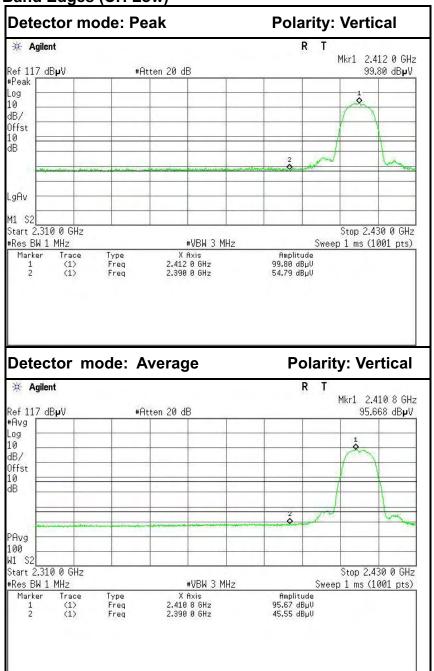


No.	Frequency (MHz)	Reading (dBuV)	Corrected (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Antenna Pole
1	2483.5000	48.03	-6.24	54.27	74.00	-19.73	Peak	Horizontal
2	2483.5000	39.11	-6.24	45.35	54.00	-8.65	Average	Horizontal

FCC ID: X4YSPARX2W Page 91 / 126

# IEEE 802.11b mode (Antenna 2)

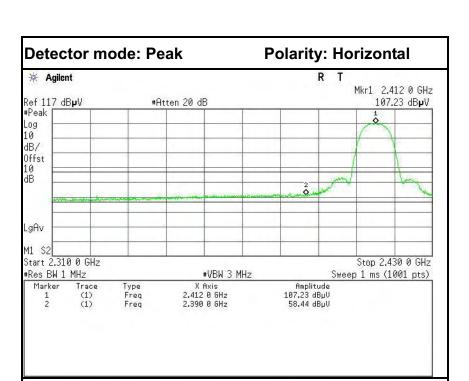
**Band Edges (CH Low)** 

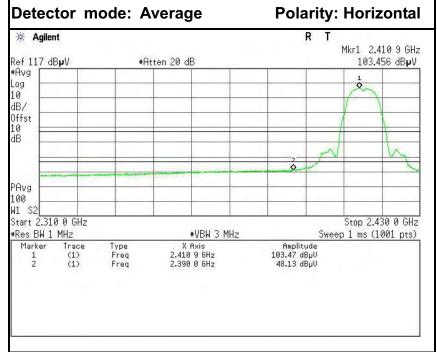


Report No.: C150803Z04-RP1

No.	Frequency (MHz)	Reading (dBuV)	Corrected (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Antenna Pole
1	2390.0000	48.19	-6.60	54.79	74.00	-19.21	Peak	Vertical
2	2390.0000	38.95	-6.60	45.55	54.00	-8.45	Average	Vertical

FCC ID: X4YSPARX2W Page 92 / 126

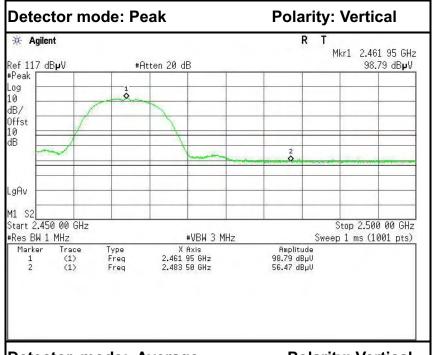


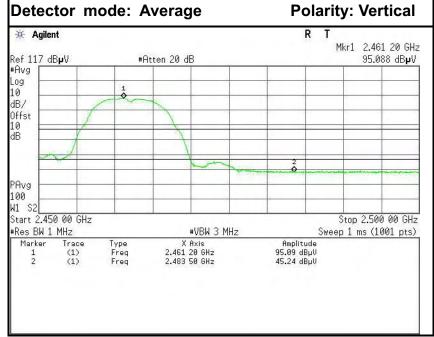


No.	Frequency (MHz)	Reading (dBuV)	Corrected (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Antenna Pole
1	2390.0000	51.84	-6.60	58.44	74.00	-15.56	Peak	Horizontal
2	2390.0000	41.53	-6.60	48.13	54.00	-5.87	Average	Horizontal

FCC ID: X4YSPARX2W Page 93 / 126

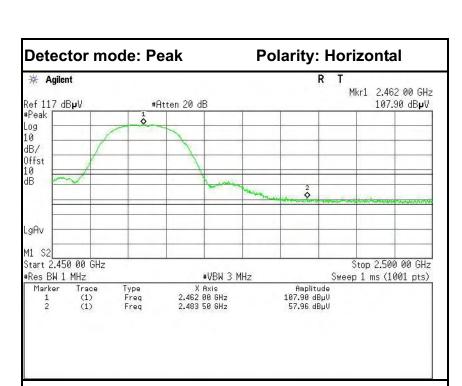
### **Band Edges (CH High)**

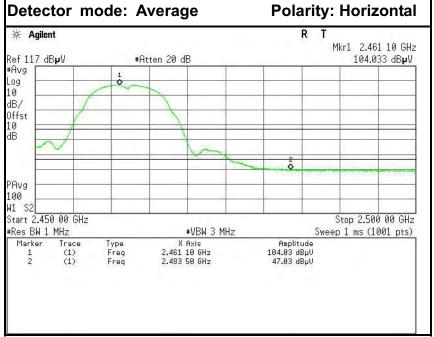




No.	Frequency (MHz)	Reading (dBuV)	Corrected (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Antenna Pole
1	2483.5000	50.23	-6.24	56.47	74.00	-17.53	Peak	Vertical
2	2483.5000	39.00	-6.24	45.24	54.00	-8.76	Average	Vertical

FCC ID: X4YSPARX2W Page 94 / 126



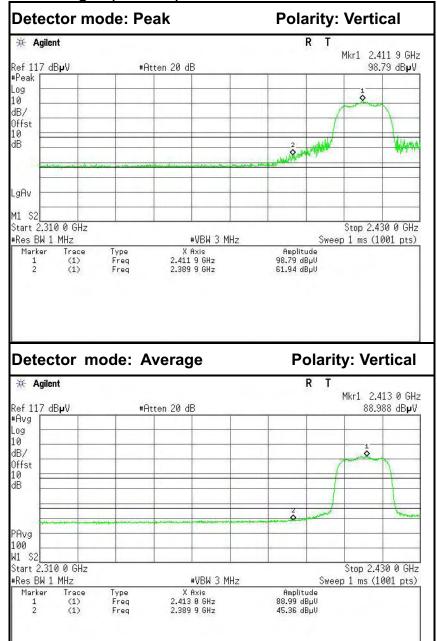


No.	Frequency (MHz)	Reading (dBuV)	Corrected (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Antenna Pole
1	2483.5000	51.72	-6.24	57.96	74.00	-16.04	Peak	Horizontal
2	2483.5000	40.79	-6.24	47.03	54.00	-6.97	Average	Horizontal

FCC ID: X4YSPARX2W Page 95 / 126

# IEEE 802.11g mode (Antenna 1)

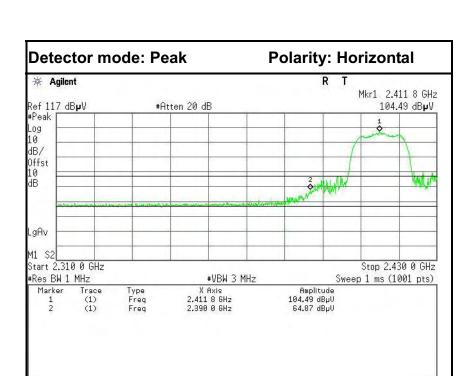
**Band Edges (CH Low)** 

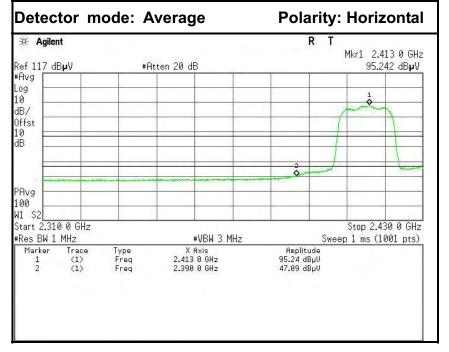


Report No.: C150803Z04-RP1

No.	Frequency (MHz)	Reading (dBuV)	Corrected (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Antenna Pole
1	2390.0000	55.34	-6.60	61.94	74.00	-12.06	Peak	Vertical
2	2390.0000	38.76	-6.60	45.36	54.00	-8.64	Average	Vertical

FCC ID: X4YSPARX2W Page 96 / 126

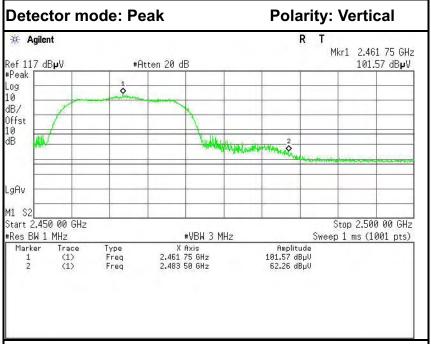


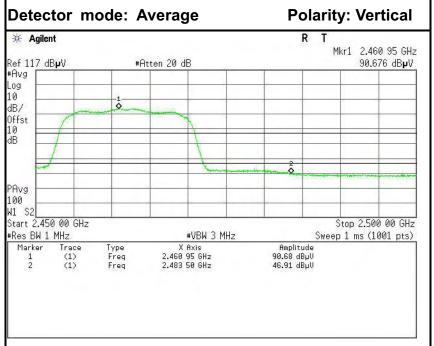


No.	Frequency (MHz)	Reading (dBuV)	Corrected (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Antenna Pole
1	2390.0000	58.27	-6.60	64.87	74.00	-9.13	Peak	Horizontal
2	2390.0000	40.49	-6.60	47.09	54.00	-6.91	Average	Horizontal

FCC ID: X4YSPARX2W Page 97 / 126

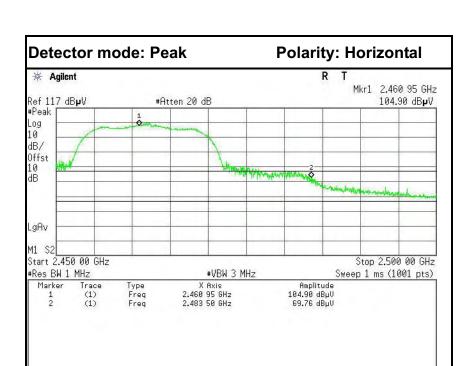


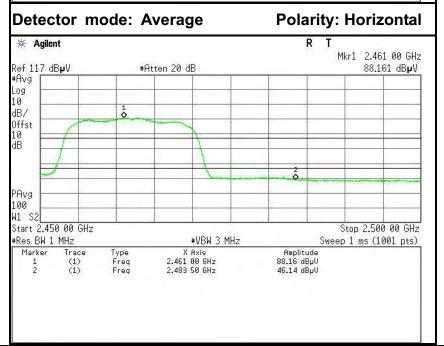




No.	Frequency (MHz)	Reading (dBuV)	Corrected (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Antenna Pole
1	2483.5000	56.02	-6.24	62.26	74.00	-11.74	Peak	Vertical
2	2483.5000	40.67	-6.24	46.91	54.00	-7.09	Average	Vertical

FCC ID: X4YSPARX2W Page 98 / 126



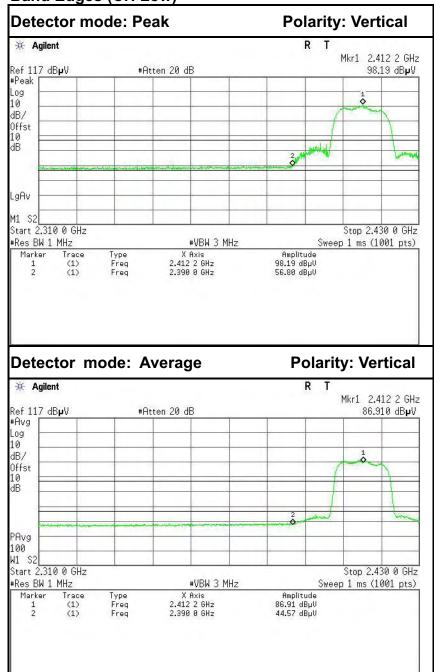


No.	Frequency (MHz)	Reading (dBuV)	Corrected (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Antenna Pole
1	2483.5000	63.52	-6.24	69.76	74.00	-4.24	Peak	Horizontal
2	2483.5000	39.90	-6.24	46.14	54.00	-7.86	Average	Horizontal

FCC ID: X4YSPARX2W Page 99 / 126

# IEEE 802.11g mode (Antenna 2)

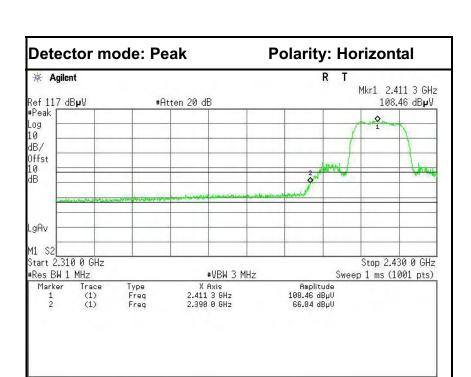
# **Band Edges (CH Low)**

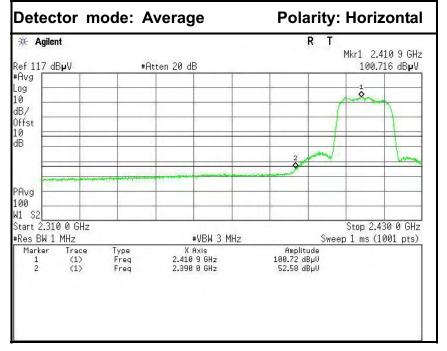


Report No.: C150803Z04-RP1

No.	Frequency (MHz)	Reading (dBuV)	Corrected (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Antenna Pole
1	2390.0000	50.20	-6.60	56.80	74.00	-17.20	Peak	Vertical
2	2390.0000	37.97	-6.60	44.57	54.00	-9.43	Average	Vertical

FCC ID: X4YSPARX2W Page 100 / 126

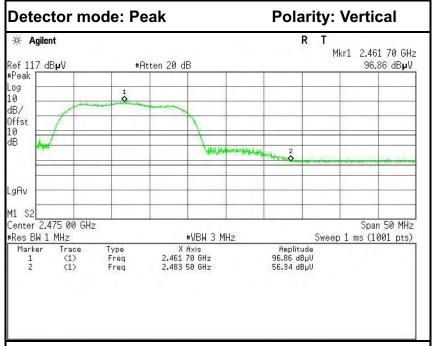


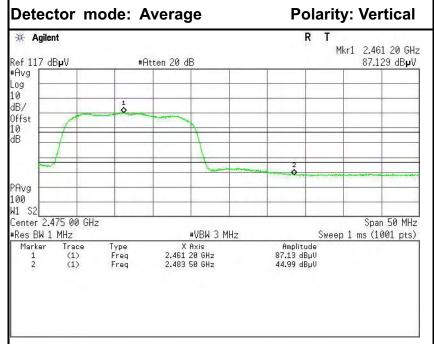


No.	Frequency (MHz)	Reading (dBuV)	Corrected (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Antenna Pole
1	2390.0000	60.24	-6.60	66.84	74.00	-7.16	Peak	Horizontal
2	2390.0000	45.98	-6.60	52.58	54.00	-1.42	Average	Horizontal

FCC ID: X4YSPARX2W Page 101 / 126

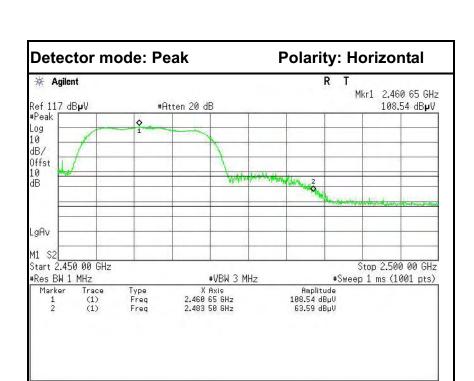


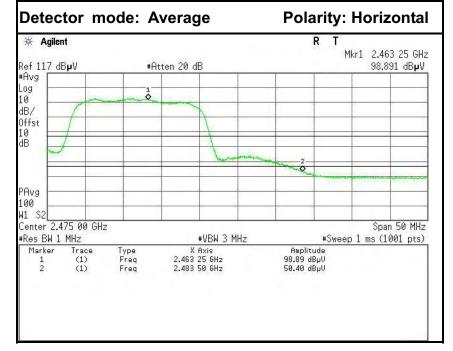




No.	Frequency (MHz)	Reading (dBuV)	Corrected (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Antenna Pole
1	2483.5000	50.10	-6.24	56.34	74.00	-17.66	Peak	Vertical
2	2483.5000	38.75	-6.24	44.99	54.00	-9.01	Average	Vertical

FCC ID: X4YSPARX2W Page 102 / 126





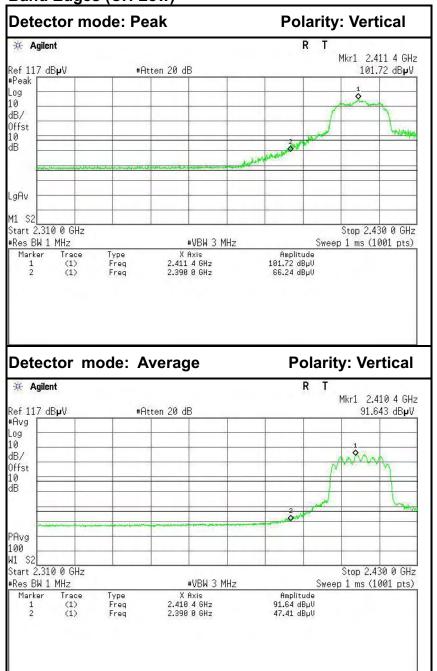
No.	Frequency (MHz)	Reading (dBuV)	Corrected (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Antenna Pole
1	2483.5000	57.35	-6.24	63.59	74.00	-10.41	Peak	Horizontal
2	2483.5000	44.16	-6.24	50.40	54.00	-3.60	Average	Horizontal

FCC ID: X4YSPARX2W Page 103 / 126

IEEE 802.11n HT20 MHz mode (Combine with Antenna 1 and Antenna 2)

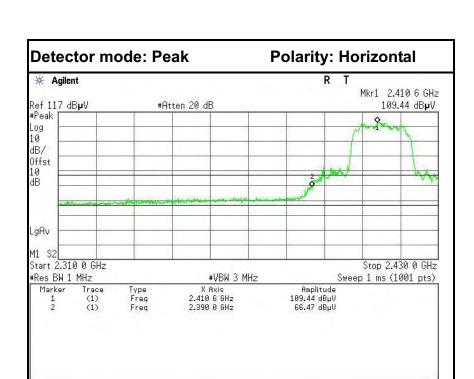
Report No.: C150803Z04-RP1

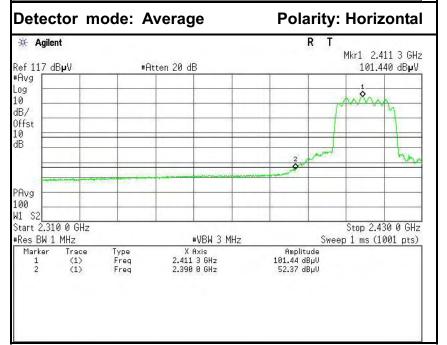




No.	Frequency (MHz)	Reading (dBuV)	Corrected (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Antenna Pole
1	2390.0000	59.64	-6.60	66.24	74.00	-7.76	Peak	Vertical
2	2390.0000	40.81	-6.60	47.41	54.00	-6.59	Average	Vertical

FCC ID: X4YSPARX2W Page 104 / 126

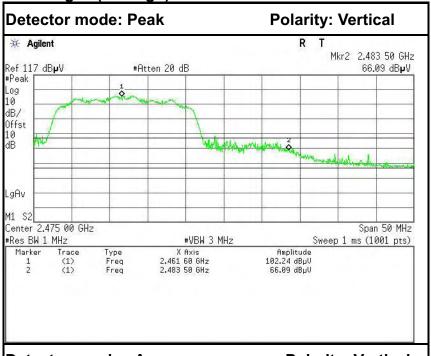


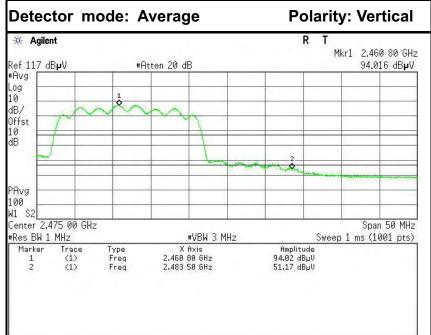


No.	Frequency (MHz)	Reading (dBuV)	Corrected (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Antenna Pole
1	2390.0000	59.87	-6.60	66.47	74.00	-7.53	Peak	Horizontal
2	2390.0000	45.77	-6.60	52.37	54.00	-1.63	Average	Horizontal

FCC ID: X4YSPARX2W Page 105 / 126

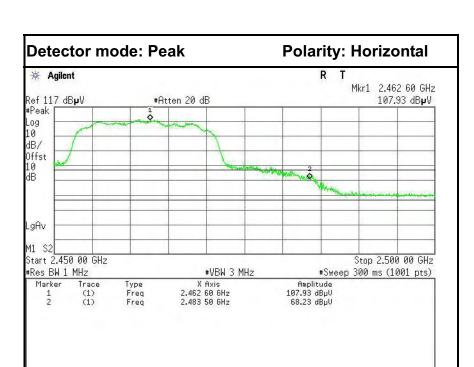


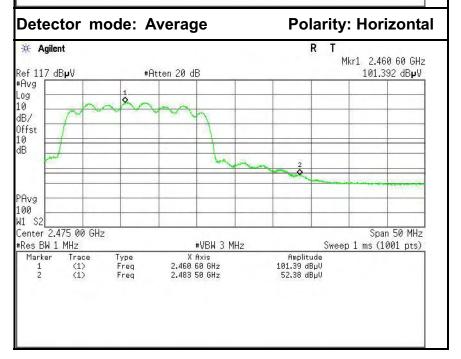




No.	Frequency (MHz)	Reading (dBuV)	Corrected (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Antenna Pole
1	2483.5000	59.85	-6.24	66.09	74.00	-7.91	Peak	Vertical
2	2483.5000	44.93	-6.24	51.17	54.00	-2.83	Average	Vertical

FCC ID: X4YSPARX2W Page 106 / 126





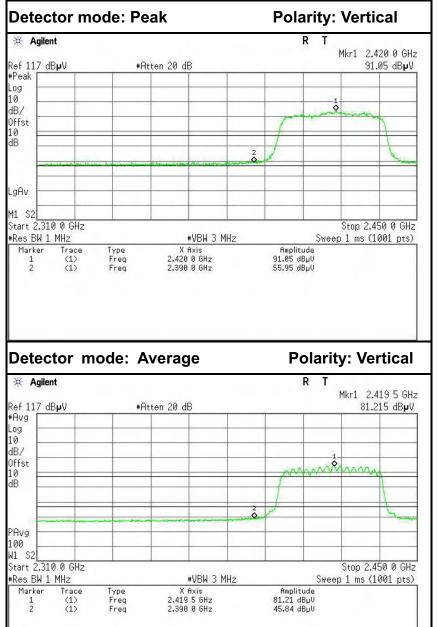
No.	Frequency (MHz)	Reading (dBuV)	Corrected (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Antenna Pole
1	2483.5000	61.99	-6.24	68.23	74.00	-5.77	Peak	Horizontal
2	2483.5000	46.14	-6.24	52.38	54.00	-1.62	Average	Horizontal

FCC ID: X4YSPARX2W Page 107 / 126

IEEE 802.11n HT40 MHz mode (Combine with Antenna 1 and Antenna 2)

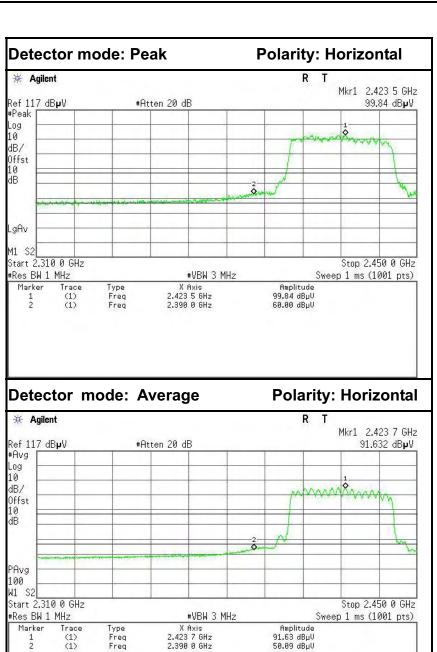
Report No.: C150803Z04-RP1





No.	Frequency (MHz)	Reading (dBuV)	Corrected (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Antenna Pole
1	2390.0000	49.35	-6.60	55.95	74.00	-18.05	Peak	Vertical
2	2390.0000	39.24	-6.60	45.84	54.00	-8.16	Average	Vertical

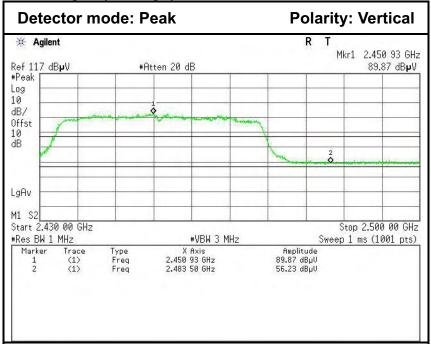
FCC ID: X4YSPARX2W Page 108 / 126



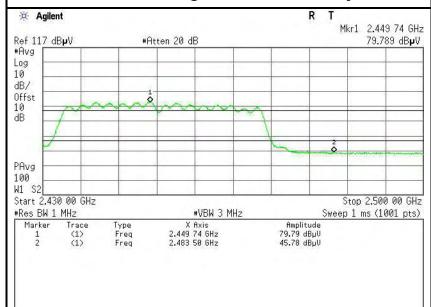
No.	Frequency (MHz)	Reading (dBuV)	Corrected (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Antenna Pole
1	2390.0000	53.40	-6.60	60.00	74.00	-14.00	Peak	Horizontal
2	2390.0000	43.49	-6.60	50.09	54.00	-3.91	Average	Horizontal

FCC ID: X4YSPARX2W Page 109 / 126

### **Band Edges (CH High)**

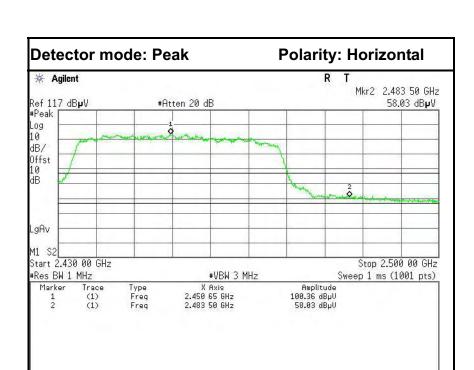


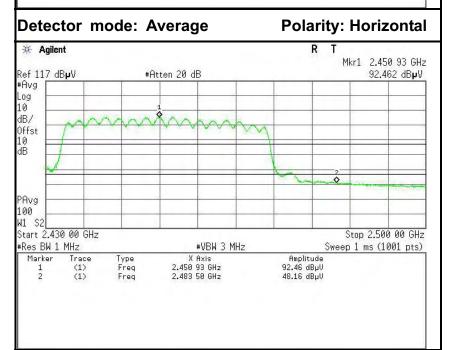
## Detector mode: Average Polarity: Vertical



No.	Frequency (MHz)	Reading (dBuV)	Corrected (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Antenna Pole
1	2483.5000	49.99	-6.24	56.23	74.00	-17.77	Peak	Vertical
2	2483.5000	39.54	-6.24	45.78	54.00	-8.22	Average	Vertical

FCC ID: X4YSPARX2W Page 110 / 126





No.	Frequency (MHz)	Reading (dBuV)	Corrected (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Antenna Pole
1	2483.5000	51.79	-6.24	58.03	74.00	-15.97	Peak	Horizontal
2	2483.5000	41.92	-6.24	48.16	54.00	-5.84	Average	Horizontal

FCC ID: X4YSPARX2W Page 111 / 126

### 7.7. PEAK POWER SPECTRAL DENSITY MEASUREMENT

#### 7.7.1. LIMITS

According to §15.247(e), for digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

Report No.: C150803Z04-RP1

According to §15.247(f), the digital modulation operation of the hybrid system, with the frequency hopping turned off, shall comply with the power density requirements of paragraph (d) of this section.

#### 7.7.2. TEST INSTRUMENTS

Name of Equipment	Manufacturer	Model	Serial Number	Last Calibration	Calibration Due
Spectrum Analyzer	Agilent	N9010A	MY52221469	10/25/2014	10/24/2015

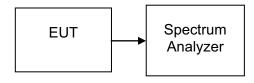
#### **7.7.3. TEST PROCEDURES** (please refer to measurement standard)

§15.247(e)specifies a conducted power spectral density (PSD) limit of 8 dBm in any 3 kHz band segment within the fundamental EBW during any time interval of continuous transmission. The same method as used to determine the conducted output power shall be used to determine the power spectral density (i.e.,if peak-detected fundamental power was measured then use the peak PSD procedure and if average fundamental power was measured then use the average PSD procedure).

#### 10.2 Method PKPSD (peak PSD)

- 1. Set analyzer center frequency to DTS channel center frequency.
- 2. Set the span to 1.5 times the DTS bandwidth.
- 3. Set the RBW to:  $3 \text{ kHz} \leq \text{RBW} \leq 100 \text{ kHz}$ .
- 4. Set the VBW  $\geq$  3 x RBW.
- 5. Detector = peak.
- 6. Sweep time = auto couple.
- 7. Trace mode = max hold.
- 8. Allow trace to fully stabilize.
- 9. Use the peak marker function to determine the maximum amplitude level within the RBW.
- 10. If measured value exceeds limit, reduce RBW (no less than 3 kHz) and repeat.

### 7.7.4. TEST SETUP



FCC ID: X4YSPARX2W Page 112 / 126

### 7.7.5. TEST RESULTS

No non-compliance noted

## **Test Data**

Test mode: IEEE 802.11b (Antenna 1)

Channel	Frequency (MHz)	PPSD (dBm)	Limit (dBm)	Test Result
Low	2412	-4.212		PASS
Mid	2437	-4.511	8	PASS
High	2462	-5.992		PASS

Report No.: C150803Z04-RP1

Test mode: IEEE 802.11b (Antenna 2)

Channel	Frequency (MHz)	PPSD (dBm)	Limit (dBm)	Test Result
Low	2412	-3.716		PASS
Mid	2437	-4.527	8	PASS
High	2462	-2.686		PASS

Test mode: IEEE 802.11g (Antenna 1)

1000 1110 11						
Channel	Frequency (MHz)	PPSD (dBm)	Limit (dBm)	Test Result		
Low	2412	-14.874		PASS		
Mid	2437	-15.517	8	PASS		
High	2462	-15.502		PASS		

Test mode: IEEE 802.11g (Antenna 2)

1001 moder i=== 00=11.19 7 miterinia =/						
Channel	Frequency (MHz)	PPSD (dBm)	Limit (dBm)	Test Result		
Low	2412	-13.448		PASS		
Mid	2437	-13.001	8	PASS		
High	2462	-14.359		PASS		

FCC ID: X4YSPARX2W Page 113 / 126

Test mode: IEEE 802.11n HT20 MHz (Combine with Antenna 1 and Antenna 2)

Report No.: C150803Z04-RP1

Channel	Frequency (MHz)	PPSD (dBm)		Limit (dBm)	Test Result	
	(141112)	Antenna 1	Antenna 2	Total	(ubiii)	
Low	2412	-15.121	-14.582	-11.833		PASS
Mid	2437	-17.120	-15.984	-13.505	8	PASS
High	2462	-16.542	-13.989	-12.070		PASS

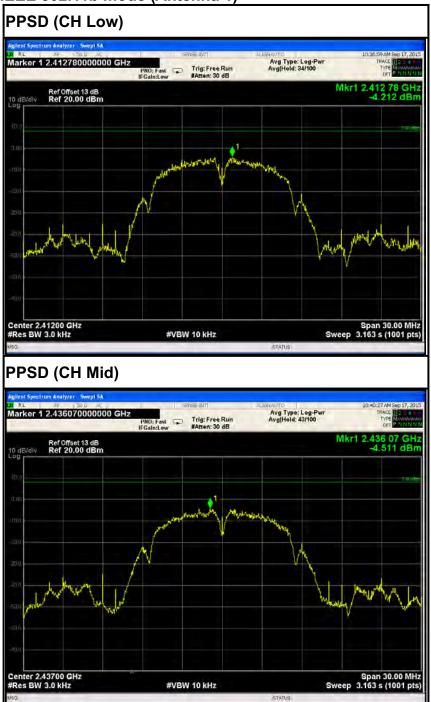
Test mode: IEEE 802.11n HT40 MHz (Combine with Antenna 1 and Antenna 2)

Channel	Frequency (MHz)		PPSD (dBm)		Limit (dBm)	Test Result
	(11112)	Antenna 1	Antenna 2	Total	(aBiii)	
Low	2422	-24.020	-21.944	-19.849		PASS
Mid	2437	-20.218	-19.939	-17.066	8	PASS
High	2452	-24.712	-22.407	-20.398		PASS

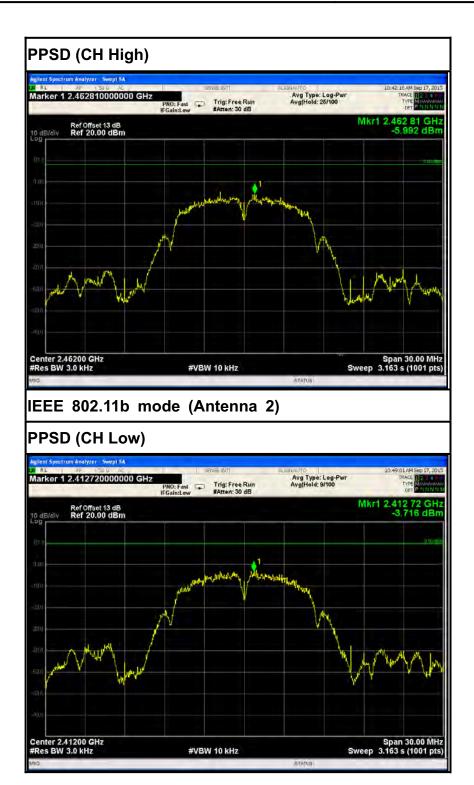
FCC ID: X4YSPARX2W Page 114 / 126

### **Test Plot**

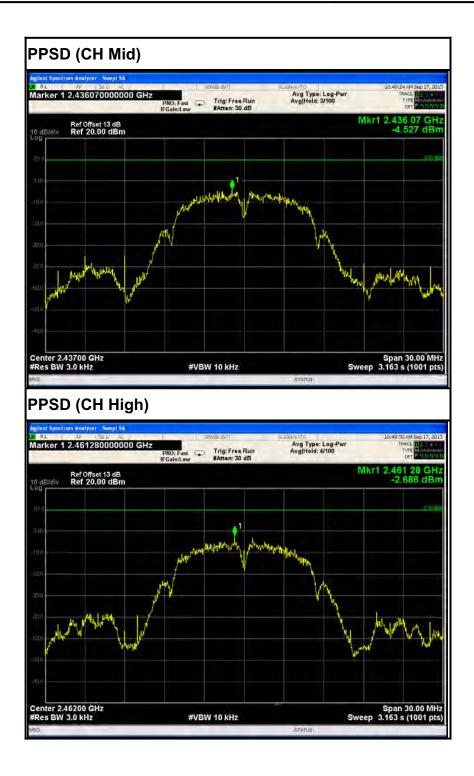
### IEEE 802.11b mode (Antenna 1)



FCC ID: X4YSPARX2W Page 115 / 126

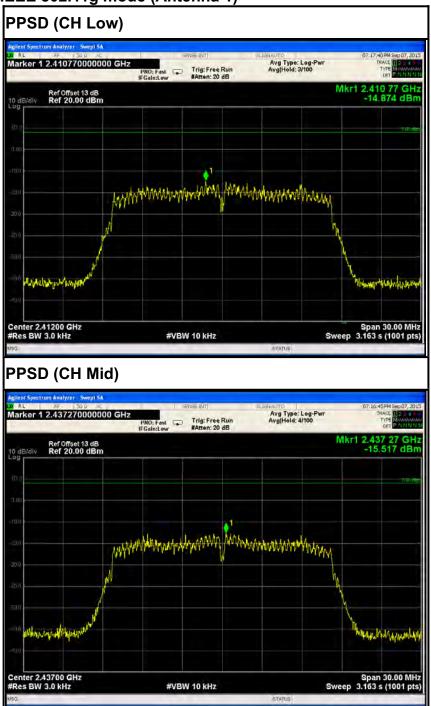


FCC ID: X4YSPARX2W Page 116 / 126

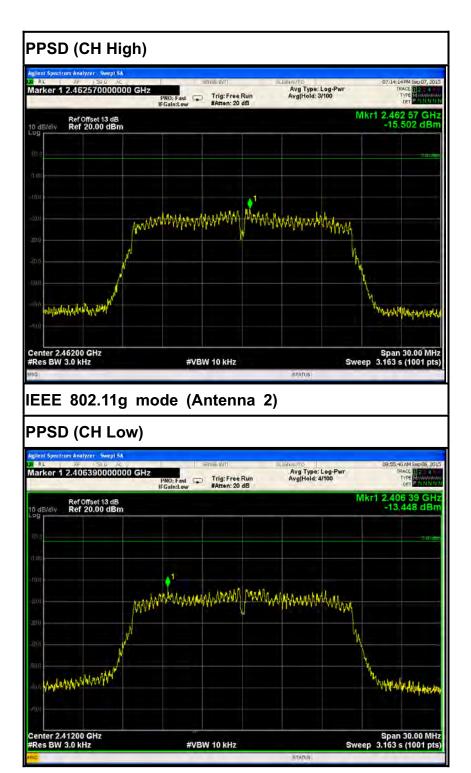


FCC ID: X4YSPARX2W Page 117 / 126

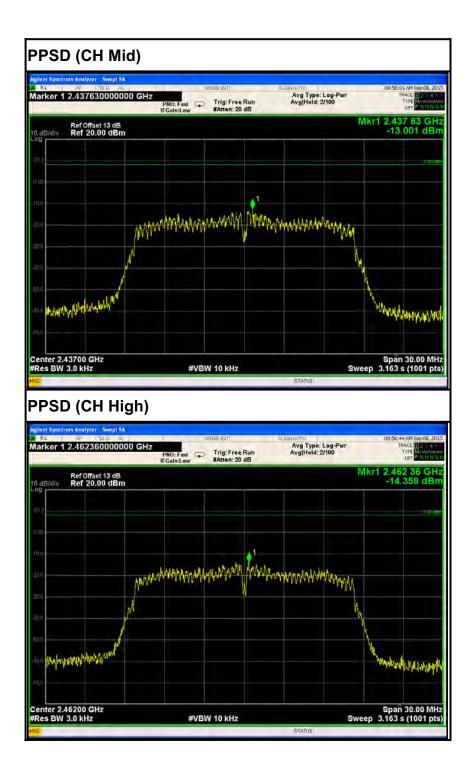
## IEEE 802.11g mode (Antenna 1)



FCC ID: X4YSPARX2W Page 118 / 126

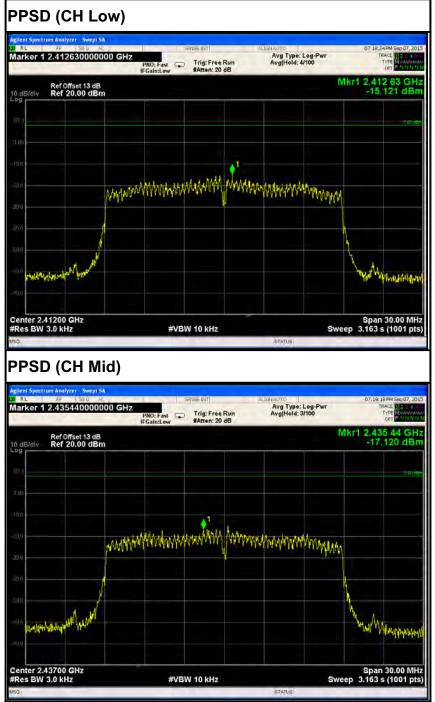


FCC ID: X4YSPARX2W Page 119 / 126

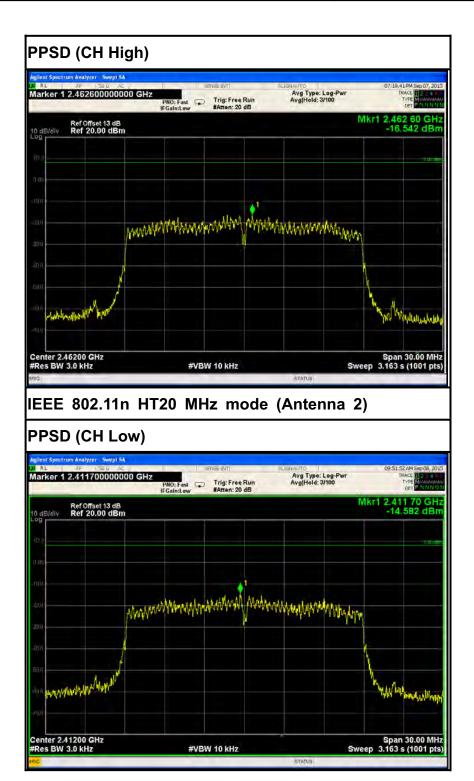


FCC ID: X4YSPARX2W Page 120 / 126

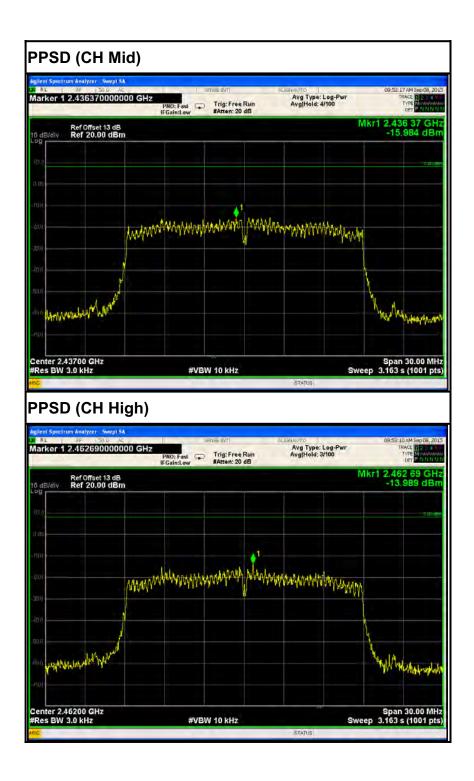
# IEEE 802.11n HT20 MHz mode (Antenna 1)



FCC ID: X4YSPARX2W Page 121 / 126

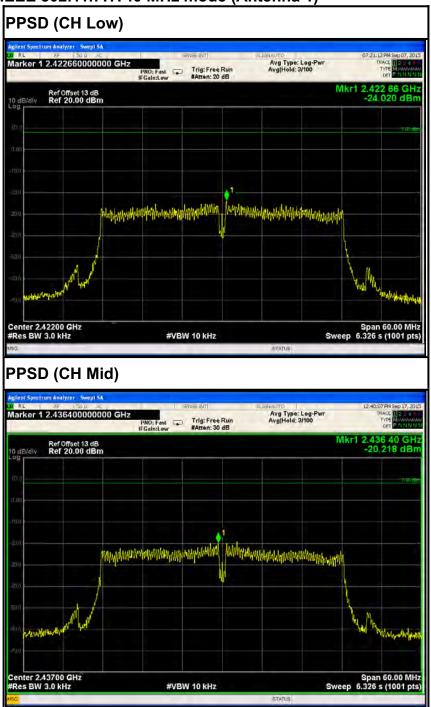


FCC ID: X4YSPARX2W Page 122 / 126

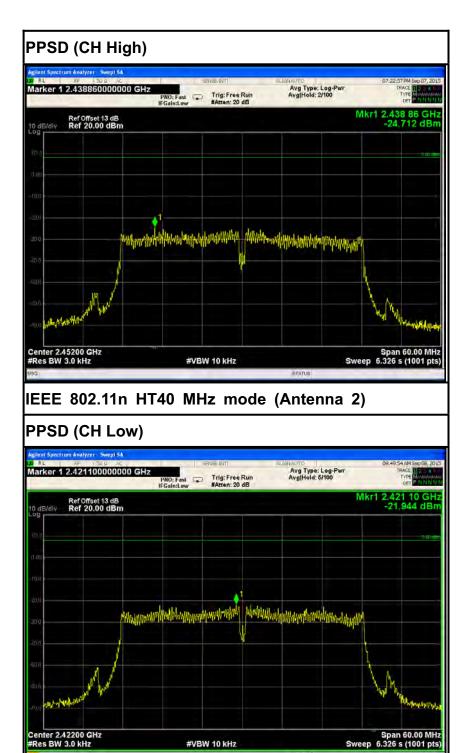


FCC ID: X4YSPARX2W Page 123 / 126

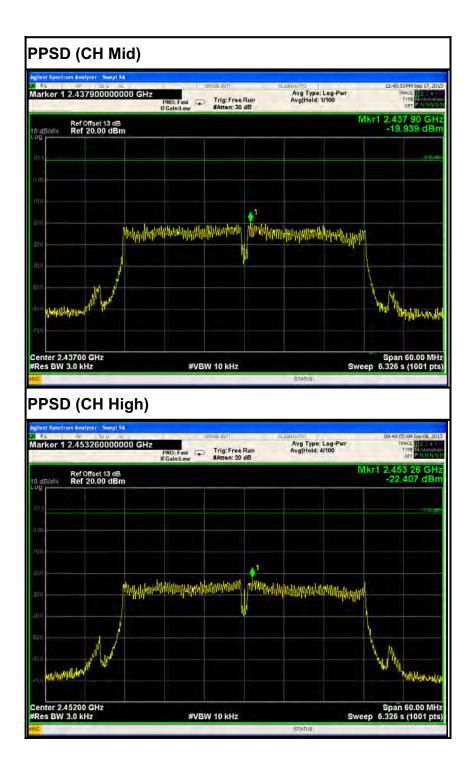
## IEEE 802.11n HT40 MHz mode (Antenna 1)



FCC ID: X4YSPARX2W Page 124 / 126



FCC ID: X4YSPARX2W Page 125 / 126



FCC ID: X4YSPARX2W Page 126 / 126