5. Peak Power Spectrum Density

5.1. Test Equipment

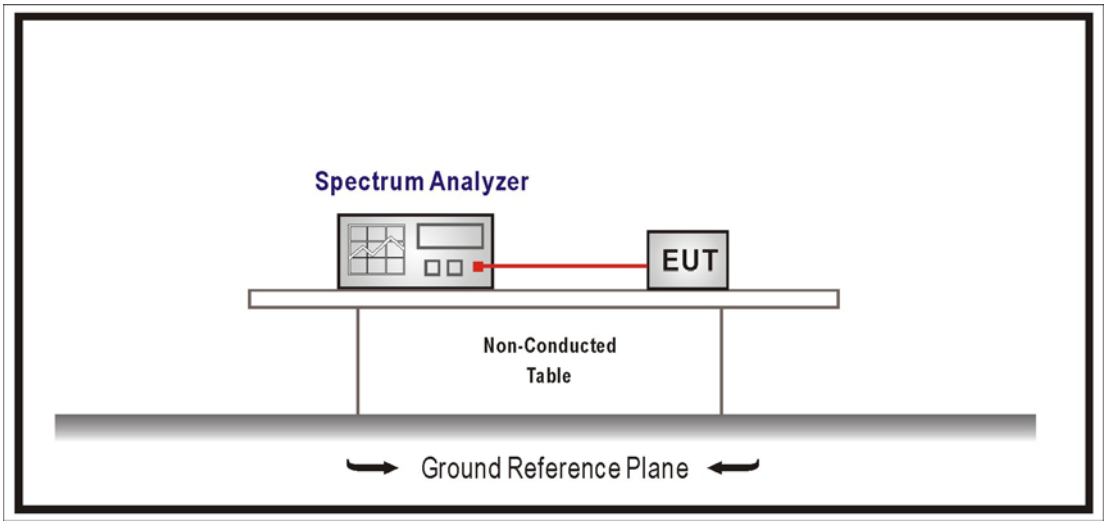
The following test equipments are used during the radiated emission tests:

Peak Power Spectrum Density / SR7

Instrument	Manufacturer	Model No.	Serial No	Next Cal. Date
Spectrum Analyzer	Agilent	N9010A	US47140172	2010/11/01

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, 2003; tested to DTS test procedure of Aug 2002 DA 02-2138 for compliance to FCC 47CFR Subpart E requirements. The Method #2 of the Peak power spectral density (PPSD) was used.

Set RBW=1MHz, VBW=3MHz with sample detector. The PPSD is the highest level found across the emission in any 1-MHz band after 100 sweeps of averaging.

5.5. Uncertainty

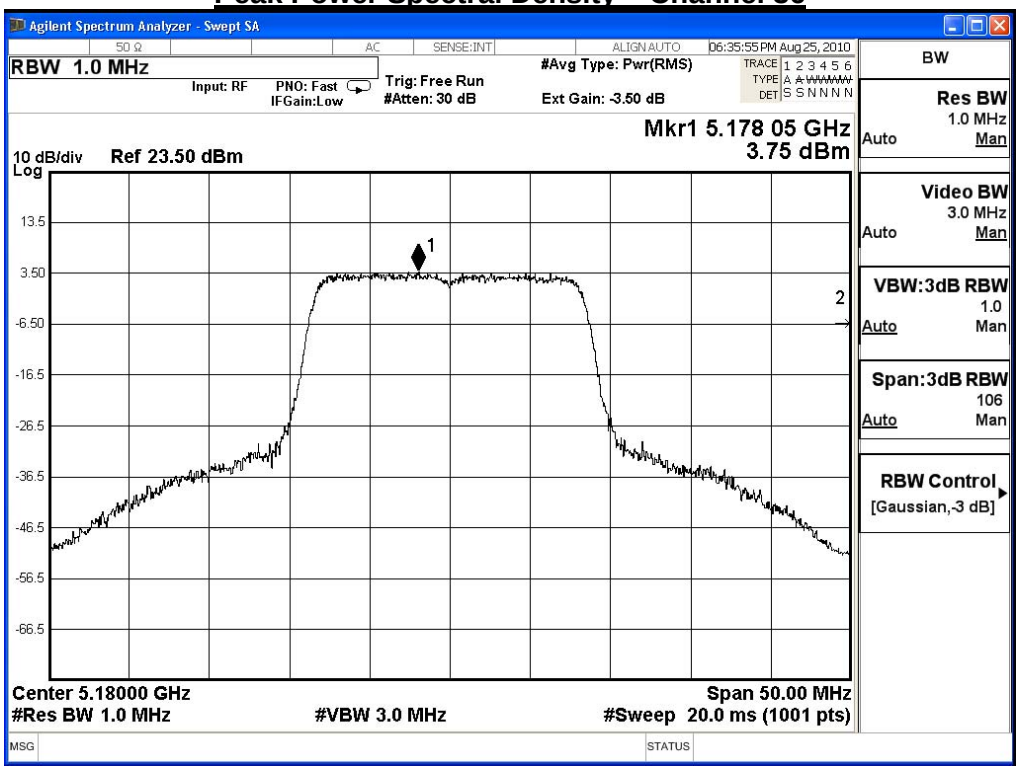
The measurement uncertainty is defined as ± 1.27 dB

5.6. Test Result

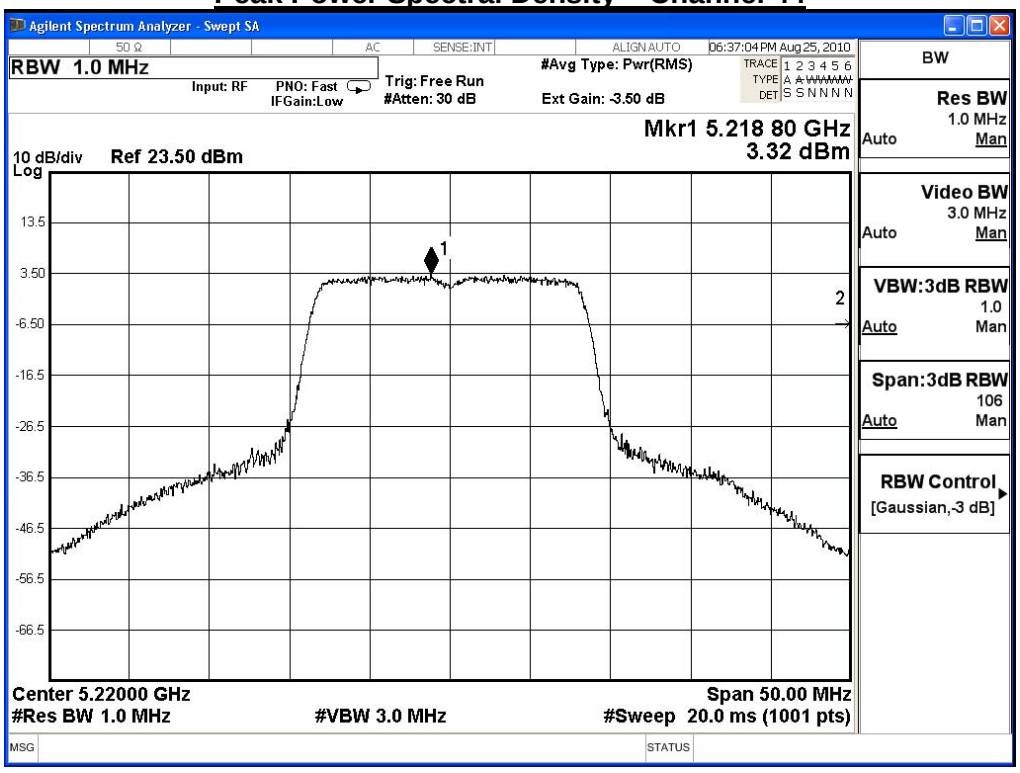
Product	Dual-band Gigabit Wireless-N Router		
Test Item	Peak Power Spectral Density		
Test Mode	Transmit		
Date of Test	2010/08/25	Test Site	No.7 Shielding Room

IEEE 802.11a				
Channel No.	Frequency (MHz)	Measure Level (dBm)	Required Limit (dBm)	Result
36	5180	3.75	≤ 4	Pass
44	5220	3.32	≤ 4	Pass
48	5240	3.29	≤ 4	Pass

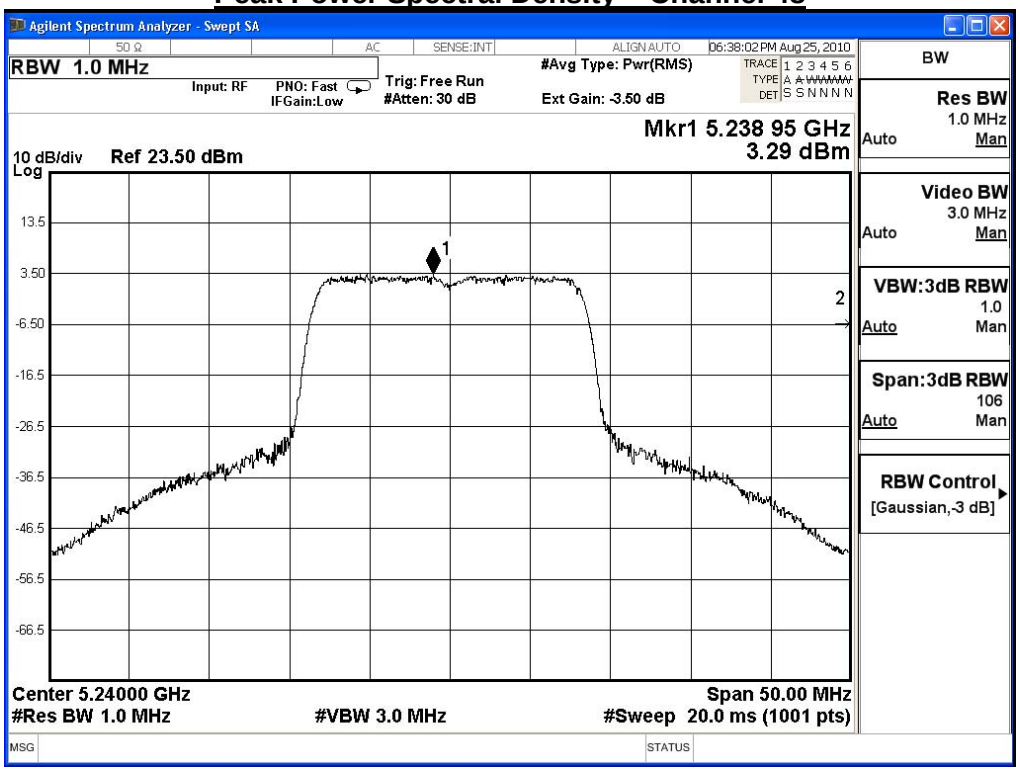
Peak Power Spectral Density – Channel 36



Peak Power Spectral Density – Channel 44

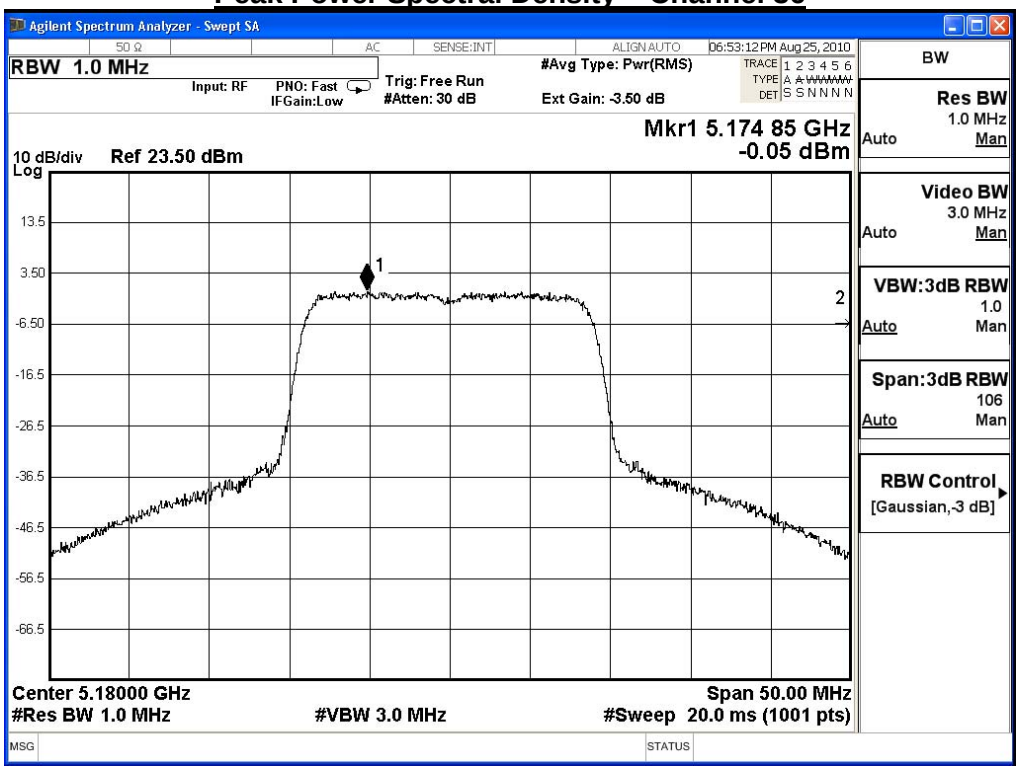


Peak Power Spectral Density – Channel 48

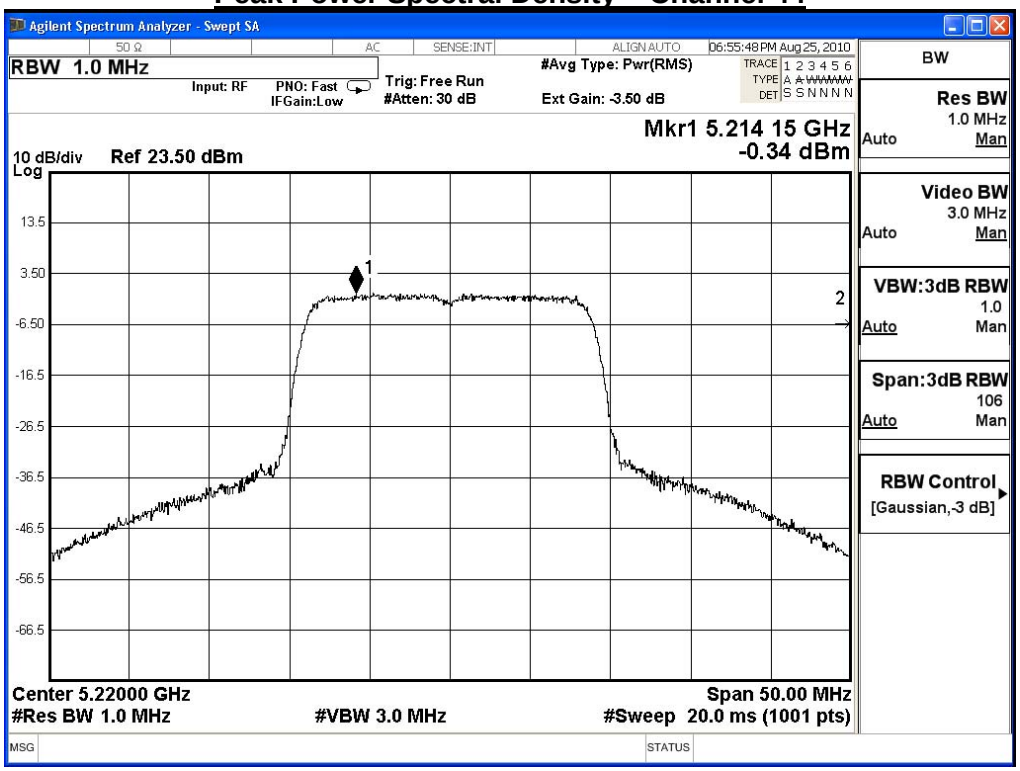


IEEE 802.11n_20M(ANT A)				
Channel No.	Frequency (MHz)	Measure Level (dBm)	Required Limit (dBm)	Result
36	5180	-0.05	≤ 4	Pass
44	5220	-0.34	≤ 4	Pass
48	5240	-0.63	≤ 4	Pass

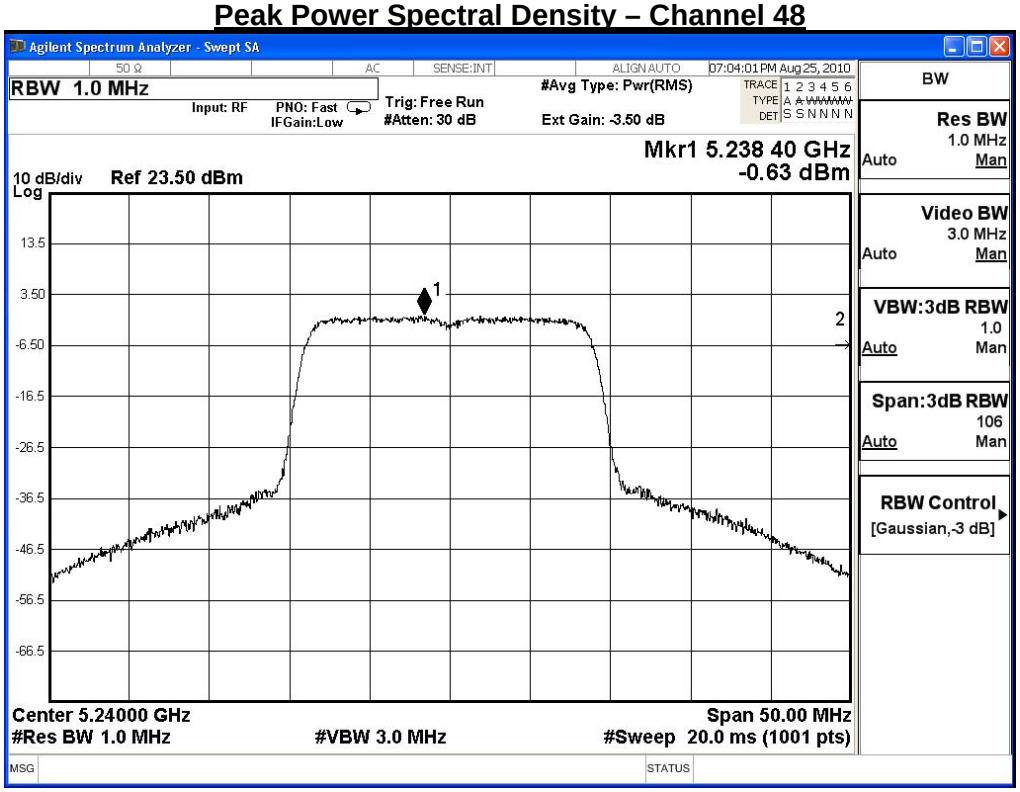
Peak Power Spectral Density – Channel 36



Peak Power Spectral Density – Channel 44

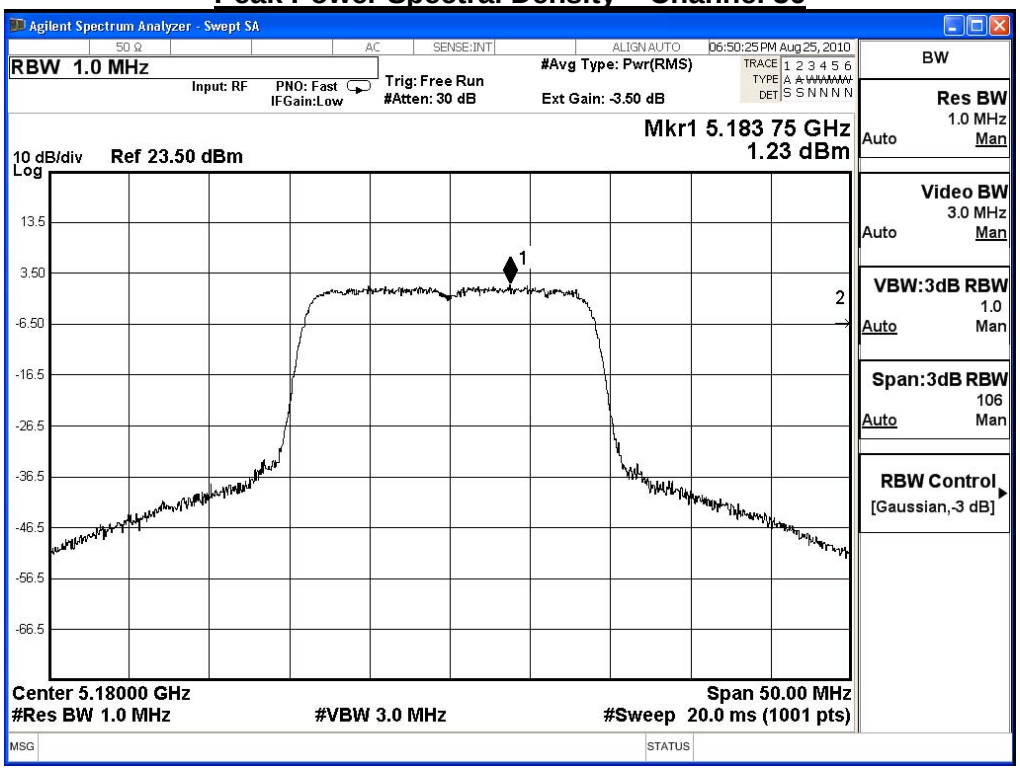


Peak Power Spectral Density – Channel 48

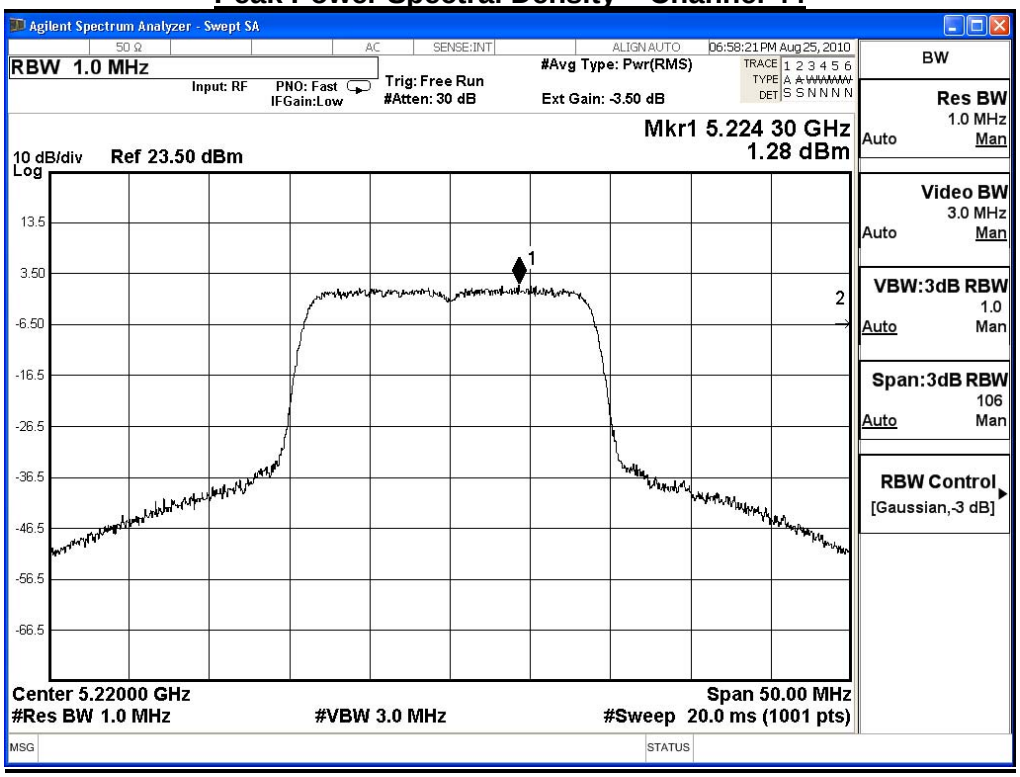


IEEE 802.11n_20M(ANT B)				
Channel No.	Frequency (MHz)	Measure Level (dBm)	Required Limit (dBm)	Result
36	5180	1.23	≤ 4	Pass
44	5220	1.28	≤ 4	Pass
48	5240	1.41	≤ 4	Pass

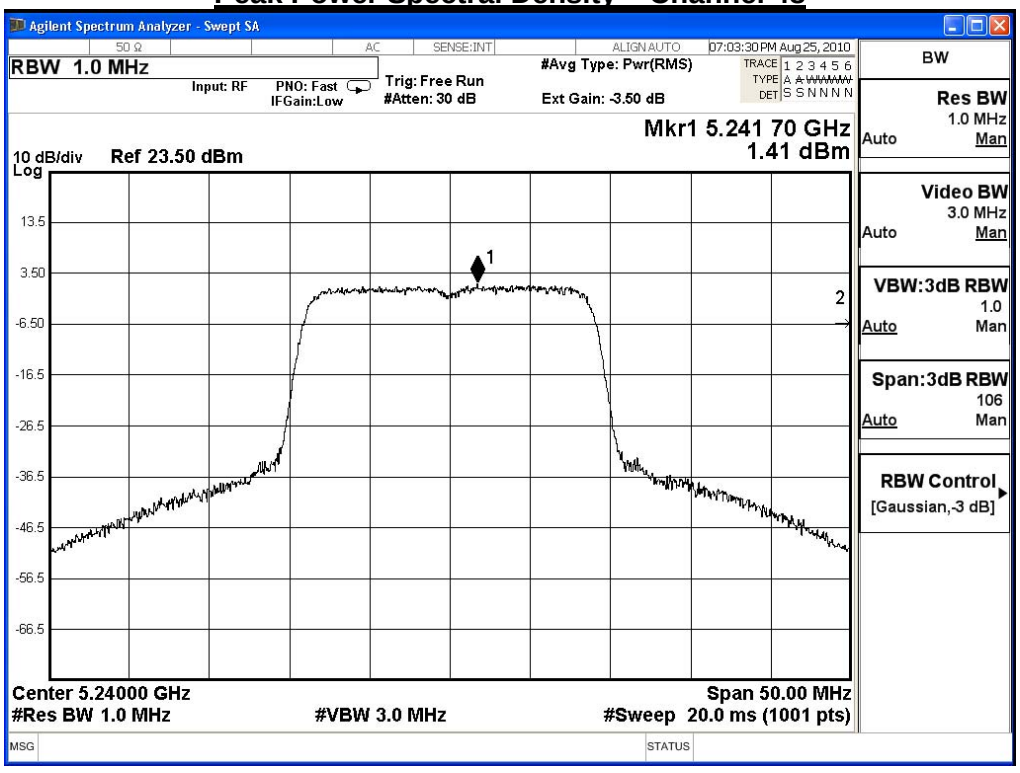
Peak Power Spectral Density – Channel 36



Peak Power Spectral Density – Channel 44



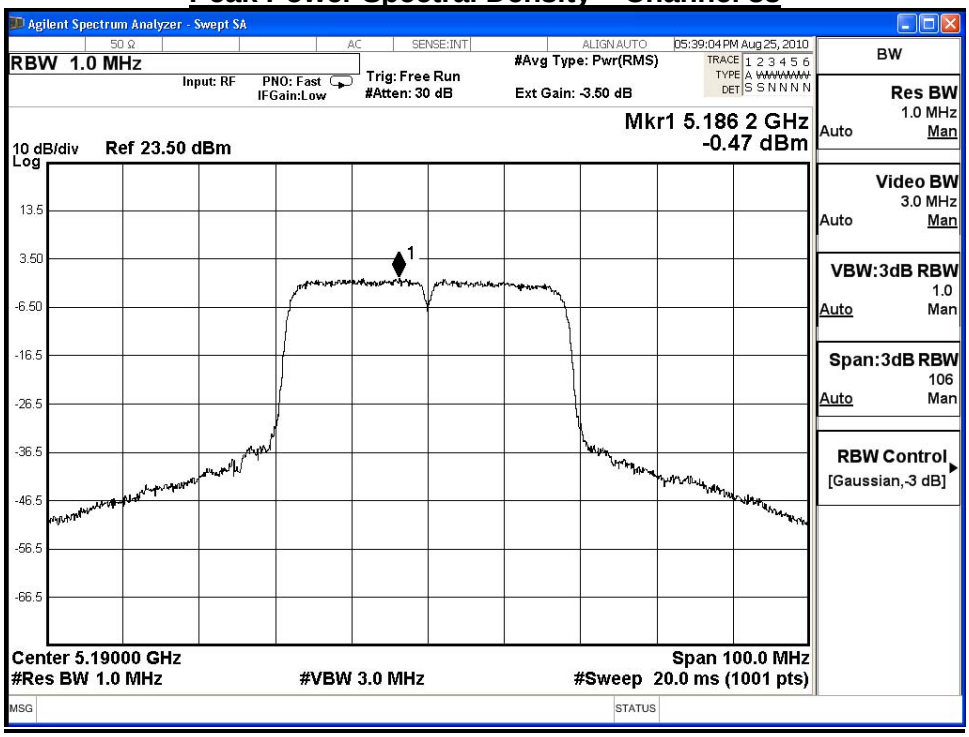
Peak Power Spectral Density – Channel 48



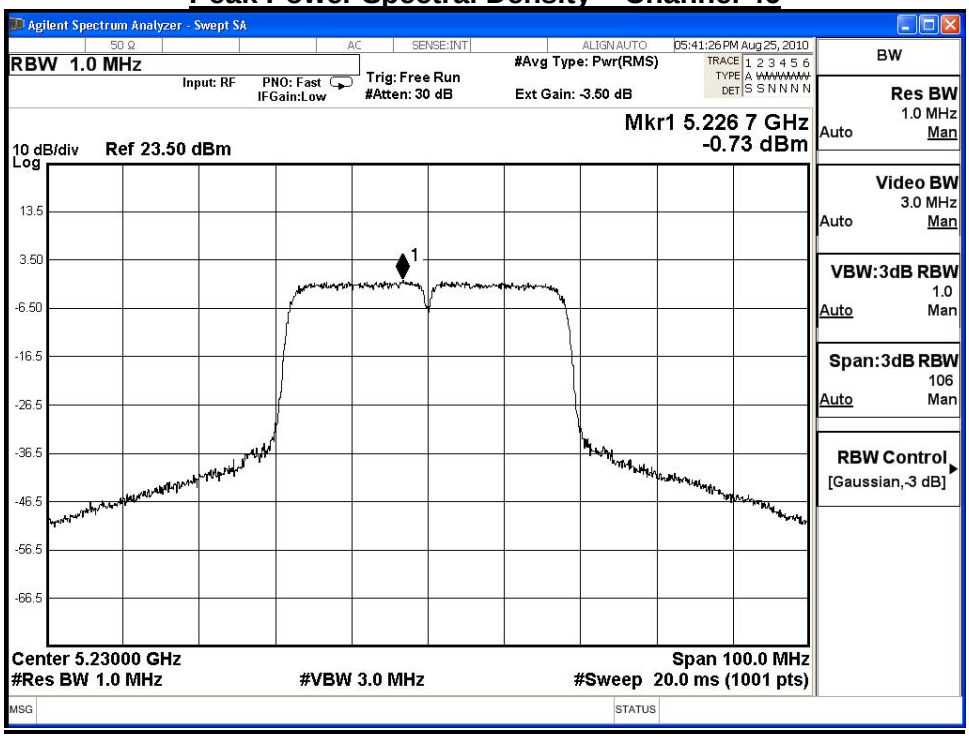
IEEE 802.11n_20M(ANT A+B)				
Channel No.	Frequency (MHz)	Measure Level (dBm)	Required Limit (dBm)	Result
36	5180	3.65	≤ 4	Pass
44	5220	3.56	≤ 4	Pass
48	5240	3.52	≤ 4	Pass

IEEE 802.11n_40M(ANT A)				
Channel No.	Frequency (MHz)	Measure Level (dBm)	Required Limit (dBm)	Result
38	5190	-0.47	≤ 4	Pass
46	5230	-0.73	≤ 4	Pass

Peak Power Spectral Density – Channel 38

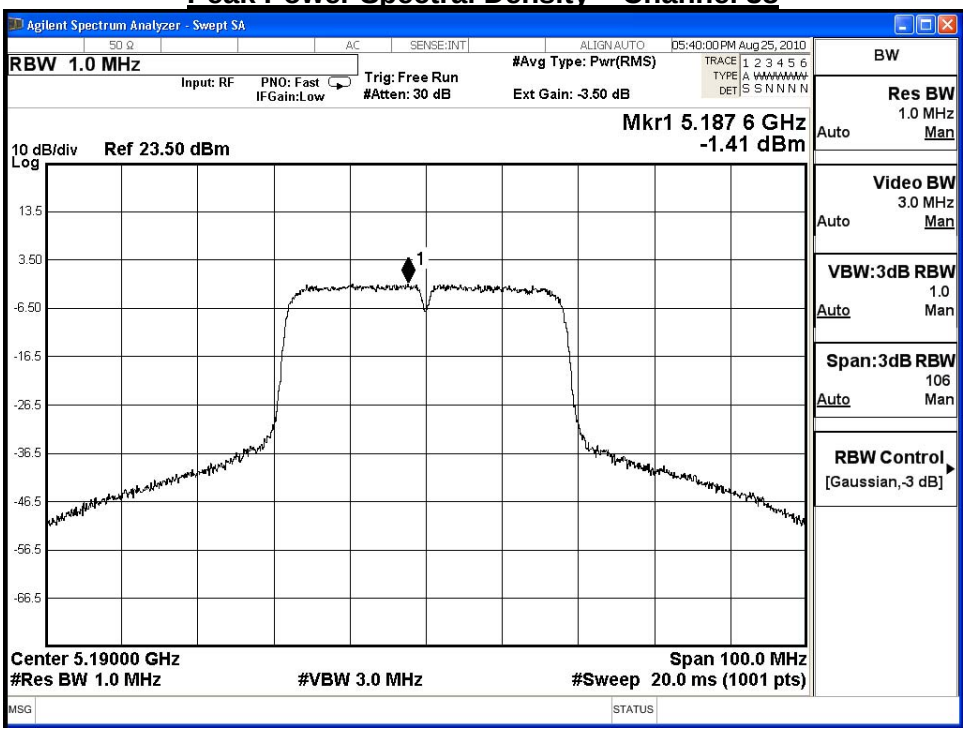


Peak Power Spectral Density – Channel 46

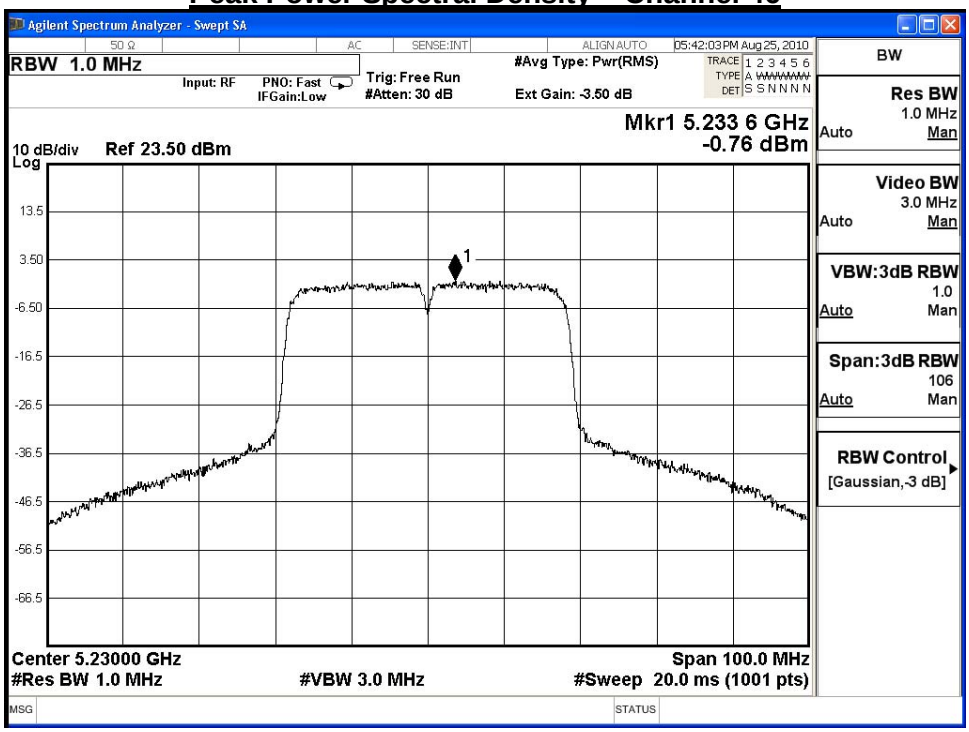


IEEE 802.11n_40M(ANT B)				
Channel No.	Frequency (MHz)	Measure Level (dBm)	Required Limit (dBm)	Result
38	5190	-1.41	≤ 4	Pass
46	5230	-0.76	≤ 4	Pass

Peak Power Spectral Density – Channel 38



Peak Power Spectral Density – Channel 46



IEEE 802.11n_40M(ANT A+B)				
Channel No.	Frequency (MHz)	Measure Level (dBm)	Required Limit (dBm)	Result
38	5190	2.10	≤ 4	Pass
46	5230	2.27	≤ 4	Pass

6. Peak Excursion

6.1. Test Equipment

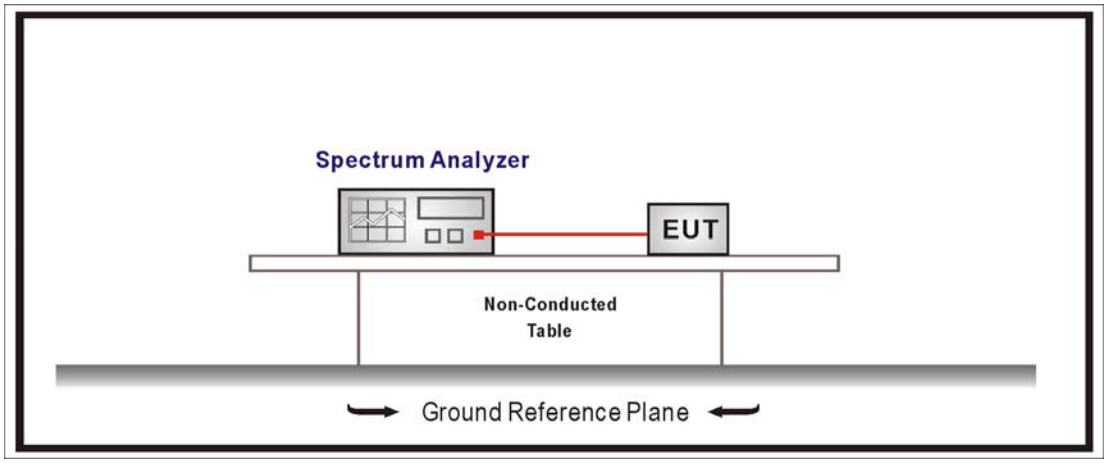
The following test equipments are used during the radiated emission tests:

Peak Excursion / SR7

Instrument	Manufacturer	Model No.	Serial No	Next Cal. Date
Spectrum Analyzer	Agilent	N9010A	US47140172	2010/11/01

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, 2003; tested to DTS test procedure of Aug 2002 DA 02-2138 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 sample detector and trace average 100 traces in power averaging mode.

6.5. Uncertainty

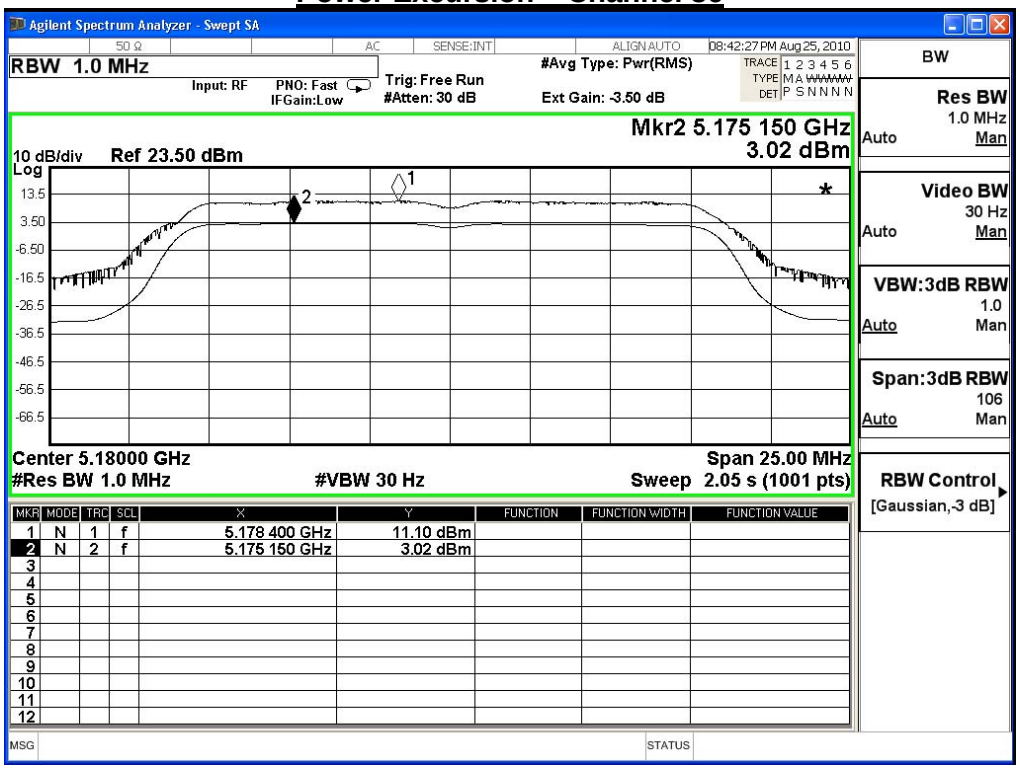
The measurement uncertainty is defined as ± 1.27 dB

6.6. Test Result

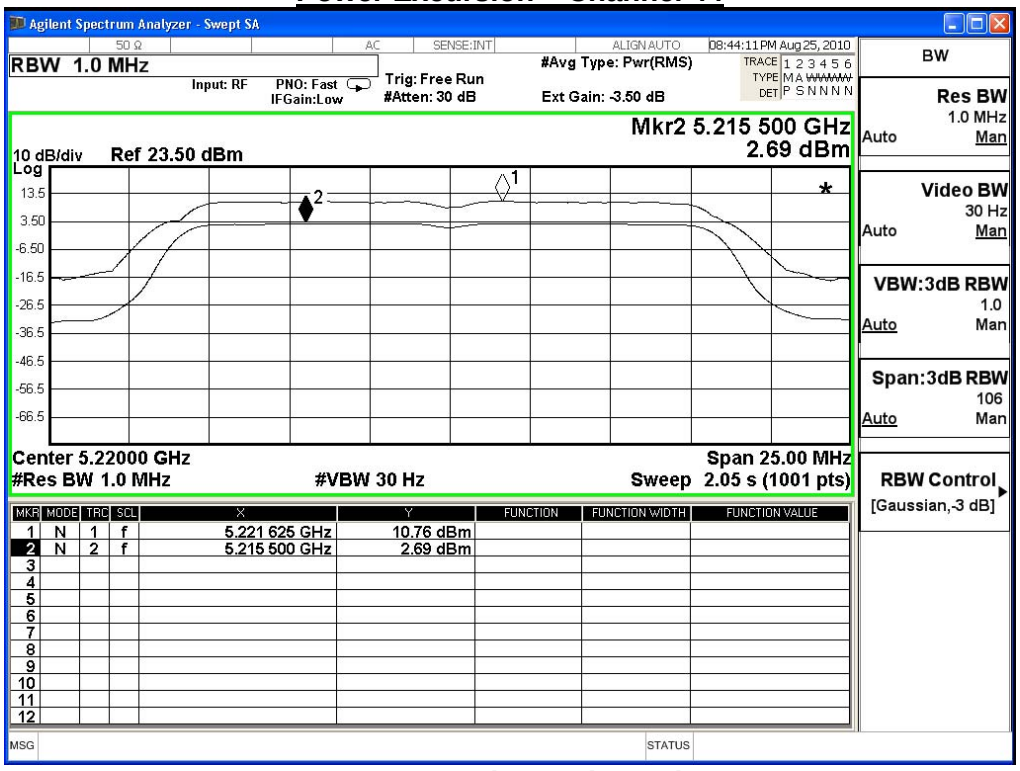
Product	Dual-band Gigabit Wireless-N Router		
Test Item	Peak Excursion		
Test Mode	Transmit		
Date of Test	2010/08/25	Test Site	No.7 Shielding Room

IEEE 802.11a				
Channel No.	Frequency (MHz)	Measure Level (dB)	Required Limit (dB)	Result
36	5180	8.08	≤ 13	Pass
44	5220	8.07	≤ 13	Pass
48	5240	8.14	≤ 13	Pass

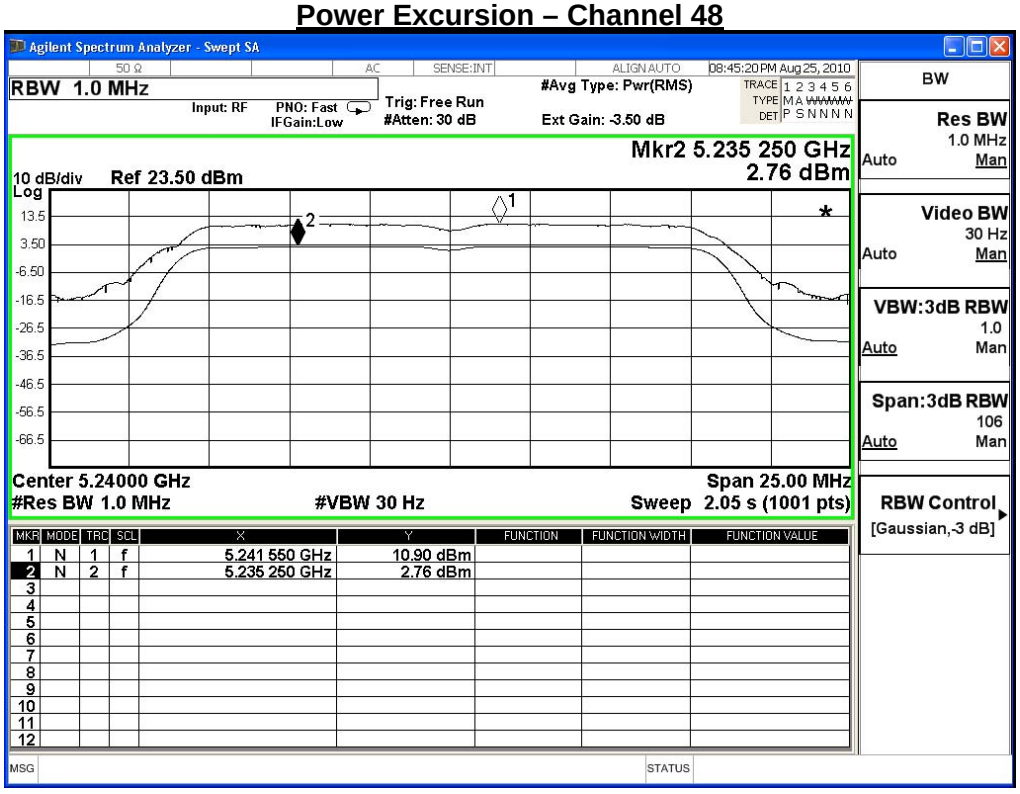
Power Excursion – Channel 36



Power Excursion – Channel 44



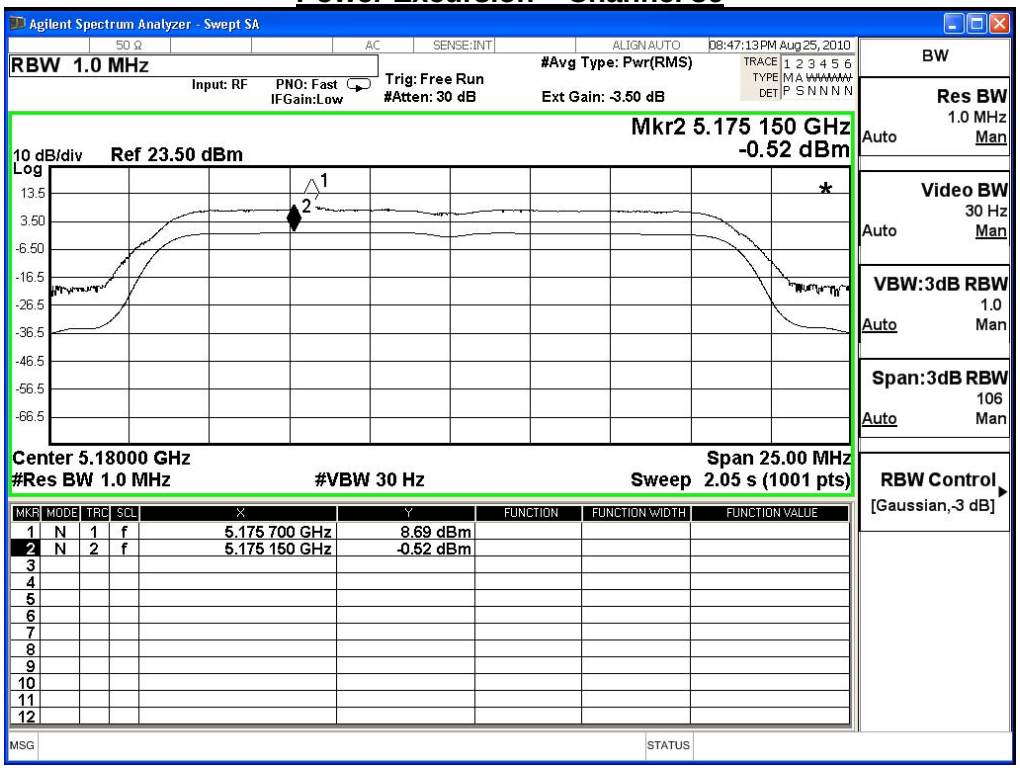
Power Excursion – Channel 48



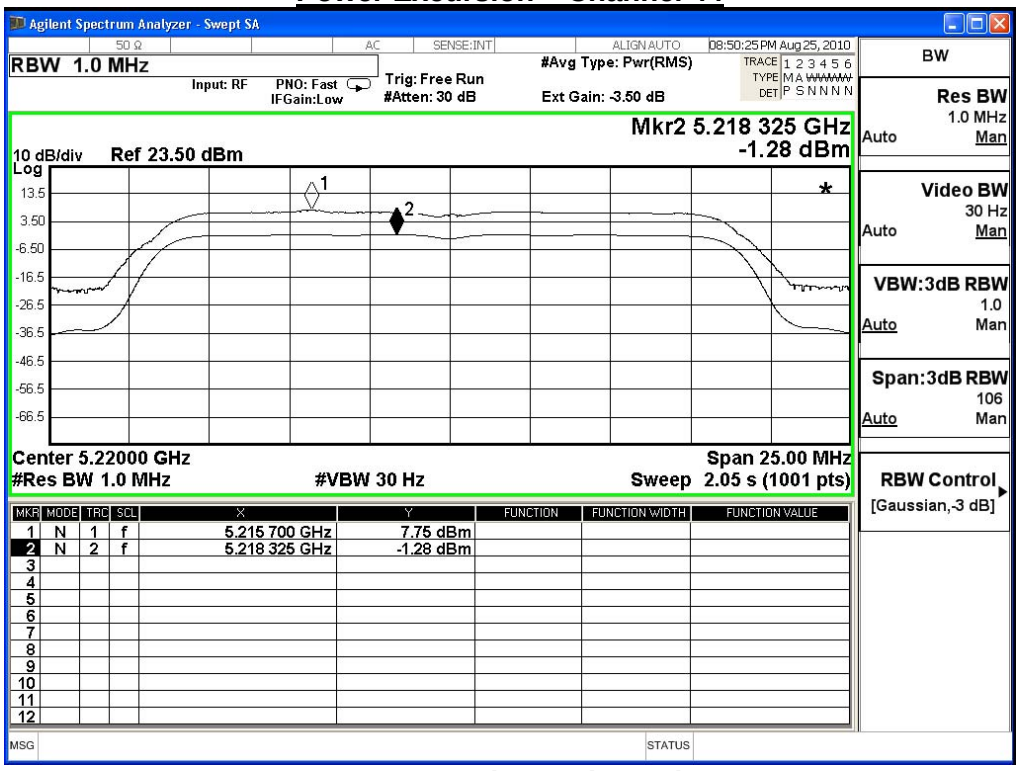
Product	Dual-band Gigabit Wireless-N Router		
Test Item	Peak Excursion		
Test Mode	Transmit		
Date of Test	2010/08/25	Test Site	No.7 Shielding Room

IEEE 802.11n_20M(ANT A)				
Channel No.	Frequency (MHz)	Measure Level (dB)	Required Limit (dB)	Result
36	5180	9.21	≤ 13	Pass
44	5220	9.03	≤ 13	Pass
48	5240	9.22	≤ 13	Pass

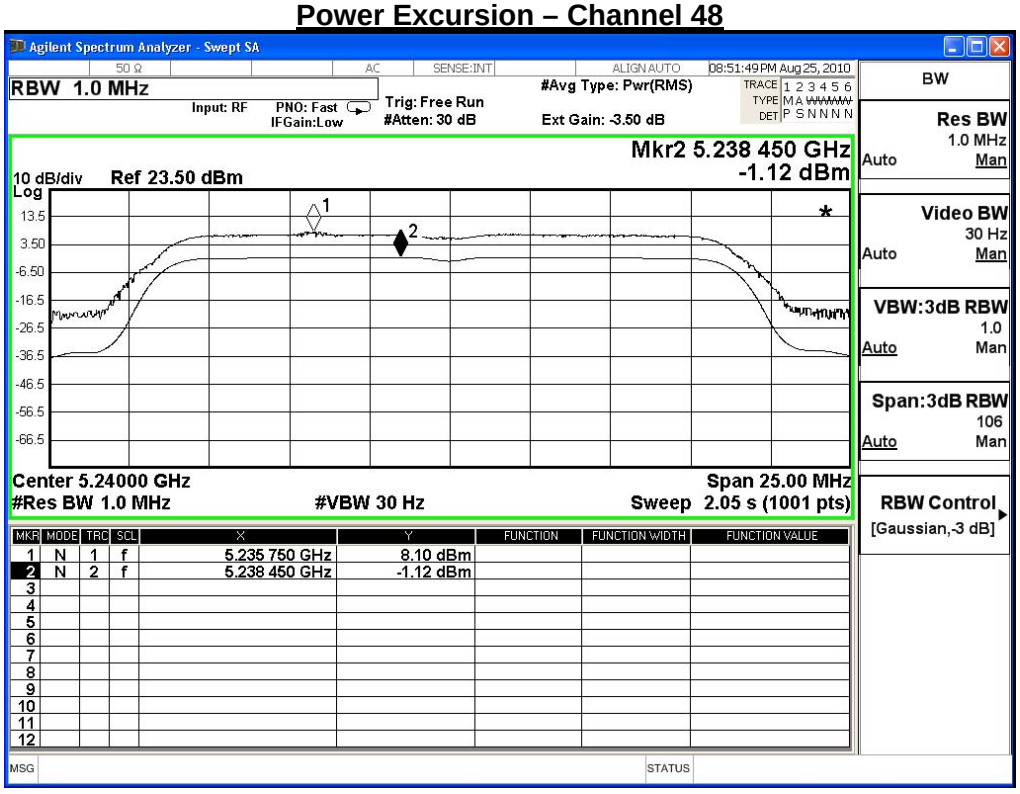
Power Excursion – Channel 36



Power Excursion – Channel 44



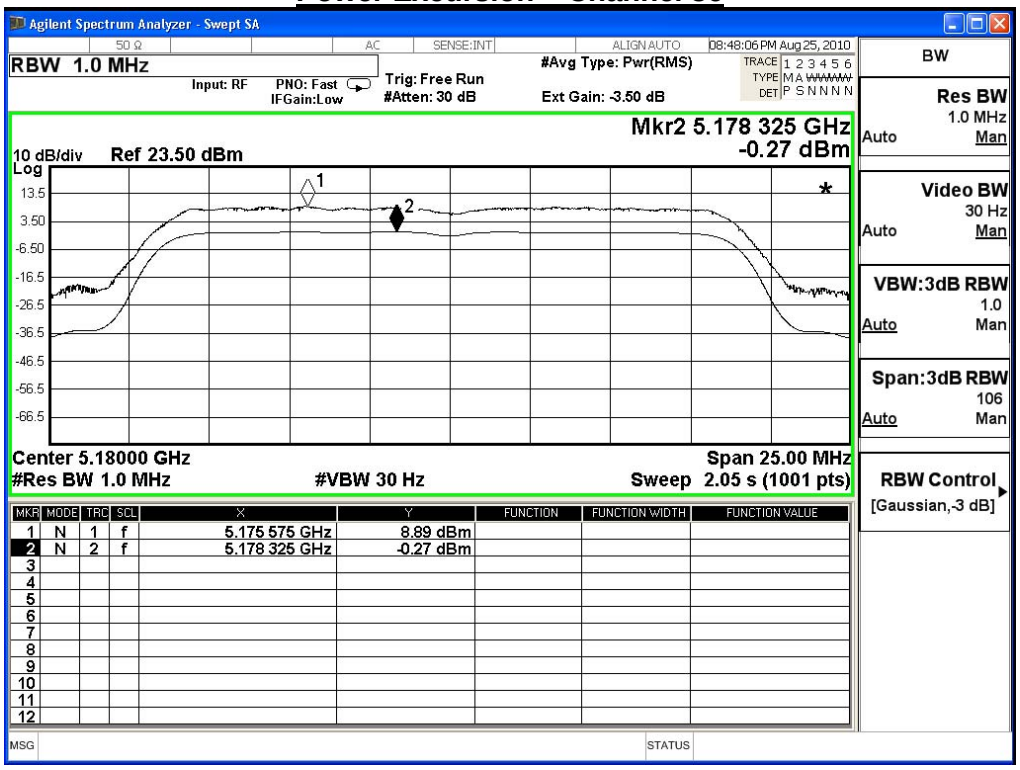
Power Excursion – Channel 48



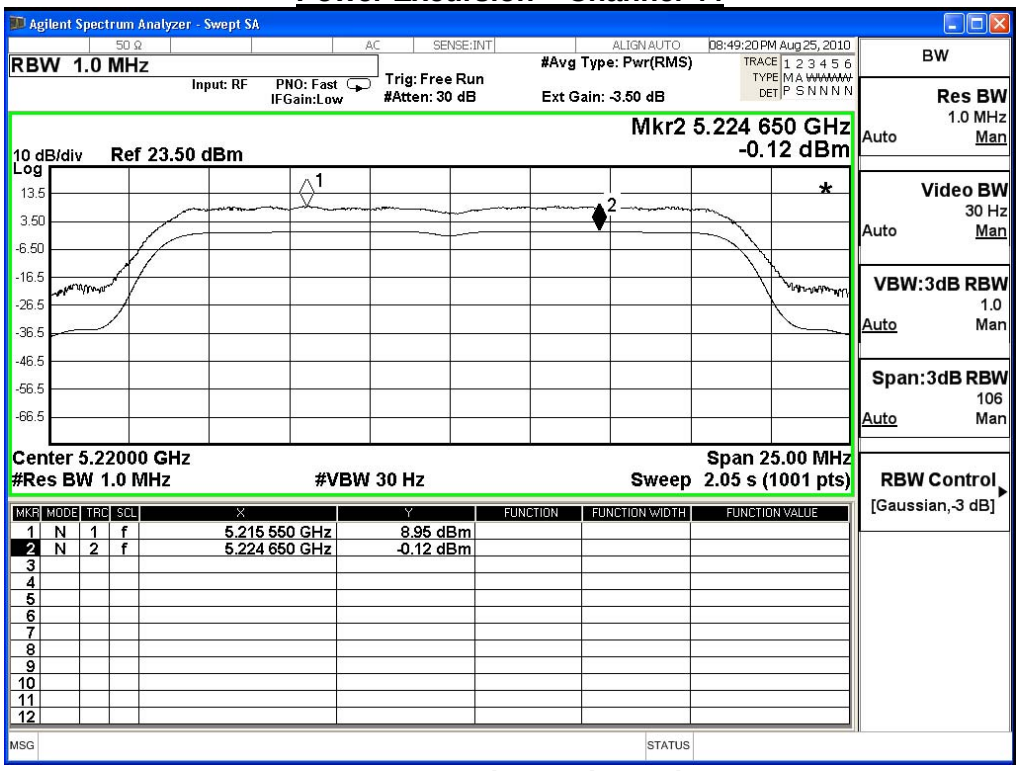
Product	Dual-band Gigabit Wireless-N Router		
Test Item	Peak Excursion		
Test Mode	Transmit		
Date of Test	2010/08/25	Test Site	No.7 Shielding Room

IEEE 802.11n_20M(ANT B)				
Channel No.	Frequency (MHz)	Measure Level (dB)	Required Limit (dB)	Result
36	5180	9.16	≤ 13	Pass
44	5220	9.07	≤ 13	Pass
48	5240	9.97	≤ 13	Pass

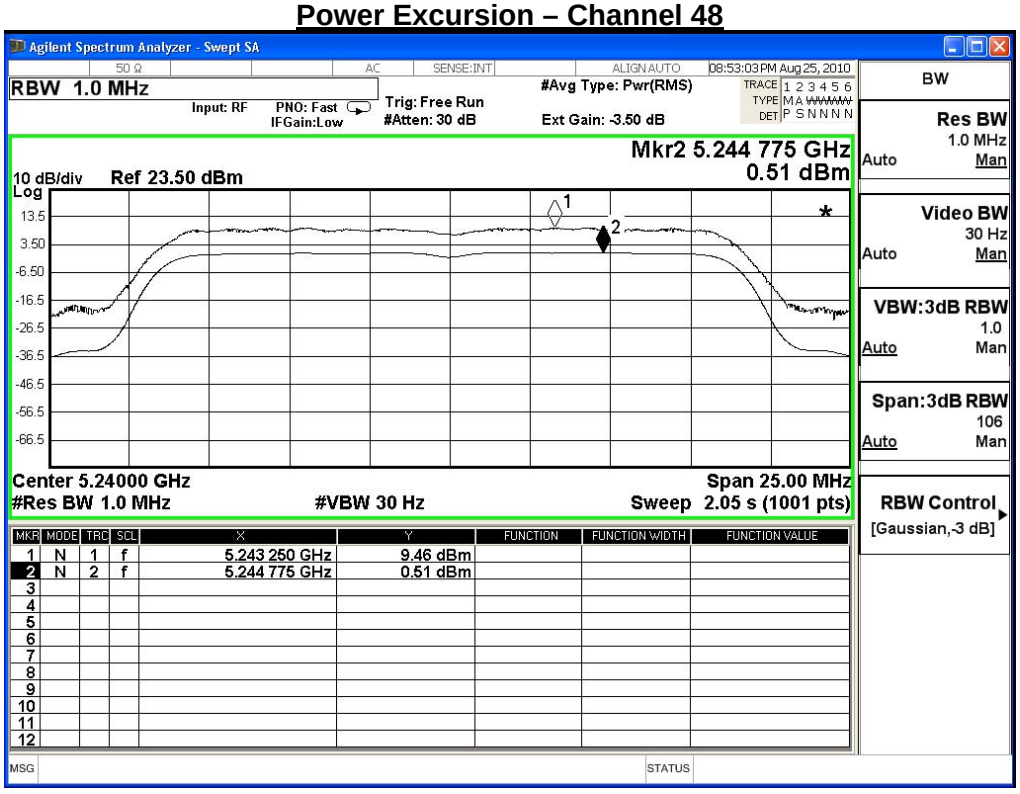
Power Excursion – Channel 36



Power Excursion – Channel 44



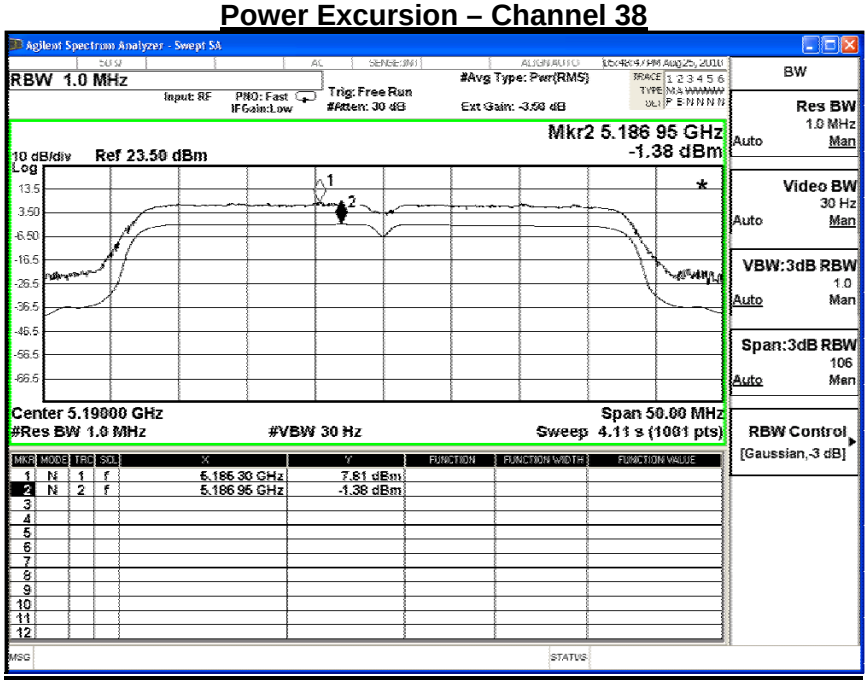
Power Excursion – Channel 48



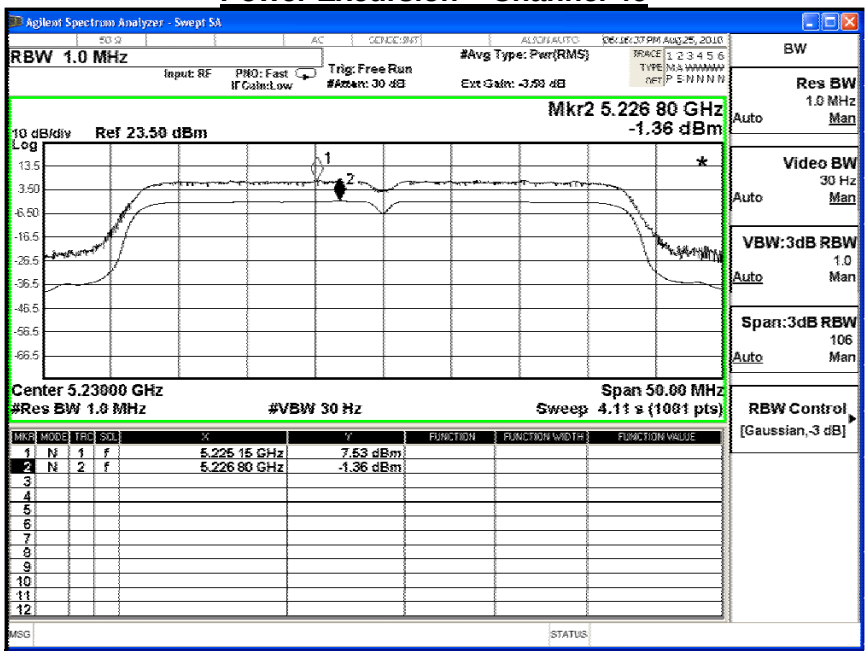
Product	Dual-band Gigabit Wireless-N Router		
Test Item	Peak Excursion		
Test Mode	Transmit		
Date of Test	2010/08/25	Test Site	No.7 Shielding Room

IEEE 802.11n_40M(ANT A)				
Channel No.	Frequency (MHz)	Measure Level (dB)	Required Limit (dB)	Result
38	5180	9.19	≤ 13	Pass
46	5220	8.89	≤ 13	Pass

Power Excursion – Channel 38



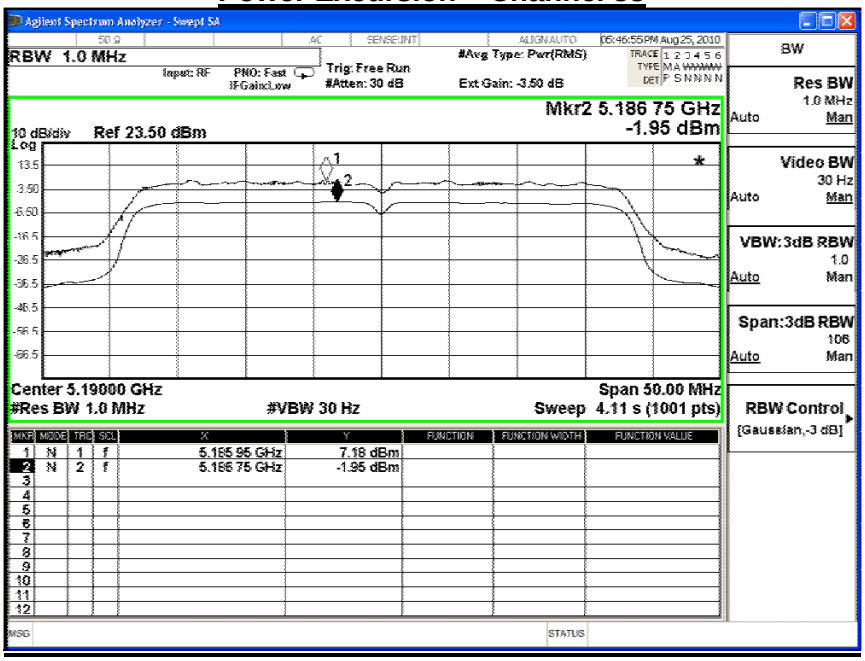
Power Excursion – Channel 46



Product	Dual-band Gigabit Wireless-N Router		
Test Item	Peak Excursion		
Test Mode	Transmit		
Date of Test	2010/08/25	Test Site	No.7 Shielding Room

IEEE 802.11n_40M(ANT B)				
Channel No.	Frequency (MHz)	Measure Level (dB)	Required Limit (dB)	Result
38	5180	9.13	≤ 13	Pass
46	5220	9.39	≤ 13	Pass

Power Excursion – Channel 38



Power Excursion – Channel 46