

Produkte
Products
Prüfbericht - Nr.: 19660255 001
Seite 1 von 140
Test Report No.:
Page 1 of 140
Auftraggeber:
Client:
Redpine Signals Inc.
2107 N.First Street,
Suite 680
San Jose, CA 95131-2019
U.S.A

Gegenstand der Prüfung:
Test item:
Host Module

Bezeichnung:
Identification:
MS32018
Serien-Nr.:
Serial No.
Engineering Sample

Wareneingangs-Nr.:
Receipt No.:
1803166512
Eingangsdatum:
Date of receipt:
19.09.2016

Prüfort:
Testing location:
Refer Page 4 of 140 for test facilities

Prüfgrundlage:
Test specification:
FCC Part 15, Subpart E
ANSI C63.10-2013

Prüfergebnis:
Test Result:
Der Prüfgegenstand entspricht oben genannter Prüfgrundlage(n).
The tests item passed the test specification(s).
Prüflaboratorium:
Testing Laboratory:
TÜV Rheinland (India) Pvt. Ltd.
82/A, 3rd Main, West Wing, Electronic City Phase 1
Hosur Road, Bangalore – 560 100. India
FCC Registration No.: 176555

geprüft / tested by:
kontrolliert / reviewed by:

28.10.2016 Girish kumar
Engineer



31.10.2016 Vinay N
Asst. Manager


Datum
Date
Name/Stellung
Name/Position
Unterschrift
Signature
Datum
Date
Name/Stellung
Name/Position
Unterschrift
Signature
Sonstiges / Other Aspects: FCC ID: XF6-MS32018

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.
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.

TÜV Rheinland LGA Products GmbH · Tillystraße 2 · D - 90431 Nürnberg · Tel.: +49 911 655 5225 · Fax: +49 911 655 5226
Mail: service@de.tuv.com · Web: www.tuv.com Rev.:1.2 2009-12-29 / approved: M.Jungnitsch

Test Result Summary

Clause	Test Item	Result
15.407 (a)	Emission Bandwidth	Pass
15.407 (a)	Maximum Conducted Output Power	Pass
15.407 (a)	Power Spectral Density	Pass
15.209/15.205/15.407	Radiated Spurious Emissions and Restricted bands of operation	Pass
15.403 (h) (2)	Dynamic Frequency Selection	Pass

Note: Conducted measurements are done according to the procedure given in KDB No. **789033**
D02 General U-NII Test Procedures New Rules v01r03

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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	23.11.2017
Broadband Antenna	Frankonia	ALX-4000	ALX-4000-806	10.06.2017
Broadband Horn Antenna	Frankonia	HAX-18	HAX18-802	14.03.2017
Double-Ridged Waveguide Horn Antenna	ETS Lindgren	116706	00107323	02.11.2016
Active Loop Antenna	Frankonia	LAX-10	LAX-10-800	22.12.2016
Spectrum Analyser	Agilent Technologies	E4407B	US41192772	23.04.2017
LISN	Rohde & Schwarz	ENV4200	100163	03.02.2017
EMI Receiver	Rohde & Schwarz	ESR7	101133	17.11.2016

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 RS9113 module integrates a multi-threaded MAC processor with integrated analog peripherals and support for digital peripherals, baseband digital signal processor, analog front-end, crystal oscillator, calibration OTP memory, Dual band RF transceiver, Dual-band high-power amplifiers, baluns, diplexers, diversity switch and Quad-SPI Flash thus providing a fully-integrated solution for embedded wireless applications. The RS9113 based chips and modules leverage and improve upon Redpine's proven low power innovations from Lite-FTM products (RS9110) and provide WLAN 802.11n, BT4.0 and ZigBee convergence solution for integration into mobile and M2M communication devices. It can connect to a host processor through SDIO, USB, SPI or UART interfaces.

Ratings and System Details

Operating Frequency	5150 - 5350 MHz, 5470 – 5725 MHz, 5725 – 5850 MHz	
No. of channel	Refer page 6, Table 1	
Channel Spacing	20 MHz	
Transmitted Power	802.11a	11.35dBm
	802.11n	11.86dBm
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	Internal mount and cable connection	
Number of antenna	One	
Antenna Gain	5dBi	
Supply Voltage	3.1-3.6 V DC	
Environmental	-40°C to +85°C	

Test Conditions:

Supply Voltage: 5V DC from USB

Environmental conditions:

Temperature: +23.3 °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

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

Special Accessories and Auxiliary Equipment

- None

Countermeasures to achieve EMC Compliance

- None

Test Modes – Data Rates and Modulations

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

Table of Carrier frequencies

Frequency Band	Channel No.	Frequency (MHz)
5GHz Band – 20MHz Bandwidth Channel List		
5150 – 5350 MHz	36	5180
	40	5200
	44	5220
	48	5240
	52	5260
	56	5280
	60	5300
	64	5320
5470 – 5725MHz	100	5500
	104	5520
	108	5540
	112	5560
	116	5580
	120	5600
	124	5620
	128	5640
	132	5660
	136	5680
5725 – 5850MHz	140	5700
	149	5745
	143	5765
	157	5785
	161	5805
	165	5825

Table 1

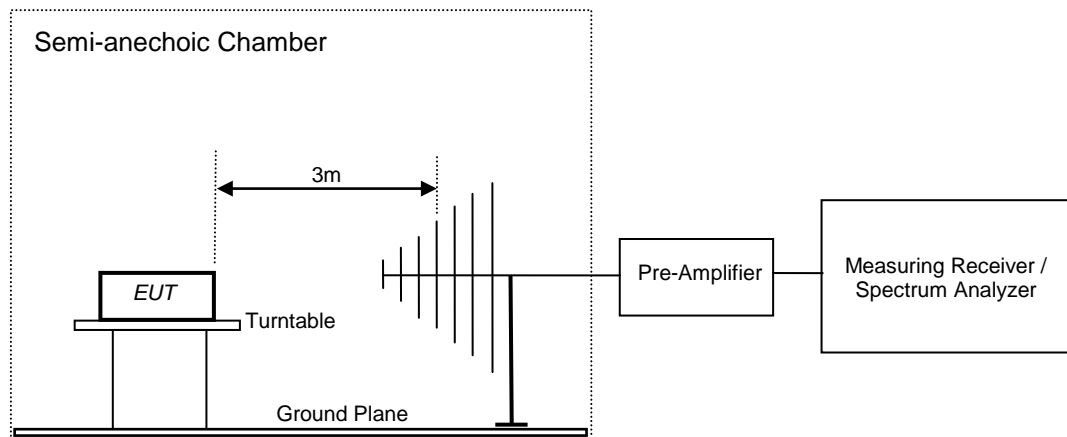
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Test Methodology

Radiated Emission Test

The radiated emission measurement was performed according to the procedures in ANSI C63.10-2013. The equipment under test (EUT) was placed at the middle of the 80 cm high on turntable for below 1GHz and 1.5meter for above 1GHz measurements 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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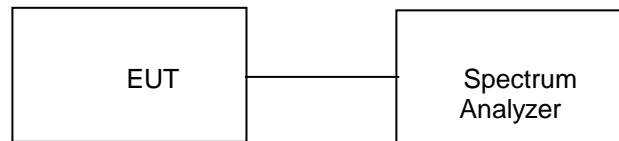
Test Results

**Emission Bandwidth
Result**

**Section 15.407 (a)
Pass**

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

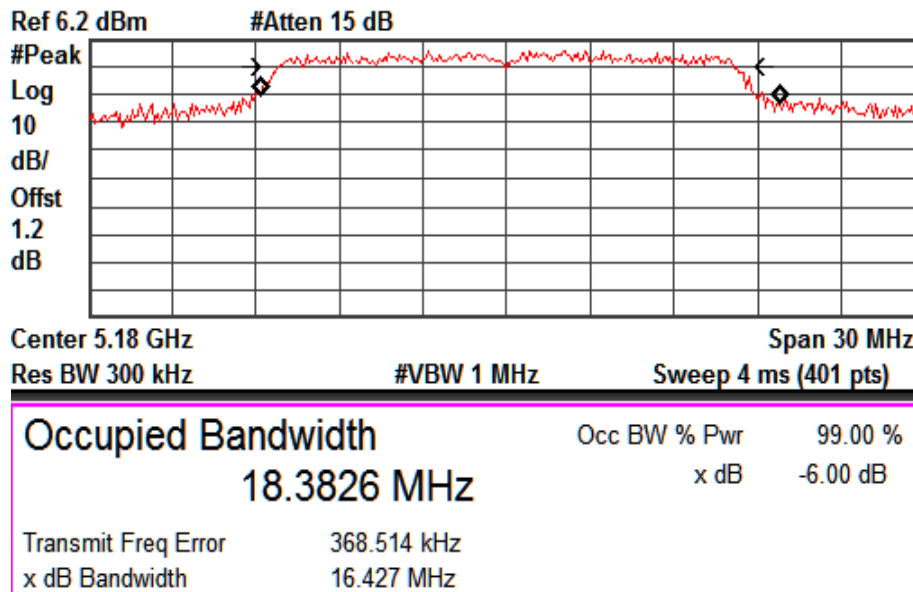
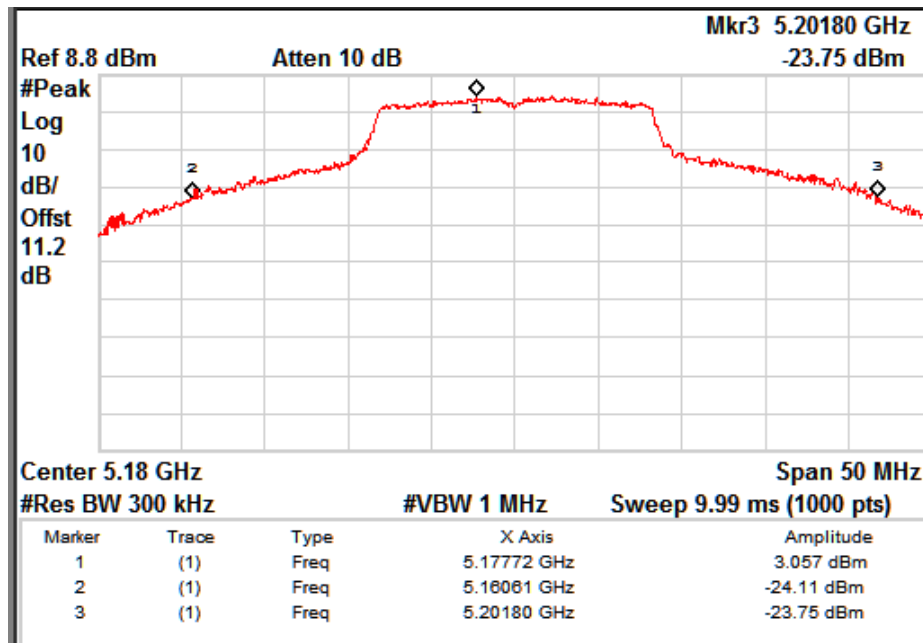
Test Method:



Test Result:

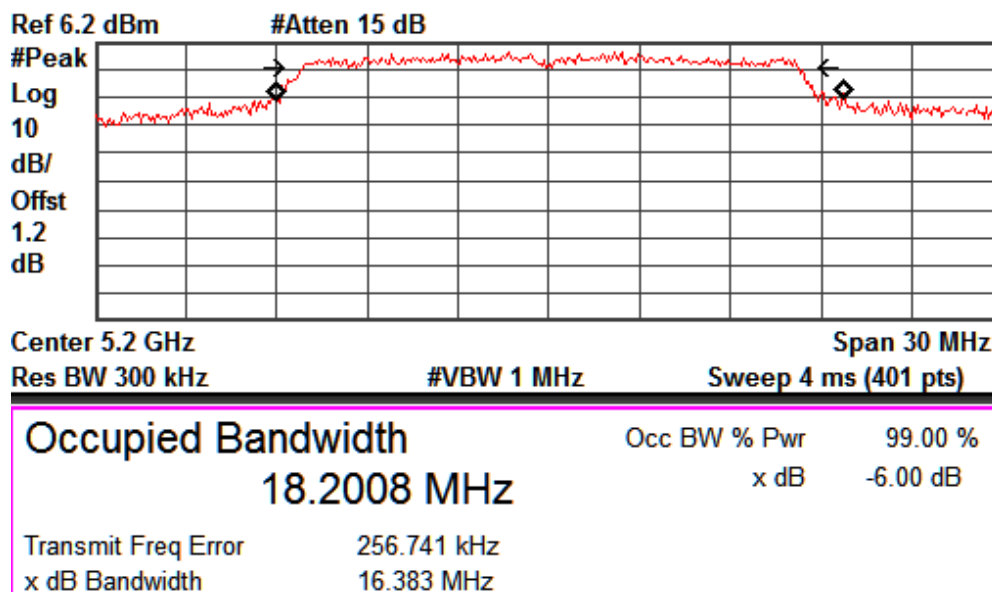
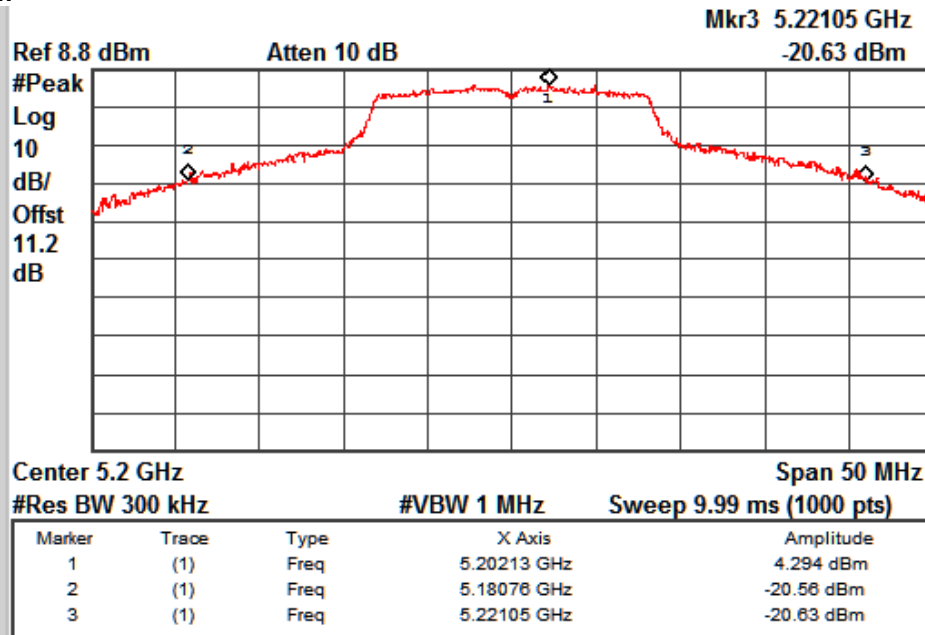
Modulation: 802.11a

Data Rate (Mbps)	Channel. No	Frequency (MHz)	EBW (MHz)	OBW (MHz)
6	36	5180	41.19	18.38
	40	5200	40.29	18.20
	48	5240	39.54	18.00
	64	5320	37.90	17.71
	100	5500	39.10	19.15
	120	5600	44.28	17.33
	140	5700	36.16	16.84
24	36	5180	37.39	18.18
	40	5200	39.14	18.37
	48	5240	37.83	18.37
	64	5320	37.78	17.48
	100	5500	38.02	17.60
	120	5600	44.44	17.41
	140	5700	35.50	16.68
54	36	5180	37.39	18.27
	40	5200	39.09	18.42
	48	5240	38.84	18.10
	64	5320	37.42	18.47
	100	5500	38.08	17.06
	120	5600	41.98	16.98
	140	5700	33.88	16.80



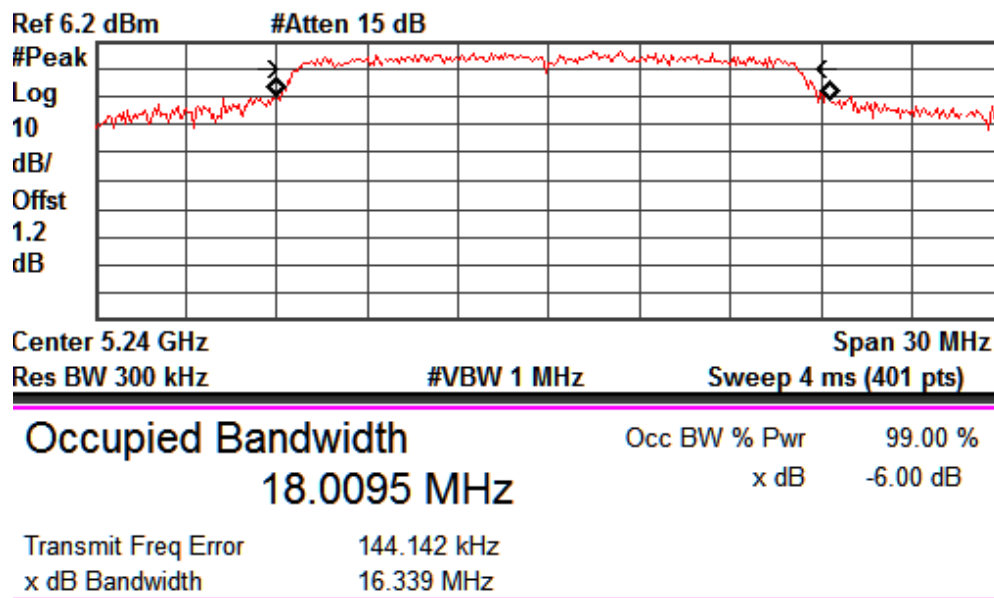
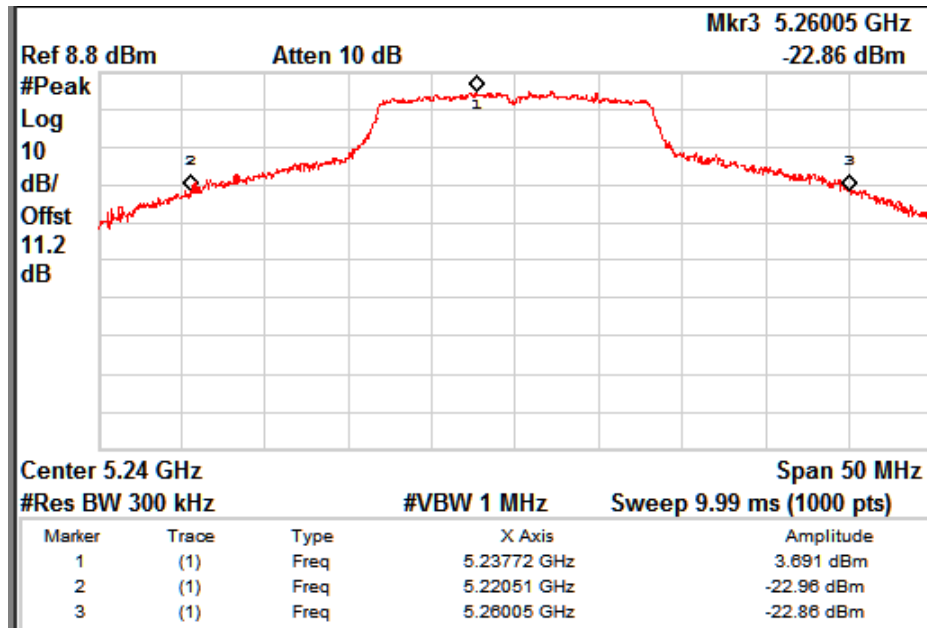
Data Rate: 6Mbps

Channel Frequency: 5180MHz



Data Rate: 6Mbps

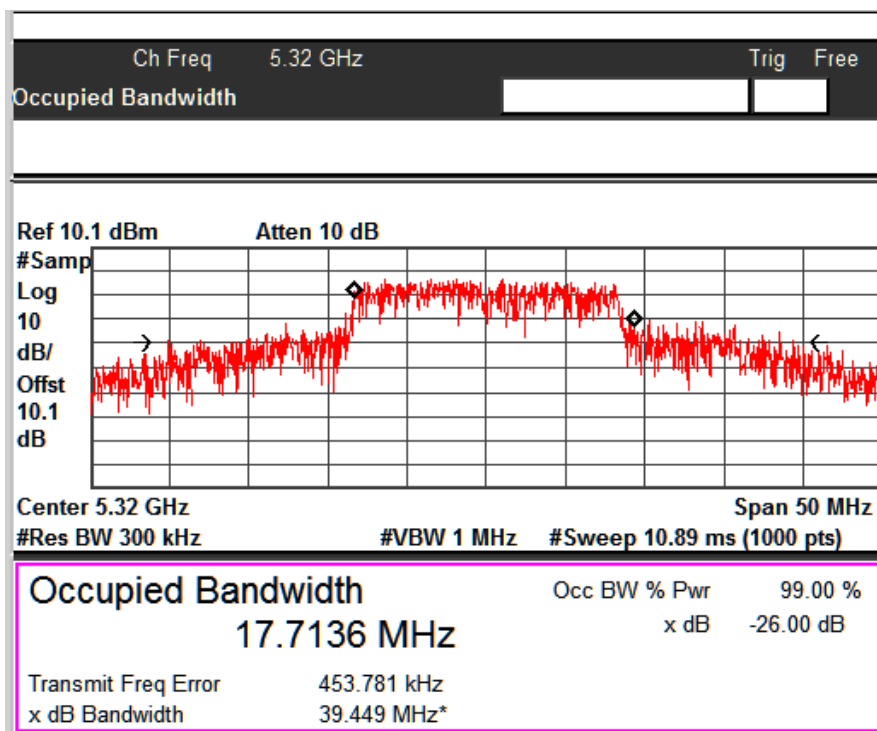
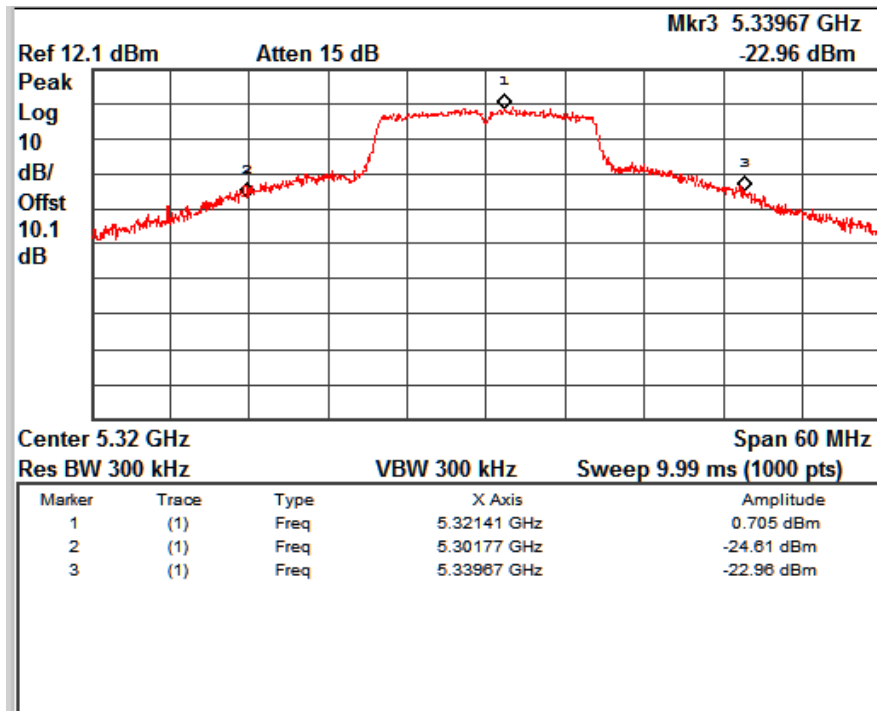
Channel Frequency: 5200MHz



Data Rate: 6Mbps

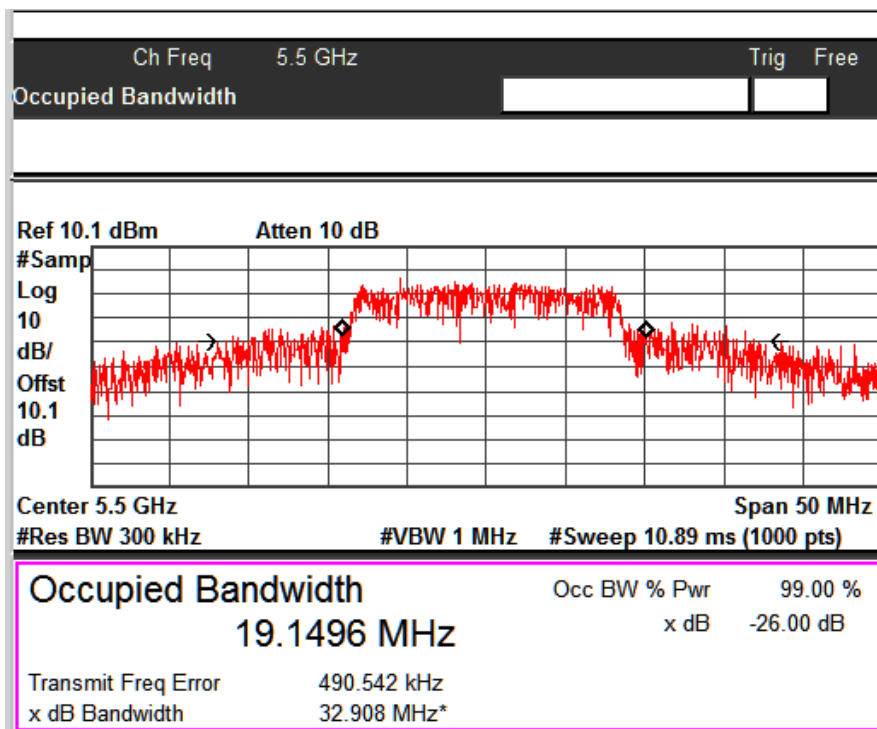
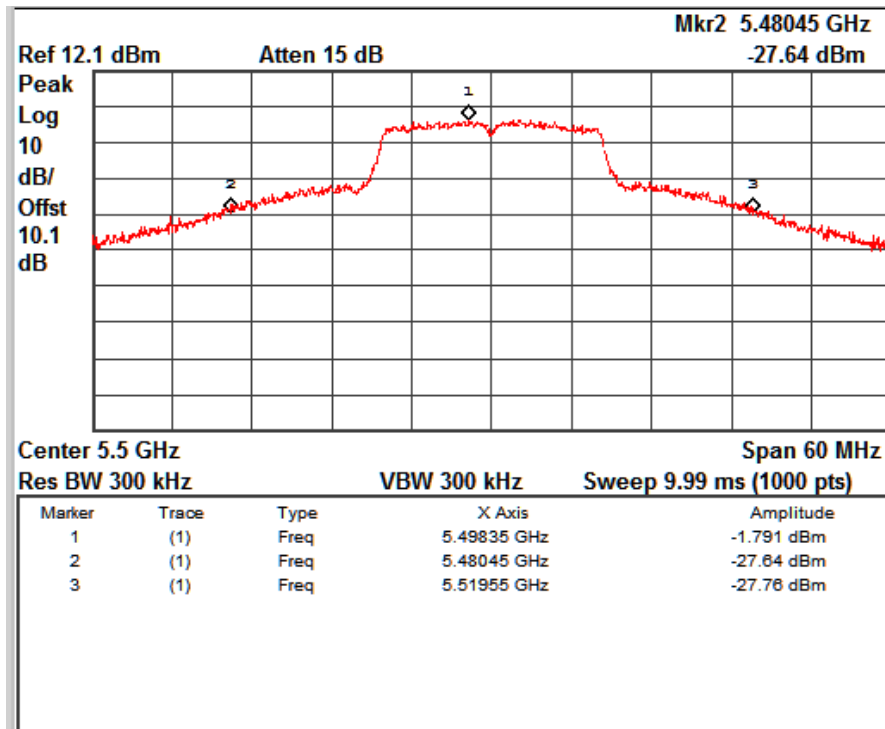
Channel Frequency: 5240MHz

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Data Rate: 6Mbps

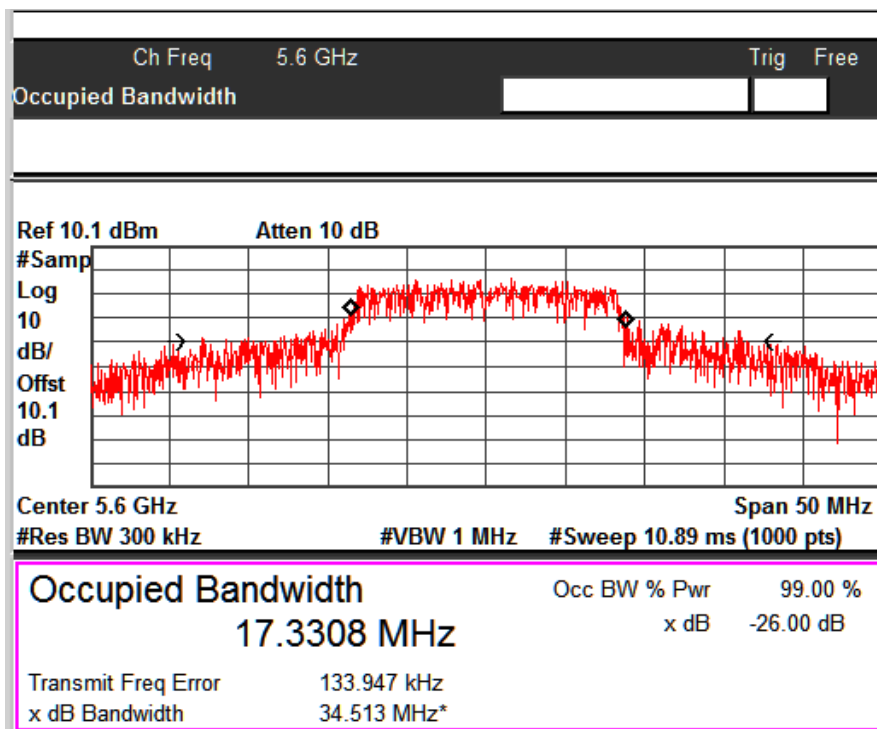
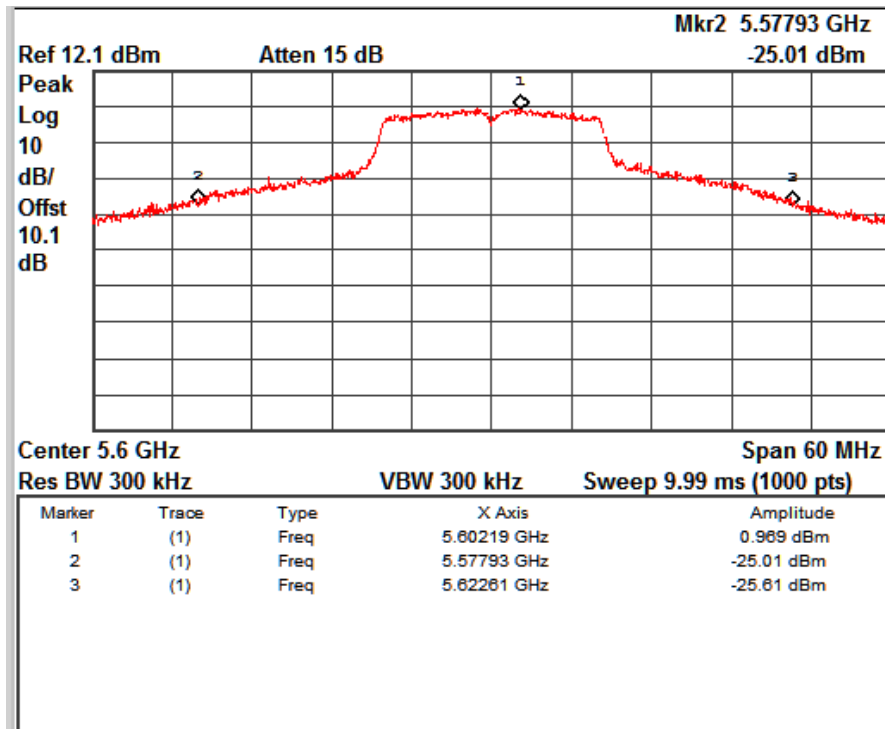
Channel Frequency: 5320MHz



Data Rate: 6Mbps

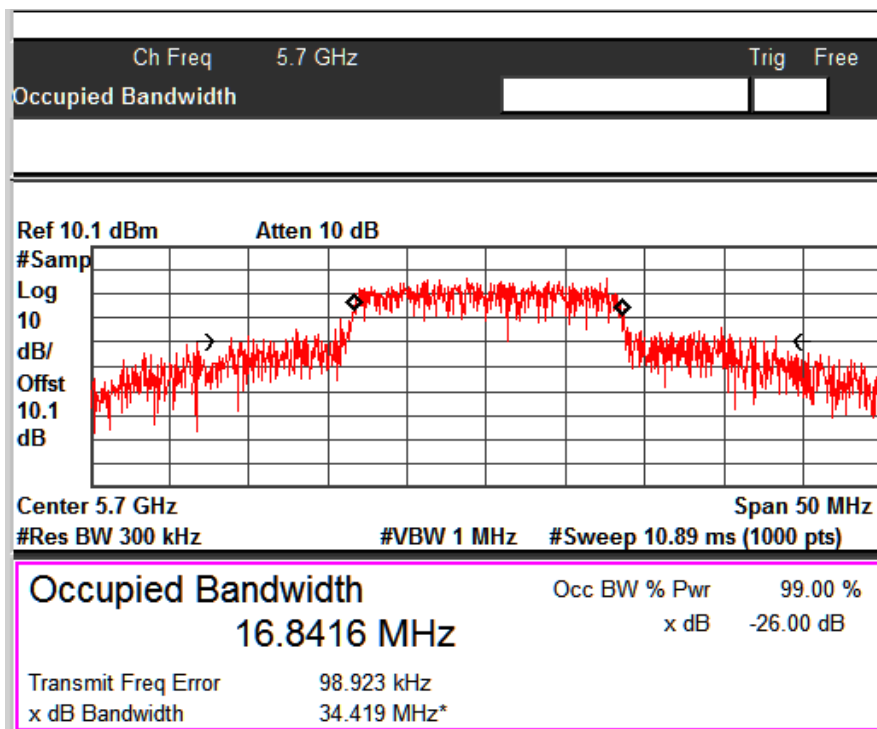
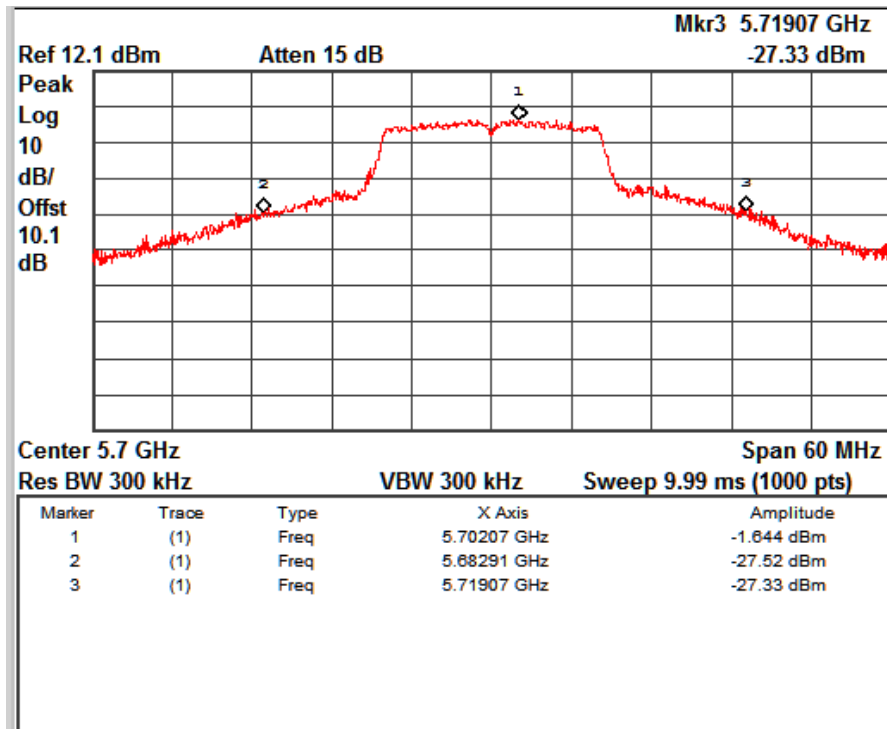
Channel Frequency: 5500MHz

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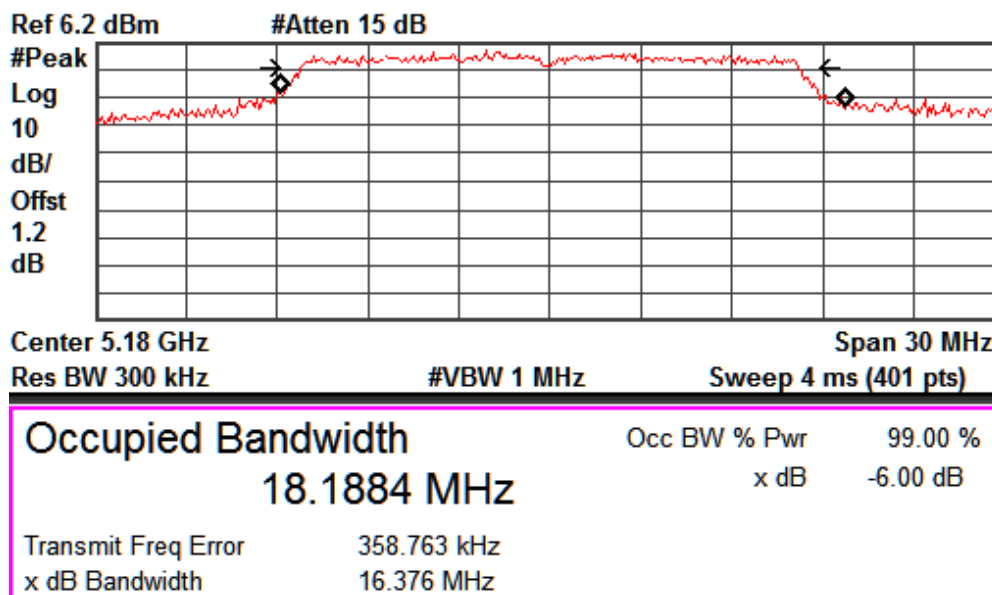
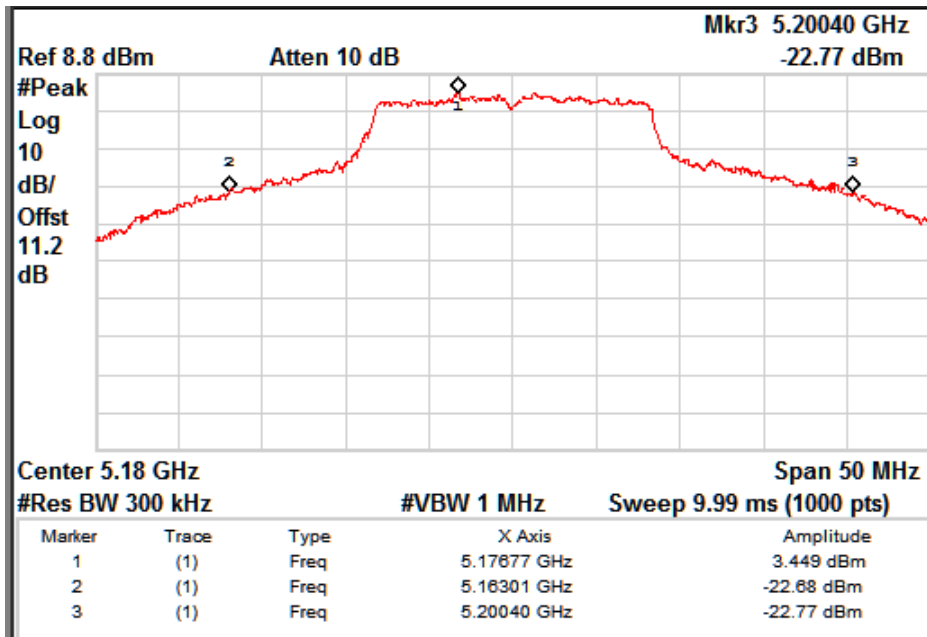
Data Rate: 6Mbps

Channel Frequency: 5600MHz



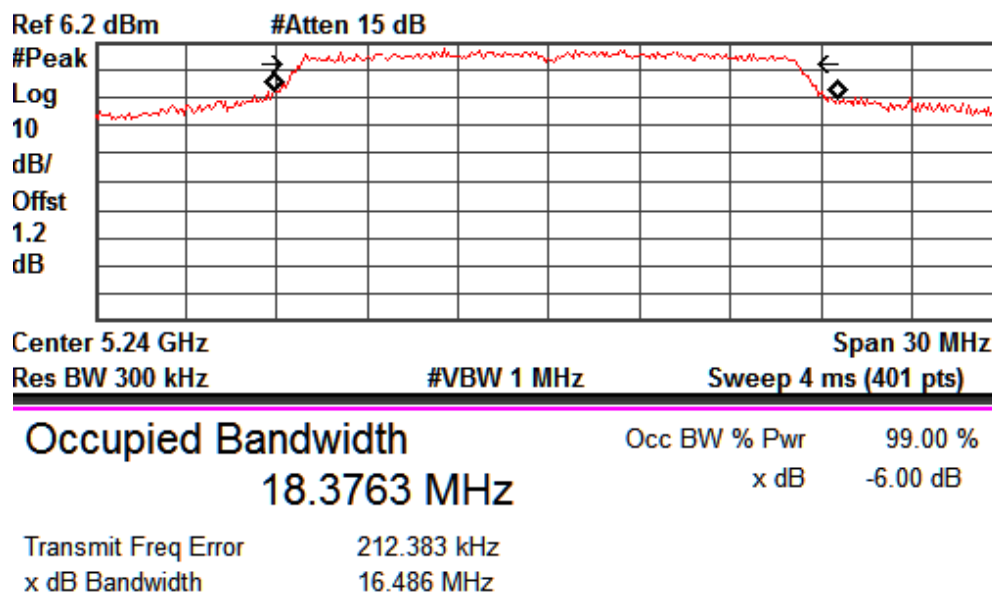
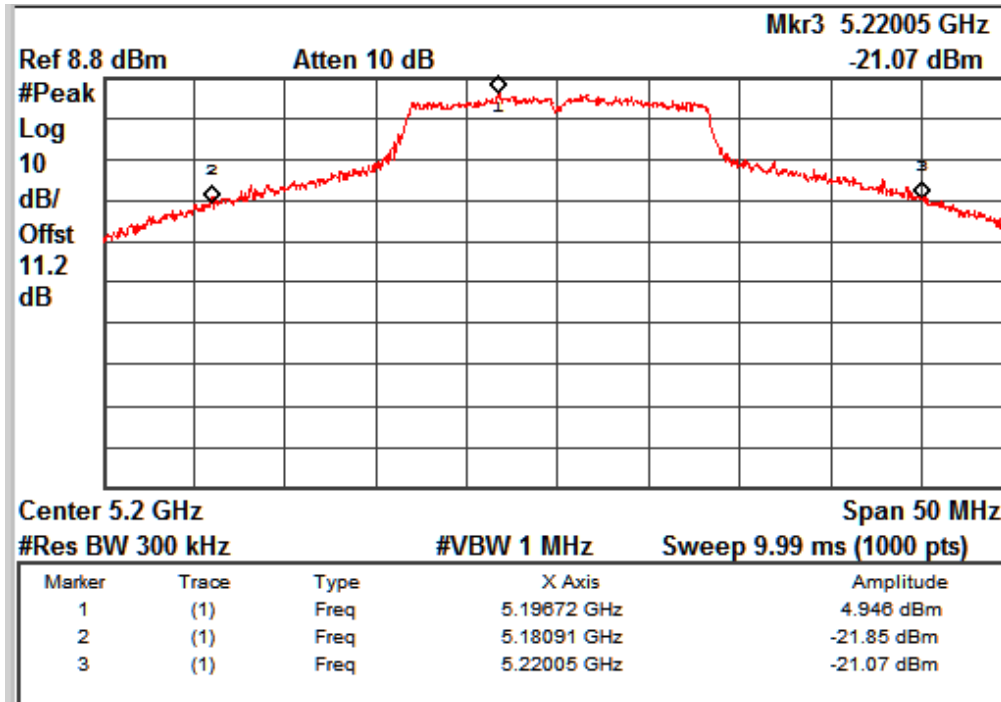
Data Rate: 6Mbps

Channel Frequency: 5700MHz



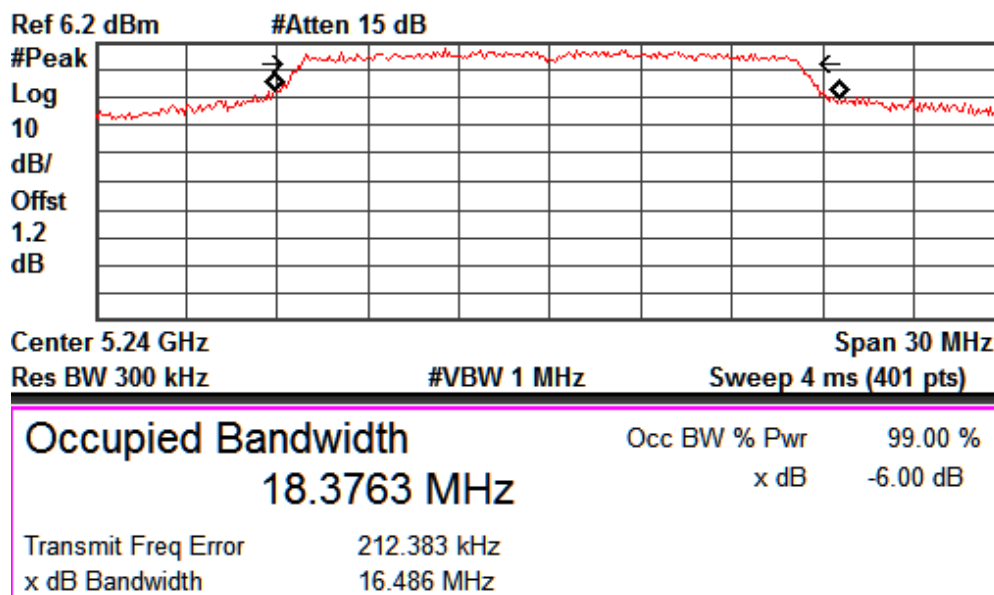
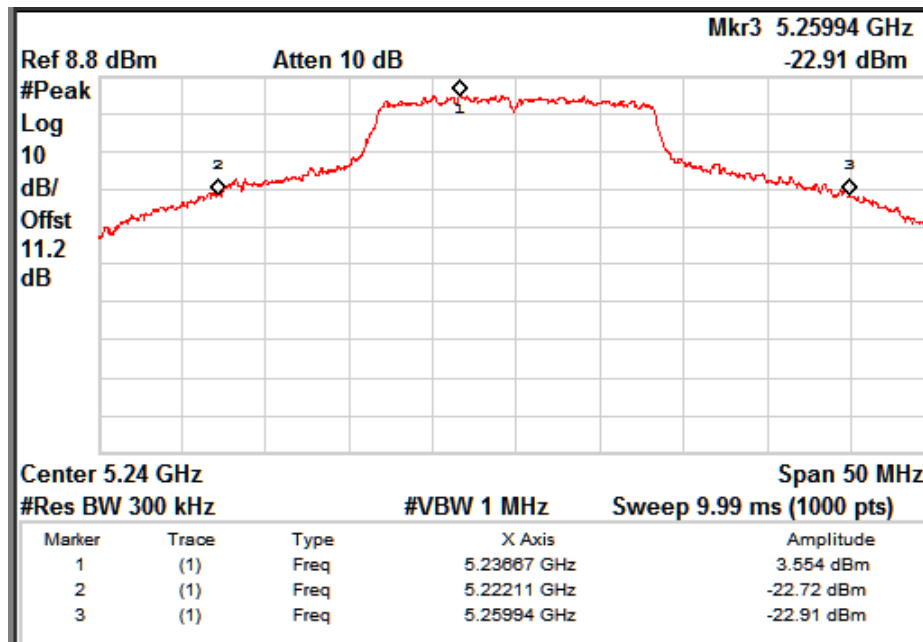
Data Rate: 24Mbps

Channel Frequency: 5180MHz



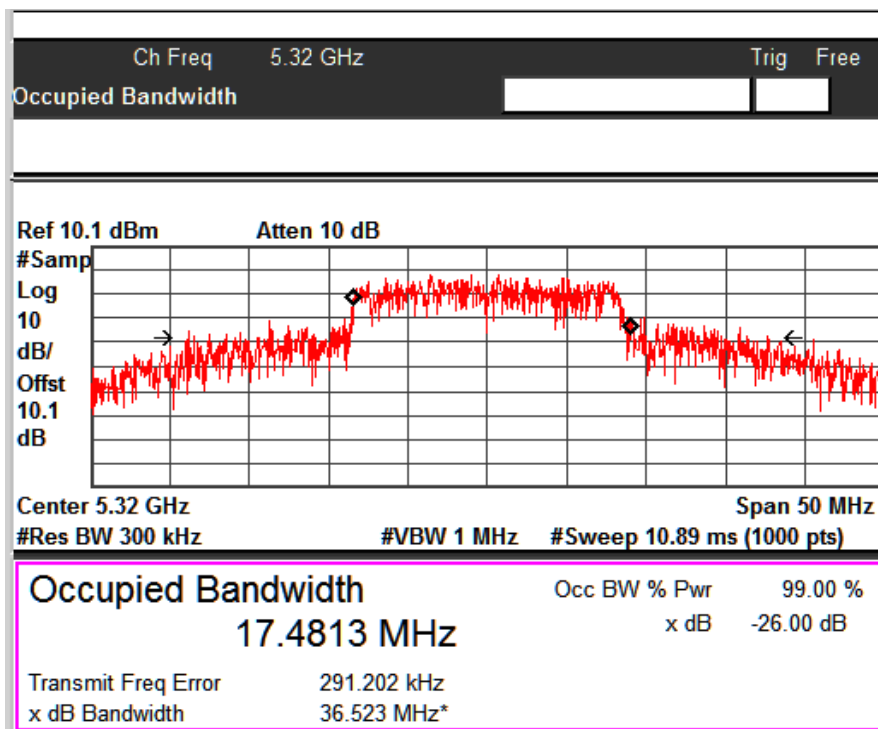
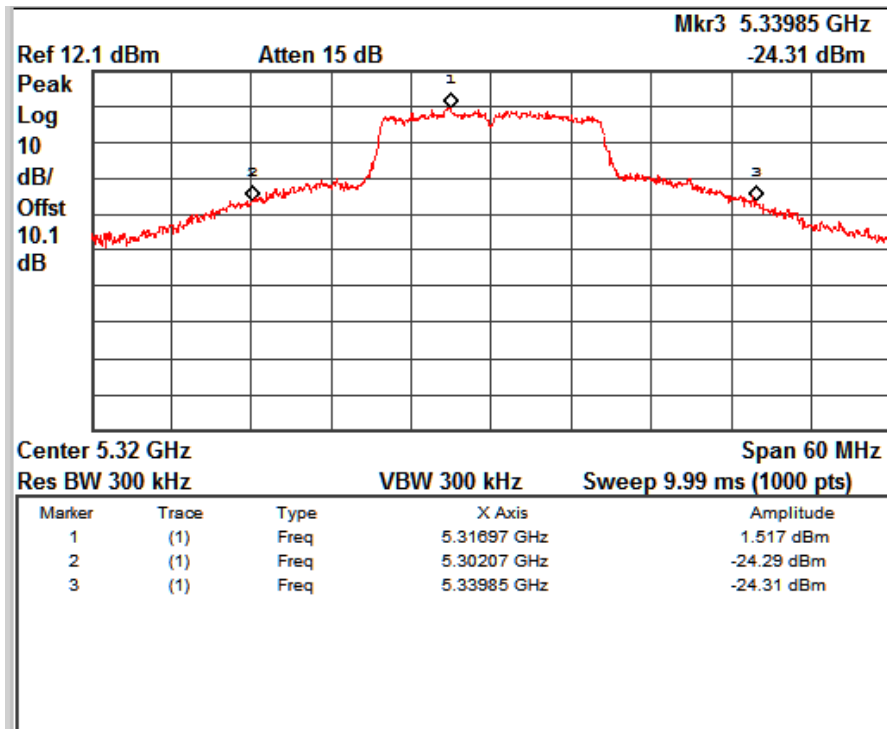
Data Rate: 24Mbps

Channel Frequency: 5200MHz



Data Rate: 24Mbps

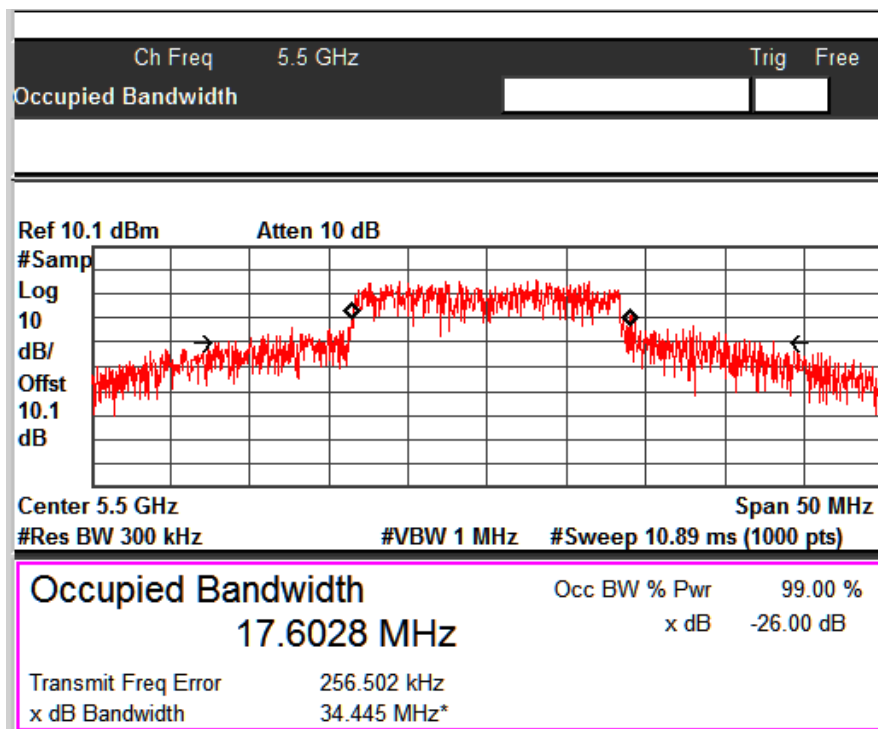
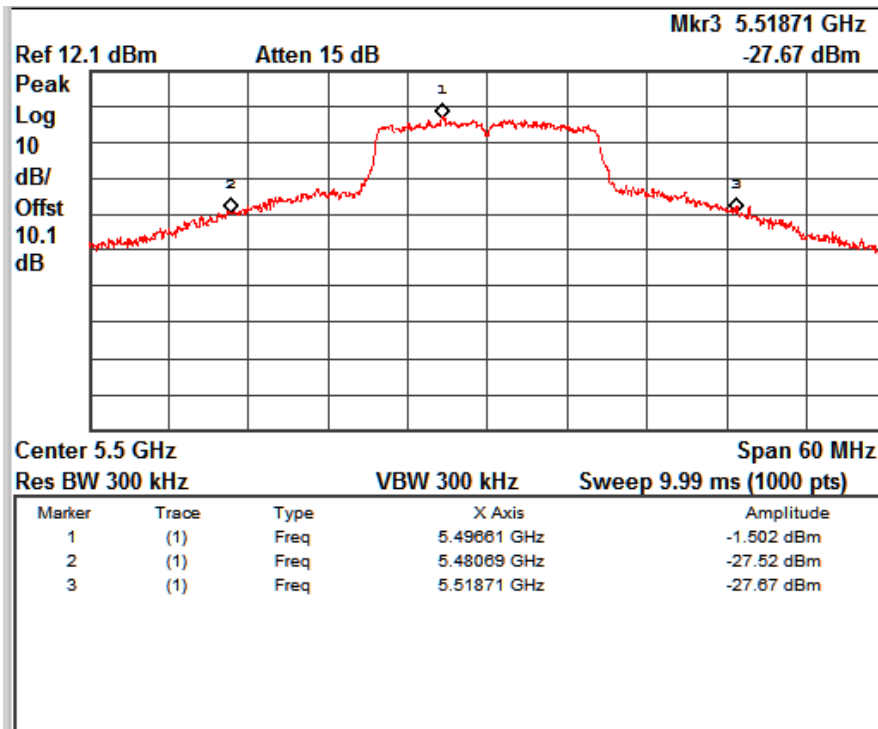
Channel Frequency: 5240MHz



Data Rate: 24Mbps

Channel Frequency: 5320MHz

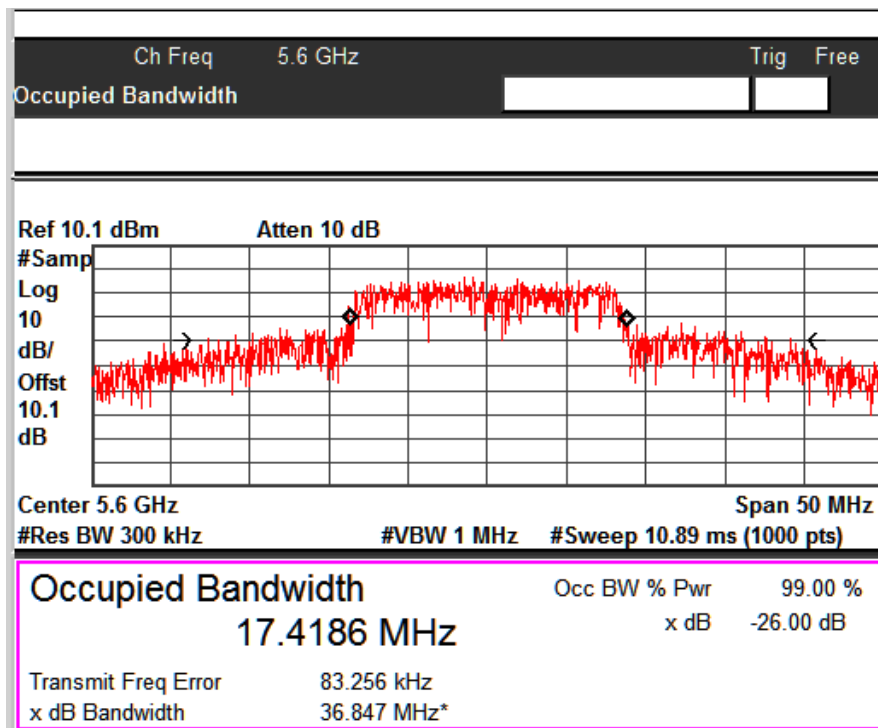
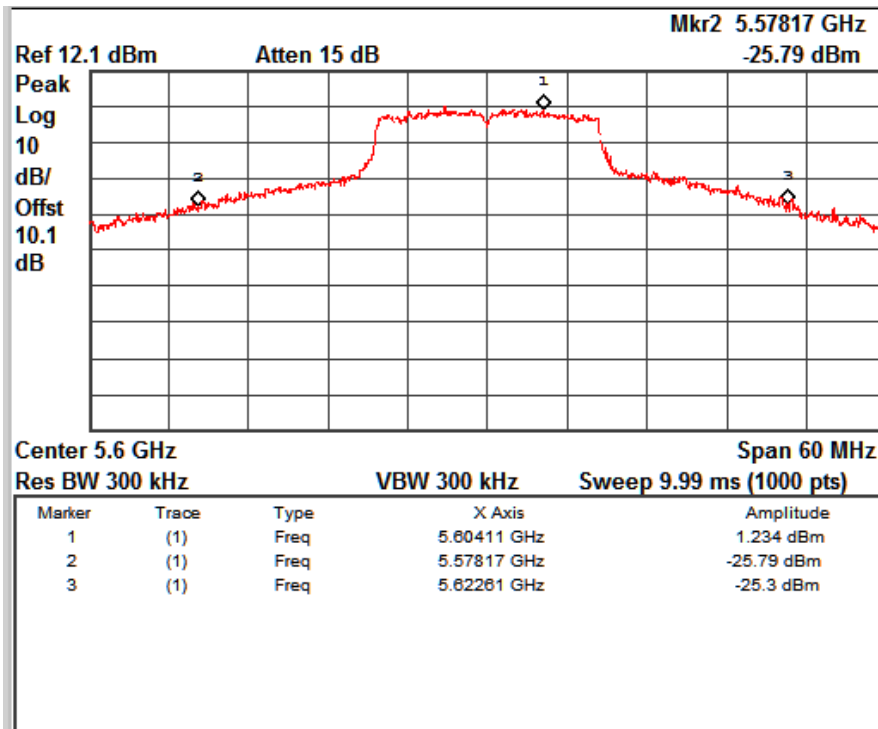
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Data Rate: 24Mbps

Channel Frequency: 5500MHz

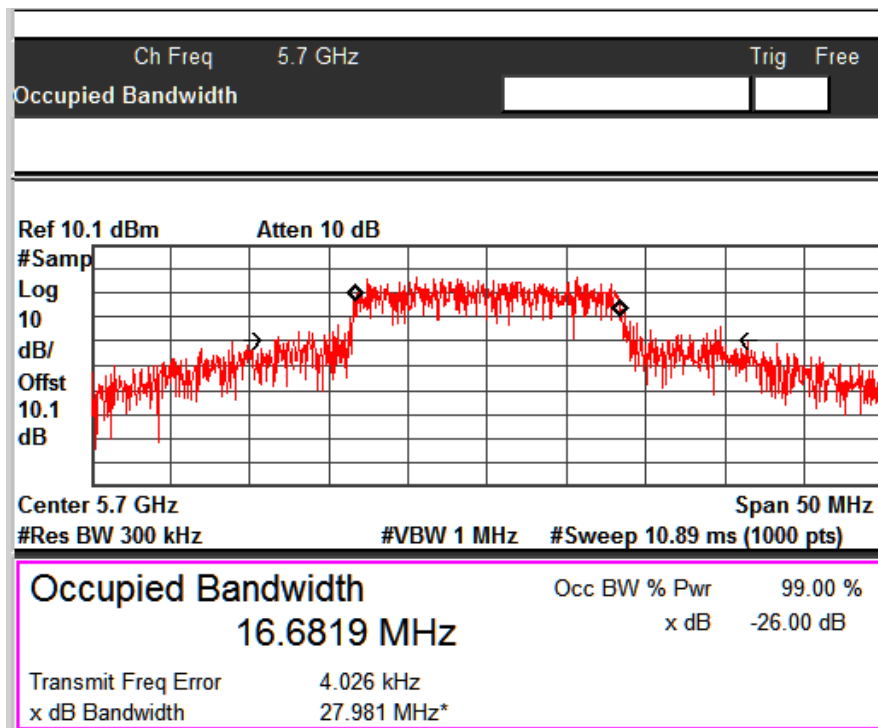
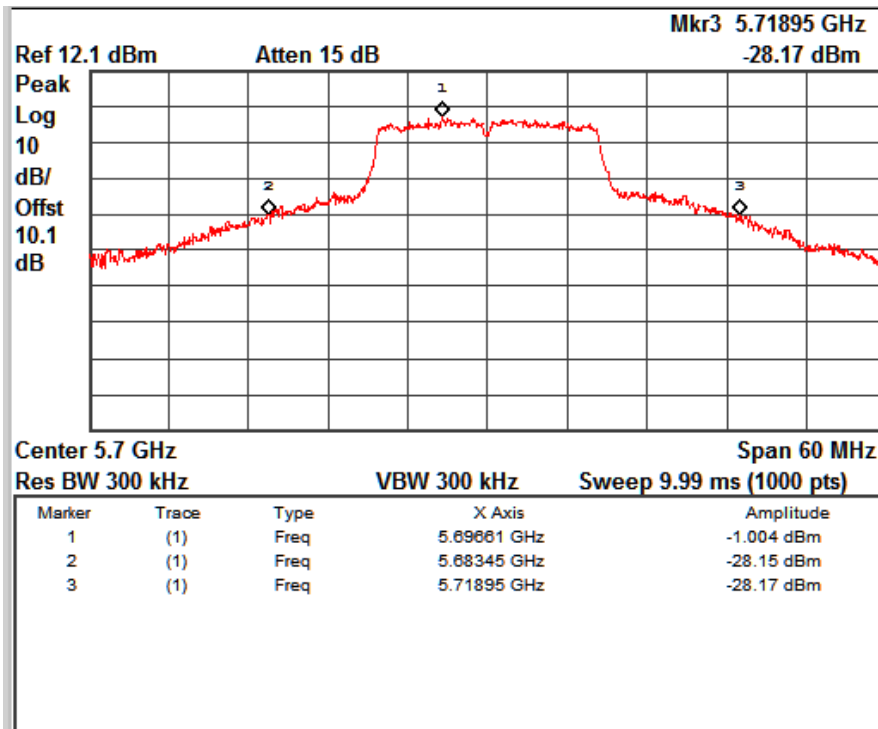
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Data Rate: 24Mbps

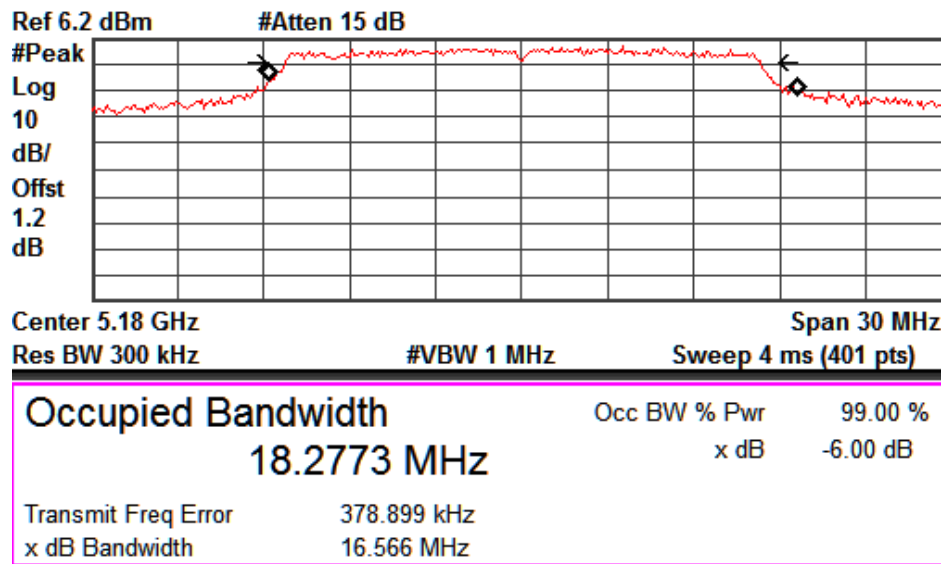
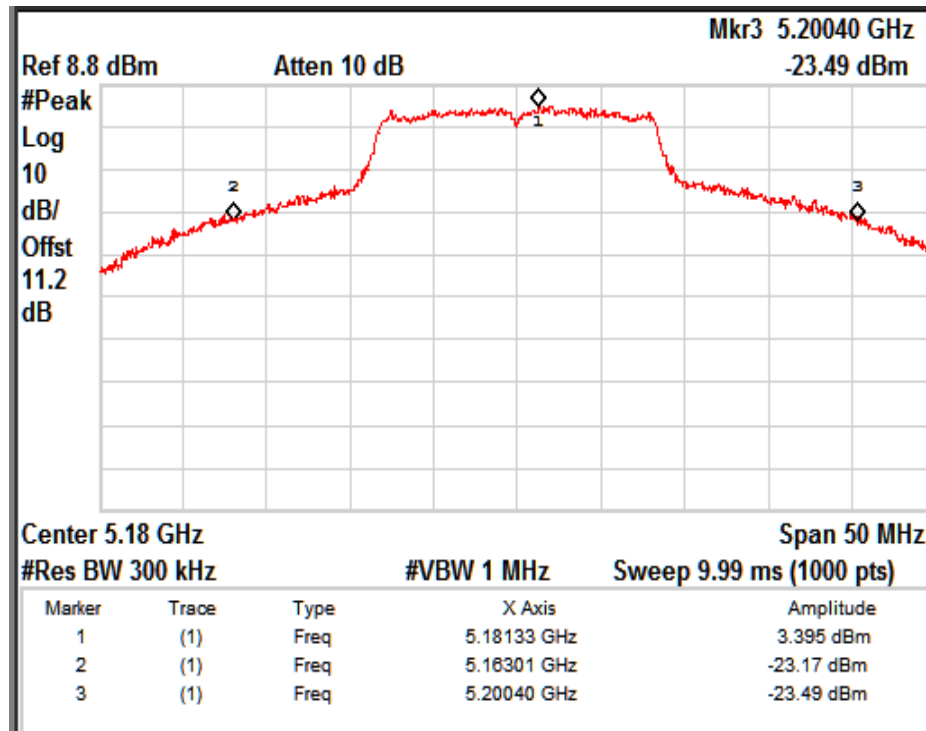
Channel Frequency: 5600MHz

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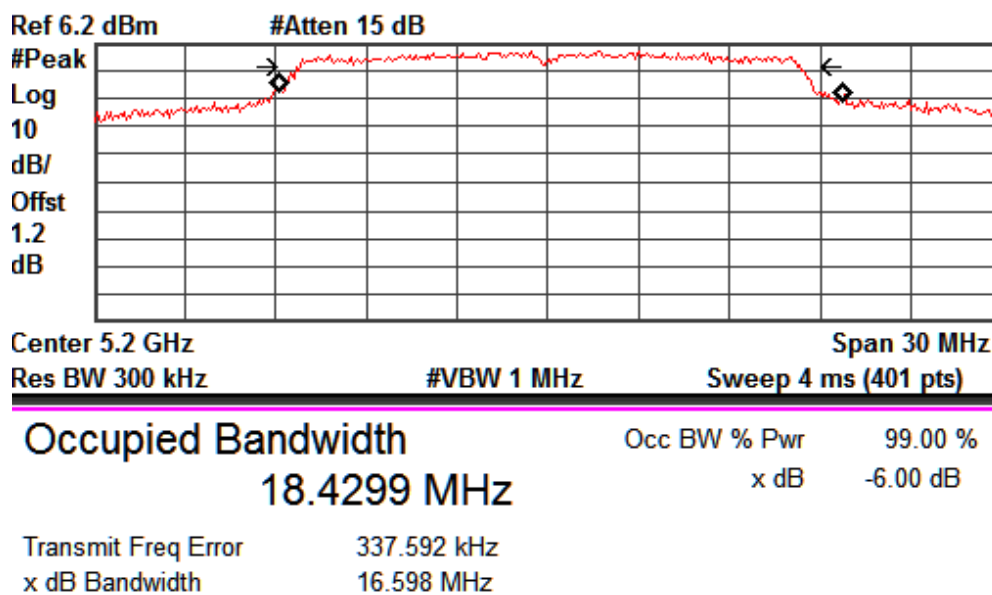
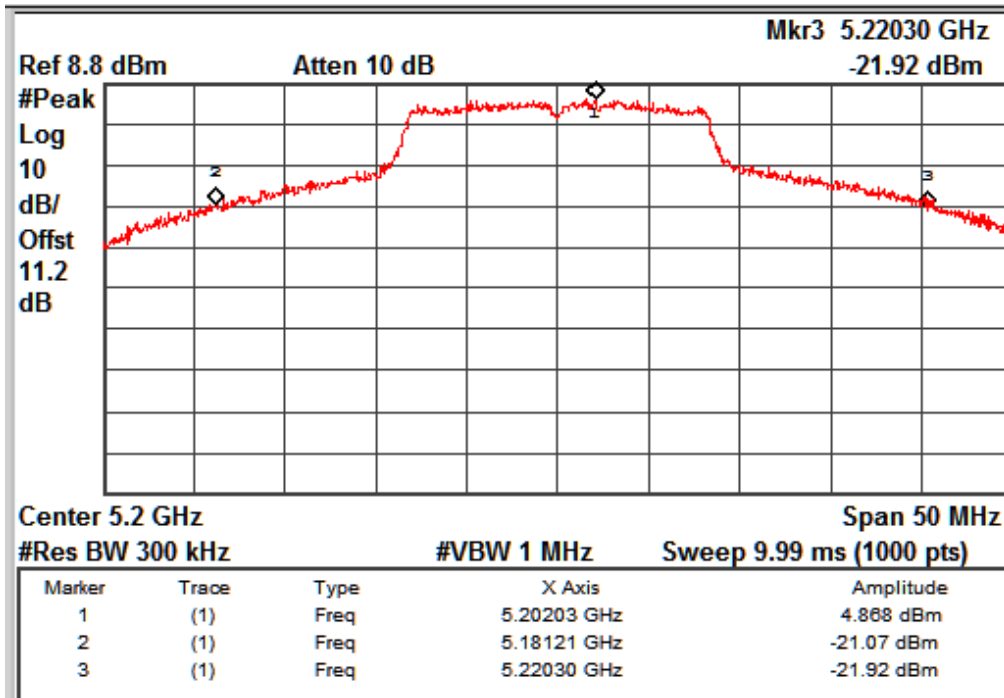
Data Rate: 24Mbps

Channel Frequency: 5700MHz



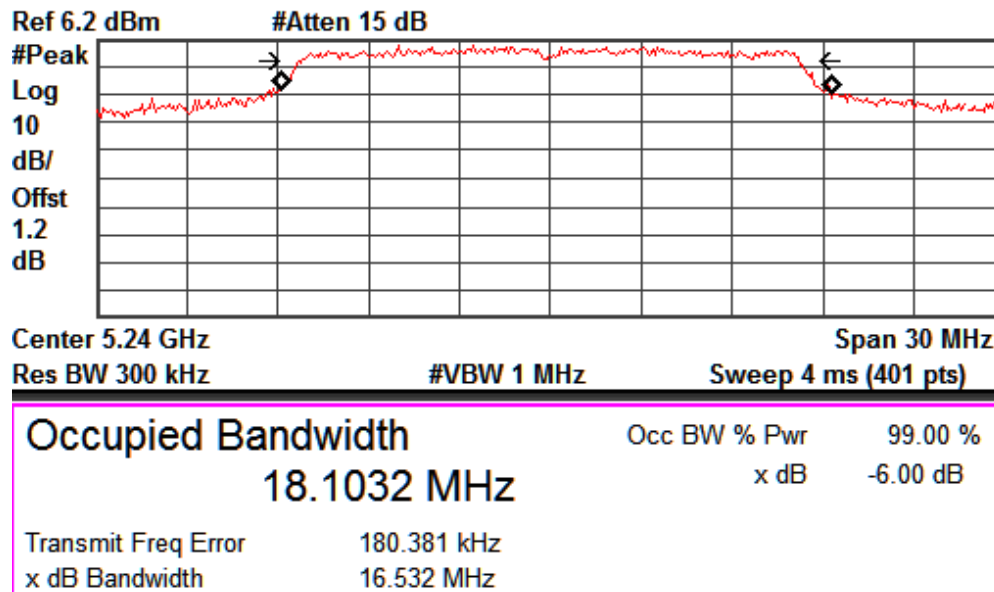
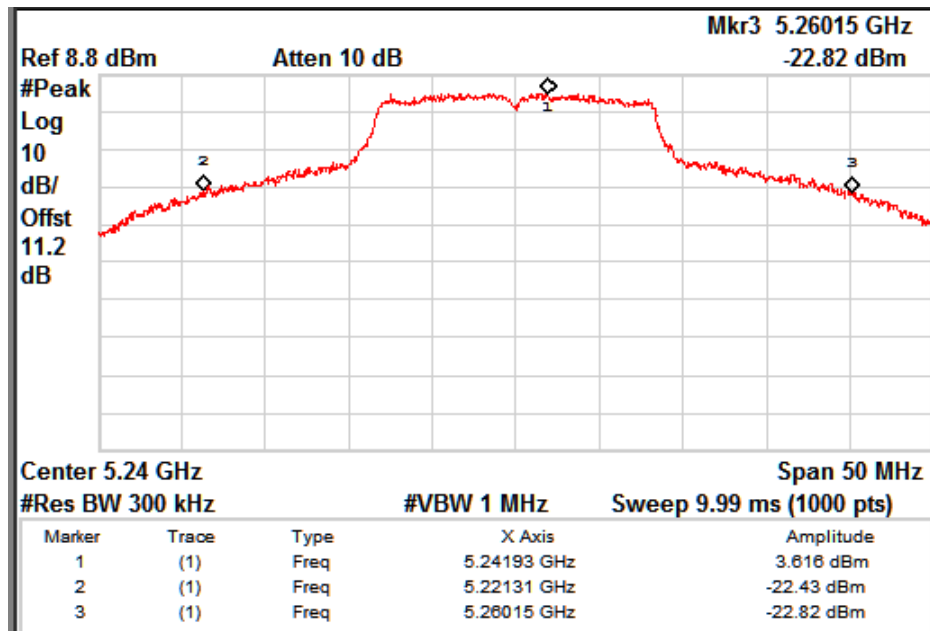
Data Rate: 54Mbps

Channel Frequency: 5180MHz



Data Rate: 54Mbps

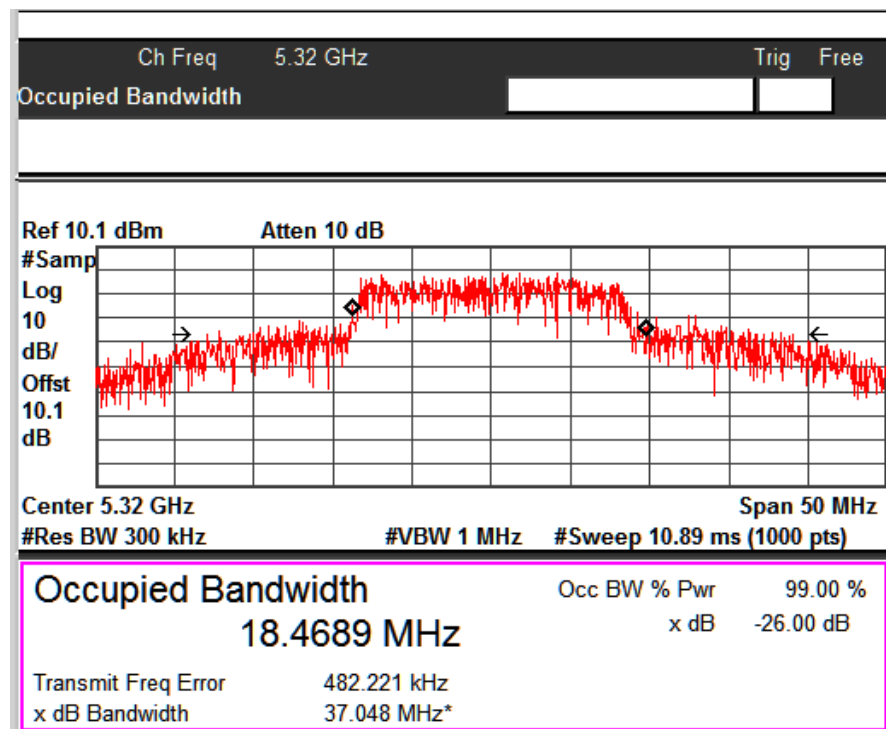
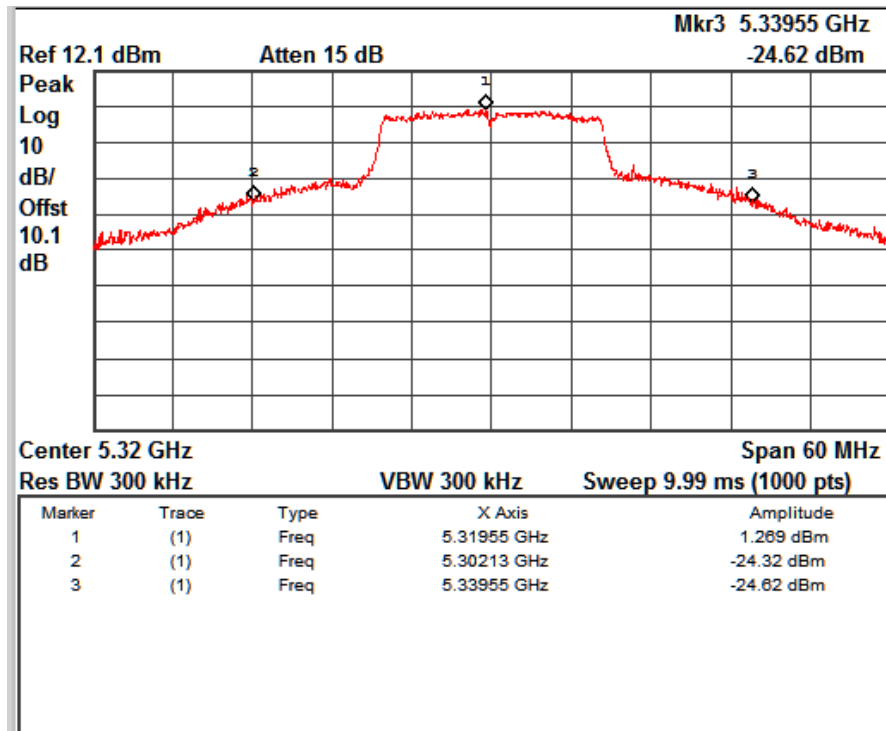
Channel Frequency: 5200MHz



Data Rate: 54Mbps

Channel Frequency: 5240MHz

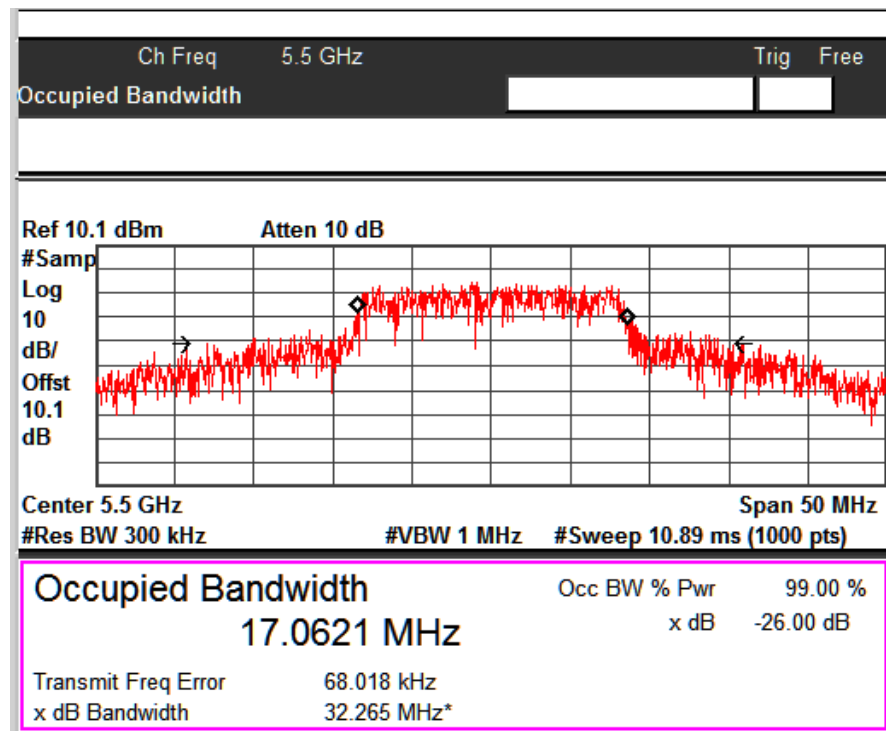
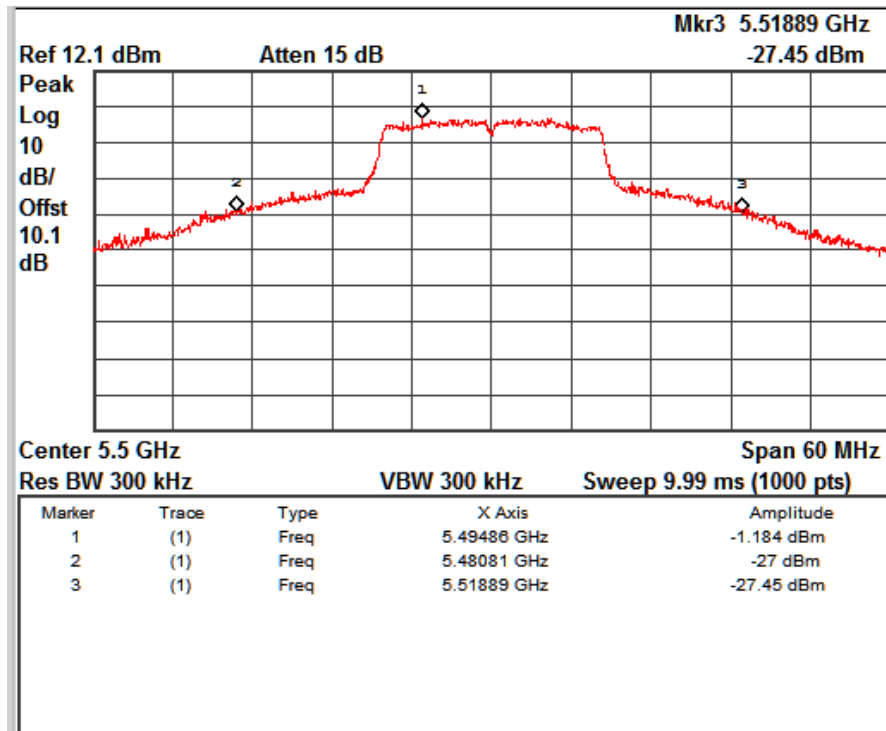
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Data Rate: 54Mbps

Channel Frequency: 5320MHz

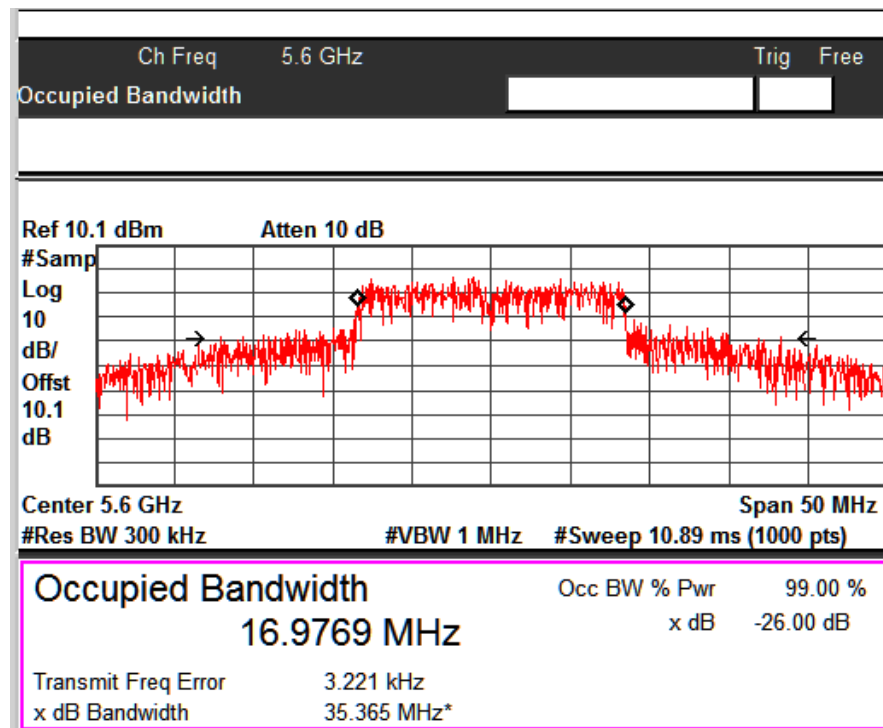
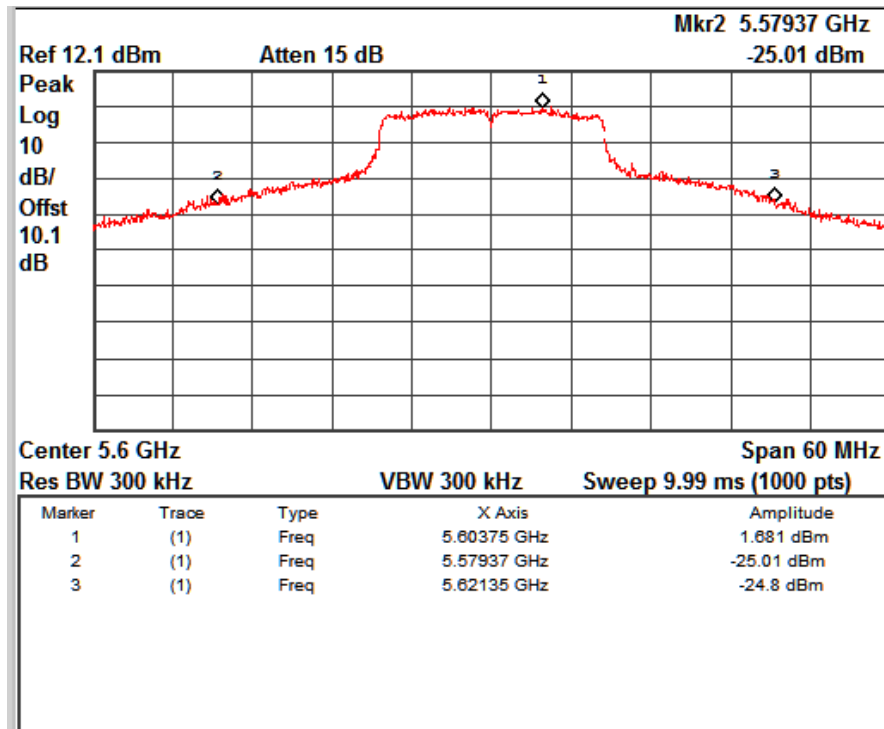
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Data Rate: 54Mbps

Channel Frequency: 5500MHz

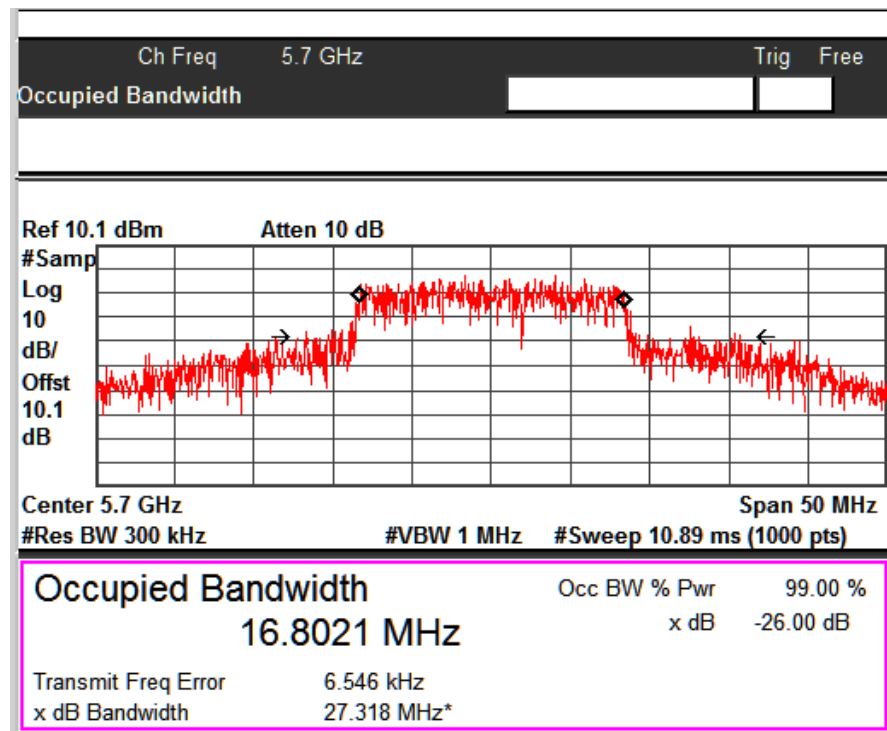
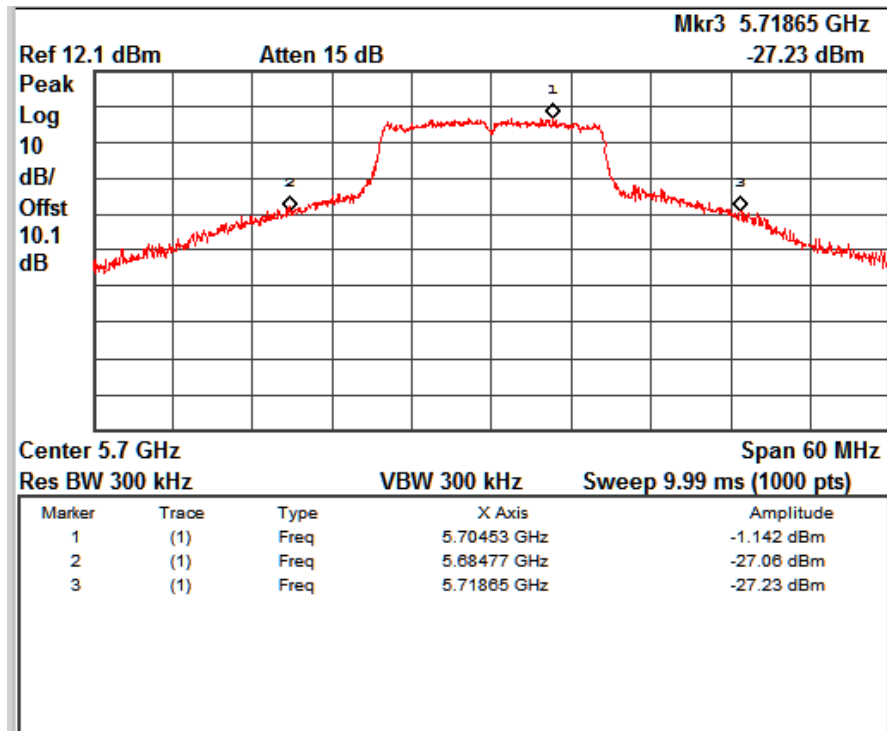
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Data Rate: 54Mbps

Channel Frequency: 5600MHz

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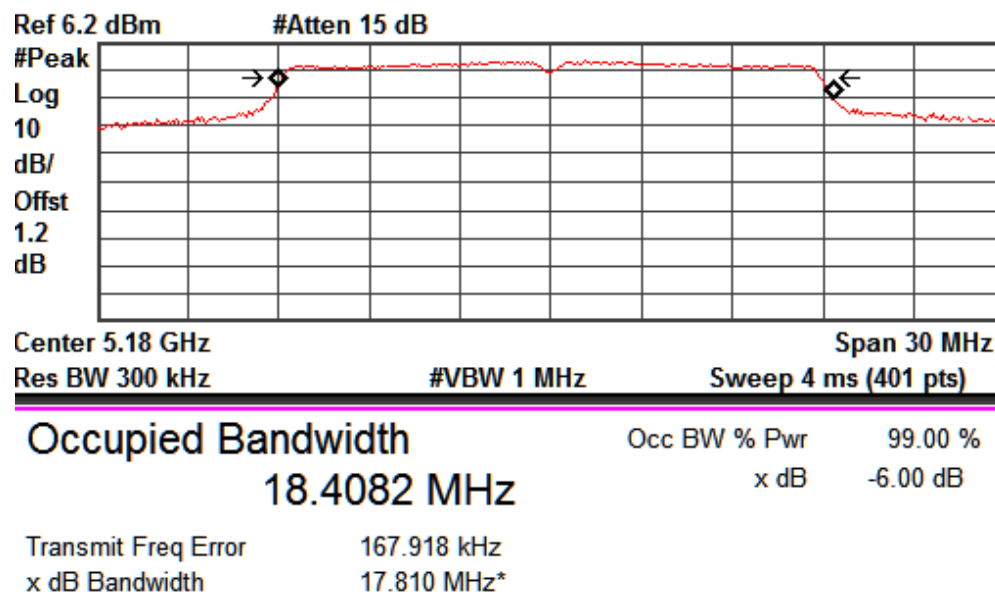
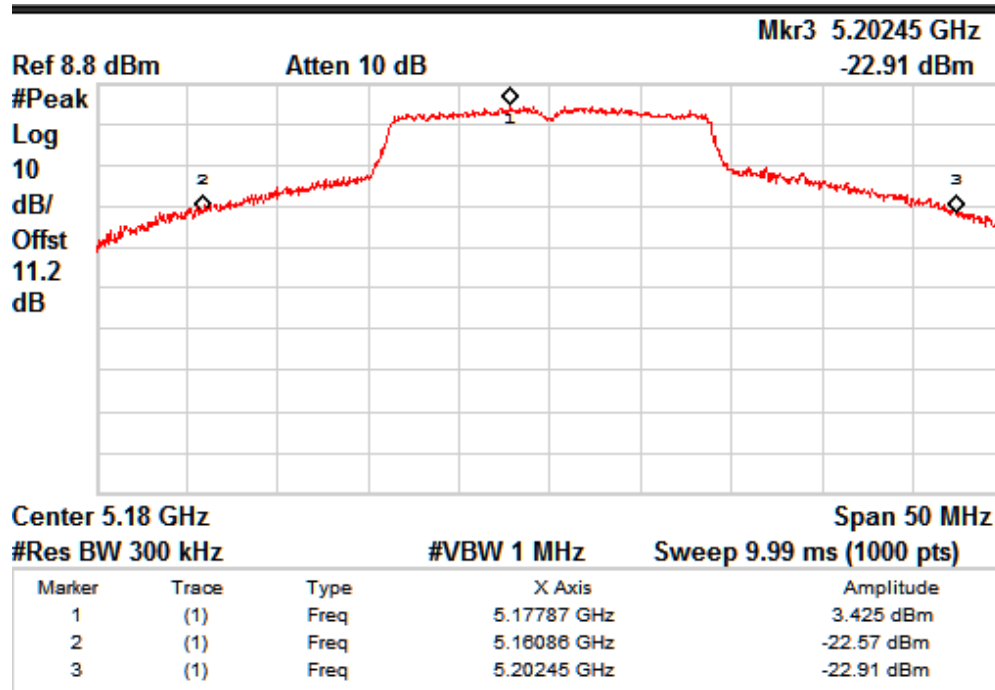


Data Rate: 54Mbps

Channel Frequency: 5700MHz

Modulation: 802.11n

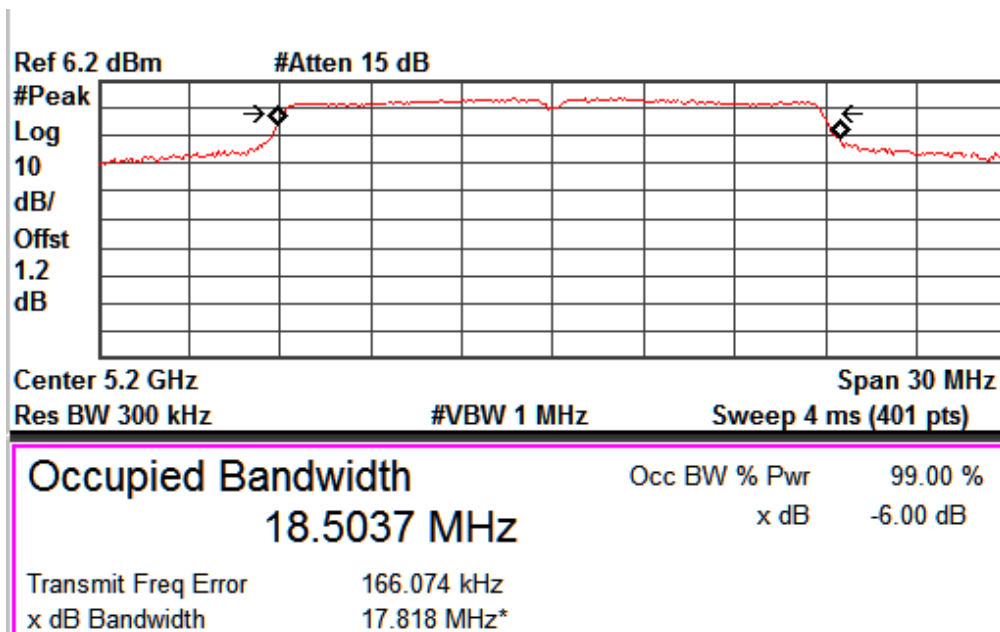
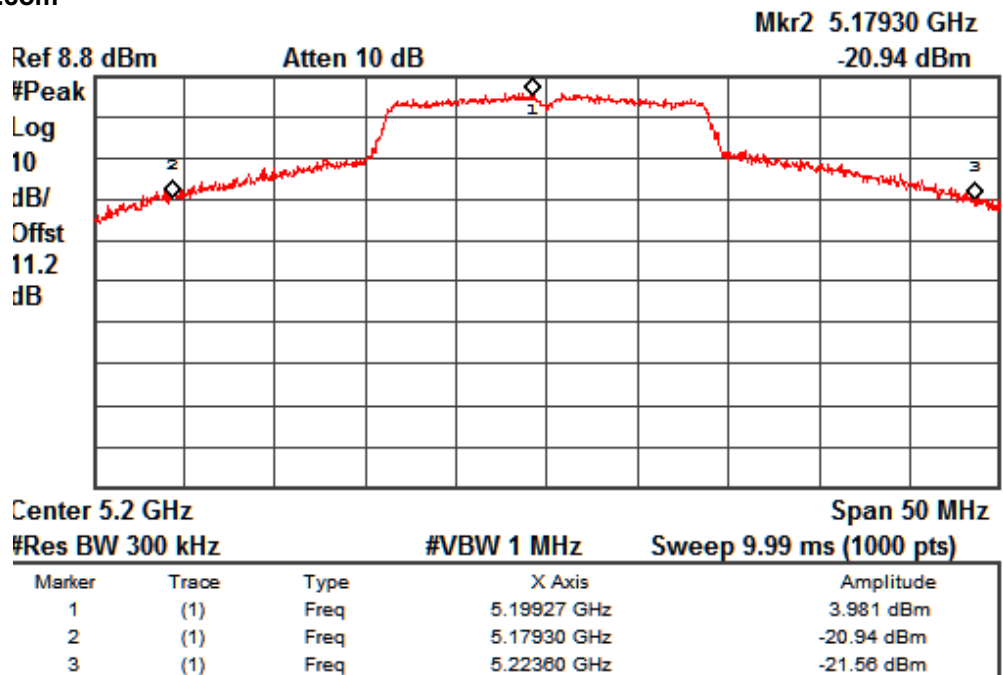
Data Rate (Mbps)	Channel. No	Frequency (MHz)	EBW (MHz)	OBW (MHz)
6.5	36	5180	41.59	18.40
	40	5200	44.30	18.50
	48	5240	43.50	18.31
	64	5320	43.00	18.25
	100	5500	42.16	17.98
	120	5600	47.14	18.68
	140	5700	39.76	17.80
39	36	5180	42.35	18.37
	40	5200	43.35	18.43
	48	5240	41.40	18.26
	64	5320	42.94	18.13
	100	5500	41.74	17.80
	120	5600	47.56	18.68
	140	5700	31.77	17.83
65	36	5180	40.49	18.44
	40	5200	43.30	18.34
	48	5240	42.00	18.18
	64	5320	42.34	18.36
	100	5500	41.50	18.31
	120	5600	46.54	18.50
	140	5700	31.71	17.78



Data Rate: 6.5Mbps

Channel Frequency: 5180MHz

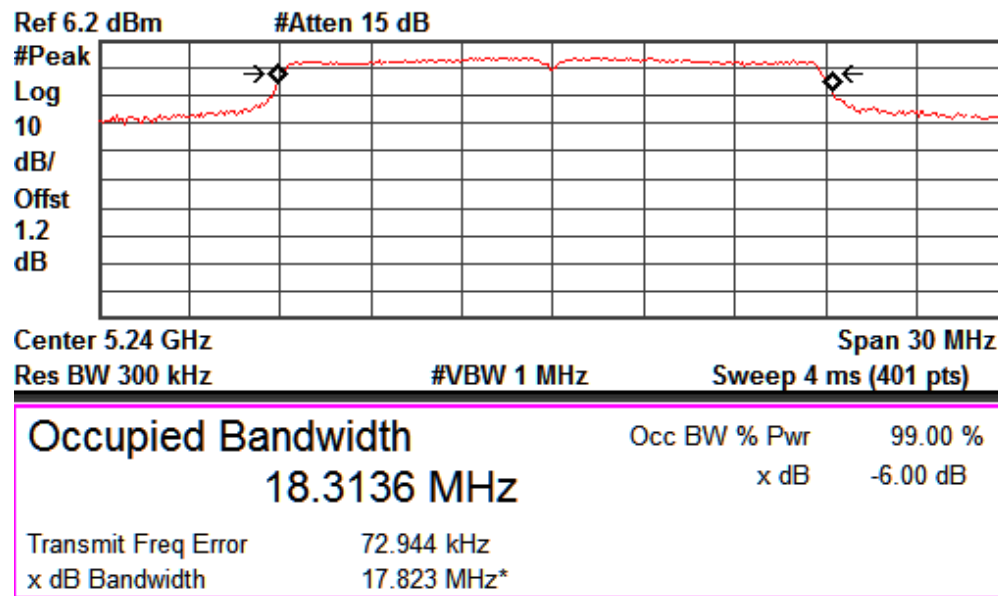
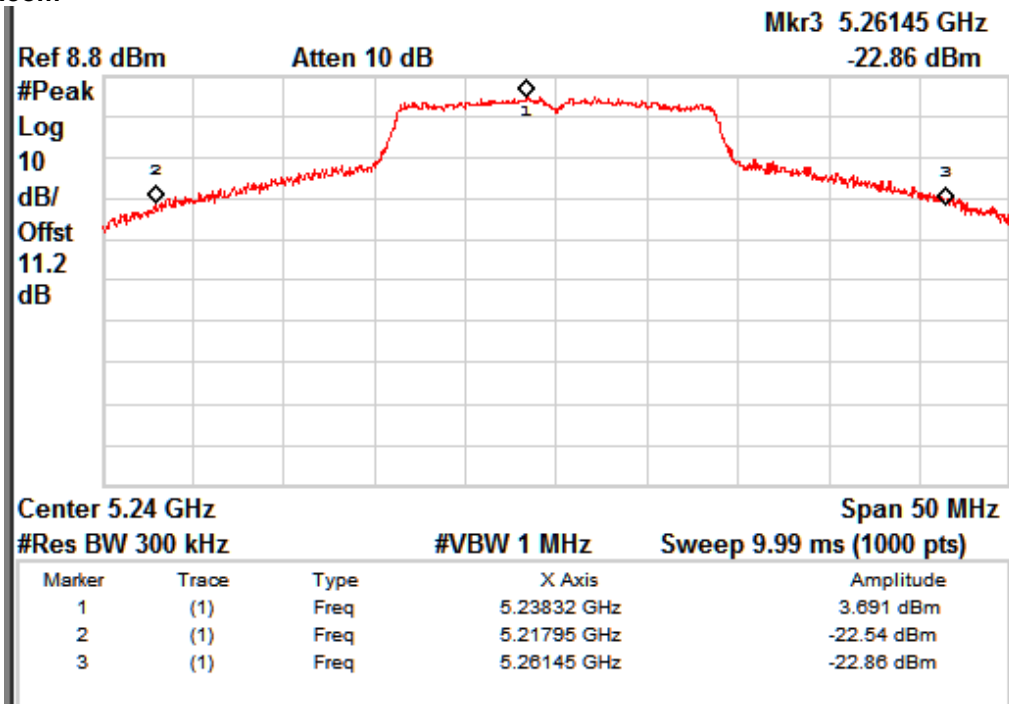
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Data Rate: 6.5Mbps

Channel Frequency: 5200MHz

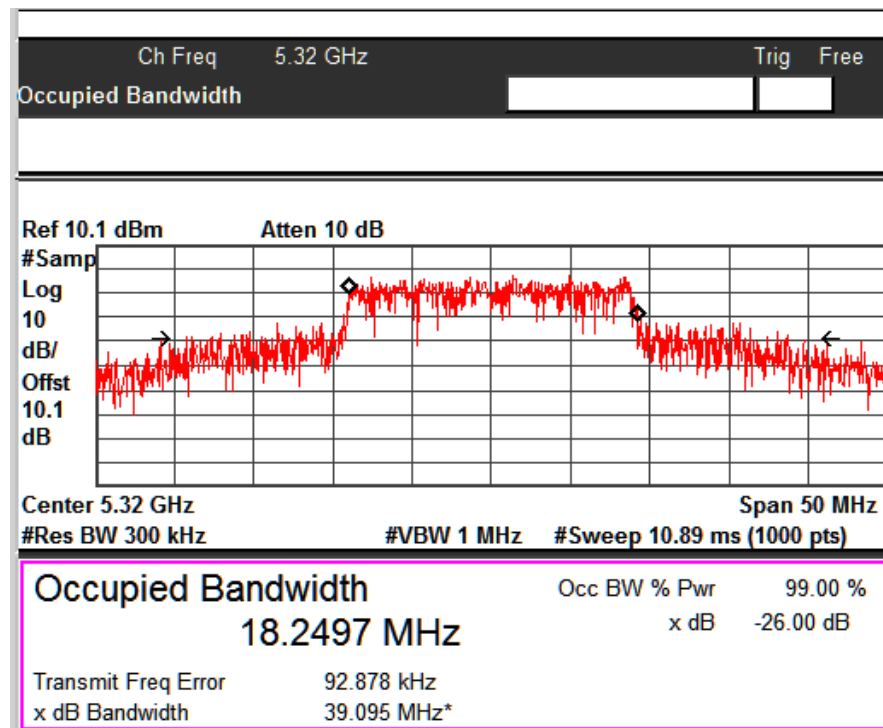
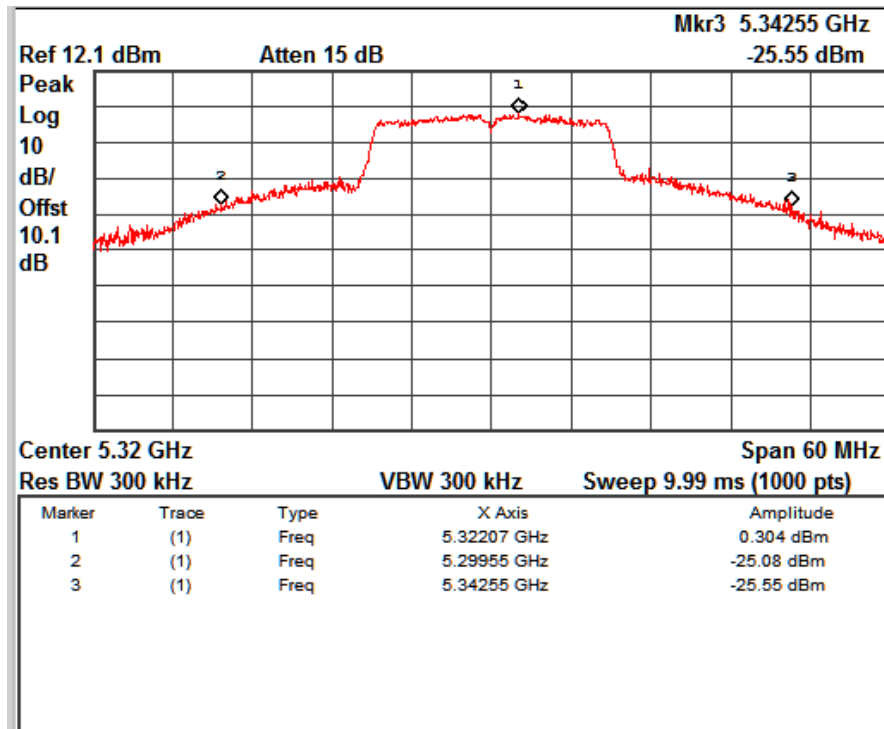
www.tuv.com



Data Rate: 6.5Mbps

Channel Frequency: 5240MHz

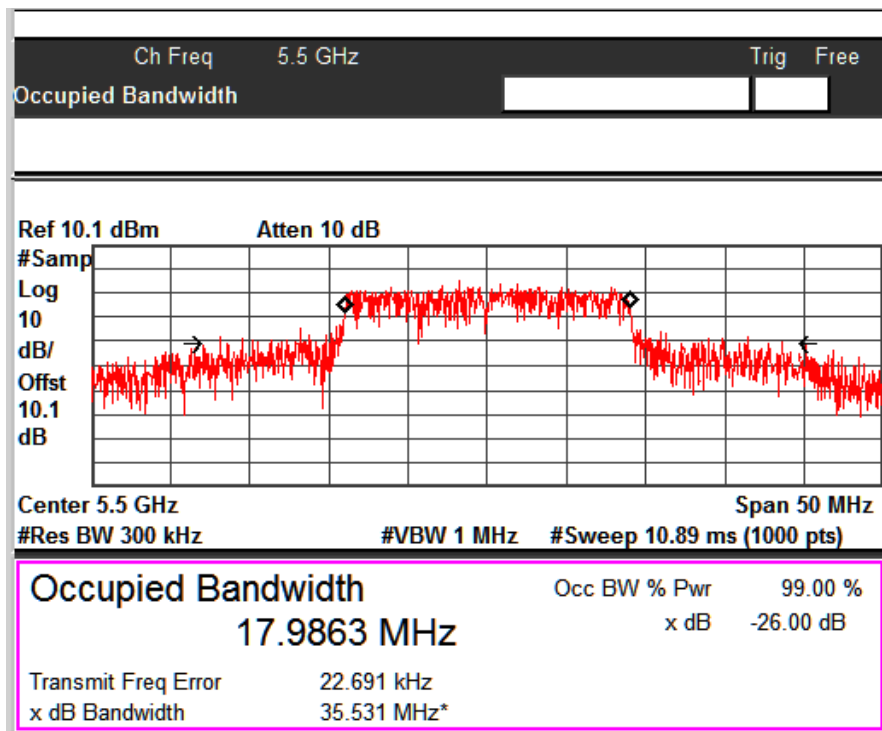
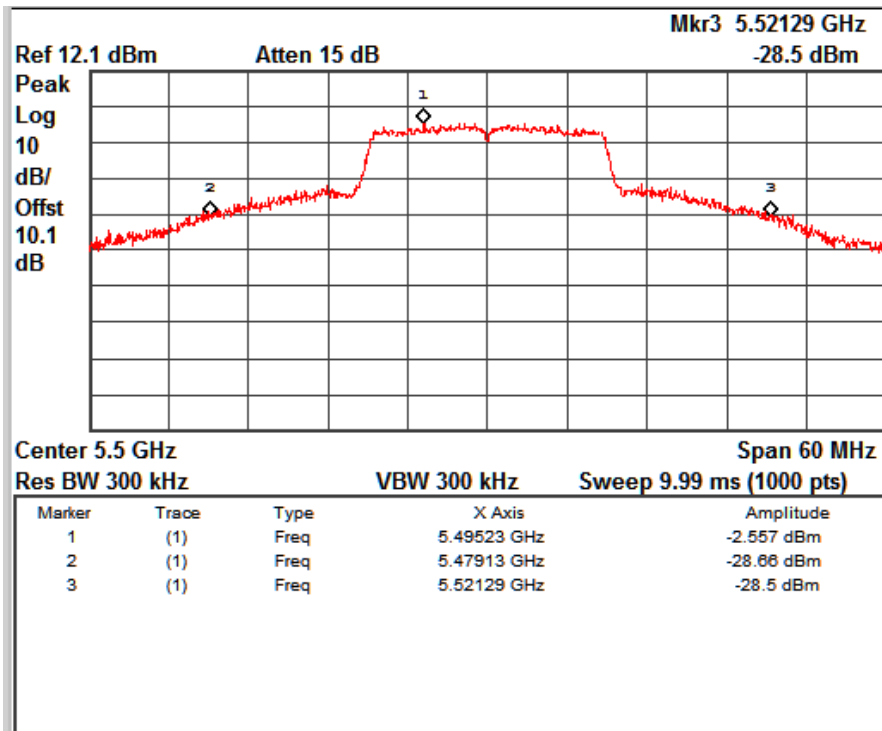
www.tuv.com



Data Rate: 6.5Mbps

Channel Frequency: 5320MHz

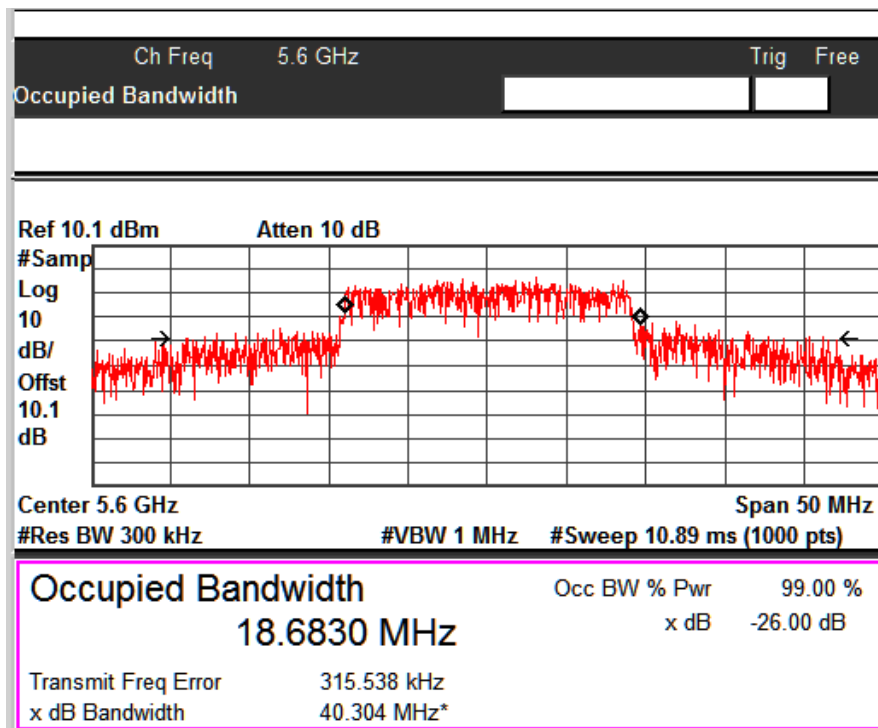
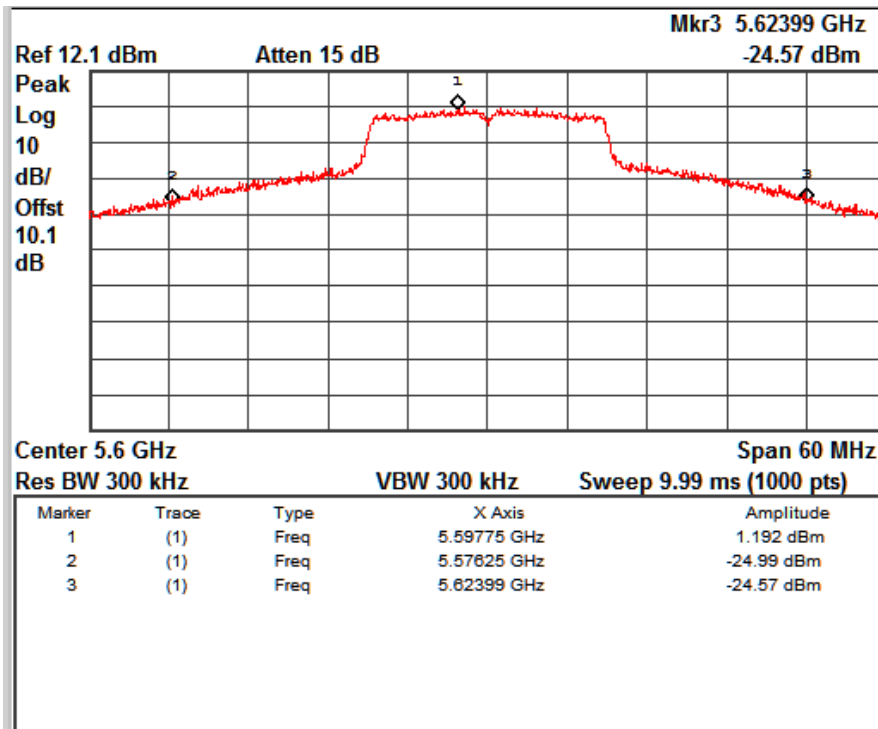
www.tuv.com



Data Rate: 6.5Mbps

Channel Frequency: 5500MHz

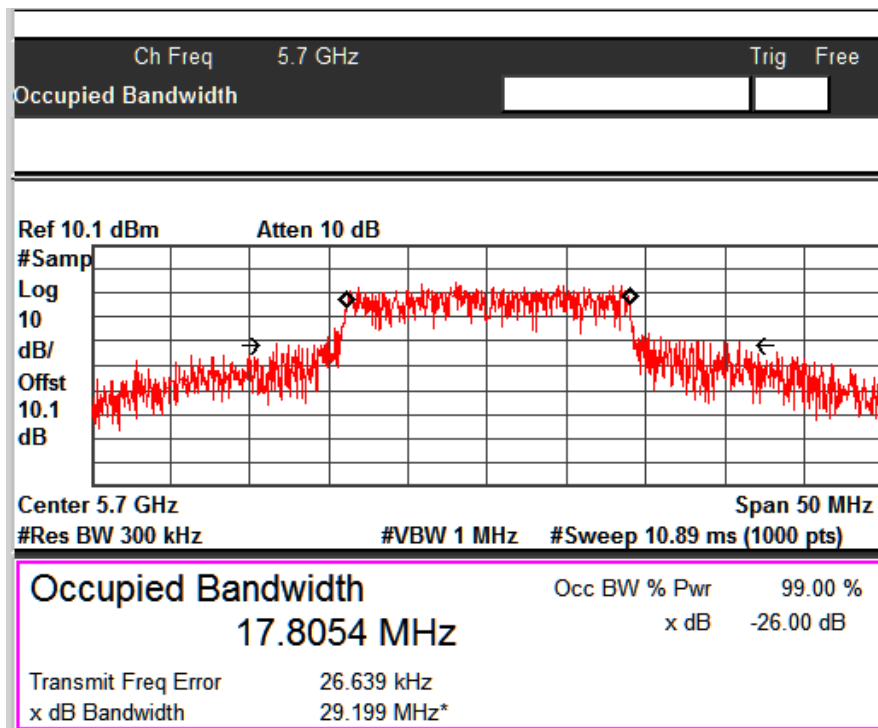
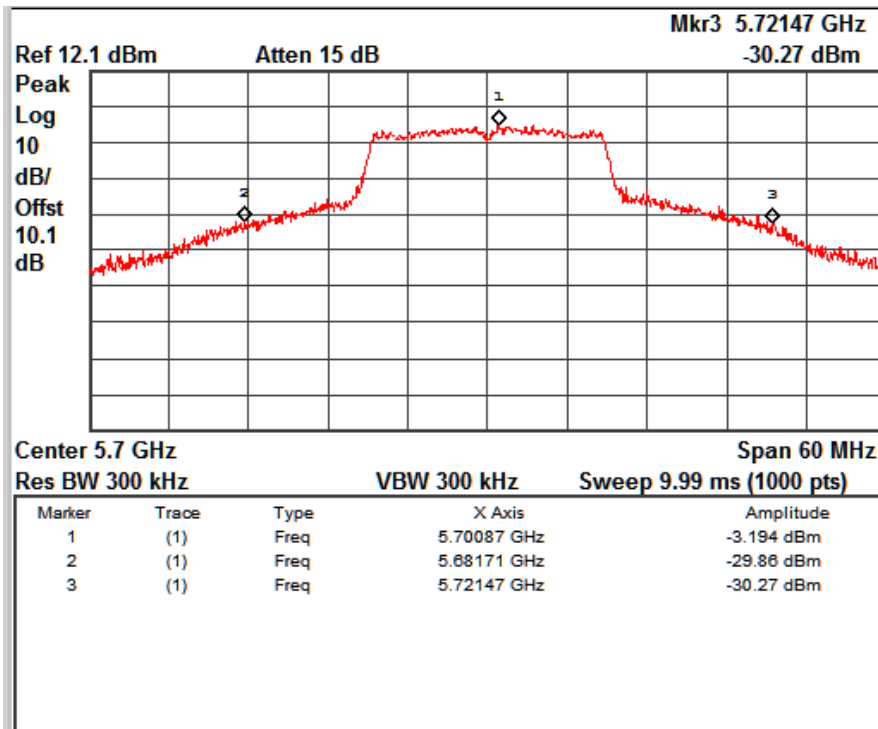
www.tuv.com



Data Rate: 6.5Mbps

Channel Frequency: 5600MHz

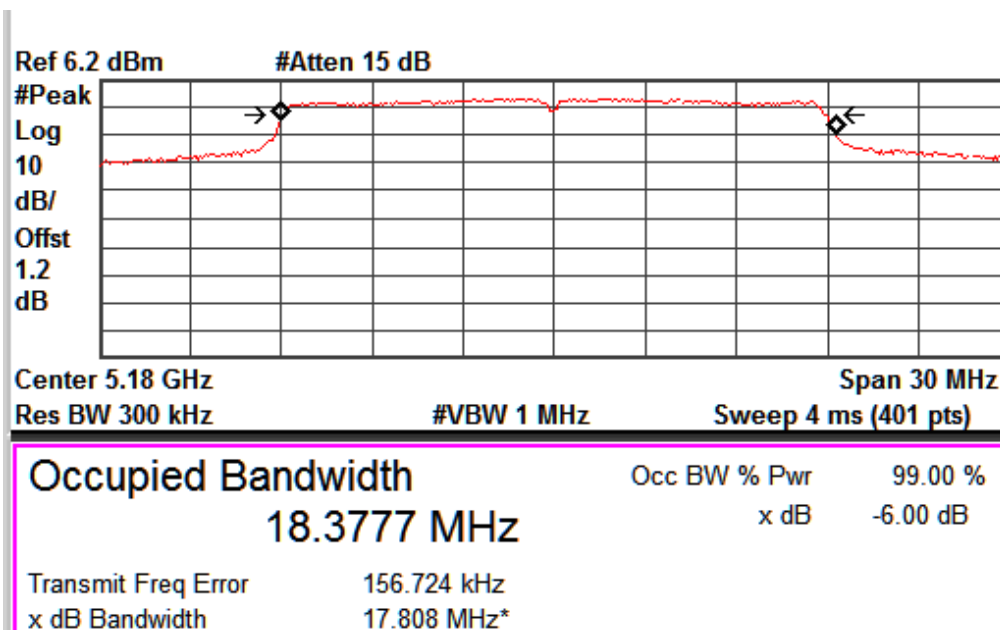
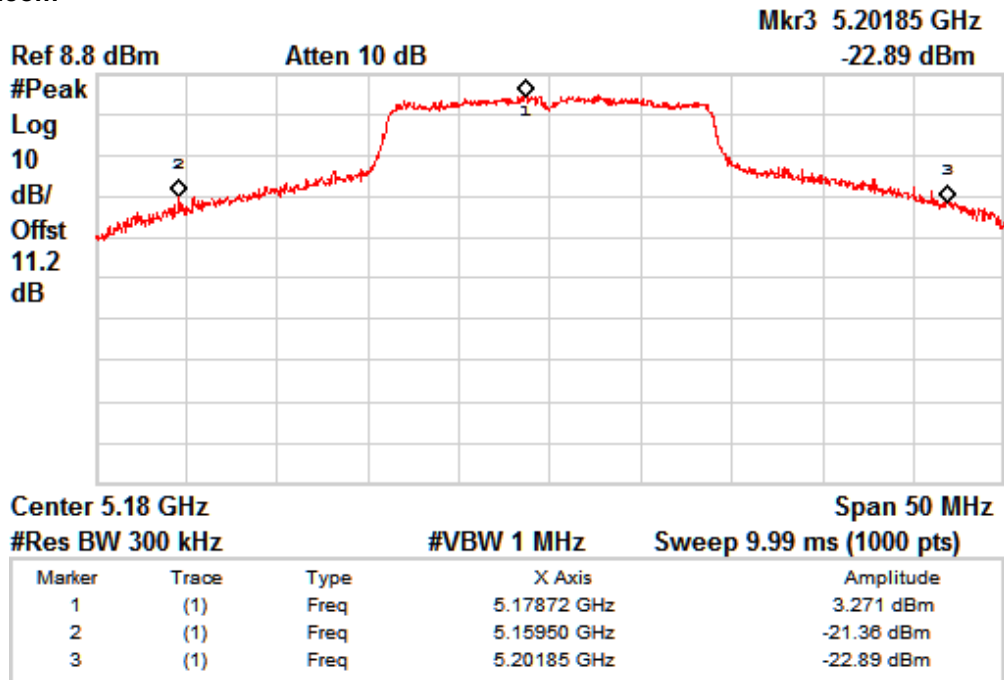
www.tuv.com



Data Rate: 6.5Mbps

Channel Frequency: 5700MHz

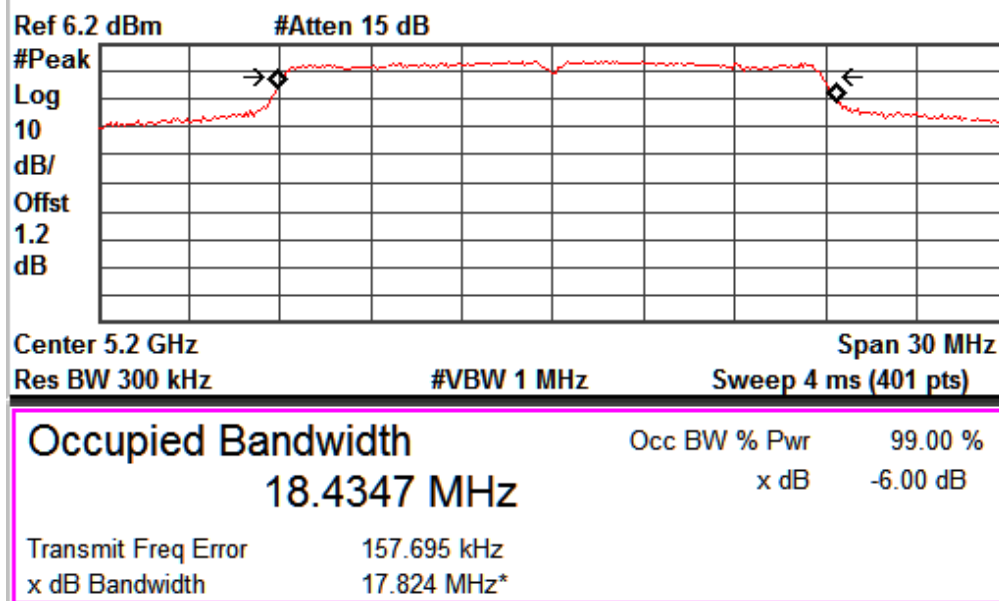
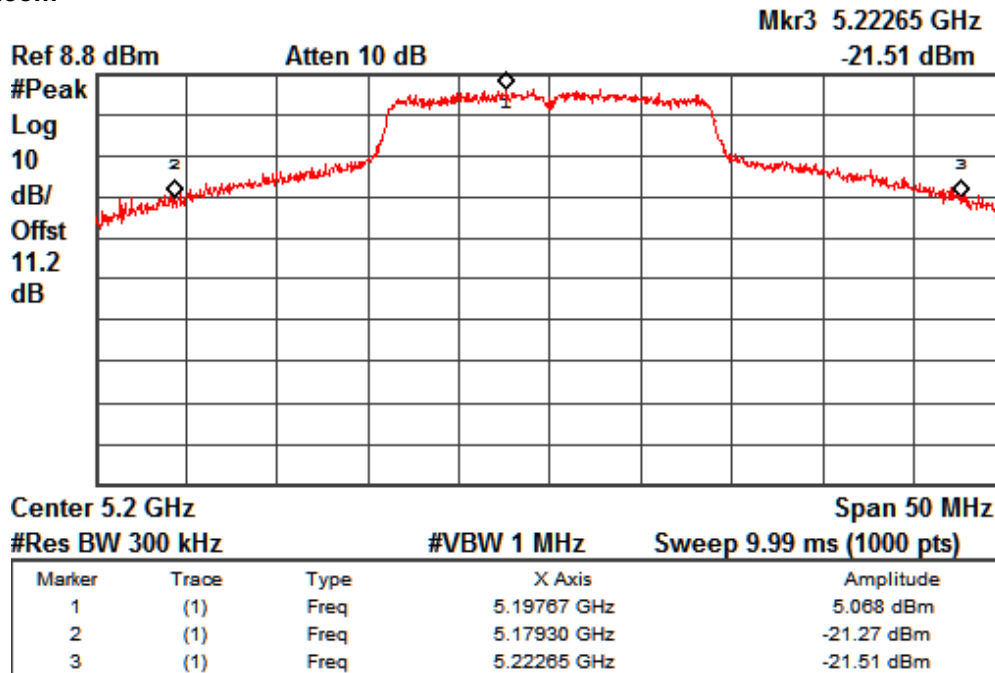
www.tuv.com



Data Rate: 39Mbps

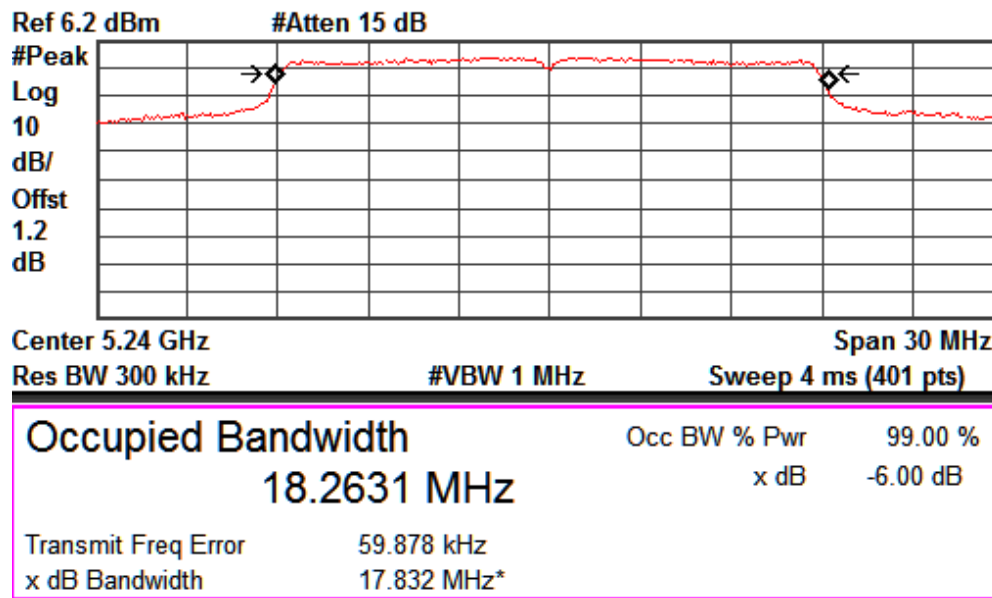
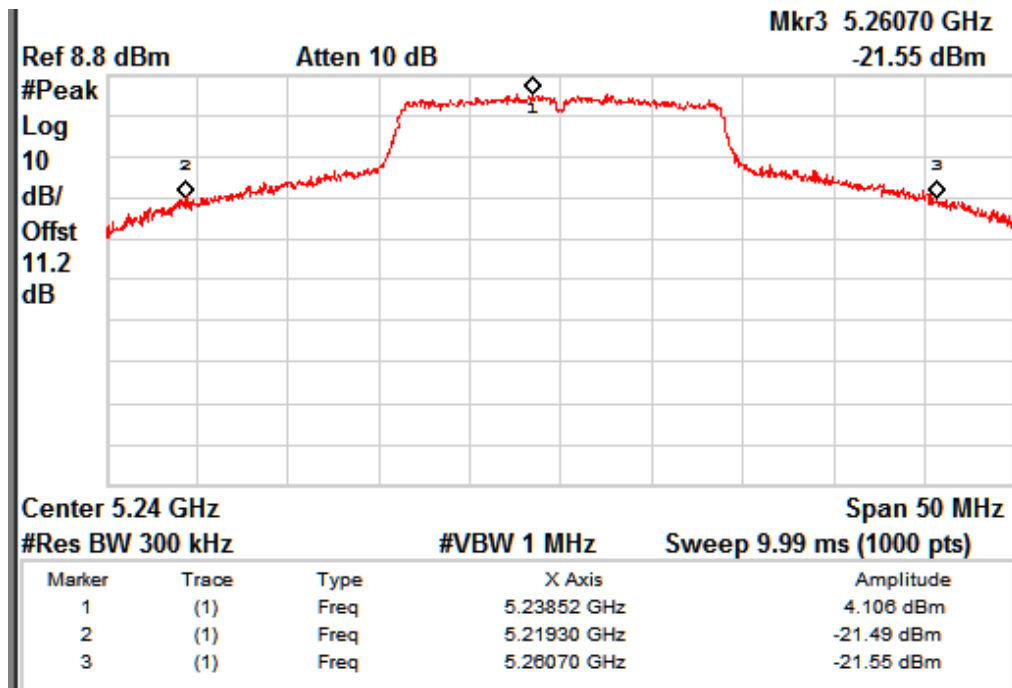
Channel Frequency: 5180MHz

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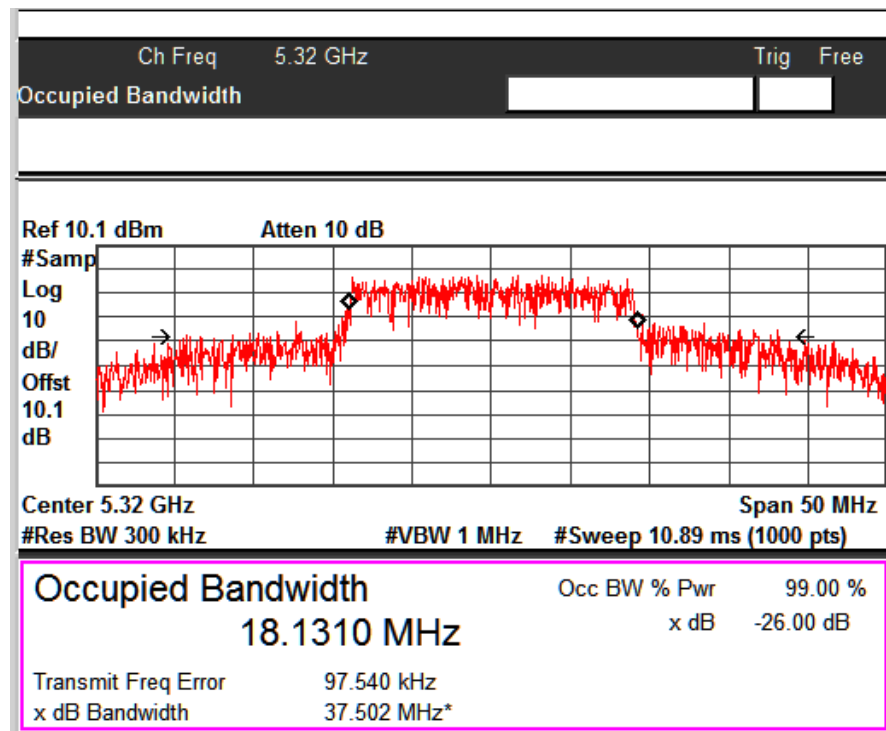
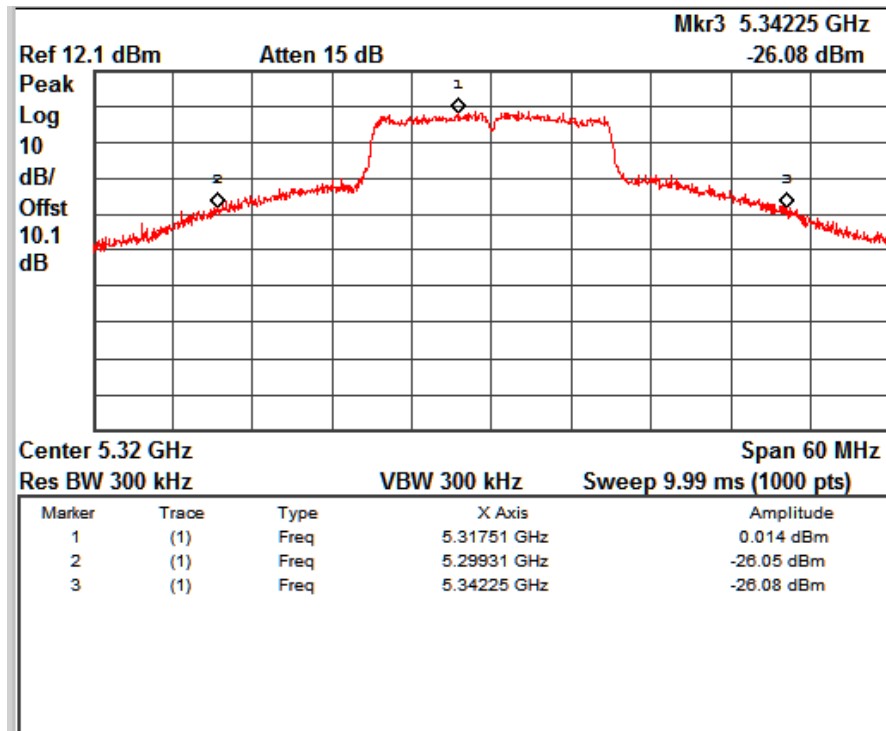
Data Rate: 39Mbps

Channel Frequency: 5200MHz



Data Rate: 39Mbps

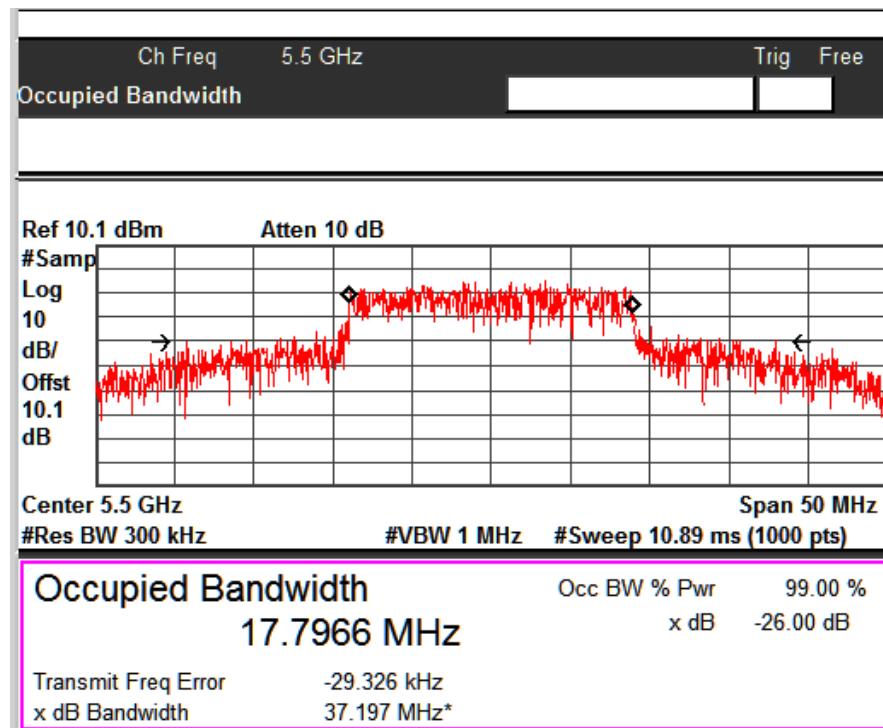
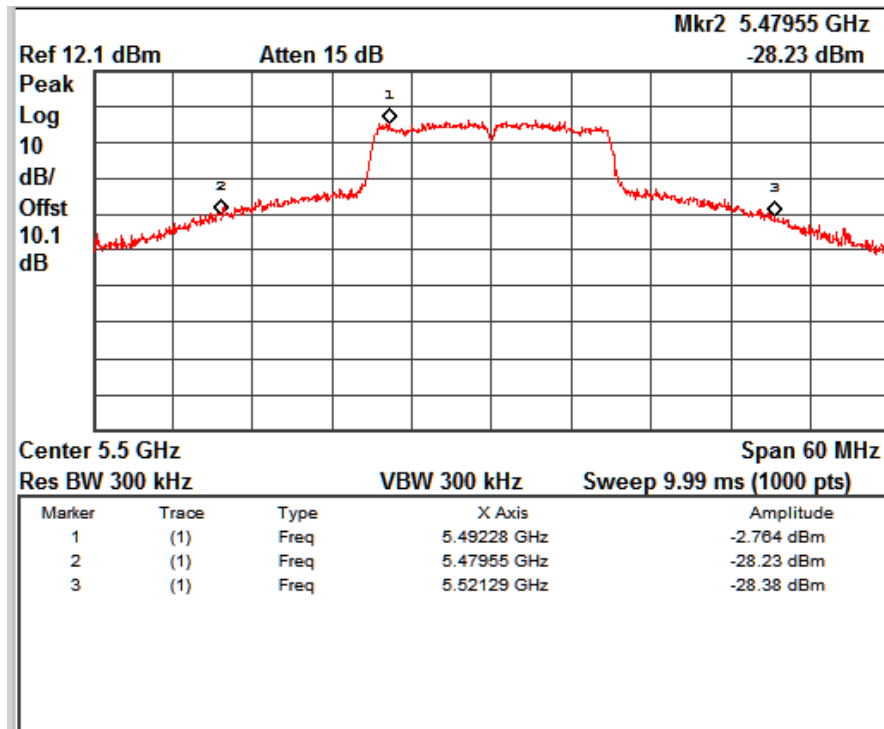
Channel Frequency: 5240MHz



Data Rate: 39Mbps

Channel Frequency: 5320MHz

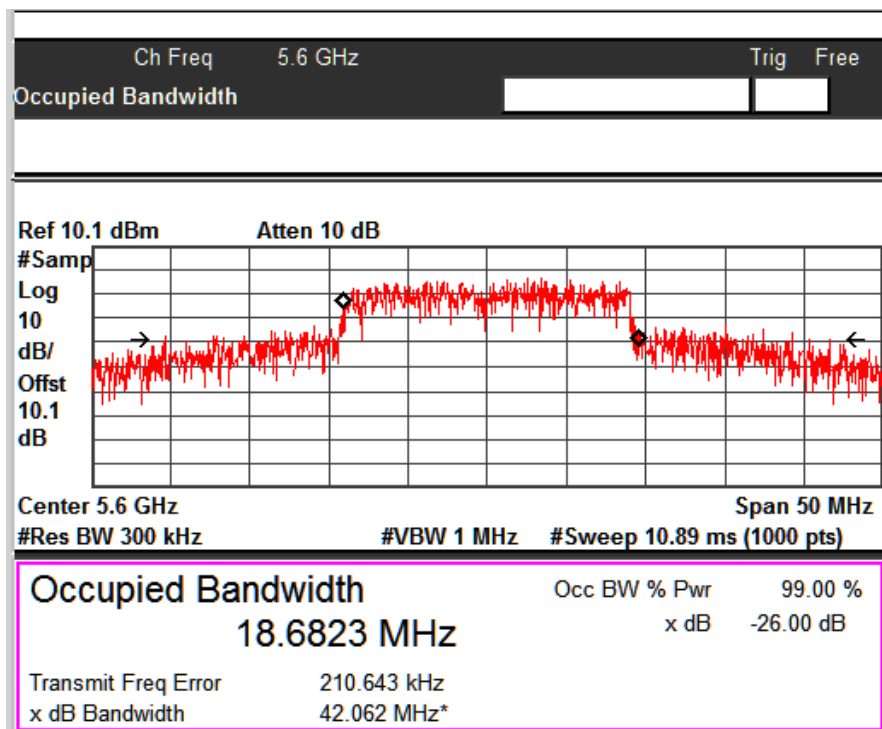
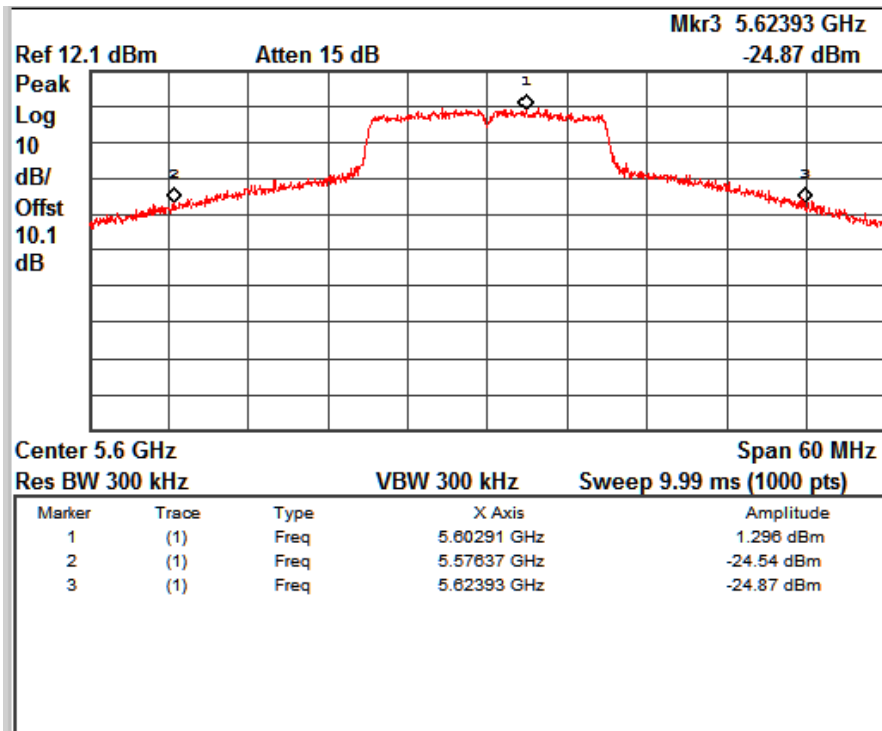
www.tuv.com



Data Rate: 39Mbps

Channel Frequency: 5500MHz

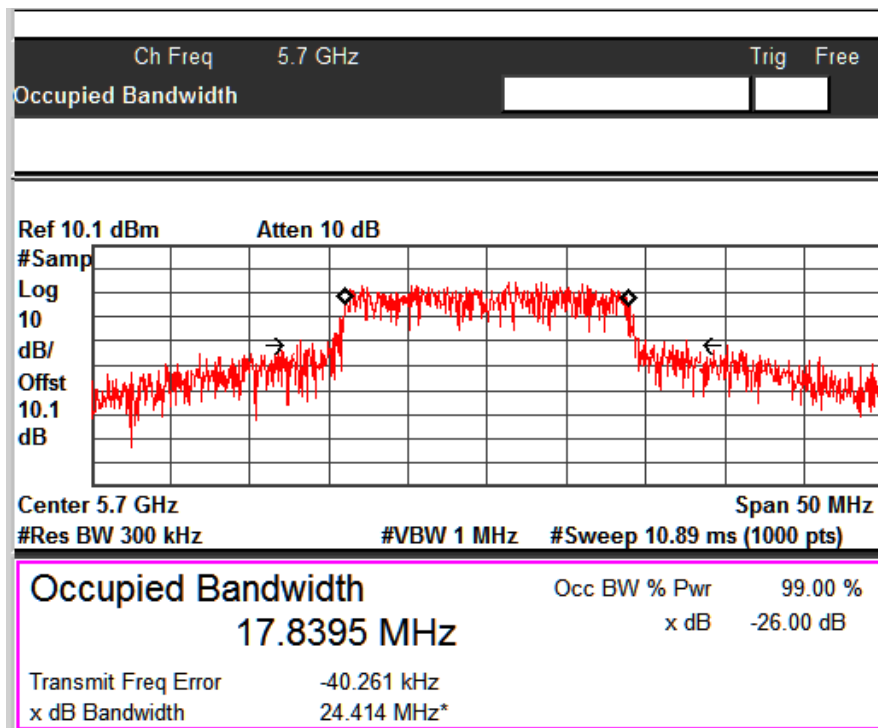
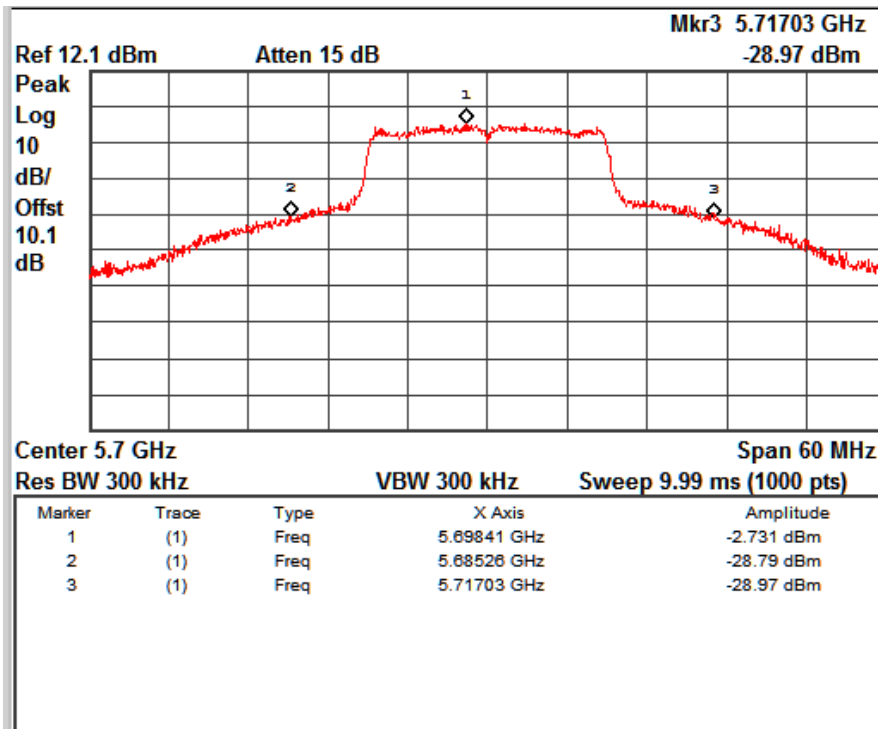
www.tuv.com



Data Rate: 39Mbps

Channel Frequency: 5600MHz

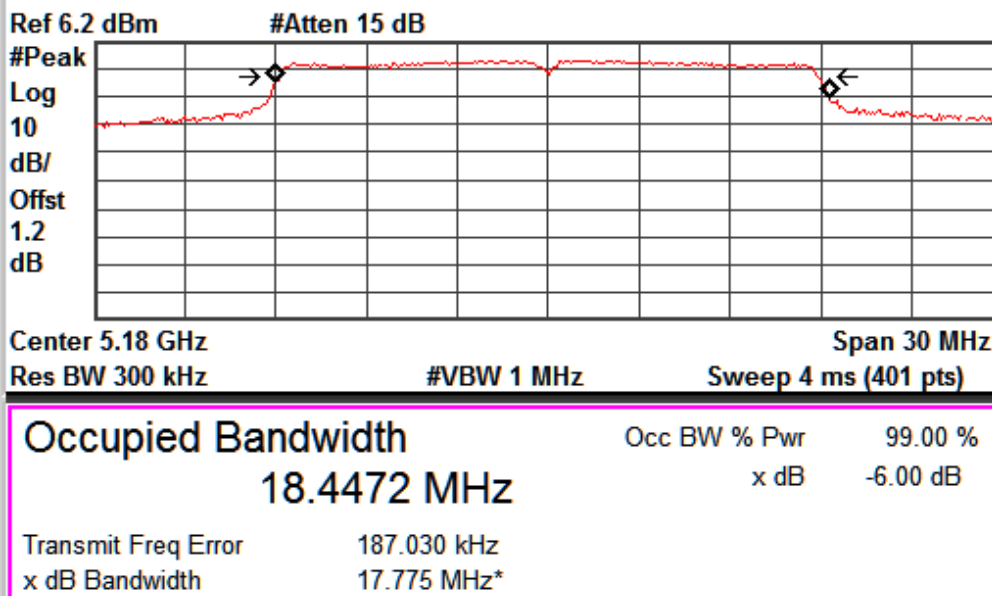
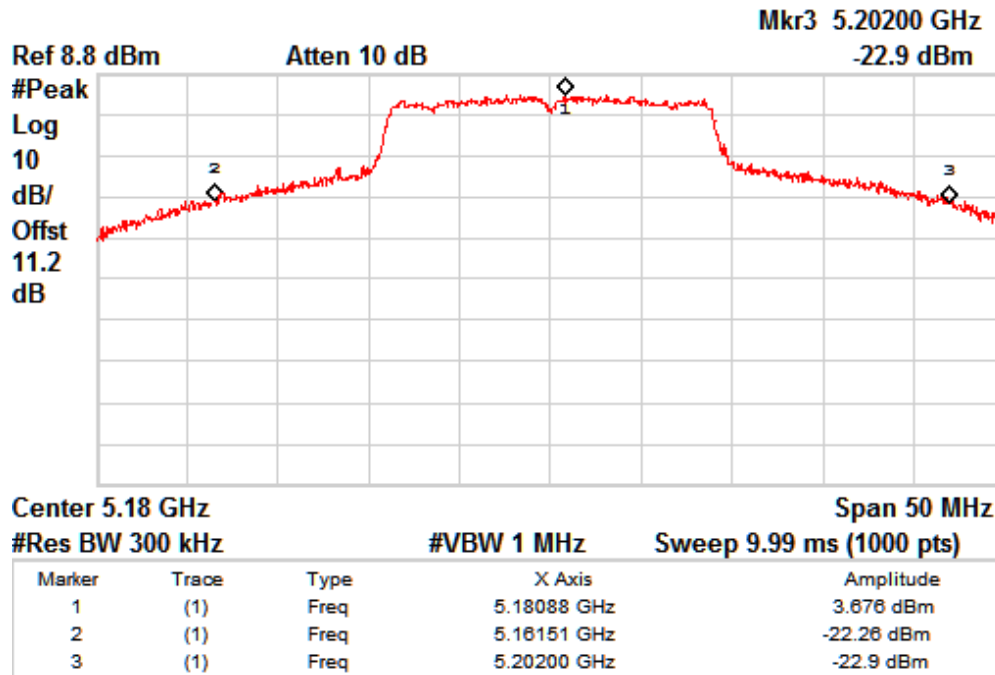
www.tuv.com



Data Rate: 39Mbps

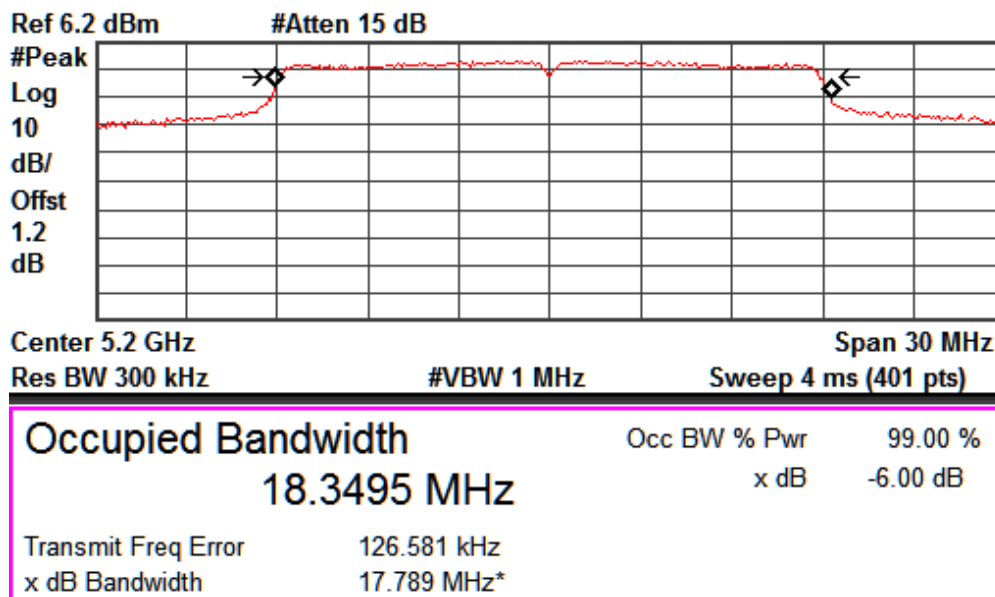
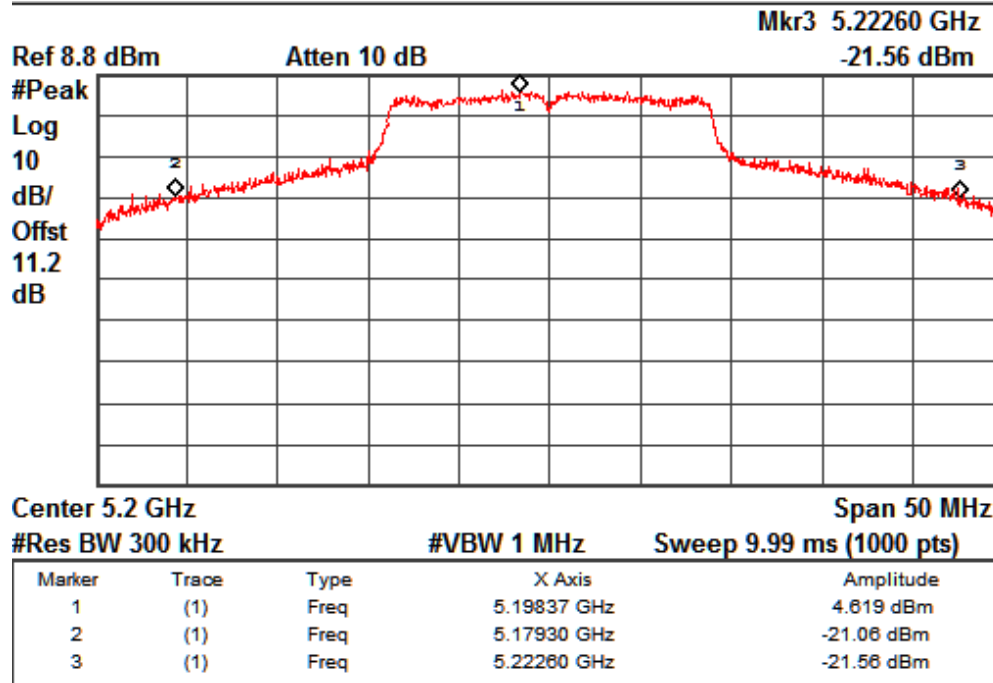
Channel Frequency: 5700MHz

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Data Rate: 65Mbps

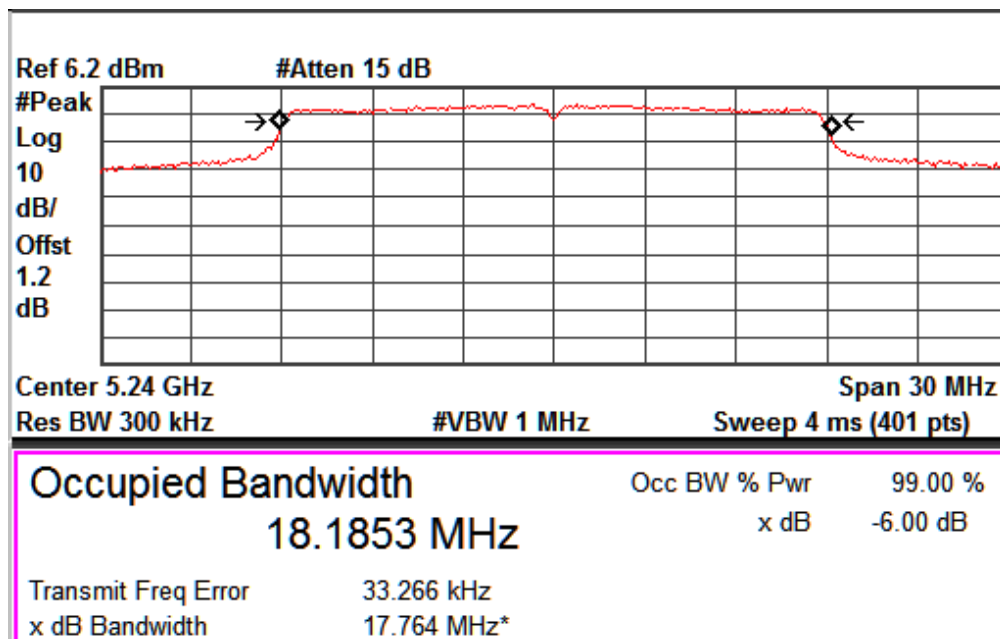
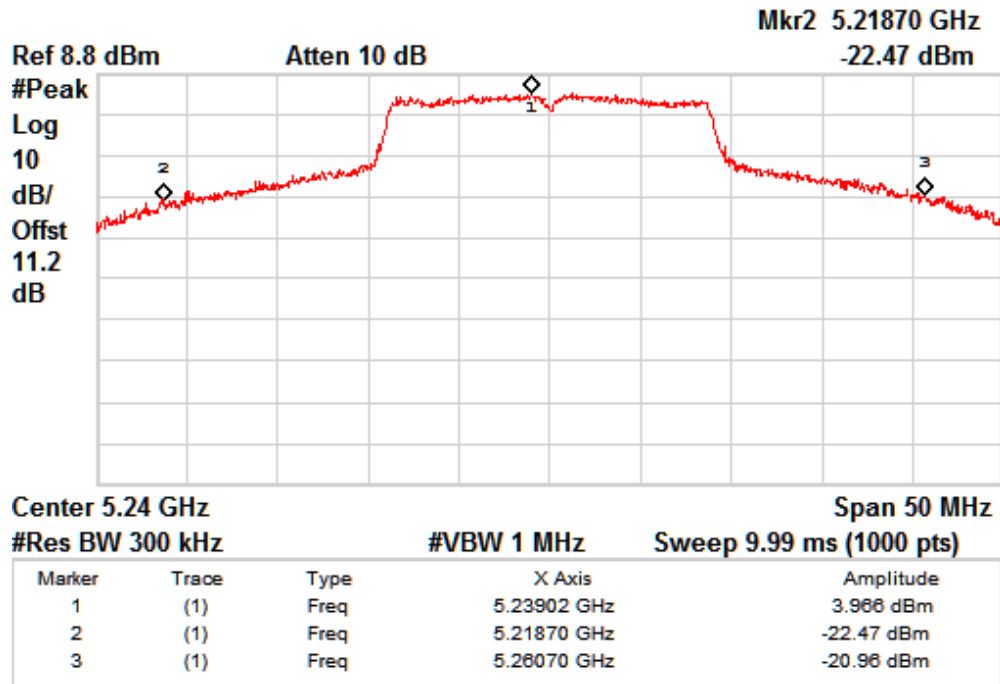
Channel Frequency: 5180MHz



Data Rate: 65Mbps

Channel Frequency: 5200MHz

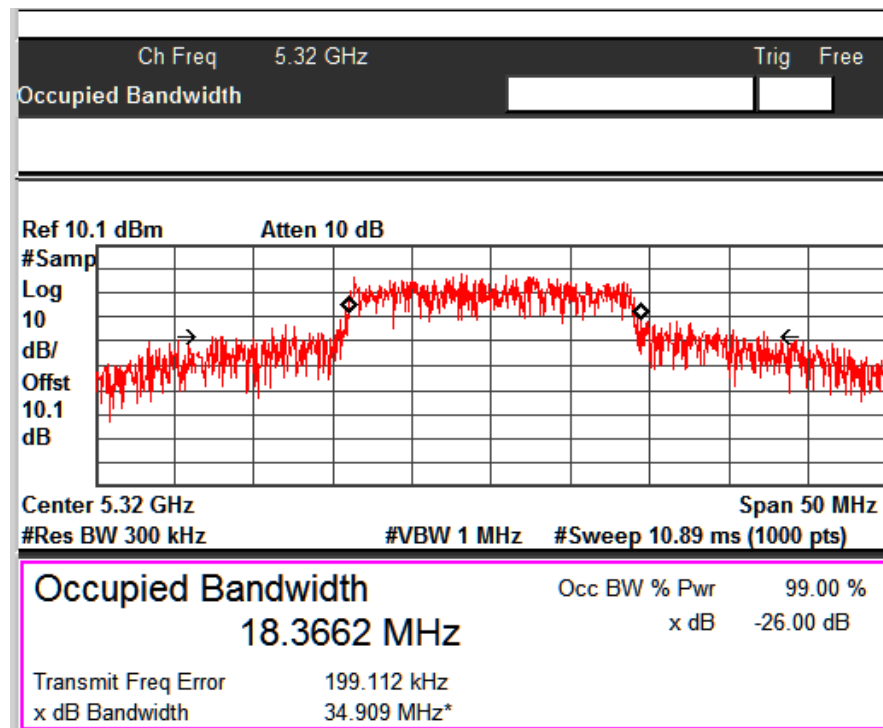
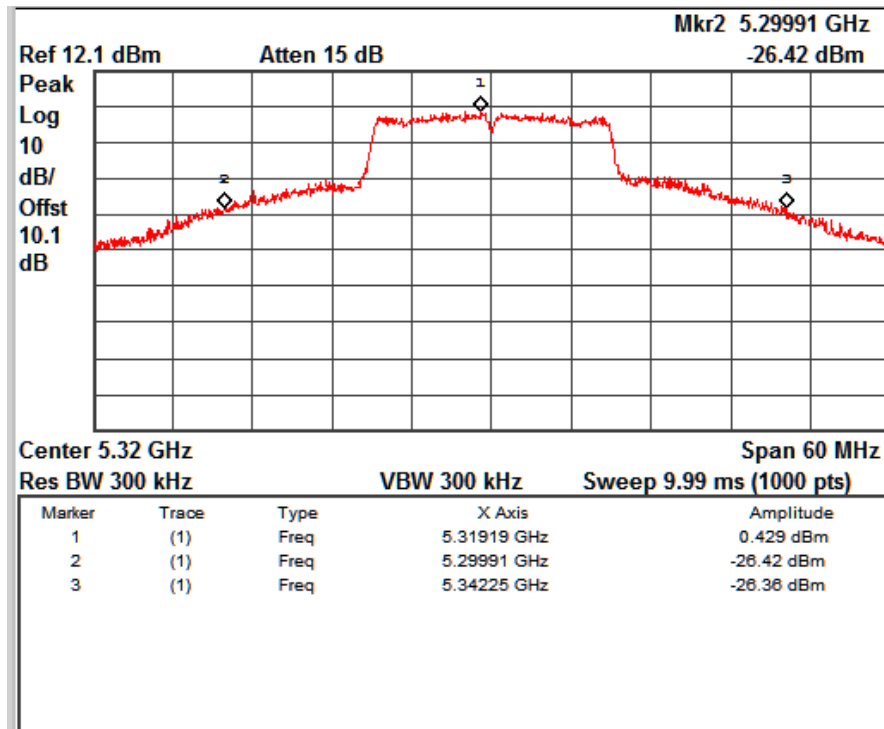
www.tuv.com



Data Rate: 65Mbps

Channel Frequency: 5240MHz

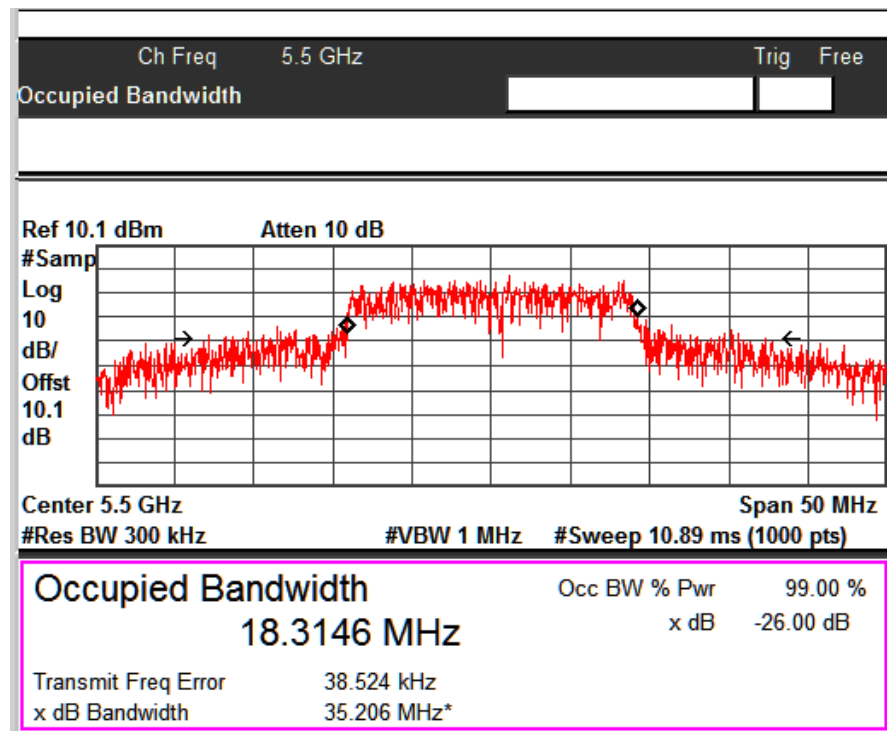
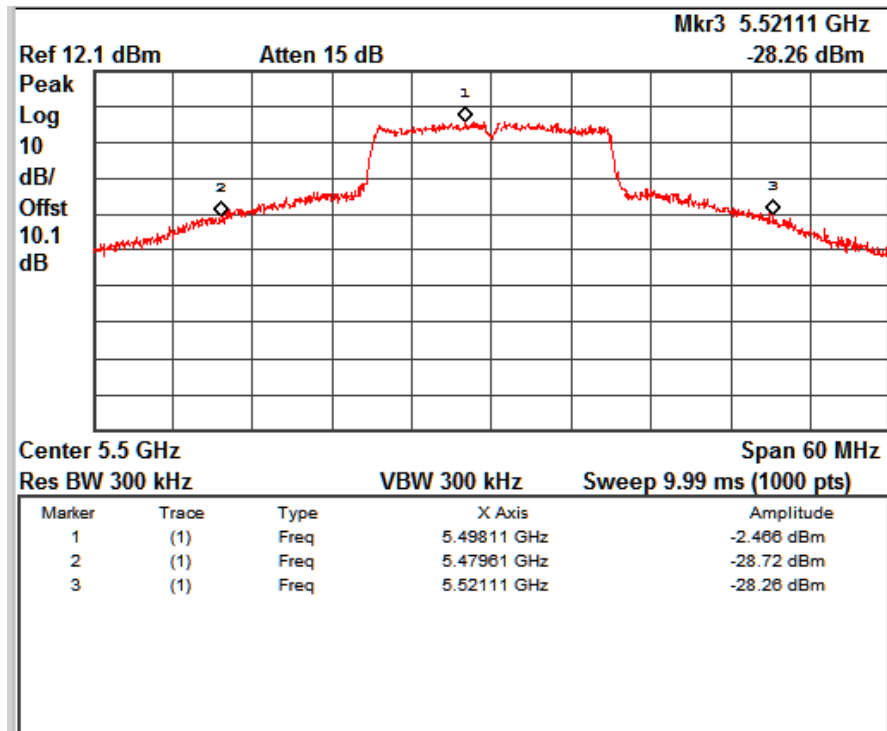
www.tuv.com



Data Rate: 65Mbps

Channel Frequency: 5320MHz

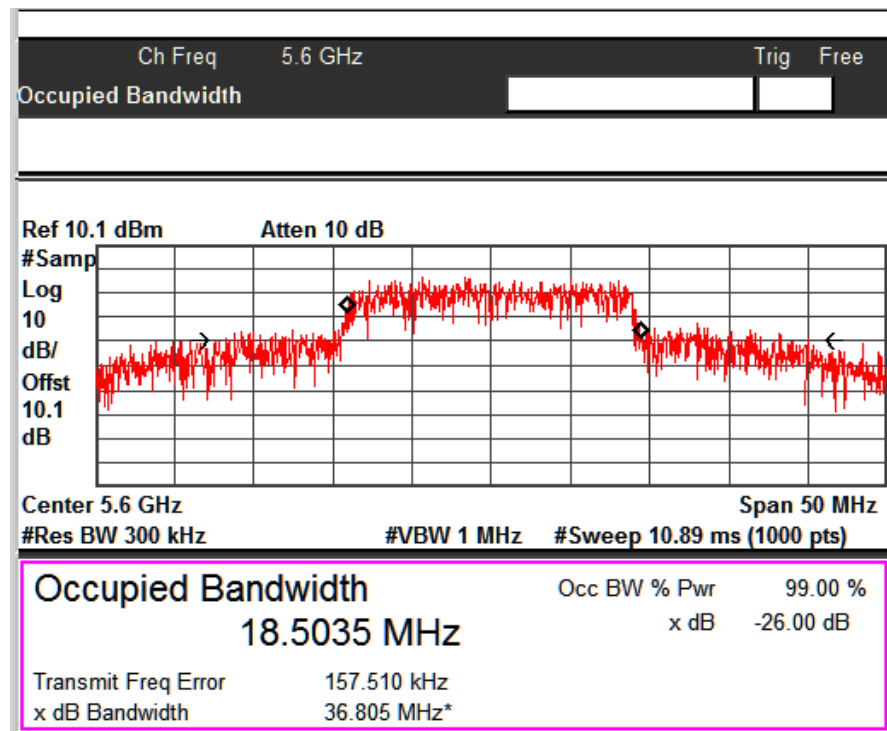
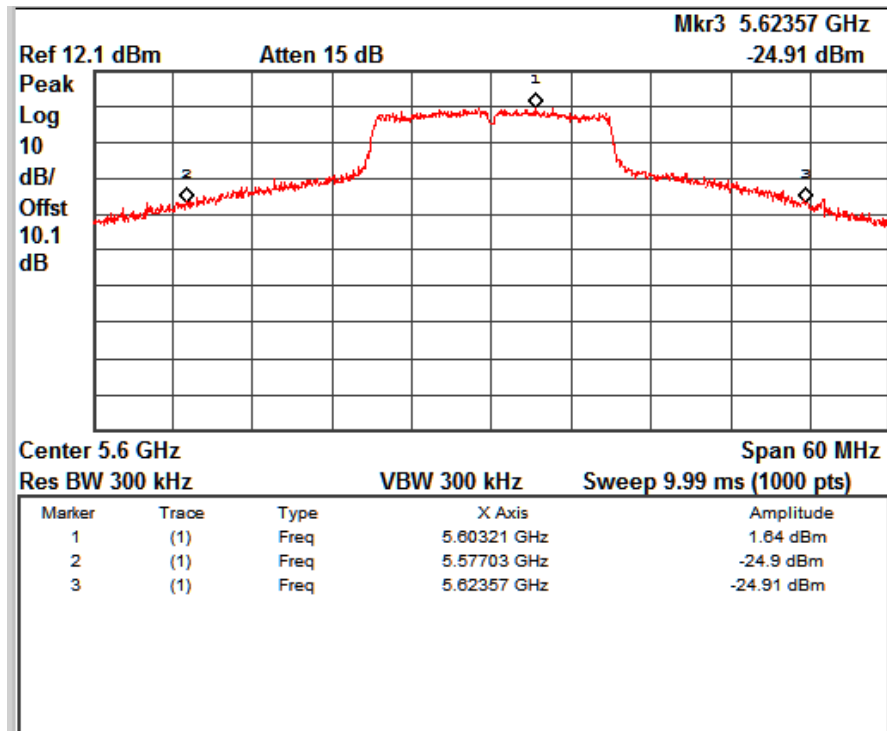
www.tuv.com



Data Rate: 65Mbps

Channel Frequency: 5500MHz

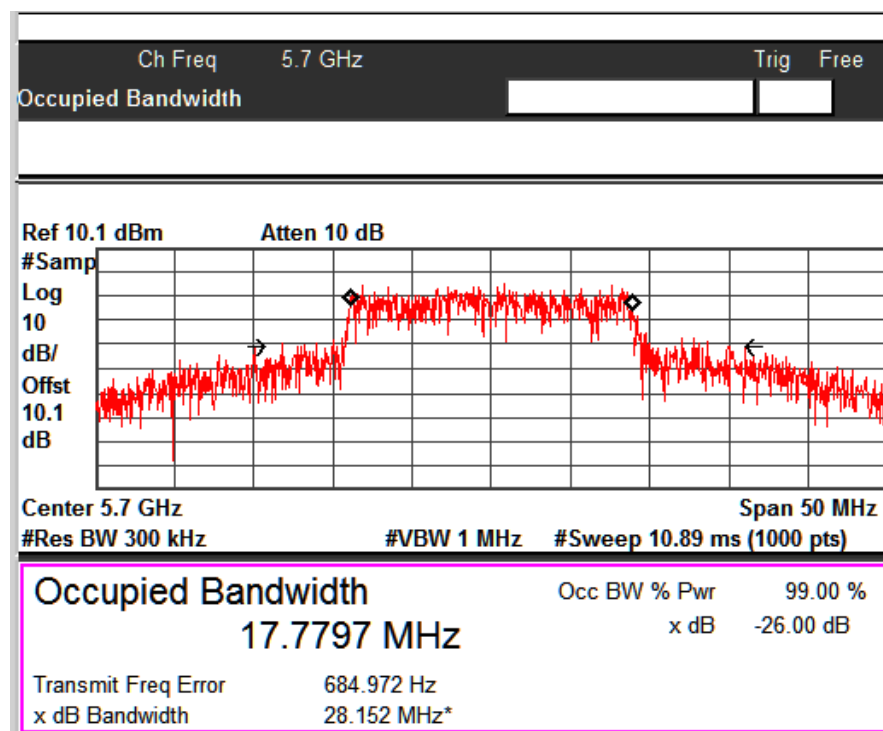
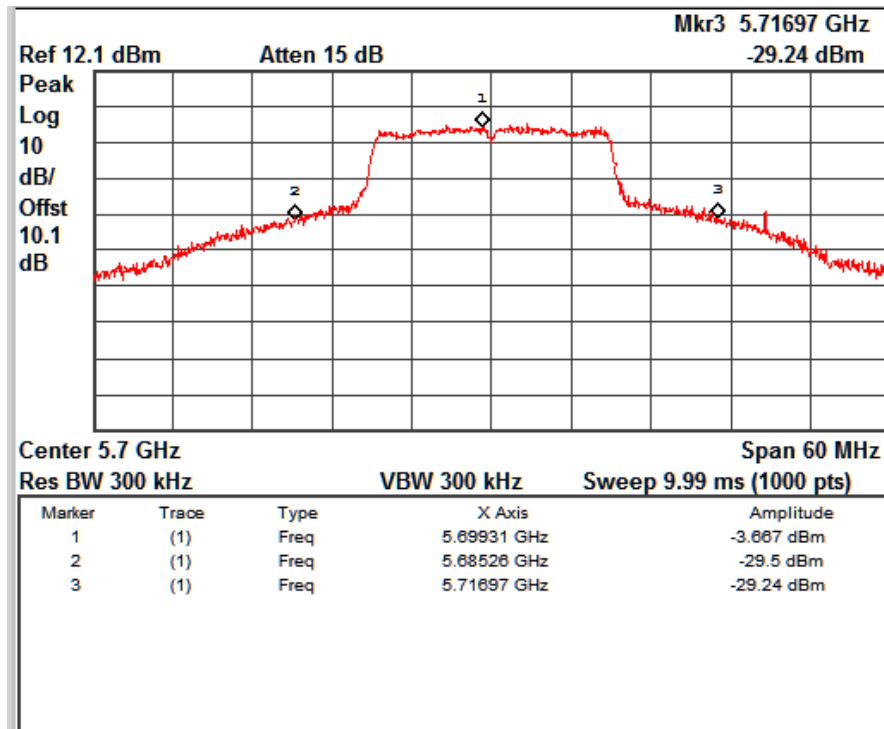
www.tuv.com



Data Rate: 65Mbps

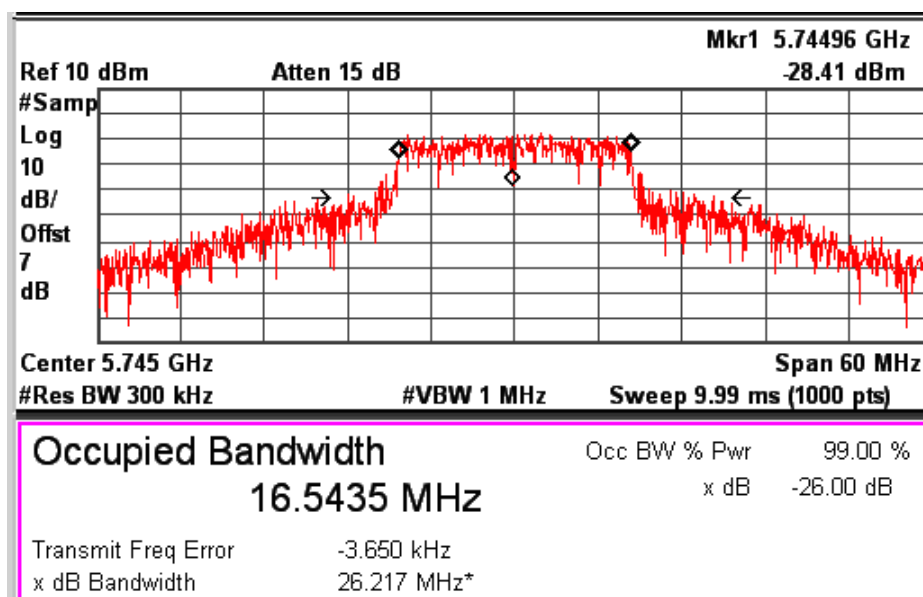
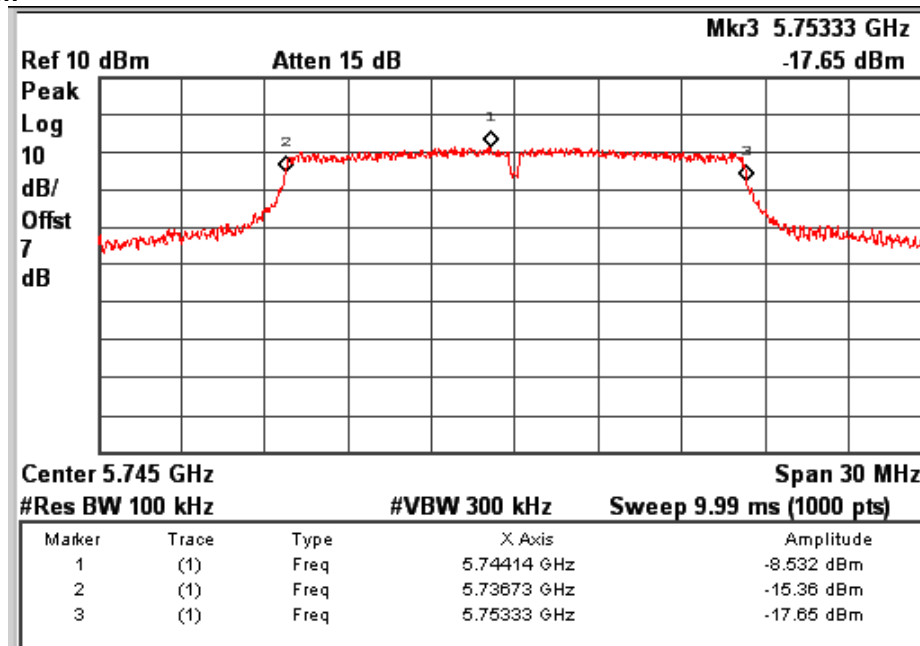
Channel Frequency: 5600MHz

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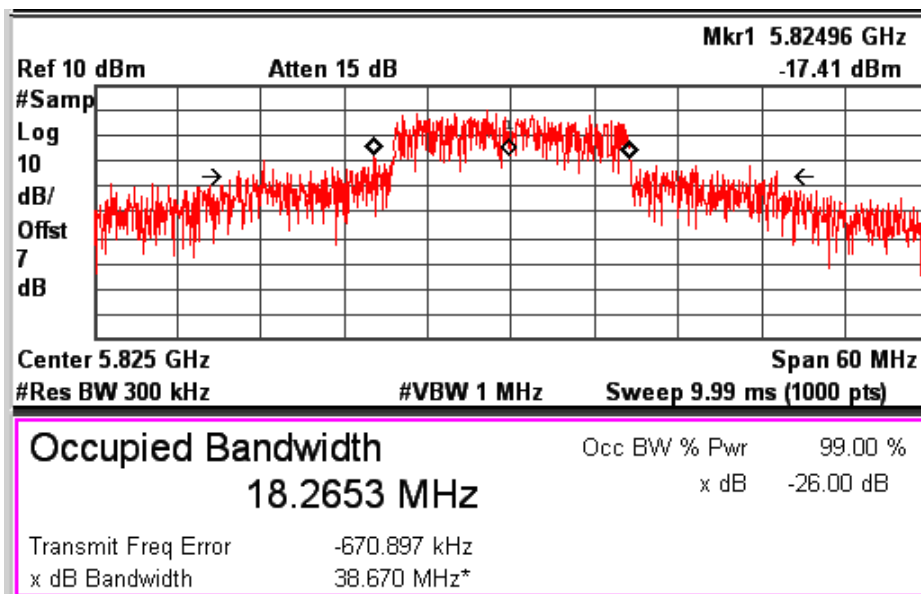
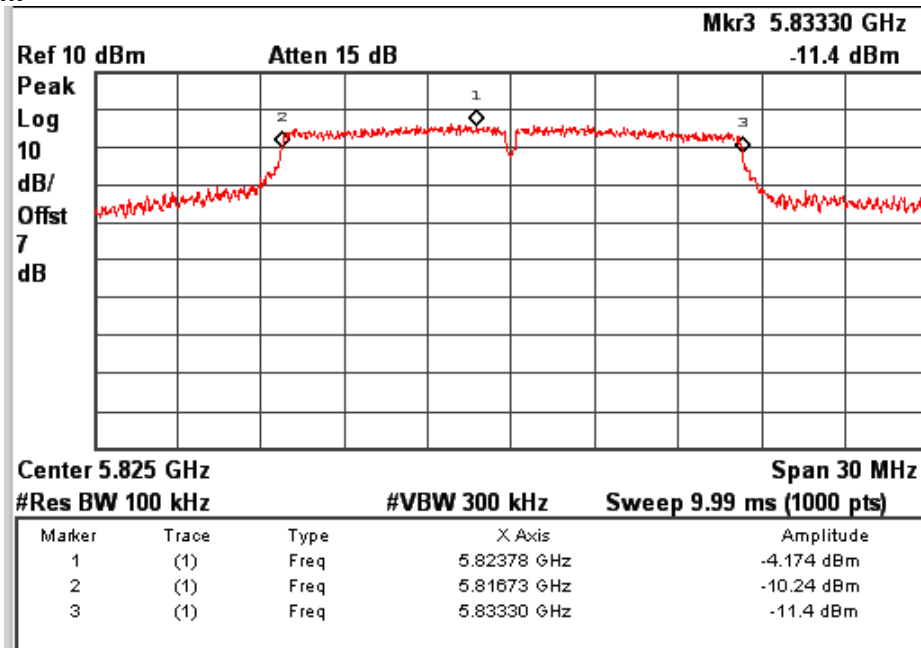
Data Rate: 65Mbps

Channel Frequency: 5700MHz



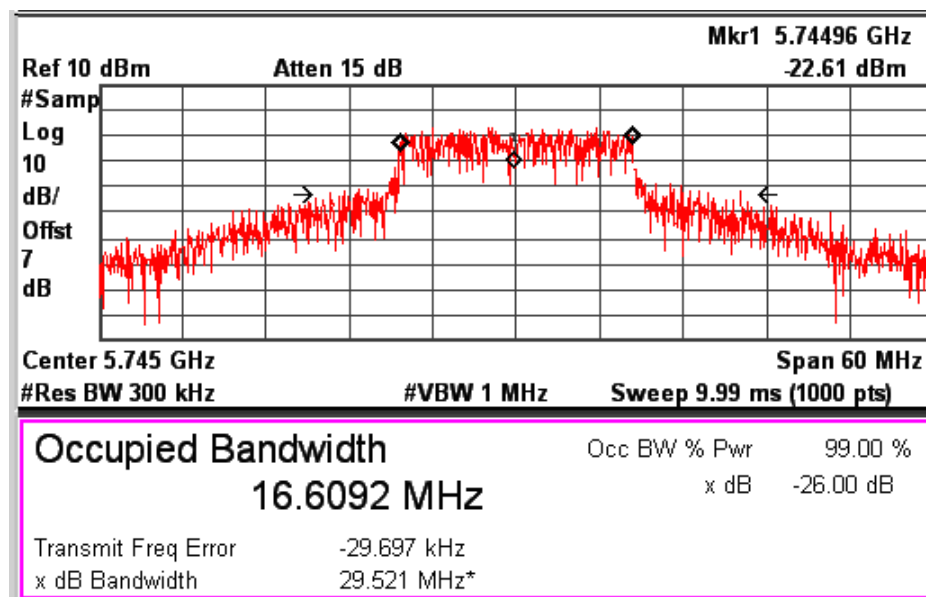
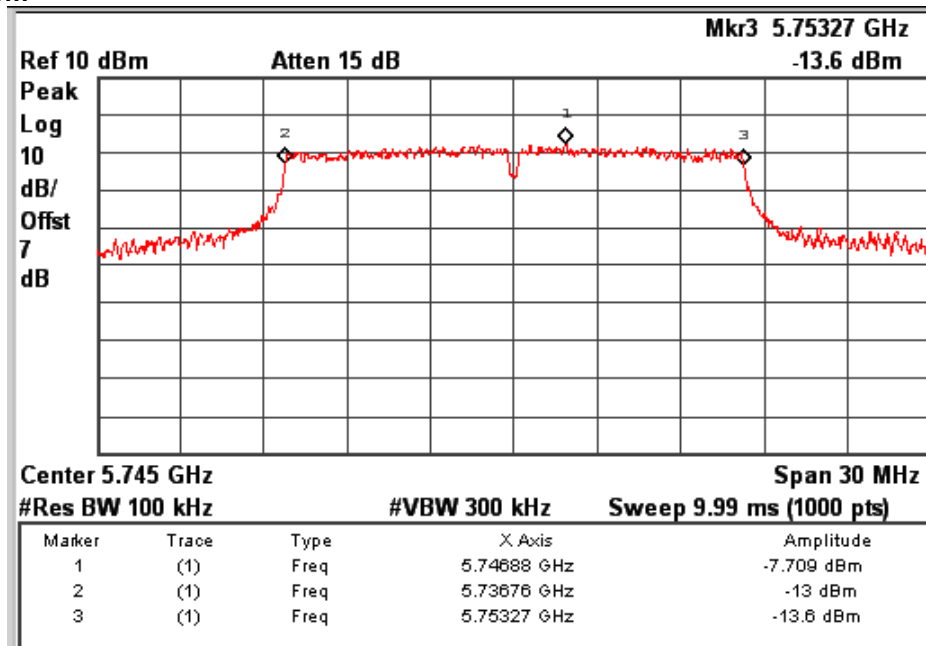
Data Rate: 6 Mbps

Channel Frequency: 5745MHz



Data Rate: 6 Mbps

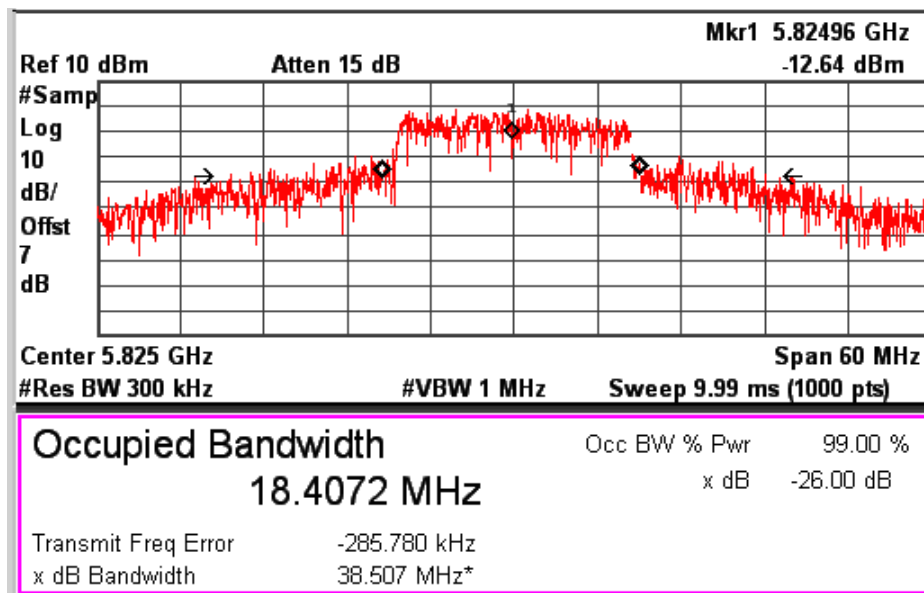
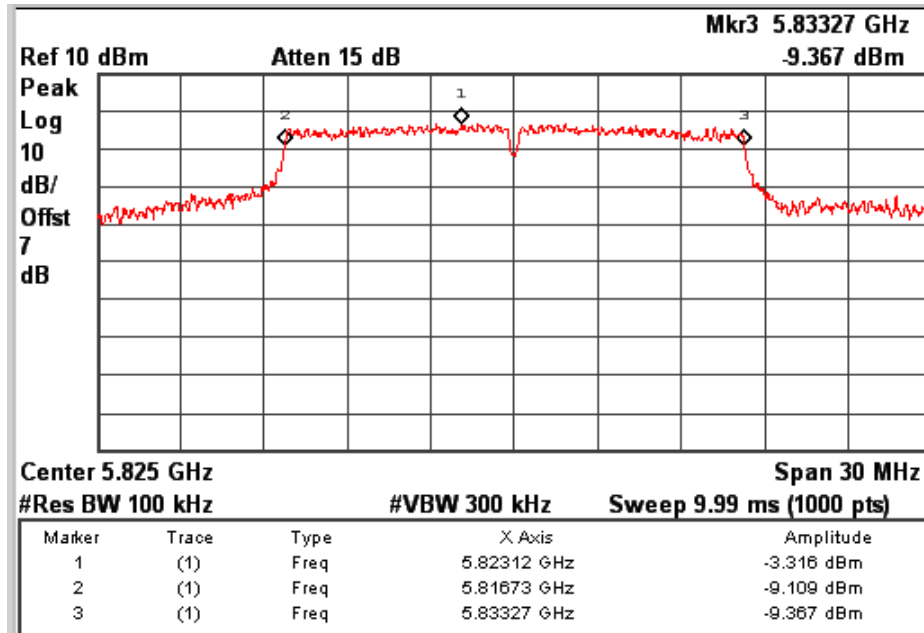
Channel Frequency: 5825MHz



Data Rate: 24 Mbps

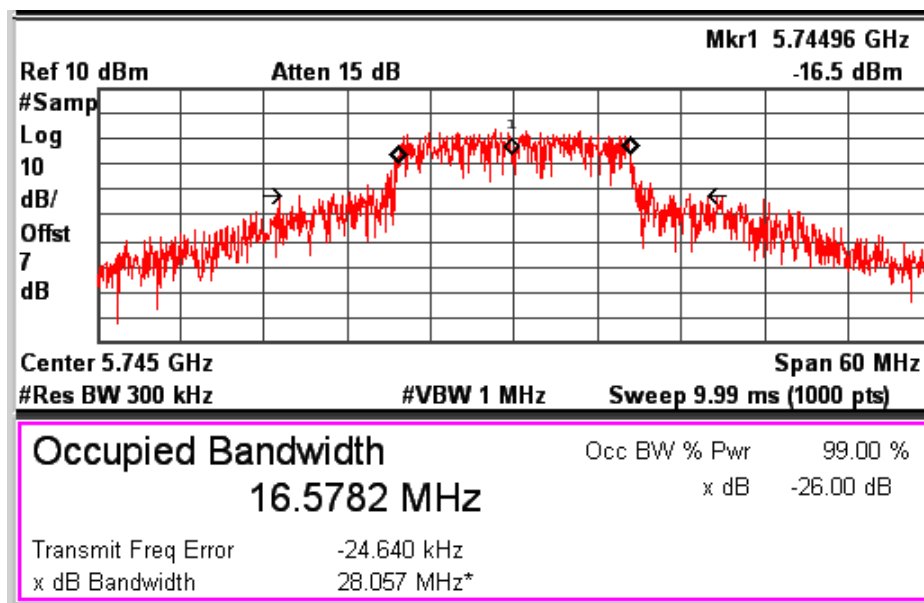
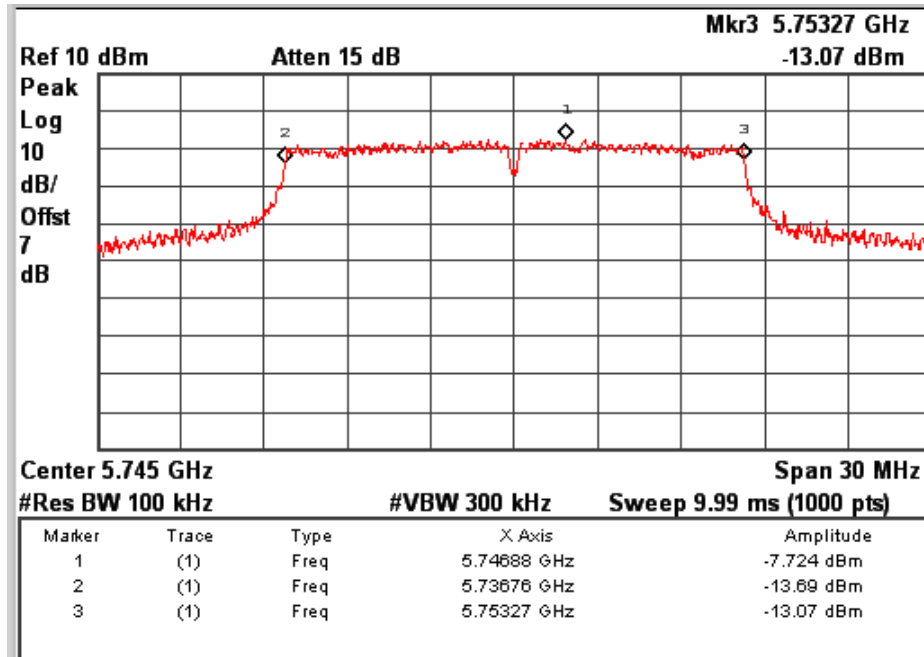
Channel Frequency: 5745MHz

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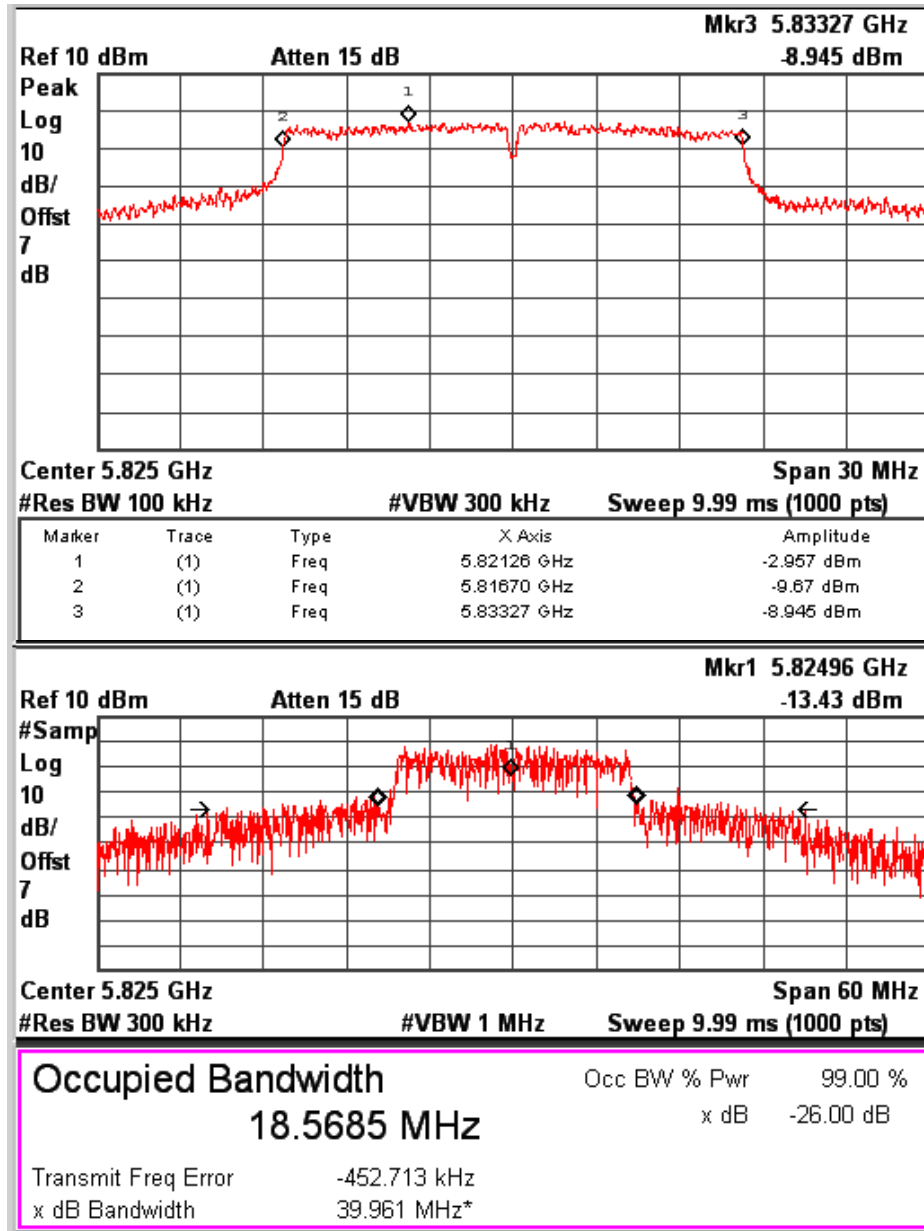
Data Rate: 24 Mbps

Channel Frequency: 5825MHz



Data Rate: 54 Mbps

Channel Frequency: 5745MHz



Data Rate: 54 Mbps

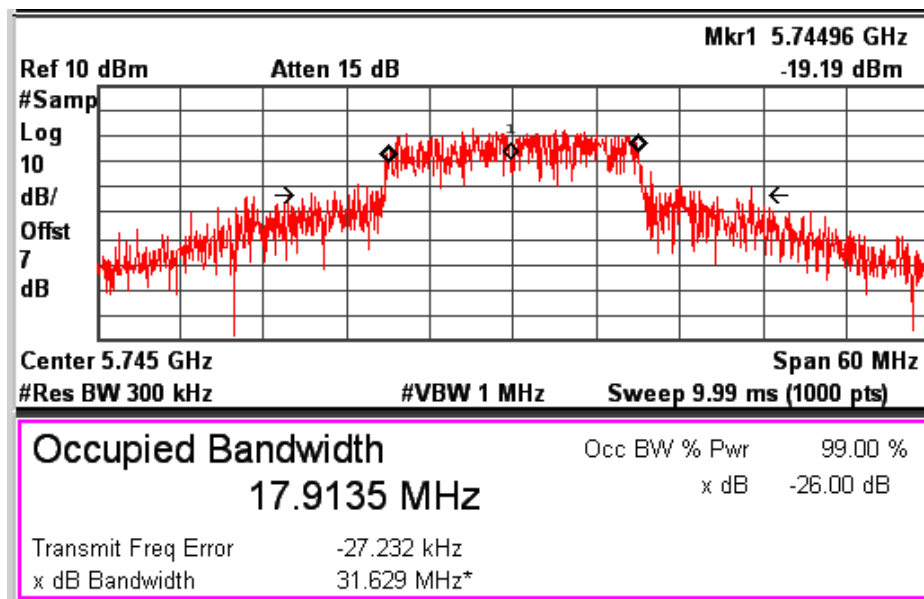
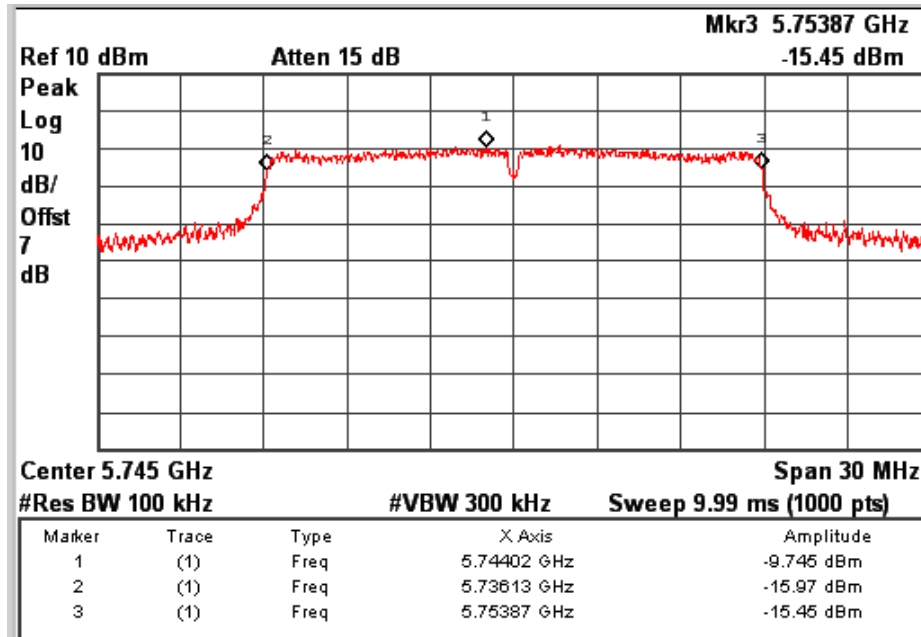
Channel Frequency: 5825MHz

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Modulation: 802.11n – 20MHz Channel

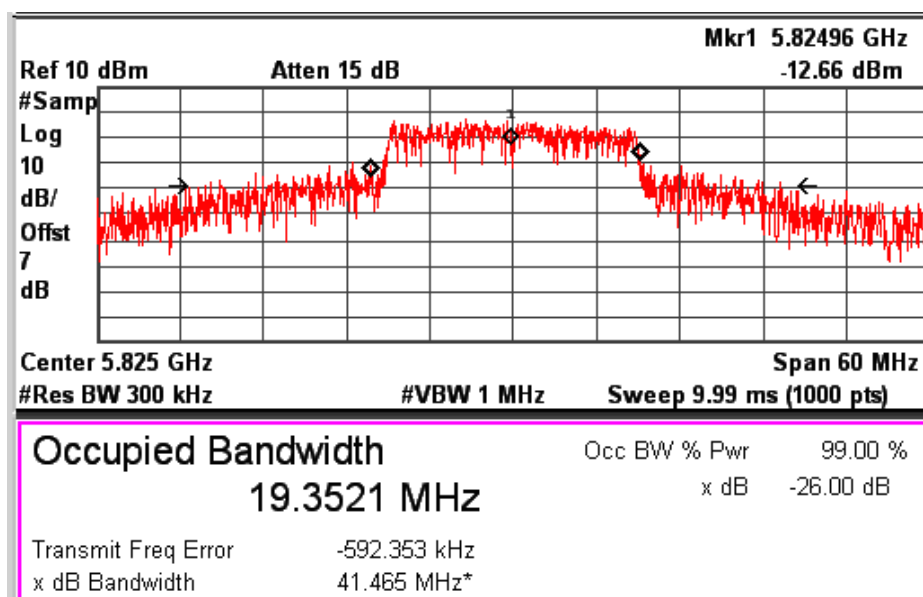
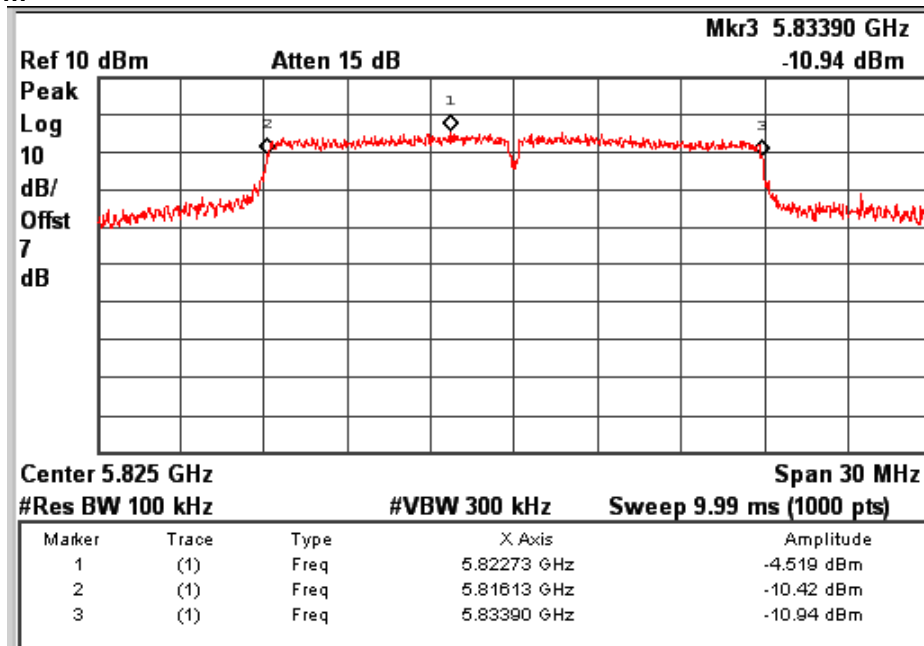
Data Rate	Channel. No	Frequency (MHz)	EBW (MHz)	OBW (MHz)
6.5Mbps	149	5745	17.74	17.91
	165	5825	17.77	19.35
39Mbps	149	5745	17.77	17.86
	165	5825	17.74	19.27
65Mbps	149	5745	17.77	17.90
	165	5825	17.74	19.84

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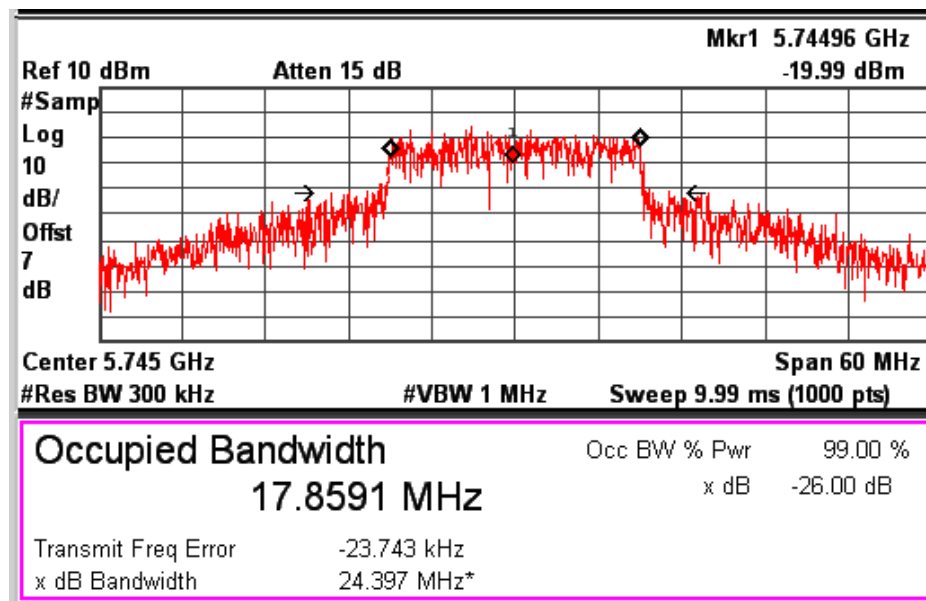
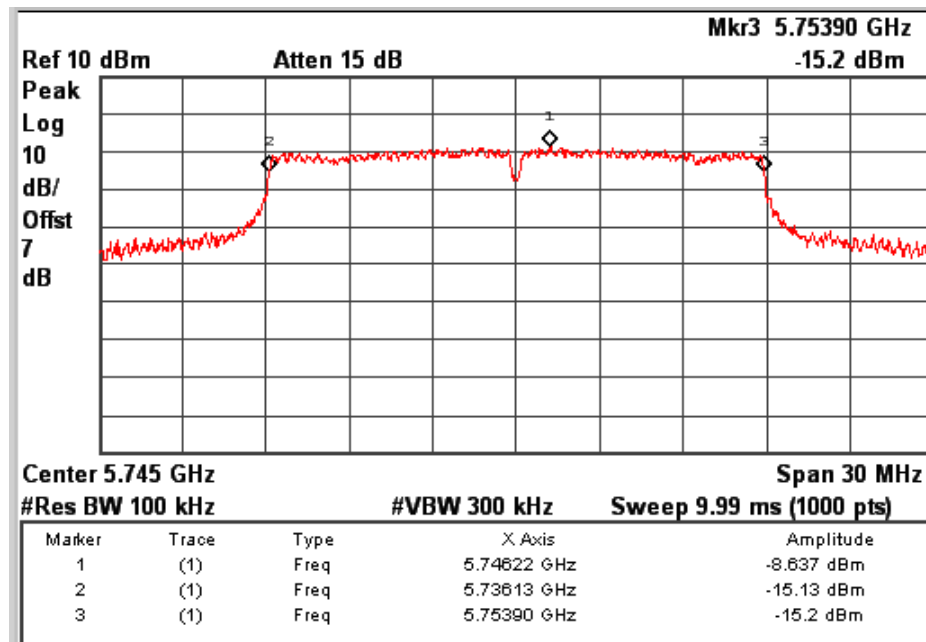
Data Rate: 6.5Mbps

Channel Frequency: 5745MHz



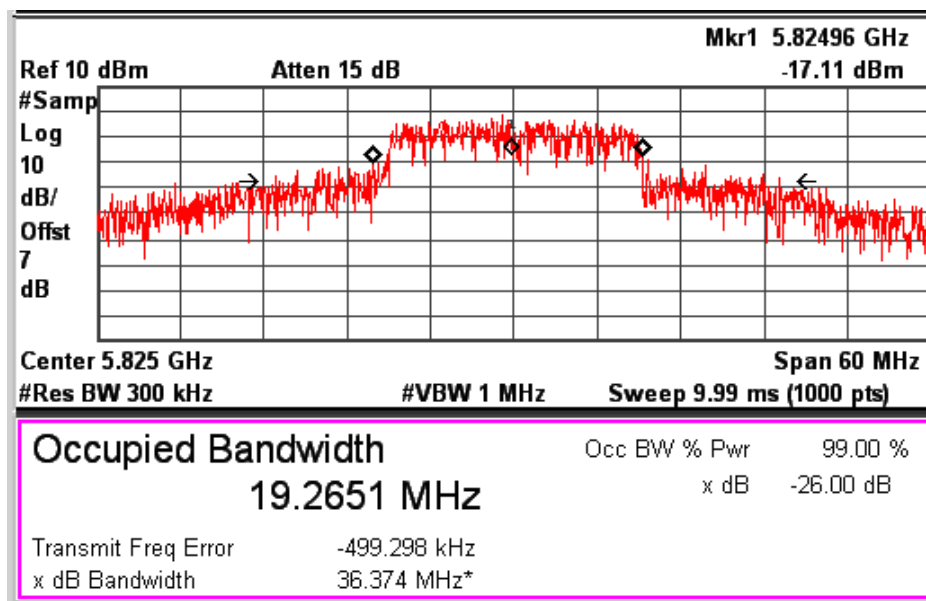
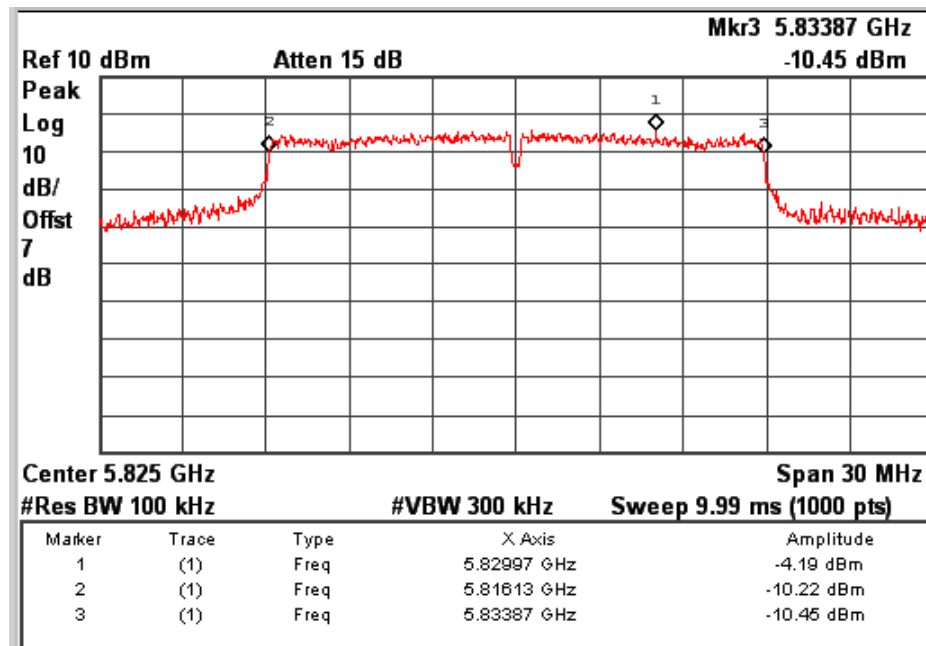
Data Rate: 6.5Mbps

Channel Frequency: 5825MHz



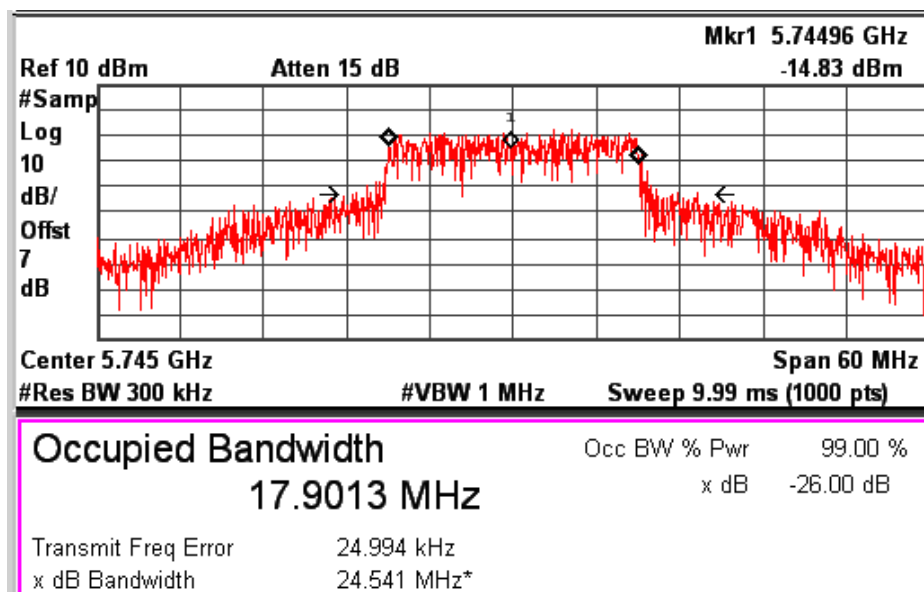
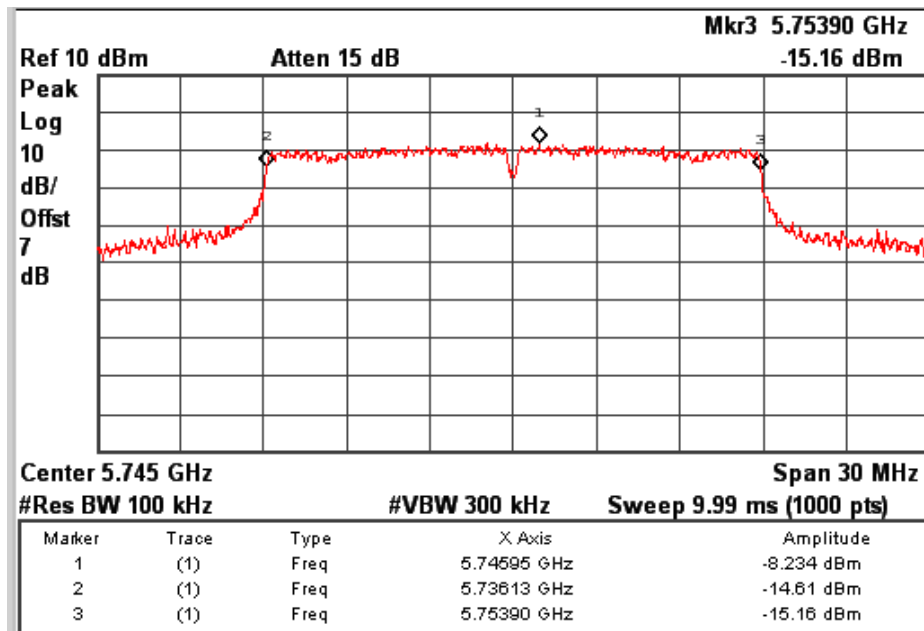
Data Rate: 39Mbps

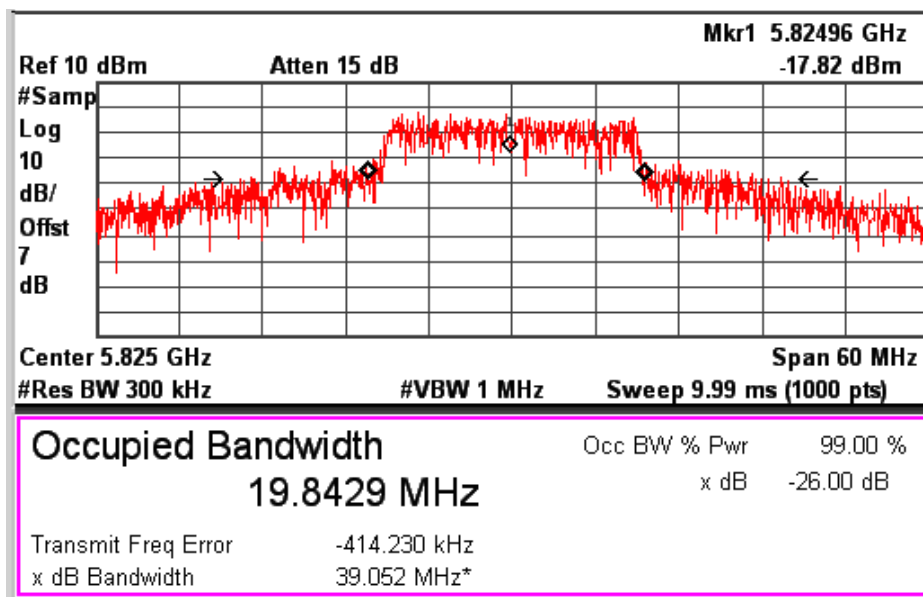
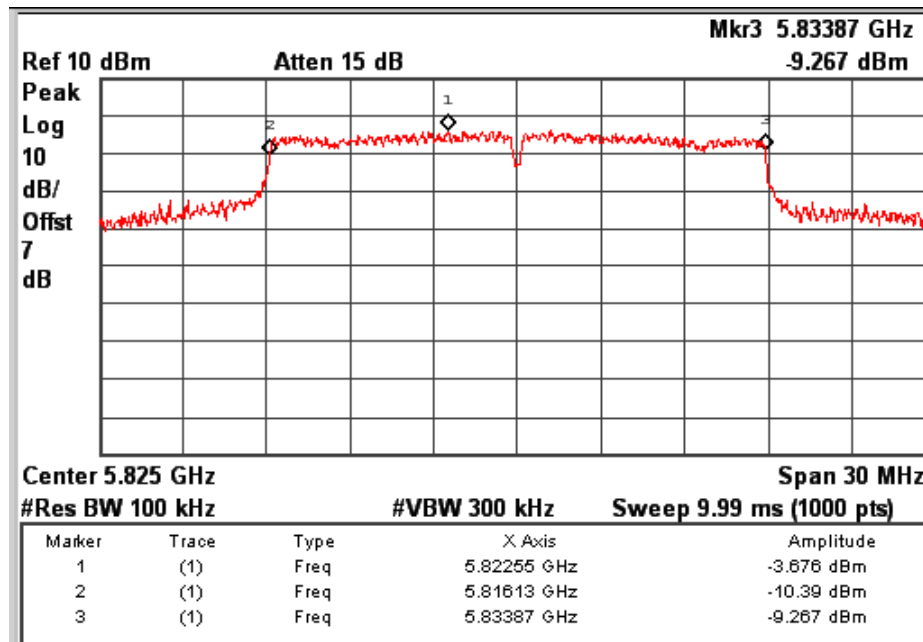
Channel Frequency: 5745MHz



Data Rate: 39Mbps

Channel Frequency: 5825MHz


Data Rate: 65Mbps
Channel Frequency: 5745MHz



Data Rate: 65Mbps

Channel Frequency: 5825MHz

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**Maximum conducted output power
Result**

**Section 15.407(a)
Pass**

Test Specification

FCC Part 15 Subpart E

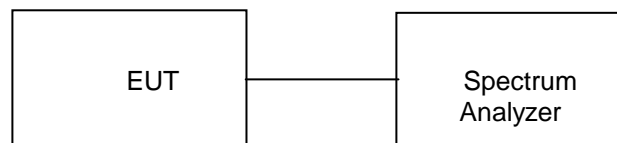
Measurement Bandwidth (RBW)

1 MHz

Requirement

For the band 5150 - 5350 MHz, 5470 – 5725 MHz, 5725 – 5850 MHz, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 50 mW or 4dBm + 10log B, where B is the 26- dB emission bandwidth in MHz

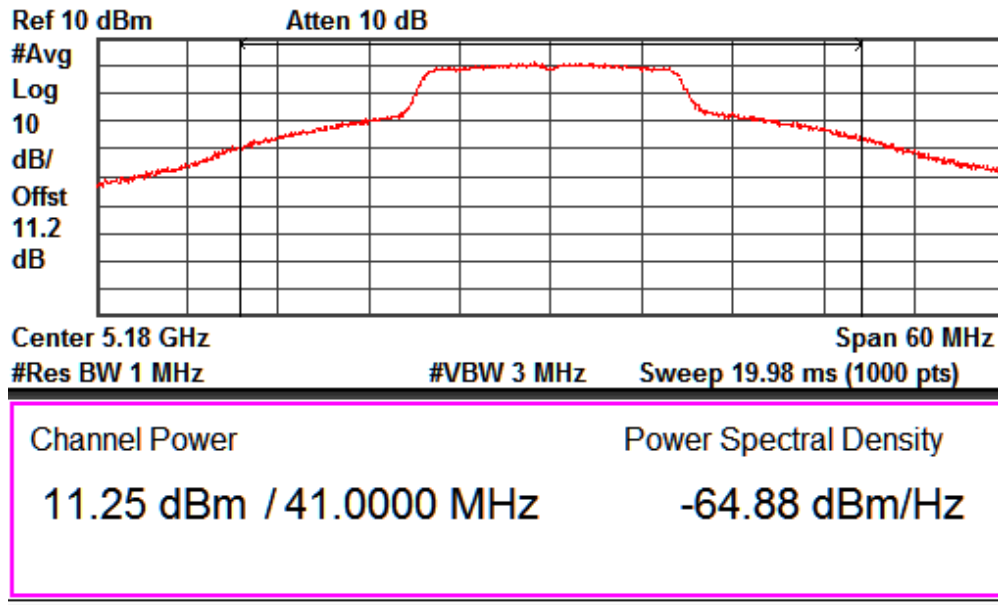
Test Method:



Test Result:

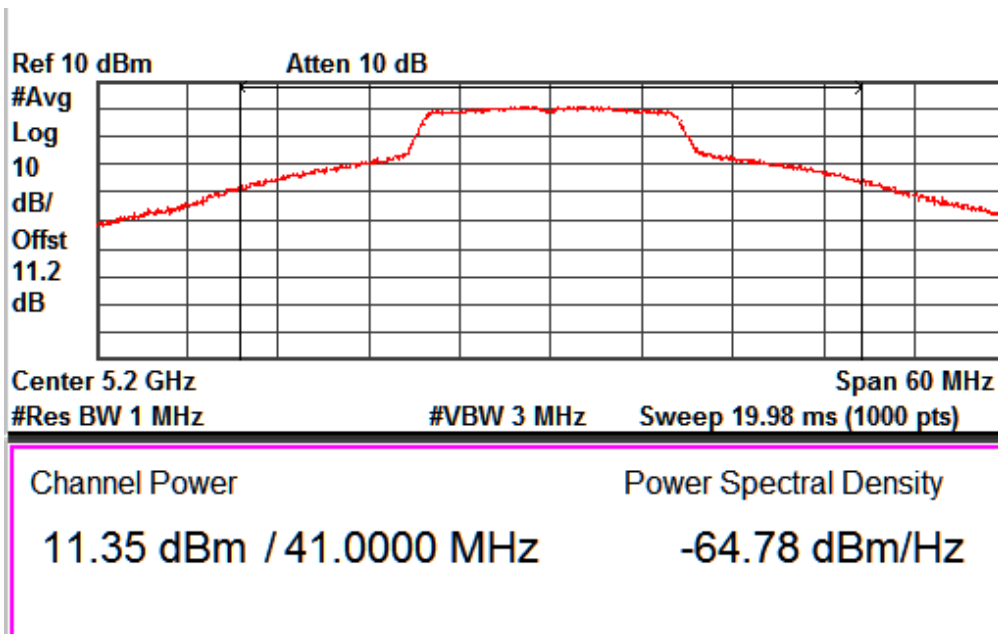
Modulation: 802.11a

Data Rate (Mbps)	Channel No.	Frequency (MHz)	Output power (dBm)	Limit (dBm)	Margin (dB)
6	36	5180	11.25	23.00	-11.75
	40	5200	11.35	23.00	-11.65
	48	5240	10.90	23.00	-12.10
	64	5320	08.50	24.00	-15.50
	100	5500	06.49	24.00	-17.51
	120	5600	07.13	24.00	-16.87
	140	5700	06.69	24.00	-17.31
	149	5745	11.13	30.00	-18.87
	165	5825	07.46	30.00	-22.54
24	36	5180	10.96	23.00	-12.04
	40	5200	11.06	23.00	-11.94
	48	5240	10.87	23.00	-12.13
	64	5320	08.62	24.00	-15.38
	100	5500	06.45	24.00	-17.55
	120	5600	07.13	24.00	-16.87
	140	5700	06.72	24.00	-17.28
	149	5745	11.15	30.00	-26.75
	165	5825	07.37	30.00	-22.63
54	36	5180	10.86	23.00	-12.14
	40	5200	11.00	23.00	-18.85
	48	5240	10.80	23.00	-12.20
	64	5320	08.42	24.00	-15.58
	100	5500	06.28	24.00	-17.72
	120	5600	07.01	24.00	-16.99
	140	5700	06.68	24.00	-17.32
	149	5745	11.20	30.00	-18.80
	165	5825	07.35	30.00	-22.65



Data Rate: 6Mbps

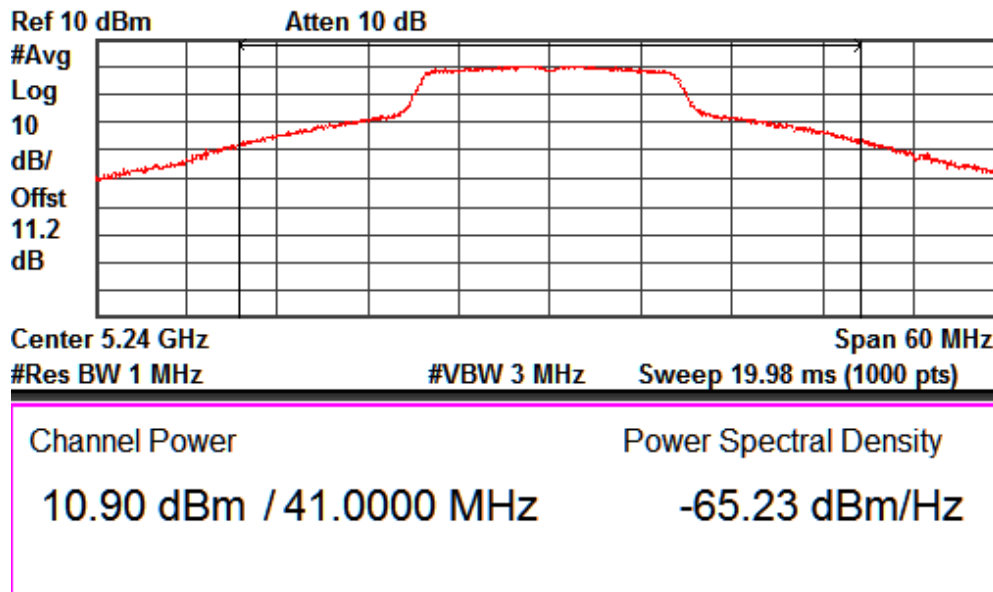
Channel Frequency: 5180MHz



Data Rate: 6Mbps

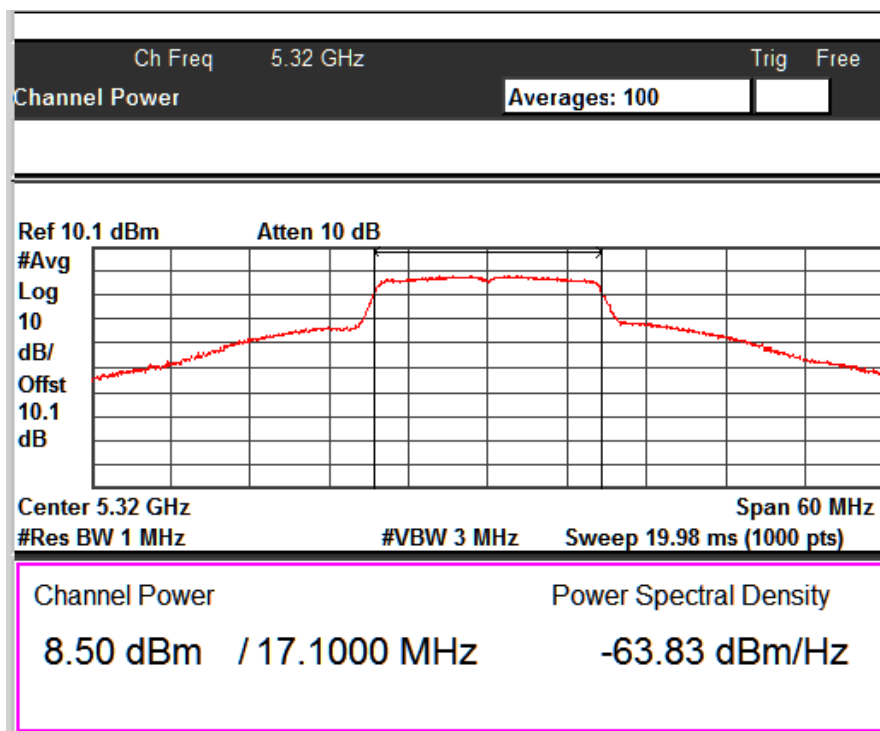
Channel Frequency: 5200MHz

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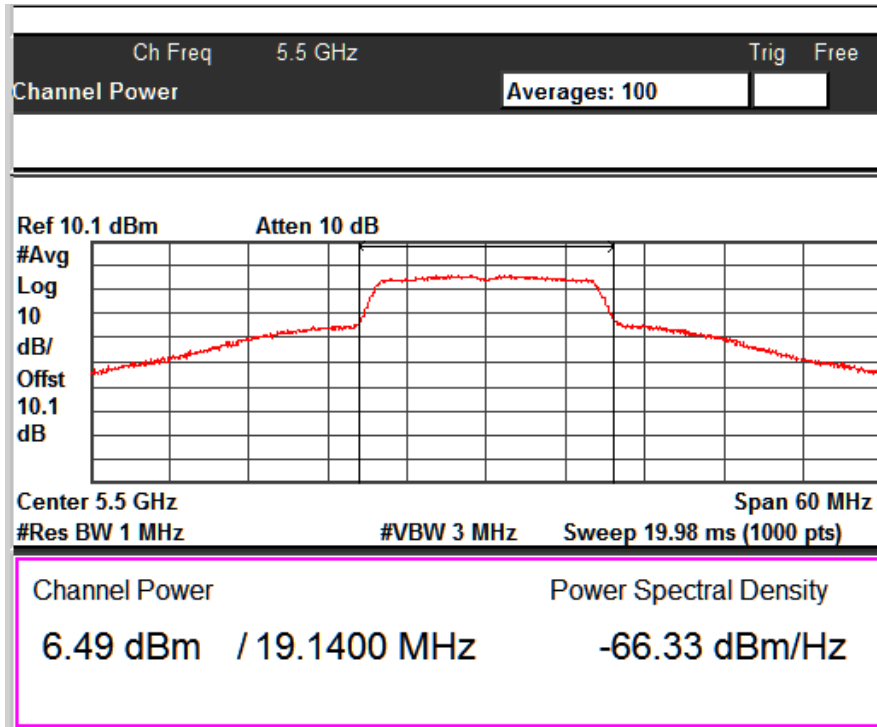
Data Rate: 6Mbps

Channel Frequency: 5240MHz



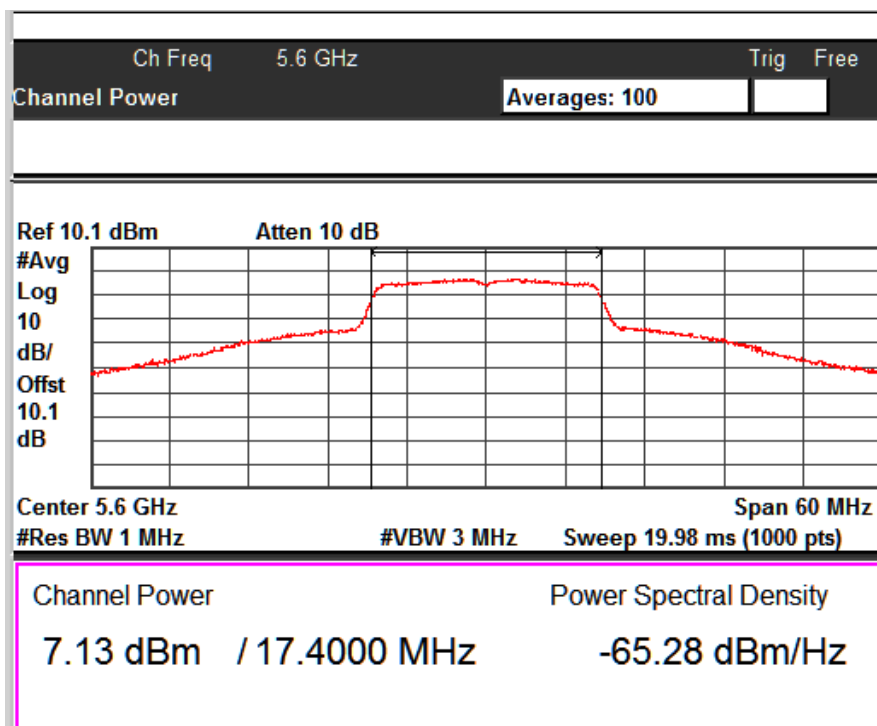
Data Rate: 6Mbps

Channel Frequency: 5320MHz



Data Rate: 6Mbps

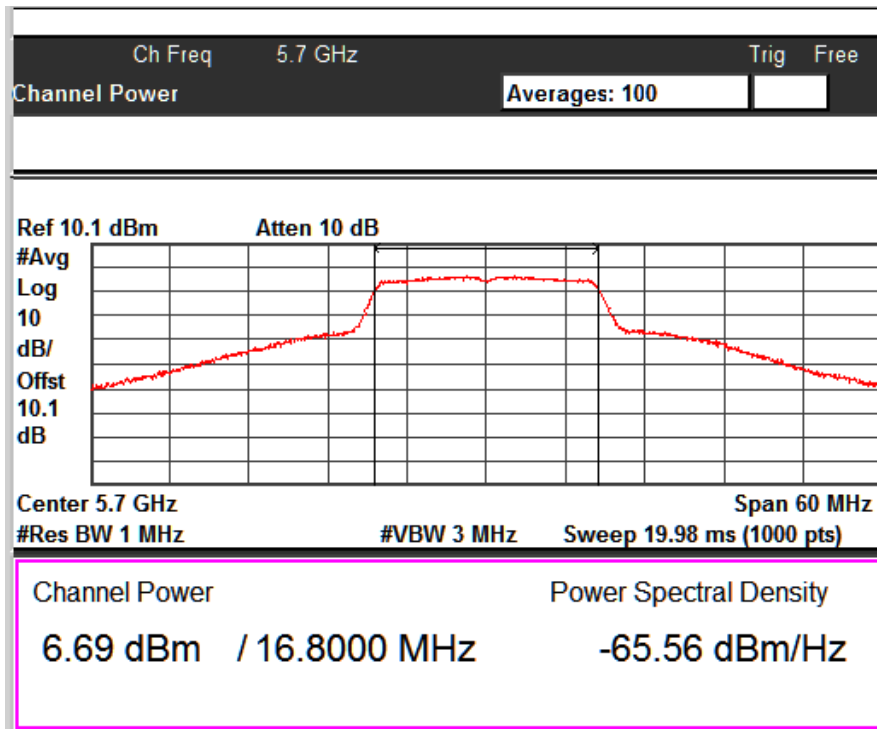
Channel Frequency: 5500MHz



Data Rate: 6Mbps

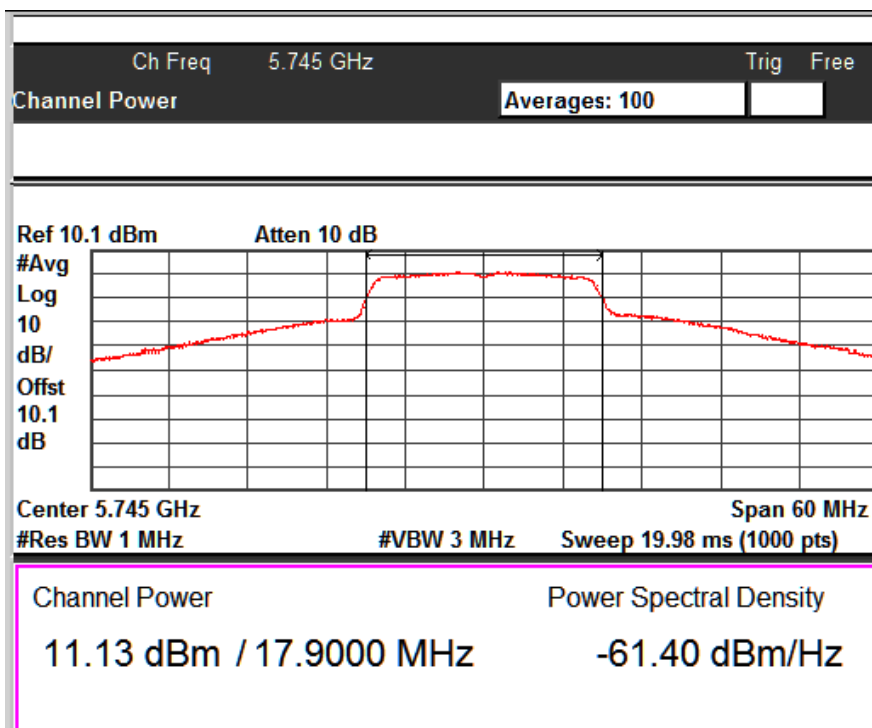
Channel Frequency: 5600MHz

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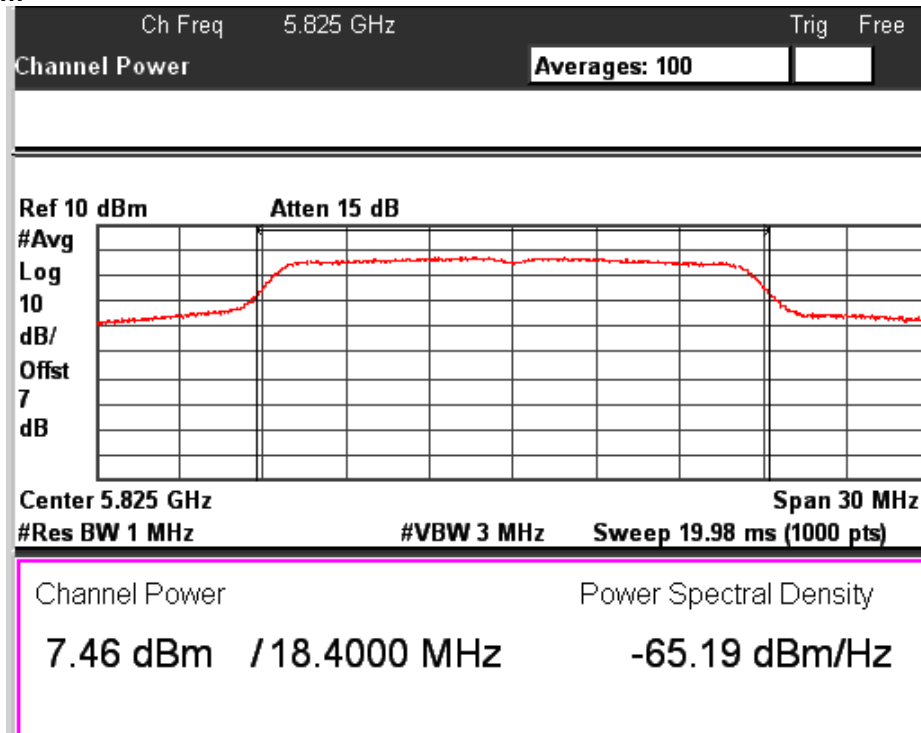
Data Rate: 6Mbps

Channel Frequency: 5700MHz



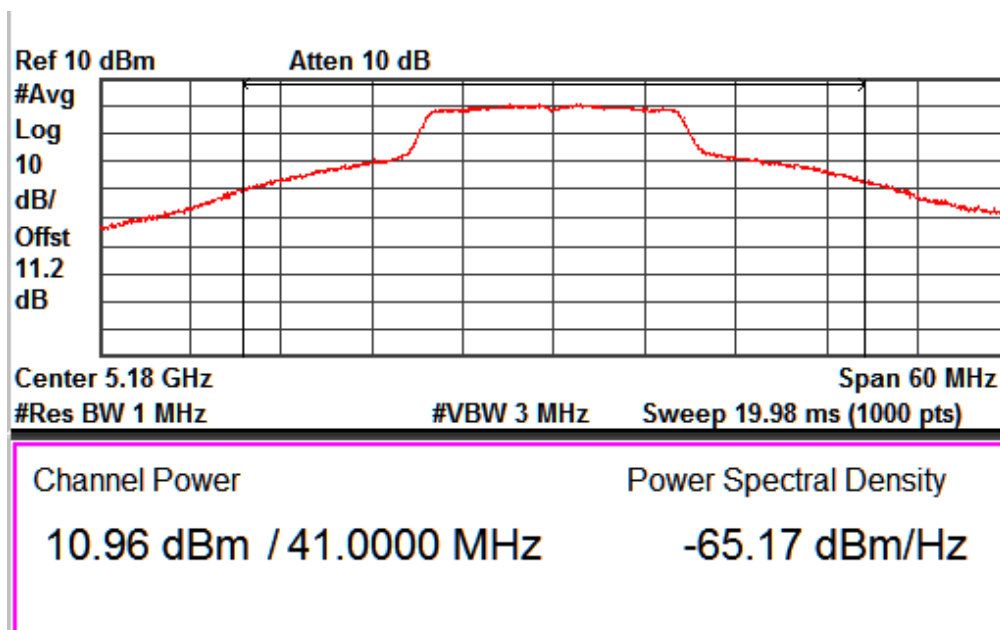
Data Rate: 6Mbps

Channel Frequency: 5745MHz



Data Rate: 6Mbps

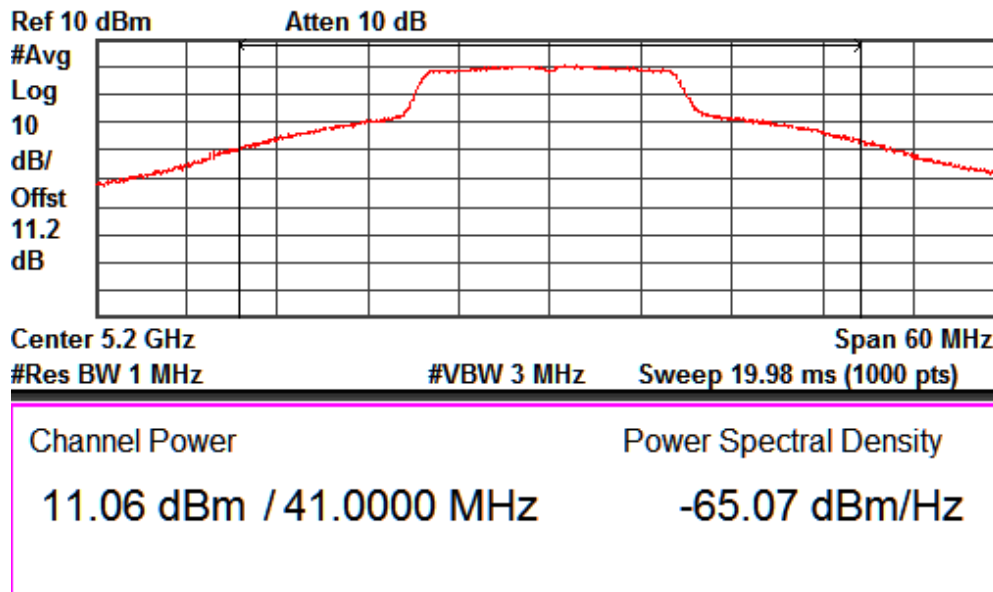
Channel Frequency: 5825MHz



Data Rate: 24Mbps

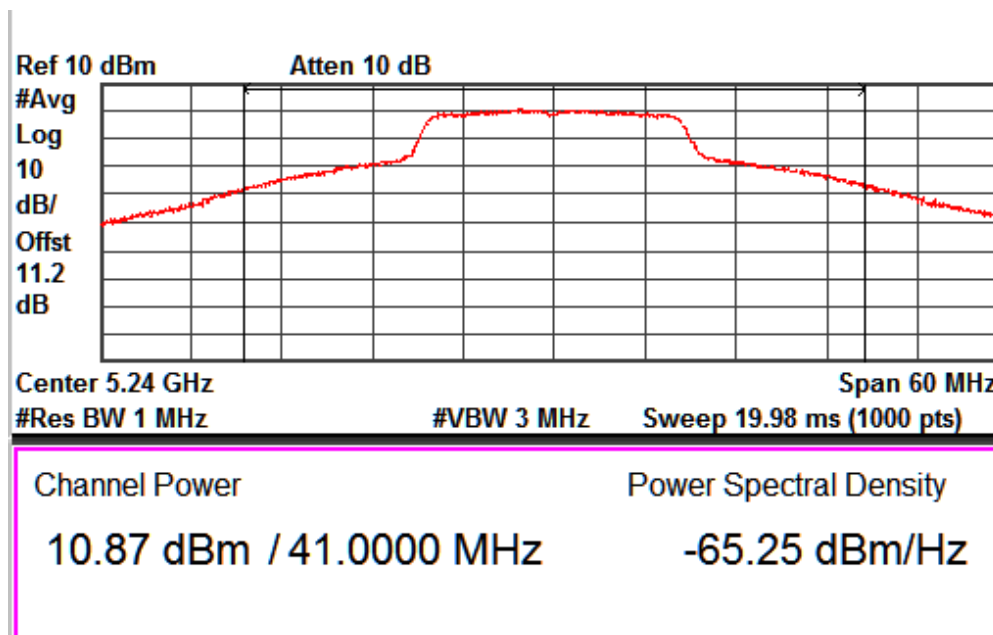
Channel Frequency: 5180MHz

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Data Rate: 24Mbps

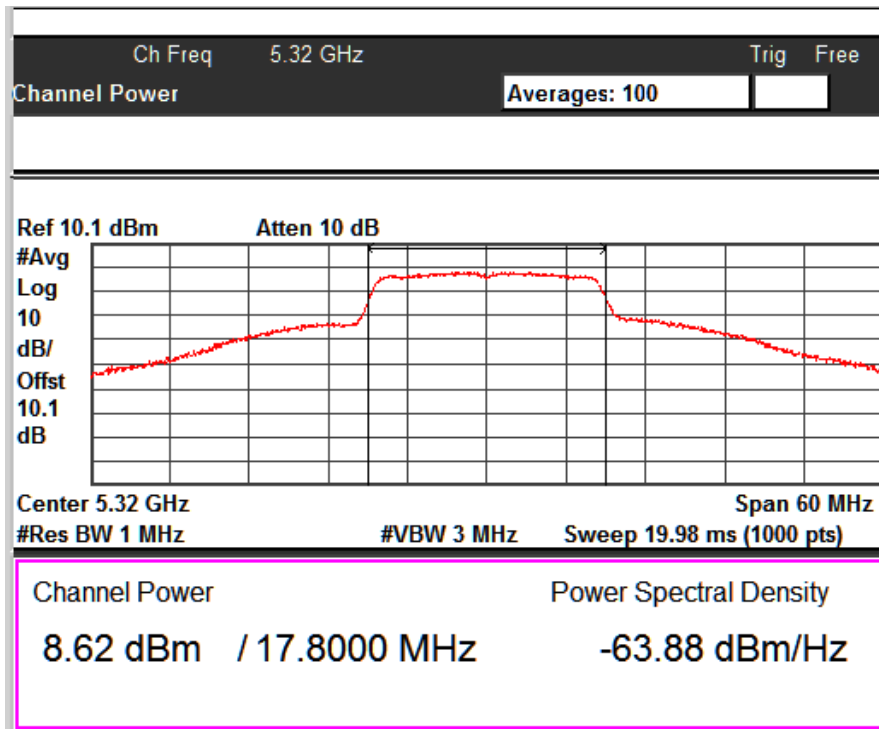
Channel Frequency: 5200MHz



Data Rate: 24Mbps

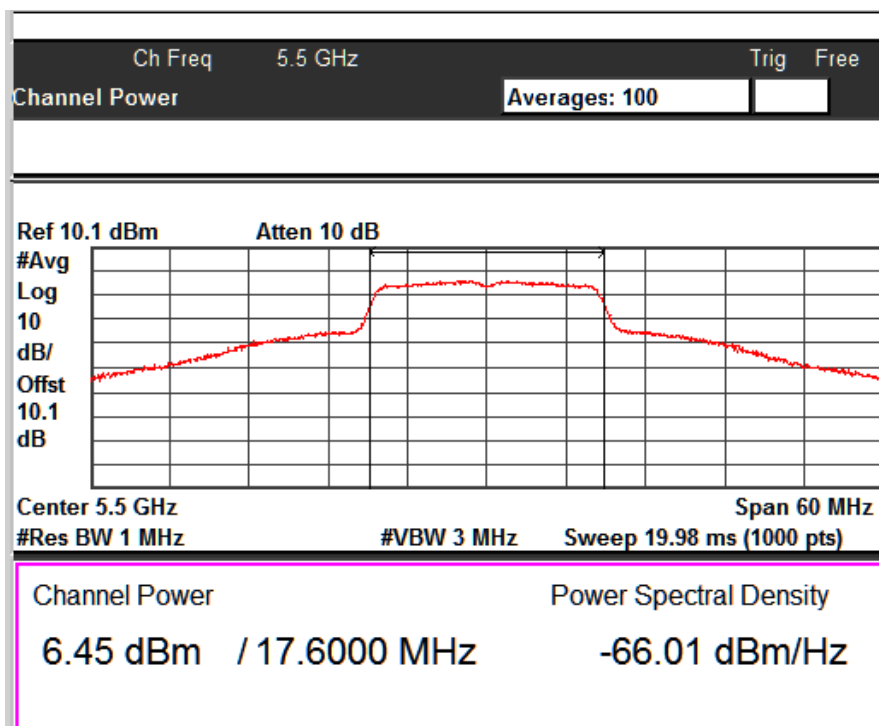
Channel Frequency: 5240MHz

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Data Rate: 24Mbps

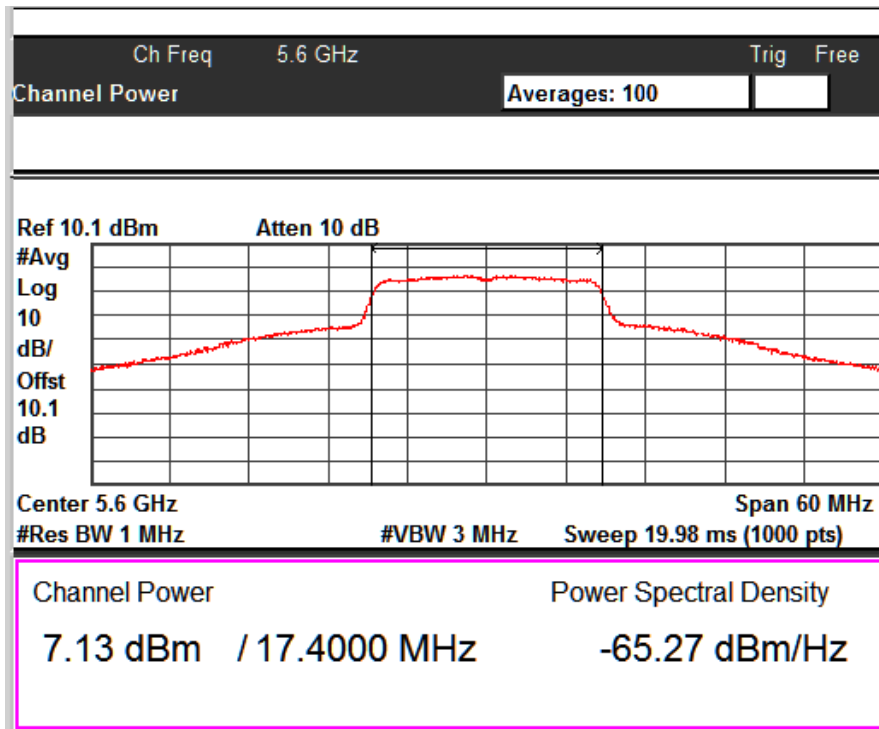
Channel Frequency: 5320MHz



Data Rate: 24Mbps

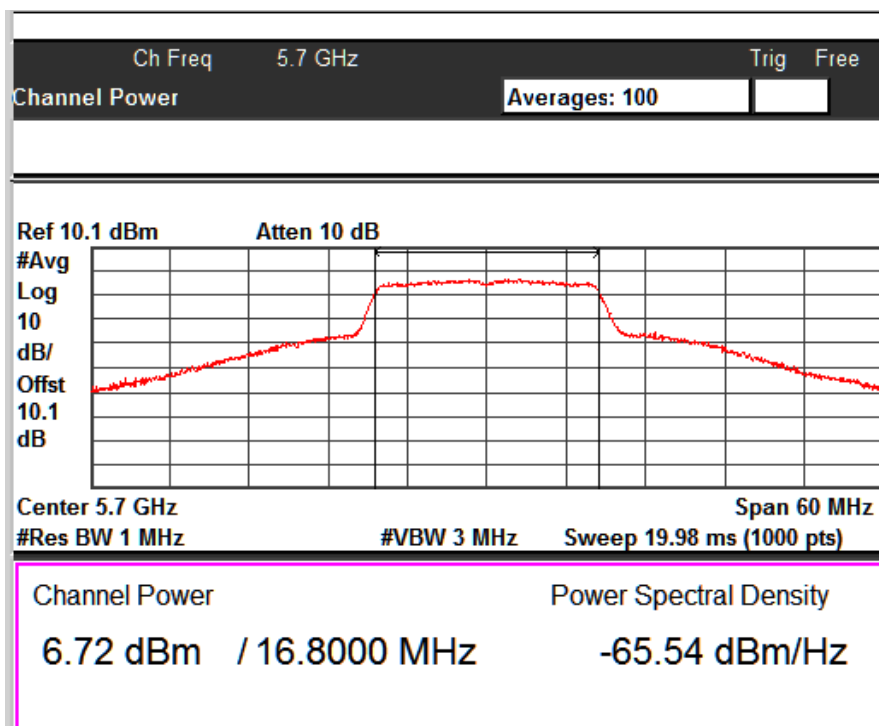
Channel Frequency: 5500MHz

www.tuv.com



Data Rate: 24Mbps

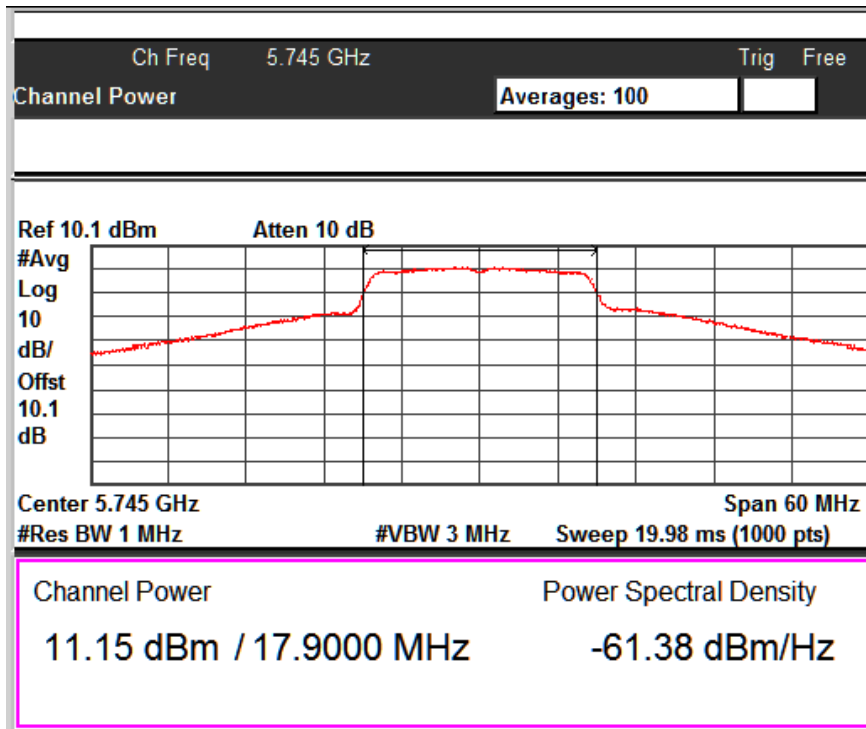
Channel Frequency: 5600MHz



Data Rate: 24Mbps

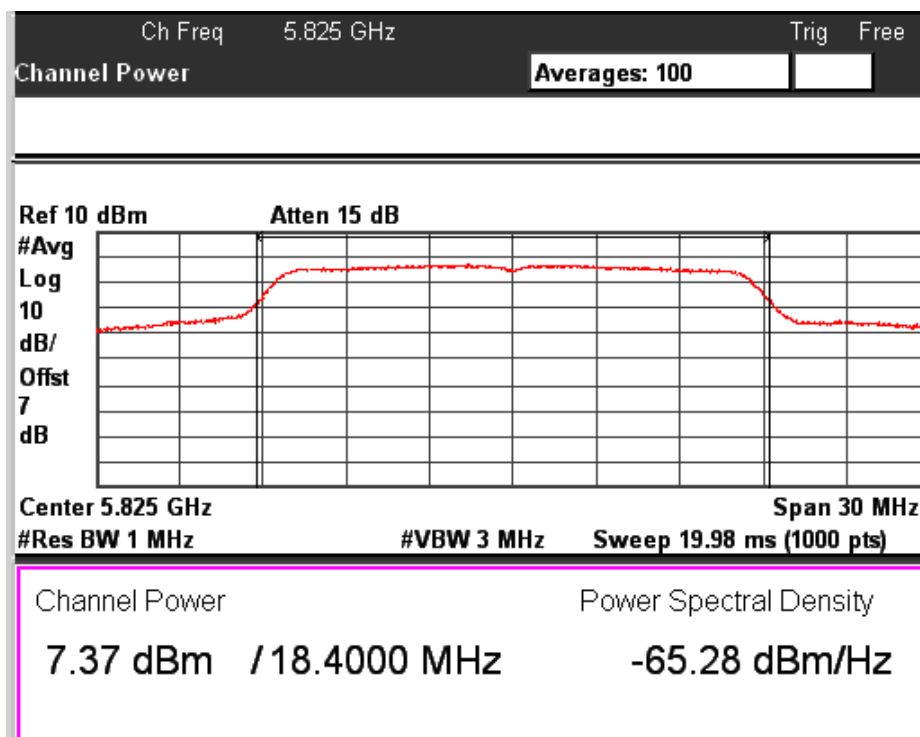
Channel Frequency: 5700MHz

www.tuv.com



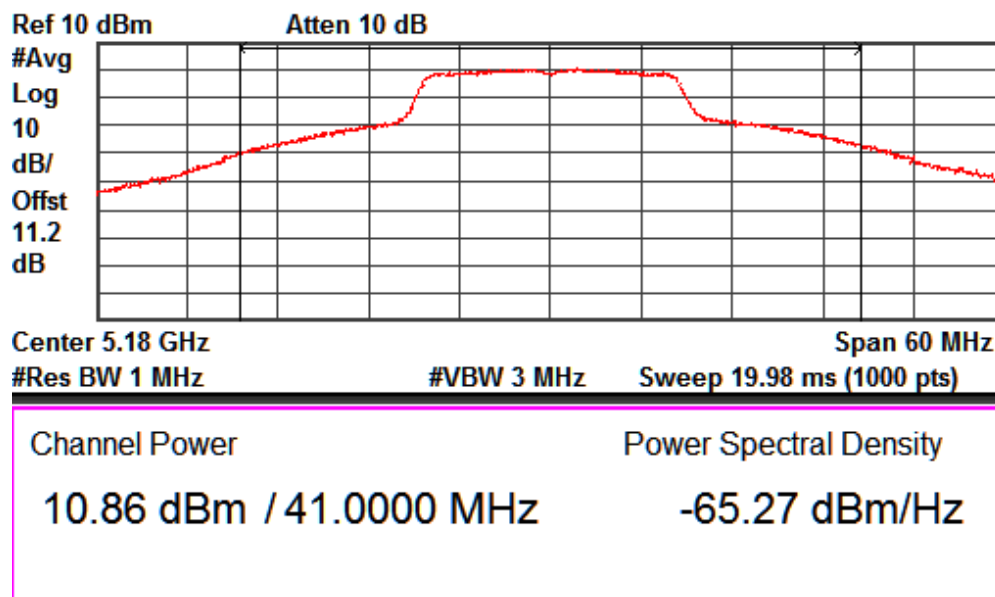
Data Rate: 24Mbps

Channel Frequency: 5745MHz



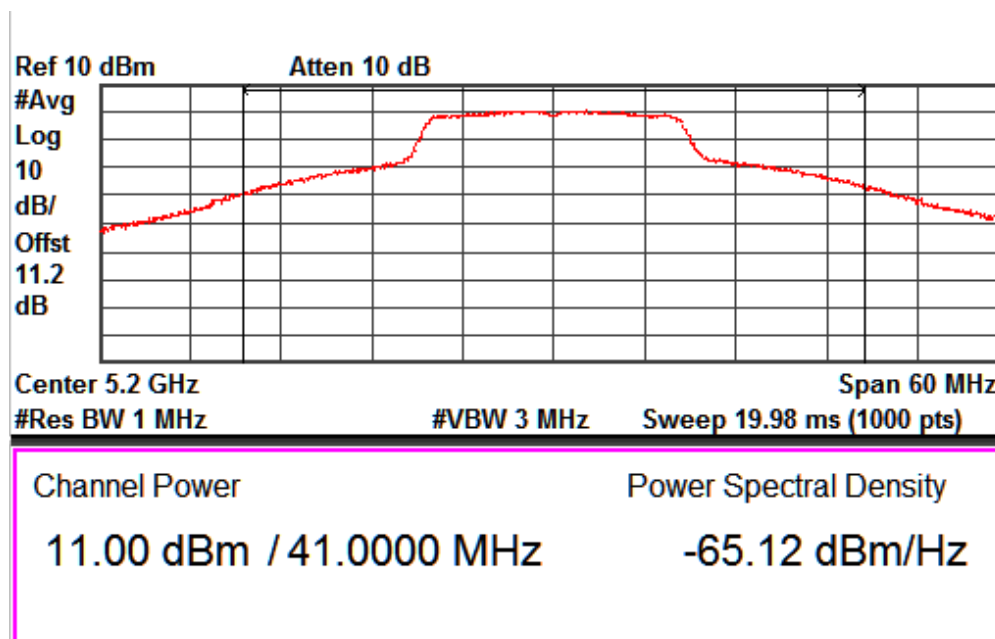
Data Rate: 24Mbps

Channel Frequency: 5825MHz



Data Rate: 54Mbps

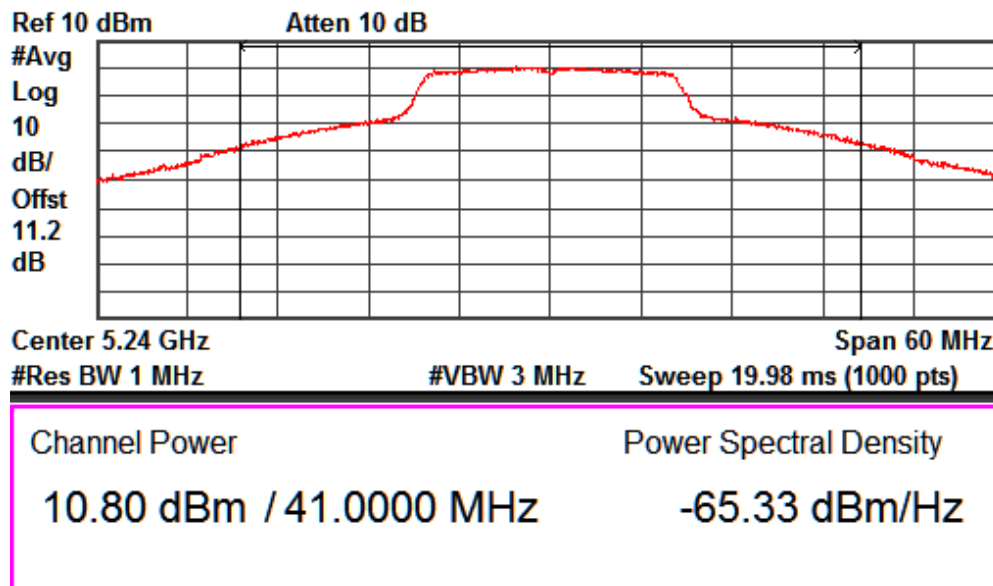
Channel Frequency: 5180MHz



Data Rate: 54Mbps

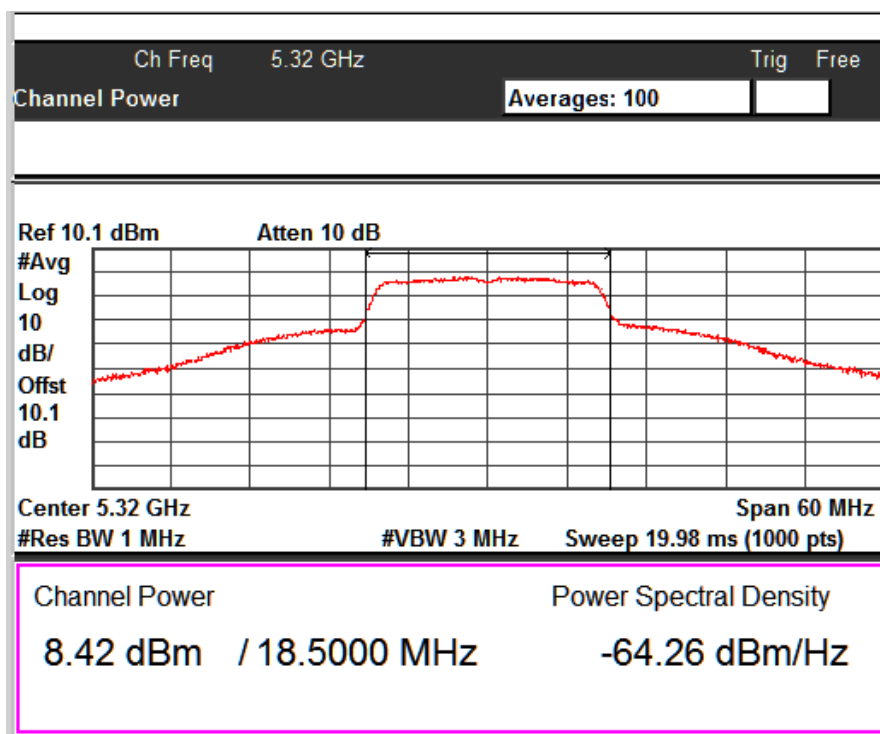
Channel Frequency: 5200MHz

www.tuv.com



Data Rate: 54Mbps

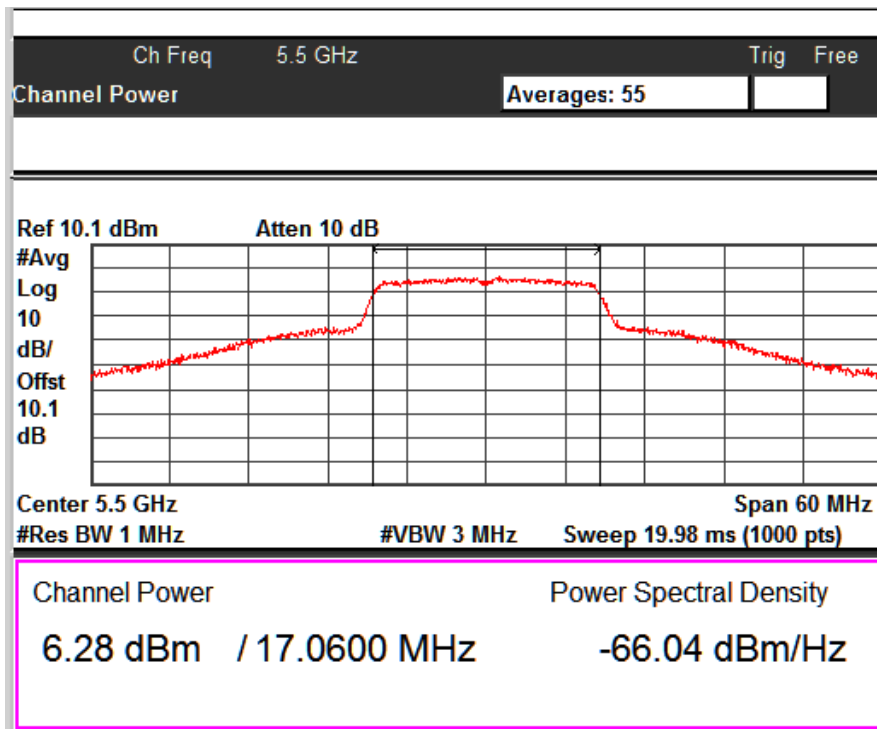
Channel Frequency: 5240MHz



Data Rate: 54Mbps

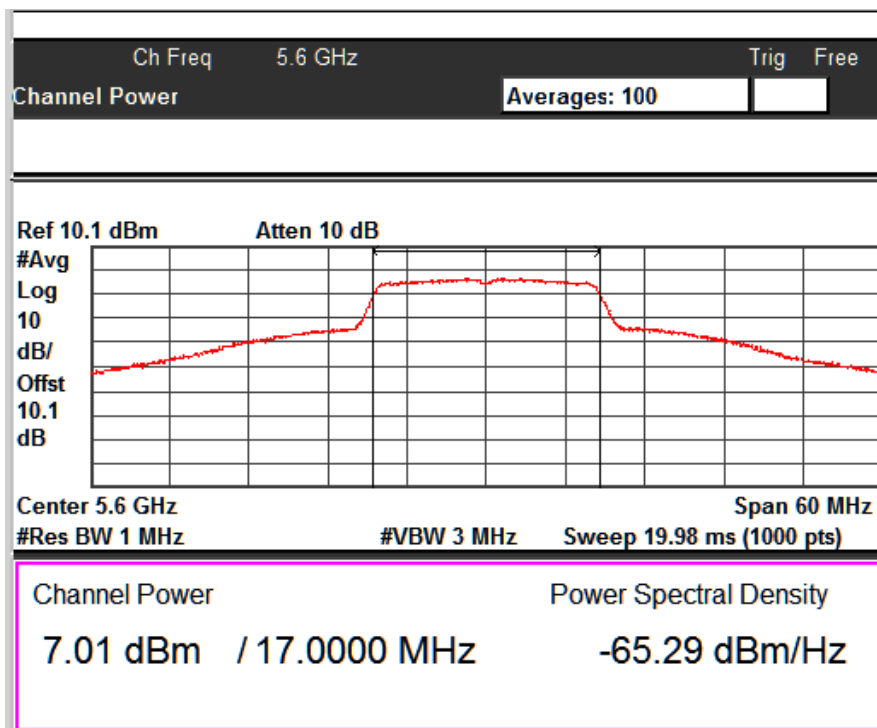
Channel Frequency: 5320MHz

www.tuv.com



Data Rate: 54Mbps

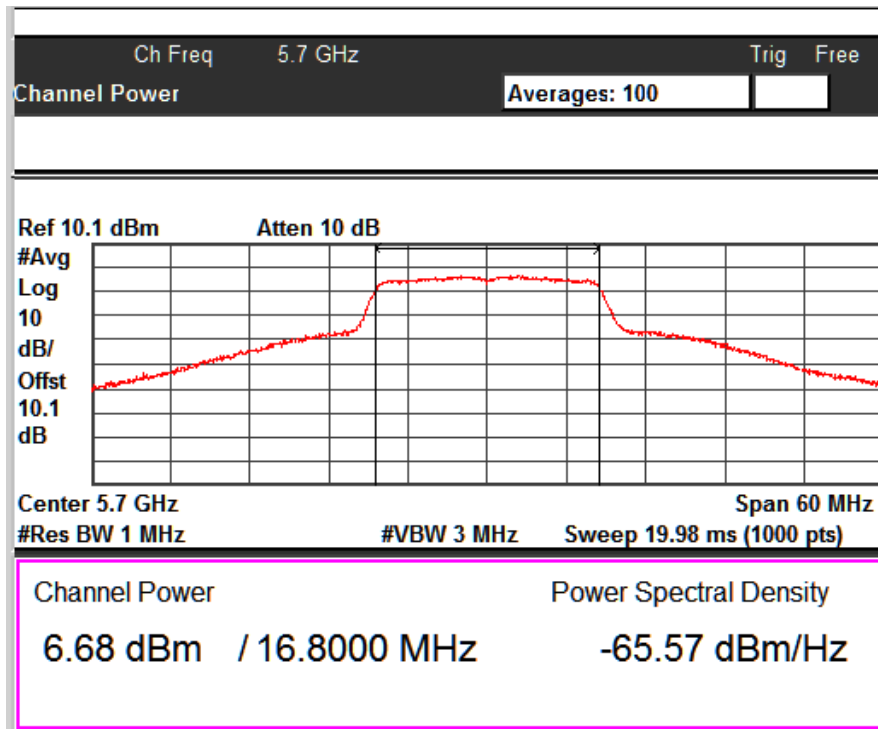
Channel Frequency: 5500MHz



Data Rate: 54Mbps

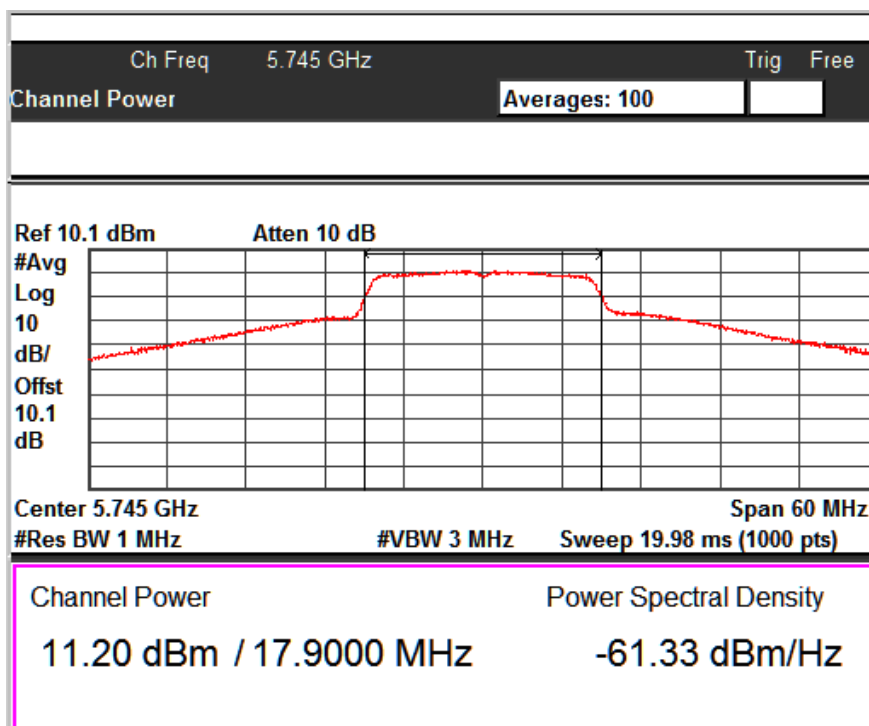
Channel Frequency: 5600MHz

www.tuv.com



Data Rate: 54Mbps

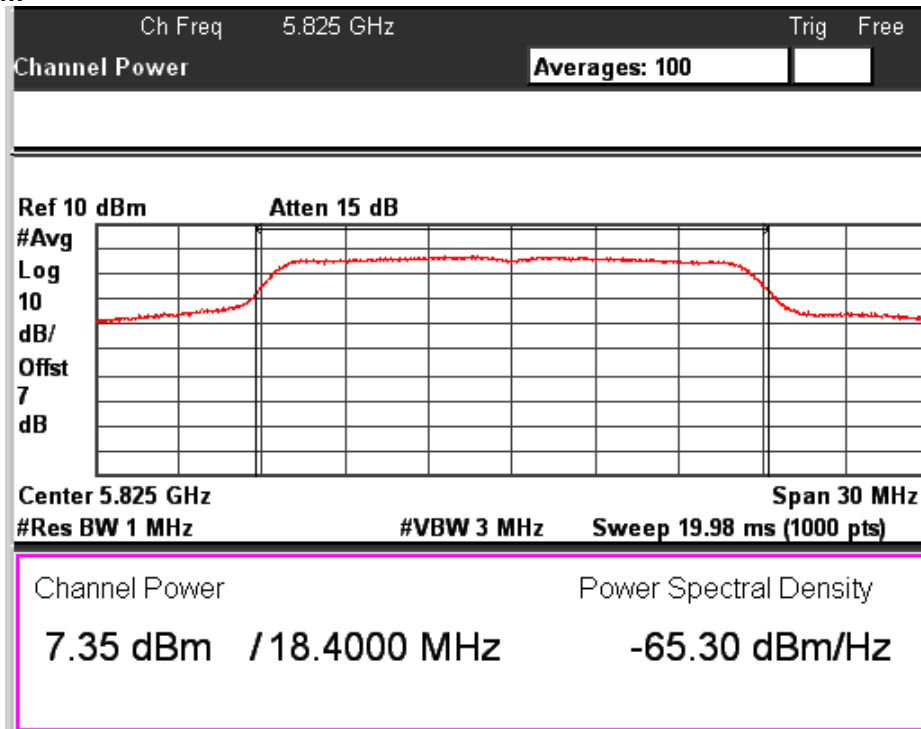
Channel Frequency: 5700MHz



Data Rate: 54Mbps

Channel Frequency: 5745MHz

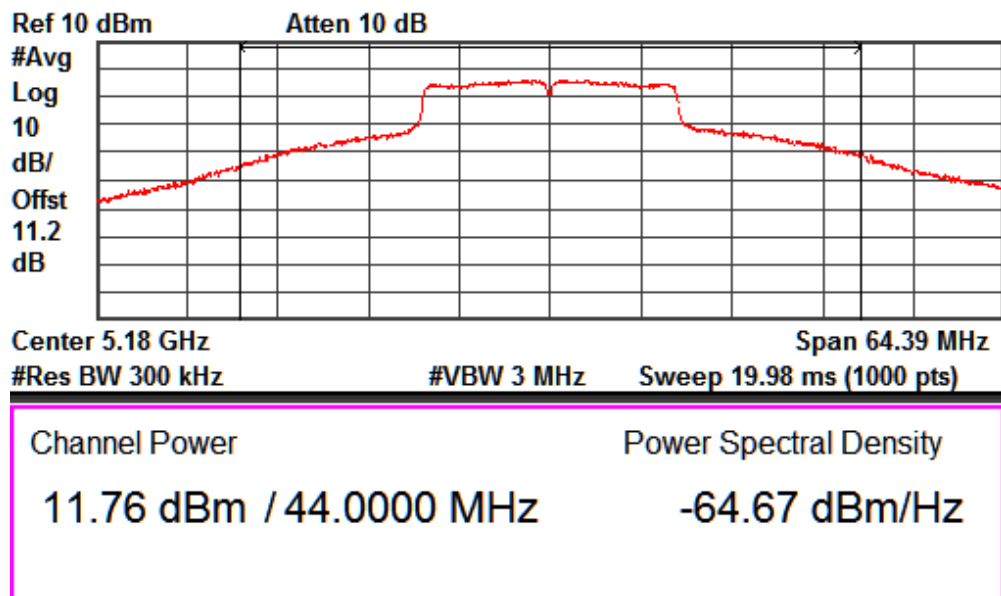
www.tuv.com



Data Rate: 54Mbps

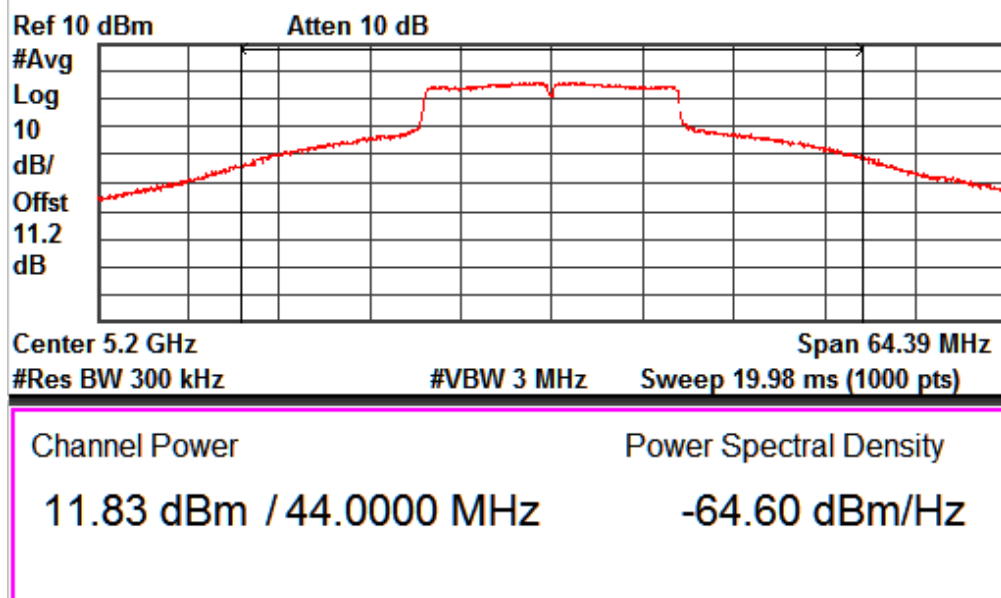
Channel Frequency: 5825MHz

Data Rate (Mbps)	Channel No.	Frequency (MHz)	Output power (dBm)	Limit (dBm)	Margin (dB)
6.5	36	5180	11.76	23.00	-11.24
	40	5200	11.83	23.00	-11.17
	48	5240	11.62	23.00	-11.38
	64	5320	08.12	24.00	-15.88
	100	5500	05.62	24.00	-18.38
	120	5600	07.26	24.00	-16.74
	140	5700	04.81	24.00	-19.19
	149	5745	11.25	30.00	-18.75
	165	5825	06.68	30.00	-23.32
39	36	5180	11.63	23.00	-11.37
	40	5200	11.77	23.00	-11.23
	48	5240	11.60	23.00	-11.40
	64	5320	08.13	24.00	-15.87
	100	5500	05.75	24.00	-18.25
	120	5600	07.33	24.00	-16.67
	140	5700	04.94	24.00	-19.06
	149	5745	11.29	30.00	-18.71
	165	5825	07.07	30.00	-22.93
65	36	5180	11.65	23.00	-11.35
	40	5200	11.86	23.00	-11.14
	48	5240	11.53	23.00	-11.47
	64	5320	08.20	24.00	-15.80
	100	5500	05.69	24.00	-18.31
	120	5600	07.22	24.00	-16.78
	140	5700	04.93	24.00	-19.07
	149	5745	11.29	30.00	-18.71
	165	5825	06.76	30.00	-23.24



Data Rate: 6.5Mbps

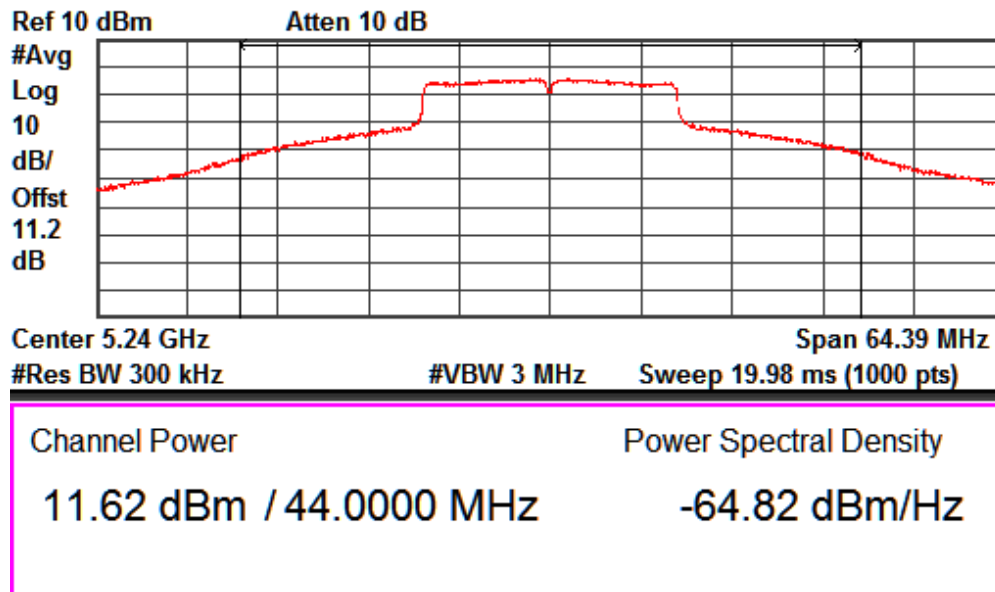
Channel Frequency: 5180MHz



Data Rate: 6.5Mbps

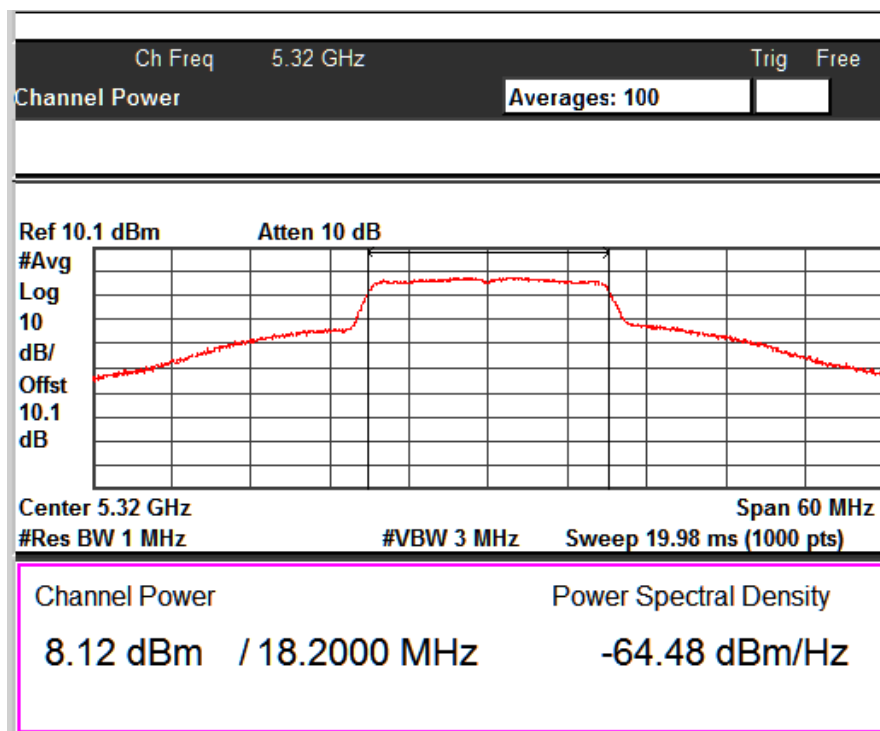
Channel Frequency: 5200MHz

www.tuv.com



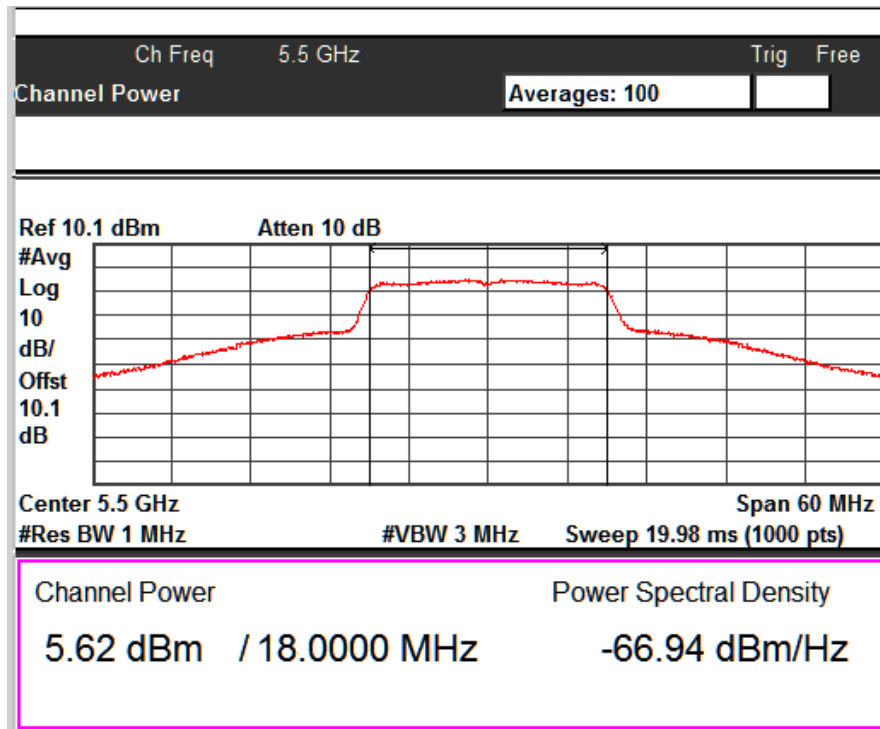
Data Rate: 6.5Mbps

Channel Frequency: 5240MHz



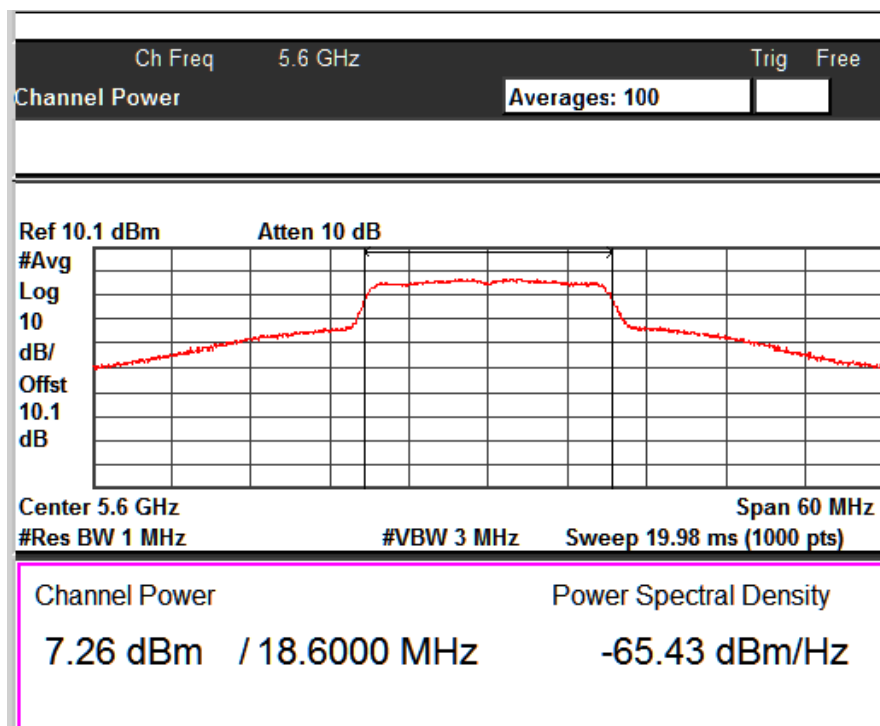
Data Rate: 6.5Mbps

Channel Frequency: 5320MHz



Data Rate: 6.5Mbps

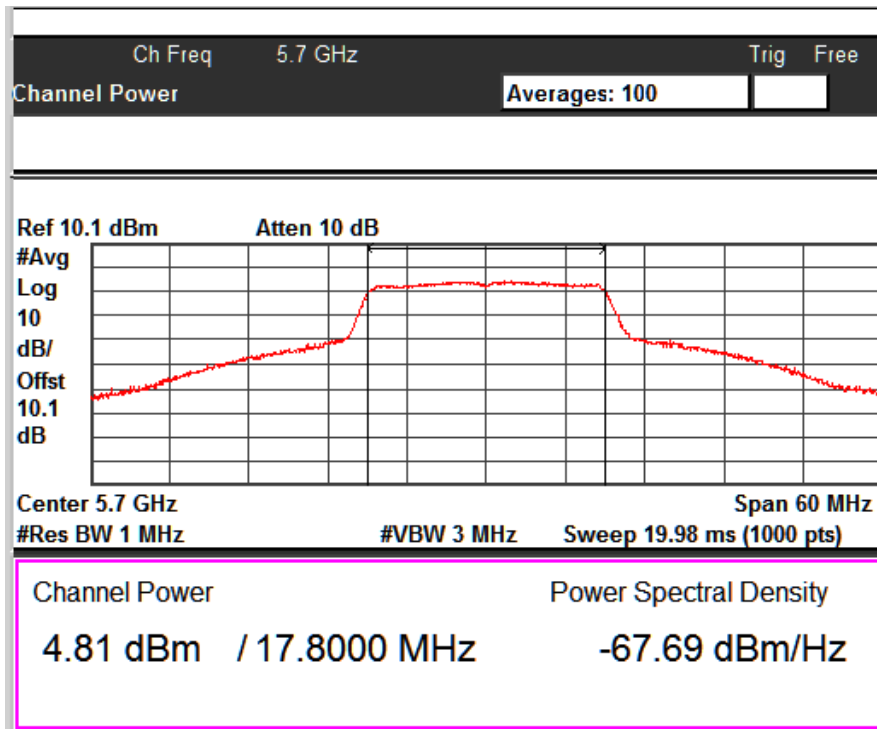
Channel Frequency: 5500MHz



Data Rate: 6.5Mbps

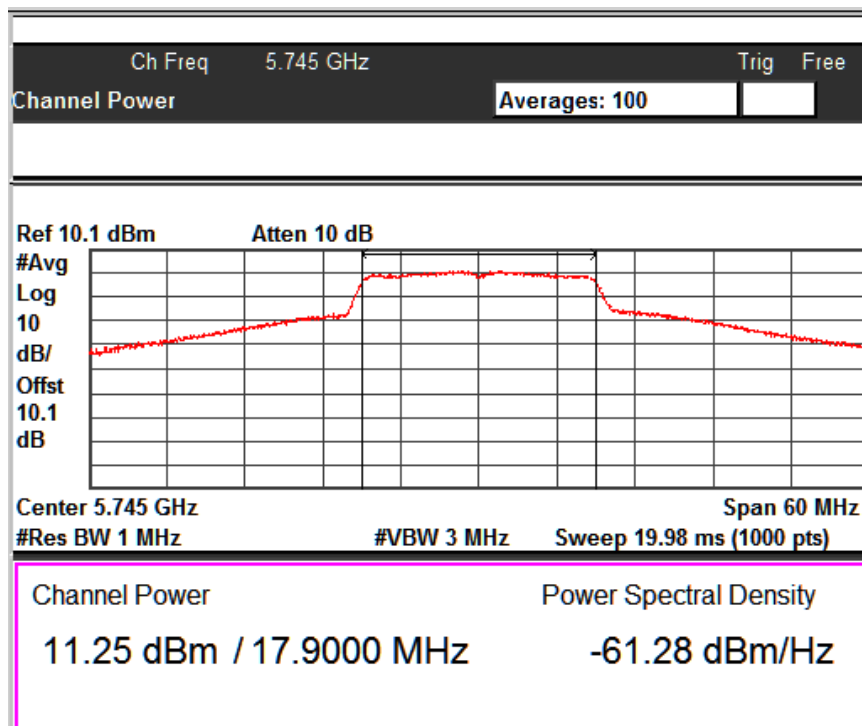
Channel Frequency: 5600MHz

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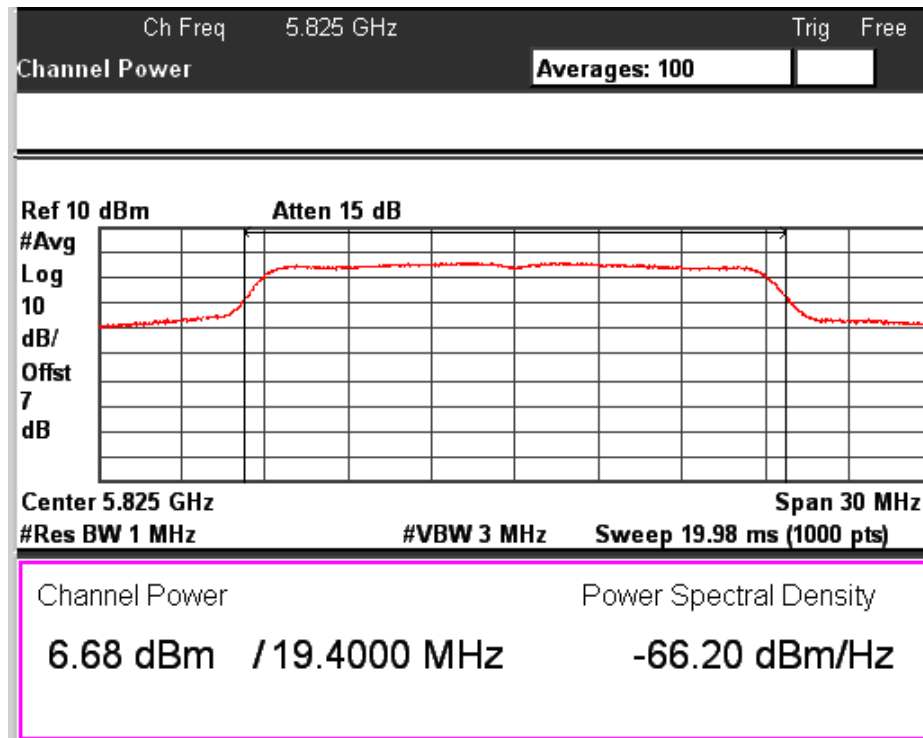
Data Rate: 6.5Mbps

Channel Frequency: 5700MHz



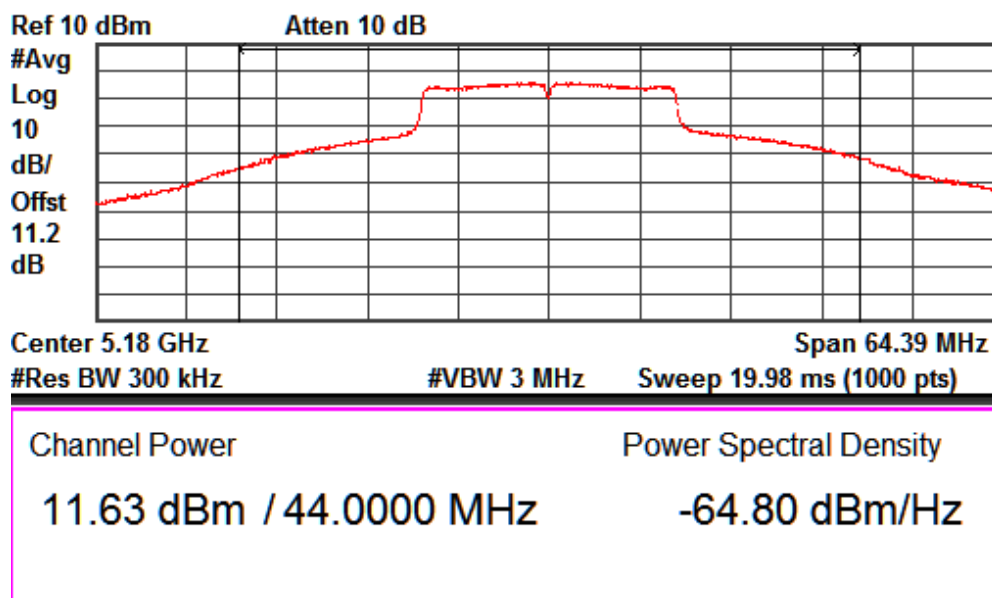
Data Rate: 6.5Mbps

Channel Frequency: 5745MHz



Data Rate: 6.5Mbps

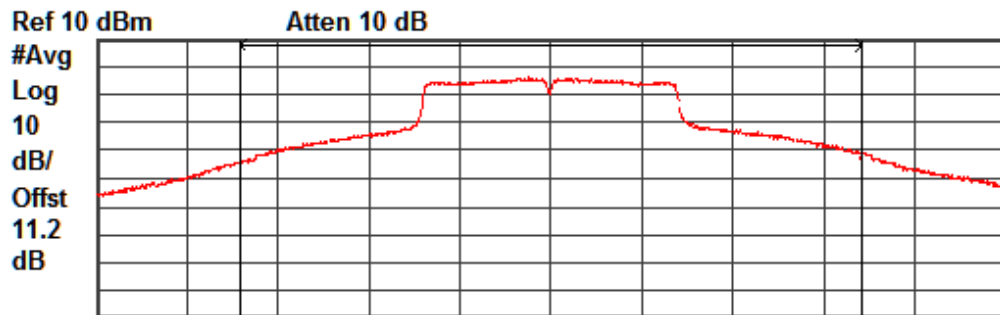
Channel Frequency: 5825MHz



Data Rate: 39Mbps

Channel Frequency: 5180MHz

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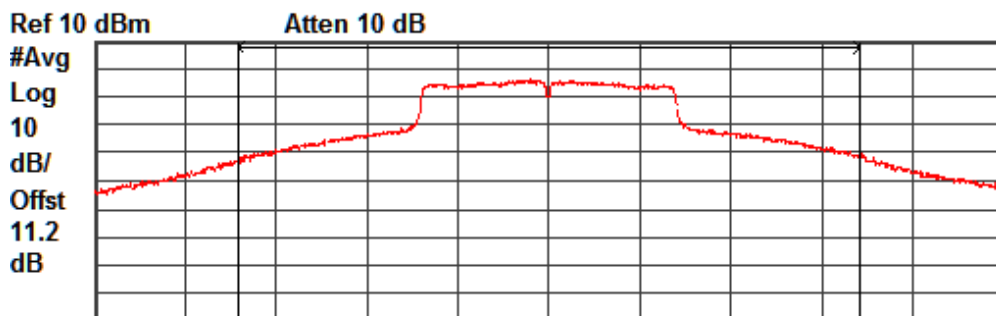


Center 5.2 GHz Span 64.39 MHz
 #Res BW 300 kHz #VBW 3 MHz Sweep 19.98 ms (1000 pts)

Channel Power	Power Spectral Density
11.77 dBm / 44.0000 MHz	-64.66 dBm/Hz

Data Rate: 39Mbps

Channel Frequency: 5200MHz



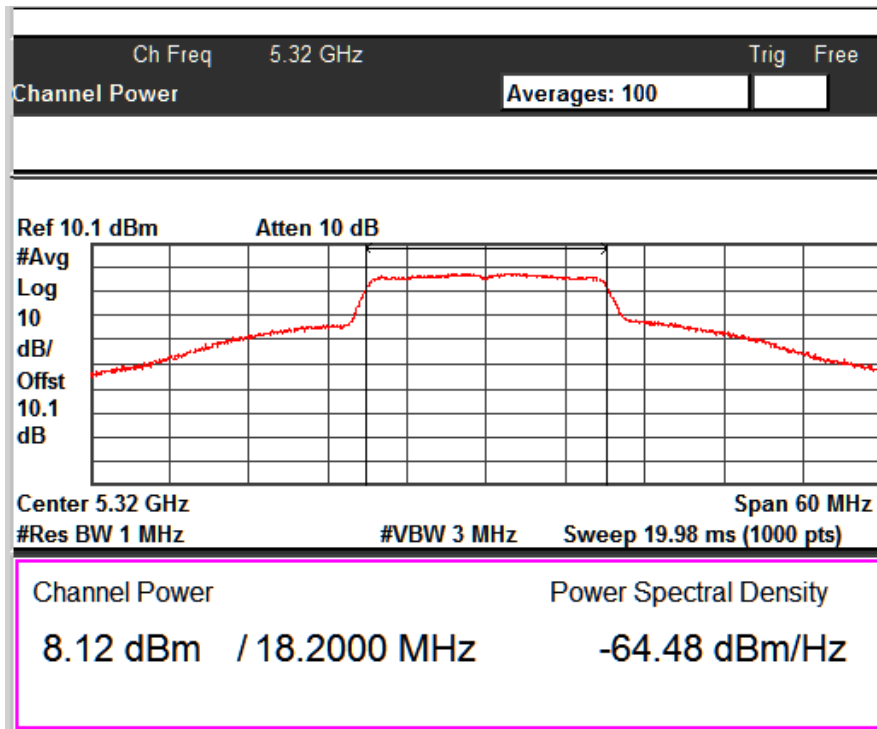
Center 5.24 GHz Span 64.39 MHz
 #Res BW 300 kHz #VBW 3 MHz Sweep 19.98 ms (1000 pts)

Channel Power	Power Spectral Density
11.60 dBm / 44.0000 MHz	-64.83 dBm/Hz

Data Rate: 39Mbps

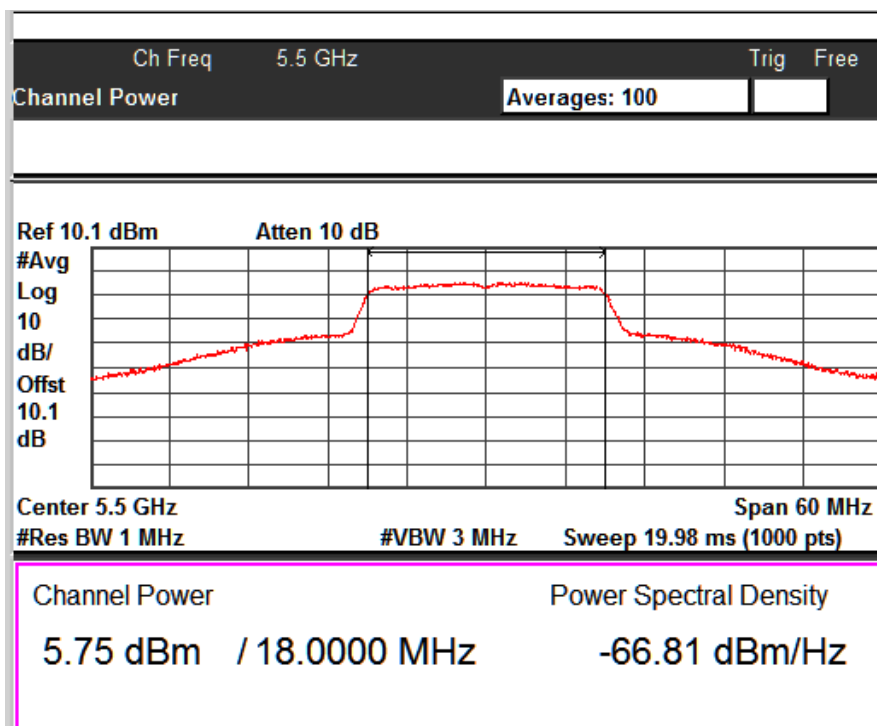
Channel Frequency: 5240MHz

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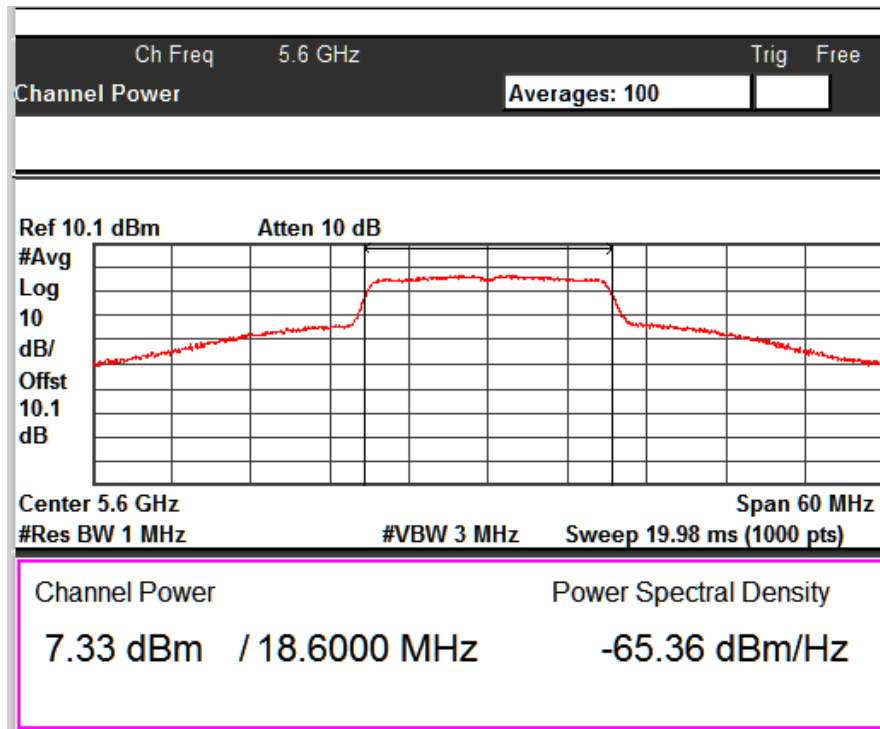
Data Rate: 39Mbps

Channel Frequency: 5320MHz



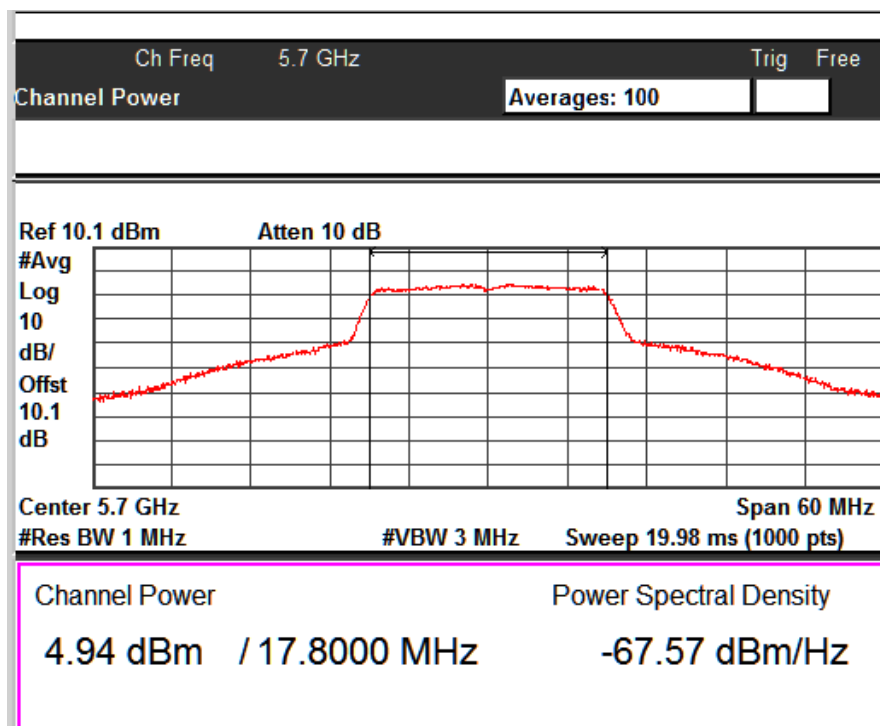
Data Rate: 39Mbps

Channel Frequency: 5500MHz



Data Rate: 39Mbps

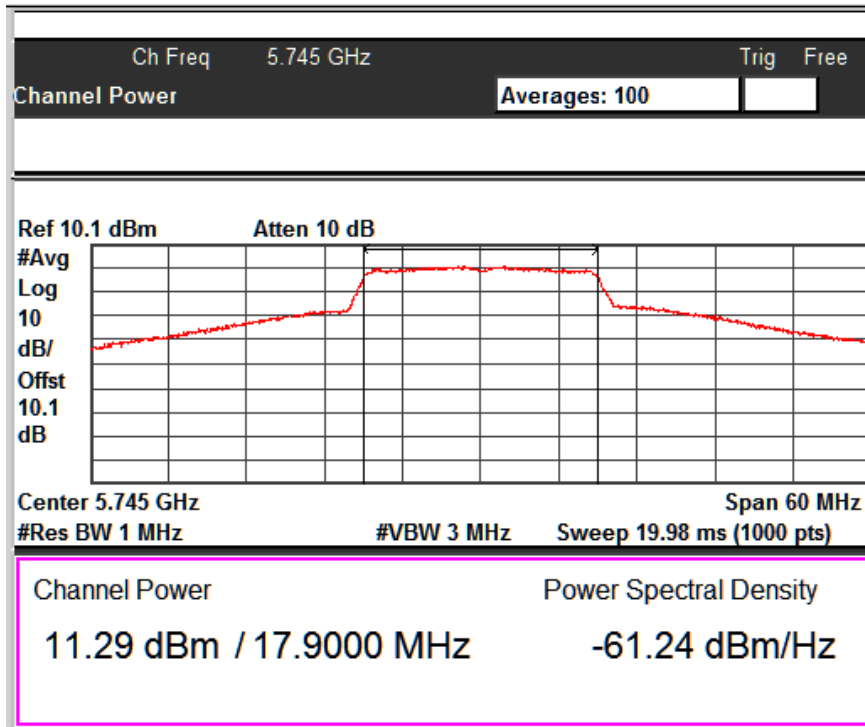
Channel Frequency: 5600MHz



Data Rate: 39Mbps

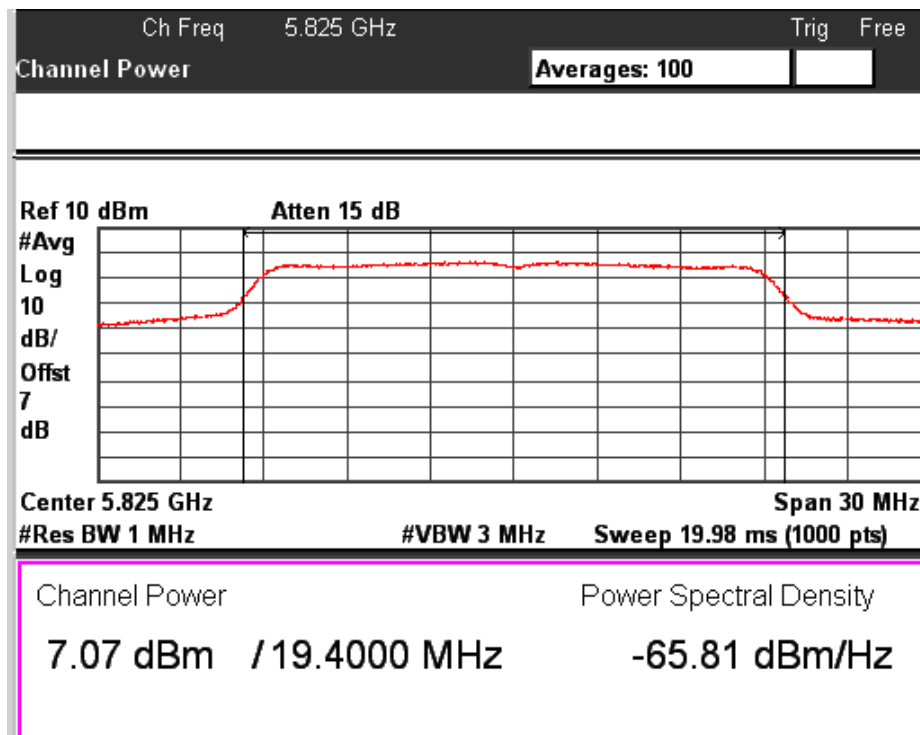
Channel Frequency: 5700MHz

www.tuv.com



Data Rate: 39Mbps

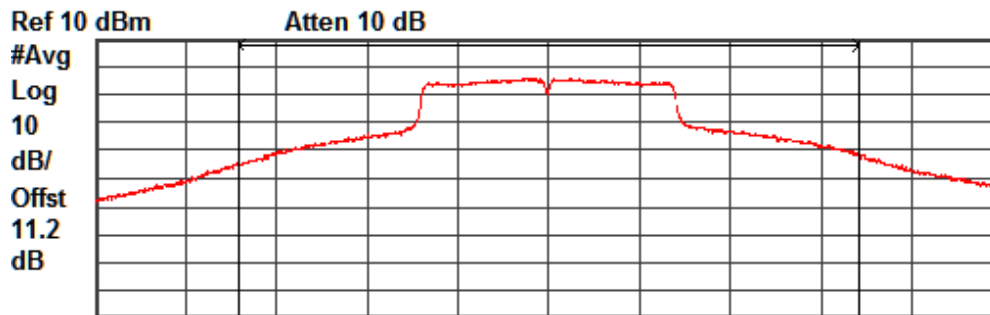
Channel Frequency: 5745MHz



Data Rate: 39Mbps

Channel Frequency: 5825MHz

www.tuv.com



Center 5.18 GHz Span 64.39 MHz
 #Res BW 300 kHz #VBW 3 MHz Sweep 19.98 ms (1000 pts)

Channel Power

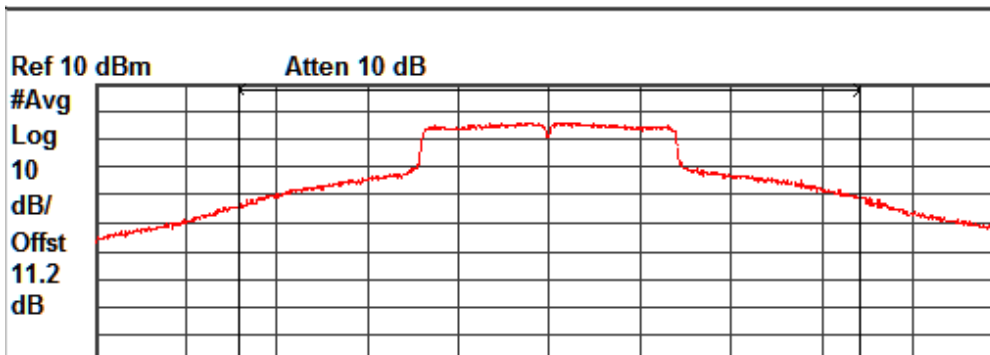
11.65 dBm / 44.0000 MHz

Power Spectral Density

-64.79 dBm/Hz

Data Rate: 65Mbps

Channel Frequency: 5180MHz



Center 5.2 GHz Span 64.39 MHz
 #Res BW 300 kHz #VBW 3 MHz Sweep 19.98 ms (1000 pts)

Channel Power

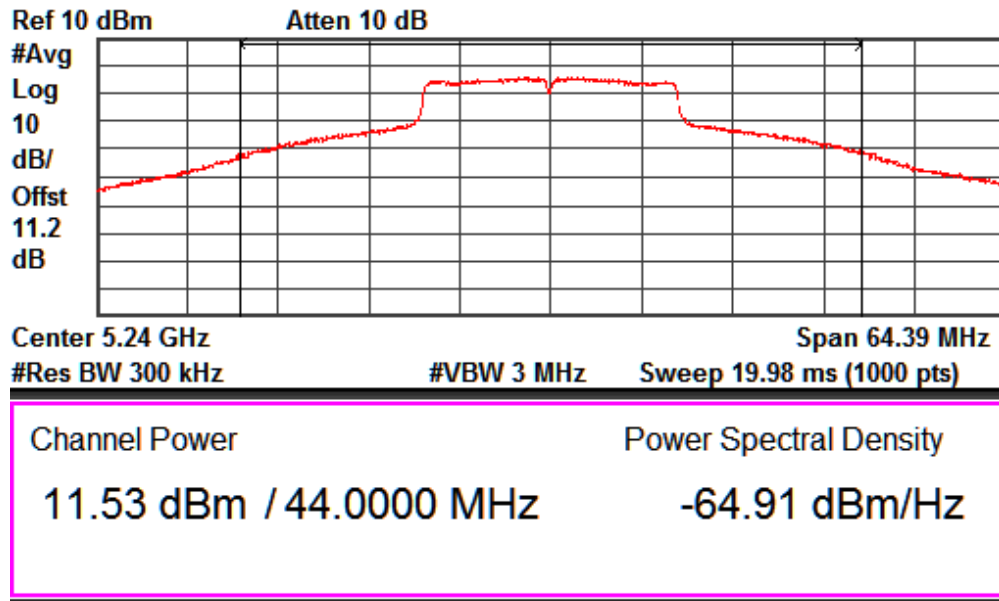
11.86 dBm / 44.0000 MHz

Power Spectral Density

-64.57 dBm/Hz

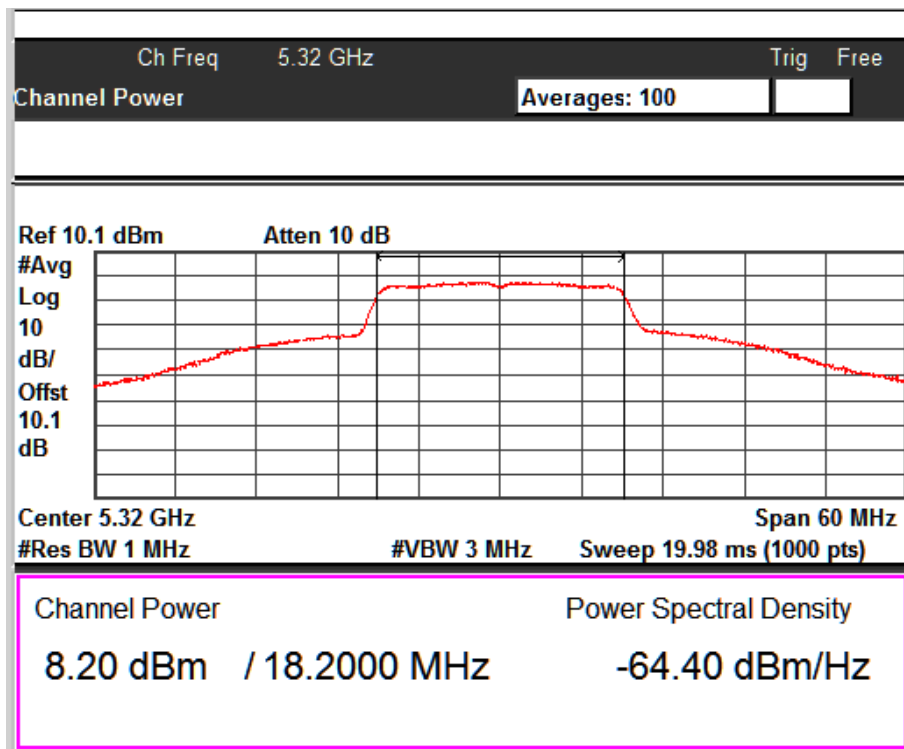
Data Rate: 65Mbps

Channel Frequency: 5200MHz



Data Rate: 65Mbps

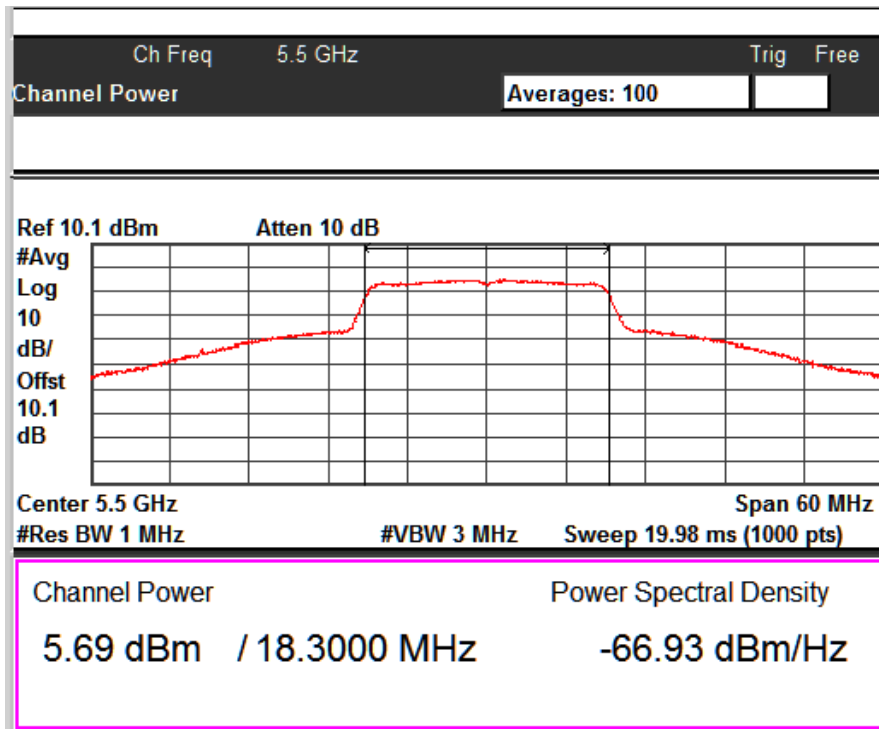
Channel Frequency: 5240MHz



Data Rate: 65Mbps

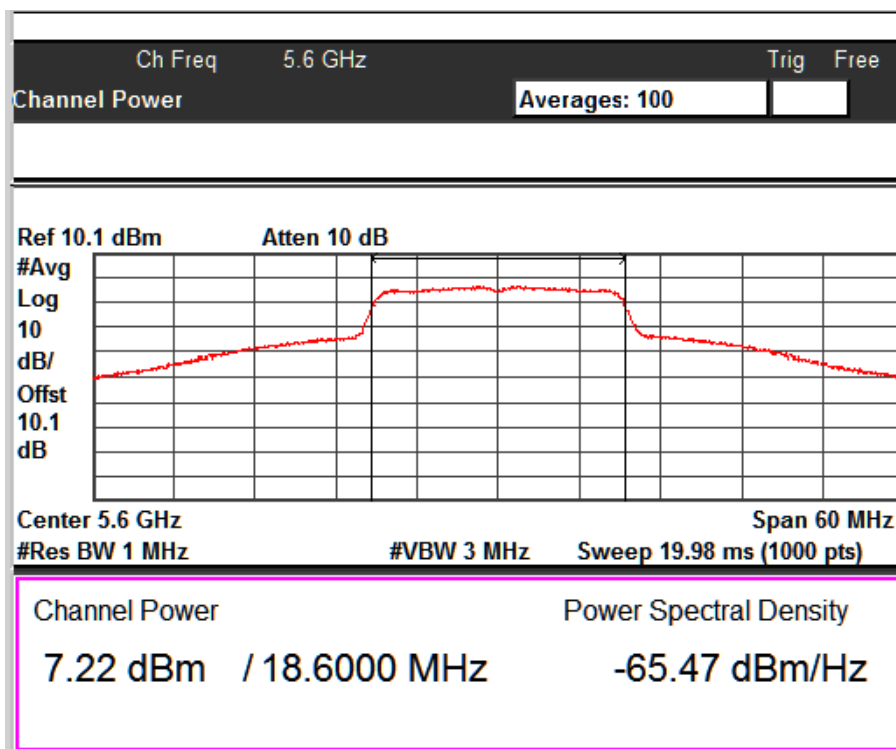
Channel Frequency: 5320MHz

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Data Rate: 65Mbps

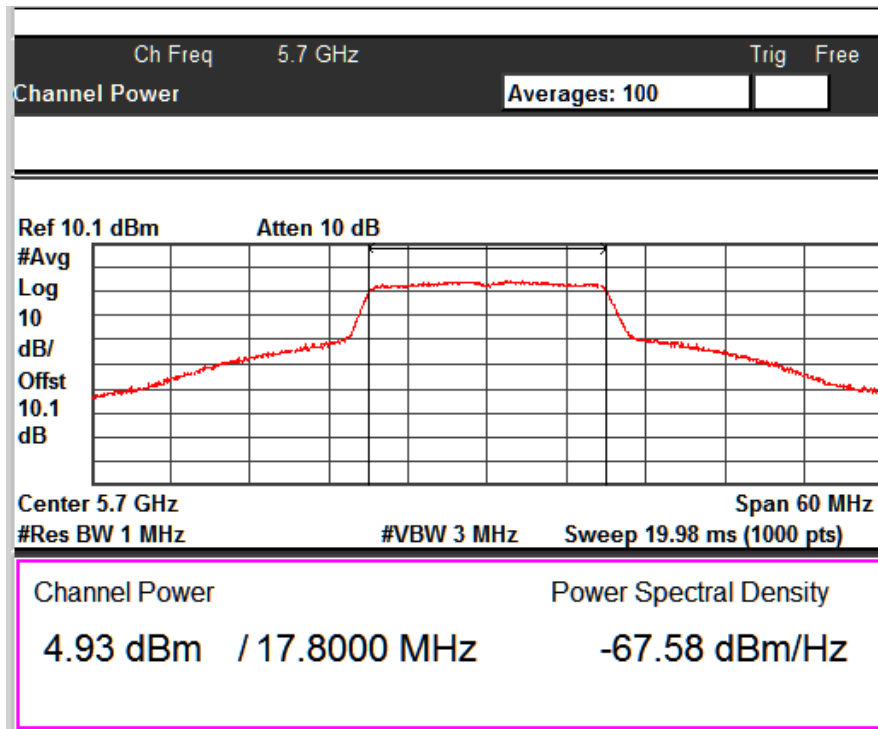
Channel Frequency: 5500MHz



Data Rate: 65Mbps

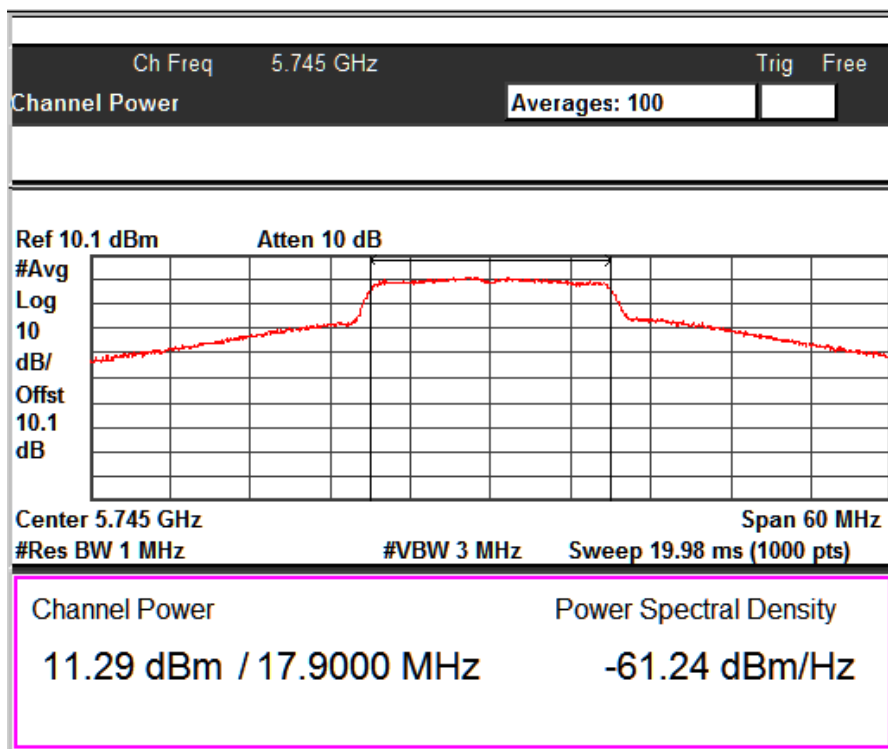
Channel Frequency: 5600MHz

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Data Rate: 65Mbps

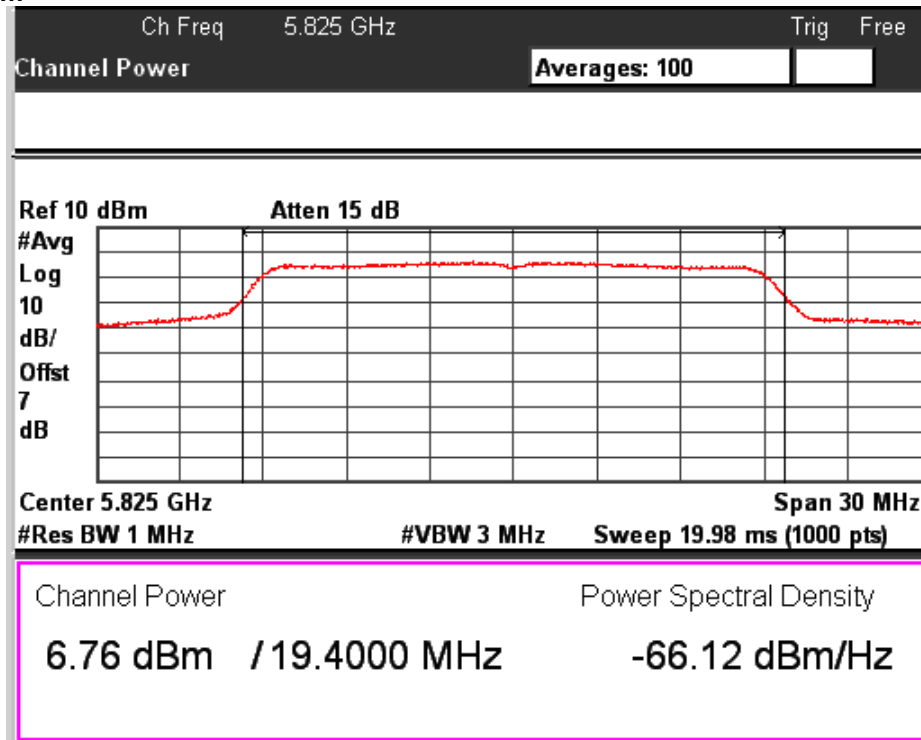
Channel Frequency: 5700MHz



Data Rate: 65Mbps

Channel Frequency: 5745MHz

www.tuv.com



Data Rate: 65Mbps

Channel Frequency: 5825MHz

www.tuv.com

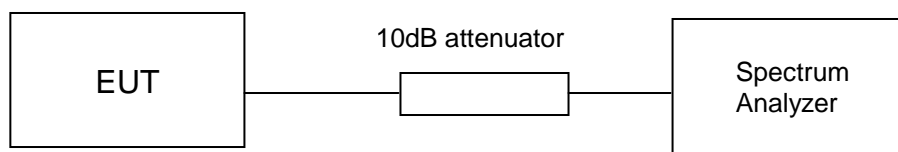
**Peak power spectral density
Result**

**Section 15.407 (a)
Pass**

Test Specification Requirement FCC Part 15 Section 15.407 (a)
the peak power spectral density shall not exceed 4 dBm in any 1-MHz 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.

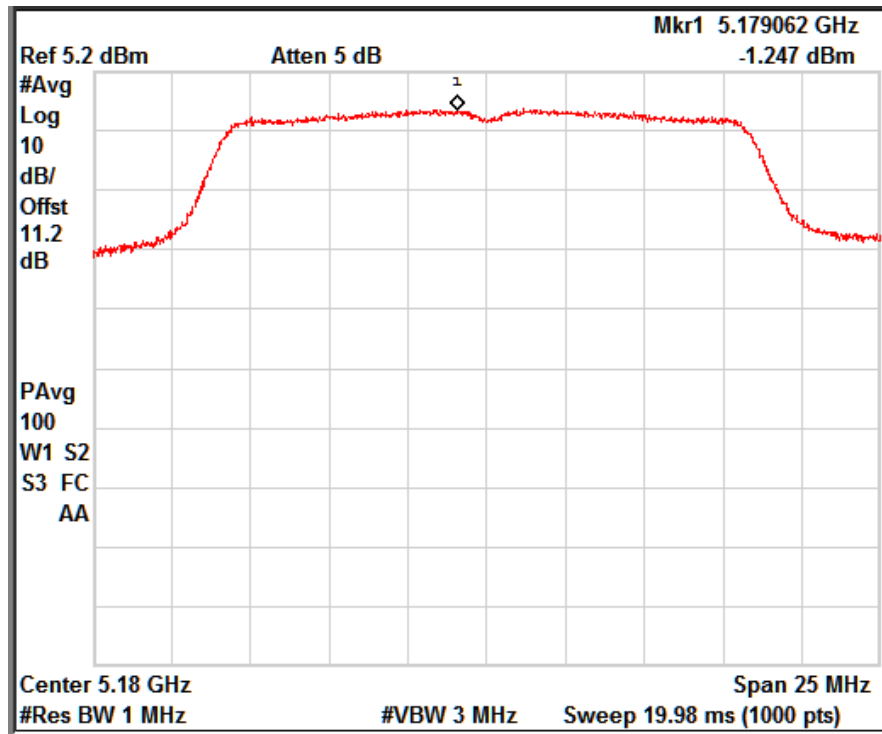
Test Method:



Test Result:

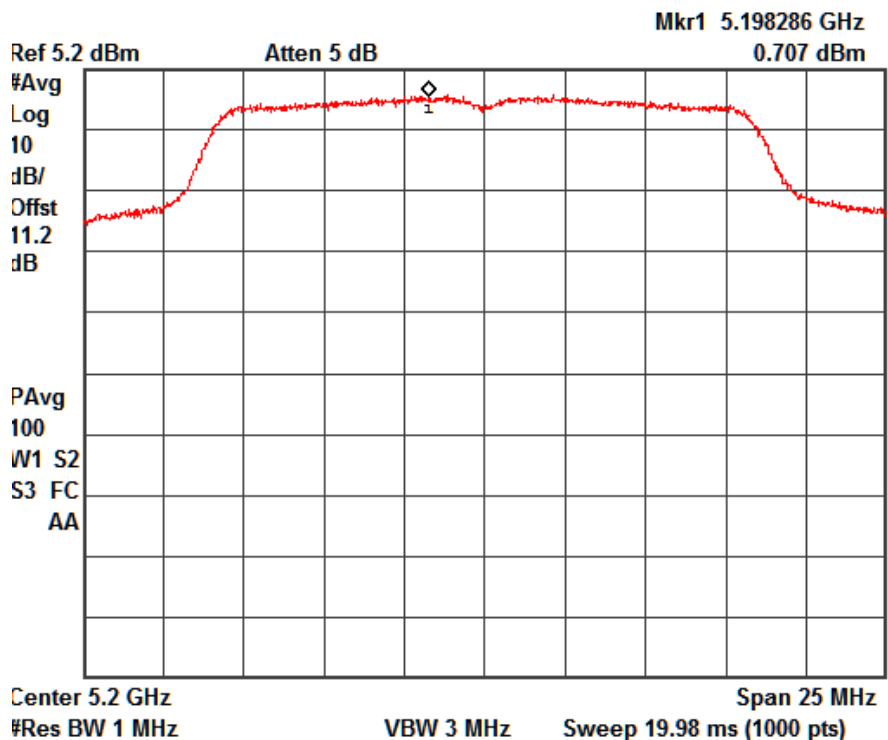
Modulation: 802.11a

Data Rate (Mbps)	Channel No.	Frequency (MHz)	PSD (dBm)	Limit (dBm)	Margin (dB)
6	36	5180	-01.24	11.00	-12.24
	40	5200	00.70	11.00	-10.30
	48	5240	-00.86	11.00	-11.86
	64	5320	-02.19	11.00	-13.19
	100	5500	-04.36	11.00	-15.36
	120	5600	-03.93	11.00	-14.93
	140	5700	-04.16	11.00	-15.16
	149	5745	00.71	30.00	-29.29
24	165	5825	-02.80	30.00	-32.80
	36	5180	-01.07	11.00	-12.07
	40	5200	00.57	11.00	-10.43
	48	5240	-01.38	11.00	-12.38
	64	5320	-02.08	11.00	-13.08
	100	5500	-04.43	11.00	-15.43
	120	5600	-04.06	11.00	-15.06
	140	5700	-04.16	11.00	-15.16
54	149	5745	-00.23	30.00	-30.23
	165	5825	-03.15	30.00	-33.15
	36	5180	-01.19	11.00	-12.19
	40	5200	00.51	11.00	-10.49
	48	5240	-01.16	11.00	-12.16
	64	5320	-01.98	11.00	-12.98
	100	5500	-04.91	11.00	-15.91
	120	5600	-04.44	11.00	-15.44
	140	5700	-04.36	11.00	-15.36
	149	5745	00.22	30.00	-29.78
	165	5825	-02.95	30.00	-32.95



Data Rate: 6Mbps

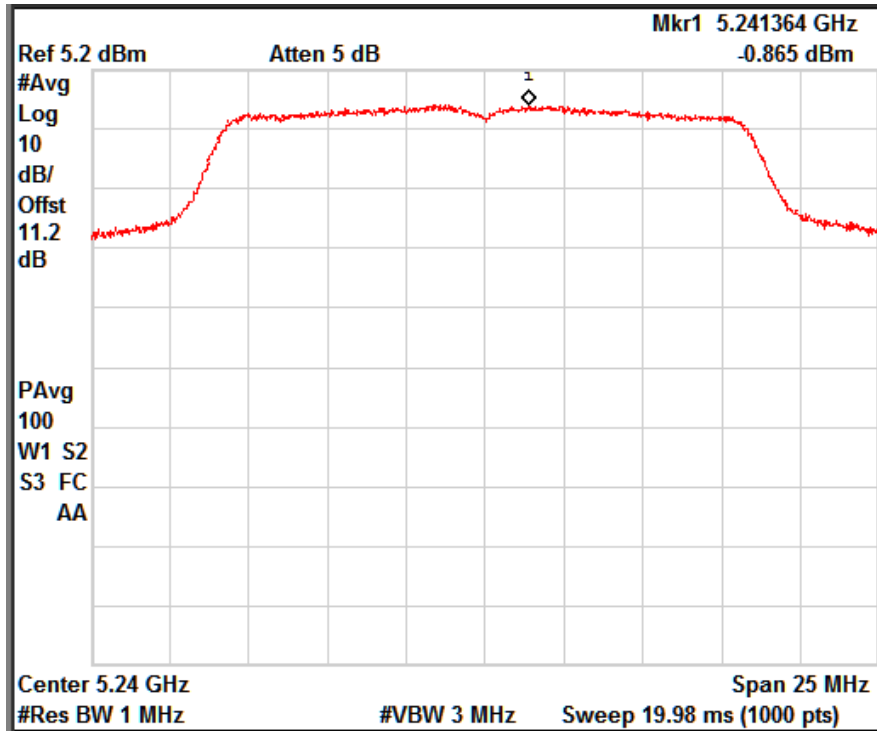
Channel Frequency: 5180MHz



Data Rate: 6Mbps

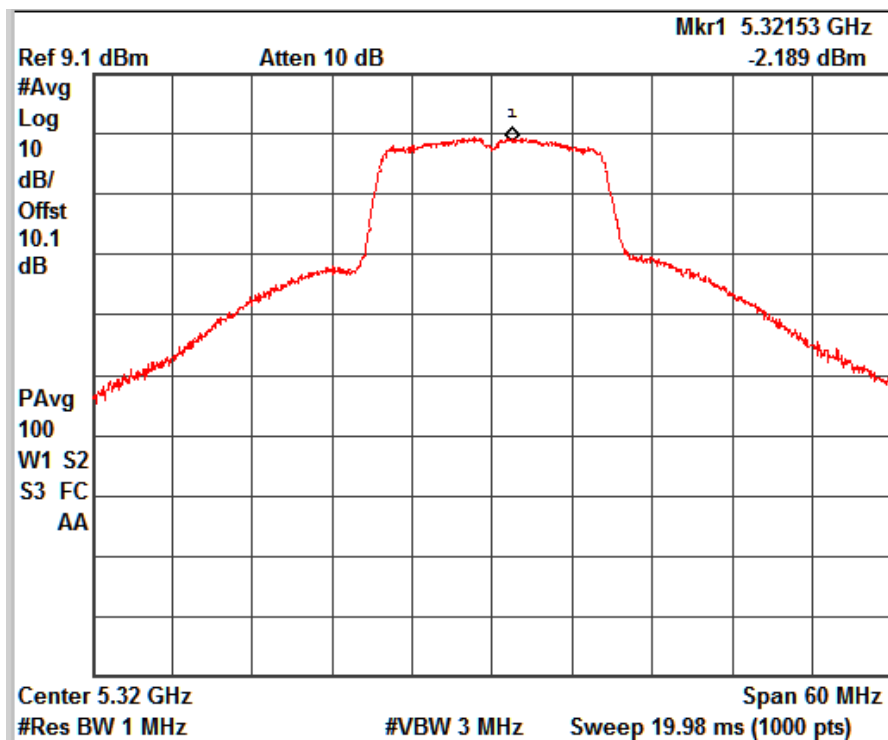
Channel Frequency: 5200MHz

www.tuv.com



Data Rate: 6Mbps

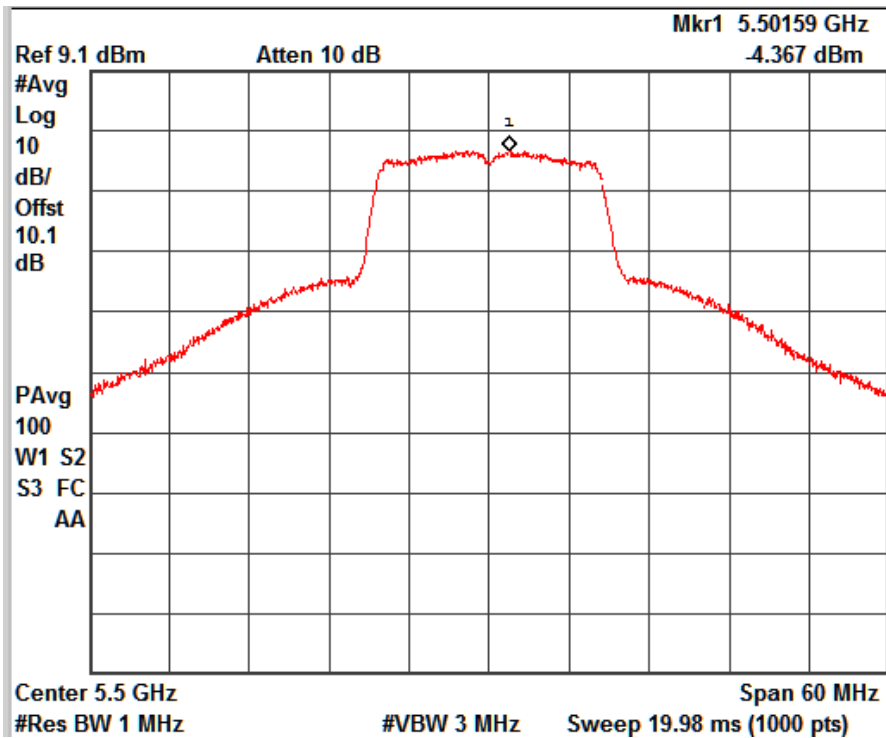
Channel Frequency: 5240MHz



Data Rate: 6Mbps

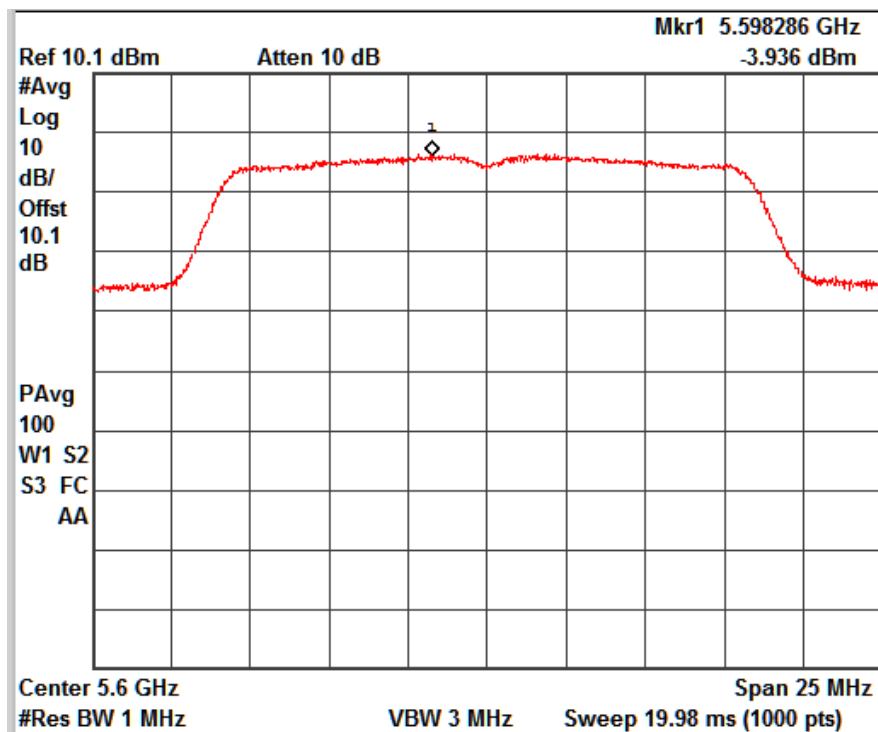
Channel Frequency: 5320MHz

www.tuv.com



Data Rate: 6Mbps

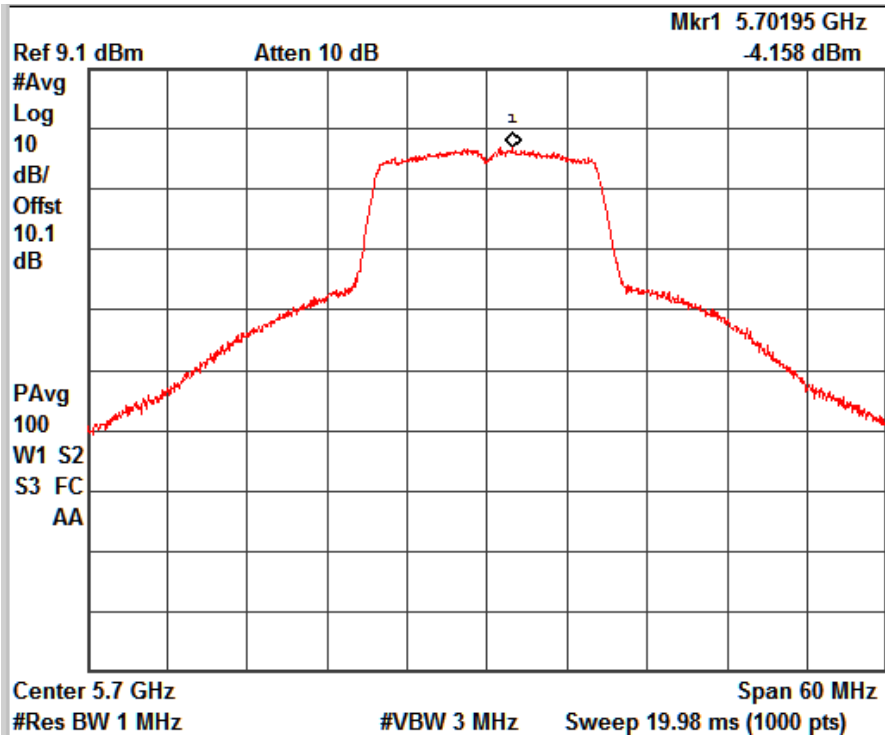
Channel Frequency: 5500MHz



Data Rate: 6Mbps

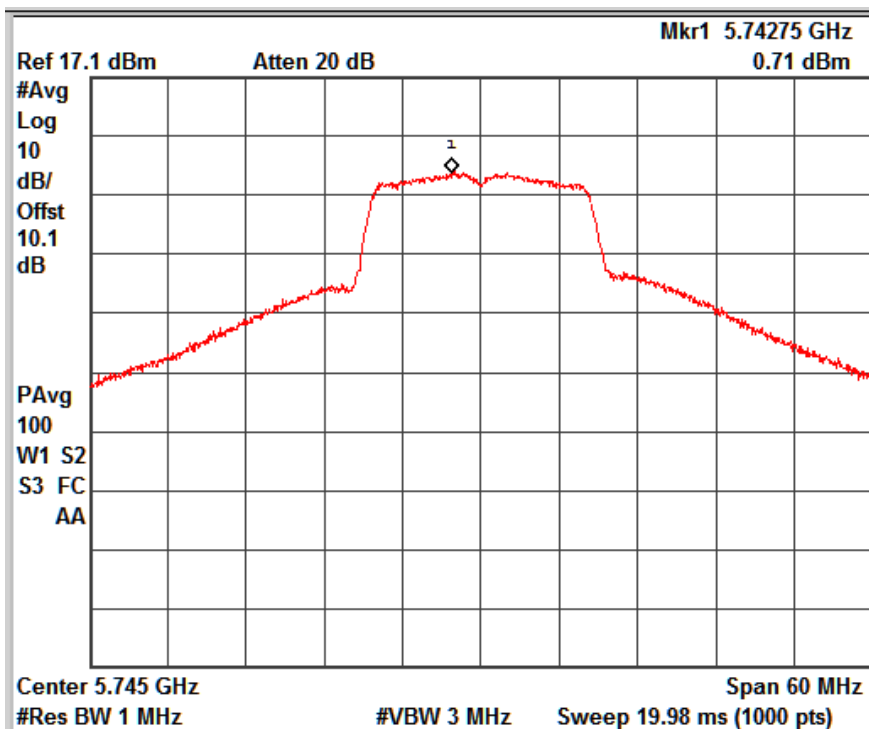
Channel Frequency: 5600MHz

www.tuv.com



Data Rate: 6Mbps

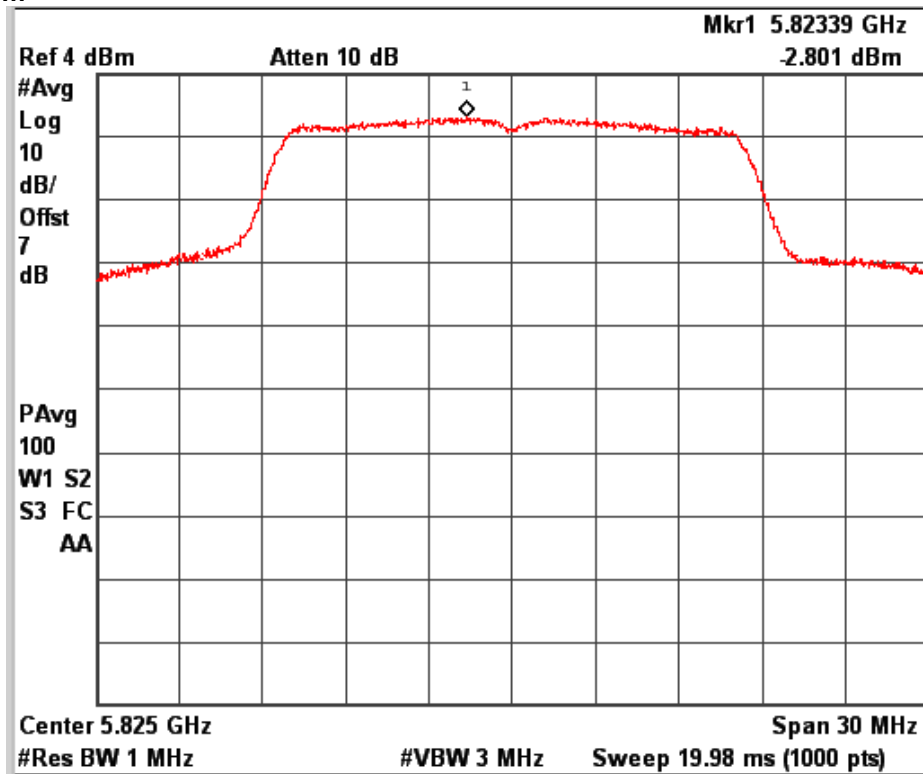
Channel Frequency: 5700MHz



Data Rate: 6Mbps

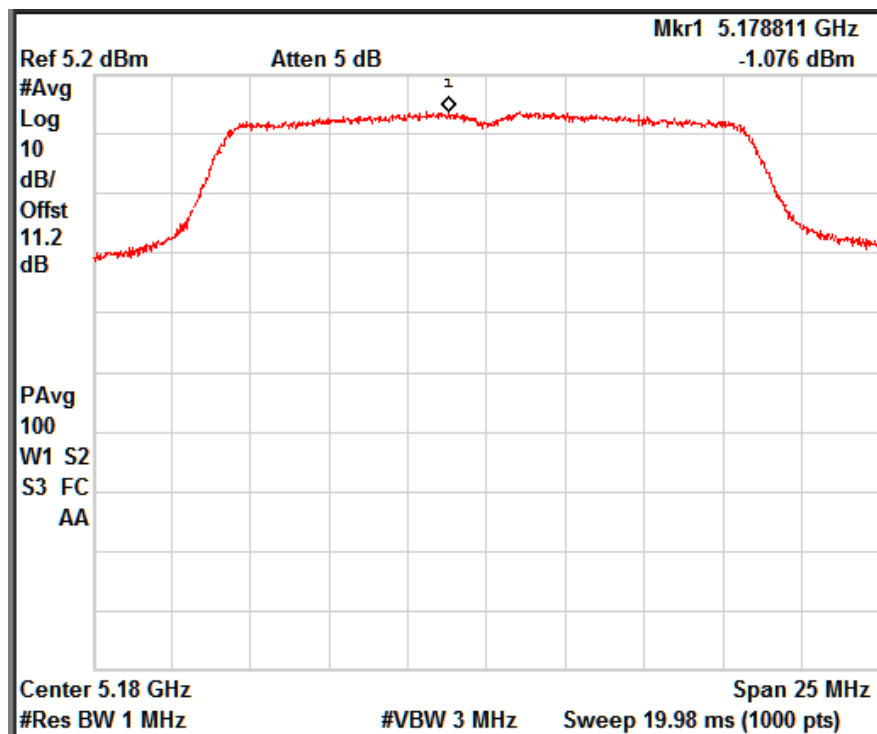
Channel Frequency: 5745MHz

www.tuv.com



Data Rate: 6Mbps

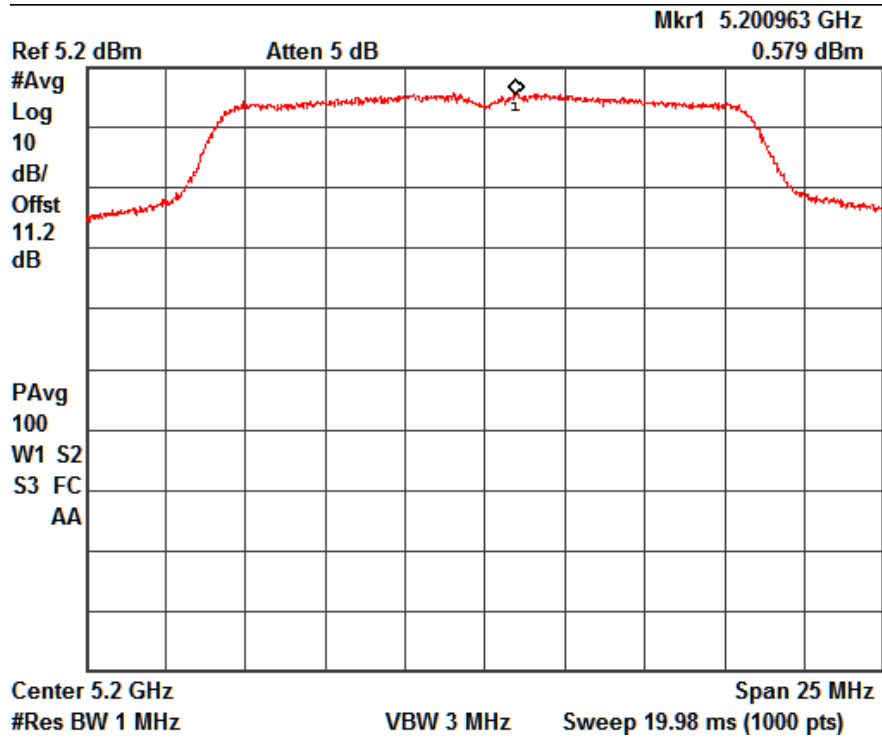
Channel Frequency: 5825MHz



Data Rate: 24Mbps

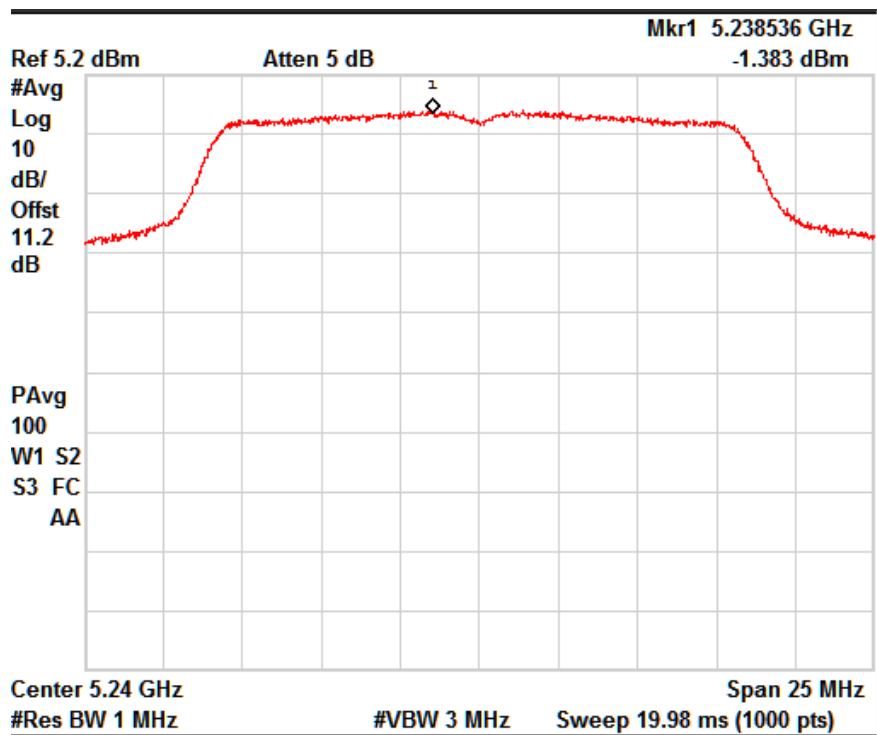
Channel Frequency: 5180MHz

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Data Rate: 24Mbps

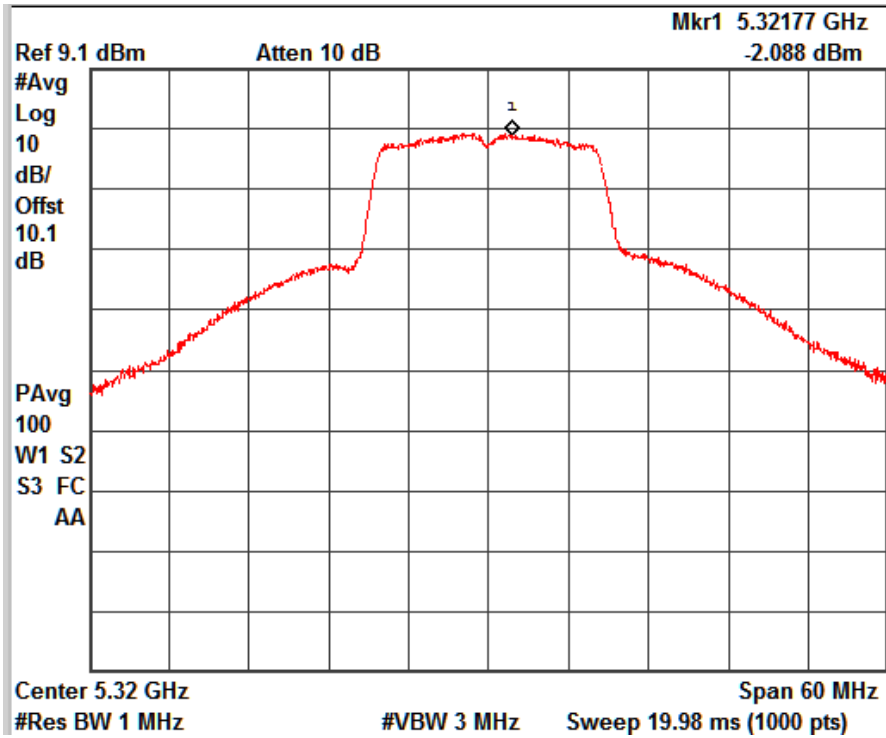
Channel Frequency: 5200MHz



Data Rate: 24Mbps

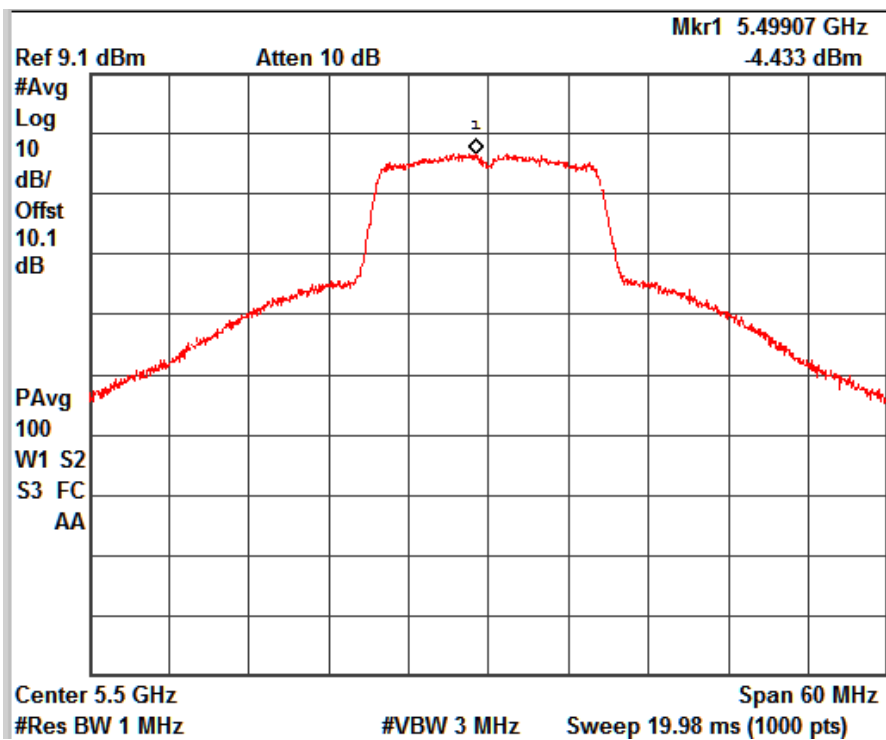
Channel Frequency: 5240MHz

www.tuv.com



Data Rate: 24Mbps

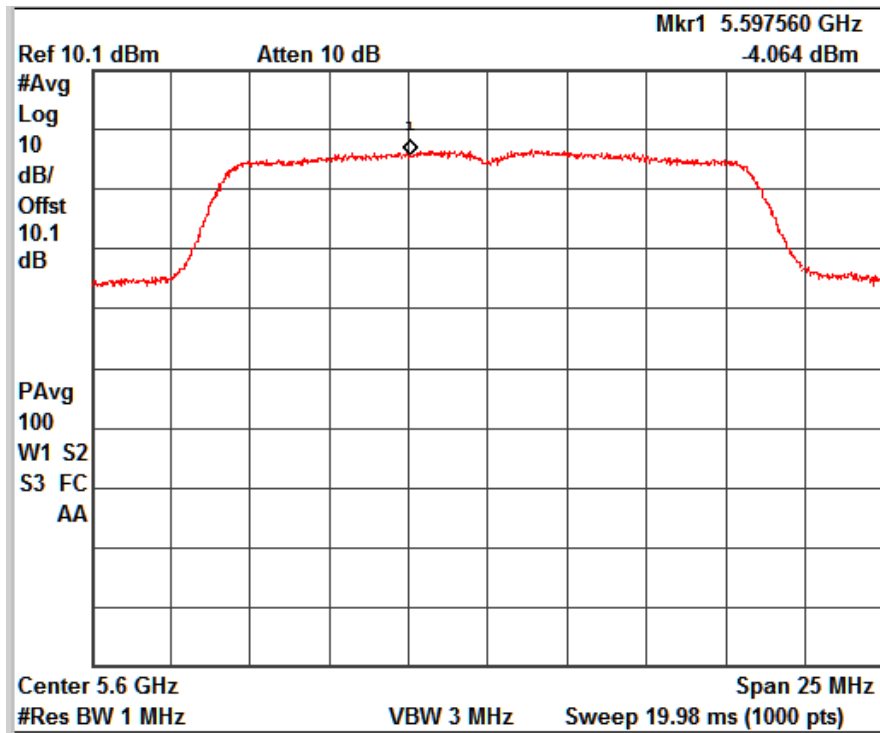
Channel Frequency: 5320MHz



Data Rate: 24Mbps

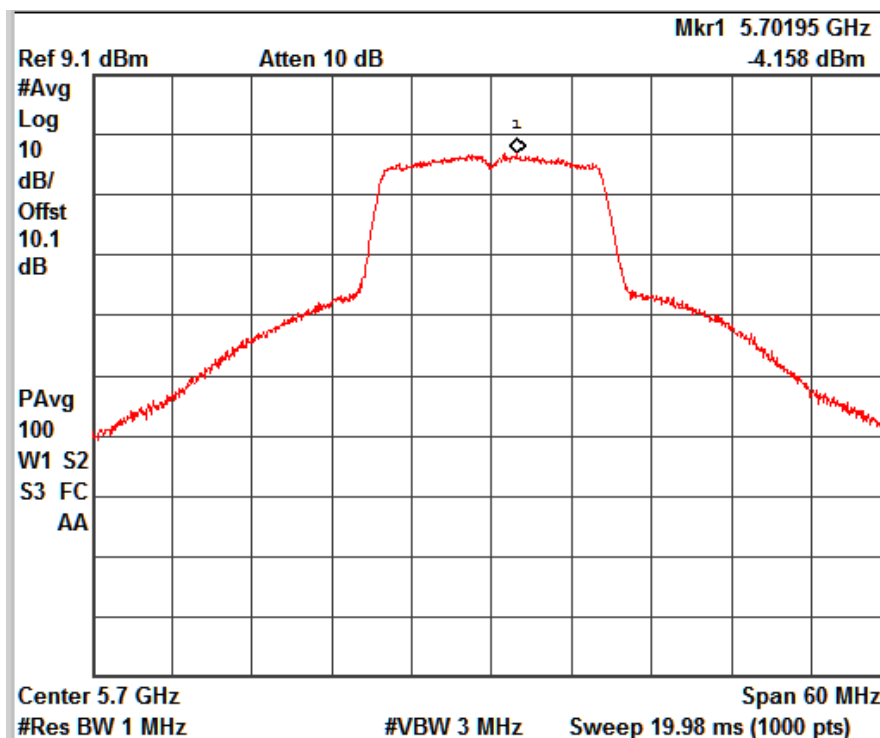
Channel Frequency: 5500MHz

www.tuv.com



Data Rate: 24Mbps

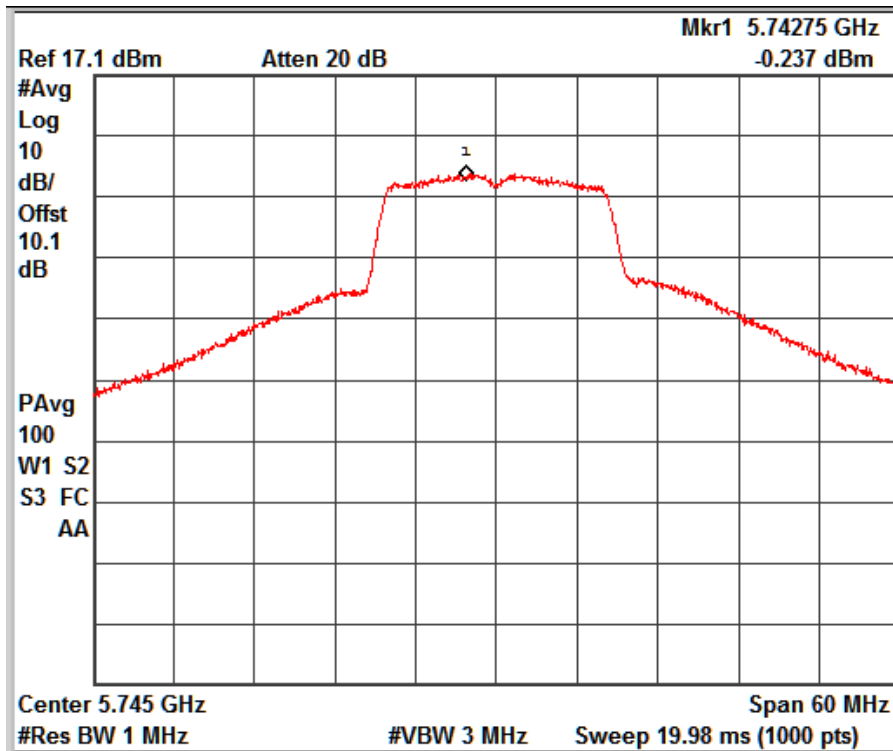
Channel Frequency: 5600MHz



Data Rate: 24Mbps

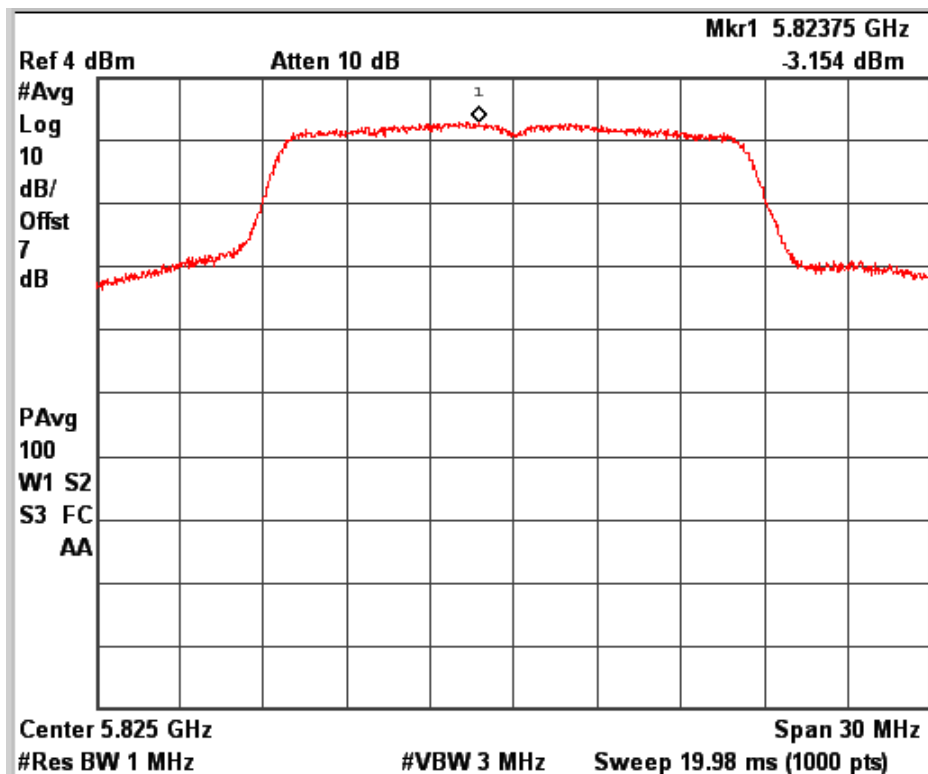
Channel Frequency: 5700MHz

www.tuv.com



Data Rate: 24Mbps

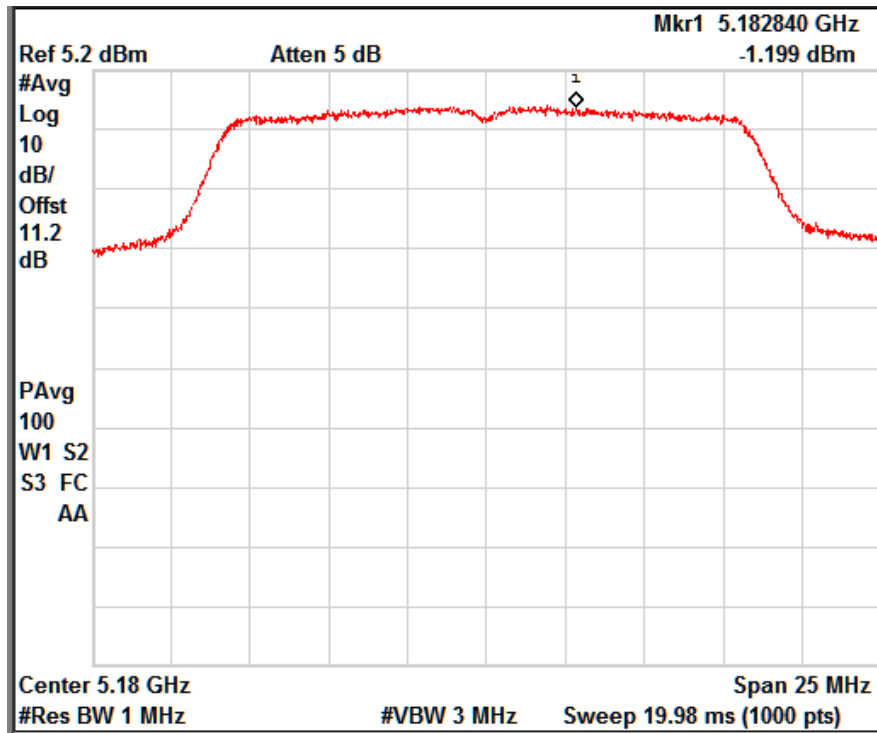
Channel Frequency: 5745MHz



Data Rate: 24Mbps

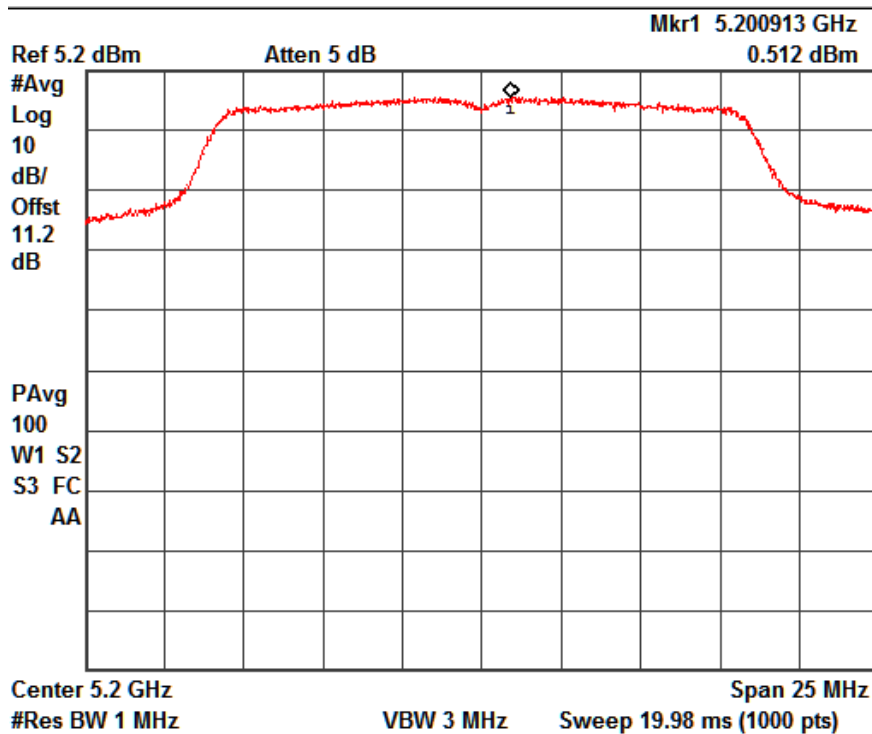
Channel Frequency: 5825MHz

www.tuv.com



Data Rate: 54Mbps

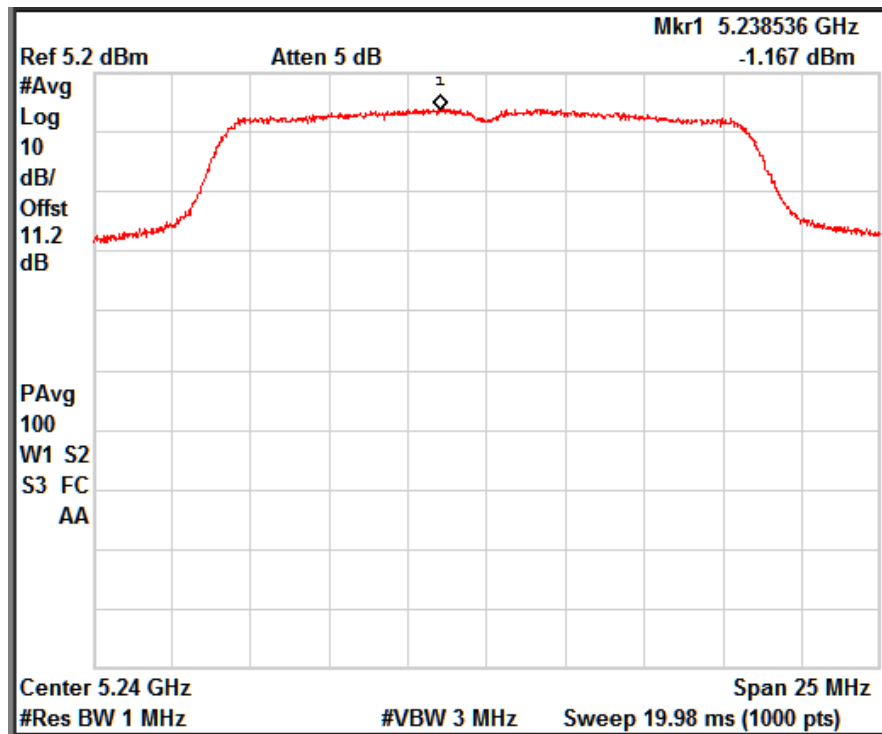
Channel Frequency: 5180MHz



Data Rate: 54Mbps

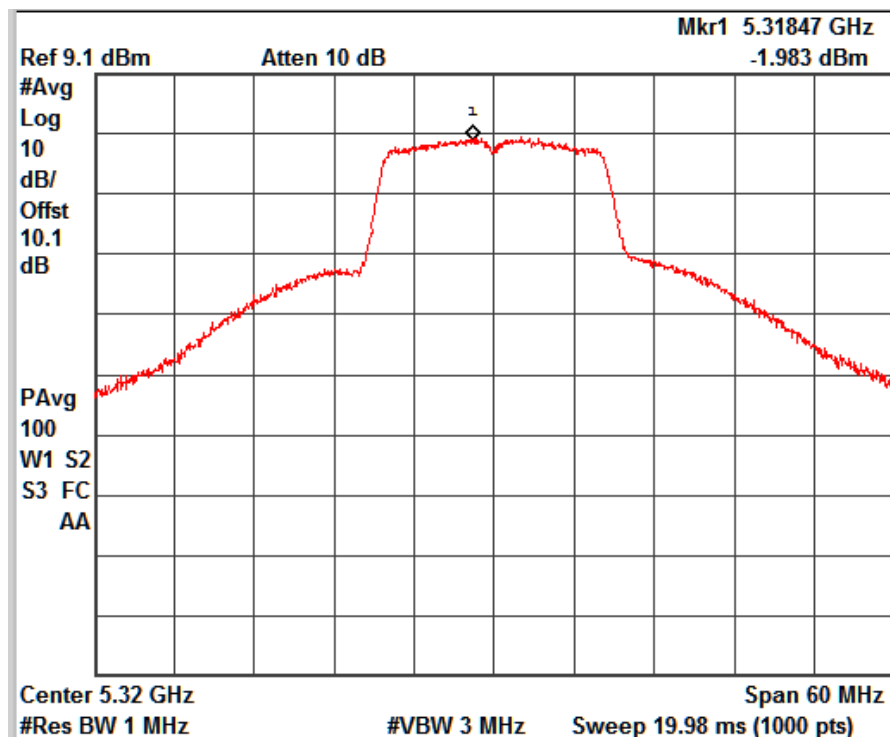
Channel Frequency: 5200MHz

www.tuv.com



Data Rate: 54Mbps

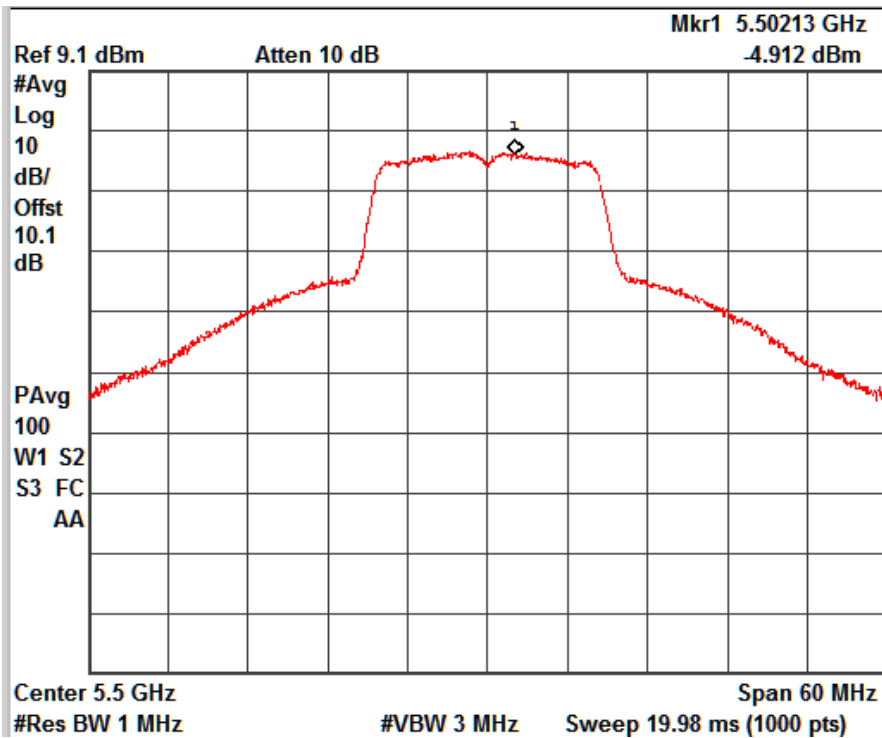
Channel Frequency: 5240MHz



Data Rate: 54Mbps

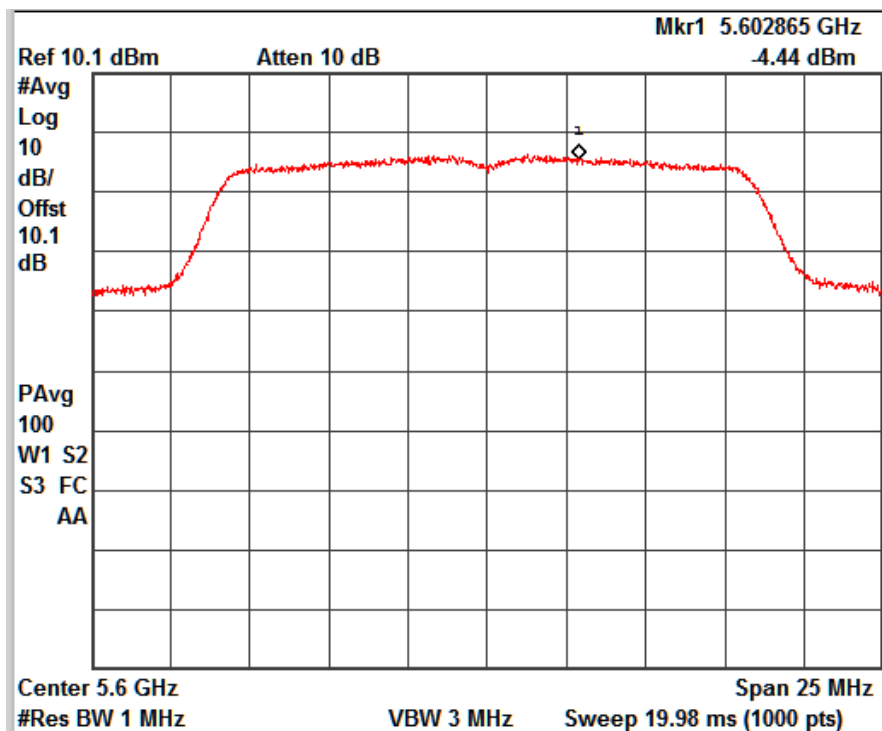
Channel Frequency: 5320MHz

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Data Rate: 54Mbps

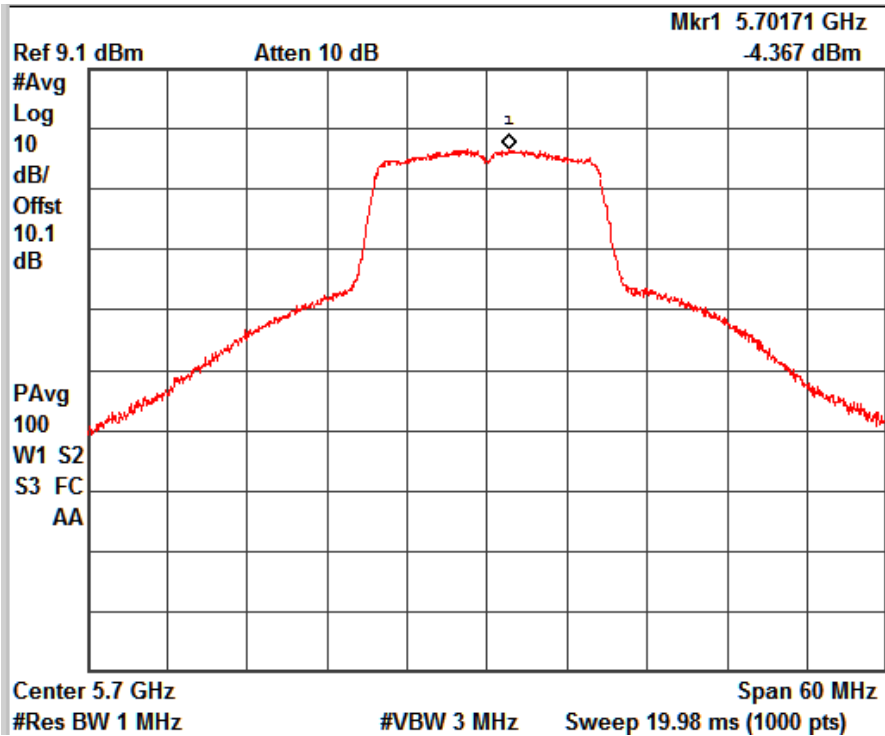
Channel Frequency: 5500MHz



Data Rate: 54Mbps

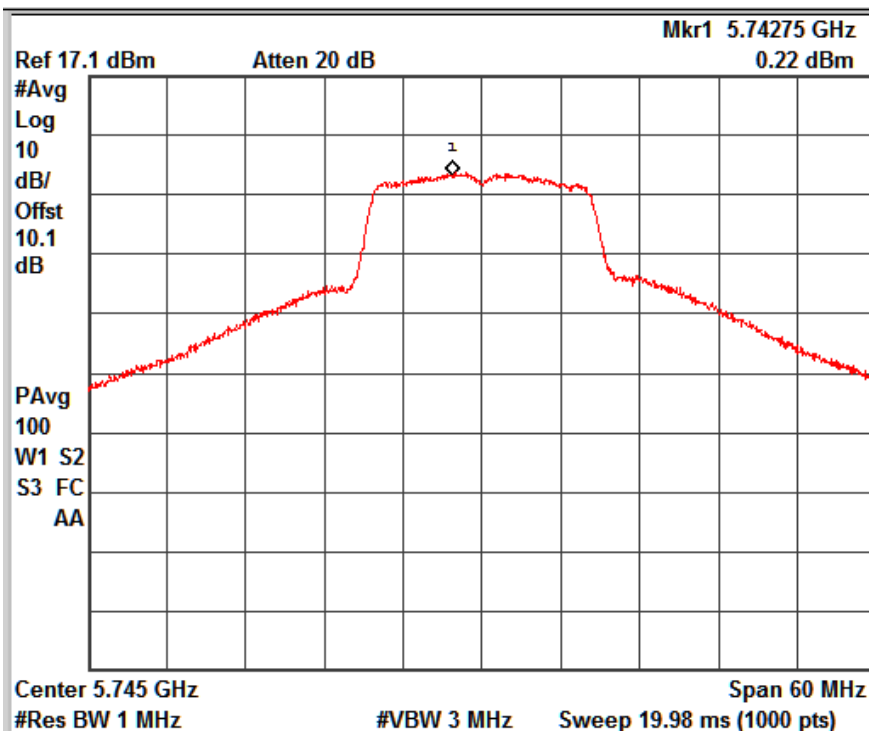
Channel Frequency: 5600MHz

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Data Rate: 54Mbps

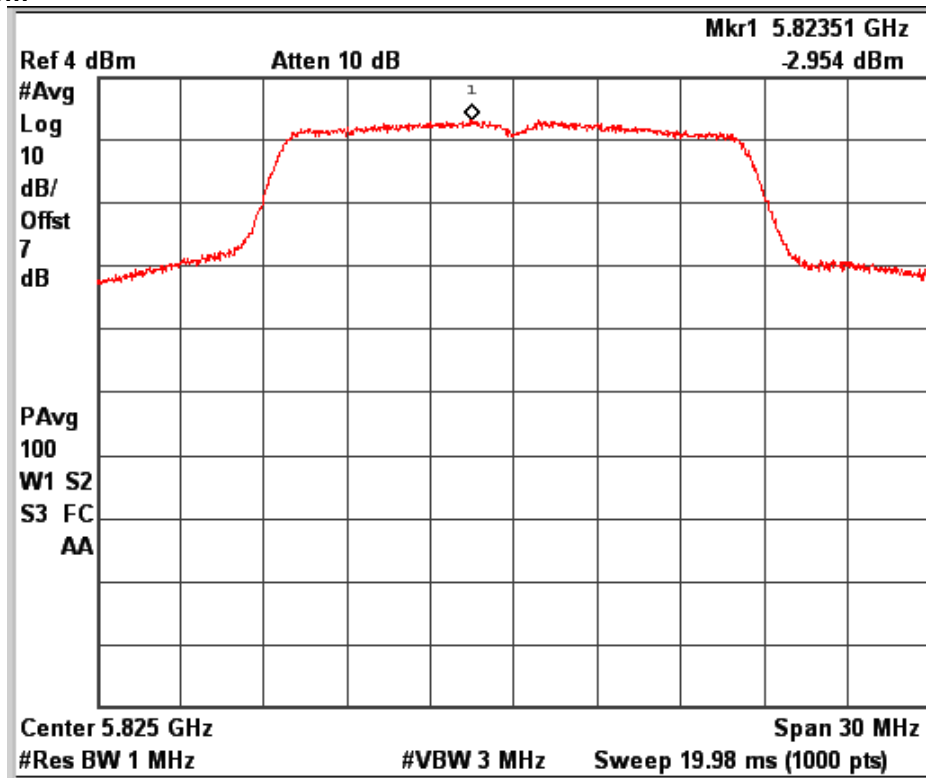
Channel Frequency: 5700MHz



Data Rate: 54Mbps

Channel Frequency: 5745MHz

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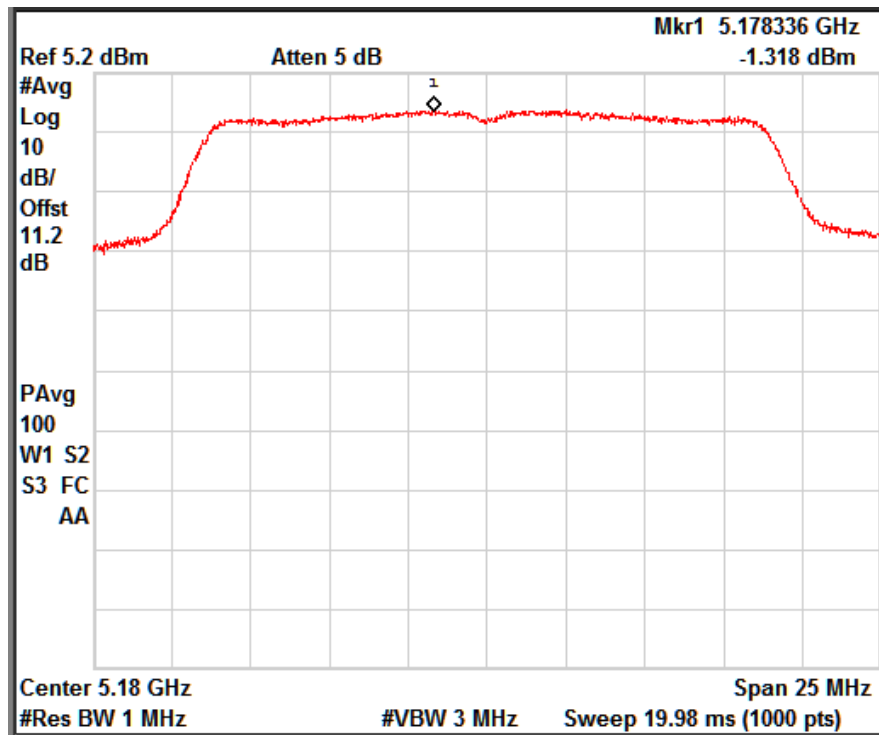
Data Rate: 54Mbps

Channel Frequency: 5825MHz

Modulation: 802.11n

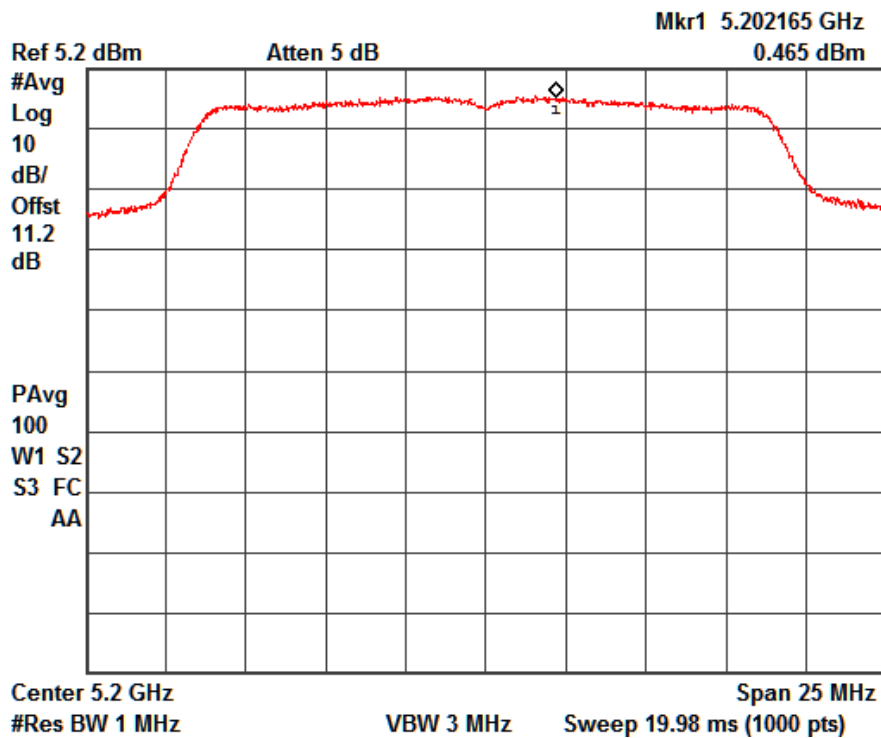
Data Rate (Mbps)	Channel No.	Frequency (MHz)	PSD (dBm)	Limit (dBm)	Margin (dB)
6.5	36	5180	-01.31	11.00	-12.31
	40	5200	00.46	11.00	-10.54
	48	5240	-01.27	11.00	-12.27
	64	5320	-02.77	11.00	-13.77
	100	5500	-05.50	11.00	-16.50
	120	5600	-04.18	11.00	15.18
	140	5700	-06.18	11.00	-17.18
	149	5745	00.13	30.00	-38.36
39	165	5825	-03.35	30.00	-33.35
	36	5180	-01.19	11.00	-12.19
	40	5200	00.17	11.00	-10.83
	48	5240	-01.54	11.00	-12.54
	64	5320	-02.43	11.00	-13.43
	100	5500	-04.74	11.00	-15.74
	120	5600	-03.31	11.00	-14.31
	140	5700	-05.80	11.00	-16.80
65	149	5745	00.23	30.00	-38.25
	165	5825	-03.47	30.00	-33.47
	36	5180	-00.89	11.00	-11.89
	40	5200	00.32	11.00	-10.68
	48	5240	-01.51	11.00	-12.51
	64	5320	-02.75	11.00	-13.75
	100	5500	-04.75	11.00	-15.75
	120	5600	-03.58	11.00	-14.58
	140	5700	-06.31	11.00	-17.31
	149	5745	00.08	30.00	-37.99
	165	5825	-03.69	30.00	-33.69

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Data Rate: 6.5Mbps

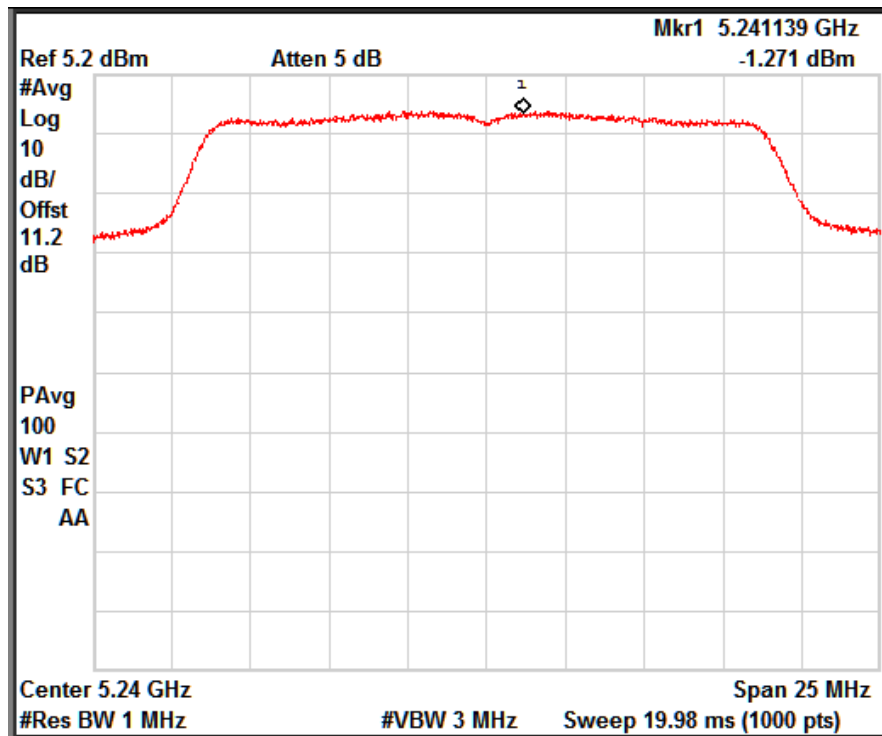
Channel Frequency: 5180MHz



Data Rate: 6.5Mbps

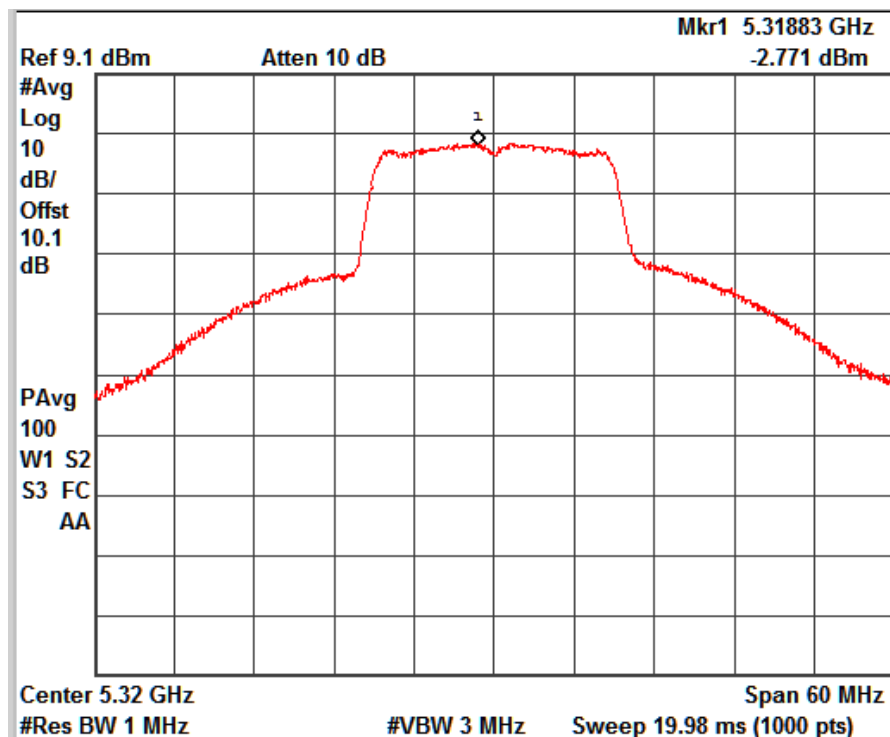
Channel Frequency: 5200MHz

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Data Rate: 6.5Mbps

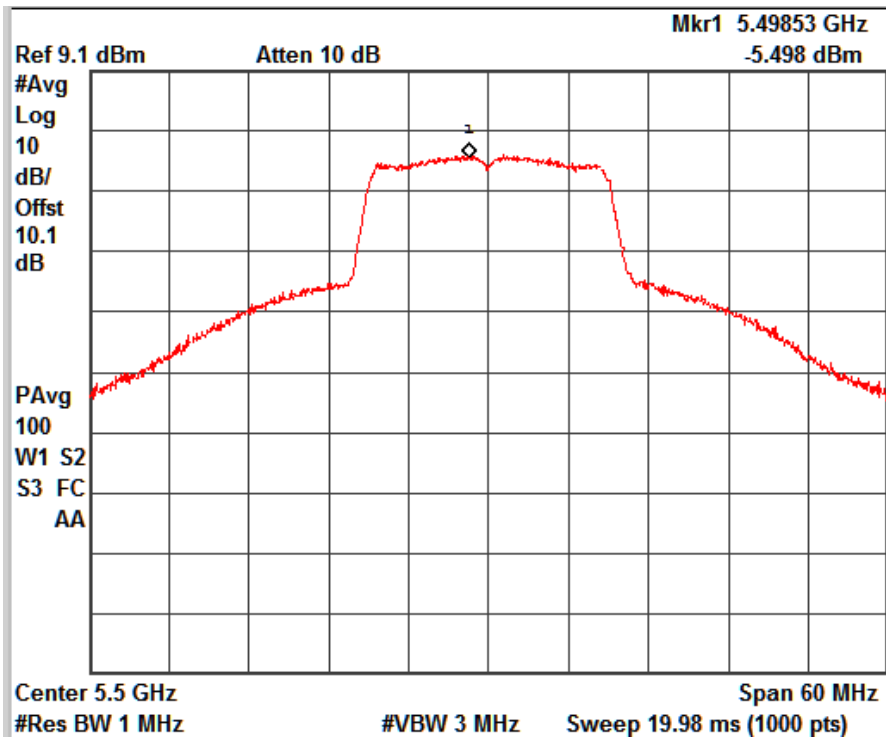
Channel Frequency: 5240MHz



Data Rate: 6.5Mbps

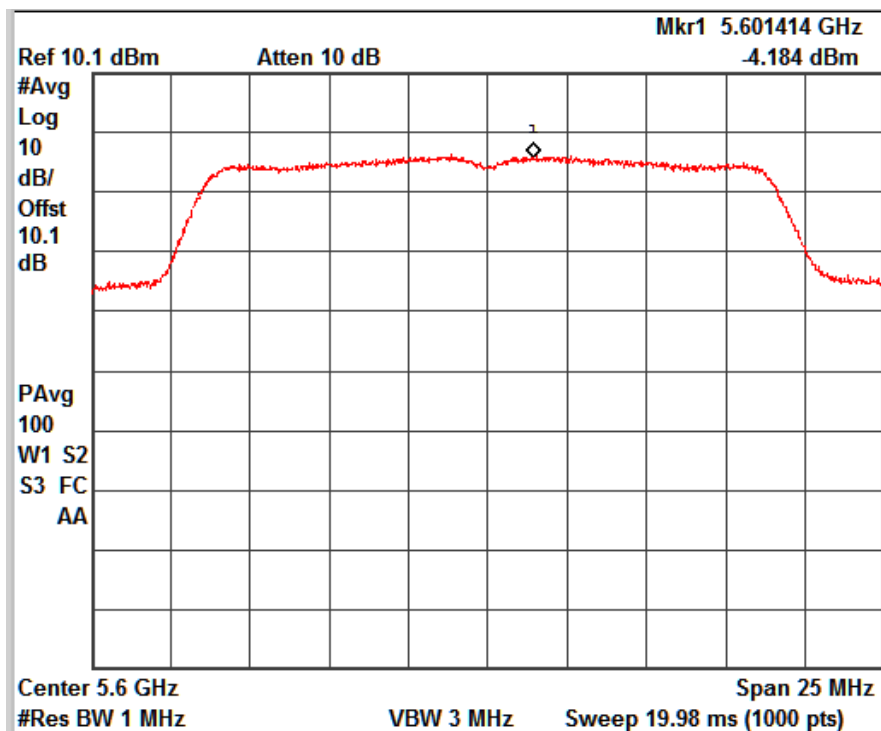
Channel Frequency: 5320MHz

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Data Rate: 6.5Mbps

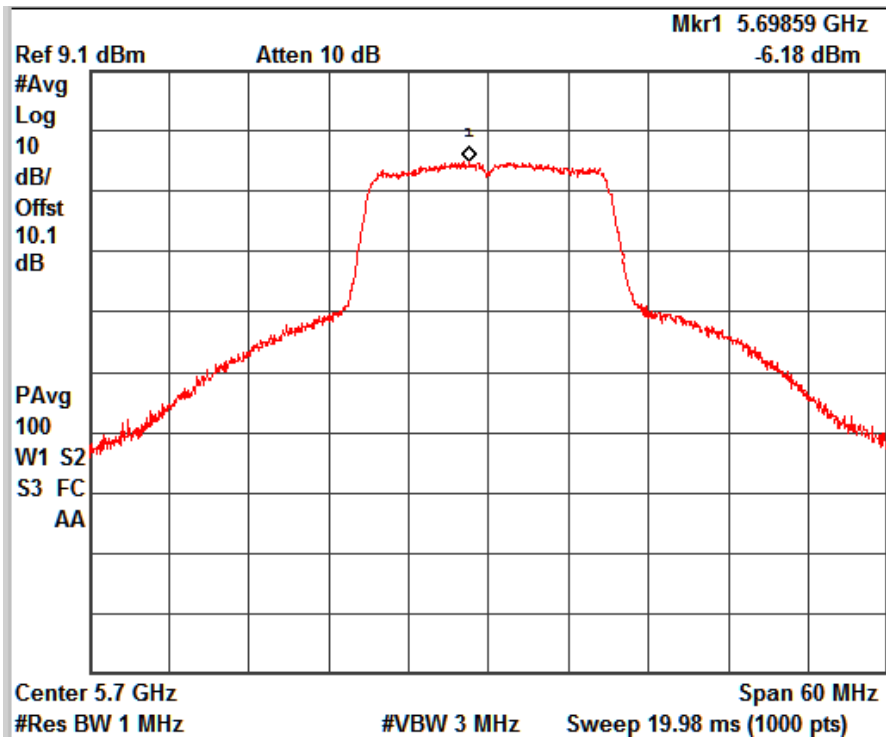
Channel Frequency: 5500MHz



Data Rate: 6.5Mbps

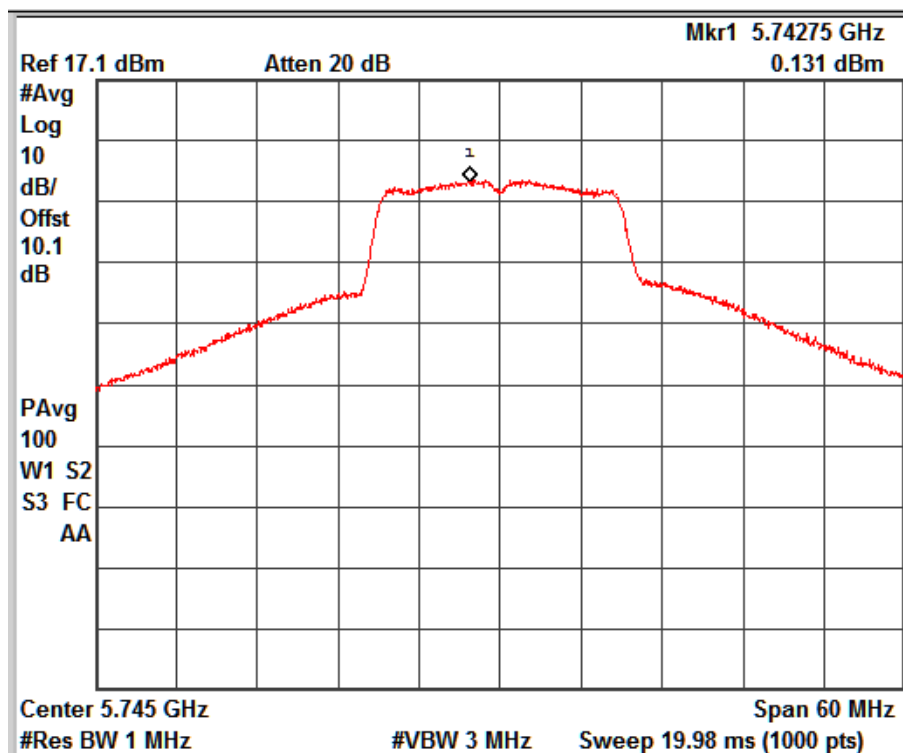
Channel Frequency: 5600MHz

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Data Rate: 6.5Mbps

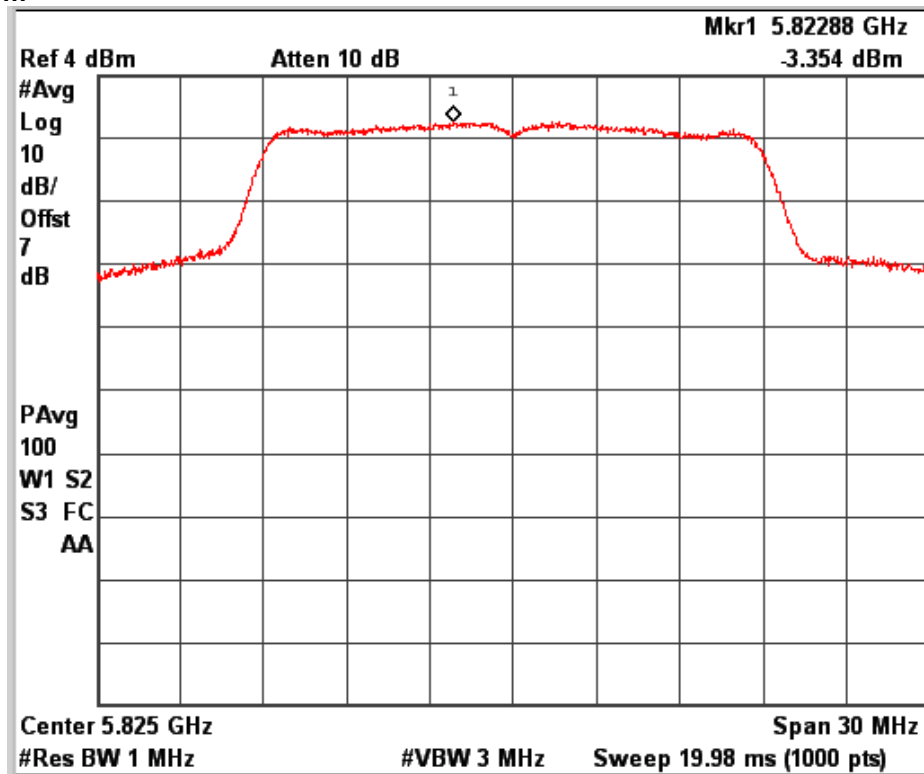
Channel Frequency: 5700MHz



Data Rate: 6.5Mbps

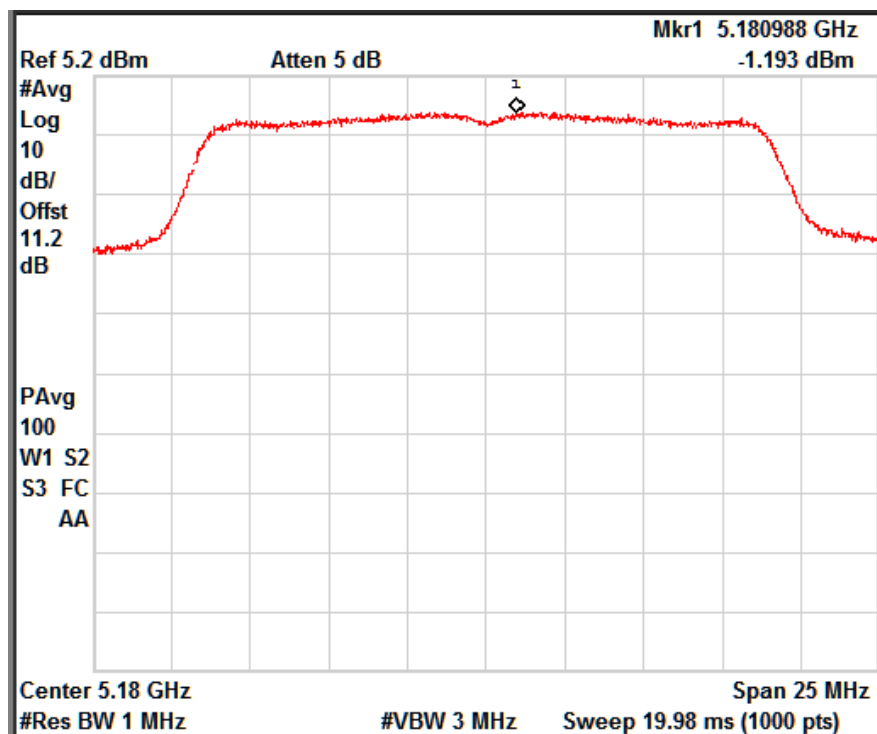
Channel Frequency: 5745MHz

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Data Rate: 6.5Mbps

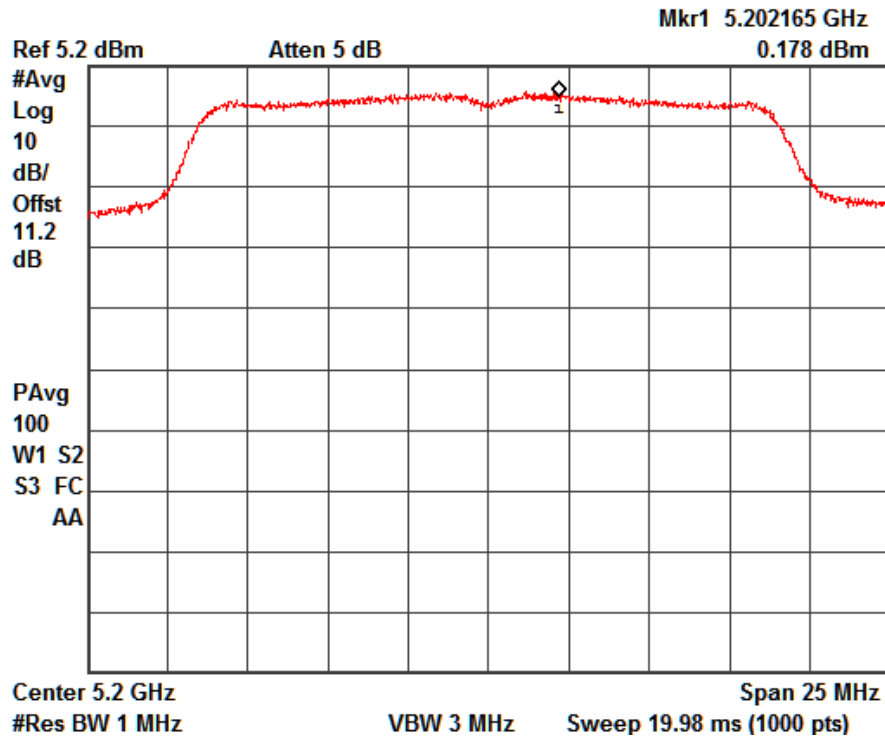
Channel Frequency: 5825MHz



Data Rate: 39Mbps

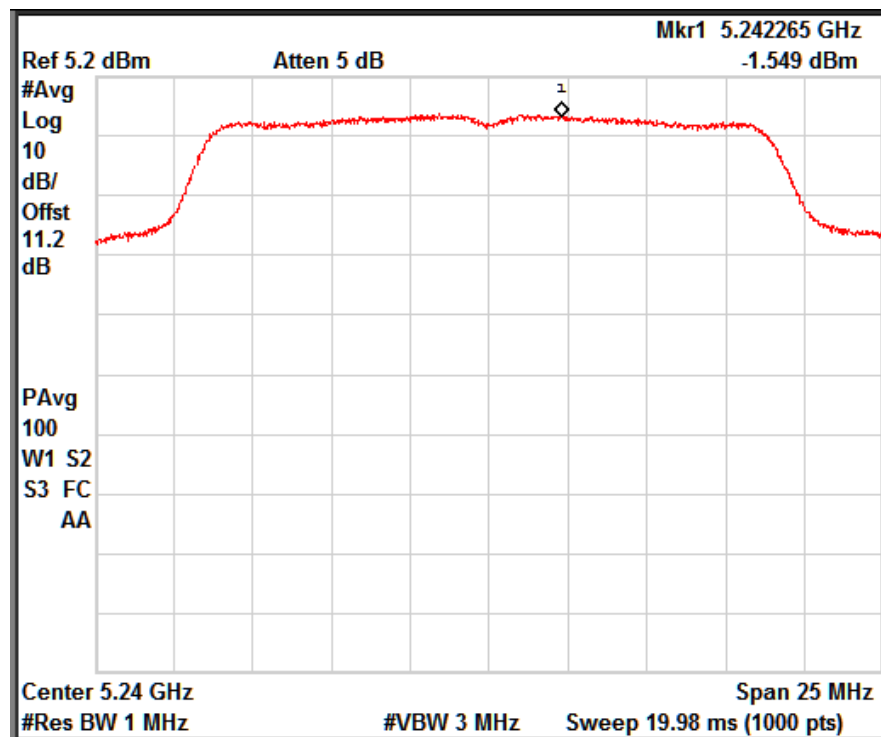
Channel Frequency: 5180MHz

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Data Rate: 39Mbps

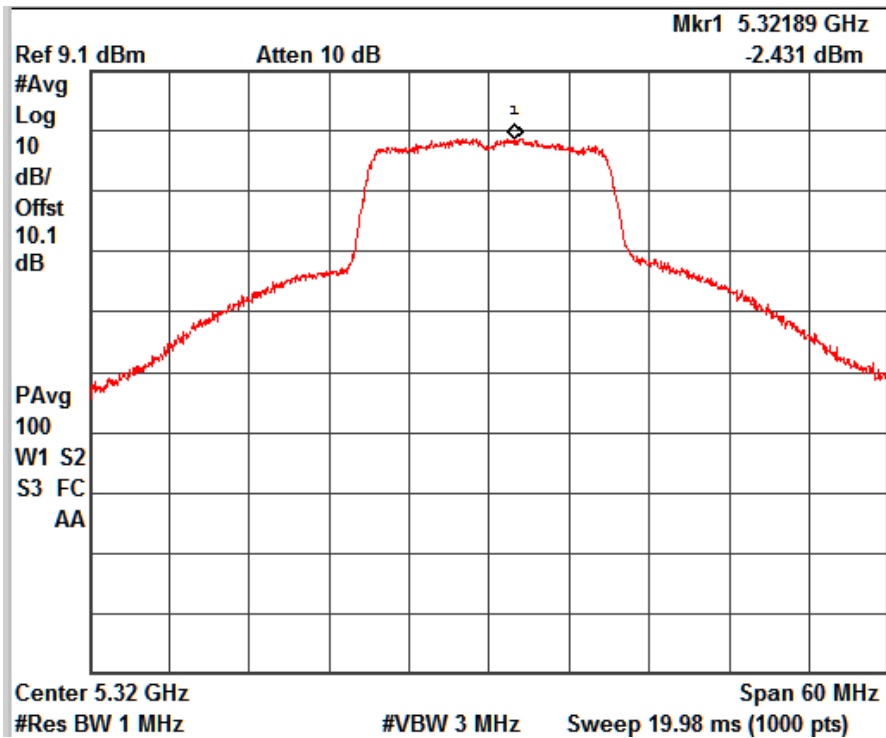
Channel Frequency: 5180MHz



Data Rate: 39Mbps

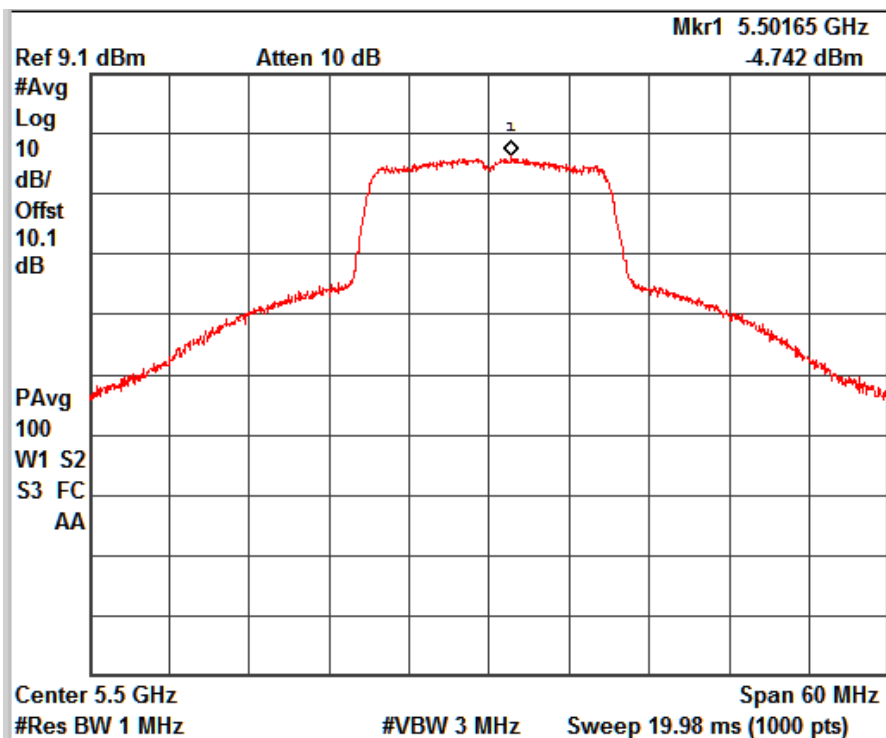
Channel Frequency: 5240MHz

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Data Rate: 39Mbps

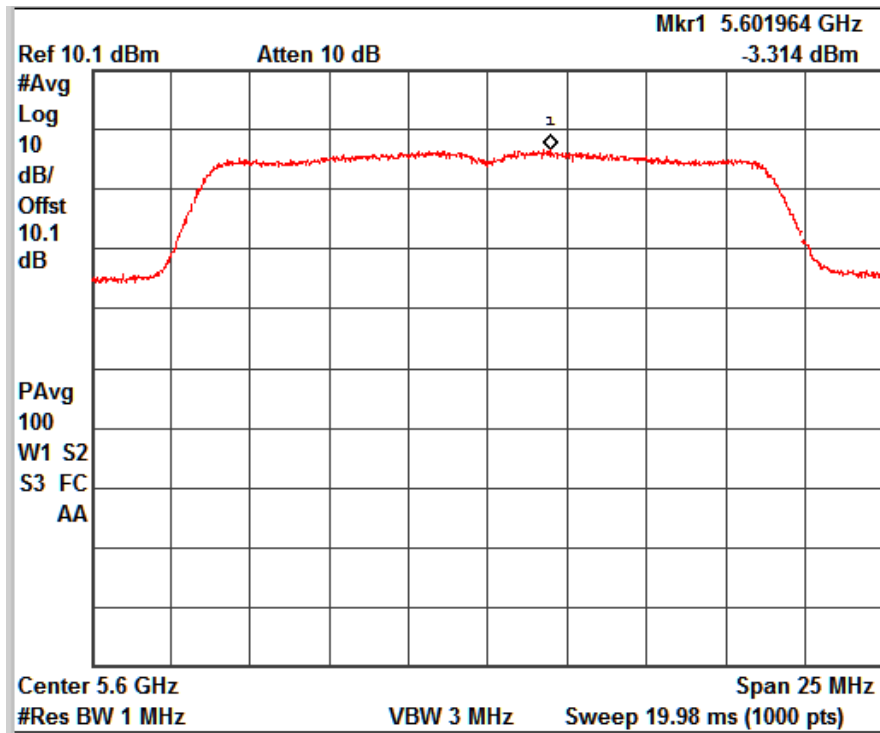
Channel Frequency: 5320MHz



Data Rate: 39Mbps

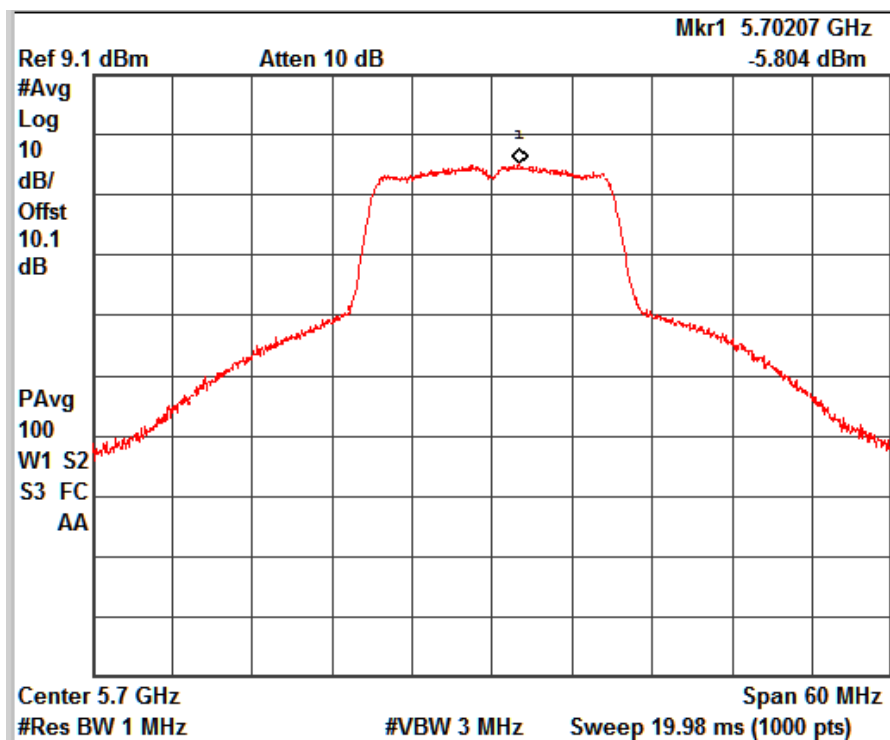
Channel Frequency: 5500MHz

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Data Rate: 39Mbps

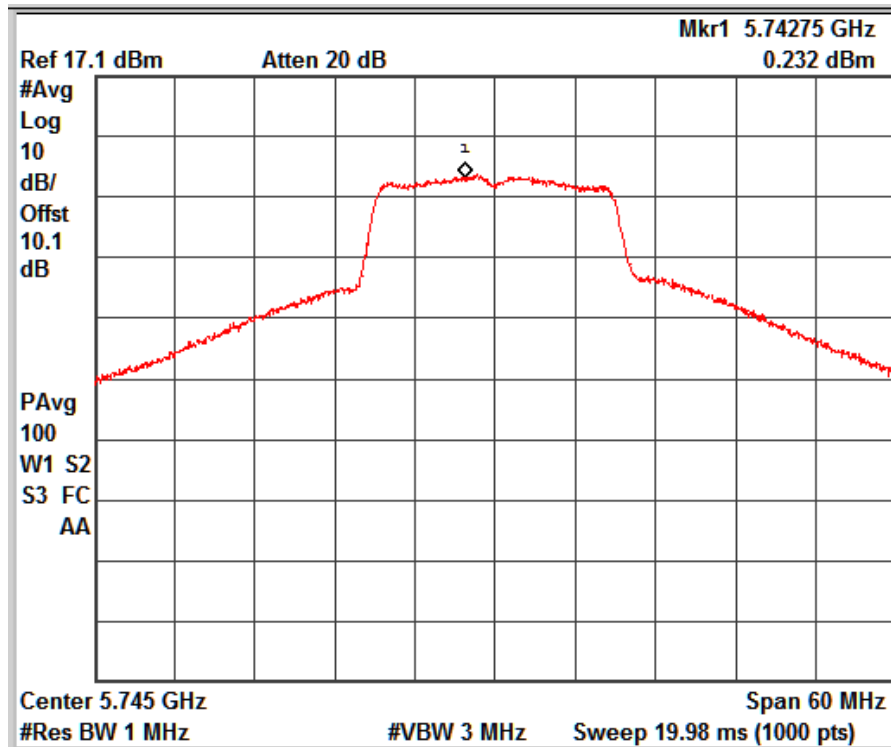
Channel Frequency: 5600MHz



Data Rate: 39Mbps

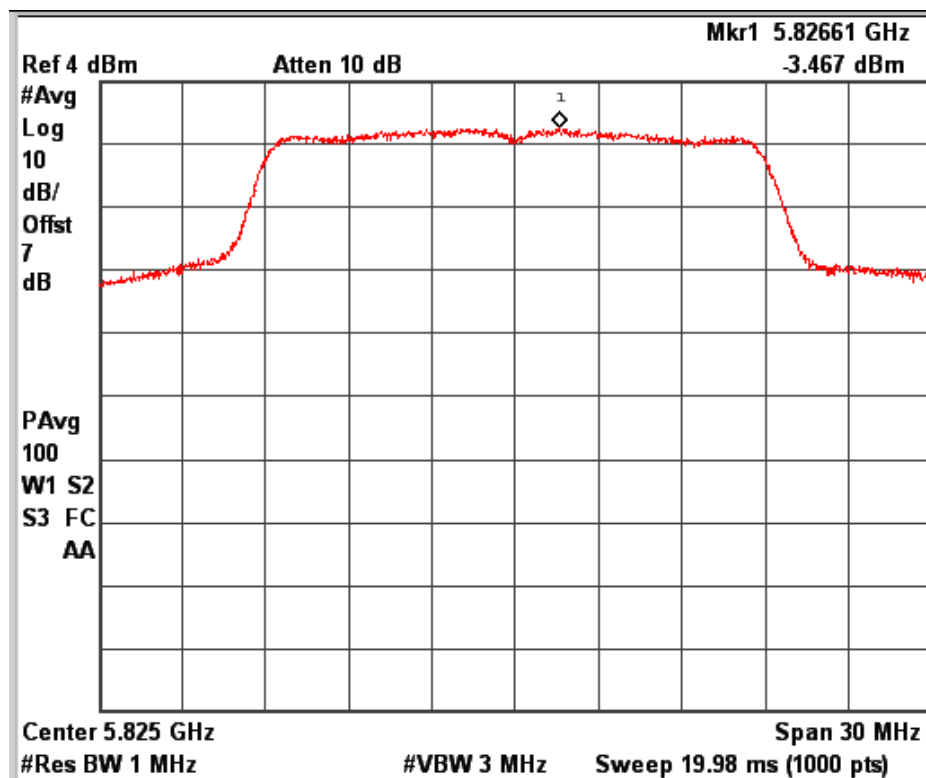
Channel Frequency: 5700MHz

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Data Rate: 39Mbps

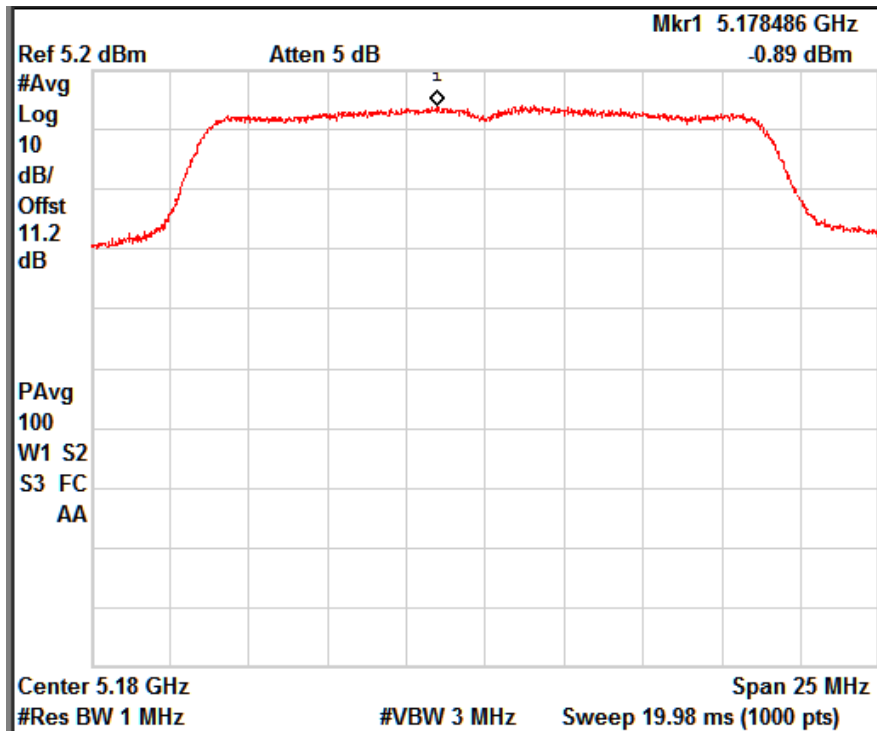
Channel Frequency: 5745MHz



Data Rate: 39Mbps

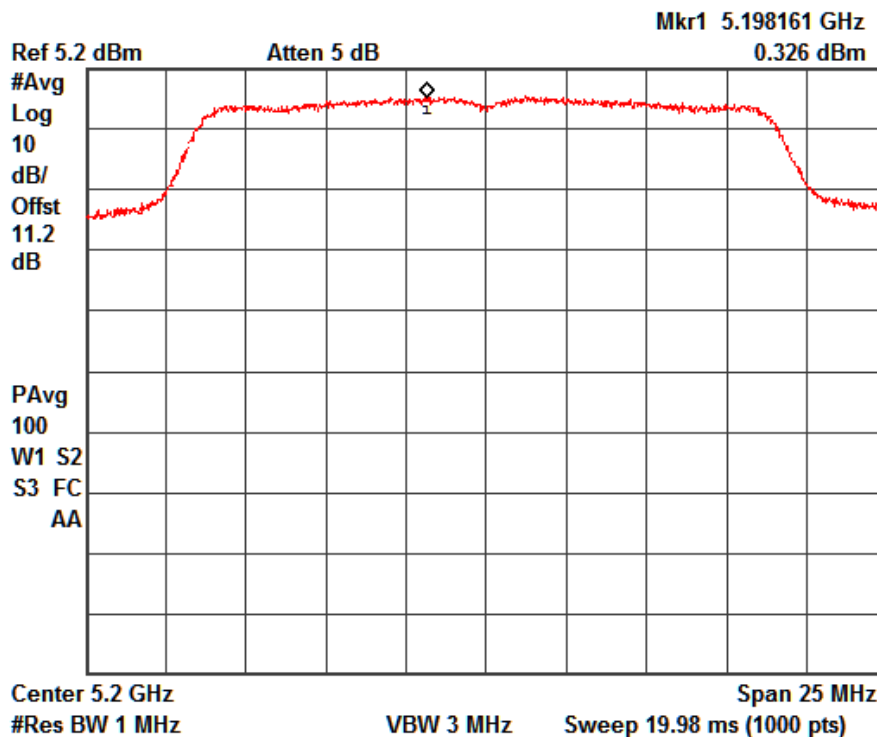
Channel Frequency: 5825MHz

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Data Rate: 65Mbps

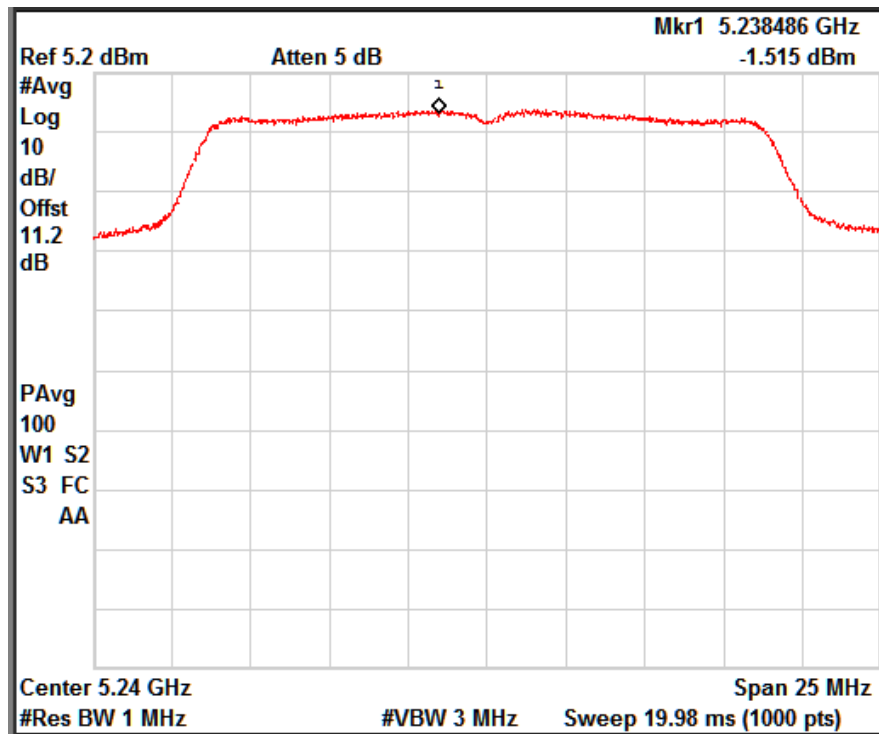
Channel Frequency: 5180MHz



Data Rate: 65Mbps

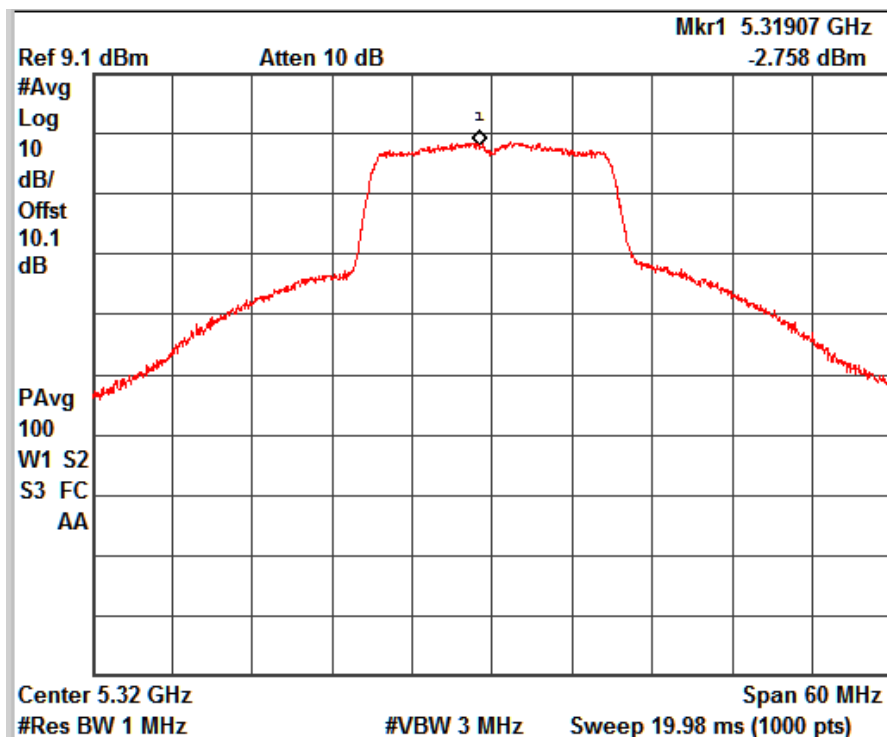
Channel Frequency: 5200MHz

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Data Rate: 65Mbps

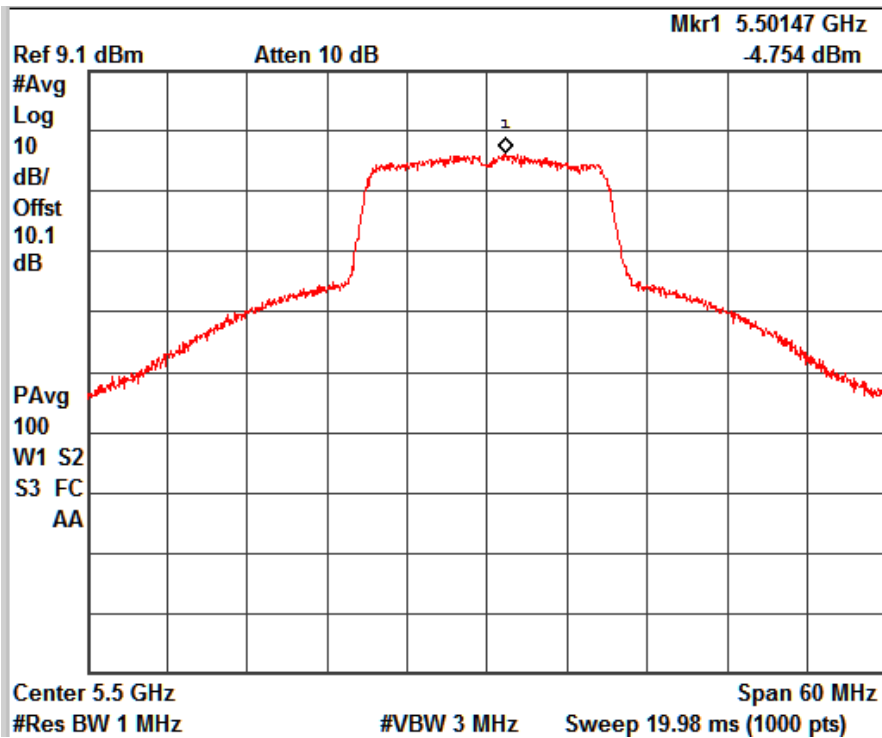
Channel Frequency: 5240MHz



Data Rate: 65Mbps

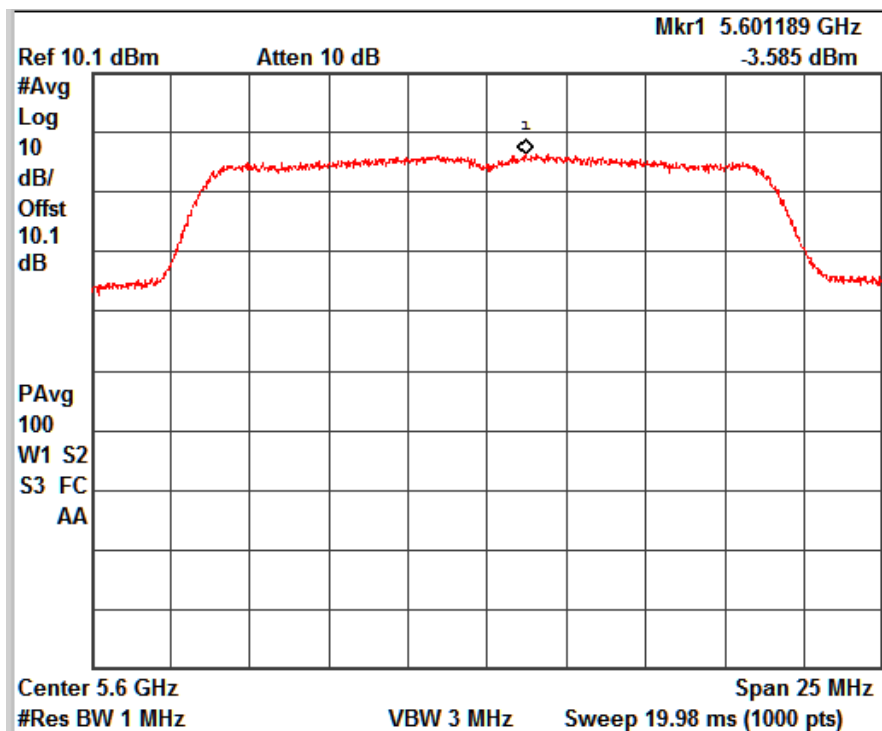
Channel Frequency: 5320MHz

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Data Rate: 65Mbps

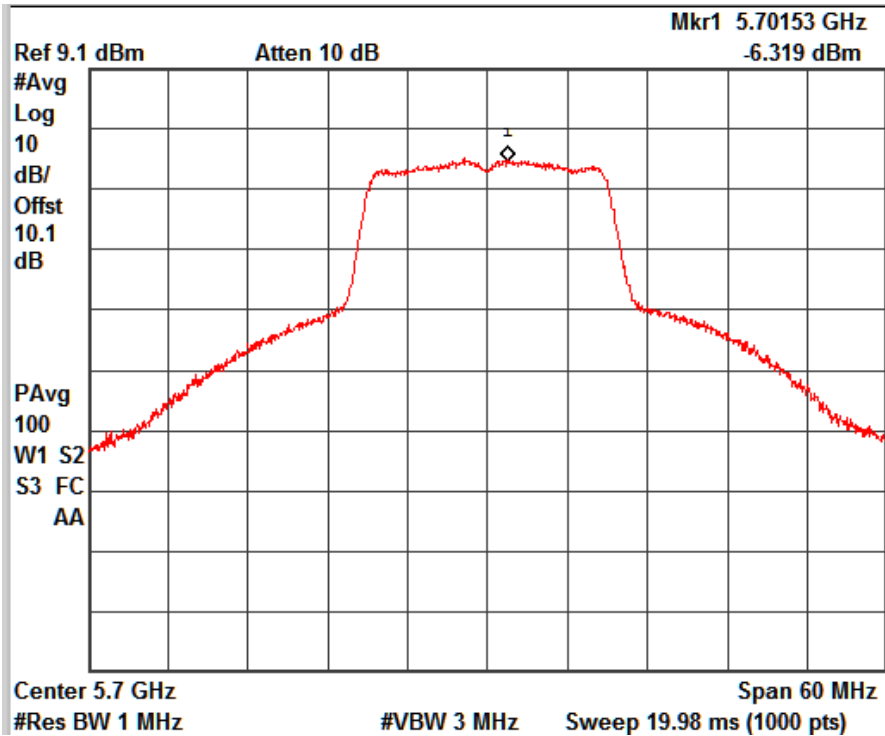
Channel Frequency: 5500MHz



Data Rate: 65Mbps

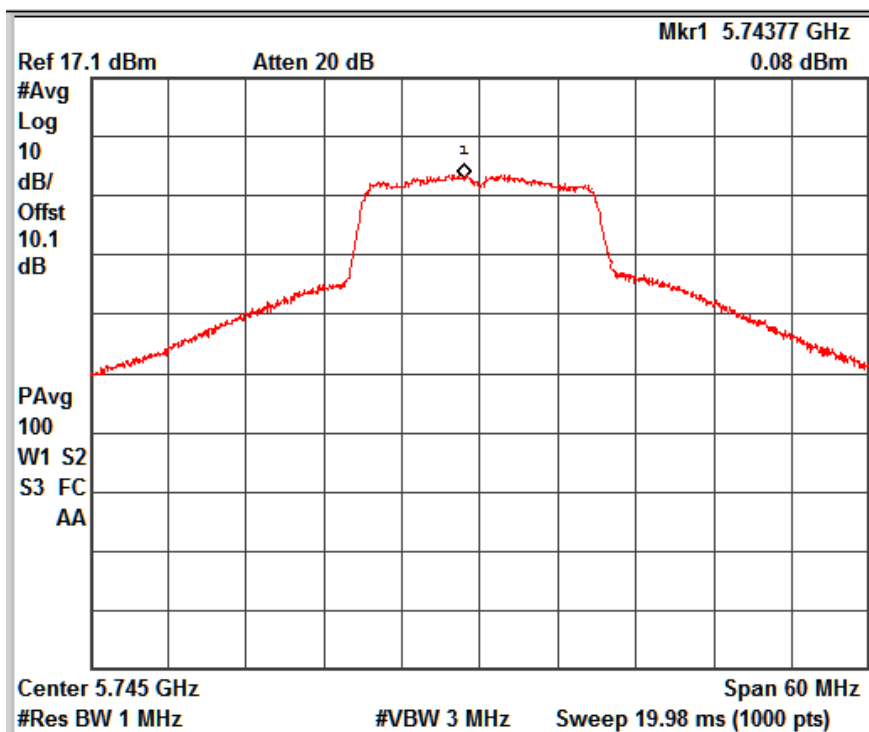
Channel Frequency: 5600MHz

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Data Rate: 65Mbps

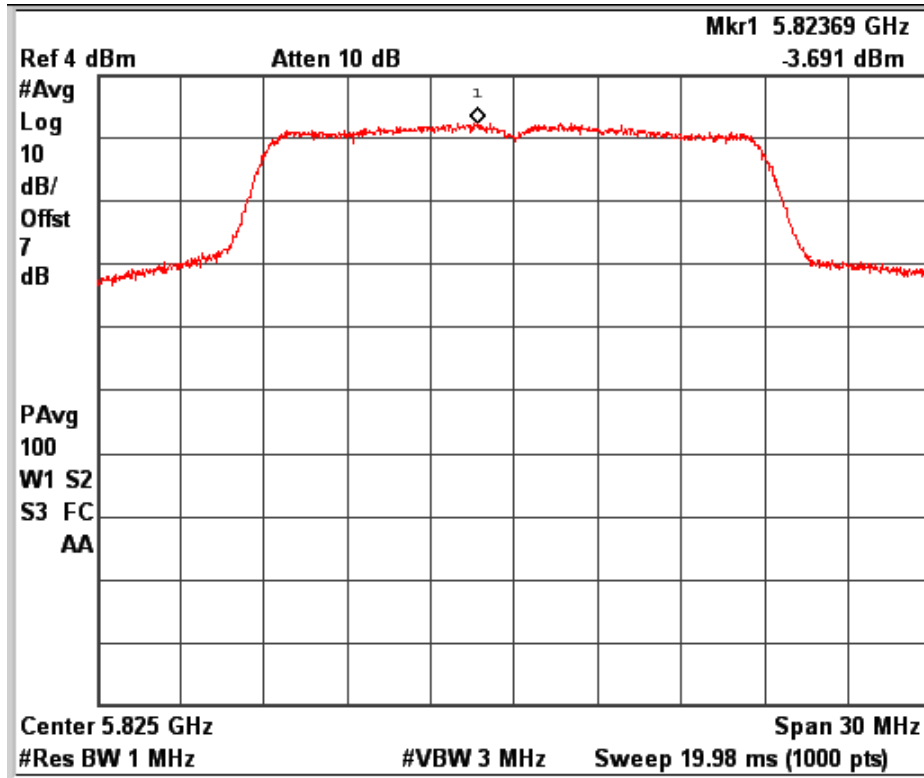
Channel Frequency: 5700MHz



Data Rate: 65Mbps

Channel Frequency: 5745MHz

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Data Rate: 65Mbps

Channel Frequency: 5825MHz

**Radiated Spurious Emissions and
Restricted bands of operation
Result****Section 15.209 /15.205/15.407 (b) (6)
Pass**

Test Specification	FCC Part 15 Section 15.209
Test Method	ANSI C63.10-2013
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	$2400/F(\text{kHz})$	48.50 – 13.80	300*
0.490 – 1.705	$24000/F(\text{kHz})$	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.

Test results:

For frequencies Range 9 kHz - 1 GHz

No emissions were found in this frequency range.

For Frequencies above 1 GHz

Note: No Harmonics were found

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Frequency Bands	Ch No./ Frequency	Frequency (MHz)	Polarization	Field Strength (dBμV/m)	Limit (dBμV/m)	Margin (dB)
5150-5350 (UNII -1)	36 (5180MHz)	5150 (Pk)	Vertical	58.35	74	-15.65
		5150 (Av)		41.87	54	-12.13
		5180 (Pk)		91.78	*	-
		5180 (Av)		81.82	*	-
		5150 (Pk)	Horizontal	66.47	74	-7.53
		5150 (Av)		52.28	54	-1.72
		5180 (Pk)		103.14	*	-
		5180 (Av)		93.9	*	-
	40 (5200MHz)	5200 (Pk)	Vertical	93.63	*	-
		5200 (Av)		84.66	*	-
		5200 (Pk)	Horizontal	104.4	*	-
		5200 (Av)		95.7	*	-
	48 (5240MHz)	5240 (Pk)	Vertical	93.37	*	-
		5240 (Av)		83.78	*	-
		5240 (Pk)	Horizontal	104.62	*	-
		5240 (Av)		95.92	*	-
	64 (5320MHz)	5320 (Pk)	Vertical	93.38	*	-
		5320 (Av)		83.56	*	-
		5350 (Pk)		60.83	74	-13.17
		5350 (Av)		43.44	54	-10.56
		5320 (Pk)	Horizontal	100.57	*	-
		5320 (Av)		92.18	*	-
		5350 (Pk)		66.23	74	-7.77
		5350 (Av)		50.89	54	-3.11
5470-5725 (UNII - 2)	100 (5500MHz)	5470 (Pk)	Vertical	59.63	68.23	-8.6
		5500 (Pk)		94.8	*	-
		5500 (Av)		85.8	*	-
		5470 (Pk)	Horizontal	66.15	68.23	-2.08
		5500 (Pk)		102.43	*	-
		5500 (Av)		93.29	*	-
	140 (5700MHz)	5700 (Pk)	Vertical	94.33	*	-
		5700 (Av)		86.08	*	-
		5700 (Pk)	Horizontal	100.77	*	-
		5700 (Av)		91.91	*	-
5725-5850 (UNII - 3)	149 (5745MHz)	5650(Pk)	Vertical	49.55	68.23	-18.68
		5700(Pk)		51.02	105.23	-54.21

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		5720 (Pk)	Horizontal	55.29	110.83	-55.54
		5745 (Pk)		91.46	*	-
		5745 (Av)		81.93	*	-
		5650(Pk)		38.86	68.23	-29.37
		5700(Pk)		53.05	105.23	-52.18
		5720 (Pk)		69.23	110.83	-41.6
		5745 (Pk)		101.4	*	-
		5745 (Av)		92.42	*	-
	165 (5825MHz)	5825 (Pk)	Vertical	99.28	*	-
		5825 (Av)		90.38	*	-
		5855 (Pk)		70.9	110.83	-39.93
		5875(Pk)		60.49	105.23	-44.74
		5925(Pk)		52.3	68.23	-15.93
		5825 (Pk)	Horizontal	102.74	*	-
		5825 (Av)		94.14	*	-
		5855 (Pk)		74.87	110.83	-35.96
		5875(Pk)		66.46	105.23	-38.77
		5925(Pk)		52.3	68.23	-15.93

* - -> Fundamental Frequency

P-->Peak detector

AV-->Average Detector

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Frequency Bands	Ch No./ Frequency	Frequency (MHz)	Polarization	Field Strength (dBμV/m)	Limit (dBμV/m)	Margin (dB)
5150-5350 (UNII -1)	36 (5180MHz)	5150 (Pk)	Vertical	57.79	74	-16.21
		5150 (Av)		42.2	54	-11.8
		5180 (Pk)		93.2	*	-
		5180 (Av)		82.97	*	-
		5150 (Pk)	Horizontal	66.32	74	-7.68
		5150 (Av)		52.2	54	-1.8
		5180 (Pk)		106.75	*	-
		5180 (Av)		96.75	*	-
	40 (5200MHz)	5200 (Pk)	Vertical	93.2	*	-
		5200 (Av)		83.55	*	-
		5200 (Pk)	Horizontal	106.75	*	-
		5200 (Av)		96.59	*	-
	48 (5240MHz)	5240 (Pk)	Vertical	92.59	*	-
		5240 (Av)		83.57	*	-
		5240 (Pk)	Horizontal	106.38	*	-
		5240 (Av)		96.35	*	-
	64 (5320MHz)	5320 (Pk)	Vertical	93.63	*	-
		5320 (Av)		83.72	*	-
		5350 (Pk)		61.62	74	-12.38

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		5350 (Av)		43.65	54	-10.35
		5320 (Pk)	Horizontal	102.45	*	-
		5320 (Av)		92.32	*	-
		5350 (Pk)		66.16	74	-7.84
		5350 (Av)		51.58	54	-2.42
5470-5725 (UNII - 2)	100 (5500MHz)	5470 (Pk)	Vertical	62.59	68.23	-5.64
		5500 (Pk)		96.55	*	-
		5500 (Av)		85.94	*	-
		5470 (Pk)	Horizontal	65.45	68.23	-2.78
		5500 (Pk)		103	*	-
		5500 (Av)		93.41	*	-
	140 (5700MHz)	5700 (Pk)	Vertical	96.63	*	-
		5700 (Av)		86.21	*	-
		5700 (Pk)	Horizontal	101.92	*	-
		5700 (Av)		92.36	*	-
5725-5850 (UNII - 3)	149 (5745MHz)	5650(Pk)	Vertical	38.71	68.23	-29.52
		5700(Pk)		50.26	105.23	-54.97
		5720 (Pk)		57.4	110.83	-53.43
		5745 (Pk)		95.2	*	-
		5745 (Av)		84.44	*	-
		5650(Pk)	Horizontal	50.94	68.23	-17.29
		5700(Pk)		51.91	105.23	-53.32
		5720 (Pk)		63.97	110.83	-46.86
		5745 (Pk)		100.43	*	-
		5745 (Av)		90.64	*	-
	165 (5825MHz)	5825 (Pk)	Vertical	97.46	*	-
		5825 (Av)		86.77	*	-
		5855 (Pk)		65.2	110.83	-45.63
		5875(Pk)		54.98	105.23	-50.25
		5925(Pk)		52.16	68.23	-16.07
		5825 (Pk)	Horizontal	105	*	-
		5825 (Av)		94.83	*	-
		5855 (Pk)		72.34	110.83	-38.49
		5875(Pk)		62.08	105.23	-43.15
		5925(Pk)		54.33	68.23	-13.9

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Frequency Bands	Ch No./ Frequency	Frequency (MHz)	Polarization	Field Strength (dBμV/m)	Limit (dBμV/m)	Margin (dB)
5150-5350 (UNII -1)	36 (5180MHz)	5150 (Pk)	Vertical	59.79	74	-14.21
		5150 (Av)		41.95	54	-12.05
		5180 (Pk)		90.98	*	-
		5180 (Av)		81.46	*	-
		5150 (Pk)	Horizontal	66.12	74	-7.88
		5150 (Av)		52.15	54	-1.85
		5180 (Pk)		104.7	*	-
		5180 (Av)		94.79	*	-
	40 (5200MHz)	5200 (Pk)	Vertical	93.43	*	-
		5200 (Av)		83.37	*	-
		5200 (Pk)	Horizontal	105.93	*	-
		5200 (Av)		96.29	*	-
	48 (5240MHz)	5240 (Pk)	Vertical	94.59	*	-
		5240 (Av)		84.93	*	-
		5240 (Pk)	Horizontal	106.01	*	-
		5240 (Av)		96.31	*	-
	64 (5320MHz)	5320 (Pk)	Vertical	93.63	*	-
		5320 (Av)		83.83	*	-
		5350 (Pk)		62.11	74	-11.89
		5350 (Av)		43.56	54	-10.44
		5320 (Pk)	Horizontal	102.62	*	-
		5320 (Av)		92.18	*	-
		5350 (Pk)		66.14	74	-7.86
		5350 (Av)		51.9	54	-2.1
5470-5725 (UNII - 2)	100 (5500MHz)	5470 (Pk)	Vertical	60.44	68.23	-7.79
		5500 (Pk)		95.79	*	-
		5500 (Av)		85.83	*	-
		5470 (Pk)	Horizontal	66.23	68.23	-2.00
		5500 (Pk)		103.11	*	-
		5500 (Av)		93.21	*	-
	140 (5700MHz)	5700 (Pk)	Vertical	96.15	*	-
		5700 (Av)		85.83	*	-
		5700 (Pk)	Horizontal	102.5	*	-
		5700 (Av)		92.39	*	-
5725-5850 (UNII - 3)	149 (5745MHz)	5650(Pk)	Vertical	50.67	68.23	-17.56
		5700(Pk)		50.41	105.23	-54.82
		5720 (Pk)		60.26	110.83	-50.57
		5745 (Pk)		96.19	*	-
		5745 (Av)		84.64	*	-

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		5650(Pk)	Horizontal	50.05	68.23	-18.18
		5700(Pk)		50.24	105.23	-54.99
		5720 (Pk)		65.34	110.83	-45.49
		5745 (Pk)		100.16	*	-
		5745 (Av)		90.35	*	-
	165 (5825MHz)	5825 (Pk)	Vertical	97.24	*	-
		5825 (Av)		87.64	*	-
		5855 (Pk)		64.05	110.83	-46.78
		5875(Pk)		54.48	105.23	-50.75
		5925(Pk)		51.72	68.23	-16.51
		5825 (Pk)	Horizontal	104.79	*	-
		5825 (Av)		94.87	*	-
		5855 (Pk)		73.93	110.83	-36.9
		5875(Pk)		63.37	105.23	-41.86
		5925(Pk)		54.59	68.23	-13.64

802.11 a mode 6Mbps

Frequency Bands	Ch No./ Frequency	Frequency (MHz)	Polarization	Field Strength (dBμV/m)	Limit (dBμV/m)	Margin (dB)
5150-5350 (UNII -1)	36 (5180MHz)	5150 (Pk)	Vertical	56.43	74	-17.57
		5150 (Av)		41.42	54	-12.58
		5180 (Pk)		90.16	*	-
		5180 (Av)		82.03	*	-
		5150 (Pk)	Horizontal	66.9	74	-7.10
		5150 (Av)		52.62	54	-1.38
		5180 (Pk)		104.32	*	-
		5180 (Av)		95.18	*	-
	40 (5200MHz)	5200 (Pk)	Vertical	99.28	*	-
		5200 (Av)		90.18	*	-
		5200 (Pk)	Horizontal	105.5	*	-
		5200 (Av)		96.6	*	-
	48 (5240MHz)	5240 (Pk)	Vertical	94.16	*	-
		5240 (Av)		85.69	*	-
		5240 (Pk)	Horizontal	105.48	*	-
		5240 (Av)		96.18	*	-
	64 (5320MHz)	5320 (Pk)	Vertical	93.57	*	-
		5320 (Av)		84.78	*	-
		5350 (Pk)		62.44	74	-11.56
		5350 (Av)		43.94	54	-10.06
		5320 (Pk)	Horizontal	102.39	*	-
		5320 (Av)		93.05	*	-
		5350 (Pk)		66.68	74	-7.32
		5350 (Av)		51.61	54	-2.39
5470-5725 (UNII - 2)	100 (5500MHz)	5470 (Pk)	Vertical	64.38	68.23	-3.85
		5500 (Pk)		95.91	*	-

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		5500 (Av)	Horizontal	86.86	*	-
		5470 (Pk)		66.12	68.23	-2.11
		5500 (Pk)		102.88	*	-
		5500 (Av)		94.13	*	-
	140 (5700MHz)	5700 (Pk)	Vertical	97.01	*	-
		5700 (Av)		88.02	*	-
		5700 (Pk)	Horizontal	103.18	*	-
		5700 (Av)		93.91	*	-
5725-5850 (UNII - 3)	149 (5745MHz)	5650(Pk)	Vertical	51.24	68.23	-16.99
		5700(Pk)		49.98	105.23	-55.25
		5720 (Pk)		62.36	110.83	-48.47
		5745 (Pk)		94.32	*	-
		5745 (Av)		85.54	*	-
		5650(Pk)	Horizontal	50.23	68.23	
		5700(Pk)		53.49	105.23	-51.74
		5720 (Pk)		66.87	110.83	-43.96
		5745 (Pk)		100.4	*	-
		5745 (Av)		91.3	*	-
	165 (5825MHz)	5825 (Pk)	Vertical	96.97	*	-
		5825 (Av)		88.51	*	-
		5855 (Pk)		66.62	110.83	-44.21
		5875(Pk)		57.89	105.23	-47.34
		5925(Pk)		55.23	68.23	-13
		5825 (Pk)	Horizontal	104.72	*	-
		5825 (Av)		95.71	*	-
		5855 (Pk)		73.72	110.83	-59.42
		5875(Pk)		43.99	105.23	-61.24
		5925(Pk)		51.41	68.23	-16.82

802.11 a mode 24Mbps

Frequency Bands	Ch No./ Frequency	Frequency (MHz)	Polarization	Field Strength (dBμV/m)	Limit (dBμV/m)	Margin (dB)
5150-5350 (UNII -1)	36 (5180MHz)	5150 (Pk)	Vertical	59.22	74	-14.78
		5150 (Av)		41.75	54	-12.25
		5180 (Pk)		92.52	*	-
		5180 (Av)		82.49	*	-
		5150 (Pk)	Horizontal	66.33	74	-07.67
		5150 (Av)		52.08	54	-1.92
		5180 (Pk)		105.71	*	-
		5180 (Av)		95.77	*	-
	40 (5200MHz)	5200 (Pk)	Vertical	92.13	*	-
		5200 (Av)		82.49	*	-
		5200 (Pk)	Horizontal	106.64	*	-
		5200 (Av)		97.1	*	-
	48	5240 (Pk)	Vertical	93.55	*	-

	(5240MHz)	5240 (Av)	Horizontal	83.94	*	-
		5240 (Pk)		106.12	*	-
		5240 (Av)		96.89	*	-
	64 (5320MHz)	5320 (Pk)	Vertical	95.27	*	-
		5320 (Av)		85.27	*	-
		5350 (Pk)		59.97	74	-14.03
		5350 (Av)		44.58	54	-9.42
		5320 (Pk)	Horizontal	102.87	*	-
		5320 (Av)		92.98	*	-
		5350 (Pk)		66.01	74	-7.99
		5350 (Av)		51.86	54	-2.14
5470-5725 (UNII - 2)	100 (5500MHz)	5470 (Pk)	Vertical	65.32	68.23	-2.91
		5500 (Pk)		97.52	*	-
		5500 (Av)		87.68	*	-
		5470 (Pk)	Horizontal	66.89	68.23	-1.34
		5500 (Pk)		104.22	*	-
		5500 (Av)		94.21	*	-
	140 (5700MHz)	5700 (Pk)	Vertical	97.92	*	-
		5700 (Av)		87.71	*	-
		5700 (Pk)	Horizontal	103.97	*	-
		5700 (Av)		93.85	*	-
5725-5850 (UNII - 3)	149 (5745MHz)	5650(Pk)	Vertical	50.27	68.23	-17.96
		5700(Pk)		50.35	105.23	-54.88
		5720 (Pk)		58.6	110.83	-52.23
		5745 (Pk)		95.5	*	-
		5745 (Av)		85.29	*	-
		5650(Pk)	Horizontal	50.48	68.23	-17.75
		5700(Pk)		50.11	105.23	-55.12
		5720 (Pk)		64.32	110.83	-46.51
		5745 (Pk)		100.43	*	-
		5745 (Av)		90.5	*	-
	165 (5825MHz)	5825 (Pk)	Vertical	98.08	*	-
		5825 (Av)		87.6	*	-
		5855 (Pk)		66.91	110.83	-43.92
		5875(Pk)		58.22	105.23	-47.01
		5925(Pk)		61.69	68.23	-6.54
		5825 (Pk)	Horizontal	105.07	*	-
		5825 (Av)		95.25	*	-
		5855 (Pk)		74.77	110.83	-36.06
		5875(Pk)		44.54	105.23	-60.69
		5925(Pk)		53.22	68.23	-15.01

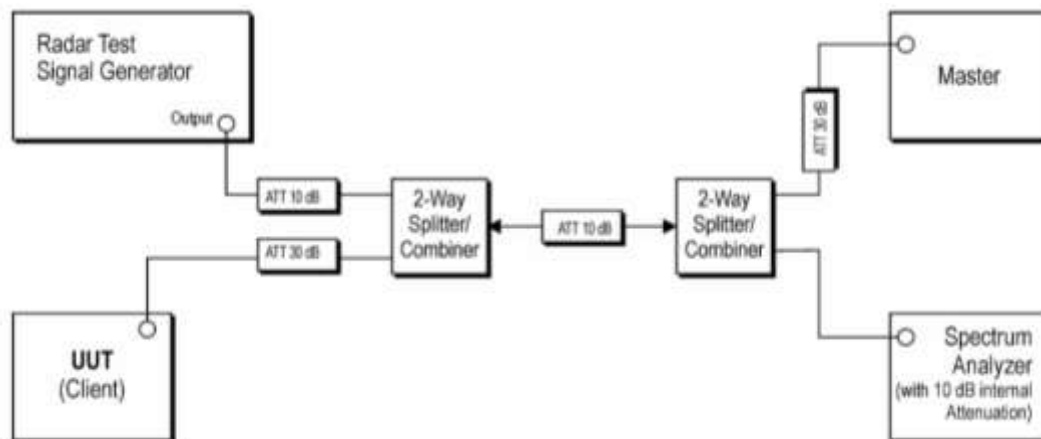
802.11 a mode 54Mbps

Frequency Bands	Ch No./ Frequency	Frequency (MHz)	Polarization	Field Strength (dBμV/m)	Limit (dBμV/m)	Margin (dB)
5150-5350 (UNII - 1)	36 (5180MHz)	5150 (Pk)	Vertical	56.2	74	-17.80
		5150 (Av)		41.88	54	-12.12
		5180 (Pk)		92.43	*	-
		5180 (Av)		82.69	*	-
		5150 (Pk)	Horizontal	66.38	74	-7.62
		5150 (Av)		51.81	54	-2.19
		5180 (Pk)		105.12	*	-
		5180 (Av)		95.58	*	-
	40 (5200MHz)	5200 (Pk)	Vertical	92.84	*	-
		5200 (Av)		82.81	*	-
		5200 (Pk)	Horizontal	106.46	*	-
		5200 (Av)		96.89	*	-
	48 (5240MHz)	5240 (Pk)	Vertical	93.96	*	-
		5240 (Av)		84.41	*	-
		5240 (Pk)	Horizontal	105.97	*	-
		5240 (Av)		96.13	*	-
	64 (5320MHz)	5320 (Pk)	Vertical	94.69	*	-
		5320 (Av)		85.11	*	-
		5350 (Pk)		59.83	74	-14.17
		5350 (Av)		44.23	54	-9.77
		5320 (Pk)	Horizontal	102.55	*	-
		5320 (Av)		93.01	*	-
		5350 (Pk)		66.4	74	-7.60
		5350 (Av)		51.63	54	-2.37
5470-5725 (UNII - 2)	100 (5500MHz)	5470 (Pk)	Vertical	61.58	68.23	-6.65
		5500 (Pk)		97.71	*	-
		5500 (Av)		87.7	*	-
		5470 (Pk)	Horizontal	66.55	68.23	-1.68
		5500 (Pk)		103.98	*	-
		5500 (Av)		94.29	*	-
	140 (5700MHz)	5700 (Pk)	Vertical	97.26	*	-
		5700 (Av)		87.94	*	-
		5700 (Pk)	Horizontal	103.99	*	-
		5700 (Av)		94.13	*	-
5725-5850 (UNII - 3)	149 (5745MHz)	5650(Pk)	Vertical	50.1	68.23	-18.13
		5700(Pk)		50.58	105.23	-54.65
		5720 (Pk)		60.85	110.83	-49.98
		5745 (Pk)		94.96	*	-
		5745 (Av)		85.26	*	-

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		5650(Pk)	Horizontal	51.47	68.23	-16.76
		5700(Pk)		52.23	105.23	-53
		5720 (Pk)		65.27	110.83	-45.56
		5745 (Pk)		100.86	*	-
		5745 (Av)		91.08	*	-
	165 (5825MHz)	5825 (Pk)	Vertical	99.51	*	-
		5825 (Av)		88.94	*	-
		5855 (Pk)		68.13	110.83	-42.7
		5875(Pk)		56.72	105.23	-48.51
		5925(Pk)		63.08	68.23	-5.15
		5825 (Pk)	Horizontal	105.24	*	-
		5825 (Av)		95.36	*	-
		5855 (Pk)		72.66	110.83	-38.17
		5875(Pk)		61.32	105.23	-43.91
		5925(Pk)		54.59	68.23	-13.64

Below set-up is a set-up whereby the UUT is an RLAN device operating in slave mode without Radar Interference Detection function. This set-up also contains an RLAN device operating in master mode. The Radar test signals are injected into the master device. The UUT (slave device) is associated with the master device.

Test Setup


Note: FCC Certified Access Point is used for testing with FCC ID: LDK102056

Table 2: Applicability of DFS requirements during normal operation

Requirement	Operational Mode	
	Master Device or Client with Radar Detection	Client Without Radar Detection
<i>DFS Detection Threshold</i>	Yes	Not required
<i>Channel Closing Transmission Time</i>	Yes	Yes
<i>Channel Move Time</i>	Yes	Yes
<i>U-NII Detection Bandwidth</i>	Yes	Not required

Note : The Radio module supports only client without radar detection feature.

Channel Move Time and the Channel Closing Transmission Time test is performed with Radar Type 0

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Channel Shutdown and Non-Occupancy period:

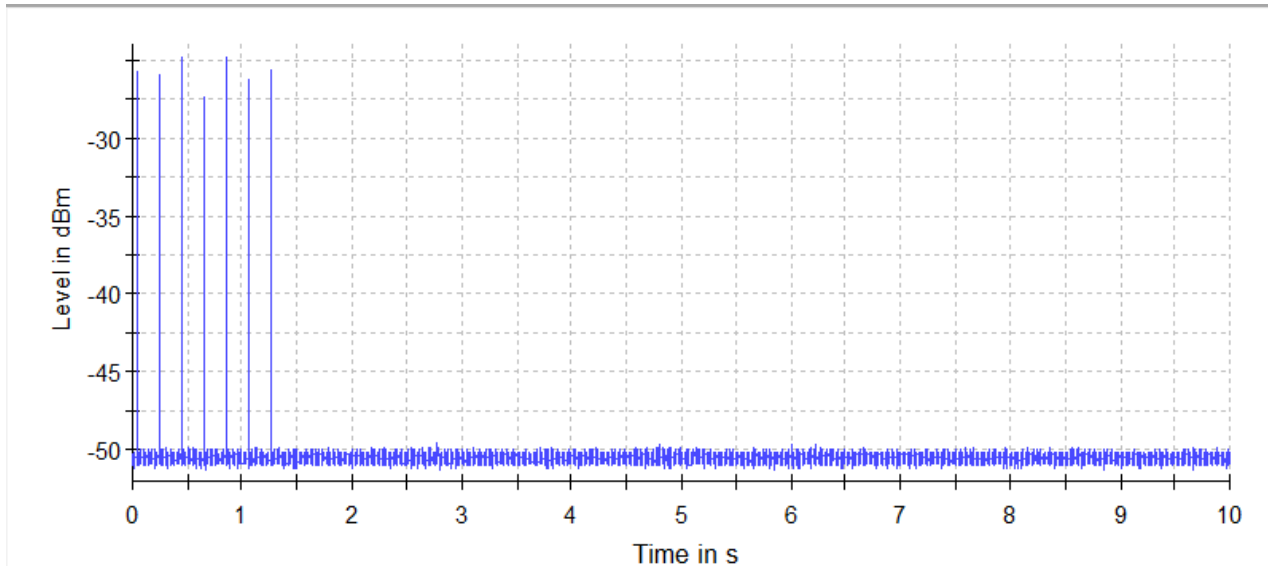
Channel Bandwidth: 20 MHz

Operating Frequency (MHz)	Test	Measured Value	Limit
5260	Channel move Time	0	10 sec
	Channel Closing Transmission Time	0	200 milliseconds + an aggregate of 60 milliseconds over remaining 10 second period
	Non Occupancy Time	1860.062sec	Min 30 minutes
5500	Channel move Time	0	10 sec
	Channel Closing Transmission Time	0	200 milliseconds + an aggregate of 60 milliseconds over remaining 10 second period
	Non Occupancy Time	1860.062 sec	Min 30 minutes

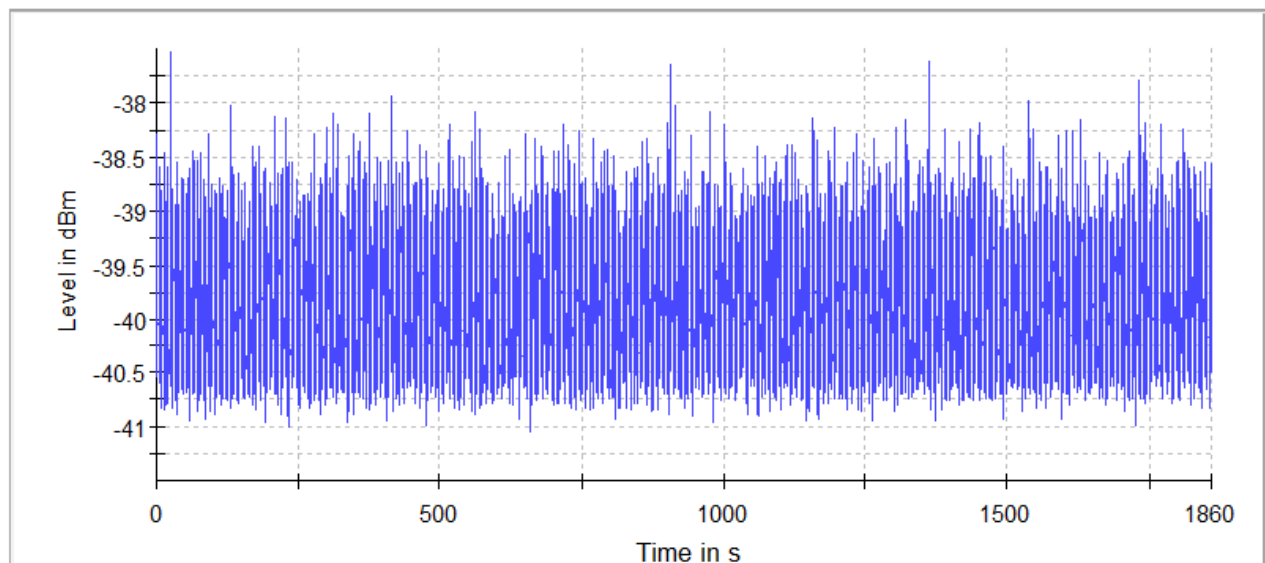
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Channel Frequency 5260 MHz

Channel Shutdown

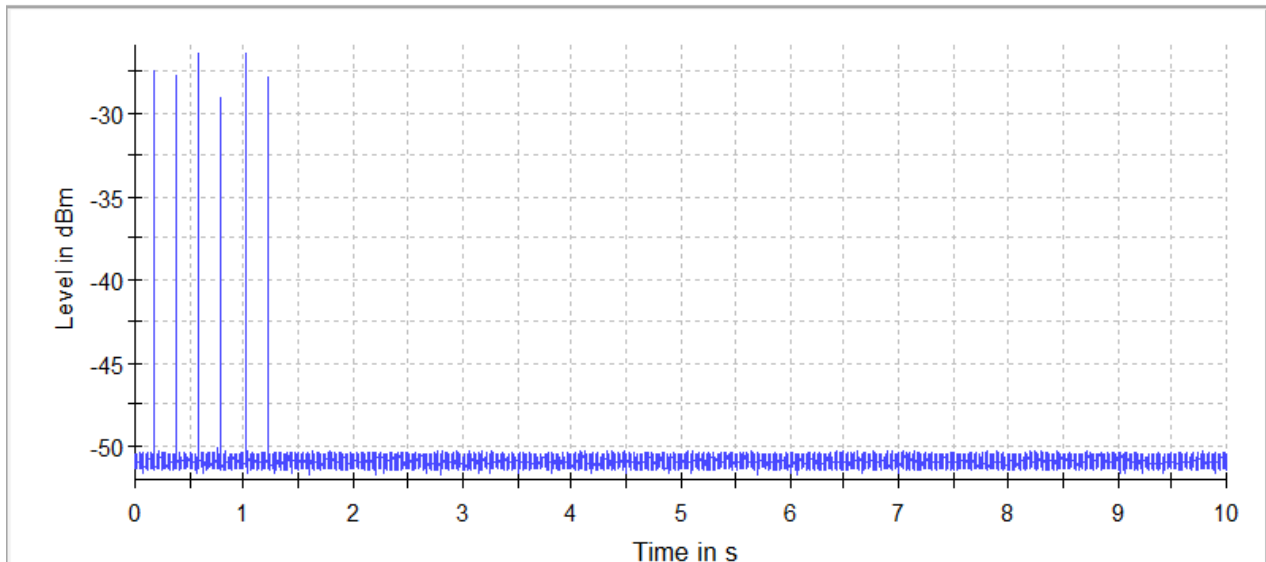


Non Occupancy Period

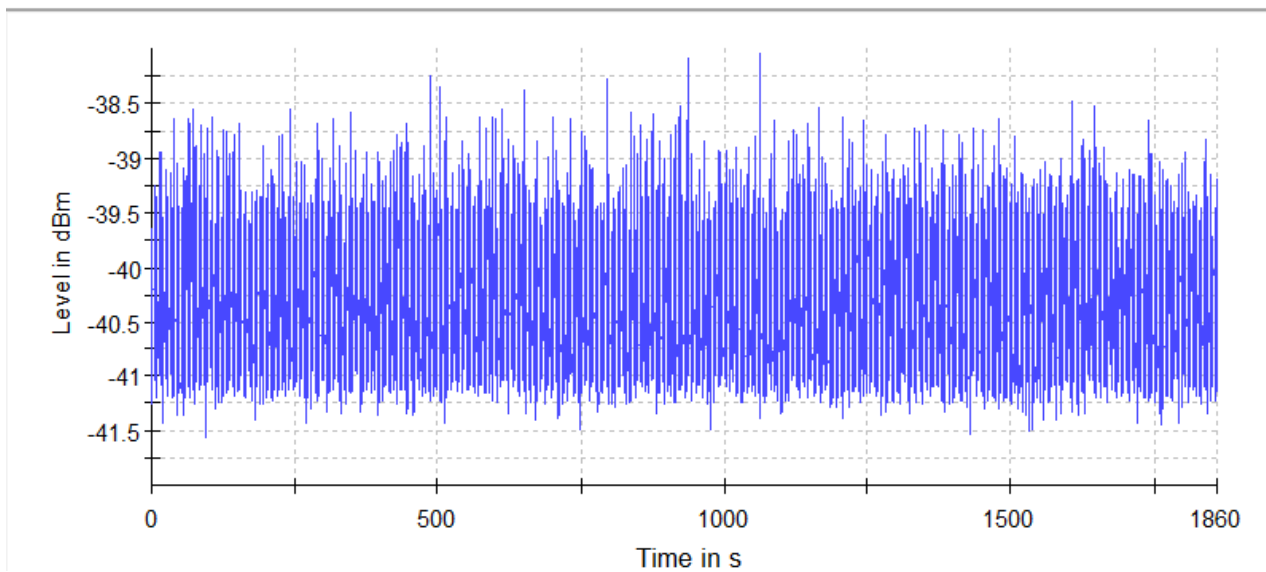


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Channel Frequency 5500 MHz

Channel Shutdown



Non Occupancy Period



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Power level Settings used during testing:

Channel Frequency (MHz)	Channel No.	Data Rate					
		MCS0	6Mbps	MCS4	24Mbps	MCS7	54Mbps
5180	36	11	12	11	12	11	12
5200	40	14	14	14	14	14	14
5240	48	14	14	14	14	14	14
5320	64	8	9	8	9	8	9
5500	100	9	10	9	10	9	10
5600	120	10	10	10	10	10	10
5700	140	5	7	5	7	5	7
5745	149	11	11	11	11	11	11
5765	153	9	10	9	10	9	10
5785	157	9	10	9	10	9	10
5825	165	9	10	9	10	9	10