



## 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.

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	02/21/2016	02/20/2017

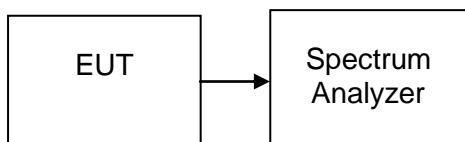
### 7.7.3. TEST PROCEDURES (please refer to measurement standard)

§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  $\geq 3 \times \text{RBW}$ .
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





### 7.7.5. TEST RESULTS

No non-compliance noted

#### Test Data

##### Test mode: IEEE 802.11b (Antenna 0)

Channel	Frequency (MHz)	PPSD (dBm)	Limit (dBm)	Test Result
Low	2412	-7.998	8	PASS
Mid	2437	-8.889		PASS
High	2462	-8.507		PASS

##### Test mode: IEEE 802.11b (Antenna 1)

Channel	Frequency (MHz)	PPSD (dBm)	Limit (dBm)	Test Result
Low	2412	-6.492	8	PASS
Mid	2437	-6.991		PASS
High	2462	-6.965		PASS

##### Test mode: IEEE 802.11g (Antenna 0)

Channel	Frequency (MHz)	PPSD (dBm)	Limit (dBm)	Test Result
Low	2412	-6.358	8	PASS
Mid	2437	-7.014		PASS
High	2462	-6.279		PASS

##### Test mode: IEEE 802.11g (Antenna 1)

Channel	Frequency (MHz)	PPSD (dBm)	Limit (dBm)	Test Result
Low	2412	-6.184	8	PASS
Mid	2437	-7.270		PASS
High	2462	-8.309		PASS

**Test mode: IEEE 802.11n HT20 MHz (Combine with Antenna 0 and Antenna 1)**

Channel	Frequency (MHz)	PPSD (dBm)			Limit (dBm)	Test Result
		Antenna 0	Antenna 1	Total		
Low	2412	-7.606	-7.961	-4.770	8	PASS
Mid	2437	-6.924	-6.482	-3.687		PASS
High	2462	-8.337	-8.477	-5.396		PASS

**Test mode: IEEE 802.11n HT40 MHz (Combine with Antenna 0 and Antenna 1)**

Channel	Frequency (MHz)	PPSD (dBm)			Limit (dBm)	Test Result
		Antenna 0	Antenna 1	Total		
Low	2422	-13.143	-15.670	-11.215	8	PASS
Mid	2437	-15.087	-15.172	-12.119		PASS
High	2452	-15.466	-16.418	-12.906		PASS



## Test Plot

### IEEE 802.11b mode (Antenna 0)

#### PPSD (CH Low)



#### PPSD (CH Mid)



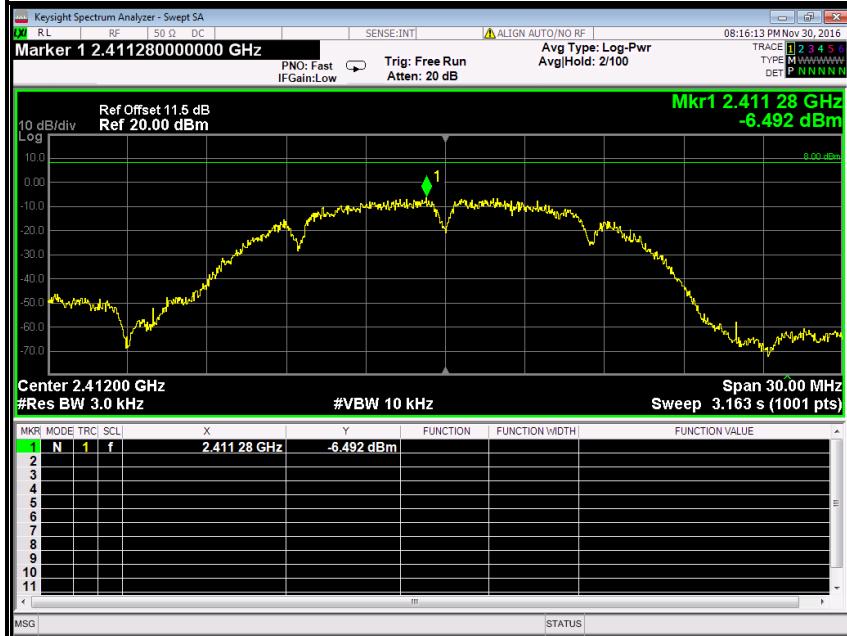


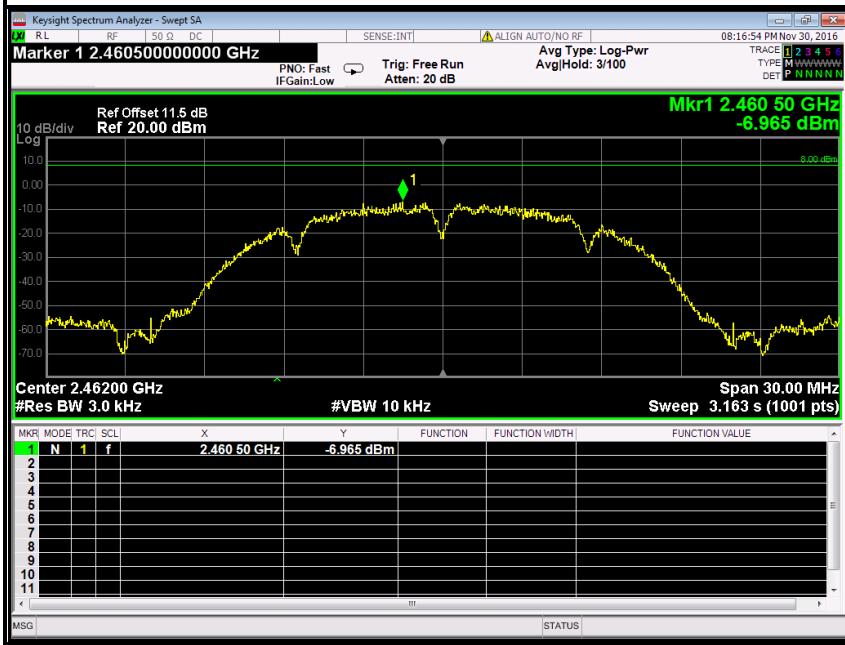
### PPSD (CH High)



### IEEE 802.11b mode (Antenna 1)

### PPSD (CH Low)

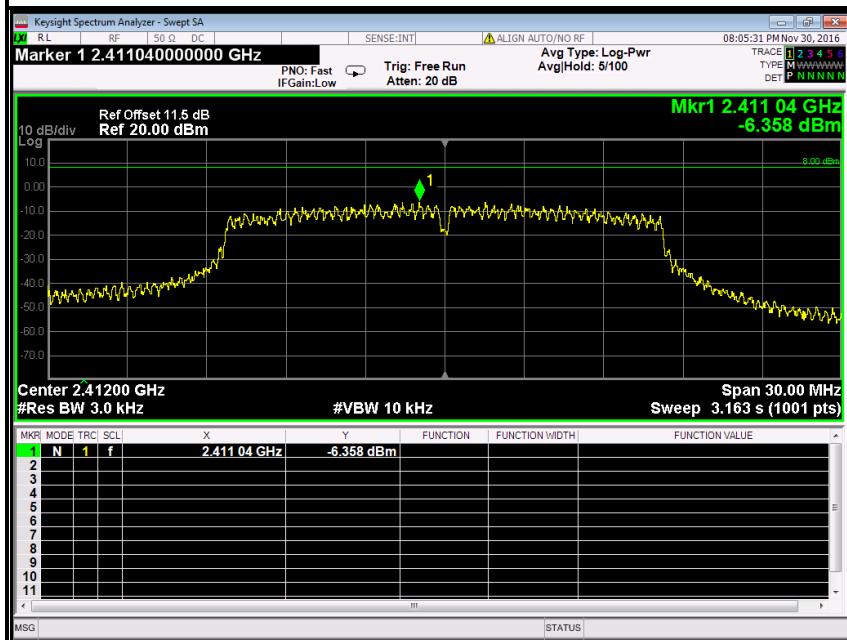


**PPSD (CH Mid)****PPSD (CH High)**

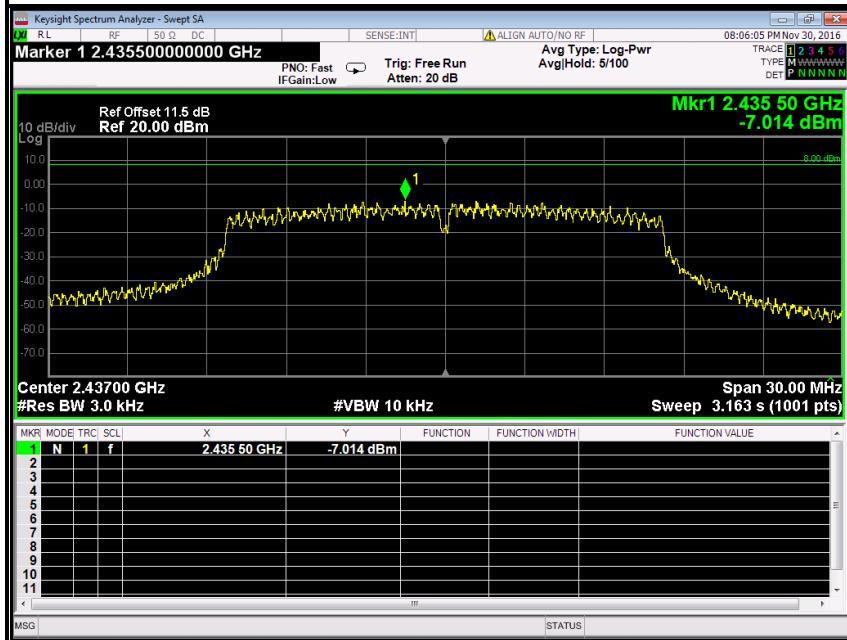


## IEEE 802.11g mode (Antenna 0)

## PPSD (CH Low)

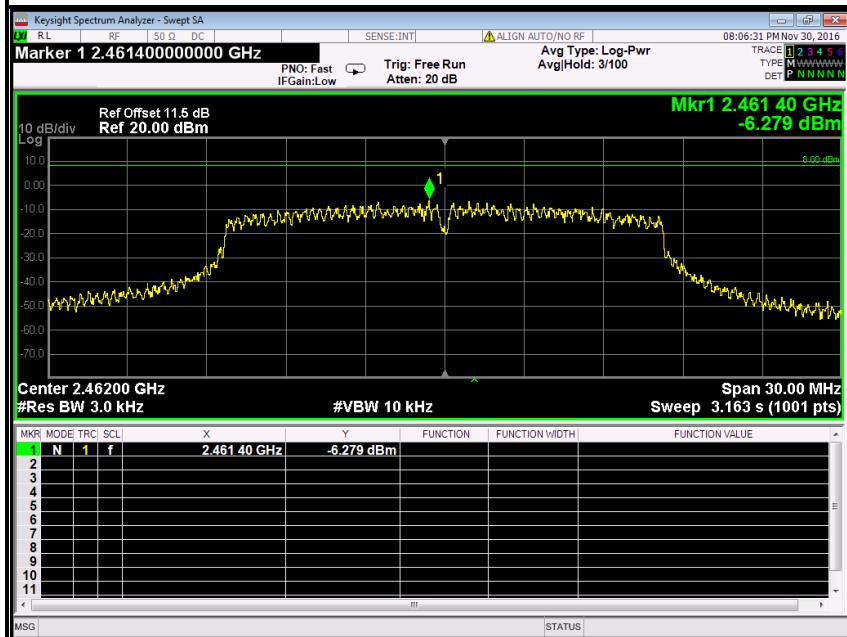


## PPSD (CH Mid)



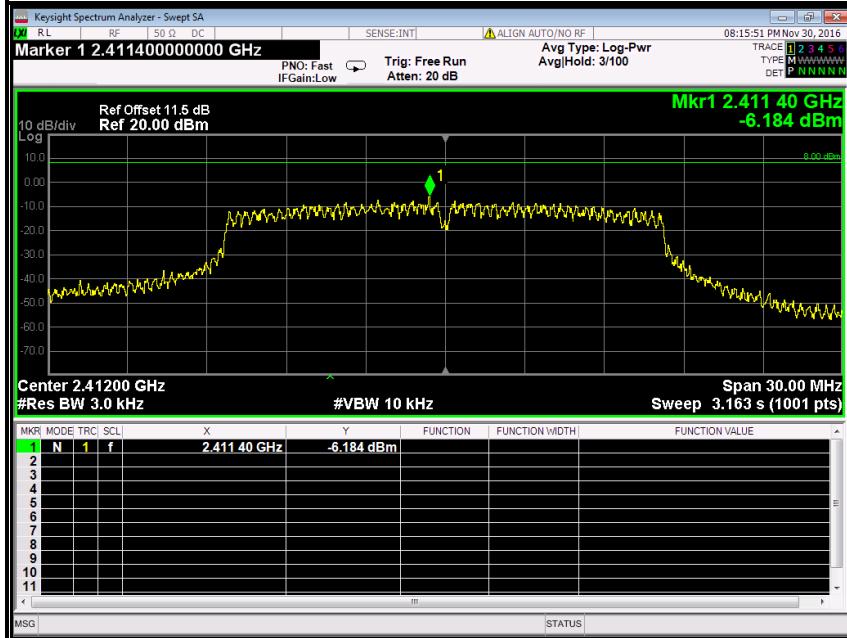


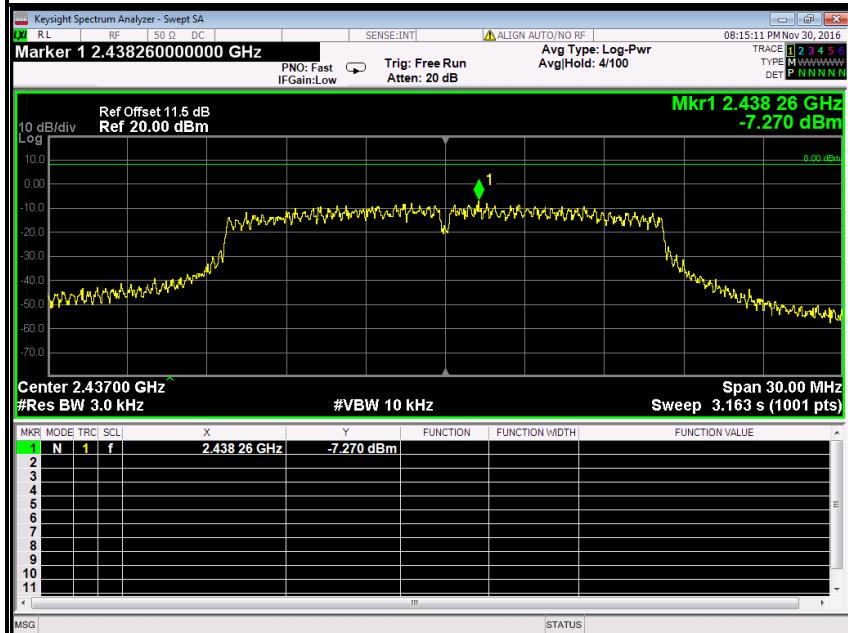
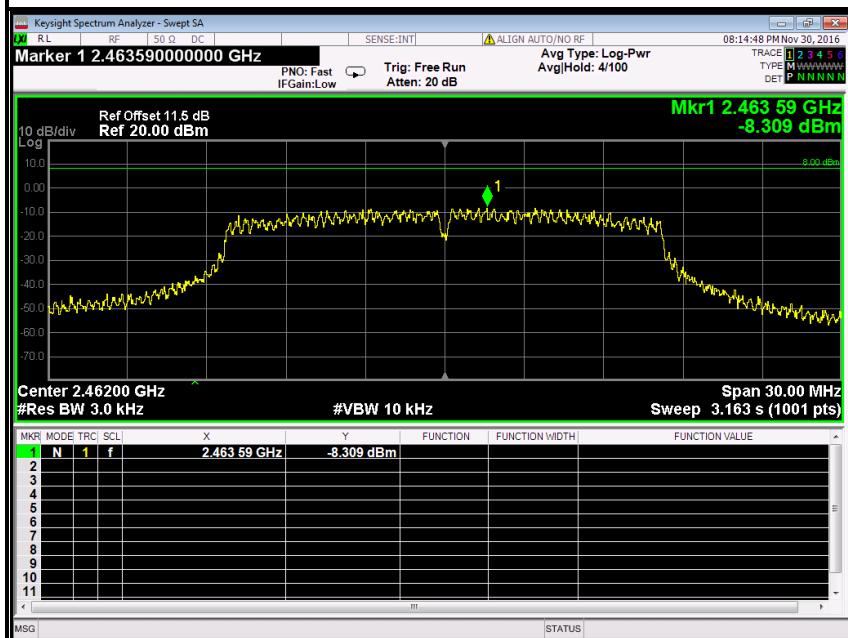
### PPSD (CH High)



### IEEE 802.11g mode (Antenna 1)

### PPSD (CH Low)

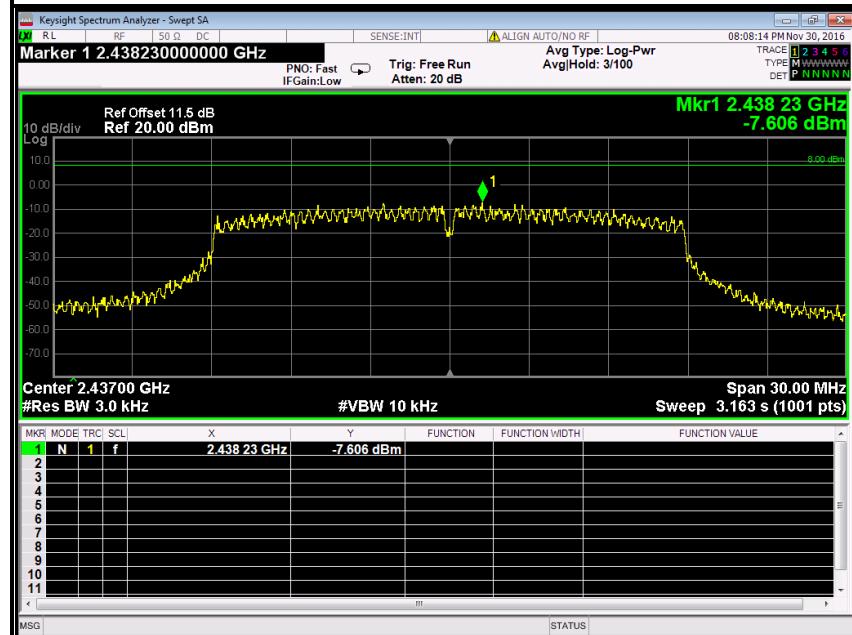


**PPSD (CH Mid)****PPSD (CH High)**



## IEEE 802.11n HT20 MHz mode (Antenna 0)

## PPSD (CH Low)

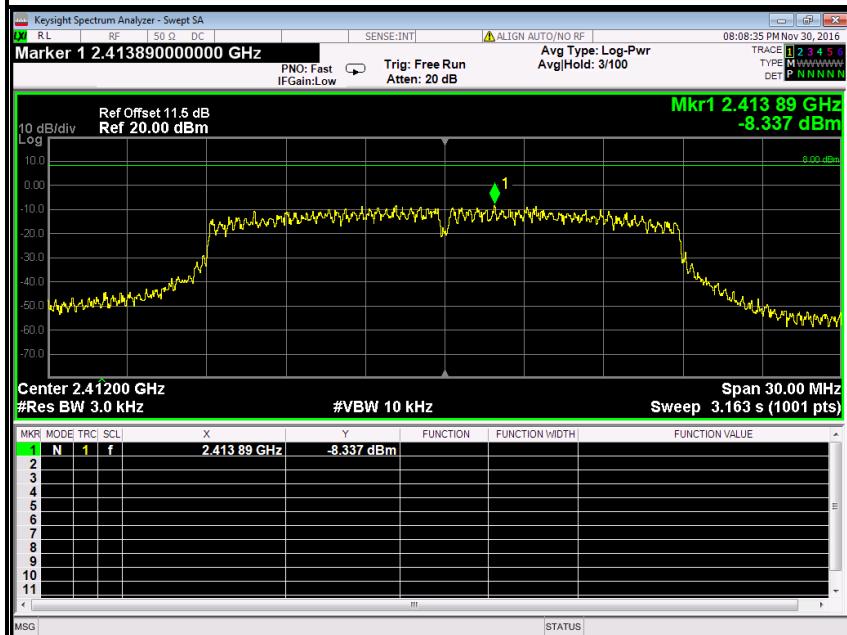


## PPSD (CH Mid)



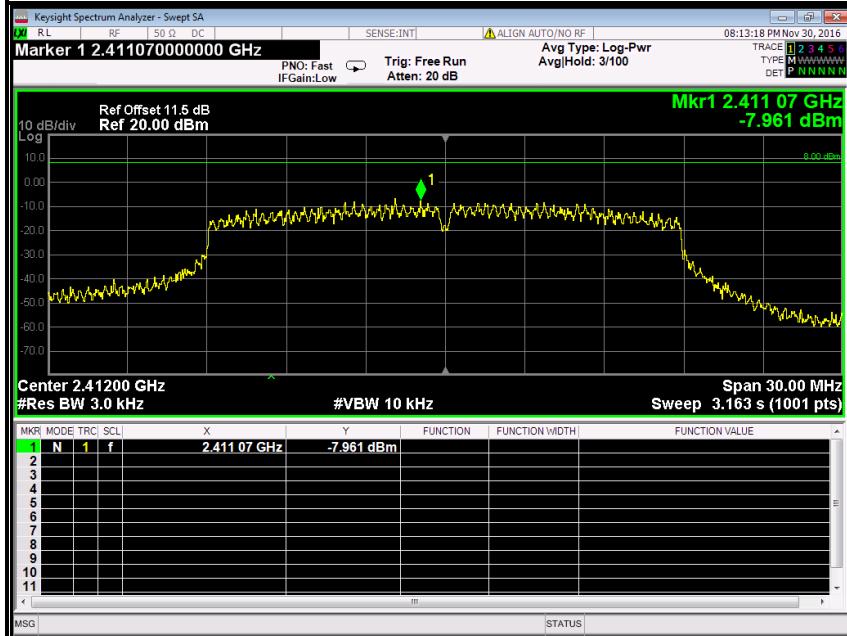


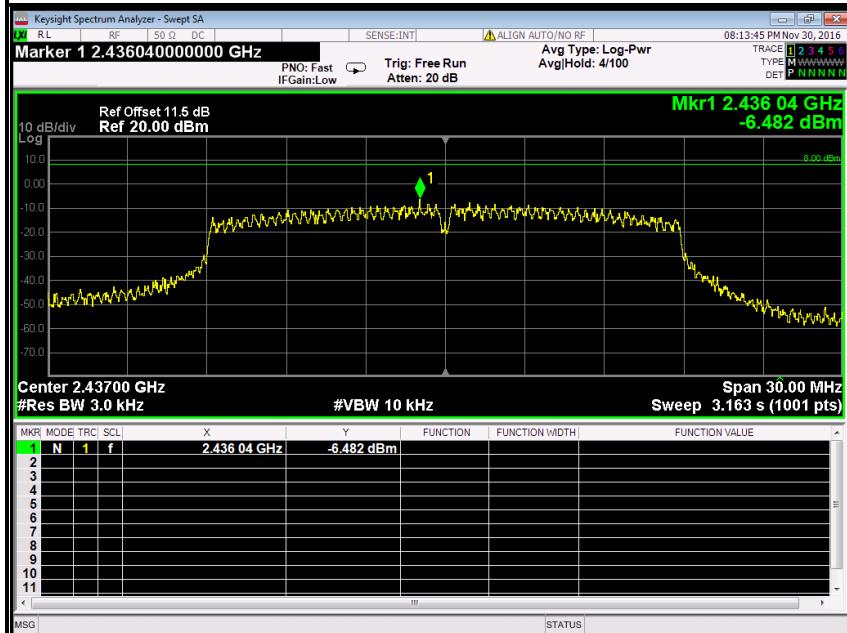
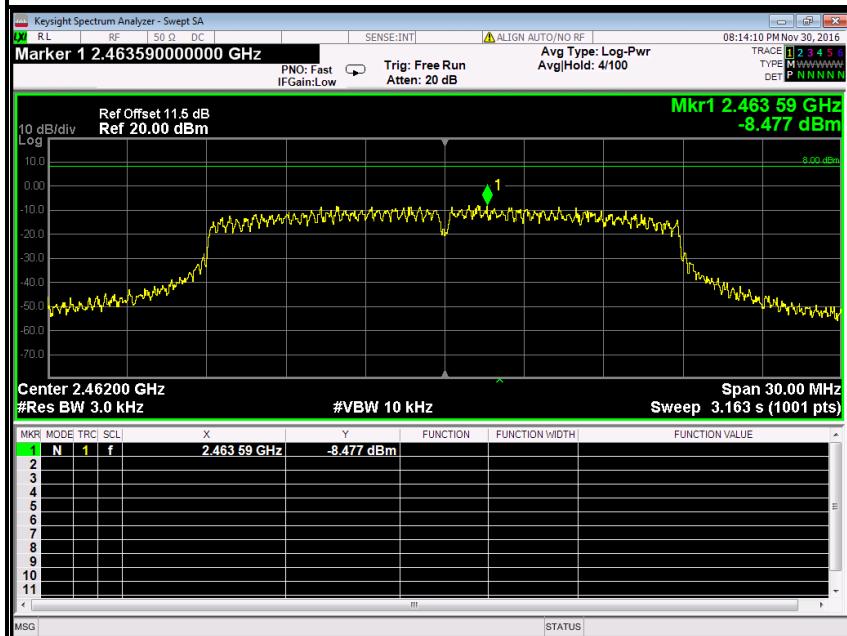
### PPSD (CH High)



### IEEE 802.11n HT20 MHz mode (Antenna 1)

### PPSD (CH Low)

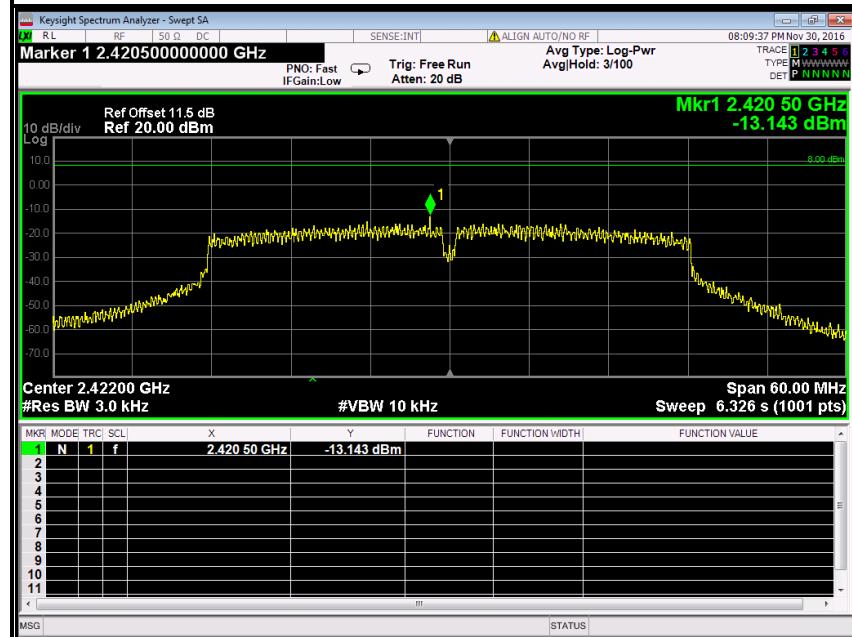


**PPSD (CH Mid)****PPSD (CH High)**

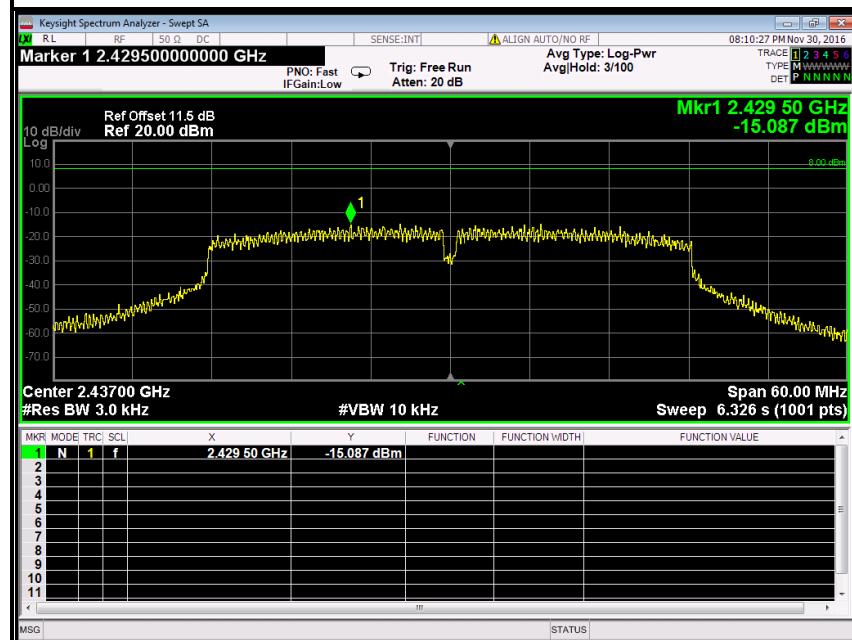


## IEEE 802.11n HT40 MHz mode (Antenna 0)

## PPSD (CH Low)

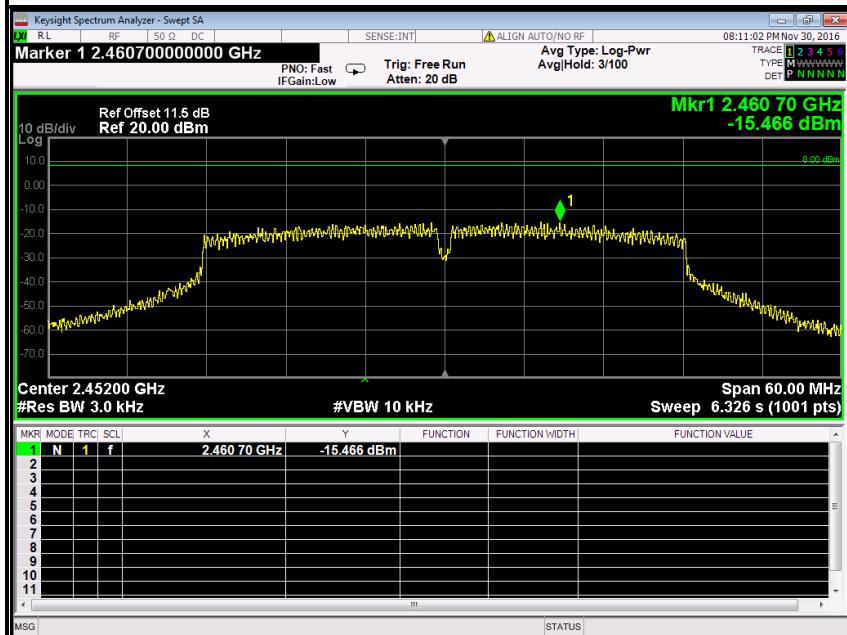


## PPSD (CH Mid)



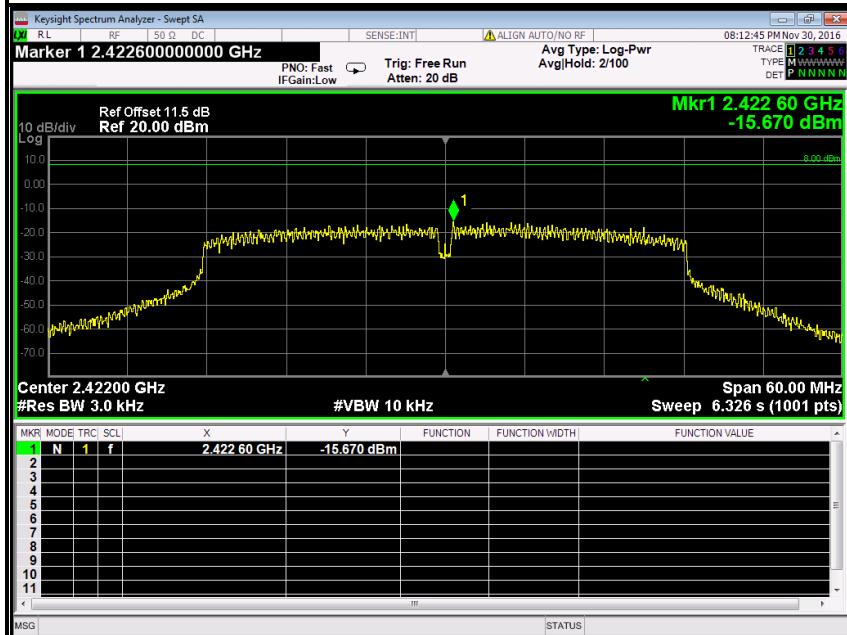


### PPSD (CH High)



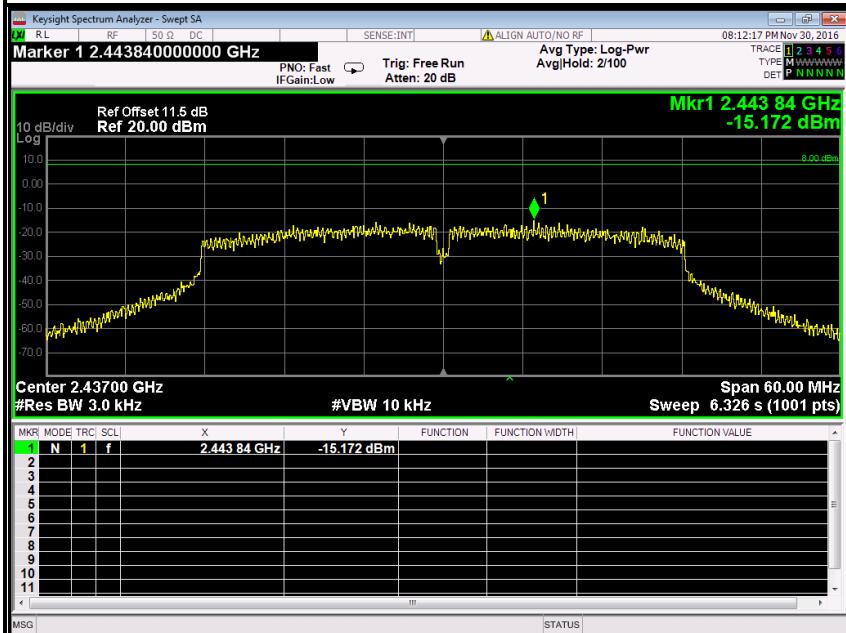
### IEEE 802.11n HT40 MHz mode (Antenna 1)

### PPSD (CH Low)





## PPSD (CH Mid)



## PPSD (CH High)

