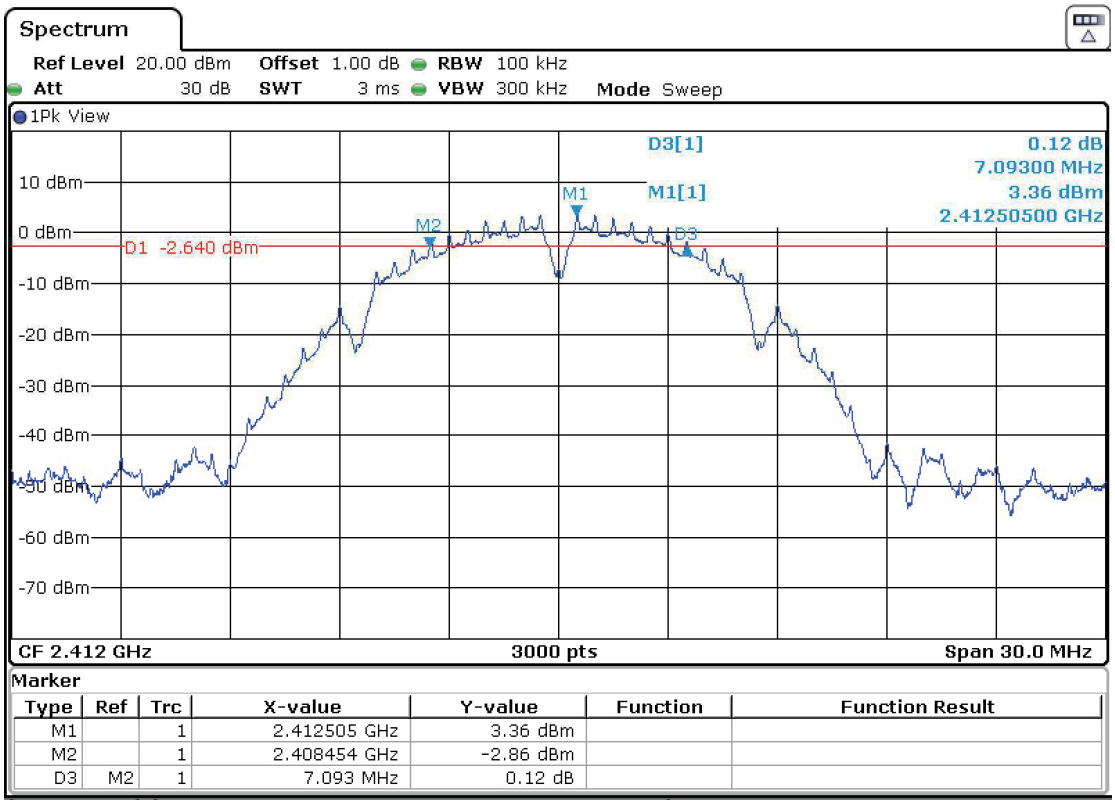
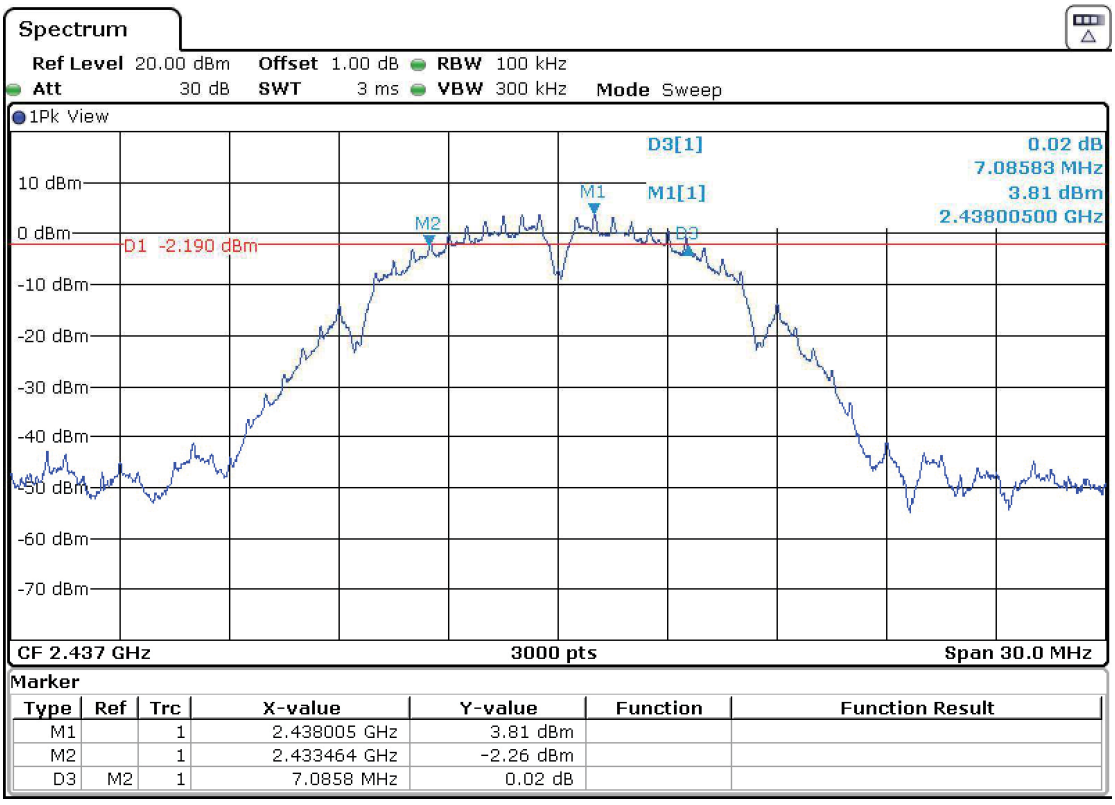
SISO CORE1_Port4 Antenna:

- **Mode 802.11 b – 6 dB Bandwidth**

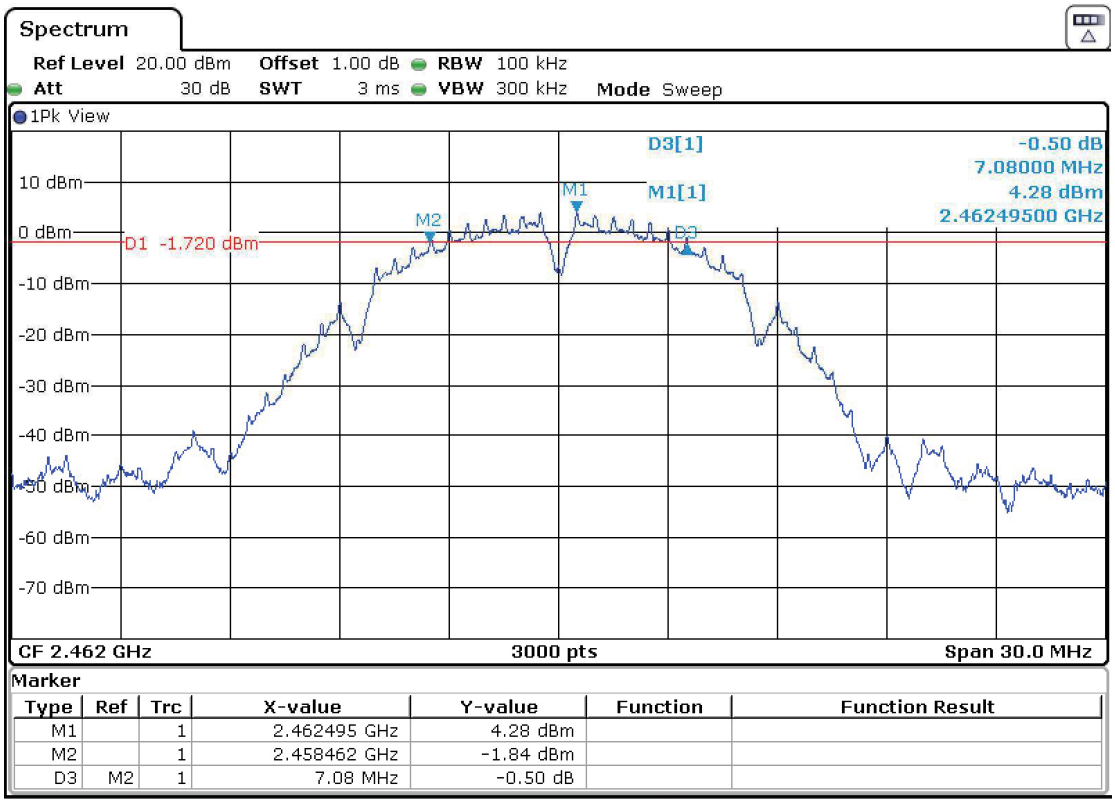
- Low Channel:



- Middle Channel:

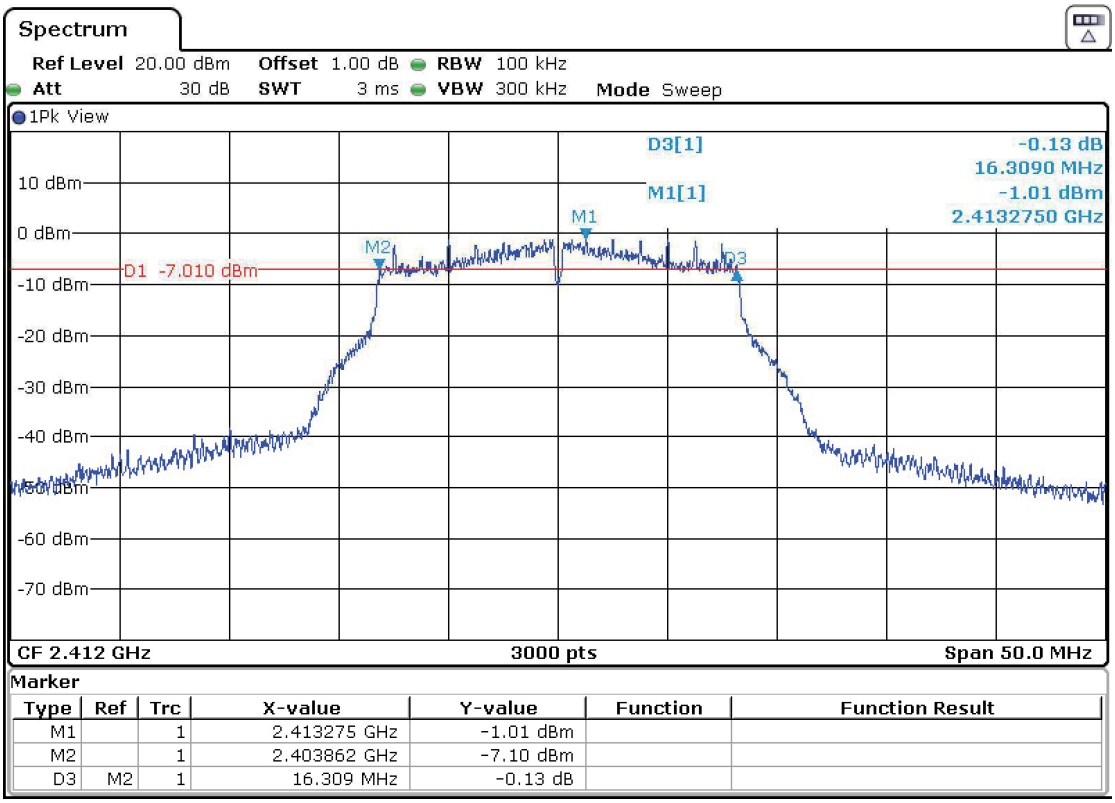


- High Channel:

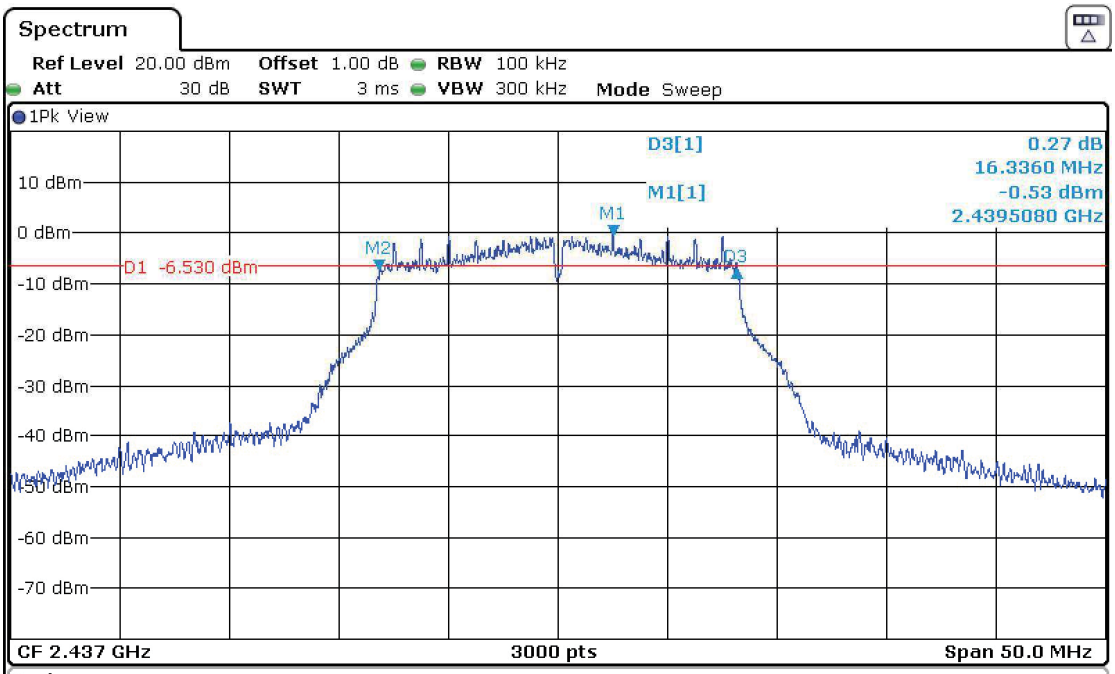


- **Mode 802.11 g – 6 dB Bandwidth**

- Low Channel:



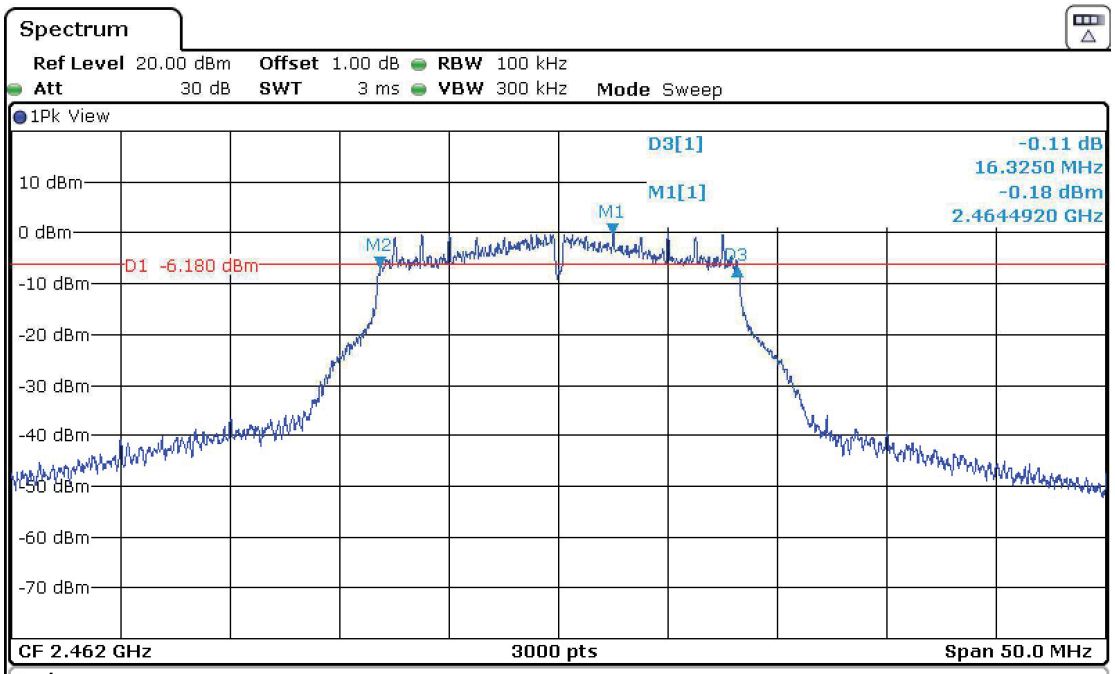
- Middle Channel:



Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.439508 GHz	-0.53 dBm		
M2		1	2.428847 GHz	-7.30 dBm		
D3	M2	1	16.336 MHz	0.27 dB		

- High Channel:

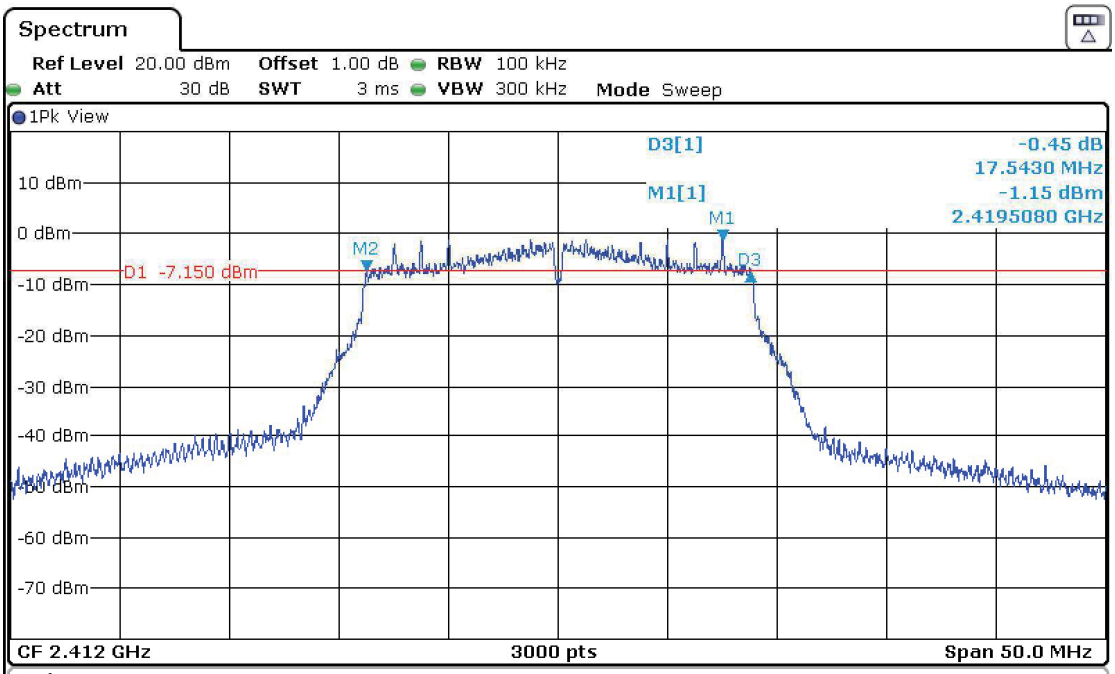


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.464492 GHz	-0.18 dBm		
M2		1	2.453842 GHz	-6.58 dBm		
D3	M2	1	16.325 MHz	-0.11 dB		

- **Mode 802.11 n20 – 6 dB Bandwidth**

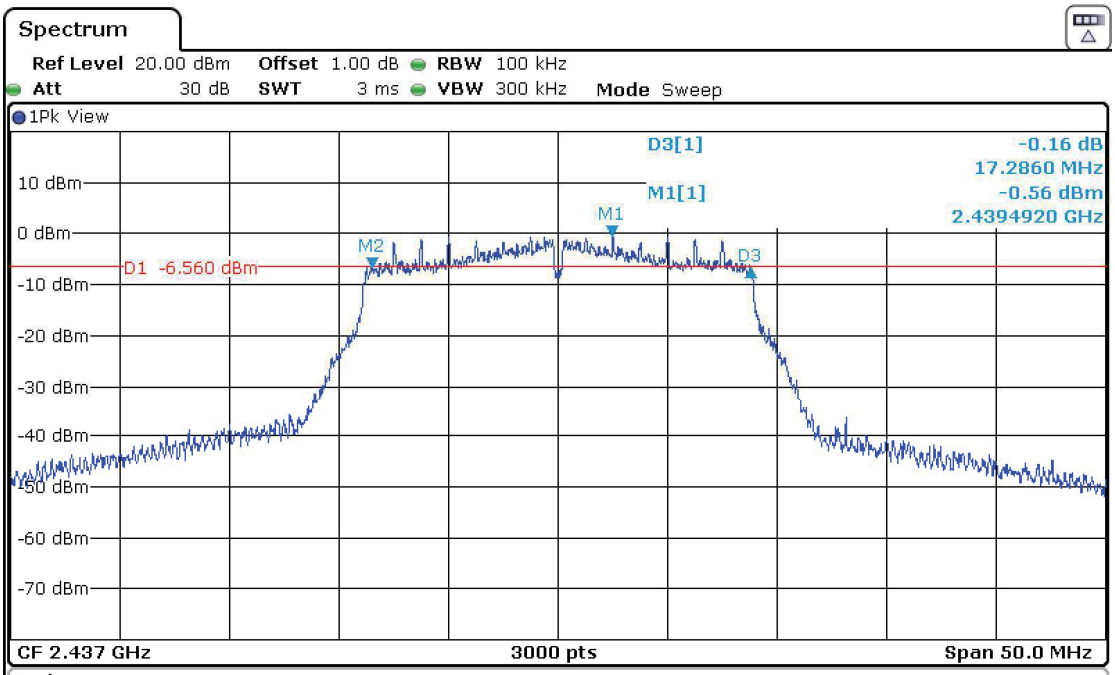
- Low Channel:



Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.419508 GHz	-1.15 dBm		
M2		1	2.403245 GHz	-7.15 dBm		
D3	M2	1	17.543 MHz	-0.45 dB		

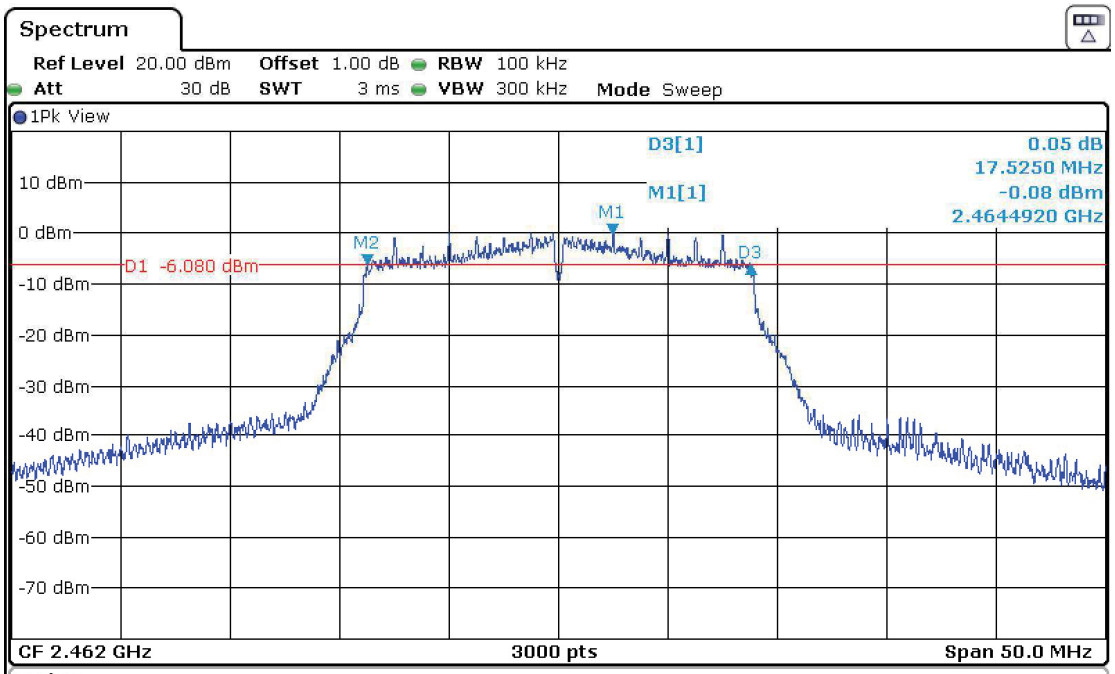
- Middle Channel:



Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.439492 GHz	-0.56 dBm		
M2		1	2.428497 GHz	-6.58 dBm		
D3	M2	1	17.286 MHz	-0.16 dB		

- High Channel:



Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.464492 GHz	-0.08 dBm		
M2		1	2.453242 GHz	-6.16 dBm		
D3	M2	1	17.525 MHz	0.05 dB		

FCC 15.35 (c) / RSS-Gen 6.10. Transmitter Duty Cycle

SPECIFICATION:

When the radiated emission limits are expressed in terms of the average value of the emission, and pulsed operation is employed, the measurement field strength shall be determined by averaging over one complete pulse train, including blanking intervals, as long as the pulse train does not exceed 0.1 seconds. As an alternative (provided the transmitter operates for longer than 0.1 seconds) or in cases where the pulse train exceeds 0.1 seconds, the measured field strength shall be determined from the average absolute voltage during a 0.1 second interval during which the field strength is at its maximum value.

RESULTS:

The results below are for data rates with a duty cycle less than 98%. The results for all rest of modes having a value > 98%.

Technique	Mode	Antenna Port	Pulse Duration (ms)	Period (ms)	Duty Cycle Correction (dB)
SISO	802.11 b	CORE1_Port4	12.37976	12.90254	0.180
SISO	802.11 g	CORE1_Port4	2.04124	2.56735	0.996
SISO	802.11 n20	CORE1_Port4	1.89286	2.42064	1.068
MIMO	802.11 b	CORE1_Port4	12.37965	12.90214	0.180
MIMO	802.11 b	CORE0_Port2	12.37298	12.90214	0.182
MIMO	802.11 g	CORE1_Port4	2.04658	2.56458	0.980
MIMO	802.11 g	CORE0_Port2	2.03324	2.55792	0.997
MIMO	802.11 n20	CORE1_Port4	1.89197	2.41997	1.069
MIMO	802.11 n20	CORE0_Port2	1.90364	2.43164	1.063

FCC 15.247 (b) / RSS-247 5.4 (d) Maximum output power and antenna gain

SPECIFICATION:

For systems using digital modulation in the 2400-2483.5 MHz band: 1 watt (30 dBm).
The e.i.r.p. shall not exceed 4 W (36 dBm) (Canada).

RESULTS:

Preliminary tests determined as the SISO worst case the CORE1_Port4 Antenna.
MIMO case is CORE1_Port4 Antenna & CORE0_Port2 Antenna.

Maximum Declared Antenna Gain:

CORE1_Port4: +2.4 dBi
CORE0_Port2: -0.3 dBi

For SISO and MIMO modes b, g and n20, the maximum conducted output power was measured using the method according to point 11.9.2.2.4 “Method AVGSA-2” of ANSI C.63.10-2013.

The EIRP power (dBm) is calculated by adding the declared maximum antenna gain to the measured conducted power.

In the measure-and-sum approach for MIMO mode, the conducted emission level (e.g., transmit power or power in specified bandwidth) is measured at each antenna port. The measured results at the various antenna ports are then summed mathematically to determine the total emission level from the device. Summing is performed in linear power units (mW—not dBm).

SISO – CORE1_Port4 Antenna:

- **Mode 802.11 b**

	Low Channel	Middle Channel	High Channel
Maximum Average Conducted Power (dBm)	10.53	10.8	11.27
Duty Cycle Correction (dB)	0.180		
Max. conducted power corrected (dBm)	10.71	10.98	11.45
Maximum EIRP Power with Duty Cycle Correction (dBm)	13.11	13.38	13.850
Measurement uncertainty (dB)	<±2.57		

- **Mode 802.11 g**

	Low Channel	Middle Channel	High Channel
Maximum Average Conducted Power (dBm)	10.11	10.32	11.01
Duty Cycle Correction (dB)	0.996		
Max. conducted power corrected (dBm)	11.106	11.316	12.006
Maximum EIRP Power with Duty Cycle Correction (dBm)	13.506	13.716	14.406
Measurement uncertainty (dB)	<±2.57		

- **Mode 802.11 n20**

	Low Channel	Middle Channel	High Channel
Maximum Average Conducted Power (dBm)	9.9	10.19	10.65
Duty Cycle Correction (dB)	1.068		
Max. conducted power corrected (dBm)	10.968	11.258	11.718
Maximum EIRP Power with Duty Cycle Correction (dBm)	13.368	13.658	14.118
Measurement uncertainty (dB)	<±2.57		

Verdict: PASS

MIMO – CORE1_Port4 Antenna & CORE1_Port1 Antenna:

- **Mode 802.11 b**

Gain MIMO mode (port 2+port4)= 4.16dBi.

	Low Channel		Middle Channel		High Channel	
	CORE1_ Port4	CORE0_ Port2	CORE1_ Port4	CORE0_ Port2	CORE1_ Port4	CORE0_ Port2
Maximum Average Conducted Power (dBm)	8.88	12.25	8.56	11.47	8.77	11.02
Duty Cycle Correction (dB)	0.180	0.182	0.18	0.182	0.18	0.182
Maximum Average Conducted Power corrected (dBm)	9.060	12.432	8.740	11.651	8.950	11.202
	CORE1_Port4 + CORE0_Port2		CORE1_Port4 + CORE0_Port2		CORE1_Port4 + CORE0_Port2	
Maximum Conducted Power (dBm)	14.076		13.445		13.231	
Maximum EIRP Power (dBm)	18.236		17.605		17.391	
Measurement uncertainty (dB)	<±2.57					

- **Mode 802.11 g**

Gain MIMO mode (port 2+port4)= 4.16dBi.

	Low Channel		Middle Channel		High Channel	
	CORE1_ Port4	CORE0_ Port2	CORE1_ Port4	CORE0_ Port2	CORE1_ Port4	CORE0_ Port2
Maximum Average Conducted Power (dBm)	8.09	11.02	7.66	10.6	7.92	9.94
Duty Cycle Correction (dB)	0.980	0.997	0.980	0.997	0.980	0.997
Maximum Average Conducted Power corrected (dBm)	9.070	12.017	8.640	11.597	8.900	10.937
	CORE1_Port4 + CORE0_Port2		CORE1_Port4 + CORE0_Port2		CORE1_Port4 + CORE0_Port2	
Maximum Conducted Power (dBm)	13.799		13.376		13.047	
Maximum EIRP Power (dBm)	17.959		17.536		17.207	
Measurement uncertainty (dB)	<±2.57					

- **Mode 802.11 n20**

Gain MIMO mode (port 2+port4)= 4.16dBi.

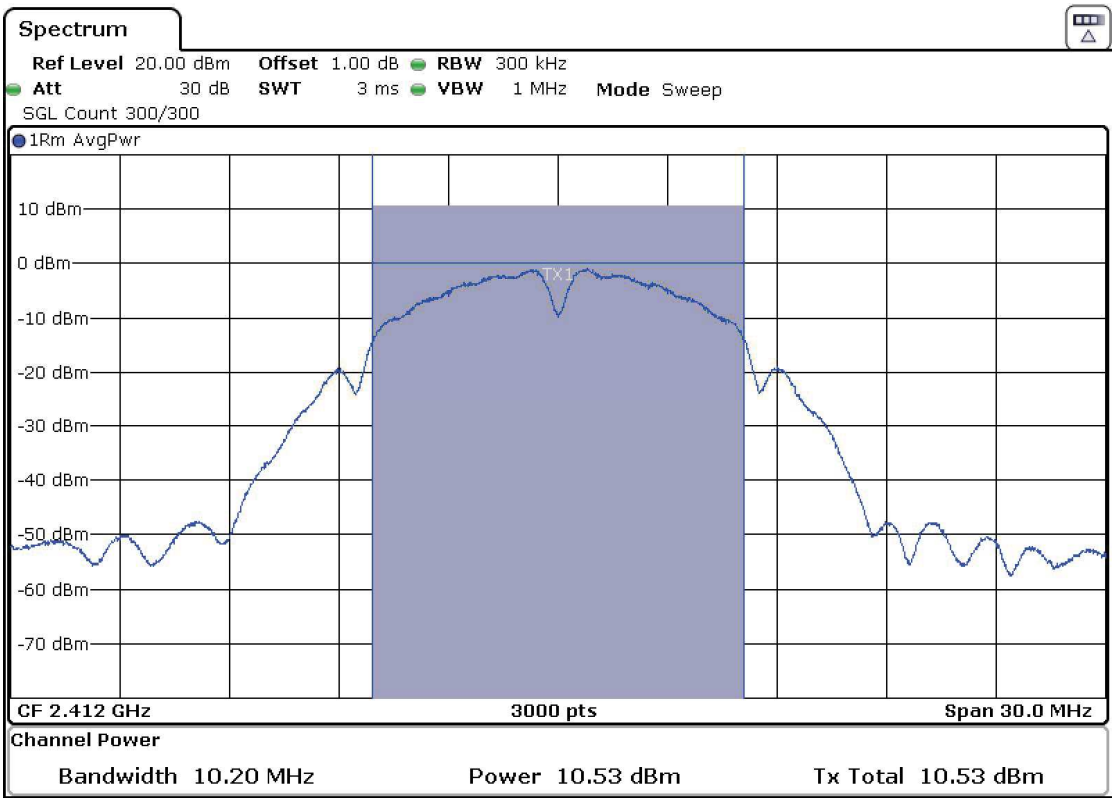
	Low Channel		Middle Channel		High Channel	
	CORE1_ Port4	CORE0_ Port2	CORE1_ Port4	CORE0_ Port2	CORE1_ Port4	CORE0_ Port2
Maximum Average Conducted Power (dBm)	7.96	10.65	7.68	10,12	7.98	9.77
Duty Cycle Correction (dB)	1.069	1.063	1.069	1.063	1.069	1.063
Maximum Average Conducted Power corrected (dBm)	9.029	11.713	8.749	11.183	9.049	10.833
	CORE1_Port4 + CORE0_Port2		CORE1_Port4 + CORE0_Port2		CORE1_Port4 + CORE0_Port2	
Maximum Conducted Power (dBm)	13.585		13.145		13.042	
Maximum EIRP Power (dBm)	17.745		17.305		17.202	
Measurement uncertainty (dB)	<±2.57					

Verdict: PASS

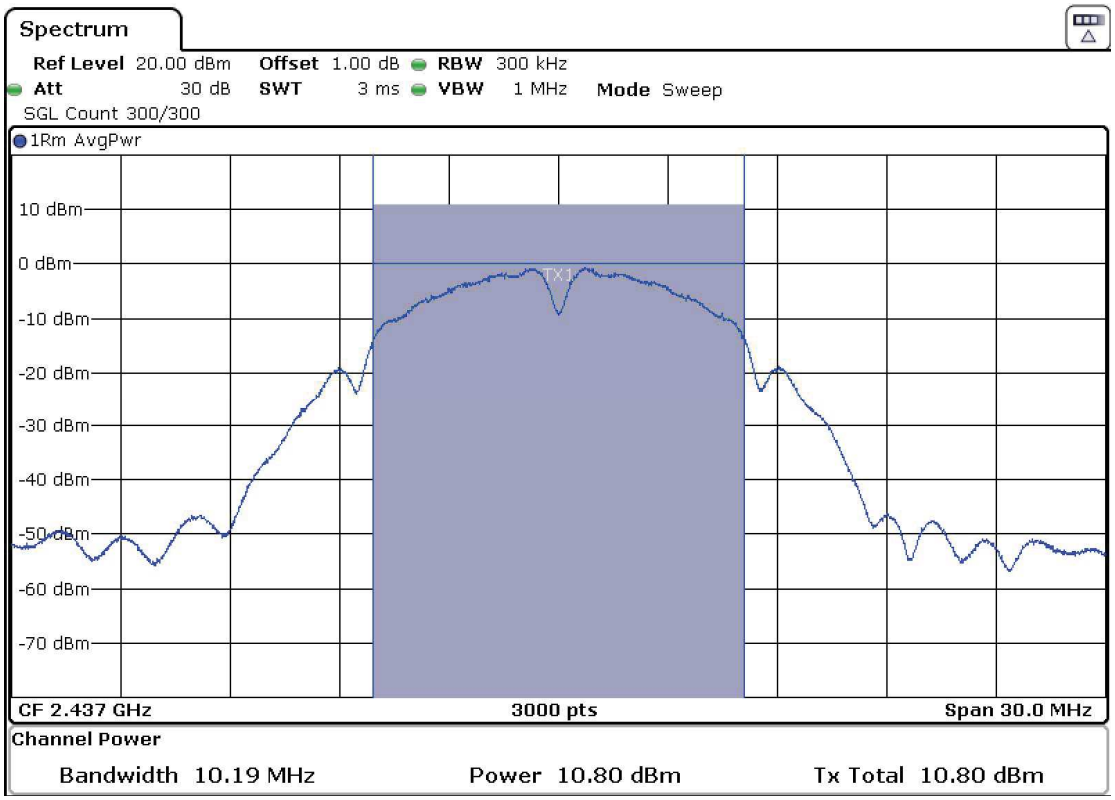
SISO CORE1_Port4 Antenna:

- **Mode 802.11 b**

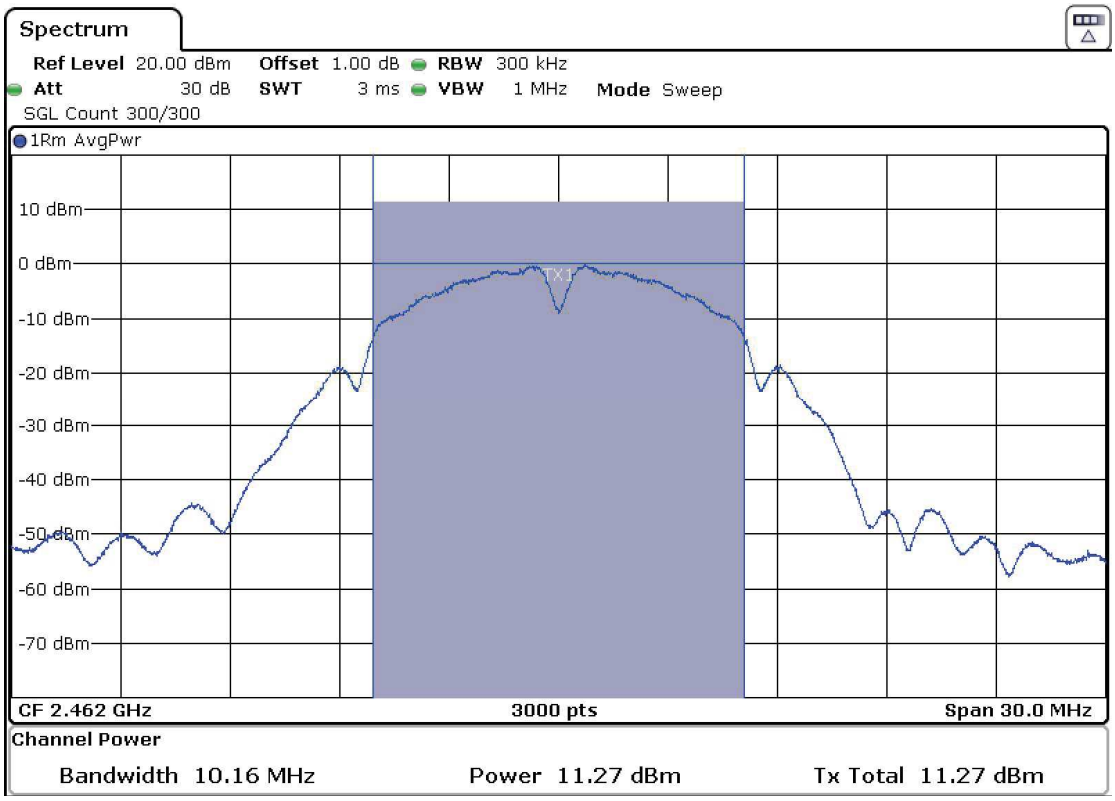
- Low Channel:



- Middle Channel:



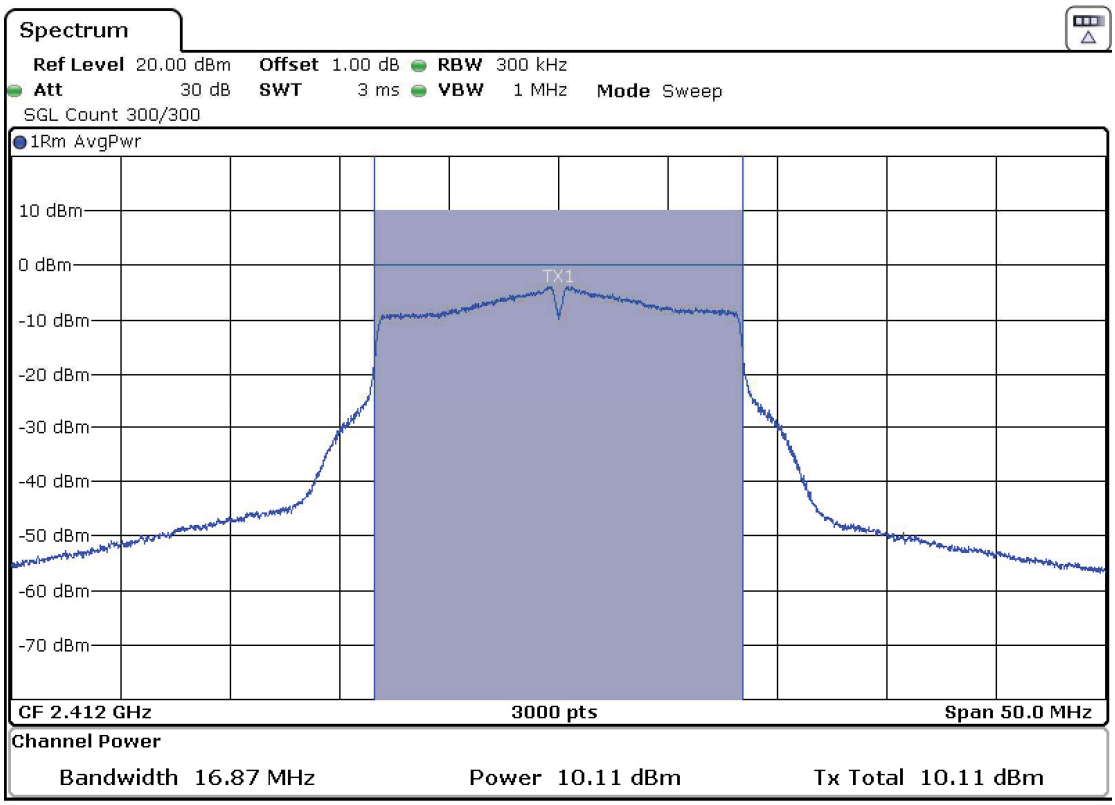
- High Channel:



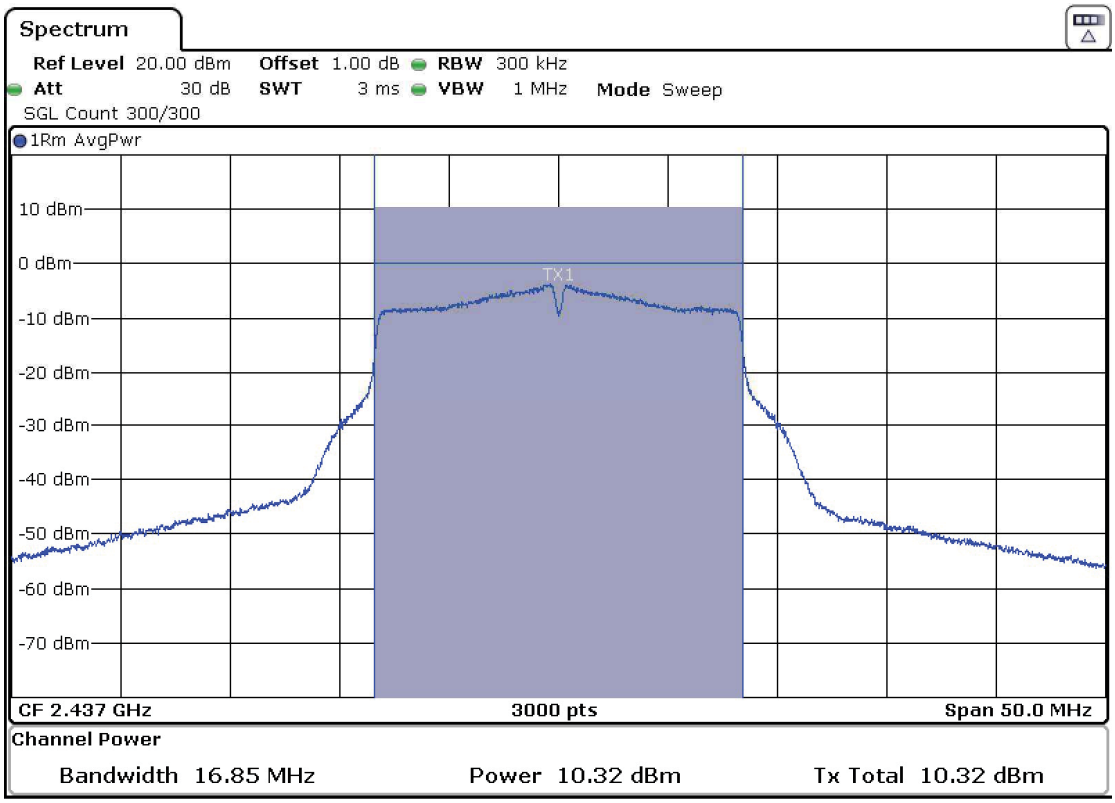
SISO CORE1_Port4 Antenna:

- **Mode 802.11 g**

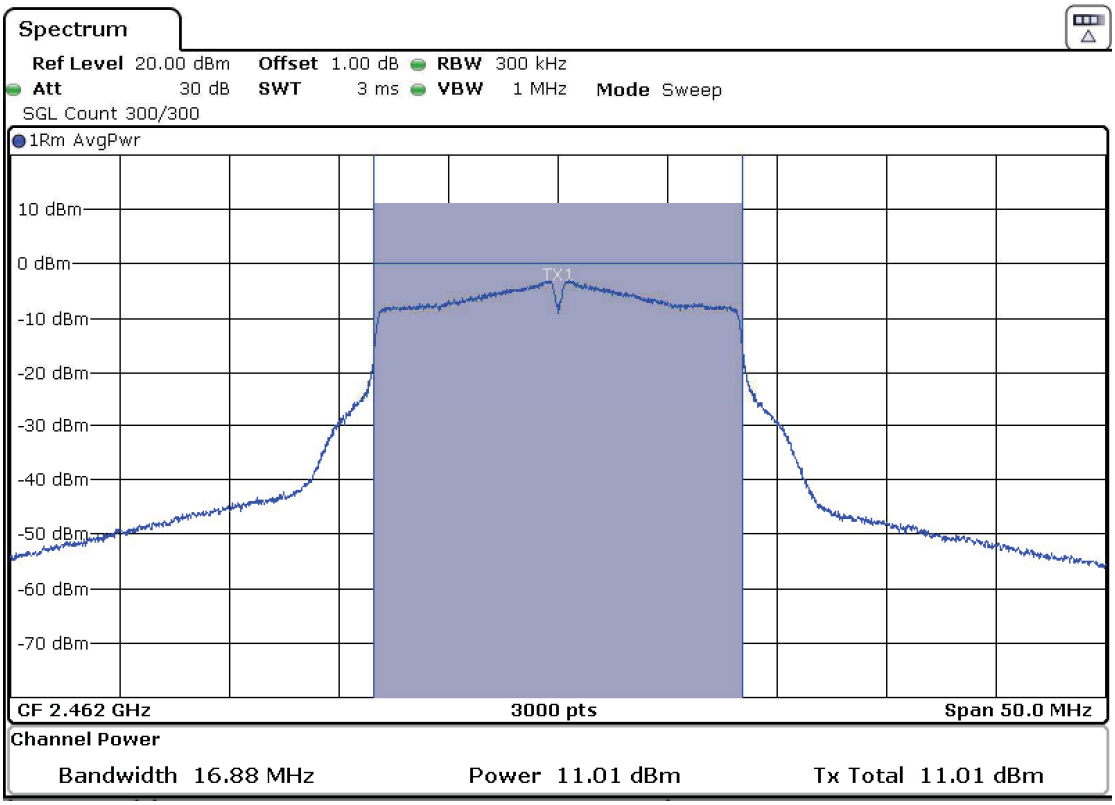
- Low Channel:



- Middle Channel:



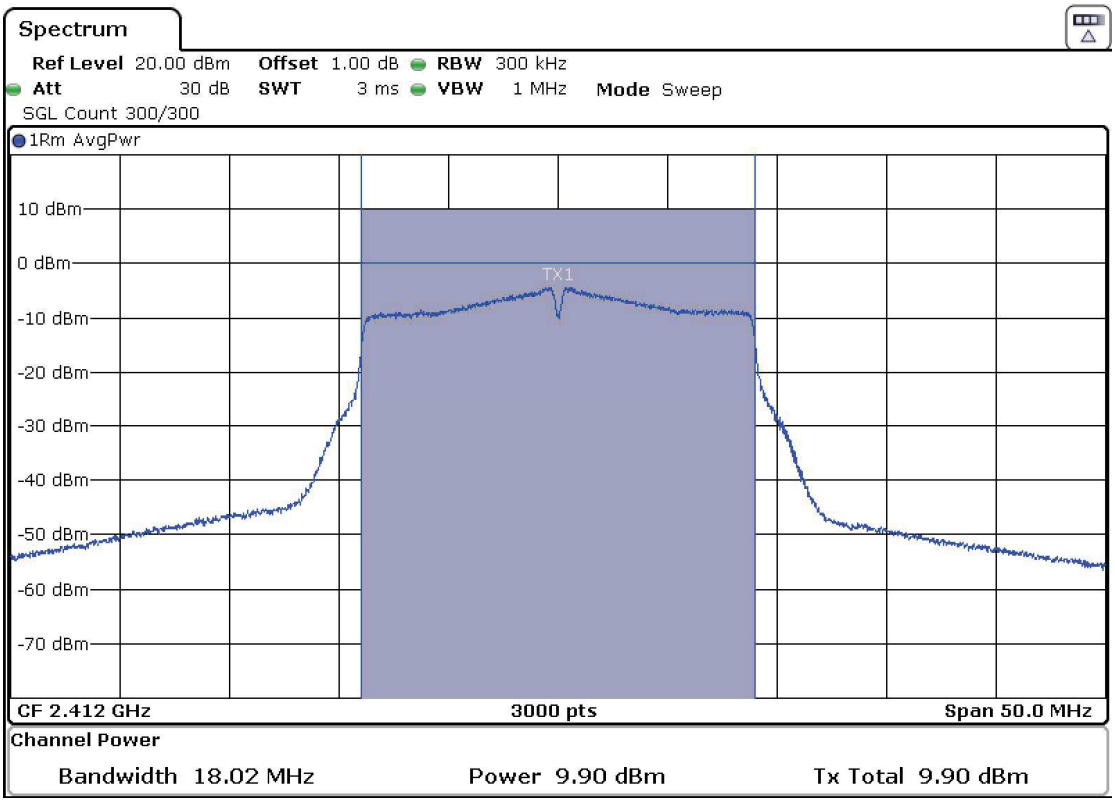
- High Channel:



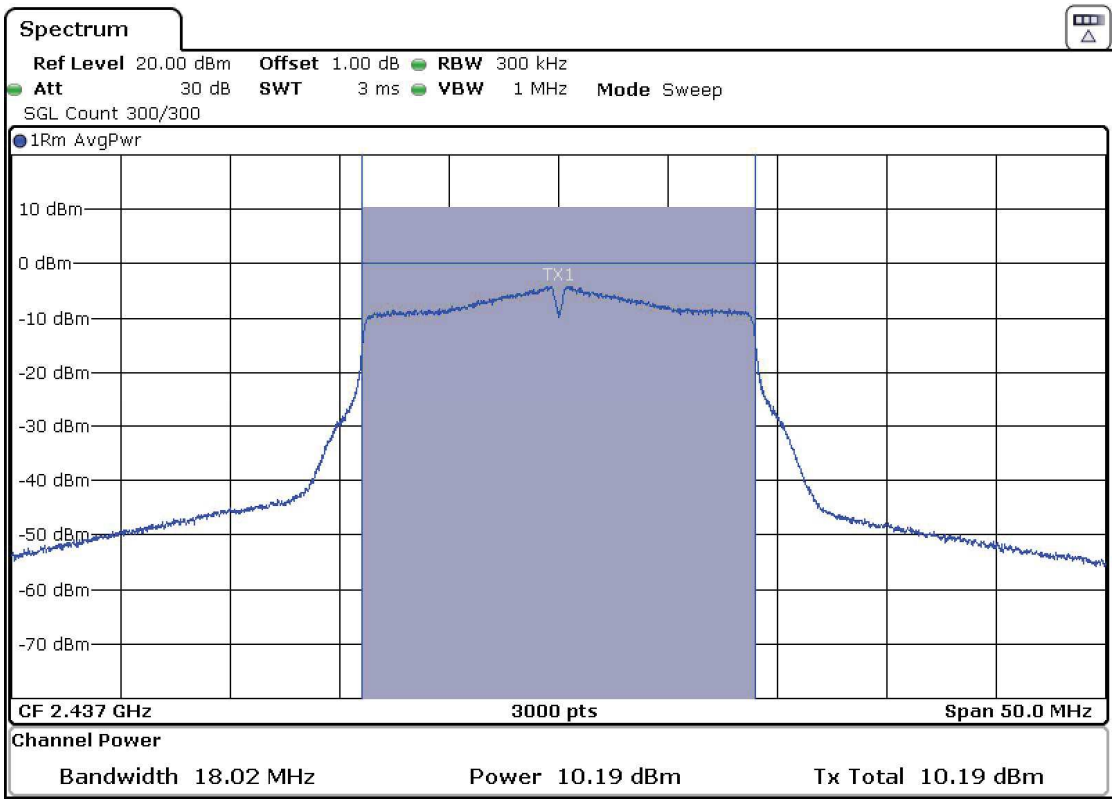
SISO CORE1_Port4 Antenna:

- **Mode 802.11 n20**

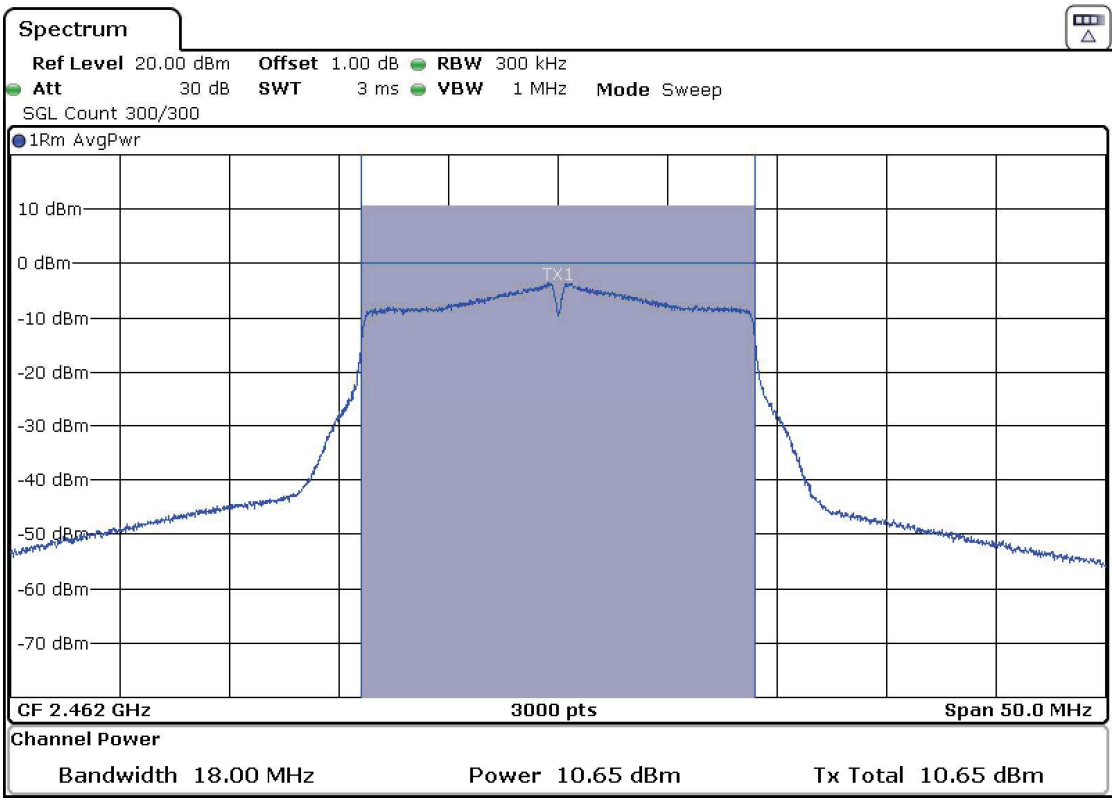
- Low Channel:



- Middle Channel:



- High Channel:

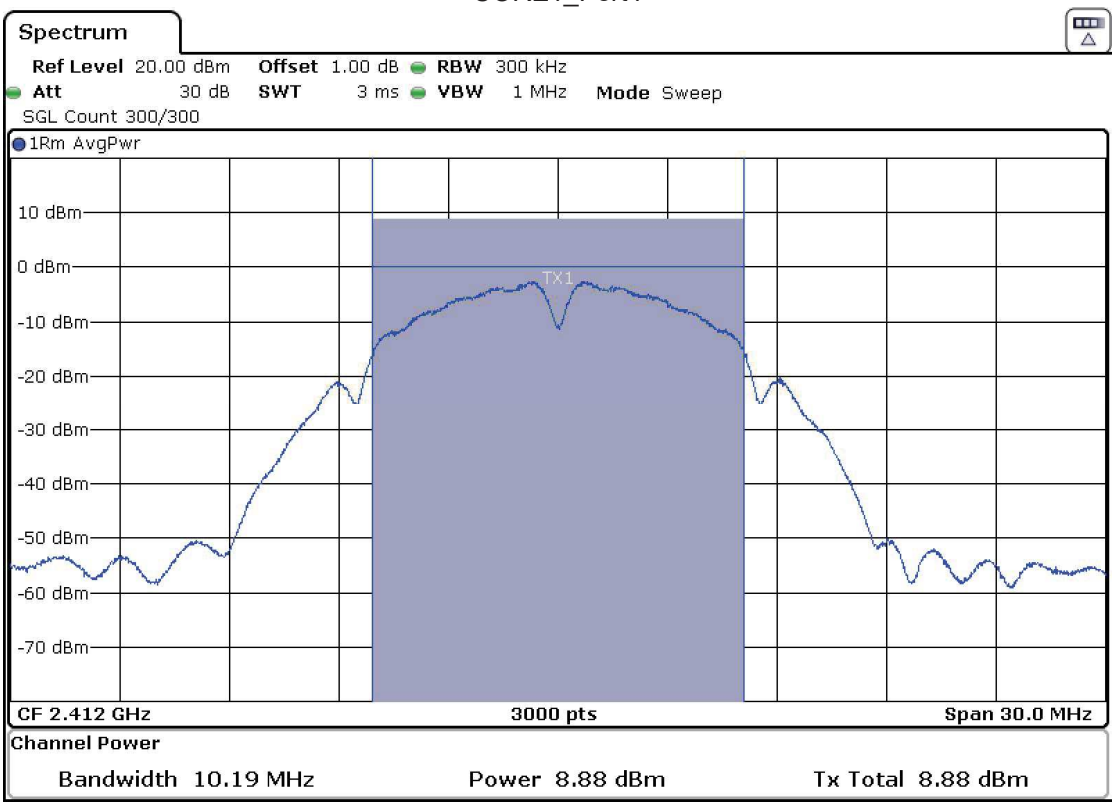


MIMO – CORE1_Port4 Antenna & CORE0_Port2 Antenna:

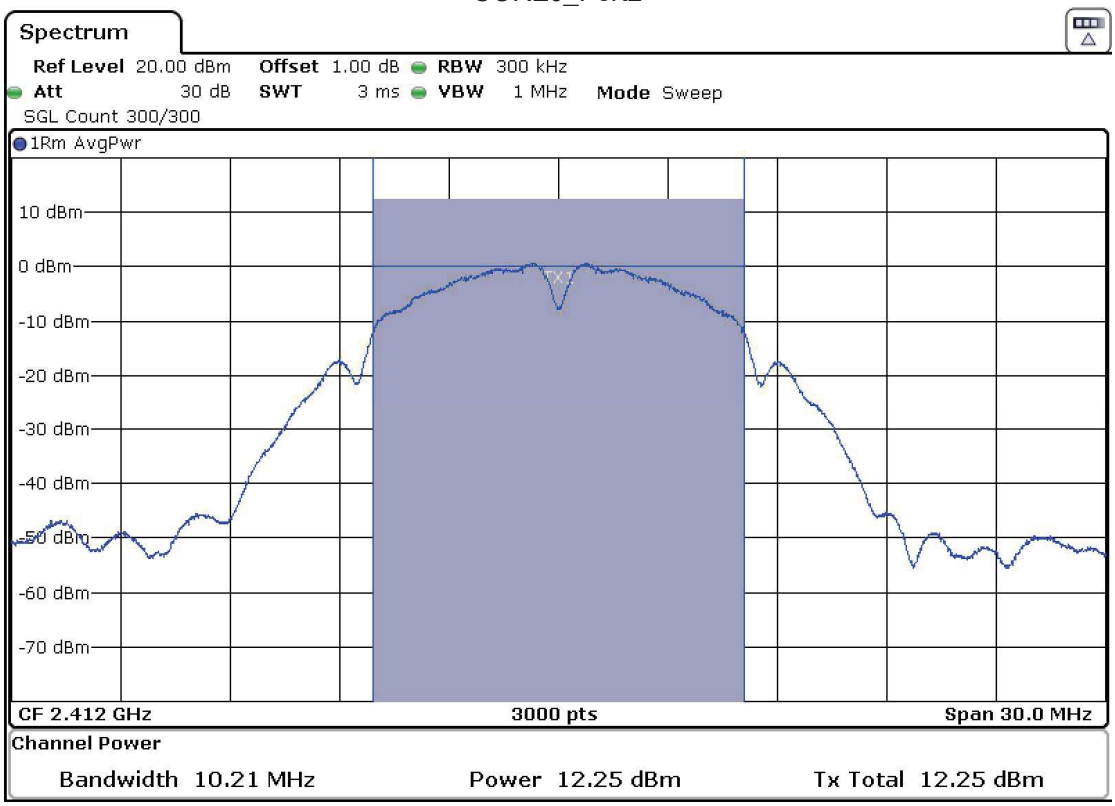
- **Mode 802.11 b**

- Low Channel:

CORE1_Port4

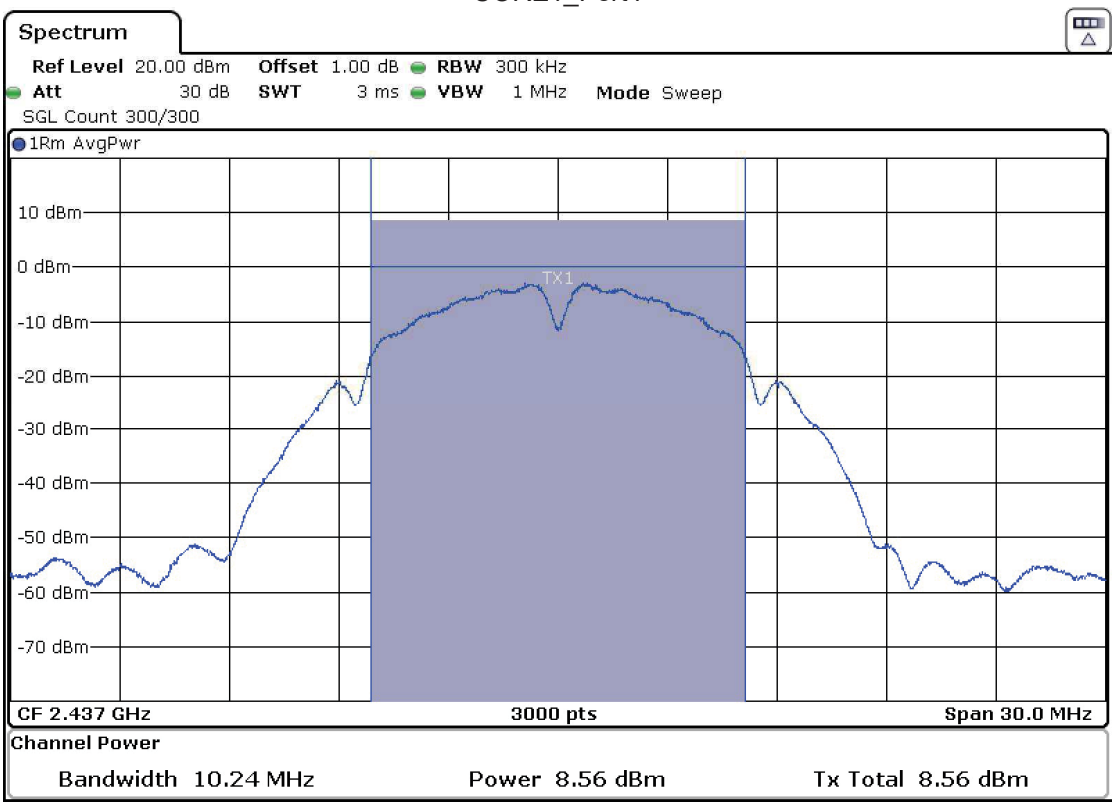


CORE0_Port2

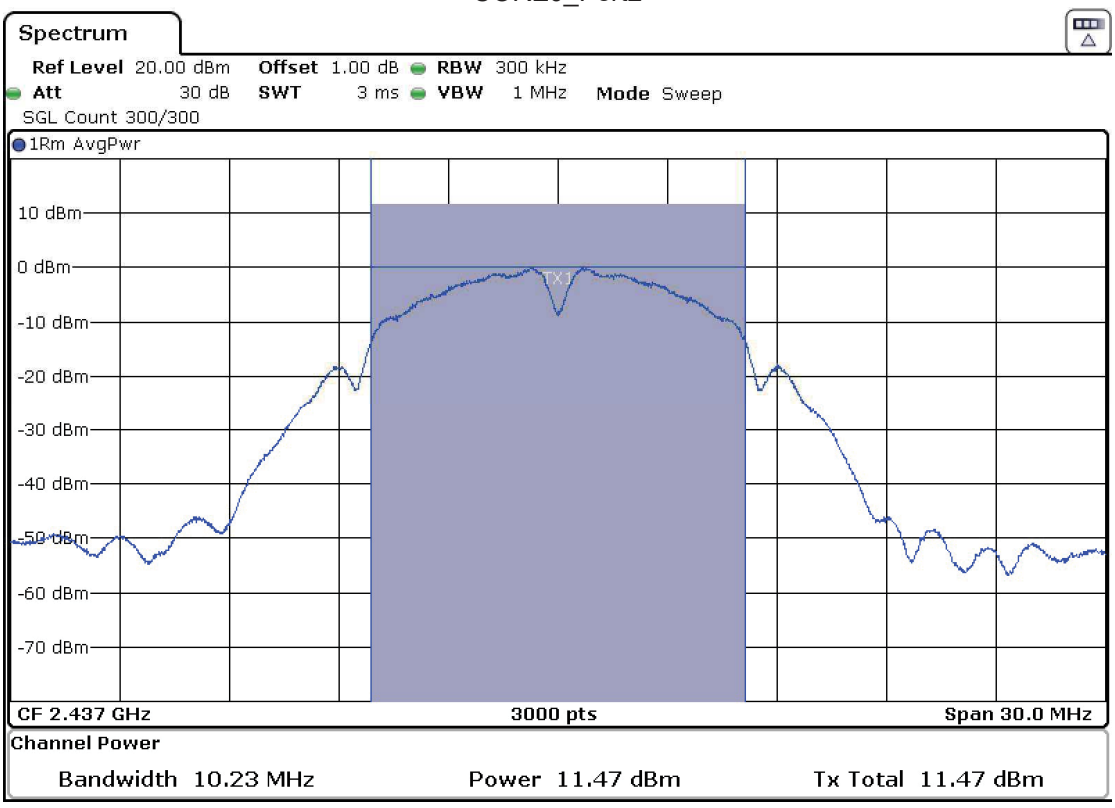


- Middle Channel:

CORE1_Port4

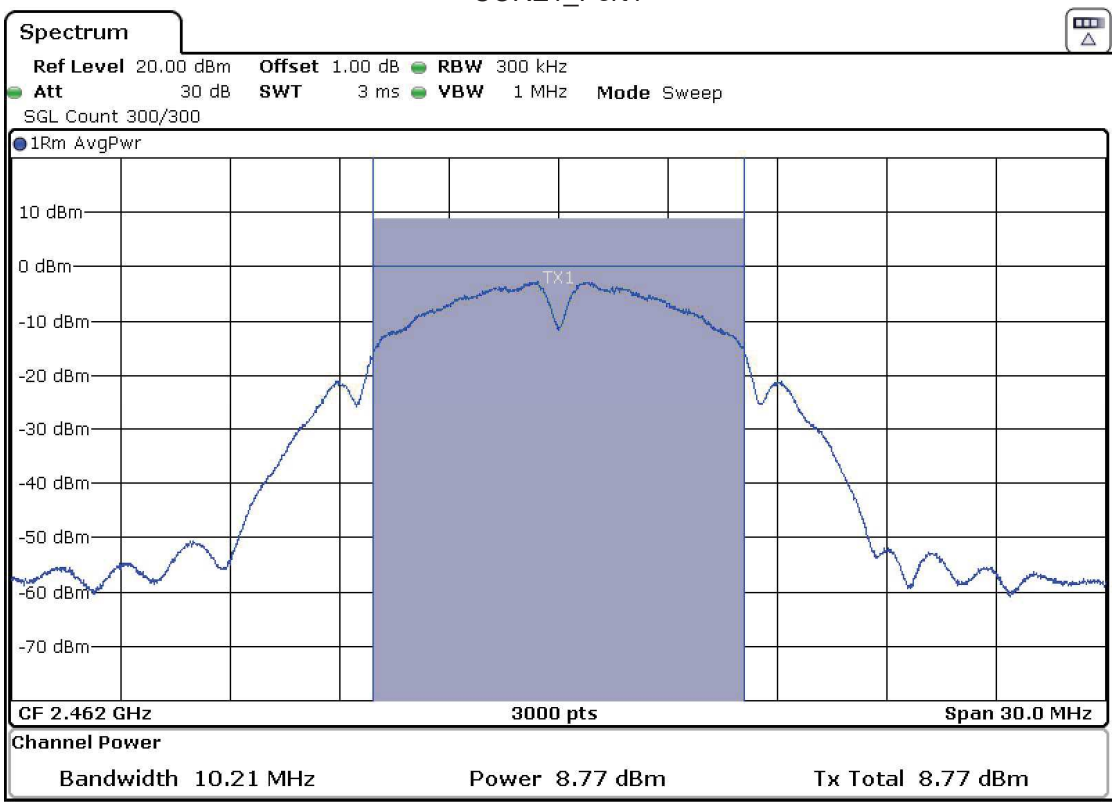


CORE0_Port2

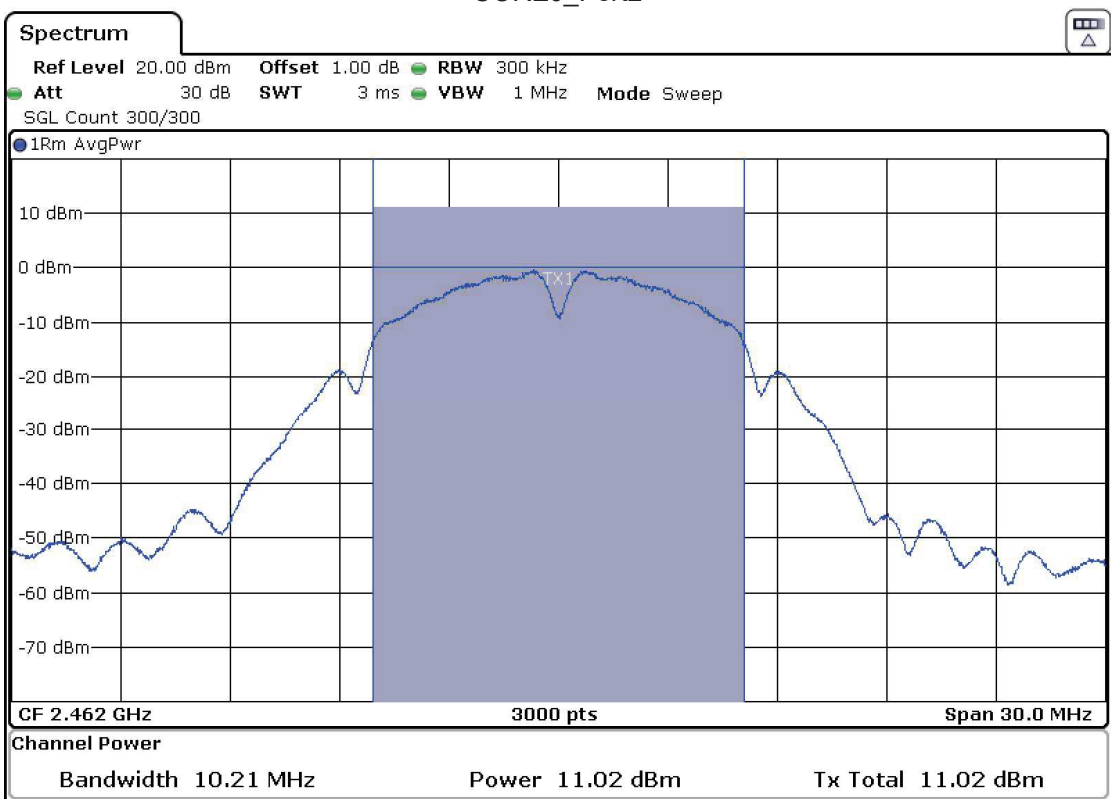


- High Channel:

CORE1_Port4



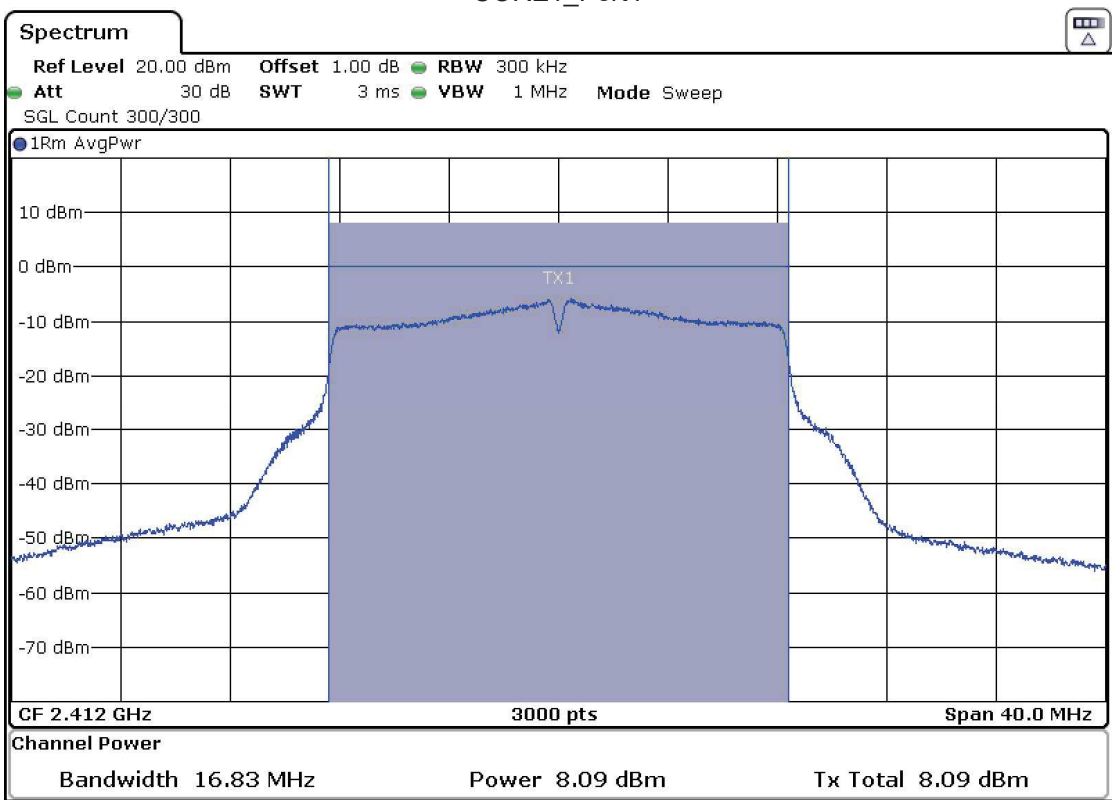
CORE0_Port2



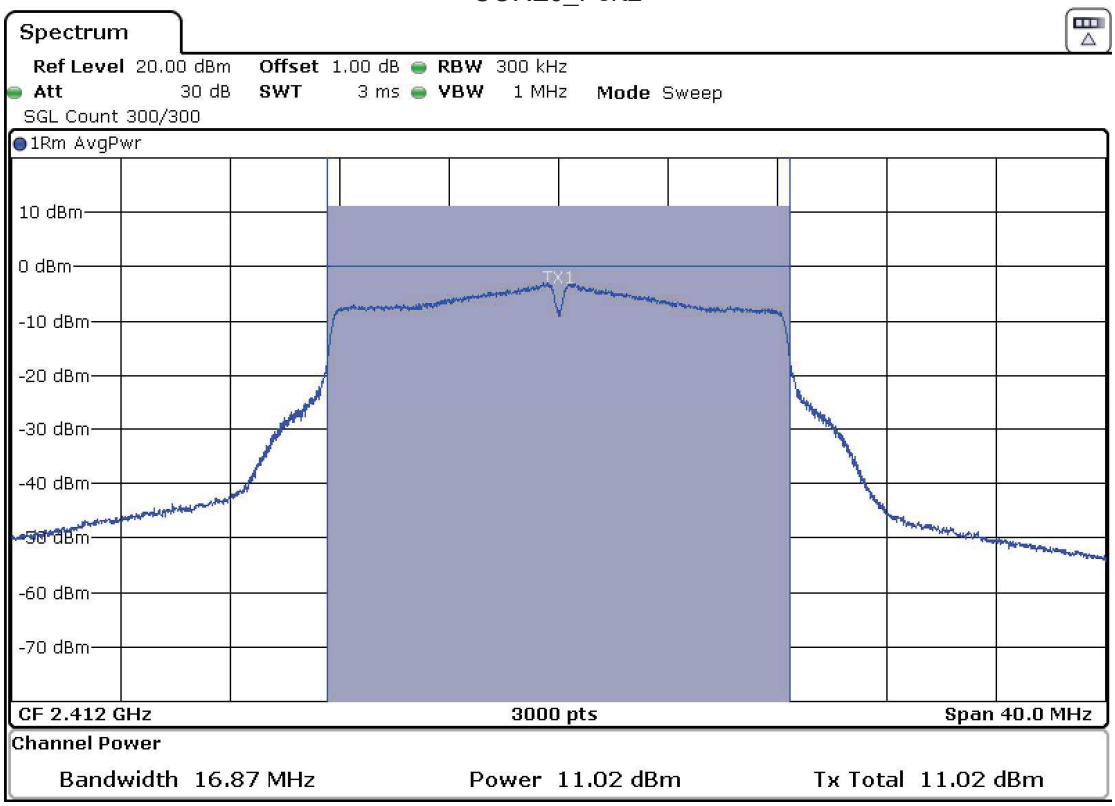
- **Mode 802.11 g**

- Low Channel:

CORE1_Port4

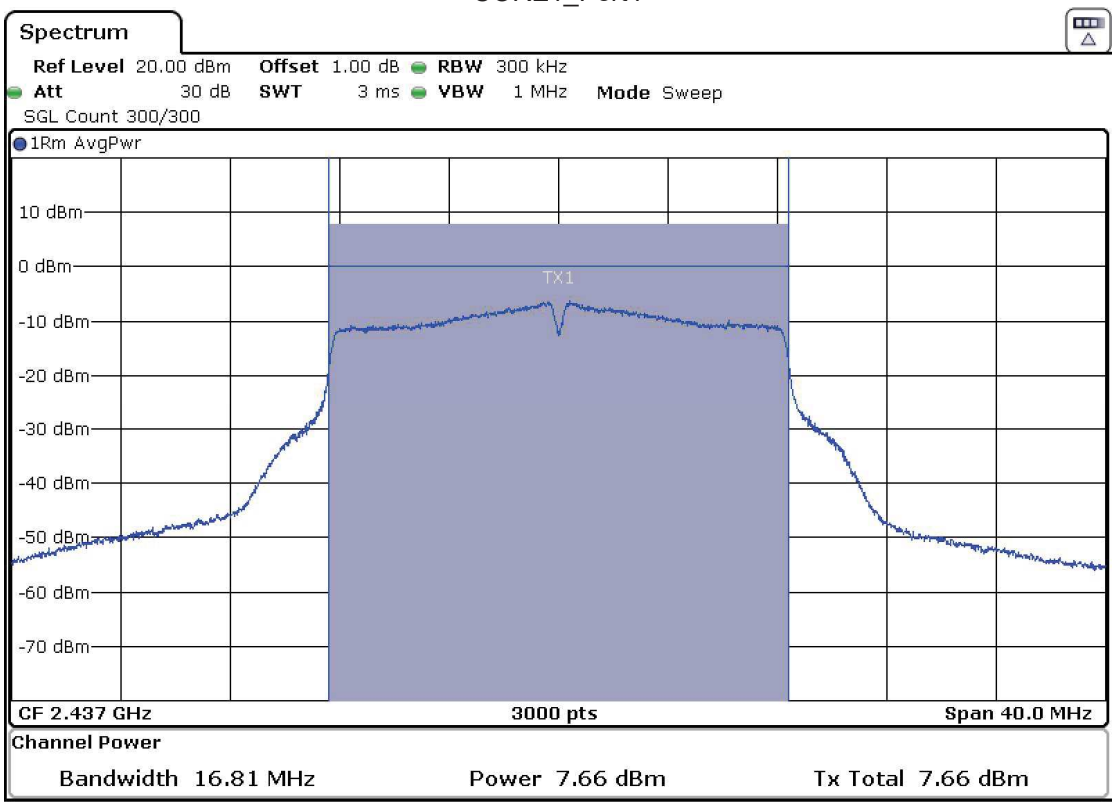


CORE0_Port2

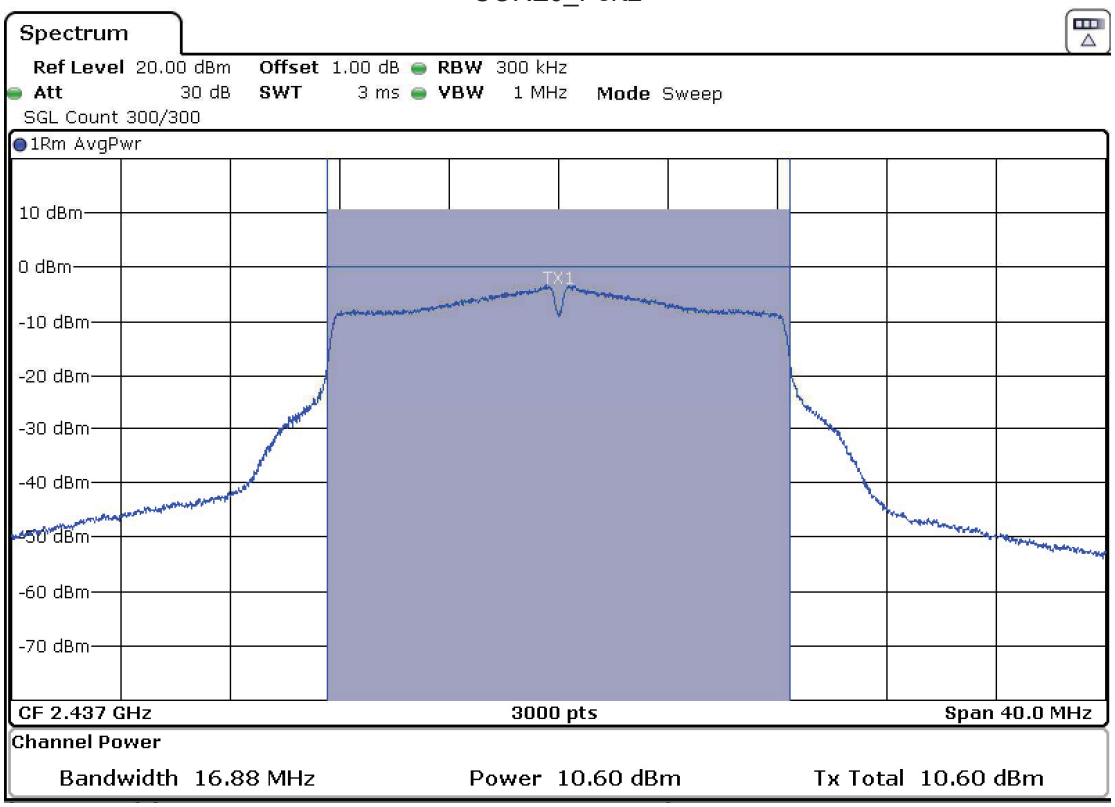


- Middle Channel:

CORE1_Port4

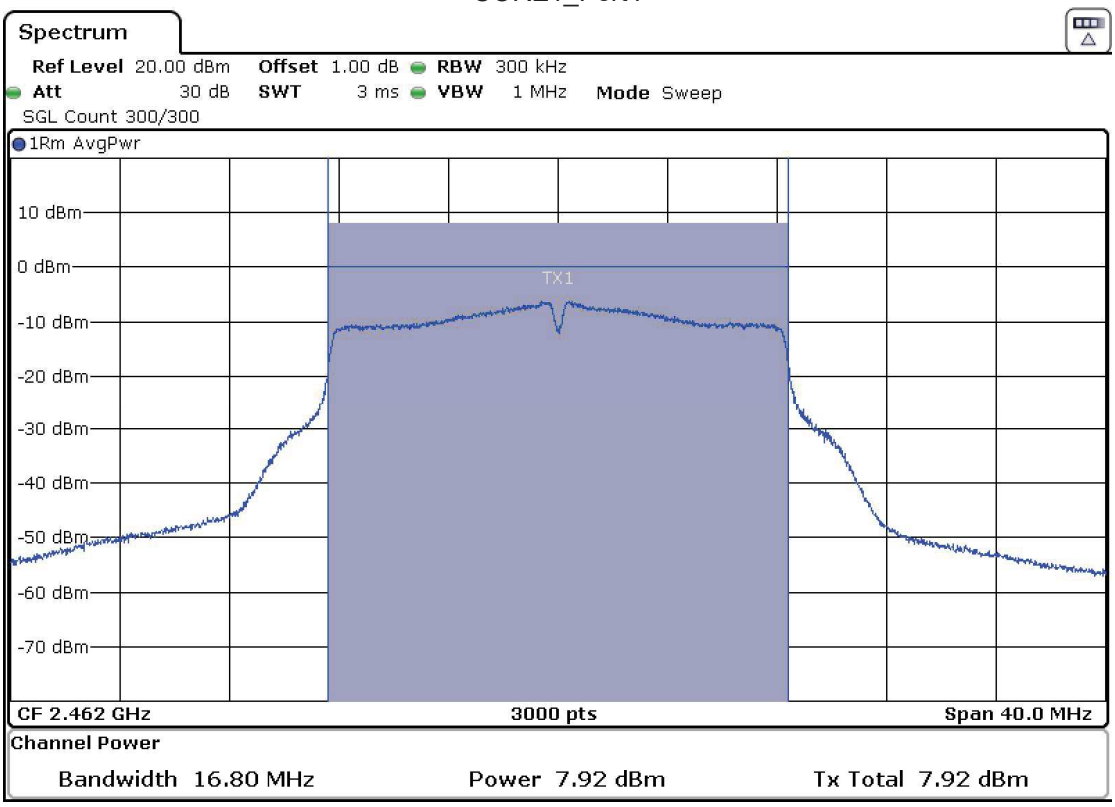


CORE0_Port2

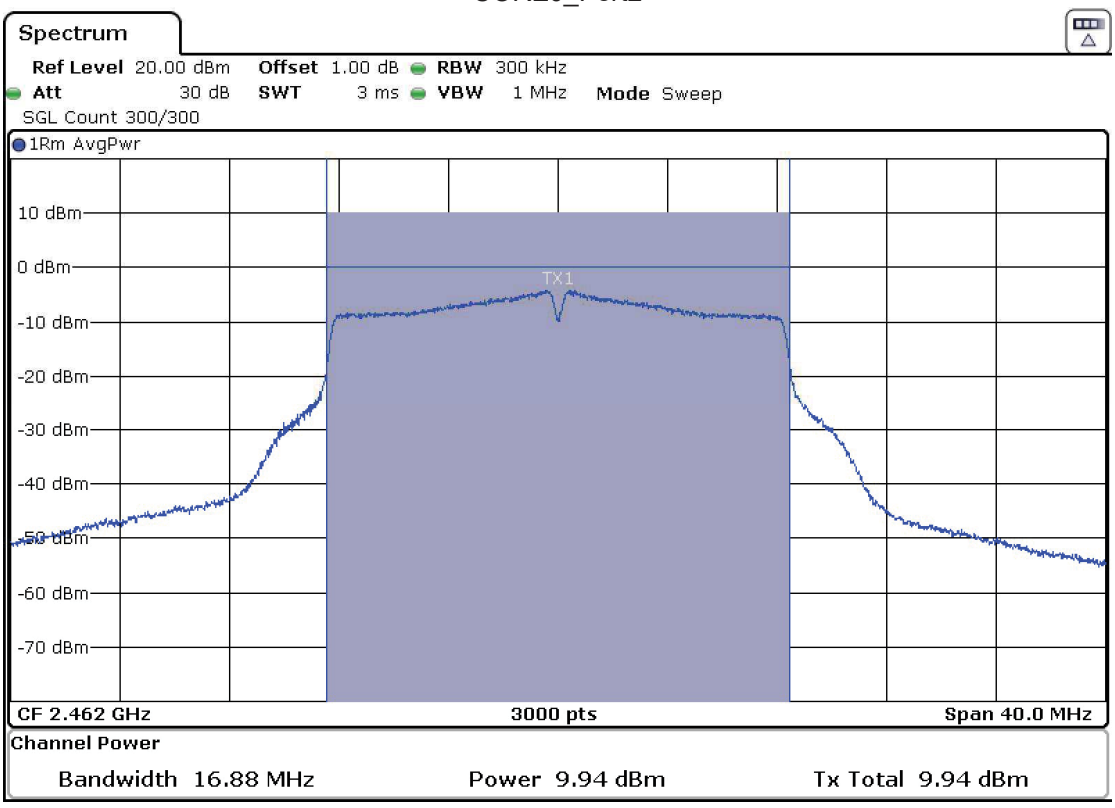


- High Channel:

CORE1_Port4



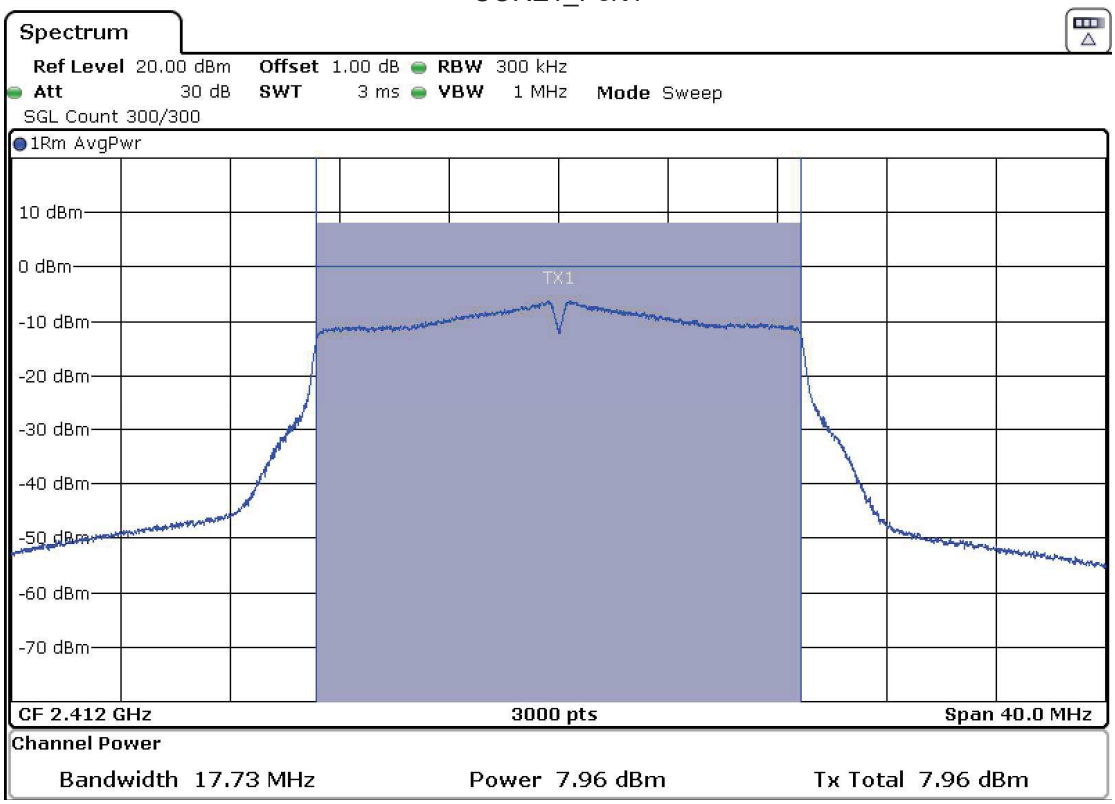
CORE0_Port2



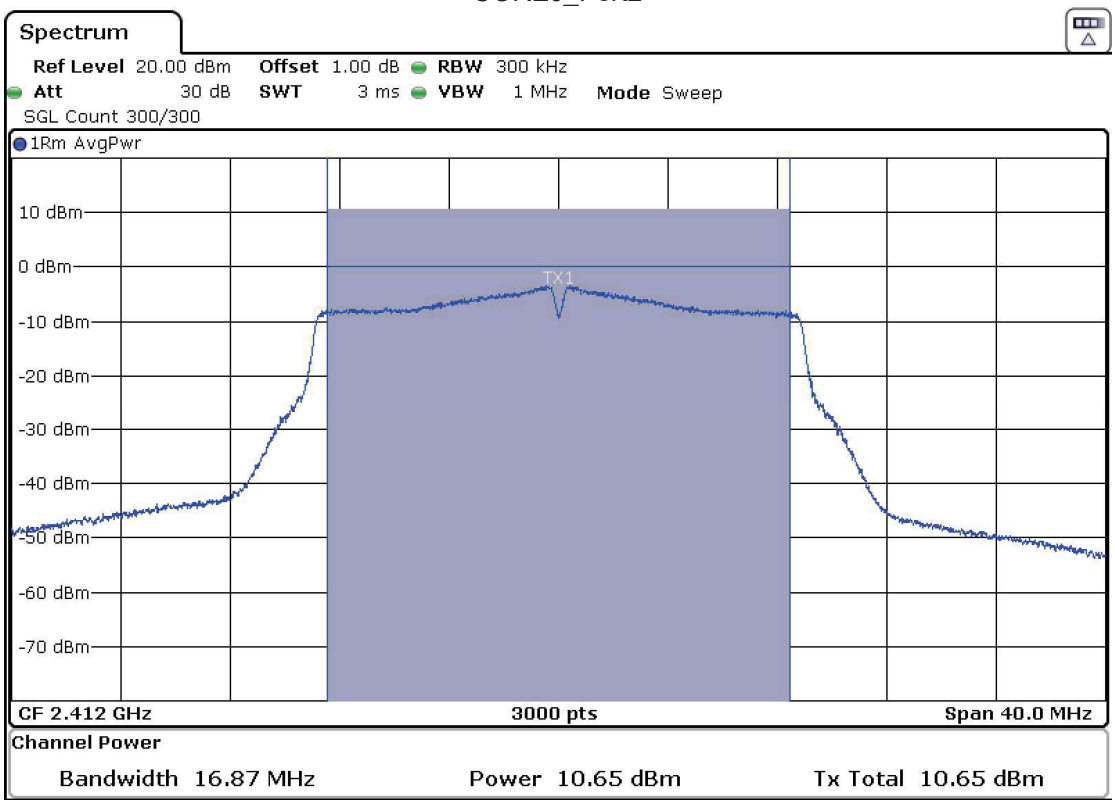
- **Mode 802.11 n20**

- Low Channel:

CORE1_Port4

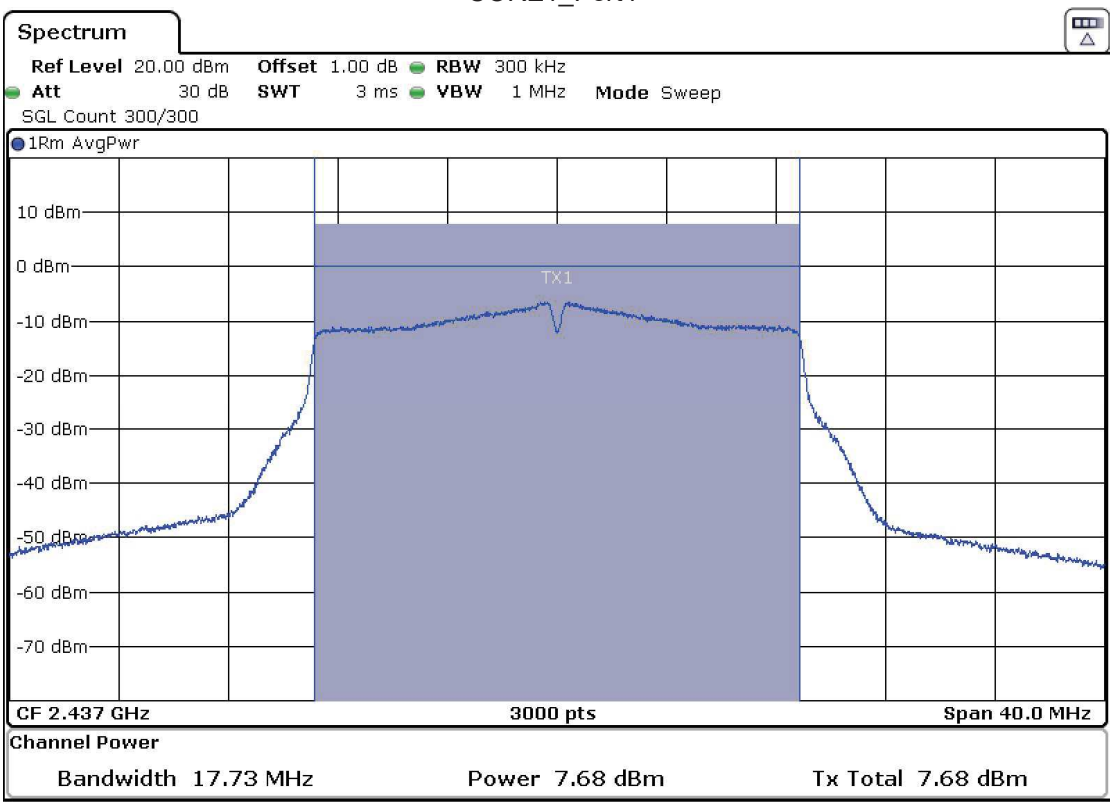


CORE0_Port2

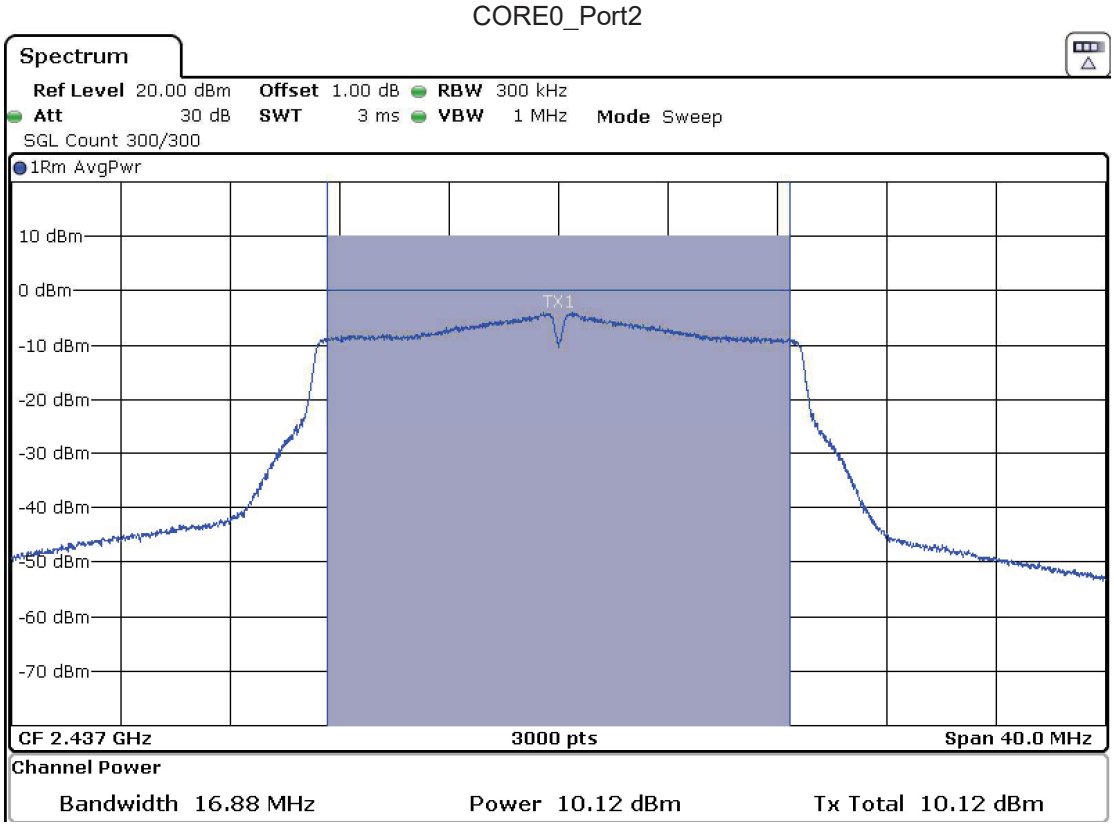


- Middle Channel:

CORE1_Port4

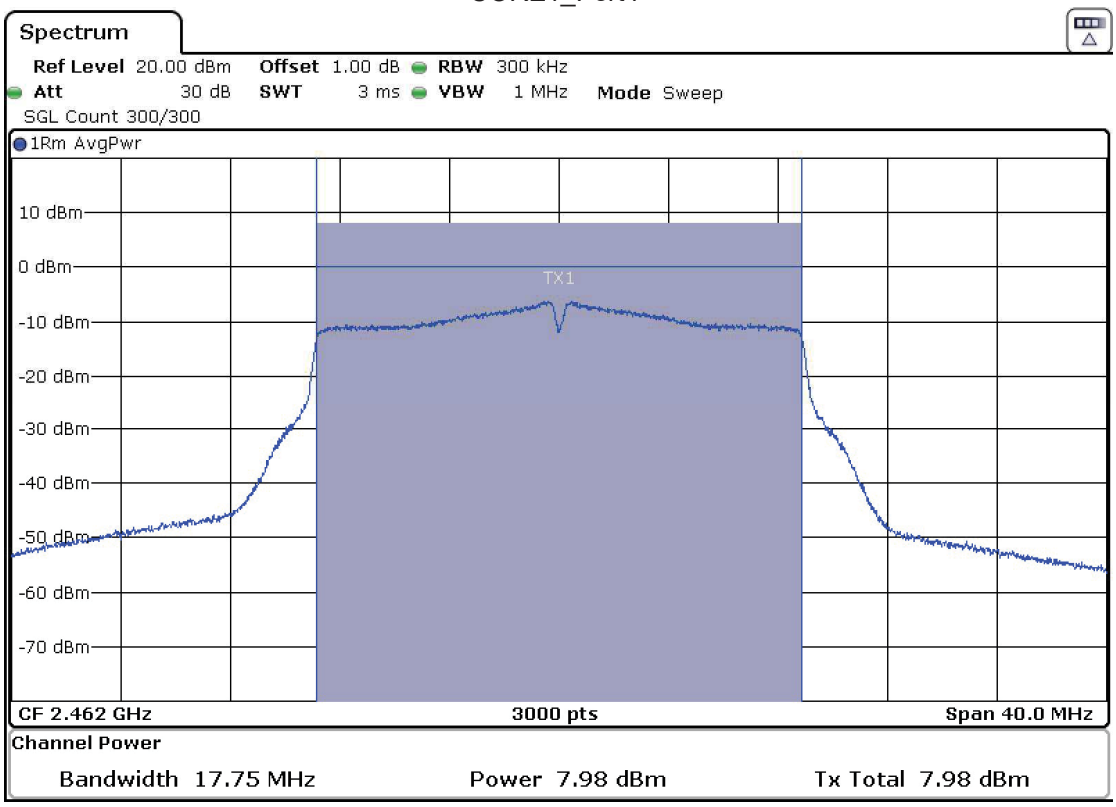


CORE0_Port2

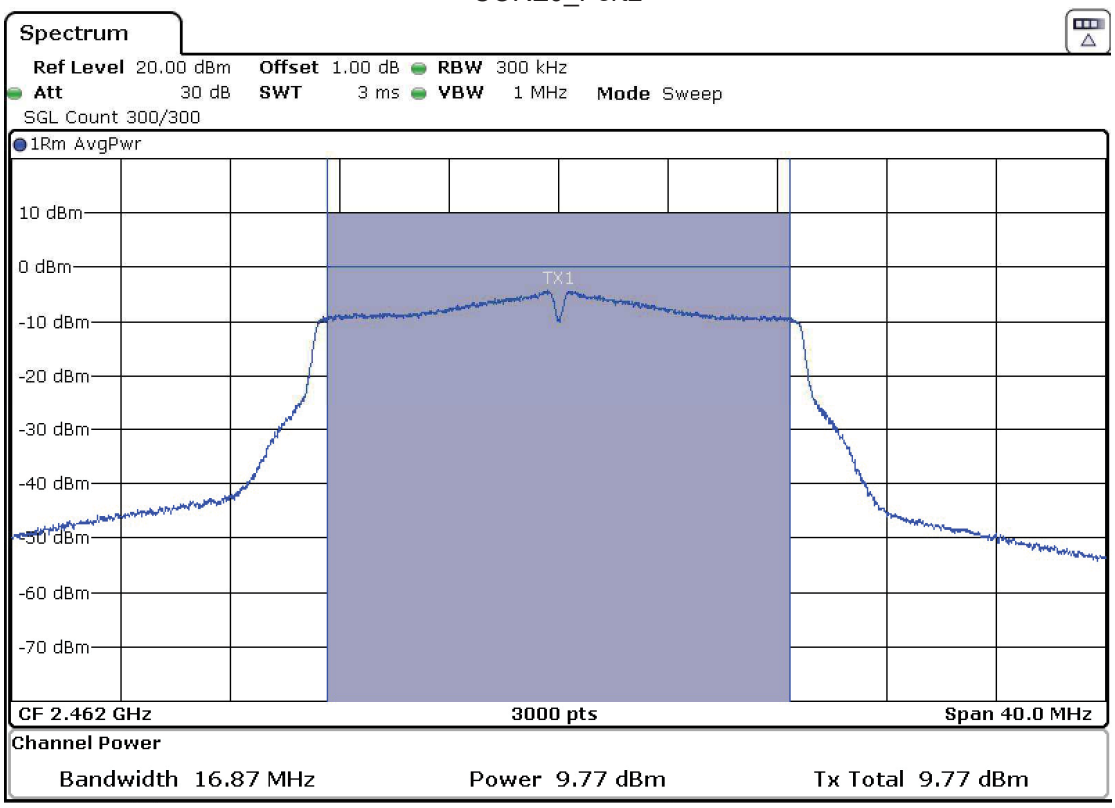


- High Channel:

CORE1_Port4



CORE0_Port2



FCC 15.247 (d) / RSS-247 5.5. Band-edge emissions compliance (Transmitter)

SPECIFICATION:

In any 100 kHz bandwidths outside the frequency band in which the intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits.

If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, the attenuation required under this paragraph shall be 30 dB instead of 20 dB.

RESULTS:

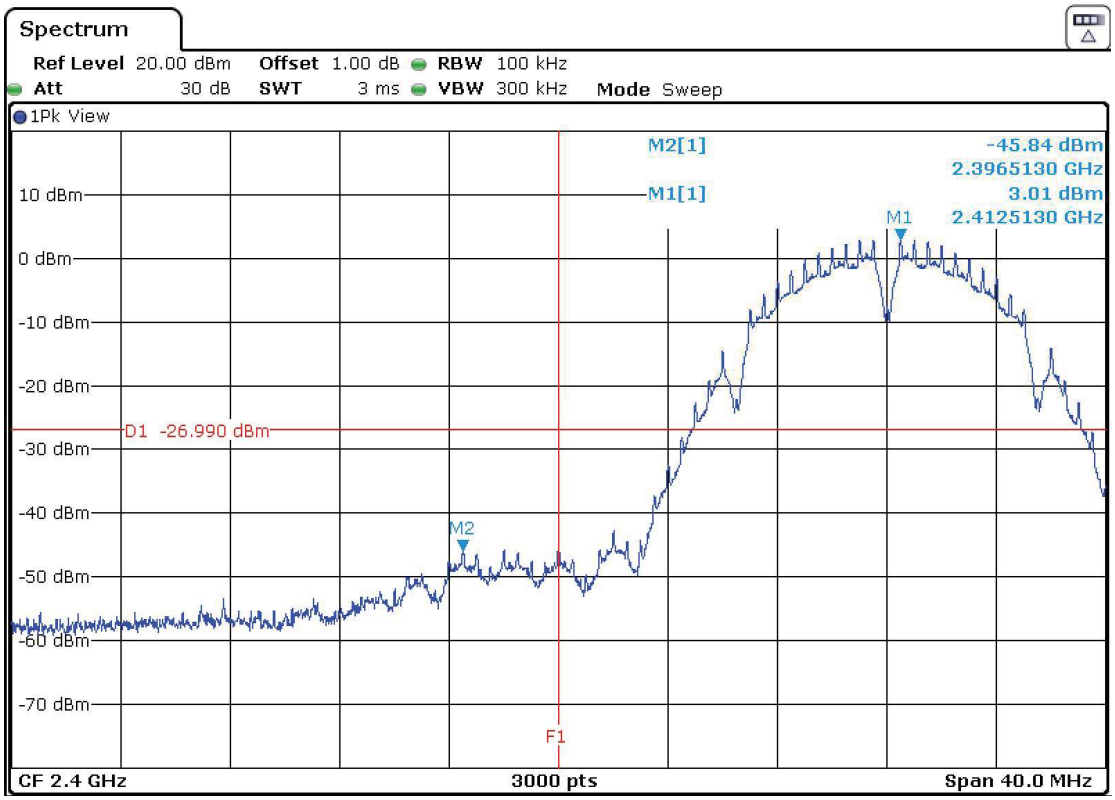
Radiated measurements were used to show compliance with the limits in the restricted bands 2.31-2.39 GHz and 2.4835-2.5 GHz.

Measurement uncertainty (dB)	<±2.57

SISO – CORE1_Port4 Antenna:

- **Mode 802.11 b – Band-edge emissions compliance**

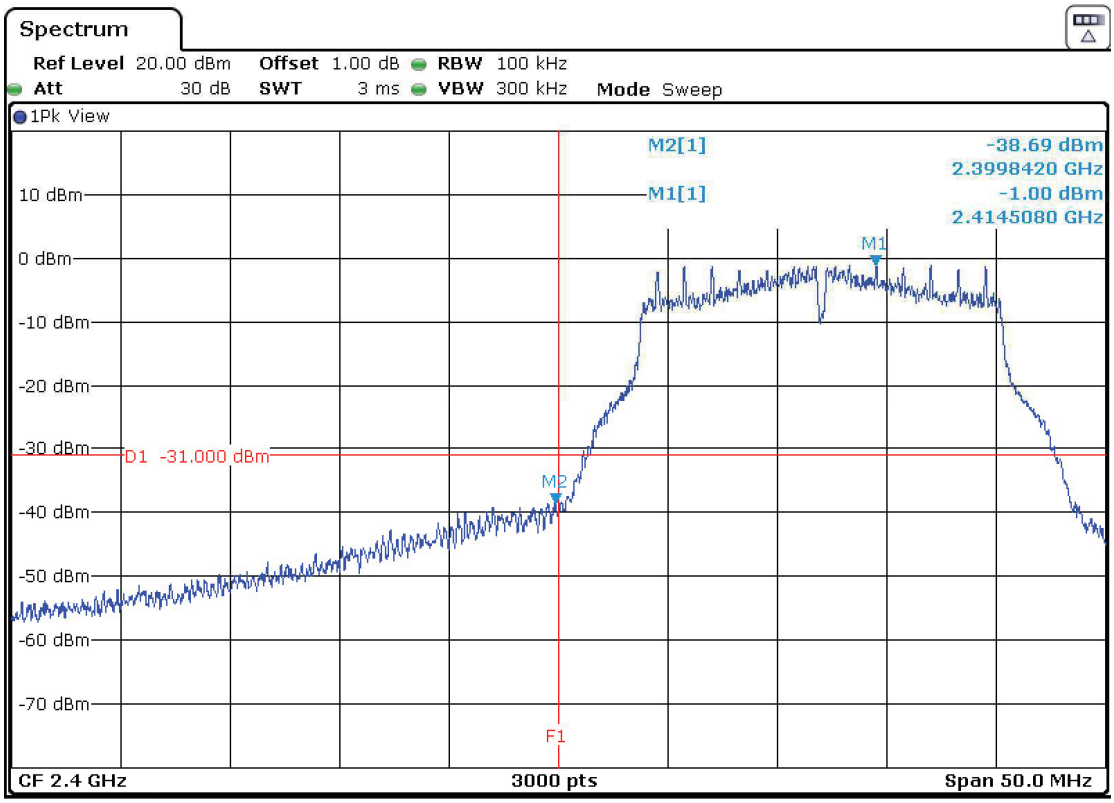
- Low Channel:



Verdict: PASS

- **Mode 802.11 g – Band-edge emissions compliance**

- Low Channel:



Verdict: PASS