FCC Test Report

Product Name ： 11N Wireless LAN CARD
Model No. ： WMC-ND07D
FCC ID. ： VGYAR9582

Applicant ： DrayTek Corp.
Address ： No.26 Fu Shing Rd., HuKou County,Hsin-Chu Industrial Park,Hsin-Chu,Taiwan 303 R.O.C

Date of Receipt ： 2013/02/23
Issued Date ： 2013/05/17
Report No. ： 132290R-RFUSP46V01
Report Version ： V1.0

Test Report Certification

Issued Date : 2013/05/17
Report No. : 132290R-RFUSP46V01

QuieTek

Product Name	:	11N Wireless LAN CARD
Applicant	:	DrayTek Corp.
Address	:	No.26 Fu Shing Rd., HuKou County,Hsin-Chu Industrial Park,Hsin-Chu,Taiwan 303 R.O.C
Manufacturer	:	DrayTek Corp.
Model No.	:	WMC-ND07D
FCC ID.	:	VGYAR9582
EUT Voltage	:	DC 3.3V ±5% from host equipment
Trade Name	:	DrayTek
Applicable Standard	:	FCC CFR Title 47 Part 15 Subpart E Section 15.407:2012 ANSI C63.4: 2009
Test Result	:	Complied

The test results relate only to the samples tested.
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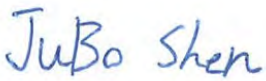
Documented By : 
(Carol Tsai / Adm. Specialist)

Tested By : 
(JuBo Shen / Engineer)

Approved By : 
(Roy Wang / Manager)

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:

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TEL : 886-2-8601-3788 / FAX : 886-2-8601-3789 E-Mail : service@quietek.com

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1. General Information

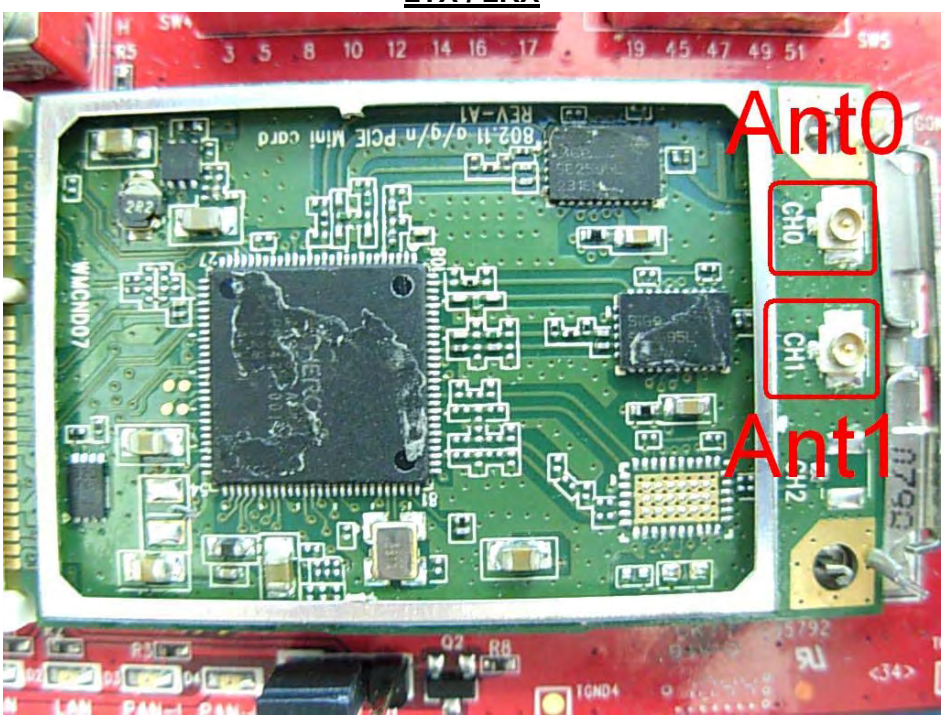
1.1. EUT Description

Product Name	11N Wireless LAN CARD	
Product Type	WLAN (2TX, 2RX)	
Trade Name	DrayTek	
Model No.	WMC-ND07D	
Frequency Range/ Channel Number	IEEE 802.11a/ IEEE 802.11n (20MHz)	5180~5240MHz / 4 Channels
	IEEE 802.11n (40MHz)	5190~5230MHz / 2 Channels
Type of Modulation	IEEE 802.11a/n	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
Antenna Gain	Ant0: 4.12dBi, Ant1: 4.12dBi	
Antenna Type	Dipole Antenna	

ANT-TX / Rx & Bandwidth

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

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

IEEE 802.11a & IEEE 802.11n (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)

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

Note:

1. This device is a 11N Wireless LAN CARD including 2.4GHz b/g/n and 5GHz a/n (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 E 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: 132290R-RFUSP42V01.
5. This device is a composite device in accordance with Part 15 regulations. The receiving function receiving was tested and its test report number is 132290R-RFUSP37V02 under Declaration of Conformity.

1.3. Test Mode

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

TX	Mode 1: Transmit

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

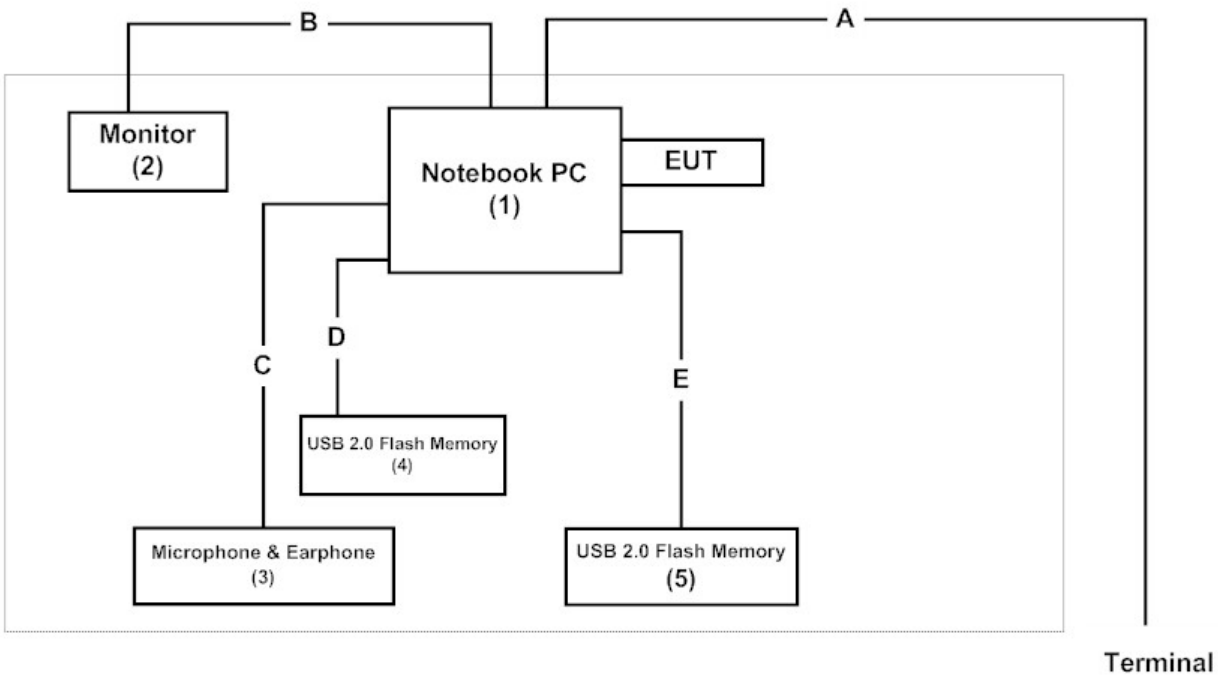
1.4. Tested System Details

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

Product		Manufacturer	Model No.	Serial No.	FCC ID	Power Cord
1	Notebook PC	HP	HSTNN-146C	CNU8253S1X	DoC	Non-Shielded, 1.8m
2	Monitor	CHI MEI	A170E1-09	3UC120954TA0029	DoC	Non-Shielded, 1.8m
3	Microphone & Earphone	TOKTO	SX-MI	N/A	DoC	--
4	USB 2.0 Flash Memory	Apacer	AH223	N/A	DoC	--
5	USB 2.0 Flash Memory	Apacer	AH223	N/A	DoC	--

1.5. Configuration of tested System

Connection Diagram



Signal Cable Type		Signal cable Description
A	LAN Cable	Non-Shielded, 3m
B	VGA Cable	Shielded, 1.6m
C	Microphone & Earphone Cable	Non-Shielded, 1.2m
D	USB 2.0 Flash Memory Cable	Shielded, 1.5m
E	USB 2.0 Flash Memory Cable	Shielded, 1.5m

1.6. EUT Exercise Software

1	Setup the EUT as shown in Section 1.5.
2	Execute the control program “art2_ver2_21BIN_9582” 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

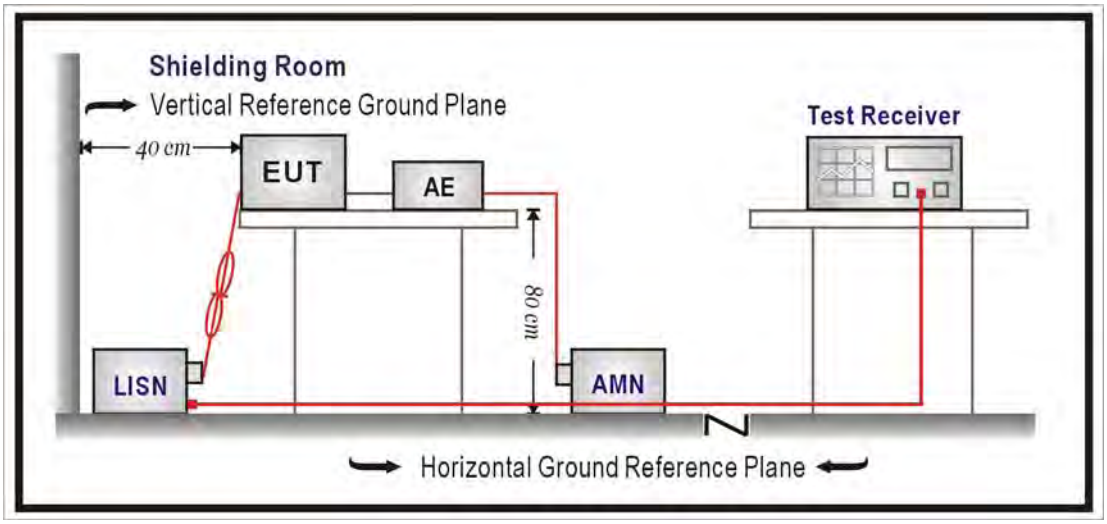
The following test equipments are used during the test:

Conducted Emission / SR2

Instrument	Manufacturer	Model No.	Serial No	Next Cal. Date
Artificial Mains Network	R&S	ENV4200	848411/010	2014/01/24
LISN	R&S	ENV216	100092	2013/08/21
Test Receiver	R&S	ESCS 30	825442/014	2013/08/07

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

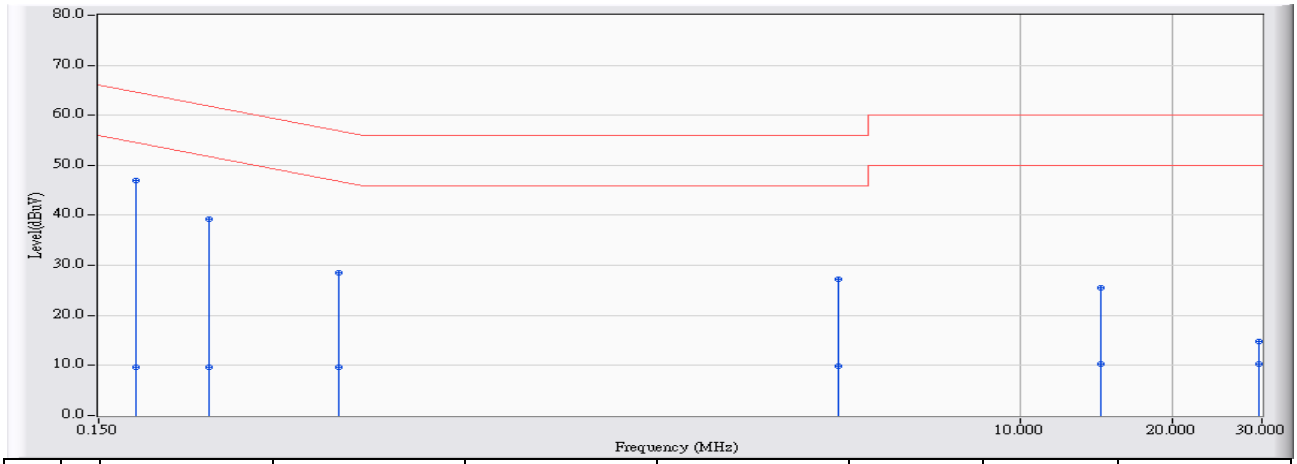
According to FCC Part 15 Subpart C Paragraph 15.207:2012

2.6. Uncertainty

The measurement uncertainty is defined as ± 2.26 dB.

2.7. Test Result

Site : SR2	**Time : 2013/05/15 - 21:06**
Limit : CISPR_B_00M_QP	**Margin : 10**
Probe : SR2_LISN(16A)-3_0822 - Line1	**Power : DC 3.3V ±5% from host equipment**
EUT : 11N Wireless LAN CARD	**Note : 802.11n 40MHz_CH46**

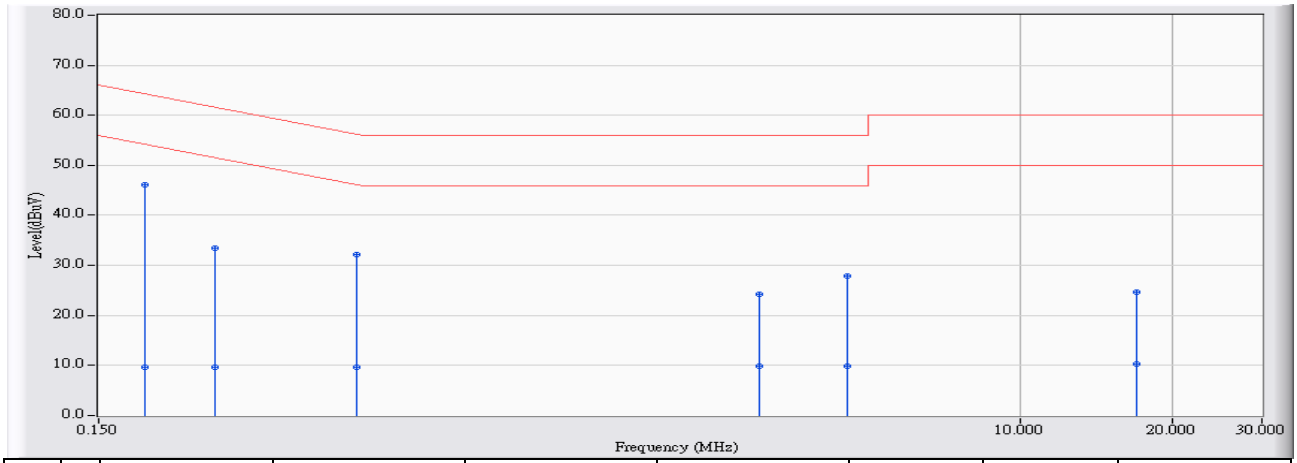


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1	*	0.177	9.640	37.420	47.060	-17.549	64.609	QUASIPEAK
2		0.177	9.640	0.000	9.640	-44.969	54.609	AVERAGE
3		0.248	9.658	29.640	39.298	-22.538	61.835	QUASIPEAK
4		0.248	9.658	0.000	9.658	-42.178	51.835	AVERAGE
5		0.447	9.716	18.760	28.475	-28.458	56.933	QUASIPEAK
6		0.447	9.716	0.000	9.715	-37.218	46.933	AVERAGE
7		4.349	9.941	17.400	27.341	-28.659	56.000	QUASIPEAK
8		4.349	9.941	0.000	9.941	-36.059	46.000	AVERAGE
9		14.388	10.224	15.220	25.444	-34.556	60.000	QUASIPEAK
10		14.388	10.224	0.000	10.224	-39.776	50.000	AVERAGE
11		29.662	10.203	4.630	14.833	-45.167	60.000	QUASIPEAK
12		29.662	10.203	0.000	10.203	-39.797	50.000	AVERAGE

Note:

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

Site : SR2	**Time : 2013/05/15 - 21:09**
Limit : CISPR_B_00M_QP	**Margin : 10**
Probe : SR2_LISN(16A)-3_0822 - Line2	**Power : DC 3.3V ±5% from host equipment**
EUT : 11N Wireless LAN CARD	**Note : 802.11n 40MHz_CH46**



		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1	*	0.185	9.630	36.540	46.170	-18.081	64.251	QUASIPEAK
2		0.185	9.630	0.000	9.630	-44.621	54.251	AVERAGE
3		0.255	9.647	23.720	33.367	-28.210	61.577	QUASIPEAK
4		0.255	9.647	0.000	9.647	-41.930	51.577	AVERAGE
5		0.486	9.707	22.540	32.247	-23.990	56.237	QUASIPEAK
6		0.486	9.707	0.000	9.707	-36.530	46.237	AVERAGE
7		3.033	9.874	14.360	24.235	-31.765	56.000	QUASIPEAK
8		3.033	9.874	0.000	9.875	-36.125	46.000	AVERAGE
9		4.537	9.942	18.020	27.962	-28.038	56.000	QUASIPEAK
10		4.537	9.942	0.000	9.942	-36.058	46.000	AVERAGE
11		16.931	10.244	14.460	24.704	-35.296	60.000	QUASIPEAK
12		16.931	10.244	0.000	10.244	-39.756	50.000	AVERAGE

Note:

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

3. 99% & 26dB Bandwidth

3.1. Test Equipment

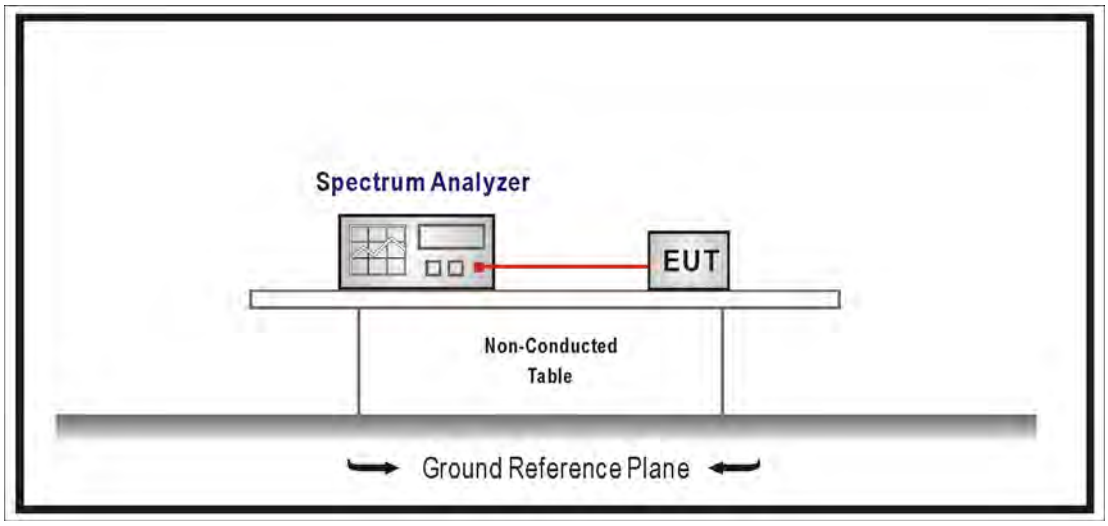
The following test equipments are used during the radiated emission tests:

99% & 26dB Bandwidth / SR7

Instrument	Manufacturer	Model No.	Serial No	Next Cal. Date
EXA Signal Analyzer	Agilent	N9010A-EXA	US47140172	2013/07/31

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

3.2. Test Setup



3.3. Limits

No Required

3.4. Test Procedure

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

3.5. Uncertainty

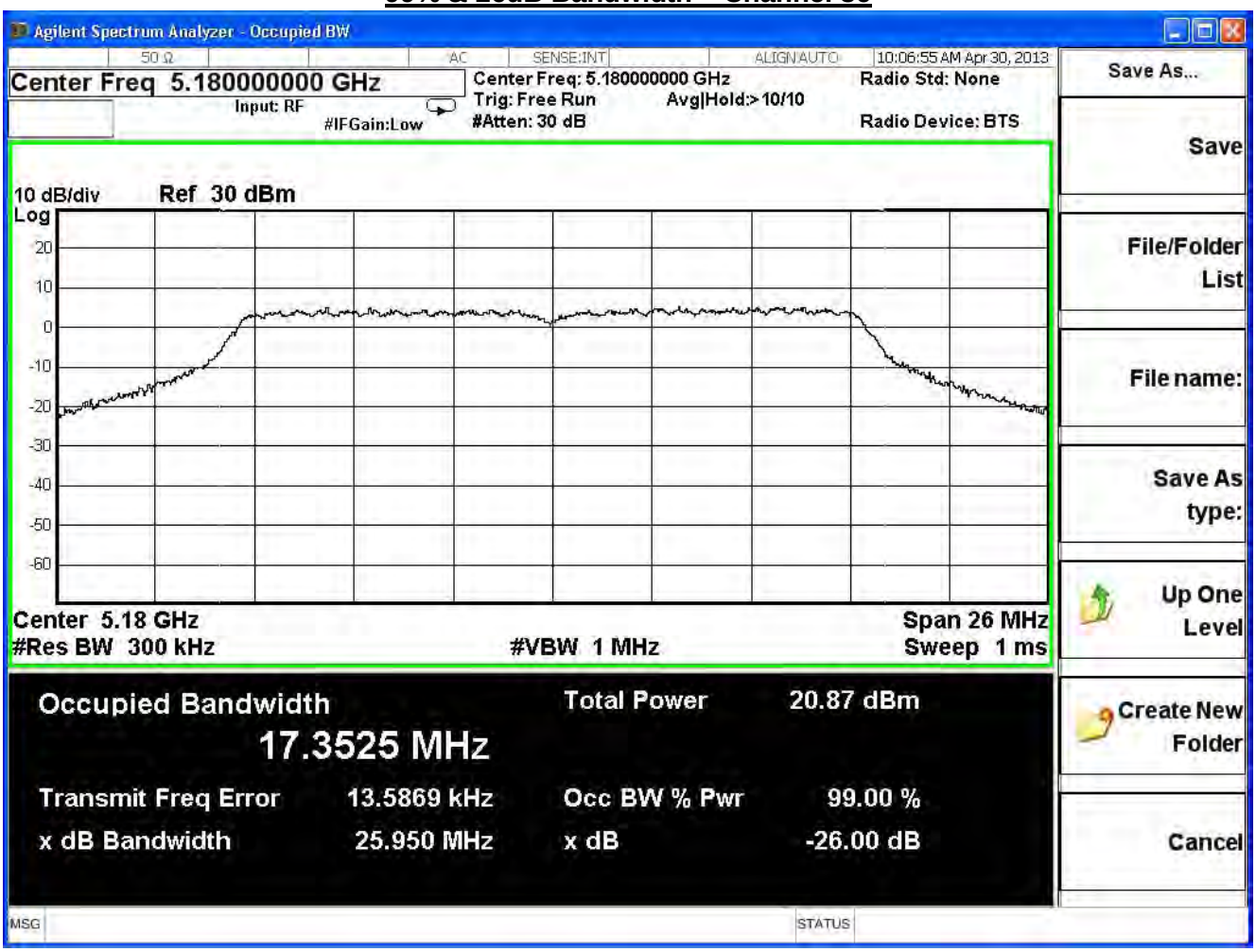
The measurement uncertainty is defined as ±150Hz

3.6. Test Result

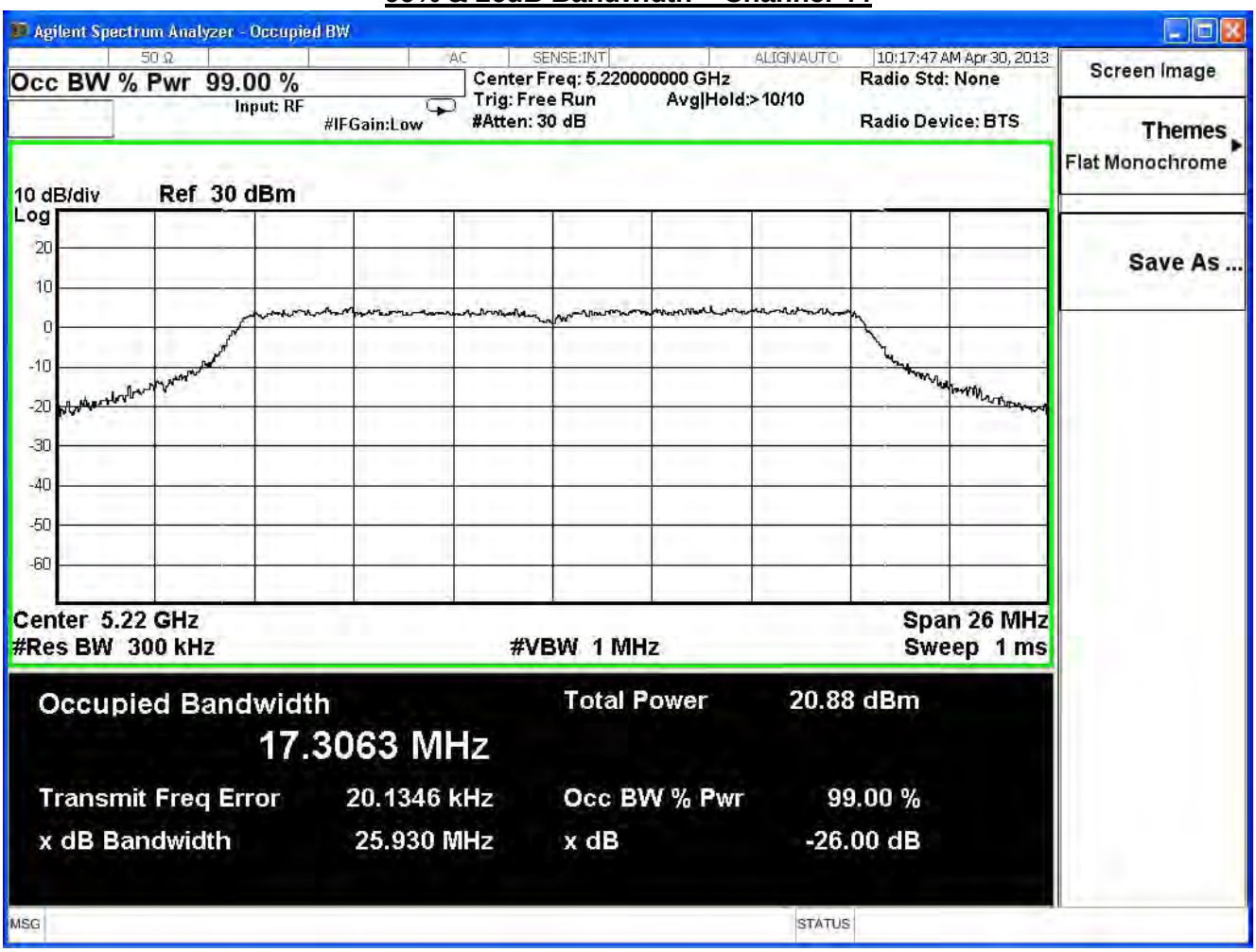
Product	11N Wireless LAN CARD		
Test Item	99% & 26dB Bandwidth		
Test Mode	Transmit		
Date of Test	2013/04/30	Test Site	SR7

802.11a					
Channel No.	Frequency (MHz)	26dB BW (MHz)	99 % OBW (MHz)	Required Limit (MHz)	Result
36	5180	25.950	17.353	--	PASS
44	5220	25.930	17.306	--	PASS
48	5240	24.870	17.204	--	PASS

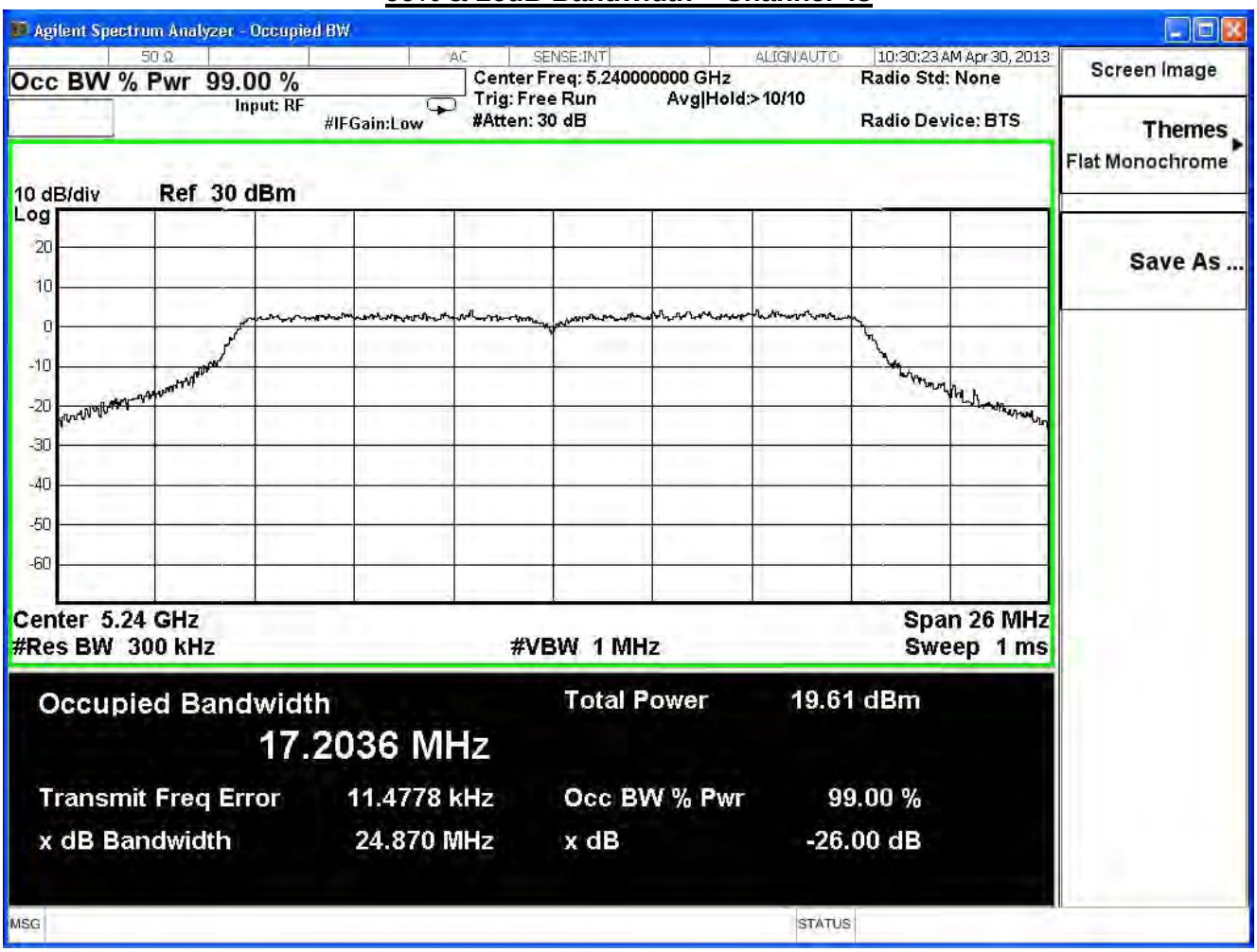
99% & 26dB Bandwidth – Channel 36



99% & 26dB Bandwidth – Channel 44



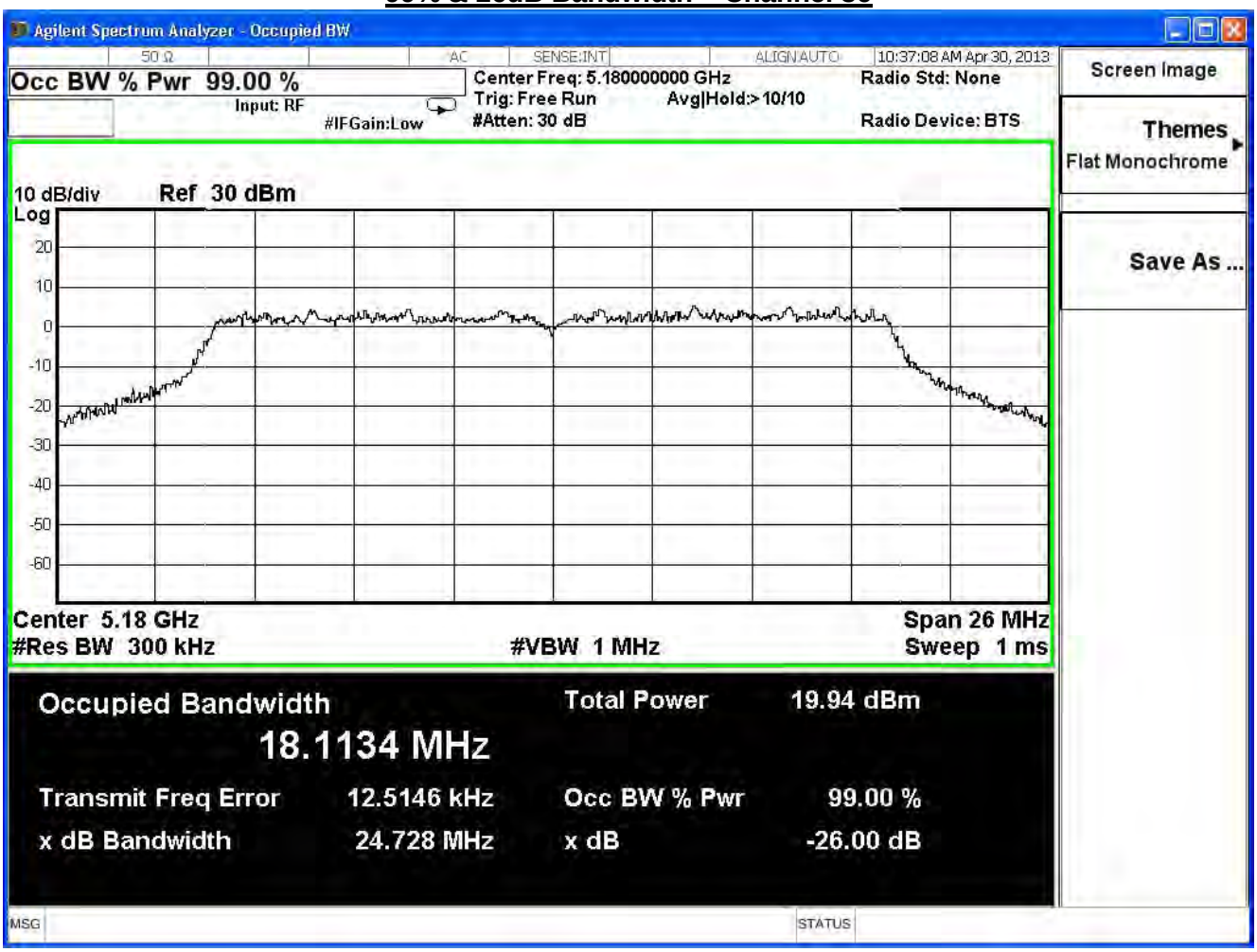
99% & 26dB Bandwidth – Channel 48



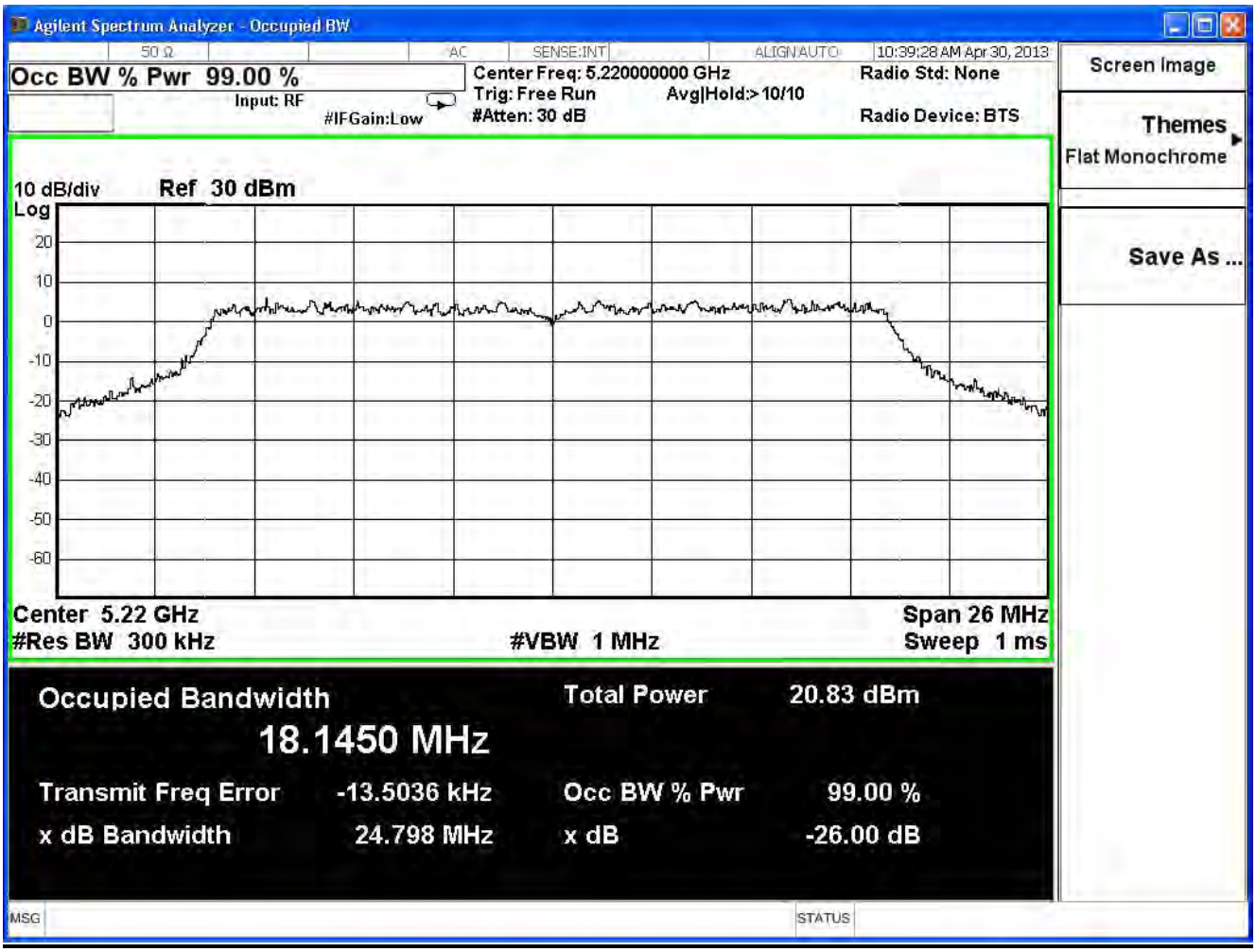
Product	11N Wireless LAN CARD		
Test Item	99% & 26dB Bandwidth		
Test Mode	Transmit		
Date of Test	2013/04/30	Test Site	SR7

802.11n_20M(ANT 0)					
Channel No.	Frequency (MHz)	26dB BW (MHz)	99 % OBW (MHz)	Required Limit (MHz)	Result
36	5180	24.728	18.113	--	PASS
44	5220	24.798	18.145	--	PASS
48	5240	25.485	18.190	--	PASS

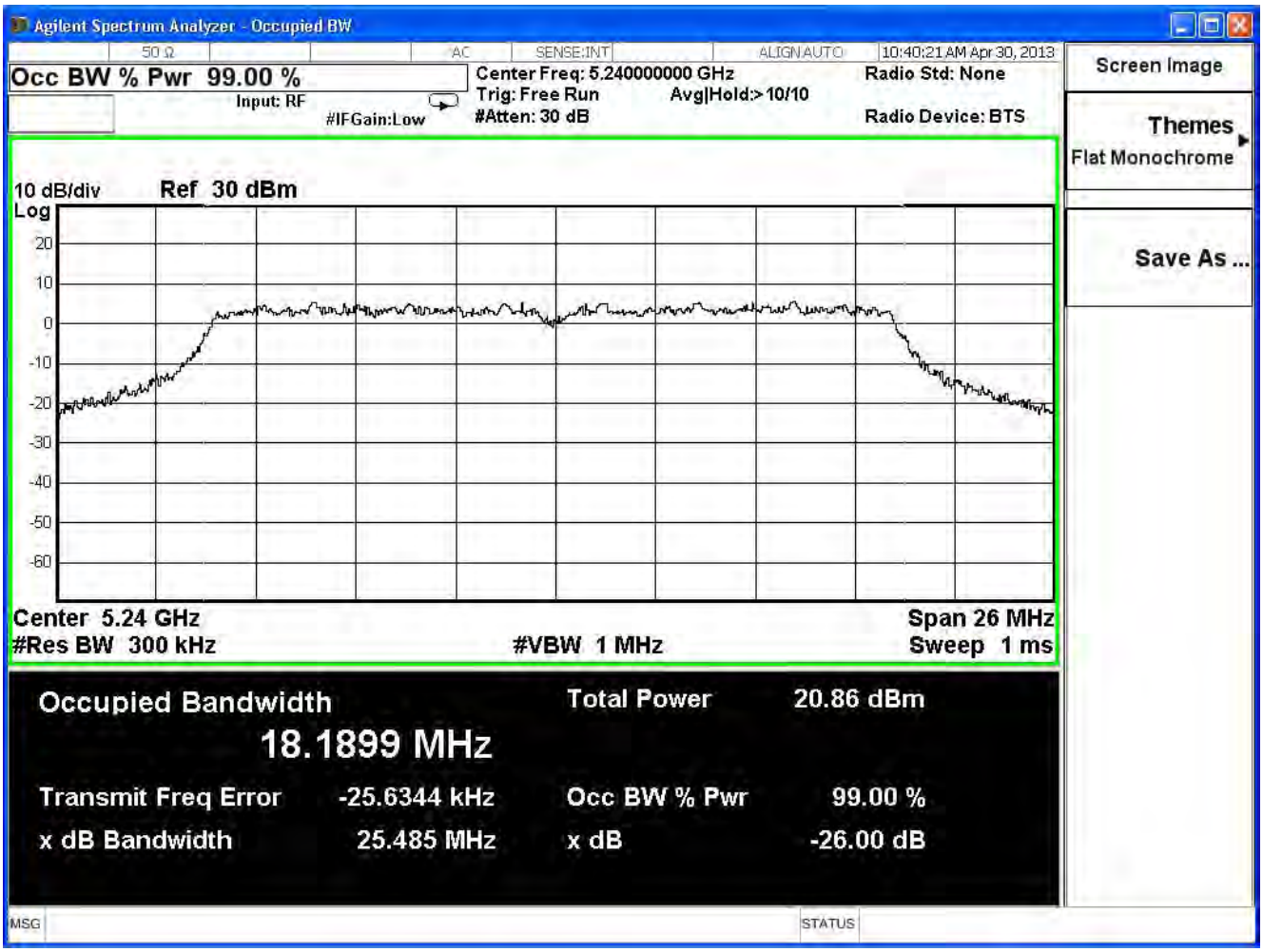
99% & 26dB Bandwidth – Channel 36



99% & 26dB Bandwidth – Channel 44



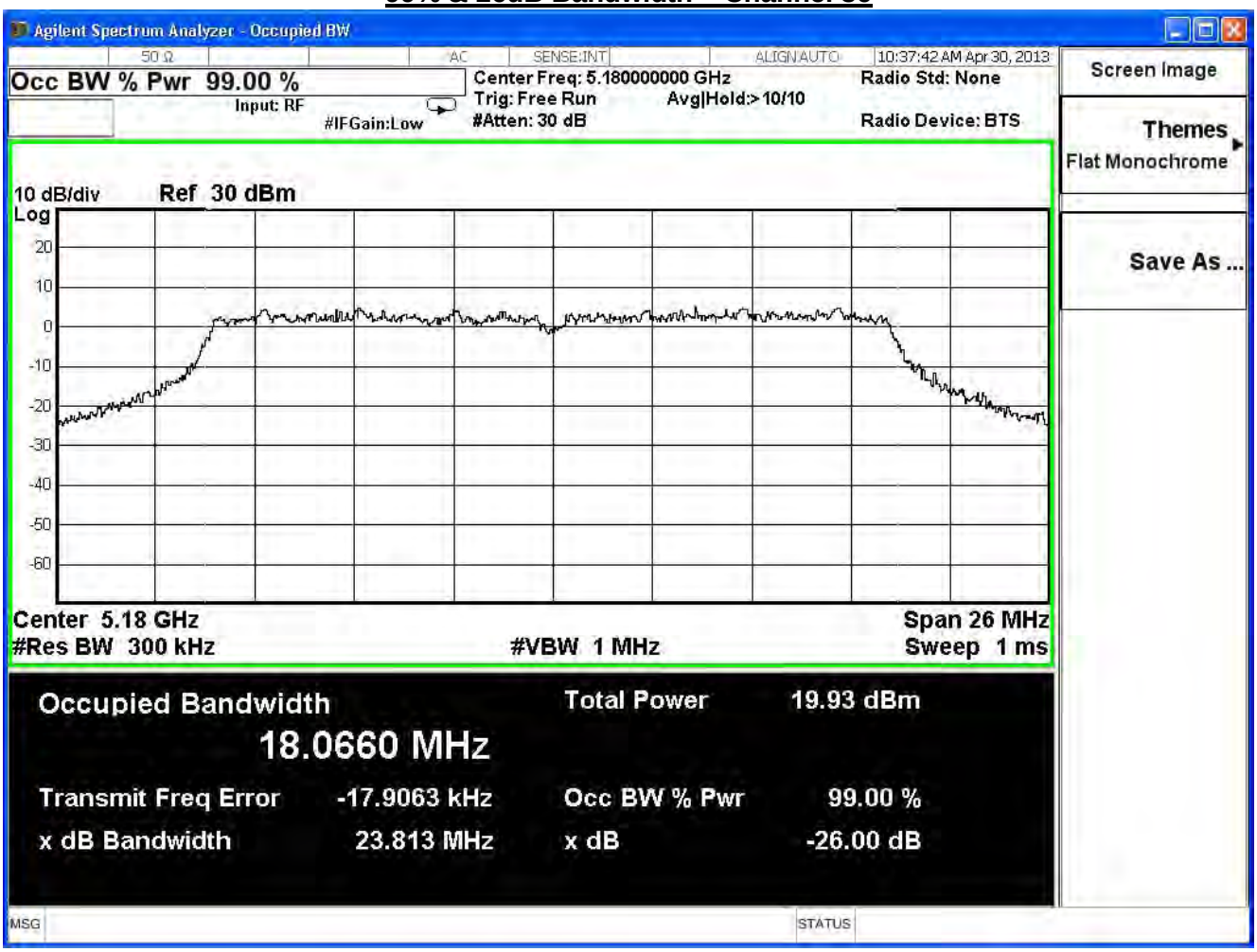
99% & 26dB Bandwidth – Channel 48



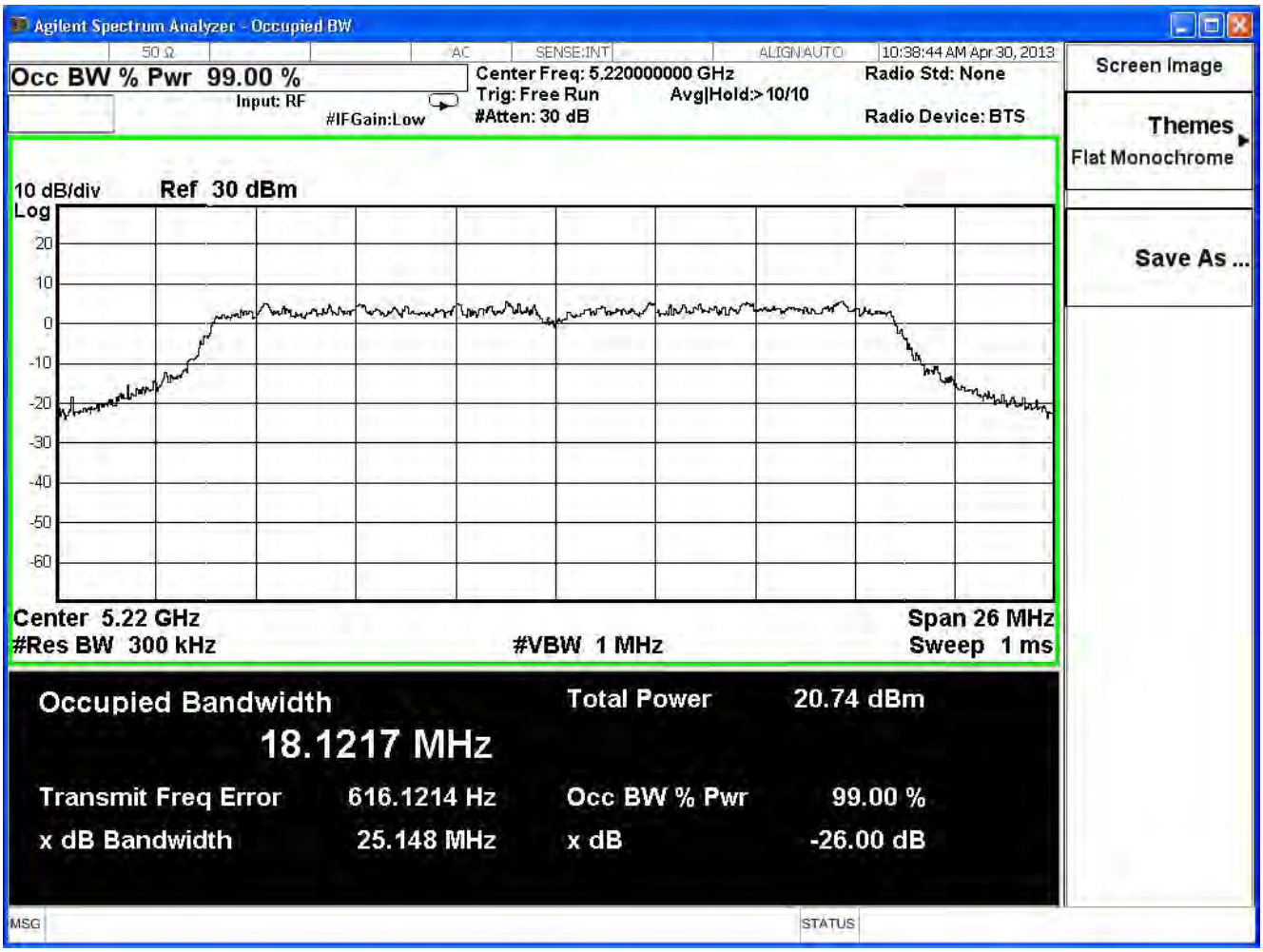
Product	11N Wireless LAN CARD		
Test Item	99% & 26dB Bandwidth		
Test Mode	Transmit		
Date of Test	2013/04/30	Test Site	SR7

802.11n_20M(ANT 1)					
Channel No.	Frequency (MHz)	26dB BW (MHz)	99 % OBW (MHz)	Required Limit (MHz)	Result
36	5180	23.813	18.066	--	PASS
44	5220	25.148	18.122	--	PASS
48	5240	24.814	18.085	--	PASS

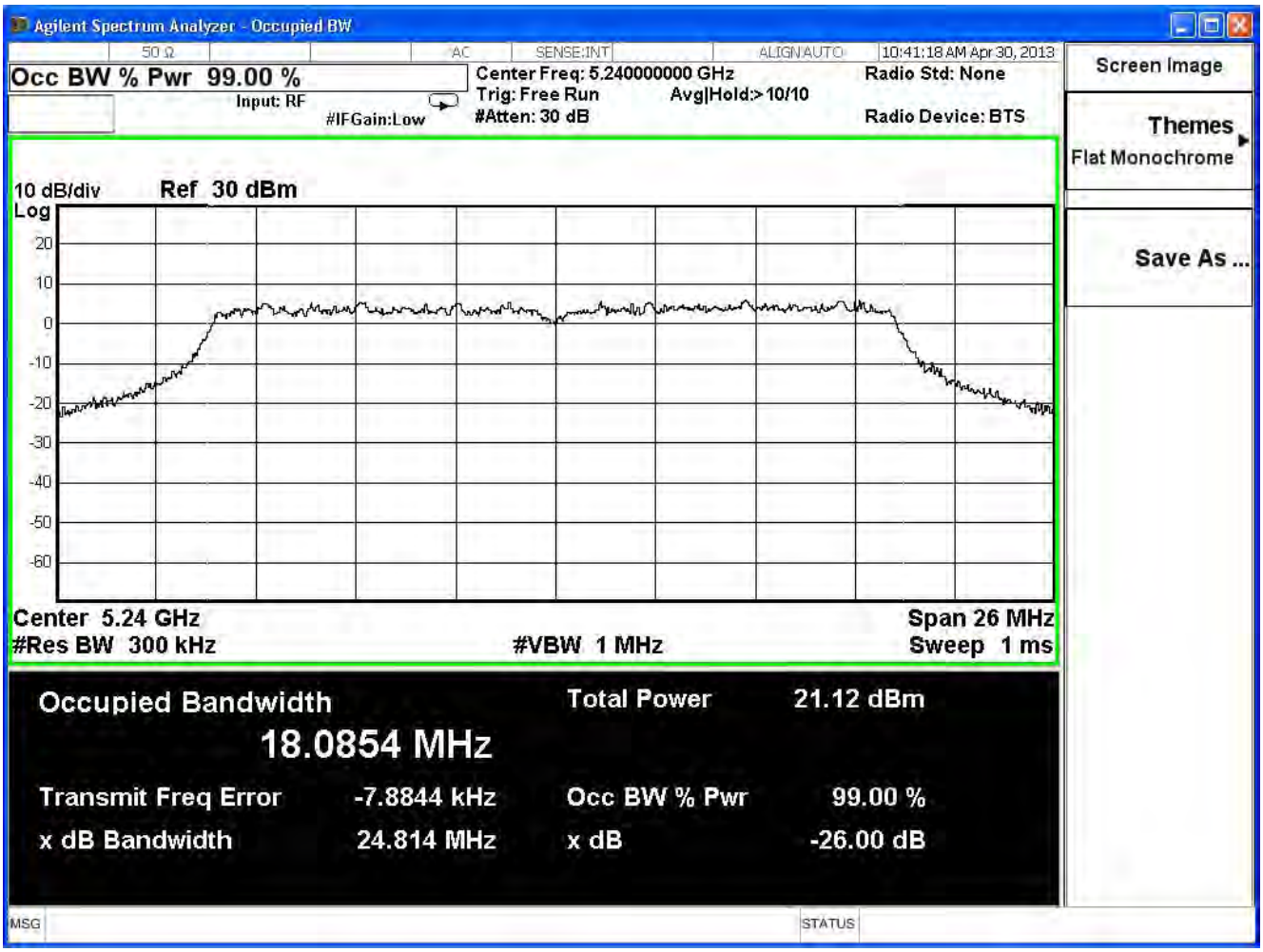
99% & 26dB Bandwidth – Channel 36



99% & 26dB Bandwidth – Channel 44



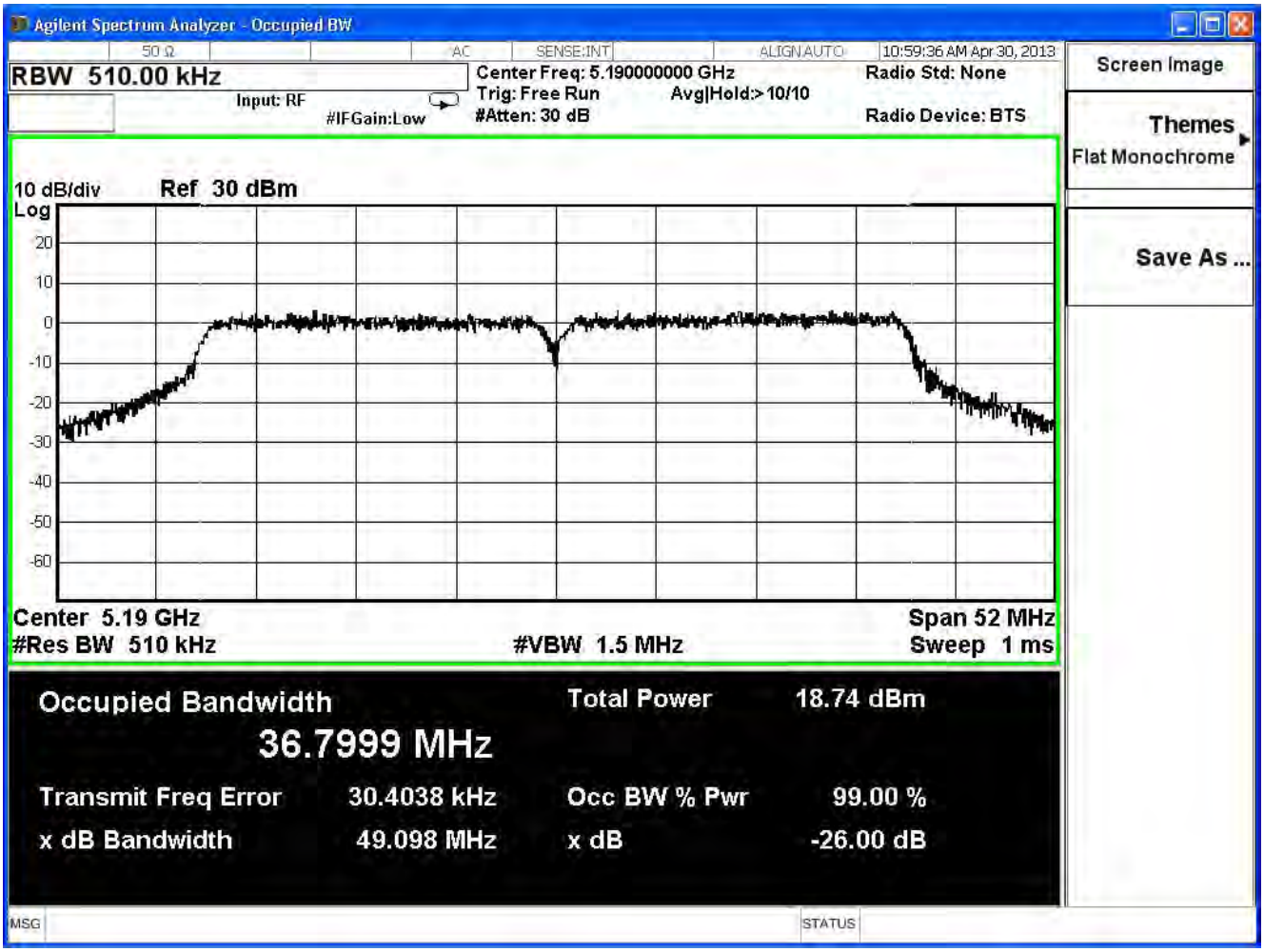
99% & 26dB Bandwidth – Channel 48



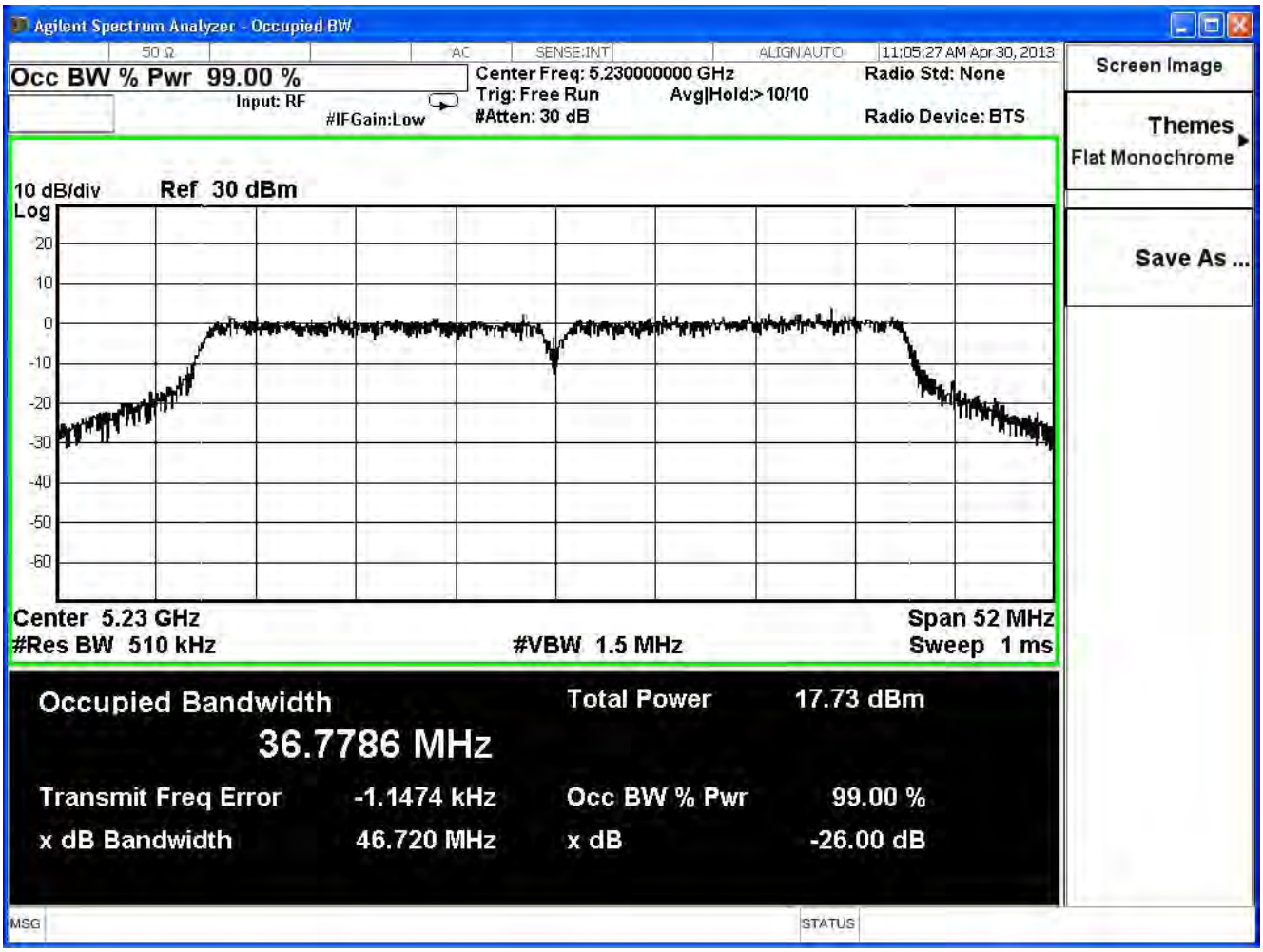
Product	11N Wireless LAN CARD		
Test Item	99% & 26dB Bandwidth		
Test Mode	Transmit		
Date of Test	2013/04/30	Test Site	SR7

802.11n_40M(ANT 0)					
Channel No.	Frequency (MHz)	26dB BW (MHz)	99 % OBW (MHz)	Required Limit (MHz)	Result
38	5190	49.098	36.800	--	PASS
46	5230	46.720	36.779	--	PASS

99% & 26dB Bandwidth – Channel 38



99% & 26dB Bandwidth – Channel 46

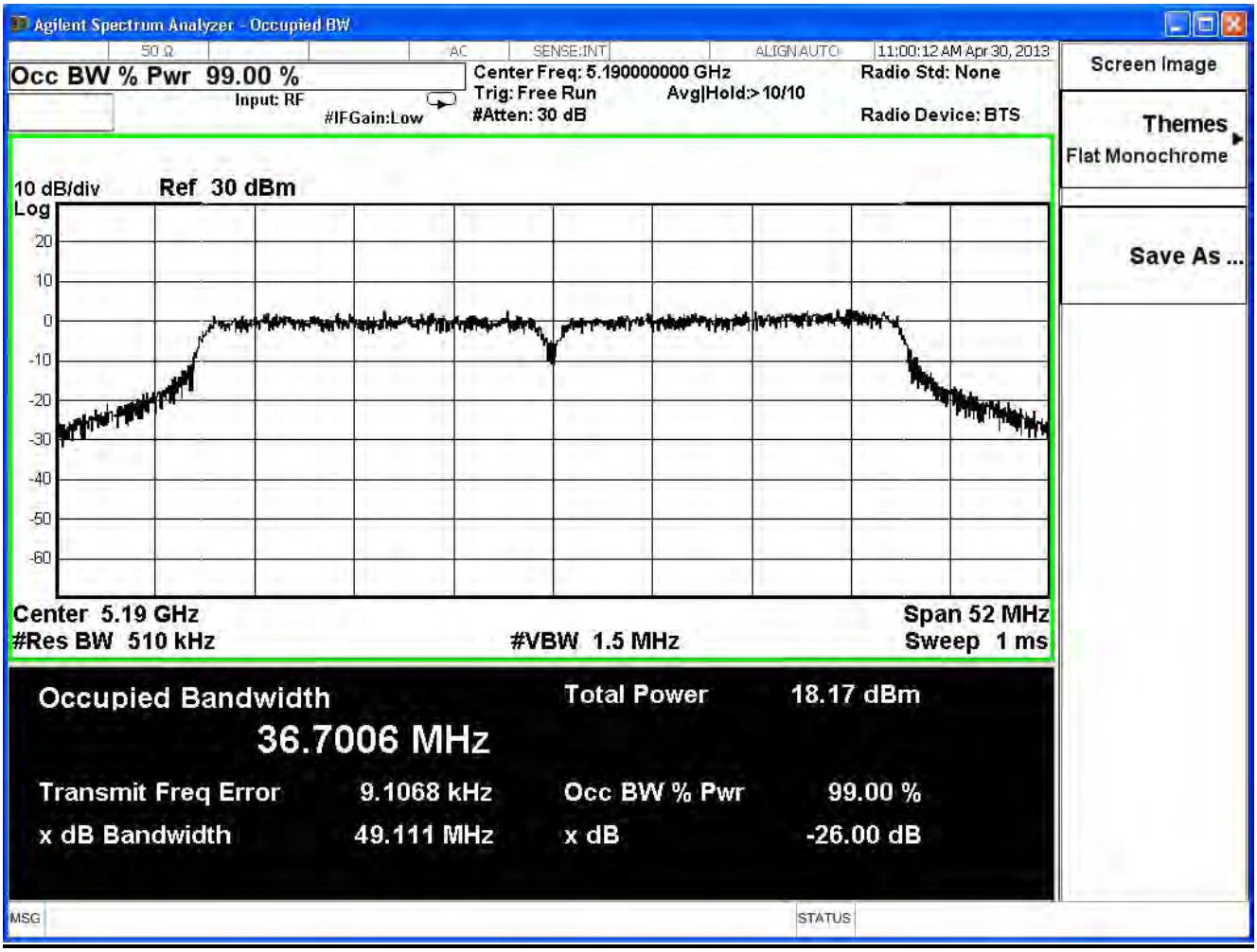


Product	11N Wireless LAN CARD		
Test Item	99% & 26dB Bandwidth		
Test Mode	Transmit		
Date of Test	2013/04/30	Test Site	SR7

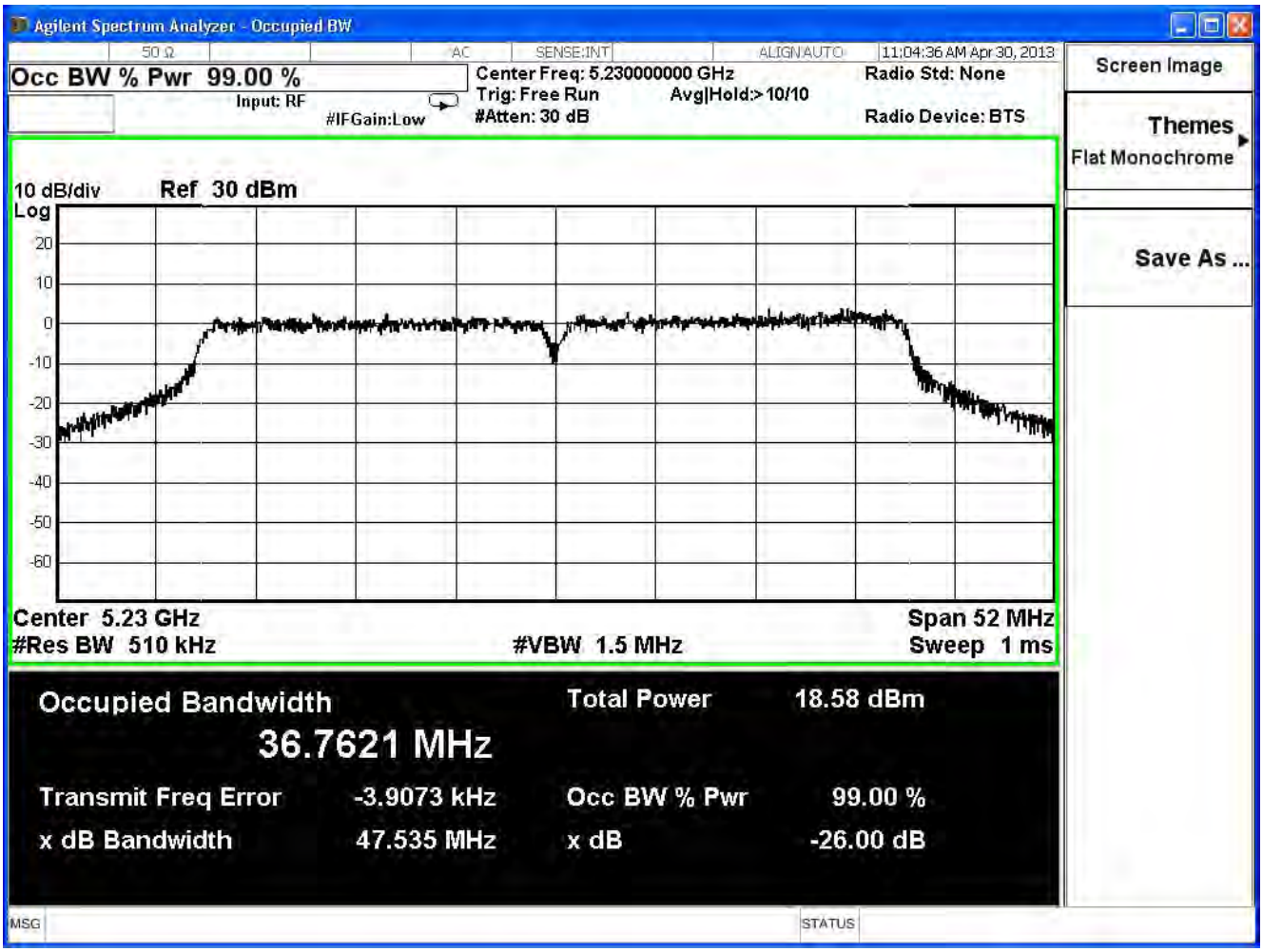
802.11n_40M(ANT 1)

Channel No.	Frequency (MHz)	26dB BW (MHz)	99 % OBW (MHz)	Required Limit (MHz)	Result
38	5190	49.111	36.700	--	PASS
46	5230	47.535	36.762	--	PASS

99% & 26dB Bandwidth – Channel 38



99% & 26dB Bandwidth – Channel 46



4. Peak Transmit Output

4.1. Test Equipment

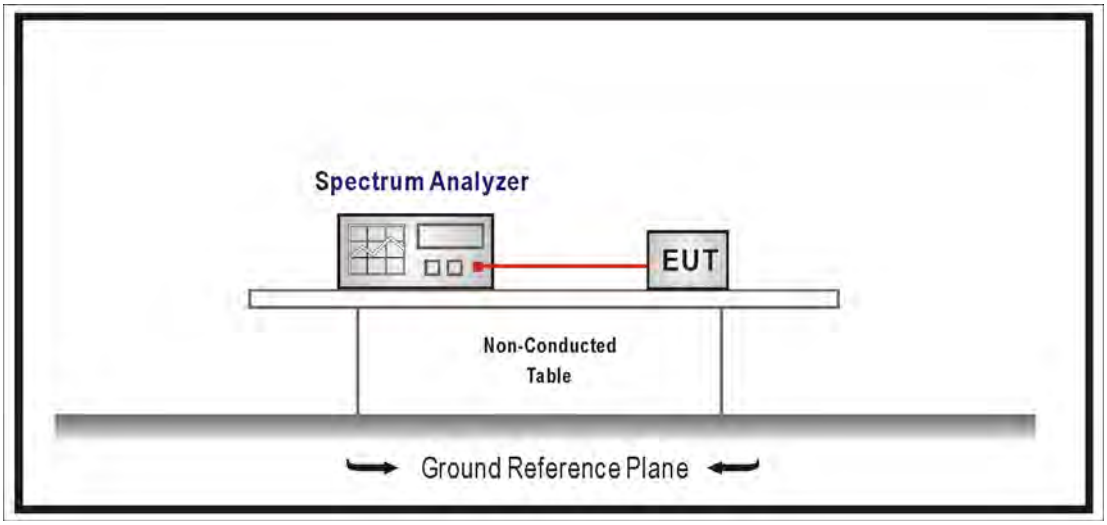
The following test equipments are used during the radiated emission tests:

Peak Transmit Output / SR7

Instrument	Manufacturer	Model No.	Serial No	Next Cal. Date
EXA Signal Analyzer	Agilent	N9010A-EXA	US47140172	2013/07/31

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 March 2012 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	11N Wireless LAN CARD		
Test Item	Peak Transmit Output		
Test Mode	Transmit		
Date of Test	2013/05/02	Test Site	SR7

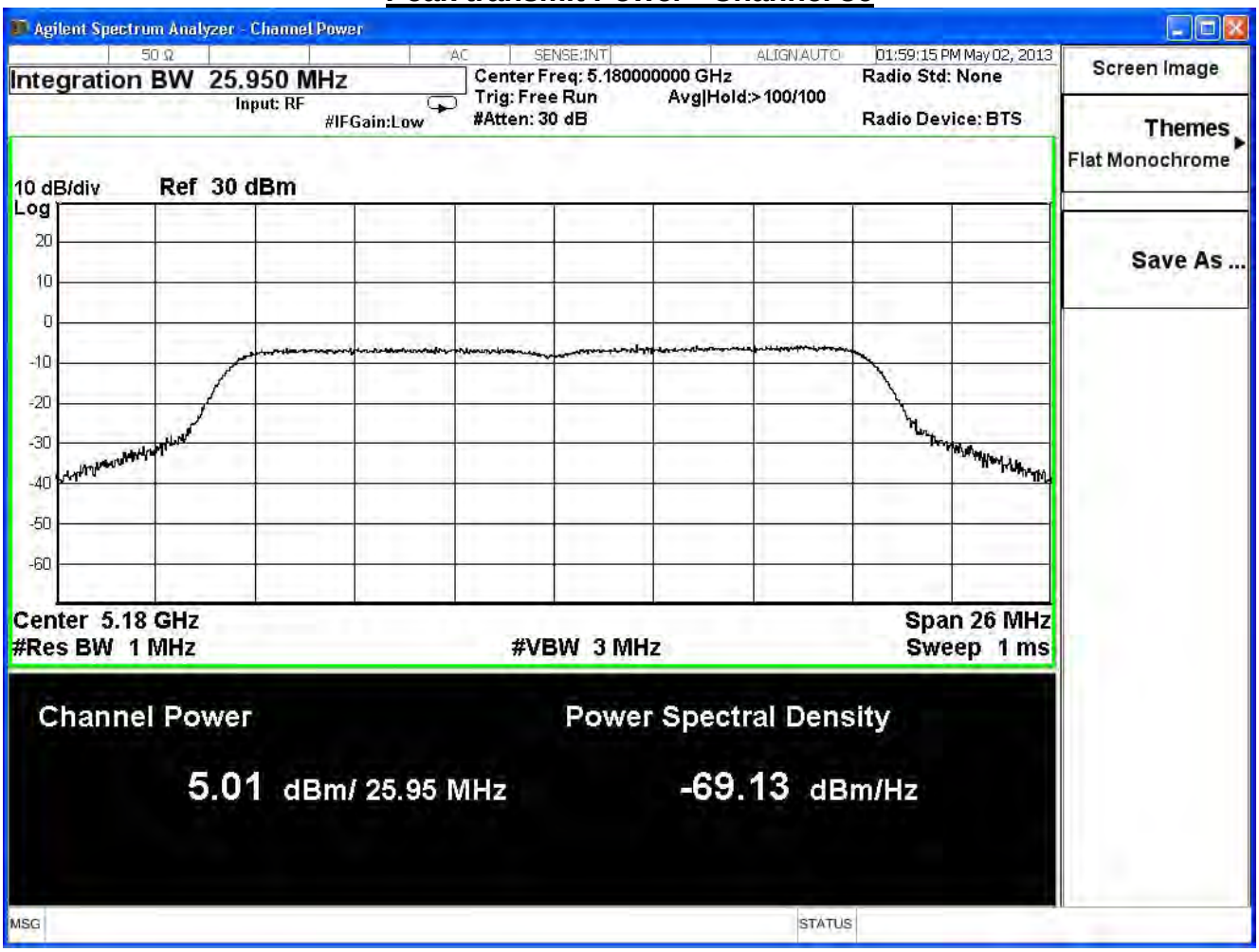
802.11a						
Channel No.	Frequency (MHz)	26dB Bandwidth (MHz)	Output Power (dBm)	Required Limit		Result
				Fixed Limit (dBm)	4+10logB Limit (dBm)	
36	5180	25.950	5.01	15.87	18.14	Pass
44	5220	25.930	5.07	15.87	18.13	Pass
48	5240	24.870	5.13	15.87	17.95	Pass

The worst emission of data rate is 6 Mbps.

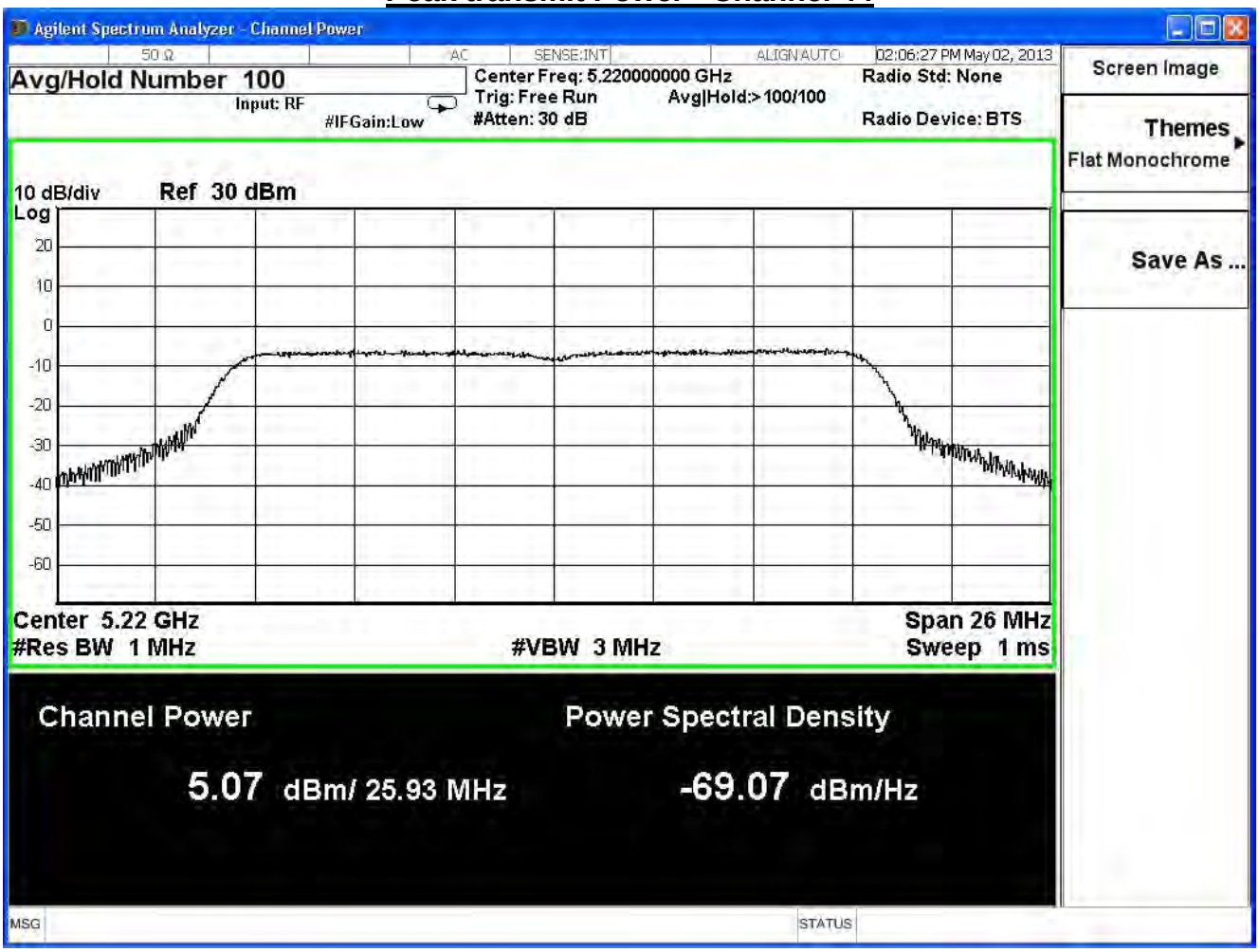
Peak Power Output (dBm)									
Channel No	Frequency (MHz)	Data Rate							Required Limit
		6	12	18	24	36	48	54	
36	5180	5.01	--	--	--	--	--	--	15.87dBm or 4dBm+10logB
44	5220	5.07	4.87	4.67	4.57	4.45	4.21	3.97	
48	5240	5.13	--	--	--	--	--	--	

Note:
10log(Ant N)+max Gain = 10log(2)+4.12 =7.13dBi
Required Limit **=** 17dBm - (7.13dBi – 6dBi) = 17 – 0.13 = 15.87 dBm

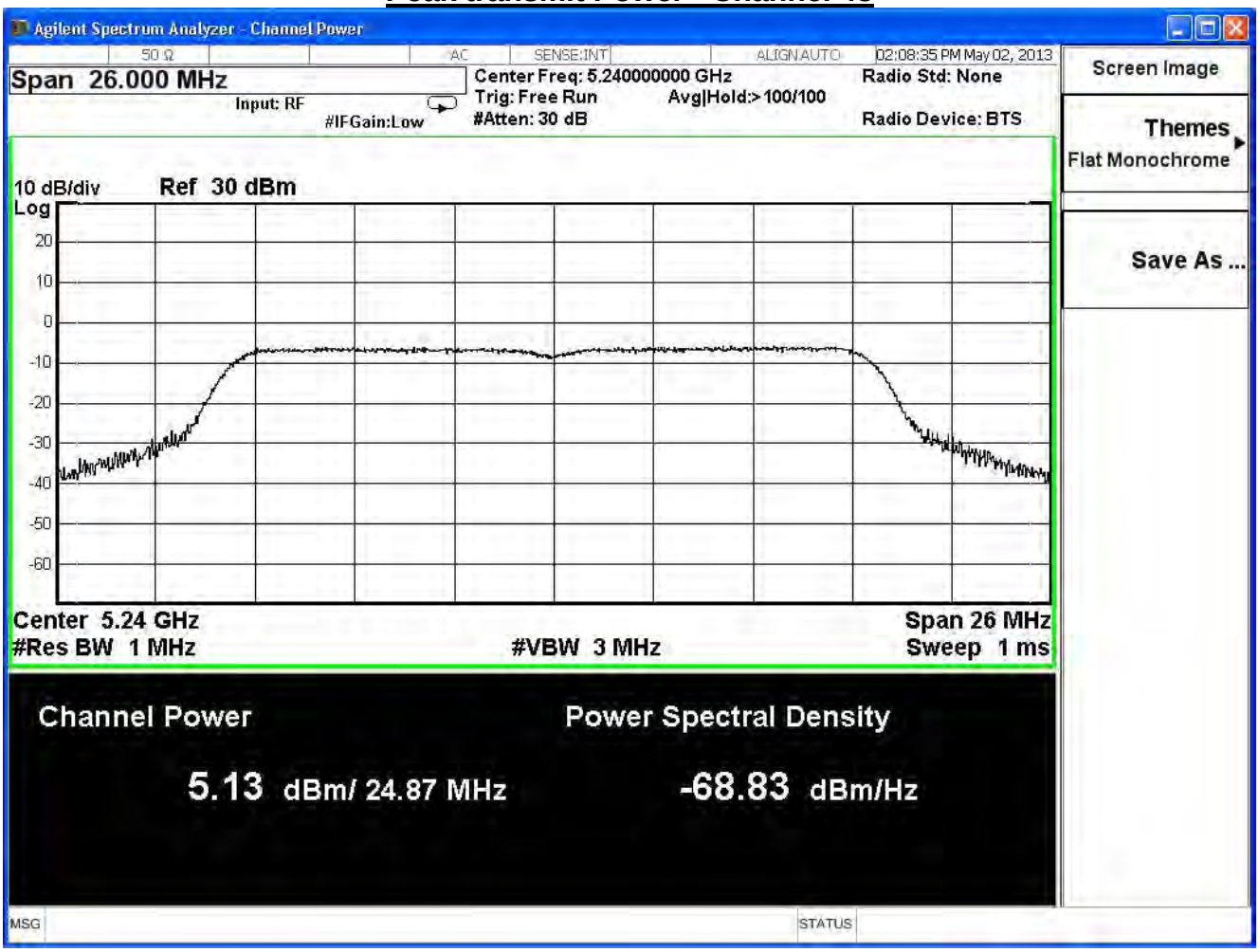
Peak transmit Power - Channel 36



Peak transmit Power - Channel 44



Peak transmit Power - Channel 48



Product	11N Wireless LAN CARD		
Test Item	Peak Transmit Output		
Test Mode	Transmit		
Date of Test	2013/05/02	Test Site	SR7

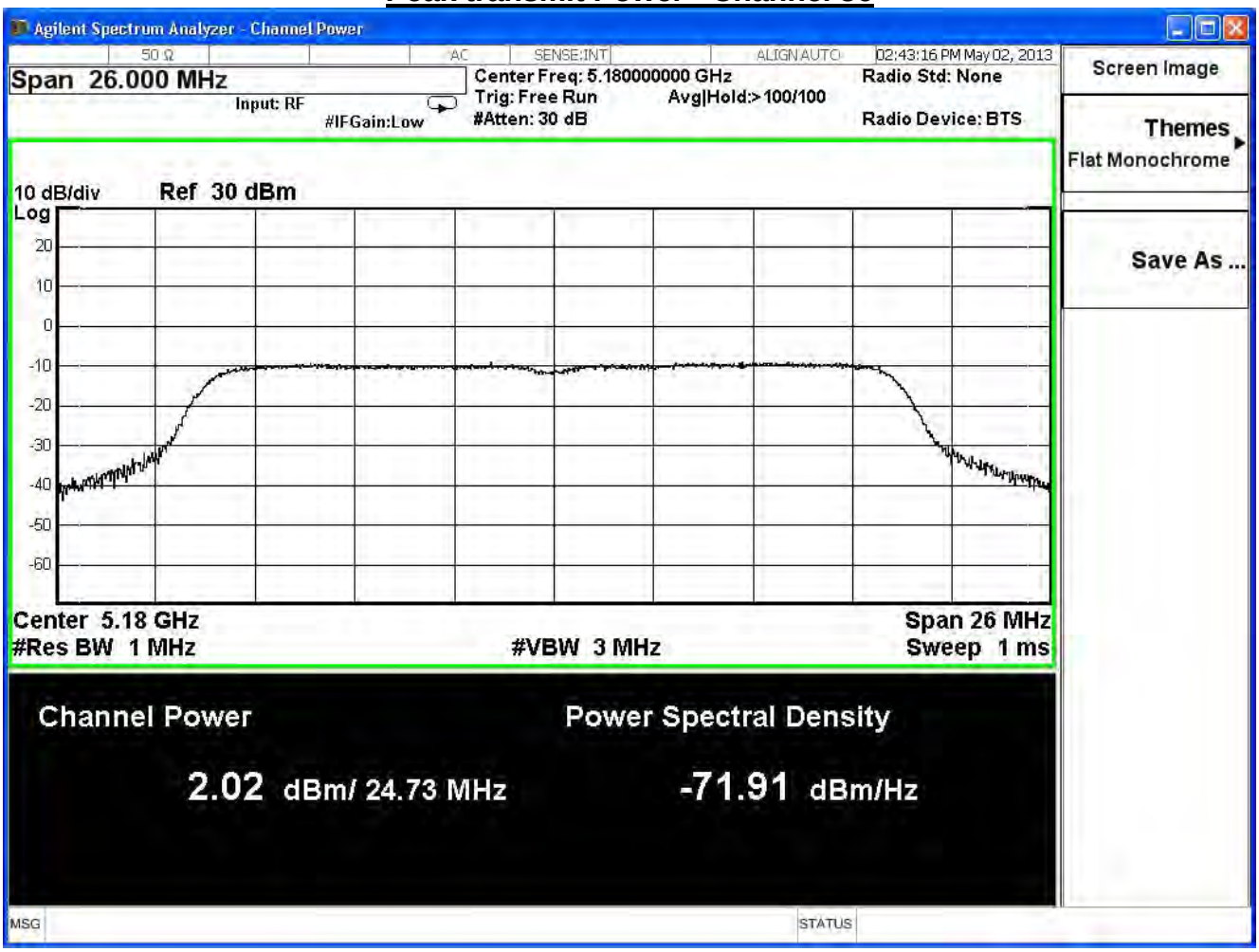
IEEE 802.11n(20MHz)_ANT 0						
Channel No.	Frequency (MHz)	26dB Bandwidth (MHz)	Output Power (dBm)	Required Limit		Result
				Fixed Limit (dBm)	4+10logB Limit (dBm)	
36	5180	24.728	2.02	15.87	17.93	Pass
44	5220	24.798	1.63	15.87	17.94	Pass
48	5240	25.485	1.87	15.87	18.06	Pass

The worst emission of data rate is 13Mbps.

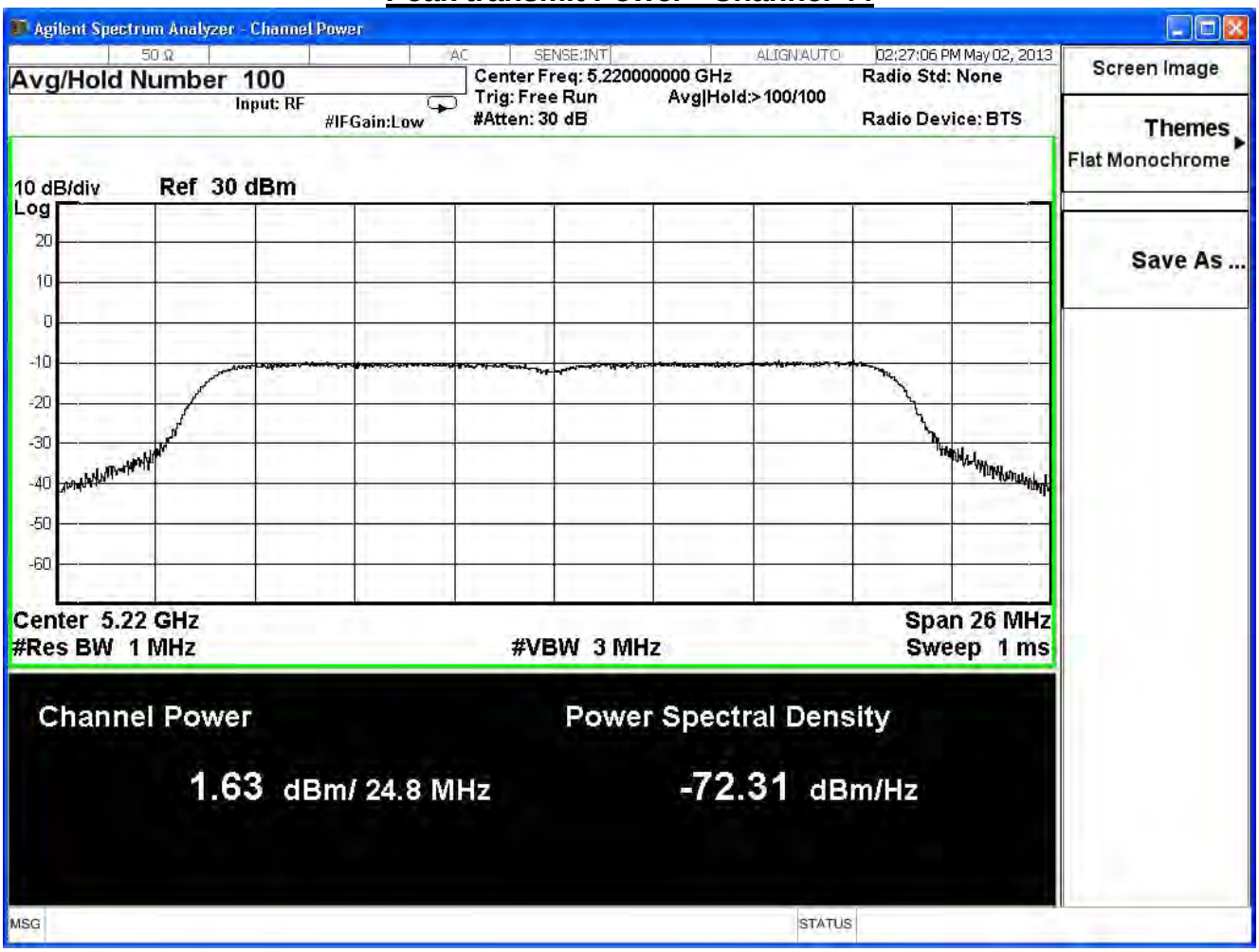
Peak Power Output (dBm)									
MCS Index		8	9	10	11	12	13	14	15	Required Limit
Channel No	Frequency (MHz)	Data Rate								
		13	26	39	52	78	104	117	130	
36	5180	2.02	--	--	--	--	--	--	--	15.87dBm or 4dBm+10logB
44	5220	1.63	1.43	1.23	1.03	0.83	0.71	0.59	0.47	
48	5240	1.87	--	--	--	--	--	--	--	

Note:
10log(Ant N)+max Gain = 10log(2)+4.12 =7.13dBi
Required Limit = 17dBm - (7.13dBi – 6dBi) = 17 – 0.13 = 15.87 dBm

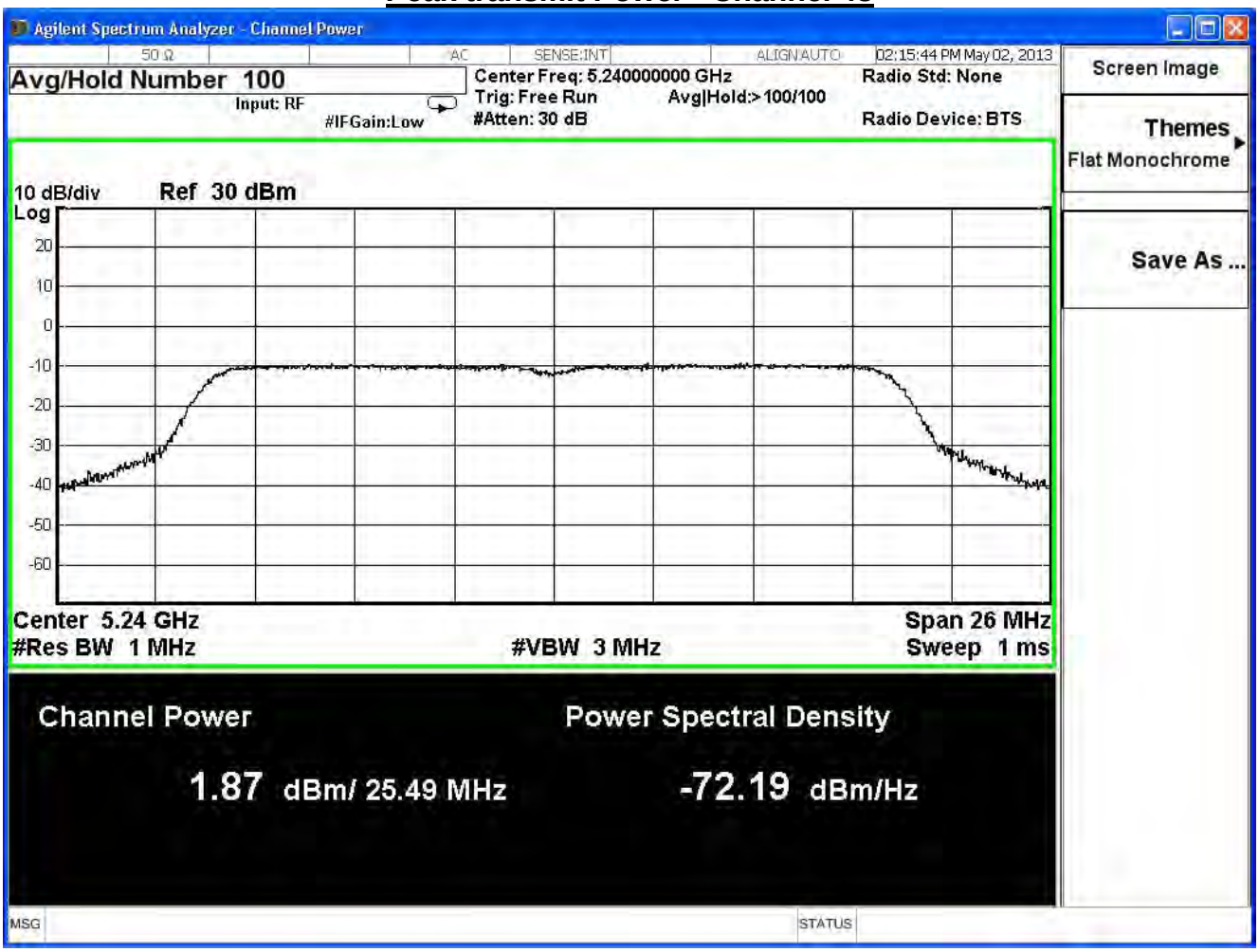
Peak transmit Power - Channel 36



Peak transmit Power - Channel 44



Peak transmit Power - Channel 48



Product	11N Wireless LAN CARD		
Test Item	Peak Transmit Output		
Test Mode	Transmit		
Date of Test	2013/05/02	Test Site	SR7

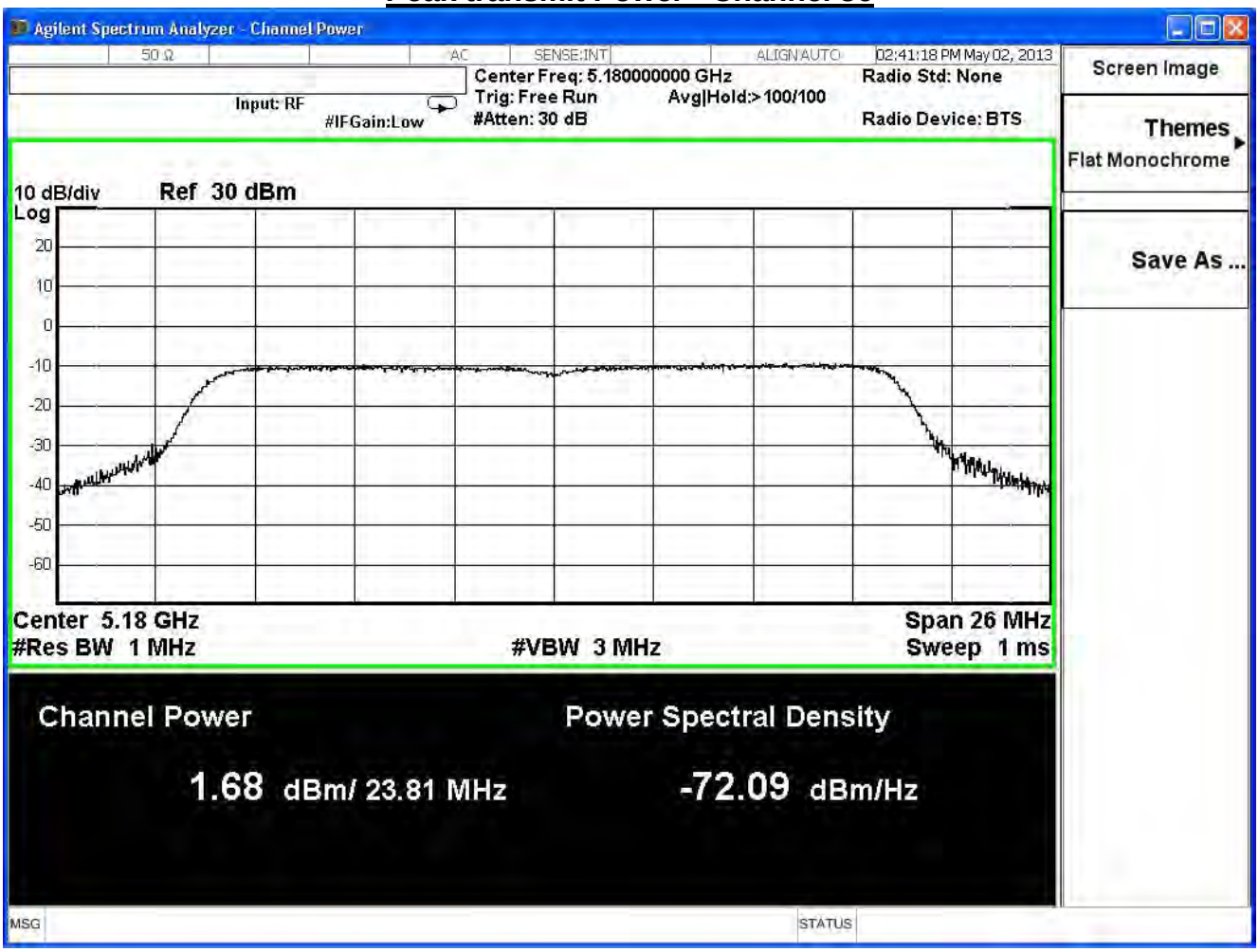
IEEE 802.11n(20MHz)_ANT 1						
Channel No.	Frequency (MHz)	26dB Bandwidth (MHz)	Output Power (dBm)	Required Limit		Result
				Fixed Limit (dBm)	4+10logB Limit (dBm)	
36	5180	23.813	1.68	15.87	17.76	Pass
44	5220	25.148	1.59	15.87	18.00	Pass
48	5240	24.814	1.66	15.87	17.94	Pass

The worst emission of data rate is 13Mbps.

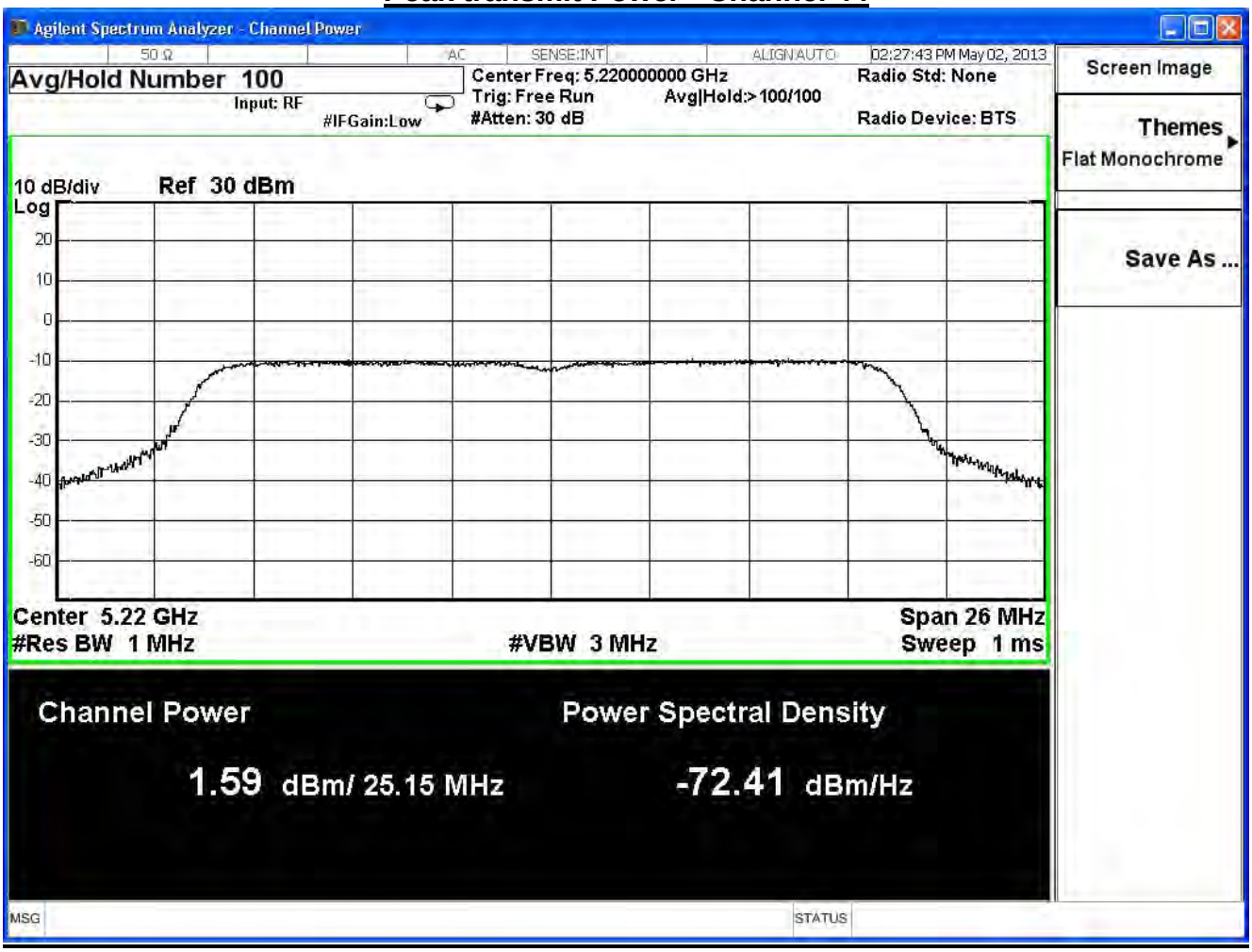
Peak Power Output (dBm)										
MCS Index		8	9	10	11	12	13	14	15	Required Limit
Channel No	Frequency (MHz)	Data Rate								
		13	26	39	52	78	104	117	130	
36	5180	1.68	--	--	--	--	--	--	--	15.87dBm or 4dBm+10logB
44	5220	1.59	1.39	1.29	1.19	0.99	0.75	0.63	0.39	
48	5240	1.66	--	--	--	--	--	--	--	

Note:
10log(Ant N)+max Gain = 10log(2)+4.12 =7.13dBi
Required Limit = 17dBm - (7.13dBi – 6dBi) = 17 – 0.13 = 15.87 dBm

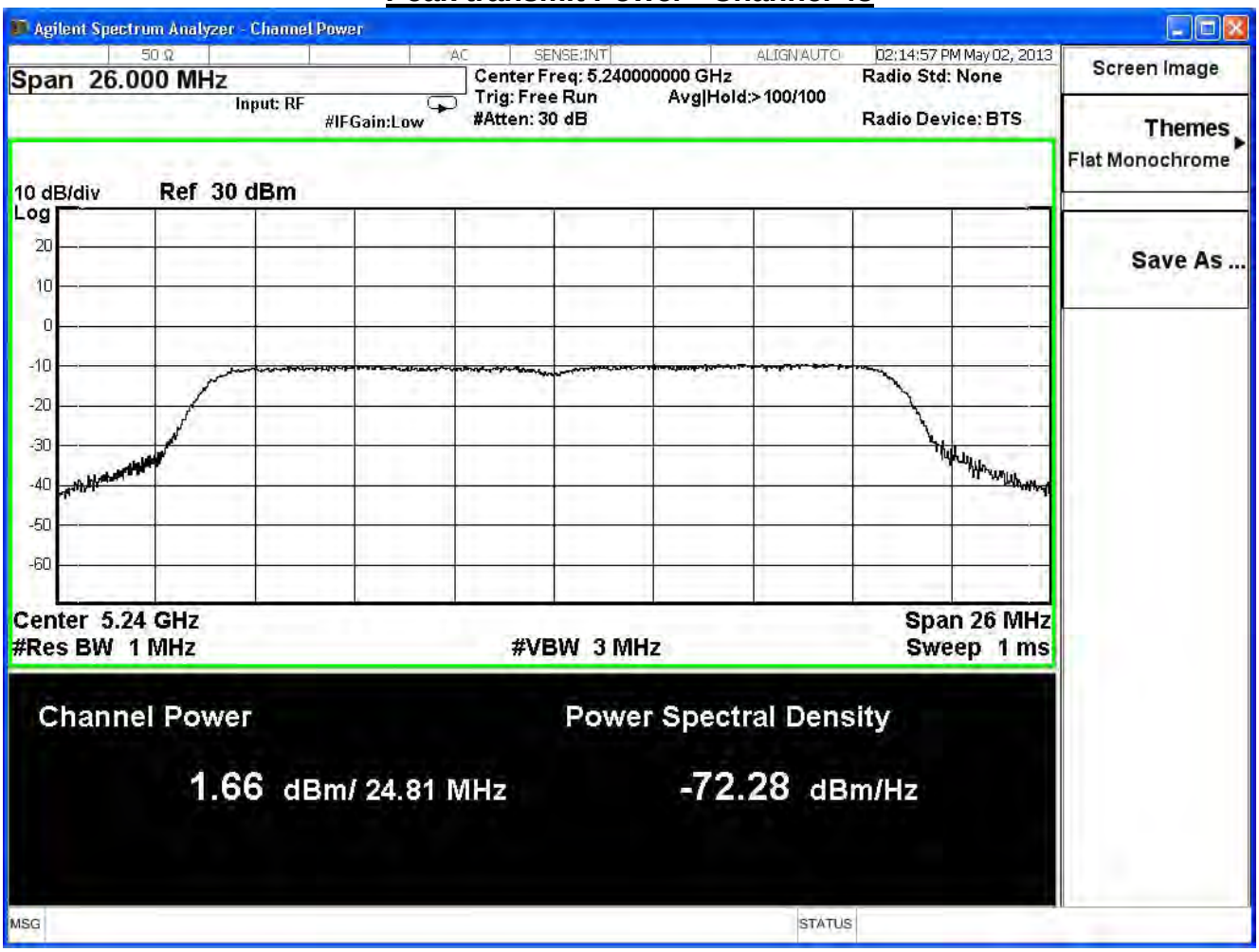
Peak transmit Power - Channel 36



Peak transmit Power - Channel 44



Peak transmit Power - Channel 48



Product	11N Wireless LAN CARD		
Test Item	Peak Transmit Output		
Test Mode	Transmit		
Date of Test	2013/05/02	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	3.06	4.86	15.87	Pass
44	5220	2.90	4.62	15.87	Pass
48	5240	3.01	4.78	15.87	Pass

Note:
10log(Ant N)+max Gain = 10log(2)+4.12 =7.13dBi
Required Limit = 17dBm - (7.13dBi – 6dBi) = 17 – 0.13 = 15.87 dBm

Product	11N Wireless LAN CARD		
Test Item	Peak Transmit Output		
Test Mode	Transmit		
Date of Test	2013/05/02	Test Site	SR7

IEEE 802.11n(40MHz)_ANT 0

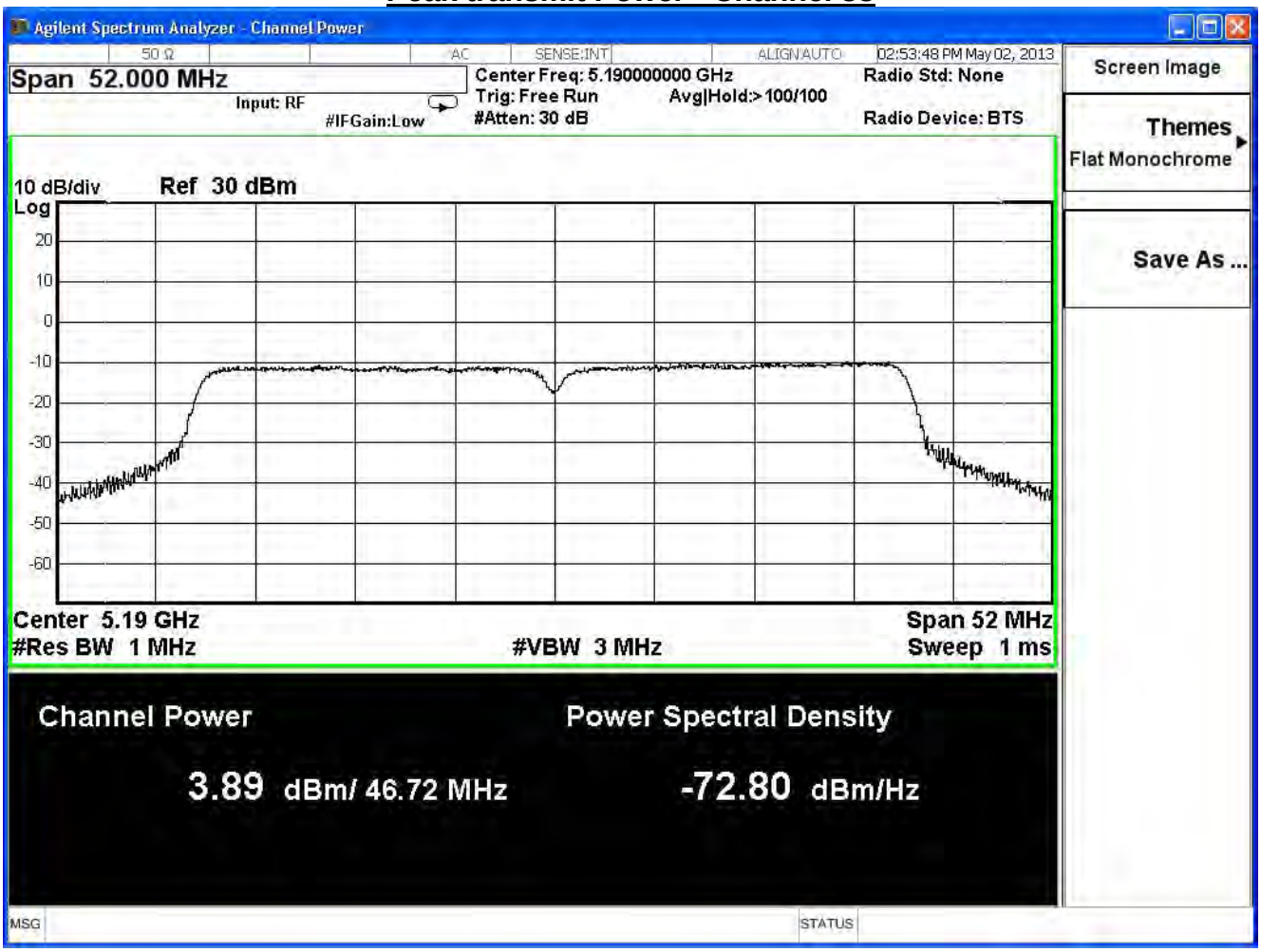
Channel No.	Frequency (MHz)	26dB Bandwidth (MHz)	Output Power (dBm)	Required Limit		Result
				Fixed Limit (dBm)	4+10logB Limit (dBm)	
38	5190	49.098	3.89	15.87	20.91	Pass
46	5230	46.720	4.02	15.87	20.69	Pass

The worst emission of data rate is 40.5 Mbps

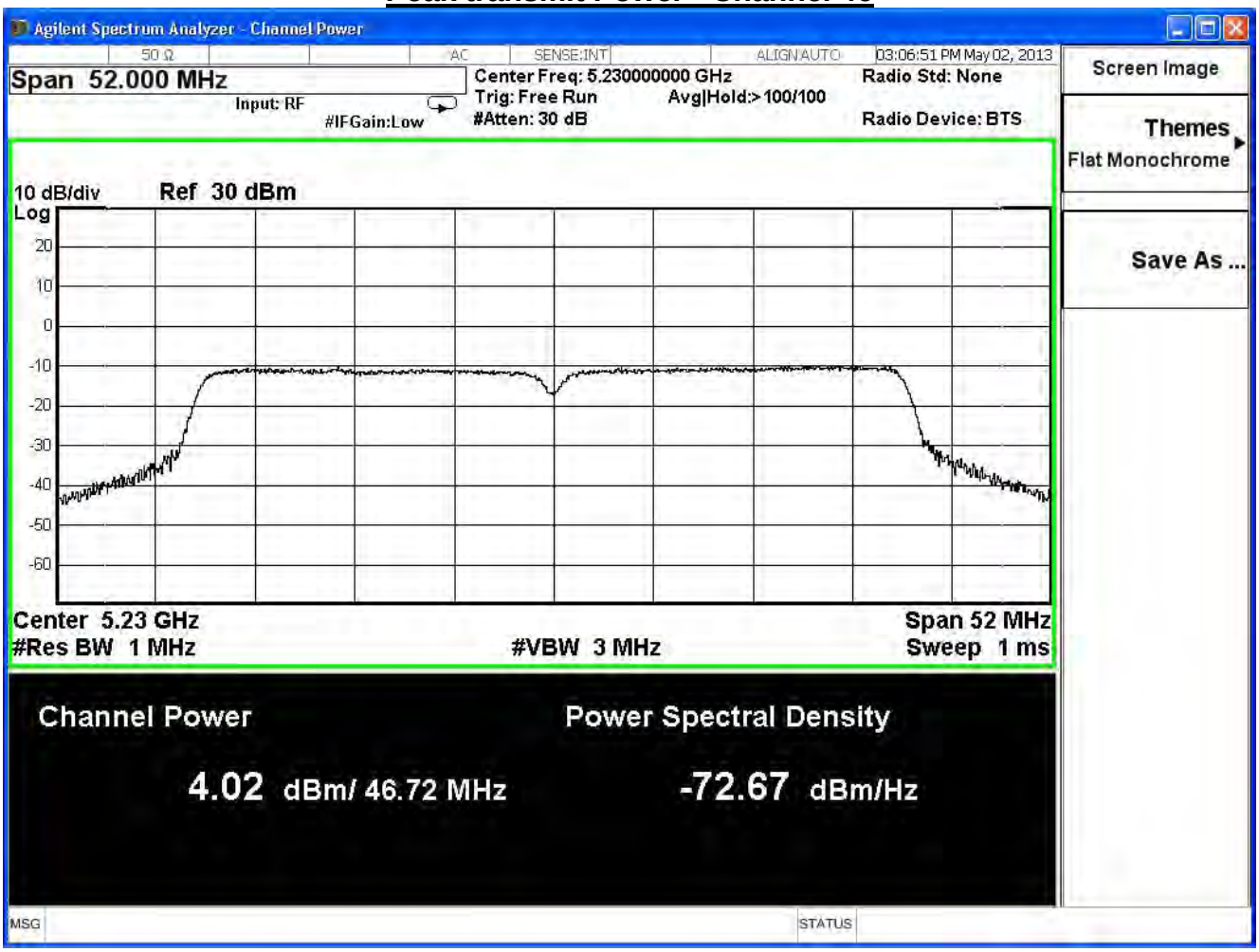
Peak Power Output (dBm)										
MCS Index		8	9	10	11	12	13	14	15	Required Limit
Channel No	Frequency (MHz)	Data Rate								
		27	54	81	108	162	216	243	270	
38	5190	3.89	3.88	3.87	3.86	3.85	3.84	3.83	3.82	15.87dBm or 4dBm+10logB
46	5230	4.02	--	--	--	--	--	--	--	

Note:
10log(Ant N)+max Gain = 10log(2)+4.12 =7.13dBi
Required Limit = 17dBm - (7.13dBi – 6dBi) = 17 – 0.13 = 15.87 dBm

Peak transmit Power - Channel 38



Peak transmit Power - Channel 46



Product	11N Wireless LAN CARD		
Test Item	Peak Transmit Output		
Test Mode	Transmit		
Date of Test	2013/05/02	Test Site	SR7

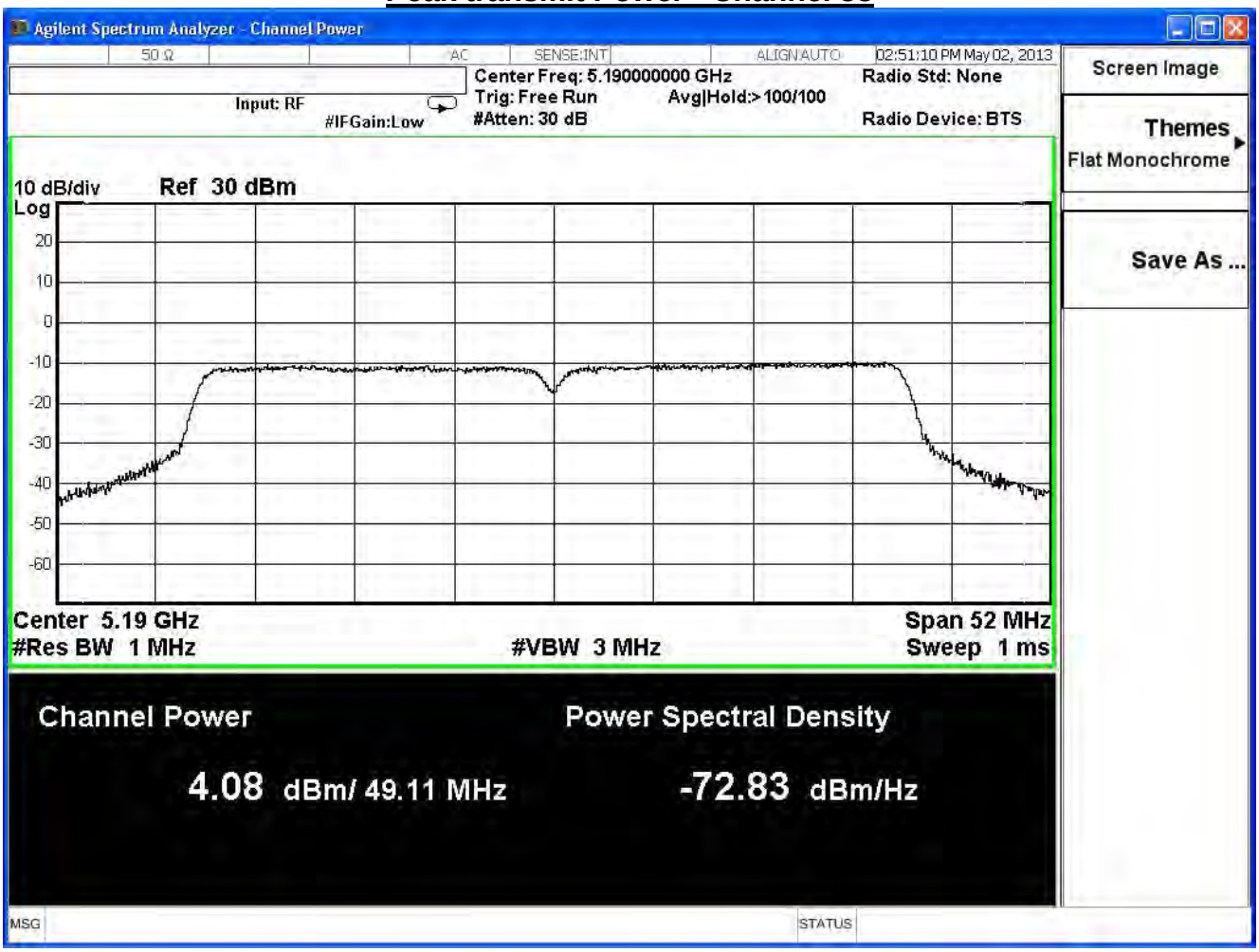
IEEE 802.11n(40MHz)_ANT 1						
Channel No.	Frequency (MHz)	26dB Bandwidth (MHz)	Output Power (dBm)	Required Limit		Result
				Fixed Limit (dBm)	4+10logB Limit (dBm)	
38	5190	49.111	4.08	15.87	20.91	Pass
46	5230	47.535	3.95	15.87	20.77	Pass

The worst emission of data rate is 40.5 Mbps

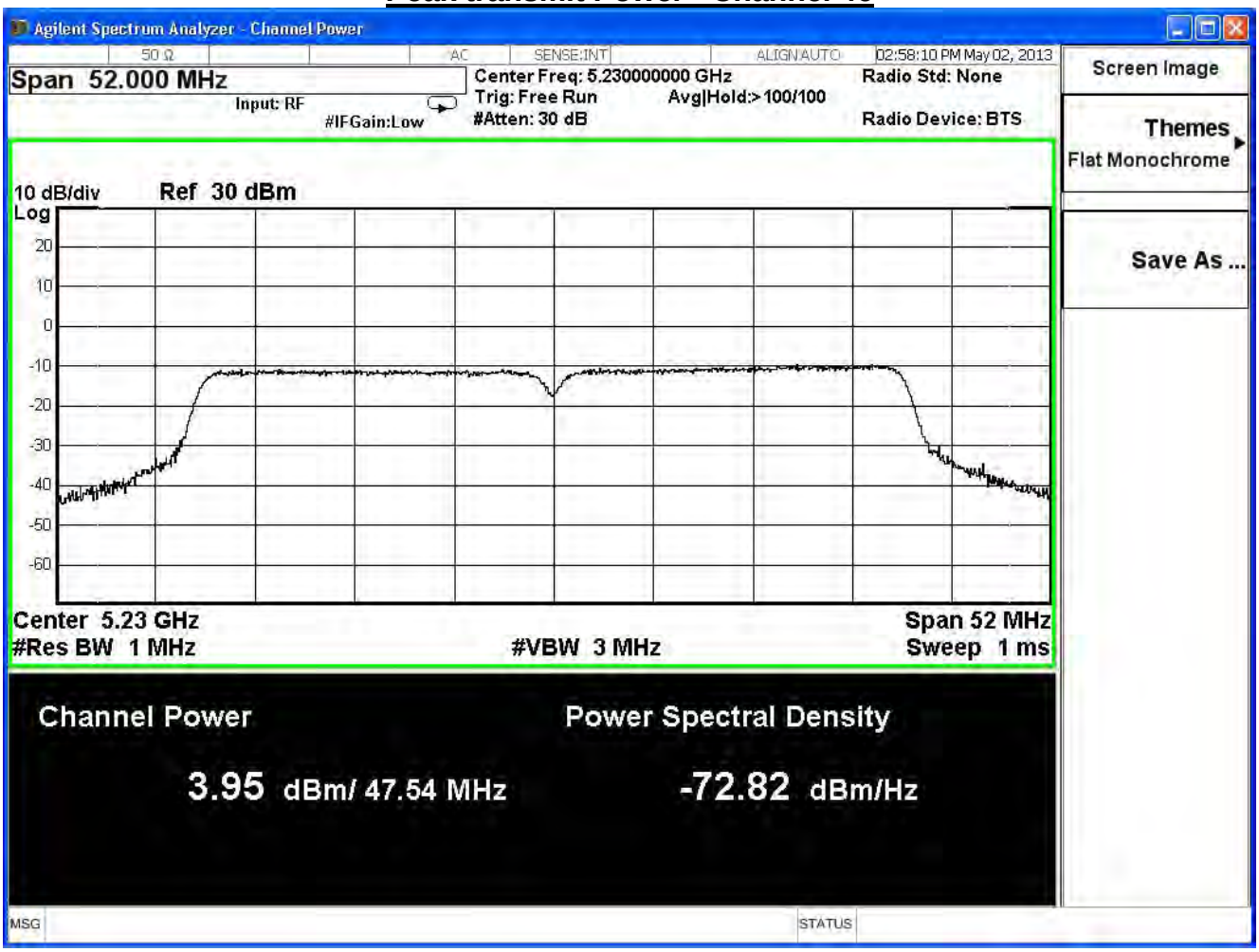
Peak Power Output (dBm)										
MCS Index		8	9	10	11	12	13	14	15	Required Limit
Channel No	Frequency (MHz)	Data Rate								
		27	54	81	108	162	216	243	270	
38	5190	4.08	4.07	4.06	4.05	4.03	4.02	4.01	4.00	15.87dBm or 4dBm+10logB
46	5230	3.95	--	--	--	--	--	--	--	

Note:
10log(Ant N)+max Gain = 10log(2)+4.12 =7.13dBi
Required Limit **=** 17dBm - (7.13dBi – 6dBi) = 17 – 0.13 = 15.87 dBm

Peak transmit Power - Channel 38



Peak transmit Power - Channel 46



Product	11N Wireless LAN CARD		
Test Item	Peak Transmit Output		
Test Mode	Transmit		
Date of Test	2013/05/02	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	5.01	7.00	15.87	Pass
46	5230	5.01	7.00	15.87	Pass

Note:
10log(Ant N)+max Gain = 10log(2)+4.12 =7.13dBi
Required Limit = 17dBm - (7.13dBi – 6dBi) = 17 – 0.13 = 15.87 dBm

5. Peak Power Spectrum Density

5.1. Test Equipment

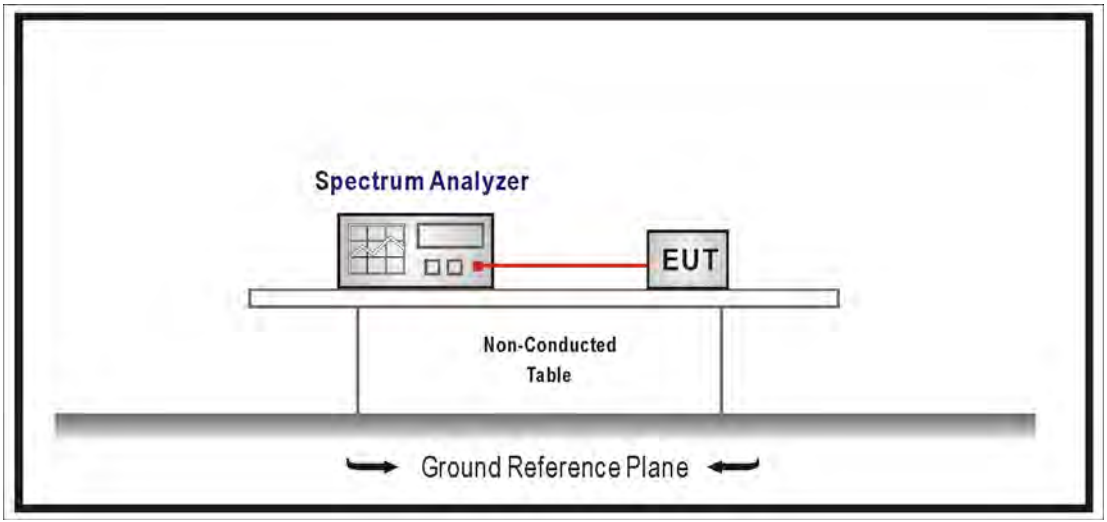
The following test equipments are used during the radiated emission tests:

Peak Power Spectrum Density / SR7

Instrument	Manufacturer	Model No.	Serial No	Next Cal. Date
EXA Signal Analyzer	Agilent	N9010A-EXA	US47140172	2013/07/31

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 March 2012 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

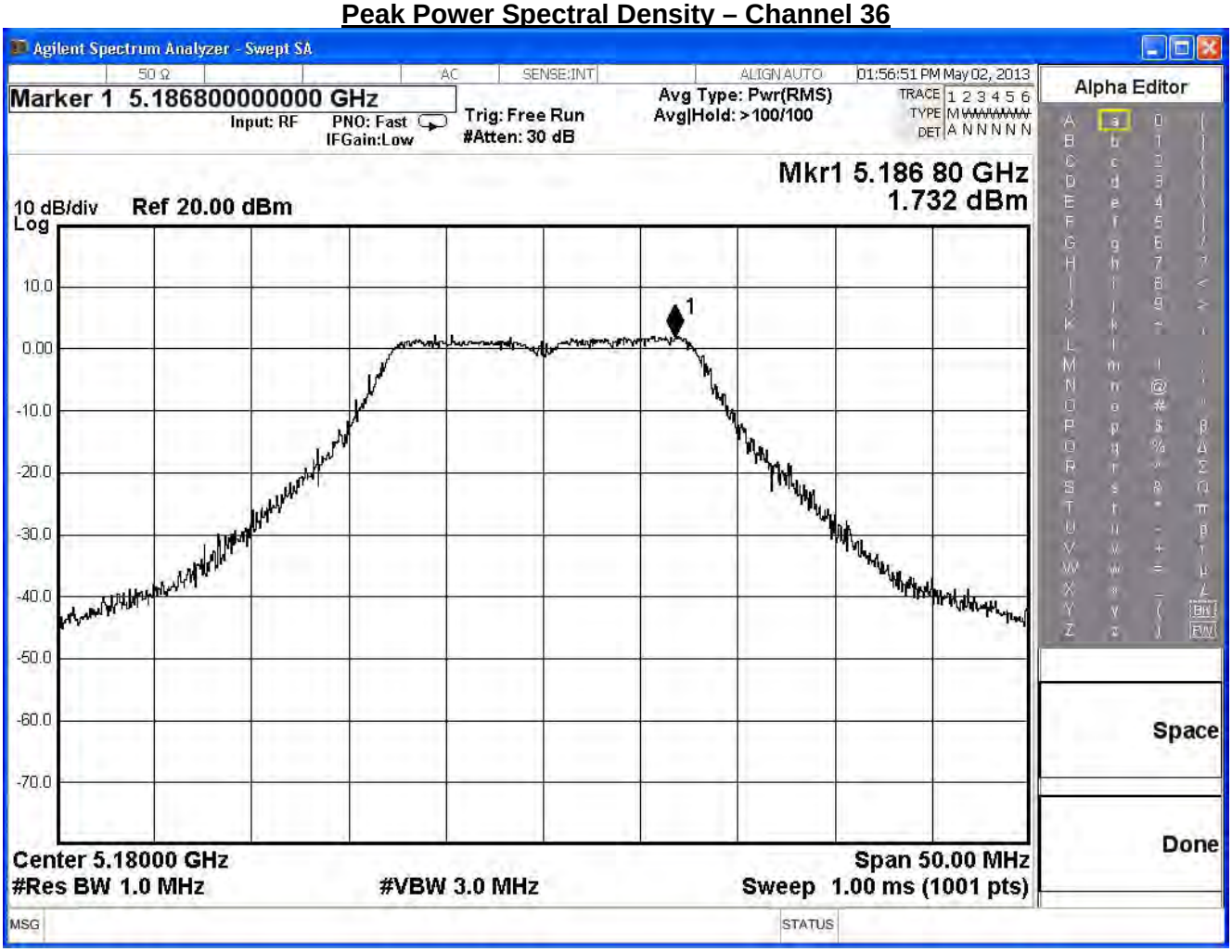
The measurement uncertainty is defined as ± 1.27 dB

5.6. Test Result

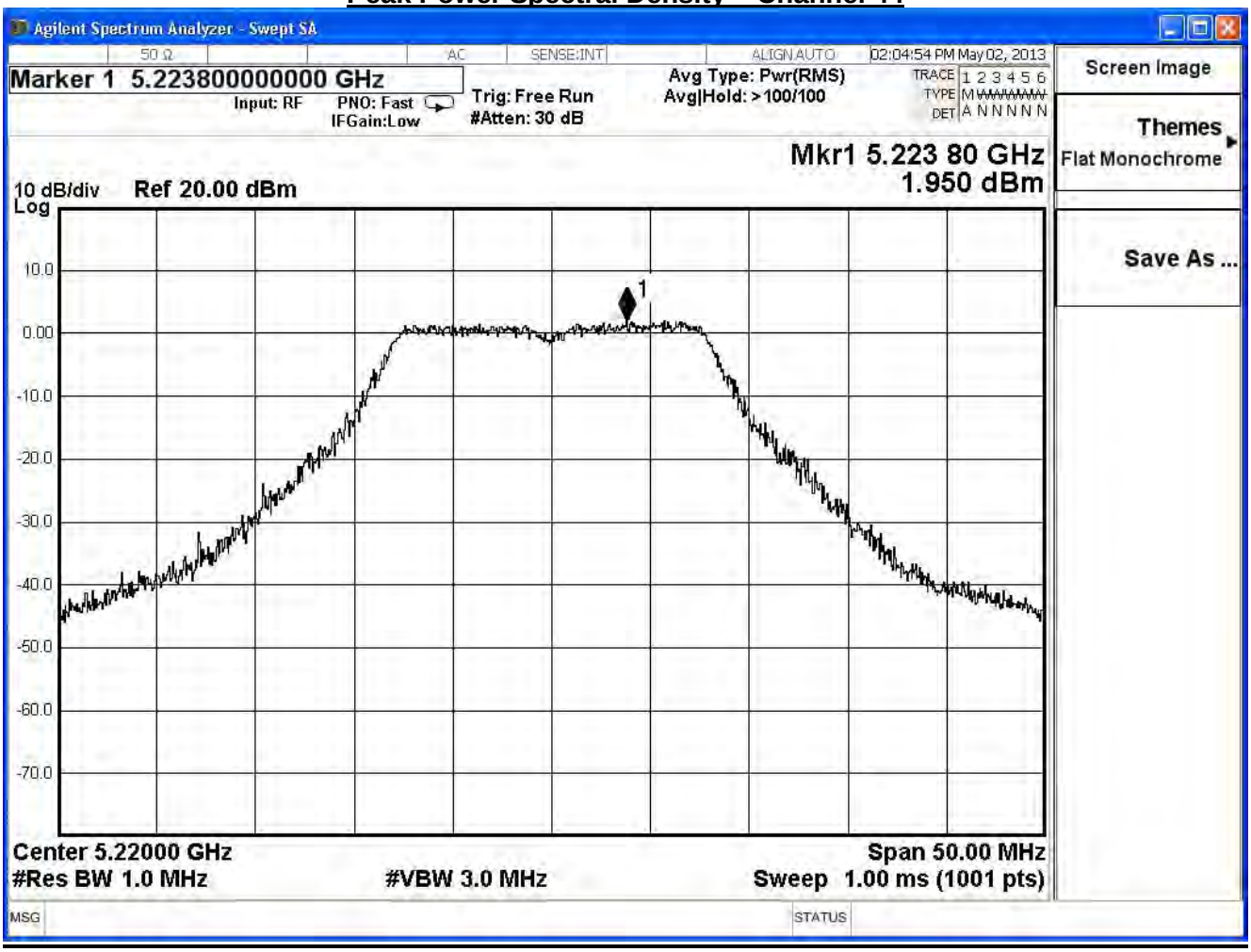
Product	11N Wireless LAN CARD		
Test Item	Peak Power Spectral Density		
Test Mode	Transmit		
Date of Test	2013/05/02	Test Site	SR7

IEEE 802.11a				
Channel No.	Frequency (MHz)	Measure Level (dBm)	Required Limit (dBm)	Result
36	5180	1.732	≦4	Pass
44	5220	1.950	≦4	Pass
48	5240	1.907	≦4	Pass

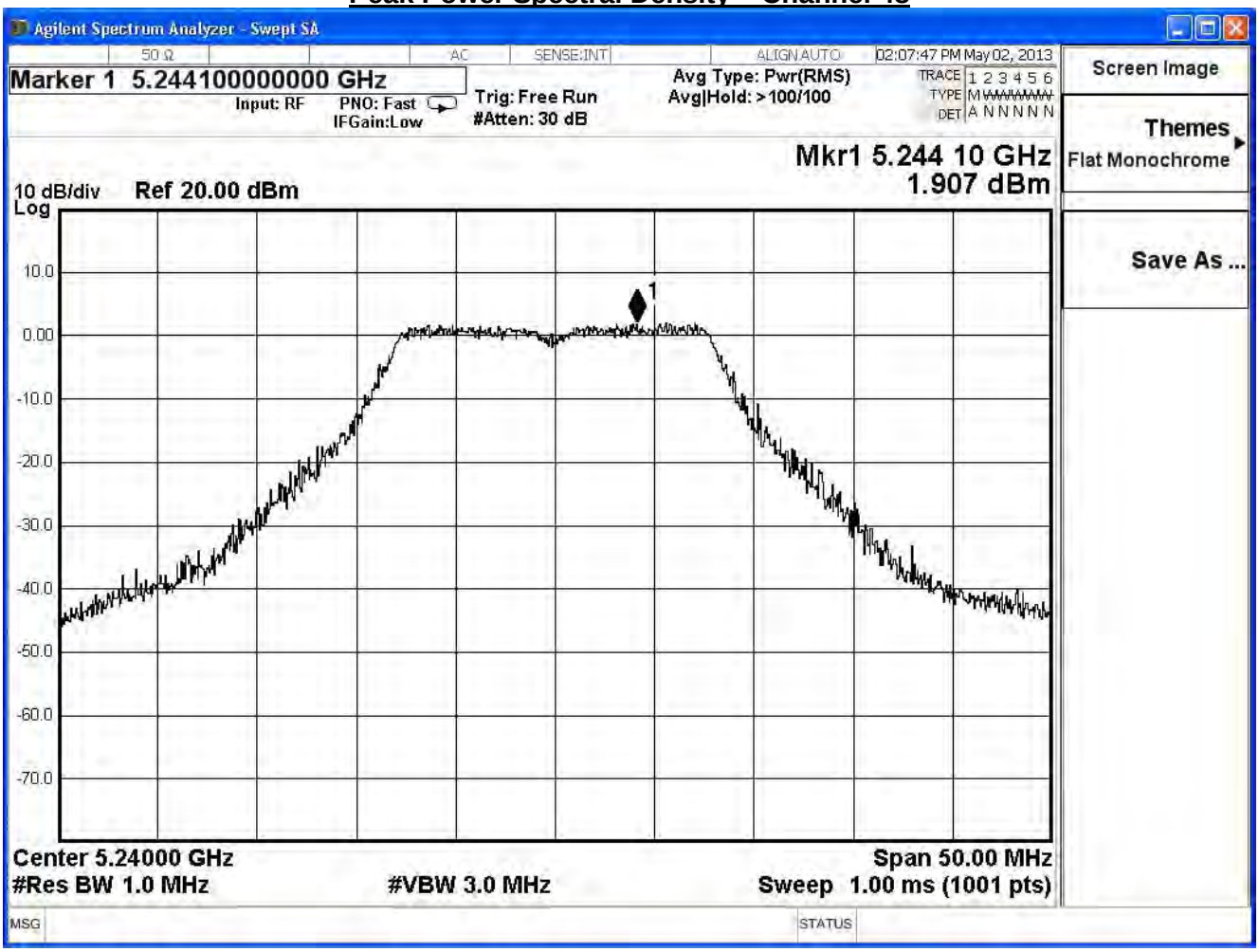
Peak Power Spectral Density – Channel 36



Peak Power Spectral Density – Channel 44



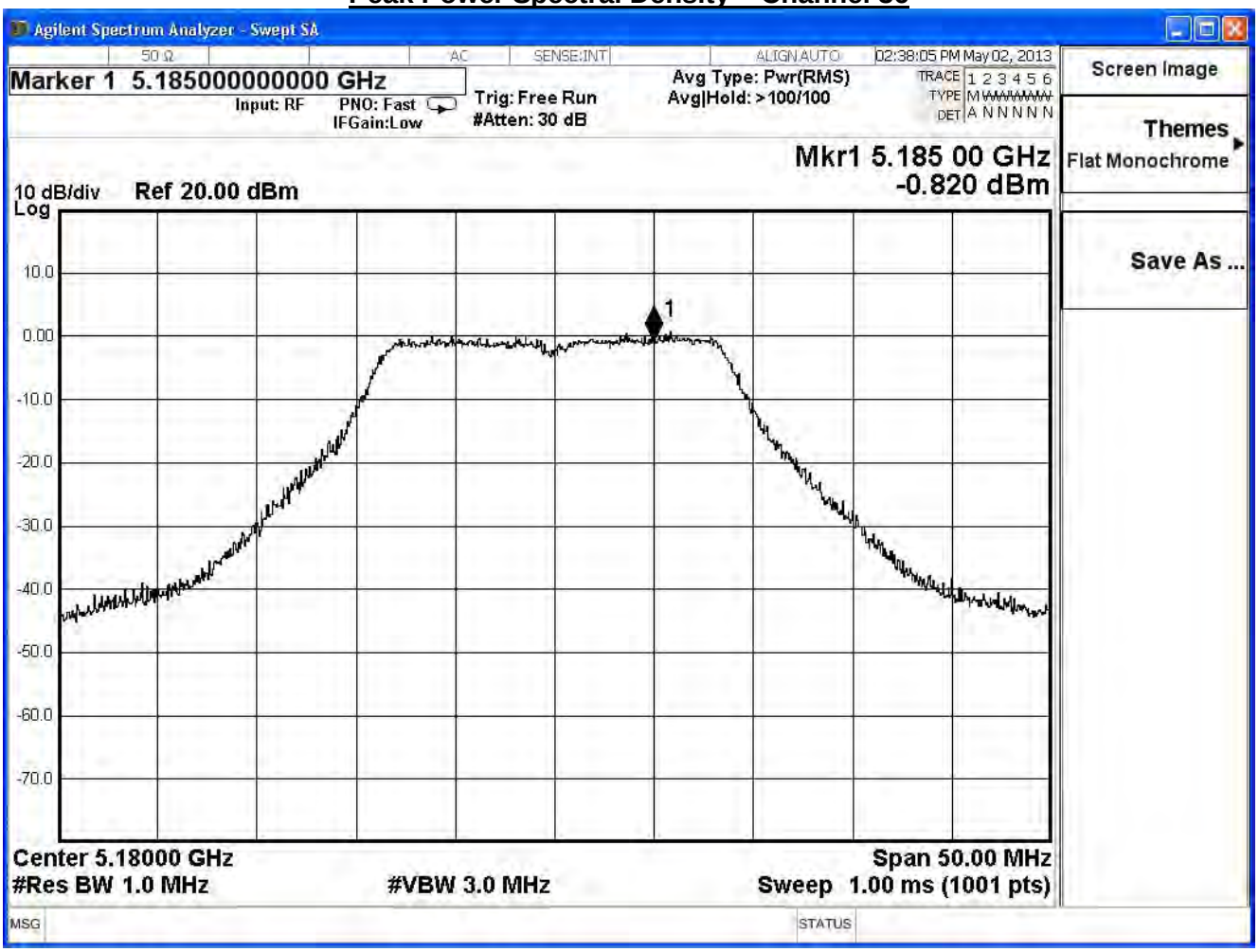
Peak Power Spectral Density – Channel 48



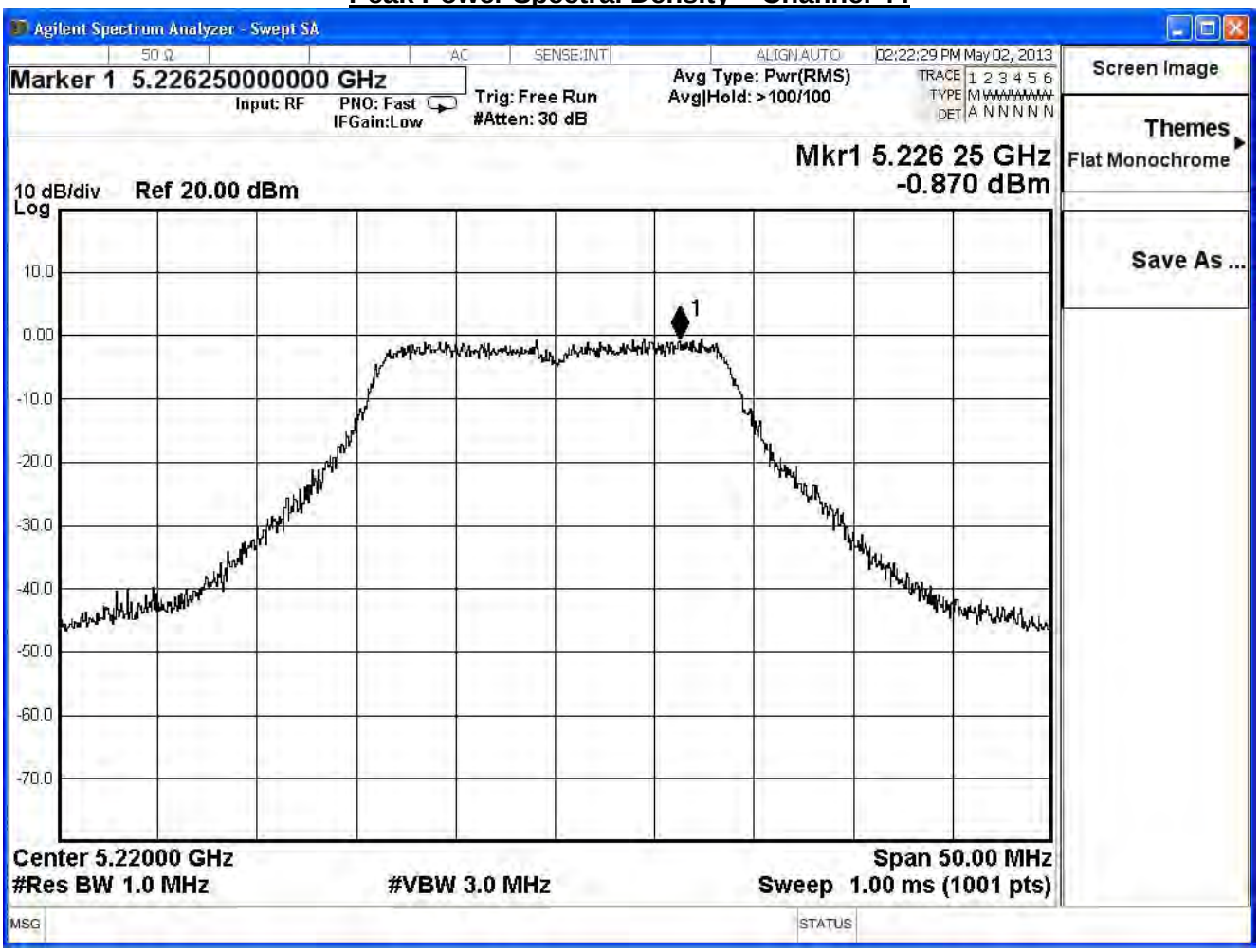
Product	11N Wireless LAN CARD		
Test Item	Peak Power Spectral Density		
Test Mode	Transmit		
Date of Test	2013/05/02	Test Site	SR7

IEEE 802.11n_20M(ANT 0)				
Channel No.	Frequency (MHz)	Measure Level (dBm)	Required Limit (dBm)	Result
36	5180	-0.820	≦2.87	Pass
44	5220	-0.870	≦2.87	Pass
48	5240	-1.205	≦2.87	Pass

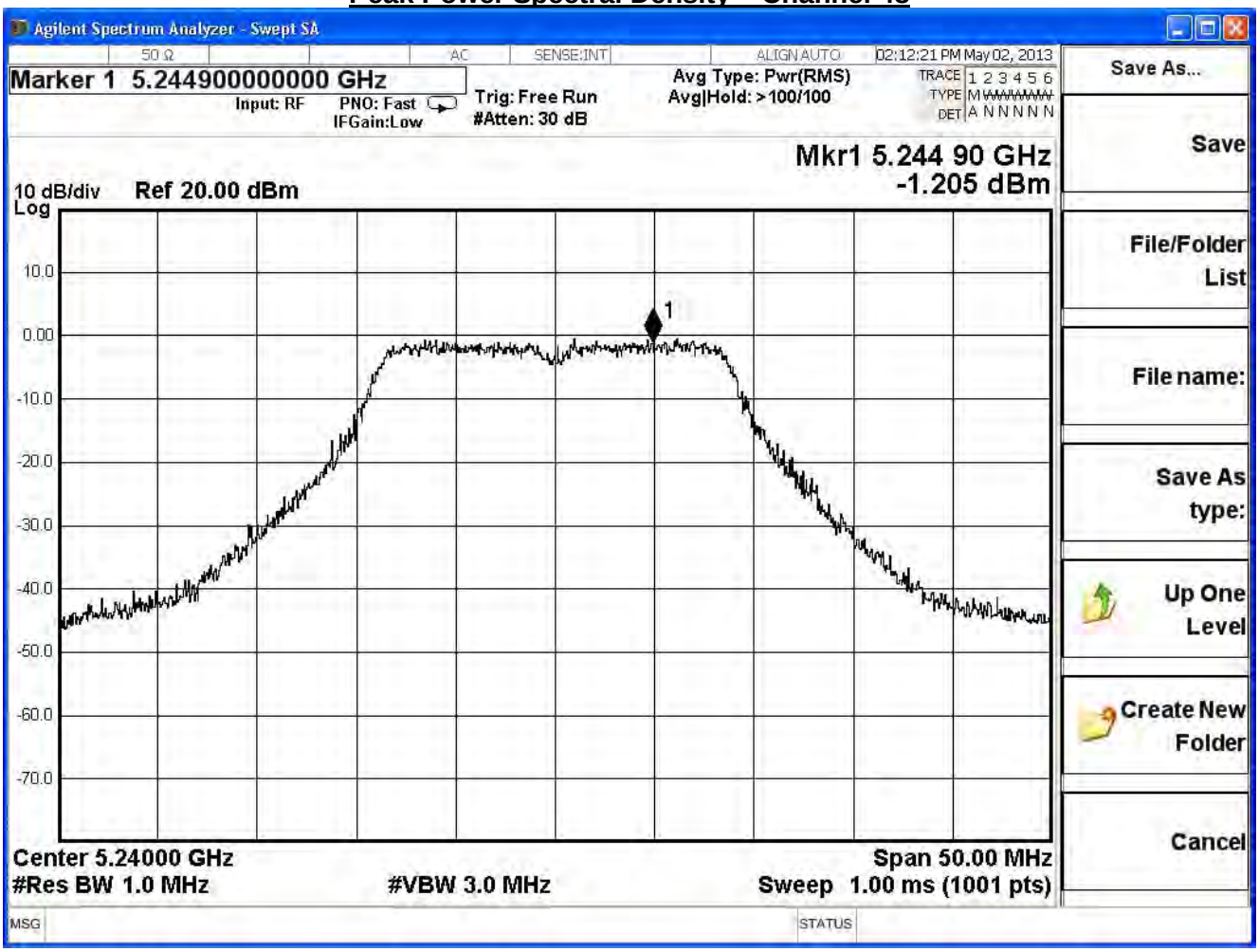
Peak Power Spectral Density – Channel 36



Peak Power Spectral Density – Channel 44



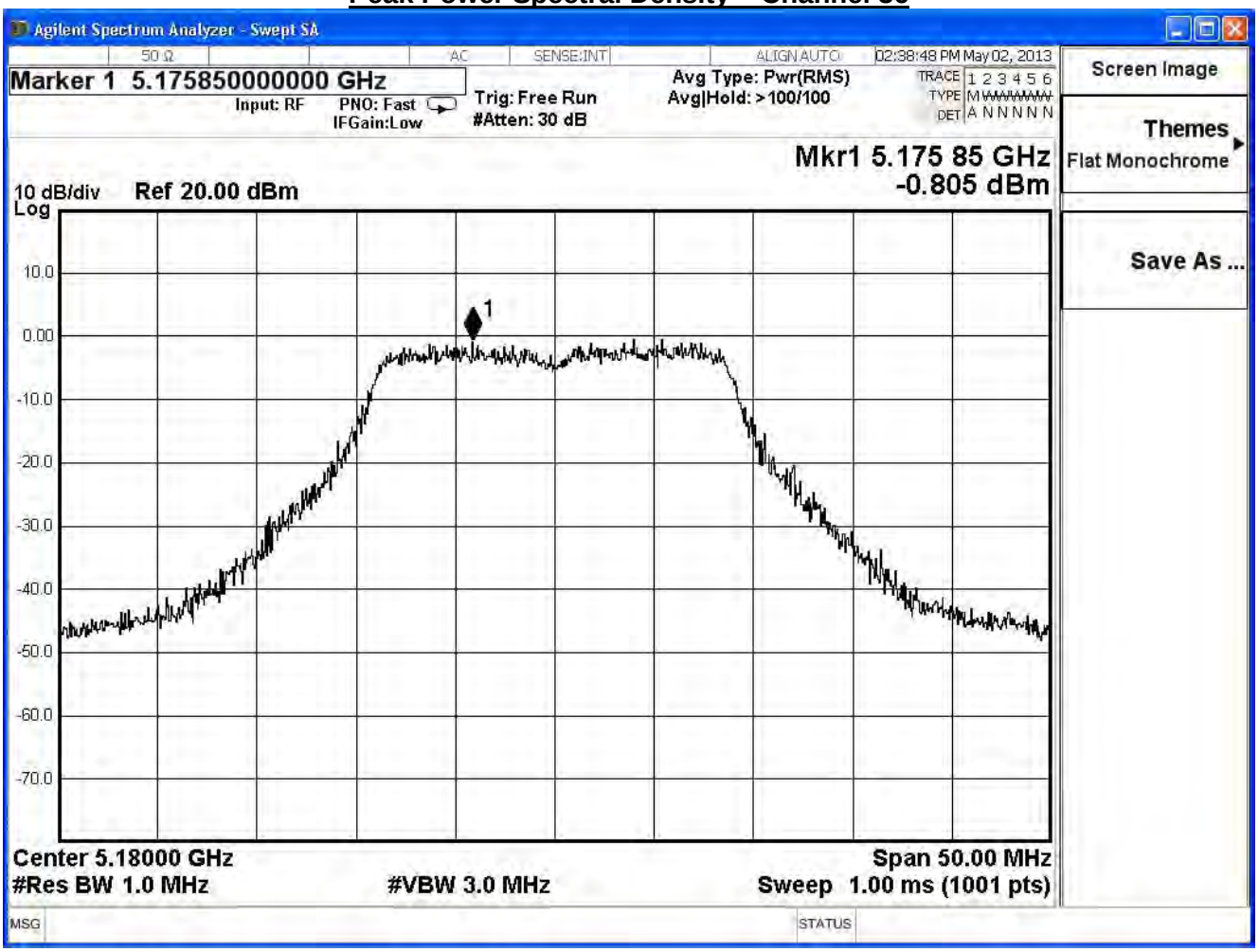
Peak Power Spectral Density – Channel 48



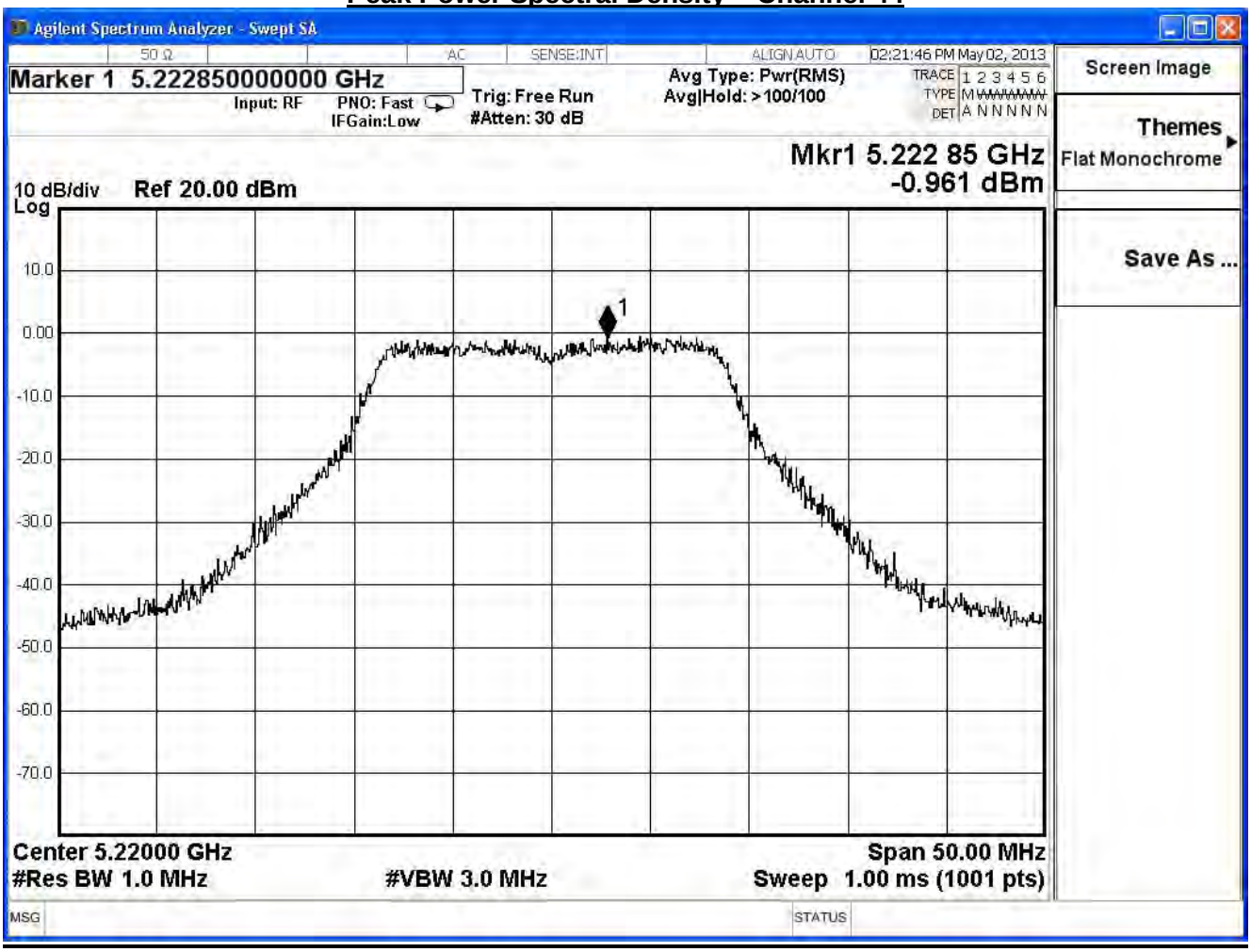
Product	11N Wireless LAN CARD		
Test Item	Peak Power Spectral Density		
Test Mode	Transmit		
Date of Test	2013/05/02	Test Site	SR7

IEEE 802.11n_20M(ANT 1)				
Channel No.	Frequency (MHz)	Measure Level (dBm)	Required Limit (dBm)	Result
36	5180	-0.805	≦2.87	Pass
44	5220	-0.961	≦2.87	Pass
48	5240	-1.171	≦2.87	Pass

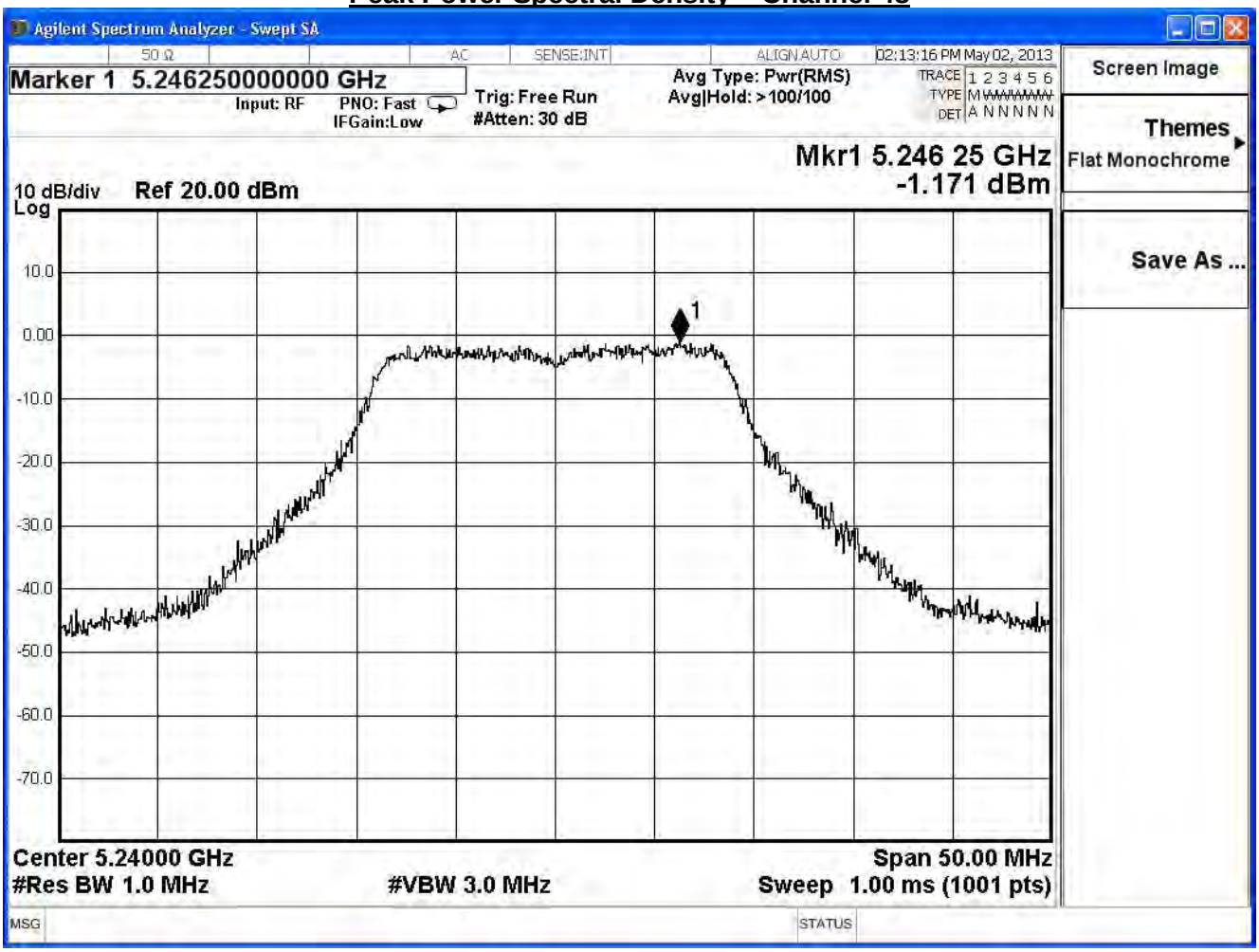
Peak Power Spectral Density – Channel 36



Peak Power Spectral Density – Channel 44



Peak Power Spectral Density – Channel 48



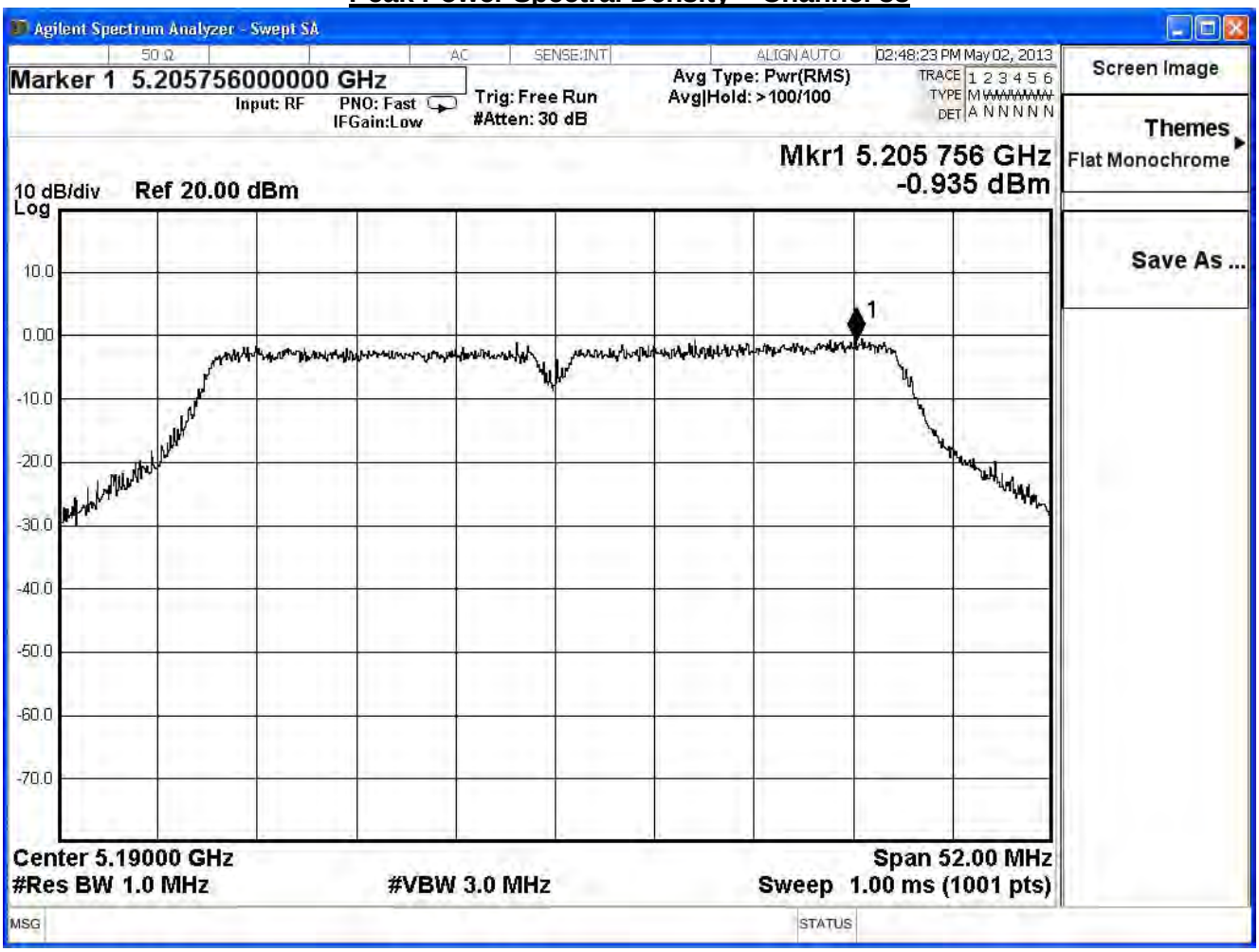
Product	11N Wireless LAN CARD		
Test Item	Peak Power Spectral Density		
Test Mode	Transmit		
Date of Test	2013/05/02	Test Site	SR7

IEEE 802.11n_20M(ANT 0+1)				
Channel No.	Frequency (MHz)	Measure Level (dBm)	Required Limit (dBm)	Result
36	5180	2.198	≦2.87	Pass
44	5220	2.095	≦2.87	Pass
48	5240	1.822	≦2.87	Pass

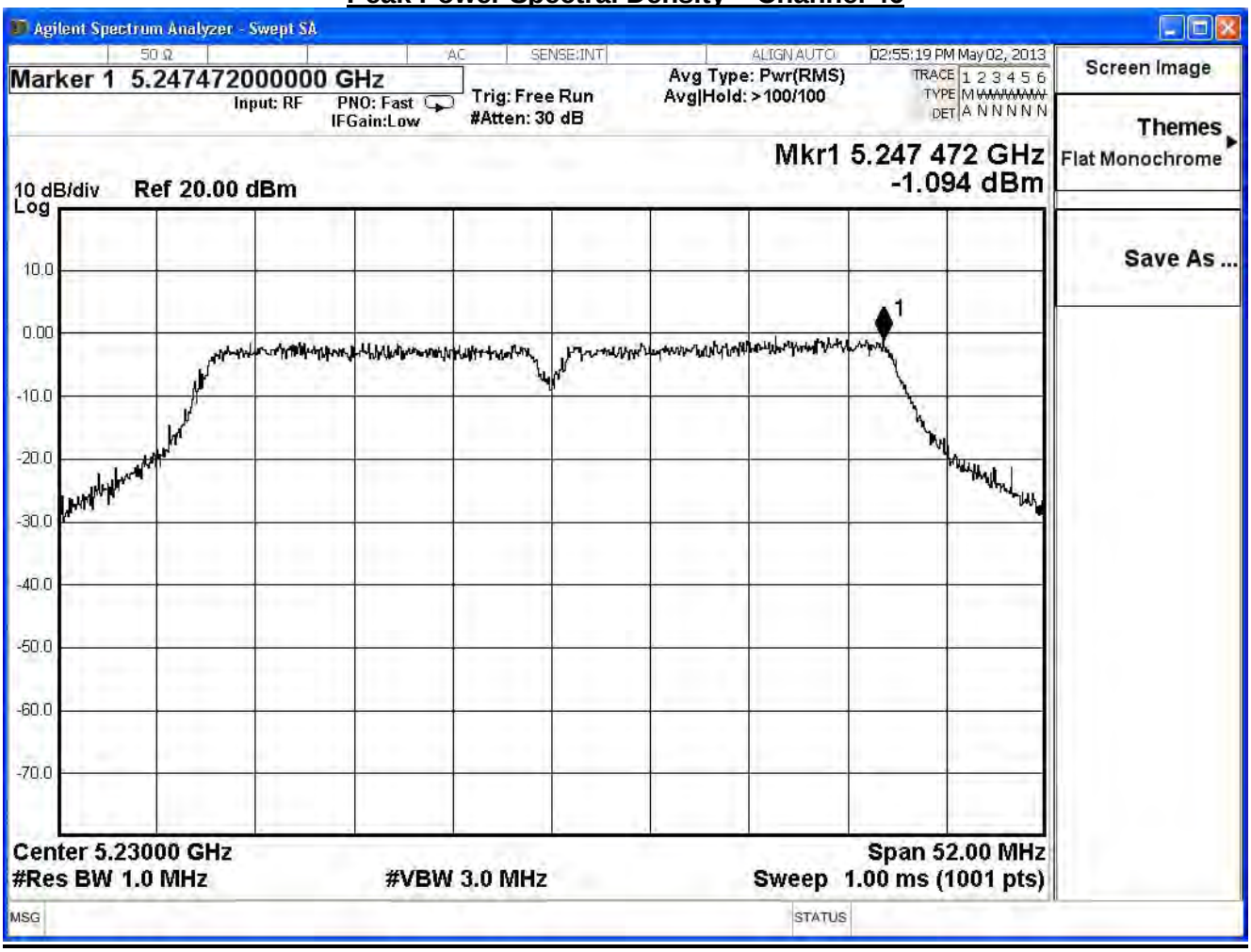
Product	11N Wireless LAN CARD		
Test Item	Peak Power Spectral Density		
Test Mode	Transmit		
Date of Test	2013/05/02	Test Site	SR7

IEEE 802.11n_40M(ANT 0)				
Channel No.	Frequency (MHz)	Measure Level (dBm)	Required Limit (dBm)	Result
38	5190	-0.935	≦2.87	Pass
46	5230	-1.094	≦2.87	Pass

Peak Power Spectral Density – Channel 38



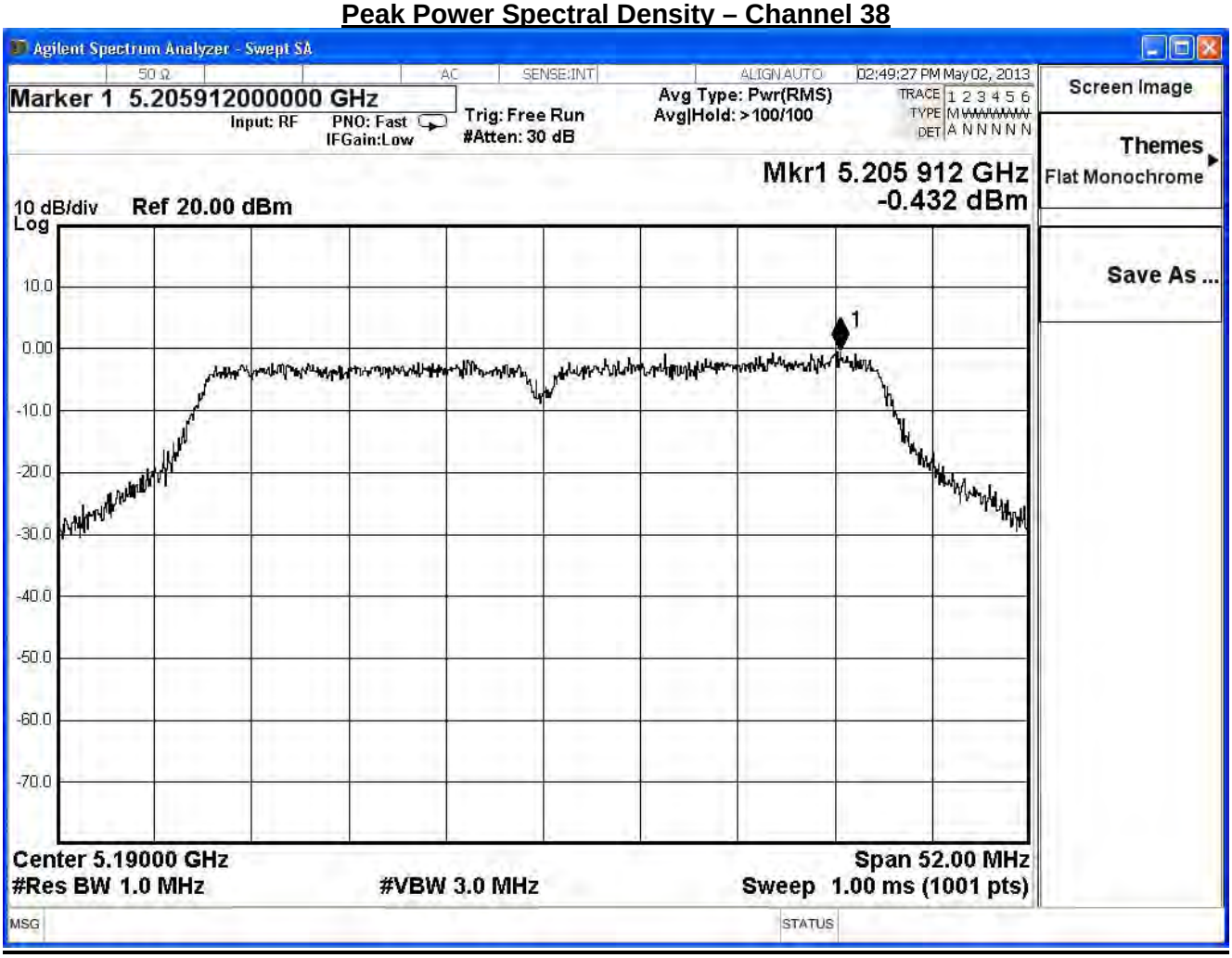
Peak Power Spectral Density – Channel 46



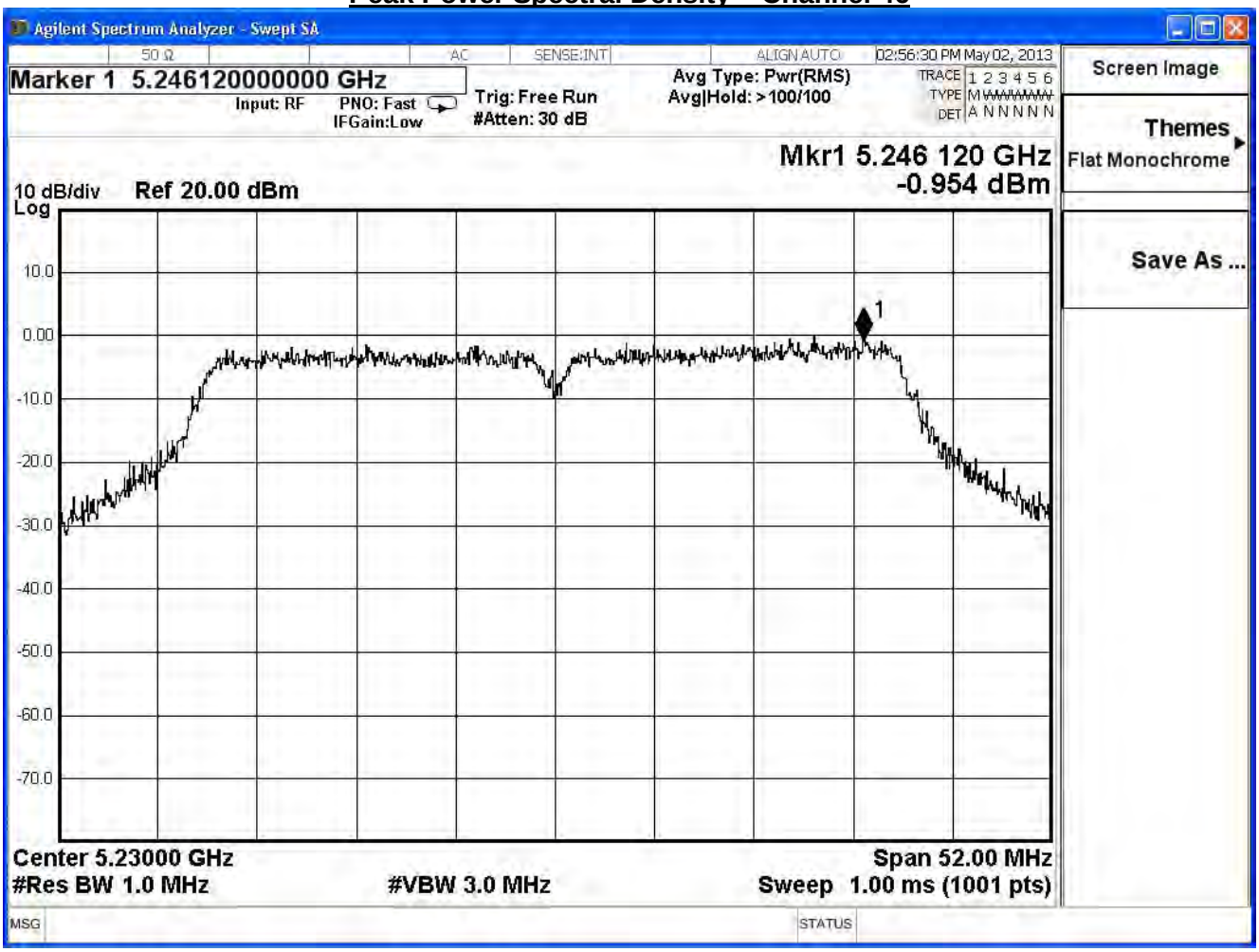
Product	11N Wireless LAN CARD		
Test Item	Peak Power Spectral Density		
Test Mode	Transmit		
Date of Test	2013/05/02	Test Site	SR7

IEEE 802.11n_40M(ANT 1)				
Channel No.	Frequency (MHz)	Measure Level (dBm)	Required Limit (dBm)	Result
38	5190	-0.432	≦2.87	Pass
46	5230	-0.954	≦2.87	Pass

Peak Power Spectral Density – Channel 38



Peak Power Spectral Density – Channel 46



Product	11N Wireless LAN CARD		
Test Item	Peak Power Spectral Density		
Test Mode	Transmit		
Date of Test	2013/05/02	Test Site	SR7

IEEE 802.11n_40M(ANT 0+1)				
Channel No.	Frequency (MHz)	Measure Level (dBm)	Required Limit (dBm)	Result
38	5190	2.334	≦2.87	Pass
46	5230	1.987	≦2.87	Pass

6. Peak Excursion

6.1. Test Equipment

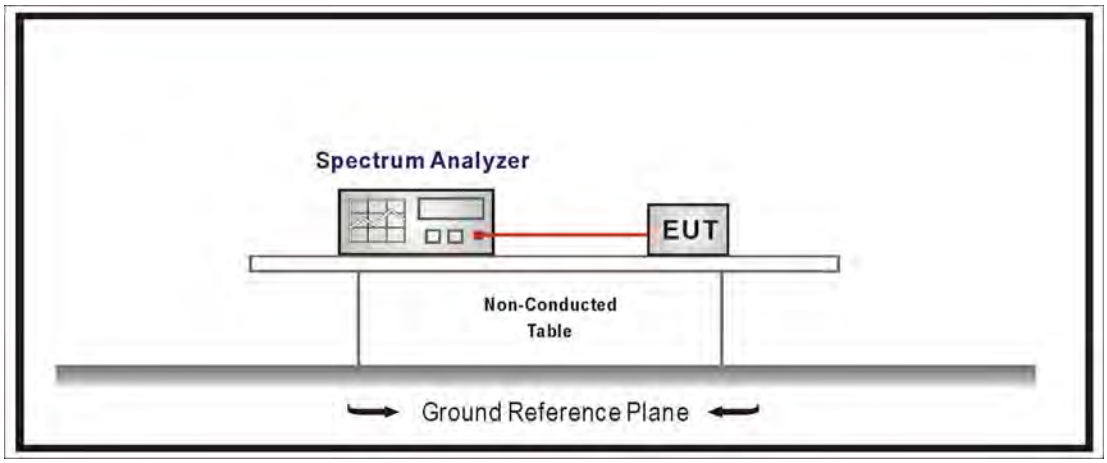
The following test equipments are used during the radiated emission tests:

Peak Excursion / SR7

Instrument	Manufacturer	Model No.	Serial No	Next Cal. Date
EXA Signal Analyzer	Agilent	N9010A-EXA	US47140172	2013/07/31

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 March 2012 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

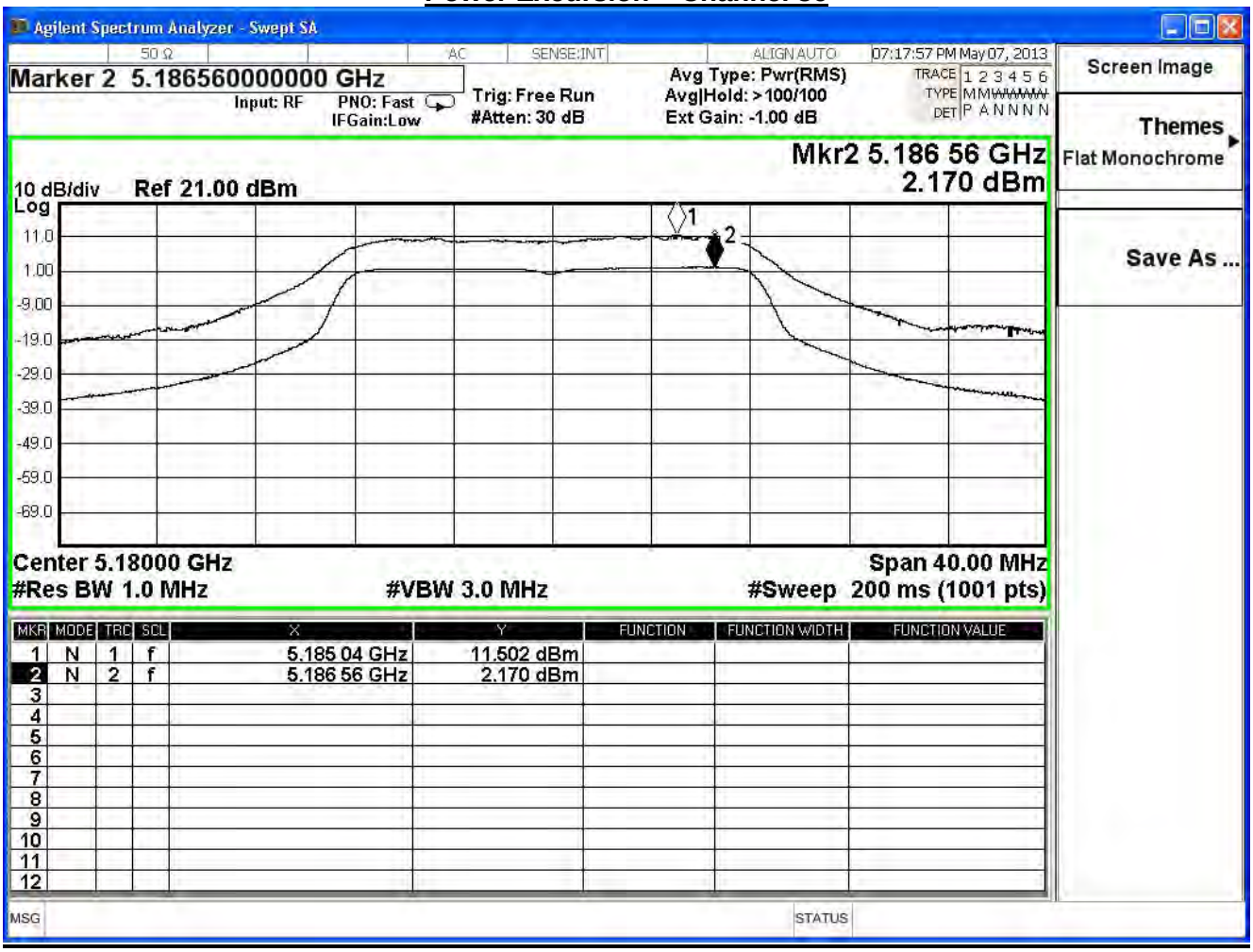
The measurement uncertainty is defined as ± 1.27 dB

6.6. Test Result

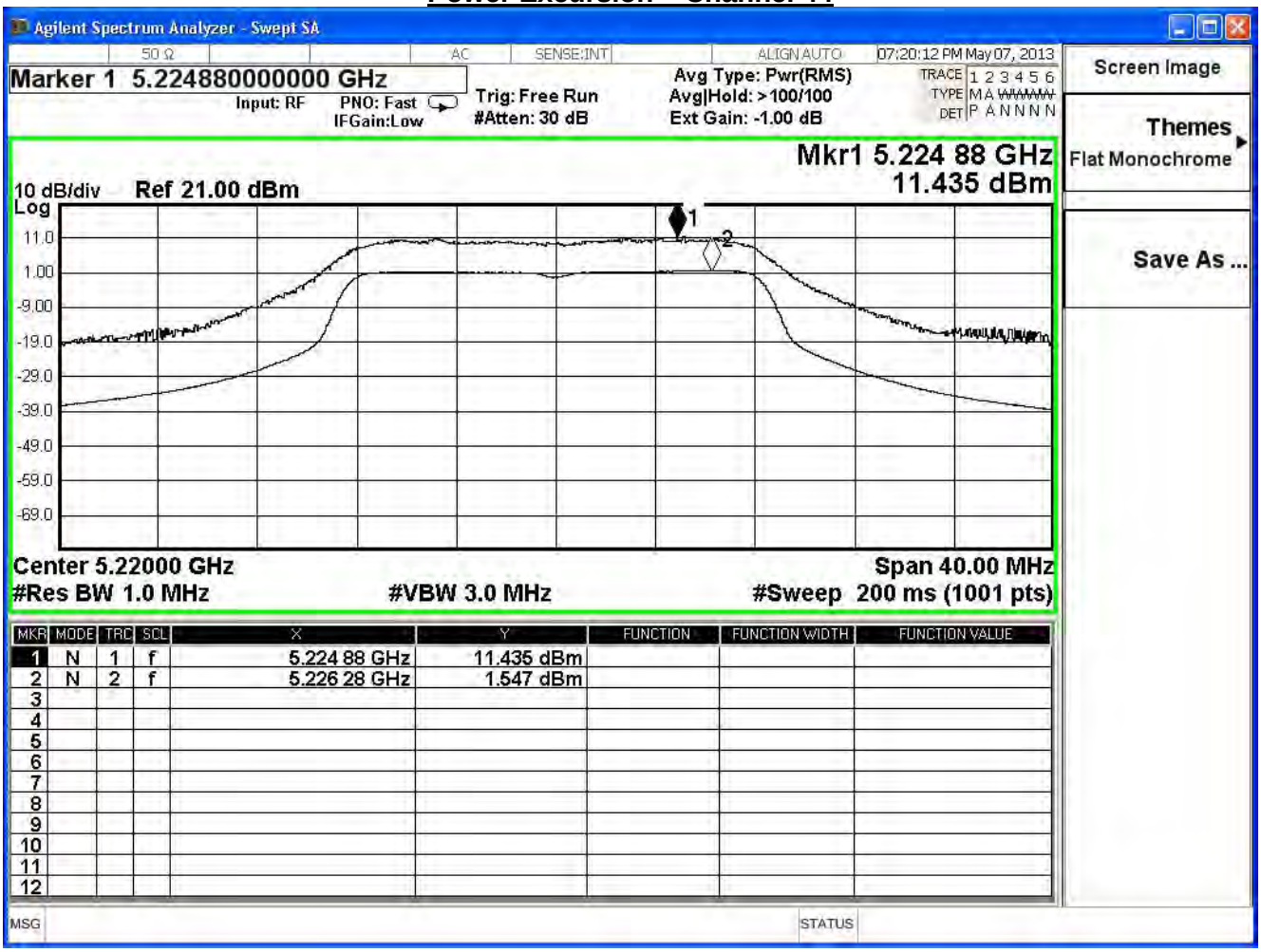
Product	11N Wireless LAN CARD		
Test Item	Peak Excursion		
Test Mode	Transmit		
Date of Test	2013/05/07	Test Site	SR7

IEEE 802.11a				
Channel No.	Frequency (MHz)	Measure Level (dB)	Required Limit (dB)	Result
36	5180	9.332	≦13	Pass
44	5220	9.888	≦13	Pass
48	5240	9.583	≦13	Pass

Power Excursion – Channel 36

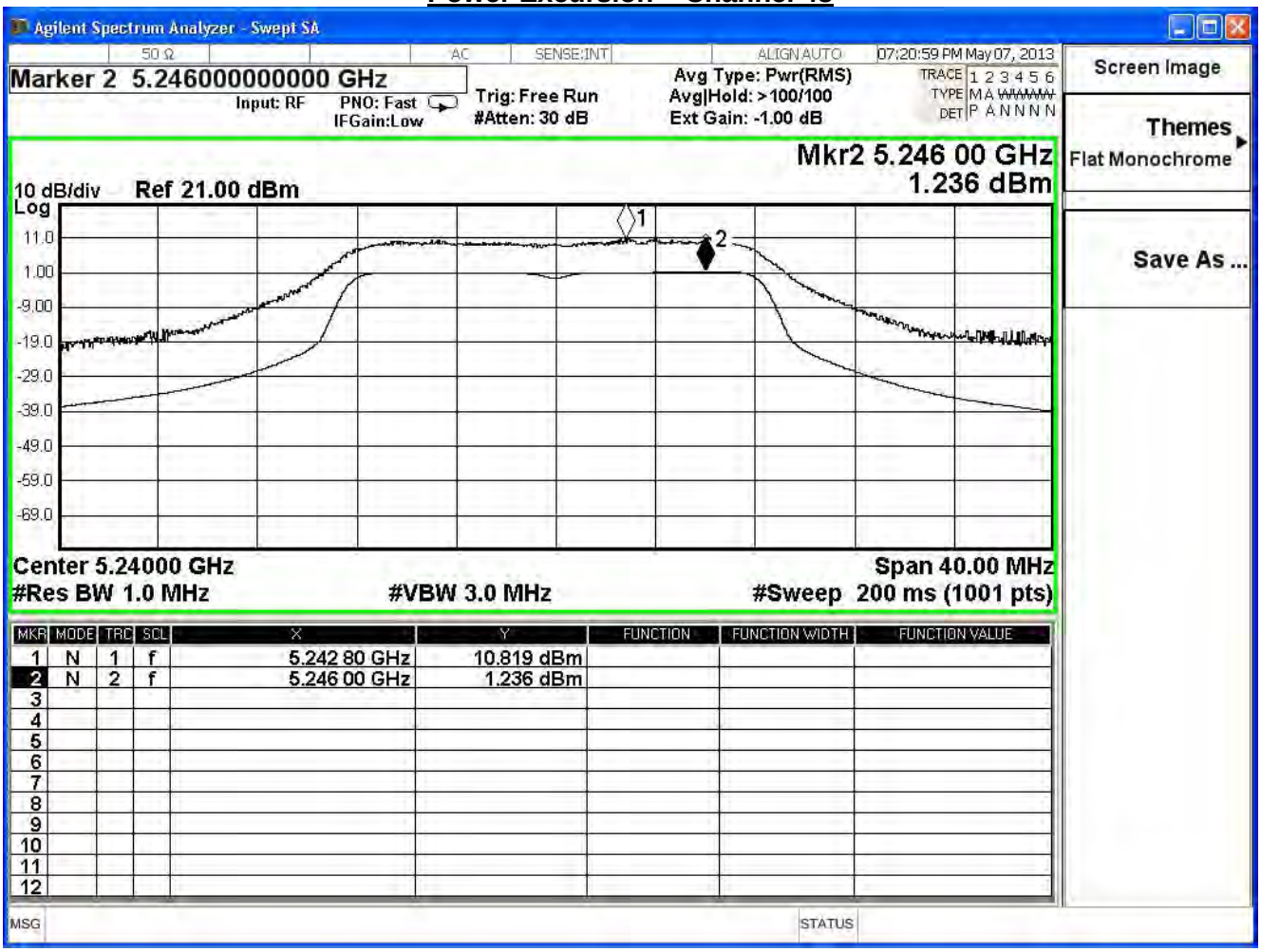


Power Excursion – Channel 44



MKR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1	N	1	f	5.224 88 GHz	11.435 dBm			
2	N	2	f	5.226 28 GHz	1.547 dBm			
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								

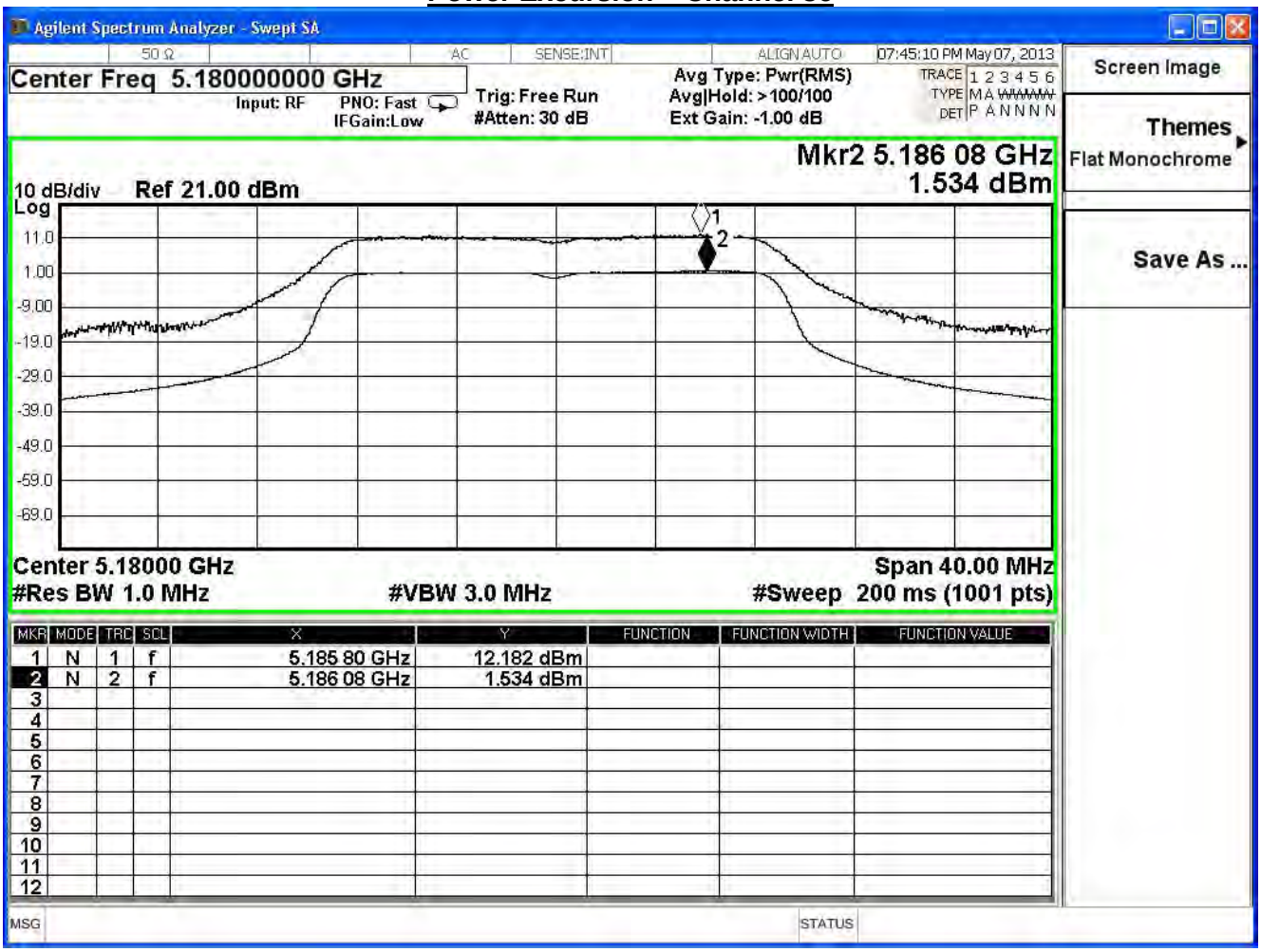
Power Excursion – Channel 48



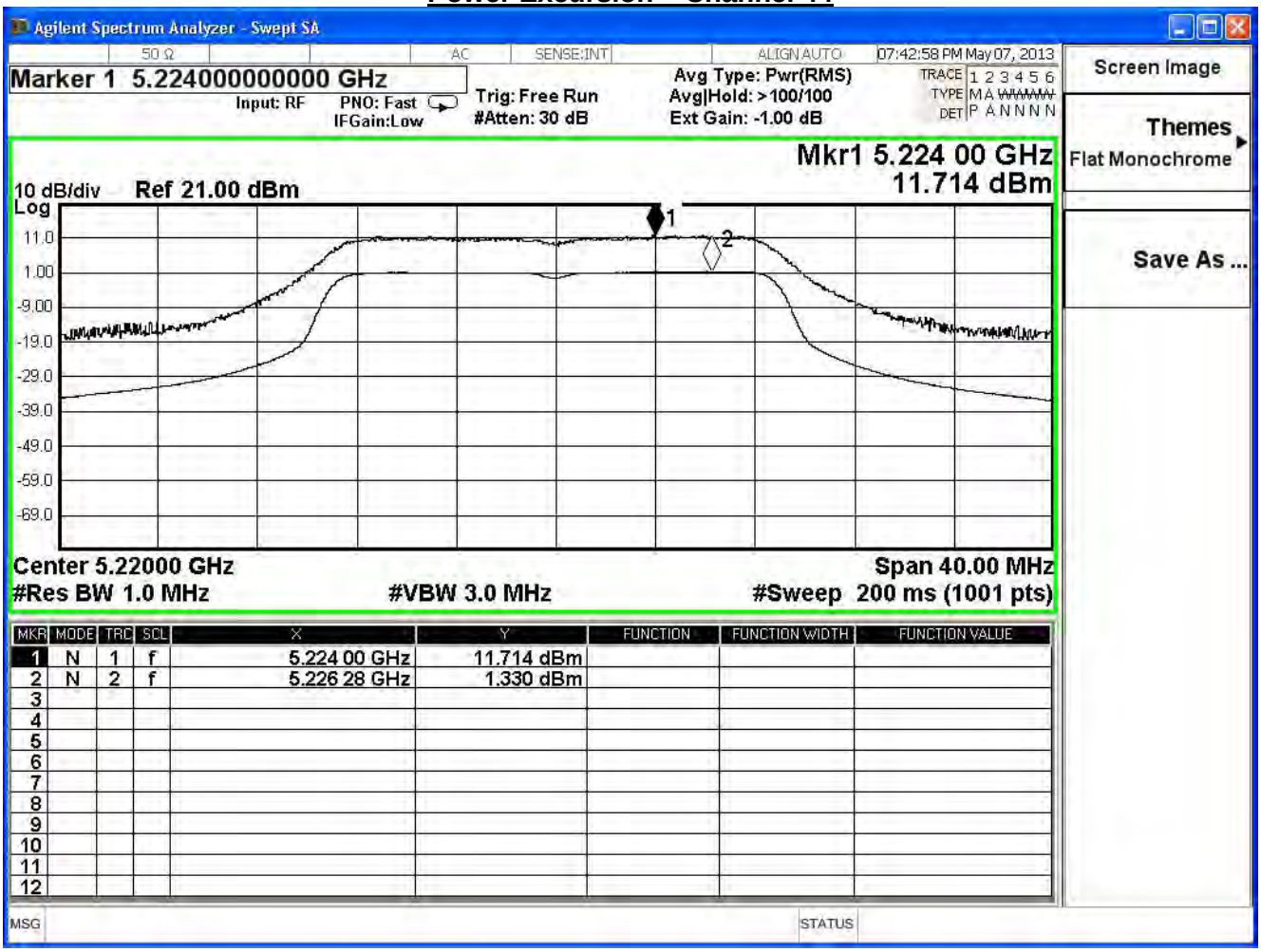
Product	11N Wireless LAN CARD		
Test Item	Peak Excursion		
Test Mode	Transmit		
Date of Test	2013/05/07	Test Site	SR7

IEEE 802.11n_20M(ANT 0)				
Channel No.	Frequency (MHz)	Measure Level (dB)	Required Limit (dB)	Result
36	5180	10.648	≦13	Pass
44	5220	10.384	≦13	Pass
48	5240	9.171	≦13	Pass

Power Excursion – Channel 36

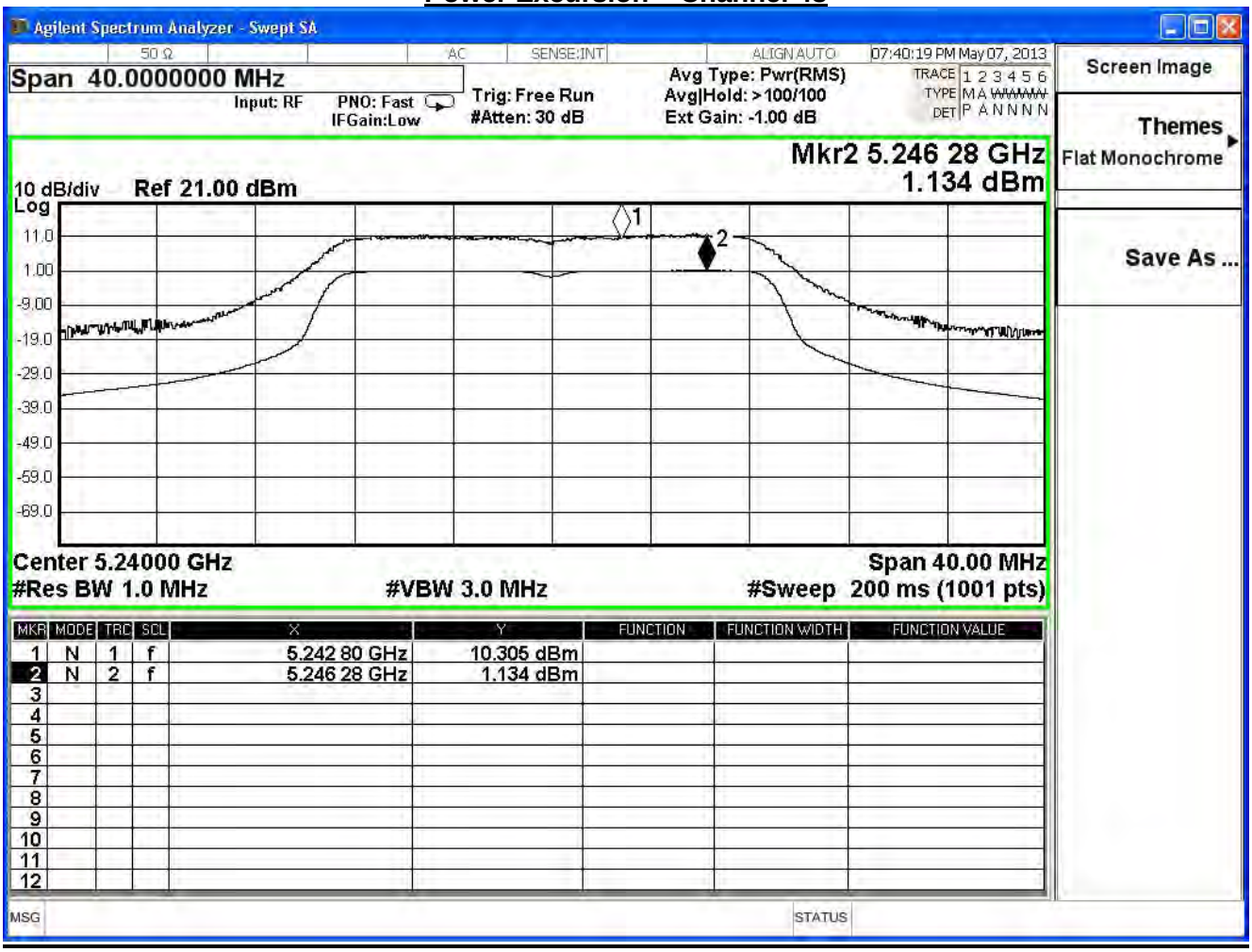


Power Excursion – Channel 44



MKR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1	N	1	f	5.224 00 GHz	11.714 dBm			
2	N	2	f	5.226 28 GHz	1.330 dBm			
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								

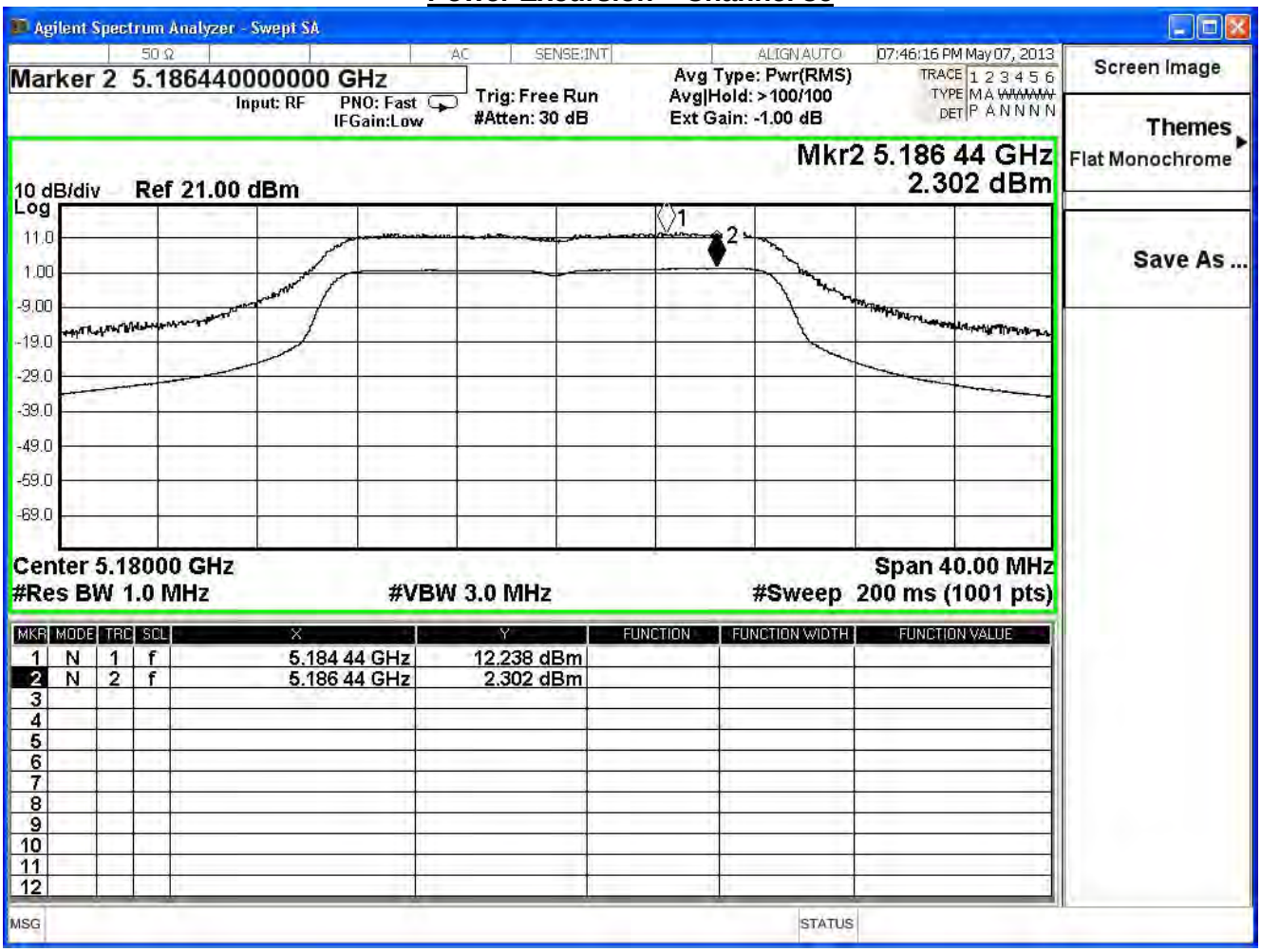
Power Excursion – Channel 48



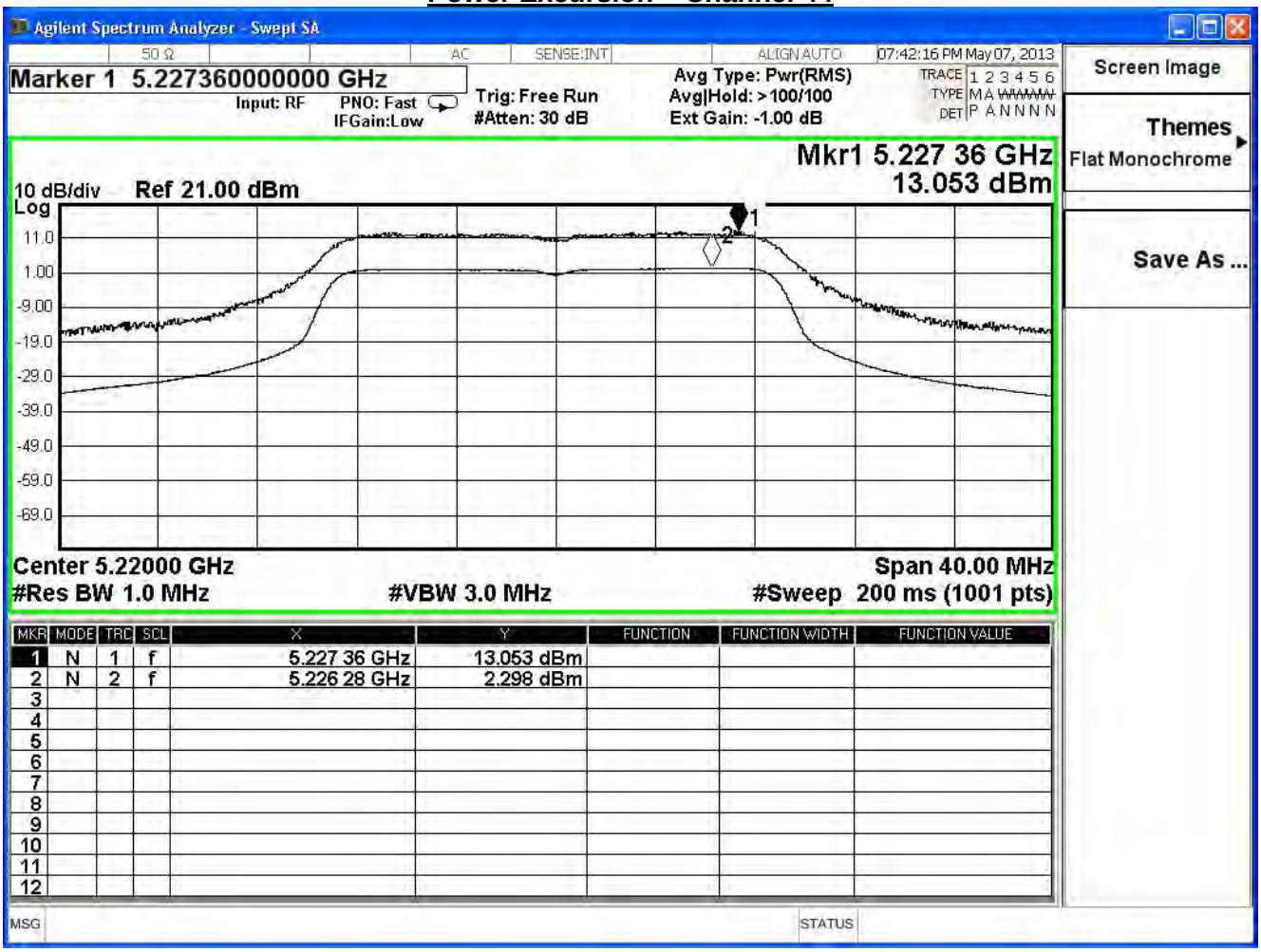
Product	11N Wireless LAN CARD		
Test Item	Peak Excursion		
Test Mode	Transmit		
Date of Test	2013/05/07	Test Site	SR7

IEEE 802.11n_20M(ANT 1)				
Channel No.	Frequency (MHz)	Measure Level (dB)	Required Limit (dB)	Result
36	5180	9.936	≦13	Pass
44	5220	10.755	≦13	Pass
48	5240	9.900	≦13	Pass

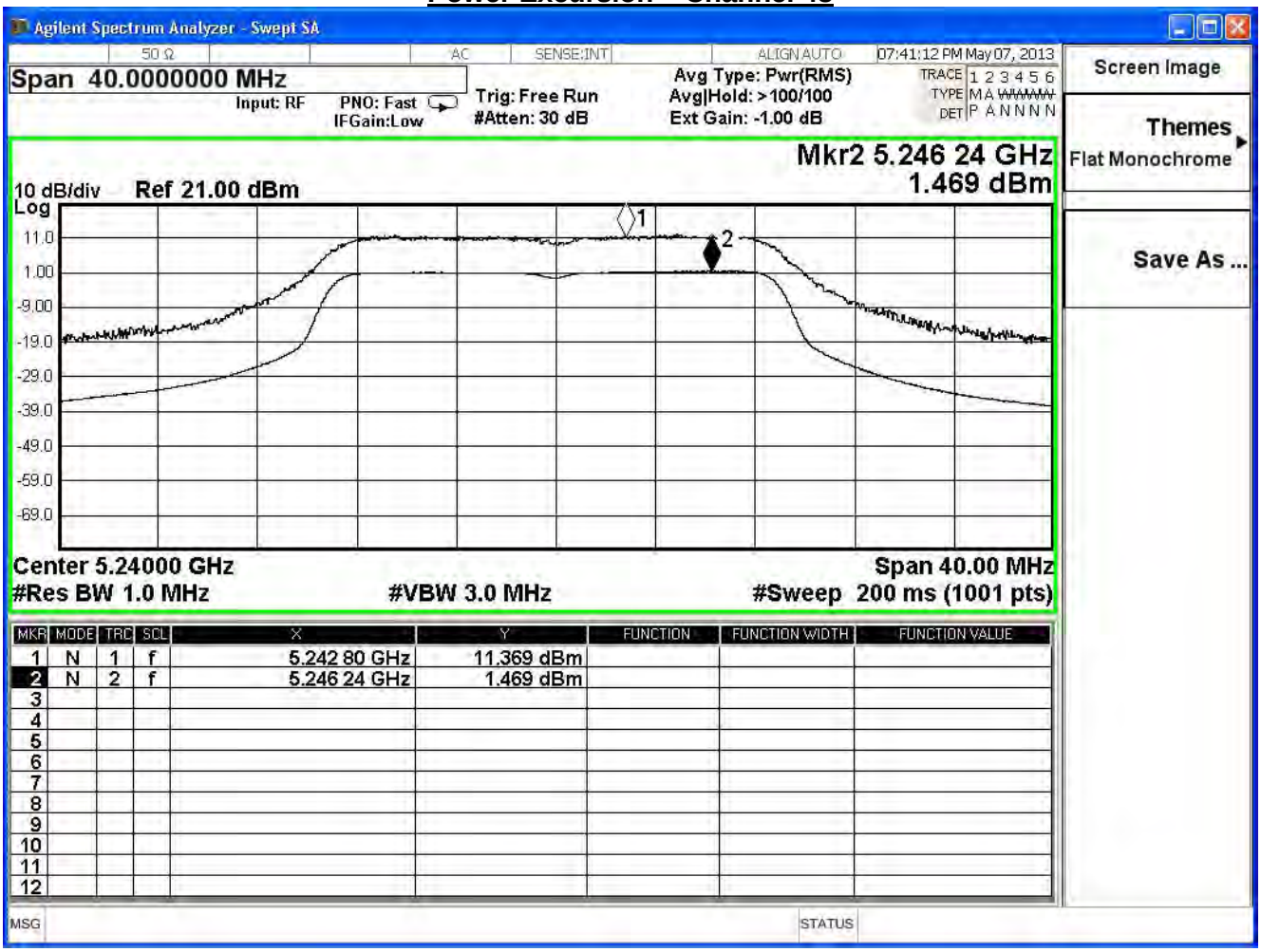
Power Excursion – Channel 36



Power Excursion – Channel 44



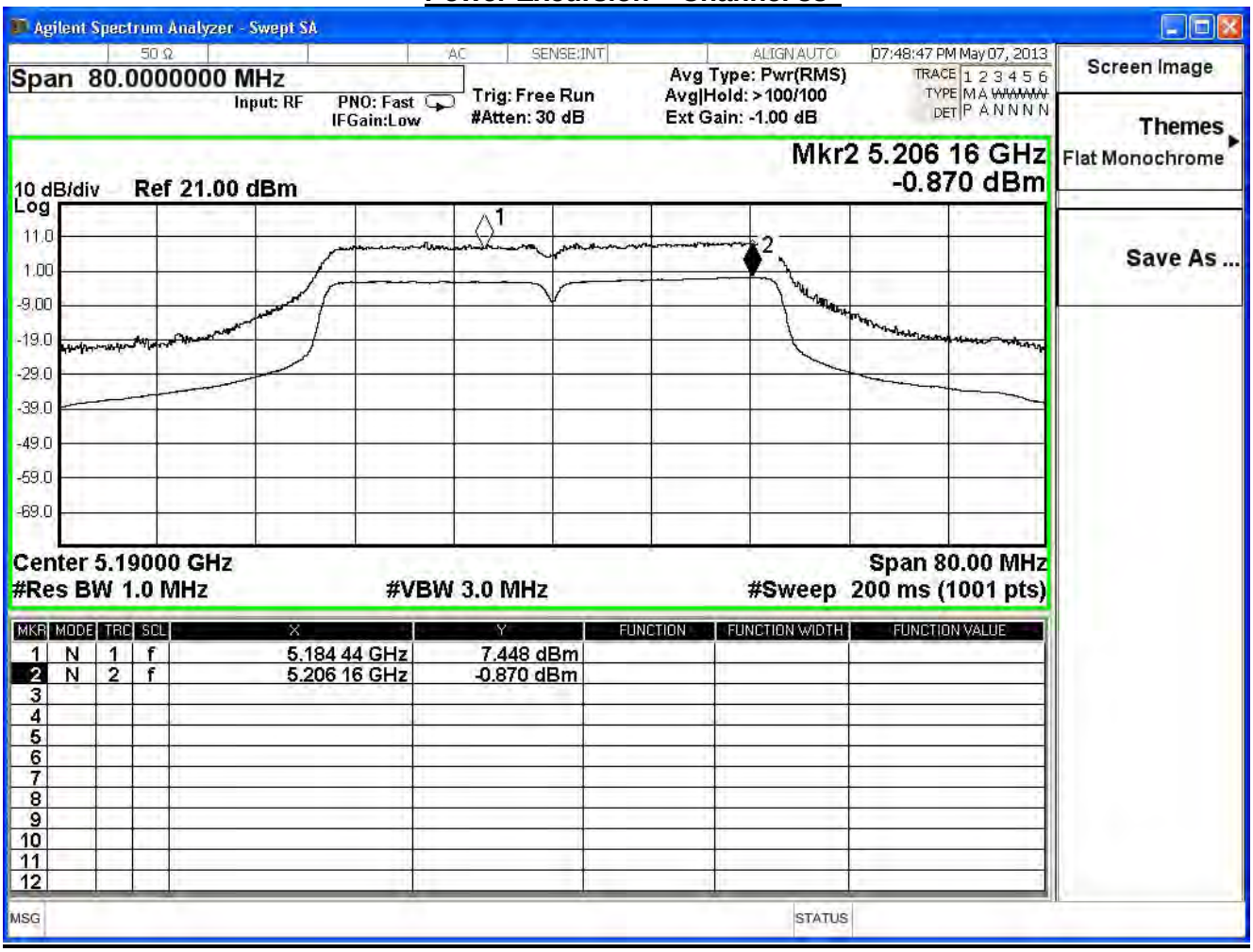
Power Excursion – Channel 48



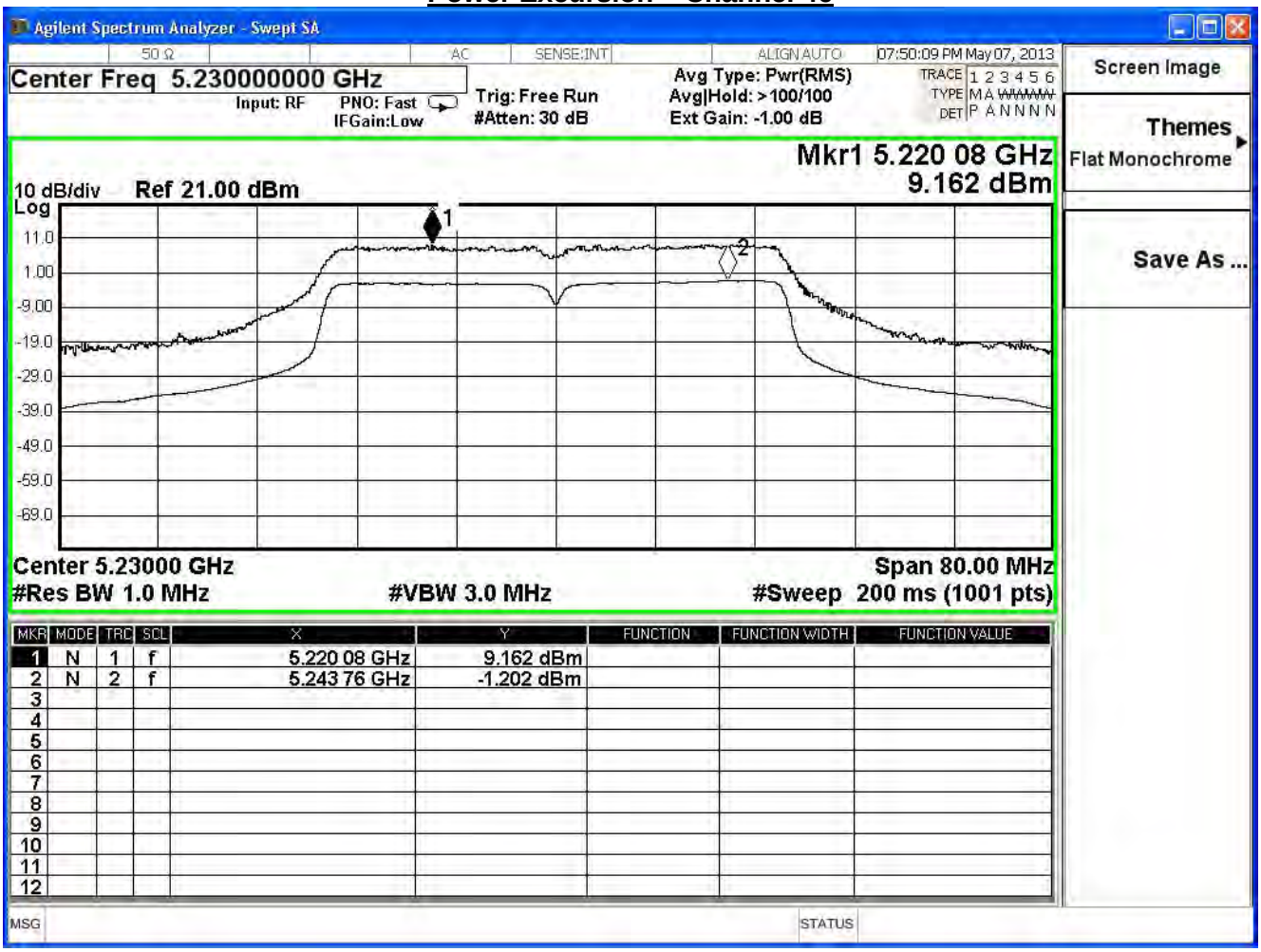
Product	11N Wireless LAN CARD		
Test Item	Peak Excursion		
Test Mode	Transmit		
Date of Test	2013/05/07	Test Site	SR7

IEEE 802.11n_40M(ANT 0)				
Channel No.	Frequency (MHz)	Measure Level (dB)	Required Limit (dB)	Result
38	5190	8.318	≦13	Pass
46	5230	10.364	≦13	Pass

Power Excursion – Channel 38



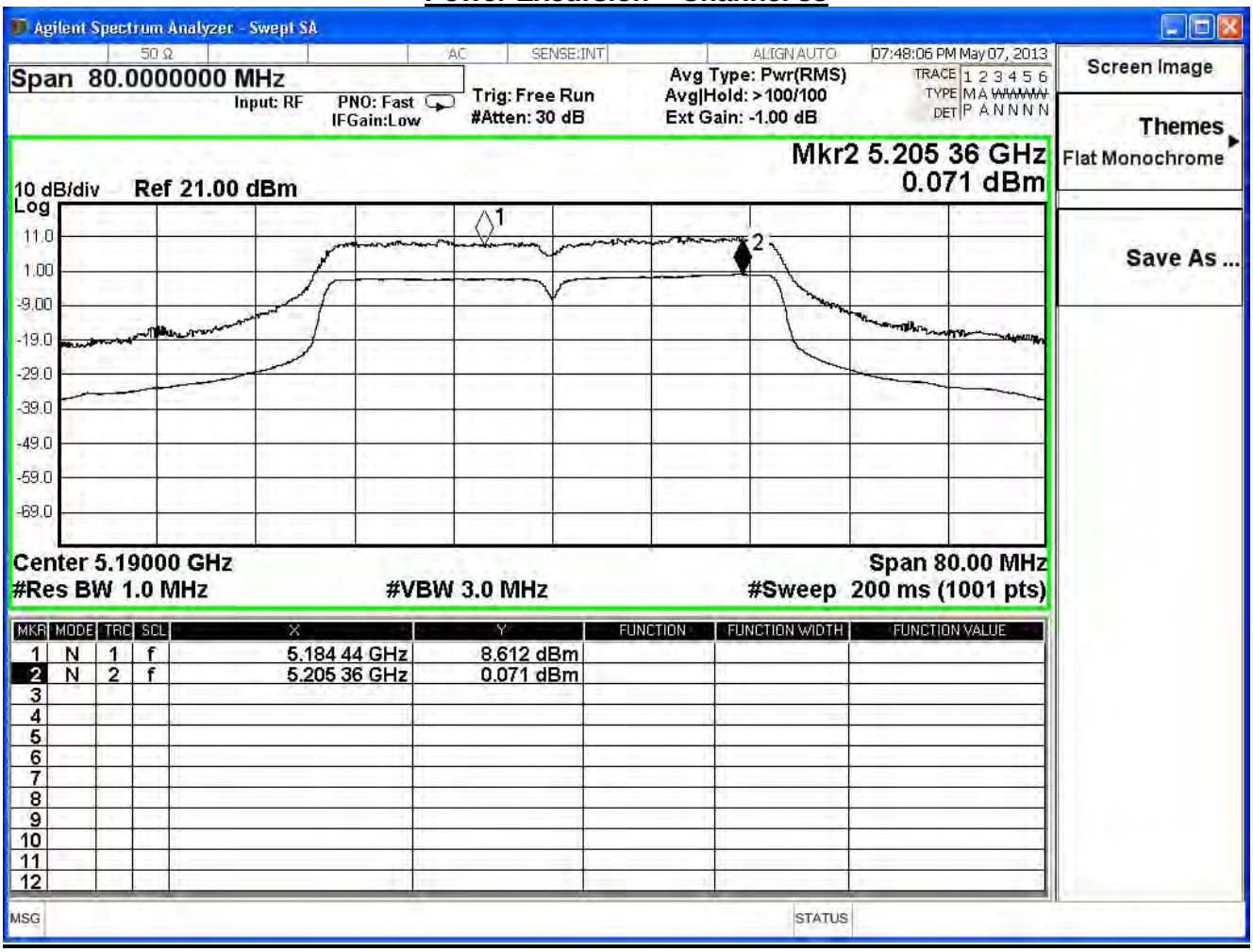
Power Excursion – Channel 46



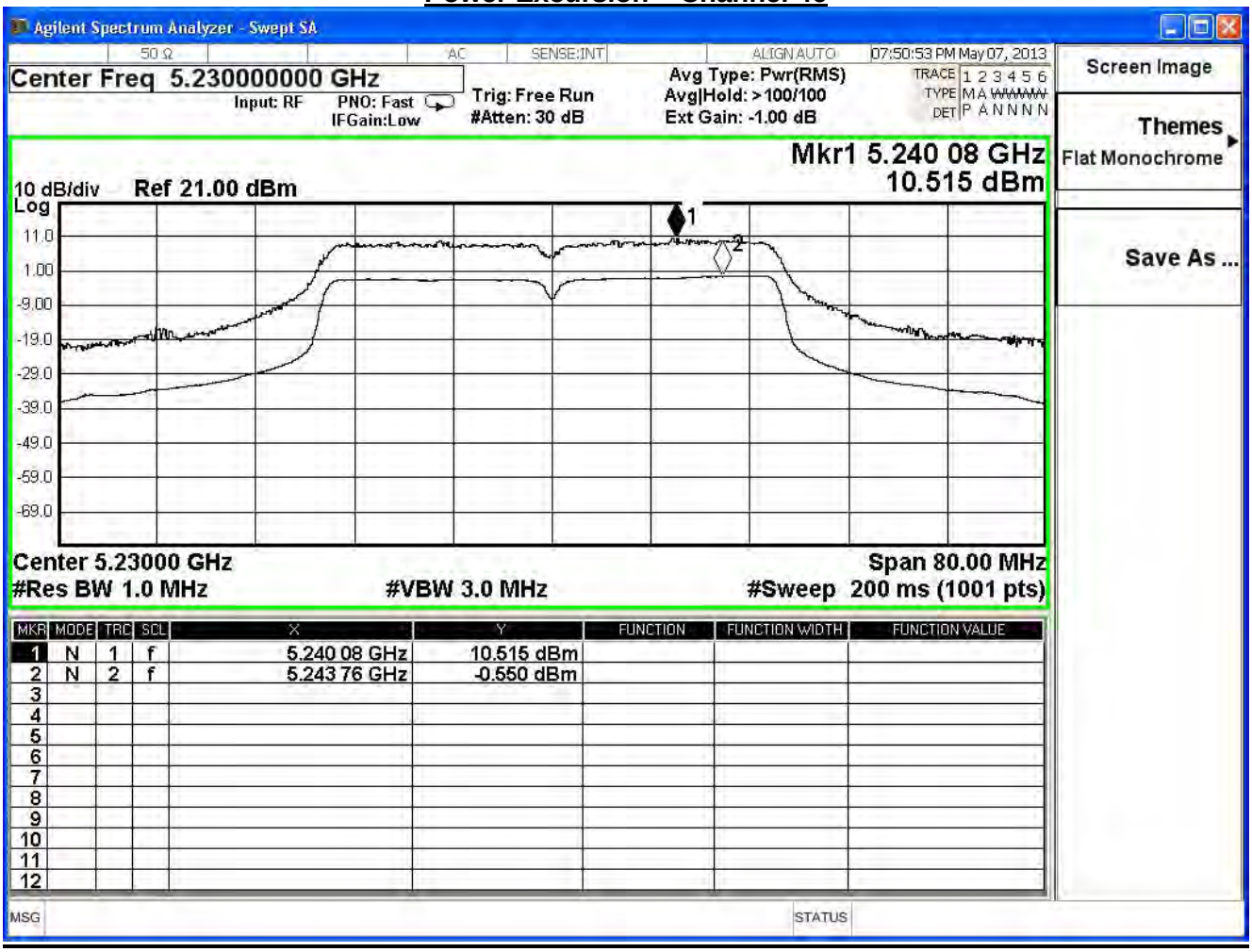
Product	11N Wireless LAN CARD		
Test Item	Peak Excursion		
Test Mode	Transmit		
Date of Test	2013/05/07	Test Site	SR7

IEEE 802.11n_40M(ANT 1)				
Channel No.	Frequency (MHz)	Measure Level (dB)	Required Limit (dB)	Result
38	5190	8.541	≦13	Pass
46	5230	11.065	≦13	Pass

Power Excursion – Channel 38



Power Excursion – Channel 46



7. Radiated Emission

7.1. Test Equipment

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

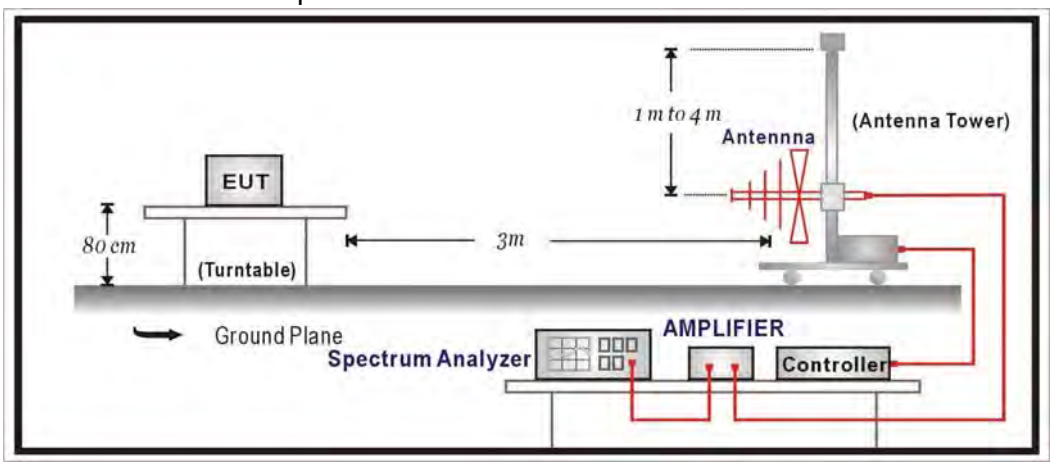
Radiated Emission / CB1

Instrument	Manufacturer	Model No.	Serial No	Next Cal. Date
Bilog Antenna	SCHAFFNER	CBL6112B	2895	2013/08/14
Double Ridged Guide Horn Antenna	Schwarzback	BBHA 9120	D743	2014/02/17
Pre-Amplifier	MITEQ	AMF-4D-005180-24-10P	888003	2013/12/02
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

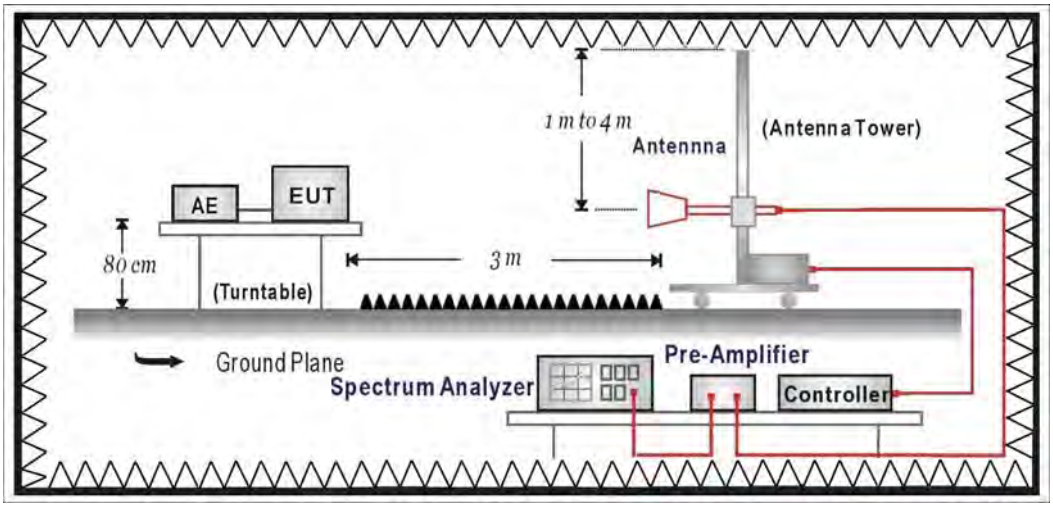
Note: 1. All equipments that need to calibrate are with calibration period of 1 year.

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 E 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 (R&S Test Receiver ESCS 30)is 120 KHz, above 1GHz are 1 MHz.
The frequency range from 30MHz to 10th harminics is checked.

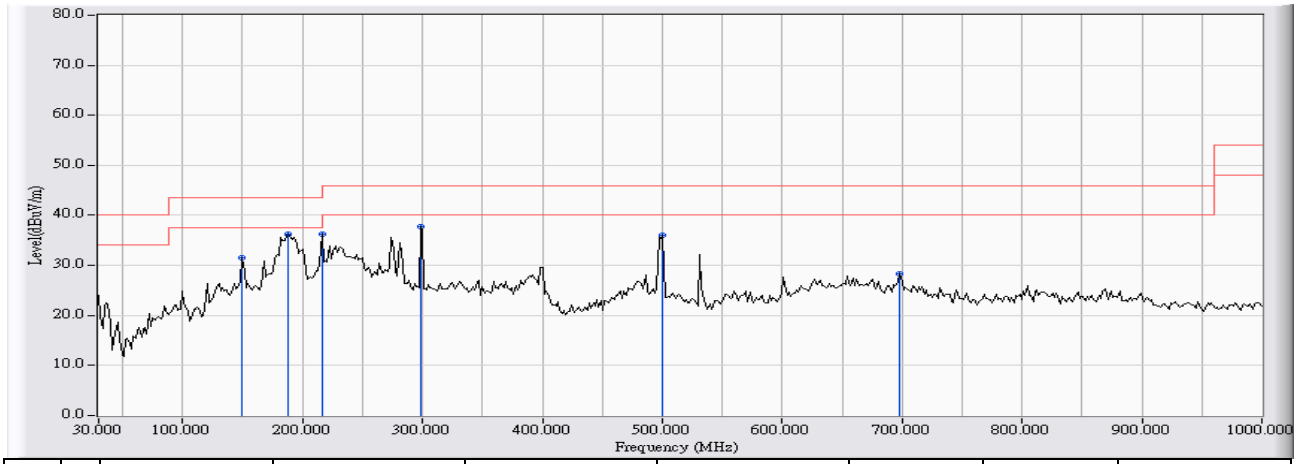
7.5. Uncertainty

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

7.6. Test Result

30MHz-1GHz Spurious

Site : CB1	**Time : 2013/04/22 - 13:19**
Limit : FCC_CLASS_B_03M_QP	**Margin : 6**
Probe : CB1_FCC_EFS_30-1G-2_1011 - HORIZONTAL	**Power : DC 3.3V ±5% from host equipment**
EUT : 11N Wireless LAN CARD	**Note : 802.11a CH36**

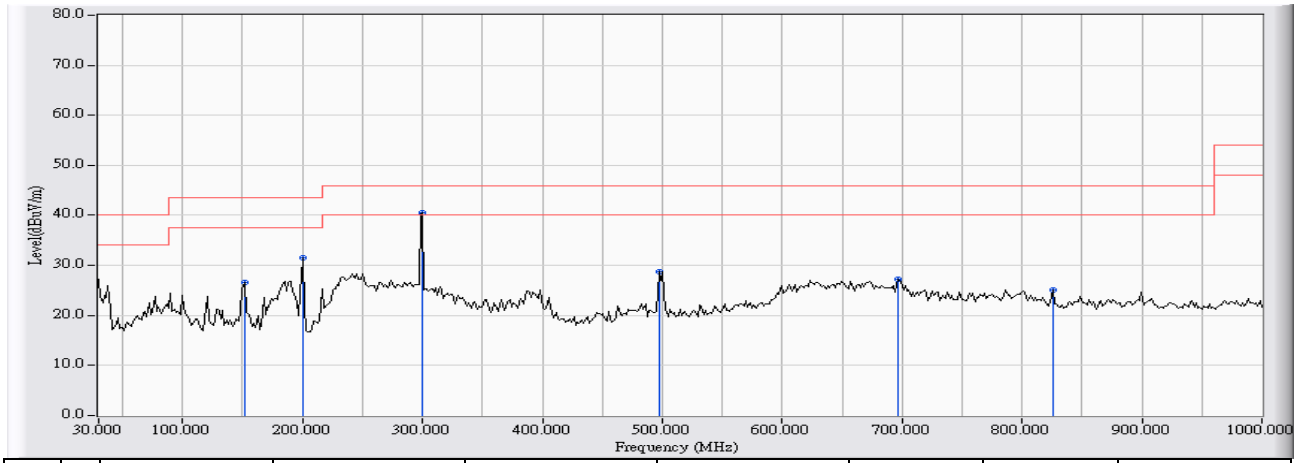


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		149.633	-13.048	44.658	31.610	-11.890	43.500	QUASIPEAK
2	*	188.433	-14.582	50.880	36.298	-7.202	43.500	QUASIPEAK
3		215.917	-13.475	49.681	36.205	-7.295	43.500	QUASIPEAK
4		298.367	-9.960	47.615	37.655	-8.345	46.000	QUASIPEAK
5		500.450	-5.089	41.100	36.011	-9.989	46.000	QUASIPEAK
6		697.683	-4.241	32.518	28.277	-17.723	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 : 2013/04/22 - 13:24**
Limit : FCC_CLASS_B_03M_QP	**Margin : 6**
Probe : CB1_FCC_EFS_30-1G-2_1011 - VERTICAL	**Power : DC 3.3V ±5% from host equipment**
EUT : 11N Wireless LAN CARD	**Note : 802.11a CH36**

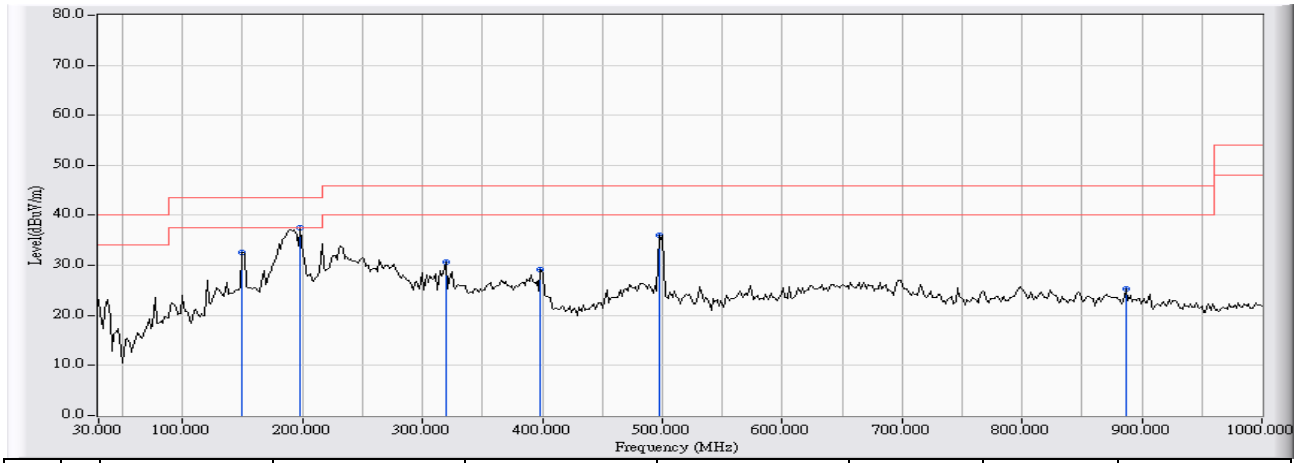


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		151.250	-13.132	39.632	26.499	-17.001	43.500	QUASIPEAK
2		199.750	-14.666	46.289	31.623	-11.877	43.500	QUASIPEAK
3	*	299.983	-9.927	50.475	40.548	-5.452	46.000	QUASIPEAK
4		497.217	-5.157	33.941	28.784	-17.216	46.000	QUASIPEAK
5		696.067	-4.252	31.425	27.173	-18.827	46.000	QUASIPEAK
6		825.400	-2.849	27.990	25.142	-20.858	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 : 2013/04/22 - 13:30**
Limit : FCC_CLASS_B_03M_QP	**Margin : 6**
Probe : CB1_FCC_EFS_30-1G-2_1011 - HORIZONTAL	**Power : DC 3.3V ±5% from host equipment**
EUT : 11N Wireless LAN CARD	**Note : 802.11n 20MHz CH36**

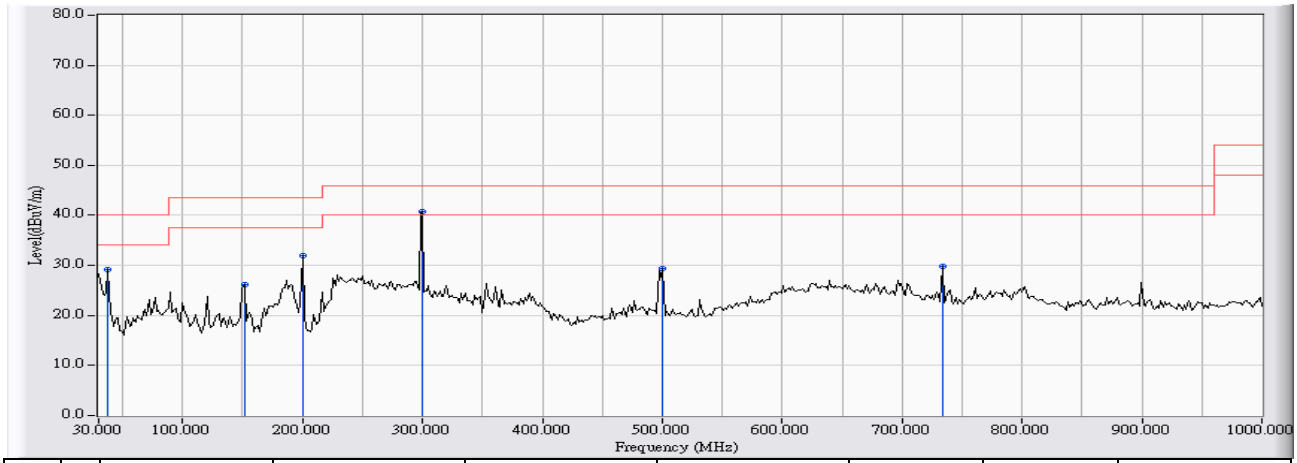


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		149.633	-13.048	45.680	32.632	-10.868	43.500	QUASIPEAK
2	*	198.133	-14.654	52.102	37.448	-6.052	43.500	QUASIPEAK
3		319.383	-9.450	40.167	30.717	-15.283	46.000	QUASIPEAK
4		398.600	-7.437	36.526	29.090	-16.910	46.000	QUASIPEAK
5		497.217	-5.157	41.225	36.068	-9.932	46.000	QUASIPEAK
6		886.833	-2.528	27.863	25.335	-20.665	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 : 2013/04/22 - 13:35**
Limit : FCC_CLASS_B_03M_QP	**Margin : 6**
Probe : CB1_FCC_EFS_30-1G-2_1011 - VERTICAL	**Power : DC 3.3V ±5% from host equipment**
EUT : 11N Wireless LAN CARD	**Note : 802.11n 20MHz CH36**

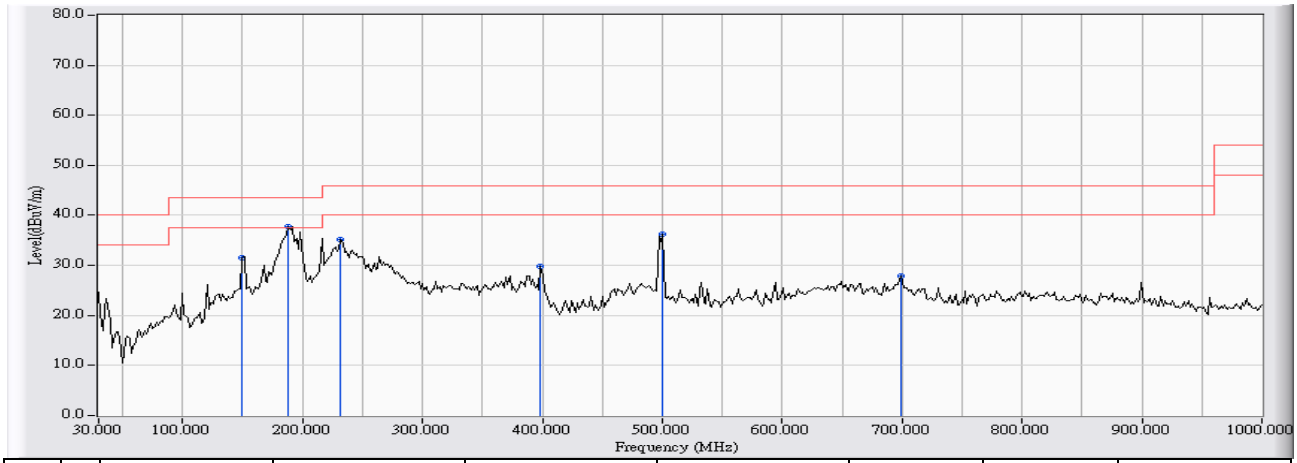


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		38.083	-11.121	40.340	29.220	-10.780	40.000	QUASIPEAK
2		151.250	-13.132	39.209	26.076	-17.424	43.500	QUASIPEAK
3		199.750	-14.666	46.649	31.983	-11.517	43.500	QUASIPEAK
4	*	299.983	-9.927	50.635	40.708	-5.292	46.000	QUASIPEAK
5		500.450	-5.089	34.383	29.294	-16.706	46.000	QUASIPEAK
6		733.250	-3.803	33.701	29.898	-16.102	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 : 2013/04/22 - 13:42**
Limit : FCC_CLASS_B_03M_QP	**Margin : 6**
Probe : CB1_FCC_EFS_30-1G-2_1011 - HORIZONTAL	**Power : DC 3.3V ±5% from host equipment**
EUT : 11N Wireless LAN CARD	**Note : 802.11n 40MHz CH38**

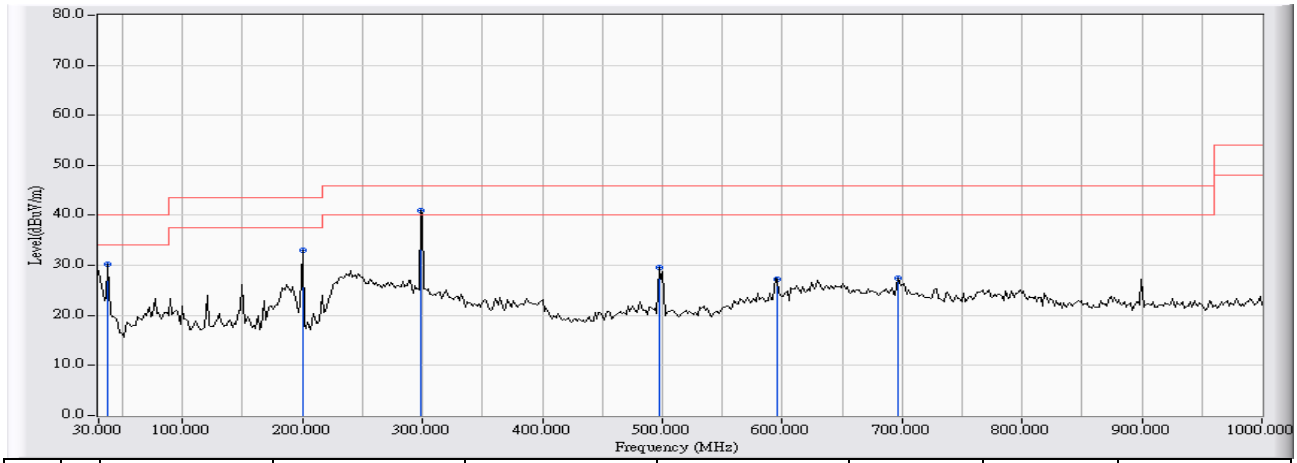


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		149.633	-13.048	44.501	31.453	-12.047	43.500	QUASIPEAK
2	*	188.433	-14.582	52.415	37.833	-5.667	43.500	QUASIPEAK
3		232.083	-12.264	47.354	35.090	-10.910	46.000	QUASIPEAK
4		398.600	-7.437	37.323	29.887	-16.113	46.000	QUASIPEAK
5		500.450	-5.089	41.396	36.307	-9.693	46.000	QUASIPEAK
6		699.300	-4.231	32.218	27.987	-18.013	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 : 2013/04/22 - 13:51**
Limit : FCC_CLASS_B_03M_QP	**Margin : 6**
Probe : CB1_FCC_EFS_30-1G-2_1011 - VERTICAL	**Power : DC 3.3V ±5% from host equipment**
EUT : 11N Wireless LAN CARD	**Note : 802.11n 40MHz CH38**



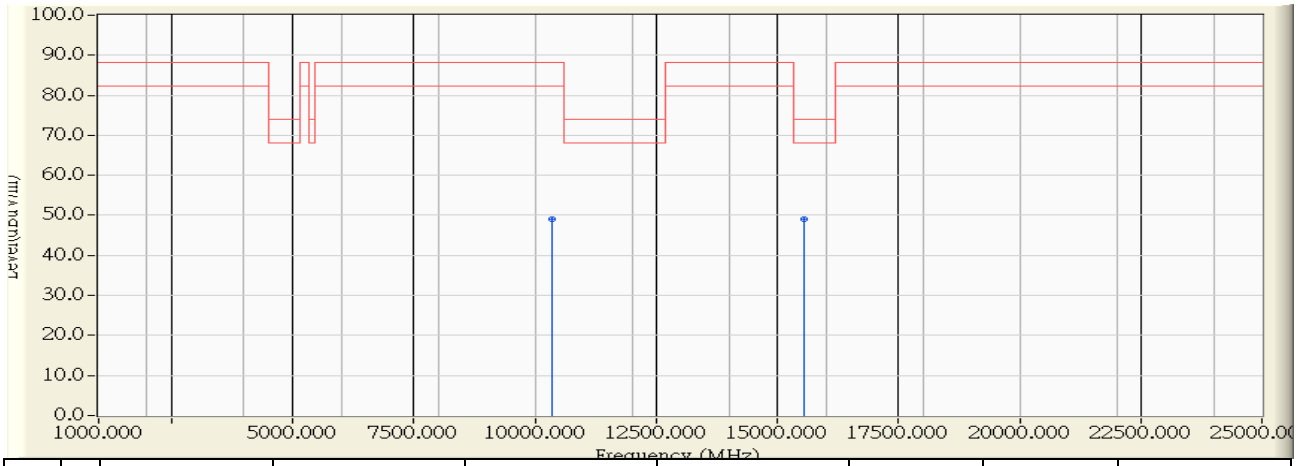
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		38.083	-11.121	41.368	30.248	-9.752	40.000	QUASIPEAK
2		199.750	-14.666	47.659	32.993	-10.507	43.500	QUASIPEAK
3	*	298.367	-9.960	50.836	40.876	-5.124	46.000	QUASIPEAK
4		497.217	-5.157	34.796	29.639	-16.361	46.000	QUASIPEAK
5		595.833	-4.890	32.132	27.242	-18.758	46.000	QUASIPEAK
6		696.067	-4.252	31.677	27.425	-18.575	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.

Harmonic & Spurious:

Site : CB1	**Time : 2013/05/15 - 19:17**
Limit : FCC_SpartE_15.407_H_03M_PK	**Margin : 6**
Probe : CB1_FCC_EFS_1-18G-1_0901 - HORIZONTAL	**Power : DC 3.3V ±5% from host equipment**
EUT : 11N Wireless LAN CARD	**Note : 802.11a CH36**

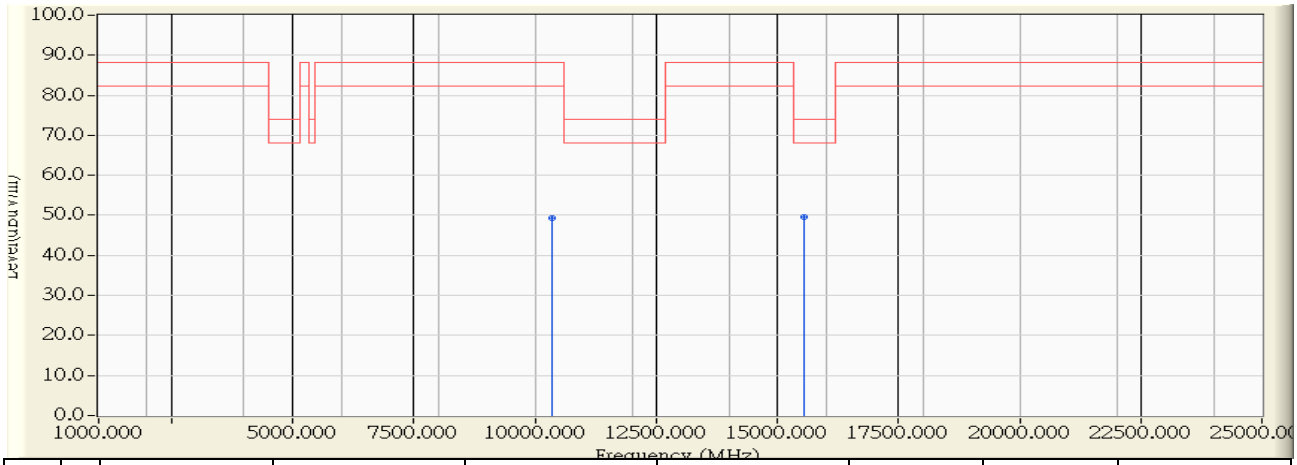


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		10361.760	10.789	38.396	49.185	-39.115	88.300	PEAK
2	*	15542.380	11.402	37.784	49.186	-24.814	74.000	PEAK

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. " # ", means the frequency is out of the restricted band.
6. Measurement Level = Reading Level + Correct Factor.
7. The average measurement was not performed when the peak measured data under the limit of average detection.

Site : CB1	**Time : 2013/05/15 - 19:17**
Limit : FCC_SpartE_15.407_H_03M_PK	**Margin : 6**
Probe : CB1_FCC_EFS_1-18G-1_0901 - VERTICAL	**Power : DC 3.3V ±5% from host equipment**
EUT : 11N Wireless LAN CARD	**Note : 802.11a CH36**

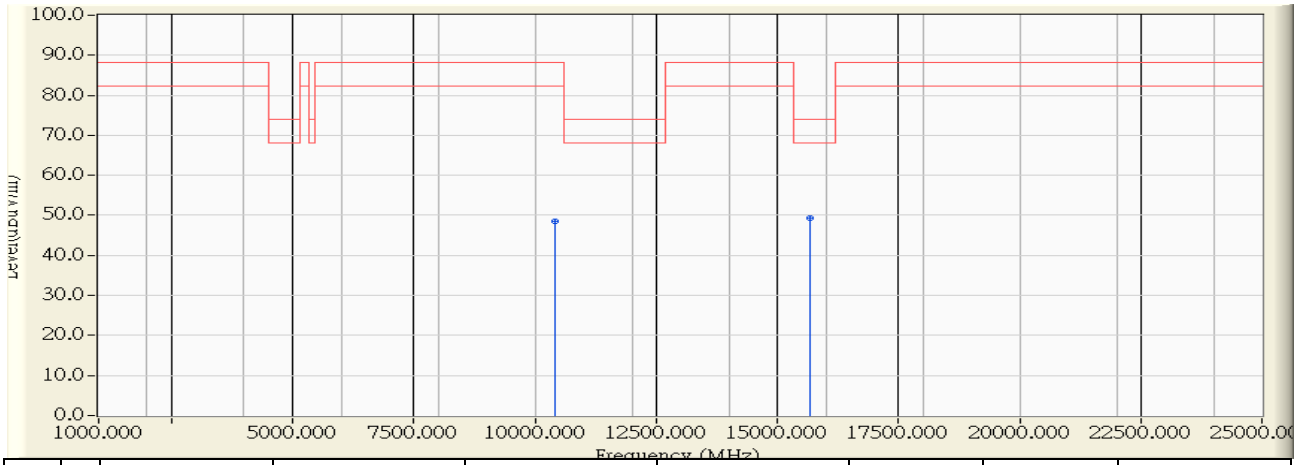


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		10359.760	10.795	38.561	49.356	-38.944	88.300	PEAK
2	*	15544.720	11.401	38.072	49.473	-24.527	74.000	PEAK

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. " # ", means the frequency is out of the restricted band.
6. Measurement Level = Reading Level + Correct Factor.
7. The average measurement was not performed when the peak measured data under the limit of average detection.

Site : CB1	**Time : 2013/05/15 - 19:29**
Limit : FCC_SpartE_15.407_H_03M_PK	**Margin : 6**
Probe : CB1_FCC_EFS_1-18G-1_0901 - HORIZONTAL	**Power : DC 3.3V ±5% from host equipment**
EUT : 11N Wireless LAN CARD	**Note : 802.11a CH44**

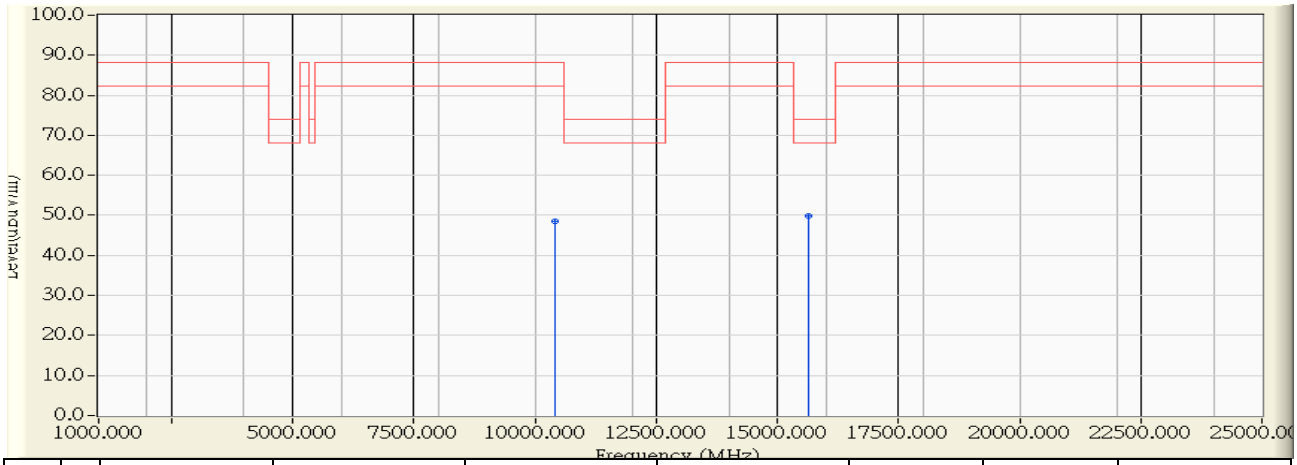


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		10420.100	10.628	37.989	48.617	-39.683	88.300	PEAK
2	*	15674.800	11.311	38.097	49.409	-24.591	74.000	PEAK

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. " # ", means the frequency is out of the restricted band.
6. Measurement Level = Reading Level + Correct Factor.
7. The average measurement was not performed when the peak measured data under the limit of average detection.

Site : CB1	**Time : 2013/05/15 - 19:31**
Limit : FCC_SpartE_15.407_H_03M_PK	**Margin : 6**
Probe : CB1_FCC_EFS_1-18G-1_0901 - VERTICAL	**Power : DC 3.3V ±5% from host equipment**
EUT : 11N Wireless LAN CARD	**Note : 802.11a CH44**

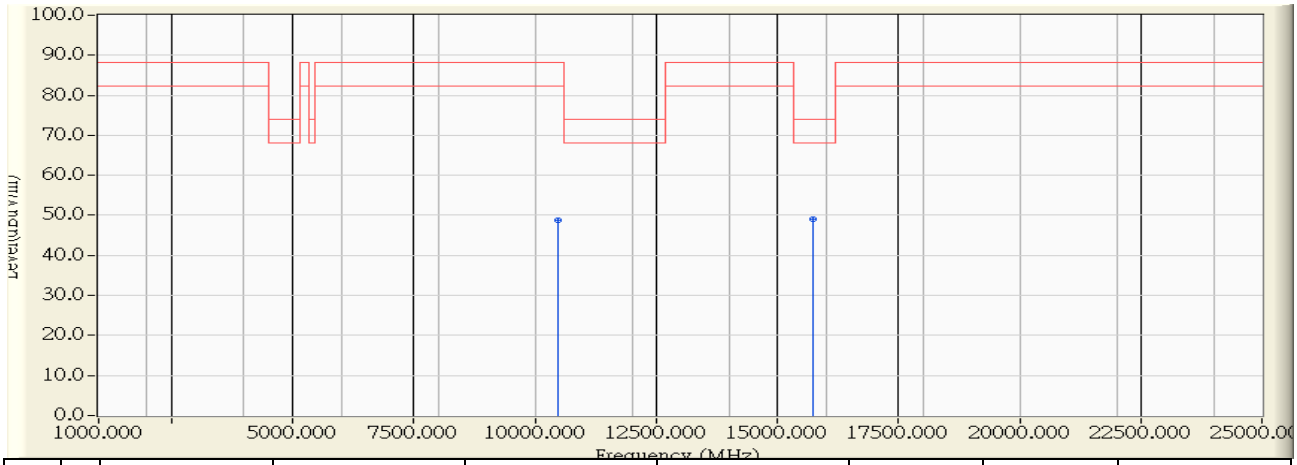


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		10415.600	10.640	37.996	48.636	-39.664	88.300	PEAK
2	*	15637.700	11.337	38.432	49.769	-24.231	74.000	PEAK

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. " # ", means the frequency is out of the restricted band.
6. Measurement Level = Reading Level + Correct Factor.
7. The average measurement was not performed when the peak measured data under the limit of average detection.

Site : CB1	**Time : 2013/05/15 - 19:36**
Limit : FCC_SpartE_15.407_H_03M_PK	**Margin : 6**
Probe : CB1_FCC_EFS_1-18G-1_0901 - HORIZONTAL	**Power : DC 3.3V ±5% from host equipment**
EUT : 11N Wireless LAN CARD	**Note : 802.11a CH48**

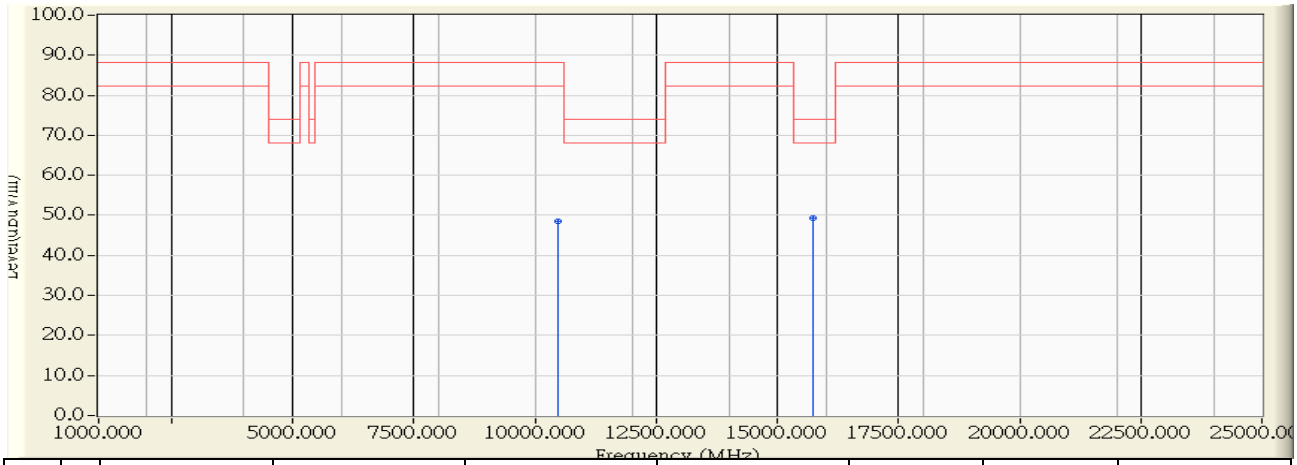


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		10479.150	10.464	38.339	48.804	-39.496	88.300	PEAK
2	*	15728.150	11.275	37.801	49.076	-24.924	74.000	PEAK

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. " # ", means the frequency is out of the restricted band.
6. Measurement Level = Reading Level + Correct Factor.
7. The average measurement was not performed when the peak measured data under the limit of average detection.

Site : CB1	**Time : 2013/05/15 - 19:38**
Limit : FCC_SpartE_15.407_H_03M_PK	**Margin : 6**
Probe : CB1_FCC_EFS_1-18G-1_0901 - VERTICAL	**Power : DC 3.3V ±5% from host equipment**
EUT : 11N Wireless LAN CARD	**Note : 802.11a CH48**

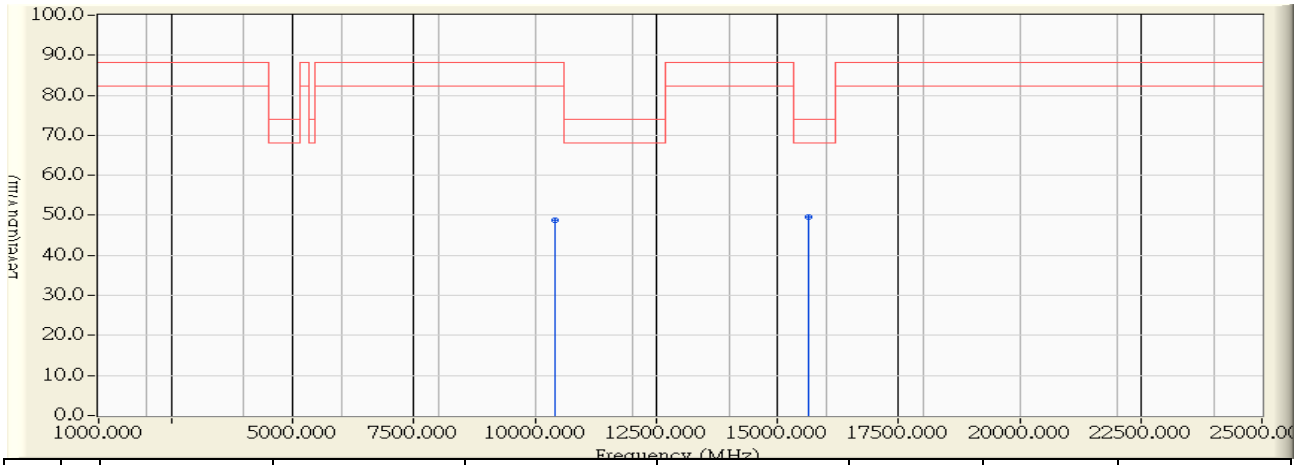


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		10467.750	10.497	37.948	48.444	-39.856	88.300	PEAK
2	*	15728.600	11.274	37.964	49.239	-24.761	74.000	PEAK

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. " # ", means the frequency is out of the restricted band.
6. Measurement Level = Reading Level + Correct Factor.
7. The average measurement was not performed when the peak measured data under the limit of average detection.

Site : CB1	**Time : 2013/05/15 - 19:42**
Limit : FCC_SpartE_15.407_H_03M_PK	**Margin : 6**
Probe : CB1_FCC_EFS_1-18G-1_0901 - HORIZONTAL	**Power : DC 3.3V ±5% from host equipment**
EUT : 11N Wireless LAN CARD	**Note : 802.11n 20MHz CH36**

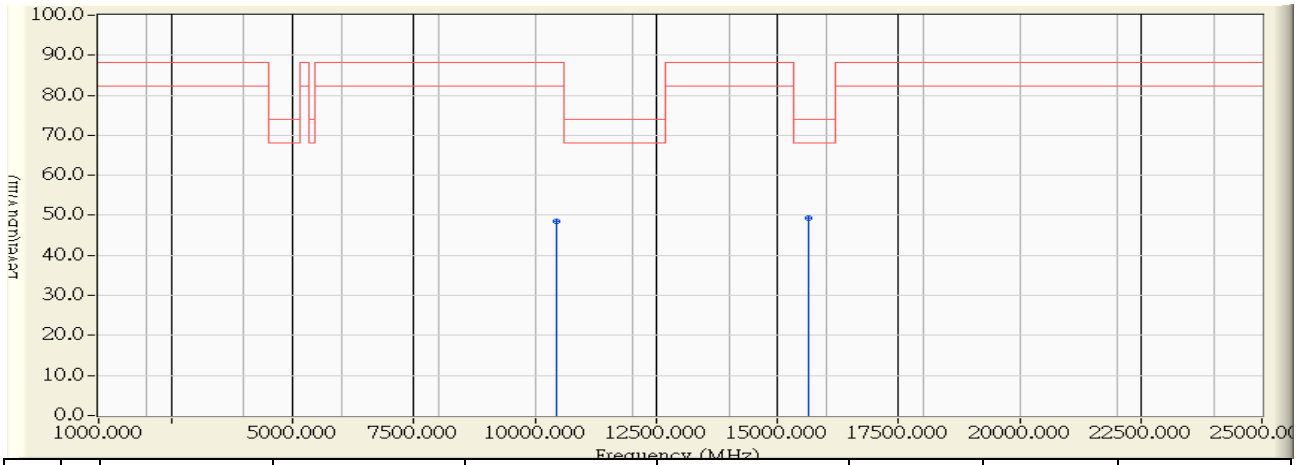


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		10419.150	10.630	38.134	48.765	-39.535	88.300	PEAK
2	*	15659.650	11.322	38.189	49.511	-24.489	74.000	PEAK

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. " # ", means the frequency is out of the restricted band.
6. Measurement Level = Reading Level + Correct Factor.
7. The average measurement was not performed when the peak measured data under the limit of average detection.

Site : CB1	**Time : 2013/05/15 - 19:44**
Limit : FCC_SpartE_15.407_H_03M_PK	**Margin : 6**
Probe : CB1_FCC_EFS_1-18G-1_0901 - VERTICAL	**Power : DC 3.3V ±5% from host equipment**
EUT : 11N Wireless LAN CARD	**Note : 802.11n 20MHz CH36**

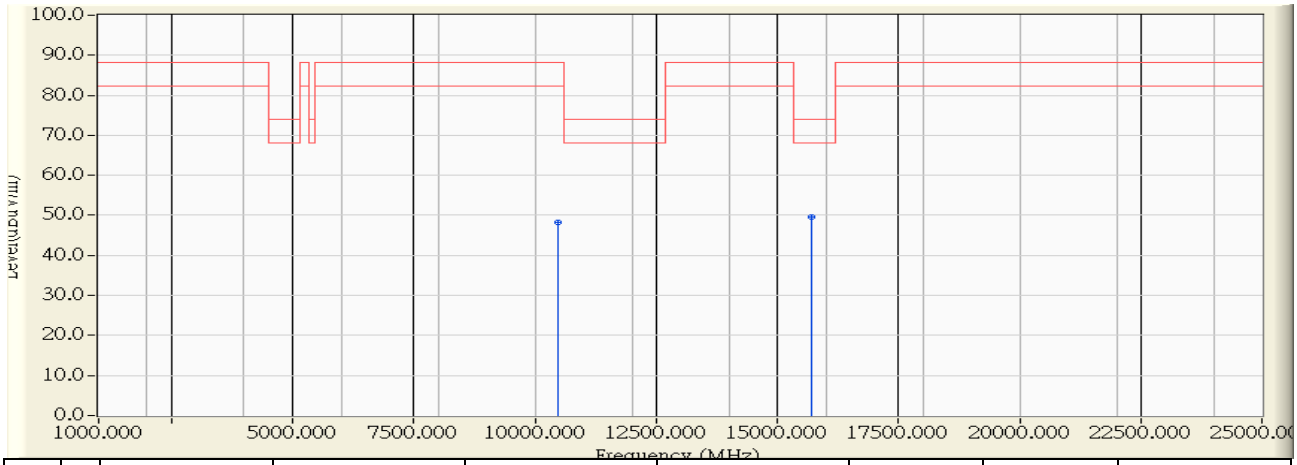


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		10439.600	10.574	38.075	48.649	-39.651	88.300	PEAK
2	*	15641.250	11.334	38.015	49.349	-24.651	74.000	PEAK

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. " # ", means the frequency is out of the restricted band.
6. Measurement Level = Reading Level + Correct Factor.
7. The average measurement was not performed when the peak measured data under the limit of average detection.

Site : CB1	**Time : 2013/05/15 - 19:47**
Limit : FCC_SpartE_15.407_H_03M_PK	**Margin : 6**
Probe : CB1_FCC_EFS_1-18G-1_0901 - HORIZONTAL	**Power : DC 3.3V ±5% from host equipment**
EUT : 11N Wireless LAN CARD	**Note : 802.11n 20MHz CH44**

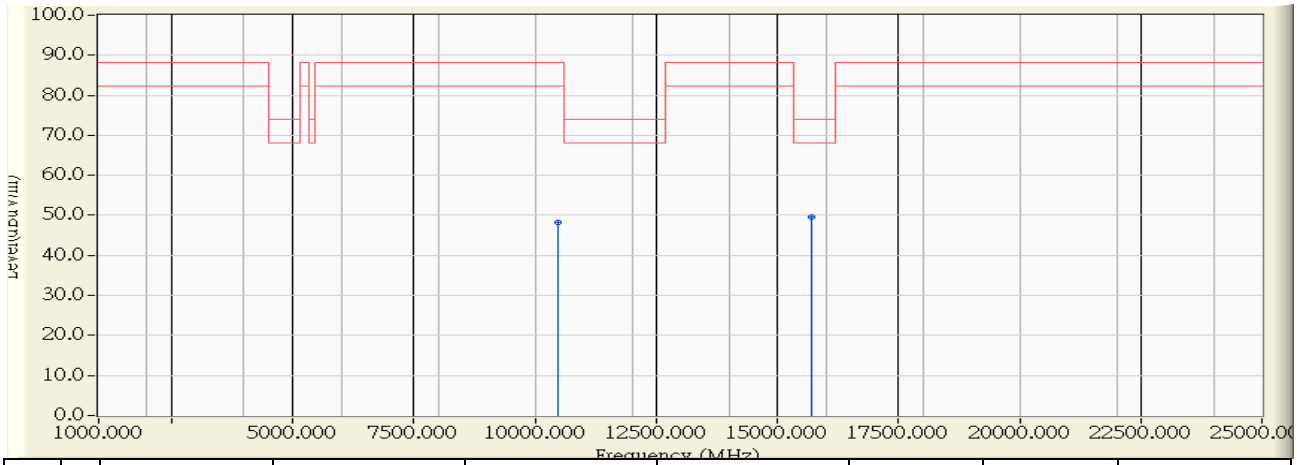


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		10484.850	10.450	37.687	48.136	-40.164	88.300	PEAK
2	*	15709.950	11.287	38.202	49.489	-24.511	74.000	PEAK

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. " # ", means the frequency is out of the restricted band.
6. Measurement Level = Reading Level + Correct Factor.
7. The average measurement was not performed when the peak measured data under the limit of average detection.

Site : CB1	**Time : 2013/05/15 - 19:49**
Limit : FCC_SpartE_15.407_H_03M_PK	**Margin : 6**
Probe : CB1_FCC_EFS_1-18G-1_0901 - VERTICAL	**Power : DC 3.3V ±5% from host equipment**
EUT : 11N Wireless LAN CARD	**Note : 802.11n 20MHz CH44**

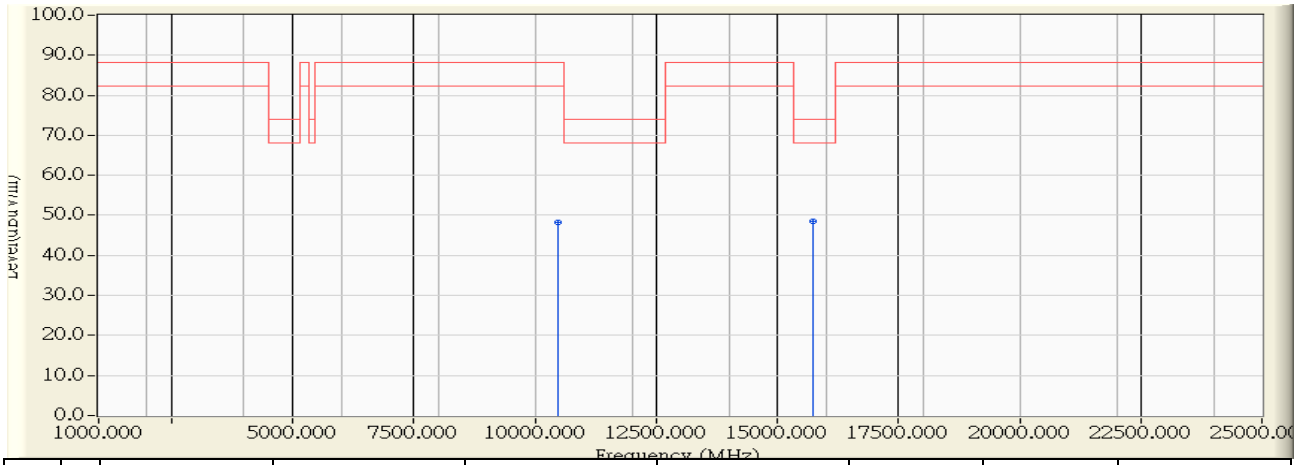


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		10474.100	10.478	37.853	48.332	-39.968	88.300	PEAK
2	*	15721.750	11.279	38.426	49.705	-24.295	74.000	PEAK

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. " # ", means the frequency is out of the restricted band.
6. Measurement Level = Reading Level + Correct Factor.
7. The average measurement was not performed when the peak measured data under the limit of average detection.

Site : CB1	**Time : 2013/05/15 - 19:52**
Limit : FCC_SpartE_15.407_H_03M_PK	**Margin : 6**
Probe : CB1_FCC_EFS_1-18G-1_0901 - HORIZONTAL	**Power : DC 3.3V ±5% from host equipment**
EUT : 11N Wireless LAN CARD	**Note : 802.11n 20MHz CH48**

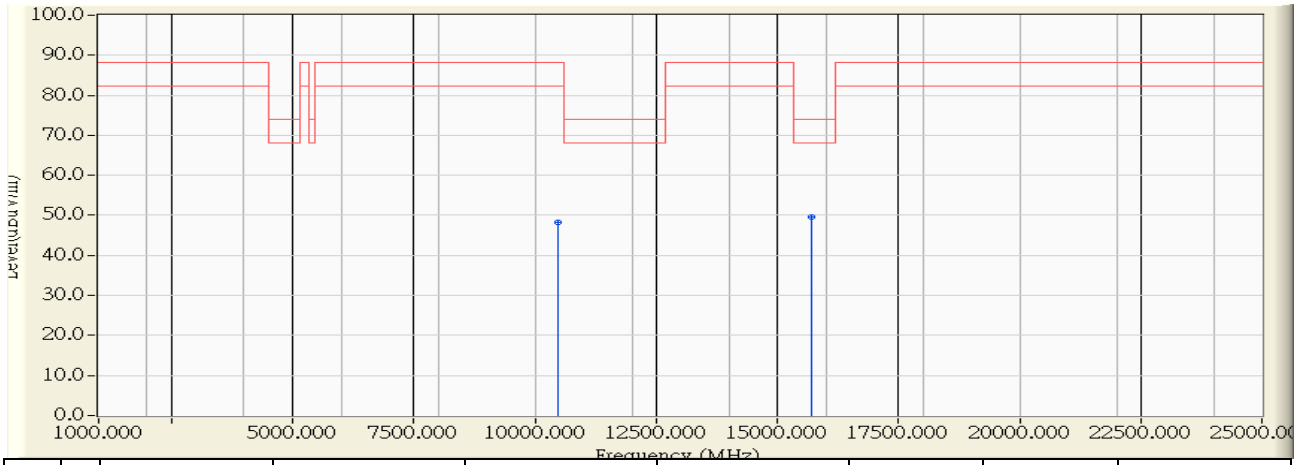


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		10468.750	10.493	37.729	48.223	-40.077	88.300	PEAK
2	*	15729.900	11.274	37.271	48.545	-25.455	74.000	PEAK

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. " # ", means the frequency is out of the restricted band.
6. Measurement Level = Reading Level + Correct Factor.
7. The average measurement was not performed when the peak measured data under the limit of average detection.

Site : CB1	**Time : 2013/05/15 - 19:57**
Limit : FCC_SpartE_15.407_H_03M_PK	**Margin : 6**
Probe : CB1_FCC_EFS_1-18G-1_0901 - VERTICAL	**Power : DC 3.3V ±5% from host equipment**
EUT : 11N Wireless LAN CARD	**Note : 802.11n 20MHz CH48**

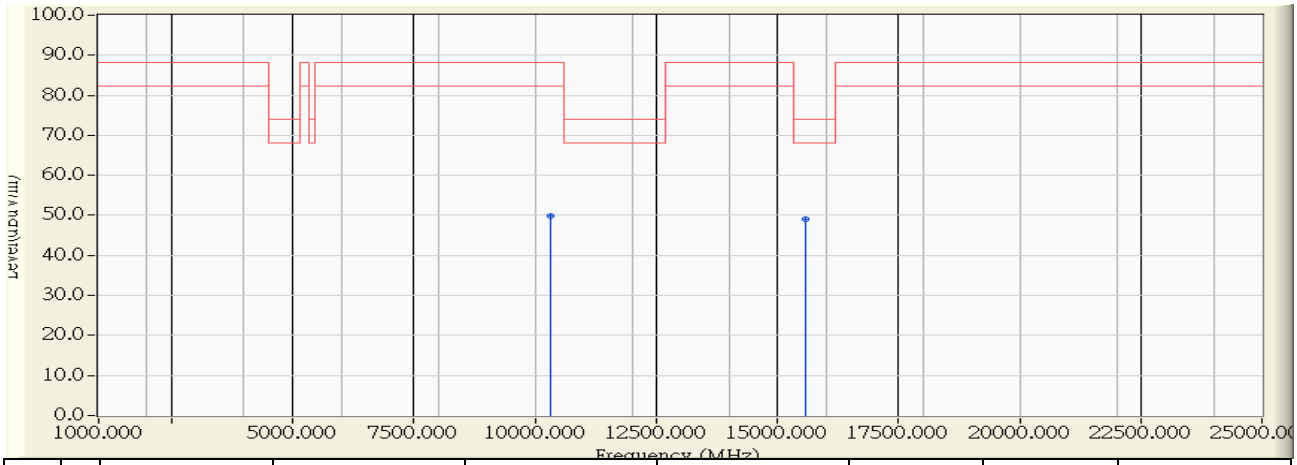


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		10480.050	10.463	37.814	48.276	-40.024	88.300	PEAK
2	*	15705.250	11.290	38.410	49.701	-24.299	74.000	PEAK

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. " # ", means the frequency is out of the restricted band.
6. Measurement Level = Reading Level + Correct Factor.
7. The average measurement was not performed when the peak measured data under the limit of average detection.

Site : CB1	**Time : 2013/05/15 - 20:01**
Limit : FCC_SpartE_15.407_H_03M_PK	**Margin : 6**
Probe : CB1_FCC_EFS_1-18G-1_0901 - HORIZONTAL	**Power : DC 3.3V ±5% from host equipment**
EUT : 11N Wireless LAN CARD	**Note : 802.11n 40MHz CH38**

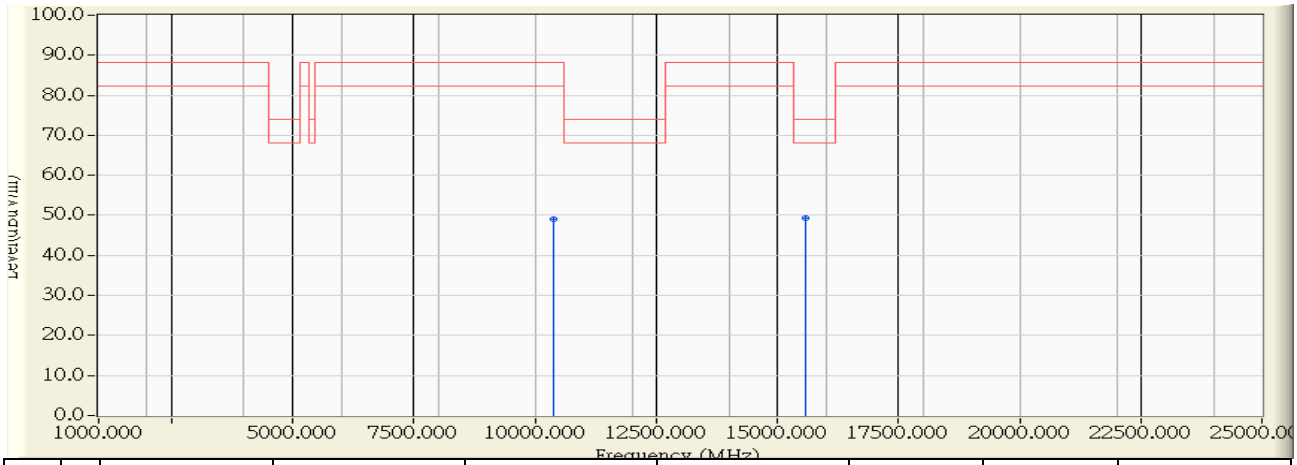


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		10335.600	10.861	38.932	49.793	-38.507	88.300	PEAK
2	*	15572.000	11.381	37.797	49.179	-24.821	74.000	PEAK

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. “ # ”, means the frequency is out of the restricted band.
6. Measurement Level = Reading Level + Correct Factor.
7. The average measurement was not performed when the peak measured data under the limit of average detection.

Site : CB1	**Time : 2013/05/15 - 20:03**
Limit : FCC_SpartE_15.407_H_03M_PK	**Margin : 6**
Probe : CB1_FCC_EFS_1-18G-1_0901 - VERTICAL	**Power : DC 3.3V ±5% from host equipment**
EUT : 11N Wireless LAN CARD	**Note : 802.11n 40MHz CH38**

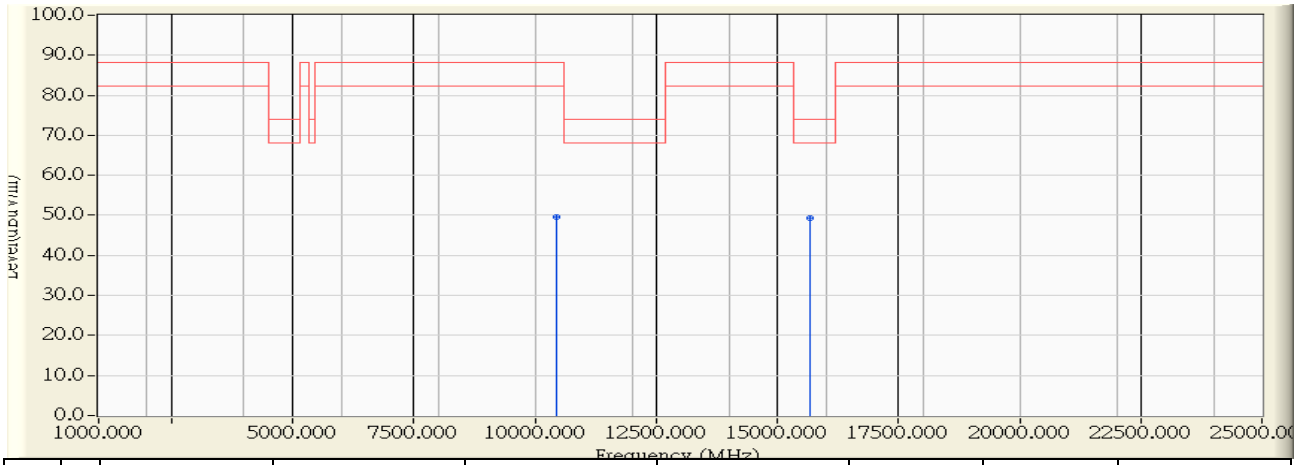


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		10397.000	10.692	38.271	48.963	-39.337	88.300	PEAK
2	*	15575.200	11.380	38.030	49.410	-24.590	74.000	PEAK

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. " # ", means the frequency is out of the restricted band.
6. Measurement Level = Reading Level + Correct Factor.
7. The average measurement was not performed when the peak measured data under the limit of average detection.

Site : CB1	**Time : 2013/05/15 - 20:07**
Limit : FCC_SpartE_15.407_H_03M_PK	**Margin : 6**
Probe : CB1_FCC_EFS_1-18G-1_0901 - HORIZONTAL	**Power : DC 3.3V ±5% from host equipment**
EUT : 11N Wireless LAN CARD	**Note : 802.11n 40MHz CH46**

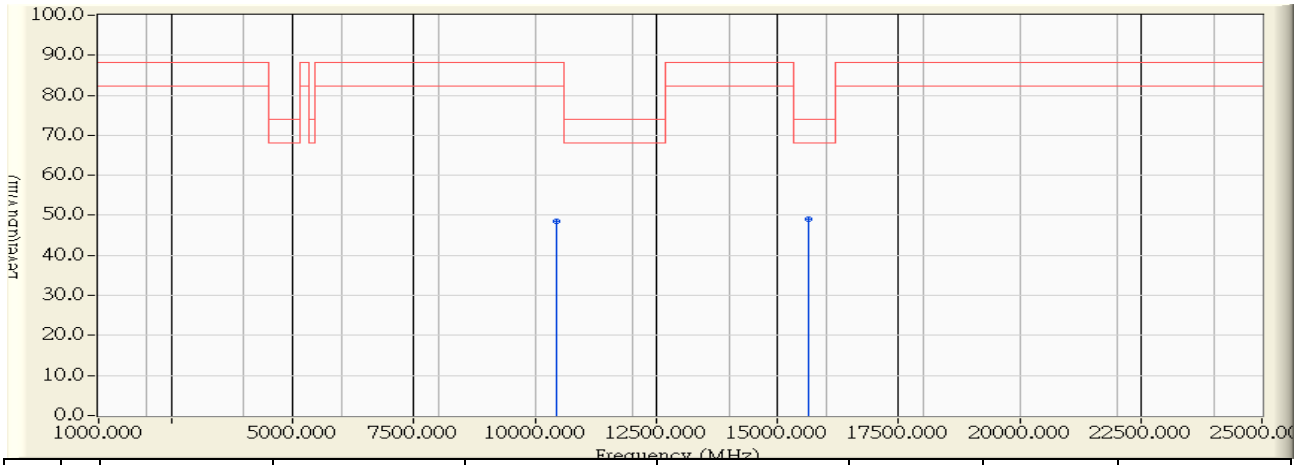


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		10433.900	10.590	38.975	49.565	-38.735	88.300	PEAK
2	*	15668.400	11.316	37.963	49.279	-24.721	74.000	PEAK

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. " # ", means the frequency is out of the restricted band.
6. Measurement Level = Reading Level + Correct Factor.
7. The average measurement was not performed when the peak measured data under the limit of average detection.

Site : CB1	**Time : 2013/05/15 - 20:09**
Limit : FCC_SpartE_15.407_H_03M_PK	**Margin : 6**
Probe : CB1_FCC_EFS_1-18G-1_0901 - VERTICAL	**Power : DC 3.3V ±5% from host equipment**
EUT : 11N Wireless LAN CARD	**Note : 802.11n 40MHz CH46**



		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		10440.700	10.570	37.908	48.479	-39.821	88.300	PEAK
2	*	15651.000	11.328	37.850	49.178	-24.822	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. " # ", means the frequency is out of the restricted band.
6. Measurement Level = Reading Level + Correct Factor.
7. 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:

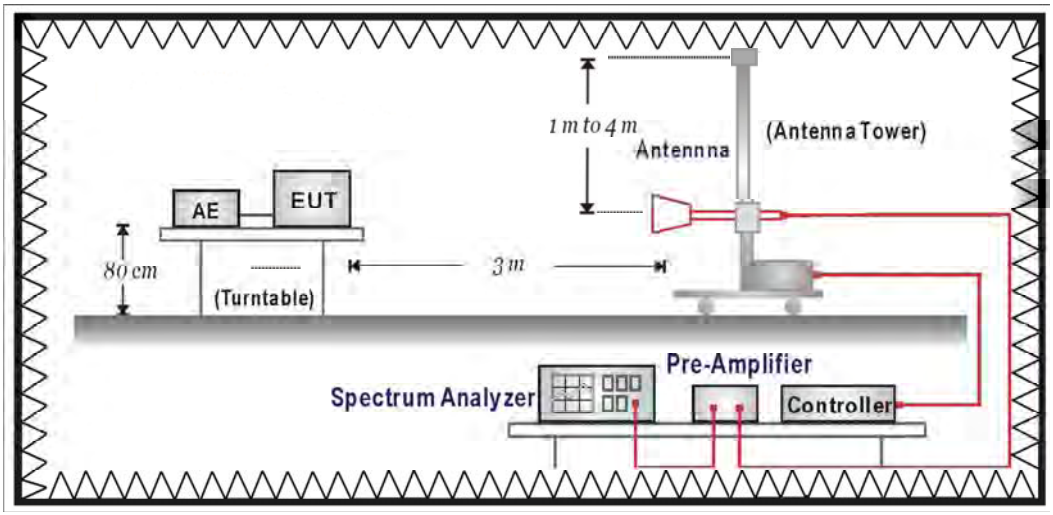
Band Edge / CB1

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 (R&S Test Receiver ESCS 30)is 120 KHz, above 1GHz are 1 MHz.

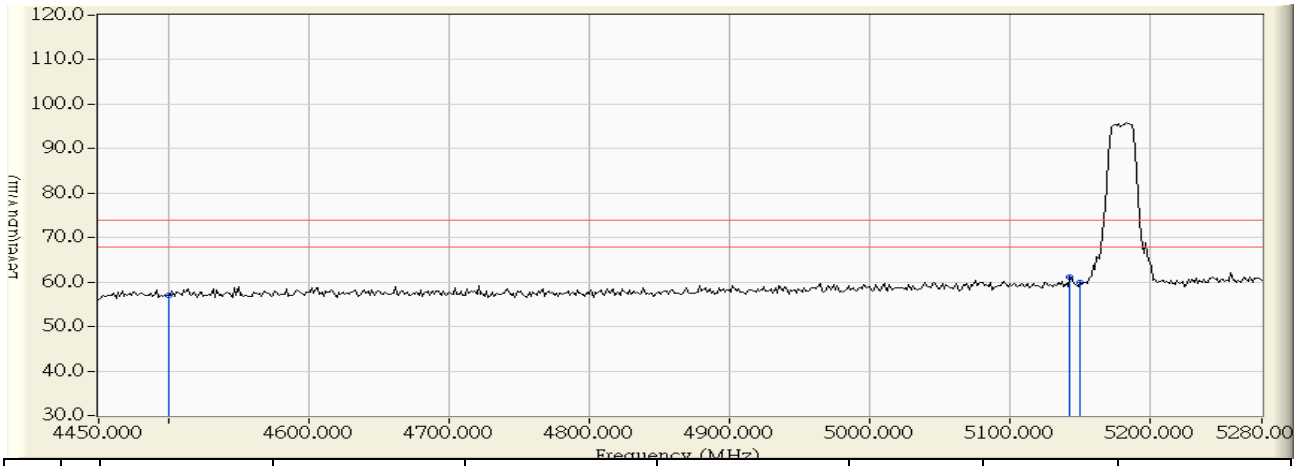
8.5. Uncertainty

The measurement uncertainty is defined as ± 3.65dB

8.6. Test Result

Radiated is defined as

Site : CB1	**Time : 2013/04/27 - 14:54**
Limit : FCC_SpartC_15.209_03M_PK	**Margin : 6**
Probe : CB1_FCC_EFS_1-18G-1_0901 - HORIZONTAL	**Power : DC 3.3V ±5% from host equipment**
EUT : 11N Wireless LAN CARD	**Note : 802.11a_CH36**

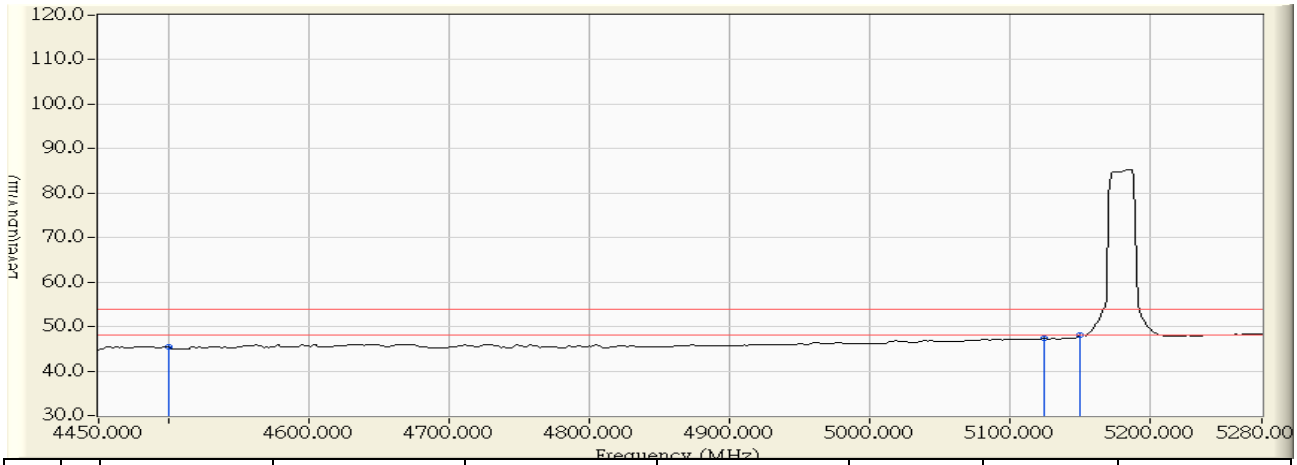


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		4500.000	32.947	24.071	57.018	-16.982	74.000	PEAK
2	*	5143.050	35.305	25.833	61.138	-12.862	74.000	PEAK
3		5150.000	35.361	24.572	59.933	-14.067	74.000	PEAK

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 : 2013/04/27 - 14:58**
Limit : FCC_SpartC_15.209_03M_AV	**Margin : 6**
Probe : CB1_FCC_EFS_1-18G-1_0901 - HORIZONTAL	**Power : DC 3.3V ±5% from host equipment**
EUT : 11N Wireless LAN CARD	**Note : 802.11a_CH36**

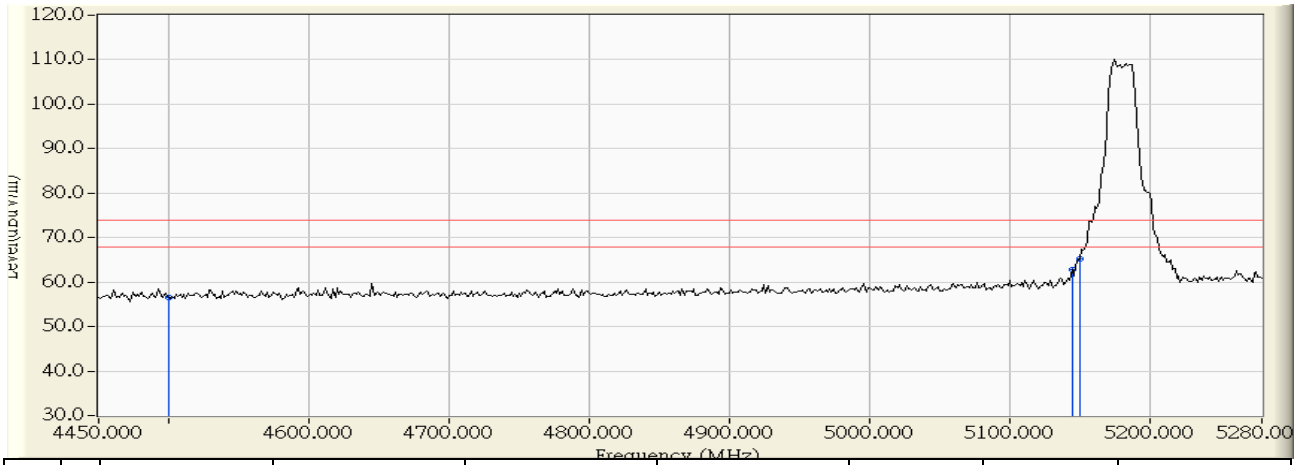


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		4500.000	32.947	12.515	45.462	-8.538	54.000	AVERAGE
2		5125.067	35.160	12.154	47.315	-6.685	54.000	AVERAGE
3	*	5150.000	35.361	12.676	48.037	-5.963	54.000	AVERAGE

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 : 2013/04/27 - 15:07**
Limit : FCC_SpartC_15.209_03M_PK	**Margin : 6**
Probe : CB1_FCC_EFS_1-18G-1_0901 - VERTICAL	**Power : DC 3.3V ±5% from host equipment**
EUT : 11N Wireless LAN CARD	**Note : 802.11a_CH36**

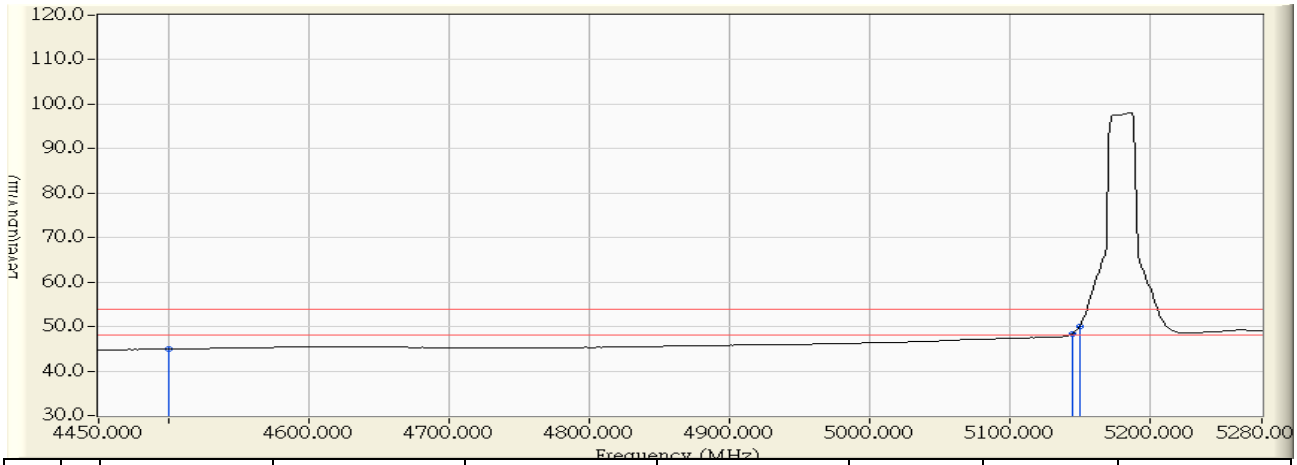


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		4500.000	32.947	23.530	56.477	-17.523	74.000	PEAK
2		5144.433	35.316	27.578	62.894	-11.106	74.000	PEAK
3	*	5150.000	35.361	29.962	65.323	-8.677	74.000	PEAK

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 : 2013/04/27 - 15:12**
Limit : FCC_SpartC_15.209_03M_AV	**Margin : 6**
Probe : CB1_FCC_EFS_1-18G-1_0901 - VERTICAL	**Power : DC 3.3V ±5% from host equipment**
EUT : 11N Wireless LAN CARD	**Note : 802.11a_CH36**

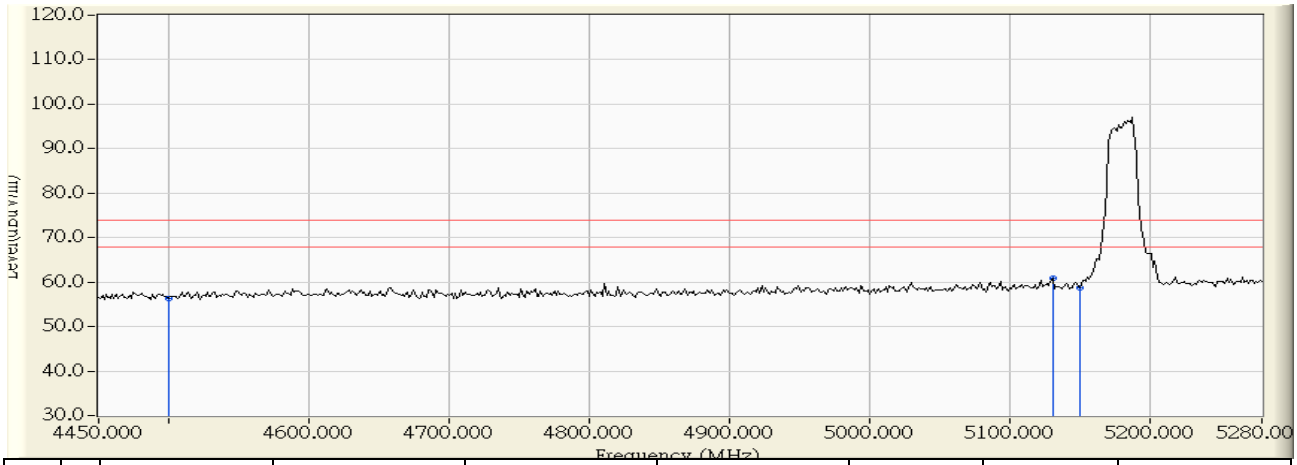


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		4500.000	32.947	11.981	44.928	-9.072	54.000	AVERAGE
2		5144.433	35.316	12.988	48.304	-5.696	54.000	AVERAGE
3	*	5150.000	35.361	14.785	50.146	-3.854	54.000	AVERAGE

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 : 2013/04/27 - 15:21**
Limit : FCC_SpartC_15.209_03M_PK	**Margin : 6**
Probe : CB1_FCC_EFS_1-18G-1_0901 - HORIZONTAL	**Power : DC 3.3V ±5% from host equipment**
EUT : 11N Wireless LAN CARD	**Note : 802.11n 20MHz_CH36**

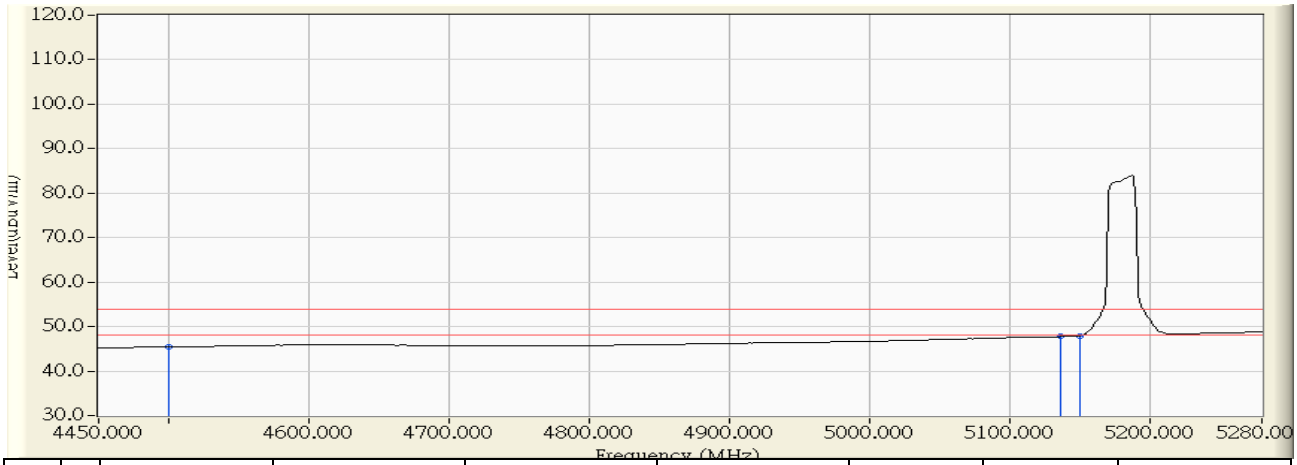


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		4500.000	32.947	23.415	56.362	-17.638	74.000	PEAK
2	*	5130.600	35.205	25.644	60.849	-13.151	74.000	PEAK
3		5150.000	35.361	23.259	58.620	-15.380	74.000	PEAK

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 : 2013/04/27 - 15:23**
Limit : FCC_SpartC_15.209_03M_AV	**Margin : 6**
Probe : CB1_FCC_EFS_1-18G-1_0901 - HORIZONTAL	**Power : DC 3.3V ±5% from host equipment**
EUT : 11N Wireless LAN CARD	**Note : 802.11n 20MHz_CH36**

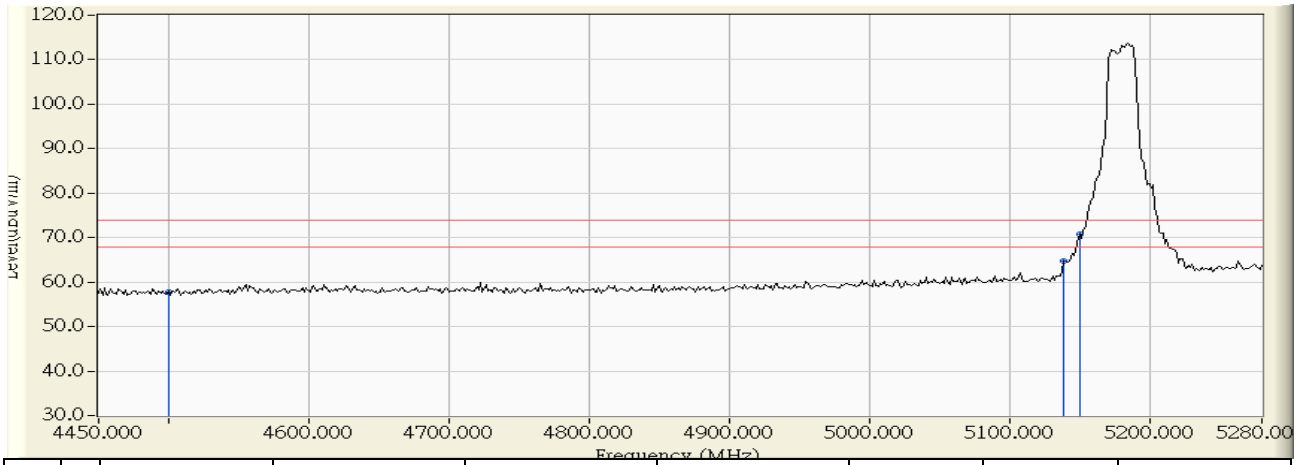


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		4500.000	32.947	12.436	45.383	-8.617	54.000	AVERAGE
2		5136.133	35.249	12.490	47.740	-6.260	54.000	AVERAGE
3	*	5150.000	35.361	12.609	47.970	-6.030	54.000	AVERAGE

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 : 2013/04/27 - 16:00**
Limit : FCC_SpartC_15.209_03M_PK	**Margin : 6**
Probe : CB1_FCC_EFS_1-18G-1_0901 - VERTICAL	**Power : DC 3.3V ±5% from host equipment**
EUT : 11N Wireless LAN CARD	**Note : 802.11n 20MHz_CH36**

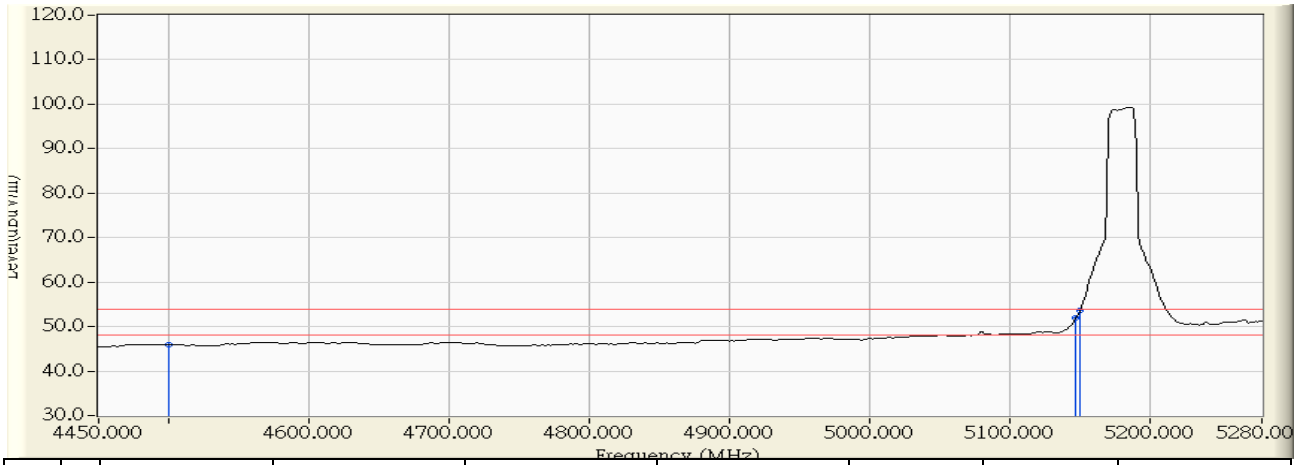


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		4500.000	32.947	24.847	57.794	-16.206	74.000	PEAK
2		5138.900	35.272	29.498	64.770	-9.230	74.000	PEAK
3	*	5150.000	35.361	35.440	70.801	-3.199	74.000	PEAK

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 : 2013/04/27 - 16:02**
Limit : FCC_SpartC_15.209_03M_AV	**Margin : 6**
Probe : CB1_FCC_EFS_1-18G-1_0901 - VERTICAL	**Power : DC 3.3V ±5% from host equipment**
EUT : 11N Wireless LAN CARD	**Note : 802.11n 20MHz_CH36**

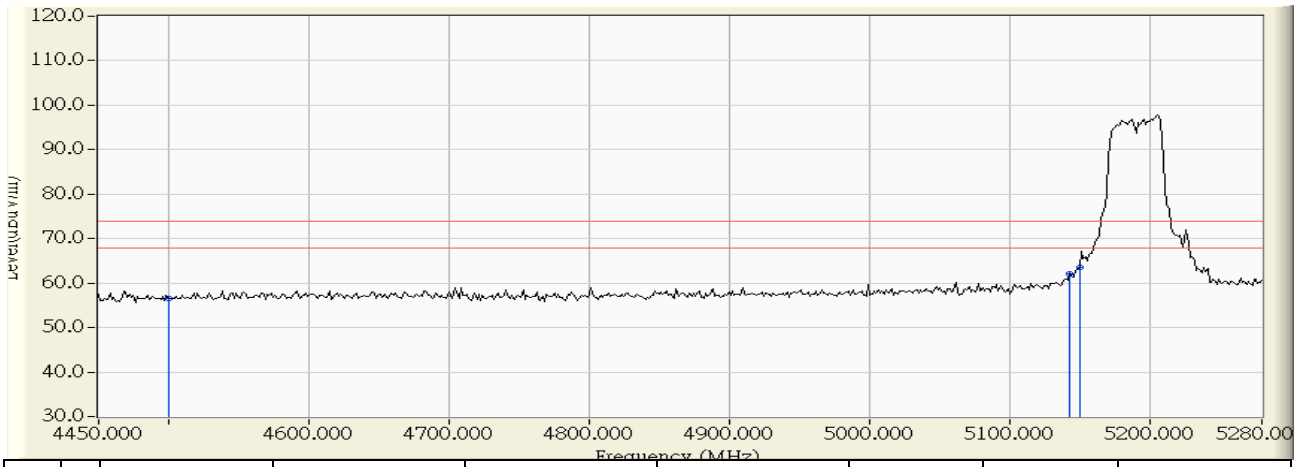


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		4500.000	32.947	12.975	45.922	-8.078	54.000	AVERAGE
2		5147.200	35.338	16.535	51.873	-2.127	54.000	AVERAGE
3	*	5150.000	35.361	18.185	53.546	-0.454	54.000	AVERAGE

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 : 2013/04/27 - 16:11**
Limit : FCC_SpartC_15.209_03M_PK	**Margin : 6**
Probe : CB1_FCC_EFS_1-18G-1_0901 - HORIZONTAL	**Power : DC 3.3V ±5% from host equipment**
EUT : 11N Wireless LAN CARD	**Note : 802.11n 40MHz_CH38**

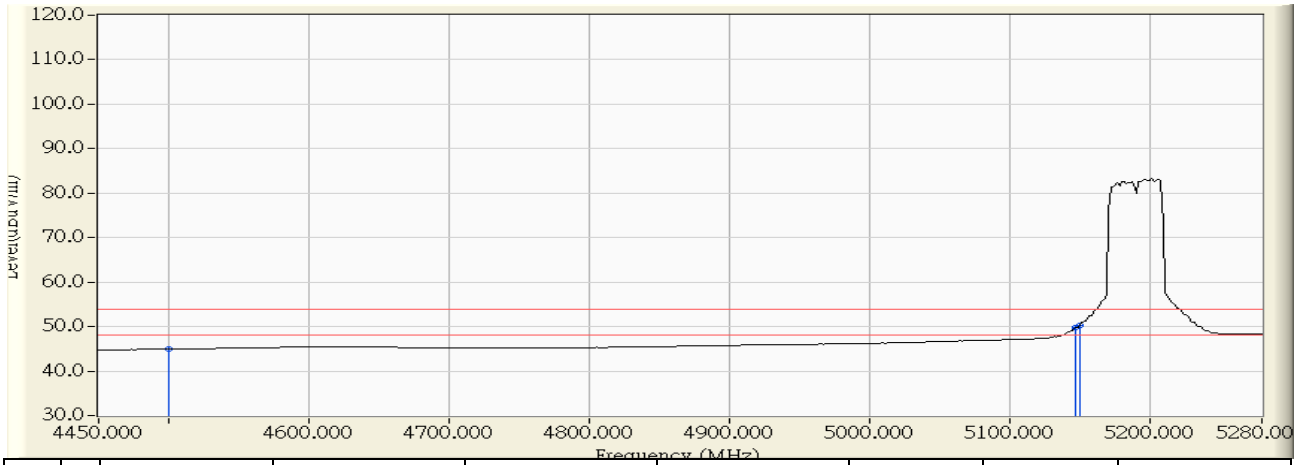


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		4500.000	32.947	23.611	56.558	-17.442	74.000	PEAK
2		5143.050	35.305	26.748	62.053	-11.947	74.000	PEAK
3	*	5150.000	35.361	28.195	63.556	-10.444	74.000	PEAK

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 : 2013/04/27 - 16:16**
Limit : FCC_SpartC_15.209_03M_AV	**Margin : 6**
Probe : CB1_FCC_EFS_1-18G-1_0901 - HORIZONTAL	**Power : DC 3.3V ±5% from host equipment**
EUT : 11N Wireless LAN CARD	**Note : 802.11n 40MHz_CH38**

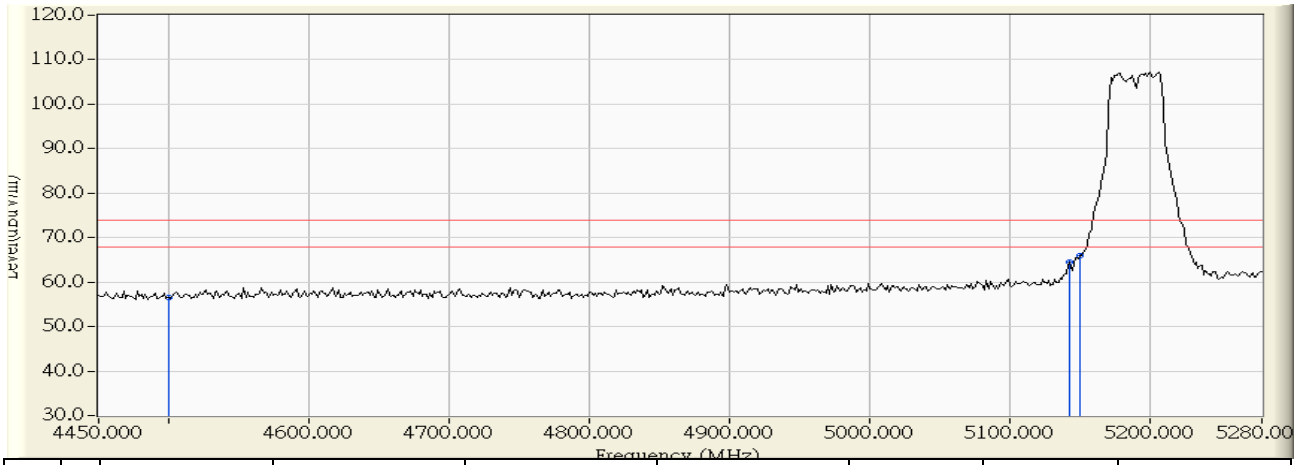


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		4500.000	32.947	11.962	44.909	-9.091	54.000	AVERAGE
2		5147.200	35.338	14.393	49.731	-4.269	54.000	AVERAGE
3	*	5150.000	35.361	14.962	50.323	-3.677	54.000	AVERAGE

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 : 2013/04/27 - 16:53**
Limit : FCC_SpartC_15.209_03M_PK	**Margin : 6**
Probe : CB1_FCC_EFS_1-18G-1_0901 - VERTICAL	**Power : DC 3.3V ±5% from host equipment**
EUT : 11N Wireless LAN CARD	**Note : 802.11n 40MHz_CH38**

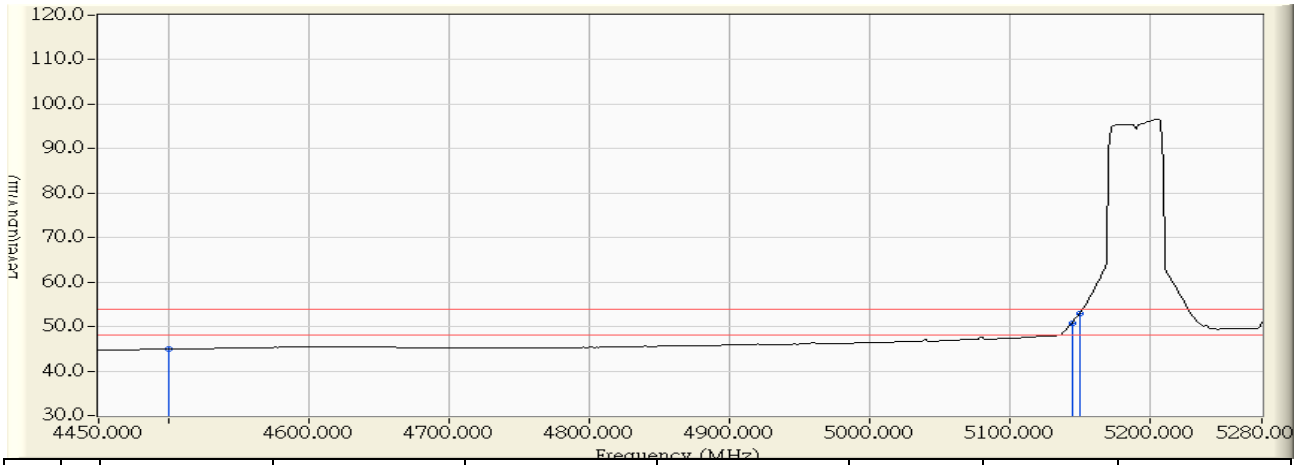


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		4500.000	32.947	23.496	56.443	-17.557	74.000	PEAK
2		5143.050	35.305	29.220	64.525	-9.475	74.000	PEAK
3	*	5150.000	35.361	30.641	66.002	-7.998	74.000	PEAK

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 : 2013/04/27 - 16:58**
Limit : FCC_SpartC_15.209_03M_AV	**Margin : 6**
Probe : CB1_FCC_EFS_1-18G-1_0901 - VERTICAL	**Power : DC 3.3V ±5% from host equipment**
EUT : 11N Wireless LAN CARD	**Note : 802.11n 40MHz_CH38**



		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		4500.000	32.947	11.972	44.919	-9.081	54.000	AVERAGE
2		5144.433	35.316	15.546	50.862	-3.138	54.000	AVERAGE
3	*	5150.000	35.361	17.613	52.974	-1.026	54.000	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

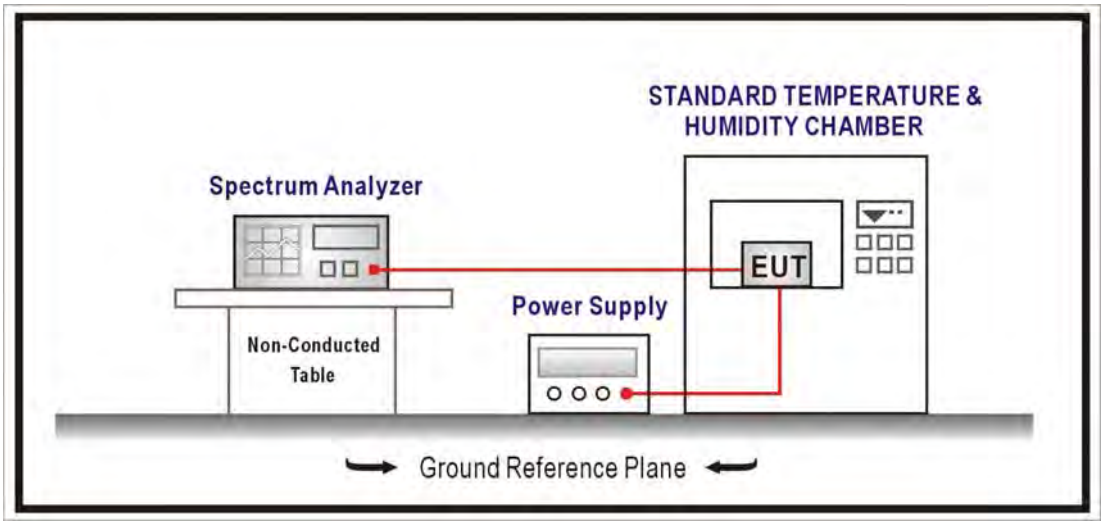
The following test equipments are used during the radiated emission tests:

Frequency Stability / SR7

Instrument	Manufacturer	Model No.	Serial No	Next Cal. Date
Spectrum Analyzer	R&S	FSP	100561	2014/02/03
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	11N Wireless LAN CARD		
Test Item	Frequency Stability		
Test Mode	Transmit - 802.11a - 5180MHz(ANT 0)		
Date of Test	2013/05/15	Test Site	SR7

Temperature Interval (°C)	AC Voltage (V)	Frequency (MHz)	Deviation (ppm)	Result
-20	120	5180.2153	41.5596	PASS
-10		5180.3890	75.0908	PASS
0		5180.1299	25.0788	PASS
10		5180.1005	19.3967	PASS
20		5180.0040	0.7768	PASS
30		5180.0608	11.7291	PASS
40		5180.3981	76.8608	PASS
50		5180.1595	30.7866	PASS

Temperature Interval (°C)	AC Voltage (V)	Frequency (MHz)	Deviation (ppm)	Result
25	102	5180.1033	19.9400	PASS
	120	5180.2689	51.9159	PASS
	138	5180.2681	51.7562	PASS

Product	11N Wireless LAN CARD		
Test Item	Frequency Stability		
Test Mode	Transmit - 802.11a - 5240MHz(ANT 0)		
Date of Test	2013/05/15	Test Site	SR7

Temperature Interval (°C)	AC Voltage (V)	Frequency (MHz)	Deviation (ppm)	Result
-20	120	5240.1255	23.9495	PASS
-10		5240.2796	53.3646	PASS
0		5240.0767	14.6333	PASS
10		5240.1090	20.7943	PASS
20		5240.0044	0.8344	PASS
30		5240.1625	31.0027	PASS
40		5240.2212	42.2176	PASS
50		5240.4756	90.7597	PASS

Temperature Interval (°C)	AC Voltage (V)	Frequency (MHz)	Deviation (ppm)	Result
25	102	5240.3143	59.9801	PASS
	120	5240.1562	29.8139	PASS
	138	5240.1479	28.2248	PASS

Product	11N Wireless LAN CARD		
Test Item	Frequency Stability		
Test Mode	Transmit - 802.11n_20M - 5180MHz(ANT 0)		
Date of Test	2013/05/15	Test Site	SR7

Temperature Interval (°C)	AC Voltage (V)	Frequency (MHz)	Deviation (ppm)	Result
-20	120	5180.3472	67.0270	PASS
-10		5180.3364	64.9457	PASS
0		5180.4713	90.9810	PASS
10		5180.2435	47.0143	PASS
20		5180.3464	66.8815	PASS
30		5180.3642	70.3106	PASS
40		5180.1037	20.0229	PASS
50		5180.0787	15.1917	PASS

Temperature Interval (°C)	AC Voltage (V)	Frequency (MHz)	Deviation (ppm)	Result
25	102	5180.4545	87.7439	PASS
	120	5180.4762	91.9228	PASS
	138	5180.3430	66.2178	PASS

Product	11N Wireless LAN CARD		
Test Item	Frequency Stability		
Test Mode	Transmit - 802.11n_20M - 5240MHz(ANT 0)		
Date of Test	2013/05/15	Test Site	SR7

Temperature Interval (°C)	AC Voltage (V)	Frequency (MHz)	Deviation (ppm)	Result
-20	120	5240.4011	76.5403	PASS
-10		5240.4295	81.9660	PASS
0		5240.3197	61.0127	PASS
10		5240.3617	69.0289	PASS
20		5240.4065	77.5693	PASS
30		5240.3842	73.3148	PASS
40		5240.3021	57.6579	PASS
50		5240.4639	88.5333	PASS

Temperature Interval (°C)	AC Voltage (V)	Frequency (MHz)	Deviation (ppm)	Result
25	102	5240.3446	65.7576	PASS
	120	5240.3848	73.4269	PASS
	138	5240.0540	10.3046	PASS

Product	11N Wireless LAN CARD		
Test Item	Frequency Stability		
Test Mode	Transmit - 802.11n_20M - 5180MHz(ANT 1)		
Date of Test	2013/05/15	Test Site	SR7

Temperature Interval (°C)	AC Voltage (V)	Frequency (MHz)	Deviation (ppm)	Result
-20	120	5180.4501	86.8922	PASS
-10		5180.2239	43.2267	PASS
0		5180.1820	35.1436	PASS
10		5180.1190	22.9781	PASS
20		5180.4316	83.3280	PASS
30		5180.2674	51.6308	PASS
40		5180.0453	8.7469	PASS
50		5180.4499	86.8476	PASS

Temperature Interval (°C)	AC Voltage (V)	Frequency (MHz)	Deviation (ppm)	Result
25	102	5180.4672	90.2004	PASS
	120	5180.4854	93.6977	PASS
	138	5180.0196	3.7774	PASS

Product	11N Wireless LAN CARD		
Test Item	Frequency Stability		
Test Mode	Transmit - 802.11n_20M - 5240MHz(ANT 1)		
Date of Test	2013/05/15	Test Site	SR7

Temperature Interval (°C)	AC Voltage (V)	Frequency (MHz)	Deviation (ppm)	Result
-20	120	5240.4554	86.9027	PASS
-10		5240.2872	54.8034	PASS
0		5240.1844	35.1874	PASS
10		5240.4445	84.8215	PASS
20		5240.1441	27.4922	PASS
30		5240.3812	72.7450	PASS
40		5240.1186	22.6276	PASS
50		5240.1667	31.8115	PASS

Temperature Interval (°C)	AC Voltage (V)	Frequency (MHz)	Deviation (ppm)	Result
25	102	5240.2816	53.7379	PASS
	120	5240.2614	49.8798	PASS
	138	5240.0475	9.0661	PASS

Product	11N Wireless LAN CARD		
Test Item	Frequency Stability		
Test Mode	Transmit - 802.11n_40M - 5190MHz(ANT 0)		
Date of Test	2013/05/15	Test Site	SR7

Temperature Interval (°C)	AC Voltage (V)	Frequency (MHz)	Deviation (ppm)	Result
-20	120	5190.4477	86.2665	PASS
-10		5190.4324	83.3147	PASS
0		5190.0255	4.9147	PASS
10		5190.2598	50.0616	PASS
20		5190.4787	92.2387	PASS
30		5190.0502	9.6786	PASS
40		5190.1088	20.9690	PASS
50		5190.0887	17.0885	PASS

Temperature Interval (°C)	AC Voltage (V)	Frequency (MHz)	Deviation (ppm)	Result
25	102	5190.0084	1.6210	PASS
	120	5190.2241	43.1773	PASS
	138	5190.1571	30.2608	PASS

Product	11N Wireless LAN CARD		
Test Item	Frequency Stability		
Test Mode	Transmit - 802.11n_40M - 5230MHz(ANT 0)		
Date of Test	2013/05/15	Test Site	SR7

Temperature Interval (°C)	AC Voltage (V)	Frequency (MHz)	Deviation (ppm)	Result
-20	120	5230.4961	94.8653	PASS
-10		5230.1494	28.5641	PASS
0		5230.0618	11.8085	PASS
10		5230.2578	49.2950	PASS
20		5230.1747	33.4127	PASS
30		5230.4735	90.5298	PASS
40		5230.0635	12.1477	PASS
50		5230.4002	76.5160	PASS

Temperature Interval (°C)	AC Voltage (V)	Frequency (MHz)	Deviation (ppm)	Result
25	102	5230.1359	25.9790	PASS
	120	5230.2948	56.3686	PASS
	138	5230.2126	40.6542	PASS

Product	11N Wireless LAN CARD		
Test Item	Frequency Stability		
Test Mode	Transmit - 802.11n_40M - 5190MHz(ANT 1)		
Date of Test	2013/05/15	Test Site	SR7

Temperature Interval (°C)	AC Voltage (V)	Frequency (MHz)	Deviation (ppm)	Result
-20	120	5190.4477	86.2665	PASS
-10		5190.4324	83.3147	PASS
0		5190.0255	4.9147	PASS
10		5190.2598	50.0616	PASS
20		5190.4787	92.2387	PASS
30		5190.0502	9.6786	PASS
40		5190.1088	20.9690	PASS
50		5190.0887	17.0885	PASS

Temperature Interval (°C)	AC Voltage (V)	Frequency (MHz)	Deviation (ppm)	Result
25	102	5190.0084	1.6210	PASS
	120	5190.2241	43.1773	PASS
	138	5190.1571	30.2608	PASS

Product	11N Wireless LAN CARD		
Test Item	Frequency Stability		
Test Mode	Transmit - 802.11n_40M - 5230MHz(ANT 1)		
Date of Test	2013/05/15	Test Site	SR7

Temperature Interval (°C)	AC Voltage (V)	Frequency (MHz)	Deviation (ppm)	Result
-20	120	5230.4961	94.8653	PASS
-10		5230.1494	28.5641	PASS
0		5230.0618	11.8085	PASS
10		5230.2578	49.2950	PASS
20		5230.1747	33.4127	PASS
30		5230.4735	90.5298	PASS
40		5230.0635	12.1477	PASS
50		5230.4002	76.5160	PASS

Temperature Interval (°C)	AC Voltage (V)	Frequency (MHz)	Deviation (ppm)	Result
25	102	5230.1359	25.9790	PASS
	120	5230.2948	56.3686	PASS
	138	5230.2126	40.6542	PASS