

Produkte
Products

Prüfbericht - Nr.: 01200178 001		Seite 1 von 53	
<i>Test Report No.:</i>		<i>Page 1 of 53</i>	
Auftraggeber: <i>Client:</i>	Redpine Signals Inc. 2107 N.First Street, Suite 680 San Jose, CA 95131-2019 U.S.A		
Gegenstand der Prüfung: <i>Test item:</i>	802.11 abgn WiSeConnect MODULE		
Bezeichnung: <i>Identification:</i>	RSWC301	Serien-Nr.: <i>Serial No.</i>	Engineering Sample
Wareneingangs-Nr.: <i>Receipt No.:</i>	1403022454	Eingangsdatum: <i>Date of receipt:</i>	19.12.2012
Prüfort: <i>Testing location:</i>	Refer Page 4 of 53 for test facilities		
Prüfgrundlage: <i>Test specification:</i>	FCC Part 15, Subpart E		
Prüfergebnis: <i>Test Result:</i>	Der Prüfgegenstand entspricht oben genannter Prüfgrundlage(n). <i>The tests item passed the test specification(s).</i>		
Prüflaboratorium: <i>Testing Laboratory:</i>	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:	
22.01.2013	Vinay.N Engineer	25.01.2013	Raghavendra Kulkarni Manager
			
Datum <i>Date</i>	Name/Stellung <i>Name/Position</i>	Unterschrift <i>Signature</i>	Datum <i>Date</i>
			Name/Stellung <i>Name/Position</i>
			Unterschrift <i>Signature</i>
Sonstiges / Other Aspects: FCC ID : XF6-RSWC301			
Abkürzungen:	P(ass) = entspricht Prüfgrundlage F(ail) = entspricht nicht Prüfgrundlage N/A = nicht anwendbar N/T = nicht getestet	Abbreviations:	P(ass) = passed F(ail) = failed N/A = not applicable N/T = not tested
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. <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>			

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Test Result Summary

Clause	Test Item	Result
15.407 (a)	EBW and OBW	Pass
15.407 (a)	Maximum Conducted Output Power	Pass
15.407 (a)	Power Spectral Density	Pass
15.407 (a)	Peak Excursion	Pass
15.209/15.407	Band Edge Compliance	Pass
15.209/15.205/15.407	Radiated Spurious Emissions and Restricted bands of operation	Pass

Note: FCC part 15 Subpart C test results are covered in Test report: 01200177 001.

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List of Test and Measurement Instruments

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Equipment	Manufacturer	Model	S/N	Calibration Due Date
EMI Test Receiver	Rohde &Schwarz	ESU 40	100288	21.06.2013
Hybrid Log Periodic antenna	ETS Lindgren	3142D	00081354	26.06.2013
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

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

The RS-WC-301 module is a complete IEEE 802.11 a/b/g/n wireless device server that provides a wireless interface to any equipment having a UART, SPI or USB interface. The module integrates a MAC, baseband processor, RF transceiver with power amplifier; and all WLAN protocol and networking stack functionality in embedded firmware to make a fully self-contained 802.11n WLAN solution for a variety of applications. The module integrates an antenna and a U.FL connector for external antenna with an option to select either one of them.

Ratings and System Details

Operating Frequency	5150 - 5250 MHz	
No. of channel	Refer page 6 of 53, Table 2	
Channel Spacing	20 MHz	
Transmitted Power	802.11a	8.84 dBm
	802.11n	8.99 dBm
Modulation	802.11a	OFDM with BPSK,QPSK, 16-QAM, 64-QAM
	802.11n	BPSK,QPSK,16-QAM,64-QAM
Data Rate	802.11n: 6.5, 13, 19.5, 26, 39, 52, 58.5, 65 Mbps 802.11a: 6, 9, 12, 18, 24, 36, 48, 54 Mbps	
Antenna Type	Refer page 2 of 53 – Table 1	
Number of antenna	Two Alternative	
Antenna Gain	Refer page 6 of 53 – Table 1	
Supply Voltage	3.1-3.6 V DC	
Dimensions	104 mm x 34 mm x 12 mm (Board) 20 mm x 17.5 mm x 3.45 mm (Module)	
Environmental	-40°C to +85°C	

Test Conditions:

Supply Voltage: 5V DC from USB

Environmental conditions:

Temperature: +23 °C

RH: 62%

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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 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

Table of Carrier frequencies

Frequency Band	Channel No.	Frequency (MHz)
5150 – 5250 MHz	36	5180
	40	5200
	44	5220
	48	5240

Table 2

Antennas Used

Antenna Number	Make	Model/Part #	Antenna Gain (dBi)	Type of Antenna
Antenna 1	RainSun	AN1003	1 dBi	Multilayer Chip antenna
Antenna 2	Pulse	W1043	2 dBi	External antenna

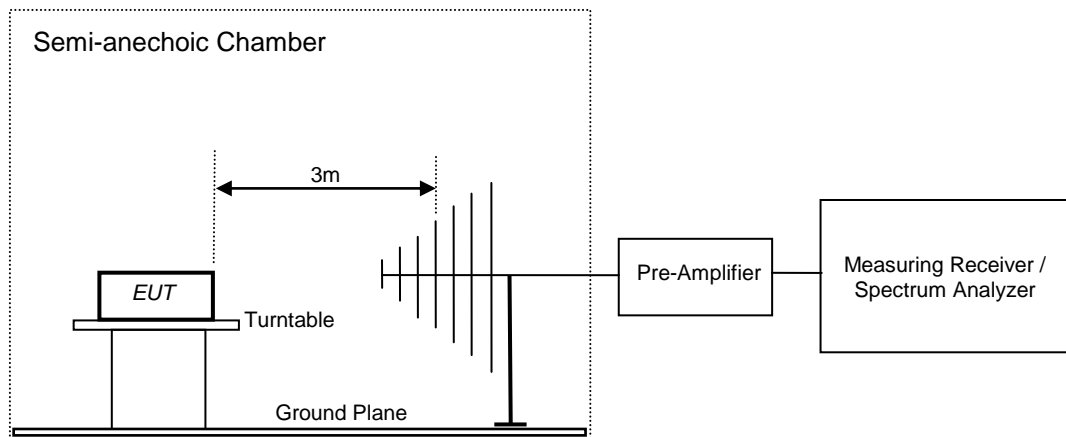
Table 1

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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

EBW and OBW

Section 15.407 (a)

Test Specification FCC Part 15 Section 15.407(a)
 Measurement Bandwidth (RBW) 300 kHz

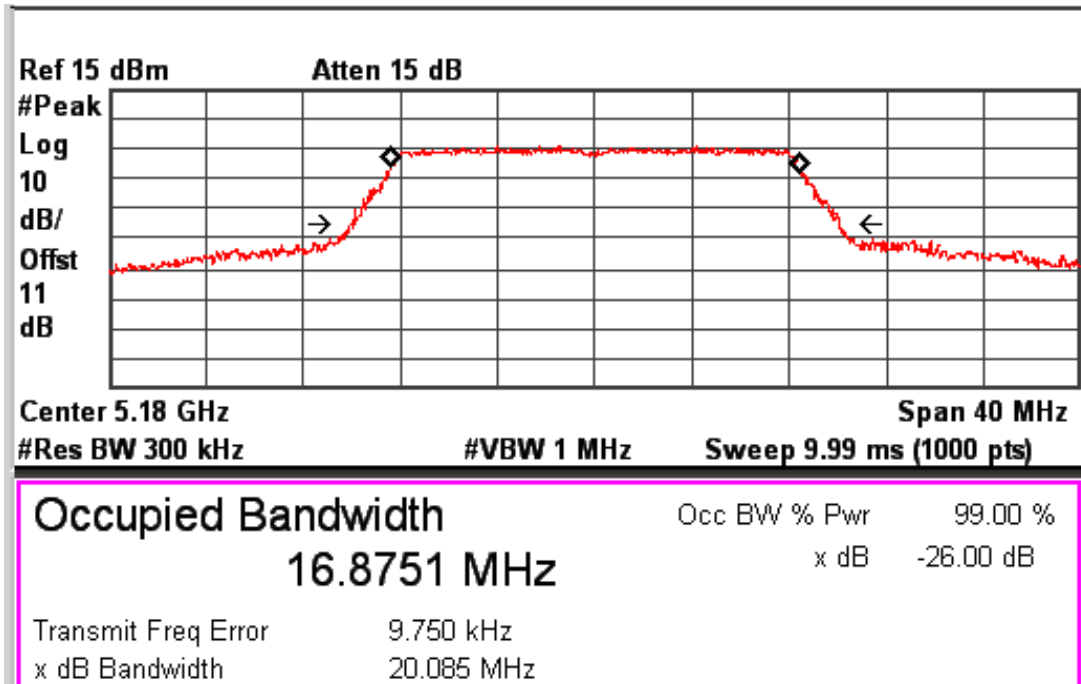
Test Method:



Test Result:

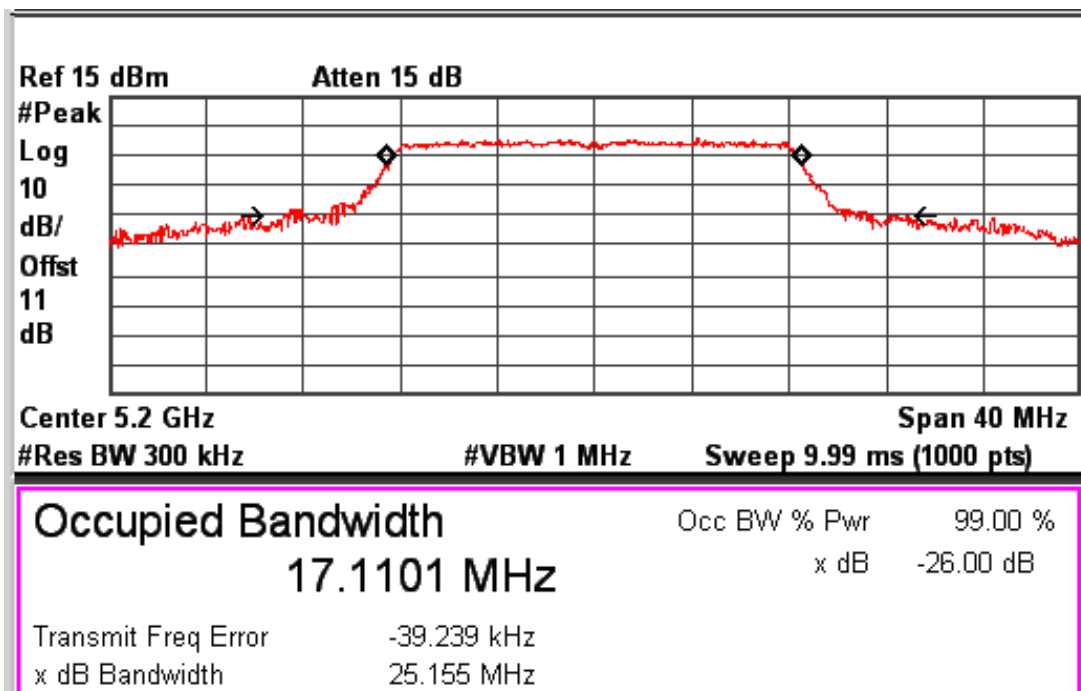
Modulation: 802.11a

Data Rate (Mbps)	Channel. No	Frequency (MHz)	EBW (MHz)	OBW (MHz)
6	36	5180	20.08	16.87
	40	5200	25.15	17.11
	48	5240	24.97	16.98
24	36	5180	19.90	16.76
	40	5200	20.03	16.84
	48	5240	21.10	16.84
54	36	5180	19.79	16.78
	40	5200	19.93	16.74
	48	5240	19.77	16.76



Data Rate: 6Mbps

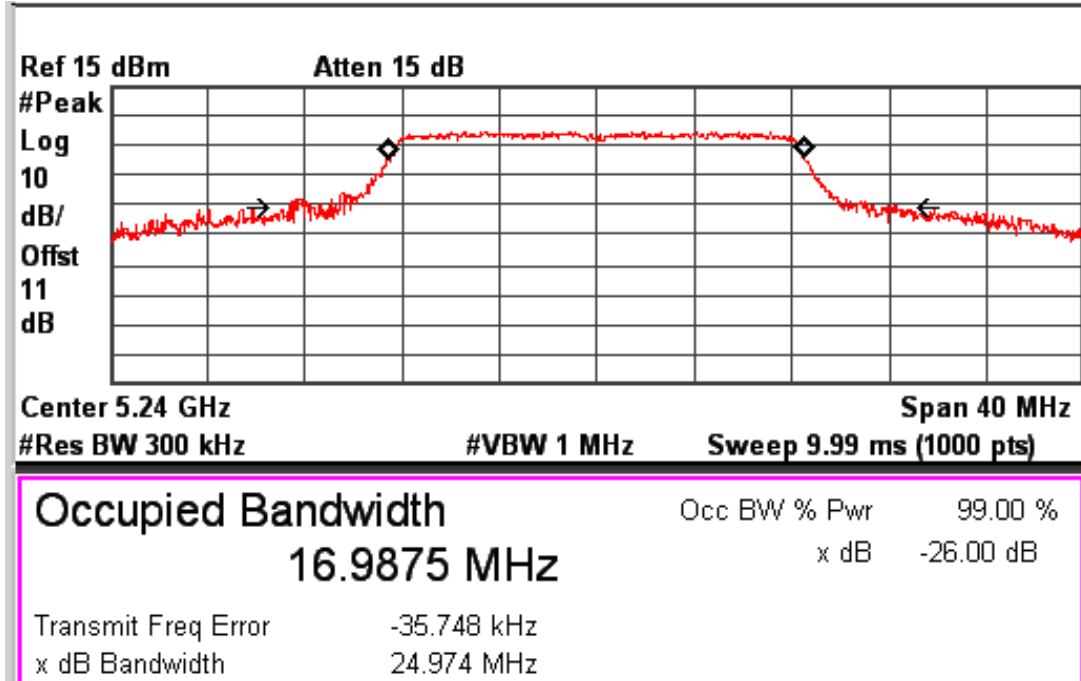
Channel Frequency: 5180MHz



Data Rate: 6Mbps

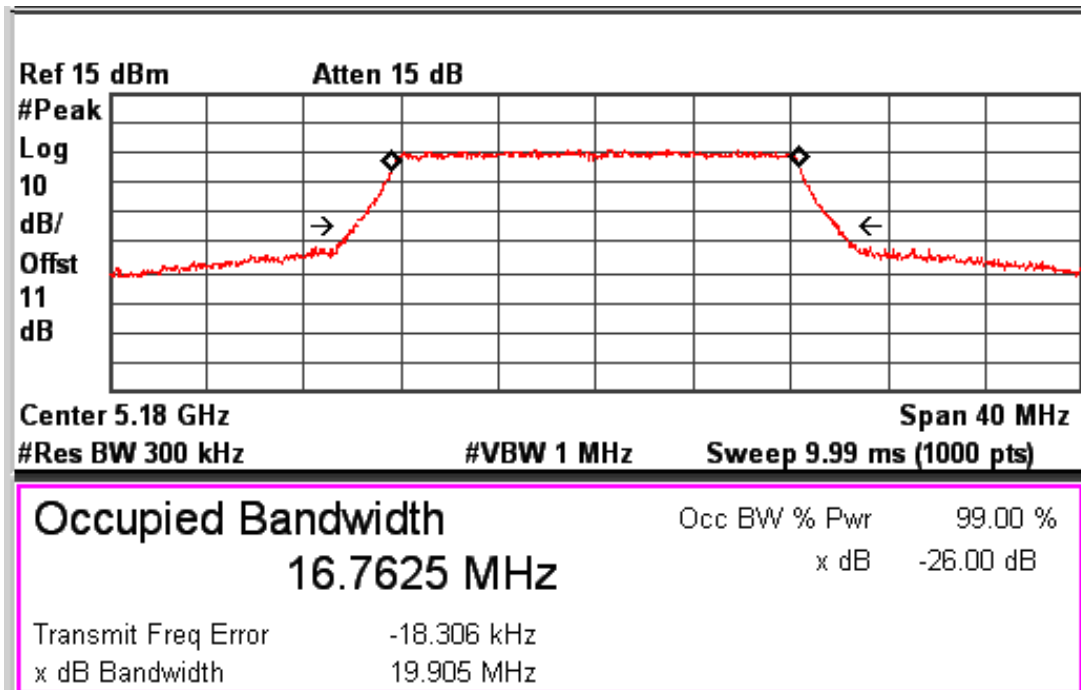
Channel Frequency: 5200MHz

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Data Rate: 6Mbps

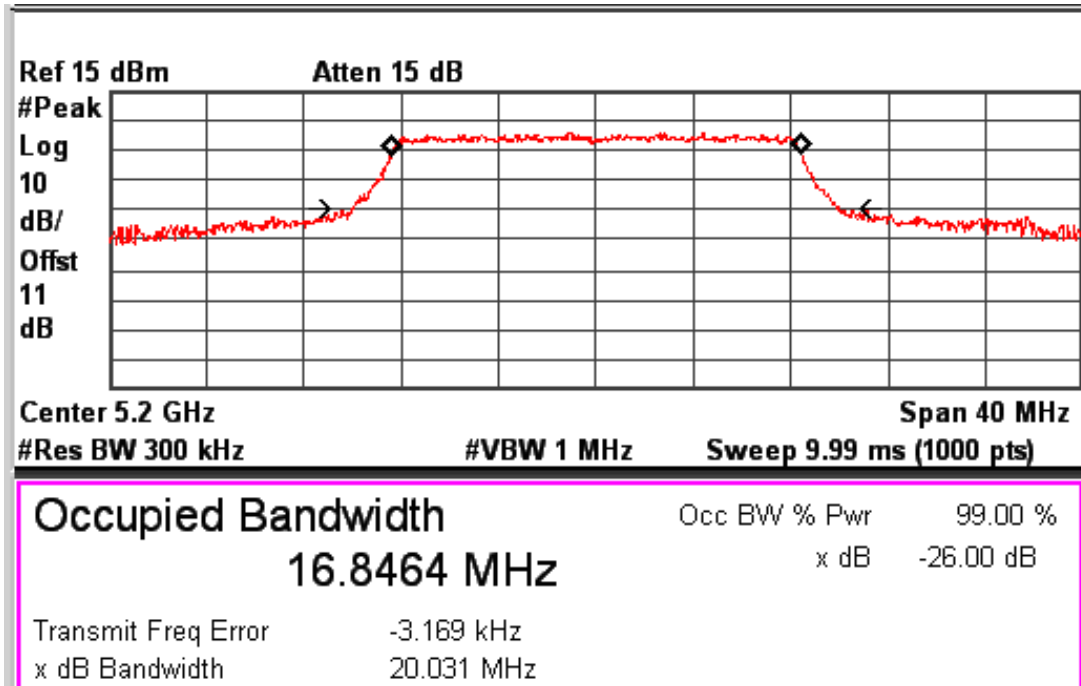
Channel Frequency: 5240MHz



Data Rate: 24Mbps

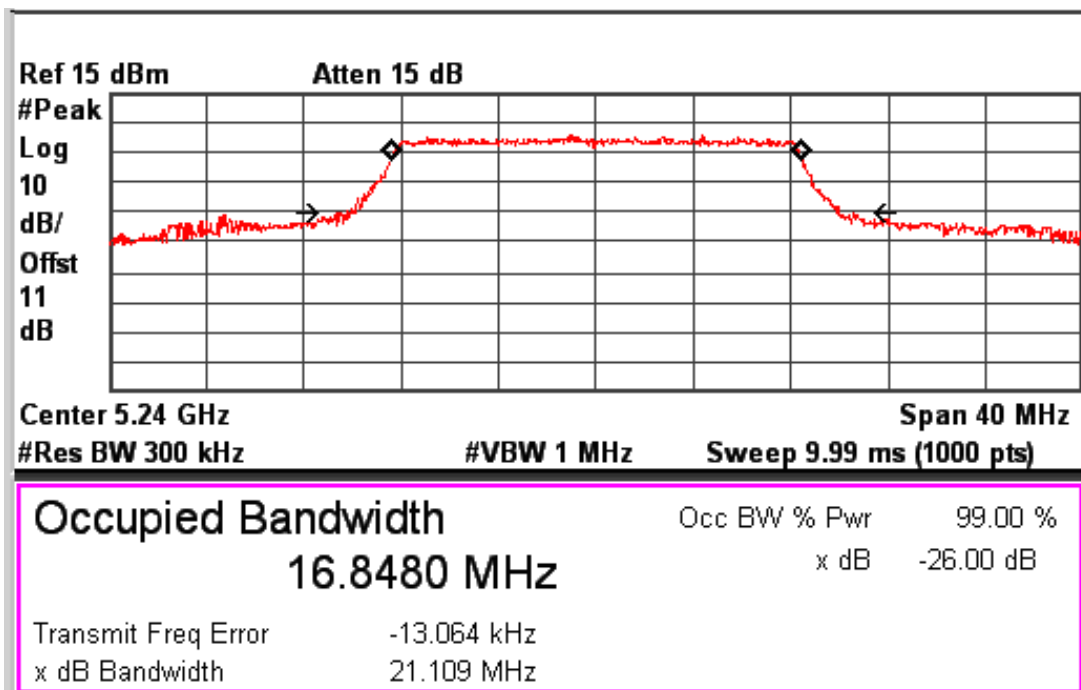
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Data Rate: 24Mbps

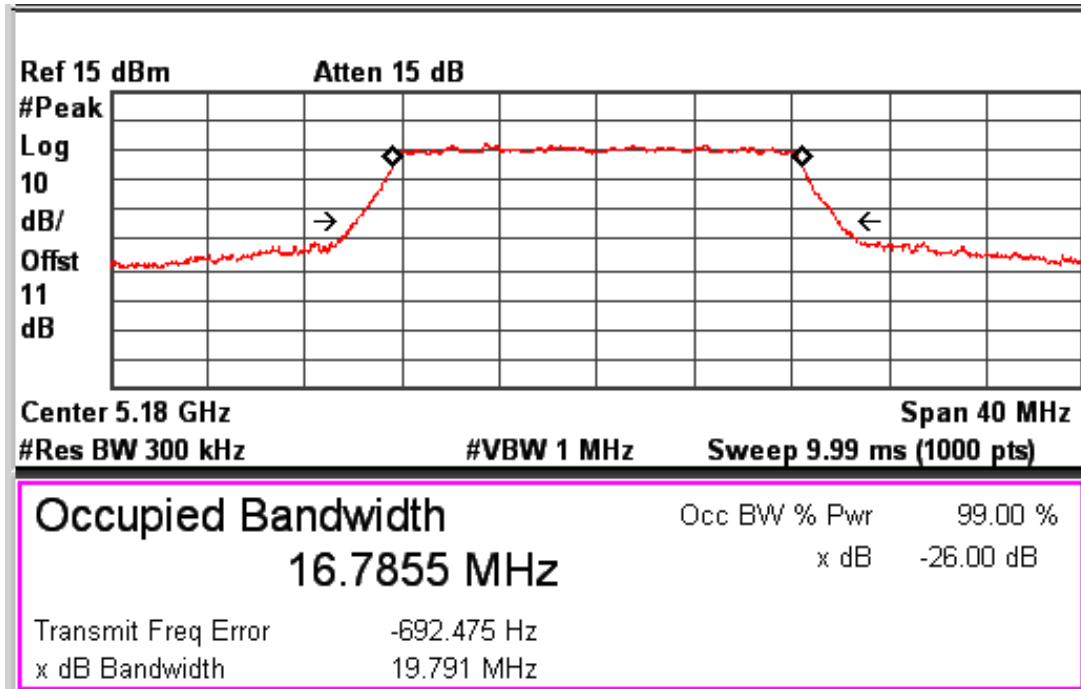
Channel Frequency: 5200MHz



Data Rate: 24Mbps

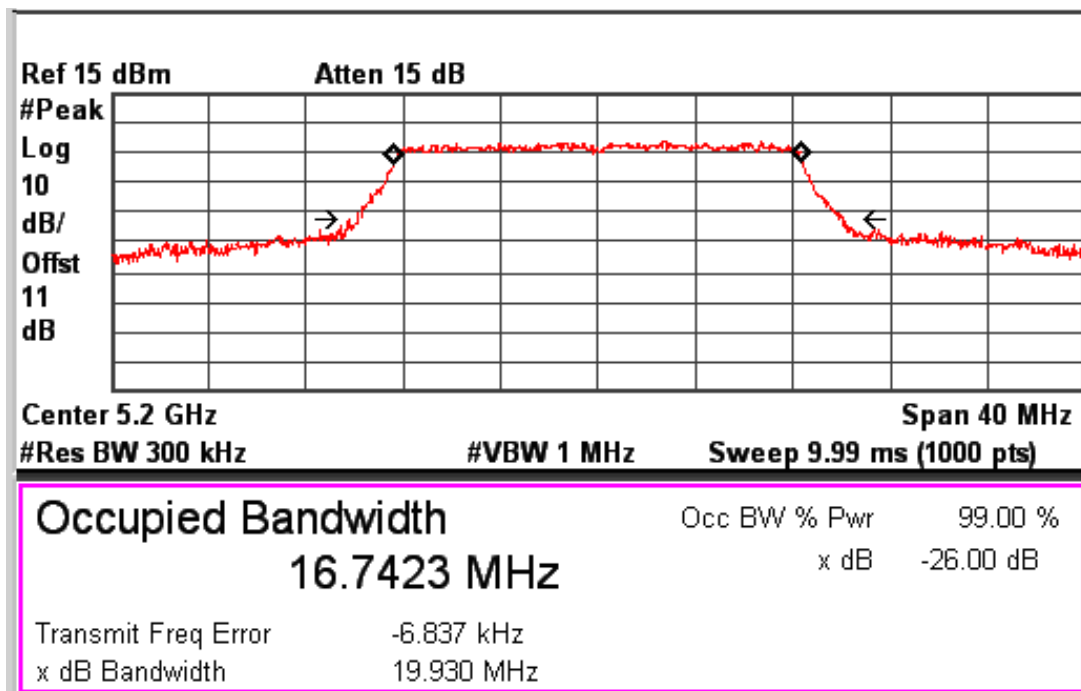
Channel Frequency: 5240MHz

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Data Rate: 54Mbps

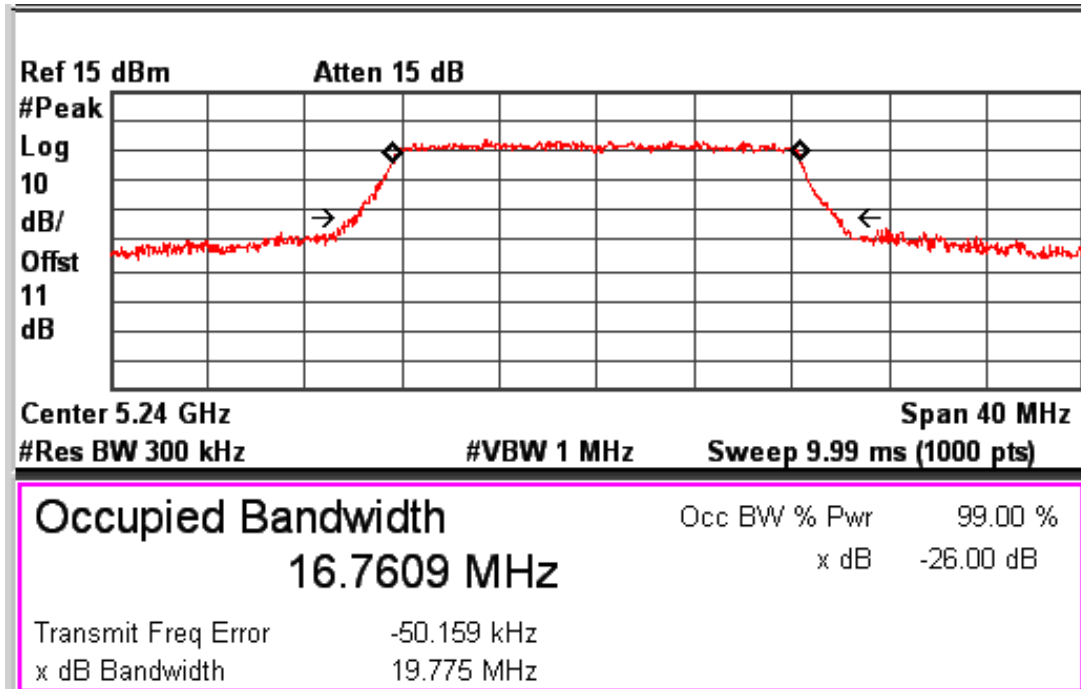
Channel Frequency: 5180MHz



Data Rate: 54Mbps

Channel Frequency: 5200MHz

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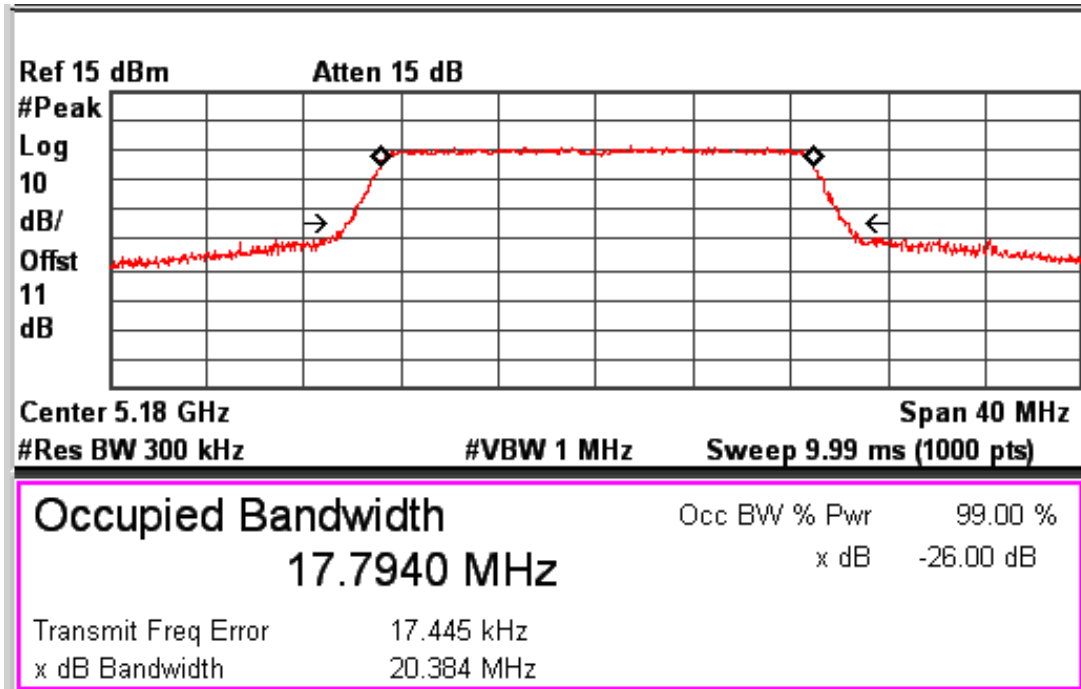
Data Rate: 54Mbps

Channel Frequency: 5240MHz

Modulation: 802.11n

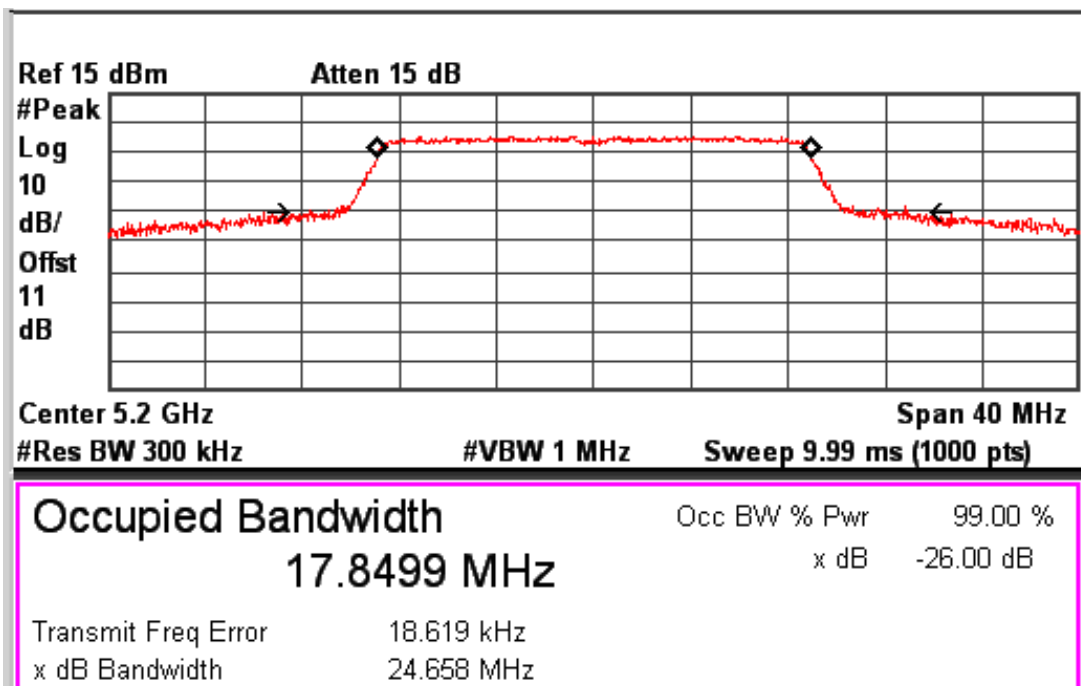
Data Rate (Mbps)	Channel. No	Frequency (MHz)	EBW (MHz)	OBW (MHz)
6.5	36	5180	20.38	17.79
	40	5200	24.65	17.84
	48	5240	23.33	17.86
39	36	5180	20.18	17.73
	40	5200	20.4	17.81
	48	5240	23.52	17.82
65	36	5180	19.94	17.75
	40	5200	20.15	17.76
	48	5240	20.17	17.79

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Data Rate: 6.5Mbps

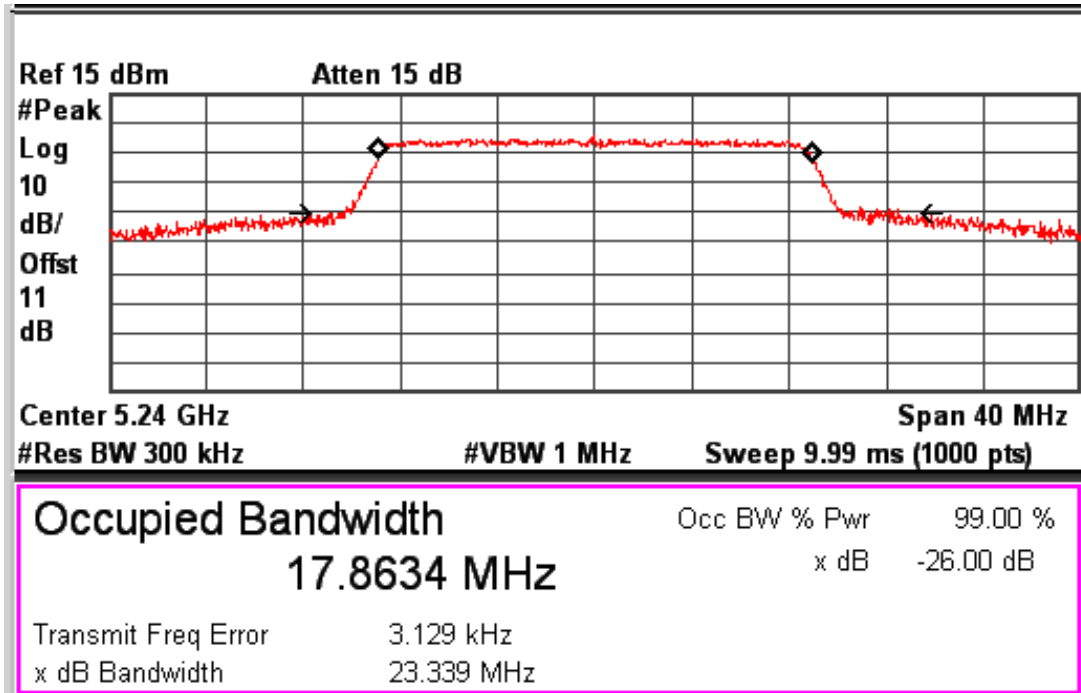
Channel Frequency: 5180MHz



Data Rate: 6.5Mbps

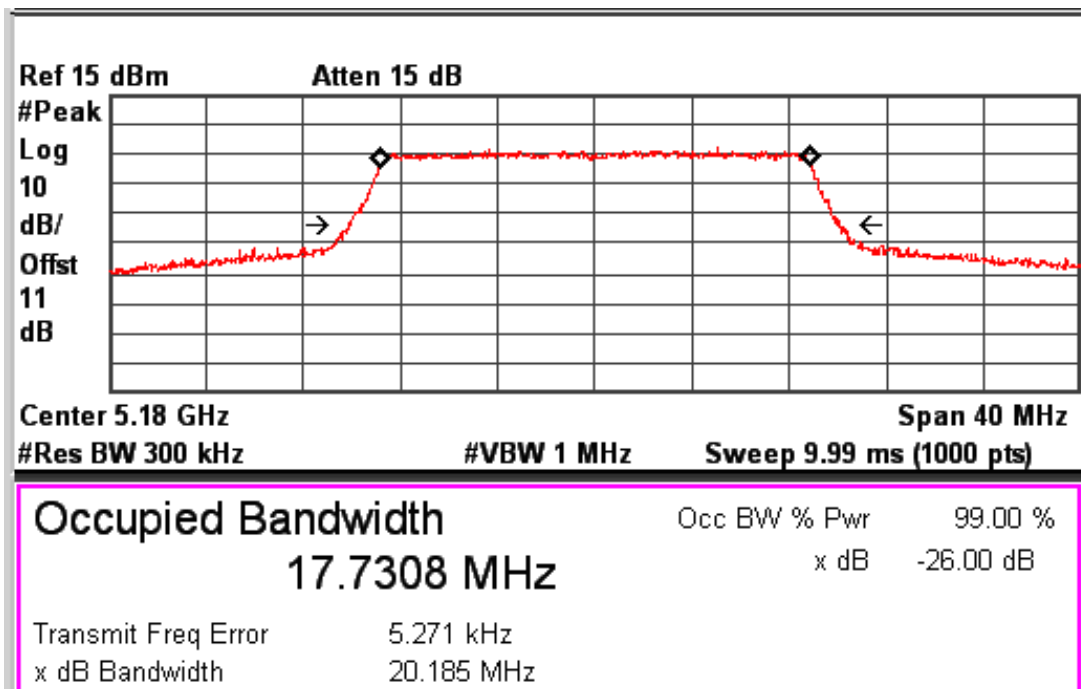
Channel Frequency: 5200MHz

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Data Rate: 6.5Mbps

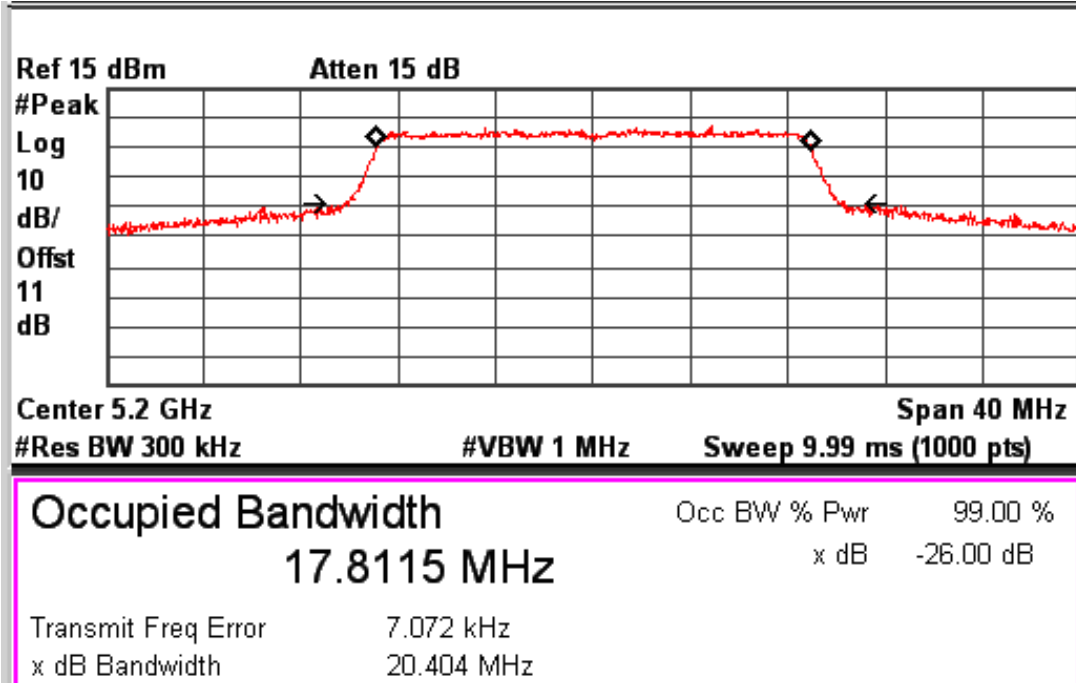
Channel Frequency: 5240MHz



Data Rate: 39Mbps

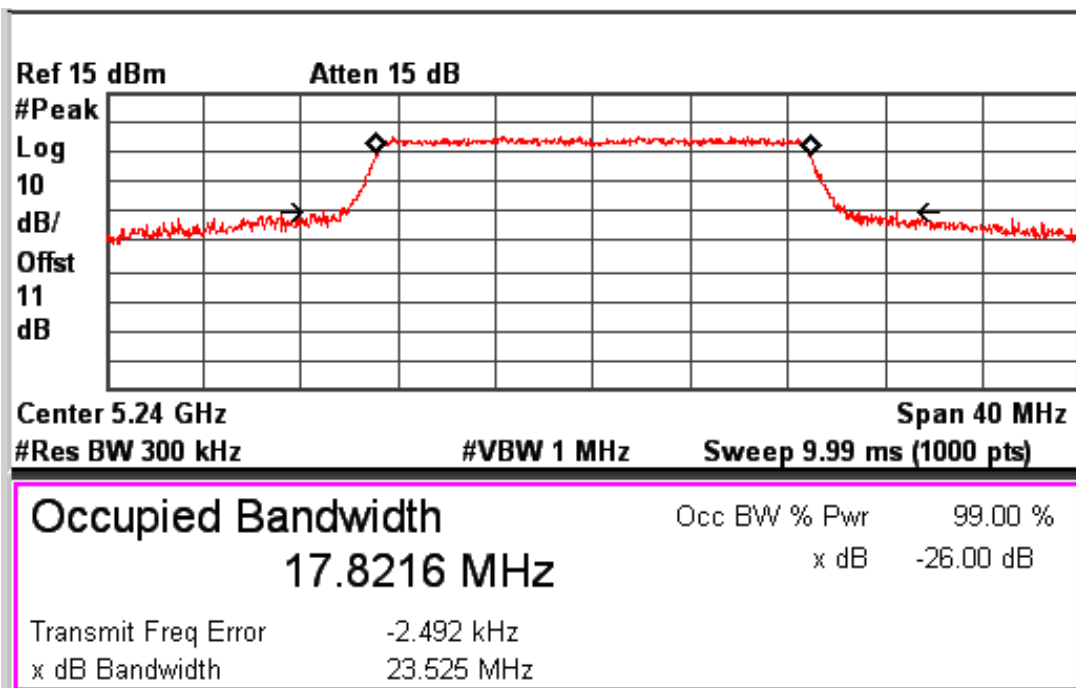
Channel Frequency: 5180MHz

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Data Rate: 39Mbps

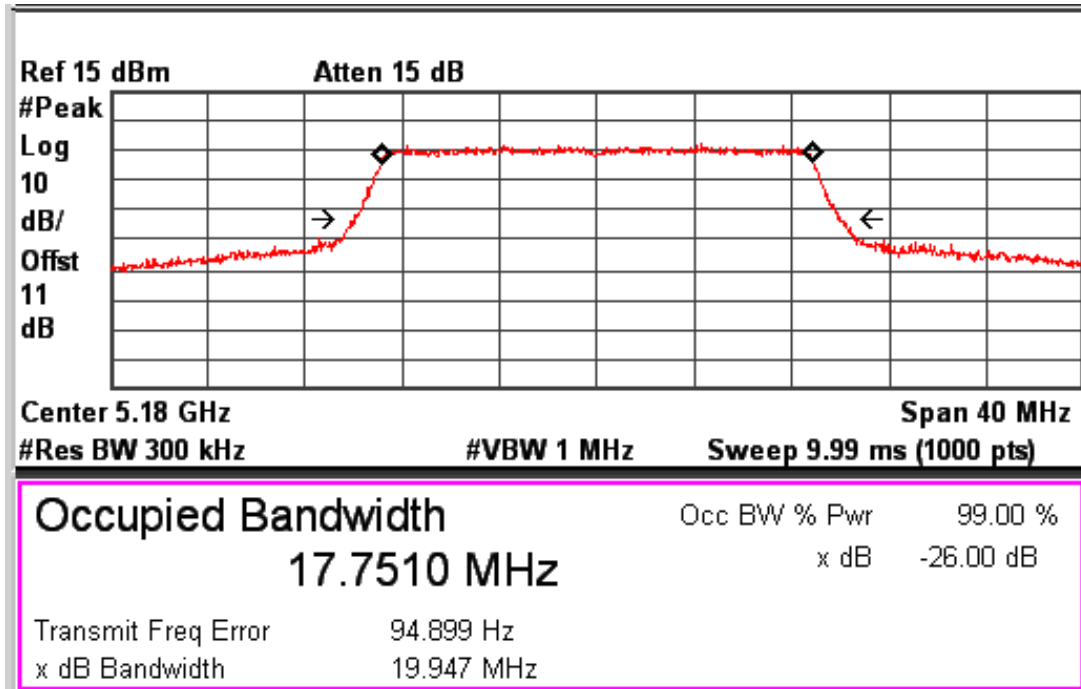
Channel Frequency: 5200MHz



Data Rate: 39Mbps

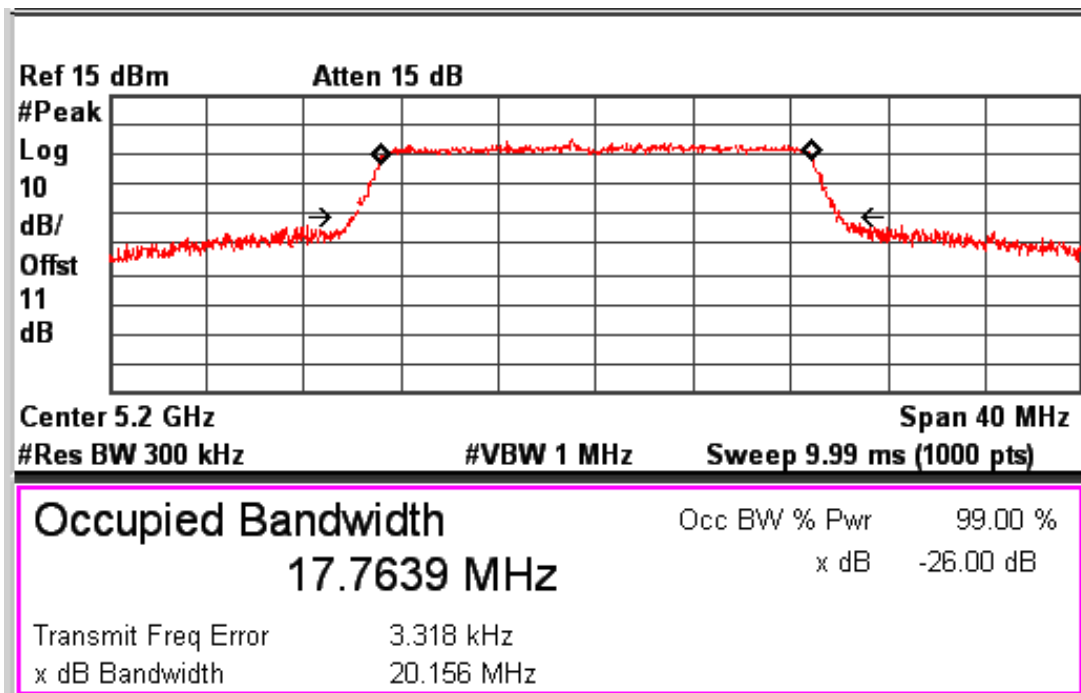
Channel Frequency: 5240MHz

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Data Rate: 65Mbps

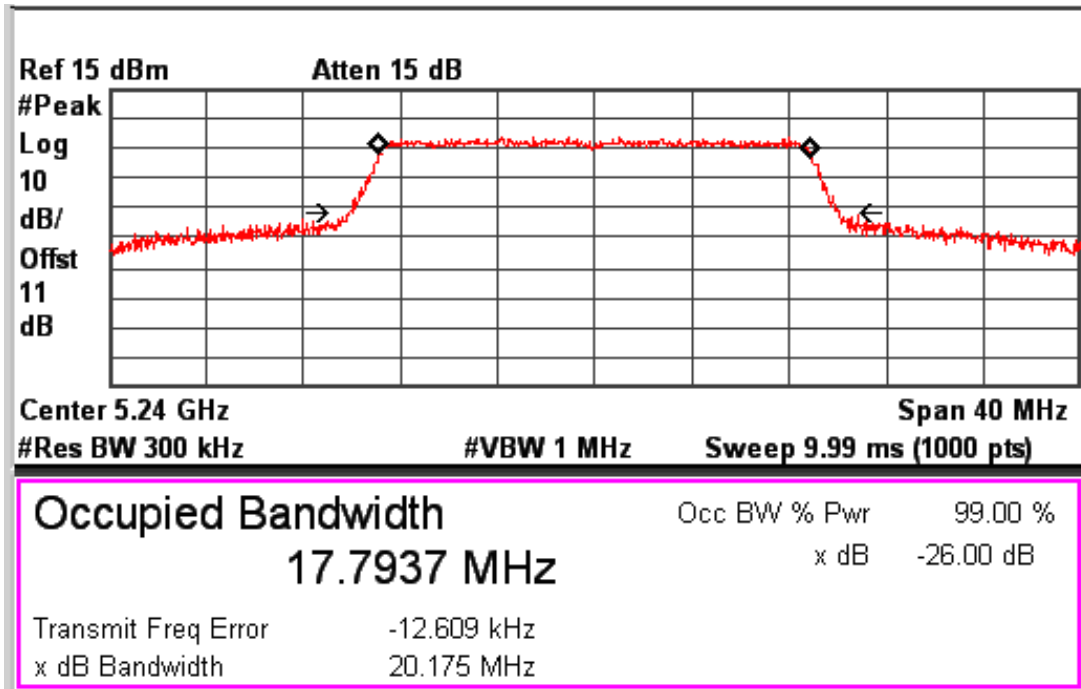
Channel Frequency: 5180MHz



Data Rate: 65Mbps

Channel Frequency: 5200MHz

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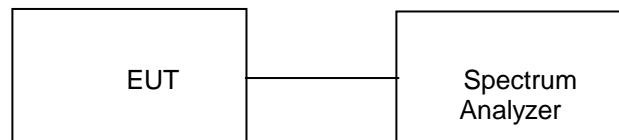
Data Rate: 65Mbps

Channel Frequency: 5240MHz

**Maximum conducted output power
Result**
**Section 15.407(a)
Pass**

Test Specification FCC Part 15 Subpart E
 Measurement Bandwidth (RBW) 1 MHz
 Requirement For the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 50 mW or 4 dBm + 10log B, where B is the 26- dB emission bandwidth in MHz
 For the 5.25-5.35 GHz and 5.47-5.725 GHz bands, the maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW or 11 dBm + 10log B, where B is the 26 dB emission bandwidth in MHz.

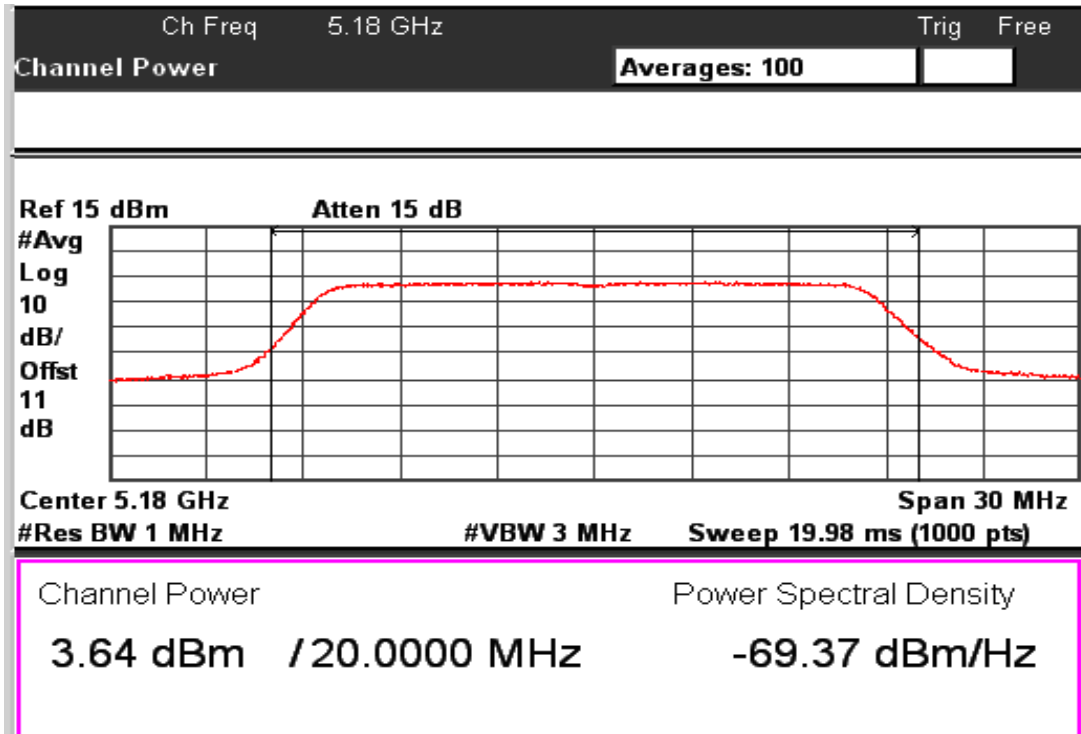
Note: For measurement of Maximum conducted output power method SA-1 was used

Test Method:


Test Result:
Modulation: 802.11a

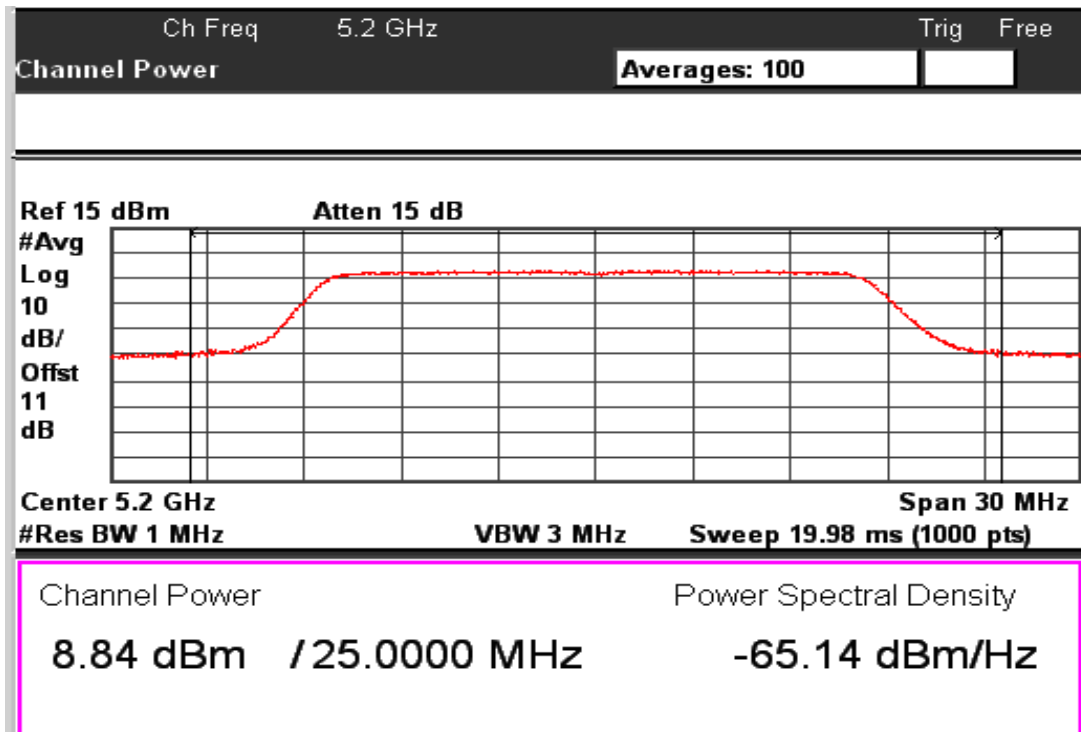
Data Rate (Mbps)	Channel No.	Frequency (MHz)	Output power (dBm)	Limit (dBm)	Margin (dB)
6	36	5180	3.64	16.98	-13.34
	40	5200	8.84	16.98	-08.14
	48	5240	8.43	16.98	-08.55
24	36	5180	3.63	16.98	-13.35
	40	5200	8.67	16.98	-08.31
	48	5240	8.43	16.98	-08.55
54	36	5180	3.61	16.98	-13.37
	40	5200	7.39	16.98	-09.59
	48	5240	7.08	16.98	-09.90

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Data Rate: 6Mbps

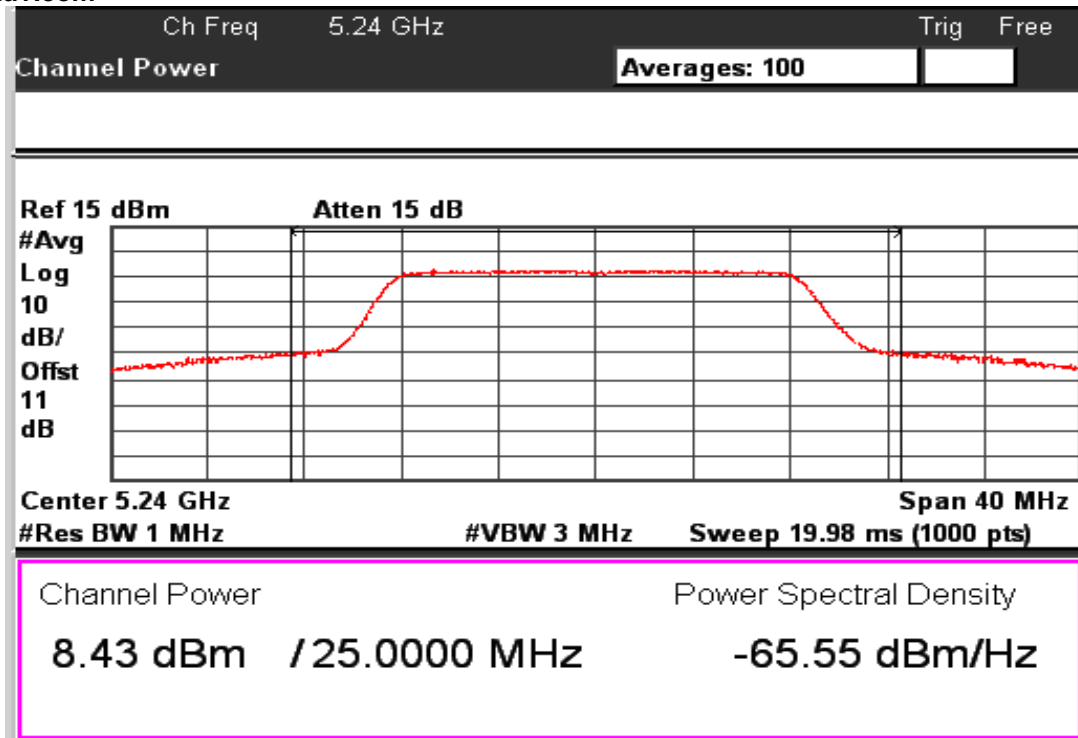
Channel Frequency: 5180MHz



Data Rate: 6Mbps

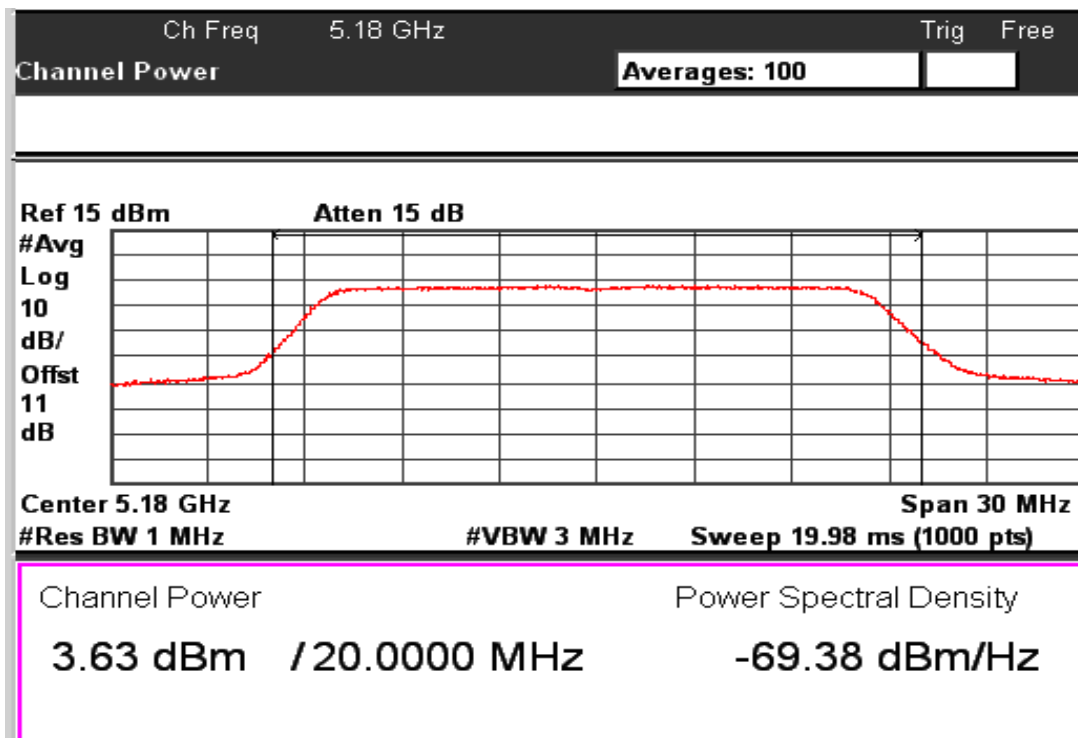
Channel Frequency: 5200MHz

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Data Rate: 6Mbps

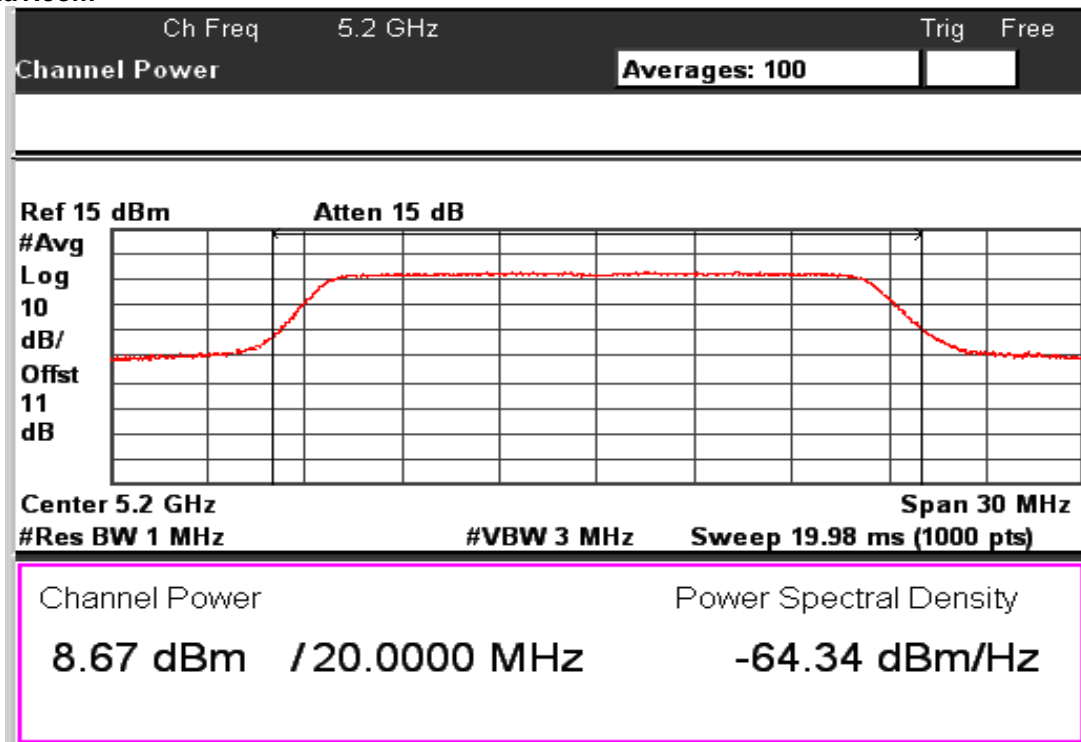
Channel Frequency: 5240MHz



Data Rate: 24Mbps

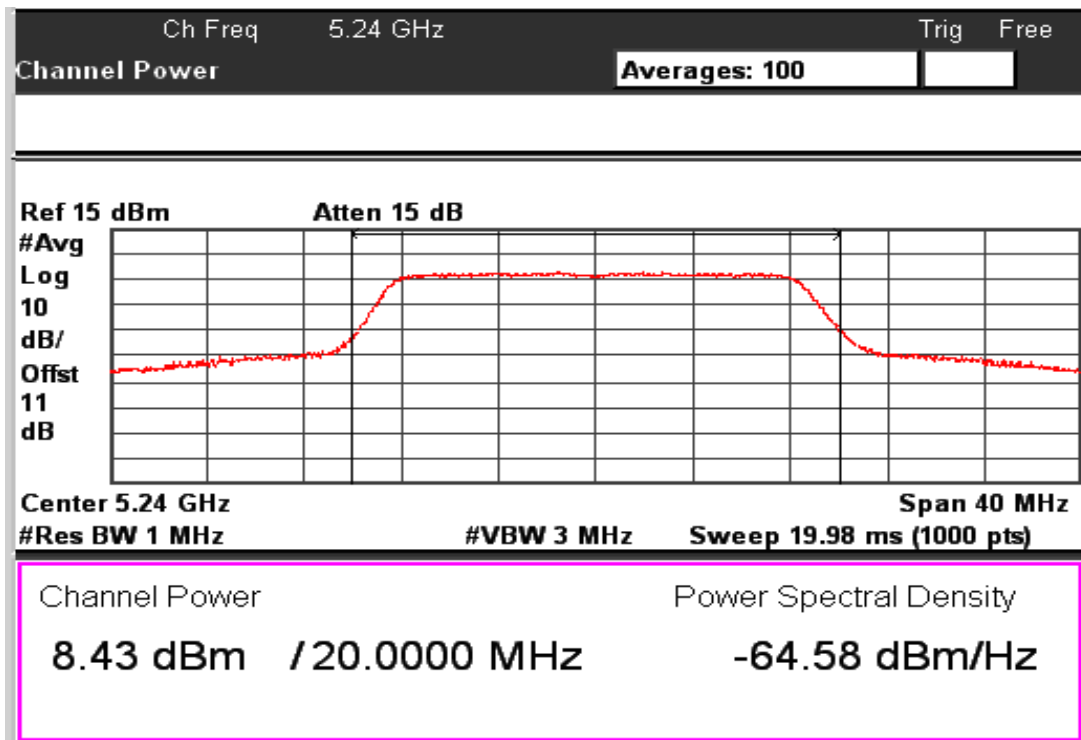
Channel Frequency: 5180MHz

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Data Rate: 24Mbps

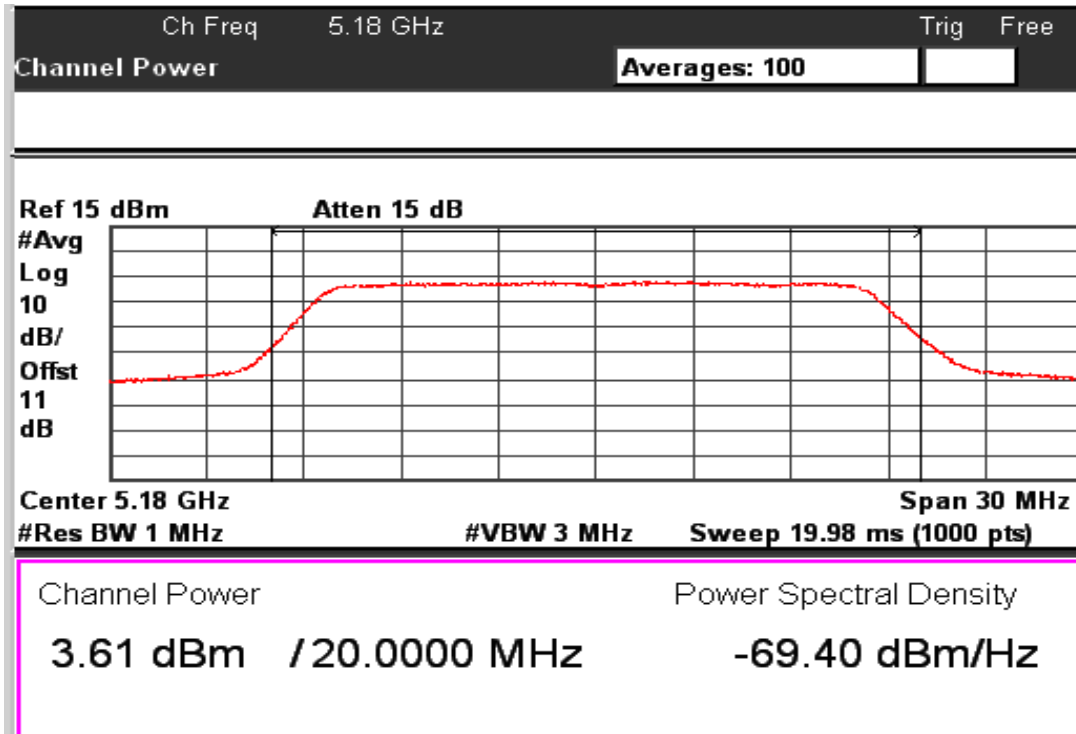
Channel Frequency: 5200MHz



Data Rate: 24Mbps

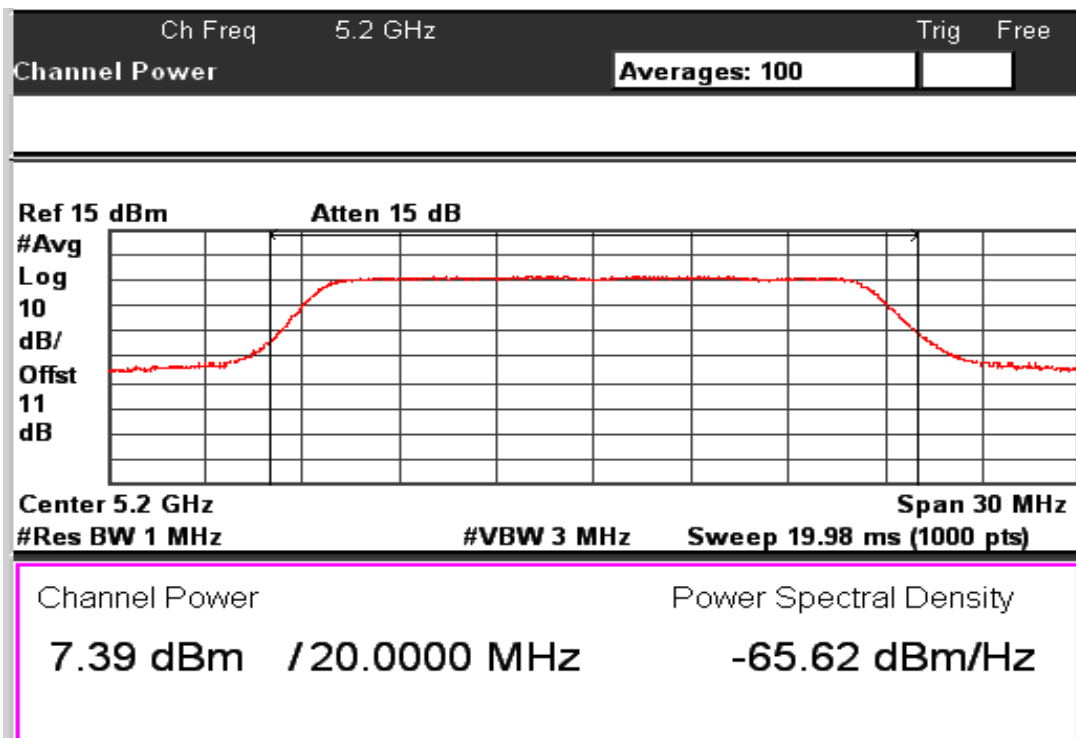
Channel Frequency: 5240MHz

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Data Rate: 54Mbps

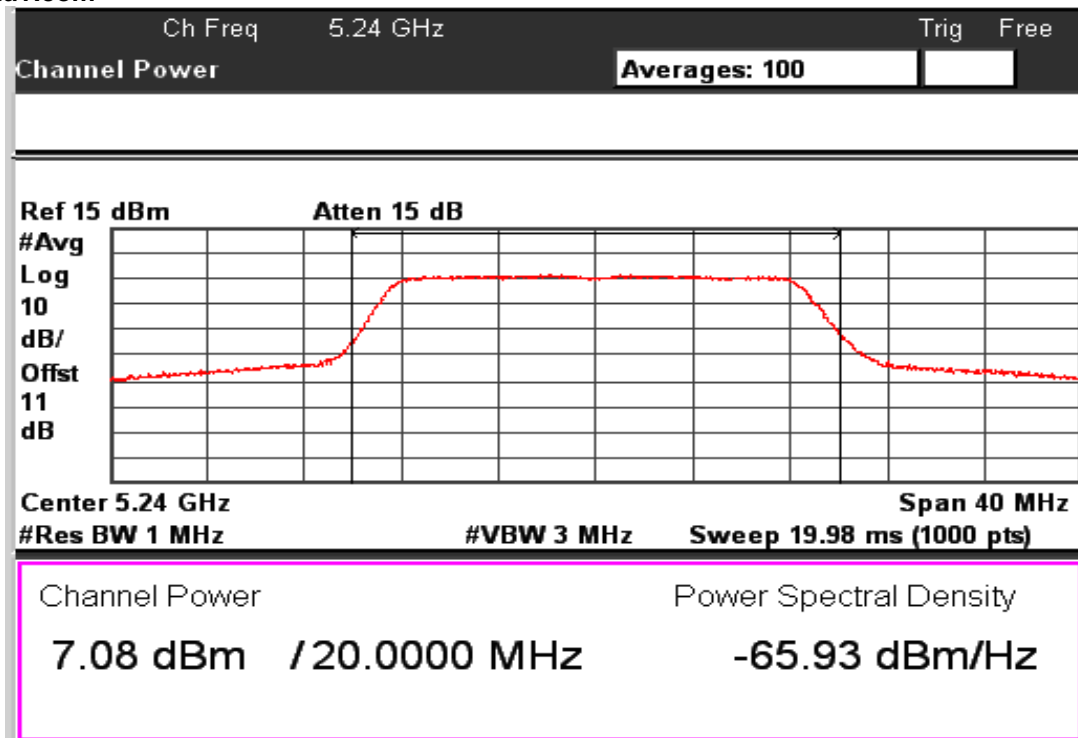
Channel Frequency: 5180MHz



Data Rate: 54Mbps

Channel Frequency: 5200MHz

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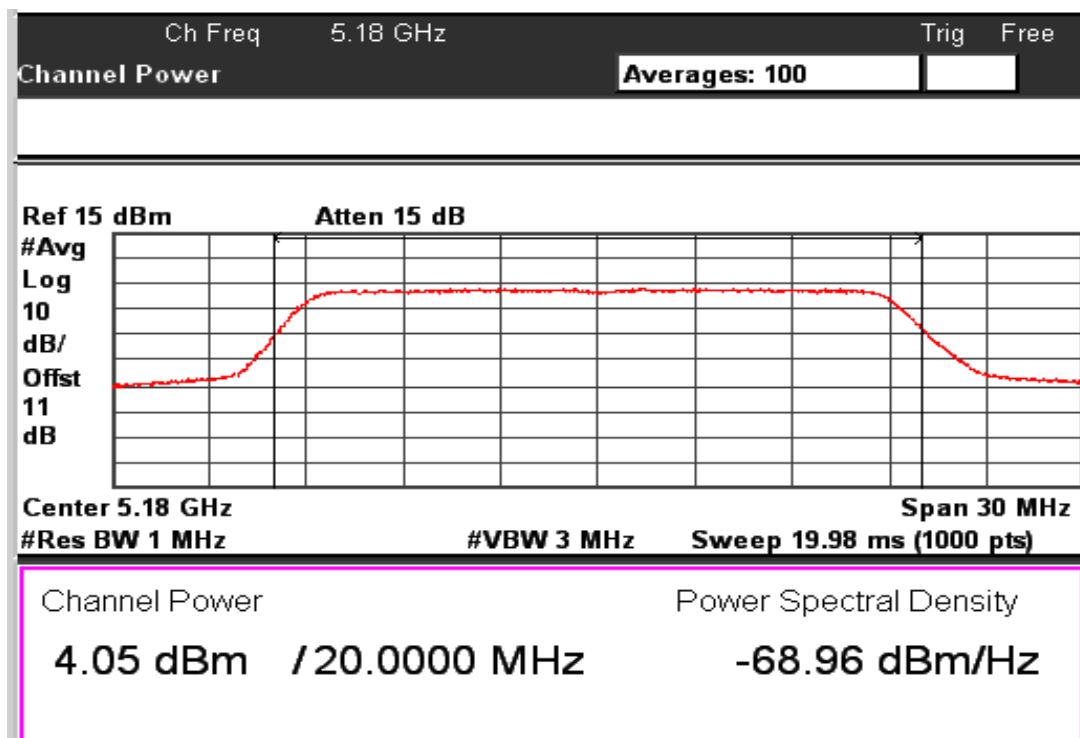
Data Rate: 54Mbps

Channel Frequency: 5240MHz

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Modulation: 802.11n

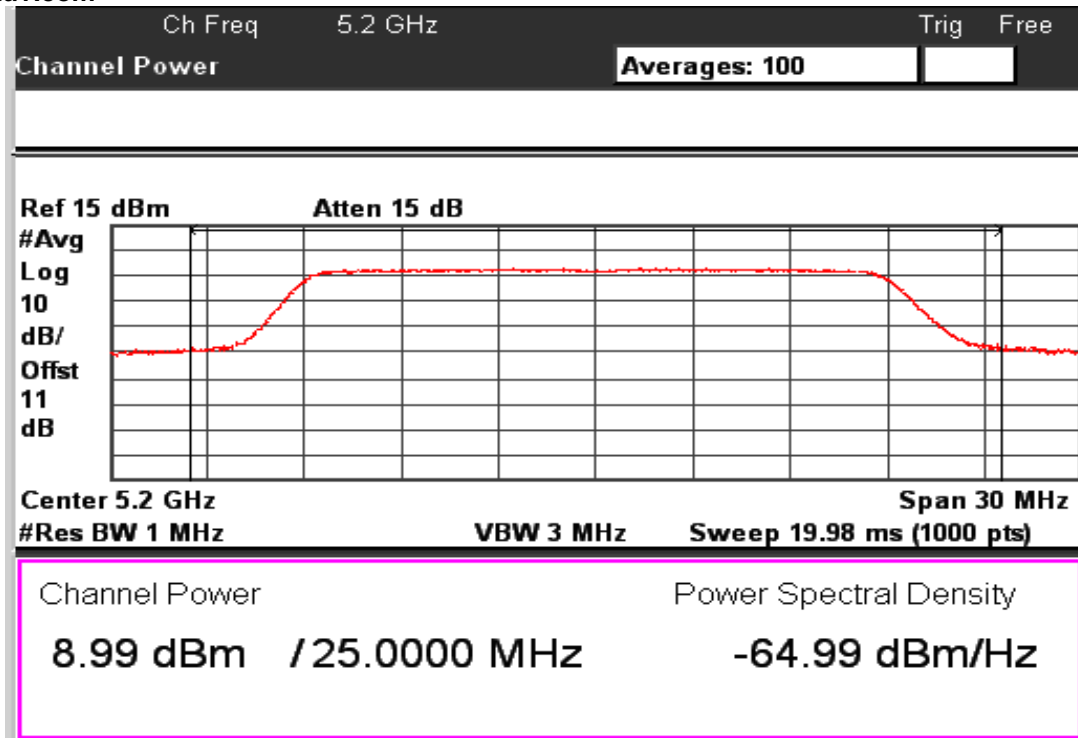
Data Rate (Mbps)	Channel No.	Frequency (MHz)	Output power (dBm)	Limit (dBm)	Margin (dB)
6.5	36	5180	4.05	16.98	-12.93
	40	5200	8.99	16.98	-07.99
	48	5240	8.67	16.98	-08.31
39	36	5180	3.89	16.98	-13.09
	40	5200	9.01	16.98	-07.97
	48	5240	8.62	16.98	-08.36
65	36	5180	3.91	16.98	-13.07
	40	5200	7.74	16.98	-09.24
	48	5240	7.39	16.98	-09.59



Data Rate: 6.5Mbps

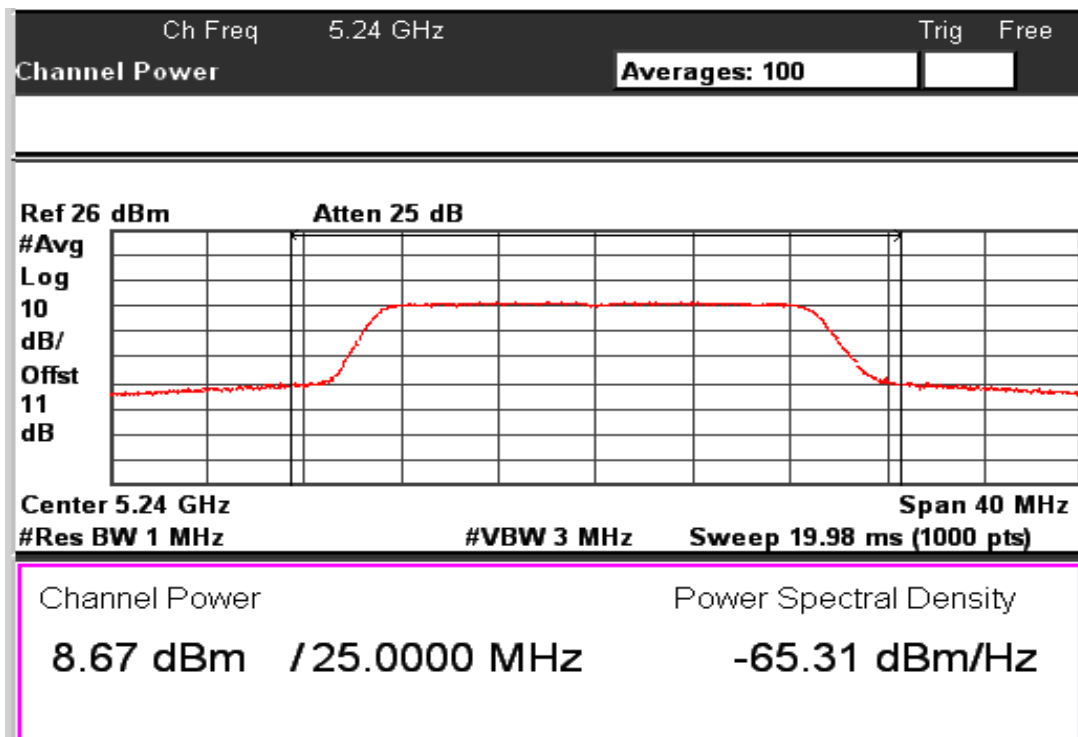
Channel Frequency: 5180MHz

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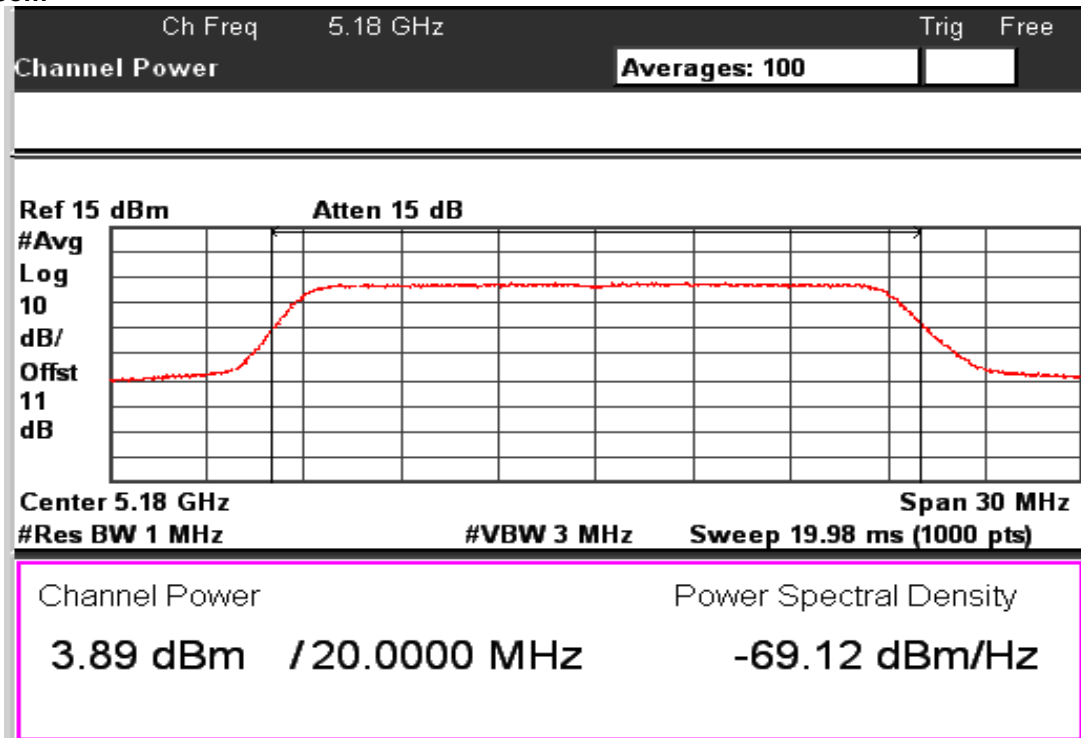
Data Rate: 6.5Mbps

Channel Frequency: 5200MHz



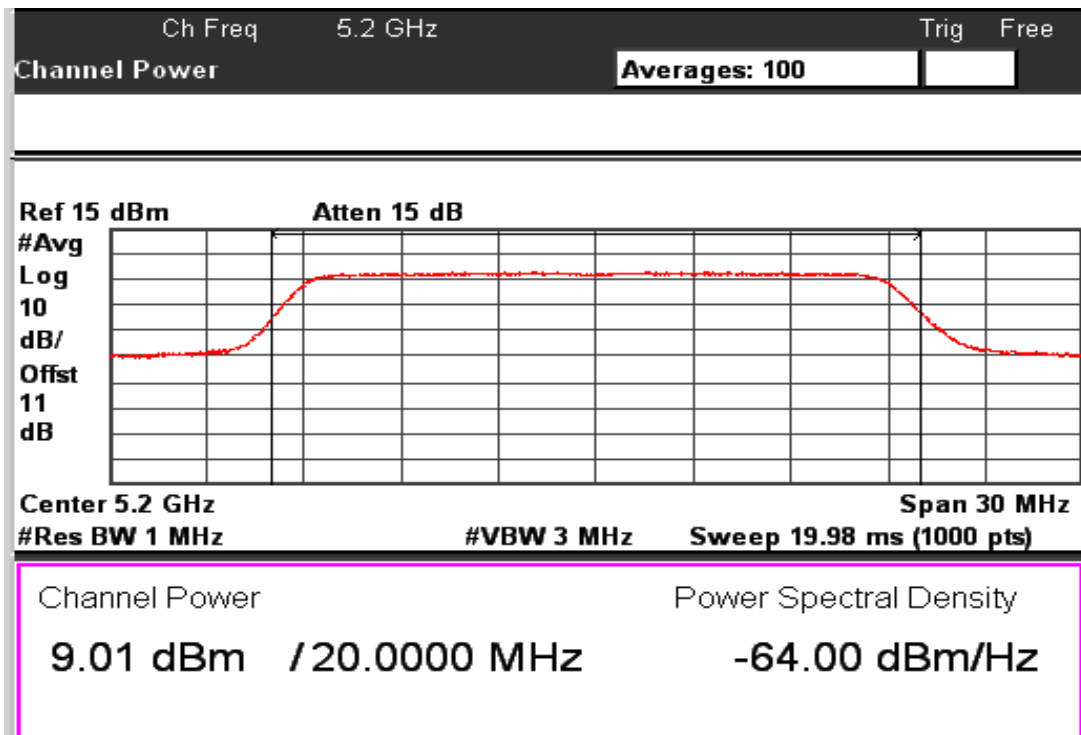
Data Rate: 6.5Mbps

Channel Frequency: 5240MHz



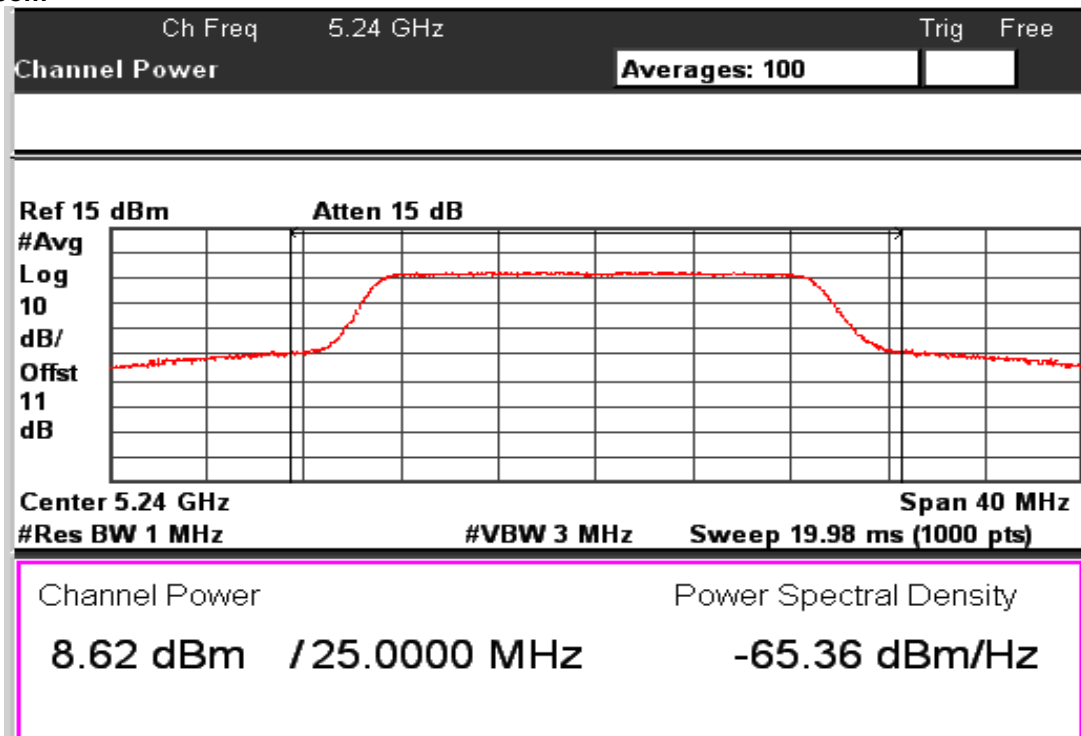
Data Rate: 39Mbps

Channel Frequency: 5180MHz



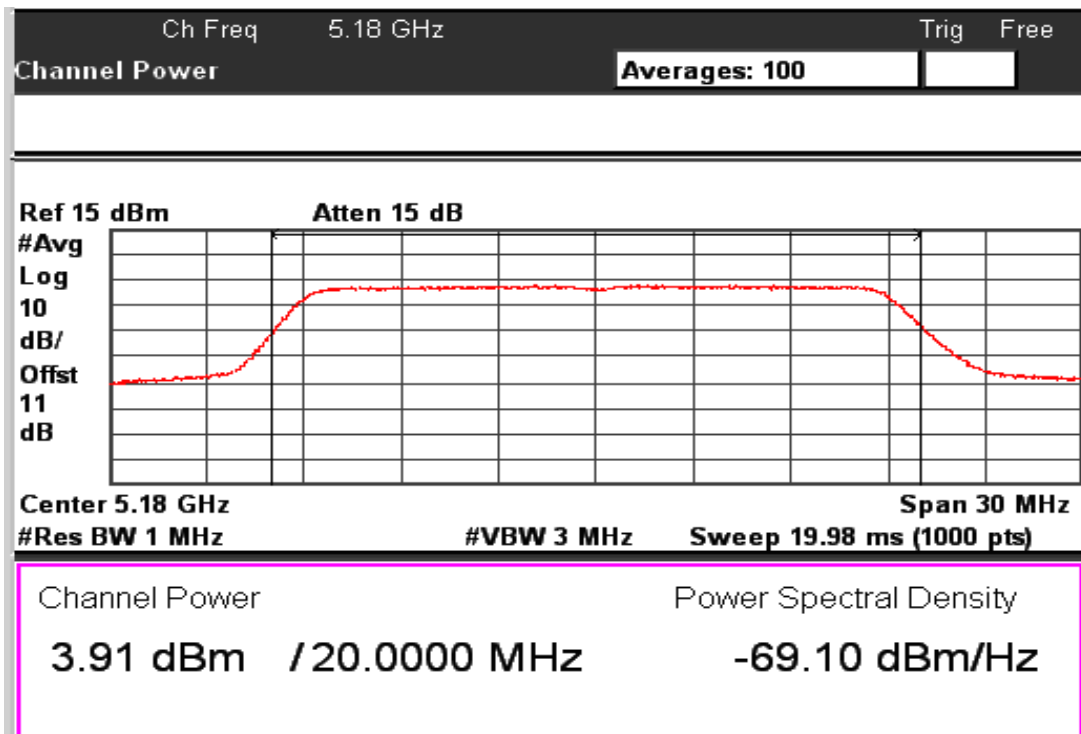
Data Rate: 39Mbps

Channel Frequency: 5200MHz



Data Rate: 39Mbps

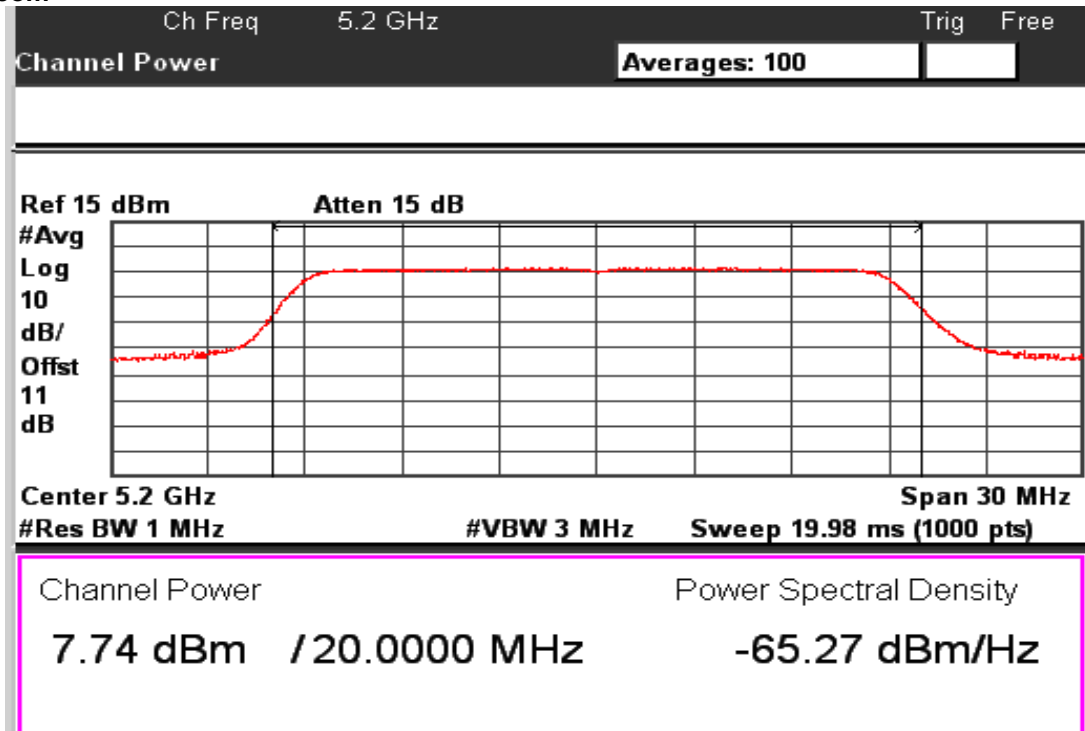
Channel Frequency: 5240MHz



Data Rate: 65Mbps

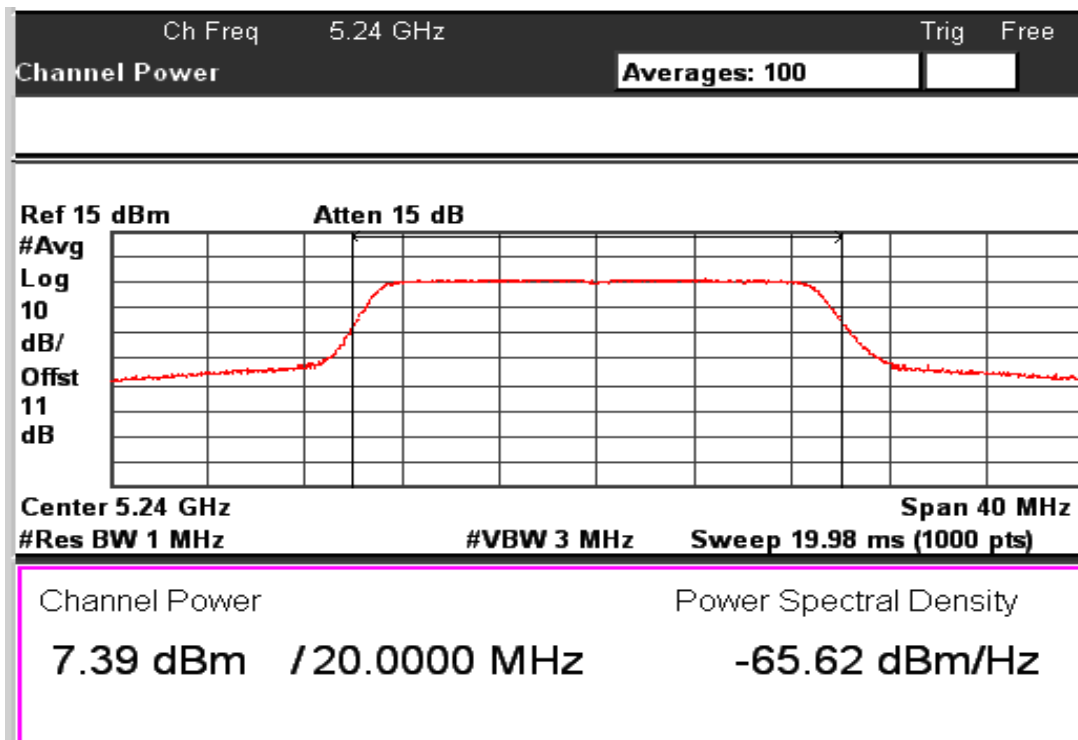
Channel Frequency: 5180MHz

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Data Rate: 65Mbps

Channel Frequency: 5200MHz



Data Rate: 65Mbps

Channel Frequency: 5240MHz

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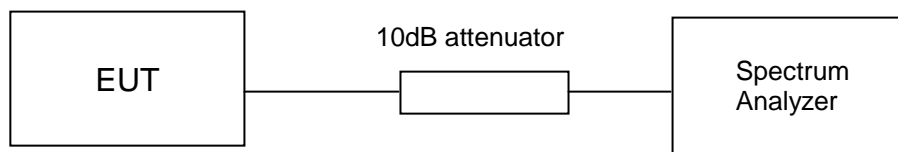
**Peak power spectral density
Result**

**Section 15.407 (a)
Pass**

Test Specification Requirement FCC Part 15 Section 15.407 (a)
 For the band 5.15-5.25 GHz, the peak power spectral density shall not exceed 4 dBm in any 1-MHz band.
 For the 5.25-5.35 GHz and 5.47-5.725 GHz bands the peak power spectral density shall not exceed 11 dBm in any 1 megahertz band.

Note: Though the rule refers to “peak power spectral density”, the intent is to measure the maximum value of the time average of the power spectral density measured during a period of continuous transmission.

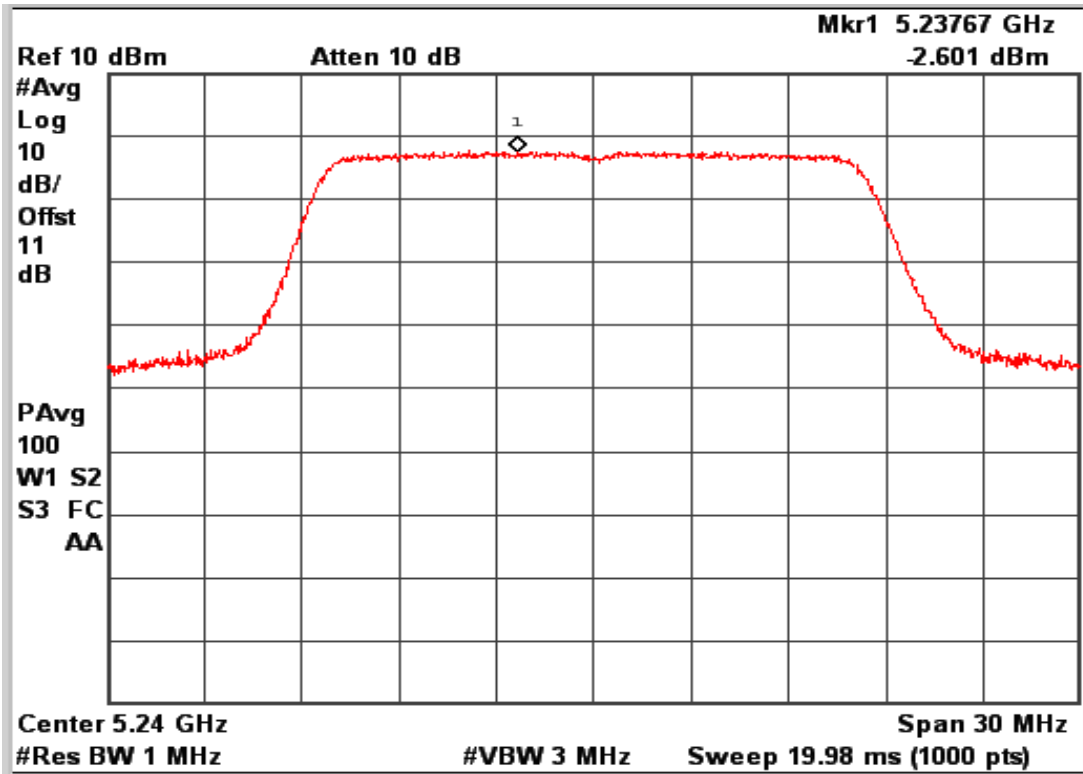
Test Method:



Test Result:
Modulation: 802.11a

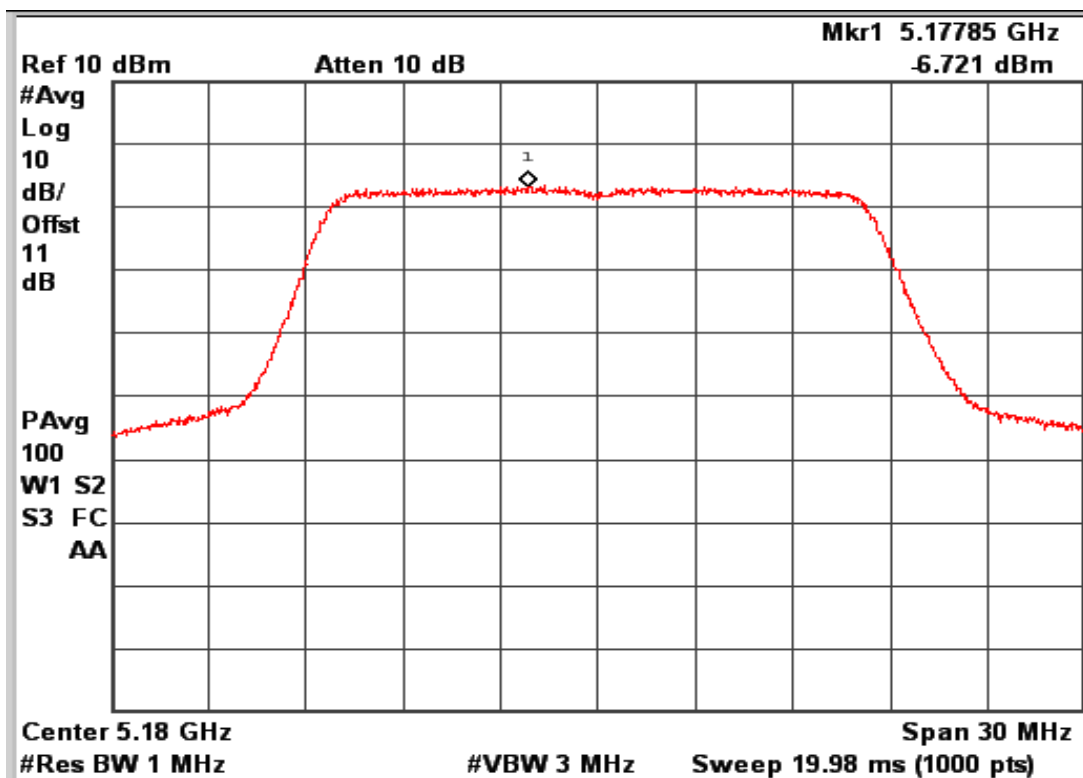
Data Rate (Mbps)	Channel No.	Frequency (MHz)	Total PPSD (dBm)	Limit (dBm)	Margin (dB)
6	36	5180	-7.02	04.00	-11.02
	40	5200	-2.93	04.00	-6.93
	48	5240	-2.60	04.00	-6.60
24	36	5180	-6.72	04.00	-10.72
	40	5200	-2.02	04.00	-6.02
	48	5240	-2.14	04.00	-6.14
54	36	5180	-6.62	04.00	-10.62
	40	5200	-3.82	04.00	-7.82
	48	5240	-3.54	04.00	-7.54

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Data Rate: 6Mbps

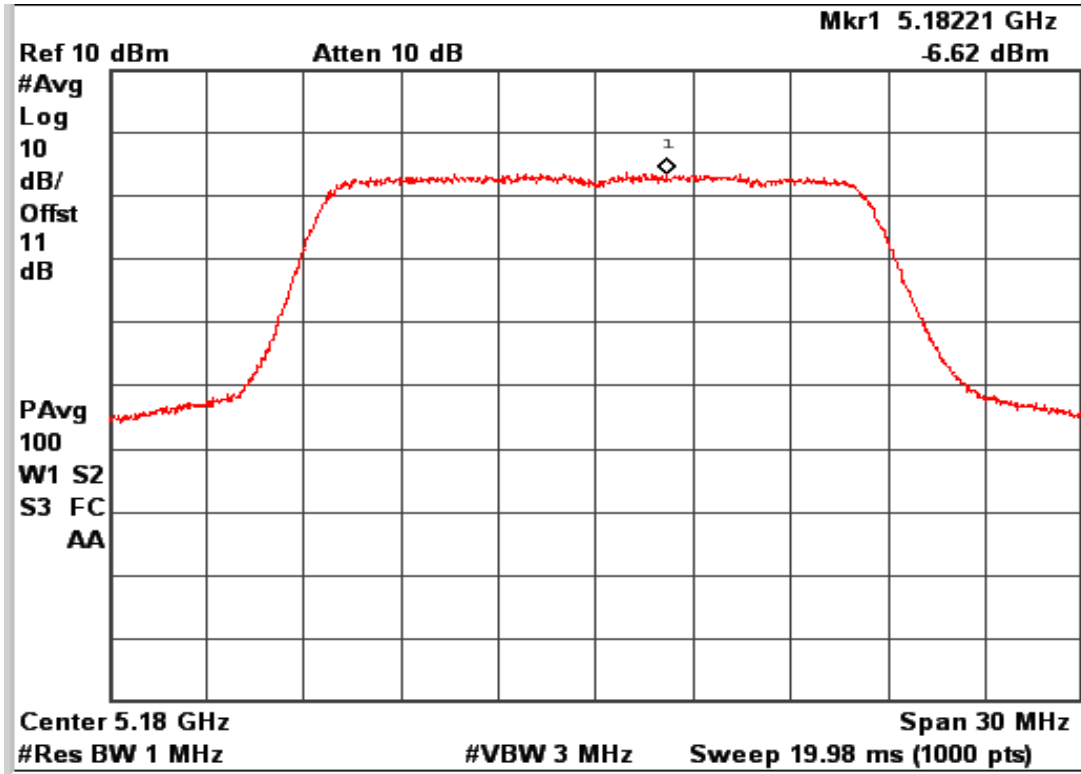
Channel Frequency: 5240MHz



Data Rate: 24Mbps

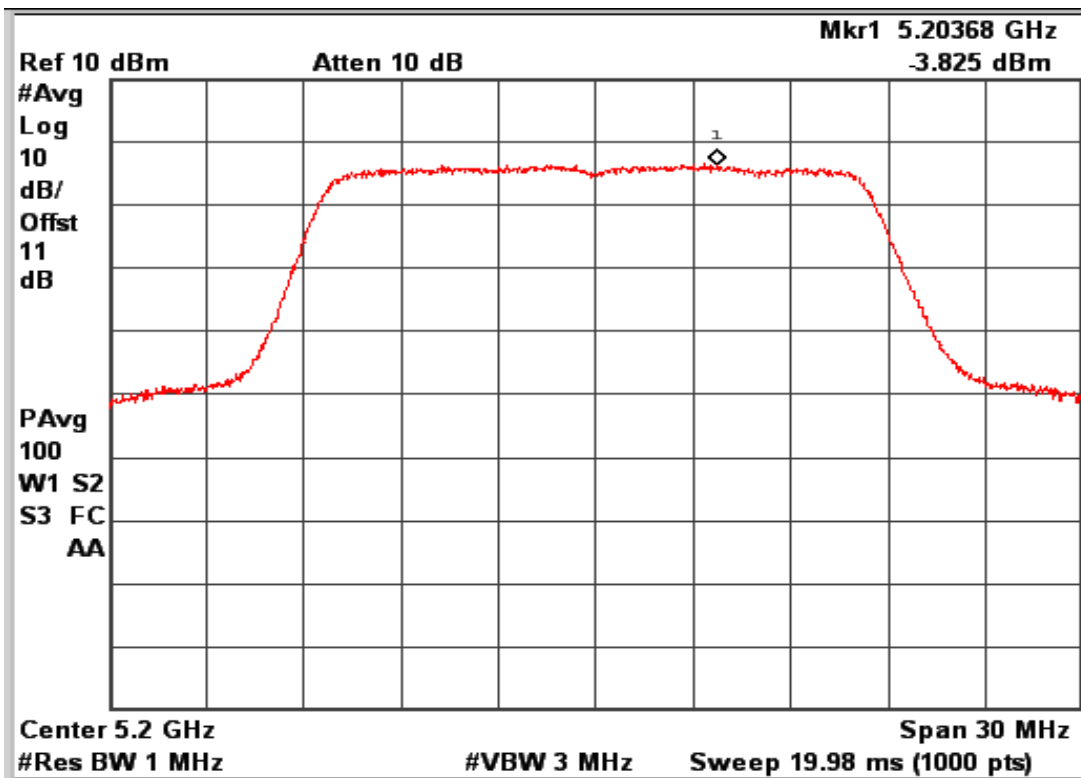
Channel Frequency: 5180MHz

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Data Rate: 54Mbps

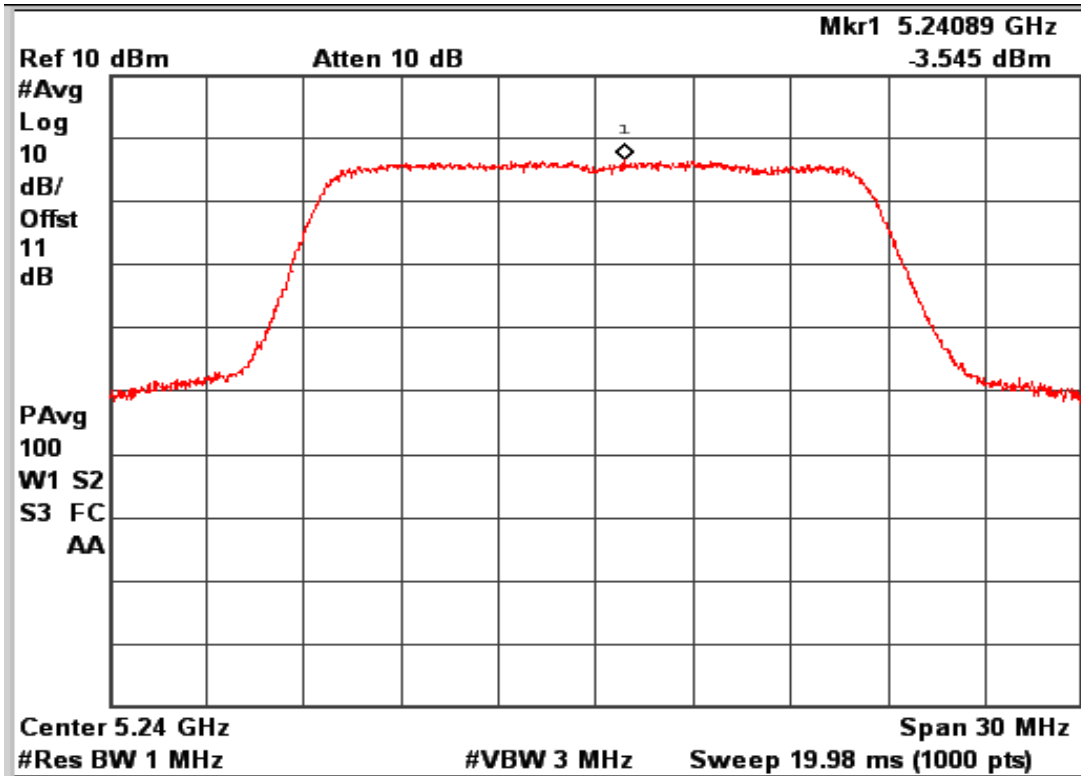
Channel Frequency: 5180MHz



Data Rate: 54Mbps

Channel Frequency: 5200MHz

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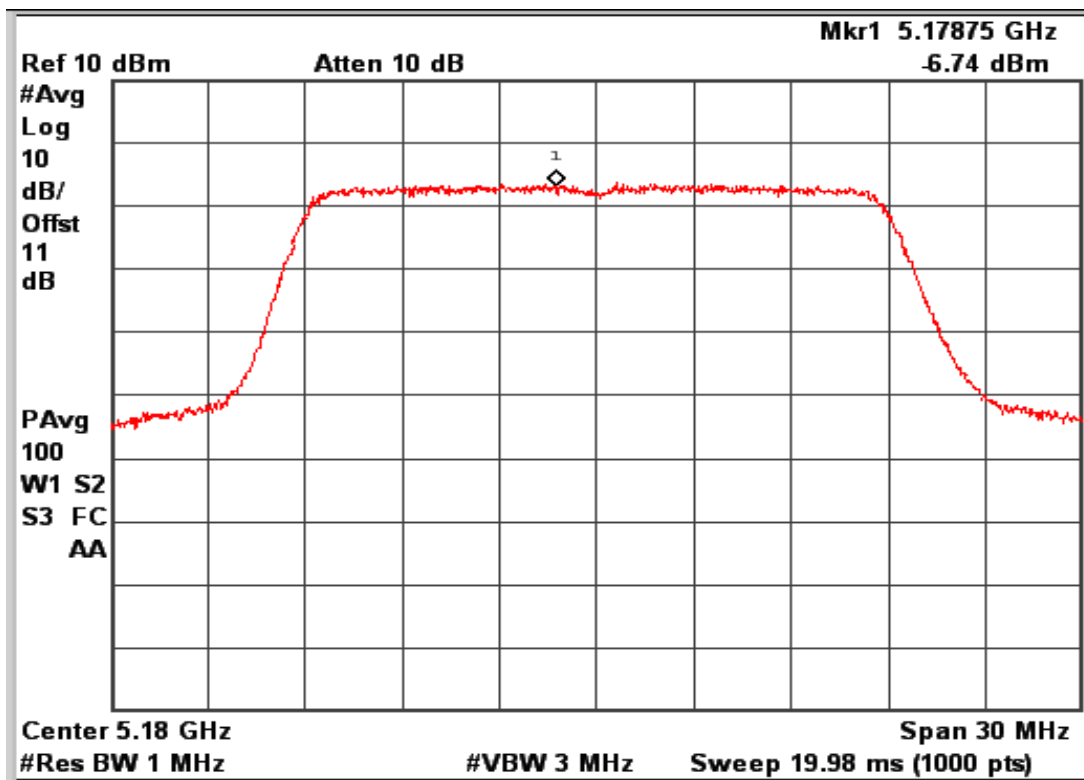
Data Rate: 54Mbps

Channel Frequency: 5240MHz

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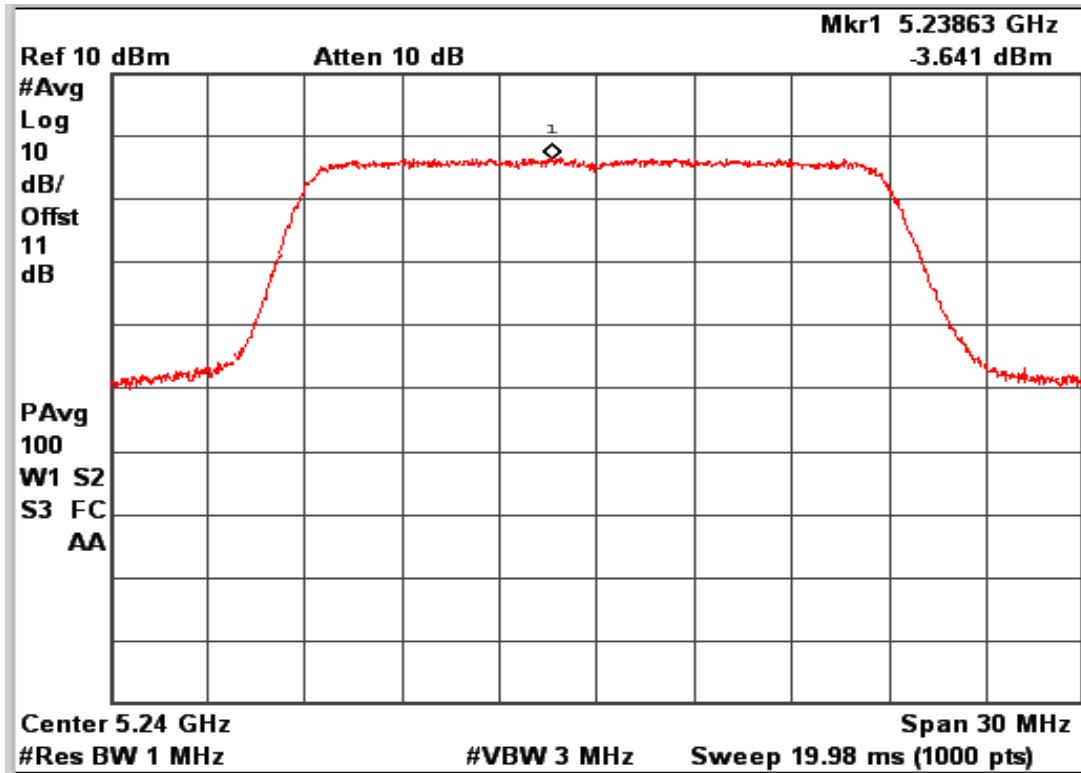
Modulation: 802.11n

Data Rate (Mbps)	Channel No.	Frequency (MHz)	Total PPSD (dBm)	Limit (dBm)	Margin (dB)
6.5	36	5180	-6.74	04.00	-10.74
	40	5200	-4.43	04.00	-08.43
	48	5240	-3.81	04.00	-07.81
39	36	5180	-6.80	04.00	-10.80
	40	5200	-2.57	04.00	-06.57
	48	5240	-3.64	04.00	-07.64
65	36	5180	-6.75	04.00	-10.75
	40	5200	-4.17	04.00	-08.17
	48	5240	-3.42	04.00	-07.42



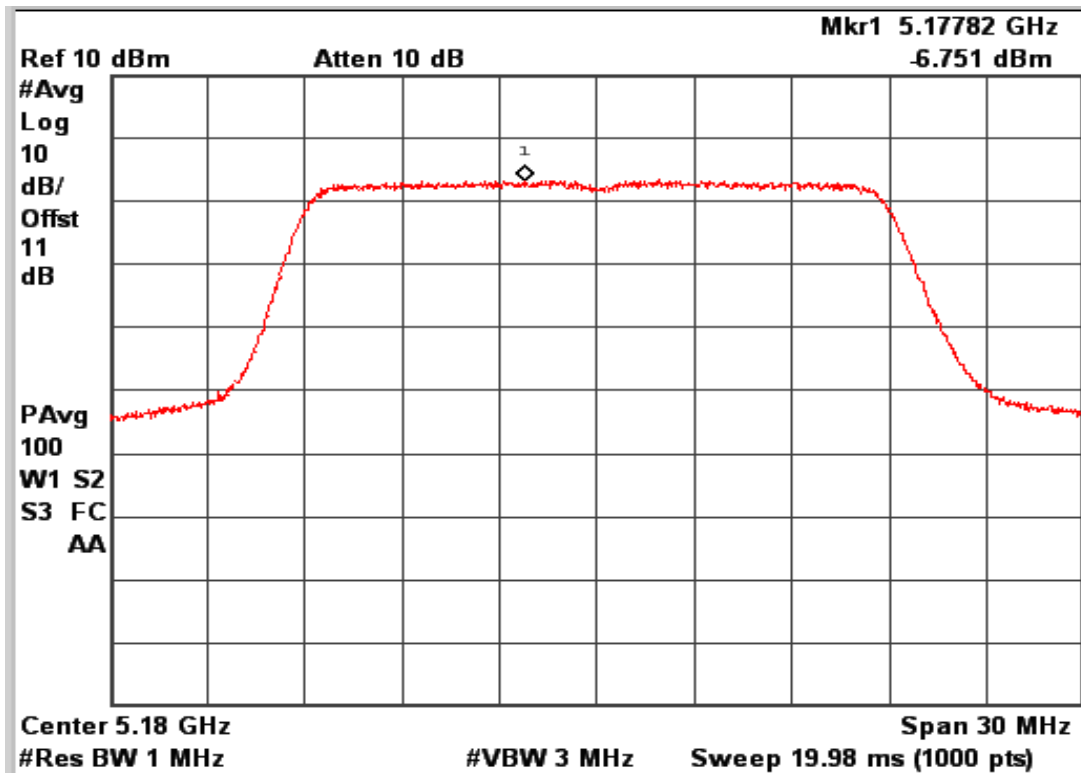
Data Rate: 6.5Mbps

Channel Frequency: 5180MHz



Data Rate: 39Mbps

Channel Frequency: 5240MHz



Data Rate: 65Mbps

Channel Frequency: 5180MHz

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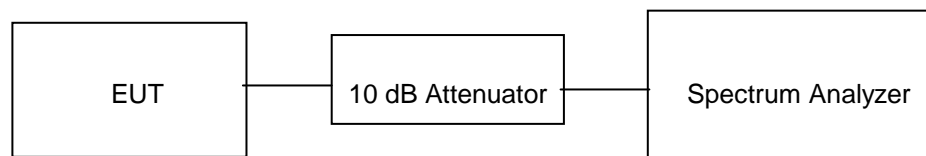
**Peak Excursion
Result**

**Section 15.407 (a)
Pass**

Test Specification
Requirement

FCC Part 15 Section 15.407 (a)
The ratio of the peak excursion of the modulation envelope (measured using a peak hold function) to the maximum conducted output power shall not exceed 13 dB across any 1 MHz bandwidth or the emission bandwidth whichever is less.

Test Method:

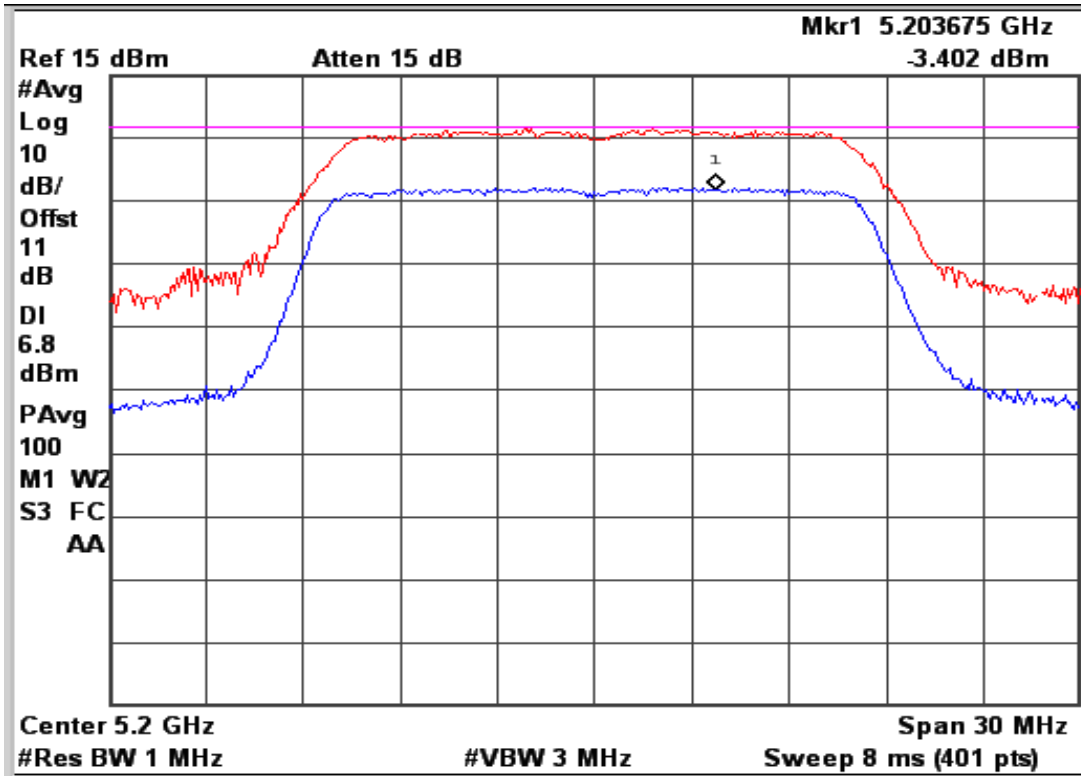


Test Result:

Note: For peak excursion measurement 2nd trace created using settings as described in method Peak power spectral density (PPSD) and testing each modulation mode on a single channel is sufficient to demonstrate compliance with the peak excursion requirement

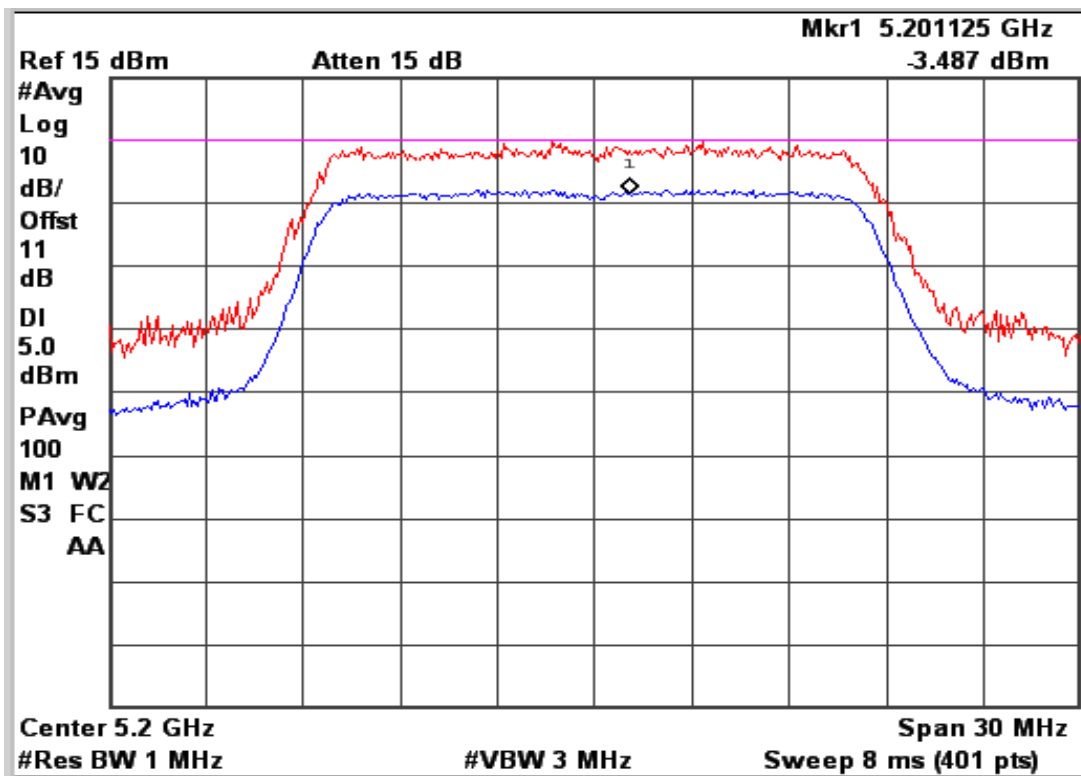
Data Rate (Mbps)	Channel No.	Frequency (MHz)	Peak Excursion (dB)	Limit (dBm)	Margin (dB)
6	40	5180	10.2	13	-2.8
24	40	5200	8.48	13	-4.52
57	40	5240	8.24	13	-4.76
6.5	40	5240	7.85	13	-5.15
39	40	5300	9.92	13	-3.08
65	40	5320	9.16	13	-3.84

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Data Rate: 6Mbps

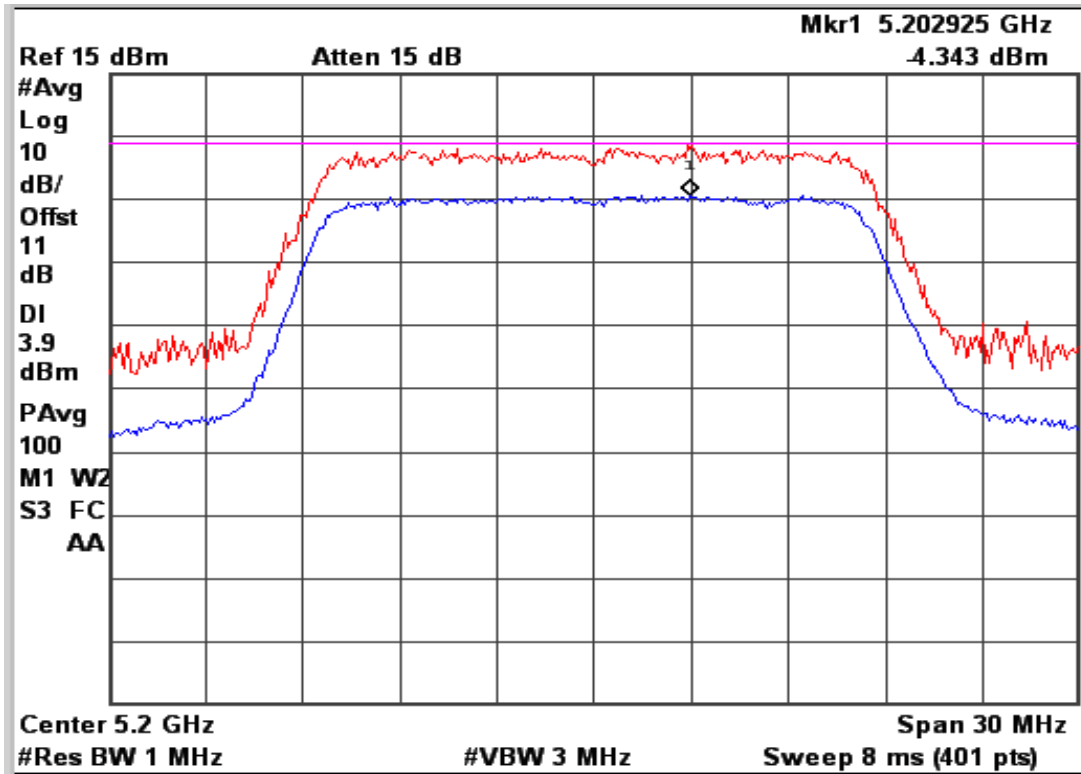
Channel Frequency: 5200MHz



Data Rate: 24Mbps

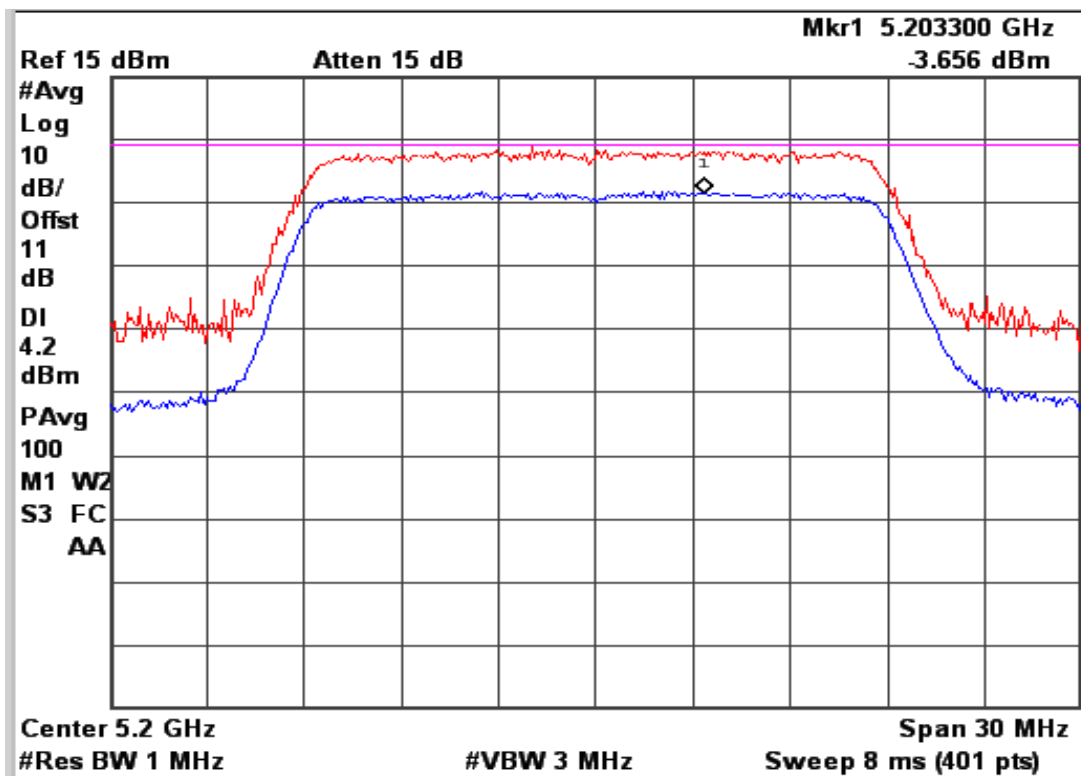
Channel Frequency: 5200MHz

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Data Rate: 54Mbps

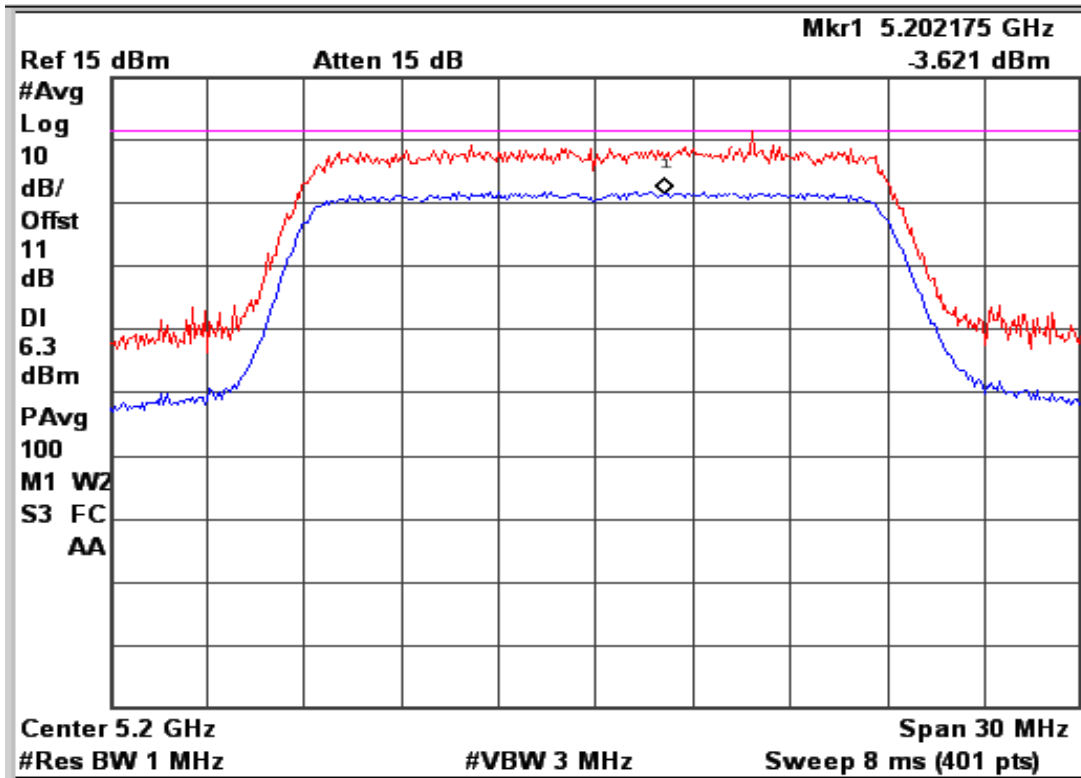
Channel Frequency: 5200MHz



Data Rate: 6.5Mbps

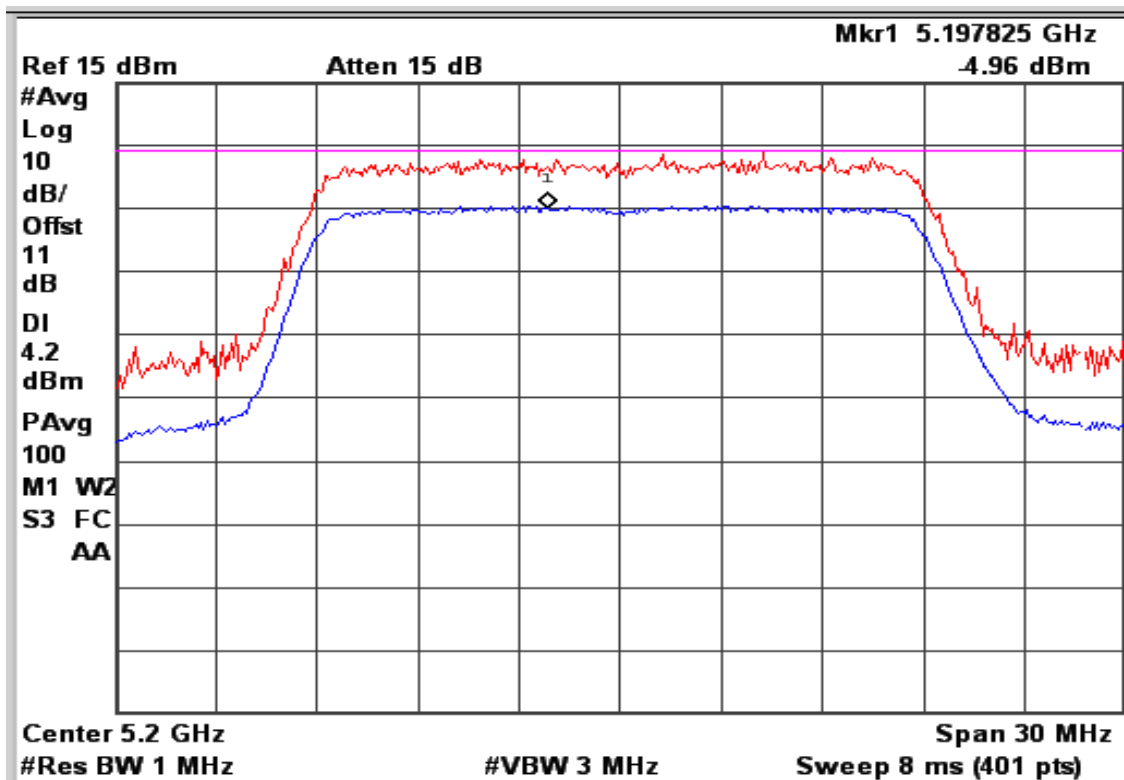
Channel Frequency: 5200MHz

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Data Rate: 39Mbps

Channel Frequency: 5200MHz



Data Rate: 65Mbps

Channel Frequency: 5200MHz

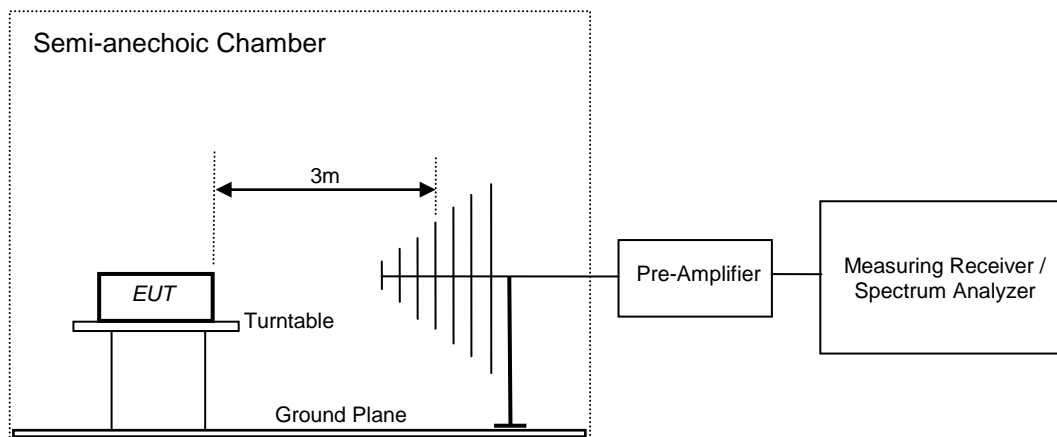
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Band-edge Compliance

Section 15.209/15.407
Pass

Test Specification	FCC Part 15 Subpart E
Detector Function	Peak and average
Requirement	For transmitters operating in the 5.15-5.35 GHz band: all emissions outside of the 5.15-5.35 GHz band shall not exceed an EIRP of -27dBm/MHz (68.23dB μ V/m at 3m). For transmitters operating in the 5.47-5.725 GHz band: all emissions outside of the 5.47-5.725 GHz band shall not exceed an EIRP of -27 dBm/MHz.(68.23dB μ V/m at 3m)

Test Method:



Test Results for Chip Antenna

Protocol	Data Rate (Mbps)	Fundamental Frequency (MHz)	Value at Band Edge		Limit (dB μ V/m)	Margin (dB)
			Frequency (MHz)	Value (dB μ V/m)		
802.11a	6	5180	5150(Pk)	60.05	68.23	-08.18
		5180	5150(Av)	46.58	54.00	-7.42
	24	5180	5150(Pk)	58.90	68.23	-9.33
		5180	5150(Av)	46.80	54.00	-7.20
	54	5180	5150(Pk)	59.25	68.23	-8.98
		5180	5150(Av)	46.56	54.00	-7.44
802.11n	6.5	5180	5150(Pk)	57.42	68.23	-10.81
		5180	5150(Av)	40.66	54.00	-13.34
	39	5180	5150(Pk)	56.01	68.23	-12.22
		5180	5150(Av)	40.03	54.00	-13.97
	65	5180	5150(Pk)	57.80	68.23	-10.43
		5180	5150(Av)	40.03	54.00	-13.97

Test Results for External Antenna

Protocol	Data Rate (Mbps)	Fundamental Frequency (MHz)	Value at Band Edge		Limit (dB μ V/m)	Margin (dB)
			Frequency (MHz)	Value (dB μ V/m)		
802.11a	6	5180	5150(Pk)	60.29	68.23	-7.94
		5180	5150(Av)	46.47	54.00	-7.53
	24	5180	5150(Pk)	59.64	68.23	-8.59
		5180	5150(Av)	47.62	54.00	-6.38
	54	5180	5150(Pk)	59.63	68.23	-8.60
		5180	5150(Av)	46.85	54.00	-7.15
802.11n	6.5	5180	5150(Pk)	58.48	68.23	-9.75
		5180	5150(Av)	41.69	54.00	-12.31
	39	5180	5150(Pk)	56.70	68.23	-11.53
		5180	5150(Av)	41.65	54.00	-12.35
	65	5180	5150(Pk)	58.12	68.23	-10.11
		5180	5150(Av)	41.62	54.00	-12.38

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**Radiated Spurious Emissions and
Restricted bands of operation**

Section 15.209 /15.205/15.407 (b) (6)

Result

Pass

Test Specification	FCC Part 15 Section 15.209
Test Method	ANSI C63.4-2003
Measurement Location	Semi Anechoic Chamber
Measuring Distance	3m
Detection	QP for frequency below 1GHz, Peak/Average for frequency above 1GHz
Requirement	Should Comply with the limits stated in the below table.

Limit for Radiated Emission of Section 15.209:

Frequency (MHz)	Field strength ($\mu\text{V/m}$)	Field strength ($\text{dB}\mu\text{V/m}$)	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 49.5dB $\mu\text{V/m}$ 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	45.94	31.25	40	-8.75
	47.9	30.54	40	-9.46
	64.82	26.42	40	-13.58
	98.64	30.78	43.5	-12.72
	100.64	32.83	43.5	-10.67
	144.7	24.13	43.5	-19.37
	200.46	28.67	43.5	-14.83
	220.64	30.64	43.5	-12.86
H	48.26	27.9	40	-12.1
	279.96	28.67	46	-17.33
	355	32.3	46	-13.7
	452.01	34.49	46	-11.51

Test Results for Chip Antenna

Note: No Harmonics were found

Protocol	Data Rate (Mbps)	Channel Frequency (MHz)	Polarization	Frequency (MHz)	Measured field Strength (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)
802.11a	6	5180	V	5150(Pk)	58.53	68.23	-9.7
				5150(Av)	46.43	54.00	-7.57
				5180(Pk)	91.05	*	-
				5180(Av)	82.74	*	-
		H	5150(Pk)	60.05	68.23	-8.18	
			5150(Av)	46.58	54.00	-7.42	
			5180(Pk)	103.44	*	-	
			5180(Av)	94.46	*	-	
		5240	V	5240(Pk)	95.43	*	-
				5240(Av)	87.40	*	-
			H	5240(Pk)	107.01	*	-
				5240(Av)	98.74	*	-
	24	5180	V	5150(Pk)	58.90	68.23	-9.33
				5150(Av)	46.42	54.00	-7.58
				5180(Pk)	92.40	*	-
				5180(Av)	82.50	*	-
			H	5150(Pk)	58.48	68.23	-9.75
				5150(Av)	46.80	54	-7.2
				5180(Pk)	104.23	*	-
				5180(Av)	94.65	*	-
		5240	V	5240(Pk)	96.86	*	-
				5240(Av)	86.89	*	-
			H	5240(Pk)	109.52	*	-
				5240(Av)	99.57	*	-
	54	5180	V	5150(Pk)	58.92	68.23	-9.31
				5150(Av)	46.38	54	-7.62
				5180(Pk)	91.71	*	-
				5180(Av)	82.40	*	-
			H	5150(Pk)	59.25	68.23	-8.98
				5150(Av)	46.56	54	-7.44
				5180(Pk)	104.46	*	-
				5180(Av)	94.57	*	-
		5240	V	5240(Pk)	95.20	*	-
				5240(Av)	85.10	*	-
			H	5240(Pk)	106.30	*	-
				5240(Av)	97.19	*	-

Protocol	Data Rate (Mbps)	Channel Frequency (MHz)	Polarization	Frequency (MHz)	Measured field Strength	Limit (dB μ V/m)	Margin (dB)
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					(dBµV/m)		
802.11n	6.5	5180	V	5150(Pk)	49.72	68.23	-18.51
				5150(Av)	36.99	54.00	-17.01
				5180(Pk)	92.56	*	-
				5180(Av)	82.32	*	-
		H	5150(Pk)	57.42	68.23	-10.81	
			5150(Av)	40.65	54.00	-13.35	
			5180(Pk)	104.33	*	-	
			5180(Av)	98.46	*	-	
	5240	V	5240(Pk)	97.47	*	-	
			5240(Av)	86.83	*	-	
		H	5240(Pk)	108.16	*	-	
			5240(Av)	97.93	*	-	
	39	5180	V	5150(Pk)	49.20	68.23	-19.03
				5150(Av)	36.93	54.00	-17.07
				5180(Pk)	93.25	*	-
				5180(Av)	81.62	*	-
		H	5150(Pk)	56.10	68.23	-12.13	
			5150(Av)	40.03	54.00	-13.97	
			5180(Pk)	105.48	*	-	
			5180(Av)	94.07	*	-	
	5240	V	5240(Pk)	98.20	*	-	
			5240(Av)	86.92	*	-	
		H	5240(Pk)	110.47	*	-	
			5240(Av)	99.04	*	-	
	65	5180	V	5150(Pk)	49.35	68.23	-18.88
				5150(Av)	36.90	54	-17.1
				5180(Pk)	93.05	*	-
				5180(Av)	81.99	*	-
H		5150(Pk)	57.80	68.23	-10.43		
		5150(Av)	40.03	54.00	-13.97		
		5180(Pk)	104.09	*	-		
		5180(Av)	93.73	*	-		
5240	V	5240(Pk)	95.92	*	-		
		5240(Av)	85.30	*	-		
	H	5240(Pk)	108.20	*	-		
		5240(Av)	98.10	*	-		

* - -> Fundamental Frequency
P-->Peak detector
AV-->Average Detector

Test Results for External Antenna

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Note: No Harmonics were found

Protocol	Data Rate (Mbps)	Channel Frequency (MHz)	Polarization	Frequency (MHz)	Measured field Strength (dBµV/m)	Limit (dBµV/m)	Margin (dB)
802.11a	6	5180	V	5150(Pk)	59.24	68.23	-8.99
				5150(Av)	46.47	54.00	-7.53
			5180(Pk)	98.39	*	-	
			5180(Av)	89.54	*	-	
		H	5150(Pk)	60.29	68.23	-7.94	
			5150(Av)	46.45	54.00	-7.55	
			5180(Pk)	92.04	*	-	
			5180(Av)	83.12	*	-	
	5240	V	5240(Pk)	102.93	*	-	
			5240(Av)	94.38	*	-	
		H	5240(Pk)	96.98	*	-	
			5240(Av)	87.03	*	-	
	24	5180	V	5150(Pk)	59.62	68.23	-8.61
				5150(Av)	47.62	54.00	-6.38
			5180(Pk)	99.42	*	-	
			5180(Av)	91.68	*	-	
		H	5150(Pk)	59.64	68.23	-8.59	
			5150(Av)	46.85	54	-7.15	
			5180(Pk)	89.64	*	-	
			5180(Av)	83.81	*	-	
	5240	V	5240(Pk)	104.48	*	-	
			5240(Av)	95.04	*	-	
		H	5240(Pk)	97.24	*	-	
			5240(Av)	88.02	*	-	
	54	5180	V	5150(Pk)	58.60	68.23	-9.63
				5150(Av)	46.85	54.00	-7.15
			5180(Pk)	101.52	*	-	
			5180(Av)	93.46	*	-	
H		5150(Pk)	59.63	68.23	-8.6		
		5150(Av)	46.58	54.00	-7.42		
		5180(Pk)	93.76	*	-		
		5180(Av)	84.65	*	-		
5240	V	5240(Pk)	104.01	*	-		
		5240(Av)	95.39	*	-		
	H	5240(Pk)	96.50	*	-		
		5240(Av)	87.47	*	-		

Protocol	Data Rate (Mbps)	Channel Frequency	Polarization	Frequency (MHz)	Measured field Strength (dBµV/m)	Limit dBµV/m)	Margin (dB)
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802.11n	6.5	5180	V	5150(Pk)	50.73	68.23	-17.5
				5150(Av)	38.64	54.00	-15.36
				5180(Pk)	99.42	*	-
				5180(Av)	88.71	*	-
		H	5150(Pk)	58.48	68.23	-9.75	
			5150(Av)	41.69	54.00	-12.31	
			5180(Pk)	92.41	*	-	
			5180(Av)	82.67	*	-	
		5240	V	5240(Pk)	102.29	*	-
				5240(Av)	96.29	*	-
			H	5240(Pk)	98.30	*	-
				5240(Av)	90.44	*	-
	39	5180	V	5150(Pk)	49.82	68.23	-18.41
				5150(Av)	37.81	54.00	-16.19
				5180(Pk)	101.47	*	-
				5180(Av)	93.67	*	-
		H	5150(Pk)	56.70	68.23	-11.53	
			5150(Av)	41.65	54.00	-12.35	
			5180(Pk)	95.67	*	-	
			5180(Av)	82.72	*	-	
		5240	V	5240(Pk)	105.31	*	-
				5240(Av)	96.50	*	-
			H	5240(Pk)	99.39	*	-
				5240(Av)	89.59	*	-
	65	5180	V	5150(Pk)	50.42	68.23	-17.81
				5150(Av)	37.85	54.00	-16.15
				5180(Pk)	102.68	*	-
				5180(Av)	90.48	*	-
		H	5150(Pk)	58.12	68.23	-10.11	
			5150(Av)	41.62	54.00	-12.38	
			5180(Pk)	95.64	*	-	
			5180(Av)	83.47	*	-	
		5240	V	5240(Pk)	103.83	*	-
				5240(Av)	95.93	*	-
			H	5240(Pk)	98.36	*	-
				5240(Av)	87.83	*	-
5700(Av)	103.83	*	-				

* - -> Fundamental Frequency
P-->Peak detector
AV-->Average Detector

GC Values for 5150-5250MHz

Data Rate	GC 5180 MHz	GC 5200 MHz	GC 5220 MHz	GC 5240 MHz
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6-mbps	35	55	55	55
9-mbps	35	55	55	55
12-mbps	35	55	55	55
18-mbps	35	55	55	55
24-mbps	35	55	55	55
36-mbps	35	55	55	55
48-mbps	35	50	50	50
54-mbps	35	50	50	50
MCS-0(6.5-mbps)	35	55	55	55
MCS-1(13-mbps)	35	55	55	55
MCS-2(19.5-mbps)	35	55	55	55
MCS-3(26-mbps)	35	55	55	55
MCS-4(39-mbps)	35	55	55	55
MCS-5(52-mbps)	35	55	55	55
MCS-6(58.5-mbps)	35	50	50	50
MCS-7(65-mbps)	35	50	50	50