

Test Item : Band Edge Data
Test Site : No.3 OATS

Test Mode : Mode 1: Transmit (802.11b 11Mbps)

## Fundamental Filed Strength

Antenna Pole	Frequency [MHz]	Correction Factor [dB/m]	Reading Level [dBuV]	Emission Level [dBuV/m]	Detector
Horizontal	2462	32.019	70.84	102.859	Peak
Horizontal	2462	32.019	58	90.019	Average
Vertical	2462	31.29	70.71	102	Peak
Vertical	2462	31.29	58.03	89.32	Average

Note: 1:Spectrum Analyzer setting:

Peak detector: RBW=1MHz, VBW=1MHz Average detector: RBW=1MHz, VBW=10Hz

#### Band Edge Test Data

Antenna Pole	Test Frequency (MHz)	Fundamental (dBuV/m)	Δ (dB)	Band Edge Field Strength (dBuV/m)	Limit (dBuV/m)	Detector
Horizontal	2485.6	102.859	53.7	49.159	74.000	Peak
Horizontal	2483.5	90.019	53.75	36.269	54.000	Average
Vertical	2485.6	102	53.7	48.3	74.000	Peak
Vertical	2483.5	89.32	53.75	35.57	54.000	Average

#### Note:

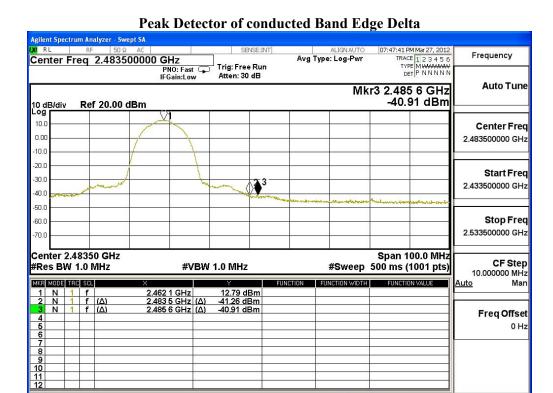
The Band Edge Field Strength was calculated using the Fundamental and Conducted Band Edge measurements per the Marker-Delta Method with the following formula:

Band Edge field Strength =  $F - \Delta$ 

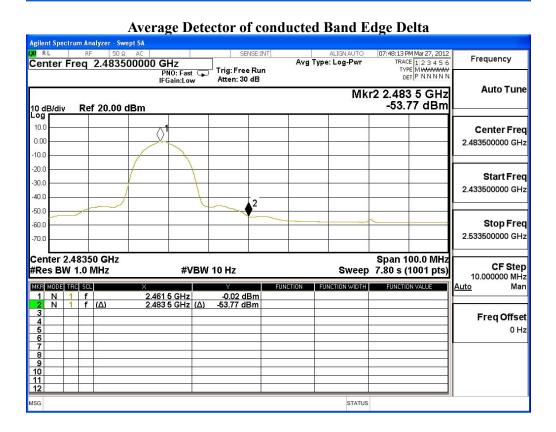
F = Fundamental field Strength (Peak or Average)

 $\Delta$  = Conducted Band Edge Delta (Peak or Average)





STATUS





Test Item : Band Edge Data
Test Site : No.3 OATS

Test Mode : Mode 2: Transmit (802.11g 54Mbps)

#### Fundamental Filed Strength

Antenna	Frequency	<b>Correction Factor</b>	Reading Level	<b>Emission Level</b>	Detector
Pole	[MHz]	[dB/m]	[dBuV]	[dBuV/m]	
Horizontal	2412	31.639	72.74	104.378	Peak
Horizontal	2412	31.639	43.29	74.928	Average
Vertical	2412	30.95	74.12	105.069	Peak
Vertical	2412	30.95	43.63	74.579	Average

Note: 1:Spectrum Analyzer setting:

Peak detector: RBW=1MHz, VBW=1MHz Average detector: RBW=1MHz, VBW=10Hz

#### Band Edge Test Data

Antenna Pole	Test Frequency (MHz) Fundamental (dBuV/m)		Δ (dB)	Band Edge Field Strength (dBuV/m)	Limit (dBuV/m)	Detector
Horizontal	2389.4	104.378	41.06	63.318	74.000	Peak
Horizontal	2390	74.928	31.27	43.658	54.000	Average
Vertical	2389.4	105.069	41.06	64.009	74.000	Peak
Vertical	2390	74.579	31.27	43.309	54.000	Average

#### Note:

The Band Edge Field Strength was calculated using the Fundamental and Conducted Band Edge measurements per the Marker-Delta Method with the following formula:

Band Edge field Strength =  $F - \Delta$ 

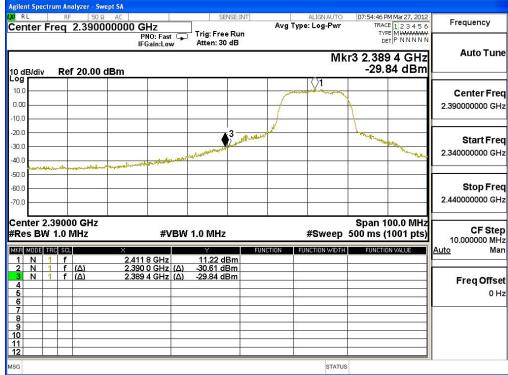
F = Fundamental field Strength (Peak or Average)

 $\Delta$  = Conducted Band Edge Delta (Peak or Average)

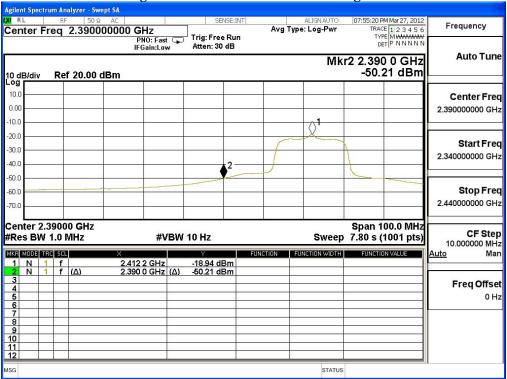
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#### Average Detector of conducted Band Edge Delta





Test Item : Band Edge Data
Test Site : No.3 OATS

Test Mode : Mode 2: Transmit (802.11g 54Mbps)

## Fundamental Filed Strength

Antenna	Frequency	<b>Correction Factor</b>	Reading Level	<b>Emission Level</b>	Detector
Pole	[MHz]	[dB/m]	[dBuV]	[dBuV/m]	
Horizontal	2462	32.019	69.29	101.309	Peak
Horizontal	2462	32.019	40.79	72.809	Average
Vertical	2462	31.29	69.3	100.59	Peak
Vertical	2462	31.29	40.57	71.86	Average

Note: 1:Spectrum Analyzer setting:

Peak detector: RBW=1MHz, VBW=1MHz Average detector: RBW=1MHz, VBW=10Hz

#### Band Edge Test Data

Antenna Pole	Test Frequency (MHz)	Fundamental (dBuV/m)	Δ (dB)	Band Edge Field Strength (dBuV/m)	Limit (dBuV/m)	Detector
Horizontal	2484	101.309	42.7	58.609	74.000	Peak
Horizontal	2483.5	72.809	32.43	40.379	54.000	Average
Vertical	2484	100.59	42.7	57.89	74.000	Peak
Vertical	2483.5	71.86	32.43	39.43	54.000	Average

#### Note:

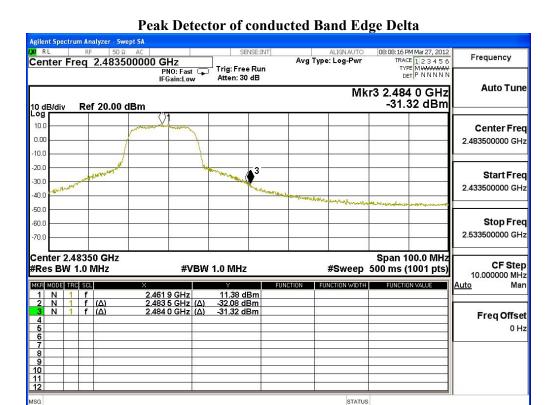
The Band Edge Field Strength was calculated using the Fundamental and Conducted Band Edge measurements per the Marker-Delta Method with the following formula:

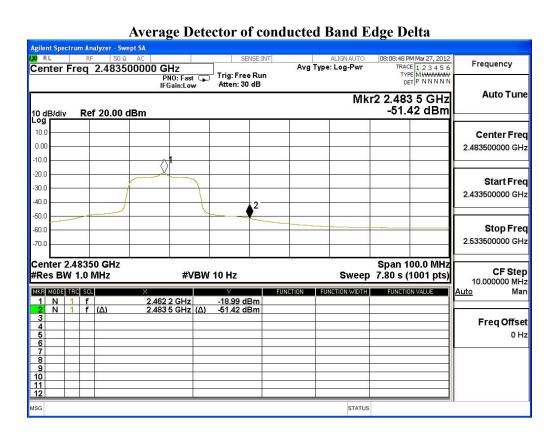
Band Edge field Strength =  $F - \Delta$ 

F = Fundamental field Strength (Peak or Average)

 $\Delta$  = Conducted Band Edge Delta (Peak or Average)









Test Item : Band Edge Data
Test Site : No.3 OATS

Test Mode : Mode 3: Transmit (802.11n MCS0 72.2Mbps 20M-BW)

## Fundamental Filed Strength

Antenna	Frequency	<b>Correction Factor</b>	Reading Level	<b>Emission Level</b>	Detector
Pole	[MHz]	[dB/m]	[dBuV]	[dBuV/m]	
Horizontal	2412	31.639	70.66	102.298	Peak
Horizontal	2412	31.639	41.2	72.838	Average
Vertical	2412	30.95	71.27	102.219	Peak
Vertical	2412	30.95	41.25	72.199	Average

Note: 1:Spectrum Analyzer setting:

Peak detector: RBW=1MHz, VBW=1MHz Average detector: RBW=1MHz, VBW=10Hz

## Band Edge Test Data

Antenna Pole	Test Frequency (MHz)	Fundamental (dBuV/m)	Δ (dB)	Band Edge Field Strength (dBuV/m)	Limit (dBuV/m)	Detector
Horizontal	2388.9	102.298	40.6	61.698	74.000	Peak
Horizontal	2390	72.838	31.11	41.728	54.000	Average
Vertical	2388.9	102.219	40.6	61.619	74.000	Peak
Vertical	2390	72.199	31.11	41.089	54.000	Average

# Note:

The Band Edge Field Strength was calculated using the Fundamental and Conducted Band Edge measurements per the Marker-Delta Method with the following formula:

Band Edge field Strength =  $F - \Delta$ 

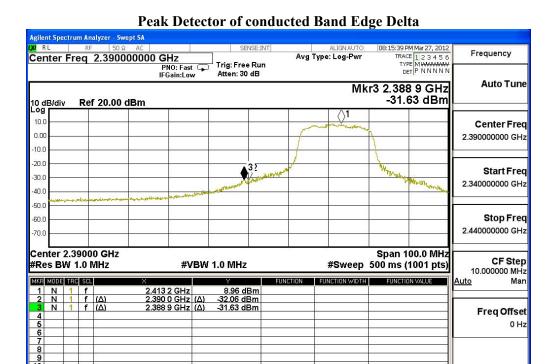
F = Fundamental field Strength (Peak or Average)

 $\Delta$  = Conducted Band Edge Delta (Peak or Average)

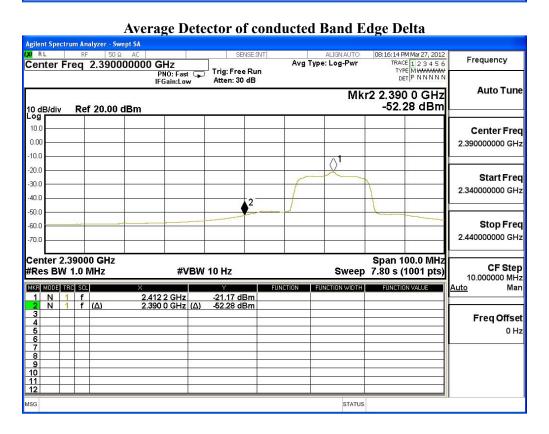
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MSG



STATUS





Test Item : Band Edge Data
Test Site : No.3 OATS

Test Mode : Mode 3: Transmit (802.11n MCS0 72.2Mbps 20M-BW)

## Fundamental Filed Strength

Antenna Pole	Frequency [MHz]	Correction Factor [dB/m]	Reading Level [dBuV]	Emission Level [dBuV/m]	Detector
Horizontal	2462	32.019	66.33	98.349	Peak
Horizontal	2462	32.019	38.34	70.359	Average
Vertical	2462	31.29	66.45	97.74	Peak
Vertical	2462	31.29	38.6	69.89	Average

Note: 1:Spectrum Analyzer setting:

Peak detector: RBW=1MHz, VBW=1MHz Average detector: RBW=1MHz, VBW=10Hz

#### Band Edge Test Data

Antenna Pole	Test Frequency (MHz)	Fundamental (dBuV/m)	Δ (dB)	Band Edge Field Strength (dBuV/m)	Limit (dBuV/m)	Detector
Horizontal	2483.8	98.349	44.27	54.079	74.000	Peak
Horizontal	2483.5	70.359	32	38.359	54.000	Average
Vertical	2483.8	97.74	44.27	53.47	74.000	Peak
Vertical	2483.5	69.89	32	37.89	54.000	Average

#### Note:

The Band Edge Field Strength was calculated using the Fundamental and Conducted Band Edge measurements per the Marker-Delta Method with the following formula:

Band Edge field Strength =  $F - \Delta$ 

F = Fundamental field Strength (Peak or Average)

 $\Delta$  = Conducted Band Edge Delta (Peak or Average)

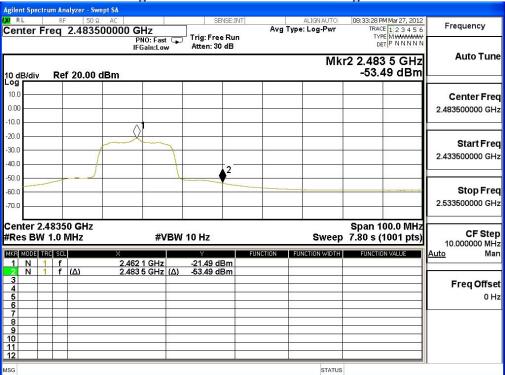


MSG

Peak Detector of conducted Band Edge Delta Agilent Spectrum Analyzer - Swept SA 08:32:56 PM Mar 27, 2012 TRACE 1 2 3 4 5 6 TYPE M WWWWWWW DET P N N N N N ALIGNAUTO
Avg Type: Log-Pwr Frequency Center Freq 2.483500000 GHz Trig: Free Run Atten: 30 dB PNO: Fast 😱 IFGain:Low **Auto Tune** Mkr3 2.483 8 GHz -35.46 dBm Ref 20.00 dBm 10.0 Center Freq 0.00 2.483500000 GHz -10.0 Start Freq -30.0 2.433500000 GHz -40.0 -50.0 Stop Freq -60.0 2.533500000 GHz Center 2.48350 GHz Span 100.0 MHz **CF Step** #Res BW 1.0 MHz **#VBW 1.0 MHz** #Sweep 500 ms (1001 pts) 10.000000 MHz Man MKR MODE TRC SCL FUNCTION WIDTH FUNCTION VALUE FUNCTION Auto 2.463 3 GHz 2.483 5 GHz (Δ) 2.483 8 GHz (Δ) 8.81 dBm -35.97 dBm -35.46 dBm Freq Offset

#### Average Detector of conducted Band Edge Delta

STATUS





# 6. Occupied Bandwidth

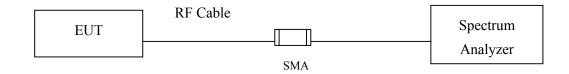
# **6.1.** Test Equipment

	Equipment	Manufacturer	Model No./Serial No.	Last Cal.
	Spectrum Analyzer	R&S	FSP40 / 100170	Jun, 2011
	Spectrum Analyzer	Agilent	E4407B / US39440758	Jun, 2011
X	Spectrum Analyzer	Agilent	N9010A / MY48030495	Apr., 2012

#### Note:

- 1. All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.
- 2. The test instruments marked with "X" are used to measure the final test results.

# 6.2. Test Setup



#### 6.3. Limits

The minimum bandwidth shall be at least 500 kHz.

#### **6.4.** Test Procedure

The EUT was setup according to ANSI C63.4: 2003; tested according to DTS test procedure of Jan. 2012 KDB558074 for compliance to FCC 47CFR 15.247 requirements.

Set RBW = 1-5% of the emission bandwidth, VBW≥3\*RBW

# 6.5. Uncertainty

± 150Hz



# 6.6. Test Result of Occupied Bandwidth

Product : FUJIFILM DIGITAL CAMERA

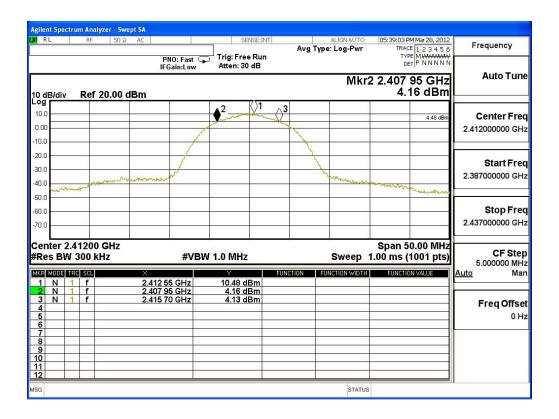
Test Item : Occupied Bandwidth Data

Test Site : No.3 OATS

Test Mode : Mode 1: Transmit (802.11b 11Mbps) (2412MHz)

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
1	2412	7750	>500	Pass

## Figure Channel 1:





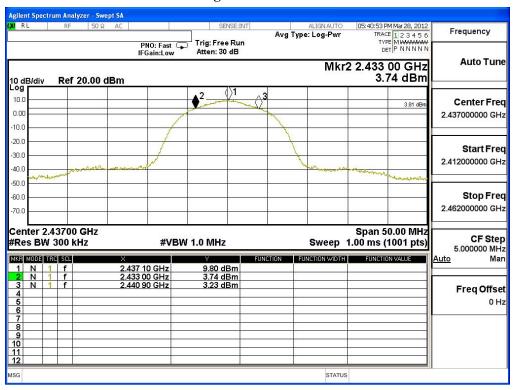
Test Item : Occupied Bandwidth Data

Test Site : No.3 OATS

Test Mode : Mode 1: Transmit (802.11b 11Mbps) (2437MHz)

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
6	2437	7900	>500	Pass

## **Figure Channel 6:**



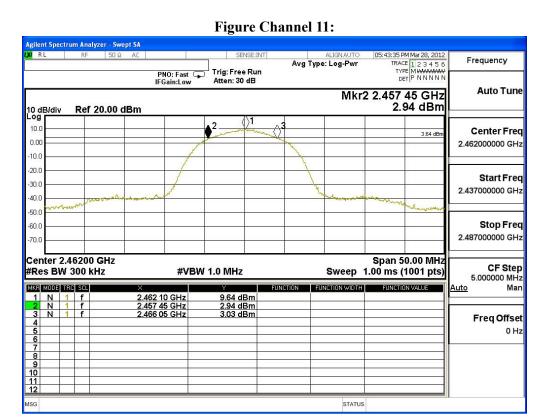


Test Item : Occupied Bandwidth Data

Test Site : No.3 OATS

Test Mode : Mode 1: Transmit (802.11b 11Mbps) (2462MHz)

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
11	2462	8600	>500	Pass



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Test Item Occupied Bandwidth Data

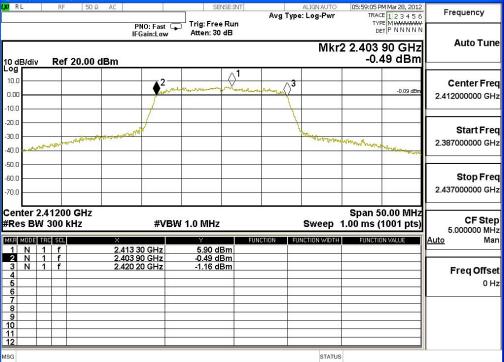
Test Site No.3 OATS

Test Mode Mode 2: Transmit (802.11g 54Mbps) (2412MHz)

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
1	2412	16300	>500	Pass

Figure Channel 1:

# Agilent Spectrum Analyzer - Swept SA Trig: Free Run Atten: 30 dB PNO: Fast 🖵 IFGain:Low





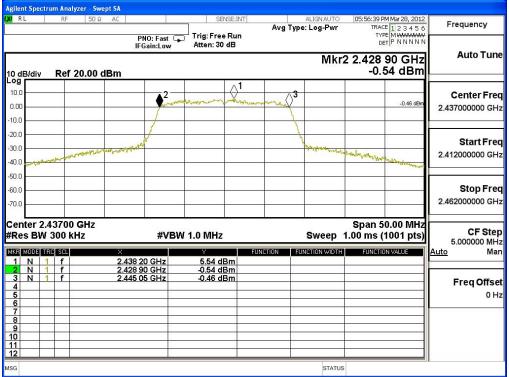
Test Item : Occupied Bandwidth Data

Test Site : No.3 OATS

Test Mode : Mode 2: Transmit (802.11g 54Mbps) (2437MHz)

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
6	2437	16150	>500	Pass







Test Item : Occupied Bandwidth Data

Test Site : No.3 OATS

Test Mode : Mode 2: Transmit (802.11g 54Mbps) (2462MHz)

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
11	2462	16300	>500	Pass

#### Figure Channel 11: Agilent Spectrum Analyzer - Swept SA 05:51:19 PM Mar 28, 2012 TRACE 1 2 3 4 5 6 TYPE MWWWWW DET P N N N N Frequency Avg Type: Log-Pwr Trig: Free Run Atten: 30 dB PNO: Fast 🖵 IFGain:Low **Auto Tune** Mkr2 2.453 90 GHz -1.49 dBm Ref 20.00 dBm Center Freq -0.28 dB 0.00 2.462000000 GHz -10.0 -30.0 2.437000000 GHz -40.0 -50.0 Stop Freq -60.0 2.487000000 GHz Center 2.46200 GHz Span 50.00 MHz CF Step 5.000000 MHz Man #Res BW 300 kHz **#VBW 1.0 MHz** Sweep 1.00 ms (1001 pts) MKR MODE TRC SCL Auto 1 N 1 f 2 N 1 f 3 N 1 f 5.72 dBm -1.49 dBm -0.39 dBm 2.463 30 GHz 2.453 90 GHz 2.469 90 GHz Freq Offset STATUS

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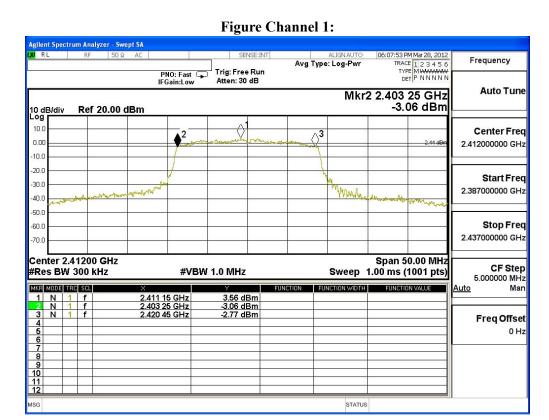


Test Item : Occupied Bandwidth Data

Test Site : No.3 OATS

Test Mode : Mode 3: Transmit (802.11n MCS0 72.2Mbps 20M-BW) (2412MHz)

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
1	2412	17200	>500	Pass



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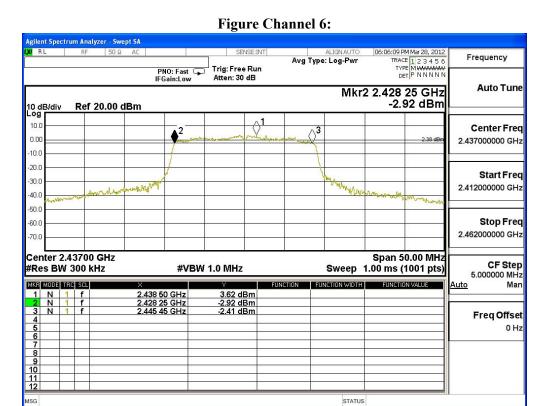


Test Item : Occupied Bandwidth Data

Test Site : No.3 OATS

Test Mode : Mode 3: Transmit (802.11n MCS0 72.2Mbps 20M-BW) (2437MHz)

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
6	2437	17200	>500	Pass



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Test Item : Occupied Bandwidth Data

Test Site : No.3 OATS

Test Mode : Mode 3: Transmit (802.11n MCS0 72.2Mbps 20M-BW) (2462MHz)

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
11	2462	17450	>500	Pass

#### Figure Channel 11: Agilent Spectrum Analyzer - Swept SA 06:01:10 PM Mar 28, 2012 TRACE 1 2 3 4 5 6 TYPE M WWWWWW DET P N N N N N Frequency Avg Type: Log-Pwr Trig: Free Run Atten: 30 dB PNO: Fast 🖵 IFGain:Low **Auto Tune** Mkr2 2.453 25 GHz -2.45 dBm Ref 20.00 dBm Center Freq n nn 2.462000000 GHz -10.0 -30.0 2.437000000 GHz -40.C -50.0 Stop Freq -60.0 2.487000000 GHz Center 2.46200 GHz Span 50.00 MHz CF Step 5.000000 MHz Man #Res BW 300 kHz **#VBW 1.0 MHz** Sweep 1.00 ms (1001 pts) MKR MODE TRC SCL Auto 1 N 1 f 2 N 1 f 3 N 1 f 3.56 dBm -2.45 dBm -2.80 dBm 2.463 55 GHz 2.453 25 GHz 2.470 70 GHz Freq Offset MSG STATUS

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# 7. Power Density

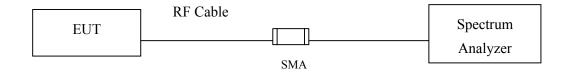
# 7.1. Test Equipment

	Equipment	Manufacturer	Model No./Serial No.	Last Cal.
	Spectrum Analyzer	R&S	FSP40 / 100170	Jun, 2011
	Spectrum Analyzer	Agilent	E4407B / US39440758	Jun, 2011
X	Spectrum Analyzer	Agilent	N9010A / MY48030495	Apr., 2012

#### Note:

- 1. All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.
- 2. The test instruments marked with "X" are used to measure the final test results.

## 7.2. Test Setup



#### 7.3. Limits

The transmitted power density averaged over any 1 second interval shall not be greater +8dBm in any 3kHz bandwidth.

#### 7.4. Test Procedure

The EUT was setup according to ANSI C63.4, 2003; tested according to DTS test procedure of Jan.

2012 KDB558074 for compliance to FCC 47CFR 15.247 requirements.

Set RBW= 100 kHz, VBW≥300KHz, SPAN to 5-30 % greater than the EBW,

Scale the observed power level to an equivalent value in 3 kHz by adjusting (reducing) the measured power by a bandwidth correction factor (BWCF) where BWCF =  $10\log (3 \text{ kHz}/100 \text{ kHz} = -15.2 \text{ dB})$ .

## 7.5. Uncertainty

± 1.27 dB



# 7.6. Test Result of Power Density

Product : FUJIFILM DIGITAL CAMERA

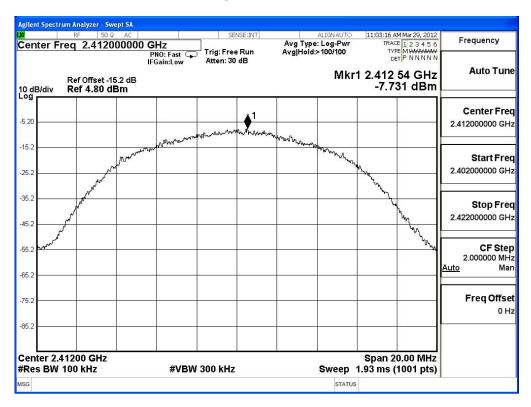
Test Item : Power Density Data

Test Site : No.3 OATS

Test Mode : Mode 1: Transmit (802.11b 11Mbps) (2412MHz)

Channel No.	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Result
1	2412	-7.731	< 8dBm	Pass

# Figure Channel 1:





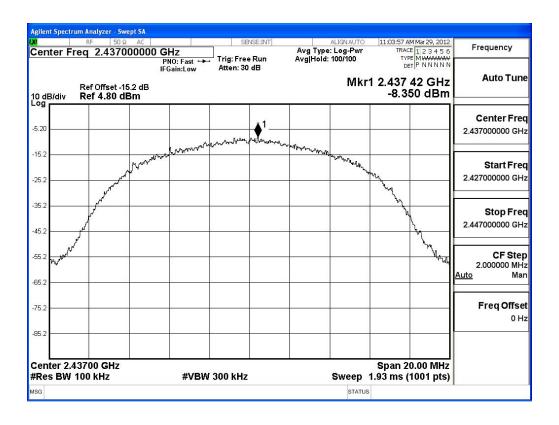
Test Item : Power Density Data

Test Site : No.3OATS

Test Mode : Mode 1: Transmit (802.11b 11Mbps) (2437MHz)

Channel No.	Frequency (MHz)	Measurement Level (dBm)	Required Limit (dBm)	Result
6	2437	-8.350	< 8dBm	Pass

# **Figure Channel 6:**





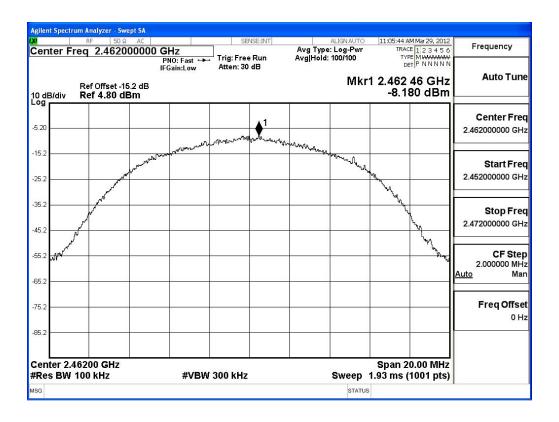
Test Item : Power Density Data

Test Site : No.3 OATS

Test Mode : Mode 1: Transmit (802.11b 11Mbps) (2462MHz)

Channel No.	Frequency (MHz)	Measurement Level (dBm)	Required Limit (dBm)	Result
11	2462	-8.180	< 8dBm	Pass

## **Figure Channel 11:**





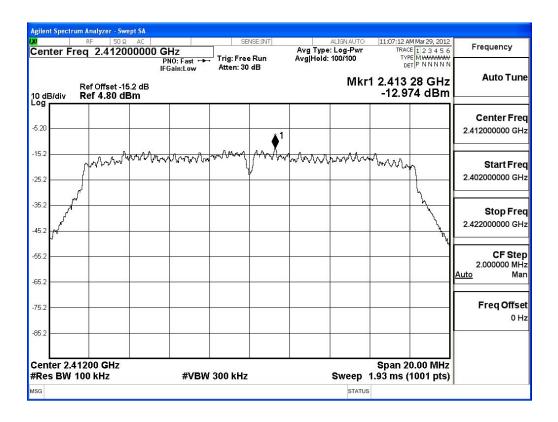
Test Item : Power Density Data

Test Site : No.3 OATS

Test Mode : Mode 2: Transmit (802.11g 54Mbps) (2412MHz)

Channel No.	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Result
1	2412	-12.974	< 8dBm	Pass

# Figure Channel 1:





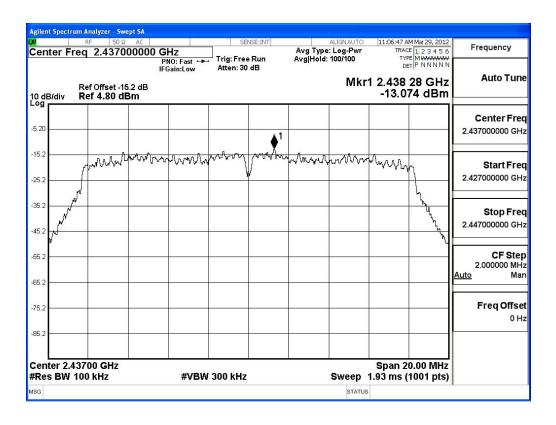
Test Item : Power Density Data

Test Site : No.3OATS

Test Mode : Mode 2: Transmit (802.11g 54Mbps) (2437MHz)

Channel No.	Frequency (MHz)	Measurement Level (dBm)	Required Limit (dBm)	Result
6	2437	-13.074	< 8dBm	Pass

# **Figure Channel 6:**





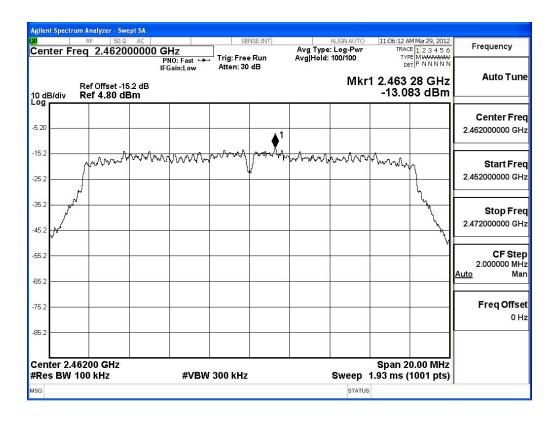
Test Item : Power Density Data

Test Site : No.3 OATS

Test Mode : Mode 2: Transmit (802.11g 54Mbps) (2462MHz)

Channel No.	Frequency (MHz)	Measurement Level (dBm)	Required Limit (dBm)	Result
11	2462	-13.083	< 8dBm	Pass

## **Figure Channel 11:**





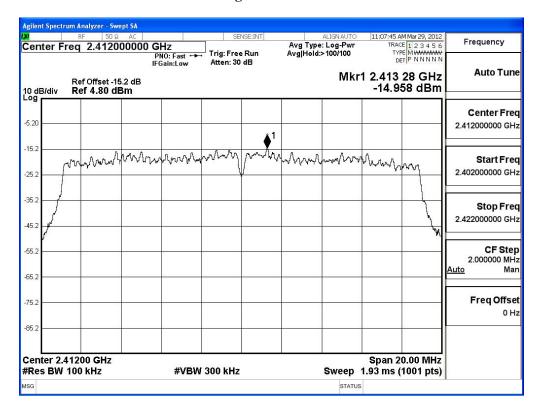
Test Item : Power Density Data

Test Site : No.3 OATS

Test Mode : Mode 3: Transmit (802.11n MCS0 72.2Mbps 20M-BW) (2412MHz)

Channel No.	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Result
1	2412	-14.958	< 8dBm	Pass

# Figure Channel 1:





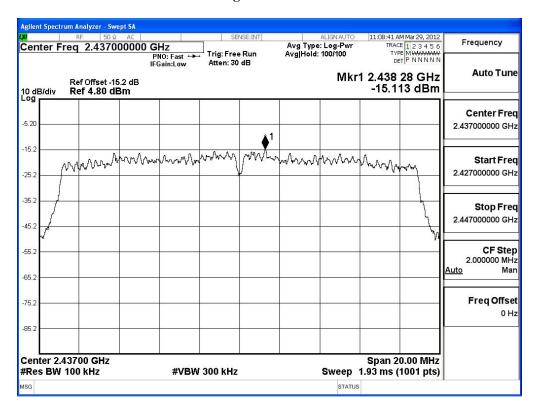
Test Item : Power Density Data

Test Site : No.3OATS

Test Mode : Mode 3: Transmit (802.11n MCS0 72.2Mbps 20M-BW) (2437MHz)

Channel No.	Frequency (MHz)	Measurement Level (dBm)	Required Limit (dBm)	Result
6	2437	-15.113	< 8dBm	Pass

# **Figure Channel 6:**





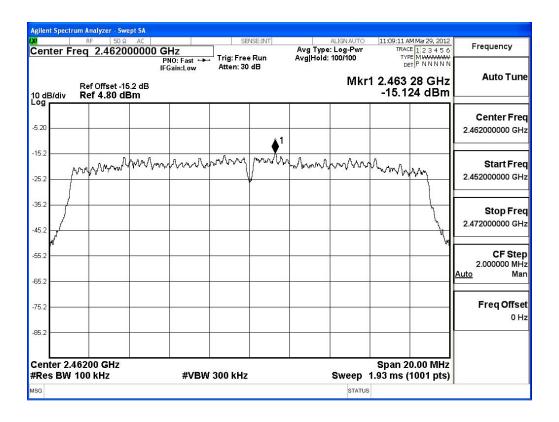
Test Item : Power Density Data

Test Site : No.3 OATS

Test Mode : Mode 3: Transmit (802.11n MCS0 72.2Mbps 20M-BW) (2462MHz)

Channel No.	Frequency (MHz)	Measurement Level (dBm)	Required Limit (dBm)	Result
11	2462	-15.124	< 8dBm	Pass

## **Figure Channel 11:**





# 8. EMI Reduction Method During Compliance Testing

No modification was made during testing.