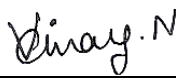



Produkte
Products

Prüfbericht - Nr.:		01200173 001		Seite 1 von 99	
<i>Test Report No.:</i>				<i>Page 1 of 99</i>	
Auftraggeber:		Redpine Signals Inc			
<i>Client:</i>		2107 N.First Street, Suite 680, San Jose, CA 95131-2019 United States			
Gegenstand der Prüfung:		WiSeConnect			
<i>Test item:</i>					
Bezeichnung:		RS-WC-201		Serien-Nr.:	
<i>Identification:</i>				Engineering Sample	
Wareneingangs-Nr.:		1403023191		Eingangsdatum:	
<i>Receipt No.:</i>				12.12.2012	
Prüfart:		Refer Page 4 of 99 for test facilities			
<i>Testing location:</i>					
Prüfgrundlage:		FCC Part 15: Subpart C Section 15.247			
<i>Test specification:</i>		ANSI C63.4-2003			
Prüfresultat:		Der Prüfgegenstand entspricht oben genannter Prüfgrundlage(n).			
<i>Test Result:</i>		<i>The test items passed the test specification(s).</i>			
Prüflaboratorium:		TÜV Rheinland (India) Pvt. Ltd.			
<i>Testing Laboratory:</i>		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:		
04.01.2013	Vinay N Test Engineer		22.01.2013	Raghavendra Kulkarni Manager	
Datum	Name/Stellung	Unterschrift	Datum	Name/Stellung	Unterschrift
<i>Date</i>	<i>Name/Position</i>	<i>Signature</i>	<i>Date</i>	<i>Name/Position</i>	<i>Signature</i>
Sonstiges / Other Aspects:		FCC ID : XF6-RSWC201			
Abkürzungen:		<i>P(ass) = entspricht Prüfgrundlage</i>		Abbreviations:	
<i>F(ail) = entspricht nicht Prüfgrundlage</i>		<i>N/A = nicht anwendbar</i>		<i>P(ass) = passed</i>	
<i>N/T = nicht getestet</i>				<i>F(ail) = failed</i>	
				<i>N/A = not applicable</i>	
				<i>N/T = not tested</i>	
<p>Dieser Prüfbericht bezieht sich nur auf das o.g. Prüfmuster und darf ohne Genehmigung der Prüfstelle nicht auszugsweise vervielfältigt werden. Dieser Bericht berechtigt nicht zur Verwendung eines Prüfzeichens.</p> <p><i>This test report relates to the a. m. test sample. Without permission of the test center this test report is not permitted to be duplicated in extracts. This test report does not entitle to carry any safety mark on this or similar products.</i></p>					

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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

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Maximum Power Spectral Density	Section 15.247(e).....23
6 dB Bandwidth	Section 15.247(a) (2).....37
Band-edge Compliance	Section 15.247(d).....63
Spurious Radiated Emissions and Restricted Bands of Operation	Section 15.209 and 15.20581
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Appendix 3: EUT Internal Photo	
Appendix 4: FCC Label and Label Location	
Appendix 5: Block Diagram	
Appendix 6: Specification of EUT	
Appendix 7: Schematic Diagrams	
Appendix 8: Bill of Material	
Appendix 9: User Manual	
Appendix 10: Maximum Permissible Exposure Calculation	

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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	21.06.5013
Hybrid Log Periodic antenna	ETS Lindgren	3142D	00081354	26.06.5013
Broadband Horn Antenna	Frankonia	HAX-18	HAX18-802	23.03.2013
Emission Horn Antenna	ETS Lindgren	116706	00107323	24-08-2013
Active Loop Antenna	Frankonia	LAX-10	LAX-10-800	11-04-2013
Spectrum Analyzer	Agilent Technologies	E4407B	US41192772	17.03.2013

Testing Facilities:

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

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General Product Information

Product Function and Intended Use

WiSeConnect™ modules are fully integrated 802.11 a/b/g/n modules with advanced features for M2M, industrial, medical, enterprise and IOT (Internet of Things) applications. Powered with WiFi-Direct™, it can directly communicate with smart-phones and tablet PCs without an Access Point based infrastructure. Integrated with Enterprise Security as well as TCP/IP and WLAN stacks, it can be designed quickly into any Host platform for secure and standards based Wi-Fi connectivity in a variety of environments. Requiring no external BOM, the module integrates a MAC, Baseband Processor, and RF Transceiver with power amplifier, a frequency reference and an antenna. The module comes with a comprehensive API set to make software integration quick and seamless. Based on Redpine Signals 802.11n SoC RS9110, it is designed to provide wireless connectivity to devices that have a UART or SPI interface.

Ratings and System Details

Operating Frequency Range	2400MHz – 2483.50MHz	
No. of channel	13 (Refer Table 1) Page 7 of 99	
Channel Spacing	5MHz	
Transmitted Power	802.11b	18.96 dBm
	802.11g	19.50 dBm
	802.11n	19.63 dBm
Data Rate	802.11b: 1,2, 5.5,11 Mbps 802.11a: 6, 9, 12, 18, 24, 36, 48, 54 Mbps 802.11n: 6.5, 14.4, 21.7, 28.9, 39, 57.8, 65Mbps	
Number of antenna	Two	
Antenna Gain and Antenna type	(Refer Table 2) Page 7 of 99	
Supply Voltage to Module	3.1V – 3.6V DC from Host device	
Environmental	Operational Temperature: -40°C to 85° C	

Test Conditions:

Supply Voltage: 5V DC from USB

Environmental conditions:

Temperature: +23 °C RH: 62%

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Operation Descriptions

The RS-WC-201 module is a complete IEEE802.11bgn Wi-Fi client device with an integrated MAC, baseband processor, RF transceiver and power amplifier. Based on the Redpine's Lite-FiTMRS9110 MAC/baseband processor, the module provides a complete end-to-end solution for ultra low power WLAN applications. It conforms to the draft 802.11n standard in single-stream mode for handheld devices and includes an embedded processor with a rich set of peripherals offering minimal load on a host processor, to which it can connect through UART and SPI interfaces. In a small form factor of 22 x 35 sq mm and operation on a single power supply, the RS-WC-201 is ideal for integration into mobile phones and other handheld devices. RS-WC-201 is a monolithic SiGe half-duplex direct conversion radio transceiver designed for IEEE 802.11b/g/h/i/j, draft 802.11 n/k WLAN systems or other wireless system applications operating in 2.412 - 2.484 GHz (low-band) bands. It supports data rates 802.11n: 6.5, 13, 19.5, 26, 39, 52, 58.5, 65 Mbps; 802.11g: 6, 9, 12, 18, 24, 36, 48, 54 Mbps, 802.11b: 1, 2, 5.5, 11 Mbps in OFDM mode, OFDM with BPSK, QPSK, 16-QAM, and 64-QAM. 802.11b with CCK and DSSS, It operates at the 2.4GHz b/g band in this product. The single supply 3.1 to 3.6 V DC power to whole system. 2.4G signal is amplified by power Amp and transmitted by printed Antenna via DPDT antenna switch.

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Test Set-up and Operation Mode

Principle of Configuration Selection

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

Test Operation and Test Software

Hyper terminal 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

- The channels 12 and 13 were tested with reduced power levels to achieve the compliance. The detailed GC values with respect to data rates are tabulated in page 99 of 99 of this report.

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 frequencies

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
	12	2467
	13	2472

"The channels 12 and 13 use 3 dB power reduction to achieve band edge compliance for 802.11 gn modes. The detailed GC values with respect to data rates are tabulated in page 99 of 99 of this report"

Table 1

Antennas Used

Antenna Number	Make	Model/Part #	Antenna Gain (dBi)	Type of Antenna
Antenna 1	Antenna Factor	ANT-2.45-CHP-x	0.5dBi	Chip antenna
Antenna 2	Pulse	W1043	2 dBi	External antenna

Table 2

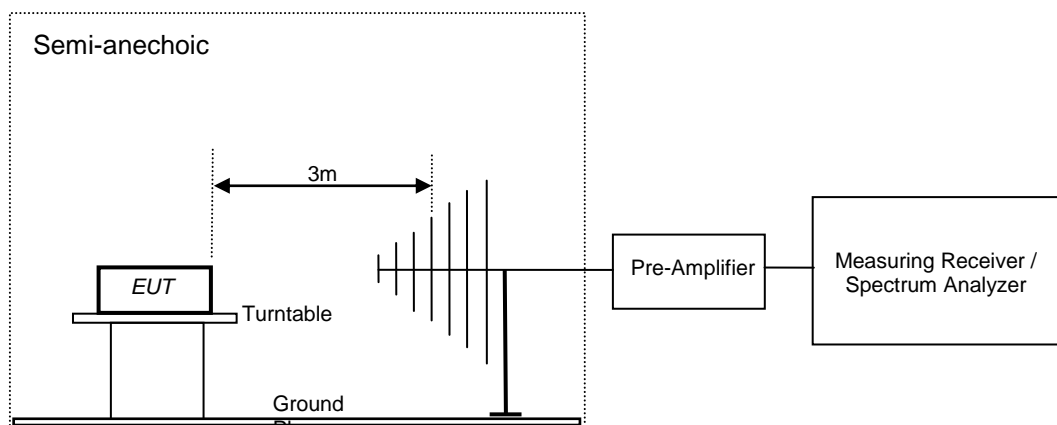
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Test Methodology

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.



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Test Results

Maximum Peak Conducted Output Power

Section 15.247(b) (3)

Result

Pass

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

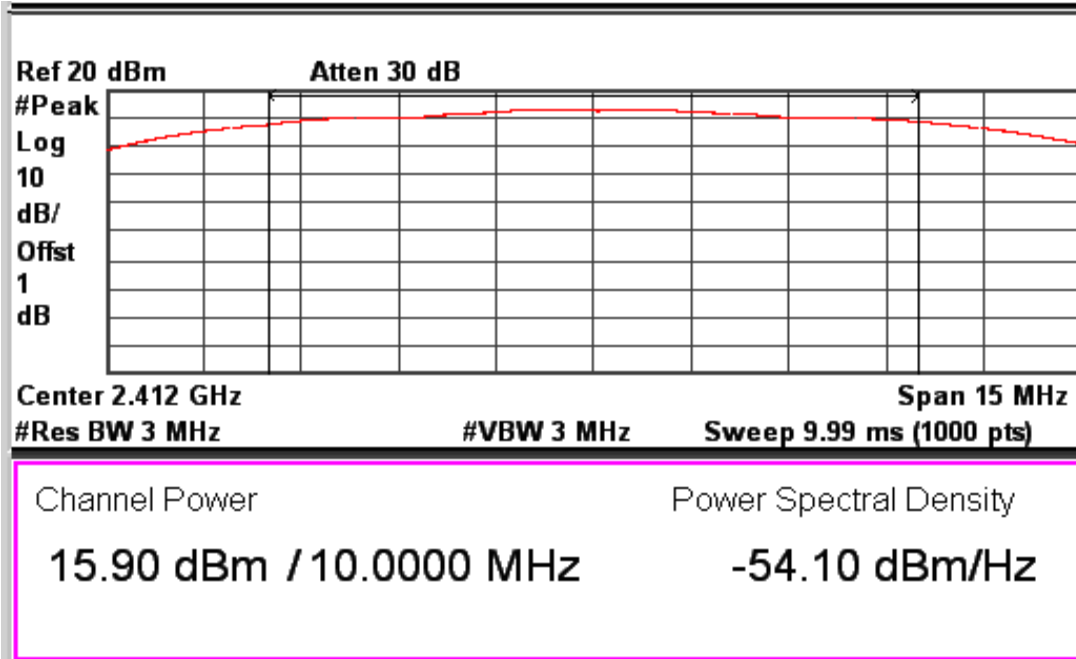
Test Method:



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

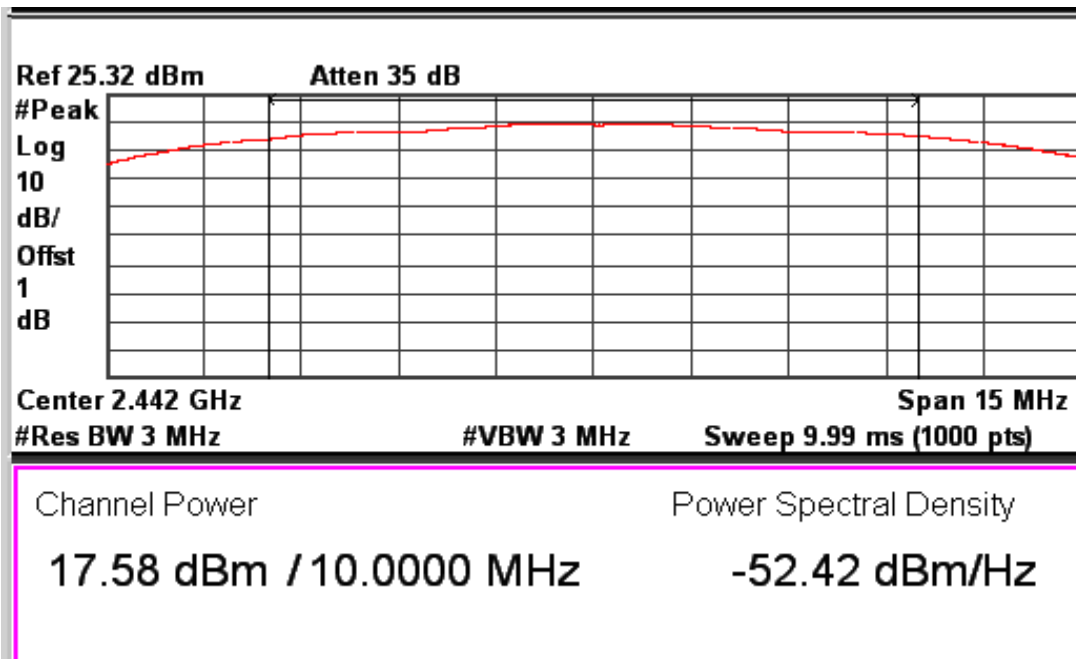
Test Result:

802.11 Protocol	Data Rate (Mbps)	Channel Frequency (MHz)	Total Power (dBm)	Limit (dBm)	Margin (dB)
b	1	2412.00	15.90	30.00	-14.10
		2442.00	17.58	30.00	-12.42
		2472.00	17.41	30.00	-12.59
	11	2412.00	18.96	30.00	-11.04
		2442.00	18.86	30.00	-11.14
		2472.00	18.76	30.00	-11.24



Data rate: 1 Mbps

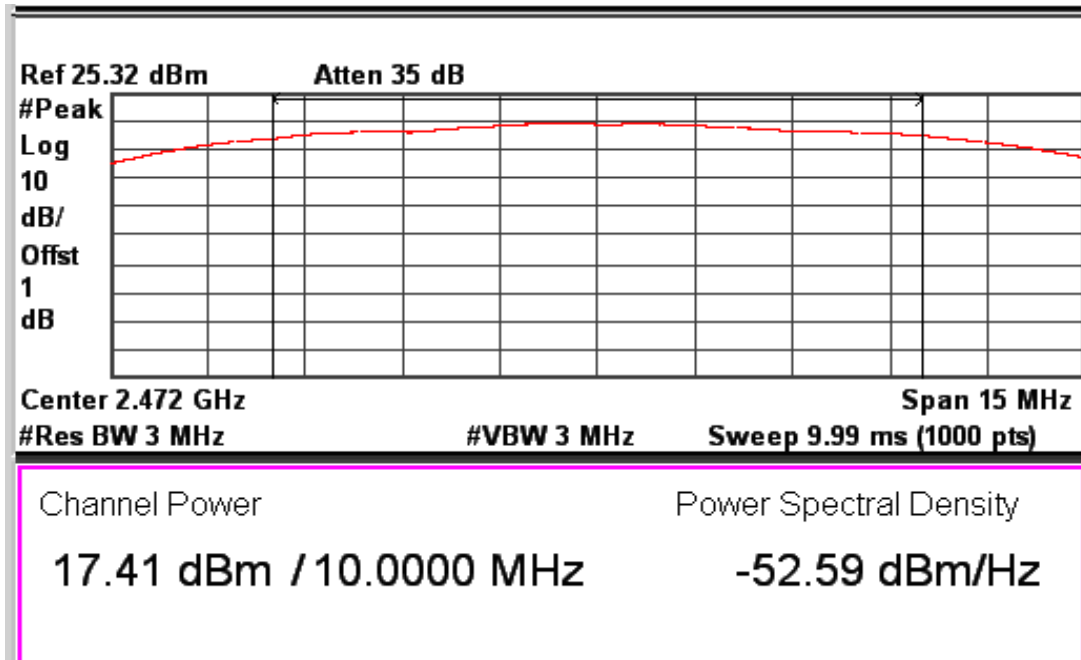
Channel Frequency: 2412 MHz



Data rate: 1 Mbps

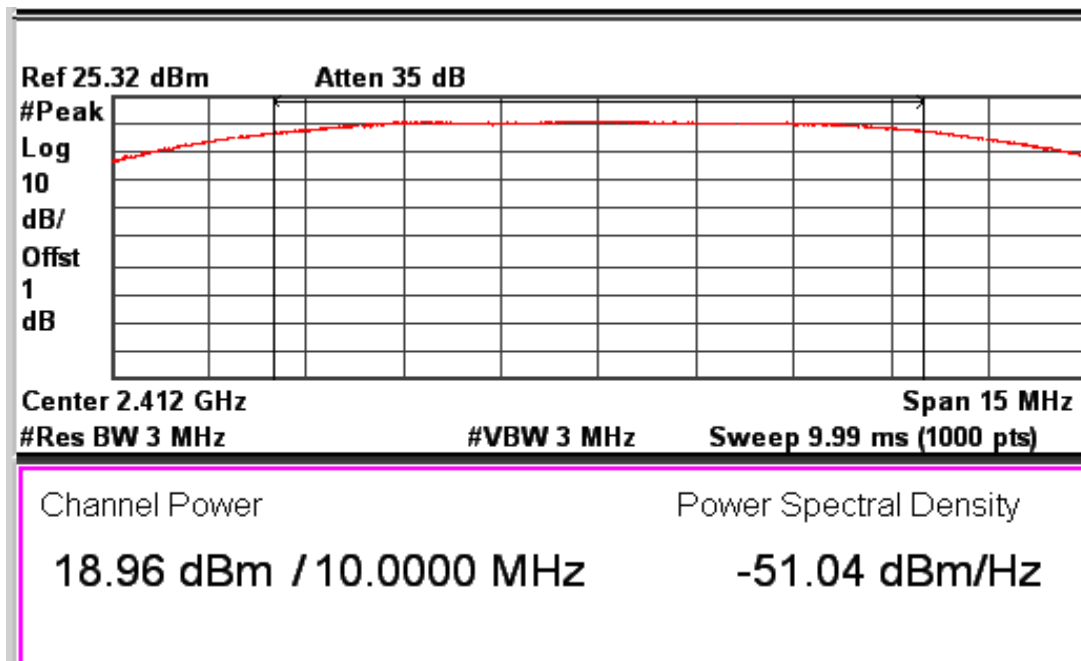
Channel Frequency: 2442 MHz

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Data rate: 1 Mbps

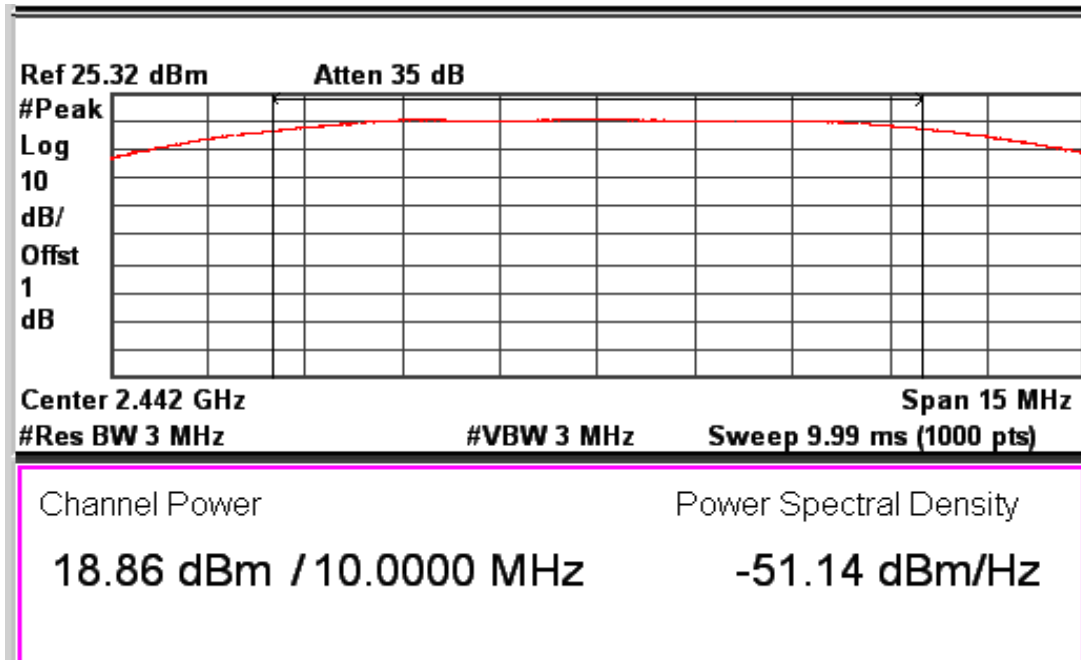
Channel Frequency: 2472 MHz



Data rate: 11 Mbps

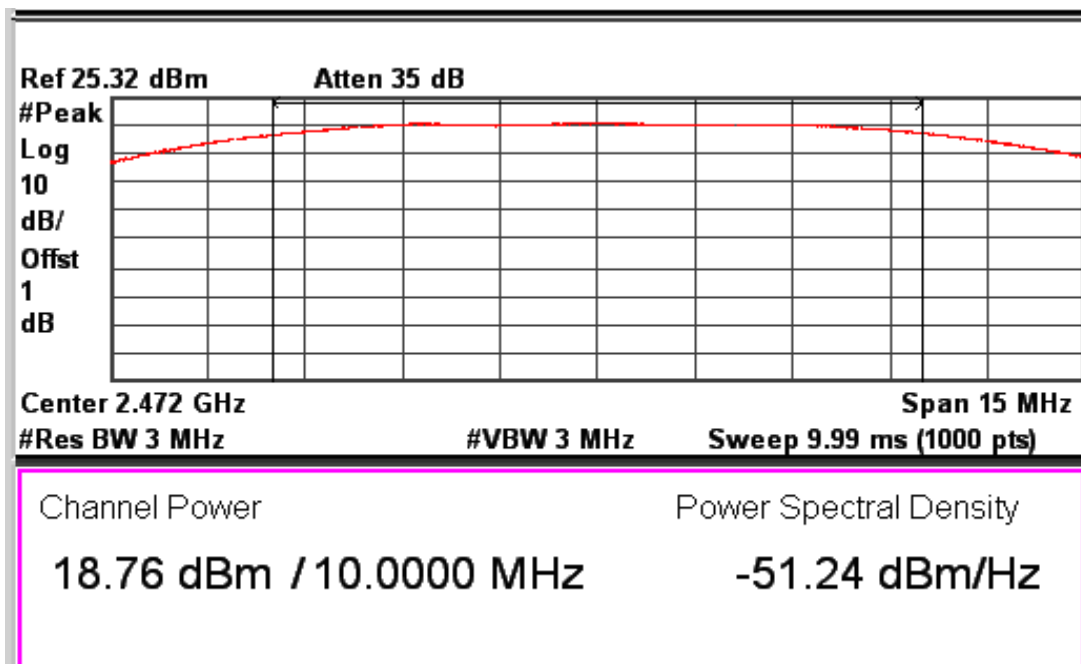
Channel Frequency: 2412 MHz

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Data rate: 11 Mbps

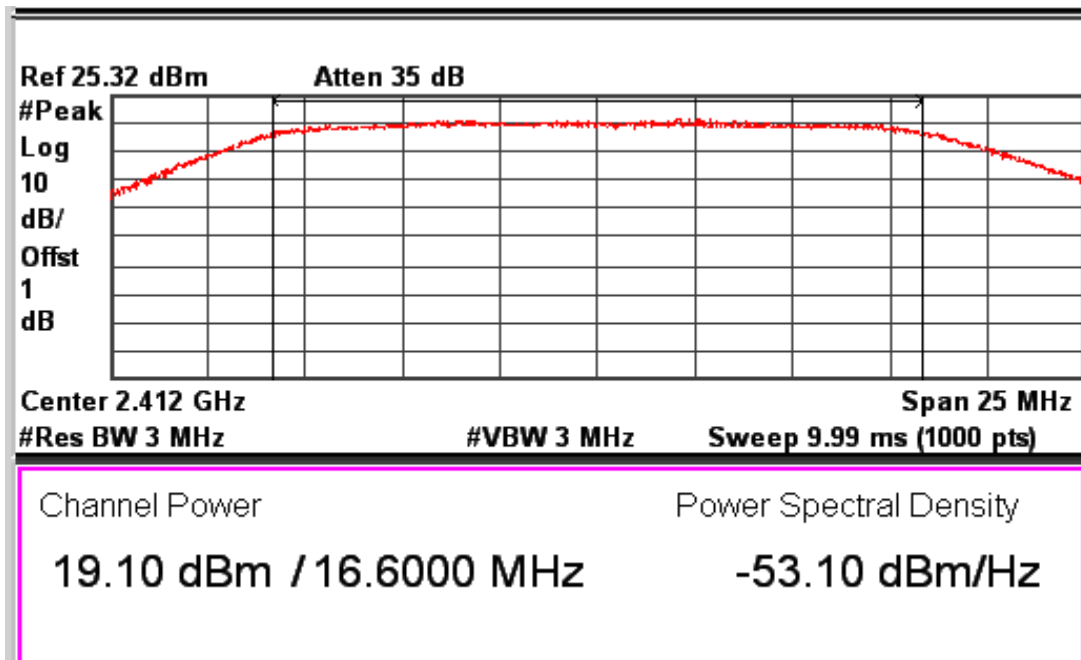
Channel Frequency: 2442 MHz



Data rate: 11 Mbps

Channel Frequency: 2472 MHz

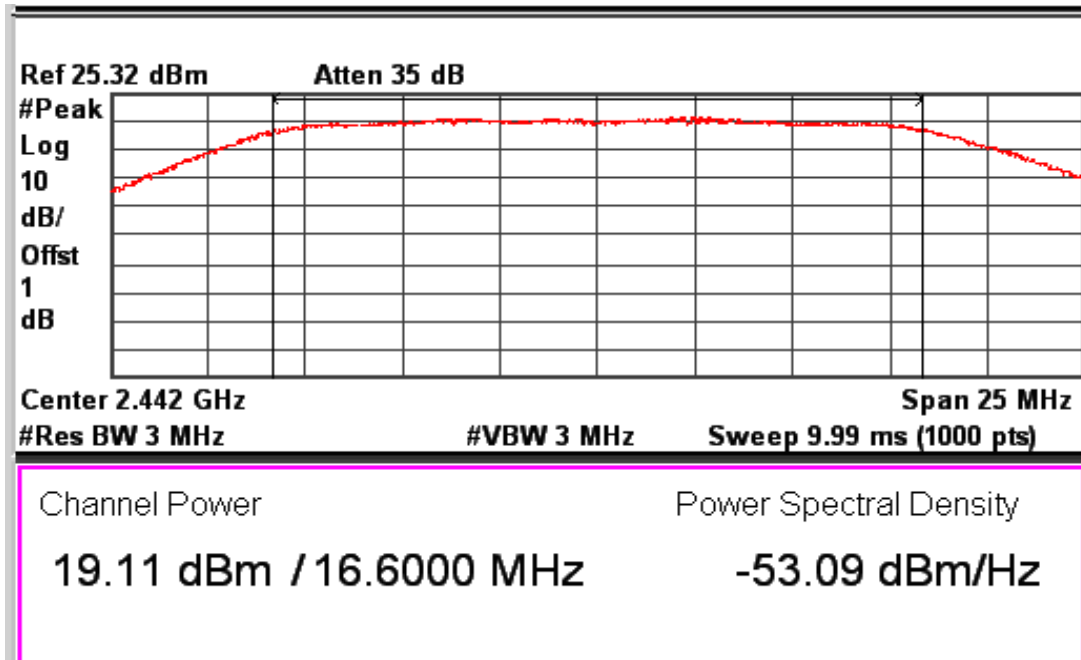
802.11 Protocol	Data Rate (Mbps)	Channel Frequency (MHz)	Total Power (dBm)	Limit (dBm)	Margin (dB)
g	6	2412.00	19.10	30.00	-10.90
		2442.00	19.11	30.00	-10.89
		2472.00	16.07	30.00	-13.93
	24	2412.00	19.48	30.00	-10.52
		2442.00	19.47	30.00	-10.53
		2472.00	16.30	30.00	-13.70
	54	2412.00	19.50	30.00	-10.50
		2442.00	18.80	30.00	-11.20
		2472.00	16.48	30.00	-13.52



Data rate: 6 Mbps

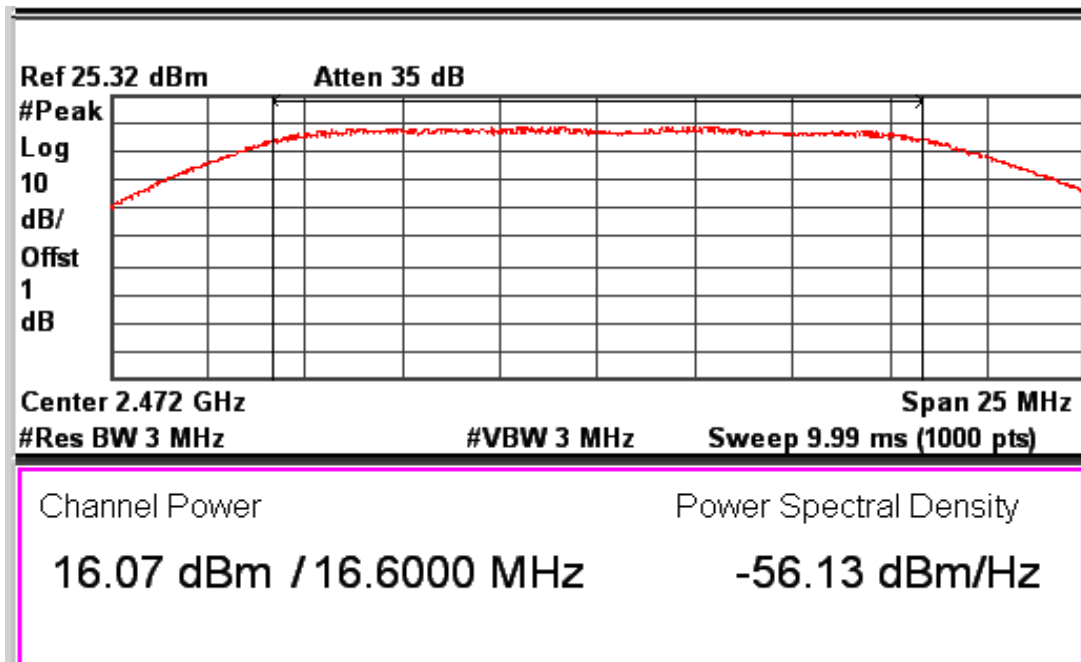
Channel Frequency: 2412 MHz

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Data rate: 6 Mbps

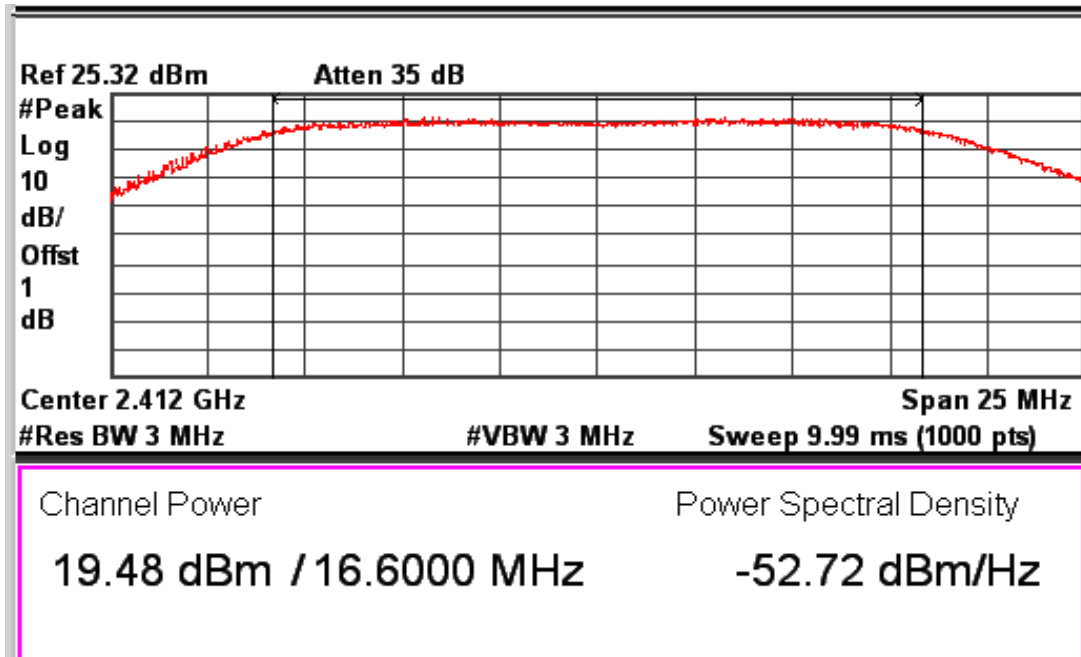
Channel Frequency: 2442 MHz



Data rate: 6 Mbps

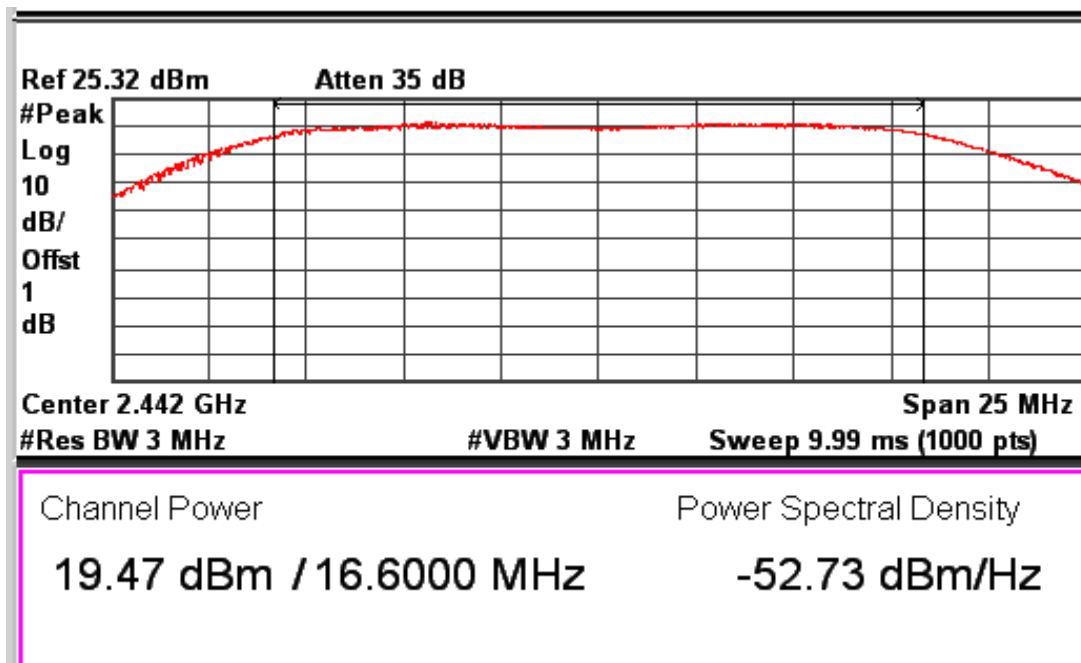
Channel Frequency: 2472 MHz

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Data rate: 24 Mbps

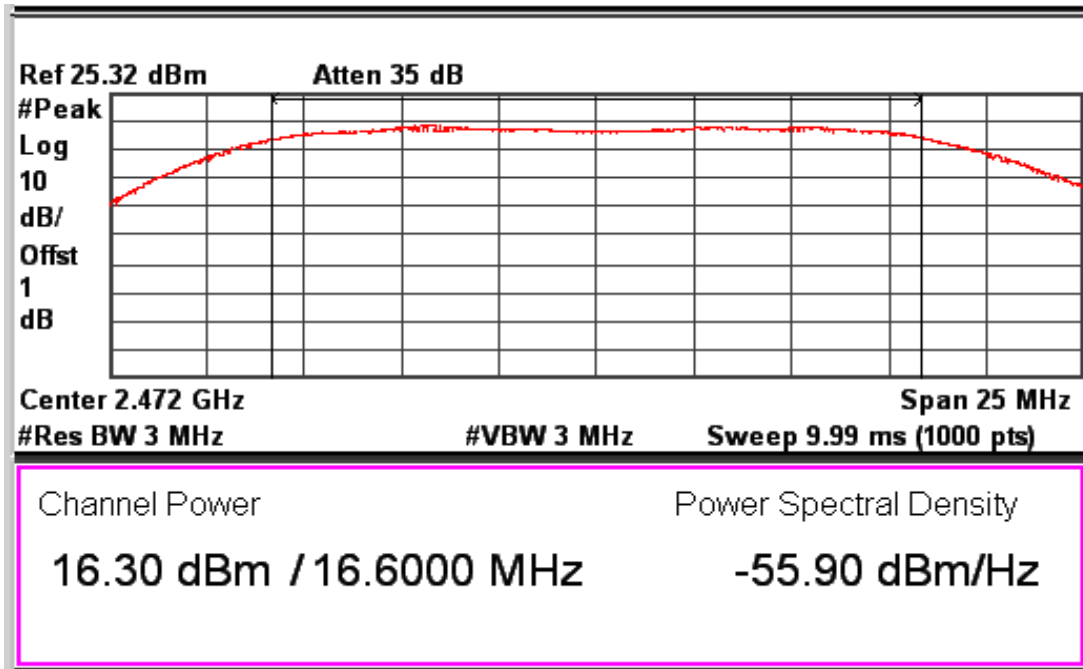
Channel Frequency: 2412 MHz



Data rate: 24 Mbps

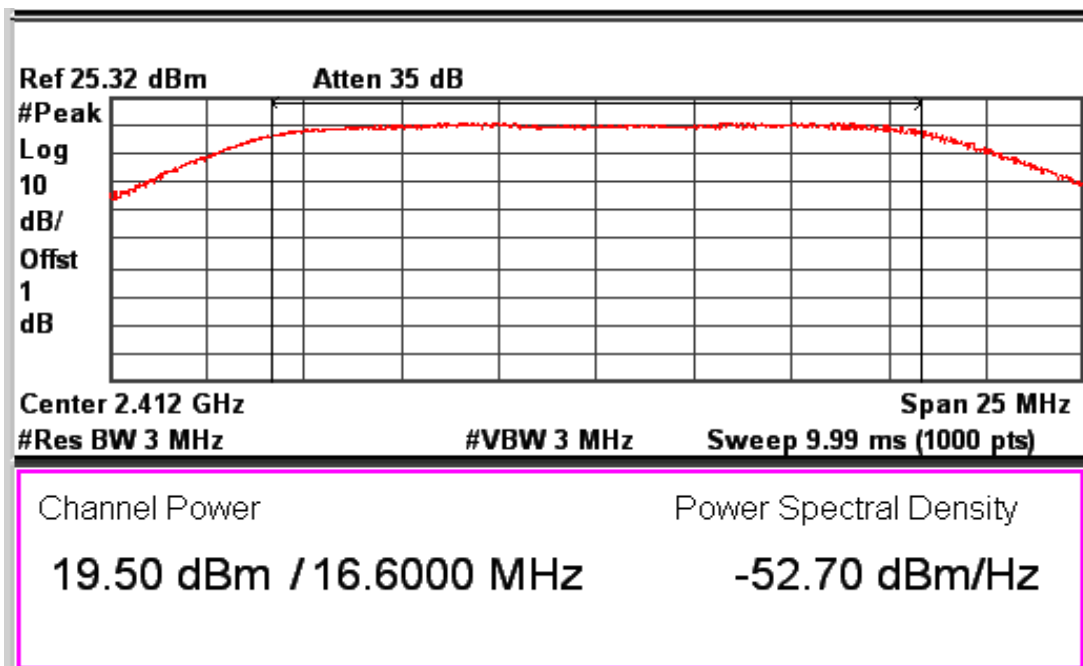
Channel Frequency: 2442 MHz

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Data rate: 24 Mbps

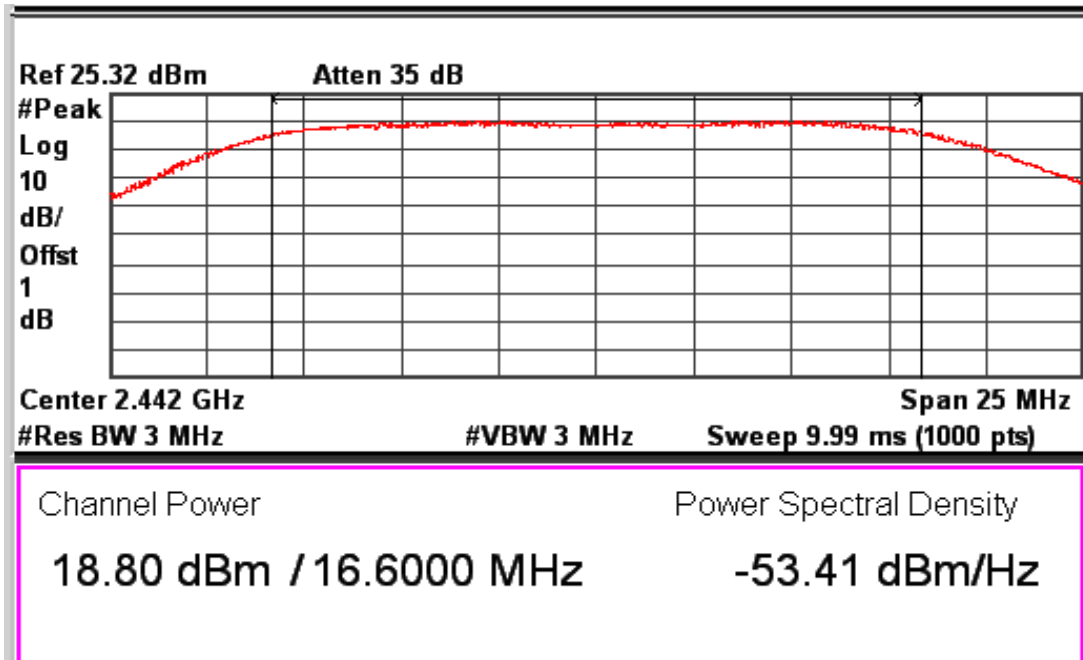
Channel Frequency: 2472 MHz



Data rate: 54 Mbps

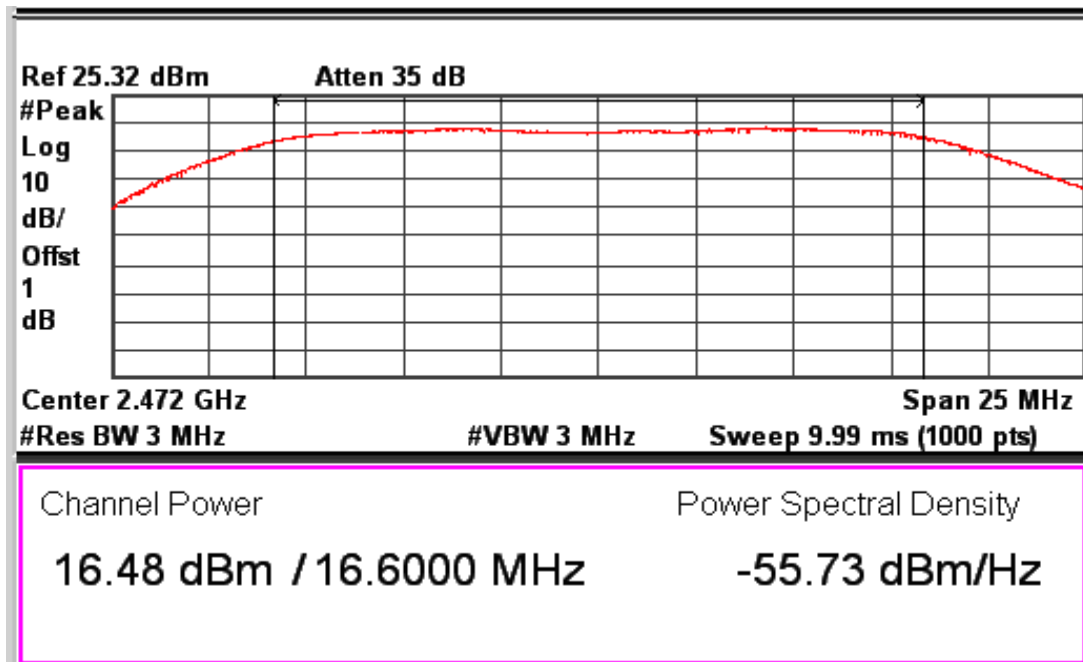
Channel Frequency: 2412 MHz

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Data rate: 54 Mbps

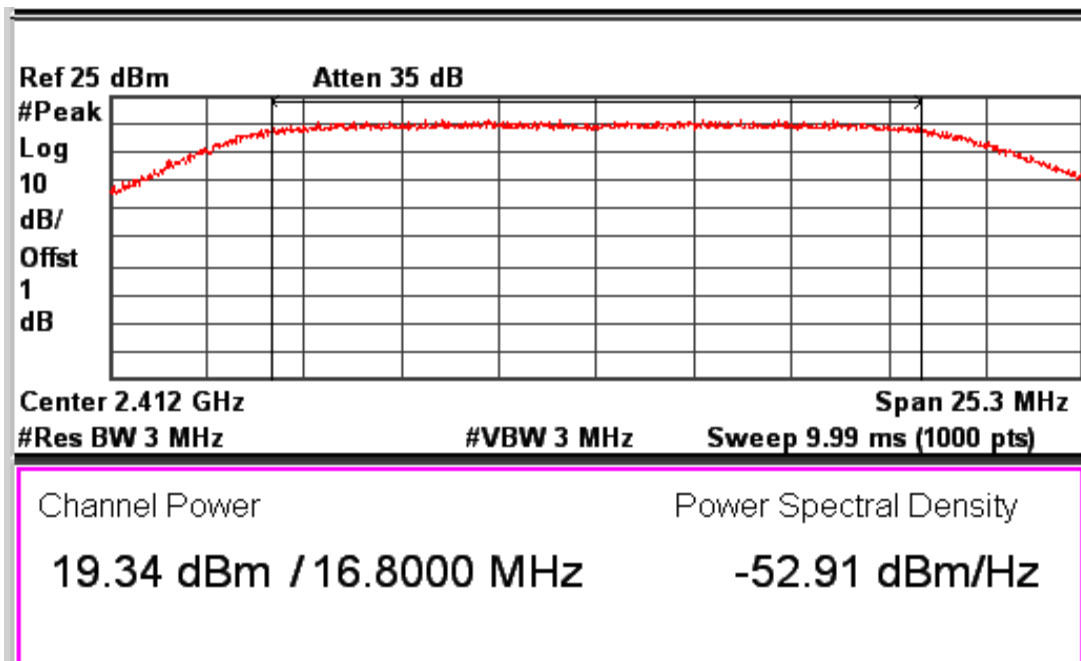
Channel Frequency: 2442 MHz



Data rate: 54 Mbps

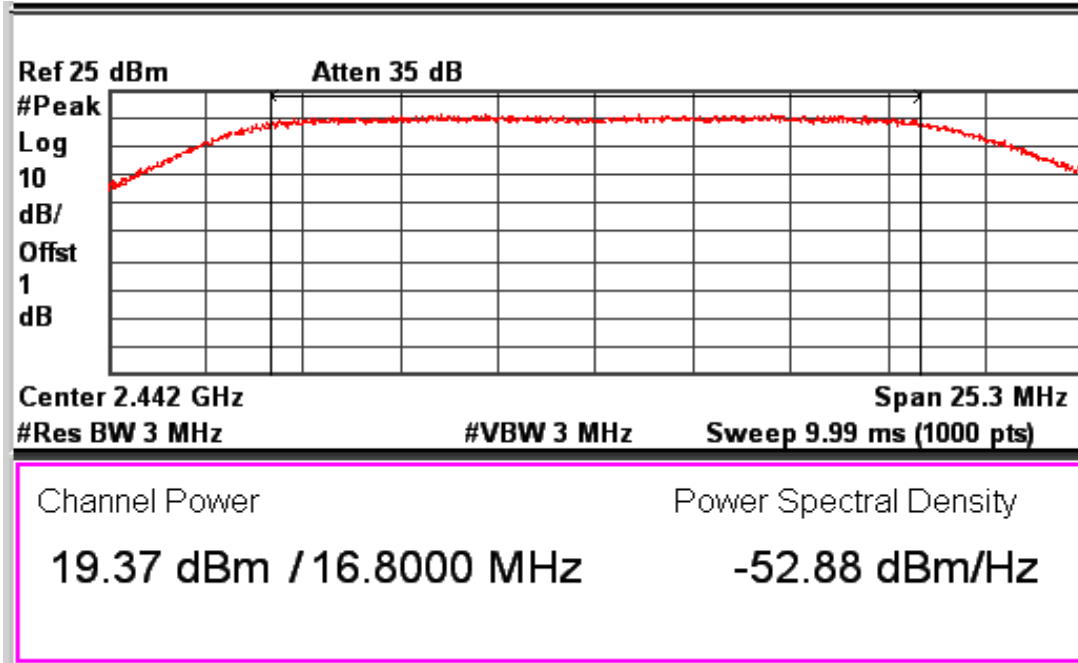
Channel Frequency: 2472 MHz

802.11 Protocol	Data Rate (Mbps)	Channel Frequency (MHz)	Total Power (dBm)	Limit (dBm)	Margin (dB)
n	6.5	2412.00	19.34	30.00	-10.66
		2442.00	19.37	30.00	-10.63
		2472.00	16.32	30.00	-13.68
	39	2412.00	19.50	30.00	-10.50
		2442.00	19.54	30.00	-10.46
		2472.00	16.53	30.00	-13.47
	65	2412.00	19.63	30.00	-10.37
		2442.00	18.87	30.00	-11.13
		2472.00	16.59	30.00	-13.41



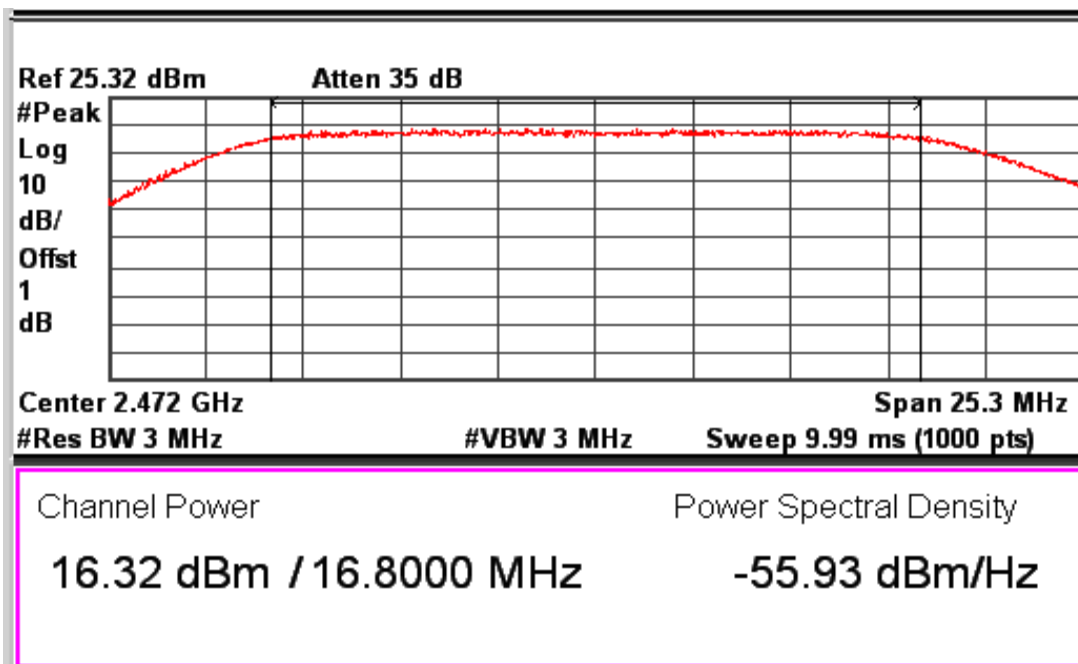
Data Rate: 6.5 Mbps

Channel Frequency: 2412 MHz



Data Rate: 6.5 Mbps

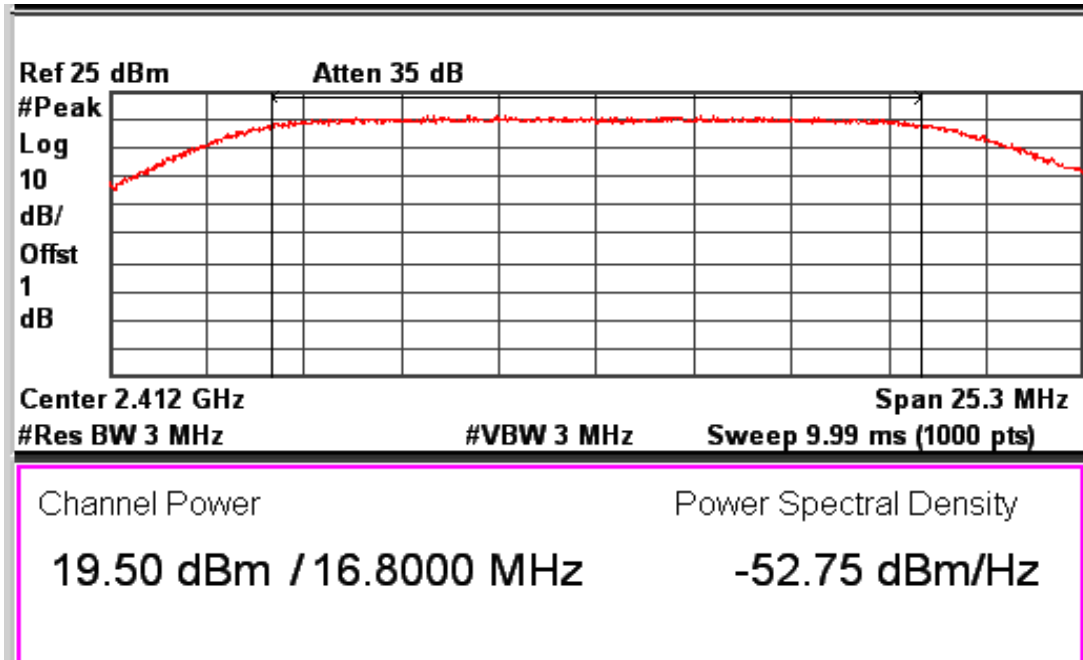
Channel Frequency: 2442 MHz



Data Rate: 6.5 Mbps

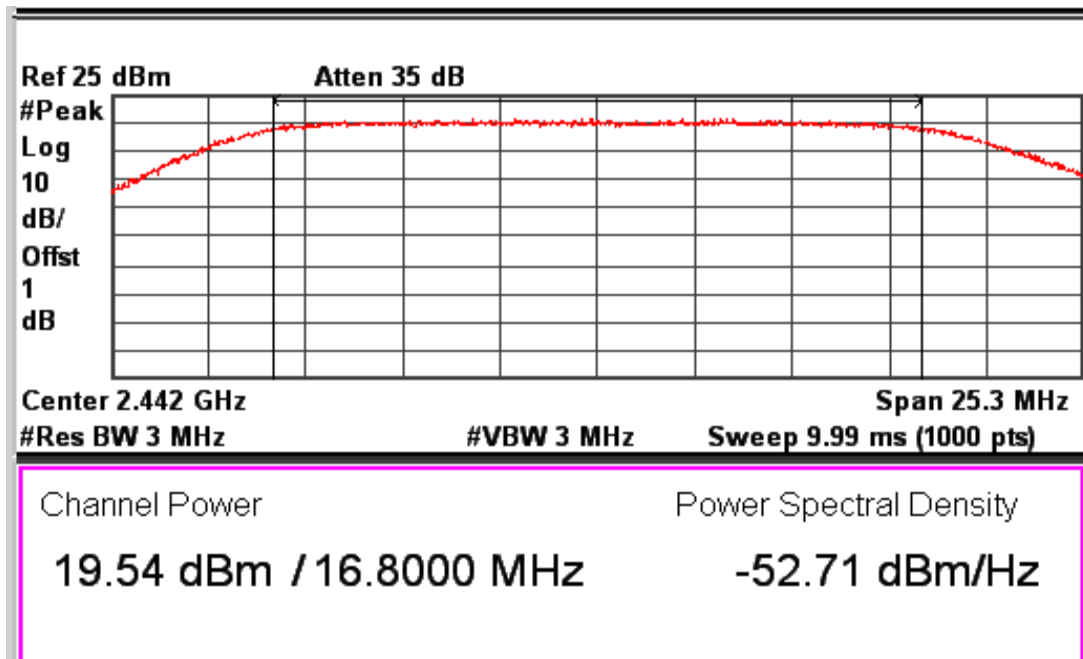
Channel Frequency: 2472 MHz

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Data Rate: 39 Mbps

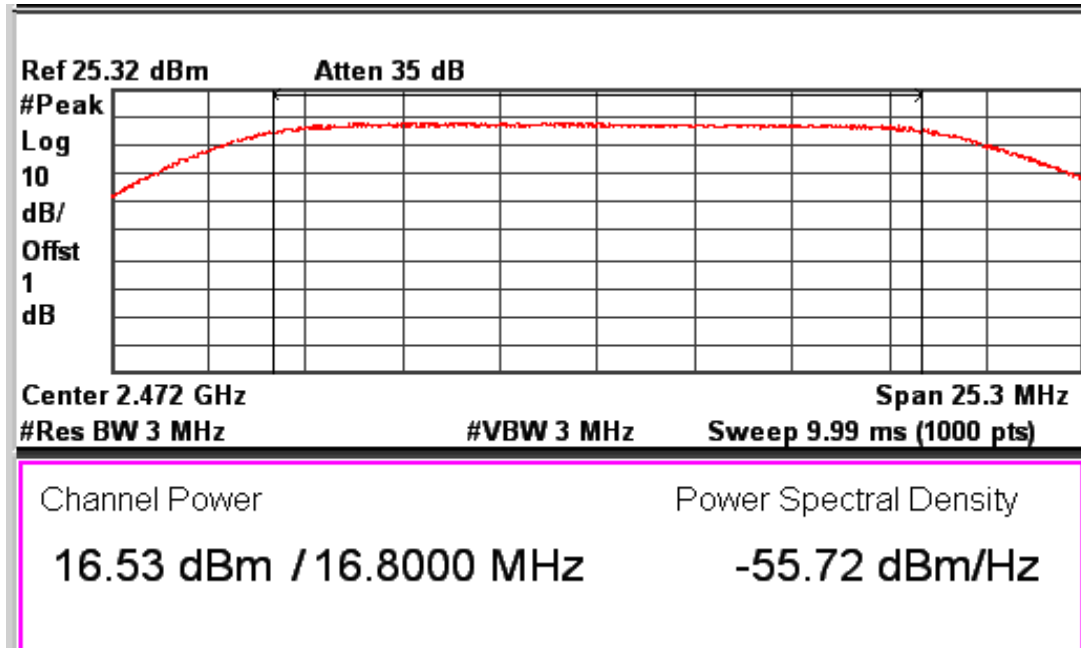
Channel Frequency: 2412 MHz



Data Rate: 39 Mbps

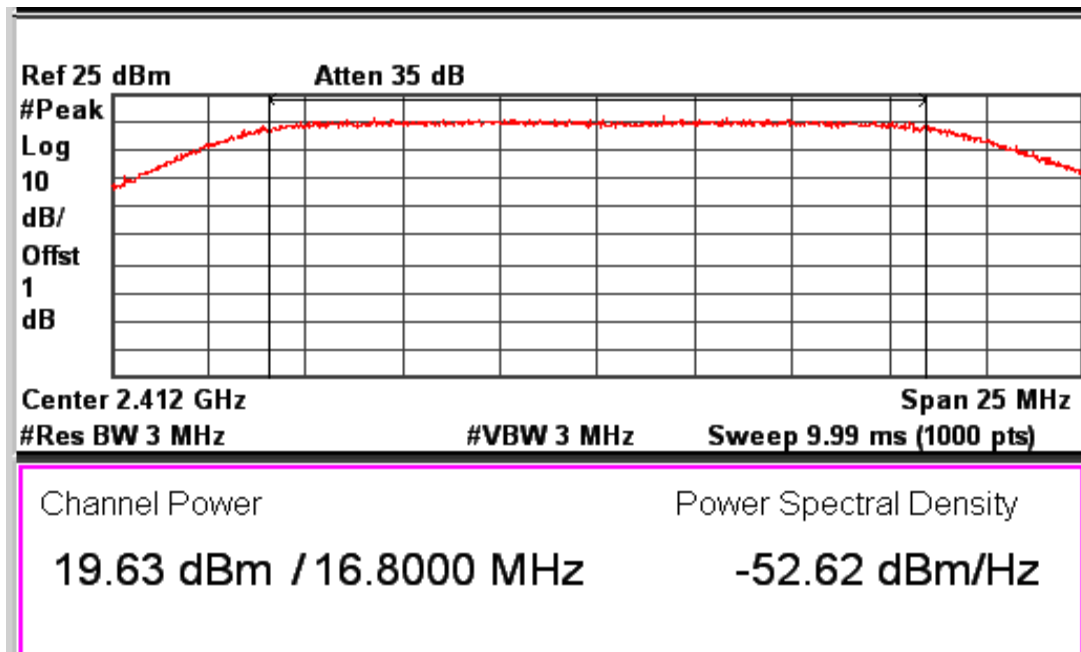
Channel Frequency: 2442 MHz

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Data Rate: 39 Mbps

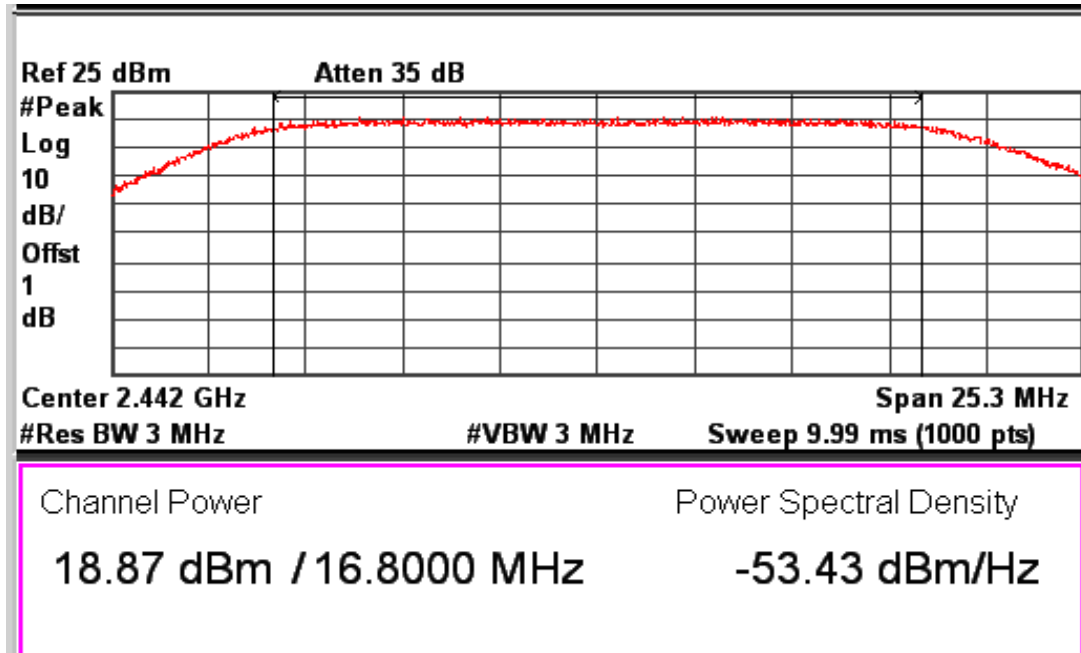
Channel Frequency: 2472 MHz



Data Rate: 65 Mbps

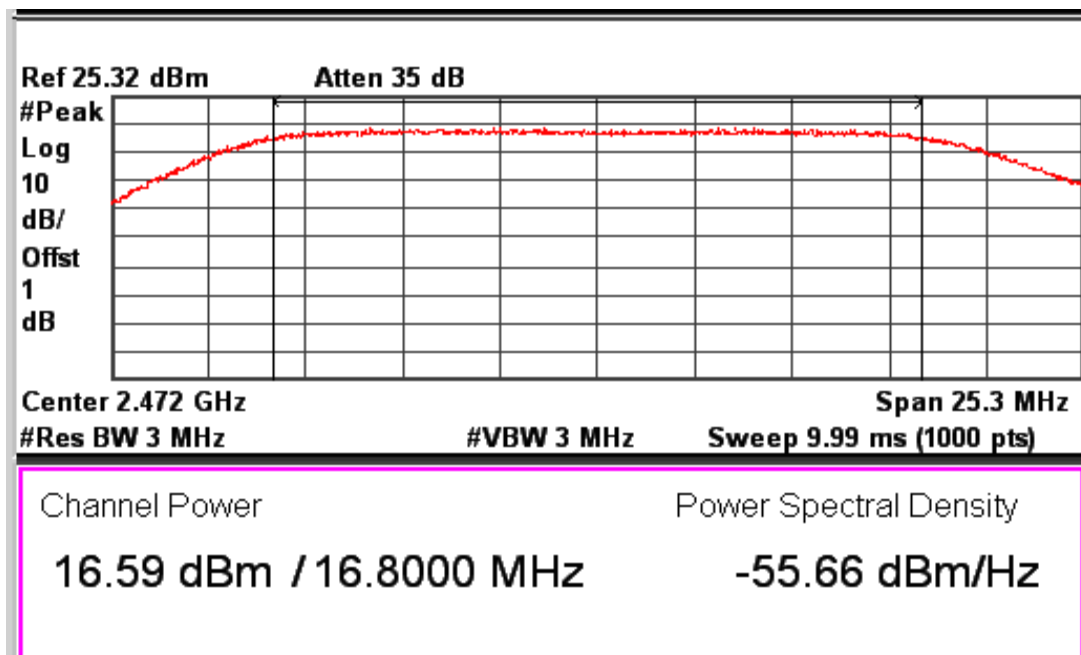
Channel Frequency: 2412 MHz

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Data Rate: 65 Mbps

Channel Frequency: 2442 MHz



Data Rate: 65 Mbps

Channel Frequency: 2472 MHz

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Maximum Power Spectral Density

Section 15.247(e)

Result

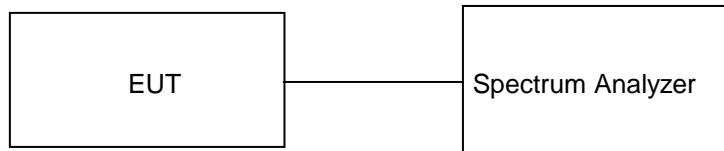
Pass

Test Specification FCC Part 15 Section 15.247 (e)
 Detector Function Peak
 Requirement

For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm.

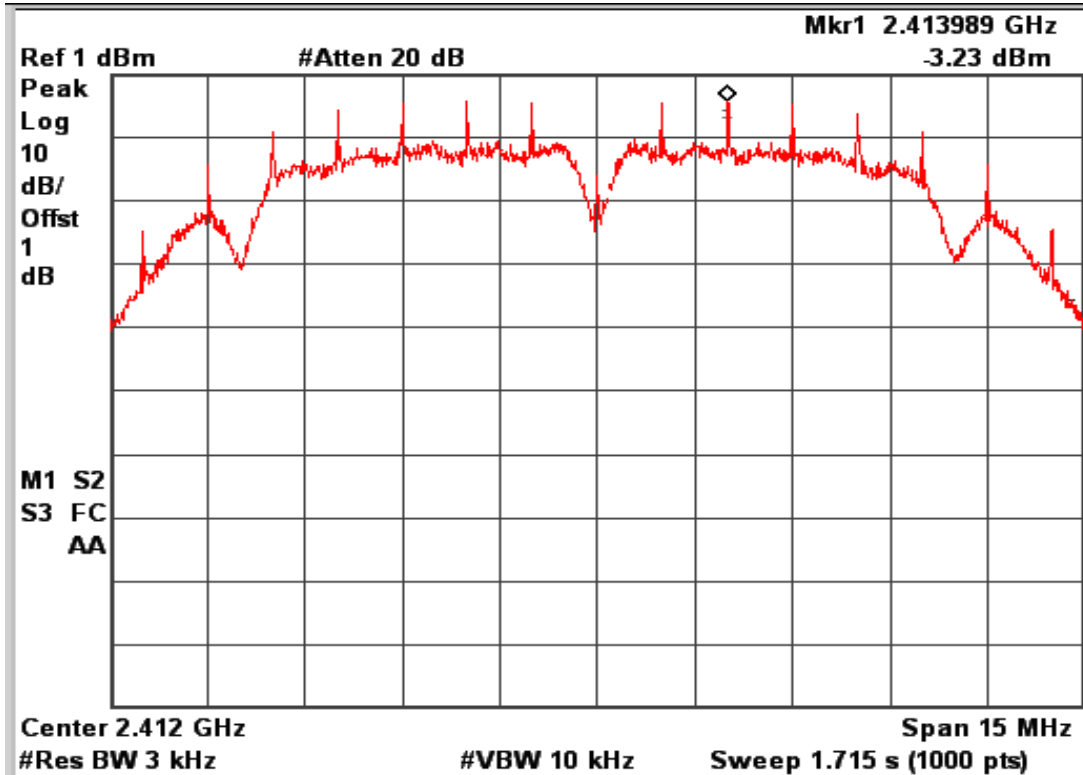
Note: For measurement of Maximum power spectral density option 1 was used

Test Method:



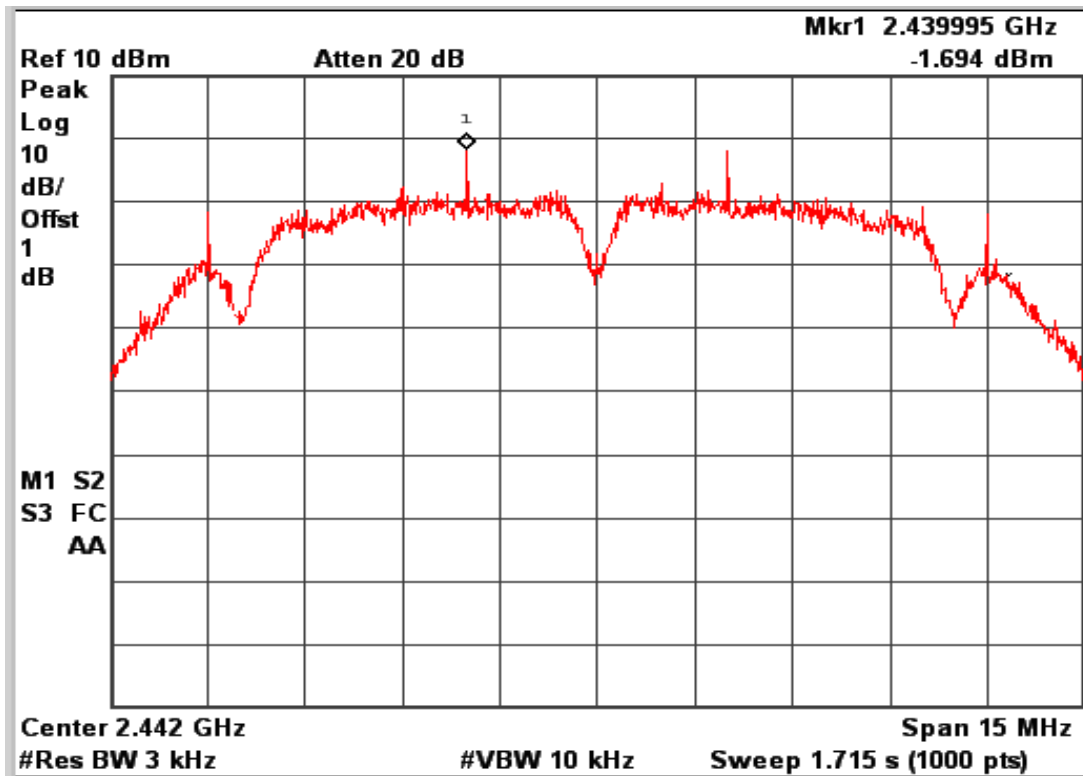
Test Result:

802.11 Protocol	Data Rate (Mbps)	Channel Frequency (MHz)	Total PSD (dBm)	Limit (dBm)	Margin (dB)
b	1	2412.00	-3.23	8.00	-11.23
		2442.00	-1.69	8.00	-9.69
		2472.00	-2.29	8.00	-10.29
	11	2412.00	-7.56	8.00	-15.56
		2442.00	-7.20	8.00	-15.20
		2472.00	-7.91	8.00	-15.91



Data rate: 1 Mbps

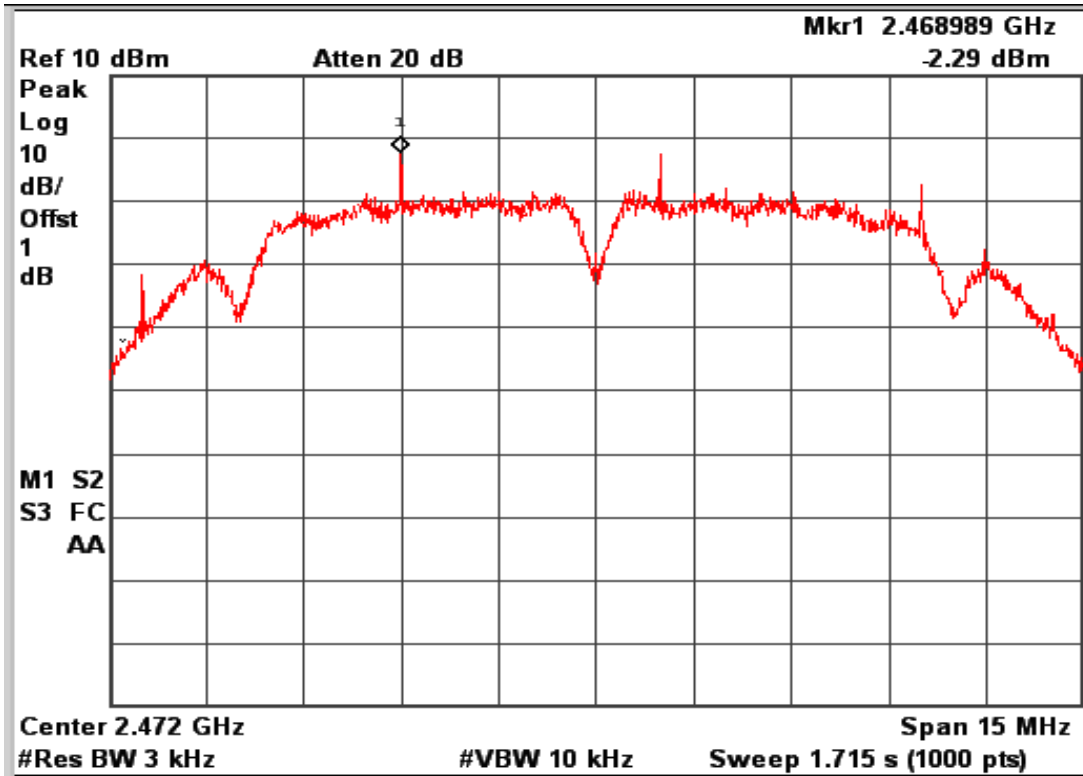
Channel Frequency: 2412 MHz



Data rate: 1 Mbps

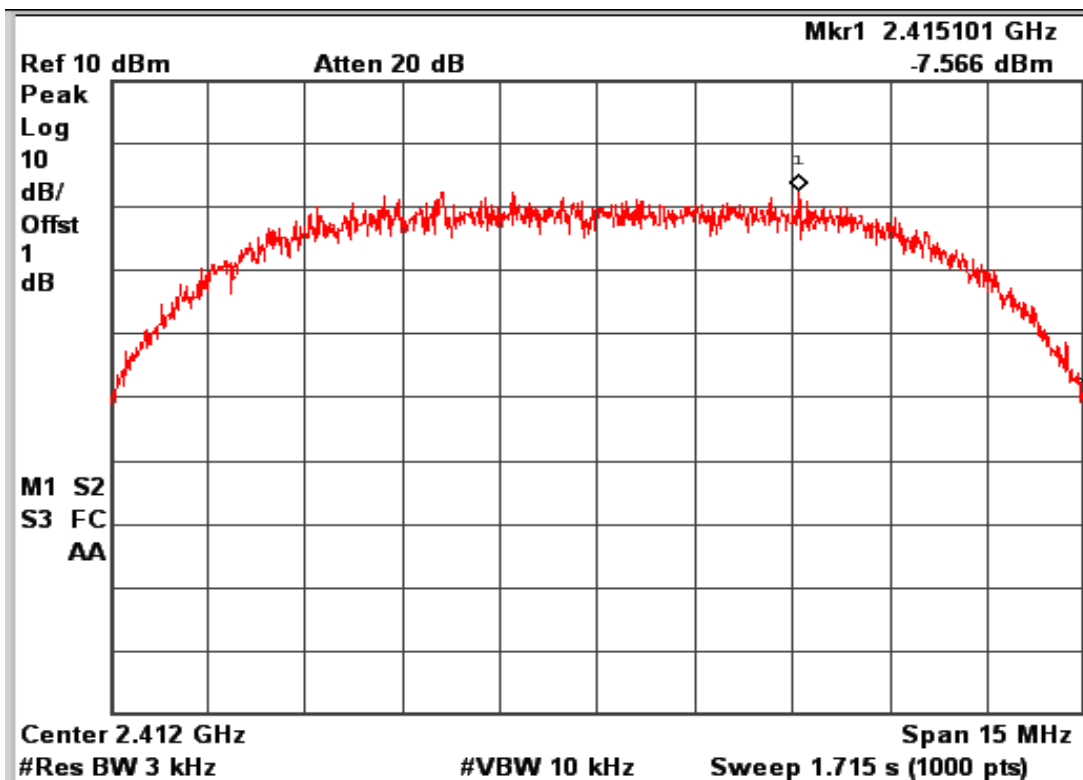
Channel Frequency: 2442 MHz

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Data rate: 1 Mbps

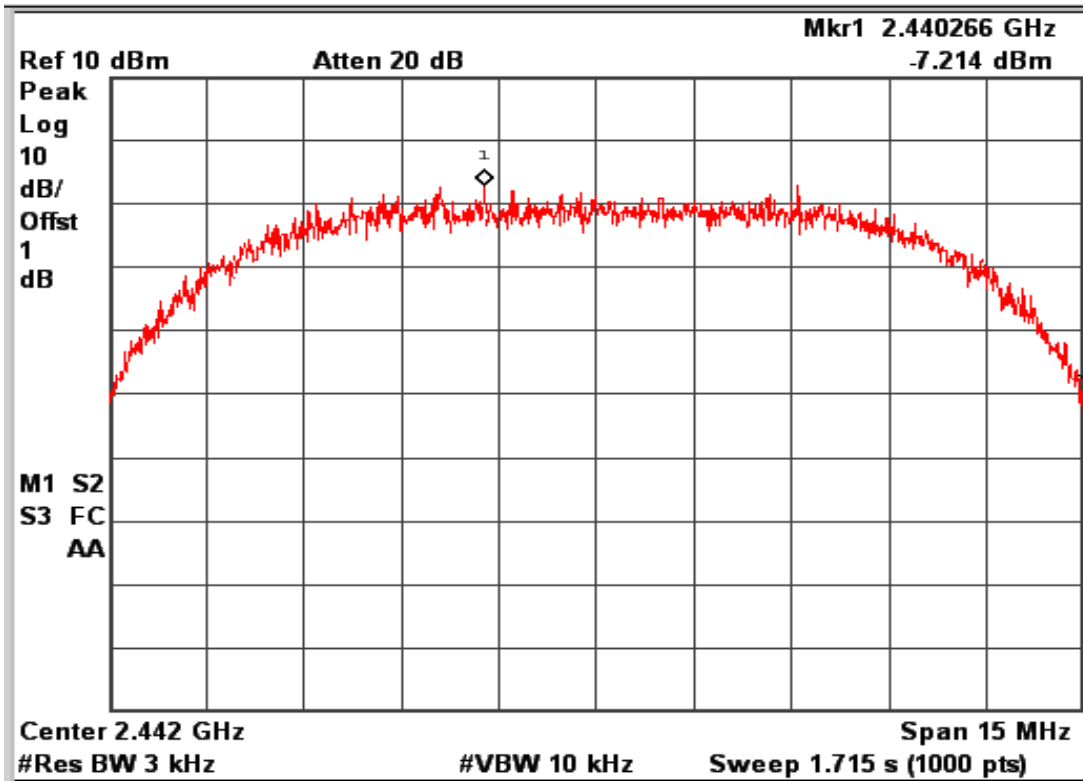
Channel Frequency: 2472 MHz



Data rate: 11 Mbps

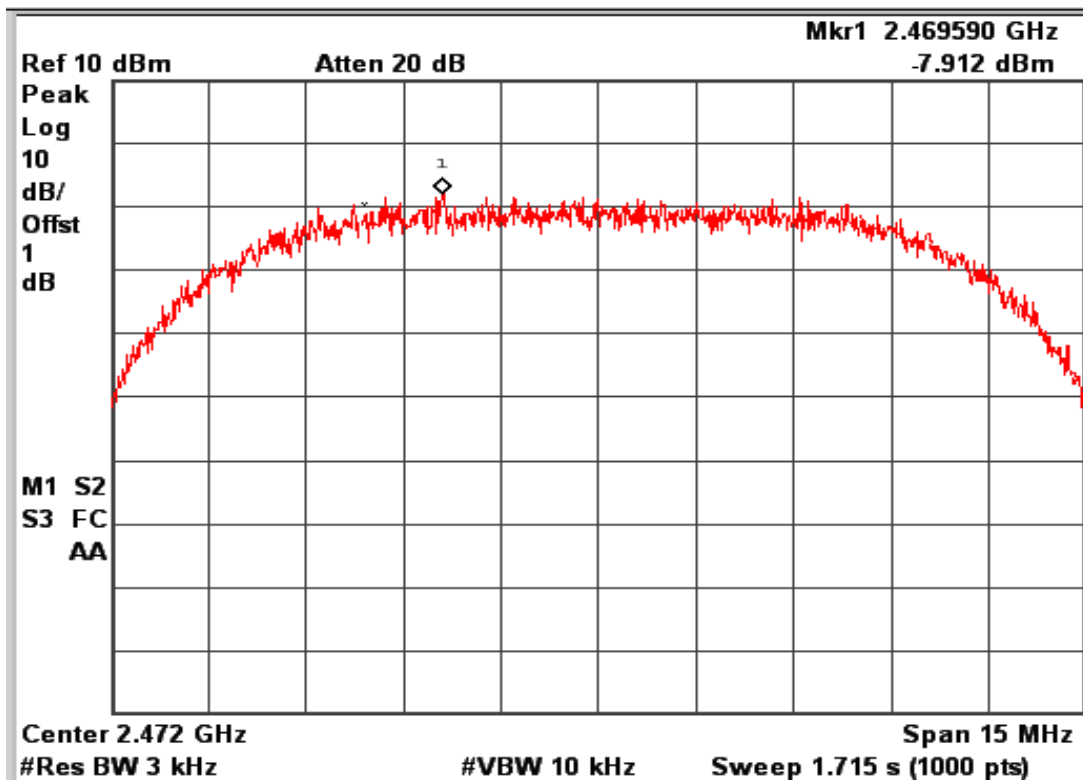
Channel Frequency: 2412 MHz

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Data rate: 11 Mbps

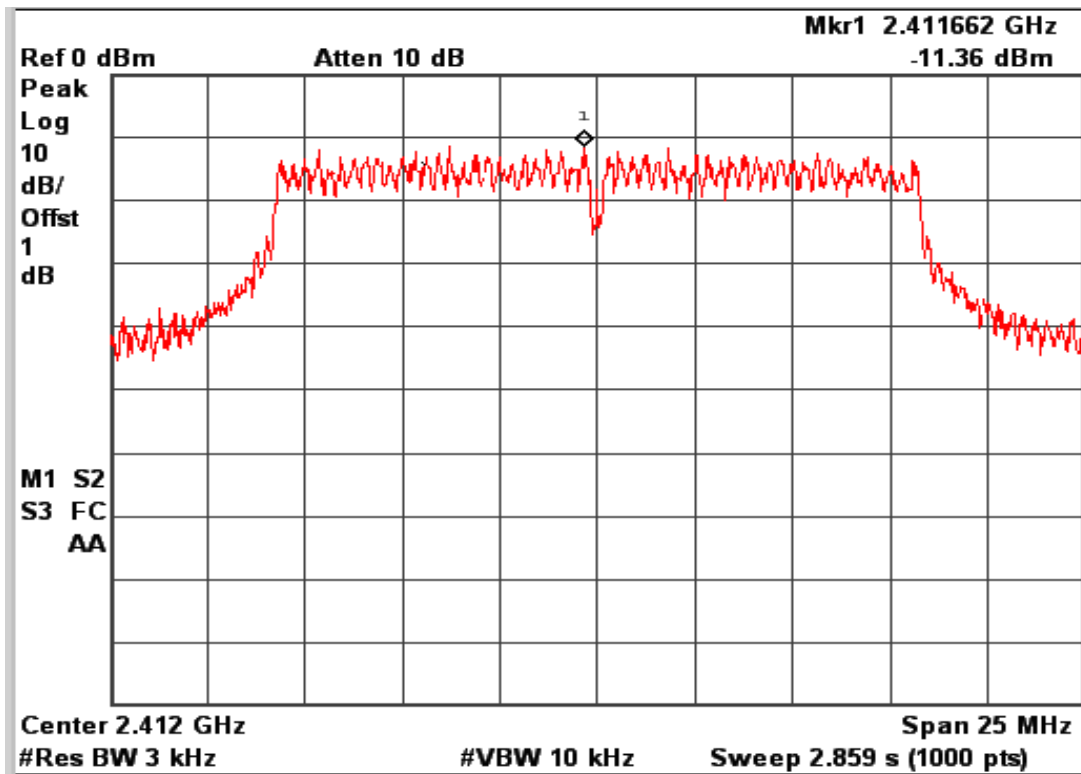
Channel Frequency: 2442 MHz



Data rate: 11 Mbps

Channel Frequency: 2472 MHz

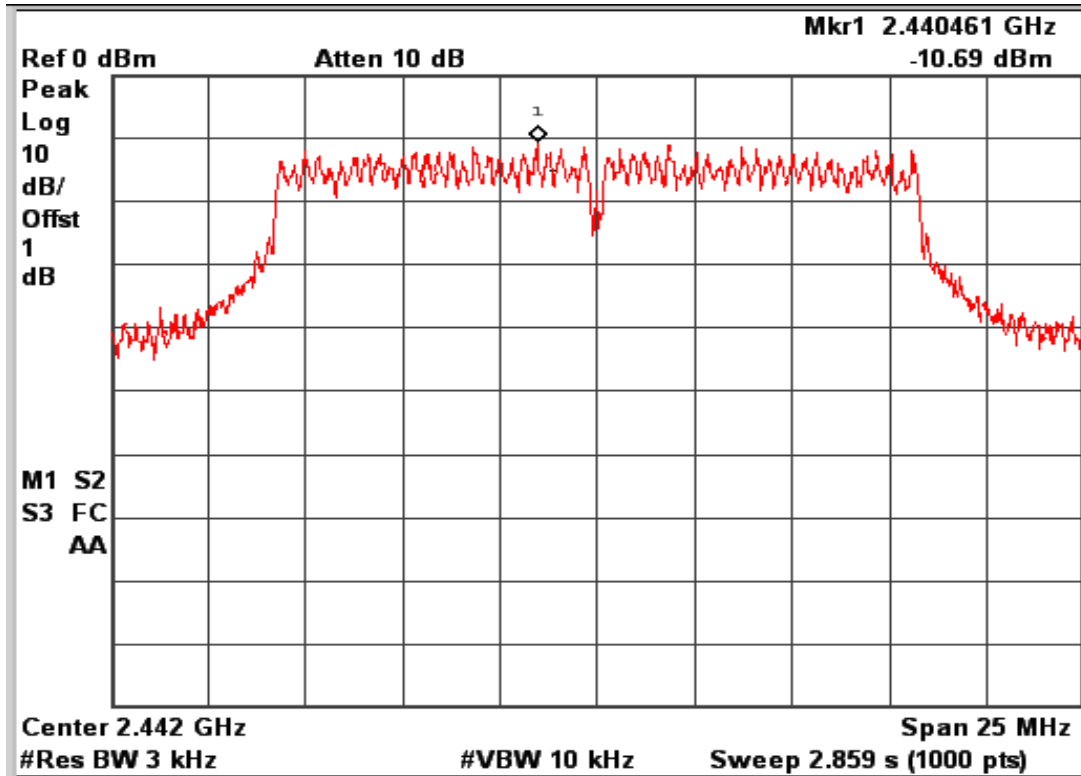
802.11 Protocol	Data Rate (Mbps)	Channel Frequency (MHz)	Total PSD (dBm)	Limit (dBm)	Margin (dB)
g	6	2412.00	-11.36	8.00	-19.36
		2442.00	-10.69	8.00	-18.69
		2472.00	-14.31	8.00	-22.31
	24	2412.00	-11.82	8.00	-19.82
		2442.00	-11.18	8.00	-19.18
		2472.00	-14.29	8.00	-22.29
	54	2412.00	-12.51	8.00	-20.51
		2442.00	-13.18	8.00	-21.18
		2472.00	-15.20	8.00	-23.20



Data rate: 6 Mbps

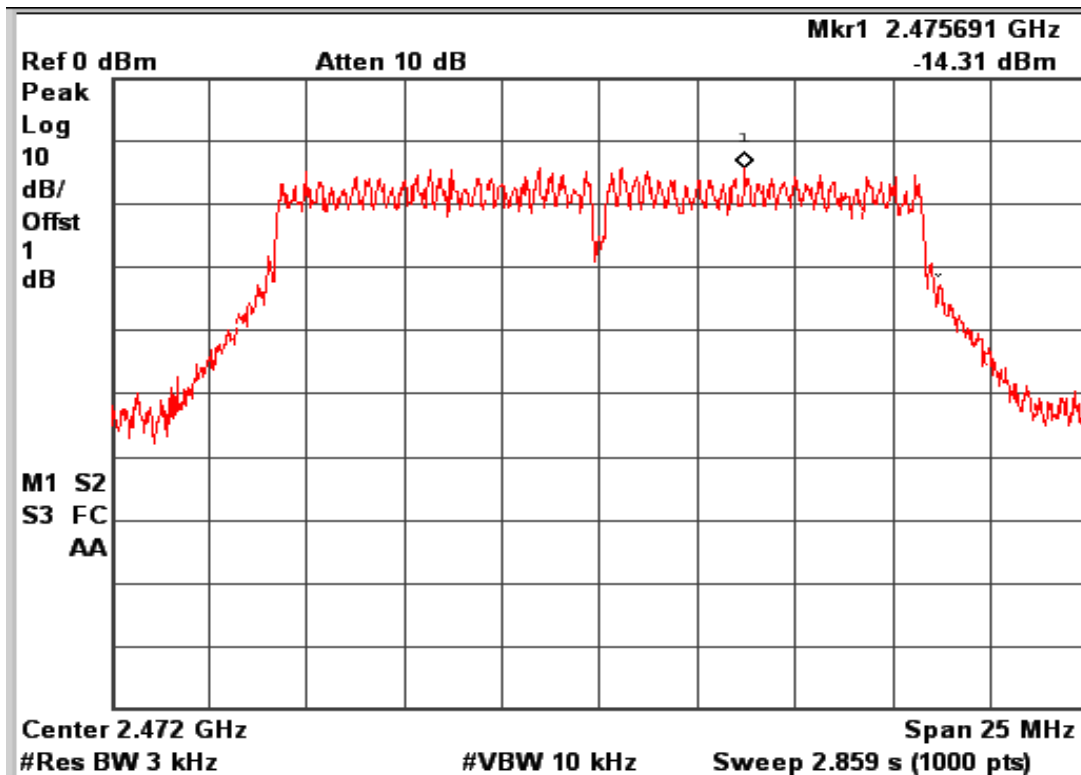
Channel Frequency: 2412 MHz

www.tuv.com



Data rate: 6 Mbps

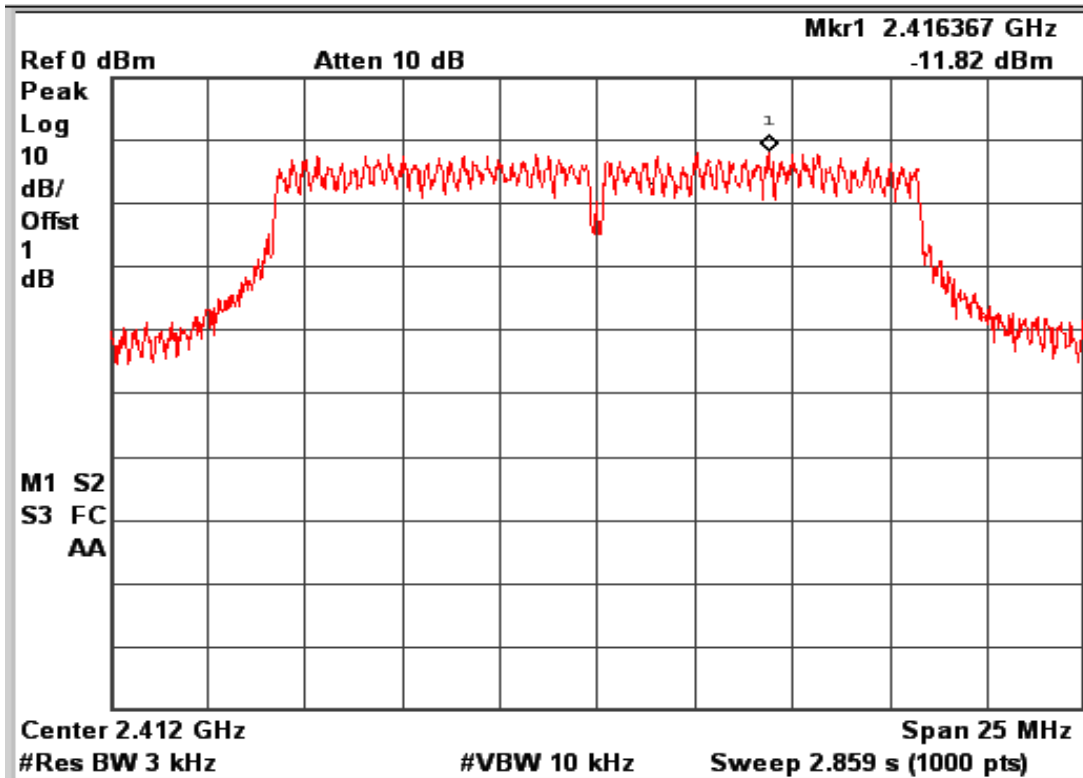
Channel Frequency: 2442 MHz



Data rate: 6 Mbps

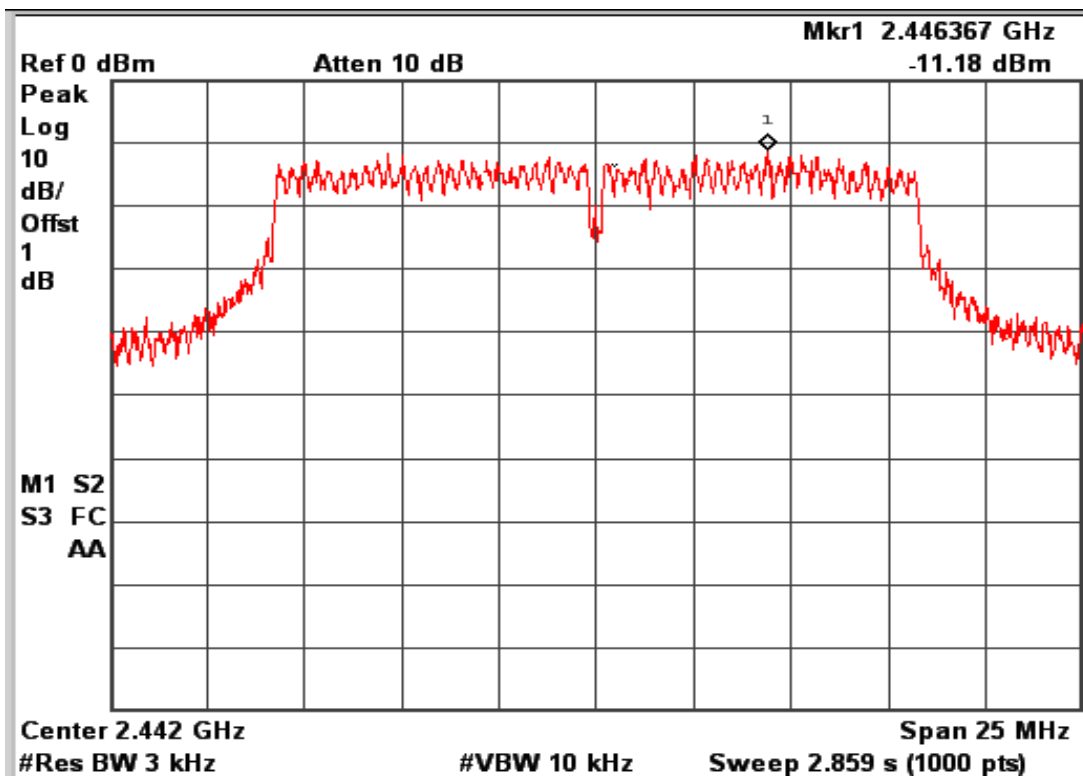
Channel Frequency: 2472 MHz

www.tuv.com



Data rate: 24 Mbps

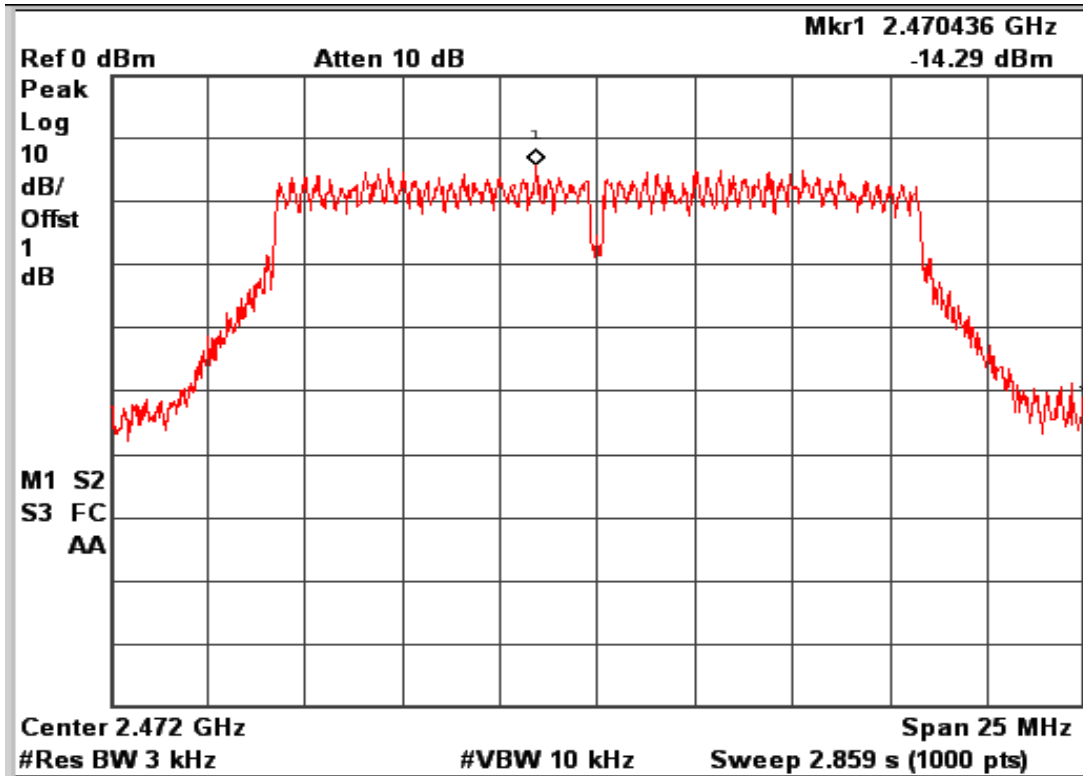
Channel Frequency: 2412 MHz



Data rate: 24 Mbps

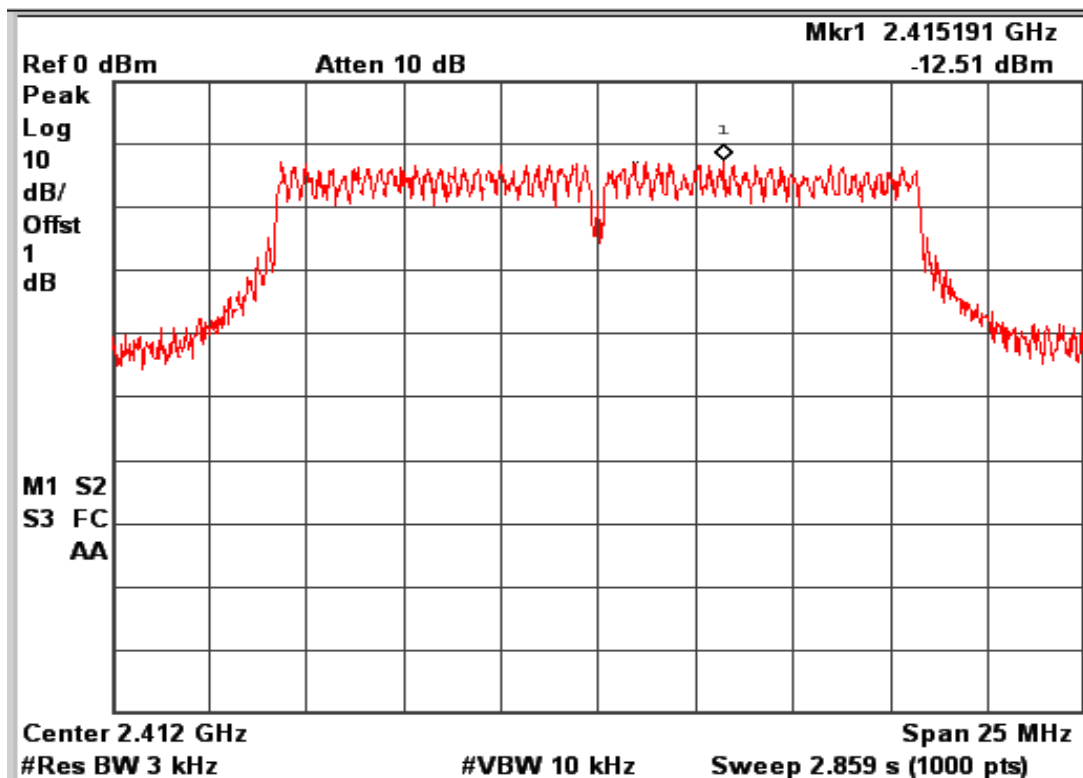
Channel Frequency: 2442 MHz

www.tuv.com



Data rate: 24 Mbps

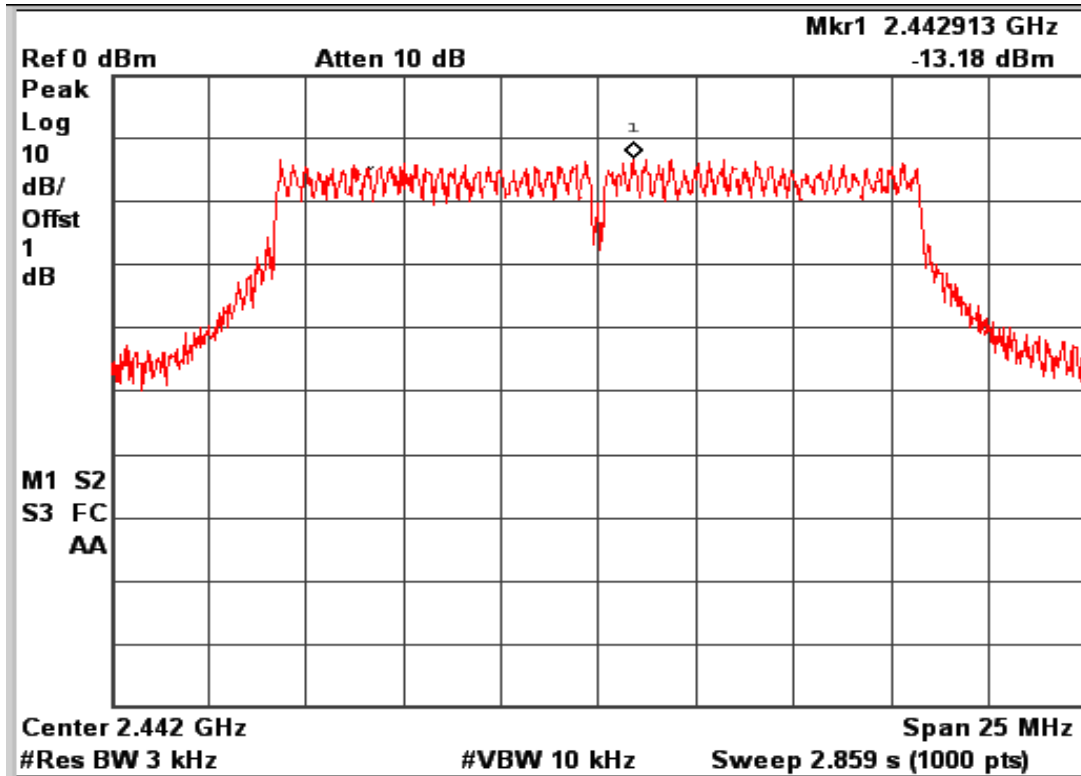
Channel Frequency: 2472 MHz



Data rate: 54 Mbps

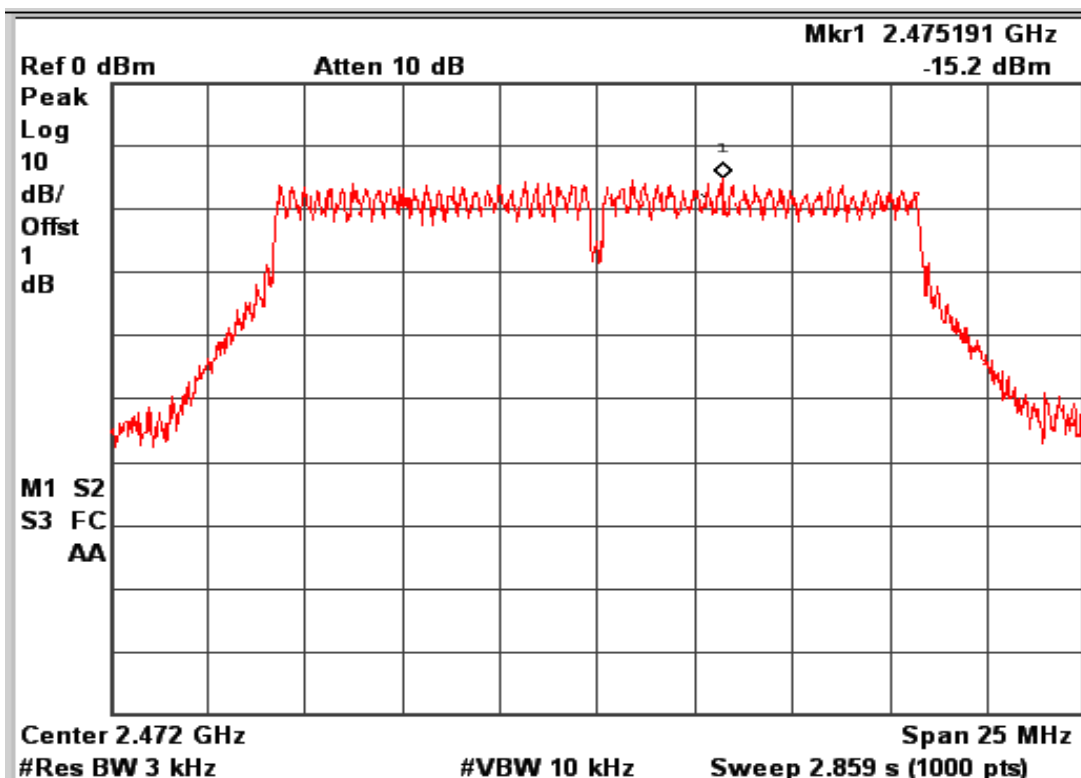
Channel Frequency: 2412 MHz

www.tuv.com



Data rate: 54 Mbps

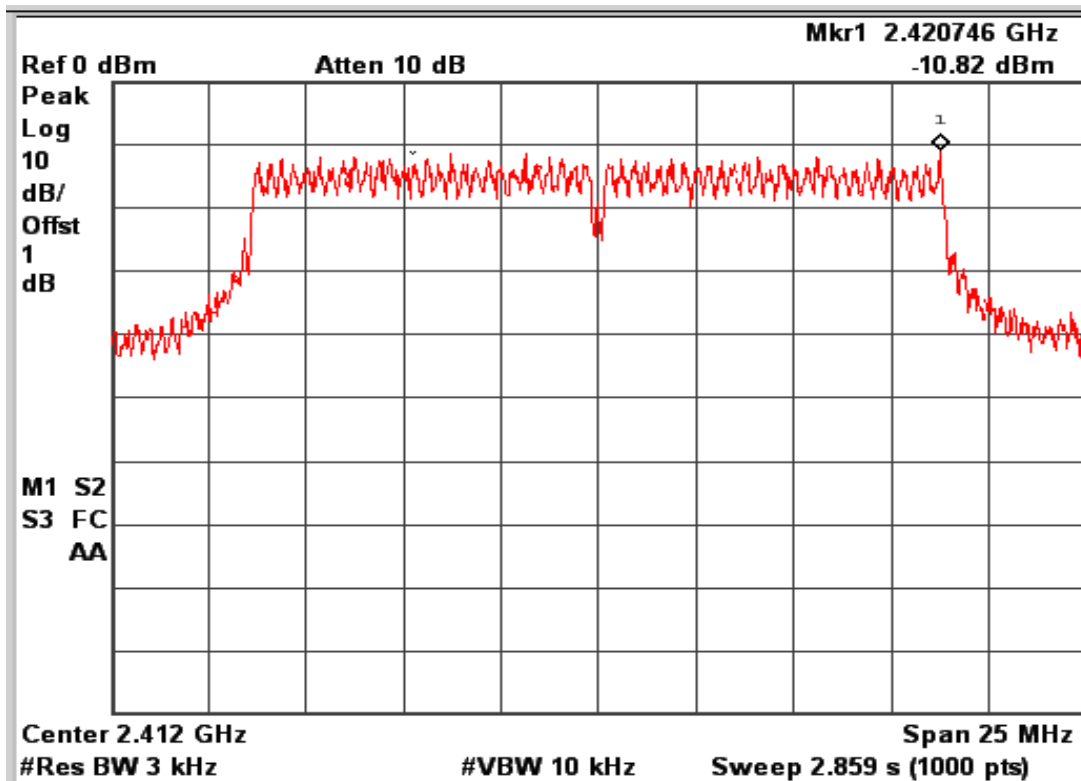
Channel Frequency: 2442 MHz



Data rate: 54 Mbps

Channel Frequency: 2472 MHz

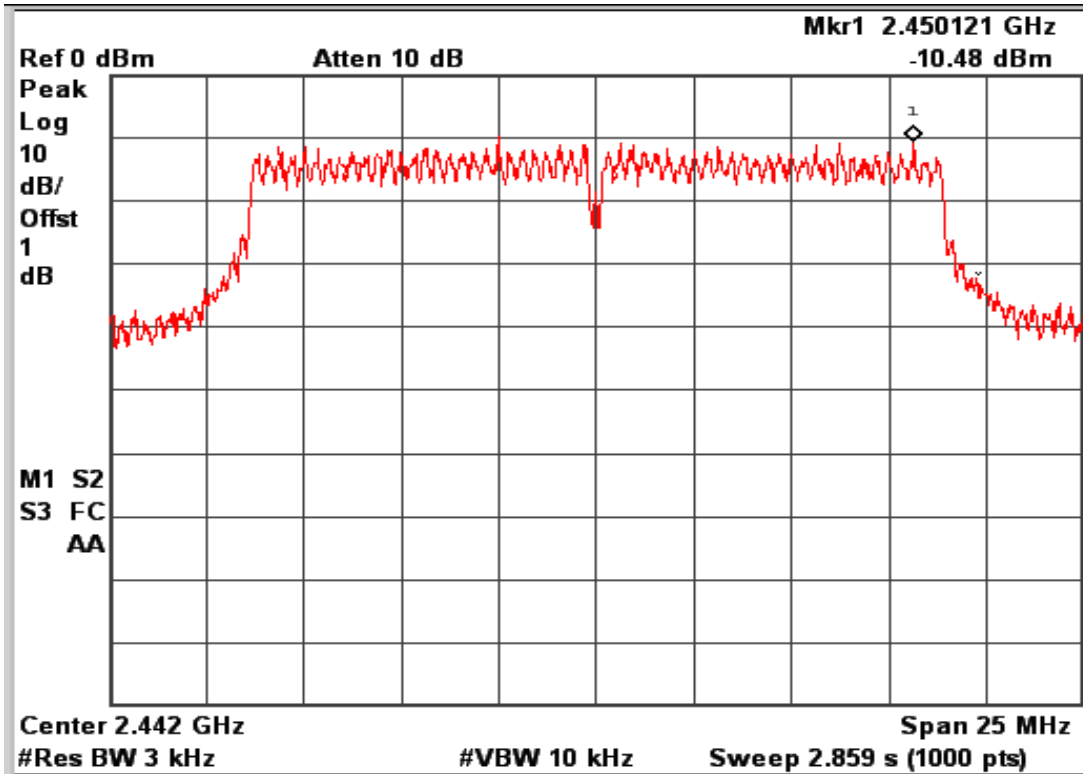
802.11 Protocol	Data Rate (Mbps)	Channel Frequency (MHz)	Total PSD (dBm)	Limit (dBm)	Margin (dB)
n	6.5	2412.00	-10.82	8.00	-18.82
		2442.00	-10.48	8.00	-18.48
		2472.00	-12.60	8.00	-20.60
	39	2412.00	-10.05	8.00	-18.05
		2442.00	-11.58	8.00	-19.58
		2472.00	-13.15	8.00	-21.15
	65	2412.00	-10.85	8.00	-18.85
		2442.00	-10.80	8.00	-18.80
		2472.00	-13.67	8.00	-21.67



Data rate: 6.5 Mbps

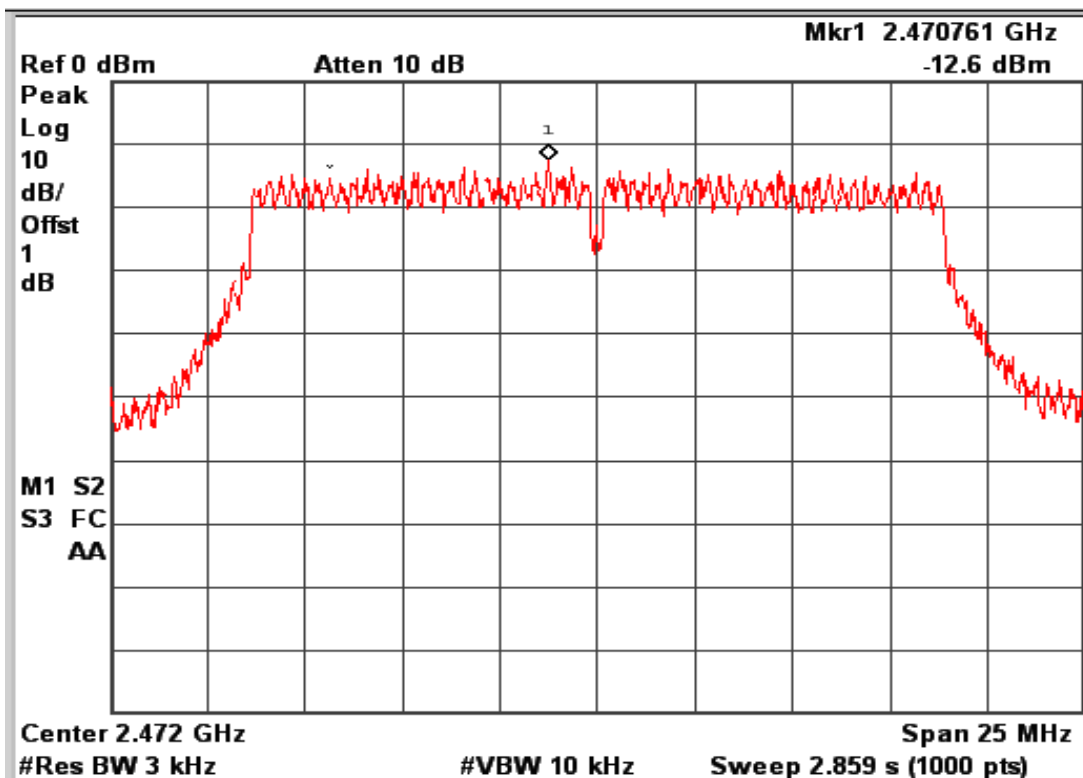
Channel Frequency: 2412 MHz

www.tuv.com



Data rate: 6.5 Mbps

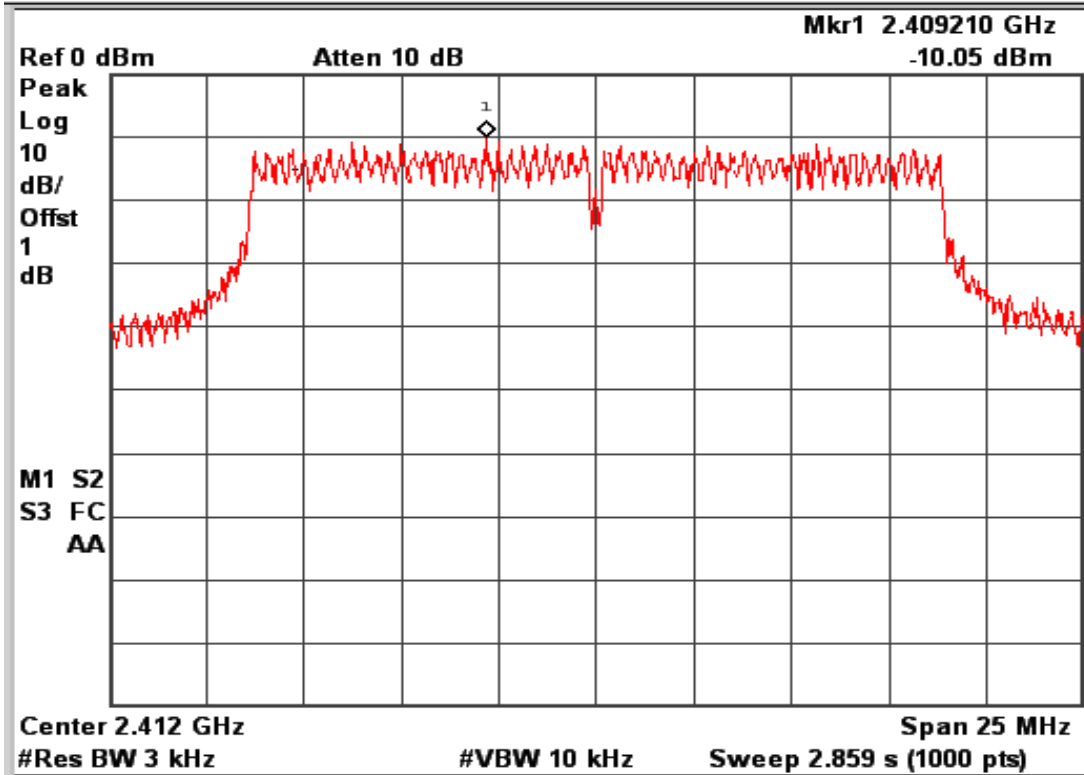
Channel Frequency: 2442 MHz



Data rate: 6.5 Mbps

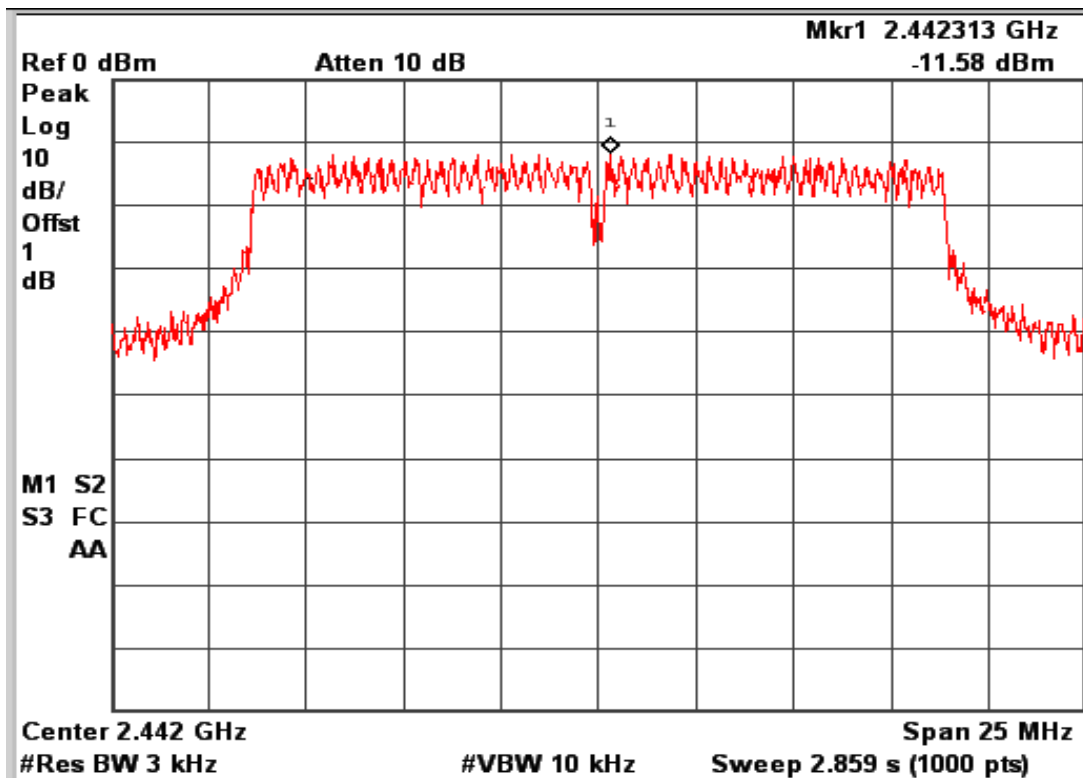
Channel Frequency: 2472 MHz

www.tuv.com



Data rate: 39 Mbps

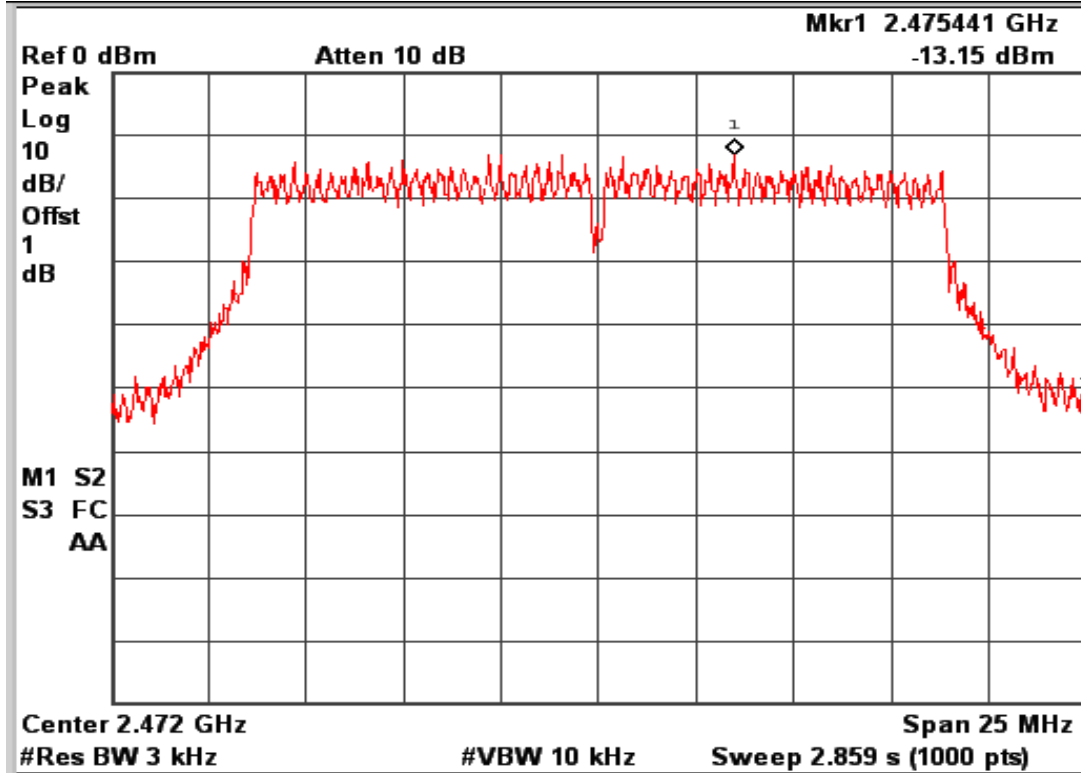
Channel Frequency: 2412 MHz



Data rate: 39 Mbps

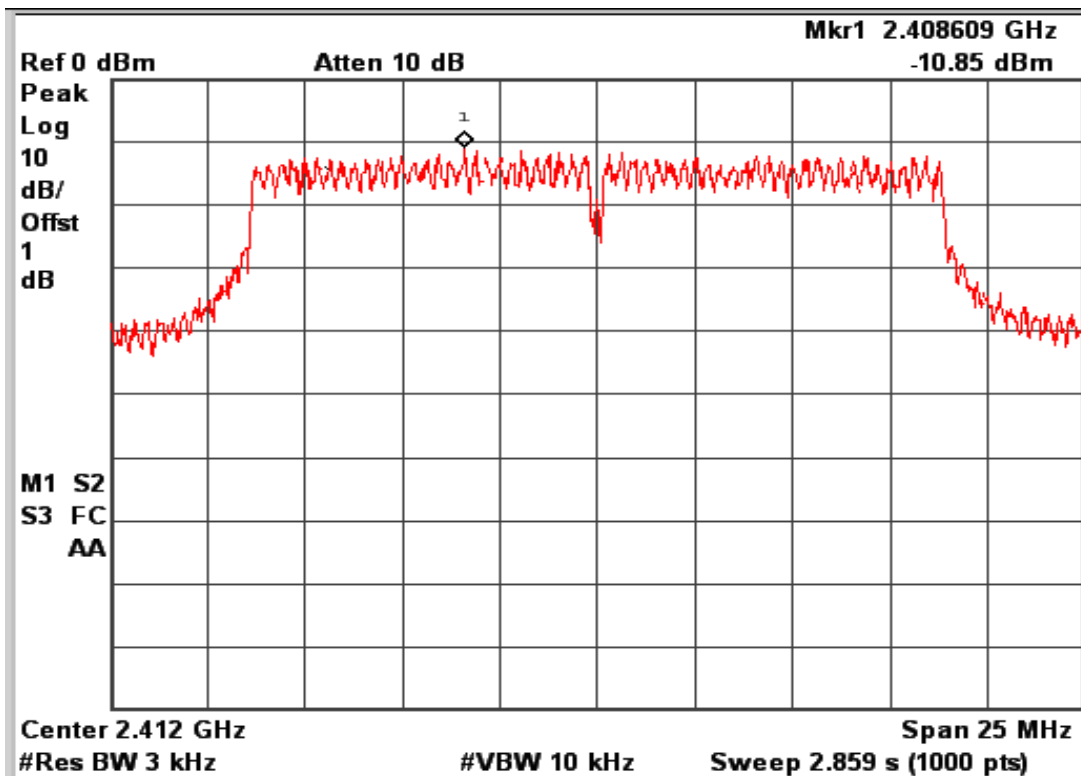
Channel Frequency: 2442 MHz

www.tuv.com



Data rate: 39 Mbps

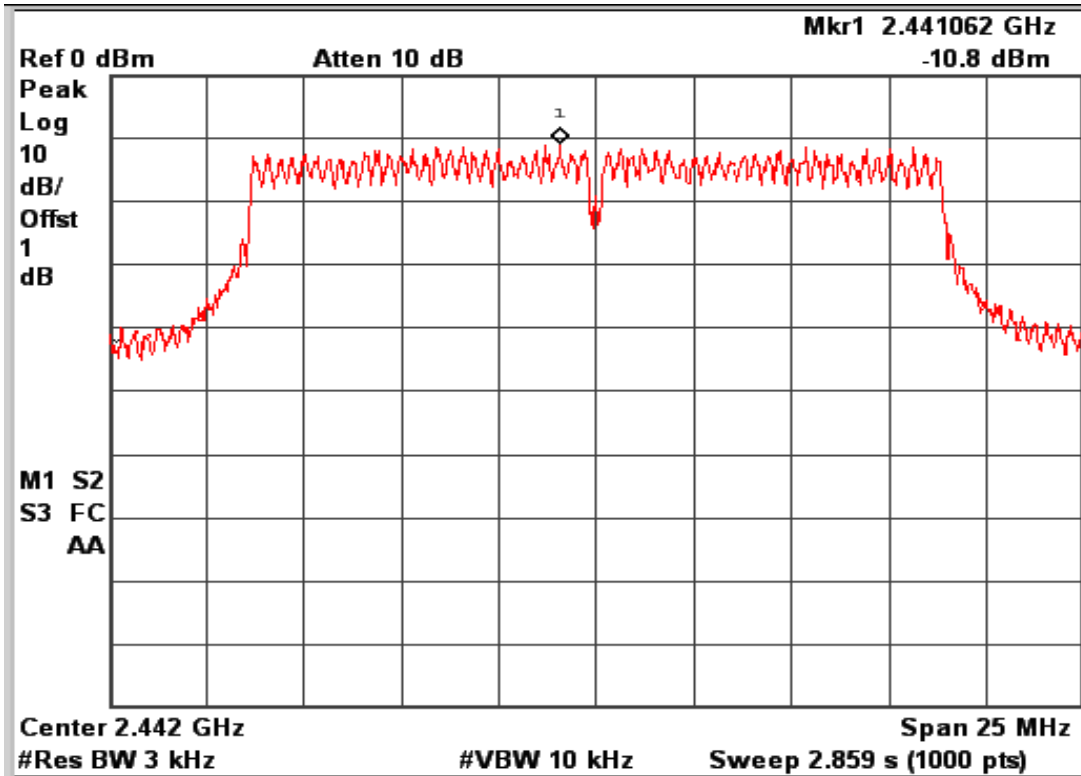
Channel Frequency: 2472 MHz



Data rate: 65 MBPS

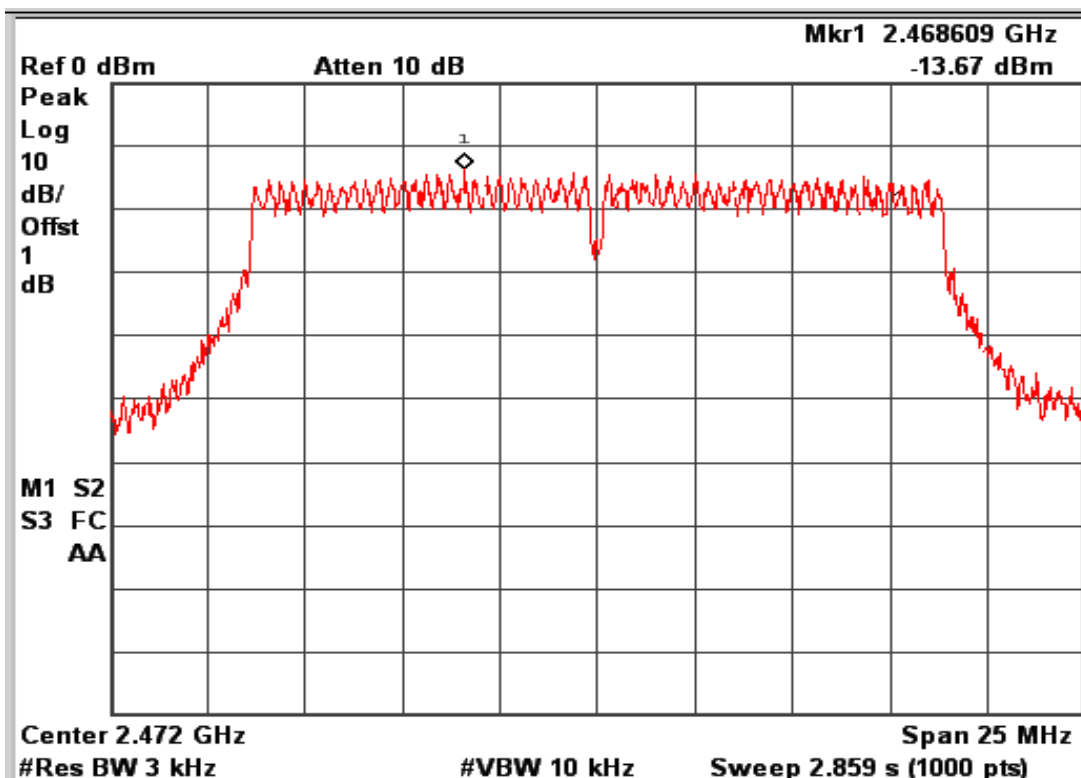
Channel Frequency: 2412 MHz

www.tuv.com



Data rate: 65 MBPS

Channel Frequency: 2442 MHz



Data rate: 65 MBPS

Channel Frequency: 2472 MHz

www.tuv.com

6 dB Bandwidth

Section 15.247(a) (2)

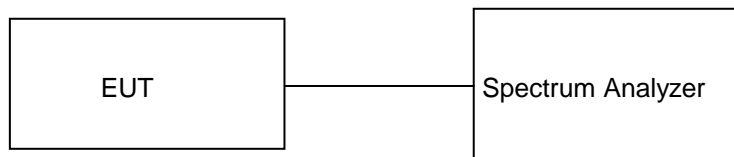
Result

Pass

Test Specification Requirement

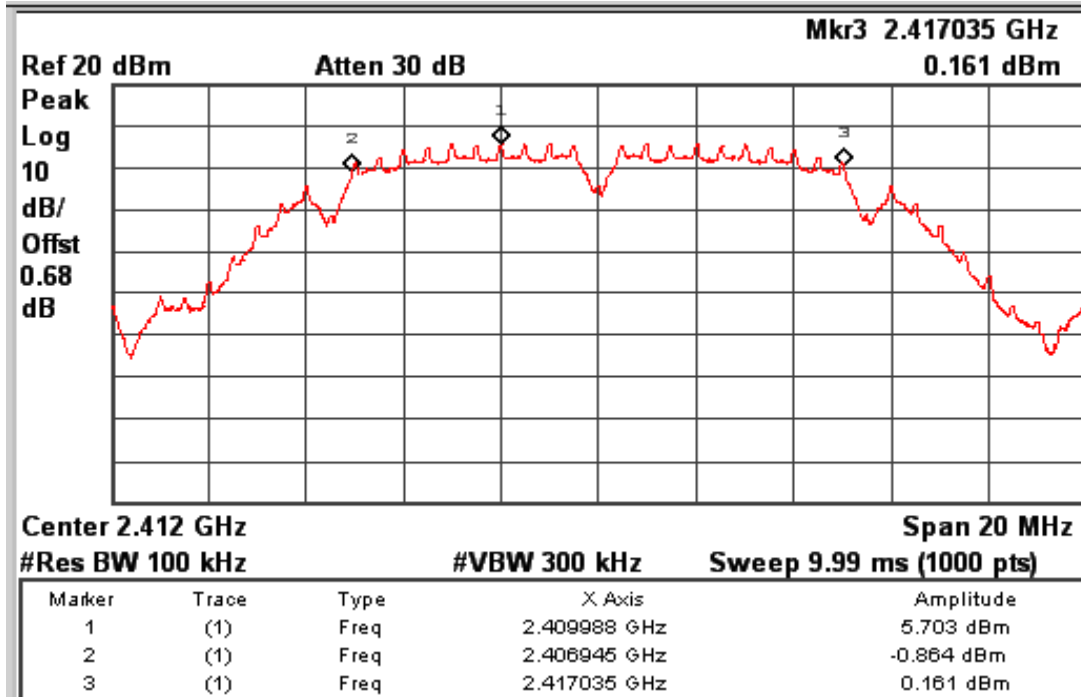
FCC Part 15 Section 15.247 (a) (2)
The minimum 6 dB bandwidth shall be at least 500 kHz.

Test Method:



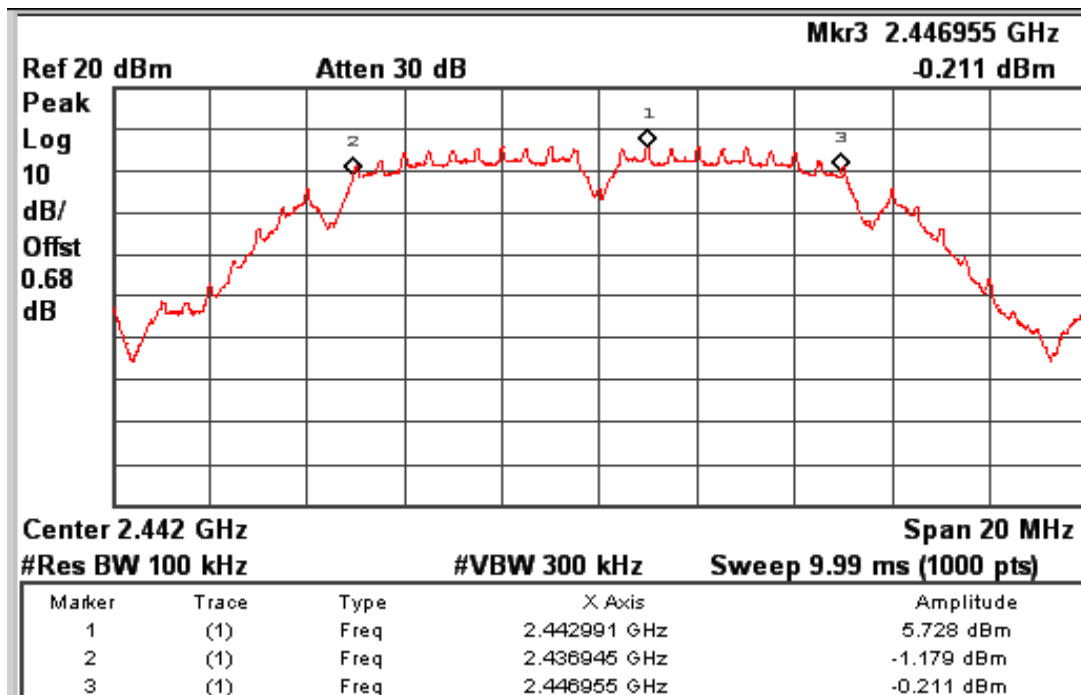
Test Result:

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	2417.04	10.09	12.13
		2442.00	2436.95	2446.96	10.01	12.13
		2472.00	2466.95	2477.06	10.11	12.12
	11	2412.00	2407.15	2416.74	9.59	11.96
		2442.00	2437.01	2446.92	9.91	11.97
		2472.00	2466.99	2476.94	9.95	11.96



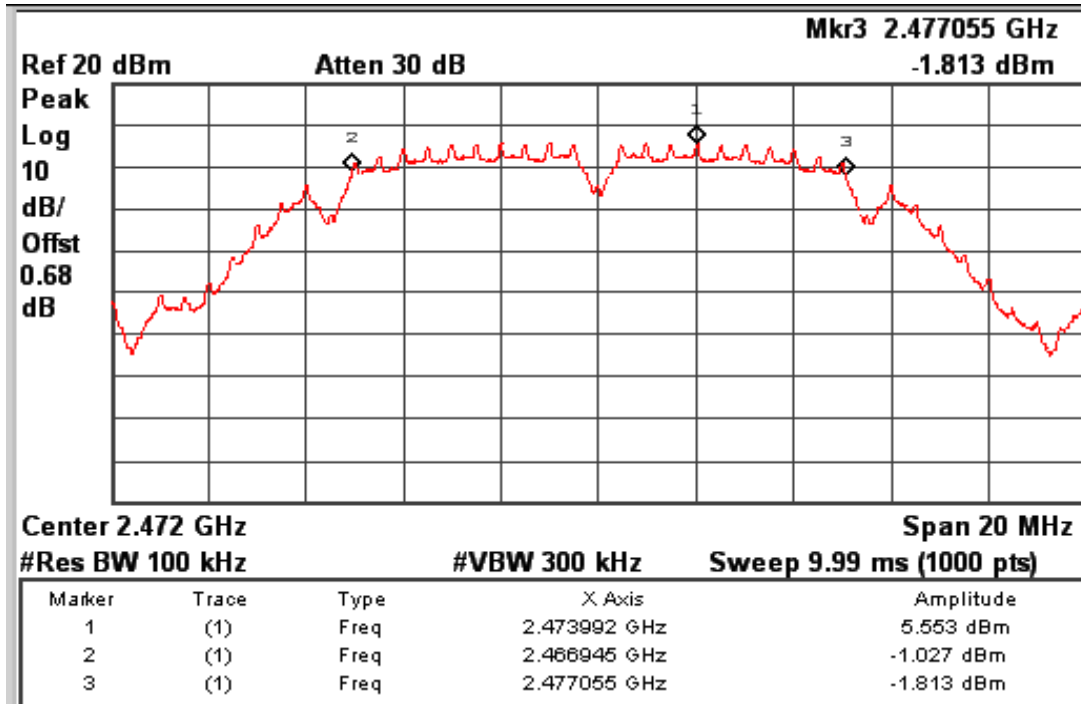
Data Rate: 1 Mbps

Channel frequency: 2412 MHz



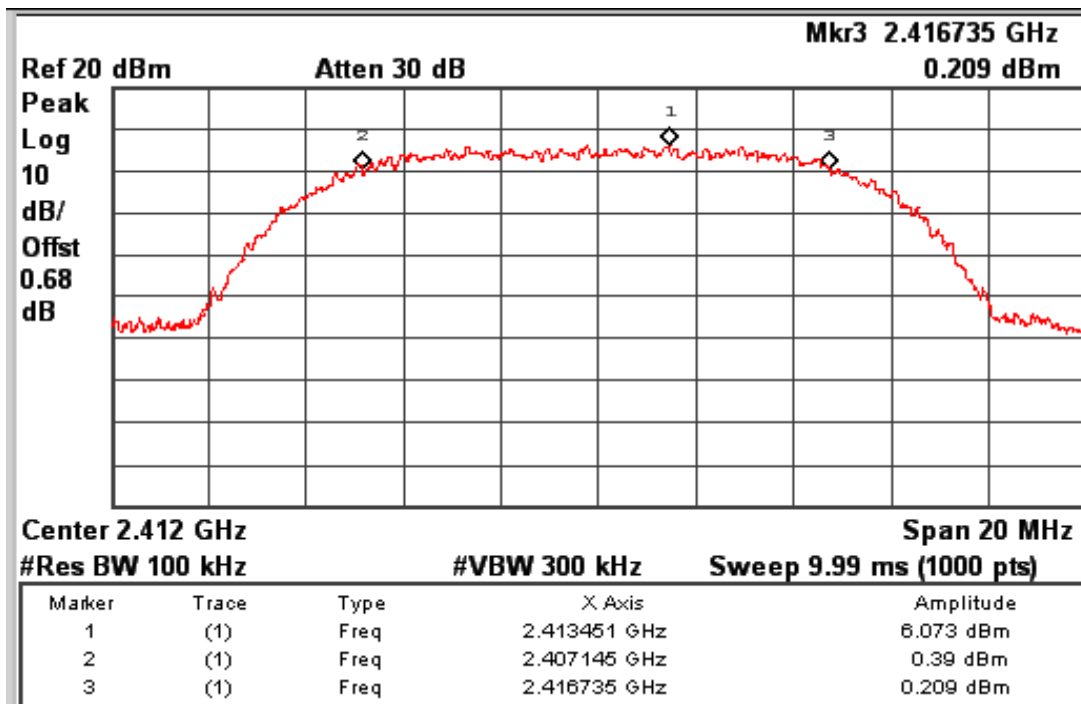
Data Rate: 1 Mbps

Channel frequency: 2442 MHz



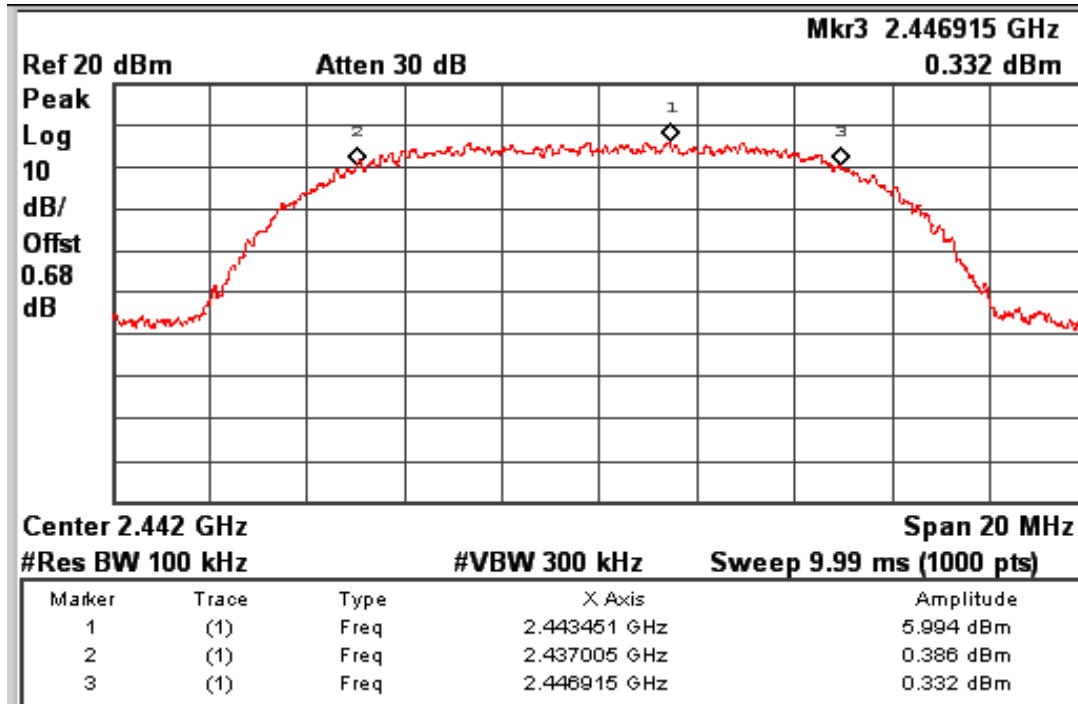
Data Rate: 1 Mbps

Channel frequency: 2472 MHz



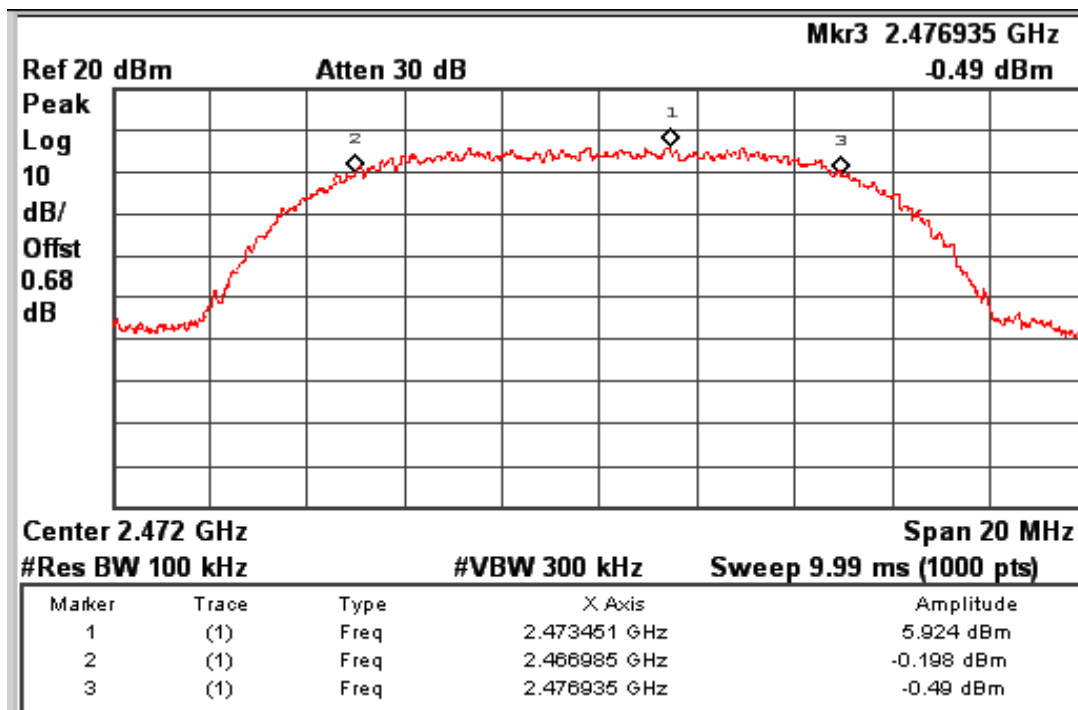
Data Rate: 11 Mbps

Channel frequencies: 2412 MHz



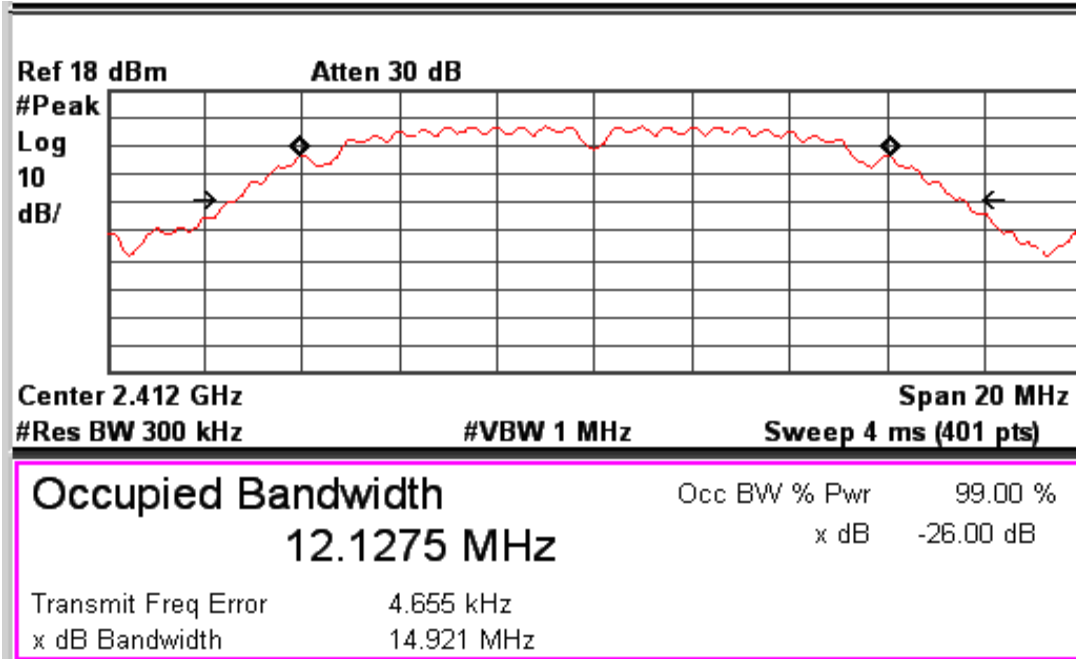
Data Rate: 11 Mbps

Channel frequency: 2442 MHz



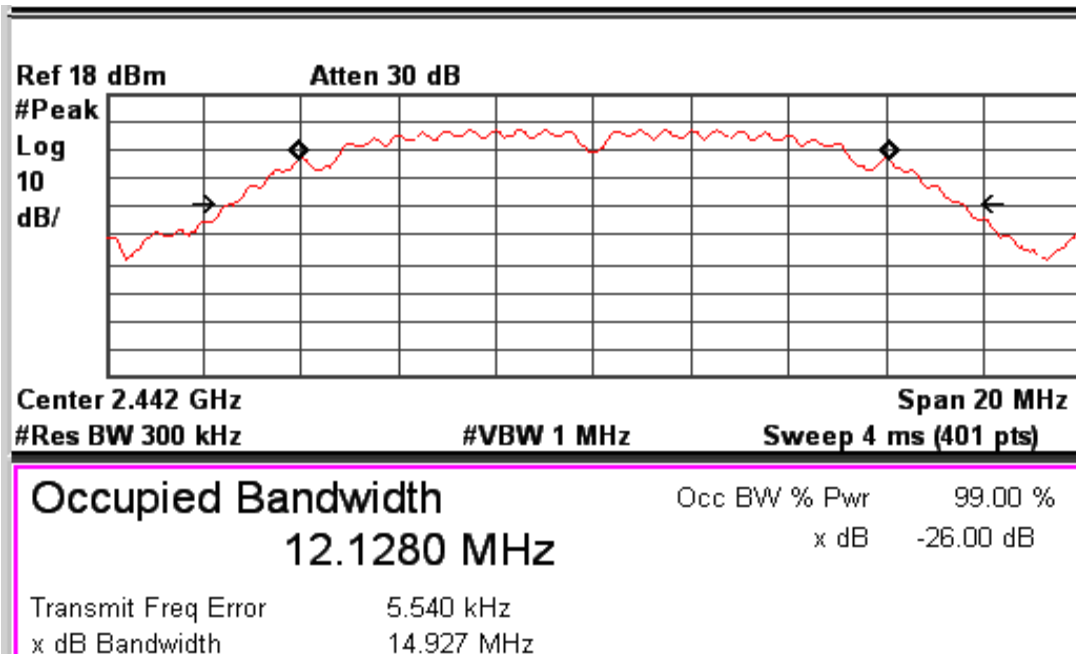
Data Rate: 11 Mbps

Channel frequency: 2472 MHz



Data rate: 1 Mbps

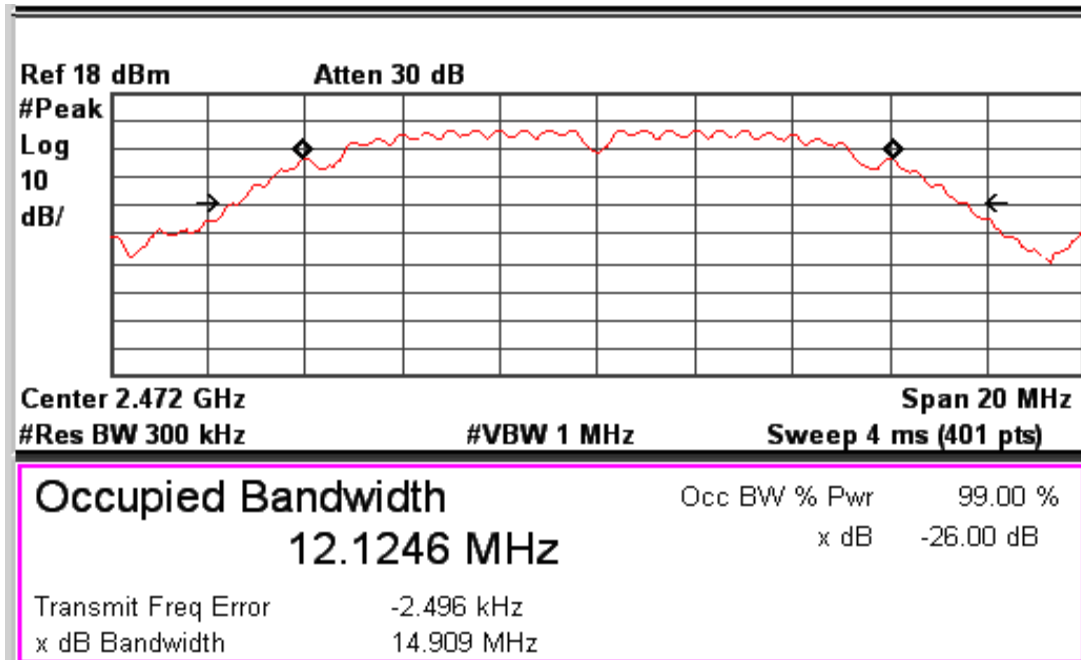
99% Occupied Bandwidth: Channel 2412MHz



Data rate: 1 Mbps

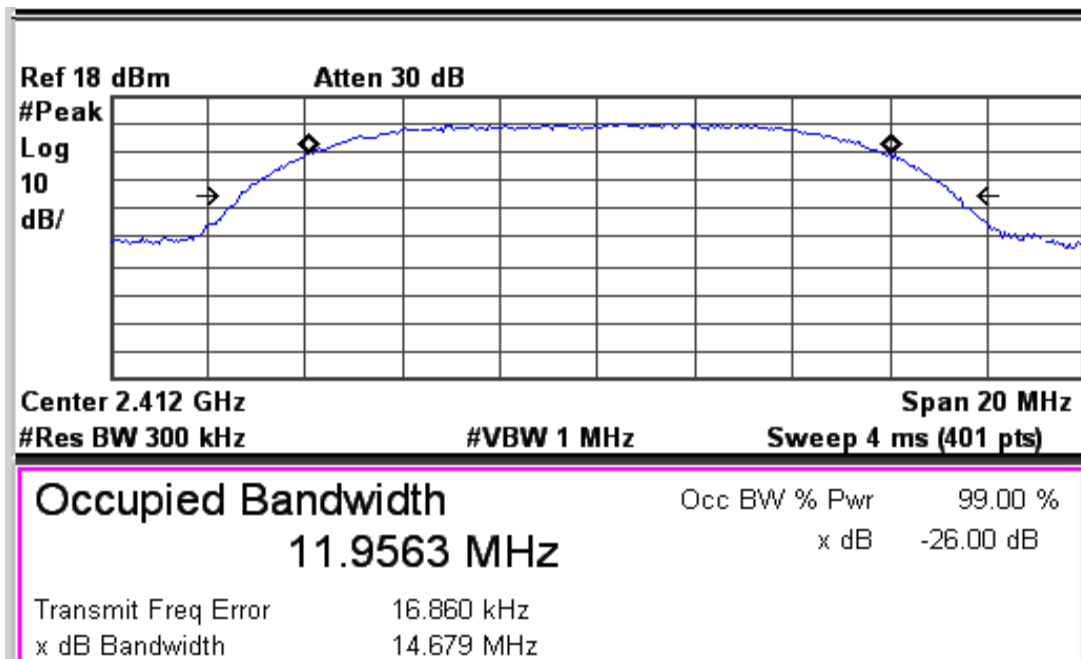
99% Occupied Bandwidth: Channel 2442MHz

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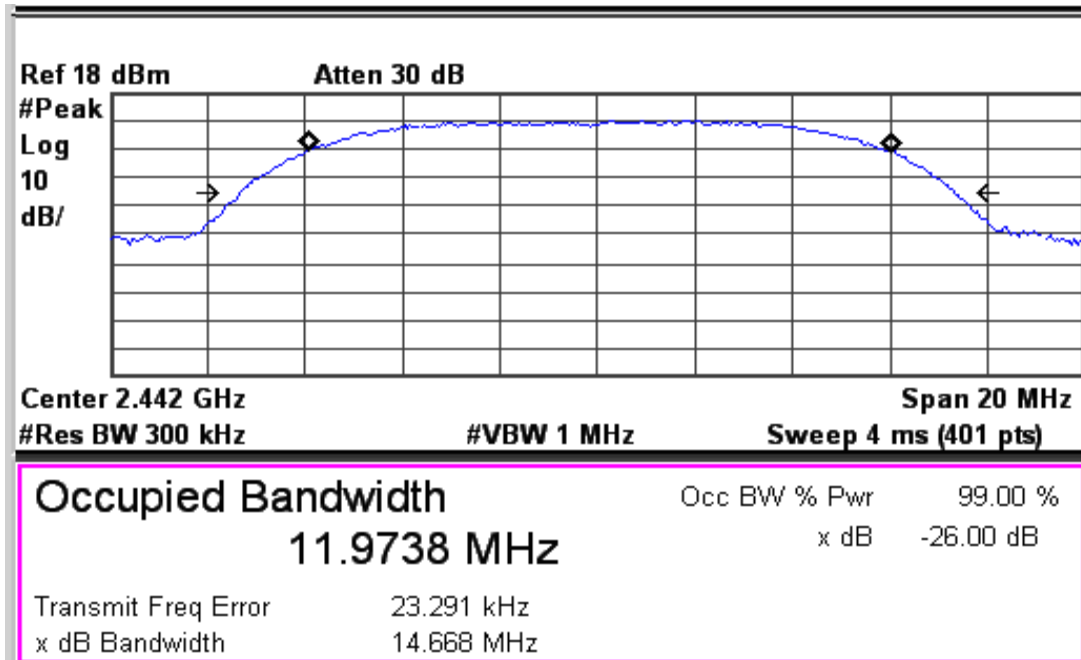
Data rate: 1 Mbps

99% Occupied Bandwidth: Channel 2472MHz



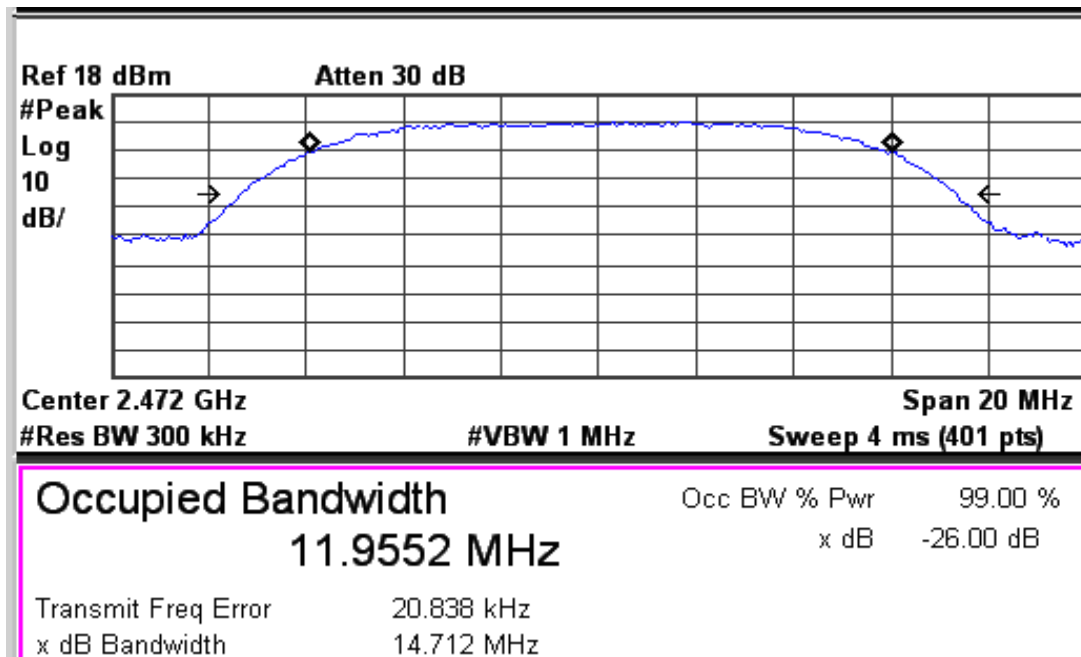
Data rate: 11 Mbps

99% Occupied Bandwidth: Channel 2412MHz



Data rate: 11 Mbps

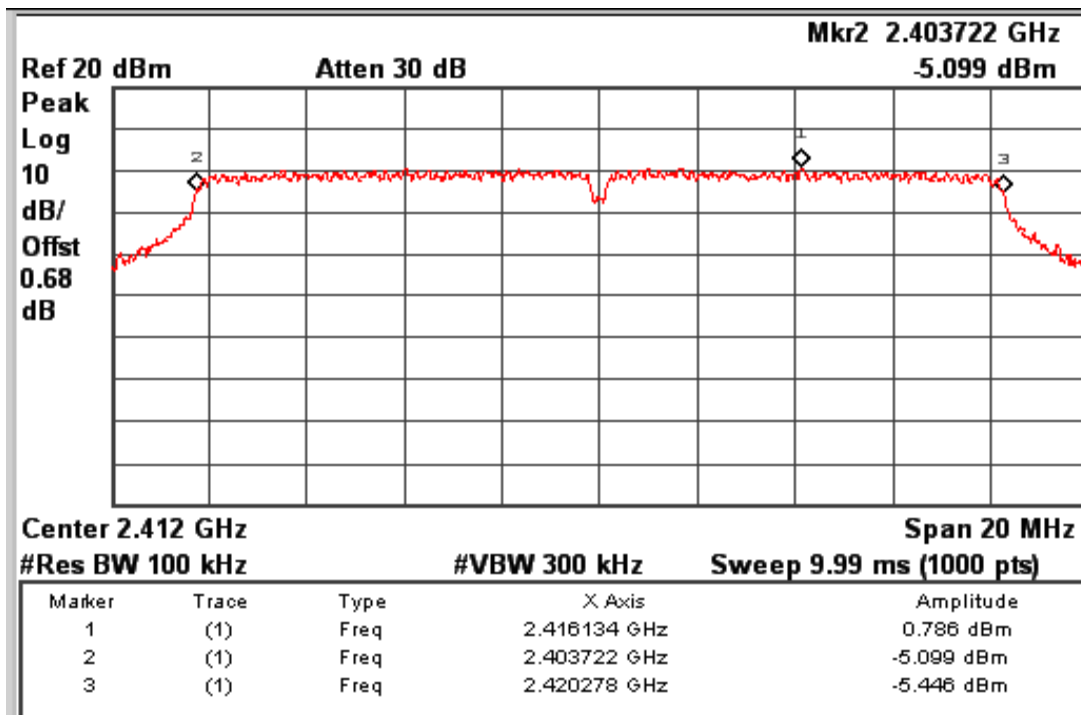
99% Occupied Bandwidth: Channel 2442MHz



Data rate: 11 Mbps

99% Occupied Bandwidth: Channel 2472MHz

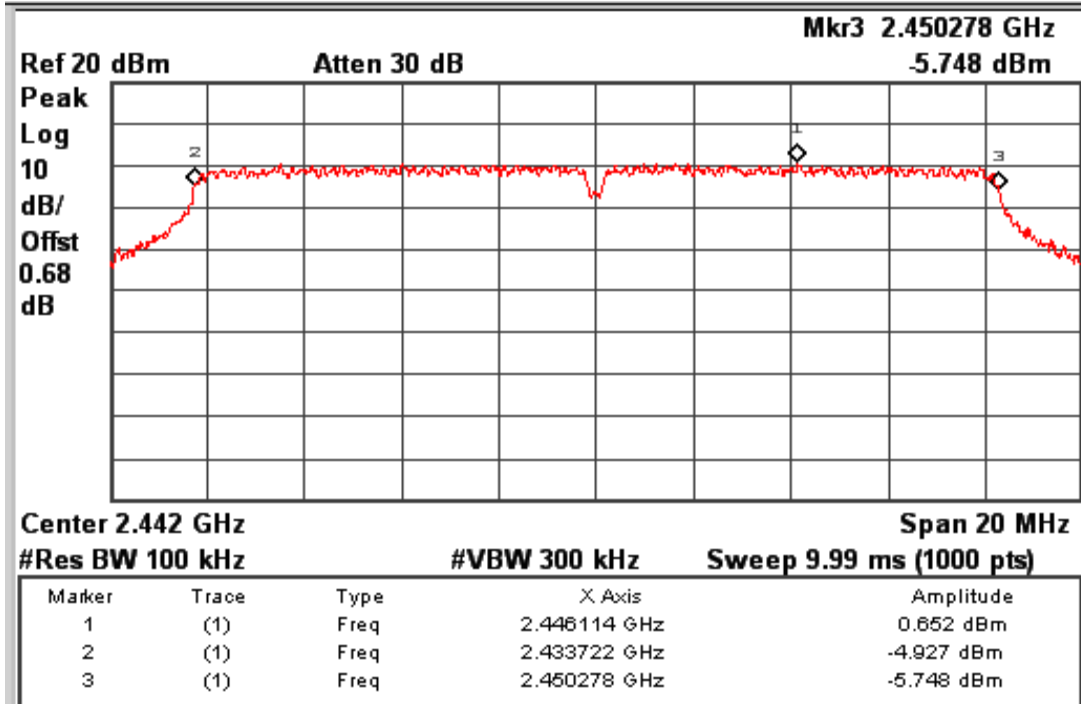
802.11 Protocol	Data Rate (Mbps)	Channel Frequency (MHz)	Lower Frequency (MHz)	Upper Frequency (MHz)	6 dB Bandwidth (MHz)	99% OBW (MHz)
g	6	2412.00	2403.72	2420.28	16.56	16.95
		2442.00	2433.72	2450.28	16.56	17.03
		2472.00	2463.70	2480.28	16.58	17.00
	24	2412.00	2403.72	2420.28	16.56	16.79
		2442.00	2433.74	2450.28	16.54	16.80
		2472.00	2463.72	2480.26	16.54	16.80
	54	2412.00	2403.72	2420.26	16.54	16.73
		2442.00	2433.72	2450.26	16.54	16.73
		2472.00	2463.72	2480.26	16.54	16.76



Data Rate: 6 Mbps

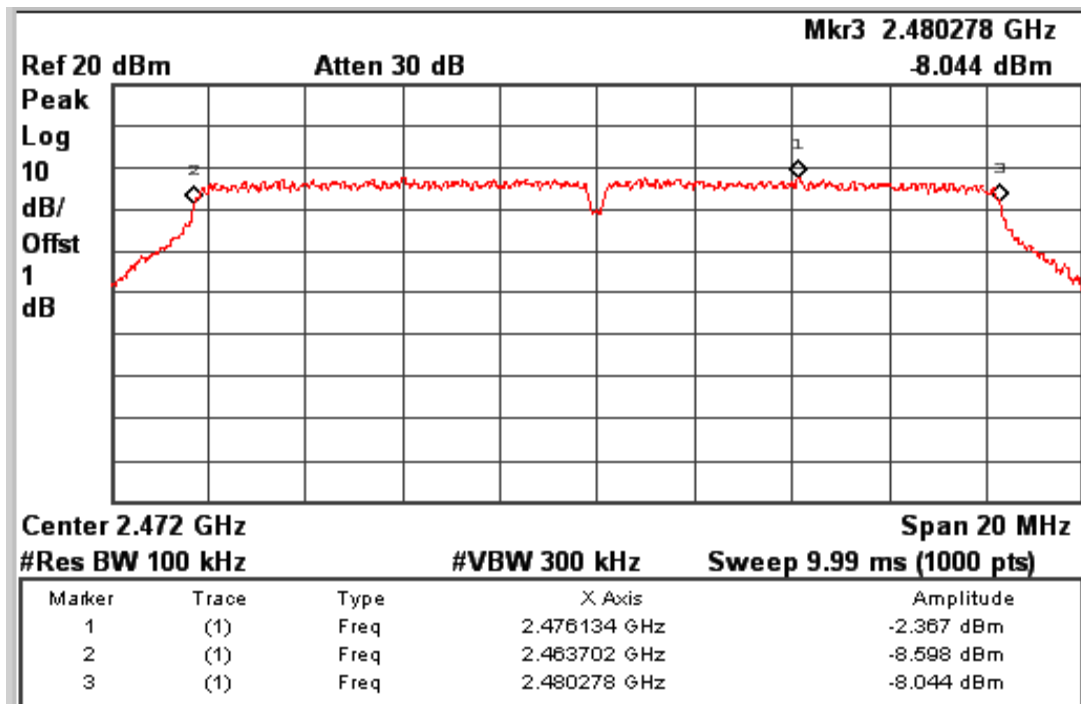
Channel frequencies: 2412 MHz

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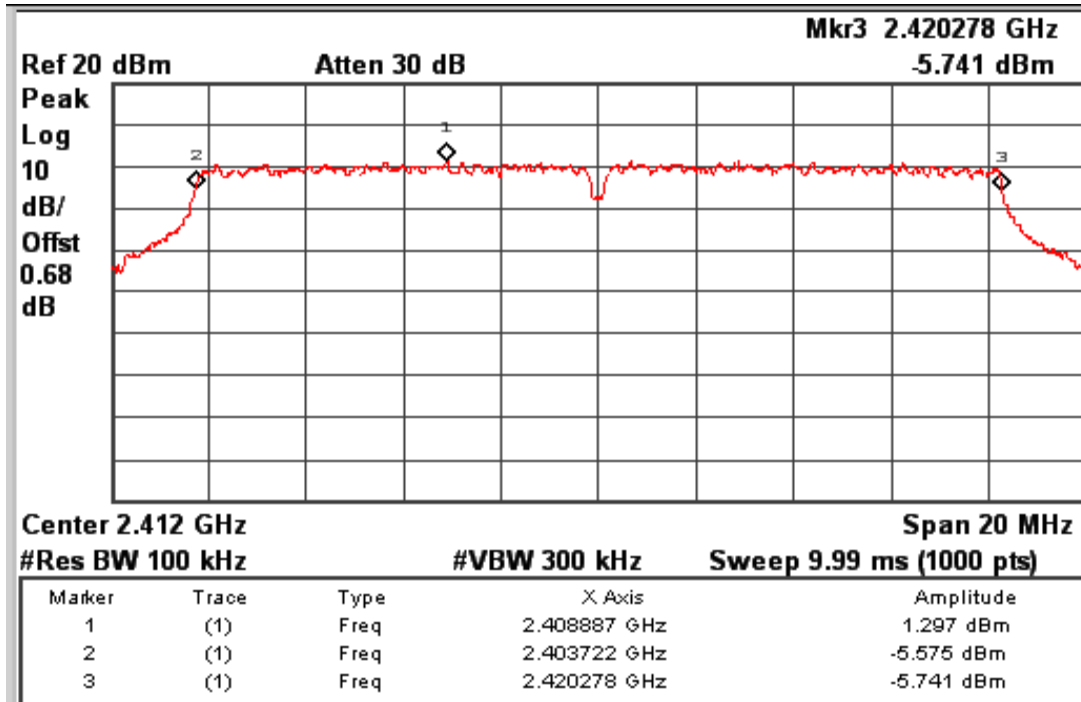
Data Rate: 6 Mbps

Channel frequencies: 2442 MHz



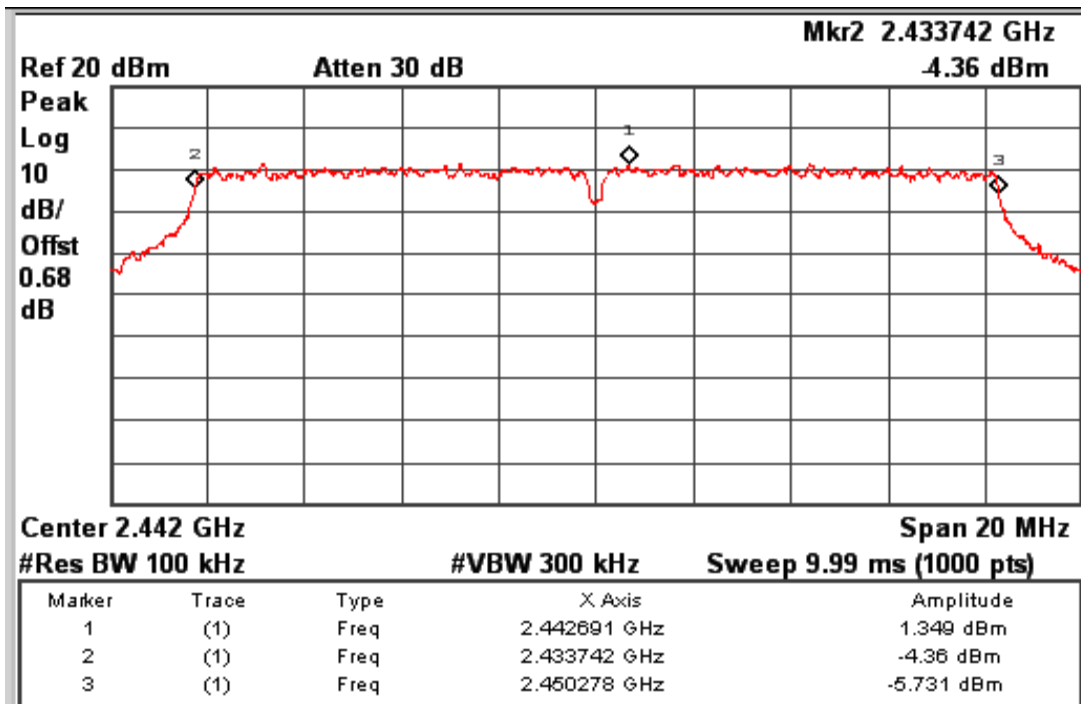
Data Rate: 6 Mbps

Channel frequencies: 2472 MHz



Data Rate: 24 Mbps

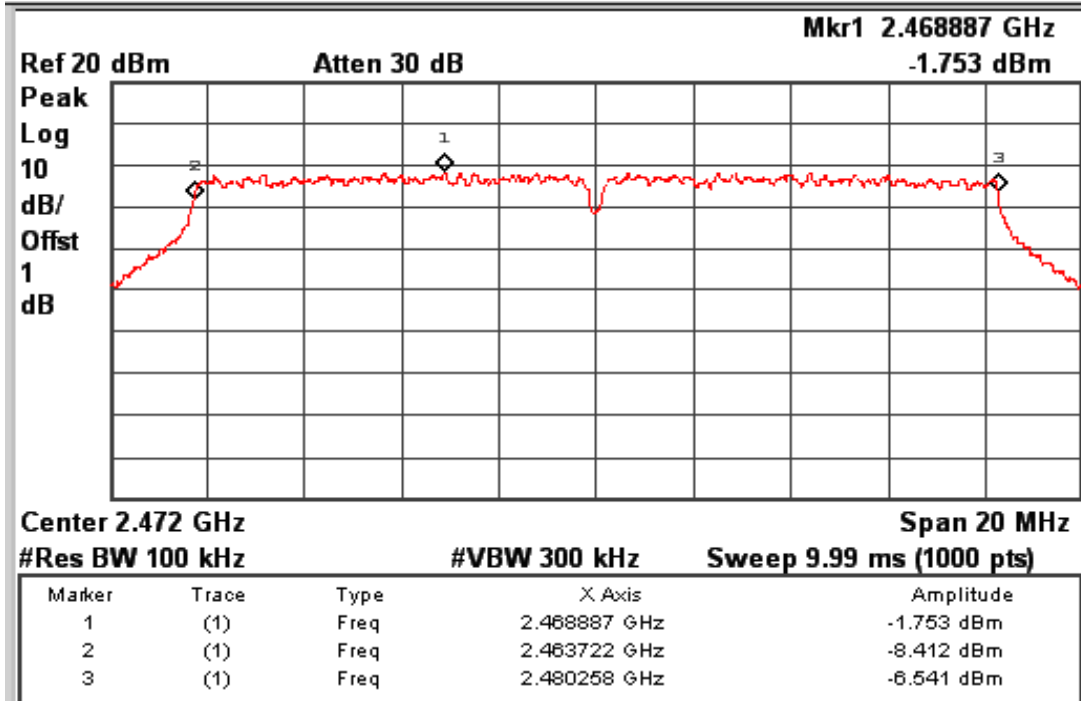
Channel frequencies: 2412 MHz



Data Rate: 24 Mbps

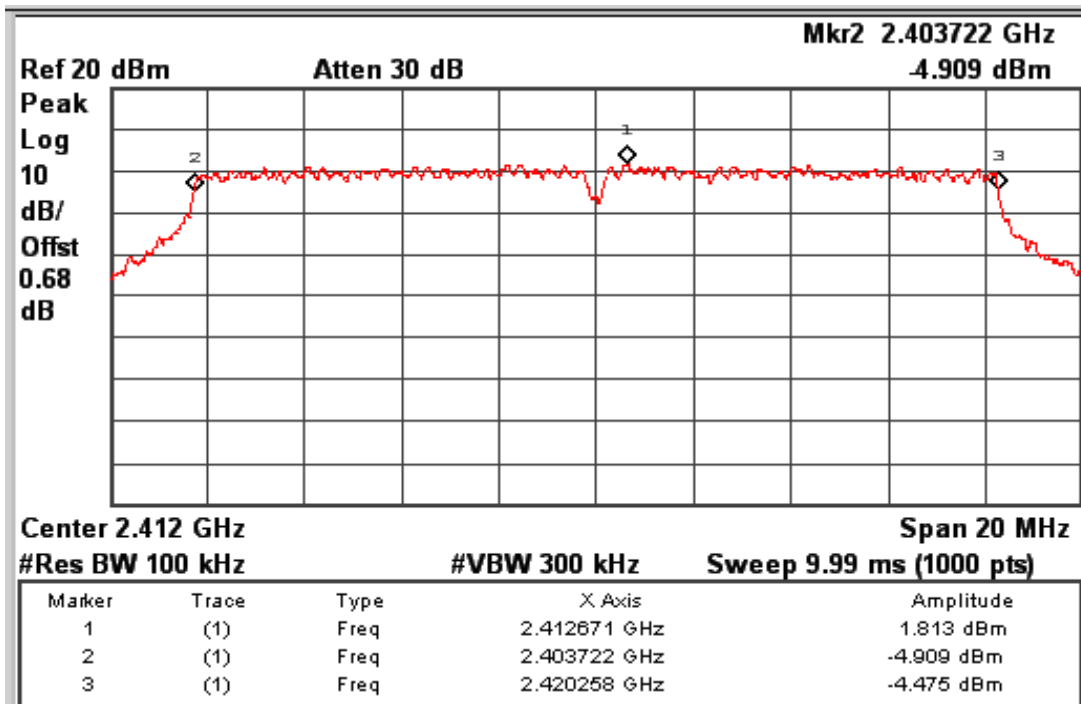
Channel frequencies: 2442 MHz

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Data Rate: 24 Mbps

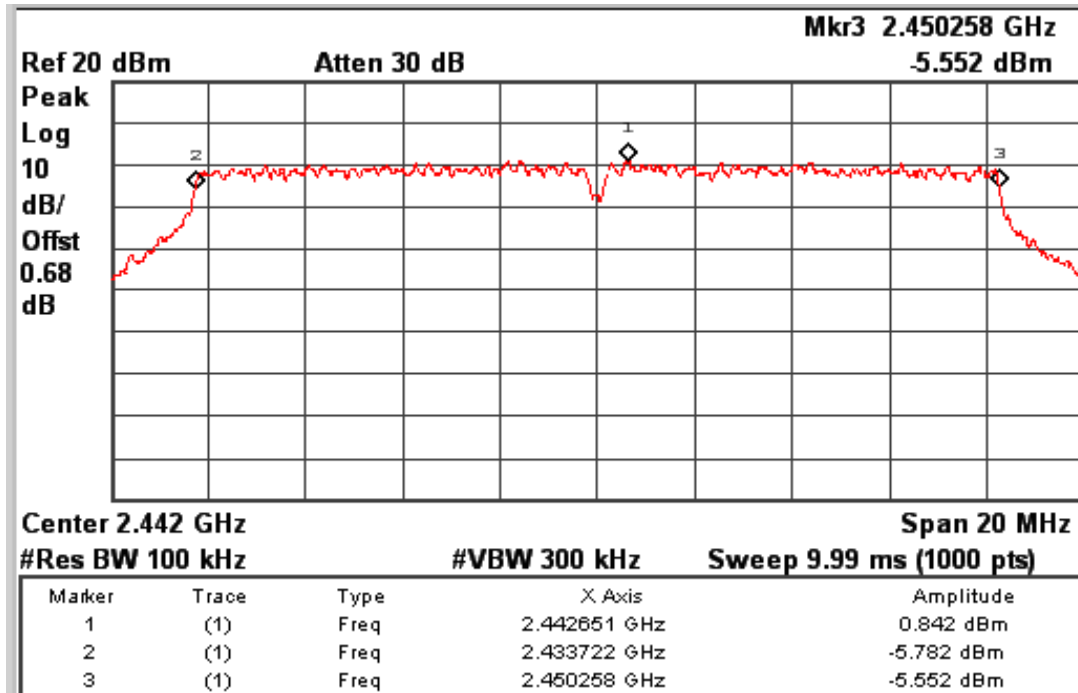
Channel frequencies: 2472 MHz



Data Rate: 54 Mbps

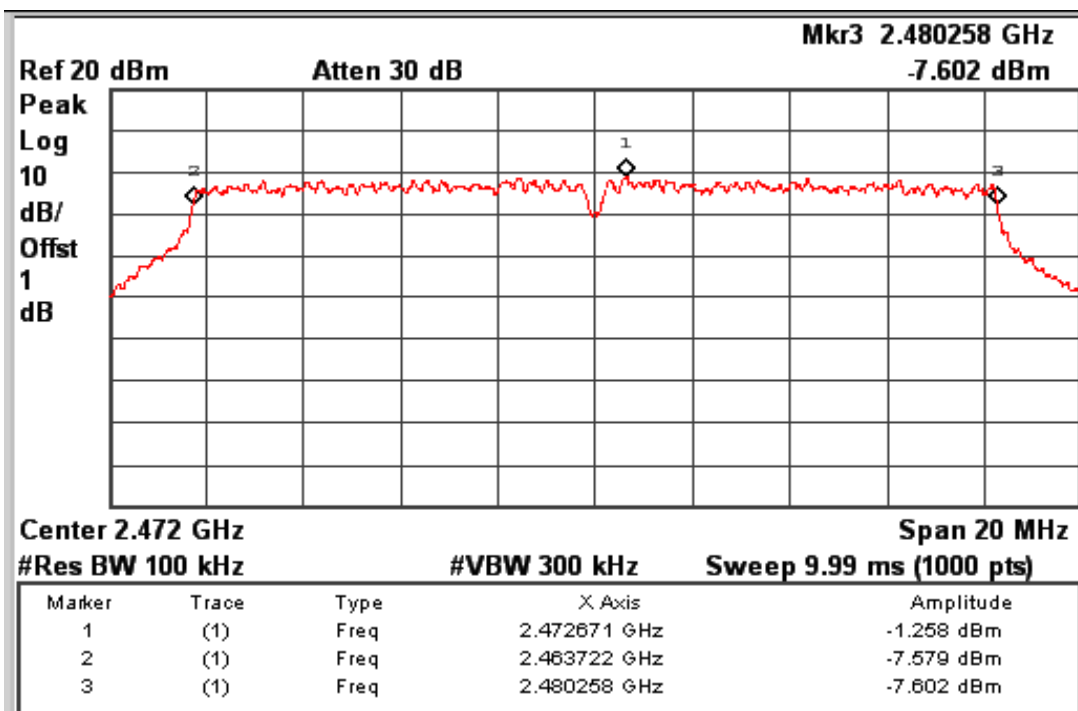
Channel frequencies: 2412 MHz

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Data Rate: 54 Mbps

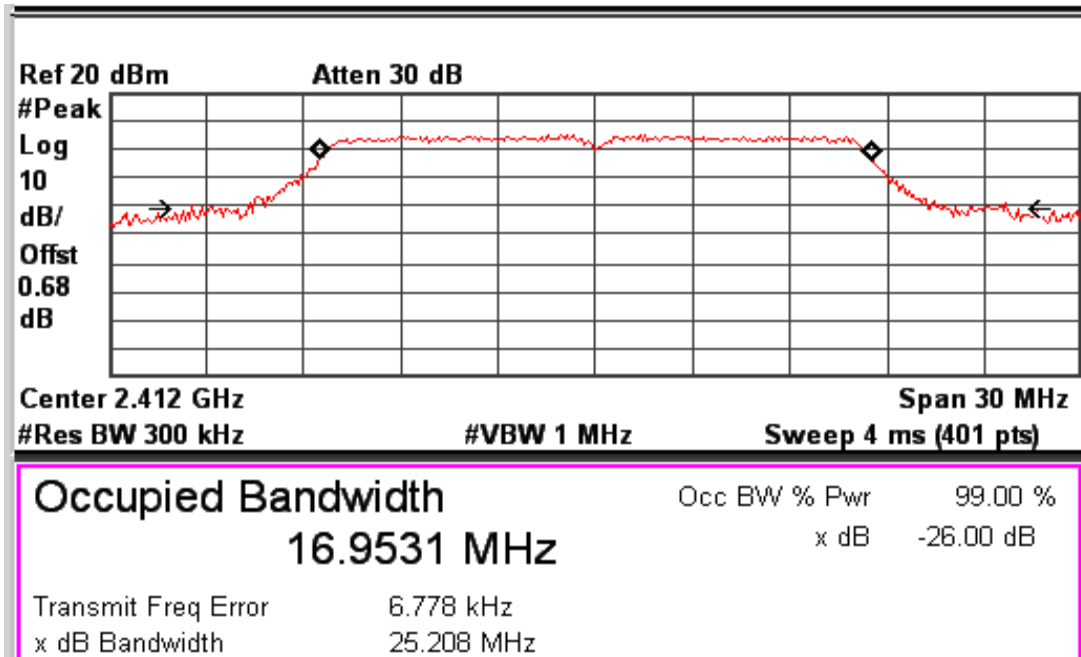
Channel frequencies: 2442MHz



Data Rate: 54 Mbps

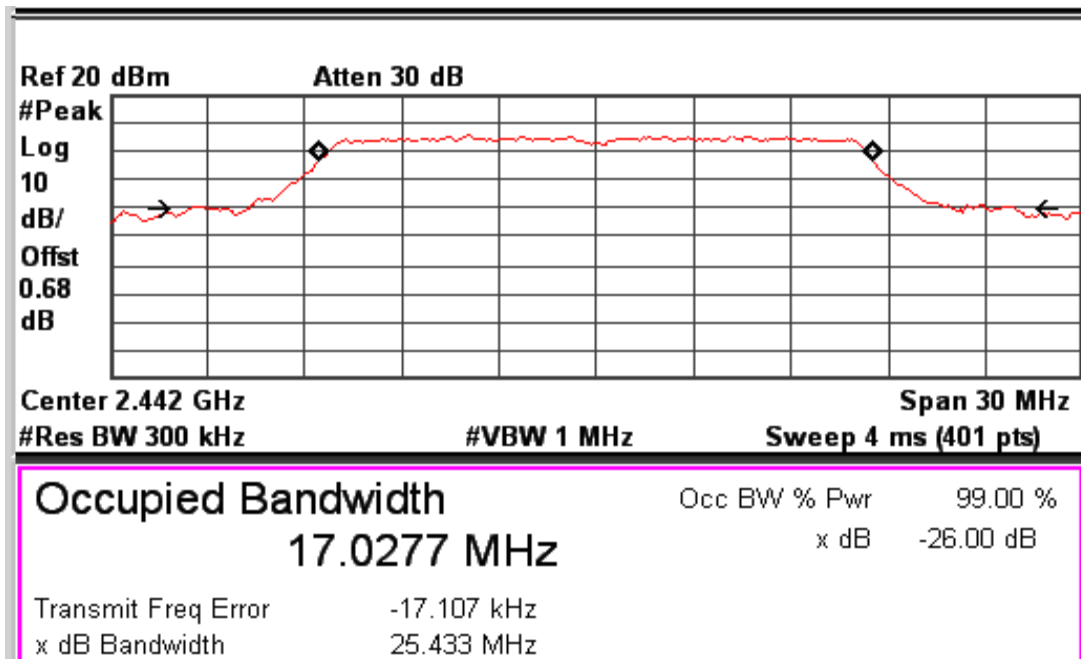
Channel frequencies: 2472 MHz

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Data Rate: 6 Mbps

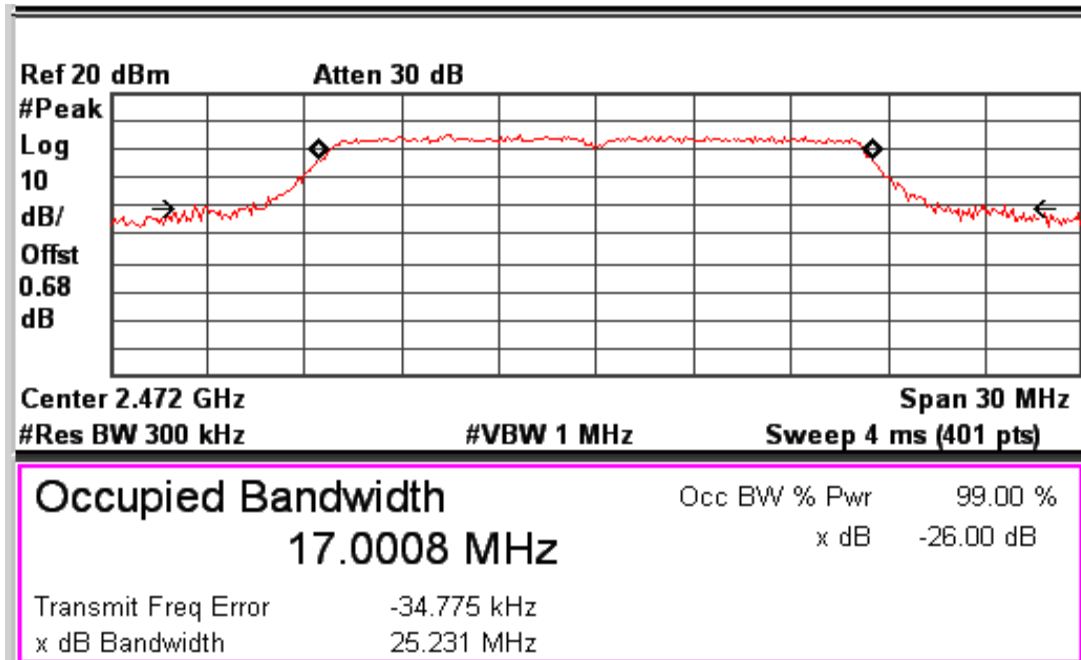
99% Occupied Bandwidth: Channel 2412MHz



Data Rate: 6 Mbps

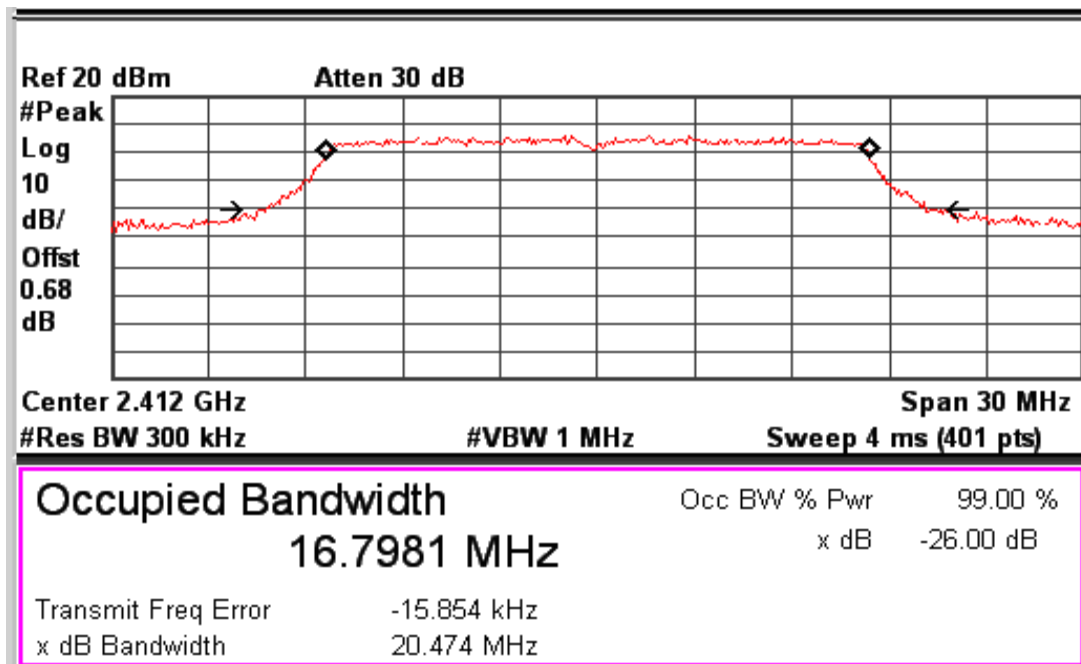
99% Occupied Bandwidth: Channel 2442MHz

www.tuv.com



Data Rate: 6 Mbps

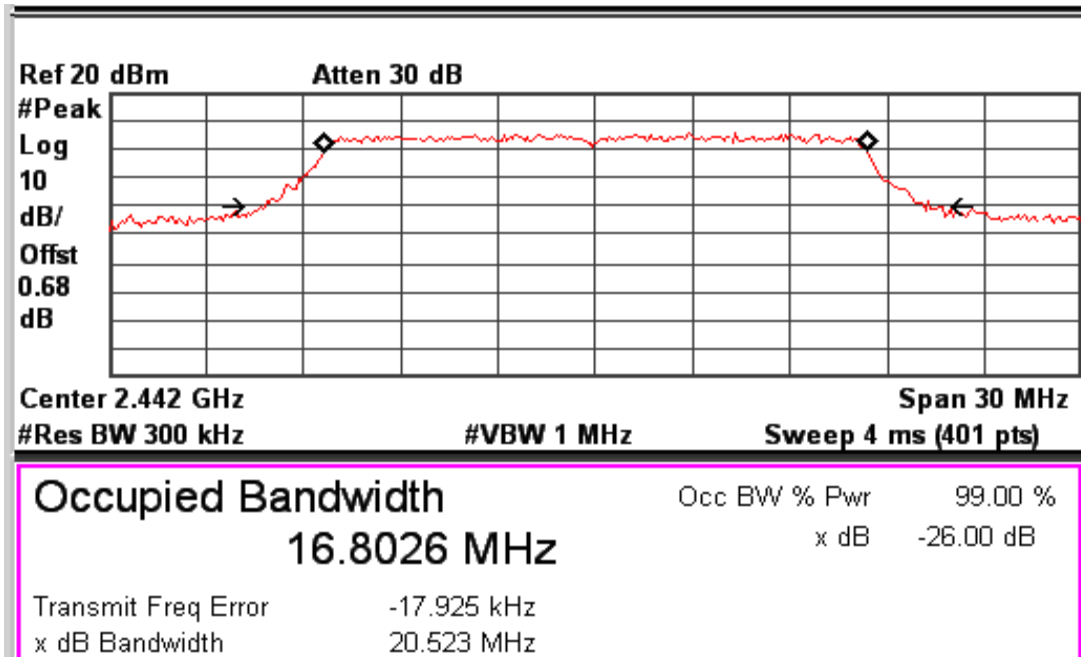
99% Occupied Bandwidth: Channel 2472MHz



Data Rate: 24 Mbps

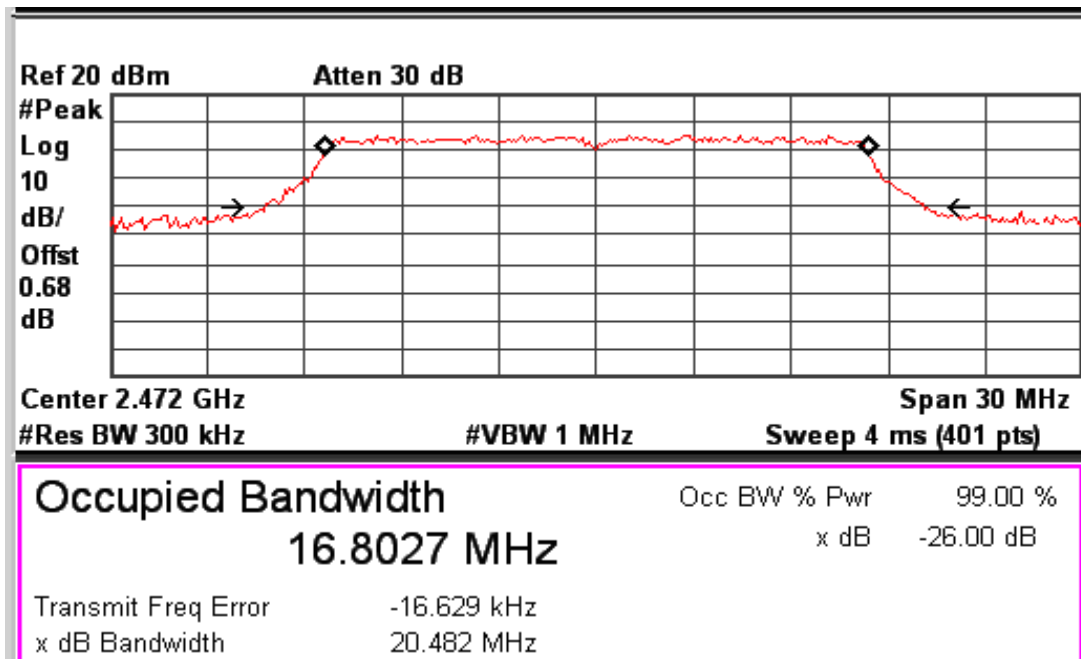
99% Occupied Bandwidth: Channel 2412MHz

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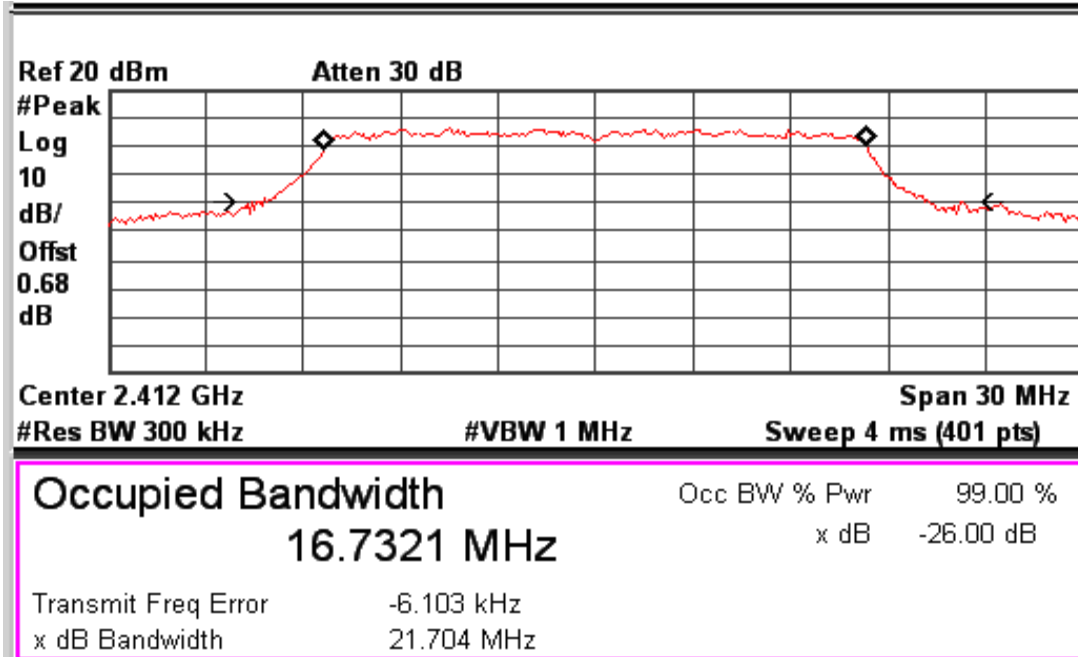
Data Rate: 24 Mbps

99% Occupied Bandwidth: Channel 2442MHz



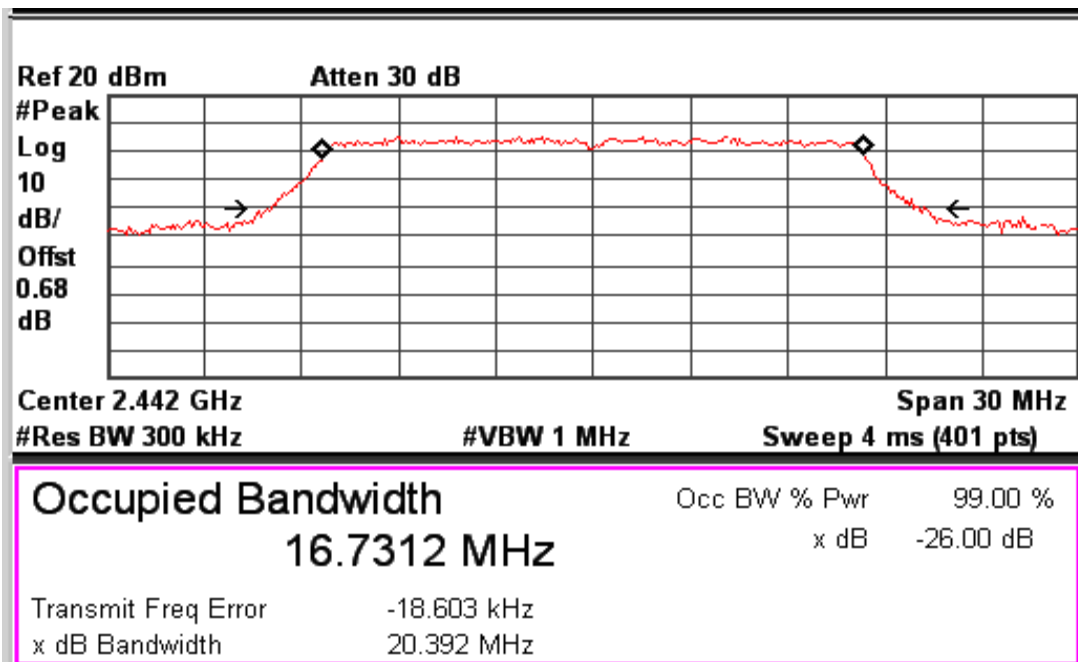
Data Rate: 24 Mbps

99% Occupied Bandwidth: Channel 2472MHz



Data Rate: 54 Mbps

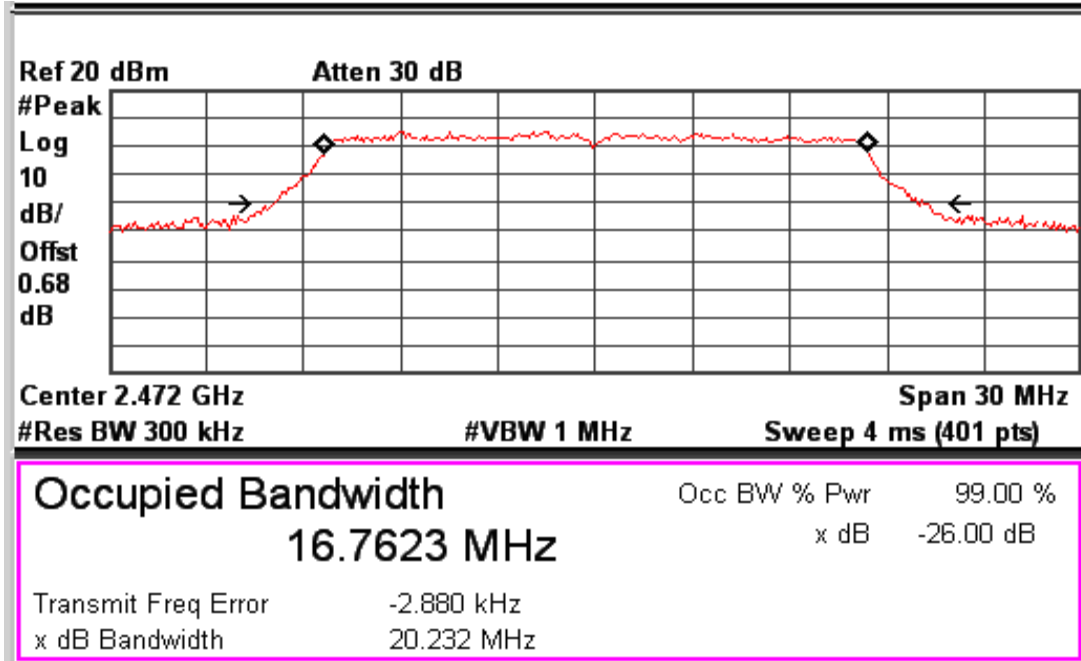
99% Occupied Bandwidth: Channel 2412MHz



Data Rate: 54 Mbps

99% Occupied Bandwidth: Channel 2442MHz

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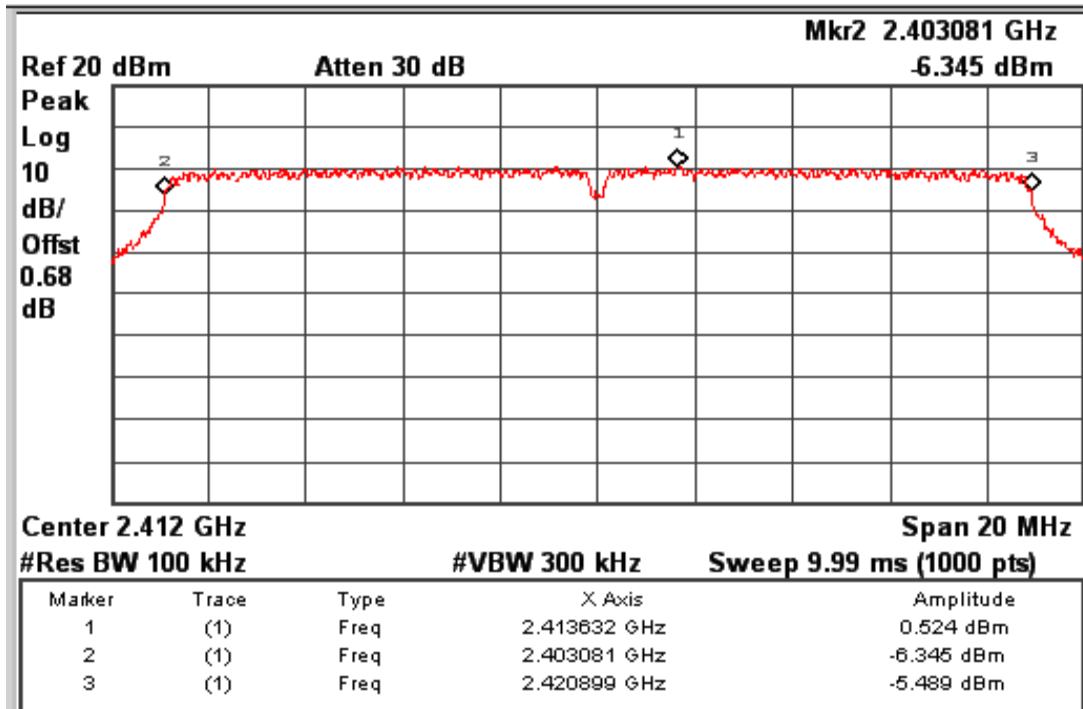


Data Rate: 54 Mbps

99% Occupied Bandwidth: Channel 2472MHz

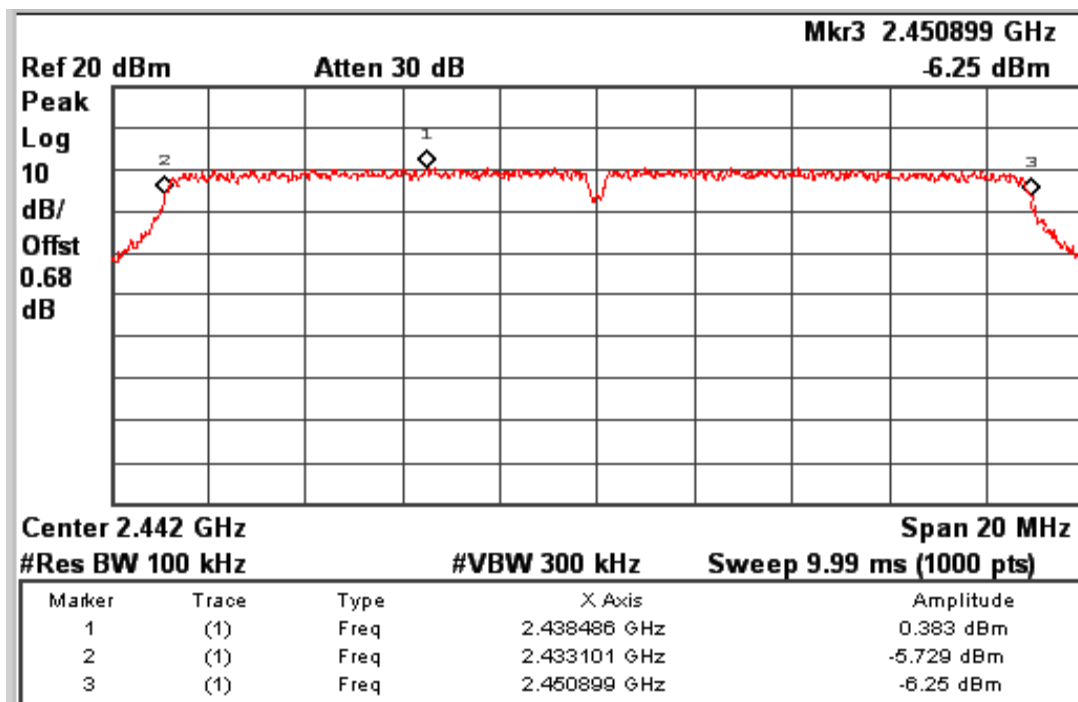
802.11 Protocol	Data Rate (Mbps)	Channel Frequency (MHz)	Lower Frequency (MHz)	Upper Frequency (MHz)	6 dB Bandwidth (MHz)	99% OBW (MHz)
n	6.5	2412.00	2403.08	2420.89	17.81	17.93
		2442.00	2433.10	2450.89	17.79	17.87
		2472.00	2463.10	2480.89	17.79	17.86
	39	2412.00	2403.10	2420.92	17.82	17.84
		2442.00	2433.10	2450.92	17.82	17.86
		2472.00	2463.12	2480.89	17.77	17.87
	65	2412.00	2403.08	2420.89	17.81	17.84
		2442.00	2433.12	2450.92	17.80	17.82
		2472.00	2463.10	2480.89	17.79	17.84

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Data Rate: 6.5 Mbps

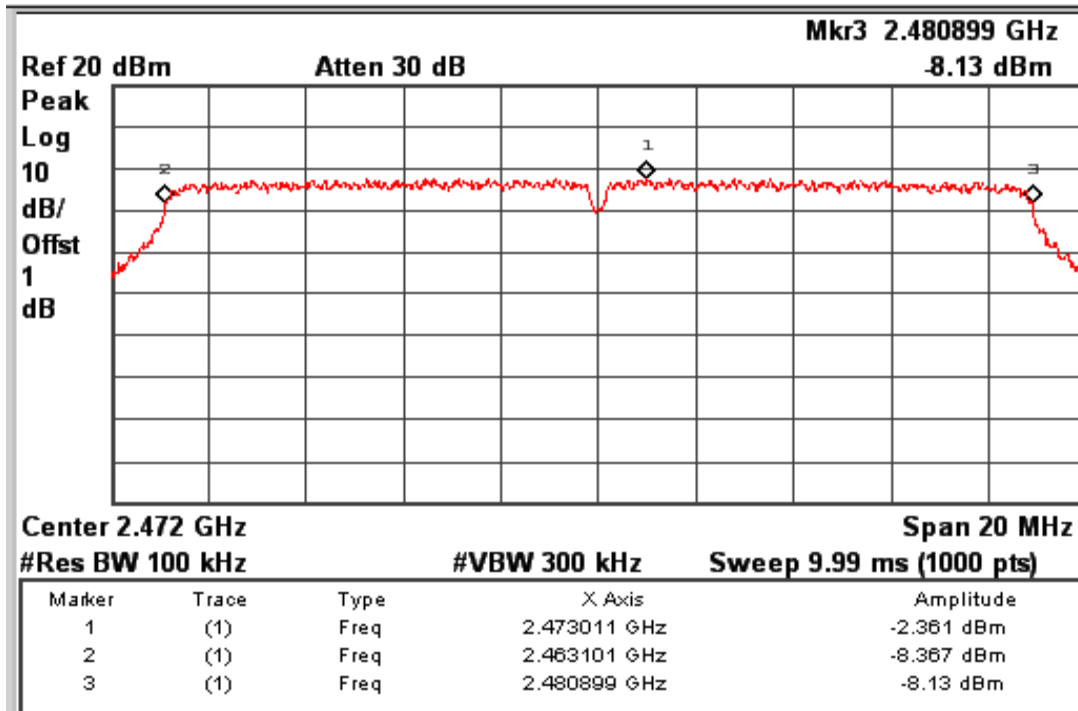
Channel frequencies: 2412 MHz



Data Rate: 6.5 Mbps

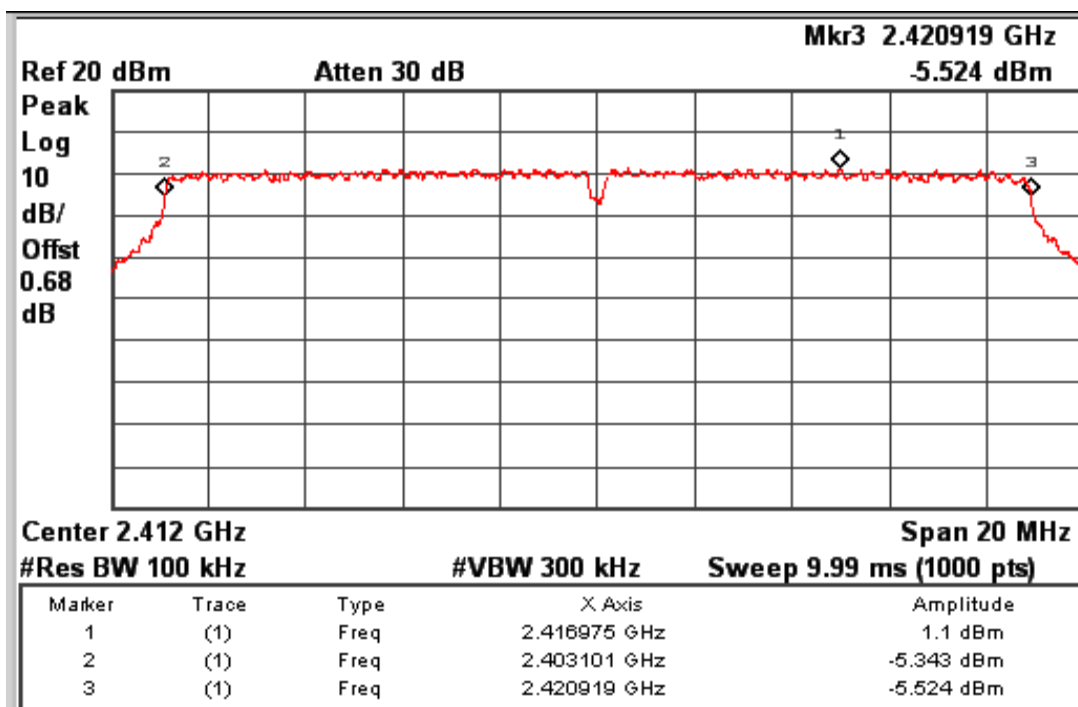
Channel frequencies: 2442 MHz

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Data Rate: 6.5 Mbps

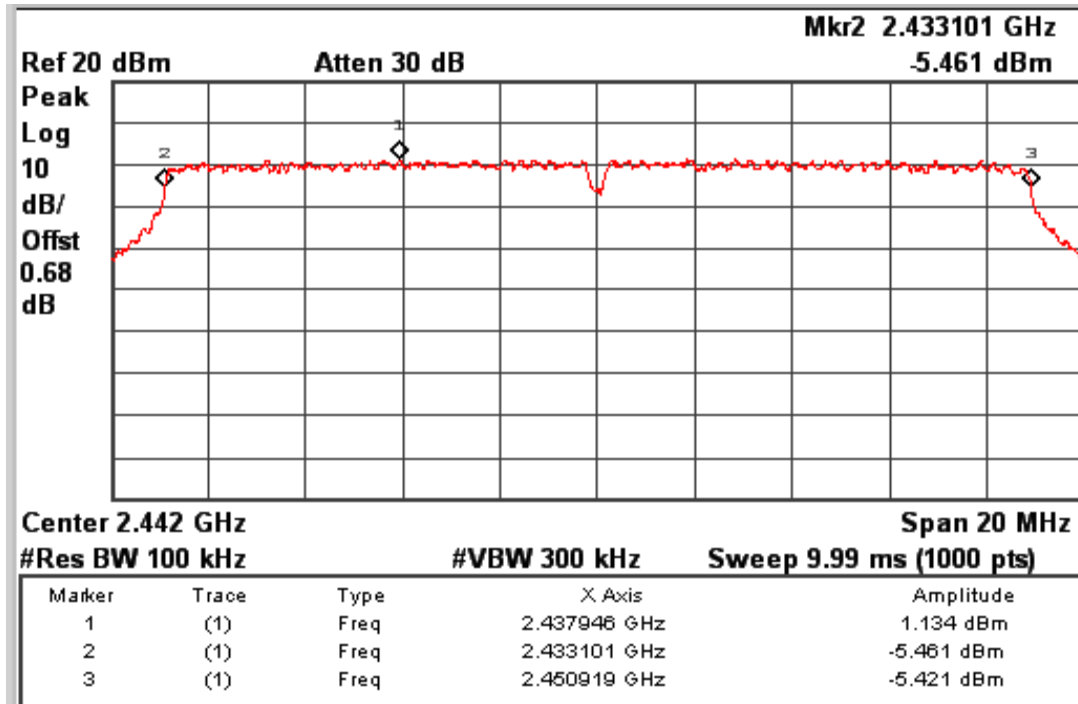
Channel frequencies: 2472 MHz



Data Rate: 39 Mbps

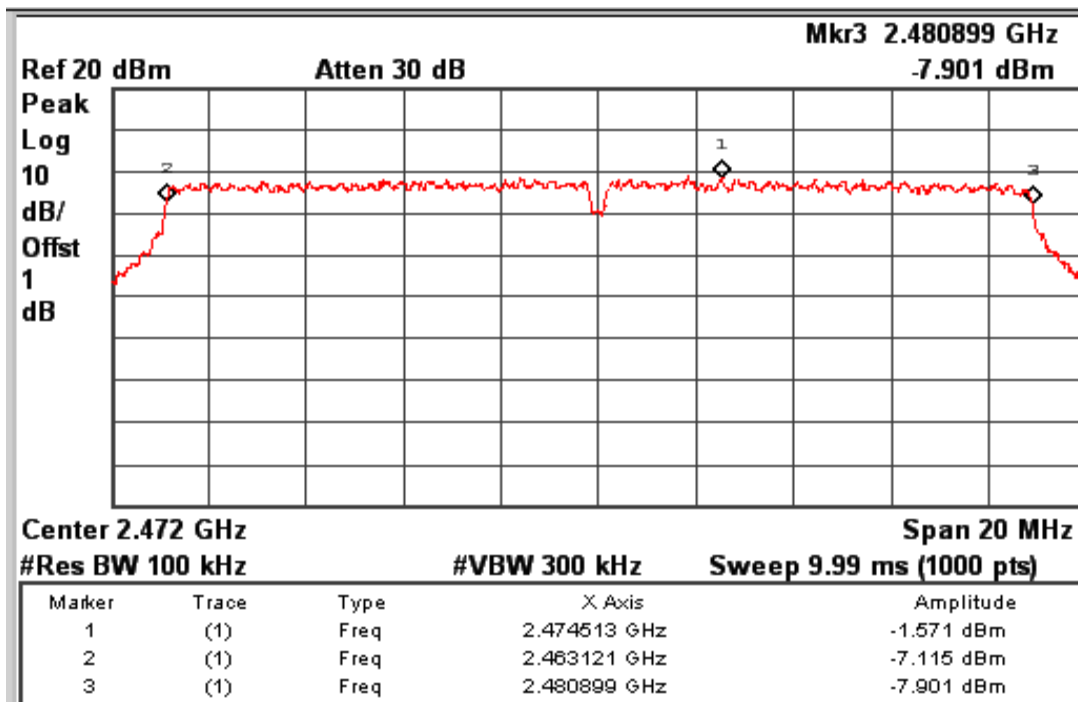
Channel frequencies: 2412 MHz

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Data Rate: 39 Mbps

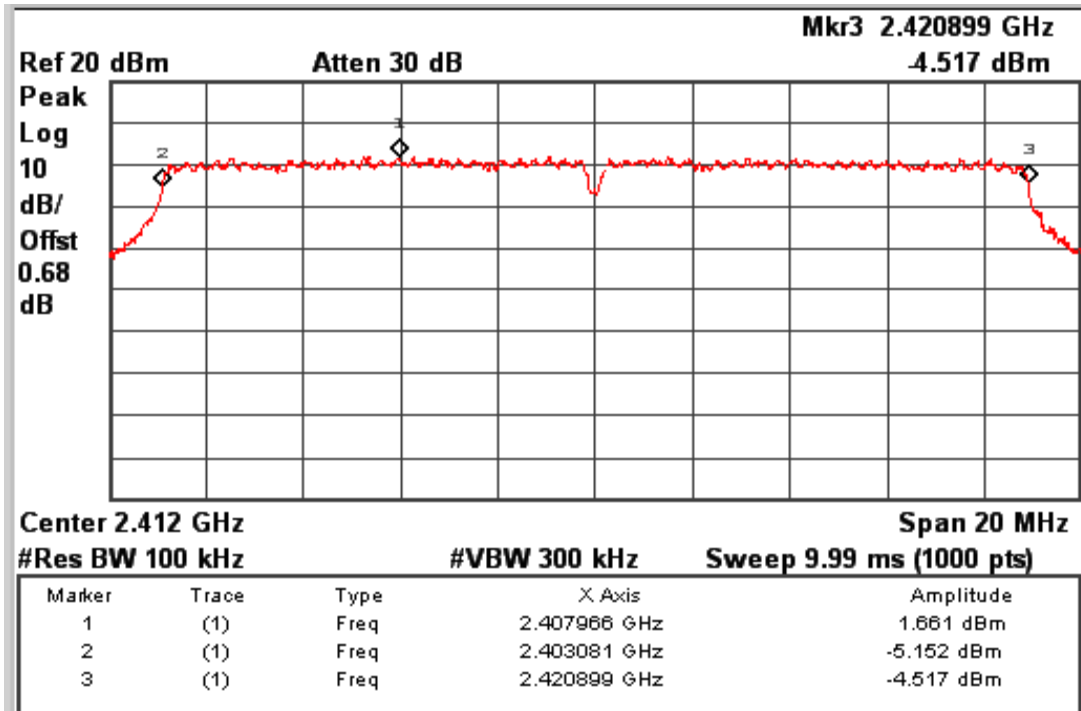
Channel frequencies: 2442 MHz



Data Rate: 39 Mbps

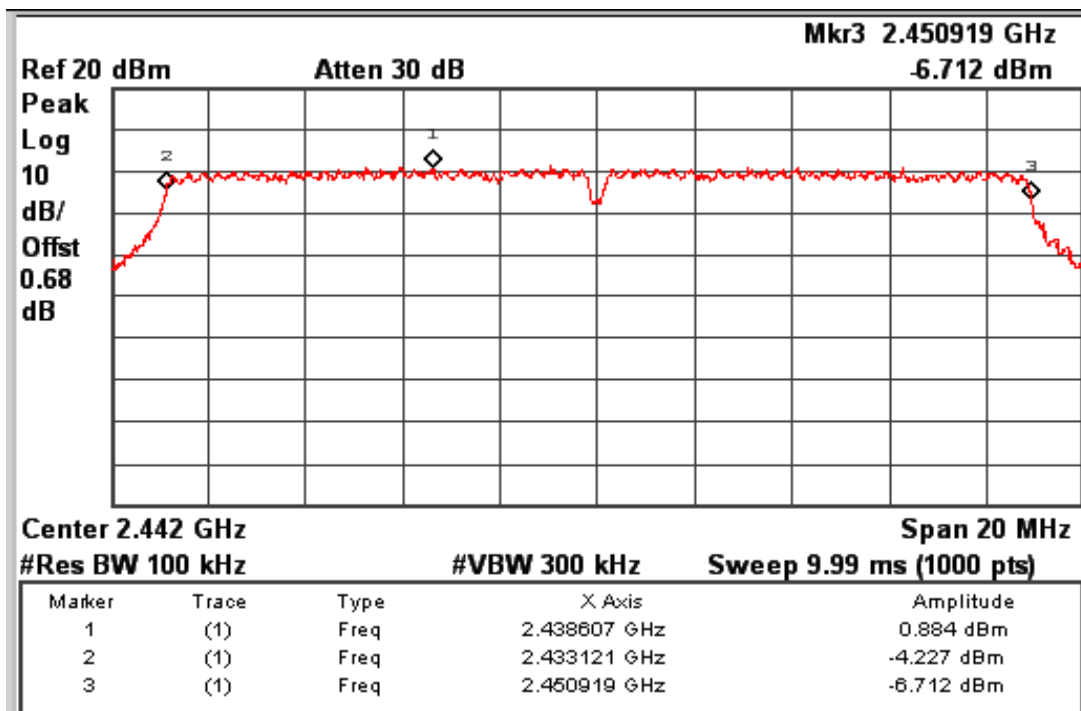
Channel frequencies: 2472 MHz

www.tuv.com



Data Rate: 65 Mbps

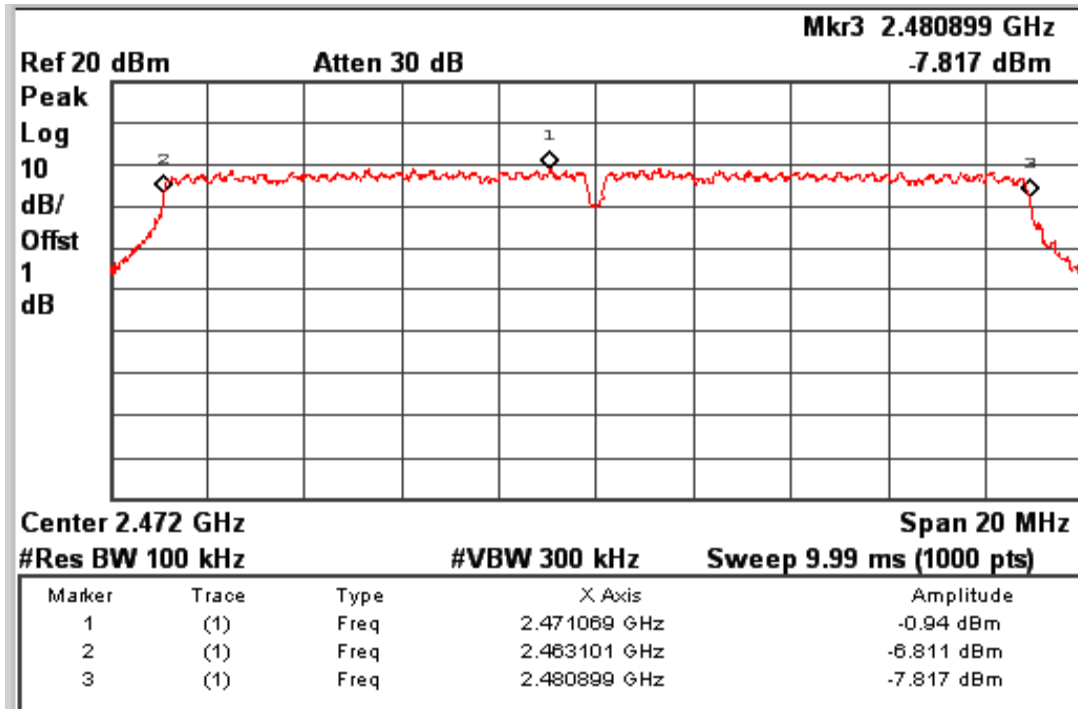
Channel frequencies: 2412 MHz



Data Rate: 65 Mbps

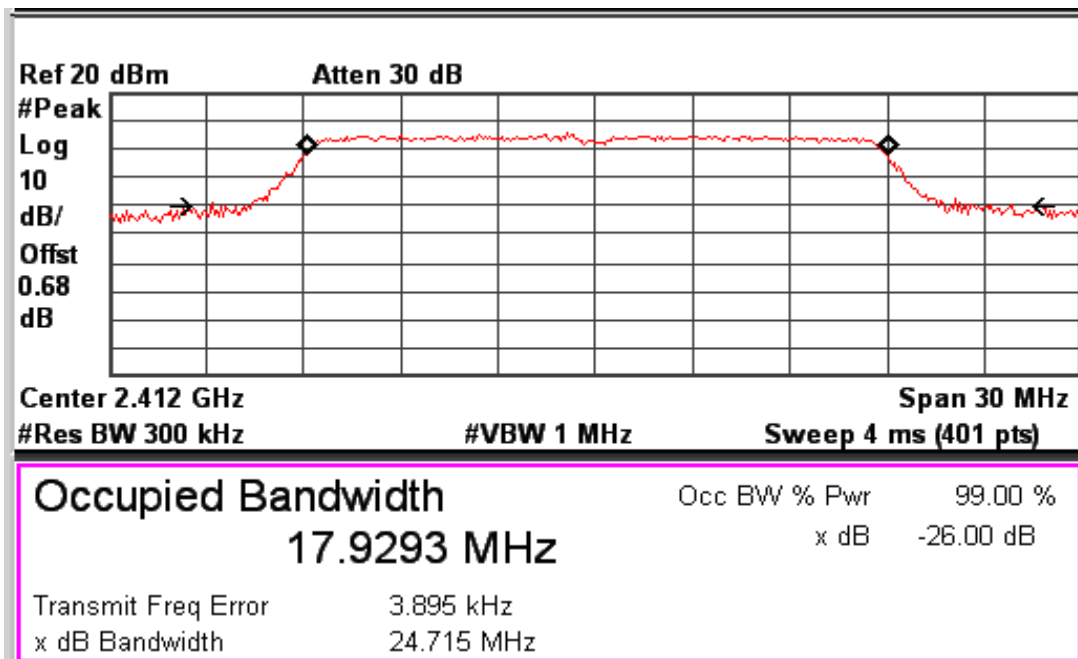
Channel frequencies: 2442MHz

www.tuv.com



Data Rate: 65 Mbps

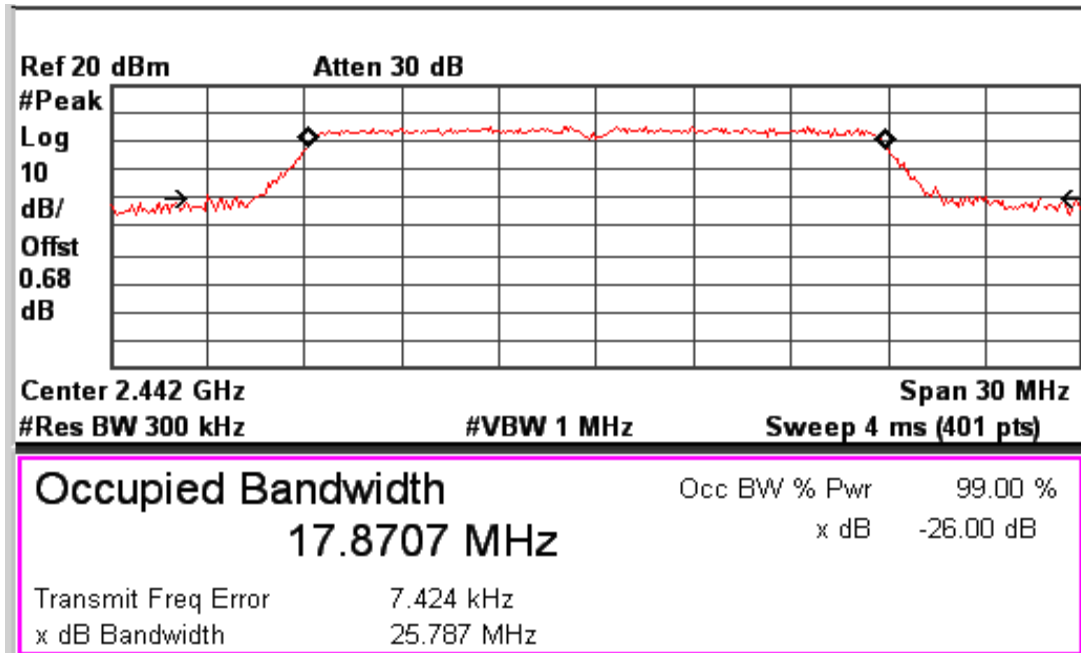
Channel frequencies: 2472 MHz



Data Rate: 6.5 Mbps

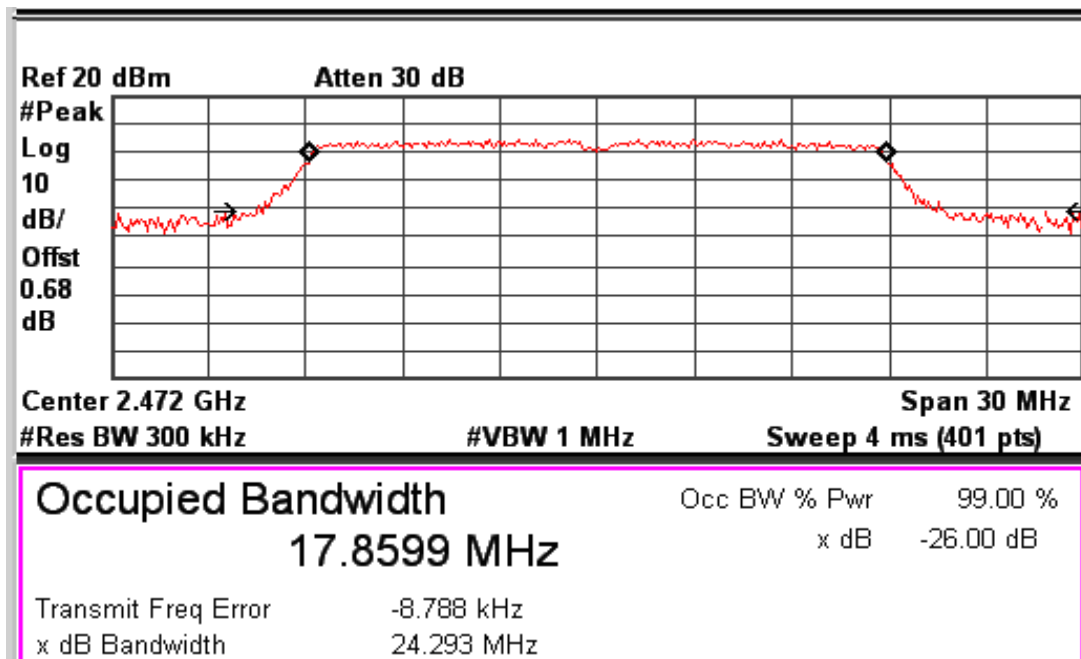
99% Occupied Bandwidth: Channel 2412MHz

www.tuv.com



Data Rate: 6.5 Mbps

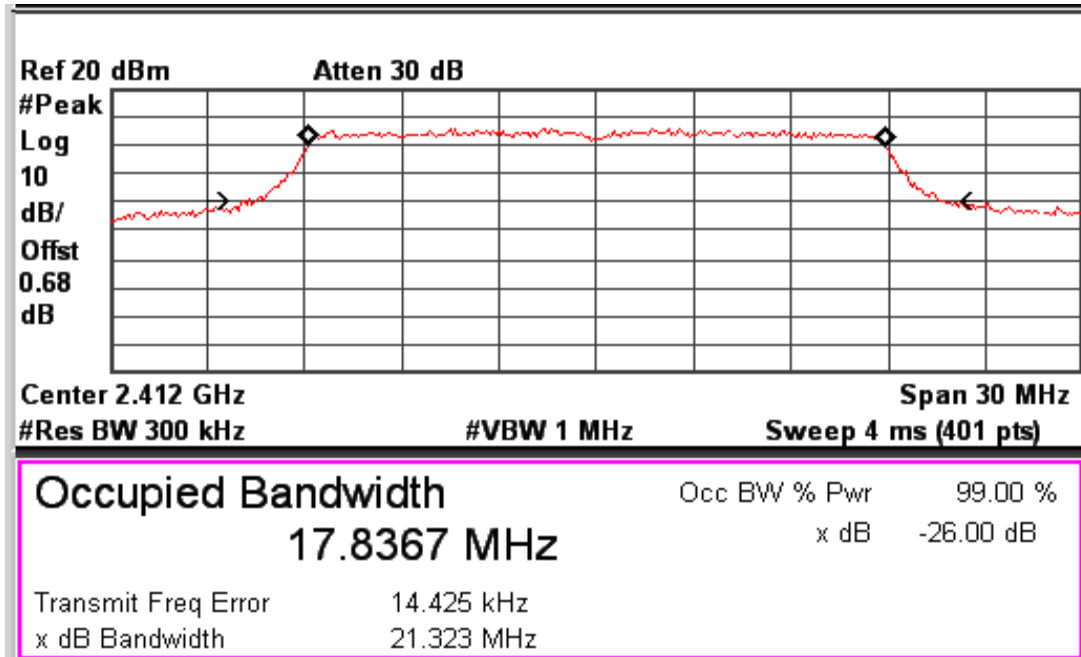
99% Occupied Bandwidth: Channel 2442MHz



Data Rate: 6.5 Mbps

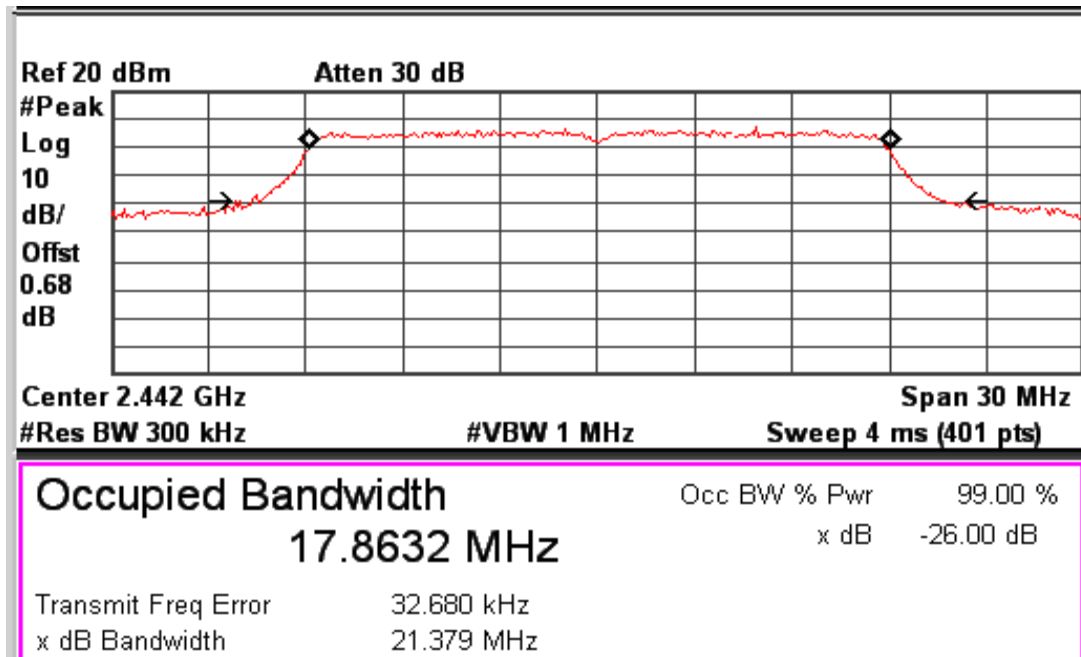
99% Occupied Bandwidth: Channel 2472MHz

www.tuv.com



Data Rate: 39 Mbps

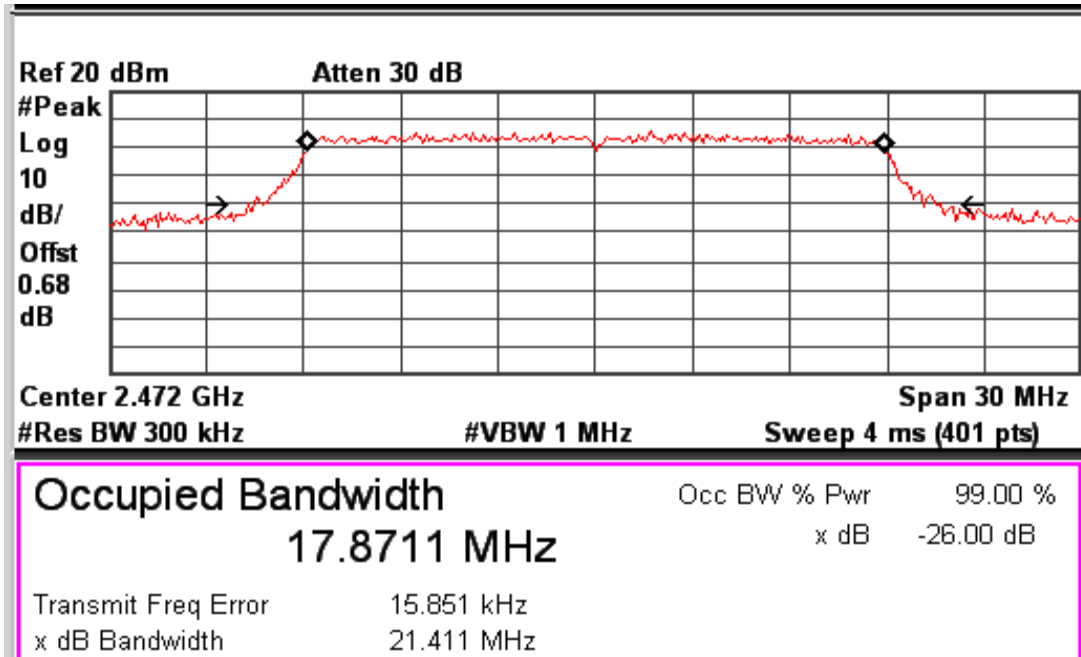
99% Occupied Bandwidth: Channel 2412MHz



Data Rate: 39 Mbps

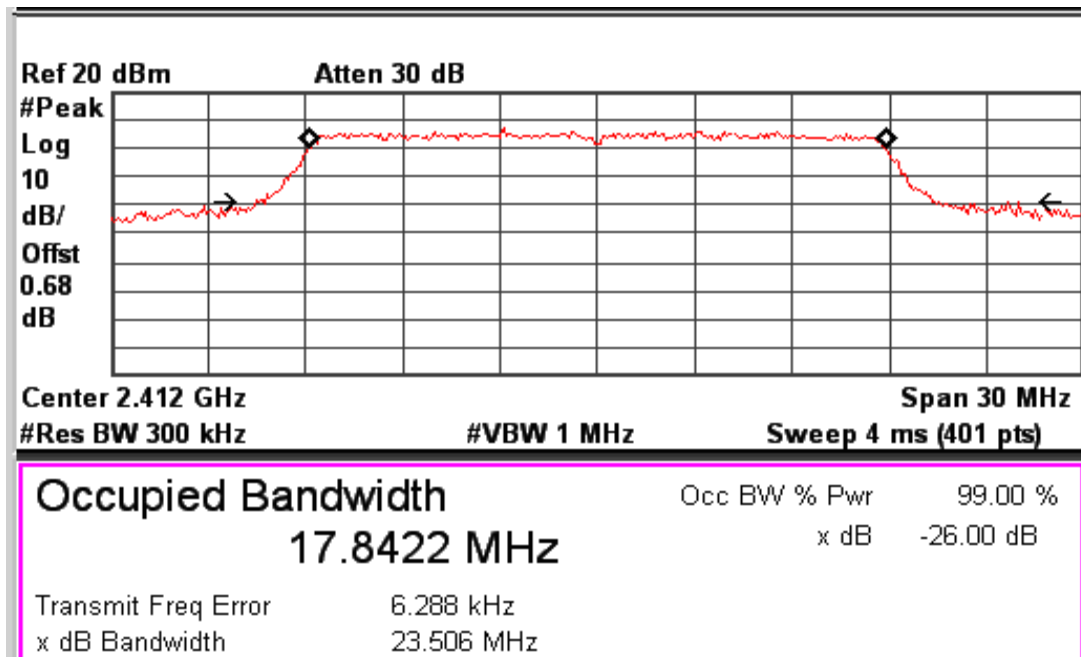
99% Occupied Bandwidth: Channel 2442MHz

www.tuv.com



Data Rate: 39 Mbps

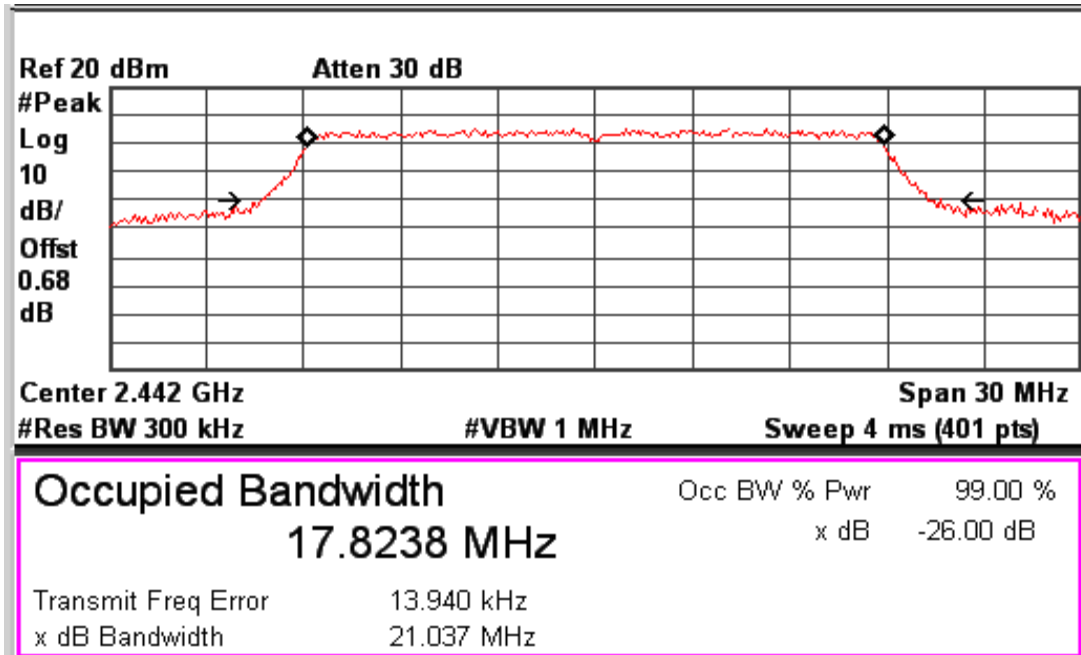
99% Occupied Bandwidth: Channel 2472MHz



Data Rate: 65 Mbps

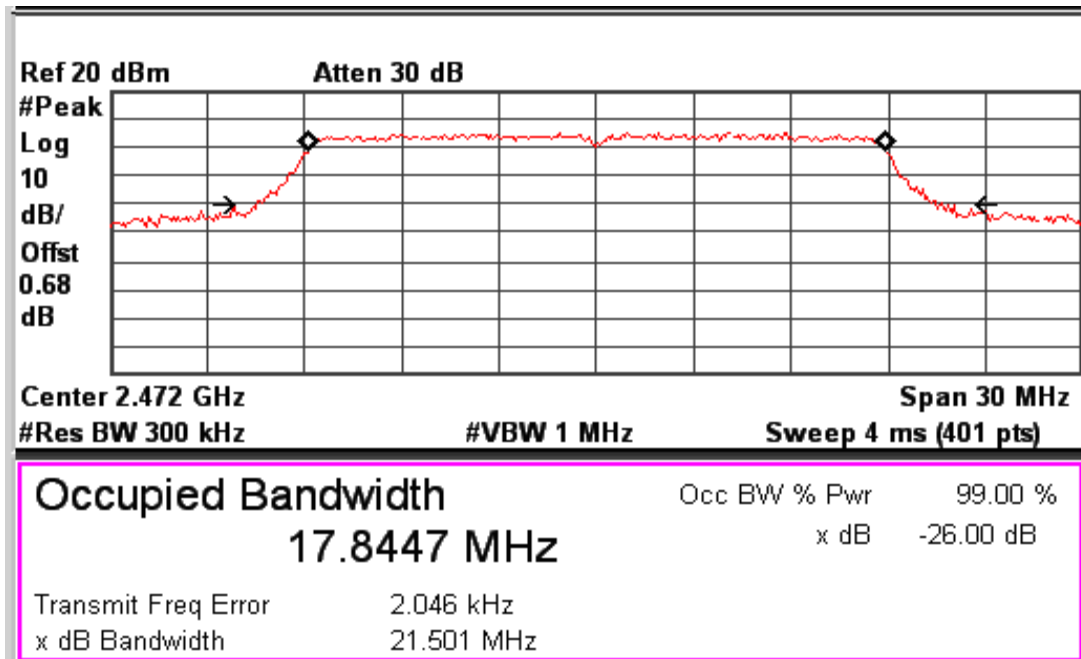
99% Occupied Bandwidth: Channel 2412MHz

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Data Rate: 65 Mbps

99% Occupied Bandwidth: Channel 2442MHz



Data Rate: 65 Mbps

99% Occupied Bandwidth: Channel 2472MHz

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Band-edge Compliance

Section 15.247(d)

Result

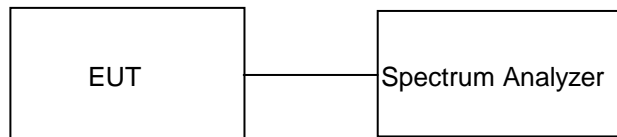
Pass

Test Specification
Detector Function
Requirement

FCC Part 15 Section 15.247(d)
Peak

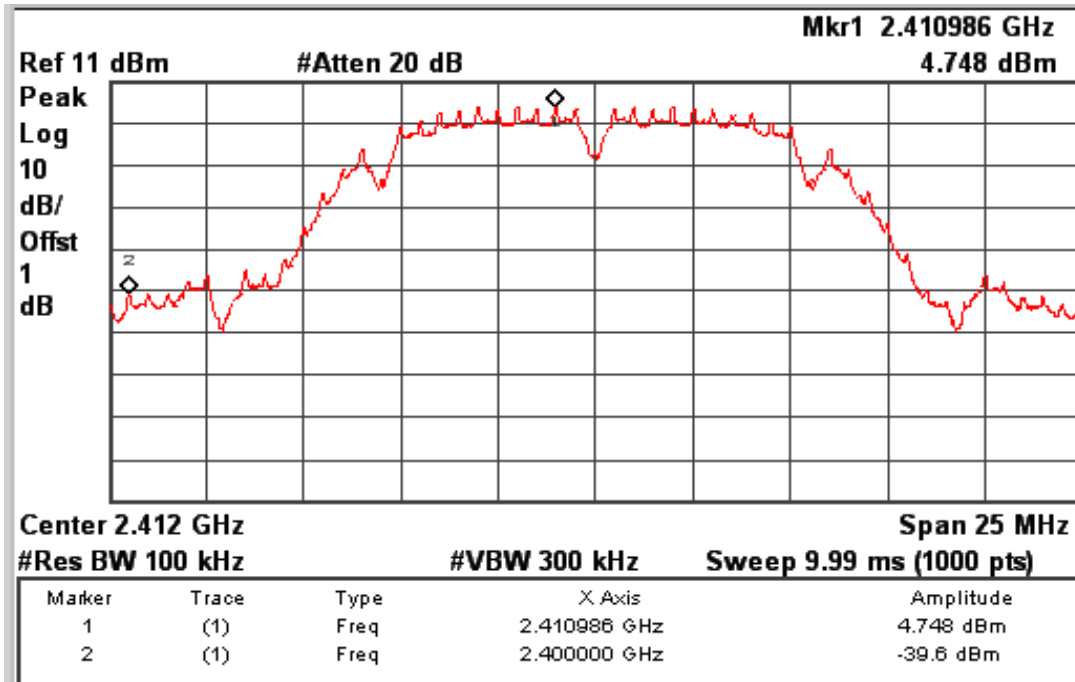
In any 100kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20dB below that in the 100kHz bandwidth within the band that contains the 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:



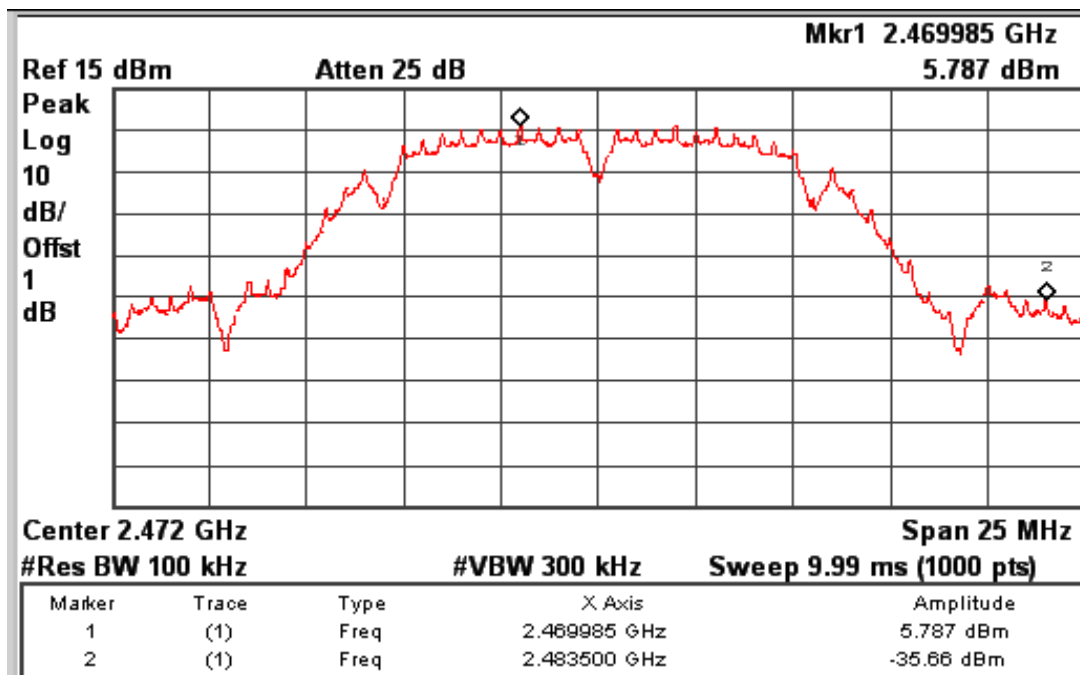
Test Result:

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	44.35	20.00
		2472.00	2483.50	41.45	20.00
	11	2412.00	2400.00	46.87	20.00
		2472.00	2483.50	45.83	20.00



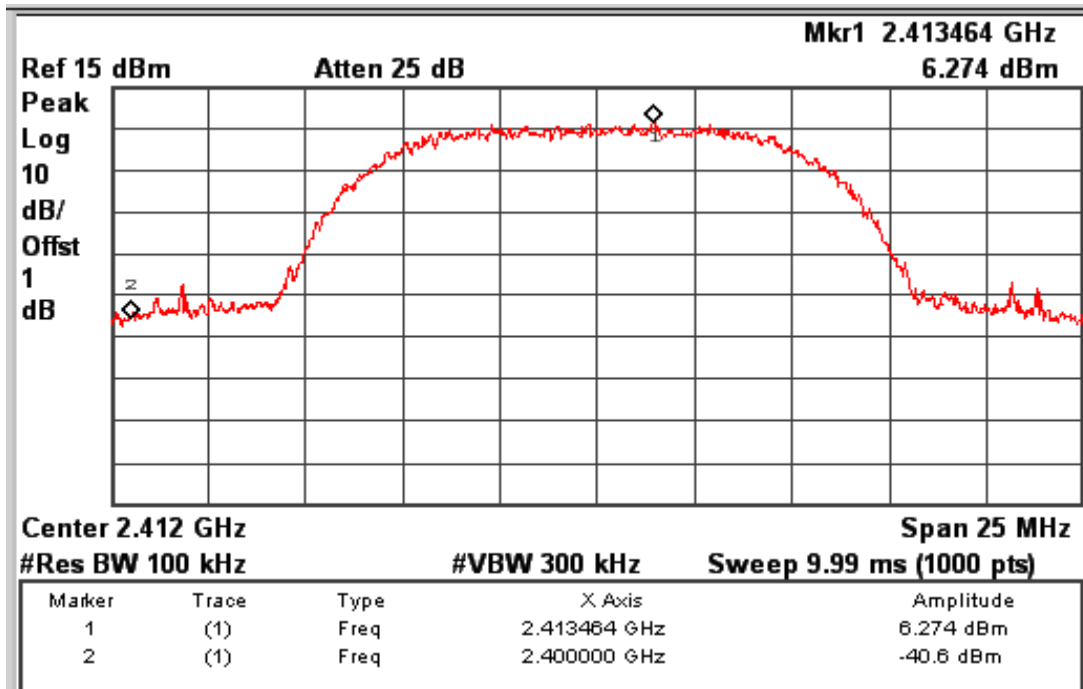
Data Rate: 1 Mbps

Channel frequency: 2412 MHz



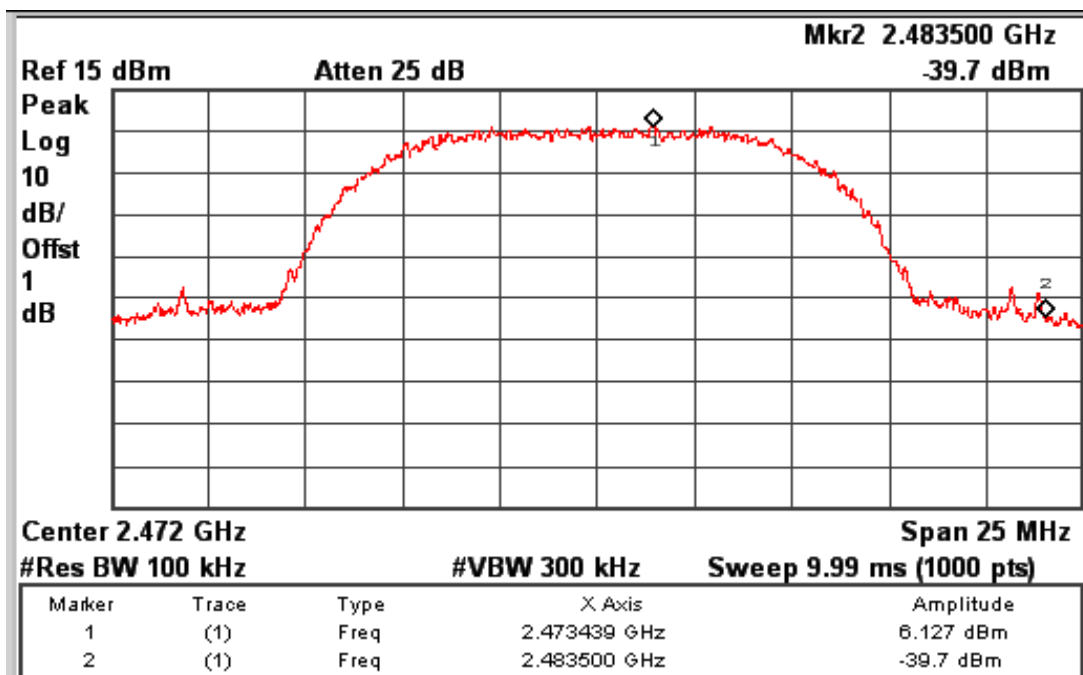
Data Rate: 1 Mbps

Channel frequency: 2472 MHz



Data Rate: 11 Mbps

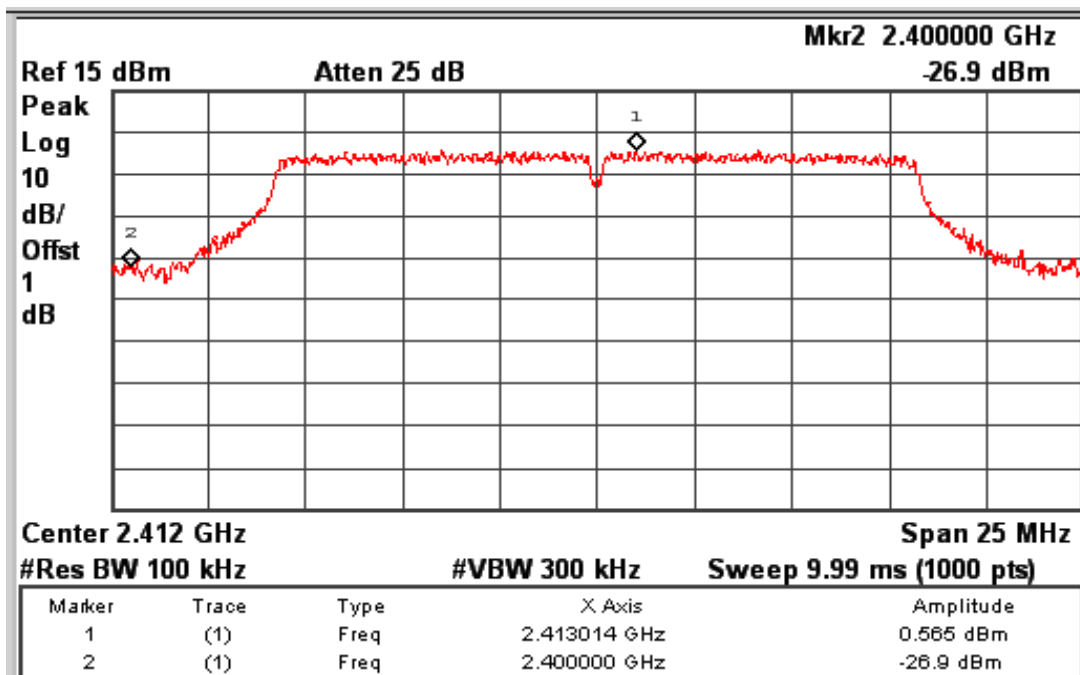
Channel frequency: 2412 MHz



Data Rate: 11 Mbps

Channel frequency: 2472 MHz

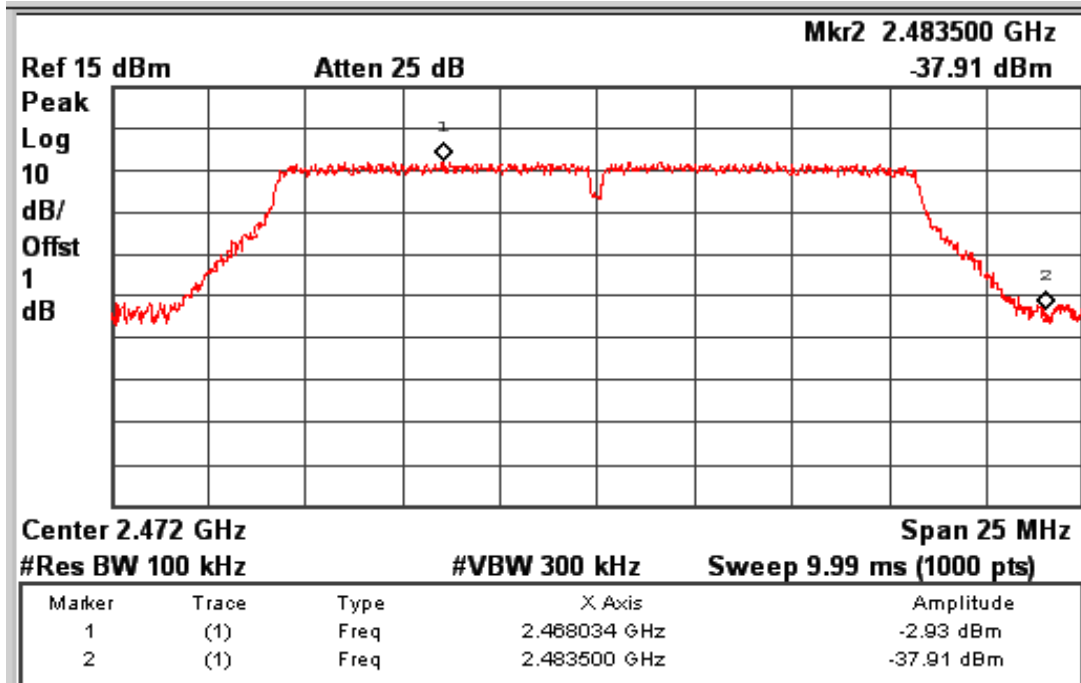
802.11 Protocol	Data Rate (Mbps)	Channel Frequency (MHz)	Value at Bande Edge		Limit (dBc)
			Frequency (MHz)	Value (dBc)	
g	6	2412.00	2400.00	27.47	20.00
		2472.00	2483.50	34.98	20.00
	24	2412.00	2400.00	28.79	20.00
		2472.00	2483.50	35.48	20.00
	54	2412.00	2400.00	31.23	20.00
		2472.00	2483.50	36.26	20.00



Data Rate: 6 Mbps

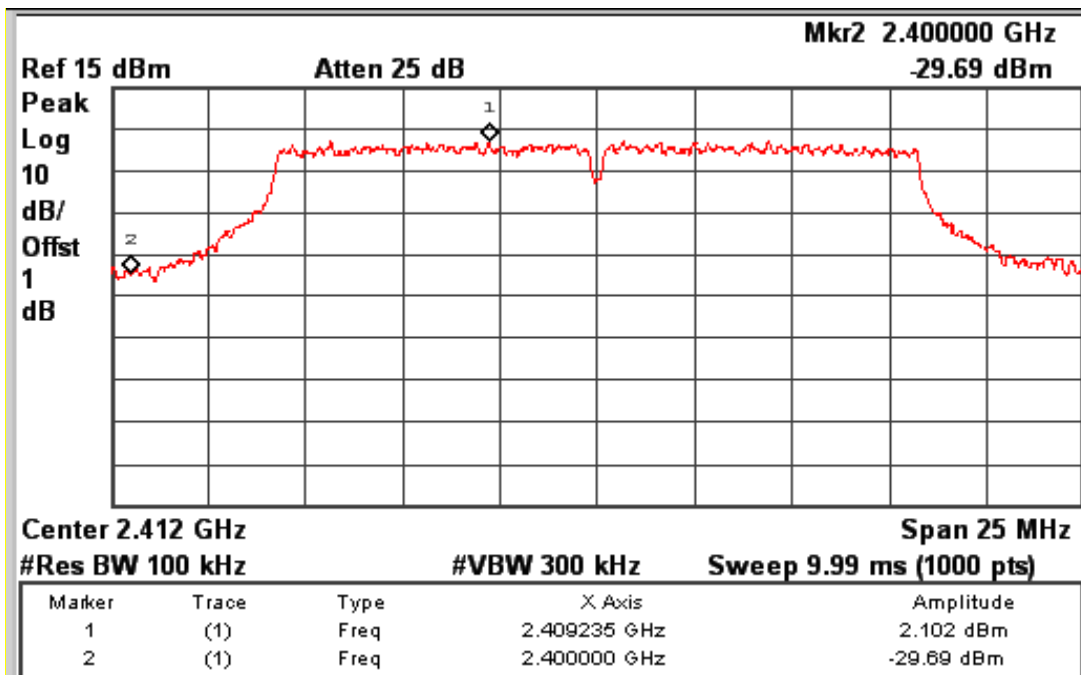
Channel frequency: 2412 MHz

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Data Rate: 6 Mbps

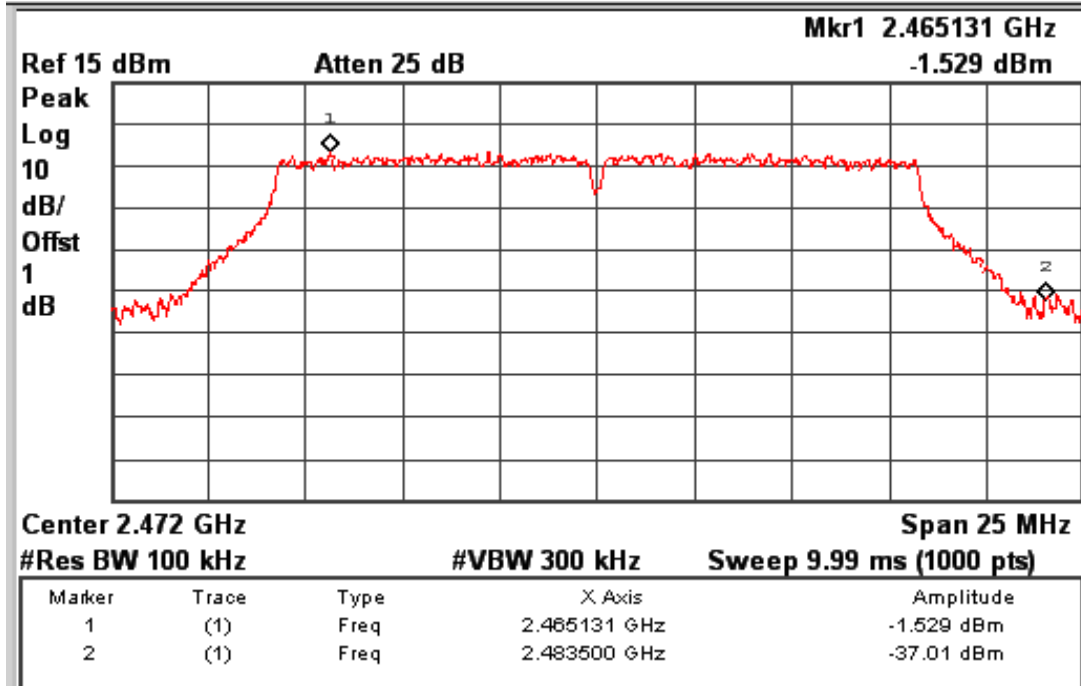
Channel frequency: 2472 MHz



Data Rate: 24 Mbps

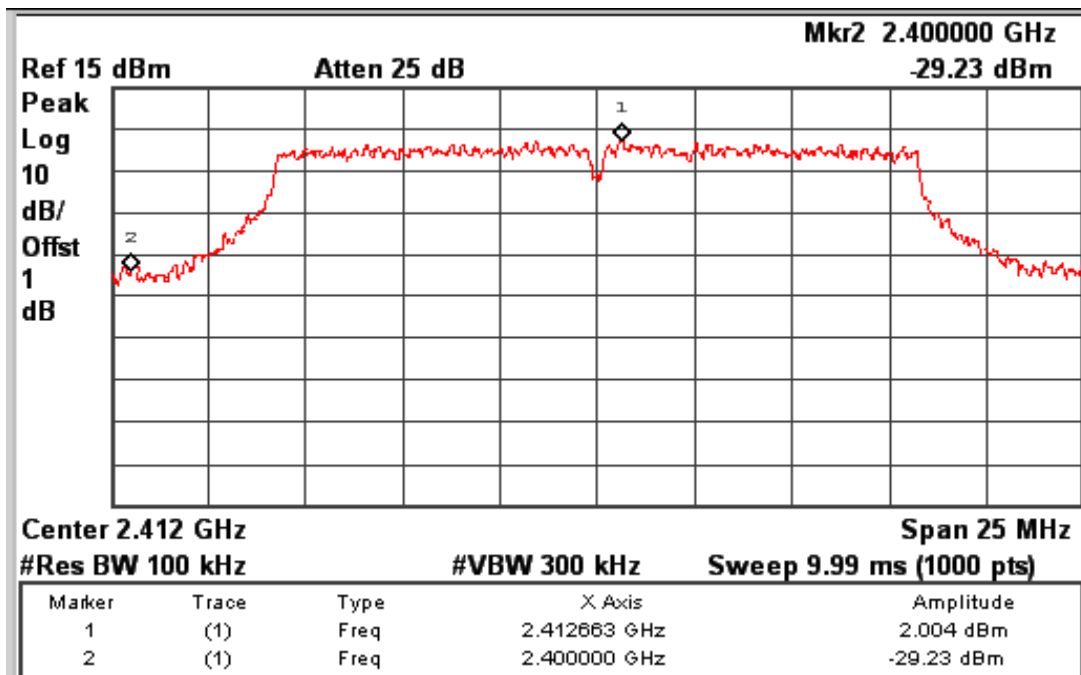
Channel frequency: 2412 MHz

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Data Rate: 24 Mbps

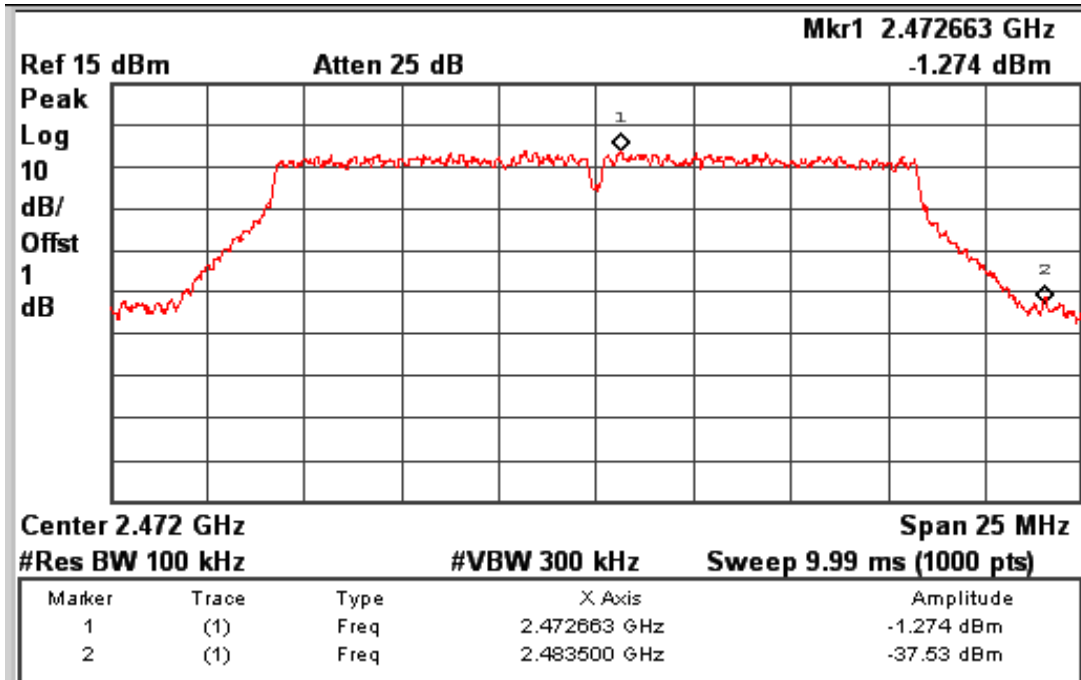
Channel frequency: 2472 MHz



Data Rate: 54 Mbps

Channel frequency: 2412 MHz

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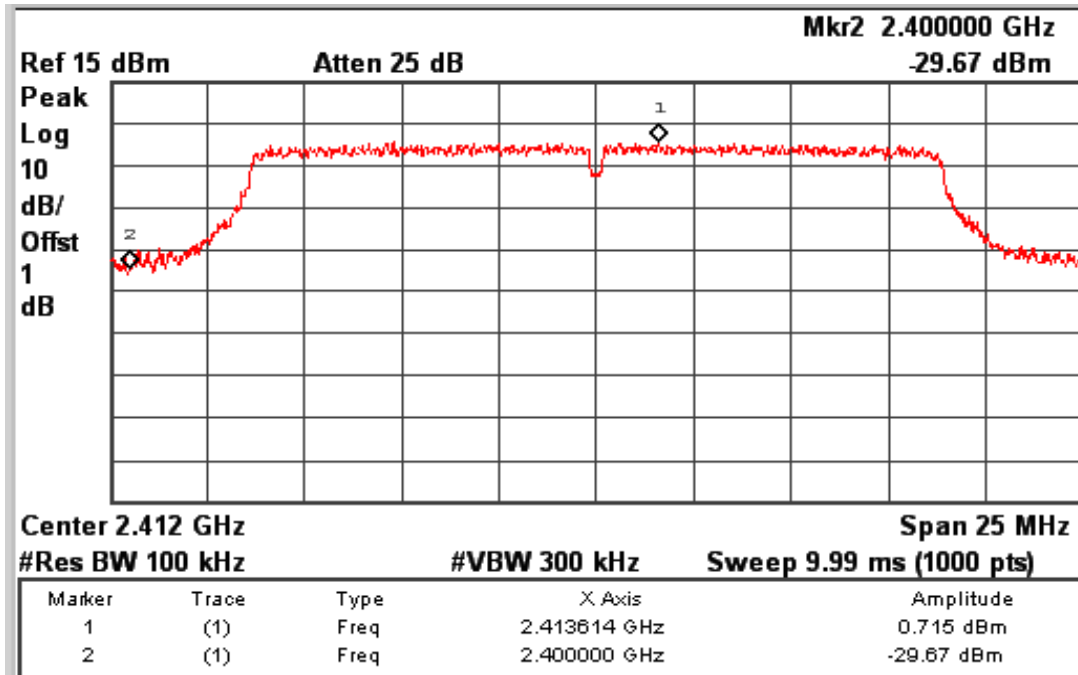


Data Rate: 54 Mbps

Channel frequency: 2472 MHz

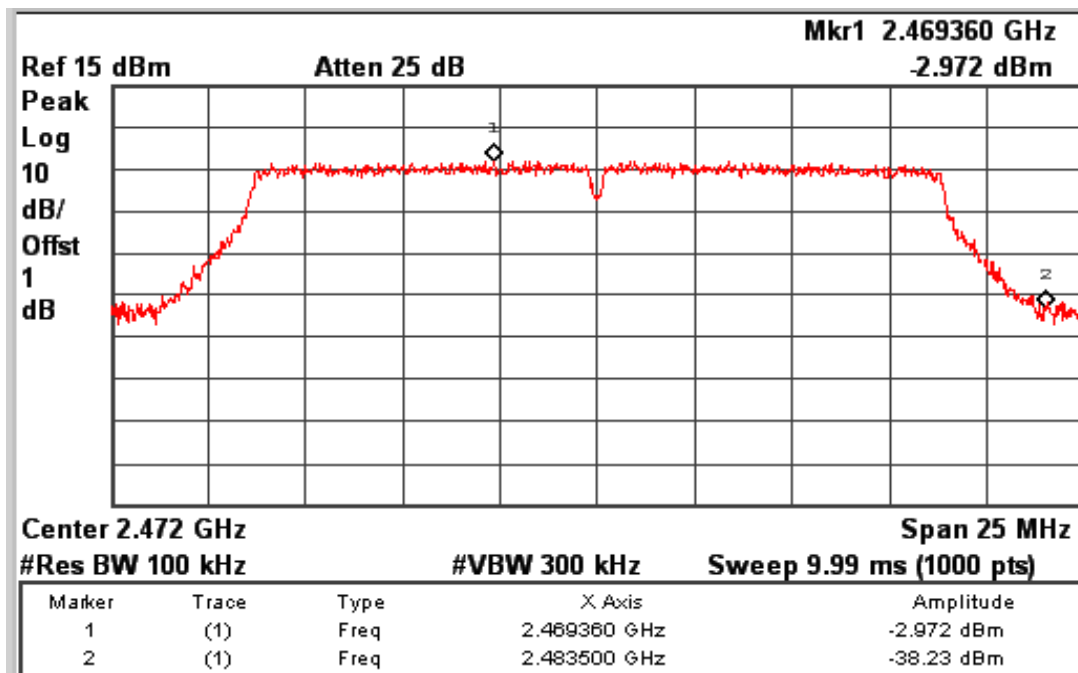
802.11 Protocol	Data Rate (Mbps)	Channel Frequency (MHz)	Value at Band Edge		Limit (dBc)
			Frequency (MHz)	Value (dBc)	
n	6.5	2412.00	2400.00	30.39	20.00
		2472.00	2483.50	35.26	20.00
	39	2412.00	2400.00	31.27	20.00
		2472.00	2483.50	35.83	20.00
	65	2412.00	2400.00	31.17	20.00
		2472.00	2483.50	41.15	20.00

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Data Rate: 6.5 Mbps

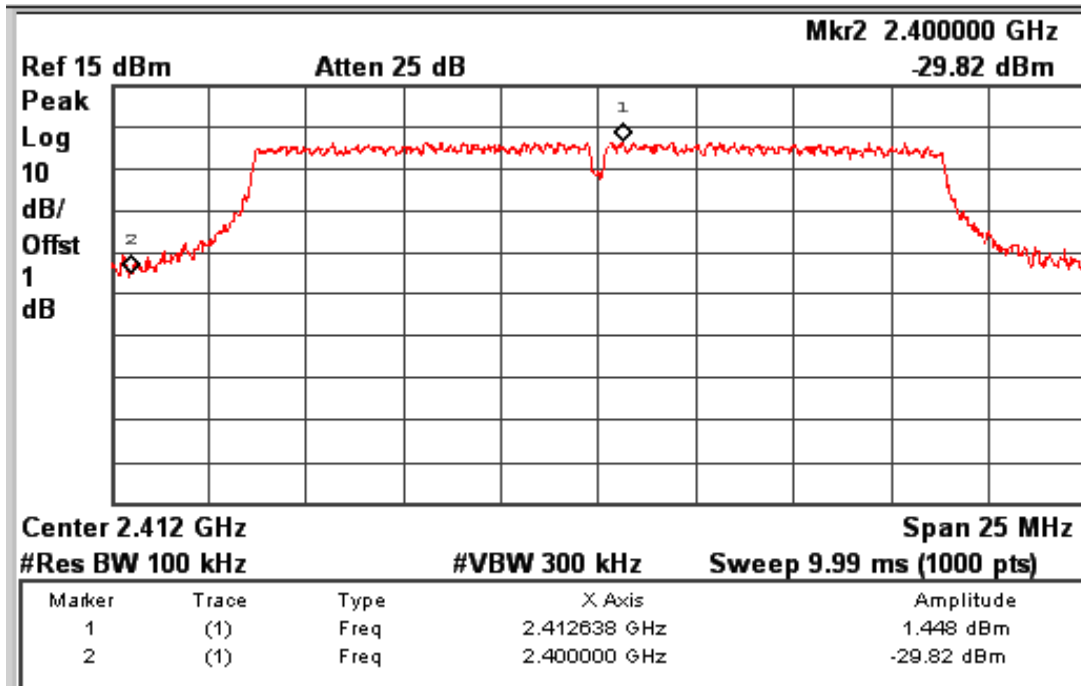
Channel frequency: 2412 MHz



Data Rate: 6.5 Mbps

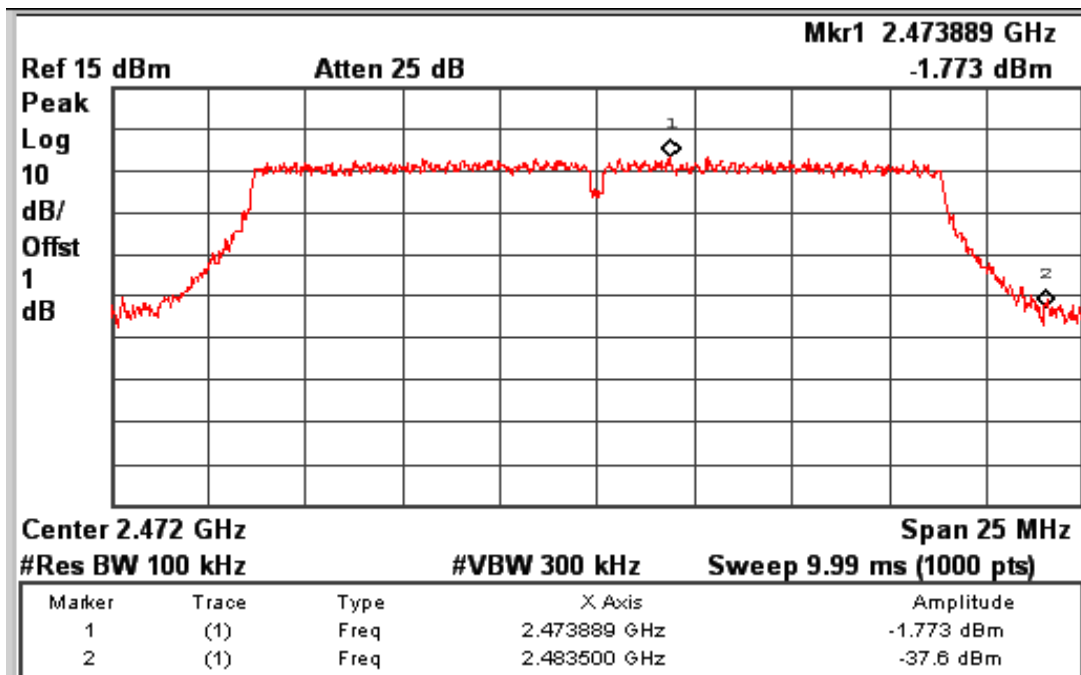
Channel frequency: 2472 MHz

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Data Rate: 39 Mbps

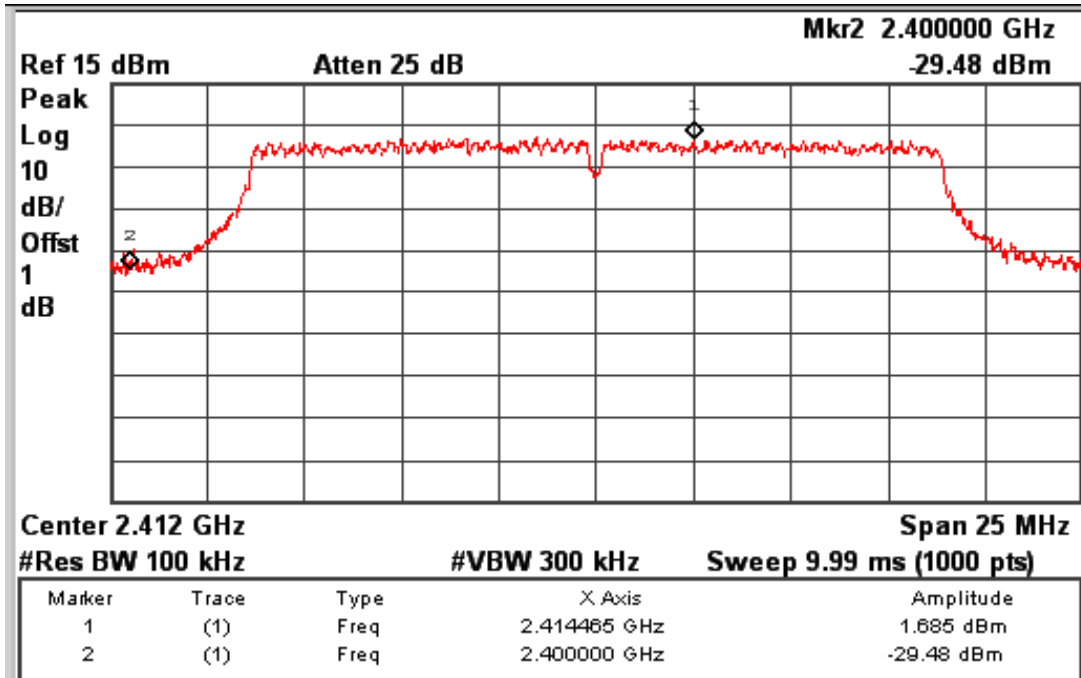
Channel frequency: 2412 MHz



Data Rate: 39 Mbps

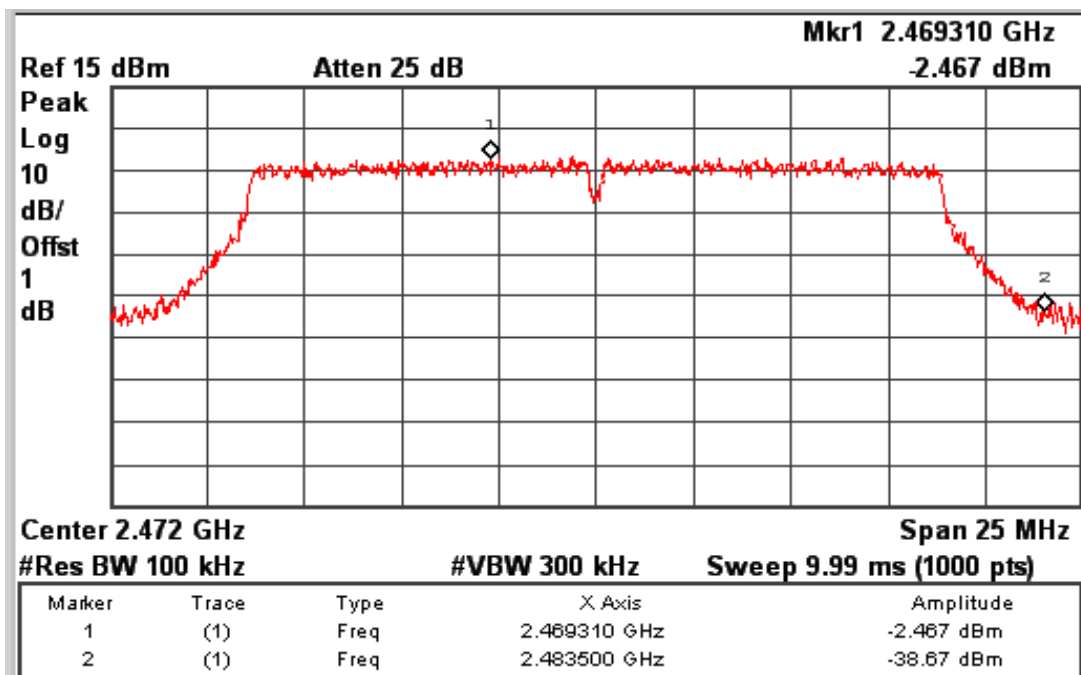
Channel frequency: 2472 MHz

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Data Rate: 65 Mbps

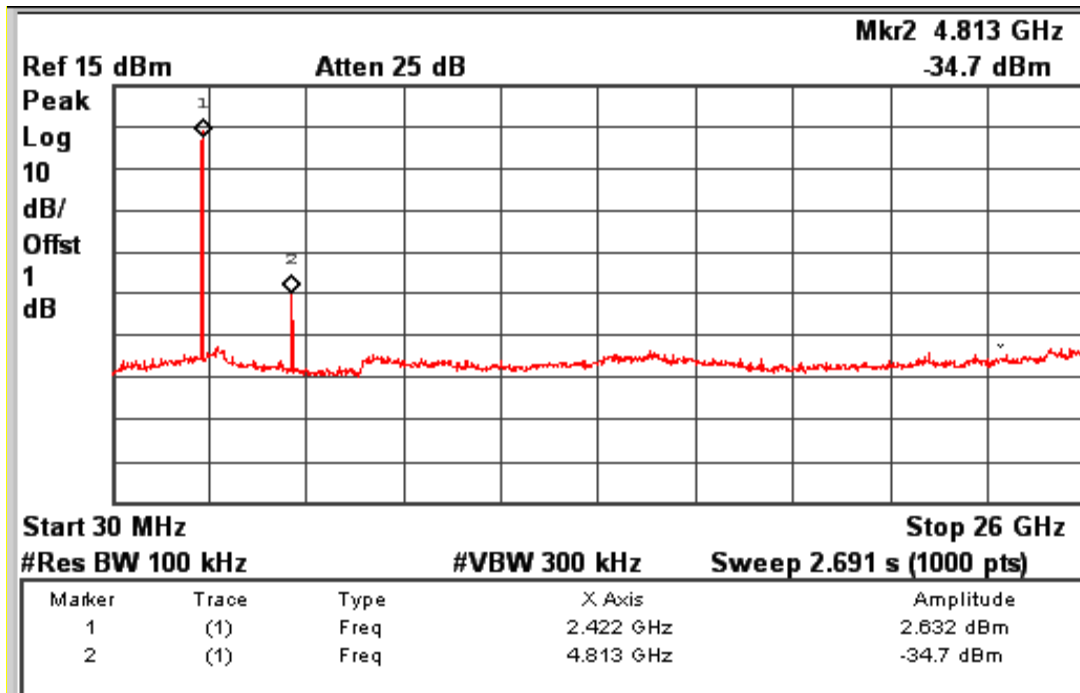
Channel frequency: 2412 MHz



Data Rate: 65 Mbps

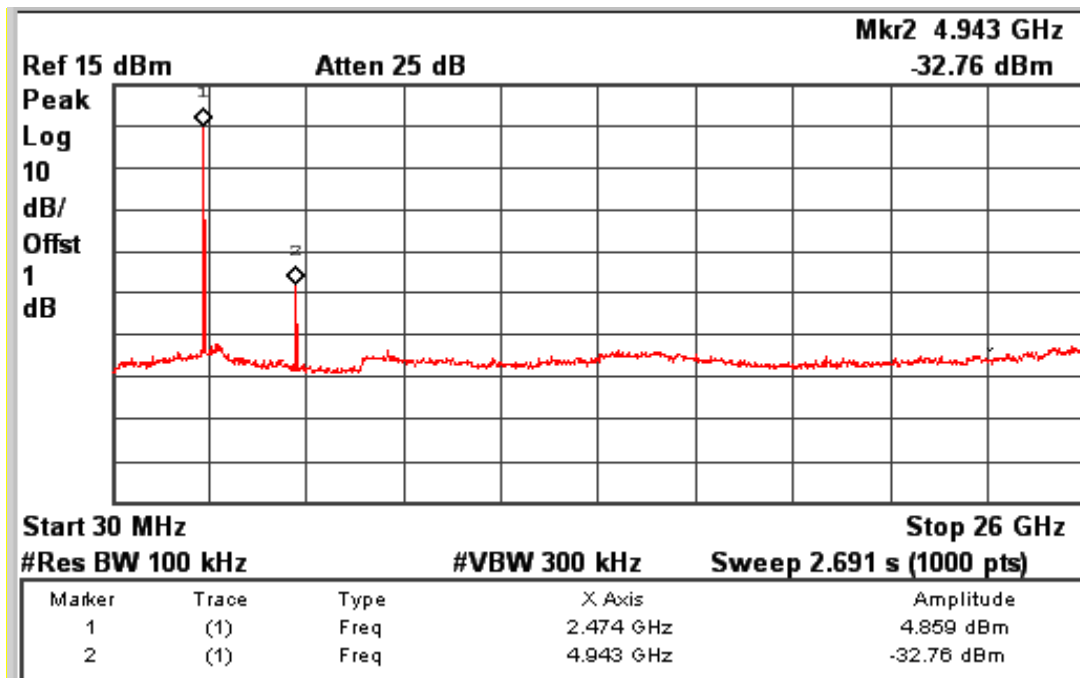
Channel frequency: 2472 MHz

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 Conducted Spurious Emission



Data Rate: 1Mbps

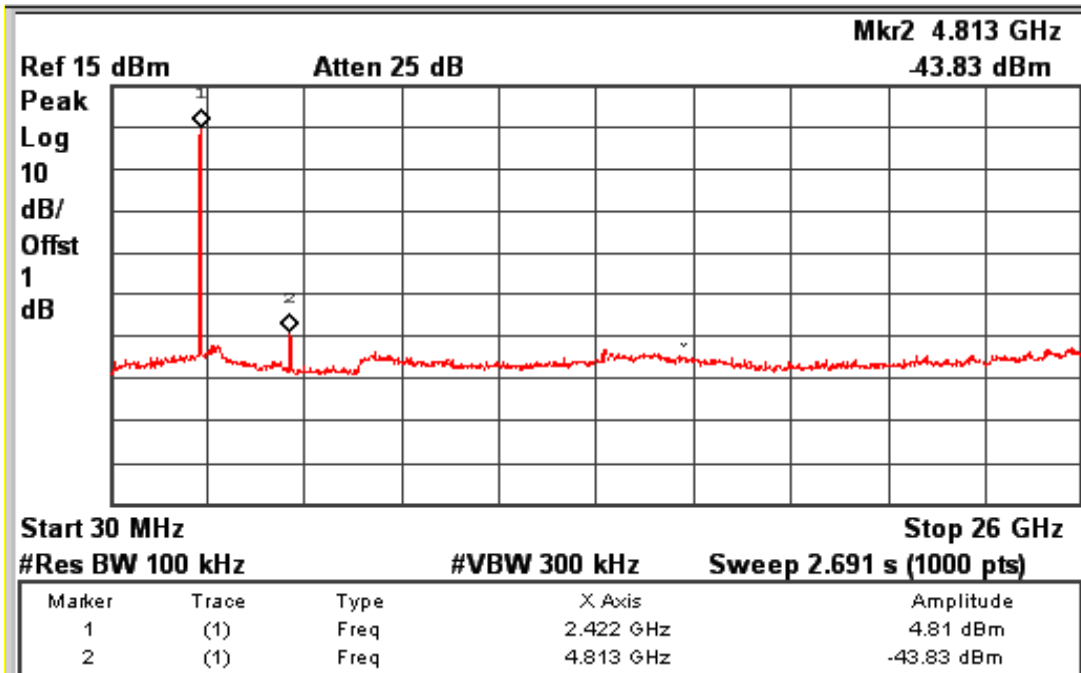
Channel Low



Data Rate: 1Mbps

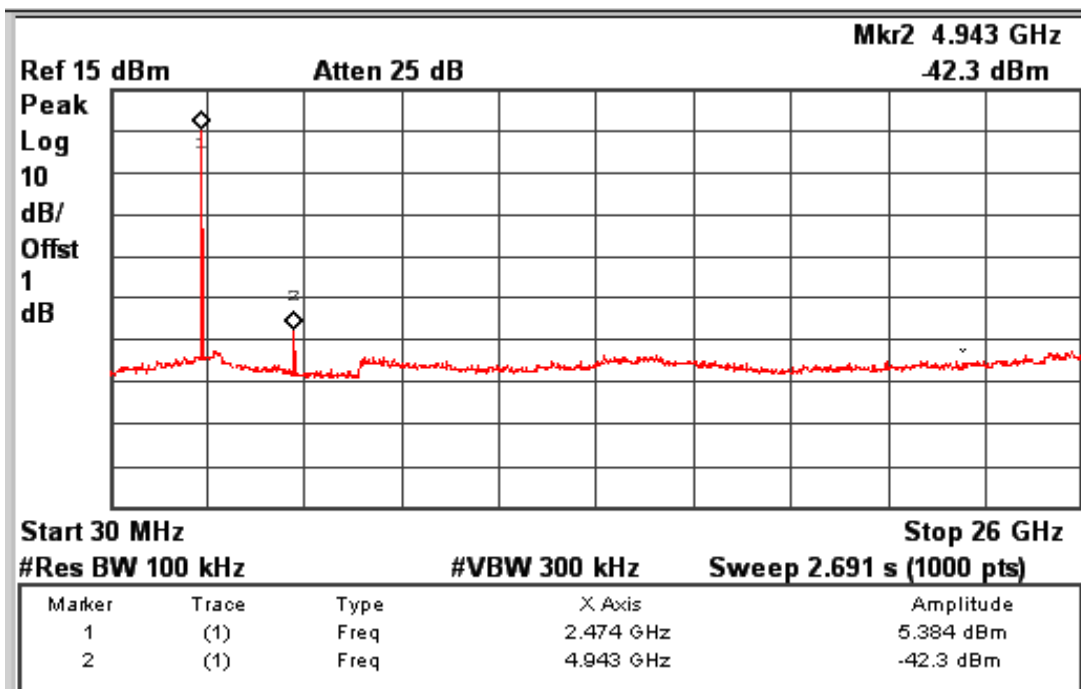
Channel High

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Data Rate: 11Mbps

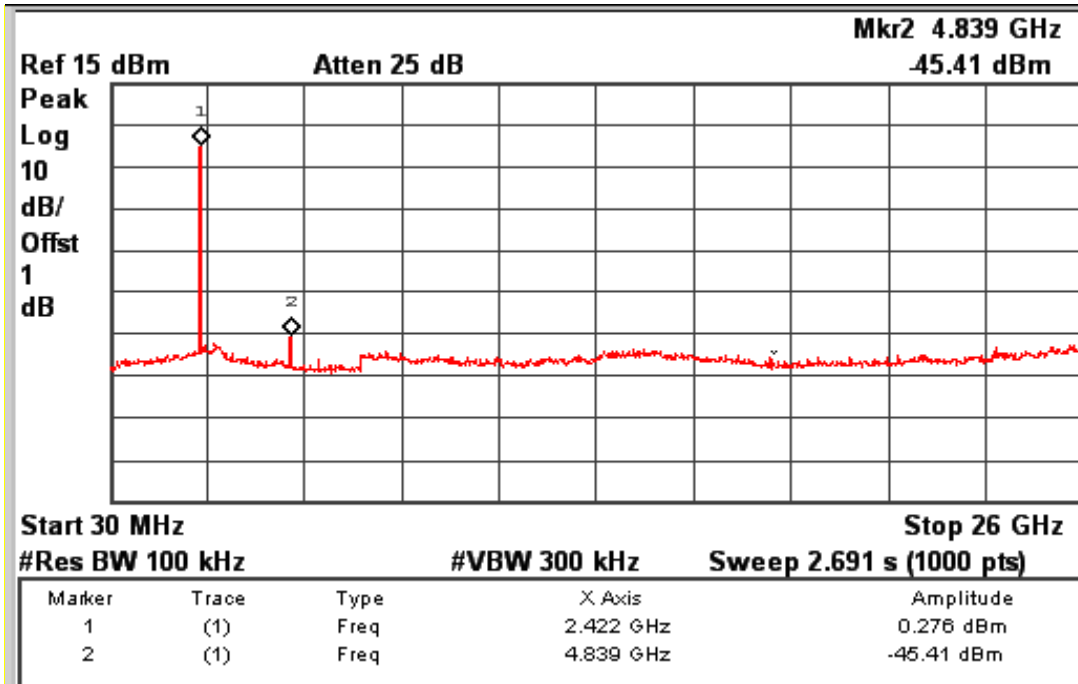
Channel Low



Data Rate: 11Mbps

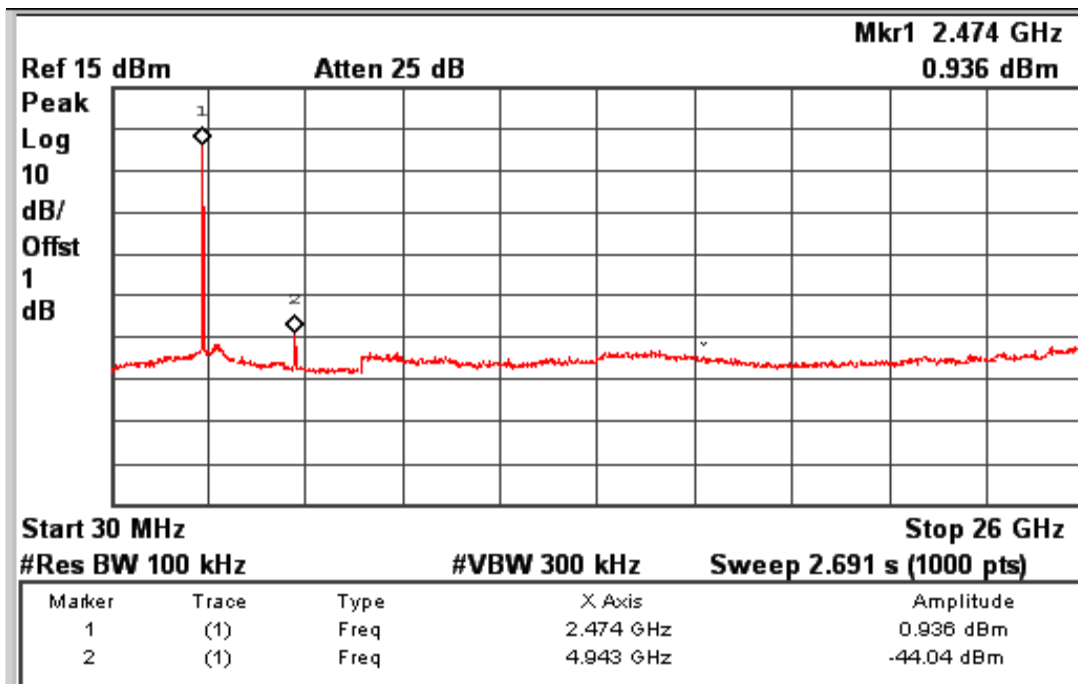
Channel High

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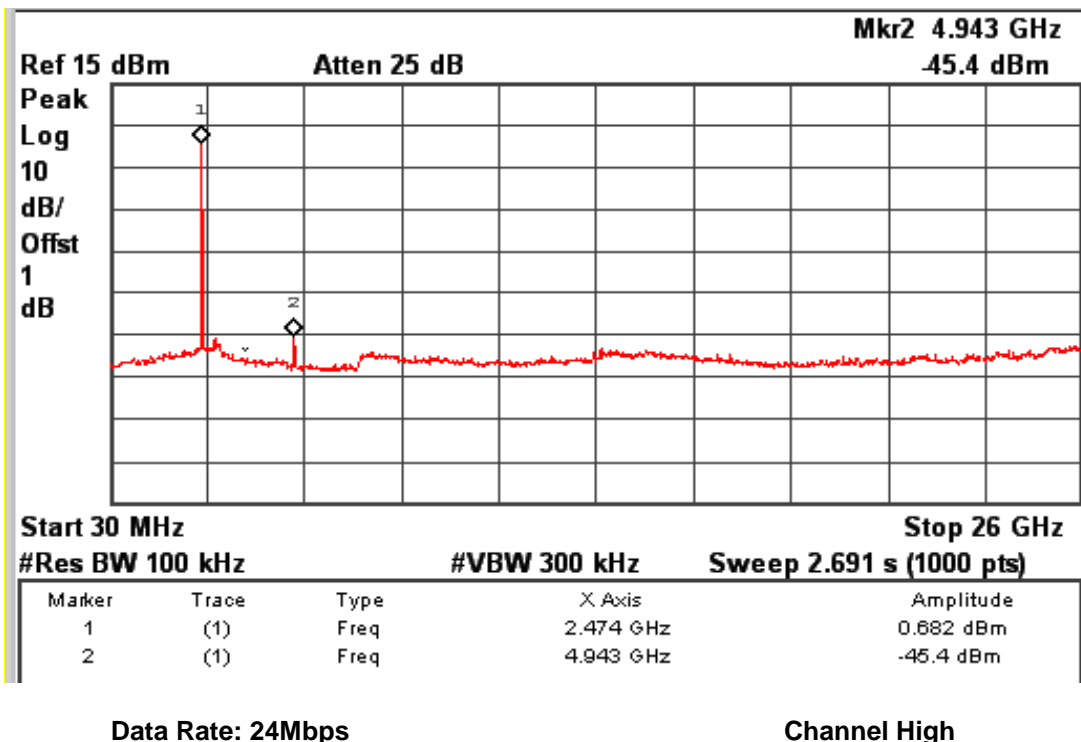
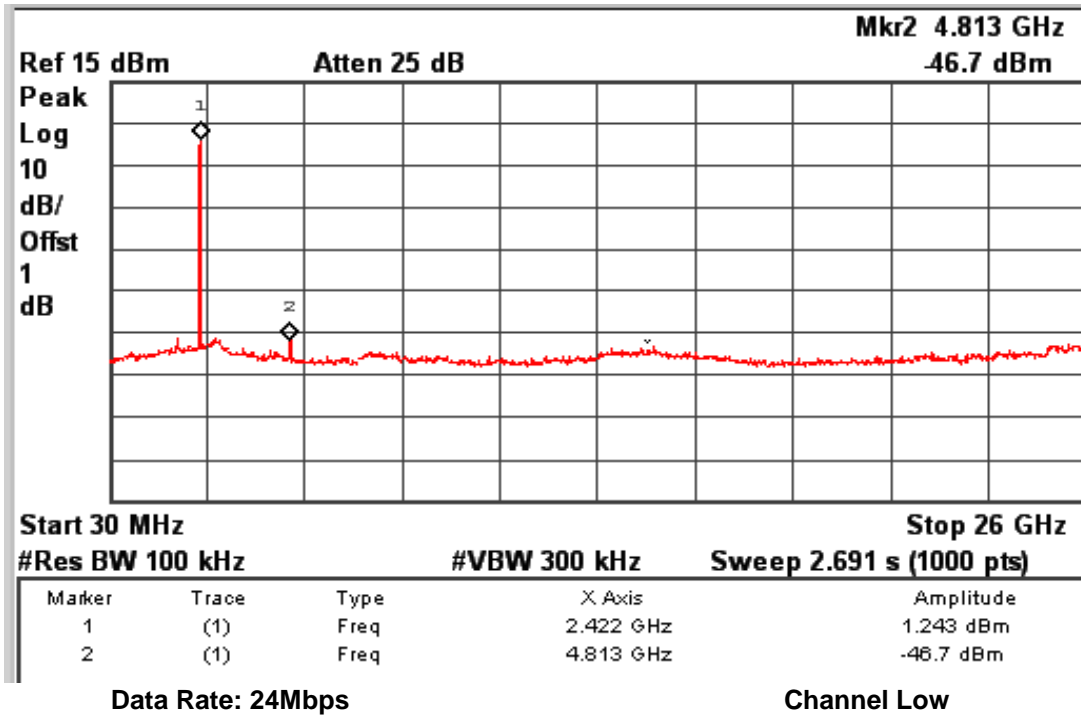
Data Rate: 6Mbps

Channel Low

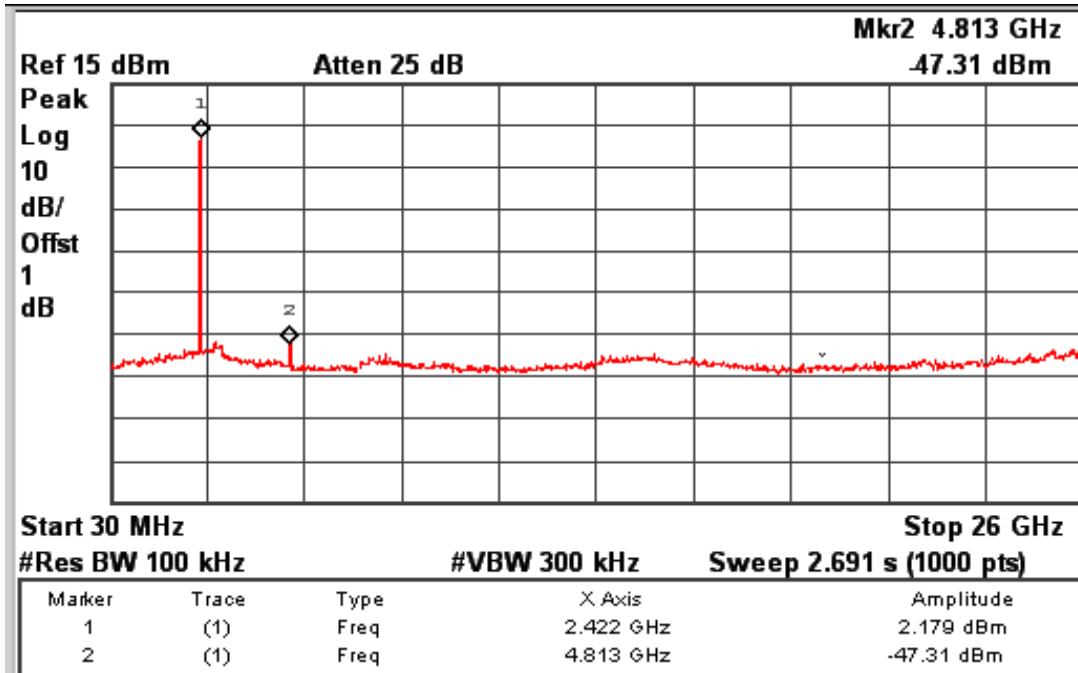


Data Rate: 6Mbps

Channel High

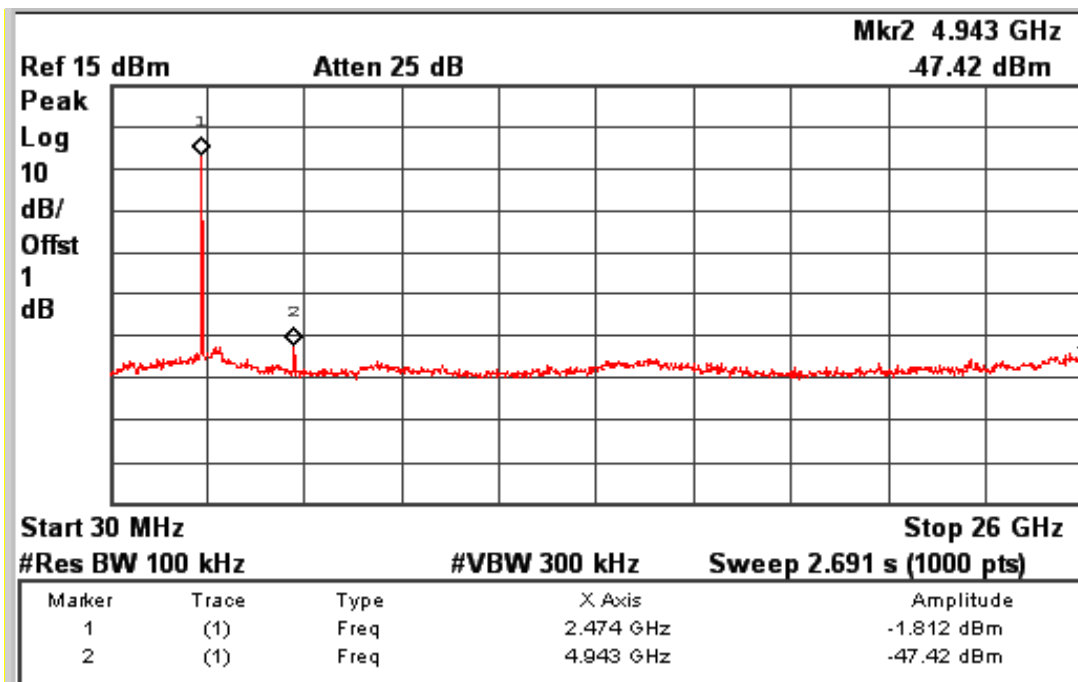


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Data Rate: 54Mbps

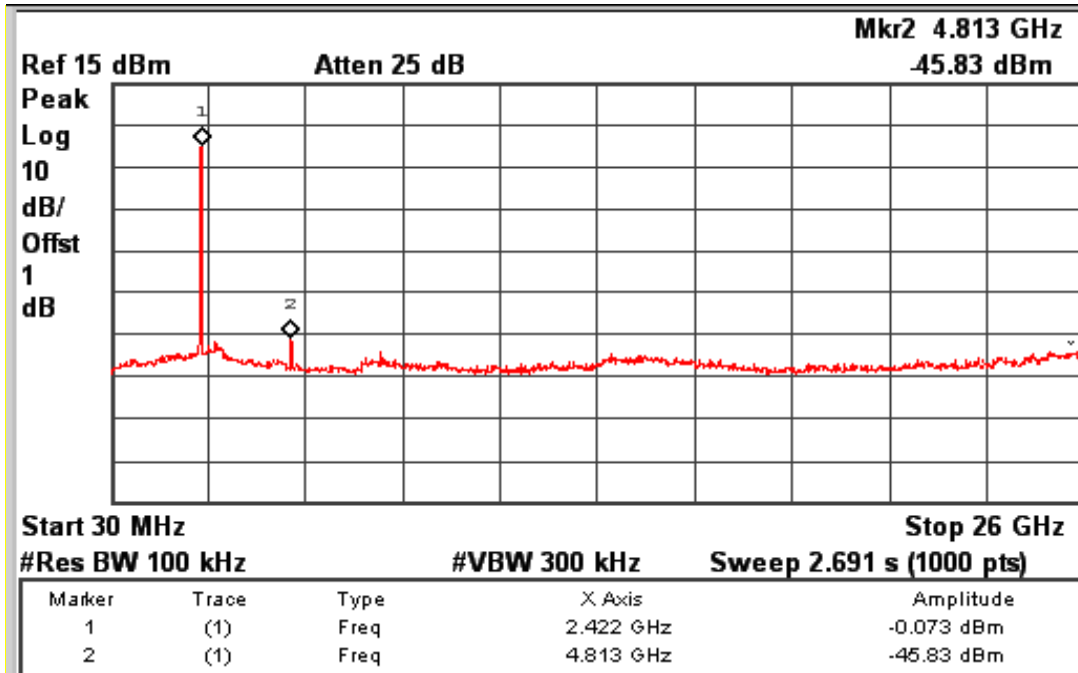
Channel Low



Data Rate: 54Mbps

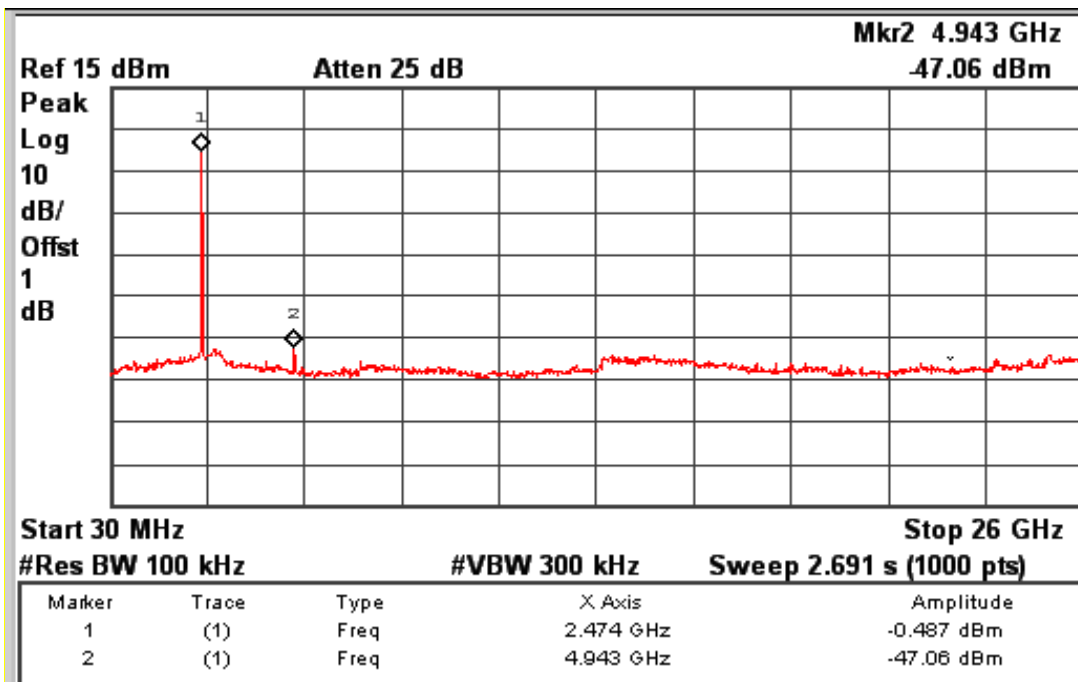
Channel High

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Data Rate: 6.5 Mbps

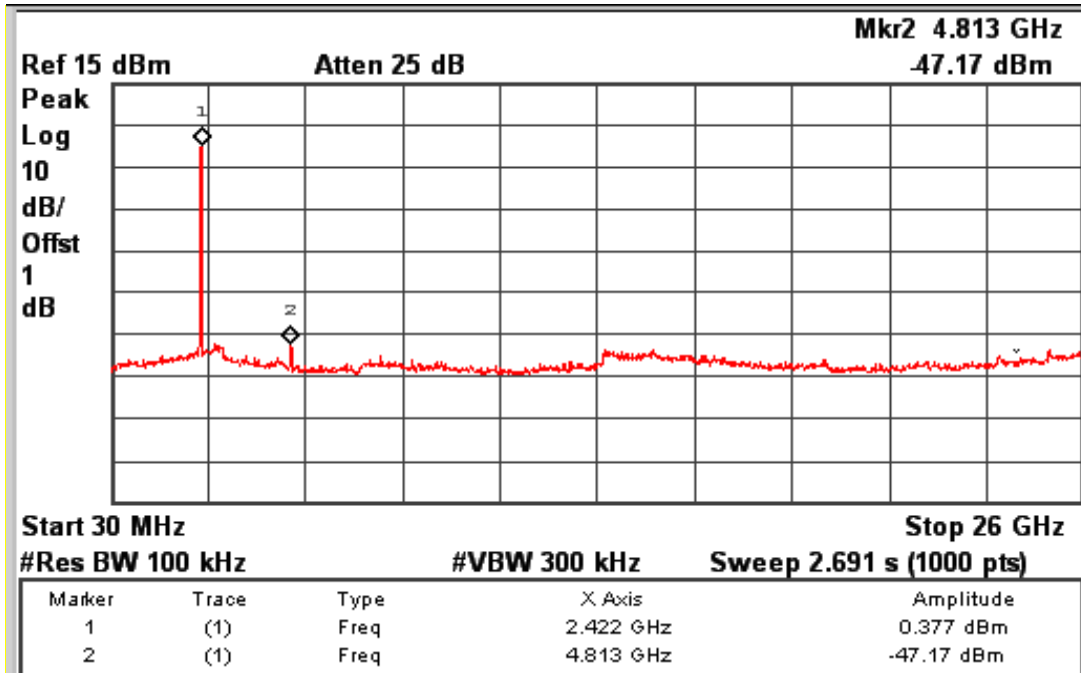
Channel Low



Data Rate: 6.5 Mbps

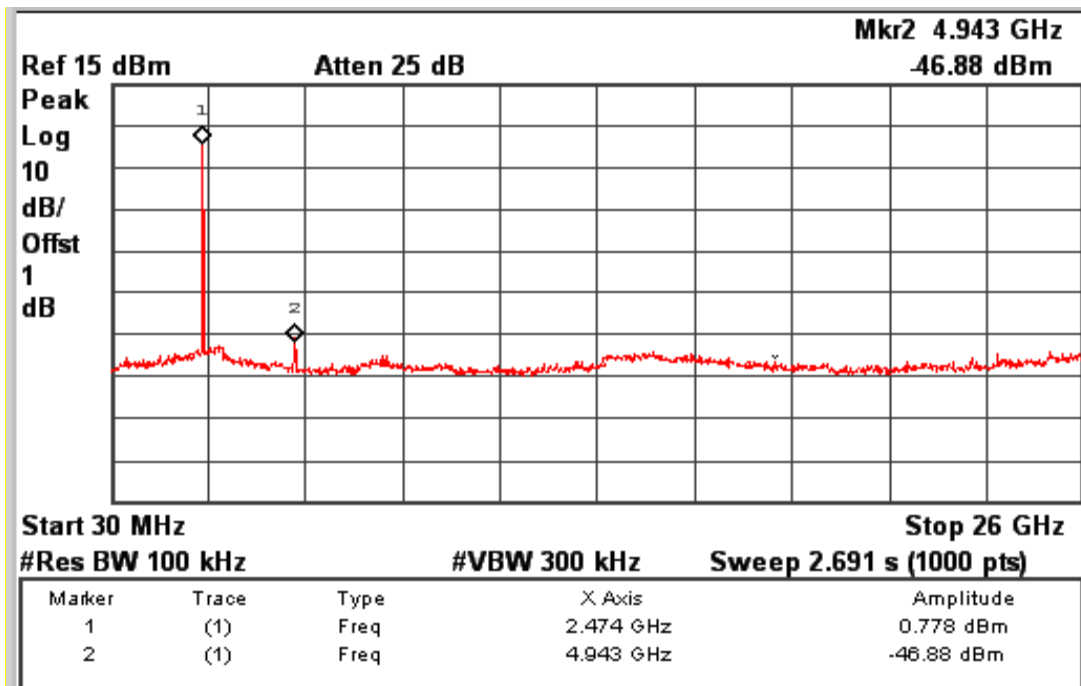
Channel High

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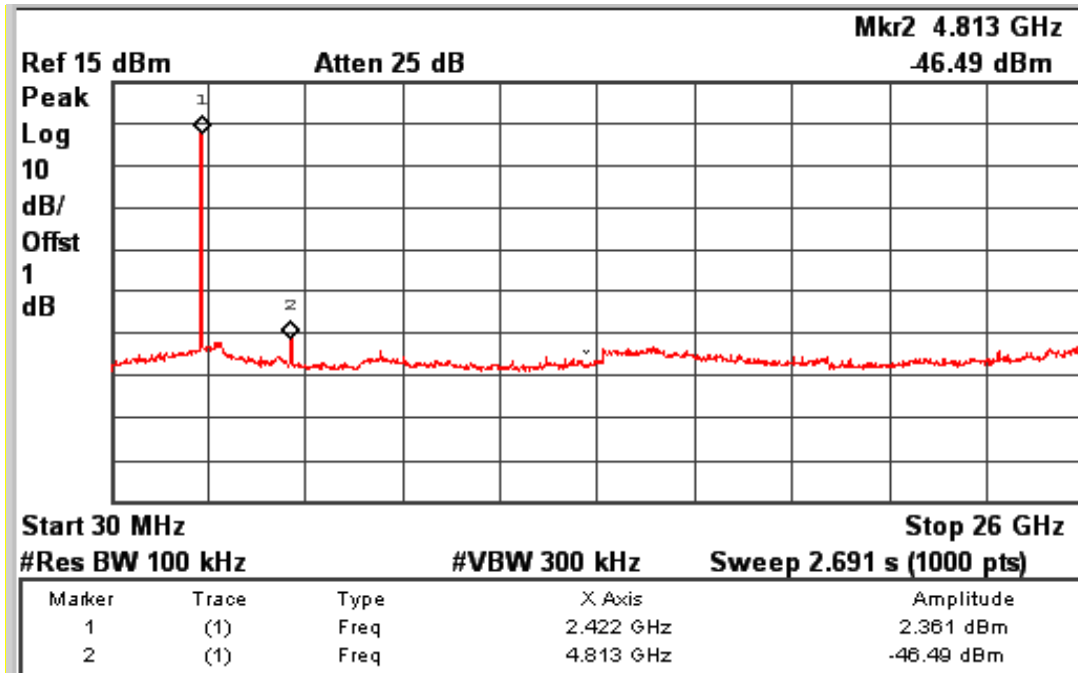
Data Rate: 39 Mbps

Channel Low



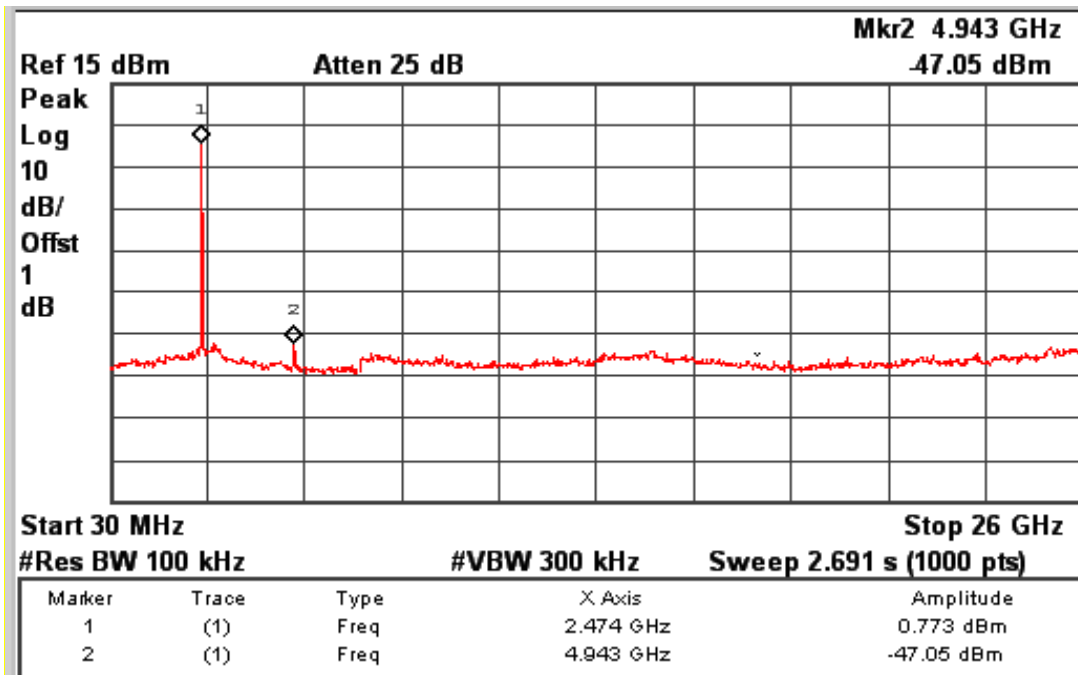
Data Rate: 39 Mbps

Channel High



Data Rate: 65 Mbps

Channel Low



Data Rate: 65 Mbps

Channel High

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**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.

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Test results:

For frequency Range 30 MHz - 1 GHz

Worst case emissions observed are listed below.

Polarization	Frequency (MHz)	Field Strength (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)
V	47.94	30.12	40.00	-9.88
	42.90	29.99	40.00	-10.01
	64.82	25.48	40.00	-14.52
	97.41	32.74	43.50	-10.76
	99.94	32.83	43.50	-10.67
	143.97	24.13	43.50	-19.37
	194.02	27.63	43.50	-15.87
	214.87	28.87	43.50	-14.63
H	47.94	26.80	40.00	-13.20
	279.96	27.79	46.00	-18.21
	350.00	32.30	46.00	-13.70
	450.01	34.49	46.00	-11.51
	47.94	30.12	40.00	-9.88

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For frequency above 1GHz

Antenna 1-Chip Antenna

Protocol: 802.11 b

Data Rate (Mbps)	Channel	Polarization	Frequency (MHz)	Field Strength (dBµV/m)	Limit (dBµV/m)	Margin (dB)
1	Low	V	2390(Pk)	46.82	74.00	-27.18
			2390(Av)	34.15	54.00	-19.85
			2412(Pk)	85.42	*	-
			2412(Av)	82.49	*	-
			4824(Pk)	55.06	74.00	-18.94
			4824(Av)	50.70	54.00	-3.30
		H	2390(Pk)	48.70	74.00	-25.30
			2390(Av)	37.69	54.00	-16.31
			2412(Pk)	98.24	*	-
			2412(Av)	92.61	*	-
			4824(Pk)	59.53	74.00	-14.47
			4824(Av)	52.29	54.00	-1.71
	Mid	V	2442(Pk)	86.58	*	-
			2442(Av)	85.32	*	-
			4884(Pk)	54.32	74.00	-19.68
			4884(Av)	42.21	54.00	-11.79
		H	2442(Pk)	98.32	*	-
			2442(Av)	95.85	*	-
			4884(Pk)	58.35	74.00	-15.65
			4884(Av)	50.46	54.00	-3.54
	High	V	2472(Pk)	87.50	*	-
			2472(Av)	84.57	*	-
			2483.5(Pk)	49.49	74.00	-24.51
			2483.5(Av)	40.69	54.00	-13.31
4944(Pk)			54.50	74.00	-19.50	
4944(Av)			51.50	54.00	-2.50	
H		2472(Pk)	97.56	*		
		2472(Av)	96.45	*		
		2483.5(Pk)	58.02	74.00	-15.98	
		2483.5(Av)	51.86	54.00	-2.14	
		4944(Pk)	56.30	74.00	-17.70	
		4944(Av)	52.67	54.00	-1.33	

* - --> Fundamental Frequency
Pk--> Peak Detector
Av--> Average Detector

Data Rate (Mbps)	Channel	Polarization	Frequency (MHz)	Field Strength (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)		
11	Low	V	2390(Pk)	47.40	74.00	-26.60		
			2390(Av)	34.23	54.00	-19.77		
			2412(Pk)	91.14	*	-		
			2412(Av)	83.63	*	-		
			4824(Pk)	53.48	74.00	-20.52		
			4824(Av)	41.20	54.00	-12.80		
		H	2390(Pk)	48.13	74.00	-25.87		
			2390(Av)	36.27	54.00	-17.73		
			2412(Pk)	103.29	*	-		
			2412(Av)	95.32	*	-		
			4824(Pk)	58.08	74.00	-15.92		
			4824(Av)	45.09	54.00	-8.91		
	Mid	V	2442(Pk)	90.58	*	-		
			2442(Av)	82.51	*	-		
			4884(Pk)	53.51	74.00	-20.49		
			4884(Av)	42.58	54.00	-11.42		
			H	2442(Pk)	102.58	*	-	
				2442(Av)	95.29	*	-	
		4884(Pk)		58.59	74.00	-15.41		
		4884(Av)		44.89	54.00	-9.11		
		High		V	2472(Pk)	92.17	*	-
					2472(Av)	84.28	*	-
			2483.5(Pk)		51.28	74.00	-22.72	
			2483.5(Av)		40.28	54.00	-13.72	
	4944(Pk)		53.16		74.00	-20.84		
	4944(Av)		39.93		54.00	-14.07		
	H		2472(Pk)	102.18	*			
			2472(Av)	94.51	*			
			2483.5(Pk)	61.87	74.00	-12.13		
			2483.5(Av)	51.46	54.00	-2.54		
4944(Pk)			55.56	74.00	-18.44			
4944(Av)			42.64	54.00	-11.36			

Data Rate (Mbps)	Channel	Polarization	Frequency (MHz)	Field Strength (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)
6	Low	V	2390(Pk)	51.29	74.00	-22.71
			2390(Av)	37.76	54.00	-16.24
			2412(Pk)	89.42	*	-
			2412(Av)	83.36	*	-
			4824(Pk)	51.63	74.00	-22.37
			4824(Av)	39.59	54.00	-14.41
		H	2390(Pk)	61.27	74.00	-12.73
			2390(Av)	45.52	54.00	-8.48
			2412(Pk)	100.57	*	-
			2412(Av)	91.57	*	-
			4824(Pk)	56.52	74.00	-17.48
			4824(Av)	43.56	54.00	-10.44
	Mid	V	2442(Pk)	88.58	*	-
			2442(Av)	82.58	*	-
			4884(Pk)	50.58	74.00	-23.42
			4884(Av)	41.58	54.00	-12.42
		H	2442(Pk)	100.62	*	-
			2442(Av)	91.29	*	-
			4884(Pk)	55.38	74.00	-18.62
			4884(Av)	43.59	54.00	-10.41
	High	V	2472(Pk)	85.83	*	-
			2472(Av)	76.77	*	-
			2483.5(Pk)	51.21	74.00	-22.79
			2483.5(Av)	39.45	54.00	-14.55
4944(Pk)			51.07	74.00	-22.93	
4944(Av)			38.34	54.00	-15.66	
H		2472(Pk)	97.22	*	-	
		2472(Av)	87.70	*	-	
		2483.5(Pk)	64.55	74.00	-9.45	
		2483.5(Av)	51.58	54.00	-2.42	
		4944(Pk)	51.18	74.00	-22.82	
		4944(Av)	39.70	54.00	-14.30	

* - --> Fundamental Frequency
 Pk--> Peak Detector
 Av--> Average Detector

Data Rate (Mbps)	Channel	Polarization	Frequency (MHz)	Field Strength (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)
24	Low	V	2390(Pk)	52.61	74.00	-21.39
			2390(Av)	38.62	54.00	-15.38
			2412(Pk)	91.42	*	-
			2412(Av)	81.59	*	-
			4824(Pk)	51.03	74.00	-22.97
			4824(Av)	39.33	54.00	-14.67
		H	2390(Pk)	61.60	74.00	-12.40
			2390(Av)	47.39	54.00	-6.61
			2412(Pk)	101.17	*	-
			2412(Av)	92.01	*	-
			4824(Pk)	54.86	74.00	-19.14
			4824(Av)	43.32	54.00	-10.68
	Mid	V	2442(Pk)	88.58	*	-
			2442(Av)	82.58	*	-
			4884(Pk)	50.58	74.00	-23.42
			4884(Av)	41.58	54.00	-12.42
		H	2442(Pk)	100.62	*	-
			2442(Av)	91.29	*	-
			4884(Pk)	55.38	74.00	-18.62
			4884(Av)	43.59	54.00	-10.41
	High	V	2472(Pk)	85.83	*	-
			2472(Av)	77.42	*	-
			2483.5(Pk)	51.51	74.00	-22.49
			2483.5(Av)	39.45	54.00	-14.55
4944(Pk)			51.55	74.00	-22.45	
4944(Av)			38.74	54.00	-15.26	
H		2472(Pk)	97.16	*		
		2472(Av)	88.07	*		
		2483.5(Pk)	63.47	74.00	-10.53	
		2483.5(Av)	51.51	54.00	-2.49	
		4944(Pk)	52.64	74.00	-21.36	
		4944(Av)	39.79	54.00	-14.21	

* - --> Fundamental Frequency
 Pk--> Peak Detector
 Av--> Average Detector

Data Rate (Mbps)	Channel	Polarization	Frequency (MHz)	Field Strength (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)
54	Low	V	2390(Pk)	52.90	74.00	-21.10
			2390(Av)	38.97	54.00	-15.03
			2412(Pk)	92.37	*	-
			2412(Av)	82.57	*	-
			4824(Pk)	51.70	74.00	-22.30
			4824(Av)	39.51	54.00	-14.49
		H	2390(Pk)	61.25	74.00	-12.75
			2390(Av)	47.22	54.00	-6.78
			2412(Pk)	102.51	*	-
			2412(Av)	92.19	*	-
			4824(Pk)	55.85	74.00	-18.15
			4824(Av)	43.47	54.00	-10.53
	Mid	V	2442(Pk)	91.58	*	-
			2442(Av)	82.58	*	-
			4884(Pk)	50.58	74.00	-23.42
			4884(Av)	41.58	54.00	-12.42
		H	2442(Pk)	101.18	*	-
			2442(Av)	91.58	*	-
			4884(Pk)	55.38	74.00	-18.62
			4884(Av)	43.59	54.00	-10.41
	High	V	2472(Pk)	87.90	*	-
			2472(Av)	78.21	*	-
			2483.5(Pk)	53.07	74.00	-20.93
			2483.5(Av)	49.90	54.00	-4.10
4944(Pk)			50.52	74.00	-23.48	
4944(Av)			38.45	54.00	-15.55	
H		2472(Pk)	97.63	*	-	
		2472(Av)	88.19	*	-	
		2483.5(Pk)	64.32	74.00	-9.68	
		2483.5(Av)	51.53	54.00	-2.47	
		4944(Pk)	52.19	74.00	-21.81	
		4944(Av)	39.37	54.00	-14.63	

* - --> Fundamental Frequency
 Pk--> Peak Detector
 Av--> Average Detector

Data Rate (Mbps)	Channel	Polarization	Frequency (MHz)	Field Strength (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)
6.5	Low	V	2390(Pk)	57.70	74.00	-16.30
			2390(Av)	40.73	54.00	-13.27
			2412(Pk)	91.93	*	-
			2412(Av)	81.80	*	-
			4824(Pk)	51.83	74.00	-22.17
			4824(Av)	39.58	54.00	-14.42
		H	2390(Pk)	68.71	74.00	-5.29
			2390(Av)	50.70	54.00	-3.30
			2412(Pk)	102.55	*	-
			2412(Av)	92.27	*	-
			4824(Pk)	56.72	74.00	-17.28
			4824(Av)	43.26	54.00	-10.74
	Mid	V	2442(Pk)	91.58	*	-
			2442(Av)	82.58	*	-
			4884(Pk)	50.58	74.00	-23.42
			4884(Av)	41.58	54.00	-12.42
		H	2442(Pk)	101.18	*	-
			2442(Av)	91.58	*	-
			4884(Pk)	55.38	74.00	-18.62
			4884(Av)	43.59	54.00	-10.41
	High	V	2472(Pk)	87.75	*	-
			2472(Av)	77.87	*	-
			2483.5(Pk)	54.82	74.00	-19.18
			2483.5(Av)	42.25	54.00	-11.75
4944(Pk)			59.41	74.00	-14.59	
4944(Av)			46.56	54.00	-7.44	
H		2472(Pk)	97.49	*	-	
		2472(Av)	88.26	*	-	
		2483.5(Pk)	69.54	74.00	-4.46	
		2483.5(Av)	53.18	54.00	-0.82	
		4944(Pk)	60.00	74.00	-14.00	
		4944(Av)	46.48	54.00	-7.52	

* - --> Fundamental Frequency
 Pk--> Peak Detector
 Av--> Average Detector

Data Rate (Mbps)	Channel	Polarization	Frequency (MHz)	Field Strength (dBµV/m)	Limit (dBµV/m)	Margin (dB)
39	Low	V	2390(Pk)	56.74	74.00	-17.26
			2390(Av)	41.89	54.00	-12.11
			2412(Pk)	92.80	*	-
			2412(Av)	82.15	*	-
			4824(Pk)	49.55	74.00	-24.45
			4824(Av)	36.85	54.00	-17.15
		H	2390(Pk)	64.80	74.00	-9.20
			2390(Av)	50.40	54.00	-3.60
			2412(Pk)	102.45	*	-
			2412(Av)	92.03	*	-
			4824(Pk)	50.62	74.00	-23.38
			4824(Av)	37.41	54.00	-16.59
	Mid	V	2442(Pk)	91.58	*	-
			2442(Av)	82.58	*	-
			4884(Pk)	50.58	74.00	-23.42
		H	4884(Av)	41.58	54.00	-12.42
			2442(Pk)	101.18	*	-
			2442(Av)	91.58	*	-
	High	V	4884(Pk)	55.38	74.00	-18.62
			4884(Av)	43.59	54.00	-10.41
			2472(Pk)	88.31	*	-
			2472(Av)	78.41	*	-
			2483.5(Pk)	55.85	74.00	-18.15
			2483.5(Av)	42.59	54.00	-11.41
H		4944(Pk)	60.58	74.00	-13.42	
		4944(Av)	46.56	54.00	-7.44	
		2472(Pk)	98.11	*	-	
		2472(Av)	88.21	*	-	
		2483.5(Pk)	67.31	74.00	-6.69	
		2483.5(Av)	53.19	54.00	-0.81	
4944(Pk)	60.43	74.00	-13.57			
4944(Av)	46.52	54.00	-7.48			

* - --> Fundamental Frequency

PK--> Peak Detector

Av--> Average Detector

Data Rate (Mbps)	Channel	Polarization	Frequency (MHz)	Field Strength (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)
65	Low	V	2390(Pk)	57.17	74.00	-16.83
			2390(Av)	40.99	54.00	-13.01
			2412(Pk)	93.03	*	-
			2412(Av)	82.50	*	-
			4824(Pk)	59.24	74.00	-14.76
			4824(Av)	46.00	54.00	-8.00
		H	2390(Pk)	67.75	74.00	-6.25
			2390(Av)	50.12	54.00	-3.88
			2412(Pk)	103.27	*	-
			2412(Av)	92.13	*	-
			4824(Pk)	60.72	74.00	-13.28
			4824(Av)	47.54	54.00	-6.46
	Mid	V	2442(Pk)	91.58	*	-
			2442(Av)	82.58	*	-
			4884(Pk)	50.58	74.00	-23.42
			4884(Av)	41.58	54.00	-12.42
		H	2442(Pk)	101.18	*	-
			2442(Av)	91.58	*	-
			4884(Pk)	55.38	74.00	-18.62
			4884(Av)	43.59	54.00	-10.41
	High	V	2472(Pk)	88.86	*	-
			2472(Av)	78.31	*	-
			2483.5(Pk)	56.24	74.00	-17.76
			2483.5(Av)	42.13	54.00	-11.87
4944(Pk)			59.01	74.00	-14.99	
4944(Av)			46.59	54.00	-7.41	
H		2472(Pk)	98.75	*	-	
		2472(Av)	87.47	*	-	
		2483.5(Pk)	67.51	74.00	-6.49	
		2483.5(Av)	53.28	54.00	-0.72	
		4944(Pk)	60.49	74.00	-13.51	
		4944(Av)	46.54	54.00	-7.46	

* - --> Fundamental Frequency
 Pk--> Peak Detector
 Av--> Average Detector

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Antenna 2 - External Whip Antenna

Protocol: 802.11b

Data Rate (Mbps)	Channel	Polarization	Frequency (MHz)	Field Strength (dBµV/m)	Limit (dBµV/m)	Margin (dB)
1	Low	V	2390(Pk)	63.72	74.00	-10.28
			2390(Av)	42.51	54.00	-11.49
			2412(Pk)	100.98	*	-
			2412(Av)	96.30	*	-
			4824(Pk)	60.72	74.00	-13.28
			4824(Av)	51.39	54.00	-2.61
		H	2390(Pk)	57.37	74.00	-16.63
			2390(Av)	36.77	54.00	-17.23
			2412(Pk)	93.29	*	-
			2412(Av)	88.69	*	-
			4824(Pk)	55.87	74.00	-18.13
			4824(Av)	49.43	54.00	-4.57
	Mid	V	2442(Pk)	99.32	*	-
			2442(Av)	96.85	*	-
			4884(Pk)	58.79	74.00	-15.21
			4884(Av)	49.74	54.00	-4.26
		H	2442(Pk)	87.58	*	*
			2442(Av)	86.32	-	-
			4884(Pk)	54.78	74.00	-19.22
			4884(Av)	46.82	54.00	-7.18
	High	V	2472(Pk)	99.23	*	-
			2472(Av)	96.06	*	-
			2483.5(Pk)	60.02	74.00	-13.98
			2483.5(Av)	50.90	54.00	-3.10
4944(Pk)			56.82	74.00	-17.18	
4944(Av)			52.67	54.00	-1.33	
H		2472(Pk)	87.50	*	-	
		2472(Av)	84.57	*	-	
		2483.5(Pk)	49.49	74.00	-24.51	
		2483.5(Av)	40.69	54.00	-13.31	
		4944(Pk)	54.50	74.00	-19.50	
		4944(Av)	49.56	54.00	-4.44	

* - --> Fundamental Frequency
 Pk--> Peak Detector
 Av--> Average Detector

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Data Rate (Mbps)	Channel	Polarization	Frequency (MHz)	Field Strength (dBµV/m)	Limit (dBµV/m)	Margin (dB)
11	Low	V	2390(Pk)	64.16	74.00	-9.84
			2390(Av)	38.56	54.00	-15.44
			2412(Pk)	104.14	*	-
			2412(Av)	95.05	*	-
			4824(Pk)	63.04	74.00	-10.96
			4824(Av)	50.77	54.00	-3.23
		H	2390(Pk)	57.13	74.00	-16.87
			2390(Av)	35.27	54.00	-18.73
			2412(Pk)	96.14	*	-
			2412(Av)	88.01	*	-
			4824(Pk)	57.04	74.00	-16.96
			4824(Av)	44.58	54.00	-9.42
	Mid	V	2442(Pk)	102.95	*	-
			2442(Av)	96.29	*	-
			4884(Pk)	60.59	74.00	-13.41
			4884(Av)	45.89	54.00	-8.11
		H	2442(Pk)	92.58	*	-
			2442(Av)	84.51	*	-
			4884(Pk)	54.51	74.00	-19.49
			4884(Av)	43.58	54.00	-10.42
	High	V	2472(Pk)	104.28	*	-
			2472(Av)	96.51	*	-
			2483.5(Pk)	61.87	74.00	-12.13
			2483.5(Av)	51.46	54.00	-2.54
			4944(Pk)	55.56	74.00	-18.44
			4944(Av)	42.64	54.00	-11.36
		H	2472(Pk)	94.17	*	-
			2472(Av)	86.28	*	-
			2483.5(Pk)	51.28	74.00	-22.72
			2483.5(Av)	41.28	54.00	-12.72
4944(Pk)			54.16	74.00	-19.84	
4944(Av)			41.93	54.00	-12.07	

* - --> Fundamental Frequency
 Pk--> Peak Detector
 Av--> Average Detector

Data Rate (Mbps)	Channel	Polarization	Frequency (MHz)	Field Strength (dBµV/m)	Limit (dBµV/m)	Margin (dB)
6	Low	V	2390(Pk)	67.73	74.00	-6.27
			2390(Av)	49.46	54.00	-4.54
			2412(Pk)	101.56	*	-
			2412(Av)	92.04	*	-
			4824(Pk)	59.01	74.00	-14.99
			4824(Av)	45.37	54.00	-8.63
		H	2390(Pk)	60.58	74.00	-13.42
			2390(Av)	44.38	54.00	-9.62
			2412(Pk)	94.06	*	-
			2412(Av)	85.38	*	-
			4824(Pk)	53.30	74.00	-20.70
			4824(Av)	40.04	54.00	-13.96
	Mid	V	2442(Pk)	101.82	*	-
			2442(Av)	93.29	*	-
			4884(Pk)	57.38	74.00	-16.62
			4884(Av)	44.59	54.00	-9.41
		H	2442(Pk)	89.58	*	-
			2442(Av)	83.58	*	-
			4884(Pk)	52.58	74.00	-21.42
			4884(Av)	42.58	54.00	-11.42
	High	V	2472(Pk)	98.22	*	-
			2472(Av)	88.70	*	-
			2483.5(Pk)	65.55	74.00	-8.45
			2483.5(Av)	52.58	54.00	-1.42
4944(Pk)			53.18	74.00	-20.82	
4944(Av)			41.72	54.00	-12.28	
H		2472(Pk)	86.83	*	-	
		2472(Av)	75.77	*	-	
		2483.5(Pk)	52.21	74.00	-21.79	
		2483.5(Av)	40.45	54.00	-13.55	
		4944(Pk)	51.58	74.00	-22.42	
		4944(Av)	40.36	54.00	-13.64	

* - --> Fundamental Frequency
 Pk--> Peak Detector
 Av--> Average Detector

Data Rate (Mbps)	Channel	Polarization	Frequency (MHz)	Field Strength (dBµV/m)	Limit (dBµV/m)	Margin (dB)
24	Low	V	2390(Pk)	67.39	74.00	-6.61
			2390(Av)	46.00	54.00	-8.00
			2412(Pk)	101.59	*	-
			2412(Av)	87.09	*	-
			4824(Pk)	58.51	74.00	-15.49
			4824(Av)	42.68	54.00	-11.32
		H	2390(Pk)	60.23	74.00	-13.77
			2390(Av)	40.00	54.00	-14.00
			2412(Pk)	94.50	*	-
			2412(Av)	80.05	*	-
			4824(Pk)	52.97	74.00	-21.03
			4824(Av)	38.30	54.00	-15.70
	Mid	V	2442(Pk)	101.62	*	-
			2442(Av)	92.59	*	-
			4884(Pk)	57.38	74.00	-16.62
			4884(Av)	45.59	54.00	-8.41
		H	2442(Pk)	89.58	*	-
			2442(Av)	84.58	*	-
			4884(Pk)	52.58	74.00	-21.42
			4884(Av)	43.58	54.00	-10.42
	High	V	2472(Pk)	98.16	*	-
			2472(Av)	89.07	*	-
			2483.5(Pk)	65.47	74.00	-8.53
			2483.5(Av)	51.51	54.00	-2.49
4944(Pk)			53.64	74.00	-20.36	
4944(Av)			40.79	54.00	-13.21	
H		2472(Pk)	88.83	*	-	
		2472(Av)	77.42	*	-	
		2483.5(Pk)	52.51	74.00	-21.49	
		2483.5(Av)	41.45	54.00	-12.55	
		4944(Pk)	52.55	74.00	-21.45	
		4944(Av)	39.74	54.00	-14.26	

* - --> Fundamental Frequency
 Pk--> Peak Detector
 Av--> Average Detector

Data Rate (Mbps)	Channel	Polarization	Frequency (MHz)	Field Strength (dBµV/m)	Limit (dBµV/m)	Margin (dB)
54	Low	V	2390(Pk)	66.53	74.00	-7.47
			2390(Av)	43.91	54.00	-10.09
			2412(Pk)	102.89	*	-
			2412(Av)	83.50	*	-
			4824(Pk)	59.21	74.00	-14.79
			4824(Av)	40.50	54.00	-13.50
		H	2390(Pk)	61.75	74.00	-12.25
			2390(Av)	39.09	54.00	-14.91
			2412(Pk)	94.14	*	-
			2412(Av)	76.50	*	-
			4824(Pk)	53.54	74.00	-20.46
			4824(Av)	39.12	54.00	-14.88
	Mid	V	2442(Pk)	102.58	*	-
			2442(Av)	95.58	*	-
			4884(Pk)	56.38	74.00	-17.62
			4884(Av)	45.59	54.00	-8.41
		H	2442(Pk)	93.52	*	-
			2442(Av)	84.58	*	-
			4884(Pk)	52.58	74.00	-21.42
			4884(Av)	43.58	54.00	-10.42
	High	V	2472(Pk)	99.63	*	-
			2472(Av)	87.19	*	-
			2483.5(Pk)	65.32	74.00	-8.68
			2483.5(Av)	51.53	54.00	-2.47
4944(Pk)			53.19	74.00	-20.81	
4944(Av)			40.37	54.00	-13.63	
H		2472(Pk)	88.90	*	-	
		2472(Av)	79.21	*	-	
		2483.5(Pk)	55.07	74.00	-18.93	
		2483.5(Av)	45.95	54.00	-8.05	
		4944(Pk)	51.52	74.00	-22.48	
		4944(Av)	40.45	54.00	-13.55	

* - --> Fundamental Frequency

Pk--> Peak Detector

Av--> Average Detector

Data Rate (Mbps)	Channel	Polarization	Frequency (MHz)	Field Strength (dBµV/m)	Limit (dBµV/m)	Margin (dB)		
6.5	Low	V	2390(Pk)	68.58	74.00	-5.42		
			2390(Av)	51.06	54.00	-2.94		
			2412(Pk)	100.62	*	-		
			2412(Av)	91.83	*	-		
			4824(Pk)	60.37	74.00	-13.63		
			4824(Av)	44.08	54.00	-9.92		
		H	2390(Pk)	62.05	74.00	-11.95		
			2390(Av)	45.64	54.00	-8.36		
			2412(Pk)	93.32	*	-		
			2412(Av)	84.81	*	-		
	Mid	V	2442(Pk)	102.18	*	-		
			2442(Av)	92.61	*	-		
			4884(Pk)	56.35	74.00	-17.65		
			4884(Av)	44.59	54.00	-9.41		
		H	2442(Pk)	93.52	*	-		
			2442(Av)	82.58	*	-		
			4884(Pk)	52.58	74.00	-21.42		
			4884(Av)	43.58	54.00	-10.42		
			High	V	2472(Pk)	100.49	*	-
					2472(Av)	89.26	*	-
	2483.5(Pk)	70.54			74.00	-3.46		
	2483.5(Av)	53.18			54.00	-0.82		
	4944(Pk)	60.23			74.00	-13.77		
	4944(Av)	47.48			54.00	-6.52		
H	2472(Pk)	88.75		*	-			
	2472(Av)	78.87		*	-			
	2483.5(Pk)	56.82		74.00	-17.18			
	2483.5(Av)	43.25		54.00	-10.75			
			4944(Pk)	61.41	74.00	-12.59		
			4944(Av)	47.56	54.00	-6.44		

* - --> Fundamental Frequency

Pk--> Peak Detector

Av--> Average Detector

Data Rate (Mbps)	Channel	Polarization	Frequency (MHz)	Field Strength (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)
39	Low	V	2390(Pk)	68.54	74.00	-5.46
			2390(Av)	46.18	54.00	-7.82
			2412(Pk)	103.11	*	-
			2412(Av)	86.30	*	-
			4824(Pk)	59.05	74.00	-14.95
			4824(Av)	41.16	54.00	-12.84
		H	2390(Pk)	61.65	74.00	-12.35
			2390(Av)	40.57	54.00	-13.43
			2412(Pk)	95.56	*	-
			2412(Av)	79.40	*	-
			4824(Pk)	53.37	74.00	-20.63
			4824(Av)	38.81	54.00	-15.19
	Mid	V	2442(Pk)	102.31	*	-
			2442(Av)	92.68	*	-
			4884(Pk)	56.38	74.00	-17.62
			4884(Av)	44.58	54.00	-9.42
		H	2442(Pk)	92.84	*	-
			2442(Av)	83.61	*	-
			4884(Pk)	52.64	74.00	-21.36
			4884(Av)	44.58	54.00	-9.42
	High	V	2472(Pk)	100.36	*	-
			2472(Av)	90.63	*	-
			2483.5(Pk)	69.31	74.00	-4.69
			2483.5(Av)	53.19	54.00	-0.81
			4944(Pk)	62.43	74.00	-11.57
			4944(Av)	47.52	54.00	-6.48
		H	2472(Pk)	89.31	*	-
			2472(Av)	79.41	*	-
2483.5(Pk)			56.85	74.00	-17.15	
2483.5(Av)			44.59	54.00	-9.41	
4944(Pk)			62.58	74.00	-11.42	
4944(Av)			47.56	54.00	-6.44	

* - --> Fundamental Frequency
 Pk--> Peak Detector
 Av--> Average Detector

Data Rate (Mbps)	Channel	Polarization	Frequency (MHz)	Field Strength (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)
65	Low	V	2390(Pk)	68.56	74.00	-5.44
			2390(Av)	45.44	54.00	-8.56
			2412(Pk)	103.31	*	-
			2412(Av)	83.12	*	-
			4824(Pk)	58.81	74.00	-15.19
			4824(Av)	40.40	54.00	-13.60
		H	2390(Pk)	63.17	74.00	-10.83
			2390(Av)	40.21	54.00	-13.79
			2412(Pk)	95.18	*	-
			2412(Av)	76.48	*	-
			4824(Pk)	53.16	74.00	-20.84
			4824(Av)	38.04	54.00	-15.96
	Mid	V	2442(Pk)	102.34	*	-
			2442(Av)	92.13	*	-
			4884(Pk)	56.18	74.00	-17.82
			4884(Av)	44.61	54.00	-9.39
		H	2442(Pk)	90.68	*	-
			2442(Av)	83.48	*	-
			4884(Pk)	53.58	74.00	-20.42
			4884(Av)	42.58	54.00	-11.42
	High	V	2472(Pk)	99.47	*	-
			2472(Av)	88.56	*	-
			2483.5(Pk)	69.16	74.00	-4.84
			2483.5(Av)	52.18	54.00	-1.82
			4944(Pk)	62.49	74.00	-11.51
			4944(Av)	48.54	54.00	-5.46
		H	2472(Pk)	88.16	*	-
			2472(Av)	77.59	*	-
2483.5(Pk)			55.88	74.00	-18.12	
2483.5(Av)			42.09	54.00	-11.91	
4944(Pk)			60.01	74.00	-13.99	
4944(Av)			47.59	54.00	-6.41	

* - --> Fundamental Frequency

Pk--> Peak Detector

Av--> Average Detector

GC Values used during testing:

Frequency	GC 2412 MHz	GC 2417 MHz	GC 2422 MHz	GC 2427 MHz	GC 2432 MHz	GC 2437MHz	GC 2442 MHz	GC 2447 MHz	GC 2452 MHz	GC 2457 MHz	GC 2462 MHz	GC 2467 MHz	GC 2472MHz
Data Rate													
802.11-b													
1-mbps	53	56	56	56	56	56	56	56	56	56	56	56	56
2-mbps	53	56	56	56	56	56	56	56	56	56	56	56	56
5.5-mbps	56	56	56	56	56	56	56	56	56	56	56	56	56
11-mbps	56	56	56	56	56	56	56	56	56	56	56	56	50
802.11-g													
6-mbps	57	57	57	57	57	57	57	57	57	57	57	57	50
9-mbps	57	57	57	57	57	57	57	57	57	57	57	57	50
12-mbps	57	57	57	57	57	57	57	57	57	57	57	57	50
18-mbps	57	57	57	57	57	57	57	57	57	57	57	57	50
24-mbps	57	57	57	57	57	57	57	57	57	57	57	57	50
36-mbps	57	57	57	57	57	57	57	57	57	57	57	57	50
48-mbps	57	57	57	57	55	55	55	55	55	55	55	55	50
54-mbps	57	57	57	57	55	55	55	55	55	55	55	55	50
802.11-n													
MCS-0(6.5-mbps)	57	57	57	57	57	57	57	57	57	57	57	57	50
MCS-1(13-mbps)	57	57	57	57	57	57	57	57	57	57	57	57	50
MCS-2(19.5-mbps)	57	57	57	57	57	57	57	57	57	57	57	57	50
MCS-3(26-mbps)	57	57	57	57	57	57	57	57	57	57	57	57	50
MCS-4(39-mbps)	57	57	57	57	57	57	57	57	57	57	57	57	50
MCS-5(52-mbps)	57	57	57	57	57	57	57	57	57	57	57	57	50
MCS-6(58.5-mbps)	57	57	57	57	55	55	55	55	55	55	55	55	50
MCS-7(65-mbps)	57	57	57	57	55	55	55	55	55	55	55	55	50