

Product	Wireless-AC1900 Dual Band Gigabit Router		
Test Item	Peak Power Spectral Density		
Test Mode	Mode 2: Transmit (Beamforming Mode) Adapter: EXA1206UH		
Date of Test	2013/05/02	Test Site	SR7

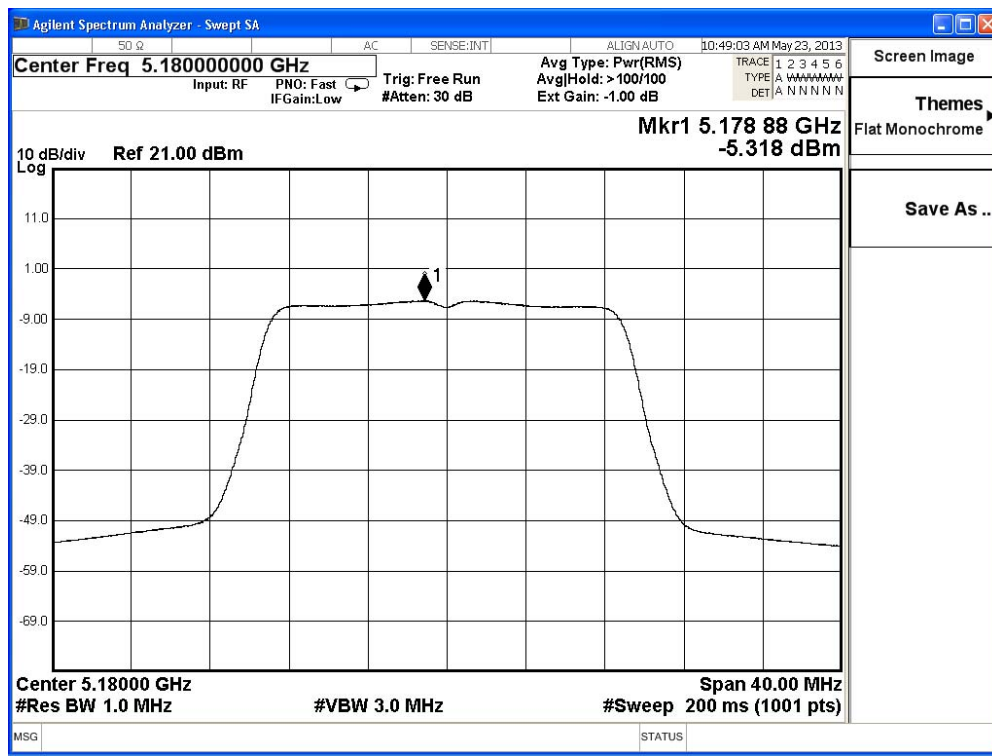
IEEE 802.11n_20M(ANT 1)				
Channel No.	Frequency (MHz)	Measure Level (dBm)	Required Limit (dBm)	Result
36	5180	-5.318	≤ 1.19	Pass
44	5220	-5.151	≤ 1.19	Pass
48	5240	-5.568	≤ 1.19	Pass

Note:

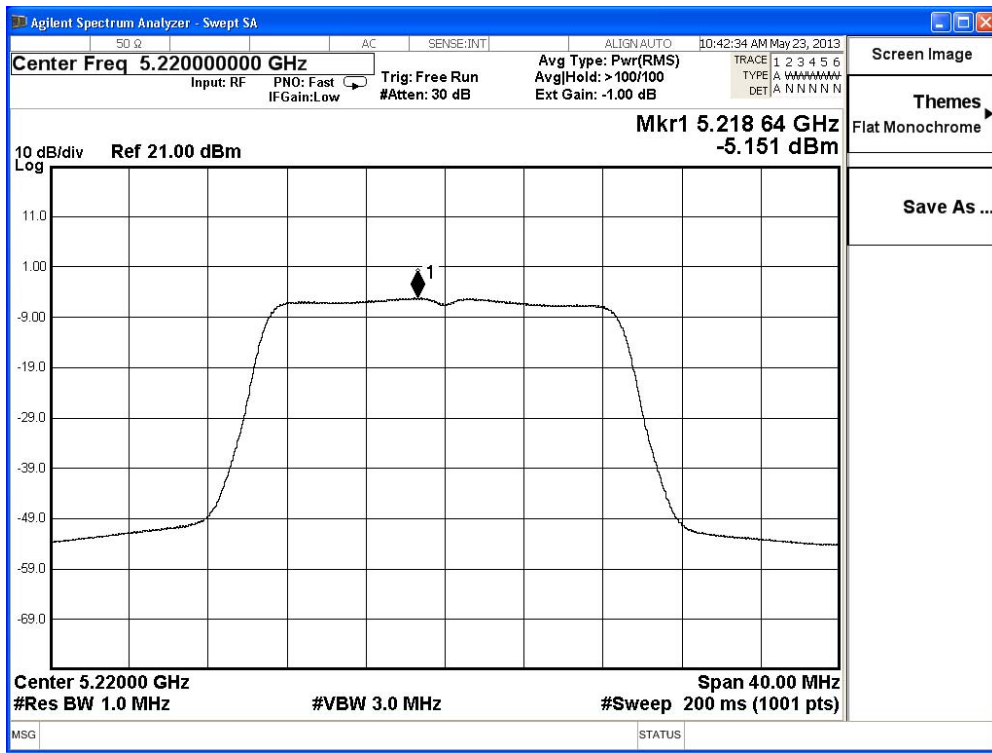
Total Gain :  $10\log(\text{Ant N}) + \text{max Gain} = 10\log(3)+4.04\text{dBi} = 8.81\text{dBi}$

Required Limit =  $4\text{dBm} - (8.81\text{dBi} - 6\text{dBi}) = 1.19 \text{ dBm}$

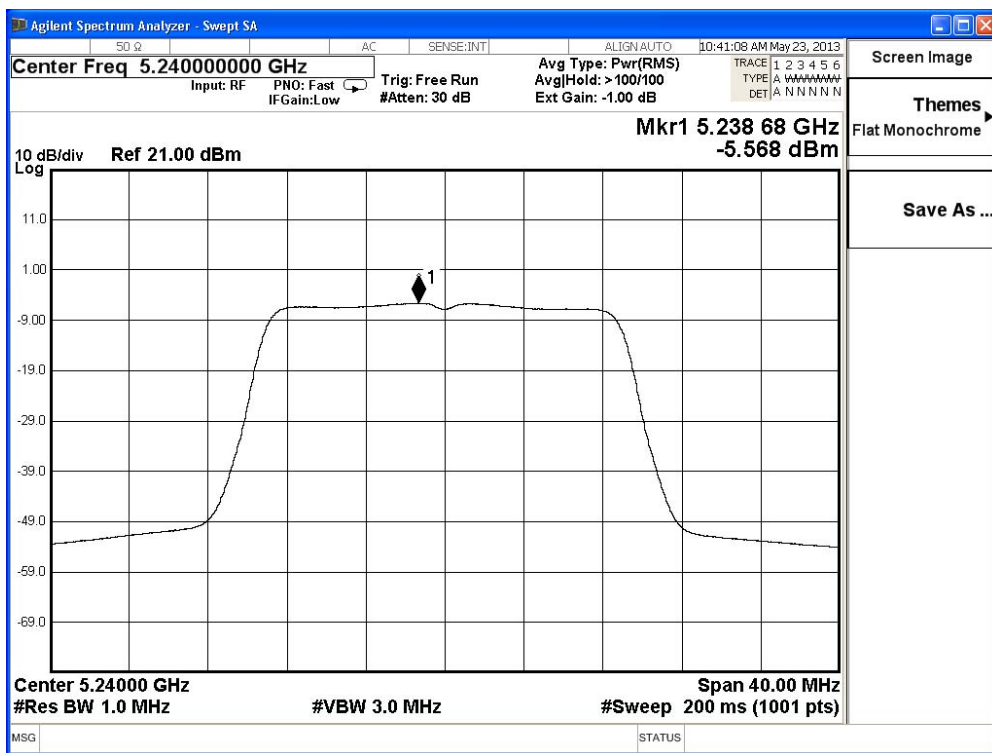
### Peak Power Spectral Density – Channel 36



**Peak Power Spectral Density – Channel 44**



**Peak Power Spectral Density – Channel 48**



Product	Wireless-AC1900 Dual Band Gigabit Router		
Test Item	Peak Power Spectral Density		
Test Mode	Mode 2: Transmit (Beamforming Mode) Adapter: EXA1206UH		
Date of Test	2013/05/02	Test Site	SR7

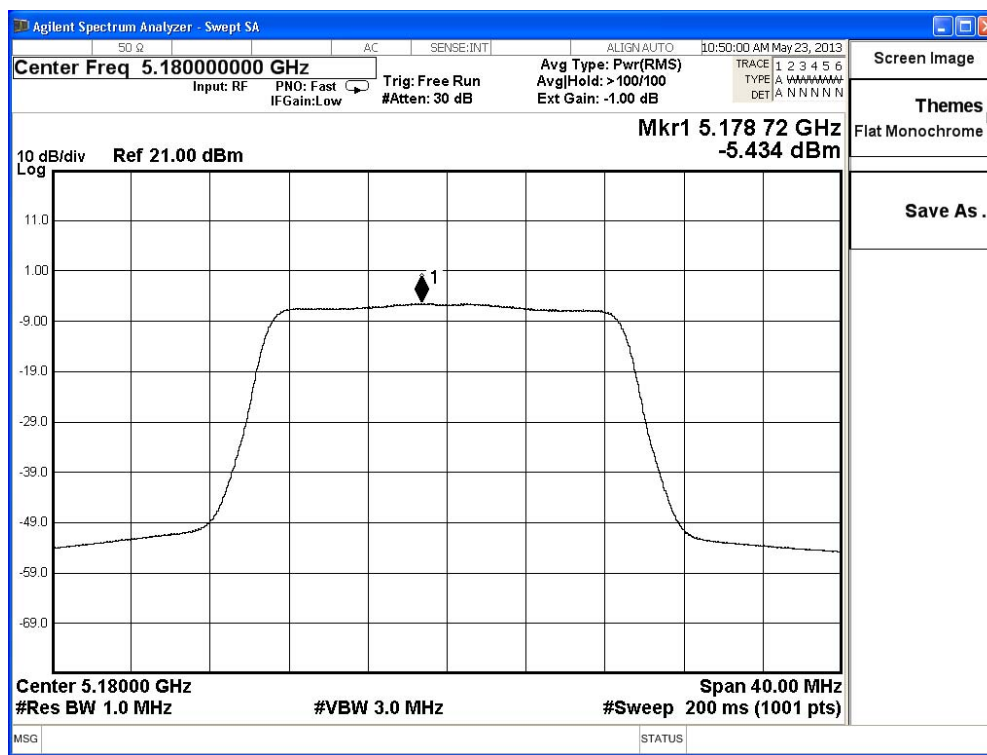
IEEE 802.11n_20M(ANT 2)				
Channel No.	Frequency (MHz)	Measure Level (dBm)	Required Limit (dBm)	Result
36	5180	-5.434	≤ 1.19	Pass
44	5220	-5.473	≤ 1.19	Pass
48	5240	-4.817	≤ 1.19	Pass

Note:

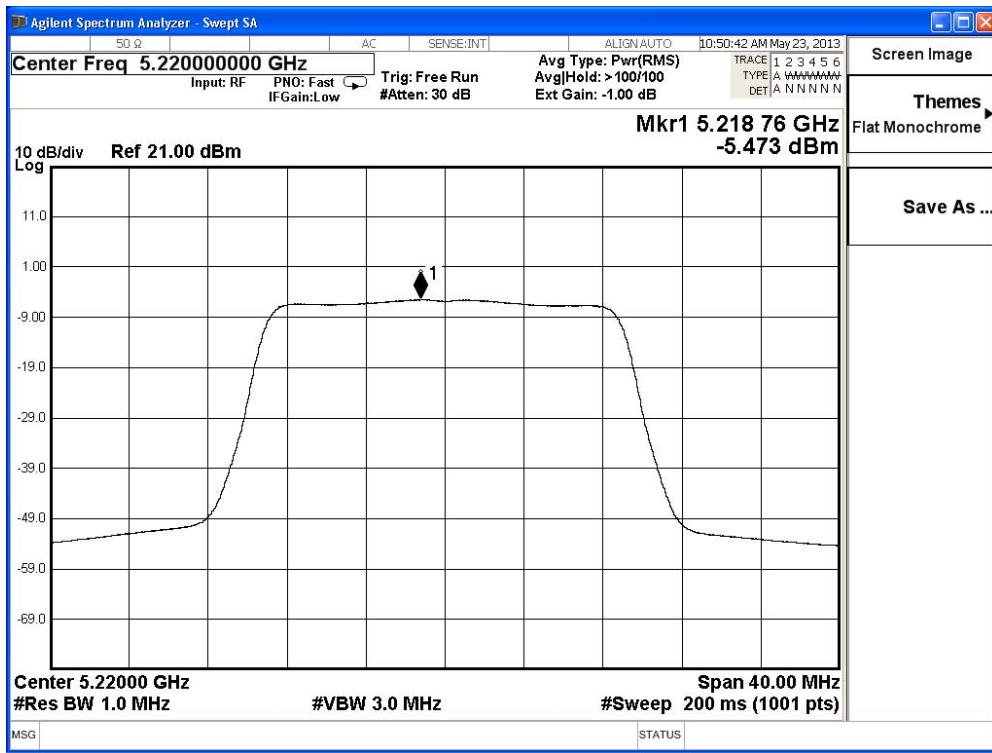
Total Gain :  $10\log(\text{Ant N}) + \text{max Gain} = 10\log(3)+4.04\text{dBi} = 8.81\text{dBi}$

Required Limit =  $4\text{dBm} - (8.81\text{dBi} - 6\text{dBi}) = 1.19 \text{ dBm}$

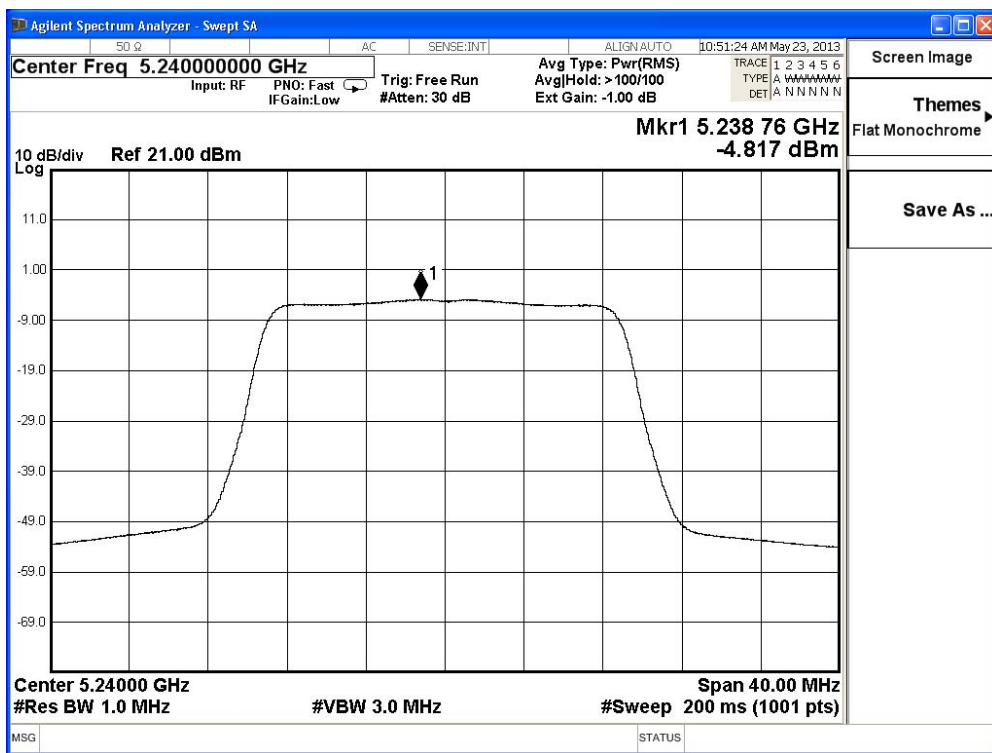
### Peak Power Spectral Density – Channel 36



**Peak Power Spectral Density – Channel 44**



**Peak Power Spectral Density – Channel 48**



Product	Wireless-AC1900 Dual Band Gigabit Router		
Test Item	Peak Power Spectral Density		
Test Mode	Mode 2: Transmit (Beamforming Mode) Adapter: EXA1206UH		
Date of Test	2013/05/02	Test Site	SR7

IEEE 802.11n_20M(ANT 0+1+2)				
Channel No.	Frequency (MHz)	Measure Level (dBm)	Required Limit (dBm)	Result
36	5180	-0.359	$\leq 1.19$	Pass
44	5220	-0.231	$\leq 1.19$	Pass
48	5240	0.005	$\leq 1.19$	Pass

Note:

Total Gain :  $10\log(\text{Ant N}) + \text{max Gain} = 10\log(3)+4.04\text{dBi} = 8.81\text{dBi}$

Required Limit =  $4\text{dBm} - (8.81\text{dBi} - 6\text{dBi}) = 1.19 \text{ dBm}$

Product	Wireless-AC1900 Dual Band Gigabit Router		
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Test Mode	Mode 2: Transmit (Beamforming Mode) Adapter: EXA1206UH		
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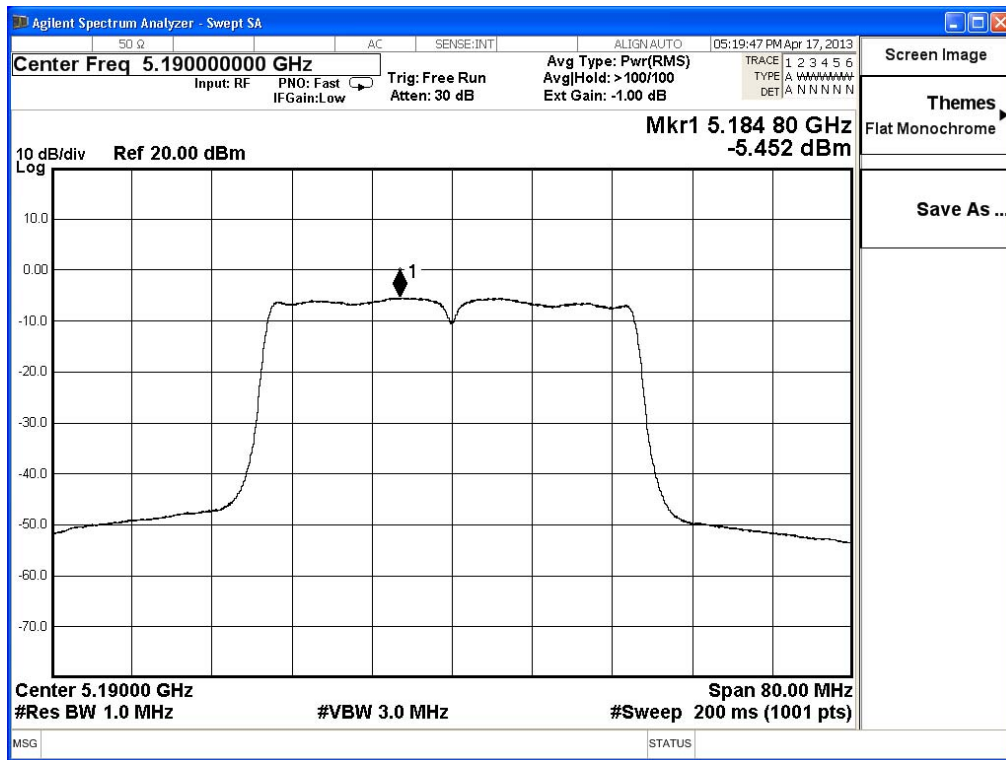
IEEE 802.11n_40M(ANT 0)				
Channel No.	Frequency (MHz)	Measure Level (dBm)	Required Limit (dBm)	Result
38	5190	-5.452	≤ 1.19	Pass
46	5230	-5.200	≤ 1.19	Pass

Note:

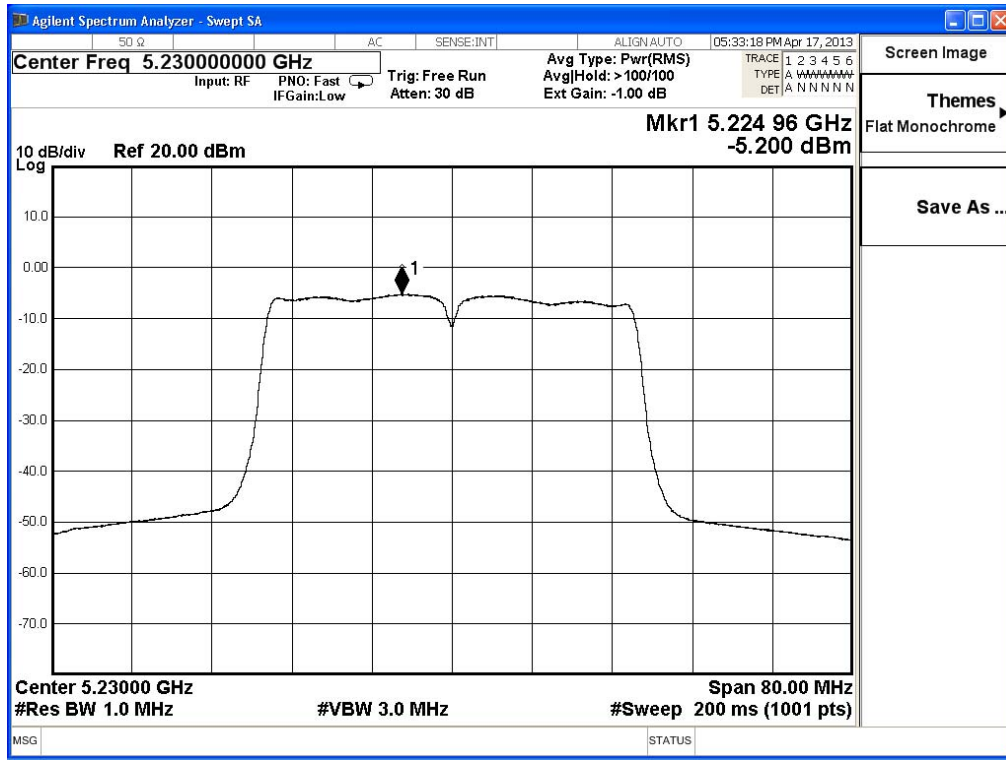
Total Gain :  $10\log(\text{Ant } N) + \text{max Gain} = 10\log(3) + 4.04\text{dBi} = 8.81\text{dBi}$

Required Limit =  $4\text{dBm} - (8.81\text{dBi} - 6\text{dBi}) = 1.19\text{ dBm}$

### Peak Power Spectral Density – Channel 38



**Peak Power Spectral Density – Channel 46**



Product	Wireless-AC1900 Dual Band Gigabit Router		
Test Item	Peak Power Spectral Density		
Test Mode	Mode 2: Transmit (Beamforming Mode) Adapter: EXA1206UH		
Date of Test	2013/05/02	Test Site	SR7

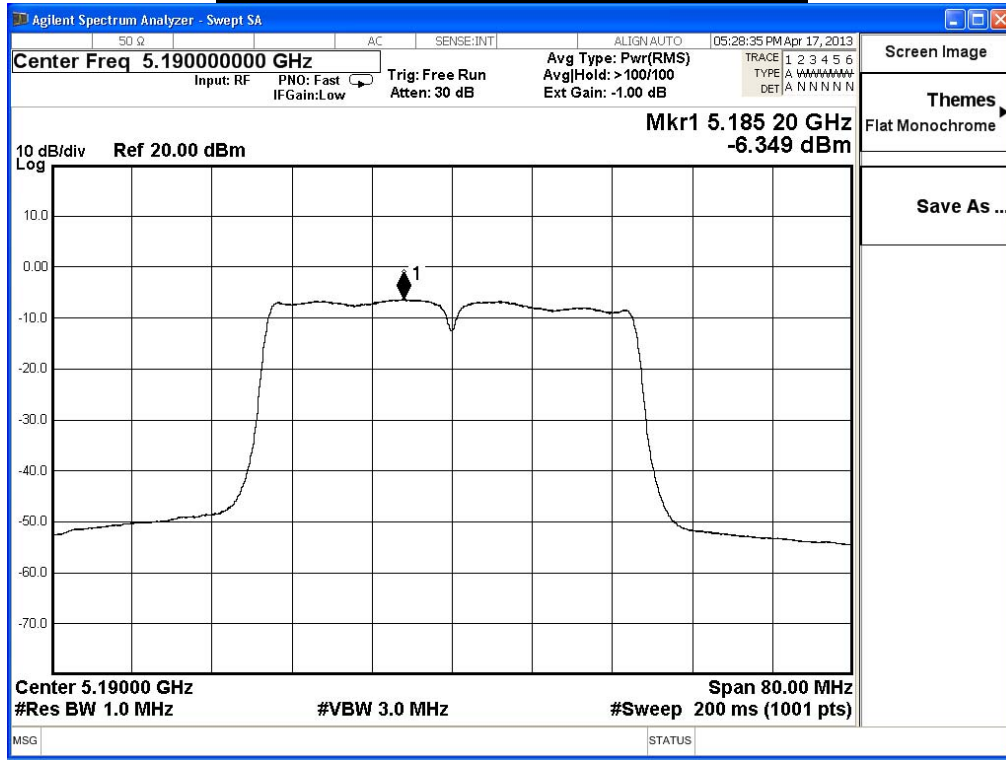
IEEE 802.11n_40M(ANT 1)				
Channel No.	Frequency (MHz)	Measure Level (dBm)	Required Limit (dBm)	Result
38	5190	-6.349	≤ 1.19	Pass
46	5230	-6.267	≤ 1.19	Pass

Note:

Total Gain :  $10\log(\text{Ant N}) + \text{max Gain} = 10\log(3)+4.04\text{dBi} = 8.81\text{dBi}$

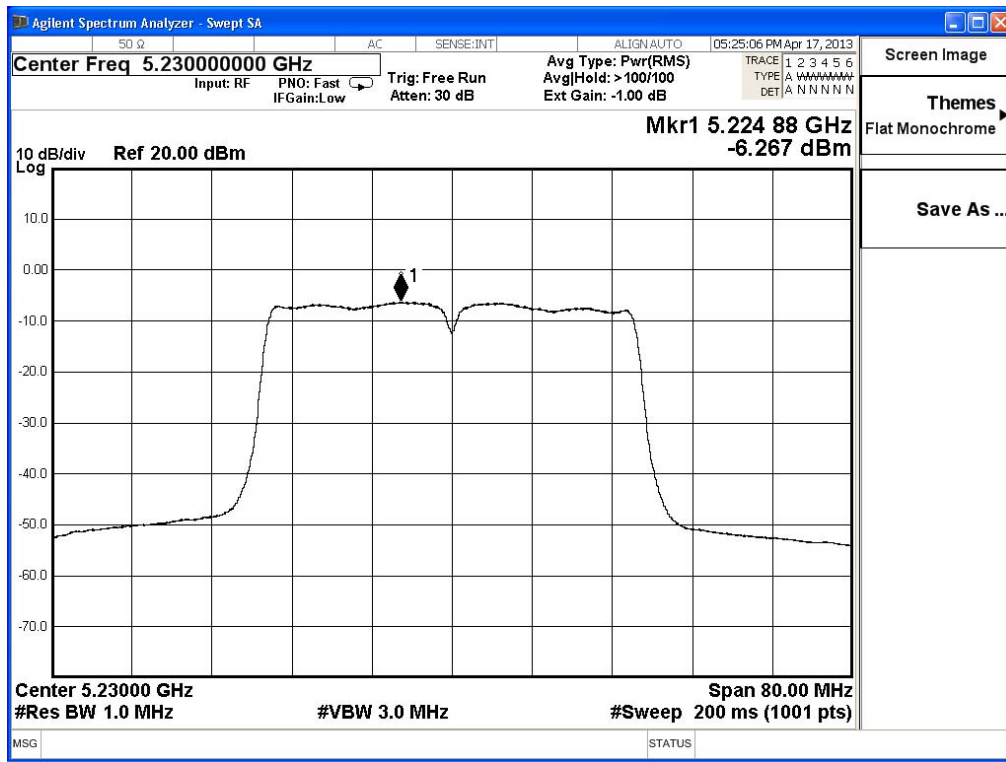
Required Limit =  $4\text{dBm} - (8.81\text{dBi} - 6\text{dBi}) = 1.19\text{ dBm}$

**Peak Power Spectral Density – Channel 38**





**Peak Power Spectral Density – Channel 46**



Product	Wireless-AC1900 Dual Band Gigabit Router		
Test Item	Peak Power Spectral Density		
Test Mode	Mode 2: Transmit (Beamforming Mode) Adapter: EXA1206UH		
Date of Test	2013/05/02	Test Site	SR7

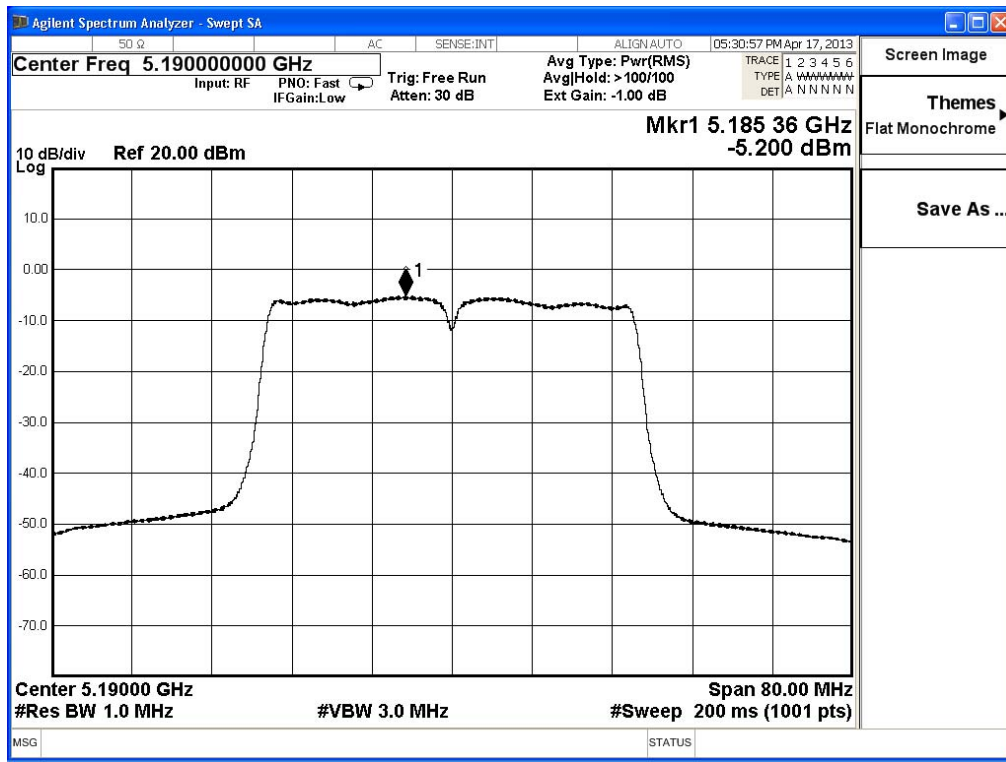
IEEE 802.11n_40M(ANT 2)				
Channel No.	Frequency (MHz)	Measure Level (dBm)	Required Limit (dBm)	Result
38	5190	-5.200	≤ 1.19	Pass
46	5230	-5.019	≤ 1.19	Pass

Note:

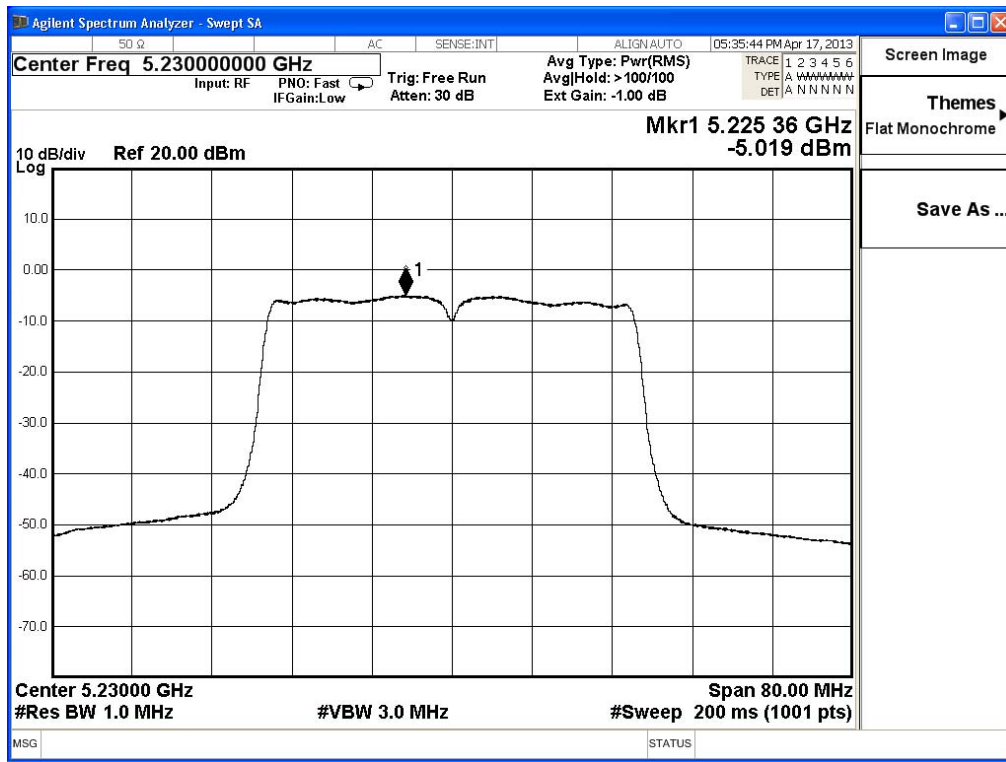
Total Gain :  $10\log(\text{Ant N}) + \text{max Gain} = 10\log(3)+4.04\text{dBi} = 8.81\text{dBi}$

Required Limit =  $4\text{dBm} - (8.81\text{dBi} - 6\text{dBi}) = 1.19\text{ dBm}$

### Peak Power Spectral Density – Channel 38



**Peak Power Spectral Density – Channel 46**



Product	Wireless-AC1900 Dual Band Gigabit Router		
Test Item	Peak Power Spectral Density		
Test Mode	Mode 2: Transmit (Beamforming Mode) Adapter: EXA1206UH		
Date of Test	2013/05/02	Test Site	SR7

IEEE 802.11n_40M(ANT 0+1+2)				
Channel No.	Frequency (MHz)	Measure Level (dBm)	Required Limit (dBm)	Result
38	5190	-0.870	≤ 1.19	Pass
46	5230	-0.690	≤ 1.19	Pass

Note:

Total Gain :  $10\log(\text{Ant N}) + \text{max Gain} = 10\log(3)+4.04\text{dBi} = 8.81\text{dBi}$

Required Limit =  $4\text{dBm} - (8.81\text{dBi} - 6\text{dBi}) = 1.19\text{ dBm}$

Product	Wireless-AC1900 Dual Band Gigabit Router		
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Test Mode	Mode 2: Transmit (Beamforming Mode) Adapter: EXA1206UH		
Date of Test	2013/05/02	Test Site	SR7

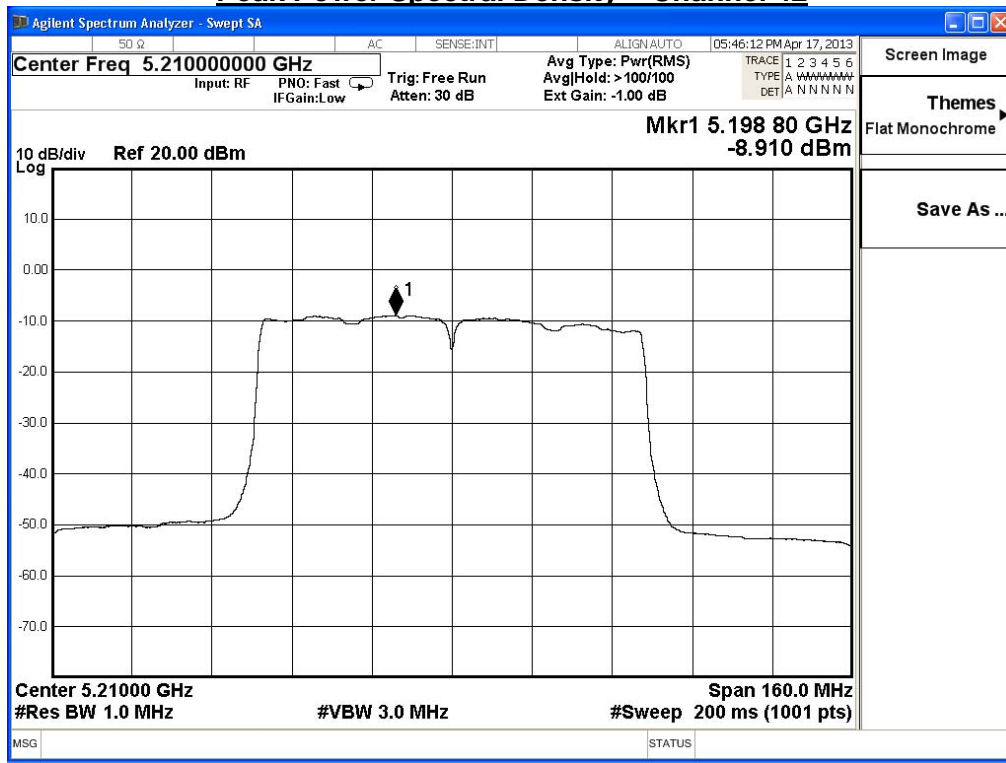
IEEE 802.11ac_80M(ANT 0)				
Channel No.	Frequency (MHz)	Measure Level (dBm)	Required Limit (dBm)	Result
42	5210	-8.910	≤ 1.19	Pass

Note:

Total Gain :  $10\log(\text{Ant } N) + \text{max Gain} = 10\log(3)+4.04\text{dBi} = 8.81\text{dBi}$

Required Limit =  $4\text{dBm} - (8.81\text{dBi} - 6\text{dBi}) = 1.19 \text{ dBm}$

**Peak Power Spectral Density – Channel 42**



Product	Wireless-AC1900 Dual Band Gigabit Router		
Test Item	Peak Power Spectral Density		
Test Mode	Mode 2: Transmit (Beamforming Mode) Adapter: EXA1206UH		
Date of Test	2013/05/02	Test Site	SR7

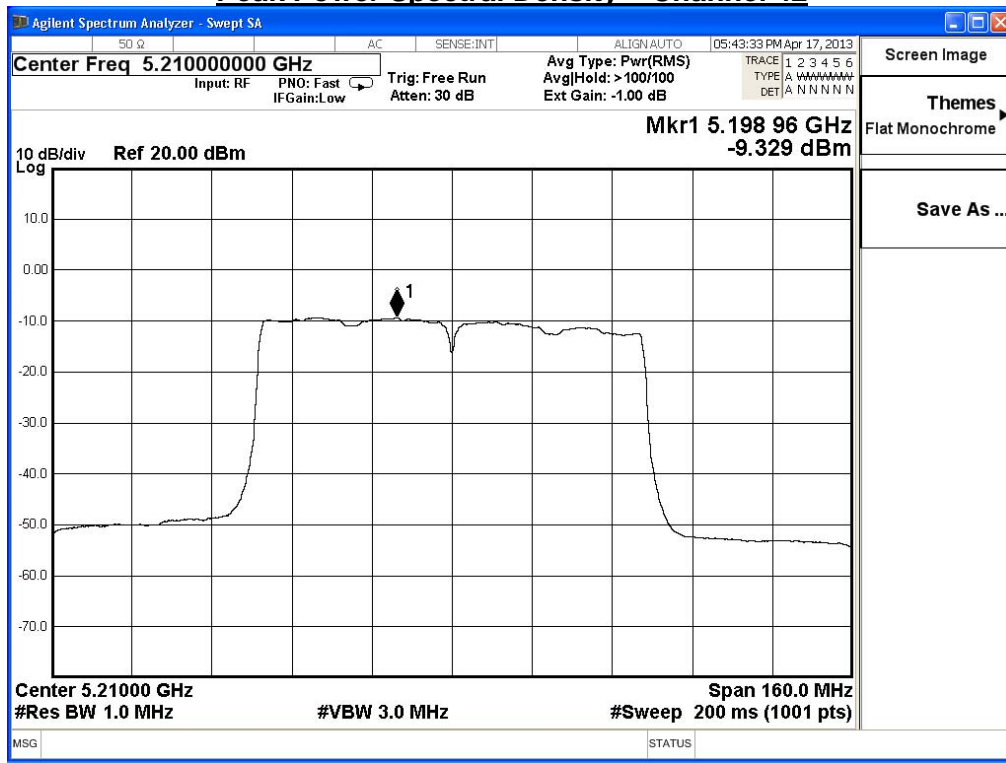
IEEE 802.11ac_80M(ANT 1)				
Channel No.	Frequency (MHz)	Measure Level (dBm)	Required Limit (dBm)	Result
42	5210	-9.329	≤ 1.19	Pass

Note:

Total Gain :  $10\log(\text{Ant N}) + \text{max Gain} = 10\log(3)+4.04\text{dBi} = 8.81\text{dBi}$

Required Limit =  $4\text{dBm} - (8.81\text{dBi} - 6\text{dBi}) = 1.19 \text{ dBm}$

### Peak Power Spectral Density – Channel 42



Product	Wireless-AC1900 Dual Band Gigabit Router		
Test Item	Peak Power Spectral Density		
Test Mode	Mode 2: Transmit (Beamforming Mode) Adapter: EXA1206UH		
Date of Test	2013/05/02	Test Site	SR7

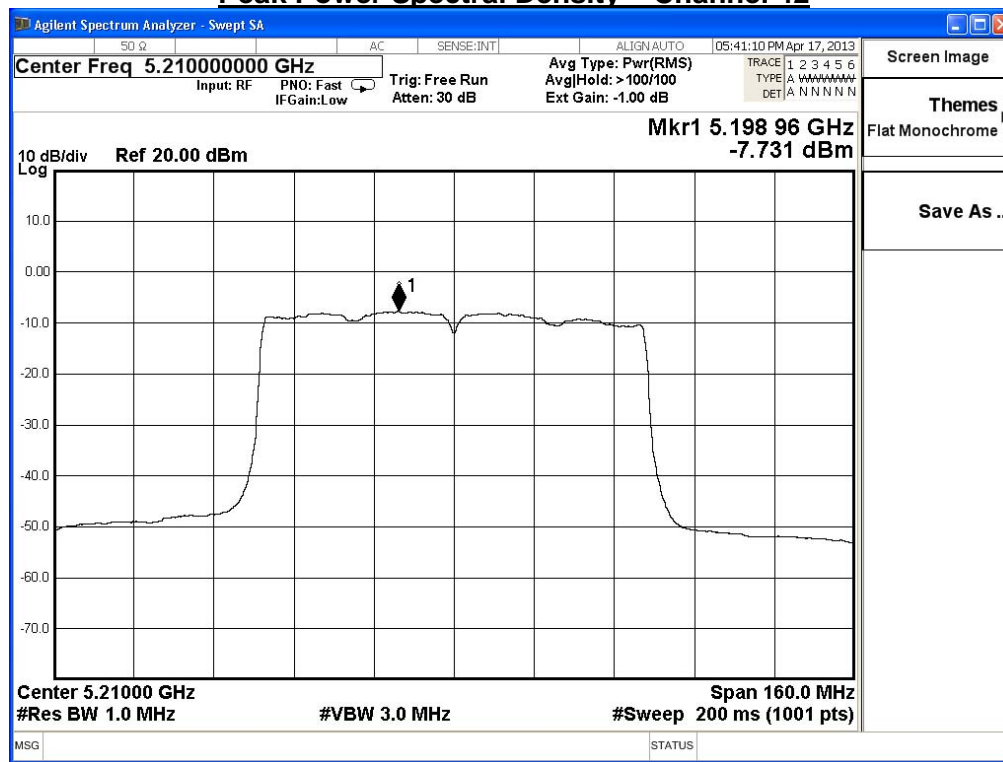
IEEE 802.11ac_80M(ANT 2)				
Channel No.	Frequency (MHz)	Measure Level (dBm)	Required Limit (dBm)	Result
42	5210	-7.731	≤ 1.19	Pass

Note:

Total Gain :  $10\log(\text{Ant } N) + \text{max Gain} = 10\log(3)+4.04\text{dBi} = 8.81\text{dBi}$

Required Limit =  $4\text{dBm} - (8.81\text{dBi} - 6\text{dBi}) = 1.19 \text{ dBm}$

### Peak Power Spectral Density – Channel 42



Product	Wireless-AC1900 Dual Band Gigabit Router		
Test Item	Peak Power Spectral Density		
Test Mode	Mode 2: Transmit (Beamforming Mode) Adapter: EXA1206UH		
Date of Test	2013/05/02	Test Site	SR7

IEEE 802.11ac_80M(ANT 0+1+2)				
Channel No.	Frequency (MHz)	Measure Level (dBm)	Required Limit (dBm)	Result
42	5210	-3.830	$\leq 1.19$	Pass

Note:

Total Gain :  $10\log(\text{Ant N}) + \text{max Gain} = 10\log(3)+4.04\text{dBi} = 8.81\text{dBi}$

Required Limit =  $4\text{dBm} - ( 8.81\text{dBi} - 6\text{dBi} ) = 1.19 \text{ dBm}$



**6. Peak Excursion**

**6.1. Test Equipment**

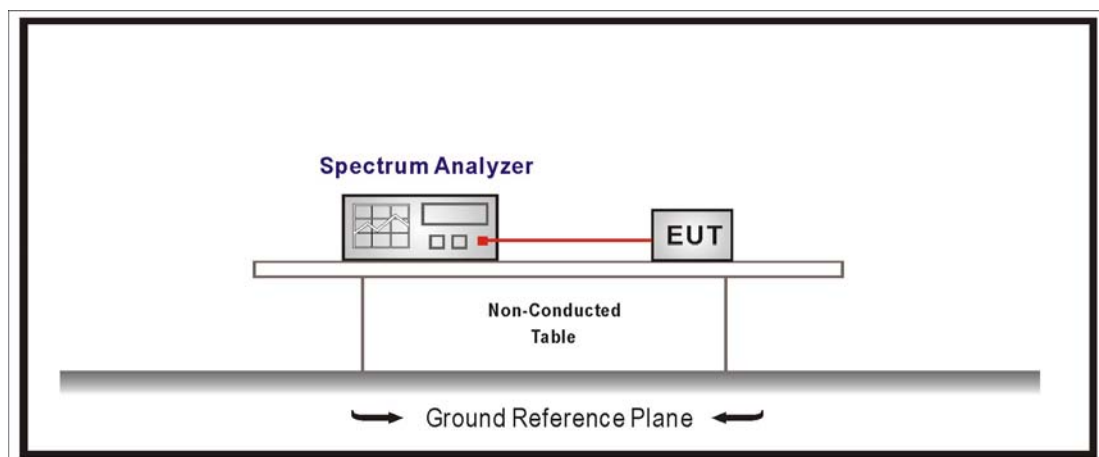
The following test equipments are used during the radiated emission tests:

**Peak Excursion / SR7**

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

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

**6.2. Test Setup**



**6.3. Limits**

The ratio of the peak excursion of the modulation envelope (measured using 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.

1<sup>st</sup> Trace:

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

2<sup>nd</sup> Trace:

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

**6.5. Uncertainty**

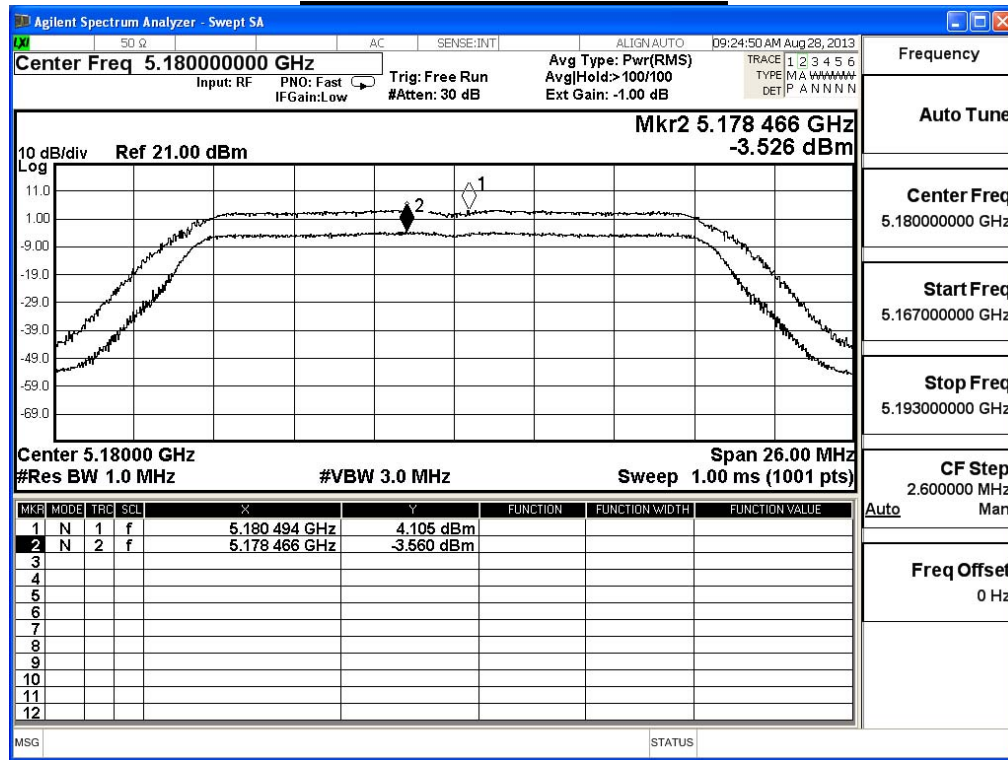
The measurement uncertainty is defined as  $\pm 1.27$  dB

6.6. Test Result

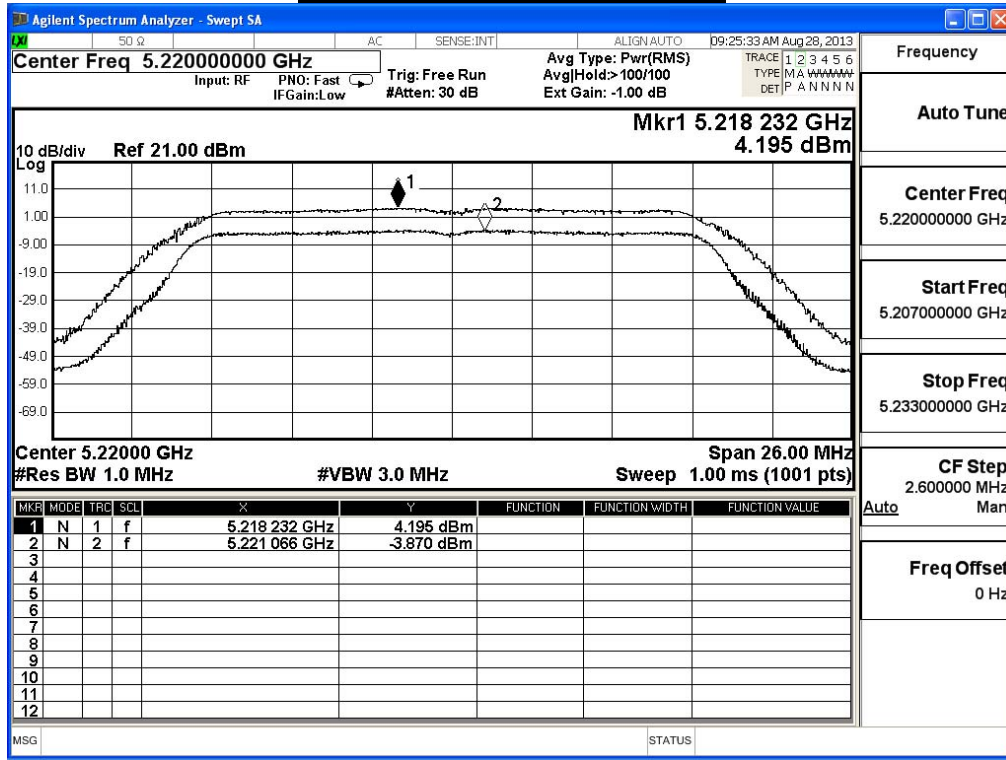
Product	Wireless-AC1900 Dual Band Gigabit Router		
Test Item	Peak Excursion		
Test Mode	Mode 1: Transmit (CDD Mode)_Adapter: EXA1206UH		
Date of Test	2013/08/28	Test Site	SR7

IEEE 802.11a (ANT0)				
Channel No.	Frequency (MHz)	Measure Level (dB)	Required Limit (dB)	Result
36	5180	7.67	≤ 13	Pass
44	5220	8.07	≤ 13	Pass
48	5240	7.59	≤ 13	Pass

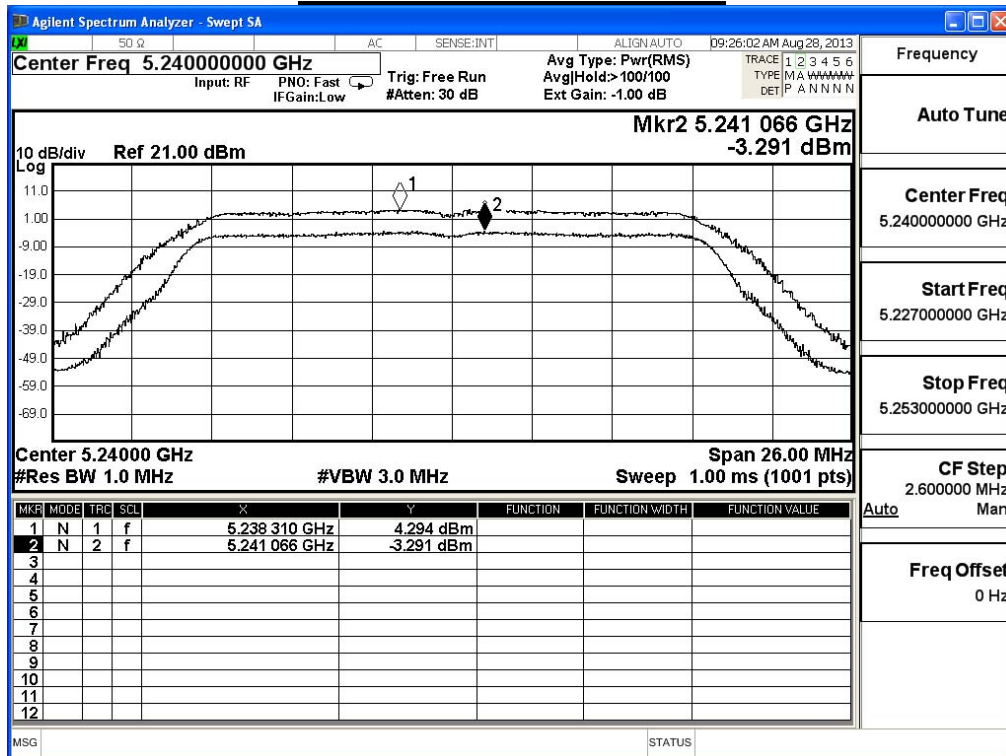
Power Excursion – Channel 36



Power Excursion – Channel 44



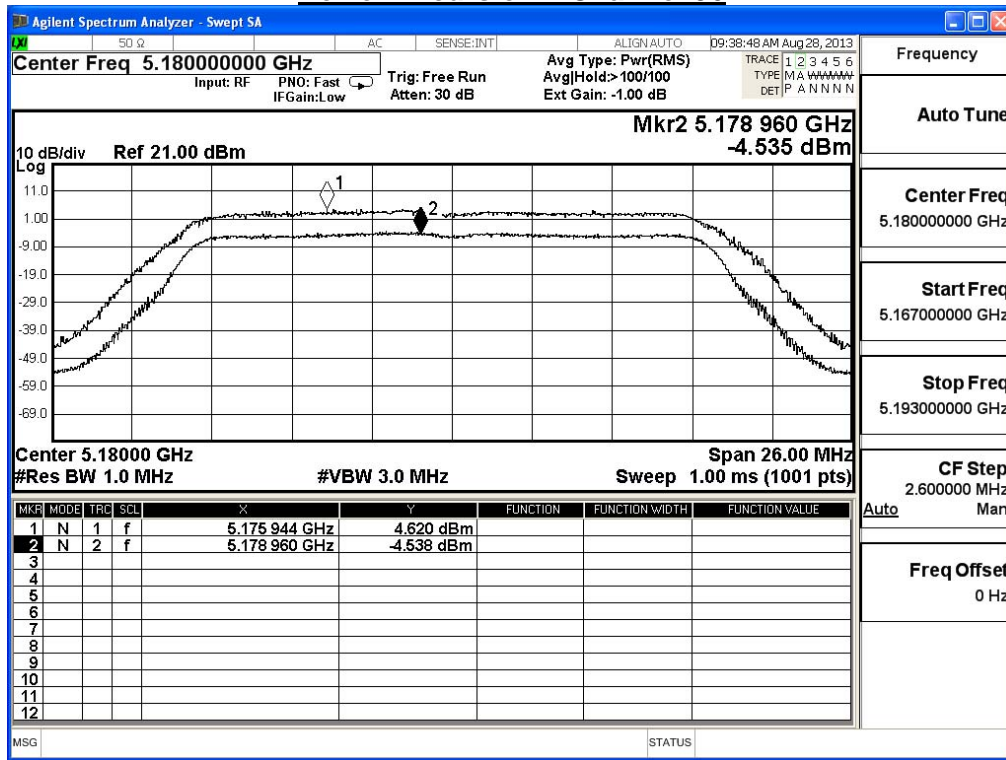
Power Excursion – Channel 48



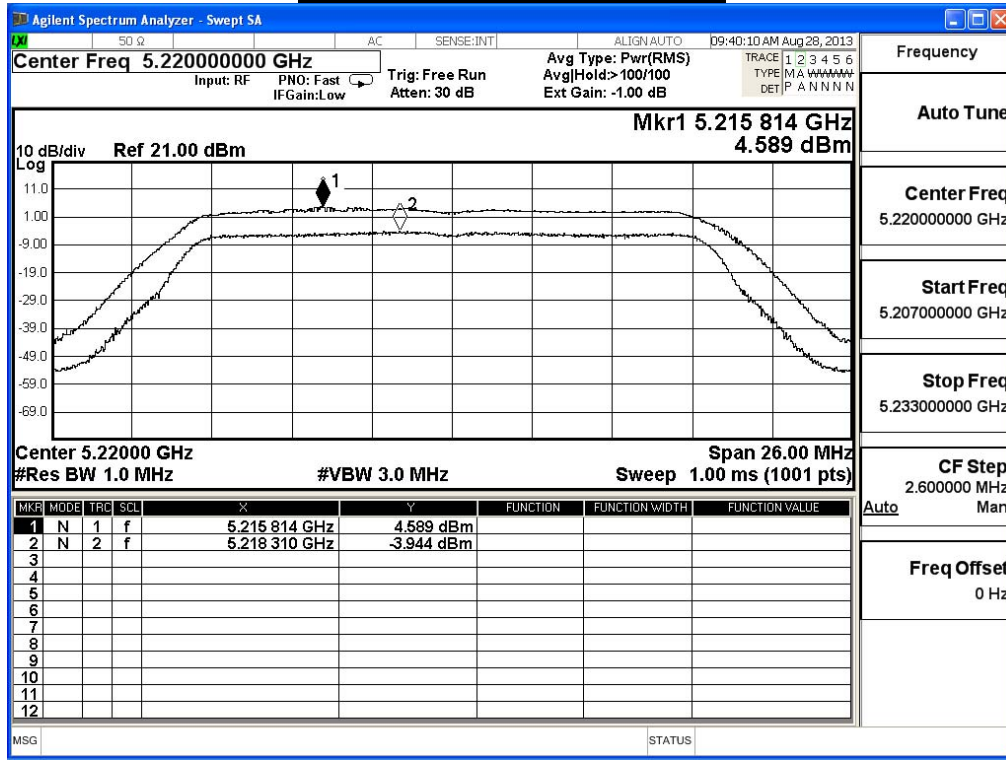
Product	Wireless-AC1900 Dual Band Gigabit Router		
Test Item	Peak Excursion		
Test Mode	Mode 1: Transmit (CDD Mode) Adapter: EXA1206UH		
Date of Test	2013/08/28	Test Site	SR7

IEEE 802.11a (ANT1)				
Channel No.	Frequency (MHz)	Measure Level (dB)	Required Limit (dB)	Result
36	5180	9.16	≤ 13	Pass
44	5220	8.53	≤ 13	Pass
48	5240	8.53	≤ 13	Pass

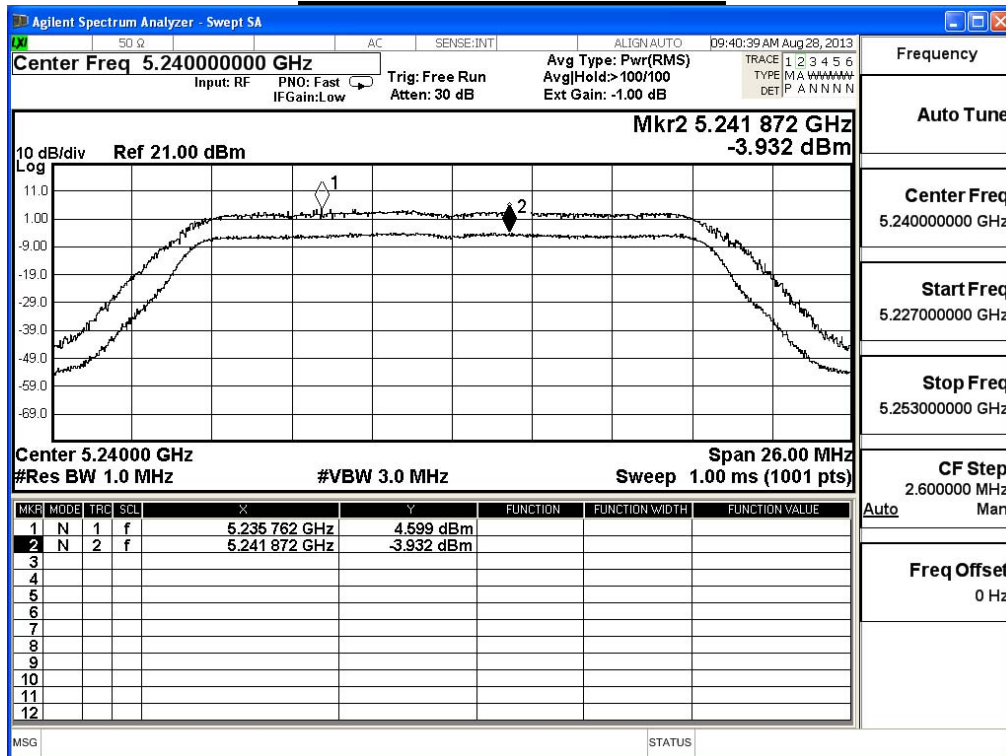
### Power Excursion – Channel 36



Power Excursion – Channel 44



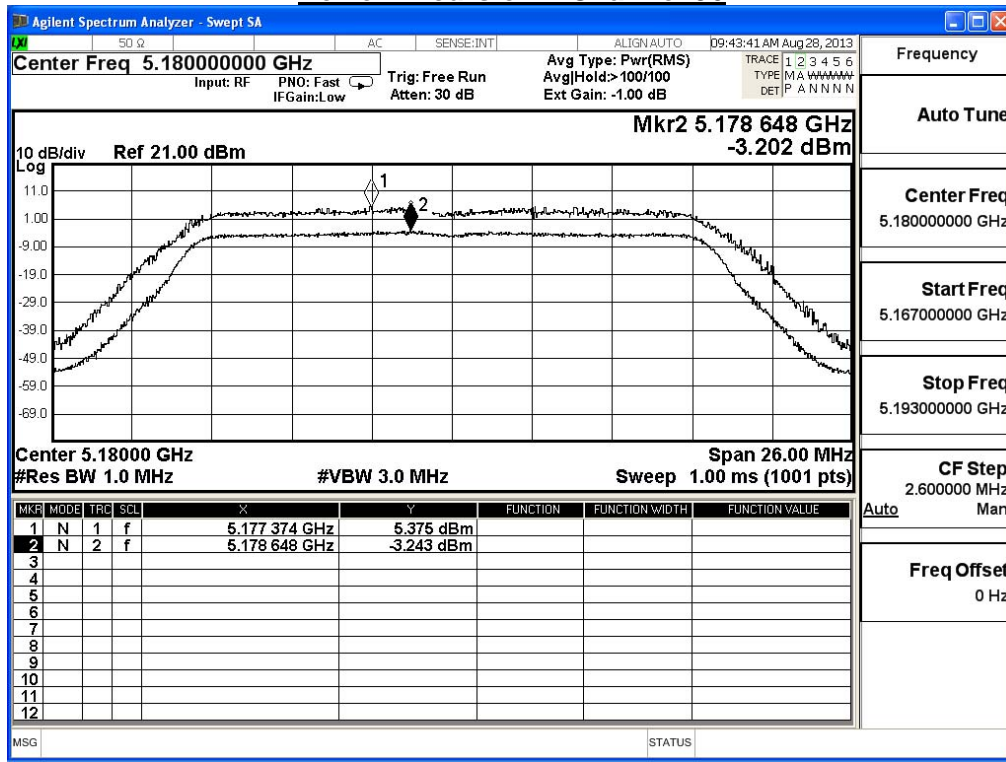
Power Excursion – Channel 48



Product	Wireless-AC1900 Dual Band Gigabit Router		
Test Item	Peak Excursion		
Test Mode	Mode 1: Transmit (CDD Mode) Adapter: EXA1206UH		
Date of Test	2013/08/28	Test Site	SR7

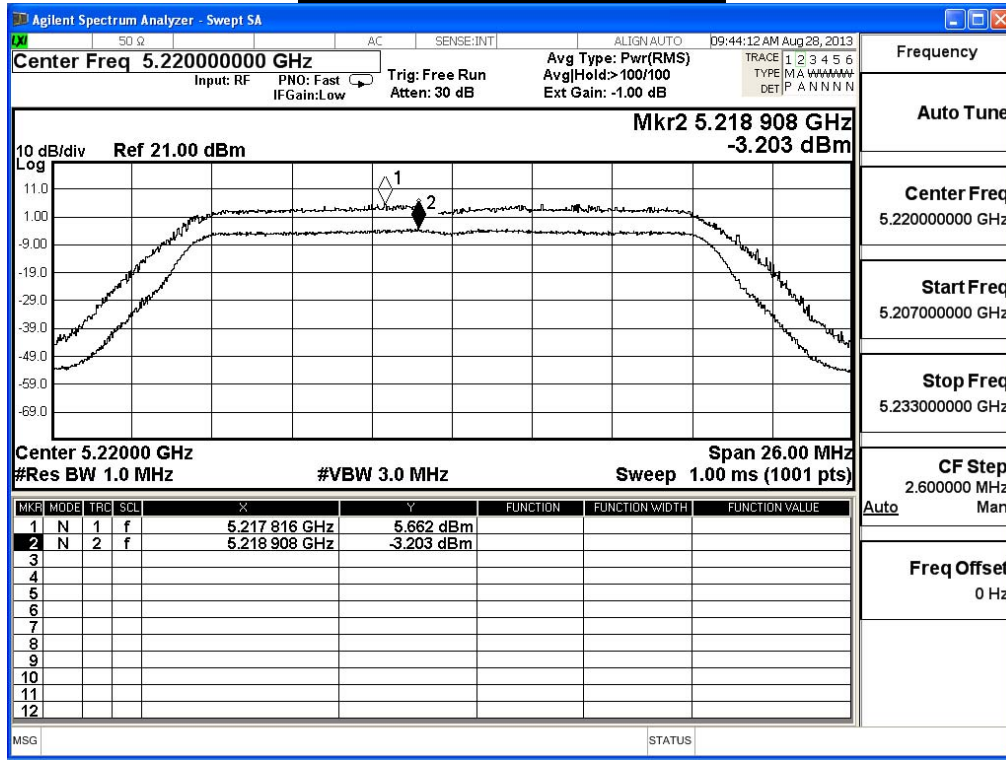
IEEE 802.11a (ANT2)				
Channel No.	Frequency (MHz)	Measure Level (dB)	Required Limit (dB)	Result
36	5180	8.62	≤ 13	Pass
44	5220	8.66	≤ 13	Pass
48	5240	9.12	≤ 13	Pass

**Power Excursion – Channel 36**

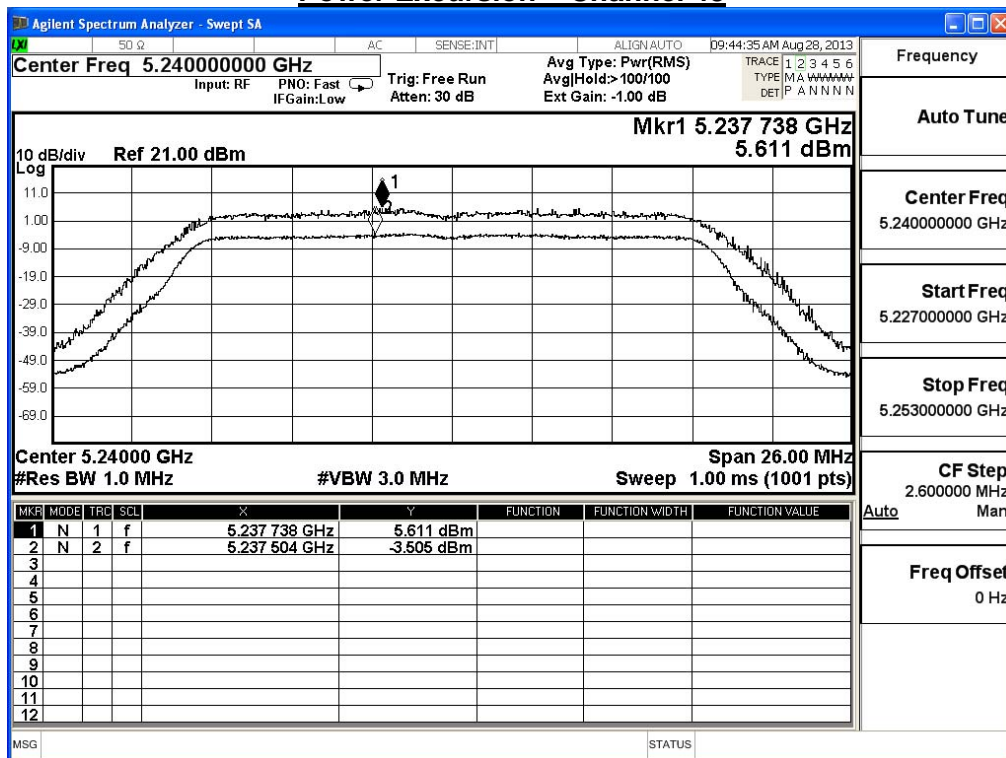




Power Excursion – Channel 44



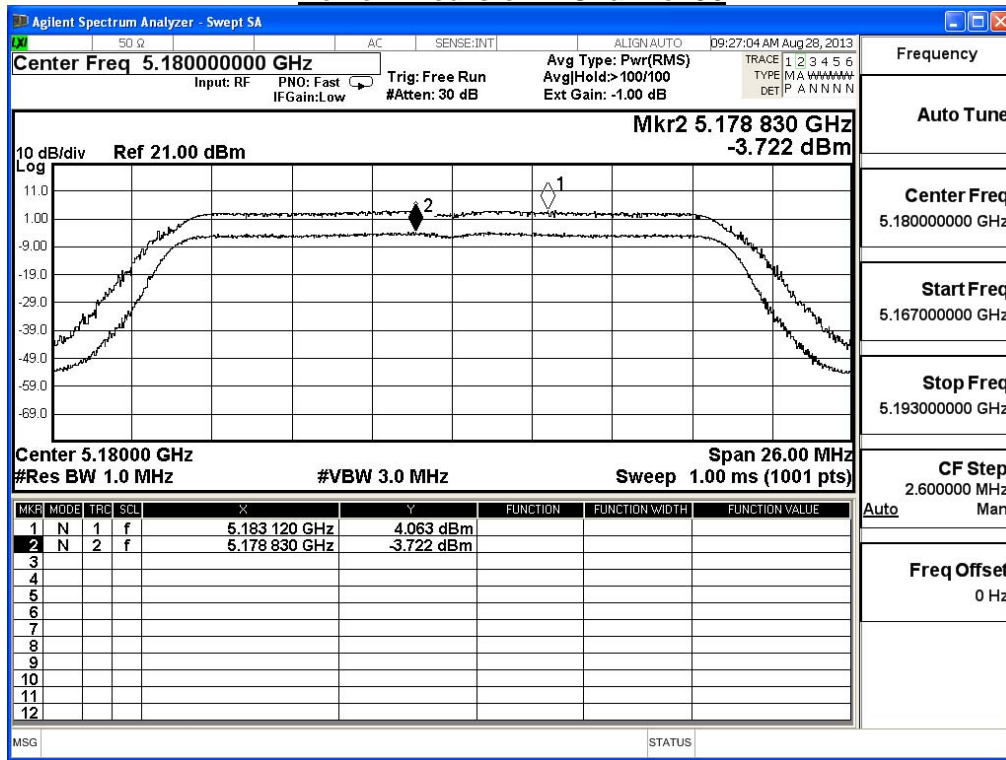
Power Excursion – Channel 48



Product	Wireless-AC1900 Dual Band Gigabit Router		
Test Item	Peak Excursion		
Test Mode	Mode 1: Transmit (CDD Mode) Adapter: EXA1206UH		
Date of Test	2013/08/28	Test Site	SR7

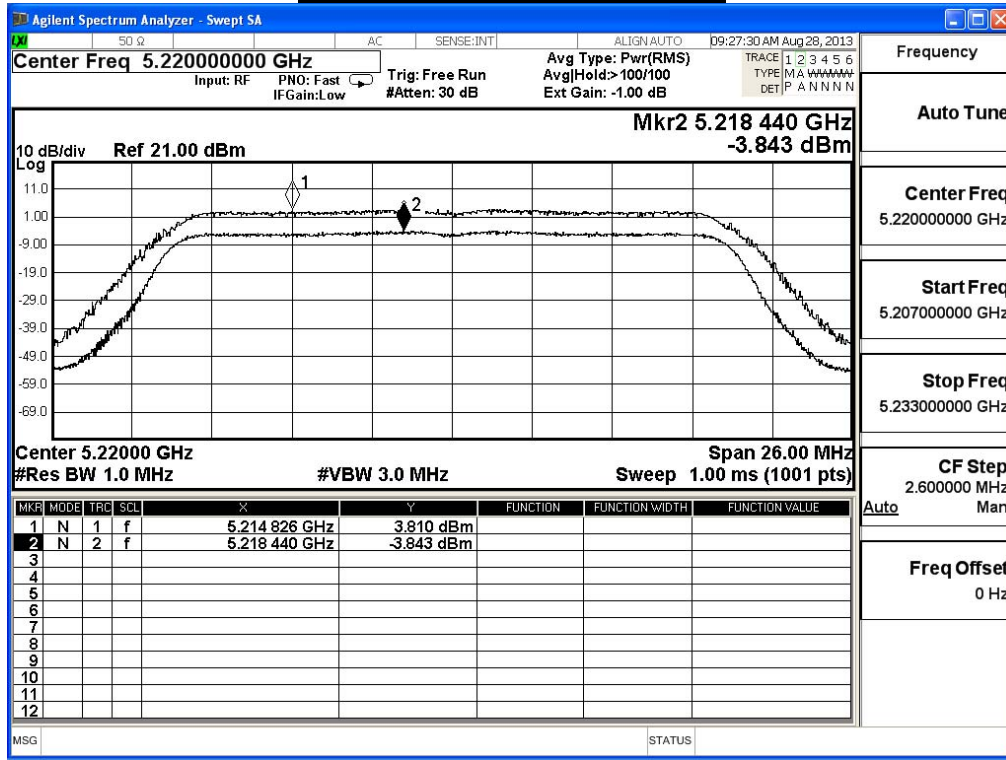
IEEE 802.11n_20M(ANT 0)				
Channel No.	Frequency (MHz)	Measure Level (dB)	Required Limit (dB)	Result
36	5180	7.79	≤ 13	Pass
44	5220	7.65	≤ 13	Pass
48	5240	8.65	≤ 13	Pass

**Power Excursion – Channel 36**

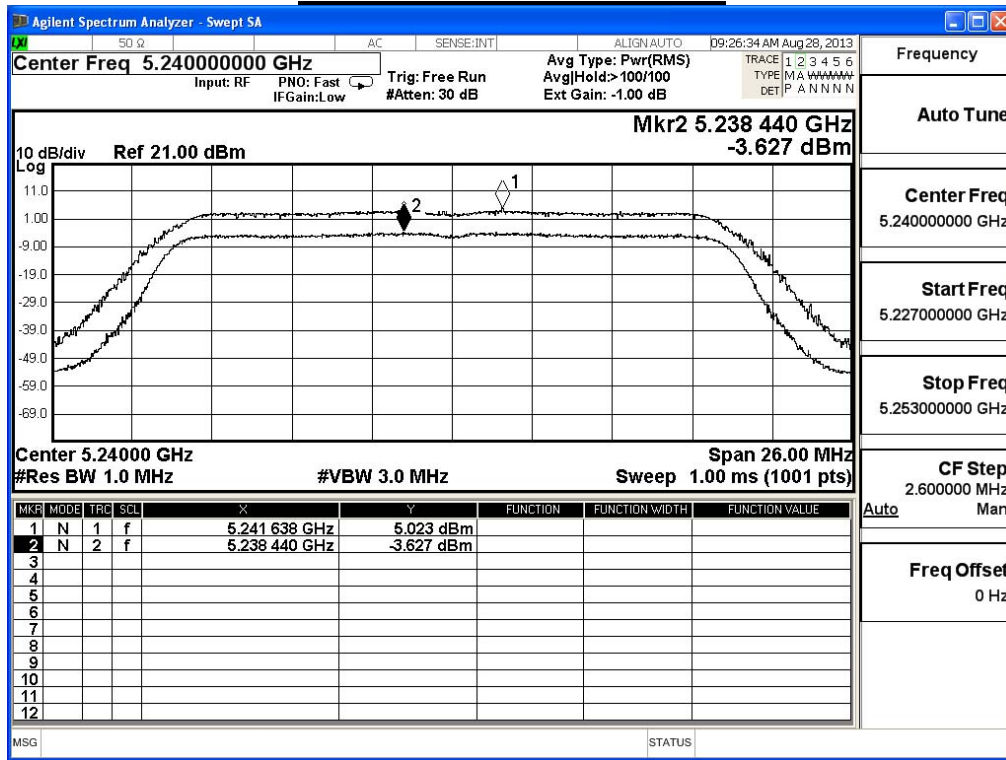




Power Excursion – Channel 44



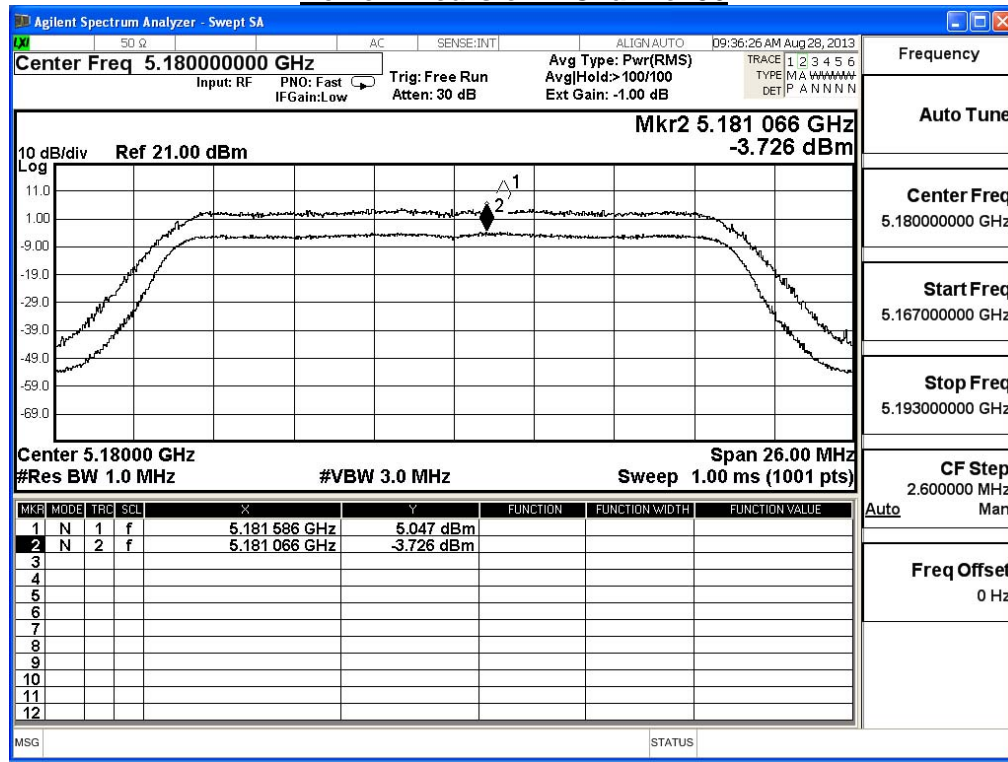
Power Excursion – Channel 48



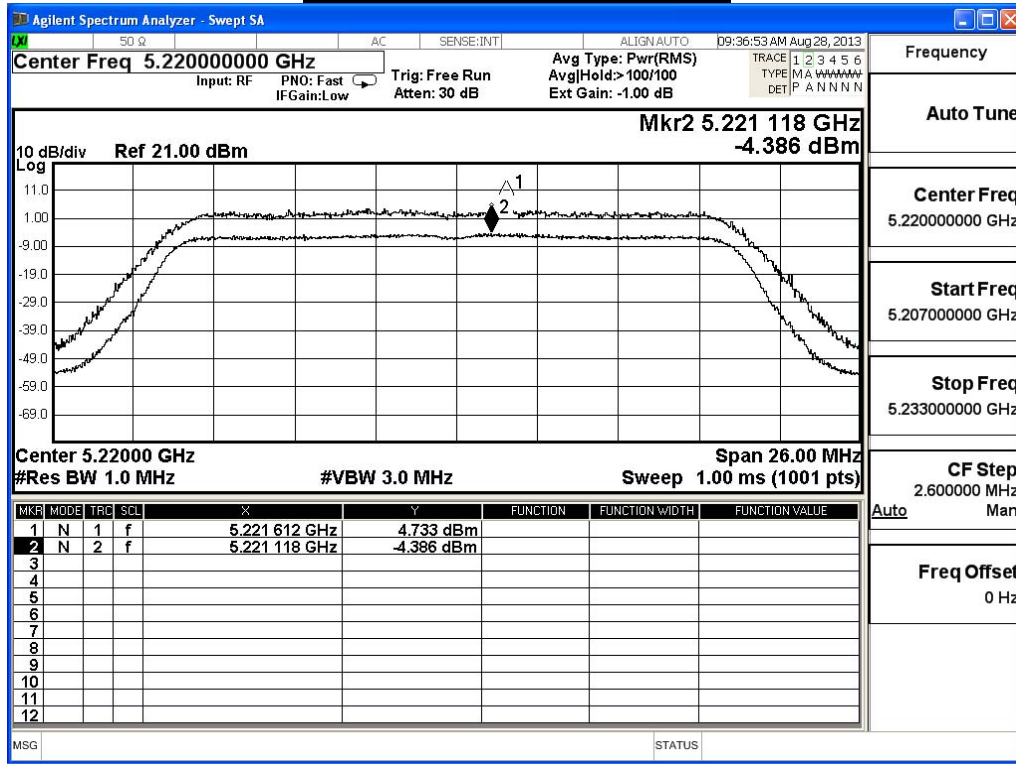
Product	Wireless-AC1900 Dual Band Gigabit Router		
Test Item	Peak Excursion		
Test Mode	Mode 1: Transmit (CDD Mode) Adapter: EXA1206UH		
Date of Test	2013/08/28	Test Site	SR7

IEEE 802.11n_20M(ANT 1)				
Channel No.	Frequency (MHz)	Measure Level (dB)	Required Limit (dB)	Result
36	5180	8.77	≤ 13	Pass
44	5220	9.12	≤ 13	Pass
48	5240	8.56	≤ 13	Pass

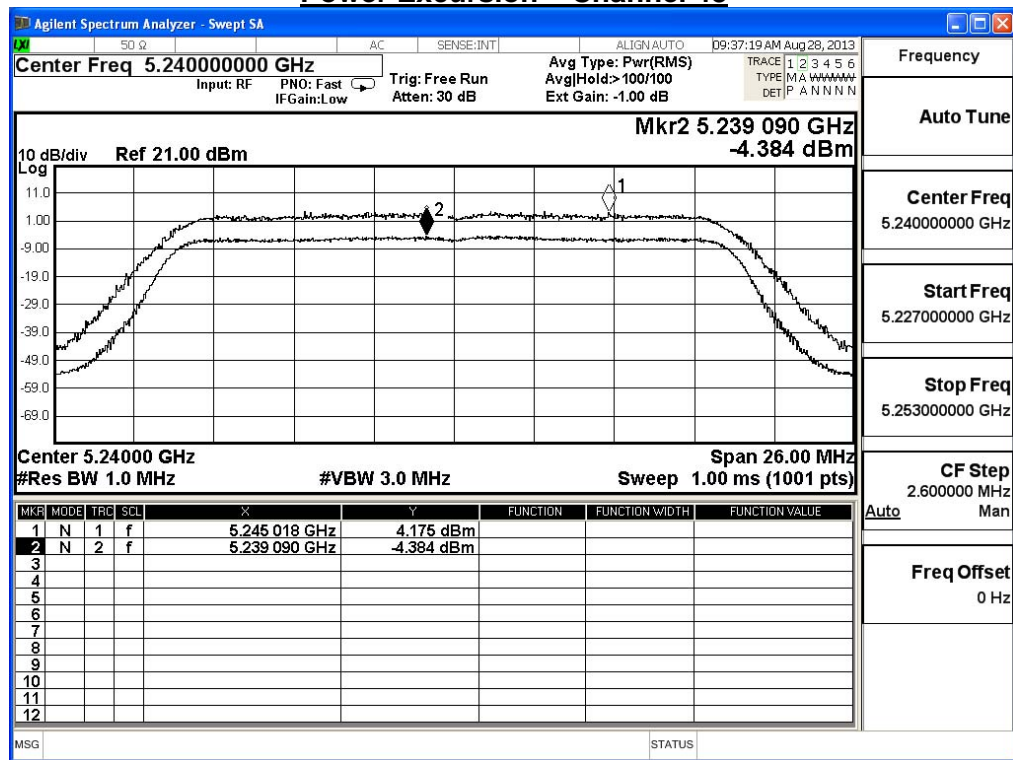
**Power Excursion – Channel 36**



Power Excursion – Channel 44



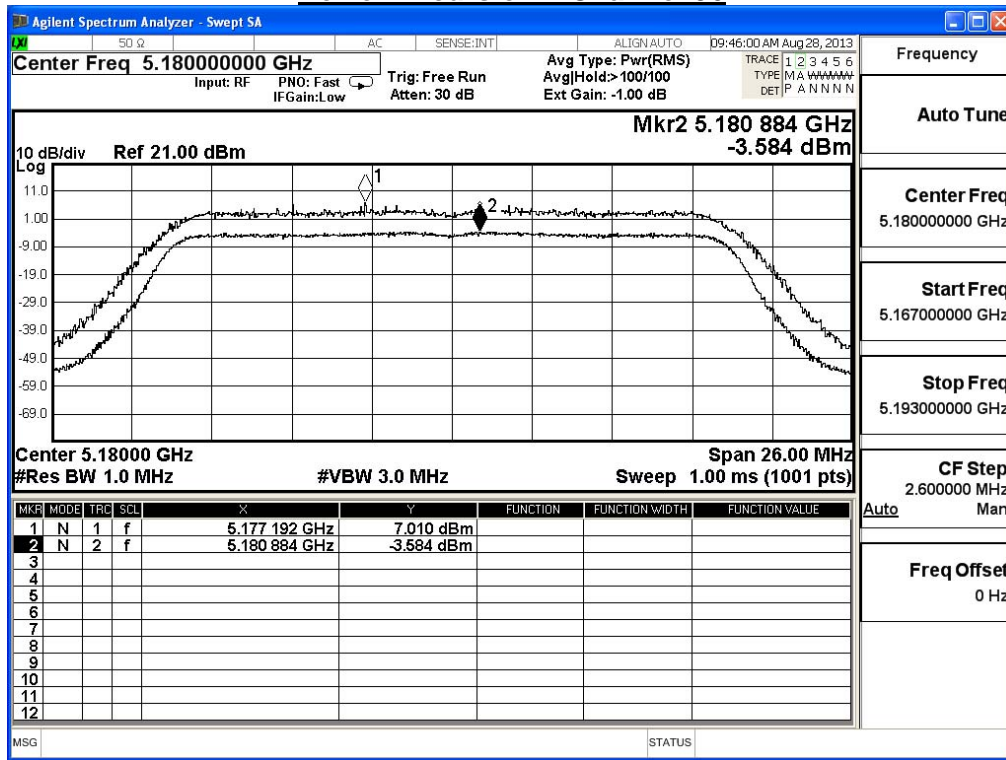
Power Excursion – Channel 48



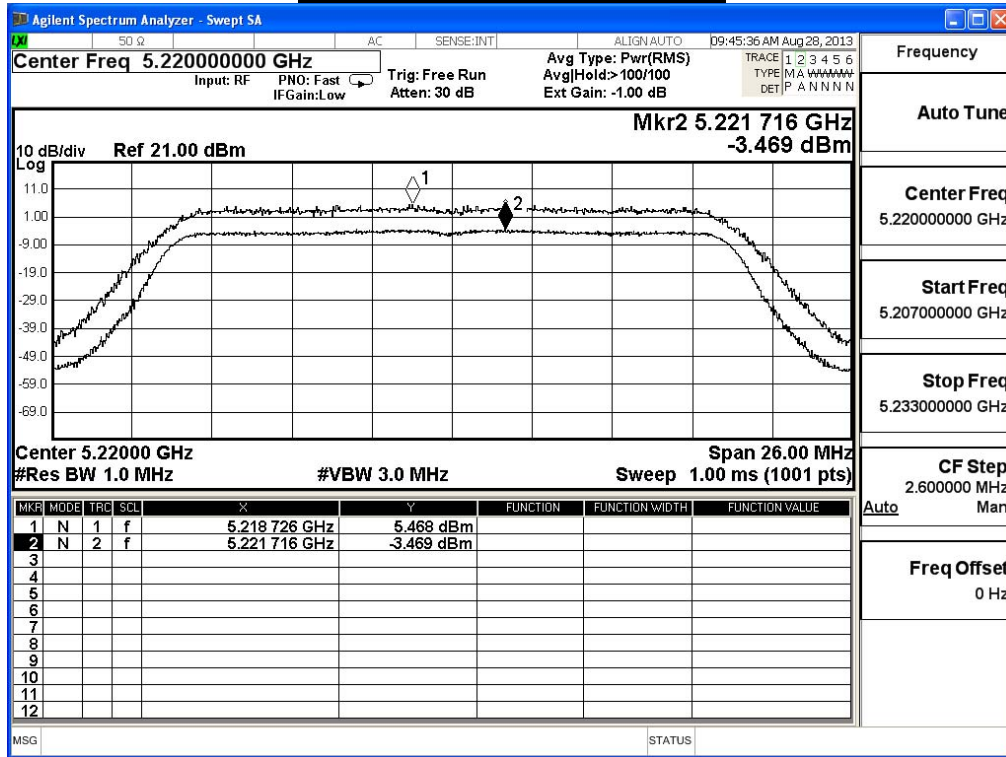
Product	Wireless-AC1900 Dual Band Gigabit Router		
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IEEE 802.11n_20M(ANT 2)				
Channel No.	Frequency (MHz)	Measure Level (dB)	Required Limit (dB)	Result
36	5180	10.59	≤ 13	Pass
44	5220	8.94	≤ 13	Pass
48	5240	9.63	≤ 13	Pass

### Power Excursion – Channel 36



Power Excursion – Channel 44



Power Excursion – Channel 48

