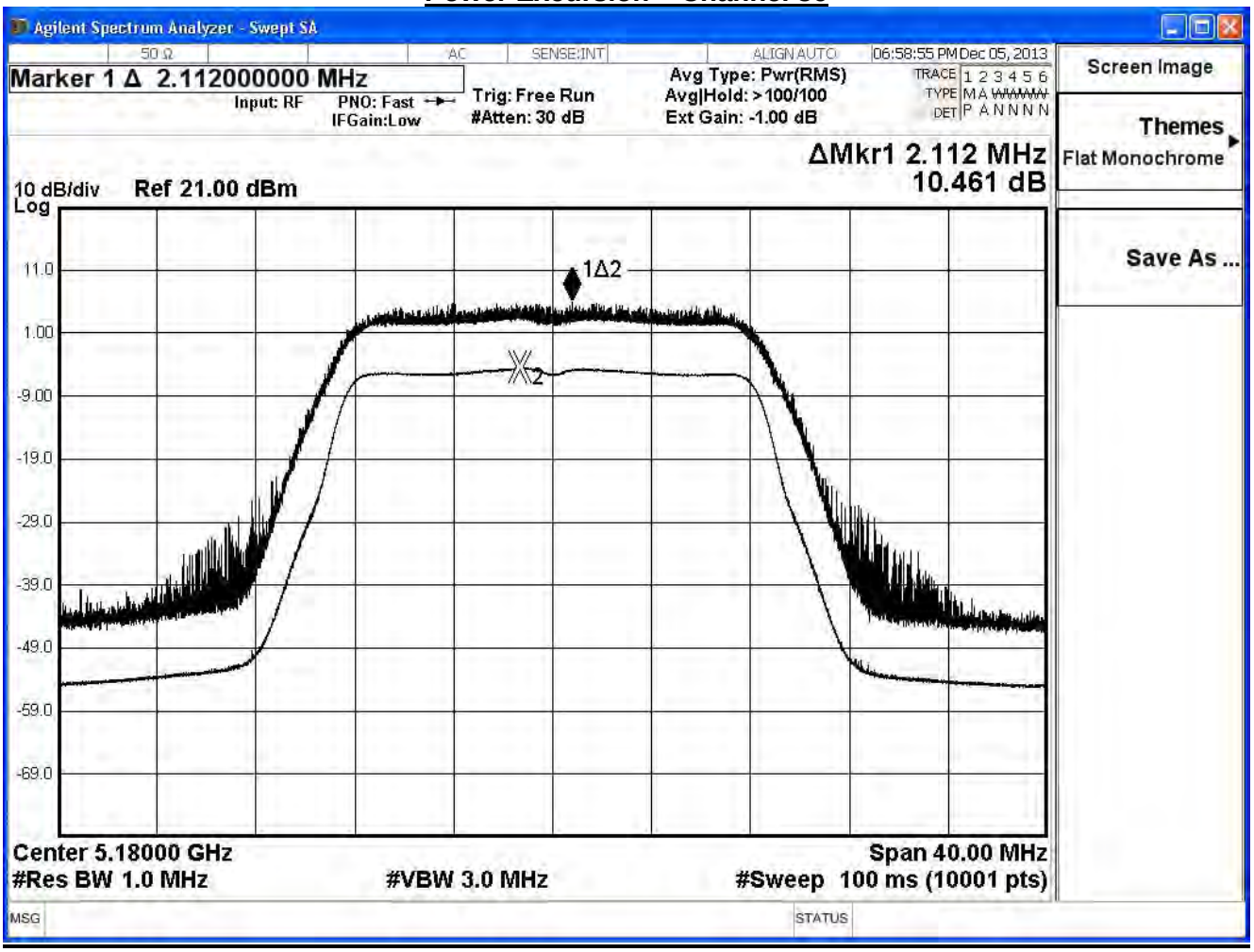
Power Excursion – Channel 48



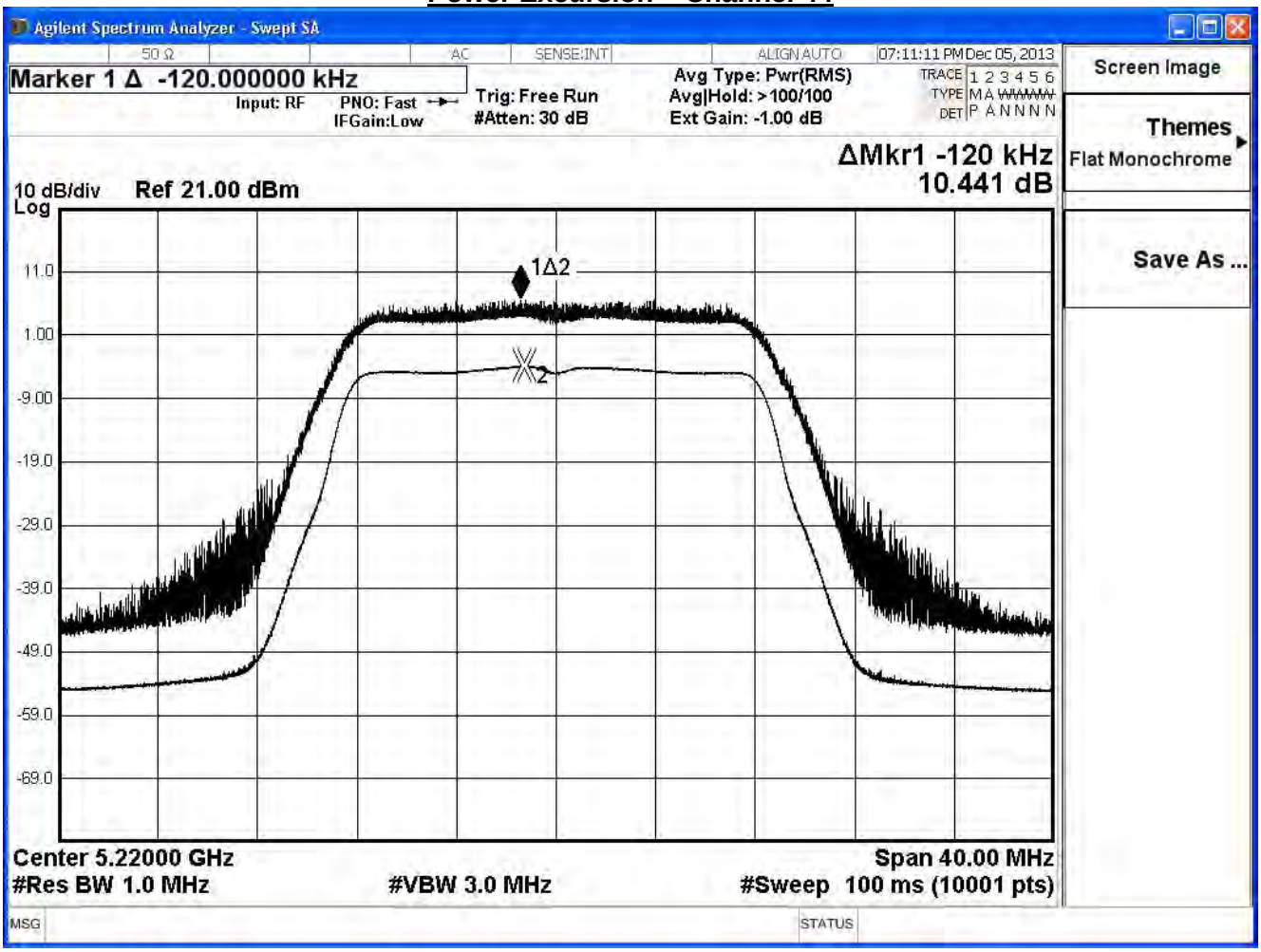
Product	PCE-AC56 Dual-Band Wireless PCI-E Adapter		
Test Item	Peak Excursion		
Test Mode	Mode 1: Transmit (CDD mode)		
Date of Test	2013/12/05	Test Site	SR7

IEEE 802.11a (ANT 1)				
Channel No.	Frequency (MHz)	Measure Level (dB)	Required Limit (dB)	Result
36	5180	10.46	≦13	Pass
44	5220	10.44	≦13	Pass
48	5240	10.56	≦13	Pass

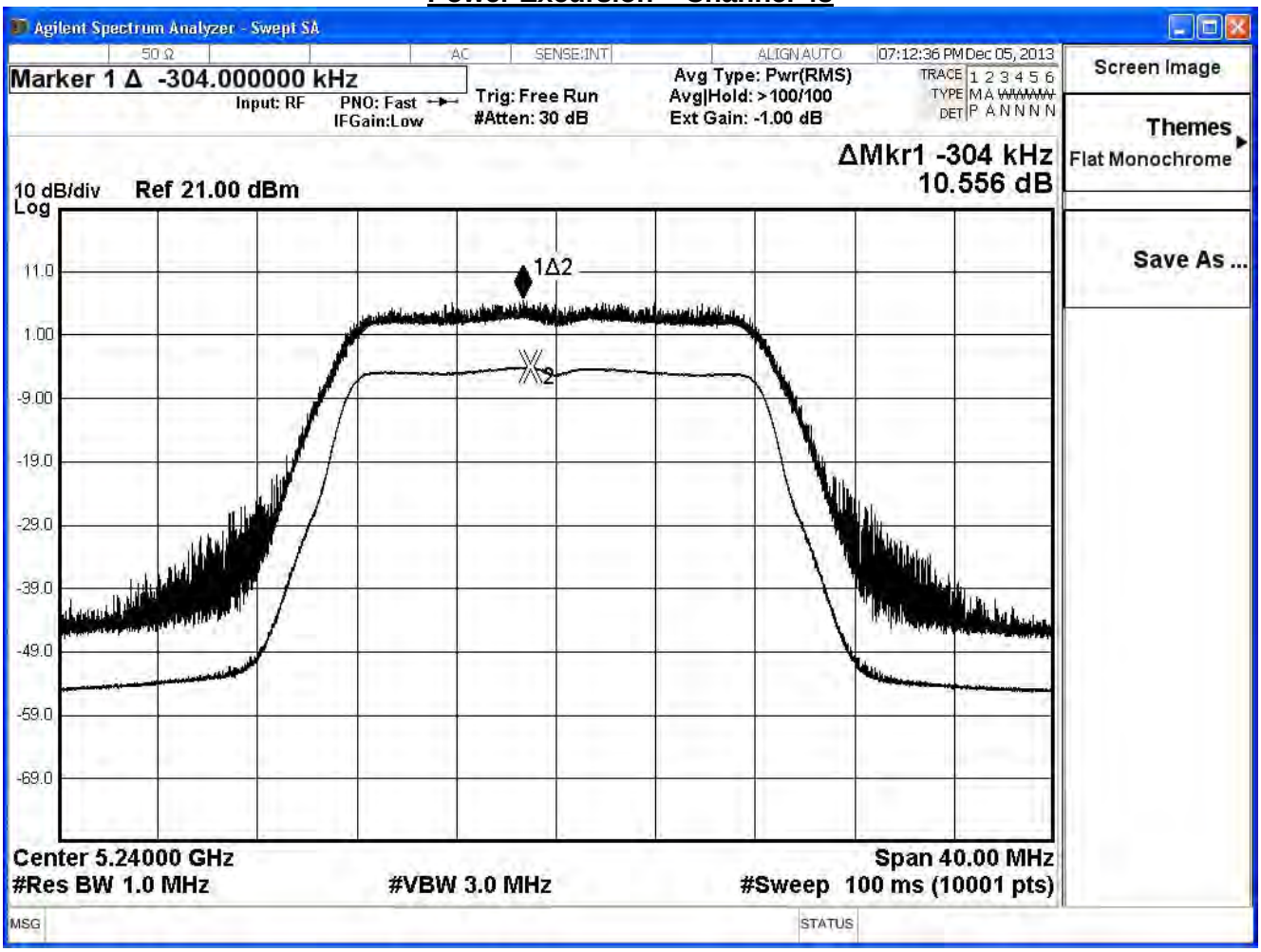
Power Excursion – Channel 36



Power Excursion – Channel 44



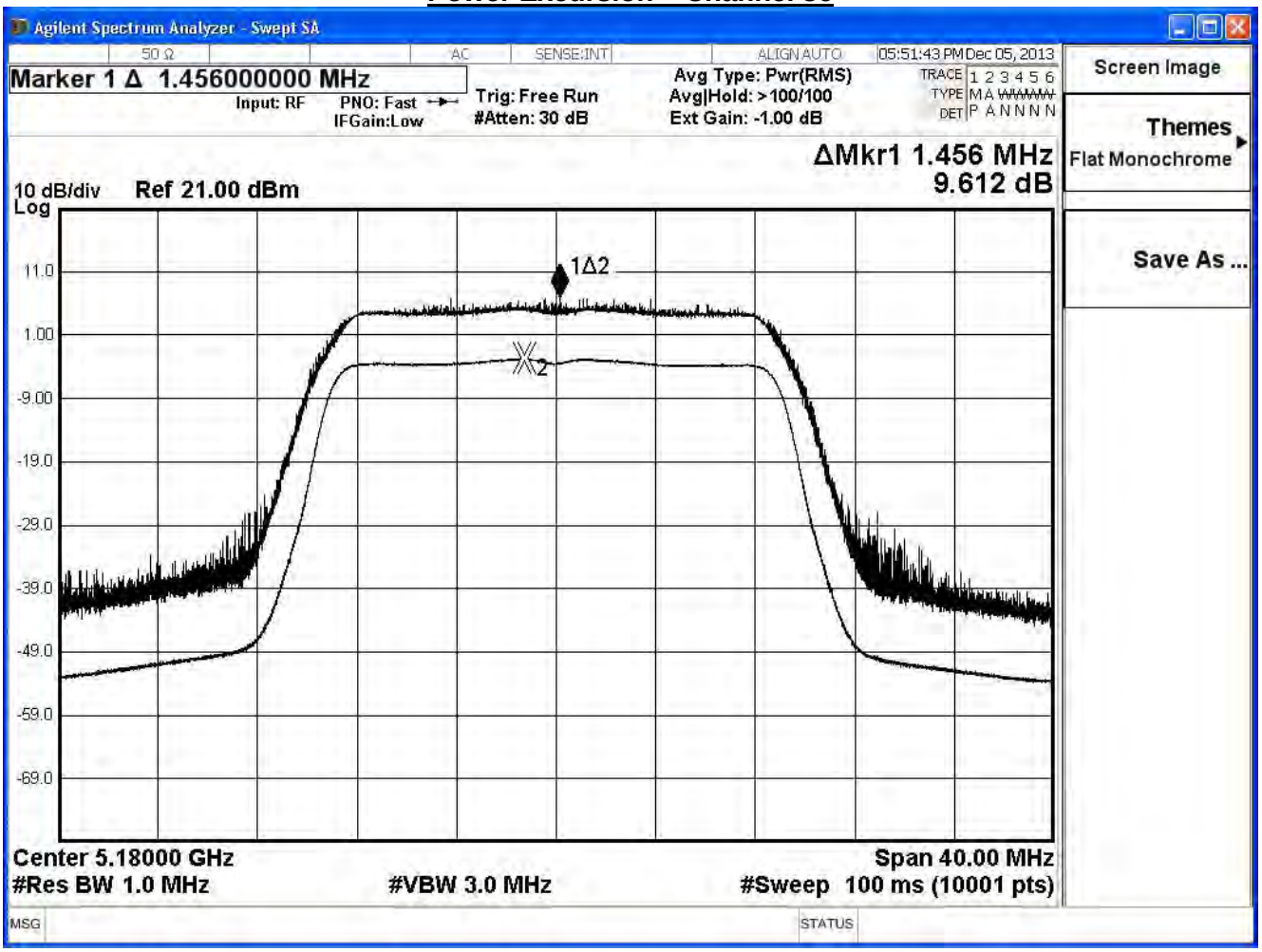
Power Excursion – Channel 48



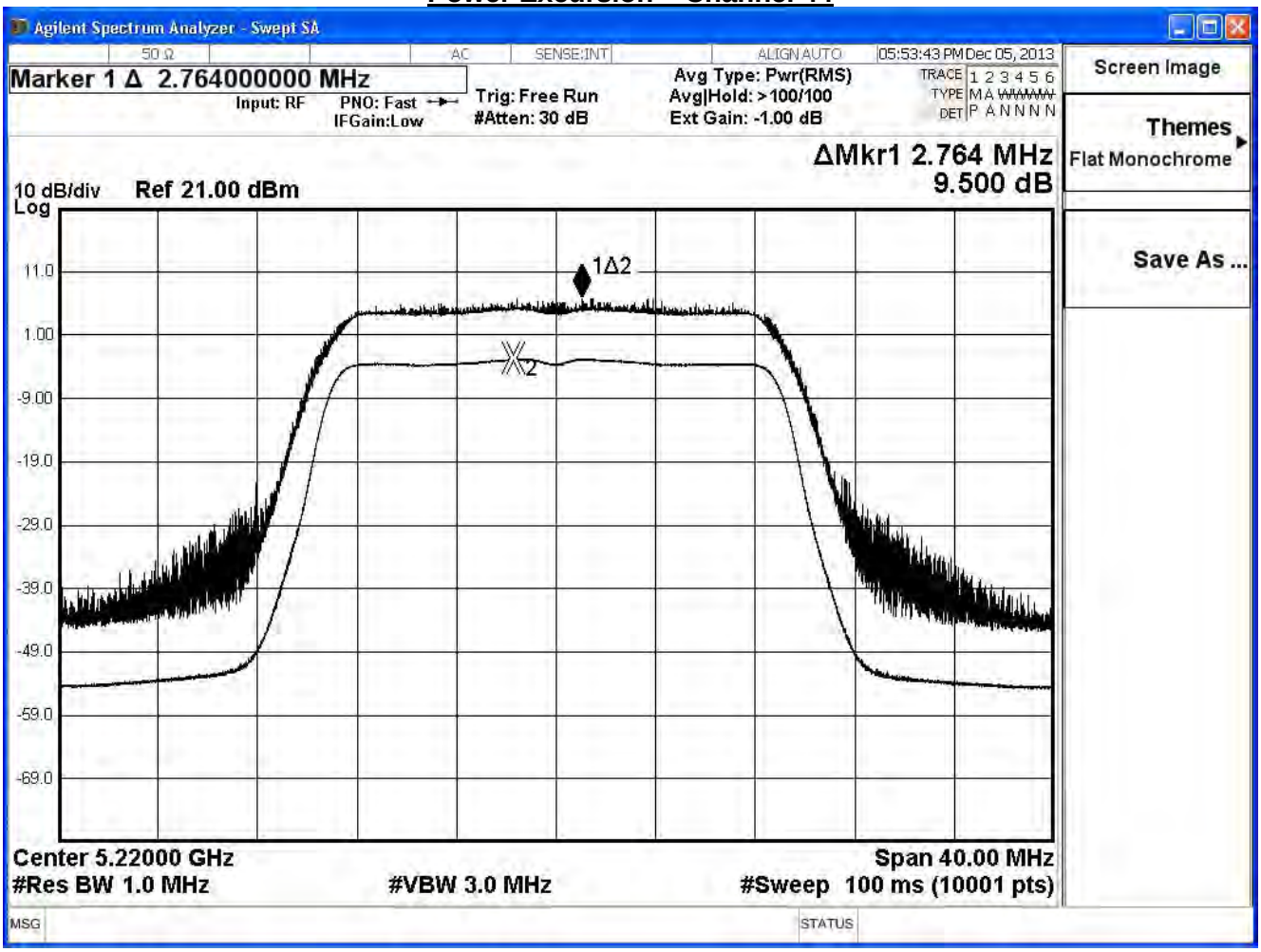
Product	PCE-AC56 Dual-Band Wireless PCI-E Adapter		
Test Item	Peak Excursion		
Test Mode	Mode 1: Transmit (CDD mode)		
Date of Test	2013/12/05	Test Site	SR7

IEEE 802.11n_20M(ANT 0)				
Channel No.	Frequency (MHz)	Measure Level (dB)	Required Limit (dB)	Result
36	5180	9.61	≦13	Pass
44	5220	9.50	≦13	Pass
48	5240	9.46	≦13	Pass

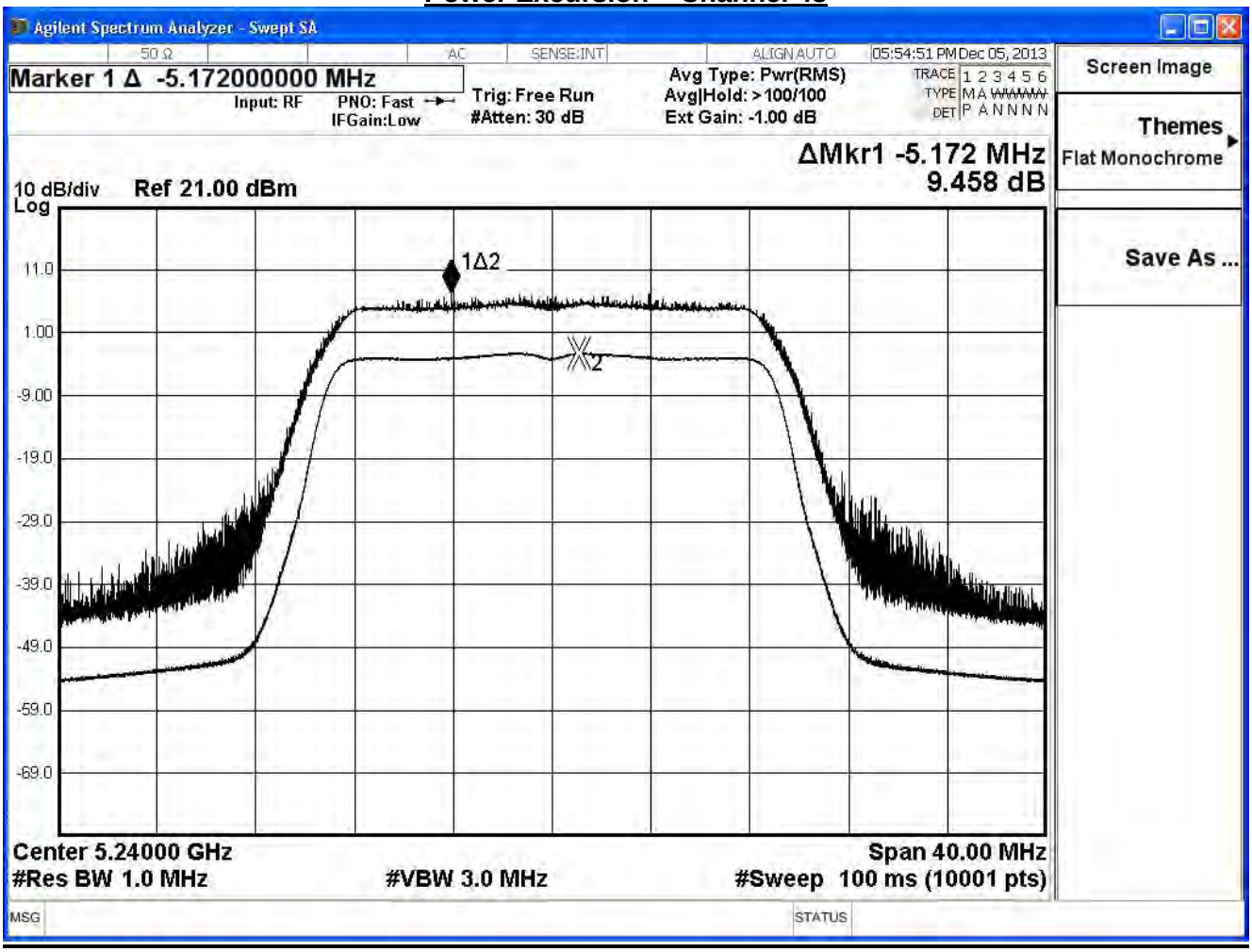
Power Excursion – Channel 36



Power Excursion – Channel 44



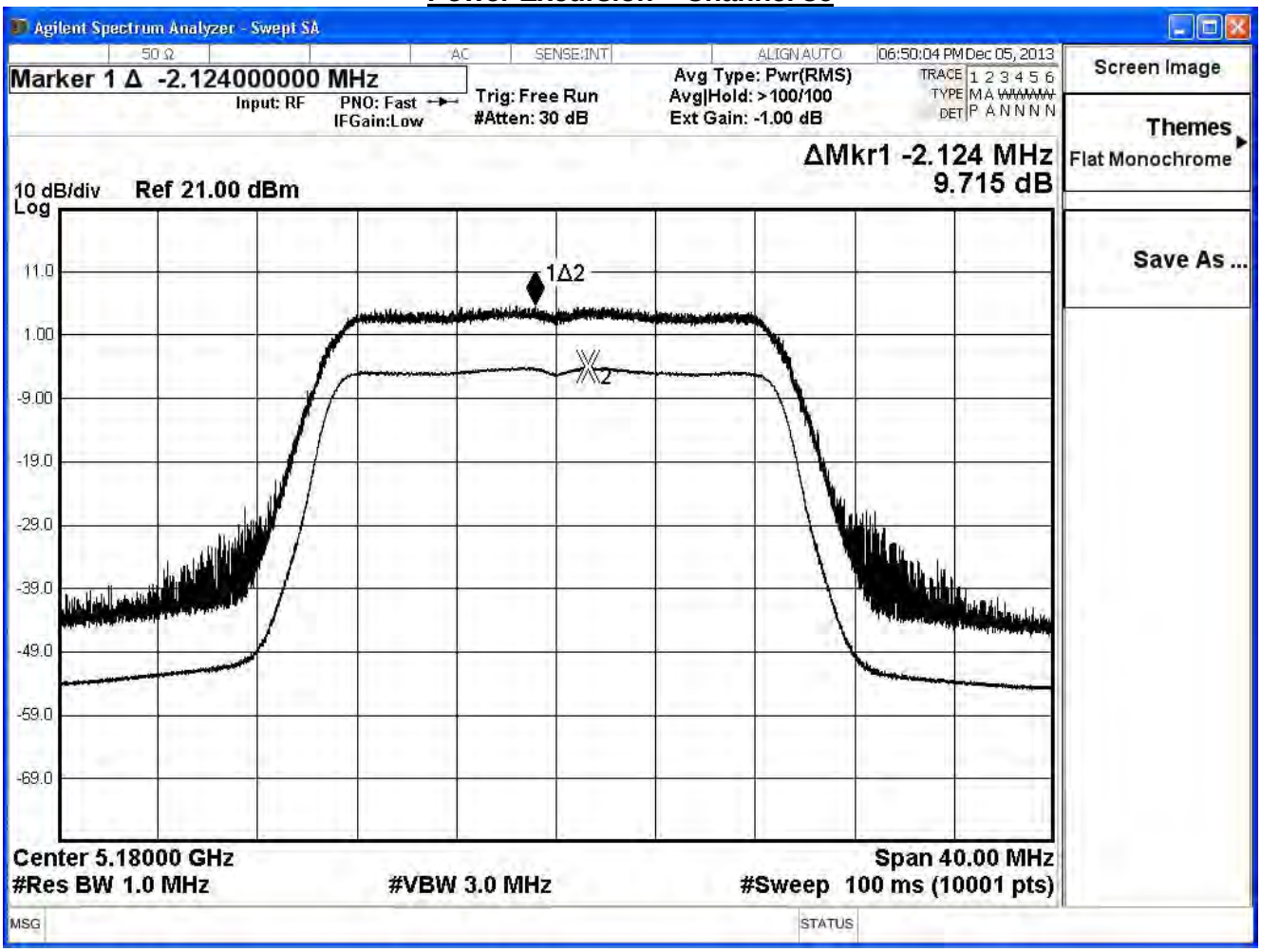
Power Excursion – Channel 48



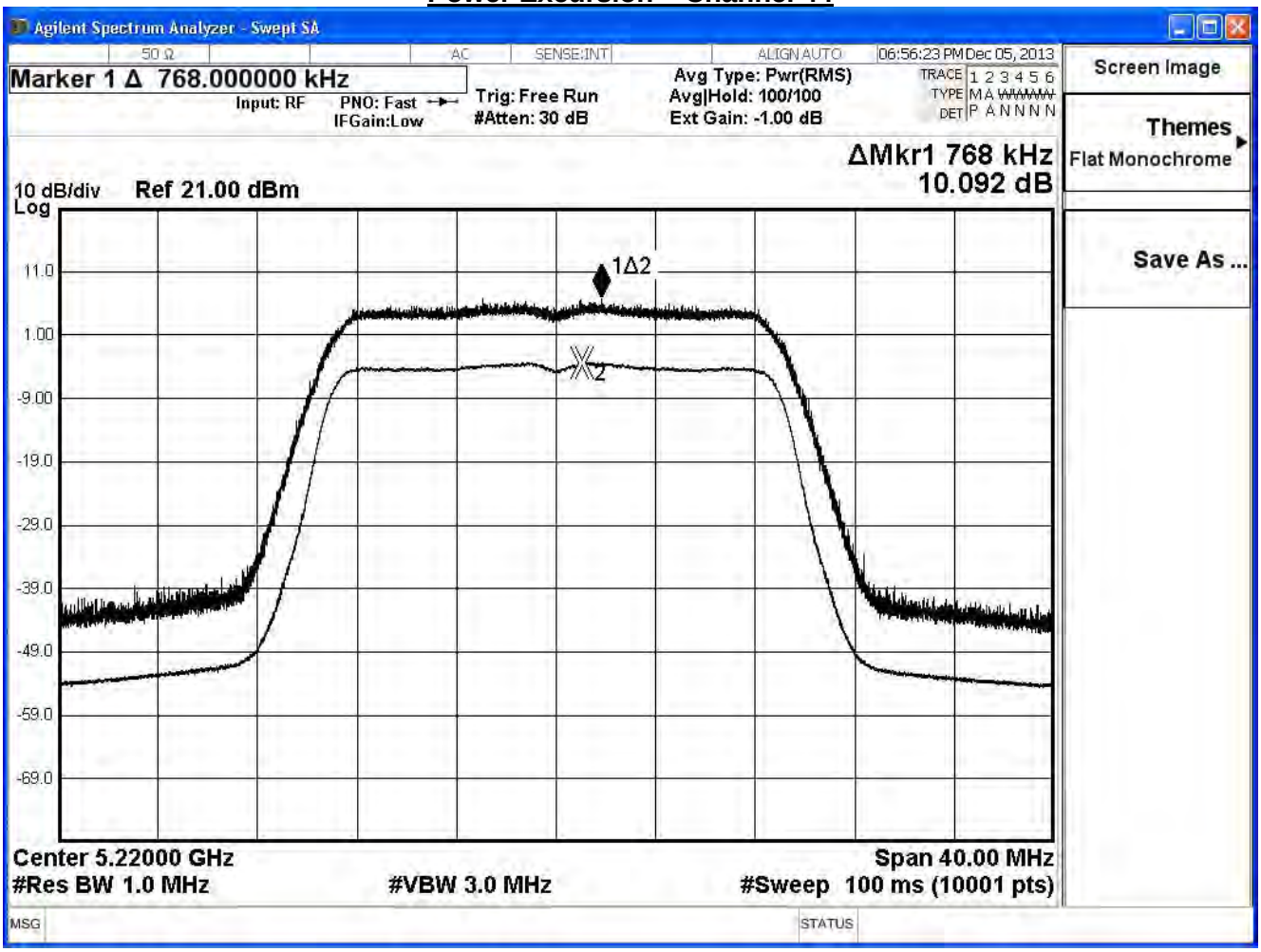
Product	PCE-AC56 Dual-Band Wireless PCI-E Adapter		
Test Item	Peak Excursion		
Test Mode	Mode 1: Transmit (CDD mode)		
Date of Test	2013/12/05	Test Site	SR7

IEEE 802.11n_20M(ANT 1)				
Channel No.	Frequency (MHz)	Measure Level (dB)	Required Limit (dB)	Result
36	5180	9.72	≦13	Pass
44	5220	10.09	≦13	Pass
48	5240	9.87	≦13	Pass

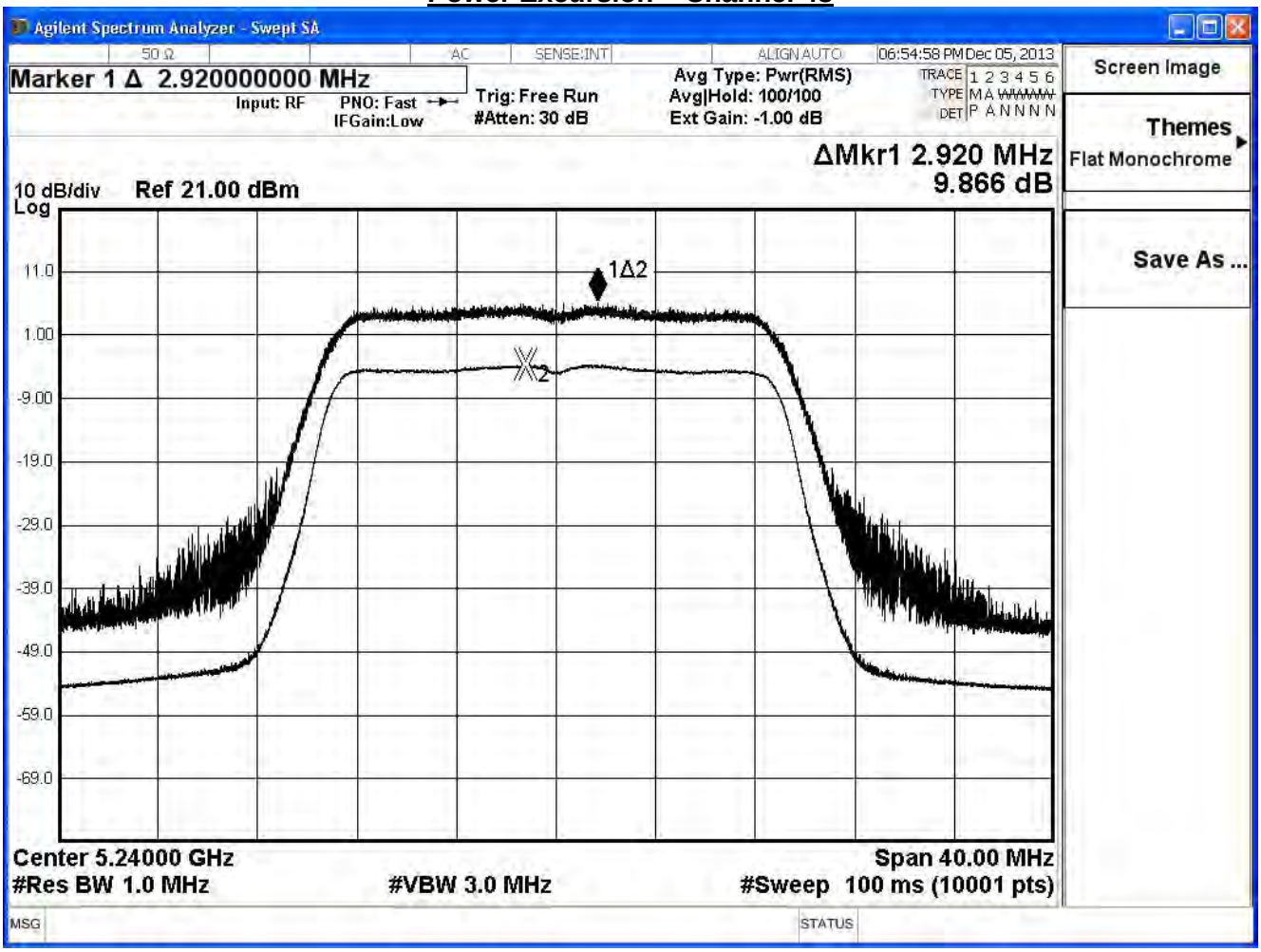
Power Excursion – Channel 36



Power Excursion – Channel 44



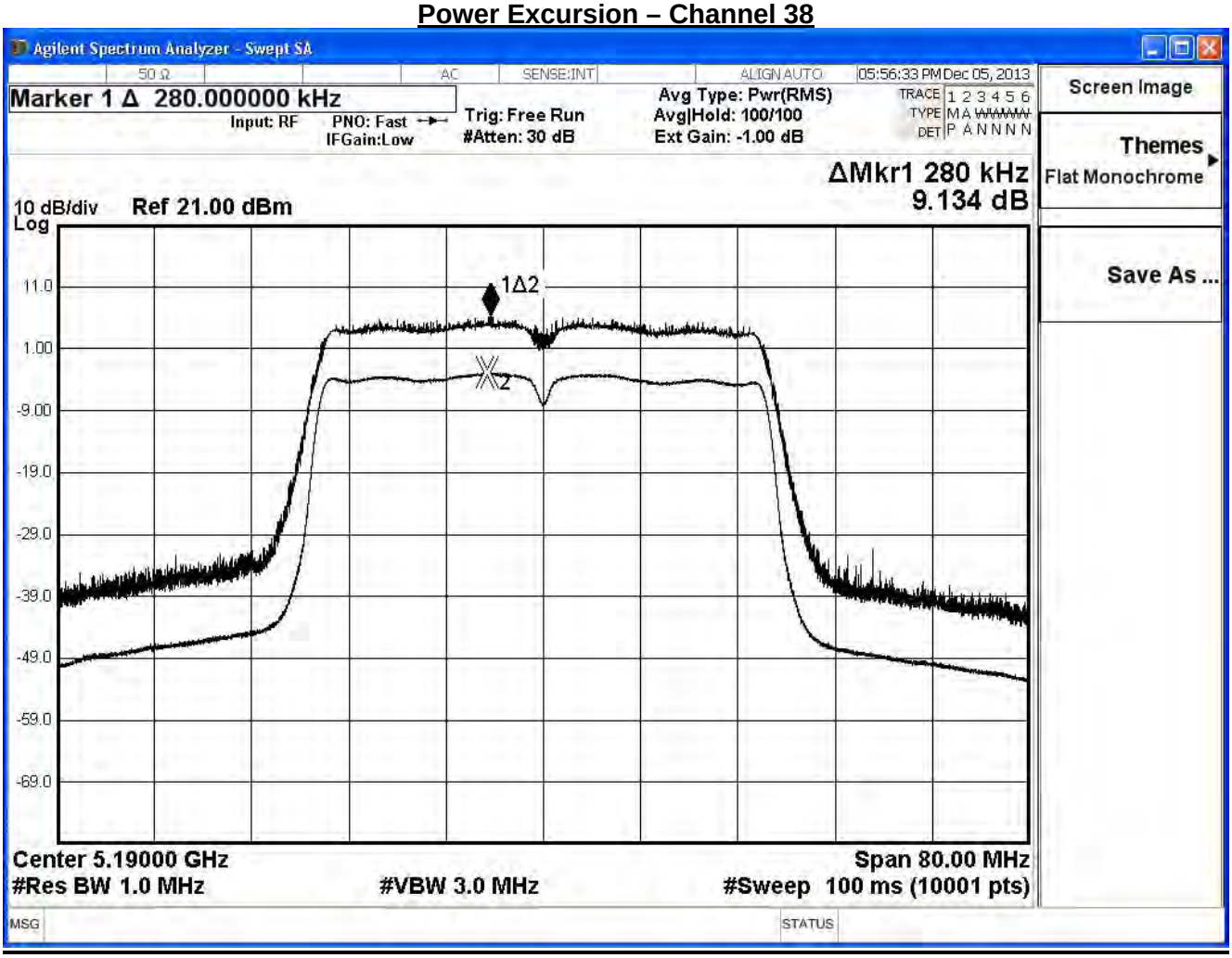
Power Excursion – Channel 48



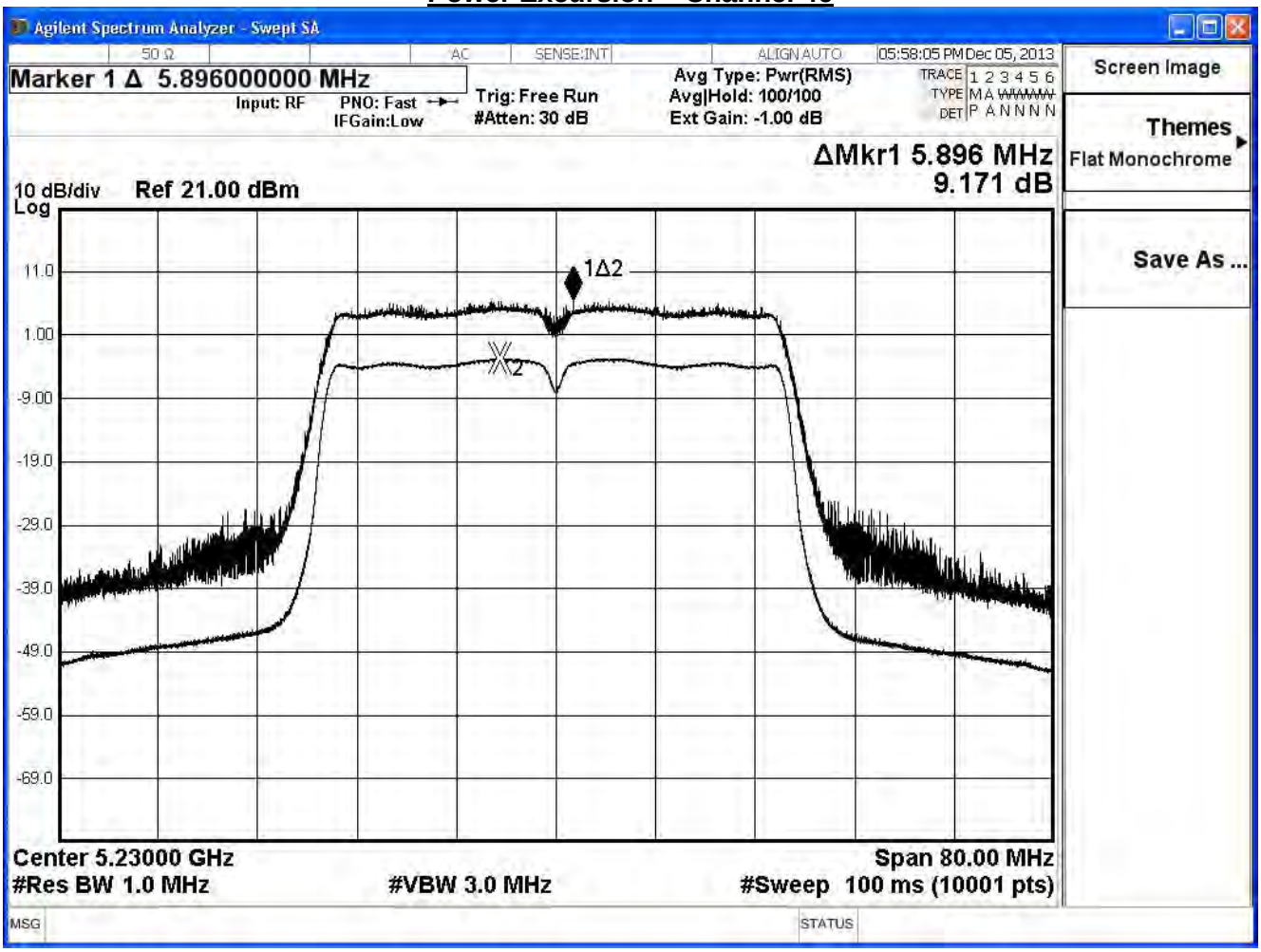
Product	PCE-AC56 Dual-Band Wireless PCI-E Adapter		
Test Item	Peak Excursion		
Test Mode	Mode 1: Transmit (CDD mode)		
Date of Test	2013/12/05	Test Site	SR7

IEEE 802.11n_40M(ANT 0)				
Channel No.	Frequency (MHz)	Measure Level (dB)	Required Limit (dB)	Result
38	5190	9.13	≦13	Pass
46	5230	9.17	≦13	Pass

Power Excursion – Channel 38



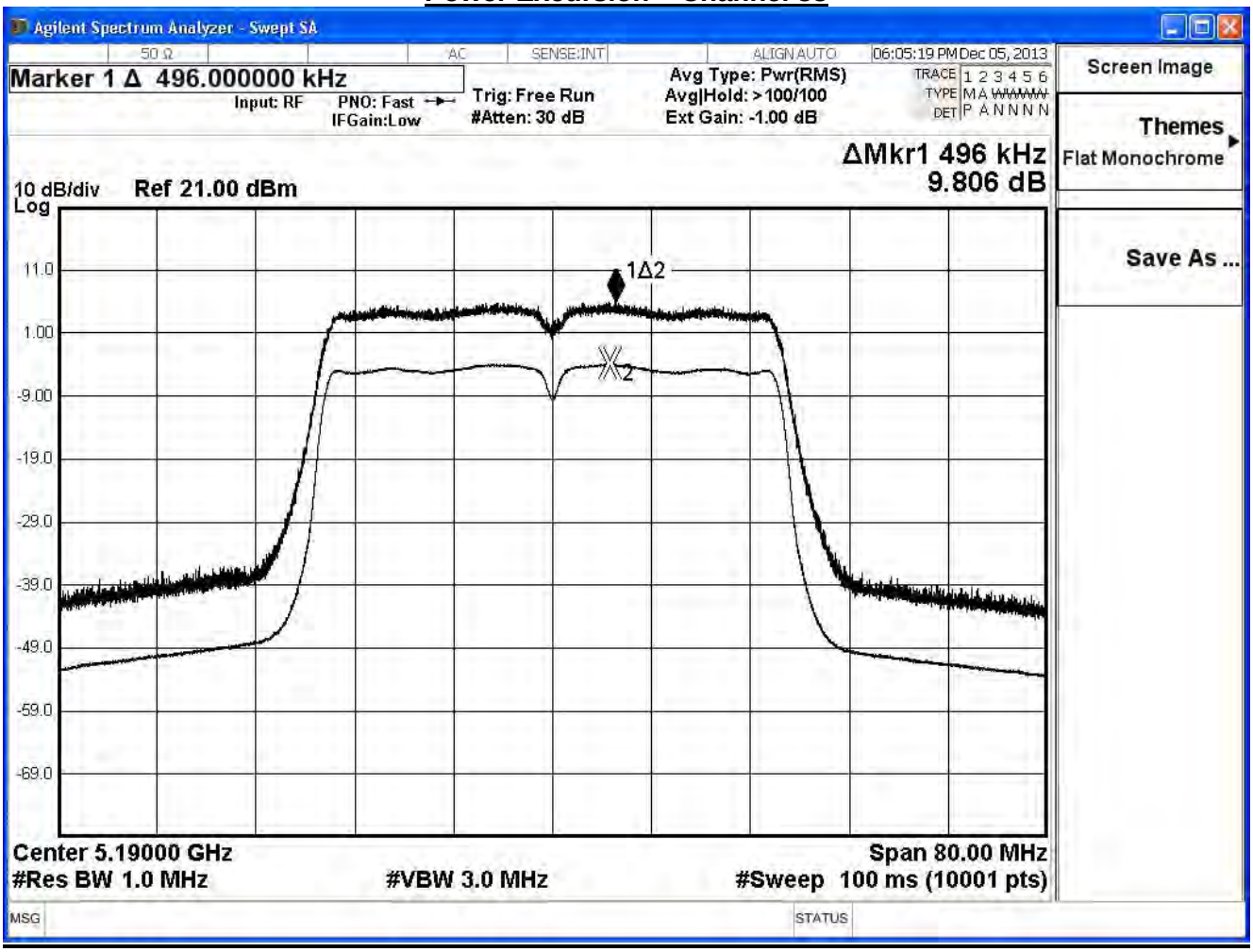
Power Excursion – Channel 46



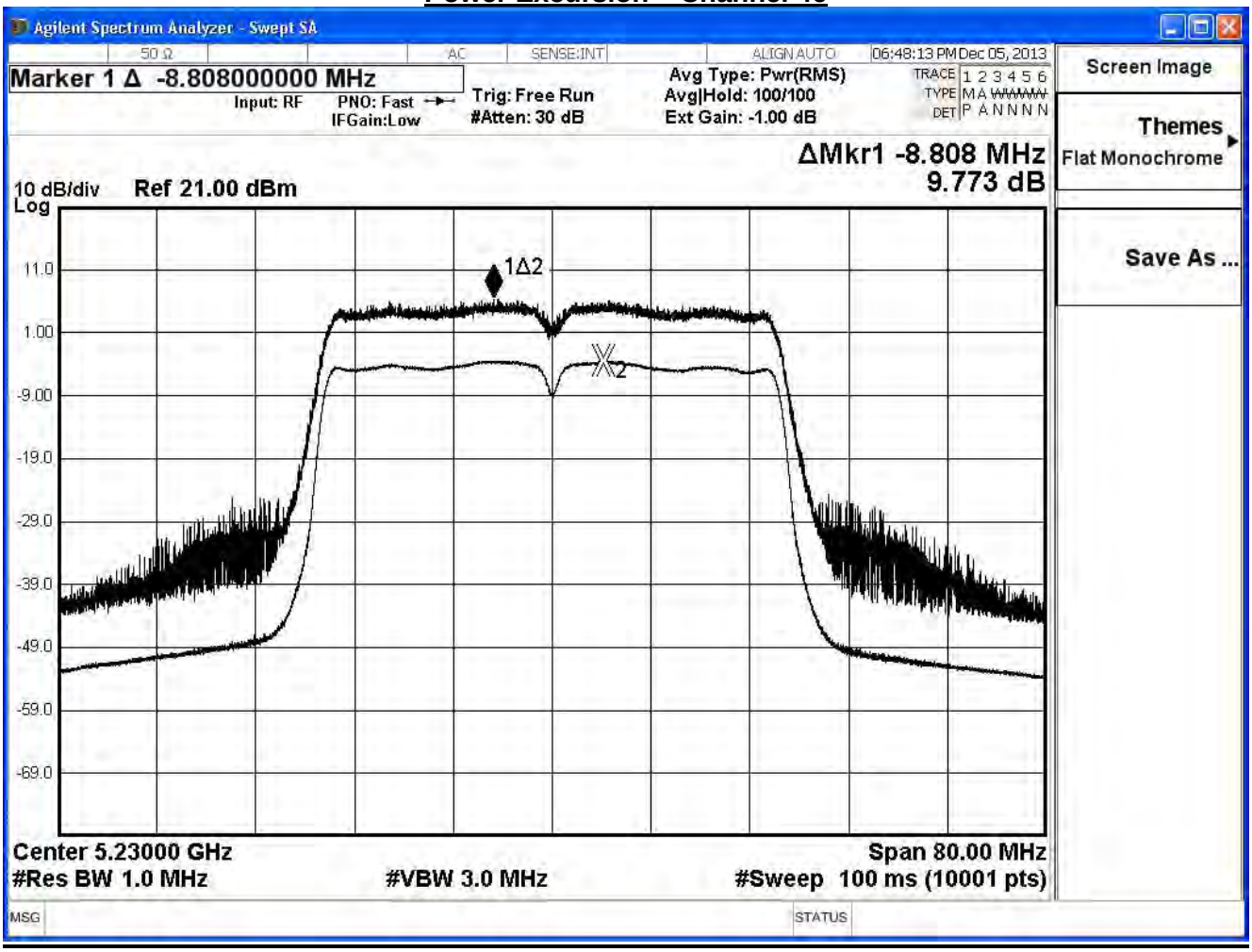
Product	PCE-AC56 Dual-Band Wireless PCI-E Adapter		
Test Item	Peak Excursion		
Test Mode	Mode 1: Transmit (CDD mode)		
Date of Test	2013/12/05	Test Site	SR7

IEEE 802.11n_40M(ANT 1)				
Channel No.	Frequency (MHz)	Measure Level (dB)	Required Limit (dB)	Result
38	5190	9.81	≦13	Pass
46	5230	9.77	≦13	Pass

Power Excursion – Channel 38



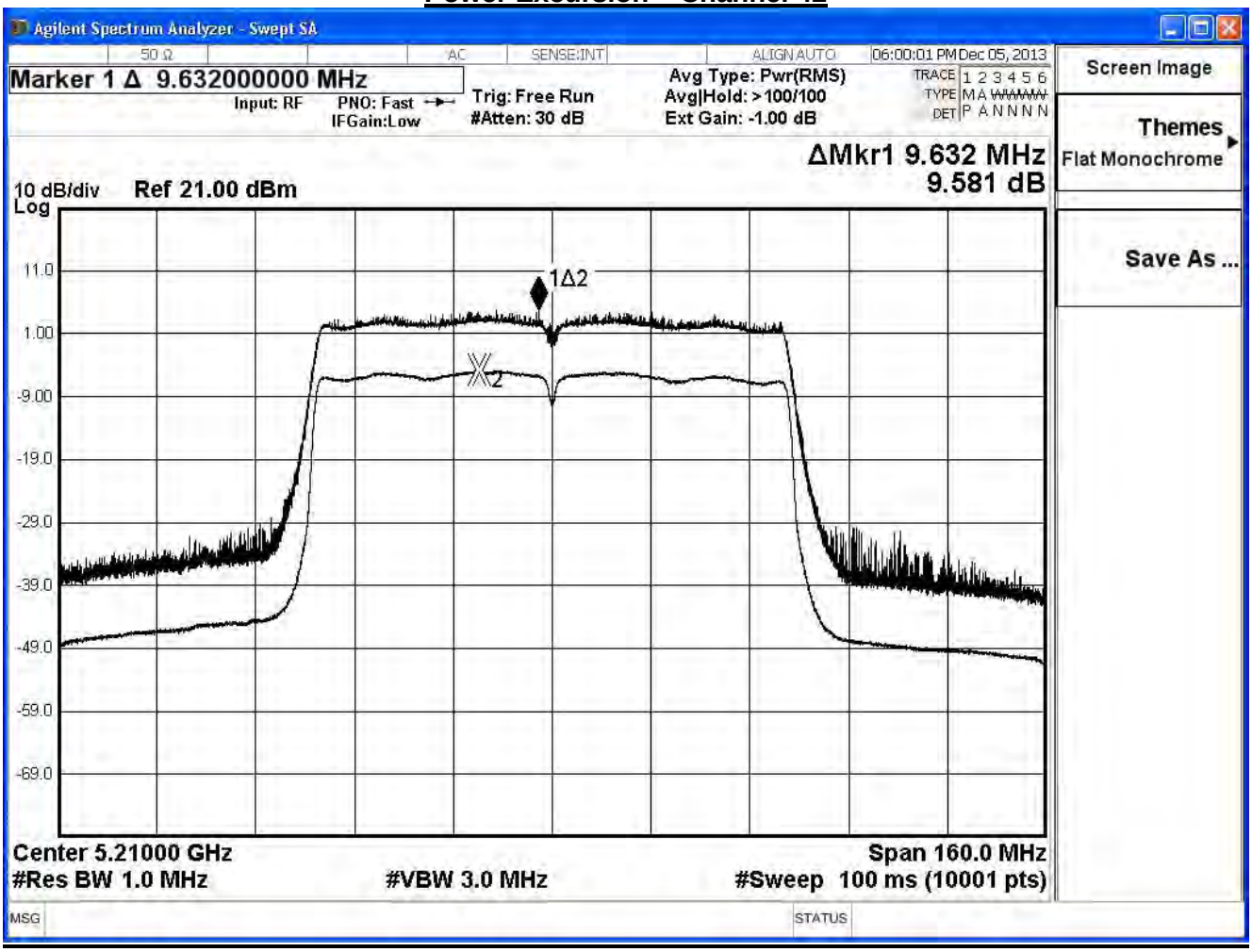
Power Excursion – Channel 46



Product	PCE-AC56 Dual-Band Wireless PCI-E Adapter		
Test Item	Peak Excursion		
Test Mode	Mode 1: Transmit (CDD mode)		
Date of Test	2013/12/05	Test Site	SR7

IEEE 802.11ac_80M(ANT 0)				
Channel No.	Frequency (MHz)	Measure Level (dB)	Required Limit (dB)	Result
42	5210	9.58	≦13	Pass

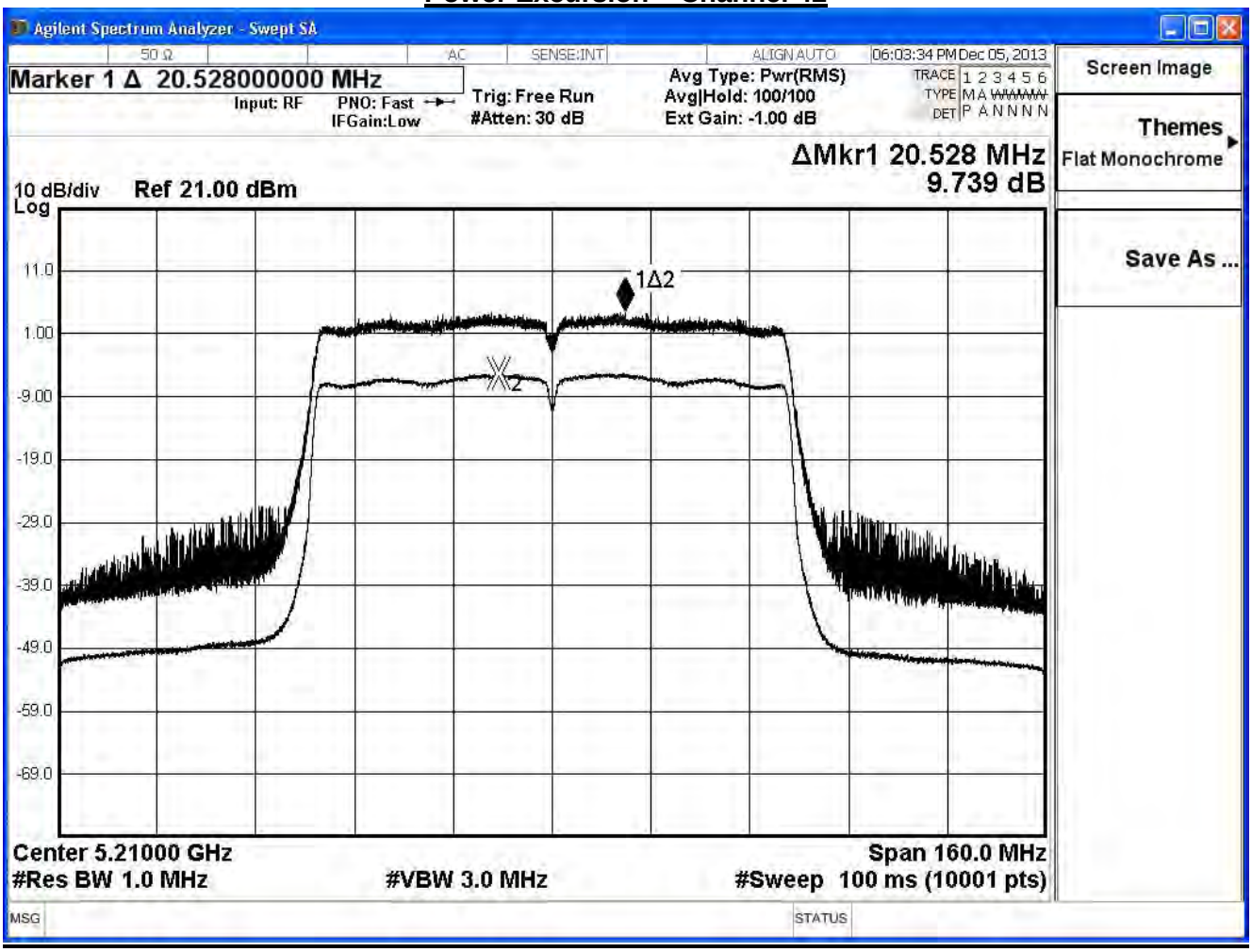
Power Excursion – Channel 42



Product	PCE-AC56 Dual-Band Wireless PCI-E Adapter		
Test Item	Peak Excursion		
Test Mode	Mode 1: Transmit (CDD mode)		
Date of Test	2013/12/05	Test Site	SR7

IEEE 802.11ac_80M(ANT 1)				
Channel No.	Frequency (MHz)	Measure Level (dB)	Required Limit (dB)	Result
42	5210	9.74	≦13	Pass

Power Excursion – Channel 42



7. Radiated Emission

7.1. Test Equipment

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

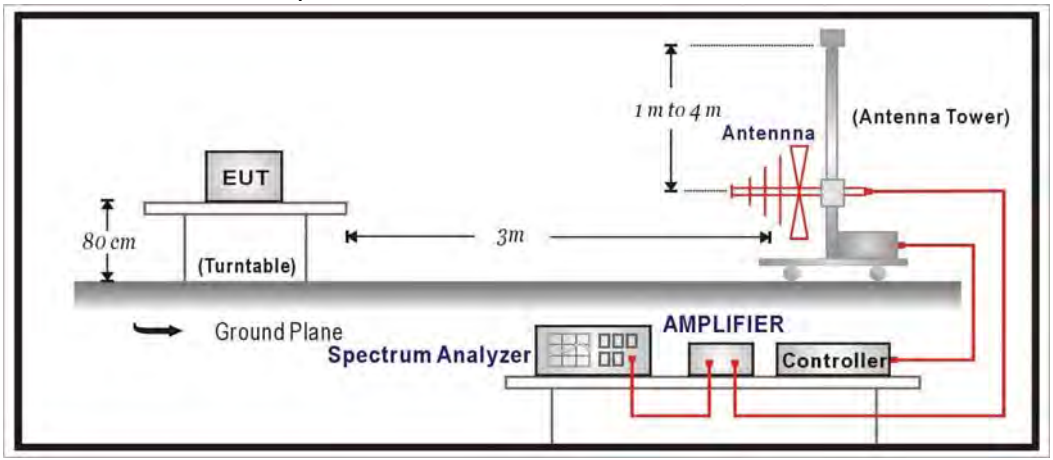
Radiated Emission / CB1

Instrument	Manufacturer	Model No.	Serial No	Next Cal. Date
Bilog Antenna	SCHAFFNER	CBL6112B	2895(CB1)	2014/08/14
Double Ridged Guide Horn Antenna	Schwarzback	BBHA 9120	D743	2014/02/17
Pre-Amplifier	MITEQ	AMF-4D	888003	2014/06/09
Pre-Amplifier	QuieTek	AP-025C	CHM-0706049	2014/02/19
Spectrum Analyzer	Agilent	E4440A	MY46187335	2014/01/27
k Type Cable	Huber Suhner	Sucoflex 102	25623/2	2014/02/21

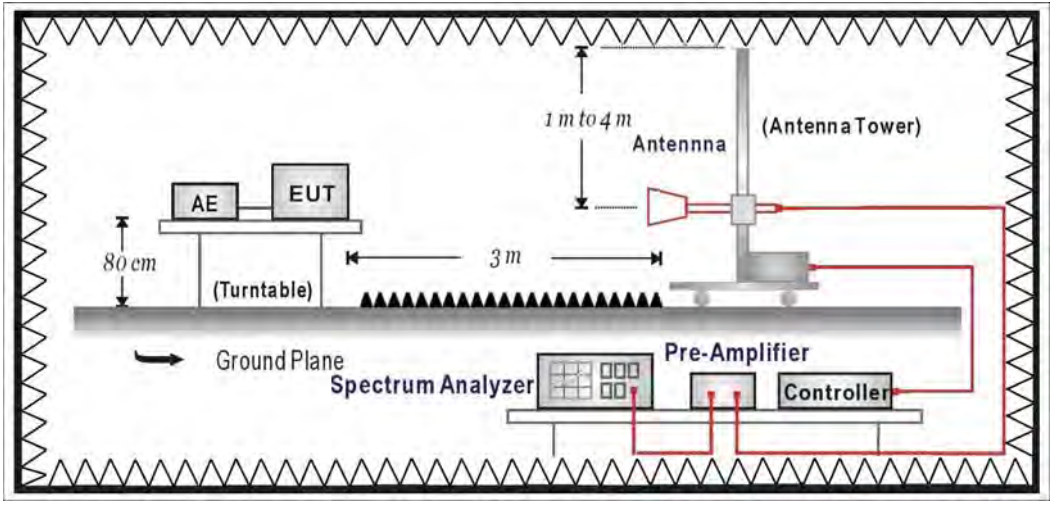
Note: 1. All equipments that need to calibrate are with calibration period of 1 year.

7.2. Test Setup

Under 1GHz Test Setup:



Above 1GHz Test Setup:



7.3. Limits

➢ **General Radiated Emission Limits**

The provisions of Section 15.205 of this part apply to intentional radiators operating under this section. Radiated emissions which fall in the restricted bands, as defined in Section 15.205, must also comply with the radiated emission limits specified in Section 15.209:

FCC Part 15 Subpart C Paragraph 15.209 Limits		
Frequency MHz	uV/m @3m	dBuV/m@3m
30-88	100	40
88-216	150	43.5
216-960	200	46
Above 960	500	54

Remark:

1. RF Voltage (dBuV) = 20 log RF Voltage (uV)
2. In the Above Table, the tighter limit applies at the band edges.
3. Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system.

➢ **Unwanted Emission out of the restricted bands Limits**

FCC Part 15 Subpart C Paragraph 15.407(b) Limits		
Frequency (MHz)	EIRP Limit (dBm)	Equivalent Field Strength (dBuV/m@3m)
5150~5250	-27	68.3
5250~5350	-27	68.3
5470~5725	-27	68.3
5725~5825	-27 (Note1)	68.3
	-17 (Note2)	78.3

Remark:

1. For frequencies more than 10 MHz above or below the band edges.
2. For frequency range from the band edges to 10 MHz above or below the band edges.
3. uV/m = $\frac{1000000\sqrt{30 \times EIRP}}{3}$, RF Voltage (dBuV/m) = 20 log RF Voltage (uV/m)

7.4. Test Procedure

The EUT and its simulators are placed on a turn table which is 0.8 meter above ground. The turn table can rotate 360 degrees to determine the position of the maximum emission level. The EUT was positioned such that the distance from antenna to the EUT was 3 meters.
The antenna can move up and down between 1 meter and 4 meters to find out the maximum emission level.
Both horizontal and vertical polarization of the antenna are set on measurement. In order to find the maximum emission, all of the interface cables must be manipulated according to ANSI C63.4: 2009 on radiated measurement.
The additional latch filter below 1GHz was used to measure the level of harmonics radiated emission during field dtrength of harmonics measurement.
The bandwidth below 1GHz setting on the field strength meter is 120 KHz, above 1GHz are 1 MHz.
The frequency range from 30MHz to 10th harminics is checked.

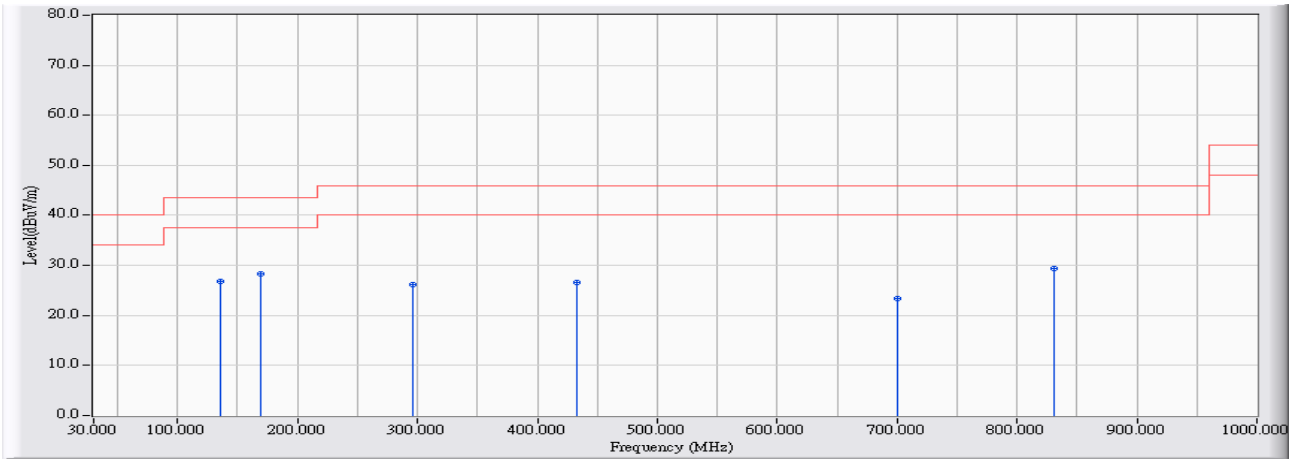
7.5. Uncertainty

The measurement uncertainty
30MHz～1GHz as ±3.43dB
1GHz～26.5Ghz as ±3.65dB

7.6. Test Result

30MHz-1GHz Spurious

Site : CB1	**Time : 2013/12/07 - 15:36**
Limit : FCC_CLASS_B_03M_QP	**Margin : 6**
Probe : CB1_FCC_EFS_30-1G-2_1011 - HORIZONTAL	**Power : DC 3.3V (Power by PC)**
EUT : PCE-AC56 Dual-Band Wireless PCI-E Adapter	**Note : Mode 1: Transmit (CDD mode)** **a_5220MHz**

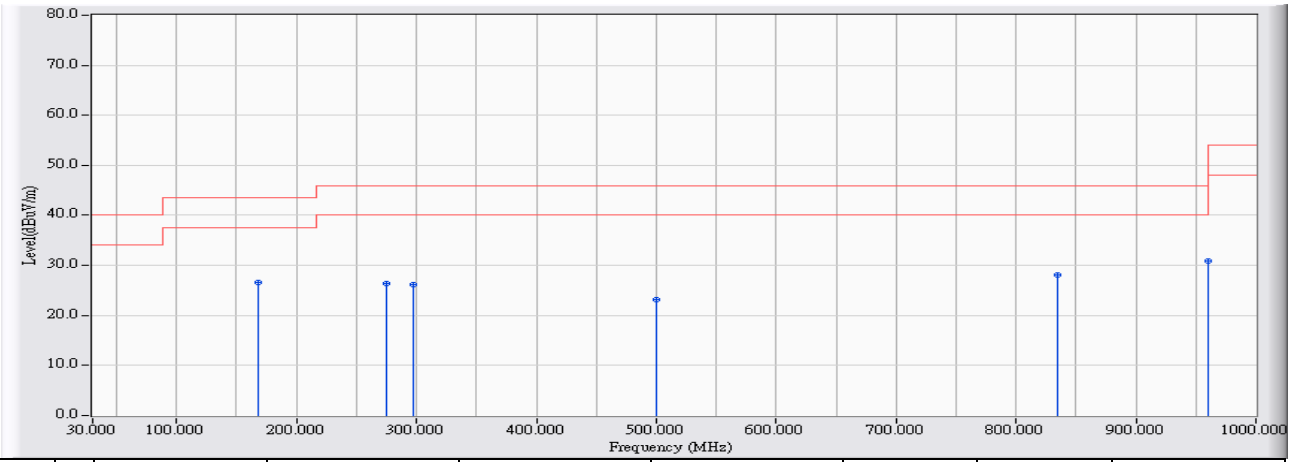


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		135.730	-22.721	49.509	26.787	-16.713	43.500	QUASIPEAK
2	*	168.710	-24.245	52.602	28.357	-15.143	43.500	QUASIPEAK
3		295.780	-20.130	46.403	26.273	-19.727	46.000	QUASIPEAK
4		433.520	-16.900	43.590	26.691	-19.309	46.000	QUASIPEAK
5		700.270	-15.003	38.286	23.283	-22.717	46.000	QUASIPEAK
6		830.250	-13.508	42.941	29.433	-16.567	46.000	QUASIPEAK

Note:

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

Site : CB1	**Time : 2013/12/07 - 15:38**
Limit : FCC_CLASS_B_03M_QP	**Margin : 6**
Probe : CB1_FCC_EFS_30-1G-2_1011 - VERTICAL	**Power : DC 3.3V (Power by PC)**
EUT : PCE-AC56 Dual-Band Wireless PCI-E Adapter	**Note : Mode 1: Transmit (CDD mode)** **a_5220MHz**

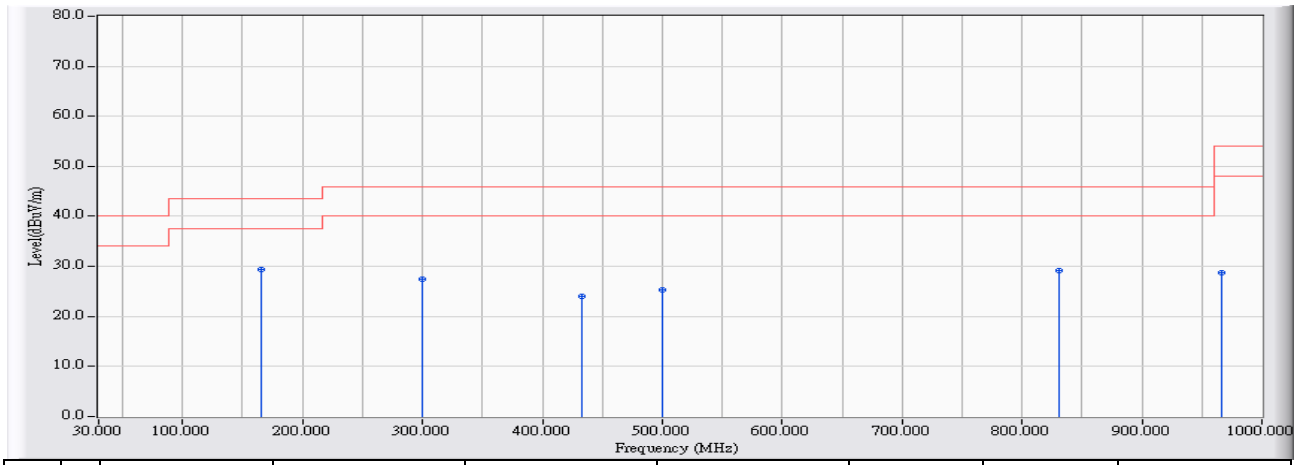


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	167.740	-24.202	50.849	26.646	-16.854	43.500	QUASIPEAK
2		275.410	-20.525	46.811	26.287	-19.713	46.000	QUASIPEAK
3		297.720	-20.093	46.209	26.117	-19.883	46.000	QUASIPEAK
4		500.450	-15.617	38.846	23.229	-22.771	46.000	QUASIPEAK
5		834.130	-13.498	41.576	28.078	-17.922	46.000	QUASIPEAK
6		960.230	-12.896	43.765	30.869	-23.131	54.000	QUASIPEAK

Note:

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

Site : CB1	**Time : 2013/12/07 - 15:44**
Limit : FCC_CLASS_B_03M_QP	**Margin : 6**
Probe : CB1_FCC_EFS_30-1G-2_1011 - HORIZONTAL	**Power : DC 3.3V (Power by PC)**
EUT : PCE-AC56 Dual-Band Wireless PCI-E Adapter	**Note : Mode 1: Transmit (CDD mode)** **802.11n20_5220MHz**

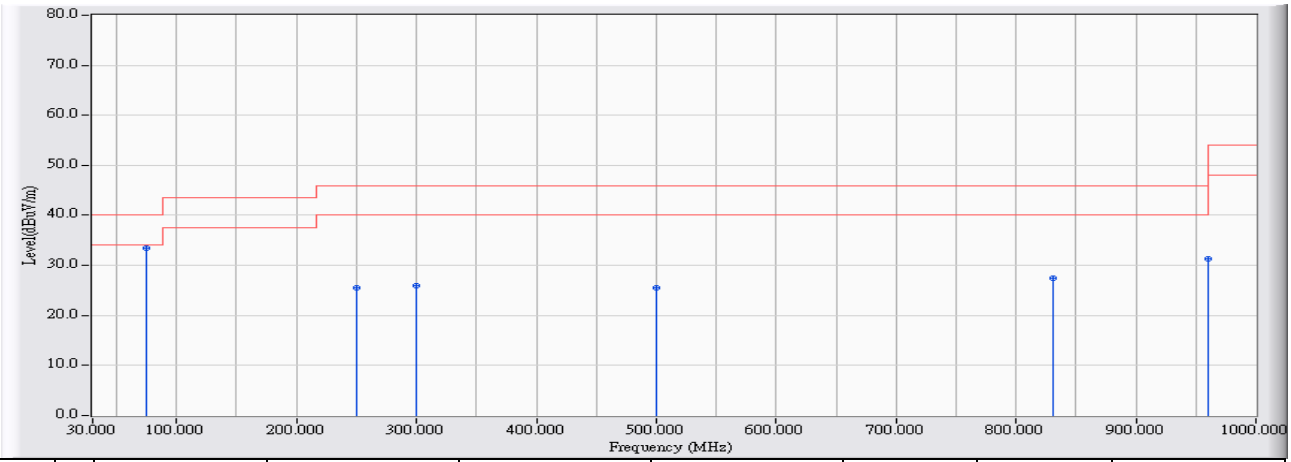


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	165.800	-24.118	53.411	29.293	-14.207	43.500	QUASIPEAK
2		299.660	-20.054	47.583	27.528	-18.472	46.000	QUASIPEAK
3		433.520	-16.900	41.012	24.113	-21.887	46.000	QUASIPEAK
4		500.450	-15.617	40.967	25.350	-20.650	46.000	QUASIPEAK
5		830.250	-13.508	42.703	29.195	-16.805	46.000	QUASIPEAK
6		967.020	-12.848	41.508	28.661	-25.339	54.000	QUASIPEAK

Note:

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

Site : CB1	**Time : 2013/12/07 - 15:46**
Limit : FCC_CLASS_B_03M_QP	**Margin : 6**
Probe : CB1_FCC_EFS_30-1G-2_1011 - VERTICAL	**Power : DC 3.3V (Power by PC)**
EUT : PCE-AC56 Dual-Band Wireless PCI-E Adapter	**Note : Mode 1: Transmit (CDD mode)** **802.11n20_5220MHz**

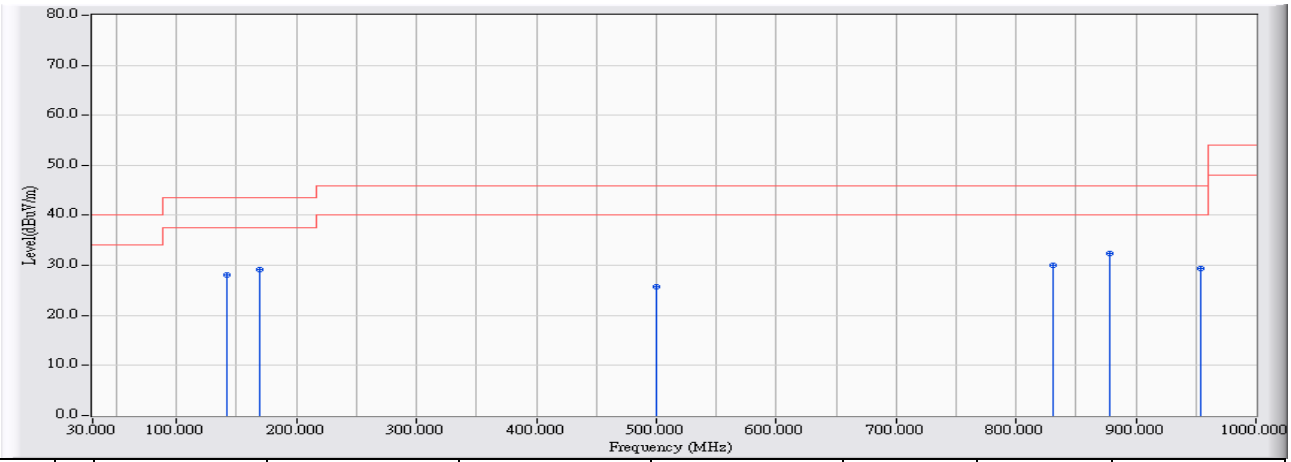


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	74.620	-27.128	60.661	33.533	-6.467	40.000	QUASIPEAK
2		250.190	-21.013	46.608	25.595	-20.405	46.000	QUASIPEAK
3		299.660	-20.054	45.963	25.908	-20.092	46.000	QUASIPEAK
4		500.450	-15.617	41.114	25.497	-20.503	46.000	QUASIPEAK
5		830.250	-13.508	40.931	27.423	-18.577	46.000	QUASIPEAK
6		960.230	-12.896	44.115	31.219	-22.781	54.000	QUASIPEAK

Note:

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

Site : CB1	**Time : 2013/12/07 - 15:48**
Limit : FCC_CLASS_B_03M_QP	**Margin : 6**
Probe : CB1_FCC_EFS_30-1G-2_1011 - HORIZONTAL	**Power : DC 3.3V (Power by PC)**
EUT : PCE-AC56 Dual-Band Wireless PCI-E Adapter	**Note : Mode 1: Transmit (CDD mode)** **802.11n40_5230MHz**

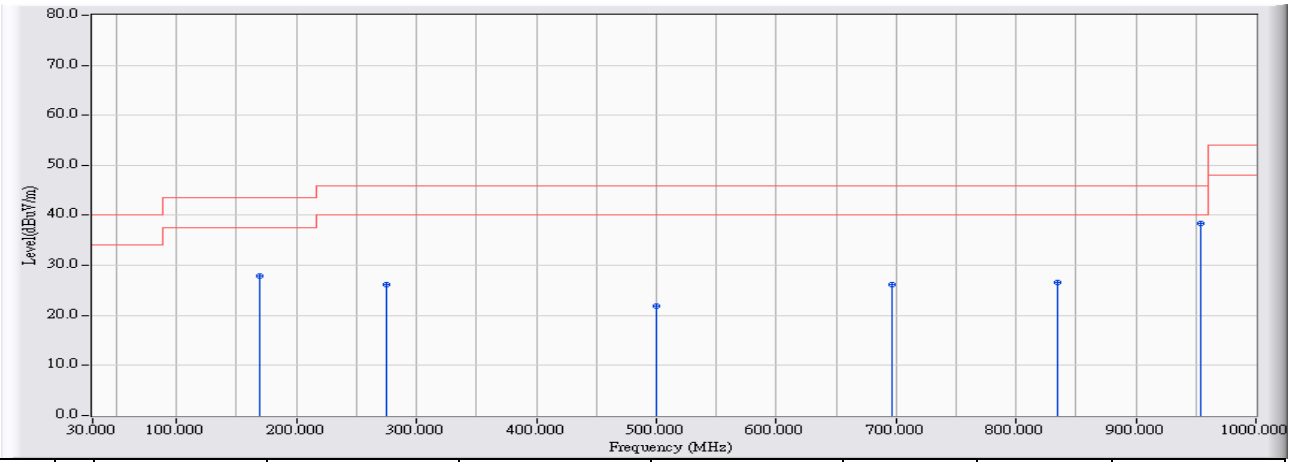


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		142.520	-22.994	51.087	28.093	-15.407	43.500	QUASIPEAK
2		168.710	-24.245	53.436	29.191	-14.309	43.500	QUASIPEAK
3		500.450	-15.617	41.379	25.762	-20.238	46.000	QUASIPEAK
4		830.250	-13.508	43.509	30.001	-15.999	46.000	QUASIPEAK
5	*	877.780	-13.385	45.810	32.425	-13.575	46.000	QUASIPEAK
6		954.410	-12.937	42.269	29.331	-16.669	46.000	QUASIPEAK

Note:

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

Site : CB1	**Time : 2013/12/07 - 15:53**
Limit : FCC_CLASS_B_03M_QP	**Margin : 6**
Probe : CB1_FCC_EFS_30-1G-2_1011 - VERTICAL	**Power : DC 3.3V (Power by PC)**
EUT : PCE-AC56 Dual-Band Wireless PCI-E Adapter	**Note : Mode 1: Transmit (CDD mode)** **802.11n40_5230MHz**

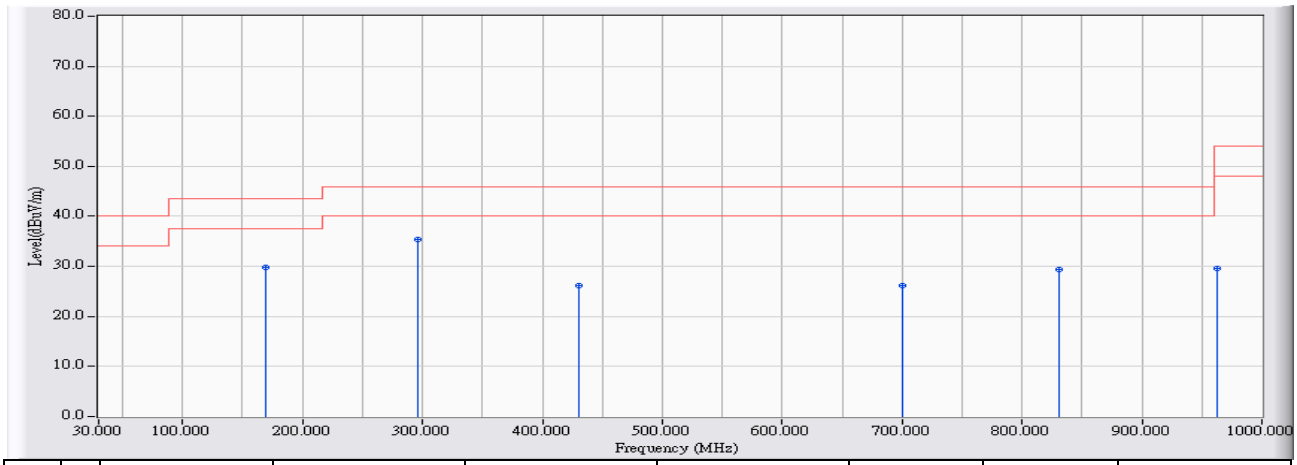


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		169.680	-24.287	52.196	27.908	-15.592	43.500	QUASIPEAK
2		274.440	-20.543	46.784	26.241	-19.759	46.000	QUASIPEAK
3		500.450	-15.617	37.428	21.811	-24.189	46.000	QUASIPEAK
4		696.390	-15.026	41.289	26.263	-19.737	46.000	QUASIPEAK
5		834.130	-13.498	40.129	26.631	-19.369	46.000	QUASIPEAK
6	*	954.410	-12.937	51.414	38.476	-7.524	46.000	QUASIPEAK

Note:

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

Site : CB1	**Time : 2013/12/07 - 16:01**
Limit : FCC_CLASS_B_03M_QP	**Margin : 6**
Probe : CB1_FCC_EFS_30-1G-2_1011 - HORIZONTAL	**Power : DC 3.3V (Power by PC)**
EUT : PCE-AC56 Dual-Band Wireless PCI-E Adapter	**Note : Mode 1: Transmit (CDD mode)** **802.11ac80_5210MHz**

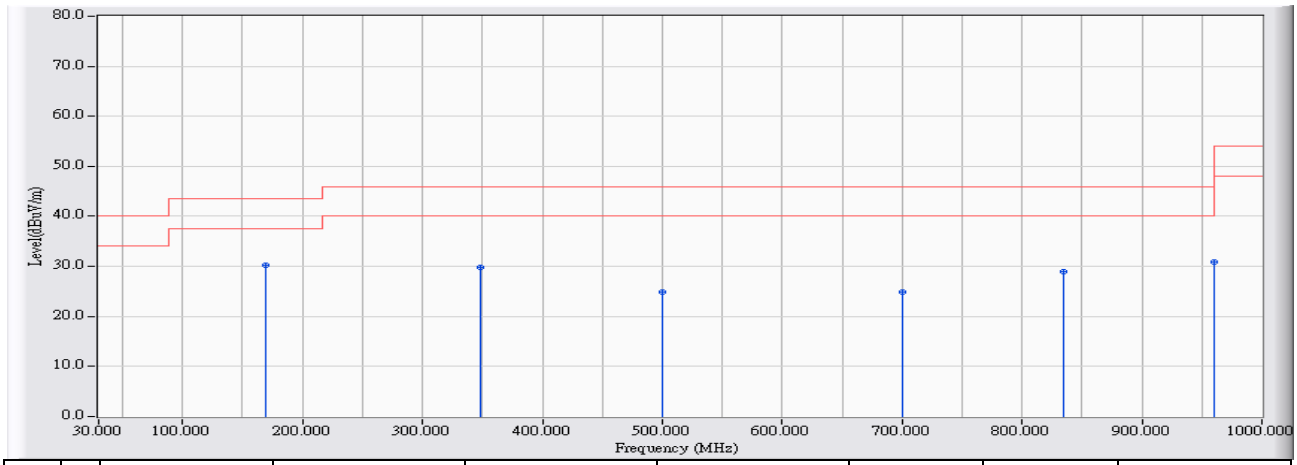


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		168.710	-24.245	54.051	29.806	-13.694	43.500	QUASIPEAK
2	*	295.780	-20.130	55.412	35.282	-10.718	46.000	QUASIPEAK
3		430.610	-16.955	43.221	26.266	-19.734	46.000	QUASIPEAK
4		700.270	-15.003	41.265	26.262	-19.738	46.000	QUASIPEAK
5		830.250	-13.508	42.794	29.286	-16.714	46.000	QUASIPEAK
6		963.140	-12.875	42.557	29.682	-24.318	54.000	QUASIPEAK

Note:

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

Site : CB1	**Time : 2013/12/07 - 16:03**
Limit : FCC_CLASS_B_03M_QP	**Margin : 6**
Probe : CB1_FCC_EFS_30-1G-2_1011 - VERTICAL	**Power : DC 3.3V (Power by PC)**
EUT : PCE-AC56 Dual-Band Wireless PCI-E Adapter	**Note : Mode 1: Transmit (CDD mode)** **802.11ac80_5210MHz**



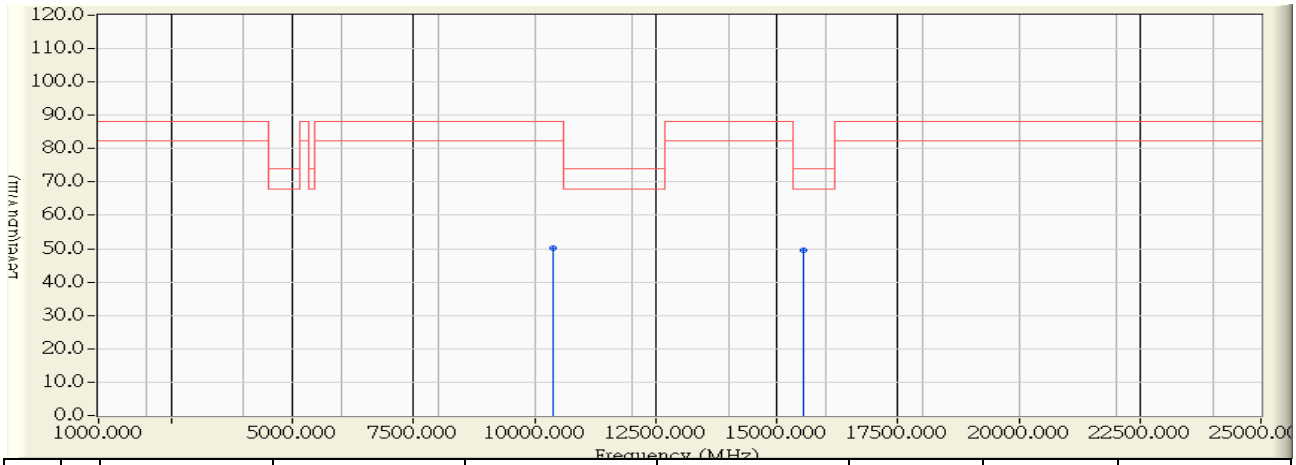
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	169.680	-24.287	54.615	30.327	-13.173	43.500	QUASIPEAK
2		348.160	-18.843	48.669	29.826	-16.174	46.000	QUASIPEAK
3		500.450	-15.617	40.544	24.927	-21.073	46.000	QUASIPEAK
4		700.270	-15.003	39.872	24.869	-21.131	46.000	QUASIPEAK
5		834.130	-13.498	42.468	28.970	-17.030	46.000	QUASIPEAK
6		960.230	-12.896	43.809	30.913	-23.087	54.000	QUASIPEAK

Note:

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

Harmonic & Spurious:

Site : CB1	**Time : 2013/10/29 - 19:20**
Limit : FCC_SpartE_15.407_H_03M_PK	**Margin : 6**
Probe : CB1_FCC_EFS_1-18G-1_0901 - HORIZONTAL	**Power : DC 3.3V (Power by PC)**
EUT : PCE-AC56 Dual-Band Wireless PCI-E Adapter	**Note : Mode 1: Transmit (CDD mode)** **802.11a_5180MHz**

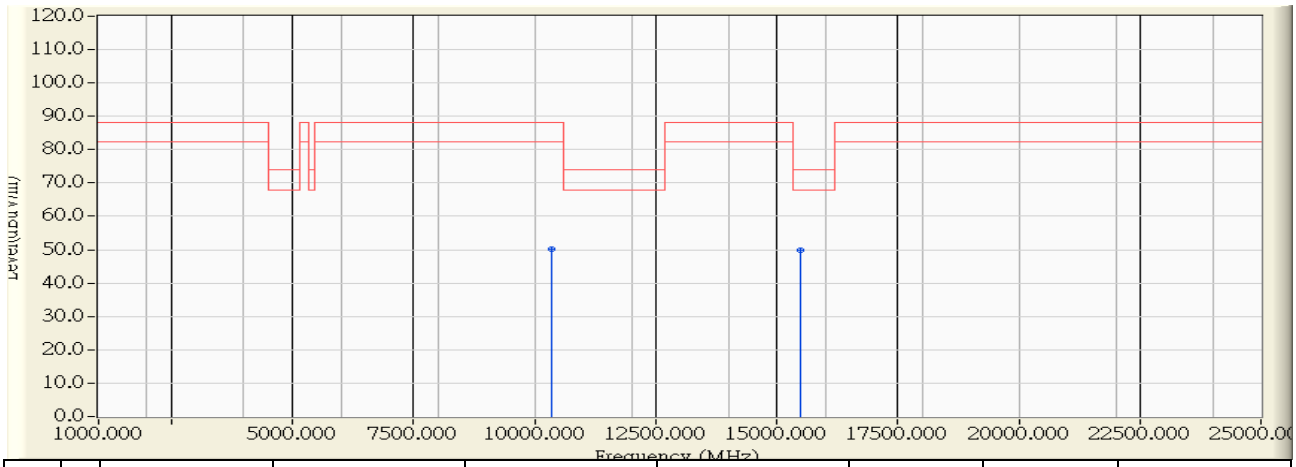


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		10369.600	10.404	39.800	50.204	-38.096	88.300	PEAK
2	*	15542.800	11.105	38.410	49.516	-24.484	74.000	PEAK

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 1MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. " * ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

Site : CB1	**Time : 2013/10/29 - 19:40**
Limit : FCC_SpartE_15.407_H_03M_PK	**Margin : 6**
Probe : CB1_FCC_EFS_1-18G-1_0901 - VERTICAL	**Power : DC 3.3V (Power by PC)**
EUT : PCE-AC56 Dual-Band Wireless PCI-E Adapter	**Note : Mode 1: Transmit (CDD mode)** **802.11a_5180MHz**

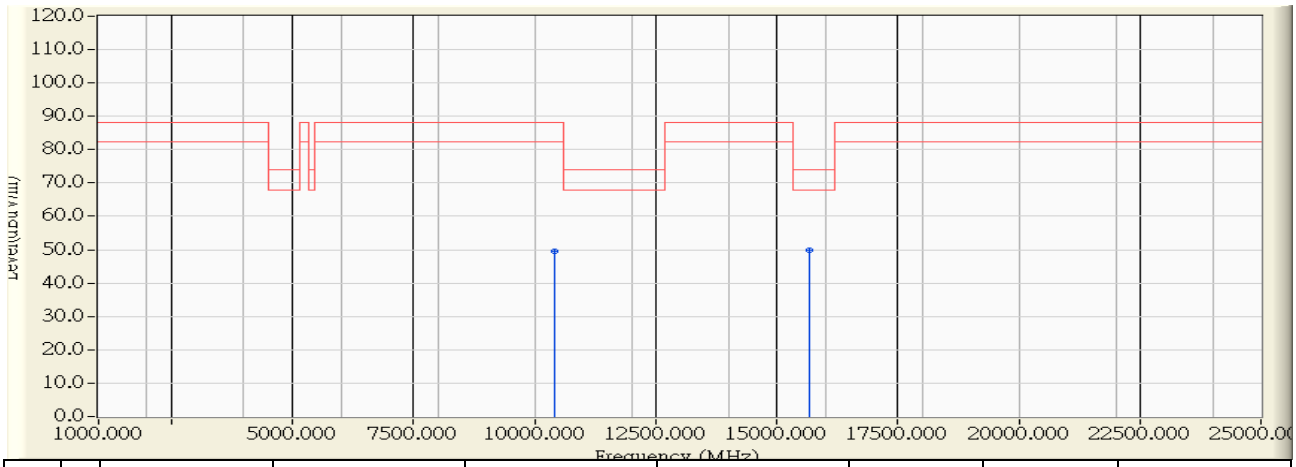


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		10368.500	10.407	39.810	50.217	-38.083	88.300	PEAK
2	*	15506.200	11.146	38.580	49.727	-24.273	74.000	PEAK

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 1MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ * ”, means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

Site : CB1	**Time : 2013/10/31 - 14:58**
Limit : FCC_SpartE_15.407_H_03M_PK	**Margin : 6**
Probe : CB1_FCC_EFS_1-18G-1_0901 - HORIZONTAL	**Power : DC 3.3V (Power by PC)**
EUT : PCE-AC56 Dual-Band Wireless PCI-E Adapter	**Note : Mode 1: Transmit (CDD mode)** **a_5220MHz**

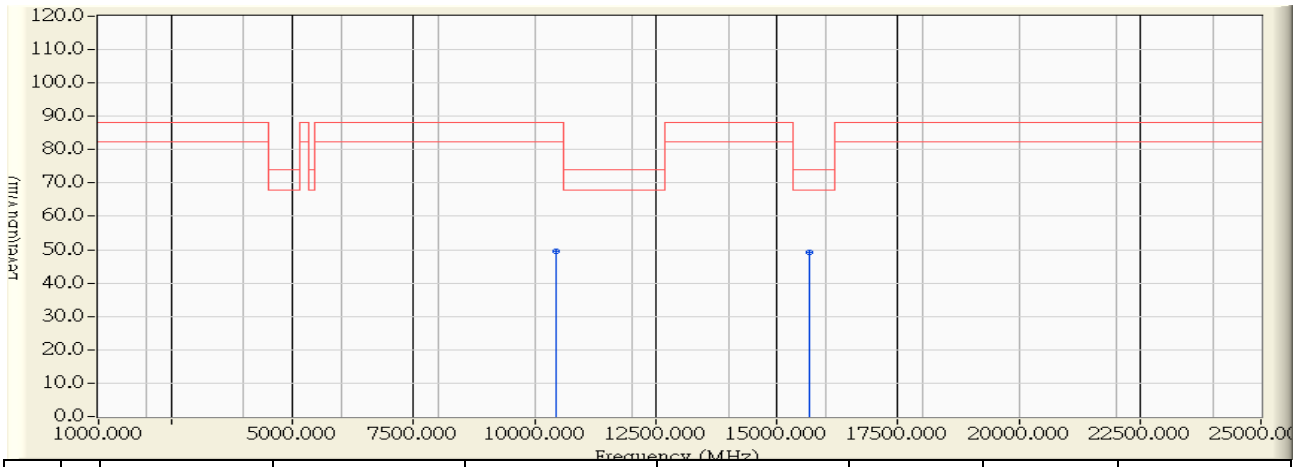


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		10426.360	10.235	39.330	49.565	-38.735	88.300	PEAK
2	*	15662.080	10.973	38.830	49.803	-24.197	74.000	PEAK

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 1MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ * ”, means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

Site : CB1	**Time : 2013/10/31 - 15:04**
Limit : FCC_SpartE_15.407_H_03M_PK	**Margin : 6**
Probe : CB1_FCC_EFS_1-18G-1_0901 - VERTICAL	**Power : DC 3.3V (Power by PC)**
EUT : PCE-AC56 Dual-Band Wireless PCI-E Adapter	**Note : Mode 1: Transmit (CDD mode)** **a_5220MHz**

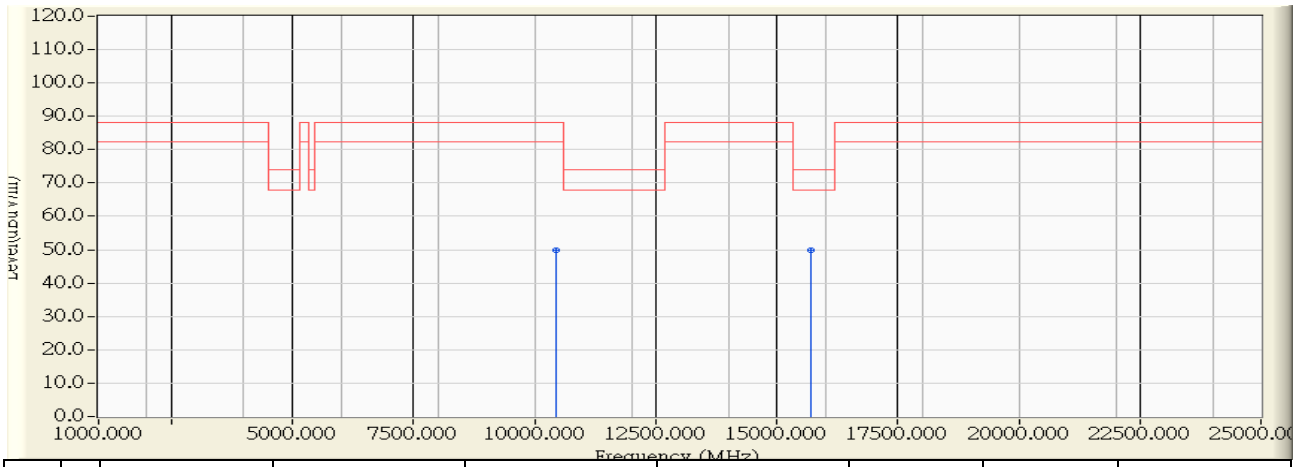


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		10456.400	10.145	39.240	49.385	-38.915	88.300	PEAK
2	*	15664.840	10.970	38.210	49.180	-24.820	74.000	PEAK

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 1MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ * ”, means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

Site : CB1	**Time : 2013/10/31 - 15:12**
Limit : FCC_SpartE_15.407_H_03M_PK	**Margin : 6**
Probe : CB1_FCC_EFS_1-18G-1_0901 - HORIZONTAL	**Power : DC 3.3V (Power by PC)**
EUT : PCE-AC56 Dual-Band Wireless PCI-E Adapter	**Note : Mode 1: Transmit (CDD mode)** **a_5240MHz**

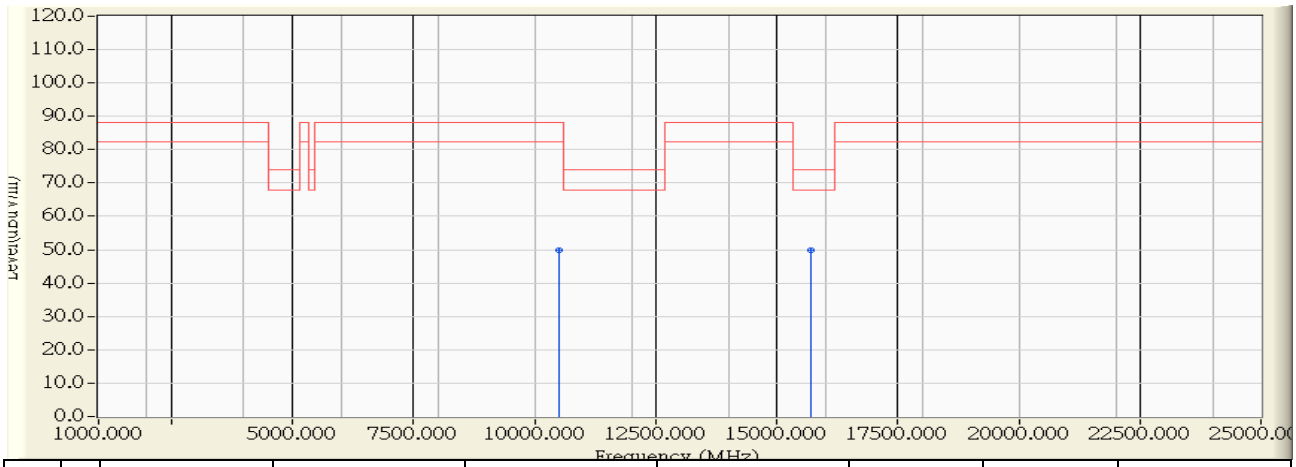


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		10461.320	10.130	39.850	49.980	-38.320	88.300	PEAK
2	*	15701.040	10.930	38.800	49.730	-24.270	74.000	PEAK

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 1MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ * ”, means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

Site : CB1	**Time : 2013/10/31 - 15:19**
Limit : FCC_SpartE_15.407_H_03M_PK	**Margin : 6**
Probe : CB1_FCC_EFS_1-18G-1_0901 - VERTICAL	**Power : DC 3.3V (Power by PC)**
EUT : PCE-AC56 Dual-Band Wireless PCI-E Adapter	**Note : Mode 1: Transmit (CDD mode)** **a_5240MHz**

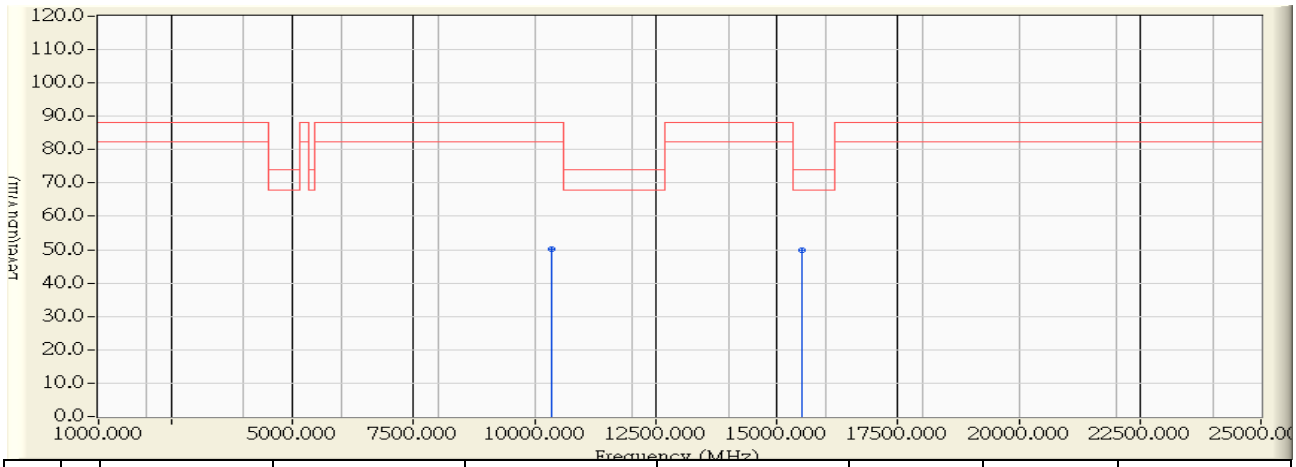


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		10496.000	10.037	39.820	49.857	-38.443	88.300	PEAK
2	*	15715.920	10.913	38.980	49.893	-24.107	74.000	PEAK

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 1MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. " * ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

Site : CB1	**Time : 2013/10/31 - 15:31**
Limit : FCC_SpartE_15.407_H_03M_PK	**Margin : 6**
Probe : CB1_FCC_EFS_1-18G-1_0901 - HORIZONTAL	**Power : DC 3.3V (Power by PC)**
EUT : PCE-AC56 Dual-Band Wireless PCI-E Adapter	**Note : Mode 1: Transmit (CDD mode)** **802.11n20_5180MHz**

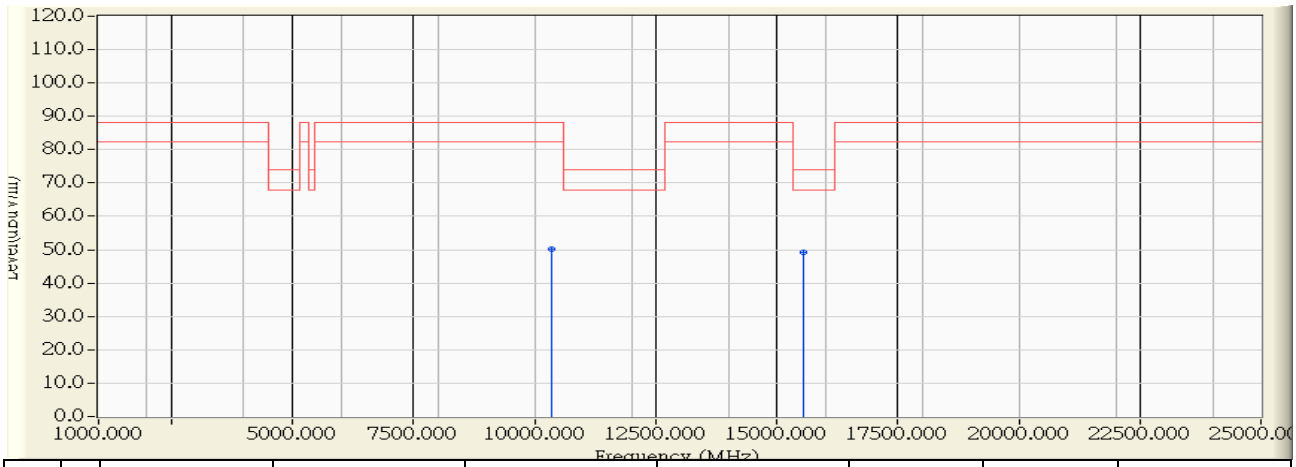


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		10348.040	10.468	39.700	50.168	-38.132	88.300	PEAK
2	*	15535.840	11.114	38.630	49.744	-24.256	74.000	PEAK

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 1MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ * ”, means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

Site : CB1	**Time : 2013/10/31 - 15:56**
Limit : FCC_SpartE_15.407_H_03M_PK	**Margin : 6**
Probe : CB1_FCC_EFS_1-18G-1_0901 - VERTICAL	**Power : DC 3.3V (Power by PC)**
EUT : PCE-AC56 Dual-Band Wireless PCI-E Adapter	**Note : Mode 1: Transmit (CDD mode)** **802.11n20_5180MHz**

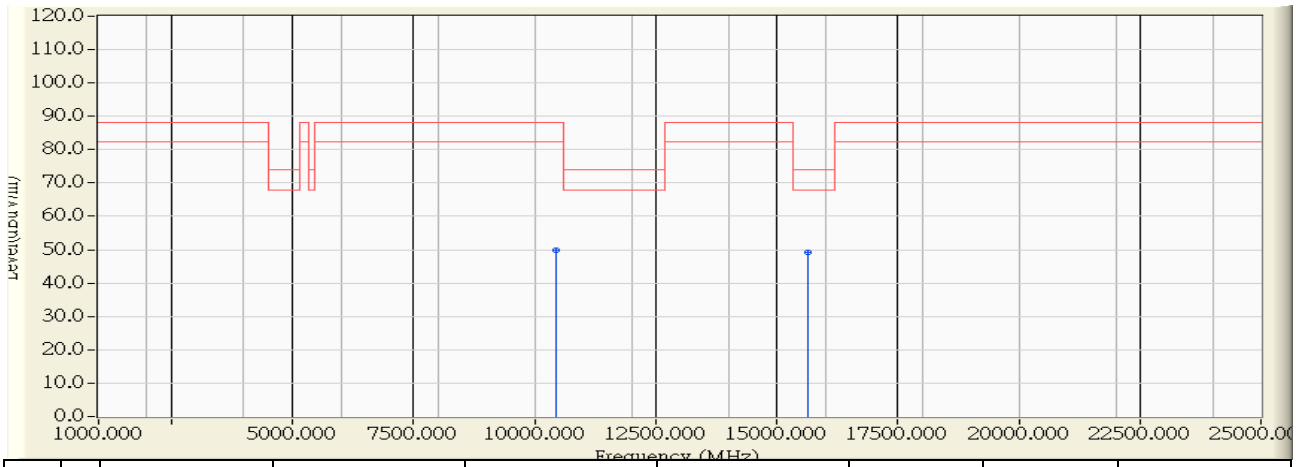


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		10354.880	10.447	39.900	50.348	-37.952	88.300	PEAK
2	*	15546.160	11.102	38.000	49.102	-24.898	74.000	PEAK

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 1MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ * ”, means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

Site : CB1	**Time : 2013/10/31 - 16:05**
Limit : FCC_SpartE_15.407_H_03M_PK	**Margin : 6**
Probe : CB1_FCC_EFS_1-18G-1_0901 - HORIZONTAL	**Power : DC 3.3V (Power by PC)**
EUT : PCE-AC56 Dual-Band Wireless PCI-E Adapter	**Note : Mode 1: Transmit (CDD mode)** **802.11n20_5220MHz**

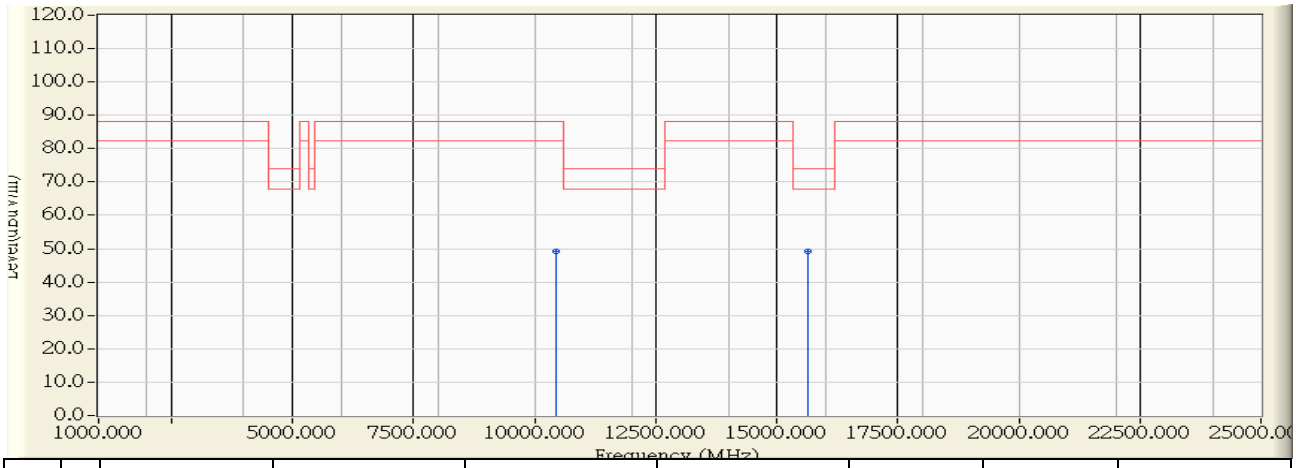


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		10452.640	10.156	39.610	49.766	-38.534	88.300	PEAK
2	*	15648.960	10.987	38.220	49.208	-24.792	74.000	PEAK

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 1MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ * ”, means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

Limit : FCC_SpartE_15.407_H_03M_PK	**Margin : 6**
Probe : CB1_FCC_EFS_1-18G-1_0901 - VERTICAL	**Power : DC 3.3V (Power by PC)**
EUT : PCE-AC56 Dual-Band Wireless PCI-E Adapter	**Note : Mode 1: Transmit (CDD mode)** **802.11n20_5220MHz**

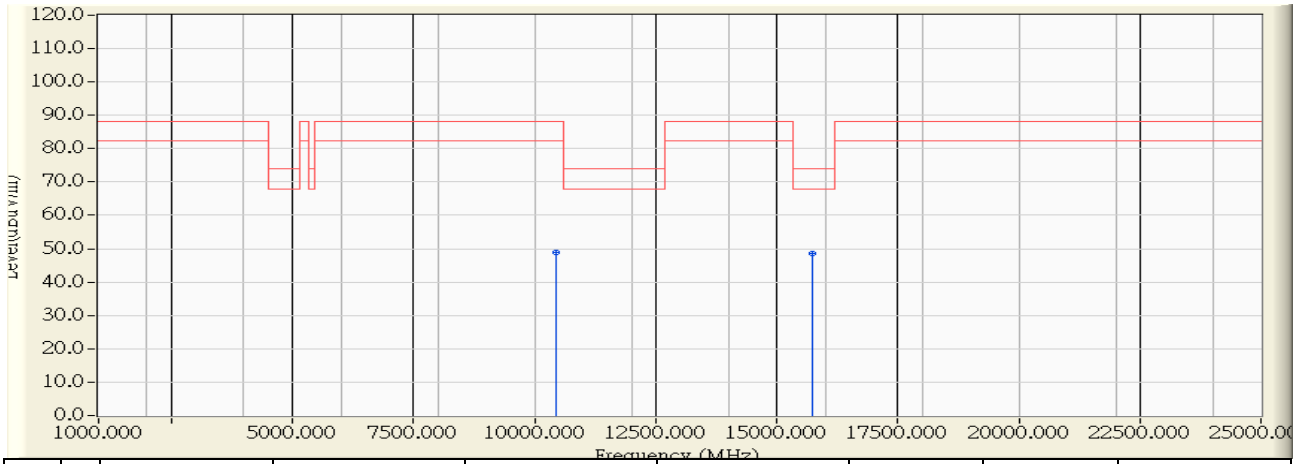


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		10439.160	10.196	38.980	49.176	-39.124	88.300	PEAK
2	*	15641.040	10.997	38.100	49.096	-24.904	74.000	PEAK

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 1MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. " * ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

Site : CB1	**Time : 2013/10/31 - 16:14**
Limit : FCC_SpartE_15.407_H_03M_PK	**Margin : 6**
Probe : CB1_FCC_EFS_1-18G-1_0901 - HORIZONTAL	**Power : DC 3.3V (Power by PC)**
EUT : PCE-AC56 Dual-Band Wireless PCI-E Adapter	**Note : Mode 1: Transmit (CDD mode)** **802.11n20_5240MHz**

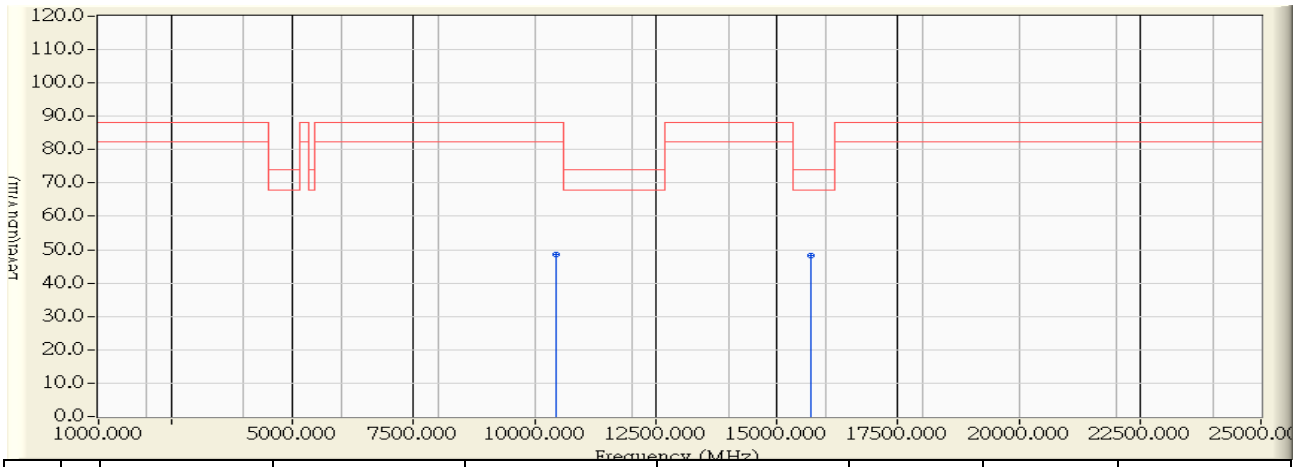


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		10460.840	10.132	38.660	48.792	-39.508	88.300	PEAK
2	*	15735.080	10.892	37.780	48.672	-25.328	74.000	PEAK

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 1MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. " * ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

Site : CB1	**Time : 2013/10/31 - 16:17**
Limit : FCC_SpartE_15.407_H_03M_PK	**Margin : 6**
Probe : CB1_FCC_EFS_1-18G-1_0901 - VERTICAL	**Power : DC 3.3V (Power by PC)**
EUT : PCE-AC56 Dual-Band Wireless PCI-E Adapter	**Note : Mode 1: Transmit (CDD mode)** **802.11n20_5240MHz**

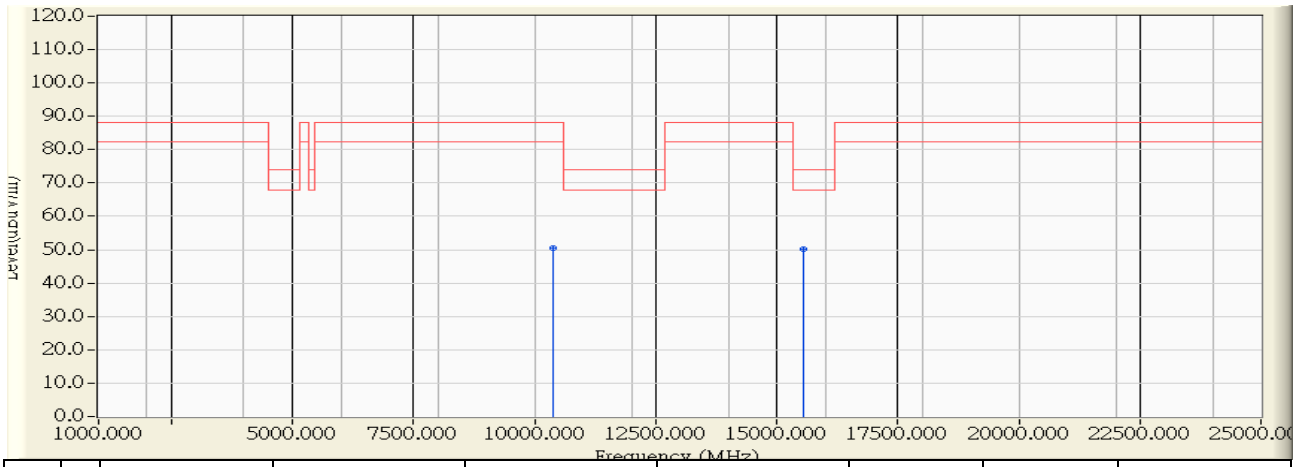


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		10460.080	10.134	38.540	48.674	-39.626	88.300	PEAK
2	*	15703.240	10.927	37.230	48.157	-25.843	74.000	PEAK

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 1MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. " * ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

Site : CB1	**Time : 2013/10/31 - 16:21**
Limit : FCC_SpartE_15.407_H_03M_PK	**Margin : 6**
Probe : CB1_FCC_EFS_1-18G-1_0901 - HORIZONTAL	**Power : DC 3.3V (Power by PC)**
EUT : PCE-AC56 Dual-Band Wireless PCI-E Adapter	**Note : Mode 1: Transmit (CDD mode)** **802.11n40_5190MHz**

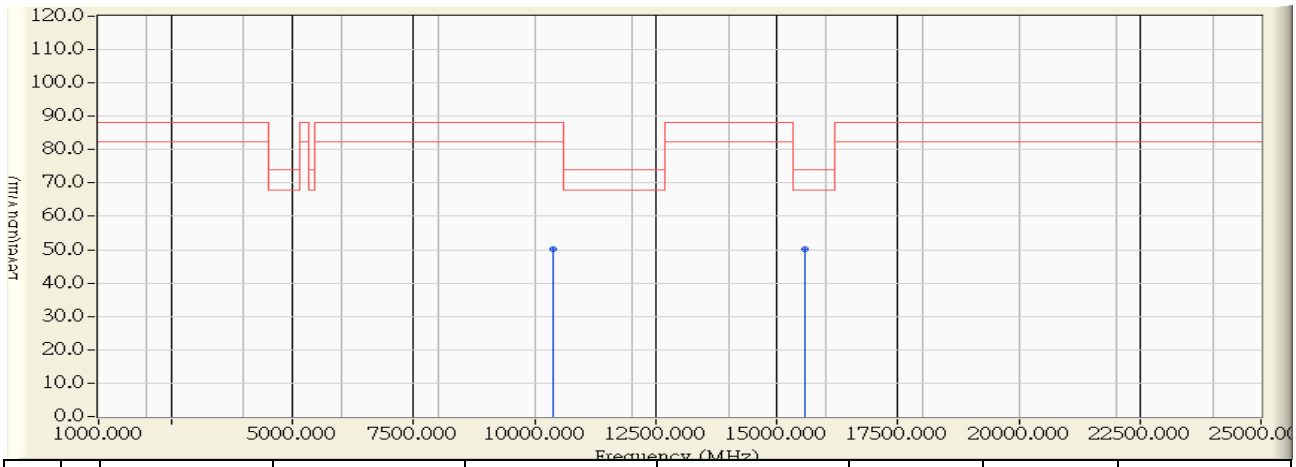


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		10396.240	10.325	40.050	50.374	-37.926	88.300	PEAK
2	*	15540.880	11.108	38.930	50.038	-23.962	74.000	PEAK

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 1MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ * ”, means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

Site : CB1	**Time : 2013/10/31 - 16:23**
Limit : FCC_SpartE_15.407_H_03M_PK	**Margin : 6**
Probe : CB1_FCC_EFS_1-18G-1_0901 - VERTICAL	**Power : DC 3.3V (Power by PC)**
EUT : PCE-AC56 Dual-Band Wireless PCI-E Adapter	**Note : Mode 1: Transmit (CDD mode)** **802.11n40_5190MHz**

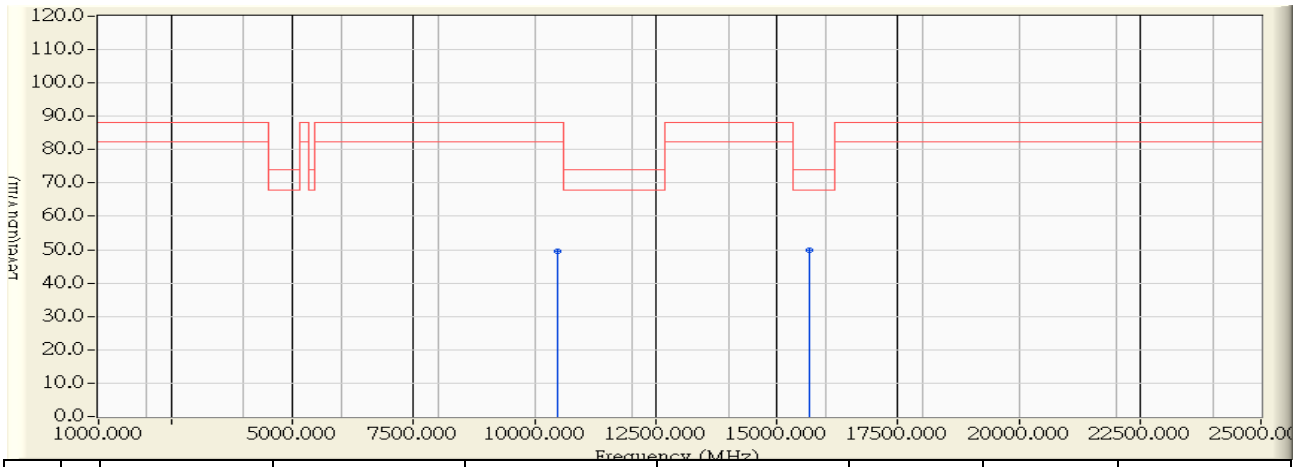


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		10385.440	10.356	39.820	50.177	-38.123	88.300	PEAK
2	*	15583.920	11.061	39.160	50.220	-23.780	74.000	PEAK

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 1MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ * ”, means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

Site : CB1	**Time : 2013/10/31 - 16:29**
Limit : FCC_SpartE_15.407_H_03M_PK	**Margin : 6**
Probe : CB1_FCC_EFS_1-18G-1_0901 - HORIZONTAL	**Power : DC 3.3V (Power by PC)**
EUT : PCE-AC56 Dual-Band Wireless PCI-E Adapter	**Note : Mode 1: Transmit (CDD mode)** **802.11n40_5230MHz**

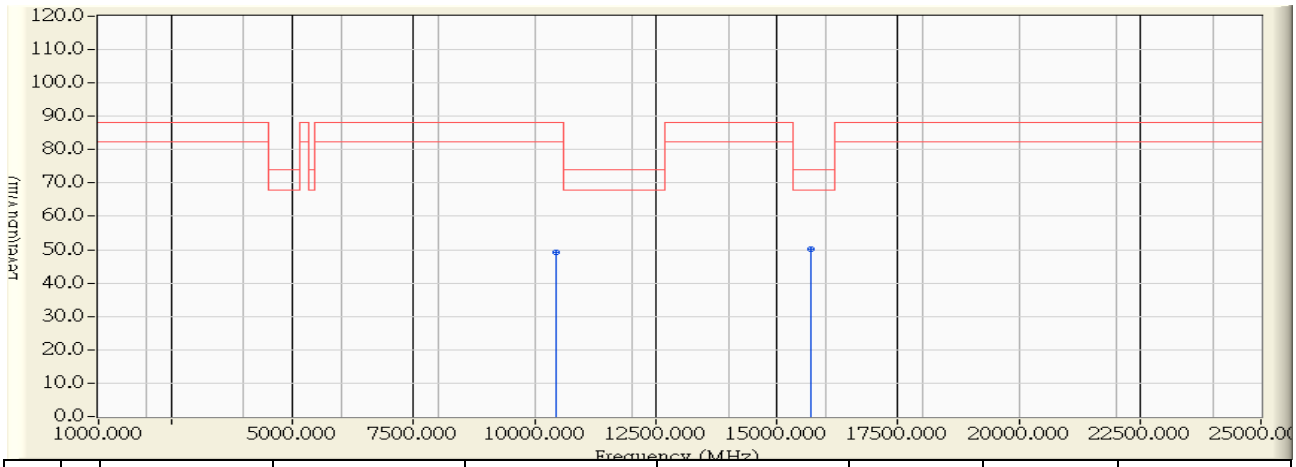


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		10480.640	10.073	39.470	49.543	-38.757	88.300	PEAK
2	*	15682.320	10.950	39.030	49.980	-24.020	74.000	PEAK

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 1MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ * ”, means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

Site : CB1	**Time : 2013/10/31 - 16:34**
Limit : FCC_SpartE_15.407_H_03M_PK	**Margin : 6**
Probe : CB1_FCC_EFS_1-18G-1_0901 - VERTICAL	**Power : DC 3.3V (Power by PC)**
EUT : PCE-AC56 Dual-Band Wireless PCI-E Adapter	**Note : Mode 1: Transmit (CDD mode)** **802.11n40_5230MHz**

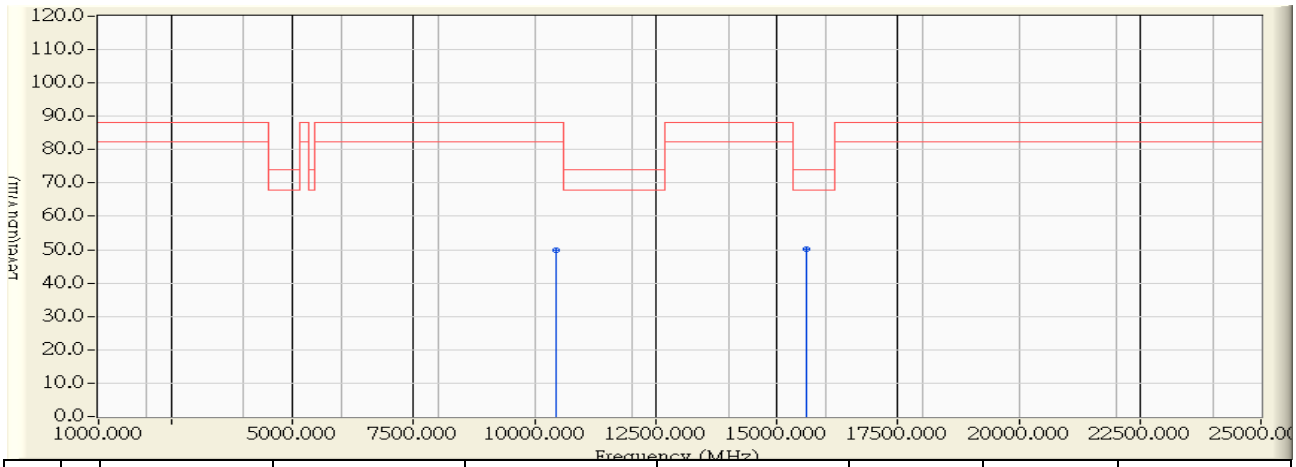


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		10435.440	10.207	39.100	49.308	-38.992	88.300	PEAK
2	*	15699.600	10.932	39.110	50.041	-23.959	74.000	PEAK

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 1MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. " * ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

Site : CB1	**Time : 2013/10/31 - 16:42**
Limit : FCC_SpartE_15.407_H_03M_PK	**Margin : 6**
Probe : CB1_FCC_EFS_1-18G-1_0901 - HORIZONTAL	**Power : DC 3.3V (Power by PC)**
EUT : PCE-AC56 Dual-Band Wireless PCI-E Adapter	**Note : Mode 1: Transmit (CDD mode)** **802.11ac80_521MHz**

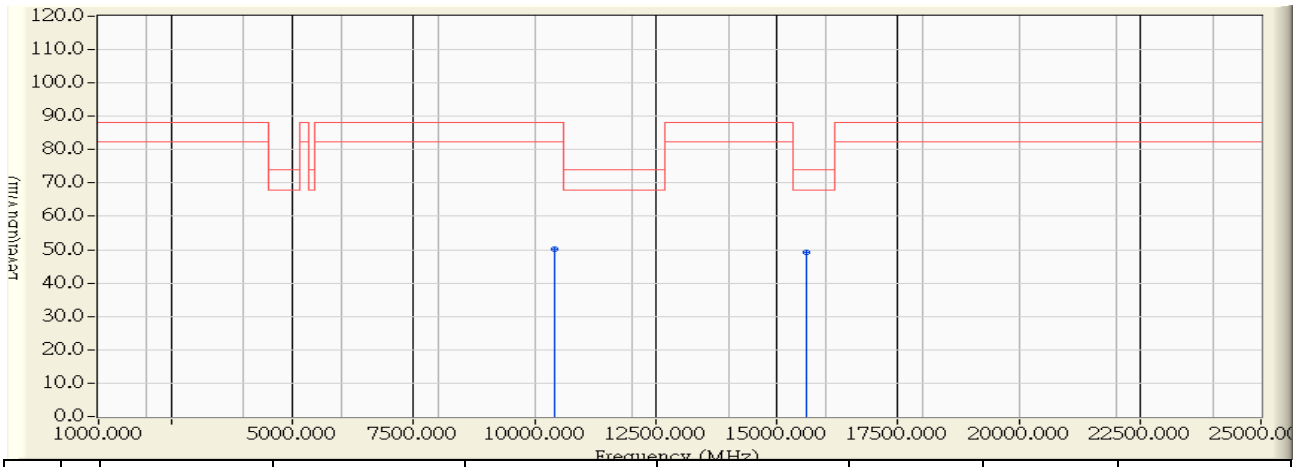


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		10451.120	10.161	39.630	49.791	-38.509	88.300	PEAK
2	*	15612.160	11.029	39.080	50.109	-23.891	74.000	PEAK

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 1MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ * ”, means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

Site : CB1	**Time : 2013/10/31 - 16:48**
Limit : FCC_SpartE_15.407_H_03M_PK	**Margin : 6**
Probe : CB1_FCC_EFS_1-18G-1_0901 - VERTICAL	**Power : DC 3.3V (Power by PC)**
EUT : PCE-AC56 Dual-Band Wireless PCI-E Adapter	**Note : Mode 1: Transmit (CDD mode)** **802.11ac80_521MHz**



		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		10405.440	10.296	39.800	50.097	-38.203	88.300	PEAK
2	*	15626.480	11.012	38.150	49.163	-24.837	74.000	PEAK

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 1MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ * ”, means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

8. Band Edge

8.1. Test Equipment

The following test equipments are used during the band edge tests:

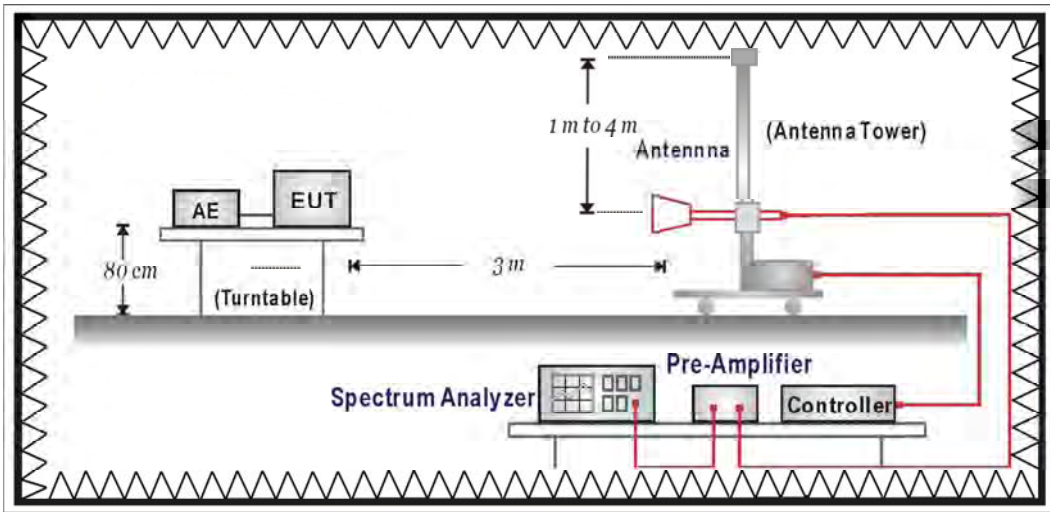
Band Edge / CB1

Instrument	Manufacturer	Model No.	Serial No	Next Cal. Date
Double Ridged Guide Horn Antenna	Schwarzback	BBHA 9120	D743	2014/02/17
Spectrum Analyzer	Agilent	E4440A	MY46187335	2014/01/27
k Type Cable	Huber Suhner	Sucoflex 102	25623/2	2014/02/21

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

8.2. Test Setup

RF Radiated Measurement:



8.3. Limits

➢ General Radiated Emission Limits

The provisions of Section 15.205 of this part apply to intentional radiators operating under this section. Radiated emissions which fall in the restricted bands, as defined in Section 15.205, must also comply with the radiated emission limits specified in Section 15.209:

FCC Part 15 Subpart C Paragraph 15.209 Limits		
Frequency MHz	uV/m @3m	dBuV/m@3m
30-88	100	40
88-216	150	43.5
216-960	200	46
Above 960	500	54

Remark:

4. RF Voltage (dBuV) = 20 log RF Voltage (uV)
5. In the Above Table, the tighter limit applies at the band edges.
6. Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system.

➢ Unwanted Emission out of the restricted bands Limits

FCC Part 15 Subpart C Paragraph 15.407(b) Limits		
Frequency (MHz)	EIRP Limit (dBm)	Equivalent Field Strength (dBuV/m@3m)
5150~5250	-27	68.3
5250~5350	-27	68.3
5470~5725	-27	68.3
5725~5825	-27 (Note1)	68.3
	-17 (Note2)	78.3

Remark:

4. For frequencies more than 10 MHz above or below the band edges.
5. For frequency range from the band edges to 10 MHz above or below the band edges.
6. uV/m = $\frac{1000000\sqrt{30 \times EIRP}}{3}$, RF Voltage (dBuV/m) = 20 log RF Voltage (uV/m)

8.4. Test Procedure

The EUT and its simulators are placed on a turn table which is 0.8 meter above ground. The turn table can rotate 360 degrees to determine the position of the maximum emission level. The EUT was positioned such that the distance from antenna to the EUT was 3 meters.

The antenna can move up and down between 1 meter and 4 meters to find out the maximum emission level.

Both horizontal and vertical polarization of the antenna are set on measurement. In order to find the maximum emission, all of the interface cables must be manipulated according to ANSI C63.4: 2009on radiated measurement.

The bandwidth below 1GHz setting on the field strength meter is 120 KHz, above 1GHz are 1 MHz.

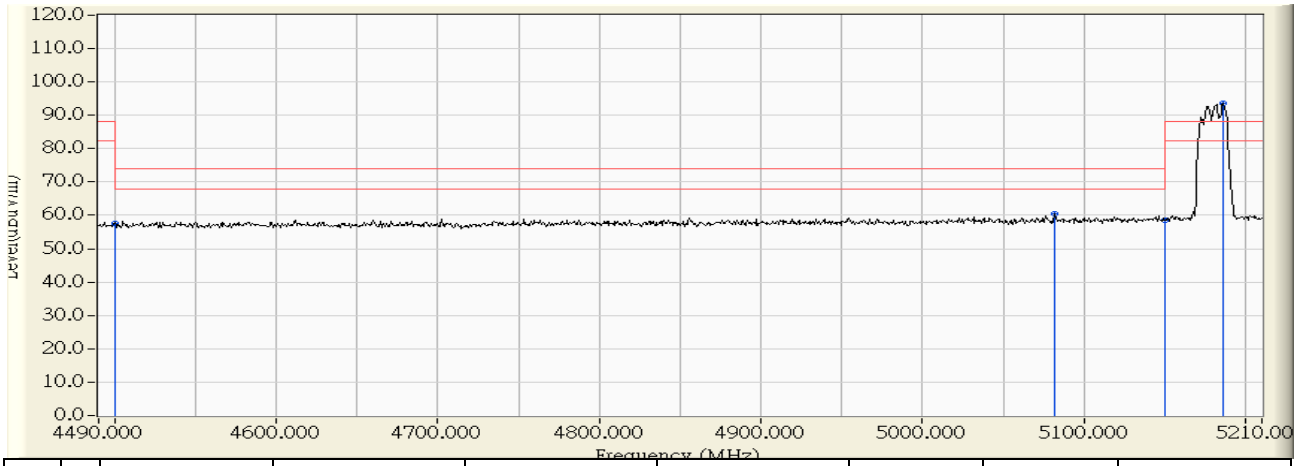
8.5. Uncertainty

The measurement uncertainty is defined as ± 3.65dB

8.6. Test Result

Radiated is defined as

Site : CB1	**Time : 2013/10/29 - 14:28**
Limit : FCC_SpartE_15.407_H_03M_PK	**Margin : 6**
Probe : CB1_FCC_EFS_1-18G-1_0901 - HORIZONTAL	**Power : DC 3.3V (Power by PC)**
EUT : PCE-AC56 Dual-Band Wireless PCI-E Adapter	**Note : 802.11a_5180MHz**

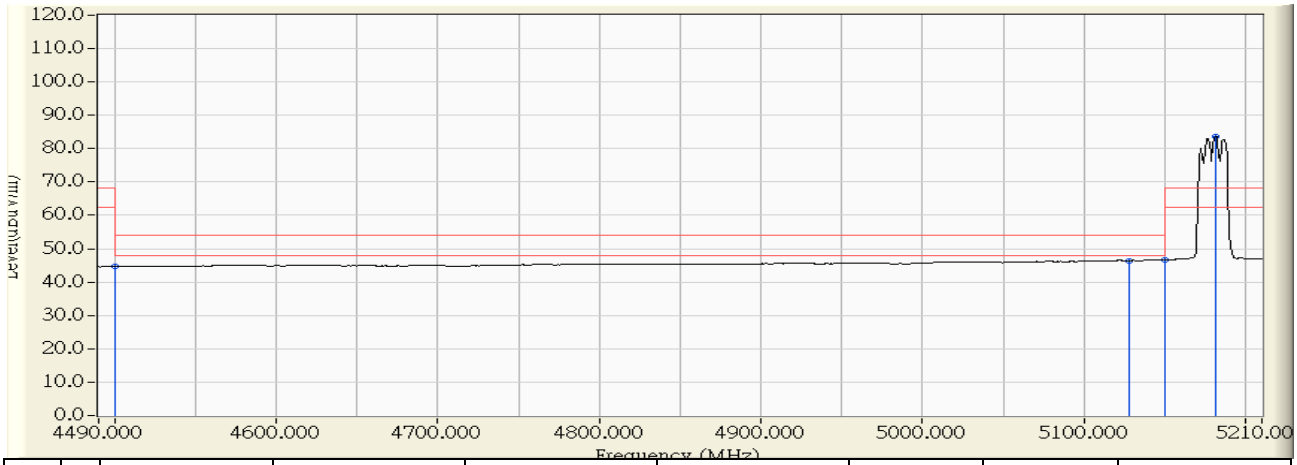


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		4500.000	-1.406	59.101	57.696	-16.304	74.000	PEAK
2		5081.840	0.448	60.053	60.500	-13.500	74.000	PEAK
3		5150.000	0.975	57.586	58.561	-15.439	74.000	PEAK
4	*	5186.240	1.256	92.330	93.586	5.286	88.300	PEAK

Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 1MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. " * ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

Site : CB1	**Time : 2013/10/29 - 14:30**
Limit : FCC_SpartE_15.407_H_03M_AV	**Margin : 6**
Probe : CB1_FCC_EFS_1-18G-1_0901 - HORIZONTAL	**Power : DC 3.3V (Power by PC)**
EUT : PCE-AC56 Dual-Band Wireless PCI-E Adapter	**Note : 802.11a_5180MHz**

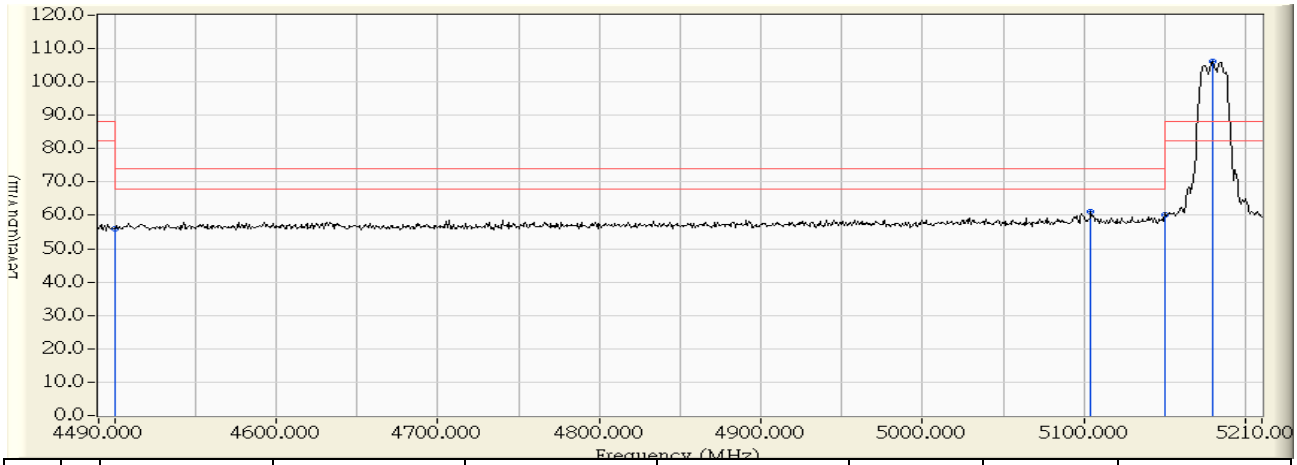


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		4500.000	-1.406	46.142	44.737	-9.263	54.000	AVERAGE
2		5127.920	0.804	45.618	46.422	-7.578	54.000	AVERAGE
3		5150.000	0.975	45.695	46.670	-7.330	54.000	AVERAGE
4	*	5181.200	1.218	82.496	83.713	15.413	68.300	AVERAGE

Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 1MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. " * ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

Site : CB1	**Time : 2013/10/29 - 14:35**
Limit : FCC_SpartE_15.407_H_03M_PK	**Margin : 6**
Probe : CB1_FCC_EFS_1-18G-1_0901 - VERTICAL	**Power : DC 3.3V (Power by PC)**
EUT : PCE-AC56 Dual-Band Wireless PCI-E Adapter	**Note : 802.11a_5180MHz**

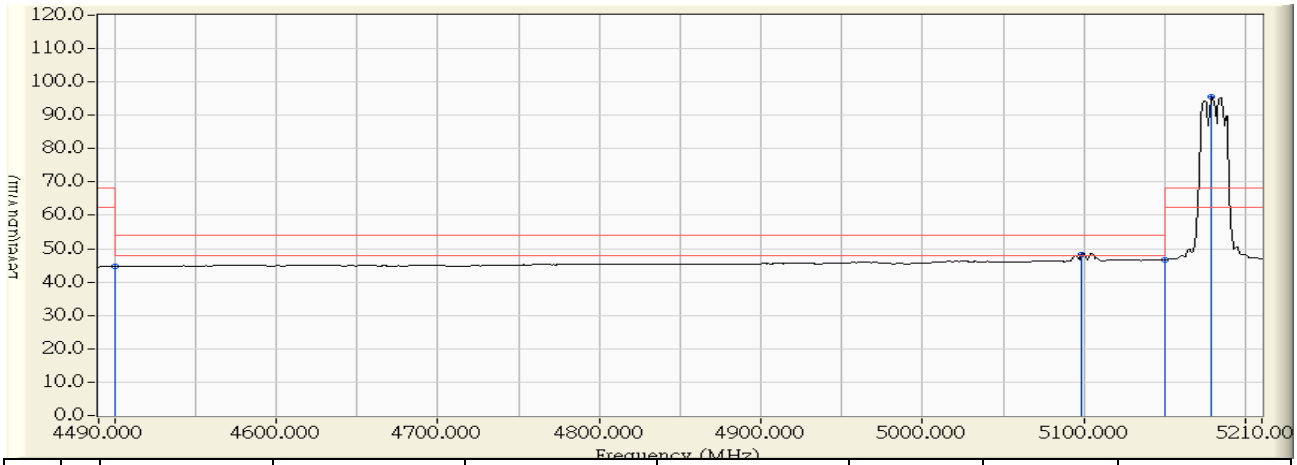


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		4500.000	-1.406	57.443	56.038	-17.962	74.000	PEAK
2		5104.160	0.620	60.416	61.036	-12.964	74.000	PEAK
3		5150.000	0.975	59.115	60.090	-13.910	74.000	PEAK
4	*	5179.760	1.206	104.981	106.187	17.887	88.300	PEAK

Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 1MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. " * ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

Site : CB1	**Time : 2013/10/29 - 14:37**
Limit : FCC_SpartE_15.407_H_03M_AV	**Margin : 6**
Probe : CB1_FCC_EFS_1-18G-1_0901 - VERTICAL	**Power : DC 3.3V (Power by PC)**
EUT : PCE-AC56 Dual-Band Wireless PCI-E Adapter	**Note : 802.11a_5180MHz**

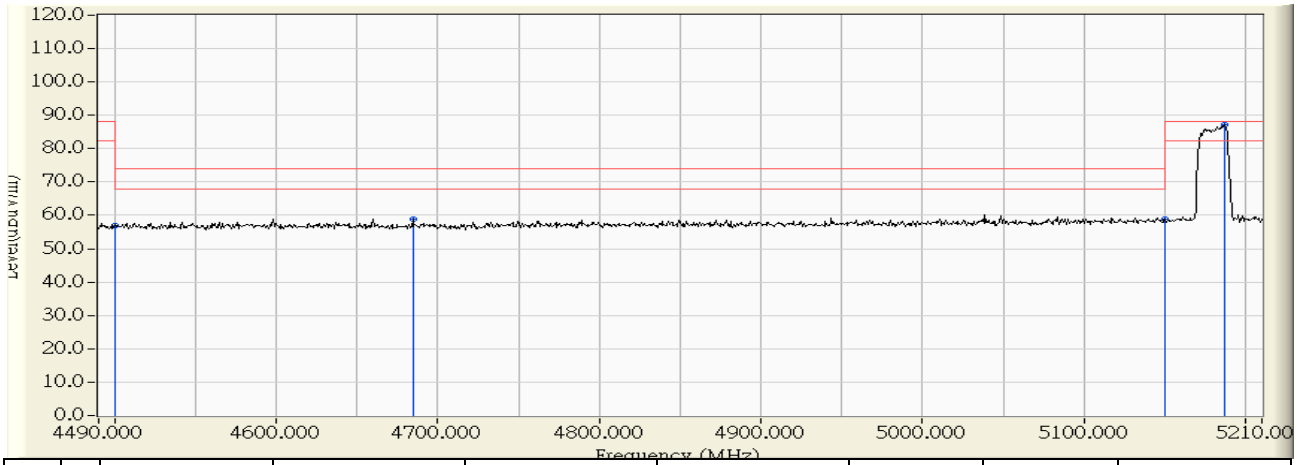


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		4500.000	-1.406	46.132	44.727	-9.273	54.000	AVERAGE
2		5098.400	0.575	47.771	48.346	-5.654	54.000	AVERAGE
3		5150.000	0.975	45.803	46.778	-7.222	54.000	AVERAGE
4	*	5179.040	1.200	94.201	95.402	27.102	68.300	AVERAGE

Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 1MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. " * ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

Site : CB1	**Time : 2013/10/29 - 14:43**
Limit : FCC_SpartE_15.407_H_03M_PK	**Margin : 6**
Probe : CB1_FCC_EFS_1-18G-1_0901 - HORIZONTAL	**Power : DC 3.3V (Power by PC)**
EUT : PCE-AC56 Dual-Band Wireless PCI-E Adapter	**Note : 802.11n20MHz_5180MHz**

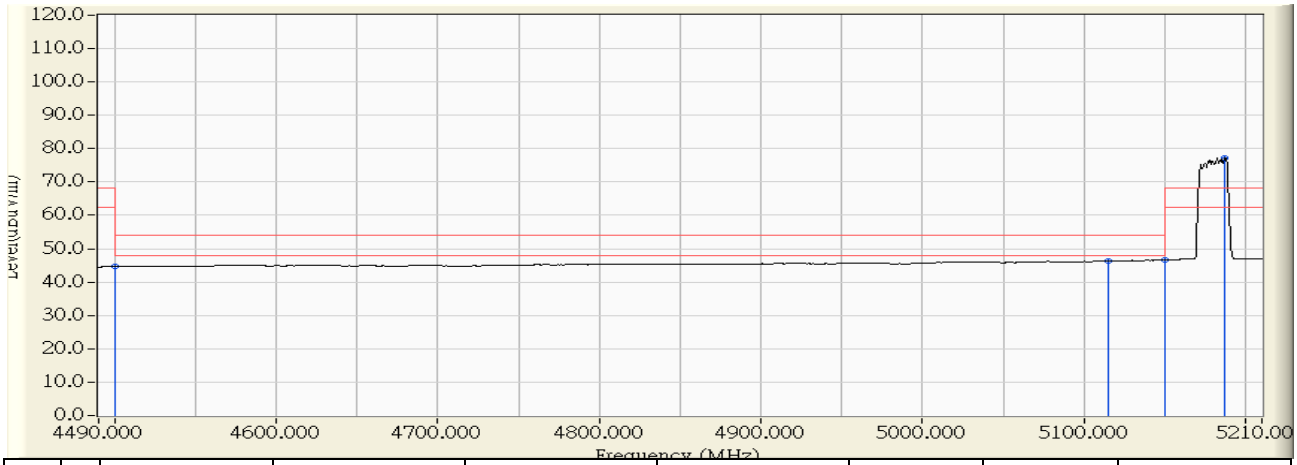


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		4500.000	-1.406	58.444	57.039	-16.961	74.000	PEAK
2		4684.400	-0.957	59.767	58.810	-15.190	74.000	PEAK
3		5150.000	0.975	57.913	58.888	-15.112	74.000	PEAK
4	*	5186.960	1.263	85.849	87.111	-1.189	88.300	PEAK

Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 1MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. " * ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

Site : CB1	**Time : 2013/10/29 - 14:45**
Limit : FCC_SpartE_15.407_H_03M_AV	**Margin : 6**
Probe : CB1_FCC_EFS_1-18G-1_0901 - HORIZONTAL	**Power : DC 3.3V (Power by PC)**
EUT : PCE-AC56 Dual-Band Wireless PCI-E Adapter	**Note : 802.11n20MHz_5180MHz**

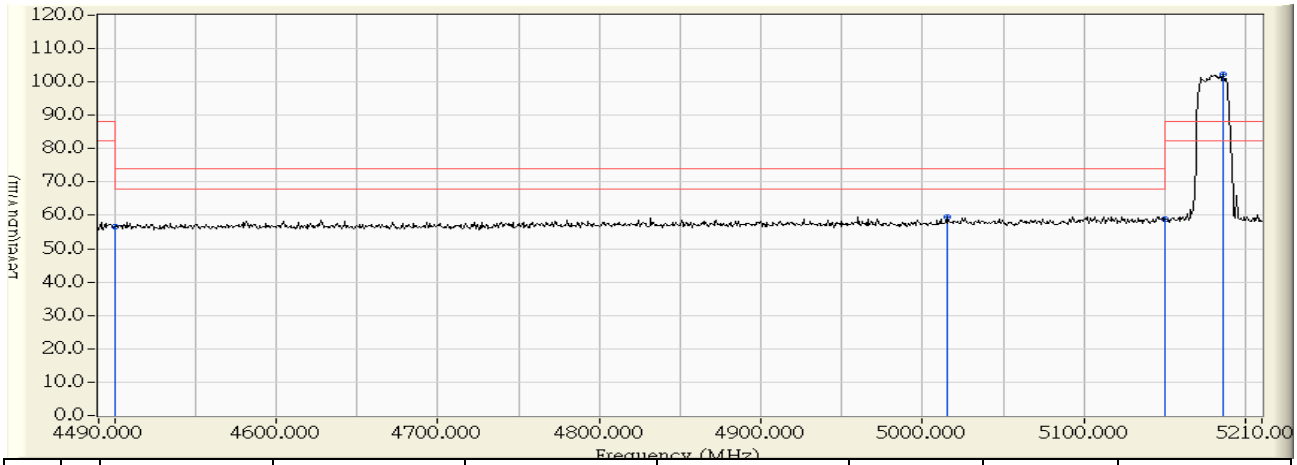


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		4500.000	-1.406	46.133	44.728	-9.272	54.000	AVERAGE
2		5114.960	0.704	45.661	46.365	-7.635	54.000	AVERAGE
3		5150.000	0.975	45.644	46.619	-7.381	54.000	AVERAGE
4	*	5186.960	1.263	76.009	77.271	8.971	68.300	AVERAGE

Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 1MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. " * ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

Site : CB1	**Time : 2013/10/29 - 14:49**
Limit : FCC_SpartE_15.407_H_03M_PK	**Margin : 6**
Probe : CB1_FCC_EFS_1-18G-1_0901 - VERTICAL	**Power : DC 3.3V (Power by PC)**
EUT : PCE-AC56 Dual-Band Wireless PCI-E Adapter	**Note : 802.11n20MHz_5180MHz**

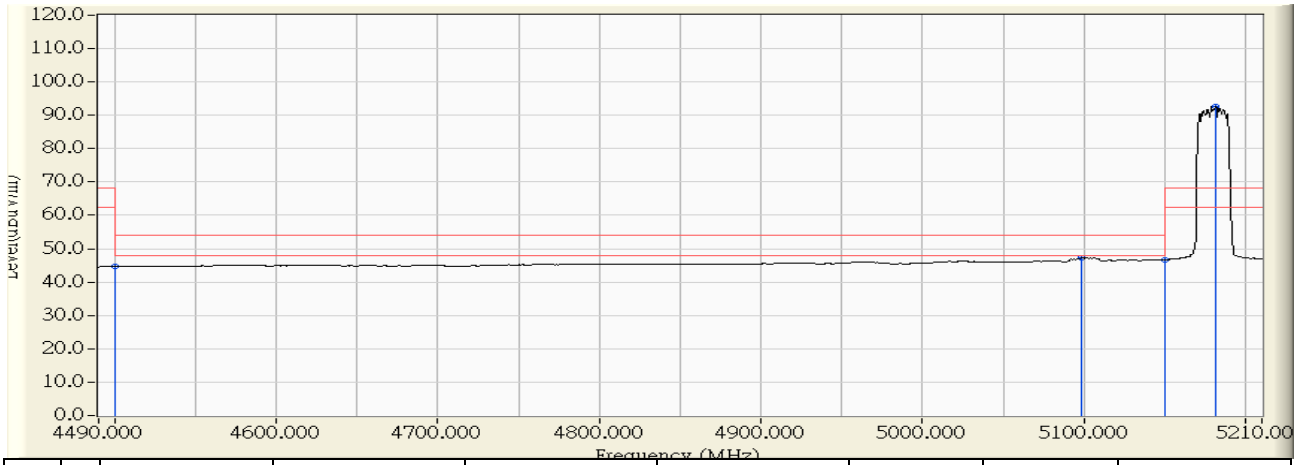


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		4500.000	-1.406	57.889	56.484	-17.516	74.000	PEAK
2		5014.880	-0.073	59.618	59.546	-14.454	74.000	PEAK
3		5150.000	0.975	57.740	58.715	-15.285	74.000	PEAK
4	*	5186.240	1.256	100.941	102.197	13.897	88.300	PEAK

Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 1MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. " * ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

Site : CB1	**Time : 2013/10/29 - 15:00**
Limit : FCC_SpartE_15.407_H_03M_AV	**Margin : 6**
Probe : CB1_FCC_EFS_1-18G-1_0901 - VERTICAL	**Power : DC 3.3V (Power by PC)**
EUT : PCE-AC56 Dual-Band Wireless PCI-E Adapter	**Note : 802.11n20MHz_5180MHz**

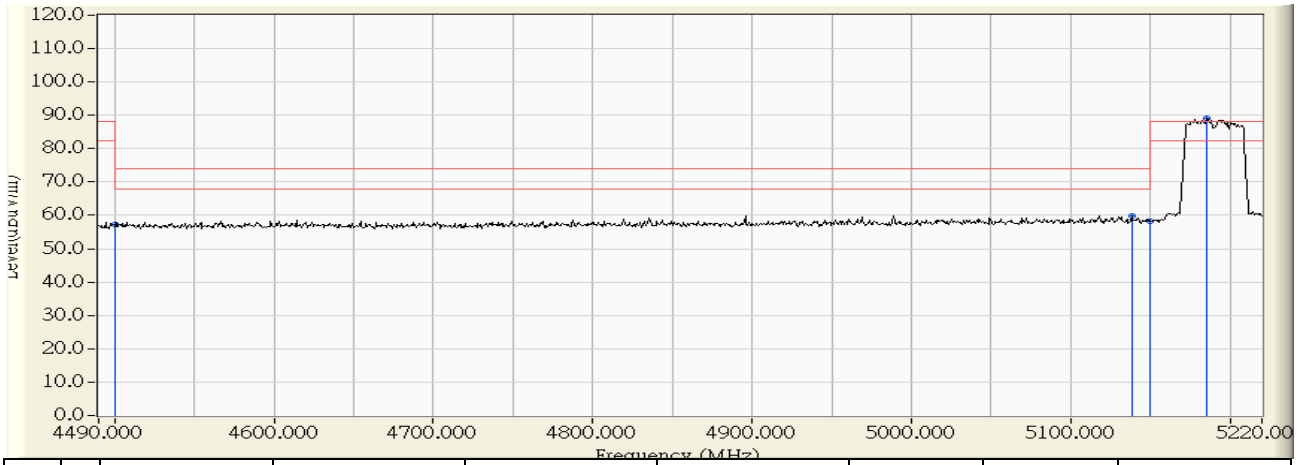


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		4500.000	-1.406	46.144	44.739	-9.261	54.000	AVERAGE
2		5098.400	0.575	46.806	47.381	-6.619	54.000	AVERAGE
3		5150.000	0.975	45.765	46.740	-7.260	54.000	AVERAGE
4	*	5181.200	1.218	91.444	92.661	24.361	68.300	AVERAGE

Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 1MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. " * ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

Site : CB1	**Time : 2013/10/29 - 15:06**
Limit : FCC_SpartE_15.407_H_03M_PK	**Margin : 6**
Probe : CB1_FCC_EFS_1-18G-1_0901 - HORIZONTAL	**Power : DC 3.3V (Power by PC)**
EUT : PCE-AC56 Dual-Band Wireless PCI-E Adapter	**Note :802.11n40_5190MHz**

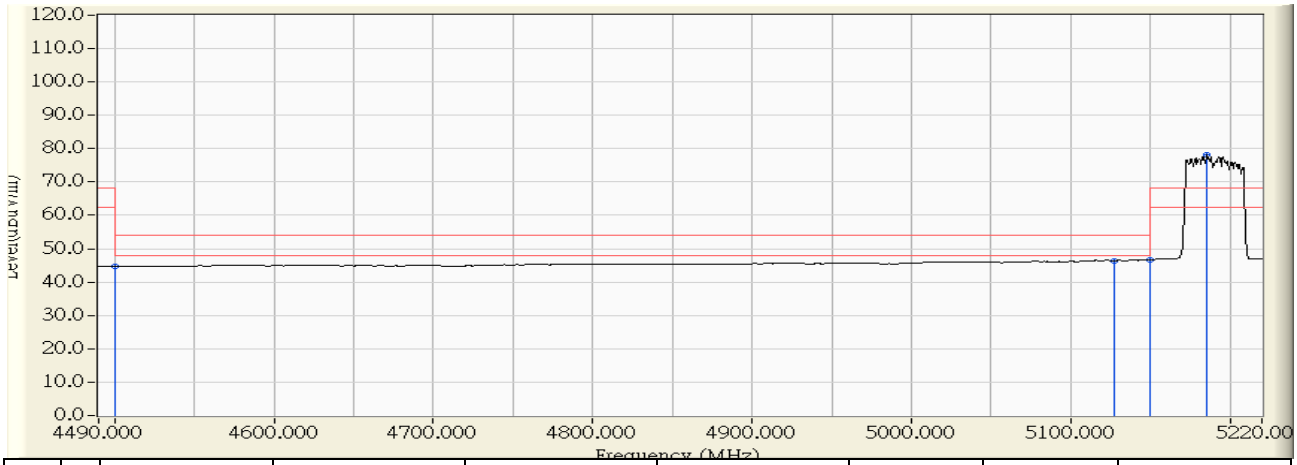


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		4500.000	-1.406	58.510	57.105	-16.895	74.000	PEAK
2		5138.240	0.884	59.035	59.919	-14.081	74.000	PEAK
3		5150.000	0.975	57.243	58.218	-15.782	74.000	PEAK
4	*	5185.690	1.252	87.826	89.078	0.778	88.300	PEAK

Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 1MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. " * ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

Site : CB1	**Time : 2013/10/29 - 15:09**
Limit : FCC_SpartE_15.407_H_03M_AV	**Margin : 6**
Probe : CB1_FCC_EFS_1-18G-1_0901 - HORIZONTAL	**Power : DC 3.3V (Power by PC)**
EUT : PCE-AC56 Dual-Band Wireless PCI-E Adapter	**Note :802.11n40_5190MHz**

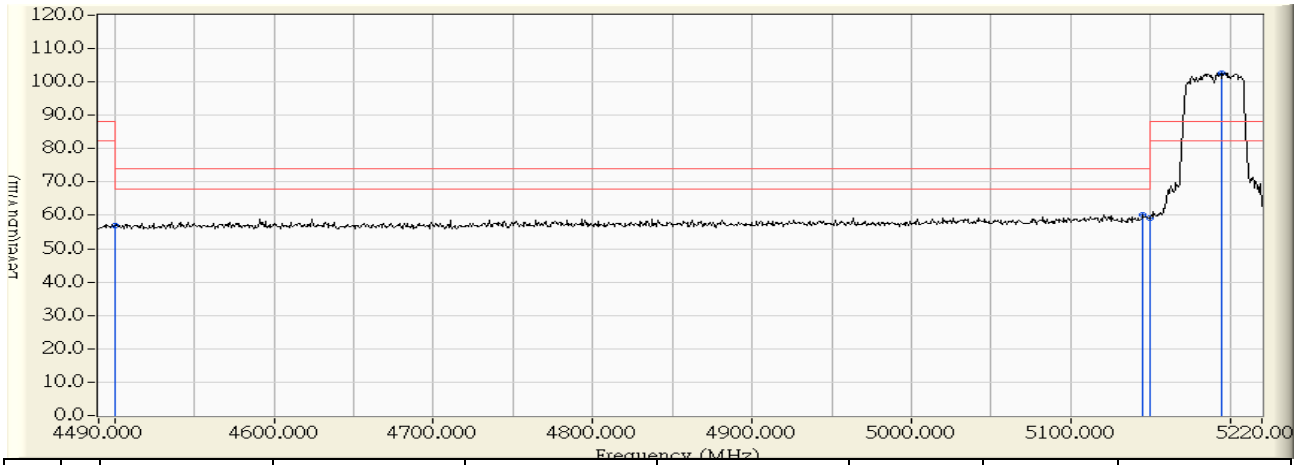


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		4500.000	-1.406	46.197	44.792	-9.208	54.000	AVERAGE
2		5127.290	0.800	45.636	46.435	-7.565	54.000	AVERAGE
3		5150.000	0.975	45.717	46.692	-7.308	54.000	AVERAGE
4	*	5185.690	1.252	76.869	78.121	9.821	68.300	AVERAGE

Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 1MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. " * ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

Site : CB1	**Time : 2013/10/29 - 15:13**
Limit : FCC_SpartE_15.407_H_03M_PK	**Margin : 6**
Probe : CB1_FCC_EFS_1-18G-1_0901 - VERTICAL	**Power : DC 3.3V (Power by PC)**
EUT : PCE-AC56 Dual-Band Wireless PCI-E Adapter	**Note :802.11n40_5190MHz**

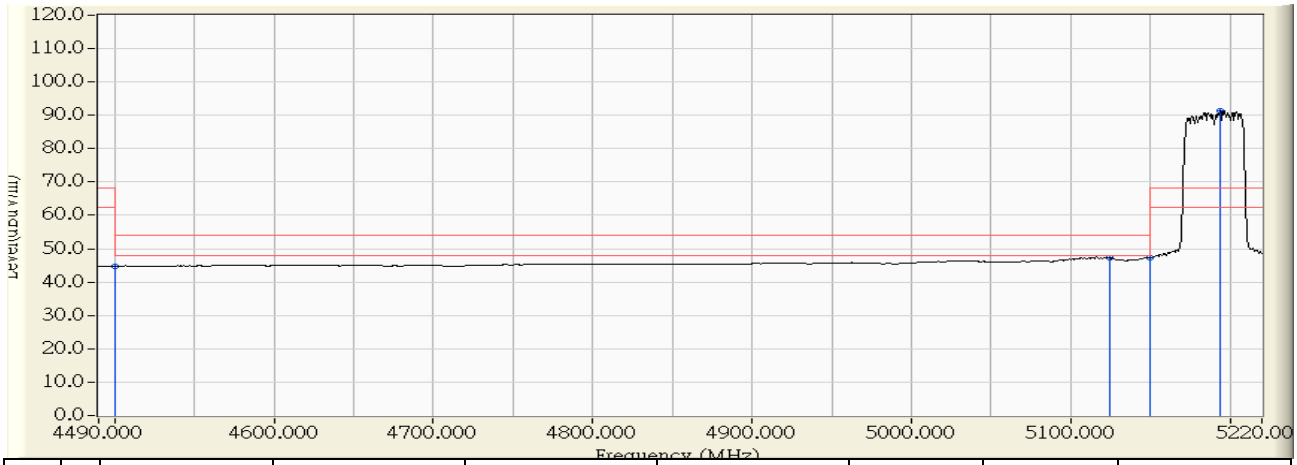


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		4500.000	-1.406	58.242	56.837	-17.163	74.000	PEAK
2		5145.540	0.941	59.181	60.122	-13.878	74.000	PEAK
3		5150.000	0.975	58.133	59.108	-14.892	74.000	PEAK
4	*	5194.450	1.320	101.365	102.685	14.385	88.300	PEAK

Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 1MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. " * ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

Site : CB1	**Time : 2013/10/29 - 15:14**
Limit : FCC_SpartE_15.407_H_03M_AV	**Margin : 6**
Probe : CB1_FCC_EFS_1-18G-1_0901 - VERTICAL	**Power : DC 3.3V (Power by PC)**
EUT : PCE-AC56 Dual-Band Wireless PCI-E Adapter	**Note :802.11n40_5190MHz**

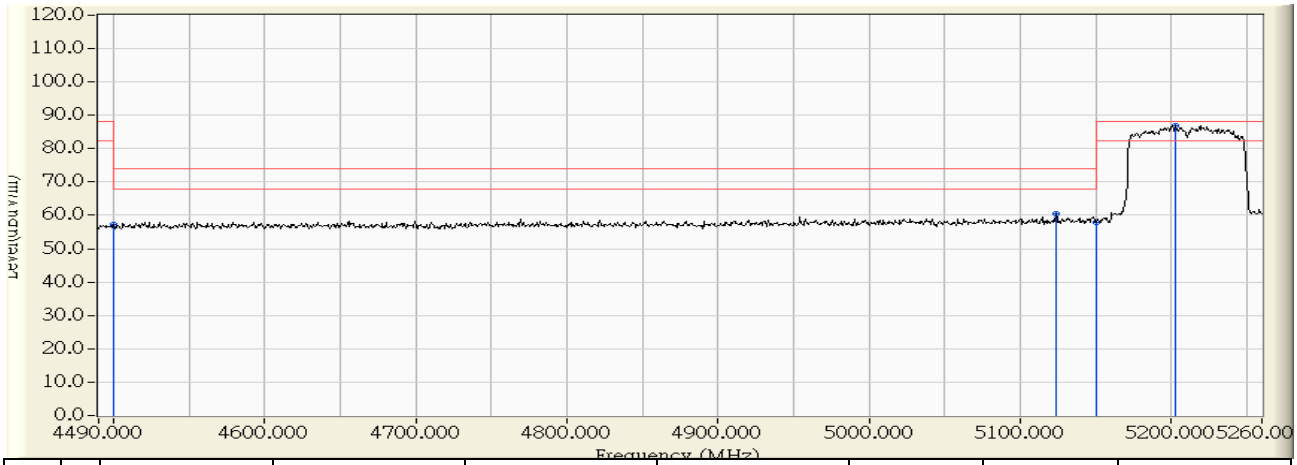


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		4500.000	-1.406	46.184	44.779	-9.221	54.000	AVERAGE
2		5124.370	0.776	46.619	47.396	-6.604	54.000	AVERAGE
3		5150.000	0.975	46.262	47.237	-6.763	54.000	AVERAGE
4	*	5193.720	1.315	89.954	91.268	22.968	68.300	AVERAGE

Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 1MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. " * ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

Site : CB1	**Time : 2013/10/29 - 15:23**
Limit : FCC_SpartE_15.407_H_03M_PK	**Margin : 6**
Probe : CB1_FCC_EFS_1-18G-1_0901 - HORIZONTAL	**Power : DC 3.3V (Power by PC)**
EUT : PCE-AC56 Dual-Band Wireless PCI-E Adapter	**Note : 802.11ac80_5210MHz**

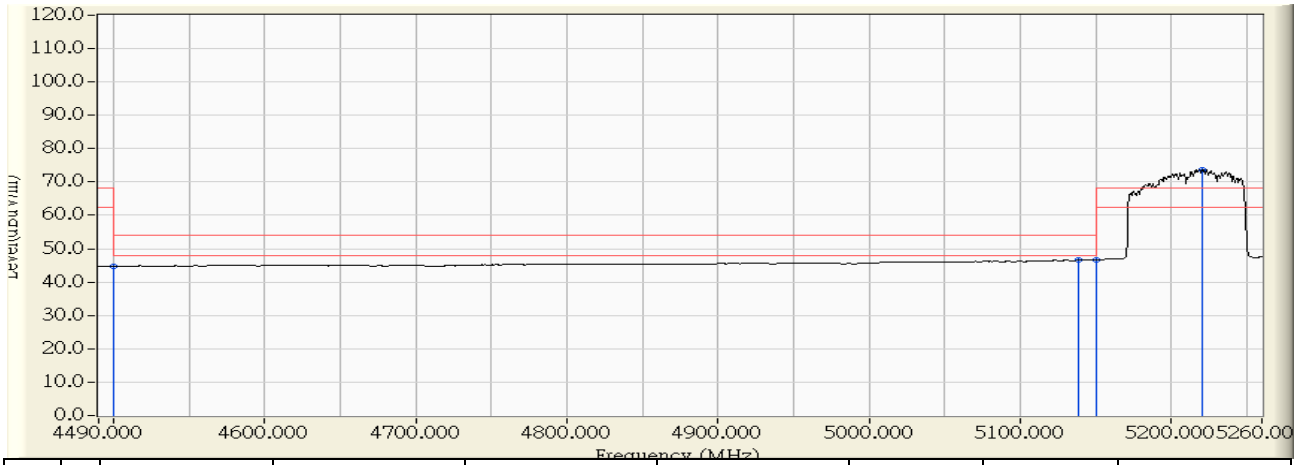


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		4500.000	-1.406	58.563	57.158	-16.842	74.000	PEAK
2		5123.710	0.771	59.827	60.599	-13.401	74.000	PEAK
3		5150.000	0.975	57.089	58.064	-15.936	74.000	PEAK
4	*	5203.020	1.386	85.511	86.898	-1.402	88.300	PEAK

Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 1MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. " * ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

Site : CB1	**Time : 2013/10/29 - 15:24**
Limit : FCC_SpartE_15.407_H_03M_AV	**Margin : 6**
Probe : CB1_FCC_EFS_1-18G-1_0901 - HORIZONTAL	**Power : DC 3.3V (Power by PC)**
EUT : PCE-AC56 Dual-Band Wireless PCI-E Adapter	**Note : 802.11ac80_5210MHz**

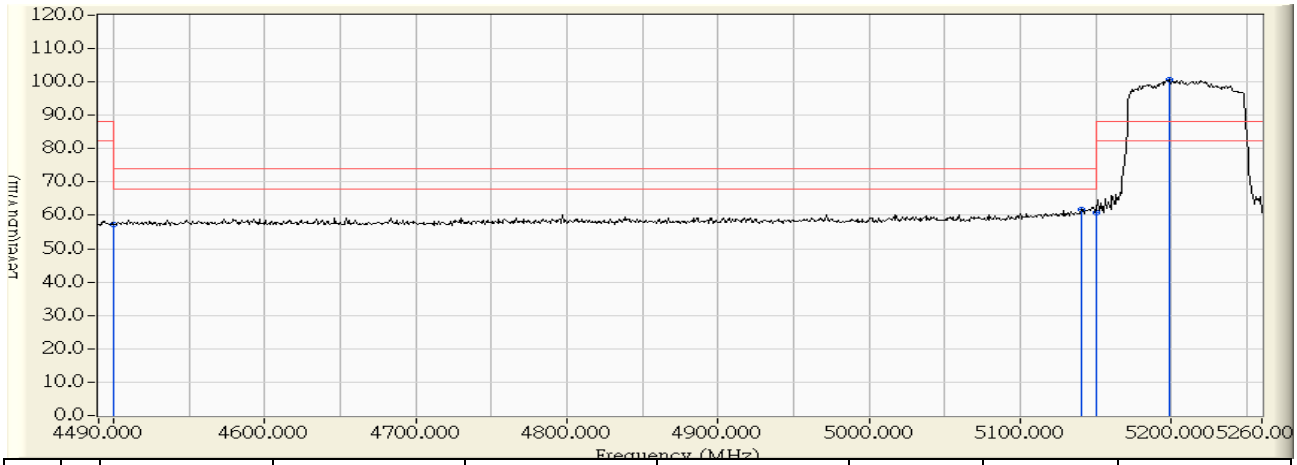


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		4500.000	-1.406	46.165	44.760	-9.240	54.000	AVERAGE
2		5138.340	0.885	45.692	46.577	-7.423	54.000	AVERAGE
3		5150.000	0.975	45.694	46.669	-7.331	54.000	AVERAGE
4	*	5220.730	1.524	72.284	73.808	5.508	68.300	AVERAGE

Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 1MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. " * ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

Site : CB1	**Time : 2013/10/29 - 15:33**
Limit : FCC_SpartE_15.407_H_03M_PK	**Margin : 6**
Probe : CB1_FCC_EFS_1-18G-1_0901 - VERTICAL	**Power : DC 3.3V (Power by PC)**
EUT : PCE-AC56 Dual-Band Wireless PCI-E Adapter	**Note : 802.11ac80_5210MHz**

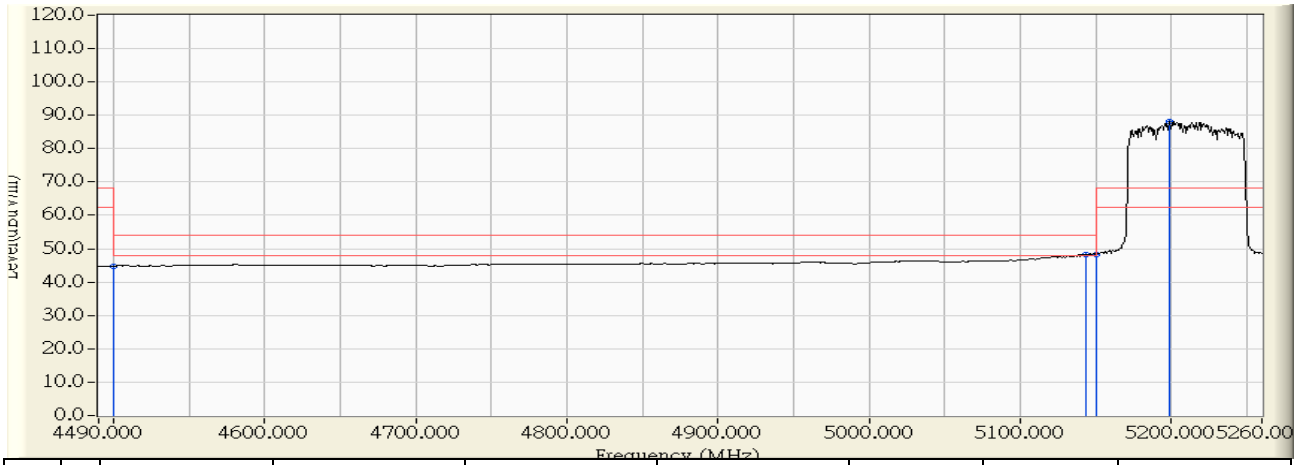


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		4500.000	-1.406	58.635	57.230	-16.770	74.000	PEAK
2		5140.650	0.903	60.986	61.889	-12.111	74.000	PEAK
3		5150.000	0.975	59.835	60.810	-13.190	74.000	PEAK
4	*	5199.170	1.357	99.484	100.841	12.541	88.300	PEAK

Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 1MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. " * ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

Site : CB1	**Time : 2013/10/29 - 15:36**
Limit : FCC_SpartE_15.407_H_03M_AV	**Margin : 6**
Probe : CB1_FCC_EFS_1-18G-1_0901 - VERTICAL	**Power : DC 3.3V (Power by PC)**
EUT : PCE-AC56 Dual-Band Wireless PCI-E Adapter	**Note : 802.11ac80_5210MHz**



		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		4500.000	-1.406	46.246	44.841	-9.159	54.000	AVERAGE
2		5143.730	0.927	47.394	48.321	-5.679	54.000	AVERAGE
3		5150.000	0.975	47.141	48.116	-5.884	54.000	AVERAGE
4	*	5199.170	1.357	86.732	88.089	19.789	68.300	AVERAGE

Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 1MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. " * ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

9. Frequency Stability

9.1. Test Equipment

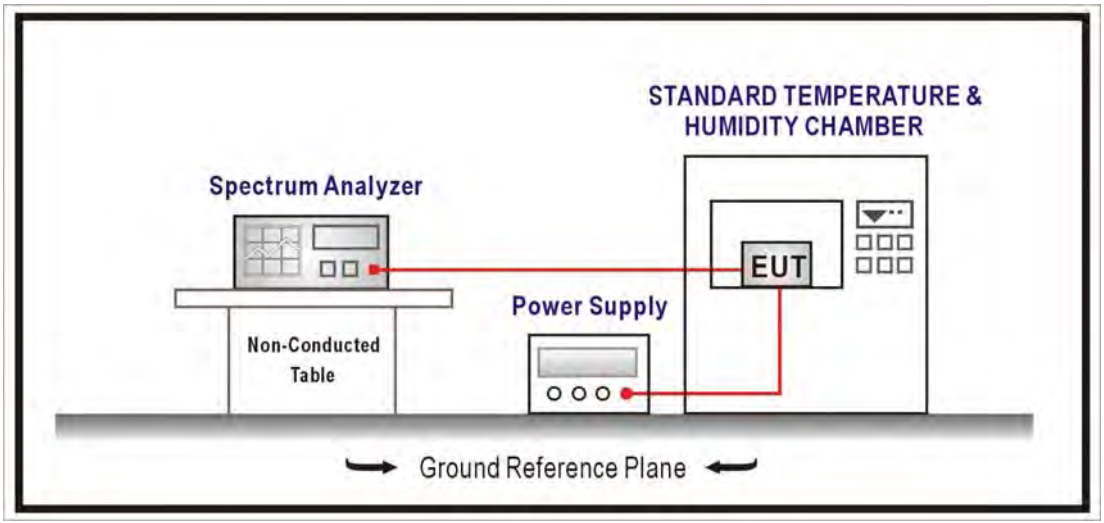
The following test equipments are used during the radiated emission tests:

Frequency Stability / SR7

Instrument	Manufacturer	Model No.	Serial No	Next Cal. Date
Spectrum Analyzer	Agilent	N9010A-EXA	US47140172	2014/08/05
Standard Temperature & Humidity Chamber	WIT	TH-1S-B	1082101	2014/01/27

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

9.2. Test Setup



9.3. Limits

Manufactures of all devices are responsible for ensuring frequency stability such that an emission is maintained within the band of operation under all conditions of normal operation as specified

9.4. Test Procedure

The EUT was setup to ANSI C63.4, 2009; tested to DTS test procedure of Aug 2002 DA 02-2138 for compliance to FCC 47CFR Subpart E requirements.

9.5. Uncertainty

The measurement uncertainty is defined as ± 150 Hz

9.6. Test Result

Product	PCE-AC56 Dual-Band Wireless PCI-E Adapter		
Test Item	Frequency Stability		
Test Mode	Mode 1: Transmit (CDD mode) - 802.11a - 5180MHz		
Date of Test	2013/12/04	Test Site	SR7

Temperature Interval (°C)	AC Voltage (V)	Frequency (MHz)	Deviation (ppm)	Result
-20	120	5180.6271	121.0612	PASS
-10		5180.0071	1.3733	PASS
0		5180.7935	153.1775	PASS
10		5180.3014	58.1943	PASS
20		5180.3825	73.8367	PASS
30		5180.1350	26.0681	PASS
40		5180.5911	114.1204	PASS
50		5180.4658	89.9265	PASS

Temperature Interval (°C)	AC Voltage (V)	Frequency (MHz)	Deviation (ppm)	Result
25	102	5180.2562	49.4629	PASS
	120	5180.6999	135.1064	PASS
	138	5180.6697	129.2942	PASS

Product	PCE-AC56 Dual-Band Wireless PCI-E Adapter		
Test Item	Frequency Stability		
Test Mode	Mode 1: Transmit (CDD mode) - 802.11a - 5240MHz		
Date of Test	2013/12/04	Test Site	SR7

Temperature Interval (°C)	AC Voltage (V)	Frequency (MHz)	Deviation (ppm)	Result
-20	120	5240.3535	67.4648	PASS
-10		5240.3772	71.9876	PASS
0		5240.2597	49.5679	PASS
10		5240.2682	51.1744	PASS
20		5240.5384	102.7430	PASS
30		5240.2317	44.2109	PASS
40		5240.1503	28.6830	PASS
50		5240.0946	18.0459	PASS

Temperature Interval (°C)	AC Voltage (V)	Frequency (MHz)	Deviation (ppm)	Result
25	102	5240.8762	167.2185	PASS
	120	5240.4613	88.0289	PASS
	138	5240.7388	140.9861	PASS

Product	PCE-AC56 Dual-Band Wireless PCI-E Adapter		
Test Item	Frequency Stability		
Test Mode	Mode 1: Transmit (CDD mode) - 802.11n_20M - 5180MHz(ANT 0)		
Date of Test	2013/12/04	Test Site	SR7

Temperature Interval (°C)	AC Voltage (V)	Frequency (MHz)	Deviation (ppm)	Result
-20	120	5180.0757	14.6181	PASS
-10		5180.2140	41.3052	PASS
0		5180.0394	7.6060	PASS
10		5180.7192	138.8360	PASS
20		5180.8502	164.1409	PASS
30		5180.2933	56.6162	PASS
40		5180.5934	114.5512	PASS
50		5180.3055	58.9757	PASS

Temperature Interval (°C)	AC Voltage (V)	Frequency (MHz)	Deviation (ppm)	Result
25	102	5180.6399	123.5298	PASS
	120	5180.7483	144.4602	PASS
	138	5180.6279	121.2251	PASS

Product	PCE-AC56 Dual-Band Wireless PCI-E Adapter		
Test Item	Frequency Stability		
Test Mode	Mode 1: Transmit (CDD mode) - 802.11n_20M - 5240MHz(ANT 0)		
Date of Test	2013/12/04	Test Site	SR7

Temperature Interval (°C)	AC Voltage (V)	Frequency (MHz)	Deviation (ppm)	Result
-20	120	5240.8597	164.0692	PASS
-10		5240.5434	103.7116	PASS
0		5240.7783	148.5255	PASS
10		5240.1283	24.4834	PASS
20		5240.4904	93.5913	PASS
30		5240.7122	135.9069	PASS
40		5240.2943	56.1668	PASS
50		5240.7638	145.7583	PASS

Temperature Interval (°C)	AC Voltage (V)	Frequency (MHz)	Deviation (ppm)	Result
25	102	5240.8852	168.9319	PASS
	120	5240.3839	73.2706	PASS
	138	5240.3388	64.6599	PASS

Product	PCE-AC56 Dual-Band Wireless PCI-E Adapter		
Test Item	Frequency Stability		
Test Mode	Mode 1: Transmit (CDD mode) - 802.11n_20M - 5180MHz(ANT 1)		
Date of Test	2013/12/04	Test Site	SR7

Temperature Interval (°C)	AC Voltage (V)	Frequency (MHz)	Deviation (ppm)	Result
-20	120	5180.0314	6.0523	PASS
-10		5180.5433	104.8892	PASS
0		5180.0536	10.3459	PASS
10		5180.4489	86.6593	PASS
20		5180.0544	10.5107	PASS
30		5180.1354	26.1364	PASS
40		5180.7904	152.5909	PASS
50		5180.4487	86.6182	PASS

Temperature Interval (°C)	AC Voltage (V)	Frequency (MHz)	Deviation (ppm)	Result
25	102	5180.1562	30.1573	PASS
	120	5180.8055	155.5024	PASS
	138	5180.3697	71.3687	PASS

Product	PCE-AC56 Dual-Band Wireless PCI-E Adapter		
Test Item	Frequency Stability		
Test Mode	Mode 1: Transmit (CDD mode) - 802.11n_20M - 5240MHz(ANT 1)		
Date of Test	2013/12/04	Test Site	SR7

Temperature Interval (°C)	AC Voltage (V)	Frequency (MHz)	Deviation (ppm)	Result
-20	120	5240.7123	135.9264	PASS
-10		5240.4353	83.0742	PASS
0		5240.2001	38.1848	PASS
10		5240.7993	152.5407	PASS
20		5240.7998	152.6309	PASS
30		5240.7354	140.3522	PASS
40		5240.6763	129.0652	PASS
50		5240.3557	67.8770	PASS

Temperature Interval (°C)	AC Voltage (V)	Frequency (MHz)	Deviation (ppm)	Result
25	102	5240.4803	91.6606	PASS
	120	5240.7067	134.8740	PASS
	138	5240.4705	89.7823	PASS

Product	PCE-AC56 Dual-Band Wireless PCI-E Adapter		
Test Item	Frequency Stability		
Test Mode	Mode 1: Transmit (CDD mode) - 802.11n_40M - 5190MHz(ANT 0)		
Date of Test	2013/12/04	Test Site	SR7

Temperature Interval (°C)	AC Voltage (V)	Frequency (MHz)	Deviation (ppm)	Result
-20	120	5190.0246	4.7382	PASS
-10		5190.4936	95.1129	PASS
0		5190.8285	159.6340	PASS
10		5190.5261	101.3605	PASS
20		5190.3960	76.3062	PASS
30		5190.6565	126.5028	PASS
40		5190.4158	80.1100	PASS
50		5190.4011	77.2759	PASS

Temperature Interval (°C)	AC Voltage (V)	Frequency (MHz)	Deviation (ppm)	Result
25	102	5190.2453	47.2653	PASS
	120	5190.2339	45.0680	PASS
	138	5190.3108	59.8894	PASS

Product	PCE-AC56 Dual-Band Wireless PCI-E Adapter		
Test Item	Frequency Stability		
Test Mode	Mode 1: Transmit (CDD mode) - 802.11n_40M - 5230MHz(ANT 0)		
Date of Test	2013/12/04	Test Site	SR7

Temperature Interval (°C)	AC Voltage (V)	Frequency (MHz)	Deviation (ppm)	Result
-20	120	5230.6426	122.8767	PASS
-10		5230.1825	34.8861	PASS
0		5230.3203	61.2453	PASS
10		5230.0377	7.2023	PASS
20		5230.8936	170.8585	PASS
30		5230.4415	84.4220	PASS
40		5230.2018	38.5808	PASS
50		5230.5285	101.0608	PASS

Temperature Interval (°C)	AC Voltage (V)	Frequency (MHz)	Deviation (ppm)	Result
25	102	5230.3863	73.8561	PASS
	120	5230.2417	46.2117	PASS
	138	5230.8569	163.8399	PASS

Product	PCE-AC56 Dual-Band Wireless PCI-E Adapter		
Test Item	Frequency Stability		
Test Mode	Mode 1: Transmit (CDD mode) - 802.11n_40M - 5190MHz(ANT 1)		
Date of Test	2013/12/04	Test Site	SR7

Temperature Interval (°C)	AC Voltage (V)	Frequency (MHz)	Deviation (ppm)	Result
-20	120	5190.8919	171.8532	PASS
-10		5190.3577	68.9266	PASS
0		5190.3151	60.7068	PASS
10		5190.4228	81.4578	PASS
20		5190.8674	167.1242	PASS
30		5190.5483	105.6486	PASS
40		5190.5778	111.3220	PASS
50		5190.6698	129.0487	PASS

Temperature Interval (°C)	AC Voltage (V)	Frequency (MHz)	Deviation (ppm)	Result
25	102	5190.8660	166.8543	PASS
	120	5190.2101	40.4814	PASS
	138	5190.7117	137.1306	PASS

Product	PCE-AC56 Dual-Band Wireless PCI-E Adapter		
Test Item	Frequency Stability		
Test Mode	Mode 1: Transmit (CDD mode) - 802.11n_40M - 5230MHz(ANT 1)		
Date of Test	2013/12/04	Test Site	SR7

Temperature Interval (°C)	AC Voltage (V)	Frequency (MHz)	Deviation (ppm)	Result
-20	120	5230.7030	134.4165	PASS
-10		5230.2148	41.0643	PASS
0		5230.1134	21.6885	PASS
10		5230.6278	120.0302	PASS
20		5230.2582	49.3758	PASS
30		5230.0859	16.4323	PASS
40		5230.1181	22.5808	PASS
50		5230.3490	66.7290	PASS

Temperature Interval (°C)	AC Voltage (V)	Frequency (MHz)	Deviation (ppm)	Result
25	102	5230.7863	150.3385	PASS
	120	5230.4092	78.2350	PASS
	138	5230.0405	7.7478	PASS

Product	PCE-AC56 Dual-Band Wireless PCI-E Adapter		
Test Item	Frequency Stability		
Test Mode	Mode 1: Transmit (CDD mode) - 802.11ac_80M -5210MHz(ANT0)		
Date of Test	2013/12/04	Test Site	SR7

Temperature Interval (°C)	AC Voltage (V)	Frequency (MHz)	Deviation (ppm)	Result
-2 0	120	5210.3372	64.7175	PASS
-10		5210.1506	28.9132	PASS
0		5210.8812	169.1308	PASS
10		5210.4201	80.6340	PASS
20		5210.8974	172.2518	PASS
30		5210.1124	21.5716	PASS
40		5210.0423	8.1226	PASS
50		5210.7341	140.8968	PASS

Temperature Interval (°C)	AC Voltage (V)	Frequency (MHz)	Deviation (ppm)	Result
25	102	5210.4885	93.7558	PASS
	120	5210.4310	82.7220	PASS
	138	5210.3455	66.3237	PASS

Product	PCE-AC56 Dual-Band Wireless PCI-E Adapter		
Test Item	Frequency Stability		
Test Mode	Mode 1: Transmit (CDD mode) - 802.11ac_80M -5210MHz(ANT1)		
Date of Test	2013/12/04	Test Site	SR7

Temperature Interval (°C)	AC Voltage (V)	Frequency (MHz)	Deviation (ppm)	Result
-20	120	5210.2761	53.0035	PASS
-10		5210.2036	39.0829	PASS
0		5210.8131	156.0695	PASS
10		5210.5447	104.5524	PASS
20		5210.3131	60.0951	PASS
30		5210.2138	41.0447	PASS
40		5210.2589	49.6845	PASS
50		5210.6651	127.6617	PASS

Temperature Interval (°C)	AC Voltage (V)	Frequency (MHz)	Deviation (ppm)	Result
25	102	5210.6084	116.7673	PASS
	120	5210.0174	3.3479	PASS
	138	5210.2896	55.5944	PASS