Produkte
Products

Prüfbericht - Nr.: *Test Report No.:*	**19660089 001**		**Seite 1 von 62** *Page 1 of 62*
Auftraggeber: *Client:*	**BW Technologies** **2840, 2 Ave SE** **CALGARY,** **Alberta, T2A 7X9**		
Gegenstand der Prüfung: *Test item:*	**LocaXion Anchor**		
Bezeichnung: *Identification:*	**LADC101**	**Serien-Nr.:** *Serial No.*	**Engineering Sample**
Wareneingangs-Nr.: *Receipt No.:*	**1803032599**	**Eingangsdatum:** *Date of receipt:*	**01.04.2014**
Prüfort: *Testing location:*	**Refer Page 4 of 62 for test facilities**		
Prüfgrundlage: *Test specification:*	**FCC Part 15: Subpart C** **ANSI C63.4-2003**		
Prüfergebnis: *Test Result:*	**Der Prüfgegenstand entspricht oben genannter Prüfgrundlage(n).** *The test items passed the test specification(s).*		
Prüflaboratorium: *Testing Laboratory:*	**TÜV Rheinland (India) Pvt. Ltd.** 82/A, 3rd Main, West Wing, Electronic City Phase 1 Hosur Road, Bangalore – 560 100. India **FCC Registration No.: 176555**		

geprüft / *tested by:*			**kontrolliert /** *reviewed by:*		
09.04.2014	Vinay N Test Engineer	Vinay.N	10.04.2014	Raghavendra Kulkarni Senior Manager	Kulkarni
Datum *Date*	**Name/Stellung** *Name/Position*	**Unterschrift** *Signature*	**Datum** *Date*	**Name/Stellung** *Name/Position*	**Unterschrift** *Signature*

Sonstiges /*Other Aspects:* **FCC ID : R9O-LADC101**

Abkürzungen:	***P(ass)***	=	***entspricht Prüfgrundlage***	***Abbreviations:***	***P(ass)***	=	***passed***
	F(ail)	=	***entspricht nicht Prüfgrundlage***		***F(ail)***	=	***failed***
	N/A	=	***nicht anwendbar***		***N/A***	=	***not applicable***
	N/T	=	***nicht getestet***		***N/T***	=	***not tested***

Test Result Summary

Clause	Test Item	Result
FCC 15.247(b) (3)	Maximum Peak Conducted Output Power	Pass
FCC 15.247(a) (2)	6dB Bandwidth	Pass
FCC 15.247(e)	Maximum Power Spectral Density	Pass
FCC 15.247(d)	Band-edge compliance	Pass
FCC 15.209 / FCC 15.205	Spurious Radiated Emissions and Restricted Bands of Operation	Pass

Content

List of Test and Measurement Instruments

TUV Rheinland (India) Pvt. Ltd. , Bangalore

Equipment	Manufacturer	Model	S/N	Calibration Due Date
EMI Test Receiver	Rohde &Schwarz	ESU 40	100288	04.10.2014
Double-Ridged Waveguide Horn Antenna	ETS Lindgren	3116C	125945	01.09.2014

Honeywell Technology Solutions Lab.

Equipment	Manufacturer	Model	S/N	Calibration Due Date
EMI Test Receiver	R&S	ESIB7	100287	31-Jul-14
Spectrum Analyzer	Agilent	N9000A	MY51260171	24-Jan-15
Spectrum Analyzer	Agilent	N9010A	MY51250100	24-Jan-15
Power Supply	Gwinstek	GPS4303	E4845901	28-Mar-15
RF Cable	Huber-Suhner	Sucoflex 100	SNMY134681	-
Thermal Chamber	Testequity	105	050110	15-Nov-15
High Pass Filter	Wainwright	WHKX1.5/15G-12ST	1	09-May-14
Preamplifier	R&S	SCU-18	10178	13-Jun-14
Biconical Antenna	ETS Lindgren	3104C	00069263	15-Nov-14
Double Ridge Guide Horn Antenna	ETS Lindgren	3117	00064055	14-Nov-14
RF cable (9KHz to 1GHz)	COLEMAN	RG214	RE-1 A	9-May-14
RF cable (9KHz to 1GHz)	COLEMAN	RG214	RE-1 B	9-May-14
RF cable (1GHz to 18GHz)	AH Systems	SAC-18G-06	RE-2A	9-May-14
RF cable (1GHz to 18GHz)	AH Systems	SAC-18G-06	RE-2B	9-May-14
Double Ridge Guide Horn Antenna	ETS Lindgren	3117	00119022	20-Mar-14

Testing Facilities:

1) TUV Rheinland (India) Private Limited
No. 108, West Wing
Electronic city Phase I
Bangalore – 560100

2) Honeywell Technology Solutions Lab
RMZ ECOWORLD INFRASTRUCTURE PVT. LTD.,
Survey # 19/2, Devarabisanahalli Village,
Varthur Hobli, Bangalore East Taluk, Bangalore – 560103

General Product Information

Product Function and Intended Use

LocaXion Anchor is a Wi-Fi unit operating in 2.4GHz band. LocaXion Anchor is a beacon device that responds to the probe request and transmits SSID data. It is certified for indoor and outdoor use in Class 1, Division 2/Zone 2 (Groups A, B, C, D) environments

Ratings and System Details

Operating Frequency Range	2400MHz – 2483.50MHz	
No. of channel	11 (Refer Table 1)	
Channel Spacing	5MHz	
Transmitted Power	802.11b	14.80 dBm
	802.11g	13.46 dBm
Data Rate	802.11b: 1,2, 5.5,11 Mbps 802.11g: 6, 9, 12, 18, 24, 36, 48, 54 Mbps	
Modulation	DSSS and OFDM	
Number of antenna	One	
Antenna Gain and Antenna type	5dBi, collinear antenna	
Supply Voltage to Module	12V DC – 30V DC	
Environmental	Operational Temperature: -40ºC to 75º C	

Test Conditions:

Supply Voltage: 24V DC

Environmental conditions:

Temperature: +23 º C RH: 62%

Operation Descriptions

The Wi-Fi module forms the heart of the unit which is 802.11 standards compliant and supports WPA2-PSK security. LocaXion Anchor is powered by +24 volts DC. The RF unit is protected with a permanently attached lightning arrestor. The lightning arrestor placed between the antenna and the RF unit protecting the main circuitry from any susceptible attack.

Test Set-up and Operation Mode

Principle of Configuration Selection

Transmission was enabled with 100% duty cycle duty on low, mid and high channel in different data rates.

Test Operation and Test Software

HyperTerminal in the computer was used to enable the transmission with 100% duty cycle, changing channels (low/mid/high) and data rates on the EUT for the tests in this report.

Special Accessories and Auxiliary Equipment

- None

Countermeasures to achieve EMC Compliance

- None

Test Modes – Data Rates and Modulations

For Radiated spurious emissions, the tests were performed for all data rates and only worst results are reported in this report.

Table of Frequency

Frequency Band	Channel No.	Frequency (MHz)
2400 – 2483.5 MHz	1	2412
	2	2417
	3	2422
	4	2427
	5	2432
	6	2437
	7	2442
	8	2447
	9	2452
	10	2457
	11	2462

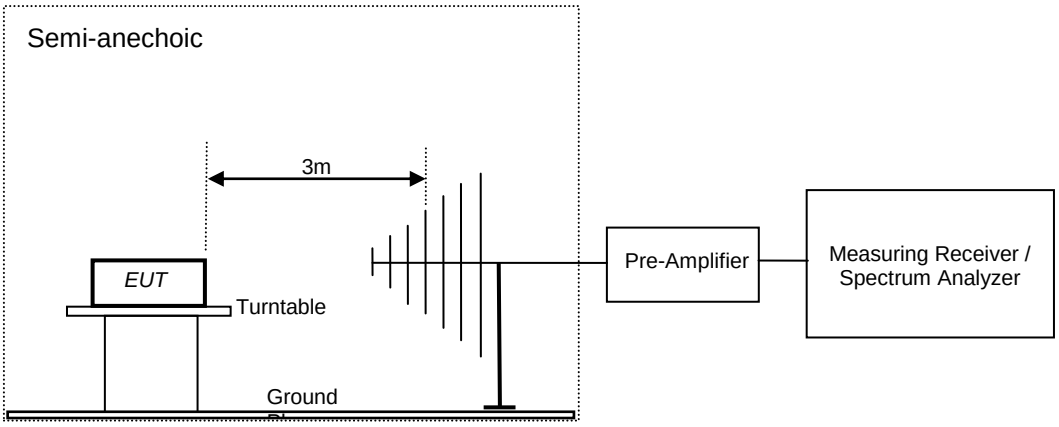
Table 1

Test Methodology

Radiated Emission Test

The radiated emission measurement was performed according to the procedures in ANSI C63.4-2003. The equipment under test (EUT) was placed at the middle of the 80 cm high turntable, and the EUT is 3 meters far from the measuring antenna. The turntable was rotated 360° for obtaining the maximum emission. The height of the measuring antennas was scanned between 1m and 4m, and the antenna rotated to repeat the measurements for both the horizontal and vertical antenna polarizations. Repeat the measurement steps until the maximum emissions were obtained. The measurement above 1000MHz was performed by horn antenna. The measurement below 30MHz was performed by loop antenna.

The EUT was rotated around the X-, Y-, and Z-Axis and the results from worst case axis are recorded.



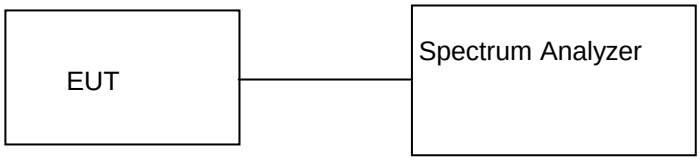
Test Results

Maximum Peak Conducted Output Power **Section 15.247(b) (3)**

Result **Pass**

Test Specification	FCC Part 15 Subpart C
Measurement Bandwidth (RBW)	300kHz
Requirement	<1 watt (30dBm).

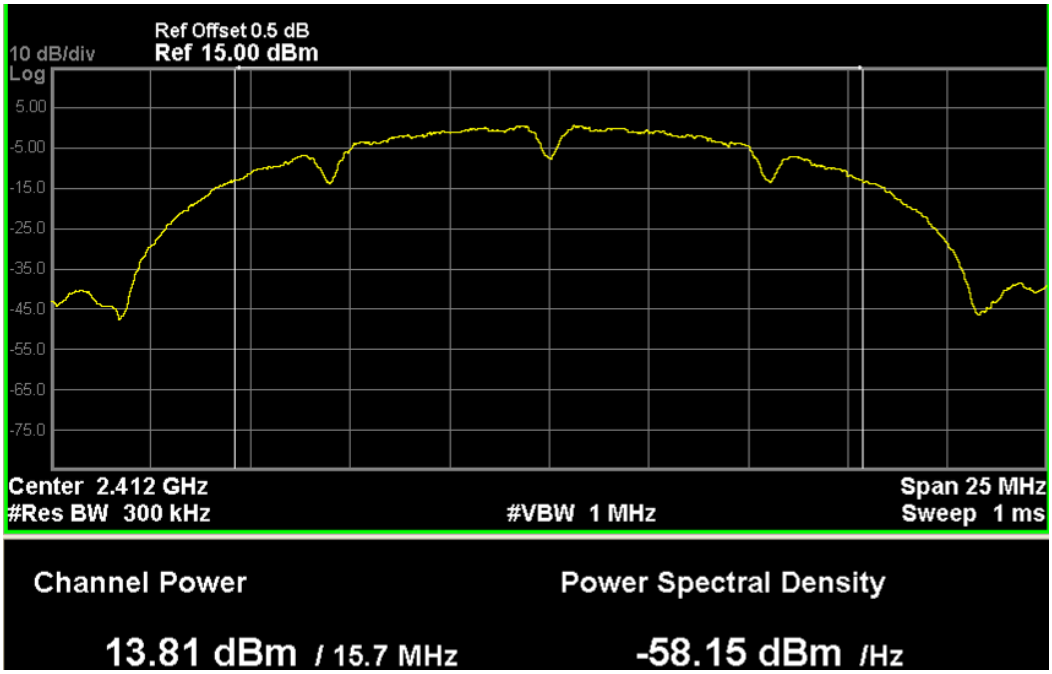
Test Method:



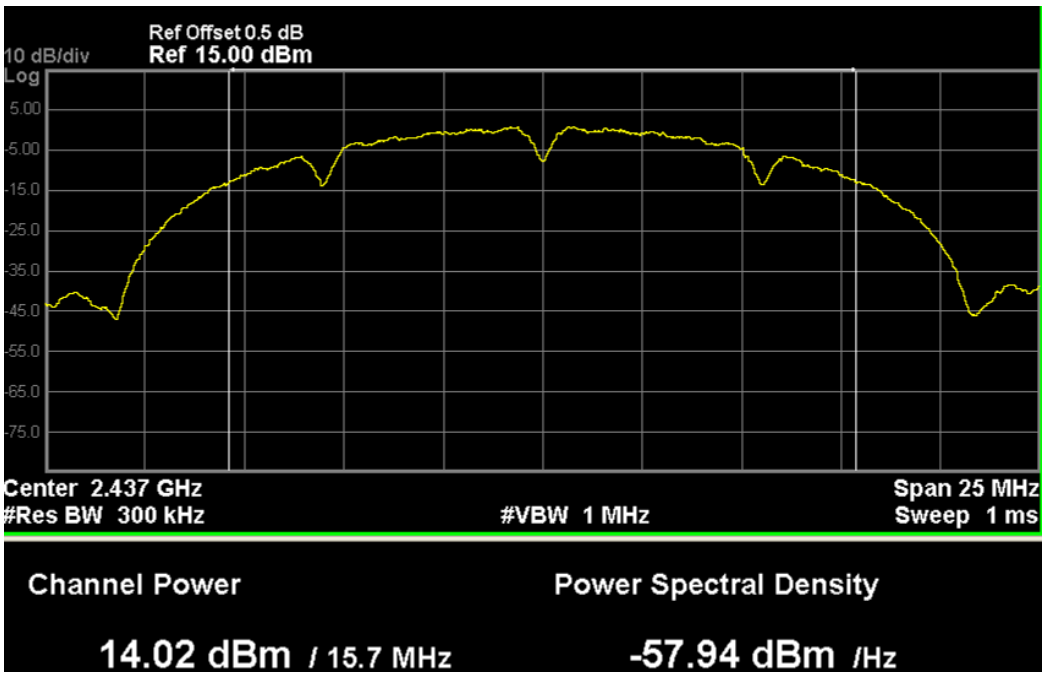
Note: For measurement of Maximum Peak conducted output power method AVGSA-1 was used

Test Result:

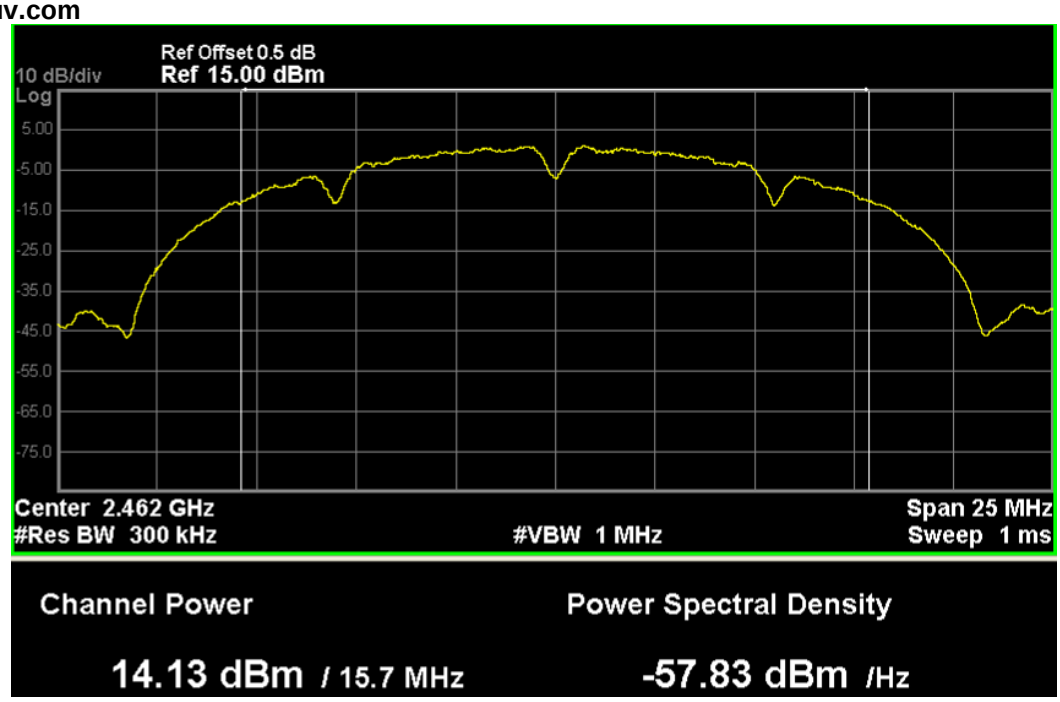
802.11 Protocol	Data Rate (Mbps)	Channel Frequency (MHz)	Total Power (dBm)	Limit (dBm)
b	1	2412.00	13.81	30.00
		2437.00	14.02	30.00
		2462.00	14.13	30.00
	11	2412.00	13.85	30.00
		2437.00	14.62	30.00
		2462.00	14.80	30.00



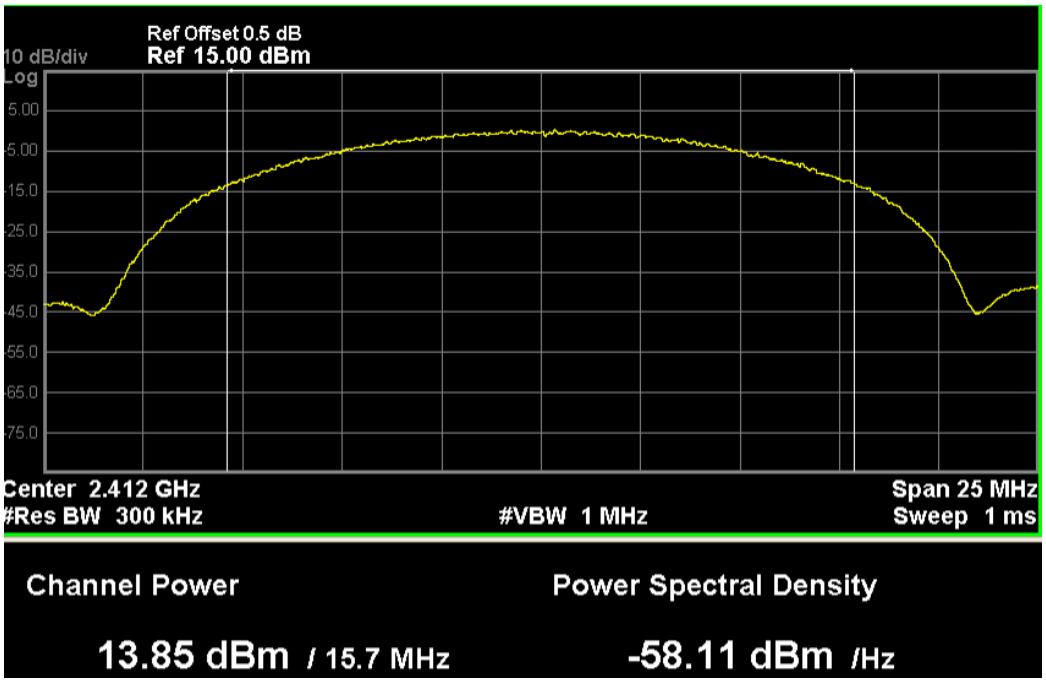
Data rate: 1 Mbps **Channel Frequency: 2412 MHz**



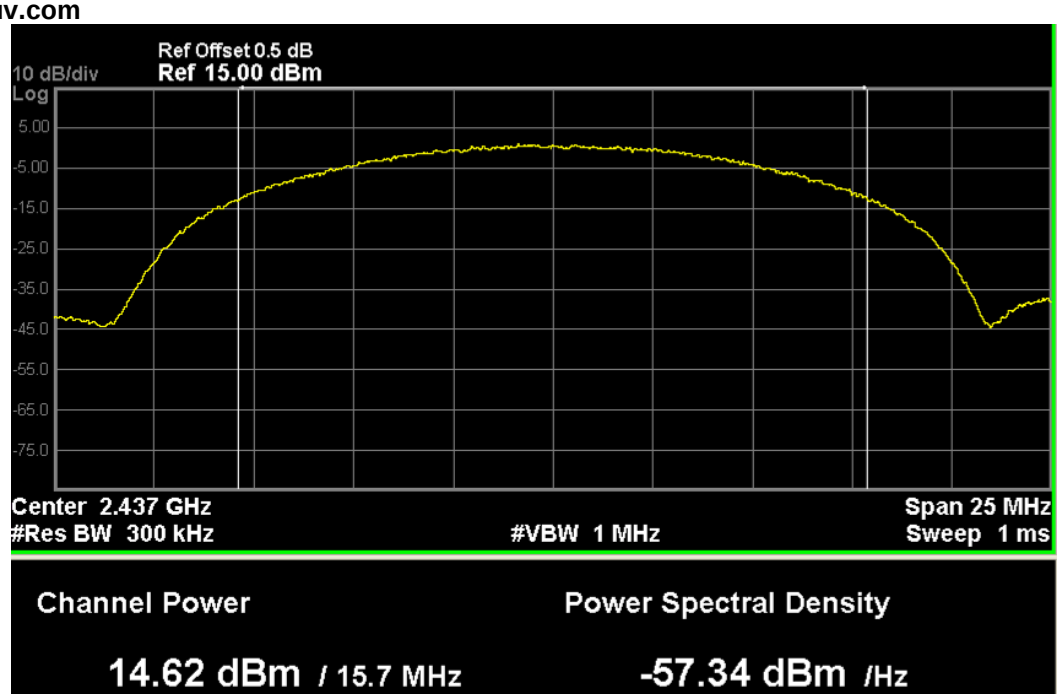
Data rate: 1 Mbps **Channel Frequency: 2437 MHz**



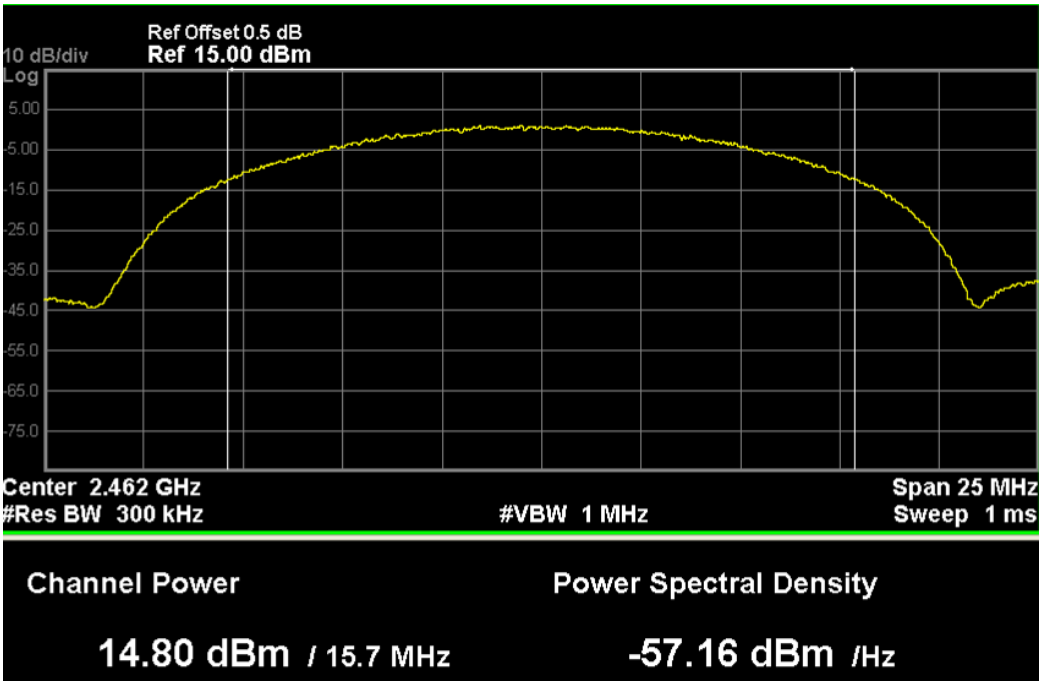
Data rate: 1 Mbps **Channel Frequency: 2462 MHz**



Data rate: 11 Mbps **Channel Frequency: 2412 MHz**

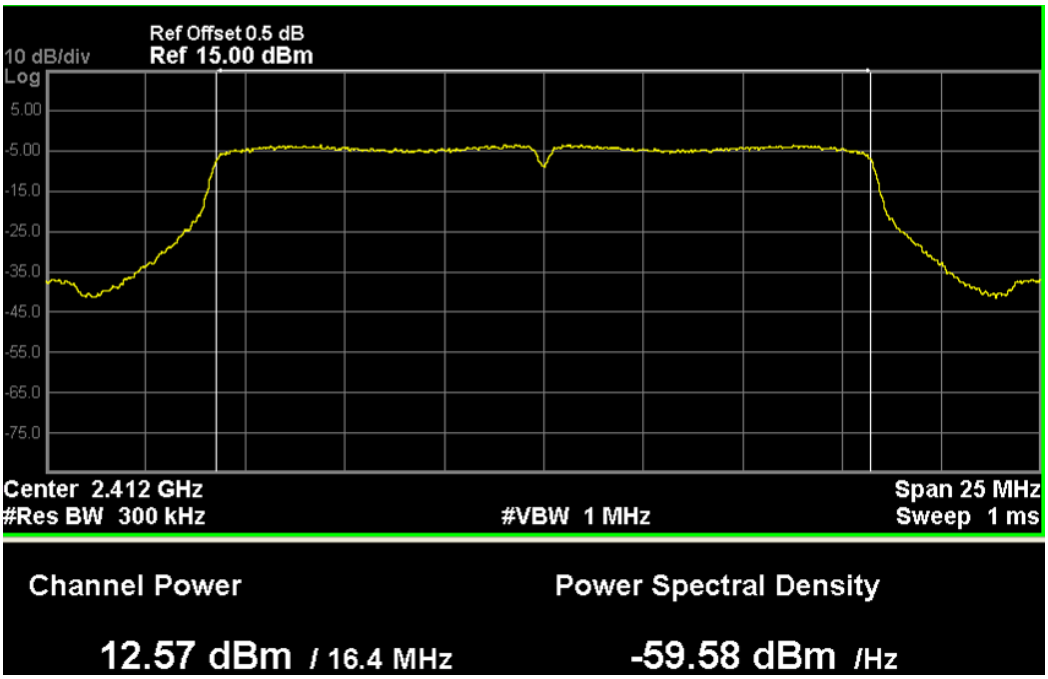


Data rate: 11 Mbps **Channel Frequency: 2437 MHz**

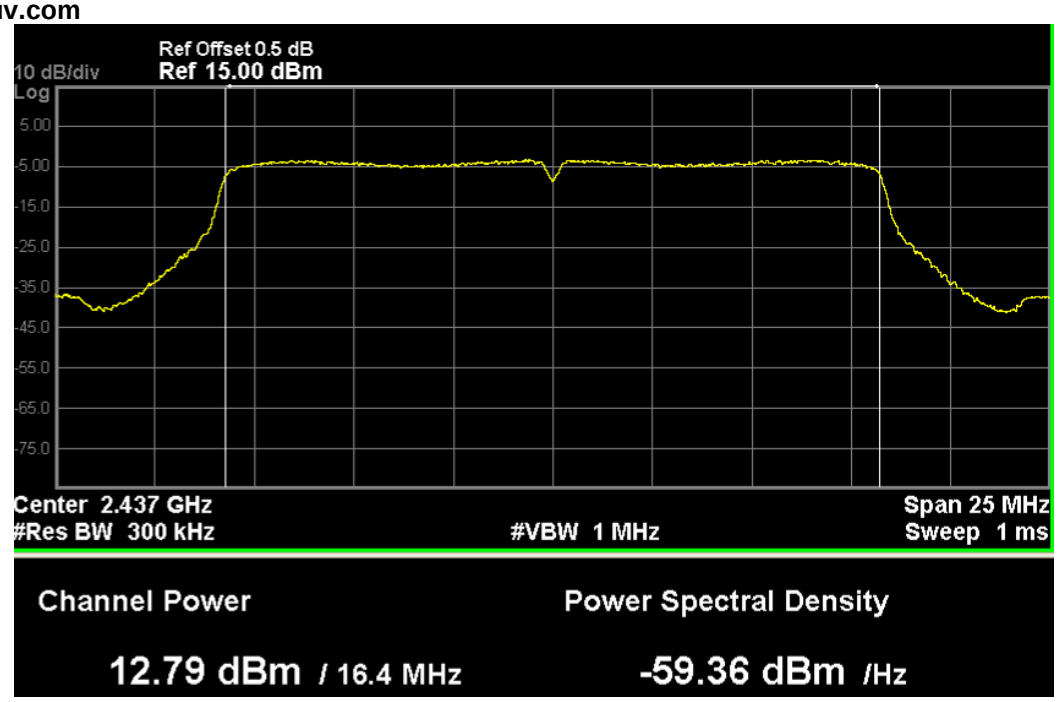


Data rate: 11 Mbps **Channel Frequency: 2462 MHz**

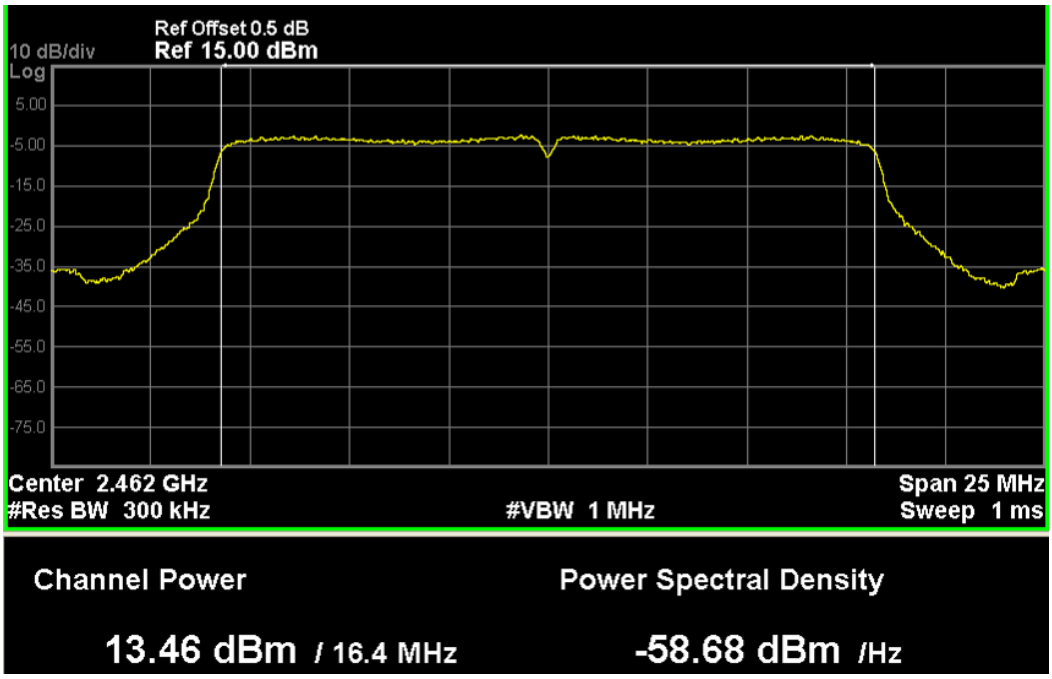
802.11 Protocol	Data Rate (Mbps)	Channel Frequency (MHz)	Total Power (dBm)	Limit (dBm)
g	6	2412.00	12.57	30.00
		2437.00	12.79	30.00
		2462.00	13.46	30.00
	24	2412.00	12.53	30.00
		2437.00	12.78	30.00
		2462.00	12.90	30.00
	54	2412.00	12.50	30.00
		2437.00	12.74	30.00
		2462.00	12.83	30.00



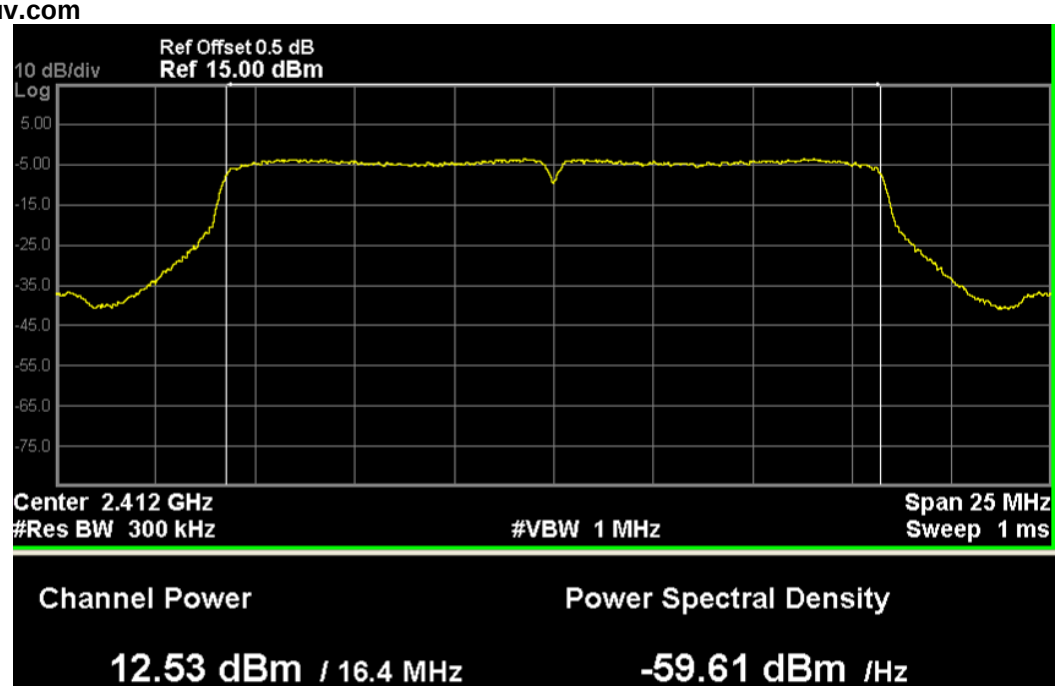
Data rate: 6 Mbps **Channel Frequency: 2412 MHz**



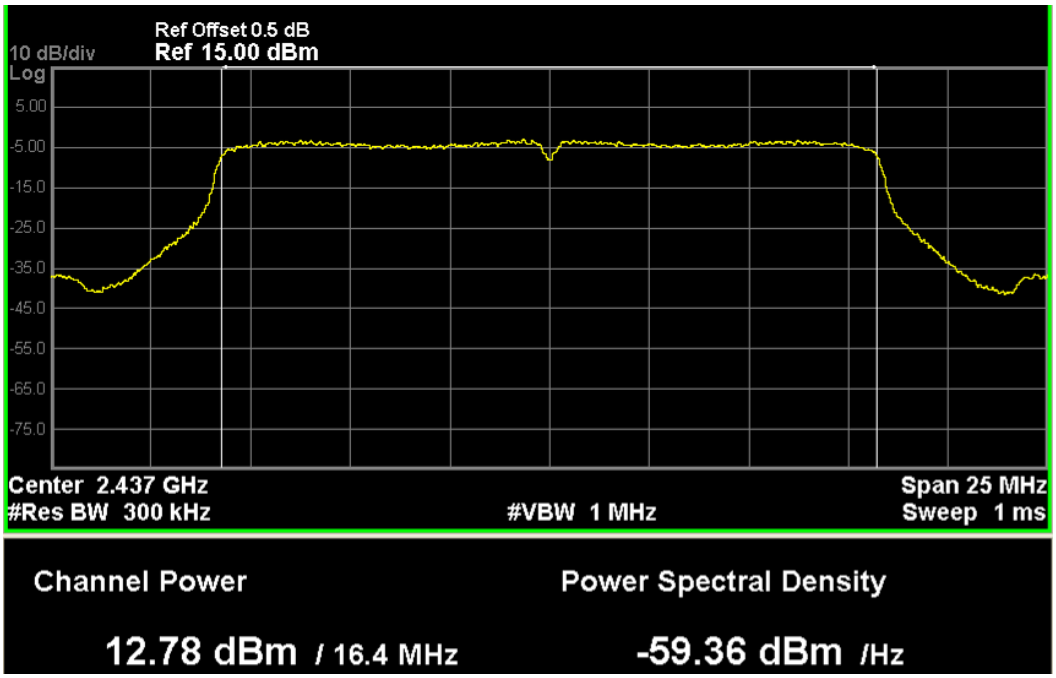
Data rate: 6 Mbps **Channel Frequency: 2437 MHz**



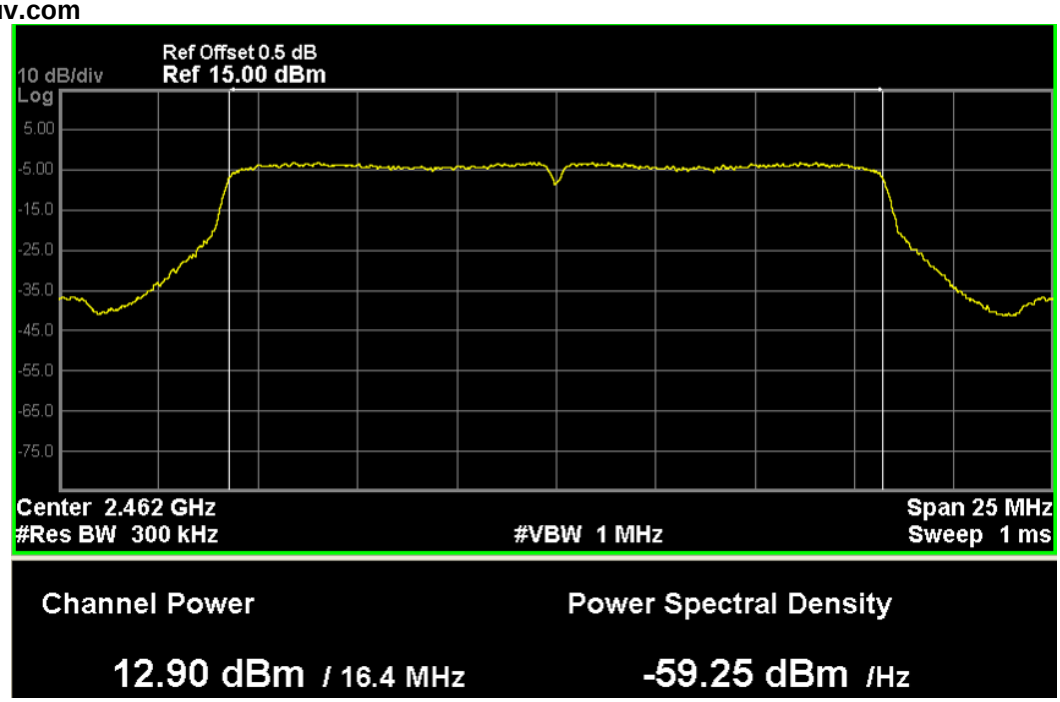
Data rate: 6 Mbps **Channel Frequency: 2462 MHz**



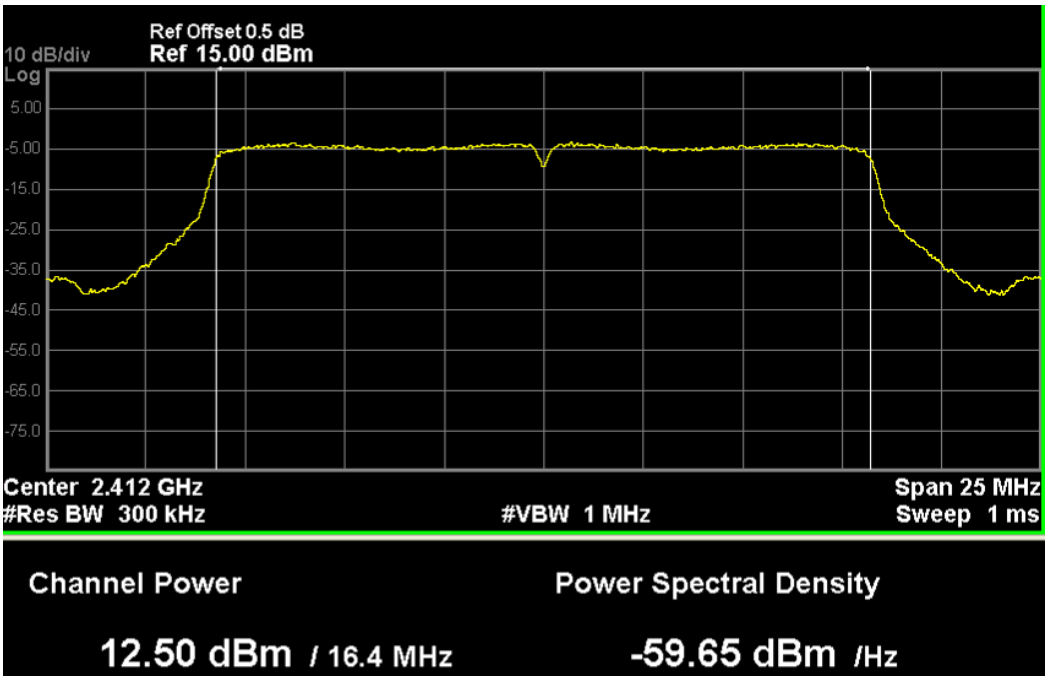
Data rate: 24 Mbps **Channel Frequency: 2412 MHz**



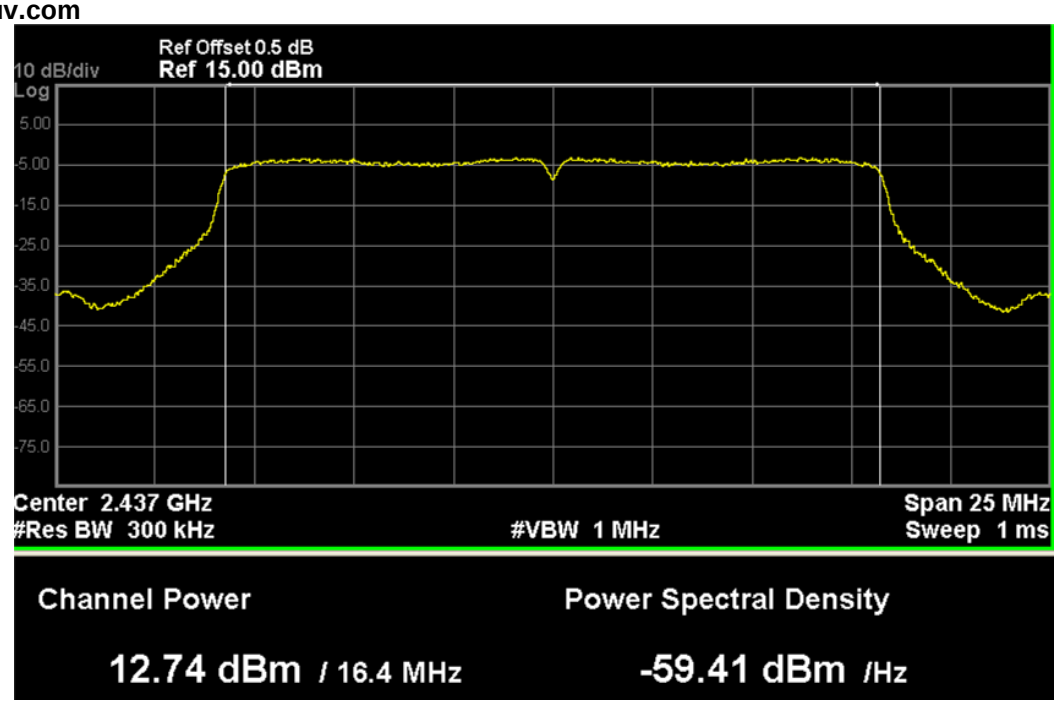
Data rate: 24 Mbps **Channel Frequency: 2437 MHz**



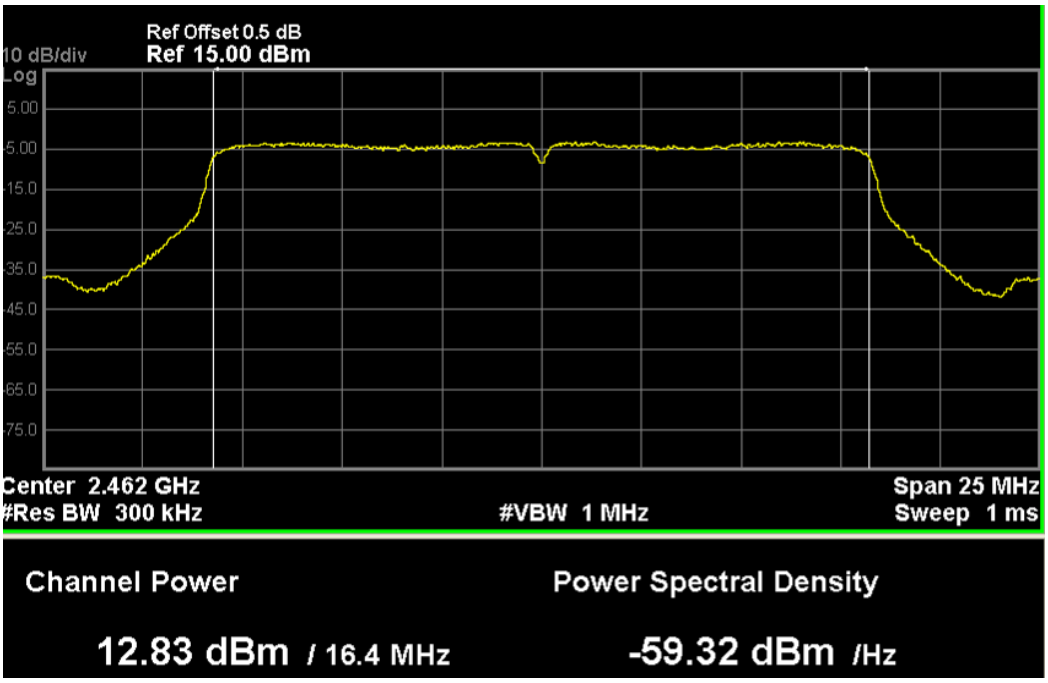
Data rate: 24 Mbps **Channel Frequency: 2462 MHz**



Data rate: 54 Mbps **Channel Frequency: 2412 MHz**



Data rate: 54 Mbps **Channel Frequency: 2437 MHz**



Data rate: 54 Mbps **Channel Frequency: 2462 MHz**

Maximum Power Spectral Density **Section 15.247(e)**

Result **Pass**

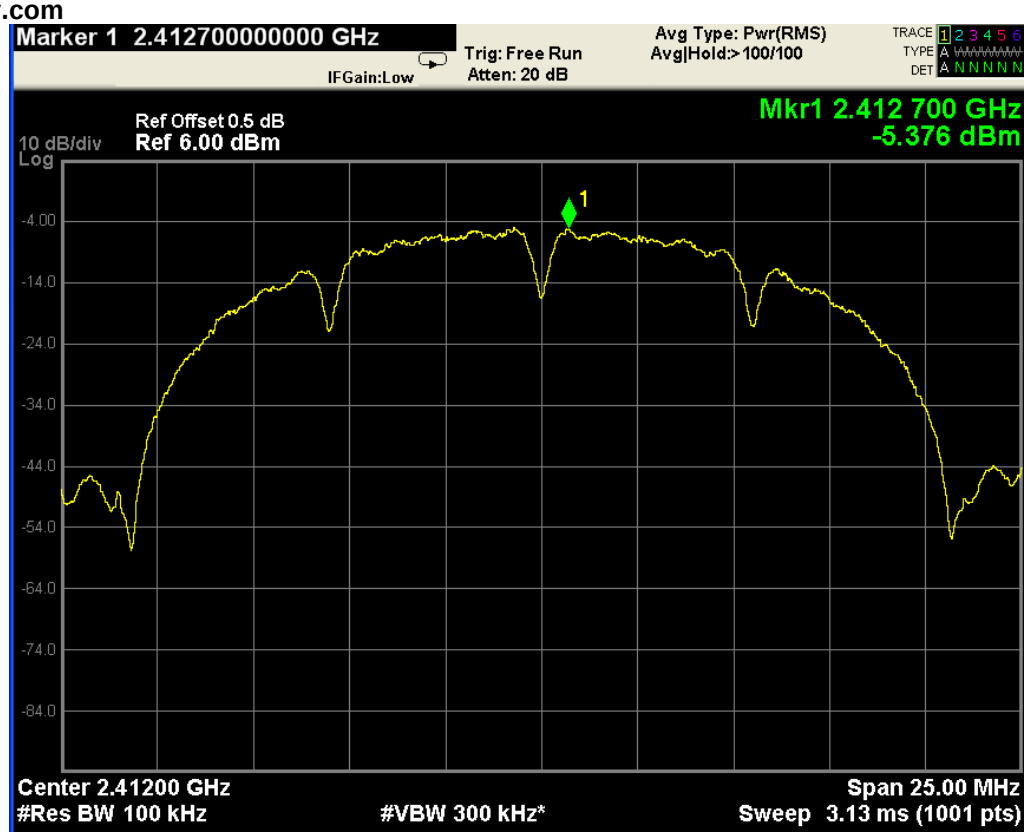
Test Specification	FCC Part 15 Section 15.247 (e)
Detector Function	Average
Requirement	For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm.

Note: For measurement of Maximum power spectral density AVGPSD-1 was used

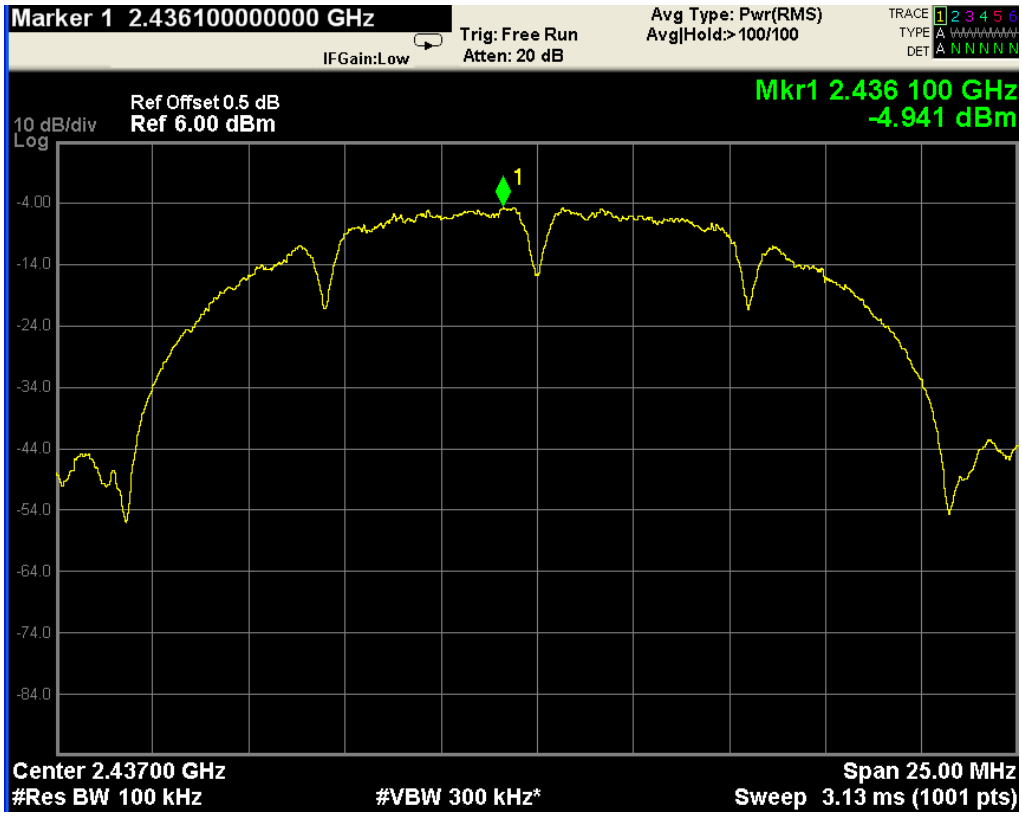
Test Method:

Test Result:

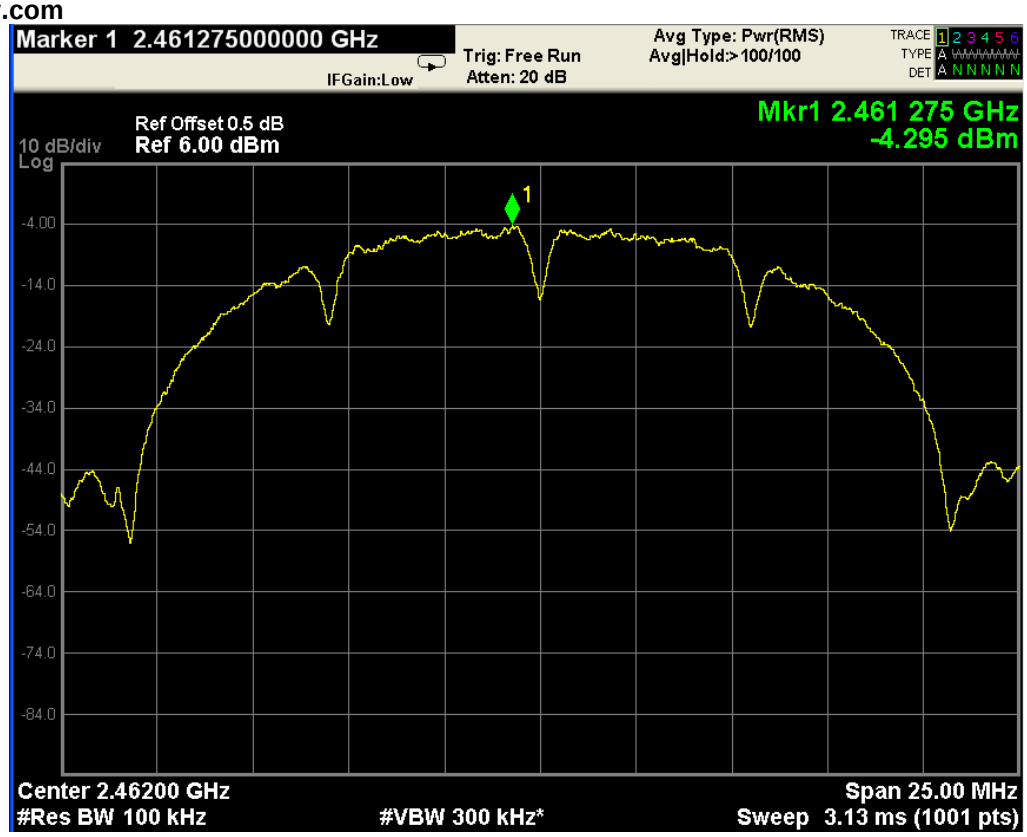
802.11 Protocol	Data Rate (Mbps)	Channel Frequency (MHz)	Total PSD (dBm)	Limit (dBm)
b	1	2412.00	-5.37	8.00
		2437.00	-4.94	8.00
		2462.00	-4.29	8.00
	11	2412.00	-4.92	8.00
		2437.00	-5.73	8.00
		2462.00	-4.64	8.00



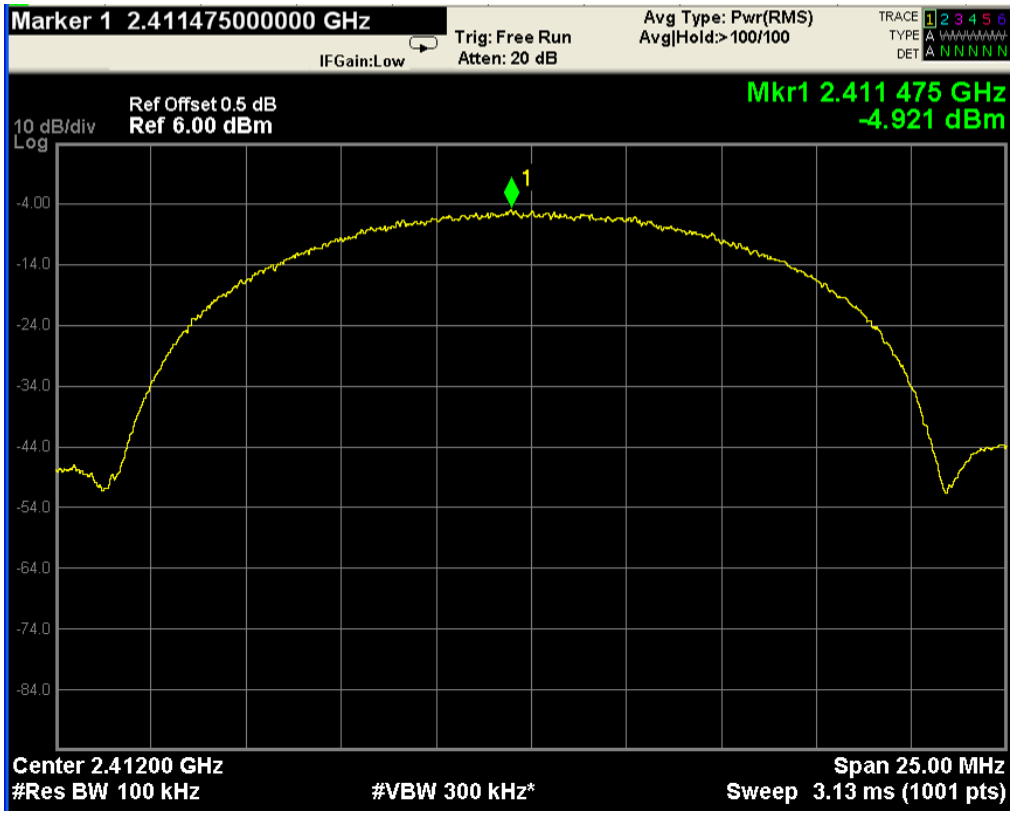
Data rate: 1 Mbps **Channel Frequency: 2412 MHz**



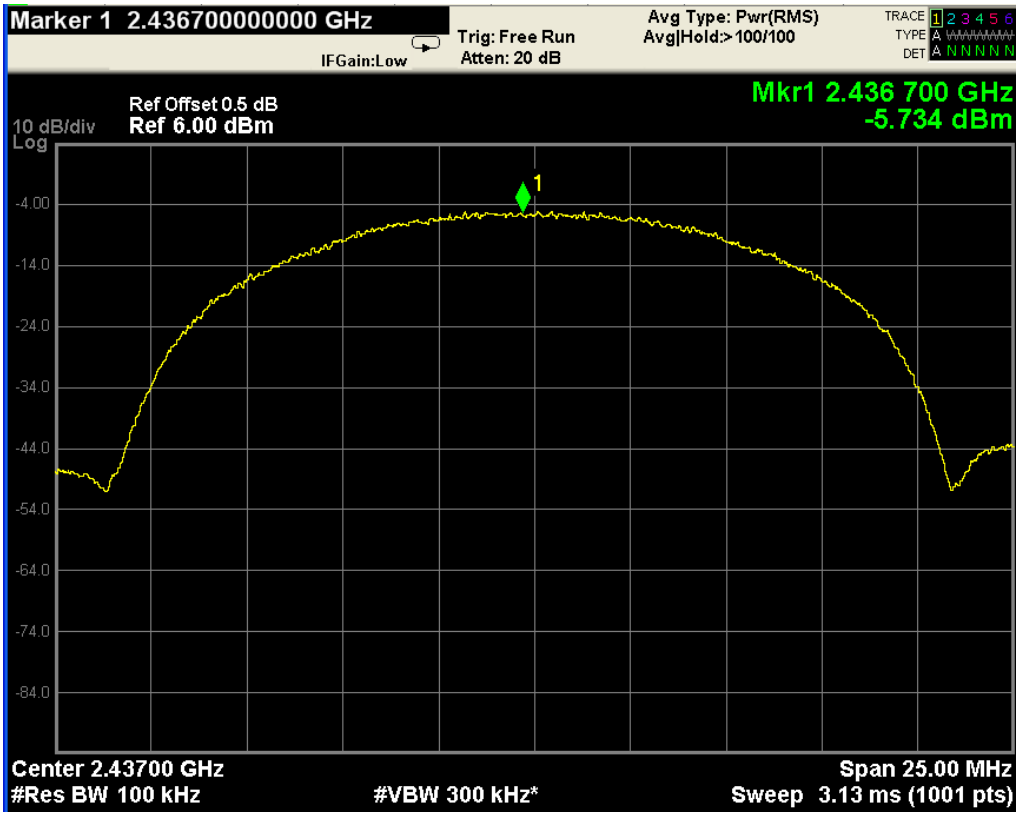
Data rate: 1 Mbps **Channel Frequency: 2437 MHz**



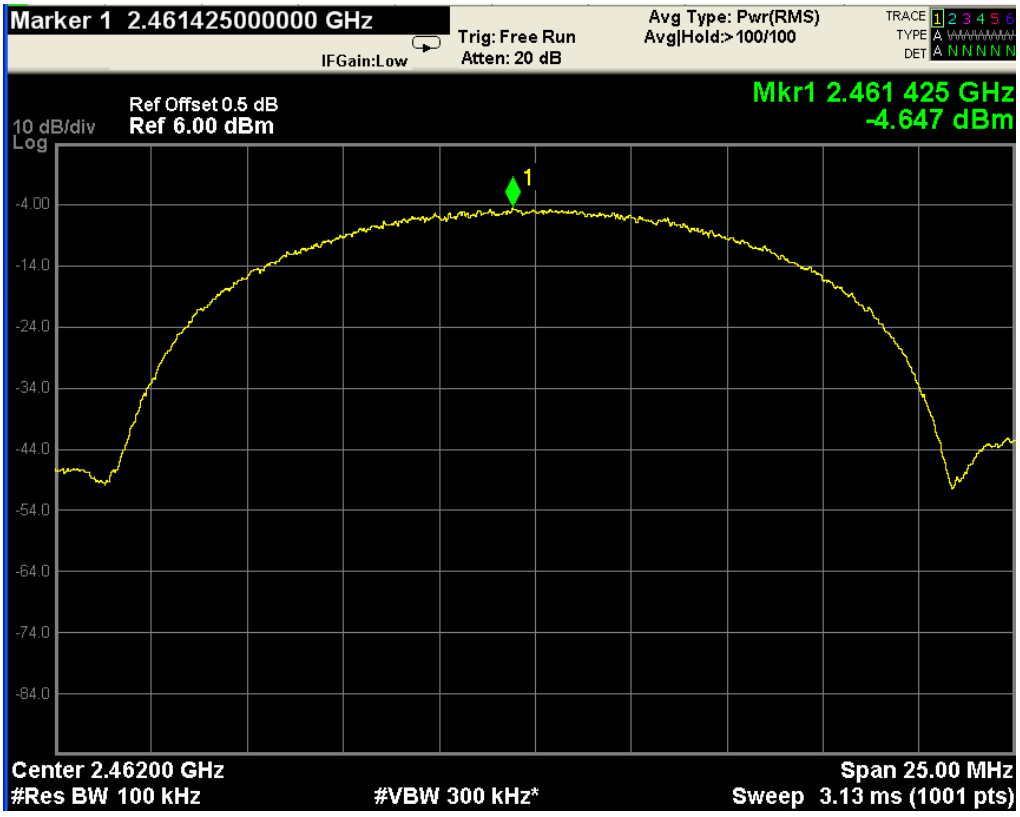
Data rate: 1 Mbps **Channel Frequency: 2462 MHz**



Data rate: 11 Mbps **Channel Frequency: 2412 MHz**

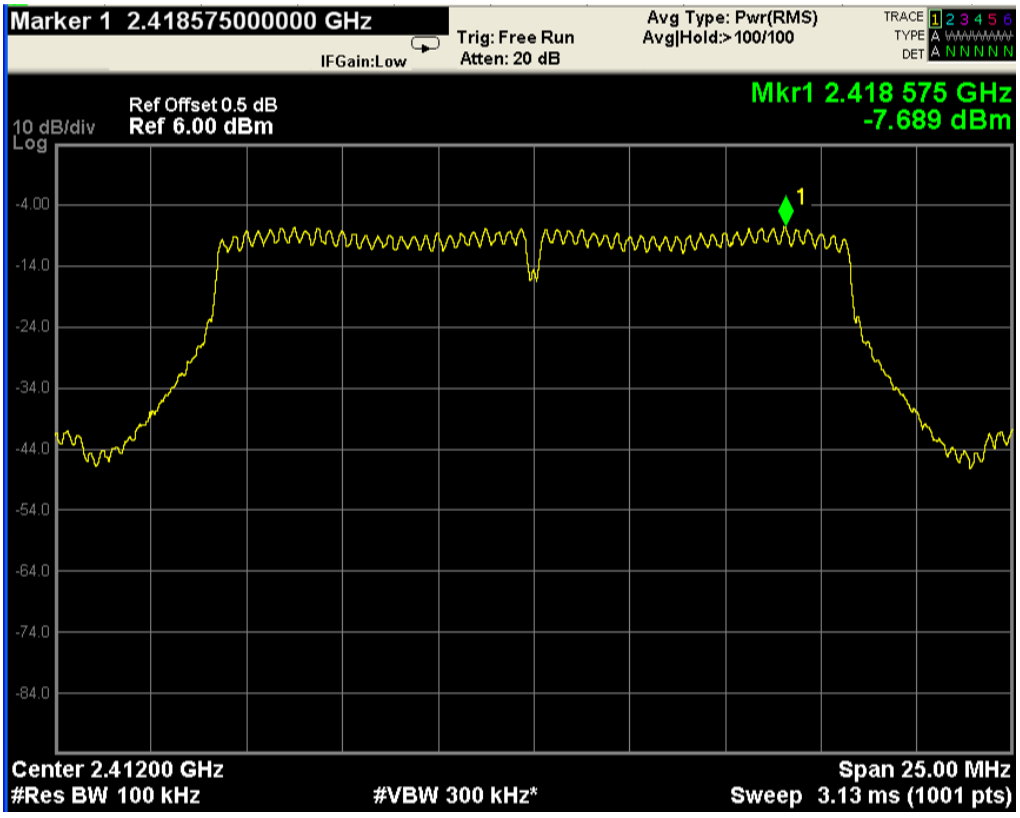


Data rate: 11 Mbps **Channel Frequency: 2437 MHz**

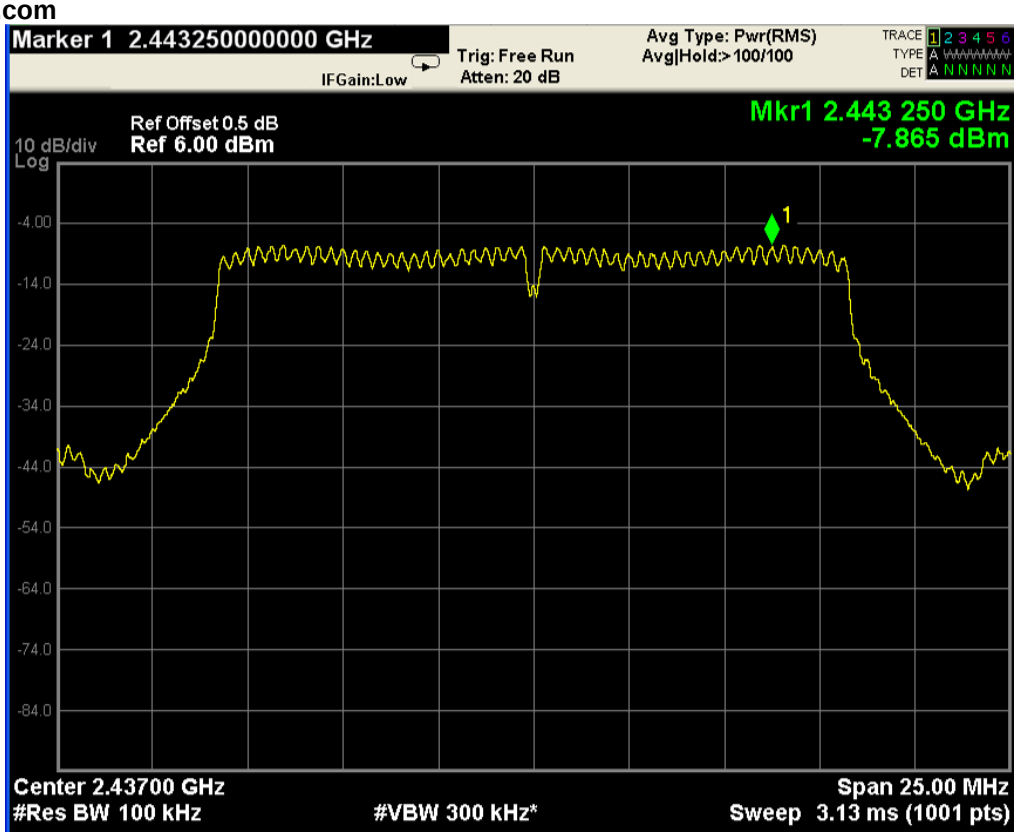


Data rate: 11 Mbps **Channel Frequency: 2462 MHz**

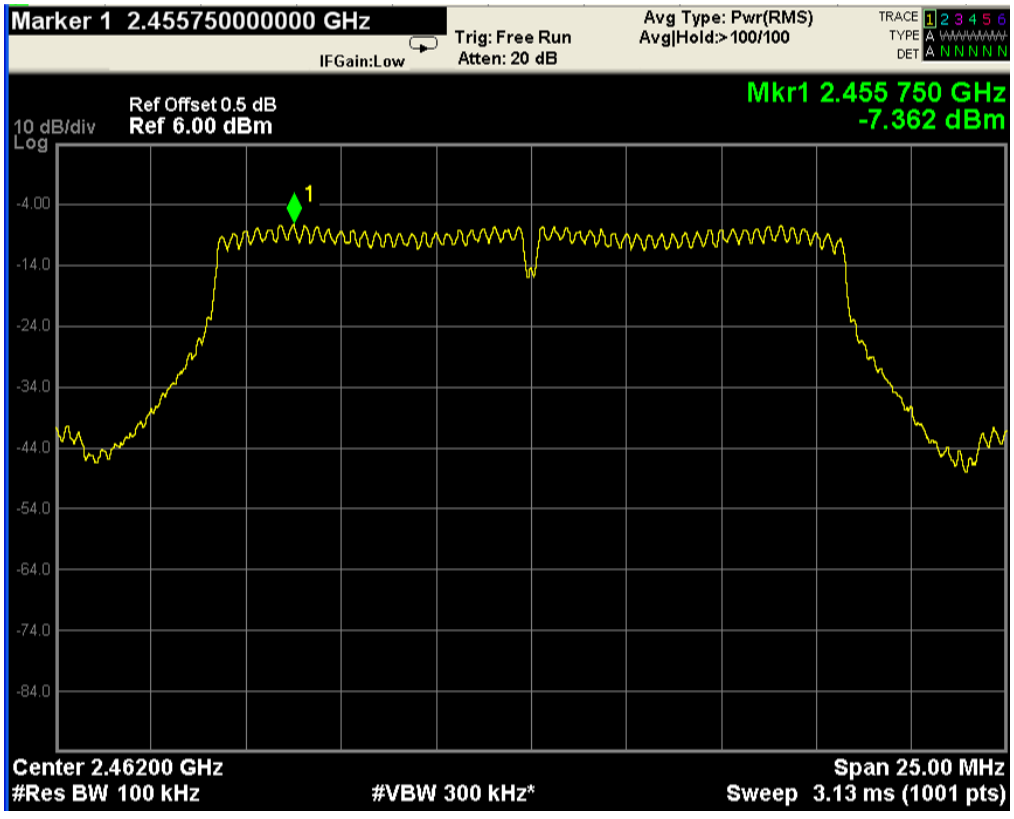
802.11 Protocol	Data Rate (Mbps)	Channel Frequency (MHz)	Total PSD (dBm)	Limit (dBm)
g	6	2412.00	-7.68	8.00
		2437.00	-7.86	8.00
		2462.00	-7.36	8.00
	24	2412.00	-7.94	8.00
		2437.00	-7.55	8.00
		2462.00	-7.87	8.00
	54	2412.00	-8.57	8.00
		2437.00	-7.80	8.00
		2462.00	-7.11	8.00



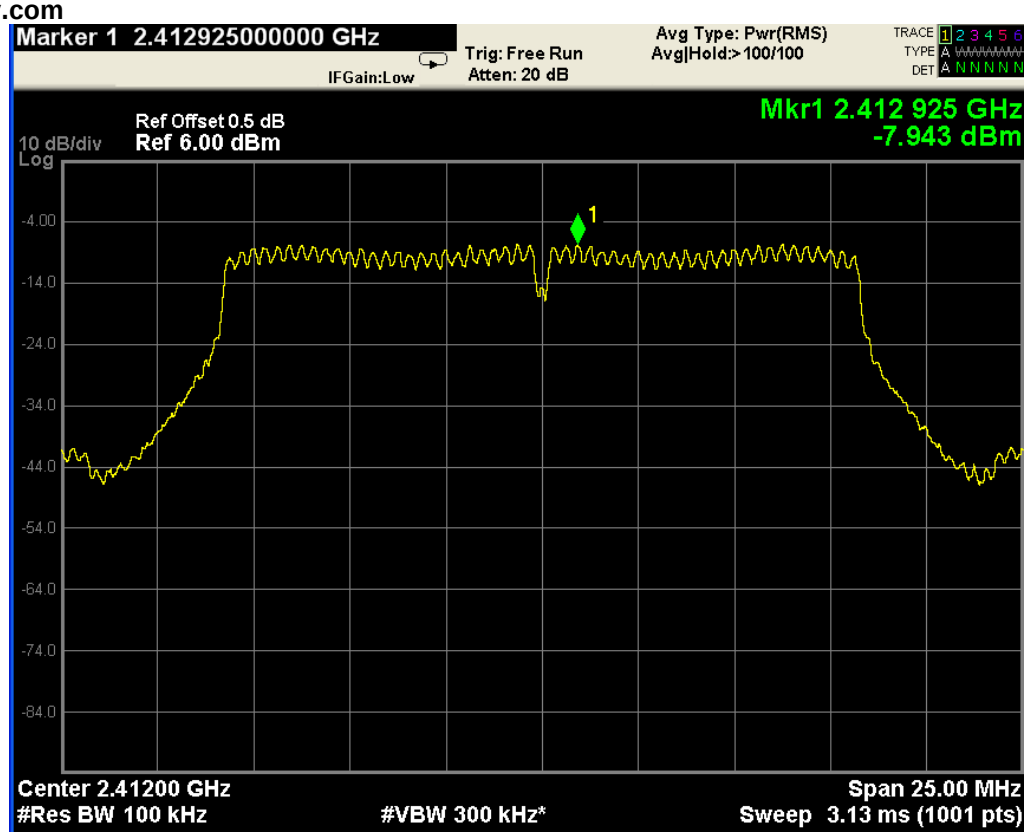
Data rate: 6 Mbps **Channel Frequency: 2412 MHz**



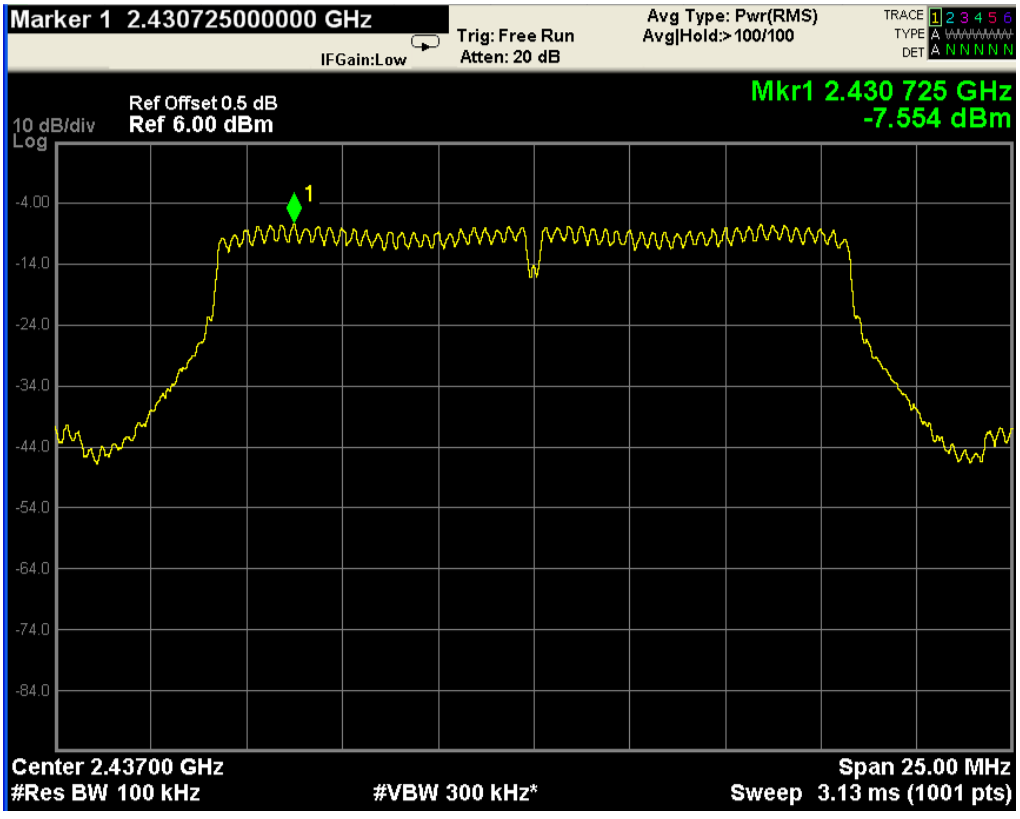
Data rate: 6 Mbps **Channel Frequency: 2437 MHz**



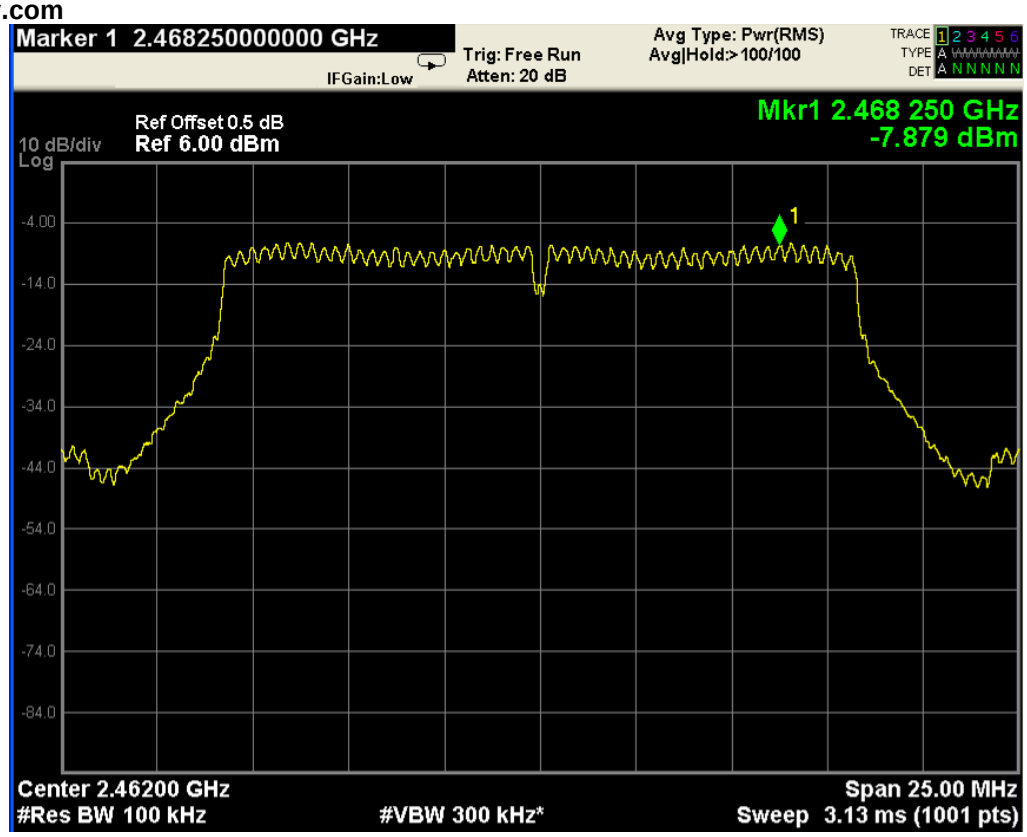
Data rate: 6 Mbps **Channel Frequency: 2462 MHz**



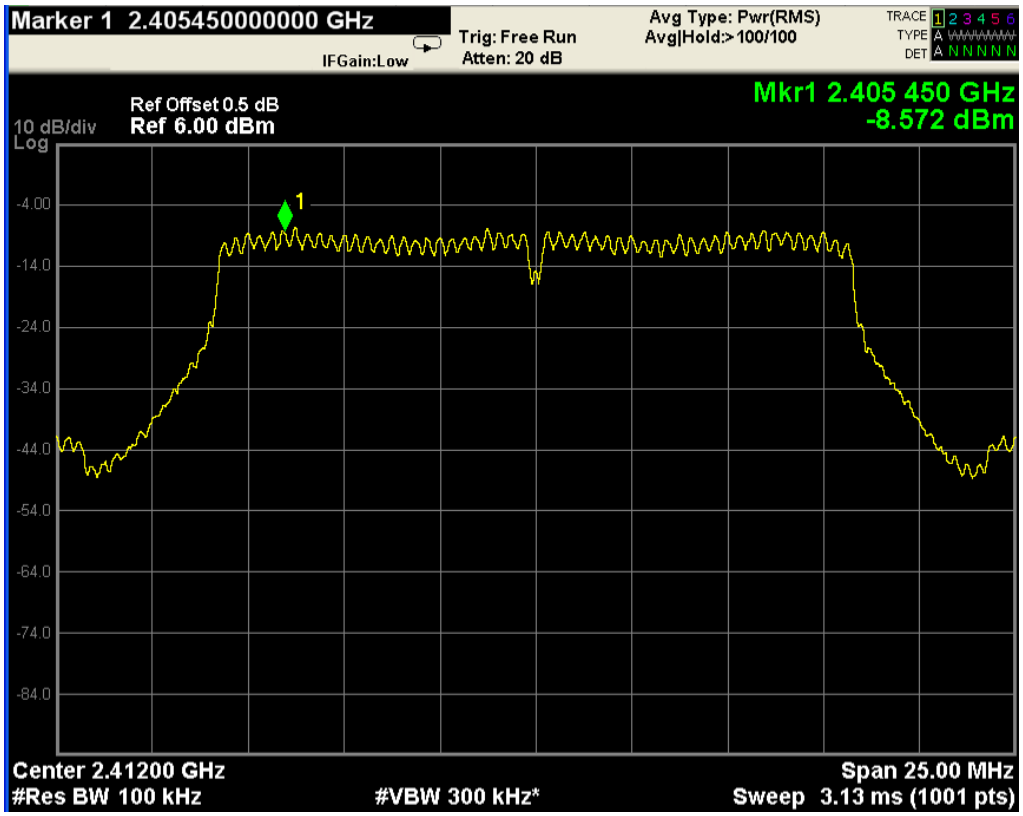
Data rate: 24 Mbps **Channel Frequency: 2412 MHz**



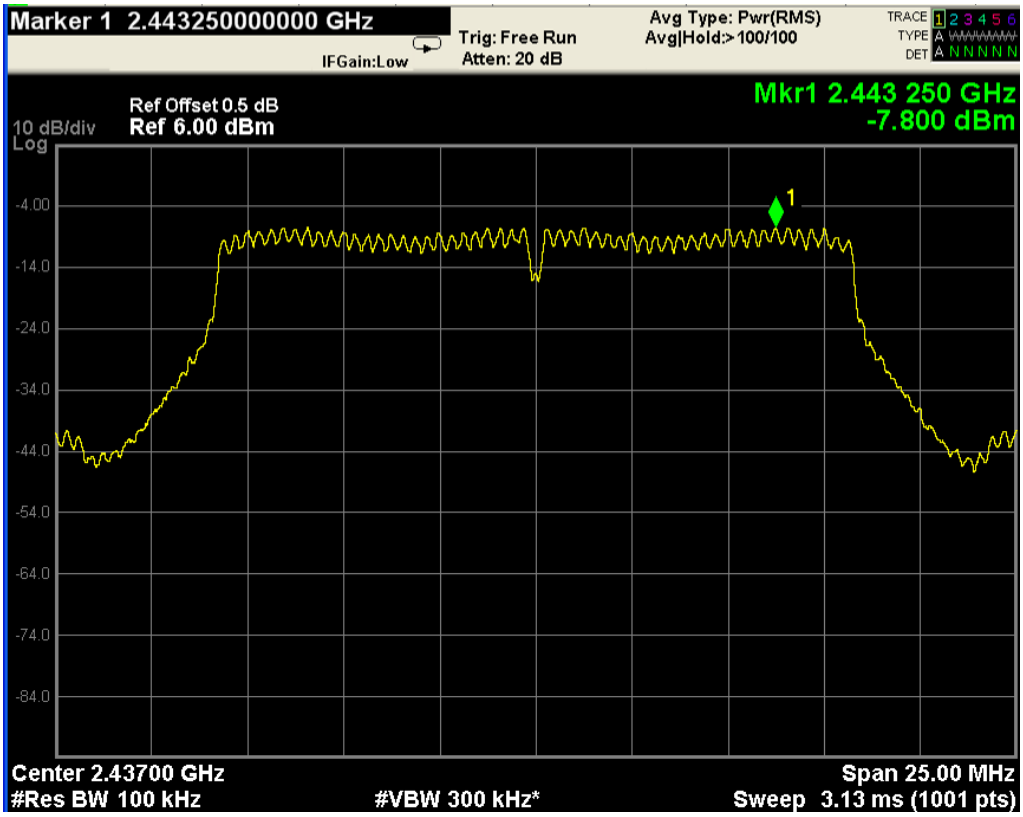
Data rate: 24 Mbps **Channel Frequency: 2437 MHz**



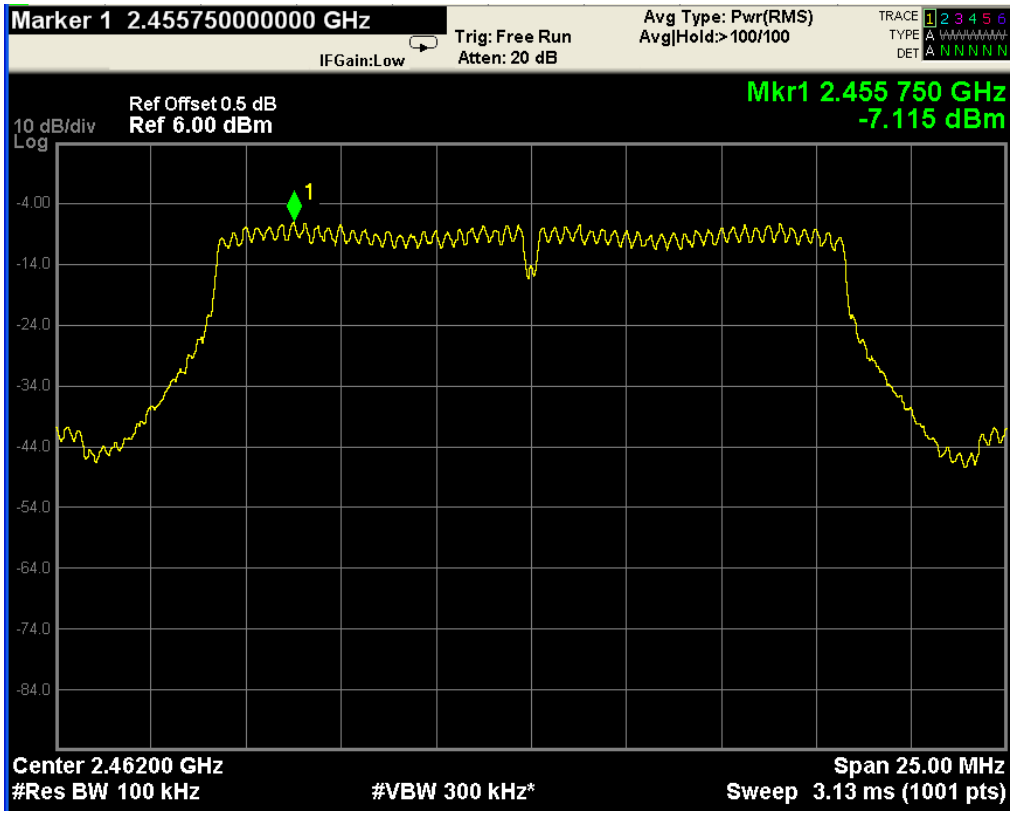
Data rate: 24 Mbps **Channel Frequency: 2462 MHz**



Data rate: 54 Mbps **Channel Frequency: 2412 MHz**



Data rate: 54 Mbps **Channel Frequency: 2437 MHz**



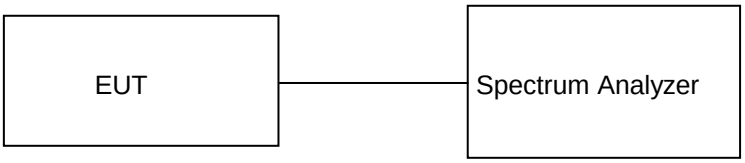
Data rate: 54 Mbps **Channel Frequency: 2462 MHz**

6 dB Bandwidth **Section 15.247(a) (2)**

Result **Pass**

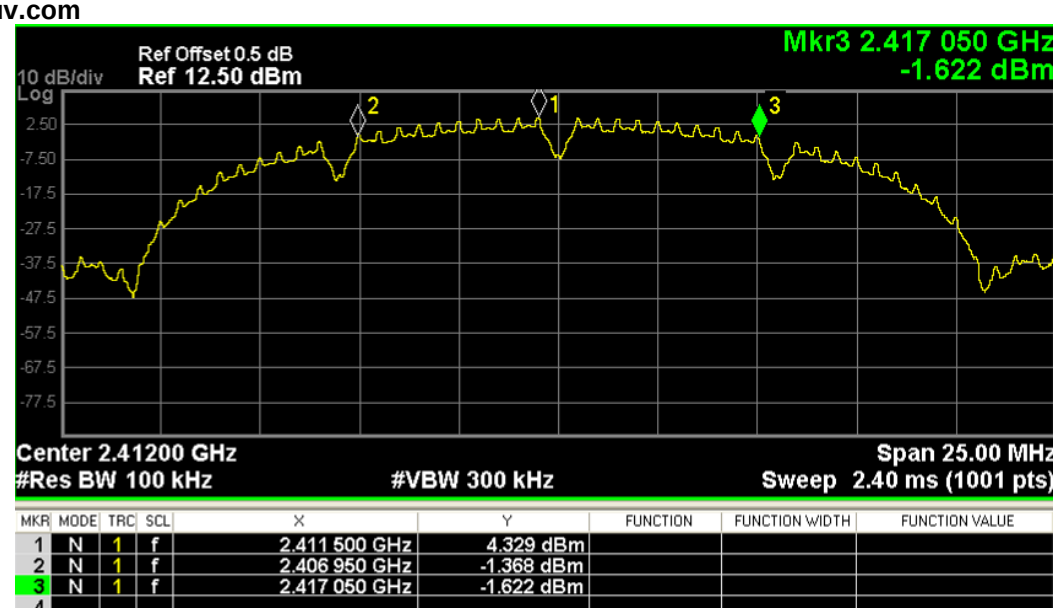
Test Specification FCC Part 15 Section 15.247 (a) (2)
Requirement The minimum 6 dB bandwidth shall be at least 500 kHz.

Test Method:



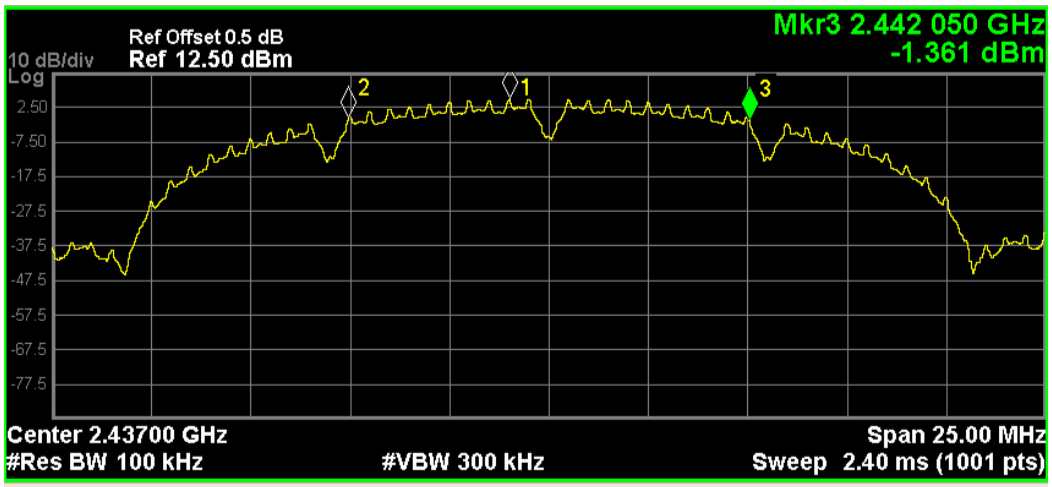
Test Result:

802.11 Protocol	Data Rate (Mbps)	Channel Frequency (MHz)	Lower Frequency (MHz)	Upper Frequency (MHz)	6 dB Bandwidth (MHz)	99% OBW (MHz)
b	1	2412.00	2406.95	2417.05	10.10	15.80
		2437.00	2431.95	2442.05	10.10	15.80
		2462.00	2456.95	2467.05	10.10	15.76
	11	2412.00	2406.75	2416.87	10.12	15.63
		2437.00	2431.82	2441.90	10.08	15.58
		2462.00	2456.32	2467.45	11.13	15.63



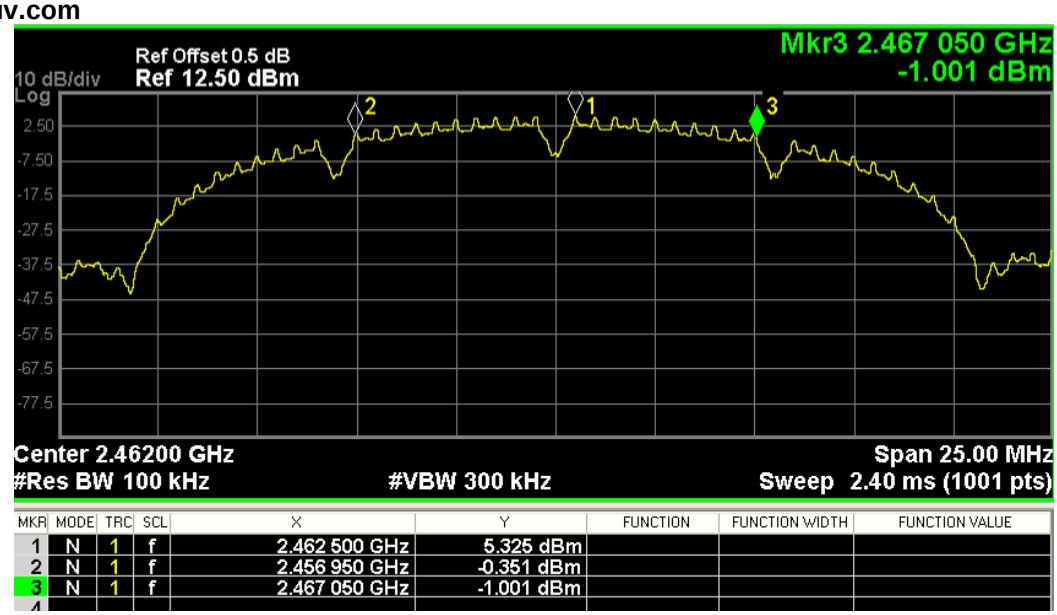
MKR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1	N	1	f	2.411 500 GHz	4.329 dBm			
2	N	1	f	2.406 950 GHz	-1.368 dBm			
3	N	1	f	2.417 050 GHz	-1.622 dBm			

Data Rate: 1 Mbps **Channel frequency: 2412 MHz**



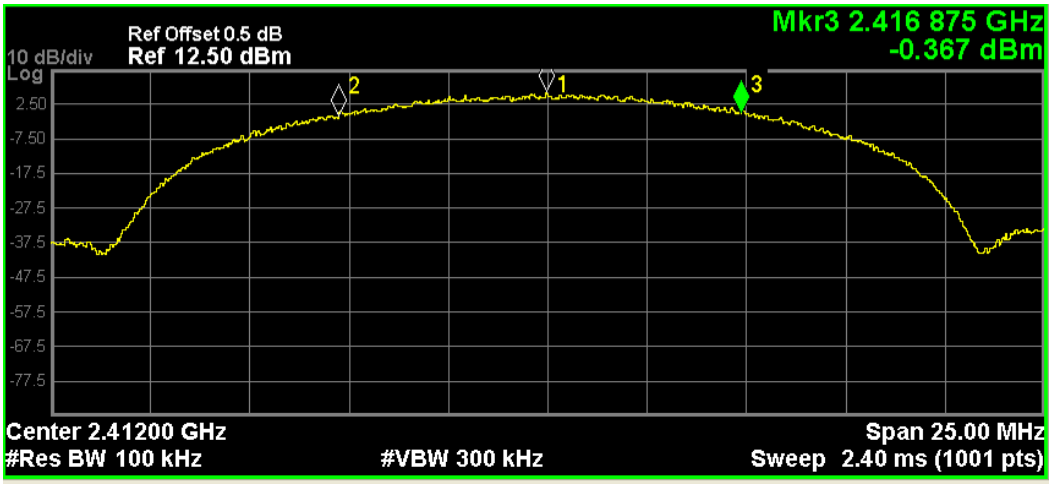
MKR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1	N	1	f	2.436 000 GHz	4.611 dBm			
2	N	1	f	2.431 950 GHz	-1.144 dBm			
3	N	1	f	2.442 050 GHz	-1.361 dBm			

Data Rate: 1 Mbps **Channel frequency: 2437 MHz**



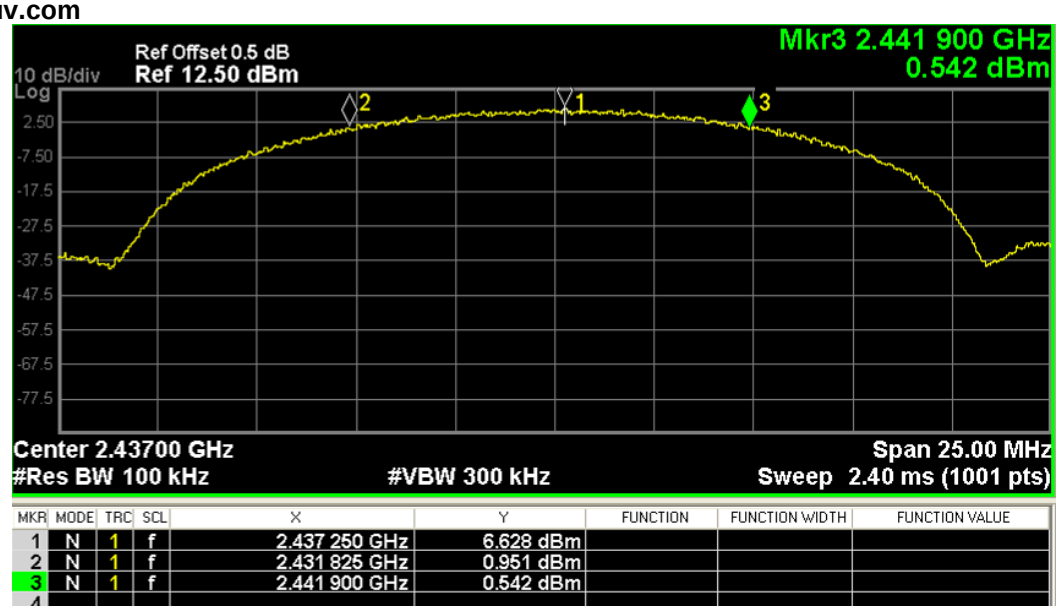
MKR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1	N	1	f	2.462 500 GHz	5.325 dBm			
2	N	1	f	2.456 950 GHz	-0.351 dBm			
3	N	1	f	2.467 050 GHz	-1.001 dBm			

Data Rate: 1 Mbps **Channel frequency: 2462 MHz**



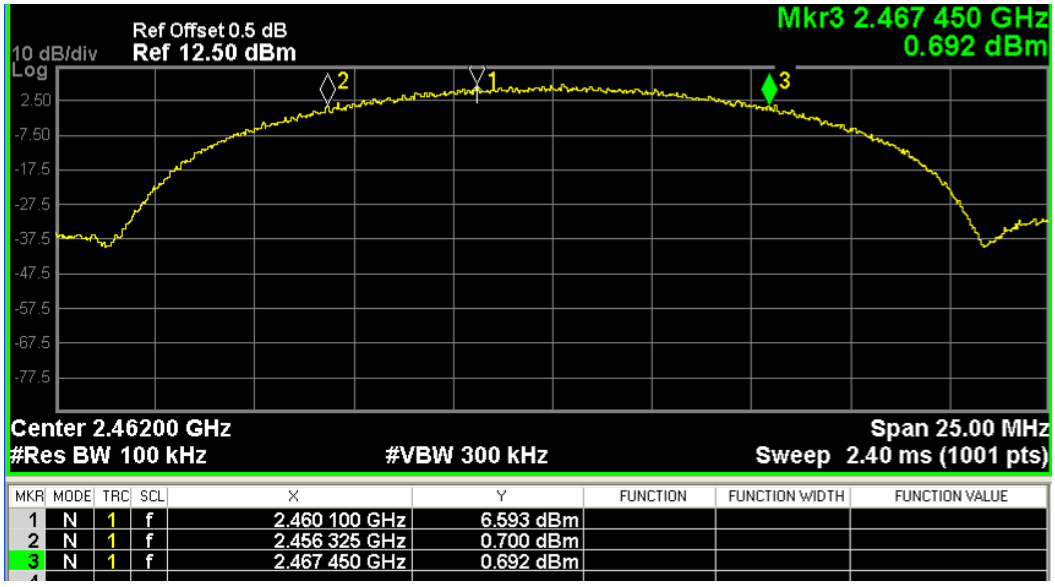
MKR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1	N	1	f	2.411 975 GHz	5.654 dBm			
2	N	1	f	2.406 750 GHz	-1.565 dBm			
3	N	1	f	2.416 875 GHz	-0.367 dBm			

Data Rate: 11 Mbps **Channel Frequency: 2412 MHz**



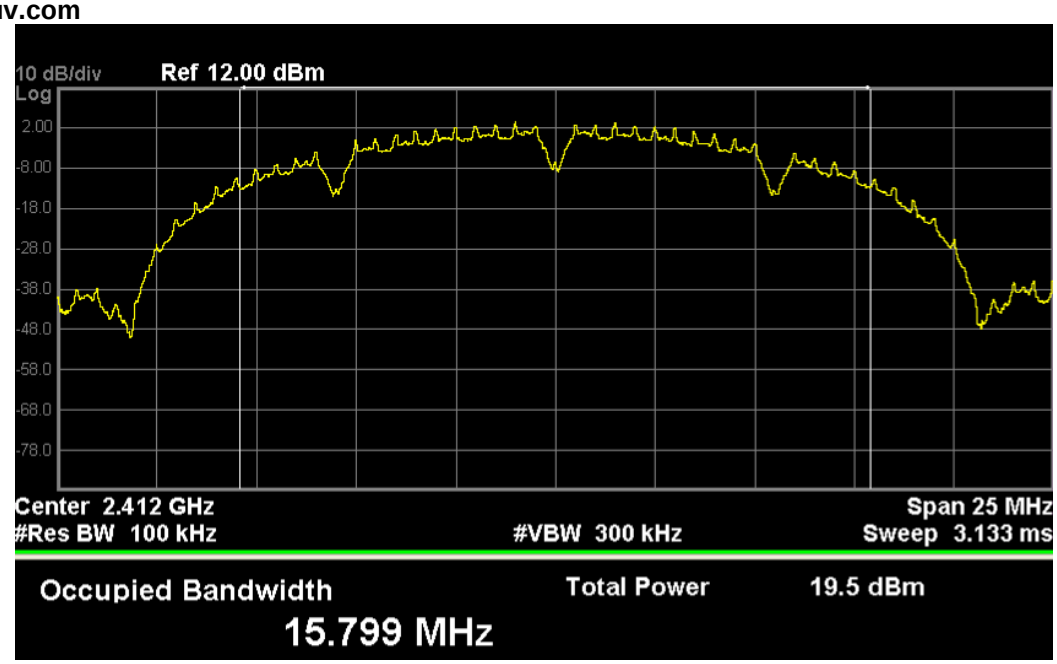
MKR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1	N	1	f	2.437 250 GHz	6.628 dBm			
2	N	1	f	2.431 825 GHz	0.951 dBm			
3	N	1	f	2.441 900 GHz	0.542 dBm			

Data Rate: 11 Mbps **Channel frequency: 2437 MHz**

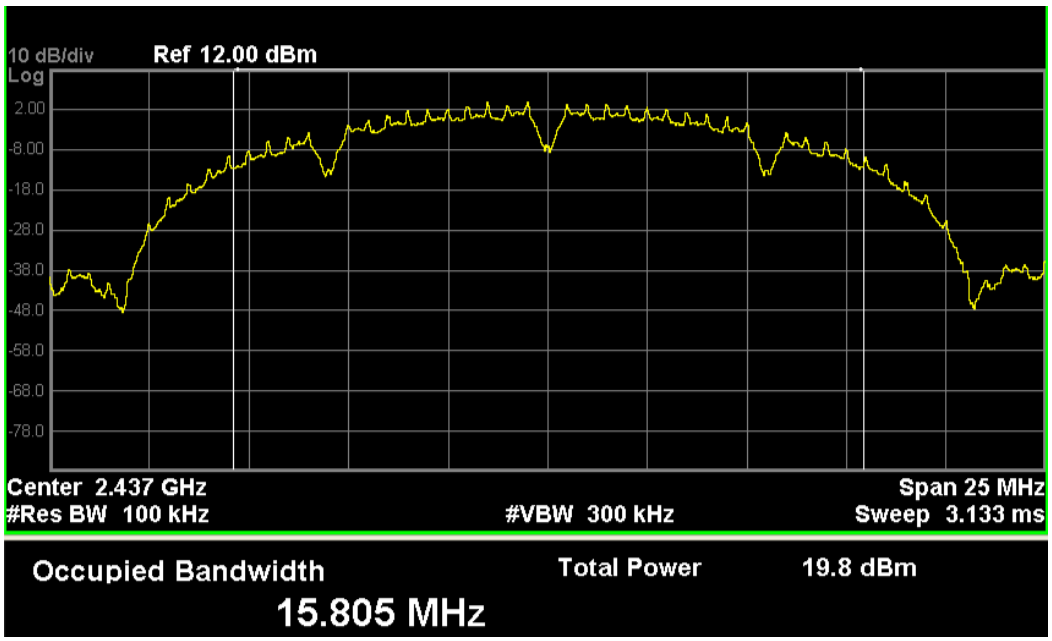


MKR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1	N	1	f	2.460 100 GHz	6.593 dBm			
2	N	1	f	2.456 325 GHz	0.700 dBm			
3	N	1	f	2.467 450 GHz	0.692 dBm			

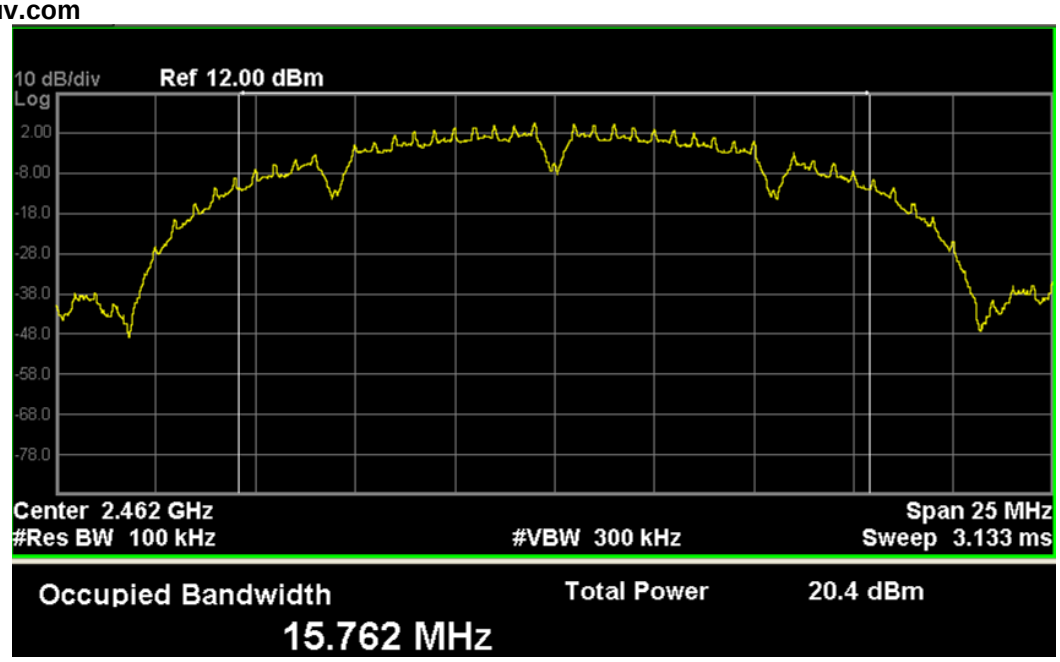
Data Rate: 11 Mbps **Channel frequency: 2462 MHz**



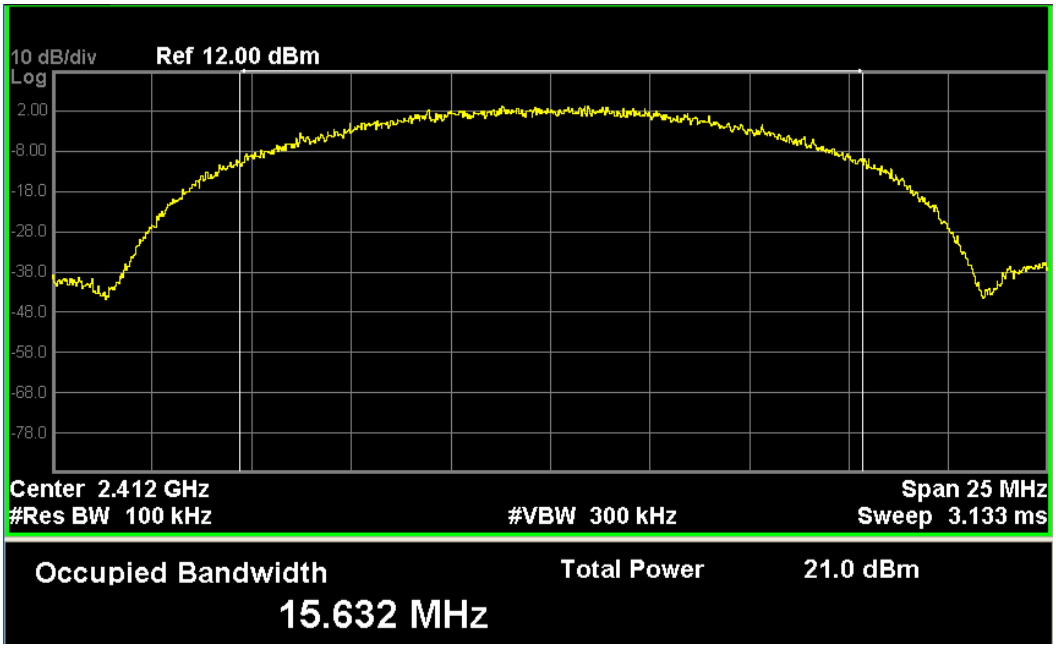
Data rate: 1 Mbps **99% Occupied Bandwidth: Channel 2412MHz**



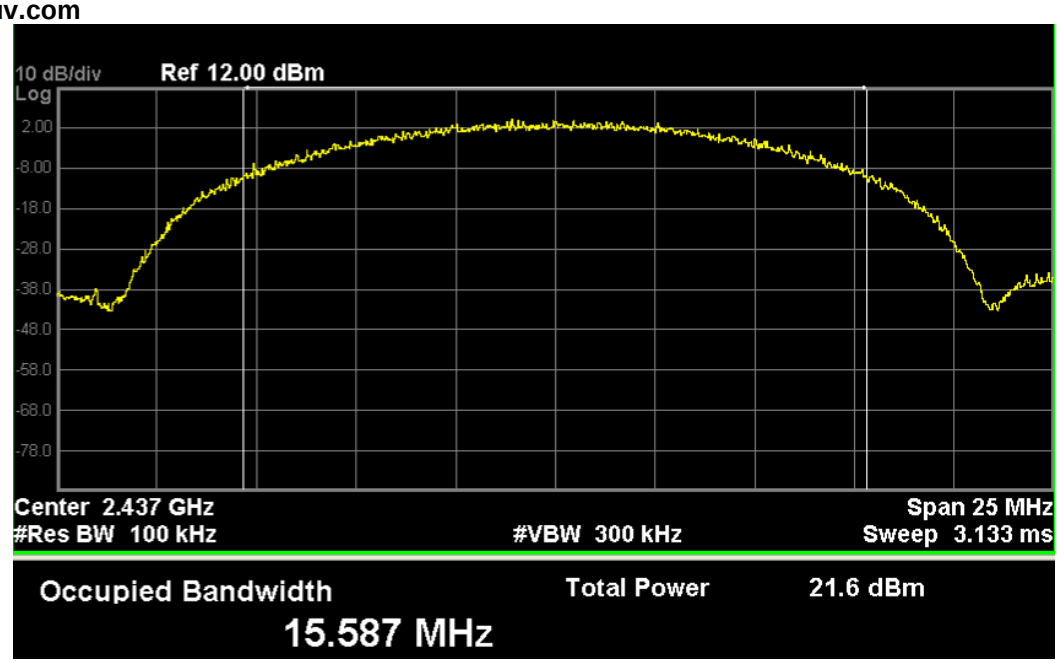
Data rate: 1 Mbps **99% Occupied Bandwidth: Channel 2437MHz**



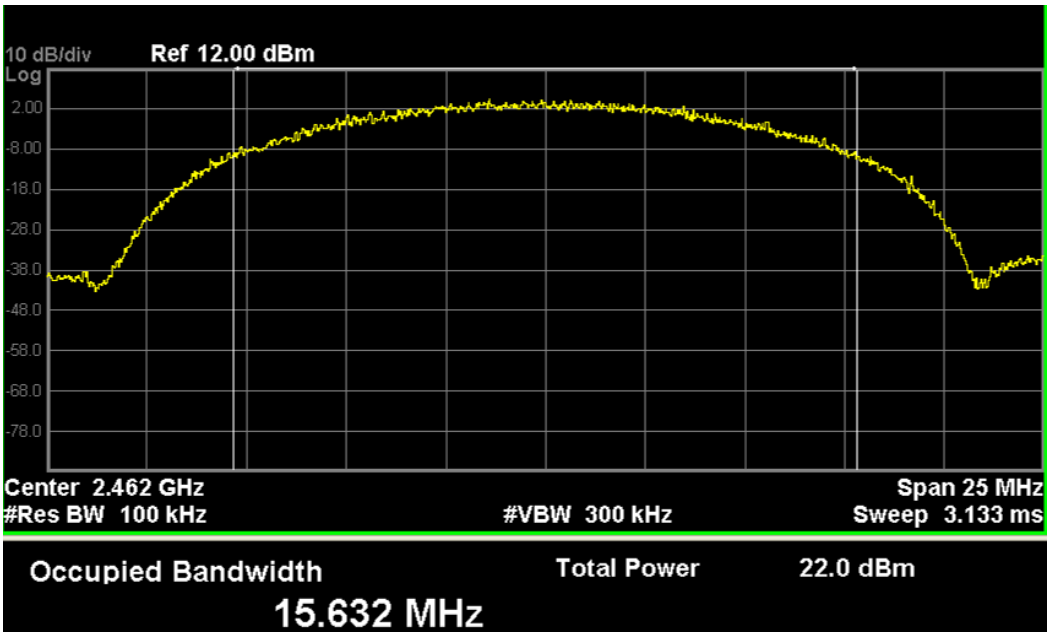
Data rate: 1 Mbps **99% Occupied Bandwidth: Channel 2462MHz**



Data rate: 11 Mbps **99% Occupied Bandwidth: Channel 2412MHz**

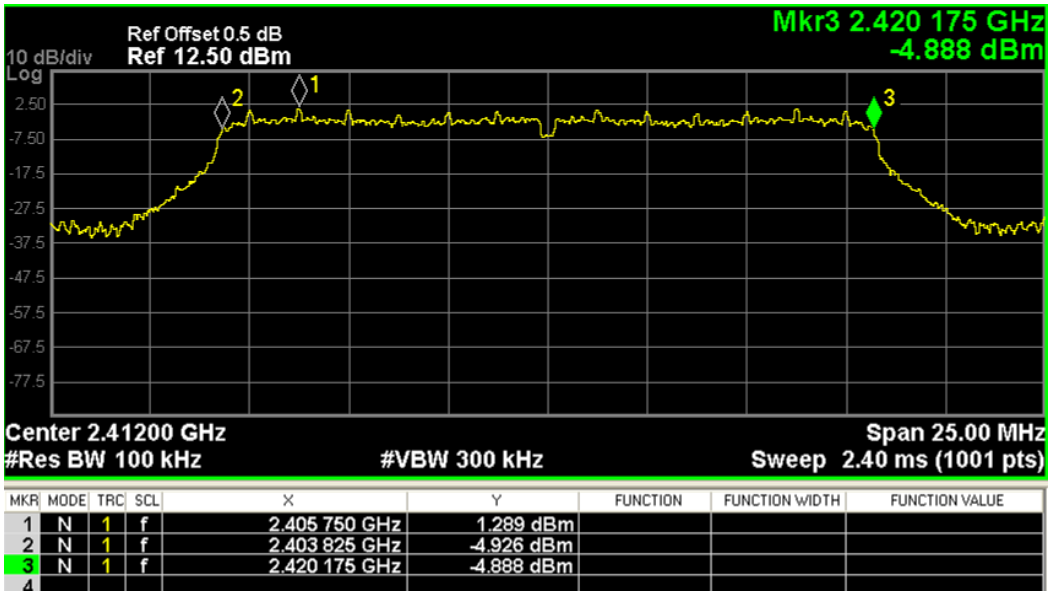


Data rate: 11 Mbps **99% Occupied Bandwidth: Channel 2437MHz**

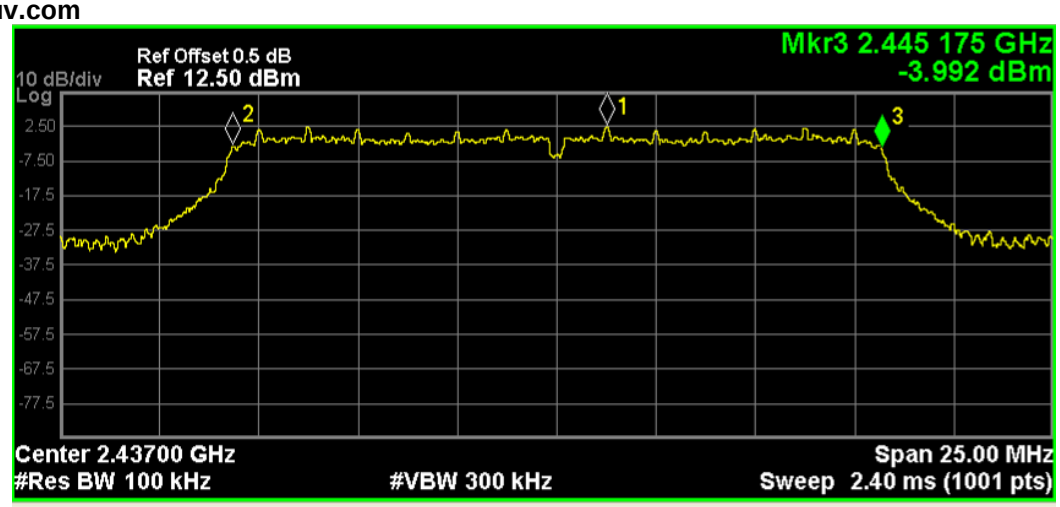


Data rate: 11 Mbps **99% Occupied Bandwidth: Channel 2462MHz**

802.11 Protocol	Data Rate (Mbps)	Channel Frequency (MHz)	Lower Frequency (MHz)	Upper Frequency (MHz)	6 dB Bandwidth (MHz)	99% OBW (MHz)
g	6	2412.00	2403.82	2420.17	16.35	16.37
		2437.00	2428.85	2445.17	16.32	16.36
		2462.00	2453.82	2470.15	16.33	16.37
	24	2412.00	2403.75	2420.22	16.47	16.38
		2437.00	2428.75	2445.22	16.47	16.37
		2462.00	2453.75	2470.22	16.37	16.37
	54	2412.00	2403.75	2420.25	16.50	16.37
		2437.00	2428.75	2445.25	16.50	16.37
		2462.00	2453.75	2470.22	16.47	16.37

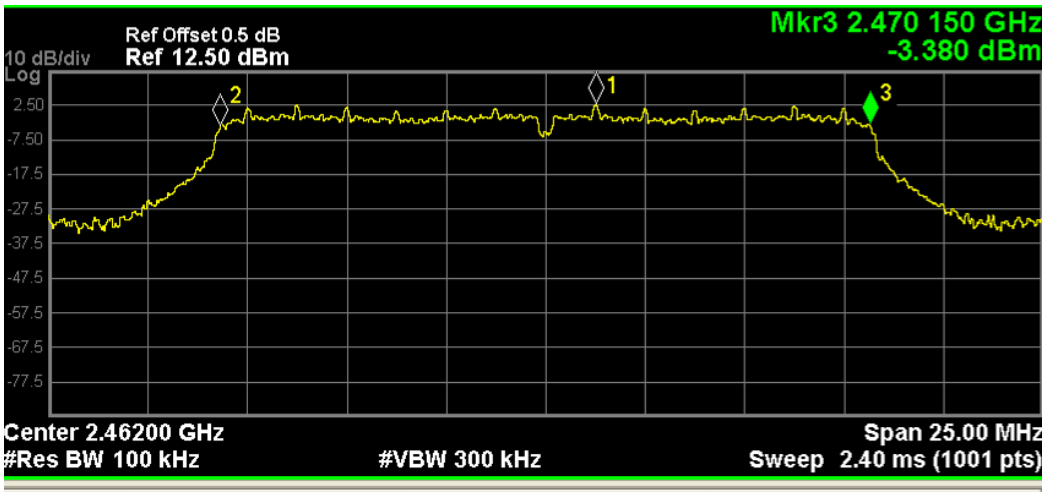


Data Rate: 6 Mbps **Channel Frequency: 2412 MHz**



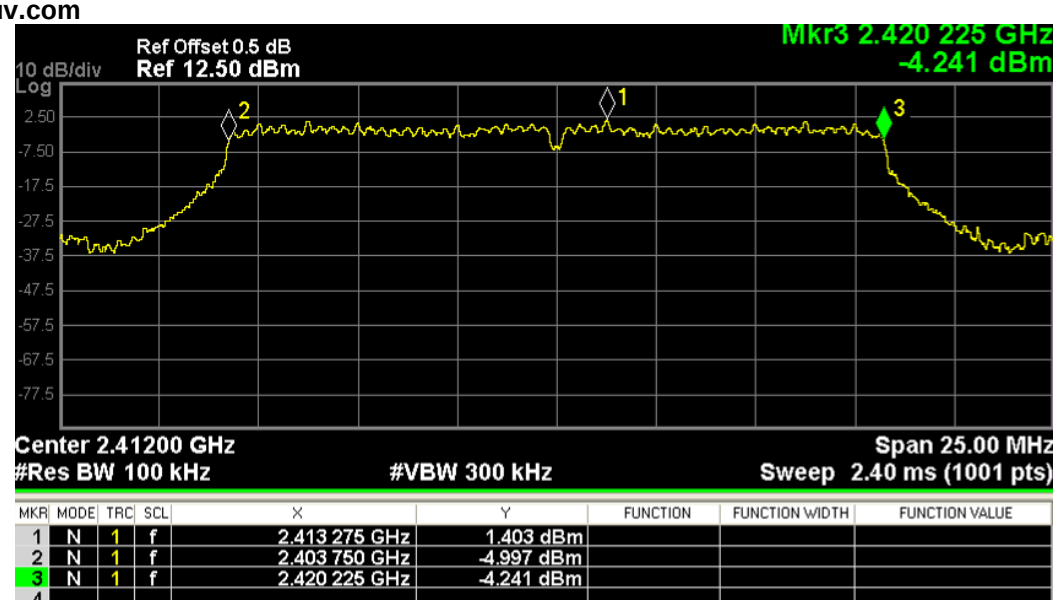
MKR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1	N	1	f	2.438 275 GHz	2.360 dBm			
2	N	1	f	2.428 850 GHz	-3.357 dBm			
3	N	1	f	2.445 175 GHz	-3.992 dBm			

Data Rate: 6 Mbps **Channel Frequency: 2437 MHz**

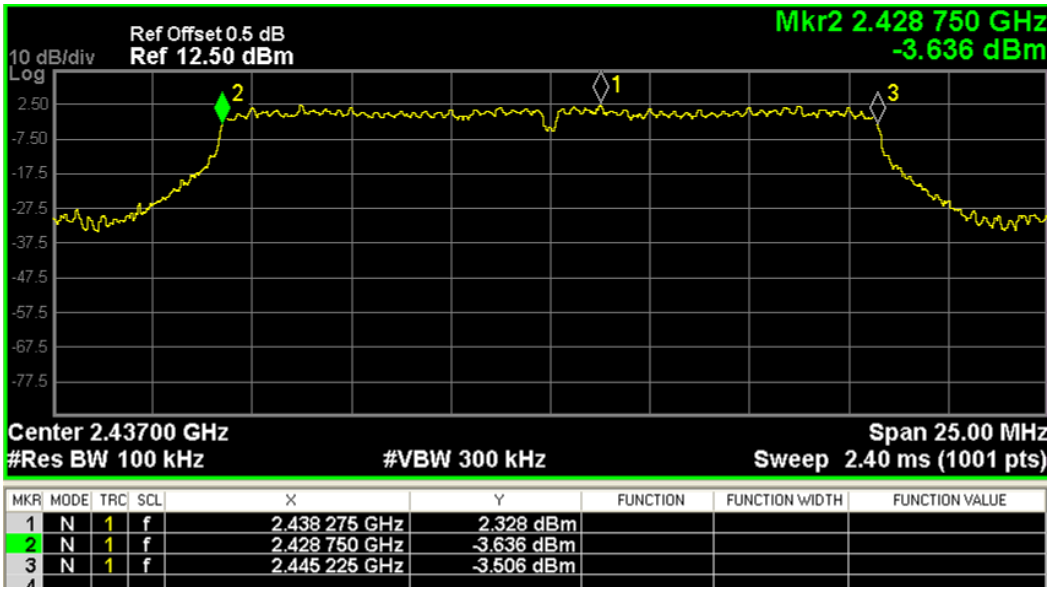


MKR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1	N	1	f	2.463 250 GHz	2.491 dBm			
2	N	1	f	2.453 825 GHz	-4.016 dBm			
3	N	1	f	2.470 150 GHz	-3.380 dBm			
4								

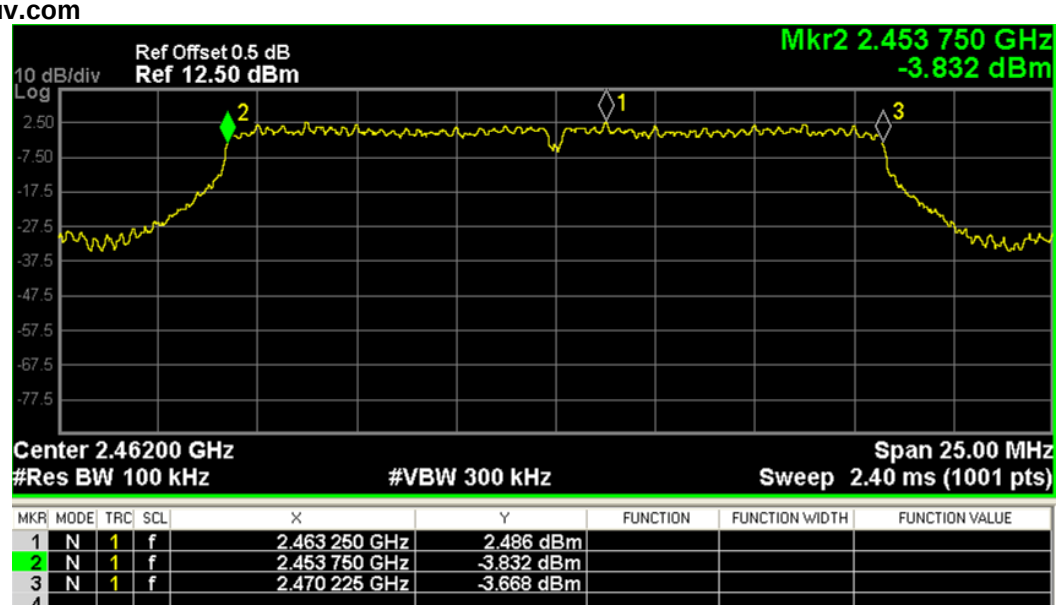
Data Rate: 6 Mbps **Channel Frequency: 2462 MHz**



Data Rate: 24 Mbps **Channel Frequency: 2412 MHz**

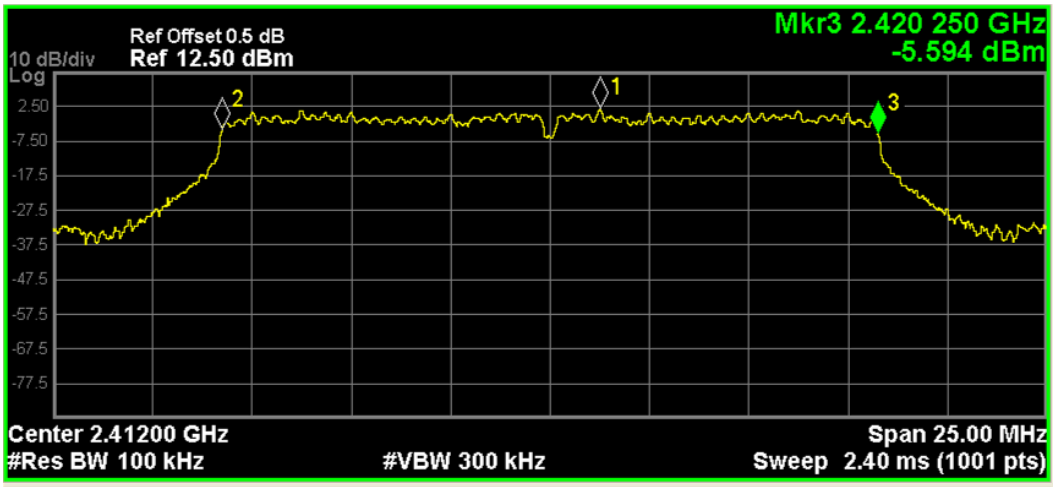


Data Rate: 24 Mbps **Channel Frequency: 2437 MHz**



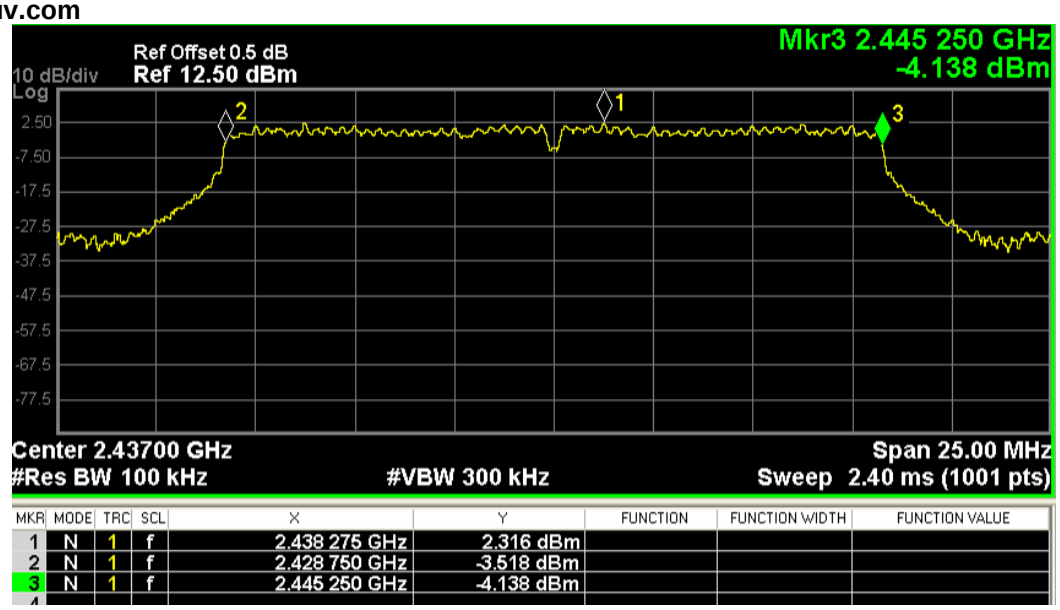
MKR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1	N	1	f	2.463 250 GHz	2.486 dBm			
2	N	1	f	2.453 750 GHz	-3.832 dBm			
3	N	1	f	2.470 225 GHz	-3.668 dBm			

Data Rate: 24 Mbps **Channel Frequency: 2462 MHz**



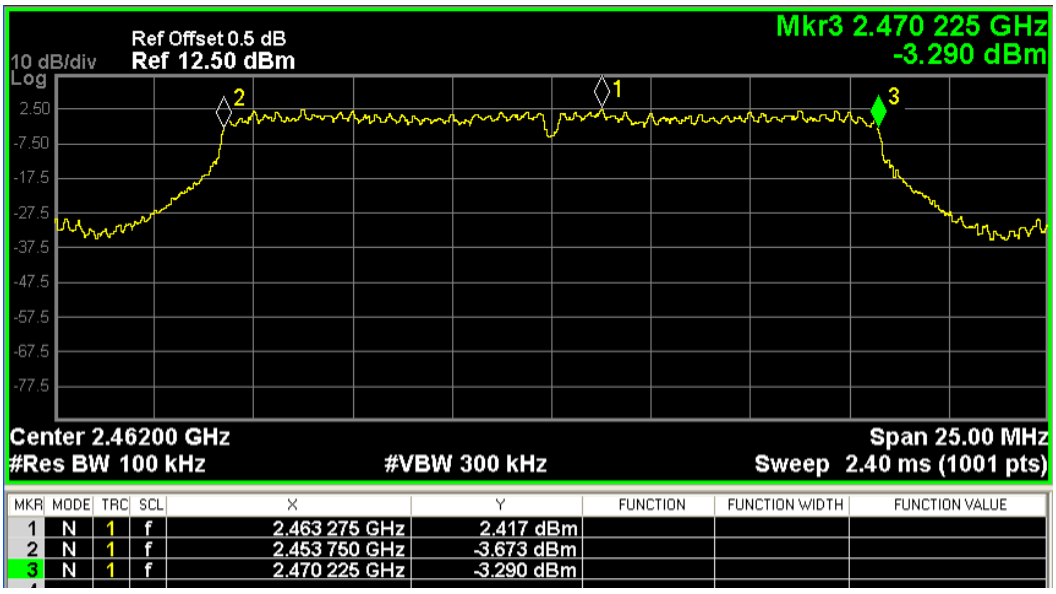
MKR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1	N	1	f	2.413 250 GHz	1.398 dBm			
2	N	1	f	2.403 750 GHz	-4.734 dBm			
3	N	1	f	2.420 250 GHz	-5.594 dBm			

Data Rate: 54 Mbps **Channel Frequency: 2412 MHz**



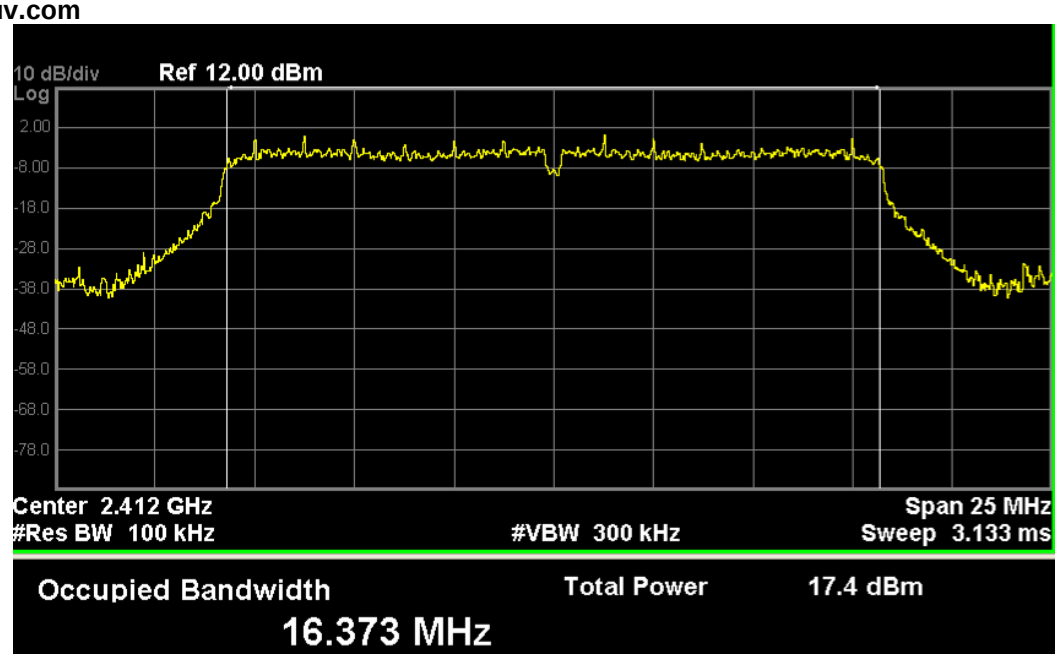
MKR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1	N	1	f	2.438 275 GHz	2.316 dBm			
2	N	1	f	2.428 750 GHz	-3.518 dBm			
3	N	1	f	2.445 250 GHz	-4.138 dBm			

Data Rate: 54 Mbps **Channel Frequency: 2437MHz**

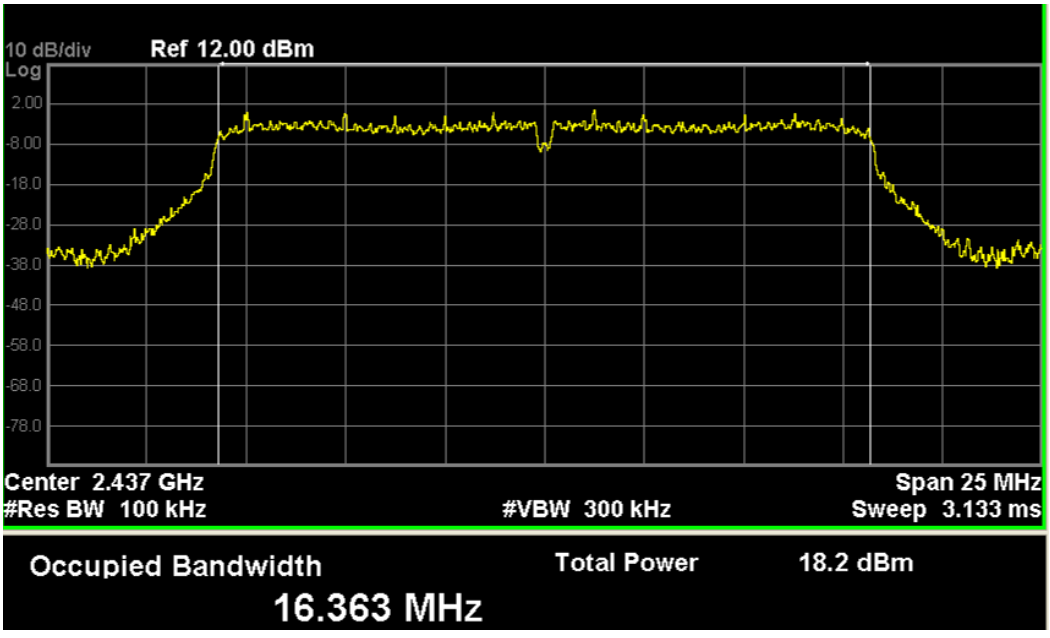


MKR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1	N	1	f	2.463 275 GHz	2.417 dBm			
2	N	1	f	2.453 750 GHz	-3.673 dBm			
3	N	1	f	2.470 225 GHz	-3.290 dBm			

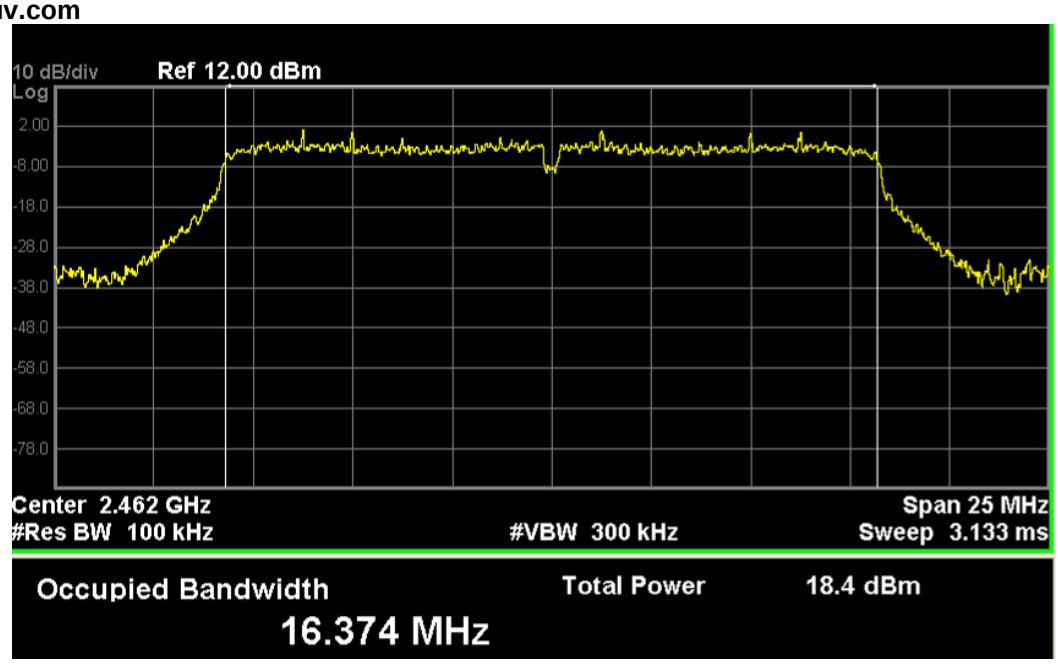
Data Rate: 54 Mbps **Channel Frequency: 2462 MHz**



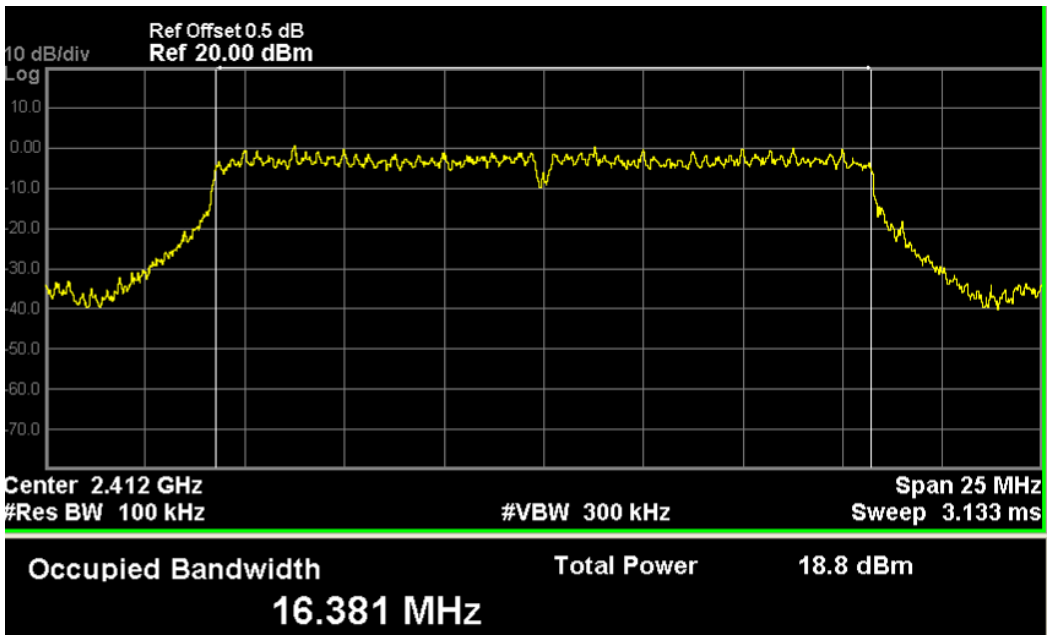
Data Rate: 6 Mbps **99% Occupied Bandwidth: Channel 2412MHz**



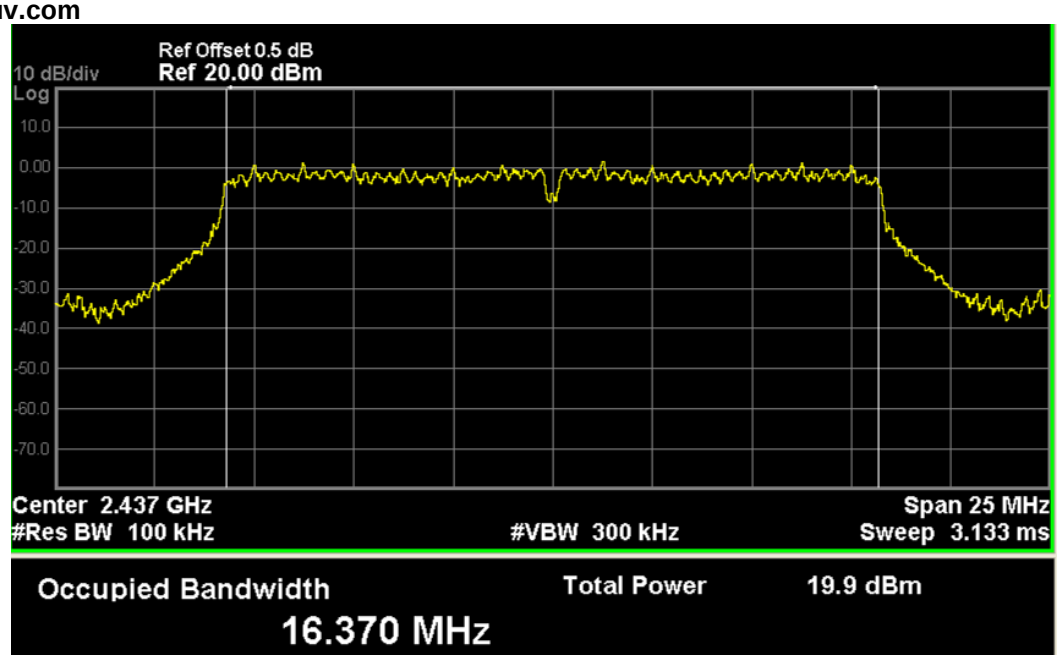
Data Rate: 6 Mbps **99% Occupied Bandwidth: Channel 2437MHz**



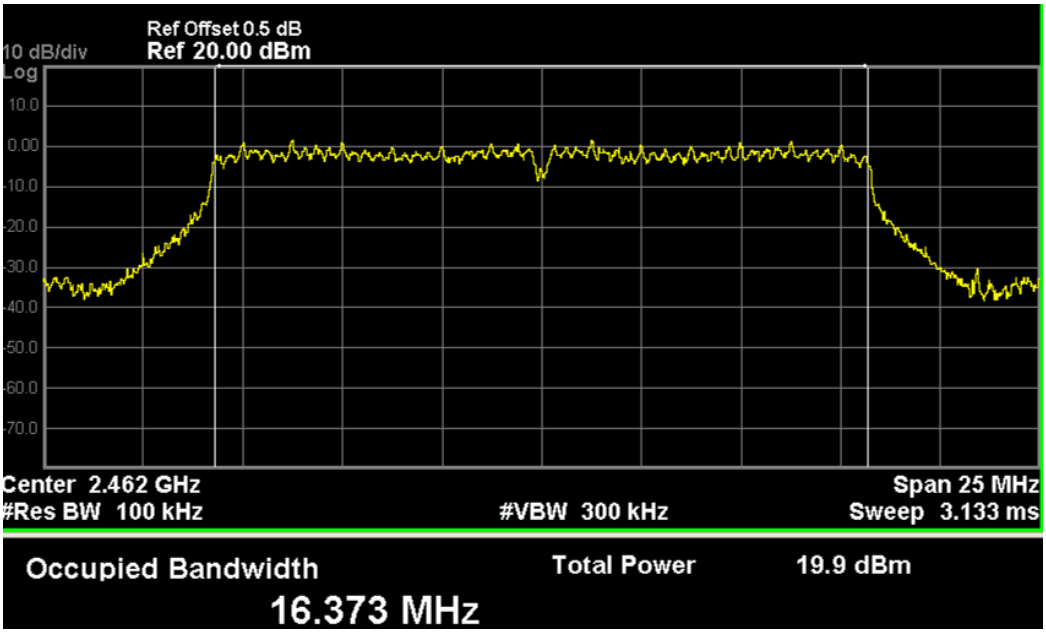
Data Rate: 6 Mbps **99% Occupied Bandwidth: Channel 2462MHz**



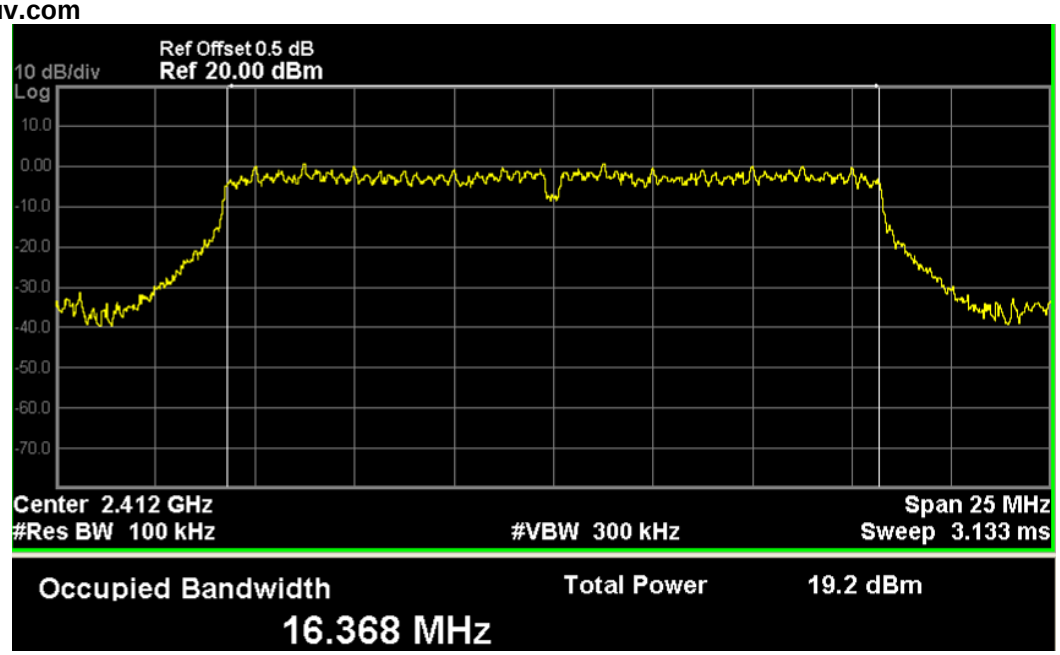
Data Rate: 24 Mbps **99% Occupied Bandwidth: Channel 2412MHz**



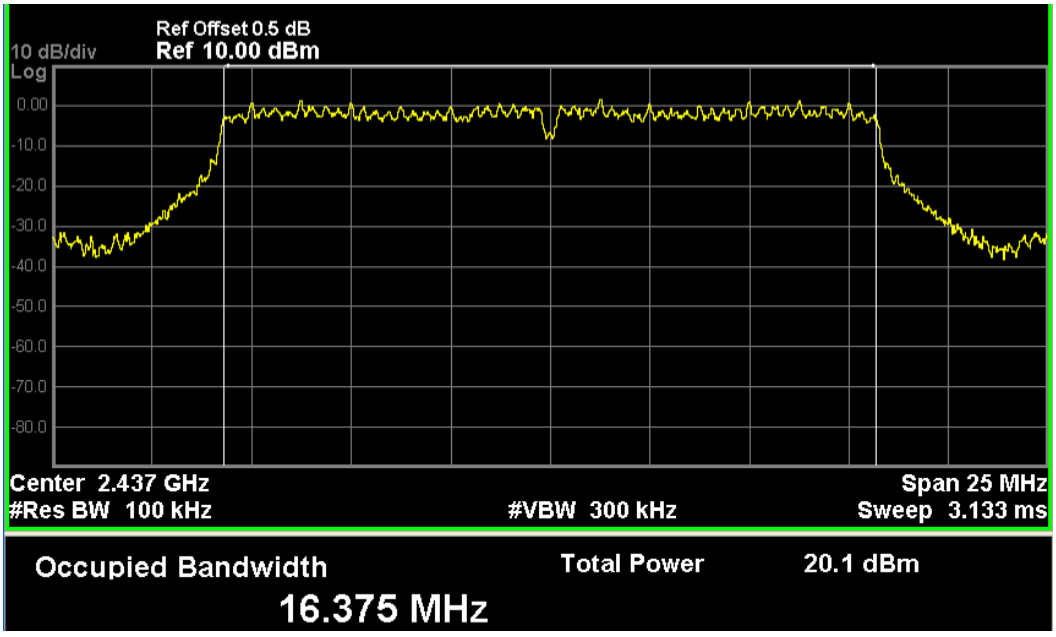
Data Rate: 24 Mbps **99% Occupied Bandwidth: Channel 2437MHz**



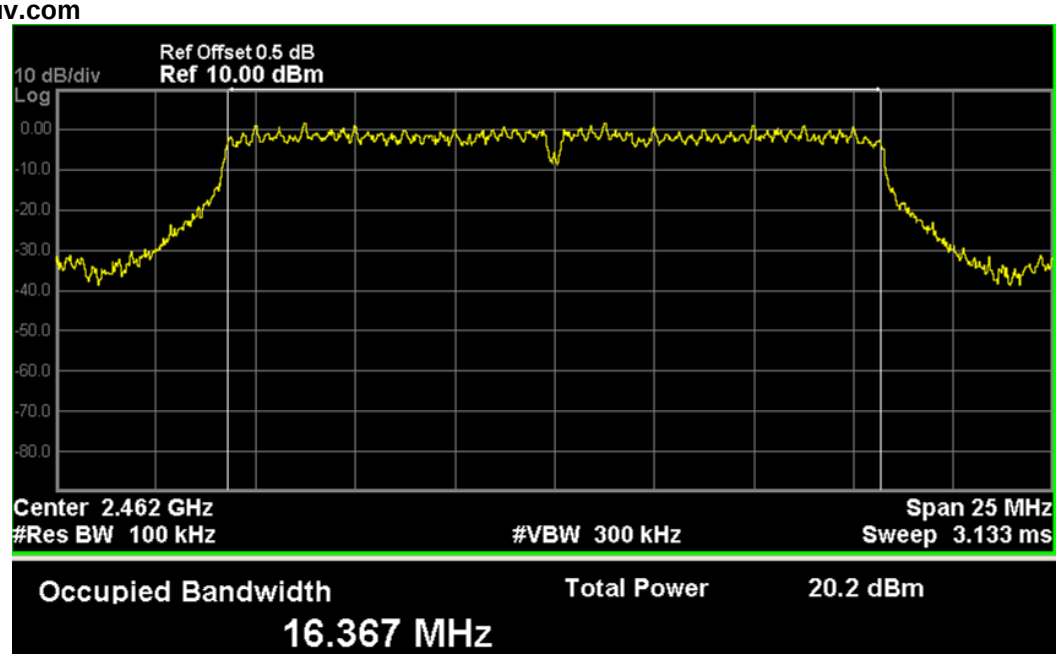
Data Rate: 24 Mbps **99% Occupied Bandwidth: Channel 2462MHz**



Data Rate: 54 Mbps **99% Occupied Bandwidth: Channel 2412MHz**



Data Rate: 54 Mbps **99% Occupied Bandwidth: Channel 2437MHz**



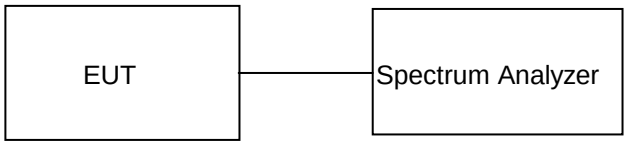
Data Rate: 54 Mbps **99% Occupied Bandwidth: Channel 2462MHz**

Band-edge Compliance **Section 15.247(d)**

Result **Pass**

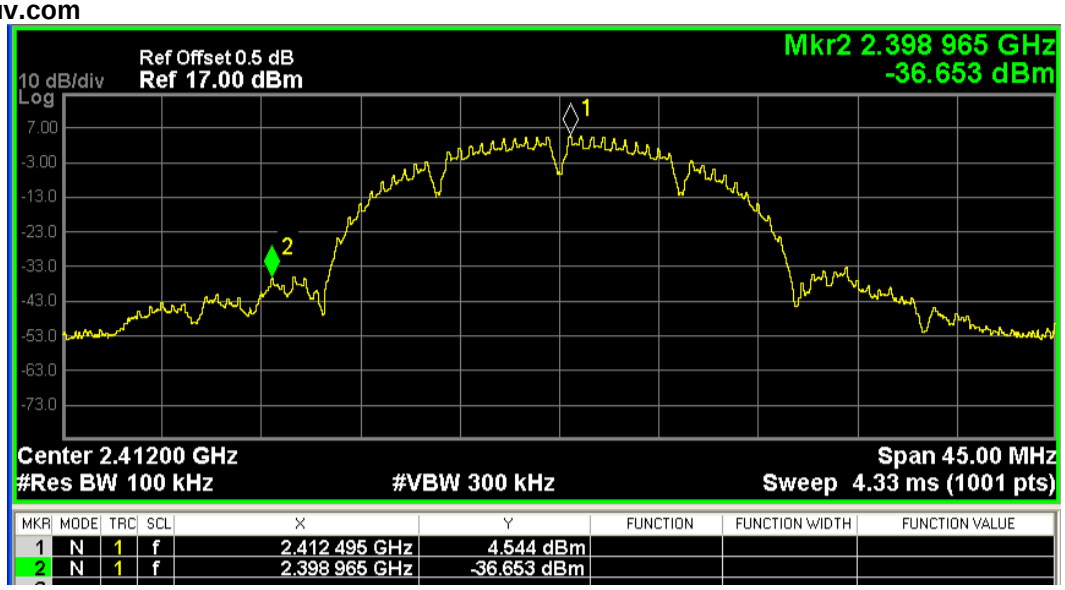
Test Specification	FCC Part 15 Section 15.247(d)
Detector Function	Peak
Requirement	In any 100kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 30dB below that in the 100kHz 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.

Test Method:

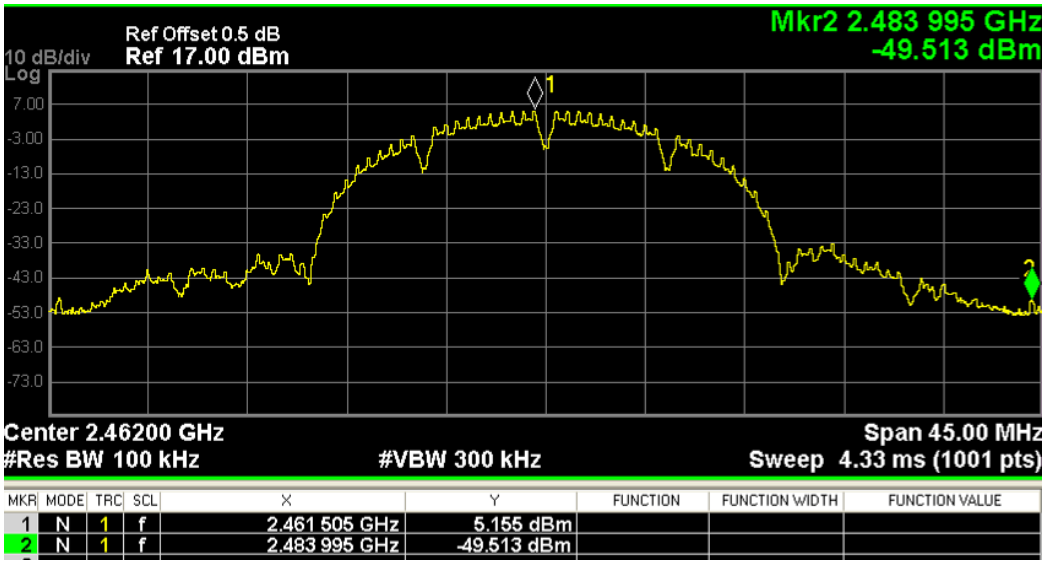


Test Result:

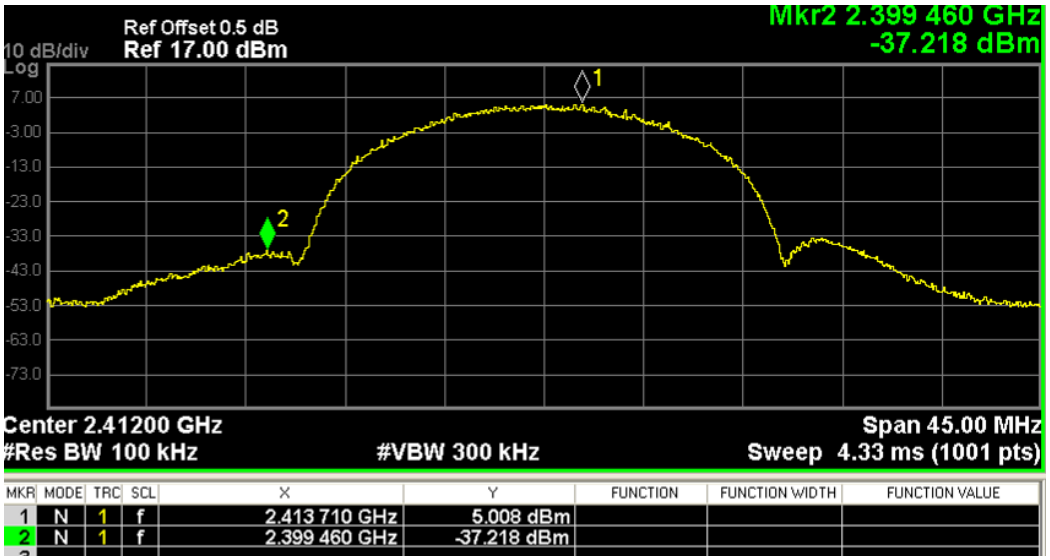
802.11 Protocol	Data Rate (Mbps)	Channel Frequency (MHz)	Value at Band Edge		Limit (dBc)
			Frequency (MHz)	Value (dBc)	
b	1	2412.00	2400.00	-41.19	-30.00
		2462.00	2483.50	-54.60	-30.00
	11	2412.00	2400.00	-42.21	-30.00
		2462.00	2483.50	-53.70	-30.00



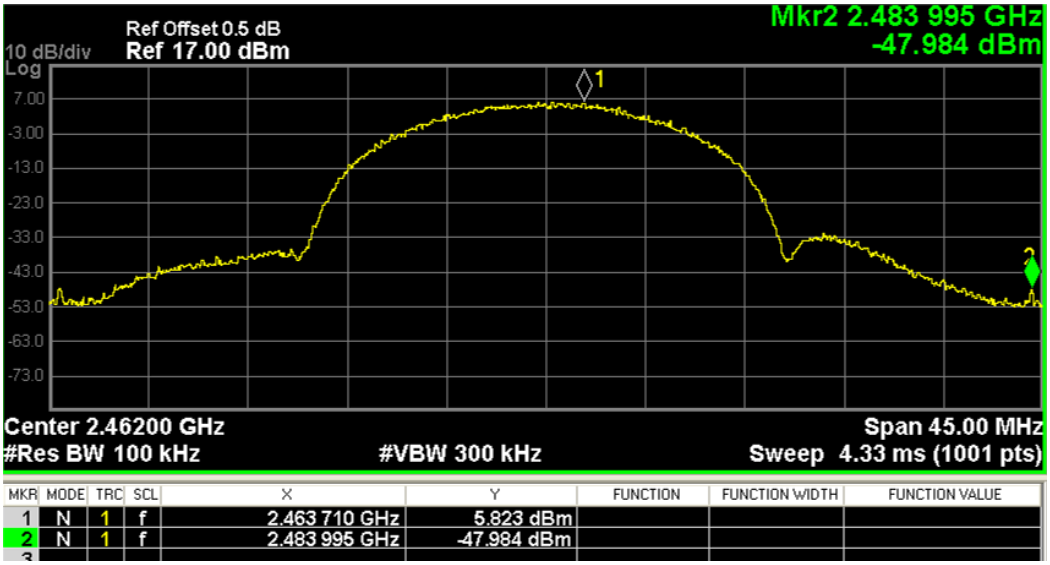
Data Rate: 1 Mbps **Channel frequency: 2412 MHz**



Data Rate: 1 Mbps **Channel frequency: 2462 MHz**

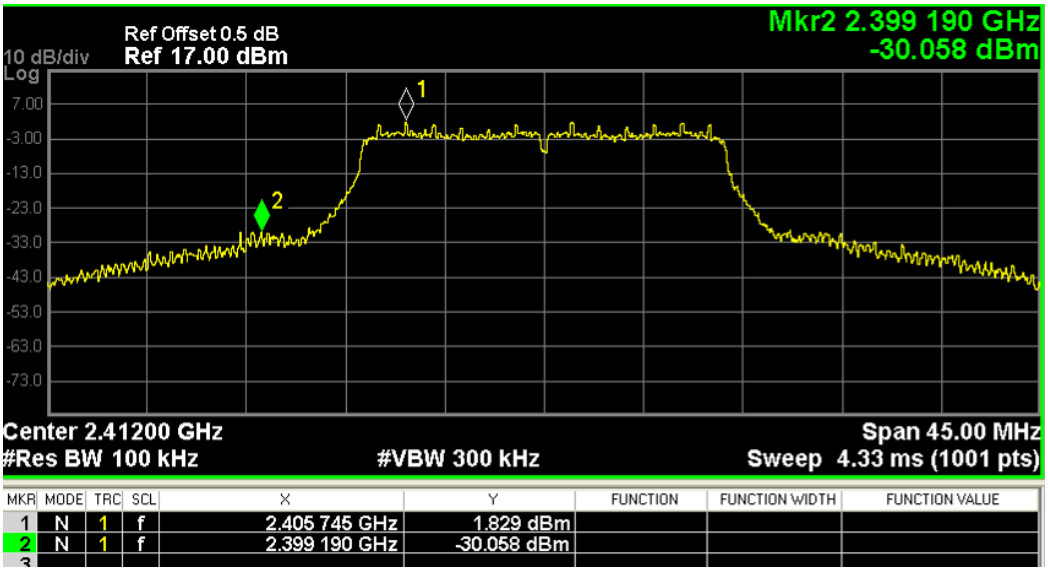


Data Rate: 11 Mbps **Channel frequency: 2412 MHz**

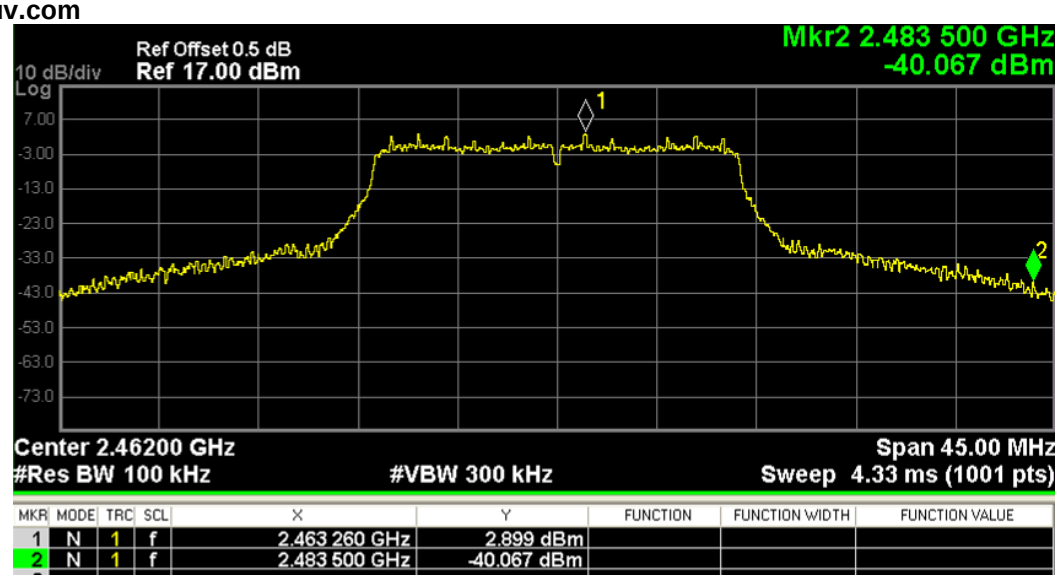


Data Rate: 11 Mbps **Channel frequency: 2462 MHz**

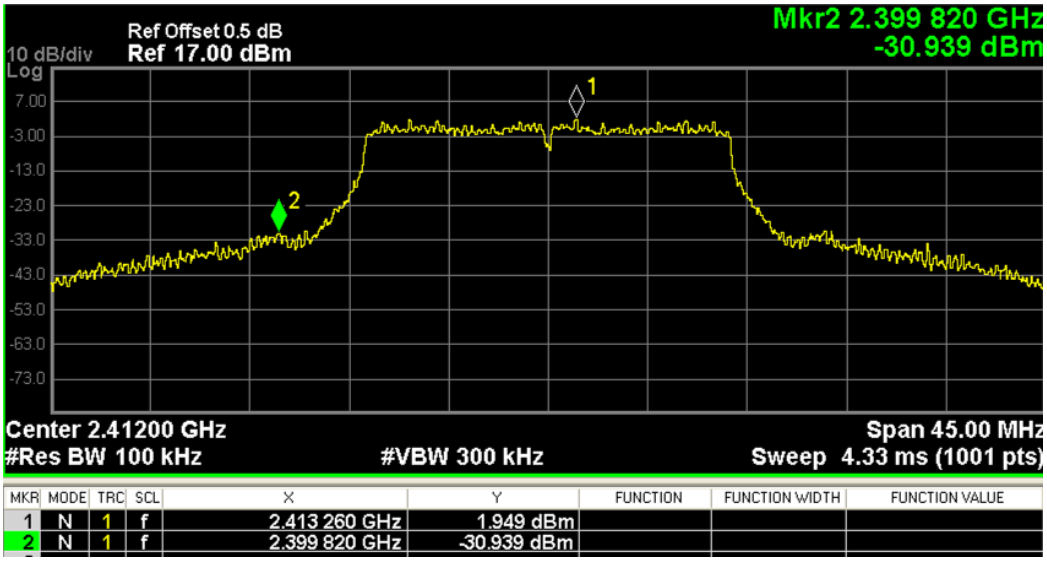
802.11 Protocol	Data Rate (Mbps)	Channel Frequency (MHz)	Value at Bande Edge		Limit (dBc)
			Frequency (MHz)	Value (dBc)	
g	6	2412.00	2400.00	-31.85	-30.00
		2462.00	2483.50	-45.89	-30.00
	24	2412.00	2400.00	-32.86	-30.00
		2462.00	2483.50	-45.26	-30.00
	54	2412.00	2400.00	-31.53	-30.00
		2462.00	2483.50	-44.18	-30.00



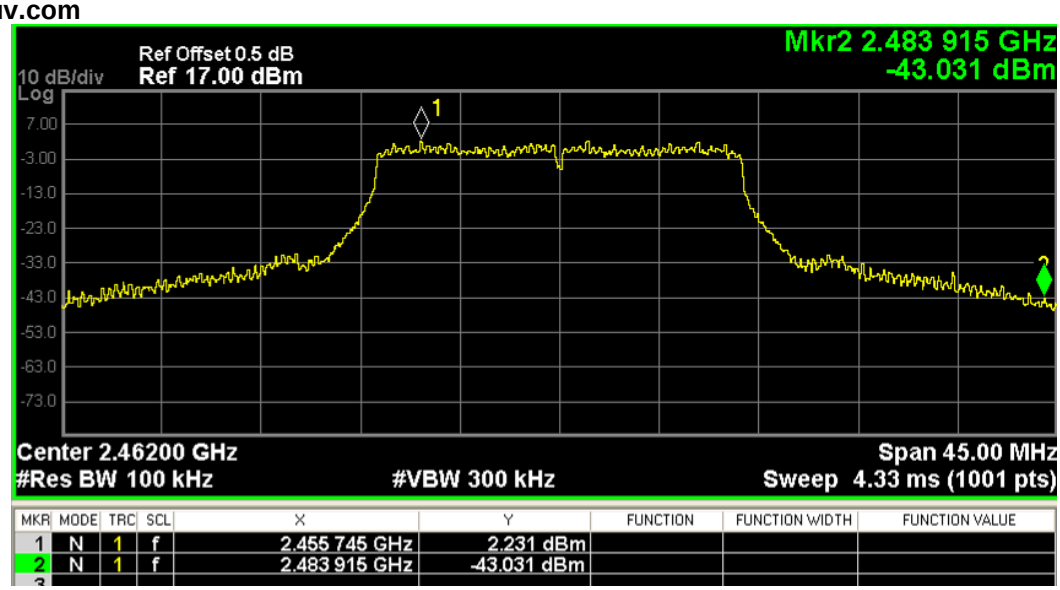
Data Rate: 6 Mbps **Channel frequency: 2412 MHz**



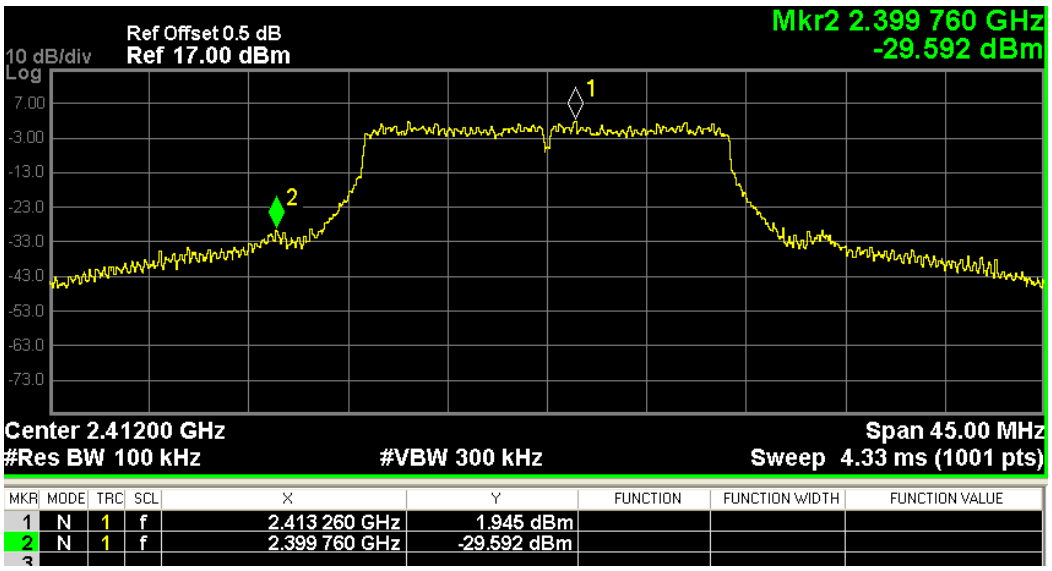
Data Rate: 6 Mbps **Channel frequency: 2462 MHz**



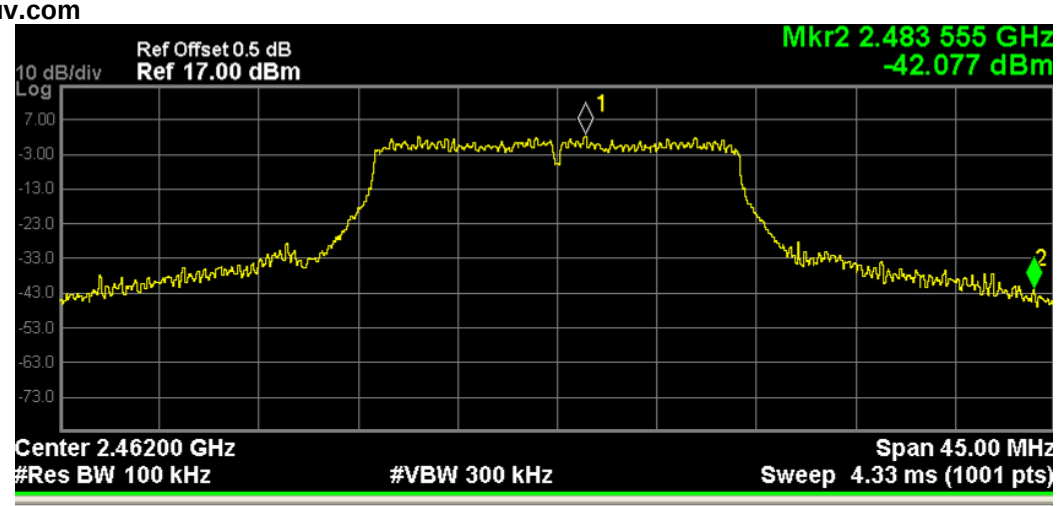
Data Rate: 24 Mbps **Channel frequency: 2412 MHz**



Data Rate: 24 Mbps **Channel frequency: 2462 MHz**



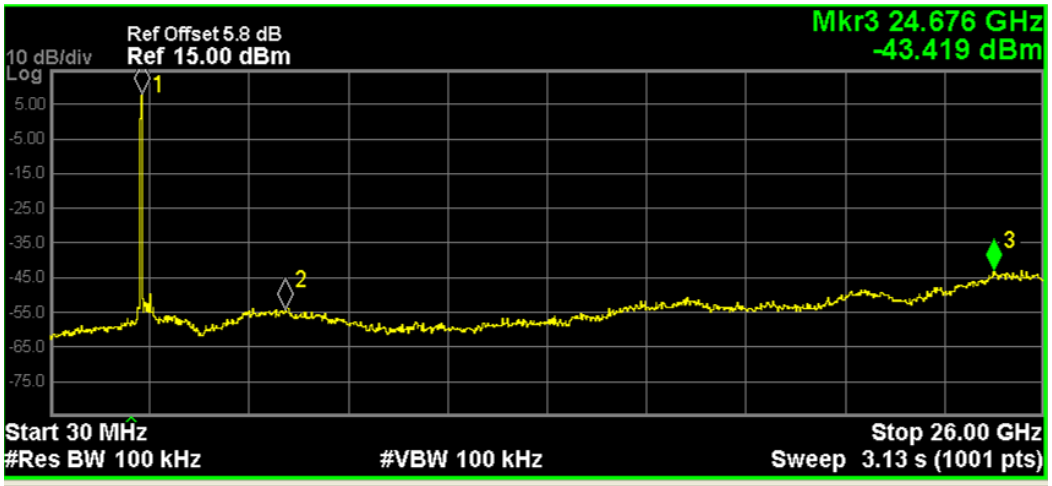
Data Rate: 54 Mbps **Channel frequency: 2412 MHz**



MKR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1	N	1	f	2.463 260 GHz	2.187 dBm			
2	N	1	f	2.483 555 GHz	-42.077 dBm			

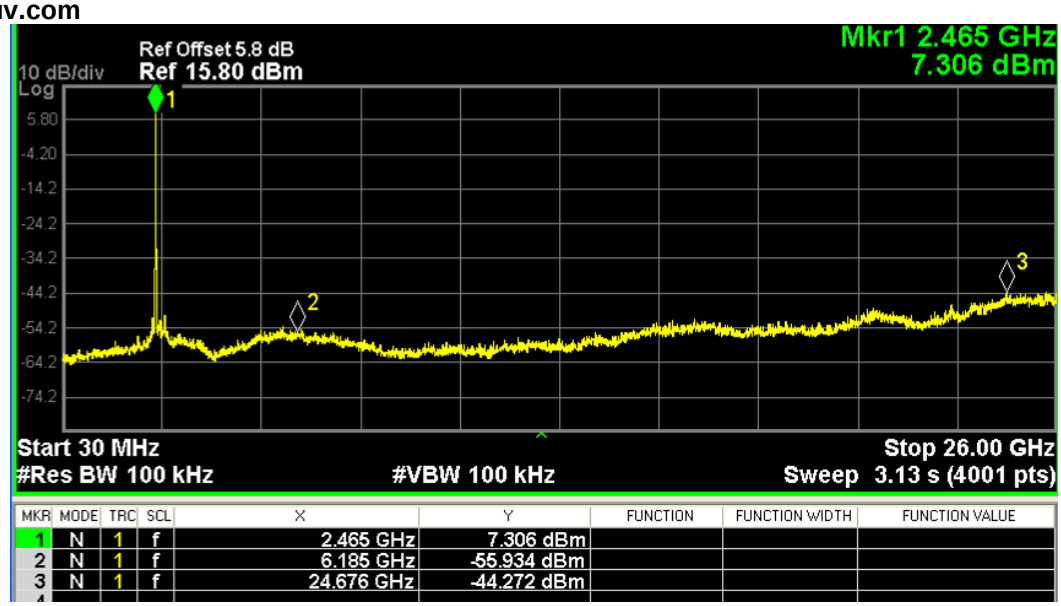
Data Rate: 54 Mbps **Channel frequency: 2462 MHz**

Conducted Spurious Emission

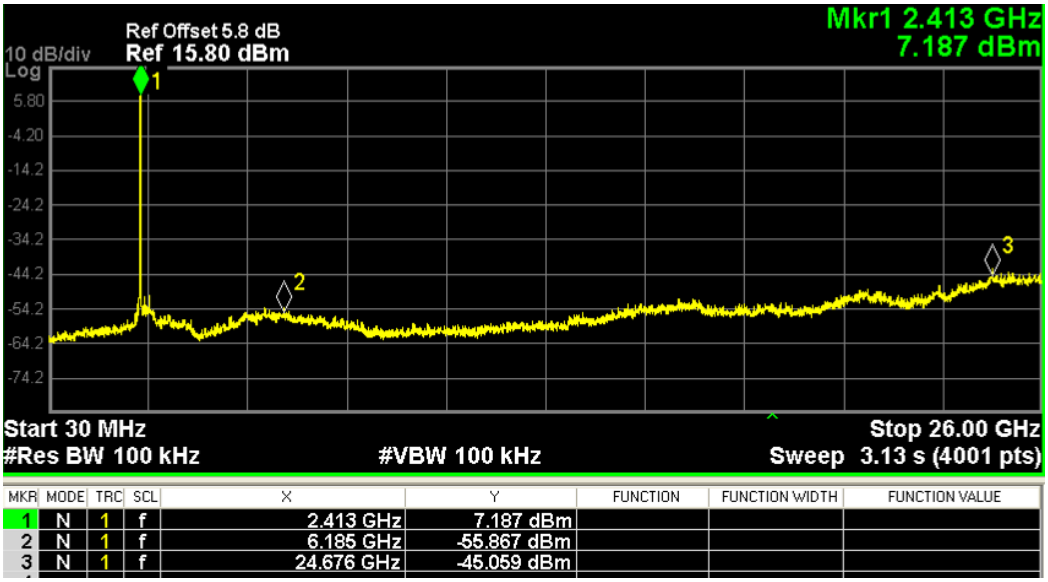


MKR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1	N	1	f	2.419 GHz	7.420 dBm			
2	N	1	f	6.185 GHz	-54.713 dBm			
3	N	1	f	24.676 GHz	-43.419 dBm			

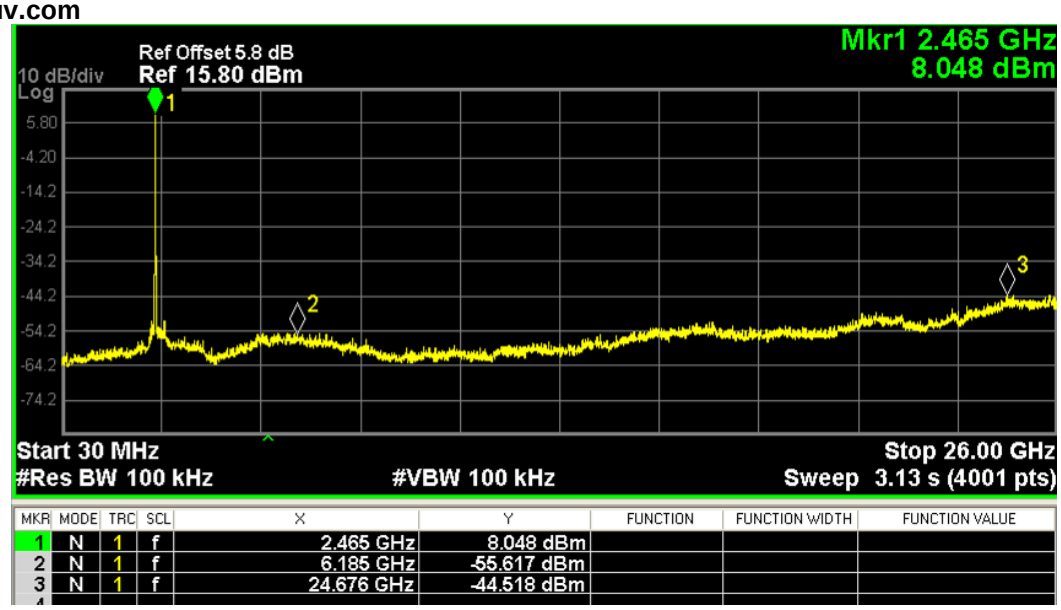
Data Rate: 1Mbps **Channel Low**



Data Rate: 1Mbps **Channel High**

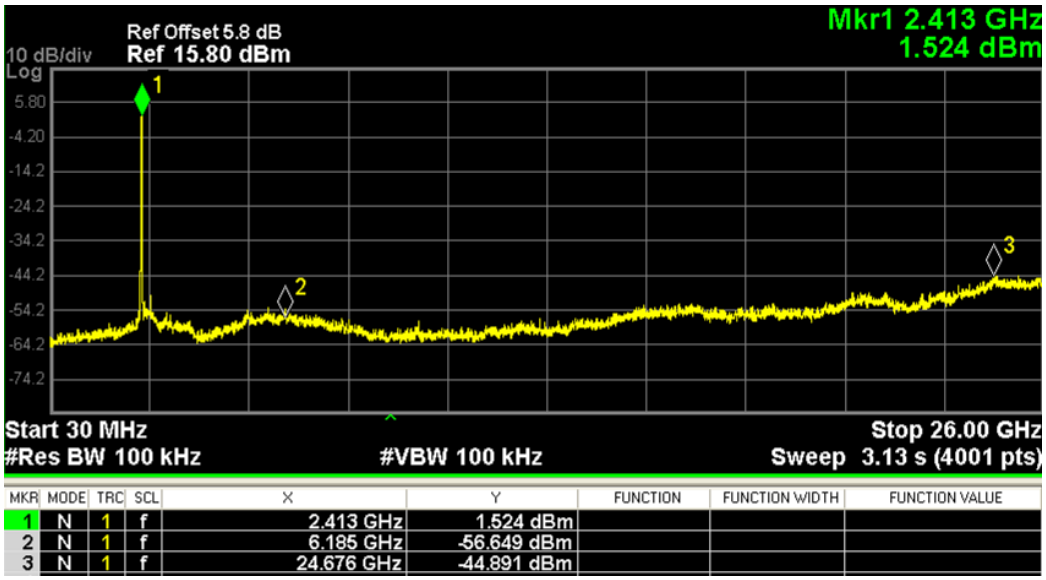


Data Rate: 11Mbps **Channel Low**



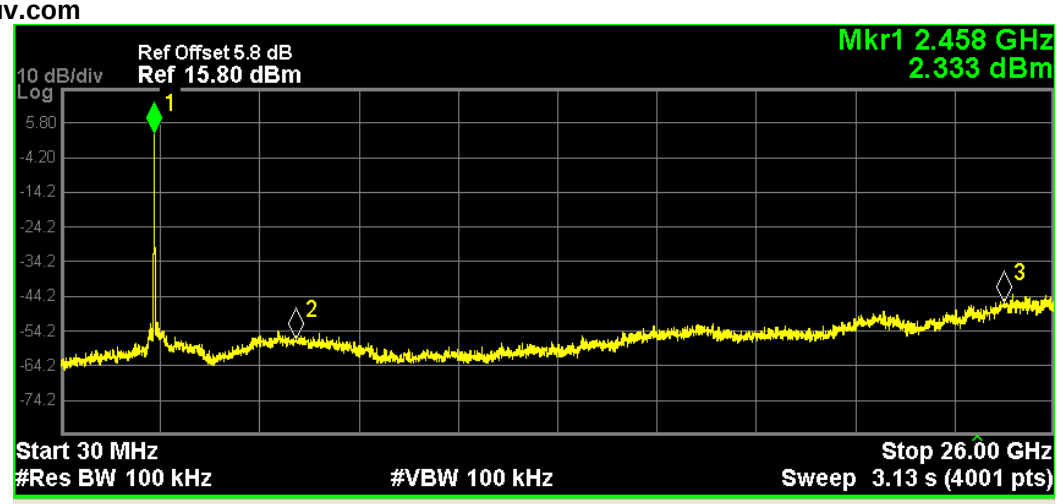
MKR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1	N	1	f	2.465 GHz	8.048 dBm			
2	N	1	f	6.185 GHz	-55.617 dBm			
3	N	1	f	24.676 GHz	-44.518 dBm			

Data Rate: 11Mbps **Channel High**



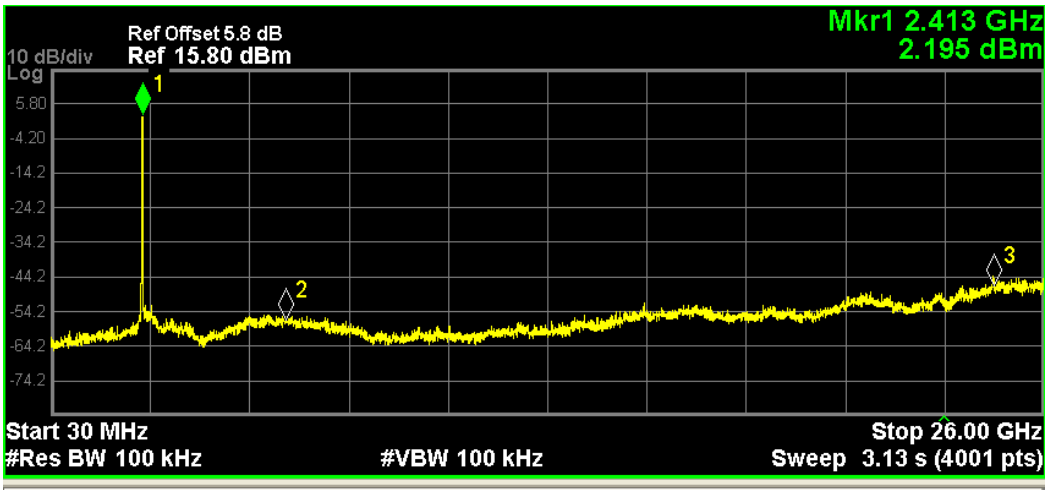
MKR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1	N	1	f	2.413 GHz	1.524 dBm			
2	N	1	f	6.185 GHz	-56.649 dBm			
3	N	1	f	24.676 GHz	-44.891 dBm			

Data Rate: 6Mbps **Channel Low**



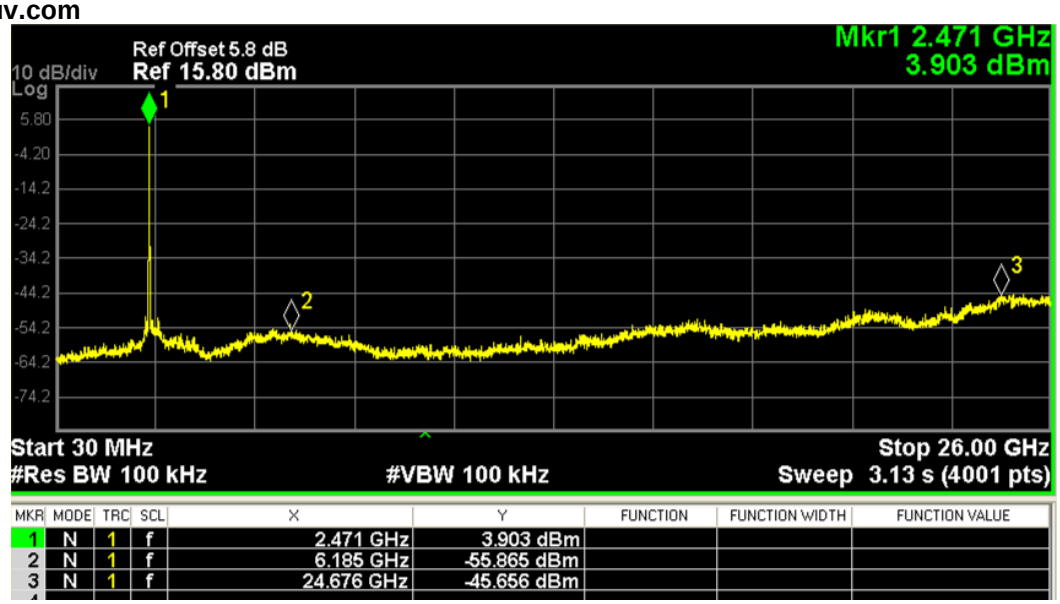
MKR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1	N	1	f	2.458 GHz	2.333 dBm			
2	N	1	f	6.185 GHz	-57.117 dBm			
3	N	1	f	24.676 GHz	-46.583 dBm			

Data Rate: 6Mbps **Channel High**



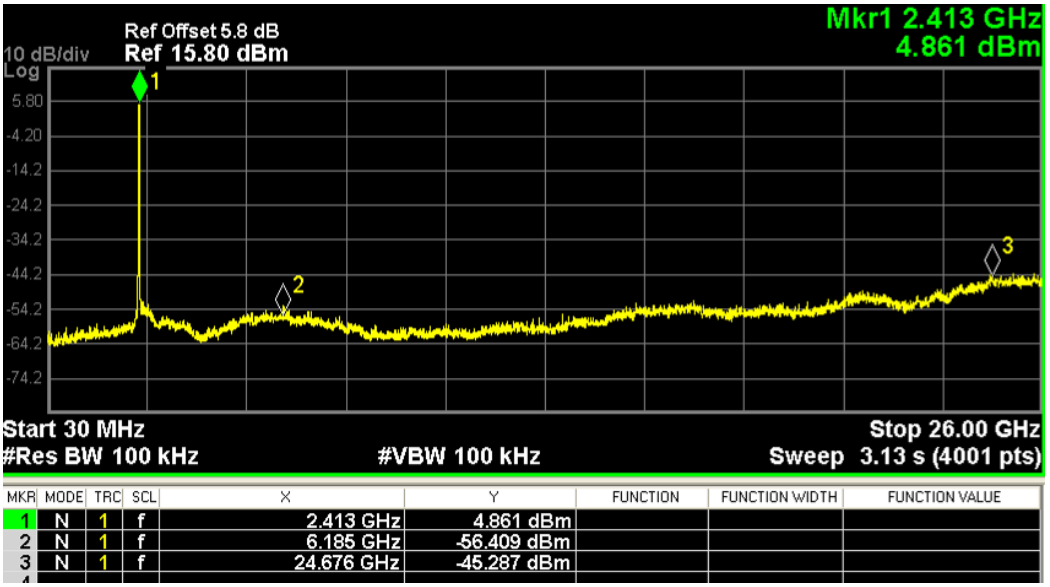
MKR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1	N	1	f	2.413 GHz	2.195 dBm			
2	N	1	f	6.185 GHz	-57.096 dBm			
3	N	1	f	24.676 GHz	-47.133 dBm			

Data Rate: 24Mbps **Channel Low**



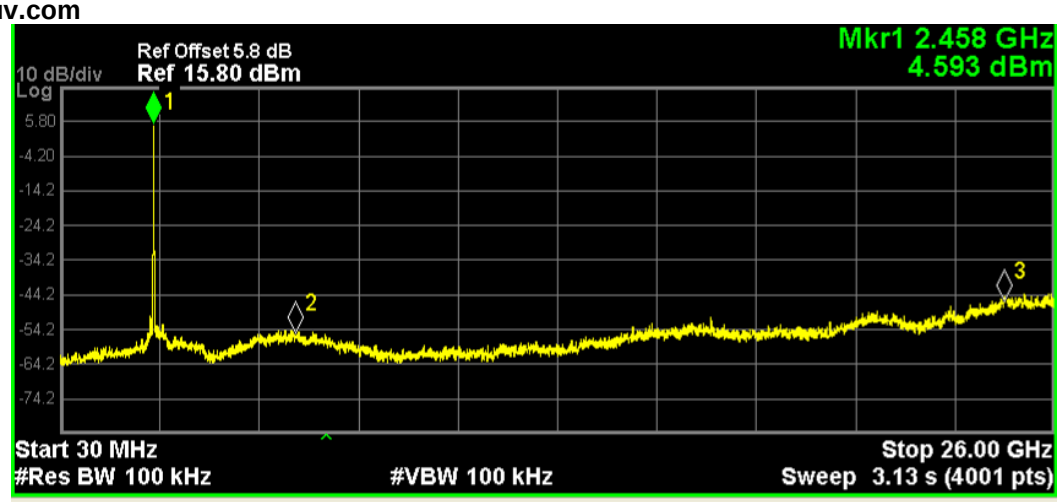
MKR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1	N	1	f	2.471 GHz	3.903 dBm			
2	N	1	f	6.185 GHz	-55.865 dBm			
3	N	1	f	24.676 GHz	-45.656 dBm			

Data Rate: 24Mbps **Channel High**



MKR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1	N	1	f	2.413 GHz	4.861 dBm			
2	N	1	f	6.185 GHz	-56.409 dBm			
3	N	1	f	24.676 GHz	-45.287 dBm			

Data Rate: 54Mbps **Channel Low**



MKR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1	N	1	f	2.458 GHz	4.593 dBm			
2	N	1	f	6.185 GHz	-55.865 dBm			
3	N	1	f	24.676 GHz	-46.543 dBm			

Data Rate: 54Mbps **Channel High**

Spurious Radiated Emissions and

Restricted Bands of Operation **Section 15.209 and 15.205**

Result **Pass**

Test Specification	FCC Part 15 Section 15.209 &15.205
Test Method	ANSI C63.4-2003
Measurement Location	Semi Anechoic Chamber
Measuring Distance	3m
Detection	QP for frequency below 1GHz, Average for frequency above 1GHz
Requirement	As per the limits mentioned in the bellow table

Limit for Radiated Emission of Section 15.209:

Frequency (MHz)	Field strength (μV/m)	Field strength (dBμV/m)	Distance of Measurement (m)
0.009 – 0.490	2400/F(kHz)	48.50 – 13.80	300*
0.490 – 1.705	24000/F(kHz)	33.80 – 23.00	30*
1.705 -30	30	29.54	30*
30-88	100	40.0	3
88-216	150	43.5	3
216-960	200	46.0	3
Above 960	500	54.0	3

Remark: * The limit shows in the table above of frequency range 0.009 – 0.490, 0.490 – 1.705 MHz and 1.705-30MHz is at 300 meter, 30 meter and 30 meter range respectively, which corresponds to 88.50 – 53.80, 53.80 – 43.00 and 49.5dBμV/m at 3m range by extrapolation calculation and the measurement of loop antenna.

The emission limits shown in the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9–90 kHz, 110–490 kHz and above 1000 MHz Radiated emission limits in these three bands are based on measurements employing an average detector.

Test results:

For frequency Range 9kHz - 1 GHz

Polarization	Frequency (MHz)	Emission (dBuV/m)	Limit (dBuV/m)	Margin (dB)
V	40.52	17.4	40	-22.6
	119.07	18.5	43.5	-25
	260.44	16.5	46	-29.5
No other emissions found				

For frequency above 1GHz

Data Rate (Mbps)	Channel	Polarization	Detector	Frequency (MHz)	Emission (dBuV/m)	Limit (dBuV/m)	Margin (dB)
1	Low	V	Pk	2390	55.05	74.00	-18.95
			Av	2390	42.89	54.00	-11.11
			Pk	2412	104.90	*	-
			Av	2412	102.00	*	-
			No Harmonics found				
		H	Pk	2390	52.79	74.00	-21.21
			Av	2390	39.96	54.00	-14.04
			Pk	2412	86.50	*	-
			Av	2412	83.70	*	-
			No Harmonics found				
	High	V	Pk	2462	106.50	*	-
			Av	2462	104.00	*	-
			Pk	2483.5	56.74	74.00	-17.26
			Av	2483.5	44.37	54.00	-9.63
			No Harmonics found				
		H	Pk	2462	89.50	*	-
			Av	2462	86.00	*	-
			Pk	2483.5	52.91	74.00	-21.09
			Av	2483.5	40.61	54.00	-13.39
			No Harmonics found				

Data Rate (Mbps)	Channel	Polarization	Detector	Frequency (MHz)	Emission (dBuV/m)	Limit (dBuV/m)	Margin (dB)
11	Low	V	Pk	2390	56.04	74.00	-17.96
			Av	2390	44.86	54.00	-9.14
			Pk	2412	110.10	*	-
			Av	2412	102.4	*	-
			No Harmonics found				
		H	Pk	2390	52.48	74.00	-21.52
			Av	2390	39.97	54.00	-14.03
			Pk	2412	92.50	*	-
			Av	2412	84.8	*	-
			No Harmonics found				
	High	V	Pk	2462	110.90	*	-
			Av	2462	103.10	*	-
			Pk	2483.5	57.48	74.00	-16.52
			Av	2483.5	46.13	54.00	-7.87
			No Harmonics found				
		H	Pk	2462	93.50	*	-
			Av	2462	85.00	*	-
			Pk	2483.5	53.60	74.00	-20.4
			Av	2483.5	40.68	54.00	-13.32
			No Harmonics found				

Data Rate (Mbps)	Channel	Polarization	Detector	Frequency (MHz)	Emission (dBuV/m)	Limit (dBuV/m)	Margin (dB)
6	Low	V	Pk	2390	68.58	74.00	-5.42
			Av	2390	48.99	54.00	-5.01
			Pk	2412	108.50	*	-
			Av	2412	98.50	*	-
			No Harmonics found				
		H	Pk	2390	53.80	74.00	-20.2
			Av	2390	40.50	54.00	-13.5
			Pk	2412	90.20	*	-
			Av	2412	81.00	*	-
			No Harmonics found				
	High	V	Pk	2462	109.70	*	-
			Av	2462	100.10	*	-
			Pk	2483.5	69.78	74.00	-4.22
			Av	2483.5	51.22	54.00	-2.78
			No Harmonics found				
		H	Pk	2462	91.10	*	-
			Av	2462	82.00	*	-
			Pk	2483.5	53.90	74.00	-20.1
			Av	2483.5	41.24	54.00	-12.76
			No Harmonics found				

Data Rate (Mbps)	Channel	Polarization	Detector	Frequency (MHz)	Emission (dBuV/m)	Limit (dBuV/m)	Margin (dB)
24	Low	V	Pk	2390	68.02	74.00	-5.98
			Av	2390	44.48	54.00	-9.52
			Pk	2412	109.5	*	-
			Av	2412	98.10	*	-
			No Harmonics found				
		H	Pk	2390	53.86	74.00	-20.14
			Av	2390	40.30	54.00	-13.7
			Pk	2412	90.10	*	-
			Av	2412	80.00	*	-
			No Harmonics found				
	High	V	Pk	2462	110.00	*	-
			Av	2462	99.30	*	-
			Pk	2483.5	69.86	74.00	-4.14
			Av	2483.5	51.12	54.00	-2.88
			No Harmonics found				
		H	Pk	2462	95.50	*	-
			Av	2462	85.00	*	-
			Pk	2483.5	56.47	74.00	-17.53
			Av	2483.5	41.14	54.00	-12.86
			No Harmonics found				

Data Rate (Mbps)	Channel	Polarization	Detector	Frequency (MHz)	Emission (dBuV/m)	Limit (dBuV/m)	Margin (dB)
54	Low	V	Pk	2390	69.82	74.00	-4.18
			Av	2390	50.11	54.00	-3.89
			Pk	2412	109.10	*	-
			Av	2412	98.00	*	-
			No Harmonics found				
		H	Pk	2390	53.16	74.00	-20.84
			Av	2390	39.97	54.00	-14.03
			Pk	2412	90.50	*	-
			Av	2412	80.00	*	-
			No Harmonics found				
	High	V	Pk	2462	110.10	*	-
			Av	2462	99.20	*	-
			Pk	2483.5	70.41	74.00	-3.59
			Av	2483.5	51.24	54.00	-2.76
			No Harmonics found				
		H	Pk	2462	94.10	*	-
			Av	2462	83.30	*	-
			Pk	2483.5	55.84	74.00	-18.16
			Av	2483.5	41.29	54.00	-12.71
			No Harmonics found				