

## 5. Peak Power Spectrum Density

### 5.1. Test Equipment

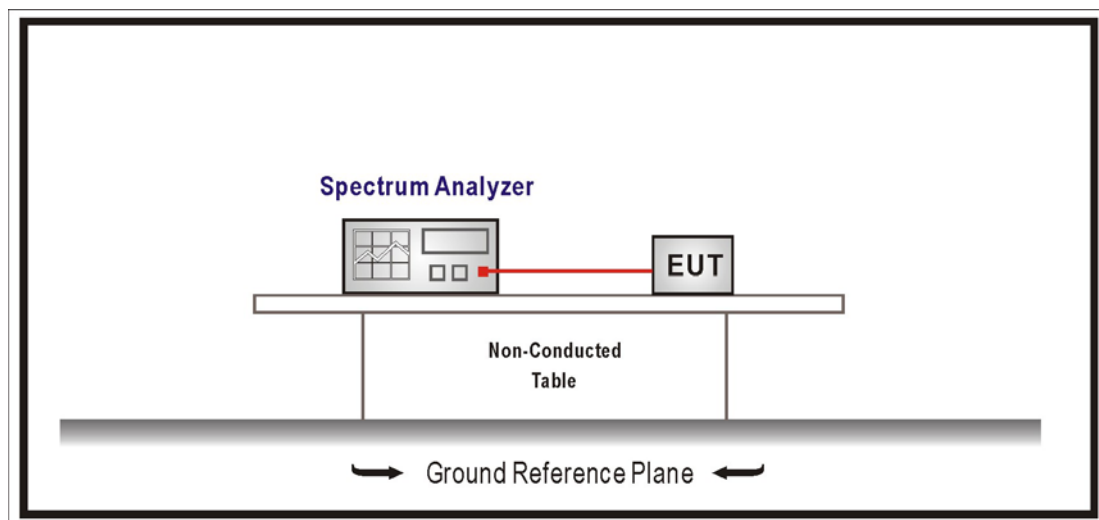
The following test equipments are used during the radiated emission tests:

#### Peak Power Spectrum Density / SR7

Instrument	Manufacturer	Model No.	Serial No	Next Cal. Date
Spectrum Analyzer	R&S	FSP	100561	2013/02/19

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

### 5.2. Test Setup



### 5.3. Limits

1. For the band 5.15-5.25 GHz, the peak power spectral density shall not exceed 4 dBm in any 1-MHz band. If transmitting antenna of directional gain greater than 6 dBi are used, the peak power spectral density shall be reduced by the amount in dB that directional gain of the antenna exceeds 6 dBi.
2. For the band 5.25-5.35 GHz, the peak power spectral density shall not exceed 11 dBm in any 1-MHz band. If transmitting antenna of directional gain greater than 6 dBi are used, the peak power spectral density shall be reduced by the amount in dB that directional gain of the antenna exceeds 6 dBi.
3. For the band 5.725-5.825 GHz, the peak power spectral density shall not exceed 17 dBm in any 1-MHz band. If transmitting antenna of directional gain greater than 6 dBi are used, the peak power spectral density shall be reduced by the amount in dB that directional gain of the antenna exceeds 6 dBi.

#### 5.4. Test Procedure

The EUT was setup to ANSI C63.4, 2009; tested to U-NII test procedure of March 2012 KDB 789033 for compliance to FCC 47CFR Subpart E requirements.

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

#### 5.5. Uncertainty

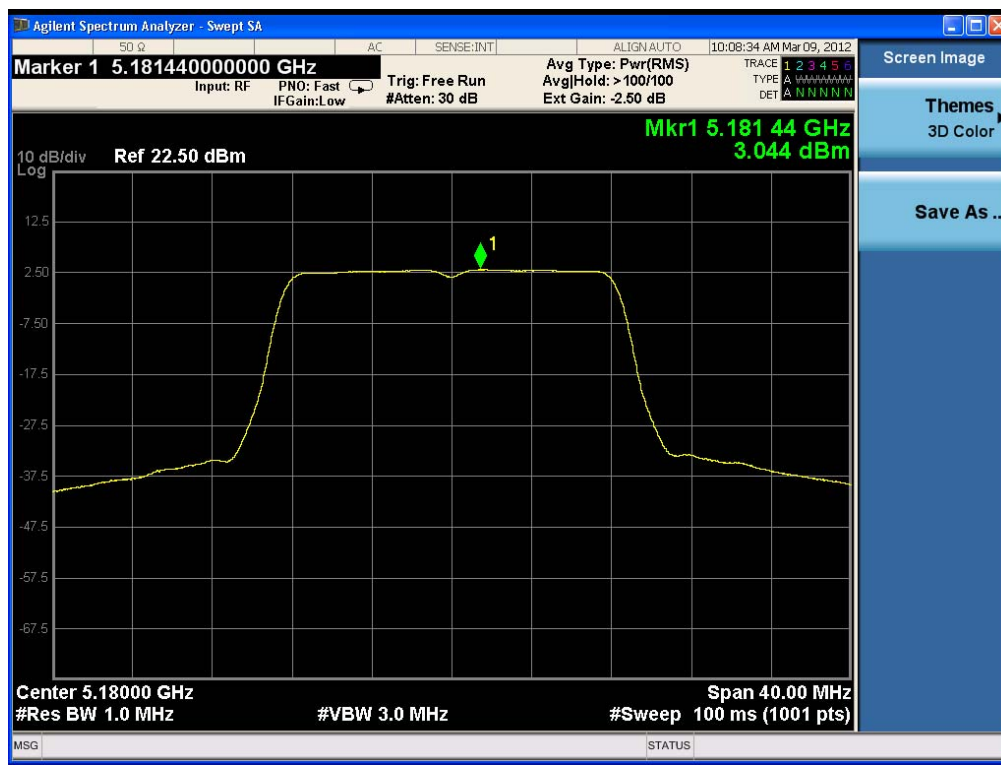
The measurement uncertainty is defined as  $\pm 1.27$  dB

## 5.6. Test Result

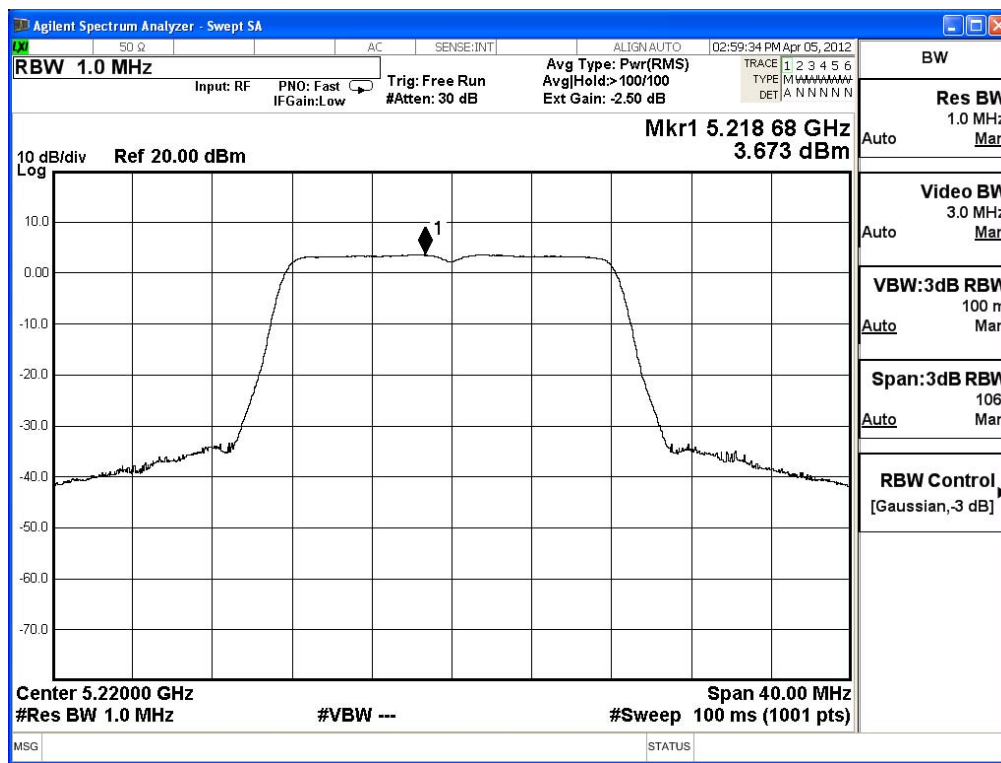
Product	Wireless Extender		
Test Item	Peak Power Spectral Density		
Test Mode	Mode 1: Transmit		
Date of Test	2012/04/05	Test Site	SR7

IEEE 802.11a				
Channel No.	Frequency (MHz)	Measure Level (dBm)	Required Limit (dBm)	Result
36	5180	3.044	$\leq 4$	Pass
44	5220	3.673	$\leq 4$	Pass
48	5240	3.945	$\leq 4$	Pass

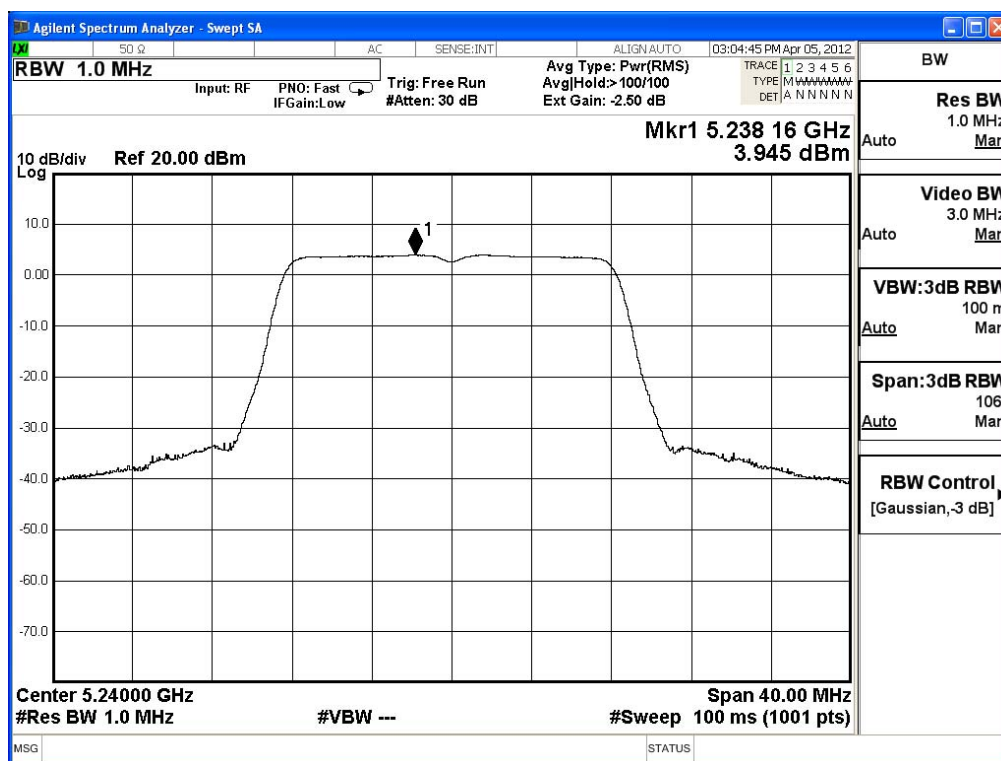
### Peak Power Spectral Density – Channel 36



### Peak Power Spectral Density – Channel 44



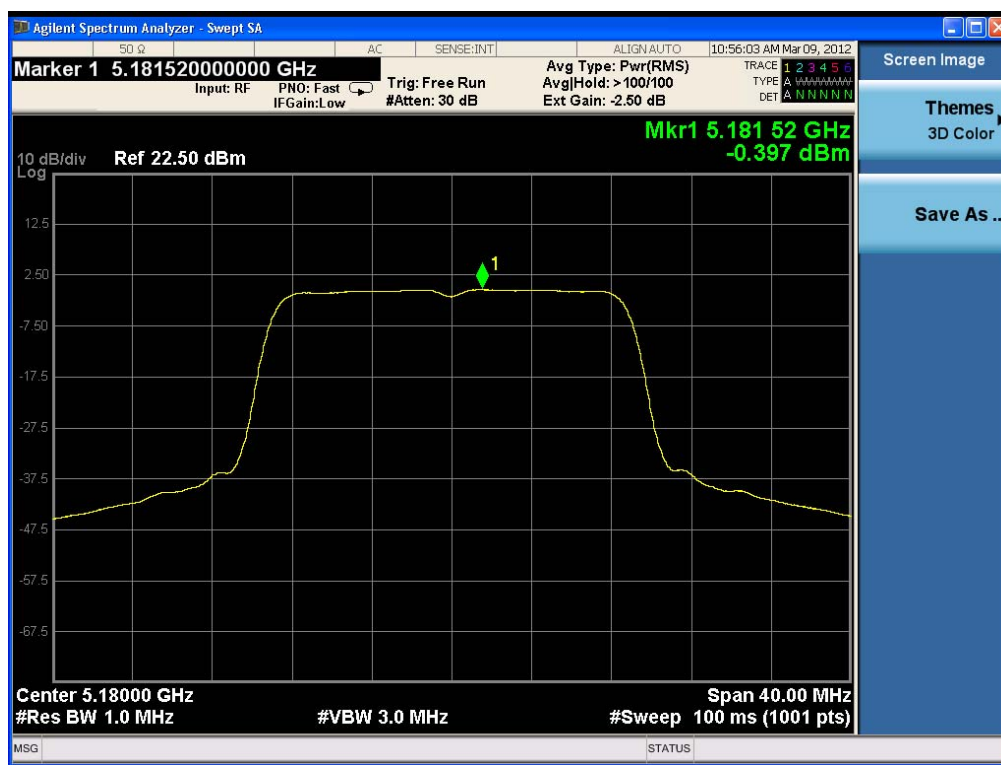
### Peak Power Spectral Density – Channel 48



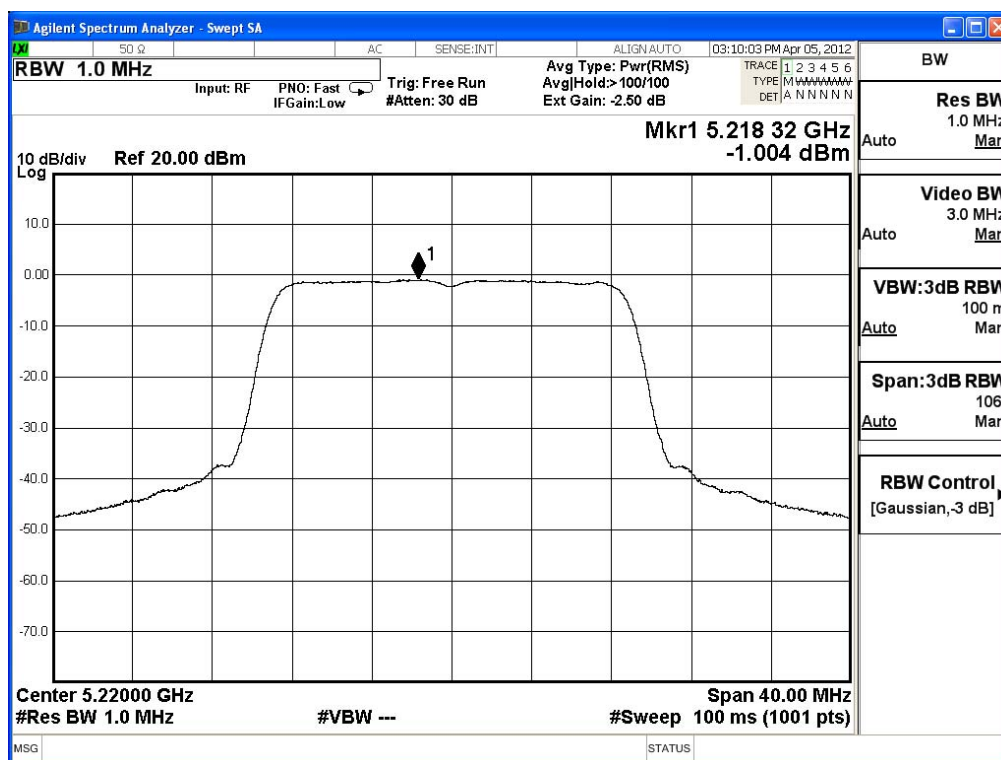
Product	Wireless Extender		
Test Item	Peak Power Spectral Density		
Test Mode	Mode 1: Transmit		
Date of Test	2012/04/05	Test Site	SR7

IEEE 802.11n (20MHz), (ANT 0)				
Channel No.	Frequency (MHz)	Measure Level (dBm)	Required Limit (dBm)	Result
36	5180	-0.397	$\leq 4$	Pass
44	5220	-1.004	$\leq 4$	Pass
48	5240	-1.391	$\leq 4$	Pass

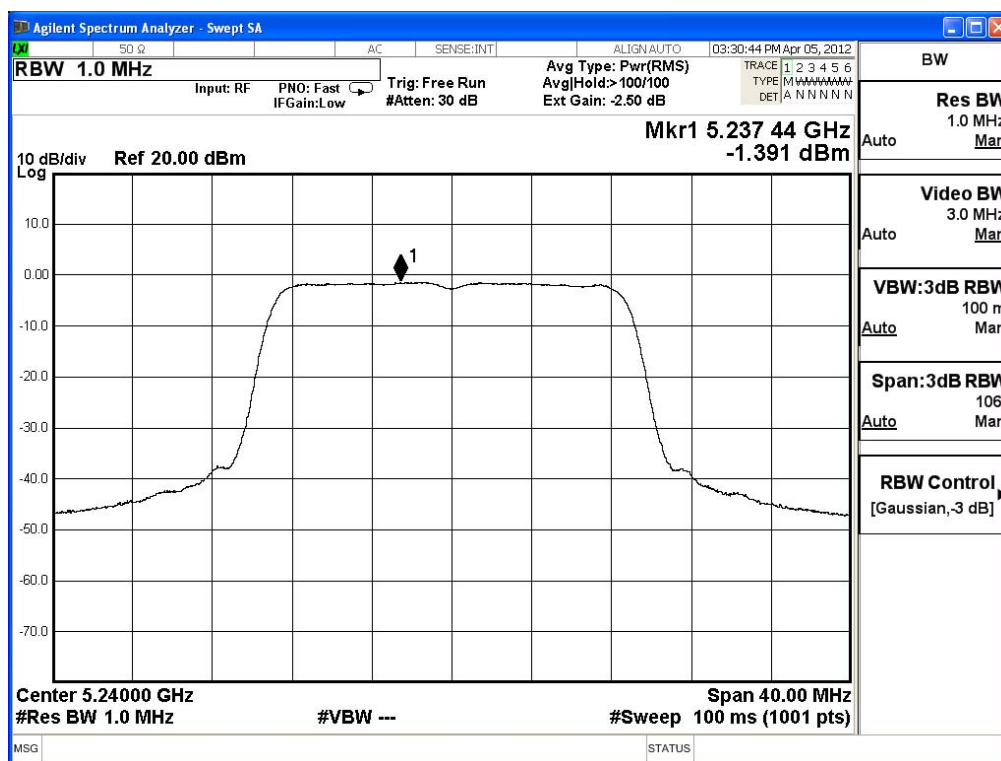
### Peak Power Spectral Density – Channel 36



### Peak Power Spectral Density – Channel 44



## Peak Power Spectral Density – Channel 48

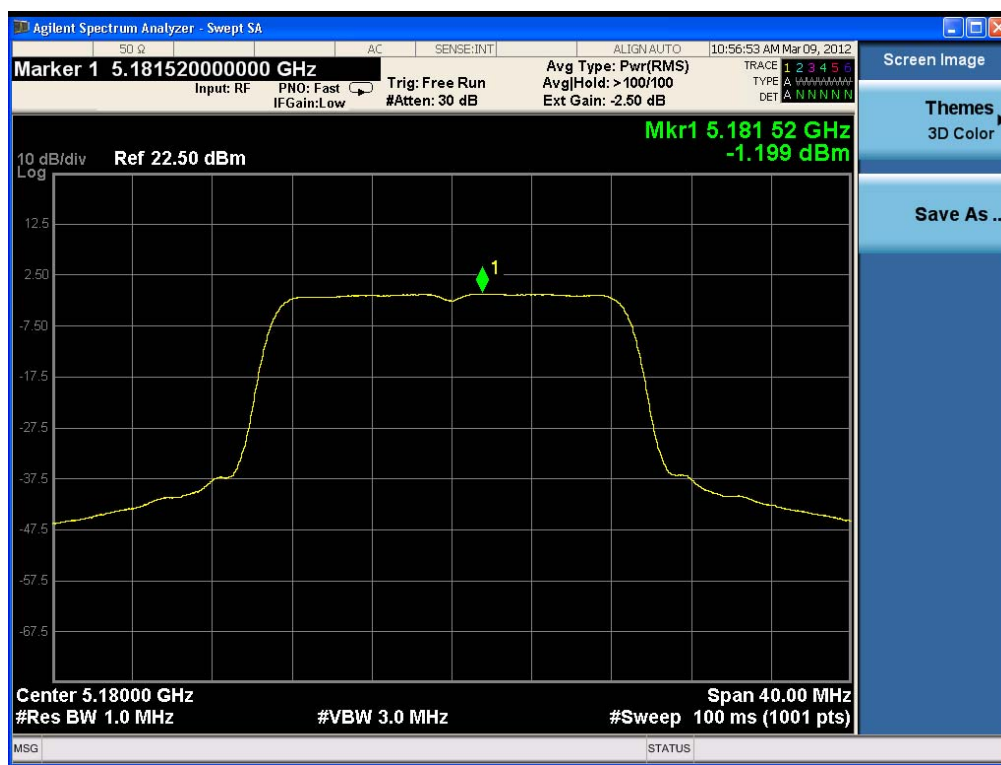




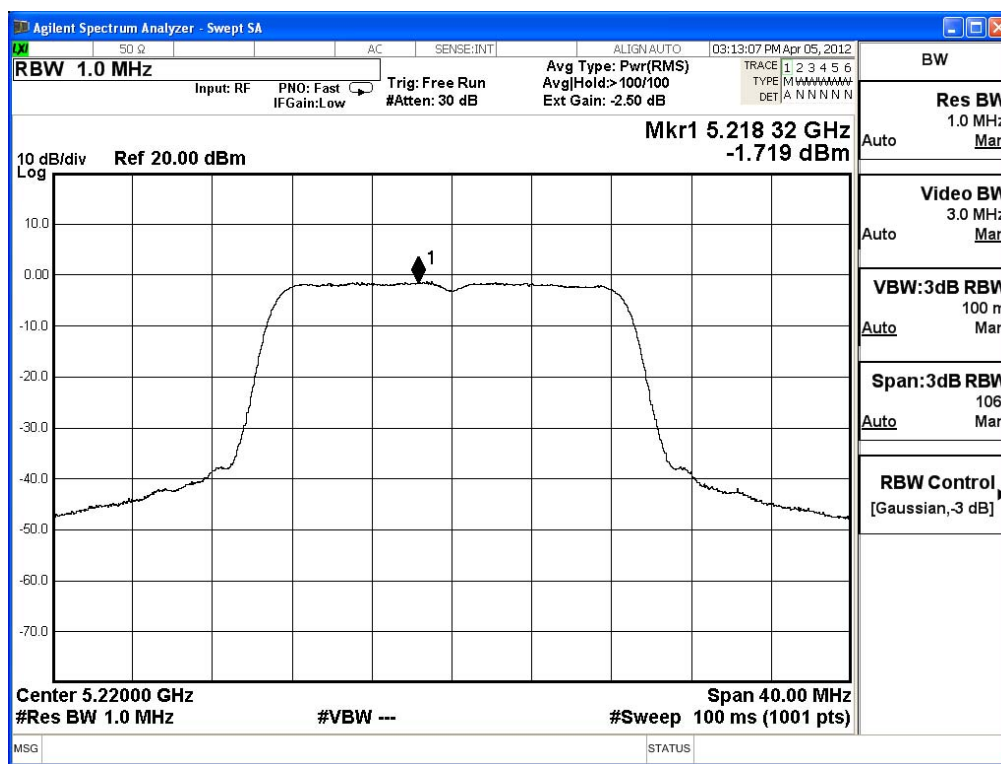
Product	Wireless Extender		
Test Item	Peak Power Spectral Density		
Test Mode	Mode 1: Transmit		
Date of Test	2012/04/05	Test Site	SR7

IEEE 802.11n (20MHz), (ANT 1)				
Channel No.	Frequency (MHz)	Measure Level (dBm)	Required Limit (dBm)	Result
36	5180	-1.199	$\leq 4$	Pass
44	5220	-1.719	$\leq 4$	Pass
48	5240	-1.938	$\leq 4$	Pass

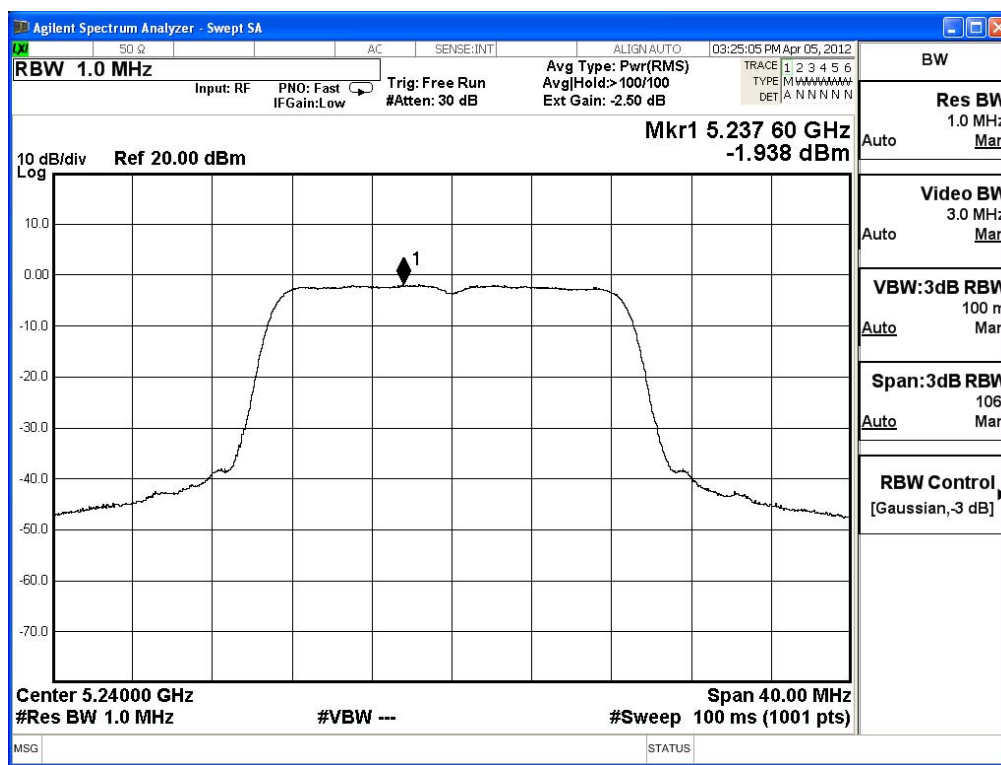
### Peak Power Spectral Density – Channel 36



### Peak Power Spectral Density – Channel 44



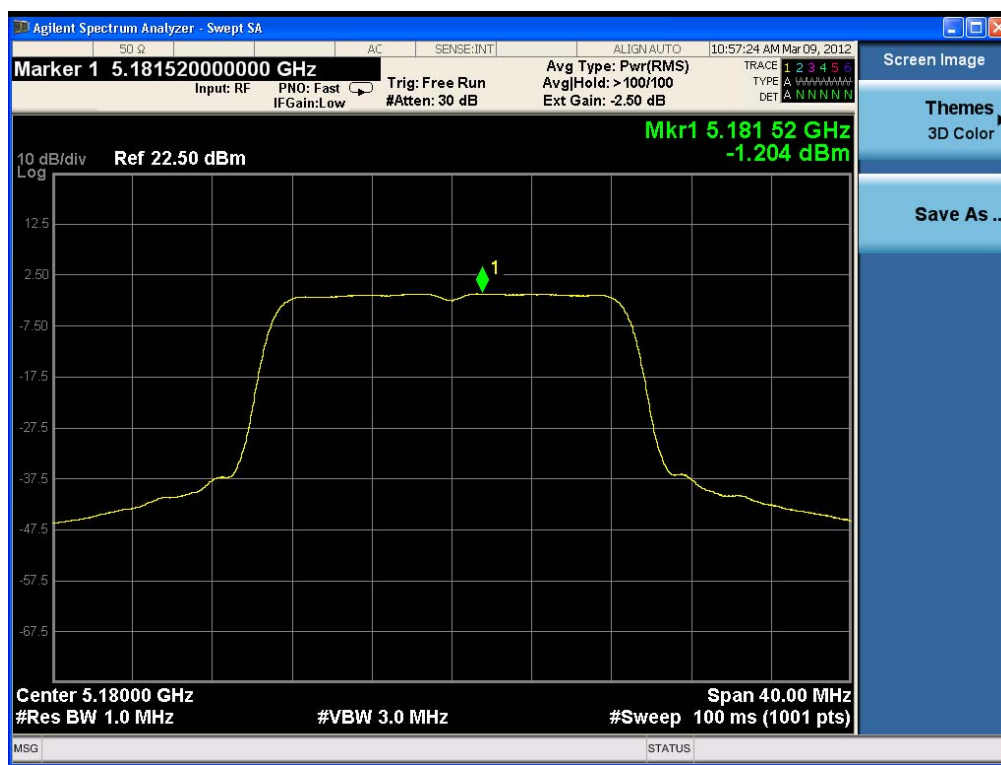
# Peak Power Spectral Density – Channel 48



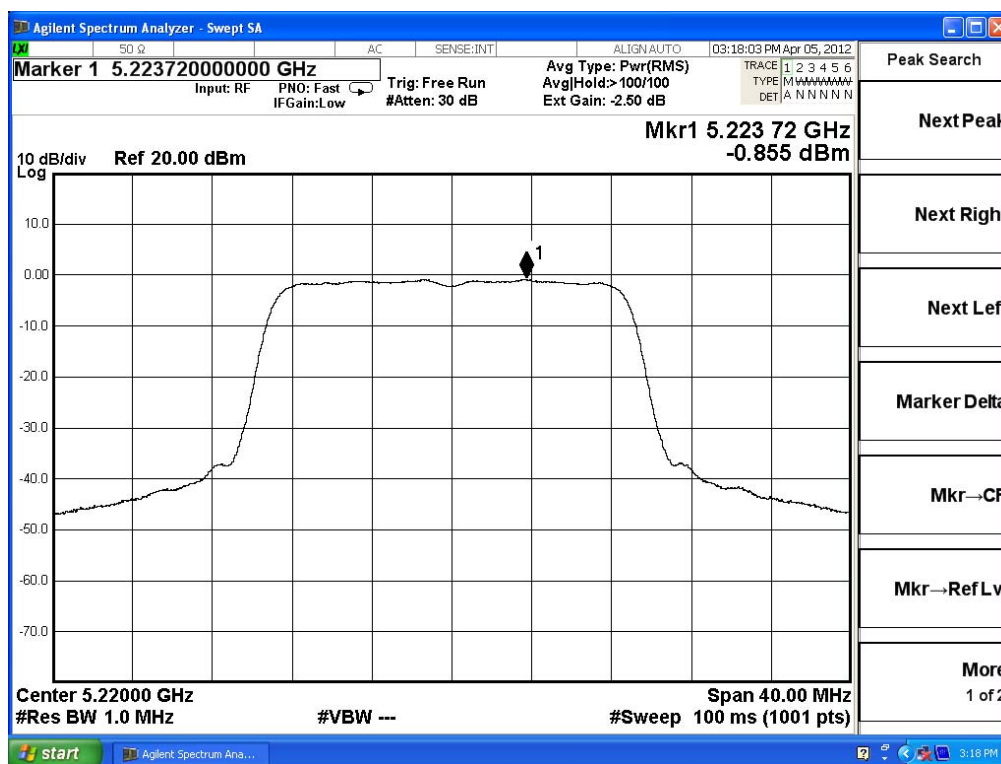
Product	Wireless Extender		
Test Item	Peak Power Spectral Density		
Test Mode	Mode 1: Transmit		
Date of Test	2012/04/05	Test Site	SR7

IEEE 802.11n (20MHz), (ANT 2)				
Channel No.	Frequency (MHz)	Measure Level (dBm)	Required Limit (dBm)	Result
36	5180	-1.204	$\leq 4$	Pass
44	5220	-0.855	$\leq 4$	Pass
48	5240	-1.170	$\leq 4$	Pass

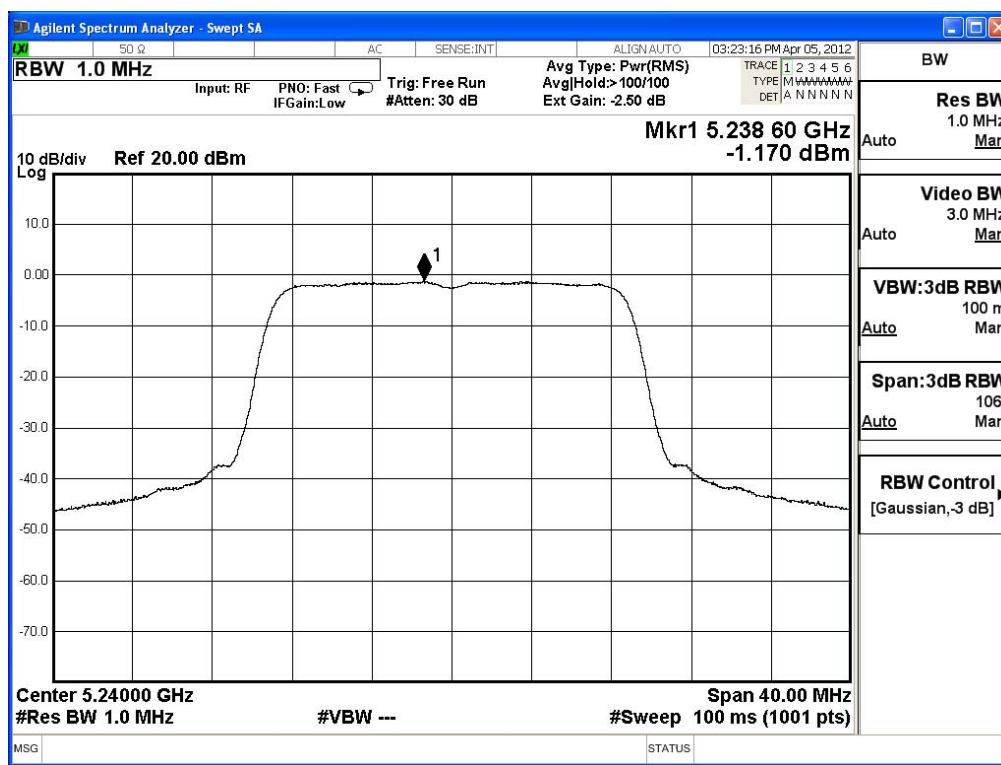
### Peak Power Spectral Density – Channel 36



### Peak Power Spectral Density – Channel 46



# Peak Power Spectral Density – Channel 48



Product	Wireless Extender		
Test Item	Peak Power Spectral Density		
Test Mode	Mode 1: Transmit		
Date of Test	2012/04/05	Test Site	SR7

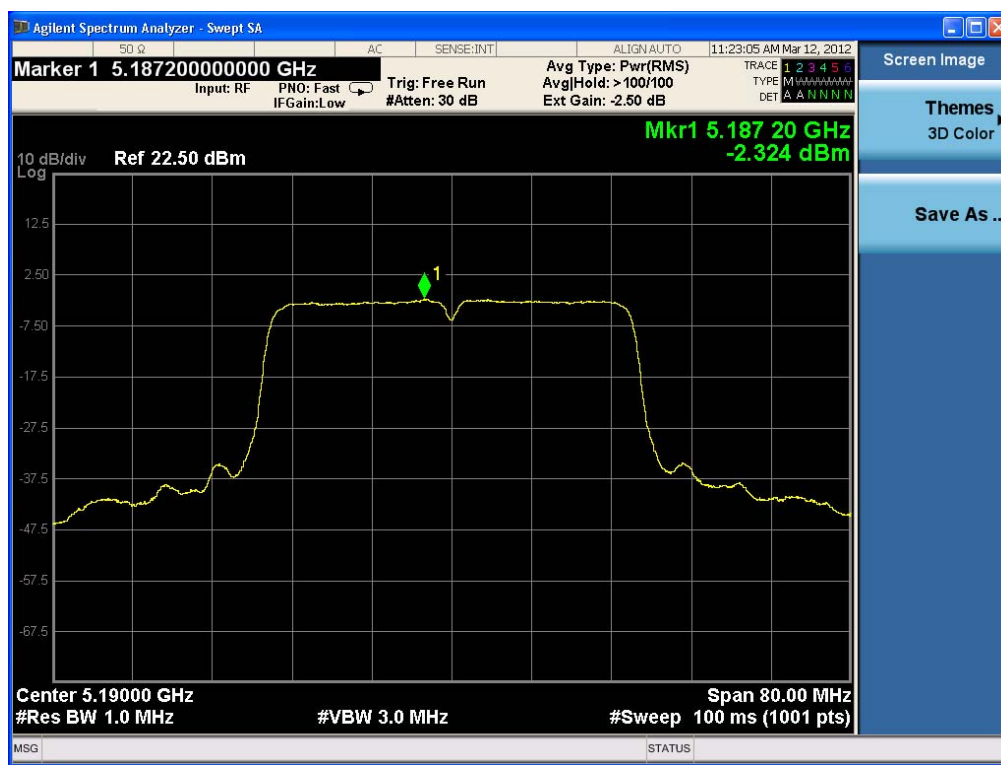
IEEE 802.11n (20MHz) (ANT 0+1+2)				
Channel No.	Frequency (MHz)	Measure Level (dBm)	Required Limit (dBm)	Result
36	5180	3.850	$\leq 4$	Pass
44	5220	3.590	$\leq 4$	Pass
48	5240	3.280	$\leq 4$	Pass

Product	Wireless Extender		
Test Item	Peak Power Spectral Density		
Test Mode	Mode 1: Transmit		
Date of Test	2012/04/05	Test Site	SR7

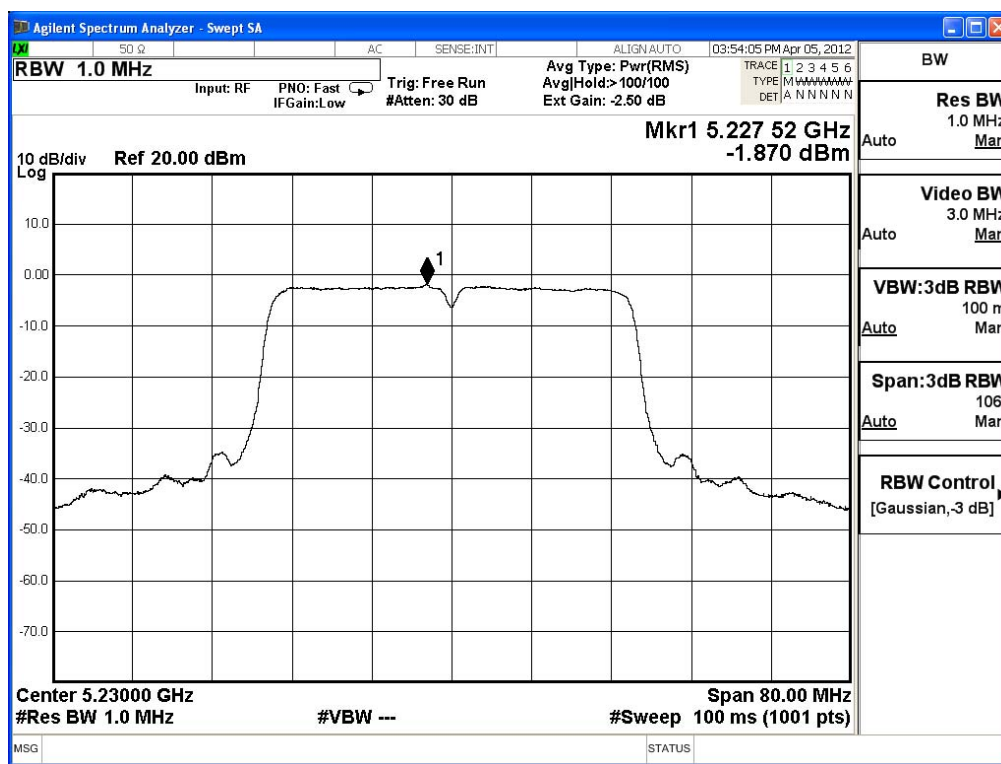
IEEE 802.11n (40MHz), (ANT 0)				
Channel No.	Frequency (MHz)	Measure Level (dBm)	Required Limit (dBm)	Result
38	5190	-2.324	$\leq 4$	Pass
46	5230	-1.870	$\leq 4$	Pass



### Peak Power Spectral Density – Channel 38



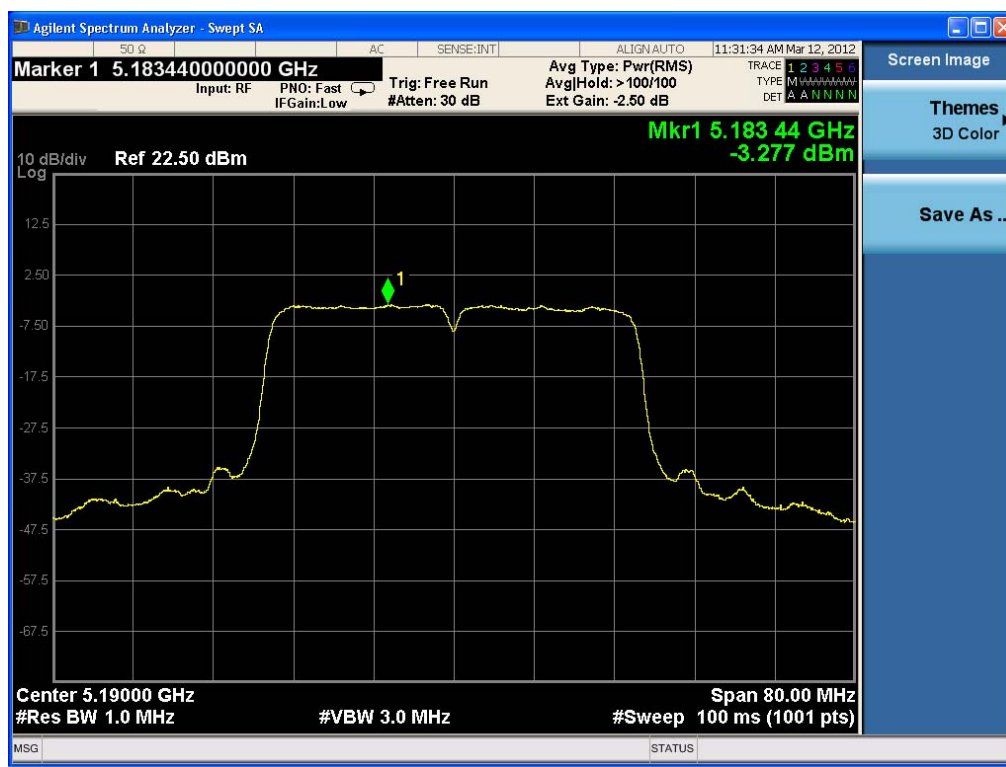
### Peak Power Spectral Density – Channel 46



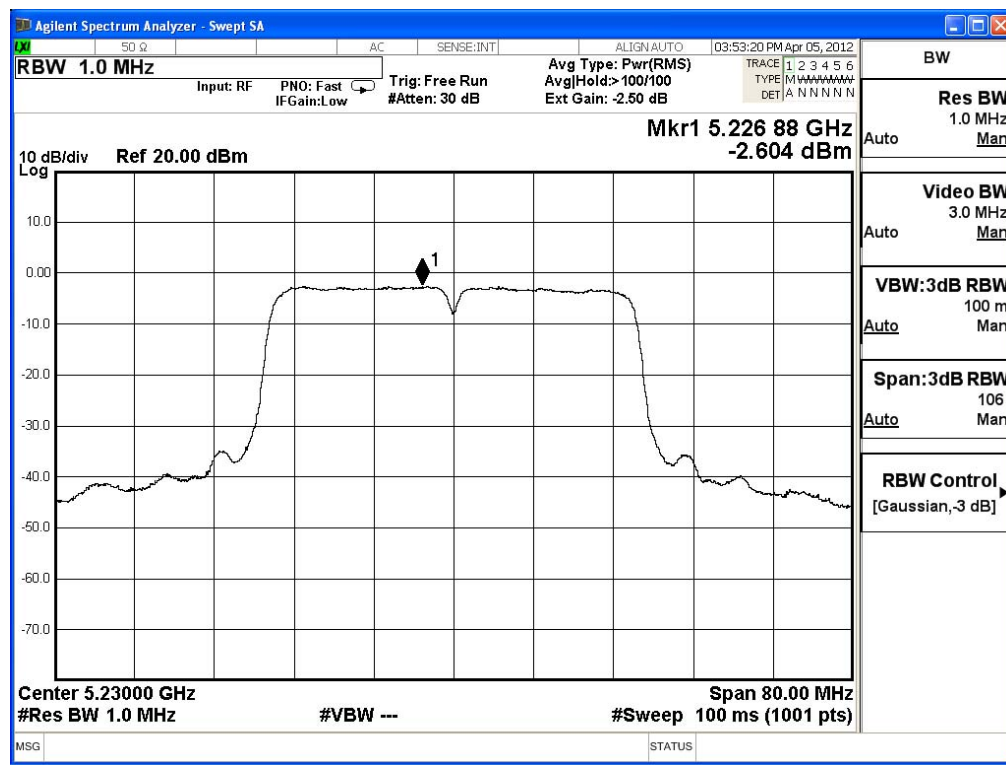
Product	Wireless Extender		
Test Item	Peak Power Spectral Density		
Test Mode	Mode 1: Transmit		
Date of Test	2012/04/05	Test Site	SR7

IEEE 802.11n (40MHz), (ANT 1)				
Channel No.	Frequency (MHz)	Measure Level (dBm)	Required Limit (dBm)	Result
38	5190	-3.277	$\leq 4$	Pass
46	5230	-2.604	$\leq 4$	Pass

### Peak Power Spectral Density – Channel 38



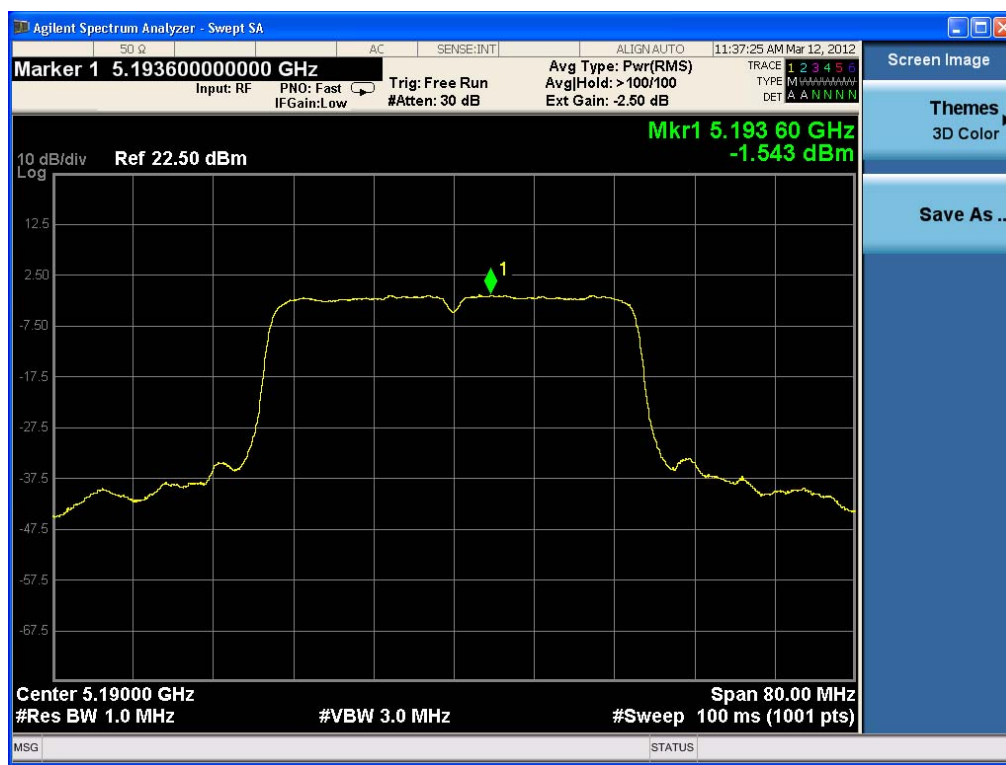
### Peak Power Spectral Density – Channel 46



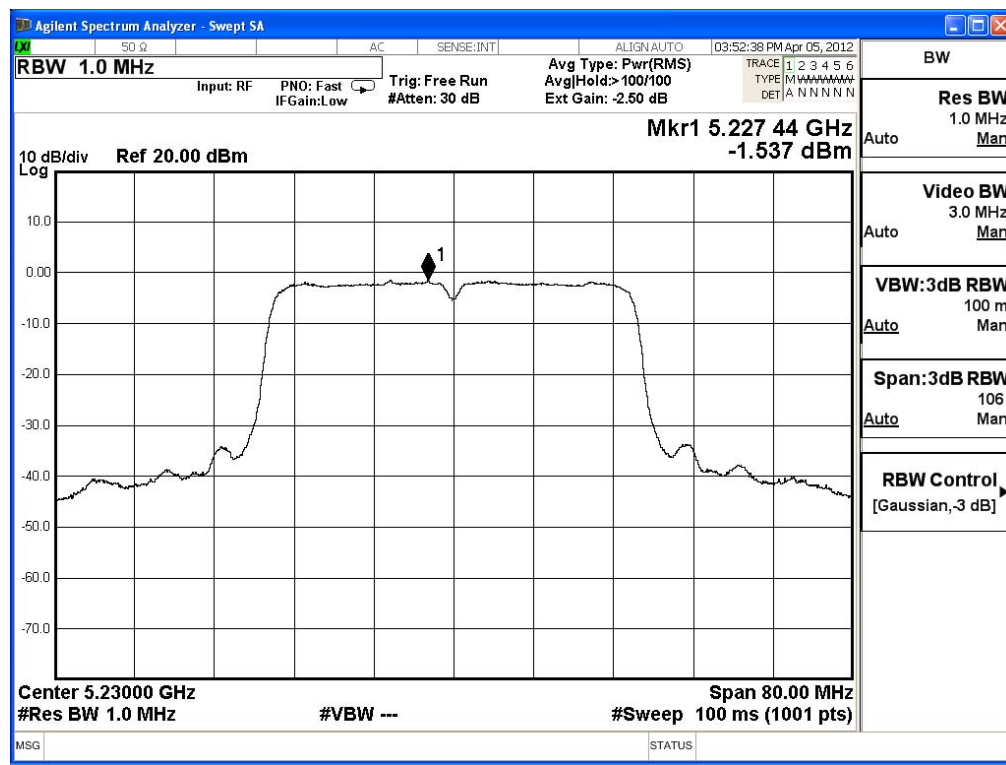
Product	Wireless Extender		
Test Item	Peak Power Spectral Density		
Test Mode	Mode 1: Transmit		
Date of Test	2012/04/05	Test Site	SR7

IEEE 802.11n (40MHz), (ANT 2)				
Channel No.	Frequency (MHz)	Measure Level (dBm)	Required Limit (dBm)	Result
38	5190	-1.543	$\leq 4$	Pass
46	5230	-1.537	$\leq 4$	Pass

### Peak Power Spectral Density – Channel 38



### Peak Power Spectral Density – Channel 46



Product	Wireless Extender		
Test Item	Peak Power Spectral Density		
Test Mode	Mode 1: Transmit		
Date of Test	2012/04/05	Test Site	SR7

IEEE 802.11n (40MHz) (ANT 0+1+2)				
Channel No.	Frequency (MHz)	Measure Level (dBm)	Required Limit (dBm)	Result
38	5190	2.450	$\leq 4$	Pass
46	5230	2.790	$\leq 4$	Pass

## 6. Peak Excursion

### 6.1. Test Equipment

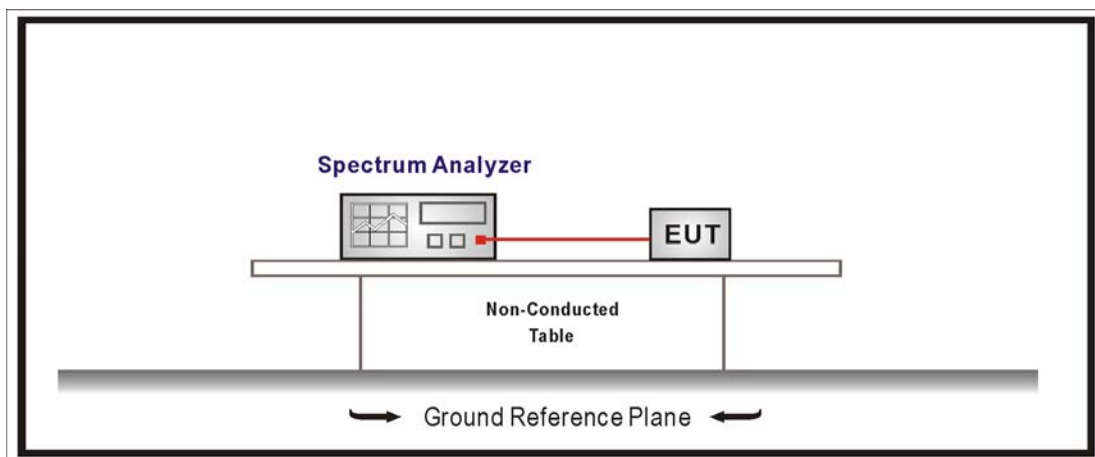
The following test equipments are used during the radiated emission tests:

#### Peak Excursion / SR7

Instrument	Manufacturer	Model No.	Serial No	Next Cal. Date
Spectrum Analyzer	R&S	FSP	100561	2013/02/19

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

### 6.2. Test Setup



### 6.3. Limits

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

### 6.4. Test Procedure

The EUT was setup to ANSI C63.4, 2009; tested to U-NII test procedure of March 2012 KDB 789033 for compliance to FCC 47CFR Subpart E requirements.

1<sup>st</sup> Trace:

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

2<sup>nd</sup> Trace:

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

### 6.5. Uncertainty

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

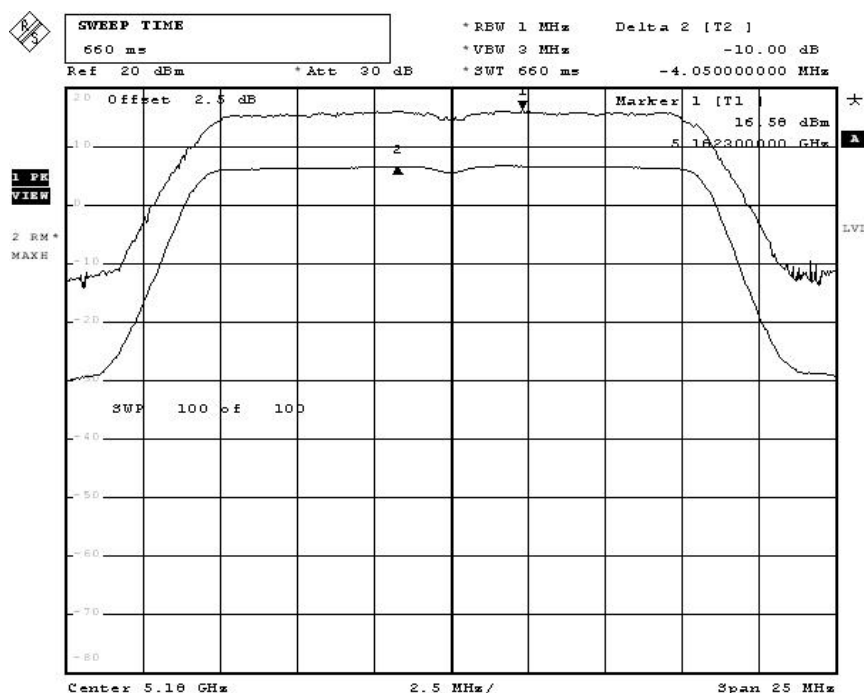
## 6.6. Test Result

Product	Wireless Extender		
Test Item	Peak Excursion		
Test Mode	Mode 1: Transmit		
Date of Test	2012/04/05	Test Site	SR7

IEEE 802.11a				
Channel No.	Frequency (MHz)	Measure Level (dB)	Required Limit (dB)	Result
36	5180	10.000	$\leq 13$	Pass
44	5220	8.278	$\leq 13$	Pass
48	5240	8.629	$\leq 13$	Pass

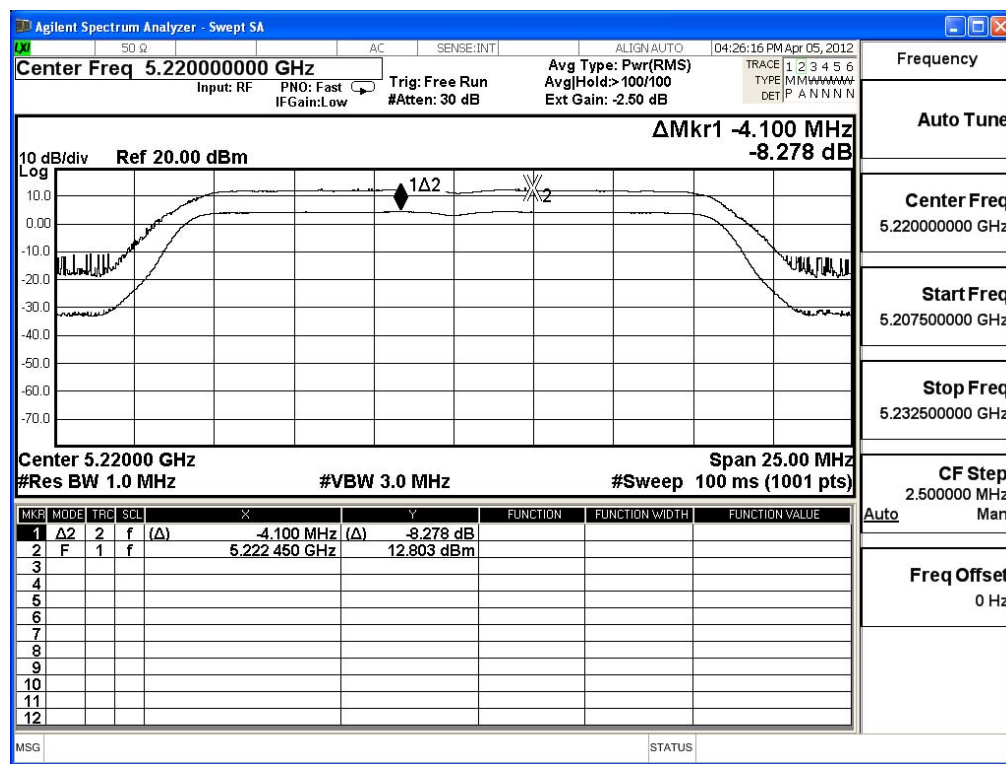


### Power Excursion – Channel 36

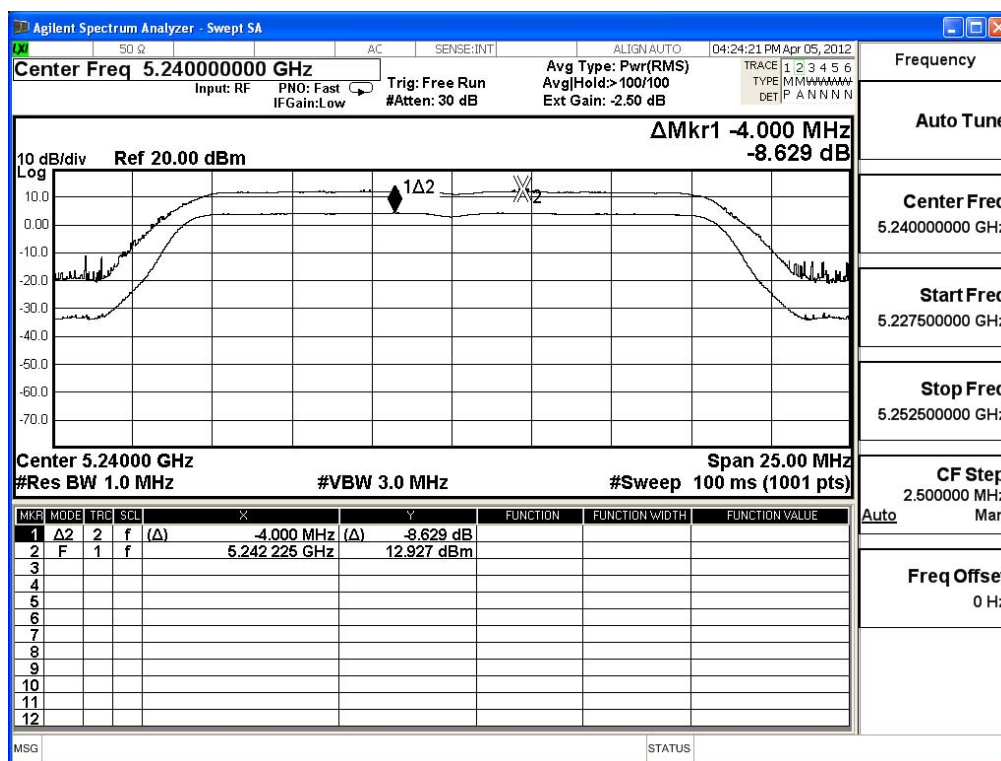


Date: 7.MAR.2012 00:35:08

### Power Excursion – Channel 44



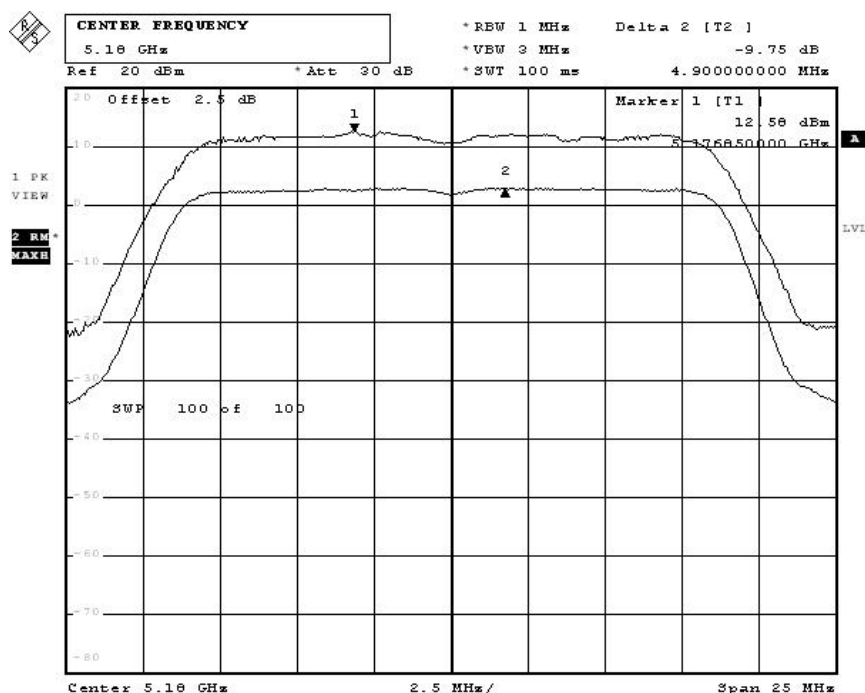
## Power Excursion – Channel 48



Product	Wireless Extender		
Test Item	Peak Excursion		
Test Mode	Mode 1: Transmit		
Date of Test	2012/04/05	Test Site	SR7

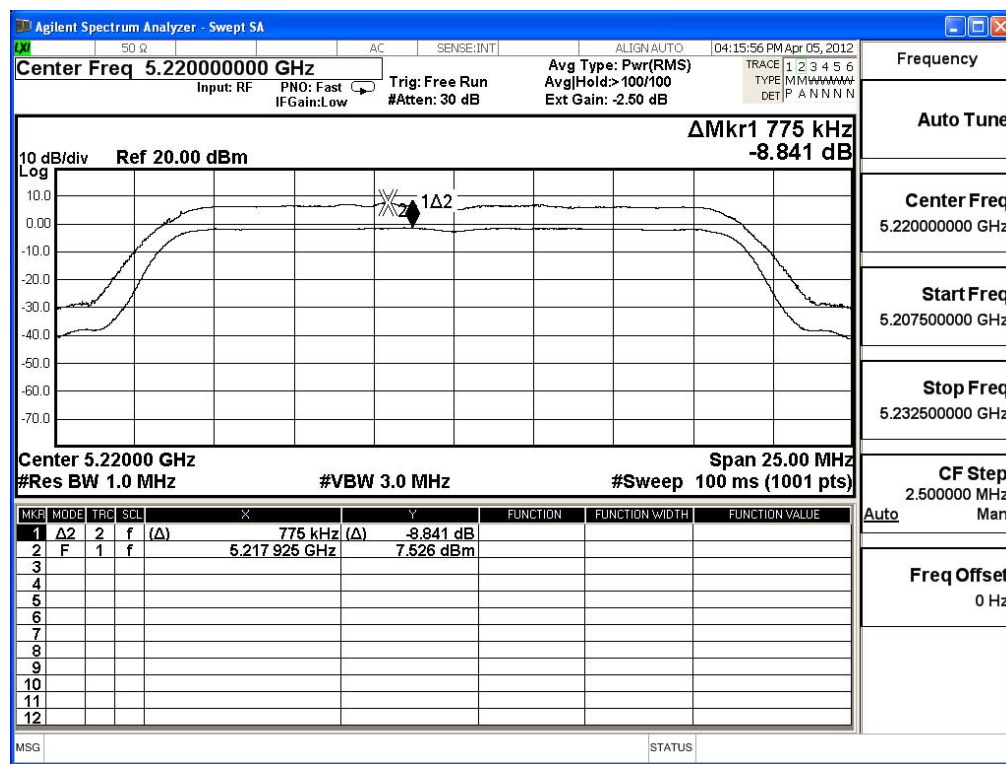
IEEE 802.11n (20MHz), (ANT 0)				
Channel No.	Frequency (MHz)	Measure Level (dB)	Required Limit (dB)	Result
36	5180	9.750	$\leq 13$	Pass
44	5220	8.841	$\leq 13$	Pass
48	5240	8.987	$\leq 13$	Pass

### Power Excursion – Channel 36

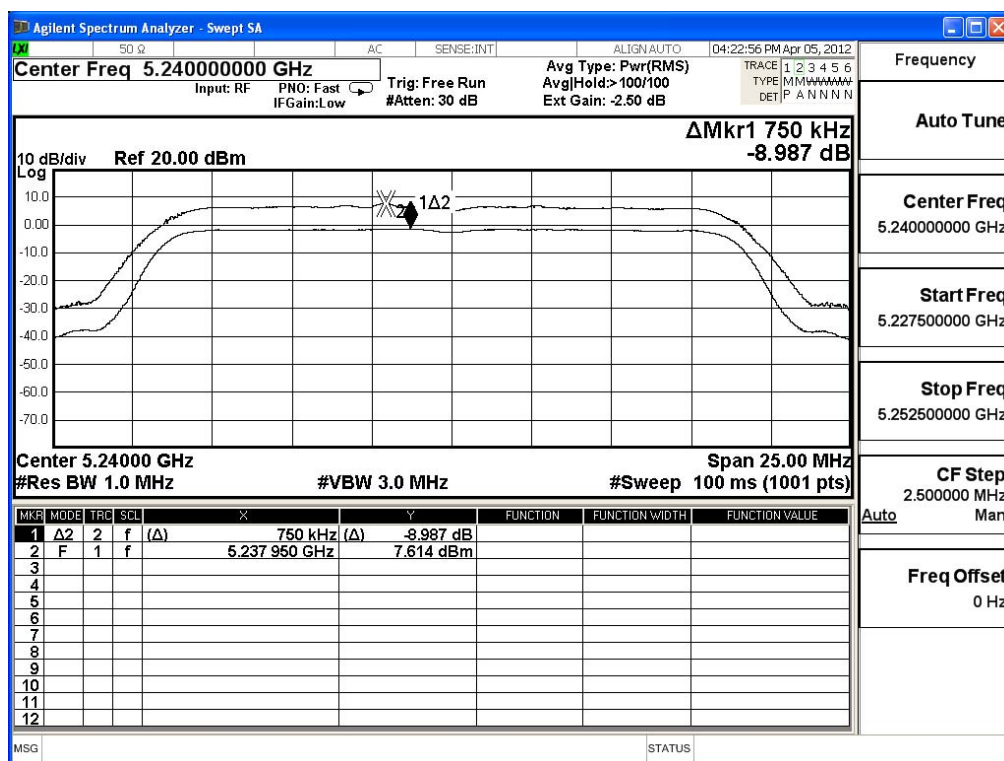


Date: 7.MAR.2012 00:51:33

### Power Excursion – Channel 44



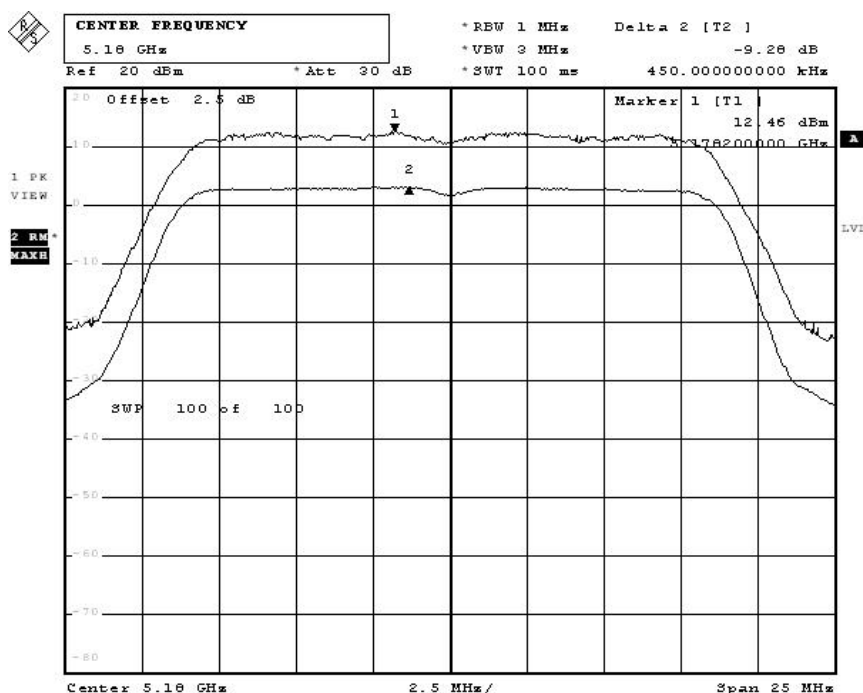
## Power Excursion – Channel 48



Product	Wireless Extender		
Test Item	Peak Excursion		
Test Mode	Mode 1: Transmit		
Date of Test	2012/04/05	Test Site	SR7

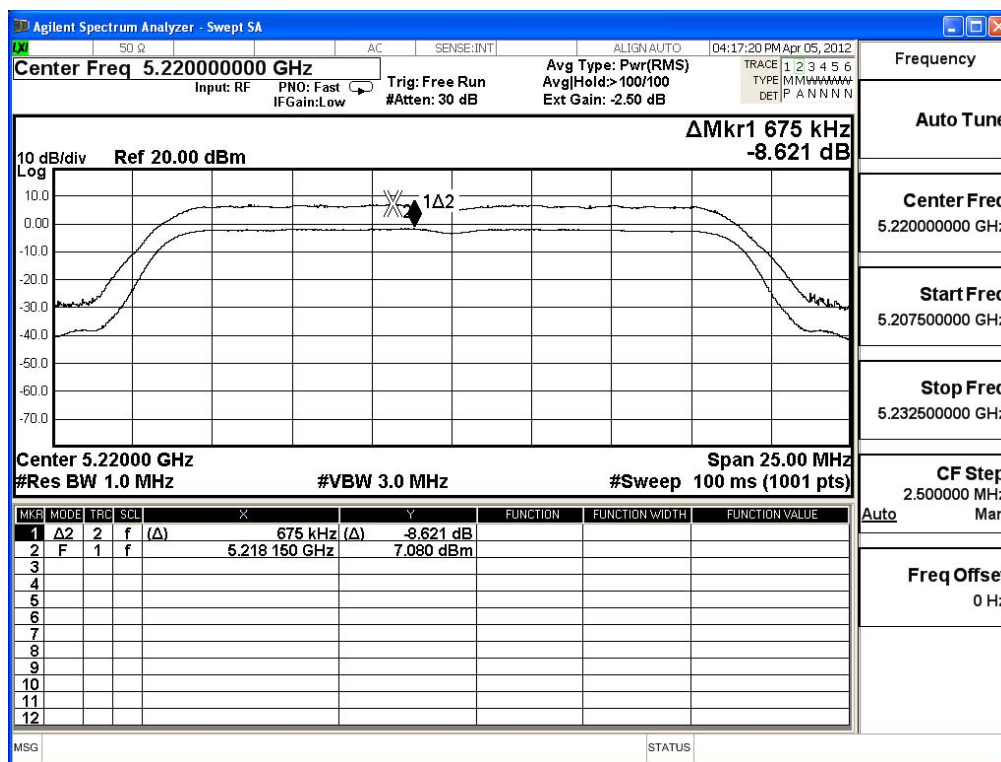
IEEE 802.11n (20MHz), (ANT 1)				
Channel No.	Frequency (MHz)	Measure Level (dB)	Required Limit (dB)	Result
36	5180	9.280	$\leq 13$	Pass
44	5220	8.621	$\leq 13$	Pass
48	5240	8.625	$\leq 13$	Pass

### Power Excursion – Channel 36

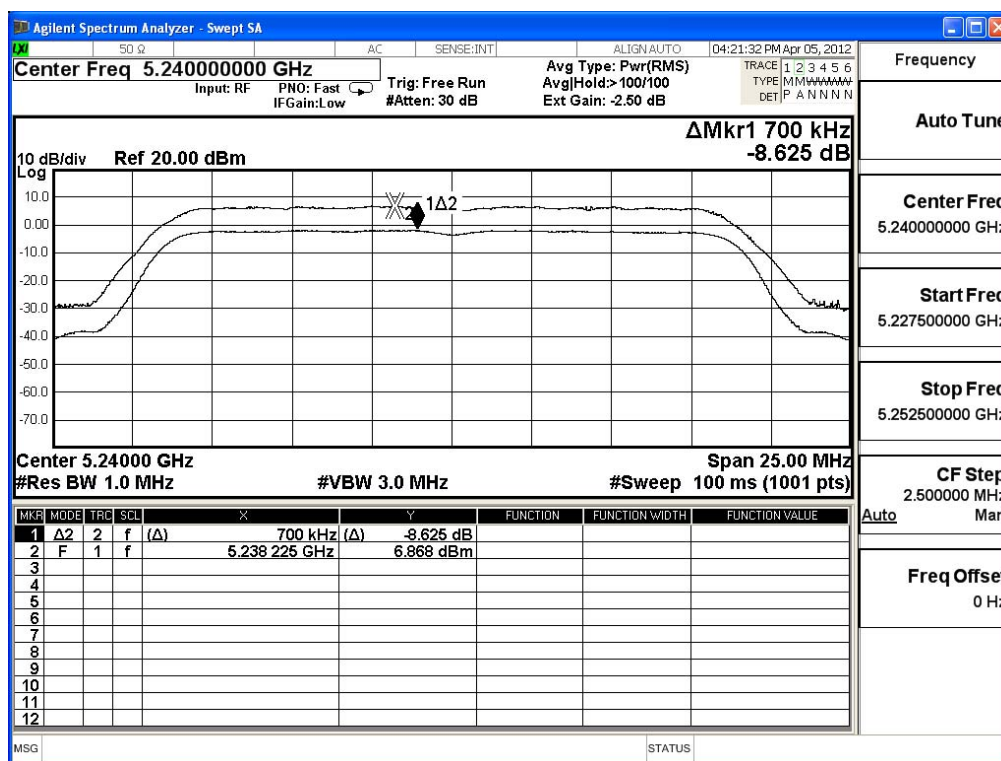


Date: 7.MAR.2012 00:53:27

### Power Excursion – Channel 44



## Power Excursion – Channel 48

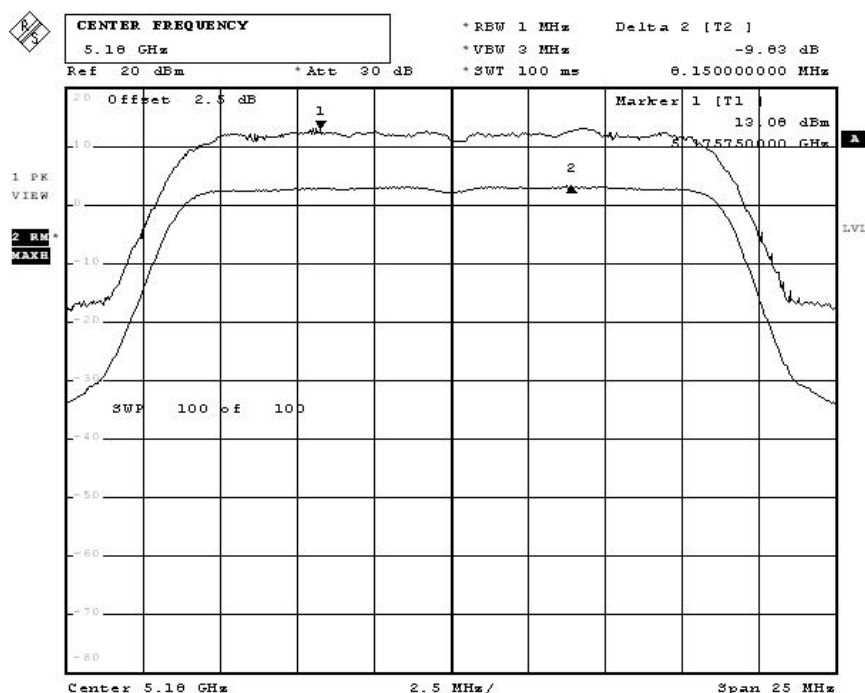




Product	Wireless Extender		
Test Item	Peak Excursion		
Test Mode	Mode 1: Transmit		
Date of Test	2012/04/05	Test Site	SR7

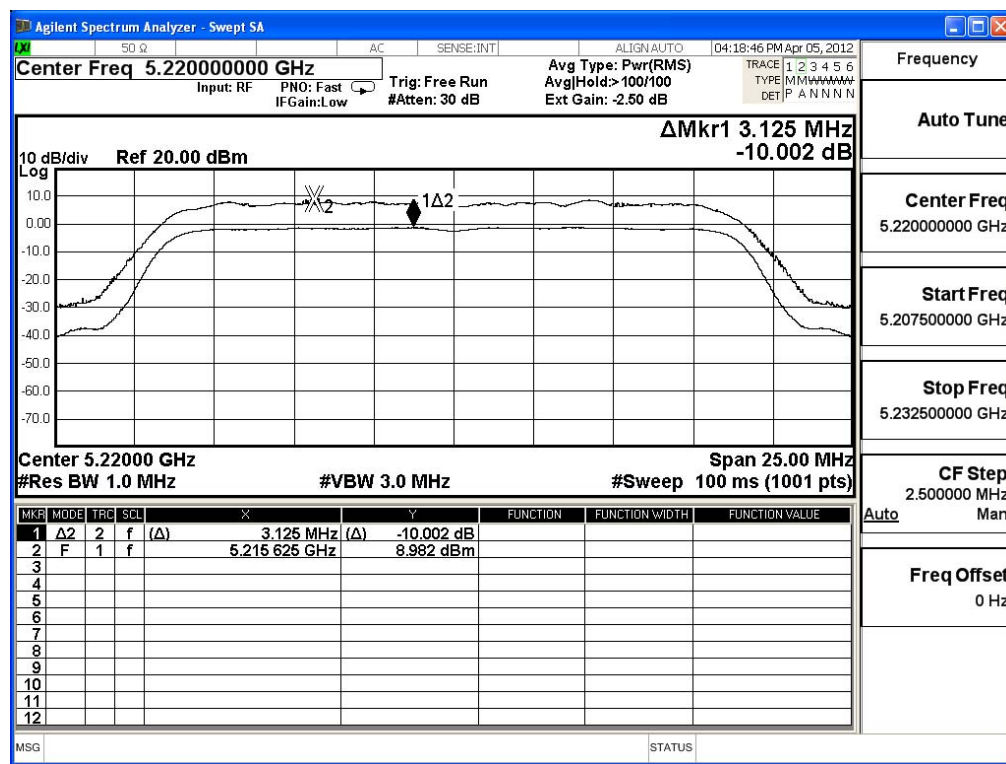
IEEE 802.11n (20MHz), (ANT 2)				
Channel No.	Frequency (MHz)	Measure Level (dB)	Required Limit (dB)	Result
36	5180	9.830	$\leq 13$	Pass
44	5220	10.002	$\leq 13$	Pass
48	5240	10.208	$\leq 13$	Pass

### Power Excursion – Channel 36

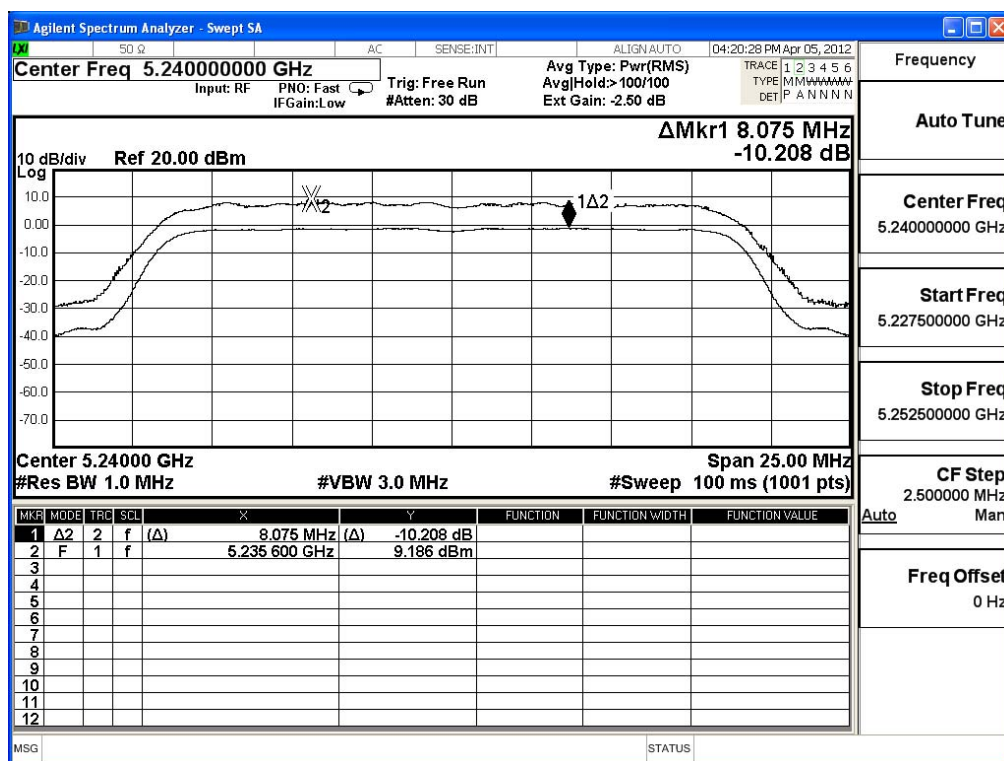


Date: 7.MAR.2012 00:54:59

### Power Excursion – Channel 44



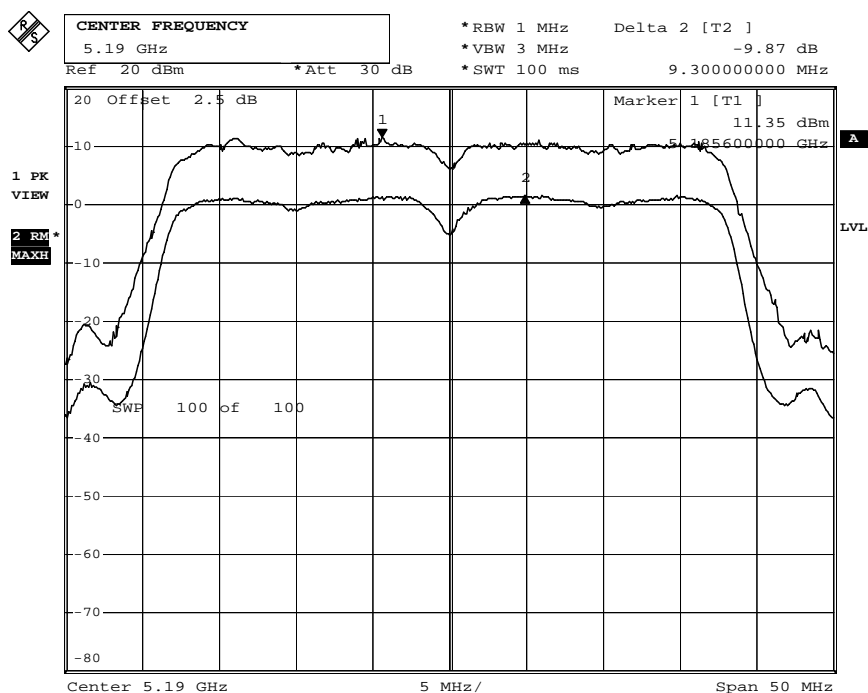
## Power Excursion – Channel 48



Product	Wireless Extender		
Test Item	Peak Excursion		
Test Mode	Mode 1: Transmit		
Date of Test	2012/04/05	Test Site	SR7

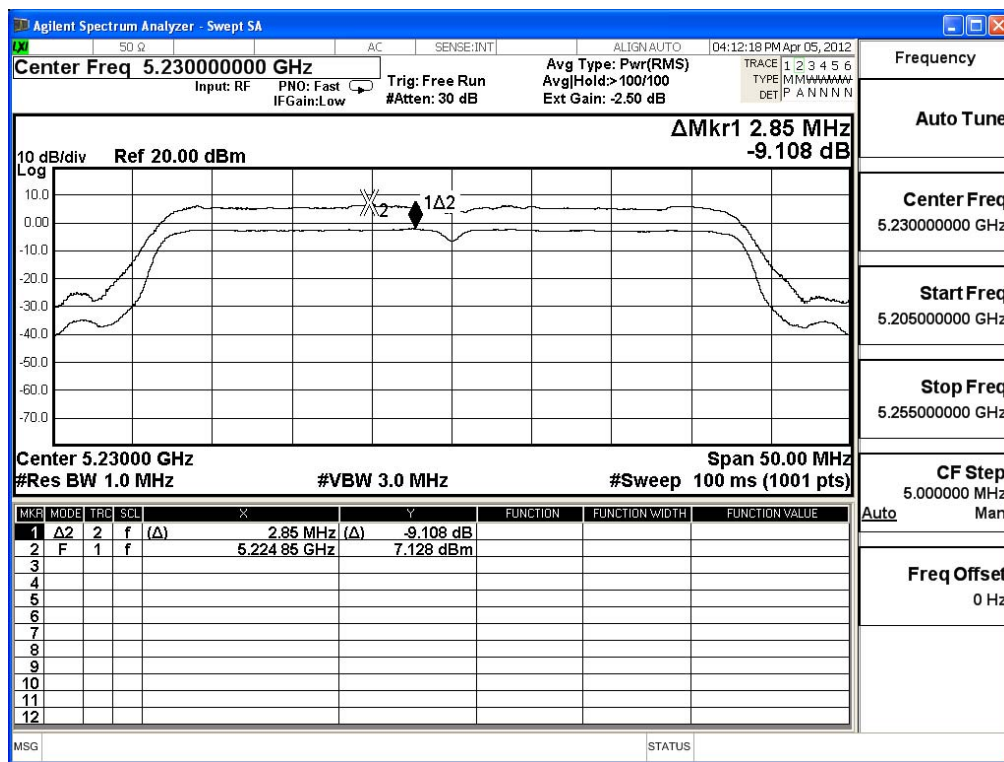
IEEE 802.11n (40MHz), (ANT 0)				
Channel No.	Frequency (MHz)	Measure Level (dB)	Required Limit (dB)	Result
38	5190	9.870	$\leq 13$	Pass
46	5230	9.108	$\leq 13$	Pass

### Power Excursion – Channel 38



Date: 7.MAR.2012 01:08:09

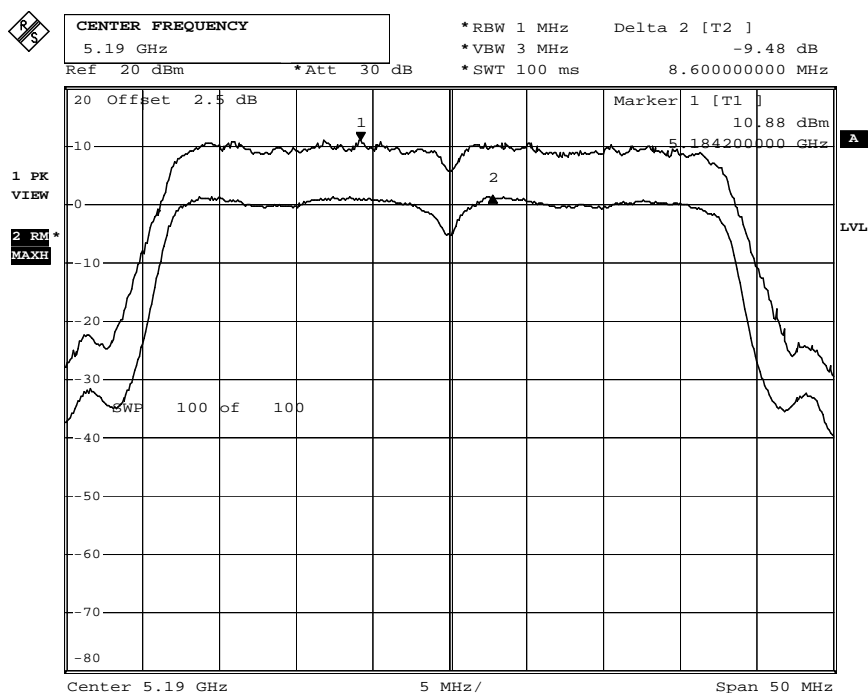
### Power Excursion – Channel 46



Product	Wireless Extender		
Test Item	Peak Excursion		
Test Mode	Mode 1: Transmit		
Date of Test	2012/04/05	Test Site	SR7

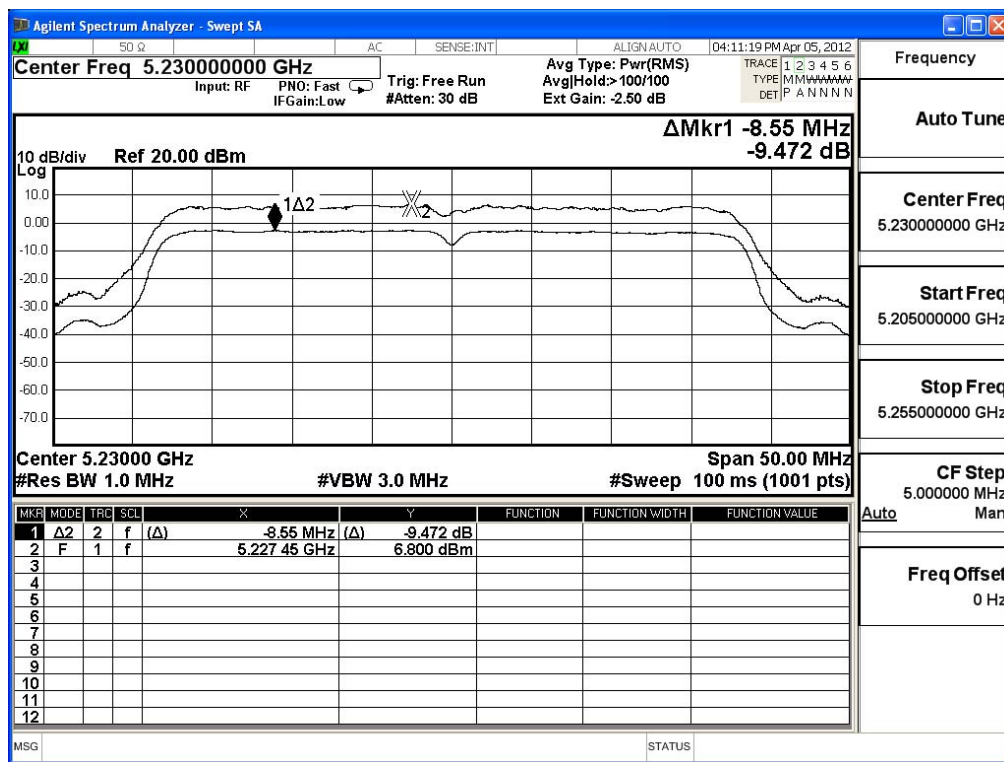
IEEE 802.11n (40MHz), (ANT 1)				
Channel No.	Frequency (MHz)	Measure Level (dB)	Required Limit (dB)	Result
38	5190	9.480	$\leq 13$	Pass
46	5230	9.472	$\leq 13$	Pass

### Power Excursion – Channel 38



Date: 7.MAR.2012 01:09:25

### Power Excursion – Channel 46

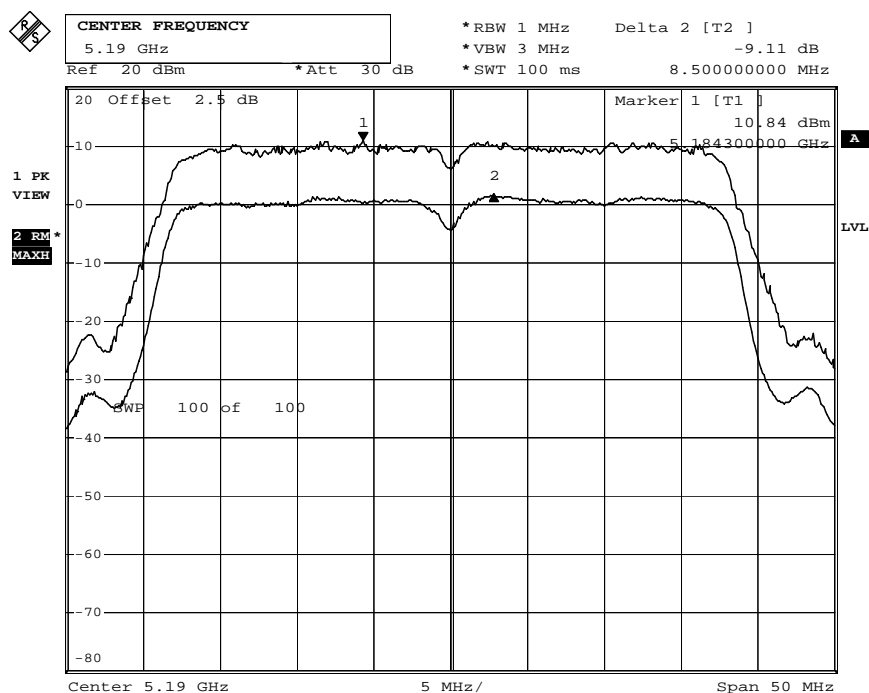


Product	Wireless Extender		
Test Item	Peak Excursion		
Test Mode	Mode 1: Transmit		
Date of Test	2012/04/05	Test Site	SR7

IEEE 802.11n (40MHz), (ANT 2)				
Channel No.	Frequency (MHz)	Measure Level (dB)	Required Limit (dB)	Result
38	5190	9.110	$\leq 13$	Pass
46	5230	9.470	$\leq 13$	Pass

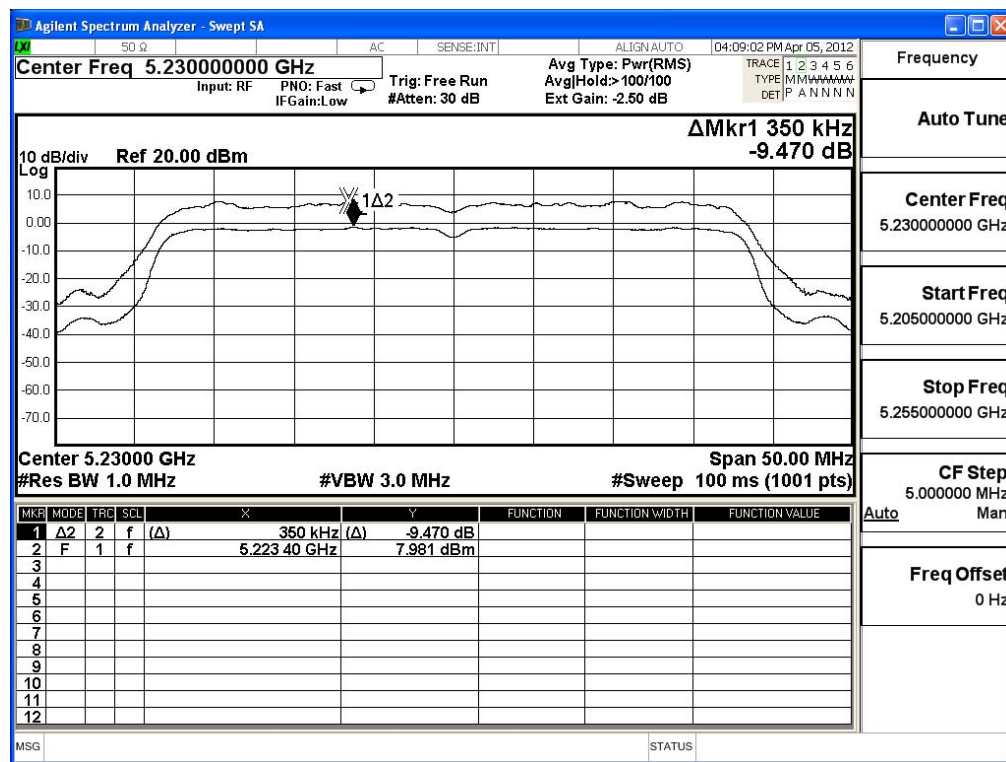


### Power Excursion – Channel 38



Date: 7.MAR.2012 01:10:24

### Power Excursion – Channel 46



## 7. Radiated Emission

### 7.1. Test Equipment

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

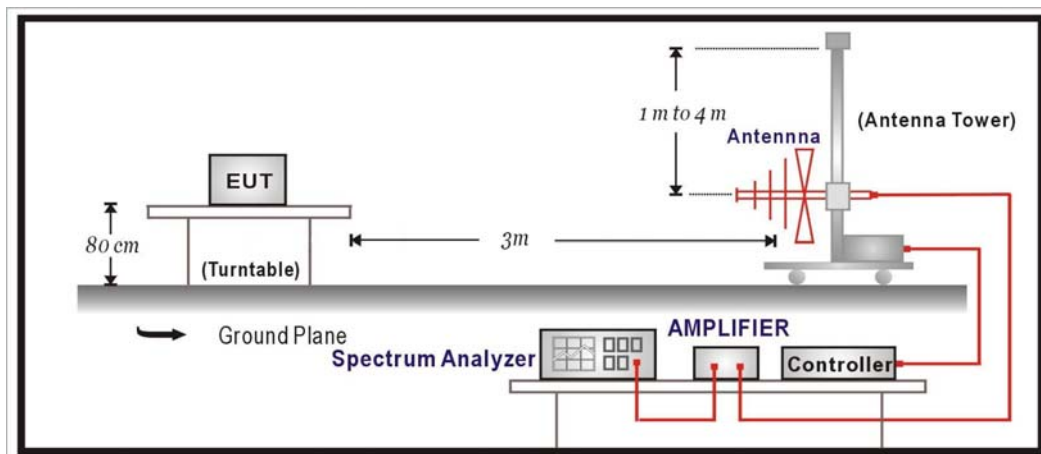
#### Radiated Emission / CB1

Instrument	Manufacturer	Model No.	Serial No	Next Cal. Date
Bilog Antenna	SCHAFFNER	CBL6112B	2895	2012/08/14
Double Ridged Guide Horn Antenna	Schwarzback	BBHA 9120D	743	2013/02/02
Pre-Amplifier	MITEQ	AMF-4D-005180-24-10P	888003	2012/12/05
Pre-Amplifier	QuieTek	AP-025C	CHM-0706049	2013/02/02
Spectrum Analyzer	Agilent	E4440A	MY46187335	2013/02/07
Coaxial Cable	Huber+Suhner AG	Sucoflex 102	25623/2	2013/03/04

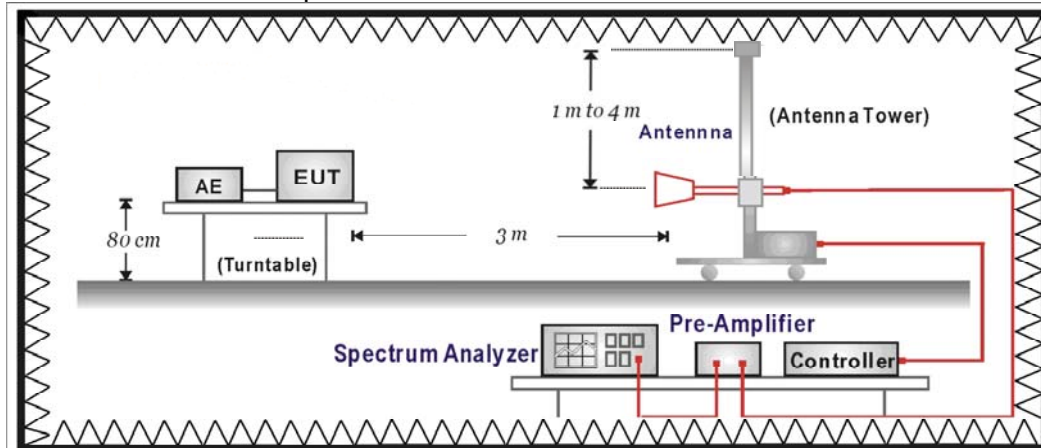
Note: 1. All equipments that need to calibrate are with calibration period of 1 year.

### 7.2. Test Setup

Under 1GHz Test Setup:



Above 1GHz Test Setup:



### 7.3. Limits

#### ➤ General Radiated Emission Limits

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

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

Remark:

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

#### ➤ Unwanted Emission out of the restricted bands Limits

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

Remark:

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

#### 7.4. Test Procedure

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

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

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

The additional latch filter below 1GHz was used to measure the level of harmonics radiated emission during field 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

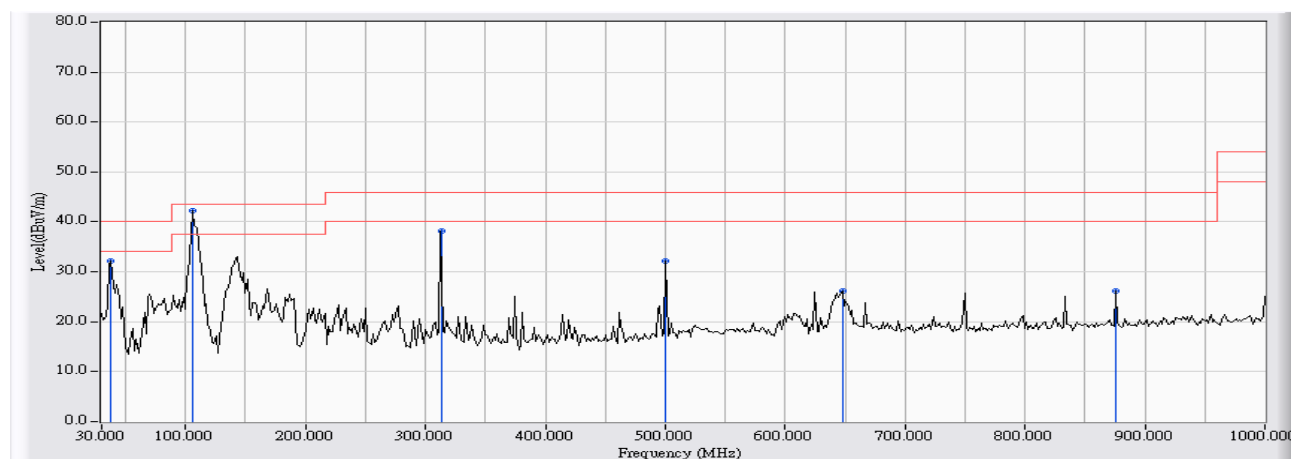
30MHz~1GHz as  $\pm 3.43\text{dB}$

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

## 7.6. Test Result

### 30MHz-1GHz Spurious

Site : CB1	Time : 2012/04/06 - 13:00
Limit : FCC_CLASS_B_03M_QP	Margin : 6
Probe : CB1_FCC_EFS_30-1G-1_0901 - HORIZONTAL	Power : AC 120V/60Hz
EUT : Wireless Extender	Note : TX_802.11a_5220MHz

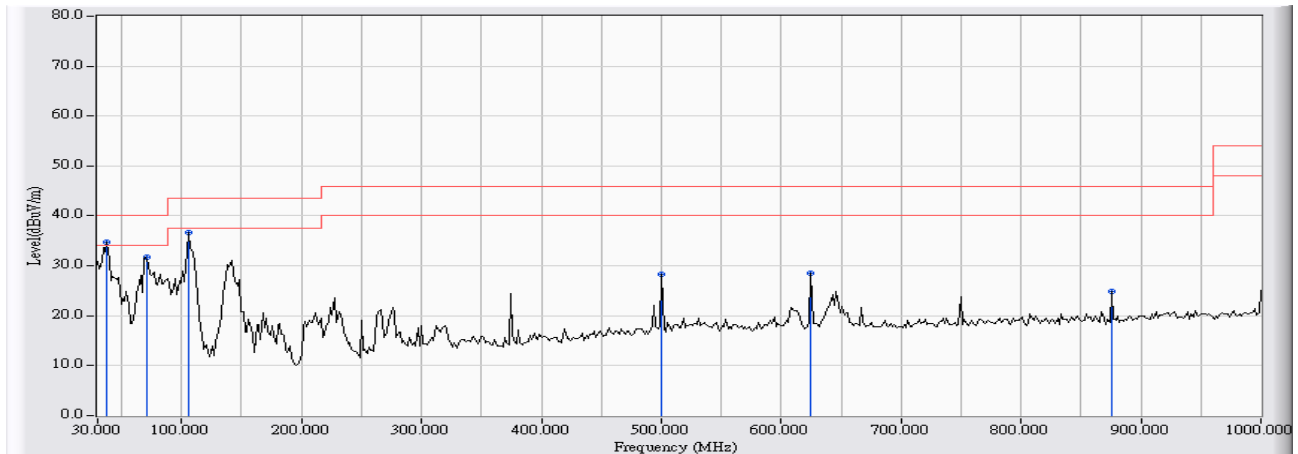


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		38.083	-11.772	43.859	32.088	-7.912	40.000	QUASIPeAK
2	*	105.983	-13.004	55.251	42.247	-1.253	43.500	QUASIPeAK
3		312.917	-9.896	48.168	38.272	-7.728	46.000	QUASIPeAK
4		500.450	-5.372	37.499	32.128	-13.872	46.000	QUASIPeAK
5		647.567	-4.095	30.210	26.115	-19.885	46.000	QUASIPeAK
6		875.517	-2.164	28.240	26.076	-19.924	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 : 2012/04/06 - 13:06
Limit : FCC CLASS B_03M_QP	Margin : 6
Probe : CB1_FCC_EFS_30-1G-1_0901 - VERTICAL	Power : AC 120V/60Hz
EUT : Wireless Extender	Note : TX_802.11a_5220MHz

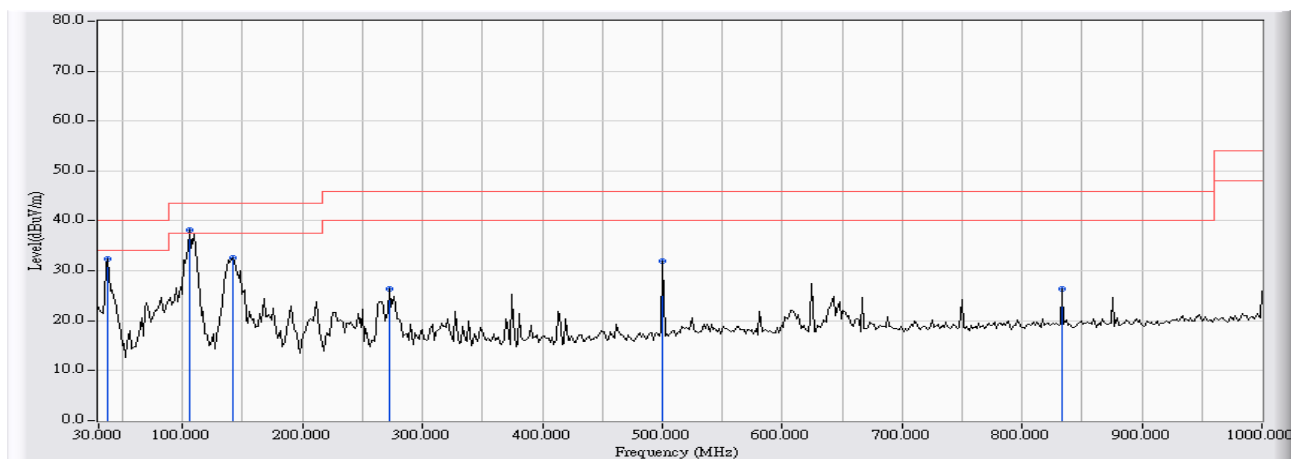


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	38.083	-11.772	46.457	34.686	-5.314	40.000	QUASIPeAK
2		70.417	-17.720	49.467	31.747	-8.253	40.000	QUASIPeAK
3		105.983	-13.004	49.672	36.668	-6.832	43.500	QUASIPeAK
4		500.450	-5.372	33.759	28.388	-17.612	46.000	QUASIPeAK
5		624.933	-4.207	32.727	28.520	-17.480	46.000	QUASIPeAK
6		875.517	-2.164	27.149	24.985	-21.015	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 : 2012/04/06 - 13:13
Limit : FCC CLASS B_03M_QP	Margin : 6
Probe : CB1_FCC_EFS_30-1G-1_0901 - HORIZONTAL	Power : AC 120V/60Hz
EUT : Wireless Extender	Note : TX_802.11n(20M)_5220MHz

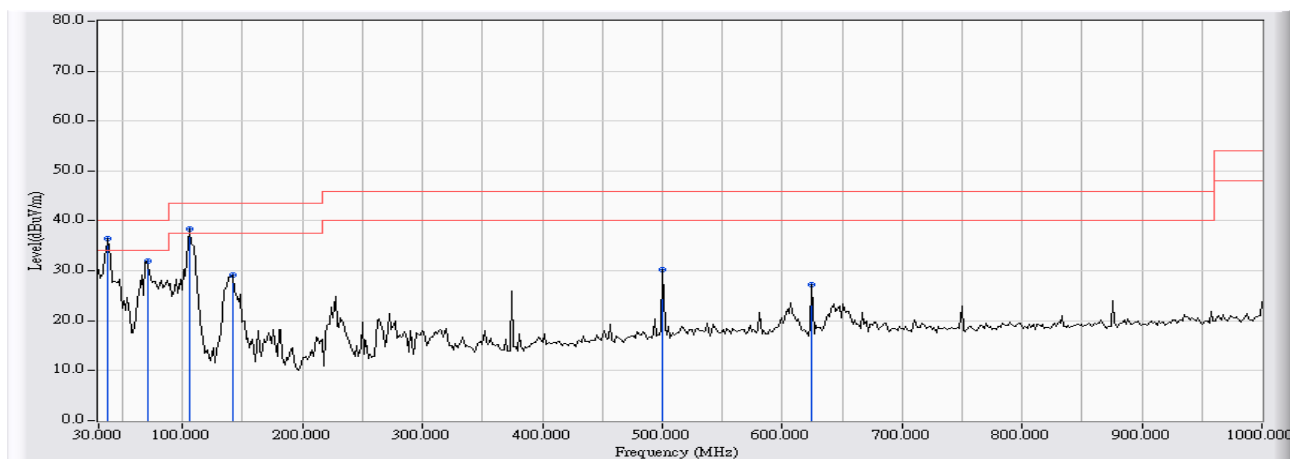


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		38.083	-11.772	44.140	32.369	-7.631	40.000	QUASIPeAK
2	*	105.983	-13.004	51.149	38.145	-5.355	43.500	QUASIPeAK
3		141.550	-13.023	45.693	32.669	-10.831	43.500	QUASIPeAK
4		272.500	-10.709	37.024	26.315	-19.685	46.000	QUASIPeAK
5		500.450	-5.372	37.413	32.042	-13.958	46.000	QUASIPeAK
6		833.483	-2.431	28.868	26.437	-19.563	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 : 2012/04/06 - 13:17
Limit : FCC CLASS B_03M_QP	Margin : 6
Probe : CB1_FCC_EFS_30-1G-1_0901 - VERTICAL	Power : AC 120V/60Hz
EUT : Wireless Extender	Note : TX_802.11n(20M)_52200MHz



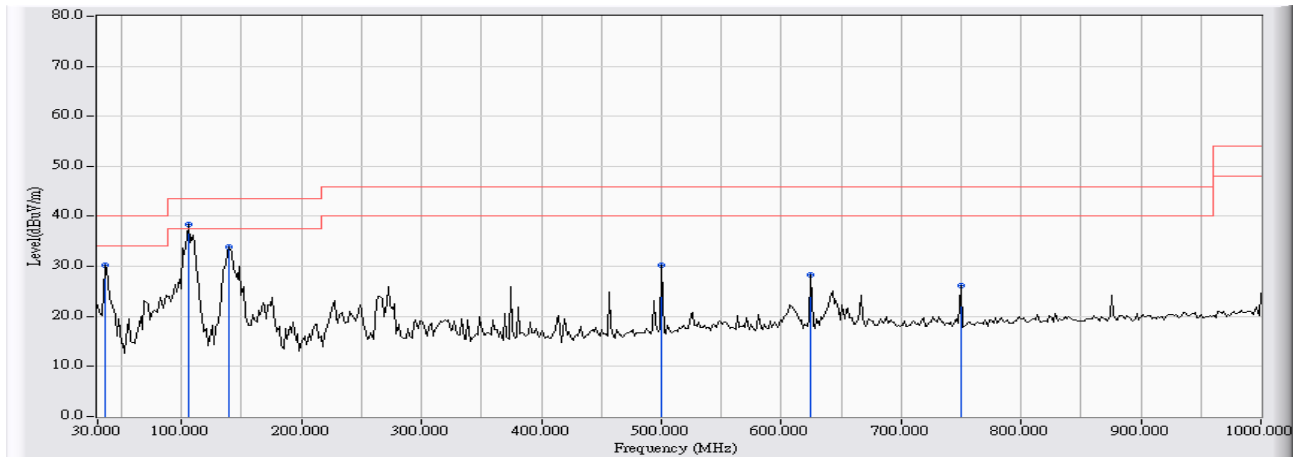
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	38.083	-11.772	48.130	36.359	-3.641	40.000	QUASIPeAK
2		70.417	-17.720	49.600	31.880	-8.120	40.000	QUASIPeAK
3		105.983	-13.004	51.380	38.376	-5.124	43.500	QUASIPeAK
4		141.550	-13.023	42.187	29.163	-14.337	43.500	QUASIPeAK
5		500.450	-5.372	35.542	30.171	-15.829	46.000	QUASIPeAK
6		624.933	-4.207	31.542	27.335	-18.665	46.000	QUASIPeAK

## Note:

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



Site : CB1	Time : 2012/04/06 - 13:24
Limit : FCC CLASS B_03M_QP	Margin : 6
Probe : CB1_FCC_EFS_30-1G-1_0901 - HORIZONTAL	Power : AC 120V/60Hz
EUT : Wireless Extender	Note : TX_802.11n(40M)_5230MHz

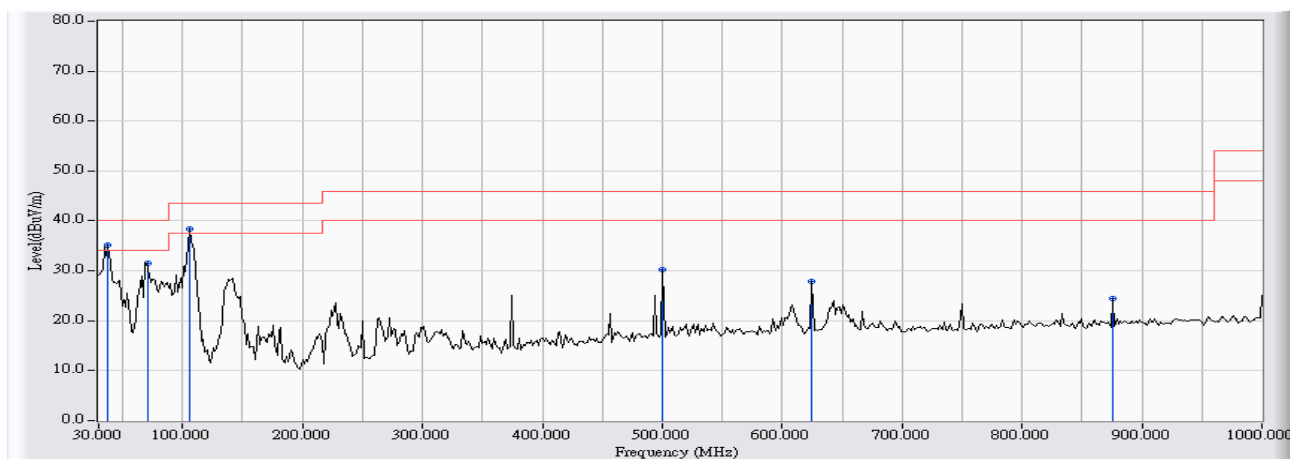


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		36.467	-11.275	41.467	30.192	-9.808	40.000	QUASIPeAK
2	*	105.983	-13.004	51.318	38.314	-5.186	43.500	QUASIPeAK
3		139.933	-12.941	46.796	33.856	-9.644	43.500	QUASIPeAK
4		500.450	-5.372	35.579	30.208	-15.792	46.000	QUASIPeAK
5		624.933	-4.207	32.509	28.302	-17.698	46.000	QUASIPeAK
6		749.417	-3.297	29.448	26.152	-19.848	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 : 2012/04/06 - 13:29
Limit : FCC CLASS B_03M_QP	Margin : 6
Probe : CB1_FCC_EFS_30-1G-1_0901 - VERTICAL	Power : AC 120V/60Hz
EUT : Wireless Extender	Note : TX_802.11n(40M)_5230MHz



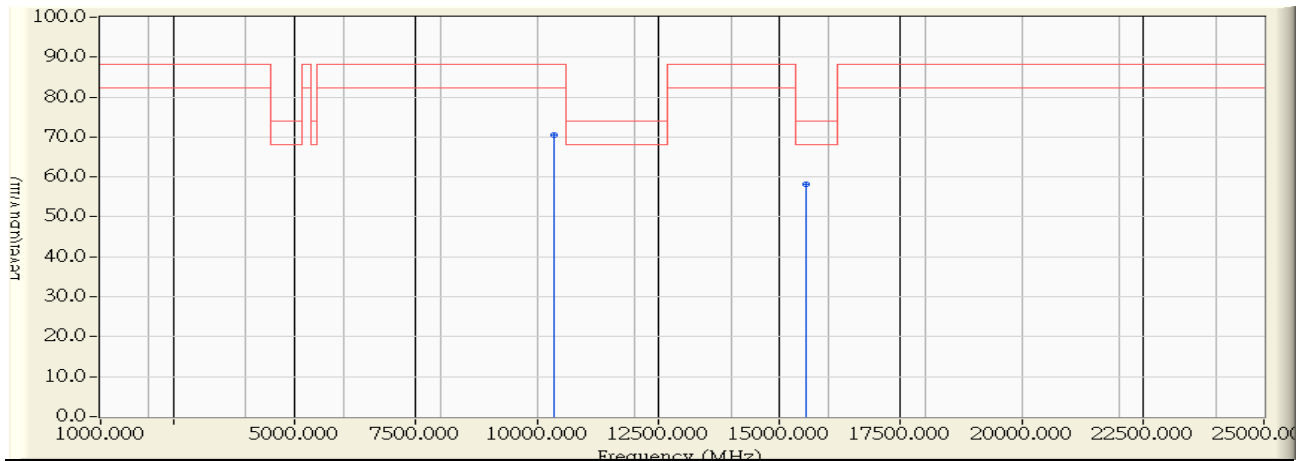
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	38.083	-11.772	46.945	35.174	-4.826	40.000	QUASIPeAK
2		70.417	-17.720	49.268	31.548	-8.452	40.000	QUASIPeAK
3		105.983	-13.004	51.426	38.422	-5.078	43.500	QUASIPeAK
4		500.450	-5.372	35.639	30.268	-15.732	46.000	QUASIPeAK
5		624.933	-4.207	32.039	27.832	-18.168	46.000	QUASIPeAK
6		875.517	-2.164	26.538	24.374	-21.626	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 : 2012/04/07 - 11:10
Limit : FCC_SpartE_15.407_H_03M_PK	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - HORIZONTAL	Power : AC 120V/60Hz
EUT : Wireless Extender	Note : 802.11a_5180MHz

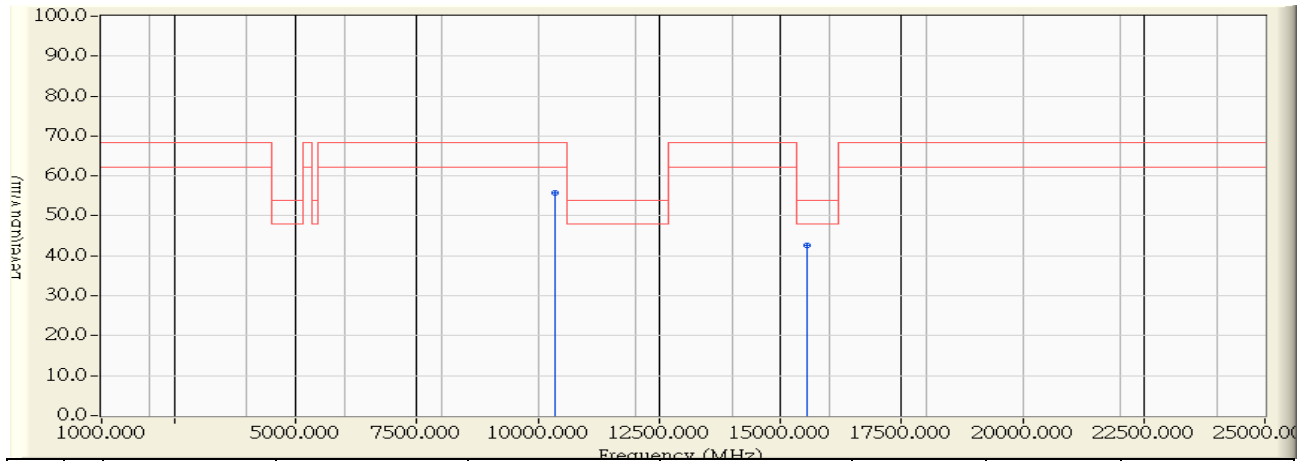


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		10357.900	10.800	59.810	70.610	-17.690	88.300	PEAK
2	*	15540.300	11.403	46.700	58.104	-15.896	74.000	PEAK

### Note:

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
2. " \* ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor.
4. The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.

Site : CB1	Time : 2012/04/07 - 11:13
Limit : FCC_SpartE_15.407_H_03M_AV	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - HORIZONTAL	Power : AC 120V/60Hz
EUT : Wireless Extender	Note : 802.11a_5180MHz

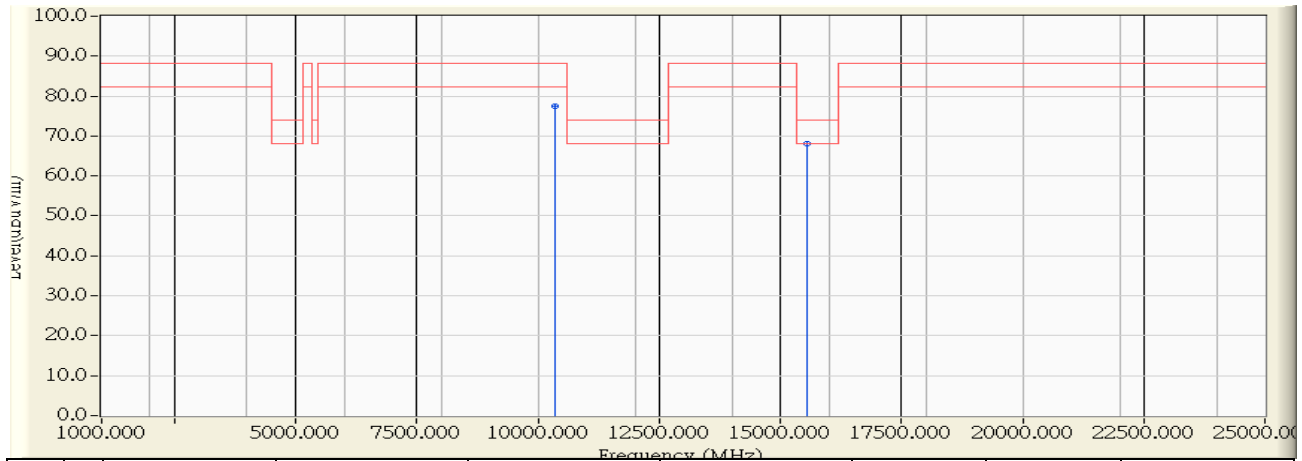


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		10359.800	10.795	45.060	55.854	-12.446	68.300	AVERAGE
2	*	15541.300	11.403	31.290	42.693	-11.307	54.000	AVERAGE

## 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 : 2012/04/07 - 11:21
Limit : FCC_SpartE_15.407_H_03M_PK	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - VERTICAL	Power : AC 120V/60Hz
EUT : Wireless Extender	Note : 802.11a_5180MHz

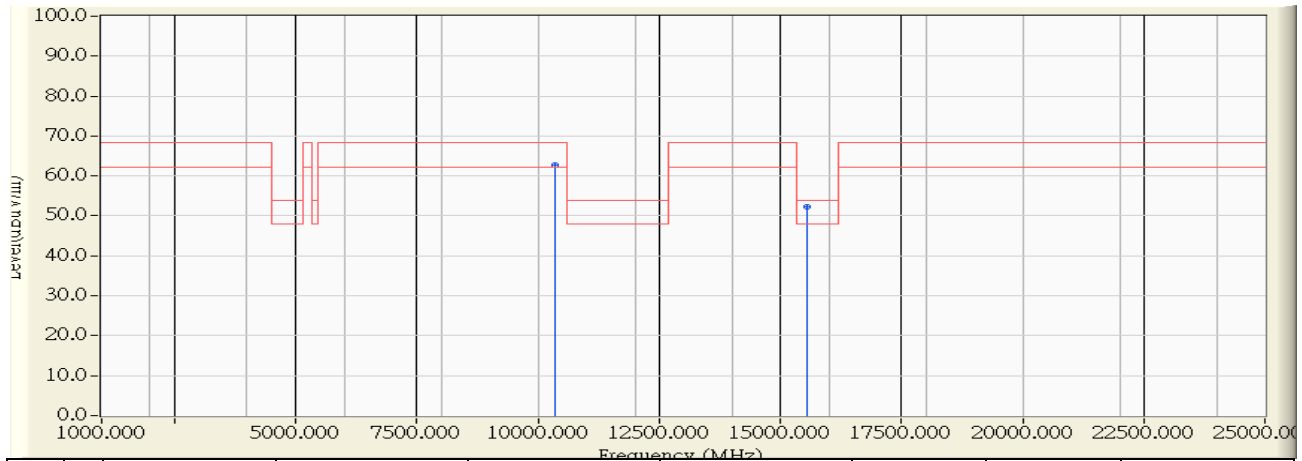


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		10357.800	10.800	66.710	77.510	-10.790	88.300	PEAK
2	*	15542.000	11.402	58.640	70.042	-3.958	74.000	PEAK

## 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 : 2012/04/07 - 11:22
Limit : FCC_SpartE_15.407_H_03M_AV	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - VERTICAL	Power : AC 120V/60Hz
EUT : Wireless Extender	Note : 802.11a_5180MHz

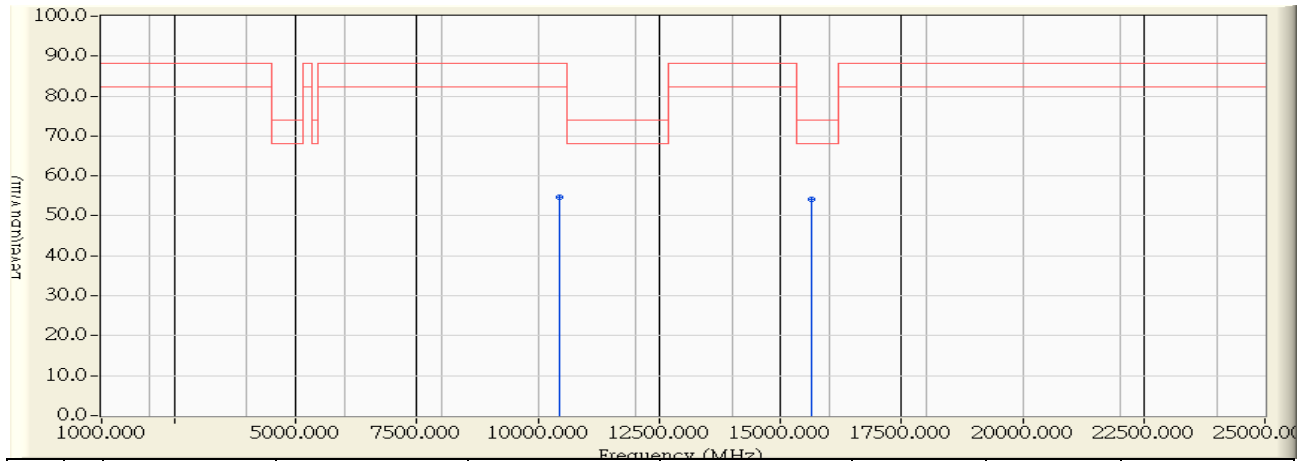


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		10359.900	10.794	51.880	62.674	-5.626	68.300	AVERAGE
2	*	15538.600	11.404	40.920	52.325	-1.675	54.000	AVERAGE

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 : 2012/04/07 - 11:20
Limit : FCC_SpartE_15.407_H_03M_PK	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - HORIZONTAL	Power : AC 120V/60Hz
EUT : Wireless Extender	Note : 802.11a_5220MHz

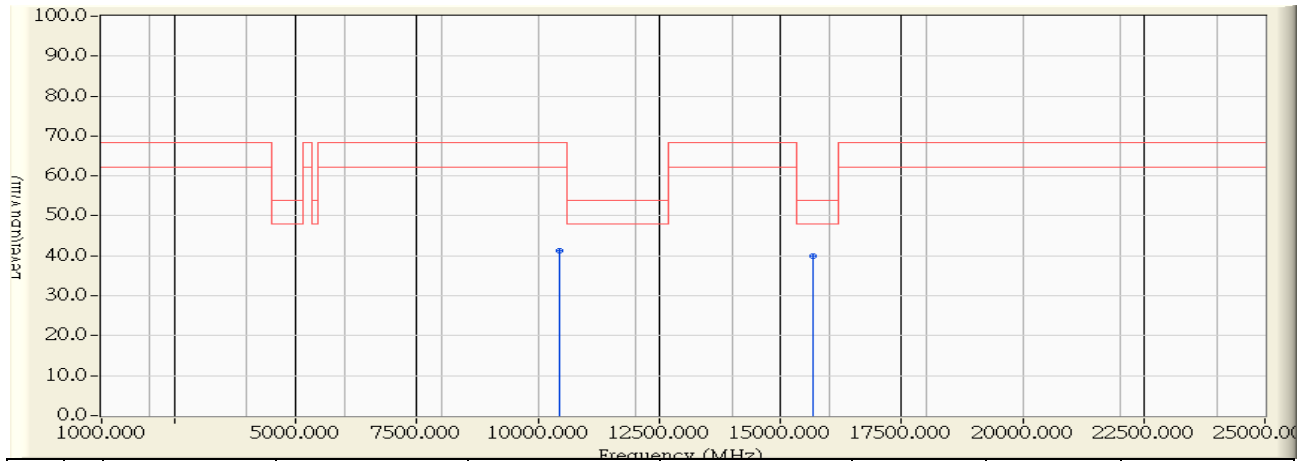


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		10441.900	10.567	44.250	54.818	-33.482	88.300	PEAK
2	*	15658.200	11.323	42.850	54.173	-19.827	74.000	PEAK

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 : 2012/04/07 - 11:21
Limit : FCC_SpartE_15.407_H_03M_AV	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - HORIZONTAL	Power : AC 120V/60Hz
EUT : Wireless Extender	Note : 802.11a_5220MHz



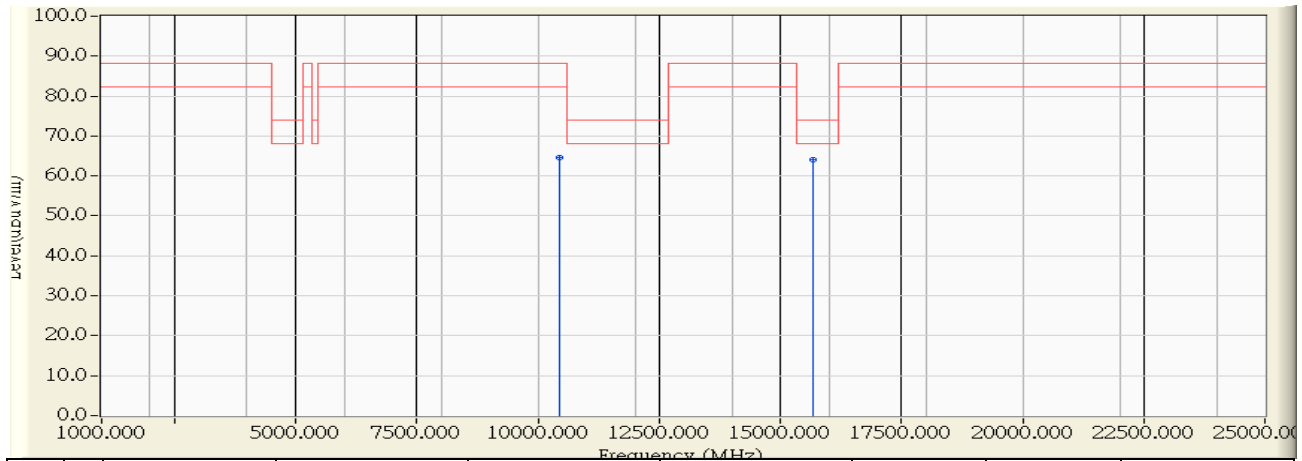
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		10441.600	10.568	30.660	41.229	-27.071	68.300	AVERAGE
2	*	15662.100	11.321	28.560	39.880	-14.120	54.000	AVERAGE

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 : 2012/04/07 - 11:22
Limit : FCC_SpartE_15.407_H_03M_PK	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - VERTICAL	Power : AC 120V/60Hz
EUT : Wireless Extender	Note : 802.11a_5220MHz

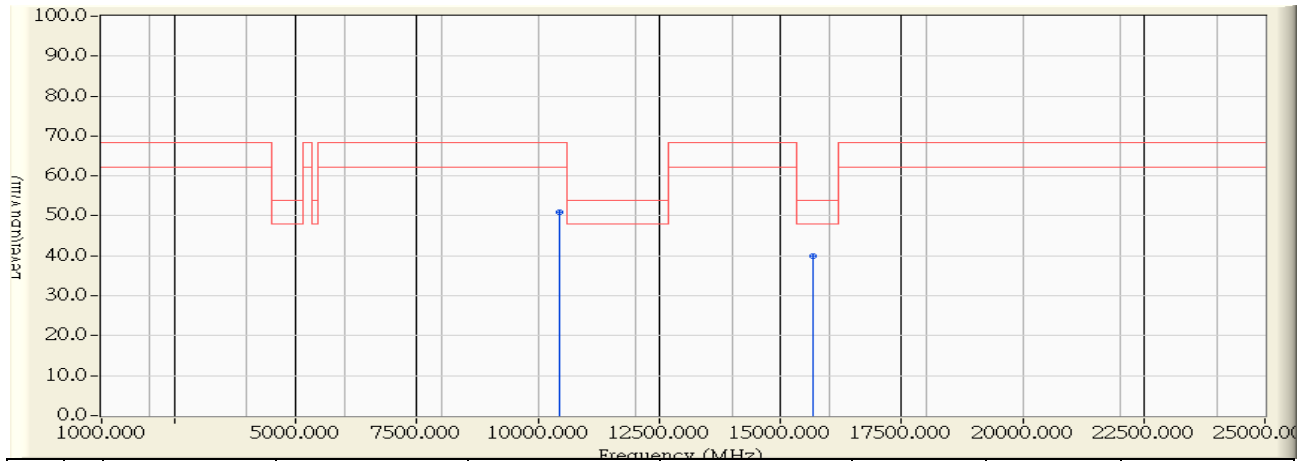


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		10441.700	10.568	54.021	64.589	-23.711	88.300	PEAK
2	*	15663.200	11.319	52.830	64.149	-9.851	74.000	PEAK

**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 : 2012/04/07 - 11:23
Limit : FCC_SpartE_15.407_H_03M_AV	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - VERTICAL	Power : AC 120V/60Hz
EUT : Wireless Extender	Note : 802.11a_5220MHz

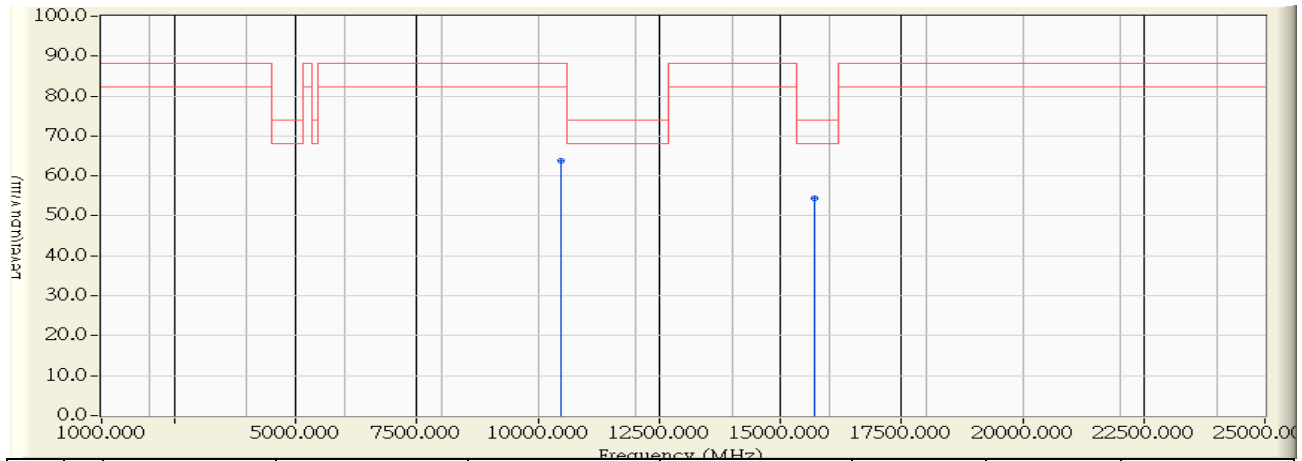


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		10441.200	10.570	40.250	50.820	-17.480	68.300	AVERAGE
2	*	15662.300	11.320	28.540	39.860	-14.140	54.000	AVERAGE

**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 : 2012/04/07 - 11:09
Limit : FCC_SpartE_15.407_H_03M_PK	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - HORIZONTAL	Power : AC 120V/60Hz
EUT : Wireless Extender	Note : 802.11a_5240MHz

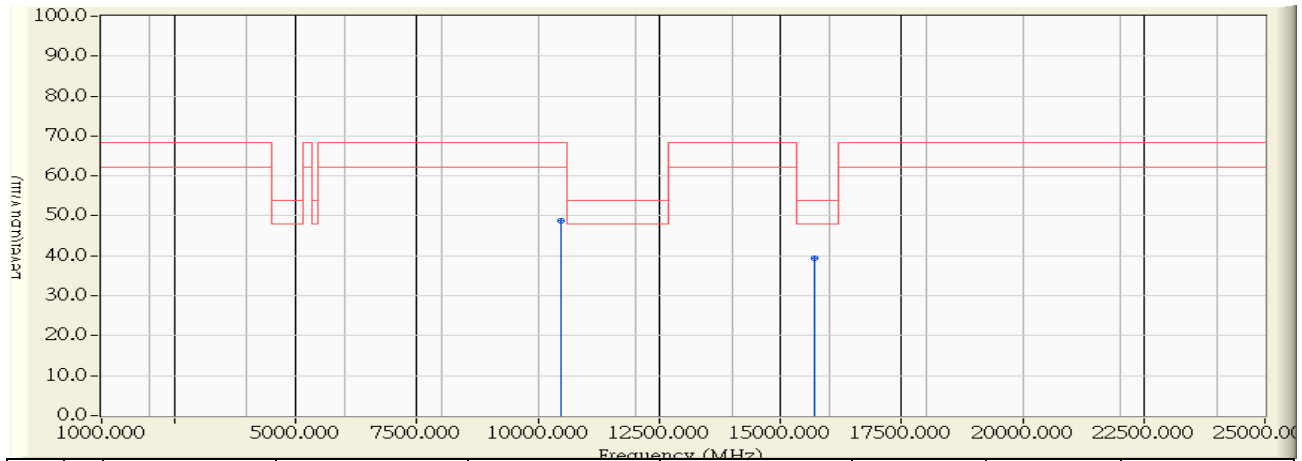


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		10480.300	10.462	53.320	63.782	-24.518	88.300	PEAK
2	*	15712.600	11.286	43.012	54.298	-19.702	74.000	PEAK

**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 : 2012/04/07 - 11:11
Limit : FCC_SpartE_15.407_H_03M_AV	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - HORIZONTAL	Power : AC 120V/60Hz
EUT : Wireless Extender	Note : 802.11a_5240MHz

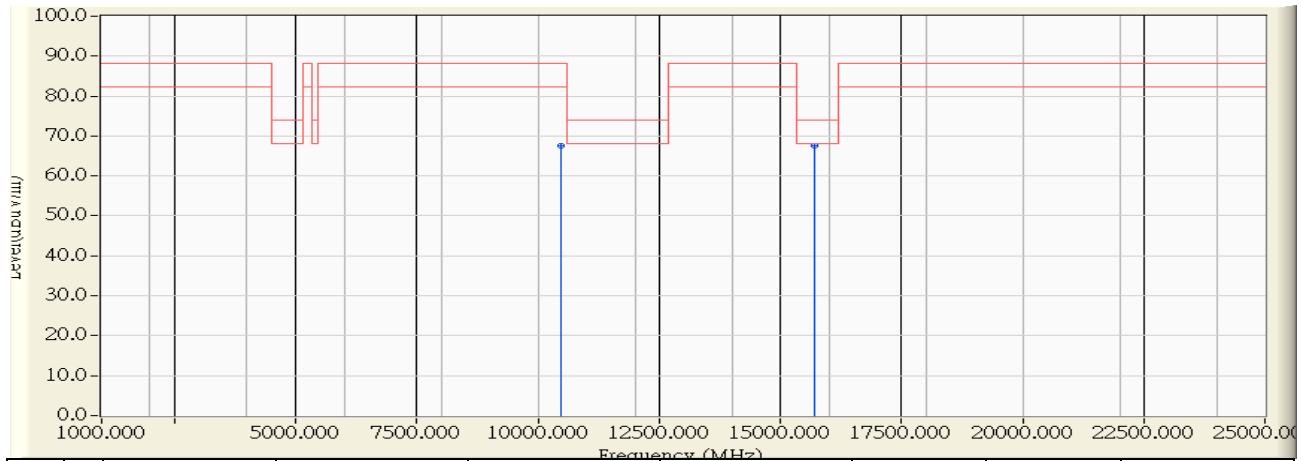


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		10480.200	10.462	38.210	48.672	-19.628	68.300	AVERAGE
2	*	15712.500	11.286	28.240	39.526	-14.474	54.000	AVERAGE

## 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 : 2012/04/07 - 11:14
Limit : FCC_SpartE_15.407_H_03M_PK	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - VERTICAL	Power : AC 120V/60Hz
EUT : Wireless Extender	Note : 802.11a_5240MHz

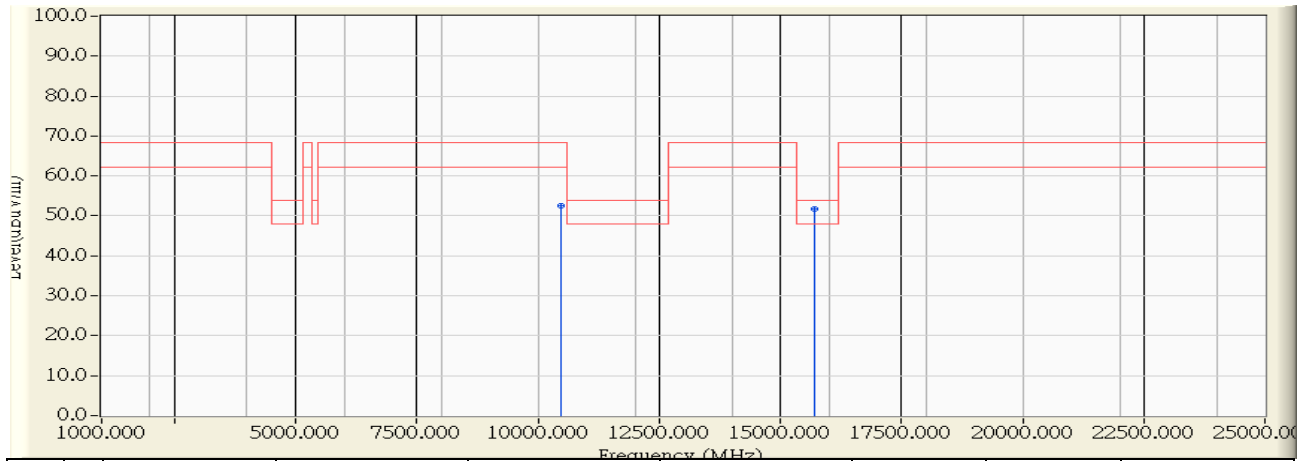


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		10481.500	10.459	57.200	67.658	-20.642	88.300	PEAK
2	*	15711.600	11.286	56.140	67.426	-6.574	74.000	PEAK

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 : 2012/04/07 - 11:18
Limit : FCC_SpartE_15.407_H_03M_AV	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - VERTICAL	Power : AC 120V/60Hz
EUT : Wireless Extender	Note : 802.11a_5240MHz

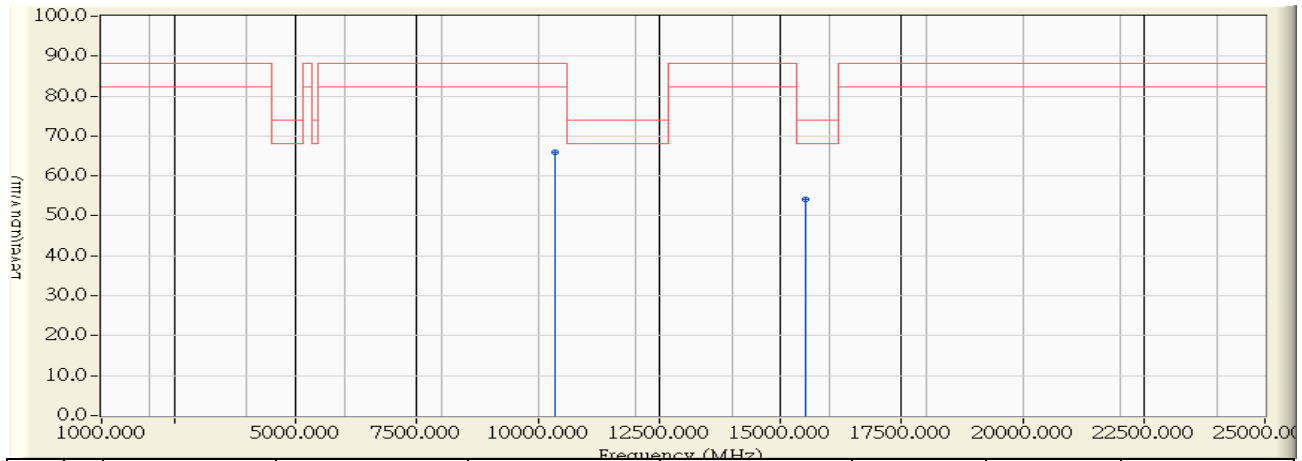


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		10481.500	10.459	42.220	52.678	-15.622	68.300	AVERAGE
2	*	15712.500	11.286	40.370	51.656	-2.344	54.000	AVERAGE

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 : 2012/04/07 - 14:08
Limit : FCC_SpartE_15.407_H_03M_PK	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - HORIZONTAL	Power : AC 120V/60Hz
EUT : Wireless Extender	Note : 802.11n(20M)_5180MHz

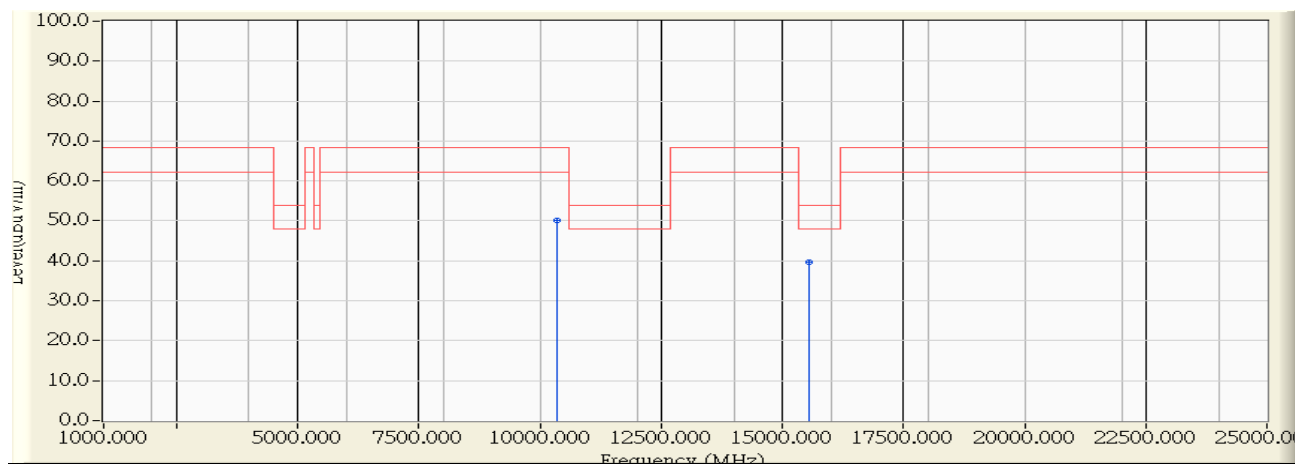


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		10358.800	10.797	55.150	65.947	-22.353	88.300	PEAK
2	*	15527.800	11.412	42.690	54.102	-19.898	74.000	PEAK

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 1MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ \* ”, means this data is the worst emission level.
5. “ # ”, 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 : 2012/04/07 - 14:09
Limit : FCC_SpartE_15.407_H_03M_AV	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - HORIZONTAL	Power : AC 120V/60Hz
EUT : Wireless Extender	Note : 802.11n(20M)_5180MHz



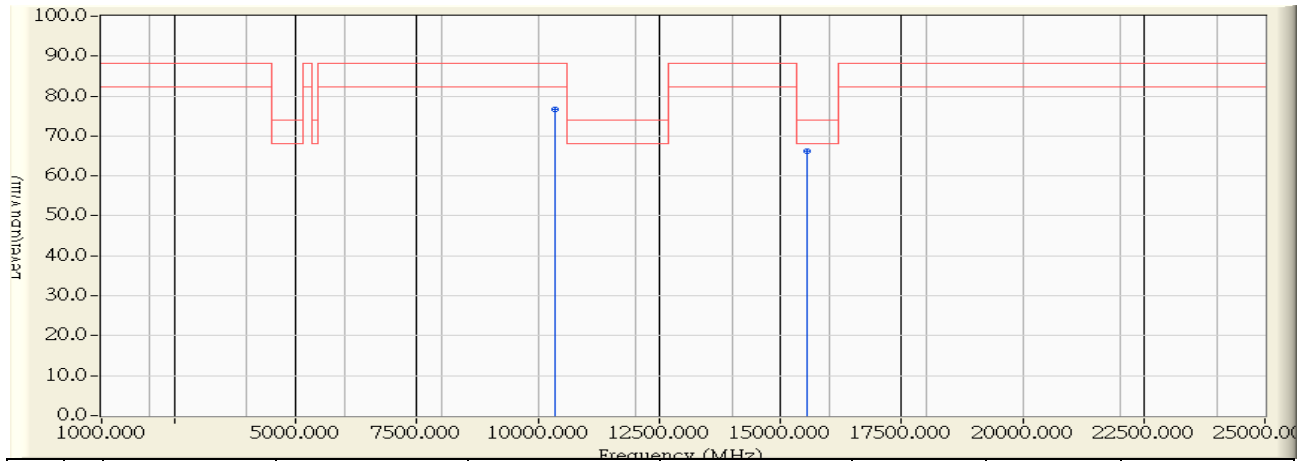
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		10359.000	10.797	39.350	50.147	-18.153	68.300	AVERAGE
2	*	15544.000	11.401	28.320	39.721	-14.279	54.000	AVERAGE

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 : 2012/04/07 - 14:16
Limit : FCC_SpartE_15.407_H_03M_PK	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - VERTICAL	Power : AC 120V/60Hz
EUT : Wireless Extender	Note : 802.11n(20M)_5180MHz

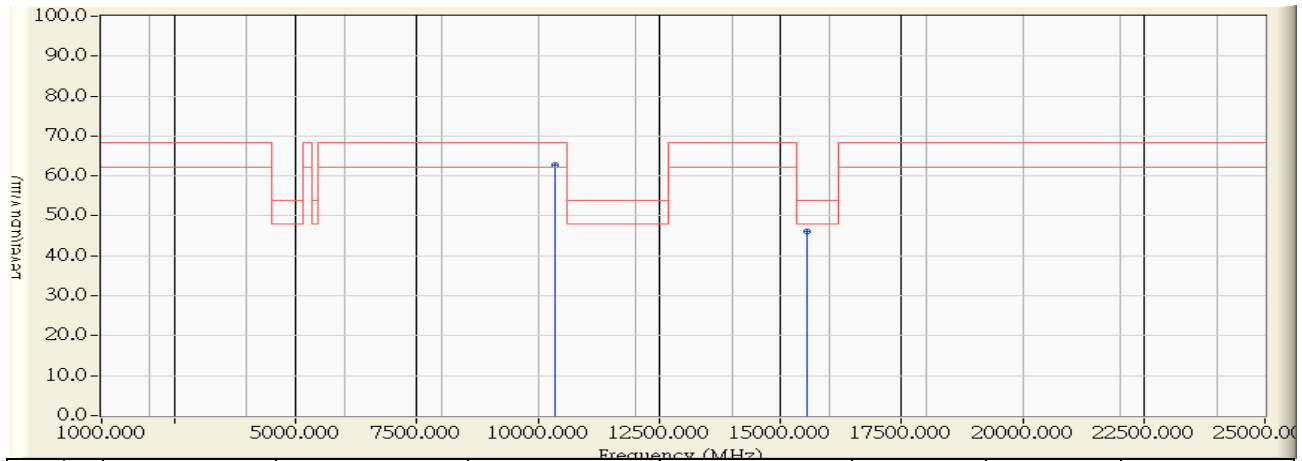


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		10358.600	10.798	65.990	76.788	-11.512	88.300	PEAK
2	*	15539.700	11.405	54.920	66.324	-7.676	74.000	PEAK

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 : 2012/04/07 - 14:17
Limit : FCC_SpartE_15.407_H_03M_AV	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - VERTICAL	Power : AC 120V/60Hz
EUT : Wireless Extender	Note : 802.11n(20M)_5180MHz

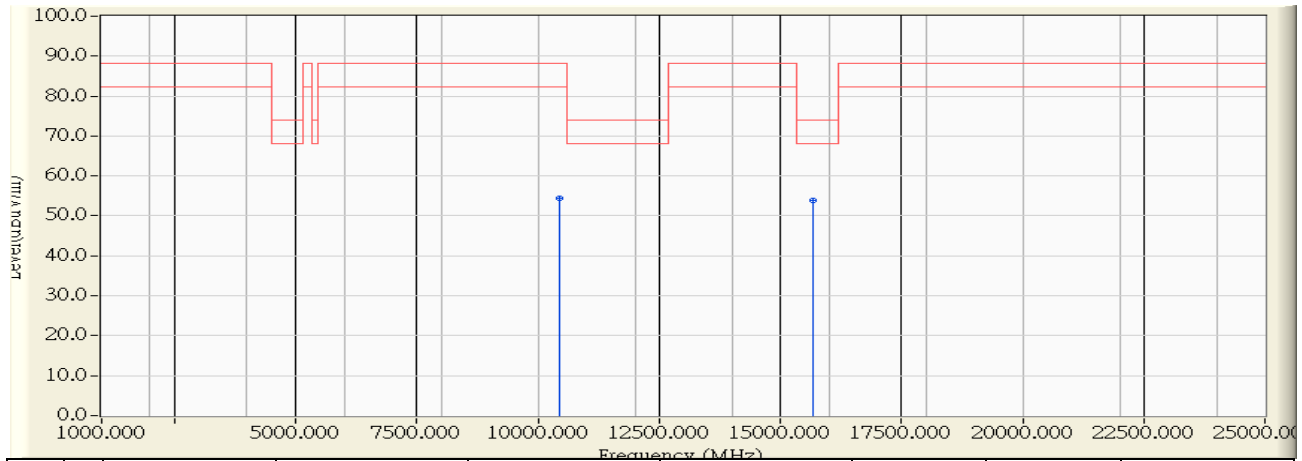


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	10358.900	10.797	51.880	62.677	-5.623	68.300	AVERAGE
2		15541.200	11.402	34.720	46.123	-7.877	54.000	AVERAGE

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 : 2012/04/07 - 11:25
Limit : FCC_SpartE_15.407_H_03M_PK	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - HORIZONTAL	Power : AC 120V/60Hz
EUT : Wireless Extender	Note : 802.11n(20M)_5220MHz

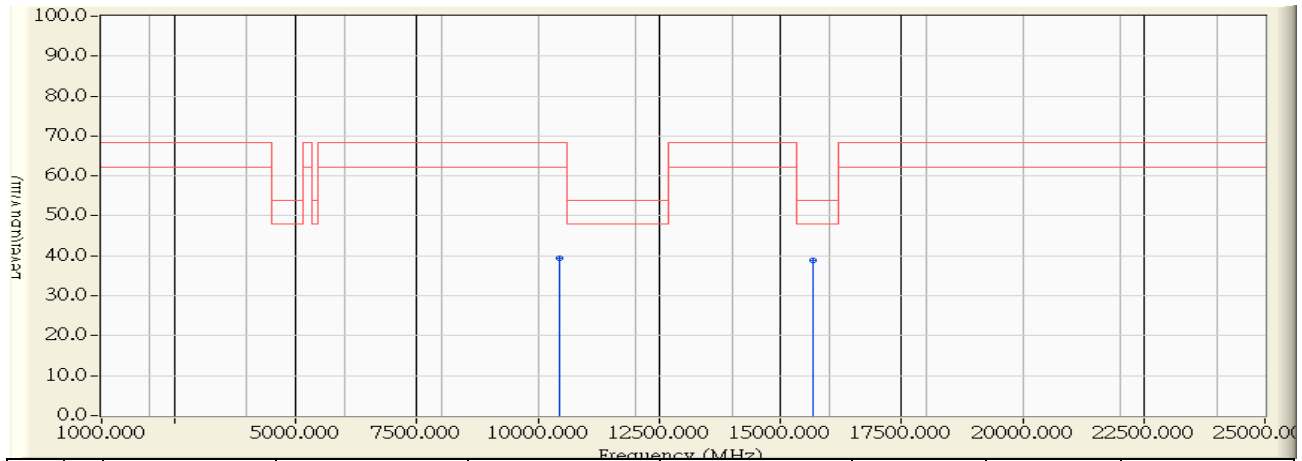


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		10441.800	10.568	43.820	54.388	-33.912	88.300	PEAK
2	*	15664.200	11.319	42.580	53.899	-20.101	74.000	PEAK

**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 : 2012/04/07 - 11:26
Limit : FCC_SpartE_15.407_H_03M_AV	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - HORIZONTAL	Power : AC 120V/60Hz
EUT : Wireless Extender	Note : 802.11n(20M)_5220MHz

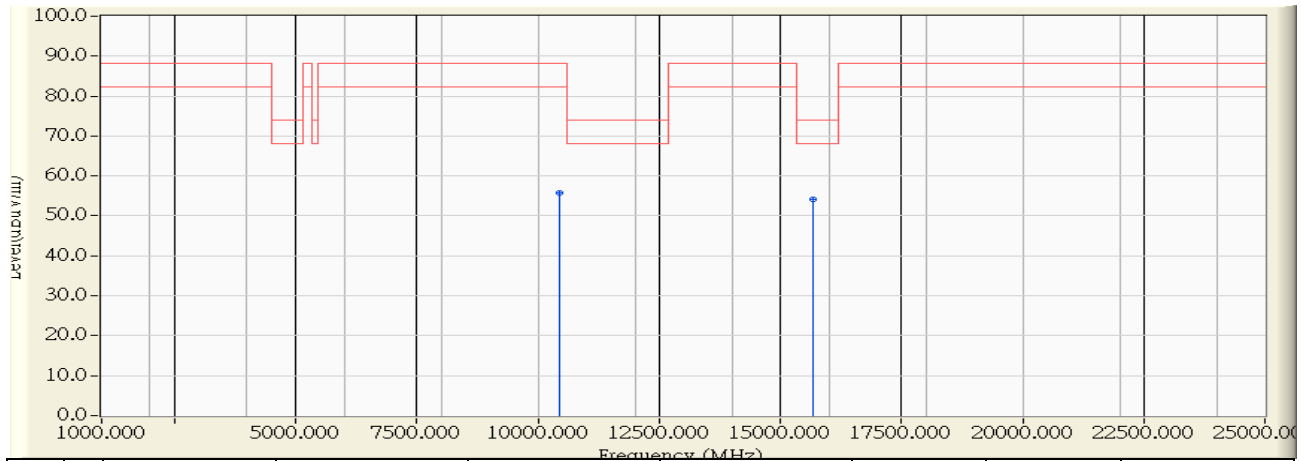


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		10442.500	10.566	28.950	39.516	-28.784	68.300	AVERAGE
2	*	15668.700	11.315	27.560	38.876	-15.124	54.000	AVERAGE

**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 : 2012/04/07 - 11:27
Limit : FCC_SpartE_15.407_H_03M_PK	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - VERTICAL	Power : AC 120V/60Hz
EUT : Wireless Extender	Note : 802.11n(20M)_5220MHz

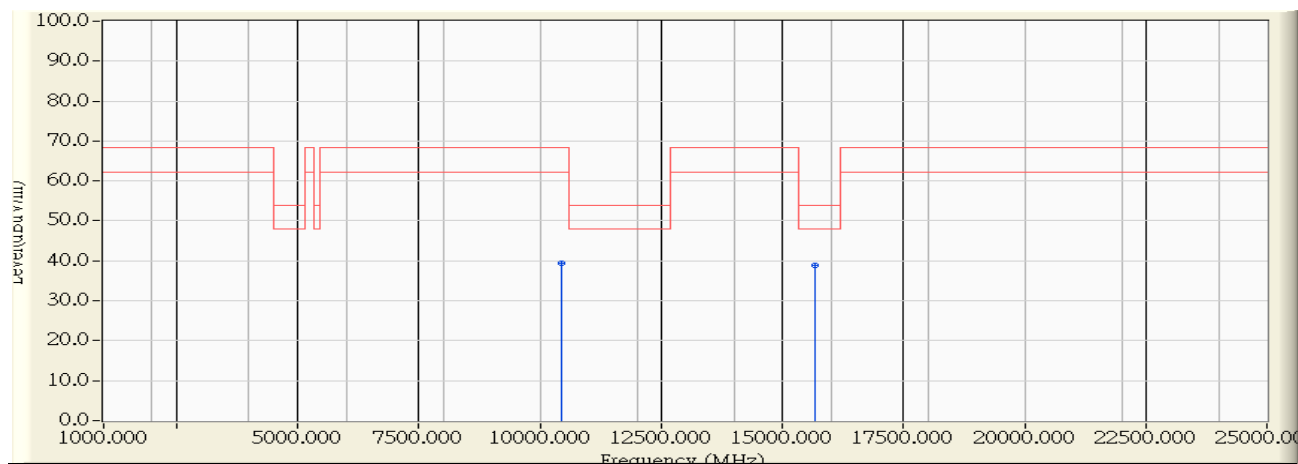


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		10445.900	10.557	45.320	55.877	-32.423	88.300	PEAK
2	*	15672.100	11.314	42.950	54.263	-19.737	74.000	PEAK

**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 : 2012/04/07 - 11:28
Limit : FCC_SpartE_15.407_H_03M_AV	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - VERTICAL	Power : AC 120V/60Hz
EUT : Wireless Extender	Note : 802.11n(20M)_5220MHz

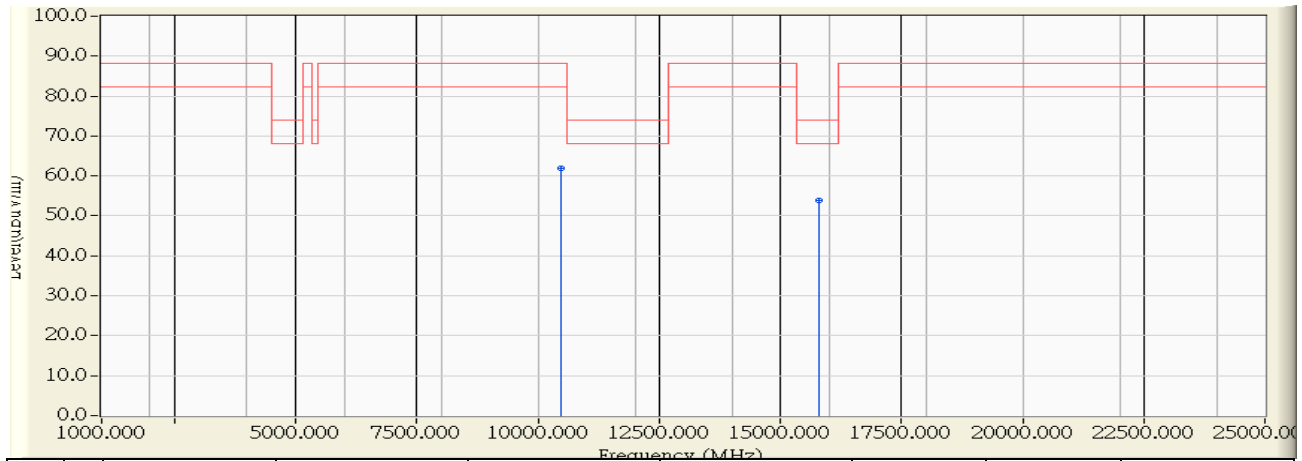


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		10445.800	10.556	28.950	39.507	-28.793	68.300	AVERAGE
2	*	15668.200	11.316	27.430	38.746	-15.254	54.000	AVERAGE

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 : 2012/04/07 - 11:29
Limit : FCC_SpartE_15.407_H_03M_PK	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - HORIZONTAL	Power : AC 120V/60Hz
EUT : Wireless Extender	Note : 802.11n(20M)_5240MHz

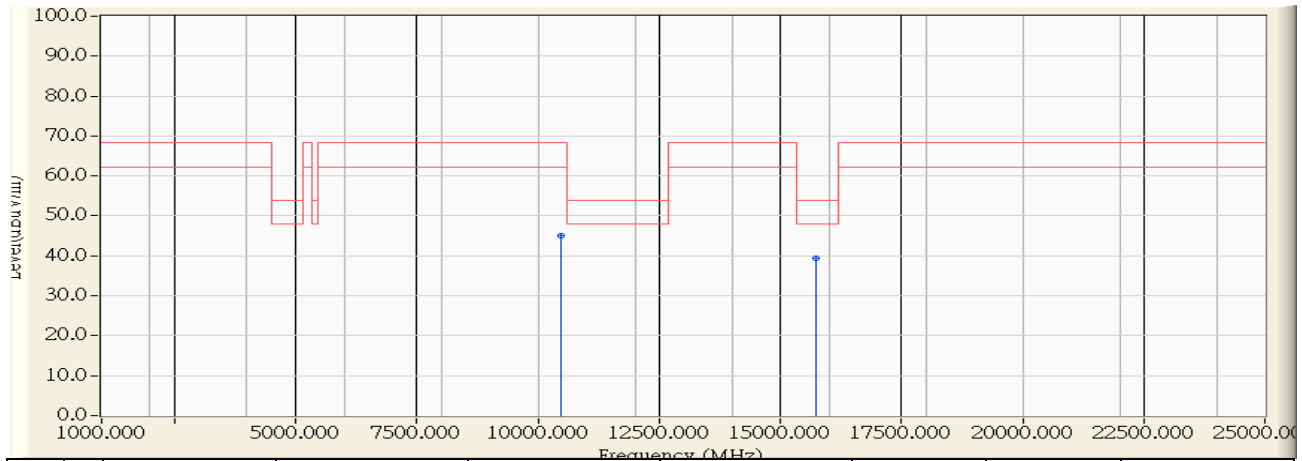


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		10486.200	10.446	51.370	61.816	-26.484	88.300	PEAK
2	*	15785.300	11.235	42.560	53.796	-20.204	74.000	PEAK

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 : 2012/04/07 - 11:30
Limit : FCC_SpartE_15.407_H_03M_AV	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - HORIZONTAL	Power : AC 120V/60Hz
EUT : Wireless Extender	Note : 802.11n(20M)_5240MHz



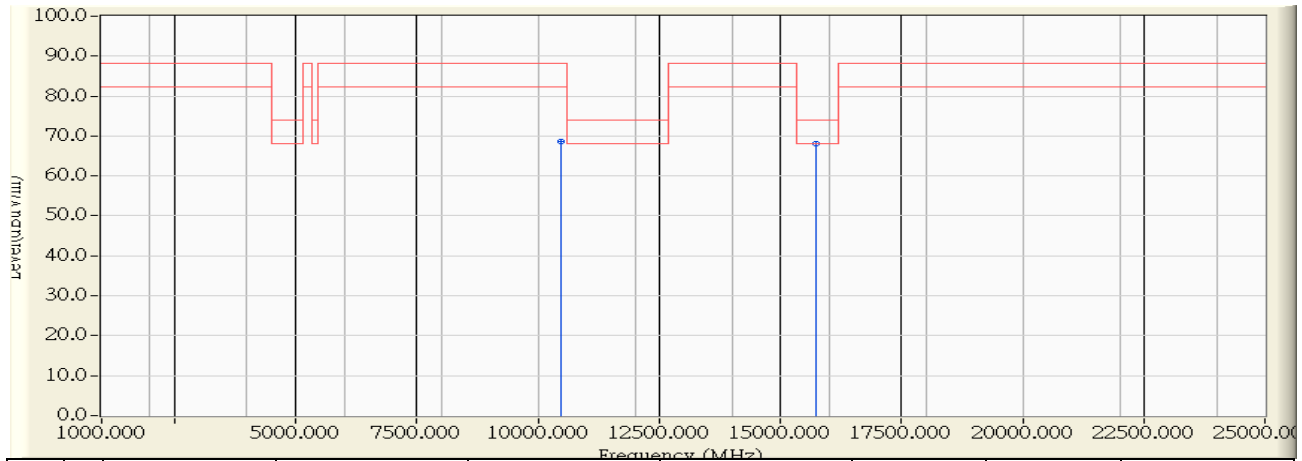
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		10485.600	10.447	34.520	44.967	-23.333	68.300	AVERAGE
2	*	15746.200	11.262	28.230	39.493	-14.507	54.000	AVERAGE

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 : 2012/04/07 - 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 : Wireless Extender	Note : 802.11n(20M)_5240MHz

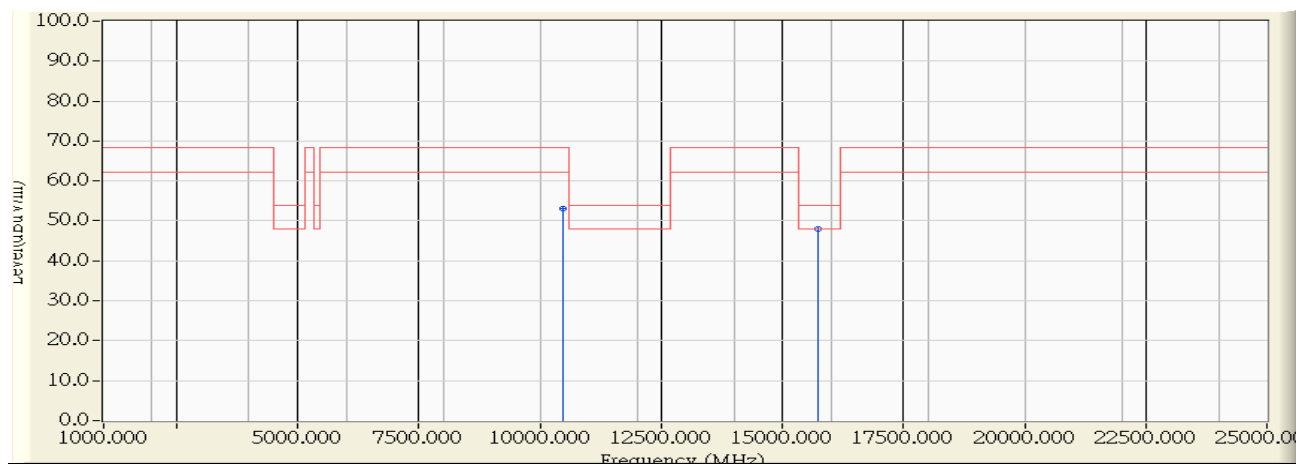


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		10488.200	10.445	58.140	68.584	-19.716	88.300	PEAK
2	*	15742.600	11.265	56.820	68.085	-5.915	74.000	PEAK

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 : 2012/04/07 - 11:32
Limit : FCC_SpartE_15.407_H_03M_AV	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - VERTICAL	Power : AC 120V/60Hz
EUT : Wireless Extender	Note : 802.11n(20M)_5240MHz

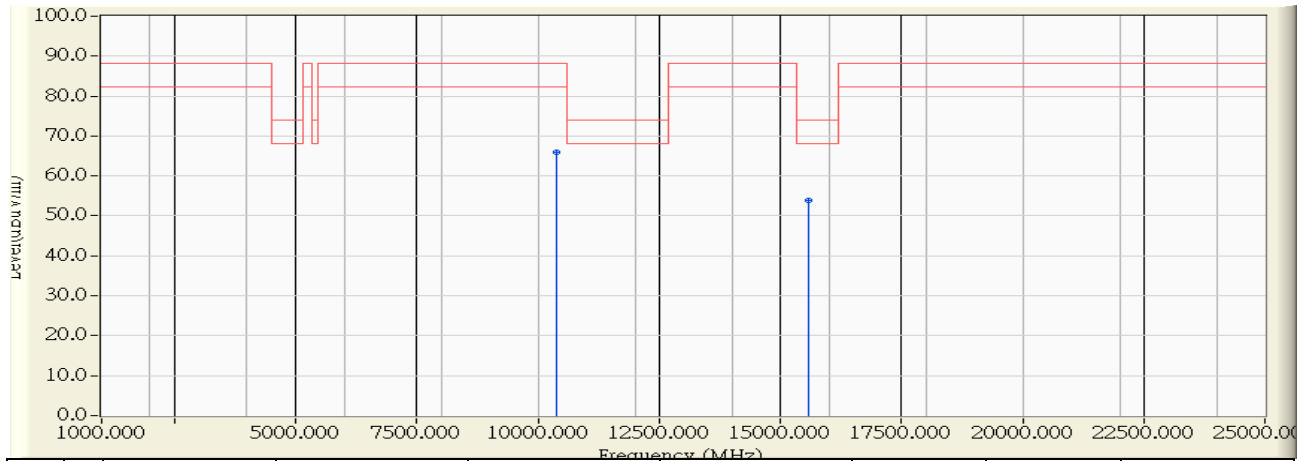


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		10485.900	10.447	42.610	53.056	-15.244	68.300	AVERAGE
2	*	15749.500	11.260	36.850	48.110	-5.890	54.000	AVERAGE

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 : 2012/04/07 - 14:25
Limit : FCC_SpartE_15.407_H_03M_PK	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - HORIZONTAL	Power : AC 120V/60Hz
EUT : Wireless Extender	Note : 802.11n(40M)_5190MHz

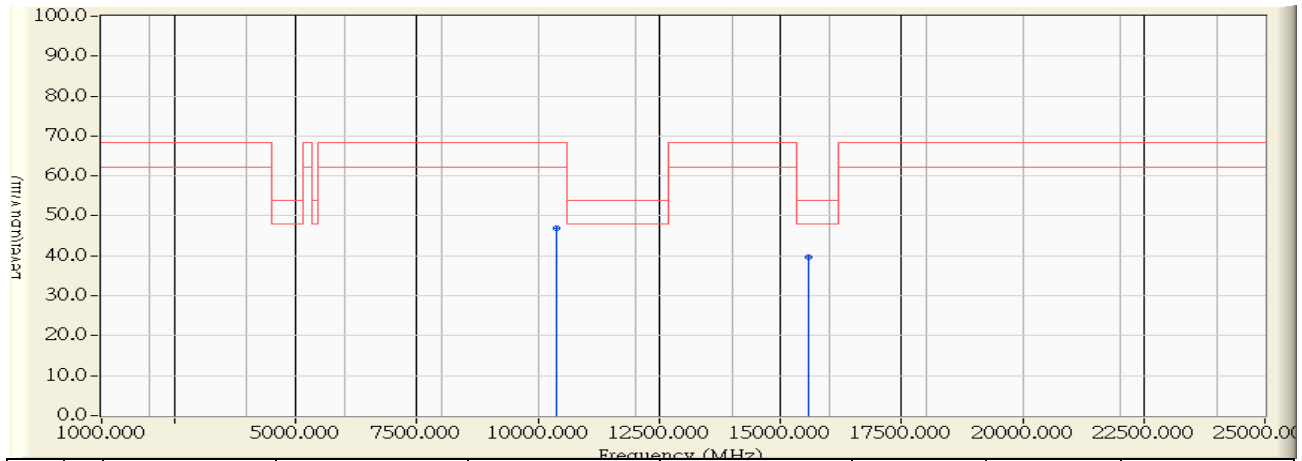


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		10377.300	10.746	55.100	65.846	-22.454	88.300	PEAK
2	*	15579.700	11.377	42.500	53.877	-20.123	74.000	PEAK

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 : 2012/04/07 - 14:26
Limit : FCC_SpartE_15.407_H_03M_AV	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - HORIZONTAL	Power : AC 120V/60Hz
EUT : Wireless Extender	Note : 802.11n(40M)_5190MHz

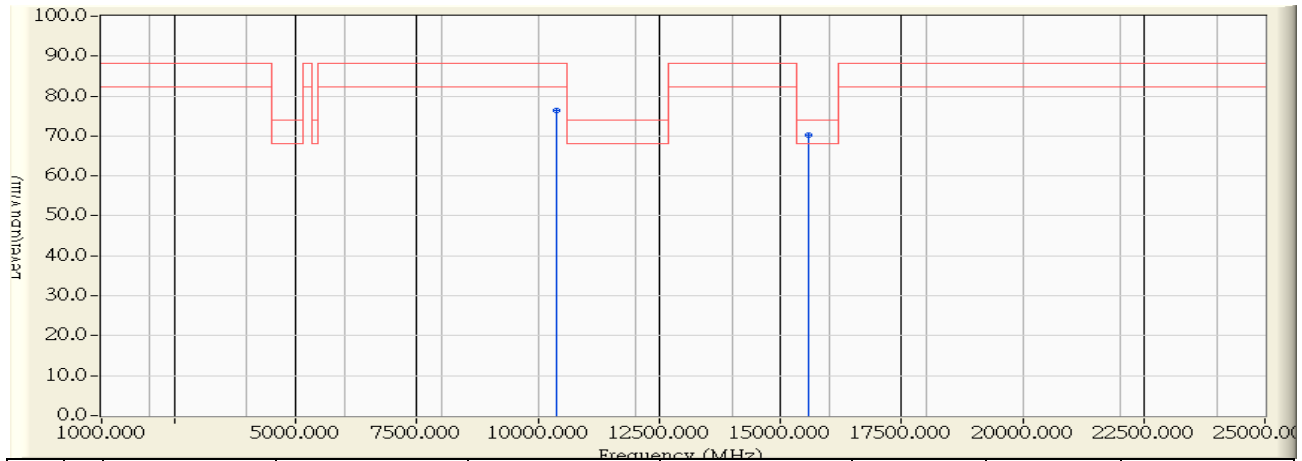


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		10378.600	10.742	36.050	46.793	-21.507	68.300	AVERAGE
2	*	15569.300	11.384	28.260	39.644	-14.356	54.000	AVERAGE

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 : 2012/04/07 - 14:32
Limit : FCC_SpartE_15.407_H_03M_PK	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - VERTICAL	Power : AC 120V/60Hz
EUT : Wireless Extender	Note : 802.11n(40M)_5190MHz

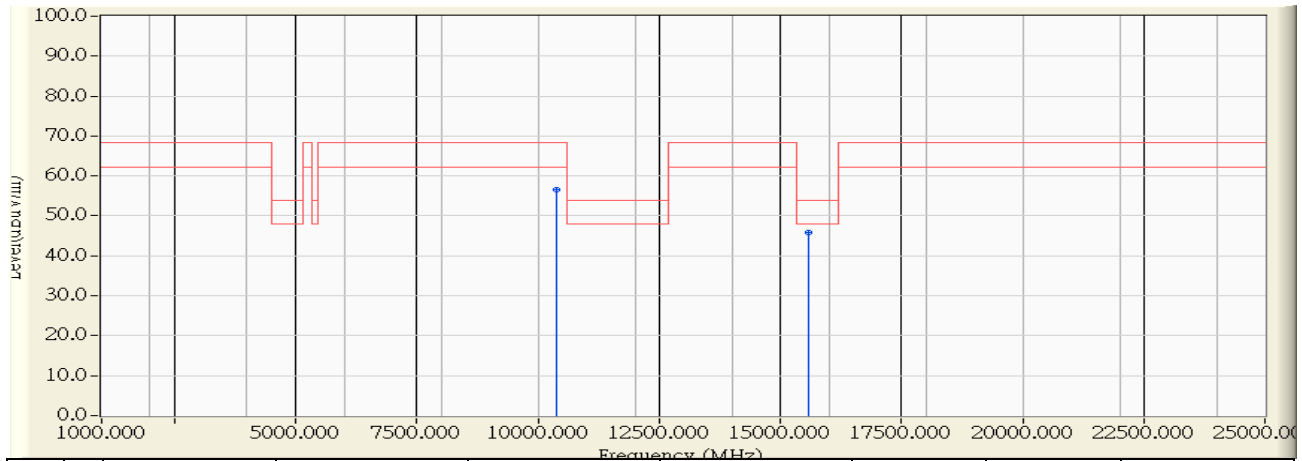


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		10389.900	10.711	65.680	76.391	-11.909	88.300	PEAK
2	*	15582.900	11.374	58.750	70.124	-3.876	74.000	PEAK

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 : 2012/04/07 - 14:32
Limit : FCC_SpartE_15.407_H_03M_AV	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - VERTICAL	Power : AC 120V/60Hz
EUT : Wireless Extender	Note : 802.11n(40M)_5190MHz

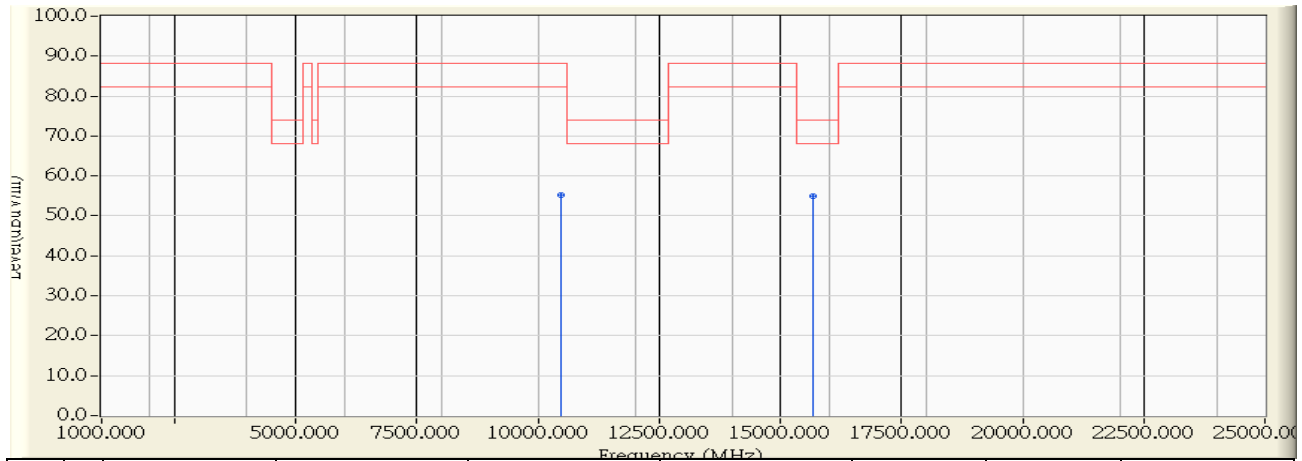


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		10383.600	10.729	45.920	56.649	-11.651	68.300	AVERAGE
2	*	15571.400	11.383	34.430	45.812	-8.188	54.000	AVERAGE

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 : 2012/04/07 - 11:34
Limit : FCC_SpartE_15.407_H_03M_PK	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - HORIZONTAL	Power : AC 120V/60Hz
EUT : Wireless Extender	Note : 802.11n(40M)_5230MHz

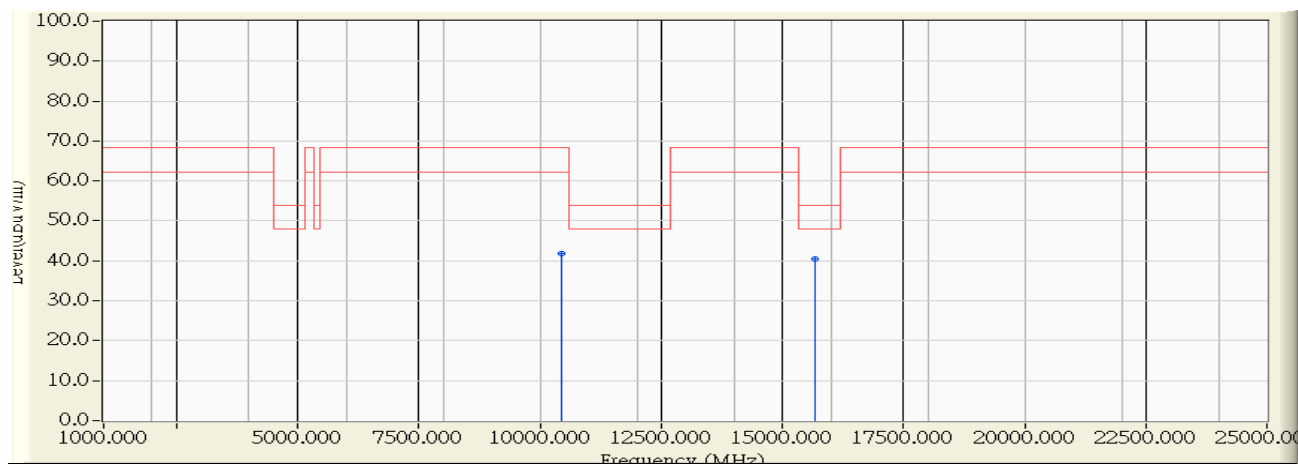


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		10467.200	10.497	44.850	55.348	-32.952	88.300	PEAK
2	*	15683.400	11.306	43.560	54.866	-19.134	74.000	PEAK

**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 : 2012/04/07 - 11:35
Limit : FCC_SpartE_15.407_H_03M_AV	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - HORIZONTAL	Power : AC 120V/60Hz
EUT : Wireless Extender	Note : 802.11n(40M)_5230MHz



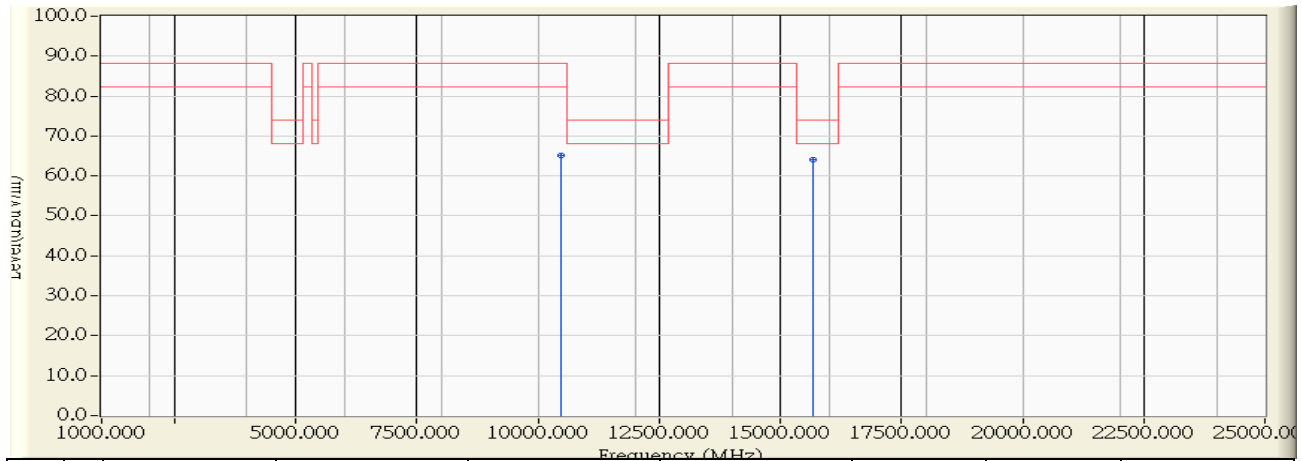
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		10458.200	10.522	31.250	41.773	-26.527	68.300	AVERAGE
2	*	15682.900	11.305	29.150	40.456	-13.544	54.000	AVERAGE

## 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 : 2012/04/07 - 11:36
Limit : FCC_SpartE_15.407_H_03M_PK	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - VERTICAL	Power : AC 120V/60Hz
EUT : Wireless Extender	Note : 802.11n(40M)_5230MHz

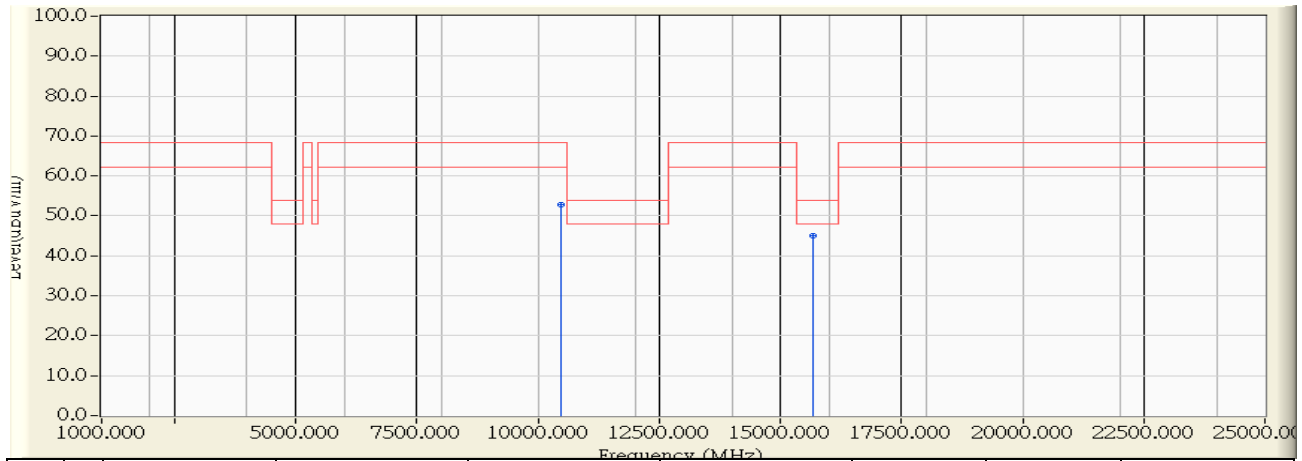


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		10475.200	10.475	54.690	65.166	-23.134	88.300	PEAK
2	*	15671.800	11.314	52.860	64.174	-9.826	74.000	PEAK

**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 : 2012/04/07 - 11:37
Limit : FCC_SpartE_15.407_H_03M_AV	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - VERTICAL	Power : AC 120V/60Hz
EUT : Wireless Extender	Note : 802.11n(40M)_5230MHz



		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		10469.500	10.492	42.360	52.852	-15.448	68.300	AVERAGE
2	*	15688.600	11.301	33.680	44.982	-9.018	54.000	AVERAGE

## 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 Band Edge / CB1

Instrument	Manufacturer	Model No.	Serial No	Next Cal. Date
Double Ridged Guide Horn Antenna	Schwarzback	BBHA 9120D	743	2013/02/02
Spectrum Analyzer	Agilent	E4440A	MY46187335	2013/02/07
Coaxial Cable	Huber+Suhner AG	Sucoflex 102	25623/2	2013/03/04

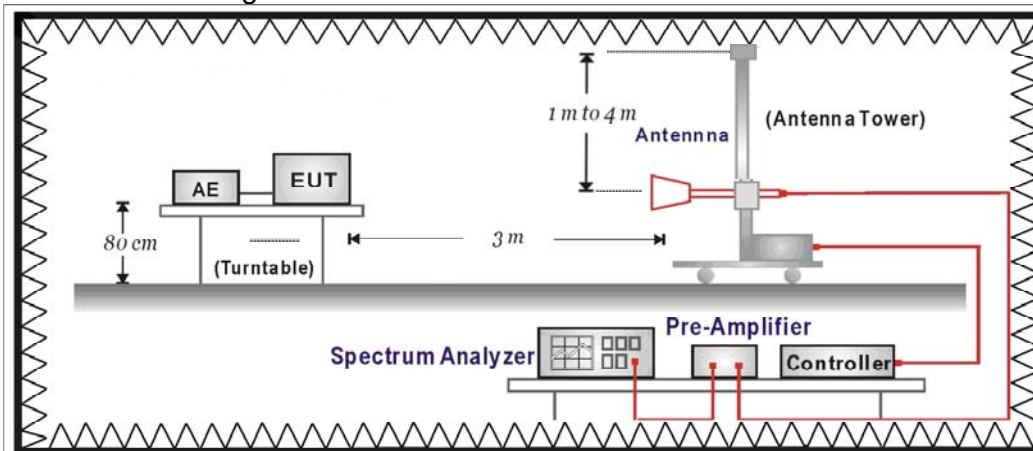
#### Conducted Band Edge / SR7

Instrument	Manufacturer	Model No.	Serial No	Next Cal. Date
Spectrum Analyzer	R&S	FSP	100561	2013/02/19

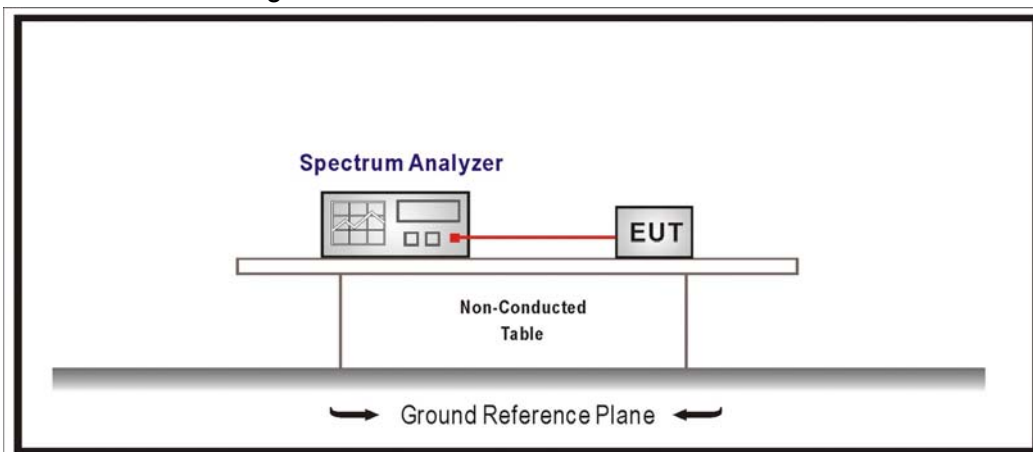
Note: 1. All equipments that need to calibrate are with calibration period of 1 year.

### 8.2. Test Setup

Radiated Band Edge Measurement:



Conducted Band Edge Measurement:



### 8.3. Limits

#### ➤ General Radiated Emission Limits

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

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

Remark:

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

#### ➤ Unwanted Emission out of the restricted bands Limits

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

Remark:

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

➤ **Additional provisions to the general radiated emission limitations.**

(a) The regulations in §15.217 through 15.257 provide alternatives to the general radiated emission limits for intentional radiators operating in specified frequency bands. Unless otherwise stated, there are no restrictions as to the types of operation permitted under these sections.

(b) In most cases, unwanted emissions outside of the frequency bands shown in these alternative provisions must be attenuated to the emission limits shown in §15.209. In no case shall the level of the unwanted emissions from an intentional radiator operating under these additional provisions exceed the field strength of the fundamental emission.

(c) Intentional radiators operating under the alternative provisions to the general emission limits, as contained in §15.217 through 15.257 and in Subpart E of this part, must be designed to ensure that the 20 dB bandwidth of the emission, or whatever bandwidth may otherwise be specified in the specific rule section under which the equipment operates, is contained within the frequency band designated in the rule section under which the equipment is operated. The requirement to contain the designated bandwidth of the emission within the specified frequency band includes the effects from frequency sweeping, frequency hopping and other modulation techniques that may be employed as well as the frequency stability of the transmitter over expected variations in temperature and supply voltage. If a frequency stability is not specified in the regulations, it is recommended that the fundamental emission be kept within at least the central 80% of the permitted band in order to minimize the possibility of out-of-band operation.

#### 8.4. Test Procedure

**Radiated Band Edge:**

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 above 1GHz are 1 MHz.

**Conducted Band Edge:**

Set RBW = 100kHz, VBW equal to 3 times the RBW. Trace MaxHold. Make sure the 20 dB bandwidth of the emission is contained within the frequency band.

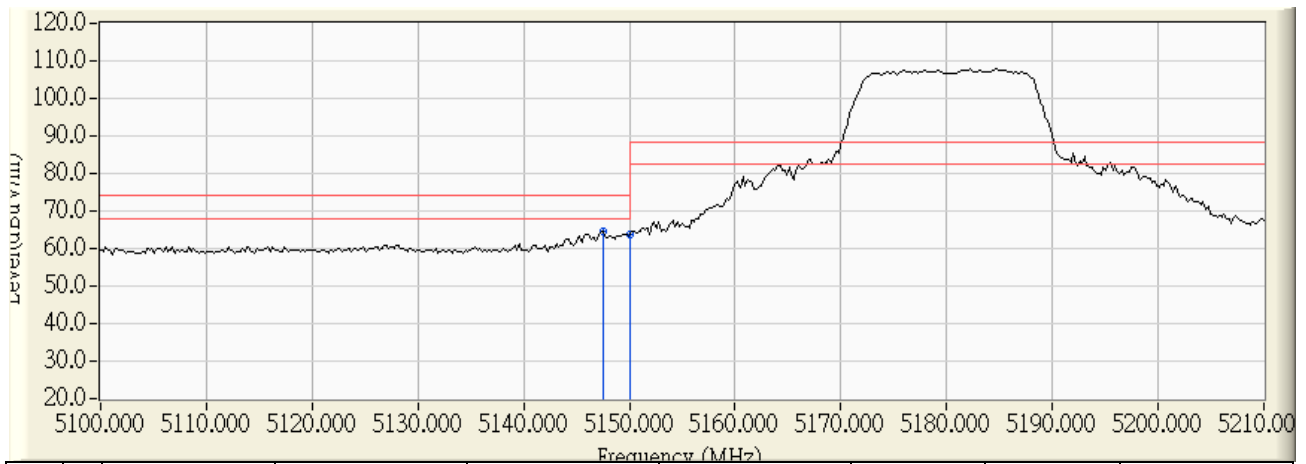
#### 8.5. Uncertainty

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

## 8.6. Test Result

### Radiated is defined as

Site : CB1	Time : 2012/03/08 - 10:06
Limit : FCC_SpartE_15.407_H_03M_PK	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - HORIZONTAL	Power : AC 120V/60Hz
EUT : Wireless Extender	Note : 802.11a_5180MHz

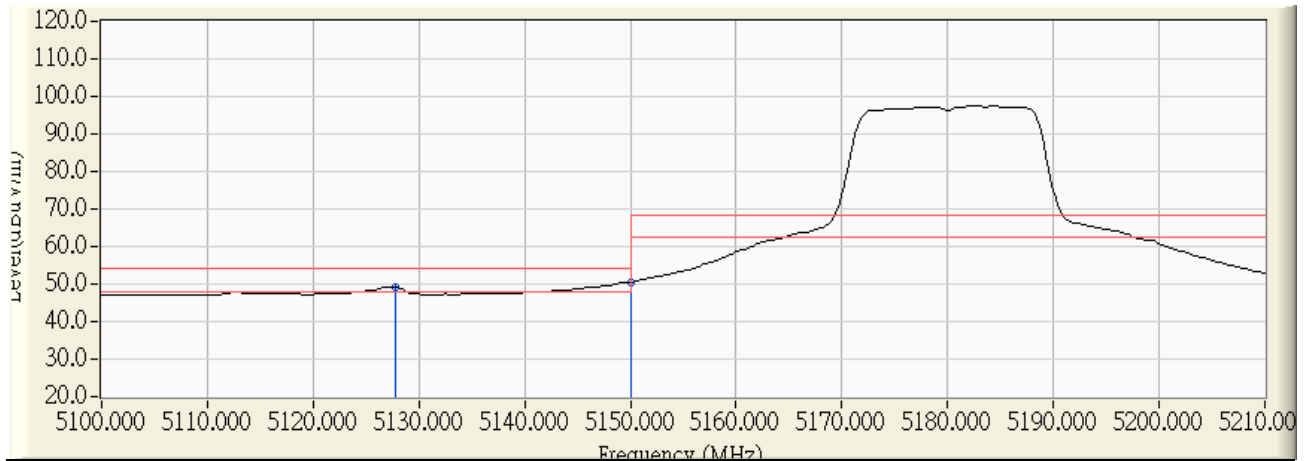


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	5147.520	0.811	63.835	64.646	-9.354	74.000	PEAK
2		5150.000	0.831	62.757	63.588	-10.412	74.000	PEAK

#### 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 : 2012/03/08 - 10:08
Limit : FCC_SpartE_15.407_H_03M_AV	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - HORIZONTAL	Power : AC 120V/60Hz
EUT : Wireless Extender	Note : 802.11a_5180MHz

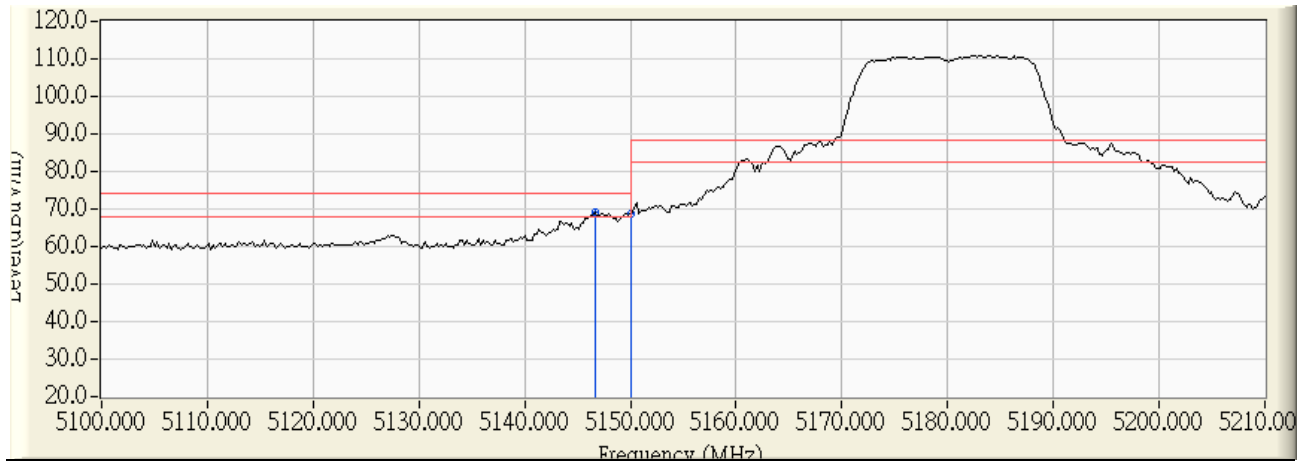


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		5127.720	0.656	48.632	49.289	-4.711	54.000	AVERAGE
2	*	5150.000	0.831	49.690	50.521	-3.479	54.000	AVERAGE

## 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 : 2012/03/08 - 10:03
Limit : FCC_SpartE_15.407_H_03M_PK	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - VERTICAL	Power : AC 120V/60Hz
EUT : Wireless Extender	Note : 802.11a_5180MHz



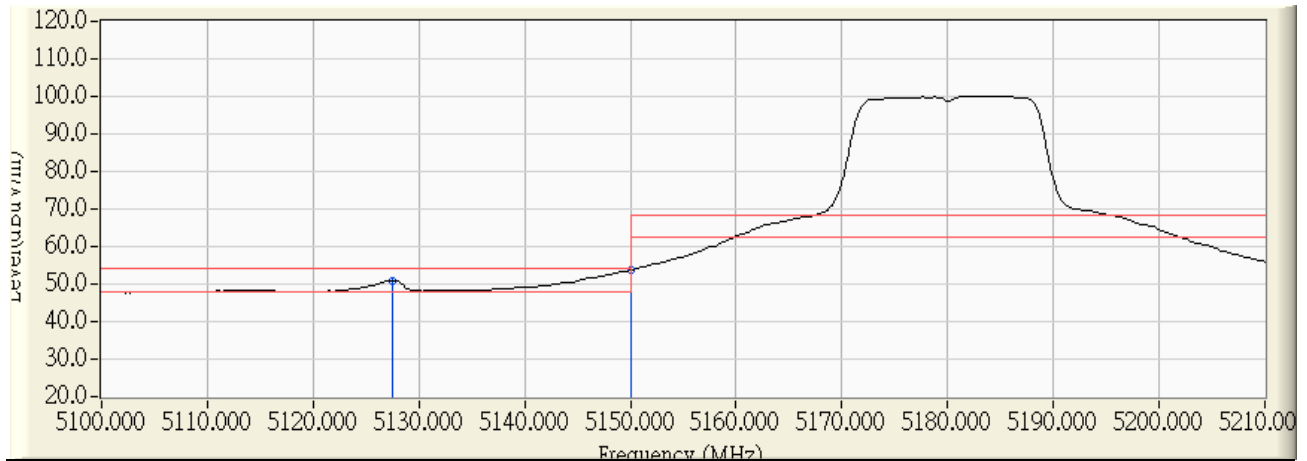
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	5146.640	0.805	68.327	69.131	-4.869	74.000	PEAK
2		5150.000	0.831	67.887	68.718	-5.282	74.000	PEAK

## 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 : 2012/03/08 - 10:01
Limit : FCC_SpartE_15.407_H_03M_AV	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - VERTICAL	Power : AC 120V/60Hz
EUT : Wireless Extender	Note : 802.11a_5180MHz

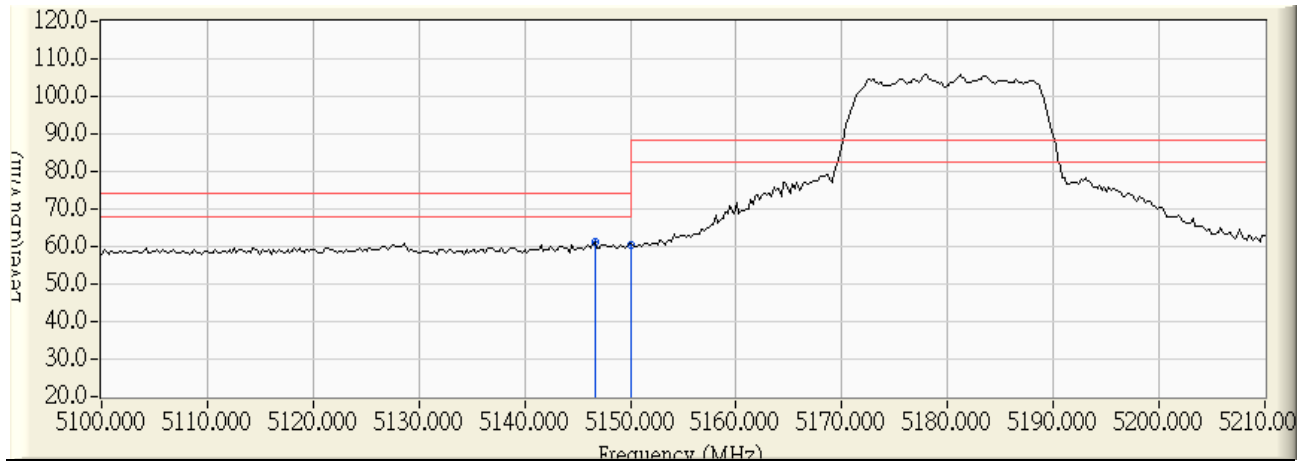


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		5127.500	0.655	50.366	51.021	-2.979	54.000	AVERAGE
2	*	5150.000	0.831	52.809	53.640	-0.360	54.000	AVERAGE

## 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 : 2012/04/05 - 17:30
Limit : FCC_SpartE_15.407_H_03M_PK	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - HORIZONTAL	Power : AC 120V/60Hz
EUT : Wireless Extender	Note : 802.11n(20M)_5180MHz

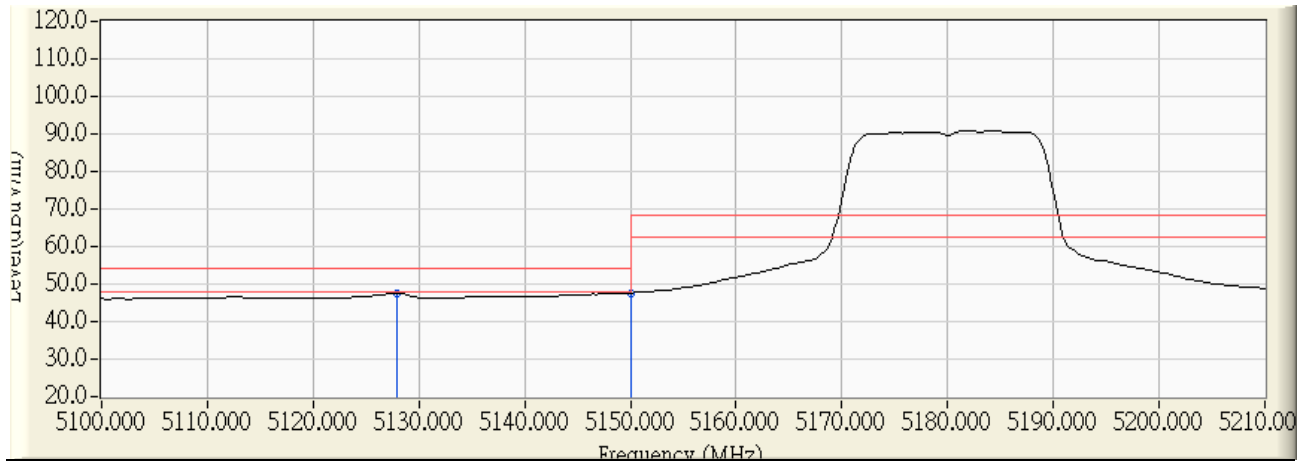


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	5146.640	0.805	60.617	61.421	-12.579	74.000	PEAK
2		5150.000	0.831	59.790	60.621	-13.379	74.000	PEAK

**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 : 2012/04/05 - 17:31
Limit : FCC_SpartE_15.407_H_03M_AV	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - HORIZONTAL	Power : AC 120V/60Hz
EUT : Wireless Extender	Note : 802.11n(20M)_5180MHz

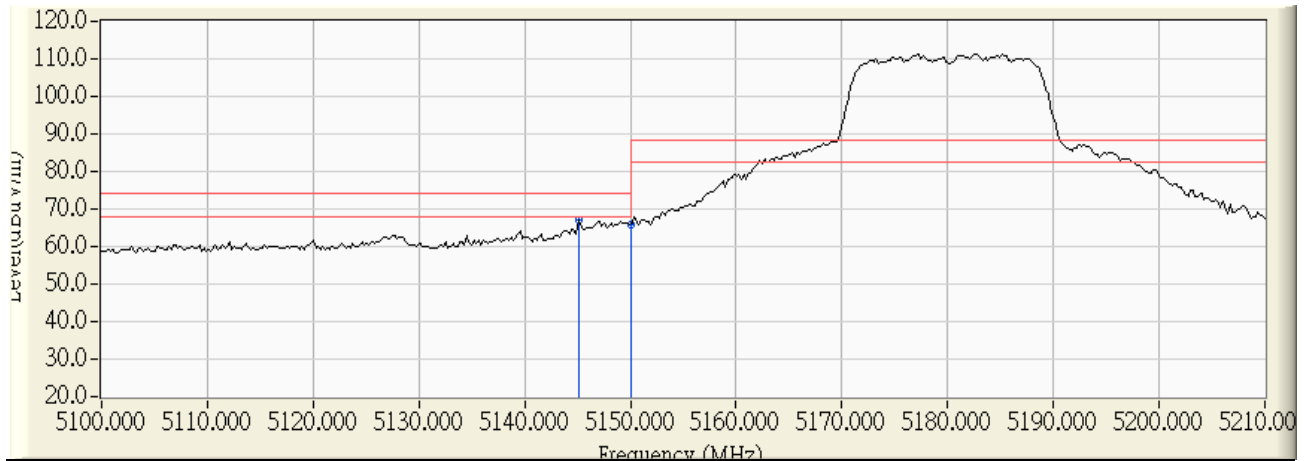


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		5127.940	0.658	46.940	47.598	-6.402	54.000	AVERAGE
2	*	5150.000	0.831	46.811	47.642	-6.358	54.000	AVERAGE

## 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 : 2012/04/05 - 17:25
Limit : FCC_SpartE_15.407_H_03M_PK	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - VERTICAL	Power : AC 120V/60Hz
EUT : Wireless Extender	Note : 802.11n(20M)_5180MHz

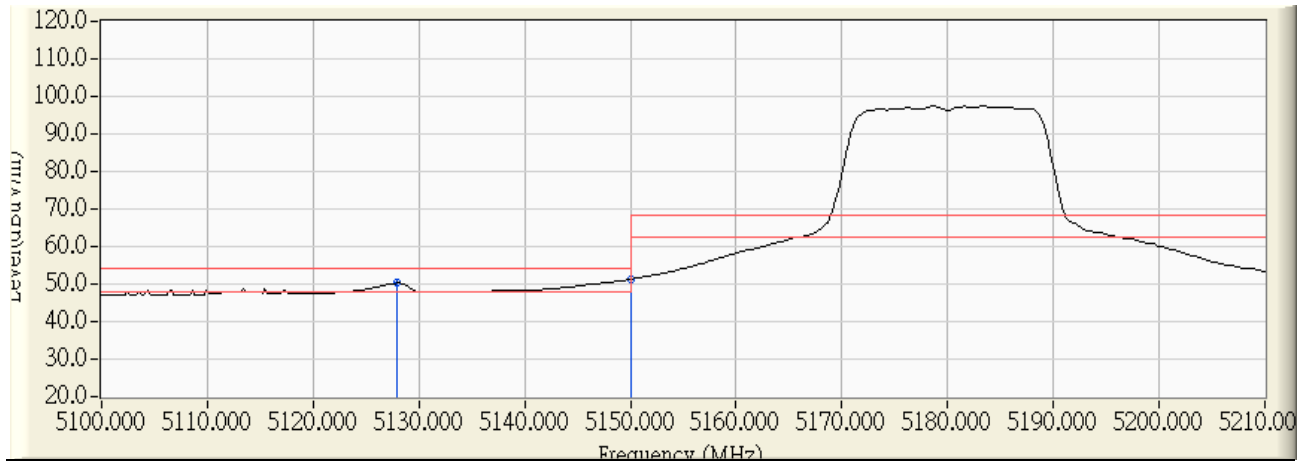


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	5145.100	0.793	66.342	67.134	-6.866	74.000	PEAK
2		5150.000	0.831	65.113	65.944	-8.056	74.000	PEAK

**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 : 2012/04/05 - 17:24
Limit : FCC_SpartE_15.407_H_03M_AV	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - VERTICAL	Power : AC 120V/60Hz
EUT : Wireless Extender	Note : 802.11n(20M)_5180MHz

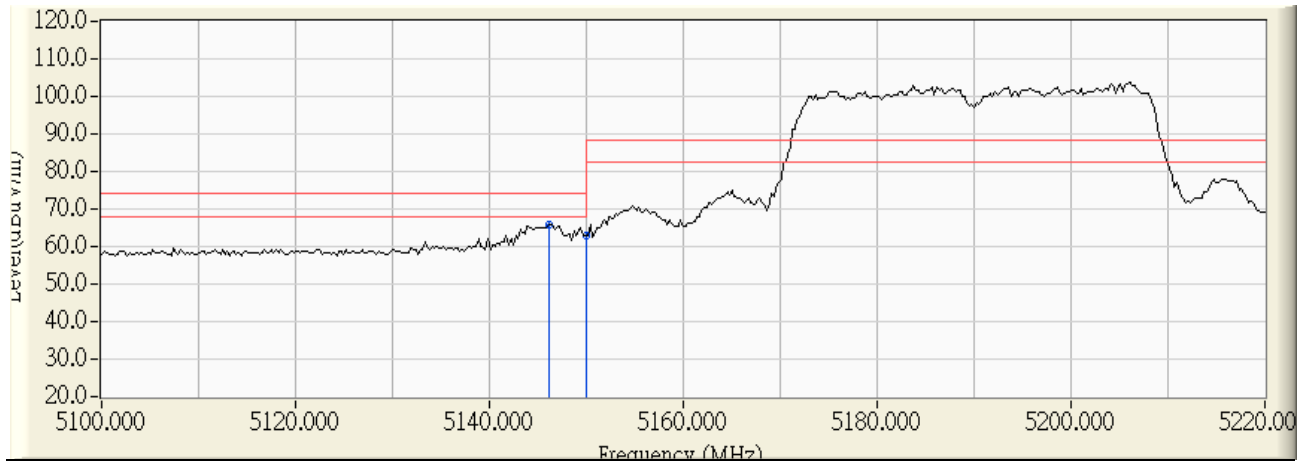


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		5127.940	0.658	49.585	50.243	-3.757	54.000	AVERAGE
2	*	5150.000	0.831	50.446	51.277	-2.723	54.000	AVERAGE

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 : 2012/04/05 - 18:31
Limit : FCC_SpartE_15.407_H_03M_PK	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - HORIZONTAL	Power : AC 120V/60Hz
EUT : Wireless Extender	Note : 802.11n(40M)_5190MHz

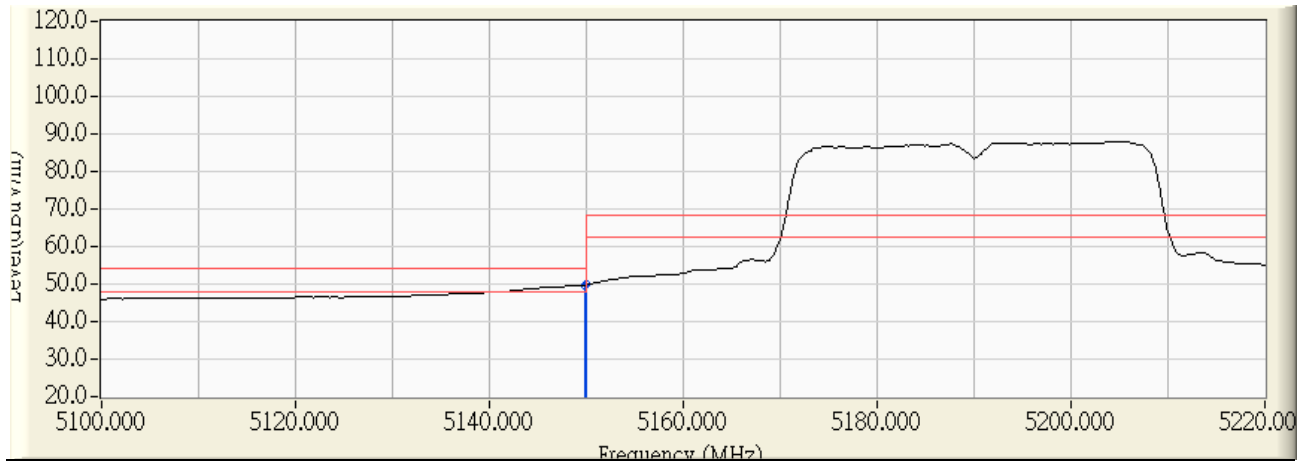


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	5146.080	0.800	65.053	65.853	-8.147	74.000	PEAK
2		5150.000	0.831	62.017	62.848	-11.152	74.000	PEAK

## 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 : 2012/04/05 - 18:32
Limit : FCC_SpartE_15.407_H_03M_AV	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - HORIZONTAL	Power : AC 120V/60Hz
EUT : Wireless Extender	Note : 802.11n(40M)_5190MHz

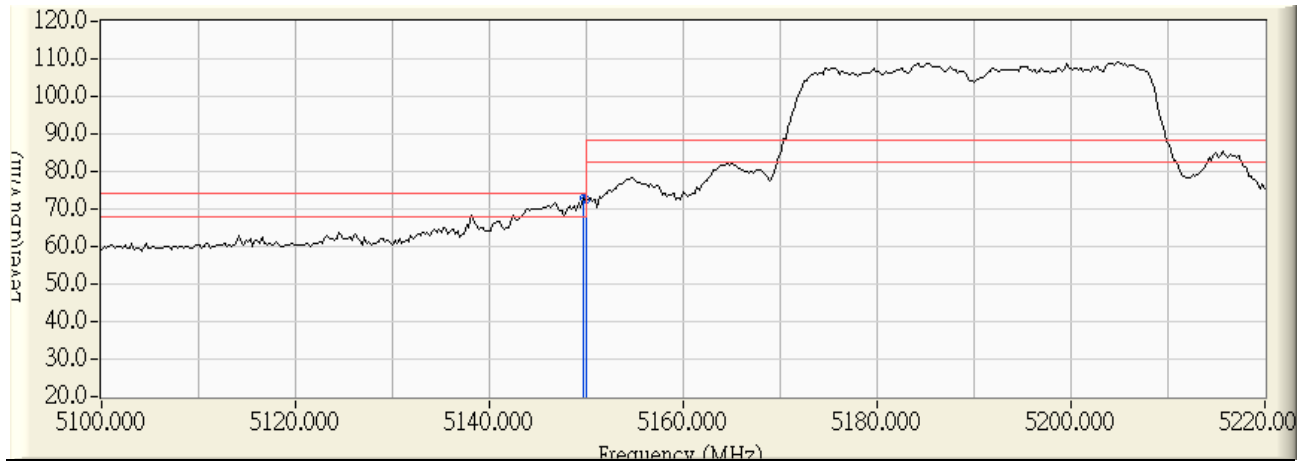


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		5149.920	0.830	48.947	49.777	-4.223	54.000	AVERAGE
2	*	5150.000	0.831	48.968	49.799	-4.201	54.000	AVERAGE

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 : 2012/04/05 - 18:20
Limit : FCC_SpartE_15.407_H_03M_PK	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - VERTICAL	Power : AC 120V/60Hz
EUT : Wireless Extender	Note : 802.11n(40M)_5190MHz



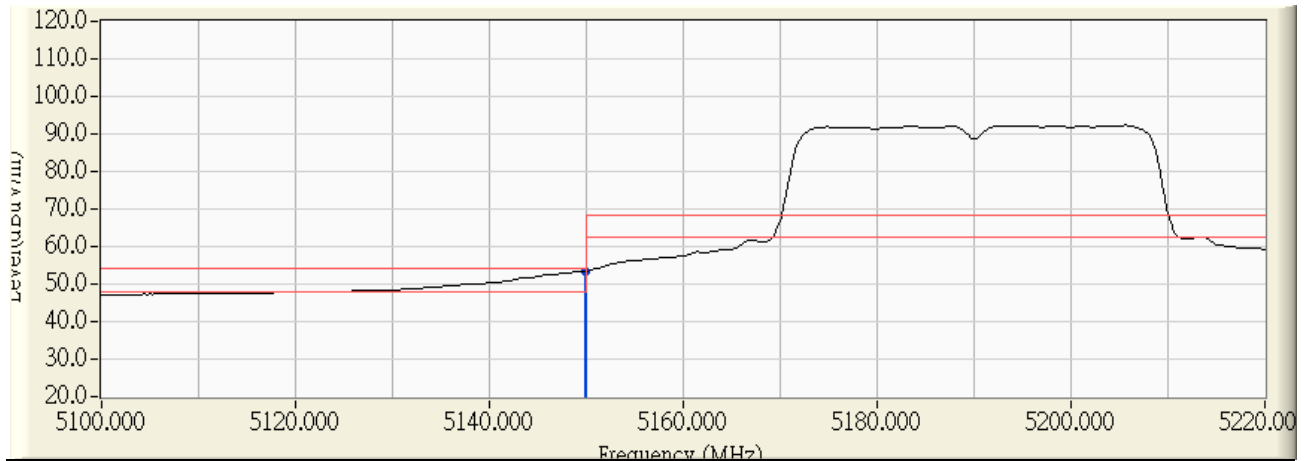
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	5149.680	0.829	72.024	72.852	-1.148	74.000	PEAK
2		5150.000	0.831	71.755	72.586	-1.414	74.000	PEAK

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 : 2012/04/05 - 18:22
Limit : FCC_SpartE_15.407_H_03M_AV	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - VERTICAL	Power : AC 120V/60Hz
EUT : Wireless Extender	Note : 802.11n(40M)_5190MHz

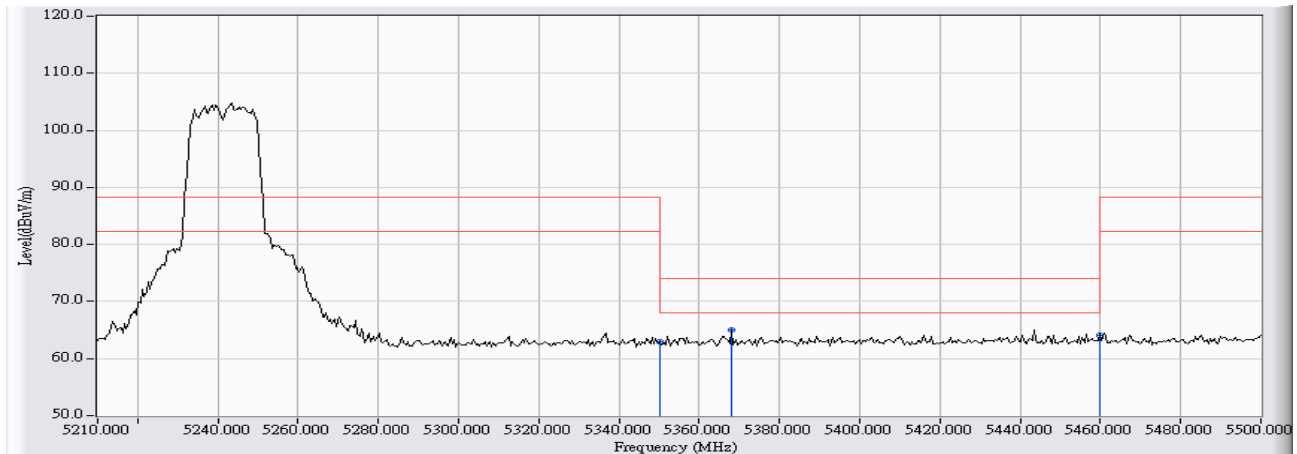


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		5149.920	0.830	52.608	53.438	-0.562	54.000	AVERAGE
2	*	5150.000	0.831	52.636	53.467	-0.533	54.000	AVERAGE

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 : 2012/06/13 - 11:57
Limit : FCC_SpartE_15.407_H_03M_PK	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - HORIZONTAL	Power : AC 120V/60Hz
EUT : Wireless Extender	Note : 802.11a_5240MHz

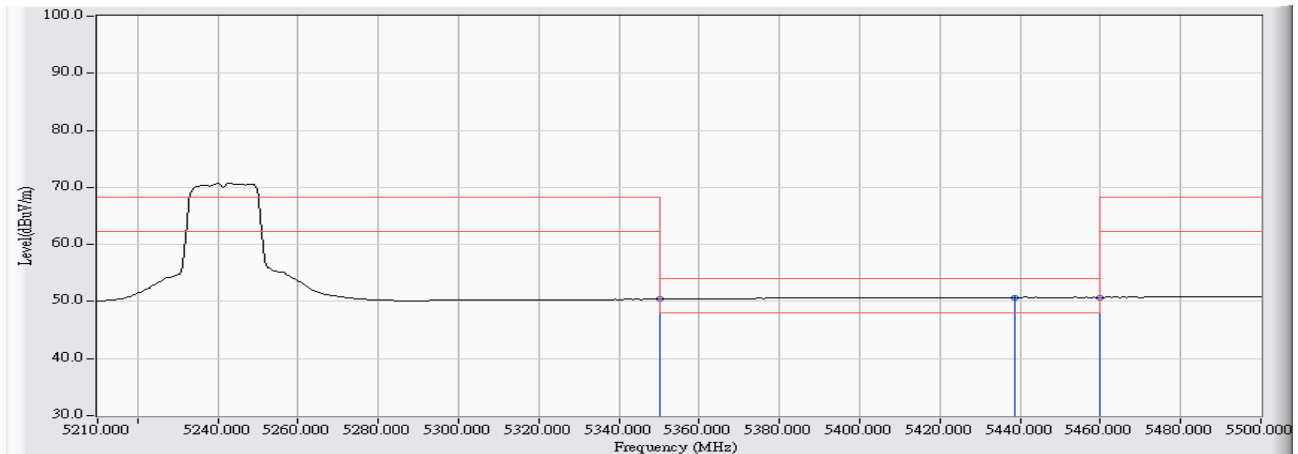


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		5350.000	37.755	25.175	62.930	-25.370	88.300	PEAK
2	*	5368.050	37.821	27.119	64.940	-9.060	74.000	PEAK
3		5460.000	38.157	25.995	64.152	-9.848	74.000	PEAK

**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 : 2012/06/13 - 11:57
Limit : FCC_SpartE_15.407_H_03M_AV	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - HORIZONTAL	Power : AC 120V/60Hz
EUT : Wireless Extender	Note : 802.11a_5240MHz

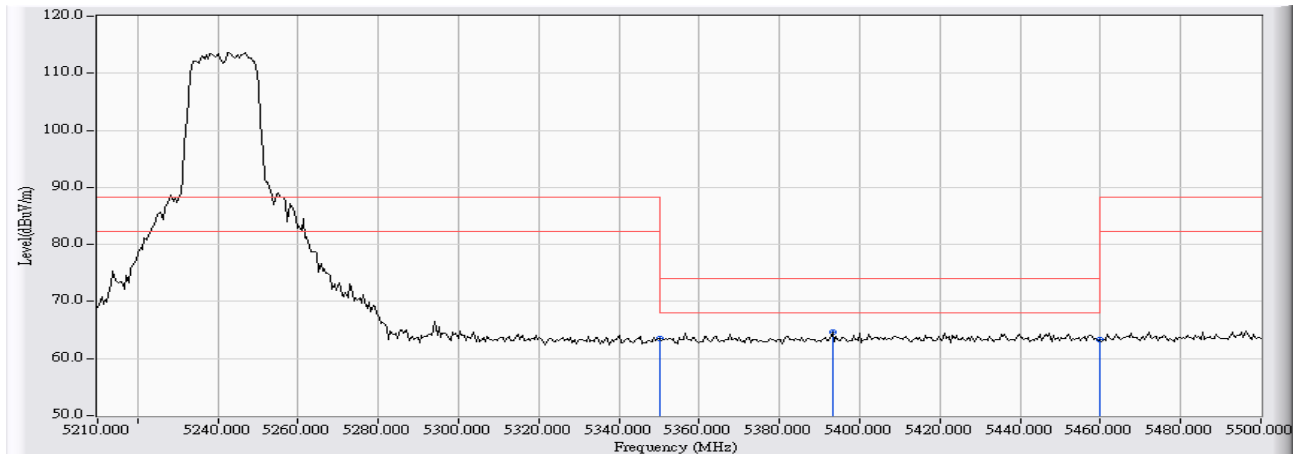


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		5350.000	37.755	12.676	50.431	-3.569	54.000	AVERAGE
2		5438.617	38.079	12.608	50.687	-3.313	54.000	AVERAGE
3	*	5460.000	38.157	12.575	50.732	-3.268	54.000	AVERAGE

## 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 : 2012/06/13 - 12:00
Limit : FCC_SpartE_15.407_H_03M_PK	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - VERTICAL	Power : AC 120V/60Hz
EUT : Wireless Extender	Note : 802.11a_5240MHz

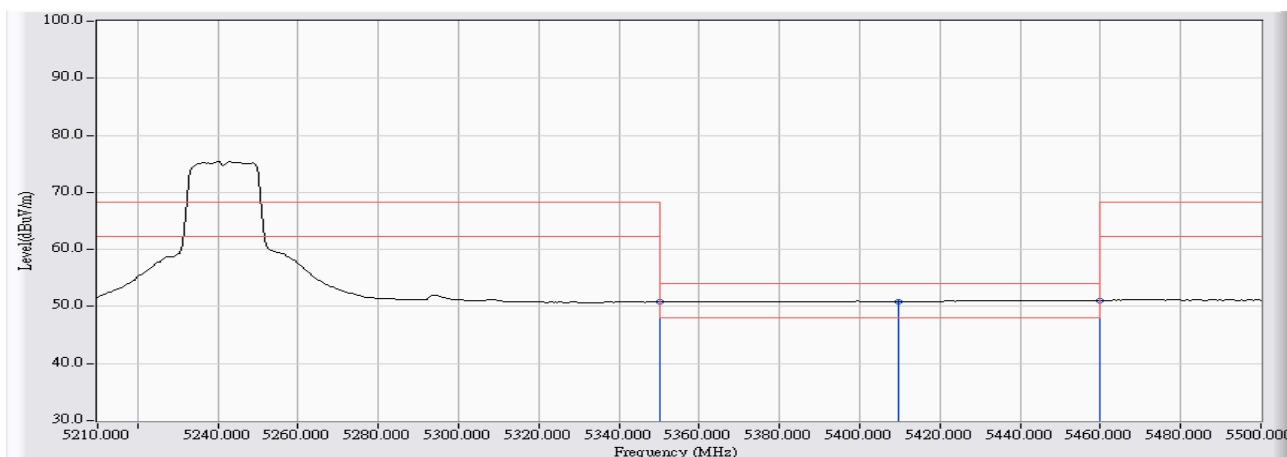


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		5350.000	37.755	25.751	63.506	-10.494	74.000	PEAK
2	*	5393.183	37.913	26.674	64.587	-9.413	74.000	PEAK
3		5460.000	38.157	25.094	63.251	-10.749	74.000	PEAK

## 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 : 2012/06/13 - 12:01
Limit : FCC_SpartE_15.407_H_03M_AV	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - VERTICAL	Power : AC 120V/60Hz
EUT : Wireless Extender	Note : 802.11a_5240MHz

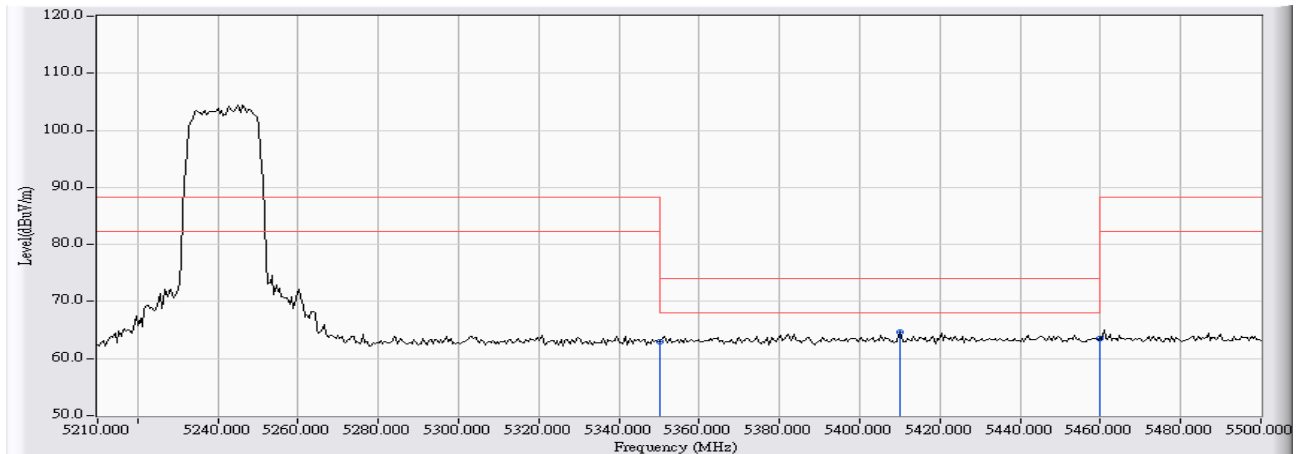


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		5350.000	37.755	13.053	50.808	-3.192	54.000	AVERAGE
2		5409.617	37.973	12.890	50.863	-3.137	54.000	AVERAGE
3	*	5460.000	38.157	12.943	51.100	-2.900	54.000	AVERAGE

**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 : 2012/06/13 - 13:07
Limit : FCC_SpartE_15.407_H_03M_PK	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - HORIZONTAL	Power : AC 120V/60Hz
EUT : Wireless Extender	Note : 802.11n 20MHz_5240MHz

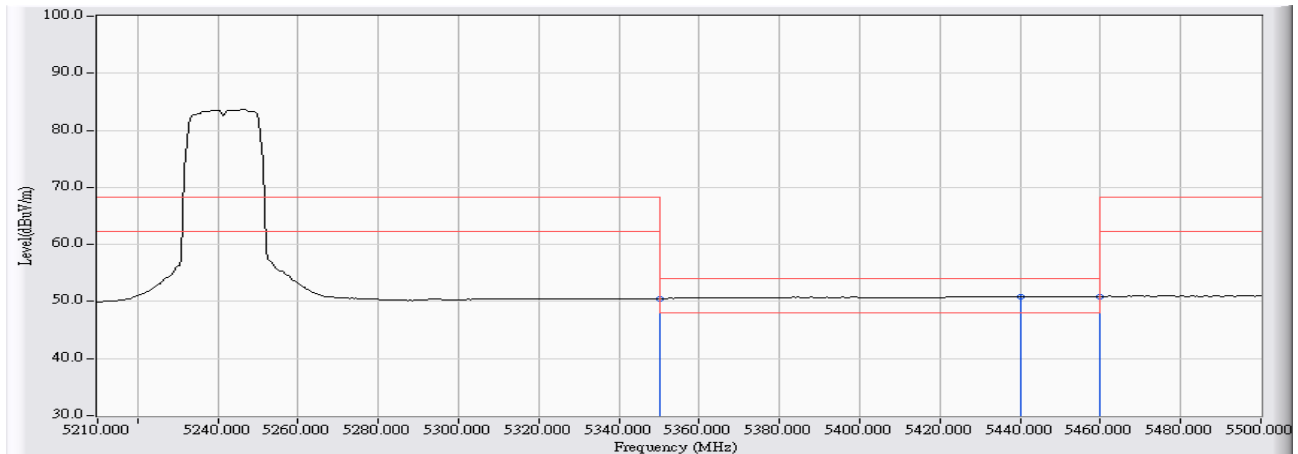


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		5350.000	37.755	25.187	62.942	-11.058	74.000	PEAK
2	*	5410.100	37.975	26.697	64.672	-9.328	74.000	PEAK
3		5460.000	38.157	25.446	63.603	-10.397	74.000	PEAK

**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 : 2012/06/13 - 13:08
Limit : FCC_SpartE_15.407_H_03M_AV	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - HORIZONTAL	Power : AC 120V/60Hz
EUT : Wireless Extender	Note : 802.11n 20MHz_5240MHz

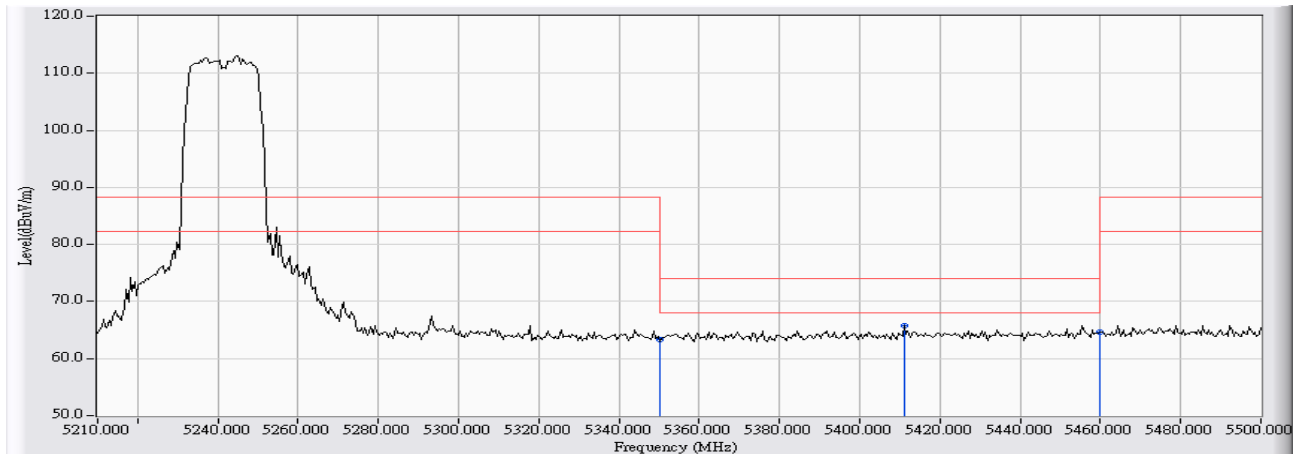


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		5350.000	37.755	12.783	50.538	-3.462	54.000	AVERAGE
2		5440.067	38.084	12.806	50.890	-3.110	54.000	AVERAGE
3	*	5460.000	38.157	12.753	50.910	-3.090	54.000	AVERAGE

## 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 : 2012/06/13 - 13:10
Limit : FCC_SpartE_15.407_H_03M_PK	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - VERTICAL	Power : AC 120V/60Hz
EUT : Wireless Extender	Note : 802.11n 20MHz_5240MHz



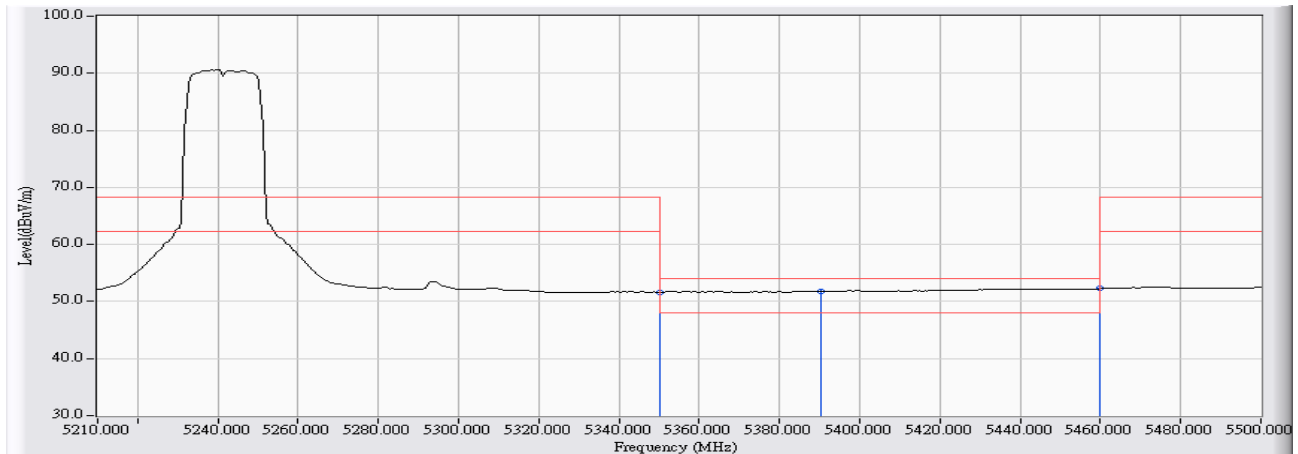
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		5350.000	37.755	25.532	63.287	-10.713	74.000	PEAK
2	*	5411.067	37.978	27.718	65.696	-8.304	74.000	PEAK
3		5460.000	38.157	26.526	64.683	-9.317	74.000	PEAK

## 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 : 2012/06/13 - 13:11
Limit : FCC_SpartE_15.407_H_03M_AV	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - VERTICAL	Power : AC 120V/60Hz
EUT : Wireless Extender	Note : 802.11n 20MHz_5240MHz

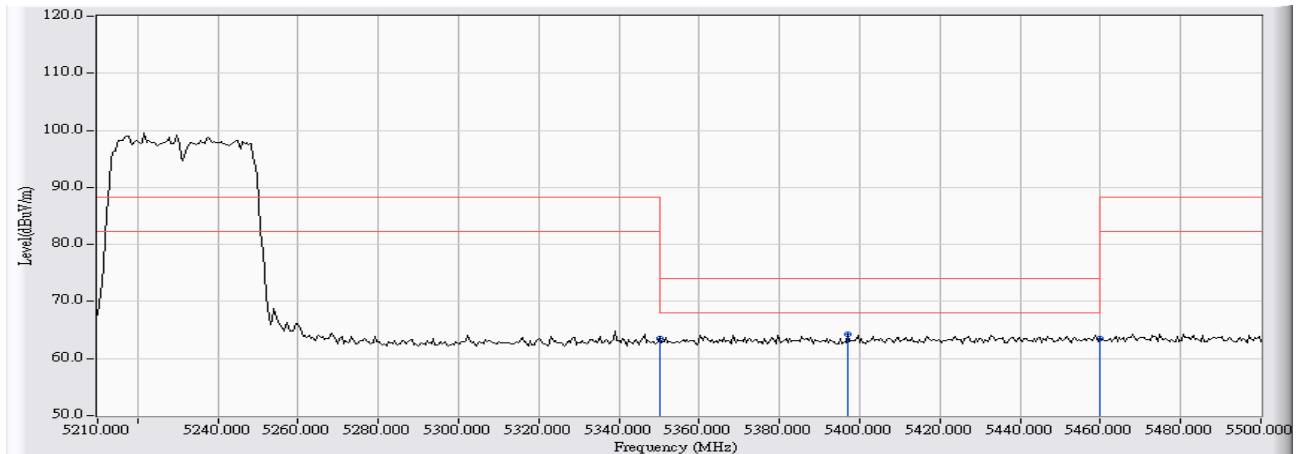


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		5350.000	37.755	13.874	51.629	-2.371	54.000	AVERAGE
2		5390.283	37.902	13.831	51.733	-2.267	54.000	AVERAGE
3	*	5460.000	38.157	14.090	52.247	-1.753	54.000	AVERAGE

## 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 : 2012/06/13 - 13:18
Limit : FCC_SpartE_15.407_H_03M_PK	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - HORIZONTAL	Power : AC 120V/60Hz
EUT : Wireless Extender	Note : 802.11n 40MHz_5230MHz

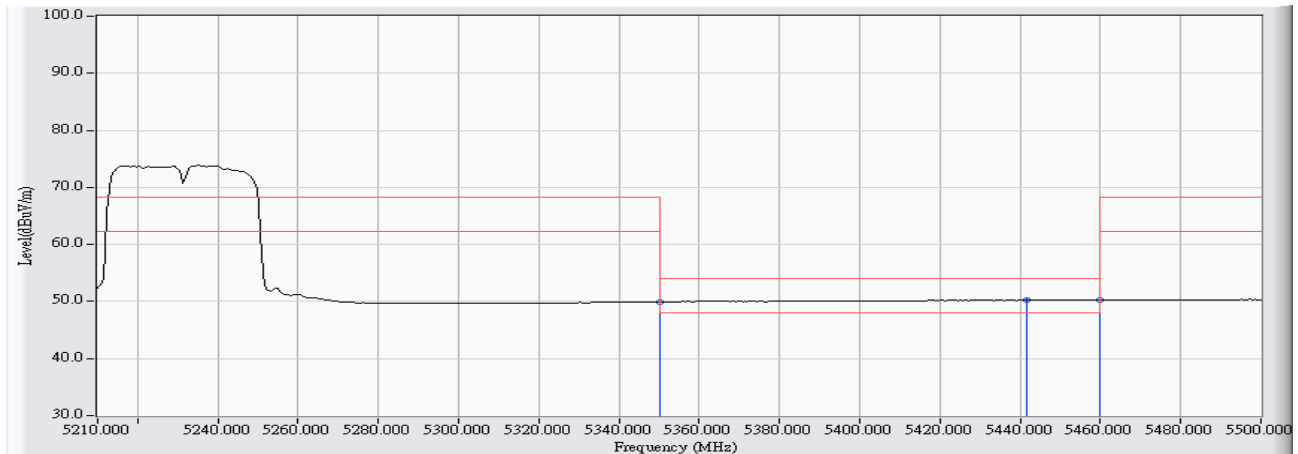


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		5350.000	37.755	25.767	63.522	-10.478	74.000	PEAK
2	*	5397.050	37.927	26.303	64.230	-9.770	74.000	PEAK
3		5460.000	38.157	25.413	63.570	-10.430	74.000	PEAK

## 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 : 2012/06/13 - 13:20
Limit : FCC_SpartE_15.407_H_03M_AV	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - HORIZONTAL	Power : AC 120V/60Hz
EUT : Wireless Extender	Note : 802.11n 40MHz_5230MHz

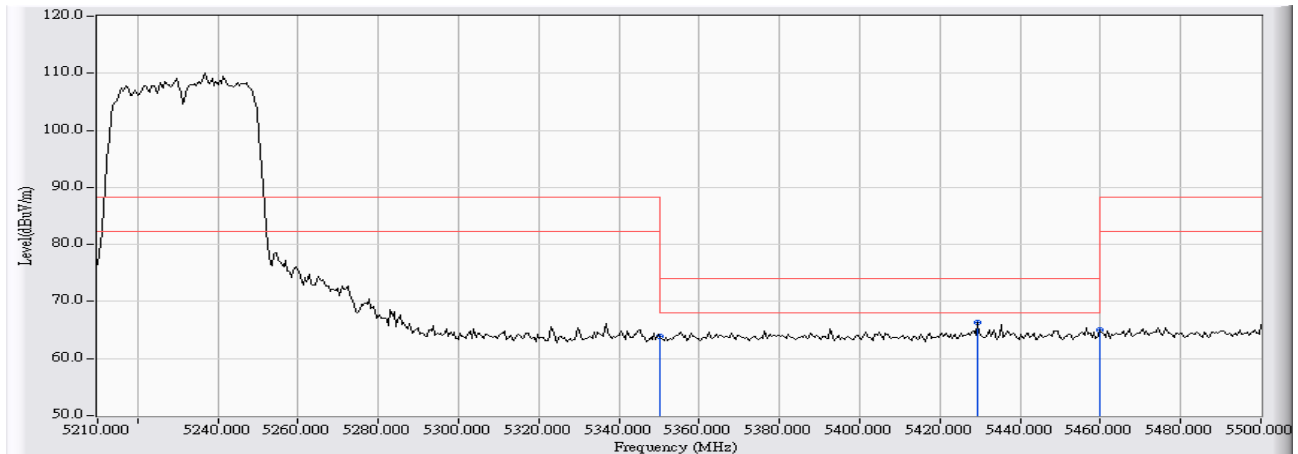


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		5350.000	37.755	12.147	49.902	-4.098	54.000	AVERAGE
2		5441.517	38.090	12.124	50.213	-3.787	54.000	AVERAGE
3	*	5460.000	38.157	12.074	50.231	-3.769	54.000	AVERAGE

**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.

Site : CB1	Time : 2012/06/13 - 13:23
Limit : FCC_SpartE_15.407_H_03M_PK	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - VERTICAL	Power : AC 120V/60Hz
EUT : Wireless Extender	Note : 802.11n 40MHz_5230MHz

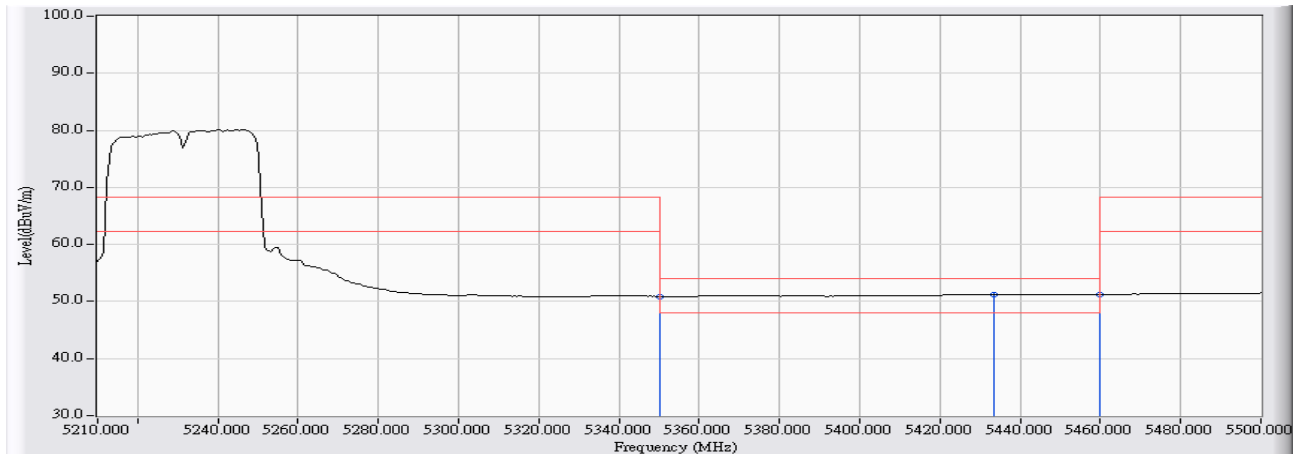


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		5350.000	37.755	26.131	63.886	-10.114	74.000	PEAK
2	*	5429.433	38.045	28.228	66.273	-7.727	74.000	PEAK
3		5460.000	38.157	26.787	64.944	-9.056	74.000	PEAK

## 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 : 2012/06/13 - 13:24
Limit : FCC_SpartE_15.407_H_03M_AV	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - VERTICAL	Power : AC 120V/60Hz
EUT : Wireless Extender	Note : 802.11n 40MHz_5230MHz



		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		5350.000	37.755	13.151	50.906	-3.094	54.000	AVERAGE
2	*	5433.300	38.059	13.183	51.242	-2.758	54.000	AVERAGE
3		5460.000	38.157	13.033	51.190	-2.810	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.

Product	Wireless Extender		
Test Item	Band Edge		
Test Mode	Mode 1: Transmit		
Date of Test	2012/06/18	Test Site	SR7

## IEEE 802.11a

Channel No.	Frequency (MHz)	Measure Value (MHz)	Required Limit (MHz)	Result
48	5240	5248.562	≤5250	Pass

### Channel 48



#### MARKER 1

5.2386875 GHz

Ref 20 dBm

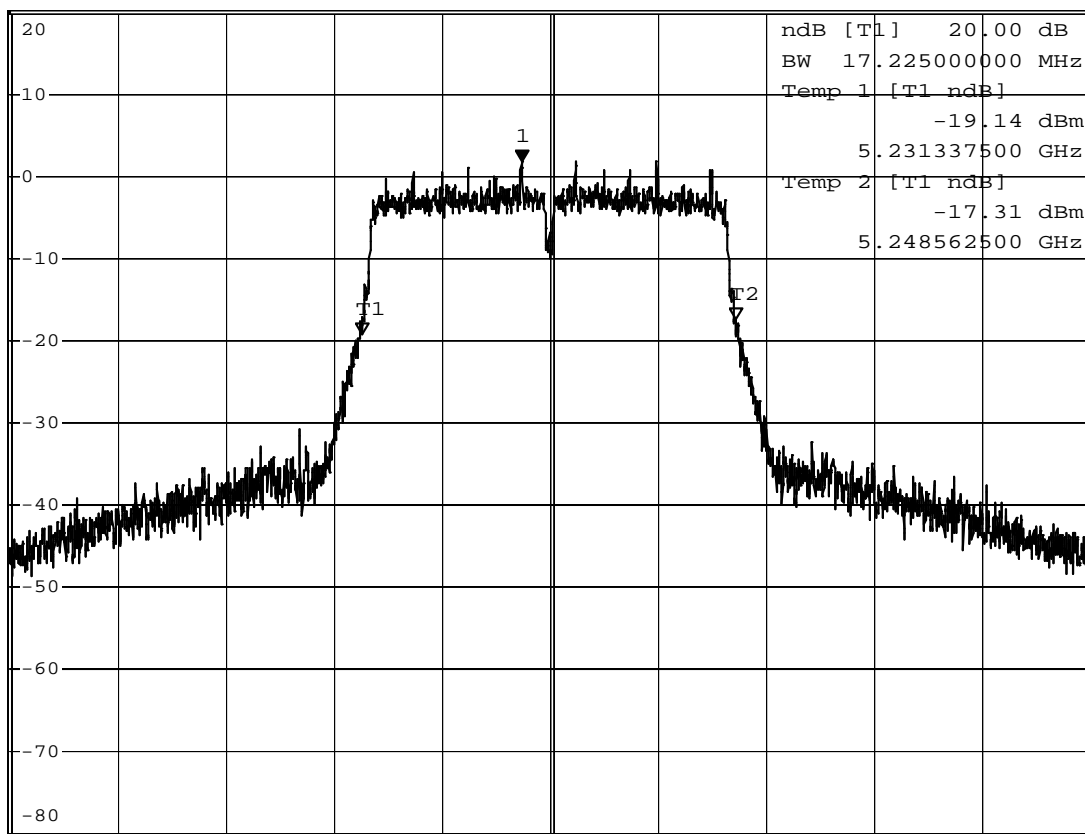
\*Att 30 dB

\*RBW 100 kHz Marker 1 [T1 ]

\*VBW 100 kHz 1.88 dBm

SWT 20 ms

5.238687500 GHz

1 PK  
VIEW


Center 5.24 GHz

5 MHz/

Span 50 MHz

Date: 18.JUN.2012 16:55:06

Product	Wireless Extender		
Test Item	Band Edge		
Test Mode	Mode 1: Transmit		
Date of Test	2012/06/18	Test Site	SR7

IEEE 802.11n (20MHz), (ANT 0)

Channel No.	Frequency (MHz)	Measure Value (MHz)	Required Limit (MHz)	Result
48	5240	5248.962	$\leq 5250$	Pass

## Channel 48


**MARKER 1**

5.2386875 GHz

Ref 20 dBm

\*Att 30 dB

\*RBW 100 kHz

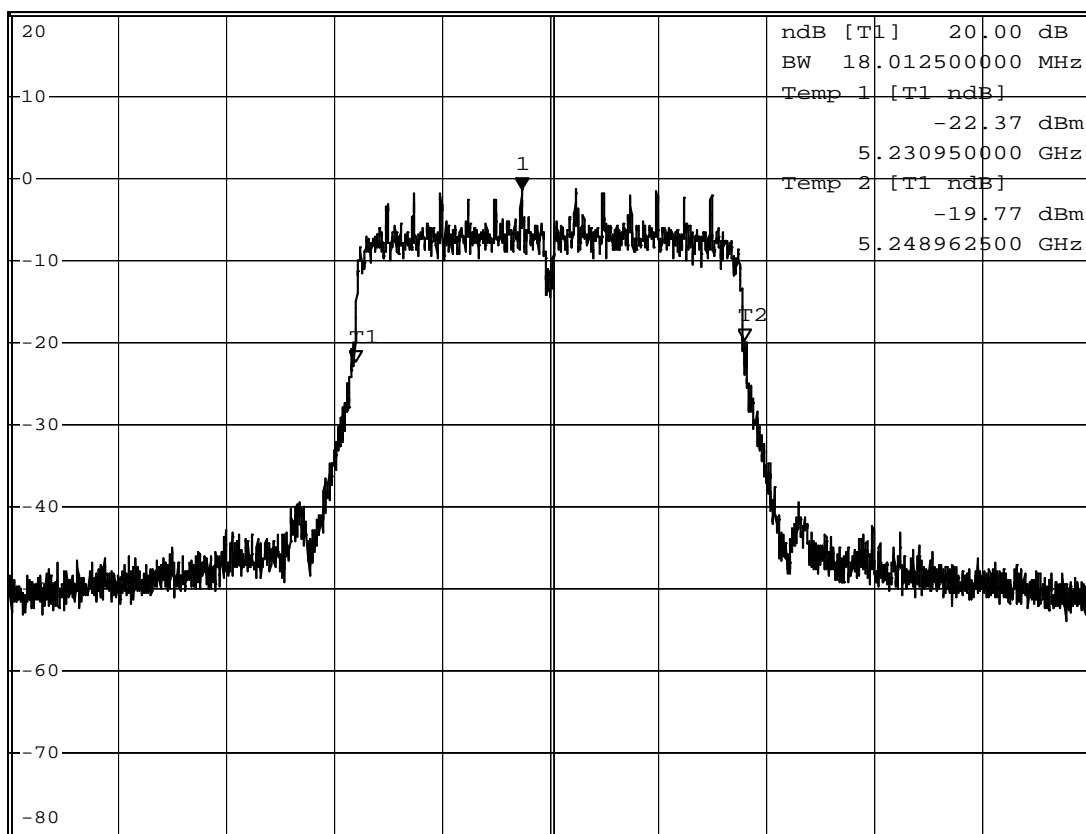
Marker 1 [T1 ]

\*VBW 100 kHz

-1.32 dBm

SWT 20 ms

5.238687500 GHz

1 PK  
VIEW


Center 5.24 GHz

5 MHz/

Span 50 MHz

Date: 18.JUN.2012 16:56:42

Product	Wireless Extender		
Test Item	Band Edge		
Test Mode	Mode 1: Transmit		
Date of Test	2012/06/18	Test Site	SR7

IEEE 802.11n (20MHz), (ANT 1)

Channel No.	Frequency (MHz)	Measure Value (MHz)	Required Limit (MHz)	Result
48	5240	5248.975	≤5250	Pass

## Channel 48


**MARKER 1**

5.2449375 GHz

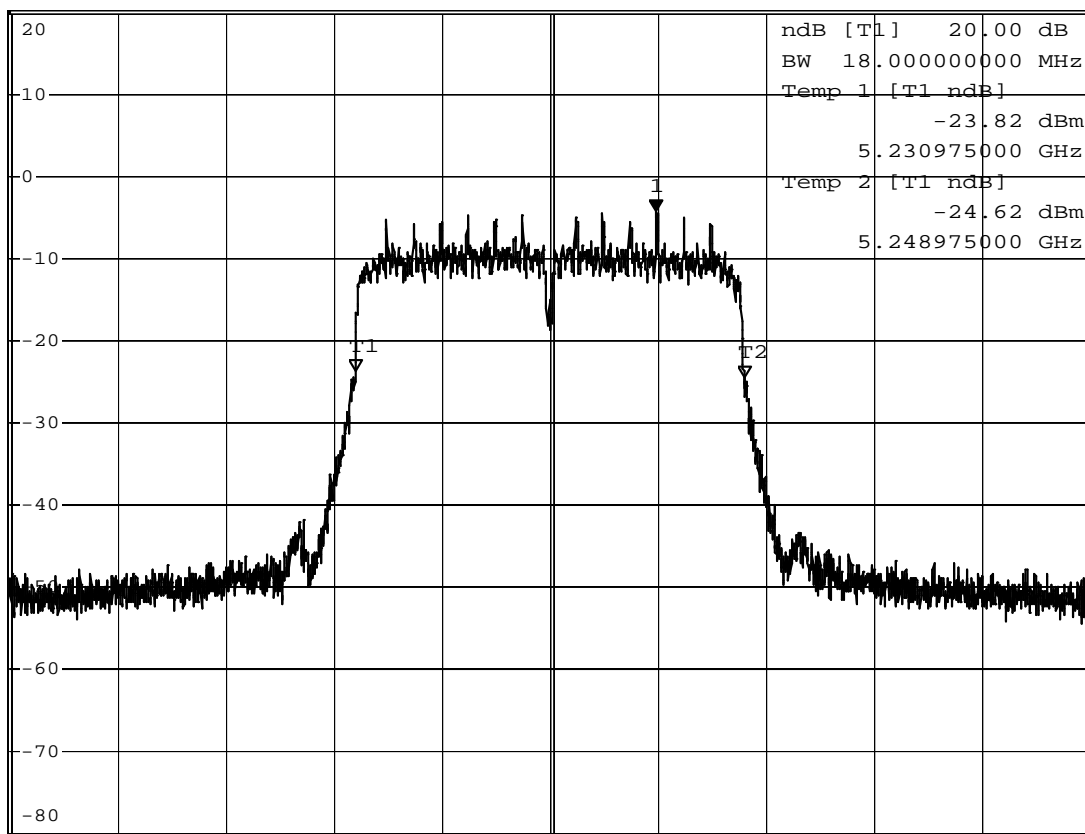
Ref 20 dBm

\*Att 30 dB

\*RBW 100 kHz Marker 1 [T1 ]

\*VBW 100 kHz -4.36 dBm

SWT 20 ms 5.244937500 GHz

1 PK  
VIEW


Center 5.24 GHz

5 MHz/

Span 50 MHz

Date: 18.JUN.2012 17:49:23



Product	Wireless Extender		
Test Item	Band Edge		
Test Mode	Mode 1: Transmit		
Date of Test	2012/06/18	Test Site	SR7

IEEE 802.11n (20MHz), (ANT 2)

Channel No.	Frequency (MHz)	Measure Value (MHz)	Required Limit (MHz)	Result
48	5240	5248.950	≤5250	Pass

## Channel 48



### MARKER 1

5.244975 GHz

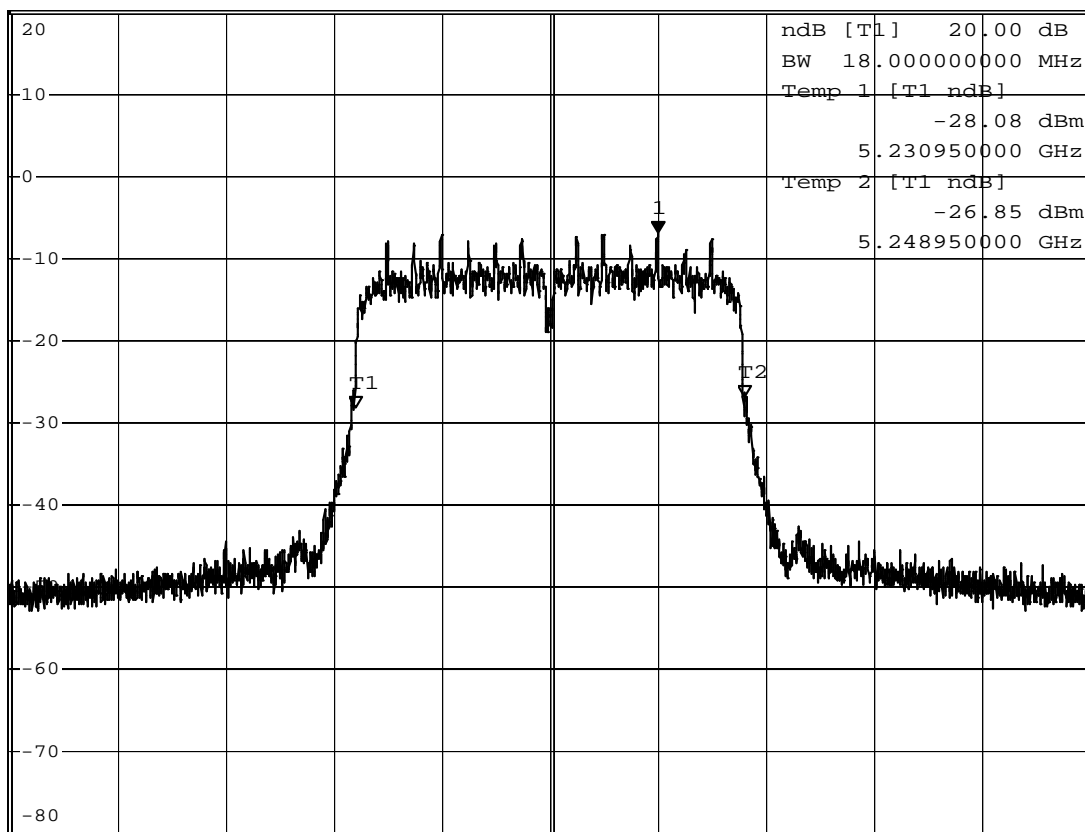
Ref 20 dBm

\*Att 30 dB

\*RBW 100 kHz Marker 1 [T1 ]

\*VBW 100 kHz -7.01 dBm

SWT 20 ms 5.244975000 GHz

1 PK  
MAXH


Date: 18.JUN.2012 17:50:04

Product	Wireless Extender		
Test Item	Band Edge		
Test Mode	Mode 1: Transmit		
Date of Test	2012/06/18	Test Site	SR7

IEEE 802.11n (40MHz), (ANT 0)

Channel No.	Frequency (MHz)	Measure Value (MHz)	Required Limit (MHz)	Result
46	5230	5248.340	≤5250	Pass

## Channel 46


**MARKER 1**

5.23372 GHz

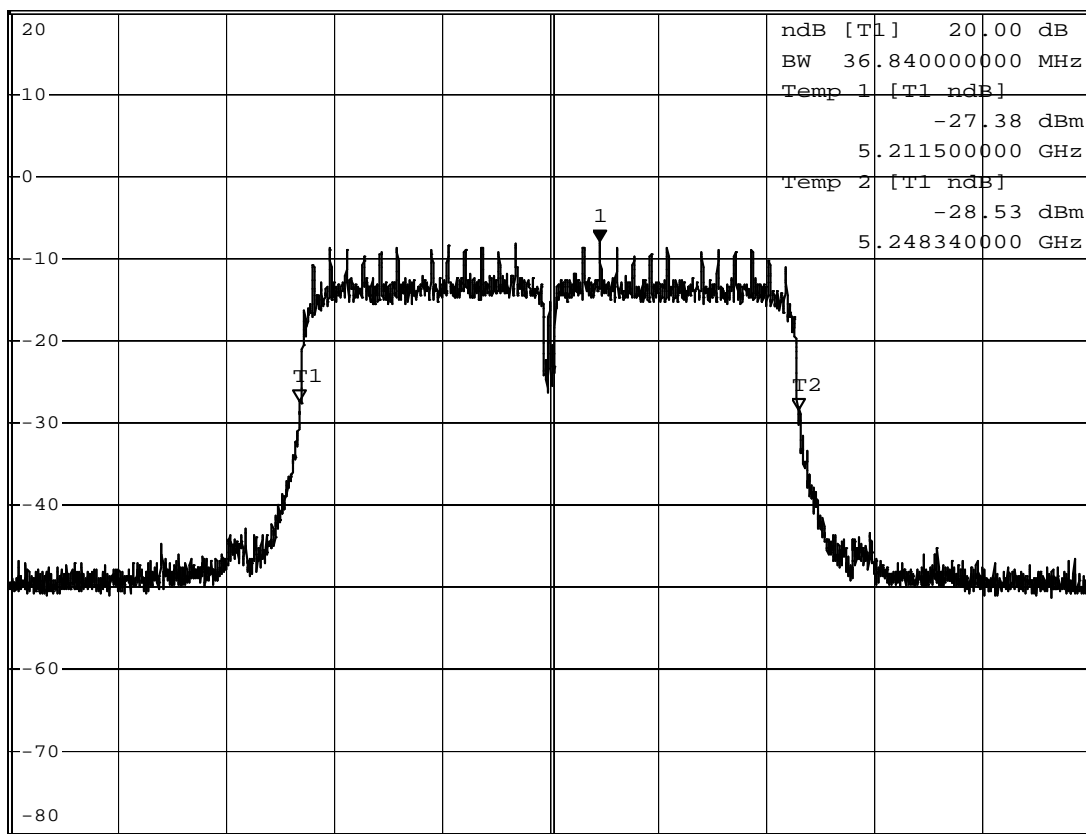
Ref 20 dBm

\*Att 30 dB

\*RBW 100 kHz Marker 1 [T1 ]

\*VBW 100 kHz -8.05 dBm

SWT 20 ms 5.233720000 GHz

1 PK  
MAXH


Center 5.23 GHz

8 MHz/

Span 80 MHz

Date: 18.JUN.2012 17:56:47

Product	Wireless Extender		
Test Item	Band Edge		
Test Mode	Mode 1: Transmit		
Date of Test	2012/06/18	Test Site	SR7

IEEE 802.11n (40MHz), (ANT 1)				
Channel No.	Frequency (MHz)	Measure Value (MHz)	Required Limit (MHz)	Result
46	5230	5248.320	$\leq 5250$	Pass

## Channel 46



### MARKER 1

5.22496 GHz

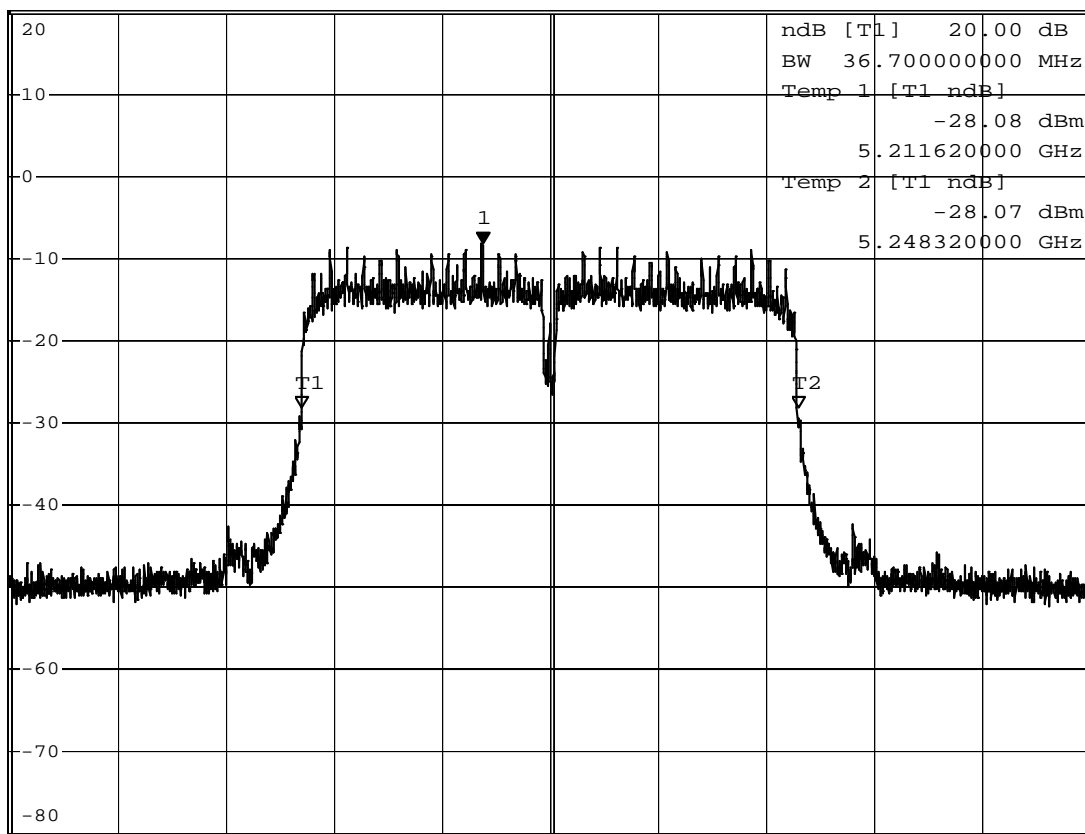
Ref 20 dBm

\*Att 30 dB

\*RBW 100 kHz Marker 1 [T1 ]

\*VBW 100 kHz -8.29 dBm

SWT 20 ms 5.224960000 GHz

1 PK  
MAXH


Center 5.23 GHz

8 MHz/

Span 80 MHz

Date: 18.JUN.2012 17:55:10

Product	Wireless Extender		
Test Item	Band Edge		
Test Mode	Mode 1: Transmit		
Date of Test	2012/06/18	Test Site	SR7

IEEE 802.11n (40MHz), (ANT 2)

Channel No.	Frequency (MHz)	Measure Value (MHz)	Required Limit (MHz)	Result
46	5230	5248.320	≤5250	Pass

## Channel 46


**MARKER 1**

5.23248 GHz

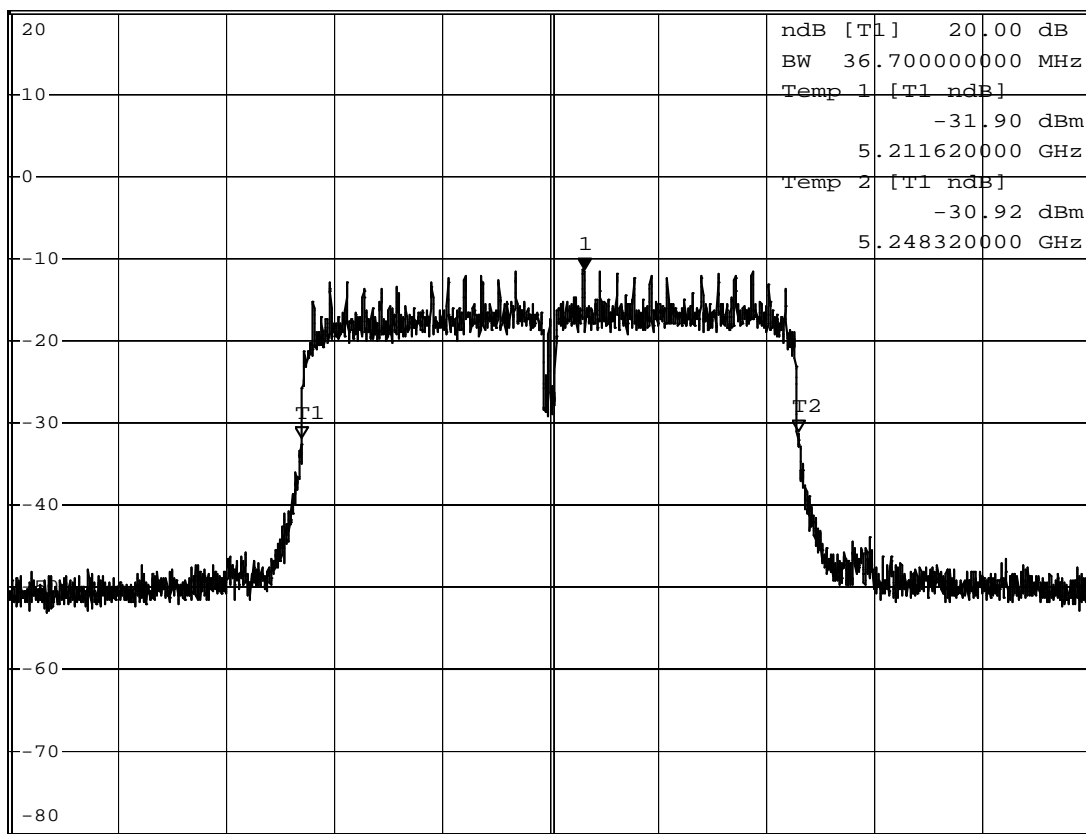
Ref 20 dBm

\*Att 30 dB

\*RBW 100 kHz Marker 1 [T1 ]

\*VBW 100 kHz -11.49 dBm

SWT 20 ms 5.232480000 GHz

1 PK  
VIEW


Center 5.23 GHz

8 MHz/

Span 80 MHz

Date: 18.JUN.2012 17:53:35

## 9. Frequency Stability

### 9.1. Test Equipment

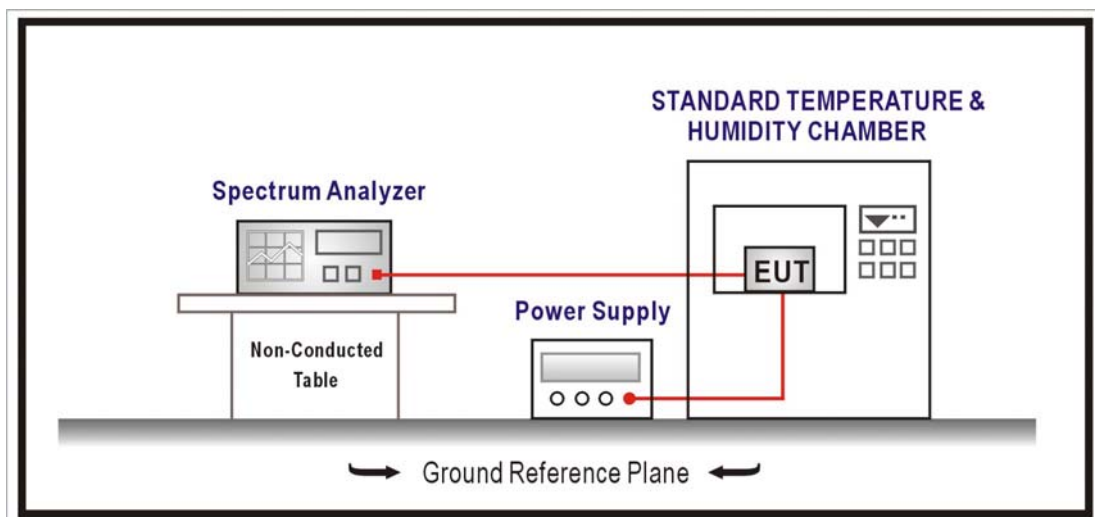
The following test equipments are used during the radiated emission tests:

#### Frequency Stability / SR7

Instrument	Manufacturer	Model No.	Serial No	Next Cal. Date
Spectrum Analyzer	R&S	FSP	100561	2013/02/19
Standard Temperature & Humidity Chamber	WIT	TH-1S-B	1082101	2013/01/29

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

### 9.2. Test Setup



### 9.3. Limits

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

### 9.4. Test Procedure

The EUT was setup to ANSI C63.4, 2009; tested to U-NII test procedure of March 2012 KDB 789033 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	Wireless Extender		
Test Item	Frequency Stability		
Test Mode	Mode 1: Transmit - 802.11a - 5180MHz(ANT 0)		
Date of Test	2012/04/05	Test Site	SR7

Temperature Interval (°C)	AC Voltage (V)	Frequency (MHz)	Deviation (ppm)	Result
-20	120	5180.1889	36.4648	Pass
-10		5180.0457	8.8136	Pass
0		5180.3632	70.1149	Pass
10		5180.4296	82.9295	Pass
20		5180.7448	143.7872	Pass
30		5180.7443	143.6862	Pass
40		5180.1061	20.4778	Pass
50		5180.6528	126.0320	Pass

Temperature Interval (°C)	AC Voltage (V)	Frequency (MHz)	Deviation (ppm)	Result
25	102	5180.2357	45.5001	Pass
	120	5180.1146	22.1323	Pass
	138	5180.2217	42.7921	Pass

Product	Wireless Extender		
Test Item	Frequency Stability		
Test Mode	Mode 1: Transmit - 802.11a - 5220MHz(ANT 0)		
Date of Test	2012/04/05	Test Site	SR7

Temperature Interval (°C)	AC Voltage (V)	Frequency (MHz)	Deviation (ppm)	Result
-20	120	5220.4448	85.2171	Pass
-10		5220.6554	125.5496	Pass
0		5220.1297	24.8478	Pass
10		5220.0912	17.4792	Pass
20		5220.8252	158.0799	Pass
30		5220.4346	83.2658	Pass
40		5220.4573	87.6024	Pass
50		5220.6574	125.9314	Pass

Temperature Interval (°C)	AC Voltage (V)	Frequency (MHz)	Deviation (ppm)	Result
25	102	5220.1280	24.5193	Pass
	120	5220.2900	55.5528	Pass
	138	5220.7788	149.2040	Pass

Product	Wireless Extender		
Test Item	Frequency Stability		
Test Mode	Mode 1: Transmit - 802.11a - 5240MHz(ANT 0)		
Date of Test	2012/04/05	Test Site	SR7

Temperature Interval (°C)	AC Voltage (V)	Frequency (MHz)	Deviation (ppm)	Result
-20	120	5240.2381	45.4393	Pass
-10		5240.4193	80.0096	Pass
0		5240.1456	27.7923	Pass
10		5240.3388	64.6528	Pass
20		5240.0577	11.0095	Pass
30		5240.6629	126.5103	Pass
40		5240.0693	13.2329	Pass
50		5240.7802	148.8990	Pass

Temperature Interval (°C)	AC Voltage (V)	Frequency (MHz)	Deviation (ppm)	Result
25	102	5240.6474	123.5441	Pass
	120	5240.0422	8.0522	Pass
	138	5240.5750	109.7325	Pass



Product	Wireless Extender		
Test Item	Frequency Stability		
Test Mode	Mode 1: Transmit - 802.11n_20M - 5180MHz(ANT 0)		
Date of Test	2012/04/05	Test Site	SR7

Temperature Interval (°C)	AC Voltage (V)	Frequency (MHz)	Deviation (ppm)	Result
-20	120	5180.3988	76.9796	Pass
-10		5180.4869	94.0034	Pass
0		5180.7030	135.7202	Pass
10		5180.7536	145.4817	Pass
20		5180.5464	105.4744	Pass
30		5180.1655	31.9430	Pass
40		5180.7213	139.2565	Pass
50		5180.6578	126.9808	Pass

Temperature Interval (°C)	AC Voltage (V)	Frequency (MHz)	Deviation (ppm)	Result
25	102	5180.4581	88.4319	Pass
	120	5180.3383	65.3125	Pass
	138	5180.0210	4.0571	Pass

Product	Wireless Extender		
Test Item	Frequency Stability		
Test Mode	Mode 1: Transmit - 802.11n_20M - 5220MHz(ANT 0)		
Date of Test	2012/04/05	Test Site	SR7

Temperature Interval (°C)	AC Voltage (V)	Frequency (MHz)	Deviation (ppm)	Result
-20	120	5220.6538	125.2396	Pass
-10		5220.5587	107.0374	Pass
0		5220.4182	80.1125	Pass
10		5220.0341	6.5243	Pass
20		5220.4199	80.4470	Pass
30		5220.5258	100.7291	Pass
40		5220.6960	133.3289	Pass
50		5220.0170	3.2565	Pass

Temperature Interval (°C)	AC Voltage (V)	Frequency (MHz)	Deviation (ppm)	Result
25	102	5220.1037	19.8629	Pass
	120	5220.1475	28.2505	Pass
	138	5220.5488	105.1248	Pass

Product	Wireless Extender		
Test Item	Frequency Stability		
Test Mode	Mode 1: Transmit - 802.11n_20M - 5240MHz(ANT 0)		
Date of Test	2012/04/05	Test Site	SR7

Temperature Interval (°C)	AC Voltage (V)	Frequency (MHz)	Deviation (ppm)	Result
-20	120	5240.4417	84.2854	Pass
-10		5240.6215	118.6124	Pass
0		5240.4286	81.7991	Pass
10		5240.4397	83.9032	Pass
20		5240.7216	137.7142	Pass
30		5240.6461	123.3079	Pass
40		5240.8645	164.9754	Pass
50		5240.4617	88.1111	Pass

Temperature Interval (°C)	AC Voltage (V)	Frequency (MHz)	Deviation (ppm)	Result
25	102	5240.8946	170.7288	Pass
	120	5240.7784	148.5421	Pass
	138	5240.7700	146.9531	Pass

Product	Wireless Extender		
Test Item	Frequency Stability		
Test Mode	Mode 1: Transmit - 802.11n_20M - 5180MHz(ANT 1)		
Date of Test	2012/04/05	Test Site	SR7

Temperature Interval (°C)	AC Voltage (V)	Frequency (MHz)	Deviation (ppm)	Result
-20	120	5180.7418	143.1961	Pass
-10		5180.6201	119.7191	Pass
0		5180.3330	64.2852	Pass
10		5180.8554	165.1386	Pass
20		5180.6512	125.7107	Pass
30		5180.0443	8.5437	Pass
40		5180.1330	25.6840	Pass
50		5180.0047	0.9093	Pass

Temperature Interval (°C)	AC Voltage (V)	Frequency (MHz)	Deviation (ppm)	Result
25	102	5180.3738	72.1574	Pass
	120	5180.4136	79.8514	Pass
	138	5180.7504	144.8609	Pass

Product	Wireless Extender		
Test Item	Frequency Stability		
Test Mode	Mode 1: Transmit - 802.11n_20M - 5220MHz(ANT 1)		
Date of Test	2012/04/05	Test Site	SR7

Temperature Interval (°C)	AC Voltage (V)	Frequency (MHz)	Deviation (ppm)	Result
-20	120	5220.3162	60.5726	Pass
-10		5220.0454	8.7059	Pass
0		5220.8607	164.8837	Pass
10		5220.4832	92.5762	Pass
20		5220.6750	129.3129	Pass
30		5220.7313	140.0930	Pass
40		5220.2784	53.3256	Pass
50		5220.5078	97.2784	Pass

Temperature Interval (°C)	AC Voltage (V)	Frequency (MHz)	Deviation (ppm)	Result
25	102	5220.4453	85.3031	Pass
	120	5220.2975	56.9879	Pass
	138	5220.3119	59.7468	Pass

Product	Wireless Extender		
Test Item	Frequency Stability		
Test Mode	Mode 1: Transmit - 802.11n_20M - 5240MHz(ANT 1)		
Date of Test	2012/04/05	Test Site	SR7

Temperature Interval (°C)	AC Voltage (V)	Frequency (MHz)	Deviation (ppm)	Result
-20	120	5240.2884	55.0407	Pass
-10		5240.1899	36.2456	Pass
0		5240.6643	126.7664	Pass
10		5240.6475	123.5611	Pass
20		5240.3956	75.4959	Pass
30		5240.0644	12.2865	Pass
40		5240.6779	129.3768	Pass
50		5240.8820	168.3171	Pass

Temperature Interval (°C)	AC Voltage (V)	Frequency (MHz)	Deviation (ppm)	Result
25	102	5240.5430	103.6220	Pass
	120	5240.8941	170.6299	Pass
	138	5240.7552	144.1306	Pass

Product	Wireless Extender		
Test Item	Frequency Stability		
Test Mode	Mode 1: Transmit - 802.11n_20M - 5180MHz(ANT 2)		
Date of Test	2012/04/05	Test Site	SR7

Temperature Interval (°C)	AC Voltage (V)	Frequency (MHz)	Deviation (ppm)	Result
-20	120	5180.3447	66.5526	Pass
-10		5180.6627	127.9423	Pass
0		5180.1722	33.2354	Pass
10		5180.7664	147.9548	Pass
20		5180.3602	69.5442	Pass
30		5180.1967	37.9733	Pass
40		5180.5970	115.2420	Pass
50		5180.2704	52.1916	Pass

Temperature Interval (°C)	AC Voltage (V)	Frequency (MHz)	Deviation (ppm)	Result
25	102	5180.1061	20.4830	Pass
	120	5180.0023	0.4433	Pass
	138	5180.2420	46.7248	Pass

Product	Wireless Extender		
Test Item	Frequency Stability		
Test Mode	Mode 1: Transmit - 802.11n_20M - 5220MHz(ANT 2)		
Date of Test	2012/04/05	Test Site	SR7

Temperature Interval (°C)	AC Voltage (V)	Frequency (MHz)	Deviation (ppm)	Result
-20	120	5220.1549	29.6816	Pass
-10		5220.5926	113.5288	Pass
0		5220.3482	66.6989	Pass
10		5220.5571	106.7231	Pass
20		5220.6036	115.6313	Pass
30		5220.6788	130.0362	Pass
40		5220.5138	98.4246	Pass
50		5220.1407	26.9483	Pass

Temperature Interval (°C)	AC Voltage (V)	Frequency (MHz)	Deviation (ppm)	Result
25	102	5220.8670	166.0919	Pass
	120	5220.4633	88.7555	Pass
	138	5220.7972	152.7120	Pass



Product	Wireless Extender		
Test Item	Frequency Stability		
Test Mode	Mode 1: Transmit - 802.11n_20M - 5240MHz(ANT 2)		
Date of Test	2012/04/05	Test Site	SR7

Temperature Interval (°C)	AC Voltage (V)	Frequency (MHz)	Deviation (ppm)	Result
-20	120	5240.5913	112.8348	Pass
-10		5240.7197	137.3478	Pass
0		5240.6897	131.6261	Pass
10		5240.5383	102.7356	Pass
20		5240.5713	109.0357	Pass
30		5240.7893	150.6298	Pass
40		5240.2045	39.0186	Pass
50		5240.2655	50.6614	Pass

Temperature Interval (°C)	AC Voltage (V)	Frequency (MHz)	Deviation (ppm)	Result
25	102	5240.0645	12.3023	Pass
	120	5240.2722	51.9434	Pass
	138	5240.3019	57.6226	Pass

Product	Wireless Extender		
Test Item	Frequency Stability		
Test Mode	Mode 1: Transmit - 802.11n_40M - 5190MHz(ANT 0)		
Date of Test	2012/04/05	Test Site	SR7

Temperature Interval (°C)	AC Voltage (V)	Frequency (MHz)	Deviation (ppm)	Result
-20	120	5190.7644	147.2796	Pass
-10		5190.5837	112.4625	Pass
0		5190.4133	79.6332	Pass
10		5190.1735	33.4256	Pass
20		5190.2236	43.0913	Pass
30		5190.5960	114.8332	Pass
40		5190.6528	125.7815	Pass
50		5190.6989	134.6664	Pass

Temperature Interval (°C)	AC Voltage (V)	Frequency (MHz)	Deviation (ppm)	Result
25	102	5190.2681	51.6586	Pass
	120	5190.7903	152.2655	Pass
	138	5190.6125	118.0101	Pass

Product	Wireless Extender		
Test Item	Frequency Stability		
Test Mode	Mode 1: Transmit - 802.11n_40M - 5230MHz(ANT 0)		
Date of Test	2012/04/05	Test Site	SR7

Temperature Interval (°C)	AC Voltage (V)	Frequency (MHz)	Deviation (ppm)	Result
-20	120	5230.4627	88.4794	Pass
-10		5230.6296	120.3868	Pass
0		5230.7194	137.5542	Pass
10		5230.5010	95.7903	Pass
20		5230.0467	8.9328	Pass
30		5230.0148	2.8378	Pass
40		5230.1490	28.4867	Pass
50		5230.8751	167.3234	Pass

Temperature Interval (°C)	AC Voltage (V)	Frequency (MHz)	Deviation (ppm)	Result
25	102	5230.1783	34.0890	Pass
	120	5230.7201	137.6915	Pass
	138	5230.3540	67.6875	Pass

Product	Wireless Extender		
Test Item	Frequency Stability		
Test Mode	Mode 1: Transmit - 802.11n_40M - 5190MHz(ANT 1)		
Date of Test	2012/04/05	Test Site	SR7

Temperature Interval (°C)	AC Voltage (V)	Frequency (MHz)	Deviation (ppm)	Result
-20	120	5190.7200	138.7333	Pass
-10		5190.8979	172.9983	Pass
0		5190.7841	151.0779	Pass
10		5190.3821	73.6136	Pass
20		5190.2498	48.1238	Pass
30		5190.6069	116.9423	Pass
40		5190.1552	29.9114	Pass
50		5190.2027	39.0517	Pass

Temperature Interval (°C)	AC Voltage (V)	Frequency (MHz)	Deviation (ppm)	Result
25	102	5190.7497	144.4435	Pass
	120	5190.7929	152.7830	Pass
	138	5190.8923	171.9217	Pass

Product	Wireless Extender		
Test Item	Frequency Stability		
Test Mode	Mode 1: Transmit - 802.11n_40M - 5230MHz(ANT 1)		
Date of Test	2012/04/05	Test Site	SR7

Temperature Interval (°C)	AC Voltage (V)	Frequency (MHz)	Deviation (ppm)	Result
-20	120	5230.2310	44.1591	Pass
-10		5230.7894	150.9290	Pass
0		5230.7839	149.8775	Pass
10		5230.7729	147.7800	Pass
20		5230.1385	26.4852	Pass
30		5230.6723	128.5394	Pass
40		5230.0676	12.9316	Pass
50		5230.2080	39.7614	Pass

Temperature Interval (°C)	AC Voltage (V)	Frequency (MHz)	Deviation (ppm)	Result
25	102	5230.7986	152.6880	Pass
	120	5230.3874	74.0754	Pass
	138	5230.6841	130.7965	Pass

Product	Wireless Extender		
Test Item	Frequency Stability		
Test Mode	Mode 1: Transmit - 802.11n_40M - 5190MHz(ANT 2)		
Date of Test	2012/04/05	Test Site	SR7

Temperature Interval (°C)	AC Voltage (V)	Frequency (MHz)	Deviation (ppm)	Result
-20	120	5190.2895	55.7790	Pass
-10		5190.2807	54.0871	Pass
0		5190.3632	69.9765	Pass
10		5190.2640	50.8576	Pass
20		5190.4517	87.0294	Pass
30		5190.0666	12.8414	Pass
40		5190.4315	83.1413	Pass
50		5190.7835	150.9682	Pass

Temperature Interval (°C)	AC Voltage (V)	Frequency (MHz)	Deviation (ppm)	Result
25	102	5190.6177	119.0257	Pass
	120	5190.1911	36.8302	Pass
	138	5190.0619	11.9353	Pass

Product	Wireless Extender		
Test Item	Frequency Stability		
Test Mode	Mode 1: Transmit - 802.11n_40M - 5230MHz(ANT 2)		
Date of Test	2012/04/05	Test Site	SR7

Temperature Interval (°C)	AC Voltage (V)	Frequency (MHz)	Deviation (ppm)	Result
-20	120	5230.3830	73.2265	Pass
-10		5230.3027	57.8821	Pass
0		5230.5385	102.9619	Pass
10		5230.3096	59.1985	Pass
20		5230.6507	124.4082	Pass
30		5230.2712	51.8539	Pass
40		5230.5044	96.4381	Pass
50		5230.0222	4.2509	Pass

Temperature Interval (°C)	AC Voltage (V)	Frequency (MHz)	Deviation (ppm)	Result
25	102	5230.7100	135.7647	Pass
	120	5230.7310	139.7695	Pass
	138	5230.8869	169.5711	Pass