

Product	Dark Knight Double 450Mbps Dual N Band Router		
Test Item	Peak Transmit Output		
Test Mode	Mode 1: Transmit		
Date of Test	2011/11/09	Test Site	SR7

IEEE 802.11n(40MHz)_ANT 0+1+2					
Channel No.	Frequency (MHz)	Total Output Power		Required Limit (dBm)	Result
		(mW)	(dBm)		
38	5190	38.90	15.90	≤ 17	Pass
46	5230	32.58	15.13	≤ 17	Pass

**5. Peak Power Spectrum Density**

**5.1. Test Equipment**

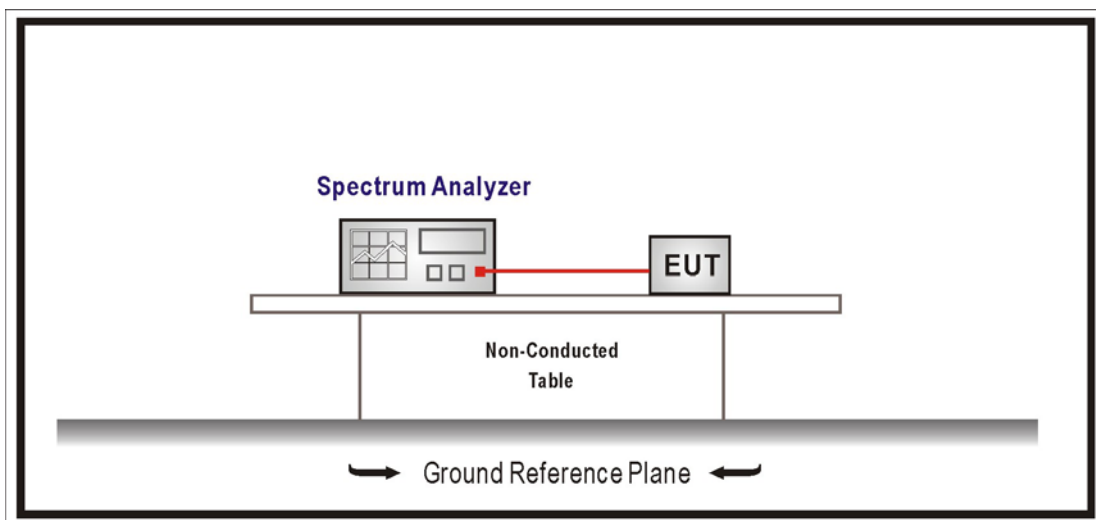
The following test equipments are used during the radiated emission tests:

**Peak Power Spectrum Density / SR7**

Instrument	Manufacturer	Model No.	Serial No	Next Cal. Date
Spectrum Analyzer	R&S	FSP	100561	2012/01/16

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 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

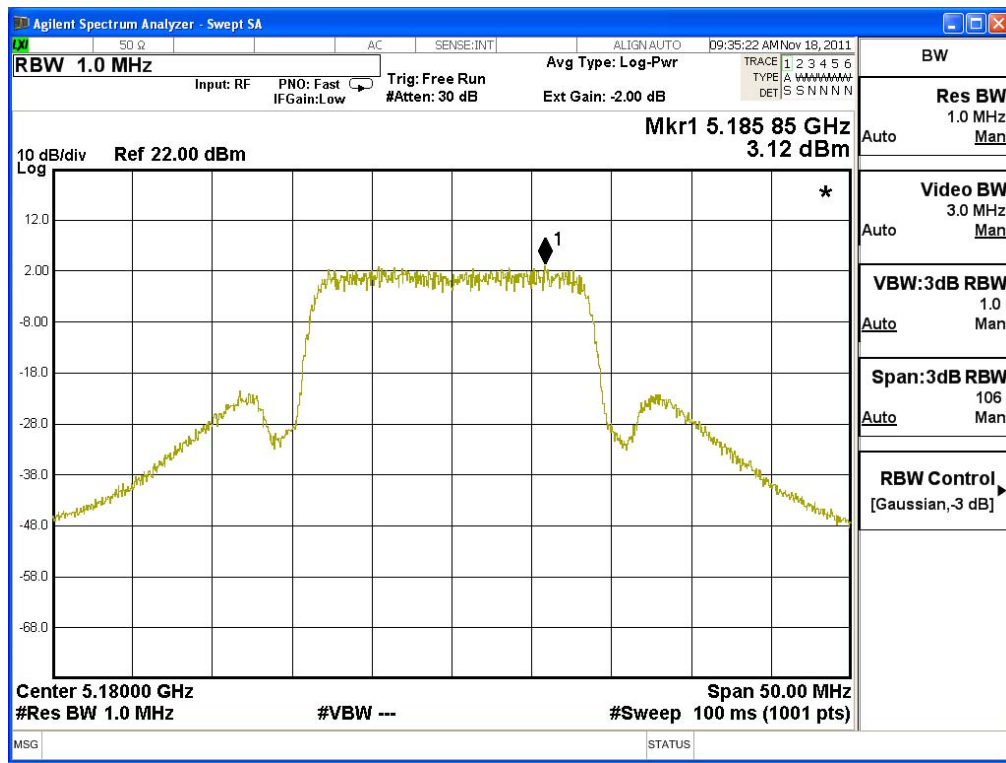
The measurement uncertainty is defined as  $\pm 1.27$  dB

5.6. Test Result

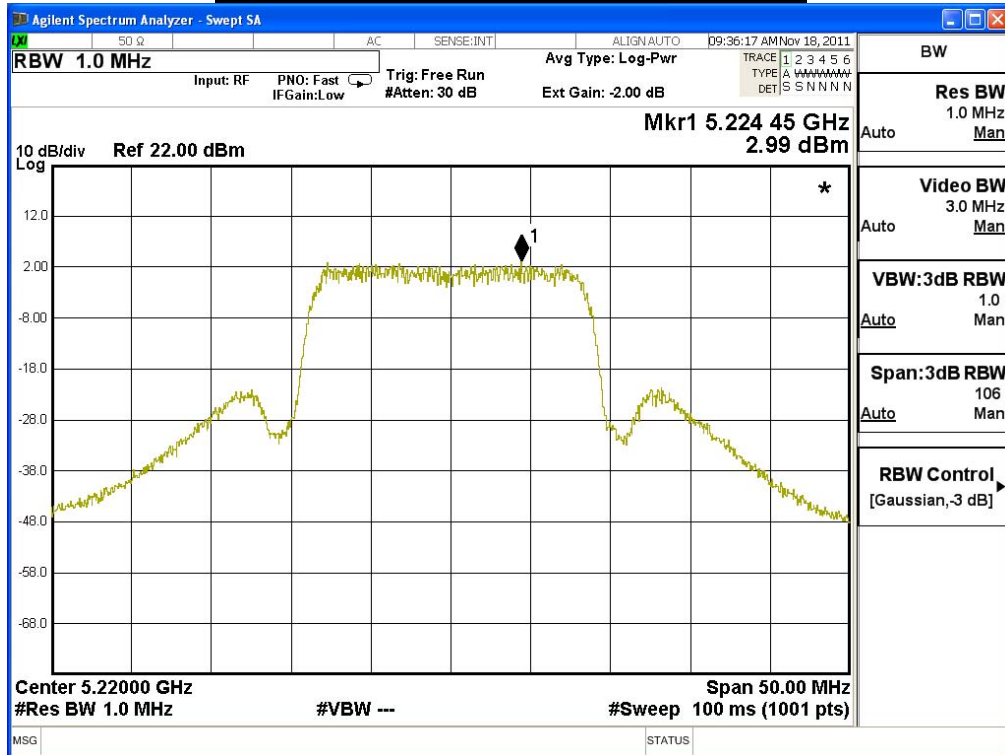
Product	Dark Knight Double 450Mbps Dual N Band Router		
Test Item	Peak Power Spectral Density		
Test Mode	Mode 1: Transmit		
Date of Test	2011/11/17	Test Site	SR7

IEEE 802.11a				
Channel No.	Frequency (MHz)	Measure Level (dBm)	Required Limit (dBm)	Result
36	5180	3.12	≤ 4	Pass
44	5220	2.99	≤ 4	Pass
48	5240	3.12	≤ 4	Pass

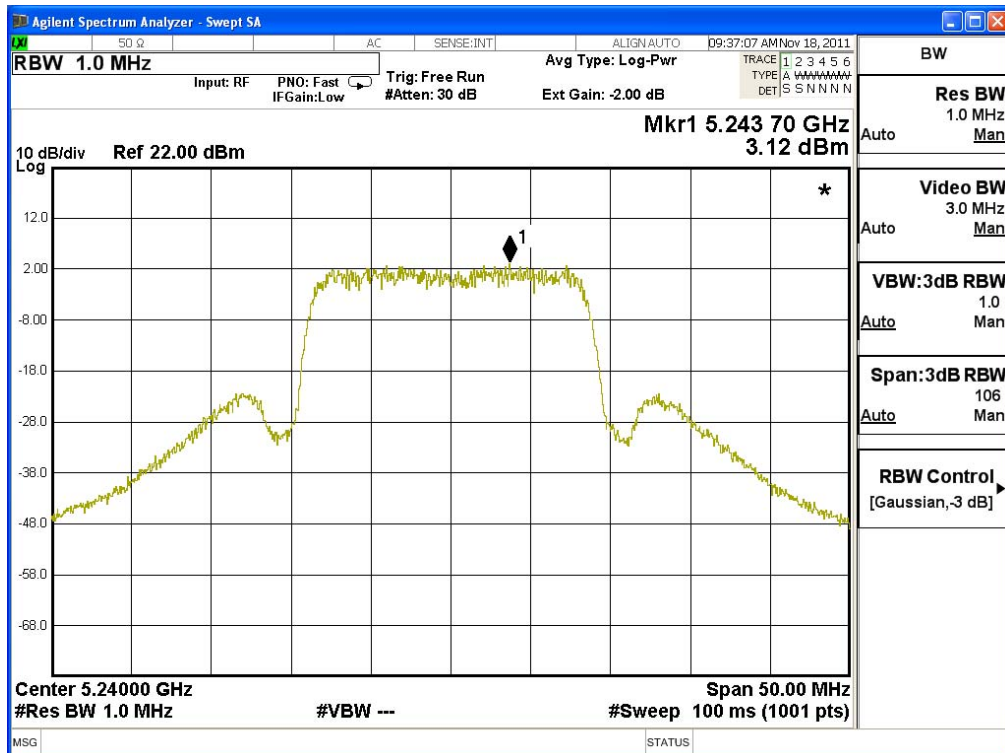
**Peak Power Spectral Density – Channel 36**



**Peak Power Spectral Density – Channel 44**



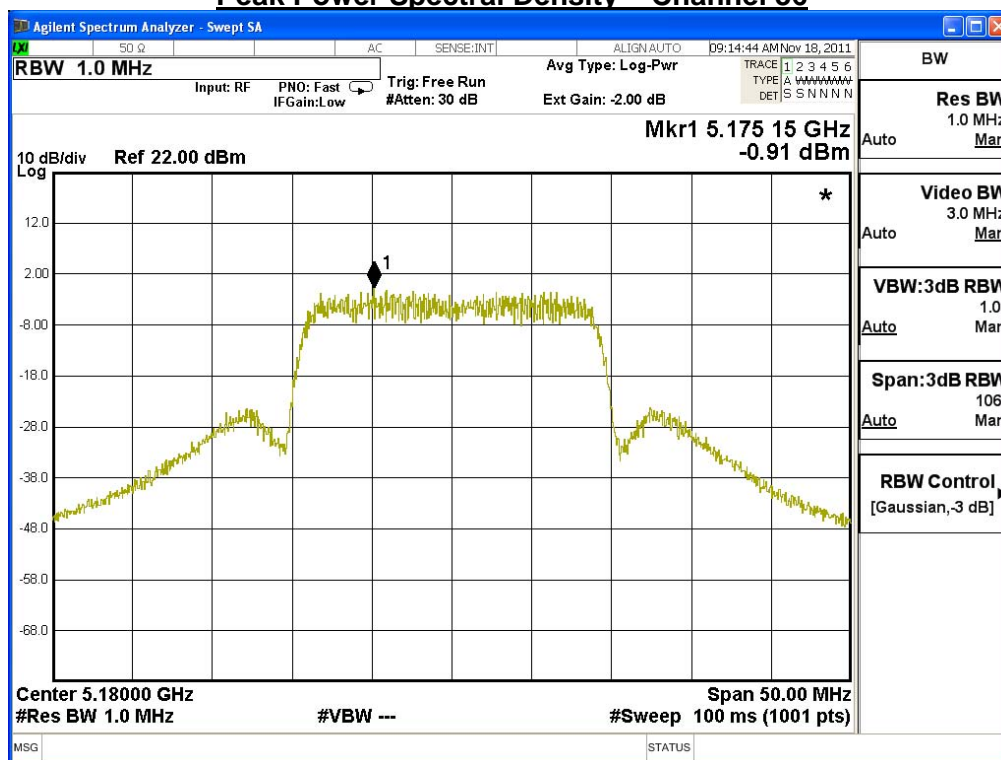
**Peak Power Spectral Density – Channel 48**



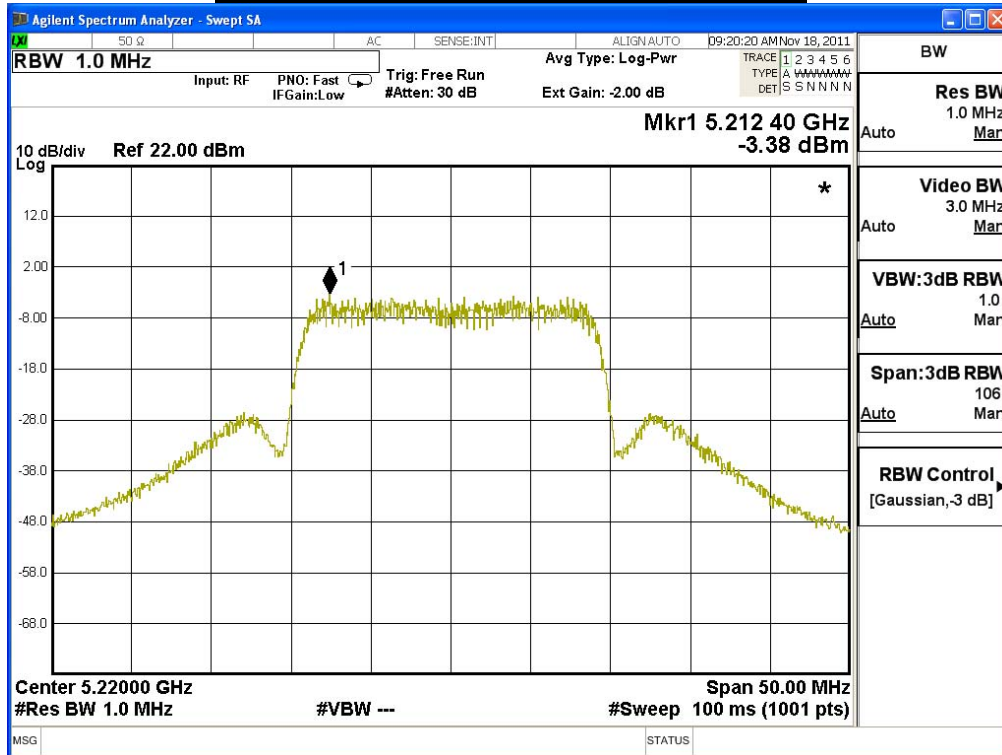
Product	Dark Knight Double 450Mbps Dual N Band Router		
Test Item	Peak Power Spectral Density		
Test Mode	Mode 1: Transmit		
Date of Test	2011/11/17	Test Site	SR7

IEEE 802.11n_20M(ANT 0)				
Channel No.	Frequency (MHz)	Measure Level (dBm)	Required Limit (dBm)	Result
36	5180	-0.91	≤ 4	Pass
44	5220	-3.38	≤ 4	Pass
48	5240	-2.72	≤ 4	Pass

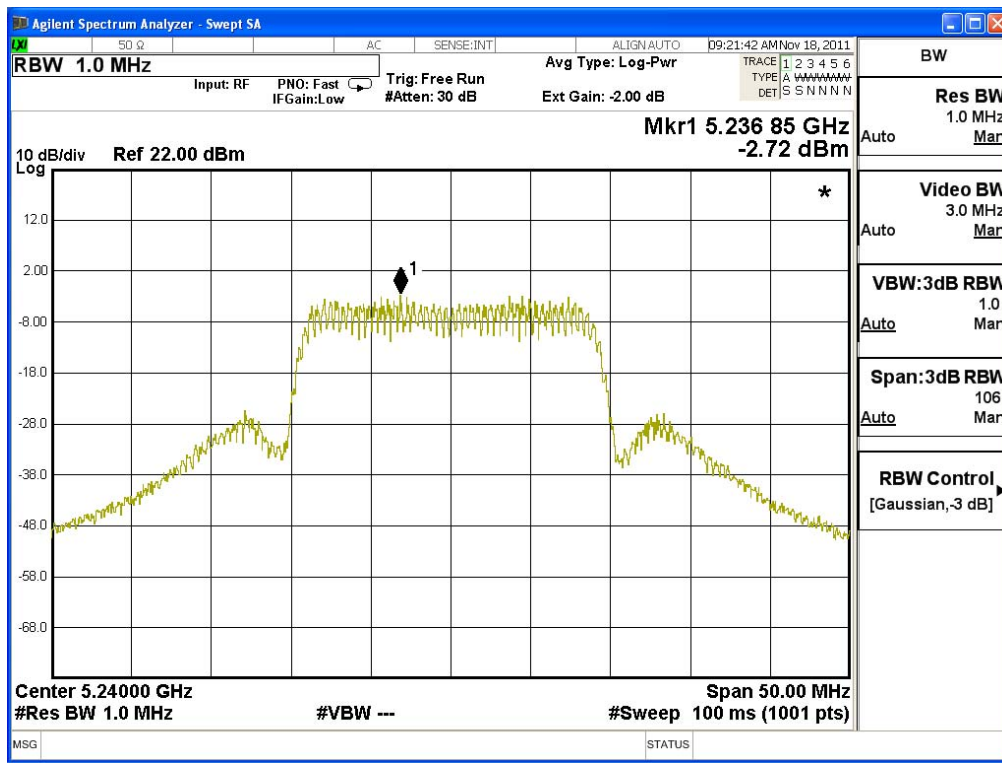
### Peak Power Spectral Density – Channel 36



**Peak Power Spectral Density – Channel 44**



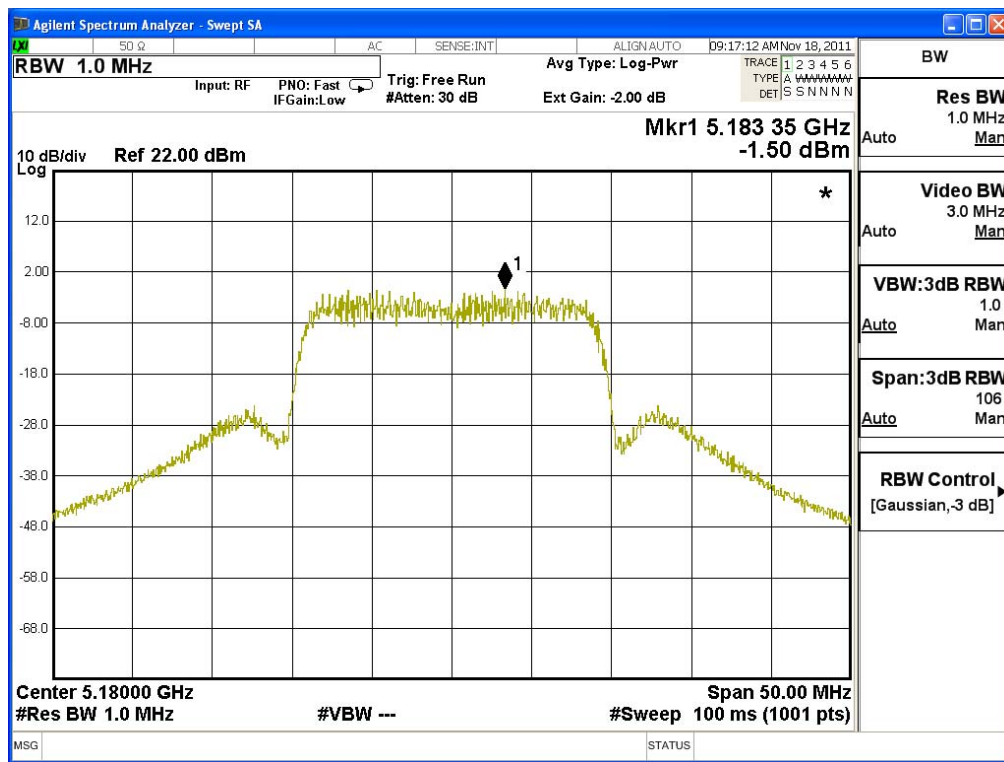
**Peak Power Spectral Density – Channel 48**



Product	Dark Knight Double 450Mbps Dual N Band Router		
Test Item	Peak Power Spectral Density		
Test Mode	Mode 1: Transmit		
Date of Test	2011/11/17	Test Site	SR7

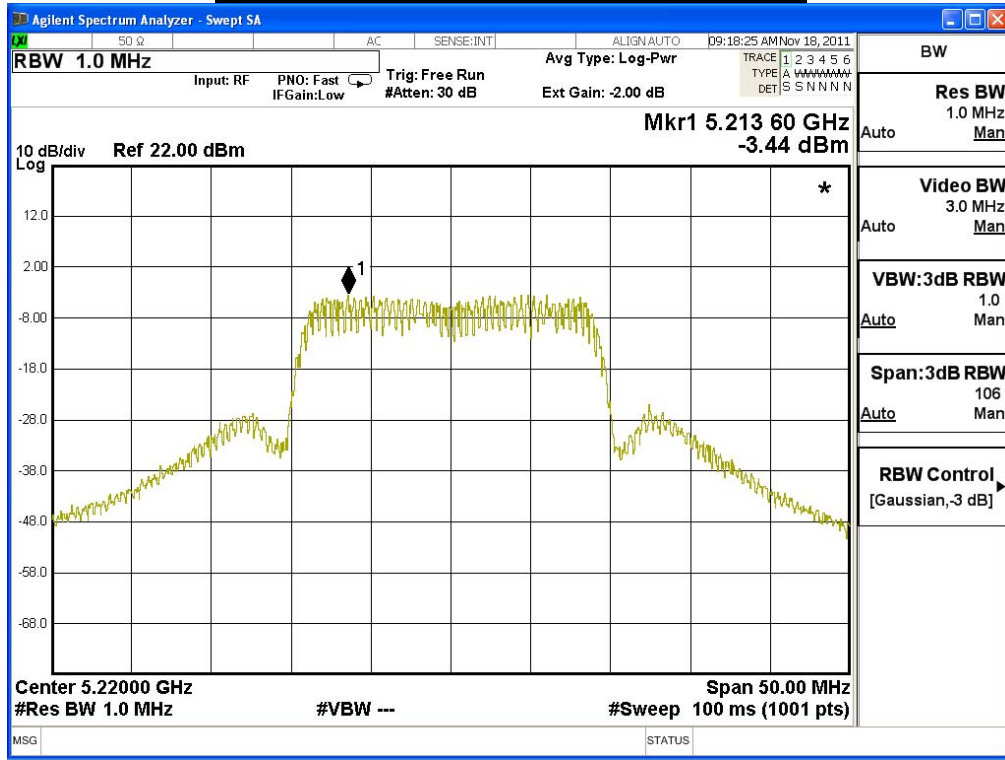
IEEE 802.11n_20M(ANT 1)				
Channel No.	Frequency (MHz)	Measure Level (dBm)	Required Limit (dBm)	Result
36	5180	-1.50	≤ 4	Pass
44	5220	-3.44	≤ 4	Pass
48	5240	-2.04	≤ 4	Pass

### Peak Power Spectral Density – Channel 36

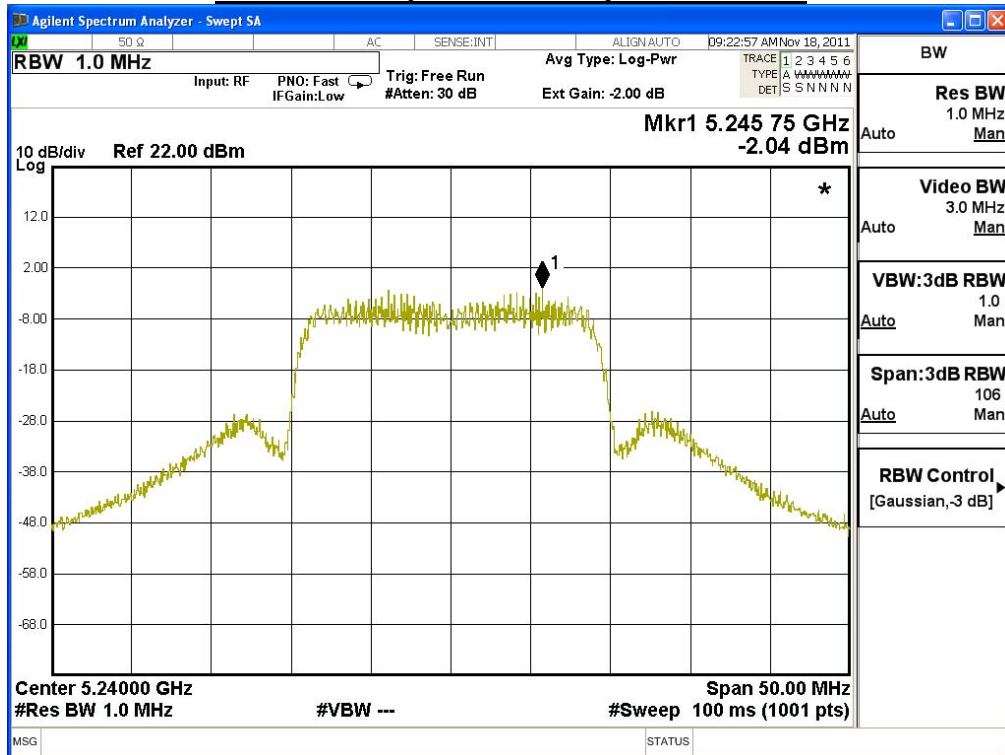




Peak Power Spectral Density – Channel 44



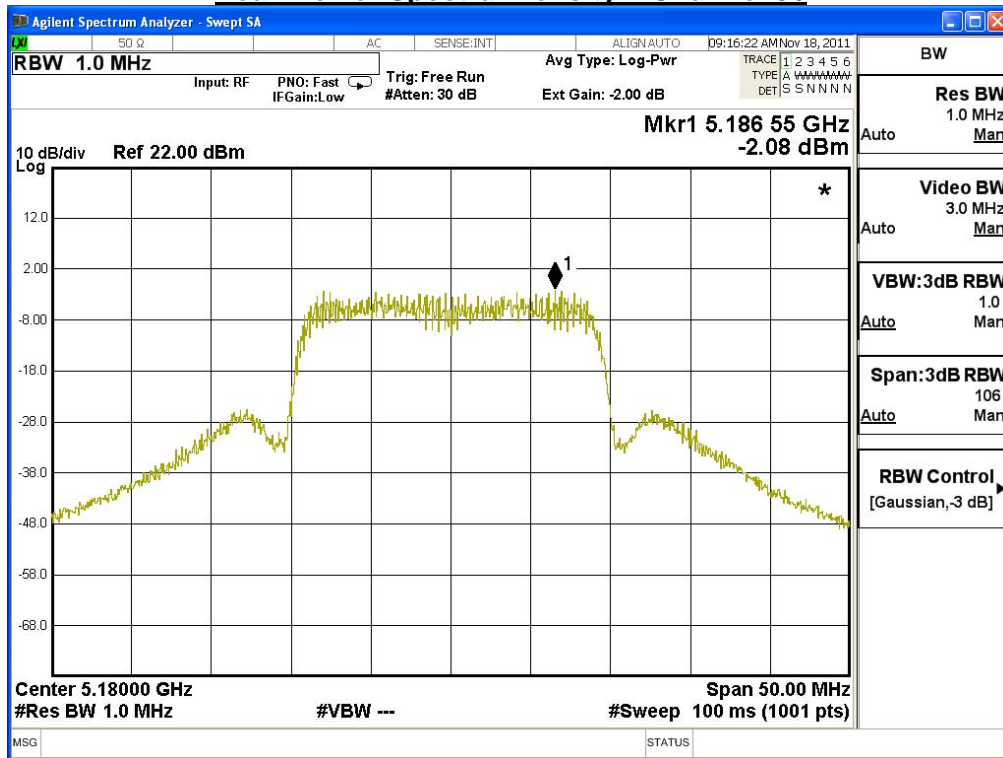
Peak Power Spectral Density – Channel 48



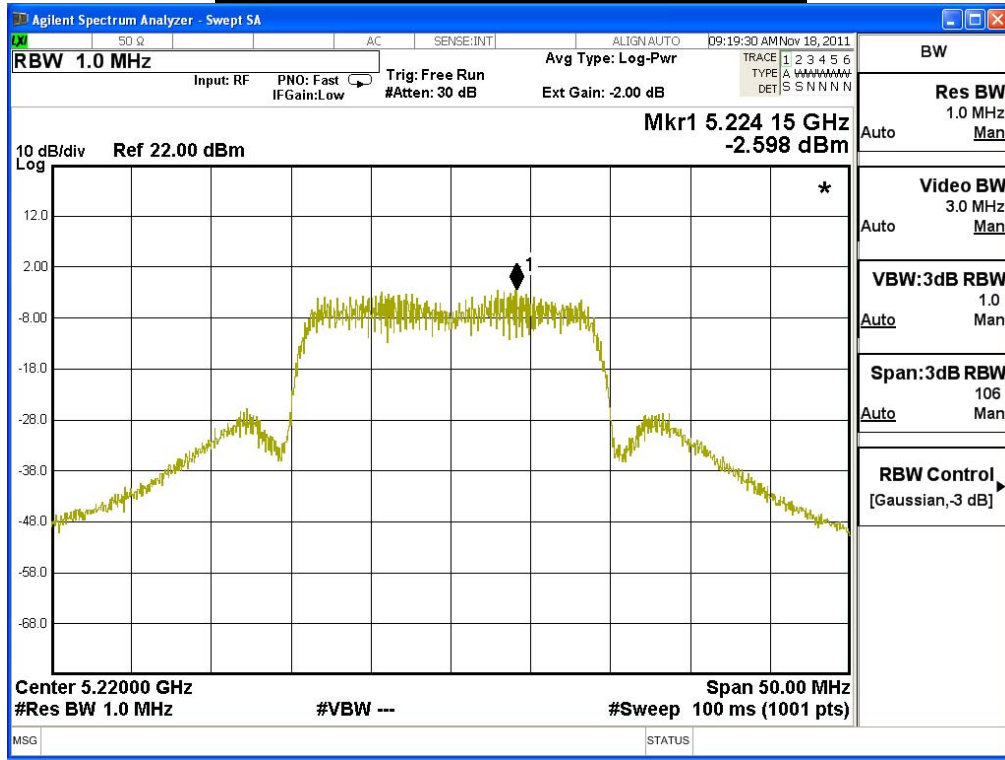
Product	Dark Knight Double 450Mbps Dual N Band Router		
Test Item	Peak Power Spectral Density		
Test Mode	Mode 1: Transmit		
Date of Test	2011/11/17	Test Site	SR7

IEEE 802.11n_20M(ANT 2)				
Channel No.	Frequency (MHz)	Measure Level (dBm)	Required Limit (dBm)	Result
36	5180	-2.08	≤ 4	Pass
44	5220	-2.59	≤ 4	Pass
48	5240	-2.90	≤ 4	Pass

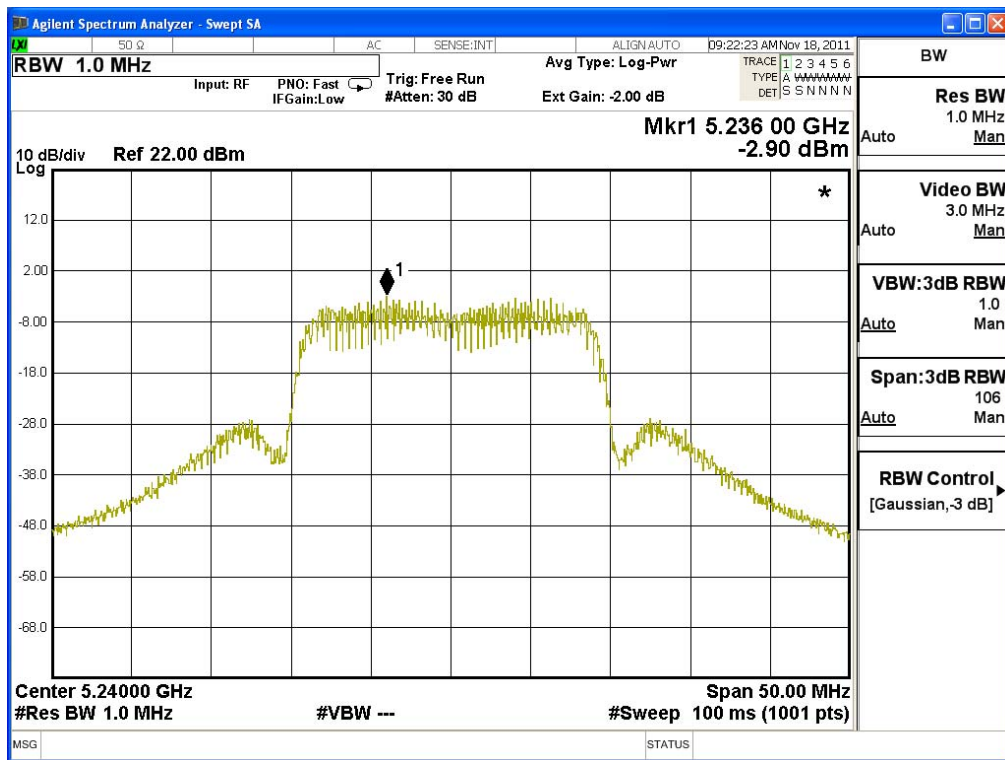
### Peak Power Spectral Density – Channel 36



Peak Power Spectral Density – Channel 44



Peak Power Spectral Density – Channel 48



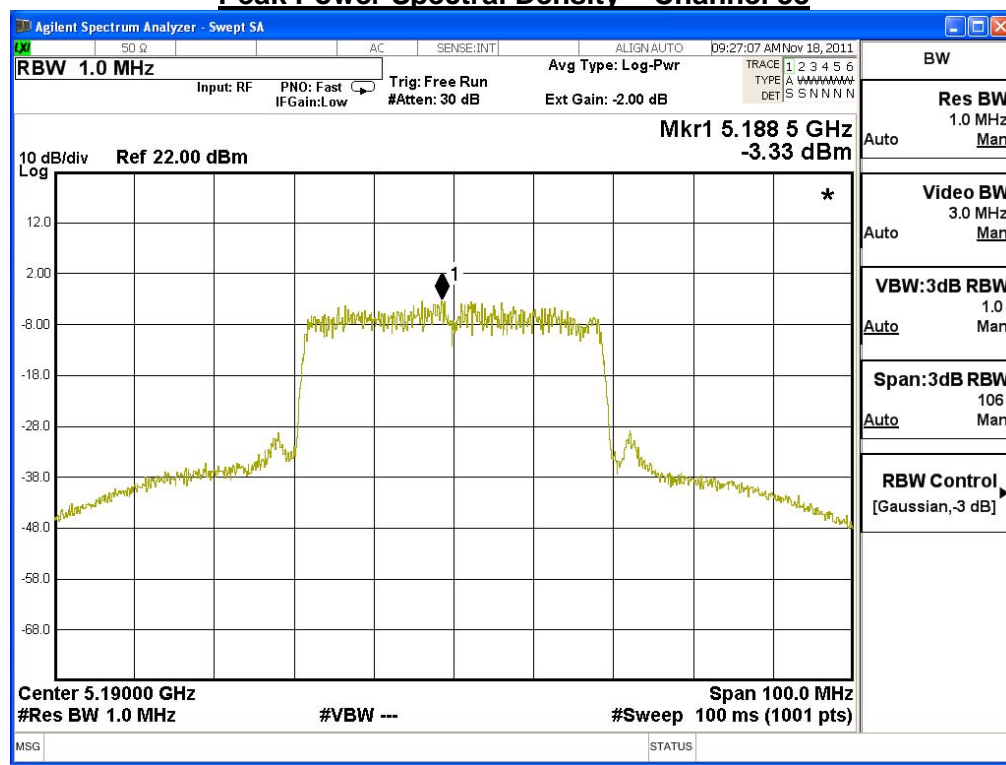
Product	Dark Knight Double 450Mbps Dual N Band Router		
Test Item	Peak Power Spectral Density		
Test Mode	Mode 1: Transmit		
Date of Test	2011/11/17	Test Site	SR7

IEEE 802.11n_20M(ANT 0+1+2)				
Channel No.	Frequency (MHz)	Measure Level (dBm)	Required Limit (dBm)	Result
36	5180	3.30	≤ 4	Pass
44	5220	1.65	≤ 4	Pass
48	5240	2.23	≤ 4	Pass

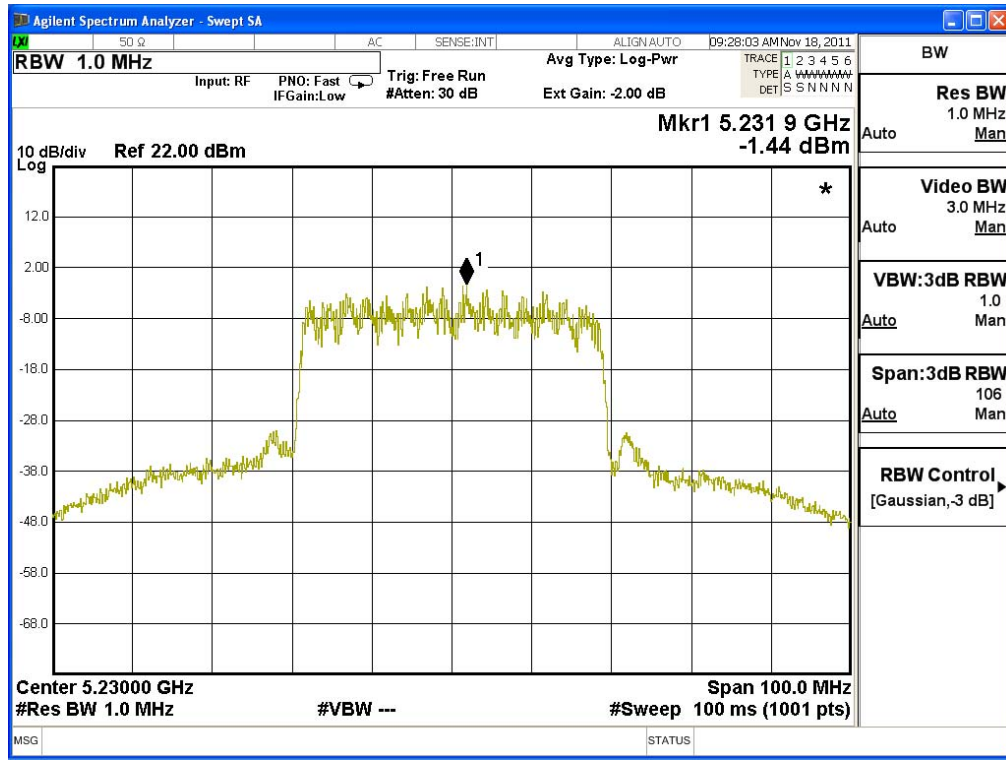
Product	Dark Knight Double 450Mbps Dual N Band Router		
Test Item	Peak Power Spectral Density		
Test Mode	Mode 1: Transmit		
Date of Test	2011/11/17	Test Site	SR7

IEEE 802.11n_40M(ANT 0)				
Channel No.	Frequency (MHz)	Measure Level (dBm)	Required Limit (dBm)	Result
38	5190	-3.33	≤ 4	Pass
46	5230	-1.44	≤ 4	Pass

### Peak Power Spectral Density – Channel 38



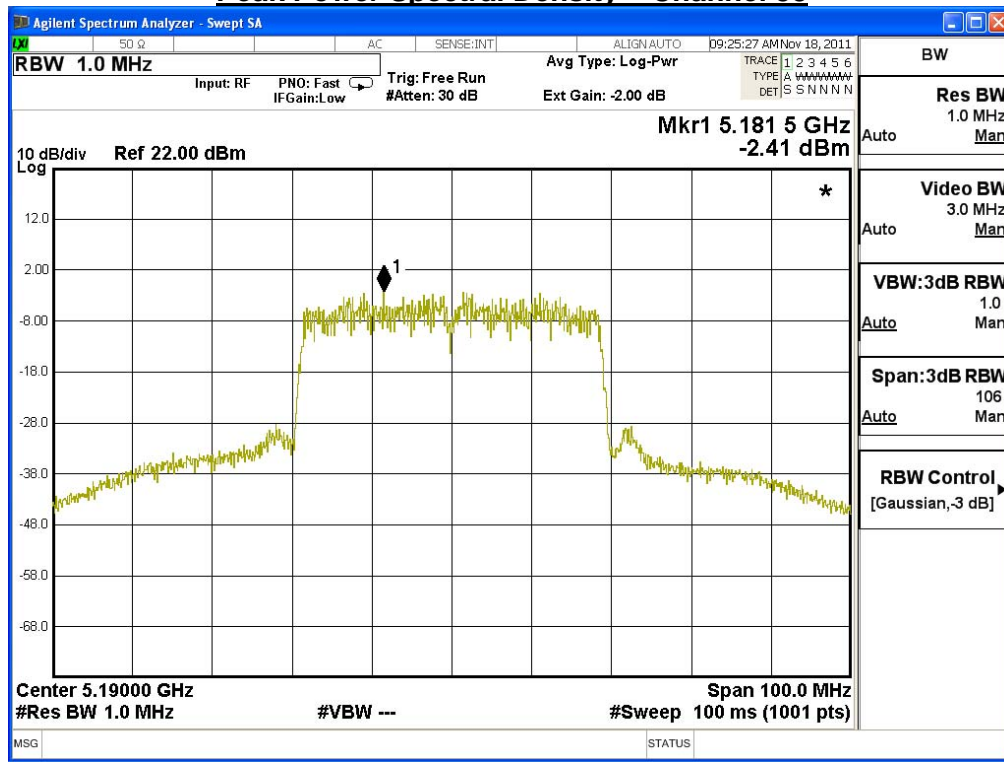
**Peak Power Spectral Density – Channel 46**



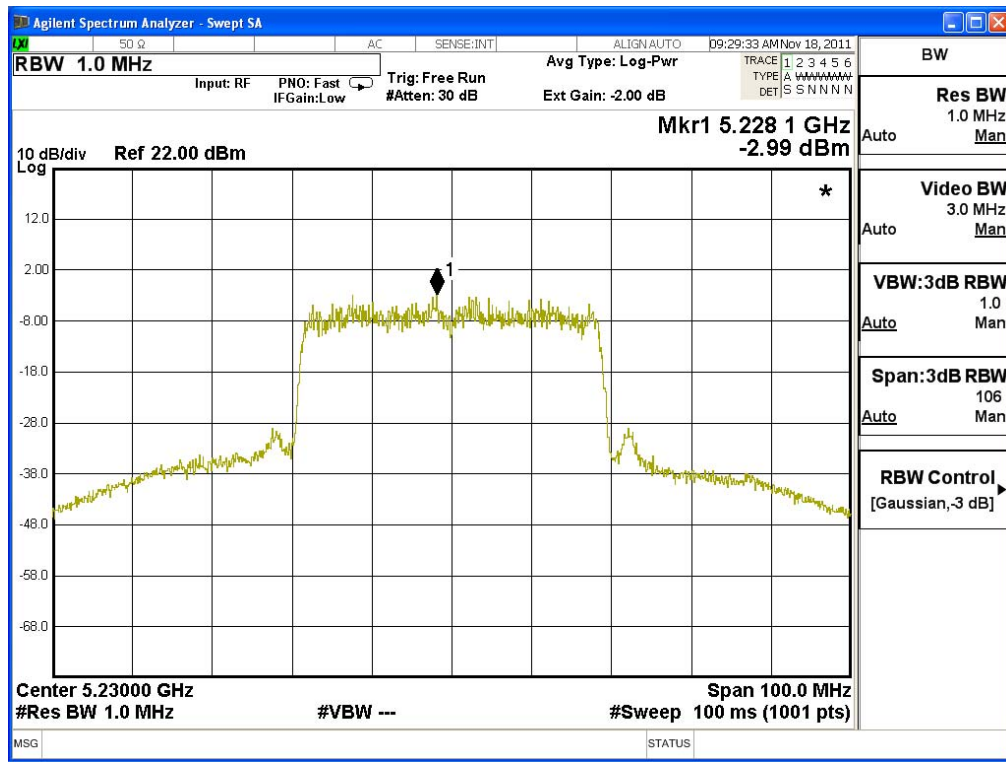
Product	Dark Knight Double 450Mbps Dual N Band Router		
Test Item	Peak Power Spectral Density		
Test Mode	Mode 1: Transmit		
Date of Test	2011/11/17	Test Site	SR7

IEEE 802.11n_40M(ANT 1)				
Channel No.	Frequency (MHz)	Measure Level (dBm)	Required Limit (dBm)	Result
38	5190	-2.41	≤ 4	Pass
46	5230	-2.99	≤ 4	Pass

### Peak Power Spectral Density – Channel 38



**Peak Power Spectral Density – Channel 46**

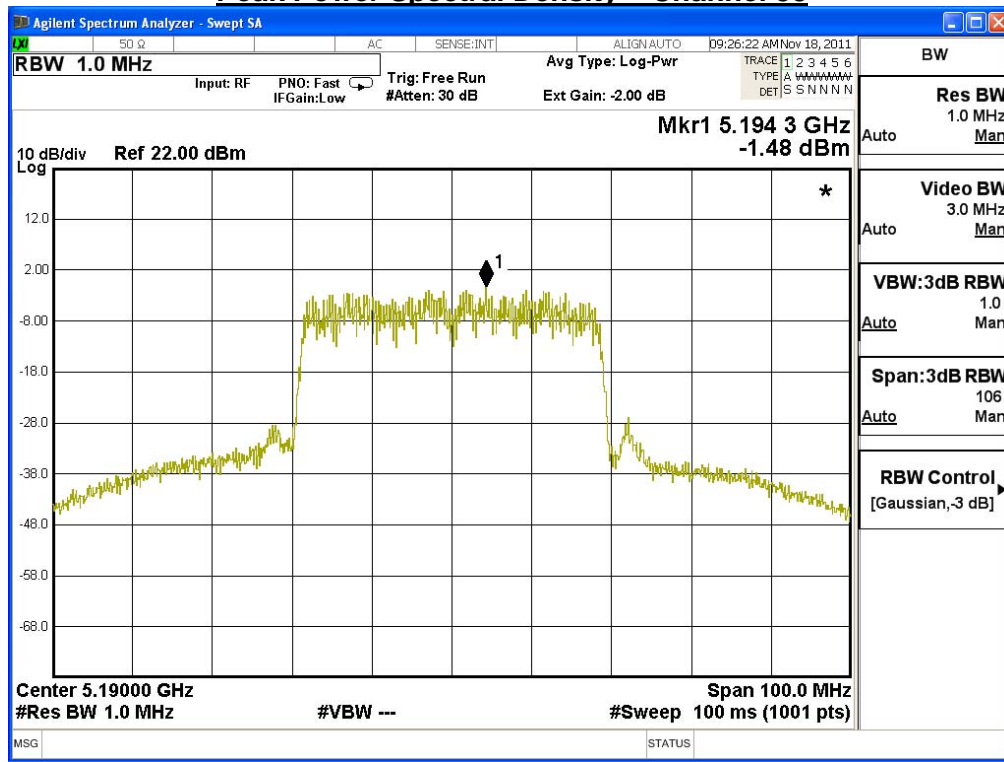




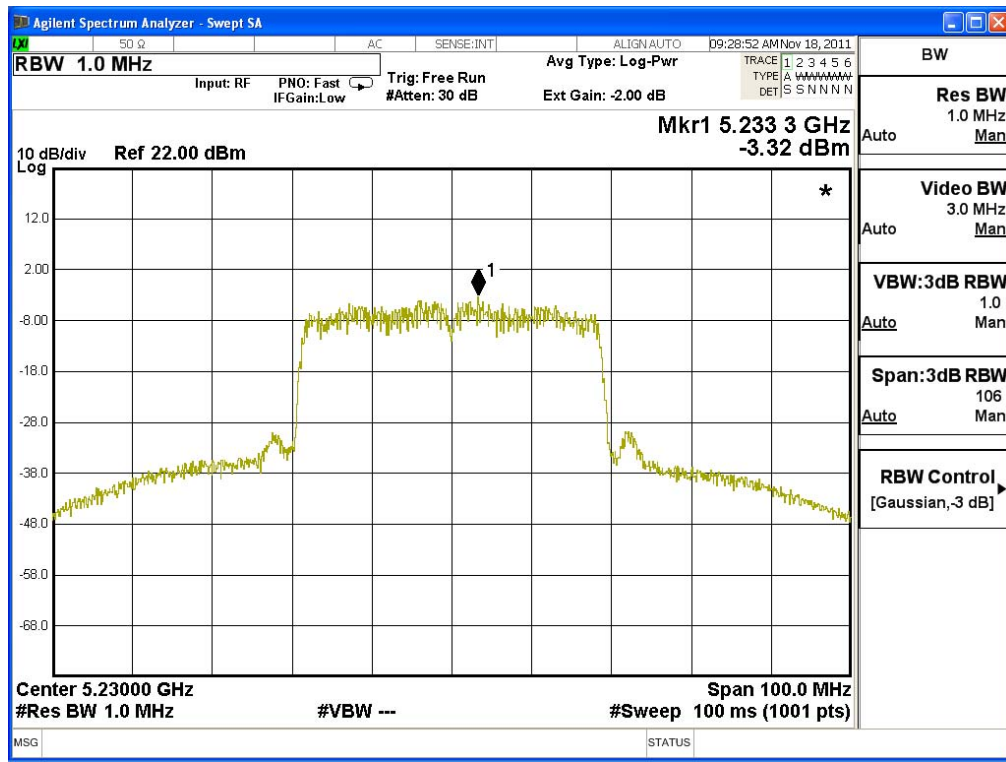
Product	Dark Knight Double 450Mbps Dual N Band Router		
Test Item	Peak Power Spectral Density		
Test Mode	Mode 1: Transmit		
Date of Test	2011/11/17	Test Site	SR7

IEEE 802.11n_40M(ANT 2)				
Channel No.	Frequency (MHz)	Measure Level (dBm)	Required Limit (dBm)	Result
38	5190	-1.48	≤ 4	Pass
46	5230	-3.32	≤ 4	Pass

### Peak Power Spectral Density – Channel 38



**Peak Power Spectral Density – Channel 46**



Product	Dark Knight Double 450Mbps Dual N Band Router		
Test Item	Peak Power Spectral Density		
Test Mode	Mode 1: Transmit		
Date of Test	2011/11/17	Test Site	SR7

IEEE 802.11n_40M(ANT 0+1+2)				
Channel No.	Frequency (MHz)	Measure Level (dBm)	Required Limit (dBm)	Result
38	5190	2.43	≤ 4	Pass
46	5230	2.27	≤ 4	Pass

**6. Peak Excursion**

**6.1. Test Equipment**

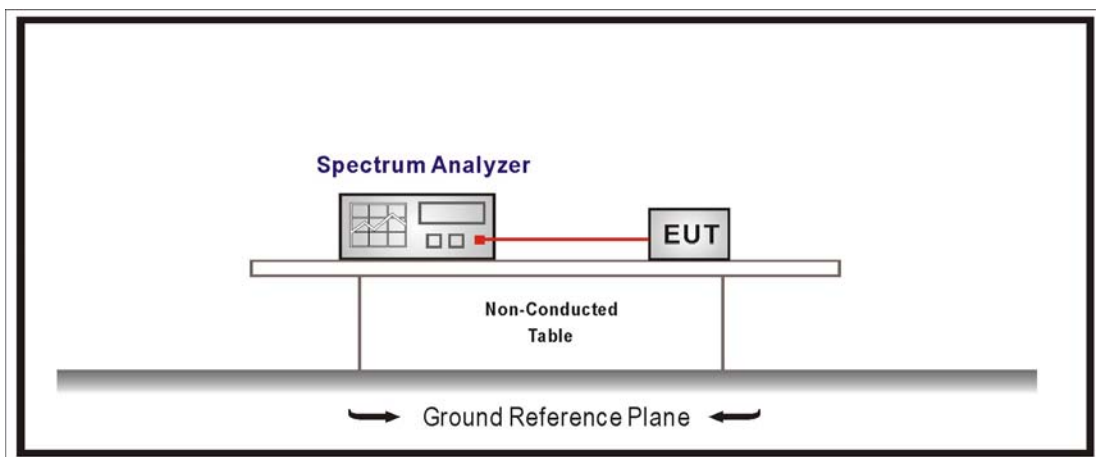
The following test equipments are used during the radiated emission tests:

**Peak Excursion / SR7**

Instrument	Manufacturer	Model No.	Serial No	Next Cal. Date
Spectrum Analyzer	R&S	FSP	100561	2012/01/16

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

**6.5. Uncertainty**

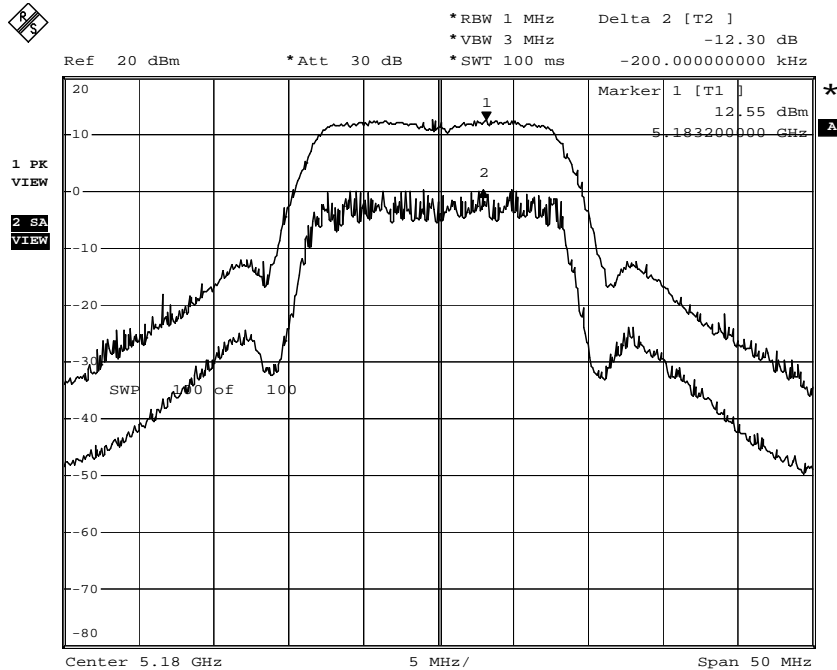
The measurement uncertainty is defined as  $\pm 1.27$  dB

6.6. Test Result

Product	Dark Knight Double 450Mbps Dual N Band Router		
Test Item	Peak Excursion		
Test Mode	Mode 1: Transmit		
Date of Test	2011/11/16	Test Site	SR7

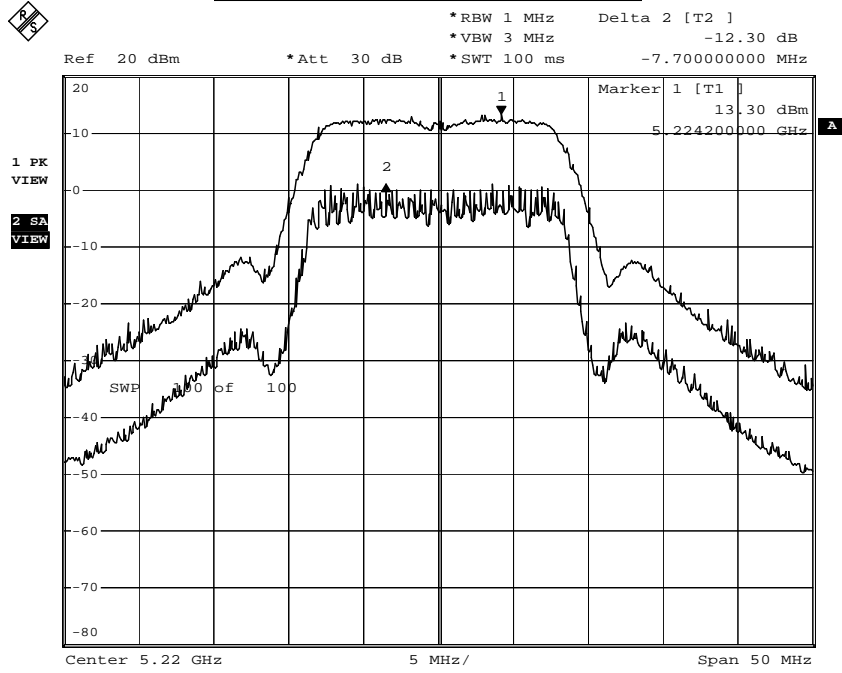
IEEE 802.11a				
Channel No.	Frequency (MHz)	Measure Level (dB)	Required Limit (dB)	Result
36	5180	12.30	≤ 13	Pass
44	5220	12.30	≤ 13	Pass
48	5240	12.78	≤ 13	Pass

**Power Excursion – Channel 36**



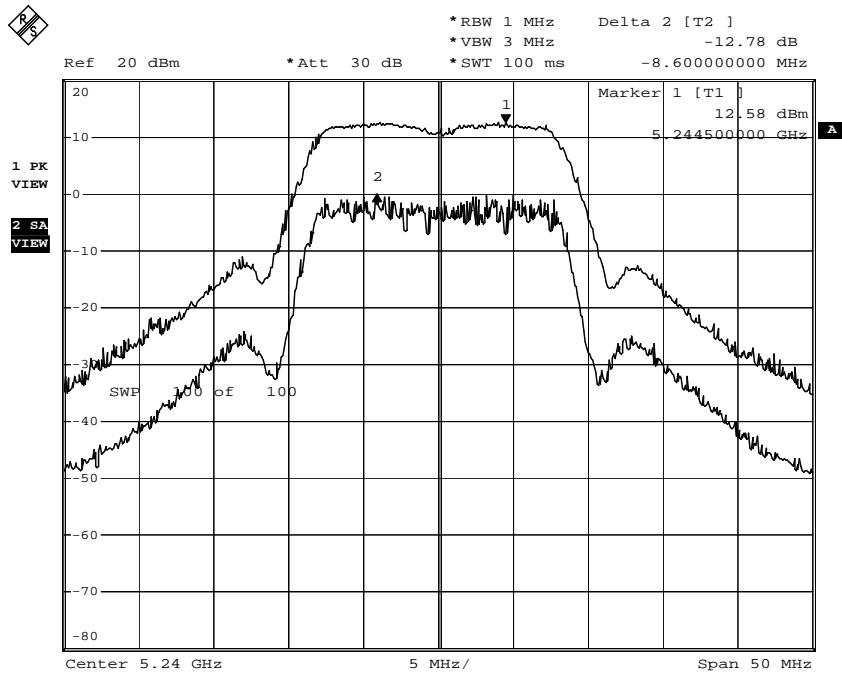
Comment: A:\2  
 Date: 16.NOV.2011 23:49:38

**Power Excursion – Channel 44**



Comment: A:\2  
 Date: 16.NOV.2011 23:51:18

**Power Excursion – Channel 48**

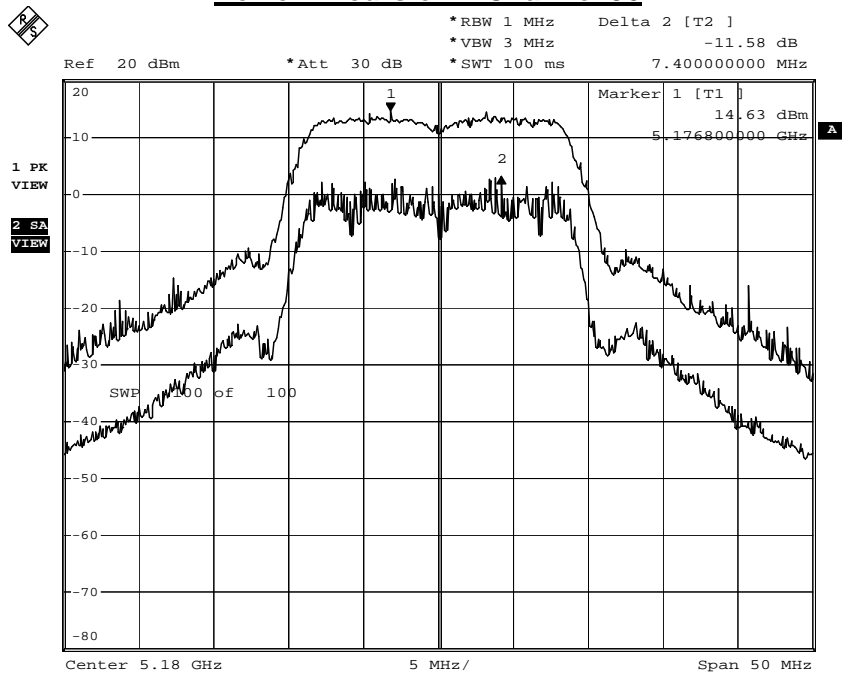


Comment: A:\2  
 Date: 16.NOV.2011 23:52:21

Product	Dark Knight Double 450Mbps Dual N Band Router		
Test Item	Peak Excursion		
Test Mode	Mode 1: Transmit		
Date of Test	2011/11/16	Test Site	SR7

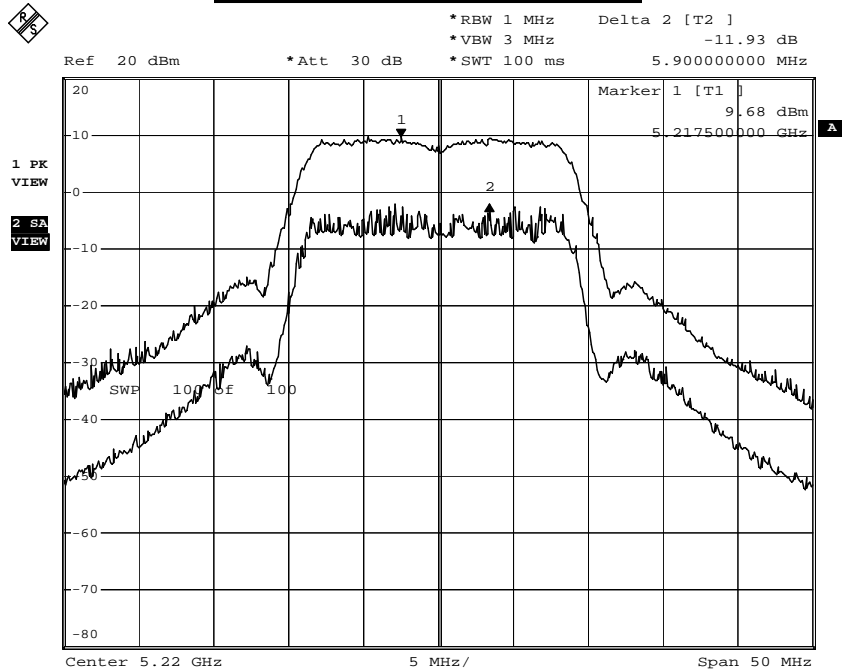
IEEE 802.11n_20M(ANT 0)				
Channel No.	Frequency (MHz)	Measure Level (dB)	Required Limit (dB)	Result
36	5180	11.58	≤ 13	Pass
44	5220	11.93	≤ 13	Pass
48	5240	12.14	≤ 13	Pass

### Power Excursion – Channel 36



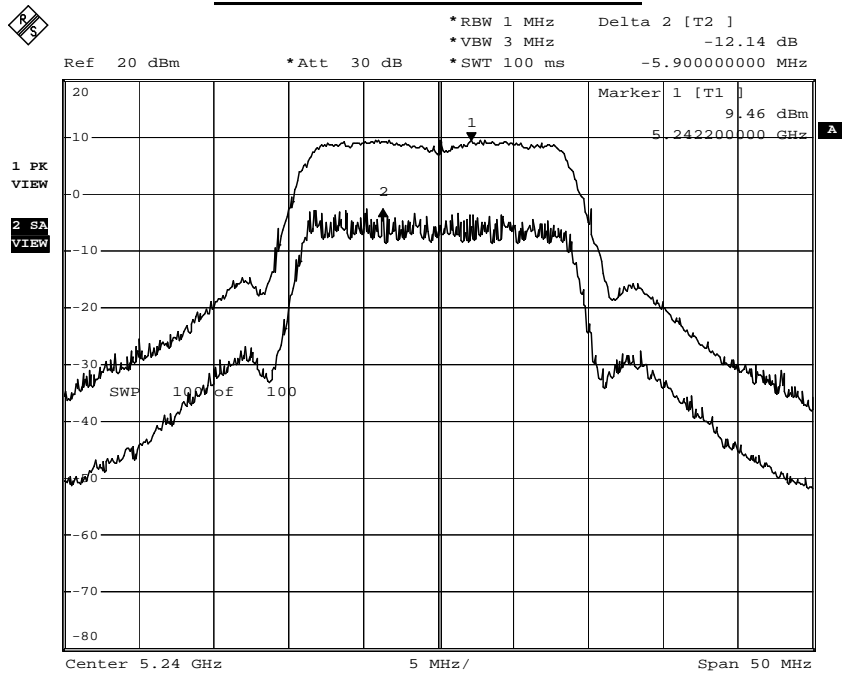
Comment: A:\2  
 Date: 16.NOV.2011 23:54:01

**Power Excursion – Channel 44**



Comment: A:\2  
 Date: 17.NOV.2011 00:00:07

**Power Excursion – Channel 48**



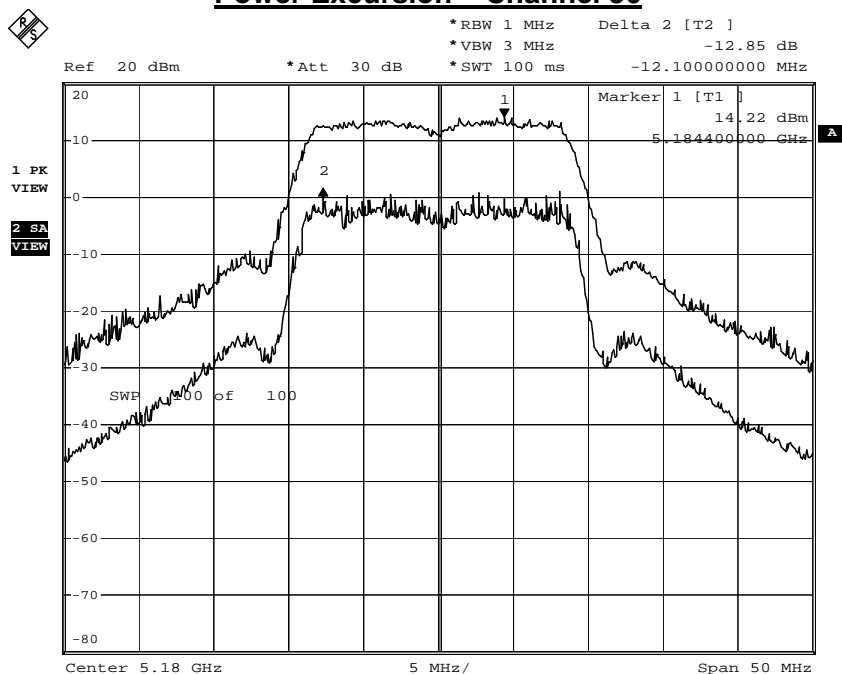
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 Date: 17.NOV.2011 00:01:42



Product	Dark Knight Double 450Mbps Dual N Band Router		
Test Item	Peak Excursion		
Test Mode	Mode 1: Transmit		
Date of Test	2011/11/16	Test Site	SR7

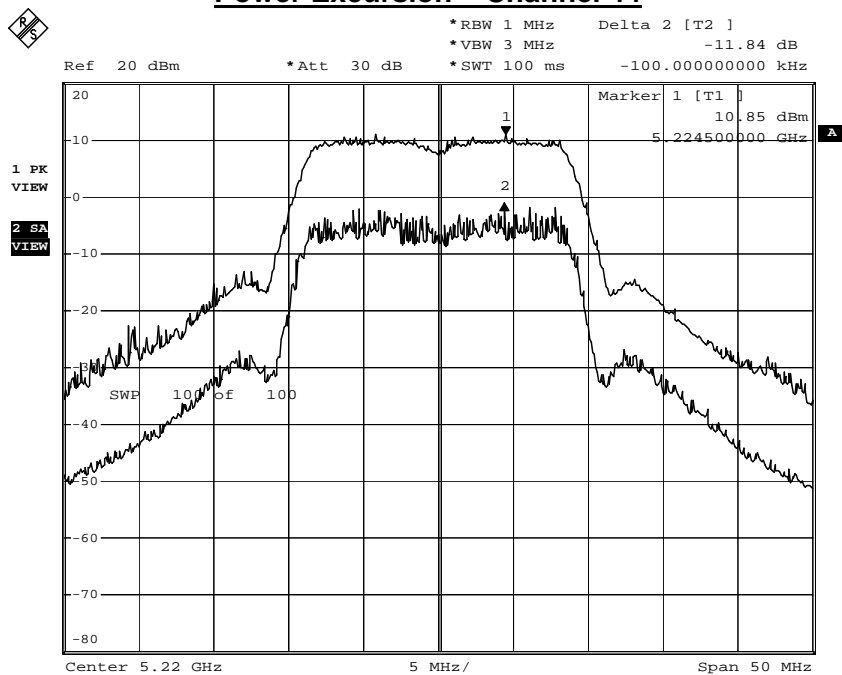
IEEE 802.11n_20M(ANT 1)				
Channel No.	Frequency (MHz)	Measure Level (dB)	Required Limit (dB)	Result
36	5180	12.85	≤ 13	Pass
44	5220	11.84	≤ 13	Pass
48	5240	12.65	≤ 13	Pass

### Power Excursion – Channel 36



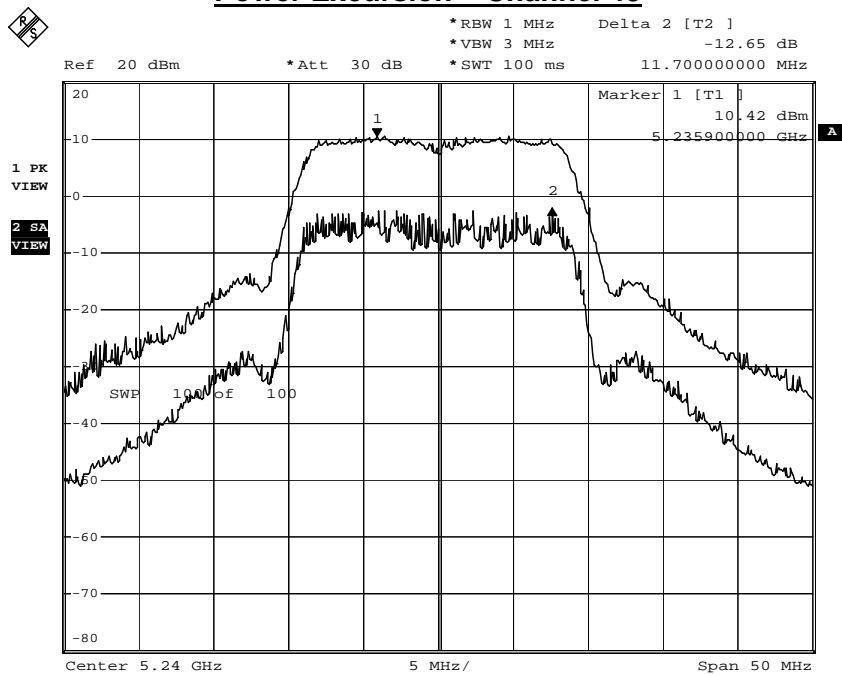
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## Power Excursion – Channel 44



Comment: A:\2  
 Date: 16.NOV.2011 23:57:28

## Power Excursion – Channel 48

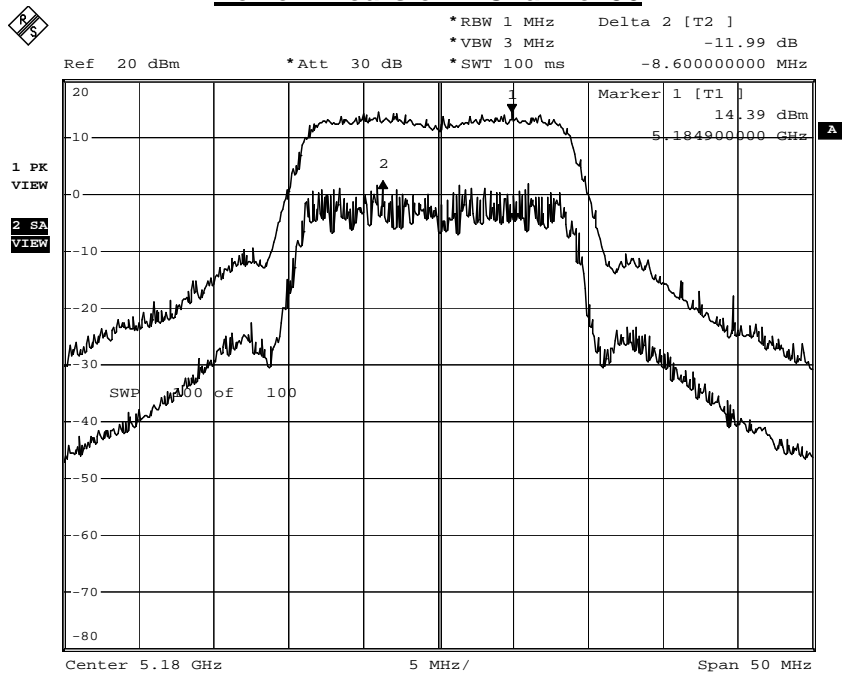


Comment: A:\2  
 Date: 17.NOV.2011 00:04:08

Product	Dark Knight Double 450Mbps Dual N Band Router		
Test Item	Peak Excursion		
Test Mode	Mode 1: Transmit		
Date of Test	2011/11/16	Test Site	SR7

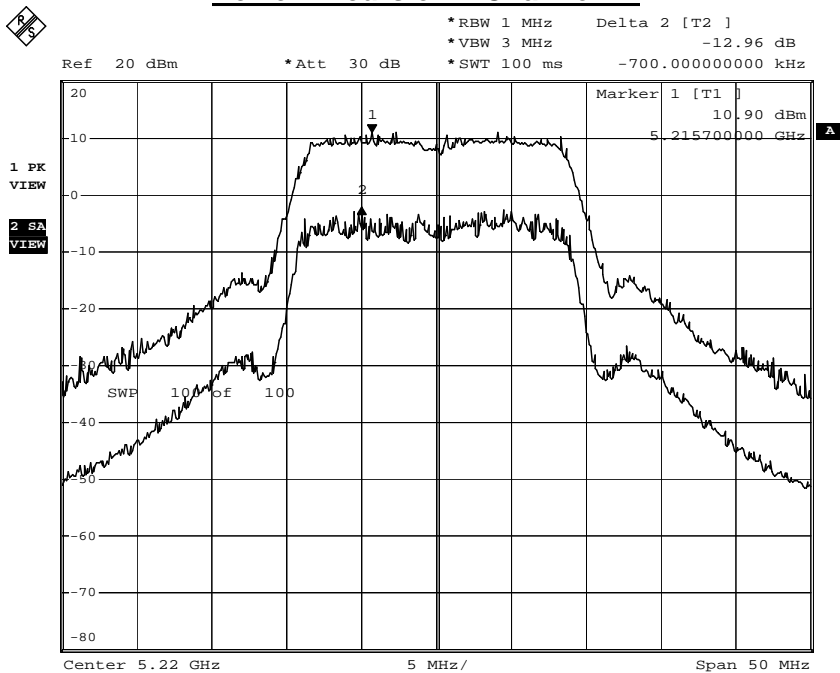
IEEE 802.11n_20M(ANT 2)				
Channel No.	Frequency (MHz)	Measure Level (dB)	Required Limit (dB)	Result
36	5180	11.99	≤ 13	Pass
44	5220	12.96	≤ 13	Pass
48	5240	12.89	≤ 13	Pass

### Power Excursion – Channel 36



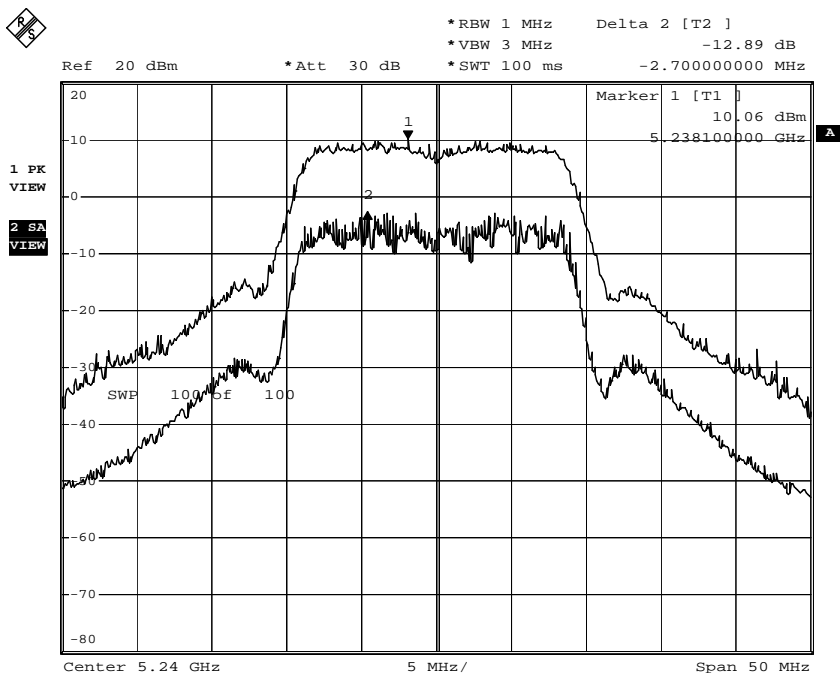
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## Power Excursion – Channel 44



Comment: A:\2  
 Date: 16.NOV.2011 23:58:33

## Power Excursion – Channel 48

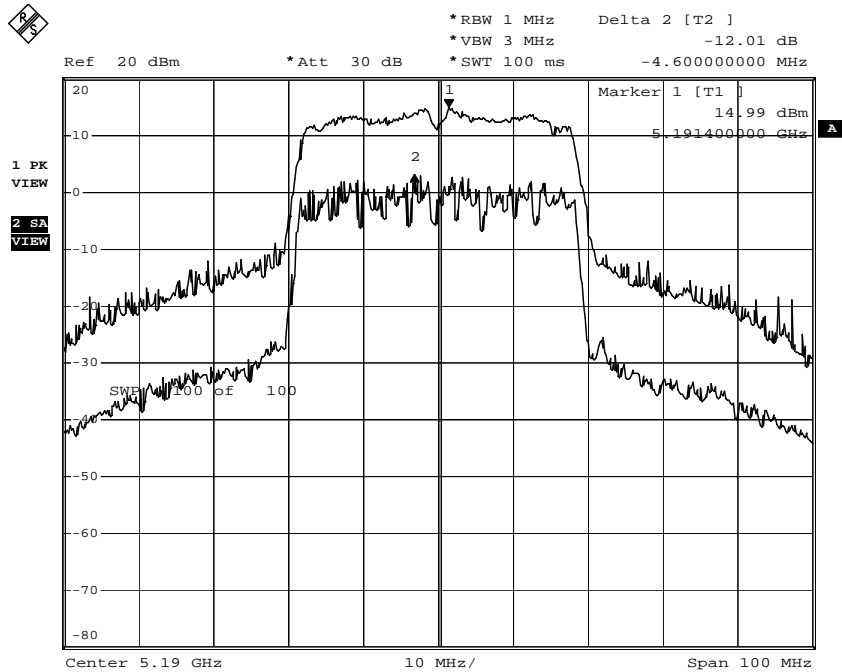


Comment: A:\2  
 Date: 17.NOV.2011 00:02:51

Product	Dark Knight Double 450Mbps Dual N Band Router		
Test Item	Peak Excursion		
Test Mode	Mode 1: Transmit		
Date of Test	2011/11/16	Test Site	SR7

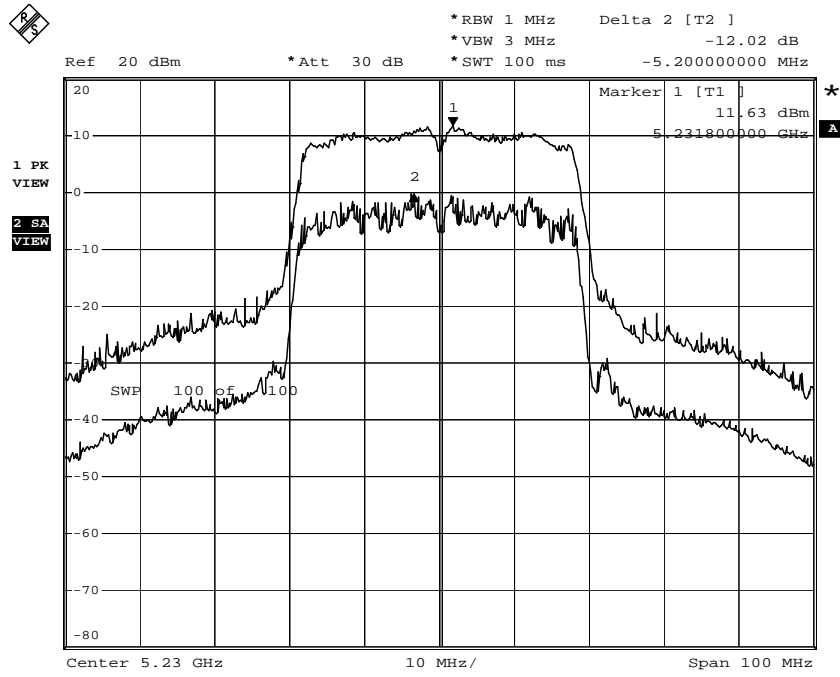
IEEE 802.11n_40M(ANT 0)				
Channel No.	Frequency (MHz)	Measure Level (dB)	Required Limit (dB)	Result
38	5190	12.01	≤ 13	Pass
46	5230	12.02	≤ 13	Pass

### Power Excursion – Channel 38



Comment: A:\2  
 Date: 17.NOV.2011 09:36:06

**Power Excursion – Channel 46**

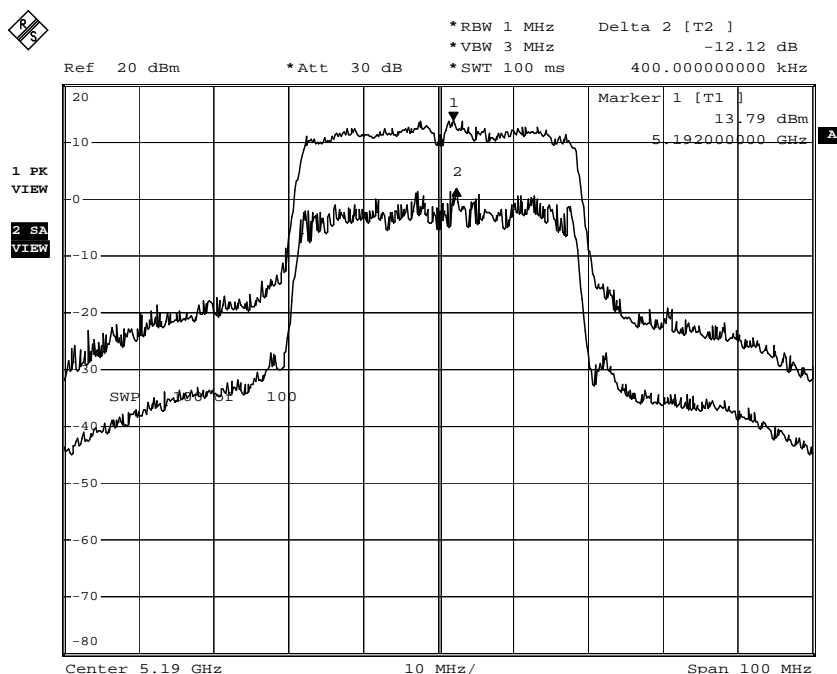


Comment: A:\2  
Date: 17.NOV.2011 09:45:50

Product	Dark Knight Double 450Mbps Dual N Band Router		
Test Item	Peak Excursion		
Test Mode	Mode 1: Transmit		
Date of Test	2011/11/16	Test Site	SR7

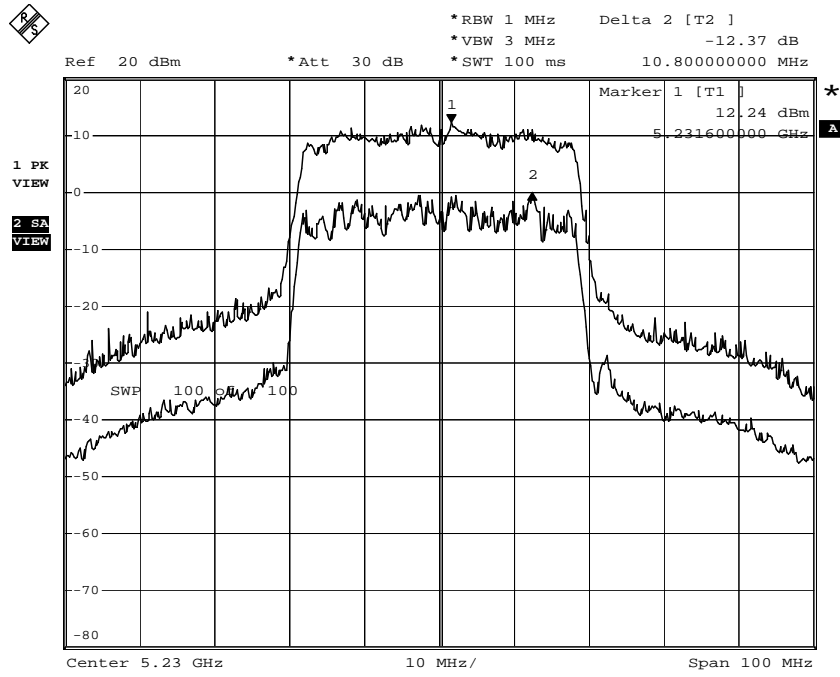
IEEE 802.11n_40M(ANT 1)				
Channel No.	Frequency (MHz)	Measure Level (dB)	Required Limit (dB)	Result
38	5190	12.12	≤ 13	Pass
46	5230	12.37	≤ 13	Pass

### Power Excursion – Channel 38



Comment: A:\2  
 Date: 17.NOV.2011 09:41:43

**Power Excursion – Channel 46**



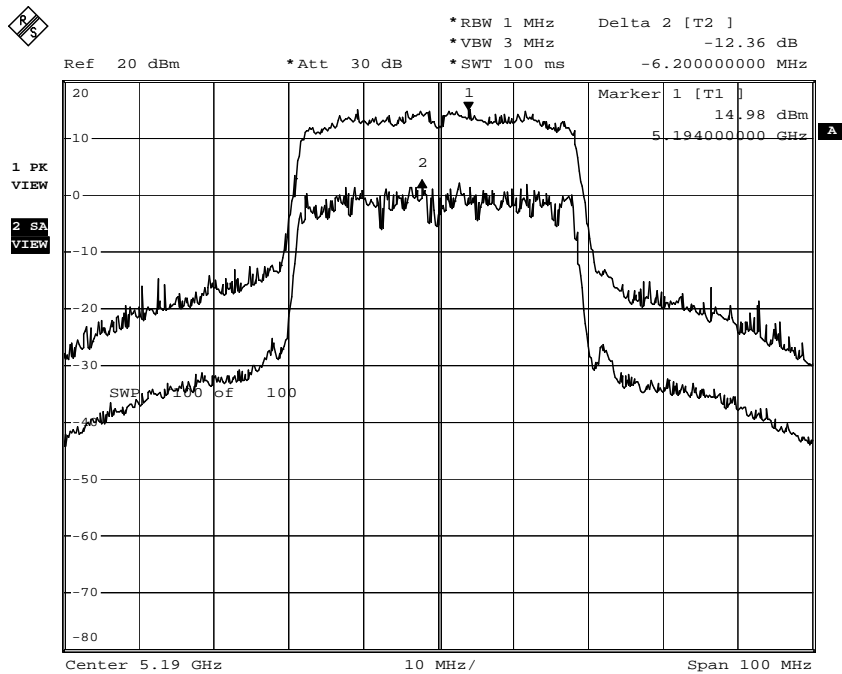
Comment: A:\2  
Date: 17.NOV.2011 09:43:11



Product	Dark Knight Double 450Mbps Dual N Band Router		
Test Item	Peak Excursion		
Test Mode	Mode 1: Transmit		
Date of Test	2011/11/16	Test Site	SR7

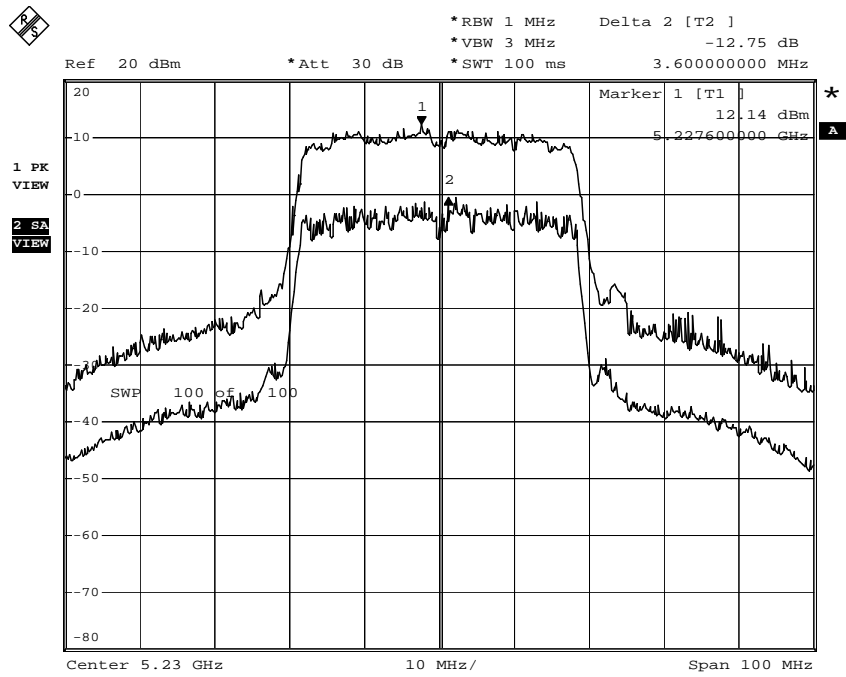
IEEE 802.11n_40M(ANT 2)				
Channel No.	Frequency (MHz)	Measure Level (dB)	Required Limit (dB)	Result
38	5190	12.36	≤ 13	Pass
46	5230	12.75	≤ 13	Pass

### Power Excursion – Channel 38



Comment: A:\2  
 Date: 17.NOV.2011 09:37:15

**Power Excursion – Channel 46**



Comment: A:\2  
Date: 17.NOV.2011 09:44:41

7. Radiated Emission

7.1. Test Equipment

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

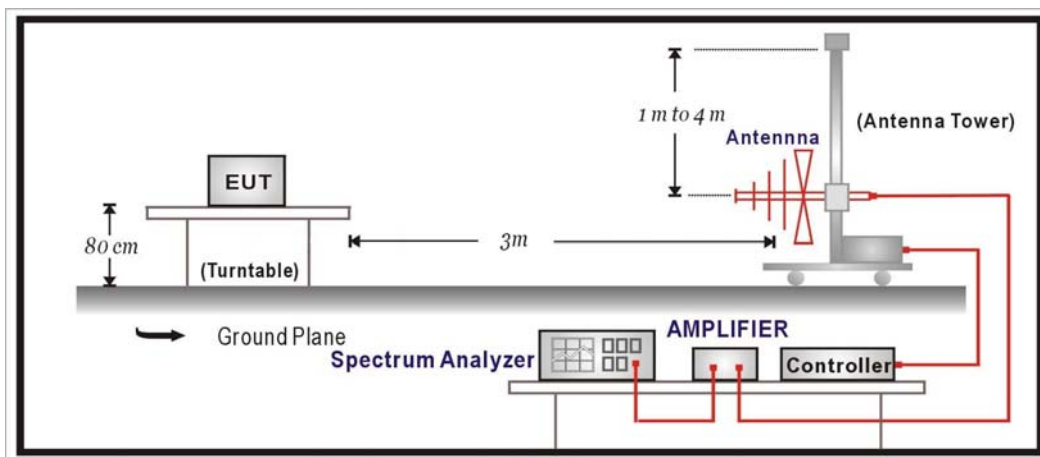
Radiated Emission / CB1

Instrument	Manufacturer	Model No.	Serial No	Next Cal. Date
Bilog Antenna	SCHAFFNER	CBL6112B	2895	2012/08/14
Double Ridged Guide Horn Antenna	Schwarzback	BBHA 9120D	743	2012/02/24
Pre-Amplifier	MITEQ	AMF-4D-005180-24-10P	888003	2011/12/16
Pre-Amplifier	Quietek	AP-025C	CHM-0706049	2012/03/10
PSA Series Spectrum analyzer	Agilent	E4440A	MY46187335	2012/01/06
Coaxial Cable	Huber+Suhner AG	Sucoflex 102	25623/2	2012/03/21

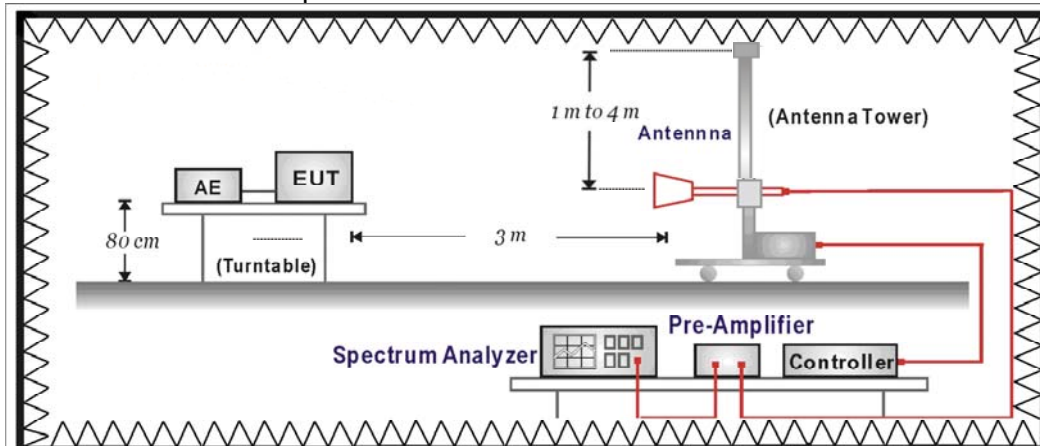
Note: 1. All equipments that need to calibrate are with calibration period of 1 year.

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:

<b>FCC Part 15 Subpart C Paragraph 15.209 Limits</b>		
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**

<b>FCC Part 15 Subpart C Paragraph 15.407(b) Limits</b>		
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 notch filter below 1GHz was used to measure the level of harmonics radiated emission during field strength 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 harmonics is checked.

**7.5. Uncertainty**

The measurement uncertainty

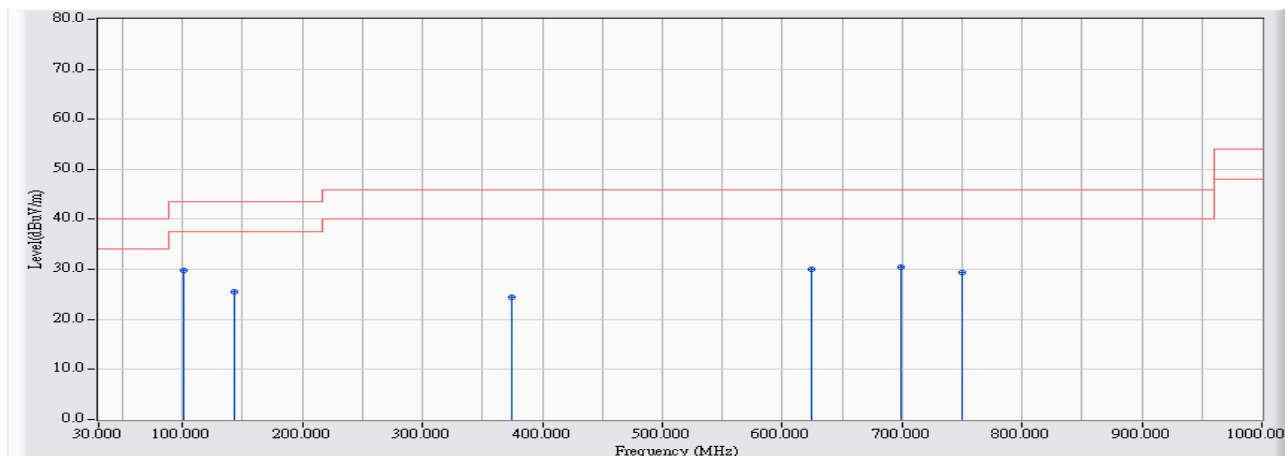
30MHz~1GHz as  $\pm 3.43\text{dB}$

1GHz~26.5Ghz as  $\pm 3.65\text{dB}$

## 7.6. Test Result

### 30MHz-1GHz Spurious

Site : CB1	Time : 2011/11/09 - 10:25
Limit : FCC CLASS B_03M_QP	Margin : 6
Probe : CB1_FCC_EFS_30-1G-1_0901 - HORIZONTAL	Power : AC 120V/60Hz
EUT : Dark Knight Double 450Mbps Dual N Band Router	Note : TX-5220MHz,802.11a

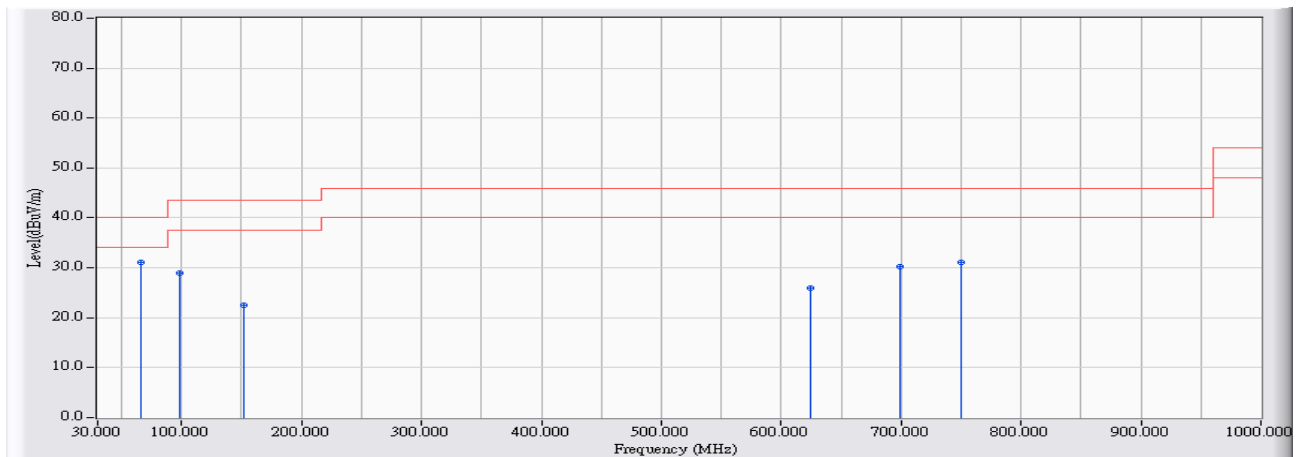


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	101.133	-13.425	43.135	29.710	-13.790	43.500	QUASPEAK
2		143.167	-13.105	38.649	25.544	-17.956	43.500	QUASPEAK
3		374.350	-8.111	32.615	24.504	-21.496	46.000	QUASPEAK
4		624.933	-4.207	34.265	30.058	-15.942	46.000	QUASPEAK
5		699.300	-3.939	34.298	30.359	-15.641	46.000	QUASPEAK
6		749.417	-3.297	32.642	29.346	-16.654	46.000	QUASPEAK

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 : 2011/11/09 - 10:25
Limit : FCC CLASS B_03M_QP	Margin : 6
Probe : CB1_FCC_EFS_30-1G-1_0901 - VERTICAL	Power : AC 120V/60Hz
EUT : Dark Knight Double 450Mbps Dual N Band Router	Note : TX-5220MHz,802.11a

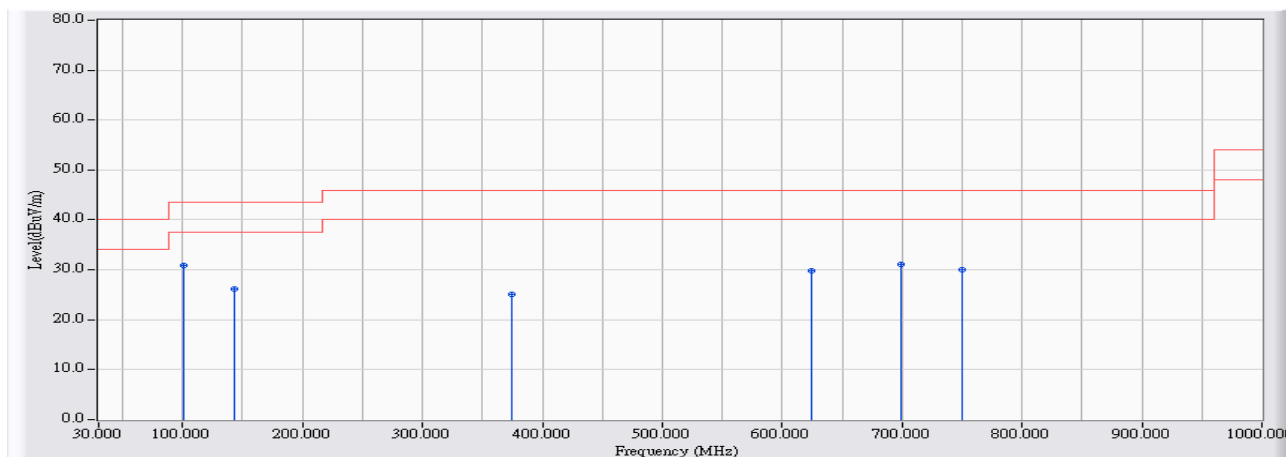


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	65.567	-17.772	48.895	31.123	-8.877	40.000	QUASIPeAK
2		97.900	-13.974	42.969	28.995	-14.505	43.500	QUASIPeAK
3		151.250	-13.510	35.958	22.448	-21.052	43.500	QUASIPeAK
4		624.933	-4.207	30.078	25.871	-20.129	46.000	QUASIPeAK
5		699.300	-3.939	34.276	30.337	-15.663	46.000	QUASIPeAK
6		749.417	-3.297	34.316	31.020	-14.980	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 : 2011/11/09 - 10:26
Limit : FCC CLASS_B_03M_QP	Margin : 6
Probe : CB1_FCC_EFS_30-1G-1_0901 - HORIZONTAL	Power : AC 120V/60Hz
EUT : Dark Knight Double 450Mbps Dual N Band Router	Note : TX-5220MHz,802.11n(20M)



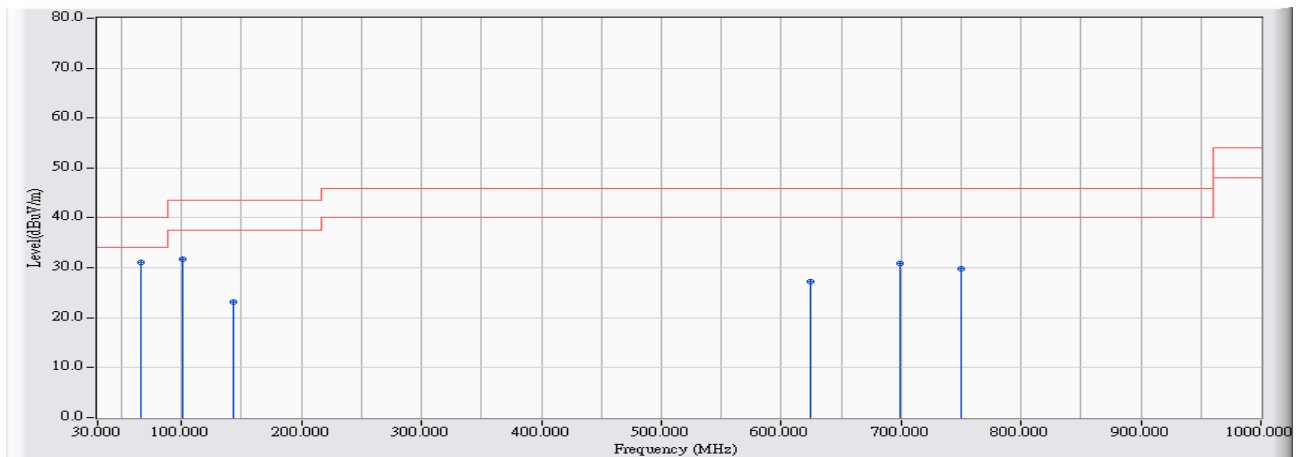
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	101.133	-13.425	44.355	30.930	-12.570	43.500	QUASIPeAK
2		143.167	-13.105	39.196	26.091	-17.409	43.500	QUASIPeAK
3		374.350	-8.111	33.250	25.139	-20.861	46.000	QUASIPeAK
4		624.933	-4.207	34.119	29.912	-16.088	46.000	QUASIPeAK
5		699.300	-3.939	35.036	31.097	-14.903	46.000	QUASIPeAK
6		749.417	-3.297	33.323	30.027	-15.973	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 : 2011/11/09 - 10:26
Limit : FCC CLASS B_03M_QP	Margin : 6
Probe : CB1_FCC_EFS_30-1G-1_0901 - VERTICAL	Power : AC 120V/60Hz
EUT : Dark Knight Double 450Mbps Dual N Band Router	Note : TX-5220MHz,802.11n(20M)

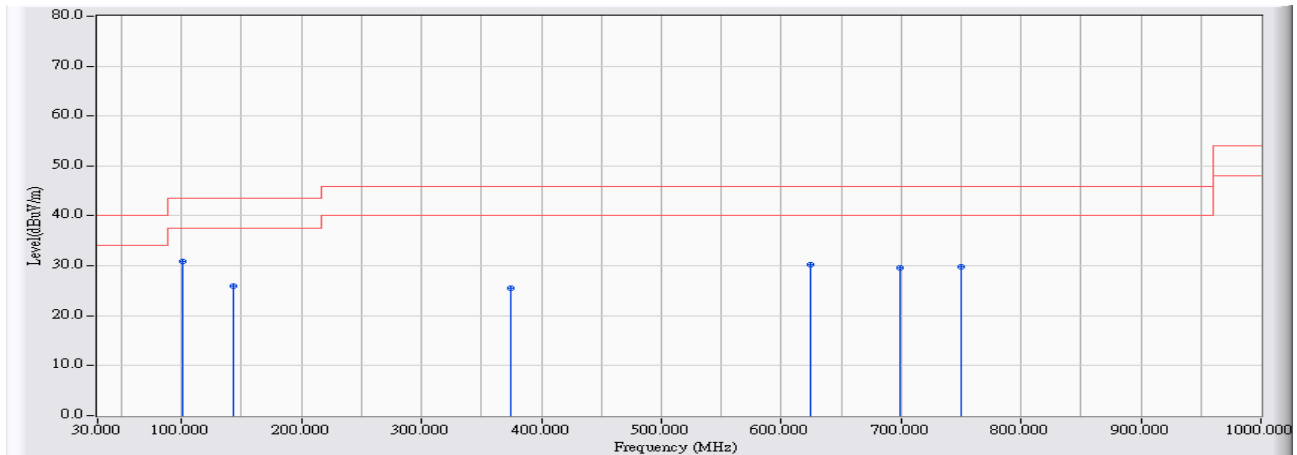


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	65.567	-17.772	48.930	31.158	-8.842	40.000	QUASIPeAK
2		101.133	-13.425	45.135	31.710	-11.790	43.500	QUASIPeAK
3		143.167	-13.105	36.312	23.207	-20.293	43.500	QUASIPeAK
4		624.933	-4.207	31.530	27.323	-18.677	46.000	QUASIPeAK
5		699.300	-3.939	34.742	30.803	-15.197	46.000	QUASIPeAK
6		749.417	-3.297	33.118	29.822	-16.178	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 : 2011/11/09 - 10:27
Limit : FCC CLASS_B_03M_QP	Margin : 6
Probe : CB1_FCC_EFS_30-1G-1_0901 - HORIZONTAL	Power : AC 120V/60Hz
EUT : Dark Knight Double 450Mbps Dual N Band Router	Note : TX-5190MHz,802.11n(40MHz)

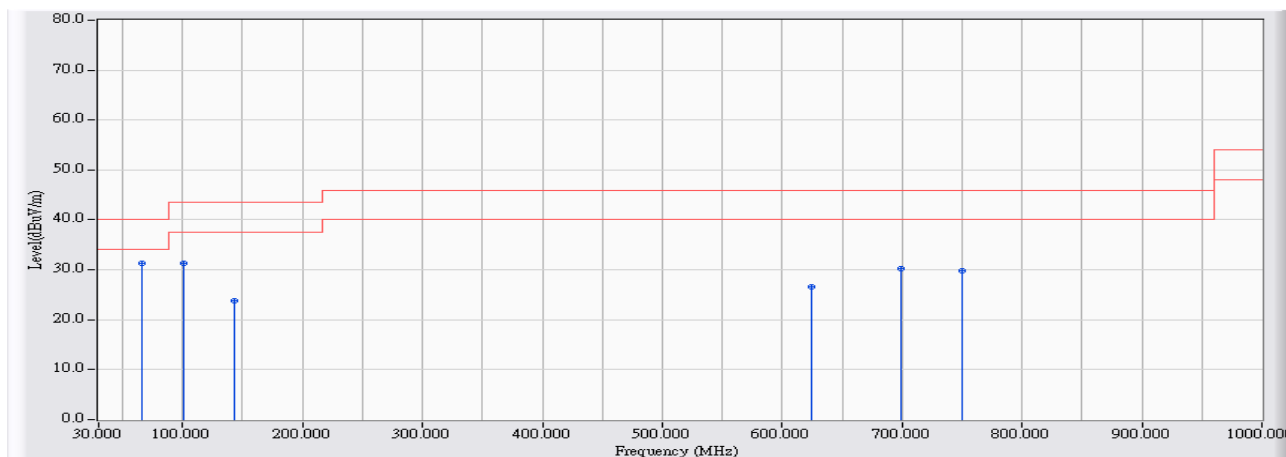


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	101.133	-13.425	44.287	30.862	-12.638	43.500	QUASIPeAK
2		143.167	-13.105	39.029	25.924	-17.576	43.500	QUASIPeAK
3		374.350	-8.111	33.540	25.429	-20.571	46.000	QUASIPeAK
4		624.933	-4.207	34.444	30.237	-15.763	46.000	QUASIPeAK
5		699.300	-3.939	33.474	29.535	-16.465	46.000	QUASIPeAK
6		749.417	-3.297	33.139	29.843	-16.157	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 : 2011/11/09 - 10:27
Limit : FCC CLASS B_03M_QP	Margin : 6
Probe : CB1_FCC_EFS_30-1G-1_0901 - VERTICAL	Power : AC 120V/60Hz
EUT : Dark Knight Double 450Mbps Dual N Band Router	Note : TX-5190MHz,802.11n(40MHz)



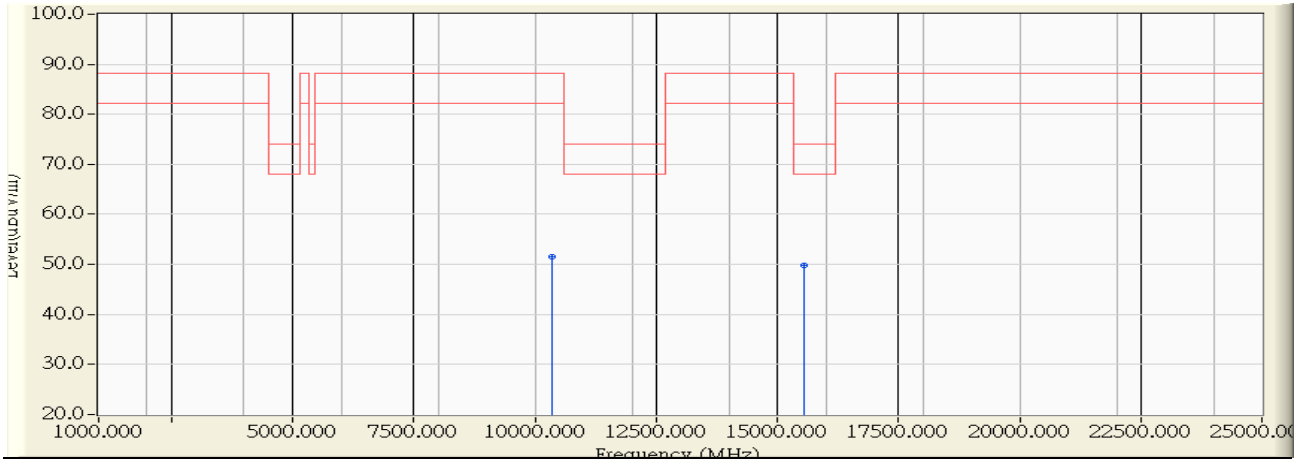
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	65.567	-17.772	48.980	31.208	-8.792	40.000	QUASIPeAK
2		101.133	-13.425	44.783	31.358	-12.142	43.500	QUASIPeAK
3		143.167	-13.105	36.992	23.887	-19.613	43.500	QUASIPeAK
4		624.933	-4.207	30.855	26.648	-19.352	46.000	QUASIPeAK
5		699.300	-3.939	34.153	30.214	-15.786	46.000	QUASIPeAK
6		749.417	-3.297	33.165	29.869	-16.131	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 : 2011/11/10 - 10:51
Limit : FCC_SpartE_15.407_H_03M_PK	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - HORIZONTAL	Power : AC 120V/60Hz
EUT : Dark Knight Double 450Mbps Dual N Band Router	Note : TX-5180MHz,802.11a

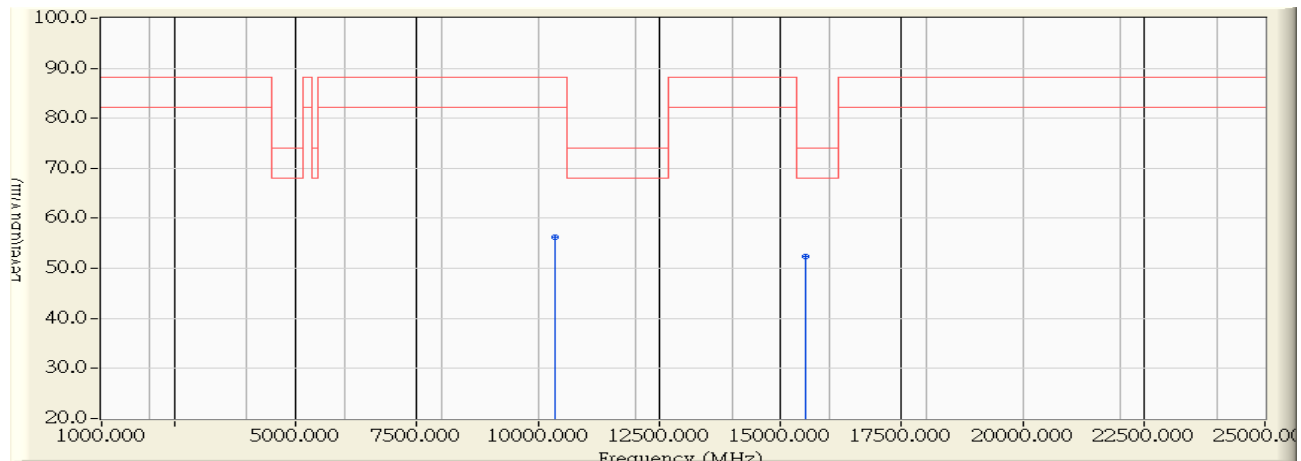


	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	10359.850	10.795	40.645	51.439	-36.861	88.300	PEAK
2	* 15540.200	11.404	38.326	49.730	-24.270	74.000	PEAK

**Note:**

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 1MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. " \* ", means this data is the worst emission level.
5. " # ", 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 : 2011/11/10 - 10:49
Limit : FCC_SpartE_15.407_H_03M_PK	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - VERTICAL	Power : AC 120V/60Hz
EUT : Dark Knight Double 450Mbps Dual N Band Router	Note : TX-5180MHz,802.11a

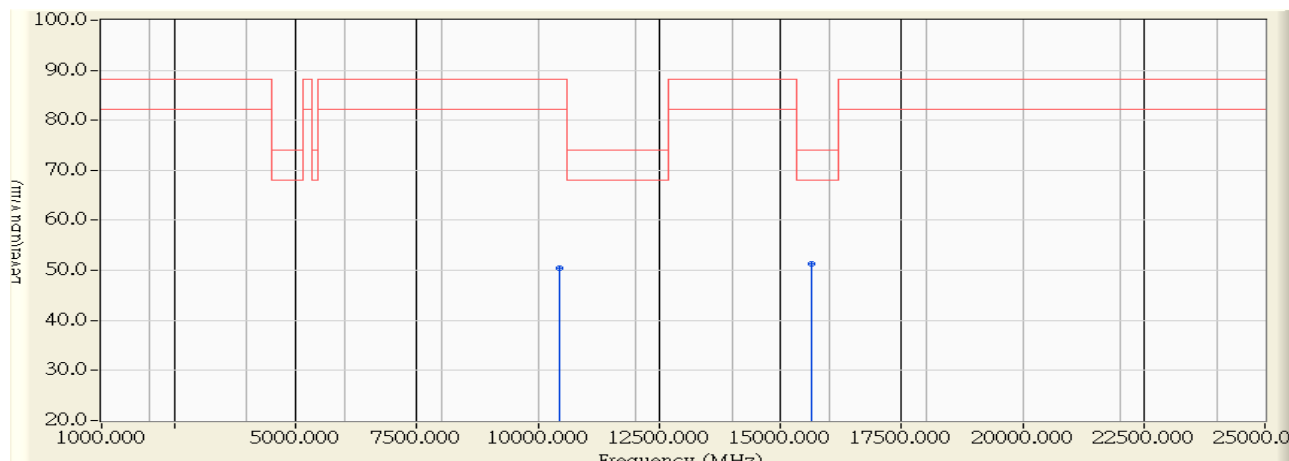


	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	10361.850	10.788	45.394	56.183	-32.117	88.300	PEAK
2	* 15537.300	11.405	41.002	52.408	-21.592	74.000	PEAK

**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 : 2011/11/10 - 10:56
Limit : FCC_SpartE_15.407_H_03M_PK	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - HORIZONTAL	Power : AC 120V/60Hz
EUT : Dark Knight Double 450Mbps Dual N Band Router	Note : TX-5220MHz,802.11a

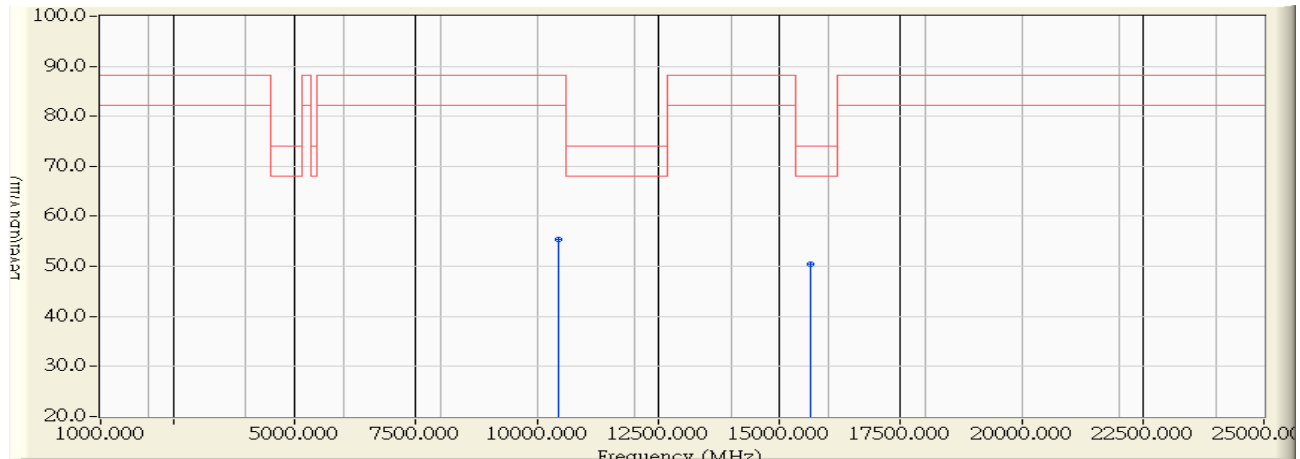


	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	10440.400	10.572	39.896	50.468	-37.832	88.300	PEAK
2	* 15658.200	11.323	39.902	51.225	-22.775	74.000	PEAK

**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 : 2011/11/10 - 10:55
Limit : FCC_SpartE_15.407_H_03M_PK	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - VERTICAL	Power : AC 120V/60Hz
EUT : Dark Knight Double 450Mbps Dual N Band Router	Note : TX-5220MHz,802.11a

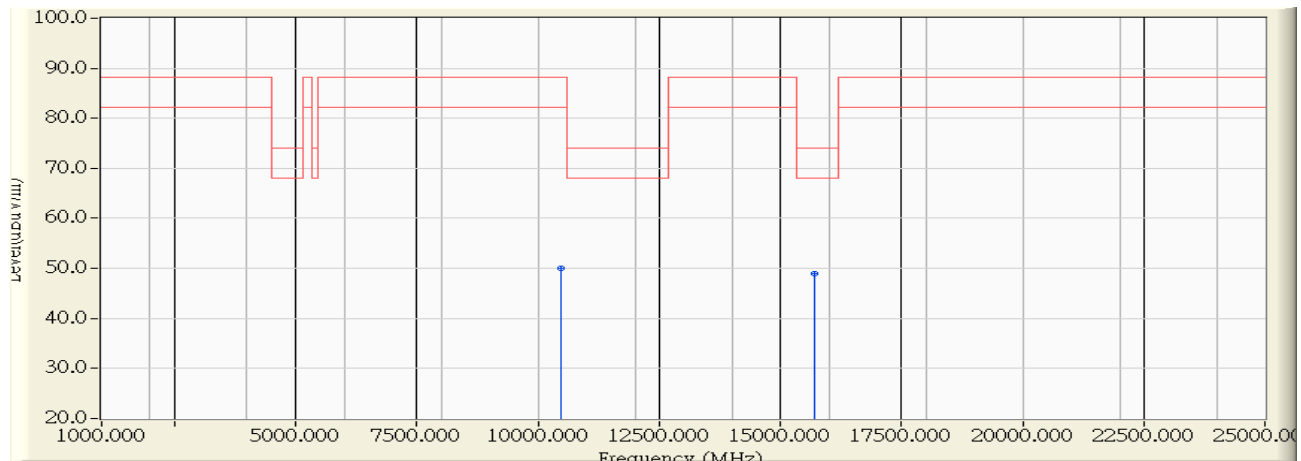


	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	10440.900	10.571	44.910	55.481	-32.819	88.300	PEAK
2	* 15661.100	11.320	39.046	50.367	-23.633	74.000	PEAK

**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 : 2011/11/10 - 10:59
Limit : FCC_SpartE_15.407_H_03M_PK	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - HORIZONTAL	Power : AC 120V/60Hz
EUT : Dark Knight Double 450Mbps Dual N Band Router	Note : TX-5240MHz,802.11a



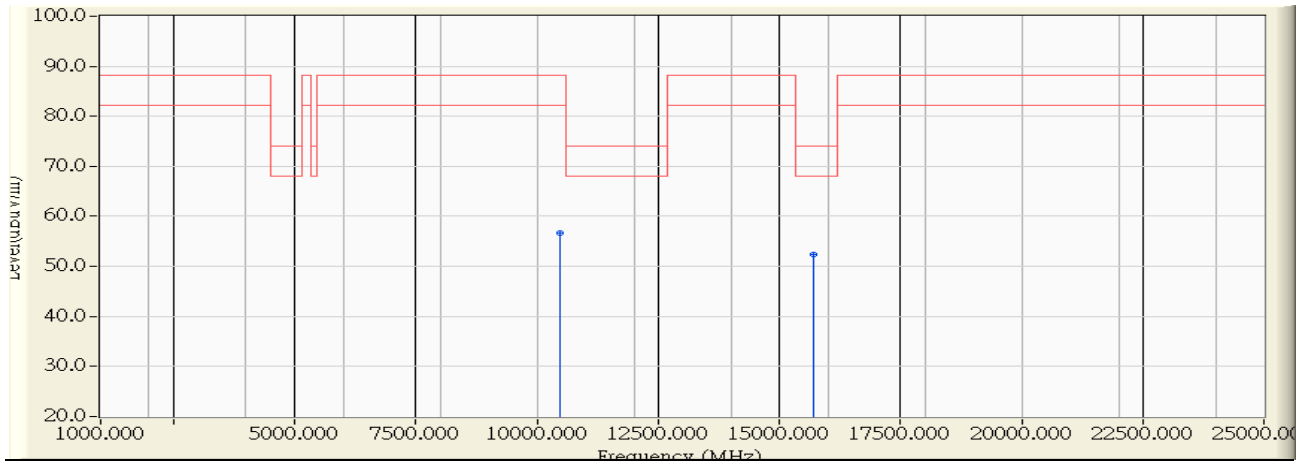
	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	10479.450	10.464	39.590	50.054	-38.246	88.300	PEAK
2	* 15719.850	11.280	37.639	48.920	-25.080	74.000	PEAK

**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 : 2011/11/10 - 10:58
Limit : FCC_SpartE_15.407_H_03M_PK	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - VERTICAL	Power : AC 120V/60Hz
EUT : Dark Knight Double 450Mbps Dual N Band Router	Note : TX-5240MHz,802.11a

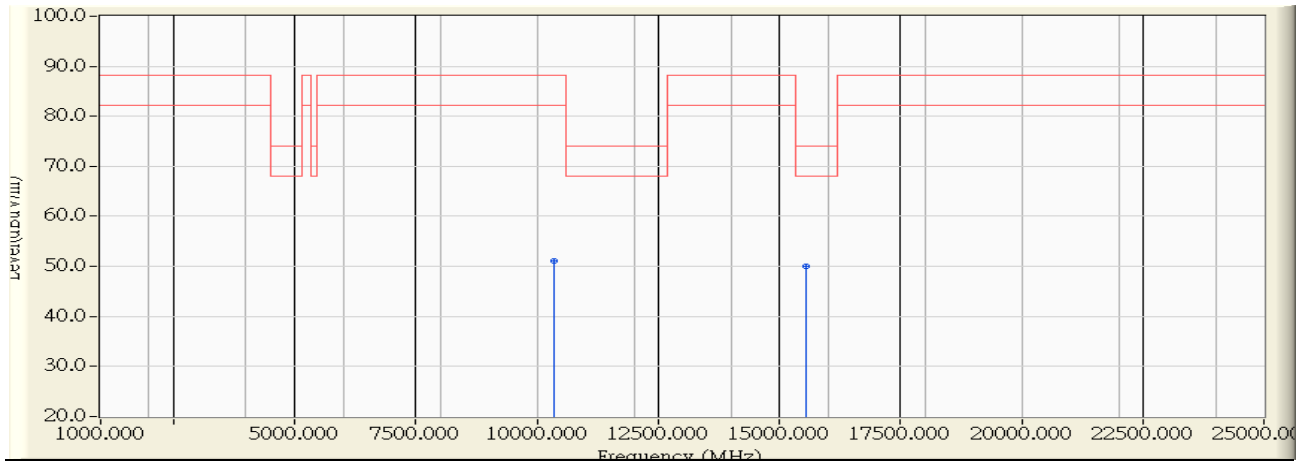


	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	10479.200	10.465	46.289	56.754	-31.546	88.300	PEAK
2	* 15720.250	11.280	41.083	52.363	-21.637	74.000	PEAK

**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 : 2011/11/10 - 11:33
Limit : FCC_SpartE_15.407_H_03M_PK	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - HORIZONTAL	Power : AC 120V/60Hz
EUT : Dark Knight Double 450Mbps Dual N Band Router	Note : TX-5180MHz,802.11n(20MHz)

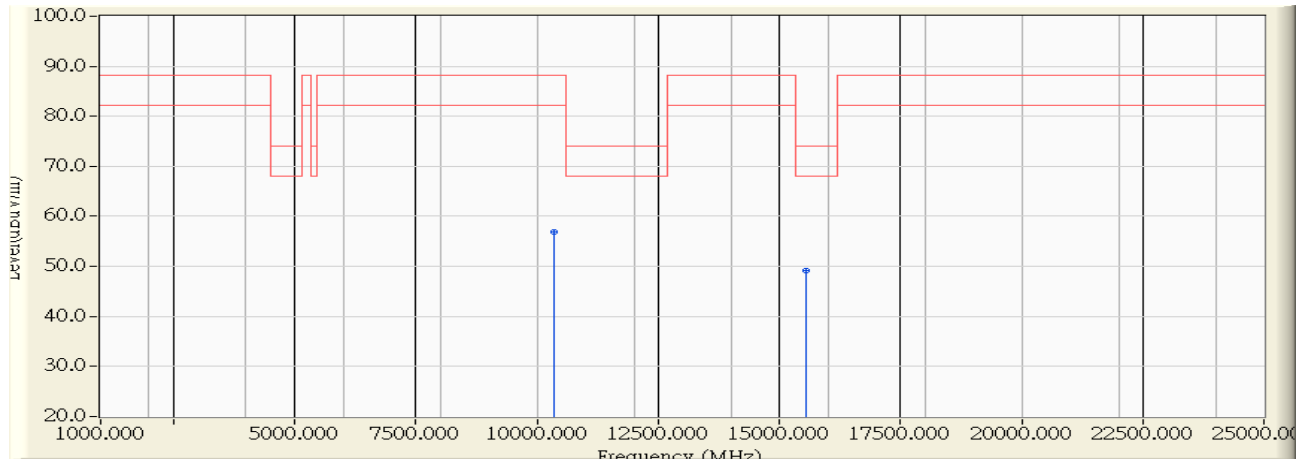


	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	10360.300	10.793	40.293	51.086	-37.214	88.300	PEAK
2	* 15540.350	11.403	38.664	50.068	-23.932	74.000	PEAK

**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 : 2011/11/10 - 11:31
Limit : FCC_SpartE_15.407_H_03M_PK	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - VERTICAL	Power : AC 120V/60Hz
EUT : Dark Knight Double 450Mbps Dual N Band Router	Note : TX-5180MHz,802.11n(20MHz)

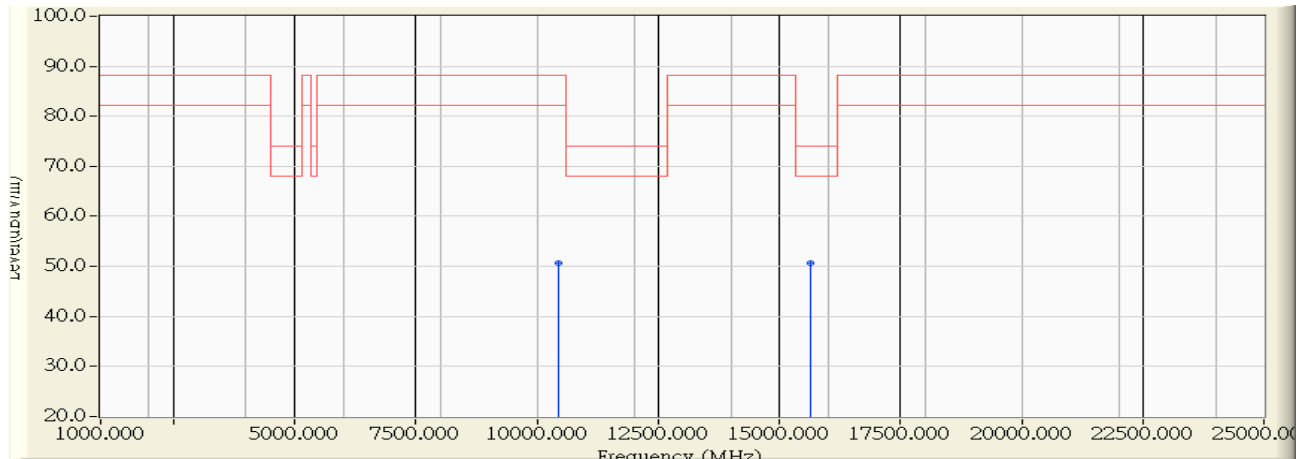


	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	10359.900	10.794	46.066	56.860	-31.440	88.300	PEAK
2	* 15540.100	11.404	37.710	49.114	-24.886	74.000	PEAK

**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 : 2011/11/10 - 11:37
Limit : FCC_SpartE_15.407_H_03M_PK	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - HORIZONTAL	Power : AC 120V/60Hz
EUT : Dark Knight Double 450Mbps Dual N Band Router	Note : TX-5220MHz,802.11n(20MHz)

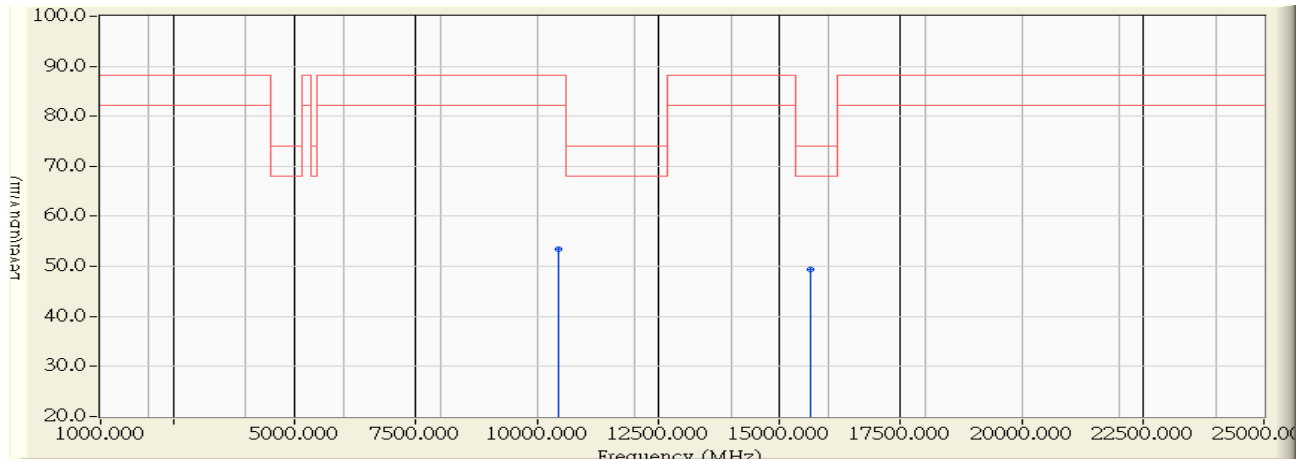


	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	10443.300	10.564	40.167	50.731	-37.569	88.300	PEAK
2	* 15660.350	11.321	39.386	50.707	-23.293	74.000	PEAK

**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 : 2011/11/10 - 11:35
Limit : FCC_SpartE_15.407_H_03M_PK	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - VERTICAL	Power : AC 120V/60Hz
EUT : Dark Knight Double 450Mbps Dual N Band Router	Note : TX-5220MHz,802.11n(20MHz)

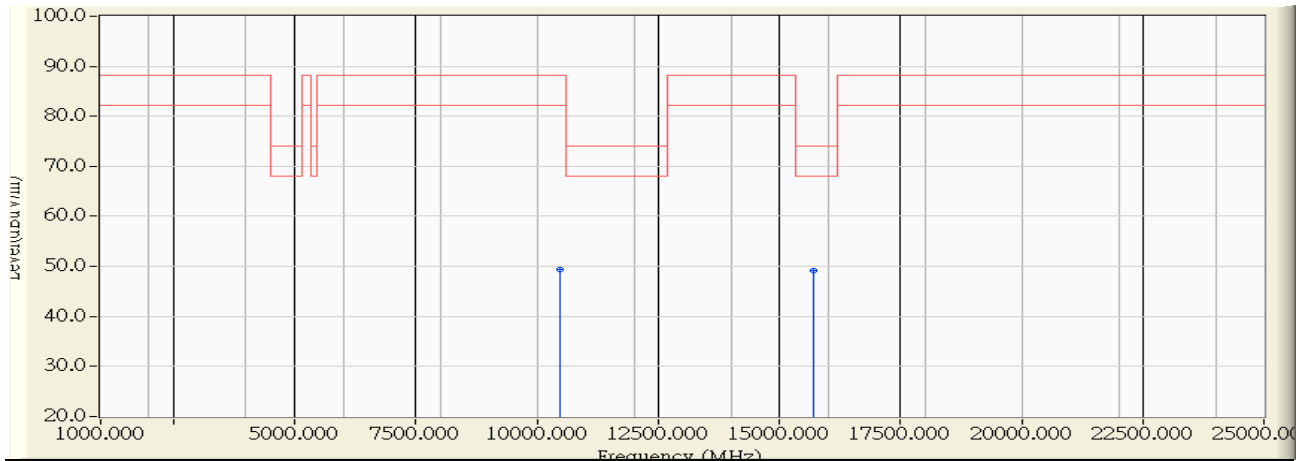


	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	10439.950	10.573	42.907	53.480	-34.820	88.300	PEAK
2	* 15660.100	11.322	38.002	49.324	-24.676	74.000	PEAK

**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 : 2011/11/10 - 11:40
Limit : FCC_SpartE_15.407_H_03M_PK	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - HORIZONTAL	Power : AC 120V/60Hz
EUT : Dark Knight Double 450Mbps Dual N Band Router	Note : TX-5240MHz,802.11n(20MHz)

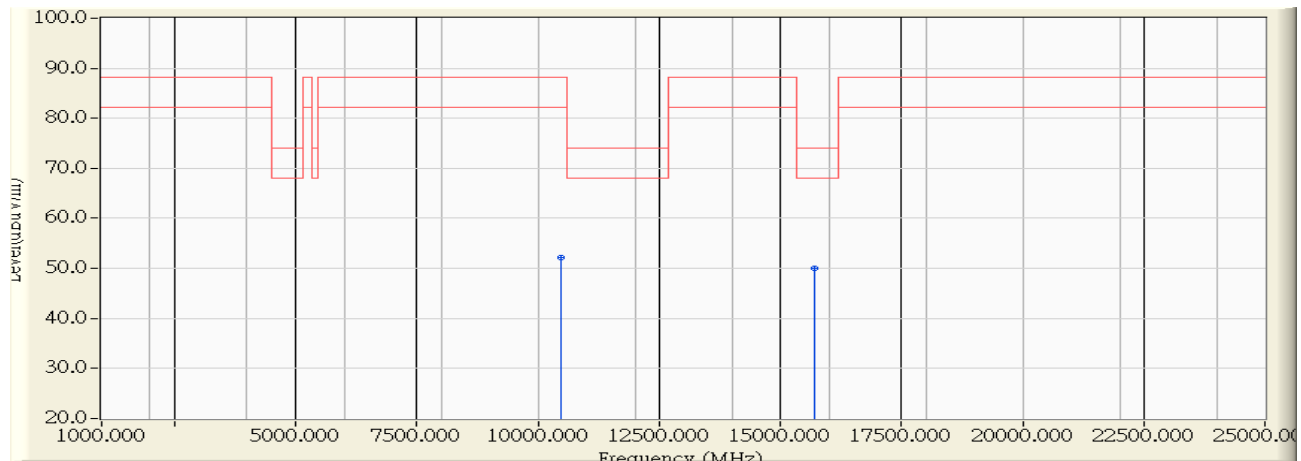


	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	10481.400	10.459	38.996	49.455	-38.845	88.300	PEAK
2	* 15720.700	11.280	37.899	49.179	-24.821	74.000	PEAK

**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 : 2011/11/10 - 11:39
Limit : FCC_SpartE_15.407_H_03M_PK	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - VERTICAL	Power : AC 120V/60Hz
EUT : Dark Knight Double 450Mbps Dual N Band Router	Note : TX-5240MHz,802.11n(20MHz)

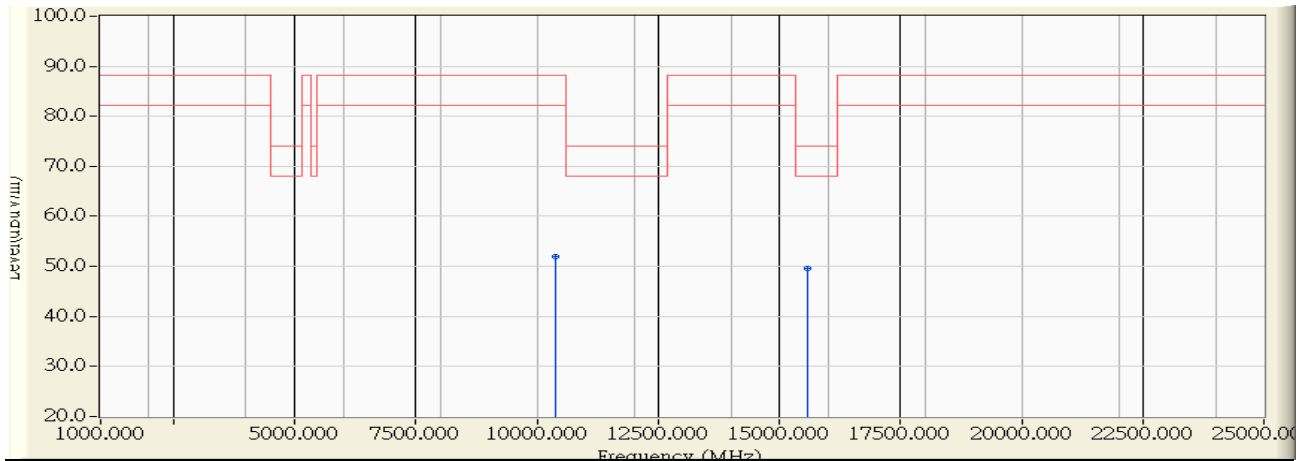


	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	10476.300	10.473	41.631	52.104	-36.196	88.300	PEAK
2	* 15719.550	11.280	38.679	49.960	-24.040	74.000	PEAK

**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 : 2011/11/10 - 13:19
Limit : FCC_SpartE_15.407_H_03M_PK	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - HORIZONTAL	Power : AC 120V/60Hz
EUT : Dark Knight Double 450Mbps Dual N Band Router	Note : TX-5190MHz,802.11n(40MHz)



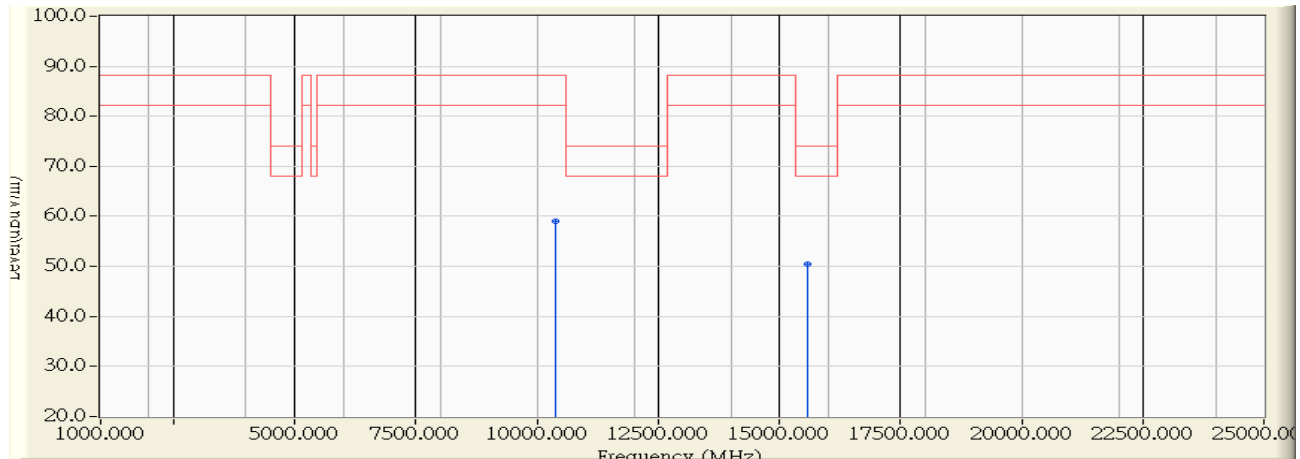
	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	10384.000	10.728	41.325	52.053	-36.247	88.300	PEAK
2	* 15570.500	11.383	38.298	49.681	-24.319	74.000	PEAK

**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 : 2011/11/10 - 13:17
Limit : FCC_SpartE_15.407_H_03M_PK	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - VERTICAL	Power : AC 120V/60Hz
EUT : Dark Knight Double 450Mbps Dual N Band Router	Note : TX-5190MHz,802.11n(40MHz)

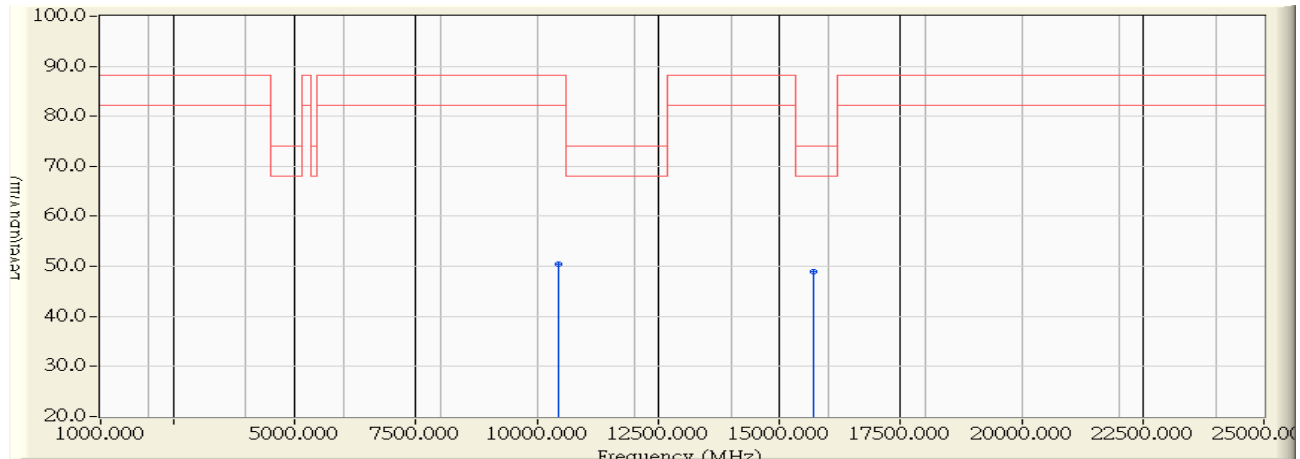


	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	10380.000	10.739	48.195	58.934	-29.366	88.300	PEAK
2	* 15570.000	11.383	38.994	50.377	-23.623	74.000	PEAK

**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 : 2011/11/10 - 13:24
Limit : FCC_SpartE_15.407_H_03M_PK	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - HORIZONTAL	Power : AC 120V/60Hz
EUT : Dark Knight Double 450Mbps Dual N Band Router	Note : TX-5230MHz,802.11n(40MHz)

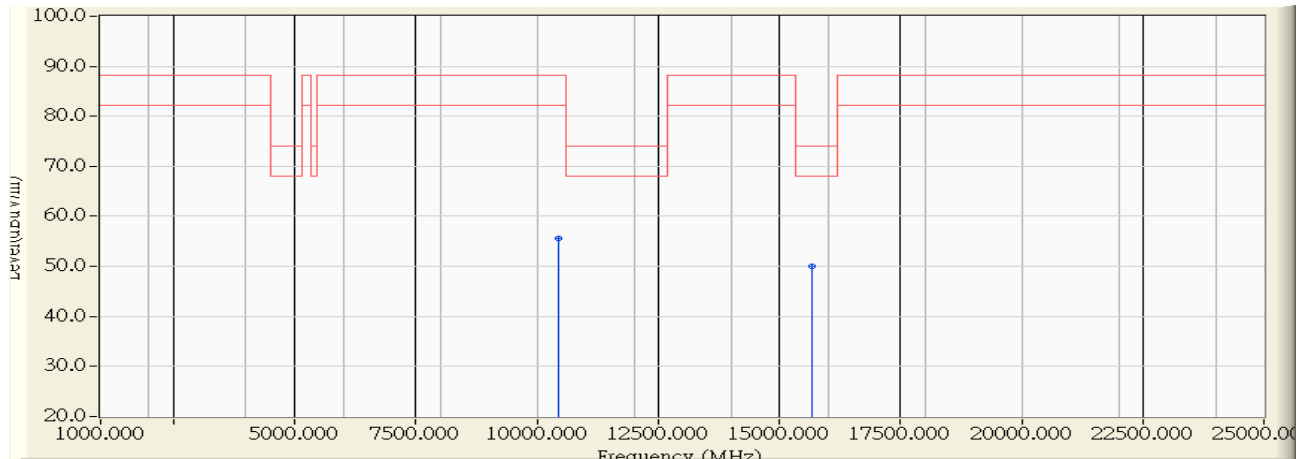


	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	10460.400	10.517	39.981	50.498	-37.802	88.300	PEAK
2	* 15695.600	11.298	37.709	49.006	-24.994	74.000	PEAK

**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 : 2011/11/10 - 13:22
Limit : FCC_SpartE_15.407_H_03M_PK	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - VERTICAL	Power : AC 120V/60Hz
EUT : Dark Knight Double 450Mbps Dual N Band Router	Note : TX-5230MHz,802.11n(40MHz)



	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	10459.900	10.518	45.159	55.677	-32.623	88.300	PEAK
2	* 15688.900	11.303	38.785	50.087	-23.913	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:

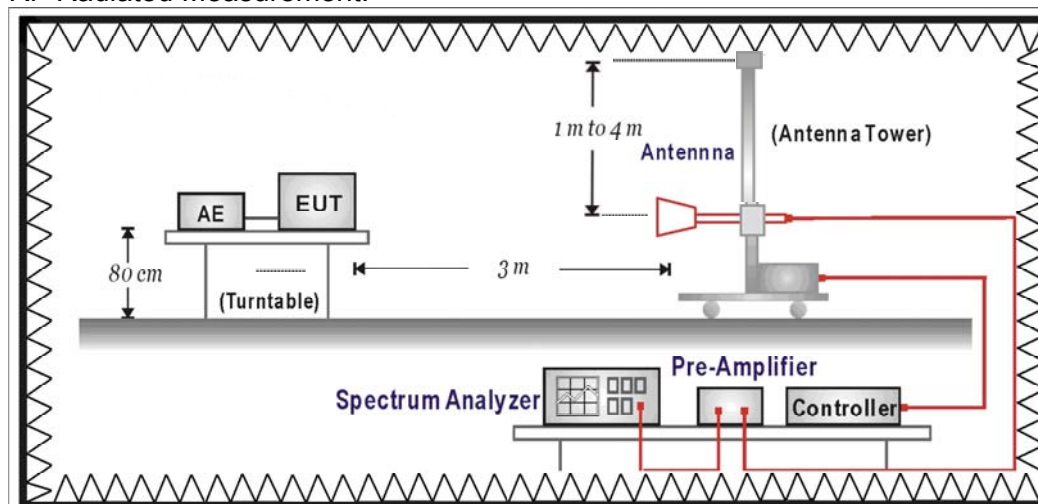
**Radiated Emission Band Edge / CB1**

Instrument	Manufacturer	Model No.	Serial No	Next Cal. Date
Double Ridged Guide Horn Antenna	Schwarzback	BBHA 9120D	743	2012/02/24
PSA Series Spectrum analyzer	Agilent	E4440A	MY46187335	2012/01/06
Coaxial Cable	Huber+Suhner AG	Sucoflex 102	25623/2	2012/03/21

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:

<b>FCC Part 15 Subpart C Paragraph 15.209 Limits</b>		
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**

<b>FCC Part 15 Subpart C Paragraph 15.407(b) Limits</b>		
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: 2009 on 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.

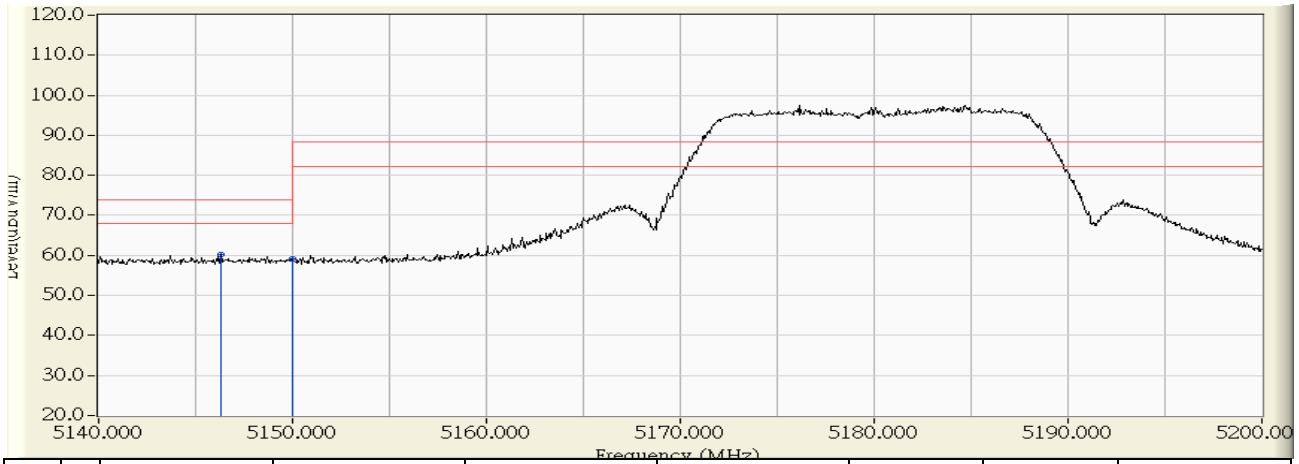
#### **8.5. Uncertainty**

The measurement uncertainty is defined as  $\pm 3.65\text{dB}$

8.6. Test Result

Radiated is defined as

Site : CB1	Time : 2011/11/11 - 10:30
Limit : FCC_SpartE_15.407_H_03M_PK	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - HORIZONTAL	Power : AC 120V/60Hz
EUT : Dark Knight Double 450Mbps Dual N Band Router	Note : TX-5180MHz,802.11a

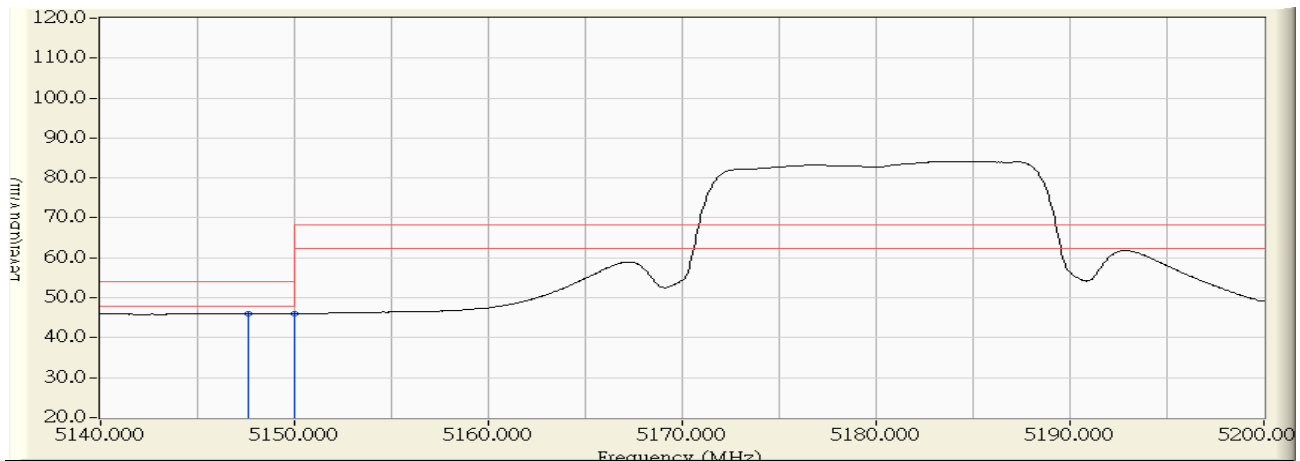


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	5146.300	0.802	59.519	60.321	-13.679	74.000	PEAK
2		5150.000	0.831	58.218	59.049	-14.951	74.000	PEAK

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 : 2011/11/11 - 10:30
Limit : FCC SpartE_15.407_H_03M_AV	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - HORIZONTAL	Power : AC 120V/60Hz
EUT : Dark Knight Double 450Mbps Dual N Band Router	Note : TX-5180MHz,802.11a



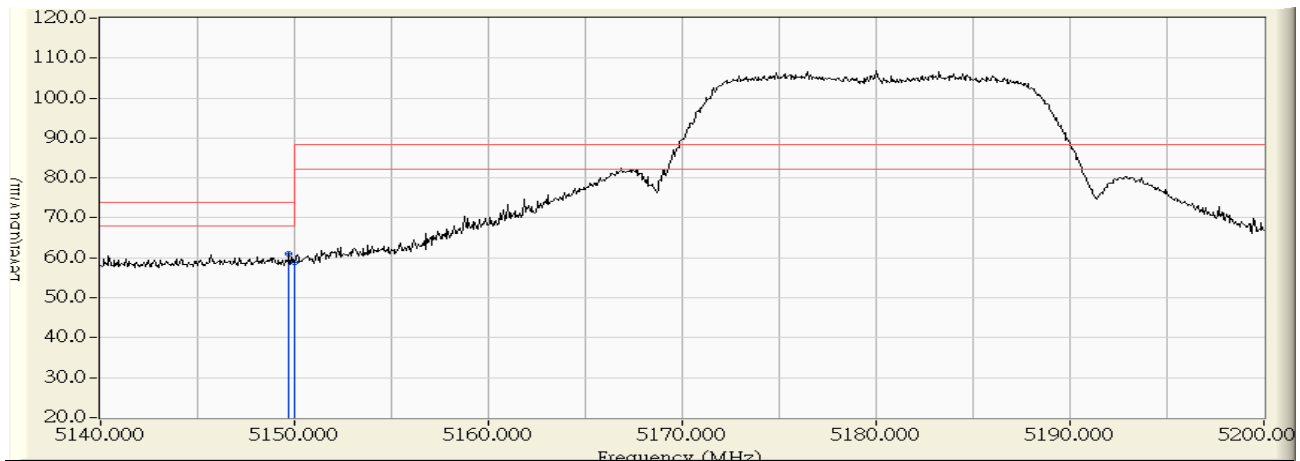
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	5147.620	0.811	45.249	46.061	-7.939	54.000	AVERAGE
2		5150.000	0.831	45.214	46.045	-7.955	54.000	AVERAGE

**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 : 2011/11/11 - 10:27
Limit : FCC SpartE_15.407_H_03M_PK	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - VERTICAL	Power : AC 120V/60Hz
EUT : Dark Knight Double 450Mbps Dual N Band Router	Note : TX-5180MHz,802.11a

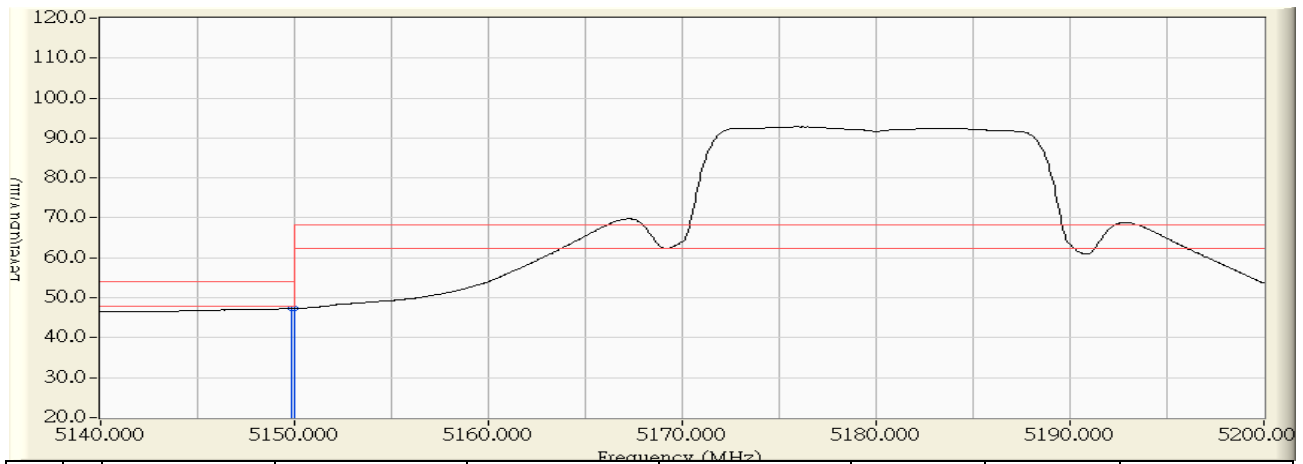


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	5149.720	0.829	60.299	61.128	-12.872	74.000	PEAK
2		5150.000	0.831	58.129	58.960	-15.040	74.000	PEAK

**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 : 2011/11/11 - 10:28
Limit : FCC SpartE_15.407_H_03M_AV	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - VERTICAL	Power : AC 120V/60Hz
EUT : Dark Knight Double 450Mbps Dual N Band Router	Note : TX-5180MHz,802.11a

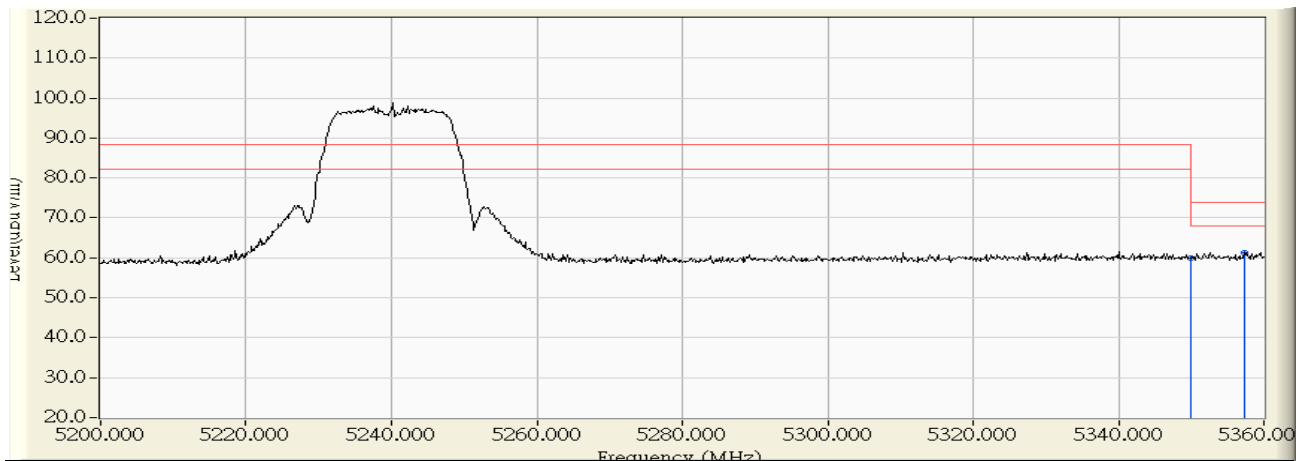


	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	5149.840	0.830	46.474	47.303	-6.697	54.000	AVERAGE
2	* 5150.000	0.831	46.514	47.345	-6.655	54.000	AVERAGE

**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 : 2011/11/11 - 10:37
Limit : FCC SpartE_15.407_H_03M_PK	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - HORIZONTAL	Power : AC 120V/60Hz
EUT : Dark Knight Double 450Mbps Dual N Band Router	Note : TX-5240MHz,802.11a

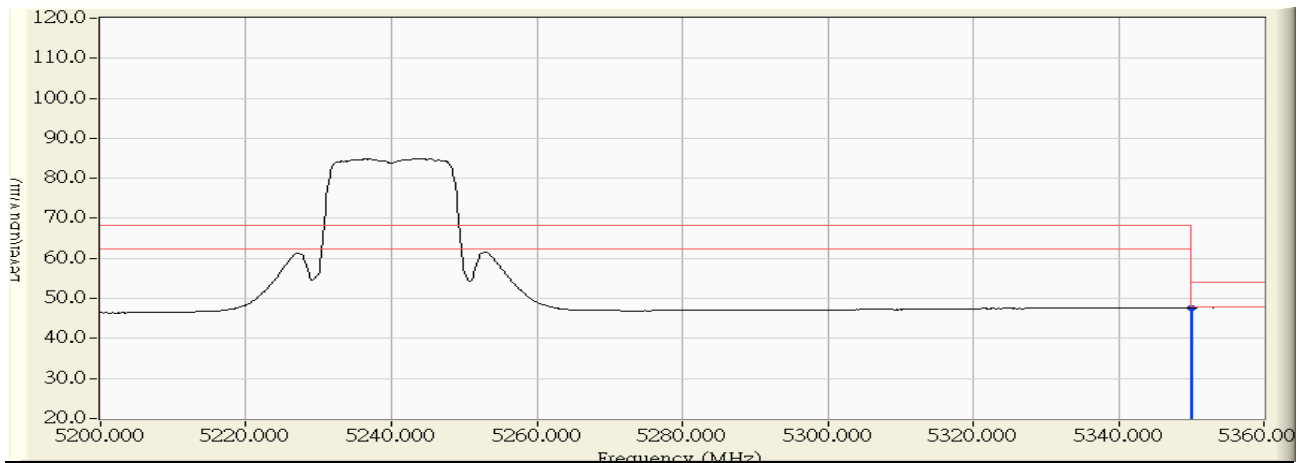


	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	5350.000	2.394	57.661	60.055	-13.945	74.000	PEAK
2	* 5357.280	2.451	58.809	61.259	-12.741	74.000	PEAK

**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 : 2011/11/11 - 10:38
Limit : FCC_SpartE_15.407_H_03M_AV	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - HORIZONTAL	Power : AC 120V/60Hz
EUT : Dark Knight Double 450Mbps Dual N Band Router	Note : TX-5240MHz,802.11a

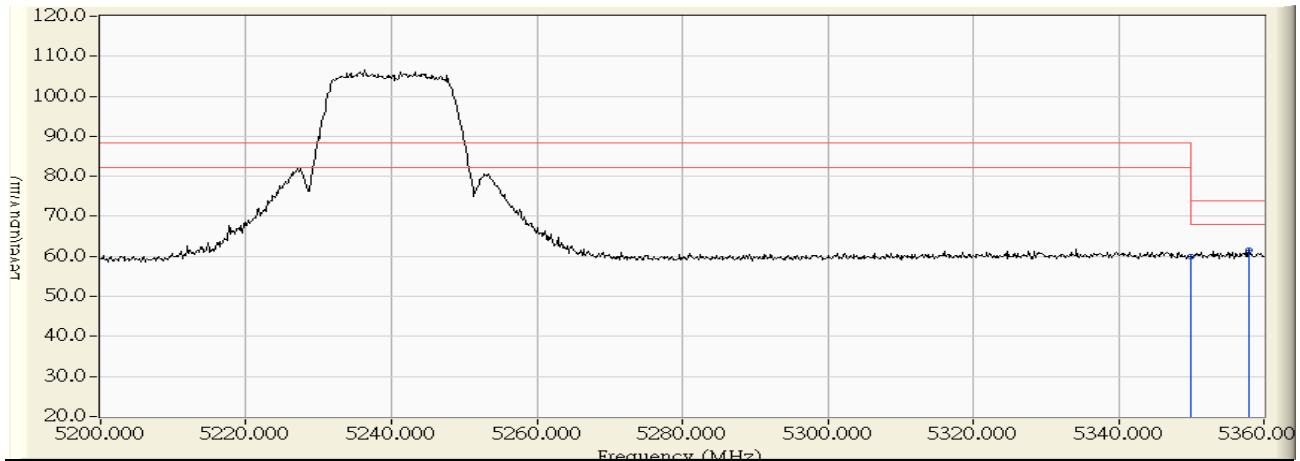


	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	5350.000	2.394	45.298	47.692	-6.308	54.000	AVERAGE
2	* 5350.240	2.396	45.322	47.717	-6.283	54.000	AVERAGE

**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 : 2011/11/11 - 10:34
Limit : FCC_SpartE_15.407_H_03M_PK	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - VERTICAL	Power : AC 120V/60Hz
EUT : Dark Knight Double 450Mbps Dual N Band Router	Note : TX-5240MHz,802.11a

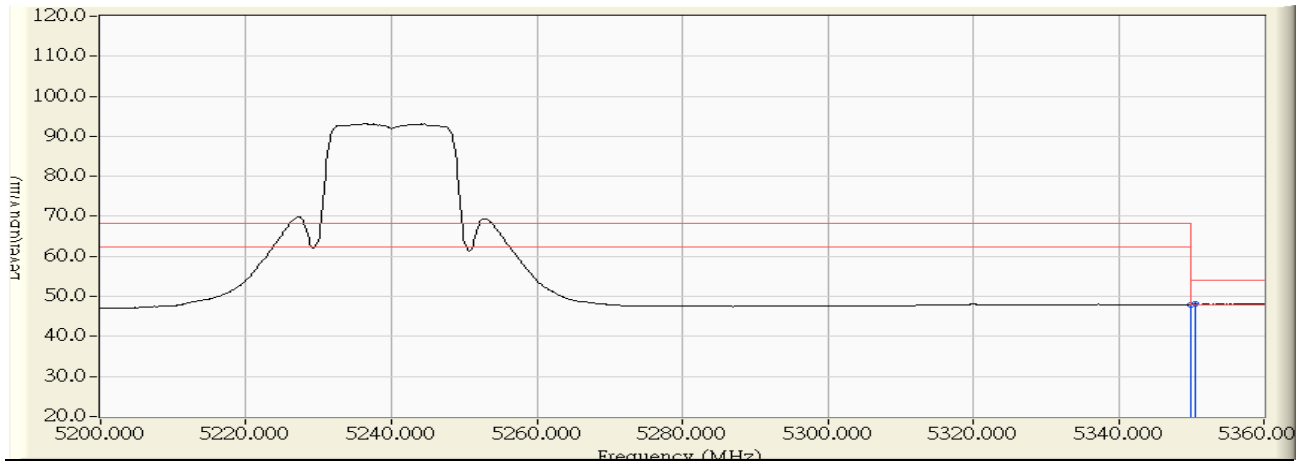


	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	5350.000	2.394	57.522	59.916	-14.084	74.000	PEAK
2	* 5357.920	2.455	59.022	61.477	-12.523	74.000	PEAK

**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 : 2011/11/11 - 10:35
Limit : FCC_SpartE_15.407_H_03M_AV	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - VERTICAL	Power : AC 120V/60Hz
EUT : Dark Knight Double 450Mbps Dual N Band Router	Note : TX-5240MHz,802.11a

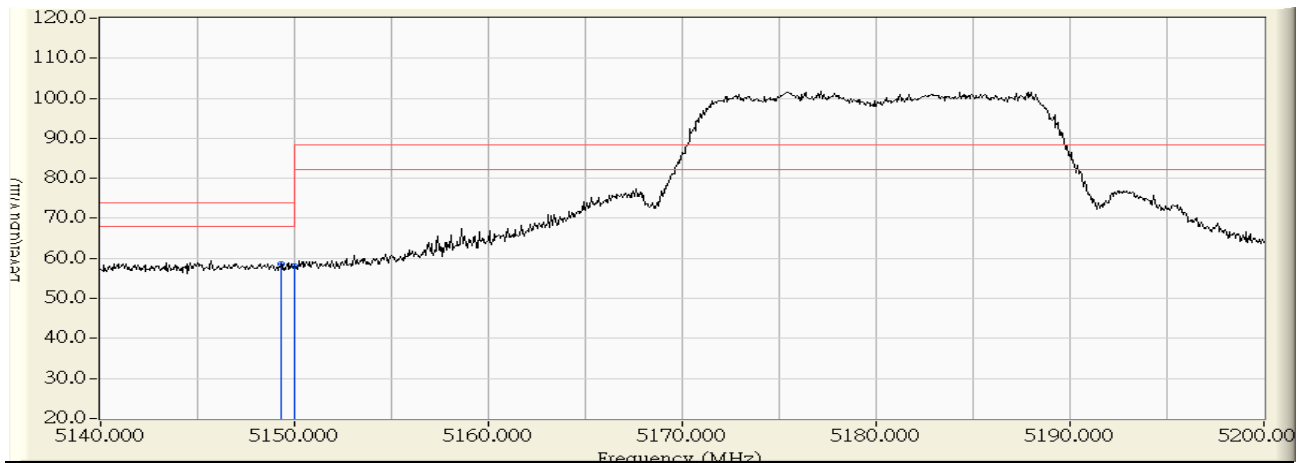


	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	5350.000	2.394	45.542	47.936	-6.064	54.000	AVERAGE
2	* 5350.560	2.398	45.626	48.024	-5.976	54.000	AVERAGE

**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 : 2011/11/22 - 21:15
Limit : FCC_SpartE_15.407_H_03M_PK	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - HORIZONTAL	Power : AC 120V/60Hz
EUT : Dark Knight Double 450Mbps Dual N Band Router	Note : TX-5180MHz,802.11n(20MHz)

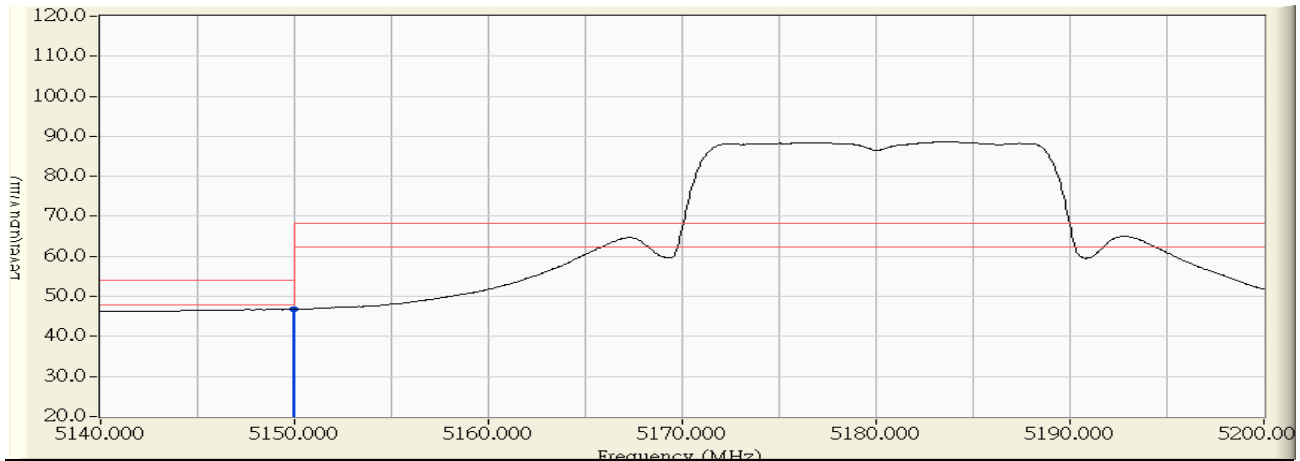


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	5149.300	0.825	57.753	58.578	-15.422	74.000	PEAK
2		5150.000	0.831	57.150	57.981	-16.019	74.000	PEAK

**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 : 2011/11/22 - 21:15
Limit : FCC_SpartE_15.407_H_03M_AV	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - HORIZONTAL	Power : AC 120V/60Hz
EUT : Dark Knight Double 450Mbps Dual N Band Router	Note : TX-5180MHz,802.11n(20MHz)



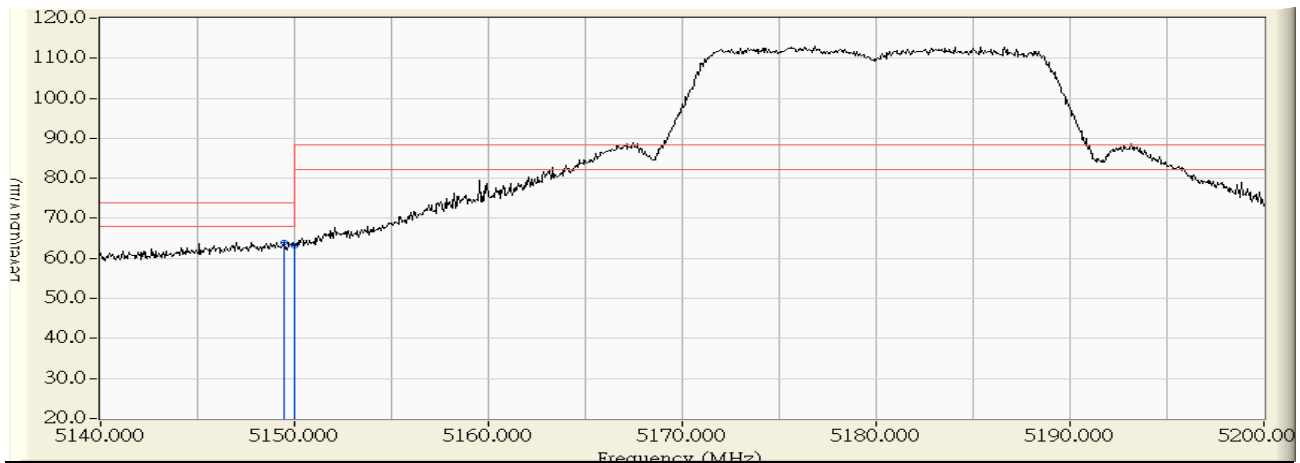
	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	5149.900	0.830	45.911	46.741	-7.259	54.000	AVERAGE
2	* 5150.000	0.831	45.918	46.749	-7.251	54.000	AVERAGE

**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 : 2011/11/22 - 21:11
Limit : FCC_SpartE_15.407_H_03M_PK	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - VERTICAL	Power : AC 120V/60Hz
EUT : Dark Knight Double 450Mbps Dual N Band Router	Note : TX-5180MHz,802.11n(20MHz)

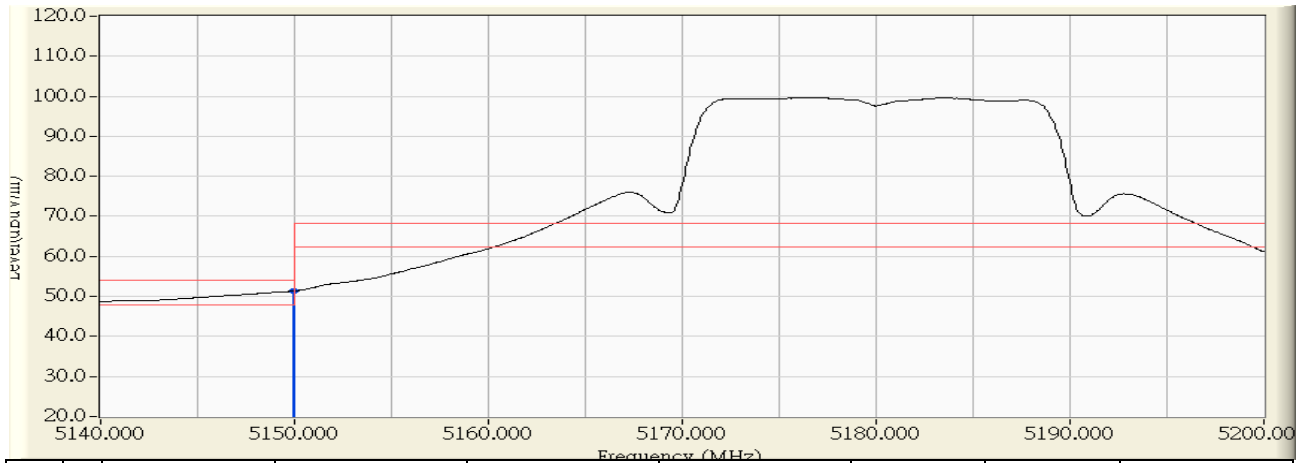


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	5149.480	0.826	63.206	64.033	-9.967	74.000	PEAK
2		5150.000	0.831	62.352	63.183	-10.817	74.000	PEAK

**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 : 2011/11/22 - 21:12
Limit : FCC_SpartE_15.407_H_03M_AV	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - VERTICAL	Power : AC 120V/60Hz
EUT : Dark Knight Double 450Mbps Dual N Band Router	Note : TX-5180MHz,802.11n(20MHz)

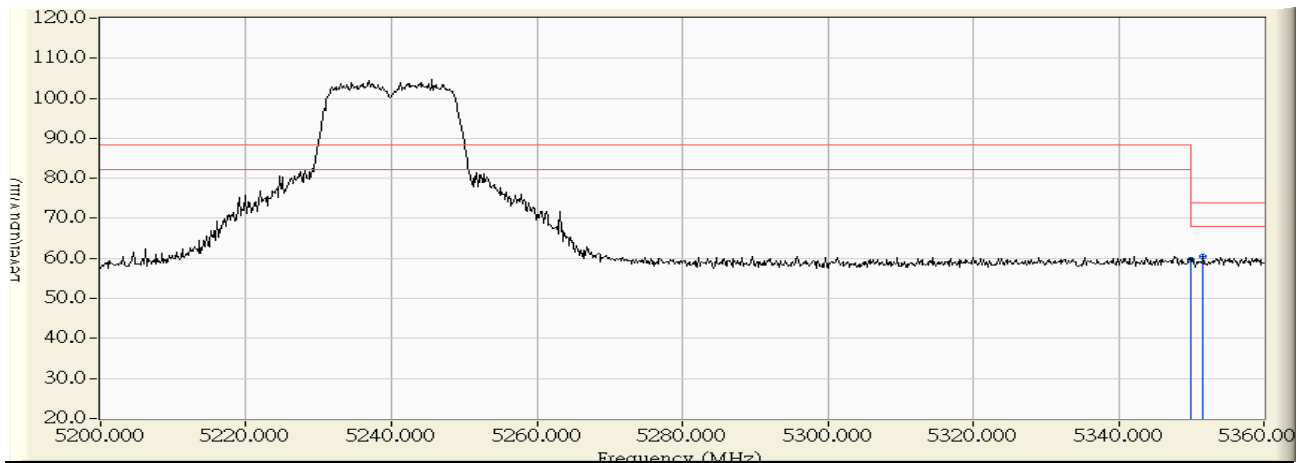


	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	5149.900	0.830	50.473	51.303	-2.697	54.000	AVERAGE
2	* 5150.000	0.831	50.526	51.357	-2.643	54.000	AVERAGE

**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 : 2011/11/22 - 21:23
Limit : FCC_SpartE_15.407_H_03M_PK	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - HORIZONTAL	Power : AC 120V/60Hz
EUT : Dark Knight Double 450Mbps Dual N Band Router	Note : TX-5240MHz,802.11n(20MHz)

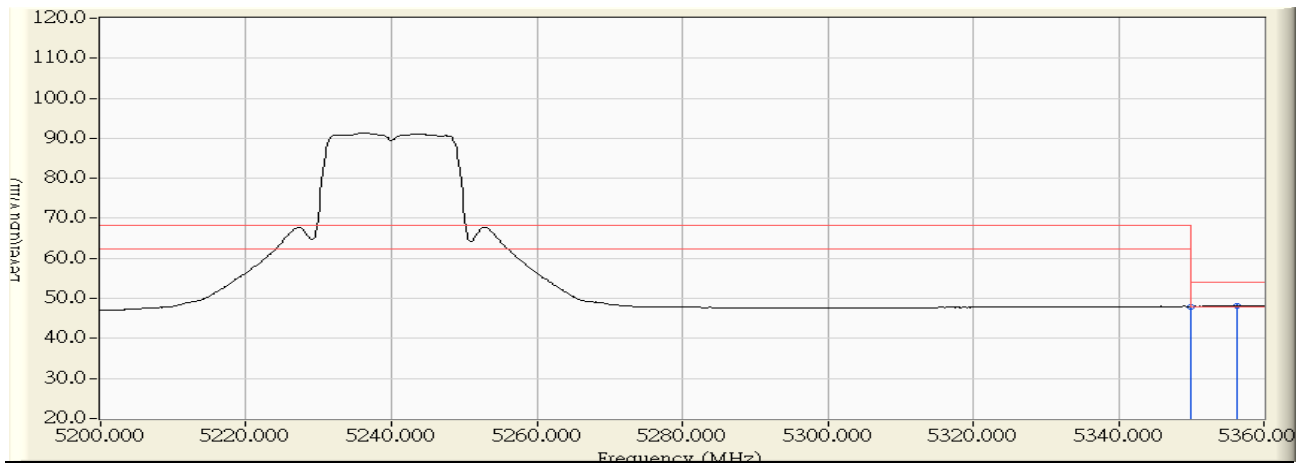


	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	5350.000	2.394	57.317	59.711	-14.289	74.000	PEAK
2	* 5351.680	2.407	58.046	60.453	-13.547	74.000	PEAK

**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 : 2011/11/22 - 21:23
Limit : FCC_SpartE_15.407_H_03M_AV	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - HORIZONTAL	Power : AC 120V/60Hz
EUT : Dark Knight Double 450Mbps Dual N Band Router	Note : TX-5240MHz,802.11n(20MHz)

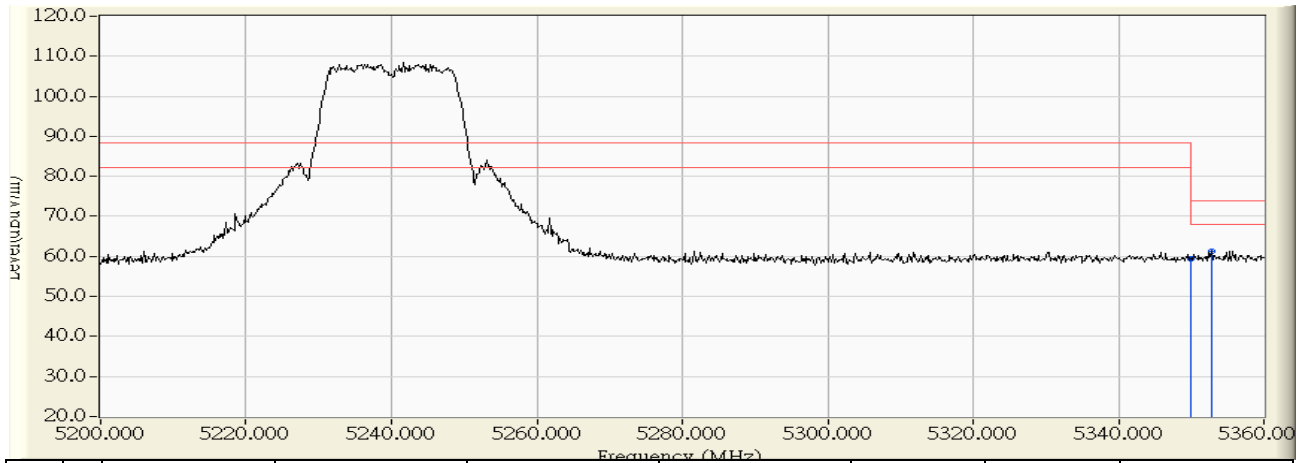


	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	5350.000	2.394	45.592	47.986	-6.014	54.000	AVERAGE
2	* 5356.320	2.443	45.683	48.126	-5.874	54.000	AVERAGE

**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 : 2011/11/22 - 21:20
Limit : FCC_SpartE_15.407_H_03M_PK	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - VERTICAL	Power : AC 120V/60Hz
EUT : Dark Knight Double 450Mbps Dual N Band Router	Note : TX-5240MHz,802.11n(20MHz)

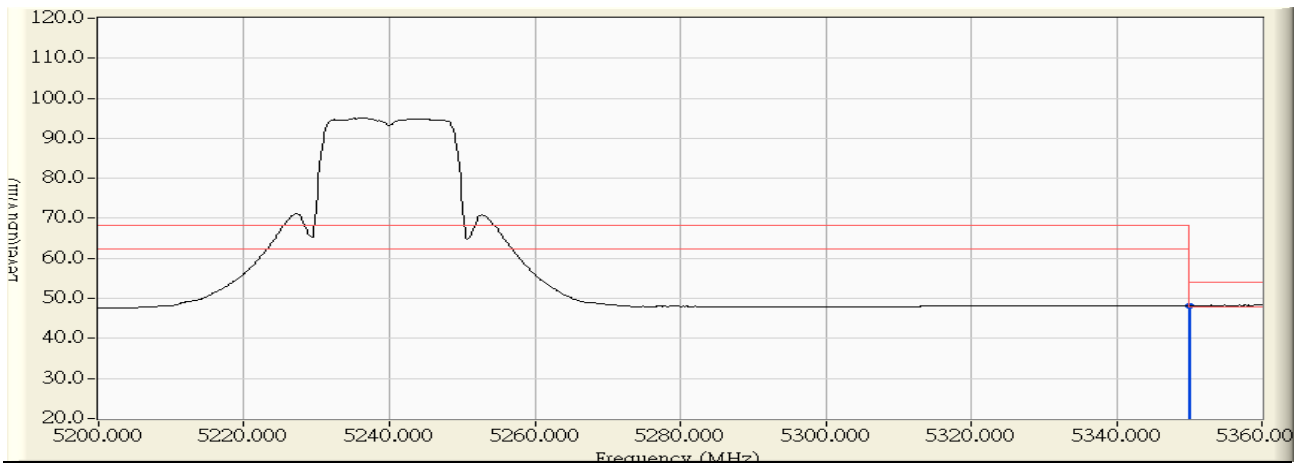


	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	5350.000	2.394	57.000	59.394	-14.606	74.000	PEAK
2	* 5352.800	2.415	58.916	61.331	-12.669	74.000	PEAK

**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 : 2011/11/22 - 21:20
Limit : FCC_SpartE_15.407_H_03M_AV	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - VERTICAL	Power : AC 120V/60Hz
EUT : Dark Knight Double 450Mbps Dual N Band Router	Note : TX-5240MHz,802.11n(20MHz)

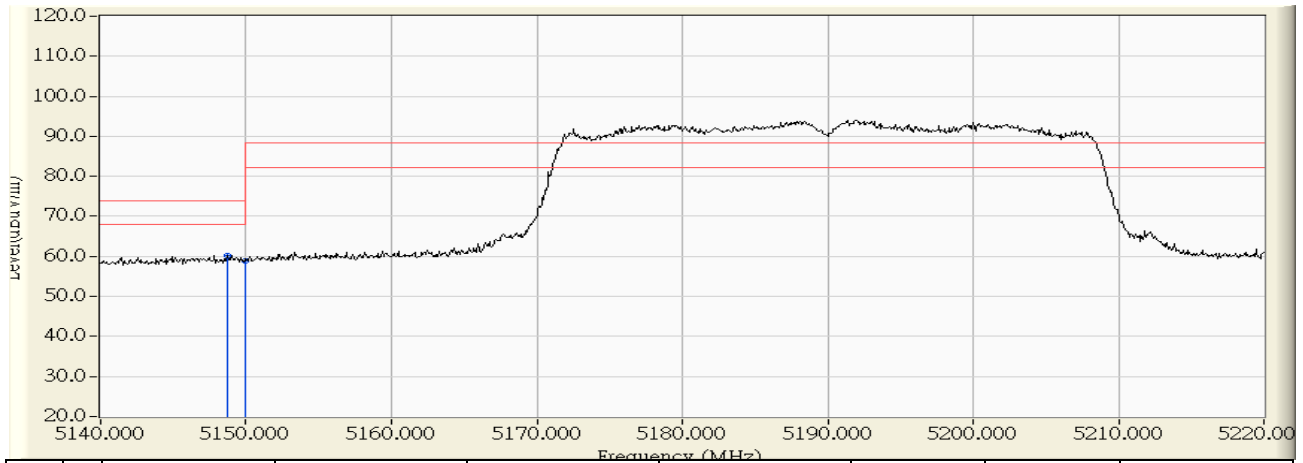


	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	5350.000	2.394	45.784	48.178	-5.822	54.000	AVERAGE
2	* 5350.080	2.395	45.788	48.182	-5.818	54.000	AVERAGE

**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 : 2011/11/22 - 21:33
Limit : FCC_SpartE_15.407_H_03M_PK	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - HORIZONTAL	Power : AC 120V/60Hz
EUT : Dark Knight Double 450Mbps Dual N Band Router	Note : TX-5190MHz,802.11n(40MHz)

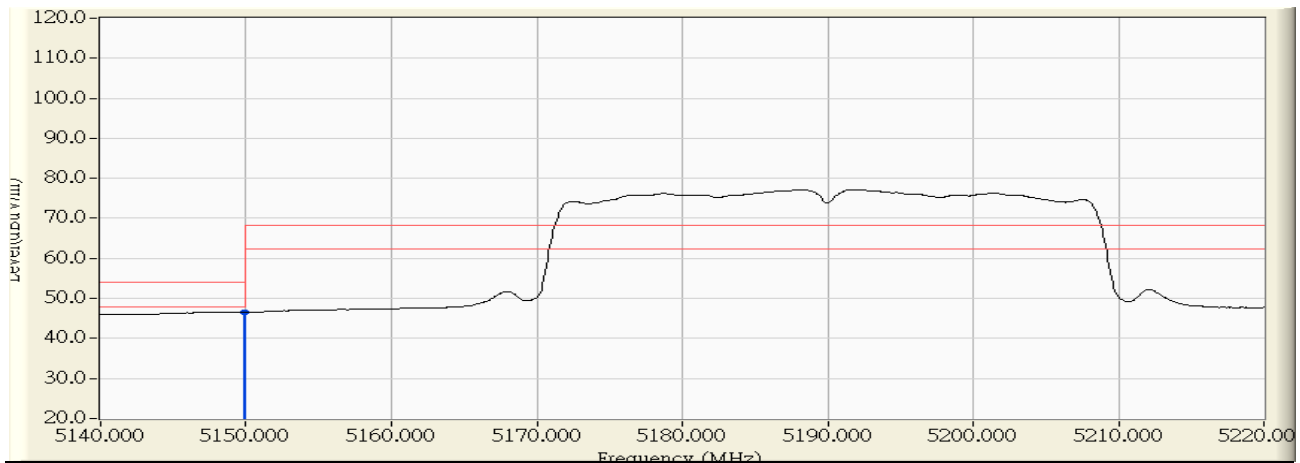


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	5148.720	0.821	59.420	60.241	-13.759	74.000	PEAK
2		5150.000	0.831	58.155	58.986	-15.014	74.000	PEAK

**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 : 2011/11/22 - 21:34
Limit : FCC_SpartE_15.407_H_03M_AV	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - HORIZONTAL	Power : AC 120V/60Hz
EUT : Dark Knight Double 450Mbps Dual N Band Router	Note : TX-5190MHz,802.11n(40MHz)



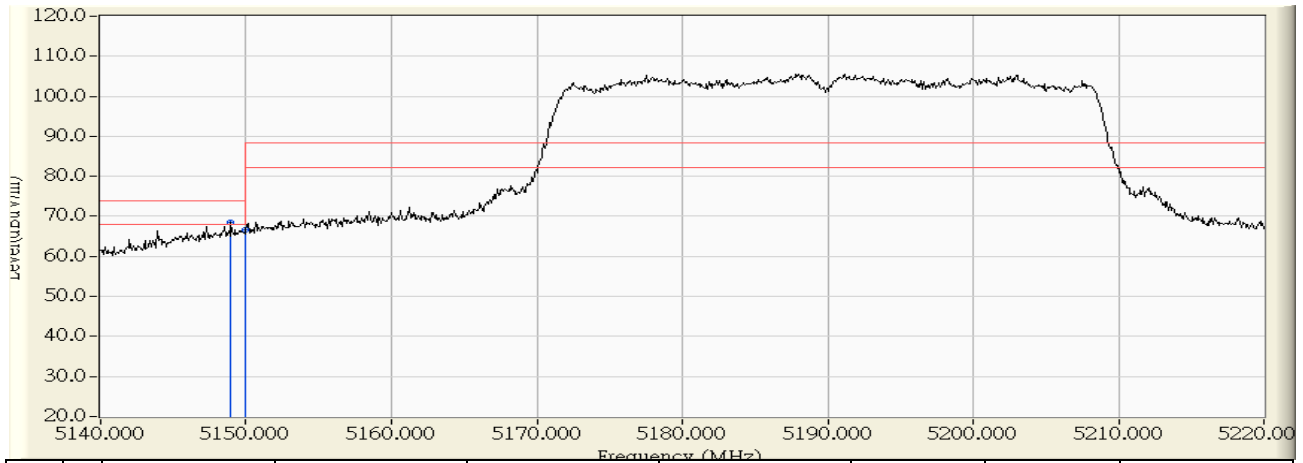
	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	5149.840	0.830	45.684	46.513	-7.487	54.000	AVERAGE
2	* 5150.000	0.831	45.701	46.532	-7.468	54.000	AVERAGE

**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 : 2011/11/22 - 21:30
Limit : FCC_SpartE_15.407_H_03M_PK	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - VERTICAL	Power : AC 120V/60Hz
EUT : Dark Knight Double 450Mbps Dual N Band Router	Note : TX-5190MHz,802.11n(40MHz)

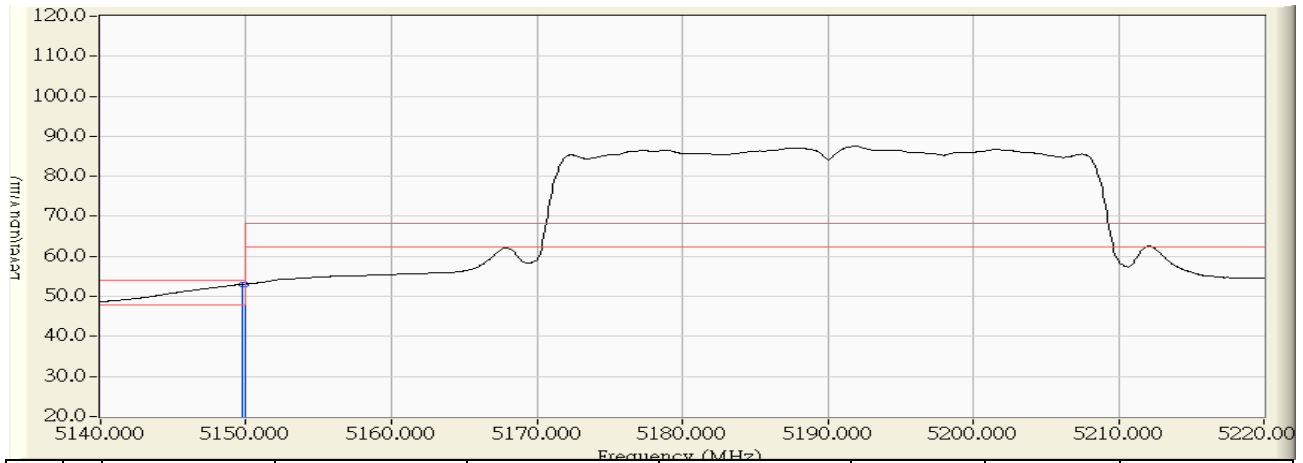


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	5148.960	0.822	67.779	68.602	-5.398	74.000	PEAK
2		5150.000	0.831	65.709	66.540	-7.460	74.000	PEAK

**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 : 2011/11/22 - 21:30
Limit : FCC_SpartE_15.407_H_03M_AV	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - VERTICAL	Power : AC 120V/60Hz
EUT : Dark Knight Double 450Mbps Dual N Band Router	Note : TX-5190MHz,802.11n(40MHz)

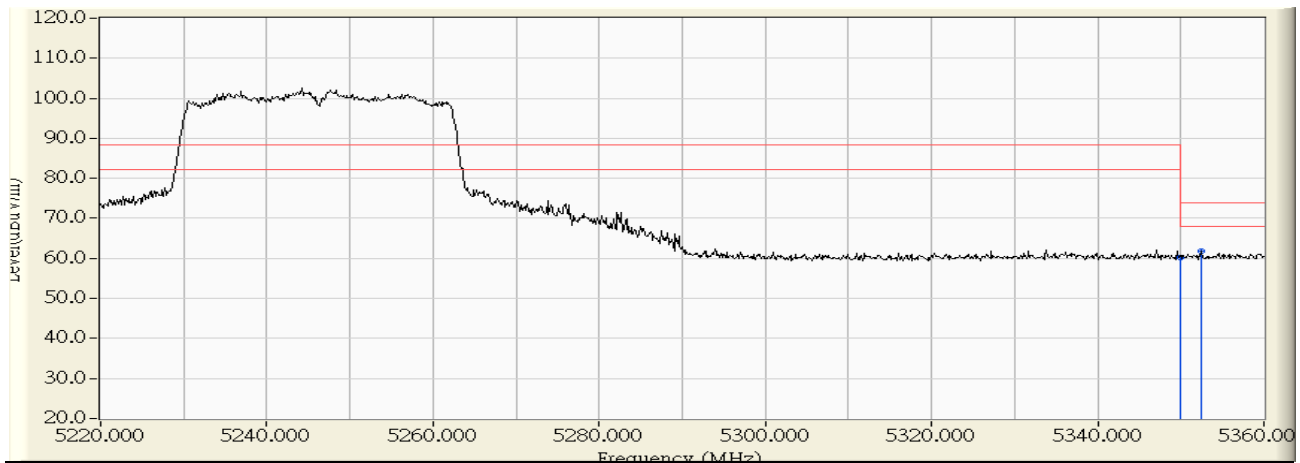


	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	5149.760	0.829	52.201	53.030	-0.970	54.000	AVERAGE
2	* 5150.000	0.831	52.264	53.095	-0.905	54.000	AVERAGE

**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 : 2011/11/22 - 21:40
Limit : FCC_SpartE_15.407_H_03M_PK	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - HORIZONTAL	Power : AC 120V/60Hz
EUT : Dark Knight Double 450Mbps Dual N Band Router	Note : TX-5230MHz,802.11n(40MHz)

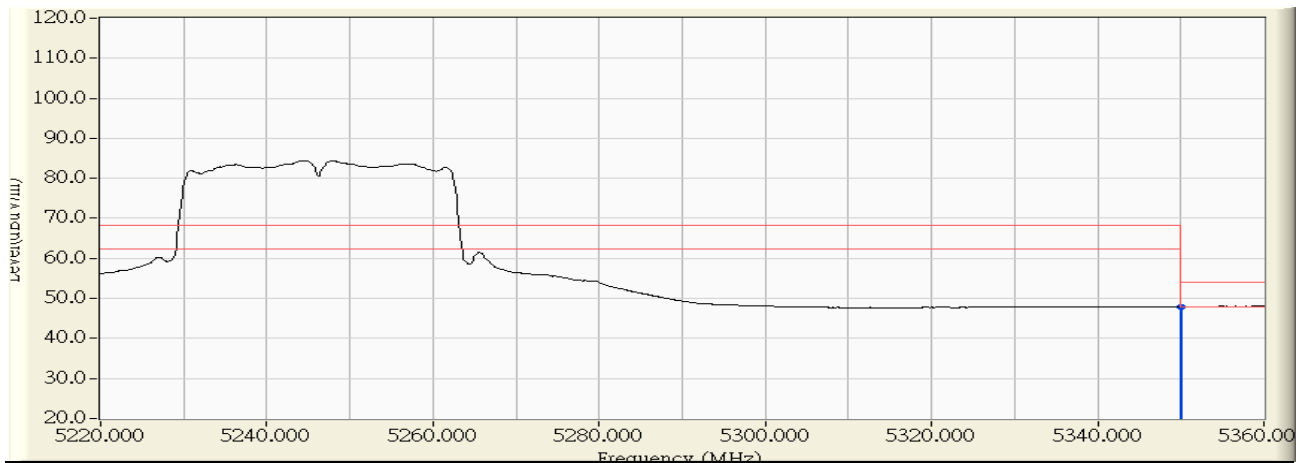


	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	5350.000	2.394	57.866	60.260	-13.740	74.000	PEAK
2	* 5352.440	2.413	59.400	61.813	-12.187	74.000	PEAK

**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 : 2011/11/22 - 21:40
Limit : FCC_SpartE_15.407_H_03M_AV	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - HORIZONTAL	Power : AC 120V/60Hz
EUT : Dark Knight Double 450Mbps Dual N Band Router	Note : TX-5230MHz,802.11n(40MHz)

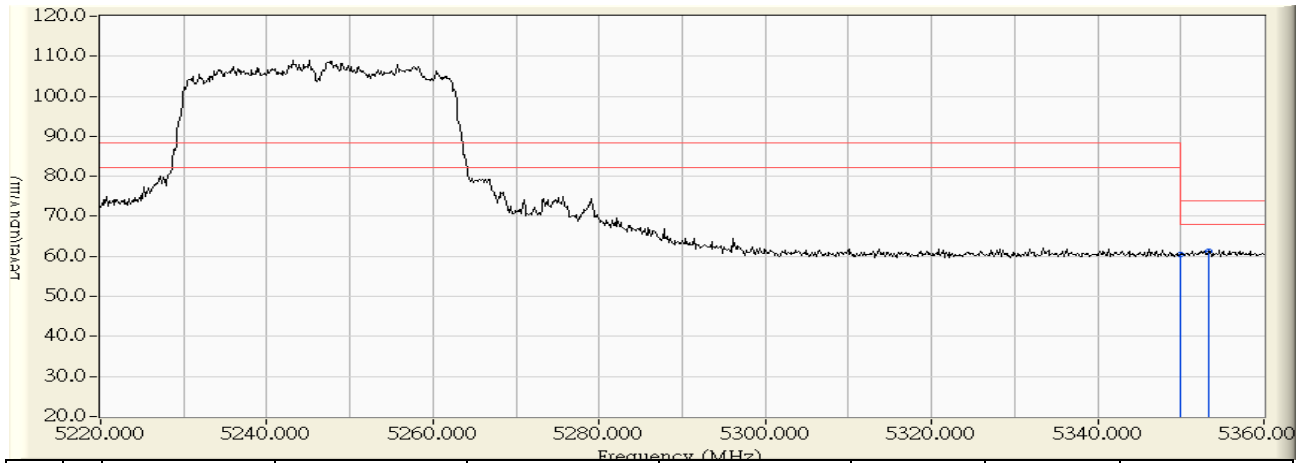


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	5350.000	2.394	45.495	47.889	-6.111	54.000	AVERAGE
2		5350.060	2.394	45.487	47.881	-6.119	54.000	AVERAGE

**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 : 2011/11/22 - 21:37
Limit : FCC_SpartE_15.407_H_03M_PK	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - VERTICAL	Power : AC 120V/60Hz
EUT : Dark Knight Double 450Mbps Dual N Band Router	Note : TX-5230MHz,802.11n(40MHz)



	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	5350.000	2.394	58.057	60.451	-13.549	74.000	PEAK
2	* 5353.280	2.419	58.741	61.160	-12.840	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 : 2011/11/22 - 21:37
Limit : FCC_SpartE_15.407_H_03M_AV	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - VERTICAL	Power : AC 120V/60Hz
EUT : Dark Knight Double 450Mbps Dual N Band Router	Note : TX-5230MHz,802.11n(40MHz)



	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	5350.000	2.394	45.827	48.221	-5.779	54.000	AVERAGE
2	* 5350.060	2.394	45.837	48.231	-5.769	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**

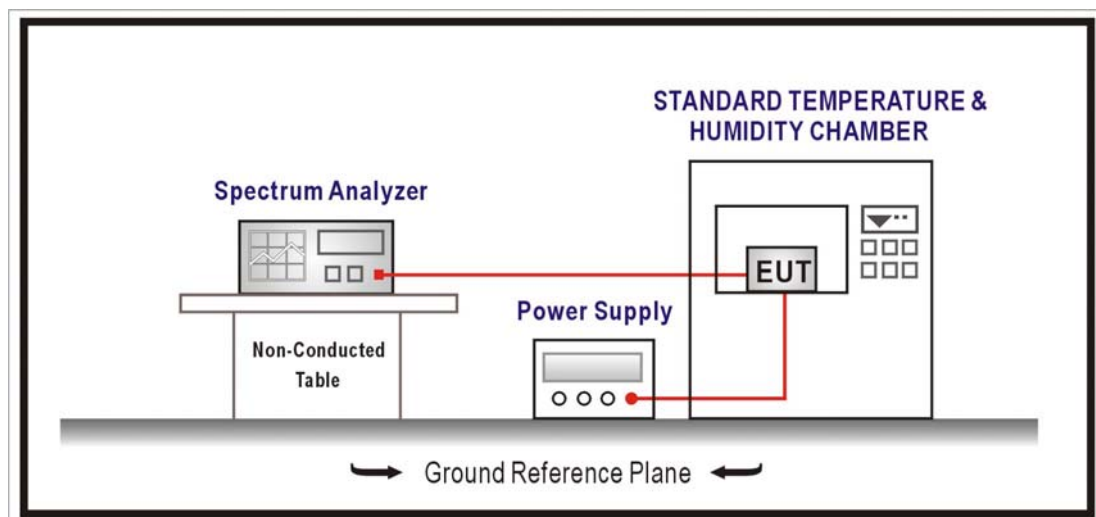
The following test equipments are used during the radiated emission tests:

**Frequency Stability / SR7**

Instrument	Manufacturer	Model No.	Serial No	Next Cal. Date
Spectrum Analyzer	R&S	FSP	100561	2012/01/16
Standard Temperature & Humidity Chamber	WIT	TH-1S-B	1082101	2012/01/30

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

**9.2. Test Setup**



**9.3. Limits**

Manufactures of U\_802.11nII 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  $\pm 150$  Hz

**9.6. Test Result**

Product	Dark Knight Double 450Mbps Dual N Band Router		
Test Item	Frequency Stability		
Test Mode	Mode 1: Transmit - 802.11a - 5180MHz		
Date of Test	2011/11/18	Test Site	SR7

Temperature Interval (°C)	AC Voltage (V)	Frequency (MHz)	Deviation (ppm)	Result
-20	120	5180.7203	139.0475	PASS
-10		5180.8805	169.9817	PASS
0		5180.5506	106.2934	PASS
10		5180.7908	152.6629	PASS
20		5180.3734	72.0840	PASS
30		5180.5209	100.5505	PASS
40		5180.1731	33.4159	PASS
50		5180.4334	83.6624	PASS

Temperature Interval (°C)	AC Voltage (V)	Frequency (MHz)	Deviation (ppm)	Result
25	102	5180.5643	108.9374	PASS
	120	5180.7510	144.9827	PASS
	138	5180.3237	62.4835	PASS



Product	Dark Knight Double 450Mbps Dual N Band Router		
Test Item	Frequency Stability		
Test Mode	Mode 1: Transmit - 802.11a - 5240MHz		
Date of Test	2011/11/18	Test Site	SR7

Temperature Interval (°C)	AC Voltage (V)	Frequency (MHz)	Deviation (ppm)	Result
-20	120	5240.3109	59.3318	PASS
-10		5240.6451	123.1046	PASS
0		5240.5035	96.0820	PASS
10		5240.1866	35.6201	PASS
20		5240.4256	81.2270	PASS
30		5240.7030	134.1681	PASS
40		5240.8692	165.8733	PASS
50		5240.4014	76.6016	PASS

Temperature Interval (°C)	AC Voltage (V)	Frequency (MHz)	Deviation (ppm)	Result
25	102	5240.6743	128.6926	PASS
	120	5240.4760	90.8417	PASS
	138	5240.7292	139.1557	PASS

Product	Dark Knight Double 450Mbps Dual N Band Router		
Test Item	Frequency Stability		
Test Mode	Mode 1: Transmit - 802.11n_20M - 5180MHz(ANT 0)		
Date of Test	2011/11/18	Test Site	SR7

Temperature Interval (°C)	AC Voltage (V)	Frequency (MHz)	Deviation (ppm)	Result
-20	120	5180.3532	68.1936	PASS
-10		5180.0496	9.5841	PASS
0		5180.8362	161.4261	PASS
10		5180.2036	39.3114	PASS
20		5180.1591	30.7201	PASS
30		5180.8741	168.7534	PASS
40		5180.4008	77.3838	PASS
50		5180.6589	127.1993	PASS

Temperature Interval (°C)	AC Voltage (V)	Frequency (MHz)	Deviation (ppm)	Result
25	102	5180.3914	75.5547	PASS
	120	5180.0413	7.9802	PASS
	138	5180.2294	44.2837	PASS

Product	Dark Knight Double 450Mbps Dual N Band Router		
Test Item	Frequency Stability		
Test Mode	Mode 1: Transmit - 802.11n_20M - 5240MHz(ANT 0)		
Date of Test	2011/11/18	Test Site	SR7

Temperature Interval (°C)	AC Voltage (V)	Frequency (MHz)	Deviation (ppm)	Result
-20	120	5240.8311	158.6046	PASS
-10		5240.5197	99.1855	PASS
0		5240.7445	142.0765	PASS
10		5240.7619	145.3920	PASS
20		5240.3021	57.6584	PASS
30		5240.7226	137.8974	PASS
40		5240.3438	65.6030	PASS
50		5240.6113	116.6677	PASS

Temperature Interval (°C)	AC Voltage (V)	Frequency (MHz)	Deviation (ppm)	Result
25	102	5240.0336	6.4124	PASS
	120	5240.4288	81.8286	PASS
	138	5240.0656	12.5231	PASS

Product	Dark Knight Double 450Mbps Dual N Band Router		
Test Item	Frequency Stability		
Test Mode	Mode 1: Transmit - 802.11n_20M - 5180MHz(ANT 1)		
Date of Test	2011/11/18	Test Site	SR7

Temperature Interval (°C)	AC Voltage (V)	Frequency (MHz)	Deviation (ppm)	Result
-20	120	5180.6096	117.6782	PASS
-10		5180.7060	136.2931	PASS
0		5180.7140	137.8386	PASS
10		5180.6860	132.4256	PASS
20		5180.7235	139.6765	PASS
30		5180.1755	33.8893	PASS
40		5180.5393	104.1082	PASS
50		5180.7896	152.4313	PASS

Temperature Interval (°C)	AC Voltage (V)	Frequency (MHz)	Deviation (ppm)	Result
25	102	5180.0675	13.0362	PASS
	120	5180.3638	70.2259	PASS
	138	5180.3491	67.3852	PASS

Product	Dark Knight Double 450Mbps Dual N Band Router		
Test Item	Frequency Stability		
Test Mode	Mode 1: Transmit - 802.11n_20M - 5240MHz(ANT 1)		
Date of Test	2011/11/18	Test Site	SR7

Temperature Interval (°C)	AC Voltage (V)	Frequency (MHz)	Deviation (ppm)	Result
-20	120	5240.3161	60.3333	PASS
-10		5240.1445	27.5718	PASS
0		5240.1803	34.4079	PASS
10		5240.2698	51.4867	PASS
20		5240.3456	65.9533	PASS
30		5240.8531	162.7961	PASS
40		5240.0639	12.2027	PASS
50		5240.4939	94.2639	PASS

Temperature Interval (°C)	AC Voltage (V)	Frequency (MHz)	Deviation (ppm)	Result
25	102	5240.7071	134.9515	PASS
	120	5240.2488	47.4719	PASS
	138	5240.0083	1.5857	PASS

Product	Dark Knight Double 450Mbps Dual N Band Router		
Test Item	Frequency Stability		
Test Mode	Mode 1: Transmit - 802.11n_20M - 5180MHz (ANT 2)		
Date of Test	2011/11/18	Test Site	SR7

Temperature Interval (°C)	AC Voltage (V)	Frequency (MHz)	Deviation (ppm)	Result
-20	120	5180.0528	10.1835	PASS
-10		5180.8305	160.3352	PASS
0		5180.1605	30.9792	PASS
10		5180.2143	41.3669	PASS
20		5180.1185	22.8691	PASS
30		5180.2605	50.2904	PASS
40		5180.2921	56.3927	PASS
50		5180.1954	37.7176	PASS

Temperature Interval (°C)	AC Voltage (V)	Frequency (MHz)	Deviation (ppm)	Result
25	102	5180.4451	85.9330	PASS
	120	5180.6677	128.8925	PASS
	138	5180.6621	127.8167	PASS

Product	Dark Knight Double 450Mbps Dual N Band Router		
Test Item	Frequency Stability		
Test Mode	Mode 1: Transmit - 802.11n_20M - 5240MHz (ANT 2)		
Date of Test	2011/11/18	Test Site	SR7

Temperature Interval (°C)	AC Voltage (V)	Frequency (MHz)	Deviation (ppm)	Result
-20	120	5240.7839	149.5906	PASS
-10		5240.2967	56.6285	PASS
0		5240.4869	92.9192	PASS
10		5240.8675	165.5565	PASS
20		5240.5392	102.9062	PASS
30		5240.5386	102.7891	PASS
40		5240.7771	148.3069	PASS
50		5240.2275	43.4154	PASS

Temperature Interval (°C)	AC Voltage (V)	Frequency (MHz)	Deviation (ppm)	Result
25	102	5240.4862	92.7770	PASS
	120	5240.6525	124.5265	PASS
	138	5240.6873	131.1568	PASS

Product	Dark Knight Double 450Mbps Dual N Band Router		
Test Item	Frequency Stability		
Test Mode	Mode 1: Transmit - 802.11n_40M - 5190MHz(ANT 0)		
Date of Test	2011/11/18	Test Site	SR7

Temperature Interval (°C)	AC Voltage (V)	Frequency (MHz)	Deviation (ppm)	Result
-20	120	5190.6906	133.0706	PASS
-10		5190.3964	76.3853	PASS
0		5190.7143	137.6291	PASS
10		5190.6745	129.9594	PASS
20		5190.4824	92.9390	PASS
30		5190.4412	85.0092	PASS
40		5190.4922	94.8302	PASS
50		5190.2039	39.2809	PASS

Temperature Interval (°C)	AC Voltage (V)	Frequency (MHz)	Deviation (ppm)	Result
25	102	5190.6790	130.8222	PASS
	120	5190.6499	125.2197	PASS
	138	5190.7933	152.8506	PASS



Product	Dark Knight Double 450Mbps Dual N Band Router		
Test Item	Frequency Stability		
Test Mode	Mode 1: Transmit - 802.11n_40M - 5230MHz(ANT 0)		
Date of Test	2011/11/18	Test Site	SR7

Temperature Interval (°C)	AC Voltage (V)	Frequency (MHz)	Deviation (ppm)	Result
-20	120	5230.8005	153.0586	PASS
-10		5230.7799	149.1276	PASS
0		5230.8534	163.1765	PASS
10		5230.6165	117.8710	PASS
20		5230.3469	66.3368	PASS
30		5230.8405	160.7073	PASS
40		5230.7552	144.4005	PASS
50		5230.8548	163.4336	PASS

Temperature Interval (°C)	AC Voltage (V)	Frequency (MHz)	Deviation (ppm)	Result
25	102	5230.8968	171.4777	PASS
	120	5230.1891	36.1512	PASS
	138	5230.2376	45.4388	PASS

Product	Dark Knight Double 450Mbps Dual N Band Router		
Test Item	Frequency Stability		
Test Mode	Mode 1: Transmit - 802.11n_40M - 5190MHz(ANT 1)		
Date of Test	2011/11/18	Test Site	SR7

Temperature Interval (°C)	AC Voltage (V)	Frequency (MHz)	Deviation (ppm)	Result
-20	120	5190.1259	24.2504	PASS
-10		5190.5013	96.5870	PASS
0		5190.5520	106.3497	PASS
10		5190.8674	167.1369	PASS
20		5190.7015	135.1636	PASS
30		5190.8435	162.5311	PASS
40		5190.7500	144.5017	PASS
50		5190.3020	58.1942	PASS

Temperature Interval (°C)	AC Voltage (V)	Frequency (MHz)	Deviation (ppm)	Result
25	102	5190.5096	98.1984	PASS
	120	5190.4040	77.8477	PASS
	138	5190.3549	68.3734	PASS

Product	Dark Knight Double 450Mbps Dual N Band Router		
Test Item	Frequency Stability		
Test Mode	Mode 1: Transmit - 802.11n_40M - 5230MHz(ANT 1)		
Date of Test	2011/11/18	Test Site	SR7

Temperature Interval (°C)	AC Voltage (V)	Frequency (MHz)	Deviation (ppm)	Result
-20	120	5230.3608	68.9940	PASS
-10		5230.5590	106.8818	PASS
0		5230.1505	28.7681	PASS
10		5230.6181	118.1785	PASS
20		5230.5633	107.7053	PASS
30		5230.2121	40.5594	PASS
40		5230.5184	99.1278	PASS
50		5230.7855	150.1955	PASS

Temperature Interval (°C)	AC Voltage (V)	Frequency (MHz)	Deviation (ppm)	Result
25	102	5230.4426	84.6324	PASS
	120	5230.0257	4.9093	PASS
	138	5230.4386	83.8666	PASS

Product	Dark Knight Double 450Mbps Dual N Band Router		
Test Item	Frequency Stability		
Test Mode	Mode 1: Transmit - 802.11n_40M - 5190MHz(ANT 2)		
Date of Test	2011/11/18	Test Site	SR7

Temperature Interval (°C)	AC Voltage (V)	Frequency (MHz)	Deviation (ppm)	Result
-20	120	5190.2274	43.8172	PASS
-10		5190.2276	43.8523	PASS
0		5190.8605	165.8022	PASS
10		5190.8434	162.5083	PASS
20		5190.4435	85.4541	PASS
30		5190.6148	118.4520	PASS
40		5190.1365	26.3072	PASS
50		5190.5390	103.8588	PASS

Temperature Interval (°C)	AC Voltage (V)	Frequency (MHz)	Deviation (ppm)	Result
25	102	5190.2614	50.3671	PASS
	120	5190.8692	167.4760	PASS
	138	5190.0734	14.1489	PASS

Product	Dark Knight Double 450Mbps Dual N Band Router		
Test Item	Frequency Stability		
Test Mode	Mode 1: Transmit - 802.11n_40M -5230MHz(ANT 2)		
Date of Test	2011/11/18	Test Site	SR7

Temperature Interval (°C)	AC Voltage (V)	Frequency (MHz)	Deviation (ppm)	Result
-20	120	5230.5805	110.9894	PASS
-10		5230.1964	37.5467	PASS
0		5230.1241	23.7204	PASS
10		5230.8990	171.8979	PASS
20		5230.2074	39.6591	PASS
30		5230.3281	62.7363	PASS
40		5230.3448	65.9241	PASS
50		5230.3586	68.5708	PASS

Temperature Interval (°C)	AC Voltage (V)	Frequency (MHz)	Deviation (ppm)	Result
25	102	5230.3847	73.5547	PASS
	120	5230.2826	54.0309	PASS
	138	5230.6706	128.2289	PASS