Report No. 362353-07

Test Report

Product	WLAN Handset with Bluetooth
Name and address of the applicant	Ascom (Sweden) AB Grimbodalen 2 SE-417 49 Gothenburg, Sweden
Name and address of the manufacturer	Ascom (Sweden) AB Grimbodalen 2 SE-417 49 Gothenburg, Sweden
Model	WH2
Rating	3.7V_{DC} (Li-Ion battery)
Trademark	ASCOM
Serial number	/
Additional information	WiFi, 802.11a/b/g/n, Bluetooth, Bluetooth Low Energy
Tested according to	**FCC Part 15.407** Unlicensed National Information Infrastructure Devices (U-NII) **Industry Canada RSS-247, Issue 2** Digital Transmission Systems (DTSs), Frequency Hopping Systems (FHSs) and Licence-Exempt Local Area Network (LE-LAN) Devices
Order number	362353
Tested in period	2019-01-15 to 2019-04-10 and 2019-07-18
Issue date	2019-07-18
Name and address of the testing laboratory	Nemko Instituttveien 6 Kjeller, Norway CAB Number: FCC: NO0001 ISED: NO0470 ilac-MRA NORWEGIAN ACCREDITATION TEST 033 **An accredited technical test executed under the Norwegian accreditation scheme**

Prepared by [Frode Sveinsen]	Approved by [G.Suhanthakumar]

Template version: C

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1 INFORMATION

1.1 Test Item

Name	Ascom
FCC ID	BXZWH2
ISED Canada ID	3724B-WH2
Model/version	WH2
Serial number	/
Hardware identity and/or version	PB
Software identity and/or version	1.0.4_Nemko
Frequency Ranges	U-NII 1 : 5180 – 5240 MHz U-NII 2A : 5260 – 5320 MHz U-NII 2C : 5500 – 5700 MHz U-NII 3 : 5745 – 5825 MHz
Operating Modes	802.11a 802.11n (20/40 MHz BW) 802.11ac (40/80 MHz BW)
Type of Modulation	Digital (OFDM - Orthogonal frequency-division multiplexing)
Conducted Output Power (Average)	5180 – 5240 MHz: 28.5 mW 5260 – 5320 MHz: 26.9 mW 5500 – 5700 MHz: 25.6 mW 5745 – 5825 MHz: 20.7 mW 5190 – 5230 MHz: 25.3 mW 5270 – 5310 MHz: 23.2 mW 5510 – 5700 MHz: 23.6 mW 5755 – 5795 MHz: 18.0 mW 5210 – 5210 MHz: 9.4 mW 5290 – 5290 MHz: 9.1 mW 5530 – 5530 MHz: 9.0 mW 5775 – 5755 MHz: 9.1 mW
Antenna Connector	None (Integral Antenna)
Number of Antennas	1
Antenna Diversity Supported	No
Smart Antennas Supported	No
TPC	No, not required when EIRP is below 500 mW
DFS	Client Device without Radar Detection
Power Supply	Secondary Battery (3.7V Li-Ion)

Description of Test Item

The tested device is a WiFi Handset with 2.4GHz and 5GHz WLAN, and Bluetooth Basic Rate and Bluetooth Low Energy.

All radio transmitters in the handset, including 2.4GHz WLAN is supplied by an already certified radio module.

Description	Brand	Model	Regulatory Information
WiFi and BT Radio Module	Murata	SP-HY1MW	FCC ID: VPYLBEE5HY1MW IC: 772C-LBEE5HY1MW

1.2 Normal test conditions

Temperature:	**20 - 24 °C**
Relative humidity:	**20 - 50 %**
Normal test voltage:	**120 V 60 Hz**

The values are the limit registered during the test period.

1.3 Test Engineer(s)

Frode Sveinsen

1.4 Antenna Requirement

Is the antenna detachable? ☐ Yes ☒ No

If detachable, is the antenna connector non-standard? ☐ Yes ☐ No

Type of antenna connector: N/A

Ref. FCC §15.203

1.5 Worst-Case Configuration

Radiated Emissions and Power Line Conducted Emissions were performed with the EUT set to transmit at the channel with the highest output power as worst-case scenario.

All measurements were performed with bitrate and duty cycle reported below.

Modulation	Worst Case Bitrate	Duty Cycle
802.11a	6 Mb	99.28 %
802.11n HT20	MCS0	99.07 %
802.11n HT40	MCS0	98.13 %
802.11n HT80	MCS0	96.24 %

Output Power is reduced on band edge channels in the 5 GHz frequency bands, except in the 5.8 GHz band. All other channels and modulations use the default power setting with the same output power on all channels for each modulation.

1.6 EUT Operating Modes

Description of operating modes	Continuous TX, 5 GHz 20/40/80 MHz Mode
Additional information	A computer was connected by USB to the supplied charger/cradle and the EUT was then placed in the cradle. USB to Serial drivers were installed on the computer to connect to the EUT. The proprietary Ascom Test Interface Application (TIA) was then used to program the EUT to transmit continuously on a selected carrier, modulation and bit-rate and with programmed or default power level. The EUT was removed from the cradle when performing the tests.

1.7 Comments

All tested parameters are passed.

1.8 Power Levels used during testing

Channel	Freq (MHz)	11a	11n HT20	11n HT40	11ac HT80	11ac HT160
36	5180	48	52			
40	5200	D	D			
44	5220	D	D			
48	5240	D	D			
52	5260	D	D			
56	5280	D	D			
60	5300	D	D			
64	5320	48	52			
100	5500	48	52			
104	5520	D	D			
108	5540	D	D			
112	5560	D	D			
116	5580	D	D			
120	5600	N/A	N/A			
124	5620	N/A	N/A			
128	5640	N/A	N/A			
132	5660	D	D			
136	5680	D	D			
140	5700	48	52			
144	5720	D	D			
149	5745	D	D			
153	5765	D	D			
157	5785	D	D			
161	5805	D	D			
165	5825	D	D			
38	5190			44		
46	5230			D		
54	5270			D		
62	5310			44		
102	5510			44		
110	5550			D		
118	5590			N/A		
126	5630			N/A		
134	5670			D		
142	5710			D		
151	5755			D		
159	5795			D		
42	5210				40	
58	5290				40	
106	5530				40	
122	5610				N/A	
138	5690				D	
155	5775				D	
50	5250					N/A
114	5550					N/A

D - Default level (pre-programmed value)
Values with red color are band-edge channels with reduced power level
N/A – channel not used

2 TEST REPORT SUMMARY

2.1 General

All measurements are tracable to national standards.

The tests were conducted for demonstrating compliance with FCC CFR 47 Part 15, Clause 15.407 and ISED Canada RSS-247 Issue 2.

Tests were performed in accordance with ANSI C63.4-2014 and ANSI C63.10-2013.

Radiated tests were performed in a semi-anechoic chamber at measuring distances of 1m and 3m.

A description of the test facility is on file with the FCC and ISED.

☒ New Submission	☒ Production Unit
☐ Class II Permissive Change	☐ Pre-production Unit
NII Equipment Code	☐ Family Listing

THIS TEST REPORT APPLIES ONLY TO THE ITEM(S) AND CONFIGURATIONS TESTED.

Deviations from, additions to, or exclusions from the test specifications are described in “Summary of Test Data”.

2.2 Test Summary

Name of test	FCC Part 15 reference	RSS-247 Issue 2 RSS-GEN Issue 5 reference	Result
Supply Voltage Variations	15.31(e)	6.11 (RSS-GEN)	**Complies**
Antenna Requirement	15.203	6.8 (RSS-GEN)	**Complies**
Power Line Conducted Emission	15.107(a) 15.207(a)	7.2 / 8.8 (RSS-GEN)	**N/A**[1]
Maximum Output Power	15.407(a)	6.2	**Complies**
Power Spectral Density	15.407(a)	6.2	**Complies**
Unwanted Emissions	15.407(b)	6.2	**Complies**
Discontinuation of Transmission	15.407(c)	6.3	**N/T**[2]
Transmit Power Control	15.407(h)	6.2.3	**N/A**[3]
Dynamic Frequency Selection	15.407(h)	6.3	**Complies**[4]
Radiated Emissions	15.205 15.209	7.3 (RSS-GEN) 8.9 (RSS-GEN)	**Complies**

[1] The EUT is battery powered and the battery is charged in an external charger

[2] See manufacturers declaration

[3] Transmit Power Control is not required when Max EIRP is below 500 mW

[4] The EUT is a Slave Device without Radar Detection. DFS tests are covered by test report no. 1802WSU008-U5 from MRT Technology (Suzhou) Co., Ltd.

Revision history

Version	Date	Comment	Sign
1.0	2019-06-18	First edition	FS
2.0	2019-07-18	Antenna Gain added	FS

3 TEST RESULTS

3.1 Maximum Output Power, e.i.r.p.

FCC 15.407 (a)

ISED RSS-247, Issue 2, Clause 6.2

Measurement procedure: ANSI C63.10-2013 Clause 12.3, method SA-1

Test Results: Complies

Measurement Data:

Ch. No.	Nominal Frequency (MHz)	Maximum e.i.r.p. (dBm)			
		802.11a, 6 Mbps	802.11n, MCS0	802.11n, MCS0 HT40	802.11ac, MCS0 HT80
36	5180	14.51	15.46		
40	5200	17.40	17.06		
60	5300	17.26	16.81		
64	5320	14.17	15.17		
100	5500	14.50	14.93		
104	5520	16.39	16.03		
136	5680	17.43	16.71		
140	5700	15.29	15.65		
149	5745	17.63	16.98		
157	5785	16.92	16.65		
165	5825	16.20	16.60		
38	5190			13.55	
46	5230			16.64	
54	5270			16.42	
62	5310			13.43	
102	5510			13.48	
110	5550			16.26	
134	5670			16.52	
151	5755			17.18	
159	5795			16.48	
42	5210				12.49
58	5290				12.55
106	5530				12.31
155	5775				14.00

Ch. No.	Nominal Frequency (MHz)	Calculated e.i.r.p. (dBm) 802.11a, 6 Mbps	Conducted Power (dBm) 802.11a, 6 Mbps	Conducted Power (mW) 802.11a, 6 Mbps	Antenna Gain (dBi)
36	5180	14.51	11.53	14.2	2.98
40	5200	17.40	14.55	28.5	2.85
60	5300	17.26	14.30	26.9	2.96
64	5320	14.17	11.92	15.6	2.25
100	5500	14.50	11.71	14.8	2.79
104	5520	16.39	14.09	25.6	2.30
136	5680	17.43	13.78	23.9	3.65
140	5700	15.29	11.13	13.0	4.16
149	5745	17.63	12.76	18.9	4.87
157	5785	16.92	12.55	18.0	4.37
165	5825	16.20	13.03	20.1	3.17
Ch. No.	Nominal Frequency (MHz)	Calculated e.i.r.p. (dBm) 802.11n, MCS0	Conducted Power (dBm) 802.11n, MCS0	Conducted Power (mW) 802.11n, MCS0	Antenna Gain (dBi)
36	5180	15.46	12.14	16.4	3.32
40	5200	17.06	14.13	25.9	2.93
60	5300	16.81	13.80	24.0	3.01
64	5320	15.17	12.47	17.7	2.70
100	5500	14.93	12.14	16.4	2.79
104	5520	16.03	13.73	23.6	2.30
136	5680	16.71	13.34	21.6	3.37
140	5700	15.65	11.70	14.8	3.95
149	5745	16.98	12.30	17.0	4.68
157	5785	16.65	12.18	16.5	4.47
165	5825	16.60	12.69	18.6	3.91
Ch. No.	Nominal Frequency (MHz)	Calculated e.i.r.p. (dBm) 802.11n, MCS0 HT40	Conducted Power (dBm) 802.11n, MCS0 HT40	Conducted Power (mW) 802.11n, MCS0 HT40	Antenna Gain (dBi)
38	5190	13.55	10.60	11.5	2.95
46	5230	16.64	14.03	25.3	2.61
54	5270	16.42	13.65	23.2	2.77
62	5310	13.43	10.47	11.1	2.96
102	5510	13.48	10.65	11.6	2.83
110	5550	16.26	13.73	23.6	2.53
134	5670	16.52	13.37	21.7	3.15
151	5755	17.18	12.36	17.2	4.82
159	5795	16.48	12.56	18.0	3.92
Ch. No.	Nominal Frequency (MHz)	Calculated e.i.r.p. (dBm) 802.11ac, MCS0 HT80	Conducted Power (dBm) 802.11n, MCS0 HT80	Conducted Power (mW) 802.11n, MCS0 HT80	Antenna Gain (dBi)
42	5210	12.49	9.73	9.4	2.76
58	5290	12.55	9.58	9.1	2.97
106	5530	12.31	9.54	9.0	2.77
155	5775	14.00	9.59	9.1	4.41

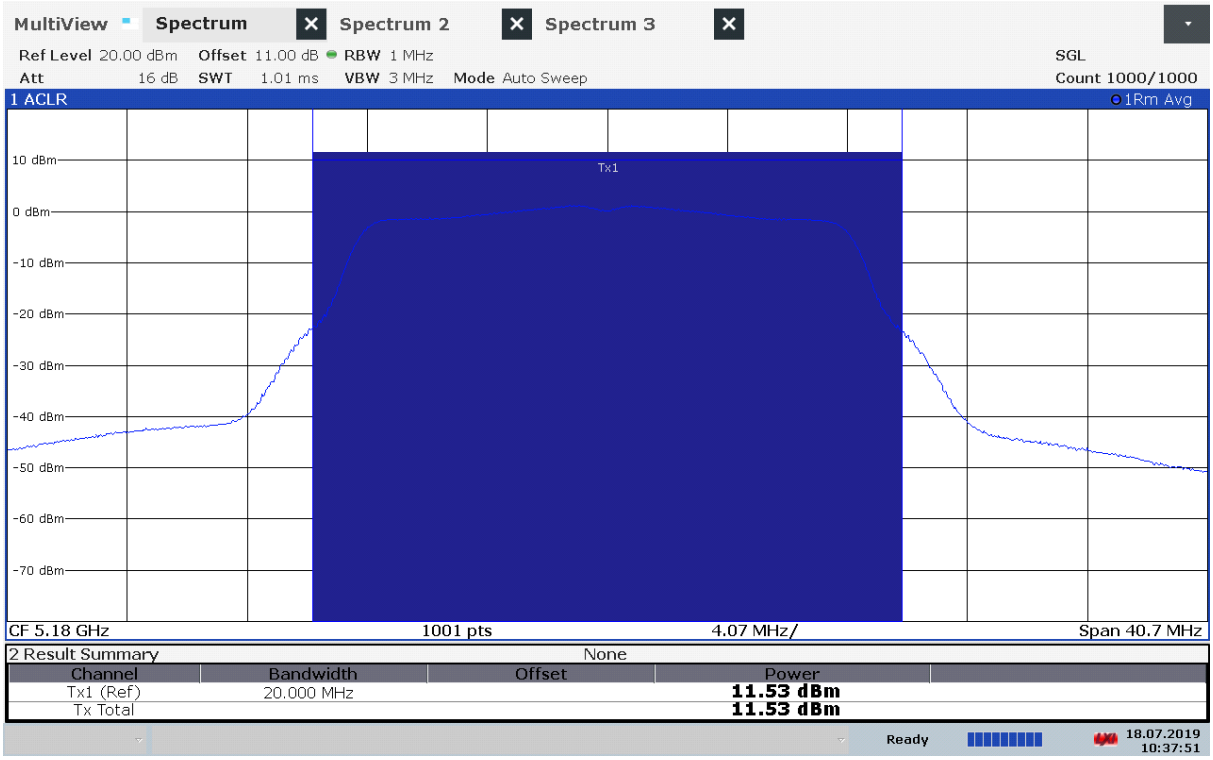
The EUT operates continuously; therefore, method SA-1 of ANSI C63.10-2013 clause 12.3 was used.

EIRP values were calculated from Field Strength values using the method described in KDB 412172 D01.

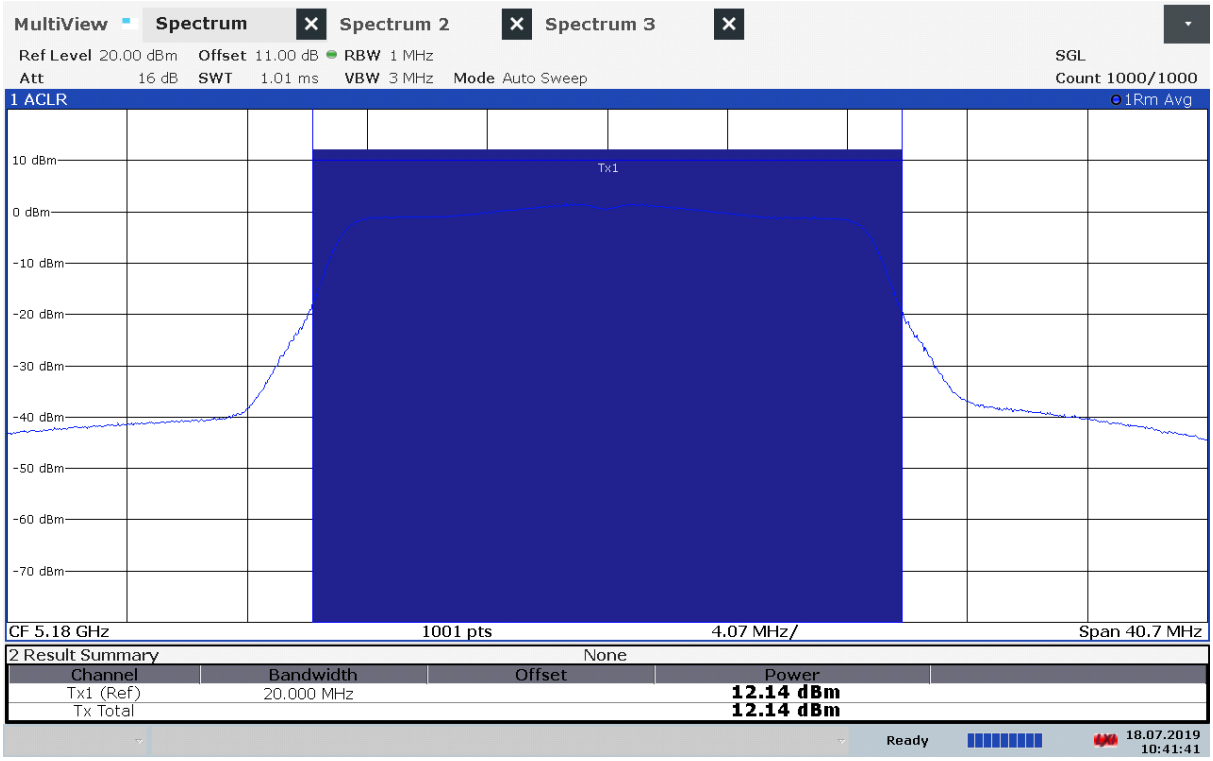
This is an indoor device with directional Antenna Gain less than 6 dBi.

Limits for Indoor Device:

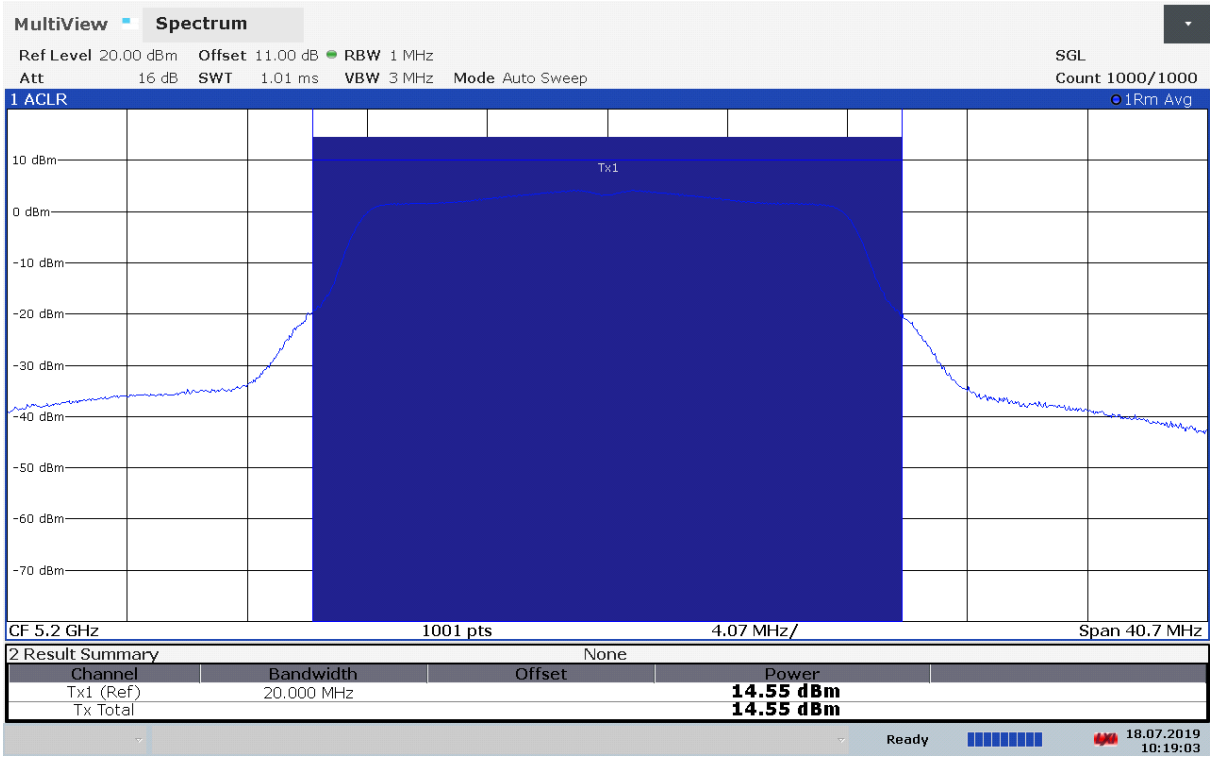
Frequency Band	FCC 15.407(a)	ISED RSS-247 Issue 2
5150 – 5250 MHz	Less than 250 mW (24 dBm) for client device Less than 1 W (30 dBm) for master device	Less than the lesser of 200 mW e.i.r.p. or $10 + 10 \log_{10} B$ dBm e.i.r.p.
5250 – 5350 MHz **5470 – 5725 MHz**	Less than the lesser of 250 mW (24 dBm) or $11 + 10 \log_{10} B$ dBm	Less than the lesser of 250 mW or $11 + 10 \log_{10}$ B dBm, and Less than the lesser of 1 W e.i.r.p. or $17 + 10 \log_{10}$ B dBm e.i.r.p. Devices with e.i.r.p. greater than 500 mW shall implement TPC in order to have the capability to operate at least 6 dB below the maximum permitted e.i.r.p. of 1 W
5725 – 5825 MHz	Less than 1 Watt	Less than 1 Watt If Antenna Gain is more than 6 dBi the Power Limit is reduced by the amount exceeding 6 dBi
	If Antenna Gain is more than 6 dBi the Power Limit is reduced by the amount exceeding 6 dBi	
	B is the 26dB emission bandwidth in MHz	*B* is the 99% emission bandwidth in MHz



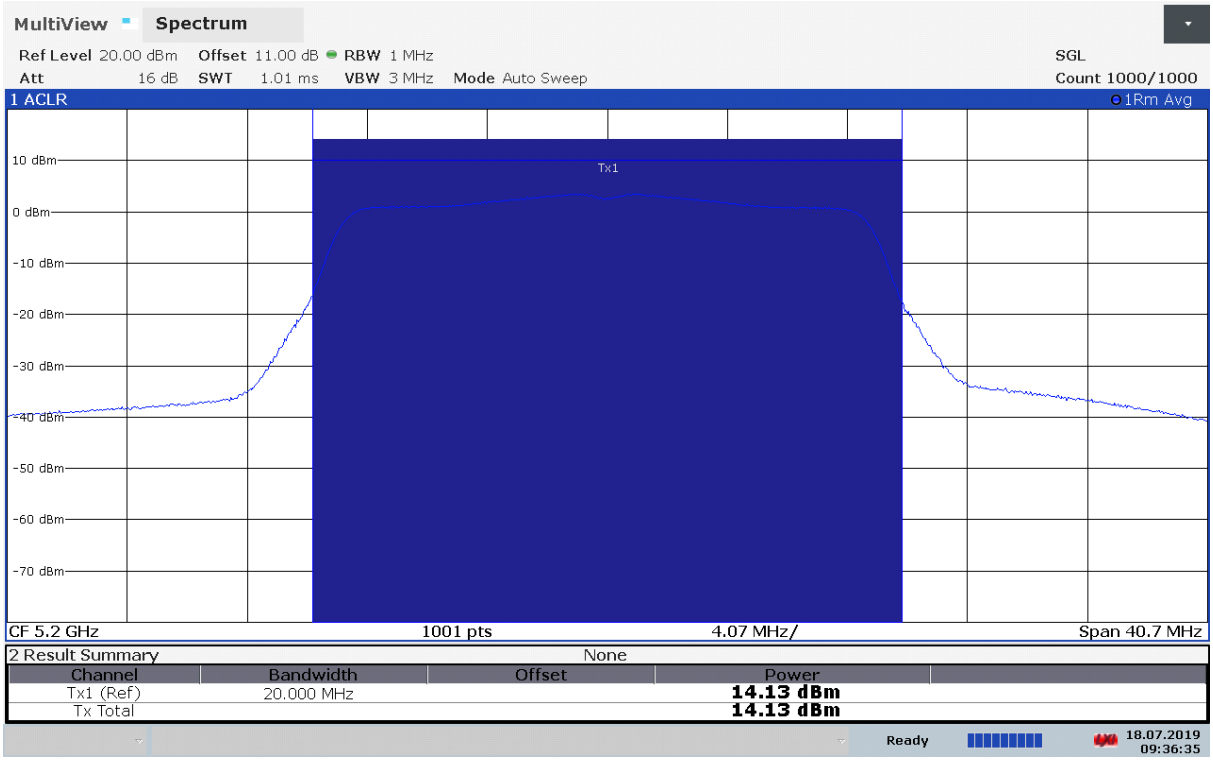
Conducted Power, 5180 MHz, 802.11a 6Mbps



Conducted Power, 5180 MHz, 802.11n MCS0



Conducted Power, 5200 MHz, 802.11a 6Mbps



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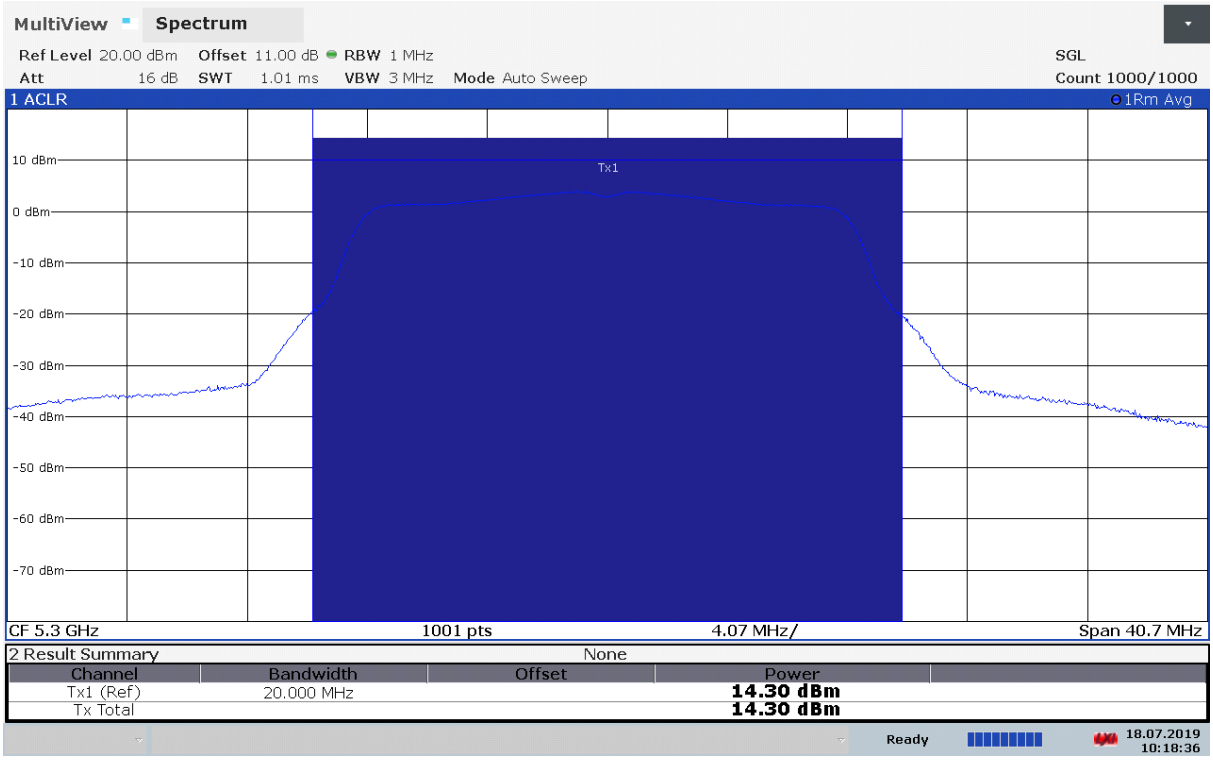
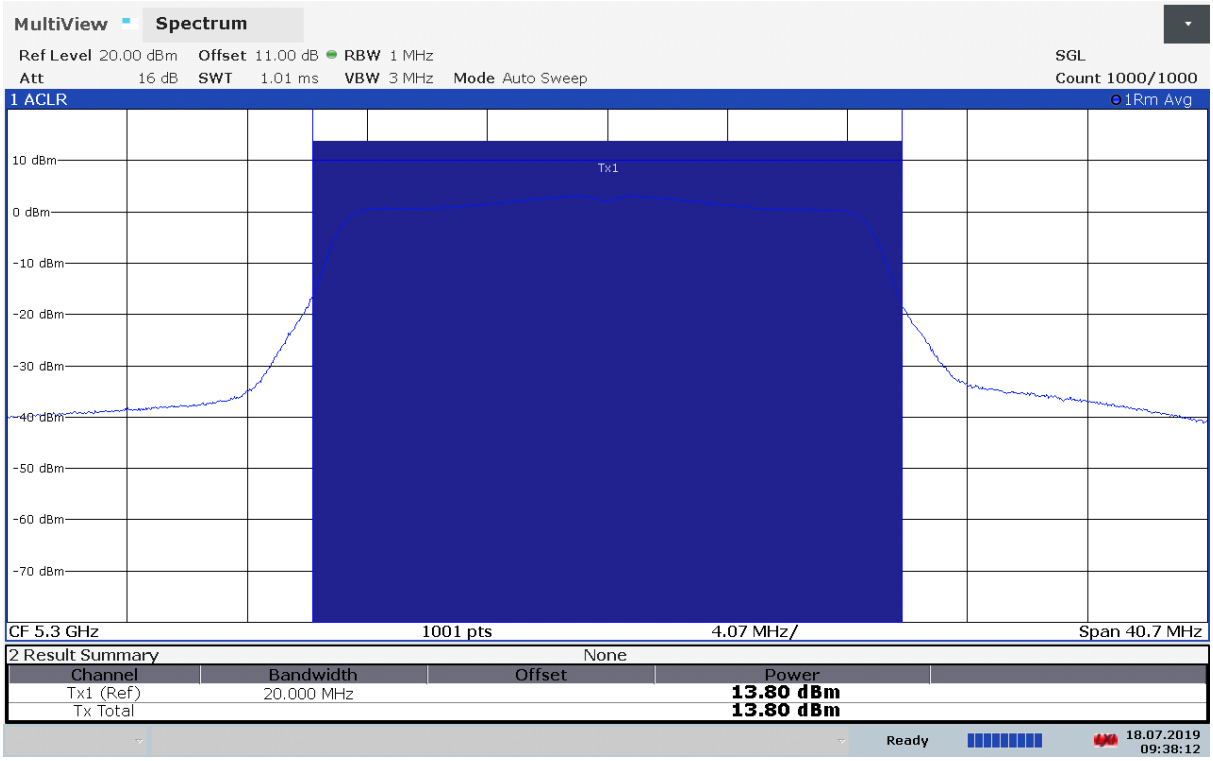
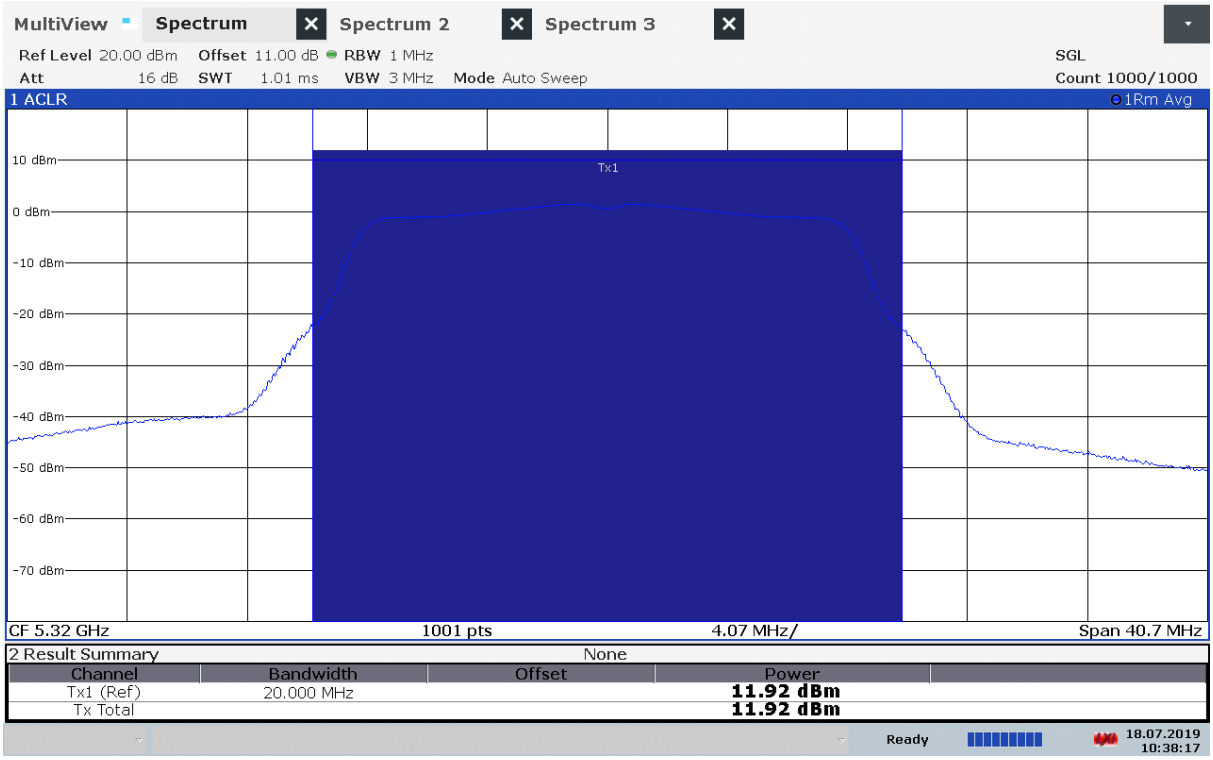


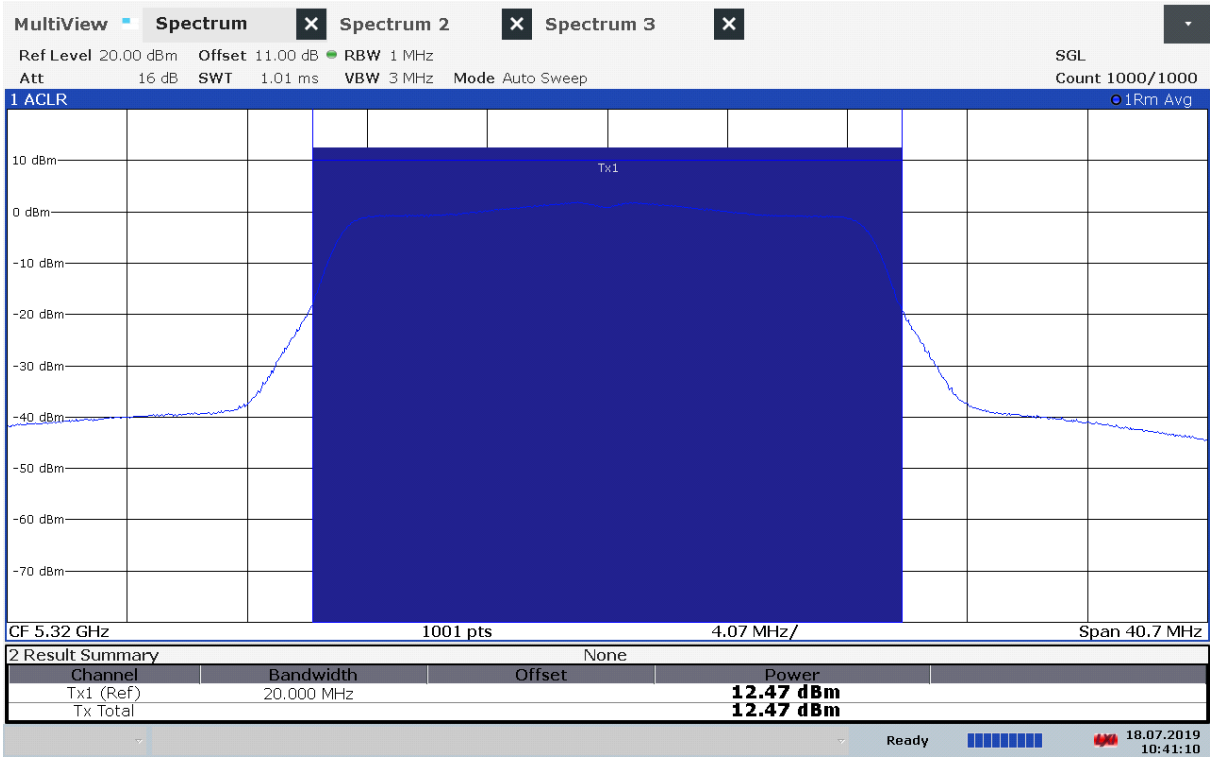
Conducted Power, 5300 MHz, 802.11a 6Mbps



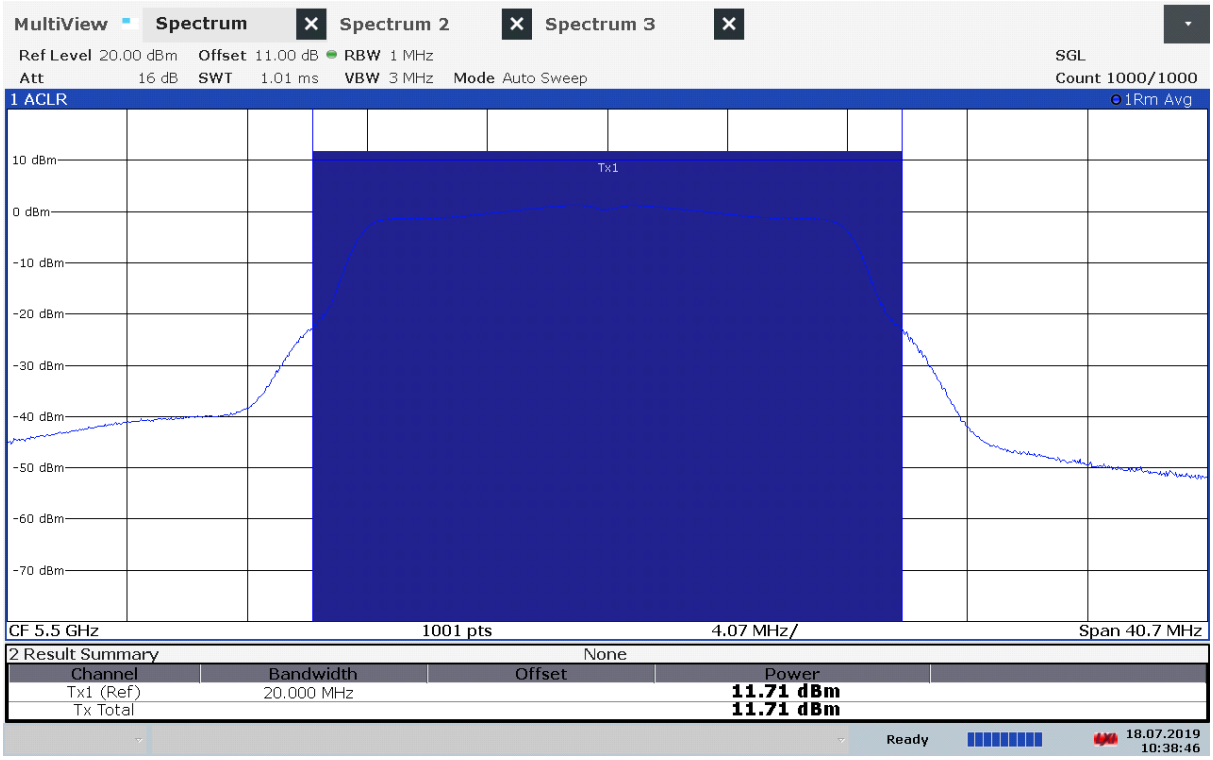
Conducted Power, 5300 MHz, 802. 11n MCS0



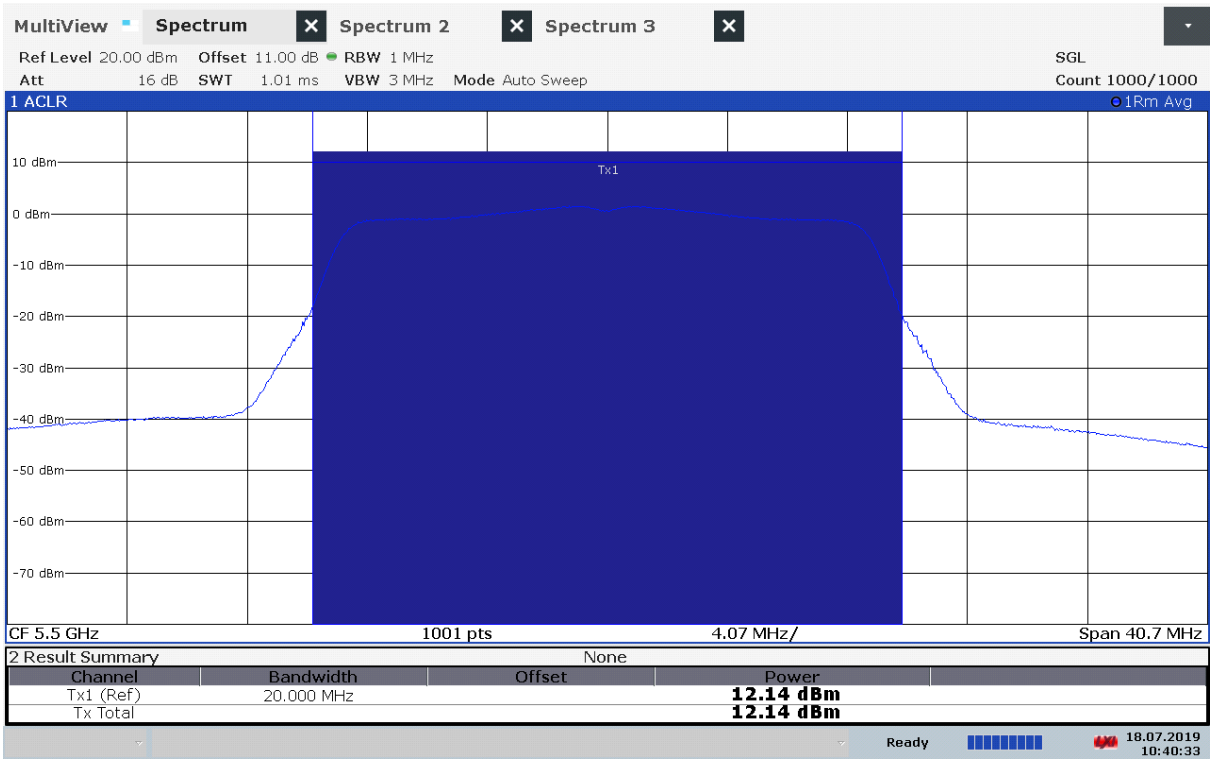
Conducted Power, 5320 MHz, 802.11a 6Mbps



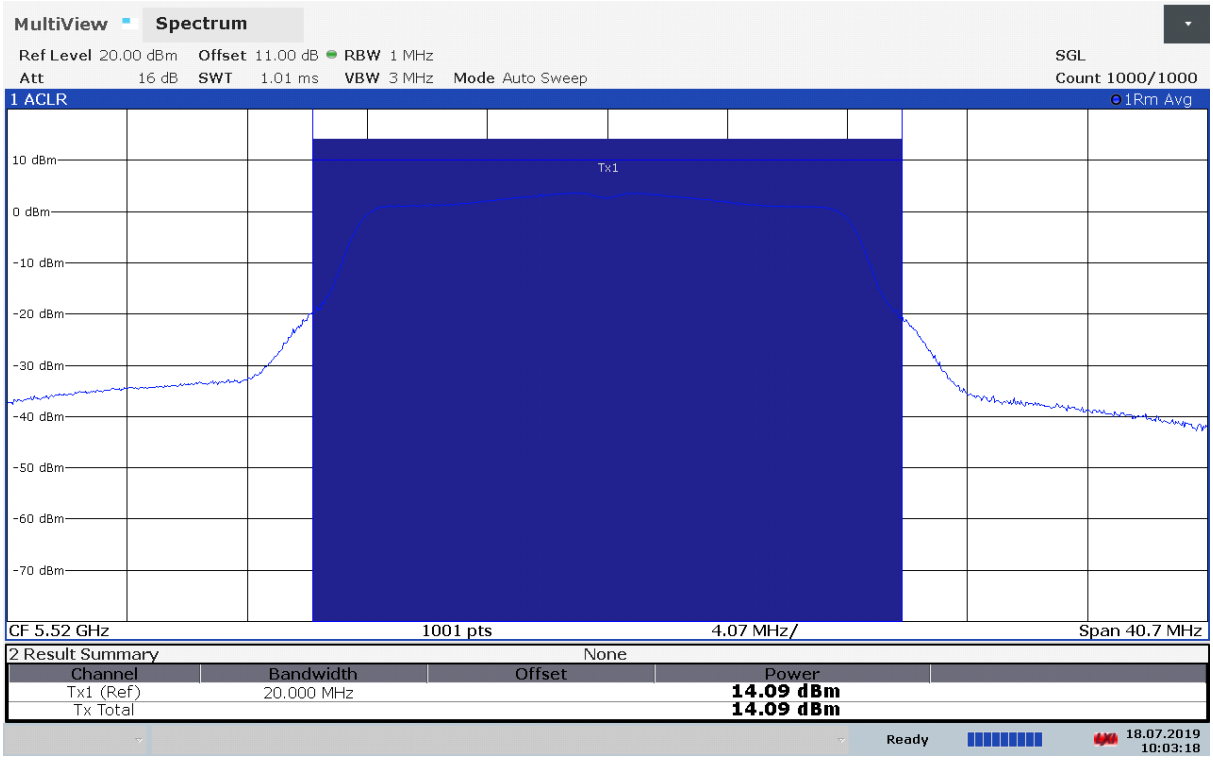
Conducted Power, 5320 MHz, 802. 11n MCS0



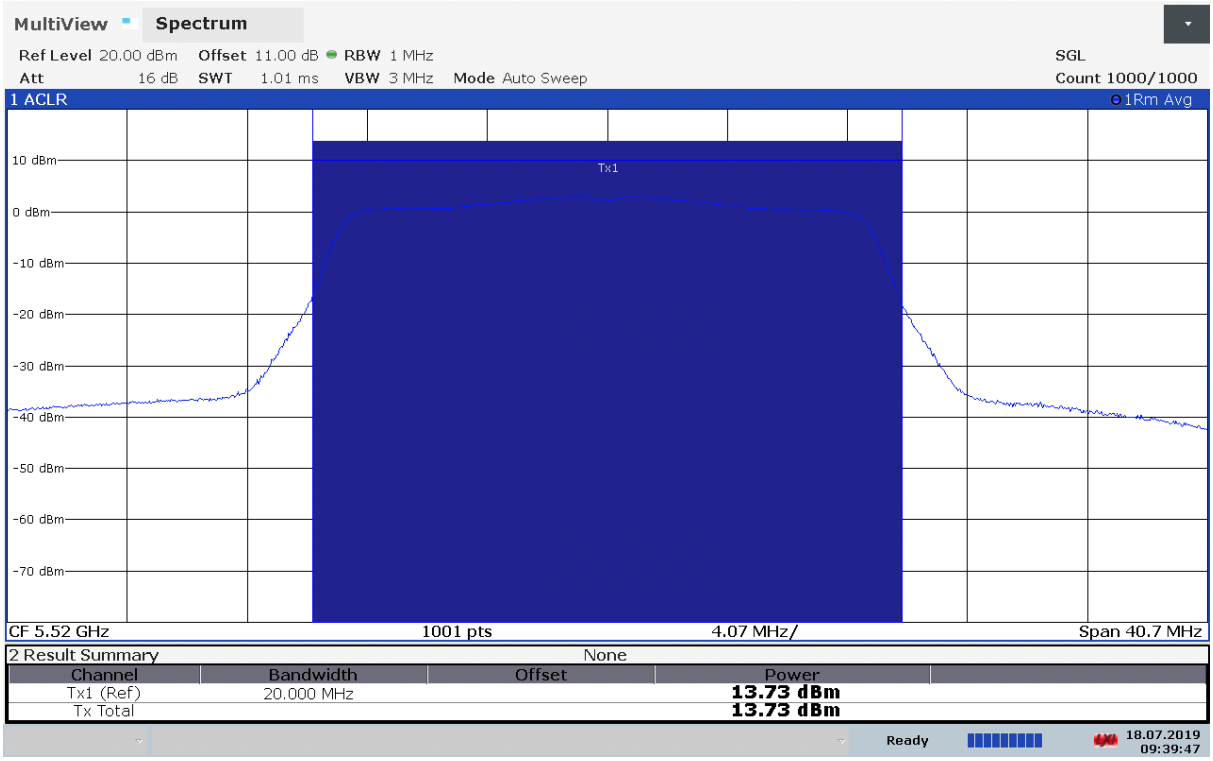
Conducted Power, 5500 MHz, 802.11a 6Mbps



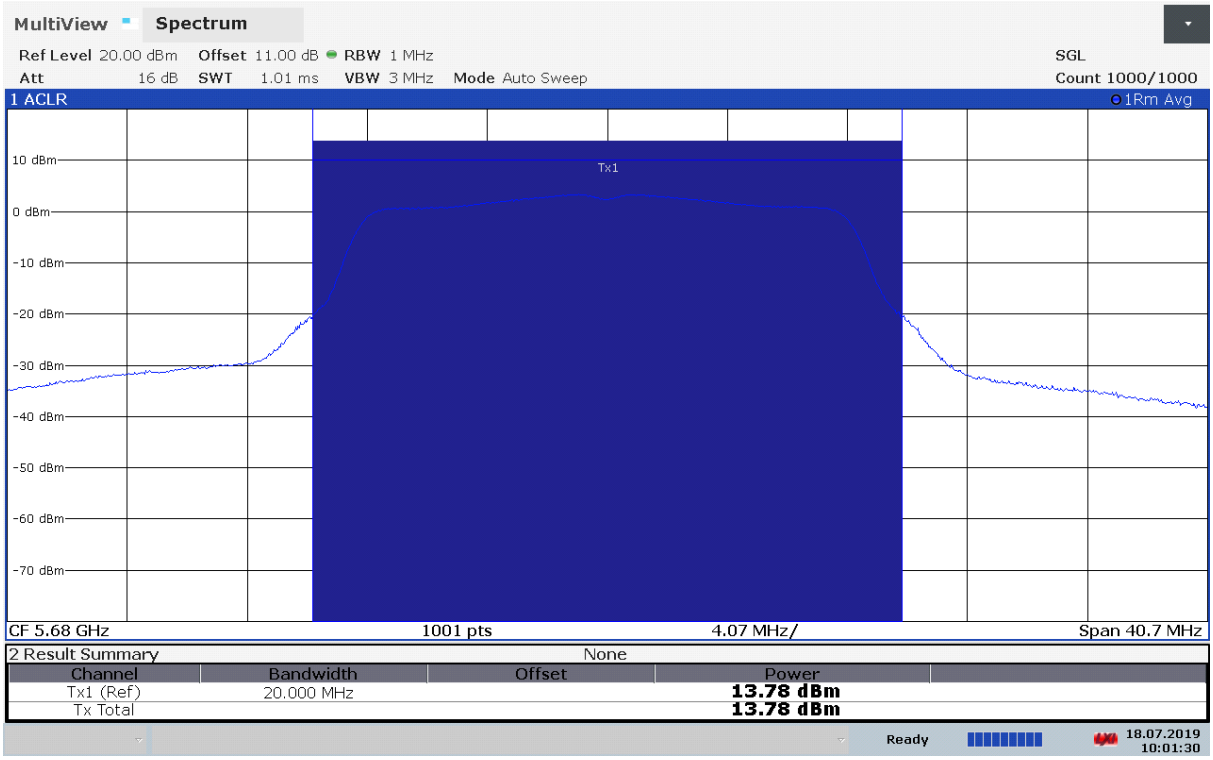
Conducted Power, 5500 MHz, 802.11n MCS0



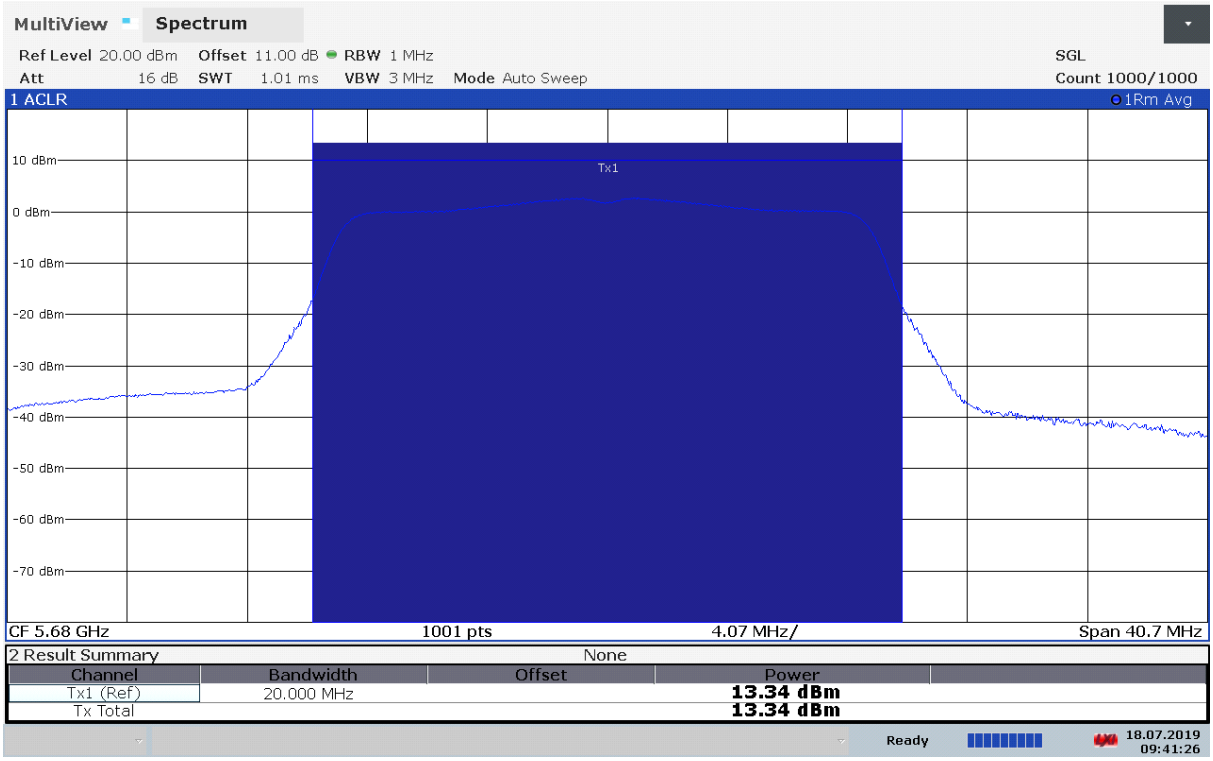
Conducted Power, 5520 MHz, 802.11a 6Mbps



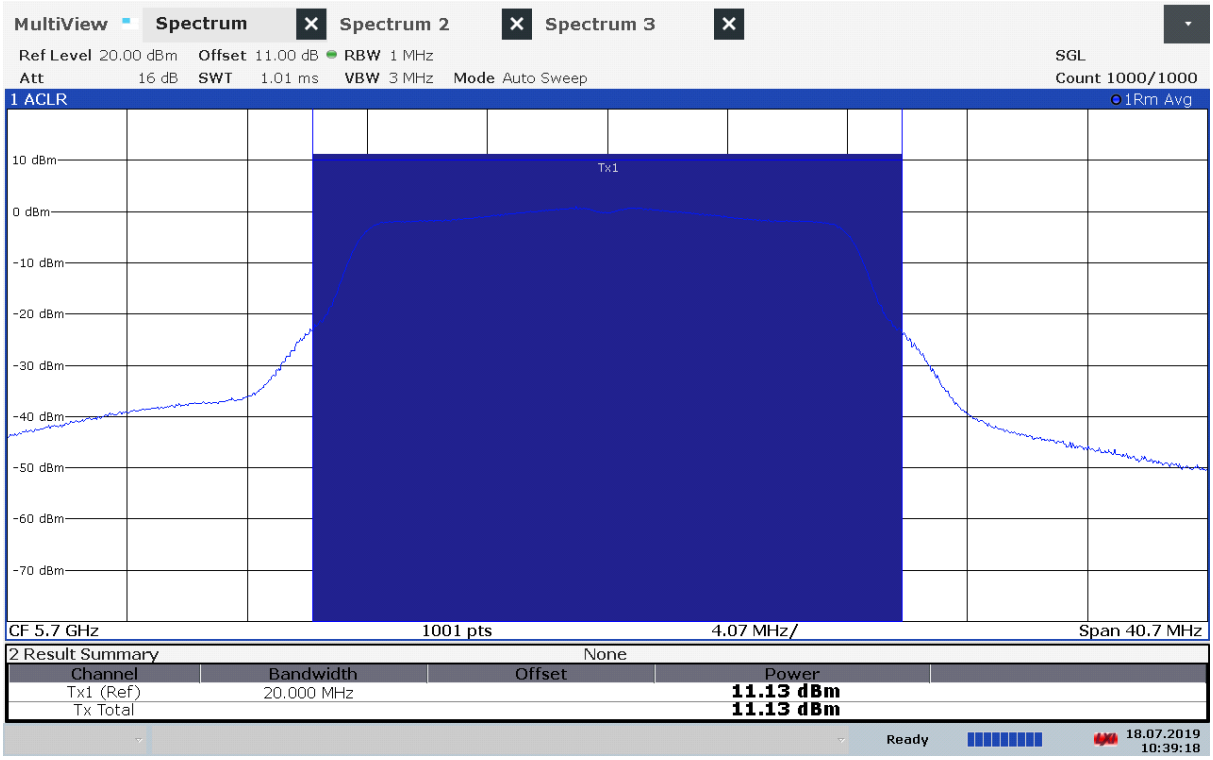
Conducted Power, 5520 MHz, 802.11n MCS0



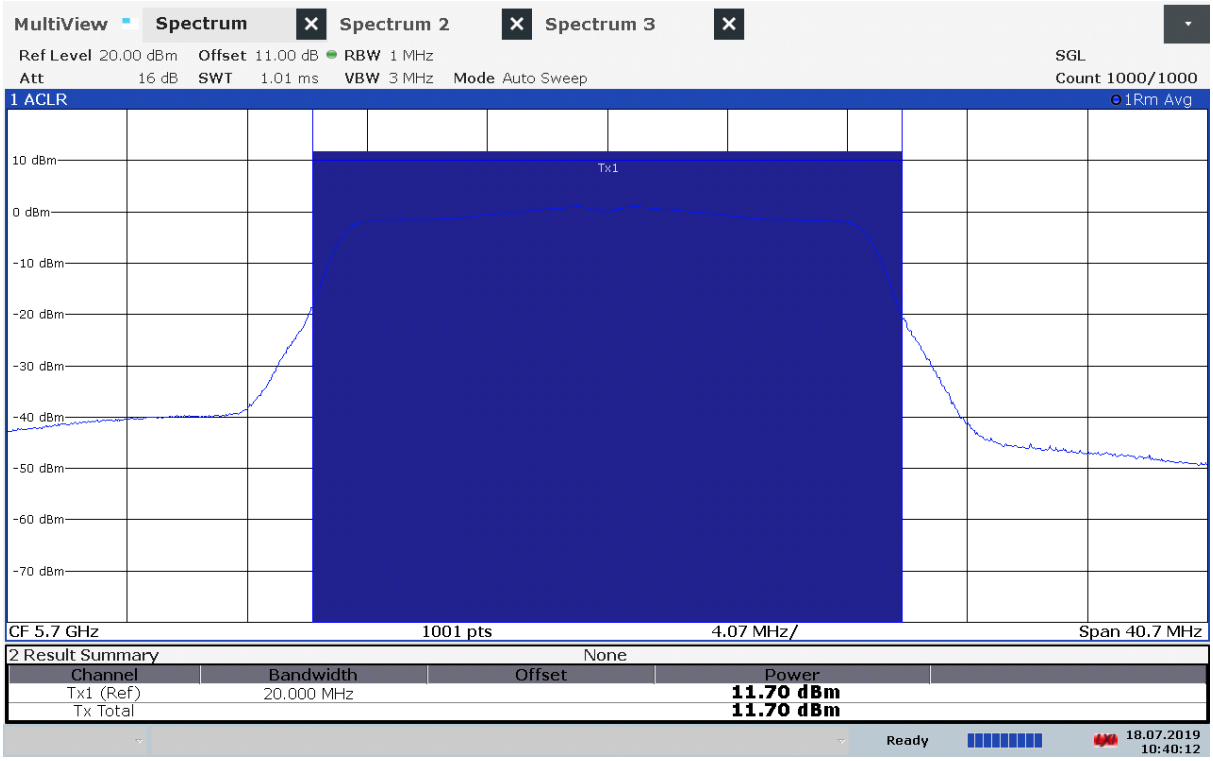
Conducted Power, 5680 MHz, 802.11a 6Mbps



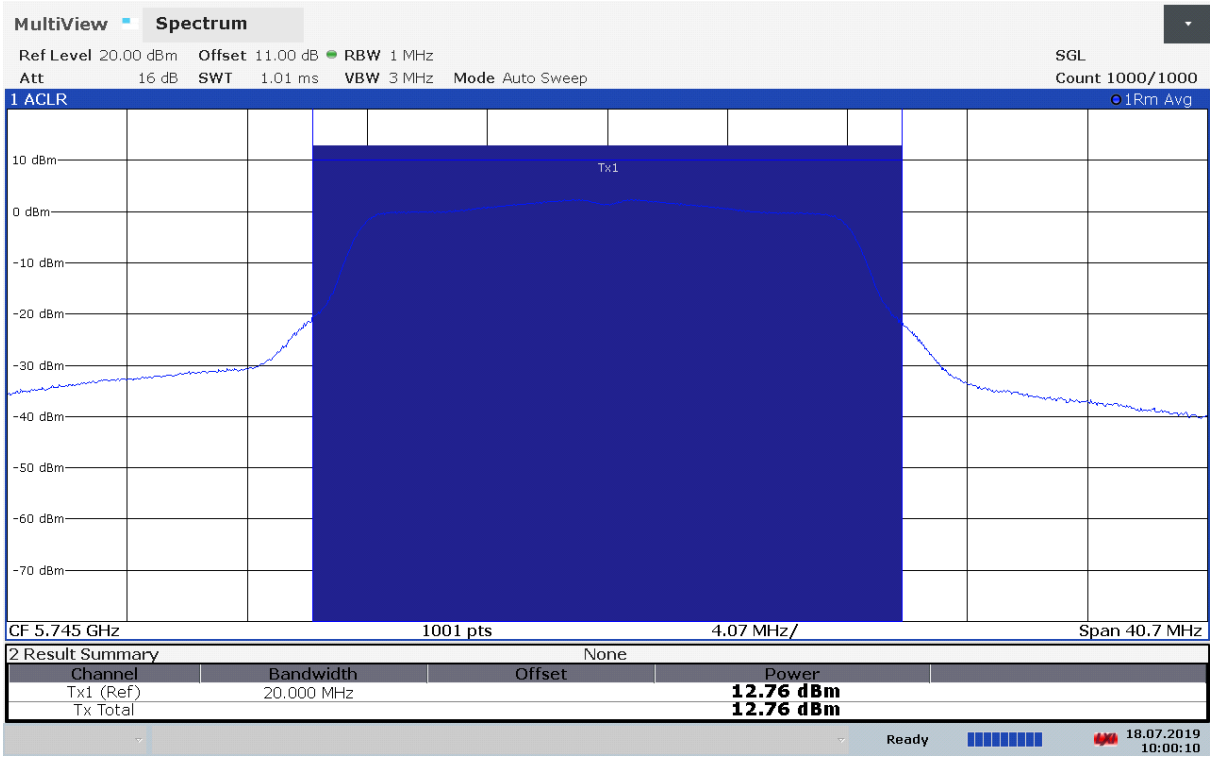
Conducted Power, 5680 MHz, 802.11n MCS0



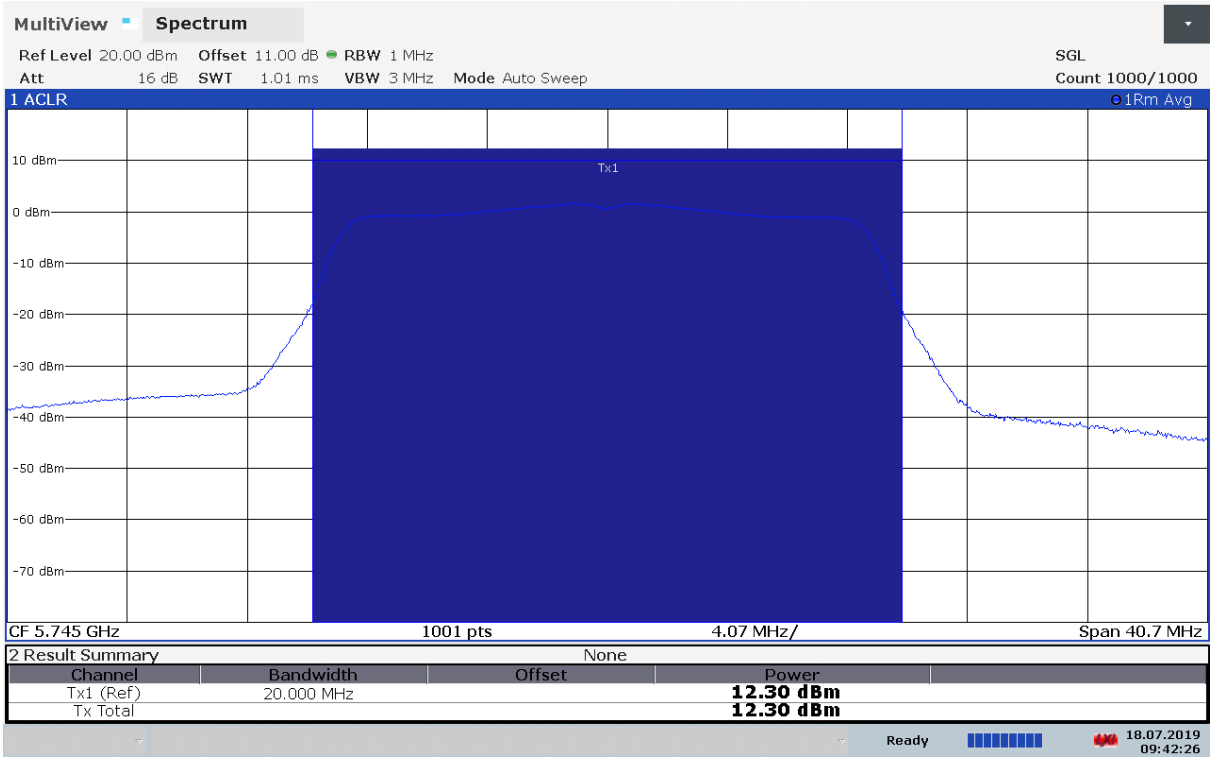
Conducted Power, 5700 MHz, 802.11a 6Mbps



Conducted Power, 5700 MHz, 802.11n MCS0



Conducted Power, 5745 MHz, 802.11a 6Mbps



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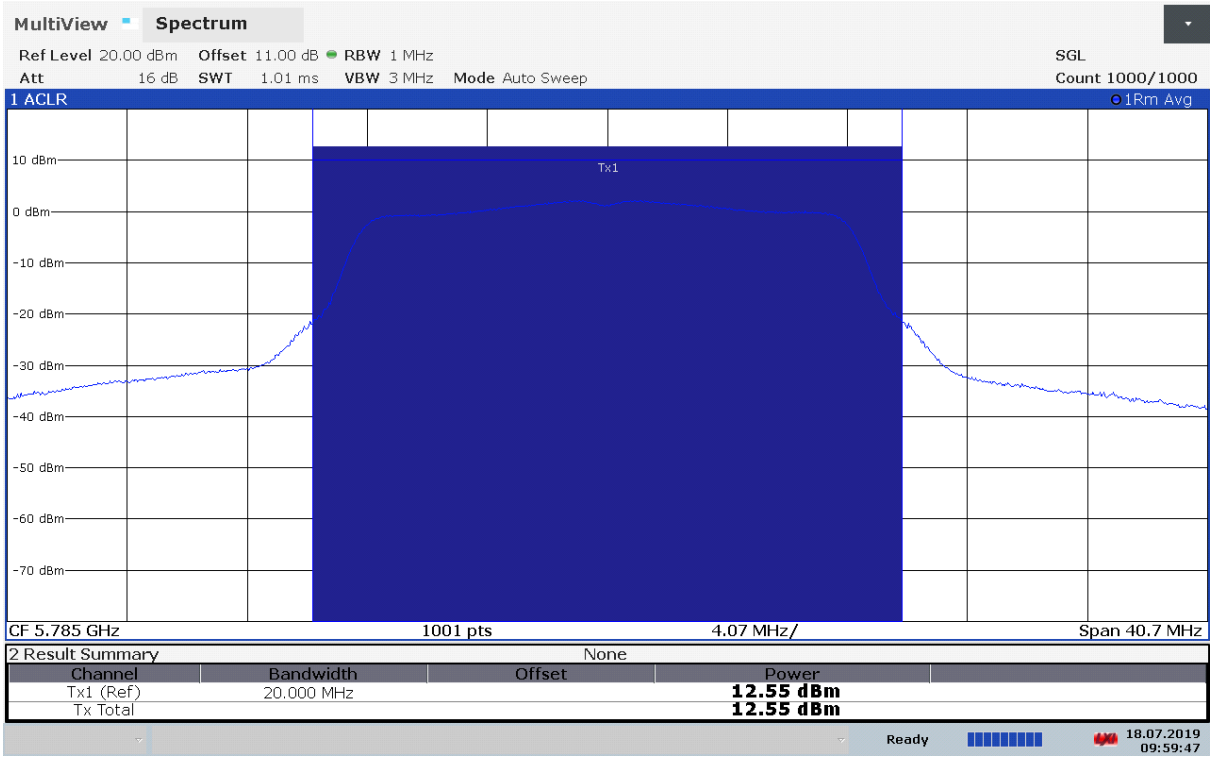
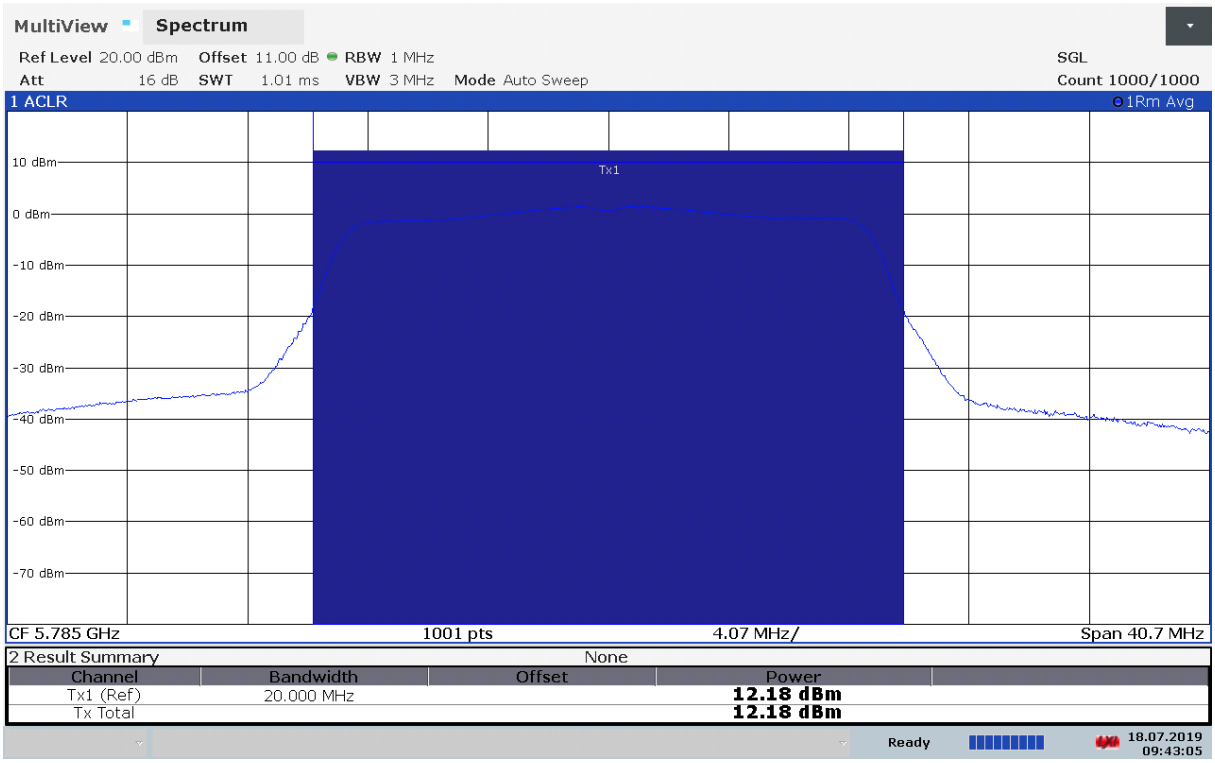
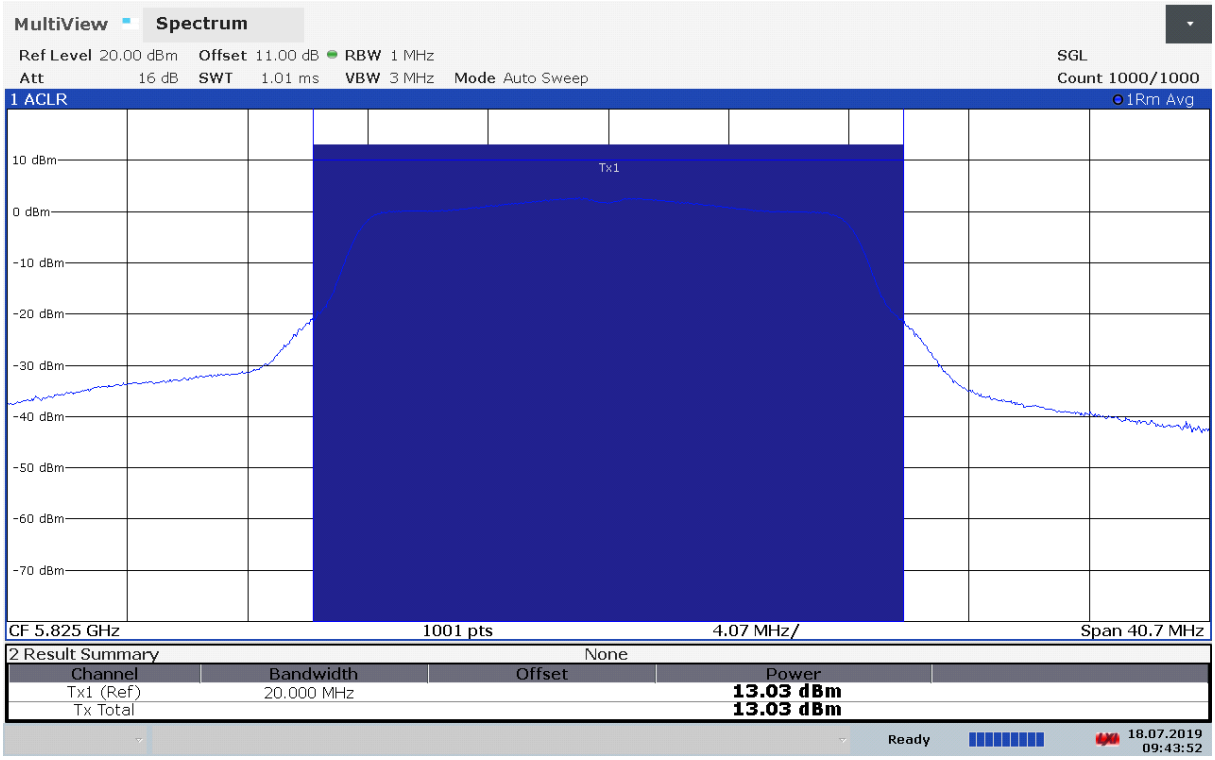


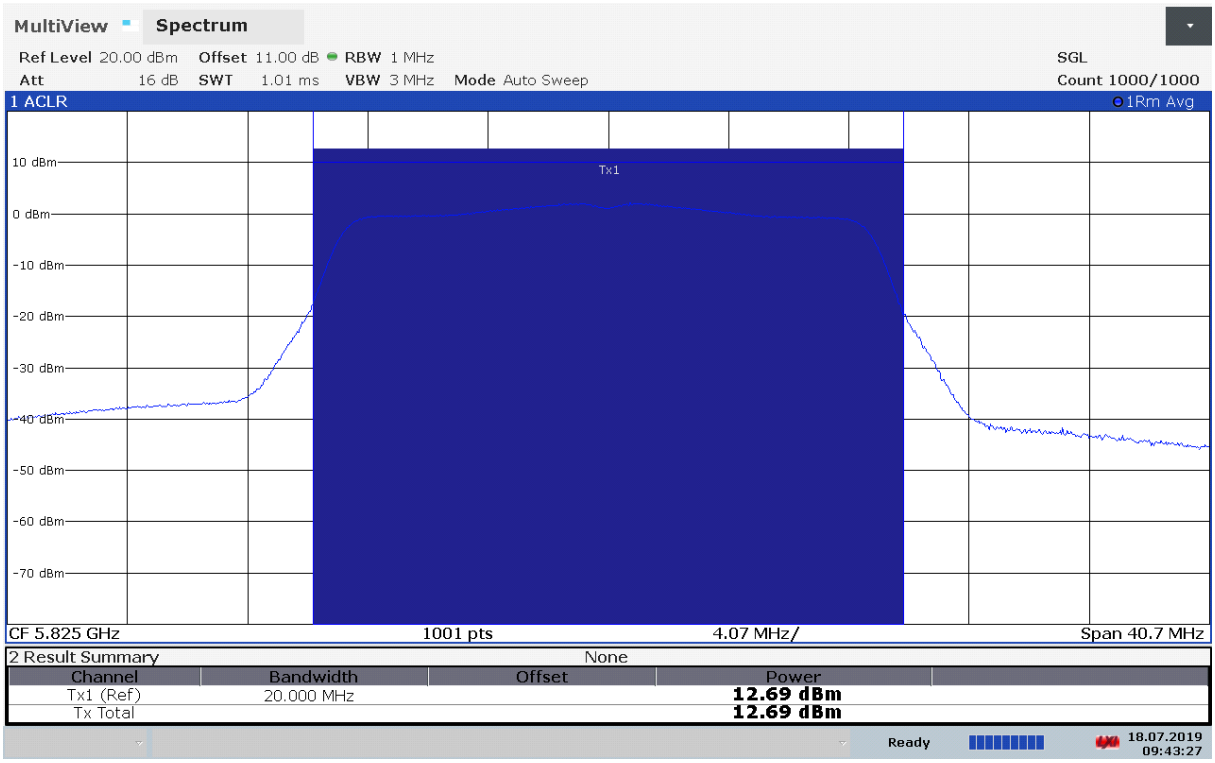
Conducted Power, 5785 MHz, 802.11a 6Mbps



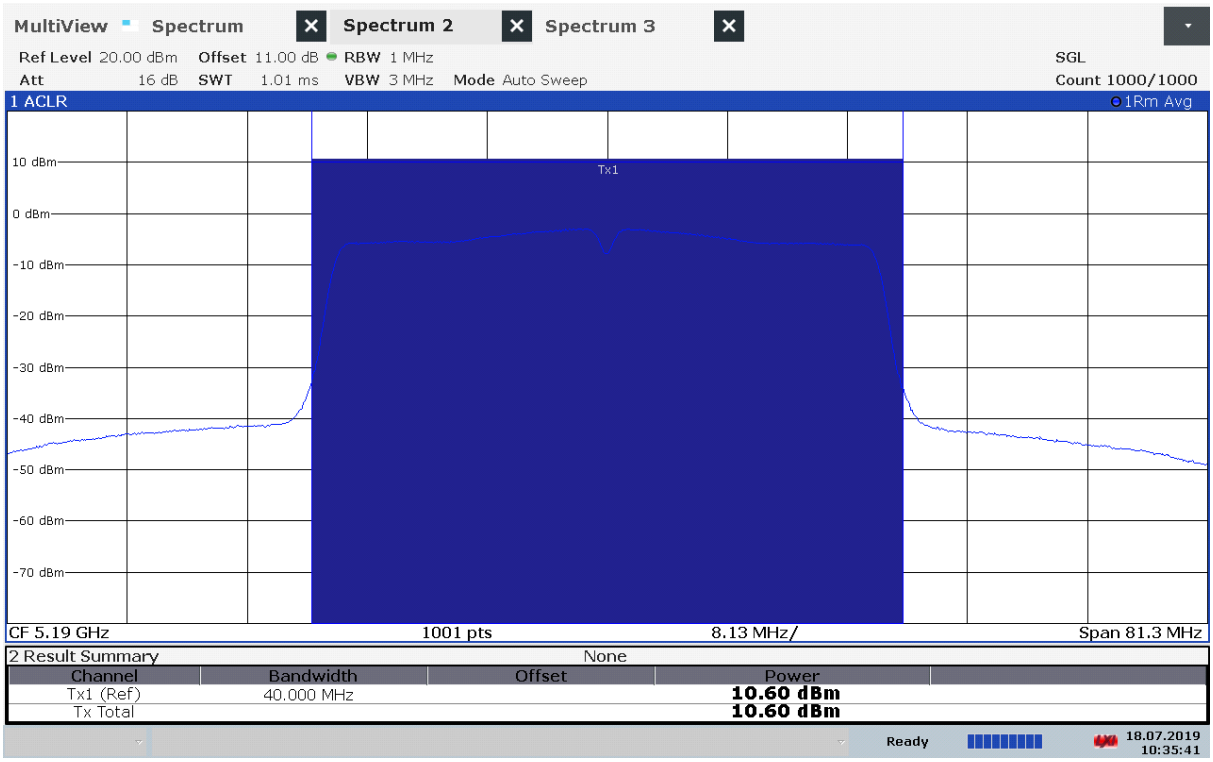
Conducted Power, 5785 MHz, 802.11n MCS0



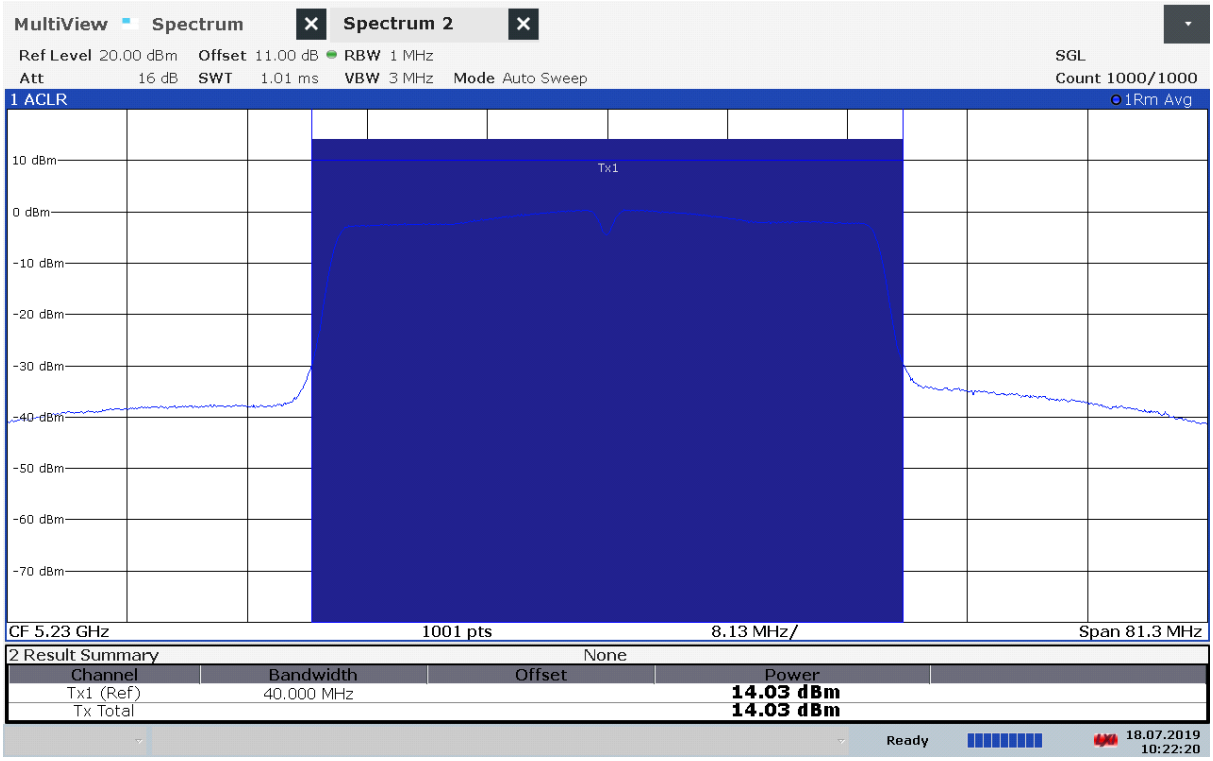
Conducted Power, 5825 MHz, 802.11a 6Mbps



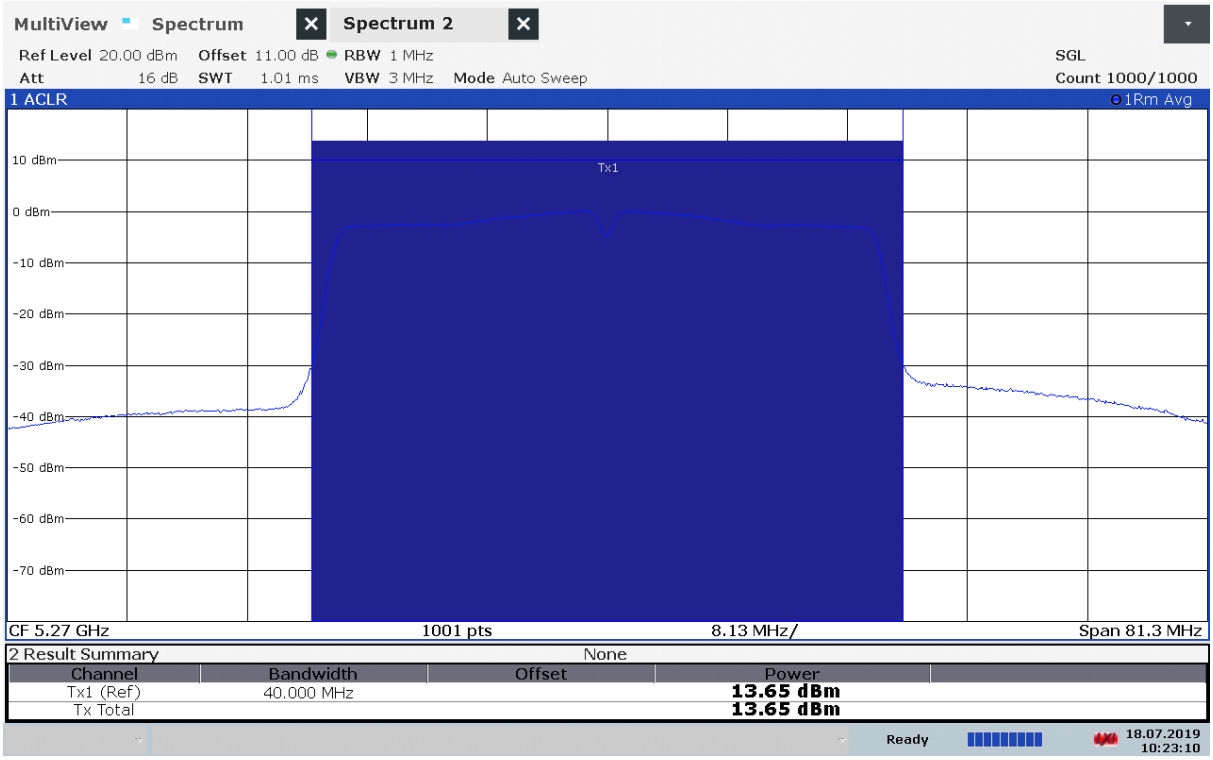
Conducted Power, 5825 MHz, 802.11n MCS0



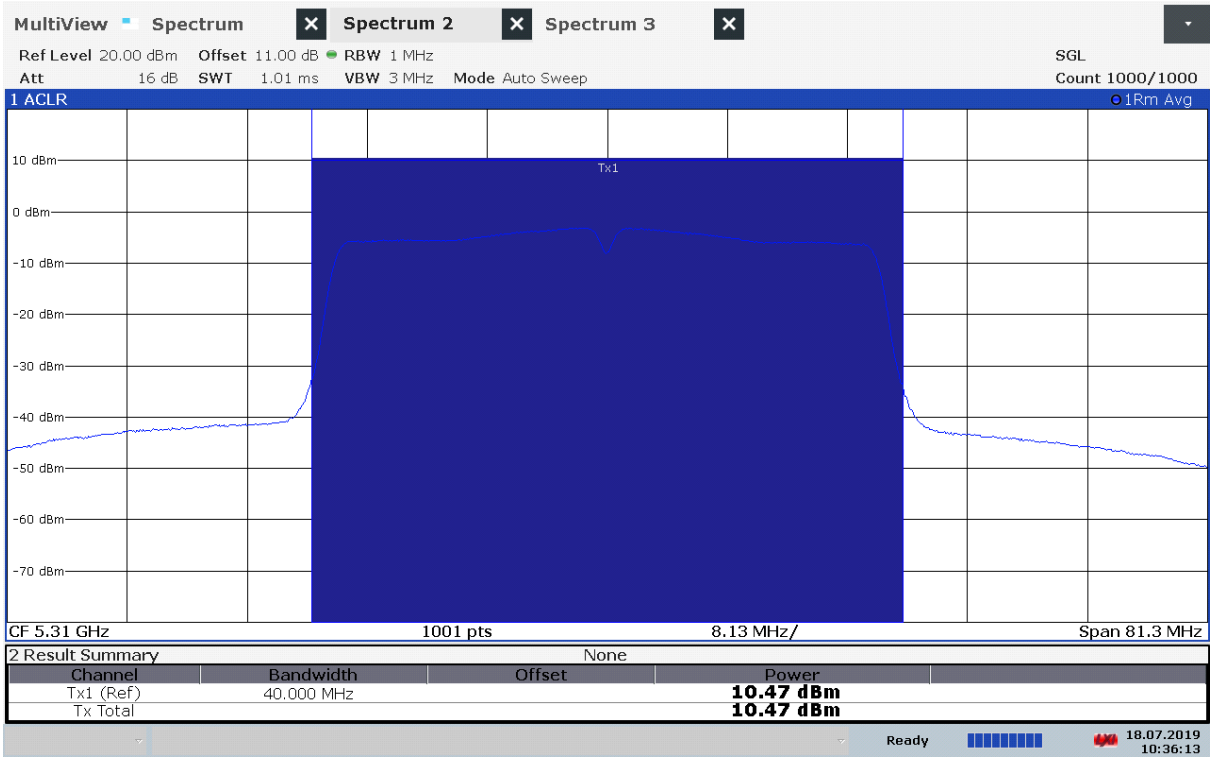
Conducted Power, 5190 MHz, 802.11n MCS0 HT40



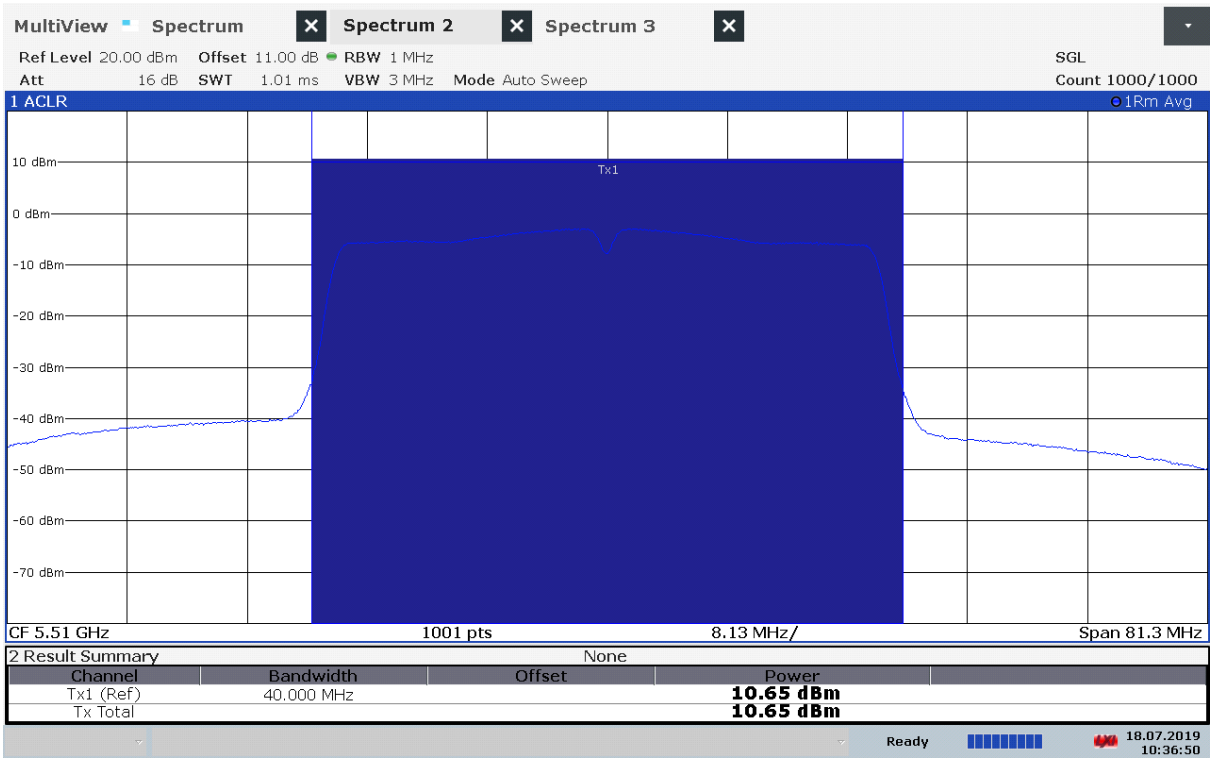
Conducted Power, 5230 MHz, 802.11n MCS0 HT40



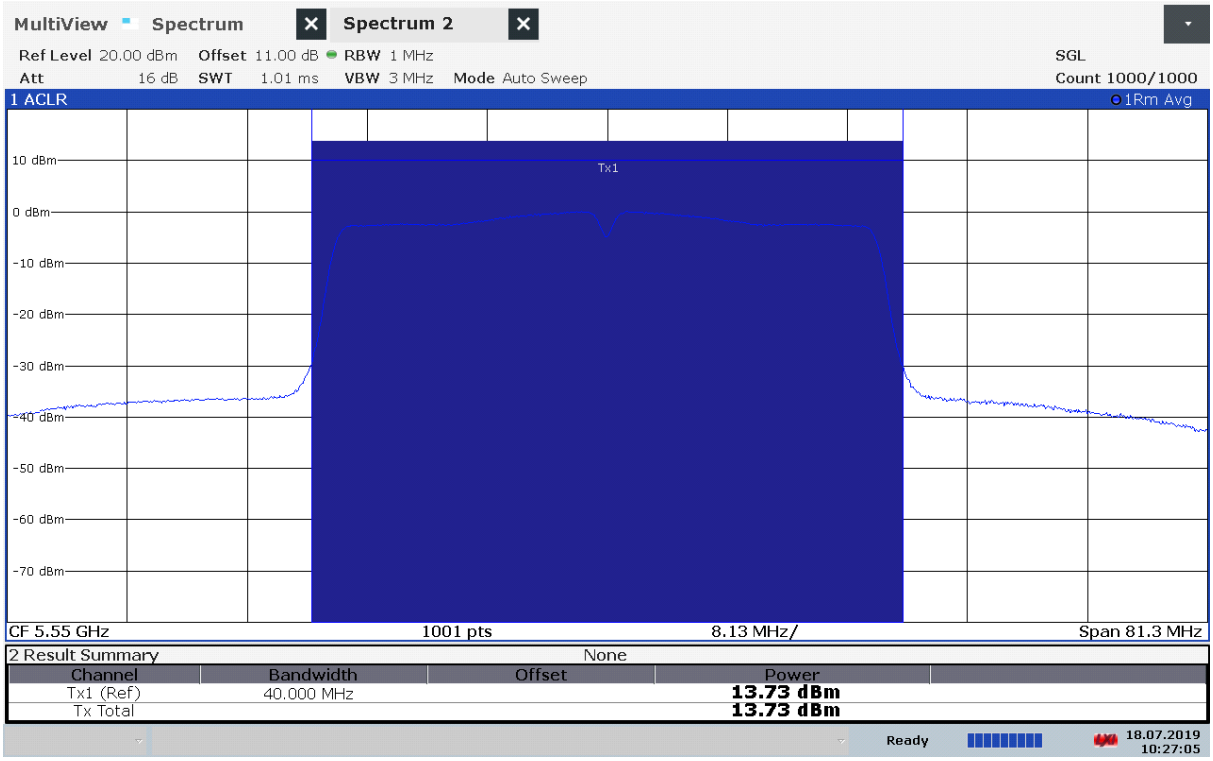
Conducted Power, 5270 MHz, 802. 11n MCS0 HT40



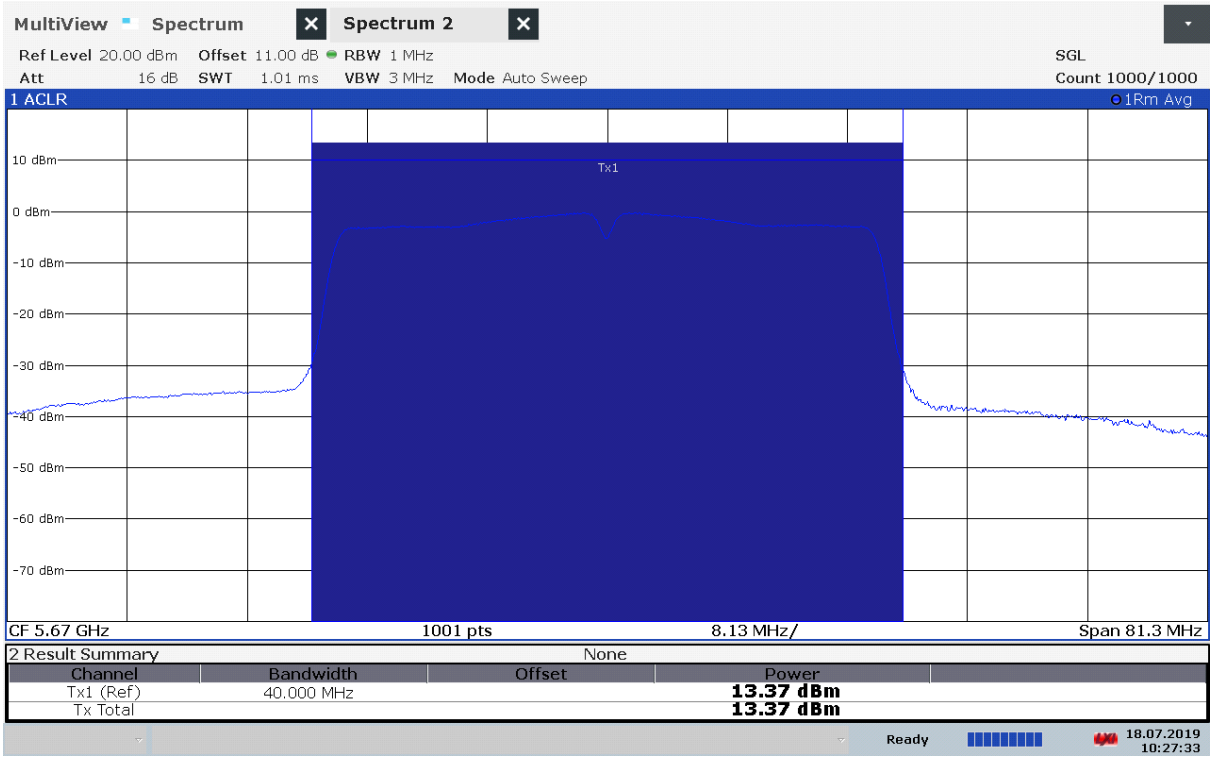
Conducted Power, 5310 MHz, 802.11n MCS0 HT40



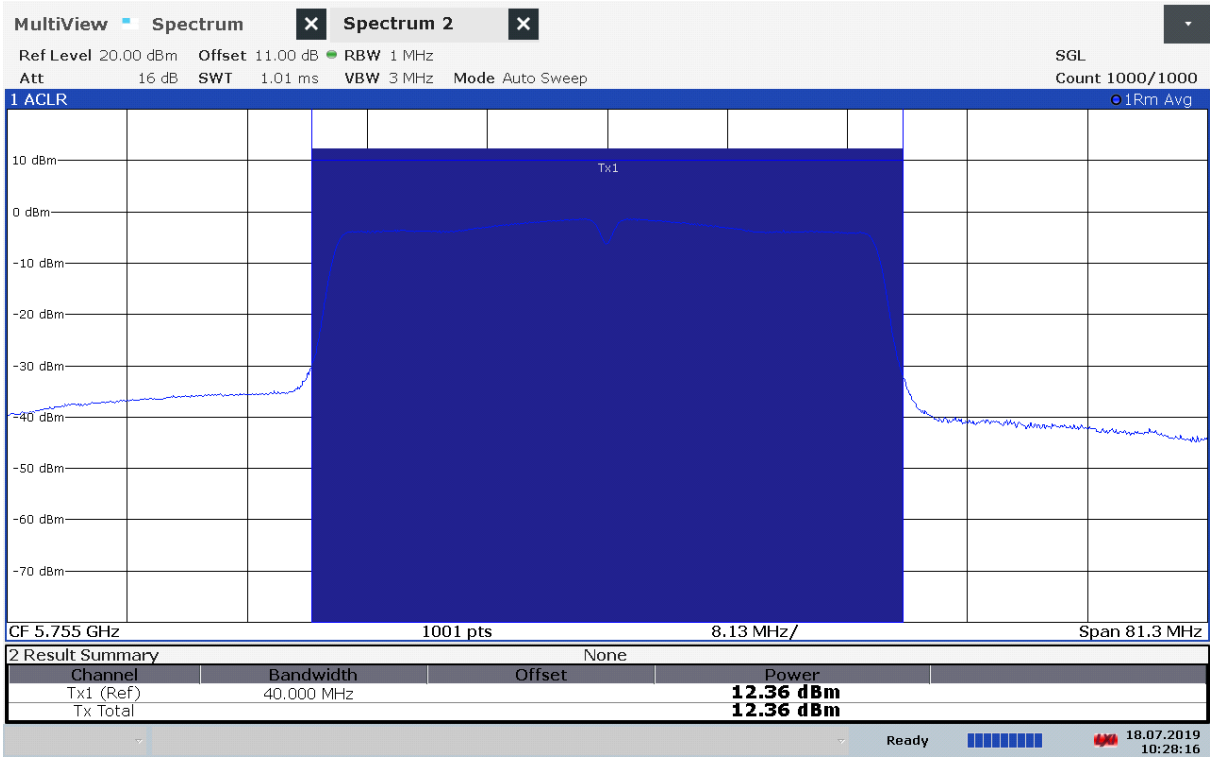
Conducted Power, 5510 MHz, 802. 11n MCS0 HT40



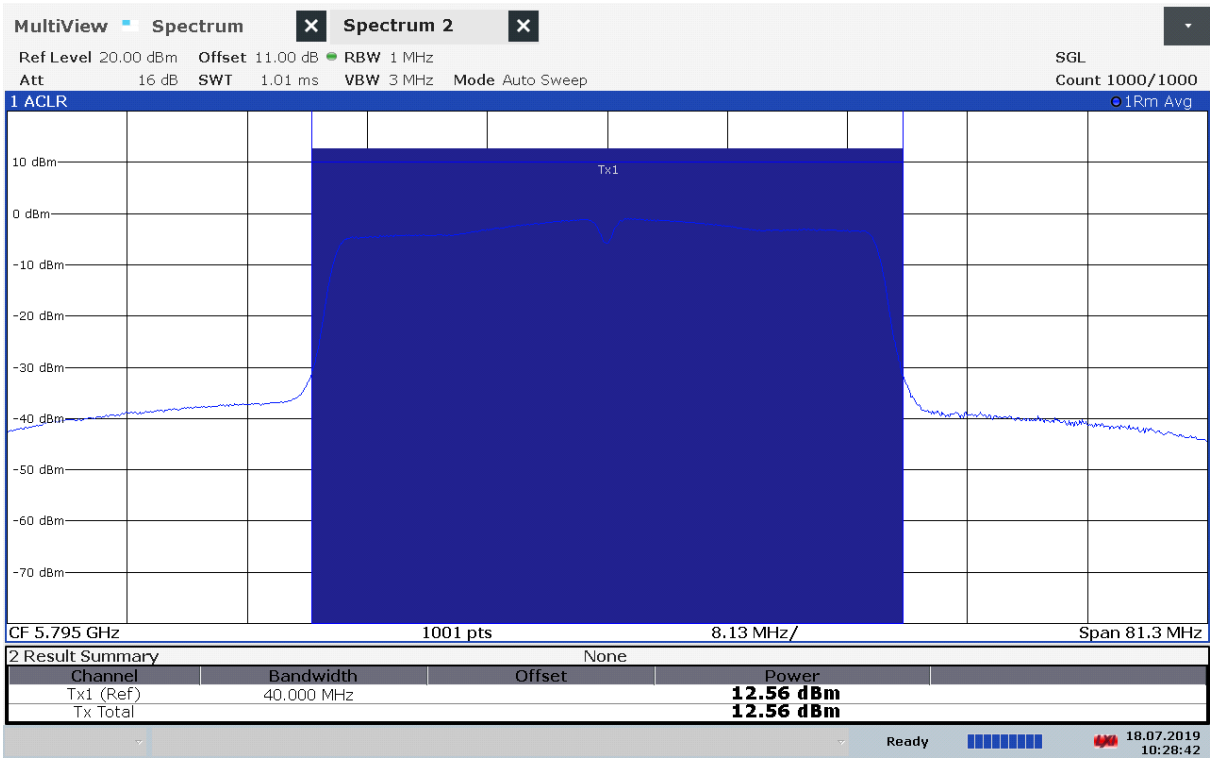
Conducted Power, 5550 MHz, 802.11n MCS0 HT40



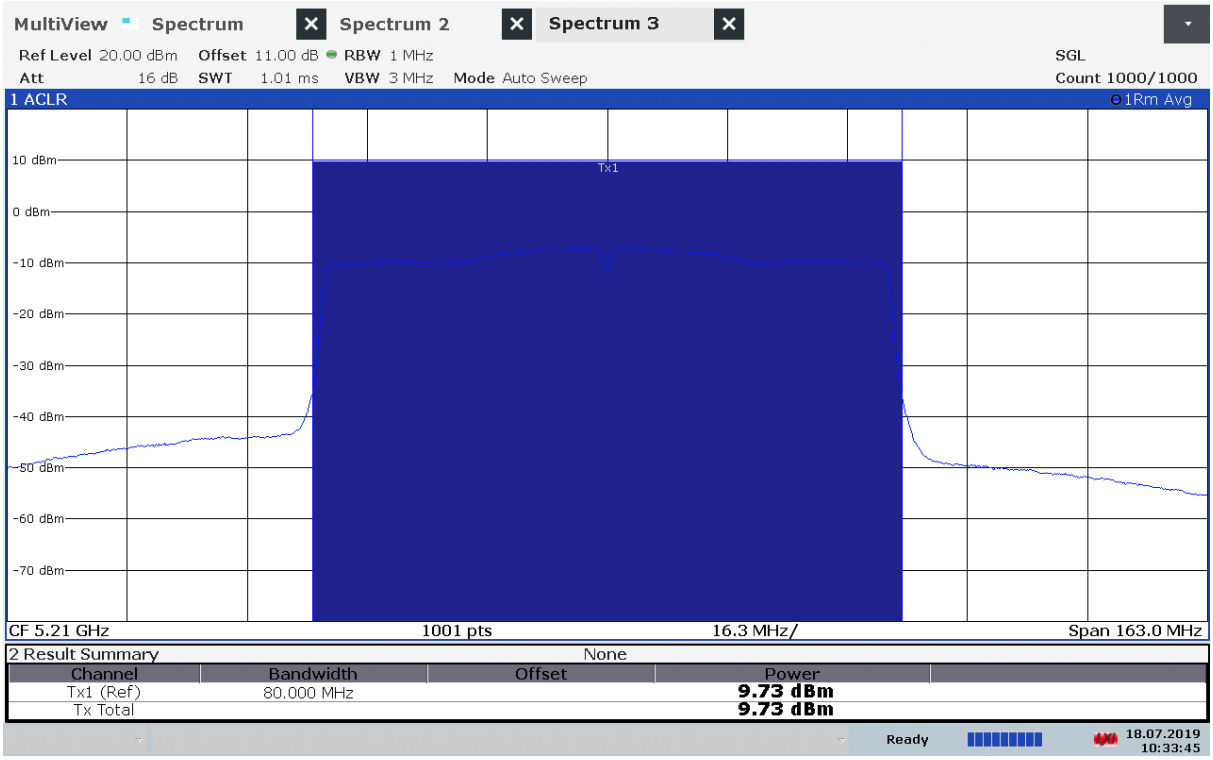
Conducted Power, 5670 MHz, 802. 11n MCS0 HT40



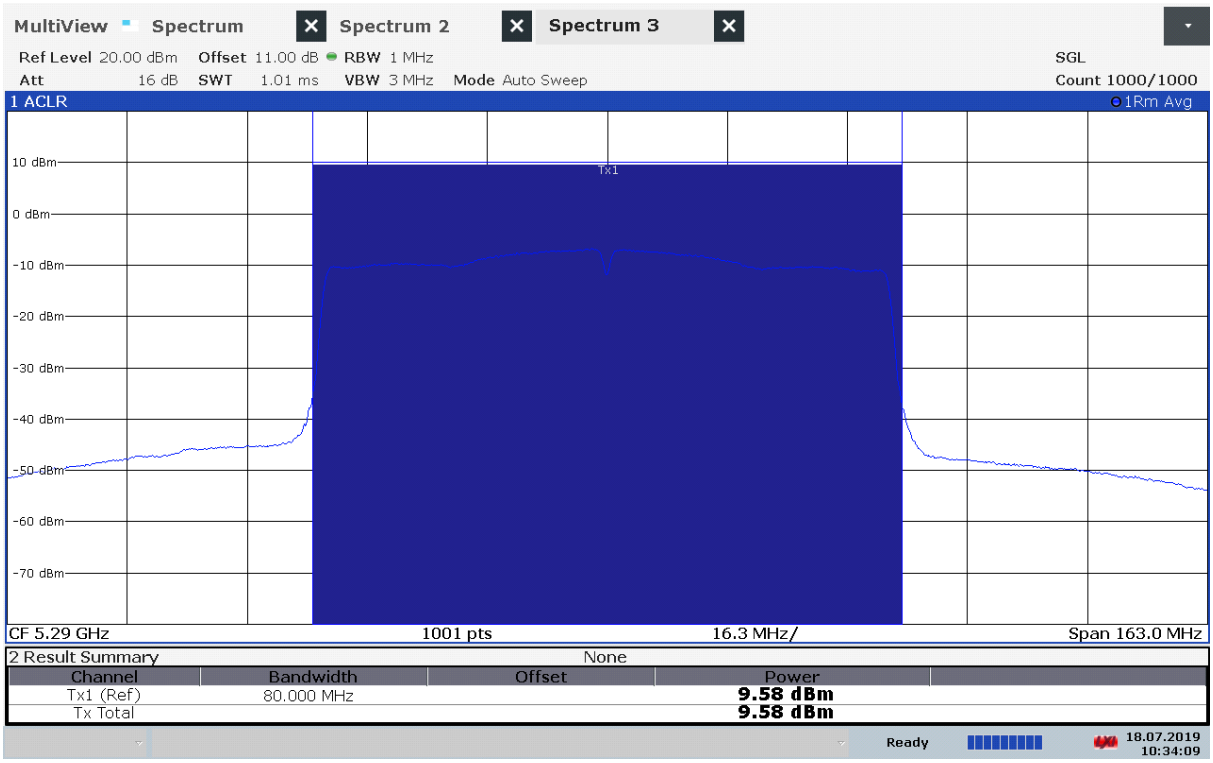
Conducted Power, 5755 MHz, 802.11n MCS0 HT40



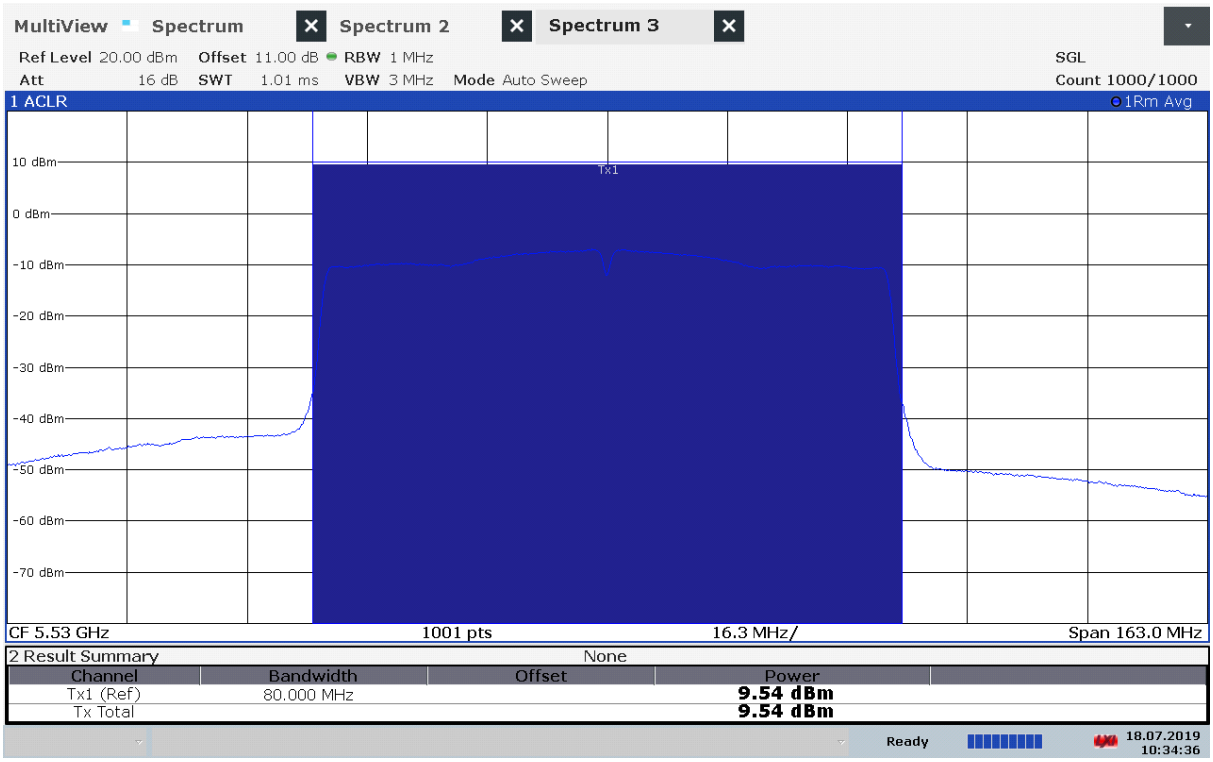
Conducted Power, 5795 MHz, 802.11n MCS0 HT40



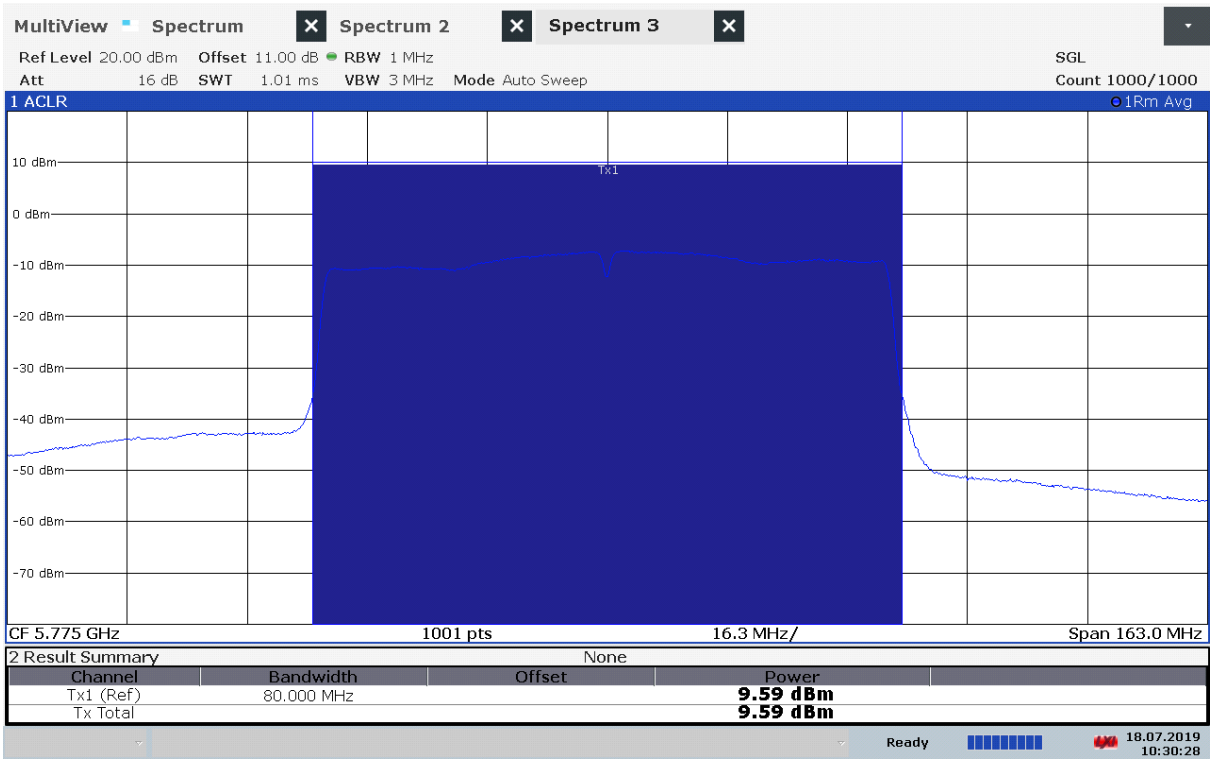
Conducted Power, 5210 MHz, 802.11ac MCS0 HT80



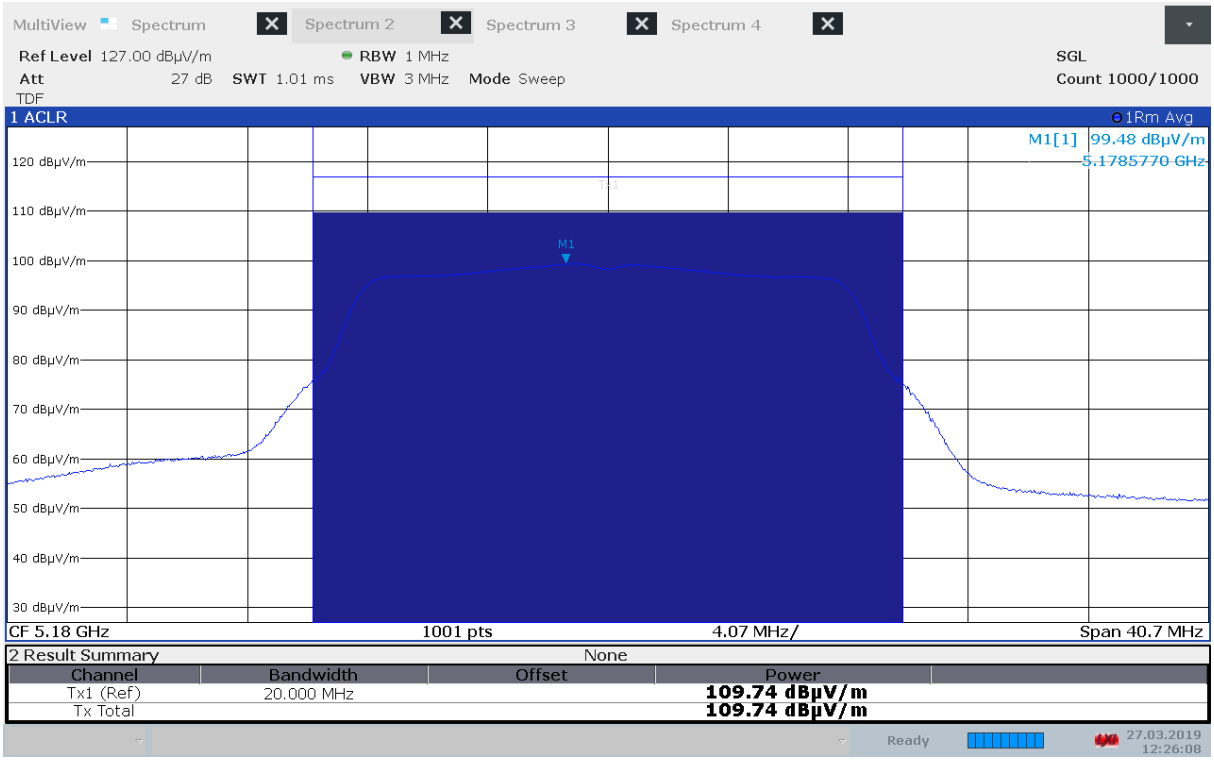
Conducted Power, 5290 MHz, 802.11ac MCS0 HT80



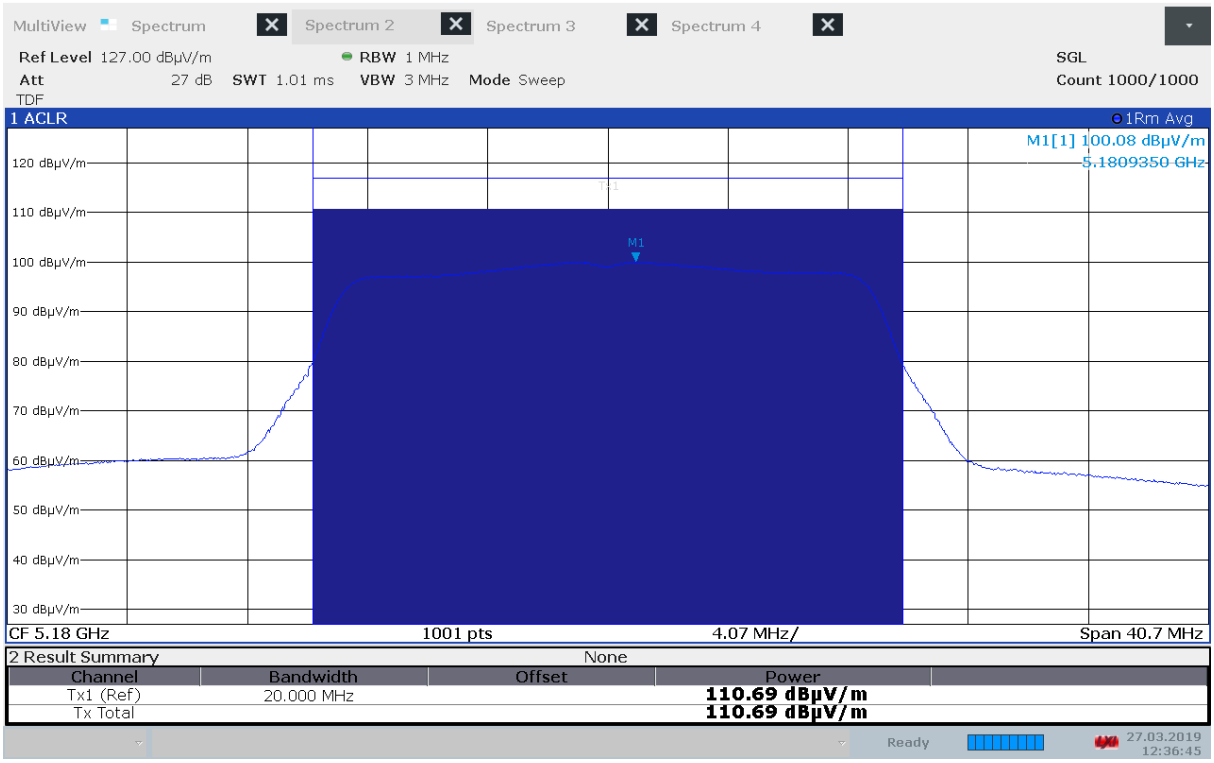
Conducted Power, 5530 MHz, 802.11ac MCS0 HT80



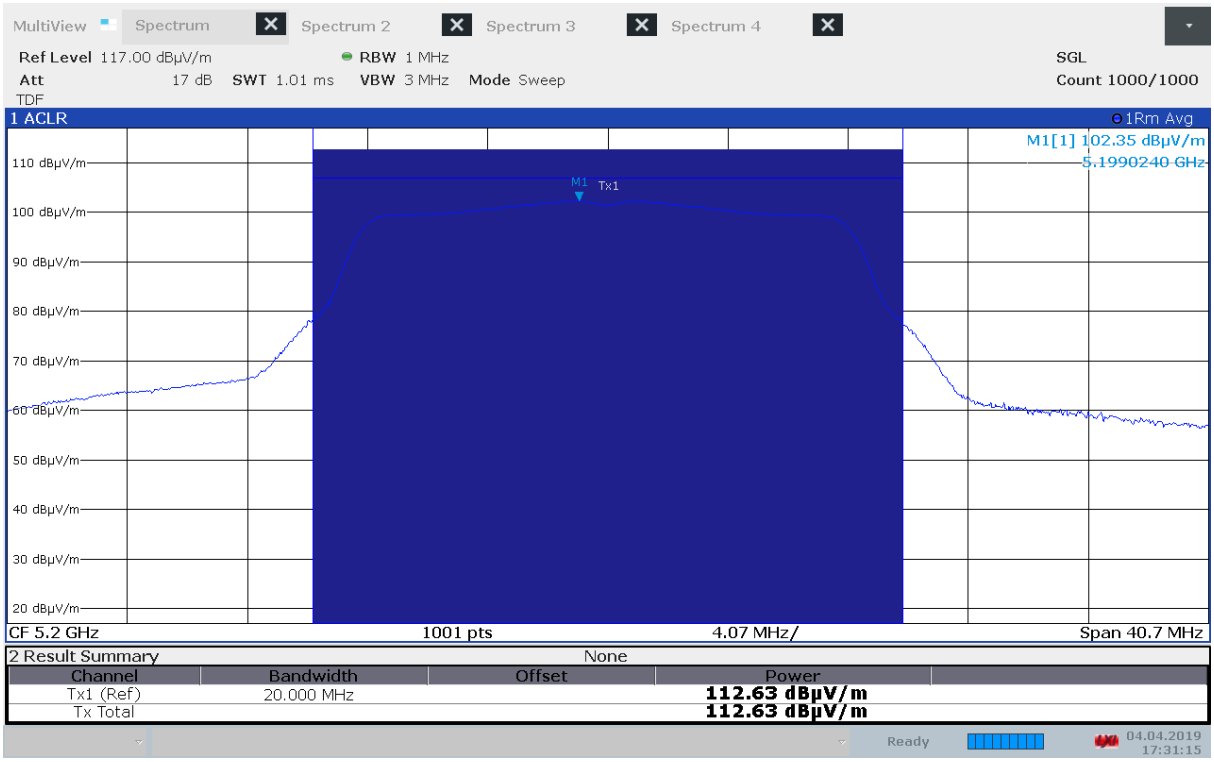
Conducted Power, 5775 MHz, 802.11ac MCS0 HT80



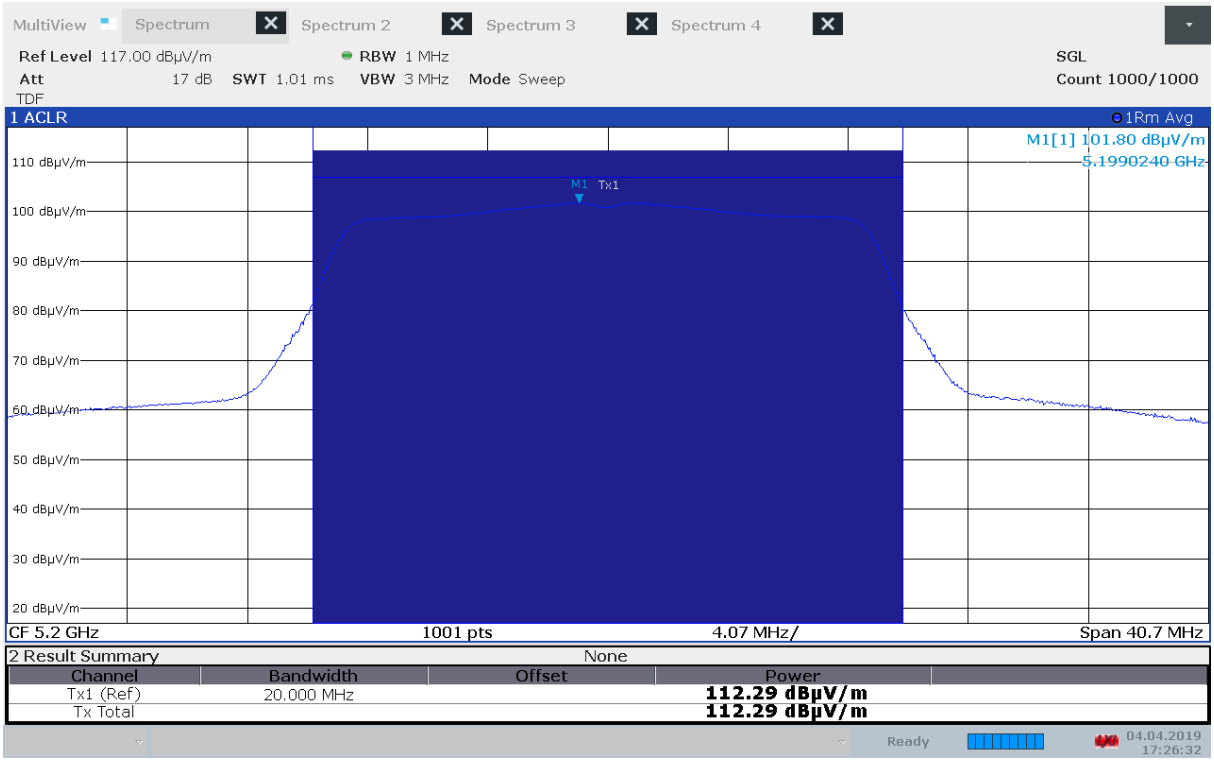
Maximum Field Strength, 5180 MHz, 802.11a 6Mbps



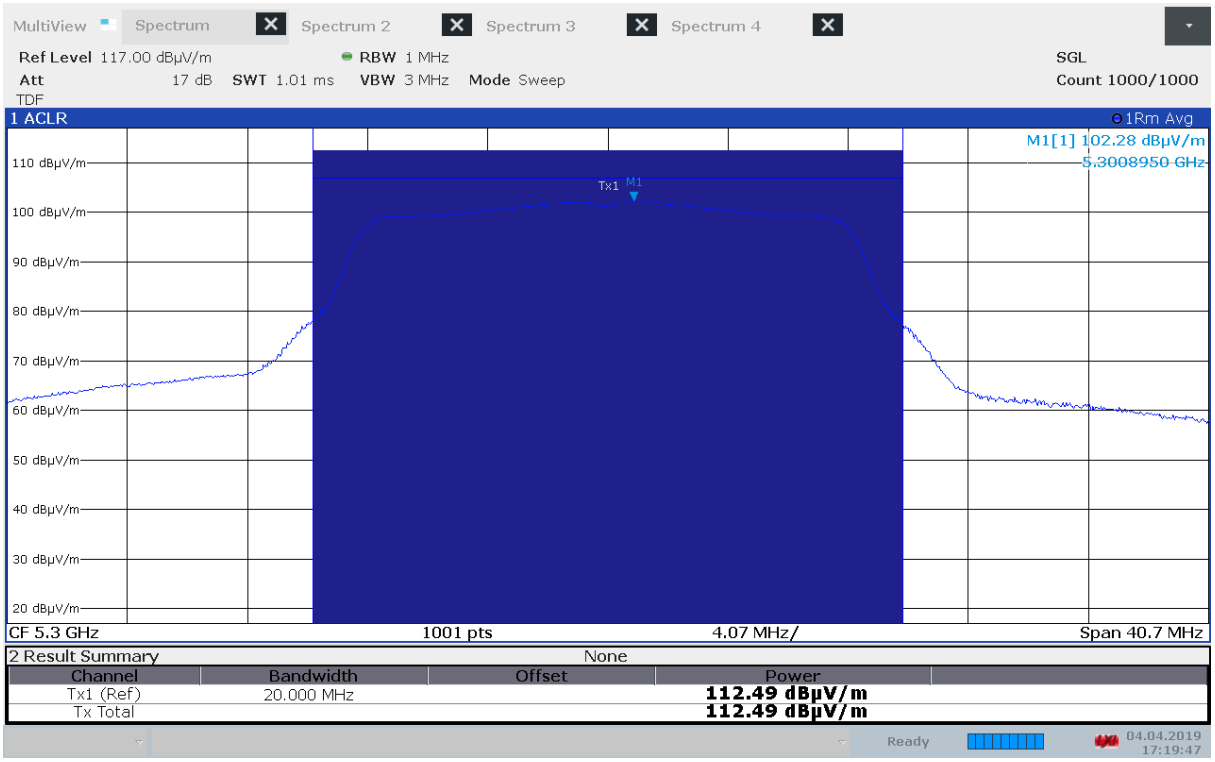
Maximum Field Strength, 5180 MHz, 802.11n MCS0



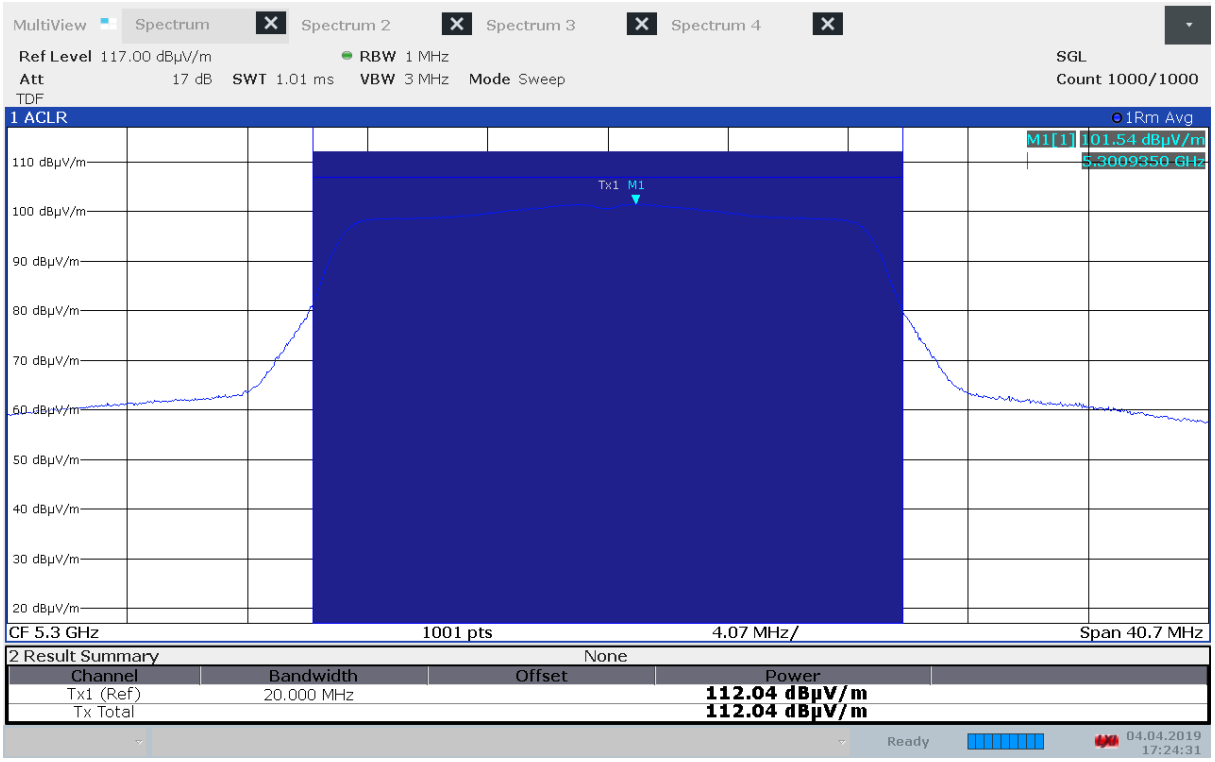
Maximum Field Strength, 5200 MHz, 802.11a 6Mbps



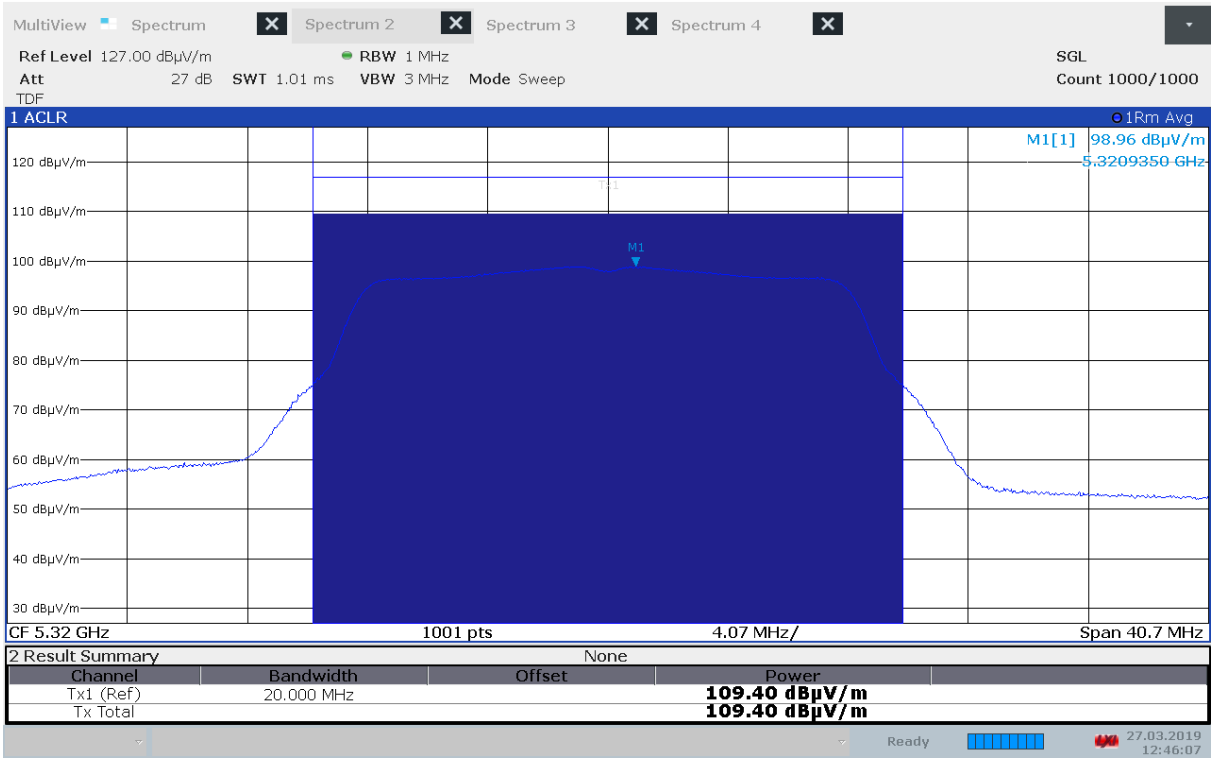
Maximum Field Strength, 5200 MHz, 802.11n MCS0



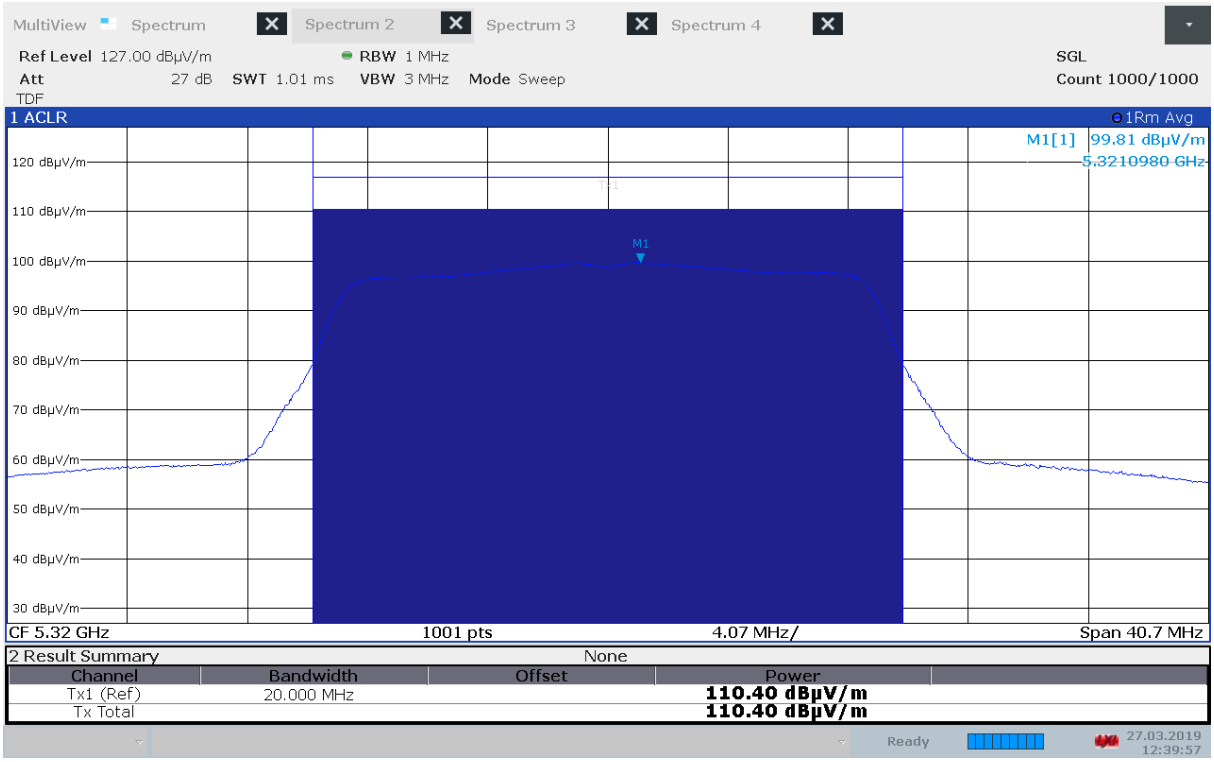
Maximum Field Strength, 5300 MHz, 802.11a 6Mbps



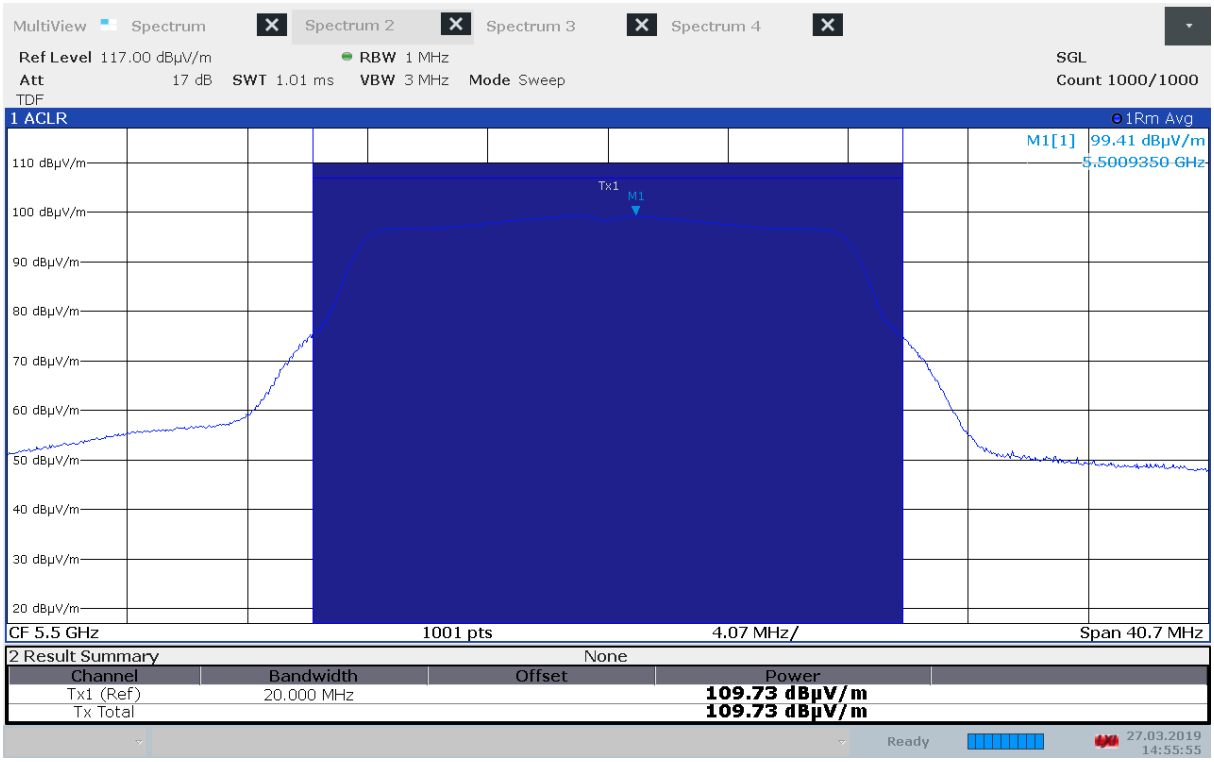
Maximum Field Strength, 5300 MHz, 802.11n MCS0



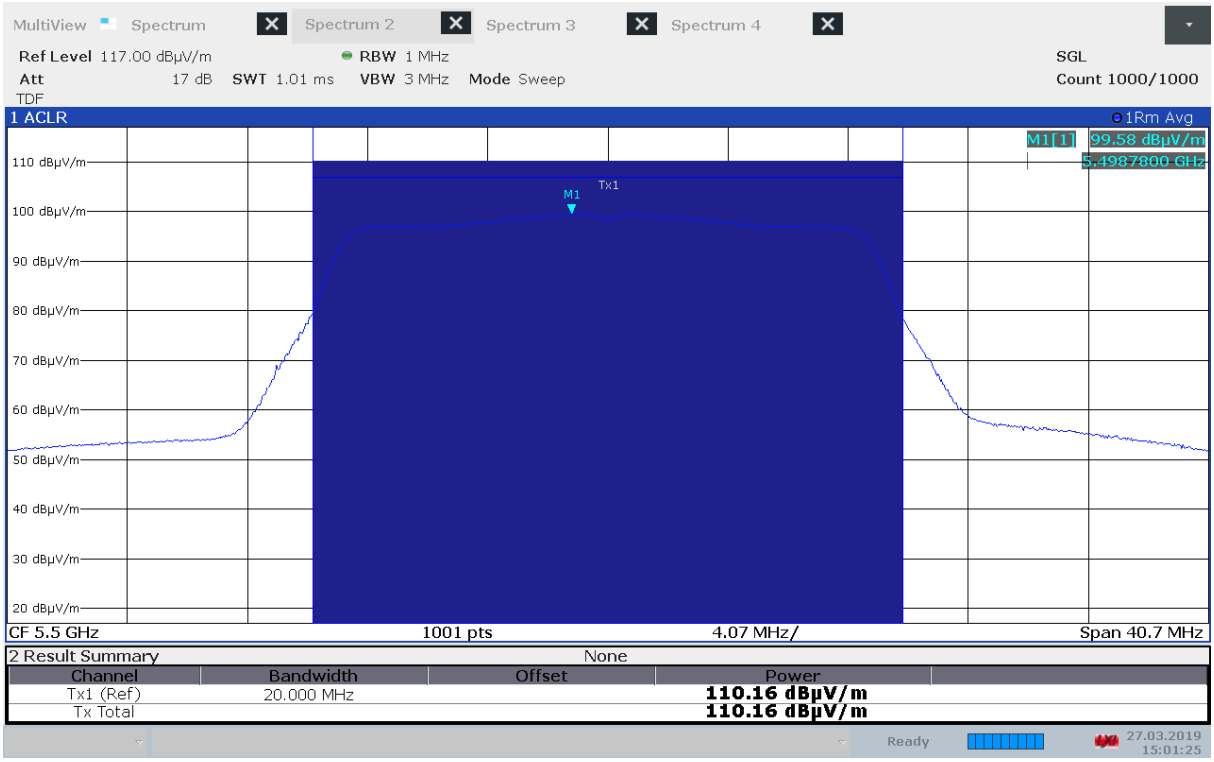
Maximum Field Strength, 5320 MHz, 802.11a 6Mbps



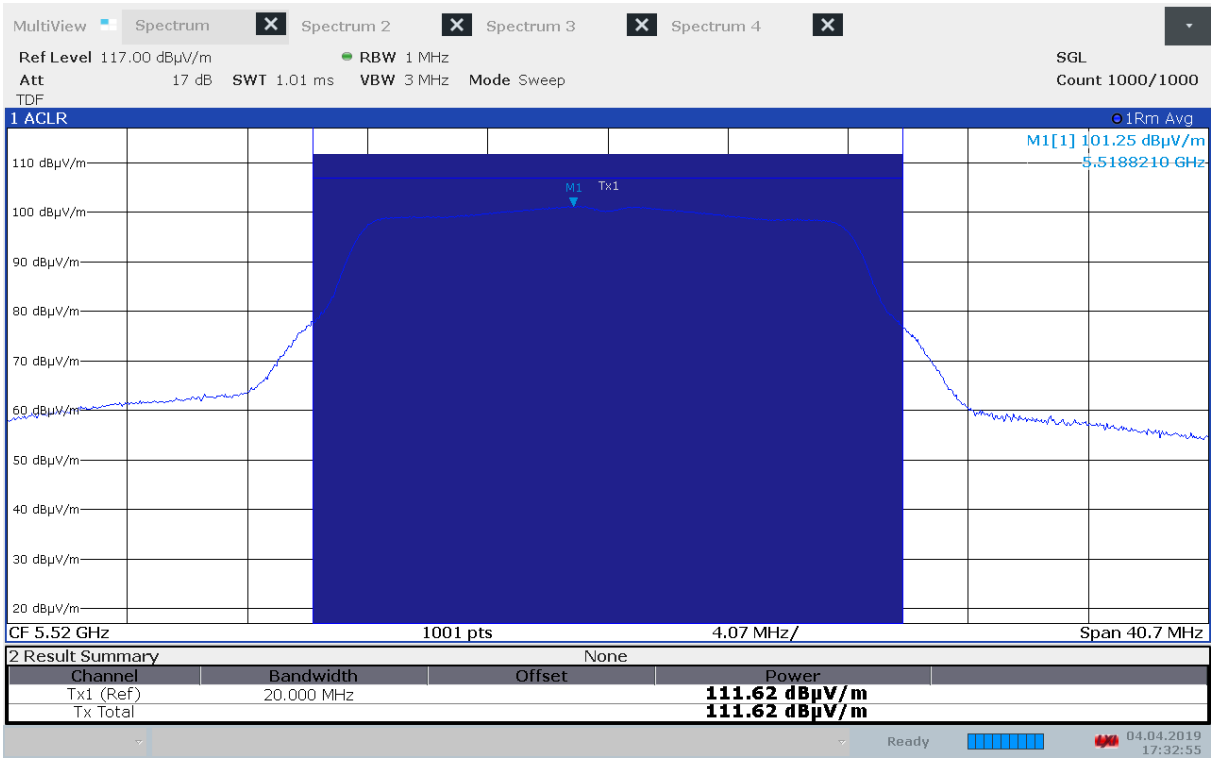
Maximum Field Strength, 5320 MHz, 802.11n MCS0



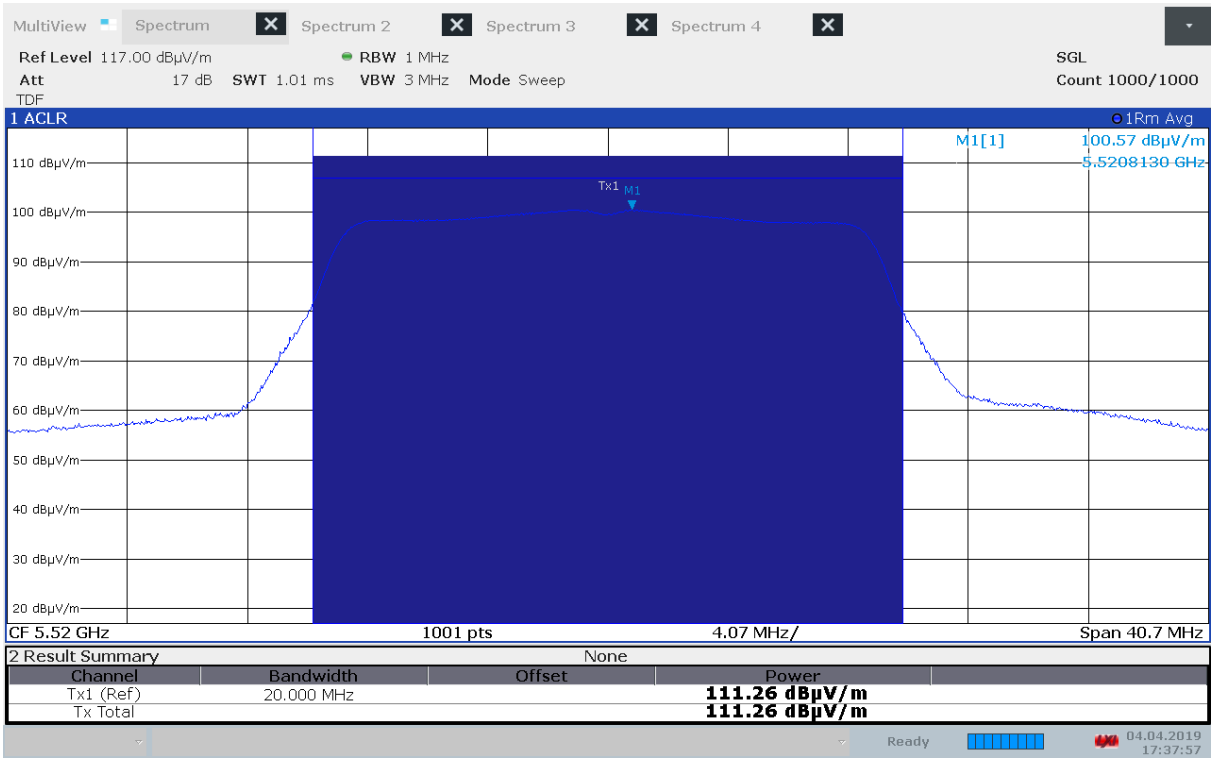
Maximum Field Strength, 5500 MHz, 802.11a 6Mbps



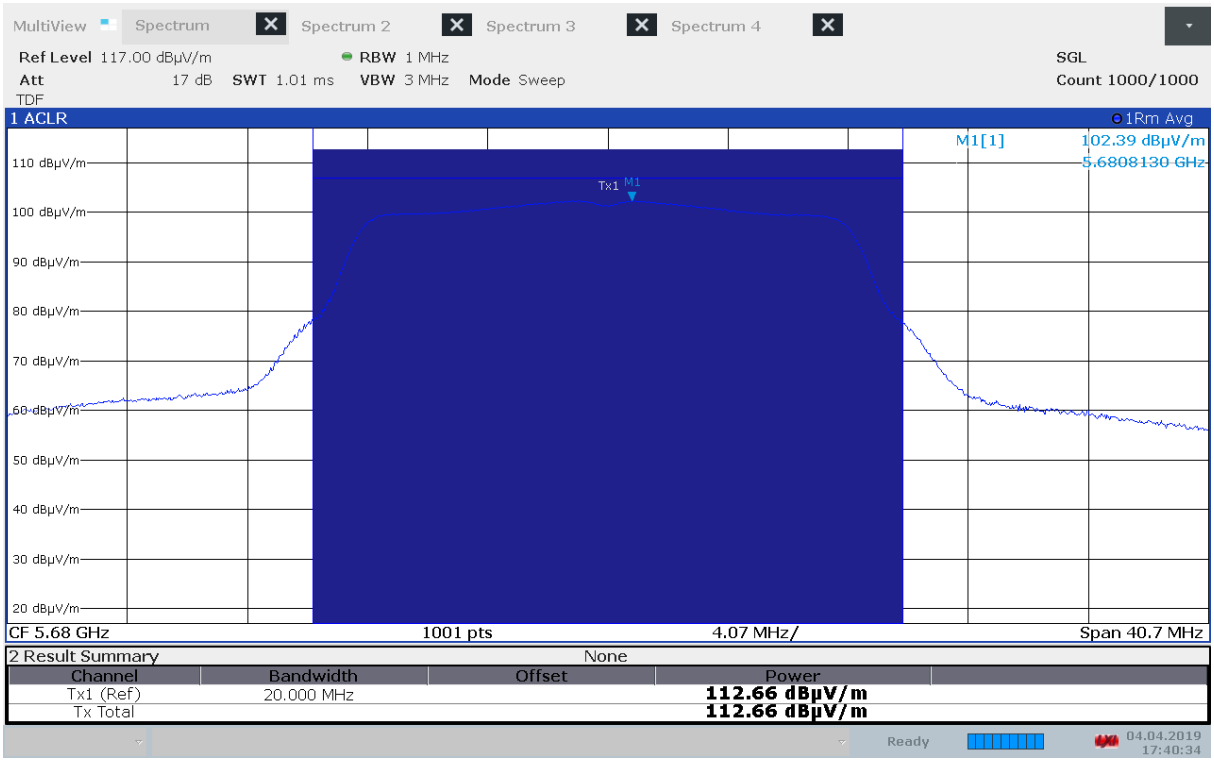
Maximum Field Strength, 5500 MHz, 802.11n MCS0



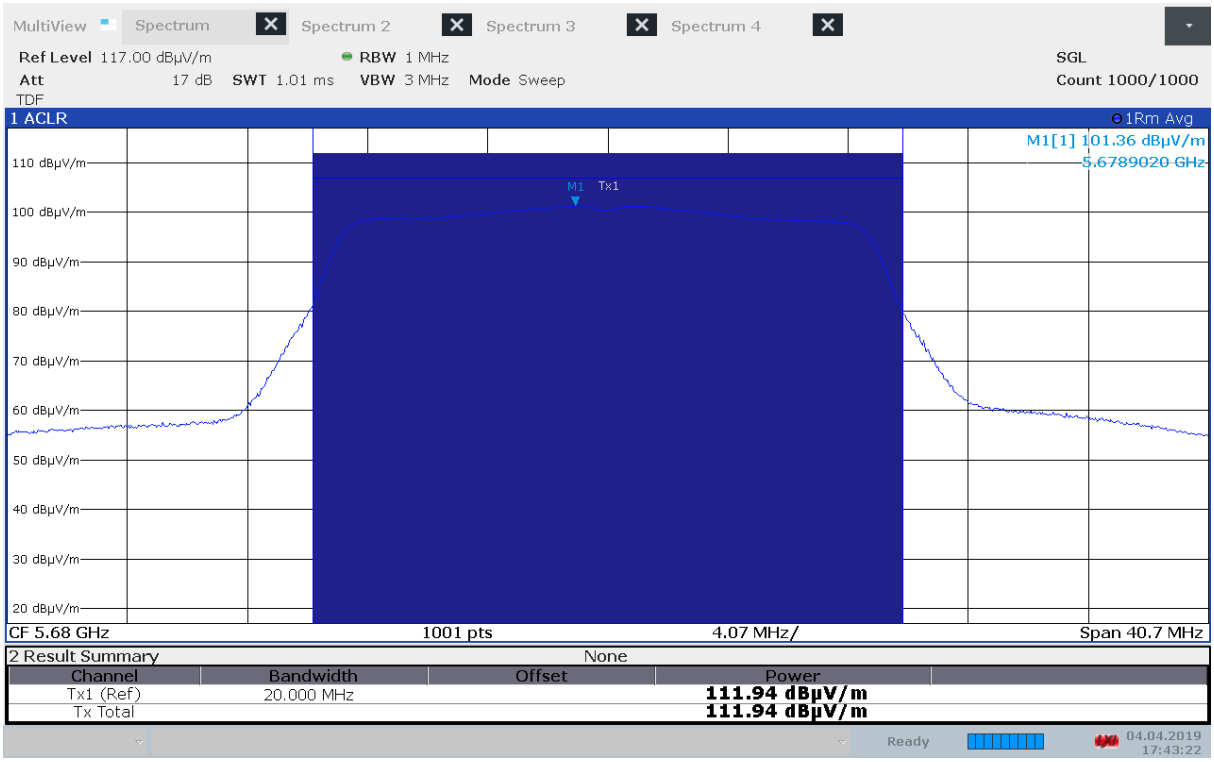
Maximum Field Strength, 5520 MHz, 802.11a 6Mbps



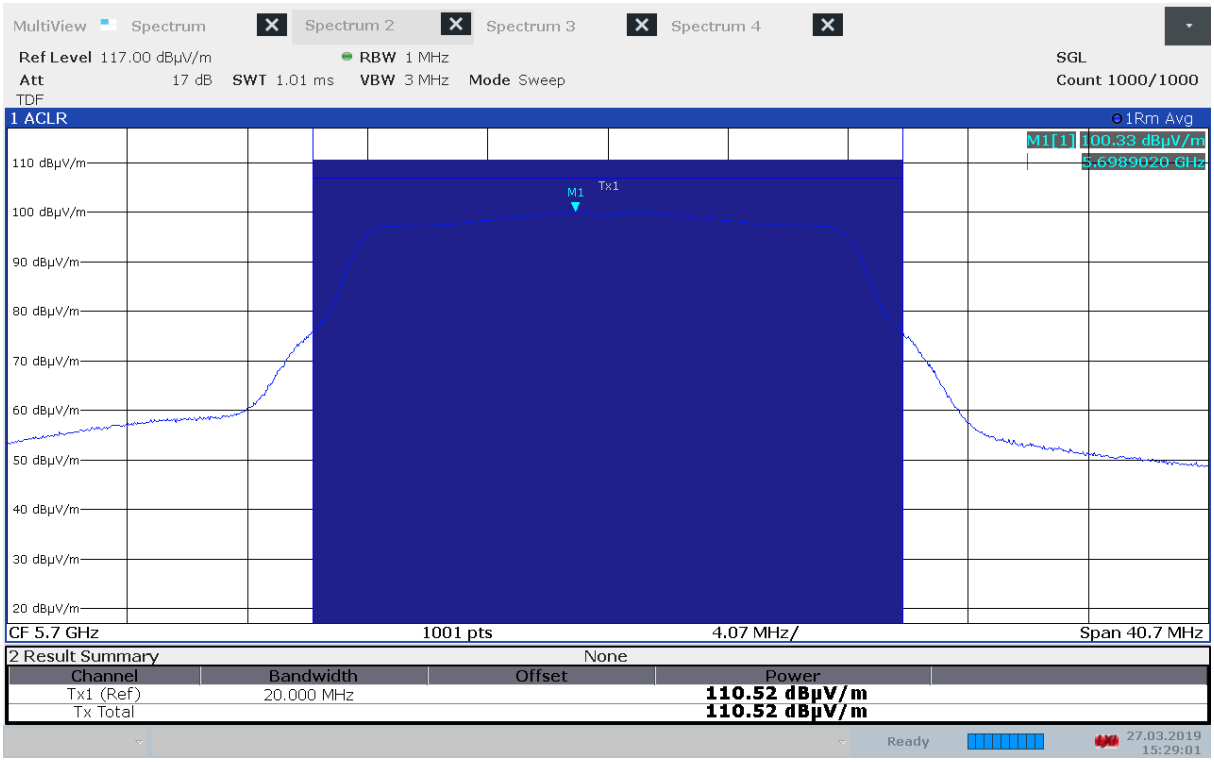
Maximum Field Strength, 5520 MHz, 802.11n MCS0



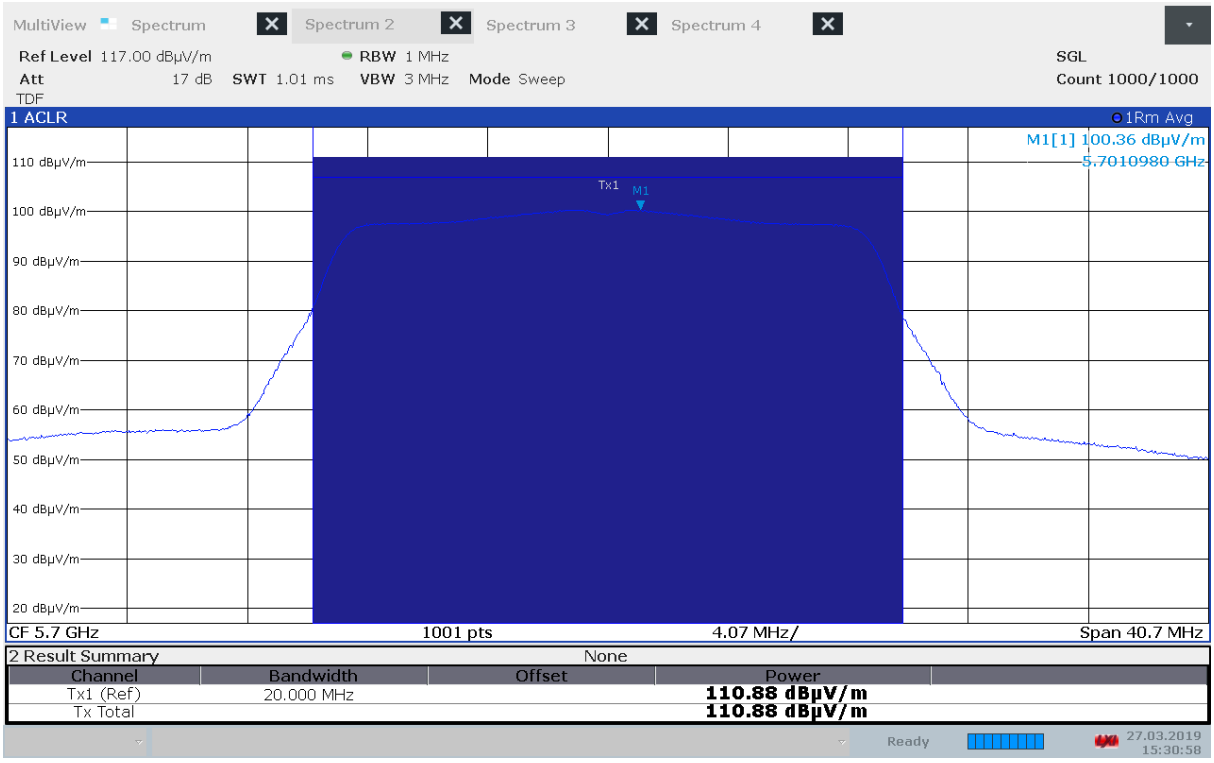
Maximum Field Strength, 5680 MHz, 802.11a 6Mbps



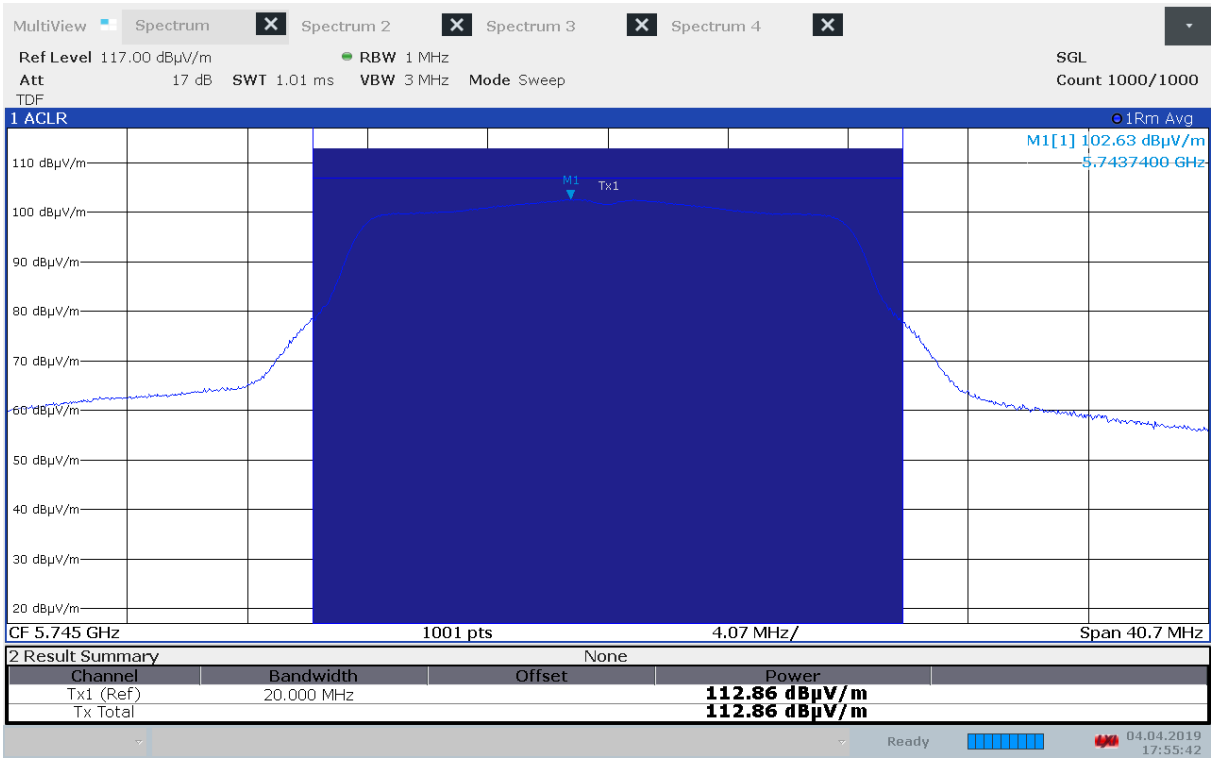
Maximum Field Strength, 5680 MHz, 802.11n MCS0



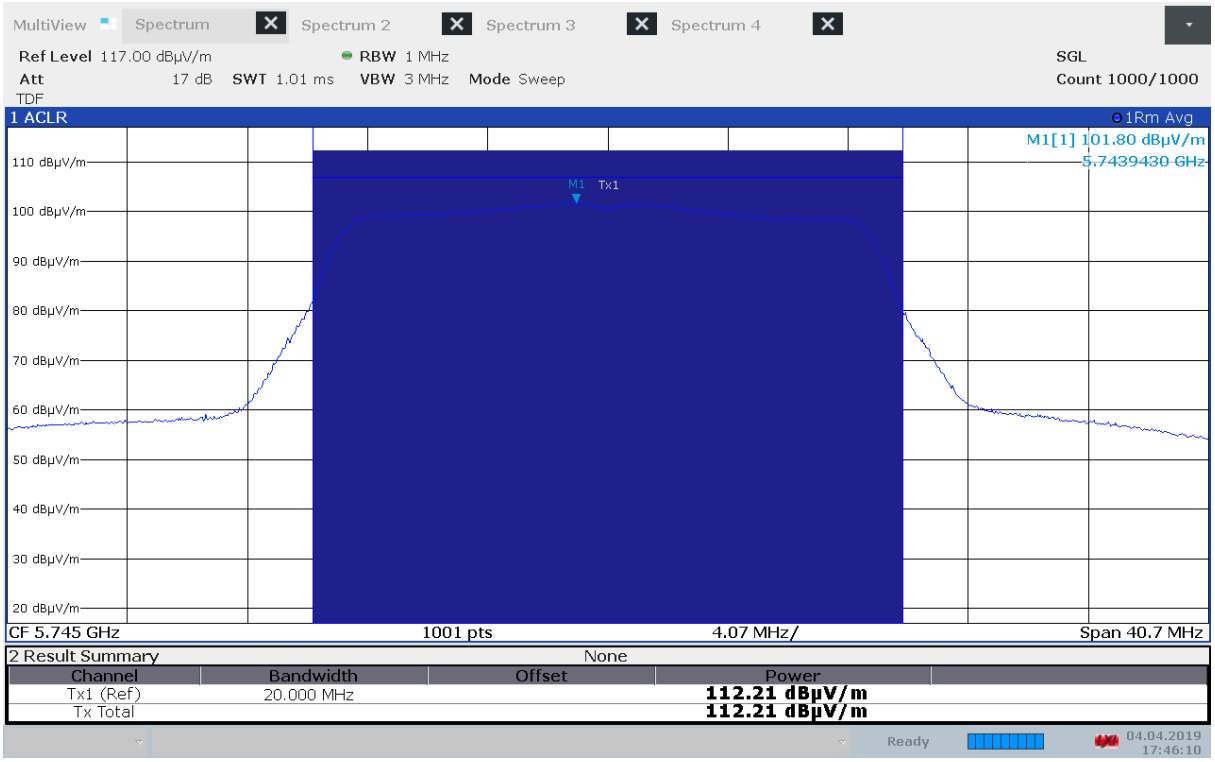
Maximum Field Strength, 5700 MHz, 802.11a 6Mbps



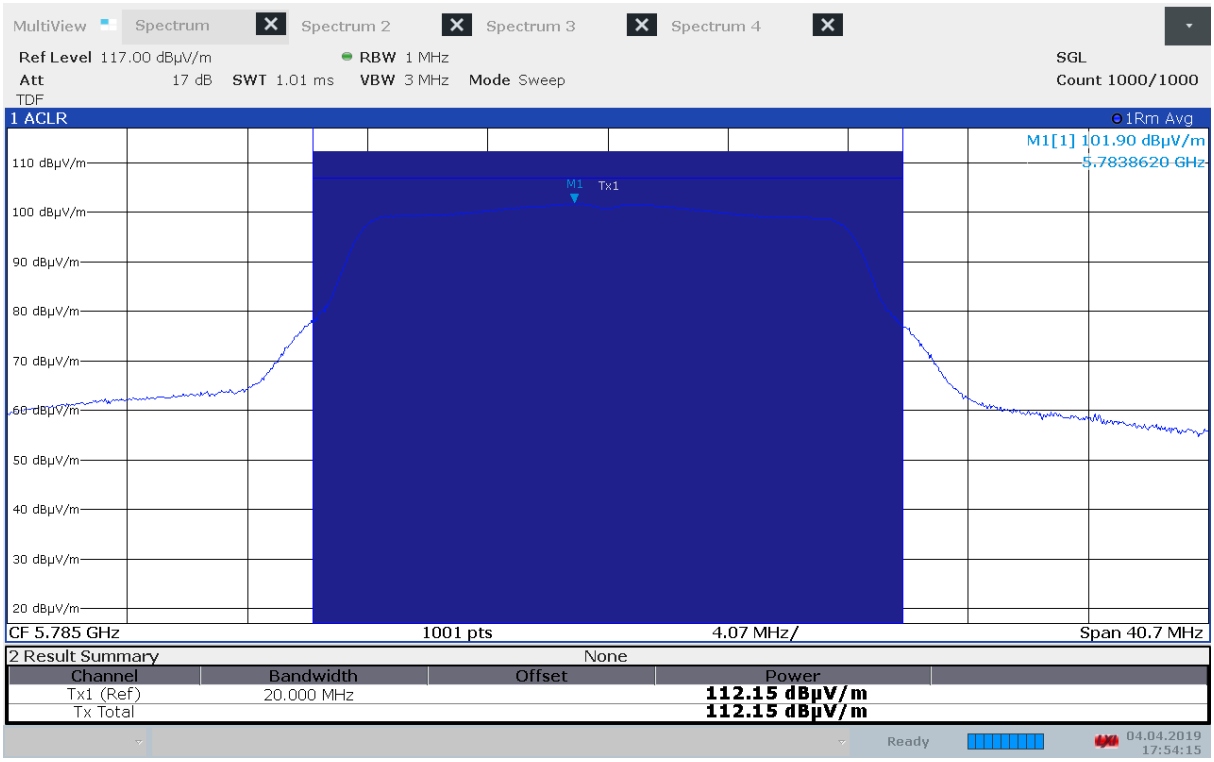
Maximum Field Strength, 5700 MHz, 802.11n MCS0



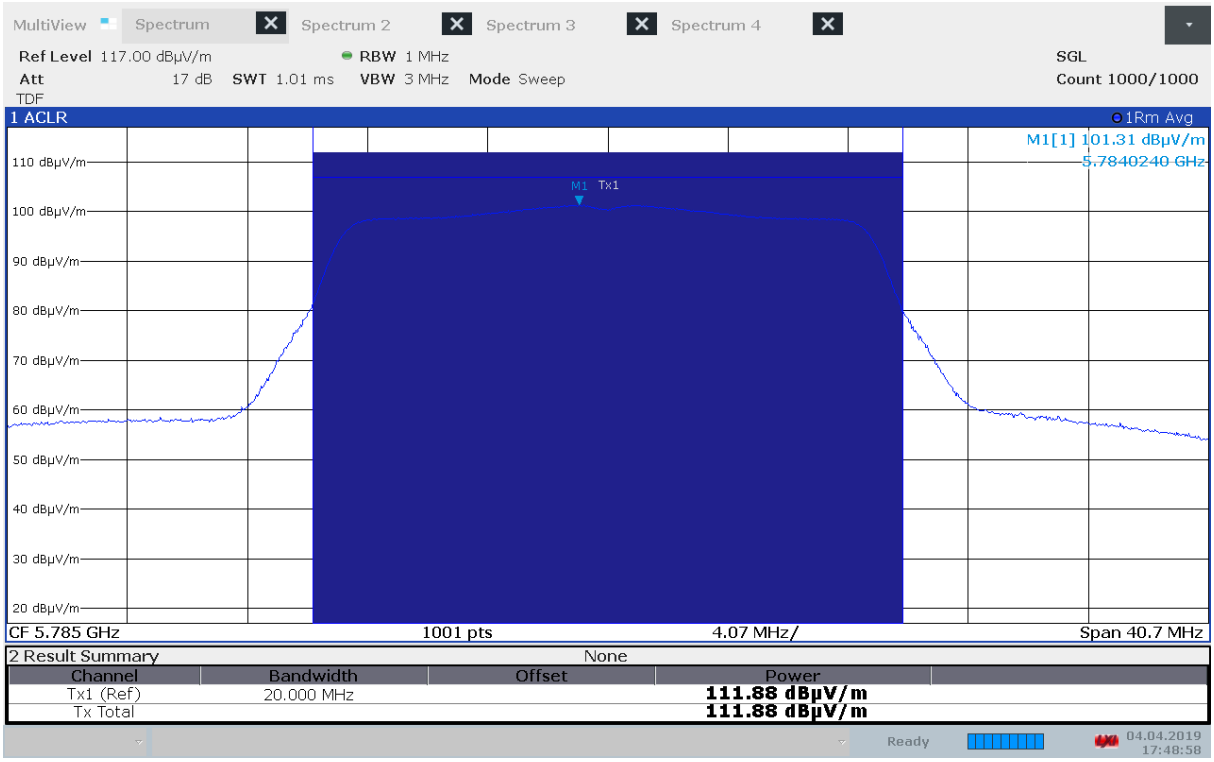
Maximum Field Strength, 5745 MHz, 802.11a 6Mbps



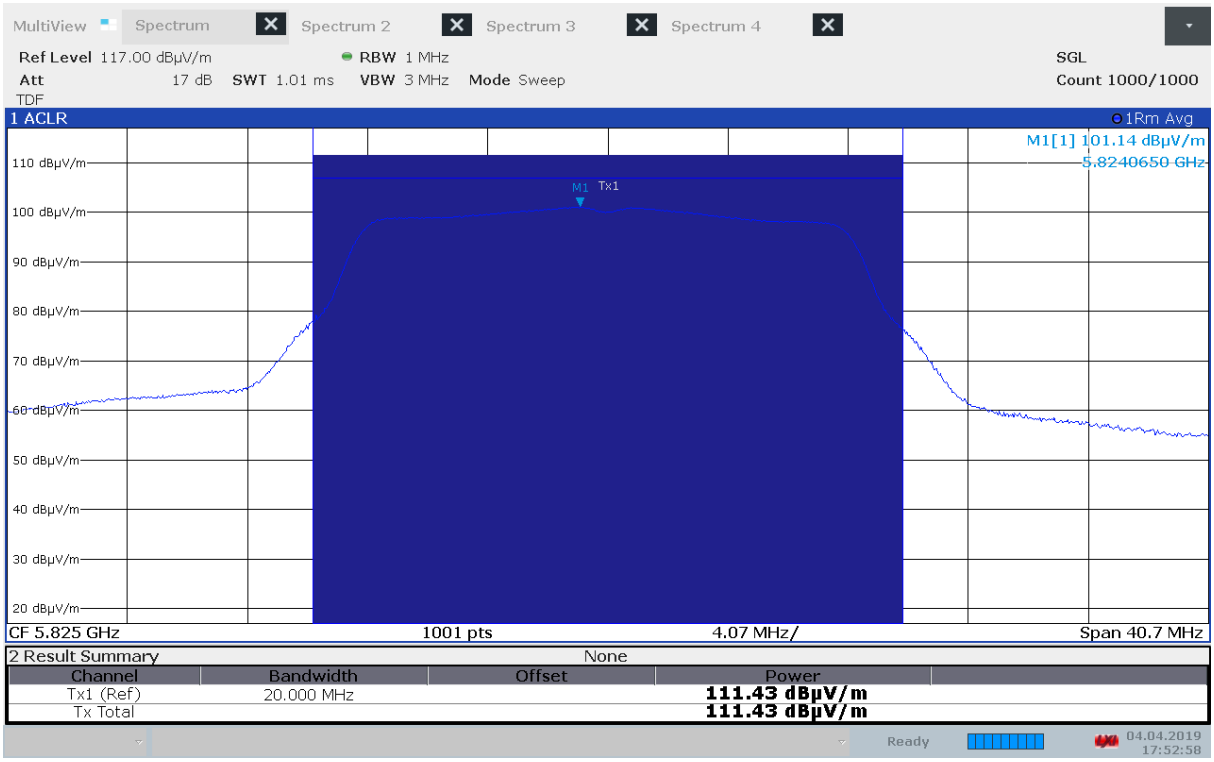
Maximum Field Strength, 5745 MHz, 802.11n MCS0



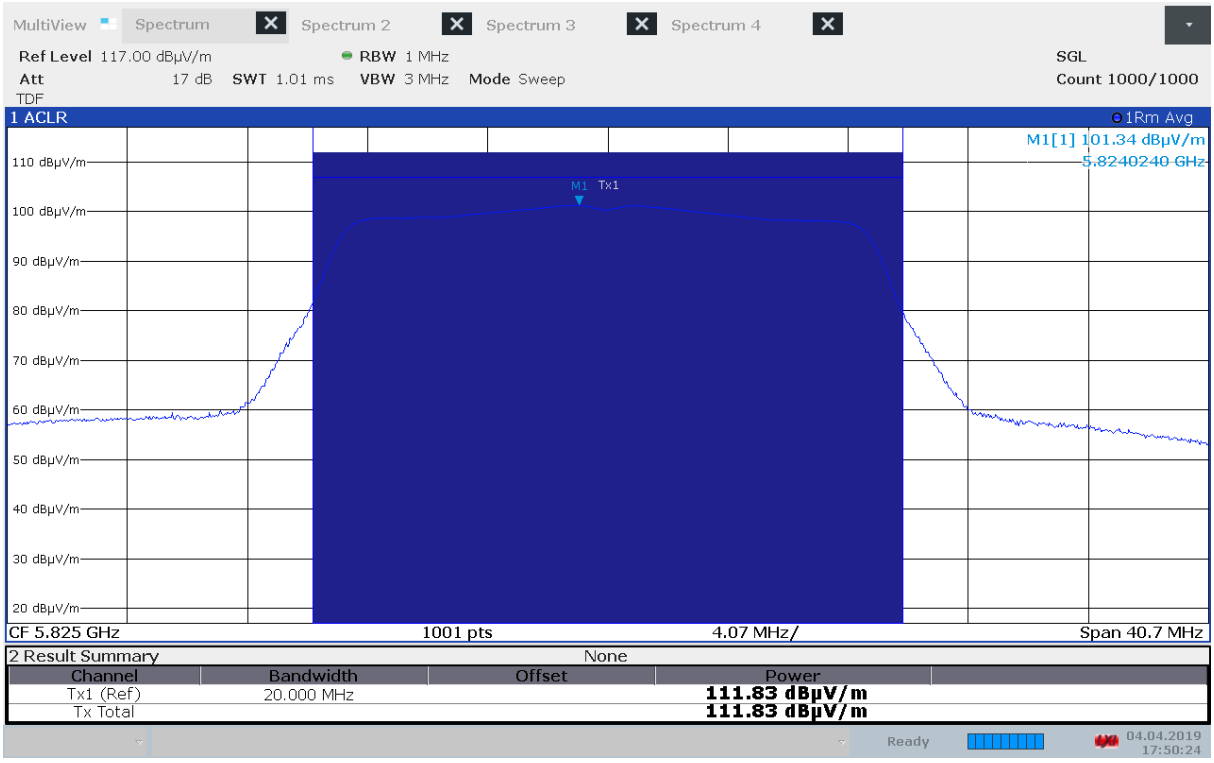
Maximum Field Strength, 5785 MHz, 802.11a 6Mbps



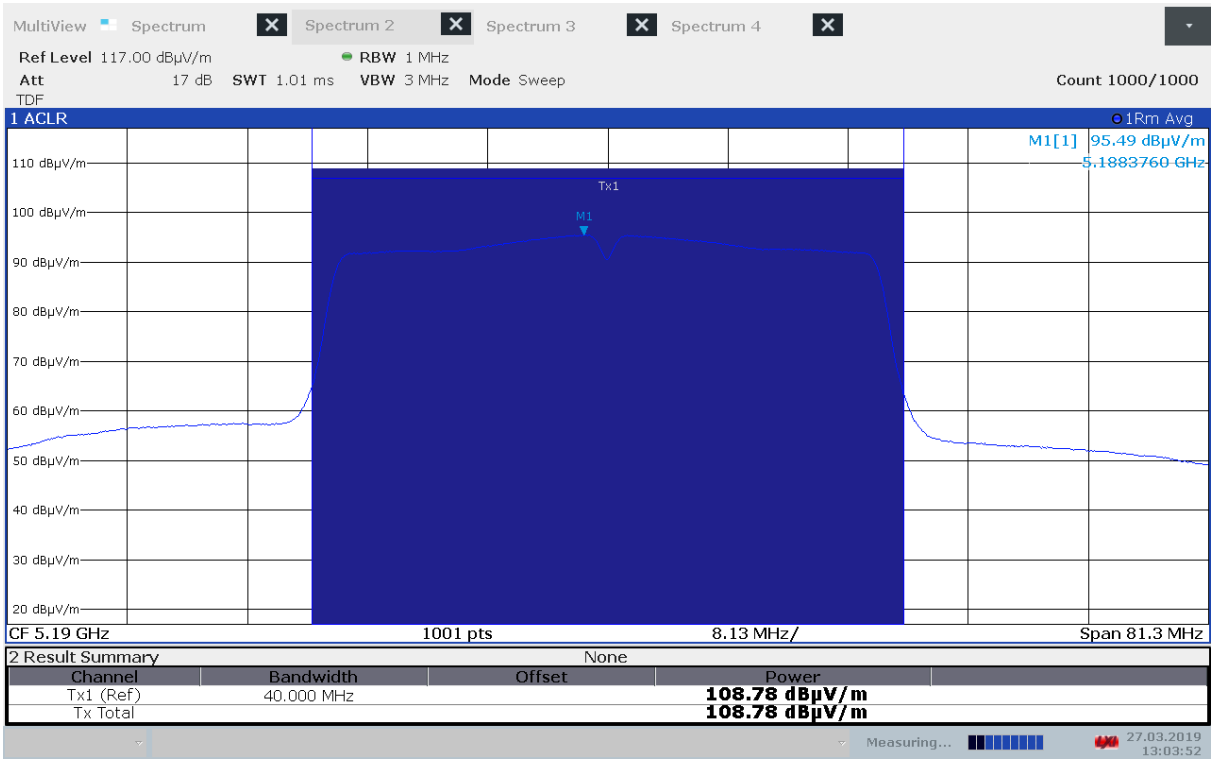
Maximum Field Strength, 5785 MHz, 802.11n MCS0



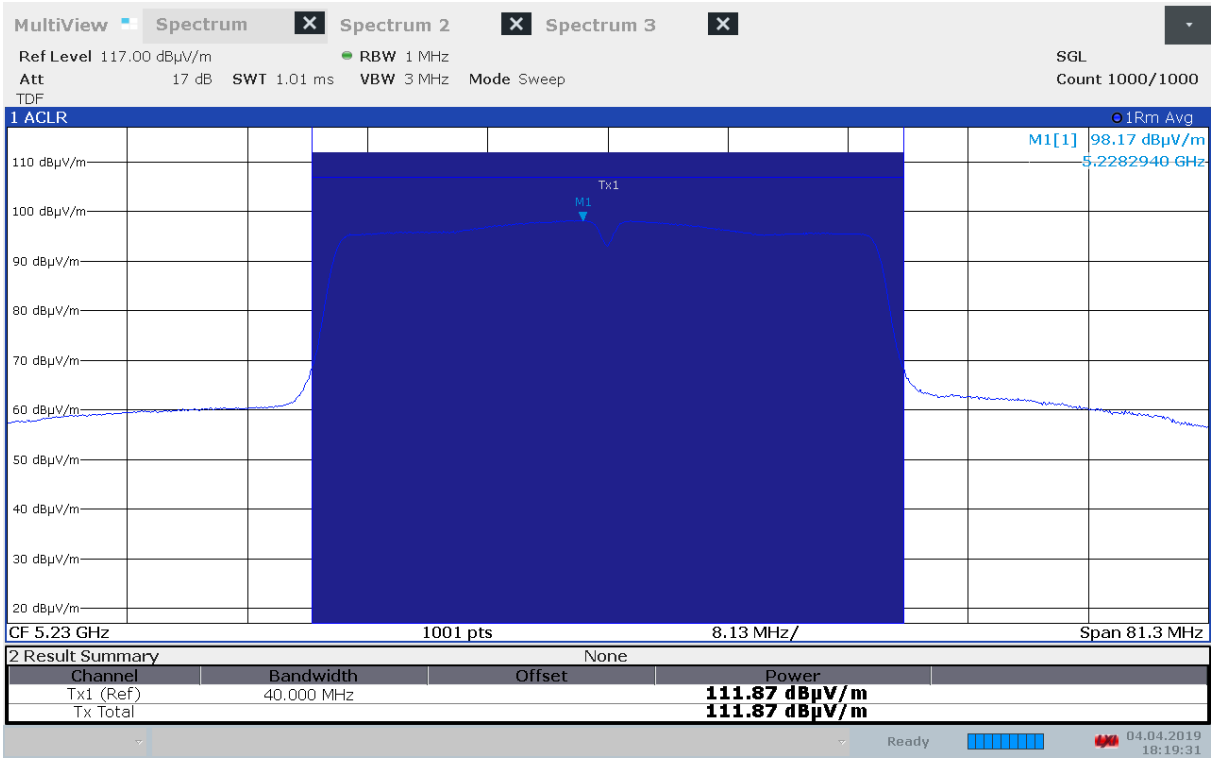
Maximum Field Strength, 5825 MHz, 802.11a 6Mbps



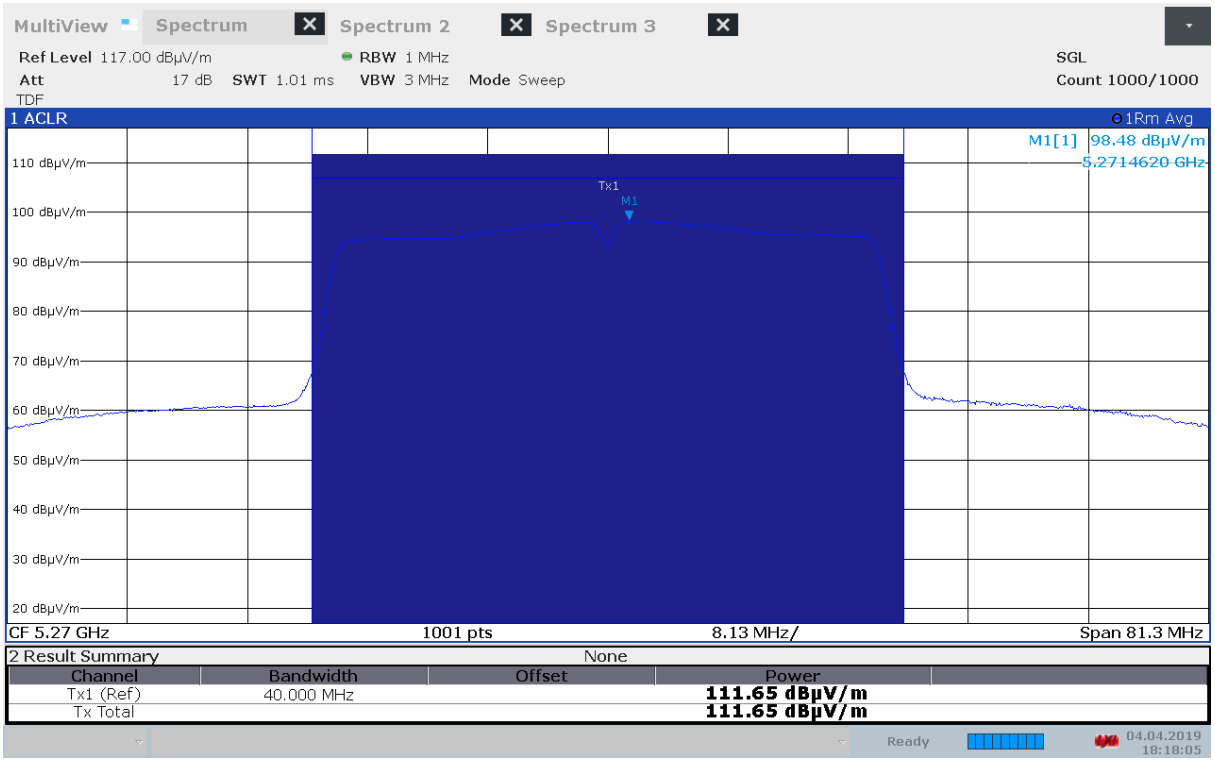
Maximum Field Strength, 5825 MHz, 802.11n MCS0



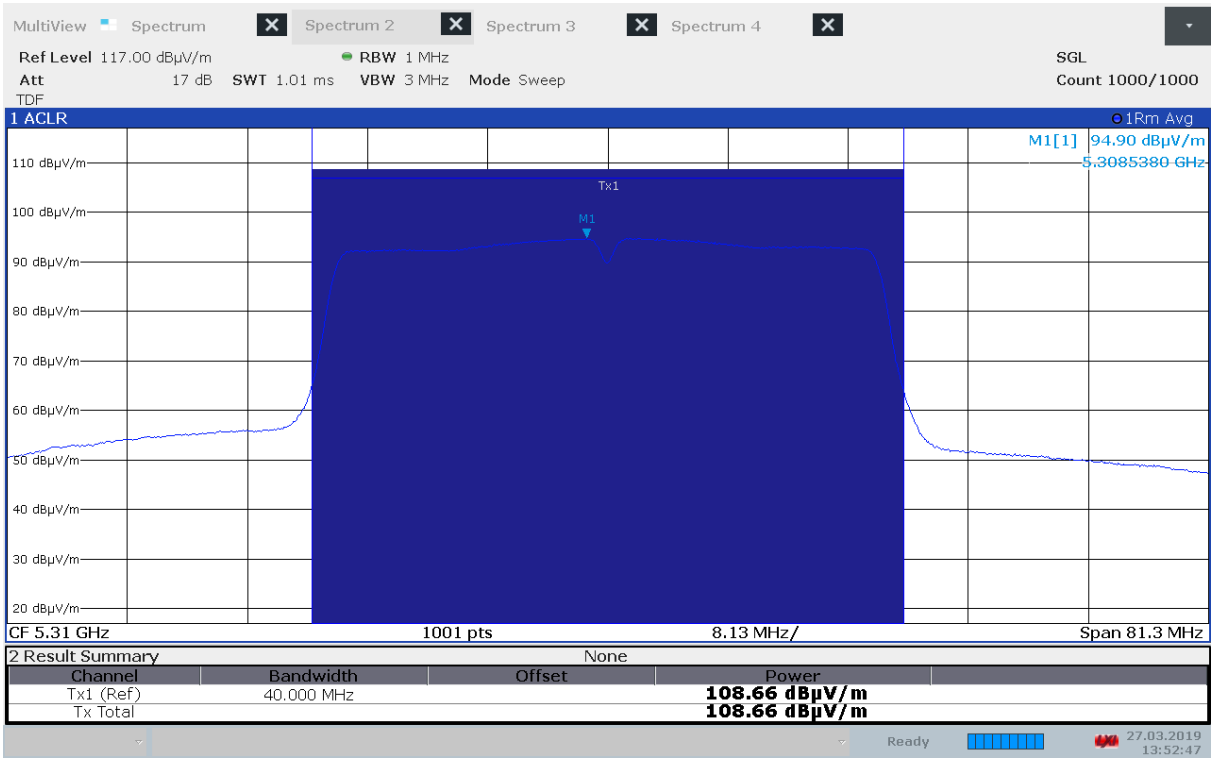
Maximum Field Strength, 5190 MHz, 802.11n MCS0 HT40



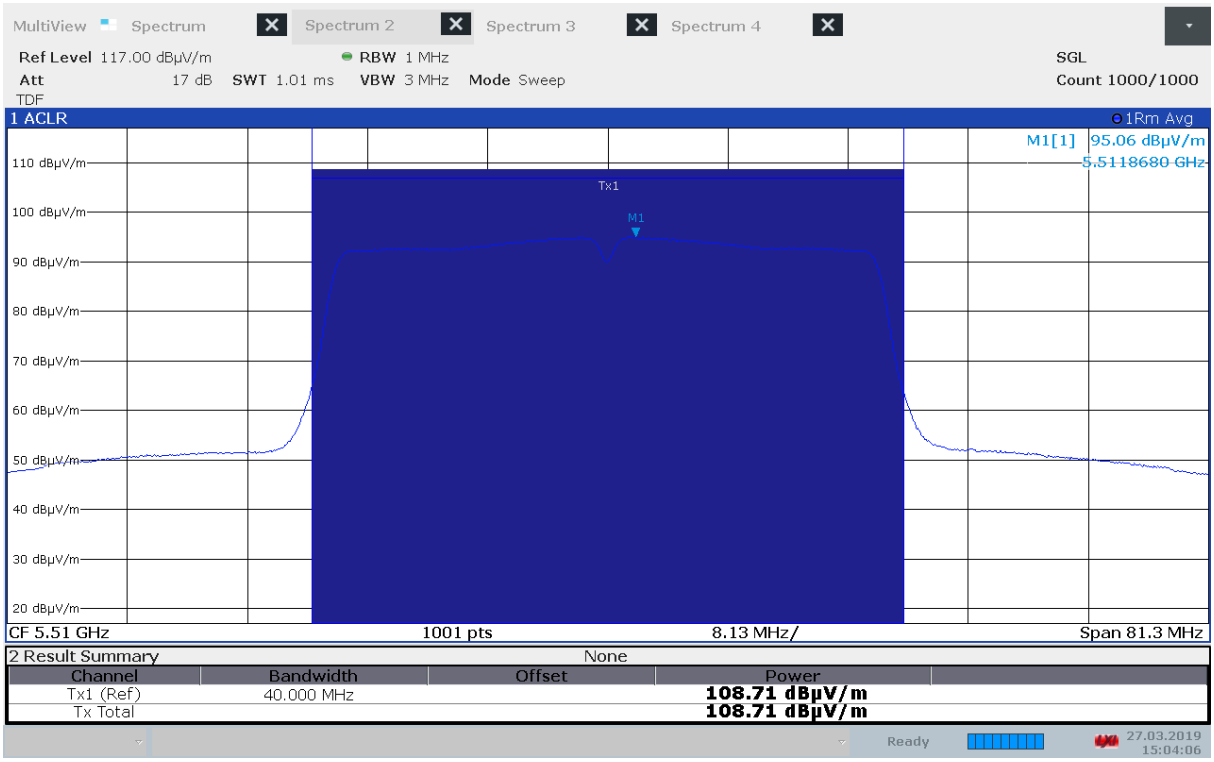
Maximum Field Strength, 5230 MHz, 802.11n MCS0 HT40



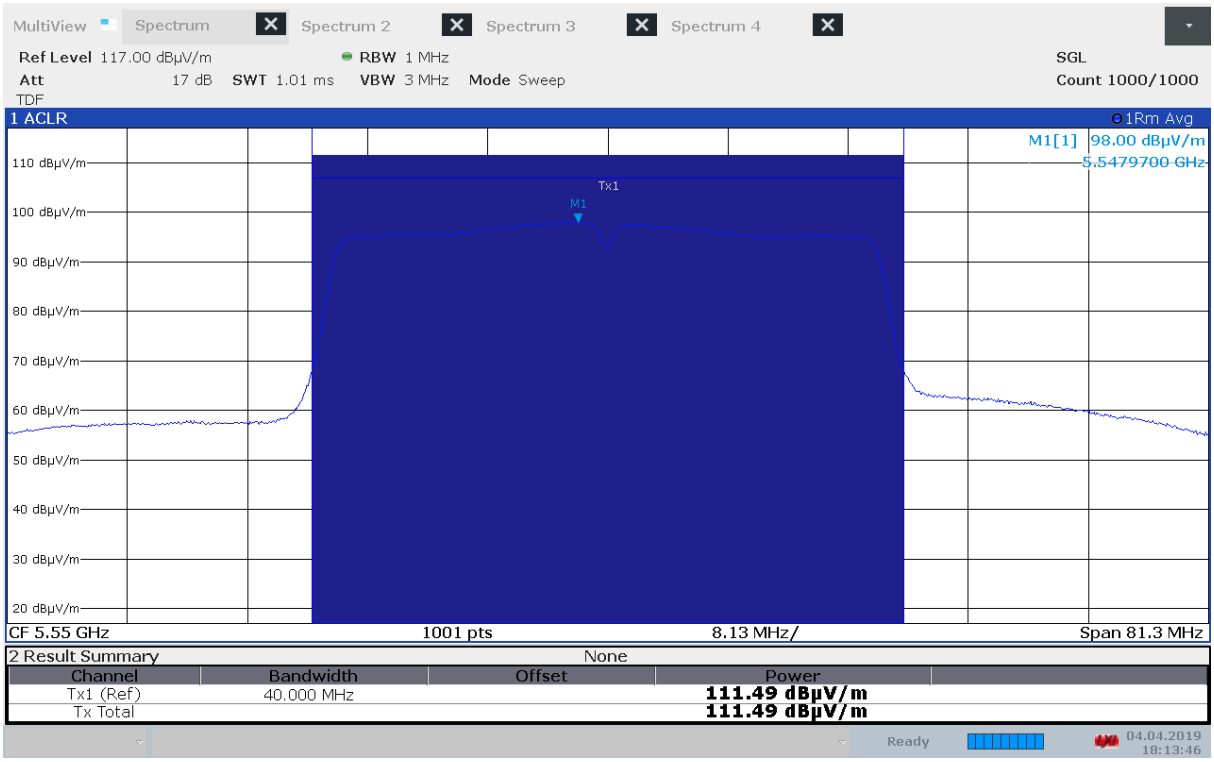
Maximum Field Strength, 5270 MHz, 802.11n MCS0 HT40



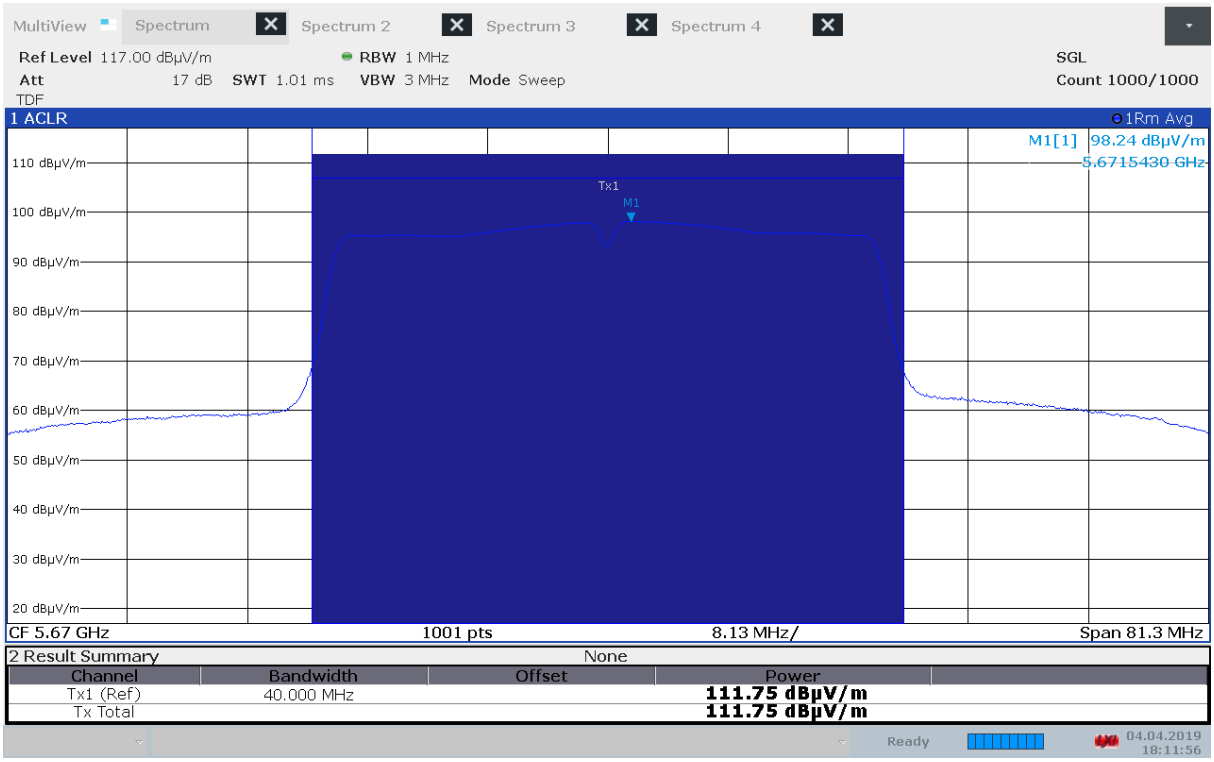
Maximum Field Strength, 5310 MHz, 802.11n MCS0 HT40



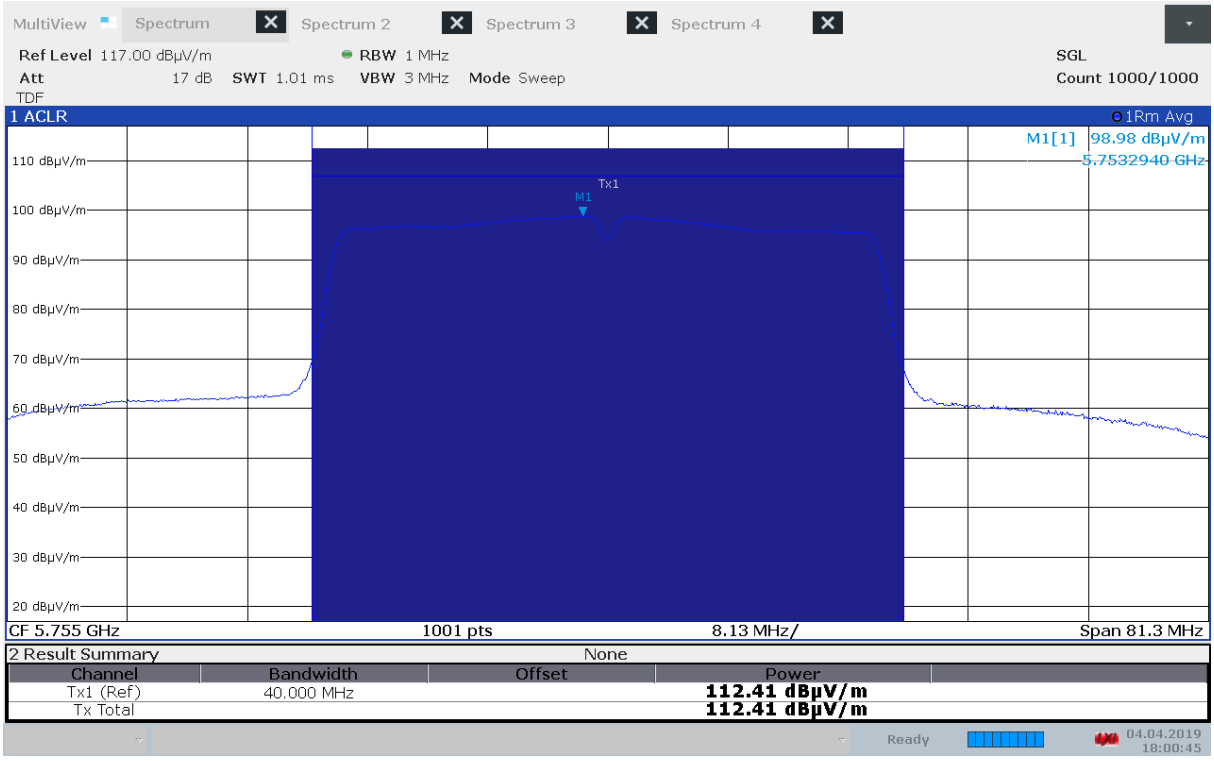
Maximum Field Strength, 5510 MHz, 802.11n MCS0 HT40



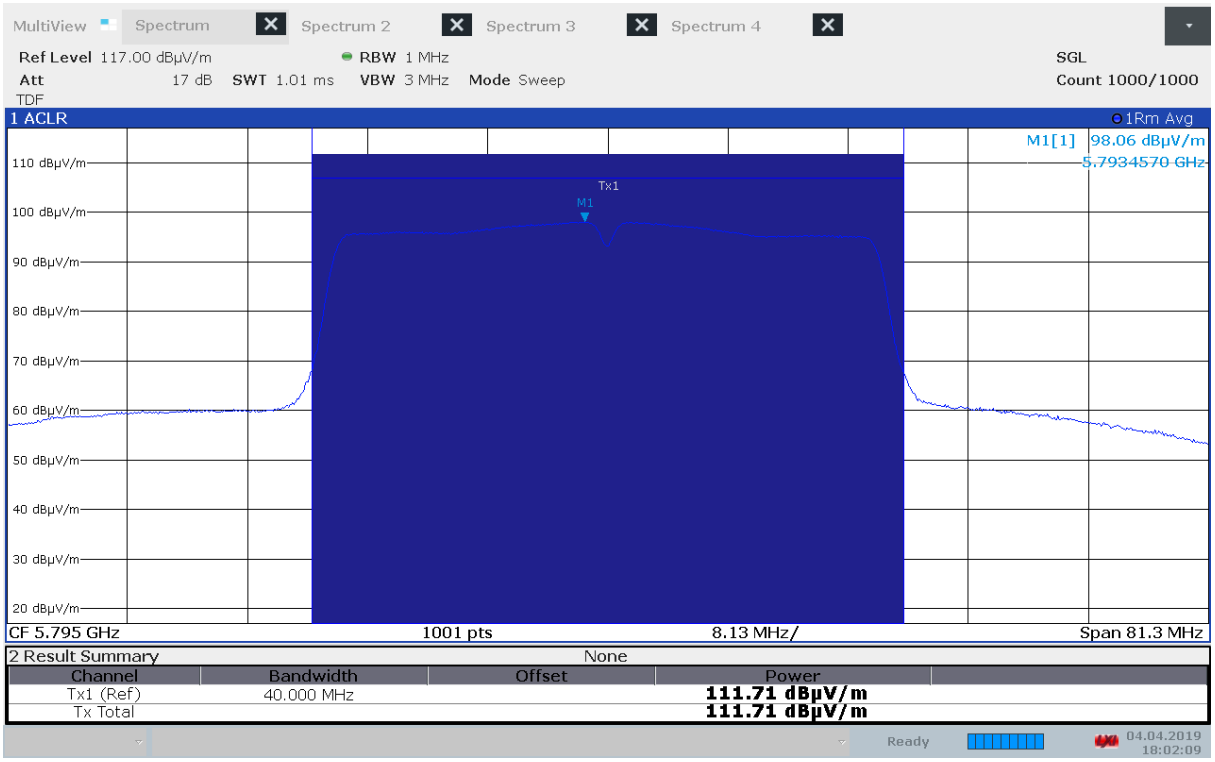
Maximum Field Strength, 5550 MHz, 802.11n MCS0 HT40



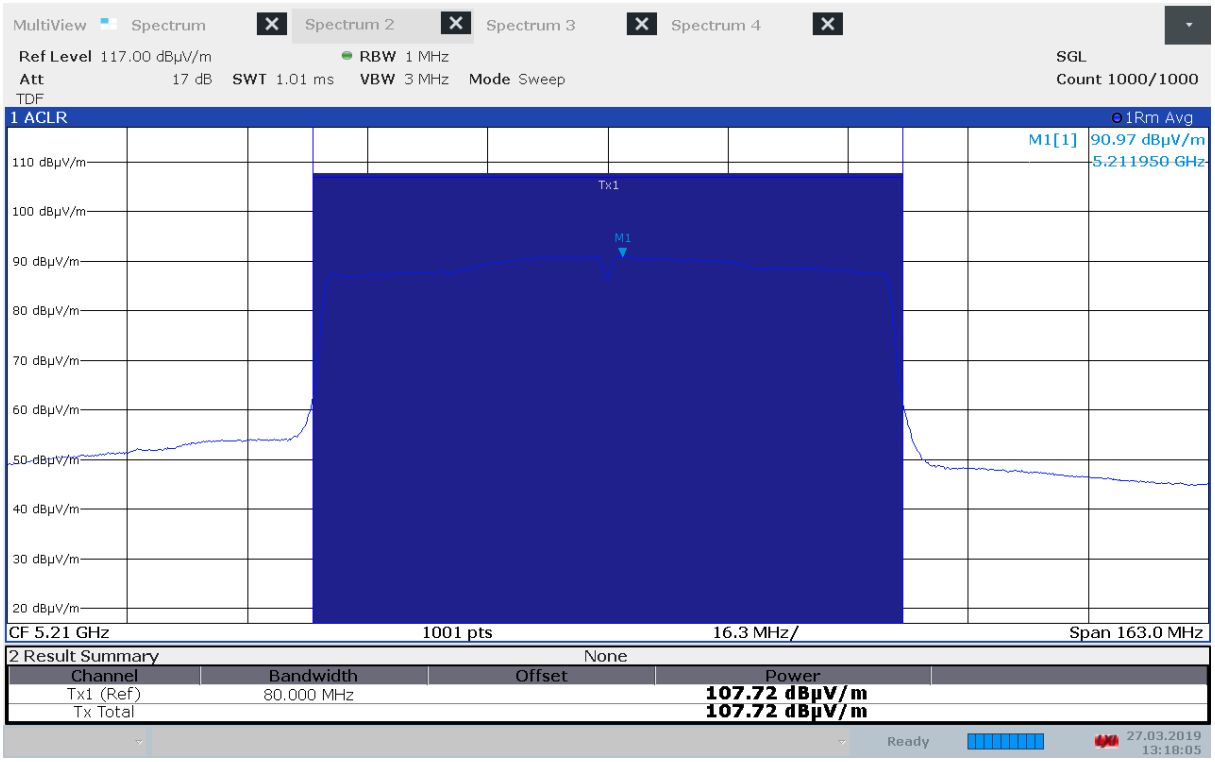
Maximum Field Strength, 5670 MHz, 802.11n MCS0 HT40



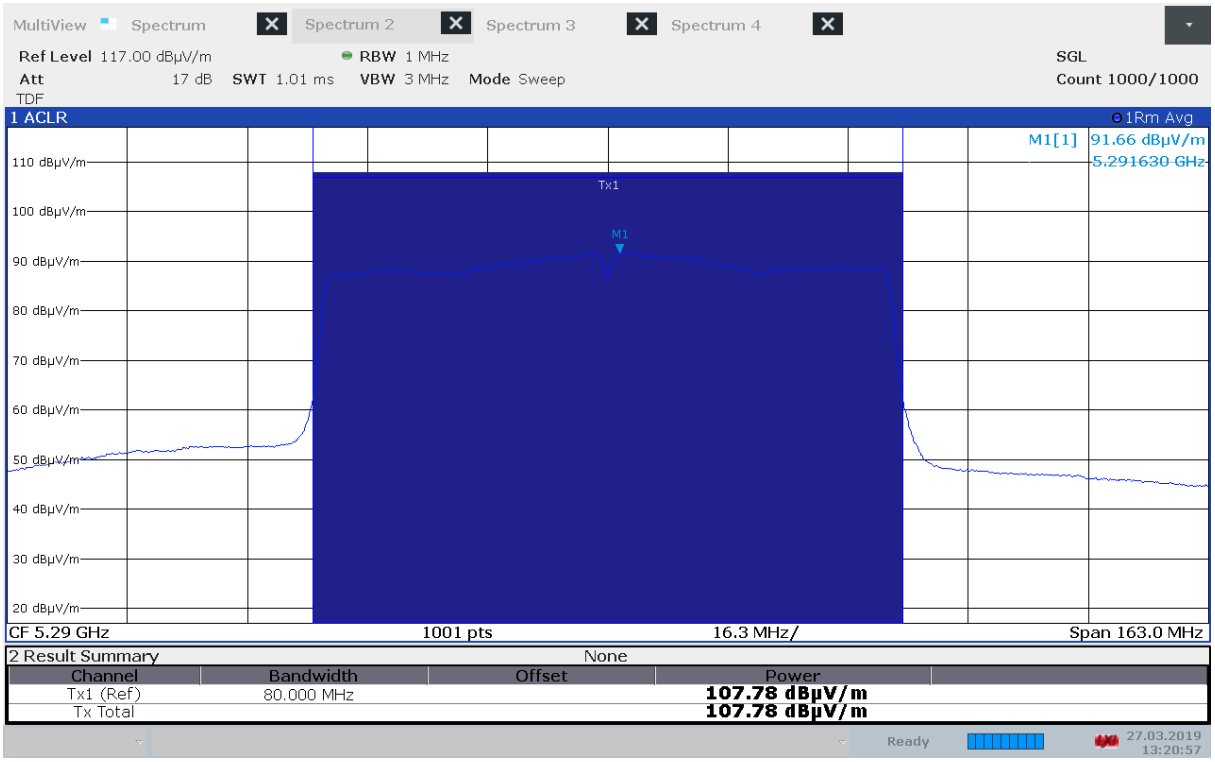
Maximum Field Strength, 5755 MHz, 802.11n MCS0 HT40



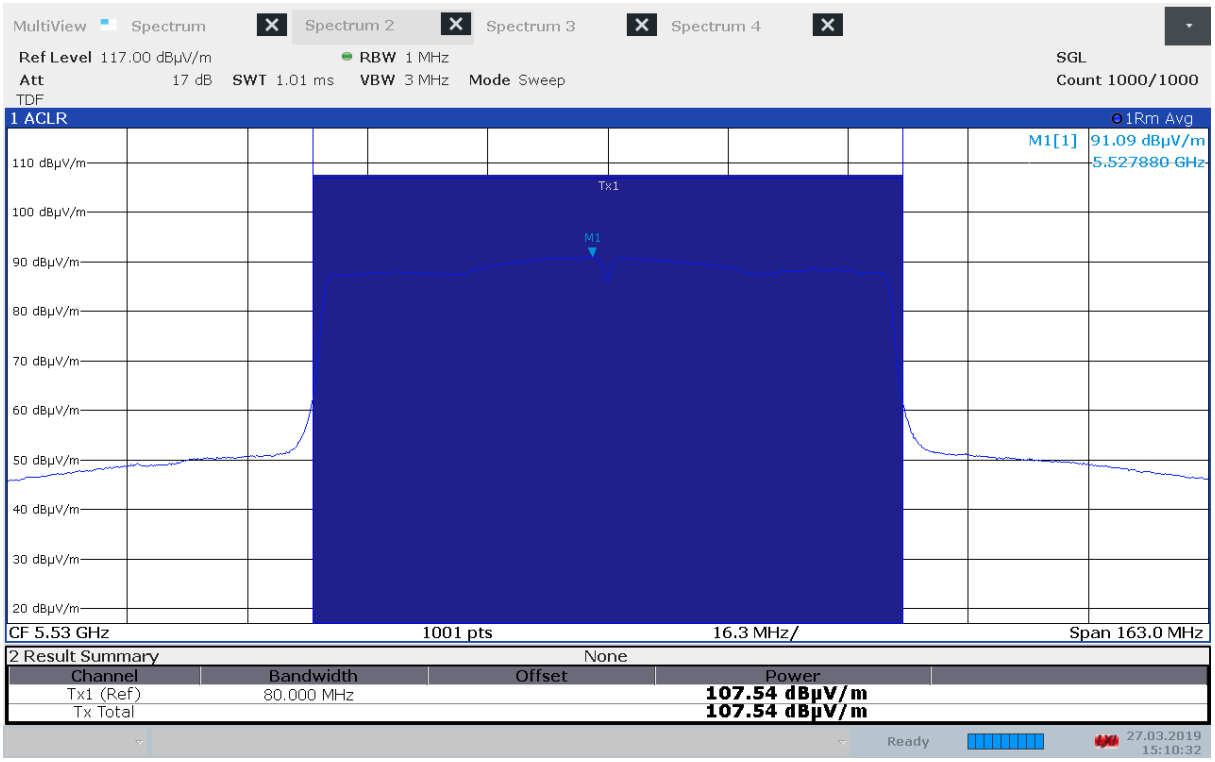
Maximum Field Strength, 5795 MHz, 802.11n MCS0 HT40



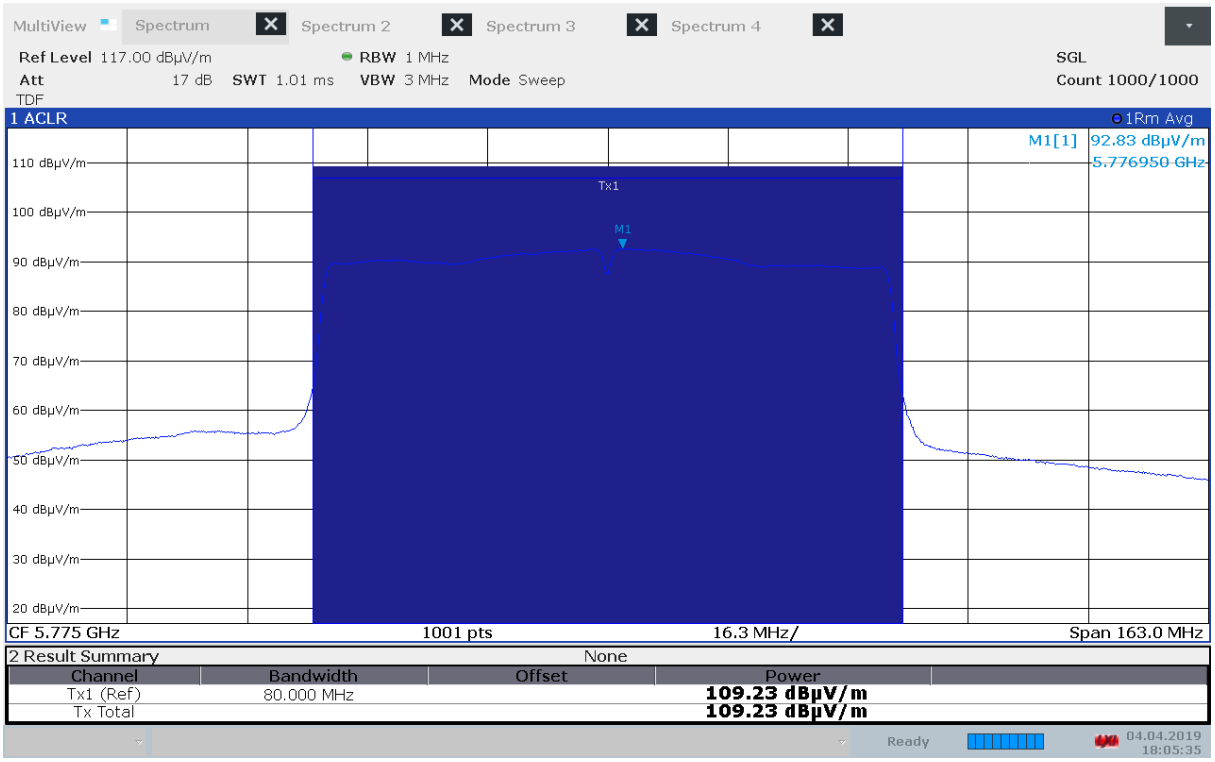
Maximum Field Strength, 5210 MHz, 802.11n MCS0 HT80



Maximum Field Strength, 5290 MHz, 802.11n MCS0 HT80



Maximum Field Strength, 5530 MHz, 802.11n MCS0 HT80



Maximum Field Strength, 5775 MHz, 802.11n MCS0 HT80

3.2 Average Output Power

Measurement Data:

Ch. No.	Nominal Frequency (MHz)	Average Output Power (dBm)			
		802.11a, 6 Mbps	802.11n, MCS0	802.11n MCS0 HT40	802.11ac MCS0 HT80
36	5180	12.8	13.3		
44	5220	15.5	15.1		
48	5240	15.6	15.2		
52	5260	15.6	15.1		
60	5300	15.6	15.3		
64	5320	13.0	13.5		
100	5500	12.7	13.2		
112	5560	15.3	14.9		
140	5700	12.0	12.5		
144	5720	14.6	14.2		
149	5745	14.6	14.1		
157	5785	14.5	14.0		
165	5825	14.3	13.9		
38	5190			11.6	
46	5230			15.2	
54	5270			15.1	
62	5310			11.9	
102	5510			11.6	
110	5550			15.0	
134	5670			14.5	
142	5710			14.3	
151	5755			14.1	
159	5795			14.0	
42	5210				10.8
58	5290				11.0
106	5530				10.6
138	5690				11.7
155	5775				11.4

The measurements above were performed with an averaging power meter.

The EUT was transmitting continuously during this test.

Values above are corrected for Duty Cycle.

Requirements:

No requirements. These results are reported only to show consistency with the SAR report.

3.3 Occupied Bandwidth (99% BW)

ISED RSS-247, Issue 2, Clause 6.2

Measurement procedure: ANSI C63.10-2013 Clause 6.9.3

Test Results: Complies

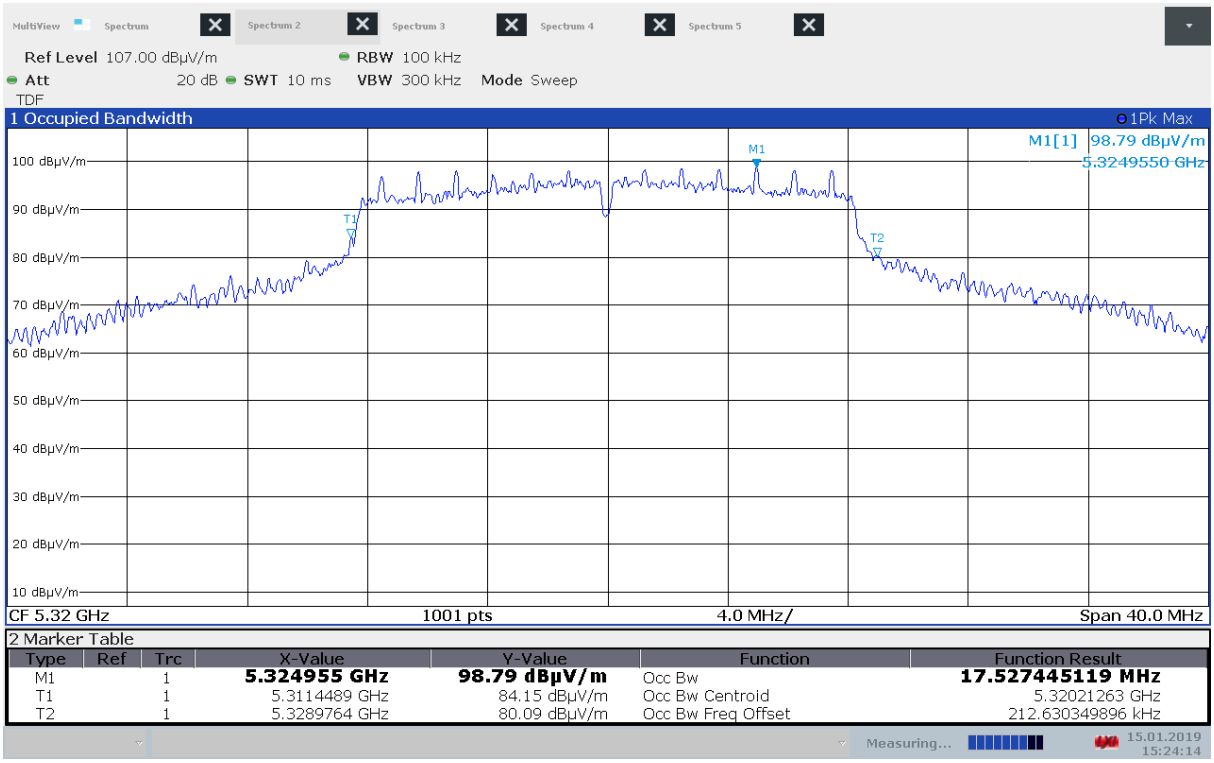
Measurement Data:

Ch. No.	Nominal Frequency (MHz)	99% Bandwidth Measured Values (MHz)			
		802.11a 6Mbps	802.11n MCS0	802.11n MCS0 HT40	802.11ac MCS0 HT80
36	5180	17.5	18.9		
64	5320	/	18.3		
100	5500	18.0	18.4		
140	5700	17.7	18.5		
149	5745	17.1	18.1		
165	5825	16.7	17.8		
38	5190			36.9	
62	5310			36.4	
102	5510			36.4	
134	5670			36.3	
151	5755			36.2	
159	5795			36.2	
42	5210				75.5
58	5290				75.4
106	5530				75.4
155	5775				75.3

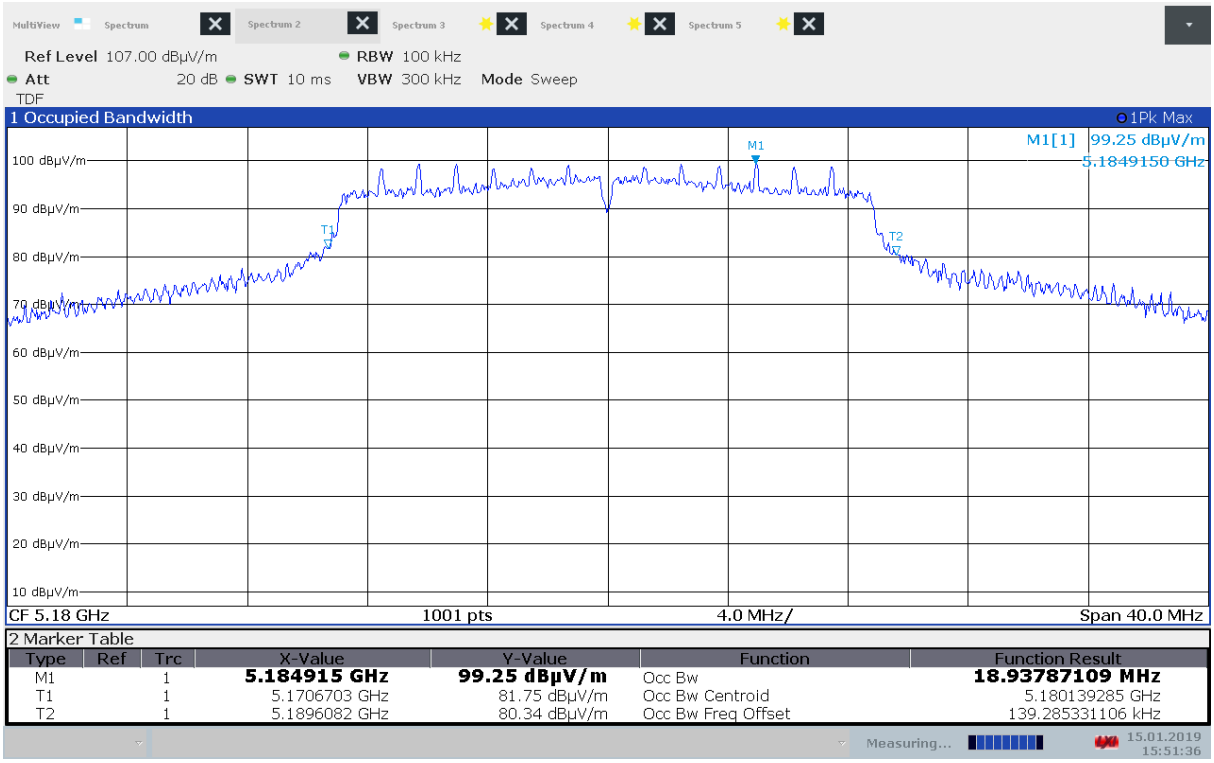
The nominal Emissions Bandwidth is 20 MHz.

Limit:

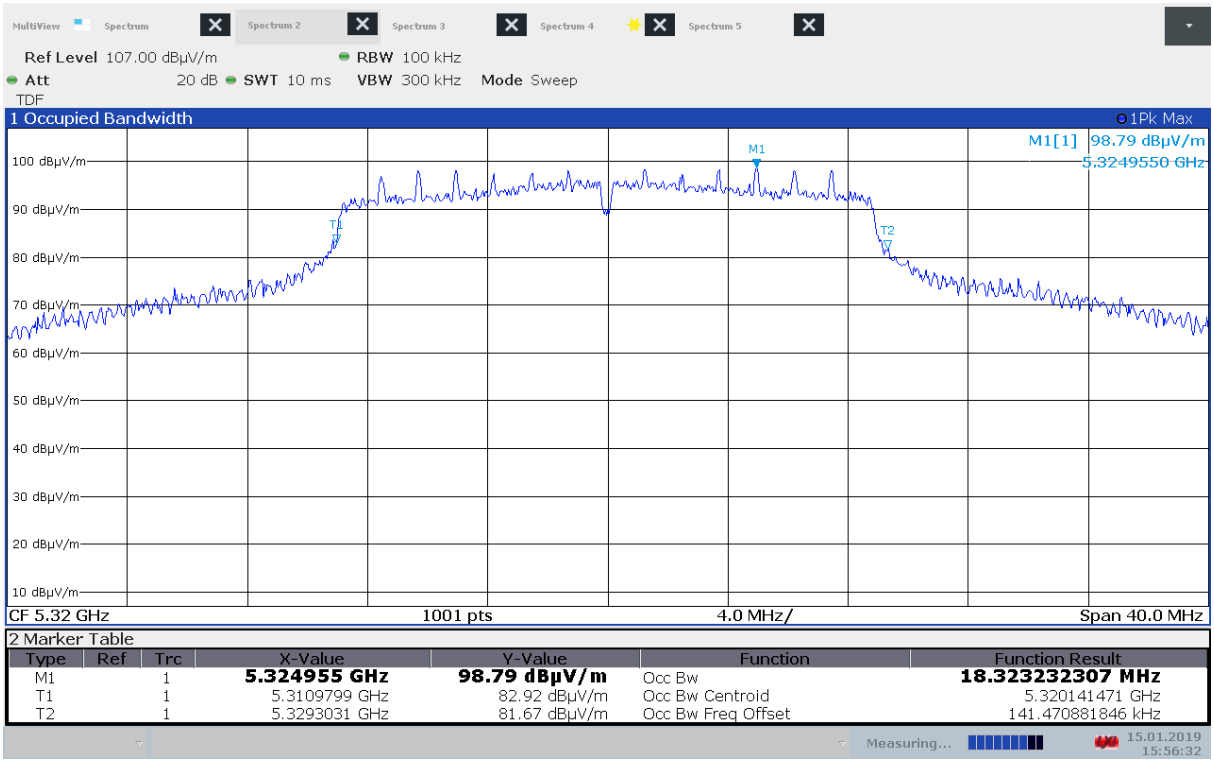
No requirements as long as the emissions are within the band-edges.



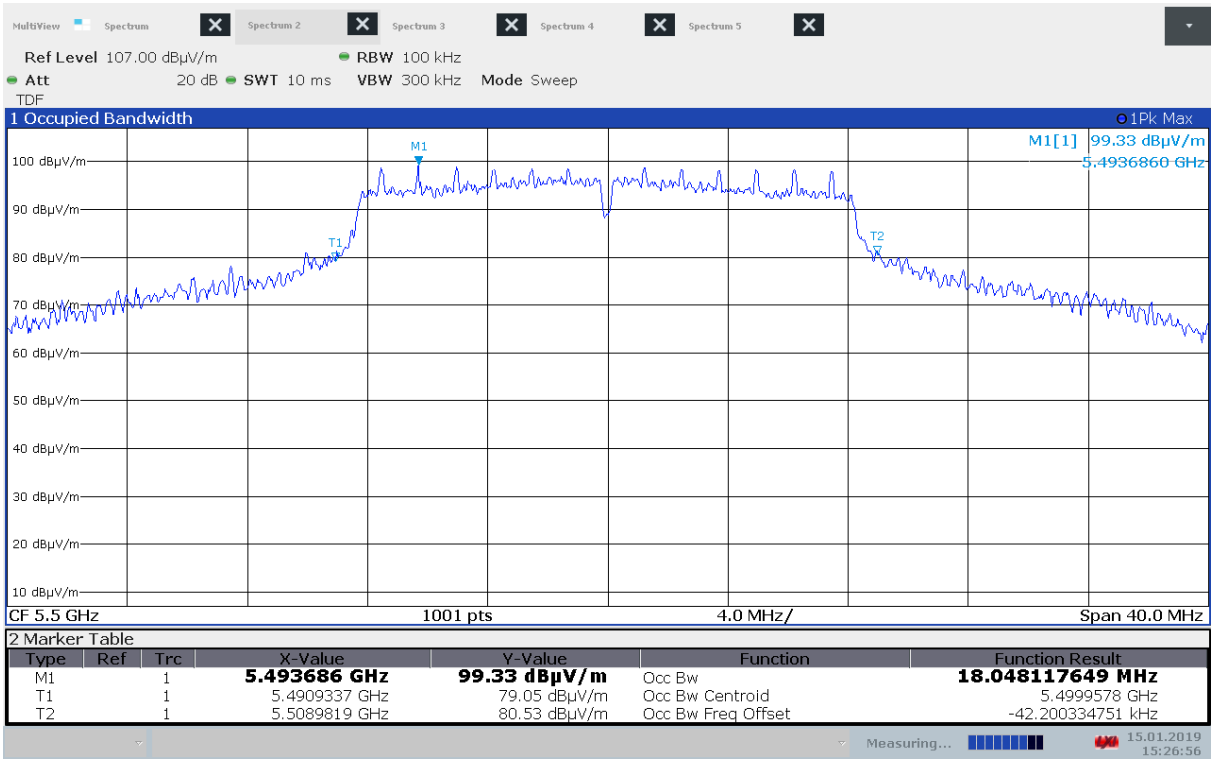
99% Bandwidth, 5180 MHz, 802.11a 6Mbps



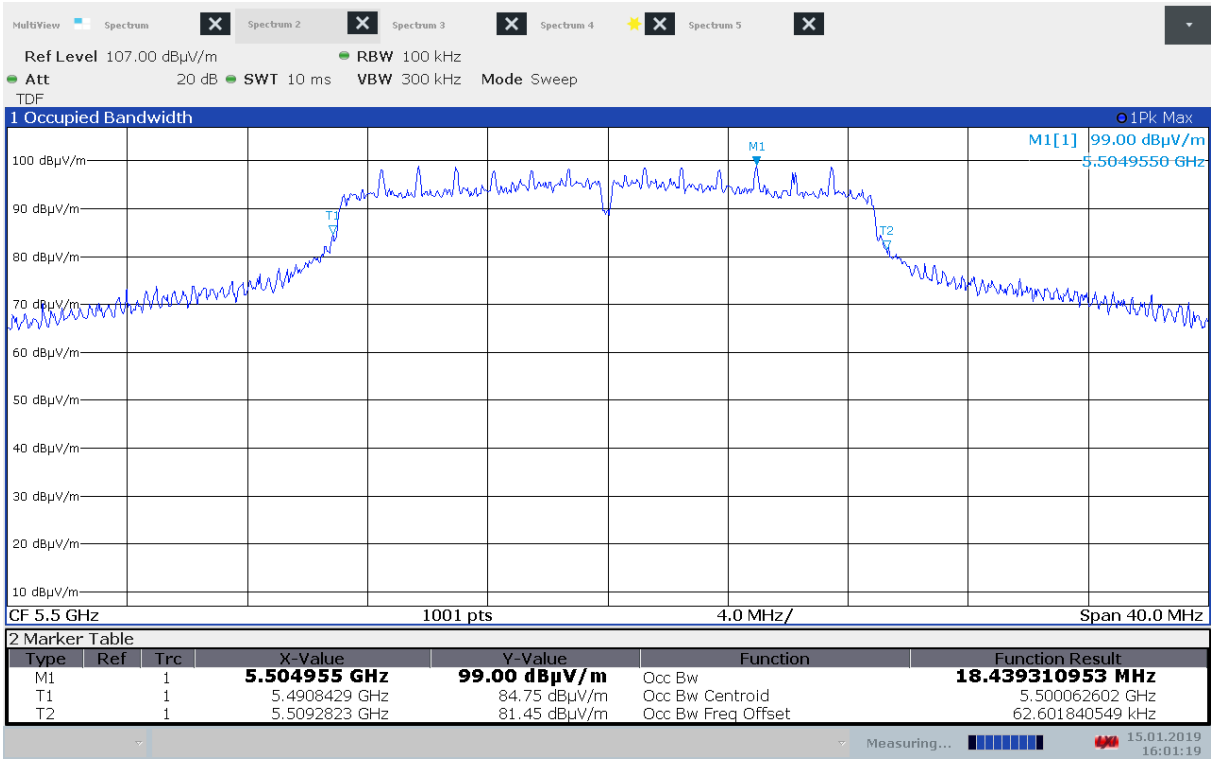
99% Bandwidth, 5180 MHz, 802.11n MCS0



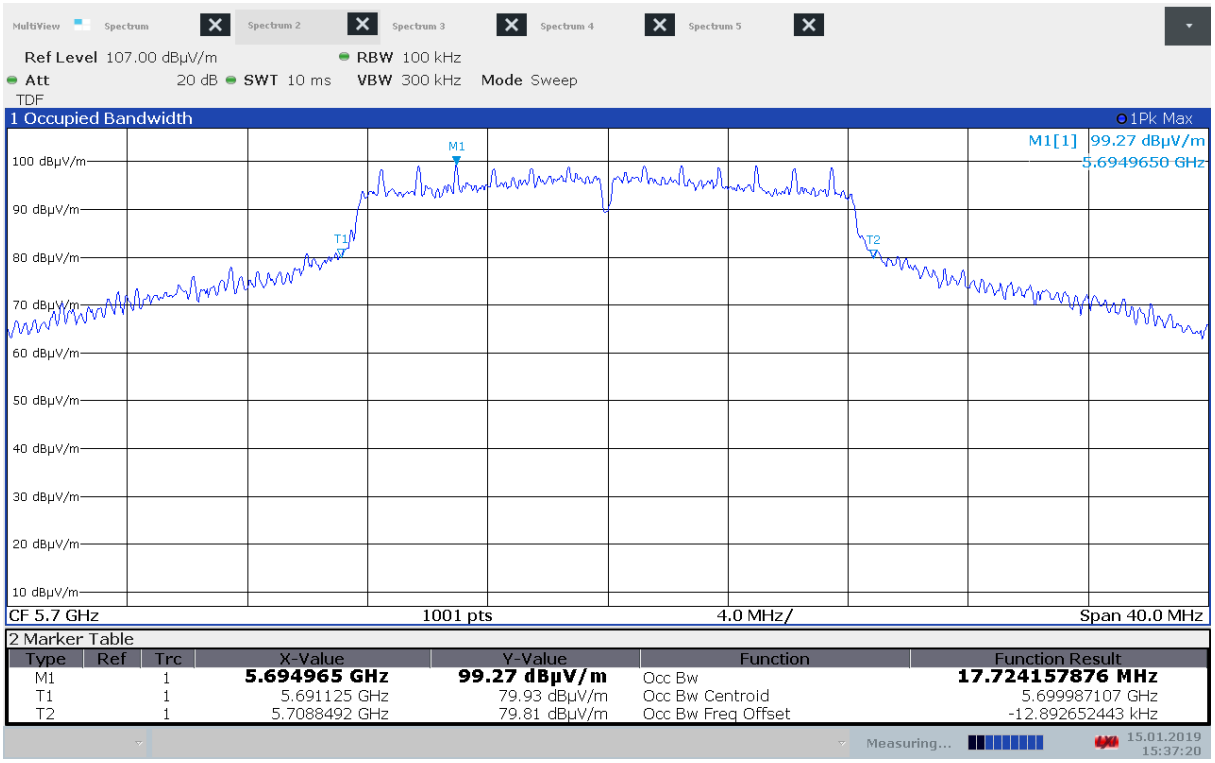
99% Bandwidth, 5320 MHz, 802.11n MCS0



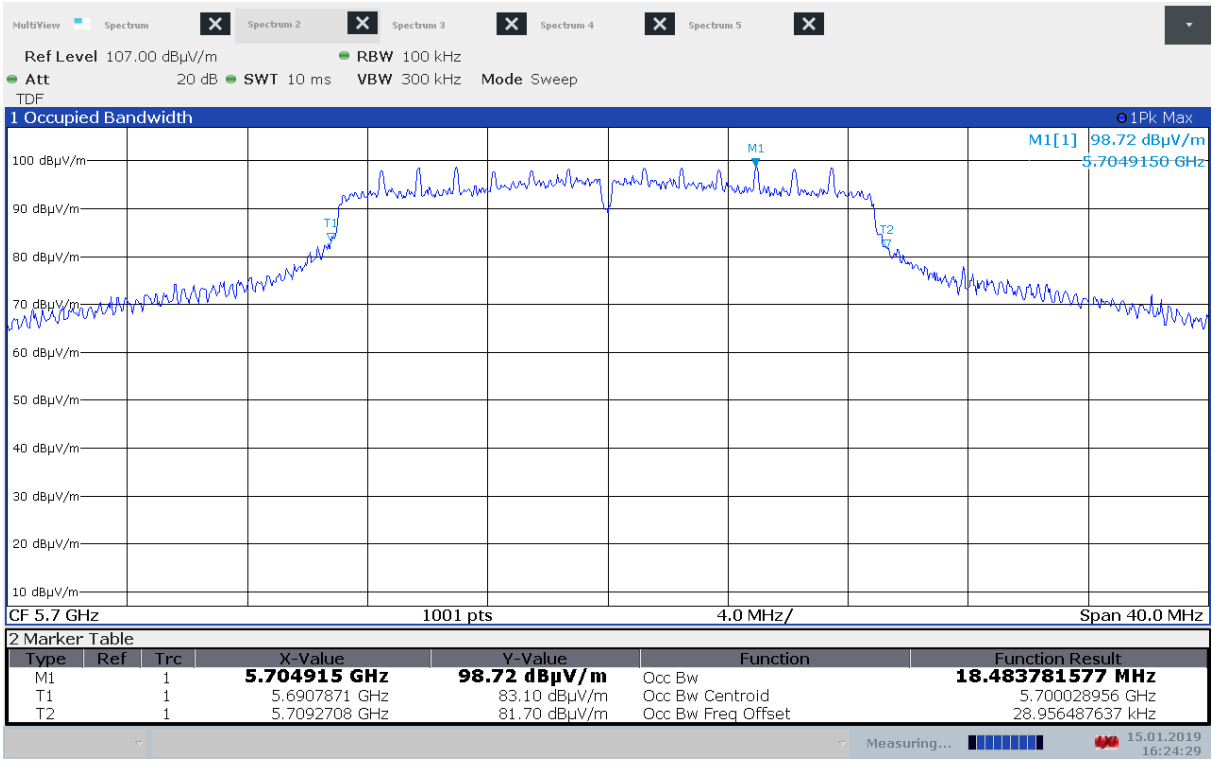
99% Bandwidth, 5500 MHz, 802.11a 6Mbps



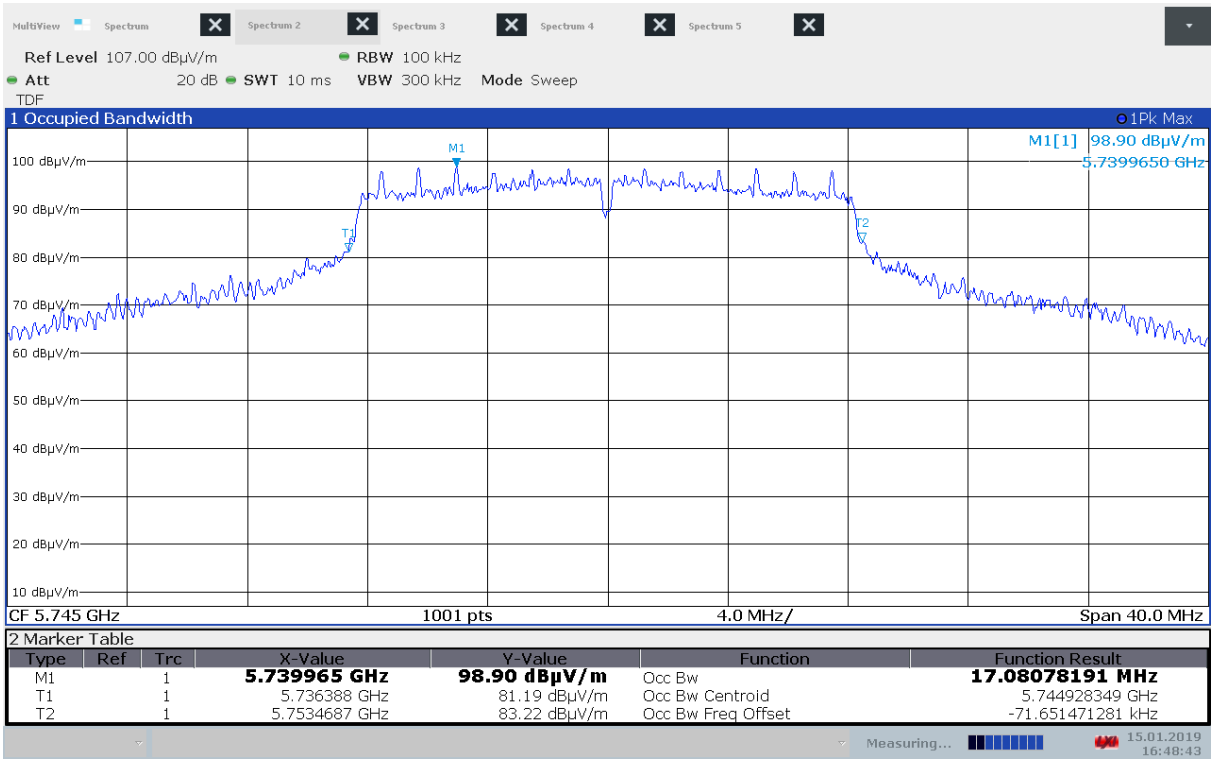
99% Bandwidth, 5500 MHz, 802.11n MCS0



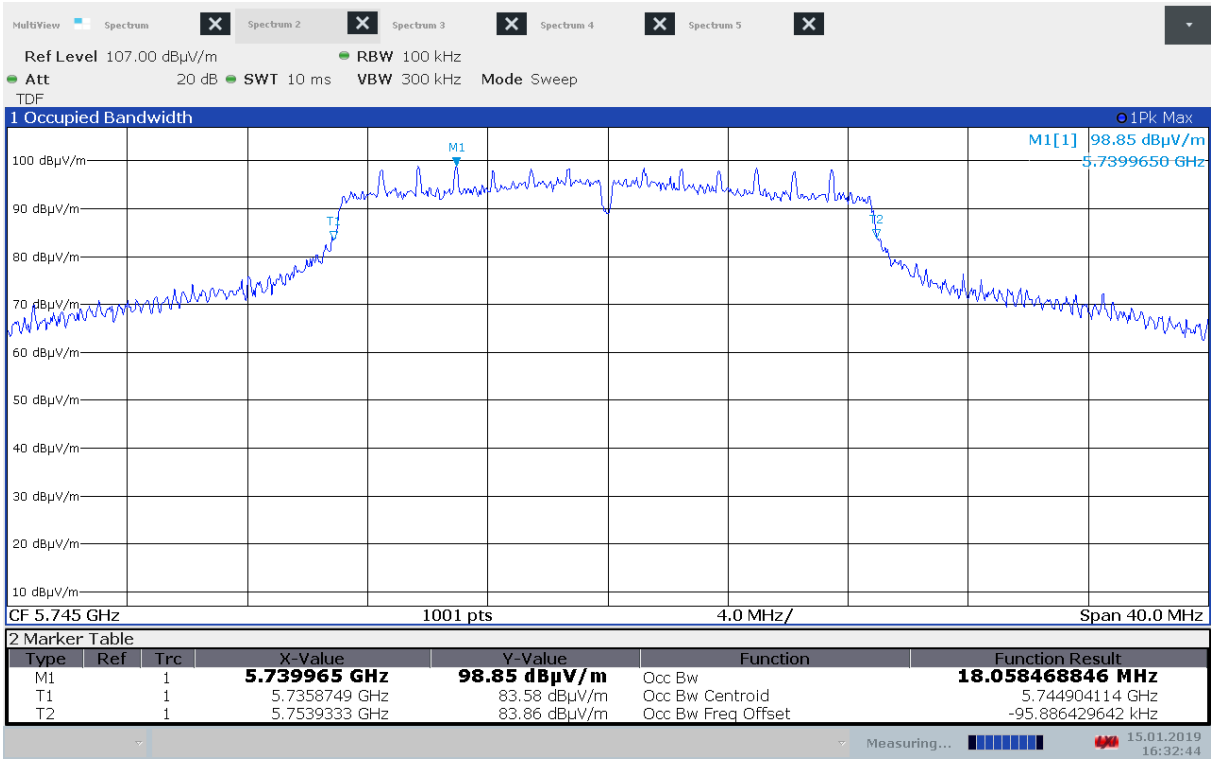
99% Bandwidth, 5700 MHz, 802.11a 6Mbps



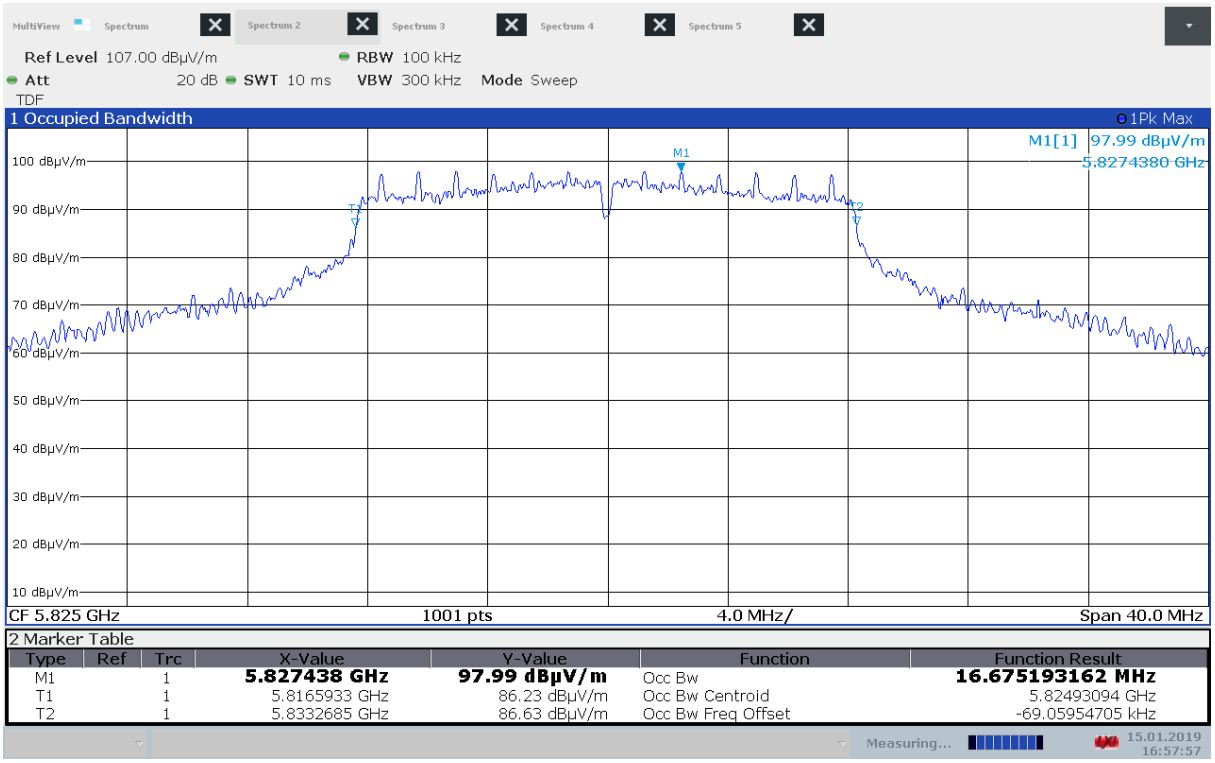
99% Bandwidth, 5700 MHz, 802.11n MCS0



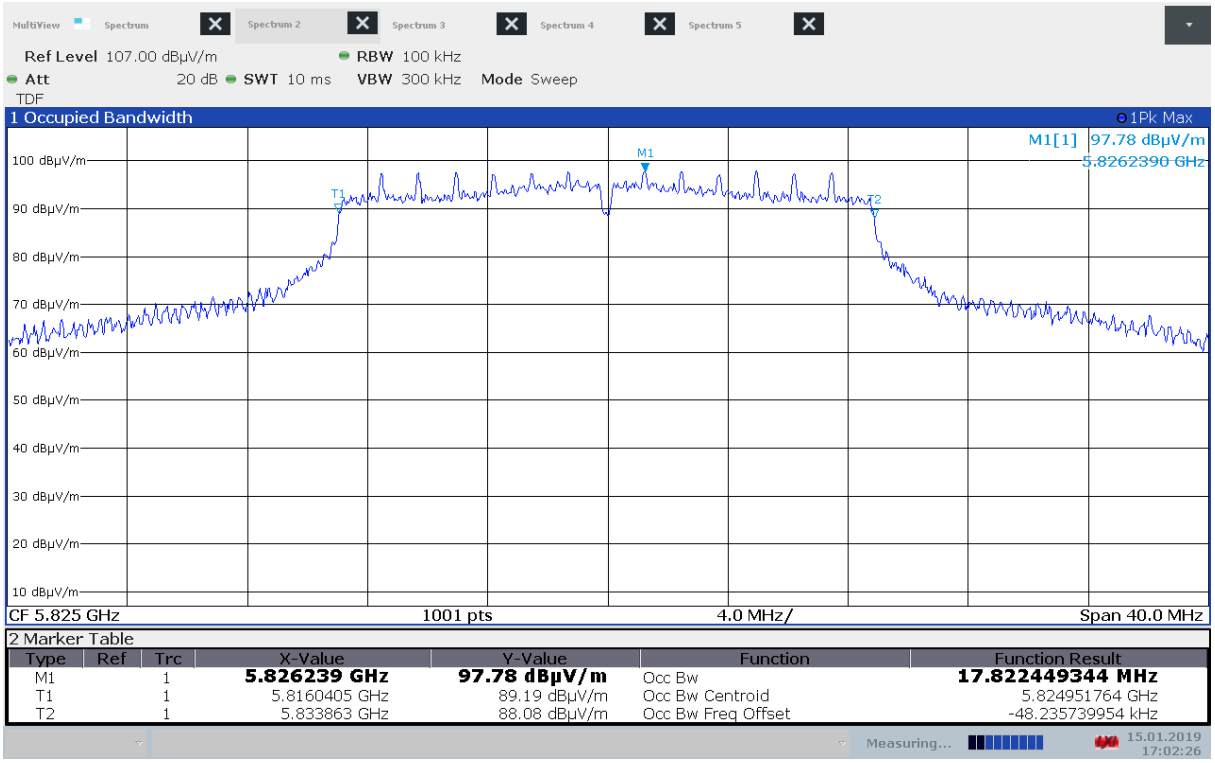
99% Bandwidth, 5745 MHz, 802.11a 6Mbps



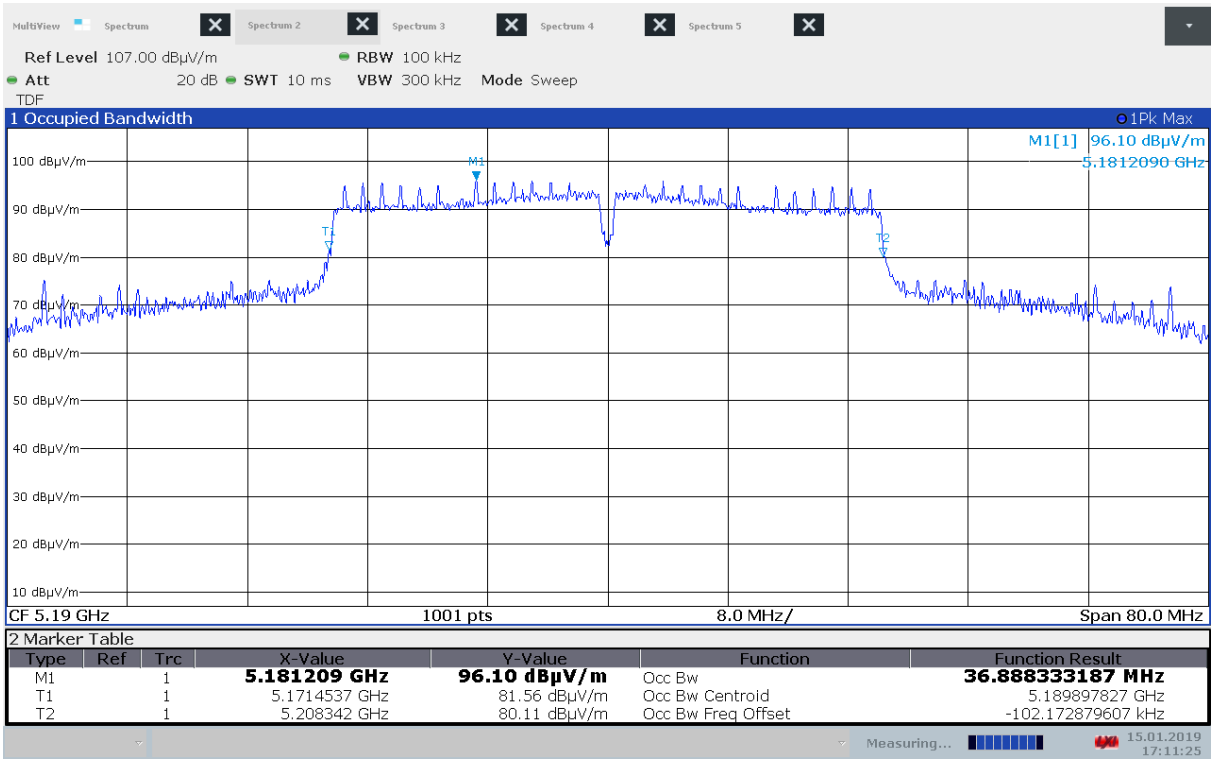
99% Bandwidth, 5745 MHz, 802.11n MCS0



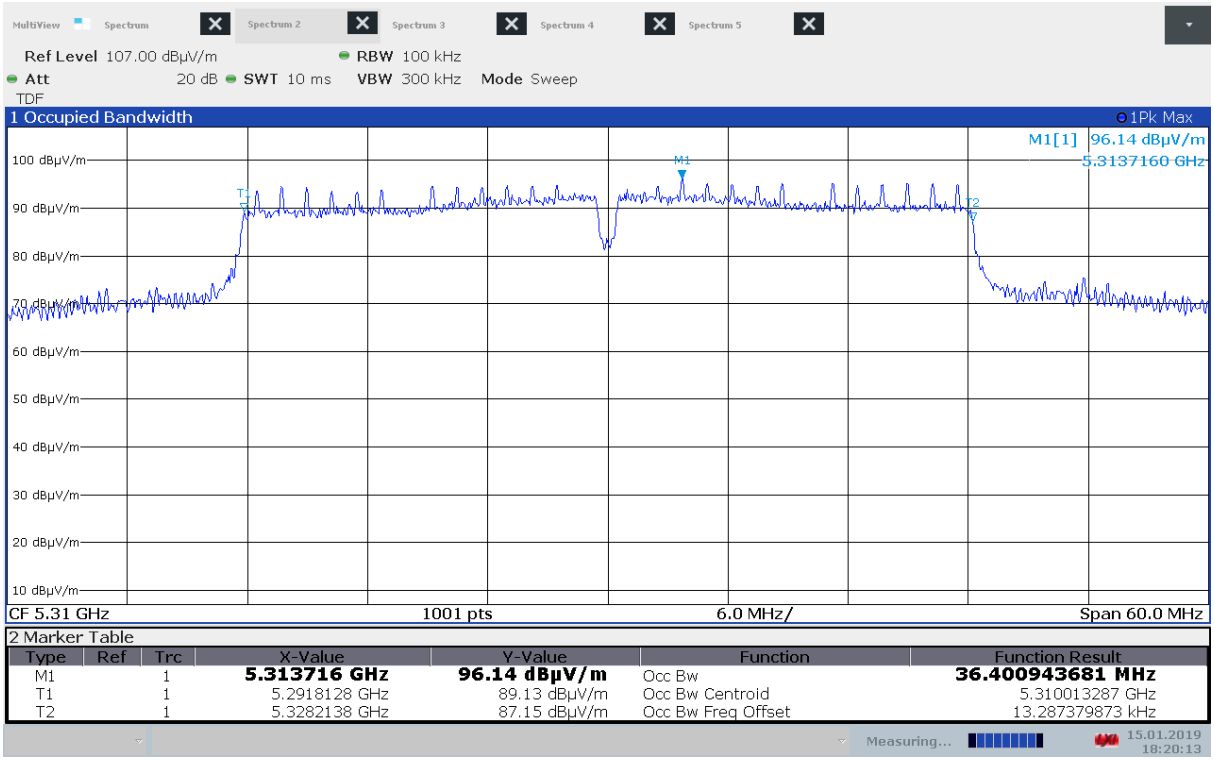
99% Bandwidth, 5825 MHz, 802.11a 6Mbps



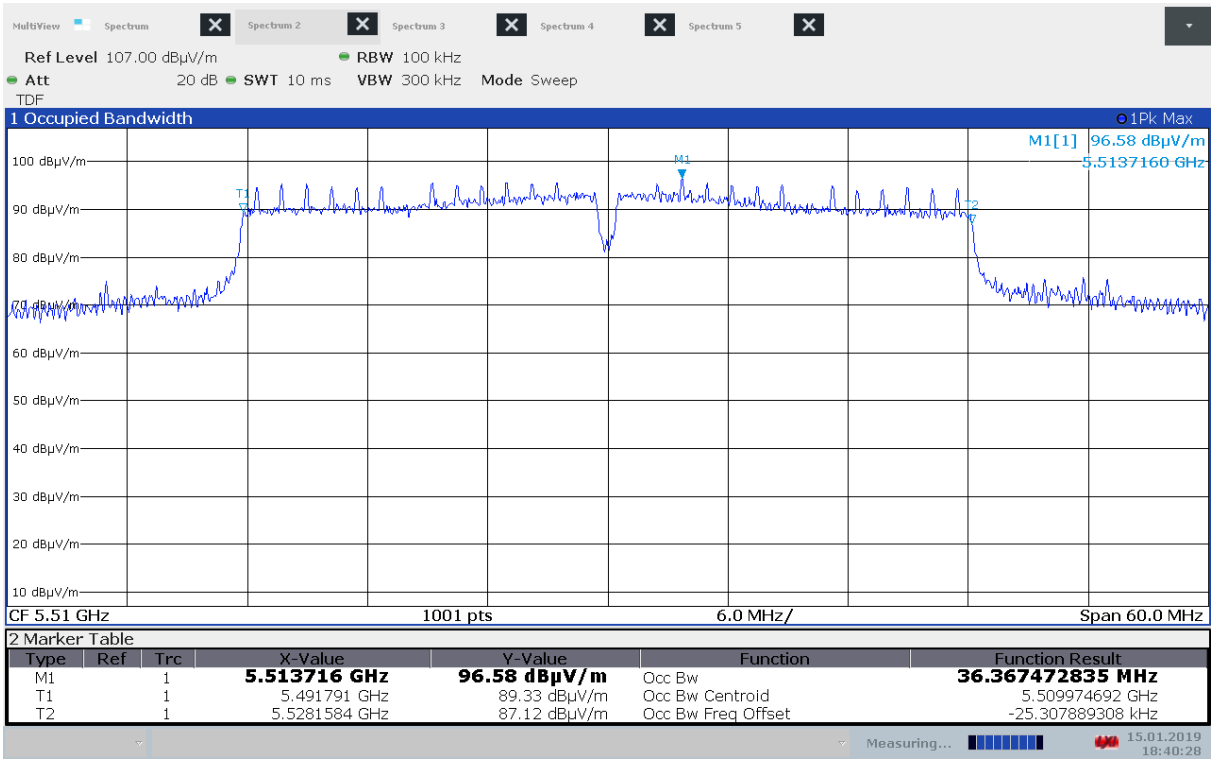
99% Bandwidth, 5825 MHz, 802.11n MCS0



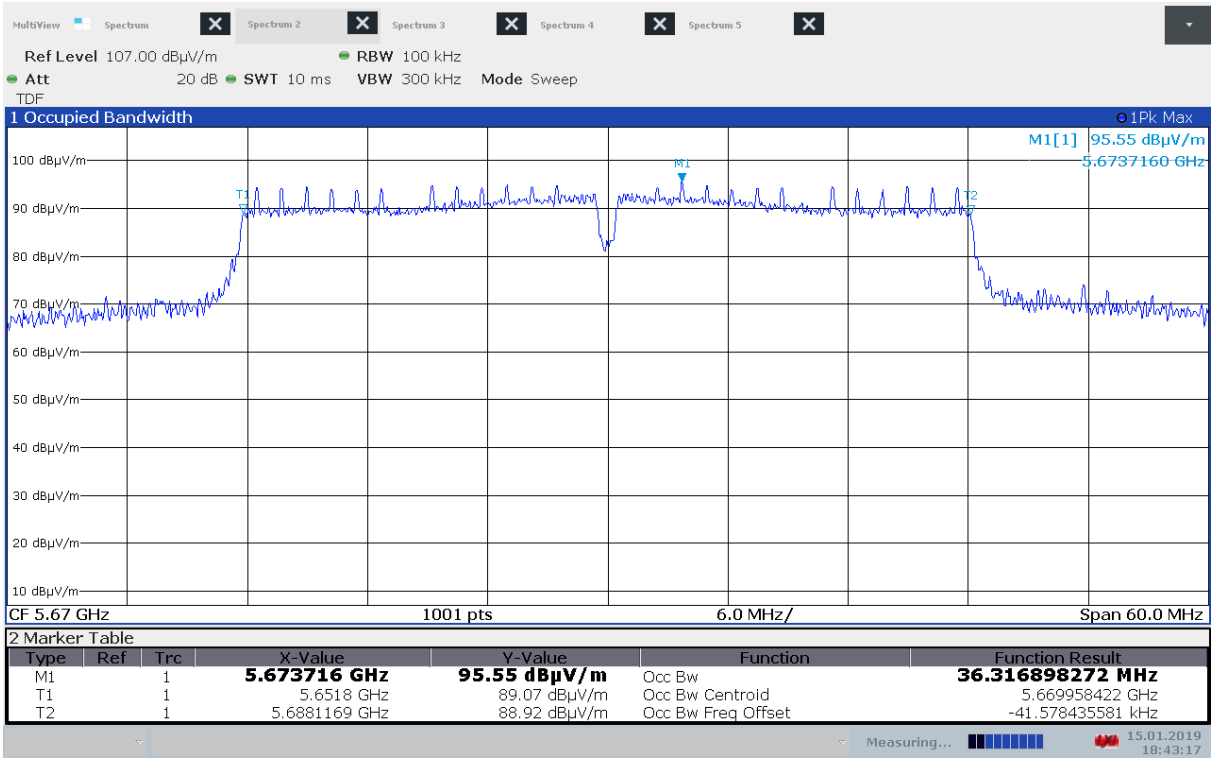
99% Bandwidth, 5190 MHz, 802.11n HT40



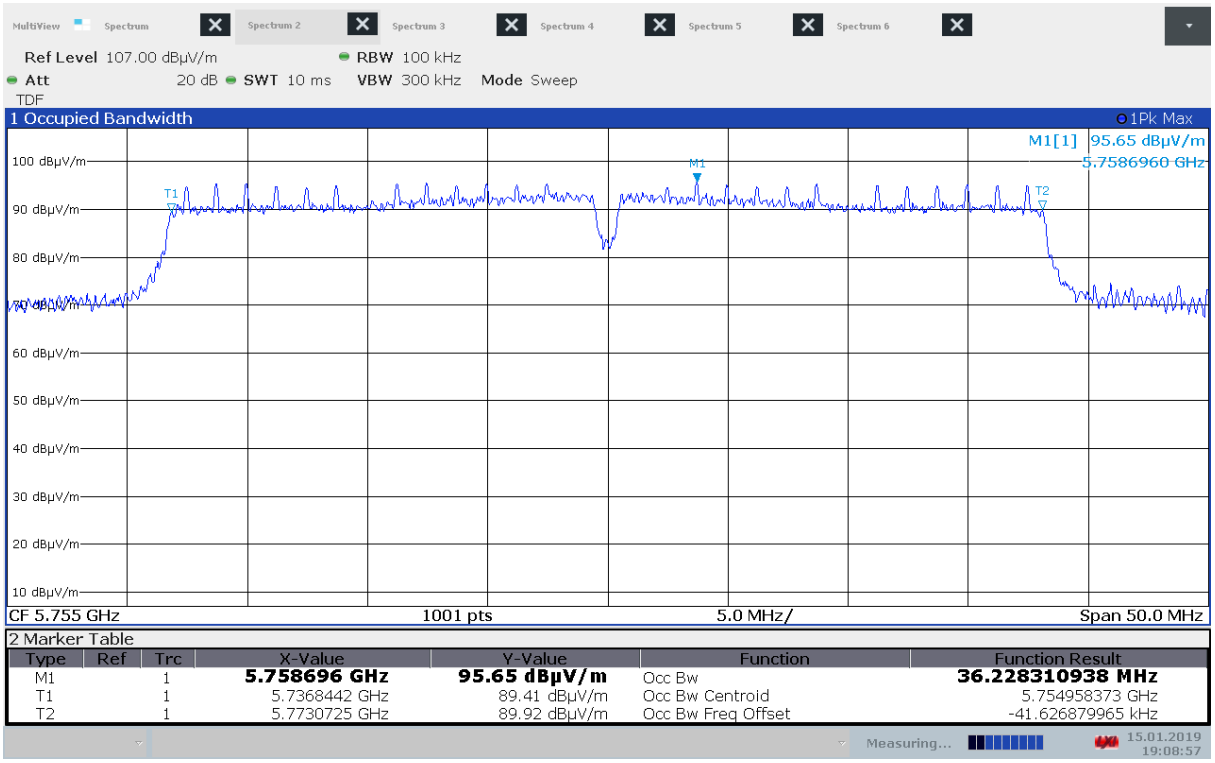
99% Bandwidth, 5310 MHz, 802.11n HT40



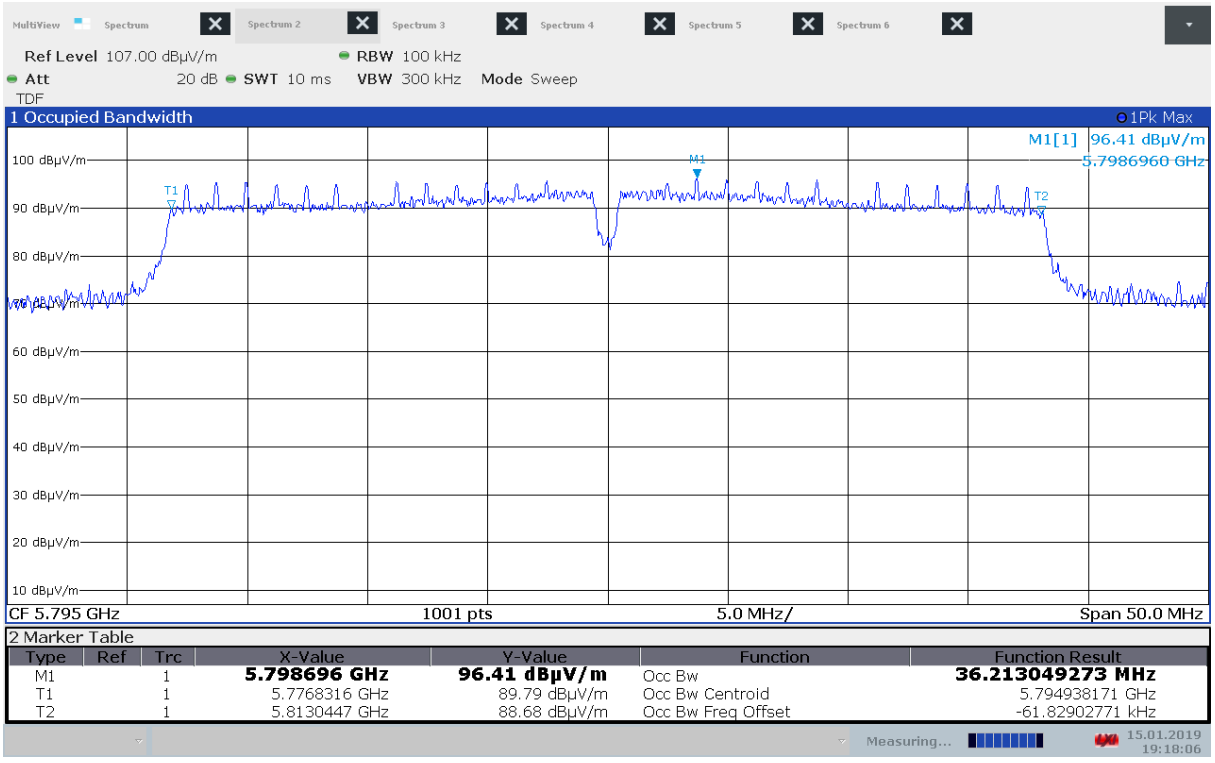
99% Bandwidth, 5510 MHz, 802.11n HT40



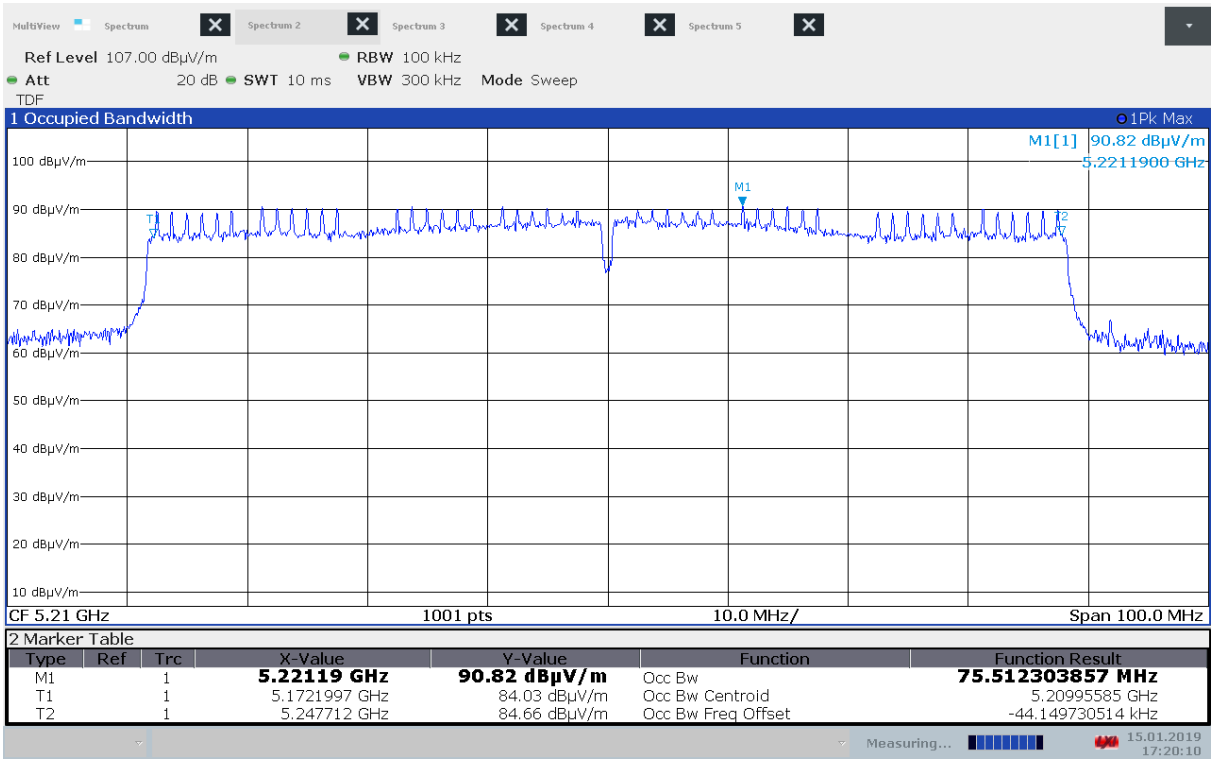
99% Bandwidth, 5670 MHz, 802.11n HT40



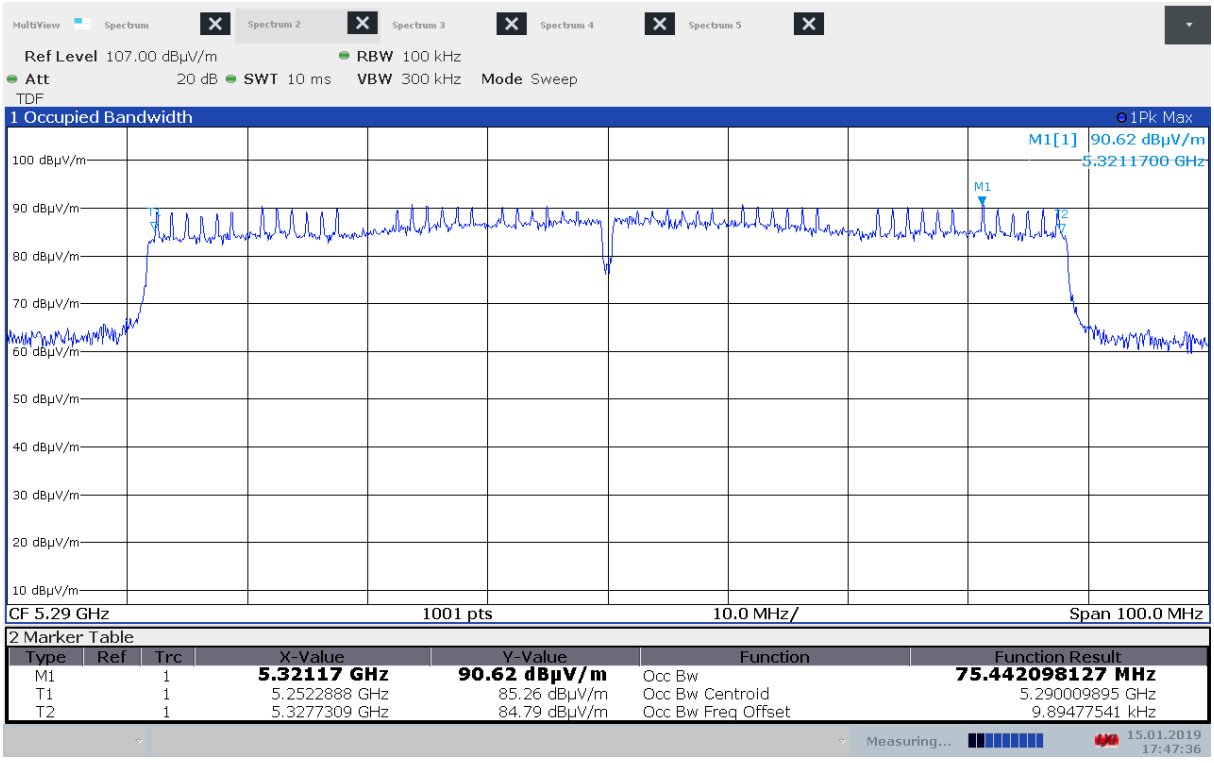
99% Bandwidth, 5755 MHz, 802.11n HT40



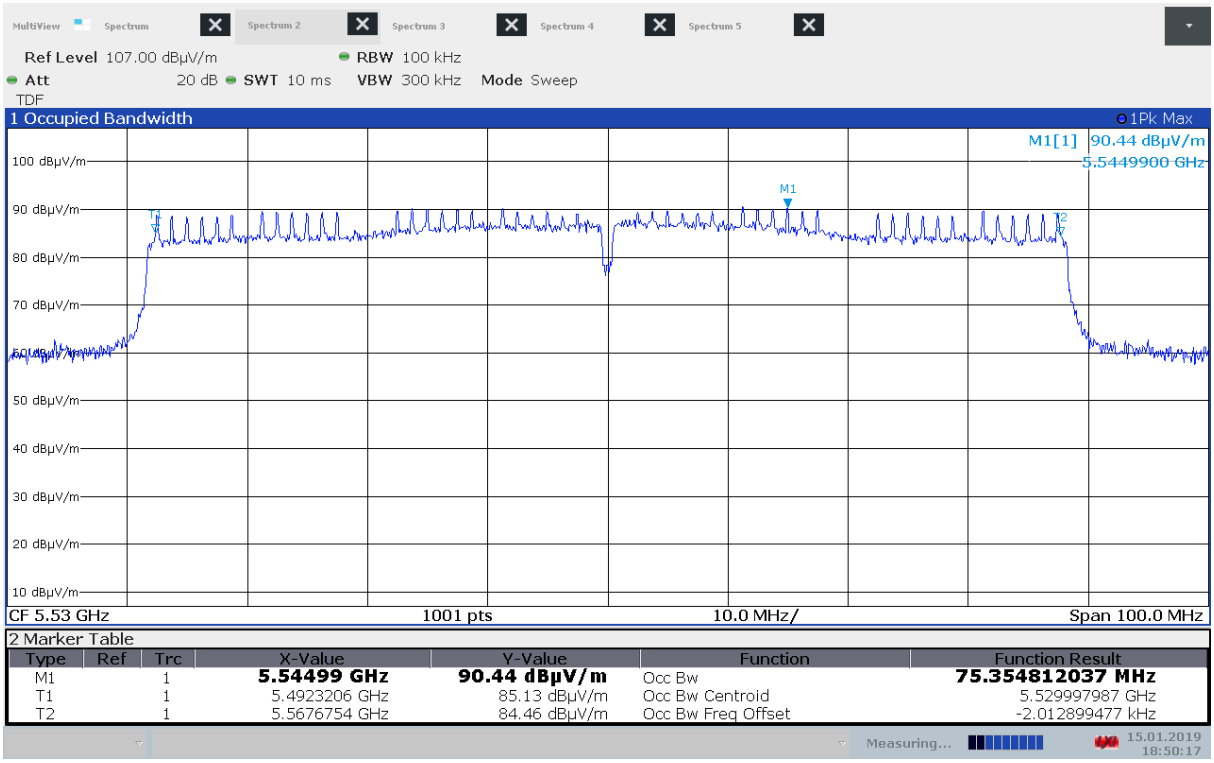
99% Bandwidth, 5795 MHz, 802.11n HT40



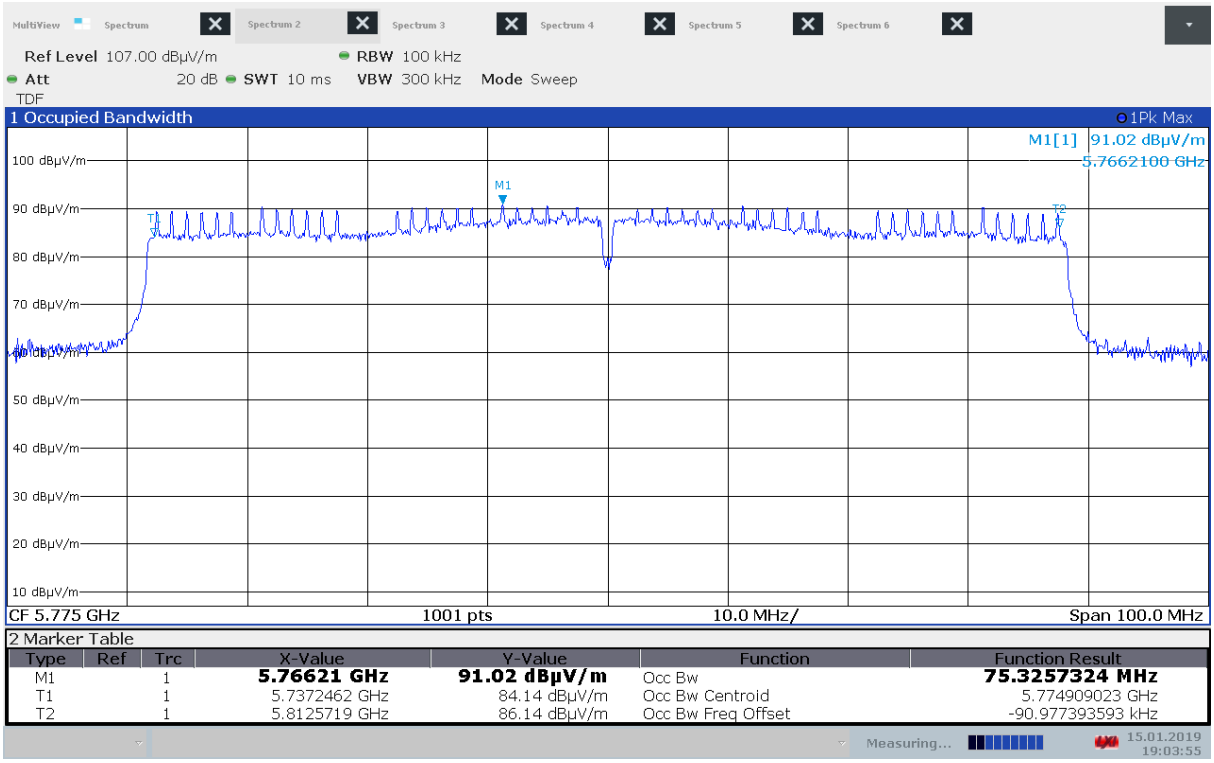
99% Bandwidth, 5210 MHz, 802.11ac HT80



99% Bandwidth, 5290 MHz, 802.11ac HT80



99% Bandwidth, 5530 MHz, 802.11ac HT80



99% Bandwidth, 5775 MHz, 802.11ac HT80

3.4 Peak Power Spectral density

FCC 15.407(a)

ISED RSS-247, Issue 2, Clause 6.2

Measurement procedure: ANSI C63.10-2013 Clause 12.5

Test Results: Complies

Measurement Data:

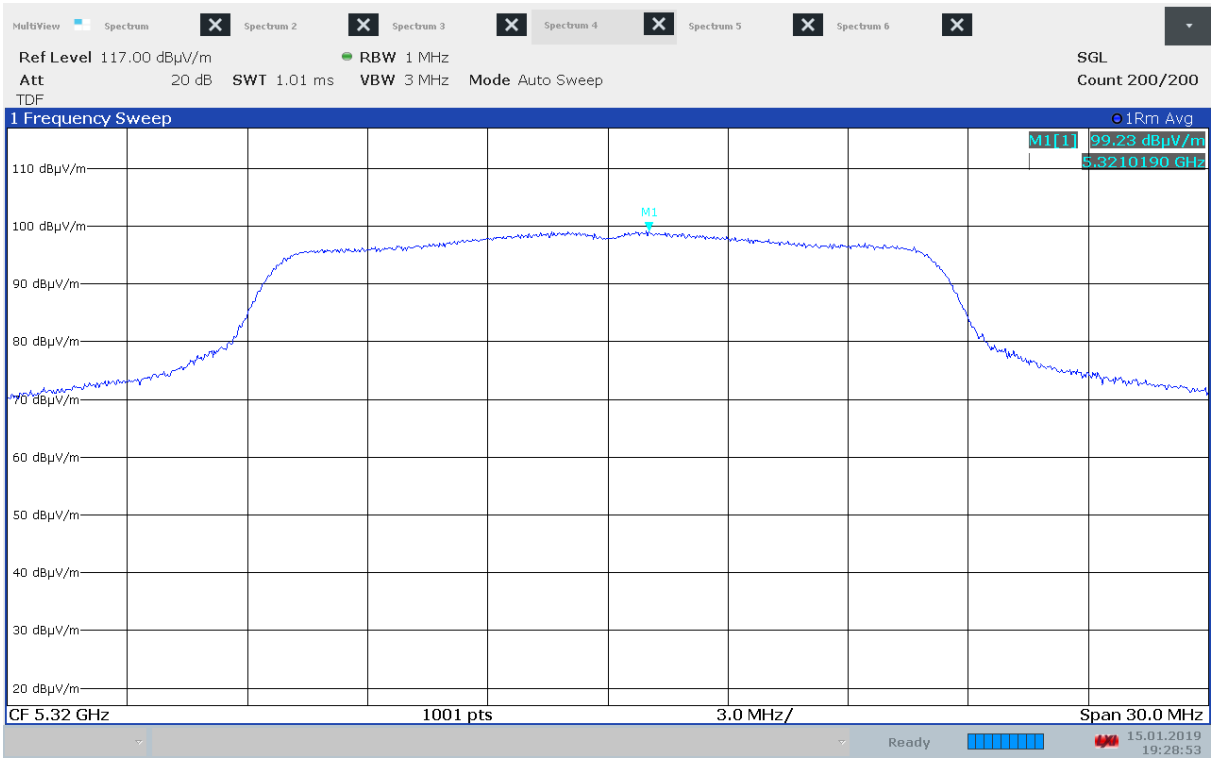
Ch. No.	Nominal Frequency (MHz)	Measured Value (dBm)			
		802.11a 6Mbps	802.11n MCS0	802.11n MCS0 HT40	802.11ac MCS0 HT80
64	5320	4.1	3.4		
100	5500	4.2	3.6		
140	5700	4.6	4.0		
149	5745	4.0	3.9		
165	5825	3.8	3.0		
38	5190			0.7	
62	5310			0.1	
102	5510			0.1	
134	5670			-0.2	
151	5755			0.0	
159	5795			0.2	
42	5210				-8.5
58	5290				-9.3
106	5530				-9.1
155	5775				-8.7

Values in U-NII Band 3 has been corrected by -3dB for RBW.

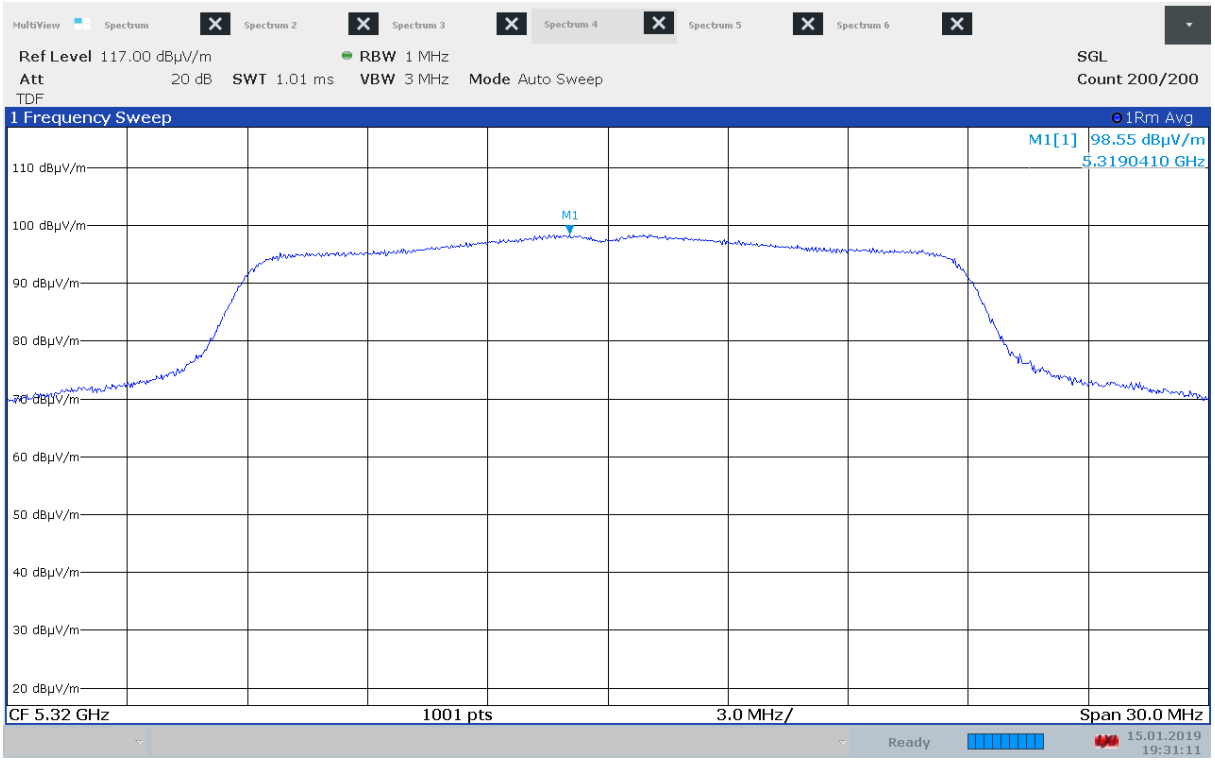
Antenna Gain is below 6 dBi at all frequencies above.

Limits:

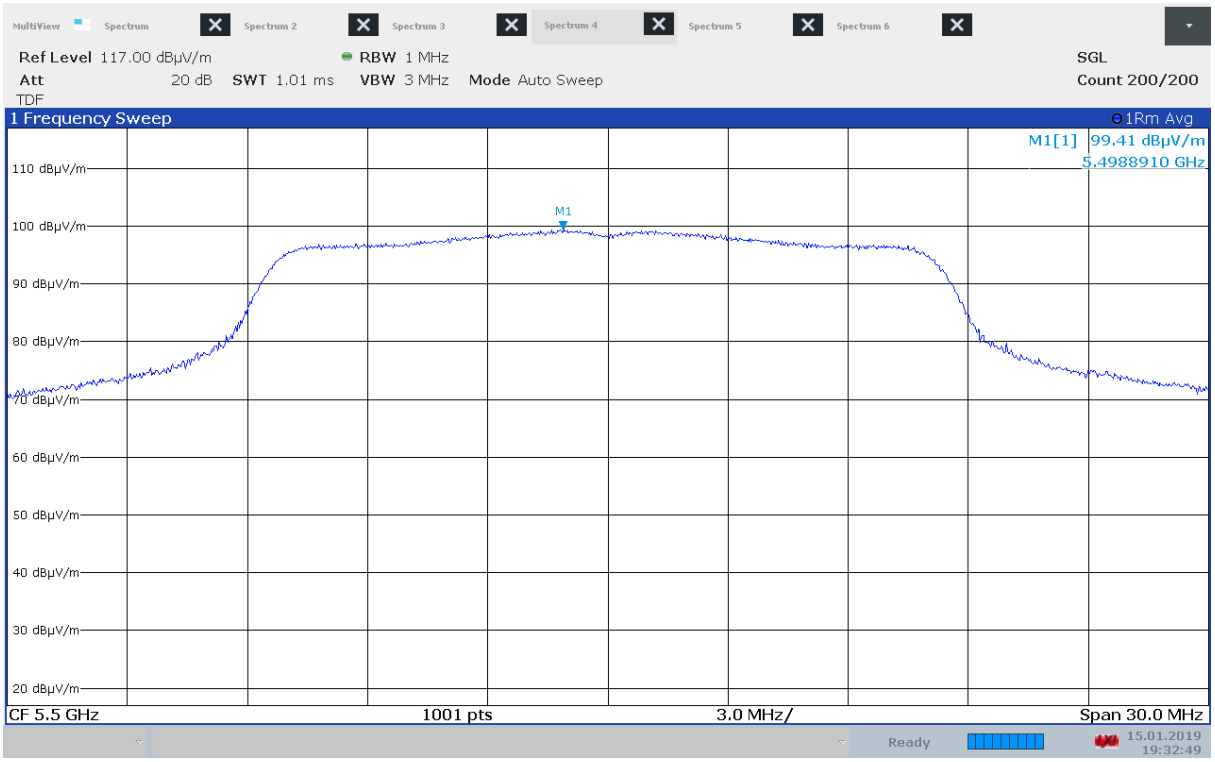
Frequency Band	FCC 15.407(a)	RSS-247, Issue 2
5150 – 5250 MHz	Less than 17 dBm/MHz for master device Less than 11 dBm/MHz for client device	Less than 10 dBm/MHz e.i.r.p. (only indoor allowed)
5250 – 5350 MHz	Less than 11 dBm/MHz	Less than 11 dBm/MHz
5470 – 5725 MHz	Less than 11 dBm/MHz	Less than 11 dBm/MHz
5725 – 5825 MHz	Less than 30 dBm/500kHz	Less than 30 dBm/500kHz
	If Antenna Gain is more than 6 dBi the limit above is reduced by the amouth exceeding 6 dBi	



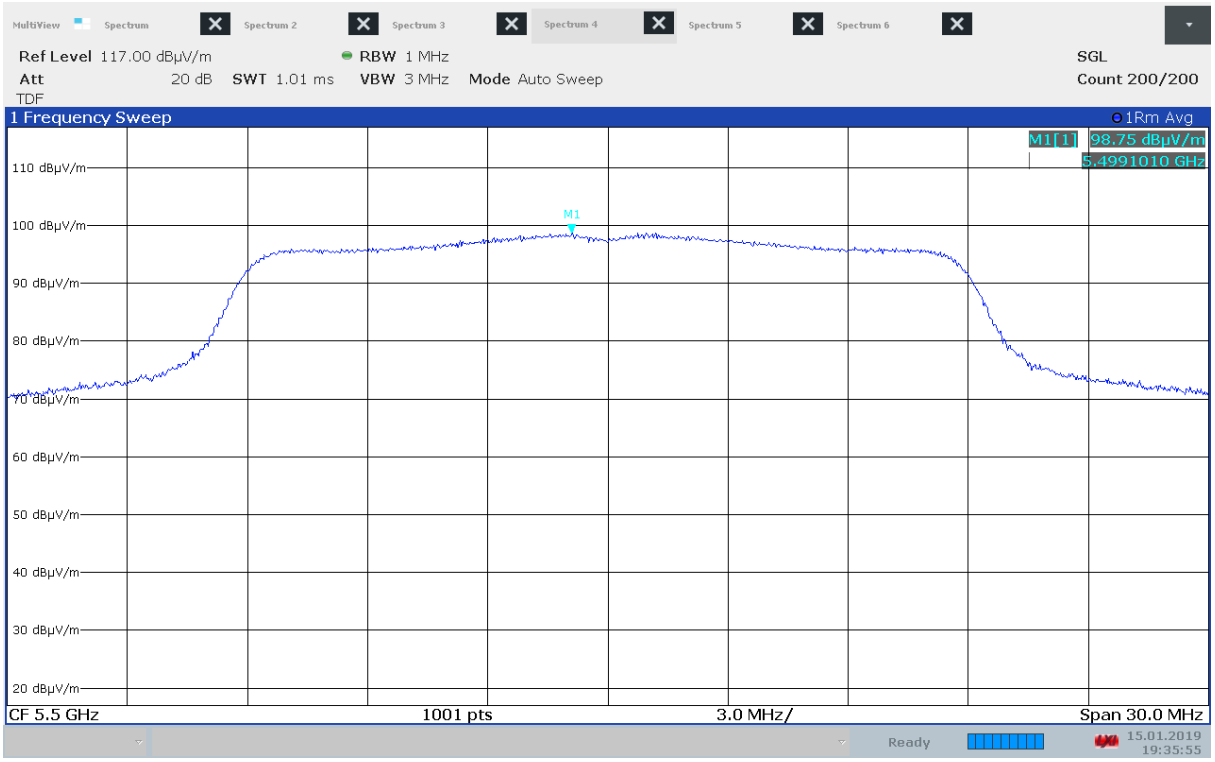
Power Spectral Density, 5320 MHz, 802.11a - 6Mbps



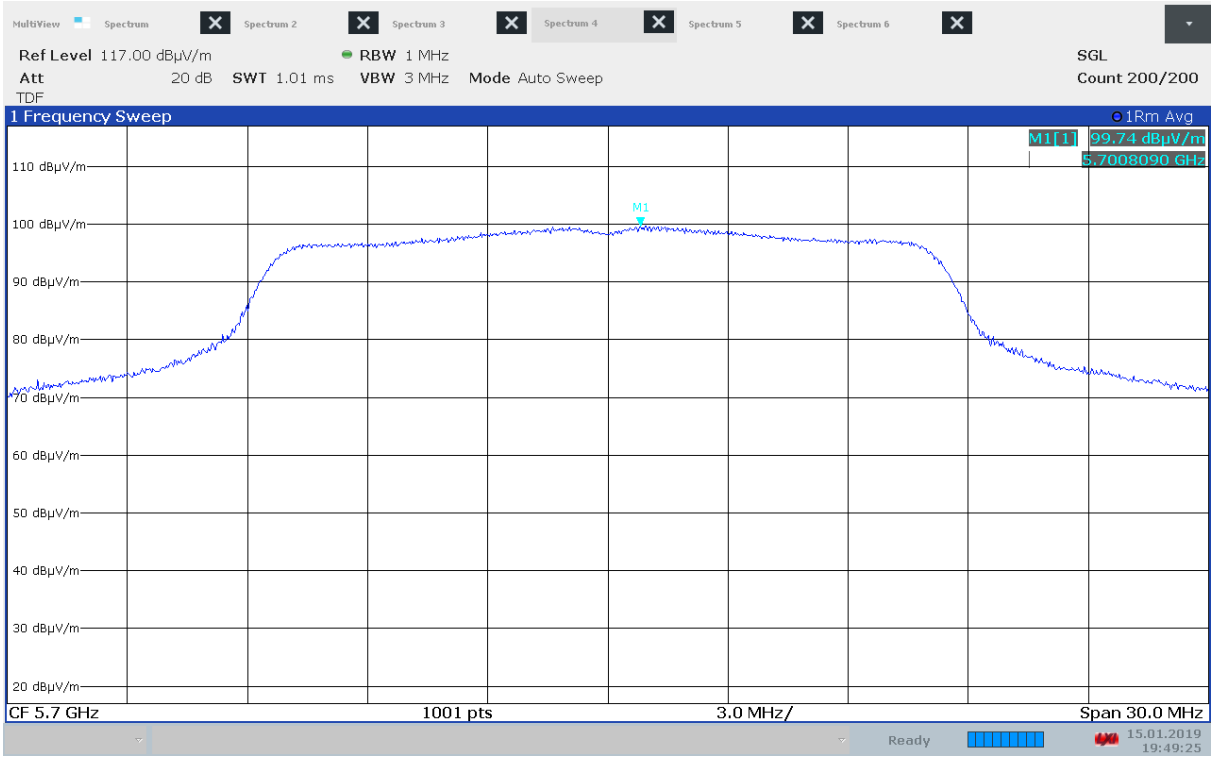
Power Spectral Density, 5320 MHz, 802.11n – MCS0



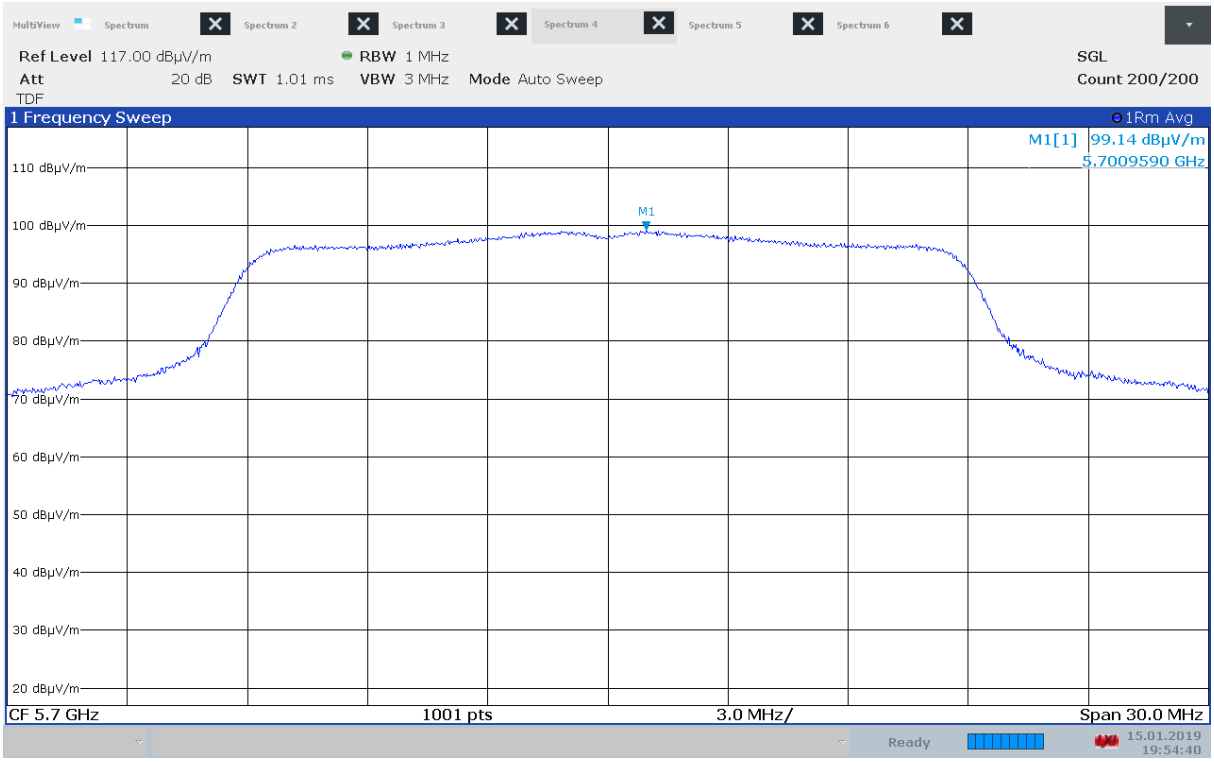
Power Spectral Density, 5500 MHz, 802.11a - 6Mbps



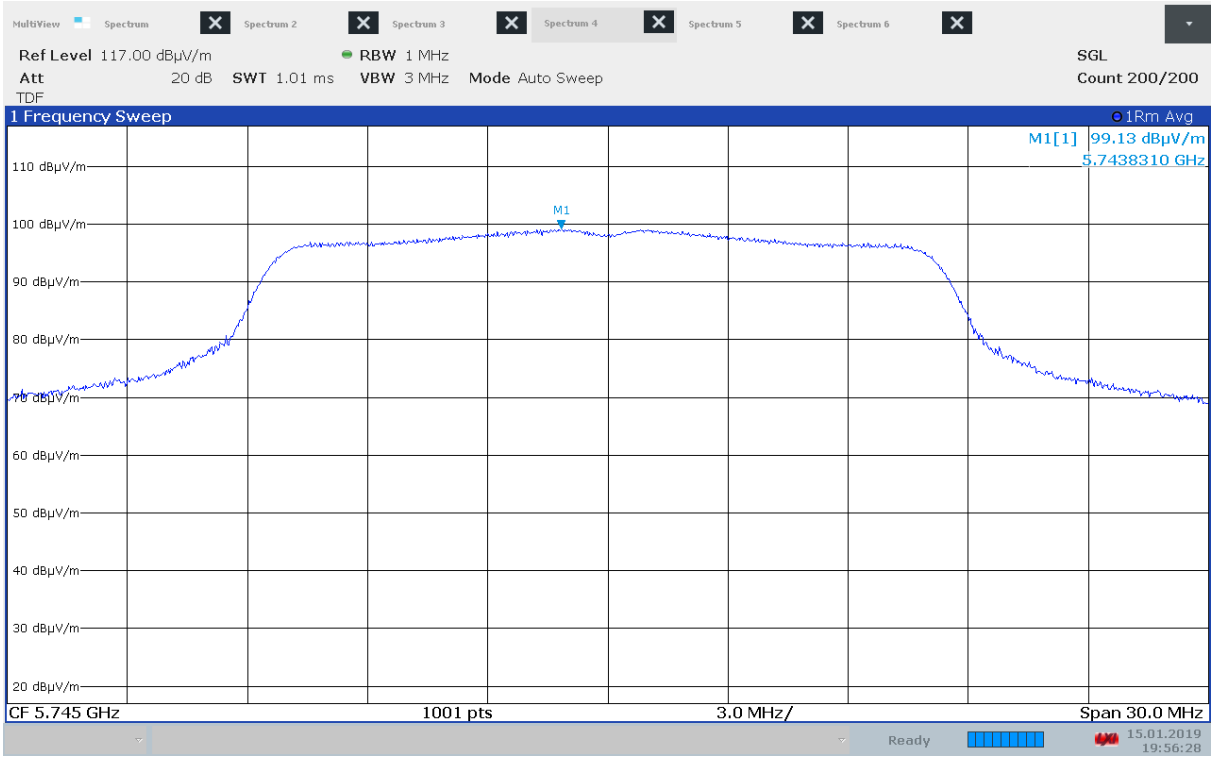
Power Spectral Density, 5500 MHz, 802.11n – MCS0



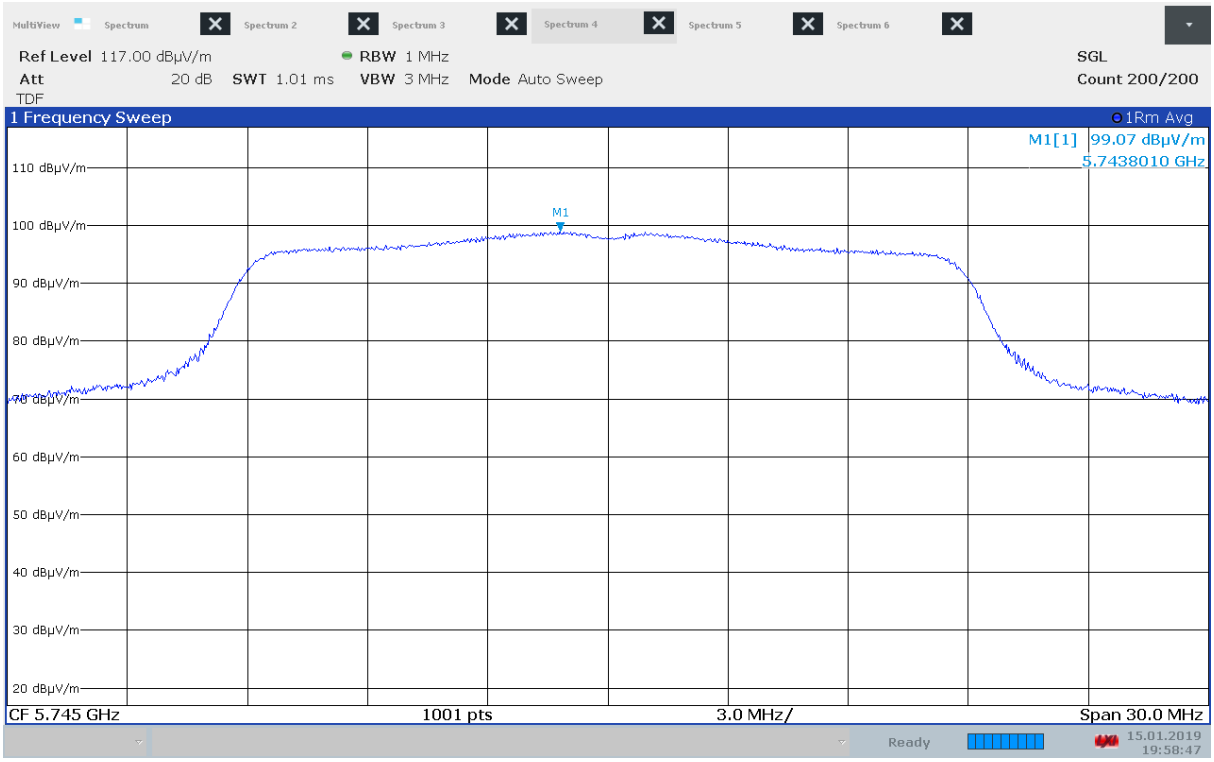
Power Spectral Density, 5700 MHz, 802.11a - 6Mbps



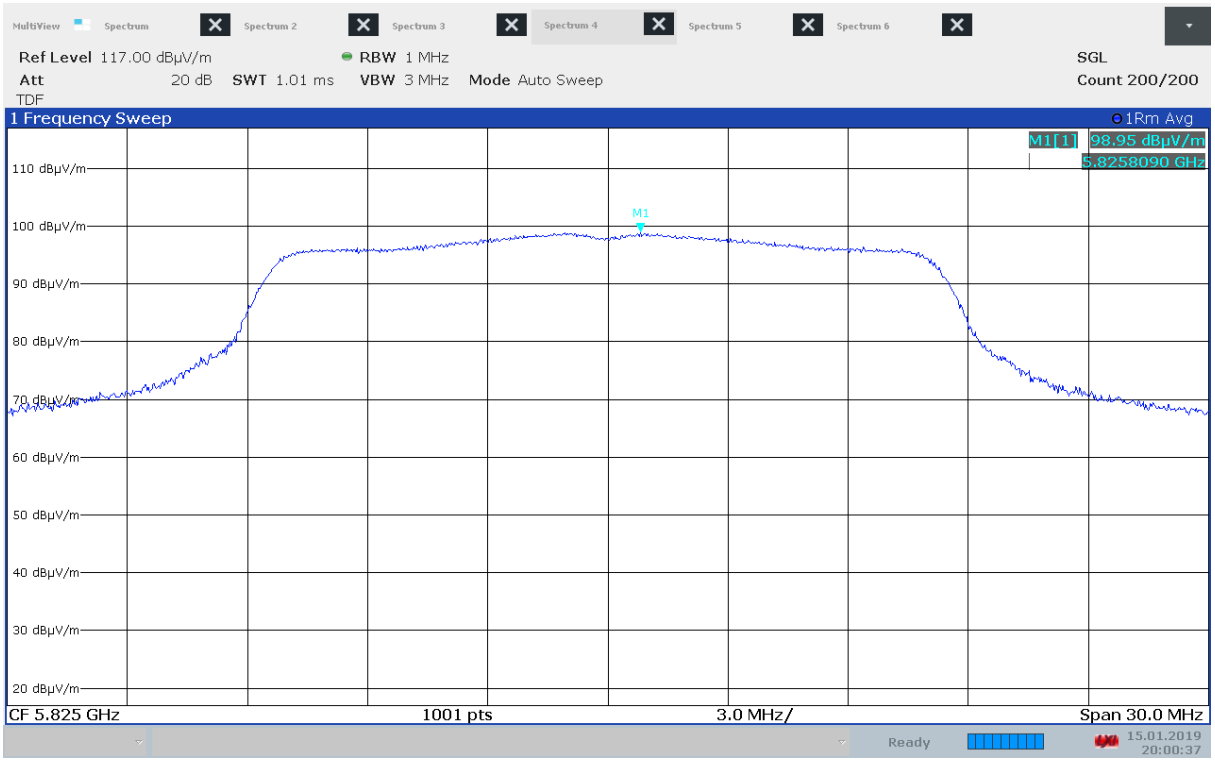
Power Spectral Density, 5700 MHz, 802.11n – MCS0



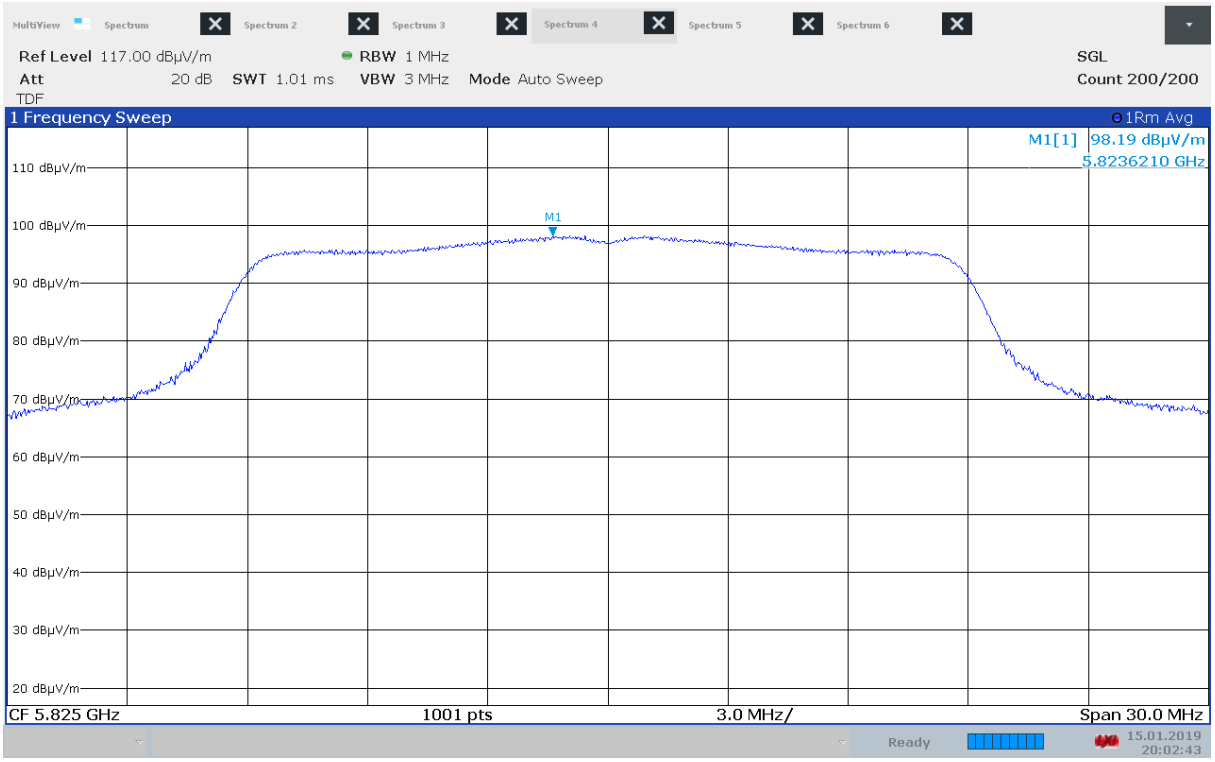
Power Spectral Density, 5745 MHz, 802.11a - 6Mbps



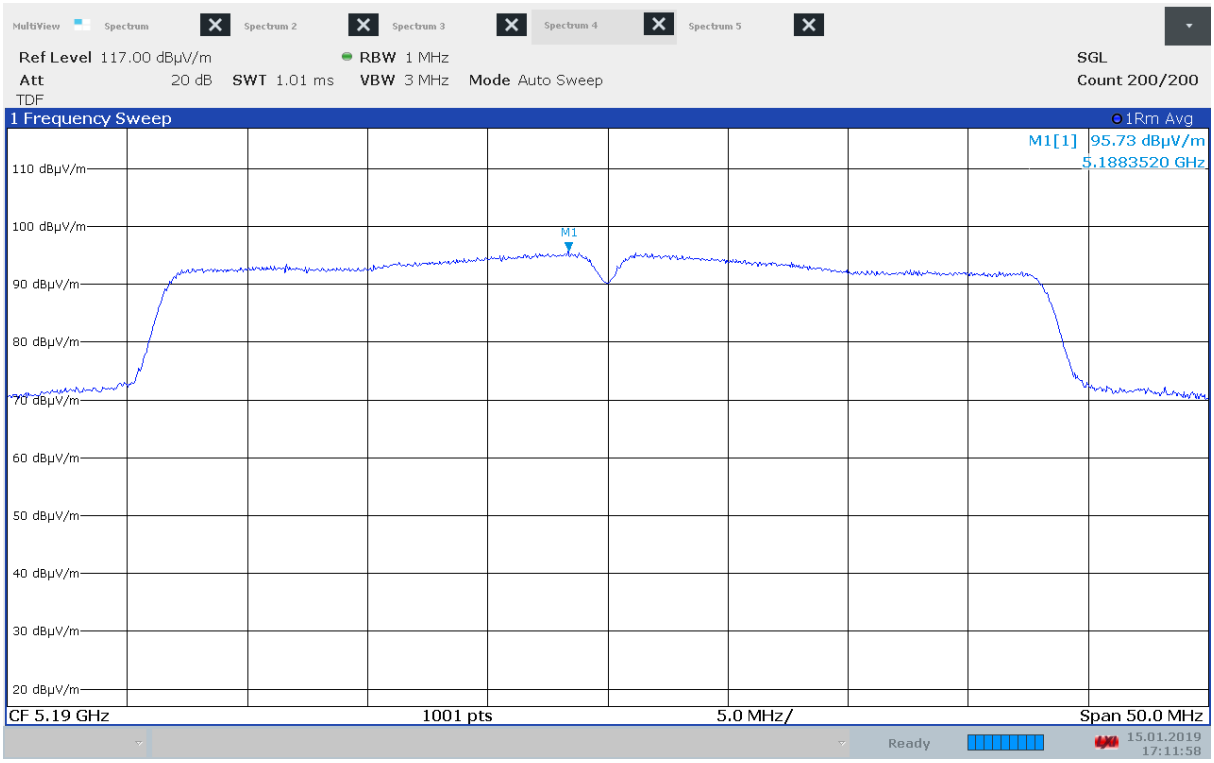
Power Spectral Density, 5745 MHz, 802.11n – MCS0



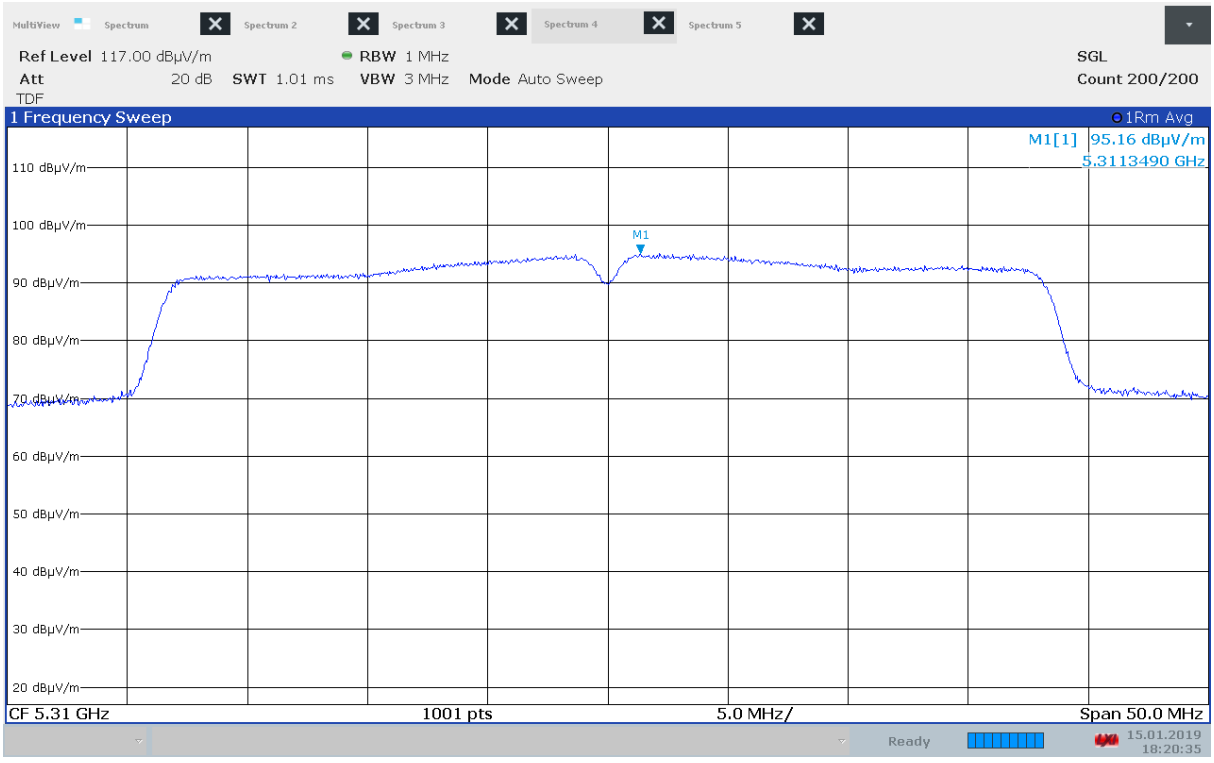
Power Spectral Density, 5825 MHz, 802.11a - 6Mbps



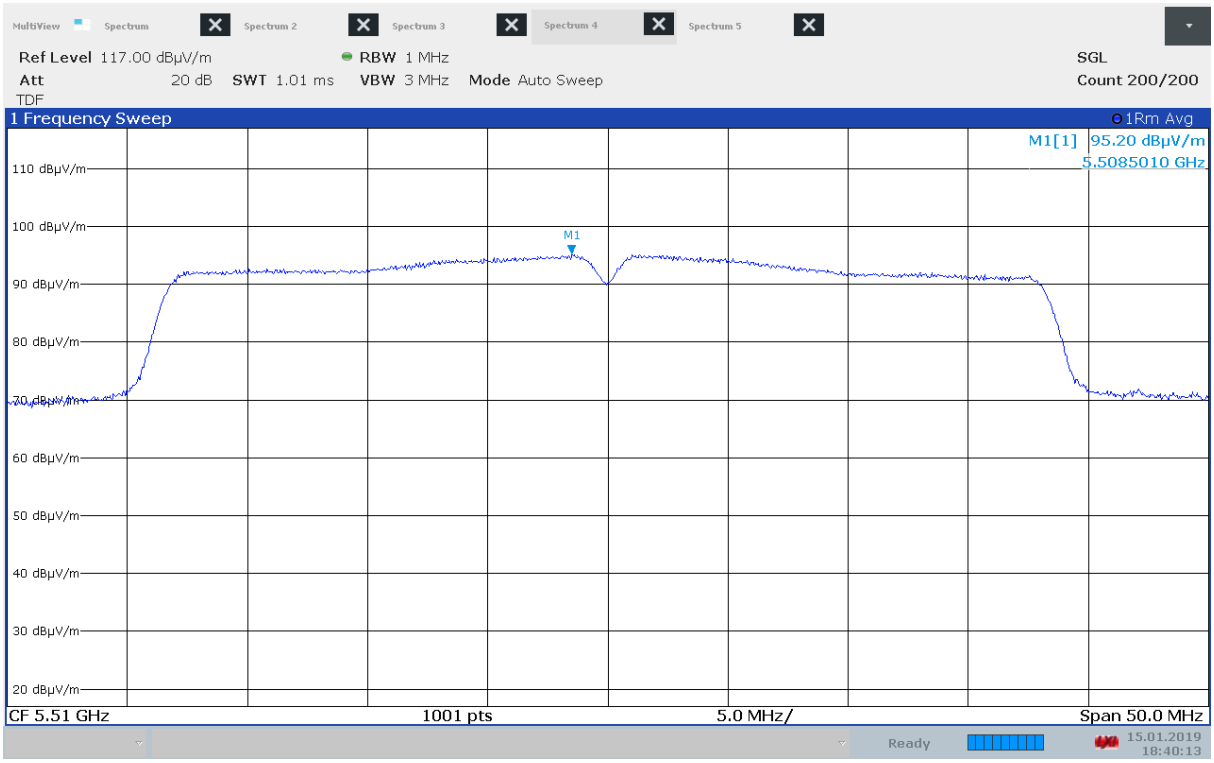
Power Spectral Density, 5825 MHz, 802.11n – MCS0



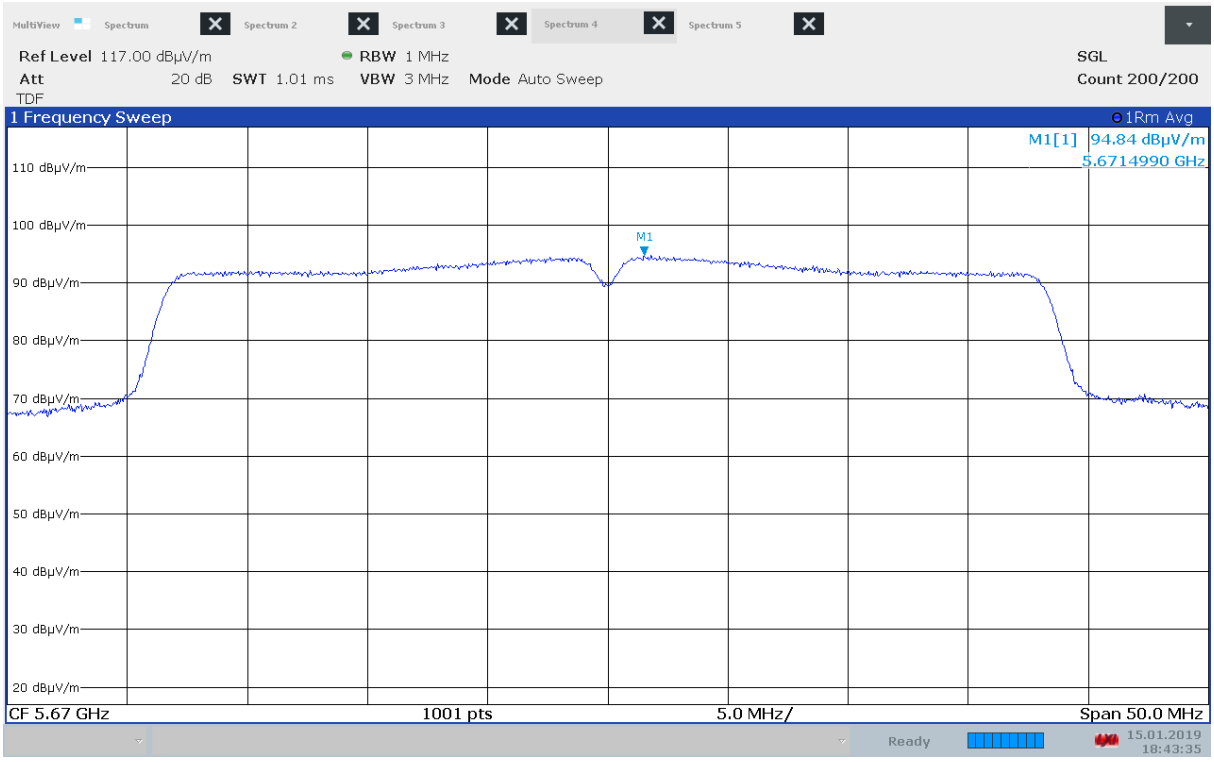
Power Spectral Density, 5190 MHz, 802.11n – HT40



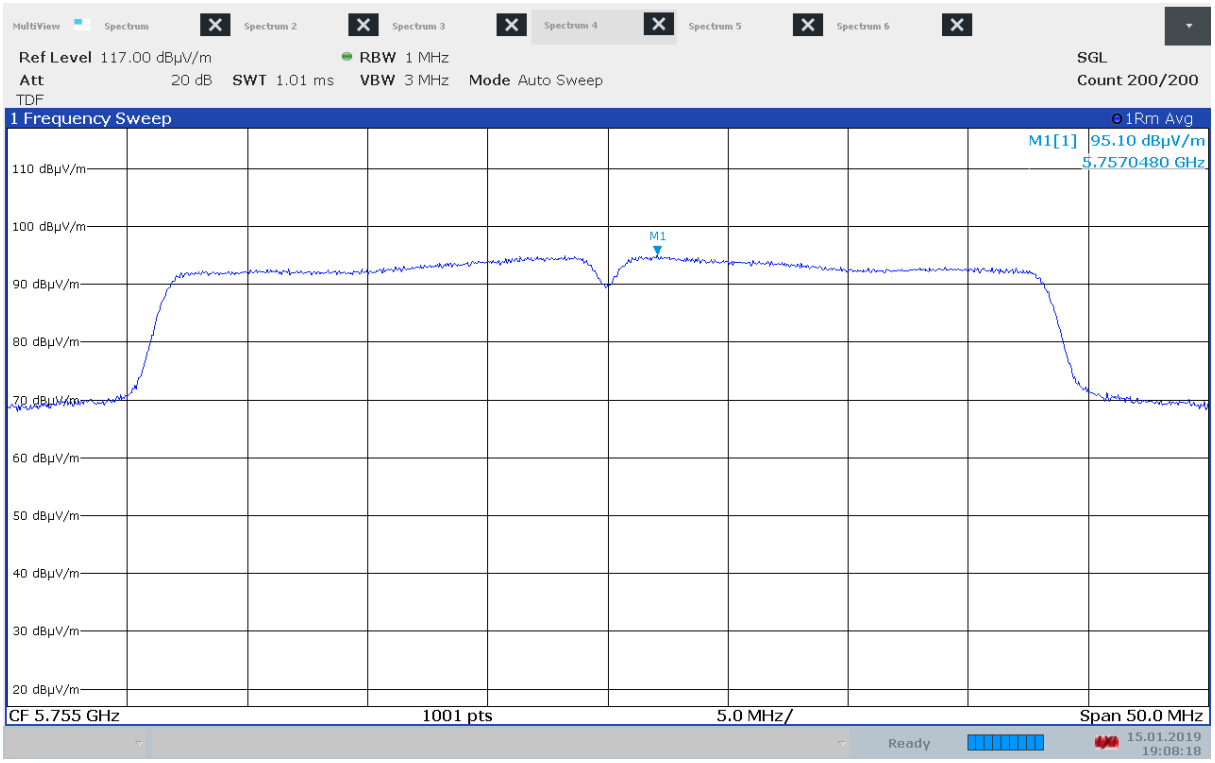
Power Spectral Density, 5310 MHz, 802.11n – HT40



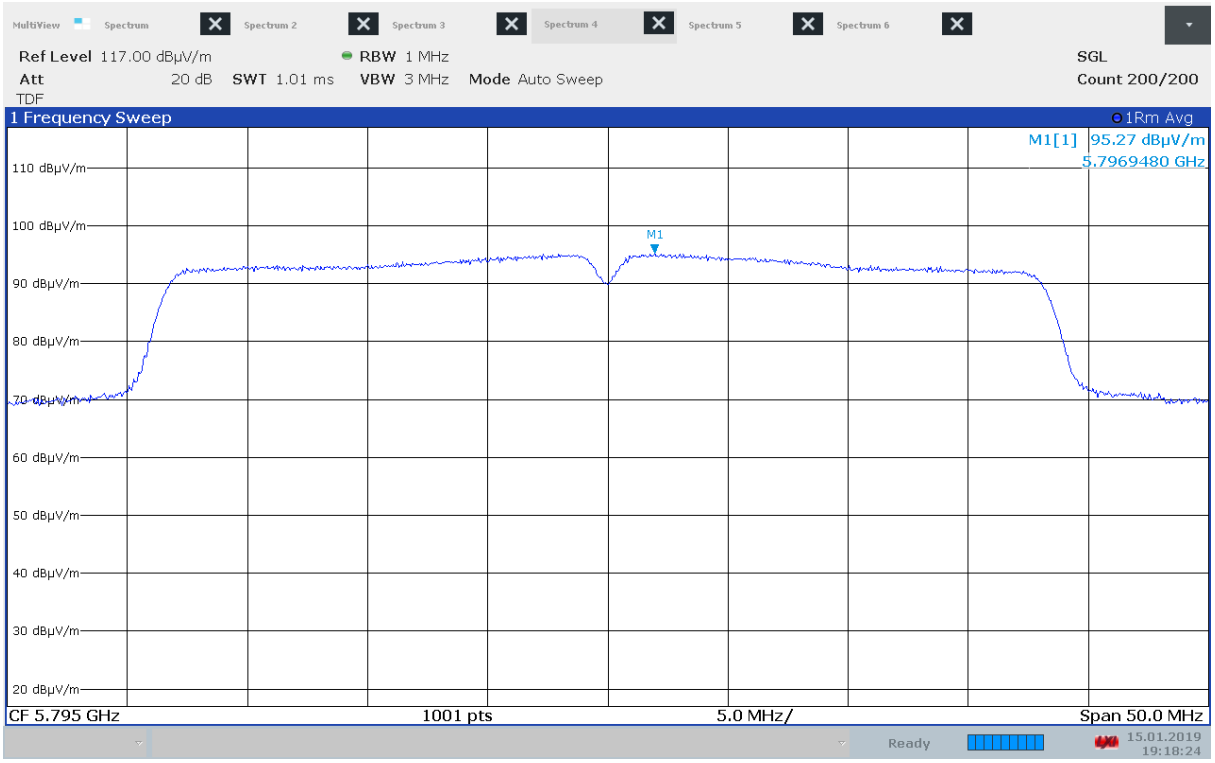
Power Spectral Density, 5510 MHz, 802.11n – HT40



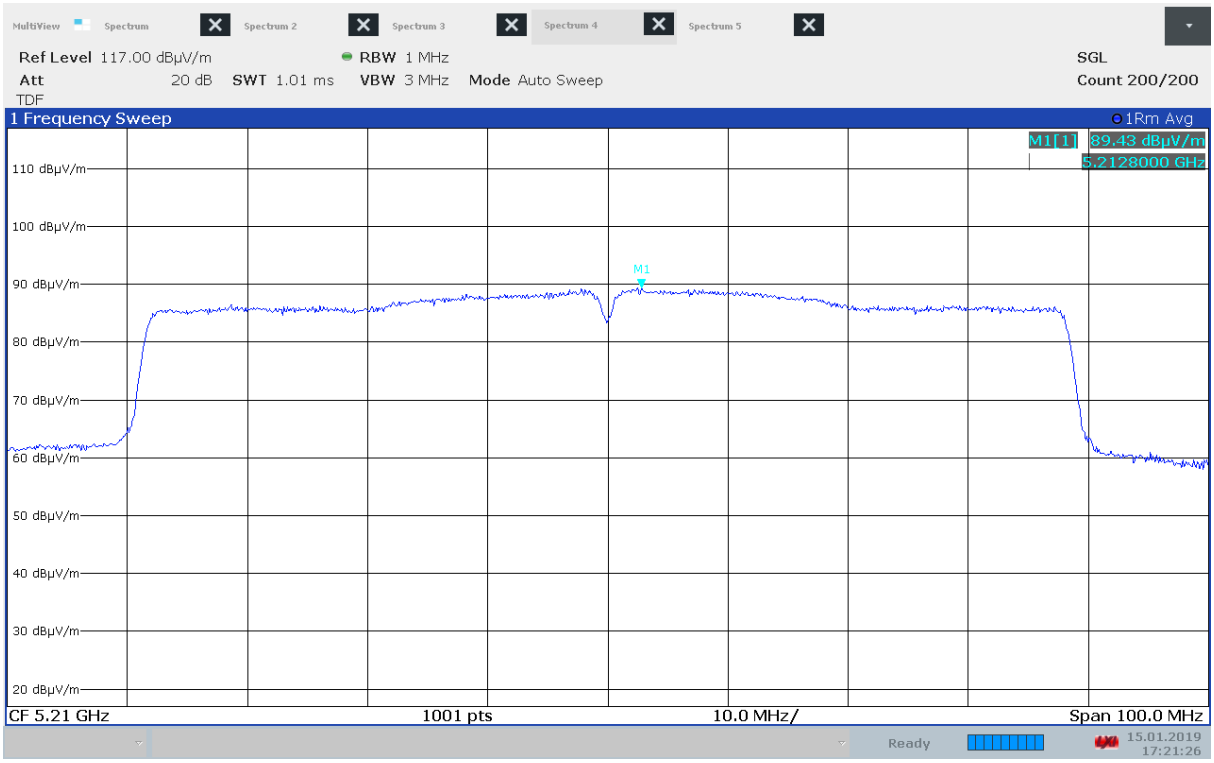
Power Spectral Density, 5670 MHz, 802.11n – HT40



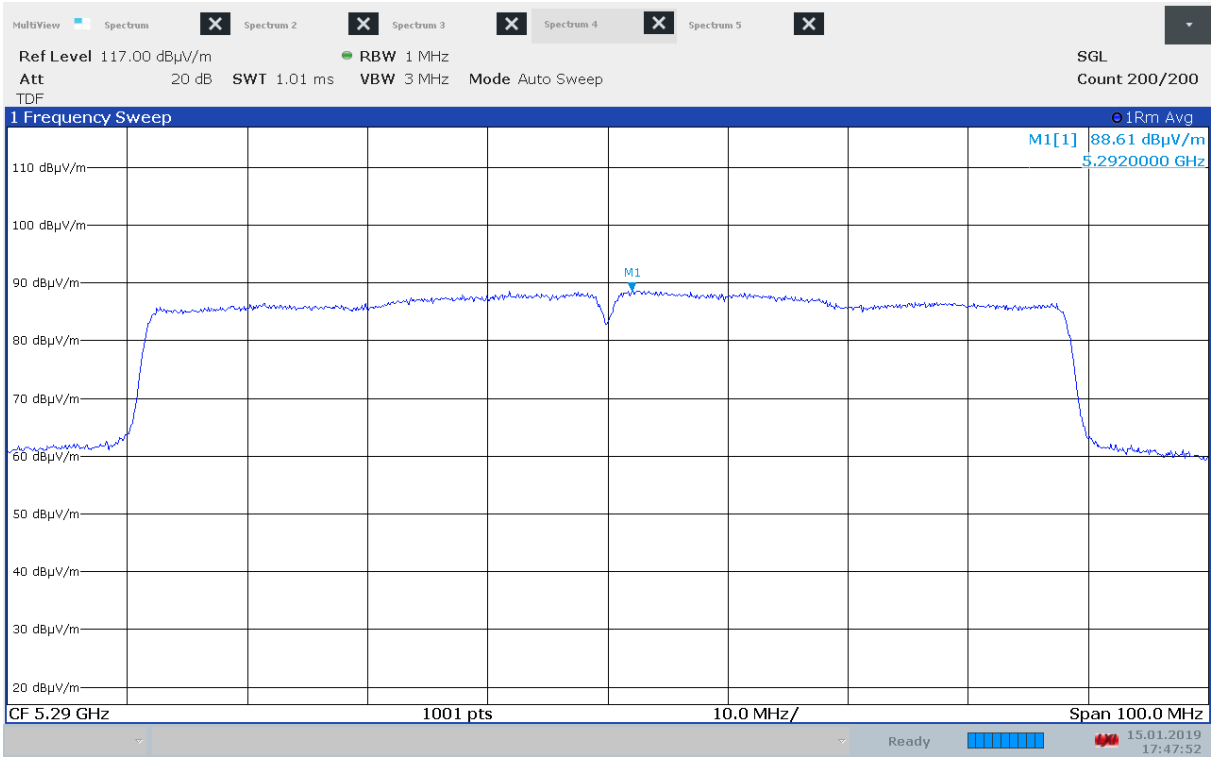
Power Spectral Density, 5755 MHz, 802.11n – HT40



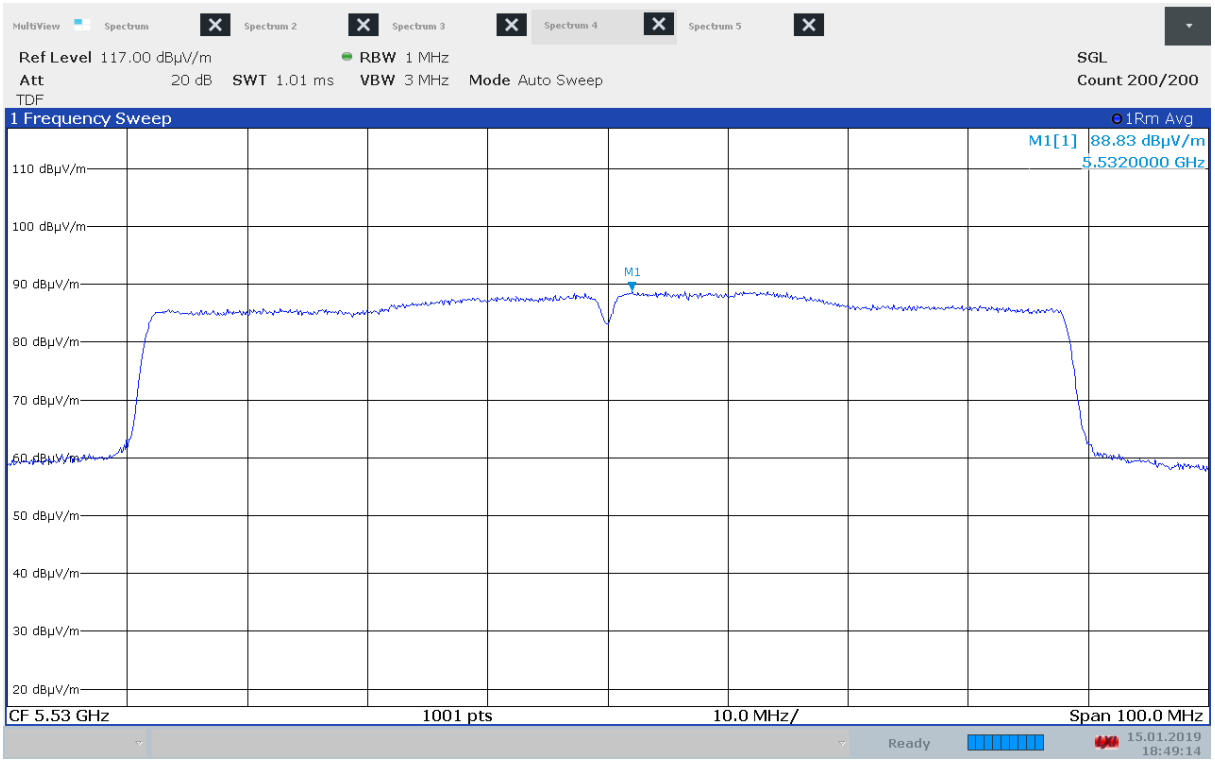
Power Spectral Density, 5795 MHz, 802.11n – HT40



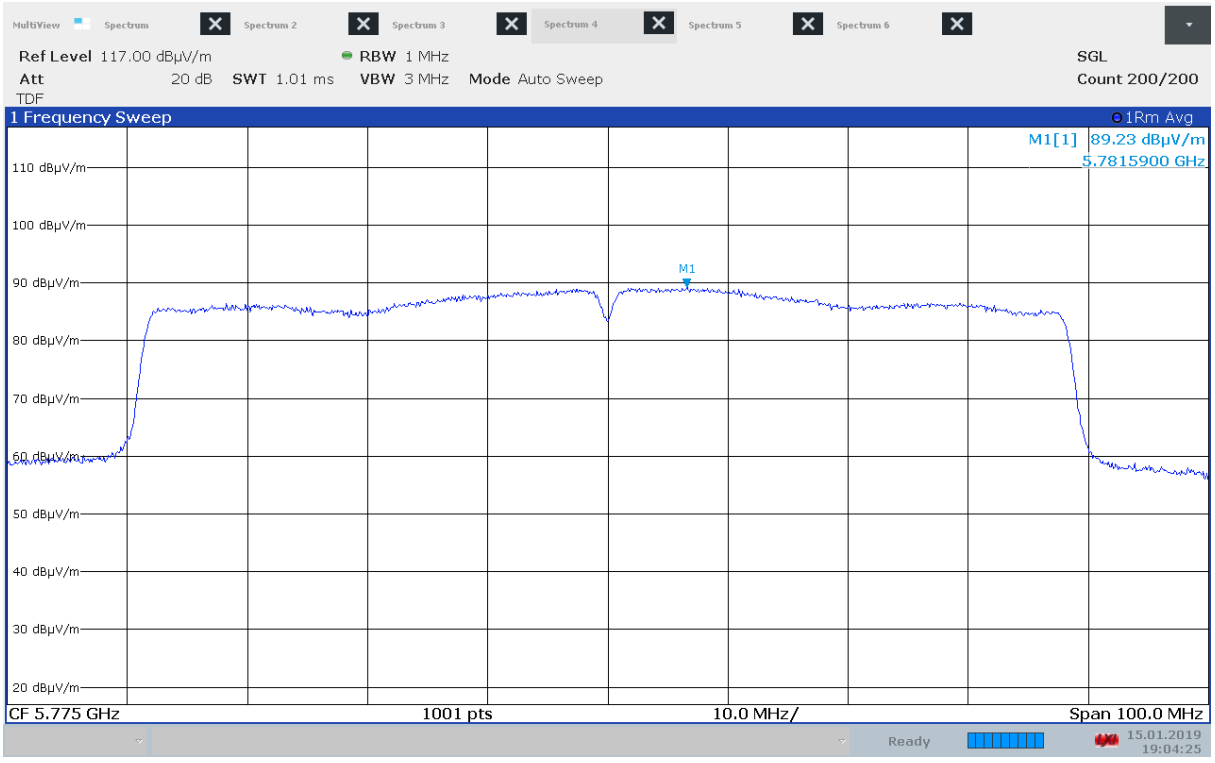
Power Spectral Density, 5210 MHz, 802.11n – HT80



Power Spectral Density, 5290 MHz, 802.11n – HT80



Power Spectral Density, 5530 MHz, 802.11n – HT80



Power Spectral Density, 5775 MHz, 802.11n – HT80